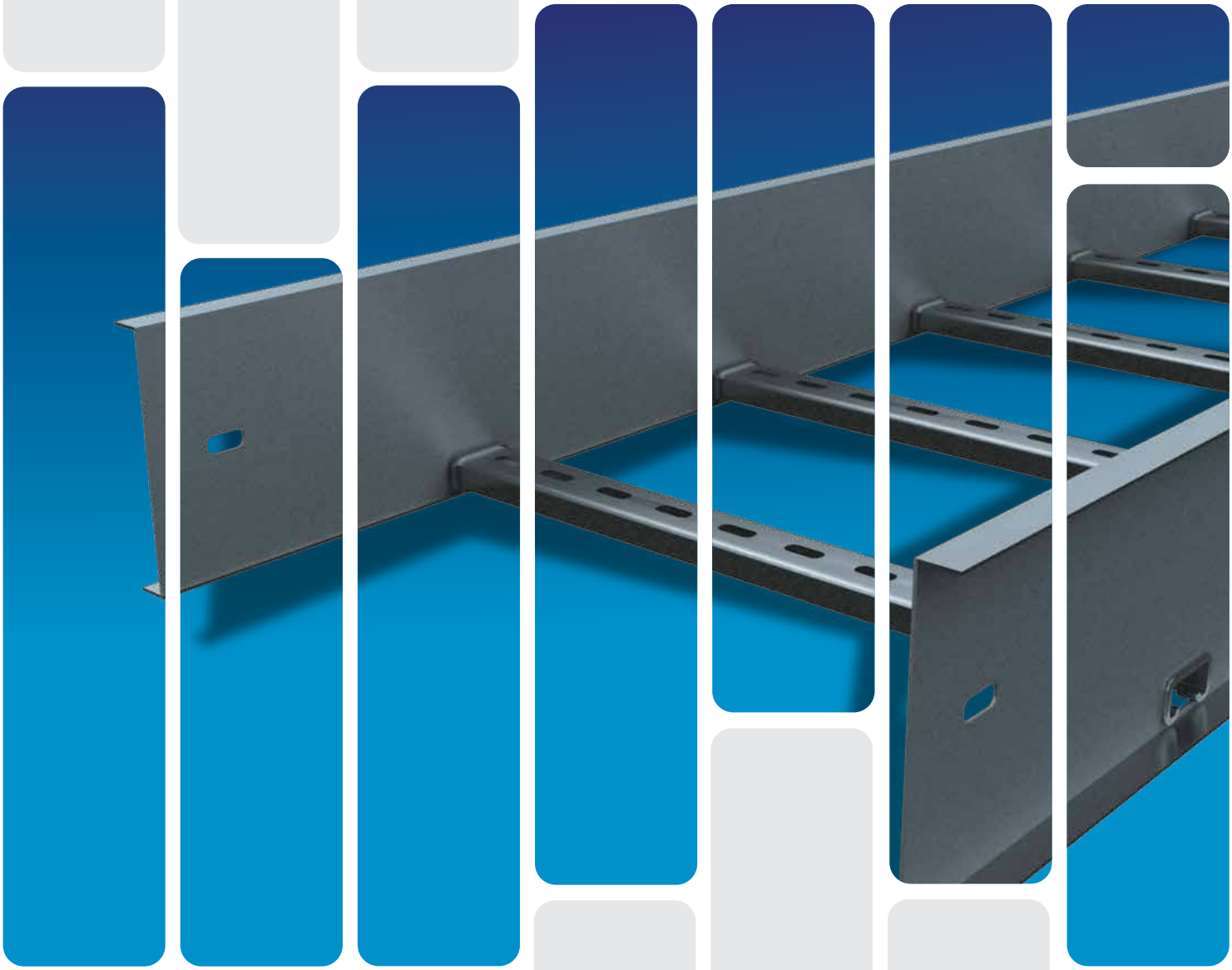
CABLE MANAGEMENT SYSTEMS

CABLE LADDERS (WELDED & SWAGED)



www.unitech-ikk.com
www.sfsp-ikk.com
www.ikkgroup.com

UNITECH
For Building and Construction Materials

CABLE MANAGEMENT SYSTEMS

CABLE LADDERS (WELDED & SWAGED)

PRODUCED BY

SPECIALIZED FACTORY FOR STEEL PRODUCTS
SIGMA FACTORY FOR STEEL PRODUCTS

Cable Ladders (Welded & Swaged)

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ABOUT UNITECH

Unitech Introduction

Unitech is a Saudi based Multinational Company providing building and construction solutions that is empowering the region's construction industry for the past 40+ years. We have been successfully providing solutions through mastering our main business activities: Design, Manufacture and Trade.

Design:
Provide Design & Engineering Solution to the construction sector, complying with international & local standards.

Manufacture:
Operating with Global Standards, we are widely recognized for our advanced light steel solutions and Hot-Dip Galvanization Facility.

Trade:
We are one of the region's largest Importer/Exporter of Building & Construction Materials.

Unitech is an **ISO QMS 9001:2015** certified company and is a member of the US Green Building Council. Our experienced teams and operations are present across the Middle-East North Africa regions (MENA) and Pakistan, giving us an extensive regional network that benefits our clients and partners. We are also present in Europe via our design and engineering office in Stuttgart.

For more information, please visit: www.unitech-ikk.com

Mission & Vision

Mission

We have the conviction to be the leader in building & construction industry through:

- Providing excellence in services with passionate & educated sales force
- Strengthen culture through unified sense of purpose
- Innovative product range which is customer centric
- Reputable and quality service company
- Attracting, engaging and retaining talent

Vision

To be the Customer's First Choice...

Our Strategy

Unitech's strategy continues to focus on accelerating its business throughout the region, to service the construction sector via superior products & solutions, backed up by a group of highly experienced people in the field. Unitech also aims to enhance its geographical presence in its areas of interest and where opportunities exist.

We combine a deep understanding of building and construction materials markets with a successful history of upgrading our products and developing our processes.

We have the qualified employees, the know-how and the products to service major construction projects, medium sized to mega projects taking in care our positive contribution to our societies.

We thrive towards excellence by acknowledging:

Customer Satisfaction

Partner and Supplier Relations

Employee Retention

Positive Influence on Society and Environment

Our Employees

We are a company that prides itself on its 'family' culture and we seek out high-caliber people. We are a company that has, at its core, a team philosophy that is clearly apparent each and every day - there is a real sense of being there for one another.

We believe in nurturing the skills of our team members and providing growing levels of responsibility. Our people bring unique skills, energy, expertise, experience and perspectives to our workforce.

Unitech›s family of employees consists of experienced, well-motivated and dedicated team of engineers, technicians, sales executives and management staff. This team is committed to serve our customers, with the best solutions available in the market.

Our Journey
40+ Years of Excellence

Since 1979, having been set to become an independent company under the framework developed by Sheikh Isam Kabbani, Unitech started its journey of success with confidence and enthusiasm, hard work and care to detail and a commitment to become the best within its industry.

Its dedicated people could only imagine what the future could bring to this newly established entity. Unitech's journey of success has been marked with outstanding achievements and superior accomplishments. Year by year, Unitech has been acknowledged as the "First Choice for Building & Construction Material" by major construction consultants in the region, governmental authorities, well-known contracting and project development corporations.

We have obtained invaluable knowledge about the construction industry in general, providing specialized solutions to construction projects throughout MENA region. From a couple of outlets in Saudi Arabia, Unitech today is present all over the Kingdom and in several countries throughout the region providing its products and
solution to various locations worldwide.

Est. 1979

THE BEGINNING
Unitech was established in the Western Region of KSA as a Sales Company selling basic construction material.

During the same year, another branch was established in the heart of the kingdoms capital, Riyadh.

1980 to 1989

AGE OF GREAT RISK
Unitech Dammam was open for business in the oil-rich eastern coast of Saudi Arabia.

Within these 10 years the idea of in-house manufacturing facility was born and Specialized Factory for Steel Products (SFSP) was established in Riyadh.

1990 to 1999

AGE OF GROWTH
Branches of Unitech were established in Makkah, Madina, Khamis Mushayt and Jubail.

The need to increase its range of products and the necessity to have production lines for mass production lead to the decision to move the SFSP Factory from Riyadh to Jeddah.

Pioneering Construction
Since 1979

We are constantly evolving in order to become more flexible in our operations, more sustainable in our societies, and more innovative in conducting our business.

By delivering superior products tailored to the specific construction needs, ambitious solutions, and an outstanding customer service, we serve today's needs through developing tomorrow's markets.

Helping construction projects experience success is what fueled its days. Unitech is keen to continue offering superior products, a wide spectrum of solutions, governed by our top-notch management style.

Such aspirations require trust in our responsibilities. Our Responsibilities for the future and with this in mind we continue to target excellence with committed efforts.

2000 to 2015

AGE OF CONSTRUCTION BOOM

Qassim, Hofuf and Yanbu Branches were inaugurated in KSA and branches outside KSA were established in UAE, Egypt, Lebanon, Oman, Jordan and Germany in order to facilitate the construction boom in the Middle East.

During this period SFSP state of the art facilities were launched in DIC UAE and Unitech thrived, marking some of the best years in business.

2016 to 2019

AGE OF GREAT CHANGE

This period, marked the age of great change in order to align with the economic shift in the GCC and the world in general.

Company wide right sizing initiatives were taken especially in KSA to align with the kingdoms ambitious vision 2030 and during this period the upgraded SFSP state of the art facilities were launched in JIC 3 KSA.

2020 & Beyond

NEW FRONTIER

This period marks the expansion of Unitech into the South and Central Asian territories. We aim to cater these markets and play an active role in these countries development.

During 2020, Unitech Pakistan was officially inaugurated and marked the entrance of Unitech into Asian Market.

Our Manufacturing Arm SFSP

SFSP is a leading manufacturer and fabricator of light steel construction products in the region, servicing the construction sector through its state of the art facilities which are spread all over the MENA region. Products of SFSP are manufactured from quality raw material according to the relevant international standards to meet all kinds of construction projects requirements, such as MEP, façade, blockwork & waste management systems.

Commitment to Quality

Our commitment to quality is clearly revealed in the way we do our business; our processes, our close interaction with our clients as well as the strict product inspection procedures. To achieve this, we have implemented quality systems & processes that are continually being improved to satisfy our customer's needs.

Product Development

Product development process is substantial to the success of our business. We leverage all resources to provide up-to-date reliable products, environmentally friendly, durable to withstand the toughest weather conditions. Our engineers are constantly testing the products, seeking to present a combination of performance and quality across all our product ranges.

For more information, please visit:
www.sfsp-ikk.com

Value Chain

Our value chain starts up with the quality of the raw materials and ends up in client satisfaction. Our business practices backed up by all technologically essential business elements are supported by an efficient logistics, warehousing and delivery system that maintains a valuable supply chain for products.

The value chain is integrated in our business module, giving us strength and preserving our good reputation gained through the past 4 decades.

Engineering
Specialty

Our products development engineers integrate their vast knowledge to provide the perfect solution to projects within the required specifications and time-frame.

The products development department maintains highly skilled calibers with a dedication towards efficient and reliable solutions even in the most complicated cases where delicacy and skillful approaches are indispensable.

Design and Product Safety

Our design and engineering office in Stuttgart ensures our products comply with relevant European and international standards of fabrication, taking into attention the safety factors which govern the public safety of projects.

Sustainability and Responsibility

We are constantly working hard to reduce our environmental footprints while maintaining the high quality and safety standards. We have set our targets to become three times more efficient in the next 10 years. Our responsibility towards our stakeholders is valued through our positive contributions towards our colleagues, our business partners and our communities as well.

Our Design Office

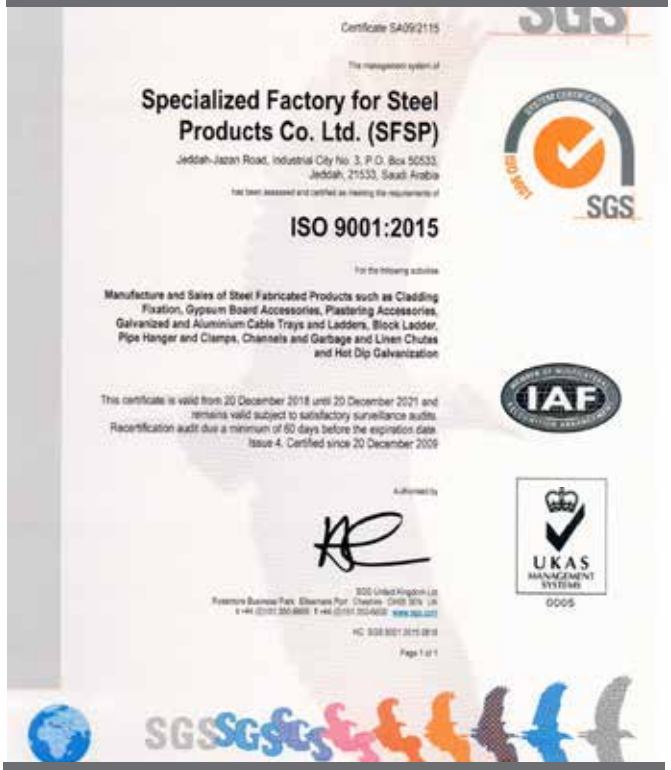
UNITECH DEUTSCHLAND is a “Design & Engineering” Office. Unitech Germany support Unitech & SFSP operations through well-informed cadre of engineers. They help our customers from conception to the completion by delivering design, engineering and project management services.

Thanks to our multidisciplinary team in Unitech Germany and their expertise, we assist you in your ambition to develop your innovation, your engineering and your organization. Our goal is to serve our clients through these elements:

- Excellent in engineering ideas and solutions
- High quality in performance
- Firmness on meeting deadlines

SFSP Certifications

ISO 9001 : 2015
(Quality Management Systems)



Certificate SA09/2115

Specialized Factory for Steel Products Co. Ltd. (SFSP)

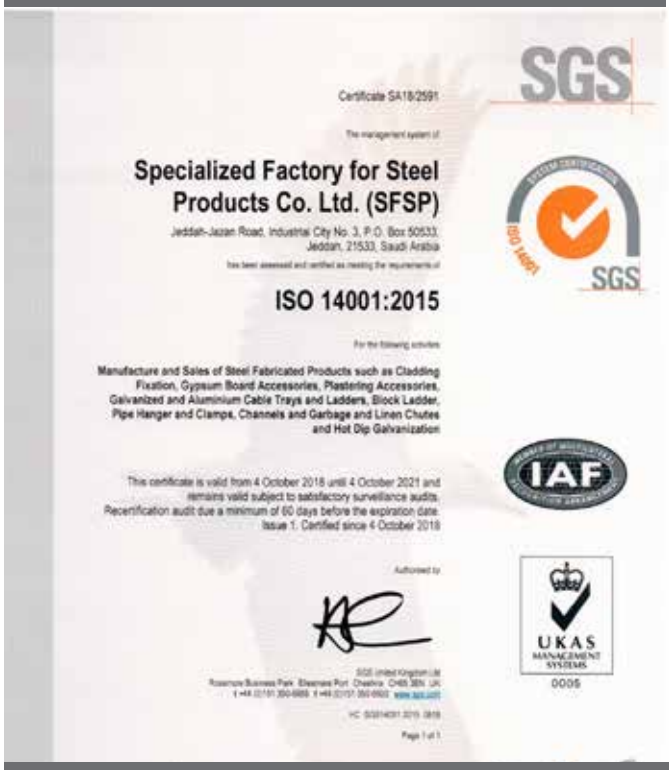
Jeddah-Jazan Road, Industrial City No. 3, P.O. Box 50533, Jeddah, 21533, Saudi Arabia

ISO 9001:2015

Manufacture and Sales of Steel Fabricated Products such as Cladding Fixation, Gypsum Board Accessories, Plastering Accessories, Galvanized and Aluminium Cable Trays and Ladders, Block Ladder, Pipe Hanger and Clamps, Channels and Garbage and Linen Chutes and Hot Dip Galvanization

This certificate is valid from 20 December 2018 until 20 December 2021 and remains valid subject to satisfactory surveillance audits. Recertification audit due a minimum of 60 days before the expiration date. Issue 4. Certified since 20 December 2009

14001 : 2015
(Environmental Management System)



Certificate SA18/2591

Specialized Factory for Steel Products Co. Ltd. (SFSP)

Jeddah-Jazan Road, Industrial City No. 3, P.O. Box 50533, Jeddah, 21533, Saudi Arabia

ISO 14001:2015

Manufacture and Sales of Steel Fabricated Products such as Cladding Fixation, Gypsum Board Accessories, Plastering Accessories, Galvanized and Aluminium Cable Trays and Ladders, Block Ladder, Pipe Hanger and Clamps, Channels and Garbage and Linen Chutes and Hot Dip Galvanization

This certificate is valid from 4 October 2018 until 4 October 2021 and remains valid subject to satisfactory surveillance audits. Recertification audit due a minimum of 60 days before the expiration date. Issue 1. Certified since 4 October 2018

ISO 45001 : 2018
(Occupational Health & Safety)

Certificate SA19/10111

Specialized Factory for Steel Products Co. Ltd.(SFSP)

Jeddah-Jazan Road, Industrial City No. 3, P.O. Box 50533, Jeddah, 21533, Saudi Arabia

ISO 45001:2018

Manufacture and Sales of Steel Fabricated Products such as Cladding Fixation, Gypsum Board Accessories, Plastering Accessories, Galvanized and Aluminium Cable Trays and Ladders, Block Ladder, Pipe Hanger and Clamps, Channels and Garbage and Linen Chutes and Hot Dip Galvanization

This certificate is valid from 19 February 2019 until 19 February 2022 and remains valid subject to satisfactory surveillance audits. Recertification audit due a minimum of 60 days before the expiration date. Issue 1. Certified since 19 February 2019.

STD 096
(Q-Mark Certificate)

CERTIFICATE OF REGISTRATION

This is to certify that

Sigma Factory for Steel Products

P.O. Box 37991
Dubai Industrial City
Dubai
United Arab Emirates

Meets the requirements of the Exova BM TRADA **Q-Mark International Fire Door Manufacture** scheme to **STD 096 - Issue 3 - 01/12/2015** which only operates in Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Oman, Qatar, Saudi Arabia and The United Arab Emirates for the products on the attached schedule

Certificate Number
476

Date of Initial Certification
16 June 2014

Date of last issue
13 October 2017

Date of Expiry
15 June 2020

Karen Prendergast
Sector Director - Certification
Exova BM TRADA

Exova (UK) Ltd, (T/A Exova BM TRADA), Chiltern House, Stocking Lane, High Wycombe, Buckinghamshire, HP14 4ND, UK
Registered Office: Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian EH28 8PL United Kingdom. Reg No. SC070429.

This certificate remains the property of Exova (UK) Ltd. This certificate and all copies or reproductions of the certificate shall be returned to Exova (UK) Ltd or destroyed if requested. Further clarification regarding the scope of this certificate and verification of the certificate is available through Exova BM TRADA or at the above address or at www.exovabmtrada.com

The use of the UKAS accreditation mark indicates accreditation in respect of those activities covered by the accreditation certification 012

Multisite clients - The scope of certification shown above includes the participating sites shown on the registration schedule

Page 1 of 2

ISO 9001 : 2015
(Quality Management System)

Certificate of Registration

This is to certify that the Management System of:

Sigma Factory for Steel Products

P.O. Box 37991, Saih Suhaib - 3, 4 Round About, Dubai Industrial City
Dubai, United Arab Emirates

has been approved by Alcumus ISOQAR and is compliant with the requirements of:

ISO 9001:2015

Certificate Number:	**22244-Q15-001**
Initial Registration Date:	23 February 2015
Previous Expiry Date:	22 February 2021
Recertification Date:	30 November 2020
Re-issue Date:	01 December 2022
Current Expiry Date:	22 February 2024

Scope of Registration:

Trading and Manufacturing of all kinds of Steel Related Construction Materials

Signed:
Alyn Franklin, Chief Executive Officer
(on behalf of Alcumus ISOQAR)

This certificate will remain current subject to the company maintaining its system to the required standard. This will be monitored regularly by Alcumus ISOQAR. Further clarification regarding the scope of this certificate and the applicability of the relevant standards' requirement may be obtained by consulting Alcumus ISOQAR.

ISO 14001 : 2015
(Environmental Management System)

Certificate of Registration

This is to certify that the Management System of:

Sigma Factory for Steel Products

P.O. Box 37991, Saih Suhaib - 3, 4 Round About, Dubai Industrial City
Dubai, United Arab Emirates

has been approved by Alcumus ISOQAR and is compliant with the requirements of:

ISO 14001:2015

Certificate Number:	**22244-E15-001**
Initial Registration Date:	22 September 2015
Previous Expiry Date:	21 September 2021
Recertification Date:	11-12 July 2021
Re-issue Date:	01 December 2022
Current Expiry Date:	21 September 2024

Scope of Registration:

Trading and Manufacturing of all kinds of Steel Related Construction Materials

Signed:
Alyn Franklin, Chief Executive Officer
(on behalf of Alcumus ISOQAR)

This certificate will remain current subject to the company maintaining its system to the required standard. This will be monitored regularly by Alcumus ISOQAR. Further clarification regarding the scope of this certificate and the applicability of the relevant standards' requirement may be obtained by consulting Alcumus ISOQAR.

OHSAS 45001 : 2018
(Health & Safety Management System)

Certificate of Registration

This is to certify that the Management System of:

Sigma Factory for Steel Products

P.O. Box 37991, Saih Suhaib - 3, 4 Round About, Dubai Industrial City
Dubai, United Arab Emirates

has been approved by Alcumus ISOQAR and is compliant with the requirements of:

ISO 45001:2018

Certificate Number:	**22244-OHS-001**
Initial Registration Date:	22 September 2015
Previous Expiry Date:	11 March 2021
Recertification Date:	11-12 July 2021
Re-issue Date:	01 December 2022
Current Expiry Date:	21 September 2024

Scope of Registration:

Trading and Manufacturing of all kinds of Steel Related Construction Materials

Signed:
Alyn Franklin, Chief Executive Officer
(on behalf of Alcumus ISOQAR)

This certificate will remain current subject to the company maintaining its system to the required standard. This will be monitored regularly by Alcumus ISOQAR. Further clarification regarding the scope of this certificate and the applicability of the relevant standards' requirement may be obtained by consulting Alcumus ISOQAR.

Alcumus ISOQAR Limited, Alcumus Certification, Cobra Court, 1 Blackmore Road, Stretford, Manchester M32 0QY
T: 0161 865 3699 F: 0161 865 3685 E: isoqarenquiries@alcumusgroup.com W: www.alcumusgroup.com/isoqar
This certificate is the property of Alcumus ISOQAR and must be returned on request.

BS EN 61537:2007 (KEMA - KEUR Certified For Cable Management Products)

CERTIFICATE

DEKRA

Issued to:
Applicant:
Isam Kabbani Trading Est. (Unitech)
Rashidiya
Dubai, United Arab Emirates

Manufacturer/Licensee:
Sigma Factory for Steel Products (SFSP)
Saih Shuaib 3, 4R/A, Dubai Industrial City,
Dubai, United Arab Emirates

Product : Cable management system
Trade name : SFSP
Types : IE-CT-X-10, IE-CT-X-12, IE-CT-X-15, IE-CT-X-20

The product and any acceptable variation thereto is specified in the Annex to this certificate and the documents therein referred to.

DEKRA hereby declares that the above-mentioned product has been certified on the basis of:
- a type test according to the standard IEC 61537:2006 and EN 61537:2007
- an inspection of the production location according to CENELEC Operational Document CIG 021
- a certification agreement with the number 2156954

DEKRA hereby grants the right to use the KEMA-KEUR certification mark.

The KEMA-KEUR certification mark may be applied to the product as specified in this certificate for the duration of the KEMA-KEUR certification agreement and under the conditions of the KEMA-KEUR certification agreement.

This certificate is issued on: 20 January, 2014 and expires upon withdrawal of one of the above mentioned standards.

Certificate number: 2156954.01

DEKRA Certification B.V.

drs. G.J. Zoetbrood
Managing Director

H.R.M. Barends
Certification Manager

© Integral publication of this certificate is allowed

ACCREDITED BY THE DUTCH ACCREDITATION COUNCIL

KEMA KEUR

DEKRA Certification B.V. Meander 1051, 6825 MJ Arnhem P.O. Box 5185, 6802 ED Arnhem The Netherlands
T +31 88 96 83000 F +31 88 96 83100 www.dekra-certification.com Registered Arnhem 09085396

SFSP Certifications

UL Certification*
(Cable Trays)

CERTIFICATE OF COMPLIANCE

Certificate Number 20160816-E483358
Report Reference E483358-20160816
Issue Date 2016-AUGUST-16

Issued to: Sigma Factory for Steel Products
Saih Shuaib 3, 4 R/A Dubai Industrial City
Opposite DEWA Substation
Dubai UNITED ARAB EMIRATES

This is to certify that representative samples of CABLE TRAYS
Steel Channel Cable Tray, Ventilated, Heavy Duty (HCT), Very Heavy Duty (VCT) cable trays.

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: ANSI/NFPA 70, "National Electrical Code" (NEC)
Additional Information: See the ULC Online Certification Directory at www.ulc.ca for additional information

Only those products bearing the ULC Listing Mark should be considered as being covered by ULC's Listing and Follow-Up Service.

The ULC Listing Mark generally includes the following elements: the symbol ULC in a circle: with the word "LISTED"; a control number (may be alphanumeric) assigned by ULC; and the product category name (product identifier) as indicated in the appropriate ULC Directory.

To confirm the status, validate the above information via the online directory.

Look for the ULC Listing Mark on the product.

Page 1 of 1

UL Certification*
(Chute Type Fire Doors)

CERTIFICATE OF COMPLIANCE

Certificate Number 20170811-R38825
Report Reference R38825-20170811
Issue Date 2017-AUGUST-11

Issued to: Sigma Factory for Steel Products
Saih Shuaib 3, 4 R/A Dubai Industrial City
Opposite DEWA Substation
Dubai UNITED ARAB EMIRATES

This is to certify that representative samples of CHUTE-TYPE FIRE DOORS
Chute-type fire door and frame assembly of the insulated type, rated up to and including 2 hr, 450°F Temperature Rise Rating.

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: ANSI/UL 10B, Fire Tests of Door Assemblies
Additional Information: See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.

UL Certification*
(Fire Barrier)

CERTIFICATE OF COMPLIANCE

Certificate Number R40146
Report Reference R40146-20220524
Date 2022-May-25

Issued to: Sigma Factory for Steel Products
Saih Shuaib 3, 4 R/A Dubai Industrial City
Opposite DEWA Substation
Dubai AE

This is to certify that representative samples of MECHANICAL JOINT ASSEMBLIES
The products covered by this Section are mechanical joint assemblies designated Nexus Fire Barrier (NFB) for use in various joint systems described in the Fire Resistance Directory.

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 2079, Tests for Fire Resistance of Building Joint Systems

Additional Information: See the UL Online Certifications Directory at https://iq.ulprospector.com for additional information

This Certificate of Compliance does not provide authorization to apply the UL Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz, Director North American Certification Program
UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at http://ul.com/aboutul/locations/

SFSP Products

SFSP produces a variety of products ranging from cable management systems; cable trays, cable ladders, basket trays, trunkings and support systems, to mechanical cladding fixations, steel lintels and block work accessories, plasterers' beads, expanded metal and block work reinforcement, strut channel systems, pipe clamps & hangers, gypsum profiles as well as garbage and linen chutes. With the introduction of new machines and the enhancement of production methods, SFSP continues to develop its production methods systematically as well as thoroughly. Its design office in Stuttgart, Germany provides a comprehensive design and calculation case studies, enabling the factory to have the safety factors required for the usage of its products.

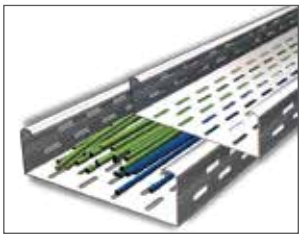
MEP Solutions

Cable Management Systems

Cable Management Systems are economical and designed to meet most requirements of cable and electrical wire installations and comply to international standards of fabrication and finishing.

Cable Trays & Accessories

Cable Trays are designed to meet most requirements of cable and electrical wire installations and comply to local and international standards of fabrications and finishes.

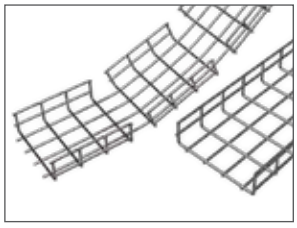


Cable Ladders (Welded & Swaged)

Cable Ladders of different side heights are available upon request.

Basket Trays & Accessories

SFSP's Basket Tray systems make connections fast and simple with limited need for tools. Its design allows for continuous airflow, and prevents heating up of cables. SFSP's Basket Tray comes in a full range of sizes and is made with high-strength welded steel wires.

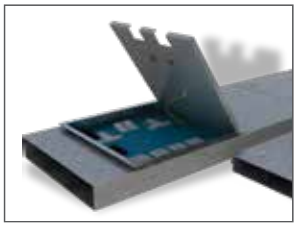


Cable Trunkings

Cable Trunkings and Accessories are offered in a comprehensive range. Mill galvanized, hot-dip galvanized, and powder coated are the various finishes produced in our factories.

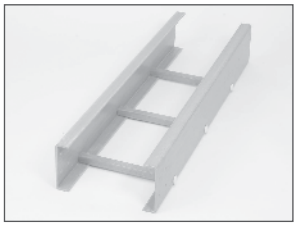
Underfloor Trunking

Underfloor Trunking Systems solutions incorporate a range of products for the distribution of power and data services , it is a coordinated set of containments that protect, segregate, contain, and route cables within a given environment.



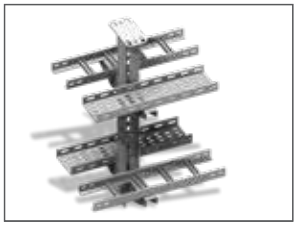
Fiberglass Reinforced Plastic (FRP) Cable Tray / Ladder

SFSP Fiberglass Reinforced Plastic (FRP) Cable Management Systems are designed, manufactured, and tested to be installed in most harsh environmental conditions of onshore and offshore facilities for several industries including Oil and Gas, Petrochemicals, Manufacturing, Mining and others.



Cable Management Support Systems

Cable Support Systems are well designed to provide necessary support for cable trays, cable ladders and trunkings. Cable supports are manufactured according to common standards from high quality raw materials.

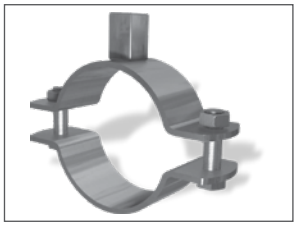


C-Channel Strut Systems

SFSP's Metal Framing Systems provide an economical solution for electrical, mechanical and industrial supports with a wide variety of applications in the construction industry.
Applications: - Pipe and Conduit Supports - Tunnel Pipe Stanchions - Racks and Shelvings - Wall Framings.

Pipe Clamps & Hangers

Pipe Clamps and Hangers from SFSP used in the support of pipes and equipments are manufactured according to the highest standards of fabrication. A diversified choice of Pipe Hangers, Pipe Clamps, EMT Straps, Omega Clamps, Beam Clamps, J and U-Bolts and Threaded Accessories.



Galvanized Threaded Rods and Accessories

Threaded rod, often referred to as a stud, is a rod of varying length that is threaded in a helical structure. Similar in appearance to a screw, the threading extends around and along the rod to cause rotational movements when in use.

Access Panels by FEROX

Ferox Access Panels provides complete solutions of several types of access panels including Hook Type, Pivot Type, Tiled Type as well as fire rated access panels and hygienic access panels. A variety of finishes are available including stainless steel of different grades, galvanized steel with powder coating.
Ferox Access Panels are manufactured from high quality material and assembled with stainless steel hardware.

Roof hatches by FEROX

Roof hatch provides safe and convenient access to commercial building roof areas using interior ladders and stairs for maintenance work. It can be installed on flat roofs with a maximum slope of 30°.Made of steel frames, doors and stainless steel hardware. Powder coated to provide corrosion resistance and outstanding exterior durability.

Architectural & Finishing Solutions

Mechanical Cladding Fixation (Stangle)

Stangle Cladding Fixation includes design, calculation and production of several types of mechanical fixings and accessories used for cladding purposes. Stainless and galvanized steel are among the various materials used in the fabrication.

Alumimium Sytem for Stone Cladding

SFSP aluminum systems are designed and calculated to provide a practical & safe solutions of stone cladding. Wide range of aluminum profiles with different shapes to support different types of stone cladding.

Waste Management Sys. (Garbage & Linen Chutes)

Chutes from SFSP are very convenient, simple and low cost method of controlling and disposing of refuse and linen. Chutes meet the most stringent requirements of environmental health and safety.

Dry Wall & Ceiling Profiles

Gypsum Boards are considered among the most economic and ideal way for wall partitioning. Easy to install, saves time and money, gypsum boards can be used as a backing for wall treatments such as wall paper, fabric, title and wood paneling or it can simply be painted.

Metal Ceiling Grid Systems

SFSP Ceiling Grid System is a practical, convenient ceiling system. It has a complete range of main c-channel sections and complementary parts so that you can adapt the modules to suit your design needs and load requirements.

Expansion Joint System by Nexus

Our variety of expansion joints includes profiles for walls and floors, profiles for seismic movements, watertight profiles. Our products suit pedestrian as well as heavy load traffic areas.

Entrance Matting System by Nexus

Nexus Entrance matting systems provides heavy duty entrance mats, composed of aluminium profiles with carpet, brushes or rubber inserts. For any design of any shape, being round, square, oval, or any other symmetrical or asymmetrical shape, Nexus offers a variety of entrance matting profiles

Profiles by Nexus

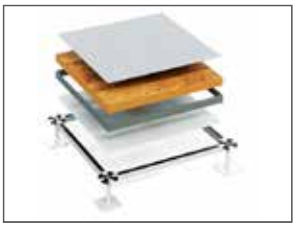
Nexus offer comprehensive solutions for the construction industry ranging from Expansion Joint Covers and Fire Barriers to Entrance Matting Systems, Wall and Floor Profiles, Tactile Solutions, etc... NEXUS range of products is manufactured according to most common international standards to meet the requirements of commercial, residential, governmental, transportation, healthcare and educational projects.

Phenolic Compartment by CUBIX

CUBIX phenolic compartment and partition systems are manufactured and customized to meet the precise needs of simple to complicated projects with its top-notch finish, quality of material and within a timely delivery. A complete solution with a wide selection of colors and textures are available.

Raised Access Flooring by PIXEL

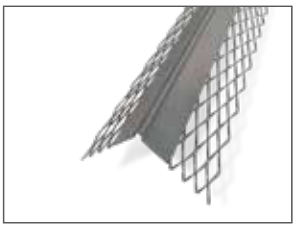
PIXEL Raised Access Flooring offers comprehensive solutions of High Tech Raised Access Flooring Systems for the construction industry. PIXEL Raised Access Flooring are manufactured according to most common international standards to meet the requirements of commercial, residential, governmental, transportation, healthcare, and educational projects.



Civil Solutions

Expanded Metals, Plasterers' Beads

Expanded Metals help the formation of joints, protection of corners and resistance against cracks, chips and impact damage. SFSP manufactures inaccordance with BS EN 13658 – 2, ASTM C847-18, BS EN 845-3:2003+A1:2008, ASTM A 951/A 951M - 2016 standards.



Block Ladder Reinforcement

SFSP ladder and truss types are used for the reinforcement of brick and block masonry to give improved tensile strength to walls subjected to lateral loading e.g. wind and seismic. SFSP Block reinforcements reduces the risk of cracking either at stress concentration around opening.

Steel Lintels & Block Work Accessories

Steel Lintels provide a combination of strength and light weight, resulting in efficient load bearing performance and increased productivity on site. They are characterized by their ease of installation in addition to time as well as money saving. SFSP manufactures Steel Lintel in accordance with BS EN 845-2:2013+A1:2016 and according to relevant standards BS 5977 Part 2:1983.

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SFSP CUSTUMER SERVICE CALL CENTER

KSA

+966 13 8590097, Ext. 3214

UAE

+971 4 8181925, Ext. 4269

CABLE MANAGEMENT SYSTEMS

SFSP Cable Management Systems, fittings and accessories are manufactured in compliance with international standards. SFSP provides a wide range of products capable of providing the characteristics which respond to the proposed application, along with quality of assembly, speed of installation and cost-saving Cable Management Systems. Calculations are provided by our design office in Stuttgart, Germany.

SFSP Cable Management Systems are designed to meet most requirements of cable and electrical wire installations and comply to local and international standards of fabrication and finishing. Cable Management Systems are economical wire and cable management systems designed to support and protect electrical wires and cables.

National Electric Code (NEC) permits Cable Trays in a wide variety of indoor and outdoor applications. The NEC also permits Cable Trays for use as equipment ground conductor.

Cable Management Systems can provide significant advantages in cable filling over other wiring methods. This can provide savings in the size or number of raceways required, thereby, reducing both material and labor costs. In many cases, NEC permits greater conductor ampacities in Cable Tray Systems than for other wiring methods.

Under certain conditions, the NEC allows "Free Air" rating of large, single conductor power cables (4/0 & larger) in ventilated Cable Management Systems. This can provide significant savings in conductor costs. Cable Management Systems permit much greater spacing between support hangers than most other systems, providing savings in support costs and installation labor.

Cable Management Systems' types fittings and accessories from SFSP are manufactured in compliance with :

- IEC 61537:2023

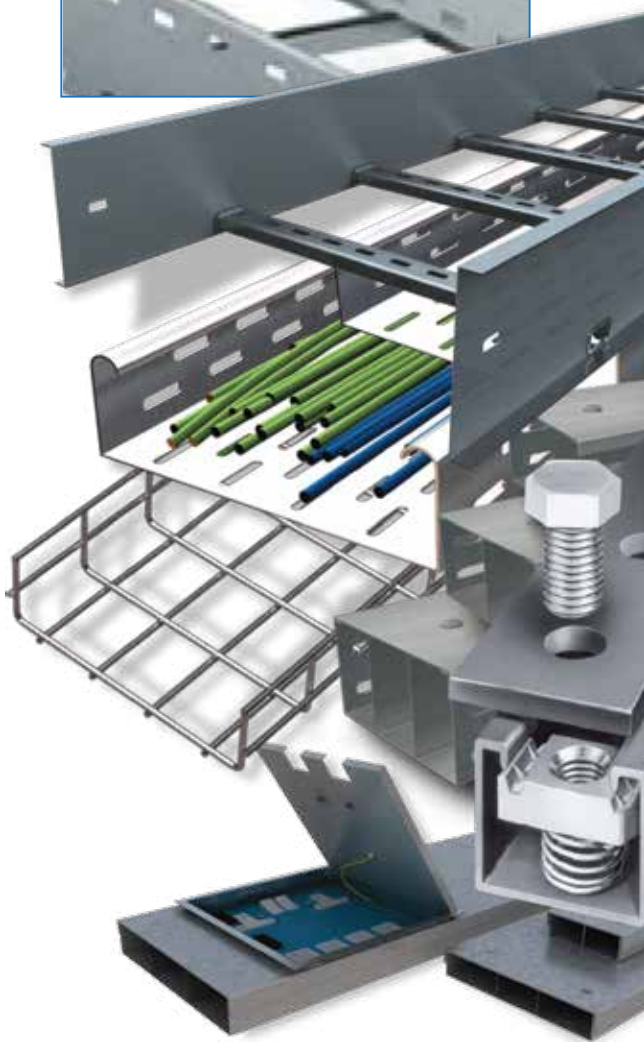
- BS EN 61537:2007 International Electrotechnical Commission
  (Cable Management, Cable Tray Systems and Cable Ladder Systems)

- SASO IEC (61537:2006) Saudi Standard
  (Cable Management, Cable Tray Systems and Cable Ladder Systems)

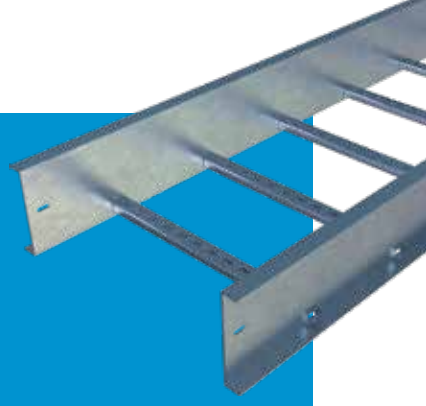
- NEMA VE-1:2017 National Electrical Manufacturers Association
  (Metal Cable Tray Systems)

- NEMA VE-2:2023 National Electrical Manufacturers Association
  (Metal Cable Tray Installation Guide Lines)

- NEC (ANSI / NFPA 70) National Electric Code
  (Metal Cable Tray Guide Lines)



CABLE LADDER TRAYS



Cable Ladder Trays are are designed to meet most requirements of cable and electrical wire installations and comply to local and international standards of fabrication and finishing.

This catalogue is designed to be helpful to engineers and contractors in the application and selection of Ladder Tray products for construction and maintenance.a

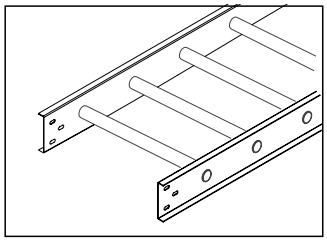
If a unique application requires a special product not included in this catalogue , SFSP engineering personnel are ready to furnish design consultation and realistic cost estimates. In addition, know-how are available for your convenience.

Products Range

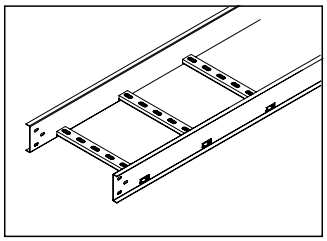
The different types of tray designs are described below:

Ladder Tray (Cable Ladder)

Swaged rounded tubular (Aluminum or Steel) or welded c-channel (steel). A prefabricated metal structure consisting of two side rails connected by individual transverse embers or rungs. Cable Ladder Trays are the most common and the most economical types of trays.
They also provide maximum ventilation for cabling.



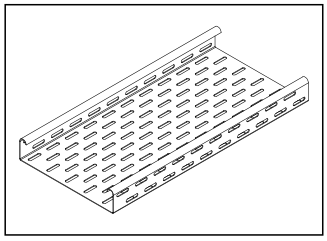
Swaged Rounded Tubular



Welded C-Channel

Perforated Cable Tray (Cable Trays)

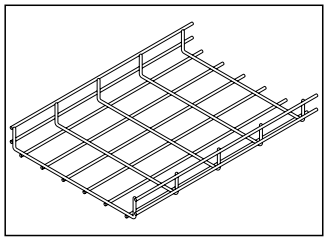
A prefabricated metal structure consisting of a bottom with openings within the cable bearing surface.
Solid bottom Cable Trays completely eliminate cable sagging and offer maximum protection for the cables.



Perforated Cable Tray

Wire Mesh (Basket Tray)

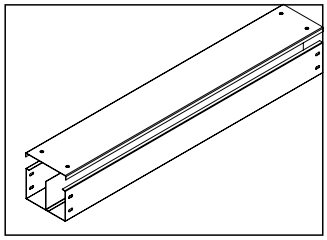
Is ideally suitable for light - to medium-duty commercial and industrial applications where space is at a premium. SFSP wire Basket Trays have a fast connection profile for installations requiring long runs of straight Cable Trays lengths. Applications : Network cabling, wiring closets, fiber-to-desktop applications and can often be used in suspended ceiling plenum areas and under computer room flooring.

