NBI-CABLE TRAYS

At Novablue Industries, Cable Trays and its corresponding accessories are manufactured in standard lengths of 3mtrs. (2.44 mtrs. is optional) in accordance with BS 61537:02 for laying of cables. BSEN ISO 1461:1999 for Hot Dip Galvanized finish (formerly BS 729) and BS EN 10.327:2004 (BS 2989) for Pre-Galvanized finish are the standards followed for the corresponding finishes. We also manufacture Aluminum and Stainless Steel Cable Trays of Grades 304 and 316 (L). The above mentioned products can be produced in various finishes such as Powder Coated and Epoxy Coated.

Light Duty Cable Trays are used for installation of weightless cables such as Networking, Data Cabling, Fiber Optic Cabling and other areas of similar applications. Medium Duty Cable Trays are used for commercial applications. Heavy Duty Cable Trays are used for industrial as well as commercial purposes.

NBI-CABLE LADDERS

Novablue Cable Ladders and its corresponding accessories are manufactured in standard lengths of 3mtrs. (2.44 mtrs. is optional) as per BSEN 61537:2002 and followed by Hot Dip Galvanizing in accordance to BSEN ISO 1461:1999 (formerly BS 729).
We also manufacture Aluminum and Stainless Steel Cable Ladders of Grades 304 and 316 (L). The above mentioned product is produced in various finishes such as Powder Coated and Epoxy Coated.

Novablue Cable Ladders are used for various industrial purposes where heavy cabling needs to be supported such as factories, power plants, off shore plants, various parts of oil and gas industry and many more.

NBI-CABLE TRUNKINGS

Novablue Cable Trunkings and its corresponding accessories are manufactured in standard lengths of 3mtrs. (2.44 mtrs. is optional) with covers in accordance with BS 4678: Part 1: 1971. These covers can be provided in Knob Type as well as Screw Type depending on application. Trunkings are manufactured as per BS EN 10143:1999 (BS 2989) & BSEN 10327: 2004.

We also manufacture Aluminum and Stainless Steel Cable Trunkings of Grades 304 and 316 (L). The above mentioned products can be produced in various finishes such as Powder Coated and Epoxy Coated.

Novablue Trunkings are specifically designed for Light and Medium Duty cabling. This form of containment system can hold light weight cables such as fiber optic, networking and other forms of similar cabling. We also provide two and three compartment solutions for the same with corresponding accessories. These accessories are produced on our hi-tech CNC machines (without any welding) and are supplied with integrated couplers.

NBI-WIRE BASKETS

Wire Baskets are produced from high mechanical strength steel wires of up to 6mm diameter. These Wire Baskets are used extensively for data cables and low voltage installations, and have become increasingly popular with installers thanks to its ease of use, flexibility and lightweight structure. They are appropriate for sensitive cables such as control cables, optical cables, telecommunication cables etc. Low cost, light in weight, easy for line check and cleaning, easy maintenance, fast heat dispersion, flexible and fast installation and the strength to withstand short circuits are some the features of Wire Baskets.

NBI-SUPPORT SYSTEMS

Novablue Industries produces various kinds of Support Systems in accordance with BS 6946:1988. The application of such Support Systems is mainly focused towards carrying the load of the entire range of Novablue Cable Management Systems i.e. Cable Trays, Wire Baskets, Cable Ladders and Cable Trunkings with the least time and cost effective methods of installation.

The complete range of Uni-Strut Channels, Cantilever Arms, Base Posts etc. are made in Hot Dip Galvanized finishes in accordance to BSEN ISO 1461: 1999, Pre-Galvanized in accordance to BSEN 10147 and Stainless Steel as per BSEN 10088-2 1995. These supports can also be provided in various finishes such as Powder Coated and Epoxy Coated.

FORMS OF CORROSION RESISTANCE

Pre-Galvanized

Mill galvanized steel (steel that does not require galvanizing post fabrication) is a cost effective method when it comes to corrosion protection.

Defense Mechanism against corrosion

RUSTING, another name for corrosion, in simple words can be defined as oxidation of steel i.e. interaction of steel with oxygen that leads to its decaying. Hot Dip Galvanizing is a process to protect steel from rusting and other forms of environmental damage. This is a process that forms a strong bond between steel and Zinc (Zn) that prevents it from oxidizing

.

What is Hot Dip Galvanizing?

Hot dip galvanizing provides the highest quality corrosion protection for steel by forming a layer of zinc bonded to the surface of the steel and usually about 50 to 70 microns thick.

