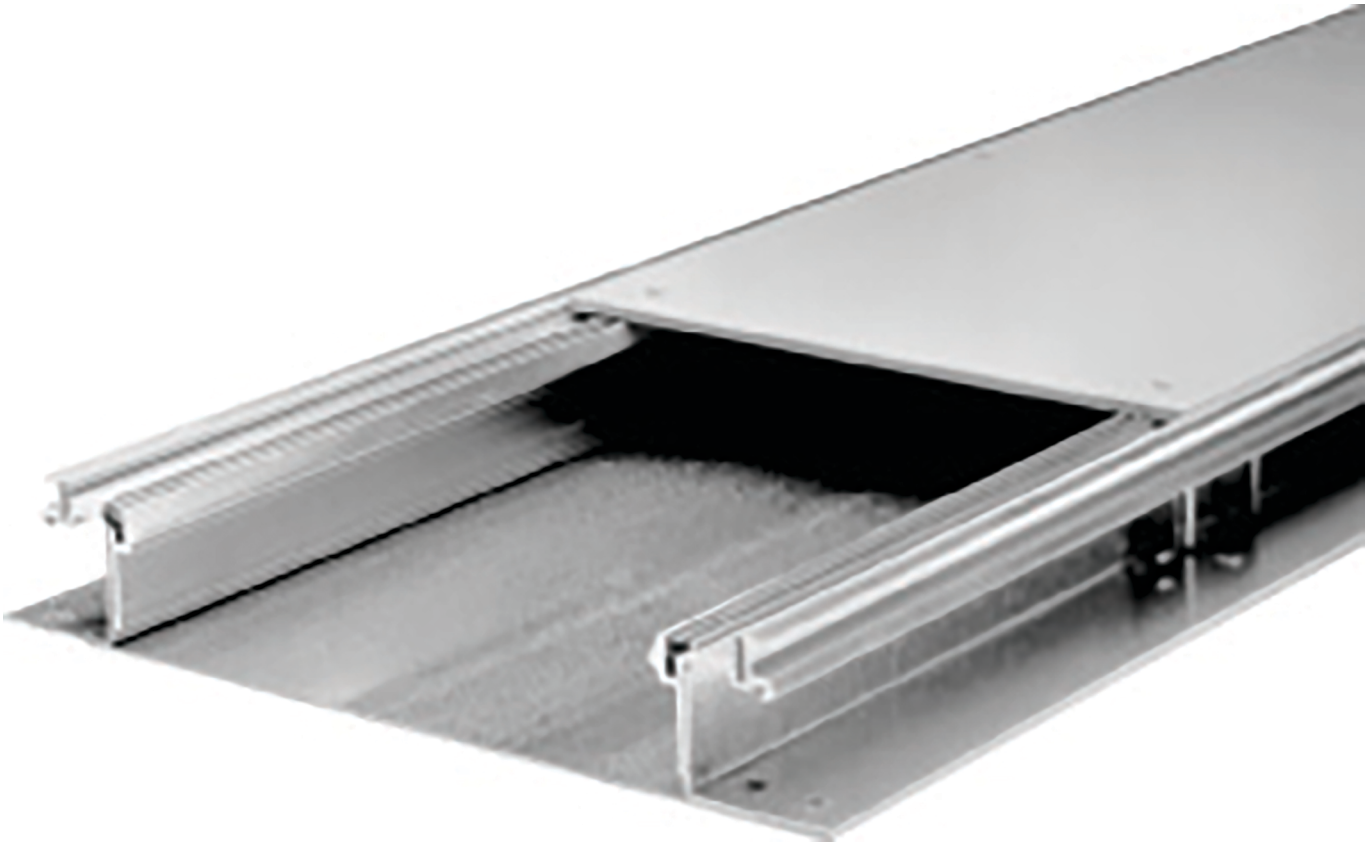
Trench Duct

Class 5230

Catalog

5230CT9601
R12/2024



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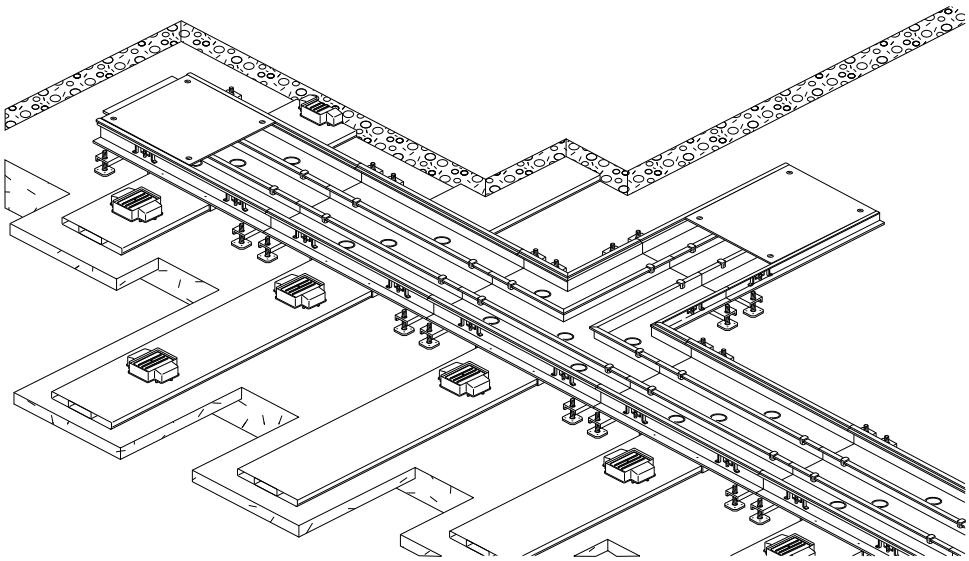
Application



Product Description

Trench duct is a flush electrical raceway system. It is commonly used as:

- A feeder for the cells of a cellular steel floor system.
- A feeder for the distribution ducts of an underfloor duct system.
- A flush self-contained raceway system for computer areas, laboratories, and medical imaging facilities.

Standard Sizes and Types

Standard trench duct cover plate widths are:

- 6 in. (152 mm)
- 9 in. (229 mm)
- 12 in. (305 mm)
- 18 in. (457 mm)
- 24 in. (610 mm)
- 30 in. (762 mm)

Trench ducts can be one compartment or divided into two or three compartments to separate different services. Other widths, depths, and numbers of compartments can be manufactured for special applications.

Trench duct is available in the following system types:

- Unassembled—bottomless
- Unassembled—intermittent bottom
- Factory-assembled

All three systems are Underwriters Laboratories® (UL®) listed and basically the same, with differences only in which components are used and the method of assembly.

Unassembled Trench Duct Components

Side Rail Assembly

Side rail assemblies are the heart of the railway system. They are furnished in 10 ft. (3 m) lengths and are positioned opposite each other by the use of spacer bars to form the various widths of trench duct. Side rails are coupled together and aligned by a wraparound coupler and aligner. Two screws in the coupler engage abutting side rails and assure continuity of ground.

The side rail assemblies have a full 1 in. (25 mm) of height adjust.

- 2.375–3.375 in. adjustability (60–86 mm) for 2.5 in. (64 mm) deep trench
- 3–4 in. adjustability (76–102 mm) for 3.25 in. (83 mm) deep trench

Side rail assemblies have a longitudinal slot along the full length of the extrusion to accept the cover plate hold-down screws. This permits cover plates to be placed anywhere along the run of trench without the restriction of fixed cover plate screw-hole locations. The bottom flange of this assembly forms a continuous weld tab along the entire length of the trench.

Figure 1 - Side Rail Assembly

U-Trough and Z-Dividers

Most trench duct systems contain wiring for more than one type of service. Separation of the various services must be maintained.

A U-trough is used as the power compartment in bottomless trench ducts with cellular floor systems.

The Z-divider is used in bottom type trench systems.

Figure 2 - U-Trough and Z-Dividers

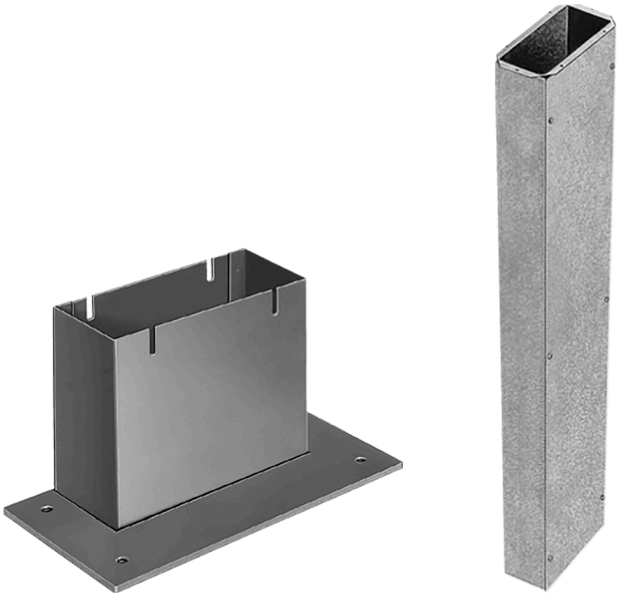
Vertical Elbows and Risers with Cabinet Connectors

A vertical elbow is a short section of trench duct with a riser welded to it. A vertical elbow can be mounted directly onto the side rail assemblies of the trench duct. The longitudinal screw slot in the side rail assemblies allows for tolerance, thereby enabling an exact positioning of the elbow.

The riser is manufactured to slip-fit on the elbow. One face of the riser is removable, allowing easy access for pulling wire and cable. A matching cabinet connector is manufactured to slip-fit on the riser and attach to the underside of a standard depth power panel tub.

