CABLE LADDER CATALOGUE

Nipras Steel Factory For Cable Support Systems

مصنع نبراس المعادن لأنظمة حوامل الأسلاك

مصنع نبراس المعادن
NIPRAS STEEL FACTORY

NIPRAS METAL GROUP

رؤية VISION 2030
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

DISCLAIMER

NIPRAS Best Practice Guide to cable ladder and Cable Tray Systems including channel support systems and other associated supports.

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In case of any questions or remarks, feel free to contact the R&D Department via www.nipras.sa

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ABOUT US

Nipras Metal Group is a diversified private enterprise and a Saudi organization established in 2010 with a vision to be a preferred partner for our valuable clients in supplying quality and cost effective building construction and Architectural engineering solutions. Since the establishment of Nipras, we have been partnered with major organizations in the kingdom to consistently serve their projects and, we have engaged closely with many key contractors and consultants by meeting their expectations in providing high-quality and certified construction and Architectural products. Nipras group operates its business units from three divisions in manufacturing, supplying and sub-contracting of various Architectural products such as Roof Hatch Access, Gratings, Railings, Raised Floors, Garbage Chute System, Cable tray management solutions, and all types of stainless steel & metal fabrication and other building construction materials. The company has two production lines of Architectural products and cable management systems.

At Nipras we always strive hard to supply and meet our client's requirements with high-quality products quickly and efficiently. The company adopts modern management concept, adheres to survival by quality and development by integrity, and gradually boarded the local competition platform. We rely on service to enhance the client relationship, sincerely create value for customers, and provide customers with high-quality and reliable products and wholehearted service. Our company has advanced production equipment which guarantees the most advantageous product quality and efficiency.

Nipras is accredited through various quality certifications and standards meeting all project's technical criteria and consultant approvals. We are an ISO-1519 certified company to ensure the quality, safety, and efficiency of our products. We gain trust of our existing clients and new customers with the best products, the best quality, competitive price and the most perfect service.

OUR VISION

Nipras strives to strengthen its manufacturing base in the steel industry to serve the kingdom and contribute to its vision through effective utilization of staff and materials with cutting-edge technology and high productivity, consistent with modern management practices.

OUR MISSION

To be a preferred partner for our valuable customers and consistently exceeds our customer's needs and expectations in quality, delivery, and cost through continuous improvement and enhancing customer satisfaction. We go all out to manufacture, deliver and supply superior steel and metal products to our clients utilizing sustainable procedures that meet the international standards.

OBJECTIVES

The aim of NIPRAS is to fabricate steel and metal work in the construction sector by the development of standards to turn raw metal into Architectural engineering solutions that can be used in construction.

To assist clients, kingdom wide, by providing Architectural engineering solutions and expertise.

To expand our business by offering the best in

quality, cost and solutions.

To provide our employees with the opportunity to develop their full potential within a safe and productive environment.

To seek a competitive advantage by developing partnerships with clients, suppliers and subcontractors.

OUR ADDRESS & SHOWROOM LOCATION

Riyadh Gate Industrial City
Al-Musafa district
6353

https://www.google.com/maps?q=24.4828100,46.8915030&hl=en-SA&gl=sa&entry=gps&g_ep=CAISBjYuMzQuMxgAINeCAw%3D%3D&g_st=iw

Nipras Metal Group.

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Sales: 056 880 5050

RESEARCH & DEVELOPMENT DEPARTMENT

R & D refers to two intertwined processes of research (to identify new knowledge and ideas) and development (turning the ideas into tangible products or processes)

Our Research and development (R&D) department includes activities that we undertake to innovate and introduce new products and services.

Nipras R&D's mission is to:

Develop products that create value for customers and expand the use of NIPRAS products worldwide..

Improve NIPRAS competitiveness by developing new industrial processes – and optimising existing ones – to reduce cost and improve quality..

Contribute to sustainable development by reducing the environmental impact of products and processes.

Continuously upgrade NIPRAS scientific knowledge and attract technical talent.

TECHNICAL TEAM

Technical Division is entrusted with the work in respect of various subjects of technical nature via Research & Development, Energy & Environment Management, Standardization & Quality Control of products, etc. The work being dealt with by this division may be grouped under few categories namely:

- Research & Development in Metal & Steel Fabrication.
- Technical Regulations on the Products to promote quality.
- Technical Inputs on the ongoing / future products etc.

Lead with Engineers and other professionals at NIPRAS TECHNICAL DEPARTMENT, we access a vast array of advanced, highly sophisticated testing, modelling, failure analysis and other resources to develop the next generation of products, where the future is born.

SOCIAL RESPONSIBILITY

We "NIPRAS" ability to sense, understand and react to others emotions while comprehending on social networks. (Social awareness which encompasses the competency of empathy is the ability to read nonverbal cues for negative emotions, particularly anger and fear and to judge the trustworthiness of others.

It is about understanding others feelings, not experiencing them (Garner, 2009). NIPRAS accentuates on an individual's ability to identify, perceive and react to other's emotions while being a part of the social network circuitry. NIPRAS understand the ability to and be compassionate to the feelings, views, opinions and challenges of other people. Social-awareness cannot only be equated with understanding people's need but as well as caring for them (Goleman, 2006).

SOCIAL RESPONSIBILITY

EMPLOYEES

At **NIPRAS** we empower our employees to leverage the corporate resources at their disposal to do well. Being a socially responsible company can bolster a company's image and build its brand.

CUSTOMERS

A business cannot work without consumer. The survival and growth of business depends on consumer satisfaction, service and support. **"NIPRAS"** winning the confidence of our customers made it possible by following a positive attitude towards customers and fulfilling our social responsibilities by providing them:

- Quality
- Fair Prices
- Honest advertising
- After sales service
- Research & Development for their requirements
- Safety
- Regular supply

CIVIL SOCIETY

According to the Saudi Youth in Numbers report, **37%** of the Saudi population is under 25. This entails that the youth will play a more significant role in undertaking the paths set by Vision 2030 and inheriting the future it's attempting to build. **NIPRAS** gives our platform to the young for developing their sense of civic responsibility, involvement, and interconnectedness.Opportunities to equip the upcoming generation with the necessary skills and motivation to become active participants in their communities.

ENVIRONMENT

NIPRAS understands the nature of the relationship between corporate adoption of the concept of societal responsibility [availability of environmental awareness, clear vision of the impact of societal responsibility on financial performance, managers informing employees of the latest developments in societal responsibility programs, managers' response to their corporate social responsibility (CSR) proposals] in the form of an annual report that supports the success of the company's objectives, the company's management encourages employees to participate collectively in societal responsibility programs and to protect the environment from pollution in the industry.

HEALTH & SAFETY

"NIPRAS" as a manufacturing Company for Metal & Steel Products has a large number of hazards because of the strong internal as well as external forward and backward linkages in terms of material flows. Employees are to work in hazardous environment because of complicated equipment layouts, high temperatures, heavy equipment's, moving machinery, hazardous processes, heavy lifting and movements of materials in the work environment etc. Further, several operations involve working at heights or in confined spaces. In short, working involves both very high volume as well as the complexity of operations which results into employees getting exposed to a high level of health and safety risks.

The health, safety, and protection of our **employees**, equipment, and the environment are perfectly calculated and implied as a crucial since it affects both economic and social factors.. On the other hand, a healthy and safe workplace contributes towards plants competitiveness as well as in profit growth.

ADVANCED MACHINERY

Standardized production lines meeting the complete requirements for the industry.Facility equipped with high end and advanced machinery "NIPRAS" serve our customers with topmost perfection.Our facility comprises with most high end technology where mentioned few are our key role players as - Laser Cutting / Sheering Machines,CNC Bending Machines,CNC Punching Machines,Auto Welding Sets and more.

CABLE MANAGEMENT SYSTEM

Cable management is the organization of cables connected to electrical devices. This includes power cables, network cables, audio/video cables, and many others. Managing cables is a key aspect of a clean and safe home or work environment.

NIPRAS STEEL FACTORY – Provides many cable support systems with specially designed supports that are easy to install and can support heavy duty cables along with others. Our best selling products are…

- **CABLE TRAY**
- **CABLE LADDER**
- **CABLE TRUNKS**
- **CABLE BASKET (WIRE)**

Cable Trays provide the most ideal answer for concealing and protecting all types of cables that are available in various widths, heights and thickness. NIPRAS CABLE TRAY (NCT) fabricated by single sheet (slotted/plain) is without any welding, provides a continuous support for the standard/ custom lengths.

Cable ladders are utilized where heavy weighted cables are to be supported over long runs and extended supported spans. NIPRAS CABLE LADDER (NCL) covers up these loads with our wide range from light to heavy duty.

Cable Trunking with good aesthetically pleasing option is widely used to cover up the cables and have the freedom of movement throughout the installed area. NIPRAS CABLE TRUNK (NCTR) supplies the item with different standard/customised compartments within.

Wire Basket Tray System is an industry leading continuous cable basket and pathway support solution for today's high-performance cabling systems. Highly engineered features help ensure a secure installation that complies with industry codes and standards for high-performance cables. Clever design allows the installer to maximize field efficiency. NIPRAS BASKET TRAY (NBT) provides the perfect combination of performance, time savings and versatility required by today's DATACOM and electrical contractors.

CABLE LADDER

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 R-Type

Rounded Tubular - Swaged or Welded

Plain Channel (Steel)

Slotted Channel (Steel)

Z-Type

C-Type

R-Type

CABLE LADDER

Nipras Steel Factory
For Cable Support Systems
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CABLE LADDER

NIPRAS cable ladder is perfect for industrial installations with large diameter cables in long span situations, minimizing total tray width and creating a smooth transition between straight sections and fittings.Cable ladders are simple in design consisting of side rails with rungs connected. The rungs are also in perforated style, which makes it easy to fasten cable ties or cable cleats directly onto the ladder.Ladders provide free air flow, which is essential to avoid overheating of cables.Ladders are designed to meet most requirements of cable and electrical wire installations and comply to local and international standards of fabrication and finishing.

Manufacturing Standards – IEC 61537:2007, BS EN 61537:2007, NEMA VE 1 – 2009, NEMA VE 2 – 2006, NEC (ANSI / NFPA 70)

Rung Types (Swagged Tubular and Channel)

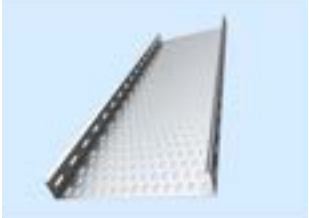
Material & Finish – Pre-Galvanized, Hot Dip Galvanized, Aluminium, Stainless Steel Zinc Electroplating, Epoxy Powder Coating.

Available in 3m & 6m lengths & widths up to 900mm

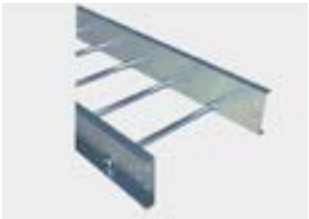
This publication reflects the study of applicable building codes and the National Electrical Code®, and adheres to applicable national material and manufacturing standards, such as those of the American Society for Testing and Materials, the American Iron and Steel Institute, etc.

DIFFERENT TYPES OF PRODUCT DESIGNS

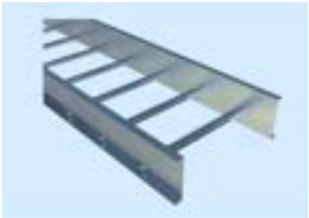
Cable Tray-Solid



Cable Tray-Perforated

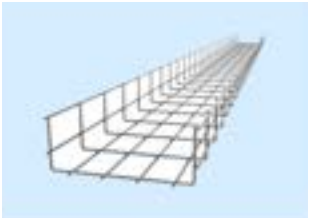


Cable Ladder - Swaged Rounded Tubular



Cable Ladder - Welded

Cable Trunking (Solid)



Basket Tray (Wire Mesh)

NEMA - Ve-1

MATERIALS - Cable tray systems shall be made of either corrosion-resistant metal, such as aluminium or stainless steel, or metal with a corrosion-resistant finish.

FINISHES - Carbon steel used for cable trays shall be protected against corrosion by one of the following process

Type 1-Hot-dip galvanizing after fabrication in accordance with ASTM A 123/A 123M

Type 2-Hot-dip mill galvanizing in accordance with ASTM A 653/A 653M, coating designation G90.

Type 3-Electrodeposited zinc in accordance with ASTM B 633 (SC 2 minimum)

Other coatings as appropriate for the application. Where a nationally recognized standard exists, the coating shall be applied in accordance with that standard.

(a) Zinc electroplating in accordance with ASTM B 633; or

(b) Other coatings as appropriate for the application. Where a nationally recognized standard exists, the coating shall be applied in accordance with that standard.

CABLE LOAD/WORKING LOAD

The Cable load or the working load is the total weight of the cables to be placed in the tray.

The NEMA classes are based on cable loads of 50Lbs/Ft., (74 kg/m), 75Lbs/Ft. (112 kg/m), and 100Lbs/Ft. (149 kg/m) .

This is the total weight of cables in the tray.

For purposes of selecting a suitable tray, this weight shall be rounded off to the next higher NEMA working (allowable) load.

SUPPORT SPANS

Support span is the distance between the supports.

The NEMA standard support spans are based on 8' (2.4m), 12' (3.7m), 16' (4.9m) and 20' (6.0m).

SPAN/LOAD CLASS DESIGNATION

Load, kg/m (lb/ft)	Span, m (ft)				
	1.5 (5)	2.4 (8)	3.0 (10)	3.7 (12)	6.0 (20)
37 (25)	5AA	SAA	10AA	12AA	20AA
74(50)	5A	8A	10A	12A	20A
112(75)	-	8B	-	12B	20B
149 (100)	-	SC	-	12C	20C

Load kg/m (lb/ft)	Span, m (ft)						
	1.5 (5)	2.0	2.5	3.0 (10)	4.0	5.0	6.0 (20)
37 (25)				A			
45 (30)			A				
62 (42)		A					
67 (45)							D
82 (55)						D	
97 (65)				C			
99 (67)	A						
112 (75)							E
113 (76)					D		
119 (80)			C				
137 (92)						E	
164(110)		C					
179 (120)				D			
189 (127)					E		
259(174)	C						
299 (200)				E			

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.

Load Capacity - The maximum load applied to the rung shall be considered the destruction load capacity of the rung. The rated load capacity shall be the destruction load divided by a safety factor of 1.5.

NOTE-The rated load may be expressed as a uniform load by multiplying the concentrated load by a factor of two.

SWL = Safe Working Load

Loading data according to IEC61537. The length of the end span must be reduced to 3/4 of the support spacing and with no splices on the end span.

CONCENTRATED STATIC LOADS: Some applications may require the cable tray to support the weight of a single, dead object in addition to the cable loads. Specifications typically require this to be applied at the midpoint of the span between the tray supports, which is the worst-case location. To incorporate this in the tray design the following formula can be used to convert the concentrated static load in pounds to an equivalent uniform load (W) in pounds per foot. That equivalent load can then be combined with the weight of cables, tray contents, and other loads that are also expressed in lbs/ft to determine the total Working Load.

FORMULAS & CONVERSION

Formula: Concentrated Load times 2 divided by the support span. Example: A 200 pound concentrated load on a 20 foot span would be a load of 20 additional pounds per linear foot. This load can be added to the uniform cable load for a total load and compared to a load shown in a load deflection table.

Convert a Load with a 1.5 Safety Factor to a Load with a 2.0 Safety Factor:

Formula: Wk x Multiplier

Where Wk = 100 pounds per foot Safety Factor = 1.5 Multiplier 0.75 for 2.0 safety factor, 0.60 for 2.5 S.F

Calculation - 100 x 0.75 = 75 lbs/ft

Formula: Multiply the load shown with a 1.5 safety factor by 0.75 to convert the load to a 2.0 safety factor. Example: A load of 100 pounds per foot with a 1.5 safety factor would be 75 pounds per foot with a 2.0 safety factor. The multiplier for a 2.5 safety factor would be 0.60.

ELECTRICAL GROUNDING

A cable tray system must provide protection to life and property against faults caused by electrical disturbances, lightning, failures which are a part of the system, and the failure of equipment that is connected to the system. For this reason, all metal enclosures of the system, as well as non-current carrying or neutral conductors, should be tied together and reduced to a common earth potential. This includes the structural steel of a building, all piping for water, gas steam, and sewers, tanks, well casings, down spouts, gutters, siding and roofing. There are two distinct divisions to the grounding problem: **System grounding and Equipment grounding**.

SYSTEM GROUNDING

The purpose of system grounding is to drain off any excessively high voltages that may accidentally come on the tray system. If the system is properly grounded by means of a low-resistance conductor of sufficient capacity, the current will be carried off to earth immediately with a minimum danger of fire or shock. In a grounded system, an accidental grounding of one of the current carrying conductors will result in a short circuit, and cause a fuse or circuit breaker to open.

EQUIPMENT GROUNDING

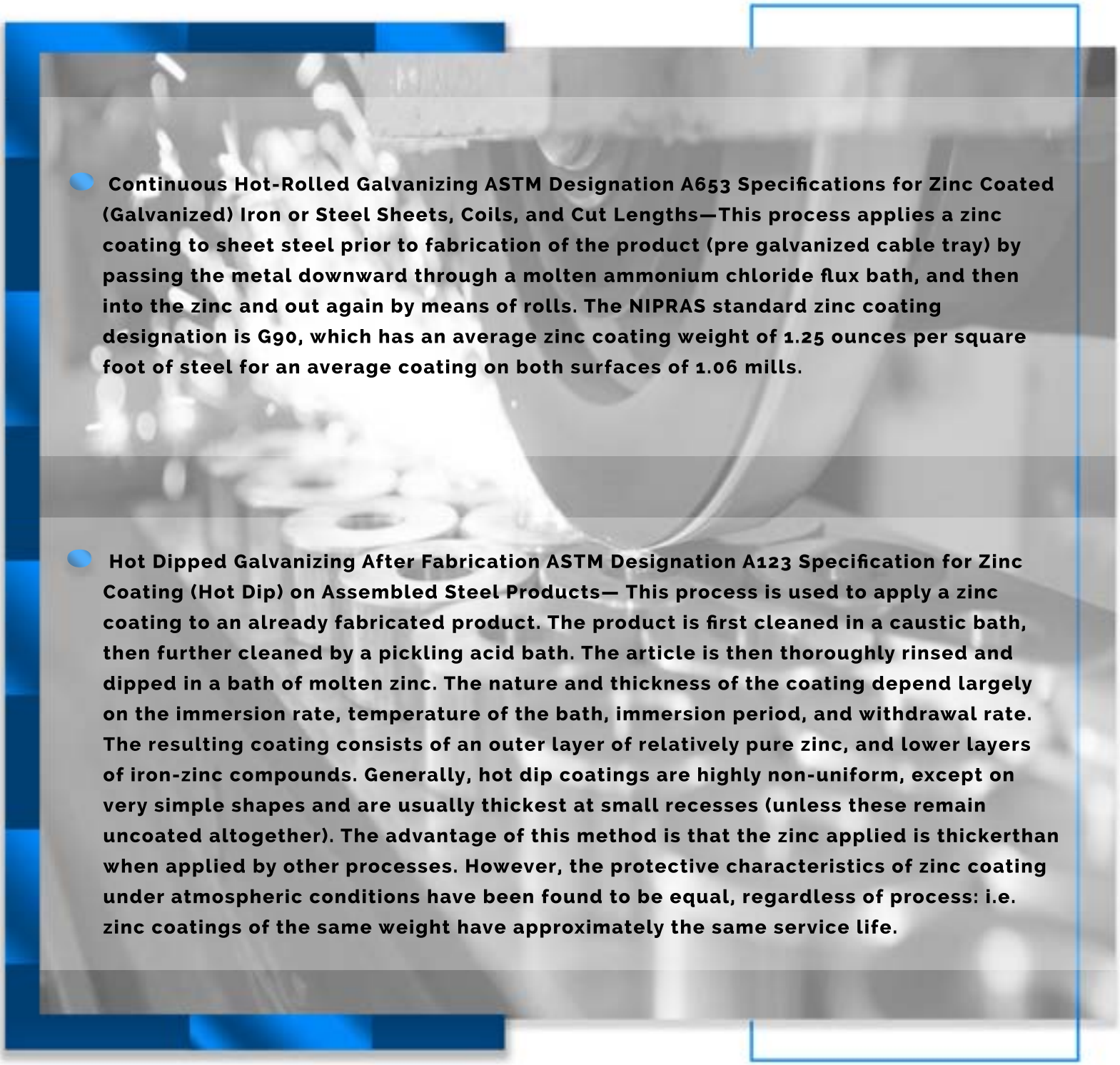
Equipment grounding means the connection to earth of all exposed, non-current carrying metallic parts of the components of the distribution system. The purpose of this ground is to prevent a voltage higher than earth potential on cable tray or equipment. Grounding thus reduces the danger of shock or fire in the event a live conductor comes in contact with these conductive parts.

METHODS OF GROUNDING

Effective grounding must be permanent and continuous, and have ample capacity to safety conduct any current likely to be imposed on it. It should also have impedance sufficiently low to limit the potential above ground and to facilitate operation of over-current devices in the circuit. A continuous, underground metallic water supply system is acknowledged to be the best electrical ground. Other suitable methods of grounding include continuous metallic steam and gas piping systems, the grounded metal framing of the building,or an artificial electrode such as a driven steel pipe, galvanized or otherwise protected from corrosion, or a buried metallic plate. The tray system and equipment ground connections should be made to the same electrode at the service entrance, on the supply side of the equipment used for disconnecting the service. Equipment should be solidly tied in with the system ground. It is also important, that wherever multiple grounds are used, they be tied together in order to avoid any difference of potential between the various parts of the tray system. Complete rules for grounding are contained in Article 250 of the National Electric Code

FINISHES

Metallic Cable trays fabricated of steel can be protected from corrosion by coating with another metal using one of the following methods:



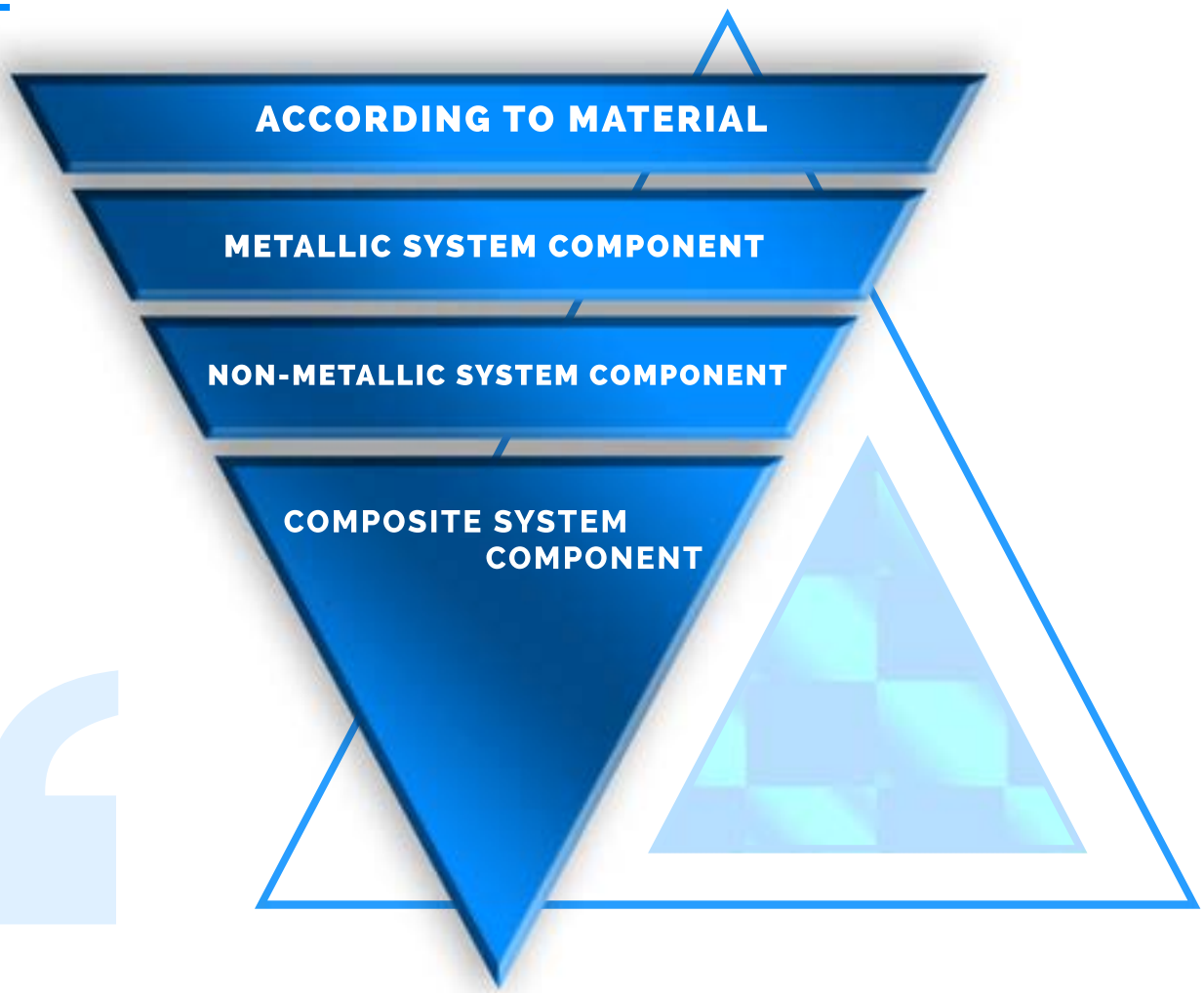
- **Continuous Hot-Rolled Galvanizing ASTM Designation A653 Specifications for Zinc Coated (Galvanized) Iron or Steel Sheets, Coils, and Cut Lengths—This process applies a zinc coating to sheet steel prior to fabrication of the product (pre galvanized cable tray) by passing the metal downward through a molten ammonium chloride flux bath, and then into the zinc and out again by means of rolls. The NIPRAS standard zinc coating designation is G90, which has an average zinc coating weight of 1.25 ounces per square foot of steel for an average coating on both surfaces of 1.06 mills.**

- **Hot Dipped Galvanizing After Fabrication ASTM Designation A123 Specification for Zinc Coating (Hot Dip) on Assembled Steel Products— This process is used to apply a zinc coating to an already fabricated product. The product is first cleaned in a caustic bath, then further cleaned by a pickling acid bath. The article is then thoroughly rinsed and dipped in a bath of molten zinc. The nature and thickness of the coating depend largely on the immersion rate, temperature of the bath, immersion period, and withdrawal rate. The resulting coating consists of an outer layer of relatively pure zinc, and lower layers of iron-zinc compounds. Generally, hot dip coatings are highly non-uniform, except on very simple shapes and are usually thickest at small recesses (unless these remain uncoated altogether). The advantage of this method is that the zinc applied is thickerthan when applied by other processes. However, the protective characteristics of zinc coating under atmospheric conditions have been found to be equal, regardless of process: i.e. zinc coatings of the same weight have approximately the same service life.**

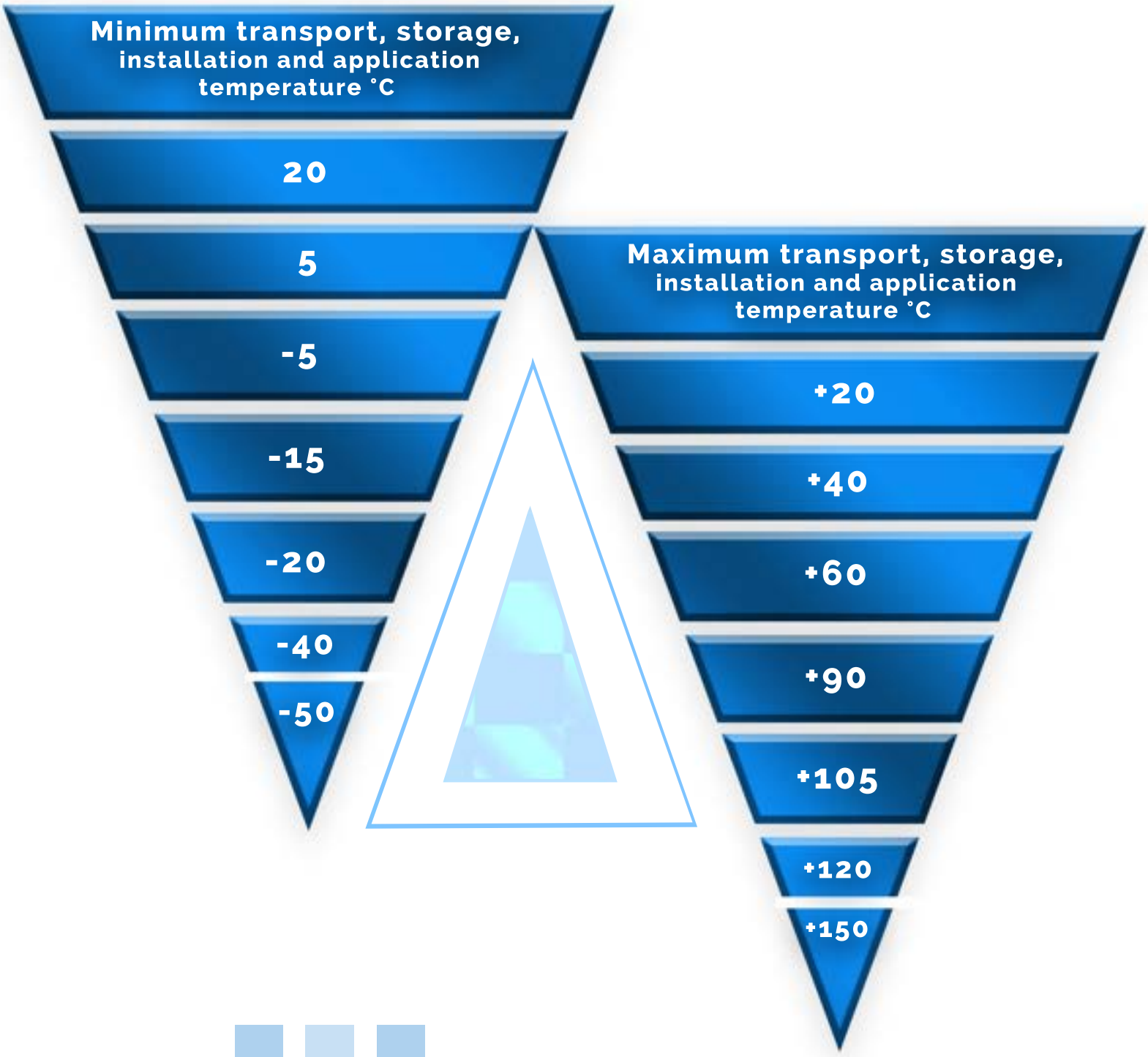
IEC 61537

This **International Standard** specifies requirements and tests for cable tray systems and cable ladder systems intended for the support and accommodation of cables and possibly other electrical equipment in electrical and/or communication systems installations. Where necessary, cable tray systems and cable ladder systems may be used for the segregation of cables.Cable tray systems and cable ladder systems according to this standard are not intended to be used for human support.