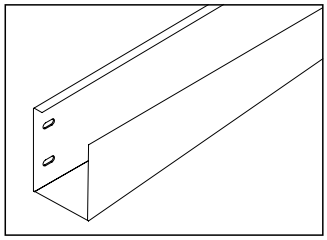


Wire Mesh

Solid (Cable Trunking)

A prefabricated metal structure consisting of a one-piece solid bottom channel section because we are reaching 600mm.





Cable Trunking

Materials & Finishes

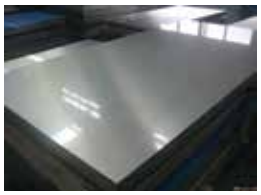
Materials

Mild Steel - Plain

A. Hot Rolled Steel Plates, Sheets and Coils S235 JR, as per:
EN 10025 -2 / DIN 17100 / BS 4360 / ASTM A 653M / ASTM A 1011 / ASTM A 1011-01a
JIS 3101 / JIS 3106 / GB 700 / GB / T1591.
ASTM A 907 / ASTM A 1018M.
ASTM A 570M / ASTM A 572M.

B. Cold Rolled Steel DC 01, as per:
EN 10130 / DIN 1623, Part 2 / BS 1449:1 / ASTM A366 / ASTM A 1008 / JIS G 3141 / GB 699.
EN 10131 / ASTM A 568M

Mild Steel - Galvanized



C. Continuously Pre- Galvanized Hot-Dip Zinc Coated Steel DX 51D + Z, as per:
EN 10327 / DIN 17162 / BS 2989/ ASTM A 527M / ASTM A 653M / JIS G 3302.
EN 10326/ EN 10142 / ASTM A 526, 527, 528/ ASTM A 146

D. Electro Galvanized Steel (Electrolytic Coating) DC01 + ZE v, as per:
EN 10152 / DIN 17163 / ASTM A591 / JIS G 3313 / JIS G 3141/BS 1449:1
EN 10131

Aluminum

E. Aluminum 6063 T6

Stainless Steel

F.Austenitic Stainless Steels SS 304 & SS 316, as per:
ASTM A 240 /EN 10088-2/ DIN 17400 / BS 1449:2 / ASTM A480 / ASTM A666 / ISO 3506 / EN 10028-7 /JIS G 4304
F.1 Stainless Steel Fasteners EN 3506
F.2 Stainless Steel Wire BS 1554 ,ASTM A276

Finishes

1- Hot-DIP Galvanization after Fabrication

as per:
ASTM A 123 / ASTM A 153 / ISO 1461.
BS 729 / DIN 50976

2- Zinc Electroplating after Fabrication

as per:
ASTM B633 / EN 12329 / ISO 4042/ BS 1706 / BS 3382 / DIN 50961

3- Powder Coating

Epoxy / Polyester / Epoxy & Polyester
BS 3900 / ISO 2409 / ISO 1519 / ISO 1520

SFSP Cable Ladder Tray Systems, fittings and accessories from SFSP are manufactured in compliance with :

- IEC 61537:2023 — International Electrotechnical Commission (Cable management – Cable tray systems and cable ladder systems)

- SASO IEC (61537/2007) — Saudi Standard (Cable management – Cable tray systems and cable ladder systems)

- NEMA VE-1:2017 — National Electrical Manufacturers Association. (Metal Cable Tray Systems)

- NEMA VE 1 class 20 C

- NEMA VE-2:2023 — National Electrical Manufacturers Association. (Metal Cable Tray Installation Guide Lines)

- NEC (ANSI / NFPA 70) — National Electric Code (Metal Cable Tray Guide Lines)

SFSP Cable Ladder Tray Systems are designed to meet most requirements of cable and electrical wire installations and comply to local and international standards of fabrication and finishing.

Cable Ladder Systems are economical wire and cable management systems designed to support and protect electrical wires and cables.

National Electric Code (NEC) permits Cable Ladder in a wide variety of indoor and outdoor applications.

The NEC also permits Cable Ladder for use as equipment ground conductor.

Cable Ladder Systems can provide significant advantages in cable filling over other wiring methods.

This can provide savings in the size or number of raceways required, thereby, reducing both material and labor costs.

In many cases, NEC permits greater conductor ampacities in Cable Ladder Systems than for other wiring methods.

Under certain conditions, the NEC allows “Free Air” rating of large, single conductor power cables (4/0 & larger) in ventilated Cable Ladder Systems. This can provide significant savings in conductor costs.

Cable Ladder permit much greater spacing between support hangers than most other systems, providing savings in support costs and installation labor.

Technical Information According To IEC 61537 Standard

Product under IEC 61537 - 2008 standard are in compliance with the requirement of the European directive.
This standard specifies the requirements for:

- Installation
- Load testing
- Classification
- Marking, dimensions
- Electrical Continuity

MATERIAL:	METALLIC:
Flame spreading resistance:	Non Flame Spreading
Electrical Conductivity Characteristics	With Conductivity
Electrical Continuity Characteristics	With Continuity

SFSP products meet electrical continuity requirement: Resistance ≤ 5 milli Ohm/mm
without couplers
Resistance ≤ 50 milli Ohm with splice plate

Splice Plate

The system components are designed to withstand. The stress likely to occur during recommended transport and storage. Cable tray system and cable ladder systems according to IEC are not intended to be used for human support.

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 EN 10327 and EN 10326
4	Pre-galvanised to grade 350 to EN 10327 and EN 10326
5	Post-galvanised tp a zinc mean coating thickness (minimum) of 45 µm according to ISO 1461 for zinc thickness only
6	Post-galvanised tp a zinc mean coating thickness (minimum) of 55 µm according to ISO 1461 for zinc thickness only
7	Post-galvanised tp a zinc mean coating thickness (minimum) of 70 µm according to ISO 1461 for zinc thickness only
8	Post-galvanised tp a zinc mean coating thickness (minimum) of 85 µm according to ISO 1461 for zinc thickness only (usually high silicon steel)
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 - 4301 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 2 Minimum temperature for the system component as given in table 2

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

Table 3 Maximum temperature for the system component as given in table 3

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

Table 4

Perforation base area Classification	
Classification	Perforation in the base area
A	up to 2%
B	over 2 % and up to 15 %
C	over 15 % and up to 30 %
D	More than 30 %

NOTE Classification D relates to IEC 60364 - 5 - 52, Sub clause A.52.6.2, second paragraph

Table 5

Free base area classification (Cable Ladder Length)	
Classification	Free base area
X	up to 80%
Y	over 80 % and up to 90 %
Zvv	More than 90 %

NOTE Classification Z relates to IEC 60364 - 5 - 52, Sub clause A.52.6.2, third paragraph

Table 6

Zinc coating thickness of reference materials			
Class	Minimum Thickness	Minimum coating thickness as given in EN 10327 or EN 10326	Mean coating thickness (minimum) to ISO 1461
	µm	µm	µm
0a	-	-	-
1	5	-	-
2	12	-	-
3	-	15	-
4	-	19	-
5	-	-	45
6	-	-	55
7	-	-	70
8	-	-	85

As declared by the manufacturer or responsible vendor

Table 7

Salt spray test duration	
Class (as detailed in Table 1	Duration h
0	-
1	24
2	96
3	155
4	195
5	450
6	550
7	700
8	850

Technical Information According To IEC 61537 Standard

Products covered by this standard are, in normal use, passive in respect of electromagnetic influences, emission and immunity. NOTE: When products covered by this standard are installed as part of a wiring installation, the installation may emit or may be influenced by electro-magnetic signals. The degree of influence will depend on the nature of the installation within its operating environment and the apparatus connected by the wiring.

Power supply cables and signal cables can share the same cable conveyance systems (Trays, Channels, Etc.) Adequate seperation need to be provided (by distance or shielding) between power cables and signal cables. Power cables and signal cables need to be cross at right angles. In order to prevent disturbances, the minimum seperation between power cables and signal cables depends on many factors, such as following:

a) The level of immunity from the various electromagnetic interferance (surges, overcurrents, lighting impulses, ring waves, continuous waves, ect.) of the equipment connected to the signal cabling system.
b) The connection of the equipment to the grounding system.
c) The local electromagnetic environment (the simultaneous appearance of disturbances: for example, harmonics added to discharges and to continuous waves).
d) The electromagnetic spectrum.
e) The distances that the cables run parallel to each other (the coupling zone).
f) The kind of cable.
g) Cable attenuation against coupling.
h) The quality of the connections between the connectors and the cable.
f) The type of cable conveyance system and its accessories.

Seperation between signal cabling and power cabling

Type of installation	Distance		
	Without a dividing wall or with a non metal divider [1]	Aluminum divider	Steel divider
Unshielded power cable and Unshielded signal cable	200 mm	100 mm	50 mm
Unshielded power cable and shielded signal cable [2]	50 mm	20 mm	5 mm
shielded power cable and Unshielded signal cable	30 mm	10 mm	2 mm
shielded power cable and shielded signal cable	0 mm	0 mm	0 mm

1) It is assumed that in the event of a metal divider, the design of the cable conveyance system will provide shielding attenuation that is approximate to the material used in the divider.
2) Shielded signal cables have to be comply with the EN 50288 series.

Metal systems for cable conveyance: trays, channels, etc.

Metal systems for cable conveyance should always be connected to the local ground at both ends. Over long distances (more than 50 m), additional connections to the ground systems are recommended at irregular intervals. All ground should be a short as possible.

Ground and equipotentiel connections

Overview, the basic purposes of connection and grounding applicable to unshielded and shielded wiring systems are as follow:

- **Safety:** to limit contact voltage and provide a return path in the event of a fault to ground;
- **EMC:** to have zero potential and equipotentiality, which provide a shielding effect.

1. Terms and definition:

1.1 Cable tray system or cable ladder tray system assembly of cable supports consisting of cable tray lengths or cable ladder lengths and other systems components.

1.2 System Component

Parts used with in the system components are as follows:
a) Cable tray length or cable ladder tray length
b) Cable tray fitting or cable ladder tray fitting
c) Support device
d) Mounting device
e) System accessory

1.3 Fitting System component used to join, change direction, change dimension or terminate cable tray length (couplers, bends, tees, crosses).
1.4 Support device System component designed to provide mechanical support and which may limit movement of cable runway.
1.5 Mounting device System component used to attach or fix other devices to the cable runway.
1.6 Internal fixing device Device for joining and for fixing system components to other system components.
1.7 External fixing device Device used for fixing a support device to walls, ceiling or other structural parts.

2. Mechanical properties:

2.1 Mechanical strength: SFSP cable tray systems and cable ladder tray systems provide adequate mechanical strength.
The SWL (safe working load) has been tested .The load has been increased to 1.7 times the SWL (according to IEC).

3. Electrical properties:

3.1 Electrical continuity

Cable tray system and cable ladder tray systems have adequate electrical continuity to ensure equipotential bonding and connections to earth.

3.2 Electrical non-conductivity

Cable tray system components and cable ladder tray system components have been declared electrically non conductive.
An overall accuracy of surface resistance has been guarantee: surface resistivity= Rx X p/g
ъ= surface resistivity in Ohm, Rx = Measured surface Resistance, P = twice the width of cable tray (mm), g = Distance between electrodes in mm.

All necessary information for a proper and safe installation and use of the cable tray system and cable ladder system has been provided.
The safe working load and impact resistance is valid for the whole temperature declared.
The information include:
a) Instructions for the assembly and installation of system components and for the precautions required to avoid excessive transverse deflection which could cause damage to the cables.

Transverse deflection:
Vertical deflection across the width of the base area, omitting the longitudinal deflection, when mounted horizontally.
The transverse deflection of each span at the safe working load shall not exceed 1/20th of the cantilever.

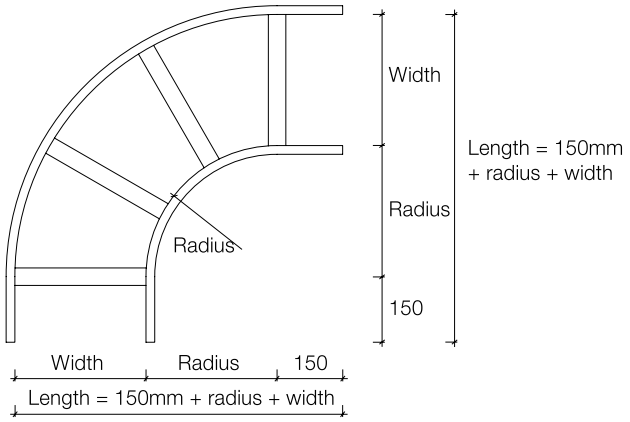
Mid-Span deflection:
The practical mid-span deflection as SWL shall not exceed 1/100th of the span.
If the span is greater than the cable tray length or cable ladder the joint shall be placed at min span.

Cable Ladder Systems

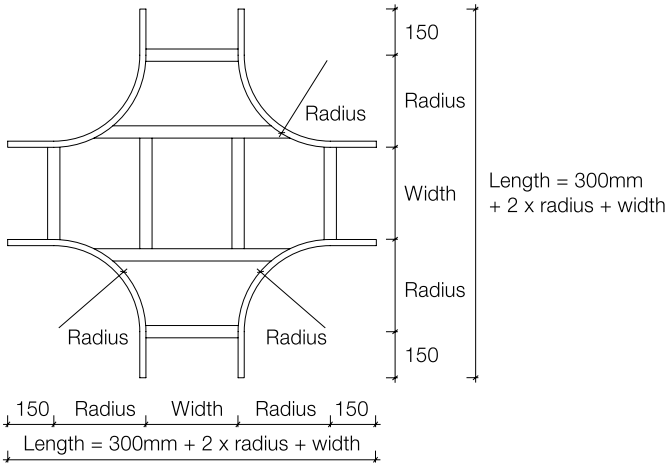
Product footprint

Cable ladder tray – accessory foot print standard radius is 300 mm.

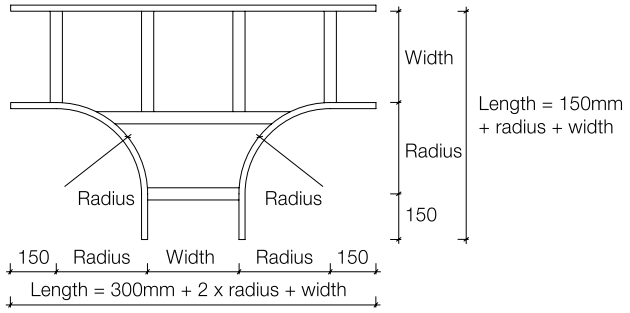
90 Degree Flat Bend



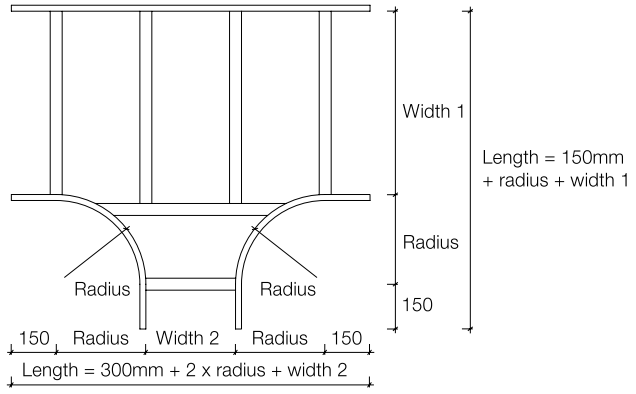
Crossover



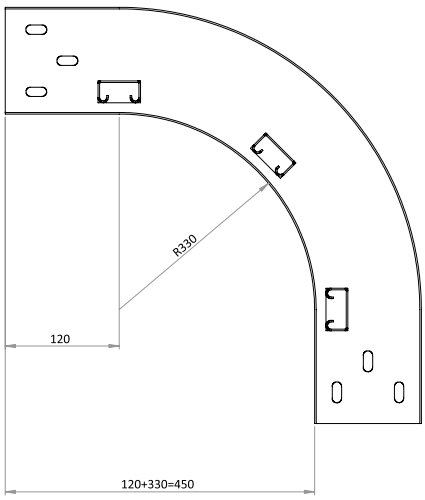
Equal Tee



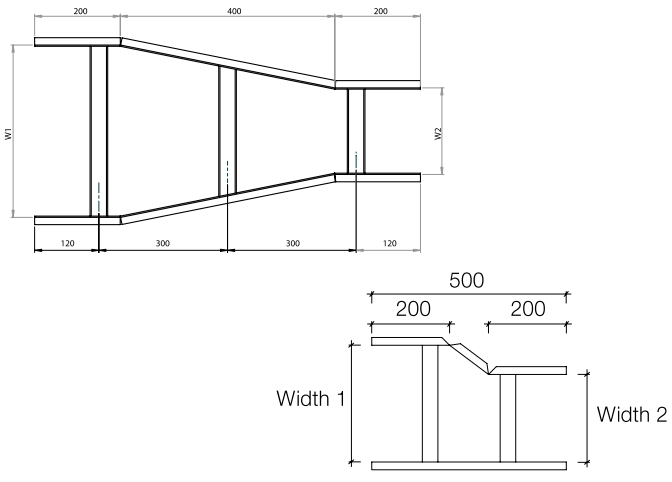
Unequal Tee



Outside Riser



Central, right, or left hand reducer



NEMA VE1 / Selection Process

The following factors shall be considered when determining the appropriate Cable Trays Systems:

- Materials and Finishes
- Types of Cable Trays
- NEMA Classification
- NEMA Classes
- Cavity Size – Load Depth/Width of Tray

NEMA Classification

The National Electrical Manufacturers Association (NEMA VE-1) USA, classifications for Cable Trays were established to simplify and standardize the specifications of Cable Trays. This classification is based on the working load (the total weight of the cables), and the support span (the distance between supports).

Cable Load/Working Load

The Cable load or the working load is the total weight of the cables to be placed in the tray.
The NEMA classes are based on cable loads of 50Lbs/Ft., (74 kg/m), 75Lbs/Ft. (112 kg/m), and 100Lbs/Ft. (149 kg/m) .
This is the total weight of cables in the tray.
For purposes of selecting a suitable tray, this weight shall be rounded off to the next higher NEMA working (allowable) load.

Support Spans

Support span is the distance between the supports.
The NEMA standard support spans are based on 8' (2.4m), 12' (3.7m), 16' (4.9m) and 20' (6.0m).

NEMA Classes

The following table summarizes the NEMA classes based on cable/working load and support span described previously.

Table 1

NEMA Load/Span Designations

Class Designation	Support Span Feet		Working Load	
	Feet	m	Lbs./Ft.	Kg/m
8A	8	2.4	50	74
8B	8	2.4	75	112
8C	8	2.4	100	149
12A	12	3.7	50	74
12B	12	3.7	75	112
12C	12	3.7	100	149
16A	16	4.9	50	74
16B	16	4.9	75	112
16C	16	4.9	100	149
20A	20	6.0	50	74
20B	20	6.0	75	112
20C	20	6.0	100	149
D	20	6.0	45	67

NEMA Classes

Other Loading Considerations

Destruction Load Capacity

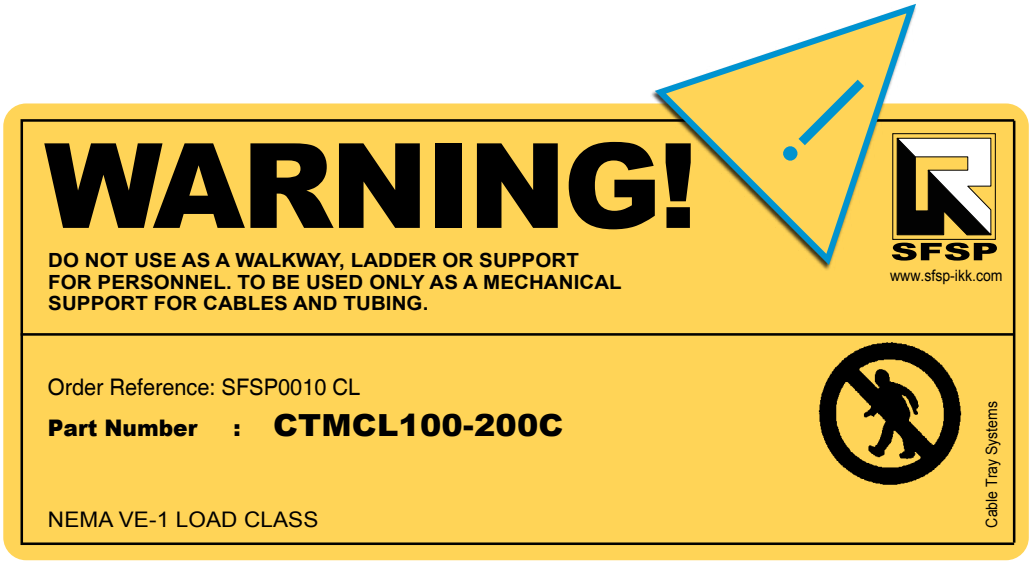
The total weight in the tray which causes the tray to collapse, is called the "destruction load capacity". When trays do collapse, they generally do so by premature lateral buckling (compression) of the top flange.

Concentrated Loads

A concentrated load is a static weight applied between the side rails at mid span. When specified, these concentrated static loads may be converted to an equivalent uniform load (We), in pounds per linear foot or Kg/m, using the following formula:

$$We = \frac{2 \times \text{Concentrated Load}}{\text{Support Span in mm}}$$

This load is added to the static weight of the cable before selecting the appropriate NEMA load span designation.
Please note per the NEMA VE-1 guidelines all SFSP Cable Ladder Trays are labeled as follows:



Safety Factor

All loads stated in the selection charts have a 1.5 safety factor, in accordance with the NEMA VE-1 guidelines.
A safety factor is the reserve strength, above the actual cable loading, for which a tray system was designed.

Conversion of Safety Factor from 1.5 to 2.0

The loads stated in the selection charts have a safety factor of 1.5 per the NEMA VE-1 guidelines. To convert the load carrying capabilities, as listed in these charts, to a 2.0 safety factor, multiply the stated loads by 0.75.

Testing Methods

Loading data stated in the catalogue have been derived from actual testing of the tray systems, or by means of structural calculations. These figures are based on simple beam calculation, per the NEMA VE-1 guidelines.

When tray is supported as a simple beam, the load causes bending moments all along the beam resulting in deflection, called sag, inducing stress in the beam. The material above the longitudinal center line (neutral axis) is compressed.

Material below, is stretched and is in tension. The maximum stress in a simple beam is at the center of the span. Failure of Cable Trays will occur in compression before tension. This is why tray rails often have stiffened top flanges.

A simple beam is present when a single straight section of tray is supported on each end. When a series of straight sections are connected and supported by more than one support it is referred to as a continuous beam.

The NEMA VE-1 standards consider only a simple beam for testing purposes, due to the following reasons:

1. It requires maximum properties for a given load and support spacing.
2. It is the easiest when it comes to approximation by calculation.
3. It represents the most severe or worst case loading.
4. Destruction load capacities can be easily verified.

Deflection vs. Economy

Cable Ladder Trays meet all performance and dimensional criteria with safety factor. When deflection limitations are imposed, a less economical tray system may result. If deflection is a concern, **SFSP** recommends these maximum limits for the optimum design.

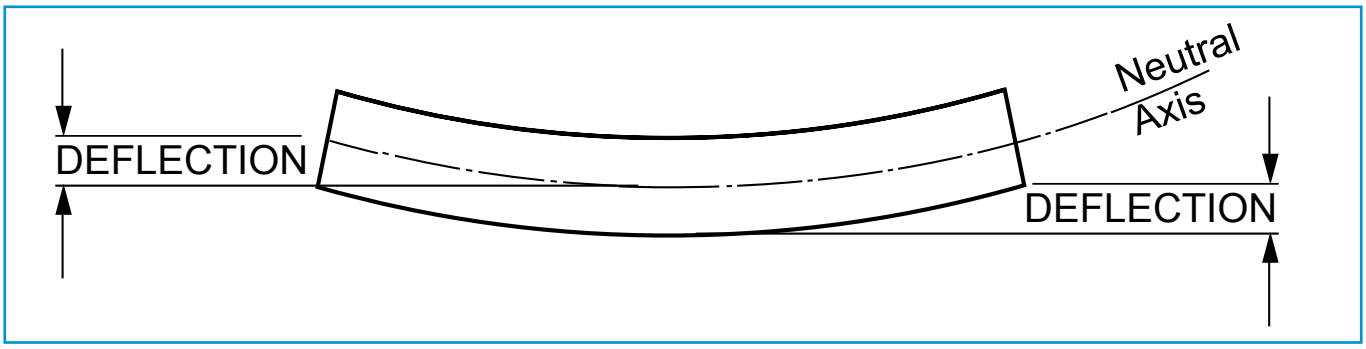


Table 2

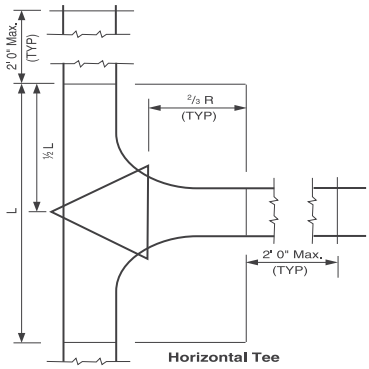
	Simple Beam Span	
	(m 3.60) '12	(m 6.00) '20
STEEL	1/100	1/75
ALUMINUM	1/75	1/50

Continuous beams (such as installed tray) deflect approximately as much as 1/2 of Welded Cable Ladder Trays of simple beams.

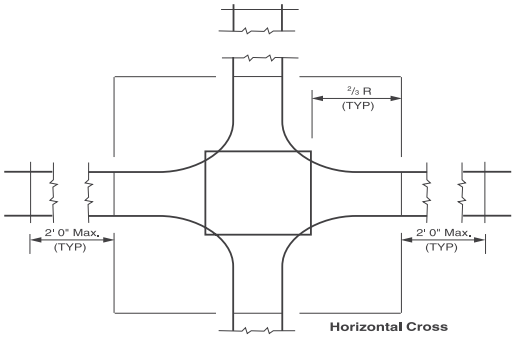
Cavity Size – Load Depth/Width Of Tray

Select the Fittings

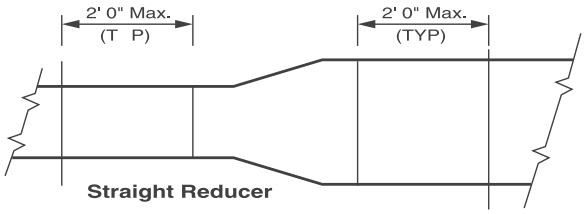
Fittings are used to change the size or direction of the Cable Ladder Trays. The most important decision to be made in fitting design concerns radius. The radius of the bend, whether horizontal or vertical, can be 305mm, 607mm, 914mm and 1219 mm, or even greater on a custom basis. The selection requires a compromise with the considerations being available space, minimum bending radius of cables, ease of cable pulling, and cost. The typical radius is 607mm. When a standard angle will not work, field fittings or adjustable elbows can be used. It may be necessary to add supports to the tray at these points. Refer to NEMA VE2 Installation Guidelines for suggested support locations. Note that fittings are not subject to NEMA/CSA load ratings.



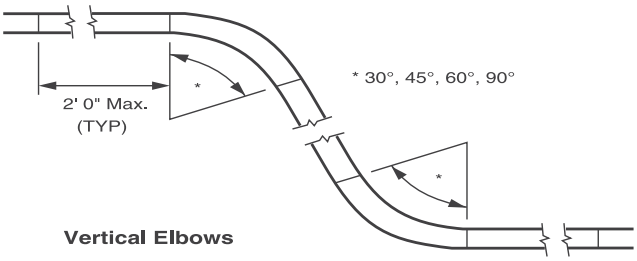
Horizontal Tee



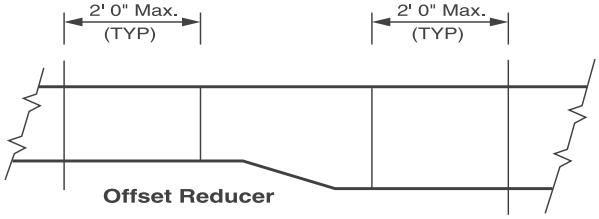
Horizontal Cross



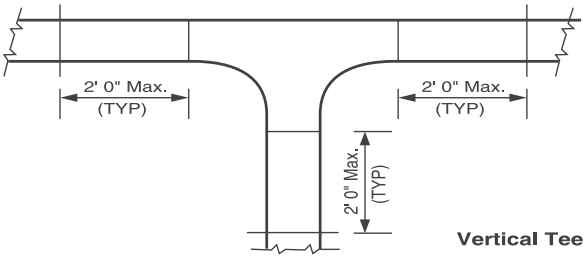
Straight Reducer



Vertical Elbows



Offset Reducer



Vertical Tee

Location of Couplings

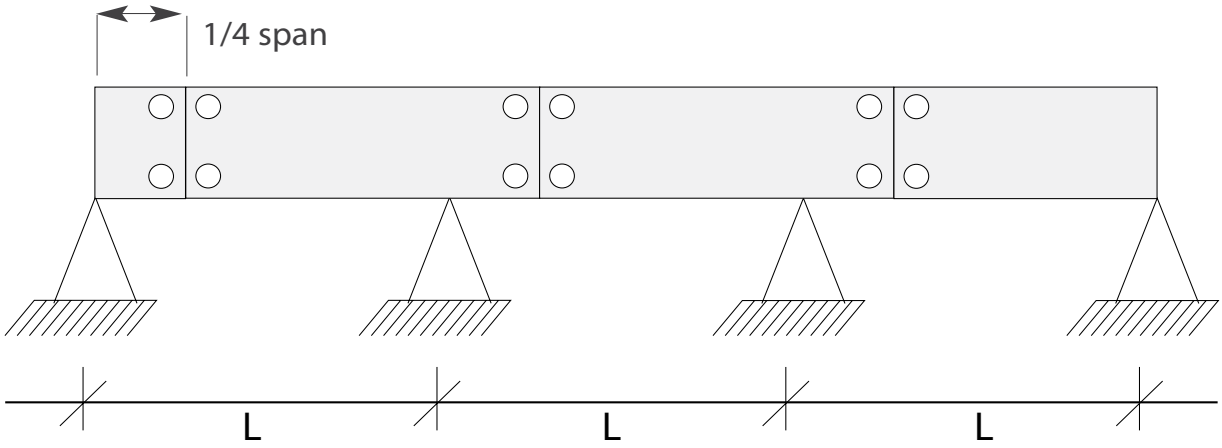
Since different bending moments are created in each span, there is no simple factor to approximate deflection as the number of spans increases. It is possible to calculate these deflections at any given point by using second integration of the basic differential equation for beams. Testing shows that the center span of a three-tray continuous beam can deflect less than 10 % of its simple beam deflection.

Couplers at 1/4 from Support Span

The support span cant be greater than the straight section length, to ensure no more than one splice is located between supports.

Location of Couplers. The location of the coupler dramatically affects the deflection of a Cable Ladder Trays System under equal loading conditions. Testing indicates that the maximum deflection of the center span of a three-span tray run can decrease four times if the couplers are moved from one-quarter span to above the supports. This can be a major concern for designers considering modular systems for tray and pipe racks.

Support Locations for Fittings



Lengths of Straight Sections

Cable Ladder Trays are available in 12'(3.7m) and 24'(7.4m) lengths in accordance with the NEMA Standards.
Customized lengths are also available upon request.
The following factors need to be considered when specifying the lengths of the trays:

Support Span

- The support span shall not be greater than the tray length. This ensures that the two splice plate connections will not fall within one support span.

Space Constraints

- When installing trays in a limited space, as often encountered in commercial applications, 10' (3.0m) and 12' (3.7m) lengths of tray are easier to handle and therefore are better suited for those applications.

Labor Costs

- Where trays are being installed in an industrial facility, where space is not a significant issue, handling 20' (6.1m) and 24' (7.4m) lengths may be more economical. In this instance, half as many tray connections need to be made.

Additionally, if the proper tray system is specified, support spans may be lengthened.

Radius of Fittings

Cable Ladder Tray fittings are used to change directions both horizontally and vertically.

The standard radii for Cable Ladder Tray fittings are 12"(305mm), 24"(610mm), and 36"(915mm).

The radii of the fittings shall be based upon minimum bending radius of the cables.

This information can be obtained from the cable manufacturer.

Based on the total number of cables to be placed in the tray it may be more practical to use the next higher radius.

Cable Ladder Tray Support Positions

Straight Sections

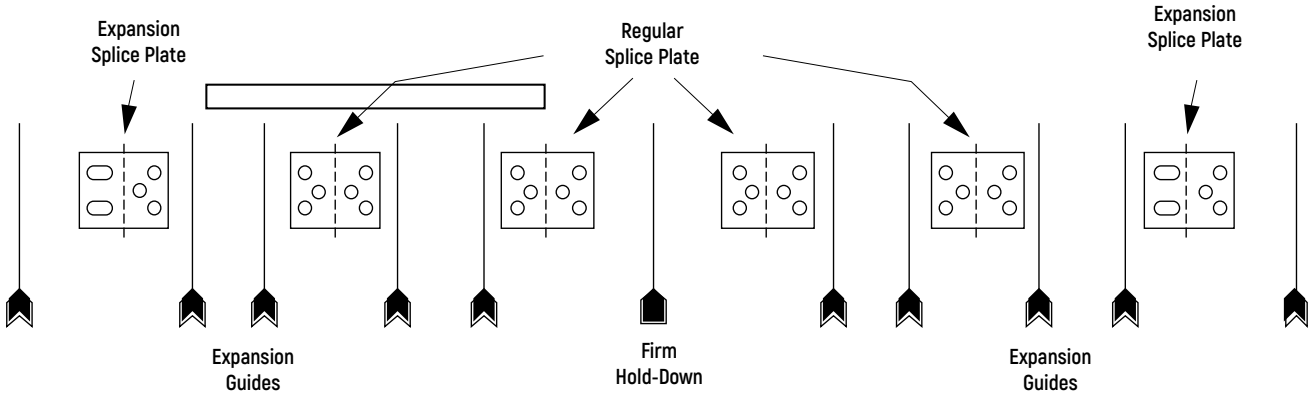
A general rule of thumb is that the splice plates shall not fall beyond the 1/4 point of the span, or the distance between supports. For example: On a 20 (6.1m) support span, the splice plates shall not be further than 5' (1.5m) away from the support location. Under no circumstances shall two Cable Ladder Tray splices fall between any pair of supports. For special applications, mid-span splice plates can be furnished. Please contact the factory.

Fittings

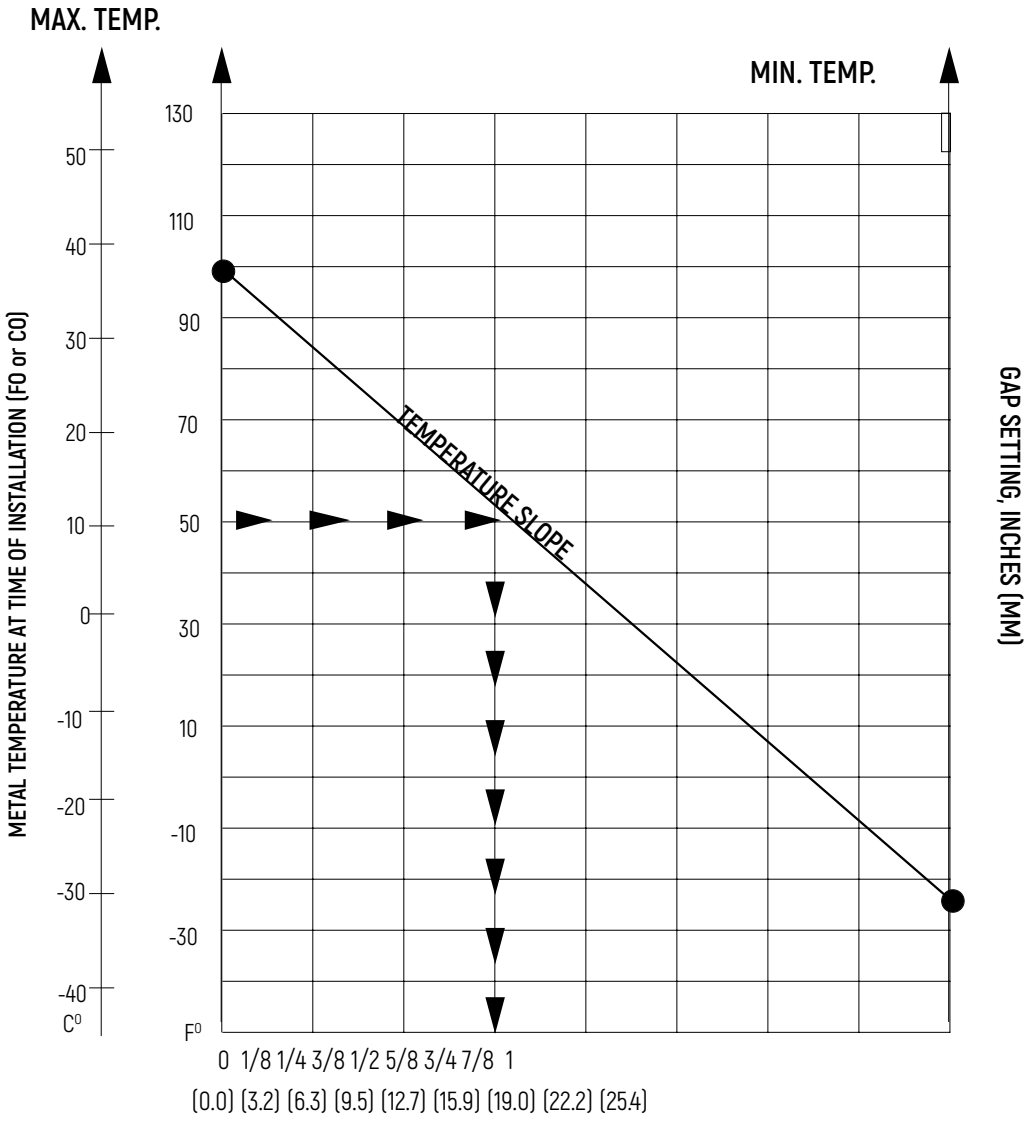
Supports for Cable Ladder Tray elbows are critical. It is important to note that the Cable Ladder Tray will come under its greatest stress when cables are being pulled into the tray. Therefore, proper placement of supports is necessary to ensure that the integrity of the tray system is maintained during the cable pulling operation.
The diagrams on page 2-10 show the recommended support locations for fittings.

Thermal Expansion and Contraction

It is important to use expansion connectors when installing long runs of Cable Ladder Trays. The number of expansion connectors required will depend on:
(1) the maximum temperature difference
(2) the tray material being installed
Expansion Connectors allow 1" (2.5cm) of travel. This table illustrates how often expansion splice plates shall be used.



The below mentioned table is used to determine the proper gap setting between trays. The metal temperature determines the proper gap setting at the time of installation. Establish maximum and minimum temperatures in summer and winter for the area. Draw a line connecting them.
Using the metal temperature at time of installation (C° or F°) draw a horizontal to temperature slope and plot straight down to find the gap distance at expansion joint.
This diagram illustrates the proper installation of an expansion system. It is important to note that Cable Ladder Trays grounding straps are required when expansion connections are made. This will ensure proper grounding continuity.



Temperature Difference		Distance between Expansion Joints					
		Steel		Aluminum		Copper	
25°F	(14°C)	512'	(156m)	260'	(79m)	363'	(111m)
50°F	(28°C)	256'	(78m)	130'	(40m)	182'	(55m)
75°F	(42°C)	171'	(52m)	87'	(27m)	121'	(37m)
100°F	(56°C)	128'	(39m)	65'	(20m)	90'	(27m)
125°F	(70°C)	102'	(31m)	52'	(16m)	72'	(22m)
150°F	(83°C)	85'	(26m)	43'	(13m)	60'	(18m)
175°F	(97°C)	73'	(22m)	37'	(11m)	52'	(16m)

Table 3

Electrical Grounding

NEC (ANSI / NFPA 70), Article 318-7 allows for Cable Trays to be used as an equipment grounding conductor in commercial and industrial establishments. The following table lists specific ampere ratings and the minimum cross sectional area requirements for each rating.

SFSP produces Cable Tray Systems which meet the National Electrical Code (ANSI/NFPA 70), these can be used for any project worldwide except where another standard may take precedence, such as the Canadian Standards Association (CSA).

When required, Cable Trays can be installed per the Canadian Electrical Code Parts I and II (CEC). Trays and splice plates meet the bonding requirements of the CSA Standards and the CEC.

The cross-sectional area for each Cable Trays System, straight sections and fittings can be found on the appropriate selection charts contained within this publication. In addition, all Cable Trays, straight sections and fittings are supplied with pressure sensitive labels indicating the cross sectional area of both side rails, as required by the (NEC) National Electrical Code.

Table 4

Max. Fuse Amp Rating Circuit Breaker Amp Trip Setting or Relay Amp Trip Setting for Ground Fault Protection of any Cable Trays Circuit In the Cable Trays Systems	Minimum Cross Sectional Area of Metal* Steel Cable Trays		Aluminum Cable Trays	
	In^2	mm^2	In^2	mm^2
60	0.2	129	0.2	129
100	0.4	258	0.2	129
200	0.7	452	0.2	129
400	1	645	0.4	258
600	1.50**	968	0.4	258
1,000	-		0.6	387
1,200	-		1	645
1,600	-		1.5	968
2,000	-		2.00**	1,290

*Total cross sectional area of both side rails for ladder trough type trays, or the minimum cross-sectional area for metal in channel type Cable Trays or Cable Trays of one piece construction.

Bonding Jumpers / Straps

Cable Tray connections made with standard rigid splice plates, these rigid type connections do not require electrical bonding straps. Electrical bonding straps are required where Cable Trays are joined by connectors which allow movement, such as: vertical adjustable connectors, horizontal adjustable connectors and expansion connectors.

Proper grounding is also necessary where Cable Trays run parallel to each other, are stacked upon one another and in other instances where tray runs are discontinuous.

Summary

You are now ready to select the best Cable Trays System to meet your needs. By now, we hope you've decided to select the system using the NEMA CLASSIFICATION (8A, 12B, 20C, etc.) which makes your work so much easier.

Selection is also possible using physical dimensions, performance or any combination of these data listed NEMA oriented.

Cable Specifications

Most cable manufacturers offer a very accurate method of calculating cable weights, and appropriates lists or tables can be obtained from them.

Important: The tables only provide a rough overview. They are average values, which may vary from manufacturer to manufacturer. Please refer to the manufacturer's specifications for the exact values.

