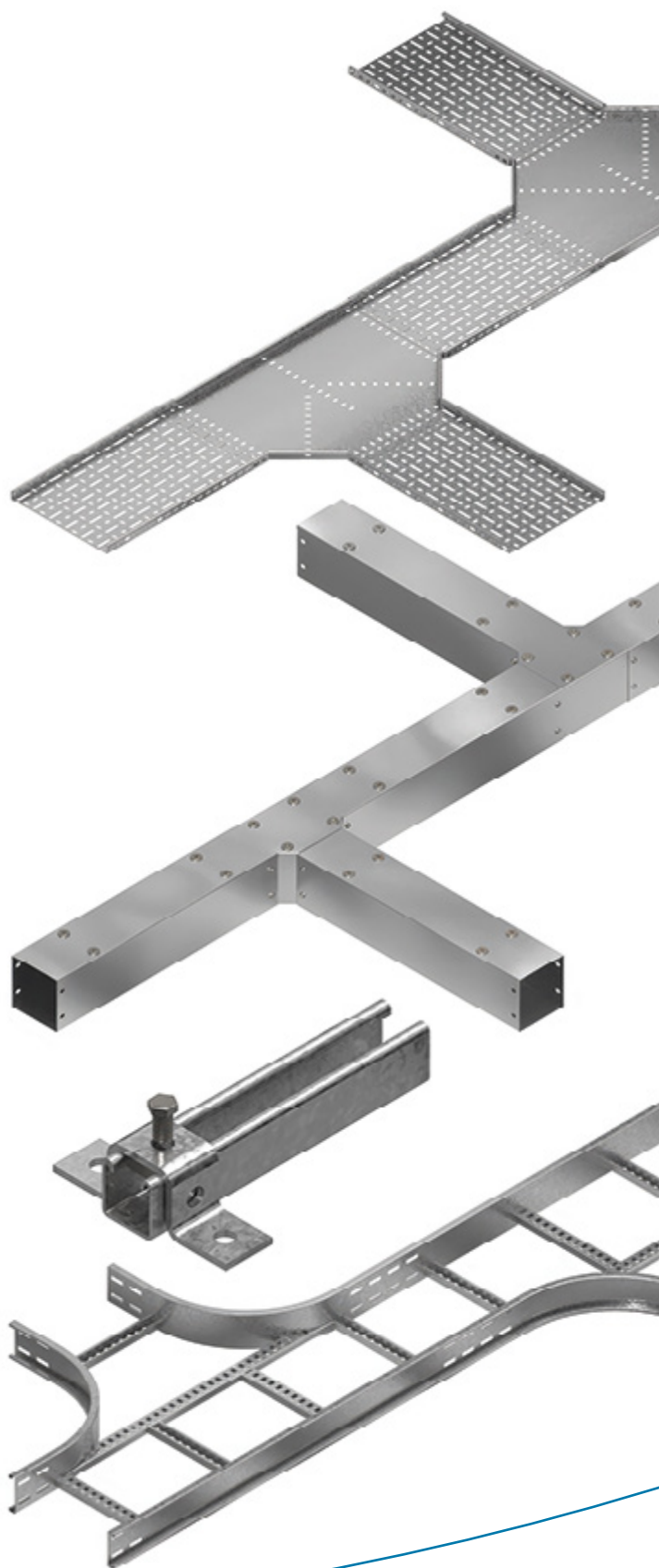


# CABLE MANAGEMENT

For the mechanical and electrical  
services industry



# TRUST



Verified by  
Independent EPD  
authority



BSI Kitemark  
for Cable Management

Design**SPEC3**

Metsec Design Software



BES 6001 Accredited



CCPI Assessed



ISO 14001 Accredited

# BIM

Models available on website  
and BIM store



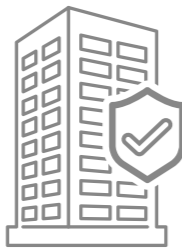
ISO 9001 Accredited



Fully registered supplier  
on Achilles UVDB



UKCA & CE  
Marked Products



Onsite Solutions



Public & Product  
Liability

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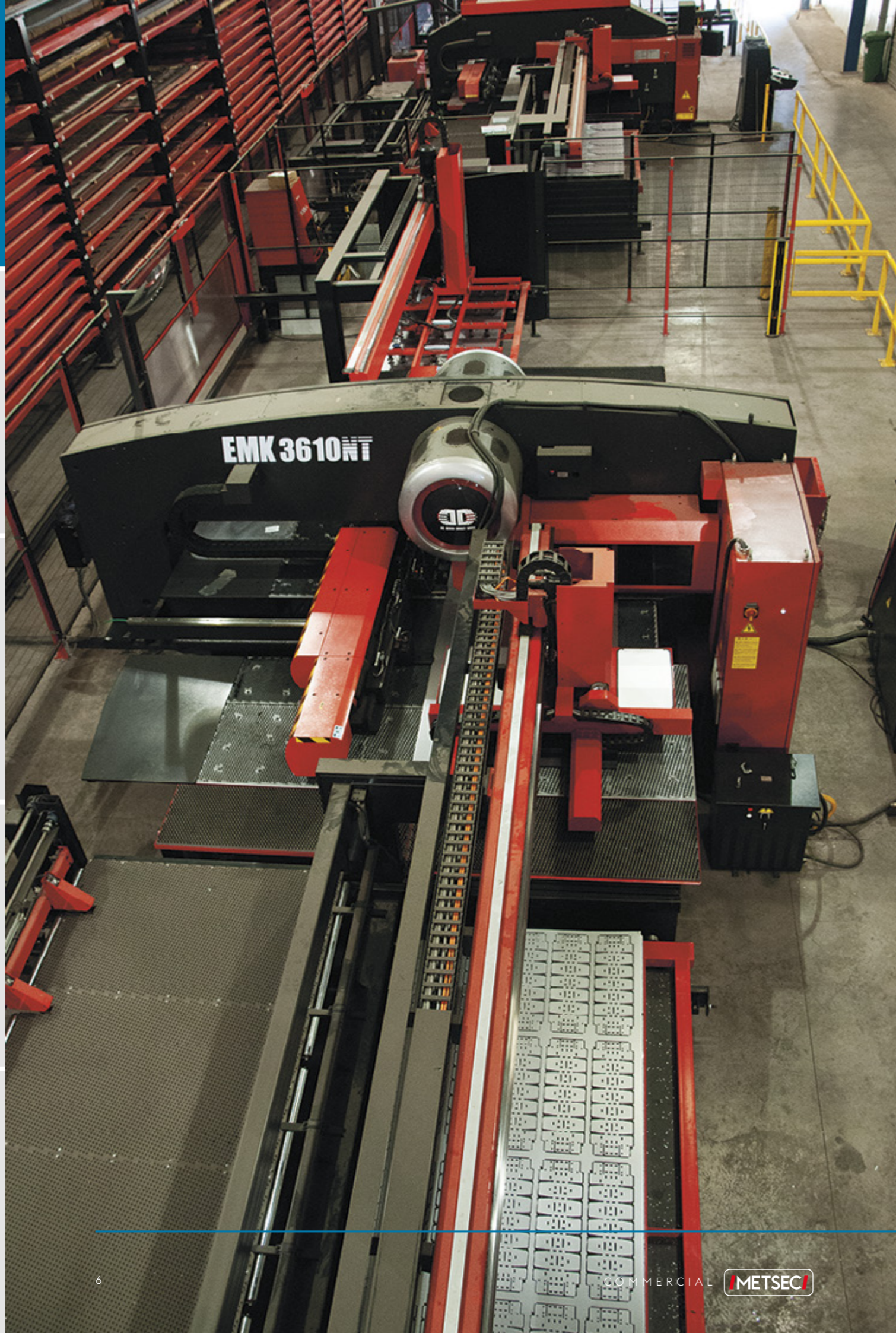
# INTRODUCTION TO voestalpine METSEC PLC

voestalpine Metsec is the UK's biggest construction specialist cold roll forming company and part of the largest globally leading steel and technology group.

voestalpine Metsec has been manufacturing from its site in Oldbury since 1931. In 1998 the company was acquired by voestalpine becoming voestalpine Metsec plc and the company went from strength to strength following inward investment in machinery and new facilities.

voestalpine Metsec is a subsidiary of voestalpine AG, a globally leading steel and technology group headquartered in Linz, Austria. Known for its unique combination of materials expertise and advanced

processing capabilities, voestalpine AG sets the standard in innovation and quality. voestalpine AG company is divided into four divisions, each with a product portfolio that makes them a leading provider in Europe or worldwide. As an environmentally friendly international Group, and an important ecological pioneer, voestalpine is committed to the global climate goals. Working intensively to develop technologies for decarbonisation, and to reduce CO2 emissions over the long term.



# ORGANISATION STRUCTURE

- **voestalpine AG**

A globally leading steel and technology group with headquarters in Austria.

- **voestalpine – METAL FORMING DIVISION**

voestalpine's center of competence for highly refined sections, tubes and precision strip steel products as well as for ready-to-install system components made of pressed, stamped and roll-formed parts.

- **voestalpine METSEC PLC**

UK's largest specialist cold roll forming company, providing products for the construction and manufacturing industries.



- **Custom Roll Forming**

## Our 5 Divisions include:

1. **Custom Roll Forming** – From design concept to precision-fabricated metal profile.
2. **Dry Lining** – Non-load bearing partitioning, wall lining and ceiling solutions.
3. **Purlins** – Structural performance for roofs, walls and mezzanine floors.
4. **Framing (Metframe & SFS)** – Light Gauge Steel Framing Systems (SFS) for internal and external structural construction.
5. **Cable Management** – Cable containment and support systems.

# INTRODUCING CABLE MANAGEMENT

voestalpine Metsec Cable Management specialises in the manufacture of cable containment and support systems for the mechanical and electrical services industry. Its product range includes cable ladders, cable trays, cable trunking and metal framing systems.

All are complete systems with straightforward accessories, providing flexible design solutions and fast installation options. Additionally, a prefabrication service is available for large contracts, offering significant time and cost savings for M&E contractors.

voestalpine Metsec focus on adding value through expert design, precision manufacturing and on time, in-full delivery. It's aim is to provide excellent service and quality products that deliver cost effective solutions to its customers.



# FEATURES AND BENEFITS

## voestalpine Metsec Cable Management features

- » Able to be designed to bespoke customer requirements.
- » All products are barcoded which allows for traceability throughout the manufacturing process.
- » Comprehensive stocks are carried at all times.
- » Fully registered as a supplier on the Achilles UVDB database for its products and services, achieving a 'Category A' rating for our Safety, Health, Environmental & Quality practices and procedures
- » Our design market leading DesignSPEC3 software allows engineers to substitute lighter gauge profiles to value engineer the design of the support systems into cost effective solutions.

### Key Benefits

#### Quality

- » All products have been accredited with the BSI Kitemark
- » UKCA marked
- » CE Marked

#### Sustainability

- » Fully recyclable
- » Low carbon footprint

#### Value

- » A range of accessories manufactured by voestalpine Metsec plc for all our systems
- » Pre-fabrication service is also available for major contracts
- » Systems are fully supported by independent testing
- » Cut to length service for Metal Framing systems.

# PRODUCT RANGE SUMMARY

## Manufacturing solutions

voestalpine Metsec plc manufactures a broad range of Cable Management products that includes cable tray, cable ladder, cable trunking, metal framing and rapid installation systems.

Centrally located within the West Midlands close to major motorway networks, voestalpine Metsec is able to offer a national service through major electrical and mechanical distributors.

With over 10,000 m<sup>2</sup> of manufacturing and warehouse space, and state of the art equipment, a strong emphasis is placed on service, and a high level of 'on-time in-full' delivery performance is maintained.

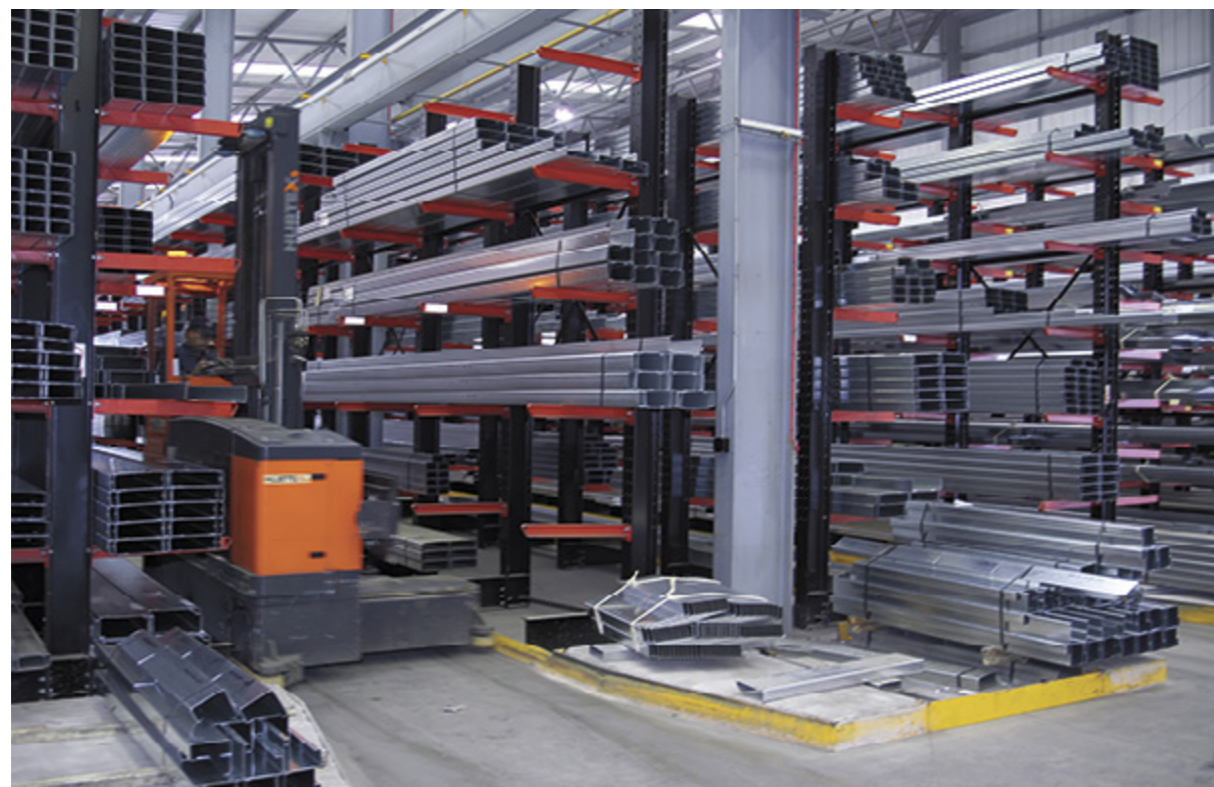
Comprehensive stocks are carried at all times and replenished through lean manufacturing principles.

With the ever-increasing demand from clients for value added products and services, voestalpine Metsec offers a comprehensive pre-fabrication facility that ranges from

cut lengths of channel to bolted or welded frames both in 2D and 3D configuration. Cable tray, ladder and trunking can be pre-installed if required. This allows the contractor to schedule their requirements to overcome space and labour restrictions on site. Waste is also greatly reduced and site safety enhanced.

Significant cost savings can be achieved by opting for prefabrication off site and skilled electricians are released to do what they are best at.

voestalpine Metsec also offers a full design service for its products and services to ensure the correct selection is made for the most cost effective solution. Where required, CAD drawings are produced to ensure a full understanding of the solution is achieved.



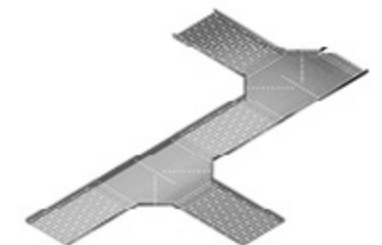
### CABLE LADDER SYSTEMS

voestalpine Metsec cable ladder systems are widely accepted due to their strength-to-weight ratio and simplicity of design. Easily installed and with a comprehensive range of accessories, voestalpine Metsec cable ladder systems can be found in applications throughout the UK, Ireland and mainland Europe.



### CABLE TRAY SYSTEMS

voestalpine Metsec cable tray systems have been designed after considerable consultation with end users and installers to arrive at a final design that satisfies all of their requirements. Each cable tray range features a unique slotting pattern in the base and the return flange ranges have slotted sides. Additionally, each tray range has the same footprint to aid setting out when final loadings are not yet available.



### CABLE TRUNKING SYSTEMS

voestalpine Metsec cable trunking systems are available as both standard distribution and lighting trunking. Manufactured on state-of-the-art computer-controlled equipment with a high level of automation, voestalpine Metsec cable trunking is economically designed to provide competitive solutions.
















### METAL FRAMING SYSTEMS

voestalpine Metsec offers the traditional channel system in a variety of profiles and gauges with a large range of fittings and fasteners. The fully tested system can be reliably used for a wide application base for the support of mechanical and electrical services.



# ACCREDITATIONS

|   |  |   |
|---|--|---|
|    | <b>UKCA Certificate</b><br>BS EN 1090 1:2009+A1:2011                     | UK Conformity Assessed marking is a mark that indicates conformity with the applicable requirements for products sold within Great Britain.   |
|    | <b>CE Marking Certificate</b><br>EN 1090-1:2009+A1:2011                  | CE marked products are a legal requirement for the Metframe market as of 1st July 2014  |
|    | <b>Kitemark Certificate</b><br>BS EN ISO 19650-2:2018 (BIM)              | An international standard for managing information over the whole life cycle of a built asset using building information modelling (BIM).   |
|    | <b>CCPI</b>  | CCPI ASSESSED for Metal Framing System for Mechanical and Electrical Services   |
|    | <b>Responsible Sourcing of Construction Products</b> BES 6001:Issue 3.1  | To ensure and then prove that our products have been made with constituent materials that have been responsibly sourced.  |
|    | <b>Energy Management System</b><br>ISO 50001:2018                        | This certification demonstrates our commitment to continual effort in establishing, implementing, maintaining and improving an energy management system.  |
|    | <b>Quality Management System</b><br>ISO 9001:2015                        | This standard demonstrates our ability to consistently provide products and services that meet customer and regulatory requirements.  |
|  | <b>Environmental Management System</b><br>ISO 14001:2015                 | This is the principal management system standard that specifies the requirements for the formulation and maintenance of an EMS. This helps to control your environmental aspects, reduce impacts and ensure legal compliance. |
|  | <b>Occupational Health &amp; Safety Management System</b> ISO 45001:2018 | An international standard for health and safety at work developed by national and international standards committees independent of government.   |
|  | <b>Integrated Management Registration</b> PAS 99:2012                    | Helps us achieve benefits by integrating the common requirements of all management system standards and specifications and managing these requirements effectively.   |
|  | <b>Information Security Management System</b> ISO/IEC 27001:2013         | An information security standard created by the ISO, which provides a framework and guidelines for establishing, implementing and managing an information security management system (ISMS).                                  |
|  | <b>FORS Silver</b>   | FORS Silver builds on Bronze by requiring advanced safety measures, emissions monitoring, and additional driver training for improved operational performance.  |
|  | <b>FORS Bronze</b>   | FORS Bronze ensures fleet operators meet basic legal, safety, and environmental standards, focusing on compliance and driver training.  |

# voestalpine METSEC FIRST TO ACHIEVE THE BSI KITEMARK™ FOR CABLE MANAGEMENT

voestalpine Metsec chose BSI to test its entire product range, which includes cable trays, cable ladders, metal framing and cable trunking, to help highlight its commitment to quality and to provide customers with a 100 per cent guarantee that voestalpine Metsec’s products are of the highest standard. BSI piloted the new Cable Management scheme with voestalpine Metsec, making it the first company to be certified to the BSI Kitemark™ for Cable Management to date. The rigorous and thorough testing process included dimensional, load, material conformity and electrical safety checks.

The certification further amplifies the company’s dedication to quality, with voestalpine Metsec’s cable ladder and cable tray systems already having obtained third party CE markings supported by its previous certification to BS EN 61537 Cable Management.

Whilst not a compulsory certification for Cable Management products, the BSI Kitemark provides a guarantee that a product or service meets the applicable and appropriate British, European and International standards for quality, safety, performance and trust. In order to obtain the certification, all products must be independently tested and verified by BSI.

Being the first to pilot such a rigorous industry certification is a huge step for us at voestalpine Metsec, and we’re proud that our Cable Management products are now carrying the BSI Kitemark. We always strive to ensure that our products are market leaders when it comes to quality, so this third party certification, along with the inclusion of the CE marking on all of our products is a real landmark for us and the industry as a whole.

**BSI said:**  
“By achieving the Kitemark, voestalpine Metsec is assuring customers that their products are independently and robustly audited on a regular basis and that products are manufactured to an excellent standard of quality and safety, every time. The Kitemark is one of the UK’s most trusted marks and will provide customers with peace of mind that they have insisted on the best products for their projects.”



# BES 6001

voestalpine Metsec is one of only a handful of Cable Management suppliers with BES 6001 accreditation. This makes its products an attractive proposition for M&E consultants, specialist contractors, main contractors and their end clients when it comes to responsible procurement.

BES 6001 covers the responsible sourcing of construction products and suppliers must provide evidence of a holistic approach to the mining of raw materials, right through their manufacturing and processing phases. Such an accreditation is an important benefit for end clients and main contractors, whose focus is on driving environmental, social and corporate responsibility at the same time as upholding best practice.

The BES 6001 accreditation that we carry provides a proof point that customers are buying a high quality, audited product. This in turn offers reassurance that our product quality supports the duty of care responsibilities, main contractors and end clients have for health and safety on their sites, along with the important environmental and ethical sourcing of raw materials.



# IPX4

Currently, British Standards for metal cable containment systems demand that all single insulated, non-sheathed cables be contained in an enclosure that meets either IP4X or IPXXD rating.

These ratings provide a specific degree of mechanical protection from the ingress of solid objects to prevent the disturbance of contained, unsheathed cables and potential short circuits. They also serve to protect installers and service engineers from electrical accidents through unintended ingress of wire.

The test for IPXXD allows for a probe to penetrate the trunking, and passes, as long as it has 100mm clearance from live parts.

voestalpine Metsec Cable Management makes IP4X rated trunking systems, which provides greater protection than IPXXD. This higher level of safety is attained by voestalpine Metsec through its range of off the shelf clips, which provide the most robust cable containment solution in line with the Wiring Regulations, without the need for bespoke systems.

The rating for IP4X is tested by the requirement to prevent the entry of objects greater than 1.0 mm, by using a 1.0 mm probe.

If the probe enters a part of the enclosure that contains electrical components, connections or circuits, then it fails the IP assessment for ingress of solid foreign objects. If the probe cannot enter the device under test, then it meets the requirements for IP4X.

The test for IP4X is therefore more stringent than it is for IPXXD, as it prevents any ingress at all, due to the presence of the clips.

The clips are compatible with voestalpine Metsec's standard trunking system and therefore ensure that a compliant solution to the ingress protection level of IP4X can be delivered at a standard lead time, reassuring M&E contractors that the specified trunking system arrives along with the rest of their order and saving wholesalers the hassle of rearranging stockholdings.

Importantly, the clips can be used to retrofit existing voestalpine Metsec trunking solutions as, for all straight lengths, they are simply fitted over the joint between two lids without the need for tailored accessories or bespoke trunking parts.

By meeting the IP4X standard, specifiers can give installers and those servicing the installation the confidence that the system meets the legal requirements of the Wiring Regulations in the most robust way.

**In summary a voestalpine Metsec Cable Management IP4X trunking systems offers:**

- » A fully compliant system with greater level of ingress protection than IPXXD
- » Off the shelf solution to IP4X without the need for a bespoke system
- » The ability to retrofit to existing Metsec trunking installations
- » A Kitemarked system manufactured to the highest quality.

# SUSTAINABILITY

**voestalpine Metsec are fully committed to protecting the environment and we are continually looking for new ways to improve our environmental performance.**

voestalpine Metsec is committed to undertaking its activities in an efficient and financially sustainable manner in-line with environment best practice and meeting the requirements of ISO 14001:2015. This will be achieved by complying with applicable laws and regulations and by reducing environmental impacts from our operations. Environmental management through process improvements, good manufacturing, pollution control practices and employee education is a primary management objective, as well as a responsibility of every voestalpine Metsec employee. voestalpine Metsec's aim is to provide its customers with products with the best added value but with the lowest environmental impact in terms of production, use and disposal.

## CO<sub>2</sub>UNTDOWN TO ZERO

voestalpine Metsec is part of the voestalpine Group and they are working to meet a challenge: the goal of zero carbon emissions in the Metal Forming Division by 2035. Already today, numerous projects to save energy, optimise processes, source green electricity, or even to generate our own renewable energy are underway at our locations around the world, together with efforts to motivate our suppliers to implement their own climate protection measures.

## ISO 50001:2018

ISO 50001:2018 helps organisations improve its energy performance and reducing its environmental impact. The ISO 50001:2018 standard for energy management systems can help safeguard our future by making a positive difference in the here and now.

Achieving ISO 50001:2018 certification within Energy Management Standards portrays voestalpine Metsec's commitment to energy efficiency throughout the business, working towards a beneficial, secure long term energy supply and heightening employee awareness.

## EPDs

An Environmental Product Declaration (EPD) is required on major developments in London. Architects, developers, building services engineers or sustainability engineers will require an EPD to ensure the energy strategy for any major projects in London, meets planning requirements at design stage.

voestalpine Metsec's publication of the EPD underlines the company's commitment to sustainability and follows swiftly on the heels of its parent company, voestalpine AG, announcing a major initiative to achieve net zero carbon emissions in its Metal Forming Division by 2035, some fifteen years ahead of the targets set by the Intergovernmental Panel on Climate Change.

Assurance of a system's environmental credentials comes from a manufacturer's Environmental Product Declaration (EPD). Compiled in accordance with BS EN 15804:2012+A2:2019 and ISO 14025:2010/ ISO 21930:2017, the EPD covers all aspects of the products' environmental credentials, from manufacture and transport to end of life. The EPD includes a life-cycle assessment and environmental impact data comprising core environmental impact indicators, use of natural resources and end of life information.

Verified by independent EPD authority, EPD Hub, the declaration provides designers, specifiers and developers with comprehensive information to include in a project's sustainability assessment.

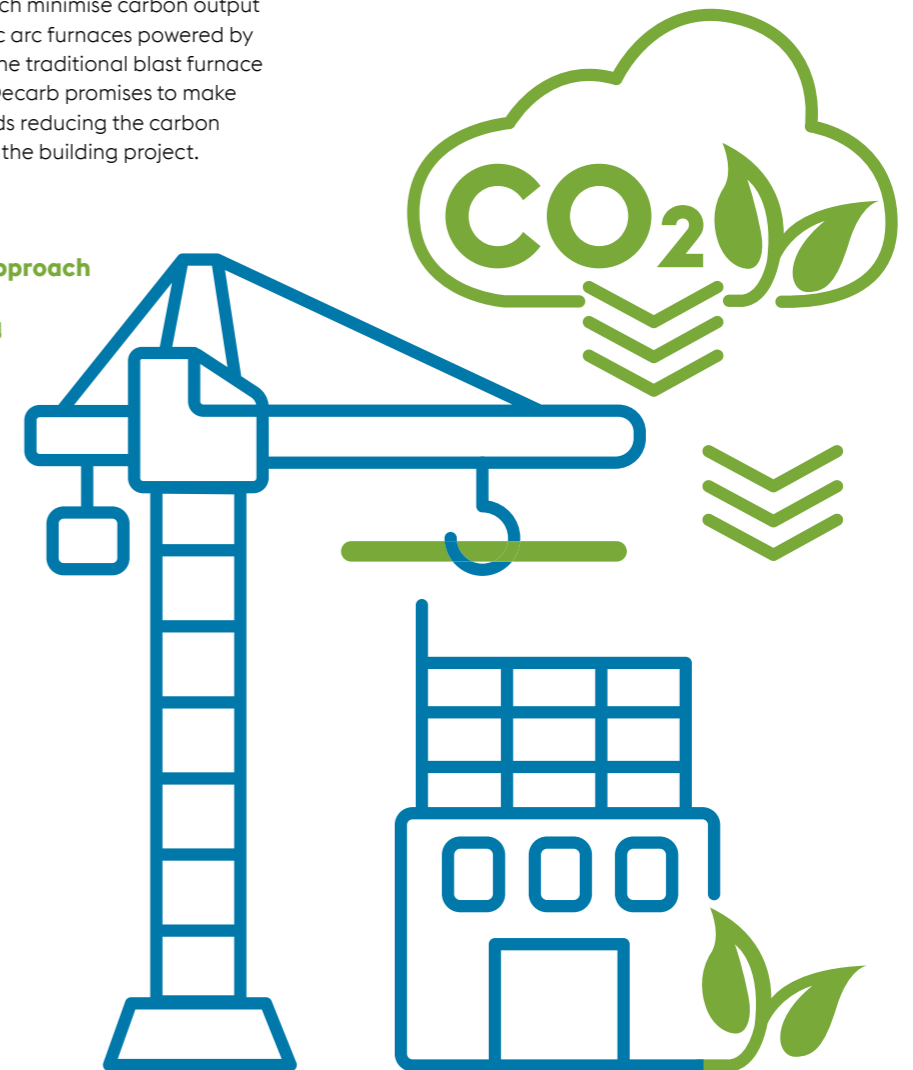
# WHAT IS METSEC DECARB?

Metsec Decarb is a range of products utilising the very latest steel making technology designed to reduce the CO<sub>2</sub> and carbon footprint of your next project.

voestalpine Metsec's commitment to sustainable construction is emphasised by the introduction of responsibly sourced steel to our product ranges. Manufactured by processes which minimise carbon output by using state-of-the-art electric arc furnaces powered by renewable energy, rather than the traditional blast furnace which burn fossil fuels, Metsec Decarb promises to make a significant contribution towards reducing the carbon dioxide and carbon footprint of the building project.

- » **No to Greenwashing**
- » **No to a Mass Balance Approach**
- » **No to Carbon Offsetting**

For more information please  
scan the QR code



# CCPI ASSESSED

**voestalpine Metsec Cable Management has become the first in its field to successfully achieve assessment to the Code of Construction Product Information (CCPI) for its Metal Framing systems.**

The assessment is part of a commitment throughout voestalpine Metsec operating divisions to ensure that specifiers, engineers and installers are provided with clear, unambiguous product information.

CCPI was introduced by the Construction Products Association in response to Dame Judith Hackitt's review of Building Regulations and Fire Safety, set up following the Grenfell Tower tragedy. It has been established to help organisations drive for higher standards in the presentation of construction product information, with a priority on building safety.

CCPI assessments are undertaken by assessors from Construction Products Information Ltd. and are carried out on a company's specific products and systems, not the company as a whole. As such, an organisation or brand cannot itself gain assessment or make any claims of compliance beyond a specific product set.

Cable Management's successful assessment follows a concerted drive across voestalpine Metsec, which has included the introduction of new systems and resources aimed at providing specifiers and installers with total confidence in the capabilities of the company's systems and their suitability for client projects.



At the heart of this lies a policy of continuous investment in independent performance testing and quality assurance which keeps voestalpine Metsec's products at the forefront of the construction and engineering industries.

**Jon Hillier, Director & General Manager for voestalpine Metsec Cable Management, states,**

"As an industry-leading supplier of cable management systems we are committed to ensuring that all product information is presented in a clear fashion and available in accessible formats to ensure that specifiers, installers and users derive the maximum benefits that Cable Management can deliver."

"Successful assessment to CCPI underlines this commitment and will provide our customers with added confidence when specifying and using Cable Management systems."

# BIM DESIGN

voestalpine Metsec plc is the first tier two organisation globally to be awarded the BSI Kitemark for its BIM capabilities and tier 2 designer and manufacturer complying with BIM Level 2 for Design and Construction in the UK accredited by the BSI. We aim to provide our customers with confidence in our ability to work collaboratively with others in the supply chain enhancing customer satisfaction and providing the following benefits:

- » Faster and efficient processes
- » Increased productivity
- » Reduced uncertainty – right first time philosophy
- » Controlled whole-life costs and environmental data
- » Avoidance and elimination of rework costs
- » Improved safety by working collaboratively within the supply chain
- » Comply with Government requirements for centrally funded projects
- » Reduction of waste
- » Collaborative working

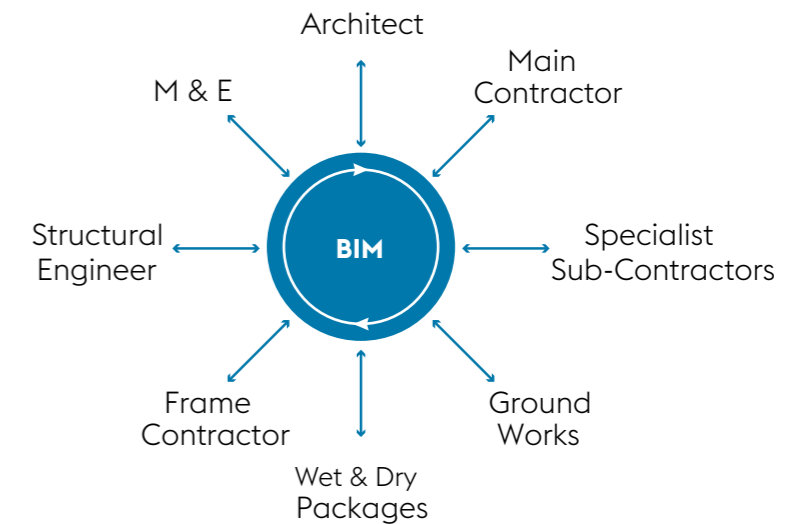
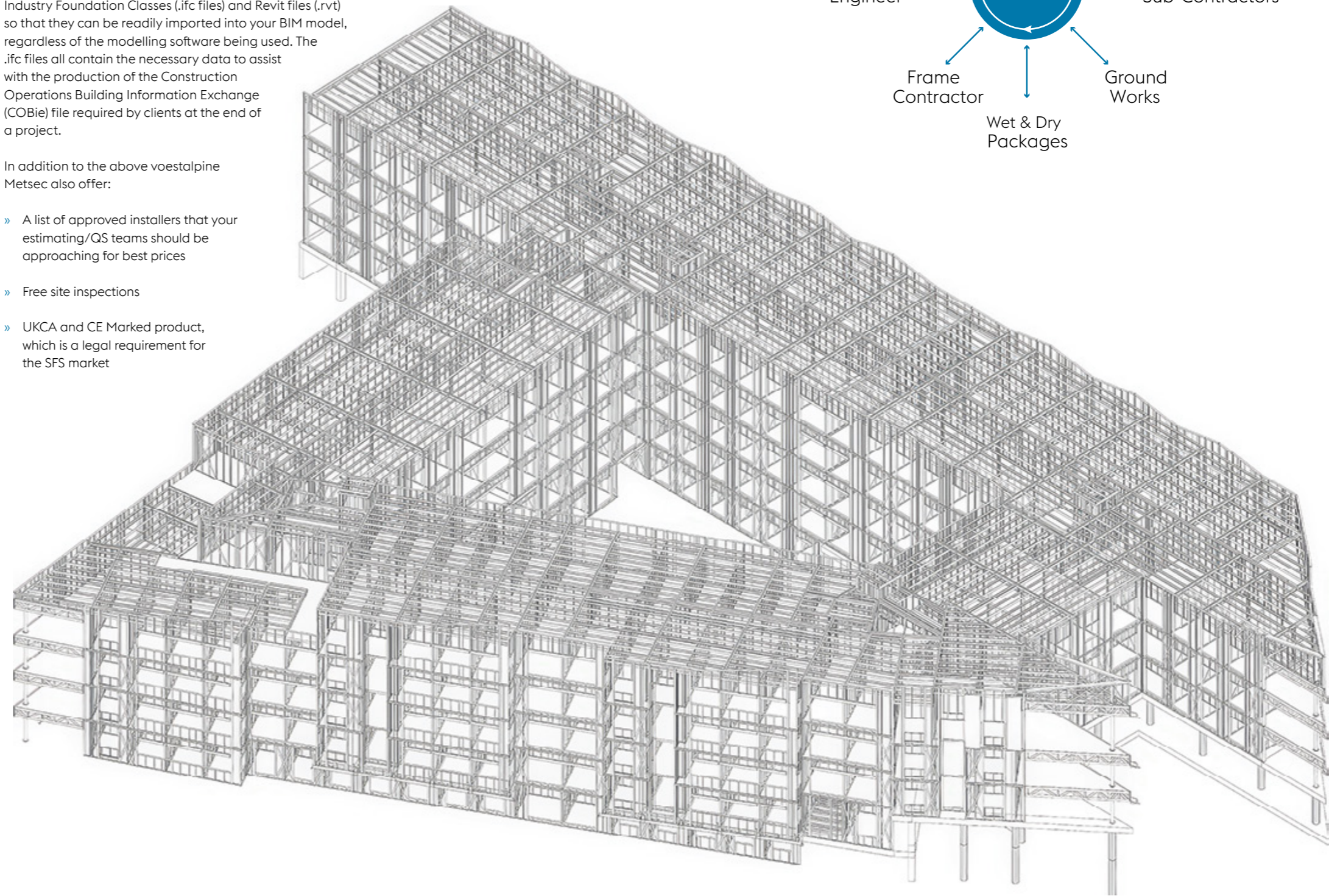


We have the resources to fully detail the cold rolled steel elements of your project in either 2D or 3D environments using Revit allowing the voestalpine Metsec SFS to be detailed within a design team's model.

Alternatively, voestalpine Metsec Framing sections can now be downloaded from the voestalpine Metsec website for direct incorporation into your project BIM file. The individual 3D sections are available for download as Industry Foundation Classes (.ifc files) and Revit files (.rvt) so that they can be readily imported into your BIM model, regardless of the modelling software being used. The .ifc files all contain the necessary data to assist with the production of the Construction Operations Building Information Exchange (COBie) file required by clients at the end of a project.

In addition to the above voestalpine Metsec also offer:

- » A list of approved installers that your estimating/QS teams should be approaching for best prices
- » Free site inspections
- » UKCA and CE Marked product, which is a legal requirement for the SFS market





# ON & OFFSITE SOLUTIONS – DESIGN & COLLABORATION

voestalpine Metsec plc manufacture premier Cable Management products to the highest quality, meeting the latest British and European standards. However, we also understand the need to provide technical and design support throughout the project programme from early tendering, through procurement and finally installation.

voestalpine Metsec have a dedicated team of technical engineers that can visit sites and collaborate with the project engineers with regards to the design and installation of the Cable Management products. Often bespoke products are designed and manufactured to overcome installation issues on site, whilst maintaining the integrity of the system, meeting the specification and the relevant standards.

As voestalpine Metsec have the capability to manufacture all of its products from its West Midlands, UK facility, we can turnaround bespoke solutions to meet the installers requirements on short lead times. Products can also be manufactured ahead of the site programme at our manufacturing facility, thus reducing the risk of delays on site.

voestalpine Metsec Cable Management sales team and technical engineers can work with the estimators, buyers and project teams to identify savings with regards to cost and installation times. Our market leading DesignSPEC3 software allows engineers to substitute lighter gauge profiles to value engineer the design of the support systems into cost effective solutions.

voestalpine Metsec's site solutions will help eliminate hot work permits on site, provide products to the highest quality, reduce site programmes, reduce risk on site, reduce costs, all whilst complying with the specification and the latest British and European standards.

# PROJECT: MILTON KEYNES UNIVERSITY HOSPITAL

## Prestige project proves IP4X and on-site solutions

A new radiotherapy centre at Milton Keynes University Hospital (MKUH) created the ideal opportunity for voestalpine Metsec's Cable Management Division to introduce its IP4X system and prove the value of the company's on-site solutions in a live project.

The new centre, is located adjacent to the hospital's cancer centre and completes the cancer services offering available at MKUH, improving access to healthcare for Milton Keynes residents who would previously have needed to make long journeys to neighbouring facilities to receive their treatments. Leading engineering services company, TClarke was appointed contractor for the £4 million M&E services aspect of the project, working to an initial scheme design supplied by BDP Consultants to Stage 4b and final design coordination and installation furthered by TClarke's design team. The new MKUH facilities accommodate two Linac radiotherapy machines and a CT x-ray machine, together with a variety of consultation rooms, reception areas and staff support amenities.

The electrical services specification called for metal trunking and conduit as 6491B single core stranded copper conductor cable was being used. However, as each room/area required both an A and B path supply, TClarke opted for a 2-compartment trunking solution using voestalpine Metsec's updated, clipless IP4X fittings system together with hot-dipped galvanised ladders and pre-galvanised trays.

### Full range of products readily available

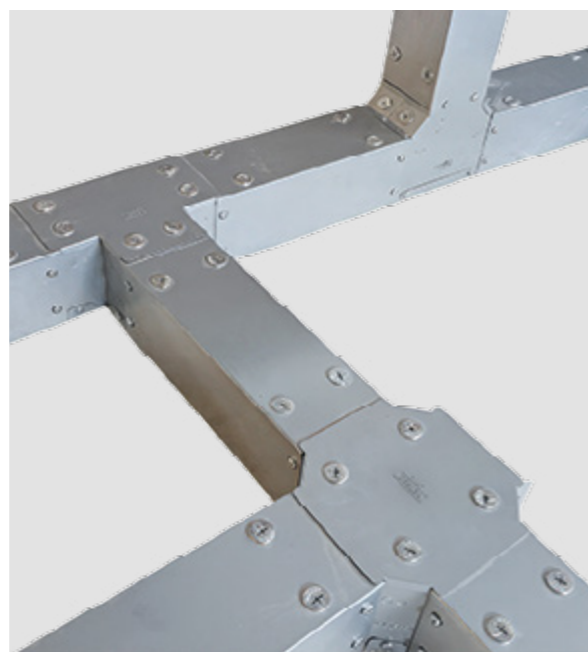
The project posed a number of challenges for the M&E team: The unit was operational during certain times, there was a tight completion deadline and trunking needed to be taken through some 65 wall voids.

#### TClarke's Site Engineer, Darren Stygall comments,

"This new build was completed to a very tight programme and was very much a 'live' project, with requirements changing and designs amended as the installation progressed.

"This necessitated additional orders for trunking throughout the programme as well as changes in specifications. It was essential for us to have a full range of products readily available so that we could meet installation schedules but just as important was voestalpine Metsec's ability to supply products to our precise requirements.

"Thanks to their on-site solutions, we were able to order the exact lengths of trunking required to bridge wall voids without needing to make any alterations on site. This saved us a great deal of time and hassle and ensured that the programme ran smoothly."



# PROJECT: 5 BROADGATE

## voestalpine Metsec steps up with Cable Management for prestigious London office development

### Challenge

- » Sustainability
- » Non standard products required for the project

### Solution

- » voestalpine Metsec plc BES 6001 accreditation means the products are responsibly sourced, high quality and audited. This helped the project achieve BREEAM Excellent rating
- » Our engineers were able to design bespoke products and solution in collaboration with the site engineers to meet the needs of the project. These bespoke products and solutions were then manufactured effectively and efficiently to meet the site programme

Cold roll-formed steel specialist, voestalpine Metsec plc, has supported the construction of newly developed office space, 5 Broadgate in London through providing crucial Cable Management solutions.

The development opened in 2016 as office space for a global financial services company. Located in the heart of central London within close proximity of Liverpool Street Station, 5 Broadgate will boast 12-storeys of office space within its striking architectural design. voestalpine Metsec were required to provide made to order cable containment, which were not simply stock designs to Marcoe Electrical, the electrical contractor.

While robust Cable Management is crucial within all modern office space, this was further amplified at 5 Broadgate due to a need for strong performing ventilation to prevent overheating equipment within the office. Having been involved at the beginning of planning stages through the provision of technical submissions, voestalpine Metsec had the project knowledge and industry expertise to seamlessly step in and provide assurances to Marcoe Electrical, the electrical contractor on the project. 5 Broadgate has achieved a BREEAM Excellent rating, meaning that sustainability is also a must within the project, and voestalpine Metsec's BES 6001 accreditation, covering responsible sourcing of products, ensures that this is achievable.

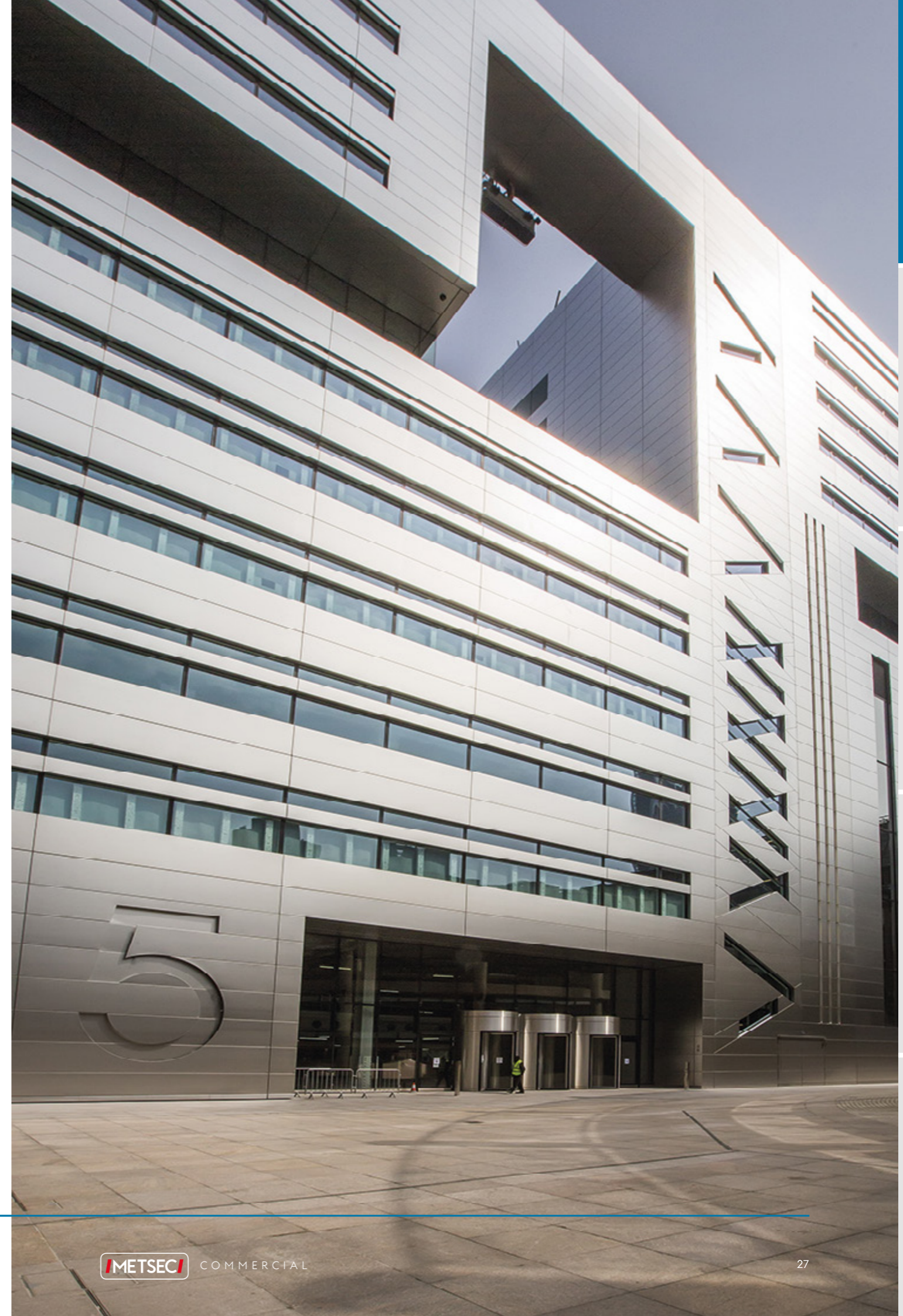
### Jon Hillier, General Manager of voestalpine Metsec's Cable Management division, commented:

"voestalpine Metsec is one of only a handful of Cable Management suppliers with BES 6001 accreditation. Suppliers must provide evidence of a holistic approach from the mining of raw materials, right through to their manufacturing and processing phases. This is particularly important for clients and contractors driving environmental, social and corporate responsibility, while upholding best practice. Accreditation provides proof that customers are buying a high quality, audited product. It also gives reassurance that product quality supports the duty of care responsibilities main contractors and end clients have for health and safety on their sites."

### Mark Crilley, Director at Marcoe Electrical, commented:

"We were very impressed with the way voestalpine Metsec provided made to order, non-stock parts for the project. Their cable ladders and trays are very diverse and come in a wide range of sizes and load capacities, which allowed us a great level of flexibility when utilising the products. We have now specified voestalpine Metsec products for our next Mace MEP Services Ltd project, Land Securities' major mixed use development Nova, Victoria that incorporates both commercial offices and residential apartments next to London Victoria Train Station."

voestalpine Metsec's cable ladders and trays come in a wide range of sizes and load capacities, giving maximum flexibility to designers. They are also quick and easy to install, with simple connections between sections. The cable trunking is equally simple to install. Designed as complete systems, sections have integral connectors for all fittings as well as fixing bolts.



# PROJECT: QUEENSFERRY CROSSING

## Collaborative approach delivers UK's most connected bridge

### Challenge

- » Extreme temperatures, thermal movement of the bridge
- » Non-standard lengths of containment were required to meet the requirement of the prefabricated modules and reduce installation time
- » Tight site programme

### Solution

- » Thermal extension couplers were designed into the project with the support of the voestalpine Metsec team
- » voestalpine Metsec plc re-programmed the mills to manufacture specified lengths of containment to meet tight timescales. Cable ladders were manufactured in 6.9 metre lengths and cable trays were manufactured in 3.5 metre lengths. This minimised waste and the amount of couplers required, reduced installation time and ensured an easy fit
- » We were able to meet the just in time capabilities needed to support the tight pre fabrication schedule

### A landmark crossing

The landmark Queensferry Crossing Bridge in Scotland promises to be one of the most efficient, high performance bridges ever built. Designed to incorporate a complex array of utilities and communications equipment, a partnership between Cable Management specialist voestalpine Metsec plc, leading M&E fixings supplier in Scotland MEF and lead M&E contractor SES Engineering Services, part of Wates, has been critical in ensuring the delivery of the systems that will support the 2.7km road bridge and ensure its safe and efficient running for decades to come.

Opened 4th September 2017, the Queensferry Crossing forms the centrepiece of a major upgrade to the cross-Forth transport corridor in the east of Scotland. It will be the longest three-tower, cable-stayed bridge in the world and represents an investment of more than £1.3bn.

### A major logistical project

The 250-tonne steel bridge sections arrived in Rosyth docks from China, where they were then prefabricated to incorporate all of the services and road surfaces. The Cable Management systems supplied by voestalpine Metsec are prefabricated into 424 modules by SES and then installed into each of the 110 finished 750-tonne road section decks before they are taken out by barge onto the River Forth and then lifted by crane to connect to the span between the bridge towers.

All of the Cable Management products used had to be pre-approved by the bridge authority, Forth Crossing Bridge Constructors. Due to the extreme temperatures thermal extension couplers for Cable Management were designed into the project with the support of the voestalpine Metsec team to help compensate for the movement of the bridge due to temperature fluctuations, wind and traffic.

### A collaborative approach

**Gordon Cullen, project manager at SES explains:**

"While we have a lot of experience in major infrastructure developments, the Queensferry Crossing is a once-in-a-lifetime project that demanded a highly collaborative approach to ensure we could meet and match the exact requirements to deliver all of the component parts of the bridge on time and in budget.

"MEF are part of the SES approved supply chain and they selected voestalpine Metsec not only because they were the best from a commercial and quality point of view, but because they were able to supply the Cable Management systems we needed in special sizes, vitally important in terms of minimising waste and ensuring ease of fit. Particularly important was their willingness to adapt the units to minimise the number of joints required. Everything was spot on in terms of enabling the teams to fabricate and install each unit on schedule."

voestalpine Metsec plc supplied hot dip galvanised cable tray and cable ladders cut to special size lengths, the trays to 3.5m and the ladders to 6.9m. The finished modules assembled by SES will hold a complex array of water management and cabling needs from lighting and power to traffic management systems, security, fire alarms, radio communications, structural health monitoring and building monitoring, all designed to give optimal control over the management and performance of the bridge.

**Cullen continues:** "It's a highly complex installation that effectively acts as the 'brains' of the bridge, controlling everything from the timing of the lights to maintenance planning with a focus on optimising efficiency and communications not just on the bridge itself but on how it communicates with the traffic management systems that feed into it."

### Reliability and quality

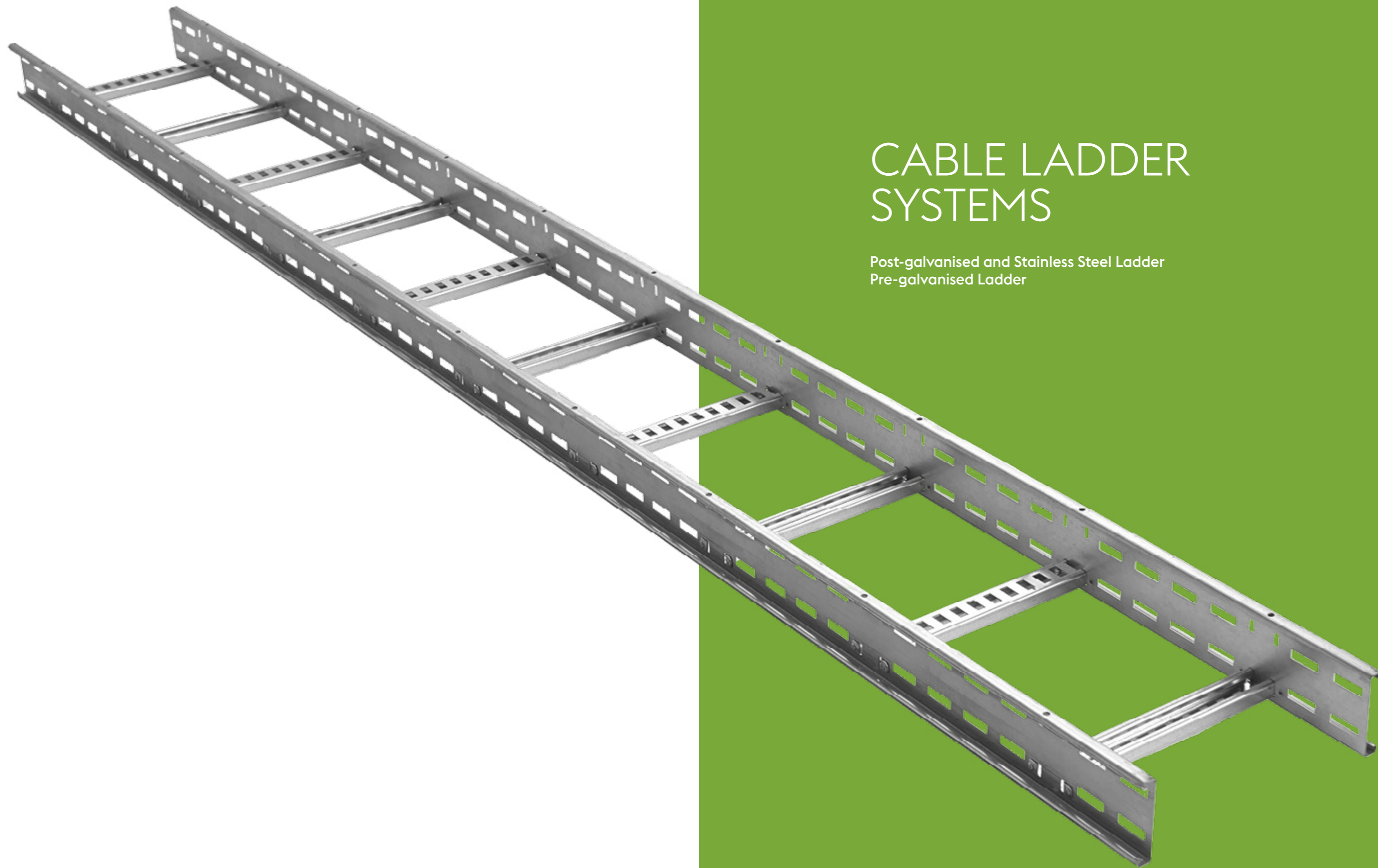
**Alistair Fairweather, at MEF adds:** "This is a fantastic project to work on and much of our involvement has been down to the support we have had from voestalpine Metsec. We have worked with them for six or seven years and we knew that their involvement would be vital to us winning this contract. The sizes needed were not standard, but their UK-based manufacturing capabilities gave us the option to offer a flexible, high quality solution to SES that we knew voestalpine Metsec could fulfil and deliver on time and in budget. In fact, flexibility was critical not just in securing the project but in meeting evolving requirements as the project has progressed over the past 12 to 18 months.



