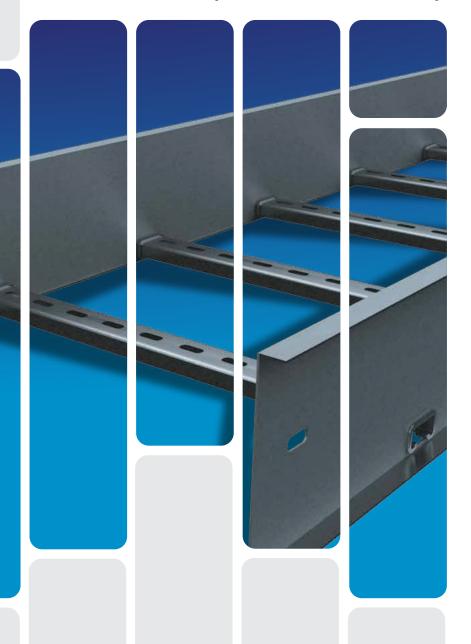


# CABLE MANAGEMENT SYSTEMS CABLE LADDERS (WELDED & SWAGED)









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



# 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**

UNITECH is committed to transforming the construction and building sector by equipping engineers with advanced solutions and expert support at every project stage. As a leading industry provider, we empower our team to deliver exceptional service that consistently exceeds expectations. By fostering a cohesive and forward-focused culture, we attract and retain top talent, driving our mission forward. Our innovative, customer-centric products set new industry benchmarks and pave the way for future progress.

### **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 IIC 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.

UNITECH

# 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



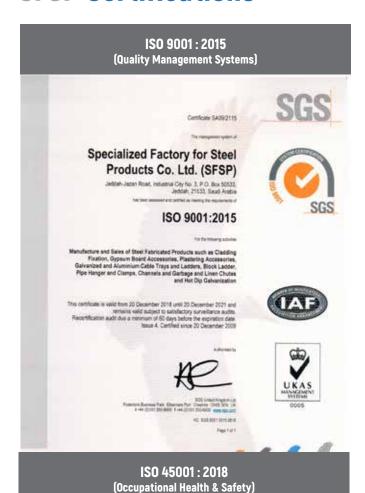
UNITECH DEUTSCHLAND is a "Design & Engineering" Office. Unitech Germany support Unitech & SFSP operations through well-informed cadre of engineers. They help our customers from conception to the completion by delivering design, engineering and project management services.

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

UNITECH

# **SFSP Certifications**



Certificate SA19/10111

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

Manufacture and Sales of Steel Fabricated Products such as Cladding Firstion, Oyssum Board Accessories, Plastering Accessories, Galvanized and Aluminium Cable Trays and Ladders, Slock Ladder, Pipe Hanger and Clamps, Channels and Garbege and Linen Change and Hot Dip Galvanization

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

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

ISO 45001:2018

HC 505 4001 3216 5216

# Certificate SA18/2591 Specialized Factory for Steel Products Co. Ltd. (SFSP)

Jeddah-Jacan Road, Industrial City No. 3, P.O. Box 50533, Jeddah, 21533, Saudi Arabie

14001:2015

(Environmental Management System)

ISO 14001:2015

Manufacture and Sales of Steel Fabricated Products such as Cladding Fination, Gypsum Solard Accessories, Plastering Accessories, Galvanized and Aluminium Cable Trays and Ladders, Slock Ladder. Pipe Hanger and Clamps, Channels and Garbage and Licen Chutce and Hot Dip Galvanization.

This conflicate is valid from 4 October 2018 until 4 October 2021 and remains valid subject to setsfactory surveitance audit. Recentification audit due a minimum of 60 days before the expiration date. I beautification audit due a minimum of 60 days before the expiration date.



SGS



**STD 096** (Q-Mark Certificate)







# **CERTIFICATE OF REGISTRATION**

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 986 - Issue 3 - 0.1/12/2015 which only operates in Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Oman, Catar, Saudi Arabia and The United Arab Emirates for the products on the attached schedule

476 Date of Initial Certification 16 June 2014 Date of last issue 13 October 2017 Date of Expiry 15 June 2020

Hirologiak Karen Prendergast Sector Director - Certification Exova BM TRADA

Registered Office Does (III, List, Johnst Industrial Castes, Newtony, moutants run as waster, who was a common control of the confliction amount for property of Except (See The Centrifices and interest or reproductions of the confliction and interest Does (III) (List of debtyped if respects). The confliction of the registrates shown above includes the participating sites above on the registrates shown and the confliction of the confliction of the confliction of the registrates shown and the confliction of the confliction of the registrates shown and the confliction of the conf

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# ISO 9001: 2015 (Quality Management System)



# Certificate of Registration

This is to certify that the Management System of:

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

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



Certificate Number: Initial Registration Date: Previous Expiry Date: Recertification Date:

22244-Q15-001

23 February 2015 22 February 2024 14 November 2023 30 November 2023

### Scope of Registration:

Trading and Manufacturing of all kinds of Steel Related Construction Materials.

Alyn Franklin, Chief Executive Officer (on behalf of 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: Initial Registration Date: Previous Expiry Date: Recertification Date:

22244-OHS-001 22 September 2015 21 September 2024 10 June 2024 20 June 2024 21 September 2027

Re-issue Date: Current Expiry Date:

### Scope of Registration:

Trading and Manufacturing of all kinds of Steel Related Construction Materials.

vn Franklin Chief Executive Officer (on behalf of Alcumus ISOQAR)

alyn Fall

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 anolicability of the relevant standard's requirement may be obtained by consultine Actumus ISOQAR.

Registered in United Arab Emirates as BM TRADA VENTURES LLC (TRADING AS BMTV)
Unit 904, Business Avenue Building, PO Box 30945, Dubai, UAE



Unitech-ikk.com

Alcumus ISOQAR Limited, Alcumus Certification, Cobra Court, 1 Blackmore Road, Stretford, Manchester M32 OQY.

17. 10f6 865 3699 F: 0161 865 3695 E: isoqarenquiries@alcumusgroup.com W: www.alcumusgroup.com/isoqar

This certificate is the property of Alcumus ISOQAR and must be returned on request.

# 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:



Certificate Number:

Certificate Number: Initial Registration Date: Previous Expiry Date: Recertification Date: Re-issue Date: Current Expiry Date:

22244-EMS-001

22244-EMS-001 22 September 2015 21 September 2024 04 June 2024 04 July 2024 21 September 2027

### 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)

alyn Fall

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.

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

# **CERTIFICATE**

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

Cable management system

SFSP : 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. duration of the KEMA-KI certification agreement.

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

Certificate number: 2156954.01

DEKRA Certification B.V.

drs. G.J. Zoetbrood Managing Director

© Integral publication of this certificate is allo





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)

# (Chute Type Fire Doors)

# CERTIFICATE OF COMPLIANCE

20160816-F483358 E483358-20160816 2016-AUGUST-16 Issue Date

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

CABLE TRAYS

Steel Channel Cable Tray, Ventilated, Heavy Duty (HCT),

Very Heavy Duty (VCT) cable trays.

Standard(s) indicated on this Certificate.

Standard(s) for Safety:

ANSI/NFPA 70, "National Electrical Code" (NEC) 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-Us Sentos.

The ULC Listing Mark generally includes the following elements: the symbol ULC in a circle: whith 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.

# CERTIFICATE OF COMPLIANCE

**UL Certification\*** 

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

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

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.

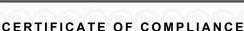
Standard(s) for Safety: Additional Information: ANSI/UI 10B Fire Tests of Door Assemblies See the UL Online Certifications Directory at www.ul.com/database for additional information

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 Number R40146 Report Reference R40146-20220524

Date 2022-May-25

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

MECHANICAL JOINT ASSEMBLIES This is to certify that

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.

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

Systems

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.











# **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.



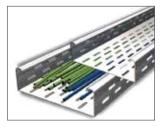
# **Cable Management Systems**

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.



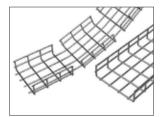
# **Cable Ladders (Welded & Swaged)**

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.



# **Aluminium System 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.



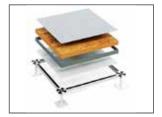
# **Phenolic Compartment by CUBIX**

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.



# **Metal Doors by FEROX**

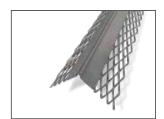
Ferox offers a wide variety of steel doors, manufactured according to international standards of fabrication and as per the legal requirement of commercial projects whether industrial environments, local authority buildings, leisure, hospitality, healthcare, transportation, education or retail offices, and shopping centers. Our range of steel doors includes fire rated steel doors, Insulated Doors, Acoustic Doors, Louvered Doors, Sliding Doors, Security Detonation Doors, Burglar Resistant Doors, Entry Gates and several other types to meet the requirements of all projects.





# **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.





# **SFSP** Products are solely distributed by UNITECH for Building and Construction Materials

All Products Manufactured by Sfsp are Solely Distributed by SFSP Sister Companies in the Following Countries

**KSA** 

Isam Kabbani & Partners for Building and Construction Materials Co., Ltd.

شبركة عصام قبانى وشبركاه لمواد الأنشباع والتعمير المحدودة

**BAHRAIN** 

Isam Kabbani Trading Est.

مؤسســة عصام قباني التجارية

UAE

Issam Kabbani Trading Company LL

شـركة عصام قبانى للتجارة

**EGYPT** 

**Unitech Egypt for Building Materials** 

شـركة يونيتك مصر لمواد البناع

**OMAN** 

Isam Kabbani & Partners Trading Co.

شـركة عصام قبانى وشـركاه للتجارة

**OATAR** 

Unitech Qatar for Building & Construction Materials Ltd., W.L.L

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# SFSP CUSTUMER SERVICE CALL CENTER

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# CABLE MANAGEMENT SYSTEMS

# **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.

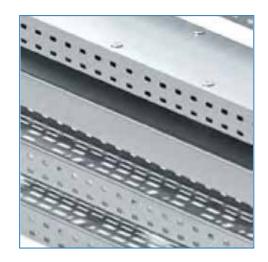
National Electric Code (NEC) permits Cable Trays in a wide variety of indoor and outdoor applications. The NEC also permits Cable Trays for use as equipment ground conductor.

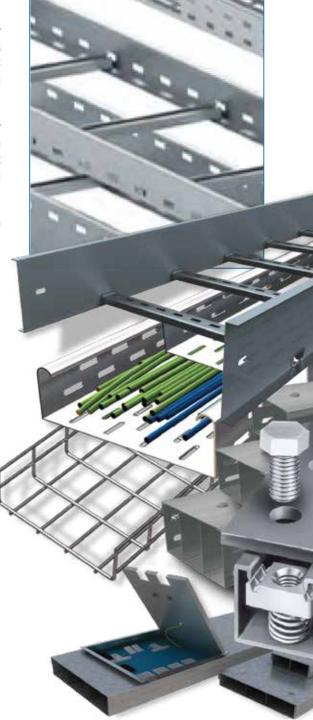
Cable Management Systems can provide significant advantages in cable filling over other wiring methods. This can provide savings in the size or number of raceways required, thereby, reducing both material and labor costs. In many cases, NEC permits greater conductor ampacities in Cable Tray Systems than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



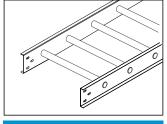
# **Products Range**

The different types of tray designs are described below:

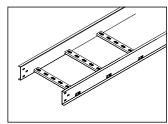
# Ladder Tray (Cable Ladder)

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.





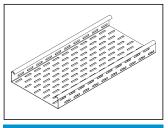


Welded C-Channel

# Perforated Cable Tray (Cable Trays)

A prefabricated metal structure consisting of a bottom with openings within the cable bearing surface.

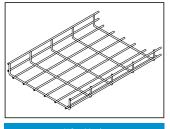
Solid bottom Cable Trays completely eliminate cable sagging and offer maximum protection for the cables.



Perforated Cable Tray

# Wire Mesh (Basket Tray)

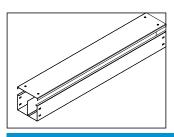
Is ideally suitable for light - to medium-duty commercial and industrial applications where space is at a premium. SFSP wire Basket Trays have a fast connection profile for installations requiring long runs of straight Cable Trays lengths. Applications: Network cabling, wiring closets, fiber-to-desktop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

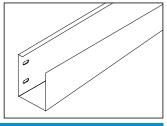


### Wire Mesh

# Solid (Cable Trunking)

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





Cable Trunking

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# **Materials & Finishes**

# **Materials**

# Mild Steel - Plain

A. Hot Rolled Steel Plates, Sheets and Coils \$235 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:

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

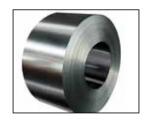
as per:

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

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- 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 0hm/mm
without couplers
Resistance ≤ 50 milli 0hm 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

Class	Reference - Material and Finish
O <sup>a</sup>	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 <sup>b</sup>
9B	Stainless steel manufactured to ASTM: A 240/A 240M - 95a designation S31603 or EN 10088 grade 1 - 4301 without a post-treatment <sup>b</sup>
9C	Stainless steel manufactured to ASTM: A 240/A 240M - 95a designation S30400 or EN 10088 grade 1 - 4301 with a post-treatment <sup>b</sup>
9D	Stainless steel manufactured to ASTM: A 240/A 240M - 95a designation S31603 or EN 10088 grade 1 - 4404 with a post-treatment <sup>b</sup>

<sup>&</sup>lt;sup>a</sup> For materials which have no declared corrosion resistance classification

<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards



b the post - treatment process is used to improve the protection against crevice crack corrosion and the contamination by other steels.