Actual cable weights of different cable types

Insulated power cables		Insulated power cables				Telecommunication Cables	
Type	Cable load kg/m	Type	Cable load kg/m	Type	Cable load kg/m	Type	Cable load kg/m
1 x 4	0.08	1 x 10	0.18	4 x 50	2.3	2 x 2 x 0,6	0.03
1 x 6	0.105	1 x 16	0.24	4 x 70	3.1	4 x 2 x 0,6	0.035
1 x 10	0.155	1 x 25	0.35	4 x 95	4.2	6 x 2 x 0,6	0.05
1 x 16	0.23	1 x 35	0.46	4 x 120	5.2	10 x 2 x 0,6	0.065
1 x 25	0.33	1 x 50	0.6	4 x 150	6.4	20 x 2 x 0,6	0.11
3 x 1.5	0.135	1 x 70	0.8	4 x 185	8.05	40 x 2 x 0,6	0.2
3 x 2.5	0.19	1 x 95	1.1	4 x 240	11	60 x 2 x 0,6	0.275
3 x 4	0.265	1 x 120	1.35	5 x 1,5	0.27	100 x 2 x 0,6	0.445
4 x 1.5	0.16	1 x 150	1.65	5 x 2,5	0.35	200 x 2 x 0,6	0.87
4 x 2.5	0.23	1 x 185	2	5 x 6	0.61	2 x 2 x 0,8	0.04
4 x 4	0.33	1 x 240	2.6	5 x 10	0.55	4 x 2 x 0,8	0.055
4 x 6	0.46	1 x 300	3.2	5 x 16	1.25	6 x 2 x 0,8	0.08
4 x 10	0.69	3 x 1,5	0.19	5 x 25	1.95	10 x 2 x 0,8	0.115
4 x 16	1.09	3 x 2,5	0.24	5 x 35	2.4	20 x 2 x 0,8	0.205
4 x 25	1.64	3 x 10	0.58	5 x 50	3.5	40 x 2 x 0,8	0.38
4 x 35	2.09	3 x 16	0.81			60 x 2 x 0,8	0.54
5 x 5.1	0.19	3 x 50	1.8			100 x 2 x 0,8	0.875
5 x 2.5	0.27	3 x 70	2.4			200 x 2 x 0,8	1.79
5 x 4	0.41	3 x 120	4				
5 x 6	0.54	4 x 1,5	0.22				
5 x 10	0.85	4 x 2,5	0.29				
5 x 16	1.35	4 x 6	0.4				
5 x 25	1.99	4 x 16	1.05				
7 x 1.5	0.24	4 x 25	1.6				
7 x 2.5	0.35	4 x 35	1.75				

IT cables type cat		Coax cable (Standard)	
Type	Cable load kg/m	Type	Cable load kg/m
Cat. 5/Cat. 6	0.06	SAT/BK cable	0.06

External diameter and cross section

Insulated power cables		
Type	Ø mm	Useful cross-section cm^2
1 x 4	6.50	0.42
1 x 6	7.00	0.49
1 x 10	8.00	0.64
1 x 16	9.50	0.90
1 x 25	12.50	1.56
3 x 1.5	8.50	0.72
3 x 2.5	9.50	0.90
3 x 4	11.00	1.21
4 x 1.5	9.00	0.81
4 x 2.5	10.50	1.10
4 x 4	2.50	1.54
4 x 6	13.50	1.82
4 x 10	16.50	2.72
4 x 16	19.00	3.61
4 x 25	23.50	5.52
4 x 35	26.00	6.76
5 x 5.1	9.50	0.90
5 x 2.5	11.00	1.21
5 x 4	13.50	1.82
5 x 6	14.50	2.10
5 x 10	18.00	3.24
5 x 16	21.50	4.62
5 x 25	26.00	6.76
7 x 1.5	10.50	1.10
7 x 2.5	13.00	1.69

Insulated power cables		
Type	Ø mm	Useful cross-section cm^2
1 x 10	10.50	1.10
1 x 16	11.50	1.32
1 x 25	12.50	1.32
1 x 35	13.50	1.82
1 x 50	15.50	2.40
1 x 70	16.50	2.72
1 x 95	18.50	3.42
1 x 120	20.50	4.20
1 x 150	22.50	5.06
1 x 185	25.00	6.25
1 x 240	28.00	7.84
1 x 300	30.00	9.00
3 x 1,5	11.50	1.32
3 x 2,5	12.50	1.56
3 x 10	17.50	3.06
3 x 16	19.50	3.80
3 x 50	26.00	6.76
3 x 70	30.00	9.00
3 x 120	36.00	12.96
4 x 1,5	12.50	1.56
5 x 2,5	13.50	1.82
4 x 6	16.50	2.72
4 x 10	18.50	3.42
4 x 16	21.50	4.62
4 x 25	25.50	6.50
4 x 35	28.00	7.84
4 x 50	30.00	9.00
4 x 70	34.00	11.56
4 x 95	39.00	15.21
4 x 120	42.00	17.64
4 x 150	47.00	22.00
4 x 185	52.00	27.00
4 x 240	58.00	33.60
5 x 1,5	13.50	1.82
5 x 2,5	14.50	2.10
5 x 6	18.50	3.42
5 x 10	20.50	4.20
5 x 16	22.50	5.06
5 x 25	27.50	7.65
5 x 35	34.00	11.56
5 x 50	40.00	16.00

Telecommunication Cables		
Type	Ø mm	Useful cross-section cm^2
2 x 2 x 0,6	5.00	0.25
4 x 2 x 0,6	5.60	0.30
6 x 2 x 0,6	6.50	0.42
10 x 2 x 0,6	7.50	0.56
20 x 2 x 0,6	9.00	0.81
40 x 2 x 0,6	11.00	1.12
60 x 2 x 0,6	13.00	1.69
100 x 2 x 0,6	17.00	2.89
200 x 2 x 0,6	23.00	5.29
2 x 2 x 0,8	6.00	0.36
4 x 2 x 0,8	7.00	0.49
6 x 2 x 0,8	8.50	0.72
10 x 2 x 0,8	9.50	0.90
20 x 2 x 0,8	13.00	1.69
40 x 2 x 0,8	16.50	2.72
60 x 2 x 0,8	20.00	4.00
100 x 2 x 0,8	25.50	6.50
200 x 2 x 0,8	32.00	10.24

The choice is made under consideration of:
1- The number of cable to be passed in a Cable Tray (Load carrying capacity of the tray).
2- The load of cable to be passed in a cable tray and support distance.

Cable Capacity

For the estimation of cable area, the table shown below is used to help.

Table 1

Space needed for cable to type NYY for example:

Cable	Diameter	Area per cable x Number of cable	Usable area
NYY	mm	cm^2	cm^2
4 x 1,5	12,5	1,5 x 1	1,5
4 x 2,5	14,0	1,8 x 1	1,8
4 x 6,0	16,5	3,0 x 1	3,0
4 x 16	22	5,0 x 1	5,0
4 x 35	31	12,0 x 1	12,0
4 x 70	41	16,0 x 1	16,0
			A ≥ Σ 39,30 cm^2

For cables of any size the area per cable is multiplied with the number of cables , whereas the sum(A) is the total area of the cables. The result is the needed cross section area of the Cable Tray .

Example

For the cable shown in table 1 (using 1 cable of each type) we need min. a Cable tray of 40.0 cm^2 .

Table 2

Weight of cables type NYY (Power Cable)

Cable	Cable weight	x	Number of	=	Total weight	
NYY	N/m		Cables (variable)		N/m	
4 x 1,5	1,6	x	1	=	1,6	Cable Load F = Σ 71,3 N/m
4 x 2,5	2,3	x	1	=	2,3	
4 x 6,0	4,6	x	1	=	4,6	
4 x 16	10,9	x	1	=	10,9	
4 x 35	20,9	x	1	=	20,9	
4 x 70	31,0	x	1	=	31,0	

Cable Weight

To determine the total weight, each cable weight is multiplied with the its number. The result is the estimated cable load (F).
The highest possible cable load is decisive. This is calculated by multiplication of the usable diameter with the specific cable weight.

According to DIN VDE 0639

Type of Cable Support	Cable	Specific Cable weight
Cable Ladder	Control line cables	Usable section x 2,8N/m x cm^2
Cable Tray	Voltage line cables	Usable sectionx1,5 N/m x cm^2

In order to choose construction pieced of sufficient weight load ability, the load of each Cable Tray or Cable Ladder at the support point has to be determined.

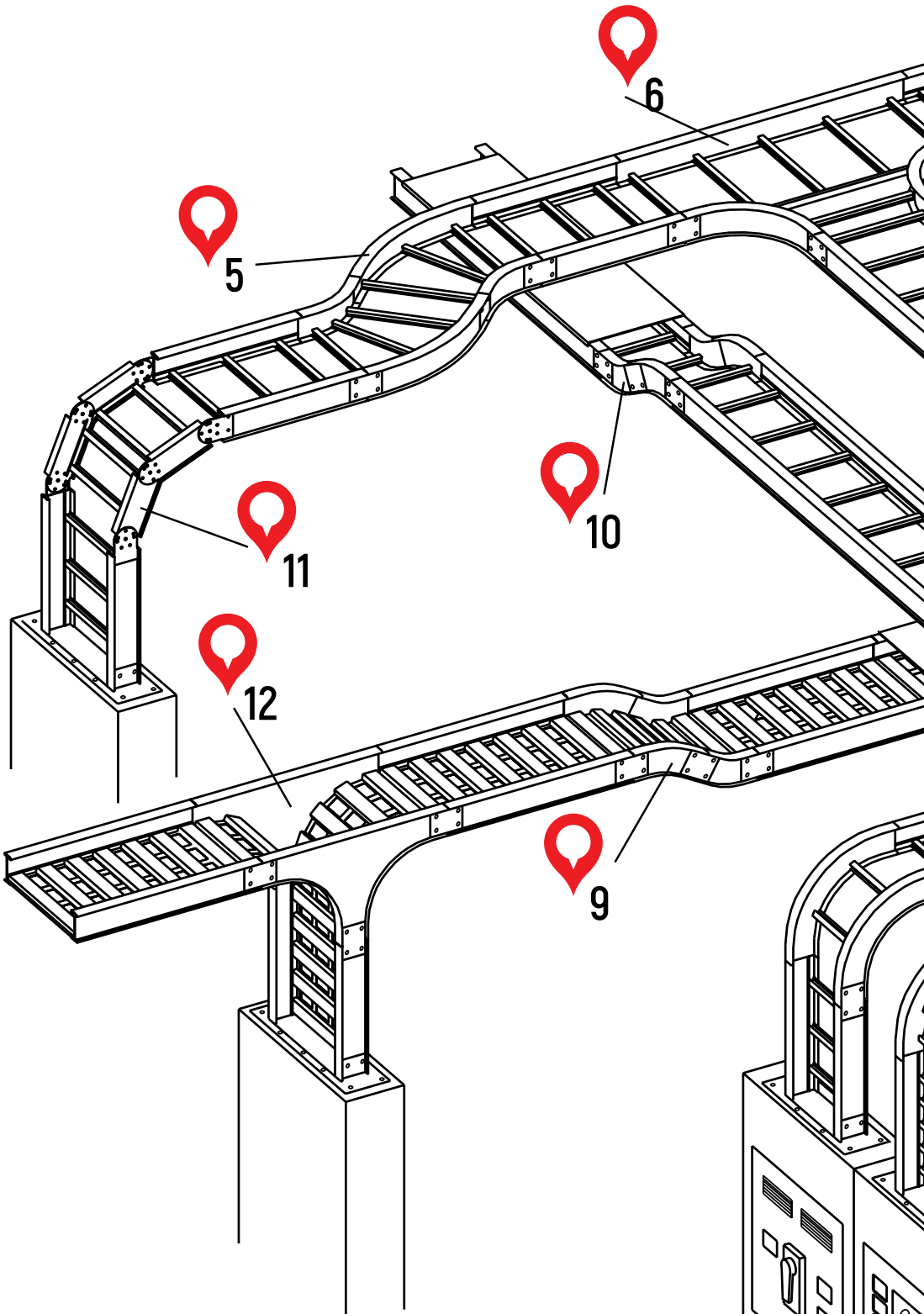
Supporting structures

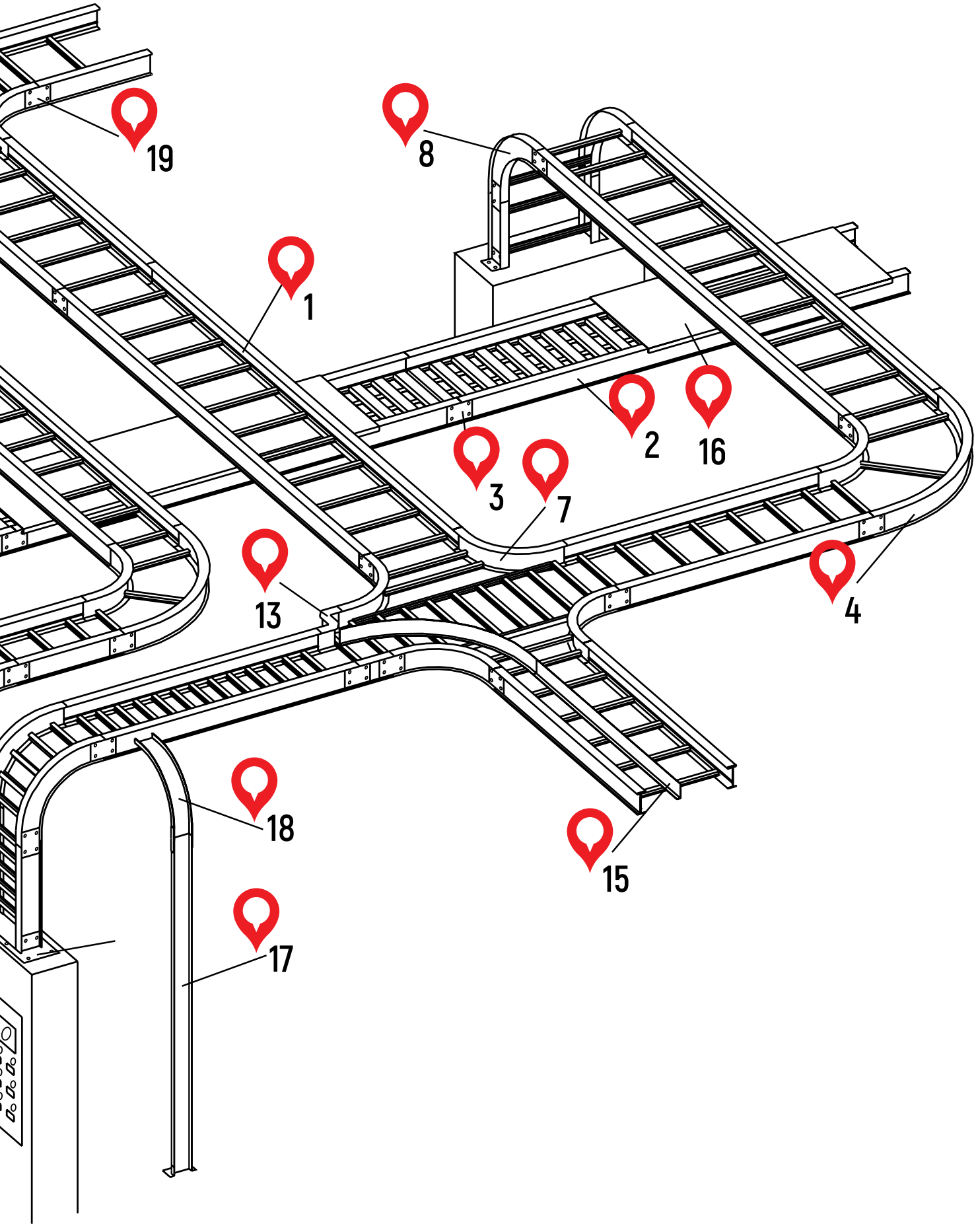
The supporting structures for Cable Tray or Cable Ladder contain
a) On walls: bracket support or wall bracket
b) On ceiling: ceiling bracket support

Cable Ladder Trays System Design

Nomenclature

1. Cable Ladder Trays
2. Ventilated Cable Ladder Trays
3. Joint Plate / Fish Plate
4. 90°Horizontal Bend
5. 45°Horizontal Bend
6. Horizontal Tee
7. Horizontal Cross
8. 90°Vertical Outside Bend
9. 45°Vertical Outside Bend
10. 45°Vertical Inside Bend
11. Vertical Bend
12. Vertical Tee
13. Left Reducer
14. Frame Type Box Connector
15. Barrier Strip
16. Solid Flanged Tray Cover
17. Channel Straight Section
18. Channel Cable Ladder Trays, 90°Vertical Outside
19. Expansion Connectors

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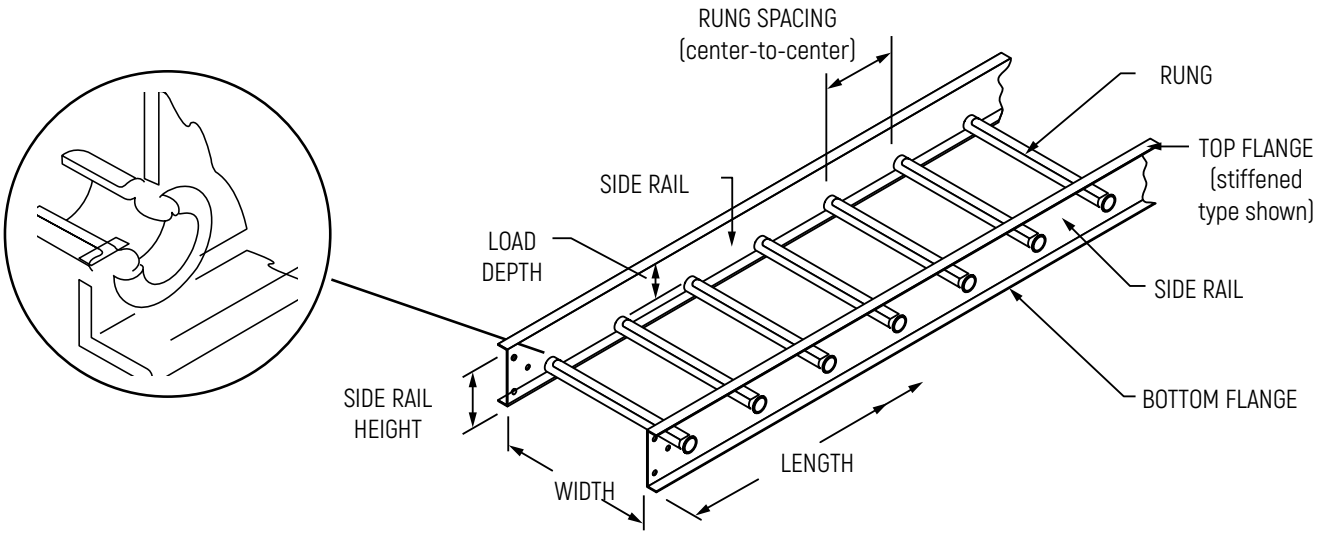
Aluminum Swaged Tubular **Cable Ladder Trays**

Is a structure consisting of two side rails, connected by individual rungs and is manufactured in accordance with NEMA Standard #VE-1. Rungs are fastened to the side members by an exclusive swaging process. This assembly method ensures a superior mechanical and electrical connection.



Side Members

- Side members are designed with top and bottom flanges turned outwards. This simplifies fastening the Cable Ladder Trays to the supports. Cable Ladder Trays with outward facing flanges allow complete access within the cable loading area and eliminate the possibility of cable damage from sharp edges within the cable area. The return on the top flange strengthens the side member and allows cables to be smoothly dropped over the side.

Rung

- Ladder rungs are 1.00"(25mm) diameter tubings flattened on top to provide a cable bearing surface.
This construction allows cables to drop out anywhere without contacting a sharp edge.

Rung Spacing

- The interval at which rungs are swaged to the side member. This is measured from center line of rung to center line of rung.

SFSP manufactures straight lengths with four standard rung spacings: 6"(150mm), 9"(229mm), 12"(305mm) and 18"(457mm).
Rung spacing is generally determined by the size and type of the cable being supported. When in doubt, 9"(229mm) rung spacing is a generally accepted compromise.

Length

- The longitudinal dimensions of standard Cable Ladder Trays are 10'(3.0m), 12'(3.7m), 20'(6.1m) and 24'(7.4m).

Width

- The transverse dimensions of Cable Ladder Trays are measured inside (from side member web to side member web) and are furnished in seven standard widths: 6"(150mm), 9"(229mm), 12"(305mm), 18"(457mm), 24"(610mm), 30"(750mm) and 36"(915mm).

Overall Width

- Overall ladder width is equal to the inside or nominal width plus the width of the side member flanges.

Load Depth

- Measured from top surface of rung to the top of the side member. This is not to be confused with the overall height.
  SFSP manufactures four loading depths: 3"(75mm), 4"(100mm), 5"(125mm) and 6"(150mm) in accordance with NEMA Standard VE-1.

Overall Height

- Overall height is equal to the loading depth plus 1.25"(30mm).

Fittings

- For changing direction horizontally and vertically, SFSP manufactures elbows, tees and crosses in all widths and loading depths. Fittings are available in three standard radii; 12"(305mm), 24"(610mm) and 36"(915mm). Maintain a nominal 9"(229mm) rung spacing through the center line of all fittings.

Swaged Rounded Tubular Cable Ladder Trays Features:

1. Universal Curvilinear Splice Plate System

The splice plates for rigid connections have a slight curve so that they can be used on straight sections or fittings. Tightening of the fastener pulls the plate flush with the side rail ,which makes the fasteners snug and the joint becomes superior structurally and electrically. Even when hand-tight, there is pressure on the fastener to hold it securely.
Note: Heavy Duty and Mid Span Splice Plates are available upon request .

2. New Zero Tangent Fittings

Tangent as referred to on Cable Ladder Trays fittings is the straight part at the end of the curve to accommodate a flat splice plate. This wastes space in tightly packed areas, such as spreader rooms, where the heat of thousands of cables accumulate.
Eliminating tangents allows more tray runs to distribute the heat. Zero tangent fittings can save up to 12' (3.7m) per row of tray.

3. Swaged Rung Cable Ladder Trays System Process

The heart of the design is the tubular rung and its connection to the side rail by cold swaging, a process where special machinery compresses and locks the tubular rung material around both the inside and outside of the Cable Trays' side rails.
This connection is made without the use of heat which can potentially disturb the molecular structure of the metal and weaken it.
The tubular rung is flattened during the swaging process to ensure a proper cable bearing surface.

Swage Advantages

- Swaging allows the side rails to be turned outwards, simplifying cable installation and providing 100% access to the cables. Cold swaging yields the most rigid tray systems in the industry. The swaged rung connection resists stresses in all directions: up or down, side to side or in and out. The swaged ladder also resists the camber and warping effects encountered in a typical welde system.

The increased rigidity means that a 24'(7.4m) section of tray can be lifted on one end with little or no twisting or bending of the tray section. This rigid construction makes the trays safer for field personnel to handle and reduces shipping damage.

Electrical Properties

- Electrically, the 106 tons of pressure in the swaging process virtually eliminates the interstices and a homogenous electrical path results in the following:
  Resistance of Aluminum Swaged Tray: 31 microhms
  Resistance of Steel Swaged Tray: 37.3 microhms
  Resistance of Popular Aluminum Welded Tray: 101 microhms

Conclusion

- Cold swaging yields a very strong, efficient and aesthetically pleasing system that stands the test of time and offers installation savings due to its ease of handling.

Steel Cable Ladder Trays

Is a prefabricated metal structure consisting of reinforced Welded Cable Ladder Trays -shaped rungs, arc welded to the side rails and is manufactured according to NEMA Standard VE-1. Welded Cable Ladder Trays' rungs are fastened to the side rails with an automatic, self-indexing MIG-arc-welding system, plug welding a 0.5"(12.5mm) diameter zone. The superior strength of the plug weld withstands the rigors of shipping, handling, erection and cable support service.

Side Members

Welded Cable Ladder Trays' side members are designed with top and bottom flanges turned inwards. This minimizes the space requirements of the Cable Trays Systems, and allows a very low side rail height for each NEMA Standard VE-1 load depth.

Slotted Rungs

Slotted shaped rungs are provided on trays 6"(150mm), 9"(229mm), 12"(305mm), 18"(457mm) and 24"(610mm) wide. All slotted rungs are 2.5"(63mm), and provide a 1.25"(30mm) cable bearing surface. Slots provide a neat, convenient option for cable tie down requirements. Slots are 5/16"(6.25mm) wide and 5/8"(12.5mm) in length, and are located on 1"(25mm) centers across the entire width of the rung

Solid Rungs

Solid shaped Rungs are provided on trays 30"(750mm) and 36"(915mm) wide. Solid Rungs for steel trays are 2.25"(58mm) wide and provide a 7/8"(22mm) cable bearing surface.

Rung Spacing

SFSP manufactures straight lengths with four standard rung spacings; 6"(150mm), 9"(229mm), 12"(305mm) and 18"(457mm). The 6"(150mm) rung spacing results in a 3.75"(94mm) opening between rungs allowing the tray to be classified as a ventilated trough per NEMA Standard VE-1.

Length

The longitudinal dimensions of standard Welded Cable Ladder Trays are 10'(3.0m), 12'(3.7m), 20'(6.1m) and 24'(7.4m).

Width

The transverse dimensions of Welded Cable Ladder Trays are measured from the inside and are furnished in seven standard widths: 6"(150mm), 9"(229mm), 12"(305mm), 18"(457mm), 24"(610mm), 30"(750mm) and 36"(915mm).

Overall Width

Overall tray width is equal to the inside or nominal width plus the thickness of the two side rail webs. Overall Tray Width = Nominal + 3/16"(5mm) Width.

Load Depth

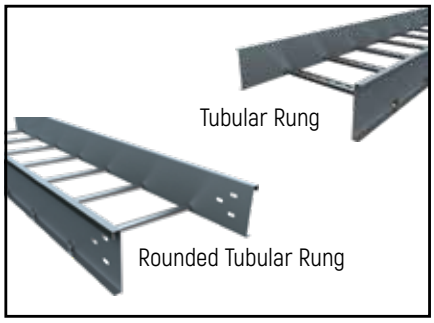
Measured from the top surface of the rungs to the top of the side member.
SFSP manufactures four load depths; 2 7/8"(73mm), 3 5/8"(101mm), 4 5/8"(127mm) and 5 5/8"(153mm) corresponding to the four nominal load depths in NEMA Standard 1"(25mm), 3"(75mm), 4"(100mm), 5" (125mm) and 6"(150mm).

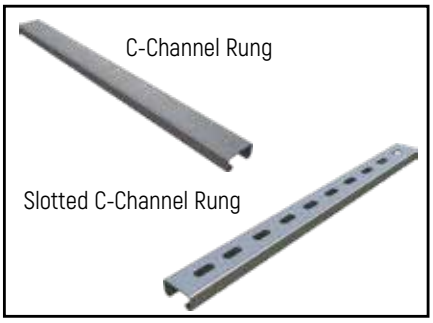
Overall Height

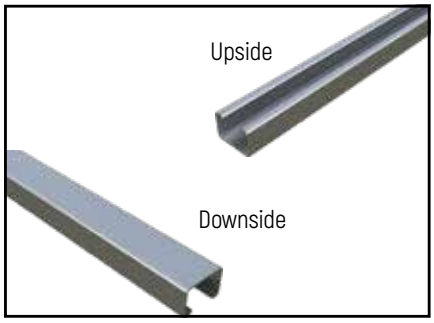
Welded Cable Ladder Trays' overall height is equal to the load depth plus 1.25"(30mm).

Fittings

For changing direction both horizontally and vertically, **SFSP** manufactures tees and crosses in all widths and load depths. Standard fittings maintain a nominal 9"(229mm) rung spacing through the center line of the fitting.







Welded Ladder Cable Tray Features:

1. Compact Economical System

Welded Cable Ladder Trays are an extremely compact economical flange in Cable Trays Systems which allow the designer to utilize these Cable Trays in tight locations. The extremely low profile Welded Cable Ladder Trays Rungs (5/8" high) minimize the required side rail height while maintaining NEMA Standard VE-1 nominal load depths. Overall system height is only 5/8" greater than the actual load depth.

2. Universal Curvilinear Splice Plate System

The splice plates for rigid connections have a slight curve so they can be used on straight sections or fittings. Tightening of the fastener pulls the plate flush with the side rail. The fasteners are snug and the joint is superior structurally and electrically. Even when hand-tight, there is pressure on the fastener to hold it securely.
Note: Heavy Duty and Mid Span Splice Plates are available upon request.

3. Zero Tangent Fittings

"Tangent" as referred to on Cable Tray fittings is the straight part at the end of the curve to accommodate a flat splice plate.
This wastes space in tightly packed areas, such as spreader rooms, where the heat of thousands of cables accumulate.
Eliminating tangents allows more tray runs to distribute the heat.

Inspection of proper installation of splice plates is done visually.
If the plate is bowed away from the rail, nuts shall be tightened.

4. Welded Assembly System

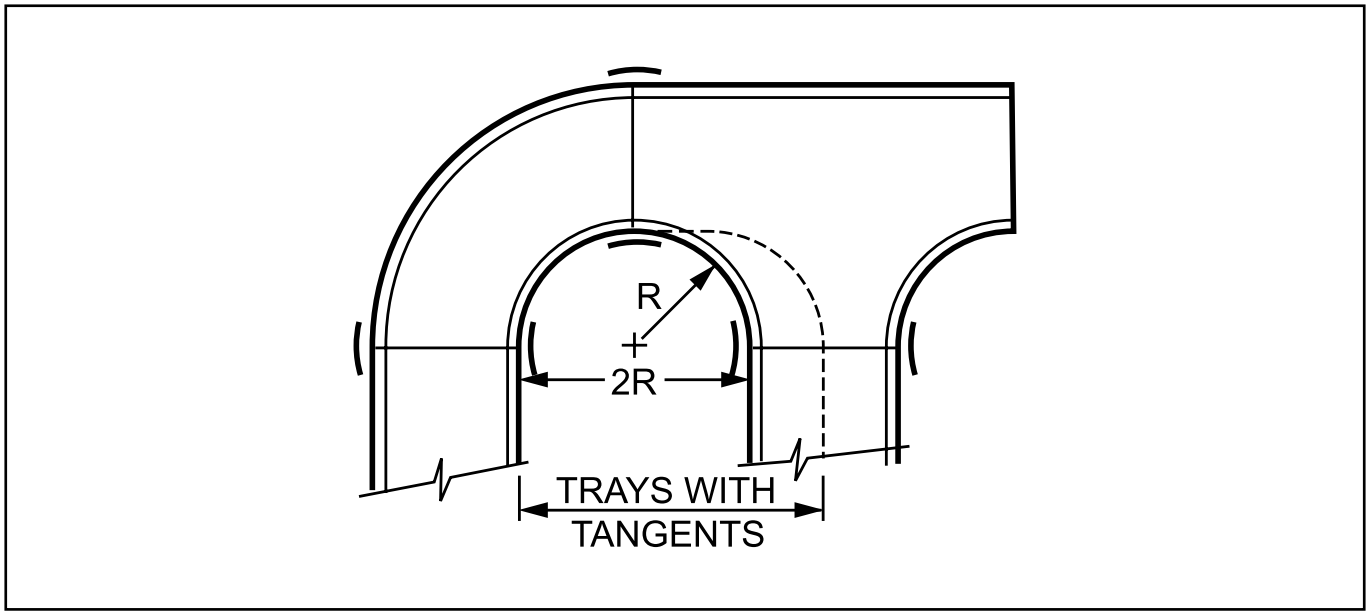
- Welded Cable Ladder Trays rungs on straight sections are assembled to the side rails using an automatic, these welds are 700% larger and stronger than the common resistance (spot) weld in use today. Electrical properties of the assembly are unequalled; are well within the NEMA requirements due to the continuous electrical path.

The mechanical strength of this welded assembly withstands the rigors of shipping, handling, erection and service.

The size of the weld keeps the vertical axis of the side rail from sloping inwards under load. The weld maintains the 90° angle between the side rail and bottom. This allows full use of the section properties. Spot welds do not permit this.

Also, stresses on spot welds (barely 1/8" (3mm) in diameter) are so severe that breakage often occurs during shipping and erection.

Welded Cable Ladder Trays fittings are also assembled by MIG-arc welding.



Cable Ladder Tray Systems Overview

SFSP's Cable Ladder Trays Systems are available in a variety of finishes, and in varying width and load depth for many applications including primary service entrances, main power feeders, branch wirings, instruments and communications cables.

Applications:

- Industrial:
Gas facilities, Oil facilities, Power Plants, Petrochemical Plants, Automotive Plants, Paper Plants, Food Processing, Power Plants, Refineries, Manufacturing, Mining.

- Commercial:
Shopping Centers, Control Buildings, Schools, Hospitals, Office Buildings, Airports, Stadiums

Features:

· Rounded side rail flanges protect cables.
· All designs permit easy cable dropout with no sharp edges to damage insulation.
· Slotted C-Channel rungs allow simple cable fastening.
· High strength splices allow random locations between supports (full sections used on all simple beams).
· Standard straight section length is 3000 mm. · Complete line of fittings and accessories.

Cable Ladder Trays consist of two longitudinal side rails connected by rungs. **SFSP** designs are very popular due to their versatility and low costs. They also provide: maximum ventilation for conductor cooling, smooth edges on side rails and rungs to protect cables and slots for easy cable fastening when required. Various rung spacings are available to provide support for most cables, from small flexible cables to the most rigid interlocked armor power cable.

Swaged Cable Ladder Trays (Aluminum)

Aluminum 6063 T6 - Side Rails

Design Data

Side Rail	Height (mm)	Load Depth Fd (mm)	Thickness (mm)	F (mm)	W cm^3	I cm^4
A1	110	80	2.0	20	8.12	46.06
A2	136	106	2.0	20	11.24	78.95
A3	162	132	2.0	20	14.78	123.85
A4	188	158	2.5	20	23.14	224.70

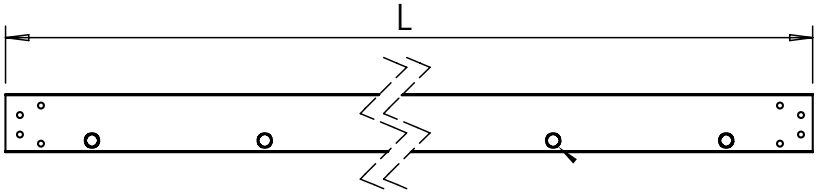
Aluminum 6063 T6 Load Classes

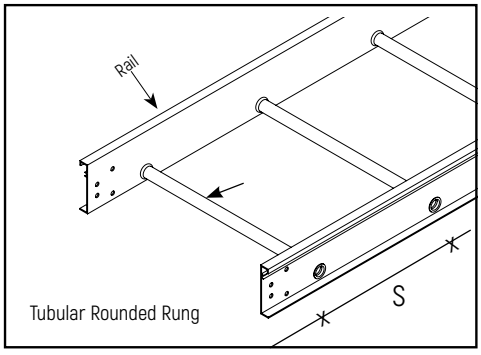
Side Rail	Load kg/m	Span (m)	Classes NEMA
A1	52	3.0	A
A2	89	3.0	C
A3	74	3.70	12A
A4	134	3.70	12B

SFSP's Swaged Cable Ladder Trays consist of 2 outside rails that are connected by a round tubular rung of 25 mm outside diameter.
· SFSP's Swaged Cable Ladder Trays are manufactured in widths (w): 150 mm, 225 mm, 300 mm, 450 mm, 500 mm, 600 mm, 750 mm and 900 mm.
Other dimensions are available upon request.

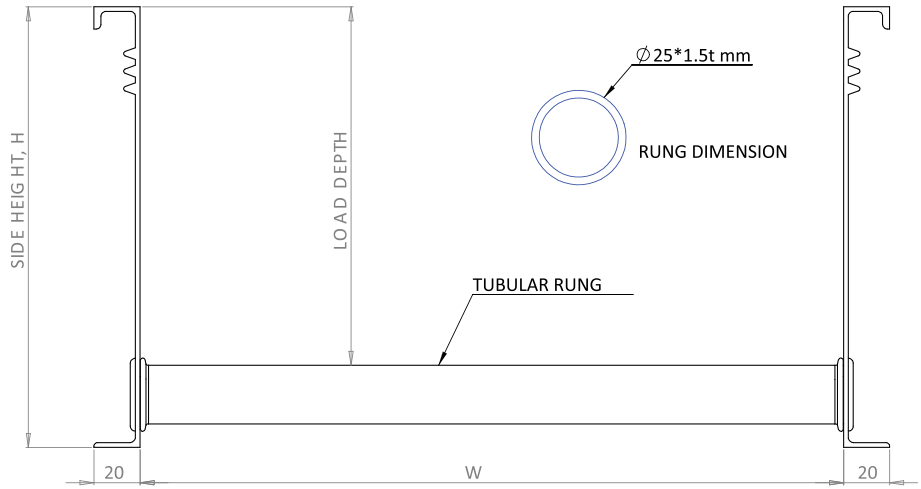
Tubular Rungs

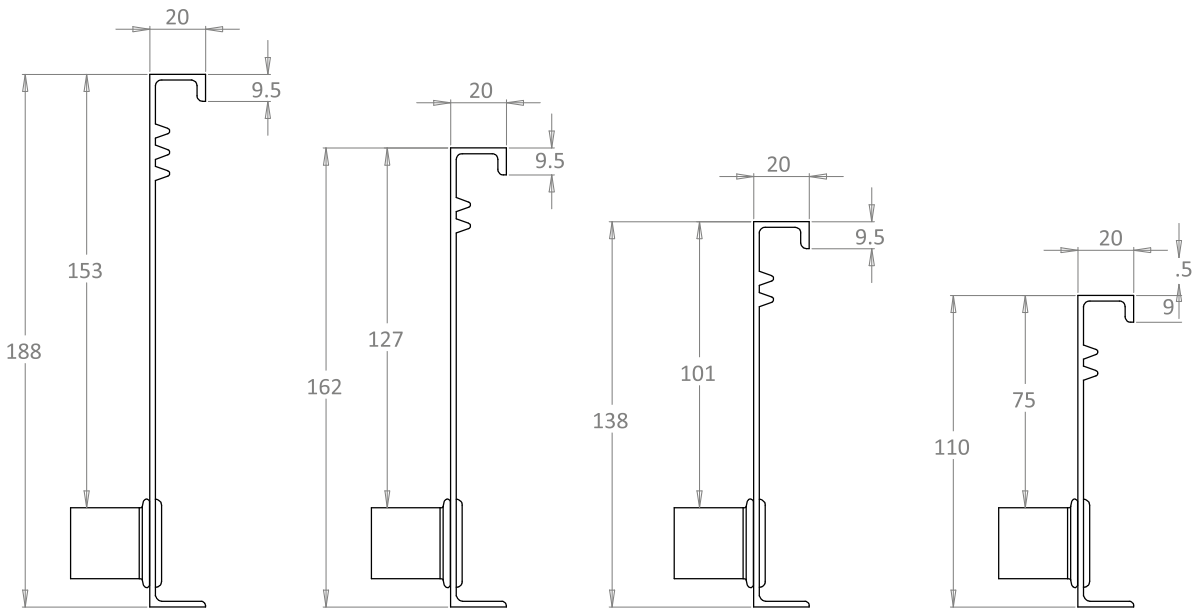
The available distance spacing (S) between the rungs is 229 mm. Length (L): 2440/3000 mm. Side height of the side rail is 110 mm, 136 mm, 162 mm and 188 mm.
Other dimensions are available upon request.
Swaged Cable Ladder Trays are available in: Aluminum 6063 T6





Swaged Cable Ladder Trays (Aluminum)



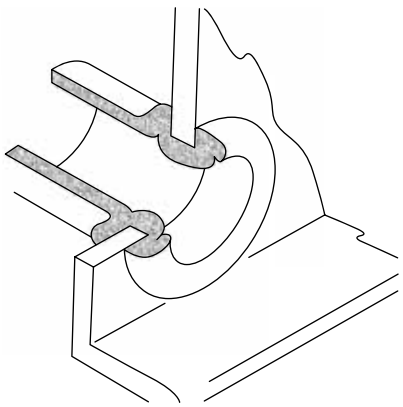


LOAD DEPTH 6" (153 mm)

LOAD DEPTH 5" (127 mm)

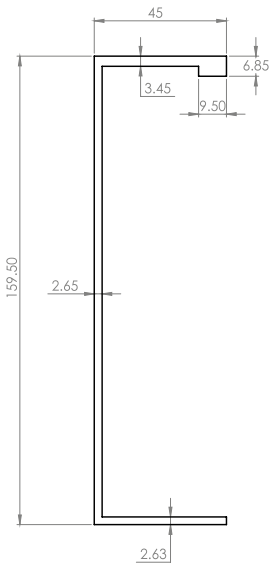
LOAD DEPTH 4" (101 mm)

LOAD DEPTH 3" (75 mm)

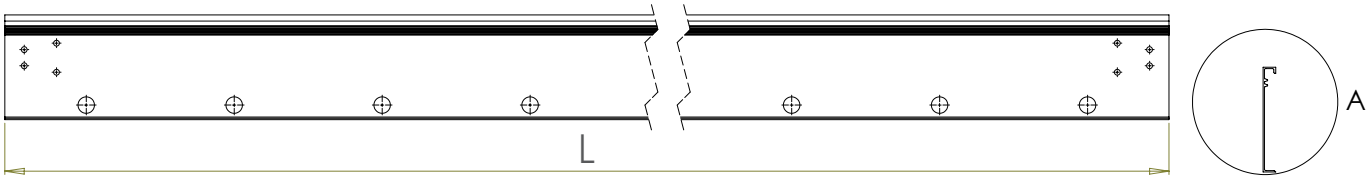


Swaged connections make the most rigid tray system in the industry. The swaging process does not affect the temper and strength of surrounding metal the way that traditional welding does.

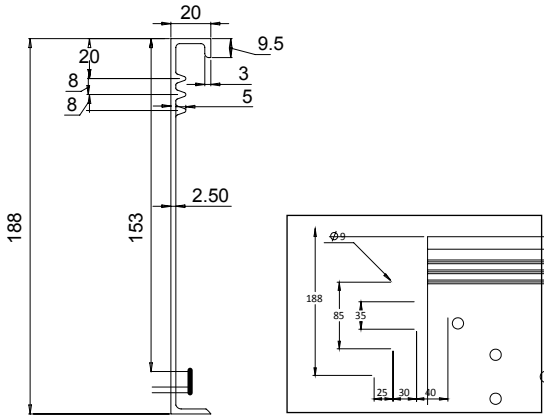
C Type



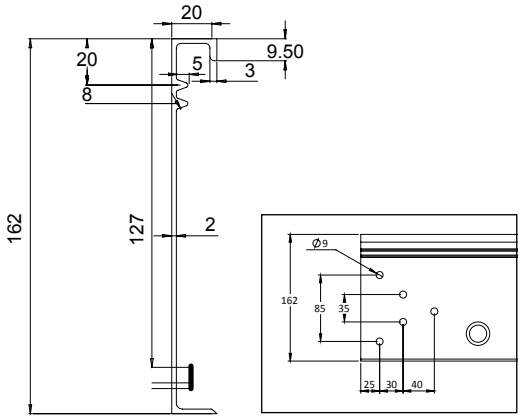
Aluminum Cable Ladder Trays - General Overview



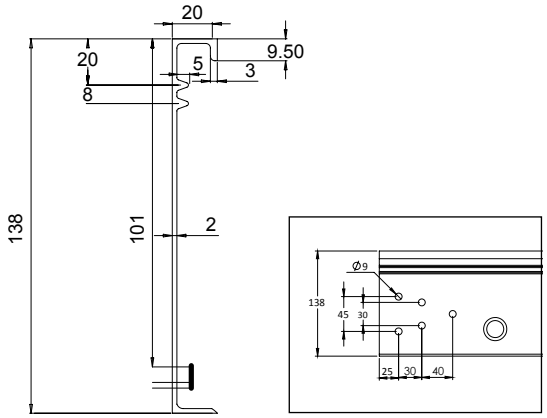
C.Ladder Side Rail 6"



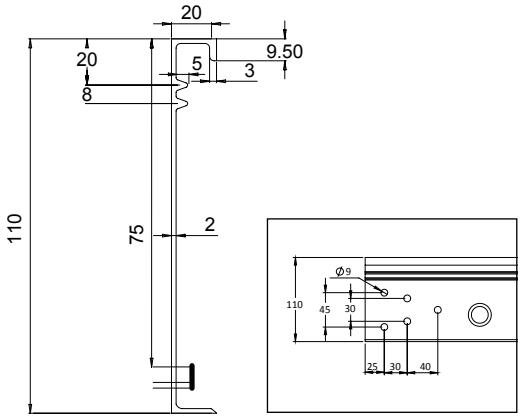
C.Ladder Side Rail 5"



C.Ladder Side Rail 4"



C.Ladder Side Rail 3"



SFSP can make modifications and design materials or finishes as it deems necessary or desirable .
All illustrations, drawings and descriptive material in this publication are of a generally informative nature only, and do not form a complete package of the specifications or description of the goods . Most of the dimensions shown are nominal .