"We put a lot of faith in partnering with voestalpine Metsec for what was one of the biggest projects we have ever worked on and it has really paid off. The reliability and the quality of service from the voestalpine Metsec team has been as important as the quality of the product. The 55 micron hot dipped galvanised steel tray and ladder systems used will need to endure exposure to the elements for up to two years before being completely sealed in under the bridge, and the high quality of the product will contribute to the keeping the whole life costs of the project down."

**Jon Hillier, General Manager at voestalpine Metsec plc**

**Cable Management division added:** "The Queensferry Crossing project was something we were keen to be involved in from the start. We knew we had the capability to re-programme our mill to allow us to manufacture the specified lengths of ladder and tray in away that would fit perfectly into the required modules. Working with MEF meant that we were also able to offer the just-in time capabilities needed to support the tight pre-fabrication scheduling for each deck for the bridge. We're thrilled to see the bridge completed, knowing that our products are effectively supporting the complex systems, that will drive the functionality of a bridge that is not only destined to be an infrastructure showpiece, but will help drive transport connectivity in the region for years to come."



# CABLE LADDER SYSTEMS

Post-galvanised and Stainless Steel Ladder  
Pre-galvanised Ladder

# CABLE LADDER SYSTEMS

voestalpine Metsec cable ladder systems have been developed to provide cost effective solutions for the support of cables in a wide range of market sectors.

These sectors include:

- » Commercial
- » Education
- » Health
- » Oil and Gas
- » Petrochemical
- » Power Generation
- » Retail
- » Telecoms
- » Tunnels

The comprehensive voestalpine Metsec cable ladder range consists of four systems commencing with the 50mm deep light duty, up to the 150mm deep extra heavy duty, all with a wide offering of accessories.

Slotted side rails whilst allowing easy connection to each other also allows site cut ladders to be connected generally without the need to drill. Additionally, voestalpine Metsec cable ladders have an excellent strength to weight ratio providing a versatile approach to the support of cables.

For projects requiring long, straight runs of cable ladder, voestalpine Metsec manufactures to order 6m lengths of straight ladder that speeds up the installation process and reduces the number of splice plates required for an even more cost effective solution. This would be particularly applicable to tunnel projects and large power stations or petrochemical installations.

voestalpine Metsec is a leading manufacturer of cable ladder for not only the UK market, but also manufactures for export. European widths of cable ladder are available in increments of 100mm up to 900mm wide.

Rung configurations are traditionally with open faces alternately positioned up and down at 300mm centres. Cable ladders with rungs facing all down or all up are also available to order.

Offering comprehensive design solutions and flexible production through lean manufacturing principles, and with a very high on-time and in full delivery performance, voestalpine Metsec has earned the reputation for its high level of service.

## Development and testing

voestalpine Metsec cable ladder systems have been developed in house and fully supported by independent testing.

Further verification testing has also been carried out under the requirements of BS EN 61537 – Cable Management – cable tray systems and cable ladder systems. These tests include: impact resistance, marking, connection of re-usable components, safe working load tests, electrical continuity, and performance of steel at extreme temperature ranges.



## Load tables

Safe load tables are provided in a unique format for easy comparison and cost optimisation. Load tables assume an even distribution of load across the width of the ladder fixed in a horizontal plane, and that the loading is similar on at least two or more continuous spans. For non-uniform loads or spans/loadings outside the scope of the tables, please contact voestalpine Metsec for advice.

| Load | Type      |      |      |            |      |      |            |      |      |            |      |      |
|------|-----------|------|------|------------|------|------|------------|------|------|------------|------|------|
| W    | 50mm Deep |      |      | 100mm Deep |      |      | 125mm Deep |      |      | 150mm Deep |      |      |
| kg/m | s         | d    | dp   | s          | d    | dp   | s          | d    | dp   | s          | d    | dp   |
| 25   | 3.931     | 19.7 | 19.7 | 6.000      | 19.6 | 30.0 | 6.000      | 8.7  | 30.0 | 6.000      | 5.4  | 30.0 |
| 50   | 3.120     | 15.6 | 15.6 | 5.487      | 27.4 | 27.4 | 6.000      | 17.3 | 30.0 | 6.000      | 10.9 | 30.0 |
| 75   | 2.725     | 13.6 | 13.6 | 4.643      | 21.1 | 23.2 | 6.000      | 26.0 | 30.0 | 6.000      | 16.3 | 30.0 |
| 100  | 2.438     | 11.6 | 12.2 | 4.021      | 15.8 | 20.1 | 5.414      | 23.0 | 27.1 | 5.827      | 19.4 | 29.1 |
| 125  | 2.181     | 9.3  | 10.9 | 3.512      | 11.5 | 17.6 | 4.843      | 18.4 | 24.2 | 5.212      | 15.5 | 26.1 |
| 150  | 1.991     | 7.8  | 10.0 | 3.132      | 8.7  | 15.7 | 4.421      | 15.3 | 22.1 | 4.685      | 12.2 | 23.4 |
| 175  | 1.843     | 6.6  | 9.2  | 2.839      | 6.9  | 14.2 | 4.048      | 12.5 | 20.2 | 4.259      | 9.7  | 21.3 |
| 200  | 1.724     | 5.8  | 8.6  | 2.604      | 5.6  | 13.0 | 3.728      | 10.3 | 18.6 | 3.918      | 7.9  | 19.6 |
| 225  | 1.625     | 5.2  | 8.1  | 2.411      | 4.6  | 12.1 | 3.464      | 8.7  | 17.3 | 3.636      | 6.6  | 18.2 |
| 250  | 1.542     | 4.7  | 7.7  | 2.248      | 3.9  | 11.2 | 3.242      | 7.4  | 16.2 | 3.398      | 5.6  | 17.0 |
| 275  | 1.470     | 4.2  | 7.4  | 2.109      | 3.3  | 10.5 | 3.051      | 6.4  | 15.3 | 3.195      | 4.8  | 16.0 |
| 300  | 1.405     | 3.8  | 7.0  | 1.988      | 2.8  | 9.9  | 2.885      | 5.6  | 14.4 | 3.018      | 4.2  | 15.1 |

's' – maximum spacing of supports in metres  
'd' – maximum deflection in end span in mm  
'dp' – allowable deflection (span/200) in mm  
'w' – safe working load in kg per linear metre

Loads not applicable to stainless steel, for stainless steel loads please consult the Technical Department for advice.

## Example:

Load required = 100kg per linear metre

### Options available:-

1. 50mm deep ladder will span up to a maximum of 2.438m with a deflection of 11.6mm
2. 100mm deep ladder will span up to a maximum of 4.021m with a deflection of 15.8mm
3. 125mm deep ladder will span up to a maximum of 5.414m with a deflection of 23.0mm
4. 150mm deep ladder will span up to a maximum of 5.827m with a deflection of 19.4mm



# CABLE LADDER SYSTEMS

## Post-galvanised and Stainless Steel Ladder

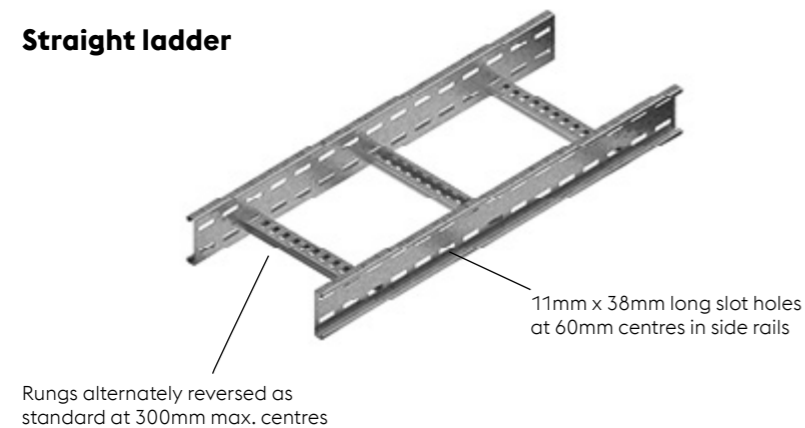
voestalpine Metsec post-galvanised and stainless steel ladders are made using a welding process to ensure a strong and robust product. The welded products are then either galvanised or passivated, in the case of stainless steel, to ensure optimum corrosion performance. A full range of accessories are available as well as splice plates which come complete with M10 cup square bolts, shake proof washers and nuts.

When installing voestalpine Metsec cable ladders, care should be taken to ensure the support is within 600mm of a joint. Accessories (e.g. bends, tees, crossovers etc.) should have adequate support. Additional support will be required for larger components.

## Technical construction details

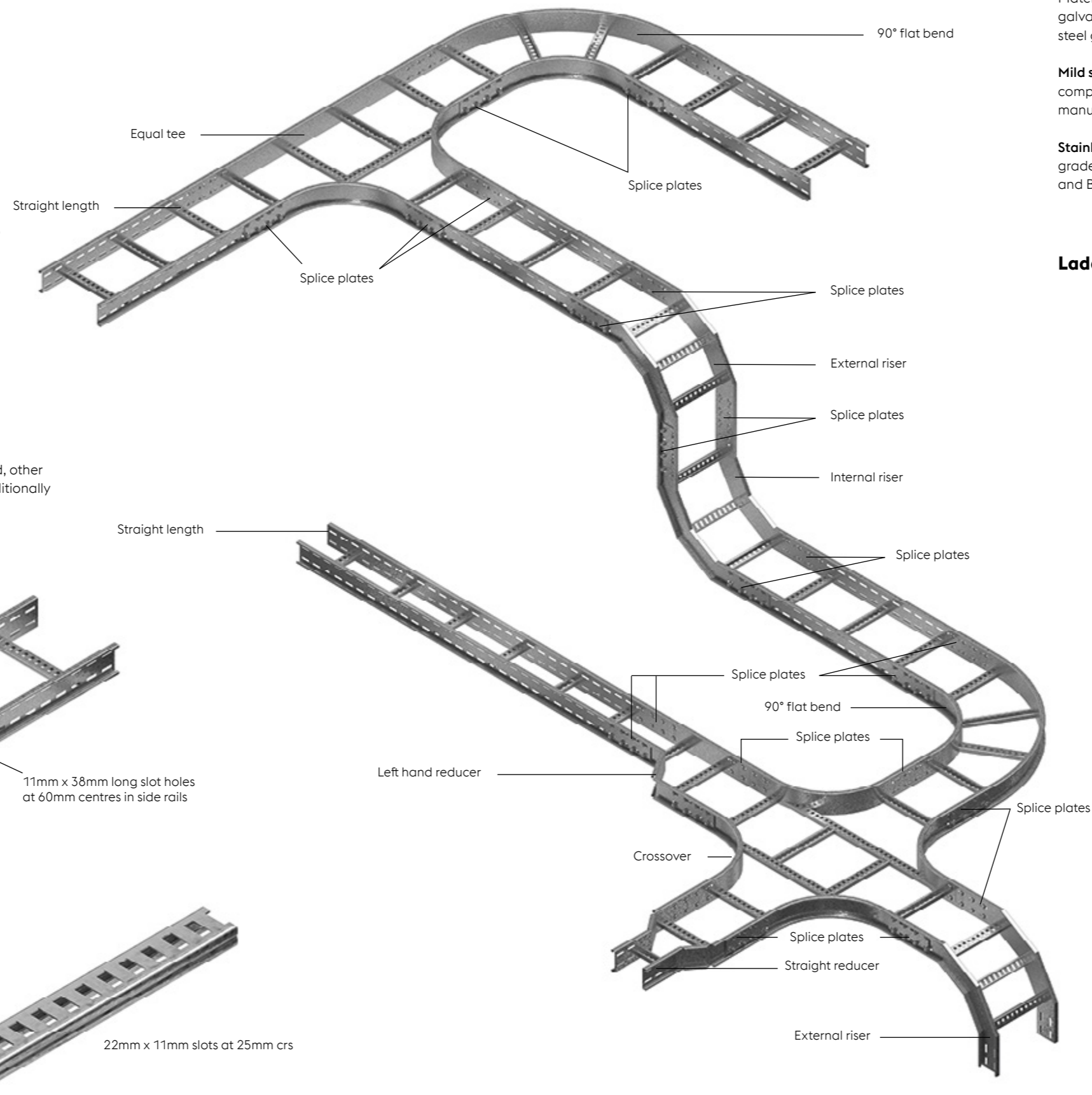
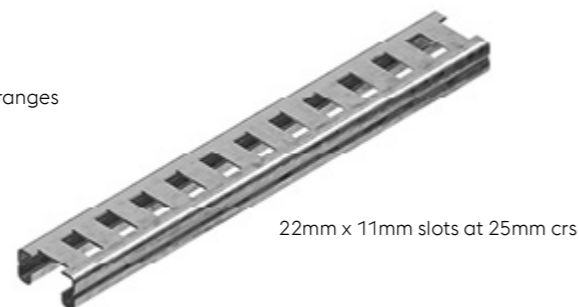
Whilst rungs are alternately reversed as standard, other rung orientations can be produced to order. Additionally alternative widths are also available to meet the requirements of the European markets.

## Straight ladder



## Rung types

50, 100, 125 and 150mm deep ladder ranges rung type: 41mm x 21mm channel



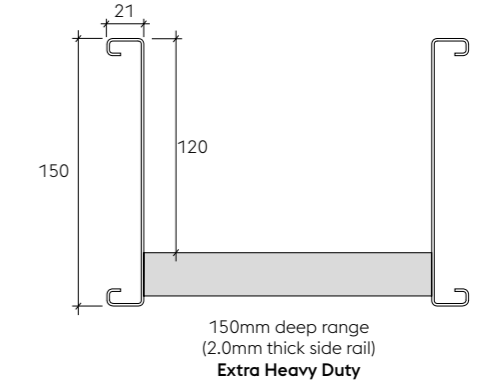
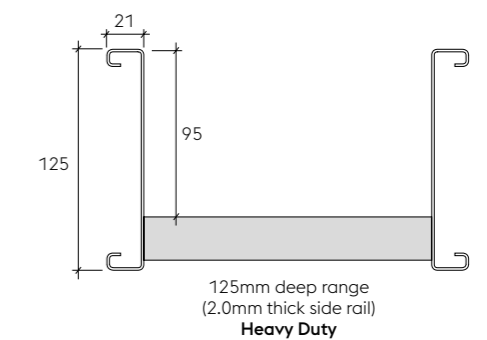
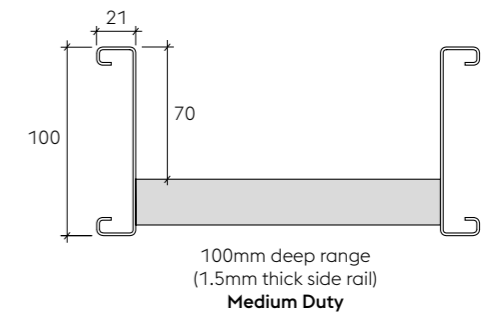
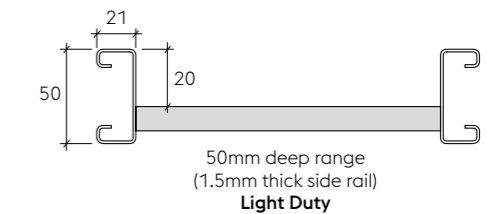
## Materials and finishes

Materials and finishes available are mild steel hot dip galvanised after manufacture as standard and stainless steel grade 1.4404 (316L) to order.

**Mild steel hot dip galvanised:** manufactured from steel complying with BS EN 10025-2 and hot dip galvanised after manufacture to BS EN ISO 1461.

**Stainless steel:** manufactured from stainless steel grade 1.4404 (316L) complying with BS EN 10088-1 and BS EN 10088-2.

## Ladder profiles



# STANDARDS

voestalpine Metsec cable ladder systems generally conform to BS EN 61537  
Cable Management – cable tray systems and cable ladder systems

Information relating to compliance is detailed/[highlighted](#) within the following sections of the standard:

## 6 Classification

|            |   |   |   |
|------------|---|---|---|
| <b>6.1</b> | <b>According to material</b>  | <b>6.4</b>  | <b>According to electrical conductivity</b>   |
| 6.1.1      | voestalpine Metsec cable ladder systems are metallic system components              | 6.4.1   | voestalpine Metsec cable ladder systems are electrically conductive system components               |
| <b>6.2</b> | <b>According to resistance to flame propagation</b>                                 | <b>6.5</b>  | <b>According to resistance against corrosion</b>  |
| 6.2.2      | voestalpine Metsec cable ladder systems are non-flame propagating system components | 6.5.2   | voestalpine Metsec cable ladder systems are made of steel with metallic finishes or stainless steel |
| <b>6.3</b> | <b>According to electrical continuity characteristics</b>                           | (Resistance to corrosion is classified according to Table 1. and follow the relevant specification in Table 8, with compliance according to Table 7.) |   |
| 6.3.2      | voestalpine Metsec cable ladder systems have electrical continuity characteristics  |   |   |

Table 1 – Classification for resistance against corrosion

| Class | Reference – material and finish   |
|-------|---|
| 0 (a) | None  |
| 1     | Electroplated to a minimum thickness of 5 µm  |
| 2     | Electroplated to a minimum thickness of 12 µm   |
| 3     | Pre-galvanised to grade 275 to BS EN 10346  |
| 4     | Pre-galvanised to grade 350 to EN 10346   |
| 5     | Post-galvanised to a zinc mean coating thickness (minimum) of 45 µm according to BS EN ISO 1461 for zinc thickness only             |
| 6     | Post-galvanised to a zinc mean coating thickness (minimum) of 55 µm according to ISO 1461 for zinc thickness only                   |
| 7     | Post-galvanised to a zinc mean coating thickness (minimum) of 70 µm according to ISO 1461 for zinc thickness only                   |
| 8     | Post-galvanised to a zinc mean coating thickness (minimum) of 85 µm according to ISO 1461 for zinc thickness only                   |
| 9A    | Stainless steel manufactured to ASTM: A 240/A 240M – 95a designation S30400 or EN 10088 grade 1 – 4301 without a post treatment (b) |
| 9B    | Stainless steel manufactured to ASTM: A 240/A 240M – 95a designation S31603 or EN 10088 grade 1 – 4404 without a post treatment (b) |
| 9C    | Stainless steel manufactured to ASTM: A 240/A 240M – 95a designation S30400 or EN 10088 grade 1 – 4301 with a post treatment (b)    |
| 9D    | Stainless steel manufactured to ASTM: A 240/A 240M – 95a designation S31603 or EN 10088 grade 1 – 4404 with a post treatment (b)    |
| (a)   | For materials which have no declared corrosion resistance classification  |
| (b)   | The post-treatment process is used to improve the protection against crevice crack corrosion and the contamination by other steels  |

Table 7 – System component compliance and classification for resistance against corrosion

| System component material and finishes     | Classification according to           | Compliance                     | Subclause for compliance check |
|--|---------------------------------------|--------------------------------|--------------------------------|
| Non-metallic                               | 6.5.1                                 | Declaration                    | 14.2.1                         |
| Reference – zinc coating as in Table 1.    | 6.5.2 Table 1 classes 1 to 8          | Declaration or measurement     | 14.2.2                         |
| Non-referenced zinc coating                | 6.5.2 Table 1 classes 1 to 8          | By neutral salt spray test NSS | 14.2.3                         |
| Reference – stainless steel as in Table 1. | 6.5.2 Table 1 Class 9A to 9D          | Declaration                    | 14.2.2                         |
| Non-referenced stainless steel             | Not classified                        | Declaration                    | None                           |
| Other metallic coatings                    | 6.5.2 Table 1 Column 1 classes 1 to 8 | By neutral salt spray test NSS | 14.2.3                         |
| Aluminium alloys or other metals           | 6.5.3 Under consideration             | Under consideration            | 14.2.4                         |
| Organic coatings                           | 6.5.4 Under consideration             | Under consideration            | 14.2.5                         |

Table 8 – Zinc coating thickness of reference materials

| Class | Minimum thickness | Theoretical guidance values for coating thickness (typical value) as per BS EN 10346 | Mean coating thickness (minimum) to ISO 1461 |
|-------|-------------------|--|--|
|       | µm                | µm   | µm   |
| 0 (a) | -                 | -  | -  |
| 1     | 5                 | -  | -  |
| 2     | 12                | -  | -  |
| 3     | -                 | 20   | -  |
| 4     | -                 | 25   | -  |
| 5     | -                 | -  | 45   |
| 6     | -                 | -  | 55   |
| 7     | -                 | -  | 70   |
| 8     | -                 | -  | 85   |

a) As declared by the manufacturer or responsible vendor

- 6.6

According to temperature
- 6.6.1

Minimum temperature for the system components is given in Table 2.
- 6.6.2

Maximum temperature for the system components is given in Table 3.
- 6.8

According to the free base area of the cable ladder length as given in Table 5.
- 6.9

According to impact resistance
- 6.9.5

System component offering impact resistance up to 50 J (as verified by testing in accordance with 10.9 Test for impact resistance.)

7 Marking and Documentation

- 7.1

Each system component is marked by a label. Labels used fully comply with the rubbing test. Boxed items are labelled on the packaging.

8 Dimensions

Key cross sectional dimensions for straight cable ladders

| Part No      | External depth mm | Internal depth mm | External width mm | Internal width mm | X-sectional area mm² |
|--------------|-------------------|-------------------|-------------------|-------------------|----------------------|
| LSL050/0150# | 50                | 20                | 192               | 150               | 3000                 |
| LSL050/0300# | 50                | 20                | 342               | 300               | 6000                 |
| LSL050/0450# | 50                | 20                | 492               | 450               | 9000                 |
| LSL100/0150# | 100               | 70                | 192               | 150               | 10500                |
| LSL100/0300# | 100               | 70                | 342               | 300               | 21000                |
| LSL100/0450# | 100               | 70                | 492               | 450               | 31500                |
| LSL100/0600# | 100               | 70                | 642               | 600               | 42000                |
| LSL100/0750# | 100               | 70                | 792               | 750               | 52500                |
| LSL100/0900# | 100               | 70                | 942               | 900               | 63000                |
| LSL125/0150# | 125               | 95                | 192               | 150               | 14250                |
| LSL125/0300# | 125               | 95                | 342               | 300               | 28500                |
| LSL125/0450# | 125               | 95                | 492               | 450               | 42750                |
| LSL125/0600# | 125               | 95                | 642               | 600               | 57000                |
| LSL125/0750# | 125               | 95                | 792               | 750               | 71250                |
| LSL125/0900# | 125               | 95                | 942               | 900               | 85500                |
| LSL150/0150# | 150               | 120               | 192               | 150               | 18000                |
| LSL150/0300# | 150               | 120               | 342               | 300               | 36000                |
| LSL150/0450# | 150               | 120               | 492               | 450               | 54000                |
| LSL150/0600# | 150               | 120               | 642               | 600               | 72000                |
| LSL150/0750# | 150               | 120               | 792               | 750               | 90000                |
| LSL150/0900# | 150               | 120               | 942               | 900               | 108000               |

Table 2 – Minimum temperature classification

| Minimum transport, storage installation and application temperature °C |
|--|
| +5   |
| - 5  |
| - 15   |
| - 20   |
| - 40   |
| - 50   |

Table 3 – Maximum temperature classification

| Maximum transport, storage installation and application temperature °C |
|--|
| +40  |
| +60  |
| +90  |
| +105   |
| +120   |
| +150   |

Table 5 – Free base area classification

| Classification | Perforation in the free base area |
|----------------|-----------------------------------|
| X              | Up to 80 %                        |
| Y              | Over 80 % and up to 90 %          |
| Z              | More than 90 %                    |

NB: Classification Z relates to IEC 60364-5-52 Subclause A.52.6.2 third paragraph

**Minimum internal radius of fittings**  
Minimal internal radius of fittings available for the accommodation of cables is 300 mm.

9 Construction

- 9.1

Surfaces of system components which are likely to come into contact with cables during installation are inspected to ensure they shall not cause damage to the cables when installed correctly.
- 9.2

As with all metallic system components, care should be exercised that handling is in accordance with the relative COSHH regulations and gloves should be worn.
- 9.3

Screwed connections have been designed to withstand the mechanical stresses occurring during installations and normal use and will not cause damage to cables when correctly inserted. Screwed connections are in general ISO metric threads fully compliant to tests in accordance with 9.3.1 and 9.3.2 of the standard. voestalpine Metsec cable ladder systems are usually assembled using M10 cup square bolts and hex nuts with lock washers for couplers etc tightened to a torque of 45N/m. Other connections require M10 hex bolts for clamps etc tightened to a torque of 25N/m.

10 Mechanical Properties

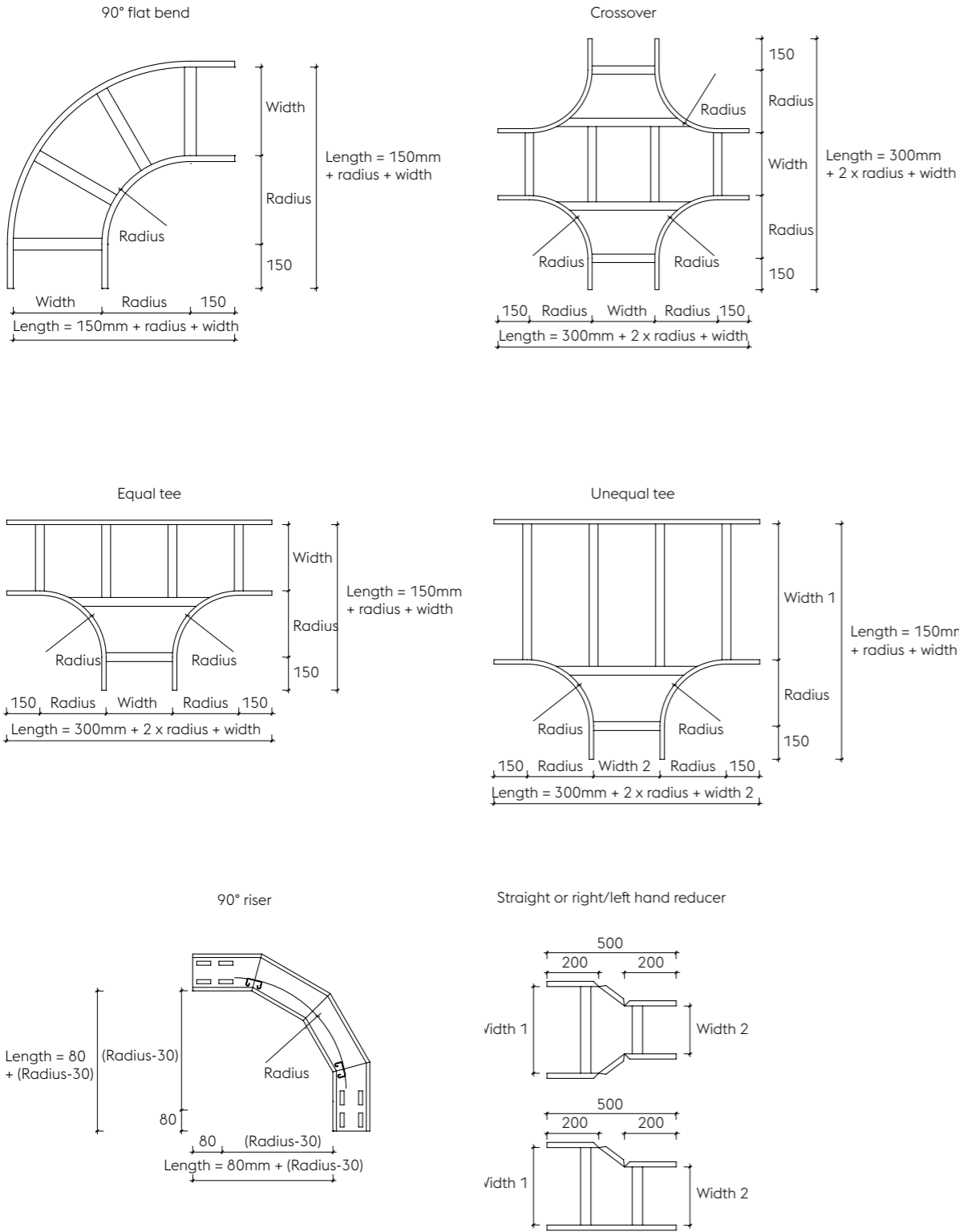
Cable ladder lengths have been tested generally in accordance with the standard under 10.2 and 10.3 for verification of the loading graphs. It should be noted that independent testing has been carried out to verify the structural performance of the cable ladders at the minimum and maximum temperature classifications for test conditions under 10.2.2.

All accessories e.g. bends, tees etc should be directly supported by a suitable support device or devices at appropriate positions.

# CABLE LADDER SYSTEMS

## Accessory Footprint

Cable ladder – accessory foot print standard radius is 300mm



Footprints are identical for all ranges

## Straight Lengths

### Light duty – 50mm deep

Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

| Width mm | 3m Long          | 6m Long |
|----------|------------------|---------|
| 150      | LSL050/0150HDG/3 | N/A     |
| 300      | LSL050/0300HDG/3 | N/A     |
| 450      | LSL050/0450HDG/3 | N/A     |

### Medium duty – 100mm deep

Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

| Width mm | 3m Long          | 6m Long          |
|----------|------------------|------------------|
| 150      | LSL100/0150HDG/3 | LSL100/0150HDG/6 |
| 300      | LSL100/0300HDG/3 | LSL100/0300HDG/6 |
| 450      | LSL100/0450HDG/3 | LSL100/0450HDG/6 |
| 600      | LSL100/0600HDG/3 | LSL100/0600HDG/6 |
| 750      | LSL100/0750HDG/3 | LSL100/0750HDG/6 |
| 900      | LSL100/0900HDG/3 | LSL100/0900HDG/6 |

### Heavy duty – 125mm deep

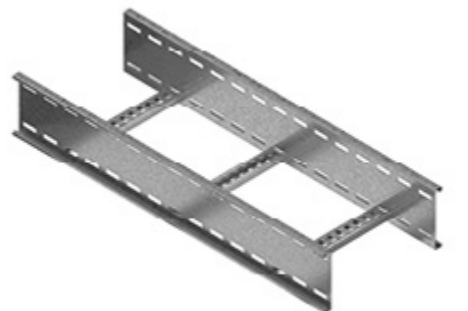
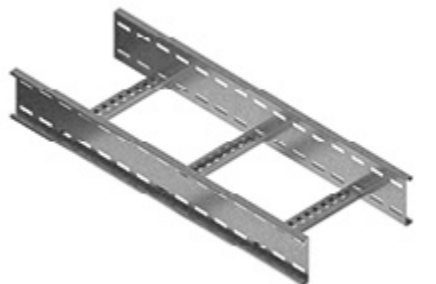
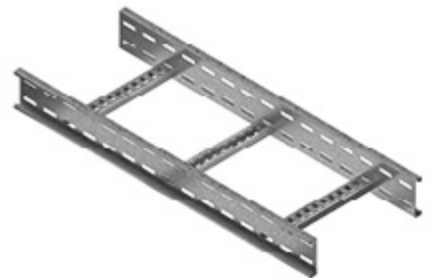
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

| Width mm | 3m Long          | 6m Long          |
|----------|------------------|------------------|
| 150      | LSL125/0150HDG/3 | LSL125/0150HDG/6 |
| 300      | LSL125/0300HDG/3 | LSL125/0300HDG/6 |
| 450      | LSL125/0450HDG/3 | LSL125/0450HDG/6 |
| 600      | LSL125/0600HDG/3 | LSL125/0600HDG/6 |
| 750      | LSL125/0750HDG/3 | LSL125/0750HDG/6 |
| 900      | LSL125/0900HDG/3 | LSL125/0900HDG/6 |

### Extra heavy duty – 150mm deep

Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

| Width mm | 3m Long          | 6m Long          |
|----------|------------------|------------------|
| 150      | LSL150/0150HDG/3 | LSL150/0150HDG/6 |
| 300      | LSL150/0300HDG/3 | LSL150/0300HDG/6 |
| 450      | LSL150/0450HDG/3 | LSL150/0450HDG/6 |
| 600      | LSL150/0600HDG/3 | LSL150/0600HDG/6 |
| 750      | LSL150/0750HDG/3 | LSL150/0750HDG/6 |
| 900      | LSL150/0900HDG/3 | LSL150/0900HDG/6 |



Flat Bends

90° flat bend

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LFB050/0150HDG/90R300   | LFB100/0150HDG/90R300     | LFB125/0150HDG/90R300    | LFB150/0150HDG/90R300          |
| 300      | LFB050/0300HDG/90R300   | LFB100/0300HDG/90R300     | LFB125/0300HDG/90R300    | LFB150/0300HDG/90R300          |
| 450      | LFB050/0450HDG/90R300   | LFB100/0450HDG/90R300     | LFB125/0450HDG/90R300    | LFB150/0450HDG/90R300          |
| 600      | N/A                     | LFB100/0600HDG/90R300     | LFB125/0600HDG/90R300    | LFB150/0600HDG/90R300          |
| 750      | N/A                     | LFB100/0750HDG/90R300     | LFB125/0750HDG/90R300    | LFB150/0750HDG/90R300          |
| 900      | N/A                     | LFB100/0900HDG/90R300     | LFB125/0900HDG/90R300    | LFB150/0900HDG/90R300          |



60° flat bend (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LFB050/0150HDG/60R300   | LFB100/0150HDG/60R300     | LFB125/0150HDG/60R300    | LFB150/0150HDG/60R300          |
| 300      | LFB050/0300HDG/60R300   | LFB100/0300HDG/60R300     | LFB125/0300HDG/60R300    | LFB150/0300HDG/60R300          |
| 450      | LFB050/0450HDG/60R300   | LFB100/0450HDG/60R300     | LFB125/0450HDG/60R300    | LFB150/0450HDG/60R300          |
| 600      | N/A                     | LFB100/0600HDG/60R300     | LFB125/0600HDG/60R300    | LFB150/0600HDG/60R300          |
| 750      | N/A                     | LFB100/0750HDG/60R300     | LFB125/0750HDG/60R300    | LFB150/0750HDG/60R300          |
| 900      | N/A                     | LFB100/0900HDG/60R300     | LFB125/0900HDG/60R300    | LFB150/0900HDG/60R300          |



45° flat bend (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LFB050/0150HDG/45R300   | LFB100/0150HDG/45R300     | LFB125/0150HDG/45R300    | LFB150/0150HDG/45R300          |
| 300      | LFB050/0300HDG/45R300   | LFB100/0300HDG/45R300     | LFB125/0300HDG/45R300    | LFB150/0300HDG/45R300          |
| 450      | LFB050/0450HDG/45R300   | LFB100/0450HDG/45R300     | LFB125/0450HDG/45R300    | LFB150/0450HDG/45R300          |
| 600      | N/A                     | LFB100/0600HDG/45R300     | LFB125/0600HDG/45R300    | LFB150/0600HDG/45R300          |
| 750      | N/A                     | LFB100/0750HDG/45R300     | LFB125/0750HDG/45R300    | LFB150/0750HDG/45R300          |
| 900      | N/A                     | LFB100/0900HDG/45R300     | LFB125/0900HDG/45R300    | LFB150/0900HDG/45R300          |



30° flat bend (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LFB050/0150HDG/30R300   | LFB100/0150HDG/30R300     | LFB125/0150HDG/30R300    | LFB150/0150HDG/30R300          |
| 300      | LFB050/0300HDG/30R300   | LFB100/0300HDG/30R300     | LFB125/0300HDG/30R300    | LFB150/0300HDG/30R300          |
| 450      | LFB050/0450HDG/30R300   | LFB100/0450HDG/30R300     | LFB125/0450HDG/30R300    | LFB150/0450HDG/30R300          |
| 600      | N/A                     | LFB100/0600HDG/30R300     | LFB125/0600HDG/30R300    | LFB150/0600HDG/30R300          |
| 750      | N/A                     | LFB100/0750HDG/30R300     | LFB125/0750HDG/30R300    | LFB150/0750HDG/30R300          |
| 900      | N/A                     | LFB100/0900HDG/30R300     | LFB125/0900HDG/30R300    | LFB150/0900HDG/30R300          |



Tees & Crossovers

Equal tee

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LET050/0150HDGR300      | LET100/0150HDGR300        | LET125/0150HDGR300       | LET150/0150HDGR300             |
| 300      | LET050/0300HDGR300      | LET100/0300HDGR300        | LET125/0300HDGR300       | LET150/0300HDGR300             |
| 450      | LET050/0450HDGR300      | LET100/0450HDGR300        | LET125/0450HDGR300       | LET150/0450HDGR300             |
| 600      | N/A                     | LET100/0600HDGR300        | LET125/0600HDGR300       | LET150/0600HDGR300             |
| 750      | N/A                     | LET100/0750HDGR300        | LET125/0750HDGR300       | LET150/0750HDGR300             |
| 900      | N/A                     | LET100/0900HDGR300        | LET125/0900HDGR300       | LET150/0900HDGR300             |

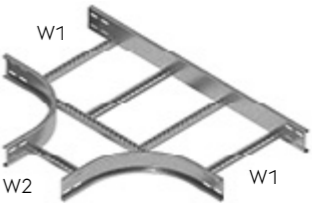


Unequal tee (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900.  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

How to generate the part number – LUT (depth)/W1/W2(finish) (radius)  
Example – LUT100/0300/0150HDGR300  
Table below shows a complete list of W1 and W2 combinations.

| W1  | W2                      |
|-----|-------------------------|
| 150 | 300, 450, 600, 750, 900 |
| 300 | 150, 450, 600, 750, 900 |
| 450 | 150, 300, 600, 750, 900 |
| 600 | 150, 300, 450, 750, 900 |
| 750 | 150, 300, 450, 600, 900 |
| 900 | 150, 300, 450, 600, 750 |



Crossovers (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LCO050/0150HDGR300      | LCO100/0150HDGR300        | LCO125/0150HDGR300       | LCO150/0150HDGR300             |
| 300      | LCO050/0300HDGR300      | LCO100/0300HDGR300        | LCO125/0300HDGR300       | LCO150/0300HDGR300             |
| 450      | LCO050/0450HDGR300      | LCO100/0450HDGR300        | LCO125/0450HDGR300       | LCO150/0450HDGR300             |
| 600      | N/A                     | LCO100/0600HDGR300        | LCO125/0600HDGR300       | LCO150/0600HDGR300             |
| 750      | N/A                     | LCO100/0750HDGR300        | LCO125/0750HDGR300       | LCO150/0750HDGR300             |
| 900      | N/A                     | LCO100/0900HDGR300        | LCO125/0900HDGR300       | LCO150/0900HDGR300             |



Reducers

Straight reducer (made to order)

Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

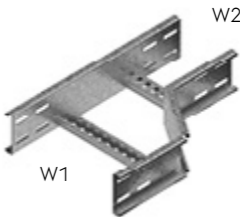
| Width mm |     | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-----|-------------------------|---------------------------|--------------------------|--------------------------------|
| W1       | W2  |                         |                           |                          |                                |
| 300      | 150 | LSR050/0300/0150HDG     | LSR100/0300/0150HDG       | LSR125/0300/0150HDG      | LSR150/0300/0150HDG            |
| 450      | 150 | LSR050/0450/0150HDG     | LSR100/0450/0150HDG       | LSR125/0450/0150HDG      | LSR150/0450/0150HDG            |
| 600      | 150 | N/A                     | LSR100/0600/0150HDG       | LSR125/0600/0150HDG      | LSR150/0600/0150HDG            |
| 750      | 150 | N/A                     | LSR100/0750/0150HDG       | LSR125/0750/0150HDG      | LSR150/0750/0150HDG            |
| 900      | 150 | N/A                     | LSR100/0900/0150HDG       | LSR125/0900/0150HDG      | LSR150/0900/0150HDG            |
| 450      | 300 | LSR050/0450/0300HDG     | LSR100/0450/0300HDG       | LSR125/0450/0300HDG      | LSR150/0450/0300HDG            |
| 600      | 300 | N/A                     | LSR100/0600/0300HDG       | LSR125/0600/0300HDG      | LSR150/0600/0300HDG            |
| 750      | 300 | N/A                     | LSR100/0750/0300HDG       | LSR125/0750/0300HDG      | LSR150/0750/0300HDG            |
| 900      | 300 | N/A                     | LSR100/0900/0300HDG       | LSR125/0900/0300HDG      | LSR150/0900/0300HDG            |
| 600      | 450 | N/A                     | LSR100/0600/0450HDG       | LSR125/0600/0450HDG      | LSR150/0600/0450HDG            |
| 750      | 450 | N/A                     | LSR100/0750/0450HDG       | LSR125/0750/0450HDG      | LSR150/0750/0450HDG            |
| 900      | 450 | N/A                     | LSR100/0900/0450HDG       | LSR125/0900/0450HDG      | LSR150/0900/0450HDG            |
| 750      | 600 | N/A                     | LSR100/0750/0600HDG       | LSR125/0750/0600HDG      | LSR150/0750/0600HDG            |
| 900      | 600 | N/A                     | LSR100/0900/0600HDG       | LSR125/0900/0600HDG      | LSR150/0900/0600HDG            |
| 900      | 750 | N/A                     | LSR100/0900/0750HDG       | LSR125/0900/0750HDG      | LSR150/0900/0750HDG            |



Right hand reducer (made to order)

Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

| Width mm |     | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-----|-------------------------|---------------------------|--------------------------|--------------------------------|
| W1       | W2  |                         |                           |                          |                                |
| 300      | 150 | LRR050/0300/0150HDG     | LRR100/0300/0150HDG       | LRR125/0300/0150HDG      | LRR150/0300/0150HDG            |
| 450      | 150 | LRR050/0450/0150HDG     | LRR100/0450/0150HDG       | LRR125/0450/0150HDG      | LRR150/0450/0150HDG            |
| 600      | 150 | N/A                     | LRR100/0600/0150HDG       | LRR125/0600/0150HDG      | LRR150/0600/0150HDG            |
| 750      | 150 | N/A                     | LRR100/0750/0150HDG       | LRR125/0750/0150HDG      | LRR150/0750/0150HDG            |
| 900      | 150 | N/A                     | LRR100/0900/0150HDG       | LRR125/0900/0150HDG      | LRR150/0900/0150HDG            |
| 450      | 300 | LRR050/0450/0300HDG     | LRR100/0450/0300HDG       | LRR125/0450/0300HDG      | LRR150/0450/0300HDG            |
| 600      | 300 | N/A                     | LRR100/0600/0300HDG       | LRR125/0600/0300HDG      | LRR150/0600/0300HDG            |
| 750      | 300 | N/A                     | LRR100/0750/0300HDG       | LRR125/0750/0300HDG      | LRR150/0750/0300HDG            |
| 900      | 300 | N/A                     | LRR100/0900/0300HDG       | LRR125/0900/0300HDG      | LRR150/0900/0300HDG            |
| 600      | 450 | N/A                     | LRR100/0600/0450HDG       | LRR125/0600/0450HDG      | LRR150/0600/0450HDG            |
| 750      | 450 | N/A                     | LRR100/0750/0450HDG       | LRR125/0750/0450HDG      | LRR150/0750/0450HDG            |
| 900      | 450 | N/A                     | LRR100/0900/0450HDG       | LRR125/0900/0450HDG      | LRR150/0900/0450HDG            |
| 750      | 600 | N/A                     | LRR100/0750/0600HDG       | LRR125/0750/0600HDG      | LRR150/0750/0600HDG            |
| 900      | 600 | N/A                     | LRR100/0900/0600HDG       | LRR125/0900/0600HDG      | LRR150/0900/0600HDG            |
| 900      | 750 | N/A                     | LRR100/0900/0750HDG       | LRR125/0900/0750HDG      | LRR150/0900/0750HDG            |



Left hand reducer (made to order)

Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

| Width mm |     | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-----|-------------------------|---------------------------|--------------------------|--------------------------------|
| W1       | W2  |                         |                           |                          |                                |
| 300      | 150 | LLR050/0300/0150HDG     | LLR100/0300/0150HDG       | LLR125/0300/0150HDG      | LLR150/0300/0150HDG            |
| 450      | 150 | LLR050/0450/0150HDG     | LLR100/0450/0150HDG       | LLR125/0450/0150HDG      | LLR150/0450/0150HDG            |
| 600      | 150 | N/A                     | LLR100/0600/0150HDG       | LLR125/0600/0150HDG      | LLR150/0600/0150HDG            |
| 750      | 150 | N/A                     | LLR100/0750/0150HDG       | LLR125/0750/0150HDG      | LLR150/0750/0150HDG            |
| 900      | 150 | N/A                     | LLR100/0900/0150HDG       | LLR125/0900/0150HDG      | LLR150/0900/0150HDG            |
| 450      | 300 | LLR050/0450/0300HDG     | LLR100/0450/0300HDG       | LLR125/0450/0300HDG      | LLR150/0450/0300HDG            |
| 600      | 300 | N/A                     | LLR100/0600/0300HDG       | LLR125/0600/0300HDG      | LLR150/0600/0300HDG            |
| 750      | 300 | N/A                     | LLR100/0750/0300HDG       | LLR125/0750/0300HDG      | LLR150/0750/0300HDG            |
| 900      | 300 | N/A                     | LLR100/0900/0300HDG       | LLR125/0900/0300HDG      | LLR150/0900/0300HDG            |
| 600      | 450 | N/A                     | LLR100/0600/0450HDG       | LLR125/0600/0450HDG      | LLR150/0600/0450HDG            |
| 750      | 450 | N/A                     | LLR100/0750/0450HDG       | LLR125/0750/0450HDG      | LLR150/0750/0450HDG            |
| 900      | 450 | N/A                     | LLR100/0900/0450HDG       | LLR125/0900/0450HDG      | LLR150/0900/0450HDG            |
| 750      | 600 | N/A                     | LLR100/0750/0600HDG       | LLR125/0750/0600HDG      | LLR150/0750/0600HDG            |
| 900      | 600 | N/A                     | LLR100/0900/0600HDG       | LLR125/0900/0600HDG      | LLR150/0900/0600HDG            |
| 900      | 750 | N/A                     | LLR100/0900/0750HDG       | LLR125/0900/0750HDG      | LLR150/0900/0750HDG            |



Risers

90° external riser

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).

Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

| Width<br>mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|-------------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150         | LER050/0150HDG/90R300   | LER100/0150HDG/90R300     | LER125/0150HDG/90R300    | LER150/0150HDG/90R300          |
| 300         | LER050/0300HDG/90R300   | LER100/0300HDG/90R300     | LER125/0300HDG/90R300    | LER150/0300HDG/90R300          |
| 450         | LER050/0450HDG/90R300   | LER100/0450HDG/90R300     | LER125/0450HDG/90R300    | LER150/0450HDG/90R300          |
| 600         | N/A                     | LER100/0600HDG/90R300     | LER125/0600HDG/90R300    | LER150/0600HDG/90R300          |
| 750         | N/A                     | LER100/0750HDG/90R300     | LER125/0750HDG/90R300    | LER150/0750HDG/90R300          |
| 900         | N/A                     | LER100/0900HDG/90R300     | LER125/0900HDG/90R300    | LER150/0900HDG/90R300          |



60° external riser (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).

Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

| Width<br>mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|-------------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150         | LER050/0150HDG/60R300   | LER100/0150HDG/60R300     | LER125/0150HDG/60R300    | LER150/0150HDG/60R300          |
| 300         | LER050/0300HDG/60R300   | LER100/0300HDG/60R300     | LER125/0300HDG/60R300    | LER150/0300HDG/60R300          |
| 450         | LER050/0450HDG/60R300   | LER100/0450HDG/60R300     | LER125/0450HDG/60R300    | LER150/0450HDG/60R300          |
| 600         | N/A                     | LER100/0600HDG/60R300     | LER125/0600HDG/60R300    | LER150/0600HDG/60R300          |
| 750         | N/A                     | LER100/0750HDG/60R300     | LER125/0750HDG/60R300    | LER150/0750HDG/60R300          |
| 900         | N/A                     | LER100/0900HDG/60R300     | LER125/0900HDG/60R300    | LER150/0900HDG/60R300          |



45° external riser (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LER050/0150HDG/45R300   | LER100/0150HDG/45R300     | LER125/0150HDG/45R300    | LER150/0150HDG/45R300          |
| 300      | LER050/0300HDG/45R300   | LER100/0300HDG/45R300     | LER125/0300HDG/45R300    | LER150/0300HDG/45R300          |
| 450      | LER050/0450HDG/45R300   | LER100/0450HDG/45R300     | LER125/0450HDG/45R300    | LER150/0450HDG/45R300          |
| 600      | N/A                     | LER100/0600HDG/45R300     | LER125/0600HDG/45R300    | LER150/0600HDG/45R300          |
| 750      | N/A                     | LER100/0750HDG/45R300     | LER125/0750HDG/45R300    | LER150/0750HDG/45R300          |
| 900      | N/A                     | LER100/0900HDG/45R300     | LER125/0900HDG/45R300    | LER150/0900HDG/45R300          |



30° external riser (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LER050/0150HDG/30R300   | LER100/0150HDG/30R300     | LER125/0150HDG/30R300    | LER150/0150HDG/30R300          |
| 300      | LER050/0300HDG/30R300   | LER100/0300HDG/30R300     | LER125/0300HDG/30R300    | LER150/0300HDG/30R300          |
| 450      | LER050/0450HDG/30R300   | LER100/0450HDG/30R300     | LER125/0450HDG/30R300    | LER150/0450HDG/30R300          |
| 600      | N/A                     | LER100/0600HDG/30R300     | LER125/0600HDG/30R300    | LER150/0600HDG/30R300          |
| 750      | N/A                     | LER100/0750HDG/30R300     | LER125/0750HDG/30R300    | LER150/0750HDG/30R300          |
| 900      | N/A                     | LER100/0900HDG/30R300     | LER125/0900HDG/30R300    | LER150/0900HDG/30R300          |



90° internal riser

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LIR050/0150HDG/90R300   | LIR100/0150HDG/90R300     | LIR125/0150HDG/90R300    | LIR150/0150HDG/90R300          |
| 300      | LIR050/0300HDG/90R300   | LIR100/0300HDG/90R300     | LIR125/0300HDG/90R300    | LIR150/0300HDG/90R300          |
| 450      | LIR050/0450HDG/90R300   | LIR100/0450HDG/90R300     | LIR125/0450HDG/90R300    | LIR150/0450HDG/90R300          |
| 600      | N/A                     | LIR100/0600HDG/90R300     | LIR125/0600HDG/90R300    | LIR150/0600HDG/90R300          |
| 750      | N/A                     | LIR100/0750HDG/90R300     | LIR125/0750HDG/90R300    | LIR150/0750HDG/90R300          |
| 900      | N/A                     | LIR100/0900HDG/90R300     | LIR125/0900HDG/90R300    | LIR150/0900HDG/90R300          |



60° internal riser (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LIR050/0150HDG/60R300   | LIR100/0150HDG/60R300     | LIR125/0150HDG/60R300    | LIR150/0150HDG/60R300          |
| 300      | LIR050/0300HDG/60R300   | LIR100/0300HDG/60R300     | LIR125/0300HDG/60R300    | LIR150/0300HDG/60R300          |
| 450      | LIR050/0450HDG/60R300   | LIR100/0450HDG/60R300     | LIR125/0450HDG/60R300    | LIR150/0450HDG/60R300          |
| 600      | N/A                     | LIR100/0600HDG/60R300     | LIR125/0600HDG/60R300    | LIR150/0600HDG/60R300          |
| 750      | N/A                     | LIR100/0750HDG/60R300     | LIR125/0750HDG/60R300    | LIR150/0750HDG/60R300          |
| 900      | N/A                     | LIR100/0900HDG/60R300     | LIR125/0900HDG/60R300    | LIR150/0900HDG/60R300          |



45° internal riser (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LIR050/0150HDG/45R300   | LIR100/0150HDG/45R300     | LIR125/0150HDG/45R300    | LIR150/0150HDG/45R300          |
| 300      | LIR050/0300HDG/45R300   | LIR100/0300HDG/45R300     | LIR125/0300HDG/45R300    | LIR150/0300HDG/45R300          |
| 450      | LIR050/0450HDG/45R300   | LIR100/0450HDG/45R300     | LIR125/0450HDG/45R300    | LIR150/0450HDG/45R300          |
| 600      | N/A                     | LIR100/0600HDG/45R300     | LIR125/0600HDG/45R300    | LIR150/0600HDG/45R300          |
| 750      | N/A                     | LIR100/0750HDG/45R300     | LIR125/0750HDG/45R300    | LIR150/0750HDG/45R300          |
| 900      | N/A                     | LIR100/0900HDG/45R300     | LIR125/0900HDG/45R300    | LIR150/0900HDG/45R300          |



30° internal riser (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LIR050/0150HDG/30R300   | LIR100/0150HDG/30R300     | LIR125/0150HDG/30R300    | LIR150/0150HDG/30R300          |
| 300      | LIR050/0300HDG/30R300   | LIR100/0300HDG/30R300     | LIR125/0300HDG/30R300    | LIR150/0300HDG/30R300          |
| 450      | LIR050/0450HDG/30R300   | LIR100/0450HDG/30R300     | LIR125/0450HDG/30R300    | LIR150/0450HDG/30R300          |
| 600      | N/A                     | LIR100/0600HDG/30R300     | LIR125/0600HDG/30R300    | LIR150/0600HDG/30R300          |
| 750      | N/A                     | LIR100/0750HDG/30R300     | LIR125/0750HDG/30R300    | LIR150/0750HDG/30R300          |
| 900      | N/A                     | LIR100/0900HDG/30R300     | LIR125/0900HDG/30R300    | LIR150/0900HDG/30R300          |



Articulated riser (made to order)

Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)



| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | N/A                     | L/AR100/0150HDG           | L/AR125/0150HDG          | L/AR150/0150HDG                |
| 300      | N/A                     | L/AR100/0300HDG           | L/AR125/0300HDG          | L/AR150/0300HDG                |
| 450      | N/A                     | L/AR100/0450HDG           | L/AR125/0450HDG          | L/AR150/0450HDG                |
| 600      | N/A                     | L/AR100/0600HDG           | L/AR125/0600HDG          | L/AR150/0600HDG                |
| 750      | N/A                     | L/AR100/0750HDG           | L/AR125/0750HDG          | L/AR150/0750HDG                |
| 900      | N/A                     | L/AR100/0900HDG           | L/AR125/0900HDG          | L/AR150/0900HDG                |



Covers

Straight length covers – 1.5mm long (made to order)

Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners, 2 covers required for 3m ladder, 4 covers for 6m ladder

| Width<br>mm |                  | Extra fixing clamps<br>Pack of 10 (includes fasteners) |   |
|-------------|------------------|--|---|
| 150         | LSLC/0150HDG/1.5 | Closed cover clip                                      |  |
| 300         | LSLC/0300HDG/1.5 | L/CCC  |   |
| 450         | LSLC/0450HDG/1.5 | Ventilated cover clip                                  |   |
| 600         | LSLC/0600HDG/1.5 |  |   |
| 750         | LSLC/0750HDG/1.5 |  |   |
| 900         | LSLC/0900HDG/1.5 | L/CCV  |  |
|             |                  |  |   |
|             |                  |  |   |



90° flat bend covers (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

| Width<br>mm |                     |
|-------------|---------------------|
| 150         | LFBC/0150HDG/90R300 |
| 300         | LFBC/0300HDG/90R300 |
| 450         | LFBC/0450HDG/90R300 |
| 600         | LFBC/0600HDG/90R300 |
| 750         | LFBC/0750HDG/90R300 |
| 900         | LFBC/0900HDG/90R300 |



60° flat bend covers (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

| Width<br>mm |                     |
|-------------|---------------------|
| 150         | LFBC/0150HDG/60R300 |
| 300         | LFBC/0300HDG/60R300 |
| 450         | LFBC/0450HDG/60R300 |
| 600         | LFBC/0600HDG/60R300 |
| 750         | LFBC/0750HDG/60R300 |
| 900         | LFBC/0900HDG/60R300 |



45° flat bend covers (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

| Width<br>mm |                     |
|-------------|---------------------|
| 150         | LFBC/0150HDG/45R300 |
| 300         | LFBC/0300HDG/45R300 |
| 450         | LFBC/0450HDG/45R300 |
| 600         | LFBC/0600HDG/45R300 |
| 750         | LFBC/0750HDG/45R300 |
| 900         | LFBC/0900HDG/45R300 |



30° flat bend covers (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

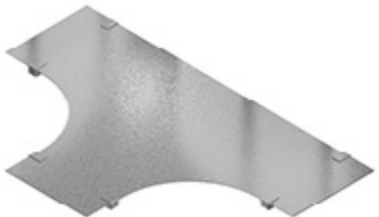
| Width<br>mm |                     |
|-------------|---------------------|
| 150         | LFBC/0150HDG/30R300 |
| 300         | LFBC/0300HDG/30R300 |
| 450         | LFBC/0450HDG/30R300 |
| 600         | LFBC/0600HDG/30R300 |
| 750         | LFBC/0750HDG/30R300 |
| 900         | LFBC/0900HDG/30R300 |



Equal tee covers (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

| Width<br>mm |                  |
|-------------|------------------|
| 150         | LETC/0150HDGR300 |
| 300         | LETC/0300HDGR300 |
| 450         | LETC/0450HDGR300 |
| 600         | LETC/0600HDGR300 |
| 750         | LETC/0750HDGR300 |
| 900         | LETC/0900HDGR300 |



Unequal tee covers (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900.  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners  
How to generate the part number – LUTC (cover type)/W1/W2 (finish) (radius)  
Example – LUTC/0300/0150HDGR300  
Table below shows a complete list of W1 and W2 combinations.

