IBOCO® Wire Duct – Solid Wall
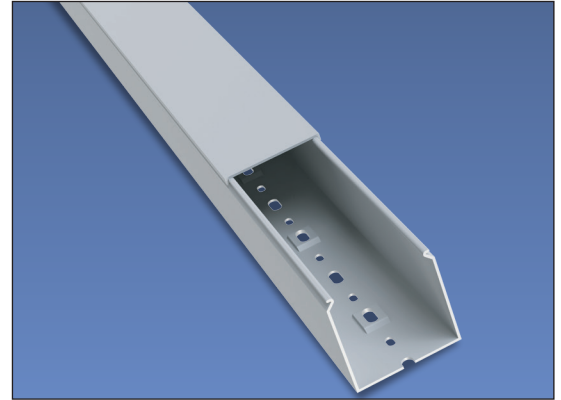
Rigid PVC - Solid Wall - TSH Series

Overview

With all the standard features of the T1 Series slotted wire duct, TSH series solid wall wire duct is made of rigid PVC that carries a UL 94V-0 flammability rating. It is available in 6.56 ft [2m] length and supplied complete with cover, and replacement covers can be purchased separately.

Features

- Standard mounting holes
- Non-slip cover
- Flush cover design holds 10–12% more wires than traditional designs
- Rivets R6 and R4 may be used to mount on panel
- Recess bosses in the base allow rapid mounting of wire retainers (CL series), inserts (ZP2) and separators (SEP series) inside the wire duct.
- Duct base perforation according to DIN 43659 and DIN VDE 0660 TEIL 506

UL file E123572

Gray Rigid PVC Solid Wall - TSH Series					
Part Number	Qty	Price	Actual Size (WxH) inches [mm]	Length ft [m]	Drawing Link
TSH-0506G-1	1	$16.50	0.60 x 0.71 [15 x 18]	6.56 [2]	PDF
TSH-1010G-1	1	$20.50	1.00 x 1.18 [25 x 30]		PDF
TSH-1015G-1	1	$25.50	1.00 x 1.57 [25 x 40]		PDF
TSH-1515G-1	1	$28.00	1.57 x 1.57 [40 x 40]		PDF
TSH-2222G-1	1	$31.50	2.36 x 2.36 [60 x 60]		PDF
TSH-2230G-1	1	$38.50	2.36 x 3.15 [60 x 80]		PDF
TSH-3030G-1	1	$49.00	3.15 x 3.15 [80 x 80]		PDF
TSH-4040G-1	1	$62.00	3.94 x 3.94 [100 x 100]		PDF

Cover included.

Dimensions
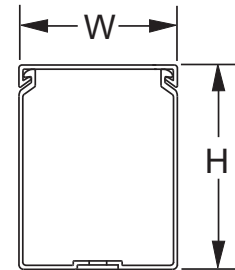
IBOCO® Wire Duct Wire Fill Capacity

Wire Fill Capacity

T1, T1E, TSH Series Wire Fill Capacity					
Wire Gauge					
12AWG	**14AWG**		**16AWG**	**18AWG**	**22AWG**
Insulation Thickness					
1/32	**3/64**	**1/32**	**1/32**	**1/32**	**1/64**
OD-0.158	**OD-0.165**	**OD-0.139**	**OD-0.125**	**OD-0.113**	**OD-0.065**
Recommended Maximum Number of Wires per Wire Duct (based on 50% fill capacity)					
7	6	9	11	14	43
12	11	16	20	24	74
22	21	29	36	44	134
31	28	39	48	59	180
45	40	57	71	85	261
59	53	75	92	113	341
72	66	93	115	141	426
51	46	65	81	99	299
77	70	98	121	148	449
102	92	130	160	196	593
125	113	159	197	241	729
78	70	99	123	150	453
114	103	146	180	221	667
156	141	199	246	302	912
194	176	247	306	375	1132
105	95	134	165	203	612
159	144	203	251	307	928
214	193	272	337	412	1246
267	242	341	421	515	1558
309	283	399	493	604	1826
132	120	169	208	255	771
201	182	256	316	387	1171
270	244	344	425	520	1573
336	305	429	531	650	1963
415	381	536	663	812	2455
512	464	653	807	988	2987

