

FIBER-DUCT™ Routing System

NEC Compliant/UL Listed

The **FIBER-DUCT** Routing System provides a complete solution for routing and protecting your fiber optic cables. This system can also be used for Category 5, UTP, ScTP, and Coax cabling applications as well. The fittings are designed to maintain a minimum 2" cable bend radius which protects against signal loss due to excessive bending of cables. A full selection of fittings is available to speed the installation.

Additional features include:

UL Listed for general use

- UL94V-0 Flammability rating on all PVC fittings and PVC duct
- Snap on non-slip covers
- Two sizes: 2" X 2" and 4" X 4"
- Minimum 2" bend radius fittings
- Available in Orange, Light Gray, Black and Yellow (Duct—PVC; Fittings—ABS material)
- Available in clear (Polycarbonate material)
- Manufactured in an ISO 9001 registered facility

Excellent for use in:

- Telecommunications Closets
- Central Offices
- Equipment rooms
- Entrance facilities
- Appropriate floor and ceiling spaces



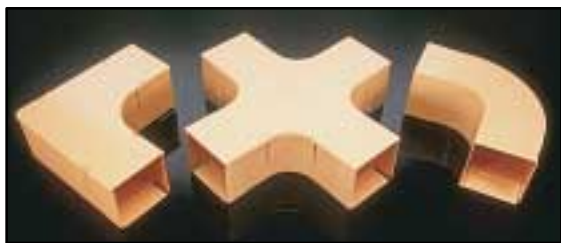
Panduit **FIBER-DUCT™** Routing System provides the following key benefits:

Compliant with NEC Articles 770 & 800

- Protects against signal loss due to excessive bending
- Easy and secure installation—completely enclosed to protect cables
- Allows for distribution of large amounts of fiber cable
- Identifies Fiber Optic Cable (Orange = Multi-mode; Yellow = Single-Mode)
- Provides a totally integrated cabling solution
- ISO 9001 assures highest quality and reliability

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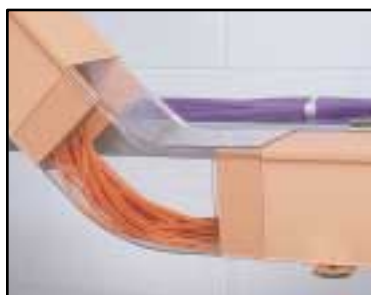
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FIBER-DUCT Routing System Applications



FIBER-DUCT Routing System can be used with a cable management system when routing fiber optic or category 5 cables to telecommunications racks or enclosures.



Both duct and fittings are available in clear for low smoke applications. The clear polycarbonate material allows cable color to show through for easy identification.



Both duct and fittings are available in orange (multi-mode) and yellow (single-mode) to clearly identify fiber optic cable.



All fittings in this system are designed with a minimum 2" bend radius to protect fiber optic cables. **FIBER-DUCT** System includes a complete line of mounting hardware for a variety of applications.

PANDUCT® Solid and Slotted Wall Wiring Duct



Duct Part Number	Nominal Duct Size		Cover Part Number	Color ♦	Material	Std. Length	Duct Std. Ctn. Qty.	Cover Std. Ctn. Qty.
	Width (in)	Height (in)						

Types S and PS Solid Wall Wiring Duct

S2X2OR6NM	2.00	2.00	C2OR6	Orange	PVC	6 ft	120 ft	120 ft
PS2X2CL6NM	(50.8mm)	(50.8mm)	PC2CL6	Clear	Polycarbonate	6 ft	120 ft	120 ft
S4X4OR6NM	4.00	4.00	C4OR6	Orange	PVC	6 ft	120 ft	120 ft
PS4X4CL6NM	(101.6mm)	(101.6mm)	PC4CL6	Clear	Polycarbonate	6 ft	120 ft	120 ft

NOTE: Available with mounting holes. To order delete NM from the Part Number.