CLASSIFICATION



TEMPERATURE CLASSIFICATION



FREE BASE AREA CLASSIFICATION

Classification	Free Base Area
X	Up to 80 %
Y	Over 80 % and up to 90 %
Z	More than 90 %

For the purpose of ventilation, classification Z relates to IEC 60364-5-523,

PERFORATION BASE AREA CLASSIFICATION

Classification	Perforation Base Area
A	Up to 2%
B	Over 2% and up to 15%
C	Over 15% and up to 30%
D	More than 30 %

For the purpose of ventilation, classification D relates to IEC 60364-5-523,

GROUNDING

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.

INSTALLATION - Cable tray shall be installed in accordance with NEMA VE 2 or as recommended by the manufacturer.

Determining cable tray width requirements

Industrial and commercial cable tray is typically available in widths of 6 to 36 inches (150-900 mm). The type and size of the cables used will determine the required cable tray width. See the guidelines below, which are based off of the National Electrical Code, Article 392.

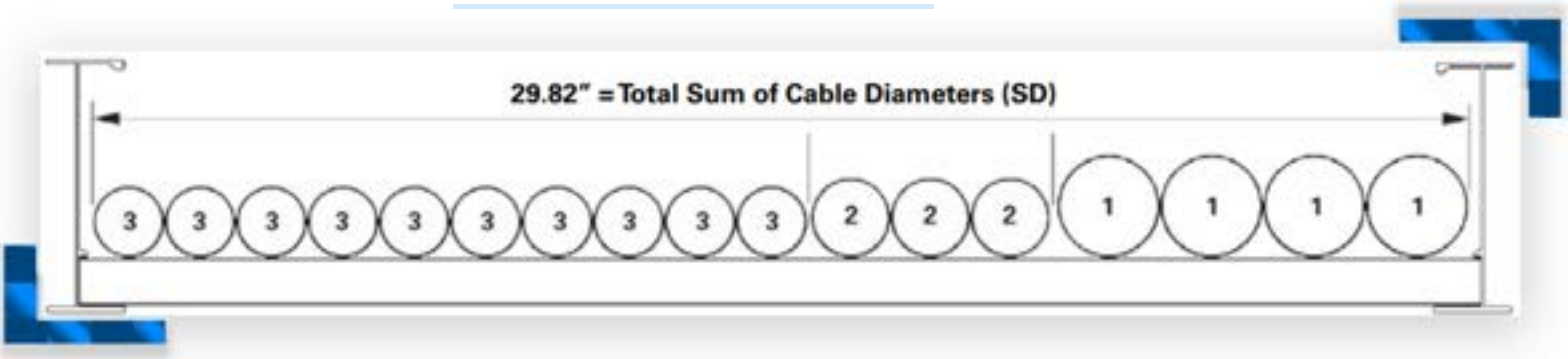
Width selection for cable tray containing multiple-conductor cables rated 2000 volts or less #4/0 AWG or larger cables:

For ladder or ventilated trough trays, the diameter of all cables 4/0 and larger must be added together, and the total must not exceed the inside width of the cable tray. Cable installation is limited to a single layer (side by side placement).

When using solid bottom cable tray, the sum of the 4/0 and larger cable diameters may not to exceed 90% of the available inside cable tray width.

WIDTH CALCULATION EXAMPLE - 4/0 OR LARGER CABLES:

List Cable Sizes	List Cable Outside Diameter (D) (D)	List Number of Cables (N)	Sum of the Cable Diameters Multiply (D) x (N)
1 3/C - #500 kcmil	2.26 inches	4	9.04 inches
2 3/C - #250 kcmil	1.76 inches	3	5.28 inches
3 3/C - #4/0 AWG	1.55 inches	10	15.50 inches
Total Sum of the Cable Diameters (SD) for all cables			29.82 inches



The ladder cable tray must have an inside available width equal to or greater than the sum of the diameters. Since the sum of the diameters of all cables is 29.82, a cable tray with an inside **width of 30 inches is required**.

IMPORTANT CONSIDERATION - DESIGN WITH THE FUTURE IN MIND

When determining cable tray width requirements, we recommend planning for system expansion and over sizing the tray to allow for future additions. For a 10% increase in cost a 36 inch wide cable tray could be purchased, which would provide for future cable additions with no re-design costs.

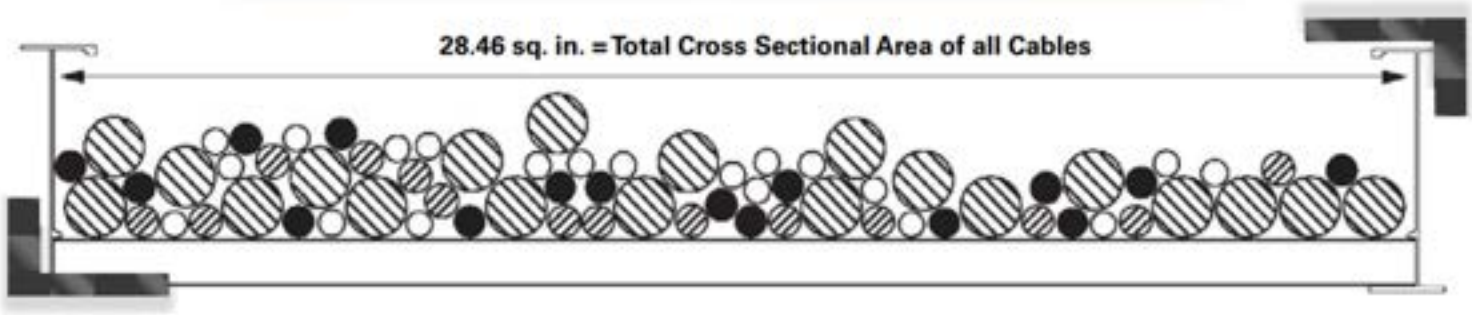
Inside Width of Cable Tray (inches)	Allowable Cable Area (square inches)
6.0	7.0
9.0	10.5
12.0	14.0
18.0	21.0
24.0	28.0
30.0	35.0
36.0	42.0

CABLES SMALLER THAN #4/0 AWG:

For ladder or ventilated trough trays, the total sum of the cross-sectional areas of all the cables to be installed in the cable tray must be equal to or less than the allowable cable area for the tray width, as indicated in the table to the right. These cables do not have to be placed side by side. When using solid bottom cable tray, the allowable cable area is reduced by 22%.

Width calculation example - cables smaller than 4/0:

Inside Width of Cable Tray (inches)	Allowable Cable Area (square inches)
6.0	7.0
9.0	10.5
12.0	14.0
18.0	21.0
24.0	28.0
30.0	35.0
36.0	42.0



Referencing the table above, which is part of Table 392.9 from the National Electrical Code, a 30-inch cable tray with an allowable cable fill area of 35 sq. in. must be used. This 30-inch cable tray has the capacity for 6.54 sq. in. of additional future cables (35.0-28.46).

#4/0 AWG OR LARGER CABLES AND CABLES SMALLER THAN #4/0 AWG:

The ladder cable tray needs to be divided into two zones so that the No. 4/0 and larger cables have a dedicated area, as they must be placed in a single layer. A barrier or divider is not required, but one can be used if desired.

Width calculation example - cables larger and smaller than 4/0:

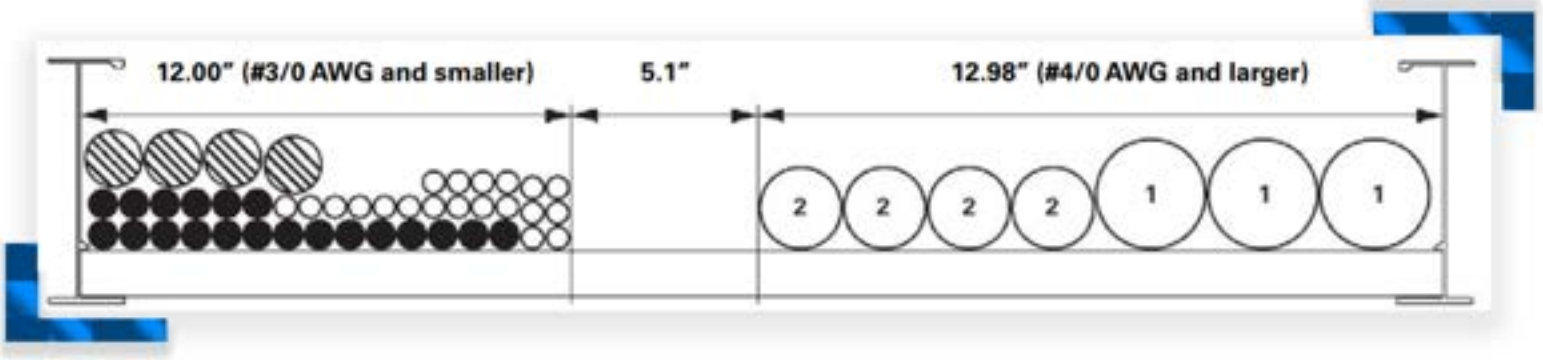
[First, determine the width required for the #4/0 AWG and larger multi-conductor cables.]

List cable sizes		List Cable Cross Sectional Areas (A)	List Number of Cables (N)	Total Cross Sectional Area Multiply (A) x (N)
1	3/C #12 AWG	0.17 sq. in	20	3.40 sq. in
2	4/C #12 AWG	0.19 sq. in.	16	3.04 sq. in.
3	3/C #6 AWG	0.43 sq. in	14	6.02 sq. in
4	3/C #2 AWG	0.80 sq. in	20	16.00 sq. in
Sum of Total Areas for all cables				28.46 sq. inches

Second, determine the width required for the #3/0 AWG and smaller multi-conductor cables.

List cable sizes		List Cable Outside Diameter (D)	List Number of Cables (N)	Total Cross Sectional Area
1	3/C - #500 kcmil	2.26 inches	3	6.78 inches
2	3/C - #4/0 AWG	1.55 inches	4	6.20 inches
Total Sum of the Cable Diameters (SD) for all cables				12.98 inches

Using the table on the previous page, the cable tray width required for these small cables is 12"(this has an allowable cable fill area of 14 inches).



The total cable fill is 24.9 inches, which is calculated by adding 12.00 in. (#3/0 AWG and smaller) and 12.98 in. (#4/0 AWG and larger). Therefore, a cable tray with an inside width of 30 inches is required.

Width selection for cable tray containing single conductor cables rated 2000 volts or less

All single conductor cables to be installed in the cable tray must be 1/0 or larger, and are not to be installed with continuous bottom pans.

Number of 600 Volt single conductor cables that may be installed in ladder tray

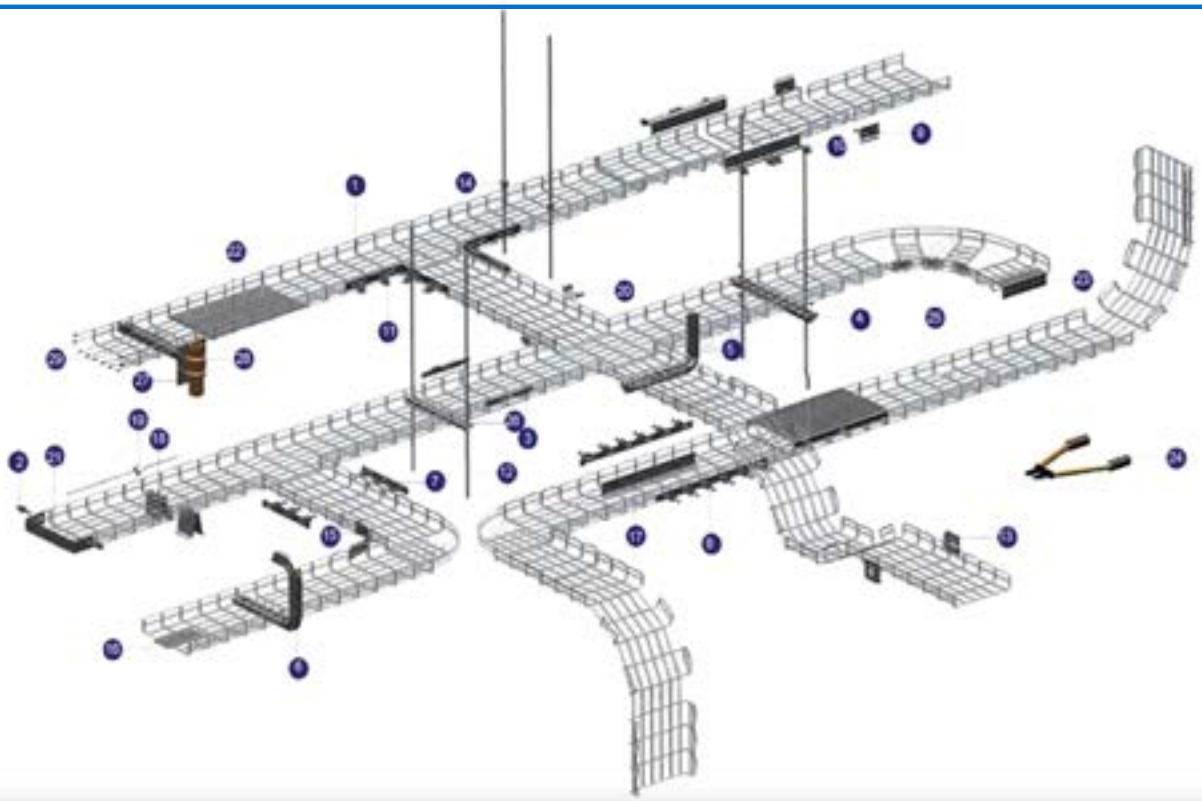
List cable sizes		List Cable Cross Sectional Areas	List Number of Cables (N)	Total Cross Sectional Area
1	3/C #12 AWG	0.17 sq. inches	20	3.40 sq. inches
2	3/C #10 AWG	0.20 sq. inches	20	4.00 sq. inches
3	3/C #2 AWG	0.80 sq. inches	20	3.20 sq. inches
Sum of Total Areas for all cables				10.60 sq. inches

Single Conductor Cables 1/0 through 4/0: These single conductors must be installed in a single layer. The sum of the diameters (Sd) for all single conductor cables to be installed shall not exceed the cable tray width.

250 KCMIL to 1000 KCMIL Cables: The total sum of the cross-sectional areas of all the single conductor cables to be installed in the cable tray must be equal to or less than the allowable cable area for the tray width.

1000 KCMIL or larger cables: The sum of the diameters (Sd) for all single conductor cables to be installed shall not exceed the cable tray width.

1000 KCMIL or larger cables installed with cables smaller than 1000 KCMIL: The total sum of the cross-sectional areas of all the single conductor cables to be installed in the cable tray must be equal to or less than the allowable cable area for the tray width.

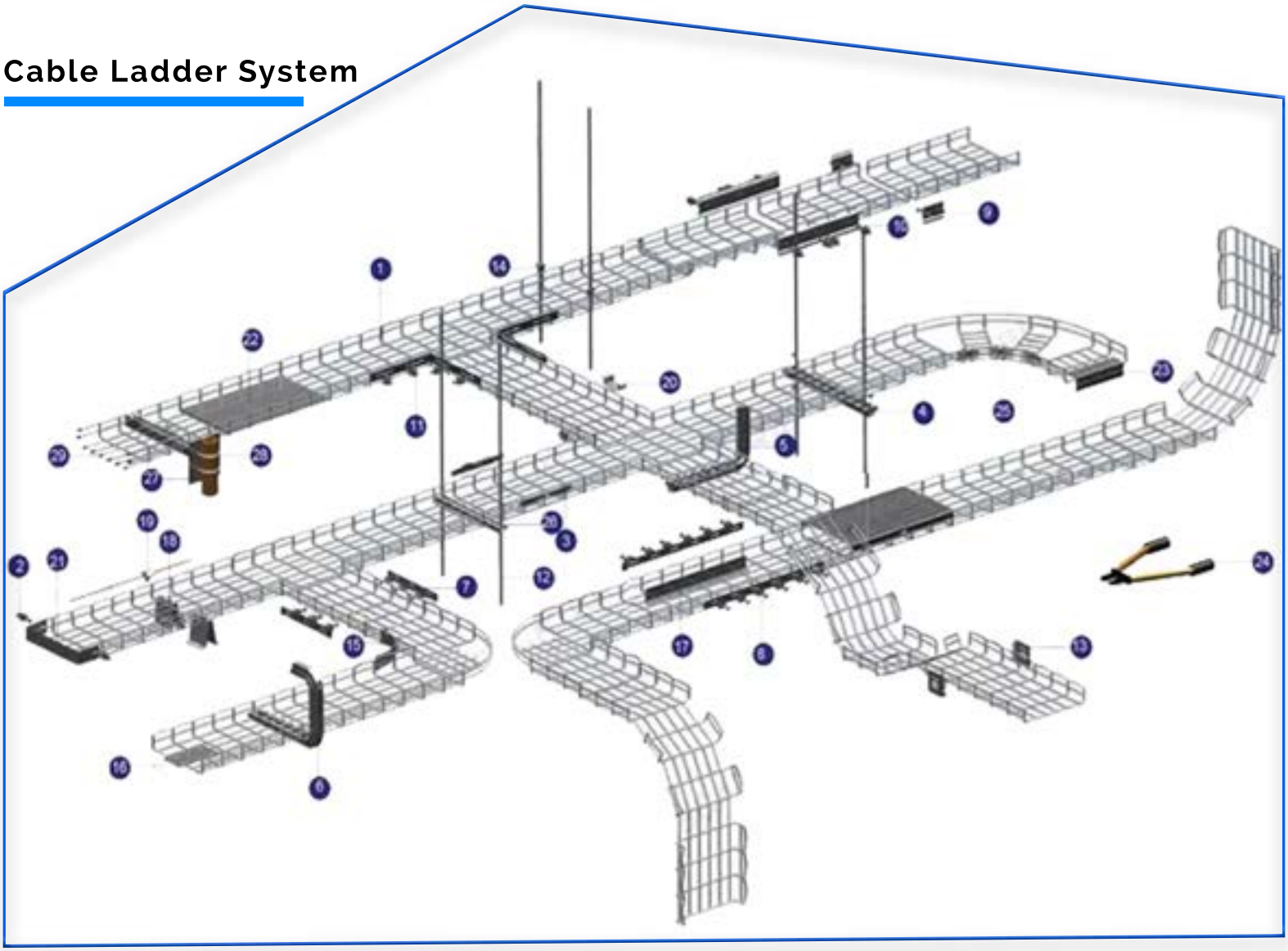


Metallic cable tray systems have two critical requirements to ensure safety and reliability.

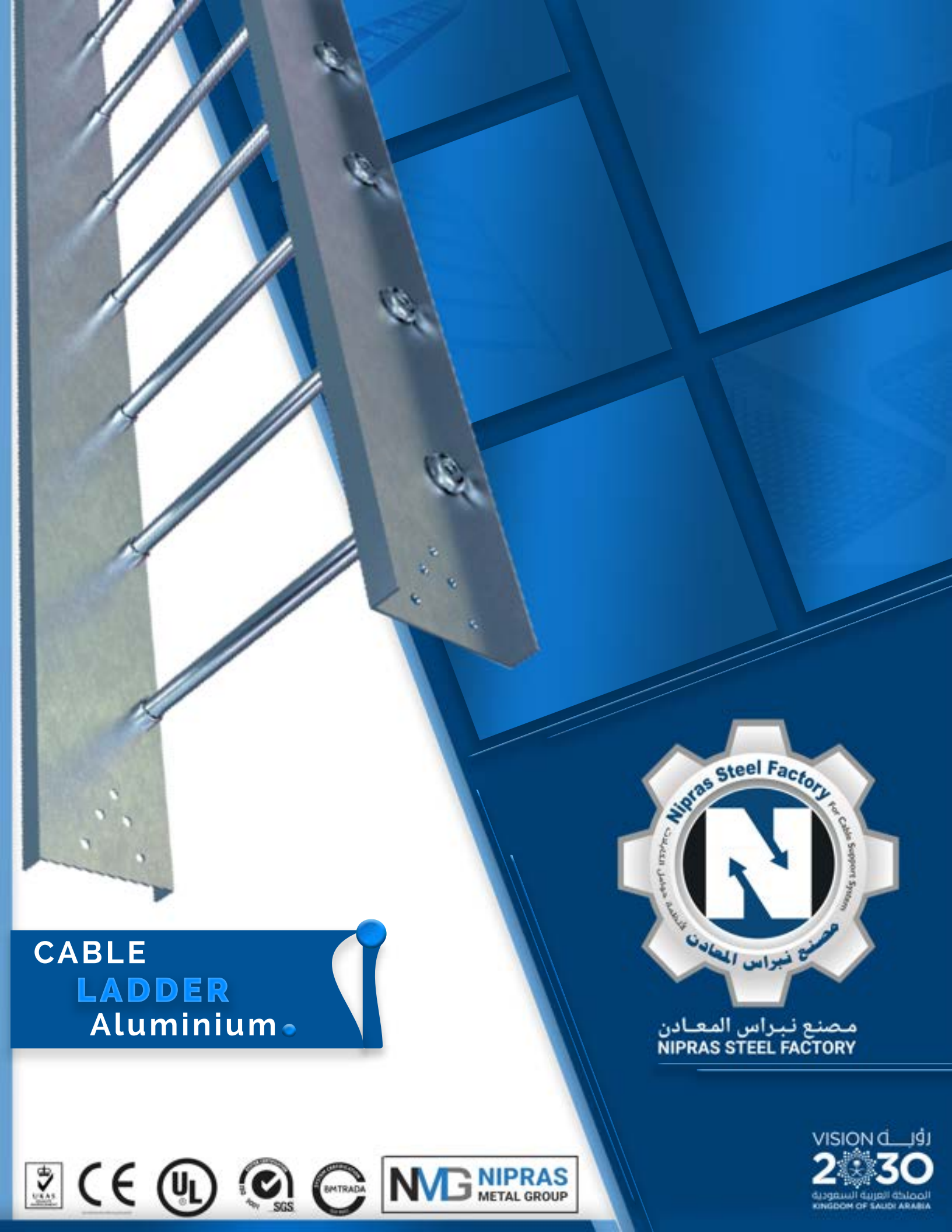
- Electrical continuity provided over its entire length
- Support for the cables maintained across the system

These requirements can be adequately met even though there will be installation conditions where the cable tray is mechanically discontinuous, such as at a firewall penetration, at an expansion gap in a long straight cable tray run, where there is a change in elevation of a few feet between two horizontal cable tray sections of the same run, or where the cables drop from an overhead cable tray to enter equipment. In all these cases, adequate bonding jumpers must be used to bridge the mechanical discontinuity.

Cable Ladder System



1. Wire Mesh Cable Tray Straight.
2. Connector Assembly.
3. Faster Connector.
4. Straight Bracket.
5. L Bracket.
6. U Bracket.
7. Spice Bar (Short)
8. Splice Bar (Long).
9. Splice Plate (Short).
10. Splice Plate (Long)
11. Tee Splice Bar.
12. Hold Down Plate.
13. Wall Bracket.
14. Overhead Hanger Clip.
15. Radius Shield.
16. Drop-out.
17. Barriers.
18. Under Floor Stand.
19. Grounding Clamp
20. Conduit Connector.
21. Blind End.
22. Pan
23. Wall Termination Kit.
24. Angular Bolt Cutter.
24. Fastlock.
24. Heavy Duty Hung Support Kit.
24. Under Floor Support Bracket.
24. U-Bolts.
24. Rubber Cap.