<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

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 ${}^{\circ}\text{C}$
+40
+60
+90
+105
+120
+150

# Table 4

	ion base area sification
Classification	Perforation in the base area
A	up to 2%
В	over 2 % and up to 15 %
С	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 classific	ation (Cable Ladder Length)
Classification	Free base area
Х	up to 80%
Υ	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				

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			

As declared by the manufacturer or responsible vendor

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<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards

# **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 electromagnetic signals. The degree of influence will depend on the nature of the installation within its operating environment and the apparatus connected by the wiring.

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 interference (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				
	Distance			
Type of installation	Without a dividing wall or with a non metal divider <sup>(1)</sup>	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	

<sup>1)</sup> 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

# 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.

<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards



<sup>2)</sup> Shielded signal cables have to be comply with the EN 50288 series.

<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

### 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

b= 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.

# <u>Transverse deflection:</u>

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.

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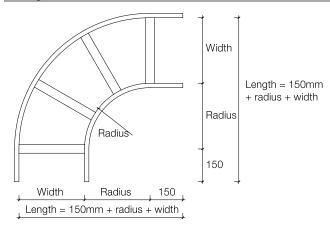


# **Cable Ladder Systems**

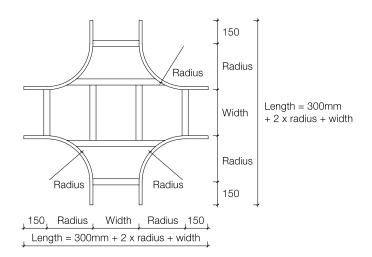
# **Product footprint**

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

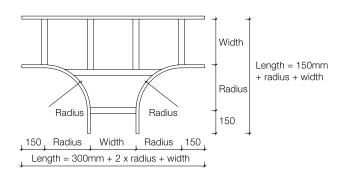
# 90 Degree Flat Bend



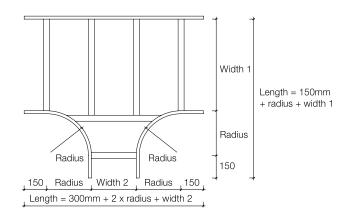
# Crossover



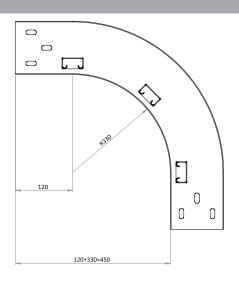
# **Equal Tee**



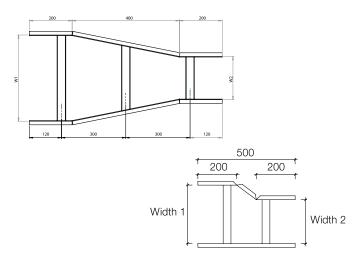
# **Unequal Tee**



# **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' (24m), 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.

NEMA Load/Span Designa	IEMA Load/Span Designations				
	Support	Span Feet	Working Load		
Class Designation Table 1	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	

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<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards

# **NEMA Classes**

# Other Loading Considerations

# **Destruction Load Capacity**

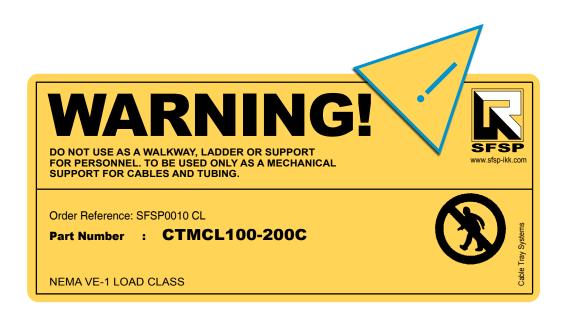
The total weight in the tray which causes the tray to collapse, is called the "destruction load capacity". When trays do collapse, they generally do so by premature lateral buckling (compression) of the top flange.

### **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 = 2 x Concentrated Load 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.

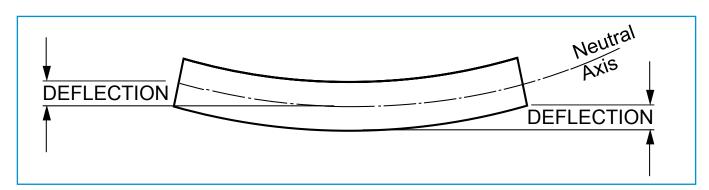


Table 2	Simple Beam Span	
	(m 3.60) '12 (m 6.00) '20	
STEEL	1/100	1/75
ALUMINUM	1/75	1/50

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

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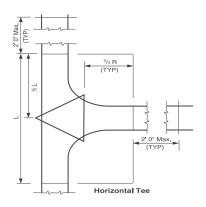
<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

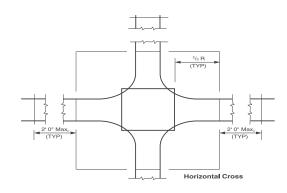
<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards

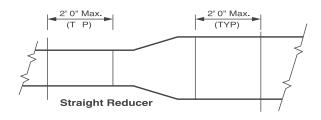
# **Cavity Size - Load Depth/Width Of Tray**

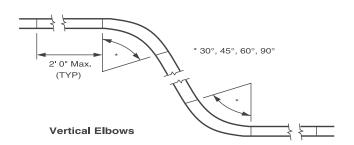
# **Select the Fittings**

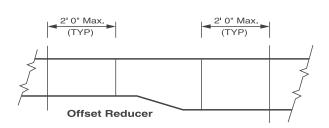
Fittings are used to change the size or direction of the Cable Ladder Trays. The most important decision to be made in fitting design concerns radius. The radius of the bend, whether horizontal or vertical, can be 305mm, 607mm, 914mm and 1219 mm, or even greater on a custom basis. The selection requires 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.

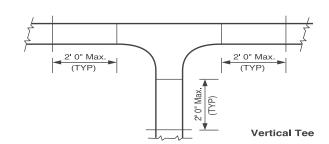












# **Location of Couplings**

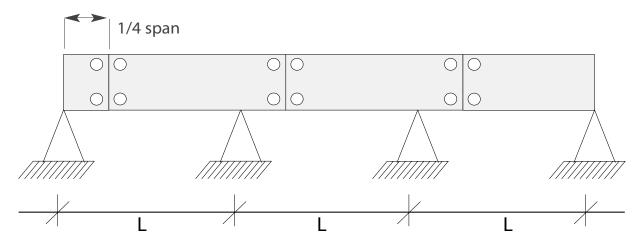
Since different bending moments are created in each span, there is no simple factor to approximate deflection as the number of spans increases. It is possible to calculate these deflections at any given point by using second integration of the basic differential equation for beams. Testing shows that 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.

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# **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.

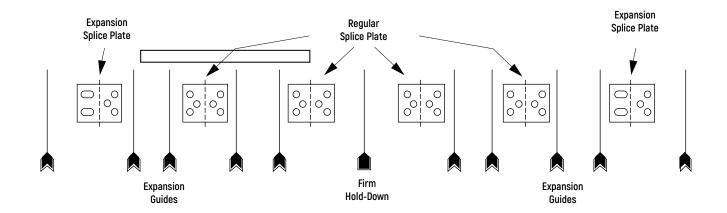
The diagrams on page 2-10 show the recommended support locations for fittings.

# 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

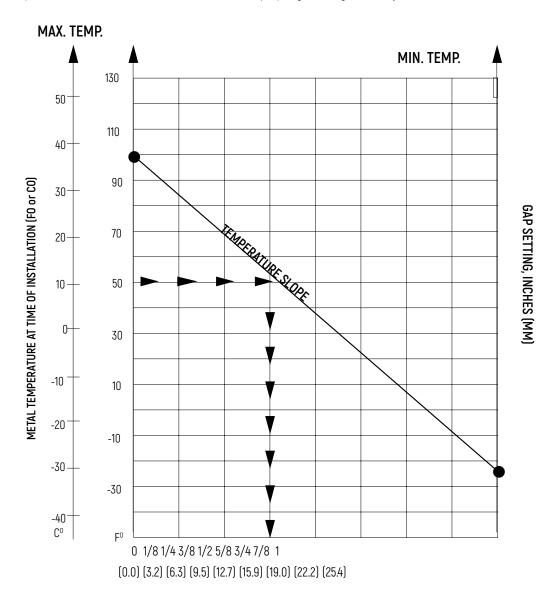
Expansion Connectors allow 1" (2.5cm) of travel. This table illustrates how often expansion splice plates shall be used.



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		Distance between Expansion Joints					
Difference		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)

<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

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<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards

## **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

	Minimum Cross Sec Steel Cal	tional Area of Metal* ble Trays	Aluminum Cable Trays	
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	In²	mm²	In²	mm²
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

<sup>\*</sup>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.

<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards



<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

# **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



5 x 10

5 x 16

5 x 25

7 x 1.5

7 x 2.5





Insulated	power cables		Insulated p	Telecommunication Cables			
Туре	Cable load kg/m	Туре	Cable load kg/m	Туре	Cable load kg/m	Туре	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		\ v ( \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
5 x 6	0.54	4 x 1,5	0.22		W/W		





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

<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

0.29

0.4

1.05

1.6

1.75

0.85

1.35

1.99

0.24

0.35

4 x 2,5

4 x 6

4 x 16

4 x 25

4 x 35



<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards

#### External diameter and cross section







ı	Insulated power cables Insulated power ca			cables	Telecommunication Cables			
Туре	Ø mm	Useful cross- section cm²	Туре	Ø mm	Useful cross- section cm²	Туре	Ø mm	Useful cross-section cm <sup>2</sup>
1 x 4	6.50	0.42	1 x 10	10.50	1.10	2 x 2 x 0,6	5.00	0.25
1 x 6	7.00	0.49	1 x 16	11.50	1.32	4 x 2 x 0,6	5.60	0.30
1 x 10	8.00	0.64	1 x 25	12.50	1.32	6 x 2 x 0,6	6.50	0.42
1 x 16	9.50	0.90	1 x 35	13.50	1.82	10 x 2 x 0,6	7.50	0.56
1 x 25	12.50	1.56	1 x 50	15.50	2.40	20 x 2 x 0,6	9.00	0.81
3 x 1.5	8.50	0.72	1 x 70	16.50	2.72	40 x 2 x 0,6	11.00	1.12
3 x 2.5	9.50	0.90	1 x 95	18.50	3.42	60 x 2 x 0,6	13.00	1.69
3 x 4	11.00	1.21	1 x 120	20.50	4.20	100 x 2 x 0,6	17.00	2.89
4 x 1.5	9.00	0.81	1 x 150	22.50	5.06	200 x 2 x 0,6	23.00	5.29
4 x 2.5	10.50	1.10	1 x 185	25.00	6.25	2 x 2 x 0,8	6.00	0.36
4 x 4	2.50	1.54	1 x 240	28.00	7.84	4 x 2 x 0,8	7.00	0.49
4 x 6	13.50	1.82	1 x 300	30.00	9.00	6 x 2 x 0,8	8.50	0.72
4 x 10	16.50	2.72	3 x 1,5	11.50	1.32	10 x 2 x 0,8	9.50	0.90
4 x 16	19.00	3.61	3 x 2,5	12.50	1.56	20 x 2 x 0,8	13.00	1.69
4 x 25	23.50	5.52	3 x 10	17.50	3.06	40 x 2 x 0,8	16.50	2.72
4 x 35	26.00	6.76	3 x 16	19.50	3.80	60 x 2 x 0,8	20.00	4.00
5 x 5.1	9.50	0.90	3 x 50	26.00	6.76	100 x 2 x 0,8	25.50	6.50
5 x 2.5	11.00	1.21	3 x 70	30.00	9.00	200 x 2 x 0,8	32.00	10.24
5 x 4	13.50	1.82	3 x 120	36.00	12.96			

 Please note that the product codes presented in this catalog are for marketing and internal reference purposes only.
 Actual product codes reflected on delivery documentation may differ.

14.50

18.00

21.50

26.00

10.50

13.00

2.10

3.24

4.62

6.76

1.10

1.69

4 x 1,5

5 x 2,5

4 x 6

12.50

13.50

16.50

1.56

1.82

2.72

5 x 6

5 x 10

5 x 16

5 x 25

7 x 1.5

7 x 2.5

- Product codes in this catalog are for marketing and reference only and may differ from those on delivery documents.
- Custom sizes are available upon request and comply with NEMA standards

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

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	cm²	cm²
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 <sup>2</sup>

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<sup>2</sup>.