The **Nominal Duct Size (inches)** rows, in order, are:

Nominal Duct Size (inches)	12AWG	14AWG	16AWG	18AWG	22AWG
1/2 x 5/8	7	6 / 9	11	14	43
1/2 x 1	12	11 / 16	20	24	74
1 x 1	22	21 / 29	36	44	134
1 x 1 1/2	31	28 / 39	48	59	180
1 x 2 1/4	45	40 / 57	71	85	261
1 x 3	59	53 / 75	92	113	341
1 x 4	72	66 / 93	115	141	426
1 1/2 x 1 1/2	51	46 / 65	81	99	299
1 1/2 x 2 1/4	77	70 / 98	121	148	449
1 1/2 x 3	102	92 / 130	160	196	593
1 1/2 x 4	125	113 / 159	197	241	729
2 1/4 x 1 1/2	78	70 / 99	123	150	453
2 1/4 x 2 1/4	114	103 / 146	180	221	667
2 1/4 x 3	156	141 / 199	246	302	912
2 1/4 x 4	194	176 / 247	306	375	1132
3 x 1 1/2	105	95 / 134	165	203	612
3 x 2 1/4	159	144 / 203	251	307	928
3 x 3	214	193 / 272	337	412	1246
3 x 4	267	242 / 341	421	515	1558
3 x 5	309	283 / 399	493	604	1826
4 x 1 1/2	132	120 / 169	208	255	771
4 x 2 1/4	201	182 / 256	316	387	1171
4 x 3	270	244 / 344	425	520	1573
4 x 4	336	305 / 429	531	650	1963
4 x 5	415	381 / 536	663	812	2455
6 x 4	512	464 / 653	807	988	2987

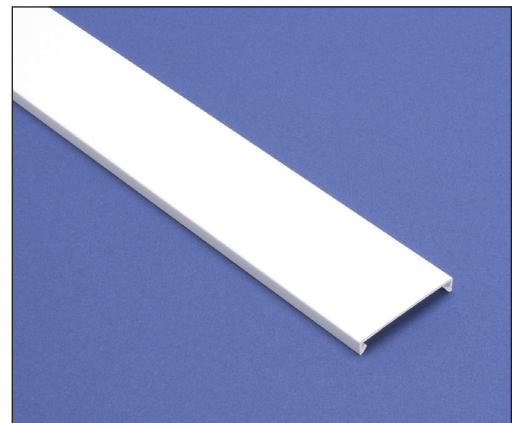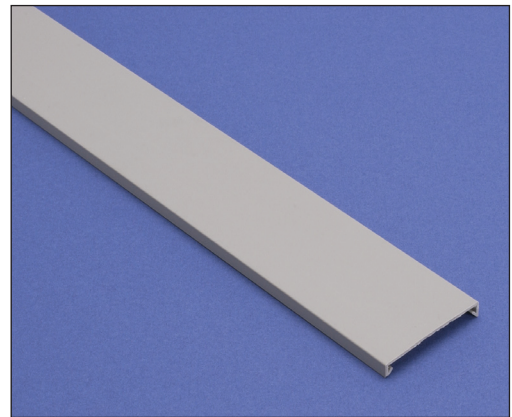# Ⓑ IBOCO® Wire Duct – Covers
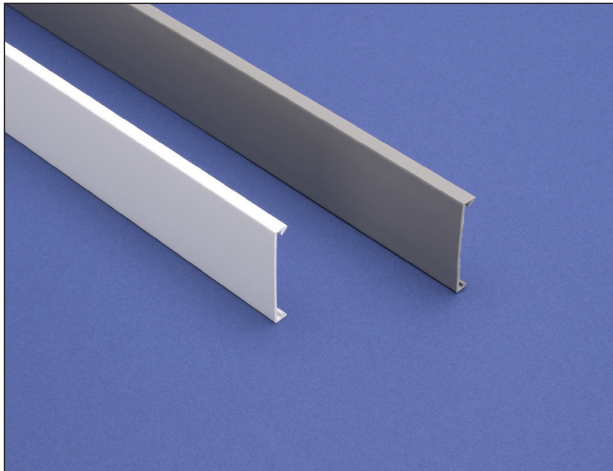
Duct Cover

Our standard wire duct products are supplied complete with covers. These replacement covers are manufactured from the same rigid self-extinguishing PVC material.

