# Steel Tray

## 5" Straight Sections Series 2-5, 4-5, 5-5 — Ladder, Ventilated and Solid Trough

**SH 2 5 24 L09 144**

**Material**
- **SP** = Pre-Galvanized
- **SH** = Hot-Dip Galvanized after Fabrication
- **SS** = Stainless Steel 316

**Series**
- **2** = Series 2
- **4** = Series 4
- **5** = Series 5

**Side Rail Height**
- **5** = 5"

**Width**
- **06** = 6"
- **09** = 9"
- **12** = 12"
- **18** = 18"
- **24** = 24"
- **30** = 30"
- **36** = 36"

**Bottom Type**
- **L06** = 6" Rung Spacing
- **L09** = 9" Rung Spacing
- **L12** = 12" Rung Spacing
- **V** = Ventilated
- **S** = Solid Trough

**Length**
- **3** = 3m
- **6** = 6m
- **144** = 12 ft.
- **288** = 24 ft.

### Support Span

| SERIES | | FEET 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
|---|---|---|---|---|---|---|---|---|---|
| **SP2-5** | Load (lb./ft.) | 556 | 313 | 200 | 139 | 102 | 78 | 62 | 50 |
| **SH2-5** | Deflection (in.) | .193 | .344 | .537 | .773 | 1.052 | 1.375 | 1.740 | 2.148 |
| **SS2-5** | Deflection Factor | .0003 | .0011 | .0027 | .0056 | .0103 | .0176 | .0282 | .0430 |
| **SP4-5** | Load (lb./ft.) | 833 | 469 | 298 | 208 | 153 | 117 | 92 | 75 |
| **SH4-5** | Deflection (in.) | .223 | .397 | .617 | .894 | 1.217 | 1.589 | 1.998 | 2.483 |
| **SS4-5** | Deflection Factor | .003 | .0008 | .0021 | .0043 | .0079 | .0136 | .0217 | .0331 |
| **SP5-5** | Load (lb./ft.) | 111 | 625 | 298 | 278 | 204 | 156 | 92 | 100 |
| **SH5-5** | Deflection (in.) | .241 | .429 | .499 | .964 | 1.312 | 1.714 | .617 | 2.678 |
| **SS5-5*** | Deflection Factor | .0002 | .0007 | .0017 | .0035 | .0064 | .0110 | .0176 | .0268 |

### Specifications

- NEMA Rating — SP2-5, SH2-5, SS2-5: 20A; SP4-5, SH4-5, SS4-5: 20B; SP5-5, SH5-5, SS5-5: 20C
- CSA — SP2-5, SH2-5, SS2-5: D/6M; SP4-5, SH4-5, SS4-5: E/6M
- UL Cross Sectional Area — SP2-5, SH2-5, SS2-5: .70 in.$^2$; All others: 1.00 in.$^2$
- Side Rail Design Factors, 1 Pair — SP2-5, SH2-5, SS2-5: Ix: 2.89 in.$^4$; Sx: 1.09 in.$^3$; Area: .778 in.$^2$; SP4-5, SH4-5, SS4-5: Ix: 3.75 in.$^4$; Sx: 1.40 in.$^3$; Area: 1.018 in.$^2$; SP5-5, SH5-5, SS5-5: Ix: 4.635 in.$^4$; Sx: 1.732 in.$^3$; Area: 1.24 in.$^2$

## 6" Straight Sections Series 1-6, 3-6, 4-6 — Ladder, Ventilated and Solid Trough

**SH 3 6 24 L12 - 6**

**Material**
- **SP** = Pre-Galvanized
- **SH** = Hot-Dip Galvanized after Fabrication
- **SS** = Stainless Steel 316

**Series**
- **1** = Series 1
- **3** = Series 3
- **4** = Series 4

**Side Rail Height**
- **6** = 6"

**Width**
- **06** = 6"
- **09** = 9"
- **12** = 12"
- **18** = 18"
- **24** = 24"
- **30** = 30"
- **36** = 36"

**Bottom Type**
- **L06** = 6" Rung Spacing
- **L09** = 9" Rung Spacing
- **L12** = 12" Rung Spacing
- **V** = Ventilated*
- **S** = Solid Trough