Table 2
Weight of cables type NYY (Power Cable)

Cable	Cable weight		Number of		Total weight
NYY	N/m	Х	Cables (variable)	=	N/m
4 x 1,5	1,6	х	1	=	1,6
4 x 2,5	2,3	х	1	=	2,3
4 x 6,0	4,6	х	1	=	4,6
4 x 16	10,9	х	1	=	10,9
4 x 35	20,9	х	1	=	20,9
4 x 70	31,0	х	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 cm²		
Cable Tray	Voltage line cables	Usable sectionx1,5 N/m x cm²		

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
- Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

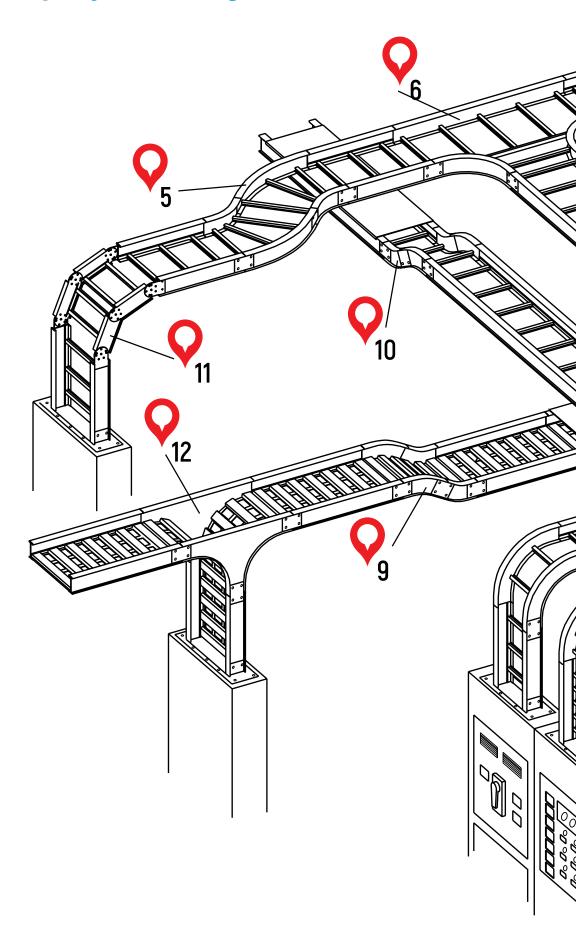
- Custom sizes are available upon request and comply with NEMA standards

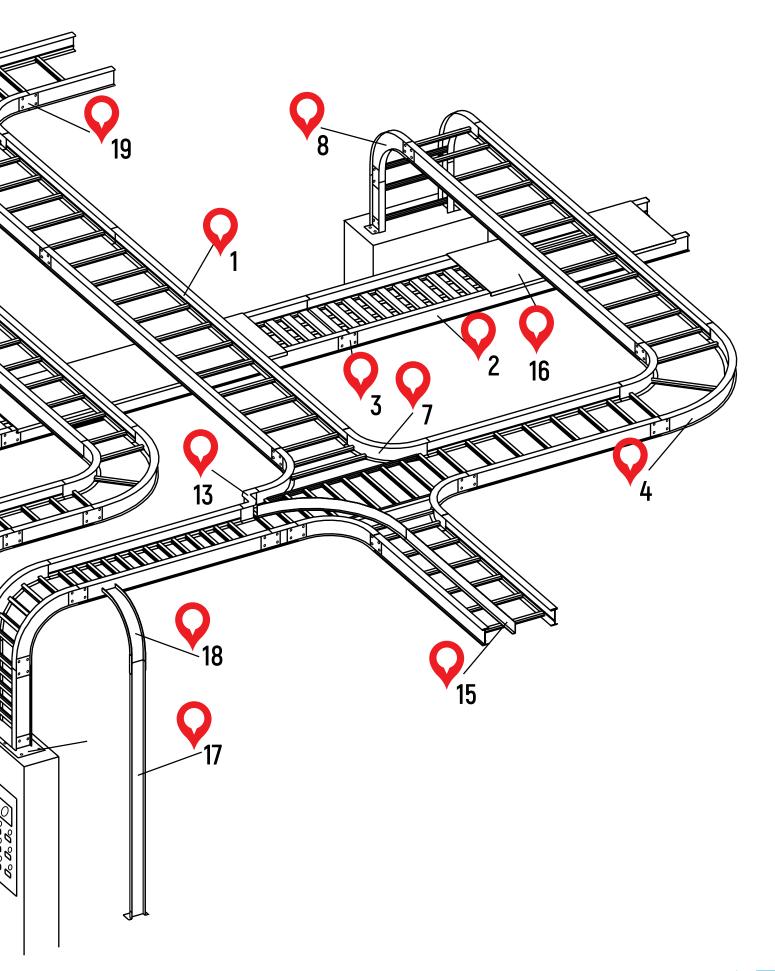


# **Cable Ladder Trays System Design**

#### **Nomenclature**

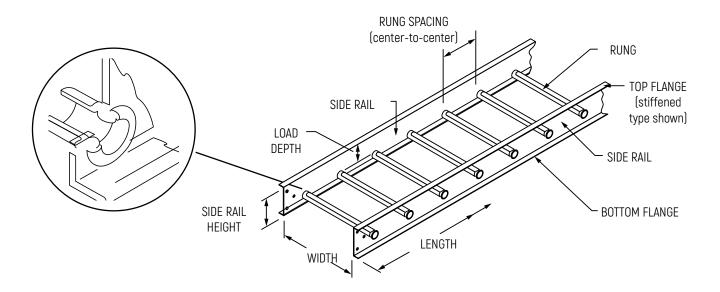
- 1. Cable Ladder Trays
- 2. Ventilated Cable Ladder Trays
- 3. Joint Plate / Fish Plate
- 4. 90°Horizontal Bend
- 5. 45°Horizontal Bend
- 6. Horizontal Tee
- 7. Horizontal Cross
- 8. 90°Vertical Outside Bend
- 9. 45°Vertical Outside Bend
- 10. 45°Vertical Inside Bend
- 11. Vertical Bend
- 12. Vertical 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





# **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.

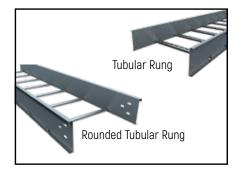
**SFSP** manufactures four load depths; 2.7/8"(73mm), 3.5/8"(101mm), 4.5/8"(127mm) and 5.5/8"(153mm) corresponding to the four nominal load depths in NEMA Standard 1"(25mm), 3"(75mm), 4"(100mm), 5" (125mm) and 6"(150mm).

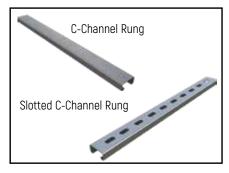
#### Overall Height

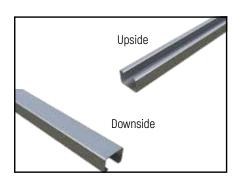
Welded Cable Ladder Trays' overall height is equal to the load depth plus 1.25" (30mm).

#### **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

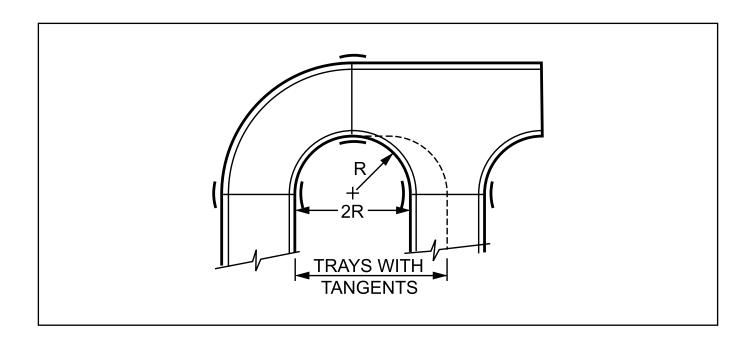
• Welded Cable Ladder Trays rungs on straight sections are assembled to the side rails using an automatic, these welds are 700% larger and stronger than the common resistance (spot) weld in use today. Electrical properties of the assembly are unequalled; are well within the NEMA requirements due to the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



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## **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 cm³	I cm <sup>4</sup>			
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			
Α4	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	С					
A3	74	3.70	12A					
Α4	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.

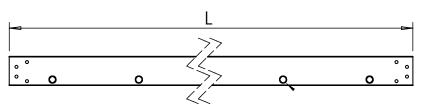
Other dimensions are available upon request.

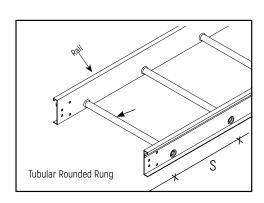
#### **Tubular Rungs**

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

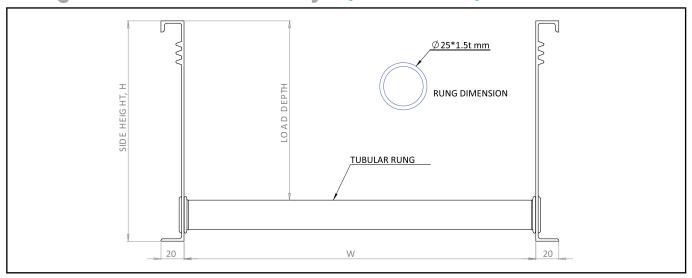


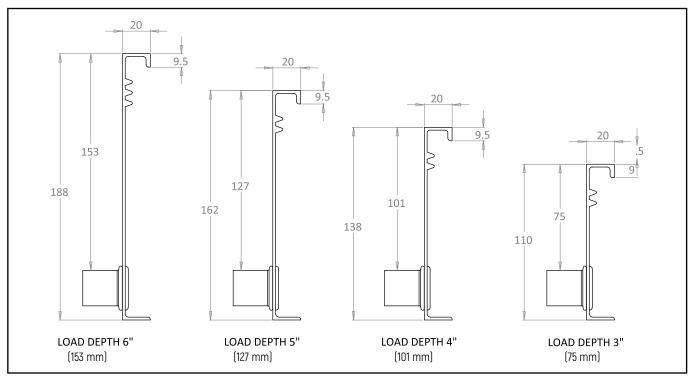


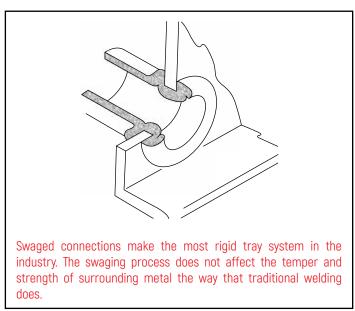
- Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.
- Custom sizes are available upon request and comply with NEMA standards

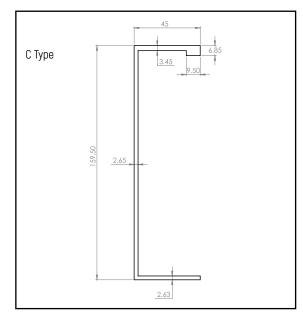


# **Swaged Cable Ladder Trays (Aluminum)**

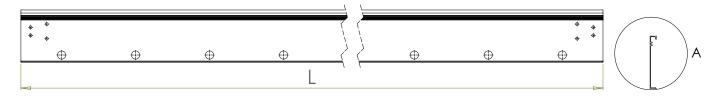




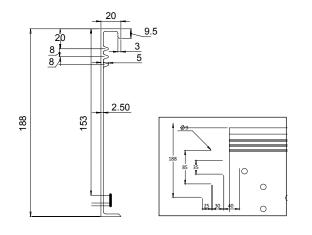




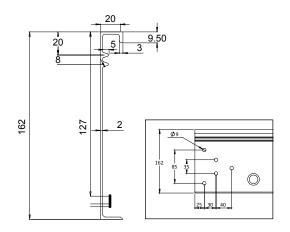
#### **Aluminum Cable Ladder Trays - General Overview**



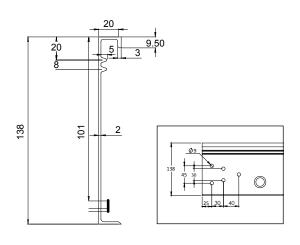
#### C.Ladder Side Rail 6"



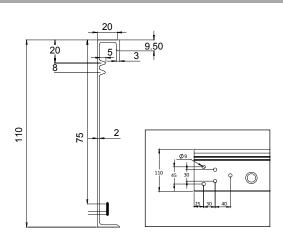
#### C.Ladder Side Rail 5"