UL Recognized file # E123572

| Duct Cover Specifications					
Part Number	Price	Description	Color	Qty	Actual Total Length ft [m]
COV-05G-1	$5.00	Cover for 0.5" wide duct	Gray	1	6.56 [2]
COV-10G-1	$5.00	Cover for 1.0" wide duct	Gray	1	
COV-10W-1	$5.00	Cover for 1.0" wide duct	White	1	
COV-15G-1	$6.50	Cover for 1.5" wide duct	Gray	1	
COV-15W-1	$6.50	Cover for 1.5" wide duct	White	1	
COV-22G-1	$8.25	Cover for 2.25" wide duct	Gray	1	
COV-22W-1	$8.25	Cover for 2.25" wide duct	White	1	
COV-30G-1	$12.00	Cover for 3.0" wide duct	Gray	1	
COV-30W-1	$12.00	Cover for 3.0" wide duct	White	1	
COV-40G-1	$14.50	Cover for 4.0" wide duct	Gray	1	
COV-40W-1	$14.50	Cover for 4.0" wide duct	White	1	
COV-60G-1	$28.00	Cover for 6.0" wide duct	Gray	1	
COV-60W-1	$28.00	Cover for 6.0" wide duct	White	1	

**Note: Standard length of covers is 6.56 feet [2m] to fit T1, T1E, and TSH duct.**

IBOCO® Wire Duct – Accessories

Duct Separators

Duct separators allow the physical separation of circuits within a single piece of duct. The various mounting arrangements allow alternate compartmentalization of duct and differing ratios of usable sections.
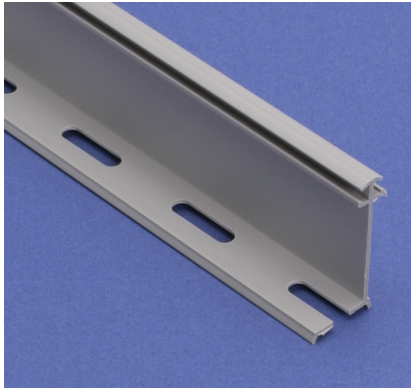
| Duct Separators						
Part Number	Price	Description	Color	Qty	Length ft [m]	Drawing Link
SEP-15E-1	$8.25	Separator for 1.5" high duct	Gray	1		PDF
SEP-22E-1	$11.00	Separator for 2.25" high duct	Gray	1	6.56 [2]	PDF
SEP-30E-1	$12.00	Separator for 3.0" high duct	Gray	1		PDF

ZP1
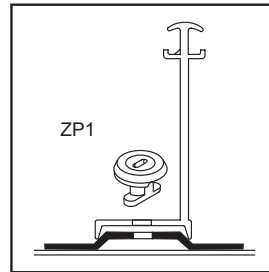
SEP-E Mounting Detail
Order ZP1 mount separately