Types E and PE Slotted Wall Wiring Duct

E2X2OR6	2.00	2.00	C2OR6	Orange	PVC	6 ft	120 ft	120 ft
PE2X2CL6	(50.8mm)	(50.8mm)	PC2CL6	Clear	Polycarbonate	6 ft	120 ft	120 ft
E4X4OR6	4.00	4.00	C4OR6	Orange	PVC	6 ft	120 ft	120 ft
PE4X4CL6	(101.6mm)	(101.6mm)	PC4CL6	Clear	Polycarbonate	6 ft	120 ft	120 ft

NOTE: Available without mounting holes. To order add NM to the end of the Part Number.

♦ PVC material parts listed in Orange (OR) color. To order other colors in PVC material substitute Yellow (YL), BL (Black), and Light Gray (LG). Contact Factory for details.

ORDERING INFORMATION:

Order number of feet required, in multiples of Standard Length Increment.

FIBER-DUCT™ System Fittings



Part Number	Description	Material	Color ♦	Std. Pkg. Qty.	Std. Ctn. Qty.
FCF2X2OR	Coupler Fitting — 2 x 2 Size	ABS	Orange	1 pc.	5 pcs.
PFCF2X2CL	Used to join two sections of duct together	Polycarbonate	Clear	1 pc.	5 pcs.
FCF4X4OR	Coupler Fitting — 4 x 4 Size	ABS	Orange	1 pc.	5 pcs.
PFCF4X4CL	Used to join two sections of duct together	Polycarbonate	Clear	1 pc.	5 pcs.
FEC2X2OR	End Cap Fitting — 2 x 2 Size	ABS	Orange	1 pc.	5 pcs.
PFEC2X2CL	Closes the end of the duct	Polycarbonate	Clear	1 pc.	5 pcs.
FEC4X4OR	End Cap Fitting — 4 x 4 Size	ABS	Orange	1 pc.	5 pcs.
PFEC4X4CL	Closes the end of the duct	Polycarbonate	Clear	1 pc.	5 pcs.
FFWC2X2OR	Four Way Cross Fitting — 2 x 2 Size	ABS	Orange	1 pc.	5 pcs.
PFFWC2X2CL	Used to join duct at four way cross intersections	Polycarbonate	Clear	1 pc.	5 pcs.
FFWC4X4OR	Four Way Cross Fitting — 4 x 4 Size	ABS	Orange	1 pc.	5 pcs.
PFFWC4X4CL	Used to join duct at four way cross intersections	Polycarbonate	Clear	1 pc.	5 pcs.
FIVRA2X2OR	Inside Vertical Right Angle Fitting — 2 x 2 Size	ABS	Orange	1 pc.	5 pcs.
PFIVRA2X2CL	Used to join duct at 90° inside corners	Polycarbonate	Clear	1 pc.	5 pcs.
FIVRA4X4OR	Inside Vertical Right Angle Fitting — 4 x 4 Size	ABS	Orange	1 pc.	5 pcs.
PFIVRA4X4CL	Used to join duct at 90° inside corners	Polycarbonate	Clear	1 pc.	5 pcs.
FOVRA2X2OR	Outside Vertical Right Angle Fitting — 2 x 2 Size	ABS	Orange	1 pc.	5 pcs.
PFOVRA2X2CL	Used to join duct at 90° outside corners	Polycarbonate	Clear	1 pc.	5 pcs.
FOVRA4X4OR	Outside Vertical Right Angle Fitting — 4 x 4 Size	ABS	Orange	1 pc.	5 pcs.
PFOVRA4X4CL	Used to join duct at 90° outside corners	Polycarbonate	Clear	1 pc.	5 pcs.
FIV452X2OR	Inside Vertical 45° Fitting — 2 x 2 Size	ABS	Orange	1 pc.	5 pcs.
PFIV452X2CL	Used to join duct at 45° inside corners	Polycarbonate	Clear	1 pc.	5 pcs.
FIV454X4OR	Inside Vertical 45° Fitting — 4 x 4 Size	ABS	Orange	1 pc.	5 pcs.
PFIV454X4CL	Used to join duct at 45° inside corners	Polycarbonate	Clear	1 pc.	5 pcs.
FOV452X2OR	Outside Vertical 45° Fitting — 2 x 2 Size	ABS	Orange	1 pc.	5 pcs.
PFOV452X2CL	Used to join duct at 45° outside corners	Polycarbonate	Clear	1 pc.	5 pcs.
FOV454X4OR	Outside Vertical 45° Fitting — 4 x 4 Size	ABS	Orange	1 pc.	5 pcs.
PFOV454X4CL	Used to join duct at 45° outside corners	Polycarbonate	Clear	1 pc.	5 pcs.