#### 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 Jrg²)**

#### **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













#### **MATERIALS**

· Pre-Galvanized / Stainless Steel

#### **FINISHES**

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

#### MATERIAL THICKNESS

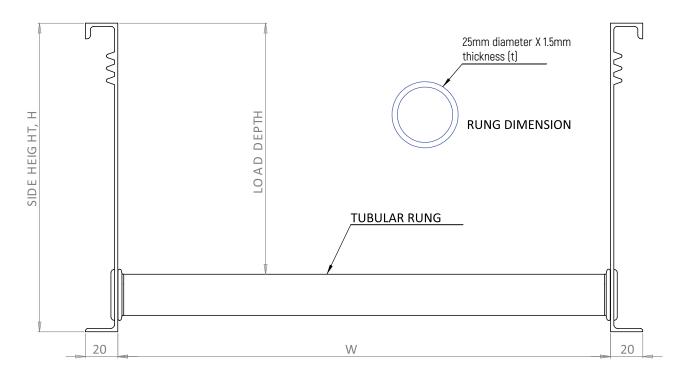
1.50 mm

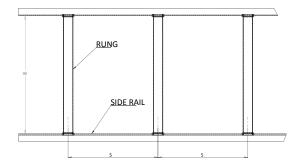
2.00 mm

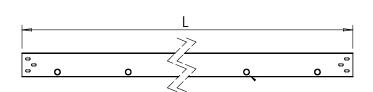
2.50 mm

# **Steel Cable Ladder Trays - General Overview**

#### **Tubular Rounded Rung**

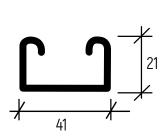


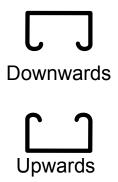


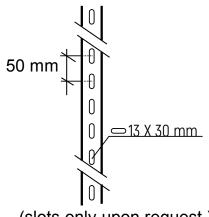


#### **Rung Types and Dimensions**

Rung Thicknesses: 1.5 mm, 2.0 mm and 2.5mm

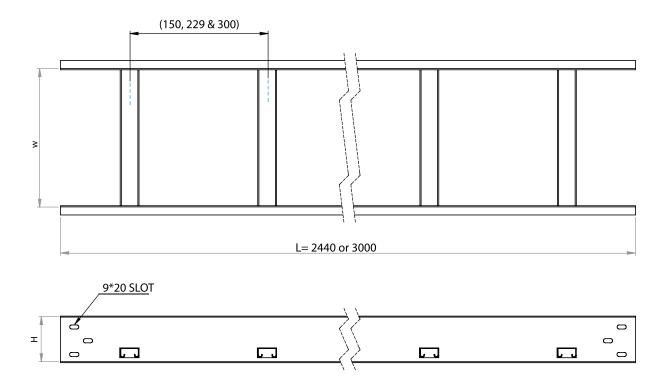






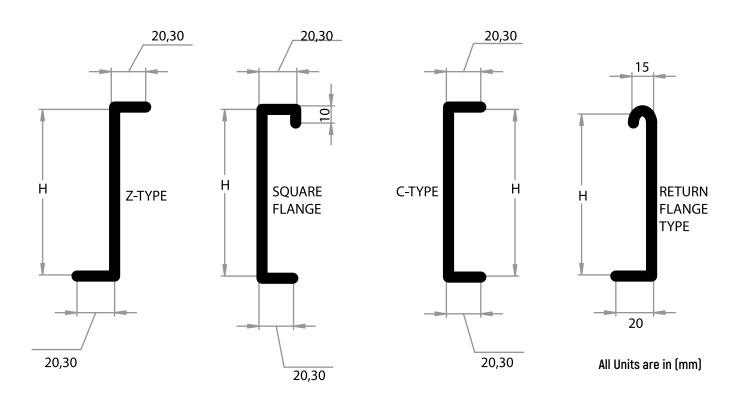
(slots only upon request)

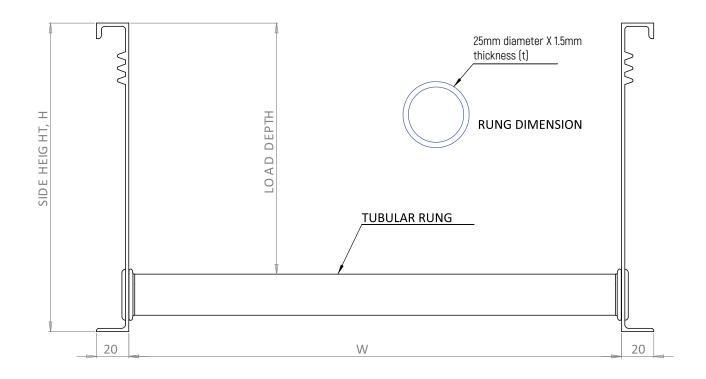
### **Length and Rung Spacing**

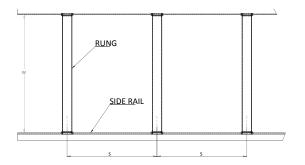


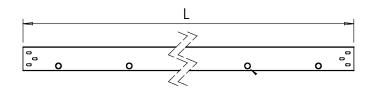
#### **Side Rail Types**

Height of rail 50mm - 150mm









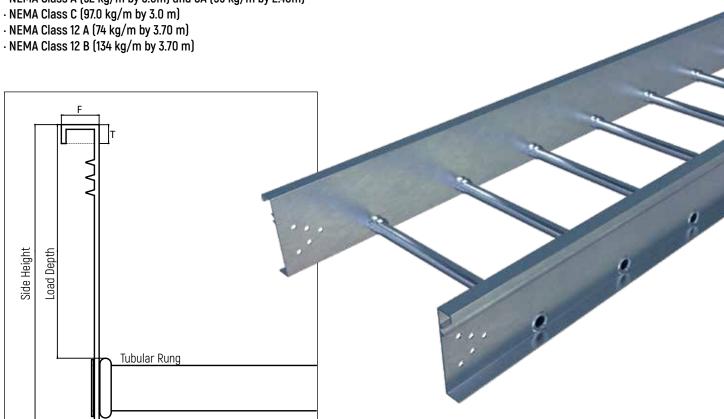
# CABLE LADDER TRAY RUNS

# LADDER TYPE RUNS ALUMINUM SECTION

# **Swaged Tubular Rung**

#### **ALUMINUM 6063 T6**

 $\cdot$  NEMA Class A (52 kg/m by 3.0m) and 8A (95 kg/m by 2.40m)



#### Aluminum 6063 T6 - Side Rails

Design Data								
Side Rail	Height (mm)	Load Depth Fd (mm)	Thickness (mm)	F (mm)	W cm³	l cm⁴		
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	А				
A2	97	3.0	С				
A3	74	3.70	12A				
A4	134	3.70	12B				



<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards

# **ALT - A1 (Swaged Rounded Tubular)**

#### 2.00 mm Thickness Deflection Support Width Load Distance NEMA Side Rail (Side Height 110 mm) Rung Rail Item Code CLASS 12A - NEMA Class A (52 kg/m by 3,0m) and (m) KN/m (mm) (mm) (mm) 8A (95 kg/m by 2,40m) Side Rail: A1 2.40 1.35 0.02 7.96 Height: 110 mm - Load Depth: 82 mm 3.0 0.66 0.01 9.95 Rung Spacing: 229 mm SVCLA1 F 00150110 150 3.70 0.32 0.00 12.22 4.90 0.10 0.00 16.10 2.40 1.34 3.0 0.65 0.03 9.93 SVCLA1\_F\_00225110 225 3.70 0.31 0.01 12.15 4.90 0.09 0.00 15.86 2.40 1.32 0.13 7.99 3.0 0.64 0.06 9.93 SVCLA1\_F\_00300110 300 3.70 0.30 0.03 12.08 4.90 0.08 0.01 15.62 2.40 1.25 0.42 7.97 110 X 20 X 2.0 3.0 0.61 0.21 9.87 Rung Tubular 25x1.5 SVCLA1\_F\_00450110 450 Rounded Rung 3.70 0.29 0.10 12.31 mm 4.90 0.07 0.02 16.12 2.40 1.15 0.92 7.99 3.0 0.58 0.46 9.92 SVCLA1\_F\_00600110 600 3.70 0.27 0.22 12.27 4.90 0.05 0.04 15.65 20 2.40 1.01 1.57 7.94 9.5 3.0 0.54 0.84 9.96 SVCLA1\_F\_00750110 750 3.70 0.25 0.39 12.28 4.90 0.04 0.06 oad Depth: 82 2.0 2.40 0.86 2.31 7.93 3.0 0.49 1.32 9.95 SVCLA1\_F\_00900110 900 3.70 0.22 0.59 12.01 4.90 0.02 0.05 15.66 Tubular Rung

<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards



<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

# **ALT - A2 (Swaged Rounded Tubular)**

#### 2.00 mm Thickness Deflection Support Width Load Distance NEMA Side Rail (Side Height 138 mm) Rung Rail Item Code CLASS 12A - NEMA Class C (97.0 kg/m by 3.0 m) (m) KN/m (mm) (mm) (mm) Side Rail: A2 - Height: 138 mm 2.40 2.35 0.04 7.98 - Load Depth: 108 mm Rung Spacing: 229 mm 3.0 1.17 0.02 9.94 SVCLA2 F 00150138 150 Rung: 3.70 0.59 0.01 12.18 4.90 0.22 0.00 16.29 2.40 2.32 0.13 3.0 0.06 9.96 1.16 SVCLA2\_F\_00225138 225 3.70 0.58 0.03 12.16 4.90 0.21 0.01 16.16 2.40 2.25 0.29 7.96 3.0 1.1 0.15 9.95 SVCLA2\_F\_00300138 300 3.70 0.57 0.07 12.15 4.90 0.20 0.03 16.03 2.40 2.06 0.91 8.0 138 X 20 X 2.0 3.0 1.09 0.48 10.-SVCLA2\_F\_00450138 450 3.70 0.55 0.24 12.23 4.90 0.18 0.08 15.80 2.40 1.85 1.55 8.00 3.0 1.02 0.85 9.93 Rung: SVCLA2\_F\_00600138 600 12.14 3.70 0.52 0.44 4.90 0.17 0.18 16.18 20 2.40 1.70 1.95 7.95 9.5 3.0 0.98 1.12 10 SVCLA2\_F\_00750138 750 3.70 0.50 0.57 12.19 Tubular 4.90 0.15 Rung: Side Height: 138 oad Depth: 108 30x1.5 2.40 2.55 7.26 1.29 2.0 3.0 0.88 1.74 9.93 SVCLA2\_F\_00900138 900 3.70 0.47 0.93 12.27 4.90 0.14 0.28 16.28 Tubular Rung



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<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards

# **ALT - A3 (Swaged Rounded Tubular)**

#### 2.00 mm Thickness Deflection Support Width Load Distance Side Rail NEMA (Side Height 162 mm) Rail Rung Item Code CLASS Α3 12A NEMA Class 12 A (74 kg/m by 3.70 m) (m) KN/m (mm) (mm) (mm) Side Rail: A3 Height: 162 mm 2.40 3.67 0.06 7.92 Load Depth: 132 mm Rung Spacing: 229 mm 3.0 1.87 0.03 9.97 Tubular Rung: 25x1.5 SVCLA3\_F\_00150162 150 3.70 0.97 0.02 12.31 4.90 0.38 0.01 16.27 2.40 3.63 0.20 3.0 1.85 0.10 9.97 SVCLA3\_F\_00225162 225 3.70 0.96 0.05 12.32 4.90 0.37 0.02 16.19 2.40 3.50 0.46 7.99 3.0 1.80 0.24 9.99 SVCLA3\_F\_00300162 300 3.70 0.94 0.12 12.24 4.90 0.36 0.05 16.13 2.40 3.17 1.12 7.99 110 X 20 X 2.0 3.0 1.73 0.61 9.98 SVCLA3\_F\_00450162 450 Tubular 3.70 0.91 0.3 12.26 4.90 0.34 0.15 16.05 2.40 2.88 1.69 7.98 3.0 1.64 0.96 9.95 Rung: SVCLA3\_F\_00600162 600 25x2.0 3.70 0.88 0.52 12.28 4.90 0.19 0.33 16.27 20 9.5 2.40 2.45 2.14 7.07 3.0 1.55 1.36 9.96 SVCLA3\_F\_00750162 750 3.70 0.85 0.74 12.33 Tubular 4.90 0.31 0.36 Rung: Side Height: 162 30x1.5 2.40 1.70 2.57 6.44 2.0 3.0 1.39 2.10 9.96 SVCLA3\_F\_00900162 900 3.70 0.79 1.19 4.90 0.29 0.44 1615 **Tubular Rung**

<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards



<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

# **ALT - A4 (Swaged Rounded Tubular)**

#### 2.50 mm Thickness Deflection Support Width Load Distance NEMA (Side Height 188 mm) Side Rail Rail Rung Item Code CLASS 12A NEMA Class 12 B (134 kg/m by 3.70 m) KN/m (mm) (mm) (m) (mm) Side Rail: A4 - Height: 188 mm 2.40 4.55 0.06 5.41 - Load Depth: 158 mm Rung Spacing: 229 mm 3.0 0.04 3.45 10.0 SVCLA4\_F\_00150188 150 3.70 0.02 1.81 12.31 Tubular Rung: 25x1.5 4.90 0.74 0.01 16.23 2.40 4.55 0.19 3.0 0.14 9.98 3.40 SVCLA4\_F\_00225188 225 0.08 3.70 1.79 12.28 4.90 0.73 0.03 16.20 2.40 4.55 0.45 5.82 3.0 3.33 0.33 9.99 SVCLA4\_F\_00300188 300 3.70 1.77 0.18 12.30 4.90 0.72 0.07 16.19 2.40 4.55 1.23 6.61 110 X 20 X 2.0 Tubular 3.0 3.13 0.84 9.98 Rung: SVCLA4\_F\_00450188 450 25x2.0 3.70 1.71 0.46 12.29 4.90 0.70 0.19 16.21 2.40 3.82 1.71 6.27 3.0 2.95 1.32 9.99 Rung: SVCLA4\_F\_00600188 600 30x1.5 3.70 1.65 0.74 12.27 4.90 0.30 0.68 16.23 9.5 2.40 3.09 2.14 5.87 3.0 2.73 1.89 9.98 SVCLA4\_F\_00750188 750 3.70 1.58 1.09 12.27 Tubular 4.90 0.66 Rung: side Height: 188 30x2.0 2.40 2.56 5.21 2.14 2.5 2.14 2.56 9.02 3.0 SVCLA4\_F\_00900188 900 3.70 1.47 4.90 0.63 0.75 16.27 **Tubular Rung**