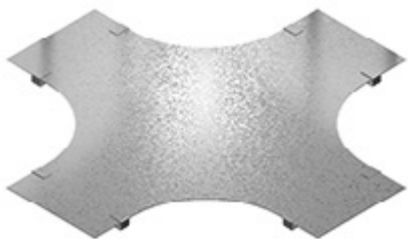
| W1  | W2                      |
|-----|-------------------------|
| 150 | 300, 450, 600, 750, 900 |
| 300 | 150, 450, 600, 750, 900 |
| 450 | 150, 300, 600, 750, 900 |
| 600 | 150, 300, 450, 750, 900 |
| 750 | 150, 300, 450, 600, 900 |
| 900 | 150, 300, 450, 600, 750 |



Crossover covers (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

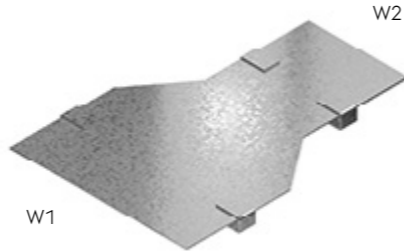
| Width<br>mm |                  |
|-------------|------------------|
| 150         | LCOC/0150HDGR300 |
| 300         | LCOC/0300HDGR300 |
| 450         | LCOC/0450HDGR300 |
| 600         | LCOC/0600HDGR300 |
| 750         | LCOC/0750HDGR300 |
| 900         | LCOC/0900HDGR300 |



Straight reducer covers (made to order)

Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

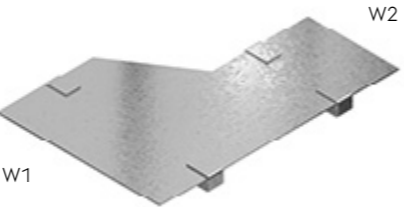
| Width mm |     |                   |
|----------|-----|-------------------|
| W1       | W2  |                   |
| 300      | 150 | LSRC/0300/0150HDG |
| 450      | 150 | LSRC/0450/0150HDG |
| 600      | 150 | LSRC/0600/0150HDG |
| 750      | 150 | LSRC/0750/0150HDG |
| 900      | 150 | LSRC/0900/0150HDG |
| 450      | 300 | LSRC/0450/0300HDG |
| 600      | 300 | LSRC/0600/0300HDG |
| 750      | 300 | LSRC/0750/0300HDG |
| 900      | 300 | LSRC/0900/0300HDG |
| 600      | 450 | LSRC/0600/0450HDG |
| 750      | 450 | LSRC/0750/0450HDG |
| 900      | 450 | LSRC/0900/0450HDG |
| 750      | 600 | LSRC/0750/0600HDG |
| 900      | 600 | LSRC/0900/0600HDG |
| 900      | 750 | LSRC/0900/0750HDG |



Left hand reducer covers (made to order)

Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

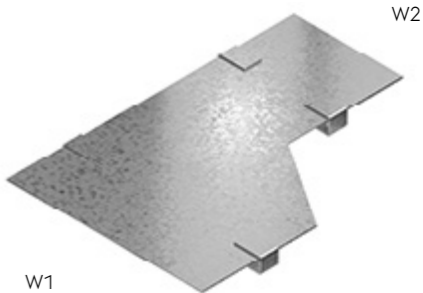
| Width mm |     |                   |
|----------|-----|-------------------|
| W1       | W2  |                   |
| 300      | 150 | LLRC/0300/0150HDG |
| 450      | 150 | LLRC/0450/0150HDG |
| 600      | 150 | LLRC/0600/0150HDG |
| 750      | 150 | LLRC/0750/0150HDG |
| 900      | 150 | LLRC/0900/0150HDG |
| 450      | 300 | LLRC/0450/0300HDG |
| 600      | 300 | LLRC/0600/0300HDG |
| 750      | 300 | LLRC/0750/0300HDG |
| 900      | 300 | LLRC/0900/0300HDG |
| 600      | 450 | LLRC/0600/0450HDG |
| 750      | 450 | LLRC/0750/0450HDG |
| 900      | 450 | LLRC/0900/0450HDG |
| 750      | 600 | LLRC/0750/0600HDG |
| 900      | 600 | LLRC/0900/0600HDG |
| 900      | 750 | LLRC/0900/0750HDG |



Right hand reducer covers (made to order)

Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

| Width mm |     |                   |
|----------|-----|-------------------|
| W1       | W2  |                   |
| 300      | 150 | LRRC/0300/0150HDG |
| 450      | 150 | LRRC/0450/0150HDG |
| 600      | 150 | LRRC/0600/0150HDG |
| 750      | 150 | LRRC/0750/0150HDG |
| 900      | 150 | LRRC/0900/0150HDG |
| 450      | 300 | LRRC/0450/0300HDG |
| 600      | 300 | LRRC/0600/0300HDG |
| 750      | 300 | LRRC/0750/0300HDG |
| 900      | 300 | LRRC/0900/0300HDG |
| 600      | 450 | LRRC/0600/0450HDG |
| 750      | 450 | LRRC/0750/0450HDG |
| 900      | 450 | LRRC/0900/0450HDG |
| 750      | 600 | LRRC/0750/0600HDG |
| 900      | 600 | LRRC/0900/0600HDG |
| 900      | 750 | LRRC/0900/0750HDG |



90° external riser covers (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order)  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

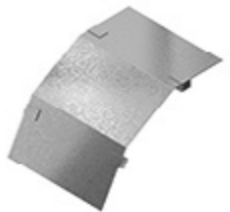
| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LERC050/0150HDG/90R300  | LERC100/0150HDG/90R300    | LERC125/0150HDG/90R300   | LERC150/0150HDG/90R300         |
| 300      | LERC050/0300HDG/90R300  | LERC100/0300HDG/90R300    | LERC125/0300HDG/90R300   | LERC150/0300HDG/90R300         |
| 450      | LERC050/0450HDG/90R300  | LERC100/0450HDG/90R300    | LERC125/0450HDG/90R300   | LERC150/0450HDG/90R300         |
| 600      | N/A                     | LERC100/0600HDG/90R300    | LERC125/0600HDG/90R300   | LERC150/0600HDG/90R300         |
| 750      | N/A                     | LERC100/0750HDG/90R300    | LERC125/0750HDG/90R300   | LERC150/0750HDG/90R300         |
| 900      | N/A                     | LERC100/0900HDG/90R300    | LERC125/0900HDG/90R300   | LERC150/0900HDG/90R300         |



60° external riser covers (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order)  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LERC050/0150HDG/60R300  | LERC100/0150HDG/60R300    | LERC125/0150HDG/60R300   | LERC150/0150HDG/60R300         |
| 300      | LERC050/0300HDG/60R300  | LERC100/0300HDG/60R300    | LERC125/0300HDG/60R300   | LERC150/0300HDG/60R300         |
| 450      | LERC050/0450HDG/60R300  | LERC100/0450HDG/60R300    | LERC125/0450HDG/60R300   | LERC150/0450HDG/60R300         |
| 600      | N/A                     | LERC100/0600HDG/60R300    | LERC125/0600HDG/60R300   | LERC150/0600HDG/60R300         |
| 750      | N/A                     | LERC100/0750HDG/60R300    | LERC125/0750HDG/60R300   | LERC150/0750HDG/60R300         |
| 900      | N/A                     | LERC100/0900HDG/60R300    | LERC125/0900HDG/60R300   | LERC150/0900HDG/60R300         |



45° external riser covers (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order)  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

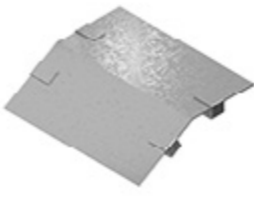
| Width<br>mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|-------------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150         | LERC050/0150HDG/45R300  | LERC100/0150HDG/45R300    | LERC125/0150HDG/45R300   | LERC150/0150HDG/45R300         |
| 300         | LERC050/0300HDG/45R300  | LERC100/0300HDG/45R300    | LERC125/0300HDG/45R300   | LERC150/0300HDG/45R300         |
| 450         | LERC050/0450HDG/45R300  | LERC100/0450HDG/45R300    | LERC125/0450HDG/45R300   | LERC150/0450HDG/45R300         |
| 600         | N/A                     | LERC100/0600HDG/45R300    | LERC125/0600HDG/45R300   | LERC150/0600HDG/45R300         |
| 750         | N/A                     | LERC100/0750HDG/45R300    | LERC125/0750HDG/45R300   | LERC150/0750HDG/45R300         |
| 900         | N/A                     | LERC100/0900HDG/45R300    | LERC125/0900HDG/45R300   | LERC150/0900HDG/45R300         |



30° external riser covers (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order)  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

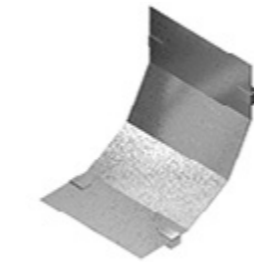
| Width<br>mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|-------------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150         | LERC050/0150HDG/30R300  | LERC100/0150HDG/30R300    | LERC125/0150HDG/30R300   | LERC150/0150HDG/30R300         |
| 300         | LERC050/0300HDG/30R300  | LERC100/0300HDG/30R300    | LERC125/0300HDG/30R300   | LERC150/0300HDG/30R300         |
| 450         | LERC050/0450HDG/30R300  | LERC100/0450HDG/30R300    | LERC125/0450HDG/30R300   | LERC150/0450HDG/30R300         |
| 600         | N/A                     | LERC100/0600HDG/30R300    | LERC125/0600HDG/30R300   | LERC150/0600HDG/30R300         |
| 750         | N/A                     | LERC100/0750HDG/30R300    | LERC125/0750HDG/30R300   | LERC150/0750HDG/30R300         |
| 900         | N/A                     | LERC100/0900HDG/30R300    | LERC125/0900HDG/30R300   | LERC150/0900HDG/30R300         |



90° internal riser covers (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order)  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

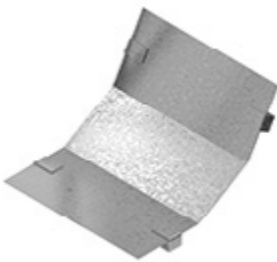
| Width<br>mm |                     |
|-------------|---------------------|
| 150         | LIRC/0150HDG/90R300 |
| 300         | LIRC/0300HDG/90R300 |
| 450         | LIRC/0450HDG/90R300 |
| 600         | LIRC/0600HDG/90R300 |
| 750         | LIRC/0750HDG/90R300 |
| 900         | LIRC/0900HDG/90R300 |



60° internal riser covers (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order)  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

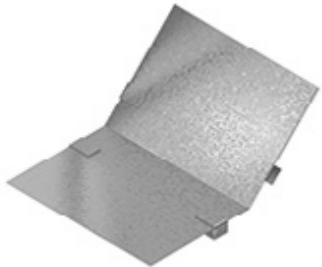
| Width<br>mm |                     |
|-------------|---------------------|
| 150         | LIRC/0150HDG/60R300 |
| 300         | LIRC/0300HDG/60R300 |
| 450         | LIRC/0450HDG/60R300 |
| 600         | LIRC/0600HDG/60R300 |
| 750         | LIRC/0750HDG/60R300 |
| 900         | LIRC/0900HDG/60R300 |



45° internal riser covers (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order)  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

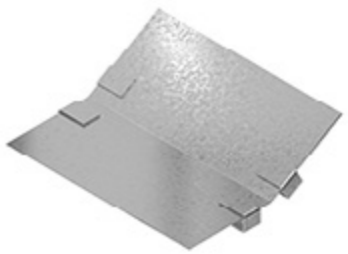
| Width<br>mm |                     |
|-------------|---------------------|
| 150         | LIRC/0150HDG/45R300 |
| 300         | LIRC/0300HDG/45R300 |
| 450         | LIRC/0450HDG/45R300 |
| 600         | LIRC/0600HDG/45R300 |
| 750         | LIRC/0750HDG/45R300 |
| 900         | LIRC/0900HDG/45R300 |



30° internal riser covers (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order)  
Finish: hot dip galvanised = HDG, substitute SS within part number for stainless steel grade 1.4404 (316L)  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

| Width<br>mm |                     |
|-------------|---------------------|
| 150         | LIRC/0150HDG/30R300 |
| 300         | LIRC/0300HDG/30R300 |
| 450         | LIRC/0450HDG/30R300 |
| 600         | LIRC/0600HDG/30R300 |
| 750         | LIRC/0750HDG/30R300 |
| 900         | LIRC/0900HDG/30R300 |

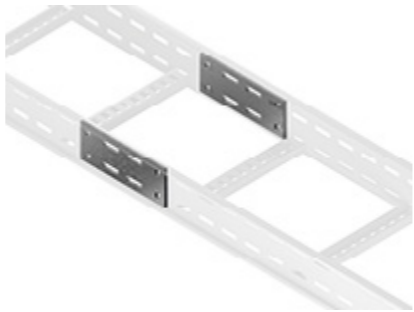


Accessories

Splice plates

Finish: hot dip galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. L/SSP100SSPR

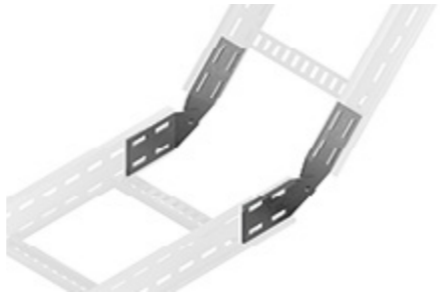
| Ladder depth mm | Sold in pairs<br>(includes 16 nuts, bolts and washers) |
|-----------------|--|
| 50              | L/SSP50PR  |
| 100             | L/SSP100PR   |
| 125             | L/SSP125PR   |
| 150             | L/SSP150PR   |



Vertical splice plates

Finish: hot dip galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. L/VSP100SSPR

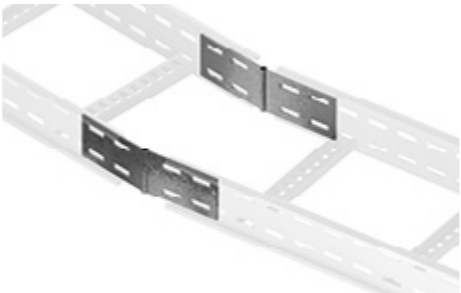
| Ladder depth mm | Sold in pairs<br>(includes 16 nuts, bolts and washers) |
|-----------------|--|
| 50              | L/VSP50PR  |
| 100             | L/VSP100PR   |
| 125             | L/VSP125PR   |
| 150             | L/VSP150PR   |



Horizontal splice plates

Finish: hot dip galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. L/HSP100SSPR

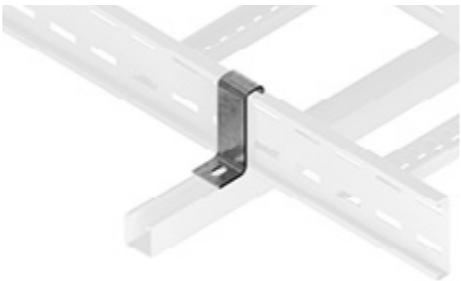
| Ladder depth mm | Sold in pairs<br>(includes 16 nuts, bolts and washers) |
|-----------------|--|
| 50              | L/HSP50PR  |
| 100             | L/HSP100PR   |
| 125             | L/HSP125PR   |
| 150             | L/HSP150PR   |



Hold down bracket

Finish: hot dip galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. L/HDB100SS

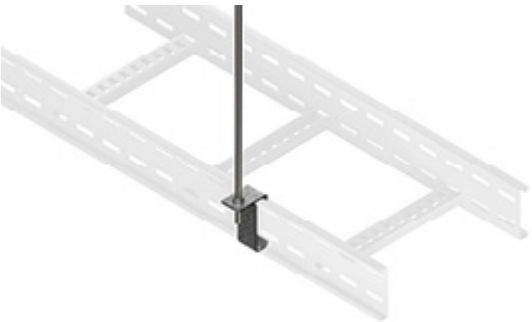
| Ladder depth mm | Sold as single item (fasteners excluded) |
|-----------------|--|
| 50              | L/HDB50                                  |
| 100             | L/HDB100                                 |
| 125             | L/HDB125                                 |
| 150             | L/HDB150                                 |



Suspension clip

Finish: hot dip galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. L/SC100SS  
Slot diameter is 12mm x 20mm.

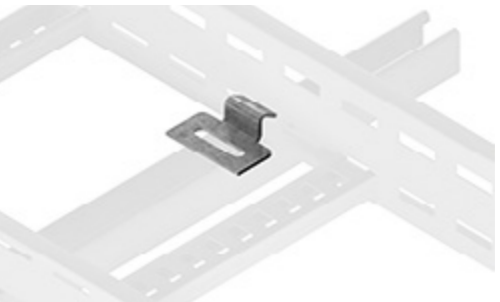
| Ladder depth mm | Sold as single item (fasteners excluded) |
|-----------------|--|
| 50              | L/SC50                                   |
| 100             | L/SC100                                  |
| 125             | L/SC125                                  |
| 150             | L/SC150                                  |



Hold down clip

Finish: hot dip galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. L/HDC/ASS

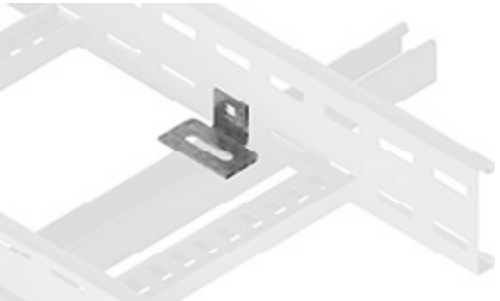
| Sold as single item (fasteners excluded) |
|--|
| L/HDC/A                                  |



Bolted hold down clip

Finish: hot dip galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. L/HDC/BSS

| Sold as single item (fasteners excluded) |
|--|
| L/HDC/B                                  |



Side rail clamp

Finish: hot dip galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. L/SRC/SS

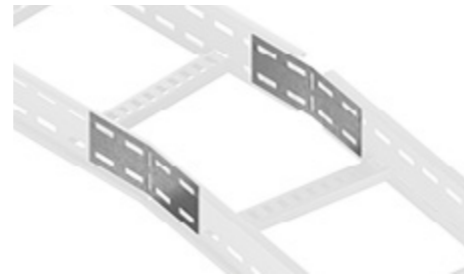
| Sold as single item (fasteners excluded) |
|--|
| L/SRC                                    |



### Bendable splice plates

Finish: hot dip galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. L/BSP100/SSPR

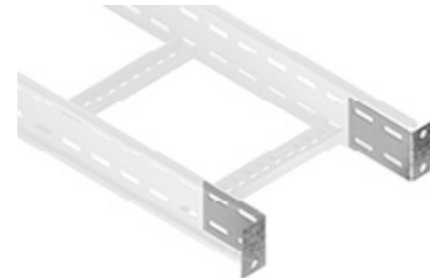
| Ladder depth mm | Sold in pairs<br>(includes 16 nuts, bolts and washers) |
|-----------------|--|
| 50              | L/BSP050PR   |
| 100             | L/BSP100PR   |
| 125             | L/BSP125PR   |
| 150             | L/BSP150PR   |



### End connectors

Finish: hot dip galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. L/ECO100SSPR

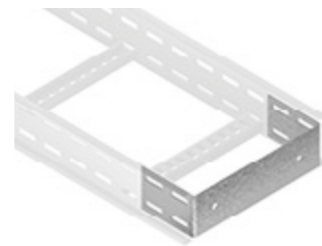
| Ladder depth mm | Sold in pairs<br>(fasteners excluded) |
|-----------------|---------------------------------------|
| 50              | L/ECO50PR                             |
| 100             | L/ECO100PR                            |
| 125             | L/ECO125PR                            |
| 150             | L/ECO150PR                            |



### Stop ends

Finish: hot dip galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. L/SE100/0300SS.  
Sold as single item (fasteners excluded)

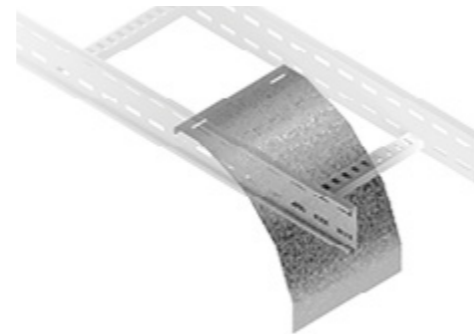
| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | L/SE050/0150            | L/SE100/0150              | L/SE125/0150             | L/SE150/0150                   |
| 300      | L/SE050/0300            | L/SE100/0300              | L/SE125/0300             | L/SE150/0300                   |
| 450      | L/SE050/0450            | L/SE100/0450              | L/SE125/0450             | L/SE150/0450                   |
| 600      | N/A                     | L/SE100/0600              | L/SE125/0600             | L/SE150/0600                   |
| 750      | N/A                     | L/SE100/0750              | L/SE125/0750             | L/SE150/0750                   |
| 900      | N/A                     | L/SE100/0900              | L/SE125/0900             | L/SE150/0900                   |



### Drop out plates

Finish: hot dip galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. L/DOP150SS

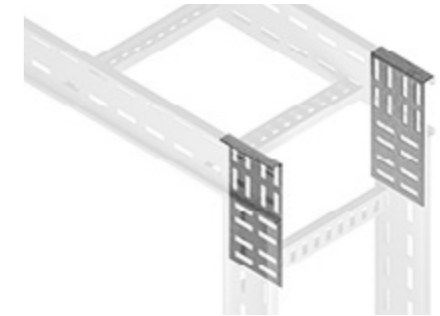
| Ladder depth mm | Sold as single item<br>(fasteners excluded) |
|-----------------|---|
| 150             | L/DOP150                                    |
| 300             | L/DOP300                                    |
| 450             | L/DOP450                                    |
| 600             | L/DOP600                                    |
| 750             | L/DOP750                                    |
| 900             | L/DOP900                                    |



### Drop out brackets

Finish: hot dip galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. L/RTR100SSPR

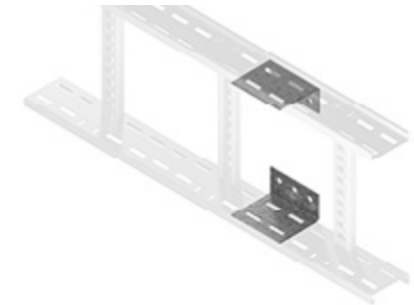
| Ladder depth mm | Sold in pairs<br>(fasteners excluded) |
|-----------------|---------------------------------------|
| 50              | N/A                                   |
| 100             | L/RTR100PR                            |
| 125             | L/RTR125PR                            |
| 150             | L/RTR150PR                            |



### Wall brackets

Finish: hot dip galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. L/WSB100SSPR

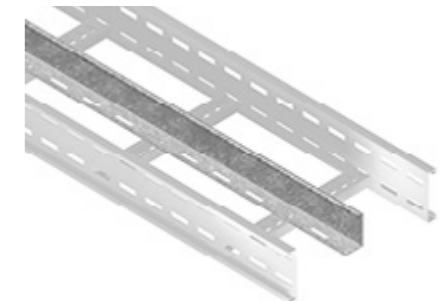
| Ladder depth mm | Sold in pairs<br>(fasteners excluded) |
|-----------------|---------------------------------------|
| 50              | L/WSB050PR                            |
| 100             | L/WSB100PR                            |
| 125             | L/WSB125PR                            |
| 150             | L/WSB150PR                            |



### Straight divider – 3m long

Finish: hot dip galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. LSD100/3SS

| Ladder depth mm | Sold as single item<br>(fasteners excluded) |
|-----------------|---|
| 50              | LSD050/3                                    |
| 100             | LSD100/3                                    |
| 125             | LSD125/3                                    |
| 150             | LSD150/3                                    |



### Bendable divider – 1m long

Finish: hot dip galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. LBD100SS

| Ladder depth mm | Sold as single item<br>(fasteners excluded) |
|-----------------|---|
| 50              | LBD050                                      |
| 100             | LBD100                                      |
| 125             | LBD125                                      |
| 150             | LBD150                                      |



### Earth straps

Finish: copper braid Electro Tinned – 16mm<sup>2</sup>  
Hole diameter is 12mm.

| 250mm long (fasteners excluded) |
|---------------------------------|
| L/ES250                         |



# CABLE LADDER SYSTEMS

## Pre-Galvanised Cable Ladder Systems

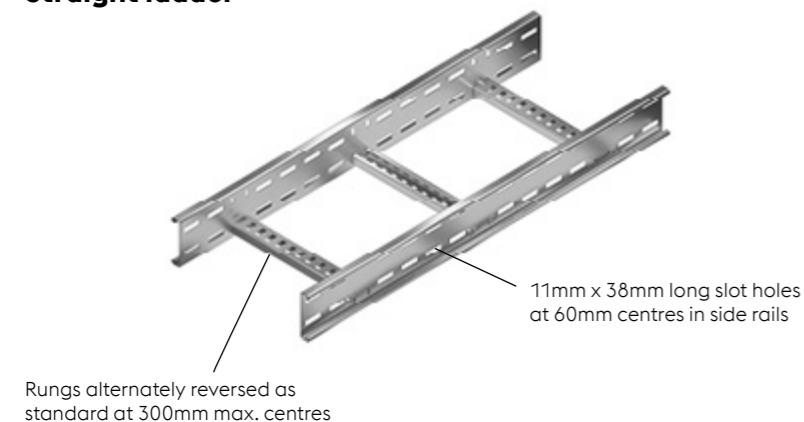
voestalpine Metsec pre-galvanised ladders are made using a non-destructive joining method called clinching. This enables a strong and robust product to be created without damage to the corrosion resistant coating, to ensure the optimum level of protection is maintained. A full range of accessories are available as well as splice plates which come complete with M10 cup square bolts, shake proof washers and nuts.

When installing metsec cable ladders, care should be taken to ensure the support is within 600mm of a joint. Accessories (e.g. bends, tees, crossovers etc.) should have adequate support. Additional support will be required for larger components.

## Technical construction details

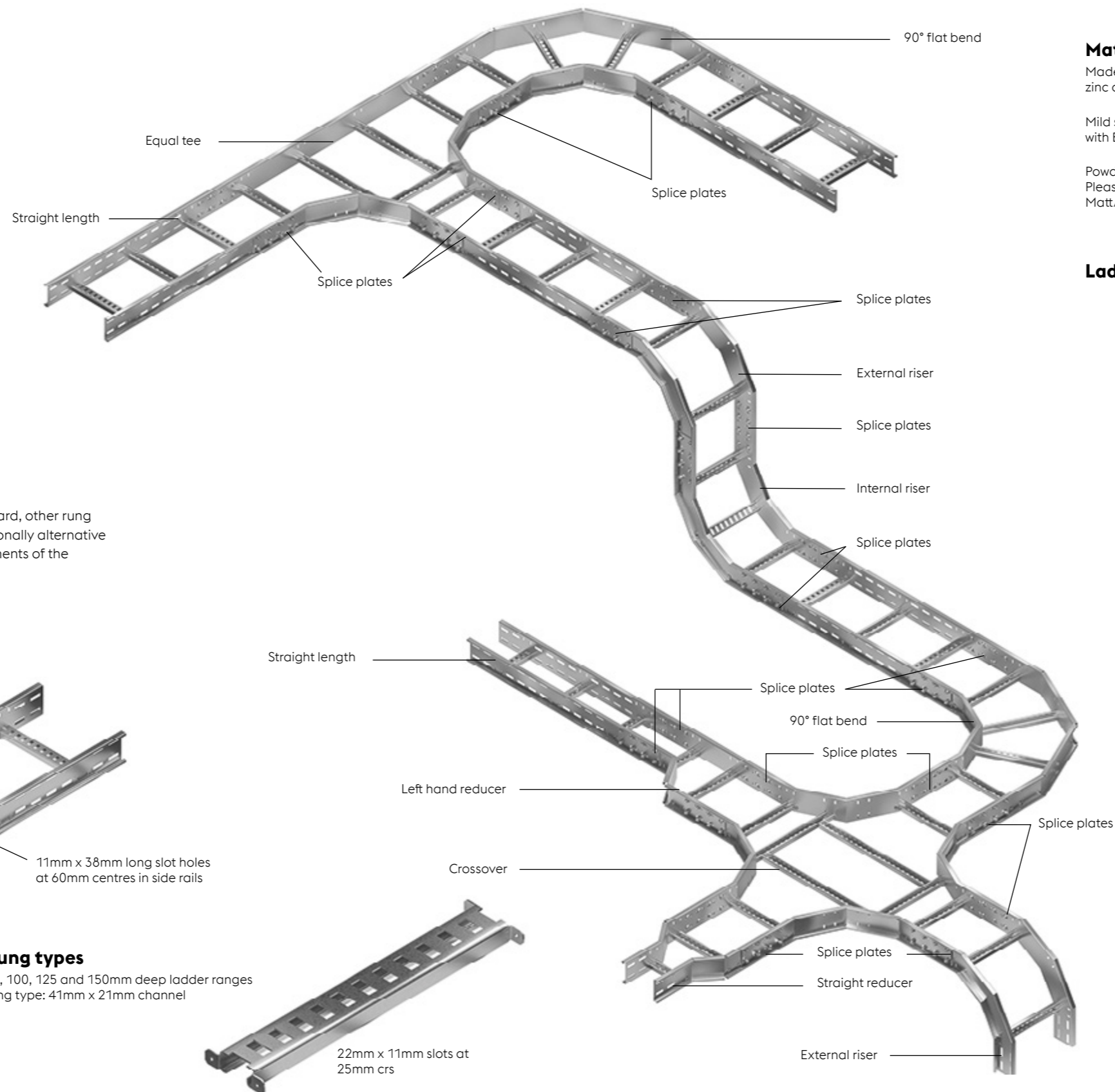
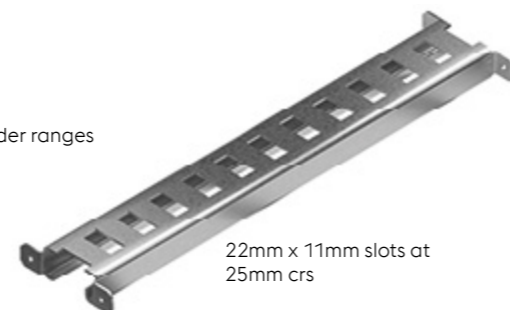
Whilst rungs are alternately reversed as standard, other rung orientations can be produced to order. Additionally alternative widths are also available to meet the requirements of the European markets.

## Straight ladder



## Rung types

50, 100, 125 and 150mm deep ladder ranges  
rung type: 41mm x 21mm channel



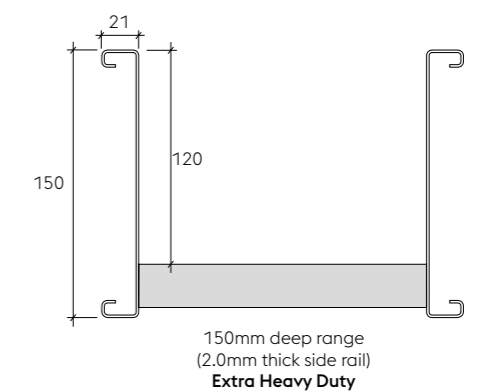
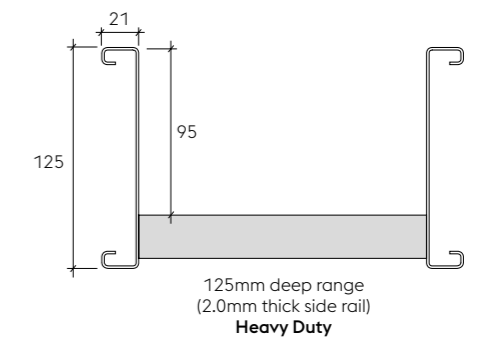
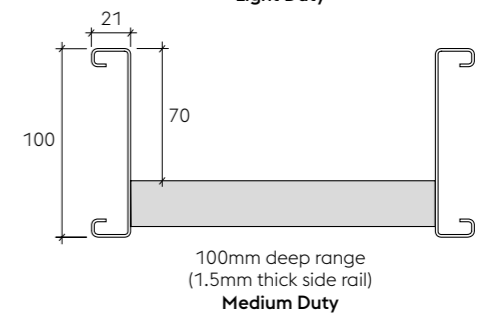
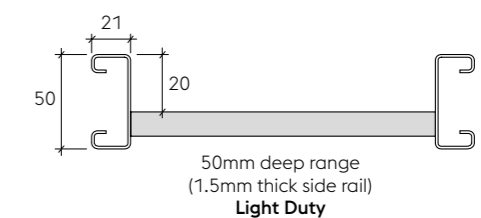
## Materials and finishes

Made from pre-galvanised steel grade S280 with a 275g/m<sup>2</sup> zinc coating.

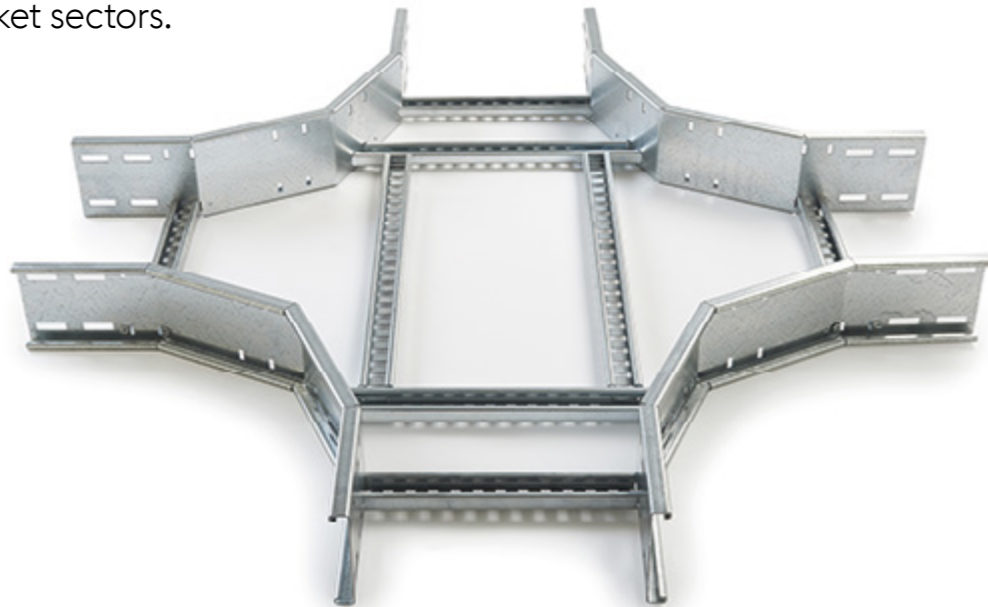
Mild steel Pre-galvanised: manufactured from steel complying with BS EN 10346.

Powder coating is available as an additional surface finish. Please provide the required RAL or BS colour and the level of Matt/Semi or Gloss when ordering.

## Ladder profiles



The voestalpine Metsec Pre-Galvanised Ladder has been specially designed to provide a high quality, Cable Management solution across a wide range of market sectors.



Features

- » voestalpine Metsec's team of specialist engineers manufacture flat bends, tees and crossovers, risers, reducers and covers, all designed to fit into a complete ladder system with a range of accessories for ease of installation
- » For projects requiring long, straight runs of cable ladder, lengths of up to 6m can be manufactured to order
- » Aesthetically superior to traditional hot dipped finish
- » Splice plates are supplied complete with M10 cup square bolts, shake proof washers, and nuts with a high tolerance fit for optimum structural performance.

Key Benefits

- » Proven to meet recognised industry standards through rigorous BSI Kitemark™ testing, demonstrating safety, reliability and quality
- » Conforms to BS EN 61537 for Cable Management, cable tray systems and cable ladder systems
- » Assembled using a non-destructive process, eliminating any risk of damage to the galvanised coating
- » Offers equivalent loading performance of our welded ladder system.



Industry Sectors

The Pre-Galvanised ladder is suitable for many industries: Commercial, Education, Health, Retail, Telecoms and Tunnels.

Load Table

Our load table is provided to enable easy comparison and cost optimisation. This data assumes an even distribution across the width of the ladder in a horizontal plane and that the load is similar across two or more continuous spans. For non-uniform loads, or spans/loadings outside the scope of the tables, please contact voestalpine Metsec for advice.

Example

Load required = 100kg per linear metre options available

1. 50mm deep ladder will span up to a maximum of 2.438m with a deflection of 11.6mm
2. 100mm deep ladder will span up to a maximum of 4.021m with a deflection of 15.8mm
3. 125mm deep ladder will span up to a maximum of 5.414m with a deflection of 23.0mm
4. 150mm deep ladder will span up to a maximum of 5.827m with a deflection of 19.4mm



| Load | Type      |      |      |            |      |      |            |      |      |            |      |      |
|------|-----------|------|------|------------|------|------|------------|------|------|------------|------|------|
| W    | 50mm Deep |      |      | 100mm Deep |      |      | 125mm Deep |      |      | 150mm Deep |      |      |
| kg/m | s         | d    | dp   | s          | d    | dp   | s          | d    | dp   | s          | d    | dp   |
| 25   | 3.931     | 19.7 | 19.7 | 6.000      | 19.6 | 30.0 | 6.000      | 8.7  | 30.0 | 6.000      | 5.4  | 30.0 |
| 50   | 3.120     | 15.6 | 15.6 | 5.487      | 27.4 | 27.4 | 6.000      | 17.3 | 30.0 | 6.000      | 10.9 | 30.0 |
| 75   | 2.725     | 13.6 | 13.6 | 4.643      | 21.1 | 23.2 | 6.000      | 26.0 | 30.0 | 6.000      | 16.3 | 30.0 |
| 100  | 2.438     | 11.6 | 12.2 | 4.021      | 15.8 | 20.1 | 5.414      | 23.0 | 27.1 | 5.827      | 19.4 | 29.1 |
| 125  | 2.181     | 9.3  | 10.9 | 3.512      | 11.5 | 17.6 | 4.843      | 18.4 | 24.2 | 5.212      | 15.5 | 26.1 |
| 150  | 1.991     | 7.8  | 10.0 | 3.132      | 8.7  | 15.7 | 4.421      | 15.3 | 22.1 | 4.685      | 12.2 | 23.4 |
| 175  | 1.843     | 6.6  | 9.2  | 2.839      | 6.9  | 14.2 | 4.048      | 12.5 | 20.2 | 4.259      | 9.7  | 21.3 |
| 200  | 1.724     | 5.8  | 8.6  | 2.604      | 5.6  | 13.0 | 3.728      | 10.3 | 18.6 | 3.918      | 7.9  | 19.6 |
| 225  | 1.625     | 5.2  | 8.1  | 2.411      | 4.6  | 12.1 | 3.464      | 8.7  | 17.3 | 3.636      | 6.6  | 18.2 |
| 250  | 1.542     | 4.7  | 7.7  | 2.248      | 3.9  | 11.2 | 3.242      | 7.4  | 16.2 | 3.398      | 5.6  | 17.0 |
| 275  | 1.470     | 4.2  | 7.4  | 2.109      | 3.3  | 10.5 | 3.051      | 6.4  | 15.3 | 3.195      | 4.8  | 16.0 |
| 300  | 1.405     | 3.8  | 7.0  | 1.988      | 2.8  | 9.9  | 2.885      | 5.6  | 14.4 | 3.018      | 4.2  | 15.1 |

's' - maximum spacing of supports in metres

'dp' - allowable deflection (span/200) in mm

'd' - maximum deflection in end span in mm

'w' - safe working load in kg per linear metre

# STANDARDS

voestalpine Metsec cable ladder systems generally conform to BS EN 61537  
Cable Management – cable tray systems and cable ladder systems

Information relating to compliance is detailed/[highlighted](#) within the following sections of the standard:

## 6 Classification

|            |   |            |   |
|------------|---|------------|---|
| <b>6.1</b> | <b>According to material</b>  | <b>6.4</b> | <b>According to electrical conductivity</b>   |
| 6.1.1      | voestalpine Metsec cable ladder systems are metallic system components              | 6.4.1      | voestalpine Metsec cable ladder systems are electrically conductive system components   |
| <b>6.2</b> | <b>According to resistance to flame propagation</b>                                 | <b>6.5</b> | <b>According to resistance against corrosion</b>  |
| 6.2.2      | voestalpine Metsec cable ladder systems are non-flame propagating system components | 6.5.2      | voestalpine Metsec cable ladder systems are made of steel with metallic finishes or stainless steel   |
| <b>6.3</b> | <b>According to electrical continuity characteristics</b>                           |            |   |
| 6.3.2      | voestalpine Metsec cable ladder systems have electrical continuity characteristics  |            | (Resistance to corrosion is classified according to Table 1. and follow the relevant specification in Table 8, with compliance according to Table 7.) |

Table 1 – Classification for resistance against corrosion

| Class | Reference – material and finish   |
|-------|---|
| 0 (a) | None  |
| 1     | Electroplated to a minimum thickness of 5 µm  |
| 2     | Electroplated to a minimum thickness of 12 µm   |
| 3     | Pre-galvanised to grade 275 to BS EN 10346  |
| 4     | Pre-galvanised to grade 350 to EN 10346   |
| 5     | Post-galvanised to a zinc mean coating thickness (minimum) of 45 µm according to BS EN ISO 1461 for zinc thickness only             |
| 6     | Post-galvanised to a zinc mean coating thickness (minimum) of 55 µm according to ISO 1461 for zinc thickness only                   |
| 7     | Post-galvanised to a zinc mean coating thickness (minimum) of 70 µm according to ISO 1461 for zinc thickness only                   |
| 8     | Post-galvanised to a zinc mean coating thickness (minimum) of 85 µm according to ISO 1461 for zinc thickness only                   |
| 9A    | Stainless steel manufactured to ASTM: A 240/A 240M – 95a designation S30400 or EN 10088 grade 1 – 4301 without a post treatment (b) |
| 9B    | Stainless steel manufactured to ASTM: A 240/A 240M – 95a designation S31603 or EN 10088 grade 1 – 4404 without a post treatment (b) |
| 9C    | Stainless steel manufactured to ASTM: A 240/A 240M – 95a designation S30400 or EN 10088 grade 1 – 4301 with a post treatment (b)    |
| 9D    | Stainless steel manufactured to ASTM: A 240/A 240M – 95a designation S31603 or EN 10088 grade 1 – 4404 with a post treatment (b)    |
| (a)   | For materials which have no declared corrosion resistance classification  |
| (b)   | The post-treatment process is used to improve the protection against crevice crack corrosion and the contamination by other steels  |

Table 7 – System component compliance and classification for resistance against corrosion

| System component<br>Material and finishes  | Classification according to           | Compliance                     | Subclause for<br>compliance check |
|--|---------------------------------------|--------------------------------|-----------------------------------|
| Non-metallic                               | 6.5.1                                 | Declaration                    | 14.2.1                            |
| Reference – zinc coating as in Table 1.    | 6.5.2 Table 1 classes 1 to 8          | Declaration or measurement     | 14.2.2                            |
| Non-referenced zinc coating                | 6.5.2 Table 1 classes 1 to 8          | By neutral salt spray test NSS | 14.2.3                            |
| Reference – stainless steel as in Table 1. | 6.5.2 Table 1 Class 9A to 9D          | Declaration                    | 14.2.2                            |
| Non-referenced stainless steel             | Not classified                        | Declaration                    | None                              |
| Other metallic coatings                    | 6.5.2 Table 1 Column 1 classes 1 to 8 | By neutral salt spray test NSS | 14.2.3                            |
| Aluminium alloys or other metals           | 6.5.3 Under consideration             | Under consideration            | 14.2.4                            |
| Organic coatings                           | 6.5.4 Under consideration             | Under consideration            | 14.2.5                            |

Table 8 – Zinc coating thickness of reference materials

| Class | Minimum thickness | Theoretical guidance<br>values for coating thickness<br>(typical value) as per<br>BS EN 10346 | Mean coating thickness<br>(minimum) to ISO 1461 |
|-------|-------------------|---|---|
|       | µm                | µm  | µm  |
| 0 (a) | -                 | -   | -   |
| 1     | 5                 | -   | -   |
| 2     | 12                | -   | -   |
| 3     | -                 | 20  | -   |
| 4     | -                 | 25  | -   |
| 5     | -                 | -   | 45  |
| 6     | -                 | -   | 55  |
| 7     | -                 | -   | 70  |
| 8     | -                 | -   | 85  |

a) As declared by the manufacturer or responsible vendor

- 6.6

According to temperature
- 6.6.1

Minimum temperature for the system components is given in Table 2.
- 6.6.2

Maximum temperature for the system components is given in Table 3.
- 6.8

According to the free base area of the cable ladder length as given in Table 5.
- 6.9

According to impact resistance
- 6.9.5

System component offering impact resistance up to 50 J (as verified by testing in accordance with 10.9 Test for impact resistance).

7 Marking and Documentation

- 7.1

Each system component is marked by a label. Labels used fully comply with the rubbing test. Boxed items are labelled on the packaging.

8 Dimensions

Key cross sectional dimensions for straight cable ladders

| Part No      | External depth mm | Internal depth mm | External width mm | Internal width mm | X-sectional area mm <sup>2</sup> |
|--------------|-------------------|-------------------|-------------------|-------------------|----------------------------------|
| LSL050/0150# | 50                | 20                | 192               | 150               | 3000                             |
| LSL050/0300# | 50                | 20                | 342               | 300               | 6000                             |
| LSL050/0450# | 50                | 20                | 492               | 450               | 9000                             |
| LSL100/0150# | 100               | 70                | 192               | 150               | 10500                            |
| LSL100/0300# | 100               | 70                | 342               | 300               | 21000                            |
| LSL100/0450# | 100               | 70                | 492               | 450               | 31500                            |
| LSL100/0600# | 100               | 70                | 642               | 600               | 42000                            |
| LSL100/0750# | 100               | 70                | 792               | 750               | 52500                            |
| LSL100/0900# | 100               | 70                | 942               | 900               | 63000                            |
| LSL125/0150# | 125               | 95                | 192               | 150               | 14250                            |
| LSL125/0300# | 125               | 95                | 342               | 300               | 28500                            |
| LSL125/0450# | 125               | 95                | 492               | 450               | 42750                            |
| LSL125/0600# | 125               | 95                | 642               | 600               | 57000                            |
| LSL125/0750# | 125               | 95                | 792               | 750               | 71250                            |
| LSL125/0900# | 125               | 95                | 942               | 900               | 85500                            |
| LSL150/0150# | 150               | 120               | 192               | 150               | 18000                            |
| LSL150/0300# | 150               | 120               | 342               | 300               | 36000                            |
| LSL150/0450# | 150               | 120               | 492               | 450               | 54000                            |
| LSL150/0600# | 150               | 120               | 642               | 600               | 72000                            |
| LSL150/0750# | 150               | 120               | 792               | 750               | 90000                            |
| LSL150/0900# | 150               | 120               | 942               | 900               | 108000                           |

Table 2 – Minimum temperature classification

| Minimum transport, storage installation and application temperature °C |
|--|
| +5   |
| - 5  |
| - 15   |
| - 20   |
| - 40   |
| - 50   |

Table 3 – Maximum temperature classification

| Maximum transport, storage installation and application temperature °C |
|--|
| +40  |
| +60  |
| +90  |
| +105   |
| +120   |
| +150   |

Table 5 – Free base area classification

| Classification | Perforation in the free base area |
|----------------|-----------------------------------|
| X              | Up to 80 %                        |
| Y              | Over 80 % and up to 90 %          |
| Z              | More than 90 %                    |

NB: Classification Z relates to IEC 60364-5-52 Subclause A.52.6.2 third paragraph

Minimum internal radius of fittings

Minimal internal radius of fittings available for the accommodation of cables is 300 mm.

9 Construction

- 9.1

Surfaces of system components which are likely to come into contact with cables during installation are inspected to ensure they shall not cause damage to the cables when installed correctly.
- 9.2

As with all metallic system components, care should be exercised that handling is in accordance with the relative COSHH regulations and gloves should be worn.
- 9.3

Screwed connections have been designed to withstand the mechanical stresses occurring during installations and normal use and will not cause damage to cables when correctly inserted. Screwed connections are in general ISO metric threads fully compliant to tests in accordance with 9.3.1 and 9.3.2 of the standard. voestalpine Metsec cable ladder systems are usually assembled using M10 cup square bolts and hex nuts with lock washers for couplers etc tightened to a torque of 45N/m. Other connections require M10 hex bolts for clamps etc tightened to a torque of 25N/m.

10 Mechanical Properties

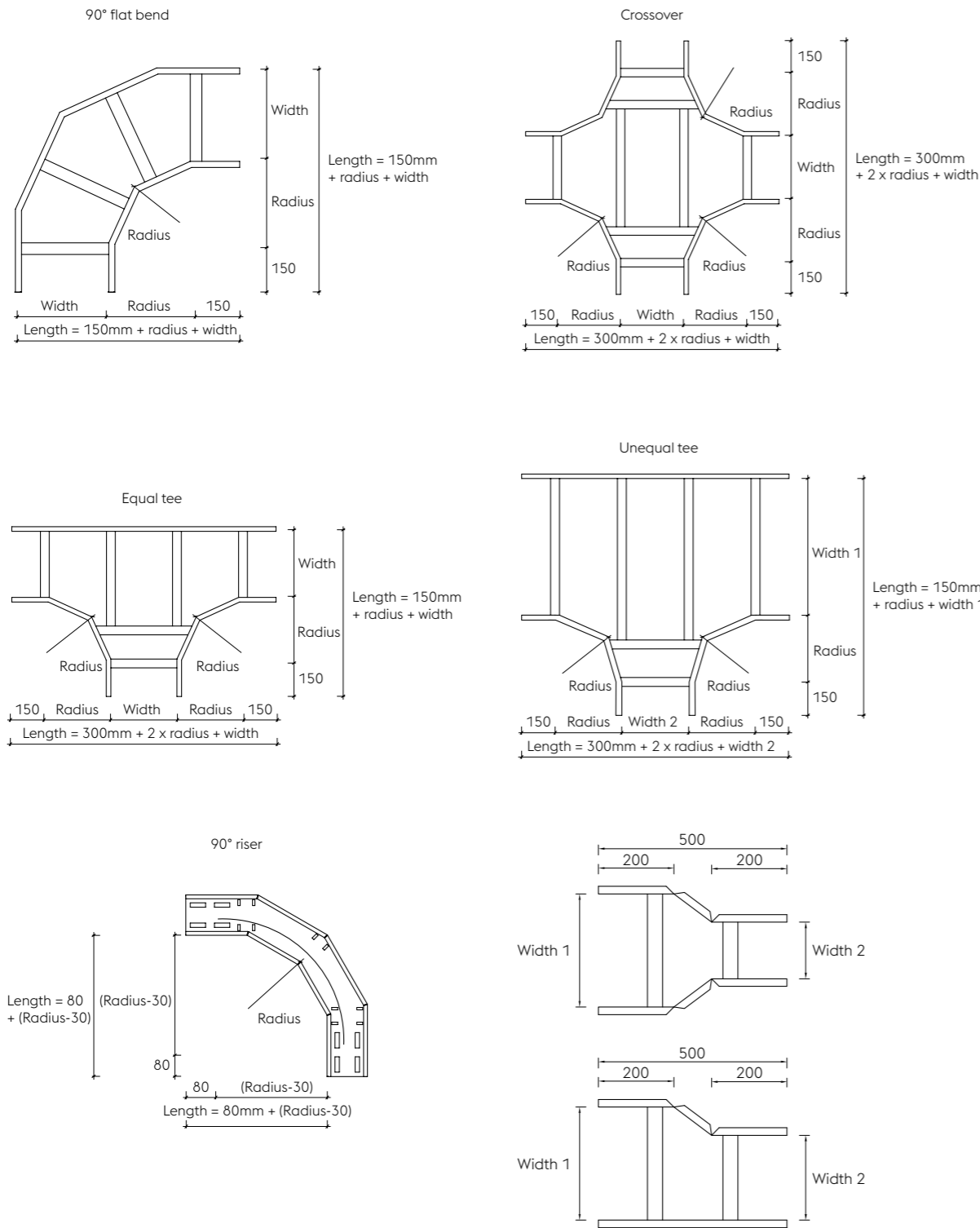
Cable ladder lengths have been tested generally in accordance with the standard under 10.2 and 10.3 for verification of the loading graphs. It should be noted that independent testing has been carried out to verify the structural performance of the cable ladders at the minimum and maximum temperature classifications for test conditions under 10.2.2.

All accessories e.g. bends, tees etc should be directly supported by a suitable support device or devices at appropriate positions.