Steel Cable Ladder Trays (Steel S235 Jrg^2)

RUNG TYPES (Swaged and Channel)

Swaged Type (Aluminum & Steel)
- Rounded tubular with 25 mm diameter
- Rung standard spacing 229 mm

Channel Type (Steel)
- Plain or slotted, and can be mounted upwards or downwards.
- Rung standard spacing 229 mm

RAIL TYPES

Types of Rail:
- C-Type, Z-Type and R-Type

Rounded Tubular - Swaged or Welded

Plain Channel (Steel)

Slotted Channel (Steel)

Z-Type

C-Type

R-Type

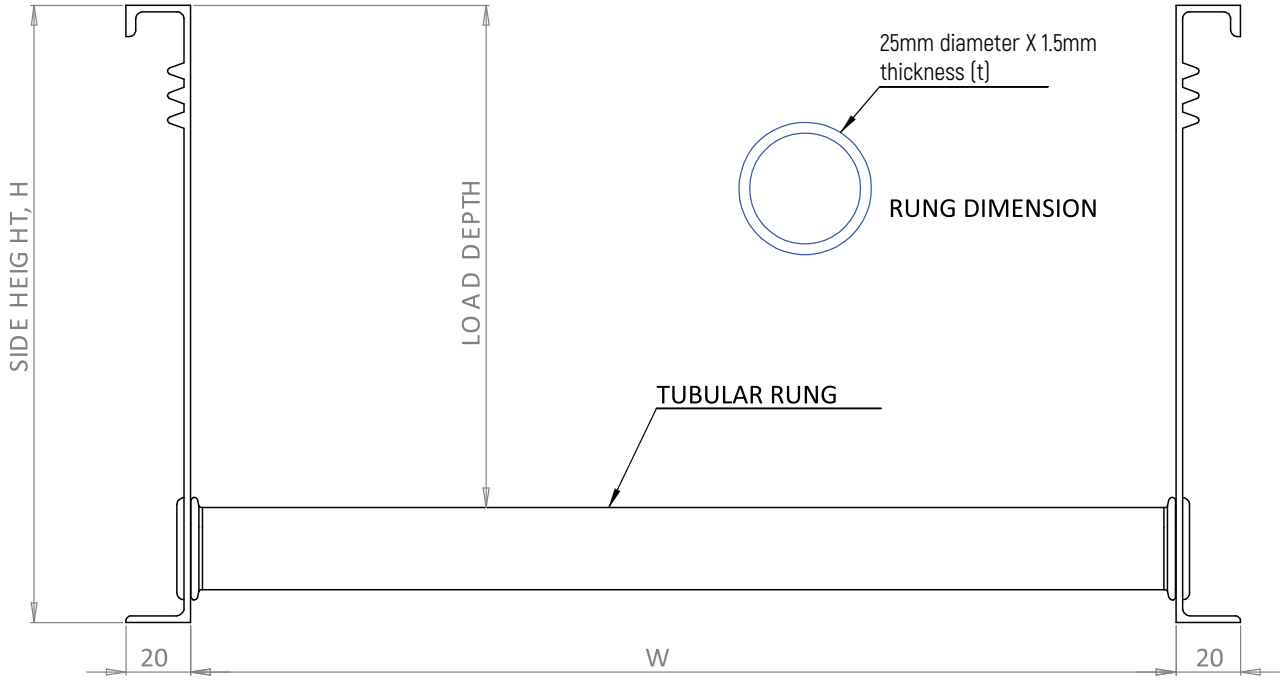
MATERIALS
- Pre-Galvanized / Stainless Steel

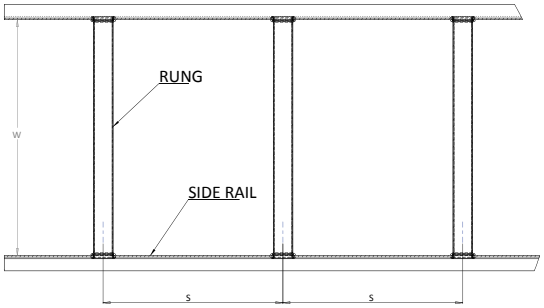
FINISHES
- Hot-Dip Galvanized, Zinc Electroplating and Epoxy Powder Coating.

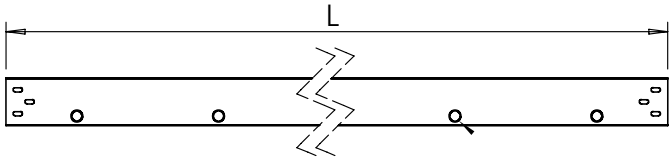
MATERIAL THICKNESS
1.50 mm 2.00 mm 2.50 mm

Steel Cable Ladder Trays - General Overview

Tubular Rounded Rung

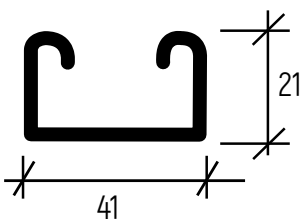


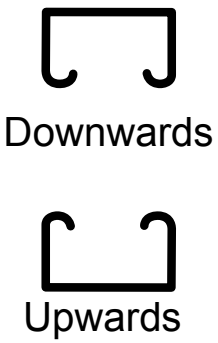


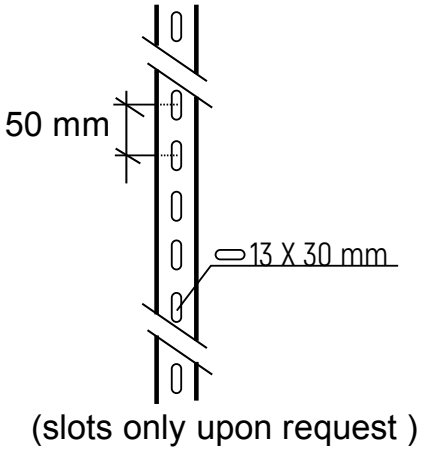


Rung Types and Dimensions

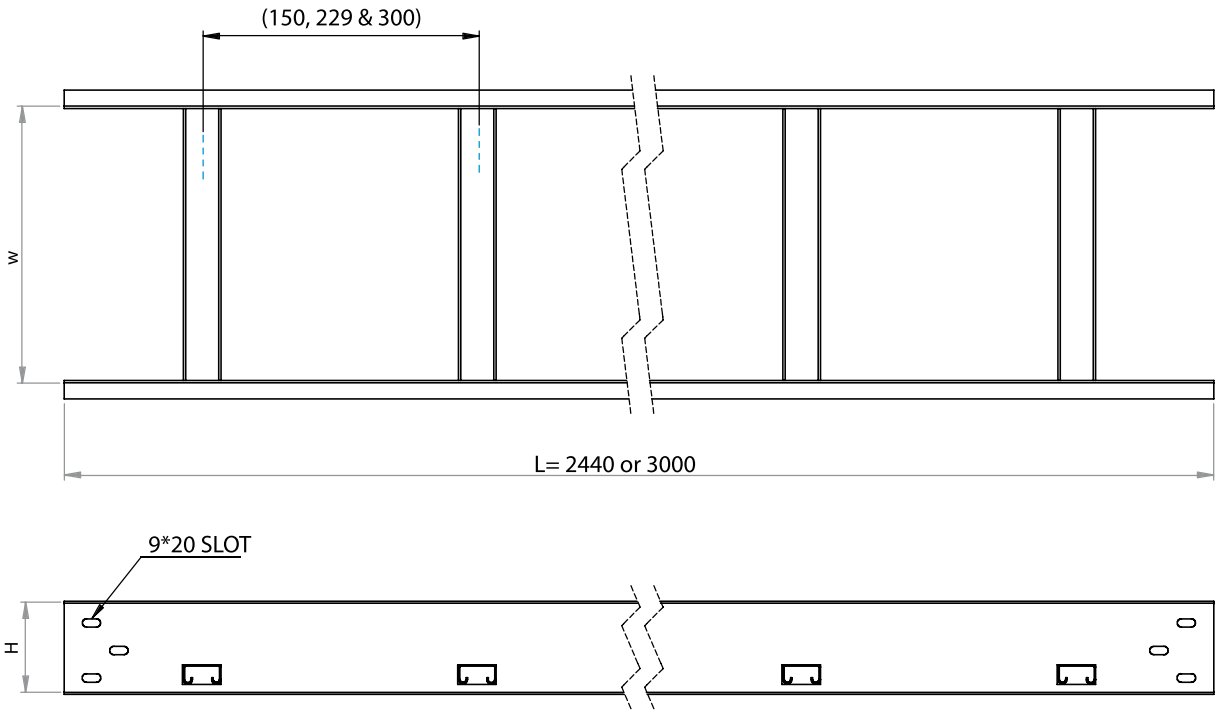
Rung Thicknesses: 1.5 mm, 2.0 mm and 2.5mm





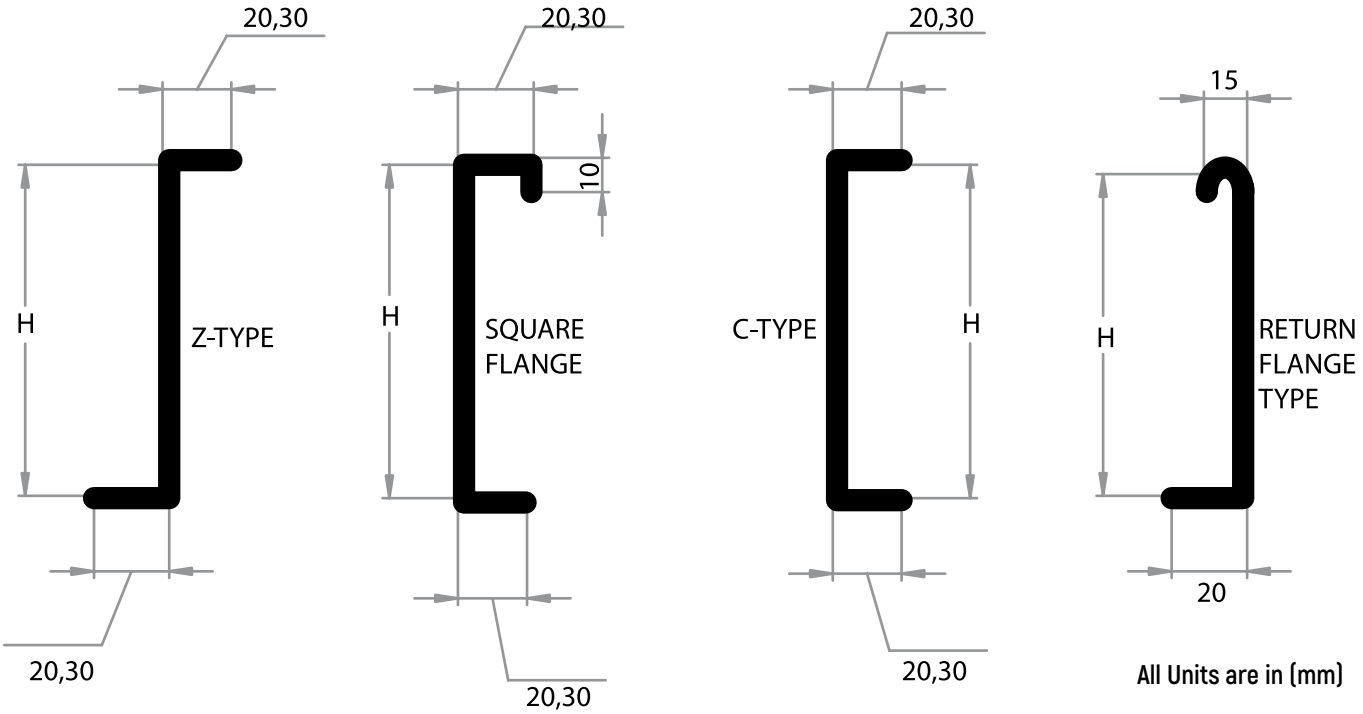


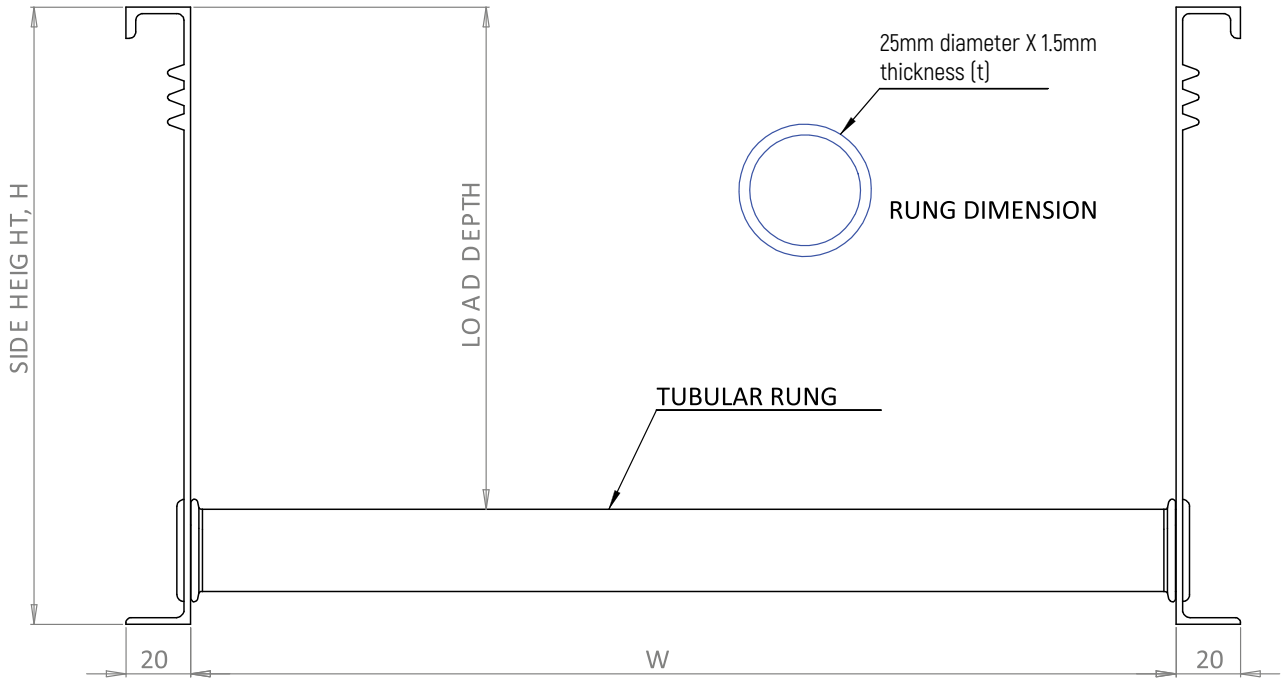
Length and Rung Spacing

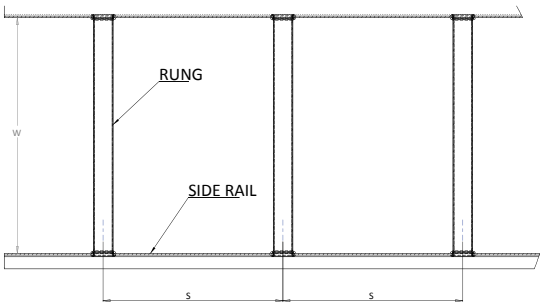


Side Rail Types

Height of rail 50mm - 150mm




25mm diameter X 1.5mm
thickness (t)
RUNG DIMENSION
SIDE HEIG HT, H
LOAD DEPTH
TUBULAR RUNG
20
W
20


RUNG
SIDE RAIL
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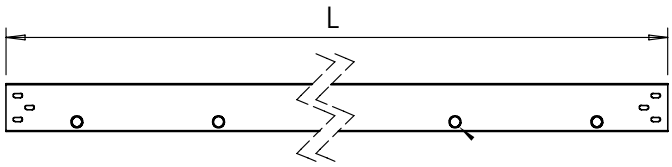
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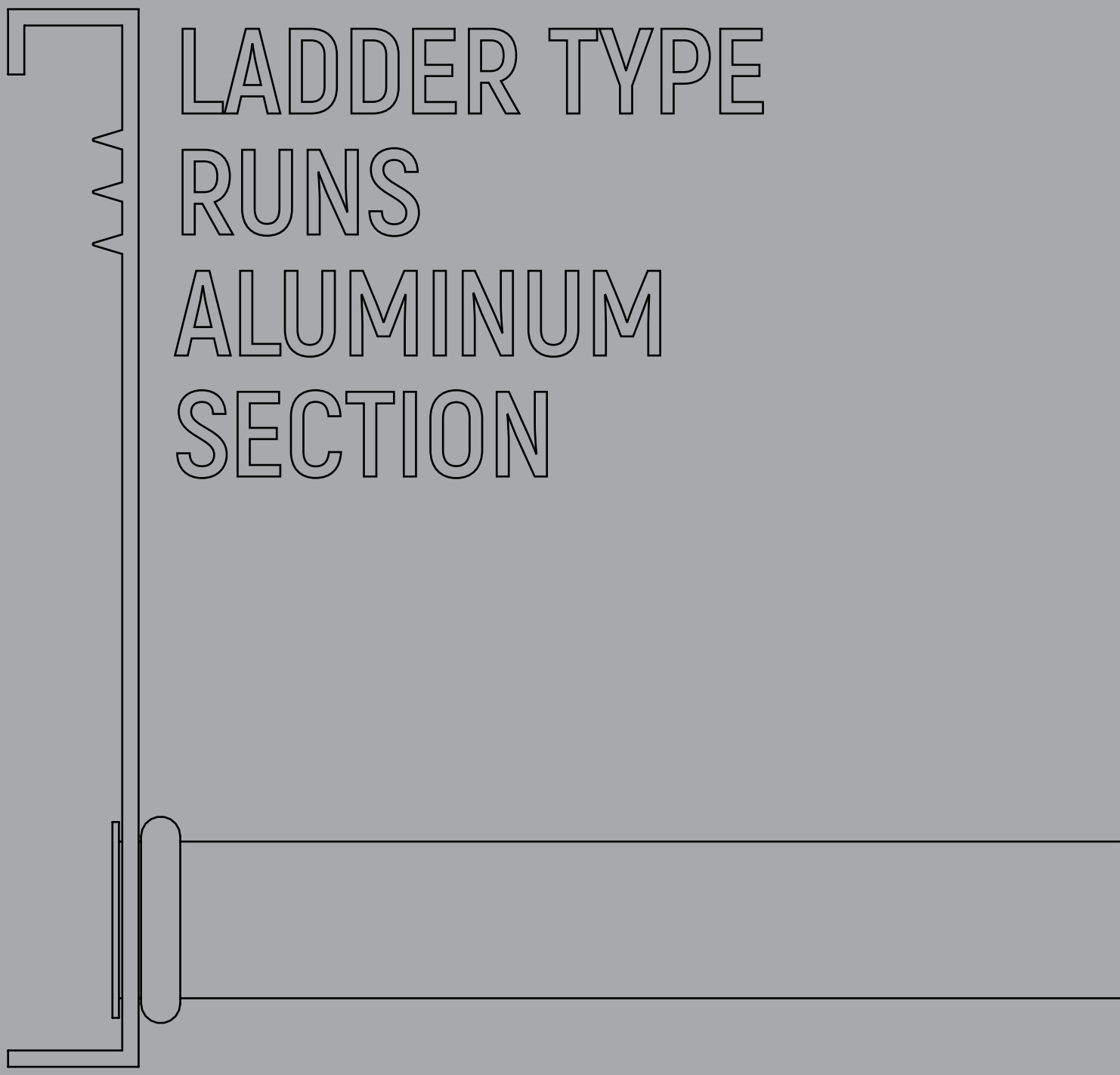
CABLE LADDER TRAY RUNS

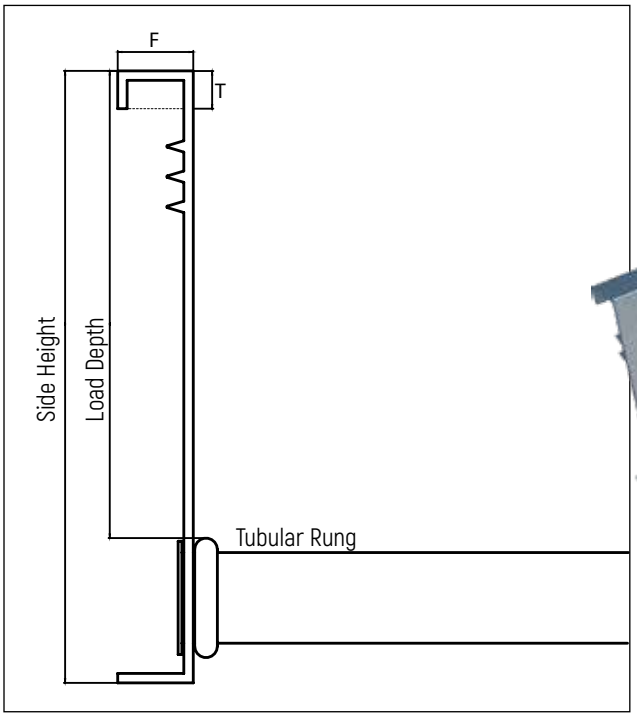
LADDER TYPE RUNS ALUMINUM SECTION

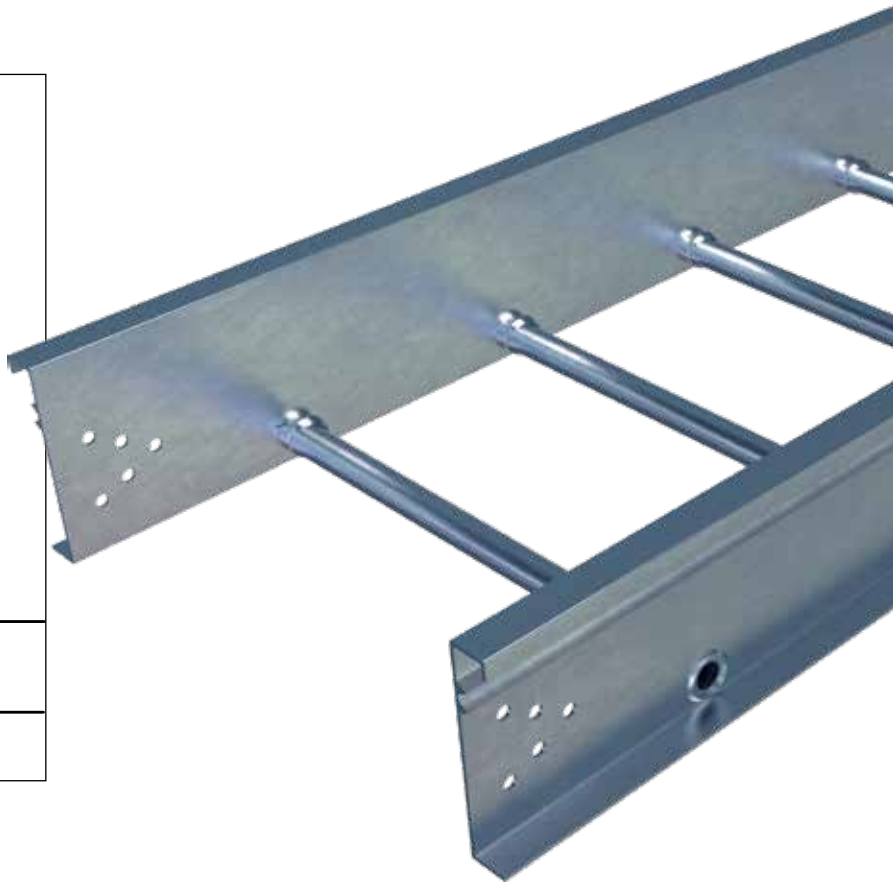


Swaged Tubular Rung

ALUMINUM 6063 T6

- NEMA Class A (52 kg/m by 3.0m) and 8A (95 kg/m by 2.40m)
- NEMA Class C (97.0 kg/m by 3.0 m)
- NEMA Class 12 A (74 kg/m by 3.70 m)
- NEMA Class 12 B (134 kg/m by 3.70 m)





Aluminum 6063 T6 - Side Rails

Design Data

Side Rail	Height (mm)	Load Depth Fd (mm)	Thickness (mm)	F (mm)	W cm^3	I cm^4
A1	110	80	2.0	20	8.12	46.06
A2	138	106	2.0	20	11.24	78.95
A3	162	132	2.0	20	14.78	123.85
A4	188	158	2.5	20	23.14	224.70

Load Classes

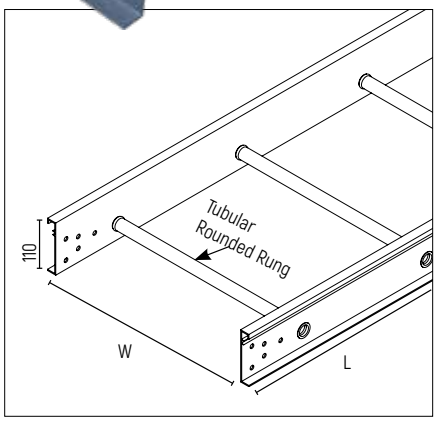
Side Rail	Load kg/m	Span (m)	Classes NEMA
A1	52	3.0	A
A2	97	3.0	C
A3	74	3.70	12A
A4	134	3.70	12B

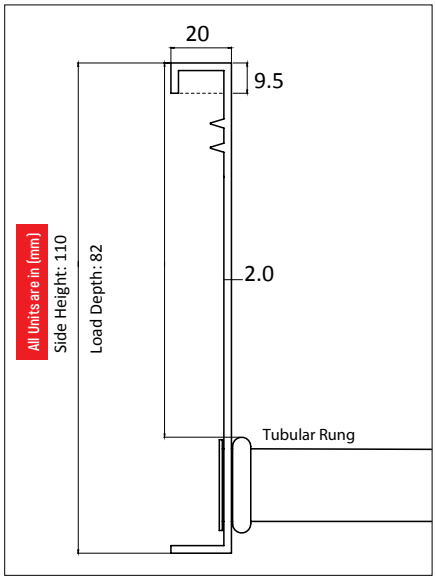
ALT - A1 (Swaged Rounded Tubular)

2.00 mm Thickness

(Side Height 110 mm)

- NEMA Class A (52 kg/m by 3,0m) and 8A (95 kg/m by 2,40m)
- Side Rail: A1
- Height: 110 mm
- Load Depth: 82 mm
- Rung Spacing: 229 mm





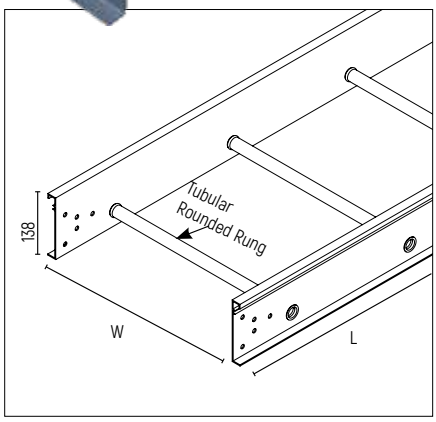
Item Code	NEMA CLASS 12A	Width	Support Distance	Load	Deflection		Side Rail A1
					Rung	Rail	
		(mm)	(m)	KN/m	(mm)	(mm)	
SVCLA1_F_00150110	110 X 20 X 2.0	150	2.40	1.35	0.02	7.96	Rung 25x1.5 mm
			3.0	0.66	0.01	9.95	
			3.70	0.32	0.00	12.22	
			4.90	0.10	0.00	16.10	
SVCLA1_F_00225110		225	2.40	1.34	0.06	7.99	
			3.0	0.65	0.03	9.93	
			3.70	0.31	0.01	12.15	
			4.90	0.09	0.00	15.86	
SVCLA1_F_00300110		300	2.40	1.32	0.13	7.99	
			3.0	0.64	0.06	9.93	
			3.70	0.30	0.03	12.08	
			4.90	0.08	0.01	15.62	
SVCLA1_F_00450110		450	2.40	1.25	0.42	7.97	
			3.0	0.61	0.21	9.87	
			3.70	0.29	0.10	12.31	
			4.90	0.07	0.02	16.12	
SVCLA1_F_00600110		600	2.40	1.15	0.92	7.99	
			3.0	0.58	0.46	9.92	
			3.70	0.27	0.22	12.27	
			4.90	0.05	0.04	15.65	
SVCLA1_F_00750110		750	2.40	1.01	1.57	7.94	
			3.0	0.54	0.84	9.96	
			3.70	0.25	0.39	12.28	
			4.90	0.04	0.06	16.16	
SVCLA1_F_00900110		900	2.40	0.86	2.31	7.93	
			3.0	0.49	1.32	9.95	
			3.70	0.22	0.59	12.01	
			4.90	0.02	0.05	15.66	

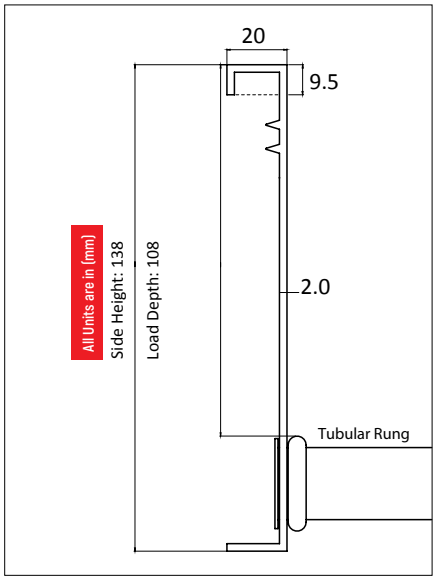
ALT - A2 (Swaged Rounded Tubular)

2.00 mm Thickness

(Side Height 138 mm)

- NEMA Class C (97.0 kg/m by 3.0 m)
- Side Rail: A2
- Height: 138 mm
- Load Depth: 108 mm
- Rung Spacing: 229 mm





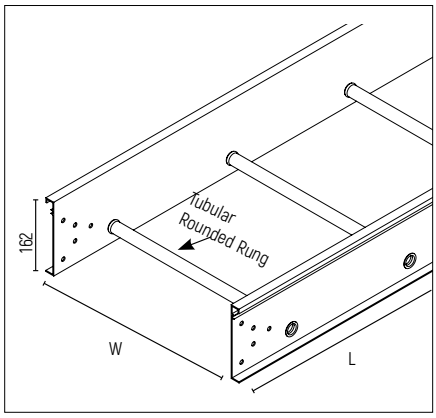
Item Code	NEMA CLASS 12A	Width	Support Distance	Load	Deflection		Side Rail A2
					Rung	Rail	
		(mm)	(m)	KN/m	(mm)	(mm)	
SVCLA2_F_00150138	138 X 20 X 2.0	150	2.40	2.35	0.04	7.98	Tubular Rung: 25x1.5 mm
			3.0	1.17	0.02	9.94	
			3.70	0.59	0.01	12.18	
			4.90	0.22	0.00	16.29	
SVCLA2_F_00225138		225	2.40	2.32	0.13	8.00	
			3.0	1.16	0.06	9.96	
			3.70	0.58	0.03	12.16	
			4.90	0.21	0.01	16.16	
SVCLA2_F_00300138		300	2.40	2.25	0.29	7.96	
			3.0	1.1	0.15	9.95	
			3.70	0.57	0.07	12.15	
			4.90	0.20	0.03	16.03	
SVCLA2_F_00450138		450	2.40	2.06	0.91	8.0	
			3.0	1.09	0.48	10.-	
			3.70	0.55	0.24	12.23	
			4.90	0.18	0.08	15.80	
SVCLA2_F_00600138		600	2.40	1.85	1.55	8.00	Tubular Rung: 25x2.0 mm
			3.0	1.02	0.85	9.93	
			3.70	0.52	0.44	12.14	
			4.90	0.17	0.18	16.18	
SVCLA2_F_00750138		750	2.40	1.70	1.95	7.95	Tubular Rung: 30x1.5 mm
			3.0	0.98	1.12	10	
			3.70	0.50	0.57	12.19	
			4.90	0.15	0.17	15.89	
SVCLA2_F_00900138		900	2.40	1.29	2.55	7.26	
			3.0	0.88	1.74	9.93	
			3.70	0.47	0.93	12.27	
			4.90	0.14	0.28	16.28	

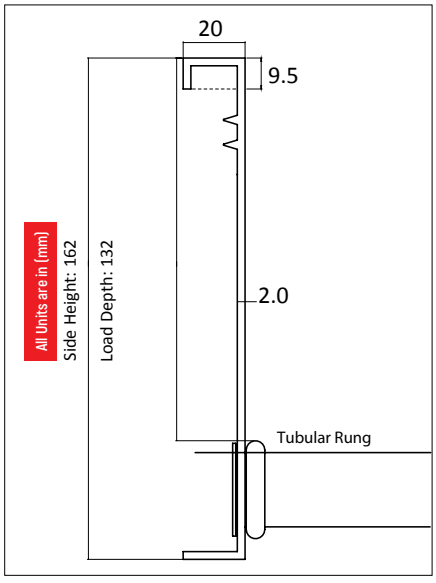
ALT - A3 (Swaged Rounded Tubular)

2.00 mm Thickness

(Side Height 162 mm)

- NEMA Class 12 A (74 kg/m by 3.70 m)
- Side Rail: A3
- Height: 162 mm
- Load Depth: 132 mm
- Rung Spacing: 229 mm





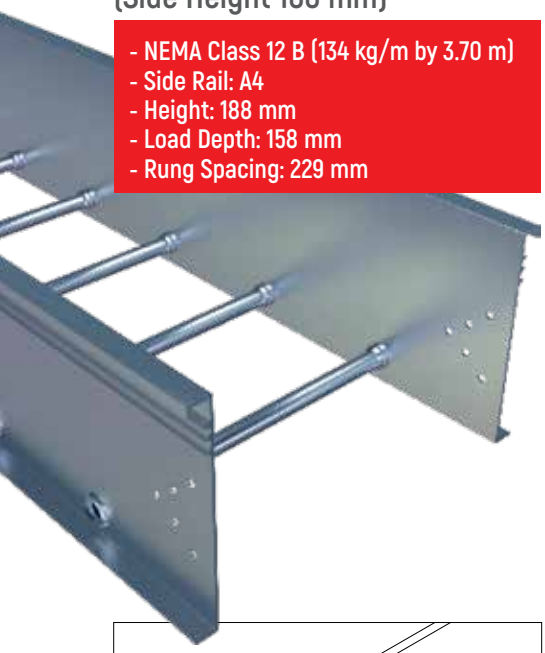
Item Code	NEMA CLASS 12A	Width	Support Distance	Load	Deflection		Side Rail A3
					Rung	Rail	
		(mm)	(m)	KN/m	(mm)	(mm)	
SVCLA3_F_00150162	110 X 20 X 2.0	150	2.40	3.67	0.06	7.92	Tubular Rung: 25x1.5 mm
			3.0	1.87	0.03	9.97	
			3.70	0.97	0.02	12.31	
			4.90	0.38	0.01	16.27	
SVCLA3_F_00225162		225	2.40	3.63	0.20	7.99	
			3.0	1.85	0.10	9.97	
			3.70	0.96	0.05	12.32	
			4.90	0.37	0.02	16.19	
SVCLA3_F_00300162		300	2.40	3.50	0.46	7.99	
			3.0	1.80	0.24	9.99	
			3.70	0.94	0.12	12.24	
			4.90	0.36	0.05	16.13	
SVCLA3_F_00450162		450	2.40	3.17	1.12	7.99	
			3.0	1.73	0.61	9.98	
			3.70	0.91	0.3	12.26	
			4.90	0.34	0.15	16.05	
SVCLA3_F_00600162		600	2.40	2.88	1.69	7.98	Tubular Rung: 25x2.0 mm
			3.0	1.64	0.96	9.95	
			3.70	0.88	0.52	12.28	
			4.90	0.33	0.19	16.27	
SVCLA3_F_00750162		750	2.40	2.45	2.14	7.07	Tubular Rung: 30x1.5 mm
			3.0	1.55	1.36	9.96	
			3.70	0.85	0.74	12.33	
			4.90	0.31	0.36	16.25	
SVCLA3_F_00900162		900	2.40	1.70	2.57	6.44	
			3.0	1.39	2.10	9.96	
			3.70	0.79	1.19	12.24	
			4.90	0.29	0.44	16.15	

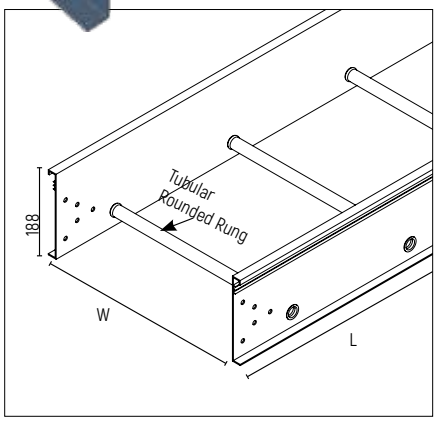
ALT - A4 (Swaged Rounded Tubular)

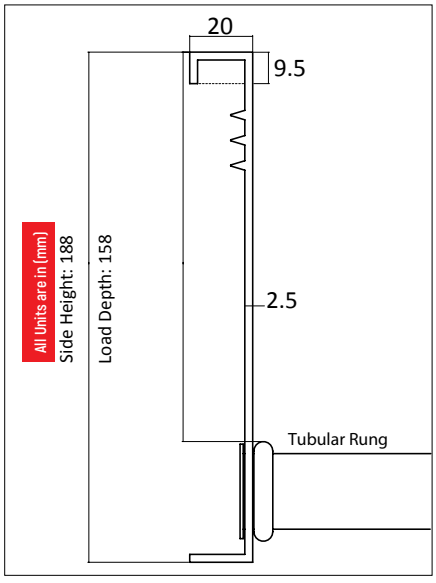
2.50 mm Thickness

(Side Height 188 mm)

- NEMA Class 12 B (134 kg/m by 3.70 m)
- Side Rail: A4
- Height: 188 mm
- Load Depth: 158 mm
- Rung Spacing: 229 mm

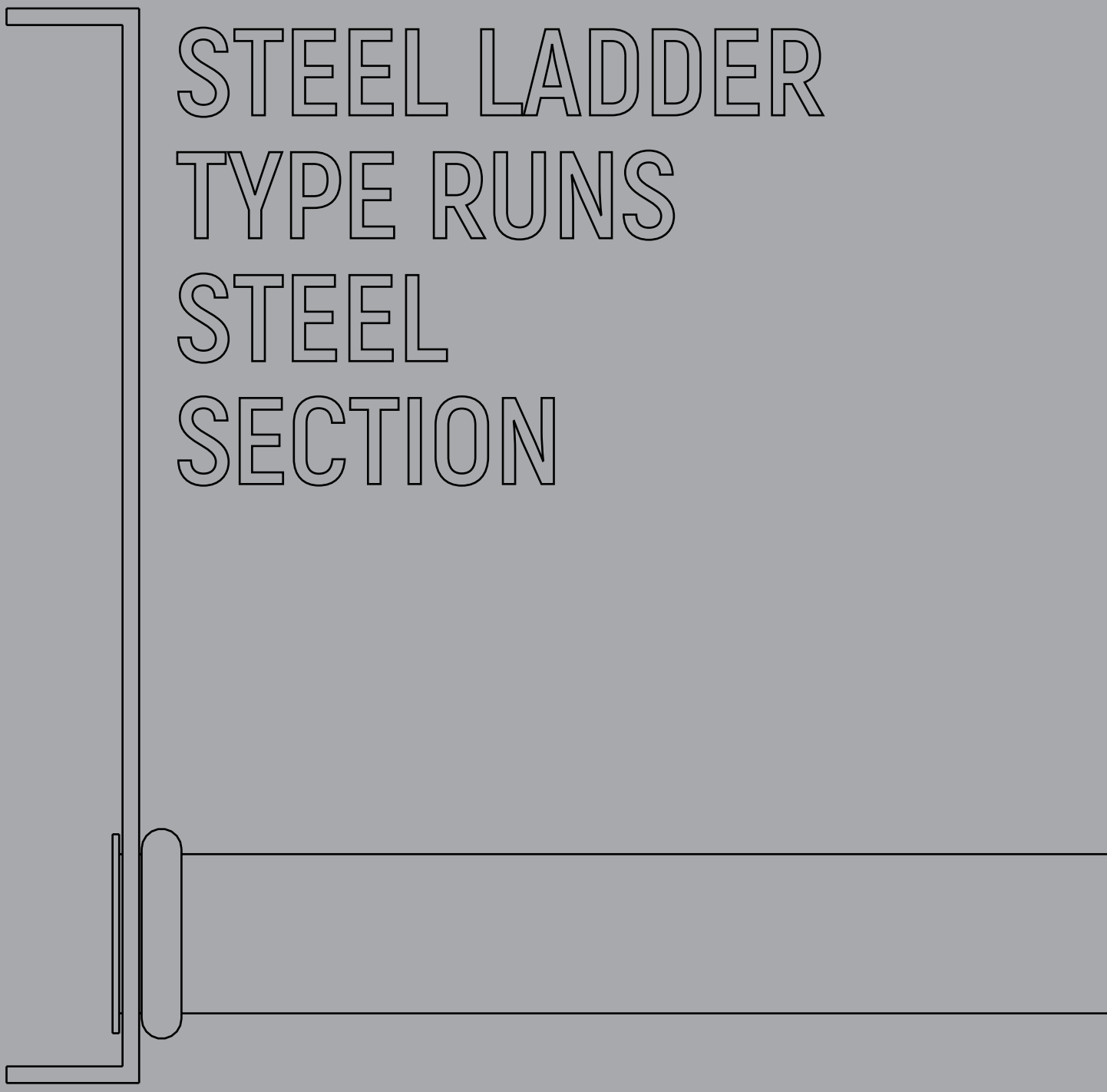






Item Code	NEMA CLASS 12A	Width	Support Distance	Load	Deflection		Side Rail A4
					Rung	Rail	
		(mm)	(m)	KN/m	(mm)	(mm)	
SVCLA4_F_00150188	110 X 20 X 2.0	150	2.40	4.55	0.06	5.41	Tubular Rung: 25x1.5 mm
			3.0	3.45	0.04	10.0	
			3.70	1.81	0.02	12.31	
			4.90	0.74	0.01	16.23	
SVCLA4_F_00225188		225	2.40	4.55	0.19	5.55	
			3.0	3.40	0.14	9.98	
			3.70	1.79	0.08	12.28	
			4.90	0.73	0.03	16.20	
SVCLA4_F_00300188		300	2.40	4.55	0.45	5.82	
			3.0	3.33	0.33	9.99	
			3.70	1.77	0.18	12.30	
			4.90	0.72	0.07	16.19	
SVCLA4_F_00450188		450	2.40	4.55	1.23	6.61	Tubular Rung: 25x2.0 mm
			3.0	3.13	0.84	9.98	
			3.70	1.71	0.46	12.29	
			4.90	0.70	0.19	16.21	
SVCLA4_F_00600188		600	2.40	3.82	1.71	6.27	Tubular Rung: 30x1.5 mm
			3.0	2.95	1.32	9.99	
			3.70	1.65	0.74	12.27	
			4.90	0.68	0.30	16.23	
SVCLA4_F_00750188		750	2.40	3.09	2.14	5.87	Tubular Rung: 30x2.0 mm
			3.0	2.73	1.89	9.98	
			3.70	1.58	1.09	12.27	
			4.90	0.66	0.46	16.28	
SVCLA4_F_00900188		900	2.40	2.14	2.56	5.21	
			3.0	2.14	2.56	9.02	
			3.70	1.47	1.76	12.32	
			4.90	0.63	0.75	16.27	