Galvanizing of steel is considered as the most cost effective method of corrosion protection available today for the preservation and long life of steel that is exposed to desert climates and coastal and marine environments. Once steel is galvanized, it does not require any maintenance because galvanizing provides protection for minimum 15 years .

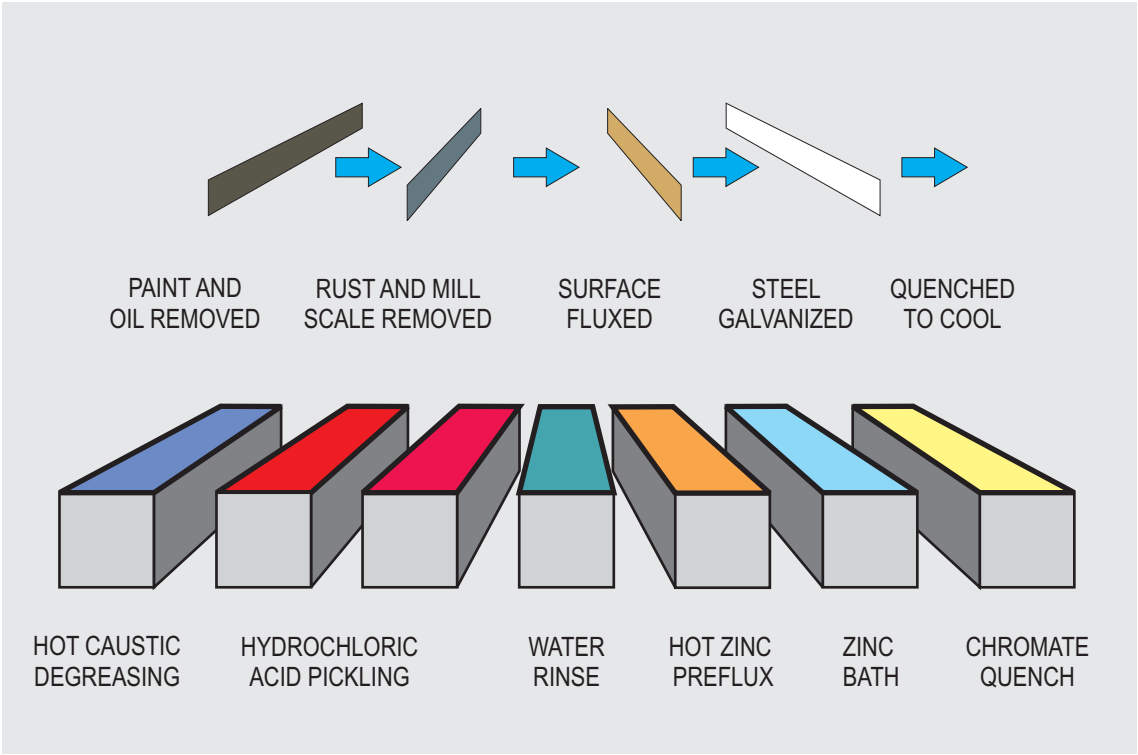
The alternative to galvanizing is painting with a primer coat followed with 2 top coats of enamel or epoxy paint. But painted surfaces require expensive surface preparation. Also repainting is recommended every 3 years to maintain the integrity of the coating. Periodic painting of steel is very expensive as it is labor intensive, especially in the Gulf .

Process Description and Flow sheet:

Hot dip galvanizing is an immersion process where steel sections and fabrications undergo the following operations:

1. Manual or mechanical cleaning of the steel structures.
2. Hot caustic degreasing (removal of oil, organic materials, mill primers and paint).
3. Hydrochloric acid pickling (removal of rust and mill scale).
5. Rinsing (removal of pickling acid residues) .
6. Pre-fluxing in zinc ammonium chloride solution (surface conditioning).
7. Hot dip galvanizing (at 455^{0}C - 460^{0}C).
8. Chromate quenching (passivation of the zinc surface to prevent early oxidation).
9. Inspection, mechanical cleaning and Quality Control.

THE HOT DIP GALVANIZING PROCESS



In the front end of the plant there will be 5-6 tanks for pre-treatment of the steel structures. In the back end of the plant there are 2-3 tanks for the post treatment. In between the pre and post treatment tanks there is the main galvanizing kettle with furnace, control panel and chimney to hold the molten zinc. Strict quality control is implemented at all stages of the process to obtain the highest quality of galvanizing as per BSEN 1461.