CABLE LADDER Aluminium

Nipras Steel Factory
For Cable Support Systems
مصنع نبراس المعادن
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NIPRAS STEEL FACTORY

رؤية VISION 2030
المملكة العربية السعودية
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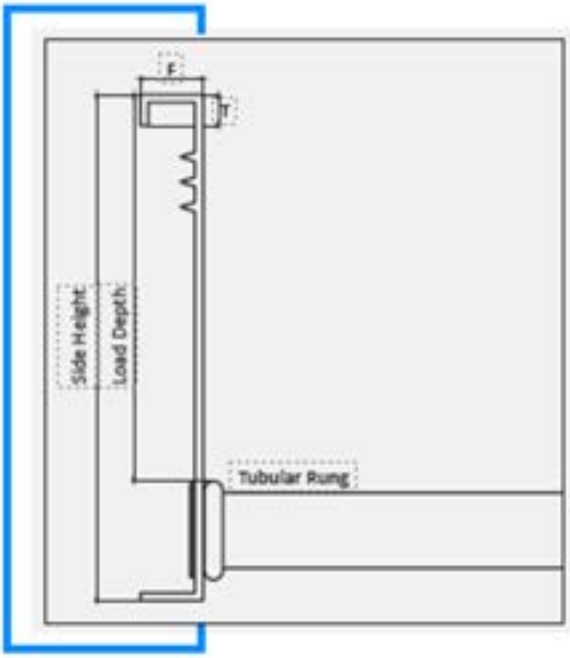


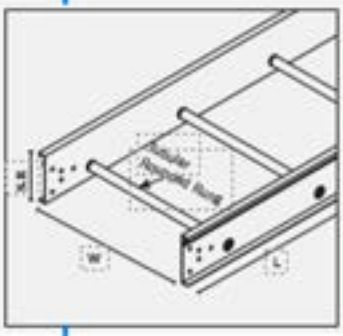
CABLE LADDER						
DESIGN DATA - ALUMINIUM 6063 T6						
Side Rail	Height (mm)	Load Depth fd (mm)	Thickness(mm)	Flange - F(mm)	Width - W (cm3)	Length - L -(cm4)
A1	110	80	2.0	20	8.12	46.06
A2	138	106	2.0	20	11.24	78.95
A3	162	132	2.0	20	14.78	123.85
A4	188	158	2.5	20	23.14	224.70

LOAD CLASSES - NEMA			
Side Rail	Load (kg/m)	Span(m)	Class
A1	52	3.00	A
A2	97	3.00	C
A3	74	3.70	12A
A4	134	3.70	12B

For Ordering Details
Refer Pg 91-93

ALUMINIUM LADDER - Swaged Tubular Rung - AL - A1

ALUMINIUM LADDER - Swaged Tubular Rung - AL
NEMA Class A (52 kg/m by 3,0m) & 8A (95 kg/m by 2.40m)
Side Rail : A 1
Height : 110 mm
Load Depth : 82 mm
Rung - Spacing : 229 mm

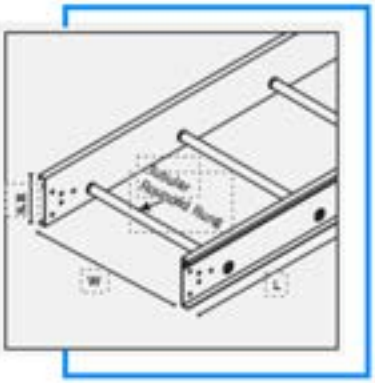


A1							
ITEM CODE	SIDE RAIL	WIDTH	SUPPORT DIST	LOAD	DEFLECTION		RUNG DETAILS
	NEMA - CLASS - 12A	(mm)	(m)	kn/m	RUNG (mm)	RAIL (mm)	
NCL-A1-00	110 x 20 x 2.0	150	2.40	1.35	0.02	7.96	Tubular Rung : 25 x 1. 5 mm
			3.00	0.66	0.01	9.95	
			3.70	0.32	0.00	12.22	
			4.90	0.10	0.00	16.10	
NCL-A1-01		225	2.40	1.34	0.06	7.99	
			3.00	0.65	0.03	9.93	
			3.70	0.31	0.01	12.15	
			4.90	0.09	0.00	15.86	
NCL-A1-02		300	2.40	1.32	0.13	7.99	
			3.00	0.64	0.06	9.93	
			3.70	0.30	0.03	12.08	
			4.90	0.08	0.01	15.62	
NCL-A1-03		450	2.40	1.25	0.42	7.97	
			3.00	0.61	0.21	9.87	
			3.70	0.29	0.10	12.31	
			4.90	0.07	0.02	16.12	
NCL-A1-04		600	2.40	1.15	0.92	7.99	
			3.00	0.58	0.46	9.92	
			3.70	0.27	0.22	12.27	
			4.90	0.05	0.04	15.65	
NCL-A1-05		750	2.40	1.01	1.57	7.94	
			3.00	0.54	0.84	9.96	
			3.70	0.25	0.39	12.28	
			4.90	0.04	0.06	16.16	
NCL-A1-06		900	2.40	0.86	2.31	7.93	
			3.00	0.49	1.32	9.95	
			3.70	0.22	0.59	12.01	
			4.90	0.02	0.05	15.66	

For Ordering Details Refer Pg 91-93

ALUMINIUM LADDER - Swaged Tubular Rung - AL - A2

ALUMINIUM LADDER - Swaged Tubular Rung - AL
NEMA Class C (97.0 kg/m by 3.0 m)
Side Rail : A 2
Height : 138 mm
Load Depth : 108 mm
Rung - Spacing : 229 mm

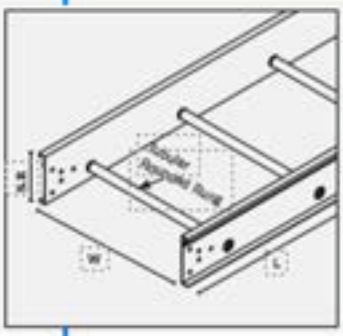


A2							
ITEM CODE	SIDE RAIL	WIDTH	SUPPORT DIST	LOAD	DEFLECTION		RUNG DETAILS
	NEMA - CLASS - 12A	(mm)	(m)	kn/m	RUNG (mm)	RAIL (mm)	
NCL-A2-00	138 X 20 X 2.0	150	2.40	2.35	0.04	7.98	Tubular Rung: 25x1.5 mm
			3.00	1.17	0.02	9.94	
			3.70	0.59	0.01	12.18	
			4.90	0.22	0.00	16.29	
NCL-A2-01		225	2.40	2.32	0.13	8.00	
			3.00	1.16	0.06	9.96	
			3.70	0.58	0.03	12.16	
			4.90	0.21	0.01	16.16	
NCL-A2-02		300	2.40	2.25	0.29	7.96	
			3.00	1.10	0.15	9.95	
			3.70	0.57	0.07	12.15	
			4.90	0.20	0.03	16.03	
NCL-A2-03		450	2.40	2.06	0.91	8.00	
			3.00	1.09	0.48	10.00	
			3.70	0.55	0.24	12.23	
			4.90	0.18	0.08	15.80	
NCL-A2-04		600	2.40	1.85	1.55	8.00	Tubular Rung: 25x2.0 mm
			3.00	1.02	0.85	9.93	
			3.70	0.52	0.44	12.14	
			4.90	0.17	0.18	16.18	
NCL-A2-05		750	2.40	1.70	1.95	7.95	Tubular Rung: 3.0x1.5 mm
			3.00	0.98	1.12	10.00	
			3.70	0.50	0.57	12.19	
			4.90	0.15	0.17	15.89	
NCL-A2-06		900	2.40	1.29	2.55	7.26	
			3.00	0.88	1.74	9.93	
			3.70	0.47	0.93	12.27	
			4.90	0.14	0.28	16.28	

For Ordering Details Refer Pg 91-93

ALUMINIUM LADDER - Swaged Tubular Rung - AL - A3

ALUMINIUM LADDER - Swaged Tubular Rung - AL
NEMA Class 12 A (74 kg/m by 3.70 m)
Side Rail : A 3
Height : 162 mm
Load Depth : 132 mm
Rung - Spacing : 229 mm

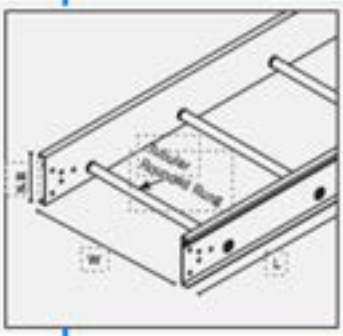


A3							
ITEM CODE	SIDE RAIL	WIDTH	SUPPORT DIST	LOAD	DEFLECTION		RUNG DETAILS
	NEMA - CLASS - 12A	(mm)	(m)	kn/m	RUNG (mm)	RAIL (mm)	
NCL-A3-00	162 X 20 X 2.0	150	2.40	3.67	0.06	7.92	Tubular Rung: 25x1.5 mm
			3.00	1.87	0.03	9.97	
			3.70	0.97	0.02	12.31	
			4.90	0.38	0.01	16.27	
NCL-A3-01		225	2.40	3.63	0.20	7.99	
			3.00	1.85	0.10	9.97	
			3.70	0.96	0.05	12.32	
			4.90	0.37	0.02	16.19	
NCL-A3-02		300	2.40	3.50	0.46	7.99	
			3.00	1.80	0.24	9.99	
			3.70	0.94	0.12	12.24	
			4.90	0.36	0.05	16.13	
NCL-A3-03		450	2.40	3.17	1.12	7.99	
			3.00	1.73	0.61	9.98	
			3.70	0.91	0.30	12.26	
			4.90	0.34	0.15	16.05	
NCL-A3-04		600	2.40	2.88	1.69	7.98	Tubular Rung: 25x2.0 mm
			3.00	1.64	0.96	9.95	
			3.70	0.88	0.52	12.28	
			4.90	0.33	0.19	16.27	
NCL-A3-05		750	2.40	2.45	2.14	7.07	Tubular Rung: 3.0x1.5 mm
			3.00	1.55	1.36	9.96	
			3.70	0.85	0.74	12.33	
			4.90	0.31	0.36	16.25	
NCL-A3-06		900	2.40	1.70	2.57	6.44	
			3.00	1.39	2.10	9.96	
			3.70	0.79	1.19	12.24	
			4.90	0.29	0.44	16.15	

For Ordering Details Refer Pg 91-93

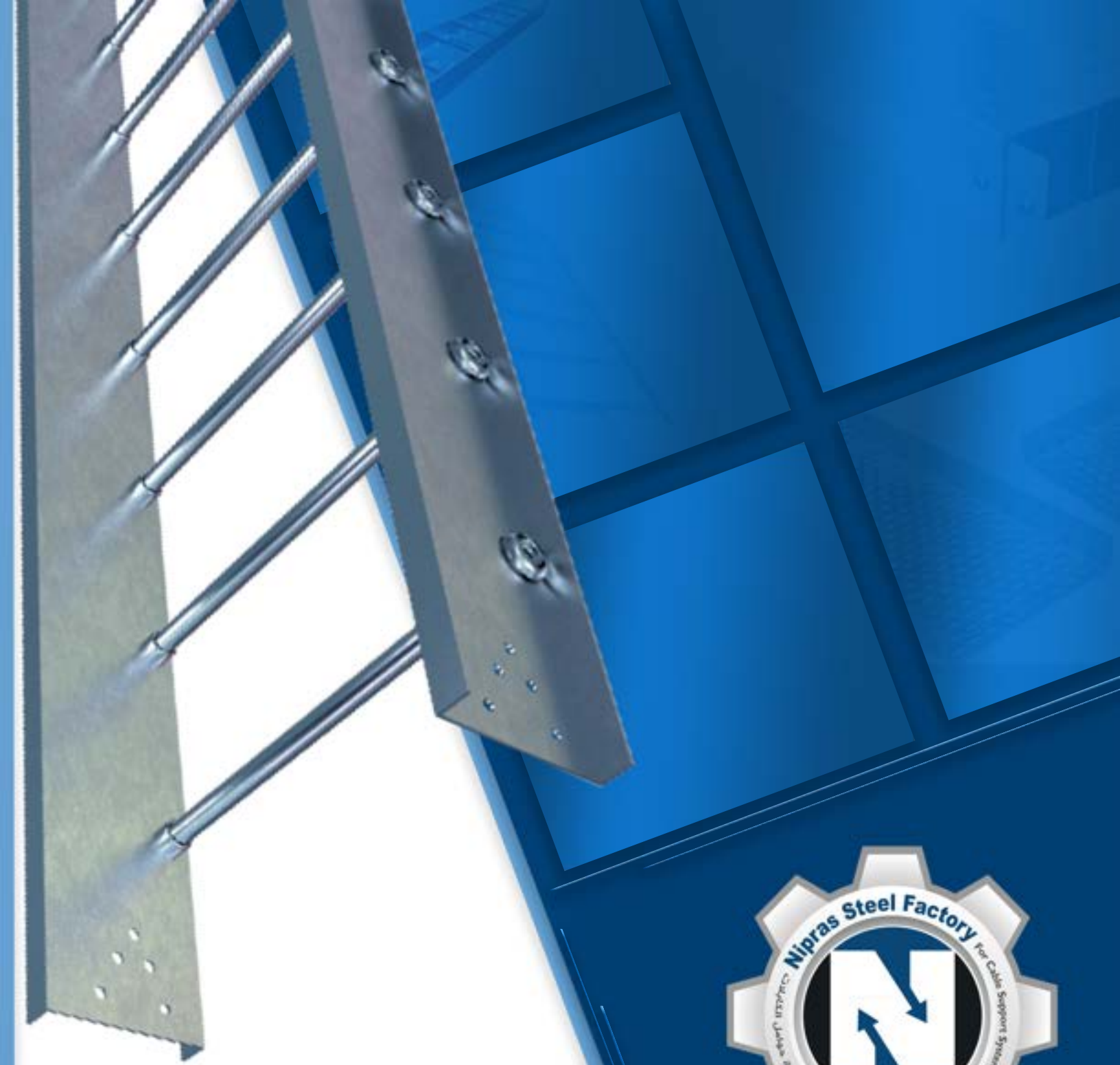
ALUMINIUM LADDER - Swaged Tubular Rung - AL - A4

ALUMINIUM LADDER - Swaged Tubular Rung - AL
NEMA Class 12 B (134 kg/m by 3.70 m)
Side Rail : A 4
Height : 188 mm
Load Depth : 158 mm
Rung - Spacing : 229 mm



A4							
ITEM CODE	SIDE RAIL	WIDTH	SUPPORT DIST	LOAD	DEFLECTION		RUNG DETAILS
	NEMA - CLASS - 12A	(mm)	(m)	kn/m	RUNG (mm)	RAIL (mm)	
NCL-A4-00	188 X 20 X 2.0	150	2.40	4.55	0.06	5.41	Tubular Rung: 25x1.5 mm
			3.00	3.45	0.04	10.00	
			3.70	1.81	0.02	12.31	
			4.90	0.74	0.01	16.23	
NCL-A4-01		225	2.40	4.55	0.19	5.55	
			3.00	3.40	0.14	9.98	
			3.70	1.79	0.08	12.28	
			4.90	0.73	0.03	16.20	
NCL-A4-02		300	2.40	4.55	0.45	5.82	
			3.00	3.33	0.33	9.99	
			3.70	1.77	0.18	12.30	
			4.90	0.72	0.07	16.19	
NCL-A4-03		450	2.40	4.55	1.23	6.61	Tubular Rung: 25x2.0 mm
			3.00	3.13	0.84	9.98	
			3.70	1.71	0.46	12.29	
			4.90	0.70	0.19	16.21	
NCL-A4-04		600	2.40	3.82	1.71	6.27	Tubular Rung: 30x1.5 mm
			3.00	2.95	1.32	9.99	
			3.70	1.65	0.74	12.27	
			4.90	0.68	0.30	16.23	
NCL-A4-05		750	2.40	3.09	2.14	5.87	Tubular Rung: 30x2.0 mm
			3.00	2.73	1.89	9.98	
			3.70	1.58	1.09	12.27	
			4.90	0.66	0.46	16.28	
NCL-A4-06		900	2.40	2.14	2.56	5.21	
			3.00	2.14	2.56	9.02	
			3.70	1.47	1.76	12.32	
			4.90	0.63	0.75	16.27	

For Ordering Details Refer Pg 91-93



CABLE LADDER Steel

Nipras Steel Factory
For Cable Support Systems
مصنع نبراس المعادن
لأنظمة حوامل الكابلات

مصنع نبراس المعادن
NIPRAS STEEL FACTORY

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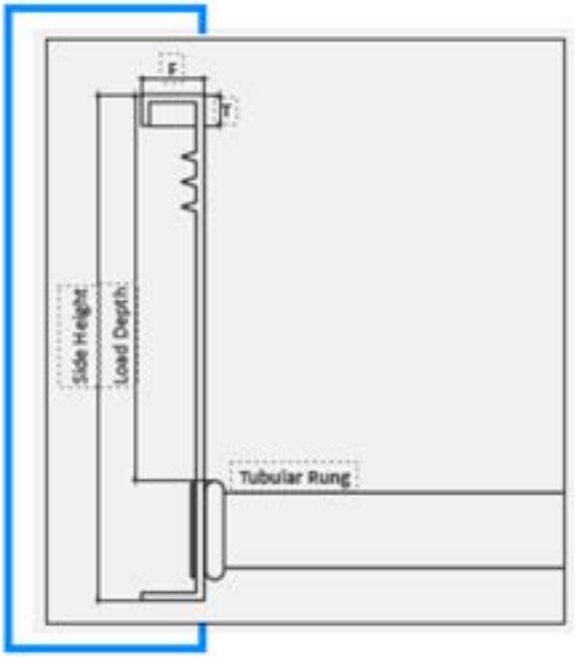
CL-S Dimensions



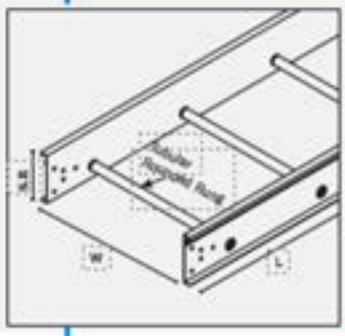
CABLE LADDER						
DESIGN DATA - STEEL S235 JRG2						
Side Rail	Height (mm)	Load Depth fd (mm)	Thickness(mm)	Flange - F(mm)	Width - W (cm3)	Length - L -(cm4)
S1	105	75	2.0	22	6.83	35.87
S2	130	100	2.0	22	9.55	62.08
S3	155	125	2.0	22	12.67	98.17
S4	105	75	2.5	22	8.34	43.81
S5	130	100	2.5	22	11.71	76.15
S6	**155**	**125**	**2.5**	**22**	**15.58**	**120.75**

LOAD CLASSES - NEMA			
Side Rail	Load (kg/m)	Span(m)	Class
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

For Ordering Details
Refer Pg 91-93

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2
NEMA Class 12 A (74 kg/m by 3.70m)
Side Rail : S1
Height : 105 mm
Load Depth : 75 mm
Rung - Spacing : 229 mm

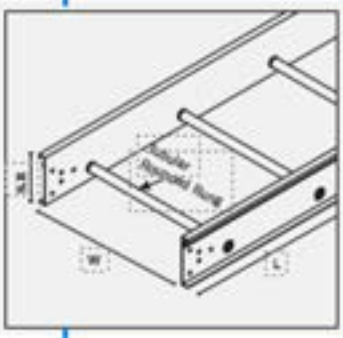


S1							
ITEM CODE	SIDE RAIL	WIDTH	SUPPORT DIST	LOAD	DEFLECTION		RUNG DETAILS
	NEMA - CLASS - 12A	(mm)	(m)	kn/m	RUNG (mm)	RAIL (mm)	
NSL-S1A	105 x 20 x 2.0	150	2.40	2.72	0.01	6.32	Tubular Rung : 25 x 1. 5 mm
			3.00	1.74	0.01	9.99	
			3.70	0.89	0.00	12.22	
			4.90	0.35	0.00	16.33	
NSL-S1B		225	2.40	2.71	0.00	6.34	
			3.00	1.73	0.02	9.99	
			3.70	0.89	0.01	12.32	
			4.90	0.34	0.00	16.24	
NSL-S1C		300	2.40	2.71	0.09	6.41	
			3.00	1.73	0.06	9.95	
			3.70	0.88	0.03	12.31	
			4.90	0.33	0.01	16.14	
NSL-S1D		450	2.40	2.69	0.30	6.61	
			3.00	1.67	0.19	9.94	
			3.70	0.86	0.86	12.31	
			4.90	0.31	0.03	15.97	
NSL-S1E		600	2.40	2.68	0.71	7.03	
			3.00	1.62	1.43	9.99	
			3.70	0.83	0.22	12.24	
			4.90	0.30	0.08	16.21	
NSL-S1F		750	2.40	2.66	1.38	7.69	
			3.00	1.53	0.79	9.94	
			3.70	0.80	0.41	12.25	
			4.90	0.28	0.15	16.08	
NSL-S1G		900	2.40	2.43	2.18	8.00	
			3.00	1.43	1.28	9.96	
			3.70	0.77	0.69	12.33	
			4.90	0.26	0.23	15.97	

For Ordering Details Refer Pg 91-93

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2
NEMA Class 12 B (123 kg/m by 3.70m)
Side Rail : S2
Height : 130 mm
Load Depth : 100 mm
Rung - Spacing : 229 mm

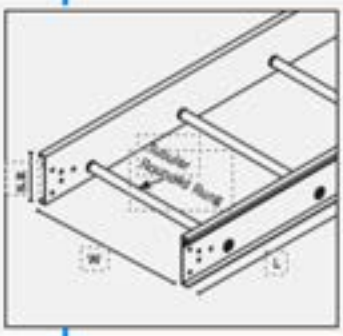


S2							
ITEM CODE	SIDE RAIL	WIDTH	SUPPORT DIST	LOAD	DEFLECTION		RUNG DETAILS
	NEMA - CLASS - 12A	(mm)	(m)	kn/m	RUNG (mm)	RAIL (mm)	
NSL-S2A	130 x 20 x 2.0	150	2.40	3.76	0.02	5.05	Tubular Rung : 25 x 1. 5 mm
			3.00	2.43	0.01	8.02	
			3.70	1.59	0.01	12.30	
			4.90	0.64	0.00	16.11	
NSL-S2B		225	2.40	3.76	0.05	5.09	
			3.00	2.43	0.03	8.07	
			3.70	1.58	0.02	12.30	
			4.90	0.64	0.01	16.29	
NSL-S2C		300	2.40	3.75	0.12	5.16	
			3.00	2.42	0.08	8.11	
			3.70	1.57	0.05	12.31	
			4.90	0.63	0.02	16.25	
NSL-S2D		450	2.40	3.74	0.42	5.46	
			3.00	2.41	0.27	8.31	
			3.70	1.54	0.17	12.32	
			4.90	0.61	0.07	16.18	
NSL-S2E		600	2.40	3.72	0.99	6.02	
			3.00	2.39	1.63	8.66	
			3.70	1.49	0.40	12.28	
			4.90	0.59	0.16	16.15	
NSL-S2F		750	2.40	3.71	1.92	6.97	
			3.00	2.38	1.23	9.28	
			3.70	1.43	0.74	12.29	
			4.90	0.57	0.30	16.18	
NSL-S2G		900	2.40	2.86	2.56	6.51	
			3.00	2.32	2.08	9.98	
			3.70	1.35	1.21	12.28	
			4.90	0.55	0.49	16.26	

For Ordering Details Refer Pg 91-93

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2
NEMA Class 16 A (82 kg/m by 4.90m)
Side Rail : S3
Height : 155 mm
Load Depth : 125 mm
Rung - Spacing : 229 mm

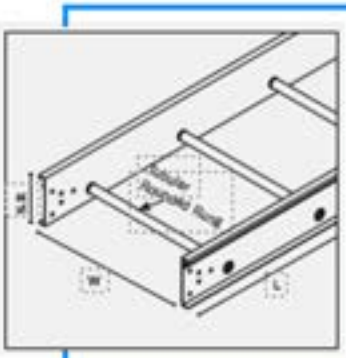


S3							
ITEM CODE	SIDE RAIL	WIDTH	SUPPORT DIST	LOAD	DEFLECTION		RUNG DETAILS
	NEMA - CLASS - 12A	(mm)	(m)	kn/m	RUNG (mm)	RAIL (mm)	
NSL-S3A	155 x 20 x 2.0	150	2.40	4.93	0.02	4.19	Tubular Rung : 25 x 1. 5 mm
			3.00	3.21	0.01	6.69	
			3.70	2.12	0.01	10.32	
			4.90	1.06	0.00	16.33	
NSL-S3B		225	2.40	4.92	0.07	4.24	
			3.00	3.20	0.04	6.72	
			3.70	2.11	0.03	10.33	
			4.90	1.05	0.01	16.31	
NSL-S3C		300	2.40	4.92	0.16	4.34	
			3.00	3.19	0.11	6.77	
			3.70	2.11	0.07	10.40	
			4.90	1.04	0.03	16.29	
NSL-S3D		450	2.40	4.90	0.55	4.72	
			3.00	3.18	0.36	7.04	
			3.70	2.09	0.23	10.54	
			4.90	1.02	0.11	16.30	
NSL-S3E		600	2.40	4.87	1.29	5.45	
			3.00	3.17	0.84	7.53	
			3.70	2.08	0.55	70.89	
			4.90	0.99	0.26	16.23	
NSL-S3F		750	2.40	4.10	2.13	5.66	
			3.00	3.15	1.63	8.31	
			3.70	2.07	1.07	11.43	
			4.90	0.98	0.50	16.25	
NSL-S3G		900	2.40	2.86	2.56	5.07	
			3.00	2.86	2.56	8.68	
			3.70	2.05	1.84	12.17	
			4.90	0.92	0.82	16.21	

For Ordering Details Refer Pg 91-93

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2
NEMA Class 12 A (87 kg/m by 3.70m)
Side Rail : S4
Height : 105 mm
Load Depth : 75 mm
Rung - Spacing : 229 mm

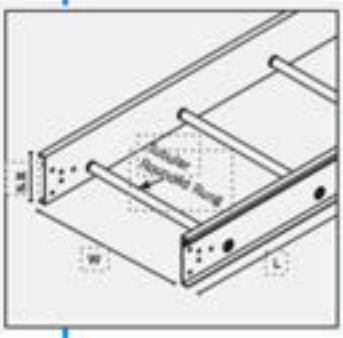


S4							
ITEM CODE	SIDE RAIL	WIDTH	SUPPORT DIST	LOAD	DEFLECTION		RUNG DETAILS
	NEMA - CLASS - 12A	(mm)	(m)	kn/m	RUNG (mm)	RAIL (mm)	
NSL-S4A	105 x 20 x 2.0	150	2.40	3.34	0.01	6.33	Tubular Rung : 25 x 1. 5 mm
			3.00	2.14	0.01	9.99	
			3.70	1.11	0.00	12.31	
			4.90	0.44	0.00	16.27	
NSL-S4B		225	2.40	3.33	0.05	6.35	
			3.00	2.13	0.03	10.00	
			3.70	1.10	0.02	12.29	
			4.90	0.43	0.01	16.19	
NSL-S4C		300	2.40	3.33	0.11	6.43	
			3.00	2.11	0.07	9.98	
			3.70	1.09	0.04	12.29	
			4.90	0.42	0.01	16.12	
NSL-S4D		450	2.40	3.32	0.37	6.70	
			3.00	2.06	0.23	9.98	
			3.70	1.07	0.12	12.32	
			4.90	0.41	0.05	16.31	
NSL-S4E		600	2.40	3.30	0.88	7.20	
			3.00	1.98	0.53	9.98	
			3.70	1.04	0.28	12.32	
			4.90	0.39	0.10	16.21	
NSL-S4F		750	2.40	3.27	1.70	7.99	
			3.00	1.87	0.97	10.00	
			3.70	1.00	0.52	12.30	
			4.90	0.37	0.19	16.13	
NSL-S4G		900	2.40	2.81	2.52	7.99	
			3.00	1.72	1.54	9.96	
			3.70	0.95	1.95	12.26	
			4.90	0.35	0.31	16.10	