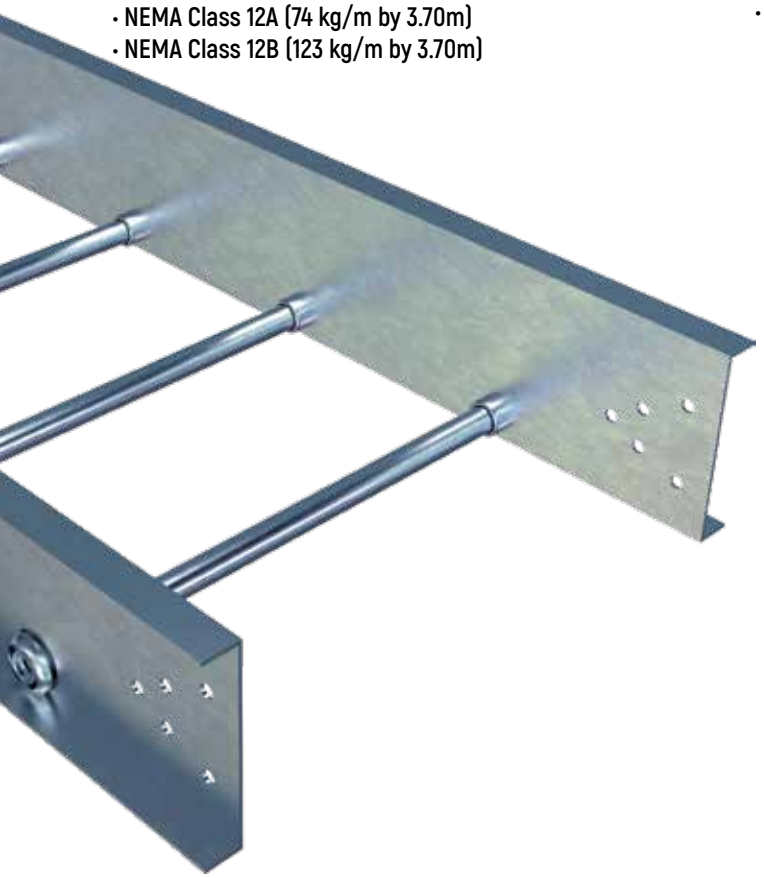
STEEL LADDER TYPE RUNS STEEL SECTION

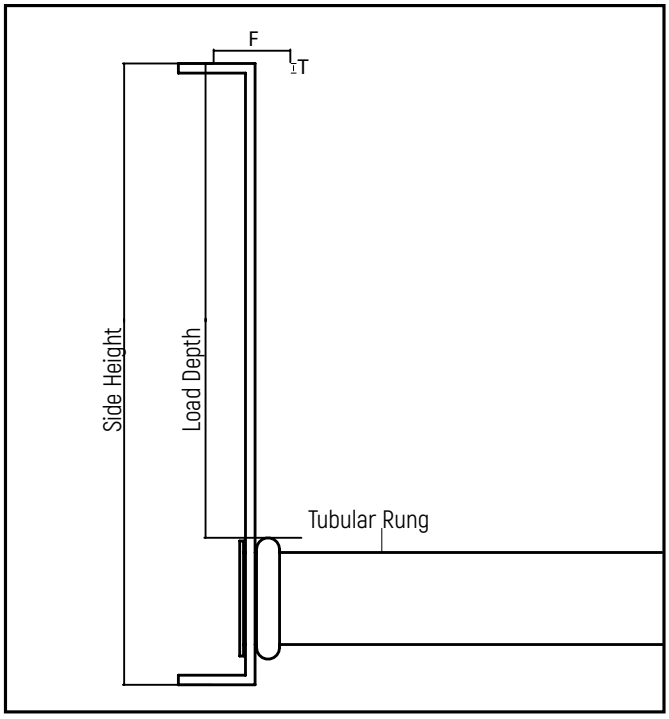


Swaged Tubular Rung

STEEL S235 JRG2

- NEMA Class 8C (149 kg/m by 2.40m)
- NEMA Class 12A (74 kg/m by 3.70m)
- NEMA Class 12B (118 kg/m by 3.70m)
- NEMA Class 12A (74 kg/m by 3.70m)
- NEMA Class 12B (123 kg/m by 3.70m)
- NEMA Class 16A (82 kg/m by 4.90m)
- NEMA Class 12A (87 kg/m by 3.70m)
- NEMA Class 12C (150 kg/m by 3.70m)
- NEMA Class D (67 kg/m by 6.0m)





Steel S235 JRG2 - Side Rails

Design Data							Classes	
Side Rail	Height (mm)	Load Depth Fd (mm)	Thickness (mm)	F (mm)	W cm^3	I cm^4	NEMA Span	NEMA Class
S1	110	75	2.0	22	6.83	35.87	3.70	12A
S2	138	100	2.0	22	9.55	62.08	3.70	12B
S3	162	125	2.0	22	12.67	98.17	4.90	16A
S4	110	75	2.5	22	8.34	43.81	3.70	12A
S5	138	100	2.5	22	11.71	76.15	3.70	12C
S6	162	125	2.5	22	15.58	120.75	6.0	D

Load Classes

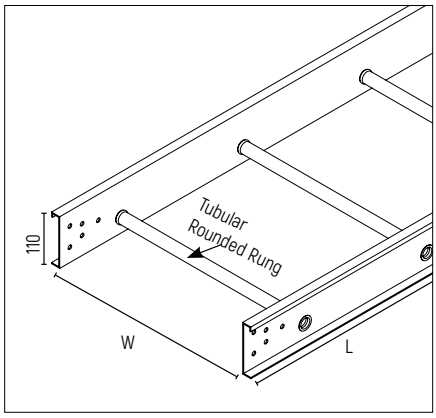
Side Rail	Load kg/m	Span (m)	Classes NEMA
S1	74	3.70	12A
S2	123	3.70	12B
S3	82	4.90	16A
S4	87	3.70	12A
S5	150	3.70	12C
S6	67	6.00	D

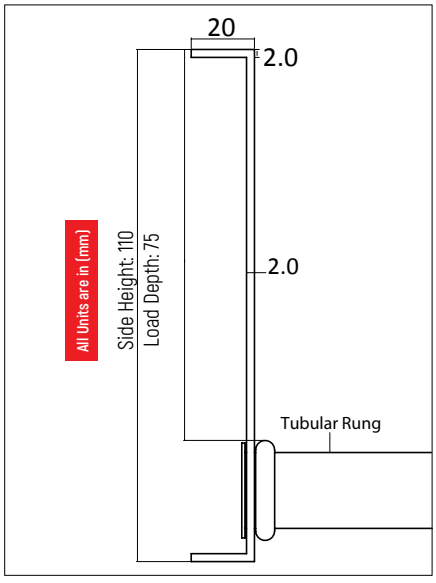
SLT - S1 (Swaged Rounded Tubular)

2.00 mm Thickness

(Side Height 110 mm)

- NEMA Class 12A (74 kg/m by 3.70m)
- Side Rail: S1
- Height: 110 mm
- Load Depth: 75 mm
- Rung - Spacing: 229 mm





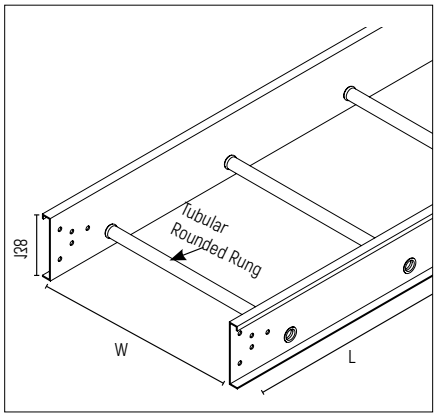
Item Code	NEMA CLASS 12A	Width	Support Distance	Load	Deflection		Side Rail S1
					Rung	Rail	
		(mm)	(m)	KN/m	(mm)	(mm)	
SVCLS1_F_00150110	110 X 20 X 2.0	150	2.40	2.72	0.01	6.32	Tubular Rung: 25 X 1.5 mm
			3.0	1.74	0.01	9.99	
			3.70	0.89	0.00	12.22	
			4.90	0.35	0.00	16.33	
SVCLS1_F_00225110		225	2.40	2.71	0.04	6.34	
			3.0	1.73	0.02	9.99	
			3.70	0.89	0.01	12.32	
			4.90	0.34	0.00	16.24	
SVCLS1_F_00300110		300	2.40	2.71	0.09	6.41	
			3.0	1.71	0.06	9.95	
			3.70	0.88	0.03	12.31	
			4.90	0.33	0.01	16.14	
SVCLS1_F_00450110		450	2.40	2.69	0.30	6.61	
			3.0	1.67	0.19	9.94	
			3.70	0.86	0.10	12.31	
			4.90	0.31	0.03	15.97	
SVCLS1_F_00600110		600	2.40	2.68	0.71	7.03	
			3.0	1.62	0.43	9.99	
			3.70	0.83	0.22	12.24	
			4.90	0.30	0.08	16.21	
SVCLS1_F_00750110		750	2.40	2.66	1.38	7.69	
			3.0	1.53	0.79	9.94	
			3.70	0.80	0.41	12.25	
			4.90	0.28	0.15	16.08	
SVCLS1_F_00900110		900	2.40	2.43	2.18	8.00	
			3.0	1.43	1.28	9.96	
			3.70	0.77	0.69	12.33	
			4.90	0.26	0.23	15.97	

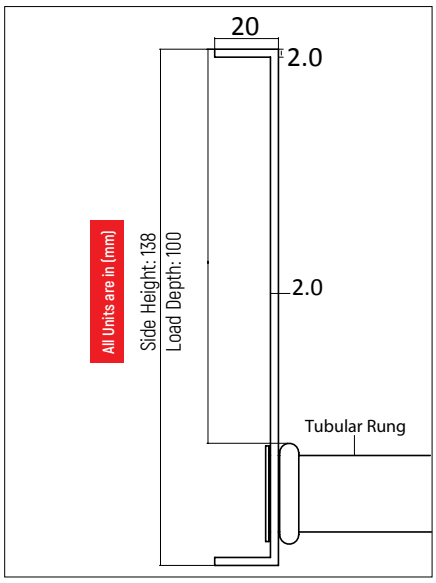
SLT - S2 (Swaged Rounded Tubular)

2.00 mm Thickness

(Side Height 138 mm)

- NEMA Class 12B (123 kg/m by 3.70m)
- Side Rail: S2
- Height: 138 mm
- Load Depth: 100 mm
- Rung Spacing: 229 mm





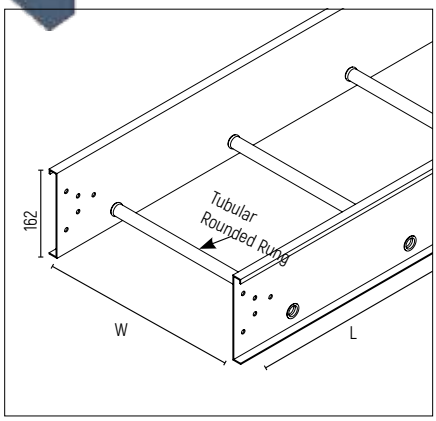
Item Code	NEMA CLASS 12A	Width	Support Distance	Load	Deflection		Side Rail S2
					Rung	Rail	
		(mm)	(m)	KN/m	(mm)	(mm)	
SVCLS2_F_00150138	138 X 20 X 2.0	150	2.40	3.76	0.02	5.05	Tubular Rung: 25 X 1.5 mm
			3.0	2.43	0.01	8.02	
			3.70	1.59	0.01	12.30	
			4.90	0.64	0.00	16.11	
SVCLS2_F_00225138		225	2.40	3.76	0.05	5.09	
			3.0	2.43	0.03	8.07	
			3.70	1.58	0.02	12.30	
			4.90	0.64	0.01	16.29	
SVCLS2_F_00300138		300	2.40	3.75	0.12	5.16	
			3.0	2.42	0.08	8.11	
			3.70	1.57	0.05	12.31	
			4.90	0.63	0.02	16.25	
SVCLS2_F_00450138		450	2.40	3.74	0.42	5.46	
			3.0	2.41	0.27	8.31	
			3.70	1.54	0.17	12.32	
			4.90	0.61	0.07	16.18	
SVCLS2_F_00600138		600	2.40	3.72	0.99	6.02	
			3.0	2.39	0.63	8.66	
			3.70	1.49	0.40	12.28	
			4.90	0.59	0.16	16.15	
SVCLS2_F_00750138		750	2.40	3.71	1.92	6.97	
			3.0	2.38	1.23	9.28	
			3.70	1.43	0.74	12.29	
			4.90	0.57	0.30	16.18	
SVCLS2_F_00900138		900	2.40	2.86	2.56	6.51	
			3.0	2.32	2.08	9.98	
			3.70	1.35	1.21	12.28	
			4.90	0.55	0.49	16.26	

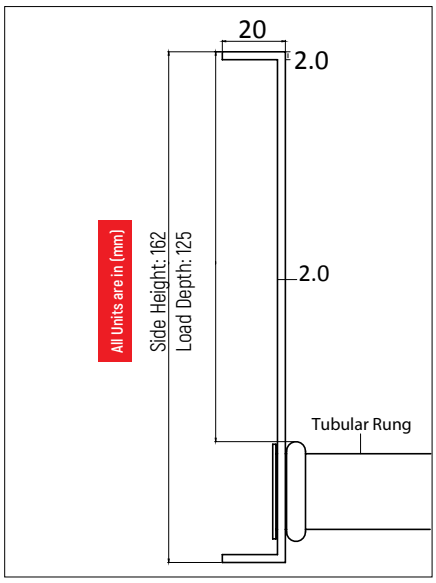
SLT - S3 (Swaged Rounded Tubular)

2.00 mm Thickness

(Side Height 162 mm)

- NEMA Class 16A (82 kg/m by 4.90m)
- Side Rail: S3
- Height: 162 mm
- Load Depth: 125 mm
- Rung Spacing: 229 mm





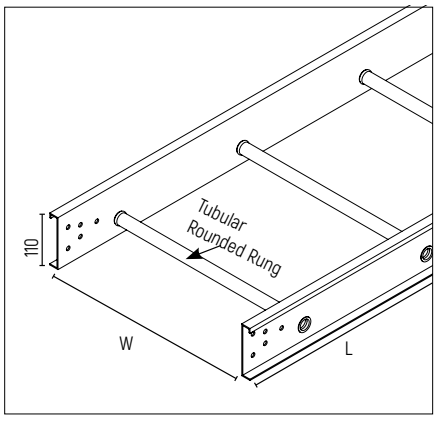
Item Code	NEMA CLASS 12A	Width	Support Distance	Load	Deflection		Side Rail S3
					Rung	Rail	
		(mm)	(m)	KN/m	(mm)	(mm)	
SVCLS3_F_00150162	162 X 20 X 2.0	150	2.40	4.93	0.02	4.19	Tubular Rung: 25 X 1.5 mm
			3.0	3.21	0.01	6.69	
			3.70	2.12	0.01	10.32	
			4.90	1.06	0.00	16.33	
SVCLS3_F_00225162		225	2.40	4.92	0.07	4.24	
			3.0	3.20	0.04	6.72	
			3.70	2.11	0.03	10.33	
			4.90	1.05	0.01	16.31	
SVCLS3_F_00300162		300	2.40	4.92	0.16	4.34	
			3.0	3.19	0.11	6.77	
			3.70	2.11	0.07	10.40	
			4.90	1.04	0.03	16.29	
SVCLS3_F_00450162		450	2.40	4.90	0.55	4.72	
			3.0	3.18	0.36	7.04	
			3.70	2.09	0.23	10.54	
			4.90	1.02	0.11	16.30	
SVCLS3_F_00600162		600	2.40	4.87	1.29	5.45	
			3.0	3.17	0.84	7.53	
			3.70	2.08	0.55	70.89	
			4.90	0.99	0.26	16.23	
SVCLS3_F_00750162		750	2.40	4.10	2.13	5.66	
			3.0	3.15	1.63	8.31	
			3.70	2.07	1.07	11.43	
			4.90	0.96	0.50	16.25	
SVCLS3_F_00900162		900	2.40	2.86	2.56	5.07	
			3.0	2.86	2.56	8.68	
			3.70	2.05	1.84	12.17	
			4.90	0.92	0.82	16.21	

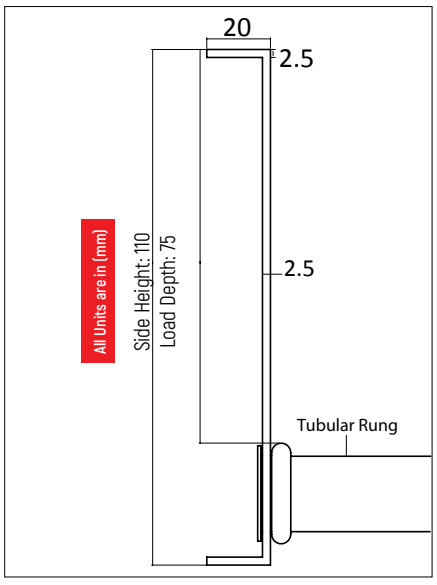
SLT - S4 (Swaged Rounded Tubular)

2.50 mm Thickness

(Side Height 110 mm)

- NEMA Class 12A (87 kg/m by 3.70m)
- Side Rail: S4
- Height: 110 mm
- Load Depth: 75 mm
- Rung Spacing: 229 mm





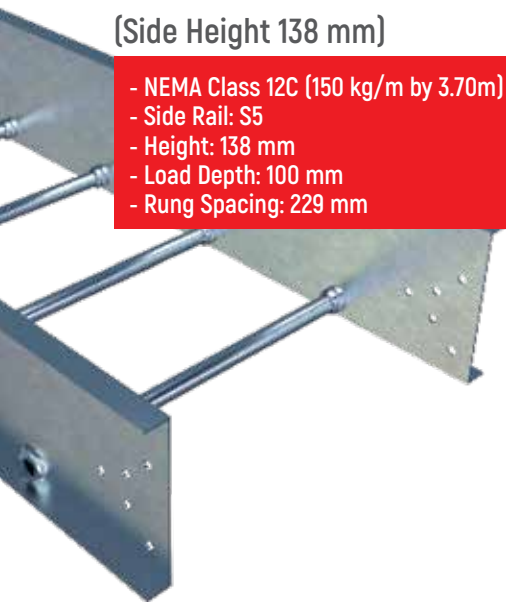
Item Code	NEMA CLASS 12A	Width	Support Distance	Load	Deflection		Side Rail S4
					Rung	Rail	
		(mm)	(m)	KN/m	(mm)	(mm)	
SVCLS4_F_00150110	110 X 20 X 2.5	150	2.40	3.34	0.01	6.33	Tubular Rung: 25 X 1.5 mm
			3.0	2.14	0.01	9.99	
			3.70	1.11	0.00	12.31	
			4.90	0.44	0.00	16.27	
SVCLS4_F_00225110		225	2.40	3.33	0.05	6.35	
			3.0	2.13	0.03	10.00	
			3.70	1.10	0.02	12.29	
			4.90	0.43	0.01	16.19	
SVCLS4_F_00300110		300	2.40	3.33	0.11	6.43	
			3.0	2.11	0.07	9.98	
			3.70	1.09	0.04	12.29	
			4.90	0.42	0.01	16.12	
SVCLS4_F_00450110		450	2.40	3.32	0.37	6.70	
			3.0	2.06	0.23	9.98	
			3.70	1.07	0.12	12.32	
			4.90	0.41	0.05	16.31	
SVCLS4_F_00600110		600	2.40	3.30	0.88	7.20	
			3.0	1.98	0.53	9.98	
			3.70	1.04	0.28	12.32	
			4.90	0.39	0.10	16.21	
SVCLS4_F_00750110		750	2.40	3.27	1.70	7.99	
			3.0	1.87	0.97	10.0	
			3.70	1.0	0.52	12.30	
			4.90	0.37	0.19	16.13	
SVCLS4_F_00900110		900	2.40	2.81	2.52	7.99	
			3.0	1.72	1.54	9.96	
			3.70	0.95	0.85	12.26	
			4.90	0.35	0.31	16.10	

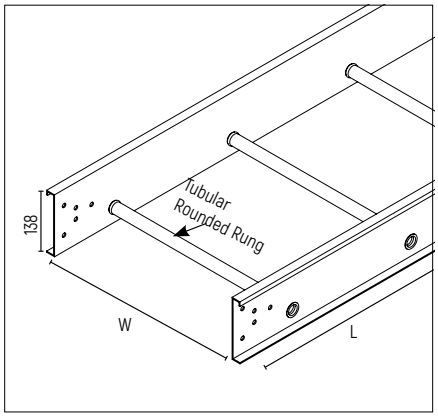
SLT - S5 (Swaged Rounded Tubular)

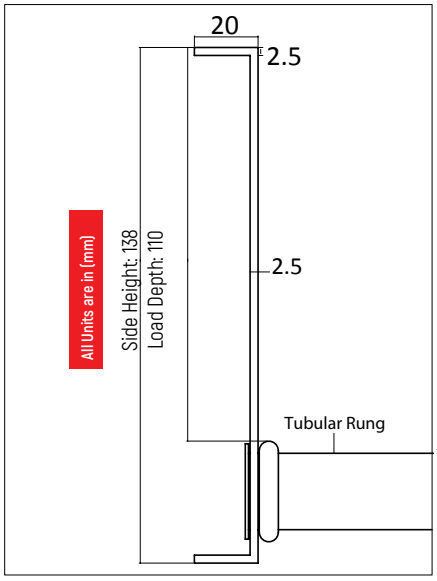
2.50 mm Thickness

(Side Height 138 mm)

- NEMA Class 12C (150 kg/m by 3.70m)
- Side Rail: S5
- Height: 138 mm
- Load Depth: 100 mm
- Rung Spacing: 229 mm







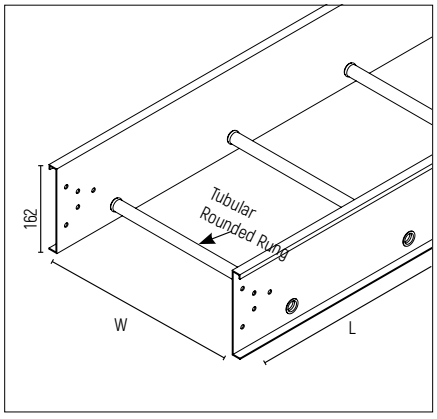
Item Code	NEMA CLASS 12A	Width	Support Distance	Load	Deflection		Side Rail S5
					Rung	Rail	
		(mm)	(m)	KN/m	(mm)	(mm)	
SVCLS5_F_00150138	138 X 20 X 2.5	150	2.40	4.64	0.02	5.06	Tubular Rung: 25 X 1.5 mm
			3.0	3.0	0.01	8.03	
			3.70	1.97	0.01	12.33	
			4.90	0.81	0.00	16.30	
SVCLS5_F_00225138		225	2.40	4.63	0.06	5.11	
			3.0	3.0	0.04	8.08	
			3.70	1.95	0.03	12.28	
			4.90	0.80	0.01	16.26	
SVCLS5_F_00300138		300	2.40	4.63	0.15	5.20	
			3.0	2.99	0.10	8.13	
			3.70	1.94	0.06	12.30	
			4.90	0.79	0.03	16.23	
SVCLS5_F_00450138		450	2.40	4.61	0.52	5.56	
			3.0	2.98	0.33	8.38	
			3.70	1.90	0.21	12.29	
			4.90	0.77	0.09	16.20	
SVCLS5_F_00600138		600	2.40	4.60	1.22	6.27	
			3.0	2.96	0.79	8.82	
			3.70	1.84	0.49	12.30	
			4.90	0.75	0.20	16.22	
SVCLS5_F_00750138		750	2.40	4.12	2.14	6.69	
			3.0	2.95	1.53	9.58	
			3.70	1.76	0.91	12.33	
			4.90	0.73	0.38	16.31	
SVCLS5_F_00900138		900	2.40	2.86	2.56	5.78	
			3.0	2.74	2.46	9.99	
			3.70	1.65	1.48	12.32	
			4.90	0.70	0.63	16.28	

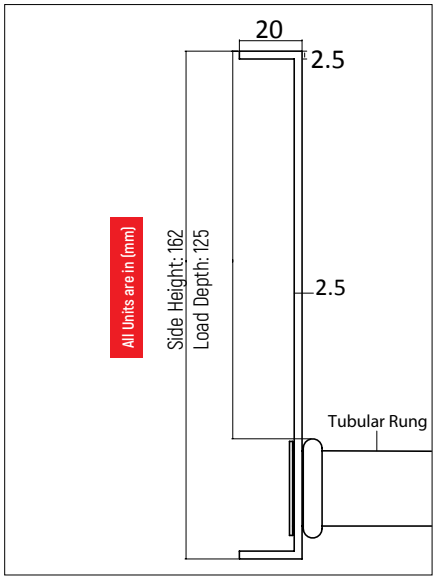
SLT - S6 (Swaged Rounded Tubular)

2.50 mm Thickness

(Side Height 162 mm)

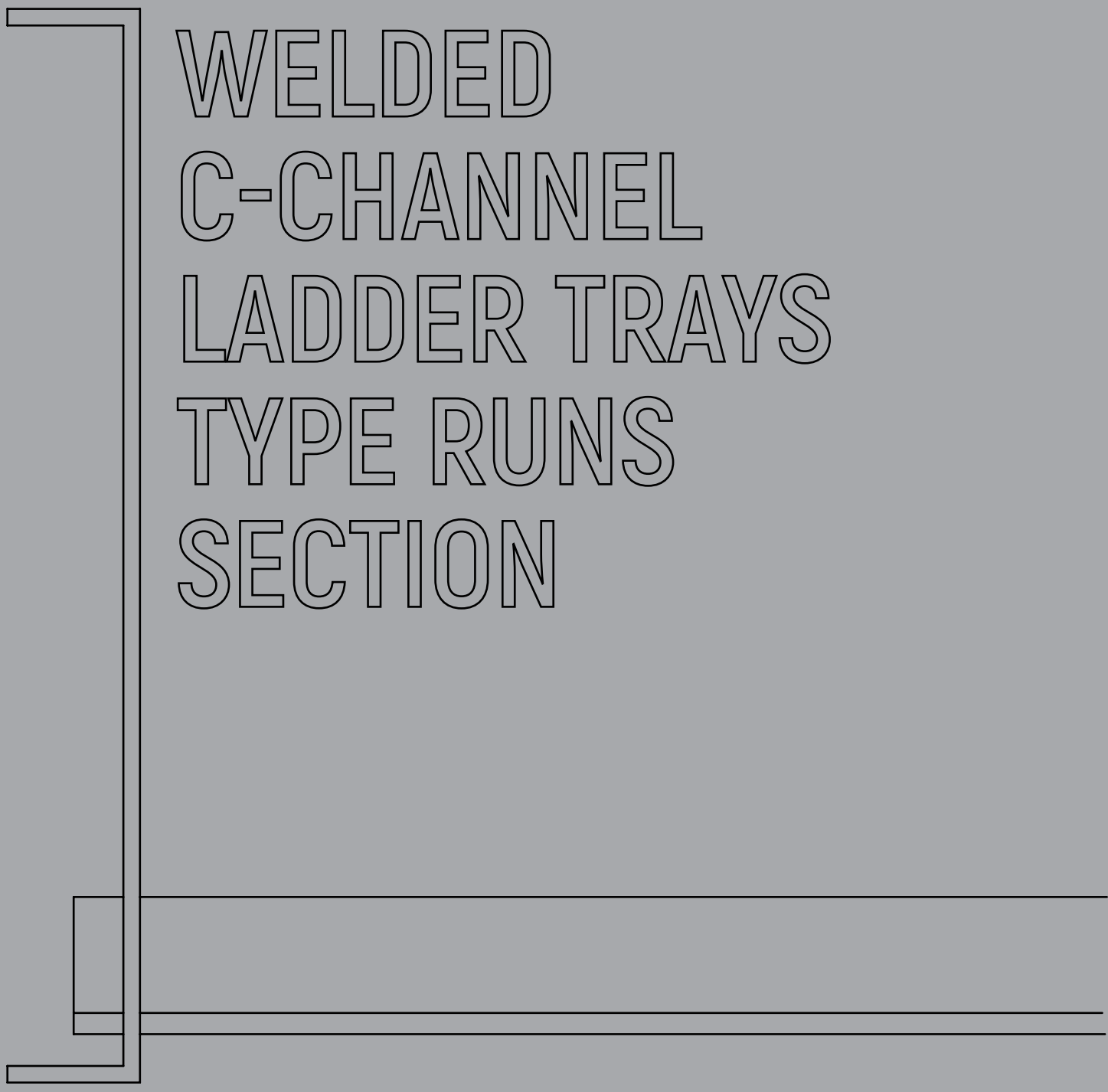
- NEMA Class D (67 kg/m by 6.0m)
- Side Rail: S6
- Height: 162 mm
- Load Depth: 125 mm
- Rung - Spacing: 229 mm





Item Code	NEMA CLASS 12A	Width	Support Distance	Load	Deflection		Side Rail S6
					Rung	Rail	
		(mm)	(m)	KN/m	(mm)	(mm)	
SVCLS6_F_00150162	162 X 20 X 2.5	150	2.40	6.09	0.03	4.20	Tubular Rung: 25 X 1.5 mm
			3.0	3.97	0.02	6.71	
			3.70	2.62	0.01	10.31	
			4.90	1.31	0.01	16.23	
SVCLS6_F_00225162		225	2.40	6.08	0.09	4.26	
			3.0	3.96	0.06	6.74	
			3.70	2.61	0.04	10.33	
			4.90	1.31	0.02	16.33	
SVCLS6_F_00300162		300	2.40	6.08	0.20	4.38	
			3.0	3.95	0.13	6.81	
			3.70	2.60	0.09	10.37	
			4.90	1.30	0.04	16.32	
SVCLS6_F_00450162		450	2.40	6.07	0.68	4.87	
			3.0	3.94	0.44	7.13	
			3.70	2.60	0.29	10.63	
			4.90	1.27	0.14	16.25	
SVCLS6_F_00600162		600	2.40	5.16	1.37	4.95	
			3.0	3.93	1.04	7.74	
			3.70	2.58	0.69	11.00	
			4.90	1.24	0.33	16.26	
SVCLS6_F_00750162		750	2.40	4.13	2.14	5.03	
			3.0	3.91	2.03	8.72	
			3.70	2.57	1.33	11.67	
			4.90	1.20	0.62	16.26	
SVCLS6_F_00900162		900	2.40	3.57	2.57	5.09	Tubular Rung: 25 X 2.0 mm
			3.0	3.57	2.57	8.72	
			3.70	2.56	1.84	12.20	
			4.90	1.17	0.84	16.30	

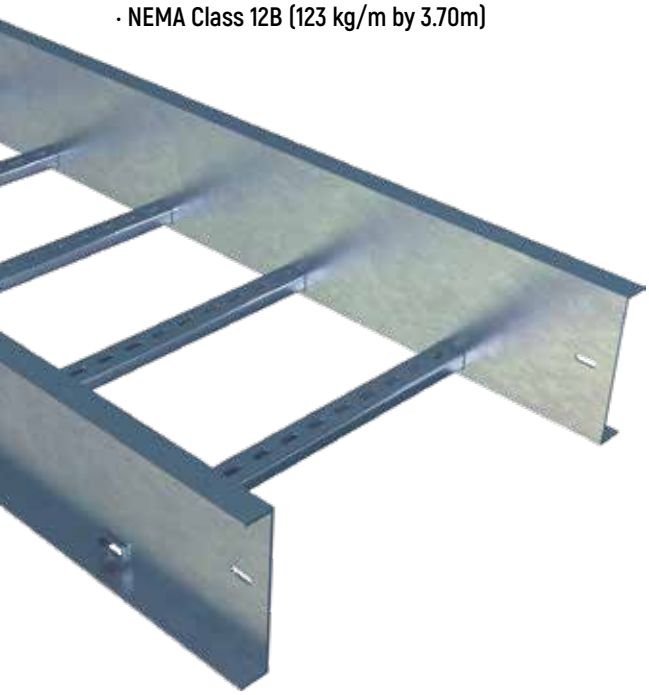
WELDED C-CHANNEL LADDER TRAYS TYPE RUNS SECTION

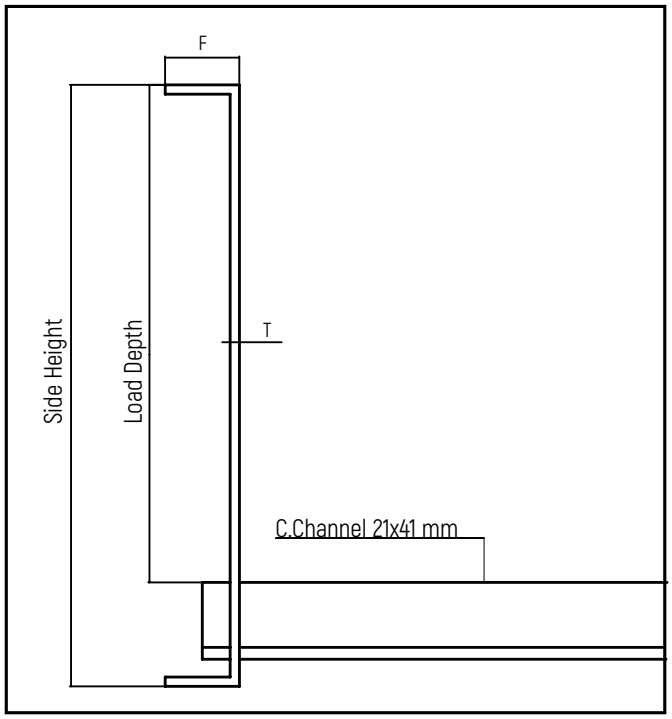


Welded C-Channel - Ladder Type Runs

STEEL S235 JRG2

- NEMA Class 8C (149 kg/m by 2.40m)
- NEMA Class 12A (74 kg/m by 3.70m)
- NEMA Class 12B (118 kg/m by 3.70m)
- NEMA Class 12A (74 kg/m by 3.70m)
- NEMA Class 12B (123 kg/m by 3.70m)
- NEMA Class 16A (82 kg/m by 4.90m)
- NEMA Class 12A (87 kg/m by 3.70m)
- NEMA Class 12C (150 kg/m by 3.70m)
- NEMA Class D (67 kg/m by 6.0m)





Steel S235 JRG2 - Side Rails

Design Data							Classes	
Side Rail	Height	Load Depth	Thickness	F	W	I	NEMA	
	(mm)	Fd (mm)	(mm)	(mm)	cm^3	cm^4	Span	Class
S1	110	75	2.0	22	6.83	35.87	3.70	12A
S2	138	100	2.0	22	9.55	62.08	3.70	12B
S3	162	125	2.0	22	12.67	98.17	4.90	16A
S4	110	75	2.5	22	8.34	43.81	3.70	12A
S5	138	100	2.5	22	11.71	76.15	3.70	12C
S6	162	125	2.5	22	15.58	120.75	6.0	D

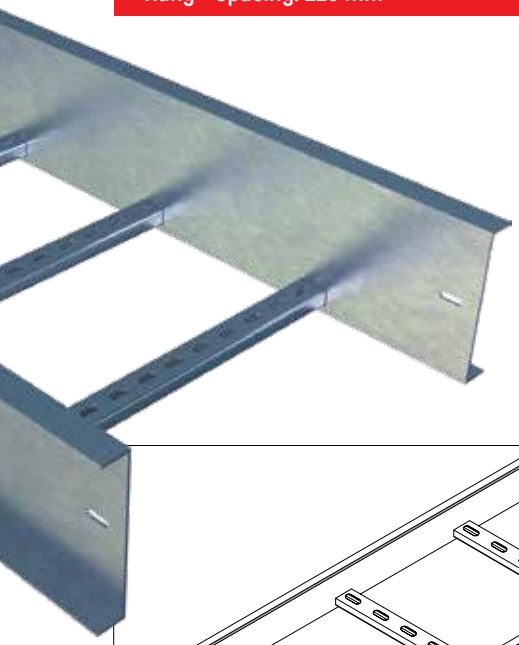
Load Classes			
Side Rail	Load kg/m	Span (m)	Classes NEMA
S1	74	3.70	12A
S2	123	3.70	12B
S3	82	4.90	16A
S4	87	3.70	12A
S5	150	3.70	12C
S6	67	6.00	D

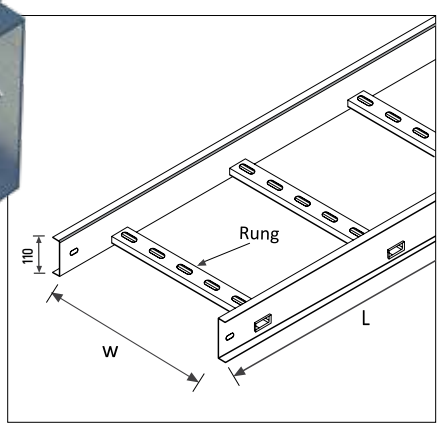
SL - S1 (Welded C-Channel)

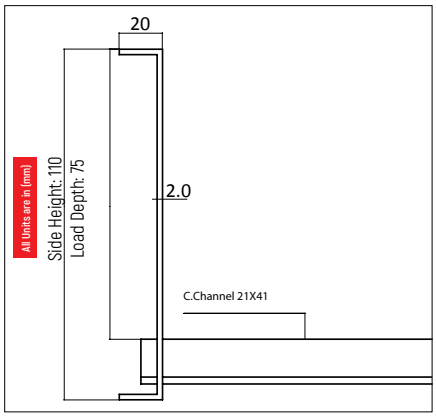
2.00 mm Thickness

(Side Height 110 mm)

- NEMA Class 12A (74 kg/m by 3.70m)
- Side Rail: S1
- Height: 110 mm
- Load Depth: 75 mm
- Rung - Spacing: 229 mm







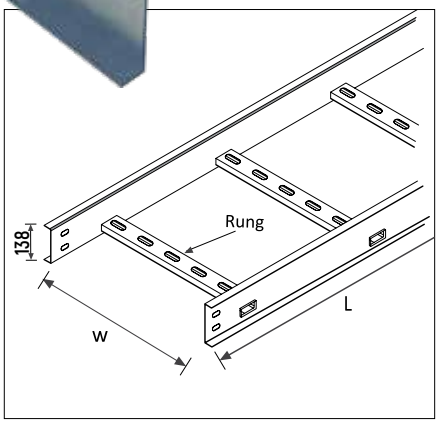
Item Code	NEMA CLASS 12A	Width	Support Distance	Load	Deflection		Side Rail S1
					Rung	Rail	
		(mm)	(m)	KN/m	(mm)	(mm)	
SVCLBS_F_00188539	110 X 20 X 2.0	150	2.40	2.69	0.01	6.33	Rung 41 x 21 x 1.5 mm
			3.0	1.70	0.01	9.96	
			3.70	0.86	0.00	12.28	
			4.90	0.31	0.00	16.13	
SVCLBS_F_00217587		225	2.40	2.69	0.04	6.36	
			3.0	1.70	0.03	9.98	
			3.70	0.86	0.01	12.29	
			4.90	0.31	0.00	16.14	
SVCLBS_F_00188535		300	2.40	2.69	0.10	6.42	
			3.0	1.69	0.06	9.96	
			3.70	0.86	0.03	12.31	
			4.90	0.31	0.01	14.14	
VCLBS_F_00188547		450	2.40	2.69	0.33	6.65	
			3.0	1.67	0.21	9.99	
			3.70	0.85	0.1	12.26	
			4.90	0.31	0.04	26.17	
SVCLBS_F_00217591		600	2.40	2.69	0.75	3.10	
			3.0	1.62	0.47	3.98	
			3.70	0.84	0.25	12.27	
			4.90	0.31	0.09	16.22	
SVCLBS_F_00189829		750	2.40	2.69	1.53	7.85	
			3.0	1.54	0.88	9.95	
			3.70	0.82	0.47	10.24	
			4.90	0.31	0.18	10.31	
SVCLBS_F_00188457		900	2.40	2.39	2.36	7.99	
			3.0	1.45	1.43	10.00	
			3.70	0.80	0.79	12.30	
			4.90	0.30	0.30	16.03	

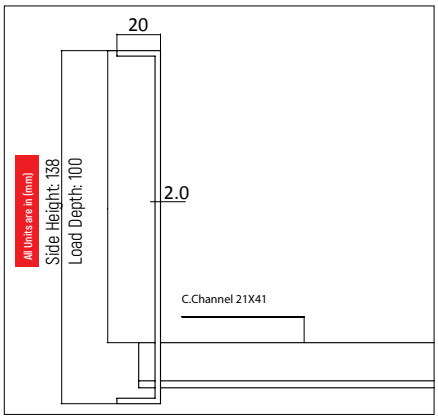
SL - S2 (Welded C-Channel)

2.00 mm Thickness

(Side Height 138 mm)

- NEMA Class 12B (123 kg/m by 3.70m)
- Side Rail: S2
- Height: 138 mm
- Load Depth: 100 mm
- Rung Spacing: 229 mm