A riser and cabinet connector, used as a power feeder, always uses a vertical elbow. However, a riser and cabinet connector are seldom used as a telephone feeder. Open telephone cabling from the vertical elbow to a terminal board is permissible and most often preferable.

Figure 3 - Vertical Elbows and Risers with Cabinet Connectors



Cover Plates

Cover plates are made of 0.25 in. (6 mm) nominal thickness steel, phosphatized with a baked enamel finish. Cover plate screw holes accommodate a 0.12 in. (3 mm) high pan-head screw for tile floor finishes, or flat head screws that finish flush for carpet installations. Screw holes in the opposite corners are threaded so that a 0.37 in. (10 mm) lifting bolt can be used for removing and replacing covers. Suction cups can also be used to remove covers.

Bottom Plates

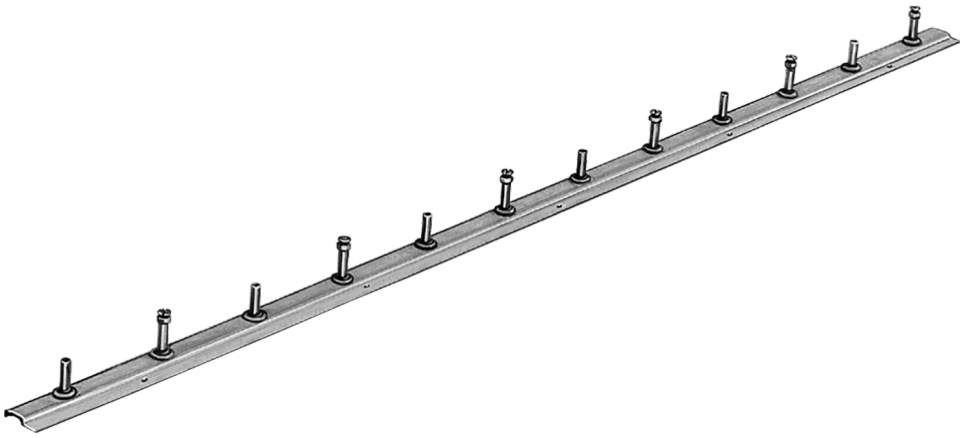
Bottom plates are 5 ft. (1.5 m) long for ease of handling and are manufactured of 14-gauge galvanized steel. The width of the bottom plates is 3 in. (76 mm) wider than the cover plates.

Support Post Strips

Underwriters Laboratories permits 16.125 in. (409 mm) of free support span for cover plates. This is to control the amount of deflection and permanent set encountered in normal office floor loadings. The support post strip is available (where needed) to provide intermediate support in bottomless trench duct.

The support posts are mounted on a 5 ft. (1.5 m) channel and are adjustable to the underside of the cover plate. A nut locks the post firmly in place. The adjustable support posts are welded directly to the trench bottom plate in the factory-assembled bottom-type trench.

Figure 4 - Support Post Strips



End Closures

End closures, by design, close the end of a system run. They have a “0” length, thereby causing no field application problems related to length of runs. The end closure screws into the slot provided in the side rail assembly.

The slot has an upward and downward adjustment to correspond to the adjustment of the side rail assemblies.

Figure 5 - End Closures

Spacer Bar and Partition Height Adjustment Gauge

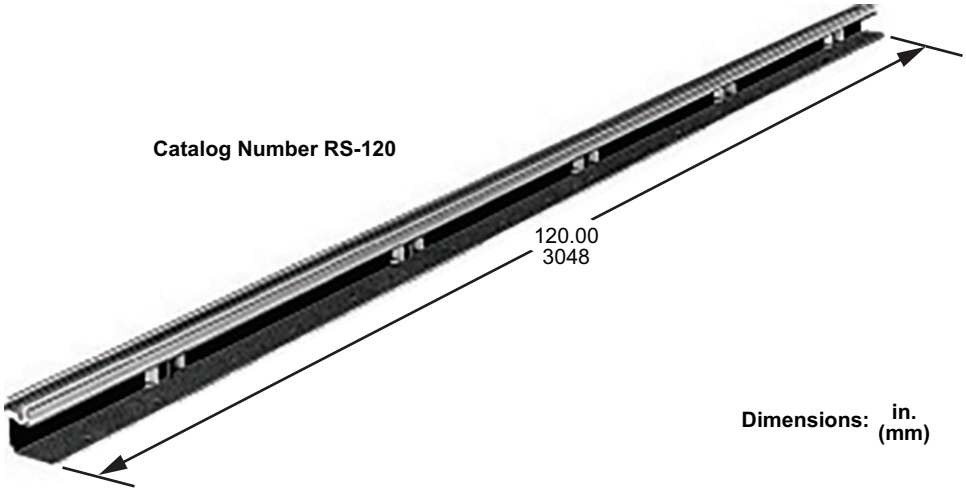
The space bar is used to establish exact width by placing two pins in either end of the bar to which engages the cover plate screw slot. After the side rail assemblies are adjusted to proper height, you can reverse the bar (with the pins up) to become a gauge for accurate partition adjustment.

Figure 6 - Space Bar and Partition Height Adjustment Gauge

Railway Trench Duct

Use 10 ft. (3 m) long trench duct rail assemblies and other components listed below to field-assemble trench duct to fit specific job requirements. Side rail assemblies can be field cut to meet job conditions. Cover plates are shipped separately. Longitudinal slot for cover plate screws in side rail assembly permits random placement of cover plates. Cover plates are a standard 2 ft. (0.61 m) long and can be modified to suit odd lengths of trench duct runs. Spacer bars assure correct width and partition height adjustment. Illustrated installation instructions are included with all orders.

Figure 7 - Railway Trench Duct



Catalog Number	Weight	
	Lbs.	Kg.
RS120 [1]	20.0	10

Figure 8 - Railway Trench Duct Dimensions

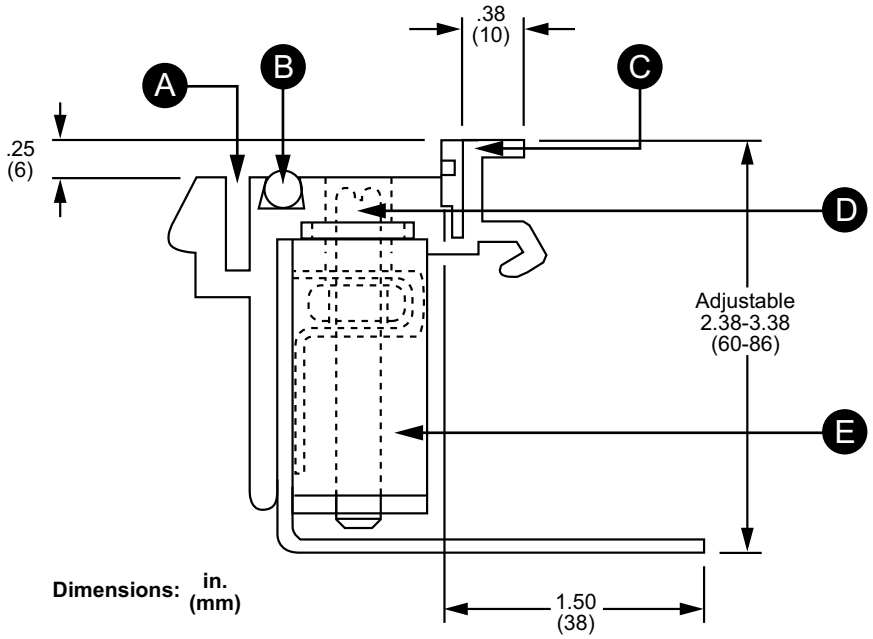


Table 1 - Legend—Railway Trench Duct Dimensions

A	Cover plate screw slot
B	Cover plate gasket
C	0.125 in. (3 mm) or 0.0625 in. (2 mm),wide—reversible tile trim
D	Adjusting screw—5 per rail
E	Concrete locking lug

1. For device with 3–4 in. (76–102 mm) adjustment range, add -3 suffix (RS120-3).

Cover Plates

Figure 9 - Cover Plates

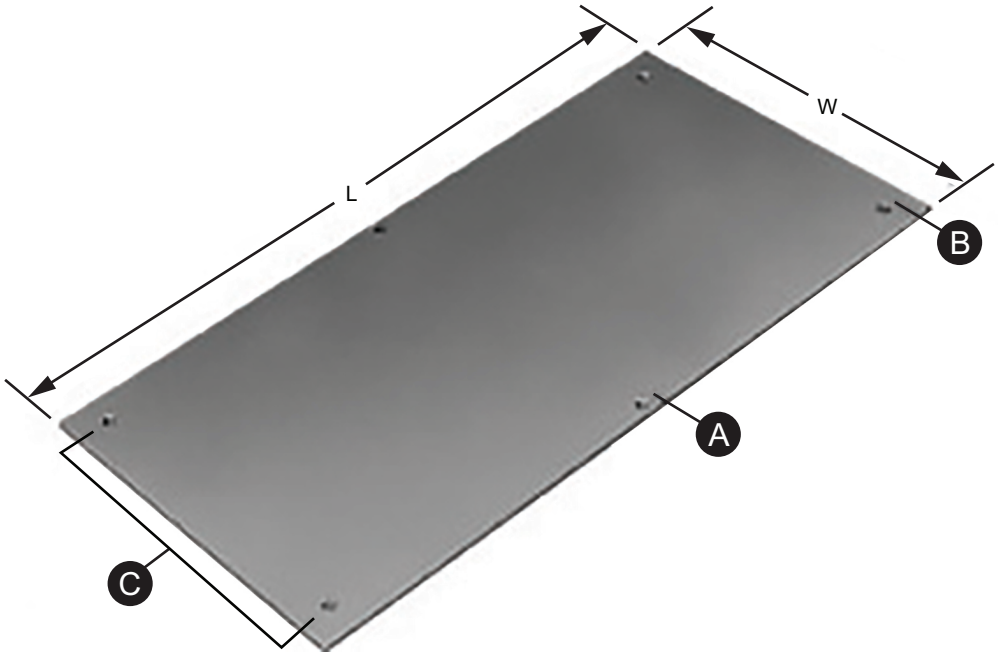


Table 2 - Legend—Cover Plates

A	0.25 in. (6 mm) nominal thick steel plates
B	Four clearance holes for cover plate hold-down screws. Two are tapped for the use of a 0.375 in. (10 mm) bolt as a lifting device.
C	Gasket support

NOTE: 12 in. (305 mm) long coverplates are available.