For Ordering Details Refer Pg 91-93

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2
NEMA Class 12 C (150 kg/m by 3.70m)
Side Rail : S5
Height : 130 mm
Load Depth : 100 mm
Rung - Spacing : 229 mm

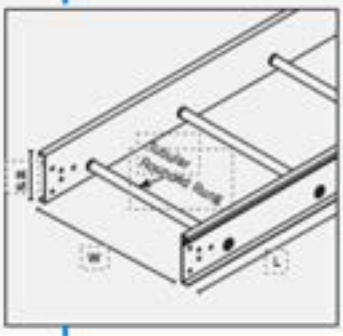


S5							
ITEM CODE	SIDE RAIL NEMA - CLASS - 12A	WIDTH (mm)	SUPPORT DIST (m)	LOAD kn/m	DEFLECTION RUNG (mm)	DEFLECTION RAIL (mm)	RUNG DETAILS
NSL-S5A	130 x 20 x 2.0	150	2.40	4.64	0.02	5.06	Tubular Rung : 25 x 1. 5 mm
			3.00	3.00	0.01	8.03	
			3.70	1.97	0.01	12.33	
			4.90	0.81	0.00	16.30	
NSL-S5B		225	2.40	4.63	0.06	5.11	
			3.00	3.00	0.04	8.08	
			3.70	1.95	0.03	12.28	
			4.90	0.80	0.01	16.26	
NSL-S5C		300	2.40	4.63	0.15	5.20	
			3.00	2.99	0.10	8.13	
			3.70	1.94	0.06	12.30	
			4.90	0.79	0.03	16.23	
NSL-S5D		450	2.40	4.61	0.52	5.56	
			3.00	2.98	0.33	8.38	
			3.70	1.90	0.21	12.29	
			4.90	0.77	0.09	16.20	
NSL-S5E		600	2.40	4.60	1.22	6.27	
			3.00	2.96	0.79	8.82	
			3.70	1.84	0.49	12.30	
			4.90	0.75	0.20	16.22	
NSL-S5F		750	2.40	4.12	2.14	6.69	
			3.00	2.95	1.53	9.58	
			3.70	1.76	1.91	12.33	
			4.90	0.73	0.38	16.31	
NSL-S5G		900	2.40	2.86	2.56	5.78	
			3.00	2.74	2.46	9.99	
			3.70	1.65	1.48	12.37	
			4.90	0.70	0.63	16.28	

For Ordering Details Refer Pg 91-93

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2
NEMA Class D (67 kg/m by 6.0m)
Side Rail : S6
Height : 155 mm
Load Depth : 125 mm
Rung - Spacing : 229 mm



S6							
ITEM CODE	SIDE RAIL	WIDTH	SUPPORT DIST	LOAD	DEFLECTION		RUNG DETAILS
	NEMA - CLASS - 12A	(mm)	(m)	kn/m	RUNG (mm)	RAIL (mm)	
NSL-S6A	155 x 20 x 2.0	150	2.40	6.09	0.03	4.20	Tubular Rung : 25 x 1. 5 mm
			3.00	3.97	0.02	6.71	
			3.70	2.62	0.01	10.31	
			4.90	1.31	0.01	16.23	
NSL-S6B		225	2.40	6.08	0.09	4.26	
			3.00	3.96	0.06	10.00	
			3.70	2.61	0.04	10.33	
			4.90	1.31	0.02	16.33	
NSL-S6C		300	2.40	6.08	0.20	4.38	
			3.00	3.95	0.13	6.81	
			3.70	2.60	0.09	10.37	
			4.90	1.30	0.04	16.32	
NSL-S6D		450	2.40	6.07	0.68	4.87	
			3.00	3.94	0.44	7.13	
			3.70	2.60	0.29	10.63	
			4.90	1.27	0.14	16.25	
NSL-S6E		600	2.40	5.16	1.37	4.95	
			3.00	3.93	0.53	7.74	
			3.70	2.58	0.69	11.00	
			4.90	1.24	0.33	16.26	
NSL-S6F		750	2.40	4.13	2.14	5.03	
			3.00	3.91	2.03	8.72	
			3.70	2.57	1.33	11.67	
			4.90	1.20	0.62	16.26	
NSL-S6G		900	2.40	3.57	2.57	5.09	
			3.00	3.57	2.57	8.72	
			3.70	2.56	1.84	12.20	
			4.90	1.17	0.84	16.30	

For Ordering Details Refer Pg 91-93

CABLE LADDER C-Channel

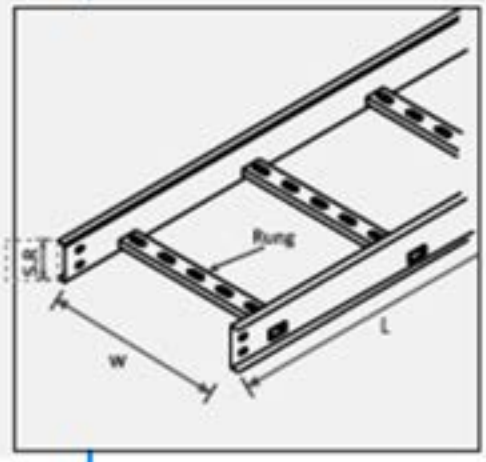
Nipras Steel Factory
For Cable Support Systems
مصنع نبراس المعادن
لأنظمة حوامل الكابلات

مصنع نبراس المعادن
NIPRAS STEEL FACTORY

NIPRAS METAL GROUP

رؤية VISION 2030
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

CL-C-CH Dimensions



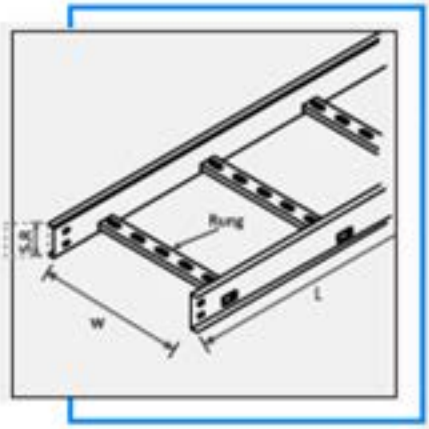
CABLE LADDER						
DESIGN DATA - STEEL S235 JRG2						
Side Rail	Height (mm)	Load Depth fd (mm)	Thickness(mm)	Flange - F(mm)	Width - W (cm3)	Length - L -(cm4)
S1	105	75	2.0	22	6.83	35.87
S2	130	100	2.0	22	9.55	62.08
S3	155	125	2.0	22	12.67	98.17
S4	105	75	2.5	22	8.34	43.81
S5	130	100	2.5	22	11.71	76.15
S6	155	125	2.5	22	15.58	120.75

LOAD CLASSES - NEMA			
Side Rail	Load (kg/m)	Span(m)	Class
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

For Ordering Details
Refer Pg 91-93

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2
NEMA Class 12 A (74 kg/m by 3.70m)
Side Rail : C1
Height : 105 mm
Load Depth : 75 mm
Rung - Spacing : 229 mm

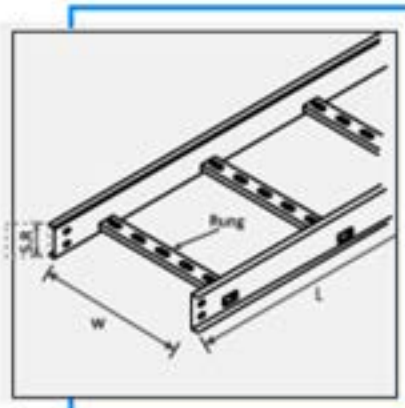


C1							
ITEM CODE	SIDE RAIL NEMA - CLASS - 12A	WIDTH (mm)	SUPPORT DIST (m)	LOAD kn/m	DEFLECTION RUNG (mm)	DEFLECTION RAIL (mm)	RUNG DETAILS - C-
NCCL-C1A	105 x 20 x 2.0	150	2.40	2.69	0.01	6.33	C-Ch - Rung : 41 x 21 x 1.5 mm
			3.00	1.70	0.01	9.96	
			3.70	0.86	0.00	12.28	
			4.90	1.31	0.00	16.13	
NCCL-C1B		225	2.40	2.69	0.04	6.36	
			3.00	1.70	0.03	9.98	
			3.70	0.86	0.01	12.29	
			4.90	1.31	0.00	16.14	
NCCL-C1C		300	2.40	2.69	0.10	6.42	
			3.00	1.69	0.06	9.96	
			3.70	0.86	0.03	12.31	
			4.90	0.31	0.01	14.14	
NCCL-C1D		450	2.40	2.69	0.33	6.65	
			3.00	1.67	0.21	9.99	
			3.70	0.85	0.10	12.26	
			4.90	0.31	0.04	26.17	
NCCL-C1E		600	2.40	2.69	0.75	3.10	
			3.00	1.62	0.47	3.98	
			3.70	0.84	0.25	12.27	
			4.90	0.31	0.09	16.22	
NCCL-C1F		750	2.40	2.69	1.53	7.85	
			3.00	1.54	0.88	9.95	
			3.70	0.82	0.47	10.24	
			4.90	0.31	0.18	10.31	
NCCL-C1G		900	2.40	2.39	2.36	7.99	
			3.00	1.45	1.43	10.00	
			3.70	0.80	0.79	12.30	
			4.90	0.30	0.30	16.03	

For Ordering Details Refer Pg 91-93

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2
NEMA Class 12 B (123 kg/m by 3.70m)
Side Rail : C2
Height : 130 mm
Load Depth : 100 mm
Rung - Spacing : 229 mm

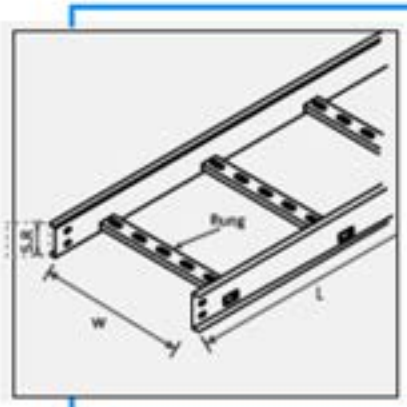


C2							
ITEM CODE	SIDE RAIL NEMA - CLASS - 12A	WIDTH (mm)	SUPPORT DIST (m)	LOAD kn/m	DEFLECTION RUNG (mm)	DEFLECTION RAIL (mm)	RUNG DETAILS
NCCL-C2A	130 x 20 x 2.0	150	2.40	3.73	0.02	5.05	C-Ch Rung : 41 x 21 x 1.5 mm
			3.00	2.40	0.01	8.01	
			3.70	1.55	0.01	12.27	
			4.90	0.60	0.00	16.00	
NCCL-C2B		225	2.40	3.73	0.06	5.09	
			3.00	2.40	0.04	8.06	
			3.70	1.55	0.02	12.28	
			4.90	0.60	0.01	16.01	
NCCL-C2C		300	2.40	3.73	0.14	5.17	
			3.00	2.40	0.09	8.11	
			3.70	1.55	0.06	12.31	
			4.90	0.60	0.02	16.02	
NCCL-C2D		450	2.40	3.73	0.46	5.50	
			3.00	2.40	0.30	8.32	
			3.70	1.53	0.19	12.30	
			4.90	0.60	0.07	16.07	
NCCL-C2E		600	2.40	3.73	1.09	6.13	
			3.00	2.40	0.70	8.73	
			3.70	1.50	0.44	12.32	
			4.90	0.60	0.18	16.17	
NCCL-C2F		750	2.40	3.73	2.13	7.17	
			3.00	2.40	1.37	9.40	
			3.70	1.44	0.82	12.26	
			4.90	0.59	0.34	13.10	
NCCL-C2G		900	2.40	3.27	2.56	7.00	
			3.00	2.30	2.27	9.97	
			3.70	1.36	1.34	12.19	
			4.90	0.58	0.57	16.11	

For Ordering Details Refer Pg 91-93

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2
NEMA Class 16 A (82 kg/m by 4.90m)
Side Rail : C3
Height : 155 mm
Load Depth : 125 mm
Rung - Spacing : 229 mm

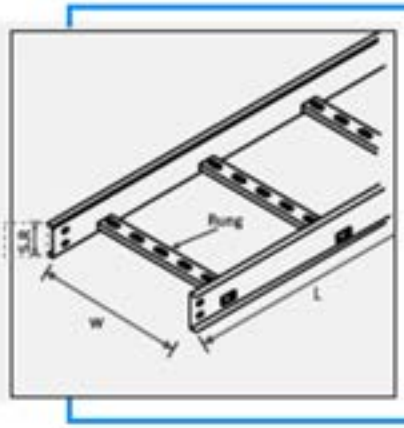


C3							
ITEM CODE	SIDE RAIL NEMA - CLASS - 12A	WIDTH (mm)	SUPPORT DIST (m)	LOAD kn/m	DEFLECTION RUNG (mm)	DEFLECTION RAIL (mm)	RUNG DETAILS
NCCL-C3A	155 x 20 x 2.0	150	2.40	4.90	0.02	4.20	C-Ch Rung : 41 x 21 x 1.5 mm
			3.00	3.18	0.01	6.70	
			3.70	2.09	0.01	10.34	
			4.90	1.02	0.00	16.24	
NCCL-C3B		225	2.40	4.90	0.08	4.25	
			3.00	3.18	0.05	6.74	
			3.70	2.09	0.03	10.37	
			4.90	1.02	0.02	16.27	
NCCL-C3C		300	2.40	4.90	0.18	4.36	
			3.00	3.18	0.12	6.81	
			3.70	2.09	0.08	10.41	
			4.90	1.02	0.04	16.29	
NCCL-C3D		450	2.40	4.90	0.60	4.78	
			3.00	3.18	0.39	7.08	
			3.70	2.09	0.26	10.59	
			4.90	1.00	0.12	16.09	
NCCL-C3E		600	2.40	4.90	1.43	5.61	
			3.00	3.18	0.93	7.62	
			3.70	2.09	0.61	10.94	
			4.90	1.00	0.29	16.26	
NCCL-C3F		750	2.40	4.90	2.14	6.17	C-Ch Rung : 41 x 41 x 1.5 mm
			3.00	3.18	1.81	8.50	
			3.70	2.09	1.19	18.53	
			4.90	0.98	0.56	16.23	
NCCL-C3G		900	2.40	4.90	0.87	5.05	
			3.00	3.18	2.45	9.18	C-Ch Rung : 41 x 212.0 mm
			3.70	2.09	1.64	11.97	
			4.90	0.97	0.76	16.29	

For Ordering Details Refer Pg 91-93

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2
NEMA Class 12 A (87 kg/m by 3.70m)
Side Rail : C4
Height : 105 mm
Load Depth : 75 mm
Rung - Spacing : 229 mm

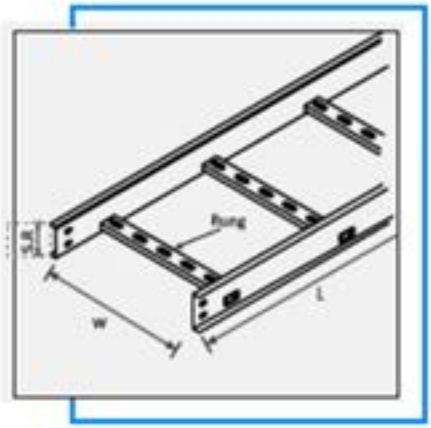


C4							
ITEM CODE	SIDE RAIL NEMA - CLASS - 12A	WIDTH (mm)	SUPPORT DIST (m)	LOAD kn/m	DEFLECTION RUNG (mm)	DEFLECTION RAIL (mm)	RUNG DETAILS
NCCL-C4A	105 x 20 x 2.0	150	2.40	3.30	0.02	6.32	C-CH Rung : 25 x 1. 5 mm
			3.00	2.10	0.01	9.97	
			3.70	1.07	0.00	12.26	
			4.90	0.40	0.00	16.11	
NCCL-C4B		225	2.40	3.30	0.05	6.35	
			3.00	2.10	0.03	9.99	
			3.70	1.07	0.02	12.27	
			4.90	0.40	0.01	14.11	
NCCL-C4C		300	2.40	3.30	0.12	6.42	
			3.00	2.09	0.08	9.99	
			3.70	1.07	0.04	12.29	
			4.90	0.40	0.01	16.12	
NCCL-C4D		450	2.40	3.30	0.41	4.71	
			3.00	2.05	0.25	9.98	
			3.70	1.06	0.13	12.28	
			4.90	0.40	0.05	16.15	
NCCL-C4E		600	2.40	3.22	1.84	7.99	
			3.00	1.98	0.58	9.99	
			3.70	1.02	0.58	12.31	
			4.90	0.40	0.23	10.33	
NCCL-C4F		750	2.40	3.22	1.84	7.99	
			3.00	1.87	1.07	9.98	
			3.70	1.02	0.58	12.31	
			4.90	0.40	0.23	12.33	C-CH Rung : 41 x 41 x 2.0 mm
NCCL-C4G		900	2.40	2.95	2.31	7.97	C-CH Rung : 41 x 41 x 2.0 mm
			3.00	1.78	1.40	9.90	
			3.70	1.00	0.99	12.50	
			4.90	0.39	0.38	16.17	

For Ordering Details Refer Pg 91-93

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2

STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2
NEMA Class 12 C (150 kg/m by 3.70m)
Side Rail : C5
Height : 130 mm
Load Depth : 100 mm
Rung - Spacing : 229 mm

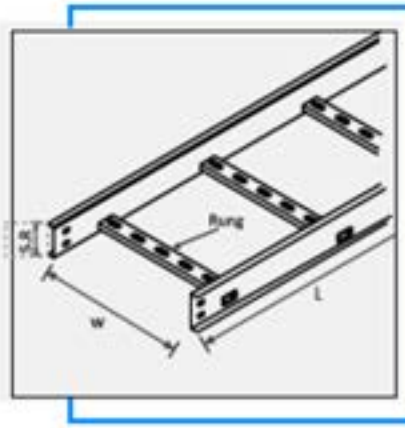


C5							
ITEM CODE	SIDE RAIL NEMA - CLASS - 12A	WIDTH (mm)	SUPPORT DIST (m)	LOAD kn/m	DEFLECTION RUNG (mm)	DEFLECTION RAIL (mm)	RUNG DETAILS
NCCL-C5A	130 x 20 x 2.0	150	2.40	4.60	0.02	5.07	C-CH Rung : 41 x 21 x 1.5 mm
			3.00	2.97	0.01	8.05	
			3.70	1.93	0.01	12.30	
			4.90	0.77	0.00	16.21	
NCCL-C5B		225	2.40	4.61	0.07	5.12	
			3.00	2.97	0.05	8.05	
			3.70	1.93	0.03	12.32	
			4.90	0.77	0.01	16.22	
NCCL-C5C		300	2.40	4.60	0.17	5.22	
			3.00	2.97	0.11	8.14	
			3.70	1.92	0.07	12.30	
			4.90	0.77	0.03	16.23	
NCCL-C5D		450	2.40	4.61	0.57	5.62	
			3.00	2.97	0.37	8.40	
			3.70	1.89	0.23	12.28	
			4.90	0.77	0.09	16.30	
NCCL-C5E		600	2.40	4.61	1.35	6.40	
			3.00	2.97	0.87	8.90	
			3.70	1.84	0.54	12.29	
			4.90	0.76	0.22	16.24	
NCCL-C5F		750	2.40	4.61	2.09	7.84	C-CH Rung : 41 x 41 x 2.0 mm
			3.00	2.97	1.69	9.73	
			3.70	1.76	1.00	12.27	
			4.90	0.75	0.43	16.26	
NCCL-C5G		900	2.40	4.61	0.82	5.87	C-CH Rung : Rung 41 x 41 x 1.5 mm
			3.00	2.86	2.24	9.99	C-CH Rung : Rung 41 x 21 x 2.0 mm
			3.70	1.66	1.64	12.30	
			4.90	0.73	0.72	16.18	

For Ordering Details Refer Pg 91-93

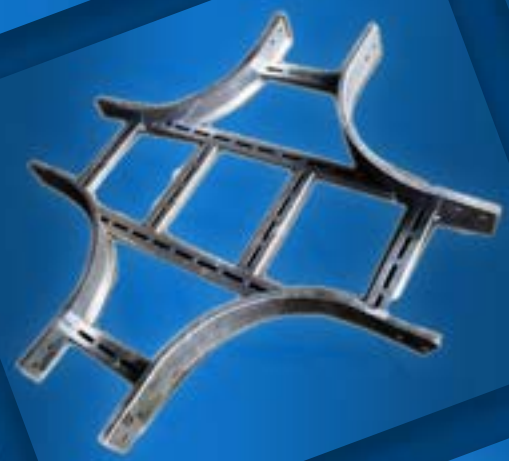
STEEL LADDER - Swaged Tubular Rung - STEEL S9

STEEL LADDER - Swaged Tubular Rung - STEEL S9
NEMA Class D (67 kg/m by 6.0m)
Side Rail : C6
Height : 155 mm
Load Depth : 125 mm
Rung - Spacing : 229 mm



C6							
ITEM CODE	SIDE RAIL NEMA - CLASS - 12A	WIDTH (mm)	SUPPORT DIST (m)	LOAD kn/m	DEFLECTION RUNG (mm)	DEFLECTION RAIL (mm)	RUNG DETAILS
NCCL-C6A	155 x 20 x 2.0	150	2.40	6.06	0.03	4.21	C-CH Rung : 41 x 21 x 1.5 mm
			3.00	3.94	0.02	6.72	
			3.70	2.59	0.01	1.33	
			4.90	1.28	0.01	16.29	
NCCL-C6B		225	2.40	6.06	0.09	4.28	
			3.00	3.94	0.06	6.76	
			3.70	2.59	0.04	10.36	
			4.90	1.28	0.02	16.30	
NCCL-C6C		300	2.40	6.06	0.22	4.40	
			3.00	3.94	0.14	6.24	
			3.70	2.59	0.09	10.41	
			4.90	1.28	0.05	16.33	
NCCL-C6D		450	2.40	6.06	0.75	4.93	
			3.00	3.94	0.49	10.80	
			3.70	2.59	0.32	10.64	
			4.90	1.27	0.16	16.32	
NCCL-C6E		600	2.40	6.06	1.41	5.59	C-CH Rung : 41 x 41 x 2.0 mm
			2.40	6.06	0.63	4.21	
			3.00	3.94	1.79	5.26	
			3.00	3.94	1.15	8.49	
NCCL-C6F		750	3.70	2.59	0.76	9.34	C-CH Rung : 41 x 41 x 1.5 mm
			4.90	1.25	0.37	7.35	
			3.70	2.50	1.48	11.07	C-CH Rung : 41 x 41 x 2.0 mm
			4.90	1.22	0.70	16.29	
NCCL-C6G		900	2.40	6.06	1.08	11.80	C-CH Rung : 41 x 41 x 1.5 mm
			3.70	3.94	2.64	16.27	C-CH Rung : 41 x 41 x 2.5 mm
			3.70	2.47	2.43	12.29	
			4.90	1.18	1.16	16.27	

For Ordering Details Refer Pg 91-93



CABLE LADDER FITTINGS

Nipras Steel Factory For Cable Support Systems

مصنع نبراس المعادن لأنظمة حوامل الكابلات

مصنع نبراس المعادن
NIPRAS STEEL FACTORY

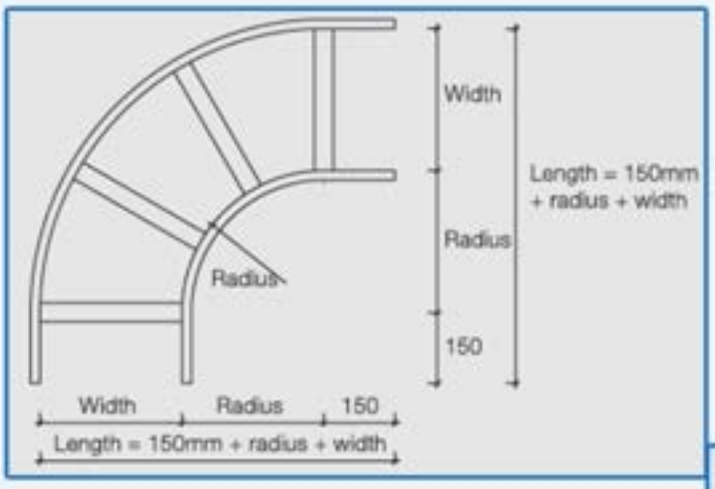
رؤية VISION 2030
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