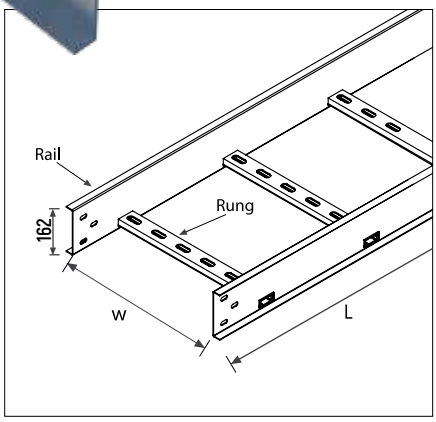
Item Code	NEMA CLASS 12A	Width	Support Distance	Load	Deflection		Side Rail S2
					Rung	Rail	
		(mm)	(m)	KN/m	(mm)	(mm)	
SVCLBS_F_00156079	138 X 20 X 2.0	150	2.40	3.73	0.02	5.05	Rung 41 x 21 x 1.5 mm
			3.0	2.40	0.01	8.01	
			3.70	1.55	0.01	12.27	
			4.90	0.60	0.00	16.00	
SVCLBS_F_00217595		225	2.40	3.73	0.06	5.09	
			3.0	2.40	0.04	8.06	
			3.70	1.55	0.02	12.28	
			4.90	0.60	0.01	16.01	
SVCLBS_F_00156071		300	2.40	3.73	0.14	5.17	
			3.0	2.40	0.09	8.11	
			3.70	1.55	0.06	12.31	
			4.90	0.60	0.02	16.02	
SVCLBS_F_00156067		450	2.40	3.73	0.46	5.50	
			3.0	2.40	0.30	8.32	
			3.70	1.53	0.19	12.30	
			4.90	0.60	0.07	16.07	
SVCLBS_F_00156063		600	2.40	3.73	1.09	6.13	
			3.0	2.40	0.70	8.73	
			3.70	1.50	0.44	12.32	
			4.90	0.60	0.18	16.17	
SVCLBS_F_00156059		750	2.40	3.73	2.13	7.17	
			3.0	2.40	1.37	9.40	
			3.70	1.44	0.82	12.26	
			4.90	0.59	0.34	13.10	
SVCLBS_F_00156055		900	2.40	3.27	2.56	7.0	
			3.0	2.30	2.27	9.97	
			3.70	1.36	1.34	12.19	
			4.90	0.58	0.57	16.11	

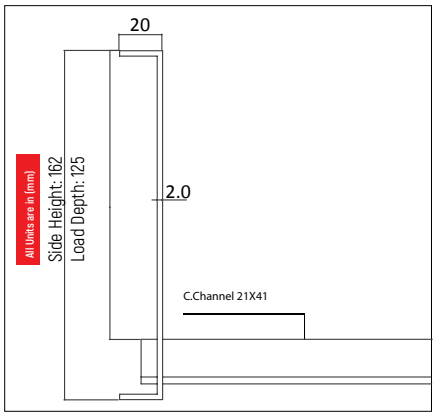
SL - S3 (Welded C-Channel)

2.00 mm Thickness

(Side Height 162 mm)

- NEMA Class 16A (82 kg/m by 4.90m)
- Side Rail: S3
- Height: 162 mm
- Load Depth: 125 mm
- Rung Spacing: 229 mm





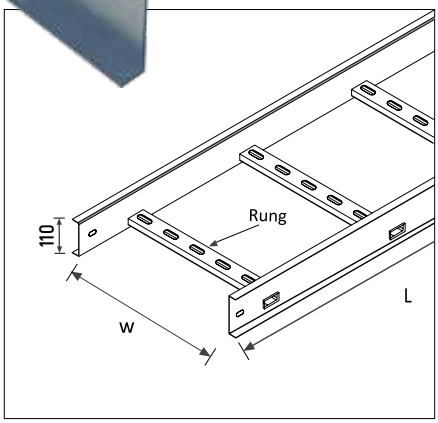
Item Code	NEMA CLASS 12A	Width	Support Distance	Load	Deflection		Side Rail S3
					Rung	Rail	
		(mm)	(m)	KN/m	(mm)	(mm)	
SVCLBS_F_00217605	162 X 20 X 2.0	150	2.40	4.90	0.02	4.20	Rung 41 x 21 x 1.5 mm
			3.0	3.18	0.01	6.70	
			3.70	2.09	0.01	10.34	
			4.90	1.02	0.00	16.24	
SVCLBS_F_00217609		225	2.40	4.90	0.08	4.25	
			3.0	3.18	0.05	6.74	
			3.70	2.09	0.03	10.37	
			4.90	1.02	0.02	16.27	
SVCLBS_F_00217645		300	2.40	4.90	0.18	4.36	
			3.0	3.18	0.12	6.81	
			3.70	2.09	0.08	10.41	
			4.90	1.02	0.04	16.29	
SVCLBS_F_00217649		450	2.40	4.90	0.60	4.78	
			3.0	3.18	0.39	7.08	
			3.70	2.09	0.26	10.59	
			4.90	1.00	0.12	16.09	
SVCLBS_F_00217653		600	2.40	4.90	1.43	5.61	
			3.0	3.18	0.93	7.62	
			3.70	2.09	0.61	10.94	
			4.90	1.0	0.29	16.26	
SVCLBS_F_00217661		750	2.40	4.90	2.14	6.17	Rung 41 x 41 x 1.5 mm
			3.0	3.18	1.81	8.50	
			3.70	2.09	1.19	18.53	
			4.90	0.98	0.56	16.23	
SVCLBS_F_00217669		900	2.40	4.90	0.87	5.05	Rung 41 x 41 x 1.5 mm
SVCLBS_F_00217673			3.0	3.18	2.45	9.18	Rung 41 x 212.0 mm
			3.70	2.09	1.64	11.97	
			4.90	0.97	0.76	16.29	

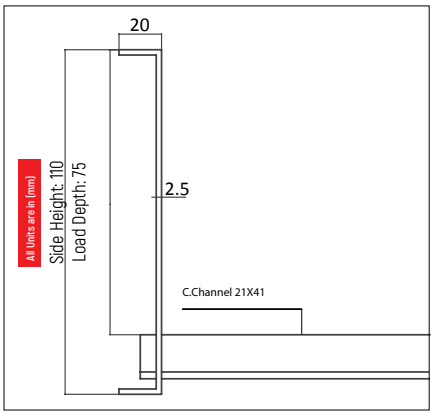
SL - S4 (Welded C-Channel)

2.50 mm Thickness

(Side Height 110 mm)

- NEMA Class 12A (87 kg/m by 3.70m)
- Side Rail: S4
- Height: 110 mm
- Load Depth: 75 mm
- Rung Spacing: 229 mm





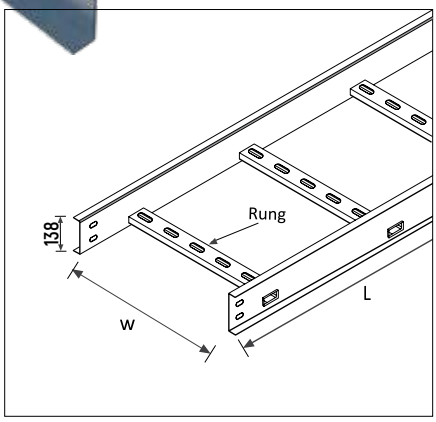
Item Code	NEMA CLASS 12A	Width	Support Distance	Load	Deflection		Side Rail S4
					Rung	Rail	
		(mm)	(m)	KN/m	(mm)	(mm)	
SVCLBS_F_00217697	110 X 20 X 2.5	150	2.40	3.30	0.02	6.32	Rung 41 x 21 x 1.5 mm
			3.0	2.10	0.01	9.97	
			3.70	1.07	0.00	12.26	
			4.90	0.40	0.00	16.11	
SVCLBS_F_00217701		225	2.40	3.30	0.05	6.35	
			3.0	2.10	0.03	9.99	
			3.70	1.07	0.02	12.27	
			4.90	0.40	0.01	14.11	
SVCLBS_F_00217705		300	2.40	3.30	0.12	6.42	
			3.0	2.09	0.08	9.99	
			3.70	1.07	0.04	12.29	
			4.90	0.40	0.01	16.12	
SVCLBS_F_00217709		450	2.40	3.30	0.41	6.71	
			3.0	2.05	0.25	9.98	
			3.70	1.06	0.13	12.28	
			4.90	0.40	0.05	16.15	
SVCLBS_F_00217713		600	2.40	3.22	1.84	7.99	
			3.0	1.98	0.58	9.99	
			3.70	1.02	0.58	12.31	
			4.90	0.40	0.23	10.33	
VCLBS_F_00063477		750	2.40	3.22	1.84	7.99	
			3.0	1.87	1.07	9.98	
			3.70	1.02	0.58	12.31	
			4.90	0.40	0.23	12.33	
SVCLBS_F_00063473		900	2.40	2.95	2.31	7.97	Rung 41 x 21 x 2.0 mm
			3.0	1.78	1.40	9.90	
			3.70	1.0	0.99	12.50	
			4.90	0.39	0.38	16.17	

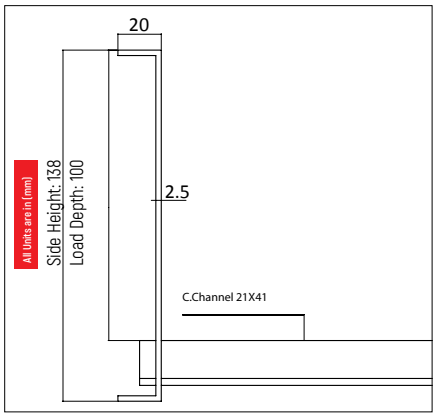
SL - S5 (Welded C-Channel)

2.50 mm Thickness

(Side Height 138 mm)

- NEMA Class 12C (150 kg/m by 3.70m)
- Side Rail: S5
- Height: 138 mm
- Load Depth: 100 mm
- Rung Spacing: 229 mm





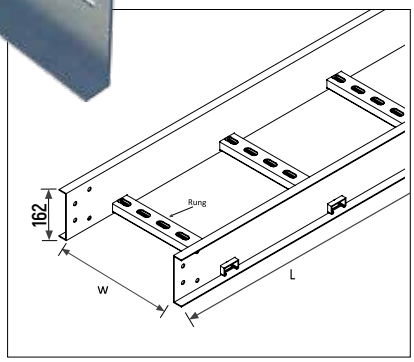
Item Code	NEMA CLASS 12A	Width	Support Distance	Load	Deflection		Side Rail S5
					Rung	Rail	
		(mm)	(m)	KN/m	(mm)	(mm)	
SVCLBS_F_00217717	138 X 20 X 2.5	150	2.40	4.6	0.02	5.07	Rung 41 x 21 x 1.5 mm
			3.0	2.97	0.01	8.05	
			3.70	1.93	0.01	12.30	
			4.90	0.77	0.00	16.21	
SVCLBS_F_00217721		225	2.40	4.61	0.07	5.12	
			3.0	2.97	0.05	8.05	
			3.70	1.93	0.03	12.32	
			4.90	0.77	0.01	16.22	
SVCLBS_F_00217725		300	2.40	4.6	0.17	5.22	
			3.0	2.97	0.11	8.14	
			3.70	1.92	0.07	12.30	
			4.90	0.77	0.03	16.23	
SVCLBS_F_00213173		450	2.40	4.61	0.57	5.62	
			3.0	2.97	0.37	8.40	
			3.70	1.89	0.23	12.28	
			4.90	0.77	0.09	16.30	
SVCLBS_F_00212753		600	2.40	4.61	1.35	6.40	
			3.0	2.97	0.87	8.90	
			3.70	1.84	0.54	12.29	
			4.90	0.76	0.22	16.24	
SVCLBS_F_00156059		750	2.40	4.61	2.09	7.84	Rung 41 x 21 x 2.0 mm
			3.0	2.97	1.69	9.73	
			3.70	1.76	1.00	12.27	
			4.90	0.75	0.43	16.26	
SVCLBS_F_00217729		900	2.40	4.61	0.82	5.87	Rung 41 x 41 x 1.5 mm
SVCLBS_F_00156055			3.0	2.86	2.24	9.99	Rung 41 x 21 x 2.0 mm
			3.70	1.66	1.64	12.30	
			4.90	0.73	0.72	16.18	

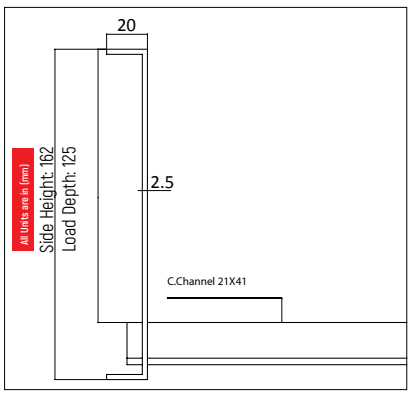
SL - S6 (Welded C-Channel)

2.50 mm Thickness

(Side Height 162 mm)

- NEMA Class Steel S9
- Side Rail: S6
- Height: 162 mm
- Load Depth: 125 mm
- Rung Spacing: 229 mm





Item Code	NEMA CLASS 12A	Width	Support Distance	Load	Deflection		Side Rail S6
					Rung	Rail	
		(mm)	(m)	KN/m	(mm)	(mm)	
SVCLBS_F_00217739	162 X 20 X 2.5	150	2.40	6.06	0.03	4.21	Rung 41 x 21 x 1.5 mm
			3.0	3.94	0.02	6.72	
			3.70	2.59	0.01	1.33	
			4.90	1.28	0.01	16.29	
SVCLBS_F_00217743		225	2.40	6.06	0.09	4.28	
			3.0	3.94	0.06	6.76	
			3.70	2.59	0.04	10.36	
			4.90	1.28	0.02	16.30	
SVCLBS_F_00217747		300	2.40	6.06	0.22	4.40	
			3.0	3.94	0.14	6.24	
			3.70	2.59	0.09	10.41	
			4.90	1.28	0.05	16.33	
SVCLBS_F_00217751		450	2.40	6.06	0.75	4.93	
			3.0	3.94	0.49	10.8	
			3.70	2.59	0.32	10.64	
			4.90	1.27	0.16	16.32	
SVCLBS_F_00217755		600	2.40	6.06	1.41	5.59	Rung 41 x 21 x 2.0 mm
			3.0	3.94	1.15	7.35	
			3.70	2.59	0.76	11.07	
			4.90	1.25	0.37	16.29	
SVCLBS_F_00217759		750	2.40	6.06	0.63	4.21	Rung 41 x 41 x 1.5 mm
			3.0	3.94	1.79	8.49	Rung 41 x 21 x 2.0 mm
			3.70	2.50	1.48	11.80	
			4.90	1.22	0.70	16.27	
SVCLBS_F_00217775		900	2.40	6.06	1.08	5.26	Rung 41 x 41 x 1.5 mm
SVCLBS_F_00156305			3.0	3.94	2.64	9.34	Rung 41 x 21 x 2.5 mm
			3.70	2.47	2.43	12.29	
			4.90	1.18	1.16	16.27	

LADDER TYPE FITTINGS

BEND 45°

WELDED CORNERED — THICKNESSES: 2.00

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.0	NEMA CLASS 12A 138 X 20 X 2.0	NEMA CLASS 12A 162 X 20 X 2.0	
Side Height 110	Side Height 138	Side Height 162	
SVCLBA_F_00231201	SVCLBA_F_00215881	SVCLBA_F_00231333	150 mm
SVCLBA_F_00231273	SVCLBA_F_00231269	SVCLBA_F_00231337	225 mm
SVCLBA_F_00231209	SVCLBA_F_00215901	SVCLBA_F_00231341	300 mm
SVCLBA_F_00231213	SVCLBA_F_00231481	SVCLBA_F_00231345	450 mm
SVCLBA_F_00231217	SVCLBA_F_00191029	SVCLBA_F_00231349	600 mm
SVCLBA_F_00231221	SVCLBA_F_00215065	SVCLBA_F_00231353	750 mm
SVCLBA_F_00231225	SVCLBA_F_00215905	SVCLBA_F_00231357	900 mm

WELDED CORNERED — THICKNESSES: 2.50

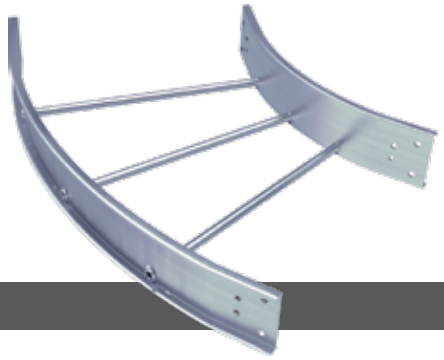
Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLBA_F_00231233	SVCLBA_F_00231293	SVCLBA_F_00231373	150 mm
SVCLBA_F_00231277	SVCLBA_F_00231297	SVCLBA_F_00231377	225 mm
SVCLBA_F_00231245	SVCLBA_F_00231301	SVCLBA_F_00231381	300 mm
SVCLBA_F_00231253	SVCLBA_F_00231305	SVCLBA_F_00231385	450 mm
SVCLBA_F_00231257	SVCLBA_F_00231309	SVCLBA_F_00231389	600 mm
SVCLBA_F_00231261	SVCLBA_F_00231313	SVCLBA_F_00231393	750 mm
SVCLBA_F_00231265	SVCLBA_F_00231317	SVCLBA_F_00231397	900 mm

WELDED CURVED — THICKNESSES: 2.00

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.0	NEMA CLASS 12A 138 X 20 X 2.0	NEMA CLASS 12A 162 X 20 X 2.0	
Side Height 110	Side Height 138	Side Height 162	
SVCLBA_F_00231401	SVCLBA_F_00231467	SVCLBA_F_00231561	150 mm
SVCLBA_F_00231405	SVCLBA_F_00231471	SVCLBA_F_00231565	225 mm
SVCLBA_F_00231409	SVCLBA_F_00231475	SVCLBA_F_00231569	300 mm
SVCLBA_F_00231413	SVCLBA_F_00231489	SVCLBA_F_00231577	450 mm
SVCLBA_F_00231417	SVCLBA_F_00231495	SVCLBA_F_00231581	600 mm
SVCLBA_F_00231421	SVCLBA_F_00231505	SVCLBA_F_00231585	750 mm
SVCLBA_F_00231425	SVCLBA_F_00231511	SVCLBA_F_00231589	900 mm

WELDED CURVED — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLBA_F_00231429	SVCLBA_F_00231519	SVCLBA_F_00231597	150 mm
SVCLBA_F_00231439	SVCLBA_F_00231523	SVCLBA_F_00231601	225 mm
SVCLBA_F_00231443	SVCLBA_F_00231527	SVCLBA_F_00231605	300 mm
SVCLBA_F_00231447	SVCLBA_F_00231531	SVCLBA_F_00231609	450 mm
SVCLBA_F_00231451	SVCLBA_F_00231535	SVCLBA_F_00231613	600 mm
SVCLBA_F_00231455	SVCLBA_F_00231539	SVCLBA_F_00231617	750 mm
SVCLBA_F_00231463	SVCLBA_F_00231543	SVCLBA_F_00231625	900 mm



SWAGED TUBULAR RUNG — THICKNESSES: 2.00

Item Code						Width mm
NEMA CLASS 12A 110 X 20 X 2.0		NEMA CLASS 12A 138 X 20 X 2.0		NEMA CLASS 12A 162 X 20 X 2.0		
Side Height 110		Side Height 138		Side Height 162		
Aluminum	Steel	Aluminum	Steel	Aluminum	Steel	
SVCLA1_F_BD150110	SVCLS1_F_BD150110	SVCLA2_F_BD150110	SVCLS2_F_BD150110	SVCLA3_F_BD150110	SVCLS3_F_BD150110	150 mm
SVCLA1_F_BD225110	SVCLS1_F_BD225110	SVCLA2_F_BD225110	SVCLS2_F_BD225110	SVCLA3_F_BD225110	SVCLS3_F_BD225110	225 mm
SVCLA1_F_BD300110	SVCLS1_F_BD300110	SVCLA2_F_BD300110	SVCLS2_F_BD300110	SVCLA3_F_BD300110	SVCLS3_F_BD300110	300 mm
SVCLA1_F_BD450110	SVCLS1_F_BD450110	SVCLA2_F_BD450110	SVCLS2_F_BD450110	SVCLA3_F_BD450110	SVCLS3_F_BD450110	450 mm
SVCLA1_F_BD600110	SVCLS1_F_BD600110	SVCLA2_F_BD600110	SVCLS2_F_BD600110	SVCLA3_F_BD600110	SVCLS3_F_BD600110	600 mm
SVCLA1_F_BD750110	SVCLS1_F_BD750110	SVCLA2_F_BD750110	SVCLS2_F_BD750110	SVCLA3_F_BD750110	SVCLS3_F_BD750110	750 mm
SVCLA1_F_BD900110	SVCLS1_F_BD900110	SVCLA2_F_BD900110	SVCLS2_F_BD900110	SVCLA3_F_BD900110	SVCLS3_F_BD900110	900 mm

SWAGED TUBULAR RUNG — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLS4_F_BD150110	SVCLS5_F_BD150110	SVCLS6_F_BD150110	150 mm
SVCLS4_F_BD225110	SVCLS5_F_BD225110	SVCLS6_F_BD225110	225 mm
SVCLS4_F_BD300110	SVCLS5_F_BD300110	SVCLS6_F_BD300110	300 mm
SVCLS4_F_BD450110	SVCLS5_F_BD450110	SVCLS6_F_BD450110	450 mm
SVCLS4_F_BD600110	SVCLS5_F_BD600110	SVCLS6_F_BD600110	600 mm
SVCLS4_F_BD750110	SVCLS5_F_BD750110	SVCLS6_F_BD750110	750 mm
SVCLS4_F_BD900110	SVCLS5_F_BD900110	SVCLS6_F_BD900110	900 mm

BEND 90°

WELDED CORNERED — THICKNESSES: 2.00

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.0	NEMA CLASS 12A 138 X 20 X 2.0	NEMA CLASS 12A 162 X 20 X 2.0	
Side Height 110	Side Height 138	Side Height 162	
SVCLBA_F_00188597	SVCLBA_F_00215851	SVCLBA_F_00231821	150 mm
SVCLBA_F_00231629	SVCLBA_F_00231749	SVCLBA_F_00231825	225 mm
SVCLBA_F_00231629	SVCLBA_F_00168247	SVCLBA_F_00231837	300 mm
SVCLBA_F_00188587	SVCLBA_F_00186619	SVCLBA_F_00231849	450 mm
SVCLBA_F_00231637	SVCLBA_F_00231753	SVCLBA_F_00231853	600 mm
SVCLBA_F_00221825	SVCLBA_F_00231757	SVCLBA_F_00231857	750 mm
SVCLBA_F_00188577	SVCLBA_F_00186609	SVCLBA_F_00231861	900 mm

WELDED CORNERED — THICKNESSES: 2.50

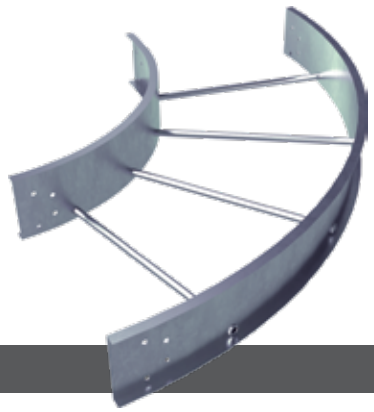
Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLBA_F_00231673	SVCLBA_F_00231773	SVCLBA_F_00231957	150 mm
SVCLBA_F_00231681	SVCLBA_F_00231777	SVCLBA_F_00231965	225 mm
SVCLBA_F_00231689	SVCLBA_F_00231781	SVCLBA_F_00231969	300 mm
SVCLBA_F_00231705	SVCLBA_F_00231785	SVCLBA_F_00231973	450 mm
SVCLBA_F_00231713	SVCLBA_F_00231797	SVCLBA_F_00231977	600 mm
SVCLBA_F_00231729	SVCLBA_F_00231801	SVCLBA_F_00231981	750 mm
SVCLBA_F_00231737	SVCLBA_F_00231805	SVCLBA_F_00231985	900 mm

WELDED CURVED — THICKNESSES: 2.00

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.0	NEMA CLASS 12A 138 X 20 X 2.0	NEMA CLASS 12A 162 X 20 X 2.0	
Side Height 110	Side Height 138	Side Height 162	
SVCLBA_F_00231989	SVCLBA_F_00232049	SVCLBA_F_00232105	150 mm
SVCLBA_F_00231993	SVCLBA_F_00232053	SVCLBA_F_00232109	225 mm
SVCLBA_F_00231997	SVCLBA_F_00232057	SVCLBA_F_00232113	300 mm
SVCLBA_F_00232001	SVCLBA_F_00232061	SVCLBA_F_00232117	450 mm
SVCLBA_F_00232005	SVCLBA_F_00232065	SVCLBA_F_00232121	600 mm
SVCLBA_F_00232009	SVCLBA_F_00232069	SVCLBA_F_00232125	750 mm
SVCLBA_F_00232013	SVCLBA_F_00232073	SVCLBA_F_00232129	900 mm

WELDED CURVED — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLBA_F_00232017	SVCLBA_F_00232077	SVCLBA_F_00232133	150 mm
SVCLBA_F_00232021	SVCLBA_F_00232081	SVCLBA_F_00232137	225 mm
SVCLBA_F_00232025	SVCLBA_F_00232085	SVCLBA_F_00232141	300 mm
SVCLBA_F_00232145	SVCLBA_F_00232089	SVCLBA_F_00232149	450 mm
SVCLBA_F_00232037	SVCLBA_F_00232093	SVCLBA_F_00232153	600 mm
SVCLBA_F_00232041	SVCLBA_F_00232097	SVCLBA_F_00232157	750 mm
SVCLBA_F_00232045	SVCLBA_F_00232101	SVCLBA_F_00232161	900 mm



SWAGED TUBULAR RUNG — THICKNESSES: 2.00

Item Code						Width mm
NEMA CLASS 12A 110 X 20 X 2.0		NEMA CLASS 12A 138 X 20 X 2.0		NEMA CLASS 12A 162 X 20 X 2.0		
Side Height 110		Side Height 138		Side Height 162		
Aluminum	Steel	Aluminum	Steel	Aluminum	Steel	
SVCLA1_F_BN150110	SVCLS1_F_BN150110	SVCLA2_F_BN150110	SVCLS2_F_BN150110	SVCLA3_F_BN150110	SVCLS3_F_BN150110	150 mm
SVCLA1_F_BN225110	SVCLS1_F_BN225110	SVCLA2_F_BN225110	SVCLS2_F_BN225110	SVCLA3_F_BN225110	SVCLS3_F_BN225110	225 mm
SVCLA1_F_BN300110	SVCLS1_F_BN300110	SVCLA2_F_BN300110	SVCLS2_F_BN300110	SVCLA3_F_BN300110	SVCLS3_F_BN300110	300 mm
SVCLA1_F_BN450110	SVCLS1_F_BN450110	SVCLA2_F_BN450110	SVCLS2_F_BN450110	SVCLA3_F_BN450110	SVCLS3_F_BN450110	450 mm
SVCLA1_F_BN600110	SVCLS1_F_BN600110	SVCLA2_F_BN600110	SVCLS2_F_BN600110	SVCLA3_F_BN600110	SVCLS3_F_BN600110	600 mm
SVCLA1_F_BN750110	SVCLS1_F_BN750110	SVCLA2_F_BN750110	SVCLS2_F_BN750110	SVCLA3_F_BN750110	SVCLS3_F_BN750110	750 mm
SVCLA1_F_BN900110	SVCLS1_F_BN900110	SVCLA2_F_BN900110	SVCLS2_F_BN900110	SVCLA3_F_BN900110	SVCLS3_F_BN900110	900 mm

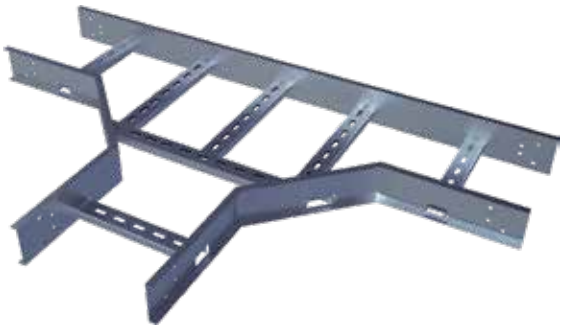
SWAGED TUBULAR RUNG — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLS4_F_BN150110	SVCLS5_F_BN150110	SVCLS6_F_BN150110	150 mm
SVCLS4_F_BN225110	SVCLS5_F_BN225110	SVCLS6_F_BN225110	225 mm
SVCLS4_F_BN300110	SVCLS5_F_BN300110	SVCLS6_F_BN300110	300 mm
SVCLS4_F_BN450110	SVCLS5_F_BN450110	SVCLS6_F_BN450110	450 mm
SVCLS4_F_BN600110	SVCLS5_F_BN600110	SVCLS6_F_BN600110	600 mm
SVCLS4_F_BN750110	SVCLS5_F_BN750110	SVCLS6_F_BN750110	750 mm
SVCLS4_F_BN900110	SVCLS5_F_BN900110	SVCLS6_F_BN900110	900 mm

TEE BRANCH

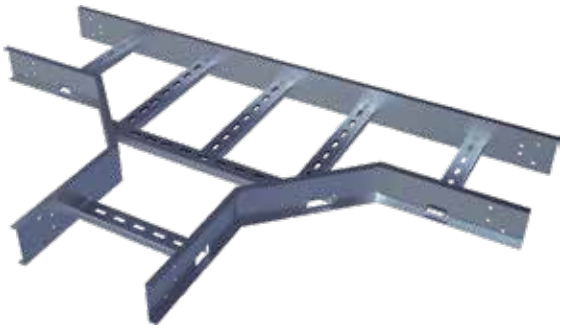
WELDED CORNERED — THICKNESSES: 2.00

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.0	NEMA CLASS 12A 138 X 20 X 2.0	NEMA CLASS 12A 162 X 20 X 2.0	
Side Height 110	Side Height 138	Side Height 162	
SVCLBA_F_00232165	SVCLBA_F_00215925	SVCLBA_F_00232295	150 mm
SVCLBA_F_00232169	SVCLBA_F_00232235	SVCLBA_F_00232299	225 mm
SVCLBA_F_00188637	SVCLBA_F_00168271	SVCLBA_F_00232303	300 mm
SVCLBA_F_00232209	SVCLBA_F_00168257	SVCLBA_F_00232307	450 mm
SVCLBA_F_00221841	SVCLBA_F_00168197	SVCLBA_F_00232319	600 mm
SVCLBA_F_00188627	SVCLBA_F_00215075	SVCLBA_F_00232323	750 mm
SVCLBA_F_00188617	SVCLBA_F_00215939	SVCLBA_F_00232327	900 mm



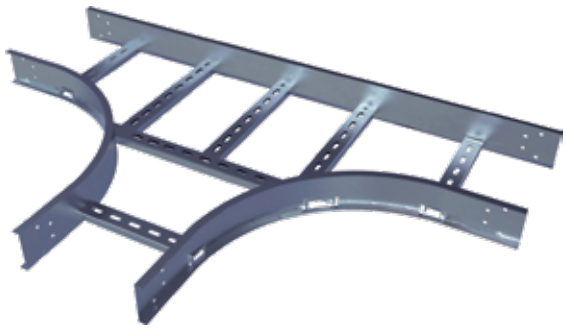
WELDED CORNERED — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLBA_F_00232189	SVCLBA_F_00232251	SVCLBA_F_00232343	150 mm
SVCLBA_F_00232197	SVCLBA_F_00232255	SVCLBA_F_00232347	225 mm
SVCLBA_F_00232205	SVCLBA_F_00232259	SVCLBA_F_00232351	300 mm
SVCLBA_F_00232263	SVCLBA_F_00232267	SVCLBA_F_00232355	450 mm
SVCLBA_F_00232223	SVCLBA_F_00232271	SVCLBA_F_00232359	600 mm
SVCLBA_F_00063545	SVCLBA_F_00232275	SVCLBA_F_00232363	750 mm
SVCLBA_F_00232231	SVCLBA_F_00232279	SVCLBA_F_00232367	900 mm



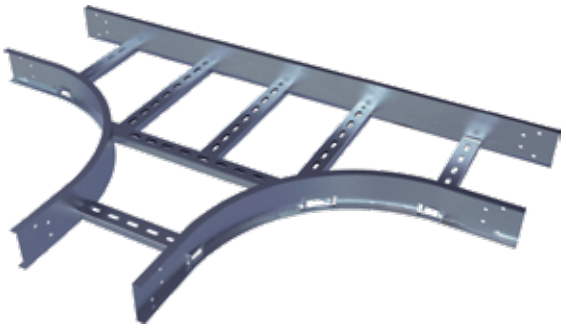
WELDED CURVED — THICKNESSES: 2.00

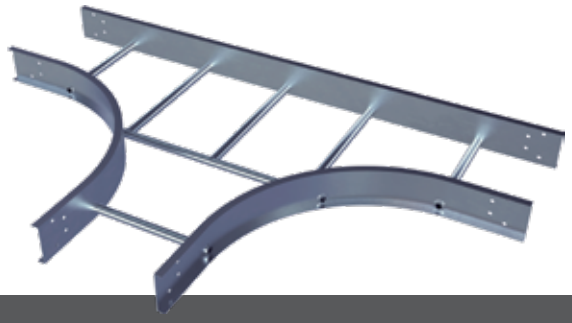
Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.0	NEMA CLASS 12A 138 X 20 X 2.0	NEMA CLASS 12A 162 X 20 X 2.0	
Side Height 110	Side Height 138	Side Height 162	
SVCLBA_F_00232433	SVCLBA_F_00232493	SVCLBA_F_00232549	150 mm
SVCLBA_F_00232437	SVCLBA_F_00232497	SVCLBA_F_00232553	225 mm
SVCLBA_F_00232441	SVCLBA_F_00232501	SVCLBA_F_00232557	300 mm
SVCLBA_F_00232445	SVCLBA_F_00232505	SVCLBA_F_00232561	450 mm
SVCLBA_F_00232449	SVCLBA_F_00232509	SVCLBA_F_00232565	600 mm
SVCLBA_F_00232453	SVCLBA_F_00232513	SVCLBA_F_00232569	750 mm
SVCLBA_F_00232457	SVCLBA_F_00232517	SVCLBA_F_00232573	900 mm



WELDED CURVED — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLBA_F_00232461	SVCLBA_F_00232521	SVCLBA_F_00232577	150 mm
SVCLBA_F_00232465	SVCLBA_F_00232529	SVCLBA_F_00232581	225 mm
SVCLBA_F_00232469	SVCLBA_F_00232525	SVCLBA_F_00232585	300 mm
SVCLBA_F_00232473	SVCLBA_F_00232533	SVCLBA_F_00232589	450 mm
SVCLBA_F_00232481	SVCLBA_F_00232537	SVCLBA_F_00232593	600 mm
SVCLBA_F_00232485	SVCLBA_F_00232541	SVCLBA_F_00232597	750 mm
SVCLBA_F_00232489	SVCLBA_F_00232545	SVCLBA_F_00232601	900 mm





SWAGED TUBULAR RUNG — THICKNESSES: 2.00

Item Code						Width mm
NEMA CLASS 12A 110 X 20 X 2.0		NEMA CLASS 12A 138 X 20 X 2.0		NEMA CLASS 12A 162 X 20 X 2.0		
Side Height 110		Side Height 138		Side Height 162		
Aluminum	Steel	Aluminum	Steel	Aluminum	Steel	
SVCLA1_F_TB150110	SVCLS1_F_TB150110	SVCLA2_F_TB150110	SVCLS2_F_TB150110	SVCLA3_F_TB150110	SVCLS3_F_TB150110	150 mm
SVCLA1_F_TB225110	SVCLS1_F_TB225110	SVCLA2_F_TB225110	SVCLS2_F_TB225110	SVCLA3_F_TB225110	SVCLS3_F_TB225110	225 mm
SVCLA1_F_TB300110	SVCLS1_F_TB300110	SVCLA2_F_TB300110	SVCLS2_F_TB300110	SVCLA3_F_TB300110	SVCLS3_F_TB300110	300 mm
SVCLA1_F_TB450110	SVCLS1_F_TB450110	SVCLA2_F_TB450110	SVCLS2_F_TB450110	SVCLA3_F_TB450110	SVCLS3_F_TB450110	450 mm
SVCLA1_F_TB600110	SVCLS1_F_TB600110	SVCLA2_F_TB600110	SVCLS2_F_TB600110	SVCLA3_F_TB600110	SVCLS3_F_TB600110	600 mm
SVCLA1_F_TB750110	SVCLS1_F_TB750110	SVCLA2_F_TB750110	SVCLS2_F_TB750110	SVCLA3_F_TB750110	SVCLS3_F_TB750110	750 mm
SVCLA1_F_TB900110	SVCLS1_F_TB900110	SVCLA2_F_TB900110	SVCLS2_F_TB900110	SVCLA3_F_TB900110	SVCLS3_F_TB900110	900 mm

SWAGED TUBULAR RUNG — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLS4_F_TB150110	SVCLS5_F_TB150110	SVCLS6_F_TB150110	150 mm
SVCLS4_F_TB225110	SVCLS5_F_TB225110	SVCLS6_F_TB225110	225 mm
SVCLS4_F_TB300110	SVCLS5_F_TB300110	SVCLS6_F_TB300110	300 mm
SVCLS4_F_TB450110	SVCLS5_F_TB450110	SVCLS6_F_TB450110	450 mm
SVCLS4_F_TB600110	SVCLS5_F_TB600110	SVCLS6_F_TB600110	600 mm
SVCLS4_F_TB750110	SVCLS5_F_TB750110	SVCLS6_F_TB750110	750 mm
SVCLS4_F_TB900110	SVCLS5_F_TB900110	SVCLS6_F_TB900110	900 mm

Inside Vertical Elbow (Inside Riser)

WELDED CORNERED — THICKNESSES: 2.00

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.0	NEMA CLASS 12A 138 X 20 X 2.0	NEMA CLASS 12A 162 X 20 X 2.0	
Side Height 110	Side Height 138	Side Height 162	
SVCLBA_F_00232605	SVCLBA_F_00215943	SVCLBA_F_00232725	150 mm
SVCLBA_F_00232609	SVCLBA_F_00232647	SVCLBA_F_00232733	225 mm
SVCLBA_F_00188687	SVCLBA_F_00216013	SVCLBA_F_00232737	300 mm
SVCLBA_F_00232613	SVCLBA_F_00211333	SVCLBA_F_00232741	450 mm
SVCLBA_F_00232617	SVCLBA_F_00186593	SVCLBA_F_00232745	600 mm
SVCLBA_F_00189845	SVCLBA_F_00215089	SVCLBA_F_00232749	750 mm
SVCLBA_F_00188683	SVCLBA_F_00186589	SVCLBA_F_00232753	900 mm

WELDED CORNERED — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLBA_F_00232621	SVCLBA_F_00232691	SVCLBA_F_00232757	150 mm
SVCLBA_F_00232625	SVCLBA_F_00232695	SVCLBA_F_00232761	225 mm
SVCLBA_F_00232635	SVCLBA_F_00232699	SVCLBA_F_00232765	300 mm
SVCLBA_F_00232639	SVCLBA_F_00232703	SVCLBA_F_00232769	450 mm
SVCLBA_F_00232643	SVCLBA_F_00232707	SVCLBA_F_00189665	600 mm
SVCLBA_F_00094175	SVCLBA_F_00232711	SVCLBA_F_00232773	750 mm
SVCLBA_F_00072289	SVCLBA_F_00232715	SVCLBA_F_00232777	900 mm

WELDED CURVED — THICKNESSES: 2.00

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.0	NEMA CLASS 12A 138 X 20 X 2.0	NEMA CLASS 12A 162 X 20 X 2.0	
Side Height 110	Side Height 138	Side Height 162	
SVCLBA_F_00232781	SVCLBA_F_00232841	SVCLBA_F_00232897	150 mm
SVCLBA_F_00232785	SVCLBA_F_00232845	SVCLBA_F_00232901	225 mm
SVCLBA_F_00232789	SVCLBA_F_00232849	SVCLBA_F_00232905	300 mm
SVCLBA_F_00232801	SVCLBA_F_00232853	SVCLBA_F_00232909	450 mm
SVCLBA_F_00232797	SVCLBA_F_00232857	SVCLBA_F_00232913	600 mm
SVCLBA_F_00232805	SVCLBA_F_00232861	SVCLBA_F_00232917	750 mm
SVCLBA_F_00232809	SVCLBA_F_00232865	SVCLBA_F_00232921	900 mm

WELDED CURVED — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLBA_F_00232813	SVCLBA_F_00232869	SVCLBA_F_00232925	150 mm
SVCLBA_F_00232817	SVCLBA_F_00232873	SVCLBA_F_00232929	225 mm
SVCLBA_F_00232821	SVCLBA_F_00232877	SVCLBA_F_00232933	300 mm
SVCLBA_F_00232825	SVCLBA_F_00232881	SVCLBA_F_00232937	450 mm
SVCLBA_F_00232829	SVCLBA_F_00232885	SVCLBA_F_00232941	600 mm
SVCLBA_F_00232833	SVCLBA_F_00232889	SVCLBA_F_00232945	750 mm
SVCLBA_F_00232837	SVCLBA_F_00232893	SVCLBA_F_00232949	900 mm

SWAGED TUBULAR RUNG — THICKNESSES: 2.00

Item Code						Width mm
NEMA CLASS 12A 110 X 20 X 2.0		NEMA CLASS 12A 138 X 20 X 2.0		NEMA CLASS 12A 162 X 20 X 2.0		
Side Height 110		Side Height 138		Side Height 162		
Aluminum	Steel	Aluminum	Steel	Aluminum	Steel	
SVCLA1_F_VB150110	SVCLS1_F_VB150110	SVCLA2_F_VB150110	SVCLS2_F_VB150110	SVCLA3_F_VB150110	SVCLS3_F_VB150110	150 mm
SVCLA1_F_VB225110	SVCLS1_F_VB225110	SVCLA2_F_VB225110	SVCLS2_F_VB225110	SVCLA3_F_VB225110	SVCLS3_F_VB225110	225 mm
SVCLA1_F_VB300110	SVCLS1_F_VB300110	SVCLA2_F_VB300110	SVCLS2_F_VB300110	SVCLA3_F_VB300110	SVCLS3_F_VB300110	300 mm
SVCLA1_F_VB450110	SVCLS1_F_VB450110	SVCLA2_F_VB450110	SVCLS2_F_VB450110	SVCLA3_F_VB450110	SVCLS3_F_VB450110	450 mm
SVCLA1_F_VB600110	SVCLS1_F_VB600110	SVCLA2_F_VB600110	SVCLS2_F_VB600110	SVCLA3_F_VB600110	SVCLS3_F_VB600110	600 mm
SVCLA1_F_VB750110	SVCLS1_F_VB750110	SVCLA2_F_VB750110	SVCLS2_F_VB750110	SVCLA3_F_VB750110	SVCLS3_F_VB750110	750 mm
SVCLA1_F_VB900110	SVCLS1_F_VB900110	SVCLA2_F_VB900110	SVCLS2_F_VB900110	SVCLA3_F_VB900110	SVCLS3_F_VB900110	900 mm

SWAGED TUBULAR RUNG — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLS4_F_VB150110	SVCLS5_F_VB150110	SVCLS6_F_VB150110	150 mm
SVCLS4_F_VB225110	SVCLS5_F_VB225110	SVCLS6_F_VB225110	225 mm
SVCLS4_F_VB300110	SVCLS5_F_VB300110	SVCLS6_F_VB300110	300 mm
SVCLS4_F_VB450110	SVCLS5_F_VB450110	SVCLS6_F_VB450110	450 mm
SVCLS4_F_VB600110	SVCLS5_F_VB600110	SVCLS6_F_VB600110	600 mm
SVCLS4_F_VB750110	SVCLS5_F_VB750110	SVCLS6_F_VB750110	750 mm
SVCLS4_F_VB900110	SVCLS5_F_VB900110	SVCLS6_F_VB900110	900 mm

Outside Vertical Elbow (Outside Riser)