**Length**
- **3** = 3m
- **6** = 6m
- **144** = 12 ft.
- **288** = 24 ft.

### Support Span

| SERIES | | FEET 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
|---|---|---|---|---|---|---|---|---|---|
| **SP1-6** | Load (lb./ft.) | 556 | 313 | 200 | 139 | 102 | 78 | 62 | 50 |
| **SH1-6** | Deflection (in.) | .126 | .224 | .349 | .503 | .685 | .895 | 1.132 | 1.398 |
| **SS1-6** | Deflection Factor | .0002 | .0007 | .0017 | .0036 | .0067 | .0115 | .0183 | .0280 |
| **SP3-6** | Load (lb./ft.) | 833 | 469 | 300 | 208 | 153 | 117 | 93 | 75 |
| **SH3-6** | Deflection (in.) | .156 | .277 | .433 | .624 | .849 | 1.109 | 1.404 | 1.733 |
| **SS3-6** | Deflection Factor | .0002 | .0006 | .0014 | .0030 | .0055 | .0095 | .0152 | .0231 |
| **SP4-6** | Load (lb./ft.) | 1289 | 725 | 464 | 322 | 237 | 181 | 143 | 116 |
| **SH4-6** | Deflection (in.) | .181 | .321 | .502 | .723 | .984 | 1.285 | 1.626 | 2.008 |
| **SS4-6**** | Deflection Factor | .0001 | .0004 | .0011 | .0022 | .0042 | .0071 | .0114 | .0173 |

### Specifications

- NEMA Rating — SP1-6, SH1-6, SS1-6: 20A; SP3-6, SH3-6, SS3-6: 20B; SP4-6, SH4-6, SS4-6: 20C
- CSA — SP1-6, SH1-6, SS1-6: D/6M; SP3-6, SH3-6, SS3-6: E/6M
- UL Cross Sectional Area — SP1-6, SH1-6, SS1-6: .70 in.$^2$; All others: 1.00 in.$^2$
- Side Rail Design Factors, 1 Pair — SP1-6, SH1-6, SS1-6: Ix: 4.44 in.$^4$; Sx: 1.39 in.$^3$; Area: .874 in.$^2$; SP3-6, SH3-6, SS3-6: Ix: 5.373 in.$^4$; Sx: 1.70 in.$^3$; Area: 1.40 in.$^2$; SP4-6, SH4-6, SS4-6: Ix: 7.173 in.$^4$; Sx: 2.250 in.$^3$; Area: 1.40 in.$^2$

** For load ratings of CSA Class C/NEMA 12C or less, please see an alternative ventilated series of cable tray on* ***pages B-334–B-357.***

## Technical Information

# Cable Tray Engineering Specification

### Cable Tray

- Cable tray shall be by one manufacturer and shall consist of straight sections, fittings and accessories per NEMA VE1-2006/CSA C22.2 No. 126.1-02. Cable tray must be listed by UL as equipment grounding conductor. There shall be no burrs, projections or sharp edges to damage the cable insulation.

### Material

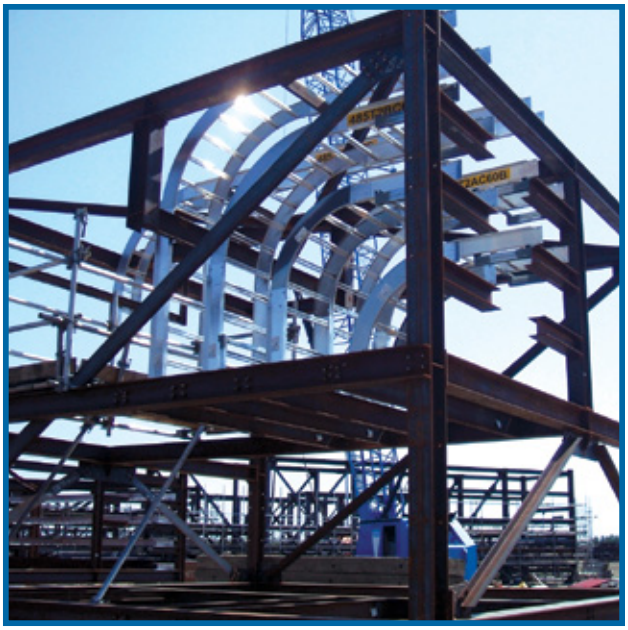
- Aluminum — All siderails, and rungs shall be of extruded aluminum type 6063-T6. Siderails shall be of I-beam construction.
- Pre-Galvanized Steel — All siderails and rungs shall be of steel conforming to the requirements of ASTM A653/A653M-06a with G90 coating thickness. Siderail shall be reinforced with flanges turned inward.
- Hot Dip Galvanized Steel — All siderails and rungs shall be made from steel conforming to the requirements of A1008/A1008M-07, SS grade 33, type 2 or A1011/A1011-06b SS, grade 33 and shall be hot dip galvanized after manufacture per ASTM A123 providing a minimum thickness of 1.50 oz per ft.2
- Stainless Steel — All cable tray and accessories shall be of type AISI 316 stainless steel.

### Tray Types

- Ladder — Ladder tray shall incorporate two siderails connected by lateral rungs. Rungs shall provide minimum 1" bearing surface and have slots perpendicular to the centerline of the rung on 1" centers for attachment of cable ties. Rungs shall also have an open slot to facilitate attachment of pipe straps and other accessories. Rungs shall be installed at 6", 9", 12" or 18" spacing. The rungs shall not be below the bottom of the siderail.
- Solid Bottom — Solid Bottom tray shall incorporate two siderails connected by rungs on 12" centers with a solid sheet applied below the rungs.
- Ventilated Trough — Ventilated trough tray shall incorporate two siderails connected by rungs at 4" spacing.