NMG NIPRAS METAL GROUP

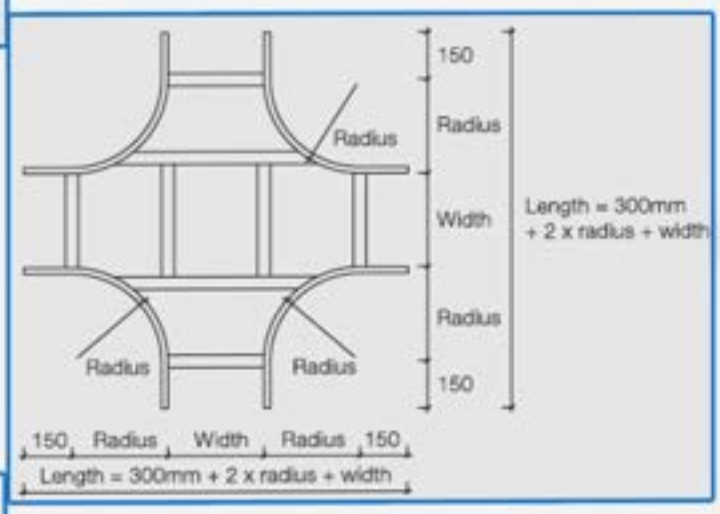
Product footprint

Cable ladder tray — accessory foot print standard radius is 300 mm

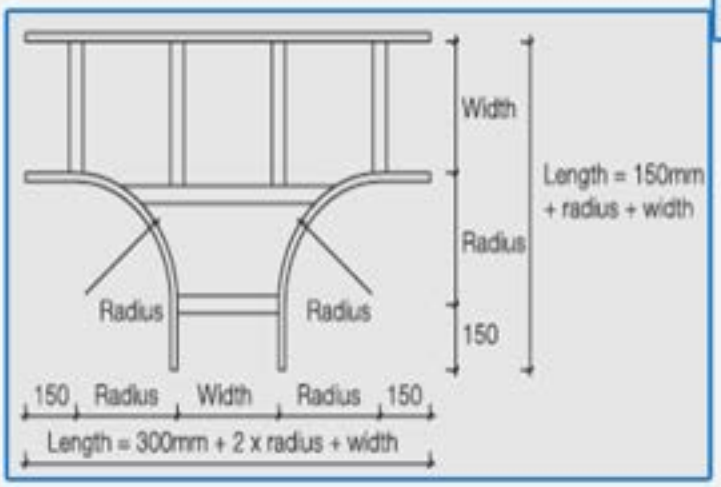
90 Degree Flat Bend



Crossover



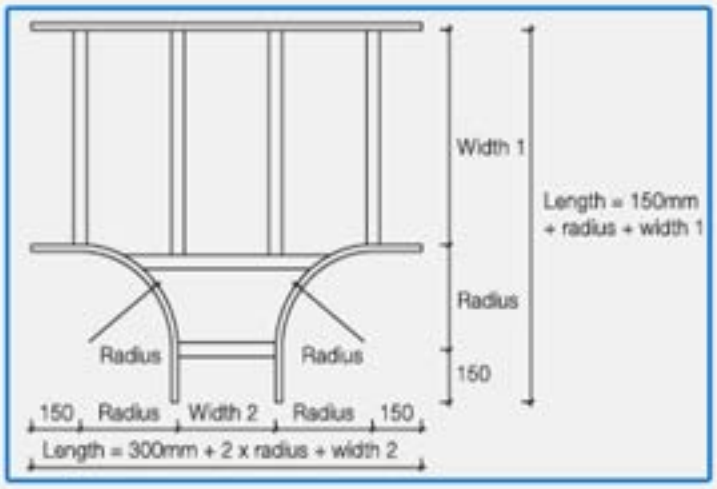
Equal Tee



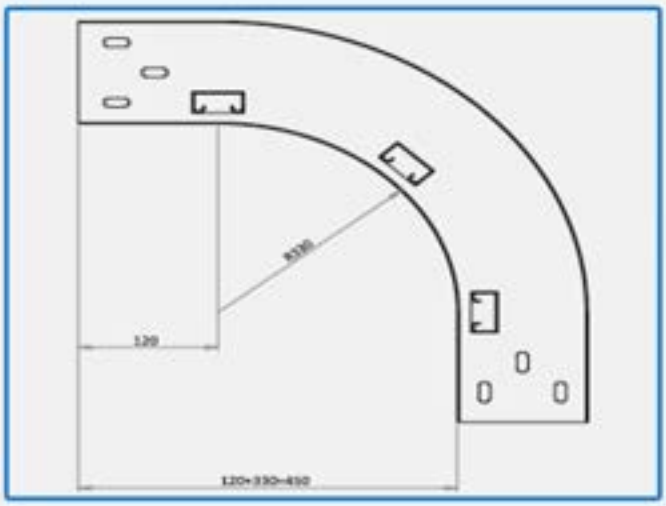
For Ordering Details Refer Pg 91-93

Product footprint

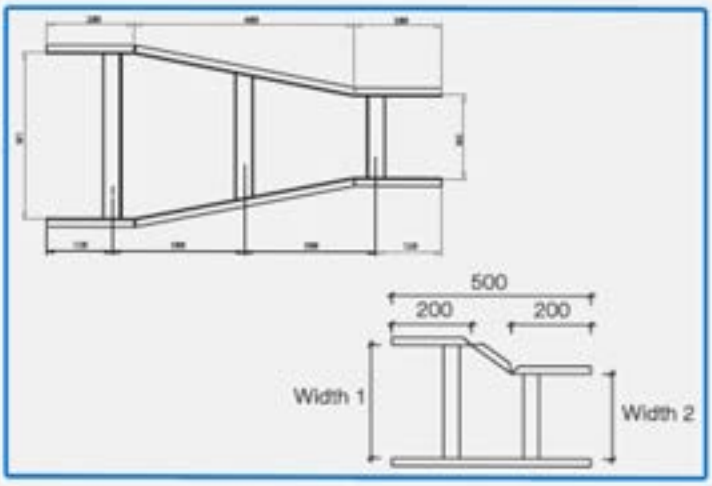
Unequal Tee



Outside Riser



Central, right, or left hand reducer



For Ordering Details Refer Pg 91-93

Welded Cornered Bend 45°

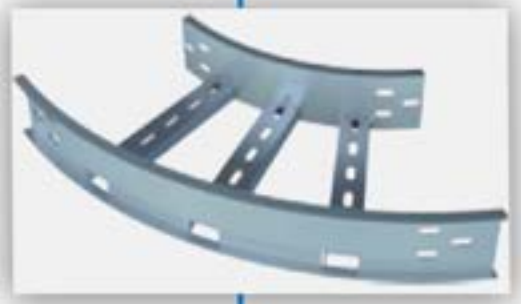
Welded Cornered Bend 45° Thickness 2.00			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0	NEMA - CLASS - 12A 130 x 20 x 2.0	NEMA - CLASS - 12A 155 x 20 x 2.0
	Item Codes		
150	NWCB-45-A	NWCB-45-A1	NWCB-45-A2
225	NWCB-45-B	NWCB-45-B1	NWCB-45-B2
300	NWCB-45-C	NWCB-45-C1	NWCB-45-C2
450	NWCB-45-D	NWCB-45-D1	NWCB-45-D2
600	NWCB-45-E	NWCB-45-E1	NWCB-45-E2
750	NWCB-45-F	NWCB-45-F1	NWCB-45-F2
900	NWCB-45-G	NWCB-45-G1	NWCB-45-G2

Welded Cornered Bend 45° Thickness 2.50			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50	NEMA - CLASS - 12A 130 x 20 x 2.50	NEMA - CLASS - 12A 155 x 20 x 2.50
	Item Codes		
150	NWCB-45-A3	NWCB-45-A4	NWCB-45-A5
225	NWCB-45-B3	NWCB-45-B4	NWCB-45-B5
300	NWCB-45-C3	NWCB-45-C4	NWCB-45-C5
450	NWCB-45-D3	NWCB-45-D4	NWCB-45-D5
600	NWCB-45-E3	NWCB-45-E4	NWCB-45-E5
750	NWCB-45-F3	NWCB-45-F4	NWCB-45-F5
900	NWCB-45-G3	NWCB-45-G4	NWCB-45-G5

For Ordering Details Refer Pg 91-93

Welded Curved Bend 45°

Welded Curved Bend 45°			
Thickness 2.00			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0	NEMA - CLASS - 12A 130 x 20 x 2.0	NEMA - CLASS - 12A 155 x 20 x 2.0
	Item Codes		
150	NWCU-45-A	NWCU-45-A1	NWCU-45-A2
225	NWCU-45-B	NWCU-45-B1	NWCU-45-B2
300	NWCU-45-C	NWCU-45-C1	NWCU-45-C2
450	NWCU-45-D	NWCU-45-D1	NWCU-45-D2
600	NWCU-45-E	NWCU-45-E1	NWCU-45-E2
750	NWCU-45-F	NWCU-45-F1	NWCU-45-F2
900	NWCU-45-G	NWCU-45-G1	NWCU-45-G2



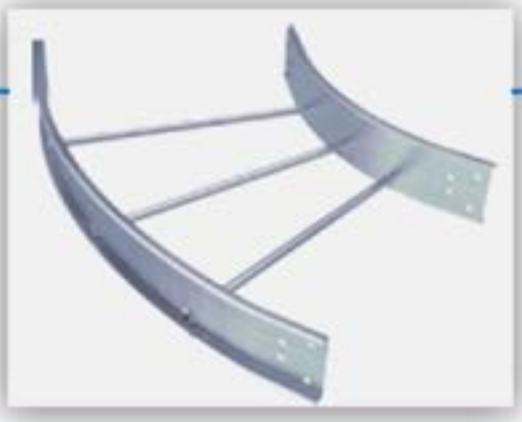
Welded Curved Bend 45°			
Thickness 2.50			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50	NEMA - CLASS - 12A 130 x 20 x 2.50	NEMA - CLASS - 12A 155 x 20 x 2.50
	Item Codes		
150	NWCU-45-A3	NWCU-45-A4	NWCU-45-A5
225	NWCU-45-B3	NWCU-45-B4	NWCU-45-B5
300	NWCU-45-C3	NWCU-45-C4	NWCU-45-C5
450	NWCU-45-D3	NWCU-45-D4	NWCU-45-D5
600	NWCU-45-E3	NWCU-45-E4	NWCU-45-E5
750	NWCU-45-F3	NWCU-45-F4	NWCU-45-F5
900	NWCU-45-G3	NWCU-45-G4	NWCU-45-G5

For Ordering Details Refer Pg 91-93

Swaged Tubular Rung

Swaged Tubular Rung						
Thickness 2.00						
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0		NEMA - CLASS - 12A 130 x 20 x 2.0		NEMA - CLASS - 12A 155 x 20 x 2.0	
	Aluminium	Steel	Aluminium	Steel	Aluminium	Steel
	Item Codes					
150	NTRAL-A	NTRS-A1	NTRAL-A2	NTRS-A2	NTRAL-A3	NTRS-A3
225	NTRAL-B	NTRS-B1	NTRAL-B2	NTRS-B2	NTRAL-B3	NTRS-B3
300	NTRAL-C	NTRS-C1	NTRAL-C2	NTRS-C2	NTRAL-C3	NTRS-C3
450	NTRAL-D	NTRS-D1	NTRAL-D2	NTRS-D2	NTRAL-D3	NTRS-D3
600	NTRAL-E	NTRS-E1	NTRAL-E2	NTRS-E2	NTRAL-E3	NTRS-E3
750	NTRAL-F	NTRS-F1	NTRAL-F2	NTRS-F2	NTRAL-F3	NTRS-F3
900	NTRAL-G	NTRS-G1	NTRAL-G2	NTRS-G2	NTRAL-G3	NTRS-G3

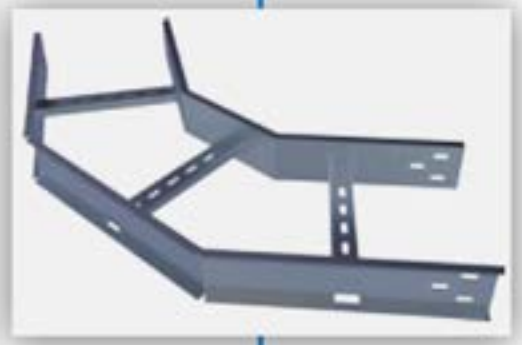
Swaged Tubular Rung						
Thickness 2.50						
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50		NEMA - CLASS - 12A 130 x 20 x 2.50		NEMA - CLASS - 12A 155 x 20 x 2.50	
	Aluminium	Steel	Aluminium	Steel	Aluminium	Steel
	Item Codes					
150	NTRAL-A4	NTRS-A4	NTRAL-A5	NTRS-A5	NTRAL-A6	NTRS-A6
225	NTRAL-B4	NTRS-B4	NTRAL-B5	NTRS-B5	NTRAL-B6	NTRS-B6
300	NTRAL-C4	NTRS-C4	NTRAL-C5	NTRS-C5	NTRAL-C6	NTRS-C6
450	NTRAL-D4	NTRS-D4	NTRAL-D5	NTRS-D5	NTRAL-D6	NTRS-D6
600	NTRAL-E4	NTRS-E4	NTRAL-E5	NTRS-E5	NTRAL-E6	NTRS-E6
750	NTRAL-F4	NTRS-F4	NTRAL-F5	NTRS-F5	NTRAL-F6	NTRS-F6
900	NTRAL-G4	NTRS-G4	NTRAL-G5	NTRS-G5	NTRAL-G6	NTRS-G6



For Ordering Details Refer Pg 91-93

Welded Cornered Bend 90°

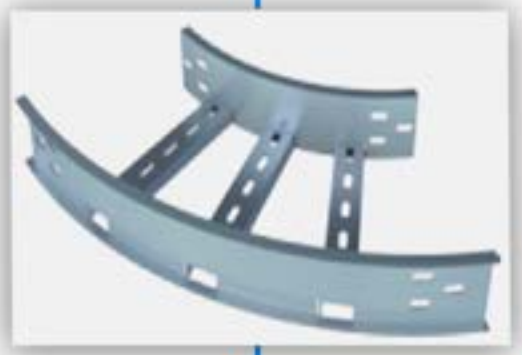
Welded Cornered Bend 90°			
Thickness 2.00			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0	NEMA - CLASS - 12A 130 x 20 x 2.0	NEMA - CLASS - 12A 155 x 20 x 2.0
	Item Codes		
150	NWCB-90-A	NWCB-90-A1	NWCB-90-A2
225	NWCB-90-B	NWCB-90-B1	NWCB-90-B2
300	NWCB-90-C	NWCB-90-C1	NWCB-90-C2
450	NWCB-90-D	NWCB-90-D1	NWCB-90-D2
600	NWCB-90-E	NWCB-90-E1	NWCB-90-E2
750	NWCB-90-F	NWCB-90-F1	NWCB-90-F2
900	NWCB-90-G	NWCB-90-G1	NWCB-90-G2



Welded Cornered Bend 90°			
Thickness 2.50			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50	NEMA - CLASS - 12A 130 x 20 x 2.50	NEMA - CLASS - 12A 155 x 20 x 2.50
	Item Codes		
150	NWCB-90-A3	NWCB-90-A4	NWCB-90-A5
225	NWCB-90-B3	NWCB-90-B4	NWCB-90-B5
300	NWCB-90-C3	NWCB-90-C4	NWCB-90-C5
450	NWCB-90-D3	NWCB-90-D4	NWCB-90-D5
600	NWCB-90-E3	NWCB-90-E4	NWCB-90-E5
750	NWCB-90-F3	NWCB-90-F4	NWCB-90-F5
900	NWCB-90-G3	NWCB-90-G4	NWCB-90-G5

For Ordering Details Refer Pg 91-93

Welded Curved Bend 90°



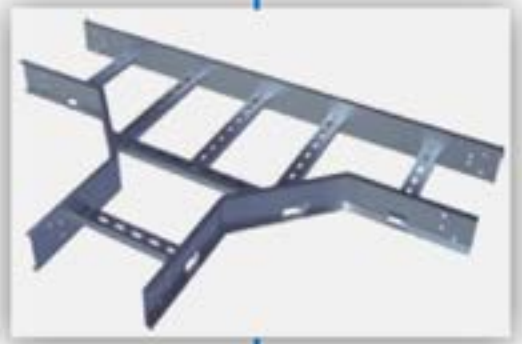
Welded Curved Bend 90°			
Thickness 2.00			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0	NEMA - CLASS - 12A 130 x 20 x 2.0	NEMA - CLASS - 12A 155 x 20 x 2.0
	Item Codes		
150	NWCU-90-A	NWCU-90-A1	NWCU-90-A2
225	NWCU-90-B	NWCU-90-B1	NWCU-90-B2
300	NWCU-90-C	NWCU-90-C1	NWCU-90-C2
450	NWCU-90-D	NWCU-90-D1	NWCU-90-D2
600	NWCU-90-E	NWCU-90-E1	NWCU-90-E2
750	NWCU-90-F	NWCU-90-F1	NWCU-90-F2
900	NWCU-90-G	NWCU-90-G1	NWCU-90-G2

Welded Curved Bend 90°			
Thickness 2.50			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50	NEMA - CLASS - 12A 130 x 20 x 2.50	NEMA - CLASS - 12A 155 x 20 x 2.50
	Item Codes		
150	NWCU-90-A3	NWCU-90-A4	NWCU-90-A5
225	NWCU-90-B3	NWCU-90-B4	NWCU-90-B5
300	NWCU-90-C3	NWCU-90-C4	NWCU-90-C5
450	NWCU-90-D3	NWCU-90-D4	NWCU-90-D5
600	NWCU-90-E3	NWCU-90-E4	NWCU-90-E5
750	NWCU-90-F3	NWCU-90-F4	NWCU-90-F5
900	NWCU-90-G3	NWCU-90-G4	NWCU-90-G5

For Ordering Details Refer Pg 91-93

Welded Cornered Tee Branch

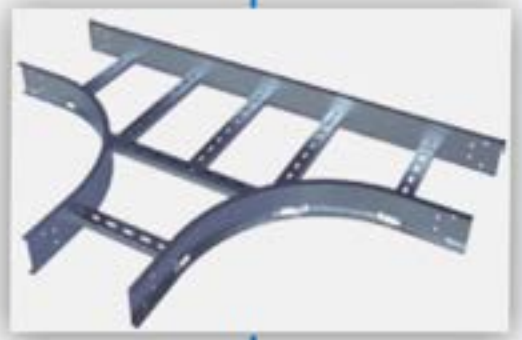
Welded Cornered Tee Branch			
Thickness 2.00			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0	NEMA - CLASS - 12A 130 x 20 x 2.0	NEMA - CLASS - 12A 155 x 20 x 2.0
	Item Codes		
150	NWCT-A	NWCT-A1	NWCT-A2
225	NWCT-B	NWCT-B1	NWCT-B2
300	NWCT-C	NWCT-C1	NWCT-C2
450	NWCT-D	NWCT-D1	NWCT-D2
600	NWCT-E	NWCT-E1	NWCT-E2
750	NWCT-F	NWCT-F1	NWCT-F2
900	NWCT-G	NWCT-G1	NWCT-G2



Welded Cornered Tee Branch			
Thickness 2.50			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50	NEMA - CLASS - 12A 130 x 20 x 2.50	NEMA - CLASS - 12A 155 x 20 x 2.50
	Item Codes		
150	NWCT-A3	NWCT-A4	NWCT-A5
225	NWCT-B3	NWCT-B4	NWCT-B5
300	NWCT-C3	NWCT-C4	NWCT-C5
450	NWCT-D3	NWCT-D4	NWCT-D5
600	NWCT-E3	NWCT-E4	NWCT-E5
750	NWCT-F3	NWCT-F4	NWCT-F5
900	NWCT-G3	NWCT-G4	NWCT-G5

For Ordering Details Refer Pg 91-93

Welded Curved Tee Branch



Welded Curved Tee Branch			
Thickness 2.00			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0	NEMA - CLASS - 12A 130 x 20 x 2.0	NEMA - CLASS - 12A 155 x 20 x 2.0
	Item Codes		
150	NWCUT-A	NWCUT-A1	NWCUT-A2
225	NWCUT-B	NWCUT-B1	NWCUT-B2
300	NWCUT-C	NWCUT-C1	NWCUT-C2
450	NWCUT-D	NWCUT-D1	NWCUT-D2
600	NWCUT-E	NWCUT-E1	NWCUT-E2
750	NWCUT-F	NWCUT-F1	NWCUT-F2
900	NWCUT-G	NWCUT-G1	NWCUT-G2

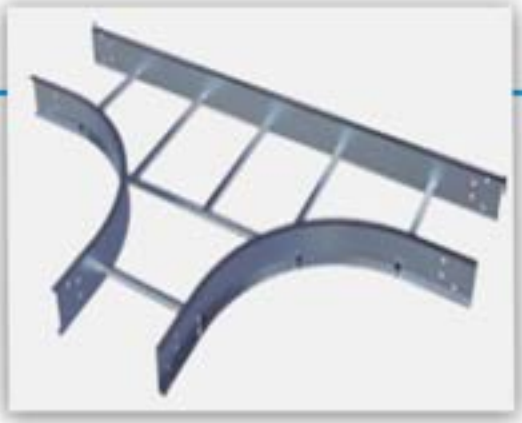
Welded Curved Tee Branch			
Thickness 2.50			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50	NEMA - CLASS - 12A 130 x 20 x 2.50	NEMA - CLASS - 12A 155 x 20 x 2.50
	Item Codes		
150	NWCUT-A3	NWCUT-A4	NWCUT-A5
225	NWCUT-B3	NWCUT-B4	NWCUT-B5
300	NWCUT-C3	NWCUT-C4	NWCUT-C5
450	NWCUT-D3	NWCUT-D4	NWCUT-D5
600	NWCUT-E3	NWCUT-E4	NWCUT-E5
750	NWCUT-F3	NWCUT-F4	NWCUT-F5
900	NWCUT-G3	NWCUT-G4	NWCUT-G5

For Ordering Details Refer Pg 91-93

Swaged Tubular Rung Tee Branch

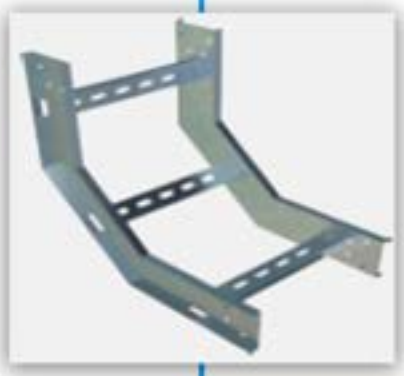
Swaged Tubular Rung Tee Branch						
Thickness 2.00						
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0		NEMA - CLASS - 12A 130 x 20 x 2.0		NEMA - CLASS - 12A 155 x 20 x 2.0	
	Aluminium	Steel	Aluminium	Steel	Aluminium	Steel
	Item Codes					
150	NTRAL-T-A	NTRS-T-A1	NTRAL-T-A2	NTRS-T-A2	NTRAL-T-A3	NTRS-T-A3
225	NTRAL-T-B	NTRS-T-B1	NTRAL-T-B2	NTRS-T-B2	NTRAL-T-B3	NTRS-T-B3
300	NTRAL-T-C	NTRS-T-C1	NTRAL-T-C2	NTRS-T-C2	NTRAL-T-C3	NTRS-T-C3
450	NTRAL-T-D	NTRS-T-D1	NTRAL-T-D2	NTRS-T-D2	NTRAL-T-D3	NTRS-T-D3
600	NTRAL-T-E	NTRS-T-E1	NTRAL-T-E2	NTRS-T-E2	NTRAL-T-E3	NTRS-T-E3
750	NTRAL-T-F	NTRS-T-F1	NTRAL-T-F2	NTRS-T-F2	NTRAL-T-F3	NTRS-T-F3
900	NTRAL-T-G	NTRS-T-G1	NTRAL-T-G2	NTRS-T-G2	NTRAL-T-G3	NTRS-T-G3

Swaged Tubular Rung Tee Branch						
Thickness 2.50						
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50		NEMA - CLASS - 12A 130 x 20 x 2.50		NEMA - CLASS - 12A 155 x 20 x 2.50	
	Aluminium	Steel	Aluminium	Steel	Aluminium	Steel
	Item Codes					
150	NTRAL-T-A4	NTRS-T-A4	NTRAL-T-A5	NTRS-T-A5	NTRAL-T-A6	NTRS-T-A6
225	NTRAL-T-B4	NTRS-T-B4	NTRAL-T-B5	NTRS-T-B5	NTRAL-T-B6	NTRS-T-B6
300	NTRAL-T-C4	NTRS-T-C4	NTRAL-T-C5	NTRS-T-C5	NTRAL-T-C6	NTRS-T-C6
450	NTRAL-T-D4	NTRS-T-D4	NTRAL-T-D5	NTRS-T-D5	NTRAL-T-D6	NTRS-T-D6
600	NTRAL-T-E4	NTRS-T-E4	NTRAL-T-E5	NTRS-T-E5	NTRAL-T-E6	NTRS-T-E6
750	NTRAL-T-F4	NTRS-T-F4	NTRAL-T-F5	NTRS-T-F5	NTRAL-T-F6	NTRS-T-F6
900	NTRAL-T-G4	NTRS-T-G4	NTRAL-T-G5	NTRS-T-G5	NTRAL-T-G6	NTRS-T-G6



For Ordering Details
Refer Pg 91-93

Inside Vertical Elbow (Inside Riser) - Welded Cornered

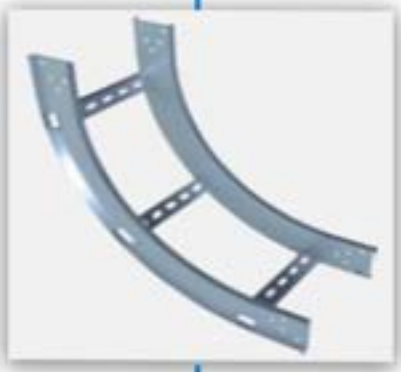


Inside Vertical Elbow (Inside Riser) - Welded Cornered			
Thickness 2.00			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0	NEMA - CLASS - 12A 130 x 20 x 2.0	NEMA - CLASS - 12A 155 x 20 x 2.0
	Item Codes		
150	NVIRWC-A	NVIRWC-A1	NVIRWC-A2
225	NVIRWC-B	NVIRWC-B1	NVIRWC-B2
300	NVIRWC-C	NVIRWC-C1	NVIRWC-C2
450	NVIRWC-D	NVIRWC-D1	NVIRWC-D2
600	NVIRWC-E	NVIRWC-E1	NVIRWC-E2
750	NVIRWC-F	NVIRWC-F1	NVIRWC-F2
900	NVIRWC-G	NVIRWC-G1	NVIRWC-G2

Inside Vertical Elbow (Inside Riser) - Welded Cornered			
Thickness 2.50			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50	NEMA - CLASS - 12A 130 x 20 x 2.50	NEMA - CLASS - 12A 155 x 20 x 2.50
	Item Codes		
150	NVIRWC-A3	NVIRWC-A4	NVIRWC-A5
225	NVIRWC-B3	NVIRWC-B4	NVIRWC-B5
300	NVIRWC-C3	NVIRWC-C4	NVIRWC-C5
450	NVIRWC-D3	NVIRWC-D4	NVIRWC-D5
600	NVIRWC-E3	NVIRWC-E4	NVIRWC-E5
750	NVIRWC-F3	NVIRWC-F4	NVIRWC-F5
900	NVIRWC-G3	NVIRWC-G4	NVIRWC-G5

For Ordering Details Refer Pg 91-93

Inside Vertical Elbow (Inside Riser) - Welded Curved



Inside Vertical Elbow (Inside Riser) - Welded Curved			
Thickness 2.00			
Width (mm)	105 x 20 x 2.0	130 x 20 x 2.0	155 x 20 x 2.0
	Item Codes		
150	NVIRCU-A	NVIRCU-A1	NVIRCU-A2
225	NVIRCU-B	NVIRCU-B1	NVIRCU-B2
300	NVIRCU-C	NVIRCU-C1	NVIRCU-C2
450	NVIRCU-D	NVIRCU-D1	NVIRCU-D2
600	NVIRCU-E	NVIRCU-E1	NVIRCU-E2
750	NVIRCU-F	NVIRCU-F1	NVIRCU-F2
900	NVIRCU-G	NVIRCU-G1	NVIRCU-G2

Inside Vertical Elbow (Inside Riser) - Welded Curved			
Thickness 2.50			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50	NEMA - CLASS - 12A 130 x 20 x 2.50	NEMA - CLASS - 12A 155 x 20 x 2.50
	Item Codes		
150	NVIRCU-A3	NVIRCU-A4	NVIRCU-A5
225	NVIRCU-B3	NVIRCU-B4	NVIRCU-B5
300	NVIRCU-C3	NVIRCU-C4	NVIRCU-C5
450	NVIRCU-D3	NVIRCU-D4	NVIRCU-D5
600	NVIRCU-E3	NVIRCU-E4	NVIRCU-E5
750	NVIRCU-F3	NVIRCU-F4	NVIRCU-F5
900	NVIRCU-G3	NVIRCU-G4	NVIRCU-G5

For Ordering Details Refer Pg 91-93

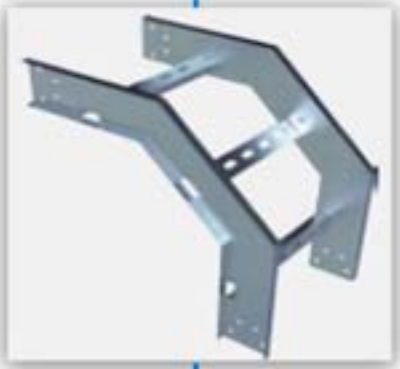
Swaged Tubular Rung (Inside Riser)