Table 3 - Cover Plate Dimensions

Catalog Number	Width—W		Length—L	
	in.	mm	in.	mm
RCP0626	6	152	24	610
RCP0924	9	229	24	610
RCP1224	12	305	24	610
RCP1824	18	457	24	610
RCP2424	24	610	24	610
RCP3024	30	762	24	610

Bottom Plates

Figure 10 - Bottom Plates

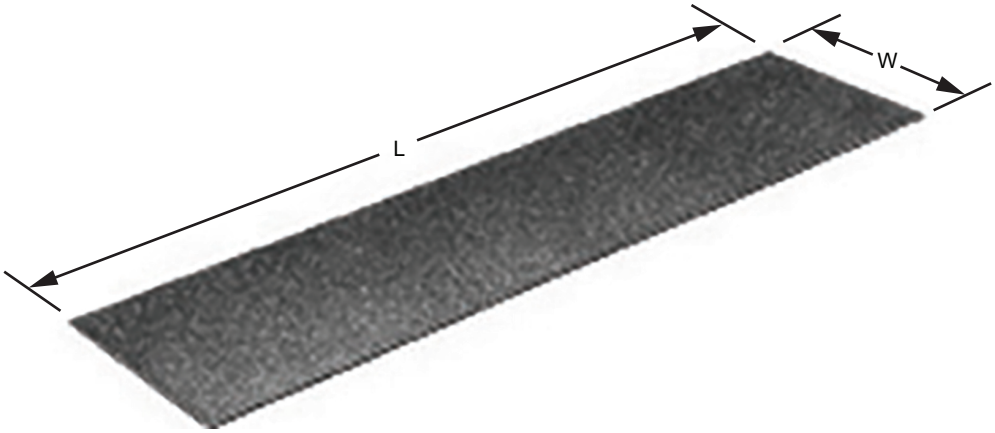


Table 4 - Bottom Plate Dimensions

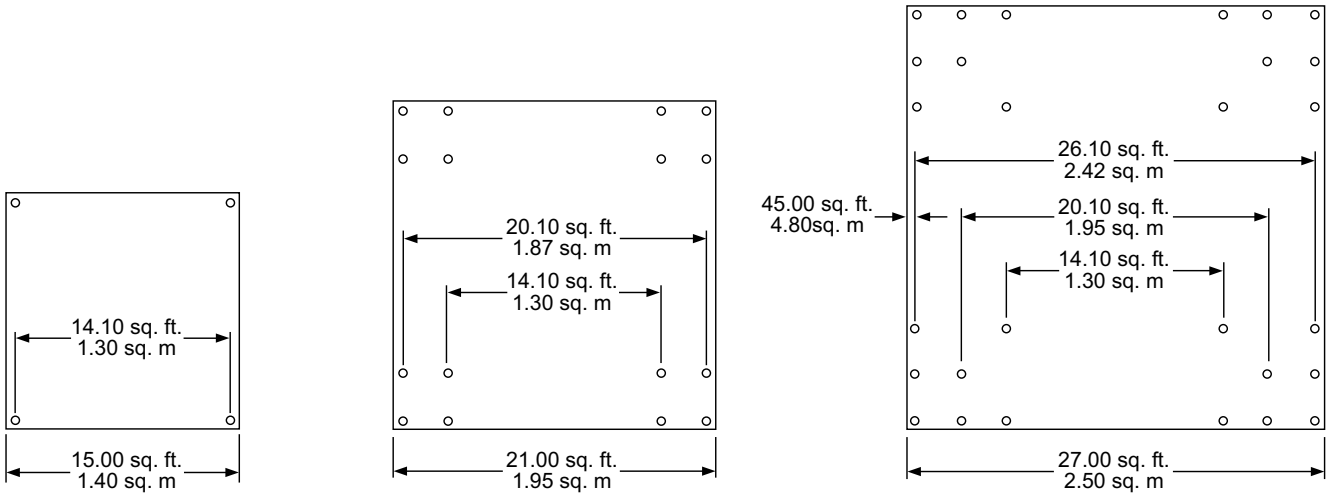
Catalog Number	Width—W		Length—L	
	in.	mm	in.	mm
RCP0626	6	152	24	610
RCP0924	9	229	24	610
RCP1224	12	305	24	610
RCP1824	18	457	24	610
RCP2424	24	610	24	610
RCP3024	30	762	24	610

Bottom Plates for Elbows

Figure 11 - Bottom Plates for Elbows

NOTE: All holes are 0.312 in. (8 mm) in. diameter.

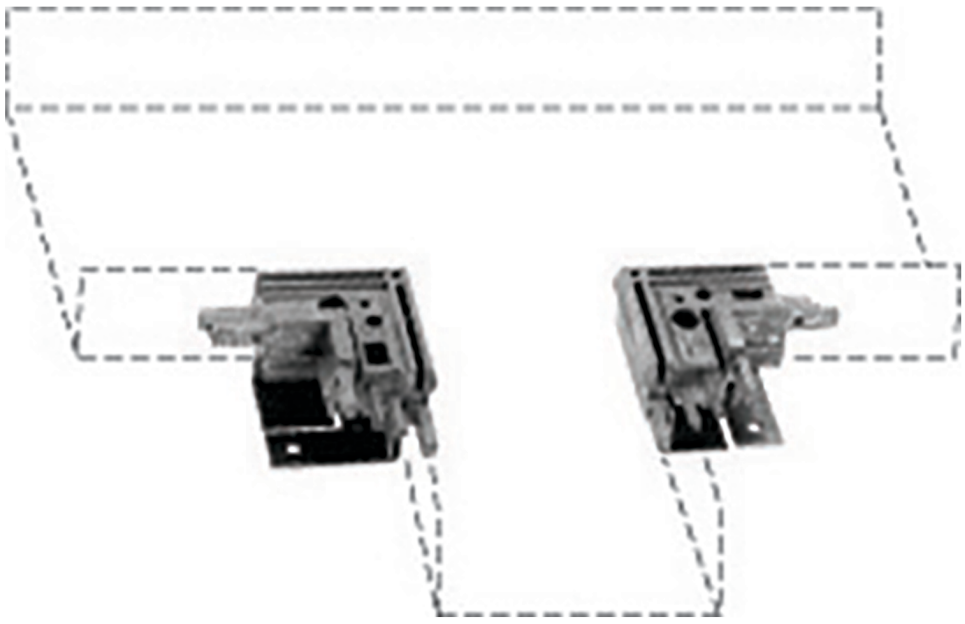
Figure 12 - Bottom Plates for Elbows Dimensions



Catalog Number RTLB12 **Catalog Number RTLB18** **Catalog Number RTLB24**

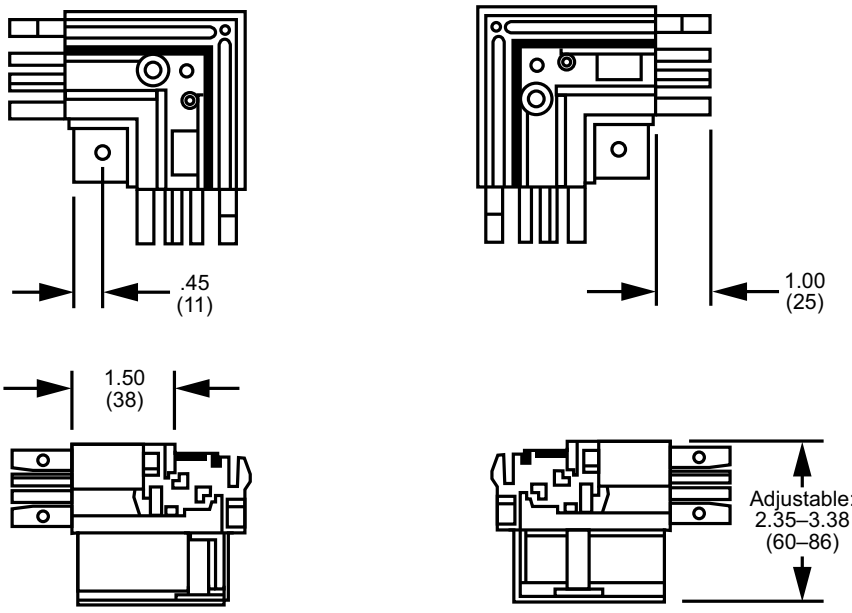
Tee—RT

Figure 13 - Tee—RT Corner Assemblies



NOTE: When a RT25 or RT3 is ordered, the two corner assemblies shown are furnished.