# PRE-GALVANISED LADDER SYSTEMS

## Accessory Footprint

Pre-Galvanised ladder – accessory foot print standard radius is 300mm



Footprints are identical for all ranges

## Straight Lengths

### Light duty – 50mm deep

Finish: pre-galvanised = PG

| Width mm | 50mm Deep – 3M long | 50mm Deep – 6M long |
|----------|---------------------|---------------------|
| 150      | LSL050/0150PG/3     | N/A                 |
| 300      | LSL050/0300PG/3     | N/A                 |
| 450      | LSL050/0450PG/3     | N/A                 |

### Medium duty – 100mm deep

Finish: pre-galvanised = PG

| Width mm | 100mm Deep – 3M long | 100mm Deep – 6M long |
|----------|----------------------|----------------------|
| 150      | LSL100/0150PG/3      | LSL100/0150PG/6      |
| 300      | LSL100/0300PG/3      | LSL100/0300PG/6      |
| 450      | LSL100/0450PG/3      | LSL100/0450PG/6      |
| 600      | LSL100/0600PG/3      | LSL100/0600PG/6      |
| 750      | LSL100/0750PG/3      | LSL100/0750PG/6      |
| 900      | LSL100/0900PG/3      | LSL100/0900PG/6      |

### Heavy duty 125mm deep

Finish: pre-galvanised = PG

| Width mm | 125mm Deep – 3M Long | 125mm Deep – 6M long |
|----------|----------------------|----------------------|
| 150      | LSL125/0150PG/3      | LSL125/0150PG/6      |
| 300      | LSL125/0300PG/3      | LSL125/0300PG/6      |
| 450      | LSL125/0450PG/3      | LSL125/0450PG/6      |
| 600      | LSL125/0600PG/3      | LSL125/0600PG/6      |
| 750      | LSL125/0750PG/3      | LSL125/0750PG/6      |
| 900      | LSL125/0900PG/3      | LSL125/0900PG/6      |

### Extra heavy duty – 150mm deep

Finish: pre-galvanised = PG

| Width mm | 150mm Deep – 3M Long | 150mm Deep – 6M Long |
|----------|----------------------|----------------------|
| 150      | LSL150/0150PG/3      | LSL150/0150PG/6      |
| 300      | LSL150/0300PG/3      | LSL150/0300PG/6      |
| 450      | LSL150/0450PG/3      | LSL150/0450PG/6      |
| 600      | LSL150/0600PG/3      | LSL150/0600PG/6      |
| 750      | LSL150/0750PG/3      | LSL150/0750PG/6      |
| 900      | LSL150/0900PG/3      | LSL150/0900PG/6      |



Flat Bends

90° flat bend

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: pre-galvanised = PG

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LFB050/0150PG/90R300    | LFB100/0150PG/90R300      | LFB125/0150PG/90R300     | LFB150/0150PG/90R300           |
| 300      | LFB050/0300PG/90R300    | LFB100/0300PG/90R300      | LFB125/0300PG/90R300     | LFB150/0300PG/90R300           |
| 450      | LFB050/0450PG/90R300    | LFB100/0450PG/90R300      | LFB125/0450PG/90R300     | LFB150/0450PG/90R300           |
| 600      | N/A                     | LFB100/0600PG/90R300      | LFB125/0600PG/90R300     | LFB150/0600PG/90R300           |
| 750      | N/A                     | LFB100/0750PG/90R300      | LFB125/0750PG/90R300     | LFB150/0750PG/90R300           |
| 900      | N/A                     | LFB100/0900PG/90R300      | LFB125/0900PG/90R300     | LFB150/0900PG/90R300           |



60° flat bend (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: pre-galvanised = PG

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LFB050/0150PG/60R300    | LFB100/0150PG/60R300      | LFB125/0150PG/60R300     | LFB150/0150PG/60R300           |
| 300      | LFB050/0300PG/60R300    | LFB100/0300PG/60R300      | LFB125/0300PG/60R300     | LFB150/0300PG/60R300           |
| 450      | LFB050/0450PG/60R300    | LFB100/0450PG/60R300      | LFB125/0450PG/60R300     | LFB150/0450PG/60R300           |
| 600      | N/A                     | LFB100/0600PG/60R300      | LFB125/0600PG/60R300     | LFB150/0600PG/60R300           |
| 750      | N/A                     | LFB100/0750PG/60R300      | LFB125/0750PG/60R300     | LFB150/0750PG/60R300           |
| 900      | N/A                     | LFB100/0900PG/60R300      | LFB125/0900PG/60R300     | LFB150/0900PG/60R300           |



45° flat bend (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: pre-galvanised = PG

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LFB050/0150PG/45R300    | LFB100/0150PG/45R300      | LFB125/0150PG/45R300     | LFB150/0150PG/45R300           |
| 300      | LFB050/0300PG/45R300    | LFB100/0300PG/45R300      | LFB125/0300PG/45R300     | LFB150/0300PG/45R300           |
| 450      | LFB050/0450PG/45R300    | LFB100/0450PG/45R300      | LFB125/0450PG/45R300     | LFB150/0450PG/45R300           |
| 600      | N/A                     | LFB100/0600PG/45R300      | LFB125/0600PG/45R300     | LFB150/0600PG/45R300           |
| 750      | N/A                     | LFB100/0750PG/45R300      | LFB125/0750PG/45R300     | LFB150/0750PG/45R300           |
| 900      | N/A                     | LFB100/0900PG/45R300      | LFB125/0900PG/45R300     | LFB150/0900PG/45R300           |



30° flat bend (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: pre-galvanised = PG

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LFB050/0150PG/30R300    | LFB100/0150PG/30R300      | LFB125/0150PG/30R300     | LFB150/0150PG/30R300           |
| 300      | LFB050/0300PG/30R300    | LFB100/0300PG/30R300      | LFB125/0300PG/30R300     | LFB150/0300PG/30R300           |
| 450      | LFB050/0450PG/30R300    | LFB100/0450PG/30R300      | LFB125/0450PG/30R300     | LFB150/0450PG/30R300           |
| 600      | N/A                     | LFB100/0600PG/30R300      | LFB125/0600PG/30R300     | LFB150/0600PG/30R300           |
| 750      | N/A                     | LFB100/0750PG/30R300      | LFB125/0750PG/30R300     | LFB150/0750PG/30R300           |
| 900      | N/A                     | LFB100/0900PG/30R300      | LFB125/0900PG/30R300     | LFB150/0900PG/30R300           |



Tees & Crossovers

Equal tee

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: pre-galvanised = PG

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LET050/0150PGR300       | LET100/0150PGR300         | LET125/0150PGR300        | LET150/0150PGR300              |
| 300      | LET050/0300PGR300       | LET100/0300PGR300         | LET125/0300PGR300        | LET150/0300PGR300              |
| 450      | LET050/0450PGR300       | LET100/0450PGR300         | LET125/0450PGR300        | LET150/0450PGR300              |
| 600      | N/A                     | LET100/0600PGR300         | LET125/0600PGR300        | LET150/0600PGR300              |
| 750      | N/A                     | LET100/0750PGR300         | LET125/0750PGR300        | LET150/0750PGR300              |
| 900      | N/A                     | LET100/0900PGR300         | LET125/0900PGR300        | LET150/0900PGR300              |



Unequal tee (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900.  
Finish: pre-galvanised = PG

How to generate the part number – LUT(depth)/W1/W2(finish)(radius)  
Example – LUT100/0300/0150PGR300  
Table below shows a complete list of W1 and W2 combinations.

| W1  | W2                      |
|-----|-------------------------|
| 150 | 300, 450, 600, 750, 900 |
| 300 | 150, 450, 600, 750, 900 |
| 450 | 150, 300, 600, 750, 900 |
| 600 | 150, 300, 450, 750, 900 |
| 750 | 150, 300, 450, 600, 900 |
| 900 | 150, 300, 450, 600, 750 |



Crossover

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: pre-galvanised = PG

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LCO050/0150PGR300       | LCO100/0150PGR300         | LCO125/0150PGR300        | LCO150/0150PGR300              |
| 300      | LCO050/0300PGR300       | LCO100/0300PGR300         | LCO125/0300PGR300        | LCO150/0300PGR300              |
| 450      | LCO050/0450PGR300       | LCO100/0450PGR300         | LCO125/0450PGR300        | LCO150/0450PGR300              |
| 600      | N/A                     | LCO100/0600PGR300         | LCO125/0600PGR300        | LCO150/0600PGR300              |
| 750      | N/A                     | LCO100/0750PGR300         | LCO125/0750PGR300        | LCO150/0750PGR300              |
| 900      | N/A                     | LCO100/0900PGR300         | LCO125/0900PGR300        | LCO150/0900PGR300              |

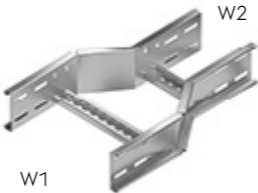


Reducers

Straight reducer

Finish: pre-galvanised = PG

| Width<br>mm |     | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|-------------|-----|-------------------------|---------------------------|--------------------------|--------------------------------|
| W1          | W2  |                         |                           |                          |                                |
| 300         | 150 | LSR050/0300/0150PG      | LSR100/0300/0150PG        | LSR125/0300/0150PG       | LSR150/0300/0150PG             |
| 450         | 150 | LSR050/0450/0150PG      | LSR100/0450/0150PG        | LSR125/0450/0150PG       | LSR150/0450/0150PG             |
| 600         | 150 | N/A                     | LSR100/0600/0150PG        | LSR125/0600/0150PG       | LSR150/0600/0150PG             |
| 750         | 150 | N/A                     | LSR100/0750/0150PG        | LSR125/0750/0150PG       | LSR150/0750/0150PG             |
| 900         | 150 | N/A                     | LSR100/0900/0150PG        | LSR125/0900/0150PG       | LSR150/0900/0150PG             |
| 450         | 300 | LSR050/0450/0300PG      | LSR100/0450/0300PG        | LSR125/0450/0300PG       | LSR150/0450/0300PG             |
| 600         | 300 | N/A                     | LSR100/0600/0300PG        | LSR125/0600/0300PG       | LSR150/0600/0300PG             |
| 750         | 300 | N/A                     | LSR100/0750/0300PG        | LSR125/0750/0300PG       | LSR150/0750/0300PG             |
| 900         | 300 | N/A                     | LSR100/0900/0300PG        | LSR125/0900/0300PG       | LSR150/0900/0300PG             |
| 600         | 450 | N/A                     | LSR100/0600/0450PG        | LSR125/0600/0450PG       | LSR150/0600/0450PG             |
| 750         | 450 | N/A                     | LSR100/0750/0450PG        | LSR125/0750/0450PG       | LSR150/0750/0450PG             |
| 900         | 450 | N/A                     | LSR100/0900/0450PG        | LSR125/0900/0450PG       | LSR150/0900/0450PG             |
| 750         | 600 | N/A                     | LSR100/0750/0600PG        | LSR125/0750/0600PG       | LSR150/0750/0600PG             |
| 900         | 600 | N/A                     | LSR100/0900/0600PG        | LSR125/0900/0600PG       | LSR150/0900/0600PG             |
| 900         | 750 | N/A                     | LSR100/0900/0750PG        | LSR125/0900/0750PG       | LSR150/0900/0750PG             |



Right hand reducer

Finish: pre-galvanised = PG

| Width<br>mm |     | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|-------------|-----|-------------------------|---------------------------|--------------------------|--------------------------------|
| W1          | W2  |                         |                           |                          |                                |
| 300         | 150 | LRR050/0300/0150PG      | LRR100/0300/0150PG        | LRR125/0300/0150PG       | LRR150/0300/0150PG             |
| 450         | 150 | LRR050/0450/0150PG      | LRR100/0450/0150PG        | LRR125/0450/0150PG       | LRR150/0450/0150PG             |
| 600         | 150 | N/A                     | LRR100/0600/0150PG        | LRR125/0600/0150PG       | LRR150/0600/0150PG             |
| 750         | 150 | N/A                     | LRR100/0750/0150PG        | LRR125/0750/0150PG       | LRR150/0750/0150PG             |
| 900         | 150 | N/A                     | LRR100/0900/0150PG        | LRR125/0900/0150PG       | LRR150/0900/0150PG             |
| 450         | 300 | LRR050/0450/0300PG      | LRR100/0450/0300PG        | LRR125/0450/0300PG       | LRR150/0450/0300PG             |
| 600         | 300 | N/A                     | LRR100/0600/0300PG        | LRR125/0600/0300PG       | LRR150/0600/0300PG             |
| 750         | 300 | N/A                     | LRR100/0750/0300PG        | LRR125/0750/0300PG       | LRR150/0750/0300PG             |
| 900         | 300 | N/A                     | LRR100/0900/0300PG        | LRR125/0900/0300PG       | LRR150/0900/0300PG             |
| 600         | 450 | N/A                     | LRR100/0600/0450PG        | LRR125/0600/0450PG       | LRR150/0600/0450PG             |
| 750         | 450 | N/A                     | LRR100/0750/0450PG        | LRR125/0750/0450PG       | LRR150/0750/0450PG             |
| 900         | 450 | N/A                     | LRR100/0900/0450PG        | LRR125/0900/0450PG       | LRR150/0900/0450PG             |
| 750         | 600 | N/A                     | LRR100/0750/0600PG        | LRR125/0750/0600PG       | LRR150/0750/0600PG             |
| 900         | 600 | N/A                     | LRR100/0900/0600PG        | LRR125/0900/0600PG       | LRR150/0900/0600PG             |
| 900         | 750 | N/A                     | LRR100/0900/0750PG        | LRR125/0900/0750PG       | LRR150/0900/0750PG             |



Left hand reducer

Finish: pre-galvanised = PG

| Width<br>mm |     | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|-------------|-----|-------------------------|---------------------------|--------------------------|--------------------------------|
| W1          | W2  |                         |                           |                          |                                |
| 300         | 150 | LLR050/0300/0150PG      | LLR100/0300/0150PG        | LLR125/0300/0150PG       | LLR150/0300/0150PG             |
| 450         | 150 | LLR050/0450/0150PG      | LLR100/0450/0150PG        | LLR125/0450/0150PG       | LLR150/0450/0150PG             |
| 600         | 150 | N/A                     | LLR100/0600/0150PG        | LLR125/0600/0150PG       | LLR150/0600/0150PG             |
| 750         | 150 | N/A                     | LLR100/0750/0150PG        | LLR125/0750/0150PG       | LLR150/0750/0150PG             |
| 900         | 150 | N/A                     | LLR100/0900/0150PG        | LLR125/0900/0150PG       | LLR150/0900/0150PG             |
| 450         | 300 | LLR050/0450/0300PG      | LLR100/0450/0300PG        | LLR125/0450/0300PG       | LLR150/0450/0300PG             |
| 600         | 300 | N/A                     | LLR100/0600/0300PG        | LLR125/0600/0300PG       | LLR150/0600/0300PG             |
| 750         | 300 | N/A                     | LLR100/0750/0300PG        | LLR125/0750/0300PG       | LLR150/0750/0300PG             |
| 900         | 300 | N/A                     | LLR100/0900/0300PG        | LLR125/0900/0300PG       | LLR150/0900/0300PG             |
| 600         | 450 | N/A                     | LLR100/0600/0450PG        | LLR125/0600/0450PG       | LLR150/0600/0450PG             |
| 750         | 450 | N/A                     | LLR100/0750/0450PG        | LLR125/0750/0450PG       | LLR150/0750/0450PG             |
| 900         | 450 | N/A                     | LLR100/0900/0450PG        | LLR125/0900/0450PG       | LLR150/0900/0450PG             |
| 750         | 600 | N/A                     | LLR100/0750/0600PG        | LLR125/0750/0600PG       | LLR150/0750/0600PG             |
| 900         | 600 | N/A                     | LLR100/0900/0600PG        | LLR125/0900/0600PG       | LLR150/0900/0600PG             |
| 900         | 750 | N/A                     | LLR100/0900/0750PG        | LLR125/0900/0750PG       | LLR150/0900/0750PG             |



Risers

90° external riser

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order)

Finish: pre-galvanised = PG

| Width<br>mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|-------------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150         | LER050/0150PG/90R300    | LER100/0150PG/90R300      | LER125/0150PG/90R300     | LER150/0150PG/90R300           |
| 300         | LER050/0300PG/90R300    | LER100/0300PG/90R300      | LER125/0300PG/90R300     | LER150/0300PG/90R300           |
| 450         | LER050/0450PG/90R300    | LER100/0450PG/90R300      | LER125/0450PG/90R300     | LER150/0450PG/90R300           |
| 600         | N/A                     | LER100/0600PG/90R300      | LER125/0600PG/90R300     | LER150/0600PG/90R300           |
| 750         | N/A                     | LER100/0750PG/90R300      | LER125/0750PG/90R300     | LER150/0750PG/90R300           |
| 900         | N/A                     | LER100/0900PG/90R300      | LER125/0900PG/90R300     | LER150/0900PG/90R300           |



60° external riser

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order)

Finish: pre-galvanised = PG

| Width<br>mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|-------------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150         | LER050/0150PG/60R300    | LER100/0150PG/60R300      | LER125/0150PG/60R300     | LER150/0150PG/60R300           |
| 300         | LER050/0300PG/60R300    | LER100/0300PG/60R300      | LER125/0300PG/60R300     | LER150/0300PG/60R300           |
| 450         | LER050/0450PG/60R300    | LER100/0450PG/60R300      | LER125/0450PG/60R300     | LER150/0450PG/60R300           |
| 600         | N/A                     | LER100/0600PG/60R300      | LER125/0600PG/60R300     | LER150/0600PG/60R300           |
| 750         | N/A                     | LER100/0750PG/60R300      | LER125/0750PG/60R300     | LER150/0750PG/60R300           |
| 900         | N/A                     | LER100/0900PG/60R300      | LER125/0900PG/60R300     | LER150/0900PG/60R300           |



45° external riser

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order)

Finish: pre-galvanised = PG

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LER050/0150PG/45R300    | LER100/0150PG/45R300      | LER125/0150PG/45R300     | LER150/0150PG/45R300           |
| 300      | LER050/0300PG/45R300    | LER100/0300PG/45R300      | LER125/0300PG/45R300     | LER150/0300PG/45R300           |
| 450      | LER050/0450PG/45R300    | LER100/0450PG/45R300      | LER125/0450PG/45R300     | LER150/0450PG/45R300           |
| 600      | N/A                     | LER100/0600PG/45R300      | LER125/0600PG/45R300     | LER150/0600PG/45R300           |
| 750      | N/A                     | LER100/0750PG/45R300      | LER125/0750PG/45R300     | LER150/0750PG/45R300           |
| 900      | N/A                     | LER100/0900PG/45R300      | LER125/0900PG/45R300     | LER150/0900PG/45R300           |



30° external riser

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order)

Finish: pre-galvanised = PG

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LER050/0150PG/30R300    | LER100/0150PG/30R300      | LER125/0150PG/30R300     | LER150/0150PG/30R300           |
| 300      | LER050/0300PG/30R300    | LER100/0300PG/30R300      | LER125/0300PG/30R300     | LER150/0300PG/30R300           |
| 450      | LER050/0450PG/30R300    | LER100/0450PG/30R300      | LER125/0450PG/30R300     | LER150/0450PG/30R300           |
| 600      | N/A                     | LER100/0600PG/30R300      | LER125/0600PG/30R300     | LER150/0600PG/30R300           |
| 750      | N/A                     | LER100/0750PG/30R300      | LER125/0750PG/30R300     | LER150/0750PG/30R300           |
| 900      | N/A                     | LER100/0900PG/30R300      | LER125/0900PG/30R300     | LER150/0900PG/30R300           |



90° internal riser

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order)

Finish: pre-galvanised = PG

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LIR050/0150PG/90R300    | LIR100/0150PG/90R300      | LIR125/0150PG/90R300     | LIR150/0150PG/90R300           |
| 300      | LIR050/0300PG/90R300    | LIR100/0300PG/90R300      | LIR125/0300PG/90R300     | LIR150/0300PG/90R300           |
| 450      | LIR050/0450PG/90R300    | LIR100/0450PG/90R300      | LIR125/0450PG/90R300     | LIR150/0450PG/90R300           |
| 600      | N/A                     | LIR100/0600PG/90R300      | LIR125/0600PG/90R300     | LIR150/0600PG/90R300           |
| 750      | N/A                     | LIR100/0750PG/90R300      | LIR125/0750PG/90R300     | LIR150/0750PG/90R300           |
| 900      | N/A                     | LIR100/0900PG/90R300      | LIR125/0900PG/90R300     | LIR150/0900PG/90R300           |



60° internal riser

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order)

Finish: pre-galvanised = PG

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LIR050/0150PG/60R300    | LIR100/0150PG/60R300      | LIR125/0150PG/60R300     | LIR150/0150PG/60R300           |
| 300      | LIR050/0300PG/60R300    | LIR100/0300PG/60R300      | LIR125/0300PG/60R300     | LIR150/0300PG/60R300           |
| 450      | LIR050/0450PG/60R300    | LIR100/0450PG/60R300      | LIR125/0450PG/60R300     | LIR150/0450PG/60R300           |
| 600      | N/A                     | LIR100/0600PG/60R300      | LIR125/0600PG/60R300     | LIR150/0600PG/60R300           |
| 750      | N/A                     | LIR100/0750PG/60R300      | LIR125/0750PG/60R300     | LIR150/0750PG/60R300           |
| 900      | N/A                     | LIR100/0900PG/60R300      | LIR125/0900PG/60R300     | LIR150/0900PG/60R300           |



45° internal riser

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order)

Finish: pre-galvanised = PG

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LIR050/0150PG/45R300    | LIR100/0150PG/45R300      | LIR125/0150PG/45R300     | LIR150/0150PG/45R300           |
| 300      | LIR050/0300PG/45R300    | LIR100/0300PG/45R300      | LIR125/0300PG/45R300     | LIR150/0300PG/45R300           |
| 450      | LIR050/0450PG/45R300    | LIR100/0450PG/45R300      | LIR125/0450PG/45R300     | LIR150/0450PG/45R300           |
| 600      | N/A                     | LIR100/0600PG/45R300      | LIR125/0600PG/45R300     | LIR150/0600PG/45R300           |
| 750      | N/A                     | LIR100/0750PG/45R300      | LIR125/0750PG/45R300     | LIR150/0750PG/45R300           |
| 900      | N/A                     | LIR100/0900PG/45R300      | LIR125/0900PG/45R300     | LIR150/0900PG/45R300           |



30° internal riser

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order)

Finish: pre-galvanised = PG

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LIR050/0150PG/30R300    | LIR100/0150PG/30R300      | LIR125/0150PG/30R300     | LIR150/0150PG/30R300           |
| 300      | LIR050/0300PG/30R300    | LIR100/0300PG/30R300      | LIR125/0300PG/30R300     | LIR150/0300PG/30R300           |
| 450      | LIR050/0450PG/30R300    | LIR100/0450PG/30R300      | LIR125/0450PG/30R300     | LIR150/0450PG/30R300           |
| 600      | N/A                     | LIR100/0600PG/30R300      | LIR125/0600PG/30R300     | LIR150/0600PG/30R300           |
| 750      | N/A                     | LIR100/0750PG/30R300      | LIR125/0750PG/30R300     | LIR150/0750PG/30R300           |
| 900      | N/A                     | LIR100/0900PG/30R300      | LIR125/0900PG/30R300     | LIR150/0900PG/30R300           |



Articulated riser

Finish: pre-galvanised = PG



| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | N/A                     | L/AR100/0150PG            | L/AR125/0150PG           | L/AR150/0150PG                 |
| 300      | N/A                     | L/AR100/0300PG            | L/AR125/0300PG           | L/AR150/0300PG                 |
| 450      | N/A                     | L/AR100/0450PG            | L/AR125/0450PG           | L/AR150/0450PG                 |
| 600      | N/A                     | L/AR100/0600PG            | L/AR125/0600PG           | L/AR150/0600PG                 |
| 750      | N/A                     | L/AR100/0750PG            | L/AR125/0750PG           | L/AR150/0750PG                 |
| 900      | N/A                     | L/AR100/0900PG            | L/AR125/0900PG           | L/AR150/0900PG                 |



Covers

Cover – straight length – 1.5m long (and fixing clamps)

Finish: pre-galvanised = PG  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners, 2 covers required for 3m ladder, 4 covers for 6m ladder

| Width<br>mm |                 | Extra fixing clamps<br>Pack of 10 (includes fasteners) |   |
|-------------|-----------------|--|---|
| 150         | LSLC/0150PG/1.5 | Closed cover clip                                      |  |
| 300         | LSLC/0300PG/1.5 | L/CCCPG  |   |
| 450         | LSLC/0450PG/1.5 |  |   |
| 600         | LSLC/0600PG/1.5 | Ventilated cover clip                                  |  |
| 750         | LSLC/0750PG/1.5 | L/CCVPG  |   |
| 900         | LSLC/0900PG/1.5 |  |   |

Cover – 90° flat bend

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: pre-galvanised = PG  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

| Width<br>mm |                    |
|-------------|--------------------|
| 150         | LFBC/0150PG/90R300 |
| 300         | LFBC/0300PG/90R300 |
| 450         | LFBC/0450PG/90R300 |
| 600         | LFBC/0600PG/90R300 |
| 750         | LFBC/0750PG/90R300 |
| 900         | LFBC/0900PG/90R300 |



Cover – 60° flat bend

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: pre-galvanised = PG  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

| Width<br>mm |                    |
|-------------|--------------------|
| 150         | LFBC/0150PG/60R300 |
| 300         | LFBC/0300PG/60R300 |
| 450         | LFBC/0450PG/60R300 |
| 600         | LFBC/0600PG/60R300 |
| 750         | LFBC/0750PG/60R300 |
| 900         | LFBC/0900PG/60R300 |



Cover – 45° flat bend

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: pre-galvanised = PG  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

| Width<br>mm |                    |
|-------------|--------------------|
| 150         | LFBC/0150PG/45R300 |
| 300         | LFBC/0300PG/45R300 |
| 450         | LFBC/0450PG/45R300 |
| 600         | LFBC/0600PG/45R300 |
| 750         | LFBC/0750PG/45R300 |
| 900         | LFBC/0900PG/45R300 |



Cover – 30° flat bend

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: pre-galvanised = PG  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

| Width<br>mm |                    |
|-------------|--------------------|
| 150         | LFBC/0150PG/30R300 |
| 300         | LFBC/0300PG/30R300 |
| 450         | LFBC/0450PG/30R300 |
| 600         | LFBC/0600PG/30R300 |
| 750         | LFBC/0750PG/30R300 |
| 900         | LFBC/0900PG/30R300 |



Cover – equal tee

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: pre-galvanised = PG  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

| Width<br>mm |                 |
|-------------|-----------------|
| 150         | LETC/0150PGR300 |
| 300         | LETC/0300PGR300 |
| 450         | LETC/0450PGR300 |
| 600         | LETC/0600PGR300 |
| 750         | LETC/0750PGR300 |
| 900         | LETC/0900PGR300 |

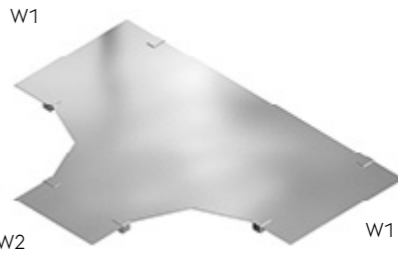


Cover – unequal tee (made to order)

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: pre-galvanised = PG  
Standard closed covers = C, ventilated cover = CV. Includes fixing clamps and fasteners

How to generate the part number – LUTC/W1/W2(finish)(radius)  
Example – LUTC/0300/0150PGR300  
Table below shows a complete list of W1 and W2 combinations.

| W1  | W2                      |
|-----|-------------------------|
| 150 | 300, 450, 600, 750, 900 |
| 300 | 150, 450, 600, 750, 900 |
| 450 | 150, 300, 600, 750, 900 |
| 600 | 150, 300, 450, 750, 900 |
| 750 | 150, 300, 450, 600, 900 |
| 900 | 150, 300, 450, 600, 750 |



Cover – crossover

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (made to order).  
Finish: pre-galvanised = PG  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

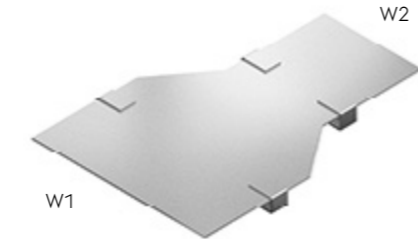
| Width<br>mm |                 |
|-------------|-----------------|
| 150         | LCOC/0150PGR300 |
| 300         | LCOC/0300PGR300 |
| 450         | LCOC/0450PGR300 |
| 600         | LCOC/0600PGR300 |
| 750         | LCOC/0750PGR300 |
| 900         | LCOC/0900PGR300 |



Cover – straight reducer

Finish: pre-galvanised = PG  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

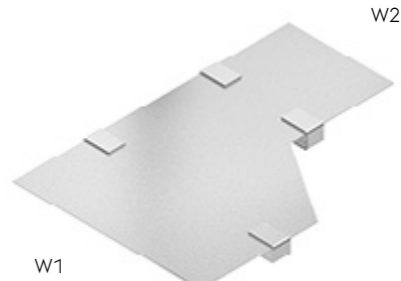
| Width mm |     |                     |
|----------|-----|---------------------|
| W1       | W2  |                     |
| 300      | 150 | LSRC100/0300/0150PG |
| 450      | 150 | LSRC100/0450/0150PG |
| 600      | 150 | LSRC100/0600/0150PG |
| 750      | 150 | LSRC100/0750/0150PG |
| 900      | 150 | LSRC100/0900/0150PG |
| 450      | 300 | LSRC100/0450/0300PG |
| 600      | 300 | LSRC100/0600/0300PG |
| 750      | 300 | LSRC100/0750/0300PG |
| 900      | 300 | LSRC100/0900/0300PG |
| 600      | 450 | LSRC100/0600/0450PG |
| 750      | 450 | LSRC100/0750/0450PG |
| 900      | 450 | LSRC100/0900/0450PG |
| 750      | 600 | LSRC100/0750/0600PG |
| 900      | 600 | LSRC100/0900/0600PG |
| 900      | 750 | LSRC100/0900/0750PG |



Cover – right hand reducer

Finish: pre-galvanised = PG  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

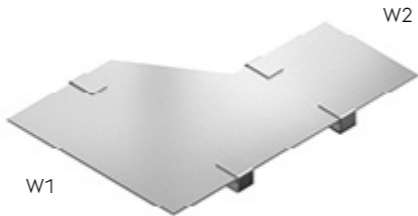
| Width mm |     |                     |
|----------|-----|---------------------|
| W1       | W2  |                     |
| 300      | 150 | LRRC100/0300/0150PG |
| 450      | 150 | LRRC100/0450/0150PG |
| 600      | 150 | LRRC100/0600/0150PG |
| 750      | 150 | LRRC100/0750/0150PG |
| 900      | 150 | LRRC100/0900/0150PG |
| 450      | 300 | LRRC100/0450/0300PG |
| 600      | 300 | LRRC100/0600/0300PG |
| 750      | 300 | LRRC100/0750/0300PG |
| 900      | 300 | LRRC100/0900/0300PG |
| 600      | 450 | LRRC100/0600/0450PG |
| 750      | 450 | LRRC100/0750/0450PG |
| 900      | 450 | LRRC100/0900/0450PG |
| 750      | 600 | LRRC100/0750/0600PG |
| 900      | 600 | LRRC100/0900/0600PG |
| 900      | 750 | LRRC100/0900/0750PG |



Cover – left hand reducer

Finish: pre-galvanised = PG  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

| Width mm |     |                     |
|----------|-----|---------------------|
| W1       | W2  |                     |
| 300      | 150 | LLRC100/0300/0150PG |
| 450      | 150 | LLRC100/0450/0150PG |
| 600      | 150 | LLRC100/0600/0150PG |
| 750      | 150 | LLRC100/0750/0150PG |
| 900      | 150 | LLRC100/0900/0150PG |
| 450      | 300 | LLRC100/0450/0300PG |
| 600      | 300 | LLRC100/0600/0300PG |
| 750      | 300 | LLRC100/0750/0300PG |
| 900      | 300 | LLRC100/0900/0300PG |
| 600      | 450 | LLRC100/0600/0450PG |
| 750      | 450 | LLRC100/0750/0450PG |
| 900      | 450 | LLRC100/0900/0450PG |
| 750      | 600 | LLRC100/0750/0600PG |
| 900      | 600 | LLRC100/0900/0600PG |
| 900      | 750 | LLRC100/0900/0750PG |



Cover – 90° external riser

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (Made to order)  
Finish: pre-galvanised = PG  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LERC050/0150PG/90R300   | LERC100/0150PG/90R300     | LERC125/0150PG/90R300    | LERC150/0150PG/90R300          |
| 300      | LERC050/0300PG/90R300   | LERC100/0300PG/90R300     | LERC125/0300PG/90R300    | LERC150/0300PG/90R300          |
| 450      | LERC050/0450PG/90R300   | LERC100/0450PG/90R300     | LERC125/0450PG/90R300    | LERC150/0450PG/90R300          |
| 600      | N/A                     | LERC100/0600PG/90R300     | LERC125/0600PG/90R300    | LERC150/0600PG/90R300          |
| 750      | N/A                     | LERC100/0750PG/90R300     | LERC125/0750PG/90R300    | LERC150/0750PG/90R300          |
| 900      | N/A                     | LERC100/0900PG/90R300     | LERC125/0900PG/90R300    | LERC150/0900PG/90R300          |



Cover – 60° external riser

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (Made to order)  
Finish: pre-galvanised = PG  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

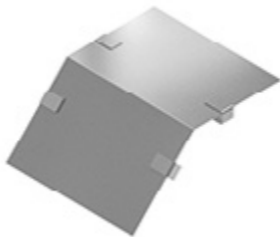
| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | LERC050/0150PG/60R300   | LERC100/0150PG/60R300     | LERC125/0150PG/60R300    | LERC150/0150PG/60R300          |
| 300      | LERC050/0300PG/60R300   | LERC100/0300PG/60R300     | LERC125/0300PG/60R300    | LERC150/0300PG/60R300          |
| 450      | LERC050/0450PG/60R300   | LERC100/0450PG/60R300     | LERC125/0450PG/60R300    | LERC150/0450PG/60R300          |
| 600      | N/A                     | LERC100/0600PG/60R300     | LERC125/0600PG/60R300    | LERC150/0600PG/60R300          |
| 750      | N/A                     | LERC100/0750PG/60R300     | LERC125/0750PG/60R300    | LERC150/0750PG/60R300          |
| 900      | N/A                     | LERC100/0900PG/60R300     | LERC125/0900PG/60R300    | LERC150/0900PG/60R300          |



Cover – 45° external riser

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (Made to order)  
Finish: pre-galvanised = PG  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

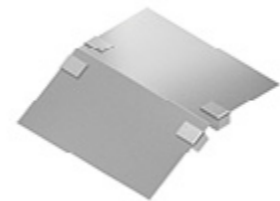
| Width<br>mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|-------------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150         | LERC050/0150PG/45R300   | LERC100/0150PG/45R300     | LERC125/0150PG/45R300    | LERC150/0150PG/45R300          |
| 300         | LERC050/0300PG/45R300   | LERC100/0300PG/45R300     | LERC125/0300PG/45R300    | LERC150/0300PG/45R300          |
| 450         | LERC050/0450PG/45R300   | LERC100/0450PG/45R300     | LERC125/0450PG/45R300    | LERC150/0450PG/45R300          |
| 600         | N/A                     | LERC100/0600PG/45R300     | LERC125/0600PG/45R300    | LERC150/0600PG/45R300          |
| 750         | N/A                     | LERC100/0750PG/45R300     | LERC125/0750PG/45R300    | LERC150/0750PG/45R300          |
| 900         | N/A                     | LERC100/0900PG/45R300     | LERC125/0900PG/45R300    | LERC150/0900PG/45R300          |



Cover – 30° external riser

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (Made to order)  
Finish: pre-galvanised = PG  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

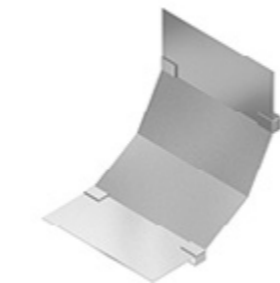
| Width<br>mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|-------------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150         | LERC050/0150PG/30R300   | LERC100/0150PG/30R300     | LERC125/0150PG/30R300    | LERC150/0150PG/30R300          |
| 300         | LERC050/0300PG/30R300   | LERC100/0300PG/30R300     | LERC125/0300PG/30R300    | LERC150/0300PG/30R300          |
| 450         | LERC050/0450PG/30R300   | LERC100/0450PG/30R300     | LERC125/0450PG/30R300    | LERC150/0450PG/30R300          |
| 600         | N/A                     | LERC100/0600PG/30R300     | LERC125/0600PG/30R300    | LERC150/0600PG/30R300          |
| 750         | N/A                     | LERC100/0750PG/30R300     | LERC125/0750PG/30R300    | LERC150/0750PG/30R300          |
| 900         | N/A                     | LERC100/0900PG/30R300     | LERC125/0900PG/30R300    | LERC150/0900PG/30R300          |



Cover – 90° internal riser

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (Made to order)  
Finish: pre-galvanised = PG  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

| Width<br>mm |                    |
|-------------|--------------------|
| 150         | LIRC/0150PG/90R300 |
| 300         | LIRC/0300PG/90R300 |
| 450         | LIRC/0450PG/90R300 |
| 600         | LIRC/0600PG/90R300 |
| 750         | LIRC/0750PG/90R300 |
| 900         | LIRC/0900PG/90R300 |



Cover – 60° internal riser

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (Made to order)  
Finish: pre-galvanised = PG  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

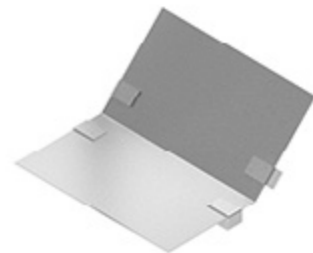
| Width<br>mm |                    |
|-------------|--------------------|
| 150         | LIRC/0150PG/60R300 |
| 300         | LIRC/0300PG/60R300 |
| 450         | LIRC/0450PG/60R300 |
| 600         | LIRC/0600PG/60R300 |
| 750         | LIRC/0750PG/60R300 |
| 900         | LIRC/0900PG/60R300 |



Cover – 45° internal riser

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (Made to order)  
Finish: pre-galvanised = PG  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

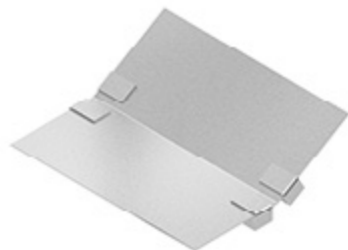
| Width<br>mm |                    |
|-------------|--------------------|
| 150         | LIRC/0150PG/45R300 |
| 300         | LIRC/0300PG/45R300 |
| 450         | LIRC/0450PG/45R300 |
| 600         | LIRC/0600PG/45R300 |
| 750         | LIRC/0750PG/45R300 |
| 900         | LIRC/0900PG/45R300 |



Cover – 30° internal riser

Standard radius 300mm = R300, other radii R450, R600, R750 and R900 (Made to order)  
Finish: pre-galvanised = PG  
Standard closed covers = C, ventilated cover = CV  
Includes fixing clamps and fasteners

| Width<br>mm |                    |
|-------------|--------------------|
| 150         | LIRC/0150PG/30R300 |
| 300         | LIRC/0300PG/30R300 |
| 450         | LIRC/0450PG/30R300 |
| 600         | LIRC/0600PG/30R300 |
| 750         | LIRC/0750PG/30R300 |
| 900         | LIRC/0900PG/30R300 |

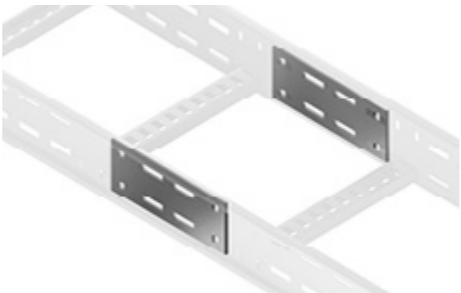


Accessories

Splice plates

Finish: pre-galvanised = PG

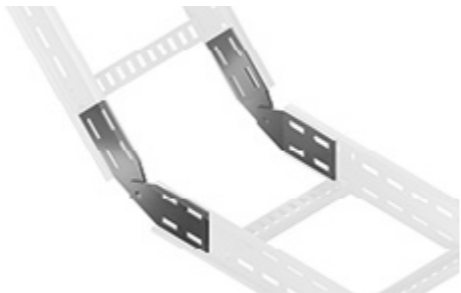
| Ladder depth mm | Sold in pairs<br>(includes 16 nuts, bolts and washers) |
|-----------------|--|
| 50              | L/SSP50PGPR  |
| 100             | L/SSP100PGPR   |
| 125             | L/SSP125PGPR   |
| 150             | L/SSP150PGPR   |



Vertical splice plates

Finish: pre-galvanised = PG

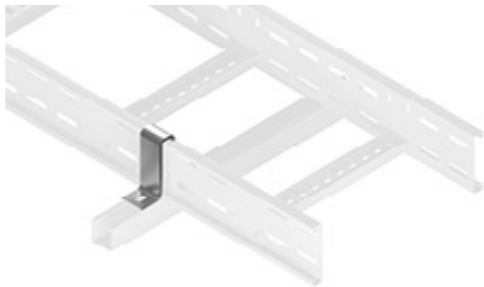
| Ladder depth mm | Sold in pairs<br>(includes 16 nuts, bolts and washers) |
|-----------------|--|
| 50              | L/VSP50PGPR  |
| 100             | L/VSP100PGPR   |
| 125             | L/VSP125PGPR   |
| 150             | L/VSP150PGPR   |



Hold down bracket

Finish: pre-galvanised = PG

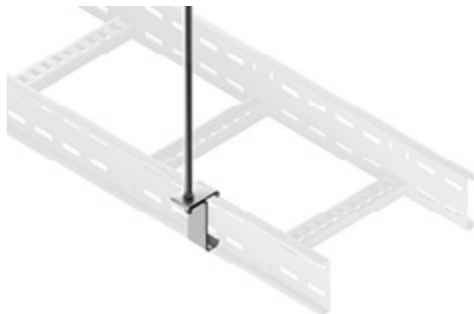
| Ladder depth mm | Sold as single item (fasteners excluded) |
|-----------------|--|
| 50              | L/HDB50PG                                |
| 100             | L/HDB100PG                               |
| 125             | L/HDB125PG                               |
| 150             | L/HDB150PG                               |



Suspension clip

Finish: pre-galvanised = PG  
Slot diameter is 12mm x 20mm.

| Ladder depth mm | Sold as single item (fasteners excluded) |
|-----------------|--|
| 50              | L/SC50PG                                 |
| 100             | L/SC100PG                                |
| 125             | L/SC125PG                                |
| 150             | L/SC150PG                                |



Hold down clip

Finish: pre-galvanised = PG

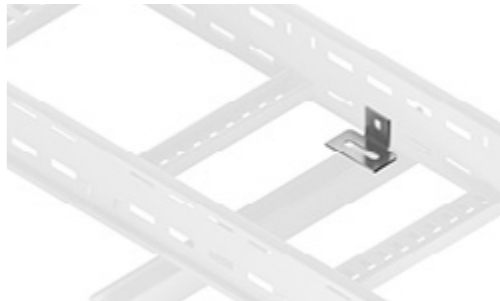
| Sold as single item (fasteners excluded) |
|--|
| L/HDC/APG                                |



Bolted hold down clip

Finish: pre-galvanised = PG

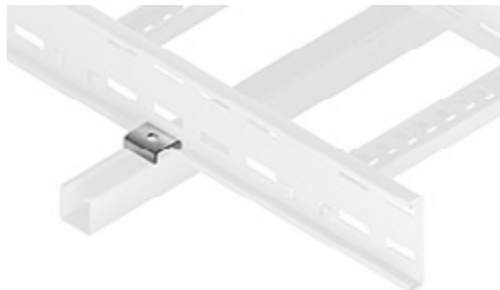
| Sold as single item (fasteners excluded) |
|--|
| L/HDC/BPG                                |



Side rail clamp

Finish: pre-galvanised = PG

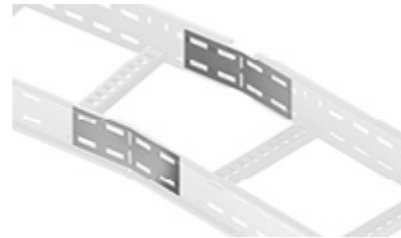
| Sold as single item (fasteners excluded) |
|--|
| L/SRCPG                                  |



### Bendable splice plates

Finish: pre-galvanised = PG

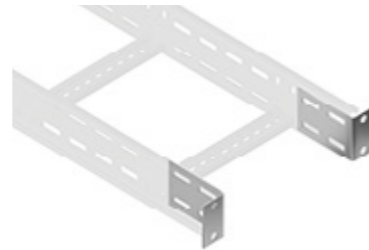
| Ladder depth mm | Sold in pairs<br>(includes 16 nuts, bolts and washers) |
|-----------------|--|
| 50              | L/BSP050/PGPR  |
| 100             | L/BSP100/PGPR  |
| 125             | L/BSP125/PGPR  |
| 150             | L/BSP150/PGPR  |



### End connectors

Finish: pre-galvanised = PG

| Ladder depth mm | Sold in pairs<br>(fasteners excluded) |
|-----------------|---------------------------------------|
| 50              | L/ECO50PGPR                           |
| 100             | L/ECO100PGPR                          |
| 125             | L/ECO125PGPR                          |
| 150             | L/ECO150PGPR                          |

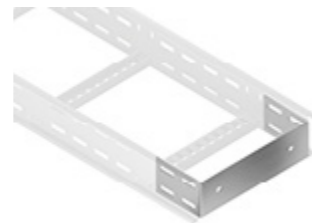


### Stop ends

Finish: pre-galvanised = PG

Sold as single item (fasteners excluded)

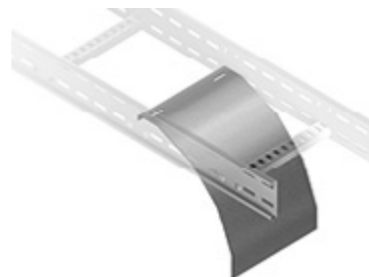
| Width mm | Light duty<br>50mm Deep | Medium duty<br>100mm Deep | Heavy duty<br>125mm Deep | Extra heavy duty<br>150mm Deep |
|----------|-------------------------|---------------------------|--------------------------|--------------------------------|
| 150      | L/SE050/0150PG          | L/SE100/0150PG            | L/SE125/0150PG           | L/SE150/0150PG                 |
| 300      | L/SE050/0300PG          | L/SE100/0300PG            | L/SE125/0300PG           | L/SE150/0300PG                 |
| 450      | L/SE050/0450PG          | L/SE100/0450PG            | L/SE125/0450PG           | L/SE150/0450PG                 |
| 600      | N/A                     | L/SE100/0600PG            | L/SE125/0600PG           | L/SE150/0600PG                 |
| 750      | N/A                     | L/SE100/0750PG            | L/SE125/0750PG           | L/SE150/0750PG                 |
| 900      | N/A                     | L/SE100/0900PG            | L/SE125/0900PG           | L/SE150/0900PG                 |



### Drop out plates

Finish: pre-galvanised = PG

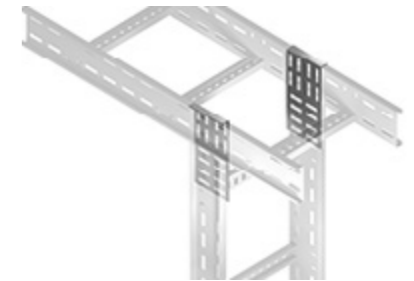
| Ladder depth mm | Sold as single item<br>(fasteners excluded) |
|-----------------|---|
| 150             | L/DOP150PG                                  |
| 300             | L/DOP300PG                                  |
| 450             | L/DOP450PG                                  |
| 600             | L/DOP600PG                                  |
| 750             | L/DOP750PG                                  |
| 900             | L/DOP900PG                                  |



### Drop out brackets

Finish: pre-galvanised = PG

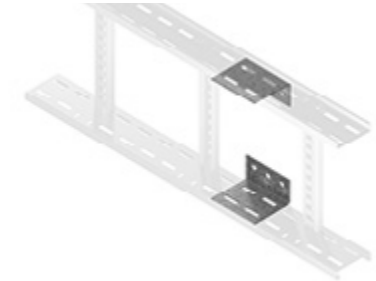
| Ladder depth mm | Sold in pairs<br>(fasteners excluded) |
|-----------------|---------------------------------------|
| 50              | N/A                                   |
| 100             | L/RTR100PGPR                          |
| 125             | L/RTR125PGPR                          |
| 150             | L/RTR150PGPR                          |



### Wall brackets

Finish: pre-galvanised = PG

| Ladder depth mm | Sold in pairs<br>(fasteners excluded) |
|-----------------|---------------------------------------|
| 50              | L/WSB050PGPR                          |
| 100             | L/WSB100PGPR                          |
| 125             | L/WSB125PGPR                          |
| 150             | L/WSB150PGPR                          |



### Straight divider – 3m long

Finish: pre-galvanised = PG

| Ladder depth mm | Sold as single item<br>(fasteners excluded) |
|-----------------|---|
| 50              | LSD050/3PG                                  |
| 100             | LSD100/3PG                                  |
| 125             | LSD125/3PG                                  |
| 150             | LSD150/3PG                                  |



### Bendable divider – 1m long

Finish: pre-galvanised = PG

| Ladder depth mm | Sold as single item<br>(fasteners excluded) |
|-----------------|---|
| 50              | LBD050/PG                                   |
| 100             | LBD100/PG                                   |
| 125             | LBD125/PG                                   |
| 150             | LBD150/PG                                   |



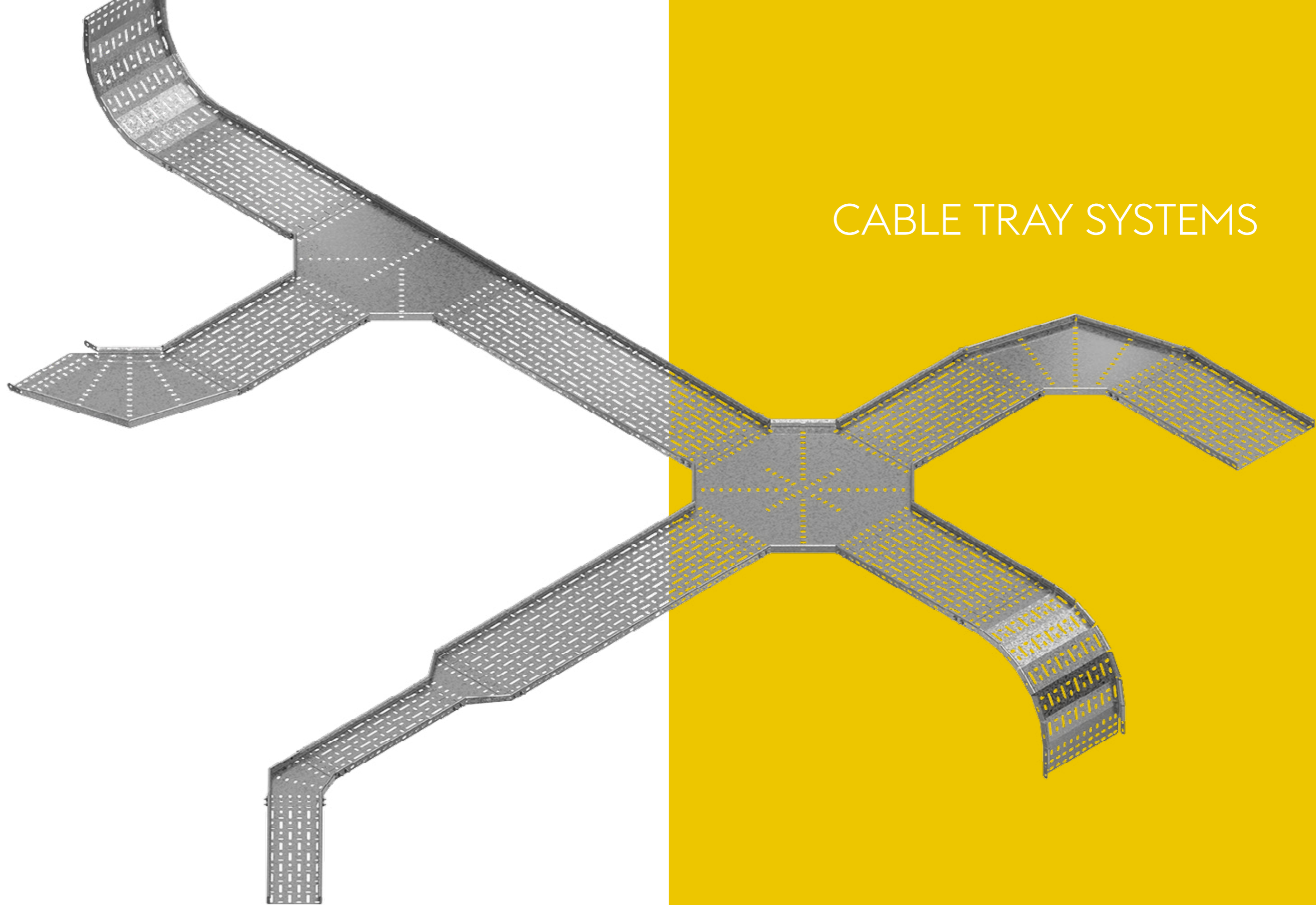
### Earth straps

Finish: copper braid Electro Tinned – 16mm<sup>2</sup>

Hole diameter is 12mm.

| 250mm long (fasteners excluded) |
|---------------------------------|
| L/ES250                         |





# CABLE TRAY SYSTEMS

# CABLE TRAY SYSTEMS

voestalpine Metsec cable tray systems have been developed after significant consultation with major installers. This ensures the systems meet and surpass key requirements providing innovative and cost effective solutions in an increasingly demanding market.

The comprehensive voestalpine Metsec cable tray range consists of three systems ranging from the light duty non-return flange cable tray to two systems with cable-friendly return flange trays, medium duty 25mm deep and heavy duty 50mm deep.

The unique perforation pattern allows ease of attachment of cables with more than adequate ventilation. The side walls of the medium and heavy duty ranges are also slotted as standard.

Light duty cable trays are available in widths of 50, 75, 100, 150, 225 and 300mm. Medium duty trays are available in widths of 50, 75, 100, 150, 225, 300, 450 and 600mm. Heavy duty trays are available in widths of 75, 100, 150, 225, 300, 450, 600, 750 and 900mm wide.

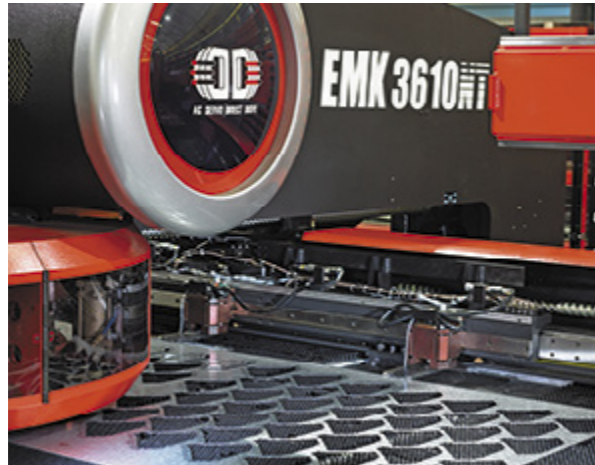
Each type of tray is a total system with a wide selection of support accessories to provide comprehensive site installation solutions.

voestalpine Metsec cable trays are manufactured on sophisticated CNC equipment in a world class manufacturing cell engaging a high level of automation for fast moving items. This allows voestalpine Metsec to maintain a very high level of on time in full delivery performance.

Comprehensive stocks of cable trays and accessories in both pre-galvanised and post hot dip galvanised finish are carried at all times to ensure timely delivery.

## Development and testing

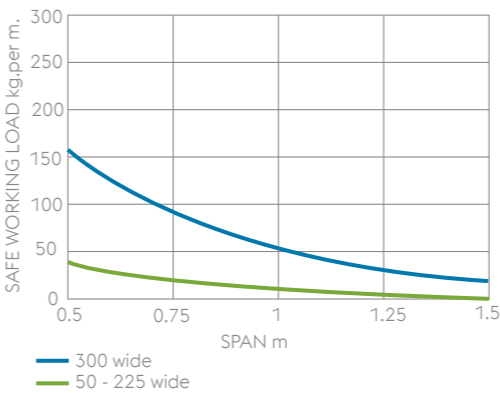
voestalpine Metsec cable tray systems have been fully tested to develop accurate loading graphs. Further verification tests have also been done under the requirements of BS EN 61537 – Cable Management – cable tray systems and cable ladder systems. These tests include impact resistance, marking, connection of re-usable components, safe working load tests, electrical continuity, and performance of steel at extreme temperature ranges.



## Loading graphs

Working loads are represented graphically as shown and are based on the cable tray being continuous over four spans or more. Deflection has been limited to SPAN/200 generally, based on the end span condition as the worst case. Deflection will be less than this on internal spans. However, on wider trays, additional deflection will be induced locally across the base of the tray, depending on the width of the tray and the load distribution across the width. This will not be detrimental to the structural performance of the tray but may need consideration if appearance is of prime importance.

### Non-return flange – light duty



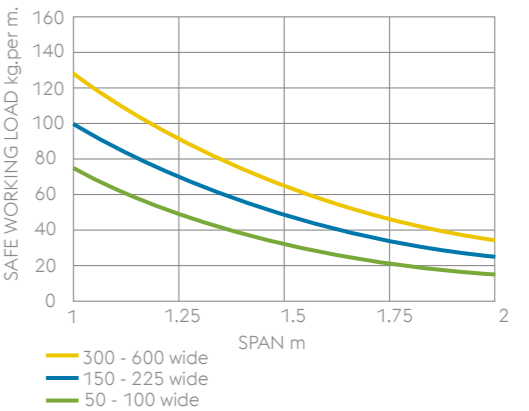
## Bespoke systems

In addition to standard cable tray systems, voestalpine Metsec has the ability to manufacture non standard cable tray systems to order.

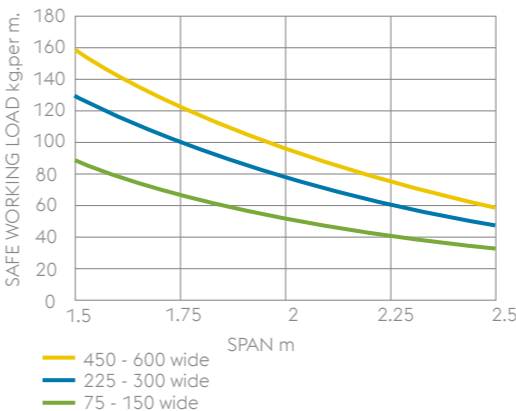
Due to sophisticated equipment and software, prototypes can be produced quickly for sample approval.

It is important for customers to issue the complete order at the outset to allow full use of materials and avoid expensive waste.

### Return flange – medium duty



### Return flange – heavy duty



Loads not applicable to stainless steel, for stainless steel loads please consult the Technical Department for advice.

# CABLE TRAY SYSTEMS

## System Configuration and Support

voestalpine Metsec cable trays are designed as a complete system with simple accessories. Integral connectors are included for bends tees etc. for all cable tray ranges.