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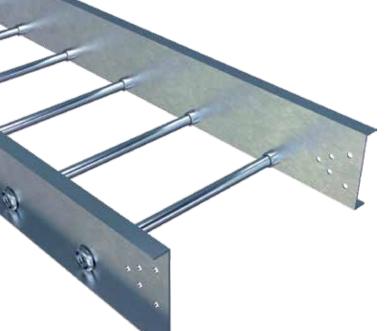
# STEEL LADDER TYPE RUNS STEEL STEEL SECTION

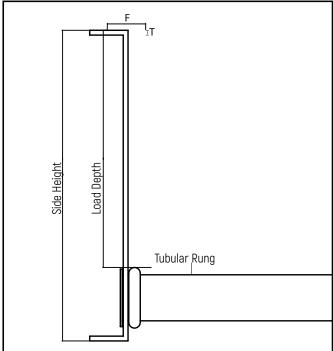
# **Swaged Tubular Rung**

#### 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 Load Depth		Thickness F	W	1	NEMA		
	(mm)	Fd (mm)	(mm)	(mm)	cm³	cm <sup>4</sup>	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			
\$3	82	4.90	16A			
S4	87	3.70	12A			
\$5	150	3.70	12C			
\$6	67	6.00	D			

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<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards

# **SLT - S1 (Swaged Rounded Tubular)**

#### 2.00 mm Thickness Deflection Support Width Load Distance NEMA Side Rail (Side Height 110 mm) Rung Rail Item Code CLASS S1 12A NEMA Class 12A (74 kg/m by 3.70m) (m) KN/m (mm) (mm) (mm) Side Rail: S1 Height: 110 mm 2.40 2.72 0.01 6.32 Load Depth: 75 mm Rung - Spacing: 229 mm 3.0 1.74 0.01 9.99 SVCLS1\_F\_00150110 150 3.70 0.89 0.00 12.22 4.90 0.35 0.00 16.33 2.40 2.71 0.04 3.0 1.73 0.02 9.99 SVCLS1\_F\_00225110 225 0.01 3.70 0.89 12.32 4.90 0.34 0.00 16.24 2.40 2.71 0.09 6.41 3.0 1.71 0.06 9.95 SVCLS1\_F\_00300110 300 3.70 0.88 0.03 12.31 4.90 0.33 0.01 16.14 2.40 2.69 0.30 6.61 110 X 20 X 2.0 Tubular 3.0 1.67 0.19 9.94 Rung: SVCLS1\_F\_00450110 450 Tubular 25 X 1.5 Rounded Rung 3.70 0.86 0.10 12.31 mm 4.90 0.31 0.03 15.97 2.40 2.68 0.71 7.03 3.0 1.62 0.43 9.99 SVCLS1\_F\_00600110 600 3.70 0.83 0.22 12.24 4.90 0.30 0.08 16.21 20 2.0 2.40 2.66 1.38 7.69 3.0 1.53 0.79 9.94 SVCLS1\_F\_00750110 750 3.70 0.80 0.41 12.25 4.90 0.28 0.15 Side Height: 110 2.0 2.40 2.43 2.18 8.00 1.43 1.28 9.96 3.0 SVCLS1\_F\_00900110 900 3.70 0.77 4.90 0.26 0.23 15.97 **Tubular Rung**

<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards



<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

# **SLT - S2 (Swaged Rounded Tubular)**

#### 2.00 mm Thickness Deflection Support Width Load Distance NEMA (Side Height 138 mm) Side Rail Rung Rail Item Code CLASS 12A - NEMA Class 12B (123 kg/m by 3.70m) (mm) (mm) (m) KN/m (mm) - Side Rail: S2 - Height: 138 mm 2.40 3.76 0.02 5.05 - Load Depth: 100 mm Rung Spacing: 229 mm 3.0 2.43 0.01 8.02 SVCLS2\_F\_00150138 150 3.70 0.01 12.30 1.59 4.90 0.64 0.00 16.11 2.40 3.76 0.05 5.09 3.0 2.43 0.03 8.07 SVCLS2\_F\_00225138 225 3.70 1.58 0.02 12.30 4.90 0.64 0.01 16.29 2.40 3.75 0.12 5.16 3.0 2.42 0.08 8.11 SVCLS2\_F\_00300138 300 3.70 1.57 0.05 12.31 4.90 0.63 0.02 16.25 2.40 3.74 0.42 5.46 Tubular 3.0 2.41 0.27 8.31 Rung: SVCLS2\_F\_00450138 450 Tubular 25 X 1.5 3.70 1.54 0.17 12.32 mm 4.90 0.07 16.18 0.61 0.99 2.40 3.72 6.02 3.0 2.39 0.63 8.66 SVCLS2\_F\_00600138 600 3.70 1.49 0.40 12.28 4.90 0.59 0.16 16.15 20 2.0 2.40 3.71 1.92 3.0 2.38 1.23 9.28 SVCLS2\_F\_00750138 750 1.43 12.29 3.70 0.74 4.90 0.57 0.30 16.18 Side Height: 138 Load Depth: 100 2.40 2.86 2.56 6.51 2.0 3.0 2.32 2.08 9.98 SVCLS2\_F\_00900138 900 3.70 1.35 1.21 12.28 Tubular Rung 4.90 0.55 16.26



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# **SLT - S3 (Swaged Rounded Tubular)**

#### 2.00 mm Thickness Deflection Support Width Load Distance NEMA (Side Height 162 mm) Side Rail Rung Rail Item Code CLASS 12A - NEMA Class 16A (82 kg/m by 4.90m) (mm) (mm) (m) KN/m (mm) - Side Rail: S3 - Height: 162 mm 2.40 4.93 0.02 4.19 - Load Depth: 125 mm Rung Spacing: 229 mm 3.0 3.21 0.01 6.69 SVCLS3\_F\_00150162 150 3.70 0.01 10.32 2.12 4.90 1.06 0.00 16.33 2.40 4.92 0.07 4.24 3.0 3.20 0.04 6.72 SVCLS3\_F\_00225162 225 3.70 2.11 0.03 10.33 4.90 1.05 0.01 16.31 4.92 2.40 0.16 4.34 3.0 3.19 0.11 6.77 SVCLS3\_F\_00300162 300 3.70 2.11 0.07 10.40 4.90 1.04 0.03 16.29 2.40 4.90 0.55 4.72 Tubular 3.0 3.18 0.36 7.04 Rung: SVCLS3\_F\_00450162 450 25 X 1.5 3.70 2.09 0.23 10.54 mm 4.90 0.11 16.30 1.02 4.87 1.29 2.40 5.45 3.0 3.17 0.84 7.53 SVCLS3\_F\_00600162 600 3.70 2.08 0.55 70.89 4.90 0.99 0.26 16.23 20 2.0 2.40 4.10 2.13 5.66 3.0 3.15 1.63 8.31 SVCLS3\_F\_00750162 750 2.07 1.07 11.43 3.70 4.90 0.96 0.50 16.25 Side Height: 162 Load Depth: 125 2.0 2.40 2.86 2.56 5.07 3.0 2.86 2.56 8.68 SVCLS3\_F\_00900162 900 3.70 2.05 1.84 12.17 Tubular Rung 4.90 0.92 0.82

<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards



<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

# **SLT - S4 (Swaged Rounded Tubular)**

#### 2.50 mm Thickness Deflection Support Width Load NEMA Distance (Side Height 110 mm) Side Rail Rung Rail Item Code CLASS 12A NEMA Class 12A (87 kg/m by 3.70m) (mm) (m) KN/m (mm) (mm) Side Rail: S4 - Height: 110 mm 2.40 3.34 0.01 6.33 Load Depth: 75 mm Rung Spacing: 229 mm 3.0 2.14 0.01 9.99 SVCLS4\_F\_00150110 150 12.31 0.00 3.70 1.11 4.90 0.44 0.00 16.27 2.40 3.33 0.05 6.35 3.0 2.13 0.03 10.00 SVCLS4\_F\_00225110 225 3.70 1.10 0.02 12.29 4.90 0.43 0.01 16.19 3.33 2.40 0.11 6.43 3.0 2.11 0.07 9.98 SVCLS4\_F\_00300110 300 3.70 1.09 0.04 12.29 4.90 0.42 0.01 1612 2.40 0.37 6.70 3.32 Tubular 3.0 2.06 0.23 9.98 Rung: SVCLS4\_F\_00450110 450 Tubular 25 X 1.5 3.70 1.07 0.12 12.32 mm 4.90 0.05 16.31 0.41 0.88 2.40 3.30 7.20 3.0 1.98 0.53 9.98 SVCLS4\_F\_00600110 600 3.70 1.04 0.28 12.32 4.90 0.39 0.10 16.21 20 2.5 2.40 3.27 1.70 7.99 3.0 1.87 0.97 10.0 SVCLS4\_F\_00750110 750 1.0 0.52 3.70 12.30 4.90 0.37 0.19 16.13 Side Height: 110 Load Depth: 75 2.5 2.40 2.81 2.52 7.99 3.0 1.72 1.54 9.96 SVCLS4\_F\_00900110 900 3.70 0.95 0.85 12.26 **Tubular Rung** 4.90 0.35 0.31



<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

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# **SLT - S5 (Swaged Rounded Tubular)**

#### 2.50 mm Thickness Deflection Support Width Load Distance NEMA (Side Height 138 mm) Side Rail Rung Rail Item Code CLASS 12A - NEMA Class 12C (150 kg/m by 3.70m) (mm) (mm) (m) KN/m (mm) - Side Rail: S5 - Height: 138 mm 2.40 4.64 0.02 5.06 Load Depth: 100 mm Rung Spacing: 229 mm 3.0 3.0 0.01 8.03 SVCLS5\_F\_00150138 150 0.01 12.33 3.70 1.97 4.90 0.81 0.00 16.30 2.40 4.63 0.06 5.11 3.0 3.0 0.04 8.08 SVCLS5\_F\_00225138 225 3.70 1.95 0.03 12.28 4.90 0.80 0.01 16.26 2.40 4.63 0.15 5.20 3.0 2.99 0.10 8.13 SVCLS5\_F\_00300138 300 3.70 1.94 0.06 12.30 4.90 0.79 0.03 16.23 2.40 0.52 5.56 4.61 138 X 20 X 2.5 Tubular 3.0 2.98 0.33 8.38 Rung: SVCLS5\_F\_00450138 450 25 X 1.5 3.70 1.90 0.21 12.29 mm 4.90 0.09 16.20 0.77 1.22 2.40 4.60 6.27 3.0 2.96 0.79 8.82 SVCLS5\_F\_00600138 600 3.70 1.84 0.49 12.30 4.90 0.75 0.20 16.22 20 2.5 2.40 4.12 2.14 3.0 2.95 1.53 9.58 SVCLS5\_F\_00750138 750 1.76 0.91 3.70 12.33 4.90 0.73 0.38 16.31 Side Height: 138 Load Depth: 110 2.5 2.40 2.86 2.56 5.78 3.0 2.74 2.46 9.99 SVCLS5\_F\_00900138 900 3.70 1.65 1.48 12.32 Tubular Rung 4.90 0.70 0.63 16.28

<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards



<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

# **SLT - S6 (Swaged Rounded Tubular)**

#### 2.50 mm Thickness Deflection Support Width Load NEMA Distance (Side Height 162 mm) Side Rail Rail Rung Item Code CLASS 12A - NEMA Class D (67 kg/m by 6.0m) (mm) (mm) (m) KN/m (mm) - Side Rail: S6 - Height: 162 mm 2.40 6.09 0.03 4.20 Load Depth: 125 mm Rung - Spacing: 229 mm 3.0 3.97 0.02 SVCLS6\_F\_00150162 150 3.70 0.01 10.31 2.62 4.90 1.31 0.01 16.23 2.40 6.08 0.09 4.26 3.0 3.96 0.06 6.74 SVCLS6\_F\_00225162 225 3.70 2.61 0.04 10.33 4.90 1.31 0.02 16.33 0.20 2.40 6.08 4.38 3.0 3.95 0.13 6.81 SVCLS6\_F\_00300162 300 3.70 2.60 0.09 10.37 Tubular 4.90 1.30 0.04 16.32 2.40 6.07 0.68 4.87 162 X 20 X 2.5 3.0 3.94 0.44 7.13 SVCLS6\_F\_00450162 450 3.70 2.60 0.29 10.63 4.90 0.14 1.27 16.25 1.37 2.40 5.16 4.95 3.0 3.93 7.74 SVCLS6\_F\_00600162 600 3.70 2.58 0.69 11.00 4.90 1.24 0.33 16.26 2.5 2.40 4.13 2.14 5.03 3.0 3.91 2.03 8.72 SVCLS6\_F\_00750162 750 2.57 11.67 3.70 1.33 4.90 1.20 0.62 16.26 2.40 3.57 2.57 5.09 2.5 Tubular 3.0 3.57 2.57 8.72 Rung: SVCLS6\_F\_00900162 900 3.70 2.56 1.84 12.20 **Tubular Rung** 4.90 1.17 0.84 16.30