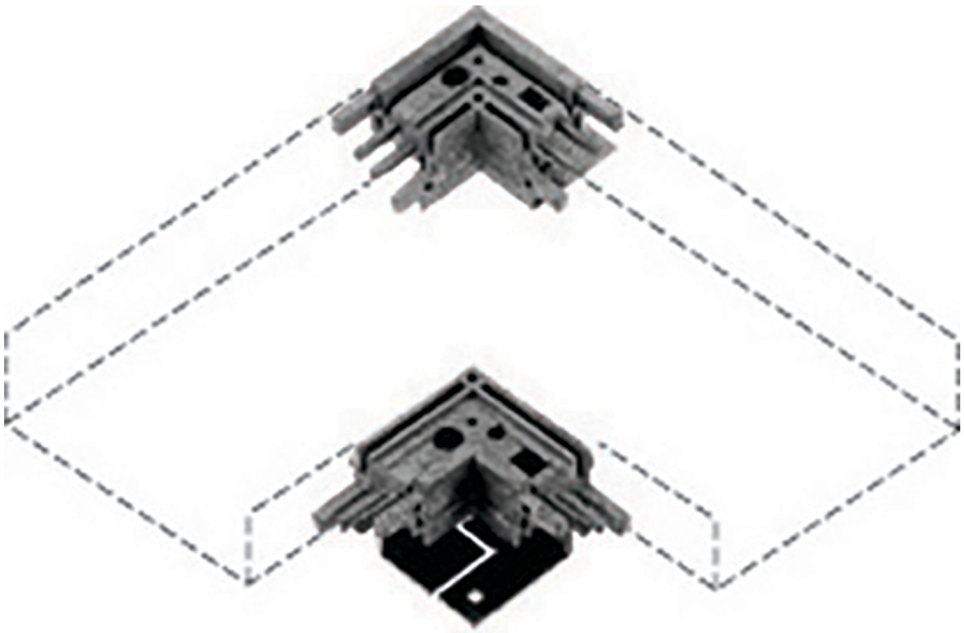
Figure 14 - Tee—RT Dimensions



Dimensions: in. (mm)

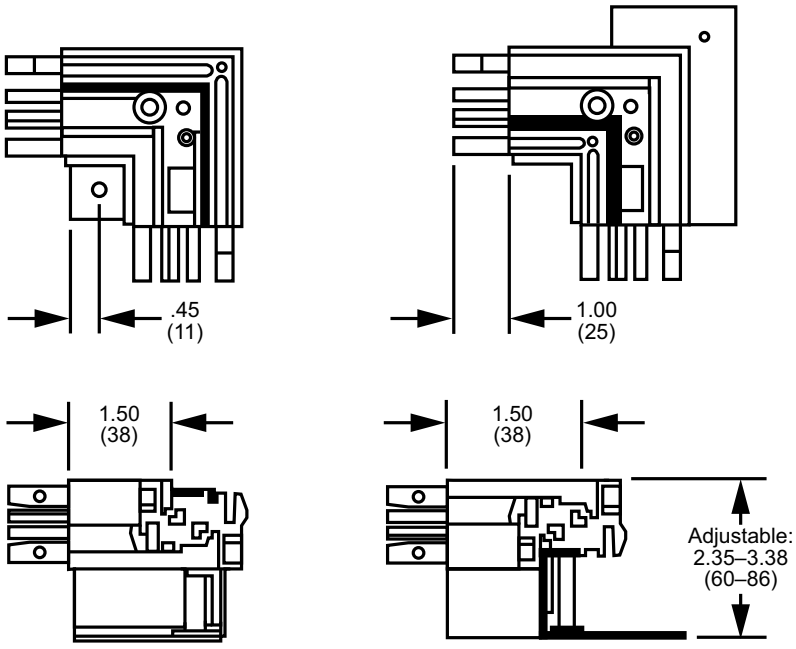
Horizontal Elbow—RL

Figure 15 - Horizontal Elbow—RL



NOTE: When a RL is ordered, the two corner assemblies are shown shipped.

Figure 16 - Horizontal Elbow—RL Dimensions



Dimensions: in. (mm)

Factory Assembled Trench Duct

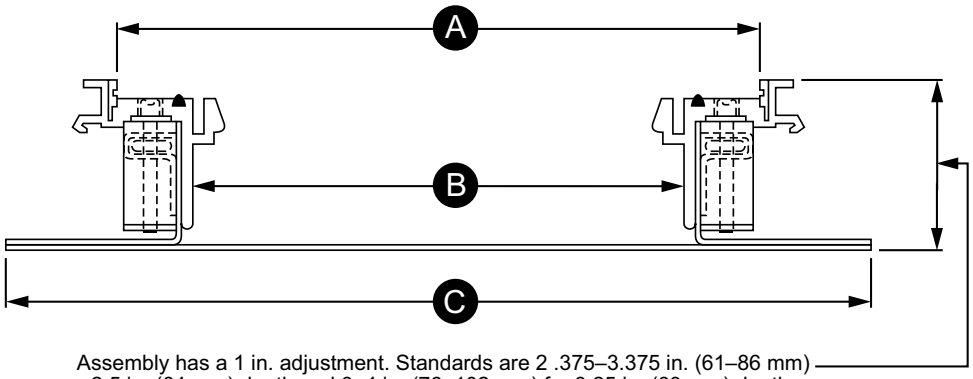
Straight Lengths

Figure 17 - Straight Lengths

Straight Length
(Cover Plates shipped separately)

1. Standard length of trench duct is 10 ft. (3 m). Cover plates are shipped separately.
2. Features of trench duct are as follows:
   a. Trench duct width is cover plate width.
   b. Tub width is trench duct width less 1.875 in. (48 mm).
   c. Overall width (bottom flange to flange) is 3 in. (76 mm) wider than trench duct width.
   d. Standard depth is adjustable from 2.375–3.375 in. (61–86 mm). Also available as standard depth adjustable from 3–4 in. (76–102 mm). Other depths available.
   e. Tees, crosses, and horizontal elbows are shipped complete with cover plates assembled.
   f. Gray vinyl tile trim is furnished as standard. Aluminum is available when requested.
3. The following features are available:
   a. Cover plate support post.
   b. Double tile trim on two sides of covers.
   c. Double tile trim on four sides of covers.
   d. Tunnels in horizontal elbows, tees and crosses

Figure 18 - Straight Length Cover Plate Dimensions



Trench Width		Cover Plate Width–A		Bottom Plate Width–B		Tub Width–C		Tub Assembly Length	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
6	152	6	152	9	229	4.1	104	120	3048
9	229	9	229	12	305	7.1	180	120	3048
12	305	12	305	15	381	10.1	257	120	3048
18	457	18	457	21	533	16.1	409	120	3048
24	610	24	610	27	686	22.1	561	120	3048
30	762	30	762	33	838	28.1	714	120	3048

Figure 19 - Straight Length Coverplate

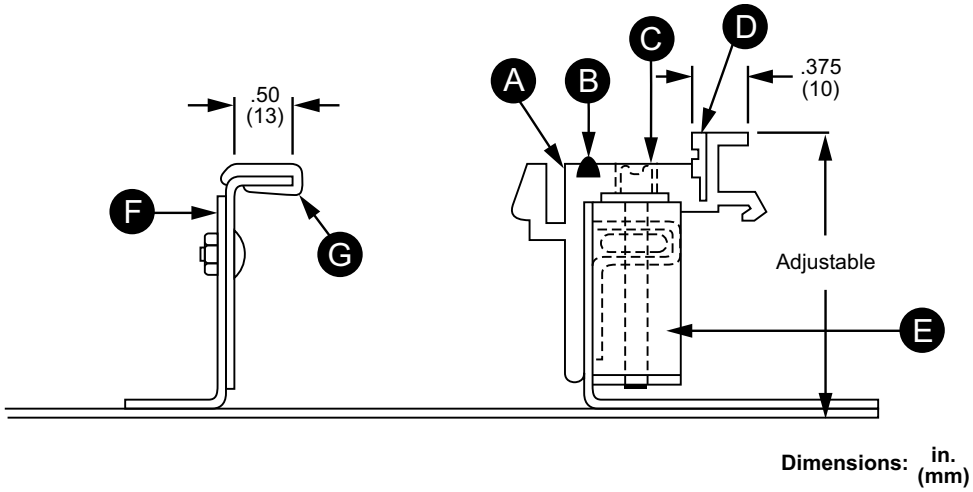


Table 5 - Legend—Straight Length Cover Plates

A	Cover plate screw slot
B	Cover plate gasket
C	Adjusting screw—5 per rail
D	0.125 in (3 mm) wide—reversible tile trim
E	Concrete locking lug
F	Adjustable height partition
G	Plastic sound dampener

Cover Plates (ordered separately)

Figure 20 - Cover Plates (ordered separately)