When installing voestalpine Metsec cable trays, care should be taken to ensure the support is within 600mm of a joint. Accessories (e.g. bends, tees, crossovers etc.) should have adequate support, additional support will be required for larger components. Light duty cable tray straights have one end swaged for easy connection to the next tray. When light duty straight trays are cut to smaller lengths on site, connection to the next tray requires fishplates.

## Materials and Finishes

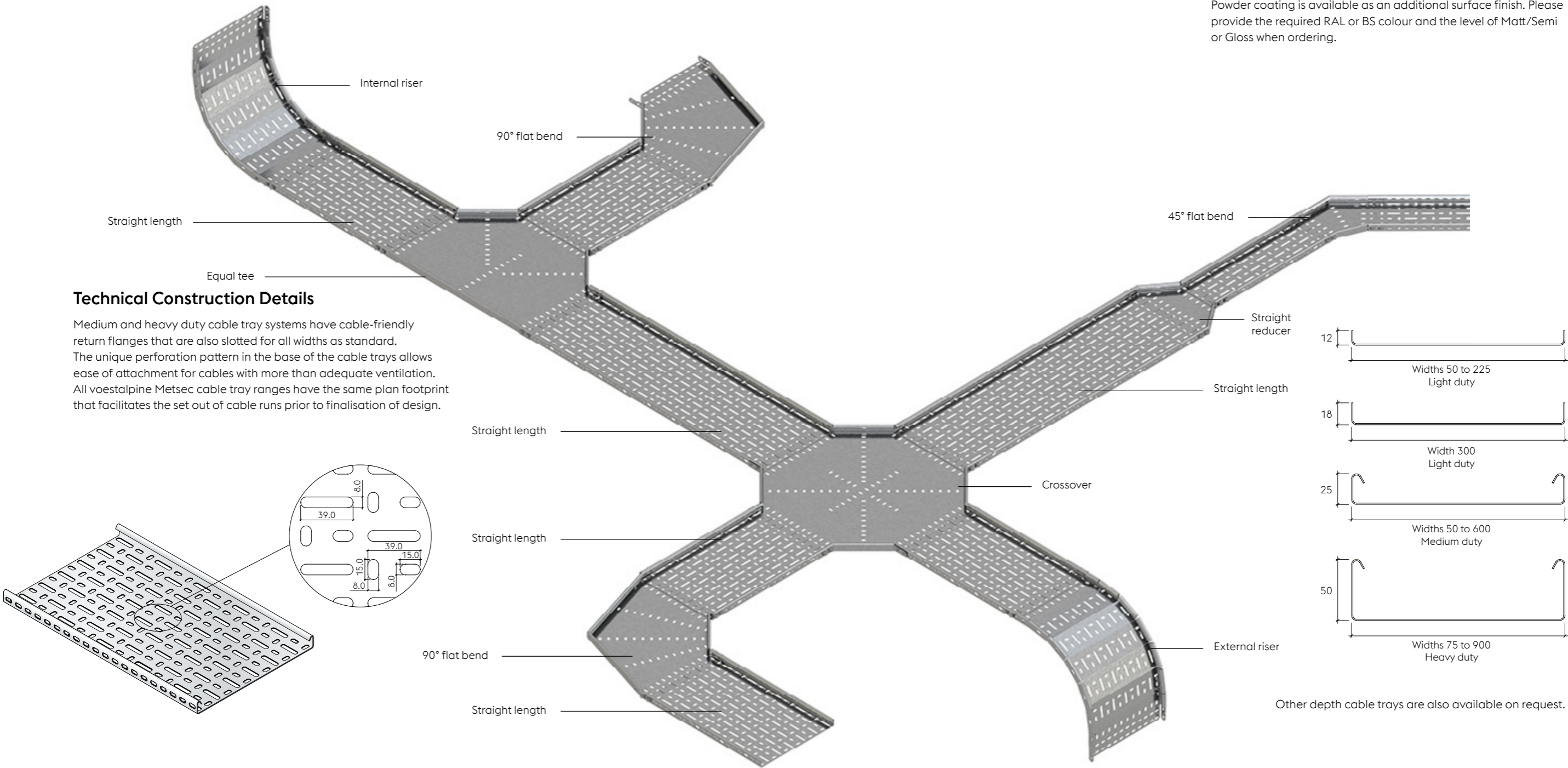
Materials and finishes available are mild steel pre-galvanised as standard, mild steel hot dip galvanised after manufacture and stainless steel grade 1.4404 (316L) to order.

**Mild steel pre-galvanised:** manufactured from steel complying with BS EN 10346

**Mild steel hot dip galvanised:** manufactured from steel complying with BS EN 10130 and hot dip galvanised after manufacture to BS EN ISO 1461

**Stainless steel:** manufactured from stainless steel grade 1.4404 (316L) complying with BS EN 10088-1 and BS EN 10088-2

Powder coating is available as an additional surface finish. Please provide the required RAL or BS colour and the level of Matt/Semi or Gloss when ordering.



## Technical Construction Details

Medium and heavy duty cable tray systems have cable-friendly return flanges that are also slotted for all widths as standard. The unique perforation pattern in the base of the cable trays allows ease of attachment for cables with more than adequate ventilation. All voestalpine Metsec cable tray ranges have the same plan footprint that facilitates the set out of cable runs prior to finalisation of design.

# STANDARDS

voestalpine Metsec cable tray systems generally conform to BS EN 61537 Cable Management – cable tray systems and cable ladder systems.

Information relating to compliance is detailed/**highlighted** within the following sections of the standard:

## 6 Classification

|            |   |   |   |
|------------|---|---|---|
| <b>6.1</b> | <b>According to material</b>  | <b>6.4</b>  | <b>According to electrical conductivity</b>   |
| 6.1.1      | voestalpine Metsec cable tray systems are metallic system components              | 6.4.1   | voestalpine Metsec cable tray systems are electrically conductive system components               |
| <b>6.2</b> | <b>According to resistance to flame propagation</b>                               | <b>6.5</b>  | <b>According to resistance against corrosion</b>  |
| 6.2.2      | voestalpine Metsec cable tray systems are non-flame propagating system components | 6.5.2   | voestalpine Metsec cable tray systems are made of steel with metallic finishes or stainless steel |
| <b>6.3</b> | <b>According to electrical continuity characteristics</b>                         | (Resistance to corrosion is classified according to Table 1. and follow the relevant specification in Table 8, with compliance according to Table 7). |   |
| 6.3.2      | voestalpine Metsec cable tray systems have electrical continuity characteristics  |   |   |

Table 1 – Classification for resistance against corrosion

| Class | Reference – material and finish   |
|-------|---|
| 0(a)  | None  |
| 1     | Electroplated to a minimum thickness of 5 µm  |
| 2     | Electroplated to a minimum thickness of 12 µm   |
| 3     | Pre-galvanised to grade 275 to BS EN 10346  |
| 4     | Pre-galvanised to grade 350 to EN 10346   |
| 5     | Post-galvanised to a zinc mean coating thickness (minimum) of 45 µm according to BS EN ISO 1461 for zinc thickness only             |
| 6     | Post-galvanised to a zinc mean coating thickness (minimum) of 55 µm according to ISO 1461 for zinc thickness only                   |
| 7     | Post-galvanised to a zinc mean coating thickness (minimum) of 70 µm according to ISO 1461 for zinc thickness only                   |
| 8     | Post-galvanised to a zinc mean coating thickness (minimum) of 85 µm according to ISO 1461 for zinc thickness only                   |
| 9A    | Stainless steel manufactured to ASTM: A 240/A 240M – 95a designation S30400 or EN 10088 grade 1 – 4301 without a post treatment (b) |
| 9B    | Stainless steel manufactured to ASTM: A 240/A 240M – 95a designation S31603 or EN 10088 grade 1 – 4404 without a post treatment (b) |
| 9C    | Stainless steel manufactured to ASTM: A 240/A 240M – 95a designation S30400 or EN 10088 grade 1 – 4301 with a post treatment (b)    |
| 9D    | Stainless steel manufactured to ASTM: A 240/A 240M – 95a designation S31603 or EN 10088 grade 1 – 4404 with a post treatment (b)    |
| (a)   | For materials which have no declared corrosion resistance classification  |
| (b)   | The post-treatment process is used to improve the protection against crevice crack corrosion and the contamination by other steels  |

Table 7 – System component compliance and classification for resistance against corrosion

| System component<br>Material and finishes  | Classification according to           | Compliance                     | Subclause for<br>compliance check |
|--|---------------------------------------|--------------------------------|-----------------------------------|
| Non-metallic                               | 6.5.1                                 | Declaration                    | 14.2.1                            |
| Reference – zinc coating as in Table 1.    | 6.5.2 Table 1 classes 1 to 8          | Declaration or measurement     | 14.2.2                            |
| Non-referenced zinc coating                | 6.5.2 Table 1 classes 1 to 8          | By neutral salt spray test NSS | 14.2.3                            |
| Reference – stainless steel as in Table 1. | 6.5.2 Table 1 Class 9A to 9D          | Declaration                    | 14.2.2                            |
| Non-referenced stainless steel             | Not classified                        | Declaration                    | None                              |
| Other metallic coatings                    | 6.5.2 Table 1 Column 1 classes 1 to 8 | By neutral salt spray test NSS | 14.2.3                            |
| Aluminium alloys or other metals           | 6.5.3 Under consideration             | Under consideration            | 14.2.4                            |
| Organic coatings                           | 6.5.4 Under consideration             | Under consideration            | 14.2.5                            |

Table 8 – Zinc coating thickness of reference materials

| Class | Minimum thickness | Theoretical guidance<br>values for coating thickness<br>(typical value) as per<br>BS EN 10346 | Mean coating thickness<br>(minimum) to ISO 1461 |
|-------|-------------------|---|---|
|       | µm                | µm  | µm  |
| 0 (a) | -                 | -   | -   |
| 1     | 5                 | -   | -   |
| 2     | 12                | -   | -   |
| 3     | -                 | 20  | -   |
| 4     | -                 | 25  | -   |
| 5     | -                 | -   | 45  |
| 3     | -                 | -   | 55  |
| 4     | -                 | -   | 70  |
| 5     | -                 | -   | 85  |

a) As declared by the manufacturer or responsible vendor

- 6.6

According to temperature
- 6.6.1

Minimum temperature for the system components is given in Table 2.
- 6.6.2

Maximum temperature for the system components is given in Table 3.
- 6.7

According to the free base area of the cable tray length as given in Table 4.
- 6.9

According to impact resistance
- 6.9.4

System component offering impact resistance up to 20 J (as verified by testing in accordance with 10.9 Test for impact resistance).

7 Marking and Documentation

- 7.1

Each system component is marked by a label. Labels used fully comply with the rubbing test. Boxed items are labelled on the packaging

Table 2 – Minimum temperature classification

| Minimum transport, storage installation and application temperature °C |
|--|
| +5   |
| - 5  |
| - 15   |
| - 20   |
| - 40   |
| - 50   |

Table 3 – Maximum temperature classification

| Maximum transport, storage installation and application temperature °C |
|--|
| +40  |
| +60  |
| +90  |
| +105   |
| +120   |
| +150   |

Table 4 – Perforation base classification

| Classification | Perforation in the free base area |
|----------------|-----------------------------------|
| A              | Up to 2%                          |
| B              | Over 2% and up to 15%             |
| C              | Over 15% and up to 30%            |
| D              | More than 30 %                    |

NB: Classification D relates to IEC 60364-5-52 Subclause A.52.6.2 second paragraph

8 Dimensions

Key cross sectional dimensions for straight cable tray

| Part No     | External depth mm | Internal depth mm | External width mm | Internal width mm | X-sectional area mm <sup>2</sup> |
|-------------|-------------------|-------------------|-------------------|-------------------|----------------------------------|
| CTSL12/0050 | 12                | 11.1              | 50                | 48.2              | 535.0                            |
| CTSL12/0075 | 12                | 11.1              | 75                | 73.2              | 812.5                            |
| CTSL12/0100 | 12                | 11.1              | 100               | 98.2              | 1090.0                           |
| CTSL12/0150 | 12                | 11.1              | 150               | 148.2             | 1645.0                           |
| CTSL12/0225 | 12                | 11.1              | 225               | 223.2             | 2477.5                           |
| CTSL18/0300 | 18                | 16.8              | 300               | 297.6             | 4999.7                           |
| CTSL25/0050 | 25                | 23.2              | 50                | 48.2              | 1118.2                           |
| CTSL25/0075 | 25                | 23.2              | 75                | 73.2              | 1698.2                           |
| CTSL25/0100 | 25                | 23.2              | 100               | 98.2              | 2278.2                           |
| CTSL25/0150 | 25                | 23.2              | 150               | 148.2             | 3438.2                           |
| CTSL25/0225 | 25                | 23.2              | 225               | 223.2             | 5178.2                           |
| CTSL25/0300 | 25                | 23.0              | 300               | 298.0             | 6854.0                           |
| CTSL25/0450 | 25                | 22.6              | 450               | 447.6             | 10115.8                          |
| CTSL25/0600 | 25                | 22.6              | 600               | 597.6             | 13505.8                          |
| CTSL50/0075 | 50                | 48.2              | 75                | 73.2              | 3528.2                           |
| CTSL50/0100 | 50                | 48.2              | 100               | 98.2              | 4733.2                           |
| CTSL50/0150 | 50                | 48.2              | 150               | 148.2             | 7143.2                           |
| CTSL50/0225 | 50                | 47.6              | 225               | 222.6             | 10595.8                          |
| CTSL50/0300 | 50                | 47.6              | 300               | 297.6             | 14165.8                          |
| CTSL50/0450 | 50                | 47.0              | 450               | 447.0             | 21009.0                          |
| CTSL50/0600 | 50                | 47.0              | 600               | 597.0             | 28059.0                          |
| CTSL50/0750 | 50                | 46.0              | 750               | 746.0             | 34316.0                          |
| CTSL50/0900 | 50                | 46.0              | 900               | 896.0             | 41216.0                          |

Minimum internal radius of fittings

Minimal internal radius of fittings available for the accommodation of cables is 125mm.

9 Construction

- 9.1

Surfaces of system components which are likely to come into contact with cables during installation are inspected to ensure they shall not cause damage to the cables when installed correctly.
- 9.2

As with all metallic system components, care should be exercised that handling is in accordance with the relative COSHH regulations and gloves should be worn.
- 9.3

Screwed connections have been designed to withstand the mechanical stresses occurring during installations and normal use and will not cause damage to cables when correctly inserted. Screwed connections are in general ISO metric threads fully compliant to tests in accordance with 9.3.1 and 9.3.2 of the standard. voestalpine Metsec cable tray systems are usually assembled using M6 roofing bolts particularly for couplers, fishplates and connection to supporting framework. These bolts should be tightened to a torque of 12N/m.

10 Mechanical Properties

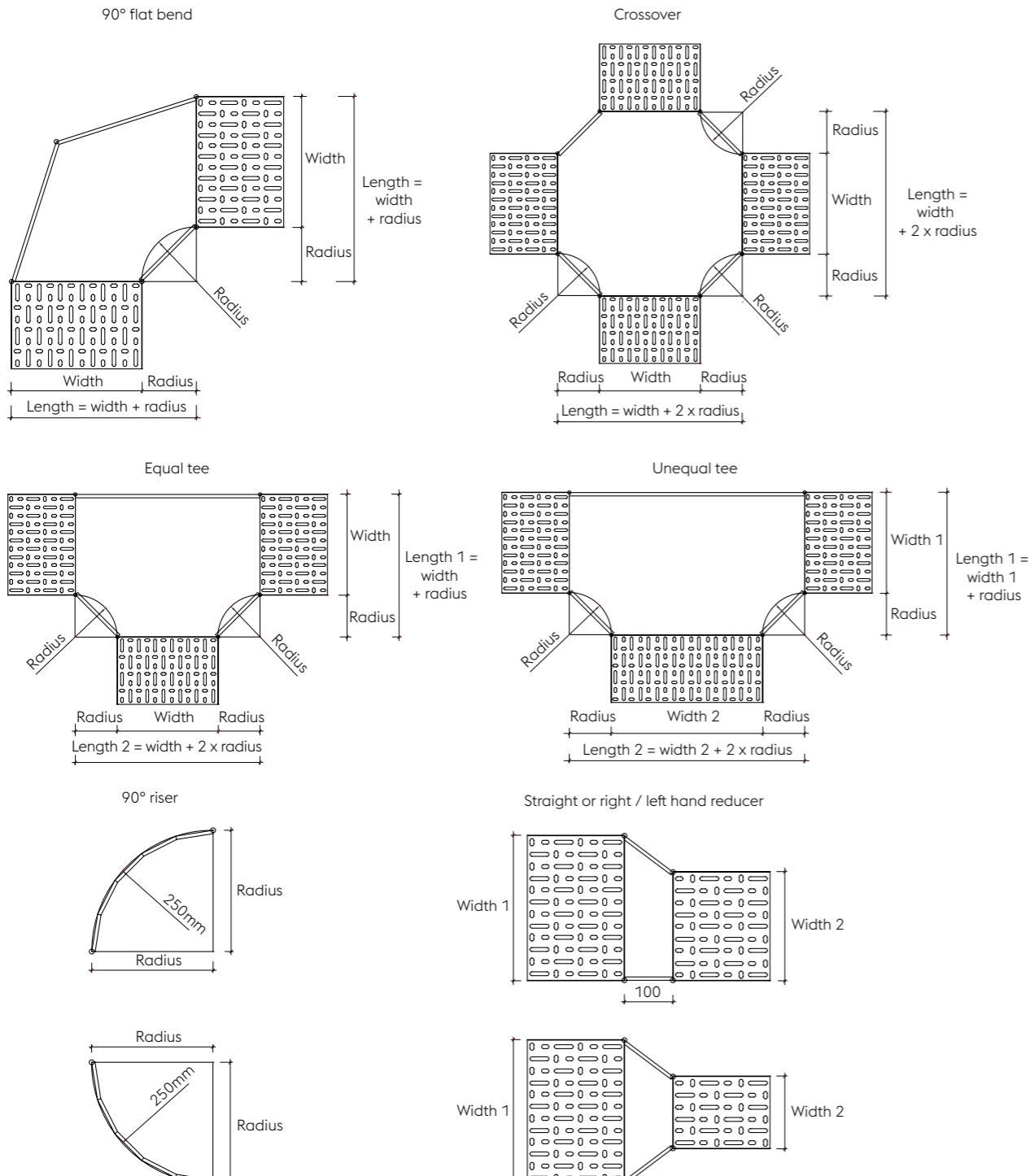
Cable tray lengths have been tested generally in accordance with the standard under 10.2 and 10.3 for verification of the loading graphs. It should be noted that independent testing has been carried out to verify the structural performance of the cable trays at the minimum and maximum temperature classifications for test conditions under 10.2.2.

All accessories eg bends, tees etc. should be directly supported by a suitable support device or devices at appropriate positions.

# CABLE TRAY SYSTEMS

## Product Footprint

Cable tray – accessory foot print Standard radius is 125mm



## Straight Lengths & Couplers

### Straight length

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

| Width mm | Light duty     | Medium duty    | Heavy duty     |
|----------|----------------|----------------|----------------|
| 50       | CTSL12/0050PG3 | CTSL25/0050PG3 | N/A            |
| 75       | CTSL12/0075PG3 | CTSL25/0075PG3 | CTSL50/0075PG3 |
| 100      | CTSL12/0100PG3 | CTSL25/0100PG3 | CTSL50/0100PG3 |
| 150      | CTSL12/0150PG3 | CTSL25/0150PG3 | CTSL50/0150PG3 |
| 225      | CTSL12/0225PG3 | CTSL25/0225PG3 | CTSL50/0225PG3 |
| 300      | CTSL18/0300PG3 | CTSL25/0300PG3 | CTSL50/0300PG3 |
| 450      | N/A            | CTSL25/0450PG3 | CTSL50/0450PG3 |
| 600      | N/A            | CTSL25/0600PG3 | CTSL50/0600PG3 |
| 750      | N/A            | N/A            | CTSL50/0750PG3 |
| 900      | N/A            | N/A            | CTSL50/0900PG3 |

### Medium Duty Straight Couplers

Only required for straight tray to straight tray connection – medium duty range.

Finish: post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

Sold in pairs (Fasteners excluded)

CTSC25HDGPR

Not available in pre-galvanised

### Medium Duty Wrap Over Couplers

Only required for straight tray to straight tray connection – medium duty range.

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

Sold in pairs (Fasteners excluded)

CTC25PGPR

### Medium Duty Quick Fix Coupler

Only required for straight tray to straight tray connection – medium duty range.

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

Sold in pairs (Fasteners excluded)

CTCQ25PGPR

### Heavy Duty Straight Couplers

Only required for straight tray to straight tray connection – heavy duty range.

Finish: post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

Sold in pairs (Fasteners excluded)

CTSC50HDGPR

Not available in pre-galvanised

### Heavy Duty Wrap Over Couplers

Only required for straight tray to straight tray connection – heavy duty range.

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

Sold in pairs (Fasteners excluded)

CTC50PGPR

### Heavy Duty Quick Fix Coupler

Only required for straight tray to straight tray connection – heavy duty range.

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

Sold in pairs (Fasteners excluded)

CTCQ50PGPR



Flat Bends

90° flat bends

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

| Width mm | Light duty      | Medium duty     | Heavy duty      |
|----------|-----------------|-----------------|-----------------|
| 50       | CTFB12/0050PG90 | CTFB25/0050PG90 | N/A             |
| 75       | CTFB12/0075PG90 | CTFB25/0075PG90 | CTFB50/0075PG90 |
| 100      | CTFB12/0100PG90 | CTFB25/0100PG90 | CTFB50/0100PG90 |
| 150      | CTFB12/0150PG90 | CTFB25/0150PG90 | CTFB50/0150PG90 |
| 225      | CTFB12/0225PG90 | CTFB25/0225PG90 | CTFB50/0225PG90 |
| 300      | CTFB18/0300PG90 | CTFB25/0300PG90 | CTFB50/0300PG90 |
| 450      | N/A             | CTFB25/0450PG90 | CTFB50/0450PG90 |
| 600      | N/A             | CTFB25/0600PG90 | CTFB50/0600PG90 |
| 750      | N/A             | N/A             | CTFB50/0750PG90 |
| 900      | N/A             | N/A             | CTFB50/0900PG90 |



45° flat bends

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

| Width mm | Light duty      | Medium duty     | Heavy duty      |
|----------|-----------------|-----------------|-----------------|
| 50       | CTFB12/0050PG45 | CTFB25/0050PG45 | N/A             |
| 75       | CTFB12/0075PG45 | CTFB25/0075PG45 | CTFB50/0075PG45 |
| 100      | CTFB12/0100PG45 | CTFB25/0100PG45 | CTFB50/0100PG45 |
| 150      | CTFB12/0150PG45 | CTFB25/0150PG45 | CTFB50/0150PG45 |
| 225      | CTFB12/0225PG45 | CTFB25/0225PG45 | CTFB50/0225PG45 |
| 300      | CTFB18/0300PG45 | CTFB25/0300PG45 | CTFB50/0300PG45 |
| 450      | N/A             | CTFB25/0450PG45 | CTFB50/0450PG45 |
| 600      | N/A             | CTFB25/0600PG45 | CTFB50/0600PG45 |
| 750      | N/A             | N/A             | CTFB50/0750PG45 |
| 900      | N/A             | N/A             | CTFB50/0900PG45 |

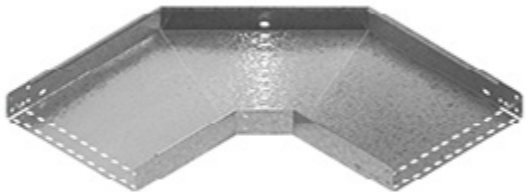


Adjustable flat bend (made to order)

(Not available for light duty cable tray)

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

| Width mm | Medium duty   | Heavy duty    |
|----------|---------------|---------------|
| 50       | CTAB25/0050PG | N/A           |
| 75       | CTAB25/0075PG | CTAB50/0075PG |
| 100      | CTAB25/0100PG | CTAB50/0100PG |
| 150      | CTAB25/0150PG | CTAB50/0150PG |
| 225      | CTAB25/0225PG | CTAB50/0225PG |
| 300      | CTAB25/0300PG | CTAB50/0300PG |

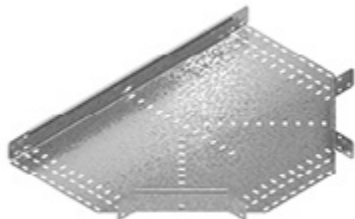


Tees

Equal tee

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

| Width mm | Light duty    | Medium duty   | Heavy duty    |
|----------|---------------|---------------|---------------|
| 50       | CTET12/0050PG | CTET25/0050PG | N/A           |
| 75       | CTET12/0075PG | CTET25/0075PG | CTET50/0075PG |
| 100      | CTET12/0100PG | CTET25/0100PG | CTET50/0100PG |
| 150      | CTET12/0150PG | CTET25/0150PG | CTET50/0150PG |
| 225      | CTET12/0225PG | CTET25/0225PG | CTET50/0225PG |
| 300      | CTET18/0300PG | CTET25/0300PG | CTET50/0300PG |
| 450      | N/A           | CTET25/0450PG | CTET50/0450PG |
| 600      | N/A           | CTET25/0600PG | CTET50/0600PG |
| 750      | N/A           | N/A           | CTET50/0750PG |
| 900      | N/A           | N/A           | CTET50/0900PG |



Unequal tee (made to order)

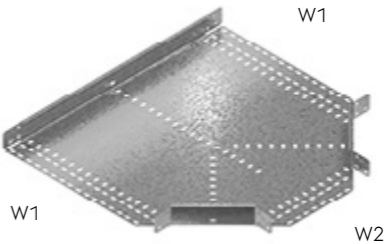
Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

How to generate the part number – CTUT(depth)/W1/W2(finish)

Example – CTUT50/300/150PG

Table below shows a complete list of W1 and W2 combinations.

| W1  | W2   |
|-----|--|
| 50  | 75, 100, 150, 225, 300, 450, 600, 750, 900 |
| 75  | 50, 100, 150, 225, 300, 450, 600, 750, 900 |
| 100 | 50, 75, 150, 225, 300, 450, 600, 750, 900  |
| 150 | 50, 75, 100, 225, 300, 450, 600, 750, 900  |
| 225 | 50, 75, 100, 150, 300, 450, 600, 750, 900  |
| 300 | 50, 75, 100, 150, 225, 450, 600, 750, 900  |
| 450 | 50, 75, 100, 150, 225, 300, 600, 750, 900  |
| 600 | 50, 75, 100, 150, 225, 300, 450, 750, 900  |
| 750 | 50, 75, 100, 150, 225, 300, 450, 600, 900  |
| 900 | 50, 75, 100, 150, 225, 300, 450, 600, 750  |

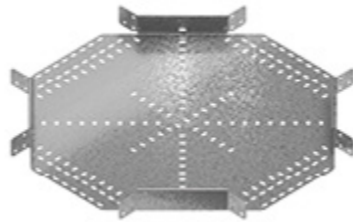


## Crossovers, Risers & Reducers

### Crossovers

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

| Width mm | Light duty    | Medium duty   | Heavy duty                                |
|----------|---------------|---------------|---|
| 50       | CTCO12/0050PG | CTCO25/0050PG | N/A                                       |
| 75       | CTCO12/0075PG | CTCO25/0075PG | CTCO50/0075PG                             |
| 100      | CTCO12/0100PG | CTCO25/0100PG | CTCO50/0100PG                             |
| 150      | CTCO12/0150PG | CTCO25/0150PG | CTCO50/0150PG                             |
| 225      | CTCO12/0225PG | CTCO25/0225PG | CTCO50/0225PG                             |
| 300      | CTCO18/0300PG | CTCO25/0300PG | CTCO50/0300PG                             |
| 450      | N/A           | CTCO25/0450PG | CTCO50/0450PG                             |
| 600      | N/A           | CTCO25/0600PG | CTCO50/0600PG                             |
| 750      | N/A           | N/A           | CTCO50/0750PG                             |
| 900      | N/A           | N/A           | CTCO50/0900PG<br>(available upon request) |



### Internal riser – flexible

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

CTFR = Flexible risers are supplied flat and folded on site to suit angle.

CTIR = Internal risers are folded to suit stated angle. 90 = 90°, 60 = 60°, 45 = 45°, 30 = 30°

Eg: CTIR50/0900PG90

| Width mm | Light duty    | Medium duty   | Heavy duty                                     |
|----------|---------------|---------------|--|
| 50       | CTFR12/0050PG | CTFR25/0050PG | N/A  |
| 75       | CTFR12/0075PG | CTFR25/0075PG | CTFR50/0075PG                                  |
| 100      | CTFR12/0100PG | CTFR25/0100PG | CTFR50/0100PG                                  |
| 150      | CTFR12/0150PG | CTFR25/0150PG | CTFR50/0150PG                                  |
| 225      | CTFR12/0225PG | CTFR25/0225PG | CTFR50/0225PG                                  |
| 300      | CTFR18/0300PG | CTFR25/0300PG | CTFR50/0300PG                                  |
| 450      | N/A           | CTFR25/0450PG | CTFR50/0450PG                                  |
| 600      | N/A           | CTFR25/0600PG | CTFR50/0600PG                                  |
| 750      | N/A           | N/A           | CTIR50/0750PG90<br>(only available pre-folded) |
| 900      | N/A           | N/A           | CTIR50/0900PG90<br>(only available pre-folded) |



### External riser – flexible

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

CTFR = Flexible risers are supplied flat and folded on site to suit angle.

CTER = External risers are folded to suit stated angle. 90 = 90°, 60 = 60°, 45 = 45°, 30 = 30°

E.g: CTER50/0900PG90

| Width mm | Light duty    | Medium duty   | Heavy duty                                     |
|----------|---------------|---------------|--|
| 50       | CTFR12/0050PG | CTFR25/0050PG | N/A  |
| 75       | CTFR12/0075PG | CTFR25/0075PG | CTFR50/0075PG                                  |
| 100      | CTFR12/0100PG | CTFR25/0100PG | CTFR50/0100PG                                  |
| 150      | CTFR12/0150PG | CTFR25/0150PG | CTFR50/0150PG                                  |
| 225      | CTFR12/0225PG | CTFR25/0225PG | CTFR50/0225PG                                  |
| 300      | CTFR18/0300PG | CTFR25/0300PG | CTFR50/0300PG                                  |
| 450      | N/A           | CTFR25/0450PG | CTFR50/0450PG                                  |
| 600      | N/A           | CTFR25/0600PG | CTFR50/0600PG                                  |
| 750      | N/A           | N/A           | CTER50/0750PG90<br>(only available pre-folded) |
| 900      | N/A           | N/A           | CTER50/0900PG90<br>(only available pre-folded) |



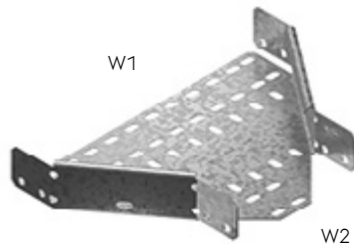
### Reducers (made to order)

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

For left hand reducers replace CTSR in part number with CTLR.

For right hand reducers replace CTSR in part number with CTRR.

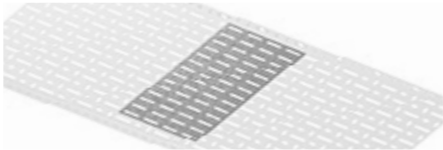
| Width mm |     | Light duty         | Medium duty        | Heavy duty         |
|----------|-----|--------------------|--------------------|--------------------|
| W1       | W2  |                    |                    |                    |
| 75       | 50  | CTSR12/0075/0050PG | CTSR25/0075/0050PG | N/A                |
| 100      | 50  | CTSR12/0100/0050PG | CTSR25/0100/0050PG | N/A                |
| 150      | 50  | CTSR12/0150/0050PG | CTSR25/0150/0050PG | N/A                |
| 225      | 50  | CTSR12/0225/0050PG | CTSR25/0225/0050PG | N/A                |
| 300      | 50  | CTSR18/0300/0050PG | CTSR25/0300/0050PG | N/A                |
| 450      | 50  | N/A                | CTSR25/0450/0050PG | N/A                |
| 600      | 50  | N/A                | CTSR25/0600/0050PG | N/A                |
| 750      | 50  | N/A                | N/A                | N/A                |
| 900      | 50  | N/A                | N/A                | N/A                |
| 100      | 75  | CTSR12/0100/0075PG | CTSR25/0100/0075PG | CTSR50/0100/0075PG |
| 150      | 75  | CTSR12/0150/0075PG | CTSR25/0150/0075PG | CTSR50/0150/0075PG |
| 225      | 75  | CTSR12/0225/0075PG | CTSR25/0225/0075PG | CTSR50/0225/0075PG |
| 300      | 75  | N/A                | CTSR25/0300/0075PG | CTSR50/0300/0075PG |
| 450      | 75  | N/A                | CTSR25/0450/0075PG | CTSR50/0450/0075PG |
| 600      | 75  | N/A                | CTSR25/0600/0075PG | CTSR50/0600/0075PG |
| 750      | 75  | N/A                | N/A                | CTSR50/0750/0075PG |
| 900      | 75  | N/A                | N/A                | CTSR50/0900/0075PG |
| 150      | 100 | CTSR12/0150/0100PG | CTSR25/0150/0100PG | CTSR50/0150/0100PG |
| 225      | 100 | CTSR12/0225/0100PG | CTSR25/0225/0100PG | CTSR50/0225/0100PG |
| 300      | 100 | N/A                | CTSR25/0300/0100PG | CTSR50/0300/0100PG |
| 450      | 100 | N/A                | CTSR25/0450/0100PG | CTSR50/0450/0100PG |
| 600      | 100 | N/A                | CTSR25/0600/0100PG | CTSR50/0600/0100PG |
| 750      | 100 | N/A                | N/A                | CTSR50/0750/0100PG |
| 900      | 100 | N/A                | N/A                | CTSR50/0900/0100PG |
| 225      | 150 | CTSR12/0225/0150PG | CTSR25/0225/0150PG | CTSR50/0225/0150PG |
| 300      | 150 | N/A                | CTSR25/0300/0150PG | CTSR50/0300/0150PG |
| 450      | 150 | N/A                | CTSR25/0450/0150PG | CTSR50/0450/0150PG |
| 600      | 150 | N/A                | CTSR25/0600/0150PG | CTSR50/0600/0150PG |
| 750      | 150 | N/A                | N/A                | CTSR50/0750/0150PG |
| 900      | 150 | N/A                | N/A                | CTSR50/0900/0150PG |
| 300      | 225 | N/A                | CTSR25/0300/0225PG | CTSR50/0300/0225PG |
| 450      | 225 | N/A                | CTSR25/0450/0225PG | CTSR50/0450/0225PG |
| 600      | 225 | N/A                | CTSR25/0600/0225PG | CTSR50/0600/0225PG |
| 750      | 225 | N/A                | N/A                | CTSR50/0750/0225PG |
| 900      | 225 | N/A                | N/A                | CTSR50/0900/0225PG |
| 450      | 300 | N/A                | CTSR25/0450/0300PG | CTSR50/0450/0300PG |
| 600      | 300 | N/A                | CTSR25/0600/0300PG | CTSR50/0600/0300PG |
| 750      | 300 | N/A                | N/A                | CTSR50/0750/0300PG |
| 900      | 300 | N/A                | N/A                | CTSR50/0900/0300PG |
| 600      | 450 | N/A                | CTSR25/0600/0450PG | CTSR50/0600/0450PG |
| 750      | 450 | N/A                | N/A                | CTSR50/0750/0450PG |
| 900      | 450 | N/A                | N/A                | CTSR50/0900/0450PG |
| 750      | 600 | N/A                | N/A                | CTSR50/0750/0600PG |
| 900      | 600 | N/A                | N/A                | CTSR50/0900/0600PG |
| 900      | 750 | N/A                | N/A                | CTSR50/0900/0750PG |



Fishplate couplers

Always required for cut lengths of light duty tray  
Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

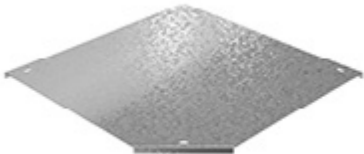
| Width mm | (always required for cut lengths of light duty tray) |
|----------|--|
| 50       | CTFP050PG  |
| 75       | CTFP075PG  |
| 100      | CTFP100PG  |
| 125      | CTFP125PG  |
| 150      | CTFP150PG  |
| 225      | CTFP225PG  |
| 300      | CTFP300PG  |
| 450      | CTFP450PG  |
| 600      | CTFP600PG  |
| 750      | CTFP750PG  |
| 900      | CTFP900PG  |



90° flat bend covers (made to order)

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS  
Standard closed covers = CC, ventilated cover = CV  
Includes 5 fixing clamps and fasteners

| Width mm | Light duty       | Medium duty      | Heavy duty       |
|----------|------------------|------------------|------------------|
| 50       | CTFB12CV/050PG90 | CTFB25CC/050PG90 | N/A              |
| 75       | CTFB12CV/075PG90 | CTFB25CC/075PG90 | CTFB50CC/075PG90 |
| 100      | CTFB12CV/100PG90 | CTFB25CC/100PG90 | CTFB50CC/100PG90 |
| 150      | CTFB12CV/150PG90 | CTFB25CC/150PG90 | CTFB50CC/150PG90 |
| 225      | CTFB12CV/225PG90 | CTFB25CC/225PG90 | CTFB50CC/225PG90 |
| 300      | CTFB18CV/300PG90 | CTFB25CC/300PG90 | CTFB50CC/300PG90 |
| 450      | N/A              | CTFB25CC/450PG90 | CTFB50CC/450PG90 |
| 600      | N/A              | CTFB25CC/600PG90 | CTFB50CC/600PG90 |
| 750      | N/A              | N/A              | CTFB50CC/750PG90 |
| 900      | N/A              | N/A              | CTFB50CC/900PG90 |



\*NB: Closed cover not available for 12mm and 18mm deep cable tray.

Covers

Straight length covers – 3m long (made to order)

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS  
Standard closed covers = CC, ventilated cover = CV  
Includes 6 fixing clamps and fasteners

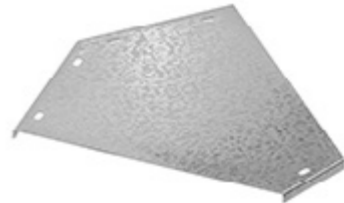
| Width mm | Light duty     | Medium duty    | Heavy duty     |
|----------|----------------|----------------|----------------|
| 50       | CTSL12CV/050PG | CTSL25CC/050PG | N/A            |
| 75       | CTSL12CV/075PG | CTSL25CC/075PG | CTSL50CC/075PG |
| 100      | CTSL12CV/100PG | CTSL25CC/100PG | CTSL50CC/100PG |
| 150      | CTSL12CV/150PG | CTSL25CC/150PG | CTSL50CC/150PG |
| 225      | CTSL12CV/225PG | CTSL25CC/225PG | CTSL50CC/225PG |
| 300      | CTSL18CV/300PG | CTSL25CC/300PG | CTSL50CC/300PG |
| 450      | N/A            | CTSL25CC/450PG | CTSL50CC/450PG |
| 600      | N/A            | CTSL25CC/600PG | CTSL50CC/600PG |
| 750      | N/A            | N/A            | CTSL50CC/750PG |
| 900      | N/A            | N/A            | CTSL50CC/900PG |



45° flat bend covers (made to order)

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 316 = SS  
Standard closed covers = CC, ventilated cover = CV  
Includes 5 fixing clamps and fasteners

| Width mm | Light duty       | Medium duty      | Heavy duty       |
|----------|------------------|------------------|------------------|
| 50       | CTFB12CV/050PG45 | CTFB25CC/050PG45 | N/A              |
| 75       | CTFB12CV/075PG45 | CTFB25CC/075PG45 | CTFB50CC/075PG45 |
| 100      | CTFB12CV/100PG45 | CTFB25CC/100PG45 | CTFB50CC/100PG45 |
| 150      | CTFB12CV/150PG45 | CTFB25CC/150PG45 | CTFB50CC/150PG45 |
| 225      | CTFB12CV/225PG45 | CTFB25CC/225PG45 | CTFB50CC/225PG45 |
| 300      | CTFB18CV/300PG45 | CTFB25CC/300PG45 | CTFB50CC/300PG45 |
| 450      | N/A              | CTFB25CC/450PG45 | CTFB50CC/450PG45 |
| 600      | N/A              | CTFB25CC/600PG45 | CTFB50CC/600PG45 |
| 750      | N/A              | N/A              | CTFB50CC/750PG45 |
| 900      | N/A              | N/A              | CTFB50CC/900PG45 |



\*NB: Closed cover not available for 12mm and 18mm deep cable tray.

\*NB: Closed cover not available for 12mm and 18mm deep cable tray.

Extra cover clips

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 316 = SS  
Standard closed covers = CC, ventilated cover = CV

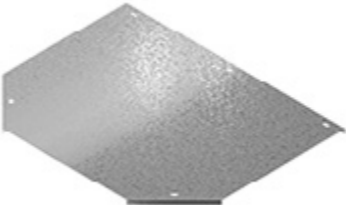
| Duty   | Standard   | Ventilated |
|--------|------------|------------|
| Light  | N/A        | CTCCV18HDG |
| Medium | CTCCC25HDG | CTCCV25HDG |
| Heavy  | CTCCC50HDG | CTCCV50HDG |



Equal tee covers (made to order)

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS  
Standard closed covers = CC, ventilated cover = CV  
Includes 5 fixing clamps and fasteners

| Width mm | Light duty     | Medium duty    | Heavy duty     |
|----------|----------------|----------------|----------------|
| 50       | CTET12CV/050PG | CTET25CC/050PG | N/A            |
| 75       | CTET12CV/075PG | CTET25CC/075PG | CTET50CC/075PG |
| 100      | CTET12CV/100PG | CTET25CC/100PG | CTET50CC/100PG |
| 150      | CTET12CV/150PG | CTET25CC/150PG | CTET50CC/150PG |
| 225      | CTET12CV/225PG | CTET25CC/225PG | CTET50CC/225PG |
| 300      | CTET18CV/300PG | CTET25CC/300PG | CTET50CC/300PG |
| 450      | N/A            | CTET25CC/450PG | CTET50CC/450PG |
| 600      | N/A            | CTET25CC/600PG | CTET50CC/600PG |
| 750      | N/A            | N/A            | CTET50CC/750PG |
| 900      | N/A            | N/A            | CTET50CC/900PG |

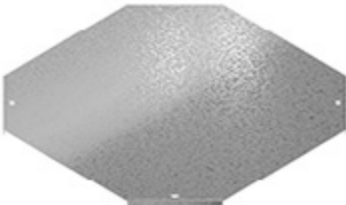


\*NB: Closed cover not available for 12mm and 18mm deep cable tray.

Crossover covers (made to order)

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS  
Standard closed covers = CC, ventilated cover = CV  
Includes 4 fixing clamps and fasteners

| Width mm | Light duty     | Medium duty    | Heavy duty     |
|----------|----------------|----------------|----------------|
| 50       | CTCO12CV/050PG | CTCO25CC/050PG | N/A            |
| 75       | CTCO12CV/075PG | CTCO25CC/075PG | CTCO50CC/075PG |
| 100      | CTCO12CV/100PG | CTCO25CC/100PG | CTCO50CC/100PG |
| 150      | CTCO12CV/150PG | CTCO25CC/150PG | CTCO50CC/150PG |
| 225      | CTCO12CV/225PG | CTCO25CC/225PG | CTCO50CC/225PG |
| 300      | CTCO18CV/300PG | CTCO25CC/300PG | CTCO50CC/300PG |
| 450      | N/A            | CTCO25CC/450PG | CTCO50CC/450PG |
| 600      | N/A            | CTCO25CC/600PG | CTCO50CC/600PG |
| 750      | N/A            | N/A            | CTCO50CC/750PG |
| 900      | N/A            | N/A            | CTCO50CC/900PG |



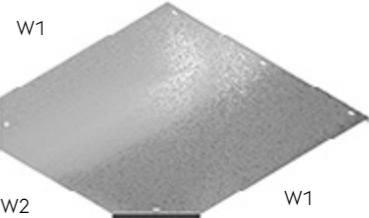
\*NB: Closed cover not available for 12mm and 18mm deep cable tray.

Unequal tee covers (made to order)

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS  
Standard closed covers = CC, ventilated cover = CV  
Includes 5 fixing clamps and fasteners

How to generate the part number – CTUT(cover type)W1/W2(finish)  
Example – CTUTC/0300/0150PG  
Table below shows a complete list of W1 and W2 combinations.

| W1  | W2   |
|-----|--|
| 50  | 75, 100, 150, 225, 300, 450, 600, 750, 900 |
| 75  | 50, 100, 150, 225, 300, 450, 600, 750, 900 |
| 100 | 50, 75, 150, 225, 300, 450, 600, 750, 900  |
| 150 | 50, 75, 100, 225, 300, 450, 600, 750, 900  |
| 225 | 50, 75, 100, 150, 300, 450, 600, 750, 900  |
| 300 | 50, 75, 100, 150, 225, 450, 600, 750, 900  |
| 450 | 50, 75, 100, 150, 225, 300, 600, 750, 900  |
| 600 | 50, 75, 100, 150, 225, 300, 450, 750, 900  |
| 750 | 50, 75, 100, 150, 225, 300, 450, 600, 900  |
| 900 | 50, 75, 100, 150, 225, 300, 450, 600, 750  |



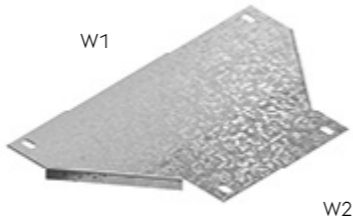
\*NB: Closed cover not available for 12mm and 18mm deep cable tray.

Reducer covers (made to order)

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS  
Standard closed covers = CC, ventilated cover = CV  
Includes 4 fixing clamps and fasteners

For left hand reducer covers replace CTSR in part number with CTLR.  
For right hand reducer covers replace CTSR in part number with CTRR.

| Width<br>mm |     | Light duty           | Medium duty          | Heavy duty           |
|-------------|-----|----------------------|----------------------|----------------------|
| W1          | W2  |                      |                      |                      |
| 75          | 50  | CTSRCV12/0075/0050PG | CTSRCC25/0075/0050PG | N/A                  |
| 100         | 50  | CTSRCV12/0100/0050PG | CTSRCC25/0100/0050PG | N/A                  |
| 150         | 50  | CTSRCV12/0150/0050PG | CTSRCC25/0150/0050PG | N/A                  |
| 225         | 50  | CTSRCV12/0225/0050PG | CTSRCC25/0225/0050PG | N/A                  |
| 300         | 50  | N/A                  | CTSRCC25/0300/0050PG | N/A                  |
| 450         | 50  | N/A                  | CTSRCC25/0450/0050PG | N/A                  |
| 600         | 50  | N/A                  | CTSRCC25/0600/0050PG | N/A                  |
| 750         | 50  | N/A                  | N/A                  | N/A                  |
| 900         | 50  | N/A                  | N/A                  | N/A                  |
| 100         | 75  | CTSRCV12/0100/0075PG | CTSRCC25/0100/0075PG | CTSRCC50/0100/0075PG |
| 150         | 75  | CTSRCV12/0150/0075PG | CTSRCC25/0150/0075PG | CTSRCC50/0150/0075PG |
| 225         | 75  | CTSRCV12/0225/0075PG | CTSRCC25/0225/0075PG | CTSRCC50/0225/0075PG |
| 300         | 75  | N/A                  | CTSRCC25/0300/0075PG | CTSRCC50/0300/0075PG |
| 450         | 75  | N/A                  | CTSRCC25/0450/0075PG | CTSRCC50/0450/0075PG |
| 600         | 75  | N/A                  | CTSRCC25/0600/0075PG | CTSRCC50/0600/0075PG |
| 750         | 75  | N/A                  | N/A                  | CTSRCC50/0750/0075PG |
| 900         | 75  | N/A                  | N/A                  | CTSRCC50/0900/0075PG |
| 150         | 100 | CTSRCV12/0150/0100PG | CTSRCC25/0150/0100PG | CTSRCC50/0150/0100PG |
| 225         | 100 | CTSRCV12/0225/0100PG | CTSRCC25/0225/0100PG | CTSRCC50/0225/0100PG |
| 300         | 100 | N/A                  | CTSRCC25/0300/0100PG | CTSRCC50/0300/0100PG |
| 450         | 100 | N/A                  | CTSRCC25/0450/0100PG | CTSRCC50/0450/0100PG |
| 600         | 100 | N/A                  | CTSRCC25/0600/0100PG | CTSRCC50/0600/0100PG |
| 750         | 100 | N/A                  | N/A                  | CTSRCC50/0750/0100PG |
| 900         | 100 | N/A                  | N/A                  | CTSRCC50/0900/0100PG |
| 225         | 150 | CTSRCV12/0225/0150PG | CTSRCC25/0225/0150PG | CTSRCC50/0225/0150PG |
| 300         | 150 | N/A                  | CTSRCC25/0300/0150PG | CTSRCC50/0300/0150PG |
| 450         | 150 | N/A                  | CTSRCC25/0450/0150PG | CTSRCC50/0450/0150PG |
| 600         | 150 | N/A                  | CTSRCC25/0600/0150PG | CTSRCC50/0600/0150PG |
| 750         | 150 | N/A                  | N/A                  | CTSRCC50/0750/0150PG |
| 900         | 150 | N/A                  | N/A                  | CTSRCC50/0900/0150PG |
| 300         | 225 | N/A                  | CTSRCC25/0300/0225PG | CTSRCC50/0300/0225PG |
| 450         | 225 | N/A                  | CTSRCC25/0450/0225PG | CTSRCC50/0450/0225PG |
| 600         | 225 | N/A                  | CTSRCC25/0600/0225PG | CTSRCC50/0600/0225PG |
| 750         | 225 | N/A                  | N/A                  | CTSRCC50/0750/0225PG |
| 900         | 225 | N/A                  | N/A                  | CTSRCC50/0900/0225PG |
| 450         | 300 | N/A                  | CTSRCC25/0450/0300PG | CTSRCC50/0450/0300PG |
| 600         | 300 | N/A                  | CTSRCC25/0600/0300PG | CTSRCC50/0600/0300PG |
| 750         | 300 | N/A                  | N/A                  | CTSRCC50/0750/0300PG |
| 900         | 300 | N/A                  | N/A                  | CTSRCC50/0900/0300PG |
| 600         | 450 | N/A                  | CTSRCC25/0600/0450PG | CTSRCC50/0600/0450PG |
| 750         | 450 | N/A                  | N/A                  | CTSRCC50/0750/0450PG |
| 900         | 450 | N/A                  | N/A                  | CTSRCC50/0900/0450PG |
| 750         | 600 | N/A                  | N/A                  | CTSRCC50/0750/0600PG |
| 900         | 600 | N/A                  | N/A                  | CTSRCC50/0900/0600PG |
| 900         | 750 | N/A                  | N/A                  | CTSRCC50/0900/0750PG |



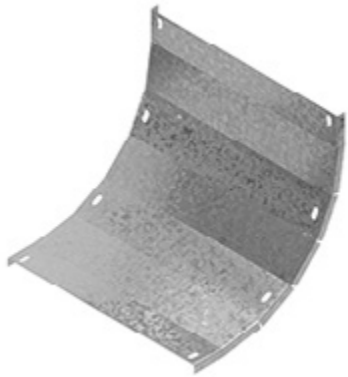
\*NB: Closed cover not available for 12mm and 18mm deep cable tray.

90° internal riser covers (made to order)

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS  
Standard closed covers = CC, ventilated cover = CV  
Includes 8 fixing clamps and fasteners

| Width<br>mm | Light duty        | Medium duty       | Heavy duty        |
|-------------|-------------------|-------------------|-------------------|
| 50          | CTIR12CV/0050PG90 | CTIR25CC/0050PG90 | N/A               |
| 75          | CTIR12CV/0075PG90 | CTIR25CC/0075PG90 | CTIR50CC/0075PG90 |
| 100         | CTIR12CV/0100PG90 | CTIR25CC/0100PG90 | CTIR50CC/0100PG90 |
| 150         | CTIR12CV/0150PG90 | CTIR25CC/0150PG90 | CTIR50CC/0150PG90 |
| 225         | CTIR12CV/0225PG90 | CTIR25CC/0225PG90 | CTIR50CC/0225PG90 |
| 300         | CTIR18CV/0300PG90 | CTIR25CC/0300PG90 | CTIR50CC/0300PG90 |
| 450         | N/A               | CTIR25CC/0450PG90 | CTIR50CC/0450PG90 |
| 600         | N/A               | CTIR25CC/0600PG90 | CTIR50CC/0600PG90 |
| 750         | N/A               | N/A               | CTIR50CC/0750PG90 |
| 900         | N/A               | N/A               | CTIR50CC/0900PG90 |

\*NB: Closed cover not available for 12mm and 18mm deep cable tray.

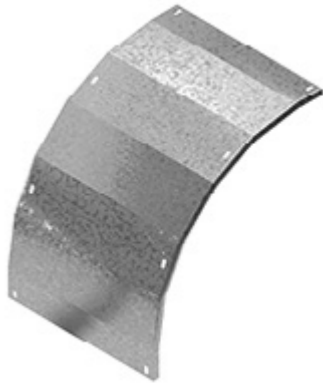


90° external riser covers (made to order)

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS  
Standard closed covers = CC, ventilated cover = CV  
Includes 8 fixing clamps and fasteners

| Width<br>mm | Light duty        | Medium duty       | Heavy duty        |
|-------------|-------------------|-------------------|-------------------|
| 50          | CTER12CV/0050PG90 | CTER25CC/0050PG90 | N/A               |
| 75          | CTER12CV/0075PG90 | CTER25CC/0075PG90 | CTER50CC/0075PG90 |
| 100         | CTER12CV/0100PG90 | CTER25CC/0100PG90 | CTER50CC/0100PG90 |
| 150         | CTER12CV/0150PG90 | CTER25CC/0150PG90 | CTER50CC/0150PG90 |
| 225         | CTER12CV/0225PG90 | CTER25CC/0225PG90 | CTER50CC/0225PG90 |
| 300         | CTER18CV/0300PG90 | CTER25CC/0300PG90 | CTER50CC/0300PG90 |
| 450         | N/A               | CTER25CC/0450PG90 | CTER50CC/0450PG90 |
| 600         | N/A               | CTER25CC/0600PG90 | CTER50CC/0600PG90 |
| 750         | N/A               | N/A               | CTER50CC/0750PG90 |
| 900         | N/A               | N/A               | CTER50CC/0900PG90 |

\*NB: Closed cover not available for 12mm and 18mm deep cable tray.