Wire Retainers

For holding wires during wiring operations, these retainers are essential. They allow easy access to the interior of the wire duct during maintenance or alterations, while assuring that wiring bundles will not fall out when the duct cover is removed. Installed with a simple rotating movement, they anchor firmly in the recess boss in the duct base.
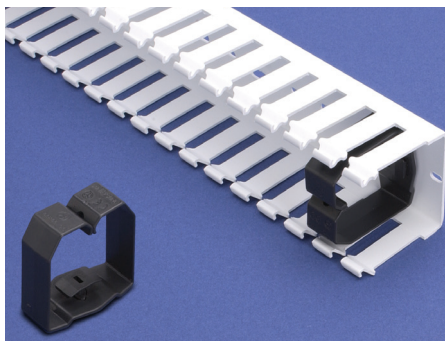
Wire Retainers				
Part Number	Price	Description	Color	Qty
CL-1515	$69.00	Wire retainer fastener for 1.5 x 1.5" duct		40
CL-1522	$73.00	Wire retainer fastener for 1.5 x 2.25" duct		40
CL-1530	$42.00	Wire retainer fastener for 1.5 x 3.0" duct		20
CL-2215	$80.00	Wire retainer fastener for 2.25 x 1.5" duct		40
CL-2222	$45.00	Wire retainer fastener for 2.25 x 2.25" duct		20
CL-2230	$46.00	Wire retainer fastener for 2.25 x 3.0" duct		20
CL-2240	$51.00	Wire retainer fastener for 2.25 x 4.0" duct	Black	20
CL-3022	$28.00	Wire retainer fastener for 3.0 x 2.25" duct		10
CL-3030	$31.50	Wire retainer fastener for 3.0 x 3.0" duct		10
CL-3040	$31.50	Wire retainer fastener for 3.0 x 4.0" duct		10
CL-4022	$35.00	Wire retainer fastener for 4.0 x 2.25" duct		10
CL-4030	$31.50	Wire retainer fastener for 4.0 x 3.0" duct		10
CL-4040	$21.50	Wire retainer fastener for 4.0 x 4.0" duct		5
CL-6040	$26.50	Wire retainer fastener for 6.0 x 4.0" duct		5

W = 1½" - 2¼"
W = 3" - 4"
W = 6"
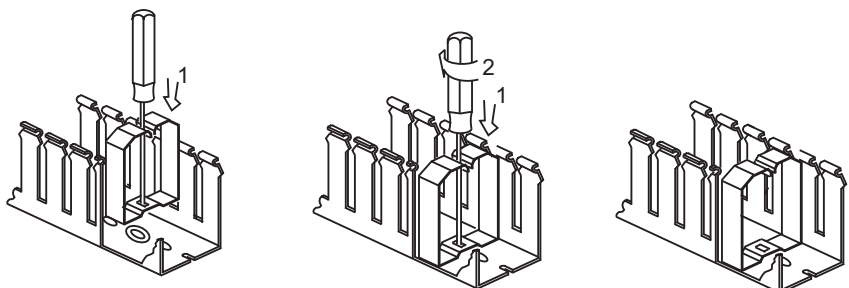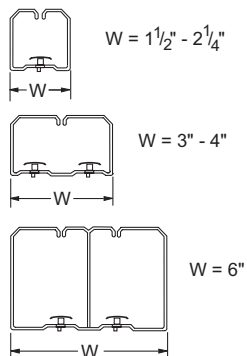
IBOCO® Wire Duct – Accessories

Duct Marking Tags

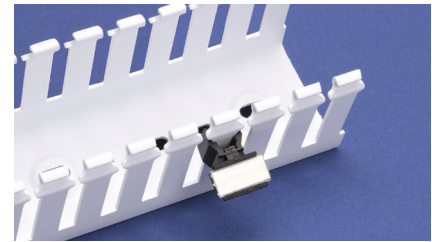| Part Number	Price	Description	Qty
DM1	$31.00	Single-width white cardboard identification label for wire duct. Supplied with black plastic mounting clip and transparent plastic cover slide	50

Note: DM1 marking tags can only be used with T1 series wire duct.