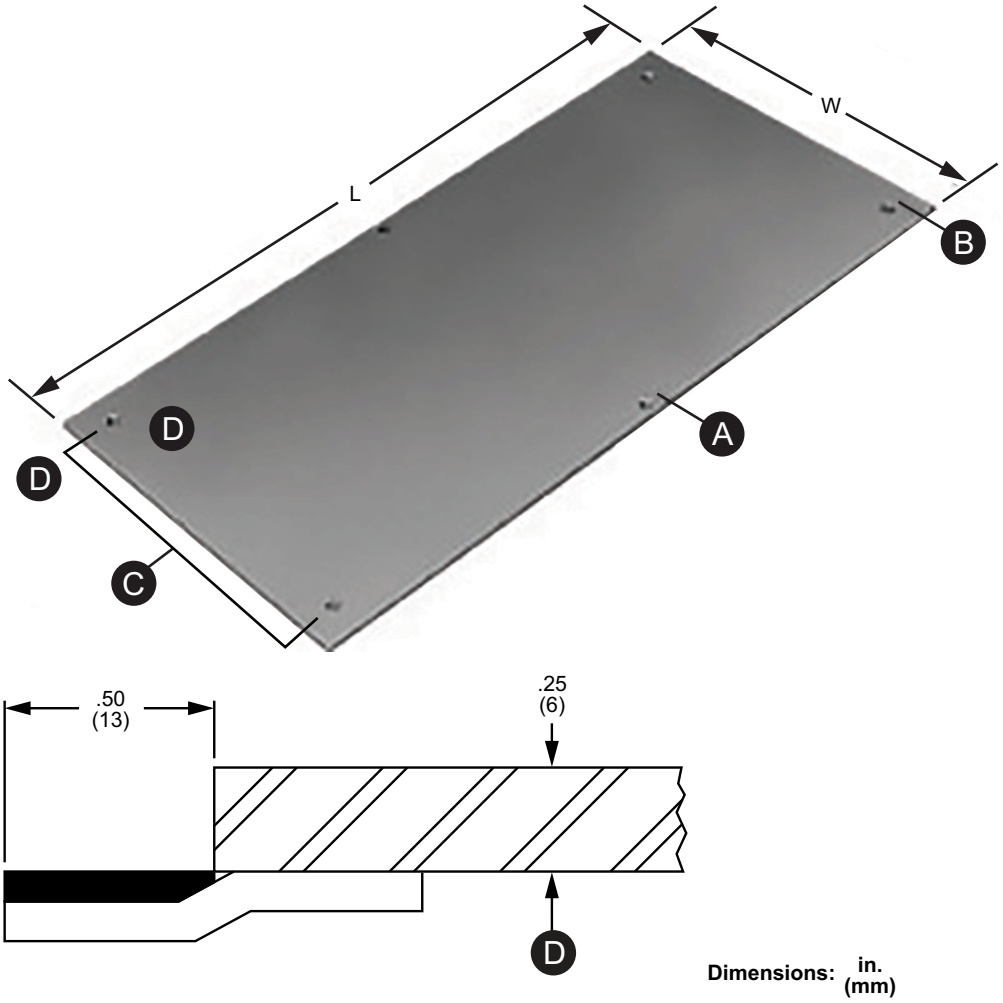


Table 6 - Cover Plates

Catalog Number	Width–W		Length–L	
	in.	mm	in.	mm
RCP0624	6	152	24	610
RCP0924	9	229	24	610
RCP1224	12	305	24	610
RCP1824	18	457	24	610
RCP2424	24	610	24	610
RCP3024	30	762	24	610

Tee

Figure 21 - Tee

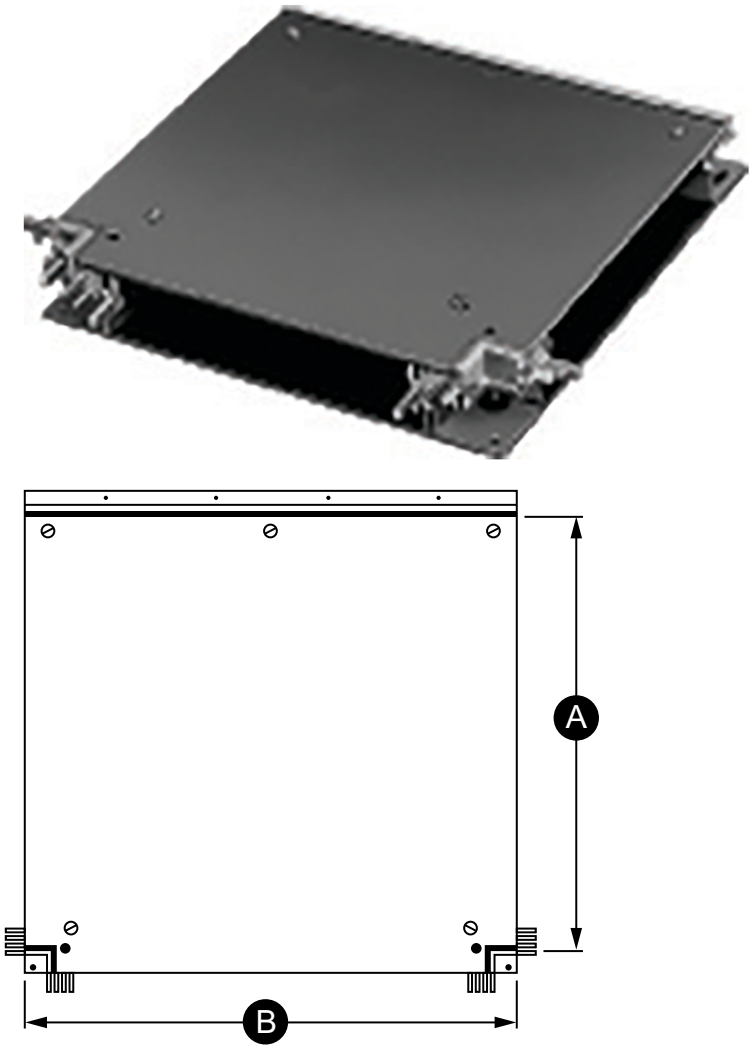


Table 7 - Tee Dimensions

Catalog Number	Width		Weight	
	in.	mm	Lbs.	Kg.
RTV062100011	6	152	8	4
RTV092100014	9	229	16	7
RTV122100017	12	305	24	11
RTV182100023	18	457	44	20
RTV242100029	24	610	71	32
RTV302100035	30	712	111	50

Cross

Figure 22 - Cross

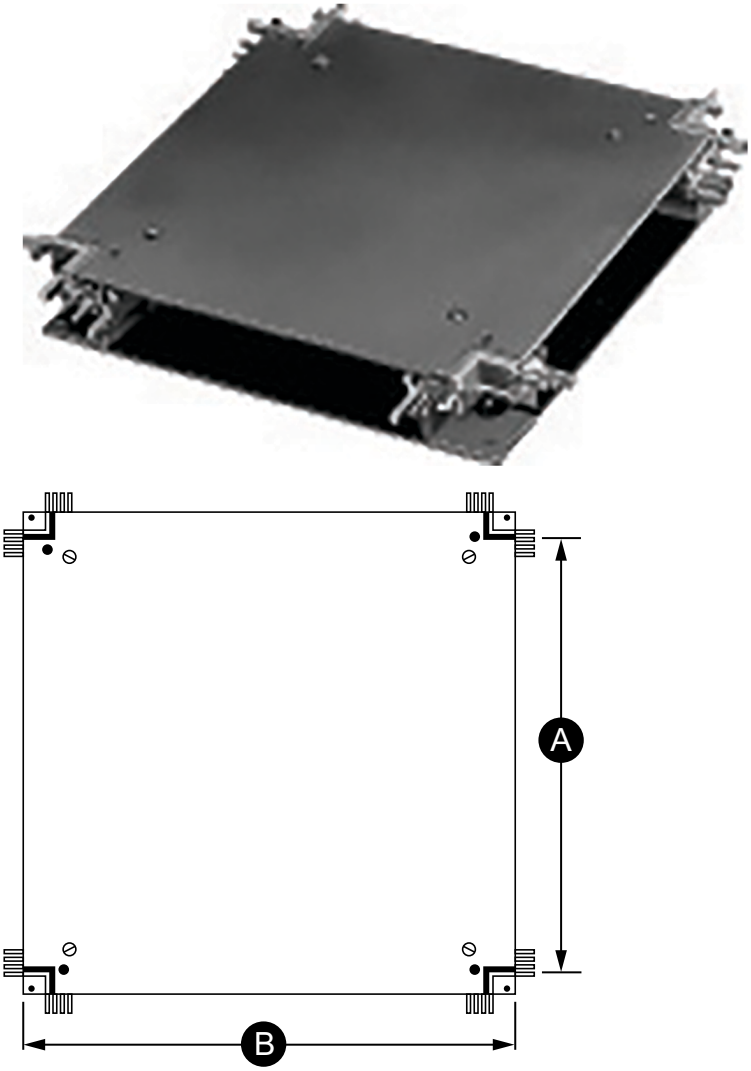


Table 8 - Cross Dimensions

Catalog Number	Width		Weight	
	in.	mm	Lbs.	Kg.
RXV062100012	6	152	15	7
RXV092100015	9	229	19	9
RXV122100018	12	305	23	10
RXV182100024	18	457	42	19
RXV242100030	24	610	68	31
RXV302100036	30	712	106	48

Horizontal Elbow

Figure 23 - Horizontal Elbow

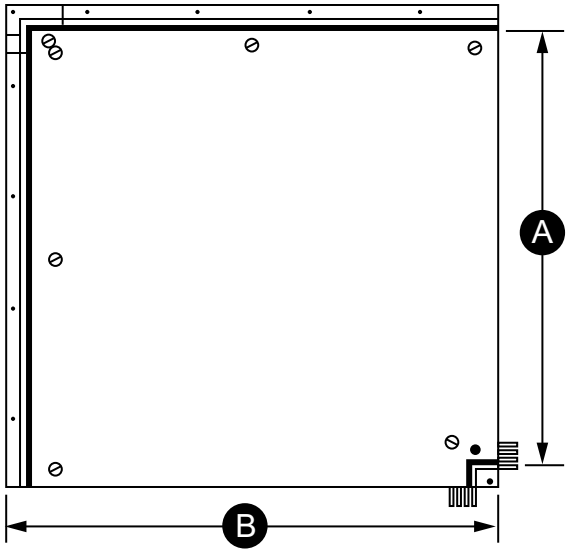


Table 9 - Horizontal Elbow Dimensions

Catalog Number	Width		Weight	
	in.	mm	Lbs.	Kg.
RHV062100009	6	152	8	4
RHV092100012	9	229	15	7
RHV122100015	12	305	23	10
RHV182100021	18	457	43	20
RHV242100027	24	610	70	32
RHV302100033	30	712	100	45

Table 10 - Dimensions

Trench Width		Cover Plate Width–A		Bottom Plate Width–B		Tub Width–C	
in.	mm	in.	mm	in.	mm	in.	mm
6	152	6	152	9	229	4.1	104
9	229	9	229	12	305	7.1	180
12	305	12	305	15	381	10.1	257
18	457	18	457	21	533	16.1	409
24	610	24	610	27	686	22.1	561
30	762	30	762	33	838	28.1	714

NOTE: Cover plates are furnished in place as part of these devices

Accessories

NOTE: All part numbers shown are for use with trench duct that is adjustable from 2.37–3.37 in. (61–86 mm). For devices to be used with 3–4 in. (76–102 mm) adjustable trench, add -3 suffix to all part numbers shown.