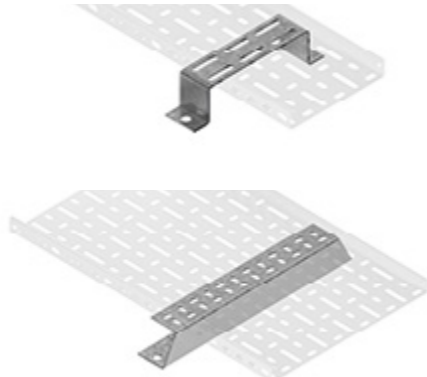


Accessories

Stand off brackets

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 316 = SS

| Width mm |           |
|----------|-----------|
| 50       | CTSO050PG |
| 100      | CTSO075PG |
| 125      | CTSO100PG |
| 150      | CTSO150PG |
| 225      | CTSO225PG |
| 300      | CTSO300PG |
| 450      | CTSO450PG |
| 600      | CTSO600PG |
| 750      | CTSO750PG |
| 900      | CTSO900PG |



Hanger brackets

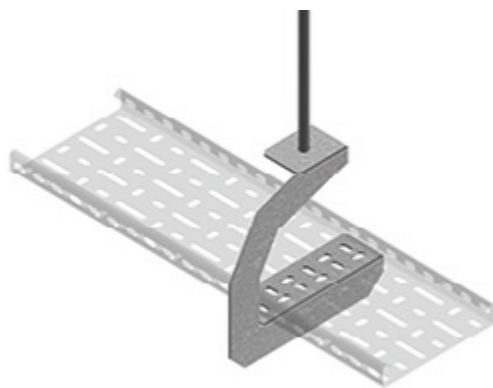
Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

| Width mm |            |
|----------|------------|
| 50       | CTHB050/PG |
| 75       | CTHB075/PG |
| 100      | CTHB100/PG |
| 150      | CTHB150/PG |



Hanger Brackets – G Type

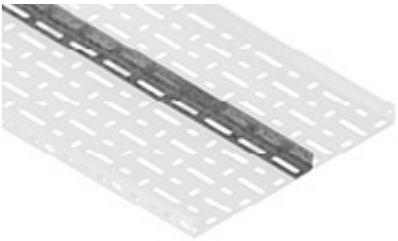
| Width mm |                |
|----------|----------------|
| 50       | CTHB050/PG/SPL |
| 75       | CTHB075/PG/SPL |
| 100      | CTHB100/PG/SPL |
| 150      | CTHB150/PG/SPL |
| 225      | CTHB225/PG/SPL |
| 300      | CTHB300/PG/SPL |



Straight divider – 3m

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

| Tray depth mm |            |
|---------------|------------|
| 25            | CTDI025PG3 |
| 50            | CTDI050PG3 |



Earthing straps

Finish: electro-tinned

| Supplied in packs of 10   |
|---|
| CT/ES100  |
| Copper braid electro tinned 4mm <sup>2</sup> , 100mm long (use M6 x 12 roofing bolts) |

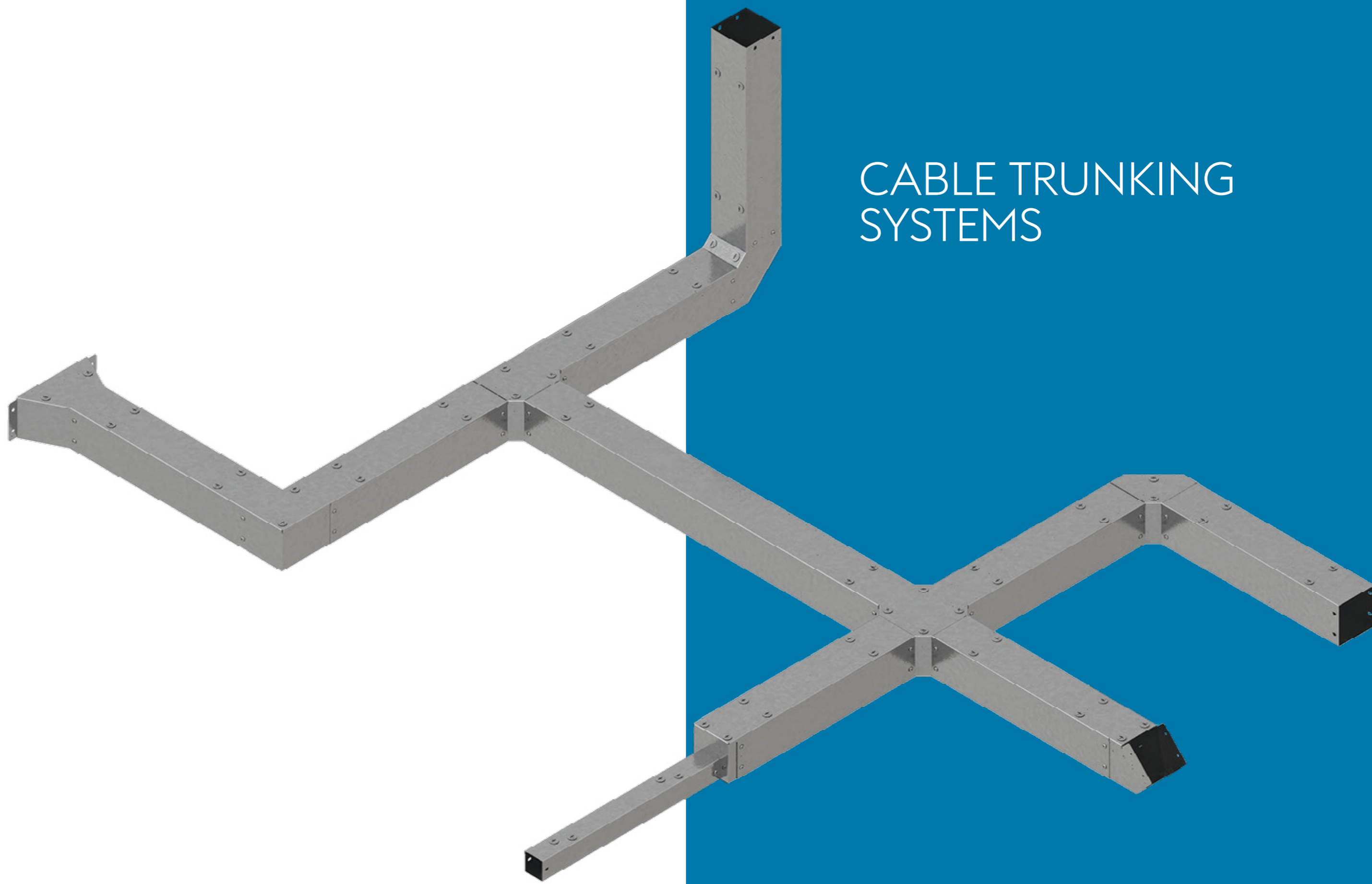


Roofing bolts and nuts

Finish: BZP as standard, stainless steel grade 1.4404 (316L) = SS, post-galvanised = HDG

| M6 x 12 roofing bolts    |
|--------------------------|
| Supplied in packs of 100 |
| M06X12RB                 |





# CABLE TRUNKING SYSTEMS

# CABLE TRUNKING SYSTEMS

voestalpine Metsec cable trunking systems meet the requirements of a demanding electrical installations market. Utilising world class production methods voestalpine Metsec are able to offer competitive solutions to a high level of service.

The comprehensive voestalpine Metsec cable trunking ranges consist of standard distribution trunking and lighting trunking.

Standard distribution trunking is available in widths and depths up to 300mm as standard. Lids are attached by turnbuckle fixings, with screw fix and tamper proof fixings also available.

Lighting trunking is available in 50mm x 50mm with straights in various length configurations. This range utilises the standard distribution trunking components but with snap on lids available in pre-galvanised steel or white plastic. This allows flexibility on site when using both systems.

voestalpine Metsec cable trunking systems are manufactured on sophisticated CNC equipment with a high level of automation for fast moving items. The fully integrated production process ensures voestalpine Metsec is able to offer a high level of service.



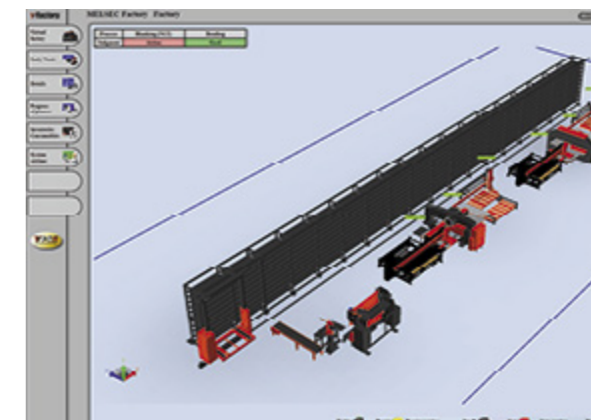
## Development and testing

voestalpine Metsec trunking systems have been developed to meet the requirements of BS EN 50085-1 + A1 and BS EN 50085-2-1 + A1 Cable trunking systems and cable ducting systems for electrical installations.

## Comprehensive stock, rapid delivery

voestalpine Metsec manufactures to lean principles on a Kanban system for stock control. This ensures a high level of delivery performance is achieved to meet the demanding service requirements needed to meet the needs of end users.

Comprehensive stocks are available at all times and voestalpine Metsec has the ability to turn around non-standard applications quickly due to the sophisticated manufacturing processes employed. The virtual factory software used in the manufacturing process provides a continuous monitoring tool for stocks, work in progress and replenishment times.





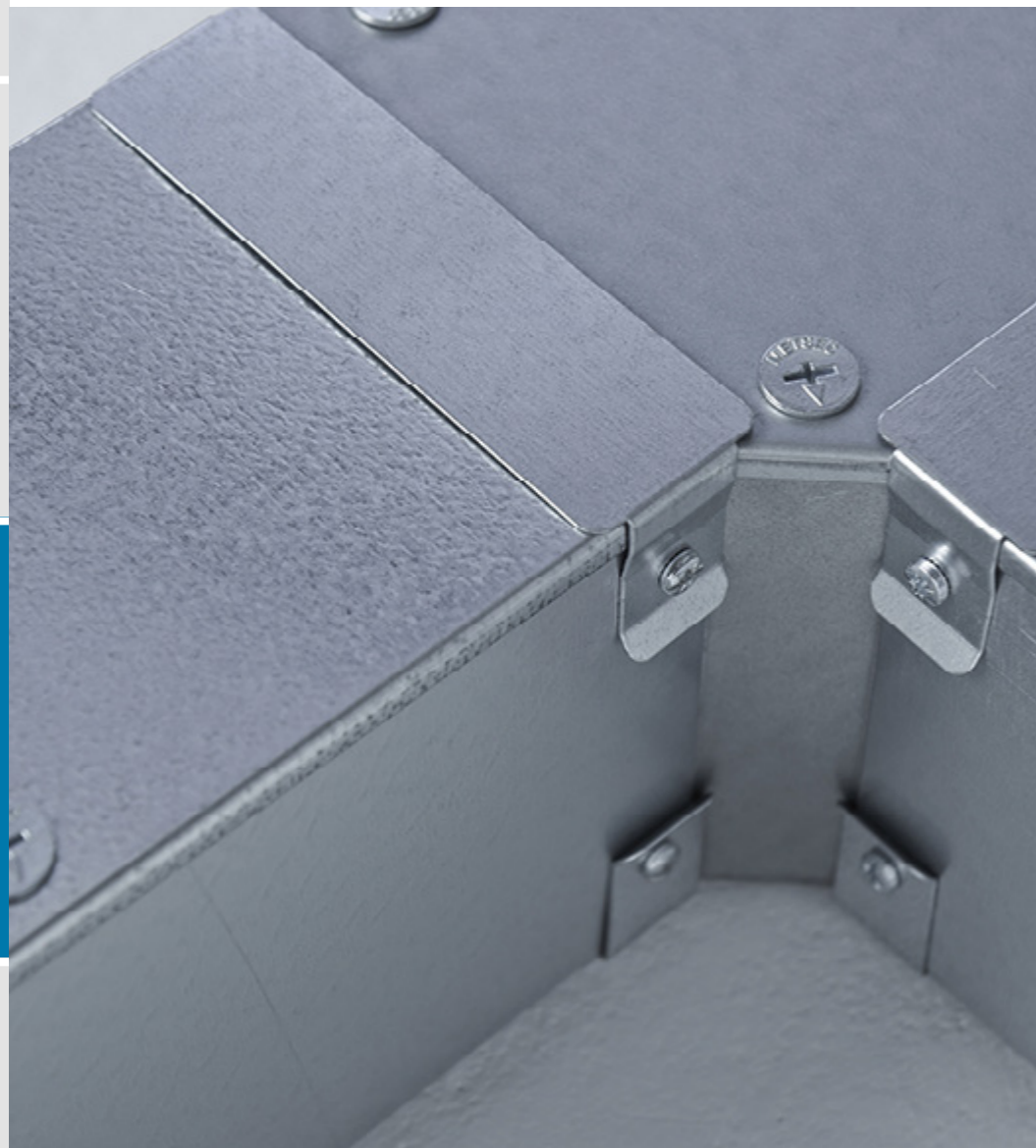
# IP4X

voestalpine Metsec provides product solutions to IP4X enabling us to make a positive contribution to the supply chain by easing lead times, reducing material costs and supporting a sustainable, safe and compliant Cable Management solution.

Currently, British Standards for metal cable containment systems demand that all single insulated, non-sheathed cables be contained in an enclosure that meets either IP4X or IPXXD rating.

IP4X specifies that protection against a 1.0mm probe is required and that there is

no requirement for the protection from the ingress of water. Consequently, IP4X may not be watertight but it protects the cabling from ingress of debris or wire – or generally foreign objects that could all compromise the safety of the cabling within – tested with a 1mm diameter probe that will not penetrate any trunking.



By meeting the IP4X standard, specifiers can give installers and those servicing the installation the confidence that the system meets the requirements of the Wiring Regulations in the most robust way.

Our IP4X rated trunking systems utilise off the shelf clips, without the need for bespoke systems. IP4X kits are available for the vast majority of the voestalpine Metsec cable trunking range.



## Features

- » Off the shelf clips
- » Can be delivered at a standard lead time

## Benefits

- » Proven to meet recognised industry standards through rigorous BSI Kitemark™ testing, demonstrating safety, reliability and quality
- » Greater level of ingress protection than IPXXD.
- » Conforms to BS7671 and BS EN 60529 + A2 for IP4X or IPXXD rated enclosures

# STANDARDS

voestalpine Metsec cable trunking systems generally conform to BS EN 50085-1 + A1 Cable trunking systems and cable ducting systems for electrical installations - Part 1: General requirements, and BS EN 50085-2-1 + A1 Cable trunking systems and cable ducting systems for electrical installations - Part 2-1: Cable trunking systems and cable ducting systems intended for mounting on walls and ceilings.

This European Standard specifies requirements and tests for cable trunking systems and cable ducting systems intended for the accommodation, and where necessary, for the electrically protective separation, of insulated conductors, cables and possibly other electrical equipment in electrical and/or communication systems installations. The maximum voltage of these installations is 1000V a.c. and 1500V d.c.

### 3 Definitions

For the purpose of this European Standard the following definitions apply.

- 3.3

**System component**  
Part of the system which includes:  
a) trunking length  
b) trunking fitting  
c) fixing device  
d) apparatus mounting device  
e) system accessory
- NB: a system does not necessarily include all system components a) to e). Different combinations of system components may be used.
- 3.4

**Trunking length**  
Main component of a cable trunking system comprising a base with one or more access covers which may be opened or removed.
- 3.6

**Fitting**  
System component to connect, change direction or terminate trunking lengths.

This standard does not apply to conduit systems, cable tray systems, cable ladder systems, power track systems or equipment covered by other standards.

- 3.7

**Fixing device**  
System component to secure other system components to the wall, ceiling, floor or other structure.
- 3.8

**Apparatus mounting device**  
System component to accommodate electrical apparatus, (switches, socket outlets, circuit breakers, telephone outlets, etc.) which can be an integral part of electrical apparatus.
- 3.9

**System accessory**  
System component which provides a supplementary function.
- 3.10

**Metallic system component**  
System component which consists of metal only.
- 3.12

**Composite system component**  
System component comprising both metallic and non-metallic materials.

### 4 General requirements

voestalpine Metsec cable trunking systems have been designed and constructed so that, where required, they provide reliable mechanical protection to the insulated conductors, cables and possibly other electrical equipment. Where required the system provides adequate electrical protection.

The system components meet the classifications as detailed/highlighted in Section 6.

### 6 Classifications

- 6.2

**According to resistance to impact for installation and application**
- 6.2.4

voestalpine Metsec cable trunking systems offer impact resistance of 2 J
- 6.3

**According to temperatures as given in Tables 1, 2 and 3**

Table 1 – Minimum temperature

| Minimum transport and storage temperature °C |
|--|
| -45  |
| -25  |
| -15  |
| -5   |

Table 2 – Minimum temperature

| Minimum installation and application temperature °C |
|---|
| -25   |
| -15   |
| -5  |
| +5  |
| +15   |

Table 3 – Maximum temperature

| Maximum application temperature °C |
|------------------------------------|
| +60                                |
| +90                                |
| +105                               |
| +120                               |

- 6.4

6.4.2
- According to resistance to flame propagation voestalpine Metsec cable trunking systems are non flame propagating.
- 6.5

6.5.1
- According to electrical continuity characteristic voestalpine Metsec cable trunking systems have electrical continuity characteristic.
- 6.6

6.6.1
- According to electrical insulating characteristic voestalpine Metsec cable trunking is without electrical insulating characteristic.
- 6.7

6.7.1
- to degrees of protection provided by enclosure according to BS EN 60529 + A2

voestalpine Metsec cable trunking is IP30.
- 6.9

6.9.2
- According to system access cover retention voestalpine Metsec cable trunking access cover can only be opened with a tool.
- 6.10

6.10.1
- According to electrically protective separation voestalpine Metsec cable trunking system without internal protective partition.
- 6.101

6.101.3.1
- According to intended installation positions. Surface mounted on wall.
- 6.101.3.2
- Surface mounted on ceiling.
- 6.103
- According to type.
- 6.103.2
- Type 2 cable trunking system – distribution.

- 7 Marking and Documentation
- 7.1 Each system component is marked by label. Labels used fully comply with the rubbing test. Boxed items are labelled on the packaging.
- 8 Dimensions
- There are no dimensions requirements.
- 9 Construction
- 9.1

9.1
- Sharp edges

Surfaces of system components which are likely to come into contact with cables during installation are inspected to ensure they shall not cause damage to the cables when installed correctly.
- 9.4

9.4
- Mechanical connections

Screwed connections have been designed to withstand the mechanical stresses occurring during installation and normal use and will not cause damage to cables when correctly inserted. Screwed connections are generally isometric threads fully compliant with tests in accordance with 9.4.1 of the standard. Screws intended to be tightened by means of a screwdriver should be to a torque of 2Nm per Table 4 – Torque values for the test of screwed connections.  
  
Mechanical connections intended for re-use other than screwed connections have been tested in accordance with 9.4.2, i.e. fitted and removed 10 times. After the test, there was no damage to impair the further use of the mechanical connection, i.e. turnbuckle connectors.

- 9.6

9.6.1
- Equipotential bonding

voestalpine Metsec cable trunking systems should not be used for equipotential bonding.
- 9.7

9.7.1
- Access to live parts

voestalpine Metsec cable trunking systems are designed that when they are installed correctly as in normal use, live parts are not accessible.
- 9.7.4
- knockouts meet the requirements of EN 61032
- 9.101
- Assembling

voestalpine Metsec system components fit correctly generally using integral couplers with plunged and tapped holes.

- 10 Mechanical Properties
- voestalpine Metsec cable trunking systems have been tested to verify the classifications stated particularly relating to mechanical strength, impact resistance, system access cover retention, etc.
- 15 Electromagnetic Compatibility
- voestalpine Metsec cable trunking systems are in normal use, passive in respect of electromagnetic influences (emission and immunity).
- NB: When products covered by this standard are installed as part of a wiring installation, the installation may emit or may be influenced by electromagnetic signals. The degree of influence will depend on the nature of the installation within its operating environment and the apparatus connected by the wiring.

# STANDARD DISTRIBUTION TRUNKING

## Straight Lengths

### 3m length with lid and coupler

Fixing Options: Turnbuckle type e.g. TSL/100/100/PG3

Screw fix type – add “S” after the first T e.g. TSSL/100/100/PG3

Tamper proof type – add “M” after the first T e.g. TMSL/100/100/PG3



| Width mm | 50mm Deep       | 75mm Deep       | 100mm Deep      | 150mm Deep      | 225mm Deep      | 300mm Deep      |
|----------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 50       | TSL/050/050/PG3 | N/A             | N/A             | N/A             | N/A             | N/A             |
| 75       | TSL/075/050/PG3 | TSL/075/075/PG3 | N/A             | N/A             | N/A             | N/A             |
| 100      | TSL/100/050/PG3 | TSL/100/075/PG3 | TSL/100/100/PG3 | N/A             | N/A             | N/A             |
| 150      | TSL/150/050/PG3 | TSL/150/075/PG3 | TSL/150/100/PG3 | TSL/150/150/PG3 | N/A             | N/A             |
| 225      | TSL/225/050/PG3 | TSL/225/075/PG3 | TSL/225/100/PG3 | TSL/225/150/PG3 | TSL/225/225/PG3 | N/A             |
| 300      | TSL/300/050/PG3 | TSL/300/075/PG3 | TSL/300/100/PG3 | TSL/300/150/PG3 | TSL/300/225/PG3 | TSL/300/300/PG3 |

## Bends

### 90° bend with top lid and gusset

Fixing Options: Turnbuckle type e.g. TTB/100/100/PG/G90

Screw fix type – add “S” after the first T e.g. TSTB/100/100/PG/G90

Tamper proof type – add “M” after the first T e.g. TMTB/100/100/PG/G90



| Width mm | 50mm Deep          | 75mm Deep          | 100mm Deep         | 150mm Deep         | 225mm Deep         | 300mm Deep         |
|----------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 50       | TTB/050/050/PG/G90 | N/A                | N/A                | N/A                | N/A                | N/A                |
| 75       | TTB/075/050/PG/G90 | TTB/075/075/PG/G90 | N/A                | N/A                | N/A                | N/A                |
| 100      | TTB/100/050/PG/G90 | TTB/100/075/PG/G90 | TTB/100/100/PG/G90 | N/A                | N/A                | N/A                |
| 150      | TTB/150/050/PG/G90 | TTB/150/075/PG/G90 | TTB/150/100/PG/G90 | TTB/150/150/PG/G90 | N/A                | N/A                |
| 225      | TTB/225/050/PG/G90 | TTB/225/075/PG/G90 | TTB/225/100/PG/G90 | TTB/225/150/PG/G90 | TTB/225/225/PG/G90 | N/A                |
| 300      | TTB/300/050/PG/G90 | TTB/300/075/PG/G90 | TTB/300/100/PG/G90 | TTB/300/150/PG/G90 | TTB/300/225/PG/G90 | TTB/300/300/PG/G90 |

### 90° bend with top lid and square

Fixing Options: Turnbuckle type e.g. TTB/100/100/PG/S90

Screw fix type – add “S” after the first T e.g. TSTB/100/100/PG/S90

Tamper proof type – add “M” after the first T e.g. TMTB/100/100/PG/S90



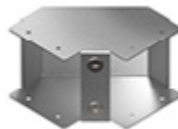
| Width mm | 50mm Deep          | 75mm Deep          | 100mm Deep         | 150mm Deep         | 225mm Deep         | 300mm Deep         |
|----------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 50       | TTB/050/050/PG/S90 | N/A                | N/A                | N/A                | N/A                | N/A                |
| 75       | TTB/075/050/PG/S90 | TTB/075/075/PG/S90 | N/A                | N/A                | N/A                | N/A                |
| 100      | TTB/100/050/PG/S90 | TTB/100/075/PG/S90 | TTB/100/100/PG/S90 | N/A                | N/A                | N/A                |
| 150      | TTB/150/050/PG/S90 | TTB/150/075/PG/S90 | TTB/150/100/PG/S90 | TTB/150/150/PG/S90 | N/A                | N/A                |
| 225      | TTB/225/050/PG/S90 | TTB/225/075/PG/S90 | TTB/225/100/PG/S90 | TTB/225/150/PG/S90 | TTB/225/225/PG/S90 | N/A                |
| 300      | TTB/300/050/PG/S90 | TTB/300/075/PG/S90 | TTB/300/100/PG/S90 | TTB/300/150/PG/S90 | TTB/300/225/PG/S90 | TTB/300/300/PG/S90 |

### 90° bend with inside lid and gusset

Fixing Options: Turnbuckle type e.g. TIB/100/100/PG/S90

Screw fix type – add “S” after the first T e.g. TSIB/100/100/PG/S90

Tamper proof type – add “M” after the first T e.g. TMIB/100/100/PG/S90



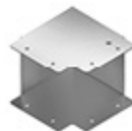
| Width mm | 50mm Deep          | 75mm Deep          | 100mm Deep         | 150mm Deep         | 225mm Deep         | 300mm Deep         |
|----------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 50       | TIB/050/050/PG/G90 | N/A                | N/A                | N/A                | N/A                | N/A                |
| 75       | TIB/075/050/PG/G90 | TIB/075/075/PG/G90 | N/A                | N/A                | N/A                | N/A                |
| 100      | TIB/100/050/PG/G90 | TIB/100/075/PG/G90 | TIB/100/100/PG/G90 | N/A                | N/A                | N/A                |
| 150      | TIB/150/050/PG/G90 | TIB/150/075/PG/G90 | TIB/150/100/PG/G90 | TIB/150/150/PG/G90 | N/A                | N/A                |
| 225      | TIB/225/050/PG/G90 | TIB/225/075/PG/G90 | TIB/225/100/PG/G90 | TIB/225/150/PG/G90 | TIB/225/225/PG/G90 | N/A                |
| 300      | TIB/300/050/PG/G90 | TIB/300/075/PG/G90 | TIB/300/100/PG/G90 | TIB/300/150/PG/G90 | TIB/300/225/PG/G90 | TIB/300/300/PG/G90 |

### 90° bend with inside lid and square

Fixing Options: Turnbuckle type e.g. TIB/100/100/PG/S90

Screw fix type – add “S” after the first T e.g. TSIB/100/100/PG/S90

Tamper proof type – add “M” after the first T e.g. TMIB/100/100/PG/S90



| Width mm | 50mm Deep          | 75mm Deep          | 100mm Deep         | 150mm Deep         | 225mm Deep         | 300mm Deep         |
|----------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 50       | TIB/050/050/PG/S90 | N/A                | N/A                | N/A                | N/A                | N/A                |
| 75       | TIB/075/050/PG/S90 | TIB/075/075/PG/S90 | N/A                | N/A                | N/A                | N/A                |
| 100      | TIB/100/050/PG/S90 | TIB/100/075/PG/S90 | TIB/100/100/PG/S90 | N/A                | N/A                | N/A                |
| 150      | TIB/150/050/PG/S90 | TIB/150/075/PG/S90 | TIB/150/100/PG/S90 | TIB/150/150/PG/S90 | N/A                | N/A                |
| 225      | TIB/225/050/PG/S90 | TIB/225/075/PG/S90 | TIB/225/100/PG/S90 | TIB/225/150/PG/S90 | TIB/225/225/PG/S90 | N/A                |
| 300      | TIB/300/050/PG/S90 | TIB/300/075/PG/S90 | TIB/300/100/PG/S90 | TIB/300/150/PG/S90 | TIB/300/225/PG/S90 | TIB/300/300/PG/S90 |

### 90° bend with outside lid and gusset

Fixing Options: Turnbuckle type e.g. TOB/100/100/PG/G90

Screw fix type – add “S” after the first T e.g. TSOB/100/100/PG/G90

Tamper proof type – add “M” after the first T e.g. TMOB/100/100/PG/G90



| Width mm | 50mm Deep          | 75mm Deep          | 100mm Deep         | 150mm Deep         | 225mm Deep         | 300mm Deep         |
|----------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 50       | TOB/050/050/PG/G90 | N/A                | N/A                | N/A                | N/A                | N/A                |
| 75       | TOB/075/050/PG/G90 | TOB/075/075/PG/G90 | N/A                | N/A                | N/A                | N/A                |
| 100      | TOB/100/050/PG/G90 | TOB/100/075/PG/G90 | TOB/100/100/PG/G90 | N/A                | N/A                | N/A                |
| 150      | TOB/150/050/PG/G90 | TOB/150/075/PG/G90 | TOB/150/100/PG/G90 | TOB/150/150/PG/G90 | N/A                | N/A                |
| 225      | TOB/225/050/PG/G90 | TOB/225/075/PG/G90 | TOB/225/100/PG/G90 | TOB/225/150/PG/G90 | TOB/225/225/PG/G90 | N/A                |
| 300      | TOB/300/050/PG/G90 | TOB/300/075/PG/G90 | TOB/300/100/PG/G90 | TOB/300/150/PG/G90 | TOB/300/225/PG/G90 | TOB/300/300/PG/G90 |

### 90° bend with outside lid and square

Fixing Options: Turnbuckle type e.g. TOB/100/100/PG/S90

Screw fix type – add “S” after the first T e.g. TSOB/100/100/PG/S90

Tamper proof type – add “M” after the first T e.g. TMOB/100/100/PG/S90



| Width mm | 50mm Deep          | 75mm Deep          | 100mm Deep         | 150mm Deep         | 225mm Deep         | 300mm Deep         |
|----------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 50       | TOB/050/050/PG/S90 | N/A                | N/A                | N/A                | N/A                | N/A                |
| 75       | TOB/075/050/PG/S90 | TOB/075/075/PG/S90 | N/A                | N/A                | N/A                | N/A                |
| 100      | TOB/100/050/PG/S90 | TOB/100/075/PG/S90 | TOB/100/100/PG/S90 | N/A                | N/A                | N/A                |
| 150      | TOB/150/050/PG/S90 | TOB/150/075/PG/S90 | TOB/150/100/PG/S90 | TOB/150/150/PG/S90 | N/A                | N/A                |
| 225      | TOB/225/050/PG/S90 | TOB/225/075/PG/S90 | TOB/225/100/PG/S90 | TOB/225/150/PG/S90 | TOB/225/225/PG/S90 | N/A                |
| 300      | TOB/300/050/PG/S90 | TOB/300/075/PG/S90 | TOB/300/100/PG/S90 | TOB/300/150/PG/S90 | TOB/300/225/PG/S90 | TOB/300/300/PG/S90 |

### 45° bend with top lid and gusset

Fixing Options: Turnbuckle type e.g. TTB/100/100/PG/G45

Screw fix type – add “S” after the first T e.g. TSTB/100/100/PG/G45

Tamper proof type – add “M” after the first T e.g. TMTB/100/100/PG/G45



| Width mm | 50mm Deep          | 75mm Deep          | 100mm Deep         | 150mm Deep         | 225mm Deep         | 300mm Deep         |
|----------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 50       | TTB/050/050/PG/G45 | N/A                | N/A                | N/A                | N/A                | N/A                |
| 75       | TTB/075/050/PG/G45 | TTB/075/075/PG/G45 | N/A                | N/A                | N/A                | N/A                |
| 100      | TTB/100/050/PG/G45 | TTB/100/075/PG/G45 | TTB/100/100/PG/G45 | N/A                | N/A                | N/A                |
| 150      | TTB/150/050/PG/G45 | TTB/150/075/PG/G45 | TTB/150/100/PG/G45 | TTB/150/150/PG/G45 | N/A                | N/A                |
| 225      | TTB/225/050/PG/G45 | TTB/225/075/PG/G45 | TTB/225/100/PG/G45 | TTB/225/150/PG/G45 | TTB/225/225/PG/G45 | N/A                |
| 300      | TTB/300/050/PG/G45 | TTB/300/075/PG/G45 | TTB/300/100/PG/G45 | TTB/300/150/PG/G45 | TTB/300/225/PG/G45 | TTB/300/300/PG/G45 |

45° bend with inside lid and gusset

Fixing Options: Turnbuckle type e.g. TIB/100/100/PG/G45  
Screw fix type – add “S” after the first T e.g. TSIB/100/100/PG/G45  
Tamper proof type – add “M” after the first T e.g. TMIB/100/100/PG/G45



| Width mm | 50mm Deep          | 75mm Deep          | 100mm Deep         | 150mm Deep         | 225mm Deep         | 300mm Deep         |
|----------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 50       | TIB/050/050/PG/G45 | N/A                | N/A                | N/A                | N/A                | N/A                |
| 75       | TIB/075/050/PG/G45 | TIB/075/075/PG/G45 | N/A                | N/A                | N/A                | N/A                |
| 100      | TIB/100/050/PG/G45 | TIB/100/075/PG/G45 | TIB/100/100/PG/G45 | N/A                | N/A                | N/A                |
| 150      | TIB/150/050/PG/G45 | TIB/150/075/PG/G45 | TIB/150/100/PG/G45 | TIB/150/150/PG/G45 | N/A                | N/A                |
| 225      | TIB/225/050/PG/G45 | TIB/225/075/PG/G45 | TIB/225/100/PG/G45 | TIB/225/150/PG/G45 | TIB/225/225/PG/G45 | N/A                |
| 300      | TIB/300/050/PG/G45 | TIB/300/075/PG/G45 | TIB/300/100/PG/G45 | TIB/300/150/PG/G45 | TIB/300/225/PG/G45 | TIB/300/300/PG/G45 |

45° bend with outside lid and gusset

Fixing Options: Turnbuckle type e.g. TOB/100/100/PG/G45  
Screw fix type – add “S” after the first T e.g. TSOB/100/100/PG/G45  
Tamper proof type – add “M” after the first T e.g. TMOB/100/100/PG/G45

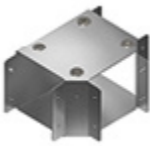


| Width mm | 50mm Deep          | 75mm Deep          | 100mm Deep         | 150mm Deep         | 225mm Deep         | 300mm Deep         |
|----------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 50       | TOB/050/050/PG/G45 | N/A                | N/A                | N/A                | N/A                | N/A                |
| 75       | TOB/075/050/PG/G45 | TOB/075/075/PG/G45 | N/A                | N/A                | N/A                | N/A                |
| 100      | TOB/100/050/PG/G45 | TOB/100/075/PG/G45 | TOB/100/100/PG/G45 | N/A                | N/A                | N/A                |
| 150      | TOB/150/050/PG/G45 | TOB/150/075/PG/G45 | TOB/150/100/PG/G45 | TOB/150/150/PG/G45 | N/A                | N/A                |
| 225      | TOB/225/050/PG/G45 | TOB/225/075/PG/G45 | TOB/225/100/PG/G45 | TOB/225/150/PG/G45 | TOB/225/225/PG/G45 | N/A                |
| 300      | TOB/300/050/PG/G45 | TOB/300/075/PG/G45 | TOB/300/100/PG/G45 | TOB/300/150/PG/G45 | TOB/300/225/PG/G45 | TOB/300/300/PG/G45 |

Tees

Tee with top lid and gusset

Fixing Options: Turnbuckle type e.g. TTT/100/100/PG/G  
Screw fix type – add “S” after the first T e.g. TSTT/100/100/PG/G  
Tamper proof type – add “M” after the first T e.g. TMTT/100/100/PG/G



| Width mm | 50mm Deep        | 75mm Deep        | 100mm Deep       | 150mm Deep       | 225mm Deep       | 300mm Deep       |
|----------|------------------|------------------|------------------|------------------|------------------|------------------|
| 50       | TTT/050/050/PG/G | N/A              | N/A              | N/A              | N/A              | N/A              |
| 75       | TTT/075/050/PG/G | TTT/075/075/PG/G | N/A              | N/A              | N/A              | N/A              |
| 100      | TTT/100/050/PG/G | TTT/100/075/PG/G | TTT/100/100/PG/G | N/A              | N/A              | N/A              |
| 150      | TTT/150/050/PG/G | TTT/150/075/PG/G | TTT/150/100/PG/G | TTT/150/150/PG/G | N/A              | N/A              |
| 225      | TTT/225/050/PG/G | TTT/225/075/PG/G | TTT/225/100/PG/G | TTT/225/150/PG/G | TTT/225/225/PG/G | N/A              |
| 300      | TTT/300/050/PG/G | TTT/300/075/PG/G | TTT/300/100/PG/G | TTT/300/150/PG/G | TTT/300/225/PG/G | TTT/300/300/PG/G |

Tee with top lid and square

Fixing Options: Turnbuckle type e.g. TTT/100/100/PG/S  
Screw fix type – add “S” after the first T e.g. TSTT/100/100/PG/S  
Tamper proof type – add “M” after the first T e.g. TMTT/100/100/PG/S



| Width mm | 50mm Deep        | 75mm Deep        | 100mm Deep       | 150mm Deep       | 225mm Deep       | 300mm Deep       |
|----------|------------------|------------------|------------------|------------------|------------------|------------------|
| 50       | TTT/050/050/PG/S | N/A              | N/A              | N/A              | N/A              | N/A              |
| 75       | TTT/075/050/PG/S | TTT/075/075/PG/S | N/A              | N/A              | N/A              | N/A              |
| 100      | TTT/100/050/PG/S | TTT/100/075/PG/S | TTT/100/100/PG/S | N/A              | N/A              | N/A              |
| 150      | TTT/150/050/PG/S | TTT/150/075/PG/S | TTT/150/100/PG/S | TTT/150/150/PG/S | N/A              | N/A              |
| 225      | TTT/225/050/PG/S | TTT/225/075/PG/S | TTT/225/100/PG/S | TTT/225/150/PG/S | TTT/225/225/PG/S | N/A              |
| 300      | TTT/300/050/PG/S | TTT/300/075/PG/S | TTT/300/100/PG/S | TTT/300/150/PG/S | TTT/300/225/PG/S | TTT/300/300/PG/S |

Tee with inside lid and gusset

Fixing Options: Turnbuckle type e.g. TIT/100/100/PG/G  
Screw fix type – add “S” after the first T e.g. TSIT/100/100/PG/G  
Tamper proof type – add “M” after the first T e.g. TMIT/100/100/PG/G



| Width mm | 50mm Deep        | 75mm Deep        | 100mm Deep       | 150mm Deep       | 225mm Deep       | 300mm Deep       |
|----------|------------------|------------------|------------------|------------------|------------------|------------------|
| 50       | TIT/050/050/PG/G | N/A              | N/A              | N/A              | N/A              | N/A              |
| 75       | TIT/075/050/PG/G | TIT/075/075/PG/G | N/A              | N/A              | N/A              | N/A              |
| 100      | TIT/100/050/PG/G | TIT/100/075/PG/G | TIT/100/100/PG/G | N/A              | N/A              | N/A              |
| 150      | TIT/150/050/PG/G | TIT/150/075/PG/G | TIT/150/100/PG/G | TIT/150/150/PG/G | N/A              | N/A              |
| 225      | TIT/225/050/PG/G | TIT/225/075/PG/G | TIT/225/100/PG/G | TIT/225/150/PG/G | TIT/225/225/PG/G | N/A              |
| 300      | TIT/300/050/PG/G | TIT/300/075/PG/G | TIT/300/100/PG/G | TIT/300/150/PG/G | TIT/300/225/PG/G | TIT/300/300/PG/G |

Tee with outside lid and gusset

Fixing Options: Turnbuckle type e.g. TOT/100/100/PG/G  
Screw fix type – add “S” after the first T e.g. TSOT/100/100/PG/G  
Tamper proof type – add “M” after the first T e.g. TMOT/100/100/PG/G

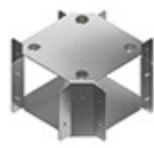


| Width mm | 50mm Deep        | 75mm Deep        | 100mm Deep       | 150mm Deep       | 225mm Deep       | 300mm Deep       |
|----------|------------------|------------------|------------------|------------------|------------------|------------------|
| 50       | TOT/050/050/PG/G | N/A              | N/A              | N/A              | N/A              | N/A              |
| 75       | TOT/075/050/PG/G | TOT/075/075/PG/G | N/A              | N/A              | N/A              | N/A              |
| 100      | TOT/100/050/PG/G | TOT/100/075/PG/G | TOT/100/100/PG/G | N/A              | N/A              | N/A              |
| 150      | TOT/150/050/PG/G | TOT/150/075/PG/G | TOT/150/100/PG/G | TOT/150/150/PG/G | N/A              | N/A              |
| 225      | TOT/225/050/PG/G | TOT/225/075/PG/G | TOT/225/100/PG/G | TOT/225/150/PG/G | TOT/225/225/PG/G | N/A              |
| 300      | TOT/300/050/PG/G | TOT/300/075/PG/G | TOT/300/100/PG/G | TOT/300/150/PG/G | TOT/300/225/PG/G | TOT/300/300/PG/G |

Crossovers & Reducers

Crossovers

Fixing Options: Turnbuckle type e.g. TCO/100/100/PG/G  
Screw fix type – add “S” after the first T e.g. TSCO/100/100/PG/G  
Tamper proof type – add “M” after the first T e.g. TMCO/100/100/PG/G



| Width mm | 50mm Deep        | 75mm Deep        | 100mm Deep       | 150mm Deep       | 225mm Deep       | 300mm Deep       |
|----------|------------------|------------------|------------------|------------------|------------------|------------------|
| 50       | TCO/050/050/PG/G | N/A              | N/A              | N/A              | N/A              | N/A              |
| 75       | TCO/075/050/PG/G | TCO/075/075/PG/G | N/A              | N/A              | N/A              | N/A              |
| 100      | TCO/100/050/PG/G | TCO/100/075/PG/G | TCO/100/100/PG/G | N/A              | N/A              | N/A              |
| 150      | TCO/150/050/PG/G | TCO/150/075/PG/G | TCO/150/100/PG/G | TCO/150/150/PG/G | N/A              | N/A              |
| 225      | TCO/225/050/PG/G | TCO/225/075/PG/G | TCO/225/100/PG/G | TCO/225/150/PG/G | TCO/225/225/PG/G | N/A              |
| 300      | TCO/300/050/PG/G | TCO/300/075/PG/G | TCO/300/100/PG/G | TCO/300/150/PG/G | TCO/300/225/PG/G | TCO/300/300/PG/G |

Reducers

Fixing Options: Turnbuckle type e.g. TTR/100/100/TO/050/050/PG  
Screw fix type – add “S” after the first T e.g. TSTR/100/100/TO/050/050/PG  
Tamper proof type – add “M” after the first T e.g. TMTR/100/100/TO/050/050/PG3



| Width 1 mm | Width 2 mm                |                           |                           |                           |
|------------|---------------------------|---------------------------|---------------------------|---------------------------|
|            | 50 x 50                   | 75 x 75                   | 100 x 100                 | 150 x 150                 |
| 75 x 75    | TTR/075/075/TO/050/050/PG | N/A                       | N/A                       | N/A                       |
| 100 x 100  | TTR/100/100/TO/050/050/PG | TTR/100/100/TO/075/075/PG | N/A                       | N/A                       |
| 150 x 150  | TTR/150/150/TO/050/050/PG | TTR/150/150/TO/075/075/PG | TTR/150/150/TO/100/100/PG | N/A                       |
| 225 x 225  | TTR/225/225/TO/050/050/PG | TTR/225/225/TO/075/075/PG | TTR/225/225/TO/100/100/PG | TTR/225/225/TO/150/150/PG |
| 300 X 300  | TTR/300/300/TO/050/050/PG | TTR/300/300/TO/075/075/PG | TTR/300/300/TO/100/100/PG | TTR/300/300/TO/150/150/PG |

Accessories & Lids

Flared connector

Fixing Options: Turnbuckle type e.g. TFC/100/100/PG

Screw fix type – add “S” after the first T e.g. TSFC/100/100/PG

Tamper proof type – add “M” after the first T e.g. TMFC/100/100/PG

| Width mm | 50mm Deep      | 75mm Deep      | 100mm Deep     | 150mm Deep     | 225mm Deep     | 300mm Deep        |
|----------|----------------|----------------|----------------|----------------|----------------|-------------------|
| 50       | TFC/050/050/PG | N/A            | N/A            | N/A            | N/A            | N/A               |
| 75       | TFC/075/050/PG | TFC/075/075/PG | N/A            | N/A            | N/A            | N/A               |
| 100      | TFC/100/050/PG | TFC/100/075/PG | TFC/100/100/PG | N/A            | N/A            | N/A               |
| 150      | TFC/150/050/PG | TFC/150/075/PG | TFC/150/100/PG | TFC/150/150/PG | N/A            | N/A               |
| 225      | TFC/225/050/PG | TFC/225/075/PG | TFC/225/100/PG | TFC/225/150/PG | TFC/225/225/PG | N/A               |
| 300      | TFC/300/050/PG | TFC/300/075/PG | TFC/300/100/PG | TFC/300/150/PG | TFC/300/225/PG | TFC/300/300/PG/PG |



Fitting to fitting connector

Fixing Options: Turnbuckle type e.g. TAC/100/100/PG

Screw fix type – add “S” after the first T e.g. TSAC/100/100/PG

Tamper proof type – add “M” after the first T e.g. TMAC/100/100/PGPG

| Width mm | 50mm Deep      | 75mm Deep      | 100mm Deep     | 150mm Deep     | 225mm Deep     | 300mm Deep     |
|----------|----------------|----------------|----------------|----------------|----------------|----------------|
| 50       | TAC/050/050/PG | N/A            | N/A            | N/A            | N/A            | N/A            |
| 75       | TAC/075/050/PG | TAC/075/075/PG | N/A            | N/A            | N/A            | N/A            |
| 100      | TAC/100/050/PG | TAC/100/075/PG | TAC/100/100/PG | N/A            | N/A            | N/A            |
| 150      | TAC/150/050/PG | TAC/150/075/PG | TAC/150/100/PG | TAC/150/150/PG | N/A            | N/A            |
| 225      | TAC/225/050/PG | TAC/225/075/PG | TAC/225/100/PG | TAC/225/150/PG | TAC/225/225/PG | N/A            |
| 300      | TAC/300/050/PG | TAC/300/075/PG | TAC/300/100/PG | TAC/300/150/PG | TAC/300/225/PG | TAC/300/300/PG |



Stop end

| Width mm | 50mm Deep        | 75mm Deep        | 100mm Deep       | 150mm Deep       | 225mm Deep       | 300mm Deep       |
|----------|------------------|------------------|------------------|------------------|------------------|------------------|
| 50       | TSE4X/050/050/PG | N/A              | N/A              | N/A              | N/A              | N/A              |
| 75       | TSE4X/075/050/PG | TSE4X/075/075/PG | N/A              | N/A              | N/A              | N/A              |
| 100      | TSE4X/100/050/PG | TSE4X/100/075/PG | TSE4X/100/100/PG | N/A              | N/A              | N/A              |
| 150      | TSE4X/150/050/PG | TSE4X/150/075/PG | TSE4X/150/100/PG | TSE4X/150/150/PG | N/A              | N/A              |
| 225      | TSE4X/225/050/PG | TSE4X/225/075/PG | TSE4X/225/100/PG | TSE4X/225/150/PG | TSE4X/225/225/PG | N/A              |
| 300      | TSE4X/300/050/PG | TSE4X/300/075/PG | TSE4X/300/100/PG | TSE4X/300/150/PG | TSE4X/300/225/PG | TSE4X/300/300/PG |



Flange bracket

| Width mm | 50mm Deep      | 75mm Deep      | 100mm Deep     | 150mm Deep     | 225mm Deep     | 300mm Deep     |
|----------|----------------|----------------|----------------|----------------|----------------|----------------|
| 50       | TFL/050/050/PG | N/A            | N/A            | N/A            | N/A            | N/A            |
| 75       | TFL/075/050/PG | TFL/075/075/PG | N/A            | N/A            | N/A            | N/A            |
| 100      | TFL/100/050/PG | TFL/100/075/PG | TFL/100/100/PG | N/A            | N/A            | N/A            |
| 150      | TFL/150/050/PG | TFL/150/075/PG | TFL/150/100/PG | TFL/150/150/PG | N/A            | N/A            |
| 225      | TFL/225/050/PG | TFL/225/075/PG | TFL/225/100/PG | TFL/225/150/PG | TFL/225/225/PG | N/A            |
| 300      | TFL/300/050/PG | TFL/300/075/PG | TFL/300/100/PG | TFL/300/150/PG | TFL/300/225/PG | TFL/300/300/PG |



Trunking connector

| Width mm | 50mm Deep          | 75mm Deep          | 100mm Deep         | 150mm Deep        | 225mm Deep        |
|----------|--------------------|--------------------|--------------------|-------------------|-------------------|
| 50       | TC/050/050/PG/PK10 | N/A                | N/A                | N/A               | N/A               |
| 75       | TC/075/050/PG/PK10 | TC/075/075/PG/PK10 | N/A                | N/A               | N/A               |
| 100      | TC/100/050/PG/PK10 | TC/100/075/PG/PK10 | TC/100/100/PG/PK10 | N/A               | N/A               |
| 150      | TC/150/050/PG/PK5  | TC/150/075/PG/PK5  | TC/150/100/PG/PK5  | TC/150/150/PG/PK5 | N/A               |
| 225      | TC/225/050/PG/PK5  | TC/225/075/PG/PK5  | TC/225/100/PG/PK5  | TC/225/150/PG/PK5 | TC/225/225/PG/PK5 |



Turnbuckle lid 3m long

| Width mm |              |
|----------|--------------|
| 50       | TSC/050/PG/3 |
| 75       | TSC/075/PG/3 |
| 100      | TSC/100/PG/3 |
| 150      | TSC/150/PG/3 |
| 225      | TSC/225/PG/3 |
| 300      | TSC/300/PG/3 |



Hanger bracket

| Width mm |            |
|----------|------------|
| 50       | THB/050/PG |
| 75       | THB/075/PG |
| 100      | THB/100/PG |
| 150      | THB/150/PG |
| 225      | THB/225/PG |
| 300      | N/A        |



Screw fix lid 3m long

Fasteners not included

| Width mm |               |
|----------|---------------|
| 50       | TSSC/050/PG/3 |
| 75       | TSSC/075/PG/3 |
| 100      | TSSC/100/PG/3 |
| 150      | TSSC/150/PG/3 |
| 225      | TSSC/225/PG/3 |
| 300      | TSSC/300/PG/3 |



Cable retainer

| Width mm | Pack of 10      |
|----------|-----------------|
| 50       | TCR/050/PG/PK10 |
| 75       | TCR/075/PG/PK10 |
| 100      | TCR/100/PG/PK10 |
| 150      | TCR150/PG/PK10  |
| 225      | TCR/225/PG/PK10 |
| 300      | TCR/300/PG/PK10 |



Turnbuckles

Pack of 10

TB1/PK10



Earth link

Pack of 10

TES/PK10



Pin rack

| Width mm | 50mm Deep      | 75mm Deep      | 100mm Deep     | 150mm Deep     | 225mm Deep |
|----------|----------------|----------------|----------------|----------------|------------|
| 50       | TPR/050/050/PG | N/A            | N/A            | N/A            | N/A        |
| 75       | TPR/075/050/PG | TPR/075/075/PG | N/A            | N/A            | N/A        |
| 100      | TPR/100/050/PG | TPR/100/075/PG | TPR/100/100/PG | N/A            | N/A        |
| 150      | TPR/150/050/PG | TPR/150/075/PG | TPR/150/100/PG | TPR/150/150/PG | N/A        |



M5 screw fixings

Pack of 4

M05x5CS/4



M5 tamper proof screw fixings

Pack of 4

M05x5SF/4



Divider 3m length

Fasteners not included

| Depth mm |              |
|----------|--------------|
| 50       | TDI/050/PG/3 |
| 75       | TDI/075/PG/3 |
| 100      | TDI/100/PG/3 |
| 150      | TDI/150/PG/3 |
| 225      | TDI/225/PG/3 |
| 300      | TDI/300/PG/3 |



# COMPARTMENTALISED PRODUCTS

## For 2 compartments:

Add 'C2' after part number, e.g. TTB/100/100/PG/G90/C2



2-compartment (C2)

## For 3 compartments:

Add 'C3' after part number, e.g. TTB/100/100/PG/G90/C3.

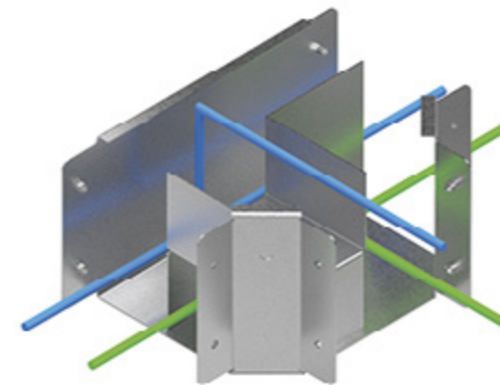
Unless otherwise stated, all compartments will be of equal size.



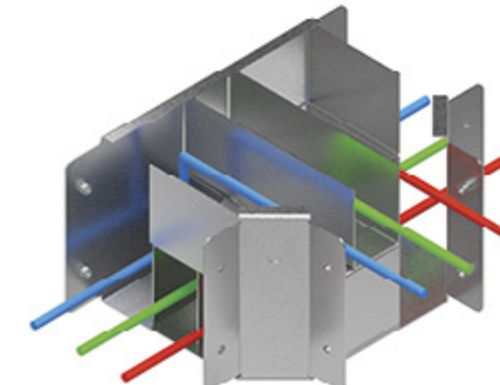
3-compartment (C3)

Trunking with more than 3 compartments is available on request

## Set outs for top lid tees

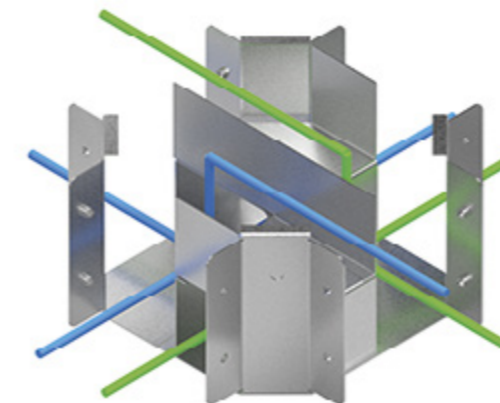


2-compartment

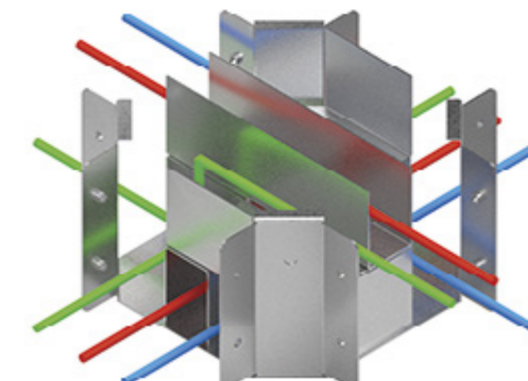


3-compartment

## Set outs for crossovers



2-compartment

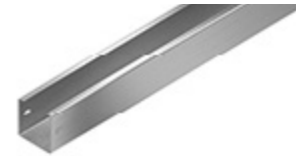


3-compartment

# LIGHTING TRUNKING

## Straight length

| Trunking size mm | 3m long          | 4m long          | 5m long          | 6m long          |
|------------------|------------------|------------------|------------------|------------------|
| 50x50            | TLSL/050/050/PG3 | TLSL/050/050/PG4 | TLSL/050/050/PG5 | TLSL/050/050/PG6 |



## Galvanised snap-in lid

| Trunking size mm | 2m long    |
|------------------|------------|
| 50x50            | TLSL/050/C |



## 45° bend top lid

| Trunking size mm |                     |
|------------------|---------------------|
| 50x50            | TLTB/050/050/PG/G45 |



## Plastic snap-in lid

| Trunking size mm | 2m long<br>colour white |
|------------------|-------------------------|
| 50x50            | TLSL/050/CPVC           |



## 45° bend inside lid

| Trunking size mm |                     |
|------------------|---------------------|
| 50x50            | TLIB/050/050/PG/G45 |



## 90° bend top lid

| Trunking size mm |                     |
|------------------|---------------------|
| 50x50            | TLTB/050/050/PG/S90 |



## 45° bend outside lid

| Trunking size mm |                     |
|------------------|---------------------|
| 50x50            | TLOB/050/050/PG/G45 |



## 90° bend inside lid

| Trunking size mm |                     |
|------------------|---------------------|
| 50x50            | TLIB/050/050/PG/S90 |



## Tee top lid

| Trunking size mm |                   |
|------------------|-------------------|
| 50x50            | TLTT/050/050/PG/S |



## 90° bend outside lid

| Trunking size mm |                     |
|------------------|---------------------|
| 50x50            | TLOB/050/050/PG/S90 |



## Tee inside lid

| Trunking size mm |                   |
|------------------|-------------------|
| 50x50            | TLIT/050/050/PG/G |



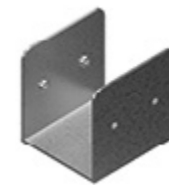
## Tee outside lid

| Trunking size mm |                   |
|------------------|-------------------|
| 50x50            | TLOT/050/050/PG/G |



## Connector

| Trunking size mm | Pack of 10         |
|------------------|--------------------|
| 50x50            | TC/050/050/PG/PK10 |



## Long connector

| Trunking size mm |                |
|------------------|----------------|
| 50x50            | TLC/050/050/PG |



## Crossover

| Trunking size mm |                   |
|------------------|-------------------|
| 50x50            | TLCO/050/050/PG/S |



## Stop end

| Trunking size mm |                  |
|------------------|------------------|
| 50x50            | TSE4X/050/050/PG |



## Flange

| Trunking size mm |                |
|------------------|----------------|
| 50x50            | TFL/050/050/PG |



## Cable retainer

| Trunking size mm | Pack of 10      |
|------------------|-----------------|
| 50x50            | TCR/050/PG/PK10 |



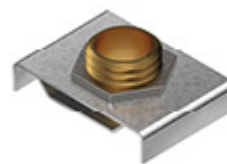
## Stirrup hanger

| Trunking size mm |                   |
|------------------|-------------------|
| 50x50            | TLSH/10 11mm hole |
| 50x50            | TLSH/20 22mm hole |



## Suspension fitting

| Trunking size mm | Pack of 10 |
|------------------|------------|
| 50x50            | TLA1/PK10  |



# METAL FRAMING SYSTEMS

# METAL FRAMING SYSTEMS

The voestalpine Metsec metal framing system provides flexible and economical support solutions for mechanical and electrical services.