QUALITY CONTROL

Important Design Factors

Hot Dip Galvanizing is a self inspecting process that relies heavily on proper design to achieve a quality result. The major difference between hot dip galvanizing and paint coatings is that hot dip galvanized coatings can only be applied to perfectly prepared surfaces.

Following are the points to note while galvanizing

- ✓ The zinc will not react with the steel to form the galvanized coating unless the surface of the steel is perfectly clean.
- ✓ The hot dip galvanized coating will not form unless the zinc can intimately contact the steel surface.
- ✓ The hot dip galvanized coating will not form unless the steel is heated to 445°- 460°C.
- ✓ Items cannot be galvanized unless they fit in the preparation tanks and galvanizing bath.

Design for effective galvanizing falls into four major categories	
Venting	Vent holes may be needed to prevent air pockets and to allow ash to escape during galvanizing.
Draining	Drain holes may be needed to allow zinc to flow freely as the item is immersed and removed.
Dimension	Instability of steel is raised to 455^{0}C in the galvanizing bath where heat and stress distortion should be considered.
Design	Basic design rules include steel selection, thicknesses, welding, cutting etc.

Standard for Quality Control

BS EN 1461:1999 is the most common standard that is stipulated by customers in Middle East and Africa. The British standard is comprehensive in its coverage and specifies the minimum requirements of quality and the testing methods for quality control. The British Standard also gives guidelines on the process factors that has an impact on the quality of galvanizing.

Article thickness (mm)	Local Coating thickness minimum - microns -	Average thickness minimum - microns -	Average coating mass minimum - gms. per sq. mtr.
1.5	35	45	320
>1.5-3	45	55	390
>3-6	55	70	500
>6	70	85	600

Storage

Packing and Storage of Novablue Cable Management Systems is very important for extended life of the product. With correct methods of storage, serious damage to products can be avoided.

Points to Note:

- ✓ Always load and unload goods in designated areas by means of forklift or crane.
- ✓ Always wear protective clothing whilst handling the goods. While suspended in mid-air (via crane or forklift), stay clear till minimum 15mtrs in radius.
- ✓ Manual unloading should be avoided in order to avoid injury to personnel. Goods should be stored in closed areas thus avoiding contact with water, humidity and other forms of condensation or chemical exposure.
- ✓ When storing in open areas, goods should always be covered in order to prevent any form of damage or rusting.
- ✓ Due to the nature of the product, it is recommended to follow the First In First Out (FIFO) pattern of dispatch.

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TEST REPORT

CLIENT **NOVABLUE INDUSTRIES**

LOAD TEST ON TRUNKING

Report date : 14.04.10

Report number	D10-105786-1
Project name	No specific Project
Client ref./ request no.	NBI/ENQ/NT/2477/10
Sample description as identified by client	Pree Galvanized Trunking 100 x 100 x 1.2mm thk
Source	Novablue Industries
Local Supplier	Novablue Industries
Sampled by	Client
Date/time sample received	08.04.10/ 1600 Hrs.
Date tested	11.04.10
Tested by	SES / AKA

PROCEDURE :

The trunking was placed centrally on cylindrical supports at a span length of 1.5m with an equal over hang span of 0.75m on both sides as shown in Fig.1. The mid span position was legibly marked on the bottom of the cable trunking. A dial gauge of 0 - 30mm x 0.01mm range was fixed at the bottom of the trunking at the marked mid span position in such a way as to measure the vertical deflection of the trunking. The gauge was supported independently on the floor. After ensuring proper contact of dial gauge plunger with the soffit of the trunking, the initial reading was recorded.

The test load was placed on the trunking, uniformly distributed over its full length. The specified test load was held for 30 seconds and the deflection was recorded.

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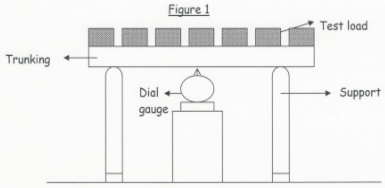
مختبرات فحص مستقلة - مستشارو المواد

Report Number : D10-105786-1

NOVABLUE INDUSTRIES.

Figure 1



Results :

Applied load (kg)	400
Deflection (mm)	1.43

Remarks : *The deflection at 400kg. meets the acceptance criteria of mid span deflection at the SWL, 1/100th of the span, provided by the client.*

This report relates only to the sample tested and shall only be reproduced in full and with the written approval of AHS Laboratories.