U-Compartment

Figure 24 - U-Compartment

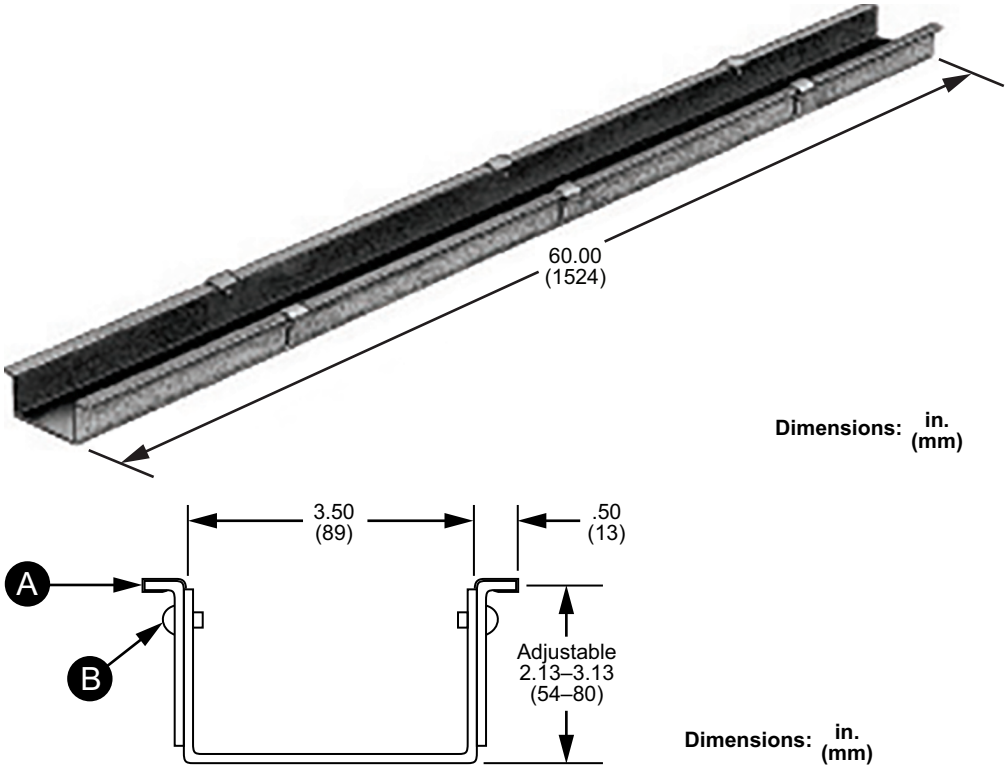


Table 11 - Legend—U-Compartment

A	Plastic sound dampeners
B	Temporary 10–24 in. holding screw for adjustable partitions

Table 12 - U-Compartment Weight

Catalog Number	Weight	
	Lbs.	Kg.
RUC60	24	11

Z-Divider

Figure 25 - Z-Divider

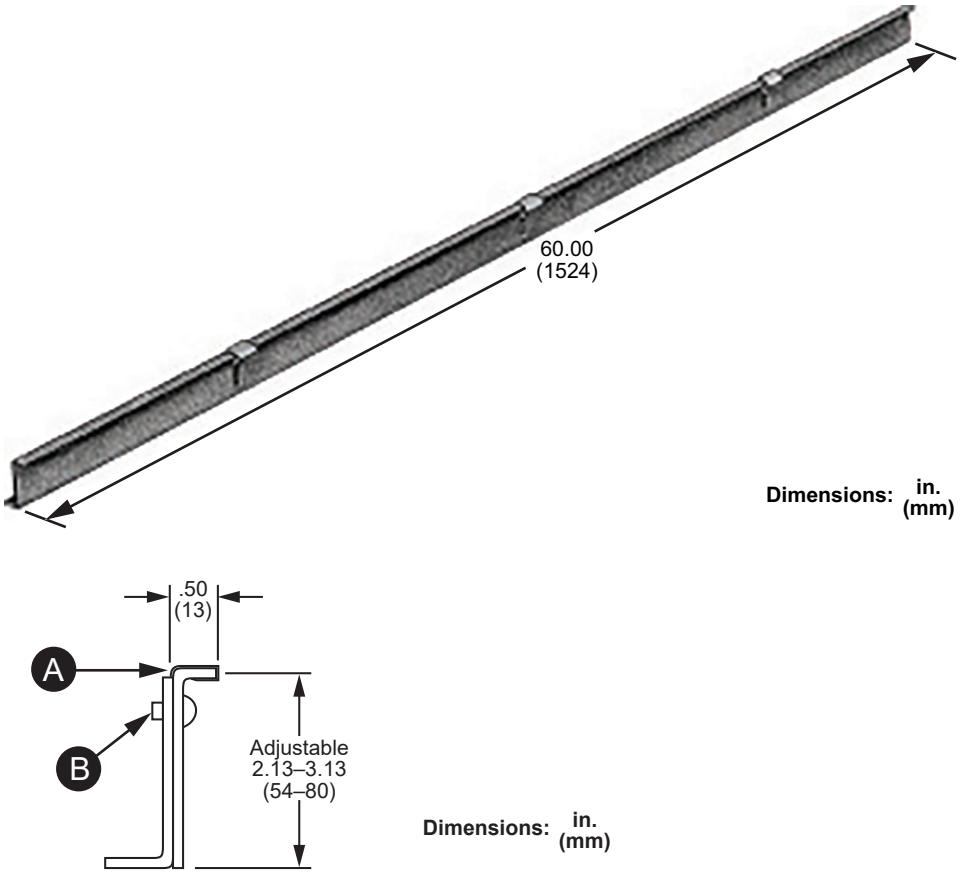


Table 13 - Legend—Z-Divider

A	Plastic sound dampeners
B	Temporary holding screw for adjustable partitions

Table 14 - Z-Divider Weight

Catalog Number	Weight	
	Lbs.	Kg.
RZD60	10	5

Support Post Strip

Figure 26 - Support Post Strip

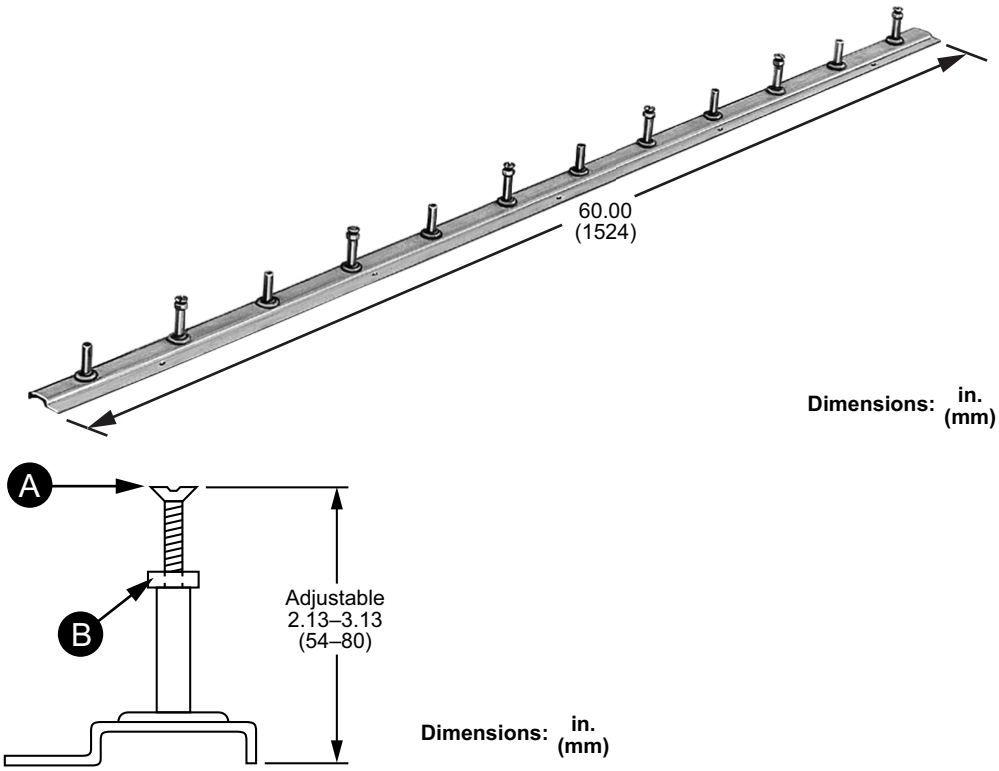


Table 15 - Legend—Support Post Strip

A	Support post screw
B	Lock nut

Table 16 - Support Post Strip Weight

Catalog Number	Weight	
	Lbs.	Kg.
RSP60	6	3

Vertical Elbow

Figure 27 - Vertical Elbow

RVE09

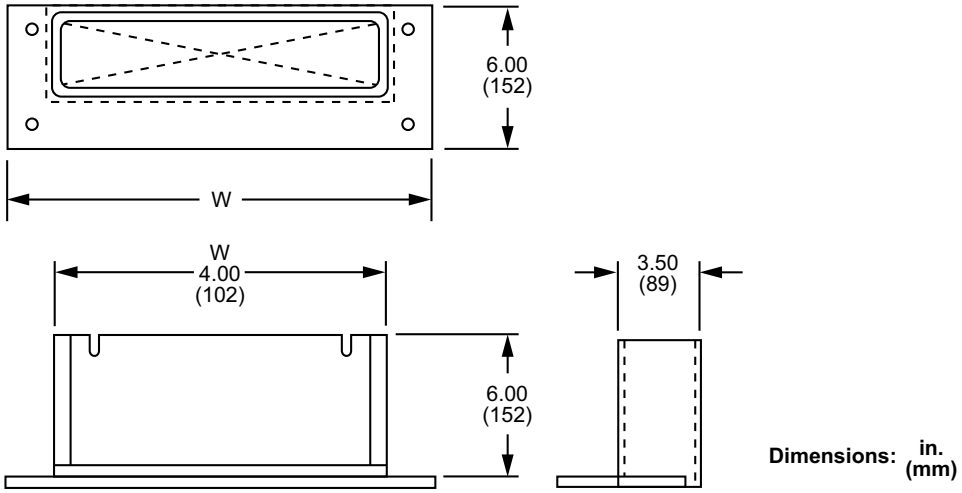


Table 17 - Vertical Elbow Dimensions

Catalog Number	Width	
	in.	mm
RVE06	6	152
RVE09	9	229
RVE12	12	305
RVE18	18	457
RVE24	24	610
RVE30	30	762