Four channel profiles are available as plain back or slotted back variants and each can be assembled into multiple configurations when additional load carrying capacity is needed. This is further complimented with a wide range of brackets and fasteners to achieve almost any framework assembly and configuration.

Metal framing systems can be found in almost all building sectors and in a wide range of applications.

Often used as a first fix component, voestalpine Metsec systems are used to support cable trays, cable ladders and other items of capital equipment.

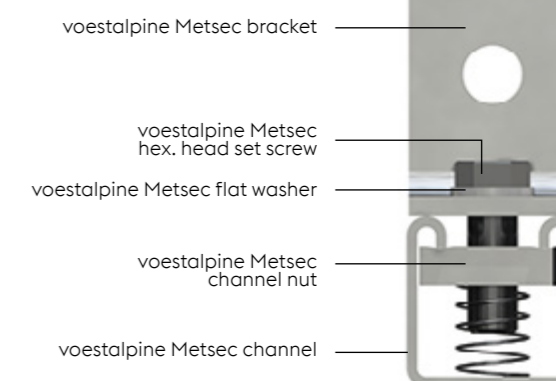
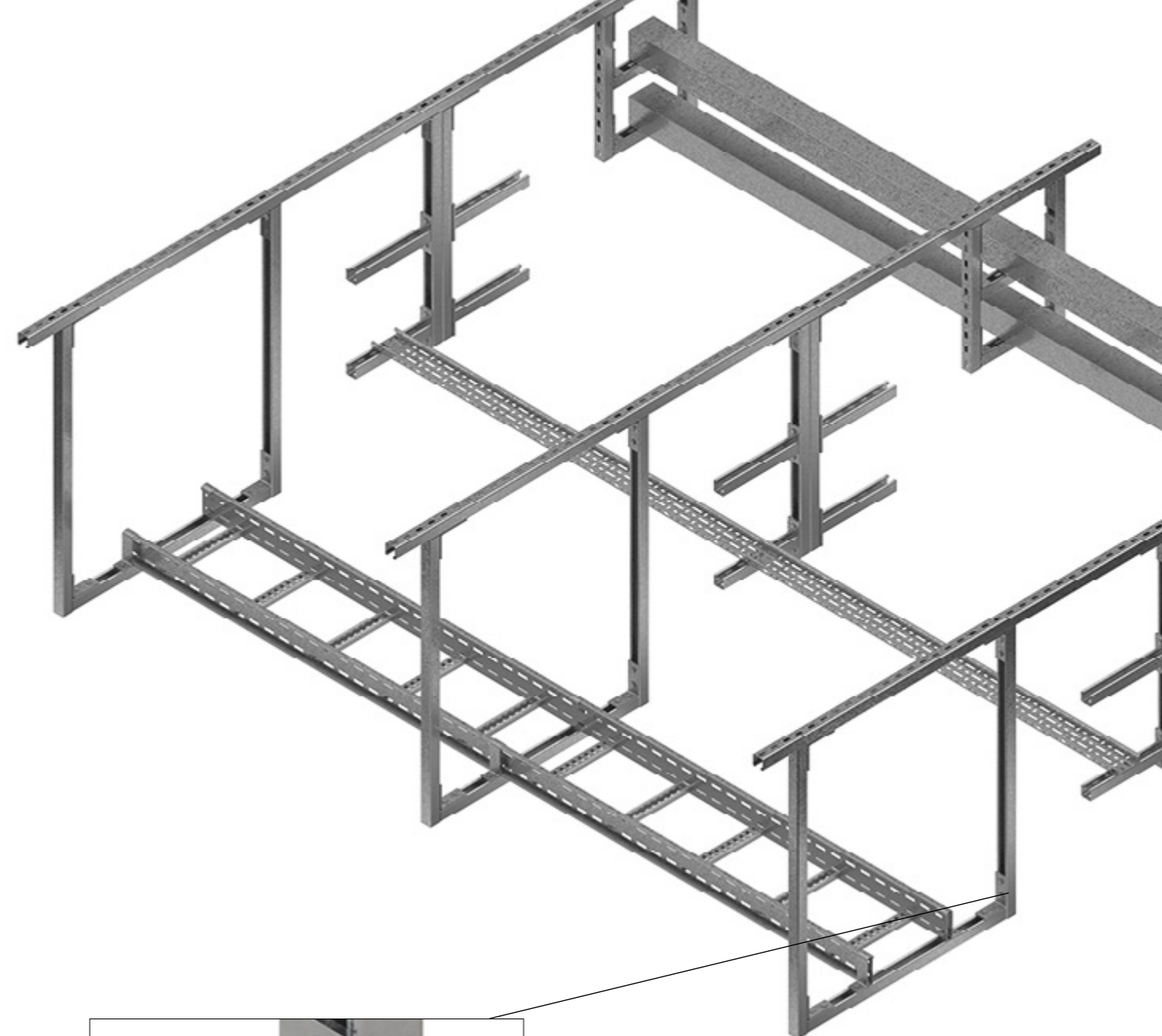
## Cut-to-length service

voestalpine Metsec offers a competitive cut-to-length service. By cutting in process, the integrity of the pre-galvanised coating is maintained on the cut end.

This service reduces the potential for waste when cut on site and provides substantial labour savings.

## Pre-fabrication service

Considerable savings can be made on site by pre-fabrication modules and bracketry. voestalpine Metsec offers this service see page 158.



Always use the complete voestalpine Metsec system

# STANDARDS

The voestalpine Metsec metal framing system comprises single and combination channels, assembly brackets, channel nuts and fasteners. The integration of these items in their use, forms the basis of the system and as such should be purchased as a complete system.

The voestalpine Metsec metal framing system conforms to BS 6946, the British Standard Specification for Metal channel cable support systems for electrical installations.

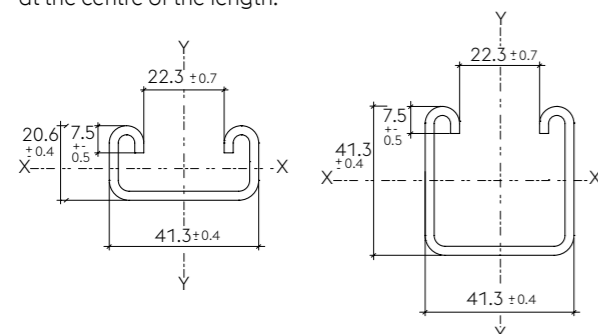
Independent testing has been carried out to verify the load tables for the various channels and to determine pull out and slip performance of the channel nuts when used as a system.

It is this system integrity that needs to be maintained for all installations to meet site safety requirements.

The material used for the voestalpine Metsec channels meets and surpasses the minimum yield strength of 250 N/mm<sup>2</sup> and brackets have a minimum yield strength of 170 N/mm<sup>2</sup>.

## Sectional dimensions

The standard requires channel sections to meet the dimensional requirements stated when measured not less than 150mm from the end. Twist will not be greater than 2.5° per metre and bow shall not exceed 5mm for channel 3m in length and 10mm for channel 6m in length, when measured at the centre of the length.



## Safe working slip and pull-out loads

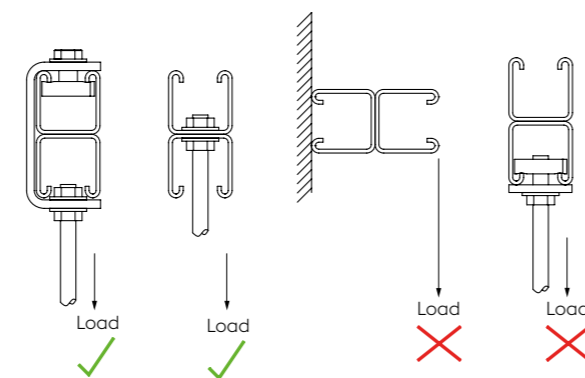
These have been determined by carrying out the tests in accordance with the method stated in section 8 of the standard. It should be noted that the channel nuts are a vital component within the system and the numerous imported products do not necessarily carry the same load and should never be mixed with voestalpine Metsec systems.

## Marking

voestalpine Metsec channels are marked at regular intervals along their length in the production process. The standard requires the name of the manufacturer and BS 6946. Brackets and other components are marked by labelling the packaging.

## Combination channels

Channels that are required in multiple configurations e.g. back to back channel, are supplied spot welded as standard. These channels should always be fully supported at each end under the bottom face and the load should never be hung from just the lips of the bottom channel. Spot welding should never be loaded in tension or the load applied as a bending moment.



## Material specification

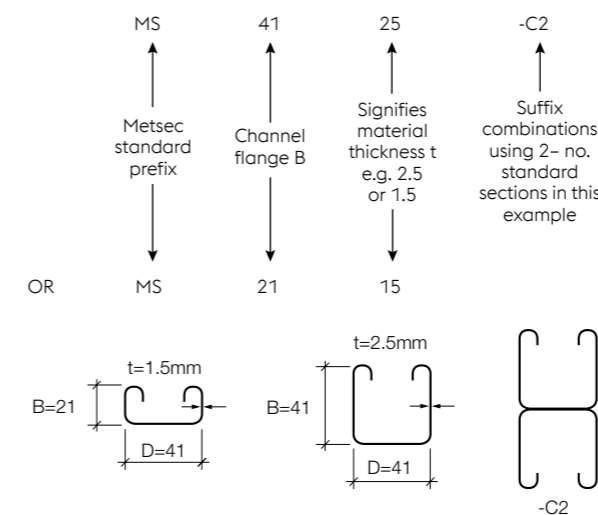
- Channels: manufactured from steel complying with BS EN 10346 pre-galvanised, BS EN 10025-2 mild steel hot dip galvanised after manufacture to BS EN 1461 and BS EN 10088-1 and BS EN 10088-2 stainless steel grade 1.4404 (316L).
- Brackets: manufactured from steel complying with BS EN 10025-2 mild steel hot dip galvanised after manufacture to BS EN ISO 1461 and BS EN 10088-1 and BS EN 10088-2 stainless steel grade 1.4404 (316L).
- Fixings: bolts, hexagon nuts, screws and washers manufactured from steel complying with DIN938/8, DIN 933/8.8, BS4320 and zinc plated and CR3 passivated or hot dip galvanised after manufacture to BS EN ISO 1461. Stainless steel to BS EN 10088-1 and BS EN 10088-2 grade 1.4404 (316L) A4.

## Dimensions and tolerances

In accordance with BS 6946 Metal channel cable support systems for electrical installations.

## Channel notation

voestalpine Metsec channel references are serialised for easy recognition and use, e.g.: channel series MS4125 comprises single channel or combinations of channel within the basic section profile thus:



## Load tables

Comprehensive load tables are provided for each channel series:

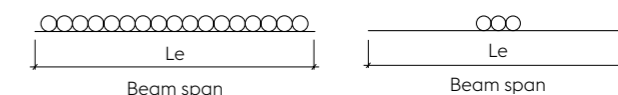
- MS4125 Series – Pages 136-137
- MS2125 Series – Pages 138-139
- MS4115 Series – Pages 140-141
- MS2115 Series – Pages 142-143
- Slotted Sections – Pages 144-147

## Basis of design and formulation of load tables

- Safe loads calculated in accordance with BS EN 1993-1-3 Code of Practice for Design of Cold Formed Sections.
- Minimum Yield Stress (Ys) 280N/mm<sup>2</sup> (S280 GD + Z275 NA-C).
- Beams assumed simply supported and provided with adequate lateral restraint over the given span.
- Beam loads are applied through the shear centre of the section in the direction indicated in the tables.

- Alternative beam safe load tables are provided for a uniformly distributed load or load concentrated near the centre of the span, e.g.:

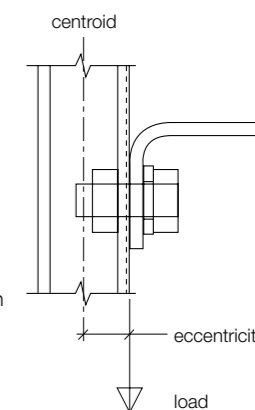
Load uniformly distributed      Load concentrated near centre of span



- Beam loads and corresponding deflections are calculated at a stress of 175N/mm<sup>2</sup> i.e.: using a global factor of safety of 1.6 to determine safe working loads from limit state analysis (ultimate stress + 1.6 = 175N/mm<sup>2</sup>). Beam safe loads tabulated with corresponding deflections may be used in the rare case where excessive deflection does not impair the strength or efficiency of the structure or its components or cause damage to the supported work.

Alternative safe loads are tabulated with deflections limited to span/200 or span/360 at the discretion of the designer and recommended where deflections are critical.

It is easily recognisable from the tables whether the design of the beam is governed by deflection or stress on a given span i.e.: the critical load is highlighted in colour.



- Column effective lengths shall be determined by the designer in accordance with Table 9 of BS EN 1993-1-3.
- Beam loads are generally applied at the column face via the connection bracket. Therefore column safe load tables are provided allowing for this eccentricity of load from the centroid of the section.

## Alternative combinations

For safe loads on alternative combinations not tabulated please refer to voestalpine Metsec Cable Management Technical Department.

## Stainless steel

The mechanical properties of stainless steel are significantly different from those for carbon steel and safe load tables must not be used for sections in this material. Please consult voestalpine Metsec Cable Management Technical Department for advice.

# LOAD TABLES

**MS4125**

Finish: pre-galvanised = PG, post-galvanised = HDG

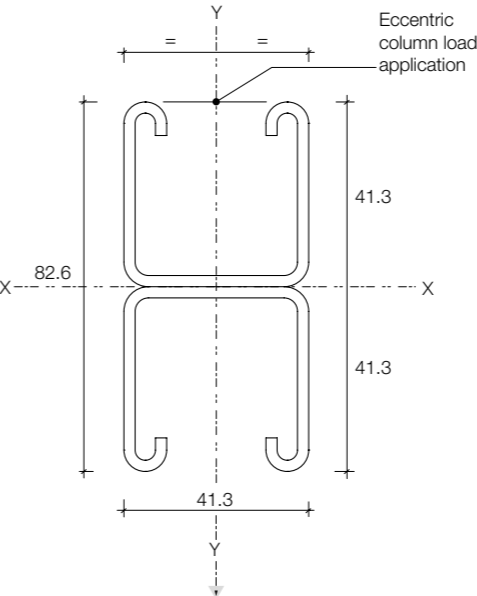
| Section properties      |            |                        |                    |                    |          |                        |                        |          | Safe load tables |  |              |                                       |                                       |   |              |                                       |                                       |  |  |  |
|-------------------------|------------|------------------------|--------------------|--------------------|----------|------------------------|------------------------|----------|------------------|--|--------------|---------------------------------------|---------------------------------------|---|--------------|---------------------------------------|---------------------------------------|--|--|--|
| Area<br>cm <sup>2</sup> | Wt<br>kg/m | Ixx<br>cm <sup>4</sup> | Zxx<br>(top)<br>mm | Zxx<br>(btm)<br>mm | rx<br>cm | Iyy<br>cm <sup>4</sup> | Zyy<br>cm <sup>3</sup> | ry<br>mm | Le (m)           | Safe working<br>loads in kg<br>uniform |              | Def.<br>limit<br>span/<br>200<br>(kg) | Def.<br>limit<br>span/<br>360<br>(kg) | Safe working<br>loads in kg<br>concentrated |              | Def.<br>limit<br>span/<br>200<br>(kg) | Def.<br>limit<br>span/<br>360<br>(kg) | Safe<br>column<br>loads<br>kg at<br>centroid | Safe<br>column<br>loads<br>kg at<br>face |  |
|                         |            |                        |                    |                    |          |                        |                        |          |                  | (kg)<br>Load                           | (mm)<br>Def. |                                       |                                       | (kg)<br>Load                                | (mm)<br>Def. |                                       |                                       |  |  |  |
| 3.39                    | 2.67       | 7.32                   | 3.17               | 4.03               | 1.47     | 9.34                   | 4.52                   | 1.66     | 0.6              | 754                                    | 1.39         | 754                                   | 754                                   | 377   | 1.11         | 377                                   | 377                                   | 5176   | 1557                                     |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 0.7              | 646                                    | 1.88         | 646                                   | 646                                   | 324   | 1.51         | 324                                   | 324                                   | 4818   | 1496                                     |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 0.8              | 566                                    | 2.46         | 566                                   | 510                                   | 283   | 1.98         | 283                                   | 283                                   | 4371   | 1424                                     |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 0.9              | 503                                    | 3.11         | 503                                   | 403                                   | 252   | 2.5          | 252                                   | 252                                   | 3928   | 1351                                     |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1                | 452                                    | 3.85         | 452                                   | 327                                   | 226   | 3.08         | 226                                   | 204                                   | 3512   | 1280                                     |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.1              | 411                                    | 4.66         | 411                                   | 270                                   | 206   | 3.72         | 206                                   | 169                                   | 3146   | 1211                                     |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.2              | 377                                    | 5.54         | 377                                   | 227                                   | 189   | 4.43         | 189                                   | 142                                   | 2801   | 1142                                     |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.3              | 348                                    | 6.51         | 348                                   | 193                                   | 175   | 5.21         | 175                                   | 121                                   | 2541   | 1084                                     |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.4              | 324                                    | 7.54         | 300                                   | 167                                   | 162   | 6.04         | 162                                   | 104                                   | 2323   | 1033                                     |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.5              | 301                                    | 8.66         | 261                                   | 145                                   | 151   | 6.92         | 151                                   | 91                                    | 2112   | 980                                      |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.6              | 282                                    | 9.86         | 230                                   | 128                                   | 141   | 7.88         | 141                                   | 80                                    | 1961   | 939                                      |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.7              | 267                                    | 11.12        | 203                                   | 113                                   | 133   | 8.91         | 127                                   | 71                                    | 1807   | 895                                      |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.8              | 251                                    | 12.47        | 181                                   | 101                                   | 125   | 9.98         | 113                                   | 63                                    | 1675   | 855                                      |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.9              | 239                                    | 13.89        | 163                                   | 91                                    | 120   | 11.11        | 102                                   | 57                                    | 1586   | 827                                      |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2                | 226                                    | 15.39        | 147                                   | 82                                    | 113   | 12.31        | 92                                    | 51                                    | 1486   | 795                                      |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.1              | 215                                    | 16.97        | 133                                   | 74                                    | 108   | 13.58        | 83                                    | 46                                    | 1378   | 758                                      |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.2              | 206                                    | 18.63        | 121                                   | 68                                    | 103   | 14.9         | 76                                    | 42                                    | 1304   | 731                                      |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.3              | 197                                    | 20.36        | 111                                   | 62                                    | 99  | 16.28        | 69                                    | 39                                    | 1239   | 707                                      |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.4              | 188                                    | 22.16        | 102                                   | 57                                    | 94  | 17.73        | 64                                    | 35                                    |  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.5              | 181                                    | 24.06        | 94                                    | 52                                    | 91  | 19.25        | 59                                    | 33                                    |  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.6              | 174                                    | 26.02        | 87                                    | 49                                    | 87  | 20.81        | 54                                    | 30                                    |  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.7              | 168                                    | 28.06        | 81                                    | 45                                    | 84  | 22.45        | 50                                    | 28                                    | $\frac{\propto Le}{r_{xx}} > 180$            |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.8              | 161                                    | 30.17        | 75                                    | 42                                    | 81  | 21.14        | 47                                    | 26                                    |  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.9              | 156                                    | 32.37        | 70                                    | 39                                    | 78  | 25.89        | 44                                    | 24                                    |  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 3                | 151                                    | 34.63        | 65                                    | 37                                    | 76  | 27.71        | 41                                    | 23                                    |  |  |  |

Loads not applicable to stainless steel, for stainless steel loads please consult the Technical Department for advice.

**MS4125-C2**

Combination comprising 2 no. MS4125

Finish: pre-galvanised = PG, post-galvanised = HDG

| Section properties   |            |                        |                    |                    |          |                        |                        |          | Safe load tables |  |              |                                       |                                       |   |              |                                       |                                       |  |  |
|--|------------|------------------------|--------------------|--------------------|----------|------------------------|------------------------|----------|------------------|--|--------------|---------------------------------------|---------------------------------------|---|--------------|---------------------------------------|---------------------------------------|--|--|
| Area<br>cm <sup>2</sup>  | Wt<br>kg/m | Ixx<br>cm <sup>4</sup> | Zxx<br>(top)<br>mm | Zxx<br>(btm)<br>mm | rx<br>cm | Iyy<br>cm <sup>4</sup> | Zyy<br>cm <sup>3</sup> | ry<br>mm | Le (m)           | Safe working<br>loads in kg<br>uniform |              | Def.<br>limit<br>span/<br>200<br>(kg) | Def.<br>limit<br>span/<br>360<br>(kg) | Safe working<br>loads in kg<br>concentrated |              | Def.<br>limit<br>span/<br>200<br>(kg) | Def.<br>limit<br>span/<br>360<br>(kg) | Safe<br>column<br>loads<br>kg at<br>centroid | Safe<br>column<br>loads<br>kg at<br>face |
|  |            |                        |                    |                    |          |                        |                        |          |                  | (kg)<br>Load                           | (mm)<br>Def. |                                       |                                       | (kg)<br>Load                                | (mm)<br>Def. |                                       |                                       |  |  |
| 6.78   | 5.34       | 37.2                   | 9.01               | 9.01               | 2.34     | 18.68                  | 9.05                   | 1.66     |                  |  |              |                                       |                                       |   |              |                                       |                                       |  |  |
|  |            |                        |                    |                    |          |                        |                        |          | 0.6              | 2143                                   | 0.77         | 2143                                  | 2143                                  | 1072  | 0.61         | 1072                                  | 1072                                  | 11636  | 2886                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 0.7              | 1837                                   | 1.05         | 1837                                  | 1837                                  | 918   | 0.84         | 918                                   | 918                                   | 11431  | 2863                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 0.8              | 1607                                   | 1.38         | 1607                                  | 1607                                  | 804   | 1.1          | 804                                   | 804                                   | 11193  | 2836                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 0.9              | 1429                                   | 1.75         | 1429                                  | 1429                                  | 714   | 1.4          | 714                                   | 714                                   | 10912  | 2805                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 1                | 1286                                   | 2.15         | 1286                                  | 1286                                  | 643   | 1.72         | 643                                   | 643                                   | 10574  | 2769                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 1.1              | 1169                                   | 2.61         | 1169                                  | 1169                                  | 584   | 2.09         | 584                                   | 584                                   | 10168  | 2726                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 1.2              | 1072                                   | 3.1          | 1072                                  | 1072                                  | 536   | 2.48         | 536                                   | 536                                   | 9685   | 2675                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 1.3              | 989                                    | 3.64         | 989                                   | 981                                   | 495   | 2.92         | 495                                   | 495                                   | 9129   | 2616                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 1.4              | 918                                    | 4.22         | 918                                   | 846                                   | 459   | 3.38         | 459                                   | 459                                   | 8518   | 2549                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 1.5              | 857                                    | 4.85         | 857                                   | 737                                   | 429   | 3.88         | 429                                   | 429                                   | 7882   | 2476                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 1.6              | 804                                    | 5.51         | 804                                   | 648                                   | 402   | 4.4          | 402                                   | 402                                   | 7253   | 2397                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 1.7              | 756                                    | 6.23         | 756                                   | 574                                   | 378   | 4.98         | 378                                   | 359                                   | 6653   | 2316                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 1.8              | 714                                    | 6.98         | 714                                   | 512                                   | 357   | 5.58         | 357                                   | 320                                   | 6096   | 2233                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 1.9              | 677                                    | 7.77         | 677                                   | 459                                   | 338   | 6.22         | 338                                   | 287                                   | 5588   | 2151                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 2                | 643                                    | 8.61         | 643                                   | 415                                   | 321   | 6.89         | 321                                   | 259                                   | 5129   | 2070                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 2.1              | 612                                    | 9.5          | 612                                   | 376                                   | 306   | 7.6          | 306                                   | 235                                   | 4717   | 1991                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 2.2              | 584                                    | 10.43        | 584                                   | 343                                   | 292   | 8.35         | 292                                   | 214                                   | 4347   | 1915                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 2.3              | 559                                    | 11.39        | 559                                   | 314                                   | 280   | 9.11         | 280                                   | 196                                   | 4016   | 1840                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 2.4              | 536                                    | 12.4         | 518                                   | 288                                   | 268   | 9.92         | 268                                   | 180                                   | 3718   | 1769                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 2.5              | 514                                    | 13.46        | 478                                   | 265                                   | 257   | 10.76        | 257                                   | 166                                   | 3451   | 1701                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 2.6              | 495                                    | 14.56        | 442                                   | 245                                   | 247   | 11.65        | 247                                   | 153                                   | 3210   | 1635                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 2.7              | 476                                    | 15.7         | 410                                   | 228                                   | 238   | 12.56        | 238                                   | 142                                   | 2993   | 1572                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 2.8              | 459                                    | 16.88        | 381                                   | 212                                   | 230   | 13.5         | 230                                   | 132                                   | 2797   | 1512                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 2.9              | 443                                    | 18.11        | 355                                   | 197                                   | 222   | 14.49        | 222                                   | 123                                   | 2619   | 1454                                     |
|  |            |                        |                    |                    |          |                        |                        |          | 3                | 429                                    | 19.38        | 332                                   | 184                                   | 214   | 15.5         | 207                                   | 115                                   | $\frac{\propto Le}{r_{yy}} > 180$            |  |

Loads not applicable to stainless steel, for stainless steel loads please consult the Technical Department for advice.

MS2125

Finish: pre-galvanised = PG, post-galvanised = HDG

| Section properties      |            |                        |                    |                    |          |                        |                        |          | Safe load tables |  |       |   |   |   |       |   |   |  |  |
|-------------------------|------------|------------------------|--------------------|--------------------|----------|------------------------|------------------------|----------|------------------|--|-------|---|---|---|-------|---|---|--|--|
| Area<br>cm <sup>2</sup> | Wt<br>kg/m | Ixx<br>cm <sup>4</sup> | Zxx<br>(top)<br>mm | Zxx<br>(btm)<br>mm | rx<br>cm | Iyy<br>cm <sup>4</sup> | Zyy<br>cm <sup>3</sup> | ry<br>mm | Le (m)           | Safe working<br>loads in kg<br>uniform<br>(kg)<br>Load |       | Def.<br>limit<br>span/<br>200<br>(mm)<br>Def. | Def.<br>limit<br>span/<br>360<br>(kg)<br>(kg) | Safe working<br>loads in kg<br>concentrated<br>(kg)<br>Load |       | Def.<br>limit<br>span/<br>200<br>(mm)<br>Def. | Def.<br>limit<br>span/<br>360<br>(kg)<br>(kg) | Safe<br>column<br>loads<br>kg at<br>centroid | Safe<br>column<br>loads<br>kg at<br>face |
| 2.35                    | 1.85       | 1.21                   | 1                  | 1.43               | 0.72     | 5.44                   | 2.63                   | 1.52     | 0.6              | 237  | 2.64  | 237   | 150   | 118   | 2.11  | 118   | 93  | 2978   | 894                                      |
|                         |            |                        |                    |                    |          |                        |                        |          | 0.7              | 203  | 3.59  | 198   | 110   | 101   | 2.87  | 101   | 69  | 2471   | 821                                      |
|                         |            |                        |                    |                    |          |                        |                        |          | 0.8              | 177  | 4.68  | 151   | 84  | 89  | 3.75  | 89  | 53  | 2019   | 747                                      |
|                         |            |                        |                    |                    |          |                        |                        |          | 0.9              | 158  | 5.94  | 120   | 66  | 79  | 4.75  | 75  | 42  | 1657   | 677                                      |
|                         |            |                        |                    |                    |          |                        |                        |          | 1                | 142  | 7.33  | 97  | 54  | 71  | 5.86  | 61  | 34  | 1375   | 613                                      |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.1              | 129  | 8.87  | 80  | 44  | 65  | 7.09  | 50  | 28  | 1156   | 556                                      |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.2              | 118  | 10.55 | 67  | 37  | 59  | 8.44  | 42  | 23  | 984  | 505                                      |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.3              | 109  | 12.38 | 57  | 32  | 55  | 9.91  | 36  | 20  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.4              | 101  | 14.36 | 49  | 27  | 51  | 11.49 | 31  | 17  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.5              | 95   | 16.49 | 43  | 24  | 47  | 13.18 | 27  | 15  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.6              | 89   | 18.76 | 38  | 21  | 44  | 15    | 24  | 13  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.7              | 84   | 21.18 | 34  | 19  | 42  | 16.95 | 21  | 12  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.8              | 79   | 23.74 | 30  | 17  | 39  | 19    | 19  | 10  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.9              | 75   | 26.45 | 27  | 15  | 37  | 21.16 | 17  | 9   |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2                | 71   | 29.31 | 24  | 13  | 35  | 23.45 | 15  | 8   | $\frac{\propto Le}{r_{xx}} > 180$            |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.1              | 68   | 32.31 | 22  | 12  | 34  | 25.86 | 14  | 8   |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.2              | 65   | 35.46 | 20  | 11  | 32  | 28.38 | 13  | 7   |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.3              | 62   | 38.76 | 18  | 10  | 31  | 31.01 | 11  | 6   |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.4              | 59   | 42.2  | 17  | 9   | 30  | 33.77 | 11  | 6   |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.5              | 57   | 45.8  | 16  | 9   | 28  | 36.63 | 10  | 5   |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.6              | 55   | 49.53 | 14  | 8   | 27  | 39.63 | 9   | 5   |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.7              | 53   | 53.42 | 13  | 7   | 26  | 42.74 | 8   | 5   |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.8              | 51   | 57.45 | 12  | 7   | 25  | 45.95 | 8   | 4   |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.9              | 49   | 61.62 | 12  | 6   | 24  | 49.29 | 7   | 4   |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 3                | 47   | 65.95 | 11  | 6   | 24  | 52.76 | 7   | 4   |  |  |

Diagram illustrating the section properties and load application for a channel section.

The section is a channel with a total width of 41.3 cm and a height of 20.6 cm. The flange thickness is 7.5 cm, and the web thickness is 1.21 cm. The top flange width is 22.3 cm, and the bottom flange width is 1.43 cm. The section is oriented with the Y-axis vertical and the X-axis horizontal.

Key dimensions and properties:

- Area: 2.35 cm<sup>2</sup>
- Wt: 1.85 kg/m
- Ixx: 1.21 cm<sup>4</sup>
- Zxx (top): 1 mm
- Zxx (btm): 1.43 mm
- rx: 0.72 cm
- Iyy: 5.44 cm<sup>4</sup>
- Zyy: 2.63 cm<sup>3</sup>
- ry: 1.52 mm

Load application:

- Eccentric column load application: Indicated by a vertical arrow pointing downwards from the top flange.
- Beam load application: Indicated by a horizontal arrow pointing to the right from the bottom flange.

Loads not applicable to stainless steel, for stainless steel loads please consult the Technical Department for advice.

MS2125-C2

Combination comprising 2 no. MS2125

Finish: pre galvanised = PG, post galvanised = HDG

| Section properties      |            |                        |                    |                    |          |                        |                        |          | Safe load tables |  |       |   |   |   |       |   |   |  |  |
|-------------------------|------------|------------------------|--------------------|--------------------|----------|------------------------|------------------------|----------|------------------|--|-------|---|---|---|-------|---|---|--|--|
| Area<br>cm <sup>2</sup> | Wt<br>kg/m | Ixx<br>cm <sup>4</sup> | Zxx<br>(top)<br>mm | Zxx<br>(btm)<br>mm | rx<br>cm | Iyy<br>cm <sup>4</sup> | Zyy<br>cm <sup>3</sup> | ry<br>mm | Le (m)           | Safe working<br>loads in kg<br>uniform<br>(kg)<br>Load |       | Def.<br>limit<br>span/<br>200<br>(mm)<br>Def. | Def.<br>limit<br>span/<br>360<br>(kg)<br>(kg) | Safe working<br>loads in kg<br>concentrated<br>(kg)<br>Load |       | Def.<br>limit<br>span/<br>200<br>(mm)<br>Def. | Def.<br>limit<br>span/<br>360<br>(kg)<br>(kg) | Safe<br>column<br>loads<br>kg at<br>centroid | Safe<br>column<br>loads<br>kg at<br>face |
| 4.71                    | 3.7        | 5.78                   | 2.81               | 2.81               | 1.11     | 10.88                  | 5.27                   | 1.52     | 0.6              | 667  | 1.55  | 667   | 667   | 334   | 1.24  | 334   | 334   | 7582   | 1765                                     |
|                         |            |                        |                    |                    |          |                        |                        |          | 0.7              | 572  | 2.11  | 572   | 526   | 286   | 1.69  | 286   | 286   | 7214   | 1720                                     |
|                         |            |                        |                    |                    |          |                        |                        |          | 0.8              | 501  | 2.76  | 501   | 403   | 250   | 2.21  | 250   | 250   | 6733   | 1665                                     |
|                         |            |                        |                    |                    |          |                        |                        |          | 0.9              | 445  | 3.5   | 445   | 318   | 222   | 2.8   | 222   | 199   | 6140   | 1601                                     |
|                         |            |                        |                    |                    |          |                        |                        |          | 1                | 400  | 4.32  | 400   | 258   | 200   | 3.46  | 200   | 161   | 5484   | 1528                                     |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.1              | 364  | 5.22  | 364   | 213   | 182   | 4.17  | 182   | 133   | 4835   | 1451                                     |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.2              | 334  | 6.22  | 322   | 179   | 167   | 4.97  | 167   | 112   | 4243   | 1372                                     |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.3              | 308  | 7.29  | 274   | 152   | 154   | 5.84  | 154   | 95  | 3726   | 1295                                     |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.4              | 286  | 8.46  | 237   | 131   | 143   | 6.77  | 143   | 82  | 3284   | 1221                                     |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.5              | 267  | 9.71  | 206   | 115   | 133   | 7.77  | 129   | 72  | 2908   | 1150                                     |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.6              | 250  | 11.05 | 181   | 101   | 125   | 8.84  | 113   | 63  | 2589   | 1084                                     |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.7              | 236  | 12.47 | 161   | 89  | 118   | 9.98  | 100   | 56  | 2317   | 1022                                     |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.8              | 222  | 13.98 | 143   | 80  | 111   | 11.19 | 89  | 50  | 2084   | 964                                      |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.9              | 211  | 15.58 | 129   | 71  | 105   | 12.47 | 80  | 45  | 1884   | 910                                      |
|                         |            |                        |                    |                    |          |                        |                        |          | 2                | 200  | 17.26 | 116   | 64  | 100   | 13.81 | 72  | 40  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.1              | 191  | 19.03 | 105   | 58  | 95  | 15.23 | 66  | 37  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.2              | 182  | 20.89 | 96  | 53  | 91  | 16.72 | 60  | 33  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.3              | 174  | 22.83 | 88  | 49  | 87  | 18.27 | 55  | 30  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.4              | 167  | 24.86 | 81  | 45  | 83  | 19.89 | 50  | 28  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.5              | 160  | 26.98 | 74  | 41  | 80  | 21.58 | 46  | 26  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.6              | 154  | 29.18 | 69  | 38  | 77  | 23.35 | 43  | 24  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.7              | 148  | 31.46 | 64  | 35  | 74  | 25.18 | 40  | 22  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.8              | 143  | 33.84 | 59  | 33  | 72  | 27.07 | 37  | 21  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.9              | 138  | 36.3  | 55  | 31  | 69  | 29.04 | 34  | 19  |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 3                | 133  | 38.84 | 52  | 29  | 67  | 31.08 | 32  | 18  |  |  |

Diagram illustrating the section properties and load application for a channel section.

The section is a channel with a total height of 41.2 mm and a total width of 41.3 mm. The flange thickness is 20.6 mm. The web thickness is 20.6 mm. The section is shown with its principal axes, X-X and Y-Y, and the centroidal axes, X-X and Y-Y.

The diagram shows the application of loads to the section:

- Eccentric column load application:** A load is applied to the top flange, causing eccentric loading.
- Beam load application:** A load is applied to the web, causing beam loading.

Loads not applicable to stainless steel, for stainless steel loads please consult the Technical Department for advice.

MS4115

Finish: pre-galvanised = PG, post-galvanised = HDG

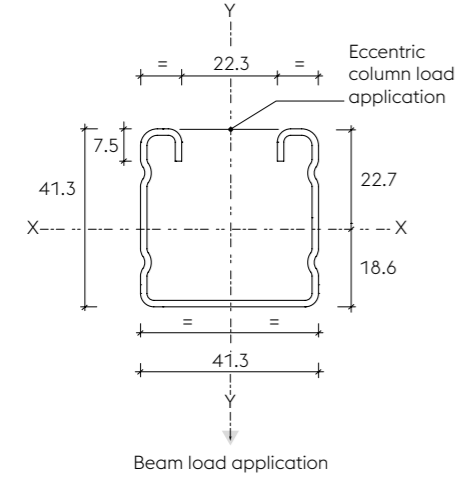
| Section properties      |            |                        |                    |                    |           |                        |                        |           | Safe load tables |  |              |                                       |                                       |   |              |                                       |                                       |  |  |
|-------------------------|------------|------------------------|--------------------|--------------------|-----------|------------------------|------------------------|-----------|------------------|--|--------------|---------------------------------------|---------------------------------------|---|--------------|---------------------------------------|---------------------------------------|--|--|
| Area<br>cm <sup>2</sup> | Wt<br>kg/m | Ixx<br>cm <sup>4</sup> | Zxx<br>(top)<br>mm | Zxx<br>(btm)<br>mm | rxx<br>cm | Iyy<br>cm <sup>4</sup> | Zyy<br>cm <sup>3</sup> | ryy<br>mm | Le (m)           | Safe working<br>loads in kg<br>uniform |              | Def.<br>limit<br>span/<br>200<br>(kg) | Def.<br>limit<br>span/<br>360<br>(kg) | Safe working<br>loads in kg<br>concentrated |              | Def.<br>limit<br>span/<br>200<br>(kg) | Def.<br>limit<br>span/<br>360<br>(kg) | Safe<br>column<br>loads<br>kg at<br>centroid | Safe<br>column<br>loads<br>kg at<br>face |
|                         |            |                        |                    |                    |           |                        |                        |           |                  | (kg)<br>Load                           | (mm)<br>Def. |                                       |                                       | (kg)<br>Load                                | (mm)<br>Def. |                                       |                                       |  |  |
| 2.14                    | 1.69       | 4.99                   | 2.2                | 2.68               | 1.53      | 6.14                   | 2.97                   | 1.69      | 0.6              | 523                                    | 1.41         | 523                                   | 523                                   | 261   | 1.13         | 261                                   | 261                                   | 3297   | 1061                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 0.7              | 448                                    | 1.92         | 448                                   | 448                                   | 224   | 1.54         | 224                                   | 224                                   | 3057   | 1015                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 0.8              | 392                                    | 2.51         | 392                                   | 348                                   | 196   | 2.01         | 196                                   | 196                                   | 2743   | 957                                      |
|                         |            |                        |                    |                    |           |                        |                        |           | 0.9              | 349                                    | 3.17         | 349                                   | 275                                   | 174   | 2.53         | 174                                   | 172                                   | 2418   | 897                                      |
|                         |            |                        |                    |                    |           |                        |                        |           | 1                | 314                                    | 3.92         | 314                                   | 222                                   | 157   | 3.14         | 157                                   | 139                                   | 2109   | 836                                      |
|                         |            |                        |                    |                    |           |                        |                        |           | 1.1              | 285                                    | 4.74         | 285                                   | 184                                   | 143   | 3.79         | 143                                   | 115                                   | 1857   | 782                                      |
|                         |            |                        |                    |                    |           |                        |                        |           | 1.2              | 261                                    | 5.64         | 261                                   | 154                                   | 131   | 4.52         | 131                                   | 97                                    | 1625   | 727                                      |
|                         |            |                        |                    |                    |           |                        |                        |           | 1.3              | 241                                    | 6.62         | 237                                   | 132                                   | 121   | 5.3          | 121                                   | 82                                    | 1432   | 677                                      |
|                         |            |                        |                    |                    |           |                        |                        |           | 1.4              | 224                                    | 7.68         | 204                                   | 114                                   | 112   | 6.14         | 112                                   | 71                                    | 1270   | 631                                      |
|                         |            |                        |                    |                    |           |                        |                        |           | 1.5              | 209                                    | 8.81         | 178                                   | 99                                    | 105   | 7.05         | 105                                   | 62                                    | 1148   | 594                                      |
|                         |            |                        |                    |                    |           |                        |                        |           | 1.6              | 196                                    | 10.03        | 156                                   | 87                                    | 98  | 8.03         | 98                                    | 54                                    | 1033   | 556                                      |
|                         |            |                        |                    |                    |           |                        |                        |           | 1.7              | 185                                    | 11.32        | 139                                   | 77                                    | 92  | 9.05         | 87                                    | 48                                    | 934  | 522                                      |
|                         |            |                        |                    |                    |           |                        |                        |           | 1.8              | 174                                    | 12.69        | 124                                   | 69                                    | 87  | 10.15        | 77                                    | 43                                    | 862  | 495                                      |
|                         |            |                        |                    |                    |           |                        |                        |           | 1.9              | 165                                    | 14.14        | 111                                   | 62                                    | 83  | 11.32        | 69                                    | 39                                    | 788  | 466                                      |
|                         |            |                        |                    |                    |           |                        |                        |           | 2                | 157                                    | 15.67        | 100                                   | 56                                    | 78  | 12.53        | 63                                    | 35                                    |  |  |
|                         |            |                        |                    |                    |           |                        |                        |           | 2.1              | 149                                    | 17.27        | 91                                    | 50                                    | 75  | 13.82        | 57                                    | 32                                    |  |  |
|                         |            |                        |                    |                    |           |                        |                        |           | 2.2              | 143                                    | 18.96        | 83                                    | 46                                    | 71  | 15.17        | 52                                    | 29                                    |  |  |
|                         |            |                        |                    |                    |           |                        |                        |           | 2.3              | 136                                    | 20.72        | 76                                    | 42                                    | 68  | 16.58        | 47                                    | 26                                    |  |  |
|                         |            |                        |                    |                    |           |                        |                        |           | 2.4              | 131                                    | 22.56        | 70                                    | 39                                    | 65  | 18.05        | 43                                    | 24                                    |  |  |
|                         |            |                        |                    |                    |           |                        |                        |           | 2.5              | 125                                    | 24.48        | 64                                    | 36                                    | 63  | 19.58        | 40                                    | 22                                    |  |  |
|                         |            |                        |                    |                    |           |                        |                        |           | 2.6              | 121                                    | 26.48        | 59                                    | 33                                    | 60  | 21.18        | 37                                    | 21                                    |  |  |
|                         |            |                        |                    |                    |           |                        |                        |           | 2.7              | 116                                    | 28.55        | 55                                    | 31                                    | 58  | 22.85        | 34                                    | 19                                    |  |  |
|                         |            |                        |                    |                    |           |                        |                        |           | 2.8              | 112                                    | 30.71        | 51                                    | 28                                    | 56  | 24.56        | 32                                    | 18                                    |  |  |
|                         |            |                        |                    |                    |           |                        |                        |           | 2.9              | 108                                    | 32.94        | 48                                    | 26                                    | 54  | 26.36        | 30                                    | 17                                    |  |  |
|                         |            |                        |                    |                    |           |                        |                        |           | 3                | 105                                    | 35.25        | 44                                    | 25                                    | 52  | 28.2         | 28                                    | 15                                    |  |  |

Diagram of a square column section with dimensions and load applications:

- Overall width: 41.3 cm
- Overall height: 41.3 cm
- Top flange width: 22.3 cm
- Top flange height: 7.5 cm
- Bottom flange width: 22.3 cm
- Bottom flange height: 7.5 cm
- Web height: 18.6 cm
- Web width: 22.3 cm
- Y-axis: Vertical axis through the center
- X-axis: Horizontal axis through the center
- Eccentric column load application: Indicated by an arrow pointing to the top flange
- Beam load application: Indicated by an arrow pointing to the bottom flange

Formula for the ratio of effective length to radius of gyration:

$$\frac{\propto L_e}{r_{xx}} > 180$$



Loads not applicable to stainless steel, for stainless steel loads please consult the Technical Department for advice.

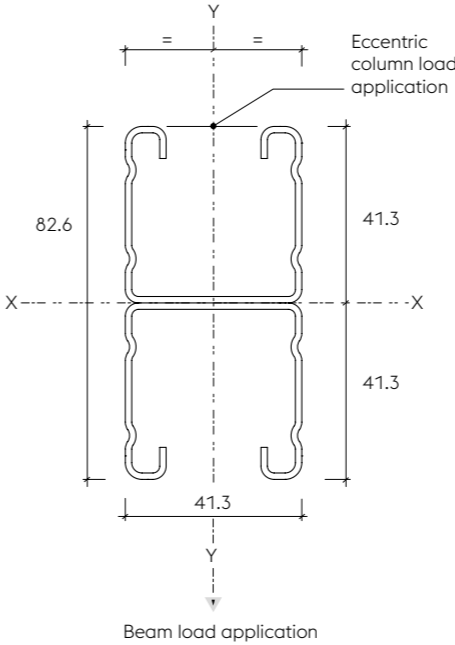
MS4115-C2

Combination comprising 2 no. MS4115  
Finish: pre-galvanised = PG, post-galvanised = HDG

| Section properties      |            |                        |                    |                    |           |                        |                        |           | Safe load tables |  |              |                               |                               |   |              |                               |                               |  |  |
|-------------------------|------------|------------------------|--------------------|--------------------|-----------|------------------------|------------------------|-----------|------------------|--|--------------|-------------------------------|-------------------------------|---|--------------|-------------------------------|-------------------------------|--|--|
| Area<br>cm <sup>2</sup> | Wt<br>kg/m | Ixx<br>cm <sup>4</sup> | Zxx<br>(top)<br>mm | Zxx<br>(btm)<br>mm | rxx<br>cm | Iyy<br>cm <sup>4</sup> | Zyy<br>cm <sup>3</sup> | ryy<br>mm | Le (m)           | Safe working<br>loads in kg<br>uniform |              | Def.<br>limit<br>span/<br>200 | Def.<br>limit<br>span/<br>360 | Safe working<br>loads in kg<br>concentrated |              | Def.<br>limit<br>span/<br>200 | Def.<br>limit<br>span/<br>360 | Safe<br>column<br>loads<br>kg at<br>centroid | Safe<br>column<br>loads<br>kg at<br>face |
|                         |            |                        | mm                 | mm                 |           |                        |                        |           |                  | (kg)<br>Load                           | (mm)<br>Def. | (kg)                          | (kg)                          | (kg)<br>Load                                | (mm)<br>Def. | (kg)                          | (kg)                          |  |  |
| 4.29                    | 3.38       | 24.82                  | 6.01               | 6.01               | 2.41      | 12.27                  | 5.94                   | 1.69      | 0.6              | 1429                                   | 0.78         | 1429                          | 1429                          | 715   | 0.61         | 715                           | 715                           | 7370   | 1901                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 0.7              | 1225                                   | 1.06         | 1225                          | 1225                          | 613   | 0.84         | 613                           | 613                           | 7245   | 1886                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 0.8              | 1072                                   | 1.38         | 1072                          | 1072                          | 536   | 1.1          | 536                           | 536                           | 7100   | 1868                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 0.9              | 953                                    | 1.74         | 953                           | 953                           | 476   | 1.4          | 476                           | 476                           | 6931   | 1848                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 1                | 858                                    | 2.15         | 858                           | 858                           | 429   | 1.73         | 429                           | 429                           | 6729   | 1825                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 1.1              | 780                                    | 2.61         | 780                           | 780                           | 390   | 2.09         | 390                           | 390                           | 6486   | 1797                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 1.2              | 715                                    | 3.1          | 715                           | 715                           | 357   | 2.48         | 357                           | 357                           | 6197   | 1765                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 1.3              | 660                                    | 3.64         | 660                           | 655                           | 330   | 2.91         | 330                           | 330                           | 5862   | 1727                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 1.4              | 613                                    | 4.22         | 613                           | 565                           | 306   | 3.38         | 306                           | 306                           | 5490   | 1684                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 1.5              | 572                                    | 4.84         | 572                           | 492                           | 286   | 3.88         | 286                           | 286                           | 5099   | 1636                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 1.6              | 536                                    | 5.51         | 536                           | 432                           | 268   | 4.4          | 268                           | 268                           | 4705   | 1585                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 1.7              | 505                                    | 6.22         | 505                           | 383                           | 252   | 4.98         | 252                           | 239                           | 4326   | 1532                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 1.8              | 476                                    | 6.98         | 476                           | 342                           | 238   | 5.58         | 238                           | 213                           | 3971   | 1478                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 1.9              | 451                                    | 7.77         | 451                           | 307                           | 226   | 6.22         | 226                           | 192                           | 3646   | 1423                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 2                | 429                                    | 8.61         | 429                           | 277                           | 214   | 6.89         | 214                           | 173                           | 3350   | 1370                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 2.1              | 408                                    | 9.5          | 408                           | 251                           | 204   | 7.59         | 204                           | 157                           | 3083   | 1318                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 2.2              | 390                                    | 10.42        | 390                           | 229                           | 195   | 8.33         | 195                           | 143                           | 2843   | 1267                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 2.3              | 373                                    | 11.39        | 373                           | 209                           | 186   | 9.11         | 186                           | 131                           | 2628   | 1218                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 2.4              | 357                                    | 12.4         | 346                           | 192                           | 179   | 9.92         | 179                           | 120                           | 2434   | 1170                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 2.5              | 343                                    | 13.46        | 319                           | 177                           | 172   | 10.76        | 172                           | 111                           | 2260   | 1125                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 2.6              | 330                                    | 14.55        | 295                           | 164                           | 165   | 11.65        | 165                           | 102                           | 2103   | 1081                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 2.7              | 318                                    | 15.7         | 273                           | 152                           | 159   | 12.56        | 159                           | 95                            | 1961   | 1040                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 2.8              | 306                                    | 16.88        | 254                           | 141                           | 153   | 13.5         | 153                           | 88                            | 1833   | 1000                                     |
|                         |            |                        |                    |                    |           |                        |                        |           | 2.9              | 296                                    | 18.11        | 237                           | 132                           | 148   | 14.49        | 148                           | 82                            | 1717   | 962                                      |
|                         |            |                        |                    |                    |           |                        |                        |           | 3                | 286                                    | 19.38        | 221                           | 123                           | 143   | 15.5         | 138                           | 77                            | 1611   | 925                                      |

The diagram shows a C-channel section with the following dimensions and load application points:

- Overall height: 82.6 mm
- Flange width: 41.3 mm
- Web height: 41.3 mm (top and bottom flanges are 41.3 mm high)
- Centroidal Y-axis is vertical, X-axis is horizontal.
- Top flange thickness: 2.41 mm
- Web thickness: 1.69 mm
- Bottom flange thickness: 2.41 mm
- Top flange Zxx (top): 6.01 mm
- Top flange Zxx (btm): 6.01 mm
- Web Zyy: 5.94 mm
- Bottom flange Zxx (top): 6.01 mm
- Bottom flange Zxx (btm): 6.01 mm
- Bottom flange Zyy: 5.94 mm
- Bottom flange ryy: 1.69 mm
- Top flange rxx: 2.41 mm
- Web rxx: 1.69 mm
- Bottom flange rxx: 2.41 mm
- Top flange Ixx: 24.82 cm<sup>4</sup>
- Web Iyy: 12.27 cm<sup>4</sup>
- Bottom flange Ixx: 24.82 cm<sup>4</sup>
- Top flange Wt: 3.38 kg/m
- Web Wt: 1.69 kg/m
- Bottom flange Wt: 3.38 kg/m
- Top flange Area: 4.29 cm<sup>2</sup>
- Web Area: 1.69 cm<sup>2</sup>
- Bottom flange Area: 4.29 cm<sup>2</sup>
- Top flange Zxx (top): 6.01 mm
- Top flange Zxx (btm): 6.01 mm
- Web Zyy: 5.94 mm
- Bottom flange Zxx (top): 6.01 mm
- Bottom flange Zxx (btm): 6.01 mm
- Bottom flange Zyy: 5.94 mm
- Bottom flange ryy: 1.69 mm
- Top flange rxx: 2.41 mm
- Web rxx: 1.69 mm
- Bottom flange rxx: 2.41 mm
- Top flange Ixx: 24.82 cm<sup>4</sup>
- Web Iyy: 12.27 cm<sup>4</sup>
- Bottom flange Ixx: 24.82 cm<sup>4</sup>
- Top flange Wt: 3.38 kg/m
- Web Wt: 1.69 kg/m
- Bottom flange Wt: 3.38 kg/m
- Top flange Area: 4.29 cm<sup>2</sup>
- Web Area: 1.69 cm<sup>2</sup>
- Bottom flange Area: 4.29 cm<sup>2</sup>
- Top flange Zxx (top): 6.01 mm
- Top flange Zxx (btm): 6.01 mm
- Web Zyy: 5.94 mm
- Bottom flange Zxx (top): 6.01 mm
- Bottom flange Zxx (btm): 6.01 mm
- Bottom flange Zyy: 5.94 mm
- Bottom flange ryy: 1.69 mm
- Top flange rxx: 2.41 mm
- Web rxx: 1.69 mm
- Bottom flange rxx: 2.41 mm
- Top flange Ixx: 24.82 cm<sup>4</sup>
- Web Iyy: 12.27 cm<sup>4</sup>
- Bottom flange Ixx: 24.82 cm<sup>4</sup>
- Top flange Wt: 3.38 kg/m
- Web Wt: 1.69 kg/m
- Bottom flange Wt: 3.38 kg/m
- Top flange Area: 4.29 cm<sup>2</sup>
- Web Area: 1.69 cm<sup>2</sup>
- Bottom flange Area: 4.29 cm<sup>2</sup>
- Top flange Zxx (top): 6.01 mm
- Top flange Zxx (btm): 6.01 mm
- Web Zyy: 5.94 mm
- Bottom flange Zxx (top): 6.01 mm
- Bottom flange Zxx (btm): 6.01 mm
- Bottom flange Zyy: 5.94 mm
- Bottom flange ryy: 1.69 mm
- Top flange rxx: 2.41 mm
- Web rxx: 1.69 mm
- Bottom flange rxx: 2.41 mm
- Top flange Ixx: 24.82 cm<sup>4</sup>
- Web Iyy: 12.27 cm<sup>4</sup>
- Bottom flange Ixx: 24.82 cm<sup>4</sup>
- Top flange Wt: 3.38 kg/m
- Web Wt: 1.69 kg/m
- Bottom flange Wt: 3.38 kg/m
- Top flange Area: 4.29 cm<sup>2</sup>
- Web Area: 1.69 cm<sup>2</sup>
- Bottom flange Area: 4.29 cm<sup>2</sup>
- Top flange Zxx (top): 6.01 mm
- Top flange Zxx (btm): 6.01 mm
- Web Zyy: 5.94 mm
- Bottom flange Zxx (top): 6.01 mm
- Bottom flange Zxx (btm): 6.01 mm
- Bottom flange Zyy: 5.94 mm
- Bottom flange ryy: 1.69 mm
- Top flange rxx: 2.41 mm
- Web rxx: 1.69 mm
- Bottom flange rxx: 2.41 mm
- Top flange Ixx: 24.82 cm<sup>4</sup>
- Web Iyy: 12.27 cm<sup>4</sup>
- Bottom flange Ixx: 24.82 cm<sup>4</sup>
- Top flange Wt: 3.38 kg/m
- Web Wt: 1.69 kg/m
- Bottom flange Wt: 3.38 kg/m
- Top flange Area: 4.29 cm<sup>2</sup>
- Web Area: 1.69 cm<sup>2</sup>
- Bottom flange Area: 4.29 cm<sup>2</sup>
- Top flange Zxx (top): 6.01 mm
- Top flange Zxx (btm): 6.01 mm
- Web Zyy: 5.94 mm
- Bottom flange Zxx (top): 6.01 mm
- Bottom flange Zxx (btm): 6.01 mm
- Bottom flange Zyy: 5.94 mm
- Bottom flange ryy: 1.69 mm
- Top flange rxx: 2.41 mm
- Web rxx: 1.69 mm
- Bottom flange rxx: 2.41 mm
- Top flange Ixx: 24.82 cm<sup>4</sup>
- Web Iyy: 12.27 cm<sup>4</sup>
- Bottom flange Ixx: 24.82 cm<sup>4</sup>
- Top flange Wt: 3.38 kg/m
- Web Wt: 1.69 kg/m
- Bottom flange Wt: 3.38 kg/m
- Top flange Area: 4.29 cm<sup>2</sup>
- Web Area: 1.69 cm<sup>2</sup>
- Bottom flange Area: 4.29 cm<sup>2</sup>
- Top flange Zxx (top): 6.01 mm
- Top flange Zxx (btm): 6.01 mm
- Web Zyy: 5.94 mm
- Bottom flange Zxx (top): 6.01 mm
- Bottom flange Zxx (btm): 6.01 mm
- Bottom flange Zyy: 5.94 mm
- Bottom flange ryy: 1.69 mm
- Top flange rxx: 2.41 mm
- Web rxx: 1.69 mm
- Bottom flange rxx: 2.41 mm
- Top flange Ixx: 24.82 cm<sup>4</sup>
- Web Iyy: 12.27 cm<sup>4</sup>
- Bottom flange Ixx: 24.82 cm<sup>4</sup>
- Top flange Wt: 3.38 kg/m
- Web Wt: 1.69 kg/m
- Bottom flange Wt: 3.38 kg/m
- Top flange Area: 4.29 cm<sup>2</sup>
- Web Area: 1.69 cm<sup>2</sup>
- Bottom flange Area: 4.29 cm<sup>2</sup>
- Top flange Zxx (top): 6.01 mm
- Top flange Zxx (btm): 6.01 mm
- Web Zyy: 5.94 mm
- Bottom flange Zxx (top): 6.01 mm
- Bottom flange Zxx (btm): 6.01 mm
- Bottom flange Zyy: 5.94 mm
- Bottom flange ryy: 1.69 mm
- Top flange rxx: 2.41 mm
- Web rxx: 1.69 mm
- Bottom flange rxx: 2.41 mm
- Top flange Ixx: 24.82 cm<sup>4</sup>
- Web Iyy: 12.27 cm<sup>4</sup>
- Bottom flange Ixx: 24.82 cm<sup>4</sup>
- Top flange Wt: 3.38 kg/m
- Web Wt: 1.69 kg/m
- Bottom flange Wt: 3.38 kg/m
- Top flange Area: 4.29 cm<sup>2</sup>
- Web Area: 1.69 cm<sup>2</sup>
- Bottom flange Area: 4.29 cm<sup>2</sup>
- Top flange Zxx (top): 6.01 mm
- Top flange Zxx (btm): 6.01 mm
- Web Zyy: 5.94 mm
- Bottom flange Zxx (top): 6.01 mm
- Bottom flange Zxx (btm): 6.01 mm
- Bottom flange Zyy: 5.94 mm
- Bottom flange ryy: 1.69 mm
- Top flange rxx: 2.41 mm
- Web rxx: 1.69 mm
- Bottom flange rxx: 2.41 mm
- Top flange Ixx: 24.82 cm<sup>4</sup>
- Web Iyy: 12.27 cm<sup>4</sup>
- Bottom flange Ixx: 24.82 cm<sup>4</sup>
- Top flange Wt: 3.38 kg/m
- Web Wt: 1.69 kg/m
- Bottom flange Wt: 3.38 kg/m
- Top flange Area: 4.29 cm<sup>2</sup>
- Web Area: 1.69 cm<sup>2</sup>
- Bottom flange Area: 4.29 cm<sup>2</sup>
- Top flange Zxx (top): 6.01 mm
- Top flange Zxx (btm): 6.01 mm
- Web Zyy: 5.94 mm
- Bottom flange Zxx (top): 6.01 mm
- Bottom flange Zxx (btm): 6.01 mm
- Bottom flange Zyy: 5.94 mm
- Bottom flange ryy: 1.69 mm
- Top flange rxx: 2.41 mm
- Web rxx: 1.69 mm
- Bottom flange rxx: 2.41 mm
- Top flange Ixx: 24.82 cm<sup>4</sup>
- Web Iyy: 12.27 cm<sup>4</sup>
- Bottom flange Ixx: 24.82 cm<sup>4</sup>
- Top flange Wt: 3.38 kg/m
- Web Wt: 1.69 kg/m
- Bottom flange Wt: 3.38 kg/m
- Top flange Area: 4.29 cm<sup>2</sup>
- Web Area: 1.69 cm<sup>2</sup>
- Bottom flange Area: 4.29 cm<sup>2</sup>
- Top flange Zxx (top): 6.01 mm
- Top flange Zxx (btm): 6.01 mm
- Web Zyy: 5.94 mm
- Bottom flange Zxx (top): 6.01 mm
- Bottom flange Zxx (btm): 6.01 mm
- Bottom flange Zyy: 5.94 mm
- Bottom flange ryy: 1.69 mm
- Top flange rxx: 2.41 mm
- Web rxx: 1.69 mm
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Loads not applicable to stainless steel, for stainless steel loads please consult the Technical Department for advice.