Swaged Tubular Rung (Inside Riser)						
Thickness 2.00						
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0		NEMA - CLASS - 12A 130 x 20 x 2.0		NEMA - CLASS - 12A 155 x 20 x 2.0	
	Aluminium	Steel	Aluminium	Steel	Aluminium	Steel
	Item Codes					
150	NTRAL-IR-A	NTRS-IR-A1	NTRAL-IR-A2	NTRS-IR-A2	NTRAL-IR-A3	NTRS-IR-A3
225	NTRAL-IR-B	NTRS-IR-B1	NTRAL-IR-B2	NTRS-IR-B2	NTRAL-IR-B3	NTRS-IR-B3
300	NTRAL-IR-C	NTRS-IR-C1	NTRAL-IR-C2	NTRS-IR-C2	NTRAL-IR-C3	NTRS-IR-C3
450	NTRAL-IR-D	NTRS-IR-D1	NTRAL-IR-D2	NTRS-IR-D2	NTRAL-IR-D3	NTRS-IR-D3
600	NTRAL-IR-E	NTRS-IR-E1	NTRAL-IR-E2	NTRS-IR-E2	NTRAL-IR-E3	NTRS-IR-E3
750	NTRAL-IR-F	NTRS-IR-F1	NTRAL-IR-F2	NTRS-IR-F2	NTRAL-IR-F3	NTRS-IR-F3
900	NTRAL-IR-G	NTRS-IR-G1	NTRAL-IR-G2	NTRS-IR-G2	NTRAL-IR-G3	NTRS-IR-G3

Swaged Tubular Rung (Inside Riser)						
Thickness 2.50						
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50		NEMA - CLASS - 12A 130 x 20 x 2.50		NEMA - CLASS - 12A 155 x 20 x 2.50	
	Aluminium	Steel	Aluminium	Steel	Aluminium	Steel
	Item Codes					
150	NTRAL-IR-A4	NTRS-IR-A4	NTRAL-IR-A5	NTRS-IR-A5	NTRAL-IR-A6	NTRS-IR-A6
225	NTRAL-IR-B4	NTRS-IR-B4	NTRAL-IR-B5	NTRS-IR-B5	NTRAL-IR-B6	NTRS-IR-B6
300	NTRAL-IR-C4	NTRS-IR-C4	NTRAL-IR-C5	NTRS-IR-C5	NTRAL-IR-C6	NTRS-IR-C6
450	NTRAL-IR-D4	NTRS-IR-D4	NTRAL-IR-D5	NTRS-IR-D5	NTRAL-IR-D6	NTRS-IR-D6
600	NTRAL-IR-E4	NTRS-IR-E4	NTRAL-IR-E5	NTRS-IR-E5	NTRAL-IR-E6	NTRS-IR-E6
750	NTRAL-IR-F4	NTRS-IR-F4	NTRAL-IR-F5	NTRS-IR-F5	NTRAL-IR-F6	NTRS-IR-F6
900	NTRAL-IR-G4	NTRS-IR-G4	NTRAL-IR-G5	NTRS-IR-G5	NTRAL-IR-G6	NTRS-IR-G6

For Ordering Details Refer Pg 91-93

Outside Vertical Elbow (Outside Riser) - Welded Cornered

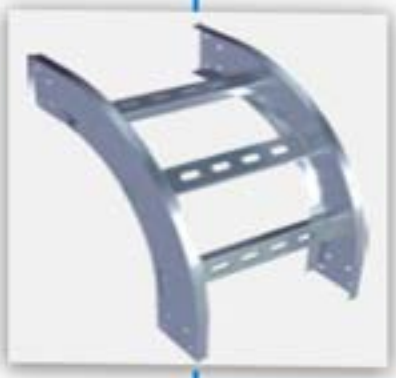


Outside Vertical Elbow (Outside Riser) - Welded Cornered			
Thickness 2.00			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0	NEMA - CLASS - 12A 130 x 20 x 2.0	NEMA - CLASS - 12A 155 x 20 x 2.0
	Item Codes		
150	NVORWC-A	NVORWC-A1	NVORWC-A2
225	NVORWC-B	NVORWC-B1	NVORWC-B2
300	NVORWC-C	NVORWC-C1	NVORWC-C2
450	NVORWC-D	NVORWC-D1	NVORWC-D2
600	NVORWC-E	NVORWC-E1	NVORWC-E2
750	NVORWC-F	NVORWC-F1	NVORWC-F2
900	NVORWC-G	NVORWC-G1	NVORWC-G2

Outside Vertical Elbow (Outside Riser) - Welded Cornered			
Thickness 2.00			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0	NEMA - CLASS - 12A 130 x 20 x 2.0	NEMA - CLASS - 12A 155 x 20 x 2.0
	Item Codes		
150	NVORWC-A	NVORWC-A1	NVORWC-A2
225	NVORWC-B	NVORWC-B1	NVORWC-B2
300	NVORWC-C	NVORWC-C1	NVORWC-C2
450	NVORWC-D	NVORWC-D1	NVORWC-D2
600	NVORWC-E	NVORWC-E1	NVORWC-E2
750	NVORWC-F	NVORWC-F1	NVORWC-F2
900	NVORWC-G	NVORWC-G1	NVORWC-G2

For Ordering Details Refer Pg 91-93

Outside Vertical Elbow (Outside Riser) - Welded Curved



Outside Vertical Elbow (Outside Riser) - Welded Curved			
Thickness 2.00			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0	NEMA - CLASS - 12A 130 x 20 x 2.0	NEMA - CLASS - 12A 155 x 20 x 2.0
	Item Codes		
150	NVORCU-A	NVORCU-A1	NVORCU-A2
225	NVORCU-B	NVORCU-B1	NVORCU-B2
300	NVORCU-C	NVORCU-C1	NVORCU-C2
450	NVORCU-D	NVORCU-D1	NVORCU-D2
600	NVORCU-E	NVORCU-E1	NVORCU-E2
750	NVORCU-F	NVORCU-F1	NVORCU-F2
900	NVORCU-G	NVORCU-G1	NVORCU-G2

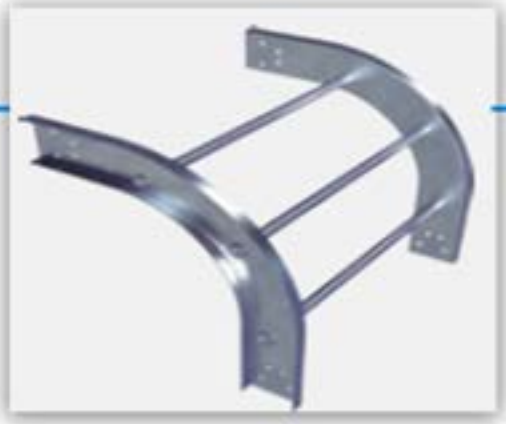
Outside Vertical Elbow (Outside Riser) - Welded Curved			
Thickness 2.00			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0	NEMA - CLASS - 12A 130 x 20 x 2.0	NEMA - CLASS - 12A 155 x 20 x 2.0
	Item Codes		
150	NVORCU-A	NVORCU-A1	NVORCU-A2
225	NVORCU-B	NVORCU-B1	NVORCU-B2
300	NVORCU-C	NVORCU-C1	NVORCU-C2
450	NVORCU-D	NVORCU-D1	NVORCU-D2
600	NVORCU-E	NVORCU-E1	NVORCU-E2
750	NVORCU-F	NVORCU-F1	NVORCU-F2
900	NVORCU-G	NVORCU-G1	NVORCU-G2

For Ordering Details Refer Pg 91-93

Swaged Tubular Rung (Outside Riser)

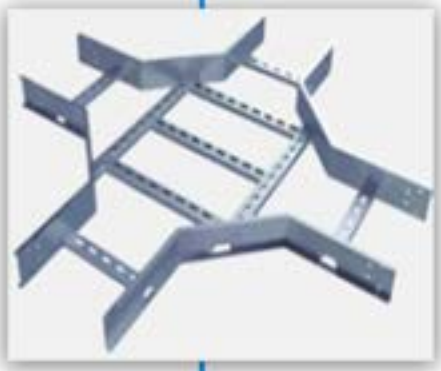
Swaged Tubular Rung (Outside Riser)						
Thickness 2.00						
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0		NEMA - CLASS - 12A 130 x 20 x 2.0		NEMA - CLASS - 12A 155 x 20 x 2.0	
	Aluminium	Steel	Aluminium	Steel	Aluminium	Steel
	Item Codes					
150	NTRAL-OR-A	NTRS-OR-A1	NTRAL-OR-A2	NTRS-OR-A2	NTRAL-OR-A3	NTRS-OR-A3
225	NTRAL-OR-B	NTRS-OR-B1	NTRAL-OR-B2	NTRS-OR-B2	NTRAL-OR-B3	NTRS-OR-B3
300	NTRAL-OR-C	NTRS-OR-C1	NTRAL-OR-C2	NTRS-OR-C2	NTRAL-OR-C3	NTRS-OR-C3
450	NTRAL-OR-D	NTRS-OR-D1	NTRAL-OR-D2	NTRS-OR-D2	NTRAL-OR-D3	NTRS-OR-D3
600	NTRAL-OR-E	NTRS-OR-E1	NTRAL-OR-E2	NTRS-OR-E2	NTRAL-OR-E3	NTRS-OR-E3
750	NTRAL-OR-F	NTRS-OR-F1	NTRAL-OR-F2	NTRS-OR-F2	NTRAL-OR-F3	NTRS-OR-F3
900	NTRAL-OR-G	NTRS-OR-G1	NTRAL-OR-G2	NTRS-OR-G2	NTRAL-OR-G3	NTRS-OR-G3

Swaged Tubular Rung (Outside Riser)						
Thickness 2.50						
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50		NEMA - CLASS - 12A 130 x 20 x 2.50		NEMA - CLASS - 12A 155 x 20 x 2.50	
	Aluminium	Steel	Aluminium	Steel	Aluminium	Steel
	Item Codes					
150	NTRAL-OR-A4	NTRS-OR-A4	NTRAL-OR-A5	NTRS-OR-A5	NTRAL-OR-A6	NTRS-OR-A6
225	NTRAL-OR-B4	NTRS-OR-B4	NTRAL-OR-B5	NTRS-OR-B5	NTRAL-OR-B6	NTRS-OR-B6
300	NTRAL-OR-C4	NTRS-OR-C4	NTRAL-OR-C5	NTRS-OR-C5	NTRAL-OR-C6	NTRS-OR-C6
450	NTRAL-OR-D4	NTRS-OR-D4	NTRAL-OR-D5	NTRS-OR-D5	NTRAL-OR-D6	NTRS-OR-D6
600	NTRAL-OR-E4	NTRS-OR-E4	NTRAL-OR-E5	NTRS-OR-E5	NTRAL-OR-E6	NTRS-OR-E6
750	NTRAL-OR-F4	NTRS-OR-F4	NTRAL-OR-F5	NTRS-OR-F5	NTRAL-OR-F6	NTRS-OR-F6
900	NTRAL-OR-G4	NTRS-OR-G4	NTRAL-OR-G5	NTRS-OR-G5	NTRAL-OR-G6	NTRS-OR-G6



For Ordering Details Refer Pg 91-93

Horizontal Cross (Intersection) - Welded Cornered



Horizontal Cross (Intersection) - Welded Cornered			
Thickness 2.00			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0	NEMA - CLASS - 12A 130 x 20 x 2.0	NEMA - CLASS - 12A 155 x 20 x 2.0
	Item Codes		
150	NHCWC-A	NHCWC-A1	NHCWC-A2
225	NHCWC-B	NHCWC-B1	NHCWC-B2
300	NHCWC-C	NHCWC-C1	NHCWC-C2
450	NHCWC-D	NHCWC-D1	NHCWC-D2
600	NHCWC-E	NHCWC-E1	NHCWC-E2
750	NHCWC-F	NHCWC-F1	NHCWC-F2
900	NHCWC-G	NHCWC-G1	NHCWC-G2

Horizontal Cross (Intersection) - Welded Cornered			
Thickness 2.50			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50	NEMA - CLASS - 12A 130 x 20 x 2.50	NEMA - CLASS - 12A 155 x 20 x 2.50
	Item Codes		
150	NHCWC-A3	NHCWC-A4	NHCWC-A5
225	NHCWC-B3	NHCWC-B4	NHCWC-B5
300	NHCWC-C3	NHCWC-C4	NHCWC-C5
450	NHCWC-D3	NHCWC-D4	NHCWC-D5
600	NHCWC-E3	NHCWC-E4	NHCWC-E5
750	NHCWC-F3	NHCWC-F4	NHCWC-F5
900	NHCWC-G3	NHCWC-G4	NHCWC-G5

For Ordering Details Refer Pg 91-93

Horizontal Cross (Intersection) - Welded Curved

Horizontal Cross (Intersection) - Welded Curved			
Thickness 2.00			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0	NEMA - CLASS - 12A 130 x 20 x 2.0	NEMA - CLASS - 12A 155 x 20 x 2.0
	Item Codes		
150	NHCCU-A	NHCCU-A1	NHCCU-A2
225	NHCCU-B	NHCCU-B1	NHCCU-B2
300	NHCCU-C	NHCCU-C1	NHCCU-C2
450	NHCCU-D	NHCCU-D1	NHCCU-D2
600	NHCCU-E	NHCCU-E1	NHCCU-E2
750	NHCCU-F	NHCCU-F1	NHCCU-F2
900	NHCCU-G	NHCCU-G1	NHCCU-G2

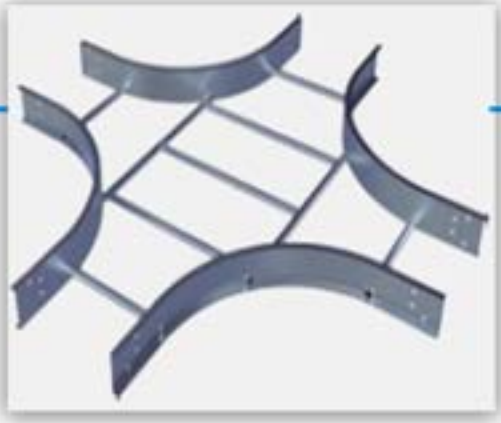
Horizontal Cross (Intersection) - Welded Curved			
Thickness 2.50			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50	NEMA - CLASS - 12A 130 x 20 x 2.50	NEMA - CLASS - 12A 155 x 20 x 2.50
	Item Codes		
150	NHCCU-A3	NHCCU-A4	NHCCU-A5
225	NHCCU-B3	NHCCU-B4	NHCCU-B5
300	NHCCU-C3	NHCCU-C4	NHCCU-C5
450	NHCCU-D3	NHCCU-D4	NHCCU-D5
600	NHCCU-E3	NHCCU-E4	NHCCU-E5
750	NHCCU-F3	NHCCU-F4	NHCCU-F5
900	NHCCU-G3	NHCCU-G4	NHCCU-G5

For Ordering Details Refer Pg 91-93

Swaged Tubular Rung Horizontal Cross (Intersection)

Swaged Tubular Rung Horizontal Cross (Intersection)						
Thickness 2.00						
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0		NEMA - CLASS - 12A 130 x 20 x 2.0		NEMA - CLASS - 12A 155 x 20 x 2.0	
	Aluminium	Steel	Aluminium	Steel	Aluminium	Steel
	Item Codes					
150	NTRAL-HC-A	NTRS-HC-A1	NTRAL-HC-A2	NTRS-HC-A2	NTRAL-HC-A3	NTRS-HC-A3
225	NTRAL-HC-B	NTRS-HC-B1	NTRAL-HC-B2	NTRS-HC-B2	NTRAL-HC-B3	NTRS-HC-B3
300	NTRAL-HC-C	NTRS-HC-C1	NTRAL-HC-C2	NTRS-HC-C2	NTRAL-HC-C3	NTRS-HC-C3
450	NTRAL-HC-D	NTRS-HC-D1	NTRAL-HC-D2	NTRS-HC-D2	NTRAL-HC-D3	NTRS-HC-D3
600	NTRAL-HC-E	NTRS-HC-E1	NTRAL-HC-E2	NTRS-HC-E2	NTRAL-HC-E3	NTRS-HC-E3
750	NTRAL-HC-F	NTRS-HC-F1	NTRAL-HC-F2	NTRS-HC-F2	NTRAL-HC-F3	NTRS-HC-F3
900	NTRAL-HC-G	NTRS-HC-G1	NTRAL-HC-G2	NTRS-HC-G2	NTRAL-HC-G3	NTRS-HC-G3

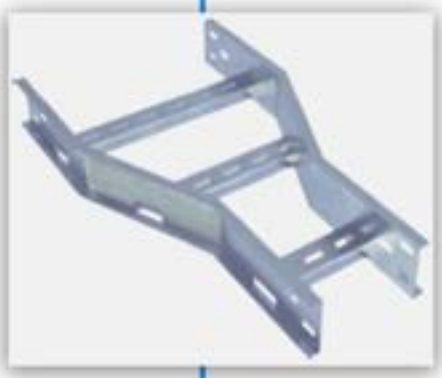
Swaged Tubular Rung Horizontal Cross (Intersection)						
Thickness 2.50						
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50		NEMA - CLASS - 12A 130 x 20 x 2.50		NEMA - CLASS - 12A 155 x 20 x 2.50	
	Aluminium	Steel	Aluminium	Steel	Aluminium	Steel
	Item Codes					
150	NTRAL-HC-A4	NTRS-HC-A4	NTRAL-HC-A5	NTRS-HC-A5	NTRAL-HC-A6	NTRS-HC-A6
225	NTRAL-HC-B4	NTRS-HC-B4	NTRAL-HC-B5	NTRS-HC-B5	NTRAL-HC-B6	NTRS-HC-B6
300	NTRAL-HC-C4	NTRS-HC-C4	NTRAL-HC-C5	NTRS-HC-C5	NTRAL-HC-C6	NTRS-HC-C6
450	NTRAL-HC-D4	NTRS-HC-D4	NTRAL-HC-D5	NTRS-HC-D5	NTRAL-HC-D6	NTRS-HC-D6
600	NTRAL-HC-E4	NTRS-HC-E4	NTRAL-HC-E5	NTRS-HC-E5	NTRAL-HC-E6	NTRS-HC-E6
750	NTRAL-HC-F4	NTRS-HC-F4	NTRAL-HC-F5	NTRS-HC-F5	NTRAL-HC-F6	NTRS-HC-F6
900	NTRAL-HC-G4	NTRS-HC-G4	NTRAL-HC-G5	NTRS-HC-G5	NTRAL-HC-G6	NTRS-HC-G6



For Ordering Details Refer Pg 91-93

Straight Central Reducer - Welded Cornered

Straight Central Reducer - Welded Cornered			
Thickness 2.00			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0	NEMA - CLASS - 12A 130 x 20 x 2.0	NEMA - CLASS - 12A 155 x 20 x 2.0
	Item Codes		
150	NCRWC-A	NCRWC-A1	NCRWC-A2
225	NCRWC-B	NCRWC-B1	NCRWC-B2
300	NCRWC-C	NCRWC-C1	NCRWC-C2
450	NCRWC-D	NCRWC-D1	NCRWC-D2
600	NCRWC-E	NCRWC-E1	NCRWC-E2
750	NCRWC-F	NCRWC-F1	NCRWC-F2
900	NCRWC-G	NCRWC-G1	NCRWC-G2



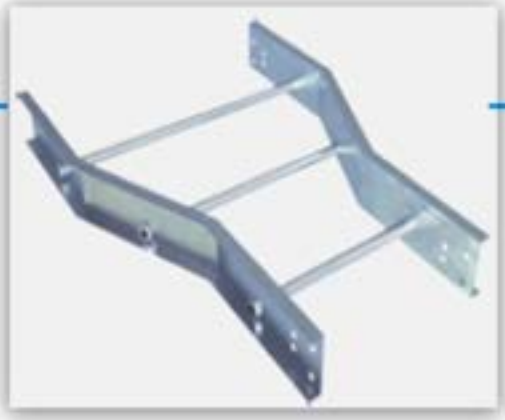
Straight Central Reducer - Welded Cornered			
Thickness 2.50			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50	NEMA - CLASS - 12A 130 x 20 x 2.50	NEMA - CLASS - 12A 155 x 20 x 2.50
	Item Codes		
150	NCRWC-A3	NCRWC-A4	NCRWC-A5
225	NCRWC-B3	NCRWC-B4	NCRWC-B5
300	NCRWC-C3	NCRWC-C4	NCRWC-C5
450	NCRWC-D3	NCRWC-D4	NCRWC-D5
600	NCRWC-E3	NCRWC-E4	NCRWC-E5
750	NCRWC-F3	NCRWC-F4	NCRWC-F5
900	NCRWC-G3	NCRWC-G4	NCRWC-G5

For Ordering Details Refer Pg 91-93

Swaged Tubular Rung - Straight Central Reducer

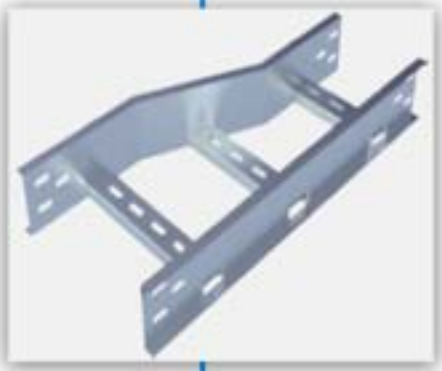
Swaged Tubular Rung - Straight Central Reducer						
Thickness 2.00						
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0		NEMA - CLASS - 12A 130 x 20 x 2.0		NEMA - CLASS - 12A 155 x 20 x 2.0	
	Aluminium	Steel	Aluminium	Steel	Aluminium	Steel
	Item Codes					
150	NTRAL-CR-A	NTRS-CR-A1	NTRAL-CR-A2	NTRS-CR-A2	NTRAL-CR-A3	NTRS-CR-A3
225	NTRAL-CR-B	NTRS-CR-B1	NTRAL-CR-B2	NTRS-CR-B2	NTRAL-CR-B3	NTRS-CR-B3
300	NTRAL-CR-C	NTRS-CR-C1	NTRAL-CR-C2	NTRS-CR-C2	NTRAL-CR-C3	NTRS-CR-C3
450	NTRAL-CR-D	NTRS-CR-D1	NTRAL-CR-D2	NTRS-CR-D2	NTRAL-CR-D3	NTRS-CR-D3
600	NTRAL-CR-E	NTRS-CR-E1	NTRAL-CR-E2	NTRS-CR-E2	NTRAL-CR-E3	NTRS-CR-E3
750	NTRAL-CR-F	NTRS-CR-F1	NTRAL-CR-F2	NTRS-CR-F2	NTRAL-CR-F3	NTRS-CR-F3
900	NTRAL-CR-G	NTRS-CR-G1	NTRAL-CR-G2	NTRS-CR-G2	NTRAL-CR-G3	NTRS-CR-G3

Swaged Tubular Rung - Straight Central Reducer						
Thickness 2.50						
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50		NEMA - CLASS - 12A 130 x 20 x 2.50		NEMA - CLASS - 12A 155 x 20 x 2.50	
	Aluminium	Steel	Aluminium	Steel	Aluminium	Steel
	Item Codes					
150	NTRAL-CR-A4	NTRS-CR-A4	NTRAL-CR-A5	NTRS-CR-A5	NTRAL-CR-A6	NTRS-CR-A6
225	NTRAL-CR-B4	NTRS-CR-B4	NTRAL-CR-B5	NTRS-CR-B5	NTRAL-CR-B6	NTRS-CR-B6
300	NTRAL-CR-C4	NTRS-CR-C4	NTRAL-CR-C5	NTRS-CR-C5	NTRAL-CR-C6	NTRS-CR-C6
450	NTRAL-CR-D4	NTRS-CR-D4	NTRAL-CR-D5	NTRS-CR-D5	NTRAL-CR-D6	NTRS-CR-D6
600	NTRAL-CR-E4	NTRS-CR-E4	NTRAL-CR-E5	NTRS-CR-E5	NTRAL-CR-E6	NTRS-CR-E6
750	NTRAL-CR-F4	NTRS-CR-F4	NTRAL-CR-F5	NTRS-CR-F5	NTRAL-CR-F6	NTRS-CR-F6
900	NTRAL-CR-G4	NTRS-CR-G4	NTRAL-CR-G5	NTRS-CR-G5	NTRAL-CR-G6	NTRS-CR-G6



For Ordering Details Refer Pg 91-93

Right Hand Reducer - Welded Cornered



Right Hand Reducer - Welded Cornered			
Thickness 2.00			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0	NEMA - CLASS - 12A 130 x 20 x 2.0	NEMA - CLASS - 12A 155 x 20 x 2.0
	Item Codes		
150	NRHRWC-A	NRHRWC-A1	NRHRWC-A2
225	NRHRWC-B	NRHRWC-B1	NRHRWC-B2
300	NRHRWC-C	NRHRWC-C1	NRHRWC-C2
450	NRHRWC-D	NRHRWC-D1	NRHRWC-D2
600	NRHRWC-E	NRHRWC-E1	NRHRWC-E2
750	NRHRWC-F	NRHRWC-F1	NRHRWC-F2
900	NRHRWC-G	NRHRWC-G1	NRHRWC-G2

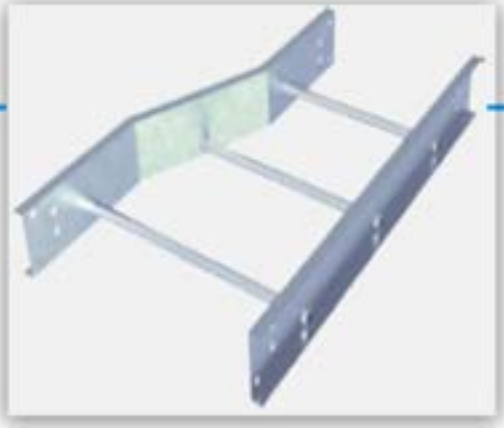
Right Hand Reducer - Welded Cornered			
Thickness 2.50			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50	NEMA - CLASS - 12A 130 x 20 x 2.50	NEMA - CLASS - 12A 155 x 20 x 2.50
	Item Codes		
150	NRHRWC-A3	NRHRWC-A4	NRHRWC-A5
225	NRHRWC-B3	NRHRWC-B4	NRHRWC-B5
300	NRHRWC-C3	NRHRWC-C4	NRHRWC-C5
450	NRHRWC-D3	NRHRWC-D4	NRHRWC-D5
600	NRHRWC-E3	NRHRWC-E4	NRHRWC-E5
750	NRHRWC-F3	NRHRWC-F4	NRHRWC-F5
900	NRHRWC-G3	NRHRWC-G4	NRHRWC-G5