Second original

Joseph Mathew
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O.Mathew, Laboratory Manager
For Al Hoty Stanger Laboratories

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TEST REPORT

CLIENT **NOVABLUE INDUSTRIES**

LOAD TEST ON CABLE TRAY

Report date : 14.04.10

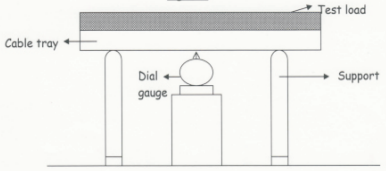
Report number	D10-105783-3
Project name	No specific Project
Client ref./ request no.	NBI/ENQ/NT/2477/10
Sample description as identified by client	Hot Dip Galvanized Cable Tray 600 x 50 x 2mm thk
Source	Novablue Industries
Local Supplier	Novablue Industries
Sampled by	Client
Date/time sample received	08.04.10/ 1600 Hrs.
Date tested	13.04.10
Tested by	SES / SHA

PROCEDURE :

The cable tray was placed centrally on cylindrical supports at a span length of 1.5m with an equal over hang span of 0.75m on both sides as shown in Fig.1. The mid span position was legibly marked on the bottom of the cable tray. Two dial gauges of 0 - 30mm x 0.01mm range were fixed on either side of the cable tray at the marked mid span position in such a way as to measure the vertical deflection of the cable tray. The gauges were supported independently on the floor. After ensuring proper contact of dial gauge plungers with the soffit of the cable tray, the initial readings were recorded.

The test load was uniformly distributed on the cable tray over its full length by 6 layers. The specified test load at each layer was held for 30 seconds and the deflections were recorded.

Figure 1



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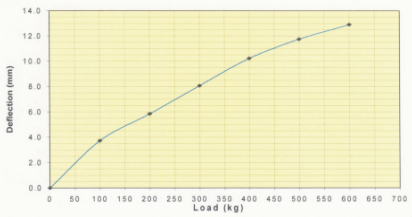
Report Number : D10-105783-3

NOVABLUE INDUSTRIES.

Results :

Applied load (kg)	Deflection, mm (gauge 1)	Deflection, mm (gauge 2)	Average deflection (mm)
0	---	---	---
100	3.73	3.70	3.72
200	5.98	5.70	5.84
300	8.33	7.80	8.07
400	10.10	10.33	10.22
500	11.70	11.79	11.75
600	12.93	12.88	12.91



Remarks : *The deflection at 600kg. meets the acceptance criteria of mid span deflection at the SWL, 1/100th of the span, provided by the client.*

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TEST REPORT

CLIENT **NOVABLUE INDUSTRIES**

LOAD TEST ON CABLE LADDER

Report date : 14.04.10

Report number	D10-105785-1
Project name	No specific Project
Client ref./ request no.	NBI/ENQ/NT/2477/10
Sample description as identified by client	Hot Dip Galvanized Cable Ladder 450 x 100 x 2mm thk
Source	Novablue Industries
Local Supplier	Novablue Industries
Sampled by	Client
Date/time sample received	08.04.10/ 1600 Hrs.
Date tested	11.04.10
Tested by	SES / AKA

PROCEDURE :

The cable ladder was placed centrally on cylindrical supports at a span length of 1.5m with an equal over hang span of 0.75m on both sides as shown in Fig.1. The mid span position was legibly marked on the bottom of the cable ladder. Two dial gauges of 0 - 30mm x 0.01mm range were fixed on either side of the cable ladder at the marked mid span position in such a way as to measure the vertical deflection of the cable ladder. The gauges were supported independently on the floor. After ensuring proper contact of dial gauge plungers with the soffit of the cable ladder, the initial readings were recorded.

The test load was placed on the rungs of the cable ladder, uniformly distributed over its full length. The specified test load was held for 30 seconds and the deflections were recorded.

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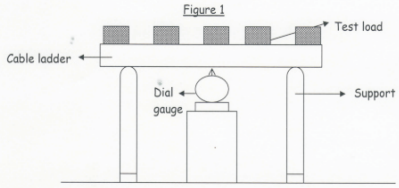
Report Number : D10-105785-1

NOVABLUE INDUSTRIES.

Figure 1



Results :

Applied load (kg)	Deflection, mm (gauge 1)	Deflection, mm (gauge 2)
0	---	---
400	1.09	1.33
Average deflection under test load, 400 kg : 1.21 mm		

Remarks : *The deflection at 400kg. meets the acceptance criteria of mid span deflection at the SWL, 1/100th of the span, provided by the client.*

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