WELDED CORNERED — THICKNESSES: 2.00

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.0	NEMA CLASS 12A 138 X 20 X 2.0	NEMA CLASS 12A 162 X 20 X 2.0	
Side Height 110	Side Height 138	Side Height 162	
SVCLBA_F_00359326	SVCLBA_F_00359344	SVCLBA_F_00359378	150 mm
SVCLBA_F_00235245	SVCLBA_F_00359348	SVCLBA_F_00359386	225 mm
SVCLBA_F_00288364	SVCLBA_F_00359352	SVCLBA_F_00359394	300 mm
SVCLBA_F_00359330	SVCLBA_F_00359356	SVCLBA_F_00359402	450 mm
SVCLBA_F_00345408	SVCLBA_F_00359360	SVCLBA_F_00359406	600 mm
SVCLBA_F_00359334	SVCLBA_F_00359364	SVCLBA_F_00359410	750 mm
SVCLBA_F_00225307	SVCLBA_F_00359368	SVCLBA_F_00359414	900 mm

WELDED CORNERED — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLBA_F_00359424	SVCLBA_F_00359458	SVCLBA_F_00359492	150 mm
SVCLBA_F_00359428	SVCLBA_F_00359462	SVCLBA_F_00359496	225 mm
SVCLBA_F_00359432	SVCLBA_F_00359466	SVCLBA_F_00359500	300 mm
SVCLBA_F_00359436	SVCLBA_F_00359470	SVCLBA_F_00359504	450 mm
SVCLBA_F_00359440	SVCLBA_F_00359474	SVCLBA_F_00359508	600 mm
SVCLBA_F_00359444	SVCLBA_F_00359478	SVCLBA_F_00359512	750 mm
SVCLBA_F_00359448	SVCLBA_F_00359482	SVCLBA_F_00359516	900 mm

WELDED CURVED — THICKNESSES: 2.00

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.0	NEMA CLASS 12A 138 X 20 X 2.0	NEMA CLASS 12A 162 X 20 X 2.0	
Side Height 110	Side Height 138	Side Height 162	
SVCLS4_F_OV150110	SVCLS4_F_OV150138	SVCLS4_F_OV150162	150 mm
SVCLS4_F_OV225110	SVCLS4_F_OV225138	SVCLS4_F_OV225162	225 mm
SVCLS4_F_OV300110	SVCLS4_F_OV300138	SVCLS4_F_OV300162	300 mm
SVCLS4_F_OV450110	SVCLS4_F_OV450138	SVCLS4_F_OV450162	450 mm
SVCLS4_F_OV600110	SVCLS4_F_OV600138	SVCLS4_F_OV600162	600 mm
SVCLS4_F_OV750110	SVCLS4_F_OV750138	SVCLS4_F_OV750162	750 mm
SVCLS4_F_OV900110	SVCLS4_F_OV900138	SVCLS4_F_OV900162	900 mm

WELDED CURVED — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLS5_F_OV150110	SVCLS5_F_OV150138	SVCLS5_F_OV150162	150 mm
SVCLS5_F_OV225110	SVCLS5_F_OV225138	SVCLS5_F_OV225162	225 mm
SVCLS5_F_OV300110	SVCLS5_F_OV300138	SVCLS5_F_OV300162	300 mm
SVCLS5_F_OV450110	SVCLS5_F_OV450138	SVCLS5_F_OV450162	450 mm
SVCLS5_F_OV600110	SVCLS5_F_OV600138	SVCLS5_F_OV600162	600 mm
SVCLS5_F_OV750110	SVCLS5_F_OV750138	SVCLS5_F_OV750162	750 mm
SVCLS5_F_OV900110	SVCLS5_F_OV900138	SVCLS5_F_OV900162	900 mm

SWAGED TUBULAR RUNG — THICKNESSES: 2.00

Item Code						Width mm
NEMA CLASS 12A 110 X 20 X 2.0		NEMA CLASS 12A 138 X 20 X 2.0		NEMA CLASS 12A 162 X 20 X 2.0		
Side Height 110		Side Height 138		Side Height 162		
Aluminum	Steel	Aluminum	Steel	Aluminum	Steel	
SVCLA1_F_DB150110	SVCLS1_F_DB150110	SVCLA2_F_DB150110	SVCLS2_F_DB150110	SVCLA3_F_DB150110	SVCLS3_F_DB150110	150 mm
SVCLA1_F_DB225110	SVCLS1_F_DB225110	SVCLA2_F_DB225110	SVCLS2_F_DB225110	SVCLA3_F_DB225110	SVCLS3_F_DB225110	225 mm
SVCLA1_F_DB300110	SVCLS1_F_DB300110	SVCLA2_F_DB300110	SVCLS2_F_DB300110	SVCLA3_F_DB300110	SVCLS3_F_DB300110	300 mm
SVCLA1_F_DB450110	SVCLS1_F_DB450110	SVCLA2_F_DB450110	SVCLS2_F_DB450110	SVCLA3_F_DB450110	SVCLS3_F_DB450110	450 mm
SVCLA1_F_DB600110	SVCLS1_F_DB600110	SVCLA2_F_DB600110	SVCLS2_F_DB600110	SVCLA3_F_DB600110	SVCLS3_F_DB600110	600 mm
SVCLA1_F_DB750110	SVCLS1_F_DB750110	SVCLA2_F_DB750110	SVCLS2_F_DB750110	SVCLA3_F_DB750110	SVCLS3_F_DB750110	750 mm
SVCLA1_F_DB900110	SVCLS1_F_DB900110	SVCLA2_F_DB900110	SVCLS2_F_DB900110	SVCLA3_F_DB900110	SVCLS3_F_DB900110	900 mm

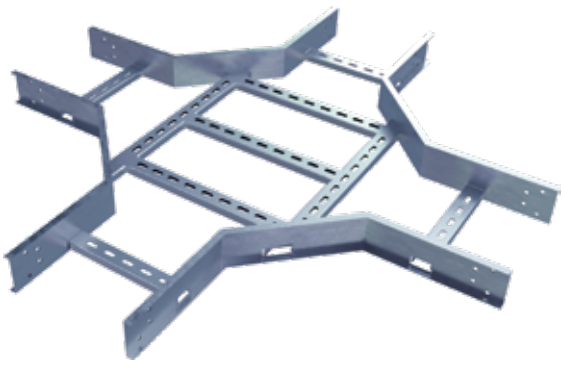
SWAGED TUBULAR RUNG — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLS4_F_DB150110	SVCLS5_F_DB150110	SVCLS6_F_DB150110	150 mm
SVCLS4_F_DB225110	SVCLS5_F_DB225110	SVCLS6_F_DB225110	225 mm
SVCLS4_F_DB300110	SVCLS5_F_DB300110	SVCLS6_F_DB300110	300 mm
SVCLS4_F_DB450110	SVCLS5_F_DB450110	SVCLS6_F_DB450110	450 mm
SVCLS4_F_DB600110	SVCLS5_F_DB600110	SVCLS6_F_DB600110	600 mm
SVCLS4_F_DB750110	SVCLS5_F_DB750110	SVCLS6_F_DB750110	750 mm
SVCLS4_F_DB900110	SVCLS5_F_DB900110	SVCLS6_F_DB900110	900 mm

Horizontal Cross (Intersection)

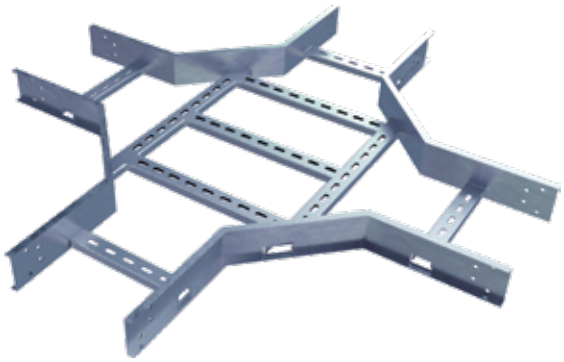
WELDED CORNERED — THICKNESSES: 2.00

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.0	NEMA CLASS 12A 138 X 20 X 2.0	NEMA CLASS 12A 162 X 20 X 2.0	
Side Height 110	Side Height 138	Side Height 162	
SVCLS4_F_HC150110	SVCLS4_F_HC150138	SVCLS4_F_HC150162	150 mm
SVCLS4_F_HC225110	SVCLS4_F_HC225138	SVCLS4_F_HC225162	225 mm
SVCLS4_F_HC300110	SVCLS4_F_HC300138	SVCLS4_F_HC300162	300 mm
SVCLS4_F_HC450110	SVCLS4_F_HC450138	SVCLS4_F_HC450162	450 mm
SVCLS4_F_HC600110	SVCLS4_F_HC600138	SVCLS4_F_HC600162	600 mm
SVCLS4_F_HC750110	SVCLS4_F_HC750138	SVCLS4_F_HC750162	750 mm
SVCLS4_F_HC900110	SVCLS4_F_HC900138	SVCLS4_F_HC900162	900 mm



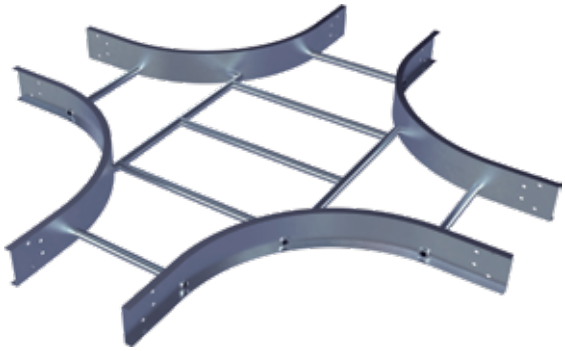
WELDED CORNERED — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLS5_F_HC150110	SVCLS5_F_HC150138	SVCLS5_F_HC150162	150 mm
SVCLS5_F_HC225110	SVCLS5_F_HC225138	SVCLS5_F_HC225162	225 mm
SVCLS5_F_HC300110	SVCLS5_F_HC300138	SVCLS5_F_HC300162	300 mm
SVCLS5_F_HC450110	SVCLS5_F_HC450138	SVCLS5_F_HC450162	450 mm
SVCLS5_F_HC600110	SVCLS5_F_HC600138	SVCLS5_F_HC600162	600 mm
SVCLS5_F_HC750110	SVCLS5_F_HC750138	SVCLS5_F_HC750162	750 mm
SVCLS5_F_HC900110	SVCLS5_F_HC900138	SVCLS5_F_HC900162	900 mm



WELDED CURVED — THICKNESSES: 2.00

Item Code						Width mm
NEMA CLASS 12A 110 X 20 X 2.0		NEMA CLASS 12A 138 X 20 X 2.0		NEMA CLASS 12A 162 X 20 X 2.0		
Side Height 110		Side Height 138		Side Height 162		
Aluminum	Steel	Aluminum	Steel	Aluminum	Steel	
SVCLA1_F_IN150110	SVCLS1_F_IN150110	SVCLA2_F_IN150110	SVCLS2_F_IN150110	SVCLA3_F_IN150110	SVCLS3_F_IN150110	150 mm
SVCLA1_F_IN225110	SVCLS1_F_IN225110	SVCLA2_F_IN225110	SVCLS2_F_IN225110	SVCLA3_F_IN225110	SVCLS3_F_IN225110	225 mm
SVCLA1_F_IN300110	SVCLS1_F_IN300110	SVCLA2_F_IN300110	SVCLS2_F_IN300110	SVCLA3_F_IN300110	SVCLS3_F_IN300110	300 mm
SVCLA1_F_IN450110	SVCLS1_F_IN450110	SVCLA2_F_IN450110	SVCLS2_F_IN450110	SVCLA3_F_IN450110	SVCLS3_F_IN450110	450 mm
SVCLA1_F_IN600110	SVCLS1_F_IN600110	SVCLA2_F_IN600110	SVCLS2_F_IN600110	SVCLA3_F_IN600110	SVCLS3_F_IN600110	600 mm
SVCLA1_F_IN750110	SVCLS1_F_IN750110	SVCLA2_F_IN750110	SVCLS2_F_IN750110	SVCLA3_F_IN750110	SVCLS3_F_IN750110	750 mm
SVCLA1_F_IN900110	SVCLS1_F_IN900110	SVCLA2_F_IN900110	SVCLS2_F_IN900110	SVCLA3_F_IN900110	SVCLS3_F_IN900110	900 mm



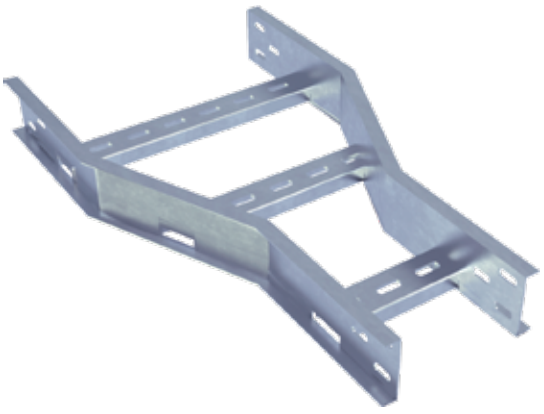
SWAGED TUBULAR RUNG — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLS4_F_IN150110	SVCLS5_F_IN150110	SVCLS6_F_IN150110	150 mm
SVCLS4_F_IN225110	SVCLS5_F_IN225110	SVCLS6_F_IN225110	225 mm
SVCLS4_F_IN300110	SVCLS5_F_IN300110	SVCLS6_F_IN300110	300 mm
SVCLS4_F_IN450110	SVCLS5_F_IN450110	SVCLS6_F_IN450110	450 mm
SVCLS4_F_IN600110	SVCLS5_F_IN600110	SVCLS6_F_IN600110	600 mm
SVCLS4_F_IN750110	SVCLS5_F_IN750110	SVCLS6_F_IN750110	750 mm
SVCLS4_F_IN900110	SVCLS5_F_IN900110	SVCLS6_F_IN900110	900 mm

Straight Central **Reducers**

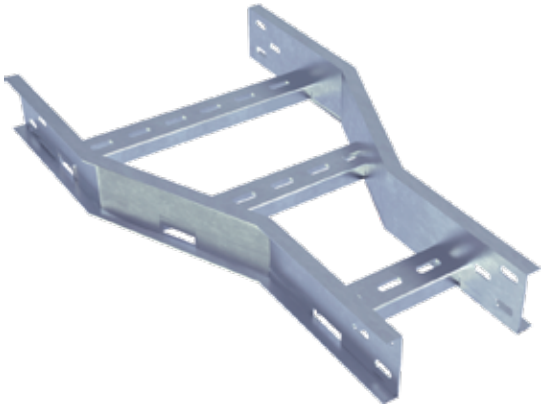
WELDED CORNERED — THICKNESSES: 2.00

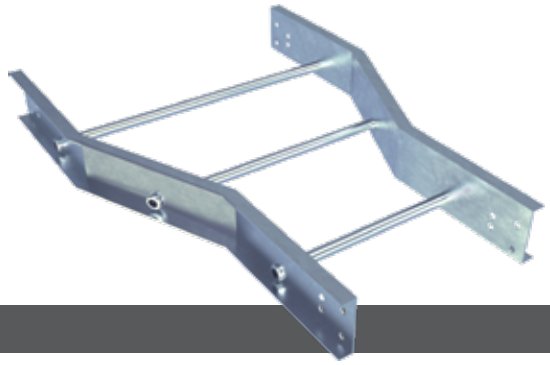
Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.0	NEMA CLASS 12A 138 X 20 X 2.0	NEMA CLASS 12A 162 X 20 X 2.0	
Side Height 110	Side Height 138	Side Height 162	
SVCLS4_F_SR150110	SVCLS4_F_SR150138	SVCLS4_F_SR150162	150 mm
SVCLS4_F_SR225110	SVCLS4_F_SR225138	SVCLS4_F_SR225162	225 mm
SVCLS4_F_SR300110	SVCLS4_F_SR300138	SVCLS4_F_SR300162	300 mm
SVCLS4_F_SR450110	SVCLS4_F_SR450138	SVCLS4_F_SR450162	450 mm
SVCLS4_F_SR600110	SVCLS4_F_SR600138	SVCLS4_F_SR600162	600 mm
SVCLS4_F_SR750110	SVCLS4_F_SR750138	SVCLS4_F_SR750162	750 mm
SVCLS4_F_SR900110	SVCLS4_F_SR900138	SVCLS4_F_SR900162	900 mm



WELDED CORNERED — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLS5_F_SR150110	SVCLS5_F_SR150138	SVCLS5_F_SR150162	150 mm
SVCLS5_F_SR225110	SVCLS5_F_SR225138	SVCLS5_F_SR225162	225 mm
SVCLS5_F_SR300110	SVCLS5_F_SR300138	SVCLS5_F_SR300162	300 mm
SVCLS5_F_SR450110	SVCLS5_F_SR450138	SVCLS5_F_SR450162	450 mm
SVCLS5_F_SR600110	SVCLS5_F_SR600138	SVCLS5_F_SR600162	600 mm
SVCLS5_F_SR750110	SVCLS5_F_SR750138	SVCLS5_F_SR750162	750 mm
SVCLS5_F_SR900110	SVCLS5_F_SR900138	SVCLS5_F_SR900162	900 mm





SWAGED TUBULAR RUNG — THICKNESSES: 2.00

Item Code						Width mm
NEMA CLASS 12A 110 X 20 X 2.0		NEMA CLASS 12A 138 X 20 X 2.0		NEMA CLASS 12A 162 X 20 X 2.0		
Side Height 110		Side Height 138		Side Height 162		
Aluminum	Steel	Aluminum	Steel	Aluminum	Steel	
SVCLA1_F_CR150110	SVCLS1_F_CR150110	SVCLA2_F_CR150110	SVCLS2_F_CR150110	SVCLA3_F_CR150110	SVCLS3_F_CR150110	150 mm
SVCLA1_F_CR225110	SVCLS1_F_CR225110	SVCLA2_F_CR225110	SVCLS2_F_CR225110	SVCLA3_F_CR225110	SVCLS3_F_CR225110	225 mm
SVCLA1_F_CR300110	SVCLS1_F_CR300110	SVCLA2_F_CR300110	SVCLS2_F_CR300110	SVCLA3_F_CR300110	SVCLS3_F_CR300110	300 mm
SVCLA1_F_CR450110	SVCLS1_F_CR450110	SVCLA2_F_CR450110	SVCLS2_F_CR450110	SVCLA3_F_CR450110	SVCLS3_F_CR450110	450 mm
SVCLA1_F_CR600110	SVCLS1_F_CR600110	SVCLA2_F_CR600110	SVCLS2_F_CR600110	SVCLA3_F_CR600110	SVCLS3_F_CR600110	600 mm
SVCLA1_F_CR750110	SVCLS1_F_CR750110	SVCLA2_F_CR750110	SVCLS2_F_CR750110	SVCLA3_F_CR750110	SVCLS3_F_CR750110	750 mm
SVCLA1_F_CR900110	SVCLS1_F_CR900110	SVCLA2_F_CR900110	SVCLS2_F_CR900110	SVCLA3_F_CR900110	SVCLS3_F_CR900110	900 mm

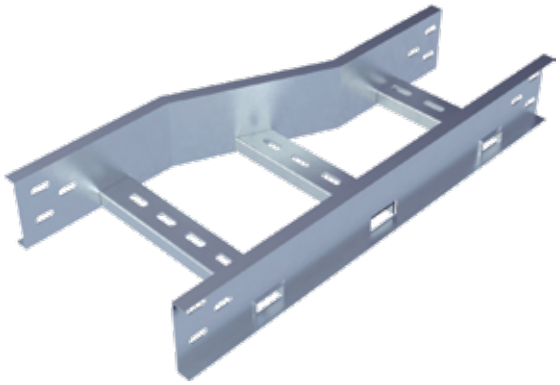
SWAGED TUBULAR RUNG — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLS4_F_CR150110	SVCLS5_F_CR150110	SVCLS6_F_CR150110	150 mm
SVCLS4_F_CR225110	SVCLS5_F_CR225110	SVCLS6_F_CR225110	225 mm
SVCLS4_F_CR300110	SVCLS5_F_CR300110	SVCLS6_F_CR300110	300 mm
SVCLS4_F_CR450110	SVCLS5_F_CR450110	SVCLS6_F_CR450110	450 mm
SVCLS4_F_CR600110	SVCLS5_F_CR600110	SVCLS6_F_CR600110	600 mm
SVCLS4_F_CR750110	SVCLS5_F_CR750110	SVCLS6_F_CR750110	750 mm
SVCLS4_F_CR900110	SVCLS5_F_CR900110	SVCLS6_F_CR900110	900 mm

Right Hand Reducers

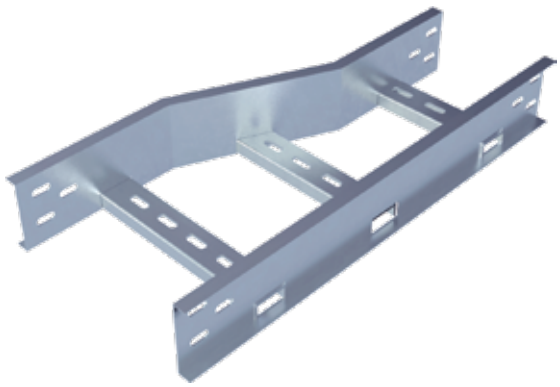
WELDED CORNERED — THICKNESSES: 2.00

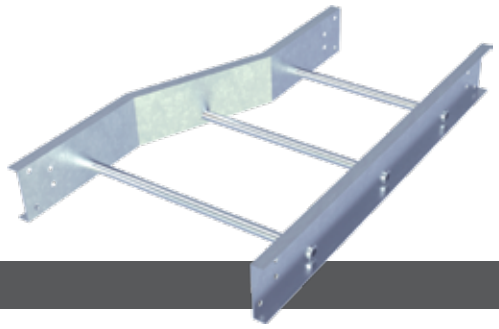
Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.0	NEMA CLASS 12A 138 X 20 X 2.0	NEMA CLASS 12A 162 X 20 X 2.0	
Side Height 110	Side Height 138	Side Height 162	
SVCLS4_F_RH150110	SVCLS4_F_RH150138	SVCLS4_F_RH150162	150 mm
SVCLS4_F_RH225110	SVCLS4_F_RH225138	SVCLS4_F_RH225162	225 mm
SVCLS4_F_RH300110	SVCLS4_F_RH300138	SVCLS4_F_RH300162	300 mm
SVCLS4_F_RH450110	SVCLS4_F_RH450138	SVCLS4_F_RH450162	450 mm
SVCLS4_F_RH600110	SVCLS4_F_RH600138	SVCLS4_F_RH600162	600 mm
SVCLS4_F_RH750110	SVCLS4_F_RH750138	SVCLS4_F_RH750162	750 mm
SVCLS4_F_RH900110	SVCLS4_F_RH900138	SVCLS4_F_RH900162	900 mm



WELDED CORNERED — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLS5_F_RH150110	SVCLS5_F_RH150138	SVCLS5_F_RH150162	150 mm
SVCLS5_F_RH225110	SVCLS5_F_RH225138	SVCLS5_F_RH225162	225 mm
SVCLS5_F_RH300110	SVCLS5_F_RH300138	SVCLS5_F_RH300162	300 mm
SVCLS5_F_RH450110	SVCLS5_F_RH450138	SVCLS5_F_RH450162	450 mm
SVCLS5_F_RH600110	SVCLS5_F_RH600138	SVCLS5_F_RH600162	600 mm
SVCLS5_F_RH750110	SVCLS5_F_RH750138	SVCLS5_F_RH750162	750 mm
SVCLS5_F_RH900110	SVCLS5_F_RH900138	SVCLS5_F_RH900162	900 mm

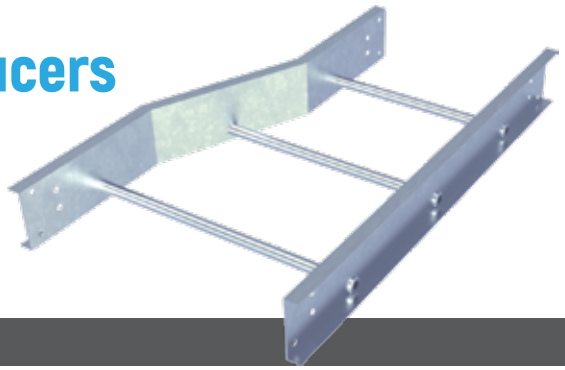




SWAGED TUBULAR RUNG — THICKNESSES: 2.00

Item Code						Width mm
NEMA CLASS 12A 110 X 20 X 2.0		NEMA CLASS 12A 138 X 20 X 2.0		NEMA CLASS 12A 162 X 20 X 2.0		
Side Height 110		Side Height 138		Side Height 162		
Aluminum	Steel	Aluminum	Steel	Aluminum	Steel	
SVCLA1_F_RR150110	SVCLS1_F_RR150110	SVCLA2_F_RR150110	SVCLS2_F_RR150110	SVCLA3_F_RR150110	SVCLS3_F_RR150110	150 mm
SVCLA1_F_RR225110	SVCLS1_F_RR225110	SVCLA2_F_RR225110	SVCLS2_F_RR225110	SVCLA3_F_RR225110	SVCLS3_F_RR225110	225 mm
SVCLA1_F_RR300110	SVCLS1_F_RR300110	SVCLA2_F_RR300110	SVCLS2_F_RR300110	SVCLA3_F_RR300110	SVCLS3_F_RR300110	300 mm
SVCLA1_F_RR450110	SVCLS1_F_RR450110	SVCLA2_F_RR450110	SVCLS2_F_RR450110	SVCLA3_F_RR450110	SVCLS3_F_RR450110	450 mm
SVCLA1_F_RR600110	SVCLS1_F_RR600110	SVCLA2_F_RR600110	SVCLS2_F_RR600110	SVCLA3_F_RR600110	SVCLS3_F_RR600110	600 mm
SVCLA1_F_RR750110	SVCLS1_F_RR750110	SVCLA2_F_RR750110	SVCLS2_F_RR750110	SVCLA3_F_RR750110	SVCLS3_F_RR750110	750 mm
SVCLA1_F_RR900110	SVCLS1_F_RR900110	SVCLA2_F_RR900110	SVCLS2_F_RR900110	SVCLA3_F_RR900110	SVCLS3_F_RR900110	900 mm

Right Hand Reducers



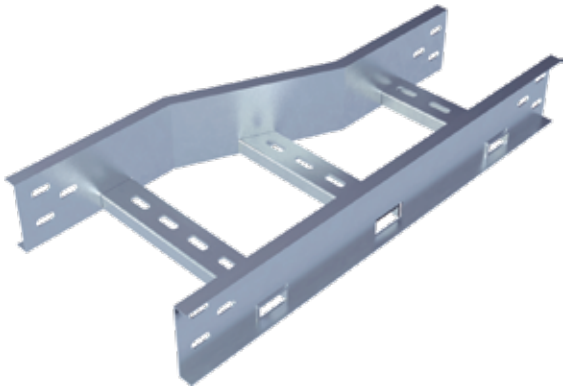
SWAGED TUBULAR RUNG — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLS4_F_RR150110	SVCLS5_F_RR150110	SVCLS6_F_RR150110	150 mm
SVCLS4_F_RR225110	SVCLS5_F_RR225110	SVCLS6_F_RR225110	225 mm
SVCLS4_F_RR300110	SVCLS5_F_RR300110	SVCLS6_F_RR300110	300 mm
SVCLS4_F_RR450110	SVCLS5_F_RR450110	SVCLS6_F_RR450110	450 mm
SVCLS4_F_RR600110	SVCLS5_F_RR600110	SVCLS6_F_RR600110	600 mm
SVCLS4_F_RR750110	SVCLS5_F_RR750110	SVCLS6_F_RR750110	750 mm
SVCLS4_F_RR900110	SVCLS5_F_RR900110	SVCLS6_F_RR900110	900 mm

Left Hand Reducers

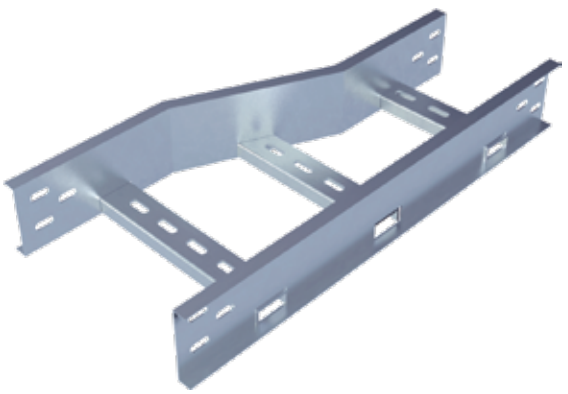
WELDED CORNERED — THICKNESSES: 2.00

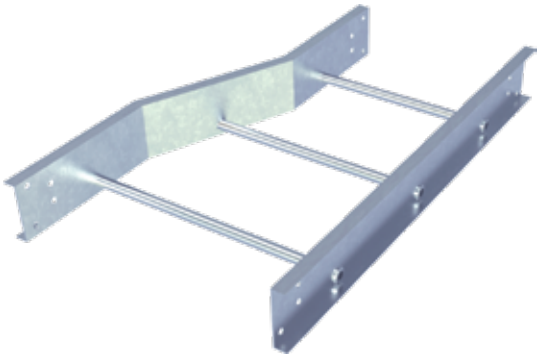
Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.0	NEMA CLASS 12A 138 X 20 X 2.0	NEMA CLASS 12A 162 X 20 X 2.0	
Side Height 110	Side Height 138	Side Height 162	
SVCLS4_F_LH150110	SVCLS4_F_LH150138	SVCLS4_F_LH150162	150 mm
SVCLS4_F_LH225110	SVCLS4_F_LH225138	SVCLS4_F_LH225162	225 mm
SVCLS4_F_LH300110	SVCLS4_F_LH300138	SVCLS4_F_LH300162	300 mm
SVCLS4_F_LH450110	SVCLS4_F_LH450138	SVCLS4_F_LH450162	450 mm
SVCLS4_F_LH600110	SVCLS4_F_LH600138	SVCLS4_F_LH600162	600 mm
SVCLS4_F_LH750110	SVCLS4_F_LH750138	SVCLS4_F_LH750162	750 mm
SVCLS4_F_LH900110	SVCLS4_F_LH900138	SVCLS4_F_LH900162	900 mm



WELDED CORNERED — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLS5_F_LH150110	SVCLS5_F_LH150138	SVCLS5_F_LH150162	150 mm
SVCLS5_F_LH225110	SVCLS5_F_LH225138	SVCLS5_F_LH225162	225 mm
SVCLS5_F_LH300110	SVCLS5_F_LH300138	SVCLS5_F_LH300162	300 mm
SVCLS5_F_LH450110	SVCLS5_F_LH450138	SVCLS5_F_LH450162	450 mm
SVCLS5_F_LH600110	SVCLS5_F_LH600138	SVCLS5_F_LH600162	600 mm
SVCLS5_F_LH750110	SVCLS5_F_LH750138	SVCLS5_F_LH750162	750 mm
SVCLS5_F_LH900110	SVCLS5_F_LH900138	SVCLS5_F_LH900162	900 mm





SWAGED TUBULAR RUNG — THICKNESSES: 2.00

Item Code						Width mm
NEMA CLASS 12A 110 X 20 X 2.0		NEMA CLASS 12A 138 X 20 X 2.0		NEMA CLASS 12A 162 X 20 X 2.0		
Side Height 110		Side Height 138		Side Height 162		
Aluminum	Steel	Aluminum	Steel	Aluminum	Steel	
SVCLA1_F_LR150110	SVCLS1_F_LR150110	SVCLA2_F_LR150110	SVCLS2_F_LR150110	SVCLA3_F_LR150110	SVCLS3_F_LR150110	150 mm
SVCLA1_F_LR225110	SVCLS1_F_LR225110	SVCLA2_F_LR225110	SVCLS2_F_LR225110	SVCLA3_F_LR225110	SVCLS3_F_LR225110	225 mm
SVCLA1_F_LR300110	SVCLS1_F_LR300110	SVCLA2_F_LR300110	SVCLS2_F_LR300110	SVCLA3_F_LR300110	SVCLS3_F_LR300110	300 mm
SVCLA1_F_LR450110	SVCLS1_F_LR450110	SVCLA2_F_LR450110	SVCLS2_F_LR450110	SVCLA3_F_LR450110	SVCLS3_F_LR450110	450 mm
SVCLA1_F_LR600110	SVCLS1_F_LR600110	SVCLA2_F_LR600110	SVCLS2_F_LR600110	SVCLA3_F_LR600110	SVCLS3_F_LR600110	600 mm
SVCLA1_F_LR750110	SVCLS1_F_LR750110	SVCLA2_F_LR750110	SVCLS2_F_LR750110	SVCLA3_F_LR750110	SVCLS3_F_LR750110	750 mm
SVCLA1_F_LR900110	SVCLS1_F_LR900110	SVCLA2_F_LR900110	SVCLS2_F_LR900110	SVCLA3_F_LR900110	SVCLS3_F_LR900110	900 mm

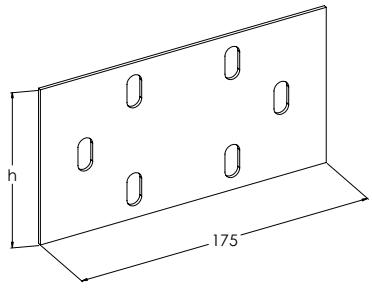
SWAGED TUBULAR RUNG — THICKNESSES: 2.50

Item Code			Width mm
NEMA CLASS 12A 110 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 162 X 20 X 2.5	
Side Height 110	Side Height 138	Side Height 162	
SVCLS4_F_LR150110	SVCLS5_F_LR150110	SVCLS6_F_LR150110	150 mm
SVCLS4_F_LR225110	SVCLS5_F_LR225110	SVCLS6_F_LR225110	225 mm
SVCLS4_F_LR300110	SVCLS5_F_LR300110	SVCLS6_F_LR300110	300 mm
SVCLS4_F_LR450110	SVCLS5_F_LR450110	SVCLS6_F_LR450110	450 mm
SVCLS4_F_LR600110	SVCLS5_F_LR600110	SVCLS6_F_LR600110	600 mm
SVCLS4_F_LR750110	SVCLS5_F_LR750110	SVCLS6_F_LR750110	750 mm
SVCLS4_F_LR900110	SVCLS5_F_LR900110	SVCLS6_F_LR900110	900 mm

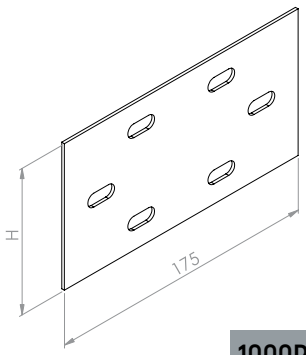
LADDER TRAY ACCESSORIES

Connectors

Straight connector / 1000 - 1000 R



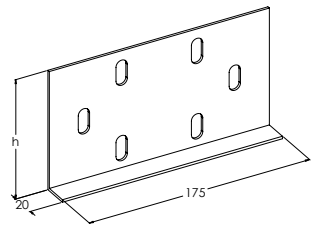
1000



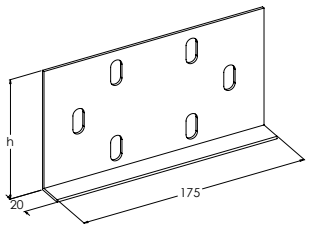
1000R

Order Example		
Item	(h)	(t)
1000	050	2
1000R	100	2

Angle connector / 1010 - 1010 R



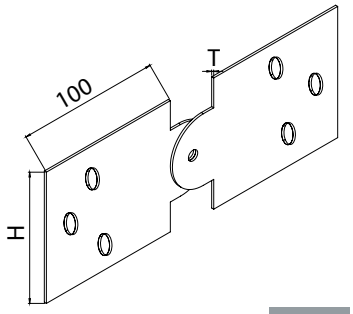
1010



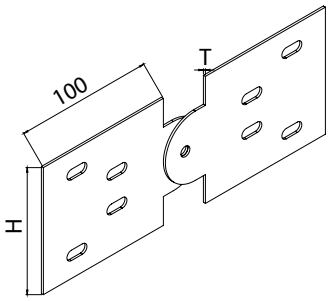
1010R

Order Example		
Item	(h)	(t)
1010	050	2
1010R	100	2

Adjustable Vertical Connector 1030 / 1030 R



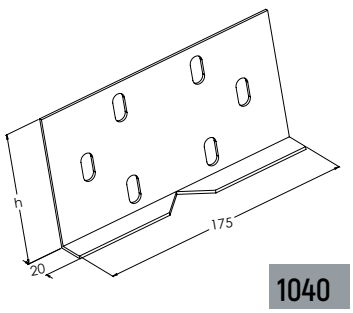
1030



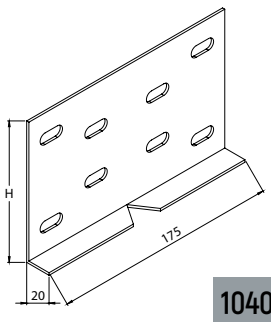
1030R

Order Example		
Item	(h)	(t)
1030	050	2
1030R	100	2

Adjustable Horizontal Connector 1040 / 1040 R



1040



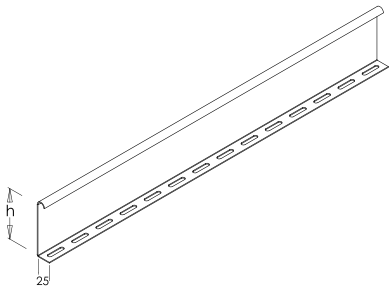
1040R

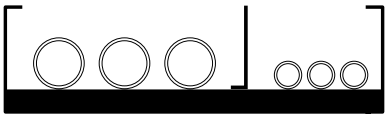
Order Example		
Item	(h)	(t)
1040	050	2
1040R	100	2

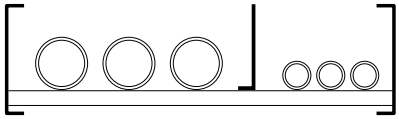
Barrier Strip 1070

For Cable Trays

For Cable Ladders







1070

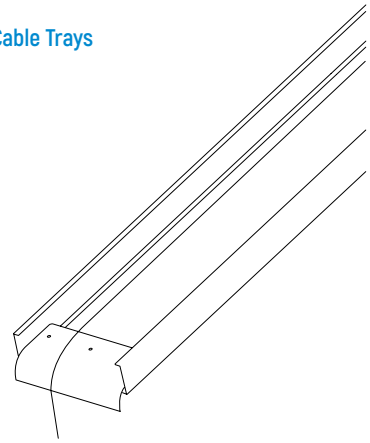
Available Lengths: 2440 / 3000 mm

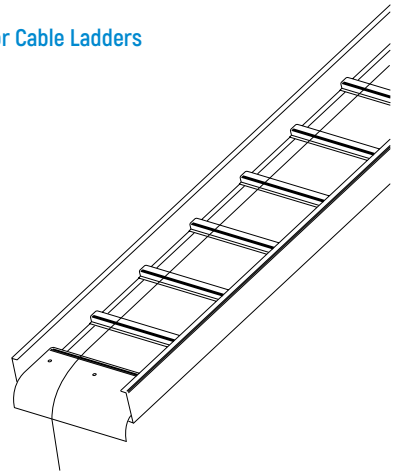
Available Lengths: 2440 / 3000 mm

Drop-out plate / 1110

For Cable Trays

For Cable Ladders



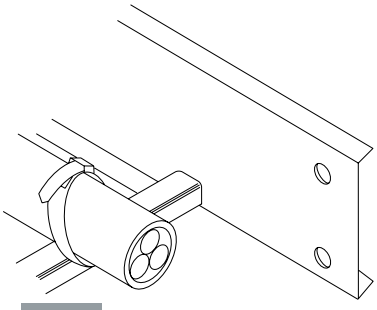


1110

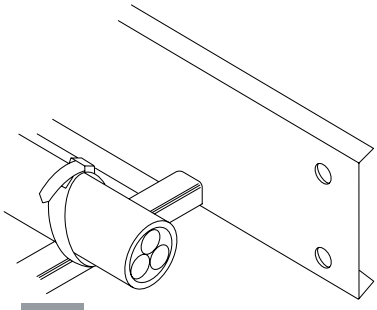
Cable Tie / 1120

For Cable Trays

For Cable Ladders



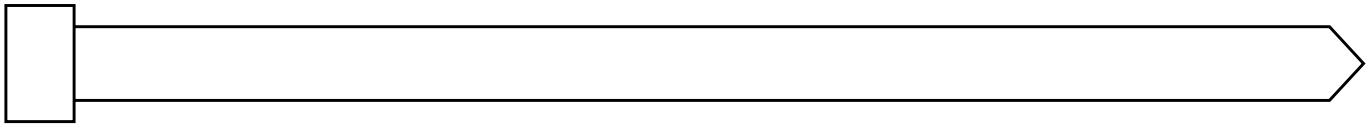
1120



1120

ELEMATIC

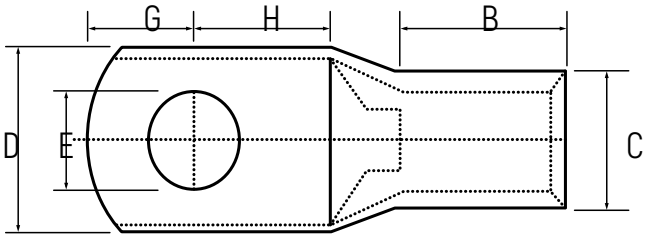
Nylon ties provide easy attachment of Ladder Cable Tray rungs

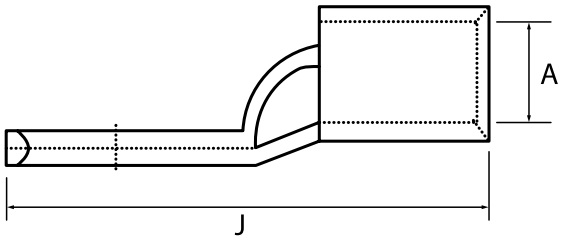


Crimping Type Copper / 2100

Tubular Cable Terminal Ends

2100



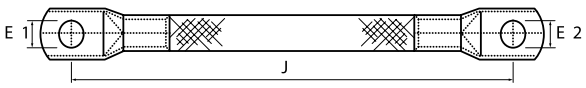


Cable mm²	Stud Hole	Dimensions (mm)						
		A	C	D	G	H	B	J
1.5	6.5	1.8	3.7	10	4	6	6	18
2.5	6.5	2.4	4	10	5	6	8	21
	8.4	2.4	4.2	12	6	9	8	26
4	6.5	3.1	4.8	10	5	6	8	21
	8.4	3.1	5.0	12	6	9	8	26
6	6.5	3.8	5.5	10	5	6	10	24
	8.4	3.8	5.5	12	6	9	10	28
10	6.5	4.5	6.2	11	6	7	10	26
	8.4	4.5	6.2	12	6	9	10	28
16	6.5	5.4	7.1	12	7	7	12	30
	8.4	5.4	7.1	12	7	7	12	30
20	8.4	6	7.7	12	7	7	12	32
25	6.5	6.8	8.8	13	7	7	12	30
	8.4	6.8	8.8	13	7	7	12	30

Tinned Copper Flexible Braids / 2200

Crimped with Connectors/ Terminals

2200



HFT- crimped with lugs

Size mm²	Dimensions (mm)			Current rating AMP
	J	E1	E2	
4	50	6	6	50
	100	6	6	50
	150	6	6	50
	200	6	6	50
10	50	6	6	90
	100	6	6	90
	150	6	6	90
	200	6	6	90
16	100	8.5	8.5	125
	150	8.5	8.5	125
	200	8.5	8.5	125
	250	8.5	8.5	125
	300	8.5	8.5	125
25	100	10	10	160
	150	10	10	160
	200	10	10	160
	250	10	10	160
	300	10	10	160

Covers

Functions

Ladder Cable Tray covers shall be considered for any of the following purposes:

- Protection from falling objects or debris, as may occur beneath personnel walkways.
- Shielding from ultraviolet rays of the sun and guarding against other weathering elements.
- Minimizing accumulation of foreign contaminants such as ash or other industrial deposits.
- Protection of cables and personnel where a riser tray penetrates a floor or grating.