♦ ABS material parts listed in Orange (OR) color. To order other colors in ABS material substitute Yellow (YL), BL (Black), and Light Gray (LG). Contact Factory for details.

ORDERING INFORMATION:

Order number of pieces required, in multiples of Standard Package.

FIBER-DUCT™ System Fittings (cont.)



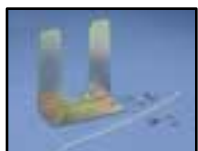
Part Number	Description	Material	Color*	Std. Pkg. Qty.	Std. Ctn. Qty.
FVT2X2OR PFVT2X2CL	Vertical Tee Fitting — 2 x 2 Size Used to join vertical and horizontal sections of duct	ABS Polycarbonate	Orange Clear	1 pc. 1 pc.	5 pcs. 5 pcs.
FVT4X4OR PFVT4X4CL	Vertical Tee Fitting — 4 x 4 Size Used to join vertical and horizontal sections of duct	ABS Polycarbonate	Orange Clear	1 pc. 1 pc.	5 pcs. 5 pcs.
FRA2X2OR PFRA2X2CL	Right Angle Fitting — 2 x 2 Size Used to join duct at 90° flat junctions	ABS Polycarbonate	Orange Clear	1 pc. 1 pc.	5 pcs. 5 pcs.
FRA4X4OR PFRA4X4CL	Right Angle Fitting — 4 x 4 Size Used to join duct at 90° flat junctions	ABS Polycarbonate	Orange Clear	1 pc. 1 pc.	5 pcs. 5 pcs.
FT2X2OR PFT2X2CL	Tee Fitting — 2 x 2 Size Used to join duct at tee intersections	ABS Polycarbonate	Orange Clear	1 pc. 1 pc.	5 pcs. 5 pcs.
FT4X4OR PFT4X4CL	Tee Fitting — 4 x 4 size Used to join duct at tee intersections	ABS Polycarbonate	Orange Clear	1 pc. 1 pc.	5 pcs. 5 pcs.
FRF42OR PFRF42CL	Reduces 4 x 4 size duct to 2 x 2 size.	ABS Polycarbonate	Orange Clear	1 pc. 1 pc.	5 pcs. 5 pcs.

* ABS material parts listed in Orange (OR) color. To order other colors in ABS material substitute Yellow (YL), BL (Black), and Light Gray (LG). Contact Factory for details.

ORDERING INFORMATION:

Order number of pieces required, in multiples of Standard Package.

FIBER-DUCT™ Innerduct Transition Fittings



Attaches to the end of **PANDUCT®** Type E and Type S Duct. It can also be attached anywhere along the side walls of the duct provided the duct fingers or side walls are removed.

Part Number	Description	Material	Std. Pkg. Qty.	Std. Ctn. Qty.
Innerduct Transition Fitting — 2 x 2 Size				
FITF2X2	Provides transition from 2 x 2 duct to 3/4" to 1" innerduct.	Metal**	1 pc.	10 pcs.
Innerduct Transition Fitting — 4 x 4 Size				
FITF4X4A	Transition from 4 x 4 duct to 1-2 pcs. 1" innerduct.	Metal**	1 pc.	10 pcs.
FITF4X4B	Transition from 4 x 4 duct to 1-2 pcs. 1 1/4" innerduct.	Metal**	1 pc.	10 pcs.