For Ordering Details Refer Pg 91-93

Swaged Tubular Rung - Right Hand Reducer

Swaged Tubular Rung - Right Hand Reducer						
Thickness 2.00						
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0		NEMA - CLASS - 12A 130 x 20 x 2.0		NEMA - CLASS - 12A 155 x 20 x 2.0	
	Aluminium	Steel	Aluminium	Steel	Aluminium	Steel
	Item Codes					
150	NTRAL-RHR-A	NTRS-RHR-A1	NTRAL-RHR-A2	NTRS-RHR-A2	NTRAL-RHR-A3	NTRS-RHR-A3
225	NTRAL-RHR-B	NTRS-RHR-B1	NTRAL-RHR-B2	NTRS-RHR-B2	NTRAL-RHR-B3	NTRS-RHR-B3
300	NTRAL-RHR-C	NTRS-RHR-C1	NTRAL-RHR-C2	NTRS-RHR-C2	NTRAL-RHR-C3	NTRS-RHR-C3
450	NTRAL-RHR-D	NTRS-RHR-D1	NTRAL-RHR-D2	NTRS-RHR-D2	NTRAL-RHR-D3	NTRS-RHR-D3
600	NTRAL-RHR-E	NTRS-RHR-E1	NTRAL-RHR-E2	NTRS-RHR-E2	NTRAL-RHR-E3	NTRS-RHR-E3
750	NTRAL-RHR-F	NTRS-RHR-F1	NTRAL-RHR-F2	NTRS-RHR-F2	NTRAL-RHR-F3	NTRS-RHR-F3
900	NTRAL-RHR-G	NTRS-RHR-G1	NTRAL-RHR-G2	NTRS-RHR-G2	NTRAL-RHR-G3	NTRS-RHR-G3

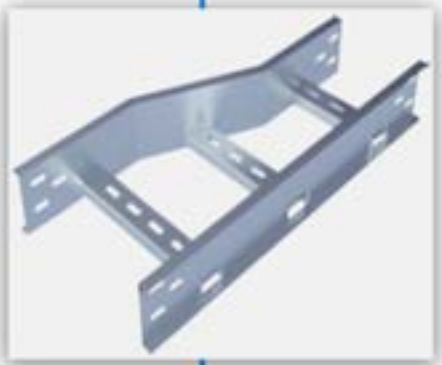
Swaged Tubular Rung - Right Hand Reducer						
Thickness 2.50						
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50		NEMA - CLASS - 12A 130 x 20 x 2.50		NEMA - CLASS - 12A 155 x 20 x 2.50	
	Aluminium	Steel	Aluminium	Steel	Aluminium	Steel
	Item Codes					
150	NTRAL-RHR-A4	NTRS-RHR-A4	NTRAL-RHR-A5	NTRS-RHR-A5	NTRAL-RHR-A6	NTRS-RHR-A6
225	NTRAL-RHR-B4	NTRS-RHR-B4	NTRAL-RHR-B5	NTRS-RHR-B5	NTRAL-RHR-B6	NTRS-RHR-B6
300	NTRAL-RHR-C4	NTRS-RHR-C4	NTRAL-RHR-C5	NTRS-RHR-C5	NTRAL-RHR-C6	NTRS-RHR-C6
450	NTRAL-RHR-D4	NTRS-RHR-D4	NTRAL-RHR-D5	NTRS-RHR-D5	NTRAL-RHR-D6	NTRS-RHR-D6
600	NTRAL-RHR-E4	NTRS-RHR-E4	NTRAL-RHR-E5	NTRS-RHR-E5	NTRAL-RHR-E6	NTRS-RHR-E6
750	NTRAL-RHR-F4	NTRS-RHR-F4	NTRAL-RHR-F5	NTRS-RHR-F5	NTRAL-RHR-F6	NTRS-RHR-F6
900	NTRAL-RHR-G4	NTRS-RHR-G4	NTRAL-RHR-G5	NTRS-RHR-G5	NTRAL-RHR-G6	NTRS-RHR-G6



For Ordering Details Refer Pg 91-93

Left Hand Reducer - Welded Cornered

Left Hand Reducer - Welded Cornered			
Thickness 2.00			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0	NEMA - CLASS - 12A 130 x 20 x 2.0	NEMA - CLASS - 12A 155 x 20 x 2.0
	Item Codes		
150	NLHRWC-A	NLHRWC-A1	NLHRWC-A2
225	NLHRWC-B	NLHRWC-B1	NLHRWC-B2
300	NLHRWC-C	NLHRWC-C1	NLHRWC-C2
450	NLHRWC-D	NLHRWC-D1	NLHRWC-D2
600	NLHRWC-E	NLHRWC-E1	NLHRWC-E2
750	NLHRWC-F	NLHRWC-F1	NLHRWC-F2
900	NLHRWC-G	NLHRWC-G1	NLHRWC-G2



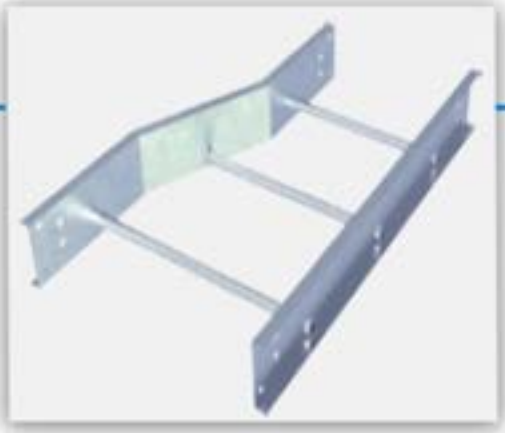
Left Hand Reducer - Welded Cornered			
Thickness 2.50			
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50	NEMA - CLASS - 12A 130 x 20 x 2.50	NEMA - CLASS - 12A 155 x 20 x 2.50
	Item Codes		
150	NLHRWC-A3	NLHRWC-A4	NLHRWC-A5
225	NLHRWC-B3	NLHRWC-B4	NLHRWC-B5
300	NLHRWC-C3	NLHRWC-C4	NLHRWC-C5
450	NLHRWC-D3	NLHRWC-D4	NLHRWC-D5
600	NLHRWC-E3	NLHRWC-E4	NLHRWC-E5
750	NLHRWC-F3	NLHRWC-F4	NLHRWC-F5
900	NLHRWC-G3	NLHRWC-G4	NLHRWC-G5

For Ordering Details Refer Pg 91-93

Swaged Tubular Rung - Left Hand Reducer

Swaged Tubular Rung - Left Hand Reducer						
Thickness 2.00						
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.0		NEMA - CLASS - 12A 130 x 20 x 2.0		NEMA - CLASS - 12A 155 x 20 x 2.0	
	Aluminium	Steel	Aluminium	Steel	Aluminium	Steel
	Item Codes					
150	NTRAL-LHR-A	NTRS-LHR-A1	NTRAL-LHR-A2	NTRS-LHR-A2	NTRAL-LHR-A3	NTRS-LHR-A3
225	NTRAL-LHR-B	NTRS-LHR-B1	NTRAL-LHR-B2	NTRS-LHR-B2	NTRAL-LHR-B3	NTRS-LHR-B3
300	NTRAL-LHR-C	NTRS-LHR-C1	NTRAL-LHR-C2	NTRS-LHR-C2	NTRAL-LHR-C3	NTRS-LHR-C3
450	NTRAL-LHR-D	NTRS-LHR-D1	NTRAL-LHR-D2	NTRS-LHR-D2	NTRAL-LHR-D3	NTRS-LHR-D3
600	NTRAL-LHR-E	NTRS-LHR-E1	NTRAL-LHR-E2	NTRS-LHR-E2	NTRAL-LHR-E3	NTRS-LHR-E3
750	NTRAL-LHR-F	NTRS-LHR-F1	NTRAL-LHR-F2	NTRS-LHR-F2	NTRAL-LHR-F3	NTRS-LHR-F3
900	NTRAL-LHR-G	NTRS-LHR-G1	NTRAL-LHR-G2	NTRS-LHR-G2	NTRAL-LHR-G3	NTRS-LHR-G3

Swaged Tubular Rung - Left Hand Reducer						
Thickness 2.50						
Width (mm)	NEMA - CLASS - 12A 105 x 20 x 2.50		NEMA - CLASS - 12A 130 x 20 x 2.50		NEMA - CLASS - 12A 155 x 20 x 2.50	
	Aluminium	Steel	Aluminium	Steel	Aluminium	Steel
	Item Codes					
150	NTRAL-LHR-A4	NTRS-LHR-A4	NTRAL-LHR-A5	NTRS-LHR-A5	NTRAL-LHR-A6	NTRS-LHR-A6
225	NTRAL-LHR-B4	NTRS-LHR-B4	NTRAL-LHR-B5	NTRS-LHR-B5	NTRAL-LHR-B6	NTRS-LHR-B6
300	NTRAL-LHR-C4	NTRS-LHR-C4	NTRAL-LHR-C5	NTRS-LHR-C5	NTRAL-LHR-C6	NTRS-LHR-C6
450	NTRAL-LHR-D4	NTRS-LHR-D4	NTRAL-LHR-D5	NTRS-LHR-D5	NTRAL-LHR-D6	NTRS-LHR-D6
600	NTRAL-LHR-E4	NTRS-LHR-E4	NTRAL-LHR-E5	NTRS-LHR-E5	NTRAL-LHR-E6	NTRS-LHR-E6
750	NTRAL-LHR-F4	NTRS-LHR-F4	NTRAL-LHR-F5	NTRS-LHR-F5	NTRAL-LHR-F6	NTRS-LHR-F6
900	NTRAL-LHR-G4	NTRS-LHR-G4	NTRAL-LHR-G5	NTRS-LHR-G5	NTRAL-LHR-G6	NTRS-LHR-G6



For Ordering Details Refer Pg 91-93

CABLE LADDER ACCESSORIES

Nipras Steel Factory For Cable Support Systems

مصنع نبراس المعادن لأنظمة حوامل الأسلاك

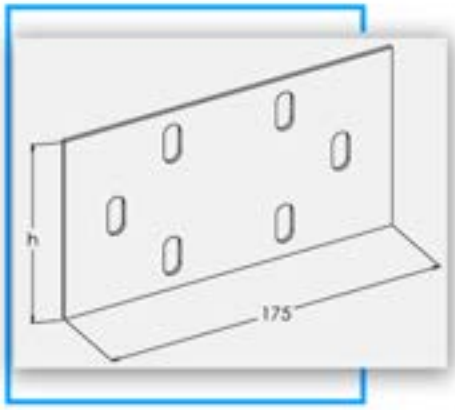
مصنع نبراس المعادن
NIPRAS STEEL FACTORY

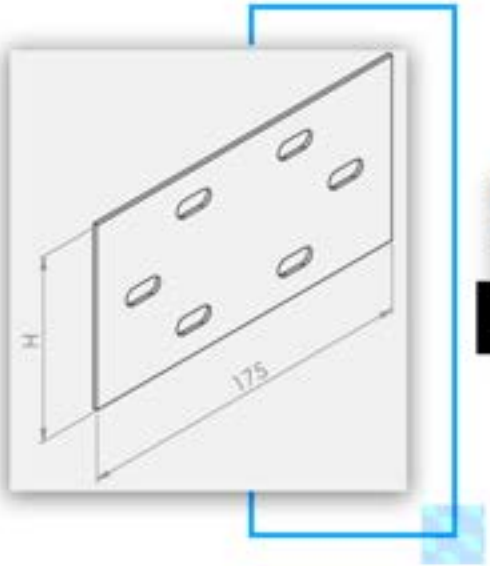
NMG NIPRAS METAL GROUP

رؤية VISION 2030
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

CONNECTORS

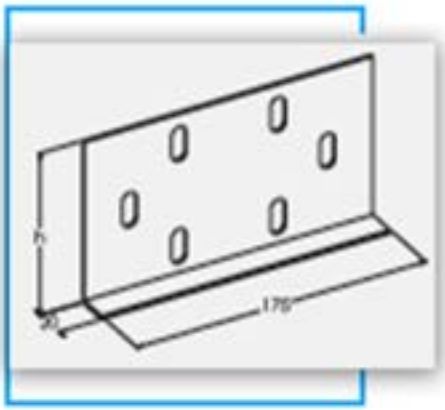
Straight Connector

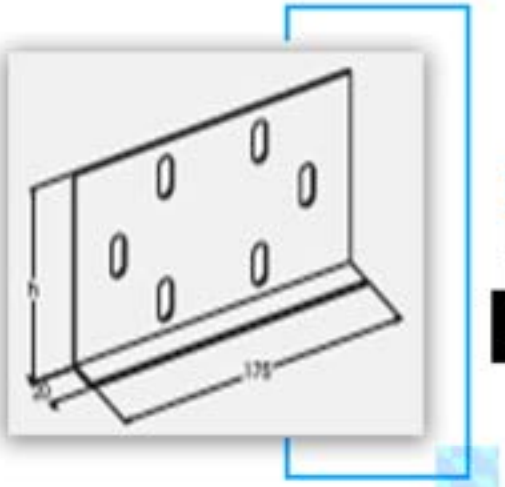




Straight Connector		
Item	Height (h)	Thickness (t)
1000	50	2
1000-A	100	2

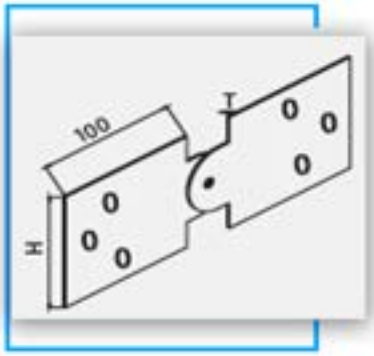
Angle Connector

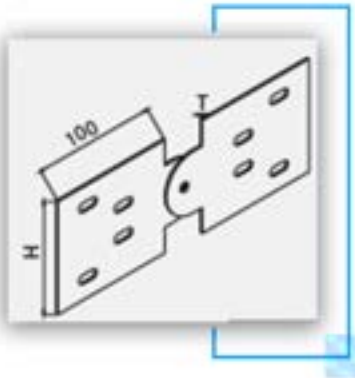




Angle Connector		
Item	Height (h)	Thickness (t)
1010	50	2
1010-A	100	2

Adjustable Vertical Connector



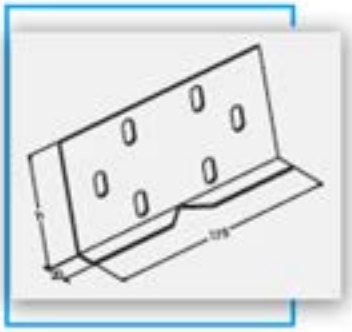


Adjustale Vertical Connector		
Item	Height (h)	Thickness (t)
1030	50	2
1030-A	100	2

For Ordering Details
Refer Pg 91-93

CONNECTORS

Adjustable Horizontal Connector



Adjustale Vertical Connector		
Item	Height (h)	Thickness (t)
1030	50	2
1030-A	100	2

Barrier Strip

For Cable Trays

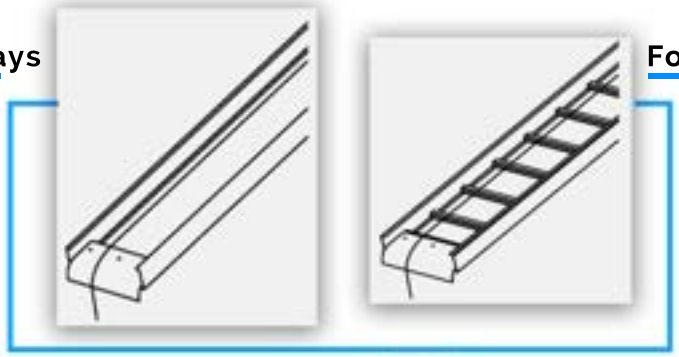
Available Lengths: 2440 / 3000 mm

For Cable ladders

Available Lengths: 2440 / 3000 mm

Drop-out plate

For Cable Trays

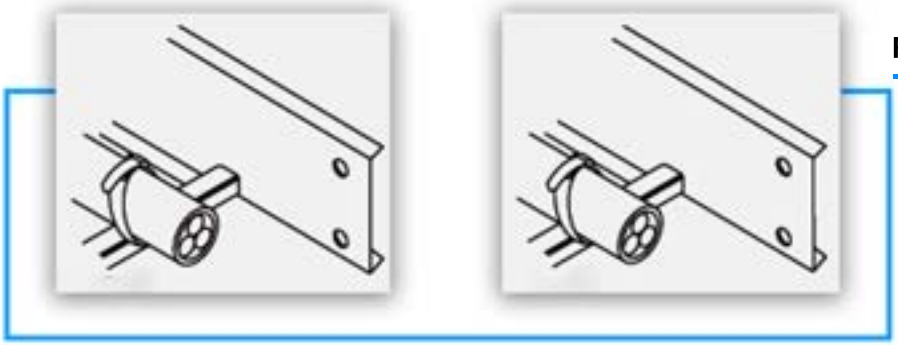


For Cable Ladders

For Ordering Details Refer Pg 91-93

Cable Tie

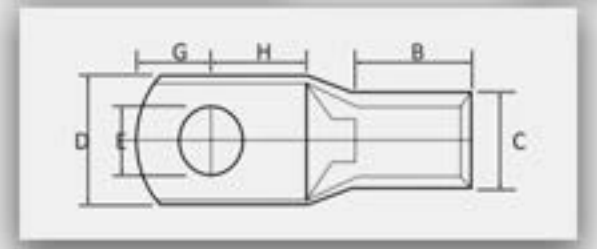
For Cable Trays

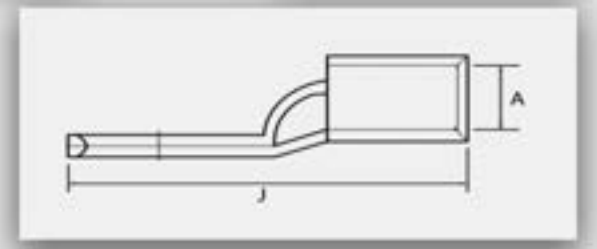


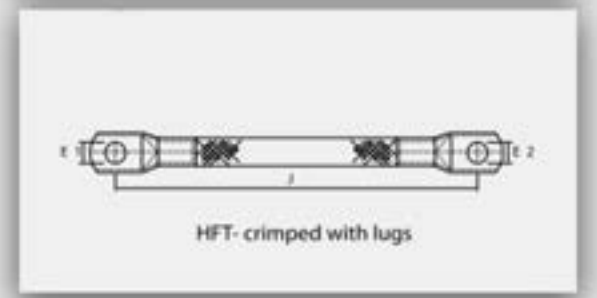
For Cable Ladders

CRIMPING TYPE COPPER

TINNED COPPER FLEXIBLE BRAIDS







HFT- crimped with lugs

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

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

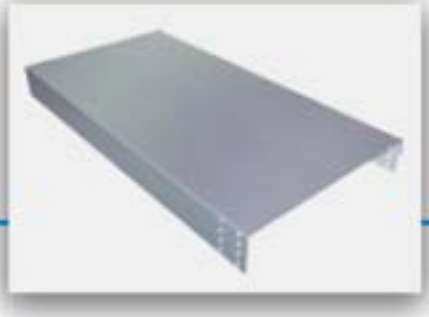
CABLE LADDER COVER

Functions

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

- Protection from falling objects or debris, as may occur beneath personnel walkways.
- Shielding from ultra-violet 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

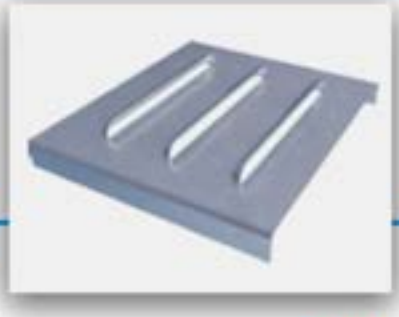
SOLID COVER



Covers Side Height Types :

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

VENTILATED COVER

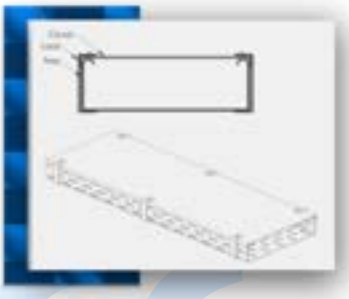


- Cable Ladder covers are supplied with or without a 15 mm downturned flange.
- Straight section covers are furnished 3000 mm long. All fitting covers are furnished in solid design only

CABLE LADDER COVER WITH LOCKING CLAMP

Covers Side Height Types:

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



Locking Clamp
Thickness: 2mm

Locking Clamp		
Side Height 3300		
Item code	Height (h)	Thickness (t)
NLC-1	50	2
NLC-2	75	2
NLC-3	100	2

Spring Down Clamp
Thickness: 2mm

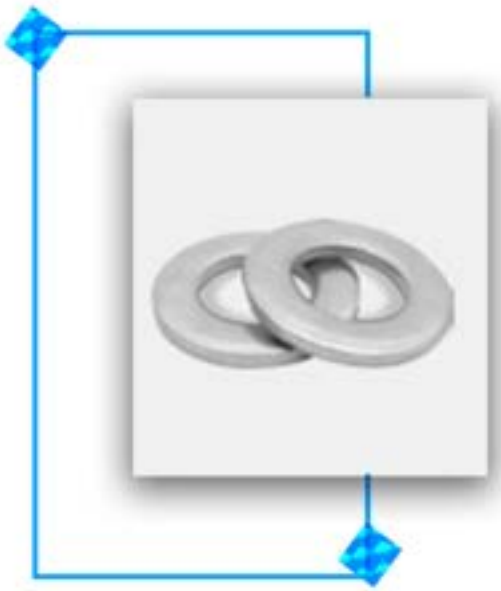
Spring Down Clamp		
Side Height 3301		
Item code	Height (h)	Thickness (t)
NSC-1	50	2
NSC-2	75	2
NSC-3	100	2

FRAMING SYSTEMS – ASTM F436

Washers (SRW) | DIN 125 | ASTM F436

Washers (NRW) | DIN 125/ ASTM F436 Zinc Plated / Stainless Steel				
Nominal Diameter - Zinc Plated	Nominal Diameter - Stainless Steel	D1	D	S
M6	M6	6.4	12	1.6
M8	M8	8.4	16	1.6
M10	M10	10.5	21	2
M12	M12	13	24	2.5
M16	M16	17	30	3
M18	M18	19	34	3.2
M20	M20	20.5	39	3.6

Item Code - NRW-M6-125



ROUND WASHERS DIN 440, DIN 9021

Washers (SRW) | DIN 440 | DIN 9021

Round Washers (NRW) | DIN 440/9021 Zinc Plated/ Stainless Steel					
DIN	Nominal Diameter - Zinc Plated	Nominal Diameter - Stainless Steel	D1	D	S
440	M6		6.4	22	2
9021	M8	M8	8.4	24	2
9021	M10	M10	10.5	30	2.5
440	M12		13.5	45	4
9021	M12	M12	13	37	3
9021	M16	M16	17	50	3

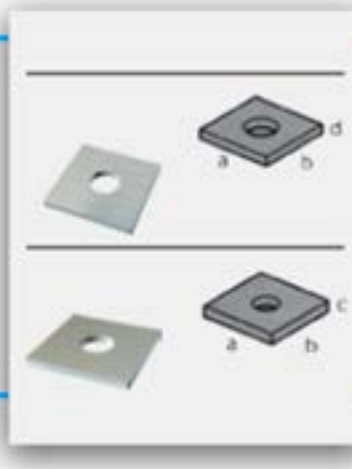
Item Code - NRW-M6-9021

SQUARE WASHERS SSW

Square Washers (SSW)

Square Washers - NSQW		
HD galvanized Bolt	Stainless Steel Bolt	axbxd - (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)

Item Code - NSQW-M12-41/41



THREADED ROD (STR) - DIN 975 - ASTM A36

Fully Threaded Rods Grade 4.6 DIN 975 ASTM A 36, A193		
Threaded Rod (NTR) - DIN 975 - ASTM A36		
Zinc Plated Thread	Length - (mm)	Load Cap - (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

Item Code - NTR-M12-2000

ROUND HEAD (SRH) | DIN 7985

Round Head Machine Screws		
Round Head (NRH) | DIN 7985		
Zinc Plated Thread	Length - (mm)	D - (mm)
M6	30-40	6.0
M8	30-40	8.0
M10	20-60	10.0

Item Code - NRH-M6-7985

COUPLER SLEEVES ROUNDED

Coupler Sleeves (SCS)

Coupler Sleeves Rounded				
Coupler Sleeves (NCS)				
Electroplated Thread	Stainless Steel Thread	D - (mm)	L - (mm)	Load Capacity (kn)
M6	M6	10/10	15	2.2
M8	M8	12/14	20	4.0
M10	M10	13/16	25	6.4
M12	M12	16/20	30	9.3
M16	M16	21/25	40	17.3
M20	M20	26/32	50	27.0

Item Code - NCS-M6-SS

FRAMING SYSTEMS

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)

Roofing Bolts				
Roofing Bolts (NRB)				
Thread Size	M4 x - y - (mm)	M5 x - y - (mm)	M6 x - y - (mm)	M8 x - y - (mm)
Lenth	10-50	10-80	12-120	16-150

Item Code - NRB-M6

CARRIAGE BOLTS WITH NUT BELOW HEAD DIN 603

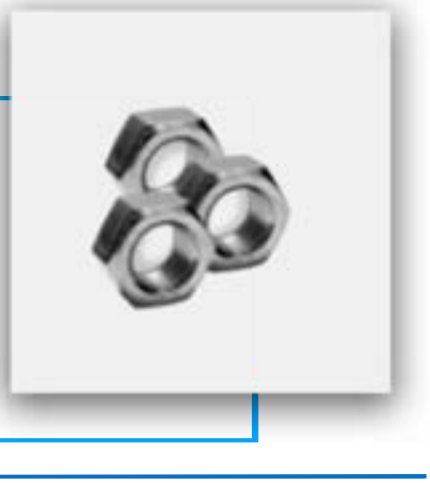
Carriage Bolts (STC)

Carriage Bolts with Nut Below Head DIN 603					
Carriage Bolts (NCB)					
Zinc Plated	H.D. Galvanized Grade 4.6	Head - A - (mm)	Head - H - (mm)	Sq Width (mm)	Sq Depth (mm)
M5	M5	12	3	5	3.2
M6	M6	15.1	3.7	6.4	4
M8	M8	18.3	4.5	8.23	4.75
M10	M10	21.44	5.3	9.86	5.56
M16	M16	34.14	8.74	16.3	8.74

Item Code - NCB-M6-HD

HEXAGON NUTS DIN 934, DIN EN 24032, ASTM A 563

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



Hexagon Nuts DIN 934, DIN EN 24032, ASTM A 563				
Hexagon nut (NHN) | DIN 934 or ISO 4032 (= DIN EN 24032) | ASTM A563				
Zinc Plated	Stainless Steel Thread	S/m Din - (mm)	S/m ISO - (mm)	E - (mm)
M6	M6	10/5	10/6	11.5
M8	M8	13/6.5	13/7.5	15
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
M20	M20	30/18	29/20.5	27

Item Code - NHN-M6-SS

HEXAGONAL ROD COUPLER GRADE 8.8 ASTM A 563

Hexagonal Rod Coupler with view hole (SHR)

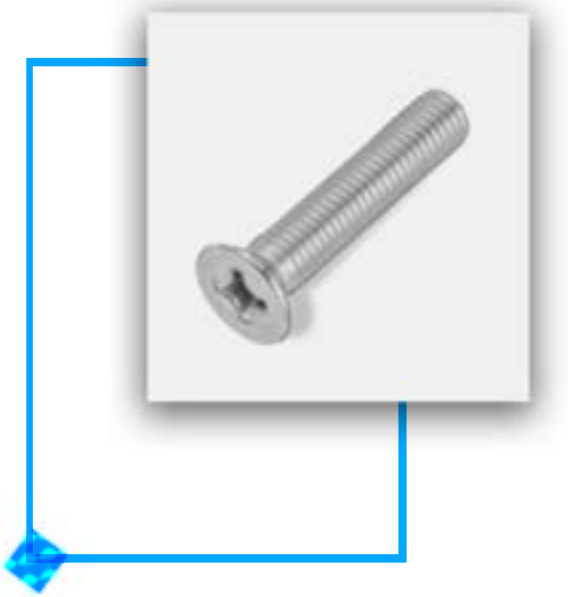
Hexagonal Rod Coupler Grade 8.8 ASTM a 563				
Hexagonal Rod Coupler with view hole (NHR)				
Electroplated Thread	Stainless Steel Thread	D - (mm)	L - (mm)	Load Capacity (kn)
M10	M10	13	40	6.4
M12	M12	17	40	9.3
M16	M16	22	50	17.3
M18	M18	23	60	22
M20	M20	25	70	27

Item Code - NHR-M10-SS

DIN 933, DIN 24017, ASTM A307, A449

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

DIN 933, DIN 24017, ASTM A307, A449			
Hex Head Bolt (NHB) / DIN 933 or EN 24017 ASTM A307, A449 (without nut)			
Zinc Plated	Stainless Steel	S DIN - (mm)	S EN - (mm)
M 6 x 12		10	10
M 6 x 25			
M 8 x 25	M 8 x 25	13	13
M 8 x 40			
M 10 x 20		17	16
M 10 x 30	M 10 x 30		
M 10 x 45	M 10 x 45		
M 10 x 60			
M 10 x 70			
M 12 x 22		19	18
M 12 x 25	M 12 x 25		
M 12 x 30	M 12 x 30		
M 12 x 40	M 12 x 40		
M 12 x 50			
M 12 x 60	M 12 x 60		
M 12 x 80	M 12 x 80		
M 12 x 90			
M 16 x 40	M 16 x 40	24	24
M 16 x 60	M 16 x 60		
M 16 x 90	M 16 x 90		
M 18 x 40	M 18 x 40	27	26
M 18 x 50	M 18 x 50		
M 18 x 60	M 18 x 60		
M 18 x 80	M 18 x 80		
M 20 x 40	M 20 x 40	32	32
M 20 x 50	M 20 x 50		
M 20 x 60	M 20 x 60		
M 20 x 80	M 20 x 80		



CABLE LADDER SUPPORT SYSTEM

Nipras Steel Factory For Cable Support Systems

مصنع نبراس المعادن لأنظمة حوامل الكابلات

مصنع نبراس المعادن
NIPRAS STEEL FACTORY

NIPRAS METAL GROUP

رؤية VISION 2030
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

CABLE TRAY SUPPORT SYSTEM

C - Channel

N S F metal framing C - 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 attachmnents at any point.