MS2115

Finish: pre-galvanised = PG, post-galvanised = HDG

| Section properties      |            |                        |                    |                    |          |                        |                        |          | Safe load tables |  |              |                                       |                                       |   |              |                                       |                                       |  |  |
|-------------------------|------------|------------------------|--------------------|--------------------|----------|------------------------|------------------------|----------|------------------|--|--------------|---------------------------------------|---------------------------------------|---|--------------|---------------------------------------|---------------------------------------|--|--|
| Area<br>cm <sup>2</sup> | Wt<br>kg/m | Ixx<br>cm <sup>4</sup> | Zxx<br>(top)<br>mm | Zxx<br>(btm)<br>mm | rx<br>cm | Iyy<br>cm <sup>4</sup> | Zyy<br>cm <sup>3</sup> | ry<br>mm | Le (m)           | Safe working<br>loads in kg<br>uniform |              | Def.<br>limit<br>span/<br>200<br>(kg) | Def.<br>limit<br>span/<br>360<br>(kg) | Safe working<br>loads in kg<br>concentrated |              | Def.<br>limit<br>span/<br>200<br>(kg) | Def.<br>limit<br>span/<br>360<br>(kg) | Safe<br>column<br>loads<br>kg at<br>centroid | Safe<br>column<br>loads<br>kg at<br>face |
|                         |            |                        |                    |                    |          |                        |                        |          |                  | (kg)<br>Load                           | (mm)<br>Def. |                                       |                                       | (kg)<br>Load                                | (mm)<br>Def. |                                       |                                       |  |  |
| 1.52                    | 1.2        | 0.89                   | 0.75               | 1.03               | 0.77     | 3.68                   | 1.78                   | 1.55     | 0.6              | 179                                    | 2.69         | 179                                   | 111                                   | 89  | 2.15         | 89                                    | 69                                    | 2051   | 663                                      |
|                         |            |                        |                    |                    |          |                        |                        |          | 0.7              | 153                                    | 3.66         | 147                                   | 81                                    | 77  | 2.93         | 77                                    | 51                                    | 1748   | 612                                      |
|                         |            |                        |                    |                    |          |                        |                        |          | 0.8              | 134                                    | 4.78         | 112                                   | 62                                    | 67  | 3.83         | 67                                    | 39                                    | 1453   | 558                                      |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.5              | 119                                    | 6.05         | 89                                    | 49                                    | 60  | 4.84         | 55                                    | 31                                    | 1203   | 506                                      |
|                         |            |                        |                    |                    |          |                        |                        |          | 1                | 107                                    | 7.46         | 72                                    | 40                                    | 54  | 5.98         | 45                                    | 25                                    | 1004   | 459                                      |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.1              | 97                                     | 9.03         | 59                                    | 33                                    | 49  | 7.23         | 37                                    | 21                                    | 847  | 416                                      |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.2              | 89                                     | 10.75        | 50                                    | 28                                    | 45  | 8.6          | 31                                    | 17                                    | 722  | 378                                      |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.3              | 82                                     | 12.62        | 42                                    | 24                                    | 41  | 10.09        | 27                                    | 15                                    | 622  | 344                                      |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.4              | 77                                     | 14.63        | 37                                    | 20                                    | 38  | 11.7         | 23                                    | 13                                    |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.5              | 71                                     | 16.8         | 32                                    | 18                                    | 36  | 13.44        | 20                                    | 11                                    |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.6              | 67                                     | 19.11        | 28                                    | 16                                    | 33  | 15.28        | 18                                    | 10                                    |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.7              | 63                                     | 21.57        | 25                                    | 14                                    | 32  | 17.25        | 16                                    | 9                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.8              | 60                                     | 24.19        | 22                                    | 12                                    | 30  | 19.35        | 14                                    | 8                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 1.9              | 56                                     | 26.95        | 20                                    | 11                                    | 28  | 21.56        | 12                                    | 7                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2                | 54                                     | 29.86        | 18                                    | 10                                    | 27  | 23.88        | 11                                    | 6                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.1              | 51                                     | 32.92        | 16                                    | 9                                     | 26  | 26.34        | 10                                    | 6                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.2              | 49                                     | 26.13        | 15                                    | 8                                     | 24  | 28.9         | 9                                     | 5                                     | $\frac{\propto Le}{r_{xx}} > 180$            |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.3              | 47                                     | 39.49        | 14                                    | 8                                     | 23  | 31.59        | 8                                     | 5                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.4              | 45                                     | 43           | 12                                    | 7                                     | 22  | 34.39        | 8                                     | 4                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.5              | 43                                     | 46.66        | 11                                    | 6                                     | 21  | 37.32        | 7                                     | 4                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.6              | 41                                     | 50.46        | 11                                    | 6                                     | 21  | 40.37        | 7                                     | 4                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.7              | 40                                     | 54.42        | 10                                    | 5                                     | 20  | 43.53        | 6                                     | 3                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.8              | 38                                     | 58.52        | 9                                     | 5                                     | 19  | 46.82        | 6                                     | 3                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 2.9              | 37                                     | 62.78        | 9                                     | 5                                     | 18  | 50.23        | 5                                     | 3                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          | 3                | 36                                     | 67.18        | 8                                     | 4                                     | 18  | 53.76        | 5                                     | 3                                     |  |  |

Loads not applicable to stainless steel, for stainless steel loads please consult the Technical Department for advice.

MS2115-C2

Combination comprising 2 no. MS2115

Finish: pre-galvanised = PG, post-galvanised = HDG

| Section properties      |            |                        |                    |                    |          |                        |                        |           | Safe load tables |  |              |                               |                               |   |              |                               |                               |  |  |
|-------------------------|------------|------------------------|--------------------|--------------------|----------|------------------------|------------------------|-----------|------------------|--|--------------|-------------------------------|-------------------------------|---|--------------|-------------------------------|-------------------------------|--|--|
| Area<br>cm <sup>2</sup> | Wt<br>kg/m | Ixx<br>cm <sup>4</sup> | Zxx<br>(top)<br>mm | Zxx<br>(btm)<br>mm | rx<br>cm | Iyy<br>cm <sup>4</sup> | Zyy<br>cm <sup>3</sup> | ryy<br>mm | Le (m)           | Safe working<br>loads in kg<br>uniform |              | Def.<br>limit<br>span/<br>200 | Def.<br>limit<br>span/<br>360 | Safe working<br>loads in kg<br>concentrated |              | Def.<br>limit<br>span/<br>200 | Def.<br>limit<br>span/<br>360 | Safe<br>column<br>loads<br>kg at<br>centroid | Safe<br>column<br>loads<br>kg at<br>face |
|                         |            |                        |                    |                    |          |                        |                        |           |                  | (kg)<br>Load                           | (mm)<br>Def. | (kg)                          | (kg)                          | (kg)<br>Load                                | (mm)<br>Def. | (kg)                          | (kg)                          |  |  |
| 3.03                    | 2.4        | 4.08                   | 1.98               | 1.98               | 1.16     | 7.35                   | 3.56                   | 1.56      | 0.6              | 472                                    | 1.55         | 472                           | 472                           | 236   | 1.24         | 236                           | 236                           | 4938   | 1224                                     |
|                         |            |                        |                    |                    |          |                        |                        |           | 0.7              | 404                                    | 2.12         | 404                           | 372                           | 202   | 1.69         | 202                           | 202                           | 4729   | 1194                                     |
|                         |            |                        |                    |                    |          |                        |                        |           | 0.8              | 354                                    | 2.76         | 354                           | 284                           | 177   | 2.21         | 177                           | 177                           | 4458   | 1159                                     |
|                         |            |                        |                    |                    |          |                        |                        |           | 0.9              | 314                                    | 3.5          | 314                           | 225                           | 157   | 2.8          | 157                           | 140                           | 4117   | 1117                                     |
|                         |            |                        |                    |                    |          |                        |                        |           | 1                | 283                                    | 4.32         | 283                           | 182                           | 141   | 3.46         | 141                           | 114                           | 3725   | 1069                                     |
|                         |            |                        |                    |                    |          |                        |                        |           | 1.1              | 257                                    | 5.22         | 257                           | 150                           | 129   | 4.19         | 129                           | 94                            | 3319   | 1017                                     |
|                         |            |                        |                    |                    |          |                        |                        |           | 1.2              | 236                                    | 6.22         | 228                           | 126                           | 118   | 4.98         | 118                           | 79                            | 2934   | 963                                      |
|                         |            |                        |                    |                    |          |                        |                        |           | 1.3              | 218                                    | 7.3          | 194                           | 108                           | 109   | 5.84         | 109                           | 67                            | 2589   | 910                                      |
|                         |            |                        |                    |                    |          |                        |                        |           | 1.4              | 202                                    | 8.46         | 167                           | 93                            | 101   | 6.77         | 101                           | 58                            | 2290   | 859                                      |
|                         |            |                        |                    |                    |          |                        |                        |           | 1.5              | 189                                    | 9.71         | 146                           | 81                            | 94  | 7.77         | 91                            | 51                            | 2033   | 810                                      |
|                         |            |                        |                    |                    |          |                        |                        |           | 1.6              | 177                                    | 11.05        | 128                           | 71                            | 88  | 8.84         | 80                            | 44                            | 1813   | 763                                      |
|                         |            |                        |                    |                    |          |                        |                        |           | 1.7              | 166                                    | 12.48        | 113                           | 63                            | 83  | 9.98         | 71                            | 39                            | 1624   | 720                                      |
|                         |            |                        |                    |                    |          |                        |                        |           | 1.8              | 157                                    | 13.99        | 101                           | 56                            | 79  | 11.19        | 63                            | 35                            | 1463   | 679                                      |
|                         |            |                        |                    |                    |          |                        |                        |           | 1.9              | 149                                    | 15.59        | 91                            | 50                            | 74  | 12.47        | 57                            | 32                            | 1323   | 641                                      |
|                         |            |                        |                    |                    |          |                        |                        |           | 2                | 141                                    | 17.27        | 82                            | 46                            | 71  | 13.81        | 51                            | 28                            | 1202   | 606                                      |
|                         |            |                        |                    |                    |          |                        |                        |           | 2.1              | 135                                    | 19.04        | 74                            | 41                            | 67  | 15.23        | 46                            | 26                            |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 2.2              | 129                                    | 20.9         | 68                            | 38                            | 64  | 16.72        | 42                            | 24                            |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 2.3              | 123                                    | 22.84        | 62                            | 34                            | 62  | 18.27        | 39                            | 22                            |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 2.4              | 118                                    | 24.87        | 57                            | 32                            | 59  | 19.89        | 36                            | 20                            |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 2.5              | 113                                    | 26.98        | 52                            | 29                            | 57  | 21.59        | 33                            | 18                            |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 2.6              | 109                                    | 29.19        | 48                            | 27                            | 54  | 23.35        | 30                            | 17                            |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 2.7              | 105                                    | 31.47        | 45                            | 25                            | 52  | 25.18        | 28                            | 16                            |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 2.8              | 101                                    | 33.85        | 42                            | 23                            | 51  | 27.08        | 26                            | 15                            |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 2.9              | 98                                     | 36.31        | 39                            | 22                            | 49  | 29.04        | 24                            | 14                            |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 3                | 94                                     | 38.86        | 36                            | 20                            | 47  | 31.09        | 23                            | 13                            |  |  |

The diagram shows a channel section with the following dimensions: overall height 41.2, flange width 20.6, web thickness 1.16, and overall width 41.3. The section is oriented with the web vertical. The X-X axis is horizontal, passing through the centroid, and the Y-Y axis is vertical, also passing through the centroid. An 'Eccentric column load application' is indicated at the top flange, and a 'Beam load application' is indicated at the bottom flange. The diagram also shows the section properties: Area 3.03 cm², Wt 2.4 kg/m, Ixx 4.08 cm⁴, Zxx (top) 1.98 mm, Zxx (btm) 1.98 mm, rx 1.16 cm, Iyy 7.35 cm⁴, Zyy 3.56 cm³, and ryy 1.56 mm.

Loads not applicable to stainless steel, for stainless steel loads please consult the Technical Department for advice.

MS4125 – slotted

Finish: pre-galvanised = PG, post-galvanised = HDG

| Section properties      |            |                        |                    |                    |           |                        |                        |           |  | Safe load tables |  |   |   |   |   |   |  |  |      |
|-------------------------|------------|------------------------|--------------------|--------------------|-----------|------------------------|------------------------|-----------|--|------------------|--|---|---|---|---|---|--|--|------|
| Area<br>cm <sup>2</sup> | Wt<br>kg/m | Ixx<br>cm <sup>4</sup> | Zxx<br>(top)<br>mm | Zxx<br>(btm)<br>mm | rxx<br>cm | Iyy<br>cm <sup>4</sup> | Zyy<br>cm <sup>3</sup> | ryy<br>mm |  | Le (m)           | Safe working<br>loads in kg<br>uniform<br>(kg)<br>Load | Def.<br>limit<br>span/<br>200<br>(mm)<br>Def. | Def.<br>limit<br>span/<br>360<br>(kg)<br>(kg) | Safe working<br>loads in kg<br>concentrated<br>(kg)<br>Load | Def.<br>limit<br>span/<br>200<br>(mm)<br>Def. | Def.<br>limit<br>span/<br>360<br>(kg)<br>(kg) | Safe<br>column<br>loads<br>kg at<br>centroid | Safe<br>column<br>loads<br>kg at<br>face |      |
| 3.04                    | 2.53       | 6.2                    | 2.94               | 3.07               | 1.43      | 9.28                   | 4.5                    | 1.75      |  | 0.6              | 698  | 1.52  | 698   | 349   | 1.22  | 349   | 349  | 4541                                     | 1491 |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 0.7              | 599  | 2.06  | 599   | 299   | 1.65  | 299   | 299  | 4151                                     | 1416 |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 0.8              | 524  | 2.7   | 524   | 262   | 2.16  | 262   | 262  | 3701                                     | 1333 |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 0.9              | 466  | 3.41  | 466   | 233   | 2.73  | 233   | 213  | 3250                                     | 1247 |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 1                | 419  | 4.21  | 419   | 210   | 3.37  | 210   | 173  | 2842                                     | 1163 |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 1.1              | 381  | 5.1   | 381   | 190   | 4.08  | 190   | 143  | 2521                                     | 1090 |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 1.2              | 349  | 6.07  | 345   | 175   | 4.85  | 175   | 120  | 2229                                     | 1019 |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 1.3              | 322  | 7.12  | 294   | 161   | 5.7   | 161   | 102  | 2011                                     | 960  |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 1.4              | 299  | 8.26  | 254   | 150   | 6.6   | 150   | 88   | 1808                                     | 902  |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 1.5              | 279  | 9.48  | 221   | 140   | 7.59  | 138   | 77   | 1637                                     | 849  |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 1.6              | 262  | 10.78   | 194   | 131   | 8.63  | 121   | 67   | 1494                                     | 802  |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 1.7              | 246  | 12.18   | 172   | 123   | 9.74  | 108   | 60   | 1391                                     | 767  |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 1.8              | 233  | 13.65   | 153   | 116   | 10.92   | 96  | 53   | 1286                                     | 729  |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 1.9              | 221  | 15.21   | 138   | 110   | 12.17   | 86  | 48   | 1196                                     | 695  |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 2                | 210  | 16.86   | 124   | 105   | 13.48   | 78  | 43   | 1118                                     | 664  |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 2.1              | 200  | 18.58   | 113   | 100   | 14.86   | 70  | 39   |  |      |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 2.2              | 190  | 20.39   | 103   | 95  | 16.32   | 64  | 36   |  |      |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 2.3              | 182  | 22.29   | 94  | 91  | 17.83   | 59  | 33   |  |      |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 2.4              | 175  | 24.27   | 86  | 87  | 19.42   | 54  | 30   |  |      |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 2.5              | 168  | 26.34   | 80  | 84  | 21.07   | 50  | 28   |  |      |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 2.6              | 161  | 28.49   | 74  | 81  | 22.78   | 46  | 26   |  |      |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 2.7              | 155  | 30.72   | 68  | 78  | 24.58   | 43  | 24   |  |      |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 2.8              | 150  | 33.04   | 63  | 75  | 26.43   | 40  | 22   |  |      |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 2.9              | 144  | 35.44   | 59  | 72  | 28.35   | 37  | 21   |  |      |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 3                | 140  | 37.92   | 55  | 70  | 30.37   | 35  | 19   |  |      |

Loads not applicable to stainless steel, for stainless steel loads please consult the Technical Department for advice.

MS4115 – slotted

Finish: pre-galvanised = PG, post-galvanised = HDG

| Section properties      |            |                        |                    |                    |           |                        |                        |           |  | Safe load tables |  |   |   |   |   |   |  |  |      |
|-------------------------|------------|------------------------|--------------------|--------------------|-----------|------------------------|------------------------|-----------|--|------------------|--|---|---|---|---|---|--|--|------|
| Area<br>cm <sup>2</sup> | Wt<br>kg/m | Ixx<br>cm <sup>4</sup> | Zxx<br>(top)<br>mm | Zxx<br>(btm)<br>mm | rxx<br>cm | Iyy<br>cm <sup>4</sup> | Zyy<br>cm <sup>3</sup> | ryy<br>mm |  | Le (m)           | Safe working<br>loads in kg<br>uniform<br>(kg)<br>Load | Def.<br>limit<br>span/<br>200<br>(mm)<br>Def. | Def.<br>limit<br>span/<br>360<br>(kg)<br>(kg) | Safe working<br>loads in kg<br>concentrated<br>(kg)<br>Load | Def.<br>limit<br>span/<br>200<br>(mm)<br>Def. | Def.<br>limit<br>span/<br>360<br>(kg)<br>(kg) | Safe<br>column<br>loads<br>kg at<br>centroid | Safe<br>column<br>loads<br>kg at<br>face |      |
| 1.93                    | 1.61       | 4.25                   | 2.01               | 2.1                | 1.48      | 6.1                    | 2.96                   | 1.78      |  | 0.6              | 479  | 1.52  | 479   | 239   | 1.22  | 239   | 239  | 2930                                     | 1012 |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 0.7              | 410  | 2.07  | 410   | 205   | 1.65  | 205   | 205  | 2691                                     | 961  |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 0.8              | 359  | 2.7   | 359   | 180   | 2.16  | 180   | 180  | 2385                                     | 899  |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 0.9              | 319  | 3.41  | 319   | 160   | 2.73  | 160   | 146  | 2082                                     | 836  |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 1                | 287  | 4.21  | 287   | 144   | 3.37  | 144   | 118  | 1803                                     | 773  |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 1.1              | 261  | 5.1   | 261   | 131   | 4.08  | 131   | 98   | 1564                                     | 714  |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 1.2              | 239  | 6.07  | 237   | 120   | 4.81  | 120   | 82   | 1364                                     | 660  |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 1.3              | 221  | 7.12  | 202   | 110   | 5.7   | 110   | 70   | 1199                                     | 611  |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 1.4              | 205  | 8.26  | 174   | 103   | 6.6   | 103   | 60   | 1061                                     | 567  |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 1.5              | 192  | 9.48  | 151   | 96  | 7.59  | 95  | 53   | 947                                      | 527  |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 1.6              | 180  | 10.79   | 133   | 90  | 8.63  | 83  | 46   | 850                                      | 491  |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 1.7              | 169  | 12.18   | 118   | 84  | 9.74  | 74  | 41   | 778                                      | 463  |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 1.8              | 160  | 13.66   | 105   | 80  | 10.92   | 66  | 37   | 708                                      | 434  |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 1.9              | 151  | 15.21   | 94  | 76  | 12.17   | 59  | 33   |  |      |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 2                | 144  | 16.86   | 85  | 72  | 13.49   | 53  | 30   |  |      |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 2.1              | 137  | 18.59   | 77  | 68  | 14.87   | 48  | 27   |  |      |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 2.2              | 131  | 20.4  | 70  | 65  | 16.32   | 44  | 24   |  |      |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 2.3              | 125  | 22.3  | 64  | 62  | 17.83   | 40  | 22   |  |      |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 2.4              | 120  | 24.28   | 59  | 60  | 19.42   | 37  | 21   |  |      |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 2.5              | 115  | 26.34   | 55  | 57  | 21.07   | 34  | 19   |  |      |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 2.6              | 110  | 28.49   | 50  | 55  | 22.8  | 32  | 18   |  |      |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 2.7              | 106  | 30.72   | 47  | 53  | 24.58   | 29  | 16   |  |      |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 2.8              | 103  | 33.04   | 43  | 51  | 26.43   | 27  | 15   |  |      |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 2.9              | 99   | 35.44   | 41  | 50  | 28.35   | 25  | 14   |  |      |
|                         |            |                        |                    |                    |           |                        |                        |           |  | 3                | 96   | 37.93   | 38  | 48  | 30.35   | 24  | 13   |  |      |

Loads not applicable to stainless steel, for stainless steel loads please consult the Technical Department for advice.

MS2125 – slotted

Finish: pre-galvanised = PG, post-galvanised = HDG

| Section properties      |            |                        |                    |                    |          |                        |                        |          |  | Safe load tables |  |       |                                       |                                       |   |       |                                       |                                       |  |  |
|-------------------------|------------|------------------------|--------------------|--------------------|----------|------------------------|------------------------|----------|--|------------------|--|-------|---------------------------------------|---------------------------------------|---|-------|---------------------------------------|---------------------------------------|--|--|
| Area<br>cm <sup>2</sup> | Wt<br>kg/m | Ixx<br>cm <sup>4</sup> | Zxx<br>(top)<br>mm | Zxx<br>(btm)<br>mm | rx<br>cm | Iyy<br>cm <sup>4</sup> | Zyy<br>cm <sup>3</sup> | ry<br>mm |  | Le (m)           | Safe working<br>loads in kg<br>uniform<br>(kg)<br>Load |       | Def.<br>limit<br>span/<br>200<br>(kg) | Def.<br>limit<br>span/<br>360<br>(kg) | Safe working<br>loads in kg<br>concentrated<br>(kg)<br>Load |       | Def.<br>limit<br>span/<br>200<br>(kg) | Def.<br>limit<br>span/<br>360<br>(kg) | Safe<br>column<br>loads<br>kg at<br>centroid | Safe<br>column<br>loads<br>kg at<br>face |
| 2                       | 1.71       | 0.99                   | 0.91               | 1.02               | 0.7      | 5.28                   | 2.56                   | 1.62     |  | 0.6              | 216  | 2.94  | 216                                   | 123                                   | 108   | 2.36  | 108                                   | 77                                    | 2490   | 841                                      |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 0.7              | 186  | 4     | 162                                   | 90                                    | 93  | 3.2   | 93                                    | 56                                    | 2052   | 764                                      |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 0.8              | 162  | 5.22  | 124                                   | 69                                    | 81  | 4.17  | 78                                    | 43                                    | 1671   | 688                                      |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 0.9              | 144  | 6.61  | 98                                    | 55                                    | 72  | 5.29  | 61                                    | 34                                    | 1368   | 617                                      |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 1                | 130  | 8.16  | 80                                    | 44                                    | 65  | 6.53  | 50                                    | 28                                    | 1134   | 555                                      |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 1.1              | 118  | 9.87  | 66                                    | 37                                    | 59  | 7.9   | 41                                    | 23                                    | 953  | 499                                      |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 1.2              | 108  | 11.74 | 55                                    | 31                                    | 54  | 9.4   | 35                                    | 19                                    | 810  | 451                                      |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 1.3              | 100  | 13.78 | 47                                    | 26                                    | 50  | 11.02 | 29                                    | 16                                    |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 1.4              | 93   | 15.98 | 41                                    | 23                                    | 46  | 12.79 | 25                                    | 14                                    |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 1.5              | 87   | 18.35 | 35                                    | 20                                    | 43  | 14.68 | 22                                    | 12                                    |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 1.6              | 81   | 20.88 | 31                                    | 17                                    | 41  | 16.7  | 19                                    | 11                                    |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 1.7              | 76   | 23.57 | 28                                    | 15                                    | 38  | 18.85 | 17                                    | 10                                    |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 1.8              | 72   | 26.42 | 25                                    | 14                                    | 36  | 21.15 | 15                                    | 9                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 1.9              | 68   | 29.44 | 22                                    | 12                                    | 34  | 23.55 | 14                                    | 8                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 2                | 65   | 32.62 | 20                                    | 11                                    | 32  | 26.1  | 12                                    | 7                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 2.1              | 62   | 35.97 | 18                                    | 10                                    | 31  | 28.77 | 11                                    | 6                                     | $\frac{\propto Le}{r_{xx}} > 180$            |  |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 2.2              | 59   | 39.47 | 16                                    | 9                                     | 30  | 31.58 | 10                                    | 6                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 2.3              | 56   | 43.14 | 15                                    | 8                                     | 28  | 34.51 | 9                                     | 5                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 2.4              | 54   | 46.98 | 14                                    | 8                                     | 27  | 37.58 | 9                                     | 5                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 2.5              | 52   | 50.97 | 13                                    | 7                                     | 26  | 40.78 | 8                                     | 4                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 2.6              | 50   | 55.13 | 12                                    | 7                                     | 25  | 44.11 | 7                                     | 4                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 2.7              | 48   | 59.45 | 11                                    | 6                                     | 24  | 47.56 | 7                                     | 4                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 2.8              | 46   | 63.94 | 10                                    | 6                                     | 23  | 51.15 | 6                                     | 4                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 2.9              | 45   | 68.59 | 9                                     | 5                                     | 22  | 54.87 | 6                                     | 3                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |          |  | 3                | 43   | 73.4  | 9                                     | 5                                     | 22  | 58.73 | 6                                     | 3                                     |  |  |

Diagram of a channel section with dimensions and load applications:

- Overall width: 41.3
- Overall height: 20.6
- Flange width: 22.3
- Web height: 9.7
- Flange thickness: 7.5
- Top flange width: 10.9
- Bottom flange width: 9.7
- Y-axis: Vertical axis of symmetry
- X-axis: Horizontal axis of symmetry
- Beam load application: Indicated by a downward arrow at the bottom center.
- Eccentric column load application: Indicated by a diagonal arrow at the top center.
- 14 x 28 slots at 50 crs: Indicated by a horizontal line at the bottom left.

Loads not applicable to stainless steel, for stainless steel loads please consult the Technical Department for advice.

MS2115 – slotted

Finish: pre-galvanised = PG, post-galvanised = HDG

| Section properties      |            |                        |                    |                    |          |                        |                        |           | Safe load tables |  |       |                                       |                                       |   |       |                                       |                                       |  |  |
|-------------------------|------------|------------------------|--------------------|--------------------|----------|------------------------|------------------------|-----------|------------------|--|-------|---------------------------------------|---------------------------------------|---|-------|---------------------------------------|---------------------------------------|--|--|
| Area<br>cm <sup>2</sup> | Wt<br>kg/m | Ixx<br>cm <sup>4</sup> | Zxx<br>(top)<br>mm | Zxx<br>(btm)<br>mm | rx<br>cm | Iyy<br>cm <sup>4</sup> | Zyy<br>cm <sup>3</sup> | ryy<br>mm | Le (m)           | Safe working<br>loads in kg<br>uniform<br>(kg)<br>Load |       | Def.<br>limit<br>span/<br>200<br>(kg) | Def.<br>limit<br>span/<br>360<br>(kg) | Safe working<br>loads in kg<br>concentrated<br>(kg)<br>Load |       | Def.<br>limit<br>span/<br>200<br>(kg) | Def.<br>limit<br>span/<br>360<br>(kg) | Safe<br>column<br>loads<br>kg at<br>centroid | Safe<br>column<br>loads<br>kg at<br>face |
| 1.31                    | 1.12       | 0.74                   | 0.7                | 0.75               | 0.75     | 3.64                   | 1.76                   | 1.67      | 0.6              | 166  | 3.01  | 165                                   | 92                                    | 83  | 2.41  | 83                                    | 57                                    | 1738   | 632                                      |
|                         |            |                        |                    |                    |          |                        |                        |           | 0.7              | 142  | 4.09  | 121                                   | 67                                    | 71  | 3.28  | 71                                    | 42                                    | 1469   | 577                                      |
|                         |            |                        |                    |                    |          |                        |                        |           | 0.8              | 124  | 5.35  | 93                                    | 52                                    | 62  | 4.28  | 58                                    | 32                                    | 1215   | 521                                      |
|                         |            |                        |                    |                    |          |                        |                        |           | 0.9              | 110  | 6.77  | 73                                    | 41                                    | 55  | 5.41  | 46                                    | 25                                    | 1003   | 468                                      |
|                         |            |                        |                    |                    |          |                        |                        |           | 1                | 99   | 8.35  | 59                                    | 33                                    | 50  | 6.68  | 37                                    | 21                                    | 836  | 420                                      |
|                         |            |                        |                    |                    |          |                        |                        |           | 1.1              | 90   | 10.11 | 49                                    | 27                                    | 45  | 8.09  | 31                                    | 17                                    | 704  | 378                                      |
|                         |            |                        |                    |                    |          |                        |                        |           | 1.2              | 83   | 12.03 | 41                                    | 23                                    | 41  | 9.63  | 26                                    | 14                                    | 600  | 341                                      |
|                         |            |                        |                    |                    |          |                        |                        |           | 1.3              | 76   | 14.12 | 35                                    | 20                                    | 38  | 11.29 | 22                                    | 12                                    | 516  | 309                                      |
|                         |            |                        |                    |                    |          |                        |                        |           | 1.4              | 71   | 16.37 | 30                                    | 17                                    | 35  | 13.09 | 19                                    | 11                                    |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 1.5              | 66   | 18.79 | 26                                    | 15                                    | 33  | 15.04 | 17                                    | 9                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 1.6              | 62   | 21.38 | 23                                    | 13                                    | 31  | 17.1  | 15                                    | 8                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 1.7              | 58   | 24.14 | 21                                    | 11                                    | 29  | 19.32 | 13                                    | 7                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 1.8              | 55   | 27.06 | 18                                    | 10                                    | 28  | 21.64 | 11                                    | 6                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 1.9              | 52   | 30.15 | 16                                    | 9                                     | 26  | 24.12 | 10                                    | 6                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 2                | 50   | 33.41 | 15                                    | 8                                     | 25  | 26.73 | 9                                     | 5                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 2.1              | 47   | 36.83 | 13                                    | 7                                     | 24  | 29.47 | 8                                     | 5                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 2.2              | 45   | 40.42 | 12                                    | 7                                     | 23  | 32.35 | 8                                     | 4                                     | $\frac{\infty Le}{r_{yy}} > 180$             |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 2.3              | 43   | 44.18 | 11                                    | 6                                     | 22  | 35.34 | 7                                     | 4                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 2.4              | 41   | 48.11 | 10                                    | 6                                     | 21  | 38.49 | 6                                     | 4                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 2.5              | 40   | 52.2  | 10                                    | 5                                     | 20  | 41.77 | 6                                     | 3                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 2.6              | 38   | 56.46 | 9                                     | 5                                     | 19  | 45.17 | 5                                     | 3                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 2.7              | 37   | 60.89 | 8                                     | 5                                     | 18  | 48.7  | 5                                     | 3                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 2.8              | 35   | 65.48 | 8                                     | 4                                     | 18  | 52.39 | 5                                     | 3                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 2.9              | 34   | 70.24 | 7                                     | 4                                     | 17  | 56.19 | 4                                     | 2                                     |  |  |
|                         |            |                        |                    |                    |          |                        |                        |           | 3                | 33   | 75.17 | 7                                     | 4                                     | 17  | 60.13 | 4                                     | 2                                     |  |  |

The diagram shows a cross-section of an eccentric column. The overall width is 41.3 cm, with a central gap of 22.3 cm. The height is 20.6 cm, with a top flange thickness of 7.5 cm and a bottom flange thickness of 10.0 cm. The section is labeled with 'Eccentric column load application' and 'Beam load application'. The section properties are listed as follows:

| Area | Wt   | Ixx  | Zxx (top) | Zxx (btm) | rx   | Iyy  | Zyy  | ryy  |
|------|------|------|-----------|-----------|------|------|------|------|
| 1.31 | 1.12 | 0.74 | 0.7       | 0.75      | 0.75 | 3.64 | 1.76 | 1.67 |

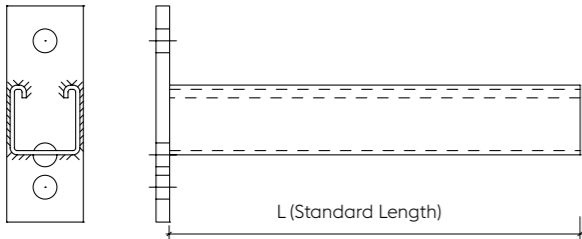
Loads not applicable to stainless steel, for stainless steel loads please consult the Technical Department for advice.

# CANTILEVER ARM DETAILS

## Cantilever arms – single

Finish: post-galvanised as standard.

| Ref    | L (mm) | Wt (kg) |
|--------|--------|---------|
| MS150A | 150    | 0.77    |
| MS300A | 300    | 1.16    |
| MS450A | 450    | 1.56    |
| MS600A | 600    | 1.95    |
| MS750A | 750    | 2.35    |



Recommended safe loads (kg) for arm bolted to 2.5mm thick channel (M12 bolt torque 65Nm)

| X (m) | Total uniformly distributed load | Concentrated load |
|-------|----------------------------------|-------------------|
|       |                                  |                   |
| 0.10  | 684                              | 542               |
| 0.15  | 608                              | 377               |
| 0.20  | 542                              | 283               |
| 0.25  | 452                              | 226               |
| 0.30  | 377                              | 188               |
| 0.35  | 323                              | 162               |
| 0.40  | 283                              | 141               |
| 0.45  | 251                              | 126               |
| 0.50  | 226                              | 113               |
| 0.55  | 206                              | 103               |
| 0.60  | 188                              | 94                |
| 0.65  | 174                              | 87                |
| 0.70  | 162                              | 81                |
| 0.75  | 151                              | 75                |

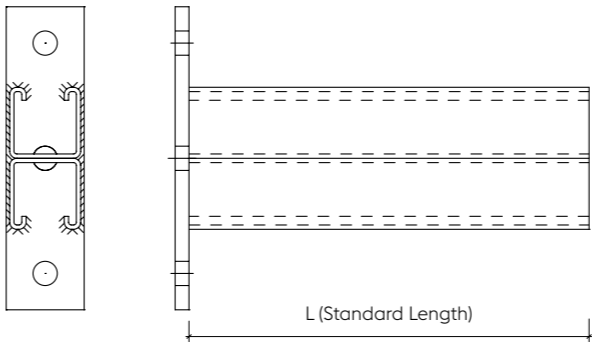
NB: Arms have been independently tested (M12 bolt torque 65 Nm). Tabulated safe loads satisfy minimum factor of safety of 3 on continuous slip and limited design stresses in channel arms and their fixings.

Loads not applicable to stainless steel, for stainless steel loads please consult the Technical Department for advice.

## Cantilever arms – double

Finish: post-galvanised as standard.

| Ref    | L (mm) | Wt (kg) |
|--------|--------|---------|
| MS150E | 150    | 1.26    |
| MS300E | 300    | 2.05    |
| MS450E | 450    | 2.85    |
| MS600E | 600    | 3.64    |
| MS750E | 750    | 4.43    |



Recommended safe loads (kg) for arm bolted to 2.5mm thick channel (M12 bolt torque 65Nm)

| X (m) | Total uniformly distributed load | Concentrated load |
|-------|----------------------------------|-------------------|
|       |                                  |                   |
| 0.10  | 684                              | 643               |
| 0.15  | 684                              | 552               |
| 0.20  | 643                              | 484               |
| 0.25  | 594                              | 430               |
| 0.30  | 552                              | 388               |
| 0.35  | 516                              | 353               |
| 0.40  | 484                              | 324               |
| 0.45  | 455                              | 299               |
| 0.50  | 430                              | 277               |
| 0.55  | 408                              | 259               |
| 0.60  | 387                              | 243               |
| 0.65  | 369                              | 229               |
| 0.70  | 353                              | 216               |
| 0.75  | 337                              | 205               |


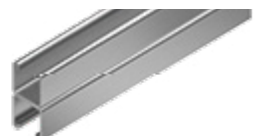

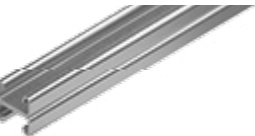
NB: Arms have been independently tested (M12 bolt torque 65 Nm). Tabulated safe loads satisfy minimum factor of safety of 3 on continuous slip and limited design stresses in channel arms and their fixings.

Loads not applicable to stainless steel, for stainless steel loads please consult the Technical Department for advice.

# CHANNEL, FIXINGS AND ACCESSORIES

## Channel – plain

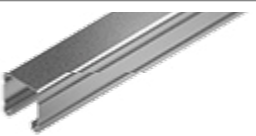
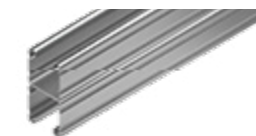

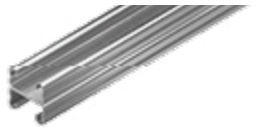
Finish: pre-galvanised = PG, post-galvanised = HDG

| Length m |             |  |
|----------|-------------|--|
| 3        | MS4125PG3   |   |
| 6        | MS4125PG6   |  |
| 3        | MS4125PG3C2 |   |
| 6        | MS4125PG6C2 |  |
| 3        | MS2125PG3   |   |
| 6        | MS2125PG6   |  |
| 3        | MS2125PG3C2 |  |
| 6        | MS2125PG6C2 |  |

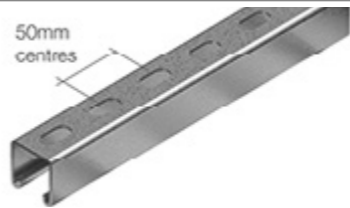
## Channel – slotted

Finish: pre galvanised = PG, post galvanised = HDG, stainless steel grade 316 = SS

| Length m |              |   |
|----------|--------------|---|
| 3        | MS4125PG3S11 |  |
| 6        | MS4125PG6S11 |   |
| 3        | MS4125PG3S14 |   |
| 6        | MS4125PG6S14 |   |
| 3        | MS2125PG3S11 |  |
| 6        | MS2125PG6S11 |   |
| 3        | MS2125PG3S14 |   |
| 6        | MS2125PG6S14 |   |
| 3        | MS4115PG3S11 |  |
| 6        | MS4115PG6S11 |   |
| 3        | MS2115PG3S11 |  |
| 6        | MS2115PG6S11 |   |




| Length m |             |  |
|----------|-------------|--|
| 3        | MS4115PG3   |   |
| 6        | MS4115PG6   |  |
| 3        | MS4115PG3C2 |   |
| 6        | MS4115PG6C2 |  |
| 3        | MS2115PG3   |   |
| 6        | MS2115PG6   |  |
| 3        | MS2115PG3C2 |  |
| 6        | MS2115PG6C2 |  |

## Slot sizes in channel

|                 |  |
|-----------------|--|
| S11 = 11 x 25mm |  |
| S14 = 14 x 28mm |  |



## Channel nuts

Finish: BZP as standard. For post-galvanised add HDG e.g. MPN06HDG.

| Nut type                  |   |
|---------------------------|---|
| Plain channel nuts        |   |
| MPN06                     |  |
| MPN08                     |   |
| MPN10                     |   |
| MPN12                     |   |
| Short spring channel nuts |   |
| MSN06                     |  |
| MSN08                     |   |
| MSN10                     |   |
| MSN12                     |   |
| Long spring channel nuts  |   |
| MLN06                     |  |
| MLN08                     |   |
| MLN10                     |   |
| MLN12                     |   |


## PVC end caps

Black = B, White = W

|                   |   |
|-------------------|---|
| 41mm deep channel |   |
| PVC41B            |  |
| PVC41W            |   |
| 21mm deep channel |   |
| PVC21B            |  |
| PVC21W            |   |















## Closure strip – 3m long
















PVC white = W, PVC black = B, pre-galvanised steel = S

|          |   |
|----------|---|
| MS41CLW3 |  |
| MS41CLB3 |   |
| MS41CLS3 |   |










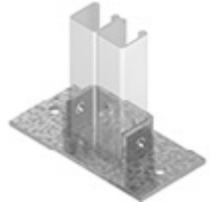

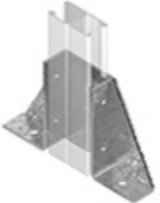
# BRACKETS











Finish: post-galvanised as standard.

|  |   |        |   |        |   |
|--|---|--------|---|--------|---|
| MSF501/06<br>MSF501/08<br>MSF501/10<br>MSF501/12 |    | MSF502 |    | MSF503 |    |
| MSF504   |    | MSF505 |    | MSF506 |    |
| MSF507   |   | MSA601 |   |        |   |
| MSA603   |  |        |  | MSA604 |  |
| MSA605   |  | MSA606 |  | MSA607 |  |

|   |   |        |   |        |   |
|---|---|--------|---|--------|---|
| MSA608  |    | MSA609 |    | MSA610 |    |
| MSA611  |    | MSA612 |    | MSA614 |    |
| MSA615  |   | MSA616 |   | MSA617 |   |
| *Available in 7.5° increments from 15° to 82.5° |   |        |   |        |   |
| MSZ700  |  | MSZ701 |  | MSZ702 |  |
| MSU800  |  | MSU801 |  | MSU802 |  |

Finish: post-galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. MSF501/06SS

|        |   |        |   |        |   |
|--------|---|--------|---|--------|---|
| MSU803 |    | MSU804 |    | MSU805 |    |
| MSU806 |    | MSU807 |    | MSU808 |    |
| MSU809 |   | MBP304 |   | MBP305 |   |
| MBP306 |  | MBP307 |  | MBP308 |  |

|            |   |  |  |           |  |
|------------|---|--|--|-----------|--|
| MBC400     |    | MBC401CP   |   | MBC402CP  |   |
| SWL 270kg  |   | SWL 230kg  |  | SWL 200kg |  |
| MBC403CP   |    | MBC404CP   |   | MBC405/65 |   |
| SWL 200kg  |   | SWL 220kg  |  | SWL 450kg |  |
| MBC405/110 |   | MBC405/150   |  | MBC407    |  |
| SWL 450kg  |   | SWL 450kg  |  | SWL 220kg |  |
| MBC408     |  | <p>Holes in brackets are 14mm in diameter for M12 hexagonal head bolts</p> <p>Beam clamps should be used in pairs. Maximum loadings given are per clamp when used in pairs.</p> <p>Where required, cone point screws included.</p> |  |           |  |
| SWL 220kg  |   |  |  |           |  |

# FASTENERS

## Hexagon head set screws

BZP finish as standard – sold in packs of 100

| Size     |          |
|----------|----------|
| M6 x 20  | M06x20HS |
| M6 x 25  | M06x25HS |
| M8 x 20  | M08x20HS |
| M8 x 25  | M08x25HS |
| M10 x 20 | M10x20HS |
| M10 x 25 | M10x25HS |
| M12 x 20 | M12x20HS |
| M12 x 25 | M12x25HS |



## Cone point set screws

BZP finish as standard – sold in packs of 100

| Size     |          |
|----------|----------|
| M10 x 40 | M10x40CP |



## Flat washers

BZP finish as standard – sold in packs of 100

| Size |       |
|------|-------|
| M06  | M06FW |
| M08  | M08FW |
| M10  | M10FW |
| M12  | M12FW |



## Penny washers

BZP finish as standard – sold in packs of 100

| Size |       |
|------|-------|
| M06  | M06PW |
| M08  | M08PW |
| M10  | M10PW |
| M12  | M12PW |



## Threaded rod x 3m long

BZP finish as standard

| Size |         |
|------|---------|
| M06  | M06x3TR |
| M08  | M08x3TR |
| M10  | M10x3TR |



## Purlin clip

BZP finish as standard

| Size |       |
|------|-------|
| M10  | M10PC |



## Roofing bolt and nut

BZP finish as standard – sold in packs of 100

| Size    |          |
|---------|----------|
| M6 x 12 | M06x12RB |
| M6 x 25 | M06x25RB |



## Hexagon nuts

BZP finish as standard – sold in packs of 100

| Size |       |
|------|-------|
| M06  | M06HN |
| M08  | M08HN |
| M10  | M10HN |
| M12  | M12HN |



## Lock washers

BZP finish as standard – sold in packs of 100

| Size |       |
|------|-------|
| M06  | M06LW |
| M08  | M08LW |
| M10  | M10LW |
| M12  | M12LW |



## Eye bolts

BZP finish as standard – sold in packs of 100

| Size     |          |
|----------|----------|
| M06 x 80 | M06x80EB |
| M08 x 80 | M08x80EB |
| M10 x 80 | M10x80EB |
| M12 x 80 | M12x80EB |



## Rod connector

BZP finish as standard

| Size |       |
|------|-------|
| M06  | M06RC |
| M08  | M08RC |
| M10  | M10RC |
| M12  | M12RC |



## Flange clamp

BZP finish as standard

| Size |       |
|------|-------|
| M10  | M10FC |
| M12  | M12FC |



# PRE-FABRICATION

Pre-fabrication not only reduces waste and contributes to site safety, but also provides cost effective solutions manufactured to factory tolerances.

voestalpine Metsec offers a comprehensive pre-fabrication service ranging from simple cut lengths of channel to complex frames and brackets.

## Cut-to-length service

Dedicated machine time is allowed daily for 41 x 41mm channel for pre-galvanised, post-galvanised and stainless steel finishes.

The voestalpine Metsec sales office produces Kanbans and the work is scheduled at the point of order without the need to consult with production.

Other channel sizes can be scheduled into normal production cycles.

## Pre-fabricated frames

Both flat frames and three dimensional frames can be prefabricated in either all bolted or all welded construction. Part bolted and part welded frames can also be accommodated, particularly when parts need to be removed to allow access for cable runs.

voestalpine Metsec can also build in cable tray, cable ladder and cable trunking within the frames for a complete modular solution.

Pre-fabrication offsite allows the work to be produced to factory tolerances with little to no waste leaving sites uncluttered and a safer environment.



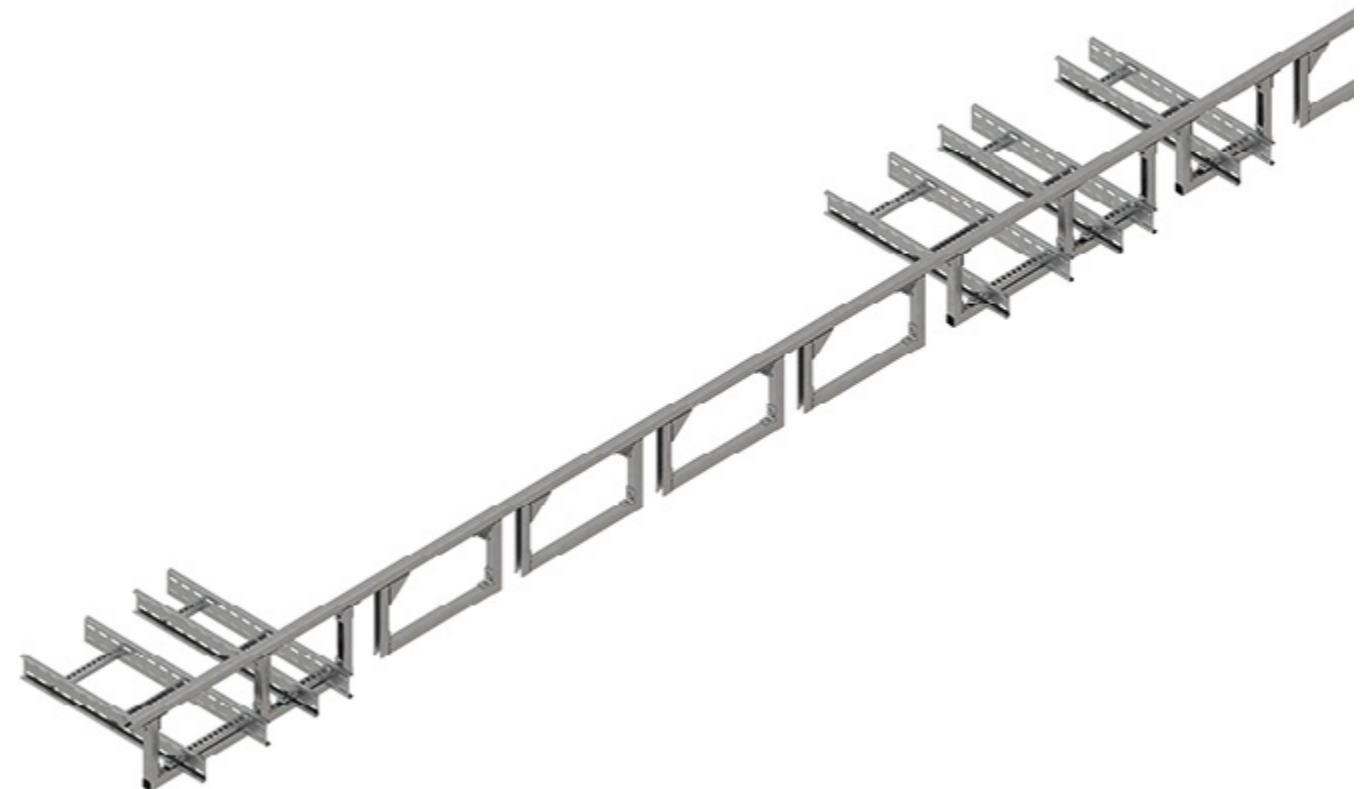
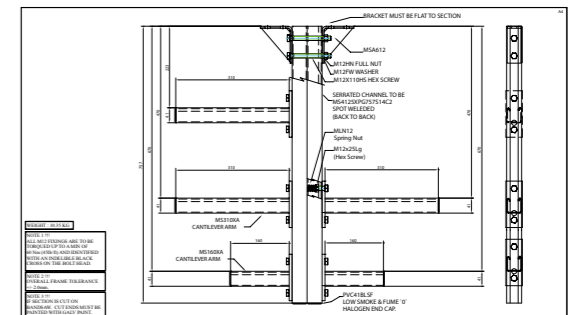
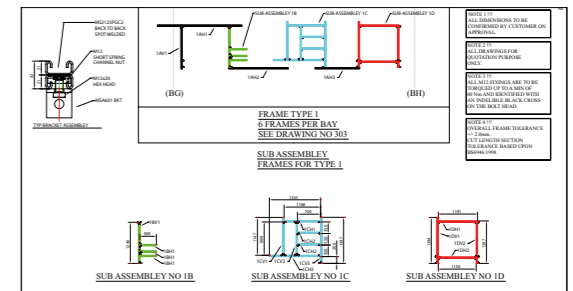
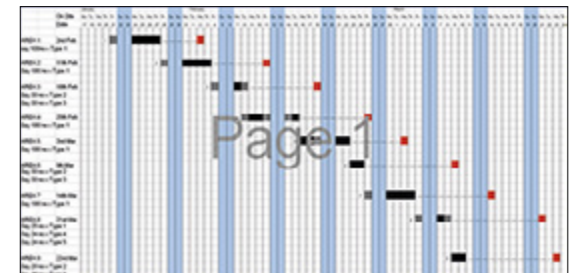
## Optimising design and assembly

By providing basic drawings, M & E contractors can benefit from voestalpine Metsec's expertise in determining where support systems can be pre-fabricated. This is then converted to a CAD drawing identifying areas that can be provided as a frame, with the balance in cut lengths to complete the kit.

Once an order is placed, voestalpine Metsec will attend a pre-commencement meeting to schedule the delivery requirements and agree any outstanding technical details, including vehicle restrictions and packing requirements.

For bolted frames, all connections are torqued to the appropriate level and passed off by the quality department.

Less complex assemblies can be supplied against an approved drawing for manufacture and delivered against a call off order scheduled to meet the project requirements. This can be particularly advantageous when there are space restrictions on site for both storage and installation.



| Page Number  | Item      | Comment |
|--|-----------|---------|
| 1, 2, 3,4, 5, 6, 7, 8, 9, 10, 11, 12,16, 17, 18, 19, 22, 26, 27, 32, 33, 86, 87,110, 111, 132, 133 | Full Page | Updated |
| 2, 3, 8, 14  | Text      | Updated |
| 24, 25   | Full Page | Removed |

# NOTES

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Notes area for page 163, featuring horizontal dotted lines for writing.

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ONE STEP AHEAD.