### Dimensions

- Siderail Height — Siderails heights shall be 3-⅝", 4", 5", 6", and 7" minimum loading depths shall be 2-⅝", 3", 4", 5", and 6".
- Length — All cable tray straight sections shall be supplied in 12', 24', 3m and 6m lengths.
- Width — Cable tray shall be supplied in 6", 9", 12", 18", 24", 30" and 36" widths as required.
- Radiused Fittings — For all fittings requiring a radius that radius shall be 12", 24", 36", and 48" and shall be measured to the nearest perpendicular surface.



### Accessories

- Covers and Accessories — Covers shall be supplied to protect tray cable where needed. Appropriate holddowns shall be supplied to properly attach the covers to the tray.
- Splice Plates — Aluminum splice plates shall be designed to snap into tray siderail and shall be supplied with four square neck carriage bolts and hex nuts for attachment. Steel splice plates shall be supplied with four square neck carriage bolts and hex nuts for attachment.

### Loading Capabilities

- Cable tray shall meet specified NEMA/CSA load ratings with safety factor of 1.5.

### Design and Manufacture

- Cable tray design shall be that of T&B Cable Tray Systems as manufactured by Thomas & Betts.



Thomas&Betts

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# Technical Information

## Selection of Thomas & Betts Series of Cable Tray

***— Please refer to Table 2 for Aluminum and Table 3 for Steel***

### Table 1 Load/Span Class Designation

| LOAD | | SPAN, M (FT.) | | | | |
|---|---|---|---|---|---|---|
| KG/M | LB./FT. | 2.4 (8) | 3.0 (10) | 3.7 (12) | 4.9 (16) | 6.0 (20) |
| **37** | **25** | — | A | — | — | — |
| **67** | **45** | — | — | — | — | D |
| **74** | **50** | 8A | — | 12A | 16A | 20A |
| **97** | **65** | — | C | — | — | — |
| **112** | **75** | 8B | — | 12B | 16B | E or 20B |
| **149** | **100** | 8C | — | 12C | 16C | 20C |
| **179** | **120** | — | D | — | — | — |
| **299** | **200** | — | E | — | — | — |

***Note**: 8A/B/C, 12A/B/C, 16A/B/C and 20A/B/C are the traditional NEMA designations. A, C, D and E are the conventional CSA designations.*

### Table 2 Aluminum Load / Span Class Designation

| SIDE RAIL HEIGHT | SERIES | LOAD DEPTH (IN.) NOMINAL | NEMA CLASS | CSA CLASS |
|---|---|---|---|---|
| 4" | **AH04** | 3" | 8B | — |
| | **AH14** | | 12A | C/3m |
| | **AH24** | | 12B | D/3m |
| | **AH34** | | 12C | D/6m |
| | **AH44** | | 20A | E/3m |
| | **AH54** | | 20B | E/6m |
| 5" | **AH25** | 4" | 12C | D/6m |
| | **AH35** | | 20A | E/3m |
| | **AH45** | | 20B | E/6m |
| 6" | **AH06** | 5" | 12B | C/3m |
| | **AH16** | | 12C | D/6m |
| | **AH26** | | 20A | E/3m |
| | **AH36** | | 20B | E/6m |
| | **AH46** | | 20C | — |
| | **AH56** | | 20C | — |
| | **AH66** | | 20C | — |
| 7" | **AH27** | 6" | 20B | E/6m |
| | **AH37** | | 20C | — |

***Note**: See appendix for information on Aluminum "Heavy Load" bearing trays and spans beyond 6m.*

### Table 3 Steel Load/Span Class Designation

| SIDE RAIL HEIGHT | SERIES | LOAD DEPTH (IN.) NOMINAL | NEMA CLASS | CSA CLASS |
|---|---|---|---|---|
| 3⅝" | **SH13/SP13/SS13** | 2⅝" | **12A** | **C/3M** |
| 4" | **SH14/SP14/SS14** | 3" | **12C** | **D/3M** |
| | **SH34/SP34/SS34** | | **20A** | **D/6M** |
| 5" | **SH25/SP25/SS25** | 4" | **20A** | **D/6M** |
| | **SH45/SP45/SS45** | | **20B** | **E/6M** |
| | **SH55/SP55/*** | | **20C** | **—** |
| 6" | **SH16/SP16/SS16** | 5" | **20A** | **D/6M** |
| | **SH36/SP36/SS36** | | **20B** | **E/6M** |
| | **SH46/SP46/*** | | **20C** | **—** |
| 7" | **SH37/SP37/*** | 6" | **20C** | **—** |

** Stainless Steel 316 available. Consult with T&B sales for further information.*