** Commercial grade cold rolled steel with zinc chromate finish.

ORDERING INFORMATION:

Order number of pieces required, in multiples of Standard Package.

FIBER-DUCT™ Mounting Brackets



Part Number	Description	Std. Pkg. Qty.	Std. Ctn. Qty.
FTRB12	Bracket attaches to UNISTRUT® Metal Framing. Accepts 1/2" threaded rod (not included). Contains bracket and hardware for attaching to metal framing.	1 pc.	10 pcs.
FTRBE12	Bracket attaches to existing 1/2" threaded rod (not included). Contains bracket and hardware for attaching to threaded rods.	1 pc.	10 pcs.
FTRBE58	Bracket attaches to existing 5/8" threaded rod (not included). Contains bracket and hardware for attaching to threaded rods.	1 pc.	10 pcs.
FTRBN12	Bracket attaches to new 1/2" threaded rod (not included). Contains bracket and hardware for attaching to threaded rods.	1 pc.	10 pcs.
FTRBN58	Bracket attaches to new 5/8" threaded rod (not included). Contains bracket and hardware for attaching to threaded rods.	1 pc.	10 pcs.
FLRB	Bracket attaches to 3/8" X 1-1/2" or 3/8" X 2" ladder rack rails. Contains hardware for attaching bracket to ladder rack. Also contains hardware for attaching duct/fittings to bracket.	1 pc.	10 pcs.

UNISTRUT® is a registered trademark of UNISTRUT Corporation

ORDERING INFORMATION:

Order number of pieces required, in multiples of Standard Package.

For Technical Assistance, call: **888-506-5400, Ext. 8287** (outside the U.S., see inside back cover for International Directory)

FIBER-DUCT™ Mounting Brackets (cont.)



FZBA1.5X4



FLB12X15
FLB12X20
FLB58X15
FLB58X20



FUSB



FLB



FMRB

Part Number	Description	Std. Pkg. Qty.	Std. Ctn. Qty.
FZBA1.5X4	Aluminum bracket used to offset duct from mounting surface, adjustable from 1½" to 4".	1 pc.	10 pcs.
FLB12X15	Bracket attaches to 1-1/2" ladder rack rail. Bracket accepts 1/2" threaded rod (not included). Contains bracket and hardware for attaching bracket to ladder rack.	1 pc.	10 pcs.
FLB12X20	Bracket attaches to 2" ladder rack rail. Bracket accepts 1/2" threaded rod (not included). Contains bracket and hardware for attaching bracket to ladder rack.	1 pc.	10 pcs.
FLB58X15	Bracket attaches to 1-1/2" ladder rack rail. Bracket accepts 5/8" threaded rod (not included). Contains bracket and hardware for attaching bracket to ladder rack.	1 pc.	10 pcs.
FLB58X20	Bracket attaches to 2" ladder rack rail. Bracket accepts 5/8" threaded rod (not included). Contains bracket and hardware for attaching bracket to ladder rack.	1 pc.	10 pcs.
FUSB	Bracket attaches to under-floor support pedestal (not included). Contains bracket and hardware for attaching bracket to pedestal. Also contains hardware for attaching duct/fittings to "L" Bracket.	1 pc.	10 pcs.
FLB	"L" Bracket attaches to walls. User supplies appropriate mounting hardware for attaching "L" Bracket to walls. Contains bracket and hardware for attaching duct/fittings to "L" Bracket.	1 pc.	10 pcs.
FMRB	"L" Bracket attaches to top rail of rack for added support. Contains bracket and hardware for attaching "L" Bracket to rack and bracket to duct.	1 pc.	10 pcs.

ORDERING INFORMATION:

Order number of pieces required, in multiples of Standard Package.