Lengths

Standard length: 300mm with + 3.2mm length tolerance.Custom lengths are available upon request

Finishes

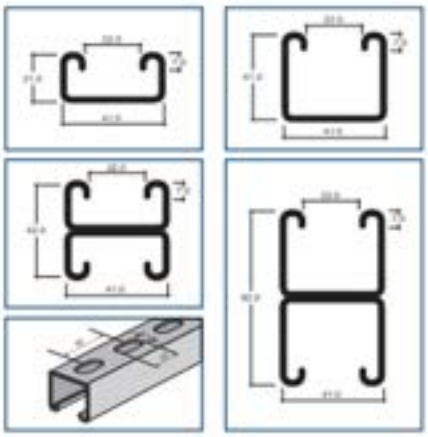
Standard Finishes : Pre-Galvanized finish (ASTM A653M coating G90 and G60). Hot Dip Galvanized after fabrication (ASTM A123 or BS EN ISO 1461:2009). Other custom coatings are available upon request

METAL FRAMING C - CHANNELS

Selection Chart

Part No.	Channel Dimensions		Thickness
	Heigth "H"	idth "W"	
C-Channel - 220/221	21.0 mm	41.0 mm	1.5 mm
C-Channel - 240/241	41.0 mm	41.0 mm	1.5 mm
C-Channel - 320/321	21.0 mm	41.0 mm	2.0 mm
C-Channel - 340/341	41.0 mm	41.0 mm	2.0 mm
C-Channel - 420/421	21.0 mm	41.0 mm	2.5 mm
C-Channel - 440/441	41.0 mm	41.0 mm	2.5 mm

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



C - CHANNEL HOLE PATTERNS

PT Plain Type

ST Slotted Type

B2B Type

Toothed C-Channel type

PT Type Channel

Part No.	Thick. mm.	Heigth "H"
C-Channel - 220	1.5	21.0
C-Channel - 240	1.5	41.0
C-Channel - 320	2.0	21.0
C-Channel - 340	2.0	41.0
C-Channel - 420	2.5	21.0
C-Channel - 440	2.5	41.0

ST Type Channel

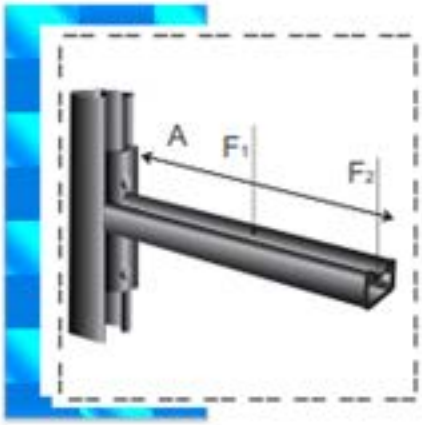
Part No.	Thick. mm.	Heigth "H"
C-Channel - 221	1.5	21.0
C-Channel - 241	1.5	41.0
C-Channel - 321	2.0	21.0
C-Channel - 341	2.0	41.0
C-Channel - 421	2.5	21.0
C-Channel - 441	2.5	41.0

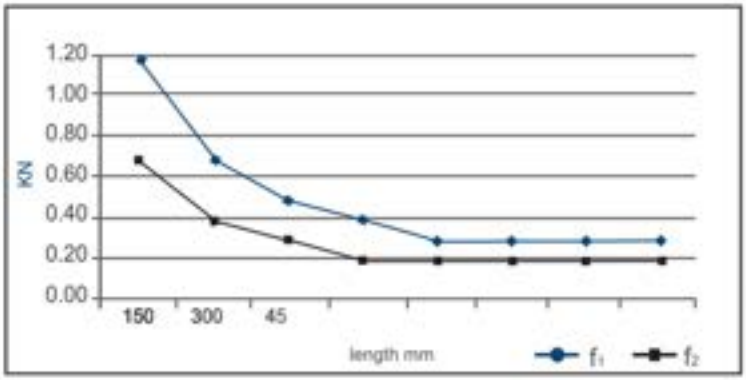
B2B Type Channel

Part No.	Thick. mm.	Heigth "H"
C-Channel - 222	1.5	42.0
C-Channel - 242	1.5	82.0
C-Channel - 322	2.0	42.0
C-Channel - 342	2.0	82.0
C-Channel - 422	2.5	42.0
C-Channel - 442	2.5	82.0

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

CANTILEVER ARM BRACKETS - SCA





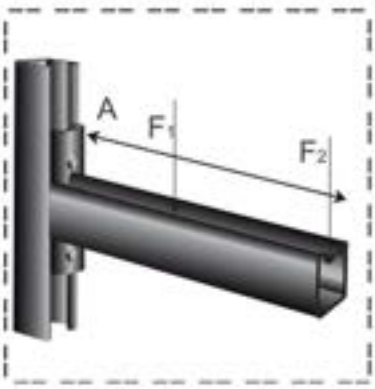
Length	Allowable Load		
A (mm)	F 1*	F 2*	F 3*
150	1.10	0.60	3.10
300	0.60	0.30	3.10
450	0.40	0.20	3.10
600	0.30	0.10	3.10
700	0.20	0.10	3.10
800	0.20	0.10	3.10
900	0.20	0.10	3.10
1000	0.20	0.10	3.10

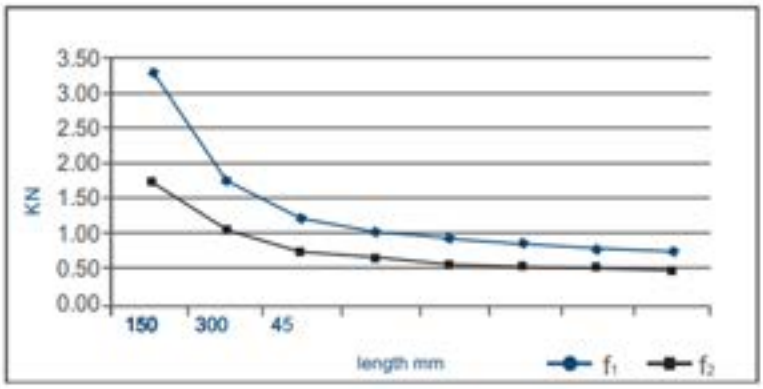
Base plate : height (h) x width (b) x thickness (t)
120 50 8

- In the case of concrete support, use anchor M10.
- In the case of C-Channel frame, use bolt and spring nut M8.

** Connection force (pull out force) : 3.1 (KN).

CCH 441 41x21x2.5



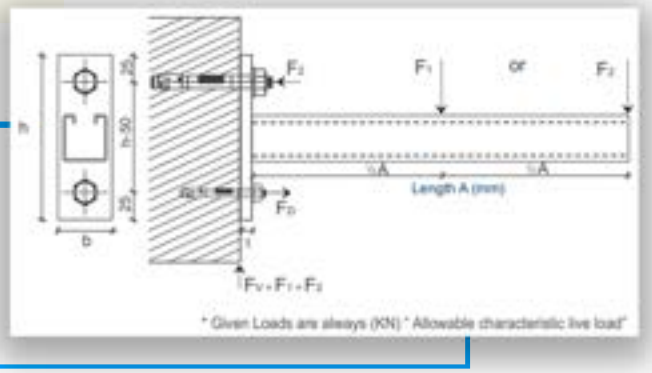


Length	Allowable Load		
A (mm)	F 1*	F 2*	F 3*
150	3.10	1.50	7.50
300	1.50	0.80	7.50
450	1.00	0.50	7.50
600	0.80	0.40	7.50
700	0.70	0.30	7.50
800	0.60	0.30	7.50
900	0.50	0.30	7.50
1000	0.50	0.20	7.50

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

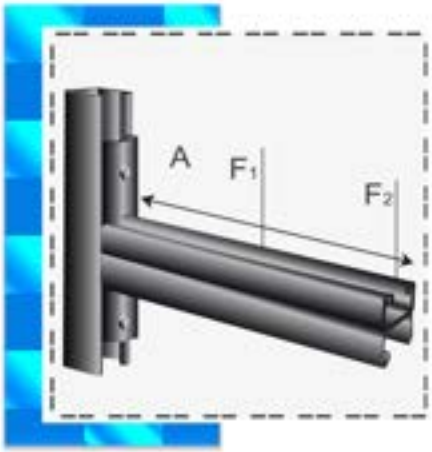
- In the case of concrete support, use anchor M16.
- In the case of C-Channel frame, use bolt and spring M8.

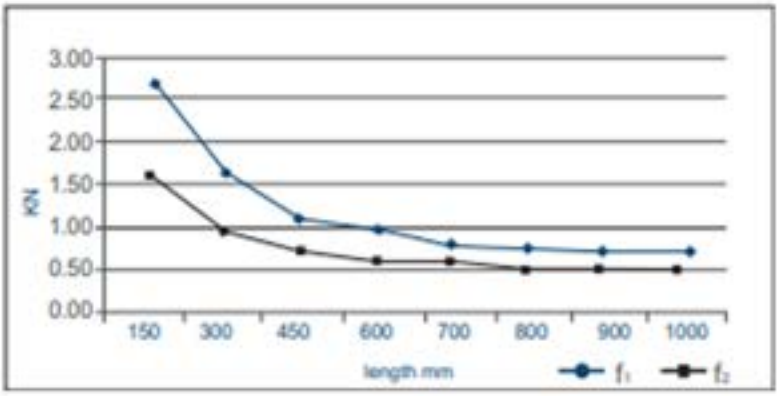
** Connection force (pull out force) : 7.5 (KN).



CANTILEVER ARM BRACKETS B2B-SCA

CCH421 41x21x2.5 B2B





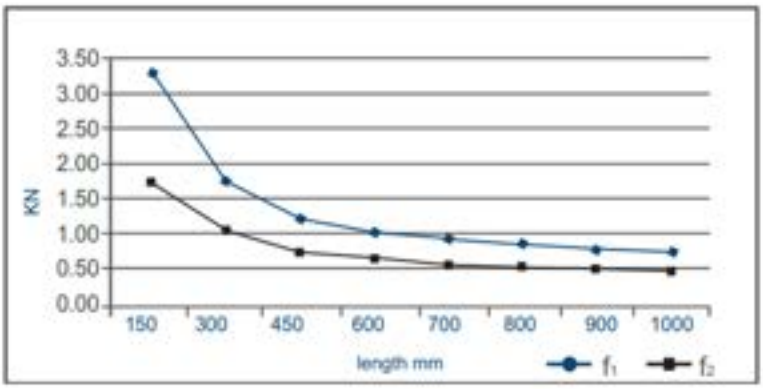
Length	Allowable Load		
A (mm)	F 1*	F 2*	F 3**
150	2.50	1.30	4.80
300	1.30	0.60	4.80
450	0.80	0.40	4.80
600	0.60	0.30	4.80
700	0.50	0.30	4.80
800	0.50	0.20	4.80
900	0.40	0.20	4.80
1000	0.40	0.20	4.80

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

-In the case of concrete support, use anchor M12.
-In the case of C-Channel frame, use bolt and spring nut M8.

**Connection force (pull out force) : 4.6(KN).

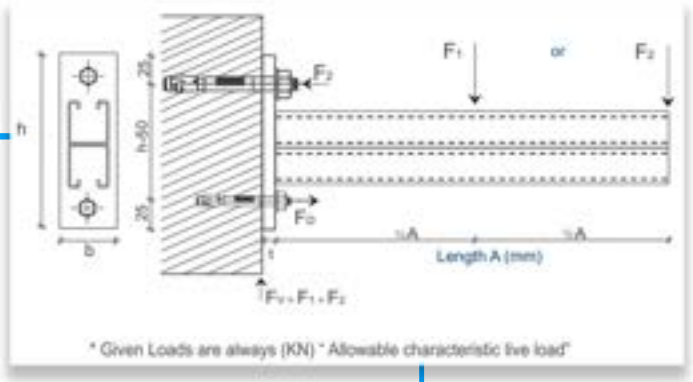
CCH421 41x41x2.5 B2B



Length	Allowable Load		
A (mm)	F 1*	F 2*	F 3**
150	7.00	3.50	8.30
300	3.50	1.80	8.30
450	2.30	1.20	8.30
600	1.80	0.90	8.30
700	1.50	0.80	8.30
800	1.30	0.70	8.30
900	1.20	0.60	8.30
1000	1.10	0.50	8.30

Base Plate: height(h) x width(b) x thickness(t)
180 60 12

-In the case of concrete support, use anchor M16.
-In the case of C-Channel frame, use bolt and spring nut M10.
**Connection force (pull out force) : 8.3(KN).



ORDER CODES

FOR CABLE LADDERS (ALUMINIUM) - ORDER BY CODE
ALUMINIUM LADDER - Swaged Tubular Rung - AL
NEMA Class A (52 kg/m by 3,0m) & 8A (95 kg/m by 2.40m)
Side Rail : A 1
Height : 110 mm
For
Rung - Spacing : 229 mm

ITEM CODE	SIDE RAIL	WIDTH	SUPPORT DIST	LOAD	DEFLECTION		RUNG DETAILS
	NEMA - CLASS - 12A	(mm)	(m)	kn/m	RUNG (mm)	RAIL (mm)	
NCL-A1-00	110 x 20 x 2.0	150	2.40	1.35	0.02	7.96	Tubular Rung : 25 x 1. 5 mm
			3.00	0.66	0.01	9.95	
			3.70	0.32	0.00	12.22	
			4.90	0.10	0.00	16.10	

Code Description								
Item number/code	Width	Side Height	Thickness	Side / Flange type	Length	Rung	Material	Finish
NCL-A1-00	150	20	2.00	Z/C/R	2.40	TR-25x1.5	HD	PC
Nipras Cable Ladder - Aluminium							See Material codes table	

Code Category								
Item number/code	Width	Side Height	Thickness	Side / Flange type	Length	Rung	Material	Finish
NCL-A1-00			2.00	Z	A	TR-25x1.5	HD	PC
			Z-Type Flanges for side rail				See Material codes table	

Example Order Code
NCL-A1-00-2.00-Z-A-TR-25x1.5HD

ORDER CODES

FOR CABLE LADDERS (STEEL) - ORDER BY CODE
STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2
NEMA Class 12 A (74 kg/m by 3.70m)
Side Rail : S1
Height : 105 mm
Load Depth : 75 mm
Rung - Spacing : 229 mm

ITEM CODE	SIDE RAIL	WIDTH	SUPPORT DIST	LOAD	DEFLECTION		RUNG DETAILS
	NEMA - CLASS - 12A	(mm)	(m)	kn/m	RUNG (mm)	RAIL (mm)	
NSL-S1A	105 x 20 x 2.0	150	2.40	2.72	0.01	6.32	Tubular Rung : 25 x 1. 5 mm
			3.00	1.74	0.01	9.99	
			3.70	0.89	0.00	12.22	
			4.90	0.35	0.00	16.33	

Code Description								
Item number/code	Width	Side Height	Thickness	Side / Flange type	Length	Rung	Material	Finish
NSL-S1A	105	20	2.00	Z/C/R	3.00	TR-25x1.5	HD	PC
Nipras Steel ladder							See Material codes table	

Code Category								
Item number/code	Width	Side Height	Thickness	Side / Flange type	Length	Rung	Material	Finish
NSL-S1A			2.00	C	B	TR-25x1.5	HD	PC
			C-Type Flanges for side rail				See Material codes table	

Example Order Code
NSL-S1A-2.00-C-B-TR-25x1.5HD

ORDER CODES

FOR C-CHANNEL CABLE LADDERS (STEEL) - ORDER BY CODE
STEEL LADDER - Swaged Tubular Rung - STEEL S235 JRG2
NEMA Class 12 A (74 kg/m by 3.70m)
Side Rail : C1
Height : 105 mm
Load Depth : 75 mm
Rung - Spacing : 229 mm

ITEM CODE	SIDE RAIL NEMA - CLASS - 12A	WIDTH (mm)	SUPPORT DIST (m)	LOAD kn/m	DEFLECTION RUNG (mm)	DEFLECTION RAIL (mm)	RUNG DETAILS
NCCL-C1A	105 x 20 x 2.0	150	2.40	2.69	0.01	6.33	C-Ch - Rung : 41 x 21 x 1.5 mm
			3.00	1.70	0.01	9.96	
			3.70	0.86	0.00	12.28	
			4.90	1.31	0.00	16.13	

Code Description								
Item number/code	Width	Side Height	Thickness	Side / Flange type	Length	Rung	Material	Finish
NCCL-C1A	105	20	2.00	Z/C/R	3.00	41 x 21 x 1.5 mm	HD	PC
Nipras C Channel Ladder							See Material codes table	

Code Category								
Item number/code	Width	Side Height	Thickness	Side / Flange type	Length	Rung	Material	Finish
NCCL-C1A			2.00	R	B	41 x 21 x 1.5 mm	HD	PC
			C-Type Flanges for side rail				See Material codes table	

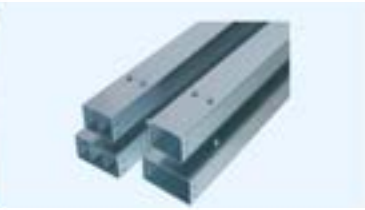
Example Order Code
NCCL-C1A-2.00-R-B-TR-41x21x1.5HD

RANGE OF PRODUCTS

CABLE MANAGEMENT SYSTEM

NIPRAS having a wide range of products for Cable Management system, Architectural Engineering Solutions, Building Material and more that are characterized in below categories to support the best interest for our customers.

Cable tray & Accessories

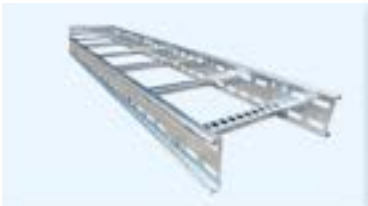


Cable trunk & accessories

Base plate

EMT-Conduits

Control panel boxes



Cable ladder & accessories

Wire basket tray & accessories

Electrical boxes

HFT – Crimped Terminal Lugs

C-Channel

ARCHITECTURAL ENGINEERING SOLUTION

Roof Access Hatch

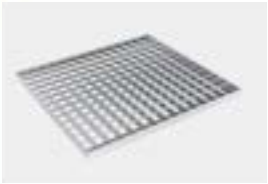
Handrail

Garbage & Linen Chute

Access Raised Floor

Lockers

Ladders



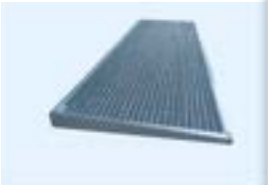
Gratings (Steel / Galvanized)

Steel Bollards

Fence

Toilet Partitions

Metal Gates

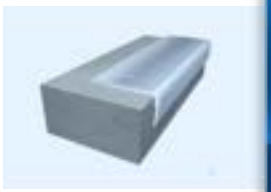


Entrance Mats

Expansion Joint System

Tile & Carpet Trim

Impact Protection



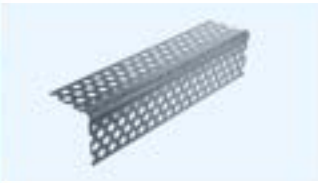
Staor Nosing

BLOCK WORK AND PLASTERING ACCESSORIES

Block Reinforcement

Steel Lintel

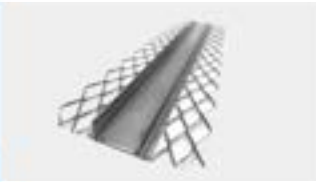
Adjustable head restraint



Angle Bead

Plaster Stop Bead

Control Joint



Architrave Bead

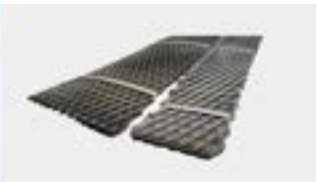
Movement Bead

Depth Guage Bead

Corrugated Strip & Angle

Corner Mesh

Metal Sheet Lath



Strip Mesh

Coil Lath

Expanded Metal Rib Lath

HY - Rib Lath

CONCRETE FORM WORK ACCESSORIES

Plywood

Tie Rods & Accessories

Timber

PVC Pipes

PVC Cones

PVC Chamfer

Rapid clamp

Shutter clamp

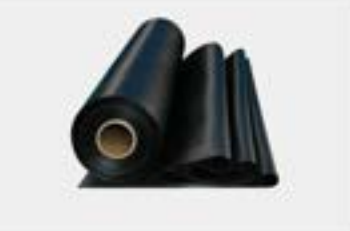
Concrete Spacer

Plastic Spacer

Steel Wire Mesh

Binding wire

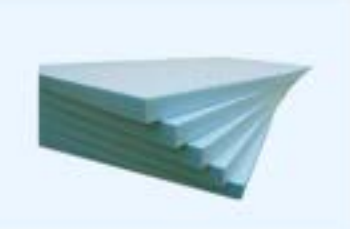
WATER PROOFING & THERMAL INSULATION



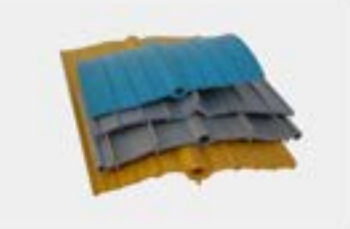
Bitumen Membrane

Rock Walls

Geotextile



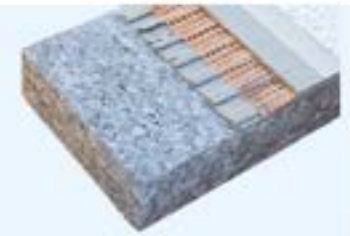
Extruded Polysterene



PVC Waterstop

Protection Board

Liquid Membrane



Expanded Polysterene

Foam Backing Rods

Polyethelene Sheet

Cork Sheet

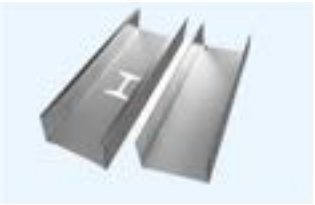
Flashing Aluminium

GYPSUM PARTITIONS & SUSPENDED CEILING

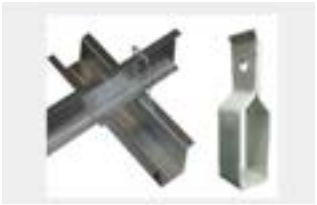
Gypsum Board

Cement Board

Access Panel

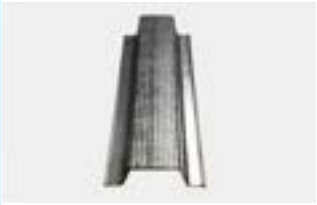


Studs & Runner



Ceiling Furing Channel & Channel Bracket

Perimeter & Dry Wall Angle



Furing Channel

Adjustable Rod Hanger

C- Bracket

Joint Mesh

Wire Connecting Clip

Gypsum Putty

Dry Wall & Self Drilling Screws

PIPE CLAMP, HANGERS & FIXING LETRING

Pipe Clamp With Rubber

Long Nut Pipe Clamp

Channel Clamp

U Clamp

Pipe Clamp (SNAP)

Beam Clamp

Conduit Clamp (Omega)

Clevis Pipe Hanger

Adjustable Band Hanger

Drop In Anchor

Anchor J Bolt

Steel U-Bolt

CLADDING ACCESSORIES

Z-Bracket With Returned Leg Horizontal Joint

Returned Leg Bracket

Up & Down Bracket

L- Bracket

Unistrut Support System & ETC

Anchor Bolt

Through Bolt

Sleeve Anchor Flange Nut

Hex Bolt With Nut Washer & Spring Nut

QUALITY POLICY

NSF is fully committed to a quality policy which ensures delivery of its products and services "defect free on time". NSF provides quality management, co-ordination, production and processing, manufacture, and installation services throughout KSA and sometimes outside KSA. Since the establishment, NSF is primarily engaged in providing Architectural Engineering solutions in the market and aims to achieve a high standard of production and trading services.

- **NSF possess the policy to:**
- Manufacture and supply products which fully confirm to the customer's requirements, relating to quality, reliability, and delivery.
- Use the company's considerable experience and knowledge in the production of standard products to assist customers in the cost-effective design and development of both existing and new products.
- Ensure that suppliers of raw materials, goods and services confirm to all requirements and are of a consistently high quality, to enable the company to achieve its commitments to all customers.
- Recognize that the responsibility for quality lies with all employees of the company and hence to stimulate and encourage interest and pride in their work.
- Hold frequent Quality Management System review meetings to enable continual review of the suitability of the Quality poricy and all aspects of the Quality Management System.

These requirements of Quality Policies are compared to the requirements of ISO 9001 :2015-Quality Policy. NSF strives to eliminate.

VISION رؤية 2030
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

NMG NIPRAS METAL GROUP

NMTE

NSF

NMC

Nipras Steel Factory For Cable Support System
مصنع نبراس المعادن لأنظمة حوامل الكابلات

مصنع نبراس المعادن
NIPRAS STEEL FACTORY