Panel Rise and Connector

Figure 28 - Panel Rise and Connector

RRC09

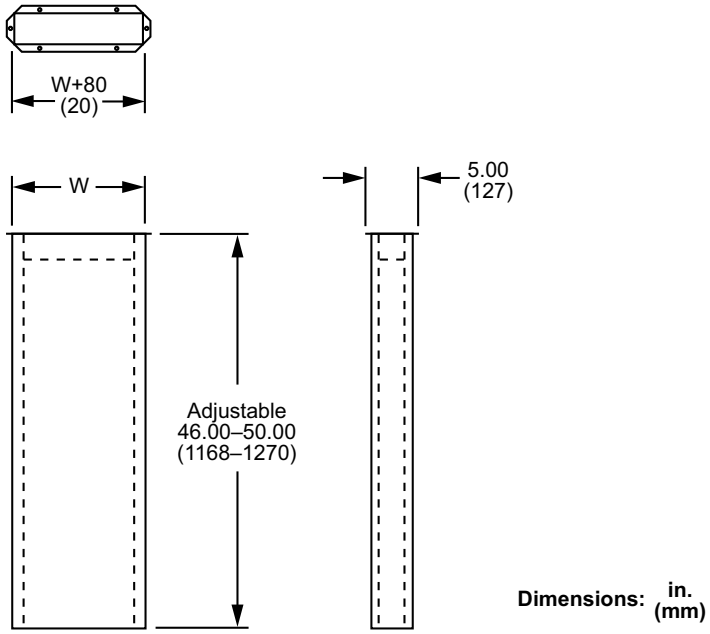


Table 18 - Panel Rise and Connector Dimensions

Catalog Number	Width	
	in.	mm
RRC06	2	51
RRC09	5	127
RRC12	8	203
RRC18	14	356
RRC24	20	508
RRC30	26	660

End Closure

Figure 29 - End Closure

REC09

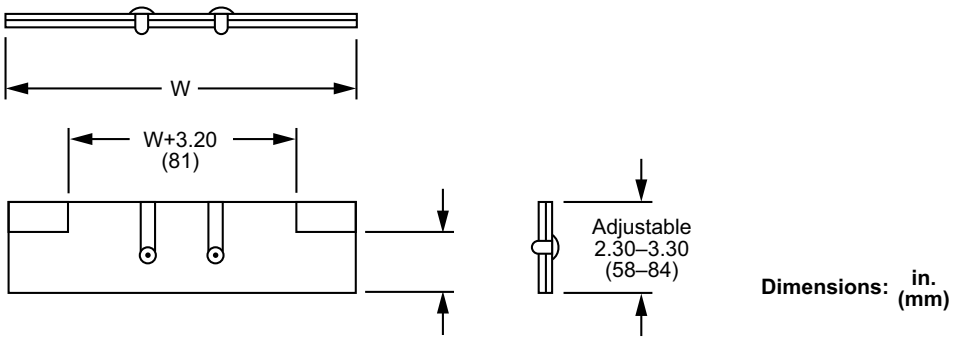


Table 19 - End Closure Dimensions

Catalog Number	Width	
	in.	mm
REC06	6.50	165
REC09	9.50	241
REC12	12.50	318
REC18	18.50	470
REC24	24.50	622
REC30	30.50	775

Space bar

Figure 30 - Space Bar

RSB09

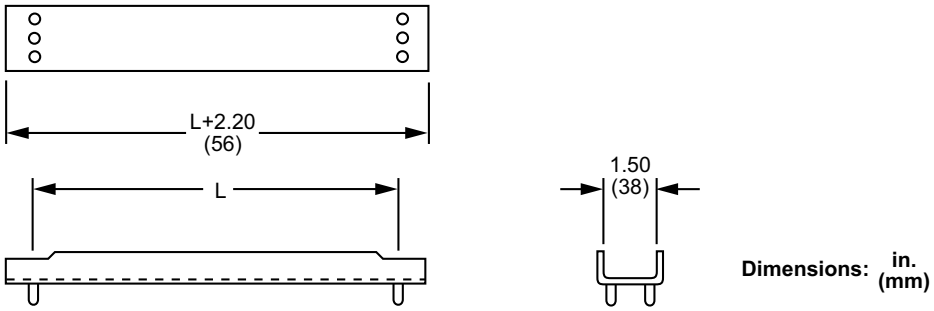


Table 20 - Space Bar Dimensions

Catalog Number	Width	
	in.	mm
RSB06	4	102
RSB09	7	178
RSB12	10	254
RSB18	16	406
RSB24	22	569
RSB30	28	711

Leveling Legs

Figure 31 - Leveling Legs

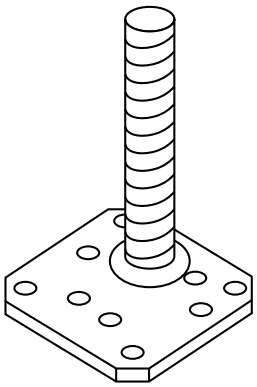


Table 21 - Leveling Legs Weight

Catalog Number	Description	Weight	
		Lbs.	Kg.
G19103	3 in. (76 mm) Leveling Leg for Support Channel	0.21	0.09

Trench Duct Support Channel

Figure 32 - Trench Duct Support Channel

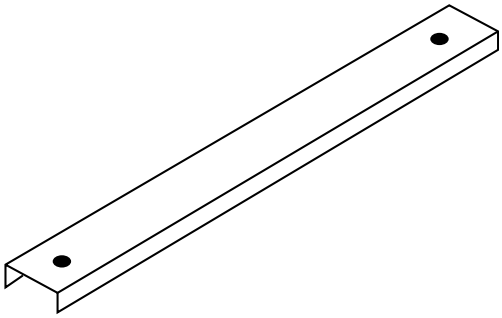


Table 22 - Trench Duct Support Channel Weight

Catalog Number	Description	Weight	
		Lbs.	Kg.
G1500T12	Support channel for 9 in. (229 mm) and 12 in. (305 mm) wide trench	1.30	0.60
G1500T24	Support channel for 18 in. (457 mm) and 24 in. (610 mm) wide trench	2.00	0.90
G1500T36	Support channel for 30 in. (762 mm) wide trench	2.90	1.30

Tape

Table 23 - Tape Weight

Catalog Number	Description	Weight	
		Lbs.	Kg.
G1414	2 in. (51 mm) Wide for Trench Cover Plate (180 ft./roll) (54864 mm/roll)	1.20	0.50

Plastic Grommets

Figure 33 - Plastic Grommets

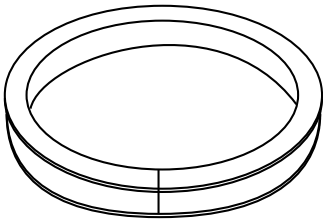


Table 24 - Plastic Grommets Weight

Catalog Number	Description	Weight	
		Lbs.	Kg.
G1472–2.5P	2.5 in. (64 mm) Diameter Grommet	0.03	0.01
G1472–3P	3 in. (76 mm) Diameter Grommet	0.03	0.01
G1472–4P	4 in. (102 mm) Diameter Grommet	0.04	0.02
G1472–36P	3 x 6 in. (76 x 152 mm) Grommet	0.04	0.02
G1472–37P	3 x 7 in. (76 x 178 mm) Grommet	0.05	0.02
RG50	50 ft. (15.24 m) Roll	2.00	0.90

Cover Lifter

Figure 34 - Cover Lifter

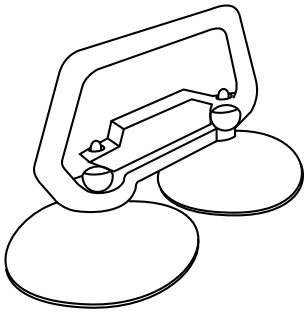


Table 25 - Cover Lifter Weight

Catalog Number	Description	Weight	
		Lbs.	Kg.
G1735S	Cover Lifter (Suction Cup Device)	2.20	1.00

Straight Through Tunnel

Figure 35 - Straight Through Tunnel

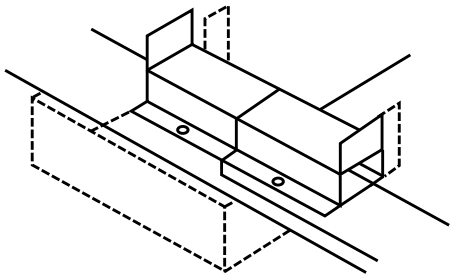


Table 26 - Straight Through Tunnel Weight

Catalog Number	Description	Weight	
		Lbs.	Kg.
RSV122ST	Straight tunnel for 12 x 2.5 in. (305 x 64 mm) floor trench tee or cross	2.90	1.32
RSV182ST	Straight tunnel for 18 x 2.5 in. (457 x 64 mm) floor trench tee or cross	3.80	1.73