FIBER-DUCT™ Accessories



Part Number	Description	Std. Pkg. Qty.	Std. Ctn. Qty.
NR2WH-L	Optional snap rivet fastens duct and fittings together for added strength and rigidity. Fastener mounts flush to duct surfaces. 2" X 2" rivet white color.	50 pcs.	500 pcs.
NR4BL-L	Optional snap rivet fastens duct and fitting together for added strength and rigidity. Fastener mounts flush to duct surfaces. 4" X 4" rivet black color.	50 pcs.	500 pcs.

ORDERING INFORMATION:

Order number of pieces required, in multiples of Standard Package.

Fiber Optic Adhesive Markers



- Durable markers available in pressure sensitive card
- Legend: Black
- Background: Orange

Part Number	Legend	Part Number	Legend	Marker Size W X L In. (mm)	Markers Per Card	Std. Pkg. Qty.
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Adhesive Marker Cards

PCV-FOA	Fiber Optic	PCV-FOCA	Fiber Optic Cable	9.00 X 2.25 (228.6 X 57.2)	1	5 Cards
PCV-FOB	Fiber Optic	PCV-FOCB	Fiber Optic Cable	4.50 X 1.19 (114.3 X 28.6)	4	
PCV-FOC	Fiber Optic	PCV-FOCC	Fiber Optic Cable	2.25 X 0.50 (57.1 X 12.7)	18	

ORDERING INFORMATION:

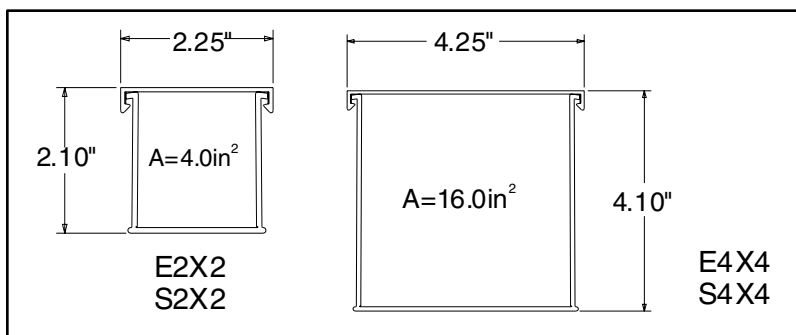
Order number of pieces required, in multiples of Standard Package.

Fill Capacities for **PANDUCT®** Type E or Type S

This information is to be used as a guide in selecting the proper size duct. The maximum amounts may vary according to the wire installation methods, straightness of wires, etc.

SPEC=40% wirefill—the recommended design in cable capacity.
Leaves room for future moves, adds and changes

MAX=60% wirefill—the maximum cable quantity based on cable interweaving and packing factors or UL temperature rise test for electrical



Fill Capacity Table for:

•Fiber Optic Cable (62.5/125mm) •Data Grade 24 AWG UTP

Duct Type	Size	Fiber Optic Cables (62.5/125mm)														Data Grade Cables			
		2 Strand		4 Strand		6 Strand		12 Strand		24 Strand		36 Strand		72 Strand		24 AWG UTP CM			
		DIA.=0.24		DIA.=0.26		DIA.=0.27		DIA.=0.34		DIA.=0.55		DIA.=0.67		DIA.=0.89		25 pr.		Cat.5 4 pr.	
		FILL		FILL		FILL		FILL		FILL		FILL		FILL		FILL		FILL	
		SPEC	MAX	SPEC	MAX	SPEC	MAX	SPEC	MAX	SPEC	MAX	SPEC	MAX	SPEC	MAX	SPEC	MAX	SPEC	MAX
PANDUCT Type E or S	2"X2"	35	53	30	45	28	42	18	26	7	10	5	7	3	4	11	17	43	65
PANDUCT Type E or S	4"X4"	142	212	121	181	112	168	71	106	27	40	18	27	10	15	46	69	173	260

NOTE: See [page xiv-xv](#) for further explanation of the wirefill data.