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# WELDED C-CHANNEL LADDER TRAYS TYPE RUNS SECTION

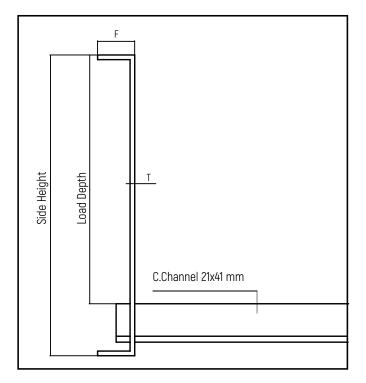
# Welded C-Channel - Ladder Type Runs

#### 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	Height	Load Depth	Thickness	F	W	1	NEMA	
Rail	(mm)	Fd (mm)	(mm)	(mm)	cm³	cm <sup>4</sup>	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
\$6	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				

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<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards

# **SL - S1 (Welded C-Channel)**

#### 2.00 mm Thickness Deflection Support Width Load Distance NEMA Side Rail (Side Height 110 mm) Rail Rung CLASS Item Code **S1** 12A - NEMA Class 12A (74 kg/m by 3.70m) KN/m (mm) (mm) (m) (mm) - Side Rail: S1 - Height: 110 mm 2.40 2.69 0.01 6.33 - Load Depth: 75 mm Rung - Spacing: 229 mm 3.0 1.70 0.01 9.96 SVCLBS F 00188539 150 0.00 0.86 12.28 3.70 4.90 0.31 0.00 16.13 2.40 2.69 0.04 1.70 0.03 9.98 3.0 SVCLBS\_F\_00217587 225 3.70 0.86 0.01 12.29 4.90 0.31 0.00 16.14 2.40 2.69 0.10 6.42 3.0 1.69 0.06 9.96 SVCLBS\_F\_00188535 300 3.70 0.86 0.03 12.31 0.31 0.01 4.90 14.14 2.40 2.69 0.33 6.65 110 X 20 X 2.0 3.0 1.67 0.21 9.99 Rung 41 x 21 x VCLBS\_F\_00188547 450 1.5 mm 3.70 0.85 0.1 12.26 4.90 0.31 0.04 26.17 2.40 2.69 0.75 3.10 3.0 1.62 0.47 3.98 SVCLBS\_F\_00217591 600 0.84 3.70 0.25 12.27 20 4.90 0.31 0.09 16.22 2.40 2.69 1.53 7.85 0.88 9.95 3.0 1.54 SVCLBS\_F\_00189829 750 Side Height: 110 3.70 0.82 0.47 10.24 4.90 0.31 0.18 10.31 2.40 2.39 2.36 7.99 3.0 1.45 1.43 10.00 SVCLBS\_F\_00188457 900 0.80 3.70 0.79 12.30 4.90 0.30 0.30 16.03

<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards



<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

# SL - S2 (Welded C-Channel)

#### 2.00 mm Thickness Deflection Support Width Load Distance NEMA (Side Height 138 mm) Side Rail Rail Rung CLASS Item Code 12A - NEMA Class 12B (123 kg/m by 3.70m) KN/m (mm) (mm) (m) (mm) - Side Rail: S2 - Height: 138 mm 2.40 3.73 0.02 5.05 Load Depth: 100 mm Rung Spacing: 229 mm 3.0 2.40 0.01 8.01 SVCLBS F 00156079 150 0.01 1.55 12.27 3.70 4.90 0.60 0.00 16.00 2.40 3.73 0.06 5.09 2.40 0.04 8.06 3.0 SVCLBS\_F\_00217595 225 3.70 1.55 0.02 12.28 4.90 0.60 0.01 16.01 2.40 3.73 0.14 5.17 3.0 2.40 0.09 8.11 SVCLBS\_F\_00156071 300 3.70 1.55 0.06 12.31 0.60 0.02 16.02 4.90 2.40 3.73 0.46 5.50 138 X 20 X 2.0 3.0 2.40 0.30 8.32 Rung 41 x 21 x SVCLBS\_F\_00156067 450 1.5 mm 3.70 1.53 0.19 12.30 4.90 0.60 0.07 16.07 2.40 3.73 1.09 6.13 3.0 2.40 0.70 8.73 SVCLBS\_F\_00156063 600 0.44 3.70 1.50 12.32 0.60 4.90 0.18 16.17 20 2.40 3.73 2.13 7.17 3.0 2.40 1.37 9.40 SVCLBS\_F\_00156059 750 Side Height: 138 Load Depth: 100 3.70 1.44 0.82 12.26 2.0 4.90 0.59 0.34 13.10 2.40 3.27 2.56 7.0 C.Channel 21X41 3.0 2.30 2.27 9.97 SVCLBS\_F\_00156055 900 3.70 1.36 1.34 12.19 4.90 0.58 0.57 16.11



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# SL - S3 (Welded C-Channel)

### 2.00 mm Thickness Deflection Support Width Load Distance NEMA (Side Height 162 mm) Side Rail Rail Rung Item Code CLASS 12A - NEMA Class 16A (82 kg/m by 4.90m) KN/m (mm) (mm) (m) (mm) - Side Rail: S3 - Height: 162 mm 2.40 4.90 0.02 4.20 Load Depth: 125 mm Rung Spacing: 229 mm 3.0 3.18 0.01 6.70 SVCLBS F 00217605 150 2.09 0.01 10.34 3.70 4.90 1.02 0.00 16.24 2.40 4.90 0.08 4.25 3.18 0.05 3.0 6.74 SVCLBS\_F\_00217609 225 3.70 2.09 0.03 10.37 4.90 1.02 0.02 16.27 2.40 4.90 0.18 4.36 3.0 3.18 0.12 6.81 Rung SVCLBS\_F\_00217645 300 3.70 2.09 0.08 10.41 1.02 0.04 4.90 16.29 2.40 4.90 0.60 4.78 3.0 3.18 0.39 7.08 62 X 20 X 2.0 SVCLBS\_F\_00217649 450 3.70 2.09 0.26 10.59 4.90 1.00 0.12 16.09 2.40 4.90 1.43 5.61 3.0 3.18 0.93 7.62 SVCLBS\_F\_00217653 600 2.09 10.94 3.70 0.61 20 4.90 1.0 0.29 16.26 2.40 4.90 2.14 6.17 3.0 3.18 1.81 8.50 Rung SVCLBS\_F\_00217661 750 41 x 41 x Side Height: 162 Load Depth: 125 3.70 2.09 1.19 18.53 2.0 4.90 0.98 0.56 16.23 Rung SVCLBS\_F\_00217669 2.40 4.90 0.87 5.05 41 x 41 x 900 3.0 3.18 2.45 9.18 Rung SVCLBS\_F\_00217673 3.70 2.09 1.64 11.97 4.90 0.97 0.76 16.29

<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards



<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

# SL - S4 (Welded C-Channel)

### 2.50 mm Thickness Deflection Support Width Load Distance NEMA (Side Height 110 mm) Side Rail Rail Rung CLASS Item Code 12A - NEMA Class 12A (87 kg/m by 3.70m) KN/m (mm) (mm) (m) (mm) - Side Rail: S4 - Height: 110 mm 2.40 3.30 0.02 6.32 Load Depth: 75 mm Rung Spacing: 229 mm 3.0 2.10 0.01 9.97 SVCLBS F 00217697 150 0.00 3.70 1.07 12.26 4.90 0.40 0.00 16.11 2.40 3.30 0.05 6.35 2.10 0.03 9.99 3.0 SVCLBS\_F\_00217701 225 3.70 1.07 0.02 12.27 4.90 0.40 0.01 14.11 2.40 3.30 0.12 6.42 3.0 2.09 0.08 9.99 SVCLBS\_F\_00217705 300 3.70 1.07 0.04 12.29 Rung 41 x 21 x 0.40 0.01 16.12 4.90 2.40 3.30 0.41 6.71 3.0 2.05 0.25 9.98 110 X 20 X 2.5 SVCLBS\_F\_00217709 450 3.70 1.06 0.13 12.28 4.90 0.40 0.05 16.15 2.40 3.22 1.84 7.99 3.0 1.98 0.58 9.99 SVCLBS\_F\_00217713 600 0.58 3.70 1.02 12.31 0.40 4.90 0.23 10.33 20 2.40 3.22 1.84 7.99 3.0 1.87 1.07 9.98 VCLBS\_F\_00063477 750 Side Height: 110 Load Depth: 75 3.70 1.02 0.58 12.31 4.90 0.40 0.23 12.33 C.Channel 21X41 2.40 2.95 2.31 7.97 900 SVCLBS\_F\_00063473 3.0 1.78 1.40 9.90 3.70 1.0 0.99 12.50 4.90 0.39 0.38 16.17



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# **SL - S5 (Welded C-Channel)**

### 2.50 mm Thickness Deflection Support Width Load Distance NEMA (Side Height 138 mm) Side Rail Rail Rung Item Code CLASS 12A - NEMA Class 12C (150 kg/m by 3.70m) KN/m (mm) (mm) (m) (mm) - Side Rail: S5 - Height: 138 mm 2.40 4.6 0.02 5.07 Load Depth: 100 mm Rung Spacing: 229 mm 3.0 2.97 0.01 8.05 SVCLBS F 00217717 150 1.93 0.01 12.30 3.70 4.90 0.77 0.00 16.21 2.40 4.61 0.07 2.97 0.05 8.05 3.0 SVCLBS\_F\_00217721 225 3.70 1.93 0.03 12.32 4.90 0.77 0.01 16.22 2.40 4.6 0.17 5.22 3.0 2.97 0.11 8.14 Rung SVCLBS\_F\_00217725 300 3.70 1.92 0.07 12.30 0.77 0.03 4.90 16.23 2.40 4.61 0.57 5.62 3.0 2.97 0.37 8.40 138 X 20 X 2.5 SVCLBS\_F\_00213173 450 3.70 1.89 0.23 12.28 4.90 0.77 0.09 16.30 2.40 4.61 1.35 6.40 3.0 2.97 0.87 8.90 SVCLBS\_F\_00212753 600 0.54 3.70 1.84 12.29 20 4.90 0.76 0.22 16.24 2.40 4.61 2.09 7.84 2.97 3.0 1.69 9.73 Rung SVCLBS\_F\_00156059 750 2.0 mm 3.70 1.76 1.00 12.27 2.5 4.90 0.75 0.43 16.26 Rung

2.40

3.0

3.70

4.90

900

4.61

2.86

1.66

0.73

0.82

2.24

1.64

0.72

5.87

9.99

12.30

16.18

41 x 41 x

SVCLBS\_F\_00217729

SVCLBS\_F\_00156055

C.Channel 21X41



<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards

# SL - S6 (Welded C-Channel)

### 2.50 mm Thickness Deflection Support Width Load Distance NEMA (Side Height 162 mm) Side Rail Rail Rung CLASS Item Code 12A - NEMA Class Steel S9 KN/m (mm) (mm) (m) (mm) - Side Rail: S6 - Height: 162 mm 2.40 6.06 0.03 4.21 Load Depth: 125 mm Rung Spacing: 229 mm 3.0 3.94 0.02 6.72 SVCLBS\_F\_00217739 150 2.59 0.01 1.33 3.70 Rung 41 x 21 x 4.90 1.28 0.01 16.29 2.40 6.06 0.09 4.28 3.94 0.06 6.76 3.0 SVCLBS\_F\_00217743 225 3.70 2.59 0.04 10.36 4.90 1.28 0.02 16.30 2.40 6.06 0.22 4.40 3.0 3.94 0.14 6.24 SVCLBS\_F\_00217747 300 3.70 2.59 0.09 10.41 1.28 0.05 16.33 4.90 2.40 6.06 0.75 4.93 3.0 3.94 0.49 10.8 SVCLBS\_F\_00217751 450 3.70 2.59 0.32 10.64 4.90 1.27 0.16 16.32 162 X 20 X 2.5 6.06 5.59 2.40 1.41 2.0 mm 20 SVCLBS\_F\_00217755 600 3.0 3.94 1.15 7.35 3.70 2.59 0.76 11.07 4.90 1.25 0.37 16.29 All Units are in (mm) Side Height: 162 Load Depth: 125 2.5 Rung 2.40 6.06 0.63 4.21 41 x 41 x C.Channel 21X41 Rung 41 x 21 x SVCLBS\_F\_00217759 750 3.0 3.94 1.79 8.49 3.70 2.50 1.48 11.80 16.27 4.90 1.22 0.70 Rung SVCLBS\_F\_00217775 2.40 6.06 1.08 5.26 41 x 41 x Rung SVCLBS\_F\_00156305 3.0 3.94 2.64 9.34 900 3.70 2.47 2.43 12.29 - Please note that the product codes presented in this catalog are for marketing and internal 4.90 1.18 1.16 16.27 reference purposes only. Actual product codes reflected on delivery documentation may differ.