90° Elbow Tunnel

Figure 36 - 90° Elbow Tunnel

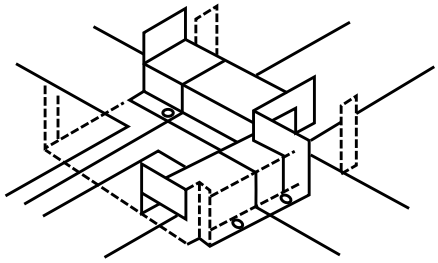
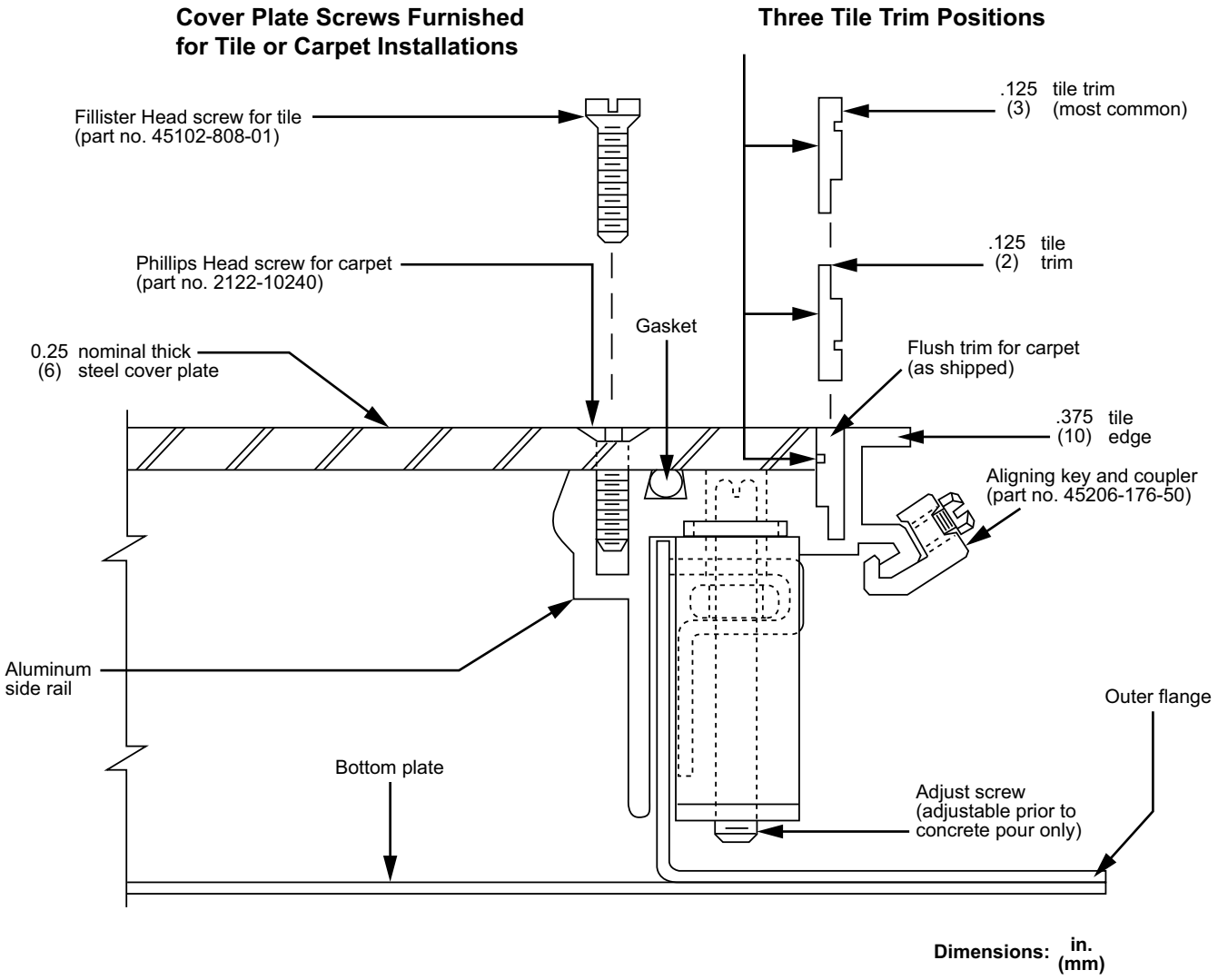


Table 27 - 90° Elbow Tunnel Weight

Catalog Number	Description	Weight	
		Lbs.	Kg.
RSV122ET	90° tunnel for 12 x 2.5 in. (305 x 64 mm) floor trench tee or cross	3.20	1.45
RSV182ET	90° tunnel for 18 x 2.5 in. (457 x 64 mm) floor trench tee or cross	5.10	2.32

Figure 37 - Cross Section—Details of Trench Duct Side Rail and Cover



Unassembled Rail-Way Trench Duct Specifications

1. All components of the trench header assembly shall be manufactured in accordance with the standards of Underwriters Laboratories, Inc.
2. Cover plates for trench duct shall be of nominal 0.25 in. (6 mm) thick steel sheet, roller leveled after being sheared to size.
3. The tile trim strip shall be of neutral gray vinyl and be designed so that either a 0.06 in. (2 mm) or 0.12 in. (3 mm) wide trim edge is available.
4. The side rail assemblies shall be furnished in 10 ft. maximum lengths. Height adjustment shall be from:
   - .37–3.37 in. (61–86 mm) for a 2.25 in. (64 mm fill)
   - 3–4 in. (76–102 mm) for a 3.25 in. (83 mm) fill

   Assemblies shall be adjustable prior to the installation of the cover plates. The inside dimension of the trench shall not be more than 1.87 in. (48 mm) less than the cover plate width. Assemblies shall be non-adjustable after the pour to assure rigidity of installation.
5. The side rail assemblies shall utilize a continuous screw slot to receive the cover plates in random position anywhere along the trench duct run.
6. The power compartment (U-trough) shall be 3.25 in. (89 mm) wide. The access hole into the power cell shall be field-drilled. The side partitions of the U-trough shall be adjustable to provide a cover plate support. Installer shall adjust the barriers and weld them into permanent position with a 0.50 in. (13 mm) long weld approximately 2 ft. (610 mm) on center. Extruded plastic sound dampeners shall be provided on the top of the adjustable barriers at approximately 20 in. (508 mm) intervals. Adjustment and welding shall be done prior to placement of the covers to provide support during construction.
7. Any compartment greater than 16 in. (407 mm) wide shall have additional cover plate support.
8. The cover plates shall be a maximum of 2 ft. (610 mm) long, and the abutting ends shall be gasketed. Cover plates shall be held in place by screws. The holes in the cover plate shall accept 0.12 in. (3 mm) high pan-head screws if floor tile is used or flat head screws that shall finish flush with the cover plate if carpet is used. Cover plates shall be shipped separately to the job site.
9. Vertical elbows, where required, shall be an integral part of a cover plate. Tees, horizontal elbows, crosses, offsets, cover plate tape, grommets, end closures, risers and connectors shall be furnished to complete the installation as specified.

Factory Assembled Rail-Way Trench Duct Specifications

1. All components of the trench header assembly shall be manufactured in accord with the standards of Underwriters Laboratories, Inc.
2. Cover plates for trench duct shall be of nominal 0.25 in. (6 mm) thick steel sheet, roller leveled after being sheared to size.
3. The tile trim strip shall be of neutral gray vinyl and be designed so that either a 0.06 in. (2 mm) or 0.12 in. (3 mm) wide trim edge is available.
4. Trench duct assemblies shall be furnished in 10 ft. maximum lengths. Height adjustment shall be from:
   - 2.37–3.37 in. (61–86 mm) for a 2.50 in. (64 mm) fill
   - 3–4 in. (76–102 mm) for a 3.25 in. (83 mm) fill

   Assemblies shall be adjustable prior to the installation of the cover plates. The tub portion of the trench shall not be more than 1.87 in. (48 mm) less than the cover plate width. Assemblies shall be non-adjustable after the pour to assure rigidity of installation.
5. The side rail assemblies shall utilize a continuous screw slot to receive the cover plates in random position anywhere along the trench duct run.
6. Provide trench partitions where required to maintain separation of services. The partition shall be adjustable to provide a cover plate support. Installer shall adjust barriers and weld barriers into permanent position with a 0.50 in. (13 mm) long weld approximately 2 ft. (610 mm) on center. Extruded plastic sound dampeners shall be provided on the top of the adjustable barriers at approximately 20 in. (508 mm) intervals. Adjustment and welding shall be done prior to the placement of covers to provide support during construction.
7. Any compartment greater than 16 in. (407 mm) wide shall have additional cover plate support.
8. The cover plates shall be a maximum of 2 ft. (610 mm) long and the abutting ends shall be gasketed. Cover plates shall be held in place by screws. The holes in the cover plate shall accept 0.12 in. (3 mm) high pan-head screws if floor tile is used or flat-head screws that shall finish flush with the cover plate if carpet is used. Cover plates shall be shipped to the job site separately from the trench duct assemblies.
9. Vertical elbows, where required, shall be an integral part of a cover plate. Tees, horizontal elbows, crosses, offsets, cover plate tape, grommets, end enclosures, risers and connectors shall be furnished to complete the installation as specified.

Schneider Electric
800 Federal Street
Andover MA 01810
USA

1-888-778-2733

www.se.com

As standards, specifications, and design change from time to time, please ask for confirmation of the information given in this publication.

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