Solid Cover / 2000

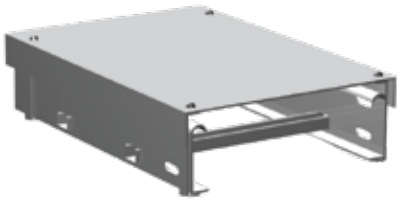
Covers Side Height Types :

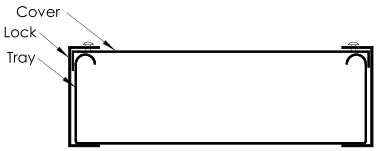
- Solid without flange - (SOF)
- Solid with flange - (SWF)
- Ventilated without flange - (VOF)
- Ventilated with flange - (VWF)

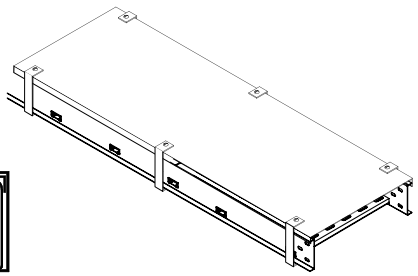
Ventilated Cover / 2010

- Cable covers are supplied with or without a 15 mm down turned flange.
- Straight section covers are furnished 3000 mm long. All fitting covers are furnished in solid design only.

Ladder Cable Tray Covers with Locking Clamp 2100

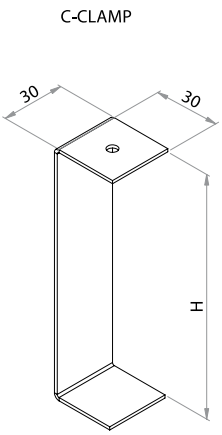


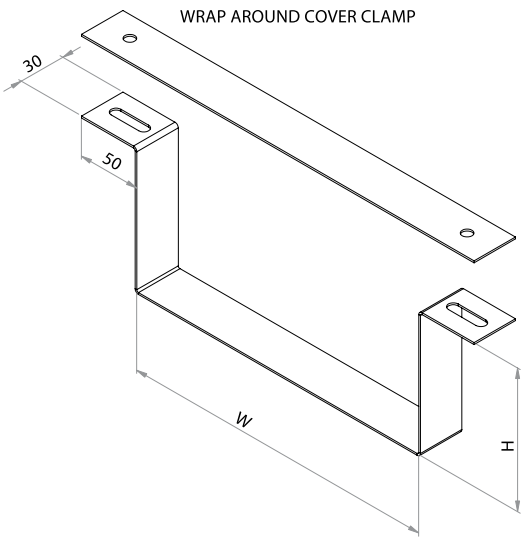




Covers' Side Height Types :

- Solid without flange - (VOF)
- Solid with flange - (VWF)





ASTM F436

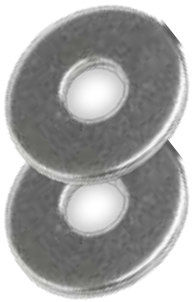
Washers (SRW) | DIN 125 | ASTM F436

Zinc Plated	Stainless Steel	D	d	S
		(mm)	(mm)	(mm)
M6	M6	12	6.4	1.6
M8	M8	16	8.4	1.6
M10	M10	21	10.5	2
M12	M12	24	13	2.5
M16	M16	30	17	3
M18	M18	34	19	3.2
M20	M20	39	20.5	3.6

Round Washers DIN 440, DIN 9021

Washers (SRW) | DIN 440 | DIN 9021

DIN	Zinc Plated	Stainless Steel	D	d	S
			(mm)	(mm)	(mm)
440	M6		22	6.6	2
9021	M8	M8	24	8.4	2
9021	M10	M10	30	10.5	2.5
440	M12		45	13.5	4
9021	M12	M12	37	13	3
9021	M16	M16	50	17	3

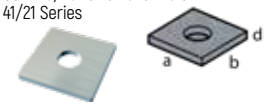


Square Washers SSW

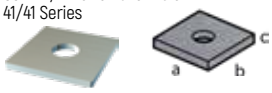
Square Washers (SSW)

H.D. Galvanized Bolt	Stainless Steel Bolt	a x b x d
		(mm)
M8	M10	40 x 40 x (4-5-6)
M10	M12	40 x 40 x (4-5-6)
M12	M16	40 x 40 x (4-5-6)

SSW 40/40 for all channels
41/21 Series



SSW 41/41 for all channels
41/41 Series



Fully Threaded Rods Grade 4.6 DIN 975 ASTM A 36, A193

Threaded Rod (STR) - DIN 975 - ASTM A36

Zinc Plated Thread	Length	Load cap.
	(mm)	(kN)
M6	2000/3000	2.2
M8	2000/3000	4.0
M10	2000/3000	6.4
M12	2000/3000	12.9
M16	2000/3000	17.3
M18	2000	22.0
M20	2000	27.0

Round Head Machine Screws

Round Head (SRH) | DIN 7985

Zinc Plated Thread	Length	d
	(mm)	(mm)
M6	30-40	6.0
M8	30-40	8.0
M10	20-60	10.0

Coupler Sleeves Rounded

Coupler Sleeves (SCS)

Electro-plated Thread	Stain-less Steel Thread	D	L	Load Capacity
		(mm)	(mm)	(kN)
M6	M6	10/10	15	2.2
M8	M8	12/14	20	4.0
M10	M10	13/16	25	6.4
M12	M12	16/20	30	9.3
M16	M16	21/25	40	17.3
M20	M20	26/32	50	27.0

Roofing Bolts

Roofing Bolts (SRB)

- Materials : low carbon steel , carbon steel
- Steel S235 , grade 4.6 , 4.8 and 8.8
- Surfaces : plain , black and zinc plated
- Length = X (mm) – Y (mm)

Thread Size	M4 x - y	M5 x - y	M6 x - y	M8 x - y
	(mm)	(mm)	(mm)	(mm)
Length	10 - 50	10 - 80	12 - 120	16 - 150

Carriage Bolts with Nut Below Head DIN 603

Carriage Bolts (STC)

Zinc Plated	H.D. Galvanized Grade 4.6	Head	Head	Square Width	Square Depth
(E)	(E)	(A) mm	(H) mm	(O) mm	(P) mm
M5	M5	12.0	3.0	5.0	3.2
M6	M6	15.1	3.70	6.40	4.0
M8	M8	18.3	4.50	8.23	4.75
M10	M10	21.44	5.30	9.86	5.56
M16	M16	34.14	8.74	16.3	8.74

Hexagon Nuts DIN 934, DIN EN 24032, ASTM A 563

Hexagon nut (SHN) | DIN 934 or ISO 4032 (= DIN EN 24032) | ASTM A563

Zinc Plated Thread	Stainless Steel Thread	S/m DIN	S/m ISO	e
		(mm)	(mm)	(mm)
M6	M6	10/5	10/6	11.5
M8	M8	13/6.5	13/7.5	15.0
M10	M10	17/8	16/9.5	19.6
M12	M12	19/10	18/12	21.9
M16	M16	24/13	24/15.5	27.7
M18	M18	26/16	26/16	22.0
M20	M20	30/18	29/20.5	27.0

Hexagonal Rod Coupler Grade 8.8 ASTM a 563

Hexagonal Rod Coupler with view hole (SHR)

Electro-plated Thread	Stainless Steel Thread	D	L	Load capacity
		(mm)	(mm)	(kN)
M10	M10	13	40	6.4
M12	M12	17	40	9.3
M16	M16	22	50	17.3
M 18	M 18	23	60	22.0
M 20	M 20	25	70	27.0
M18	M18	26/16	26/16	22.0
M20	M20	30/18	29/20.5	27.0

DIN 933, DIN 24017, ASTM A307, A449

Hex Head Bolt (SHB) | DIN 933 or EN 24017 ASTM A307, A449 (without nut)

Zinc Plated Dimension	Stainless Steel Dimension	S DIN	S EN
		(mm)	(mm)
M 6 x 12		10	10
M 6 x 25			
M 8 x 25	M 8 x 25	13	13
M 8 x 40			
M 10 x 20		17	16
M 10 x 30	M 10 x 30		
M 10 x 45	M 10 x 45		
M 10 x 60			
M 10 x 70			
M 12 x 22		19	18
M 12 x 25	M 12 x 25		
M 12 x 30	M 12 x 30		
M 12 x 40	M 12 x 40		
M 12 x 50			
M 12 x 60	M 12 x 60		
M 12 x 80	M 12 x 80		
M 12 x 90			
M 16 x 40	M 16 x 40	24	24
M 16 x 60	M 16 x 60		
M 16 x 90	M 16 x 90		
M 18 x 40	M 18 x 40	27	26
M 18 x 50	M 18 x 50		
M 18 x 60	M 18 x 60		
M 18 x 80	M 18 x 80		
M 20 x 40	M 20 x 40	32	32
M 20 x 50	M 20 x 50		
M 20 x 60	M 20 x 60		
M 20 x 80	M 20 x 80		

CABLE LADDER TRAY SUPPORT SYSTEM

Channel

SFSP's metal framing channel is cold formed on modern rolling machines from low carbon steel manufactured according to BS 6946:1988. A continuous slot provides the ability to make attachments at any point.

Lengths

Standard length: 3000mm with ± 3.2mm length tolerance.
Custom lengths vv available upon request.

Finishes

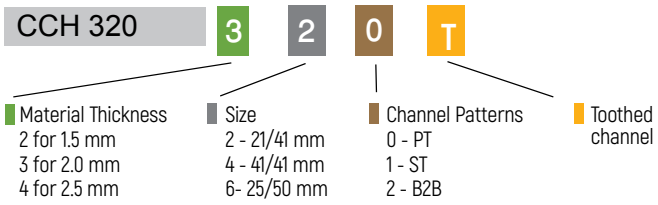
Standard Finishes: Pre-Galvanized finish (ASTM A653M coating G90 and G60). Hot Dip Galvanized after fabrication (ASTM A123 or BS EN ISO1461:2009). Other custom coatings are available upon request.

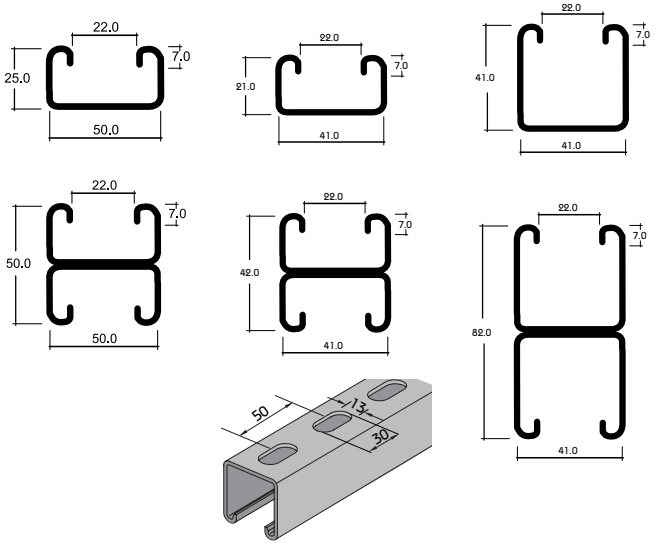
Metal Framing Channels

Selection Chart

Part No	Channel Dimensions		Thickness
	Height "H"	Width "W"	
CCH - 220/221	21.0 mm	41.0 mm	1.5 mm
CCH - 240/241	41.0 mm	41.0 mm	1.5 mm
CCH - 260/261	25.0 mm	50.0 mm	1.5 mm
CCH - 320/321	21.0 mm	41.0 mm	2.0 mm
CCH - 340/341	41.0 mm	41.0 mm	2.0 mm
CCH - 360/361	25.0 mm	50.0 mm	2.0 mm
CCH - 420/421	21.0 mm	41.0 mm	2.5 mm
CCH - 440/441	41.0 mm	41.0 mm	2.5 mm
CCH - 460/461	25.0 mm	50.0 mm	2.5 mm

For Toothed Channel add "T" after the Part no. ex: CCH-220T





Channel Hole Patterns

PT Type Channel		
Part No	Thick. mm.	Height "H"
CCH-220	1.5	21.0
CCH-240	1.5	41.0
CCH-260	1.5	25.0
CCH-320	2.0	21.0
CCH-340	2.0	41.0
CCH-360	2.0	25.0
CCH-420	2.5	21.0
CCH-440	2.5	41.0
CCH-460	2.5	25.0

PT Plain Type

ST Type Channel		
Part No	Thick. mm.	Height "H"
CCH-221	1.5	21.0
CCH-241	1.5	41.0
CCH-261	1.5	25.0
CCH-321	2.0	21.0
CCH-341	2.0	41.0
CCH-361	2.0	25.0
CCH-421	2.5	21.0
CCH-441	2.5	41.0
CCH-461	2.5	25.0

ST Slotted Type

B2B Type Channel		
Part No	Thick. mm.	Height "H"
CCH-222	1.5	42.0
CCH-242	1.5	82.0
CCH-262	1.5	50.0
CCH-322	2.0	42.0
CCH-342	2.0	82.0
CCH-362	2.0	50.0
CCH-422	2.5	42.0
CCH-442	2.5	82.0
CCH-462	2.5	50.0

B2B Type

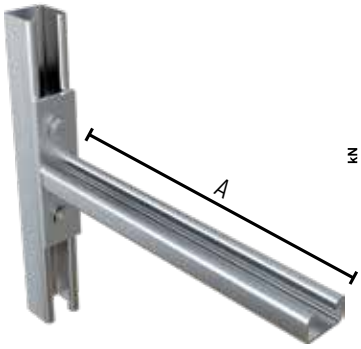
Toothed channel type

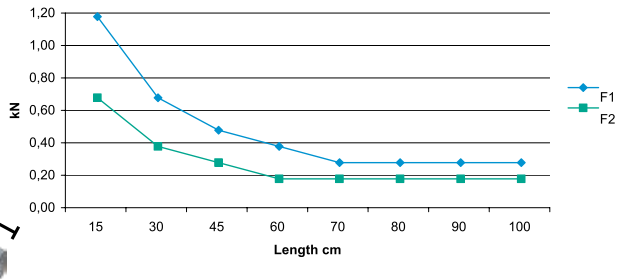
For Toothed Channel add "T" after the Part no.
ex: CCH-220T

Cantilever Arm Bracket

Cantilever Arm Brackets - SCA

CCH421 41x21x2.5



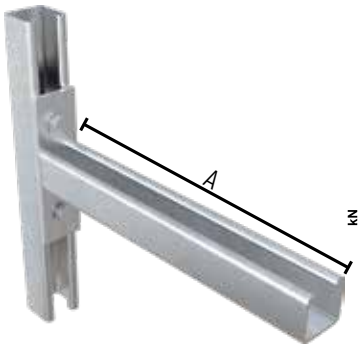


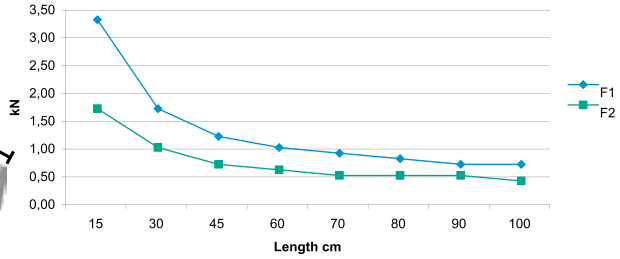
Length	Allowable Load		
A (mm)	F_1*	F_2*	F_z**
150	1.10	0.60	3.10
300	0.60	0.30	3.10
450	0.40	0.20	3.10
600	0.30	0.10	3.10
700	0.20	0.10	3.10
800	0.20	0.10	3.10
900	0.20	0.10	3.10
1000	0.20	0.10	3.10

Base plate : height (h) x width (b) x thickness (t)

100 50 8

·In the case of concrete support frame, use anchor M10
·In the case of concrete C-Channel frame, Hex bolt M8 .
** Connection force (pull-out force) : 3.10 (kN)





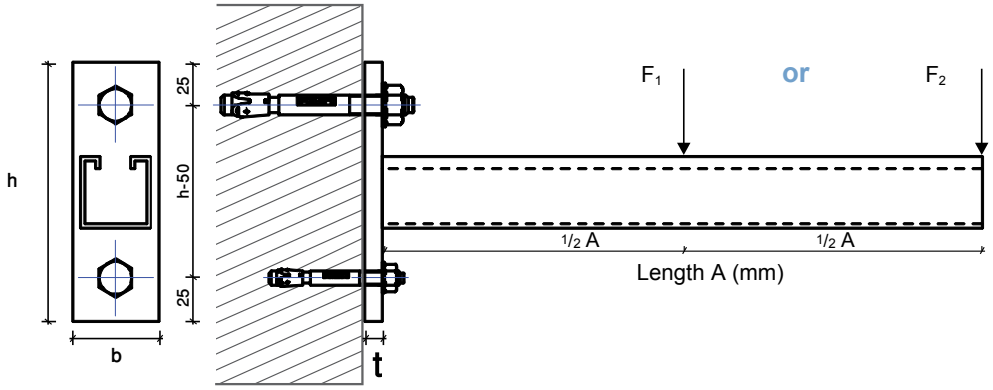
Length	Allowable Load		
A (mm)	F_1*	F_2*	F_z**
150	3.10	1.50	7.50
300	1.50	0.80	7.50
450	1.00	0.50	7.50
600	0.80	0.40	7.50
700	0.70	0.30	7.50
800	0.60	0.30	7.50
900	0.50	0.30	7.50
1000	0.50	0.20	7.50

Base plate : height (h) x width (b) x thickness (t)

140 50 10

·In the case of concrete support frame, use anchor M16 .
·In the case of concrete C-Channel frame, Hex bolt M8.
** Connection force (pull-out force) : 7.50 (kN)

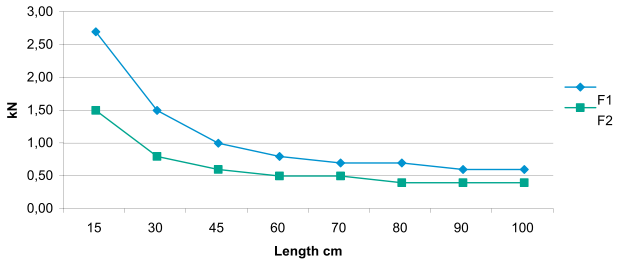
* Given Loads are always in [kN] " Allowable characteristic live load "



Cantilever Arm Bracket

Cantilever Arm Brackets - SCA

CCH422 41x21x2.5 B2B



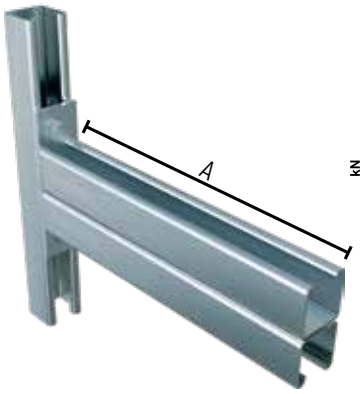
Length	Allowable Load		
A (mm)	F_1*	F_2*	F_z**
150	2.50	1.30	4.80
300	1.30	0.60	4.80
450	0.80	0.40	4.80
600	0.60	0.30	4.80
700	0.50	0.30	4.80
800	0.50	0.20	4.80
900	0.40	0.20	4.80
1000	0.40	0.20	4.80

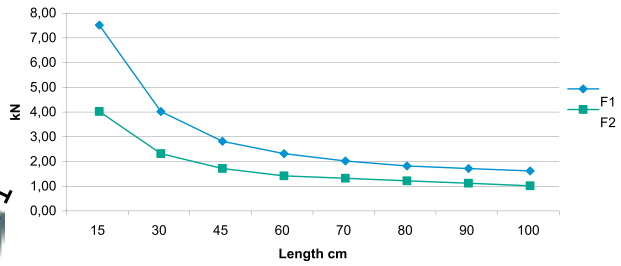
Base plate : height (h) x width (b) x thickness (t)

140 50 10

·In the case of concrete support frame, use anchor M12.
·In the case of concrete C-Channel frame, Hexbolt M8.
** Connection force (pull-out force) : 4,8 (kN)

CCH442 41x41x2.5 B2B





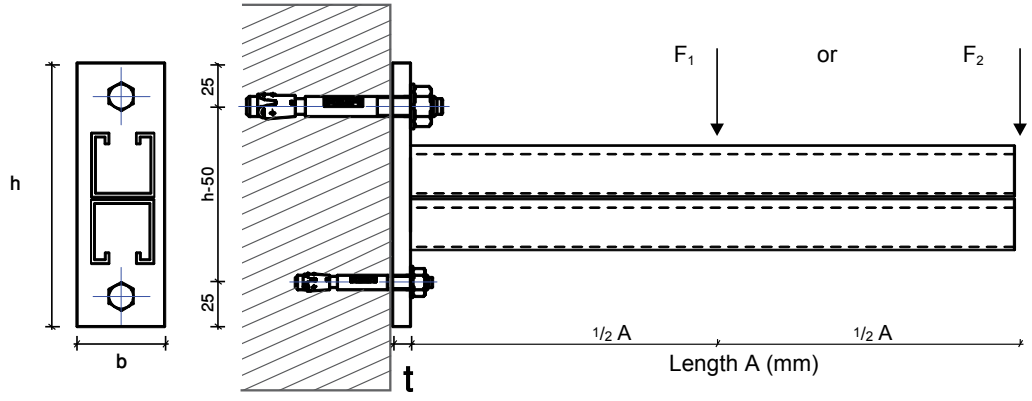
Length	Allowable Load		
A (mm)	F_1*	F_2*	F_z**
150	7.00	3.50	8.30
300	3.50	1.80	8.30
450	2.30	1.20	8.30
600	1.80	0.90	8.30
700	1.50	0.80	8.30
800	1.30	0.70	8.30
900	1.20	0.60	8.30
1000	1.10	0.50	8.30

Base plate : height (h) x width (b) x thickness (t)

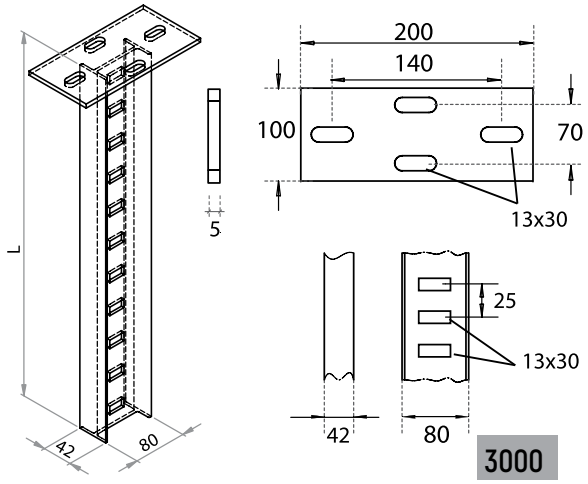
180 60 12

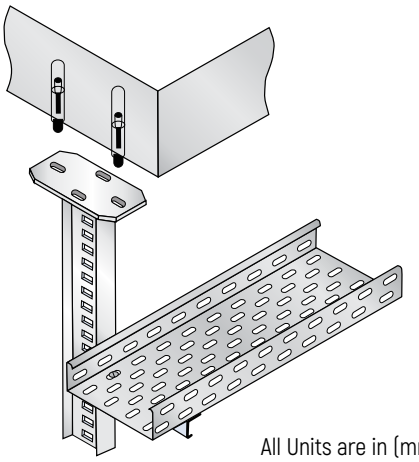
·In the case of concrete support frame, use anchor M16.
·In the case of concrete C-Channel frame, Hex bolt M10 .
** Connection force (pull-out force) : 8,30 (kN)

* Given Loads are always in [kN] " Allowable characteristic live load "



U - Support / 3000

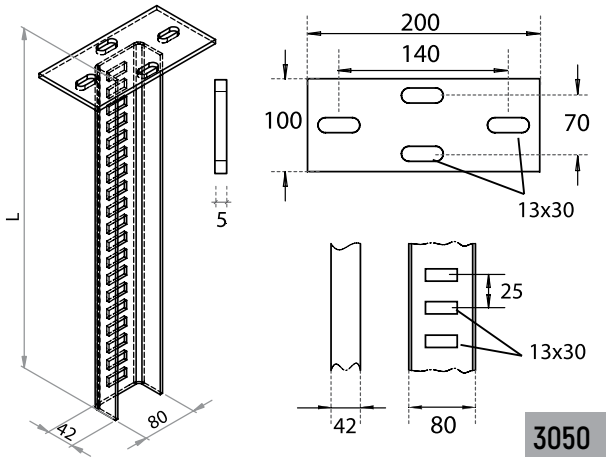




All Units are in (mm) .

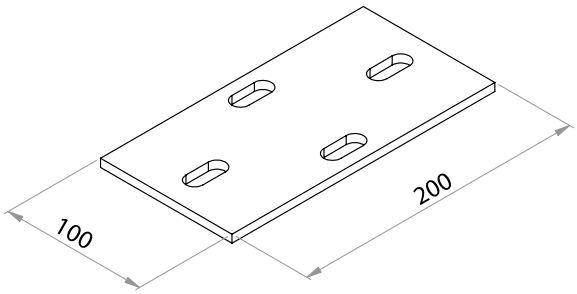
U-Support with welded-on head plate 200 x 100 x 5mm

I - Support / 3050



Head Plate / 3100

200 x 100 x 5mm

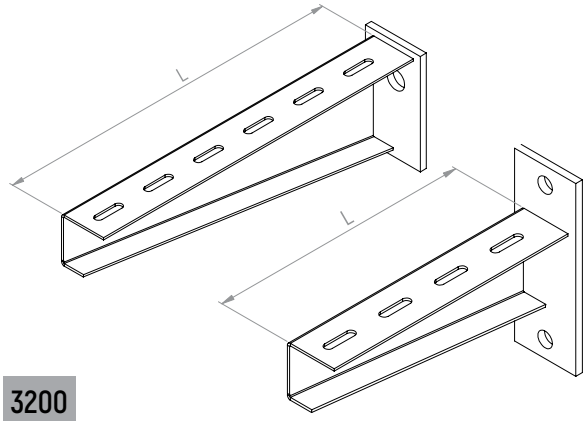


All Units are in (mm) .

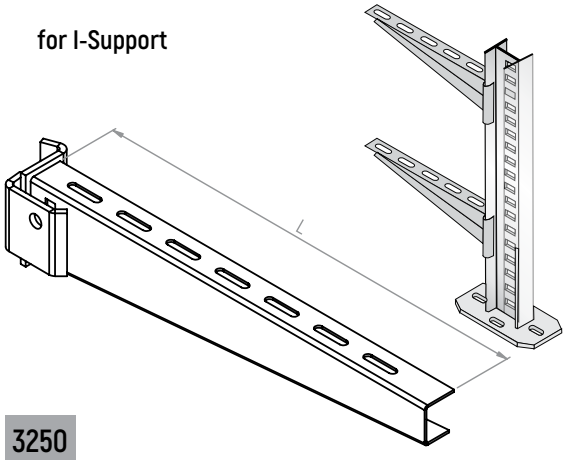
U-Support with welded-on head plate 200 x 100 x 5mm

Wall Bracket / 3200 - 3250

For U-Support |Thickness 5 mm

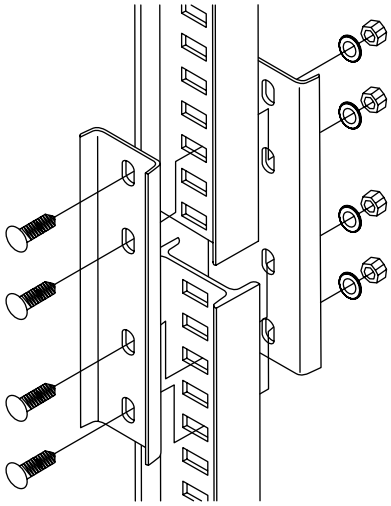


for I-Support



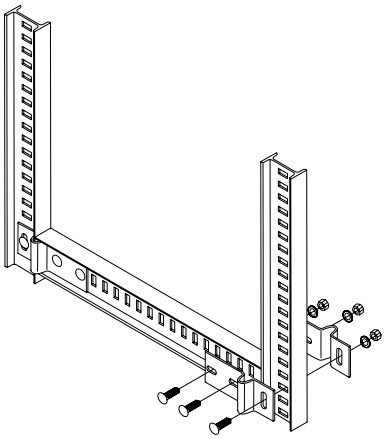
U-Support with welded-on head plate 200 x 100 x 5mm

Support Connectors / 3300



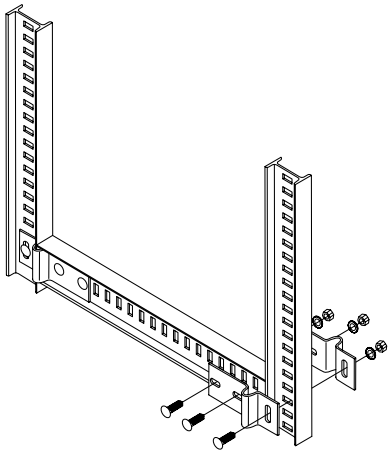
3300

Clamping Plates / 3350



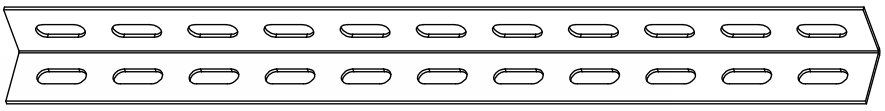
3350

Support Plates / 3400

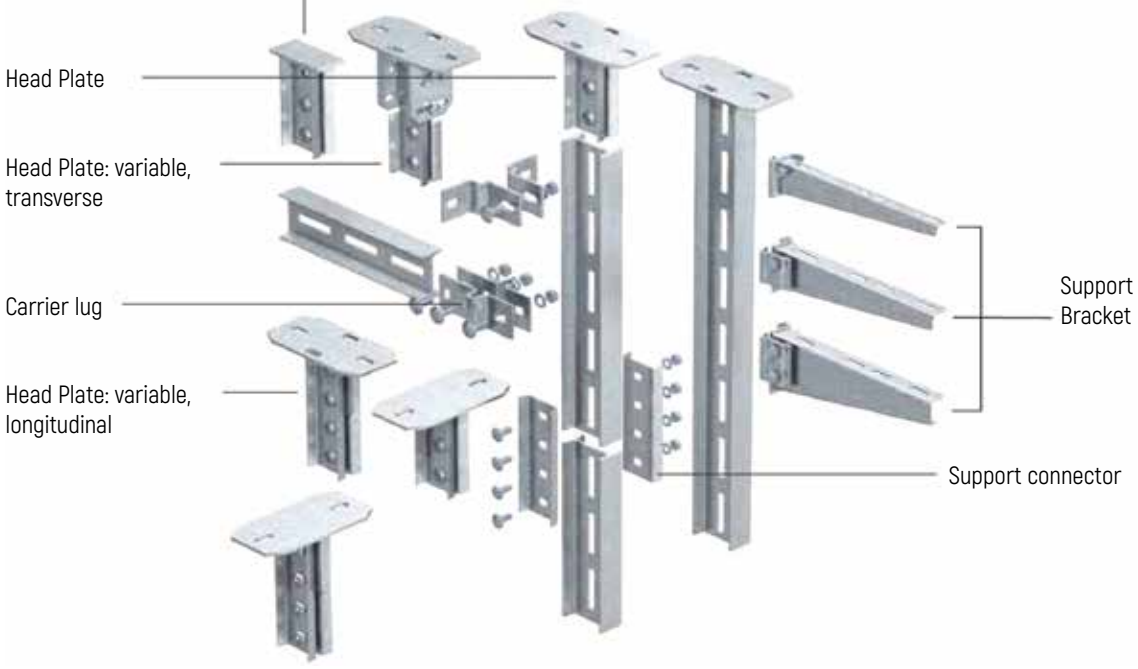


3400

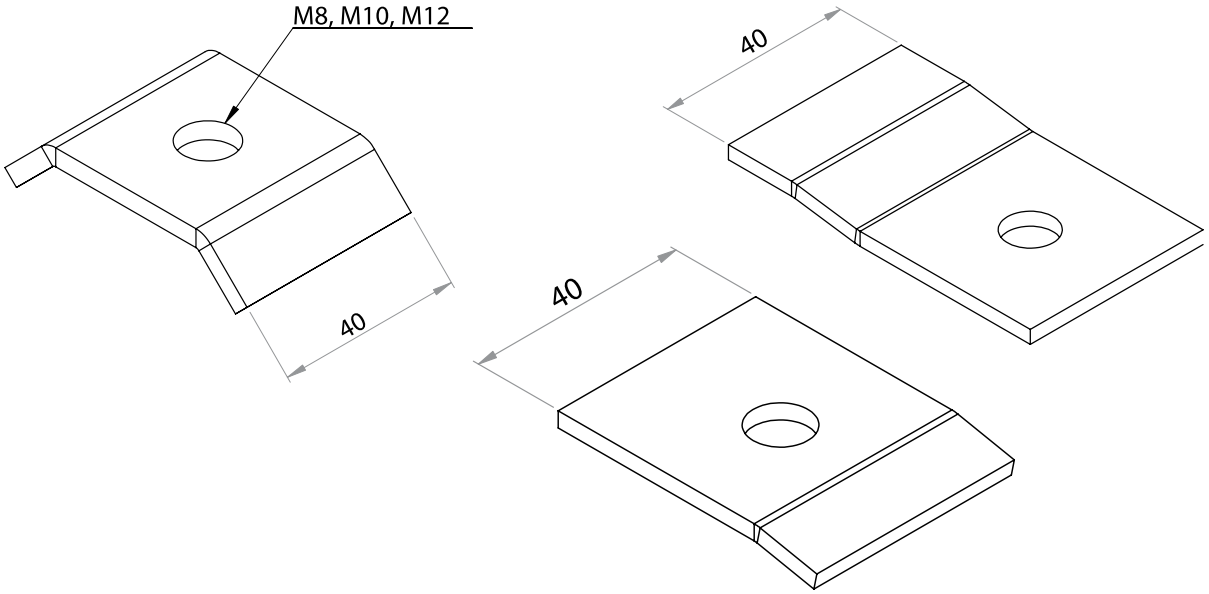
Angles / 3600



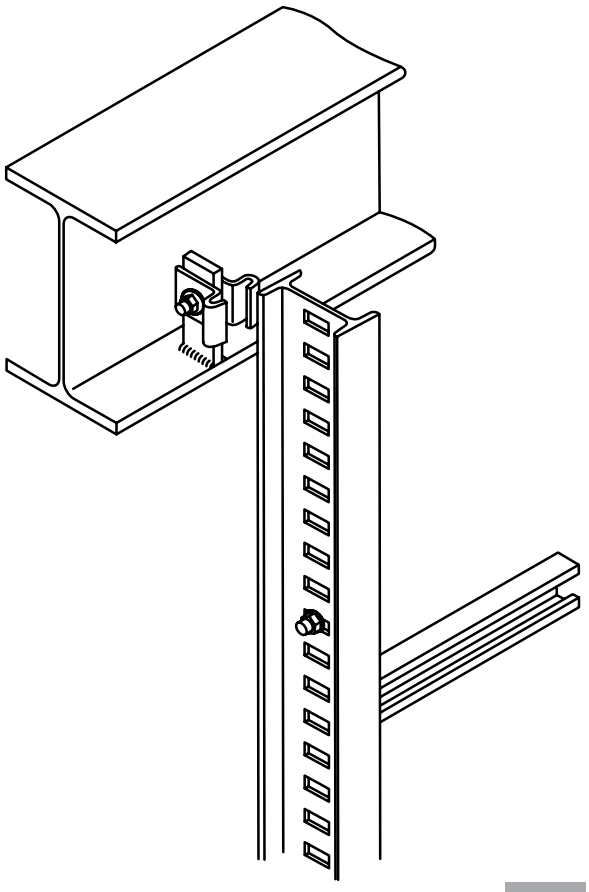
3600



Hold Down Clamp

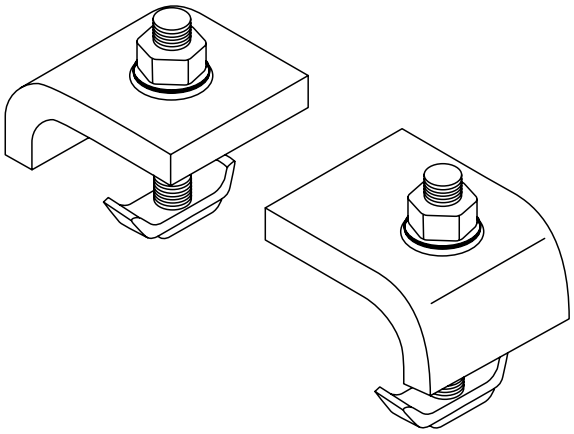


Support Clamps / 3450



3450

Clamping Angles / 3550



3550

FIRESTOP SYSTEMS

BETA CONTECH

Beta Contech is specialized in advanced architectural and industrial products, ranging from raised access to flooring systems, architectural expansion joint systems, architectural impact protection systems, firestopping systems and others. The company operates within the GCC and MENA countries and has a wide reputation among contractors.

STI FIRESTOP

Specified Technologies is an industry leader solely committed to the development of innovative, reliable firestopping solutions that help stop the spread of fire smoke and toxic fumes . Beta Contech's innovative firestop solutions are for all types of new construction and retrofit applications.

PRODUCT DESCRIPTION

Basic Usage

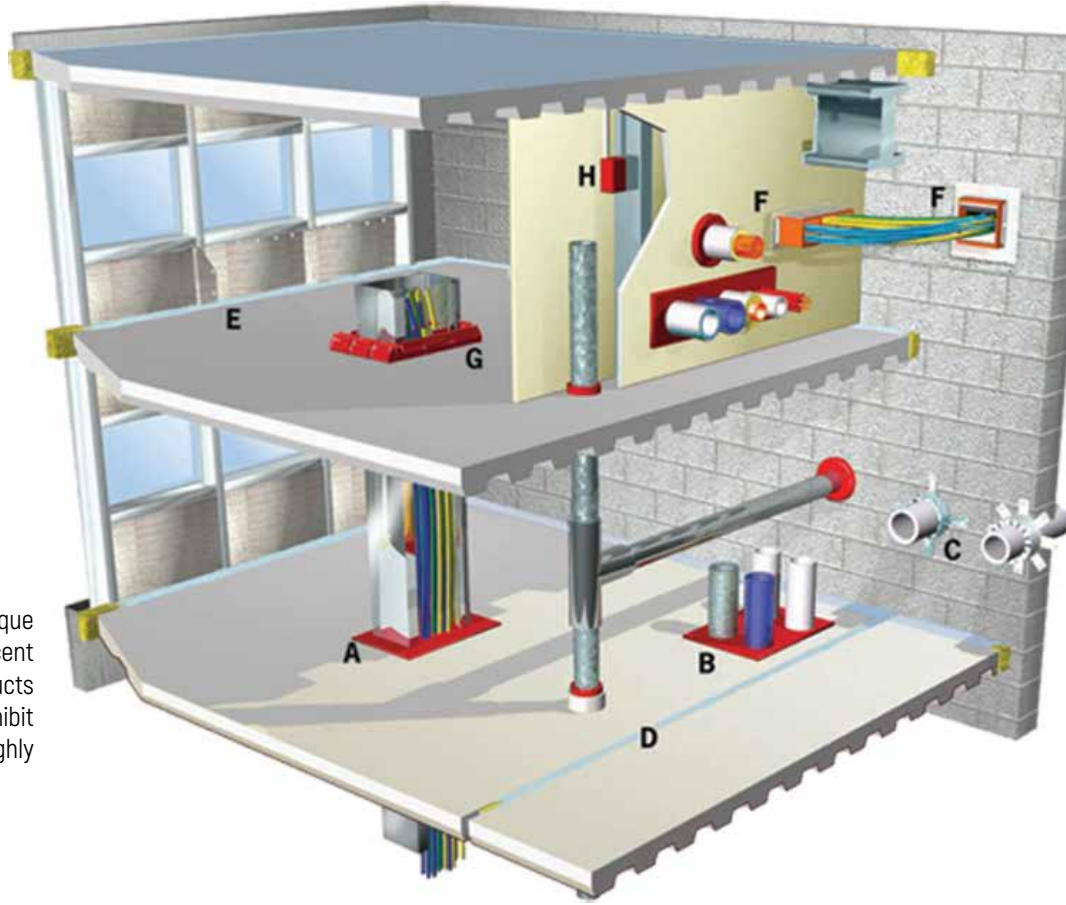
These products are used solely or in combination to construct firestop systems effective in sealing through-penetrations, construction joints and high traffic openings against the spread of fire, smoke or hot gasses. A wide range of tested systems is available for standard constructions and penetrants with ratings up to 4 hours.
These products and systems are suitable for sealing electrical, plumbing, mechanical or data/communications penetrations, including:

Pipes, Conduits or Ducts
- Metallic
- Nonmetallic
- Insulated

Cables
- Telephone
- Power
- Data and Control

Cable Trays and Bus Ducts
- Steel
- Aluminum and Copper

Construction Joints



Composition & Materials

STI Firestop products are a unique combination of passive and intumescent (expands when heated) materials. Products utilizing this expansion mechanism exhibit unusually fast and aggressive, highly directionalized expansion.

PRODUCT DESCRIPTION

Firestop Sealants

Triple S®Intumescent Sealant
Premium grade, water-based firestop caulk featuring STI's patented two-stage intumescent technology. The perfect choice for the broadest array of combustible and non-combustible electrical penetrants requiring a permanent, durable seal.

Firestop Sealants

LCI Intumescent Sealant
Standard grade, water-based firestop caulk engineered to address most common combustible and noncombustible electrical applications typically found in light commercial construction.

Pathways

EZ-Path® Fire Rated Pathway
A mechanical cable pathway system utilizing a self-contained, self-sealing firestop system. Easy moves, adds and changes with no firestopping required ever. Three sizes and a full range of accessories adapt this system to virtually any application.

Putty Pads

SSP Putty Pads
When used with both metallic and non-metallic switch and receptacle boxes, pads are UL Tested and Classified to permit larger boxes and reduced spacing.

Composite Sheet

Intumescent Composite Sheet
Lightweight, easily fabricated panel surface mounts to walls and floors to provide a neat, clean seal for medium to large openings typically used for Cable Trays, bus ducts, and conduit banks.

Fire Protective Cable Coating

CS Cable Spray
Water-based spray applied coating used to provide short term circuit integrity and improved flame spread characteristics for grouped electrical cables.

Firestop Mortar

SSM Firestop Mortar
A strong, lightweight and cementitious mortar designed for large openings typically used for Cable Trays or banks of conduits.

Firestop Putty

SSP Intumescent Putty
Non-hardening intumescent putty which is easily installed and removed making it the perfect choice for cable penetrations requiring occasional retrofitting.

Firestop Pillows

SSB Intumescent Firestop Pillows
Compressible cushions are easily installed and removed. The perfect firestop solution for medium to large openings including cable bundles, Cable Trays, bus ducts and multiple conduits.

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