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comply with NEMA standards



# LADDER TYPE FITTINGS

# BEND 45°

### WELDED CORNERED THICKNESSES: 2.00

	Item Code		
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	Width mm
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			
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	Width mm
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		
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	Width mm
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

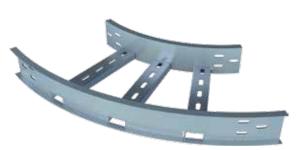


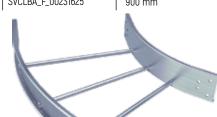


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<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards

	Item Code		
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	Width mm
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 TUBUI	AR RUNG		- Out-		THICKNESSE	S: 2.00
110 X	CLASS 12A 20 X 2.0	NEMA 138 )	m Code CLASS 12A ( 20 X 2.0	162 )	CLASS 12A ( 20 X 2.0	Width mm
Aluminum	leight 110 Steel	Aluminum	Height 138 Steel	Aluminum	Height 162 Steel	4
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		
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	Width mm
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

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# BEND 90°

# WELDED CORNERED THICKNESSES: 2.00

	Item Code		
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	Width mm
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		
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	Width mm
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			
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	Width mm	
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	





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WELDED CURVED THICKNESSES: 2.50

	Item Code		
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	Width mm
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.						
		Iten	n Code			
	LASS 12A 20 X 2.0	NEMA CLASS 12A 138 X 20 X 2.0		NEMA CLASS 12A 162 X 20 X 2.0		Width
Side Ho	eight 110	Side H	eight 138	Side H	eight 162	mm
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				
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	Width mm		
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		

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<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards



# **TEE BRANCH**

# WELDED CORNERED THICKNESSES: 2.00

Item Code				
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	Width mm	
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		
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	Width mm
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		
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	Width mm
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





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WELDED CURVED THICKNESSES: 2.50

Item Code				
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	Width mm	
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						S; 2.00
		Ite	m Code			
	CLASS 12A 20 X 2.0		CLASS 12A 20 X 2.0		CLASS 12A ( 20 X 2.0	Width mm
Side F	leight 110	Side I	leight 138	Side l	leight 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		
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	Width mm
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

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<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards



# **Inside Vertical Elbow (Inside Riser)**

WELDED CORNERED THICKNESSES: 2.00

	Item Code		
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	Width mm
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		
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	Width mm
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		
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	Width mm
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



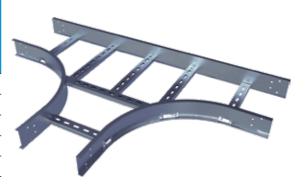


<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards

WELDED CURVED THICKNESSES: 2.50

	Item Code		
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	Width mm
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					3; 2.00	
		Item	Code			
NEMA CLASS 12A         NEMA CLASS 12A         NEMA CLASS 12A           110 X 20 X 2.0         138 X 20 X 2.0         162 X 20 X 2.0					Width	
Side H	eight 110	Side He	eight 138	Side He	eight 162	mm
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		
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	Width mm
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

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<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards



# **Outside Vertical Elbow (Outside Riser)**

WELDED CORNERED THICKNESSES: 2.00

	Item Code		
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	Width mm
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		
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	Width mm
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		
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	Width mm
Side Height 110	Side Height 138	Side Height 162	
SVCLS4_F_0V150110	SVCLS4_F_0V150138	SVCLS4_F_0V150162	150 mm
SVCLS4_F_0V225110	SVCLS4_F_0V225138	SVCLS4_F_0V225162	225 mm
SVCLS4_F_0V300110	SVCLS4_F_0V300138	SVCLS4_F_0V300162	300 mm
SVCLS4_F_0V450110	SVCLS4_F_0V450138	SVCLS4_F_0V450162	450 mm
SVCLS4_F_0V600110	SVCLS4_F_0V600138	SVCLS4_F_0V600162	600 mm
SVCLS4_F_0V750110	SVCLS4_F_0V750138	SVCLS4_F_0V750162	750 mm
SVCLS4_F_0V900110	SVCLS4_F_0V900138	SVCLS4_F_0V900162	900 mm





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WELDED CURVED THICKNESSES: 2.50

		Item Code	
Width mm	NEMA CLASS 12A 162 X 20 X 2.5	NEMA CLASS 12A 138 X 20 X 2.5	NEMA CLASS 12A 110 X 20 X 2.5
	Side Height 162	Side Height 138	Side Height 110
150 mm	SVCLS5_F_0V150162	SVCLS5_F_0V150138	SVCLS5_F_0V150110
225 mm	SVCLS5_F_0V225162	SVCLS5_F_0V225138	SVCLS5_F_0V225110
300 mm	SVCLS5_F_0V300162	SVCLS5_F_0V300138	SVCLS5_F_0V300110
450 mm	SVCLS5_F_0V450162	SVCLS5_F_0V450138	SVCLS5_F_0V450110
600 mm	SVCLS5_F_0V600162	SVCLS5_F_0V600138	SVCLS5_F_0V600110
750 mm	SVCLS5_F_0V750162	SVCLS5_F_0V750138	SVCLS5_F_0V750110
900 mm	SVCLS5 F 0V900162	SVCLS5 F 0V900138	SVCLS5 F 0V900110





				4		
SWAGED TUBUL	AR RUNG				THICKNESSES	S: 2.00
		Iten	n Code			
	CLASS 12A 20 X 2.0		CLASS 12A 20 X 2.0		CLASS 12A 20 X 2.0	Width mm
Side F	leight 110	Side H	eight 138	Side Ho	eight 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		
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	Width mm
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

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<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards



# **Horizontal Cross (Intersection)**

WELDED CORNERED THICKNESSES: 2.00

	Item Code		
S 12A 2.0		NEMA CLASS 12A 162 X 20 X 2.0	Width mm
t 110	t 110 Side Height 138	Side Height 162	
150110	150110 SVCLS4_F_HC150138	SVCLS4_F_HC150162	150 mm
225110	225110 SVCLS4_F_HC225138	SVCLS4_F_HC225162	225 mm
300110	300110 SVCLS4_F_HC300138	SVCLS4_F_HC300162	300 mm
450110	450110 SVCLS4_F_HC450138	SVCLS4_F_HC450162	450 mm
600110	600110 SVCLS4_F_HC600138	SVCLS4_F_HC600162	600 mm
750110	750110 SVCLS4_F_HC750138	SVCLS4_F_HC750162	750 mm
900110	900110 SVCLS4_F_HC900138	SVCLS4_F_HC900162	900 mm



WELDED CORNERED THICKNESSES: 2.50

	Item Code		
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	Width mm
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

		Iter	n Code			
	CLASS 12A 20 X 2.0		CLASS 12A 20 X 2.0		CLASS 12A 20 X 2.0	Width
Side I	leight 110	Side F	leight 138	Side H	leight 162	mm
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



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<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards



# SWAGED TUBULAR RUNG THICKNESSES: 2.50

	Item Code		
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	Width mm
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		
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	Width mm
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



<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards



<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

WELDED CORNERED THICKNESSES: 2.50

	Item Code		
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	Width mm
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						
=	CLASS 12A 20 X 2.0		LASS 12A 20 X 2.0		LASS 12A 20 X 2.0	Width
Side H	eight 110	Side He	eight 138	Side He	eight 162	mm
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		
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	Width mm
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

<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

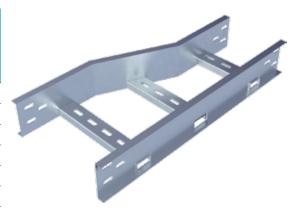


<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards

# **Right Hand Reducers**

# WELDED CORNERED THICKNESSES: 2.00

	Item Code		
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	Width mm
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		
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	Width mm
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						
	LASS 12A 20 X 2.0		LASS 12A 20 X 2.0		ELASS 12A 20 X 2.0	Width
Side He	eight 110	Side He	eight 138	Side Ho	eight 162	mm
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

<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards



# **Right Hand Reducers**

# **SWAGED TUBULAR RUNG**

THICKNESSES: 2.50

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

# **Left Hand Reducers**

WELDED CORNERED THICKNESSES: 2.00

	Item Code		
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	Width mm
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		
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	Width mm
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



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<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards



# SWAGED TUBULAR RUNG THICKNESSES: 2.00

Item Code						
	LASS 12A 0 X 2.0		LASS 12A 20 X 2.0		LASS 12A 20 X 2.0	Width
Side He	ight 110	Side He	eight 138	Side He	eight 162	mm
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		
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	Width mm
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

<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards

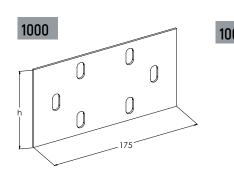


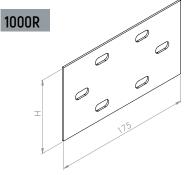
<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

# LADDER TRAY ACCESSORIES

# **Connectors**

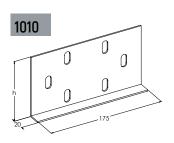
# Straight connector / 1000 - 1000 R

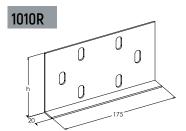




Order Example				
Item	(h)	(t)		
1000	050	2		
1000R	100	2		
1				

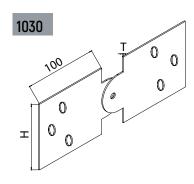
# Angle connector / 1010 - 1010 R

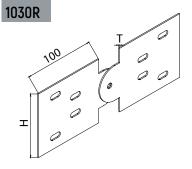




Order Example			
Item	(h)	(t)	
1010	050	2	
1010R	100	2	

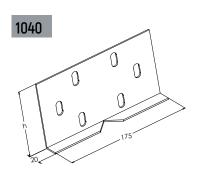
# Adjustable Vertical Connector 1030 / 1030 R

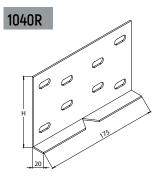




Order Example				
Item	(h)	(t)		
1030	050	2		
1030R	100	2		

# Adjustable Horizontal Connector 1040 / 1040 R





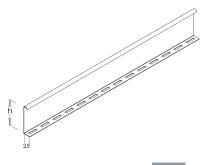
Order Example					
Item	(h)	(t)			
1040	050	2			
1040R	100	2			

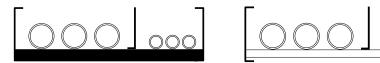
- Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.
- Custom sizes are available upon request and comply with NEMA standards

# Barrier Strip 1070

For Cable Trays

For Cable Ladders







1070

Available Lengths: 2440 / 3000 mm

Available Lengths: 2440 / 3000 mm

# Drop-out plate / 1110

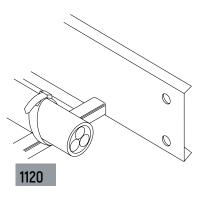




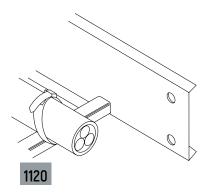
1110

# Cable Tie / 1120

For Cable Trays



For Cable Ladders





Nylon ties provide easy attachment of Ladder Cable Tray rungs

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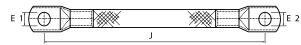
# Tinned Copper Flexible Braids / 2200

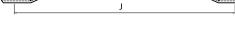
# **Tubular Cable Terminal Ends**



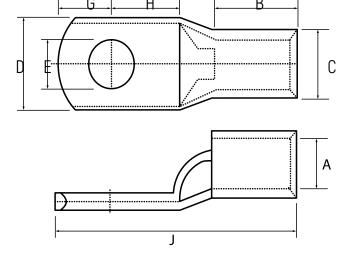








HFT- crimped with lugs



Cable	Stud	Dimensions (mm)						
mm	Hole	А	С	D	G	Н	В	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

Size,	Dim	Current		
mmʻ	J	E1	E2	rating AMP
4	50 100 150 200	6 6 6	6 6 6	50 50 50 50
10	50 100 150 200	6 6 6 6	6 6 6	90 90 90 90
16	100 150 200 250 300	8.5 8.5 8.5 8.5	8.5 8.5 8.5 8.5 8.5	125 125 125 125 125
25	100 150 200 250 300	10 10 10 10 10	10 10 10 10 10	160 160 160 160 160

<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards



<sup>-</sup> Please note that the product codes presented in this catalog are for marketing and internal reference purposes only. Actual product codes reflected on delivery documentation may differ.

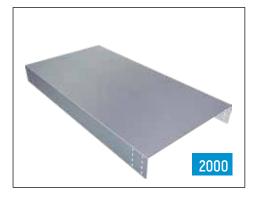
# **Covers**

# **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
- · Solid with flange
- · Ventilated without flange (VOF)
- Ventilated with flange (VWF)

# Ventilated Cover / 2010



· Cable covers are supplied with or without a 15 mm down turned flange.

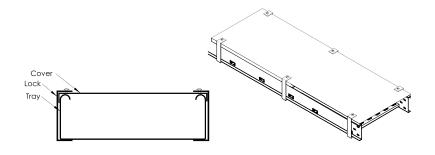
- (SOF)

- (SWF)

• Straight section covers are furnished 3000 mm long. All fitting covers are furnished in solid design only.

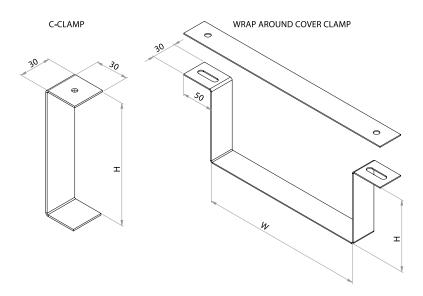
# Ladder Cable Tray Covers with Locking Clamp 2100





### Covers' Side Height Types:

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



# **Framing Systems**

# ASTM F436

# Washers (SRW) | DIN 125 | ASTM F436

Zinc	Stainless	D	d	S
Plated	Steel	(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	Zinc Stainless _		d	s
DIN	Plated	Steel	(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.	Stainless	axbxd
Galvanized Bolt	Steel Bolt	(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)



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

# Threaded Rod (STR) - DIN 975 - ASTM A36

Zinc Plated	Length	Load cap.
Thread	(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	Length	d
Thread	(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
M6	M6
M8	M8
M10	M10
M12	M12
M16	M16
M20	M20

D	L	Load Capacity
(mm)	(mm)	(kN)
10/10	15	2.2
12/14	20	4.0
13/16	25	6.4
16/20	30	9.3
21/25	40	17.3
26/32	50	27.0



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# **Roofing Bolts**

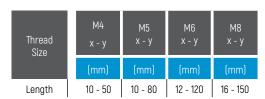
# **Roofing Bolts (SRB)**

- 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)



# 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	Stainless Steel	S/m DIN	S/m ISO	е
Thread		(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



# 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	(0) 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

# Hexagonal Rod Coupler Grade 8.8 ASTM a 563

# Hexagonal Rod Coupler with view hole (SHR)

Electro- plated	Stainless Steel Thread	D	L	Load capacity
Thread		(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	Stainless	S DIN	S EN
Dimension	Steel Dimension	(mm)	(mm)
M 6 x 12		10	10
M 6 x 25		10	10
M 8 x 25	M 8 x 25	17	17
M 8 x 40		13	13
M 10 x 20			
M 10 x 30	M 10 x 30	17	16
M 10 x 45	M 10 x 45		
M 10 x 60			
M 10 x 70			
M 12 x 22			
M 12 x 25	M 12 x 25		18
M 12 x 30	M 12 x 30		
M 12 x 40	M 12 x 40	19	
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
M 20 x 50	M 20 x 50	32	
M 20 x 60	M 20 x 60		
M 20 x 80	M 20 x 80		



UNITECH

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<sup>-</sup> Custom sizes are available upon request and comply with NEMA standards

# 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.

Standard Finishes: Pre-Galvanized finish (ASTM A653M coating G90 and G60). Hot Dip Galvanized after fabrication (ASTM A123 or BS EN IS01461:2009). Other custom coatings are available upon request.

# **Lengths**

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

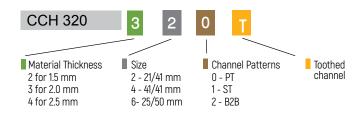
### **Finishes**

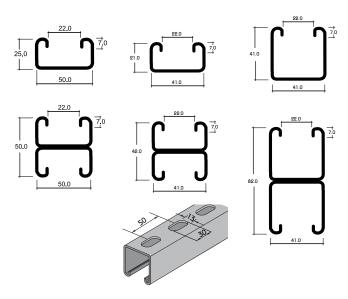
# **Metal Framing Channels**

### **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			



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			



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		



# Toothed channel type



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

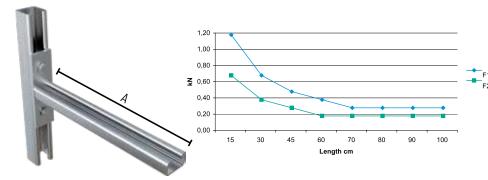
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- Custom sizes are available upon request and comply with NEMA standards



# **Cantilever Arm Bracket**

# Cantilever Arm Brackets - SCA

# CCH421 41x21x2.5

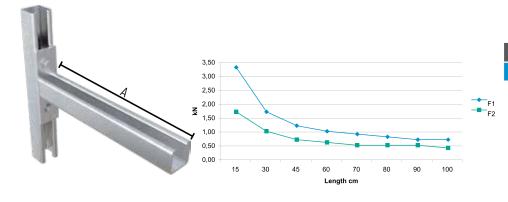


Length	Allowable Load			
A (mm)	F <sub>1</sub> *	F <sub>2</sub> *	F <sub>z</sub> **	
150	1.10	0.60	3.10	
300	0.60	0.30	3.10	
450	0.40	0.20	3.10	
600	0.30	0.10	3.10	
700	0.20	0.10	3.10	
800	0.20	0.10	3.10	
900	0.20	0.10	3.10	
1000	0.20	0.10	3.10	

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)

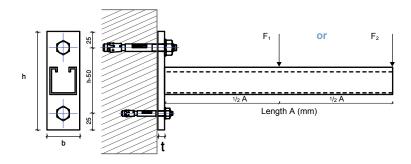


Length	Allowable Load			
A (mm)	F <sub>1</sub> *	F <sub>2</sub> *	F <sub>2</sub> **	
150	3.10	1.50	7.50	
300	1.50	0.80	7.50	
450	1.00	0.50	7.50	
600	0.80	0.40	7.50	
700	0.70	0.30	7.50	
800	0.60	0.30	7.50	
900	0.50	0.30	7.50	
1000	0.50	0.20	7.50	

Base plate: height (h) x width (b) x thickness (t) 140 50 10

- $\cdot$ In the case of concrete support frame, use anchor M16 .
- In the case of concrete C-Channel frame, Hex bolt M8.

 $^{\star}$  Given Loads are always in [kN] " Allowable characteristic live load "



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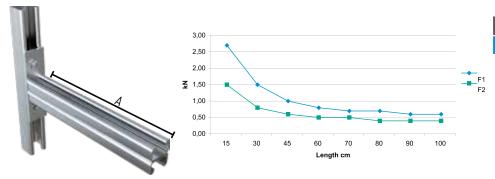


<sup>\*\*</sup> Connection force (pull-out force): 7.50 (kN)

# **Cantilever Arm Bracket**

# Cantilever Arm Brackets - SCA

# CCH422 41x21x2.5 B2B



Length	Allowable Load			
A (mm)	F <sub>1</sub> *	F <sub>2</sub> *	F <sub>z</sub> **	
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	

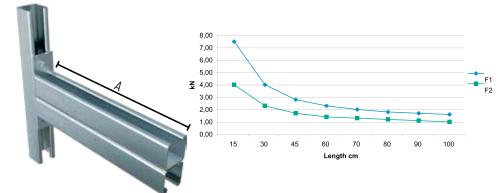
Base plate: height (h) x width (b) x thickness (t)

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



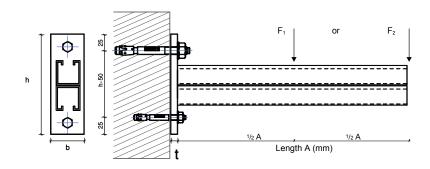
Length	Allowable Load		
A (mm)	F <sub>1</sub> *	F <sub>2</sub> *	F <sub>z</sub> **
150	7.00	3.50	8.30
300	3.50	1.80	8.30
450	2.30	1.20	8.30
600	1.80	0.90	8.30
700	1.50	0.80	8.30
800	1.30	0.70	8.30
900	1.20	0.60	8.30
1000	1.10	0.50	8.30

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

-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)

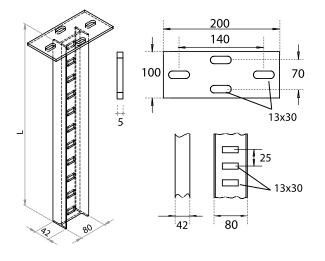
 $^{\star}$  Given Loads are always in [kN] " Allowable characteristic live load "

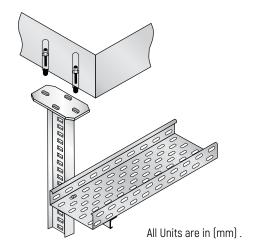


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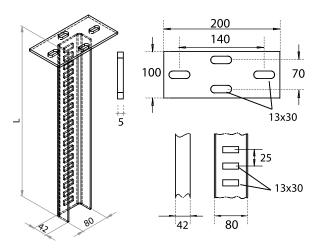
# U - Support / 3000



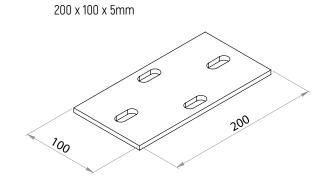


U-Support with welded-on head plate 200 x 100 x 5mm

# I - Support / 3050



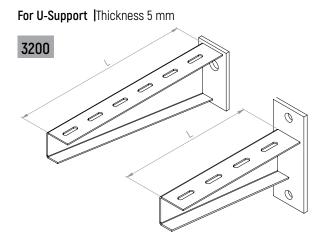
# Head Plate / 3100

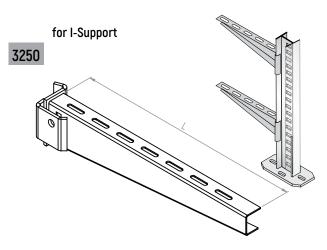


All Units are in (mm).

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

# Wall Bracket / 3200 - 3250



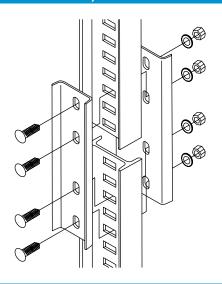


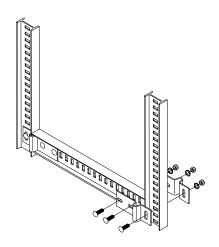
U-Support with welded-on head plate 200 x 100 x 5mm

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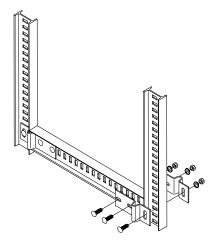
# Support Connectors / 3300

# Clamping Plates / 3350

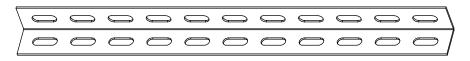




# Support Plates / 3400



# Angles / 3600

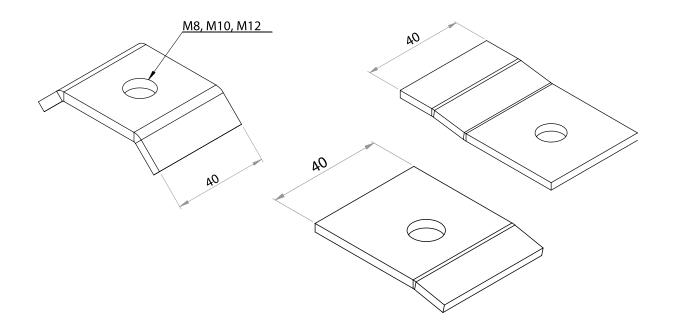




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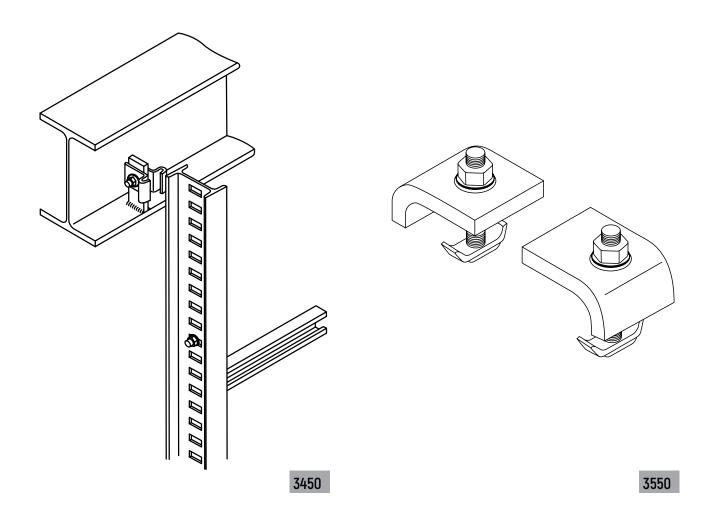
UNITECH

# **Hold Down Clamp**



Support Clamps / 3450

Clamping Angles / 3550



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# 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

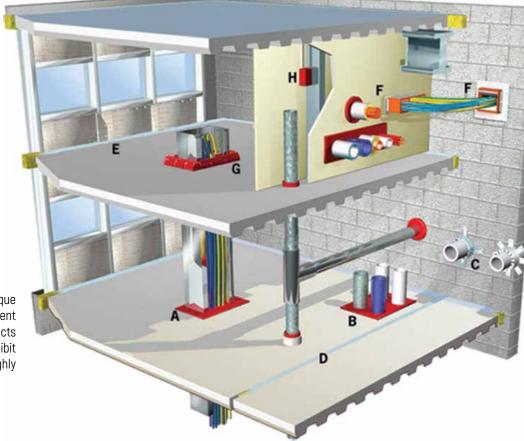
- $\cdot \, \text{Telephone} \,$
- · Power
- · Data and Control

### 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.



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# 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.

L

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