Cardboard label

Clip

Mounting Devices

Part Number	Price	Description	Qty
ZP1	$16.50	Round, white polyamide 'button' used to mount components and separators inside duct.	100
ZP2	$20.00	Square white polyamide cable tie mount used to tighten a wire bundle inside duct.	50

Wire Duct Rivets and Rivet Tools

Part Number	Price	Description	Qty
R4*	$19.00	Blue polyamide rivet used to install all types of wire duct with standard 4.5 mm [0.17 in] mounting holes.	250
B4	$50.00	Red polyamide rivet tool used to install R4 rivets.	1
R6*	$22.00	Natural polyamide rivet used to install all types of wire duct with standard 6.5 mm [0.26 in] mounting holes.	250
B6	$50.00	Yellow polyamide rivet tool used to install R6 rivets.	1

* R4 drill hole size - 5/32" (4mm), R6 drill hole size - 7/32" [5.5 mm]
When using with Flexible wire duct, only the R4 rivet will currently work.

Identification Tags

Allowing easy identification of control gear and switchgear, these tags are mounted by snapping the clip onto the sidewall finger segments of the duct. No gluing - no drilling! After installation, they need not be removed during maintenance or any work which involves the removal of the covers.
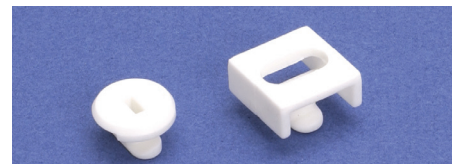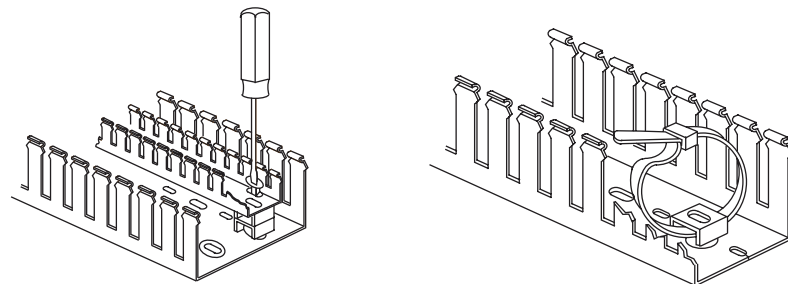
Note: Take care that clip is installed above the wires coming out to the sidewall slots.

Mounting Inserts

We carry mounts in two styles: ZP1 for mounting components and SEP-E separators inside duct, or for mounting small sizes of duct inside larger sizes (for separation of circuits with different functions); and ZP2, which is used with a cable tie to secure a wire bundle inside the duct.
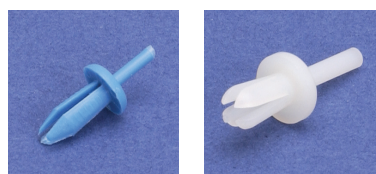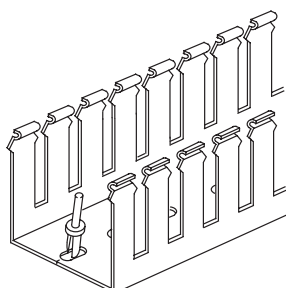
Rivets and Rivet Tools

Wire duct rivets install quickly and easily with the companion rivet tool, offering good temperature resistance and excellent mechanical properties. They can be used to install all types of wire duct with standard mounting holes.

IBOCO® Wire Duct – Material Specifications

Material Specifications							
Materials / **Technical Characteristics**	**Test Standard**	**Unit of Measure**	**Rigid PVC**	**Polypropylene**	**PVC Molded Components**	**Polyamide 6**	**Polyethylene**	**Flame Retardant Polyethylene**
Chemical/Physical Properties								
Specific Gravity	ASTM D792	g/cm^3	1.55	1.01	1.32	1.14	0.92	0.97
H$_2$O 73.4°F Absorption	ISO 62	%	< 0.1	0.02	< 0.1	2.5	< 0.1	< 0.1
Formaldehyde	–	ppm	absent	absent	absent	absent	absent	absent
Cadmium	–	ppm	absent	absent	absent	absent	absent	absent
Mechanical Properties								
Tensile Stress at Break	ASTM D638	MPa	39	28	30	45	17	15
Traction Strength	ASTM D638	MPa	44	27	27	55	9.5	9
Elongation at Break	ASTM D638	%	130	200	97	250	400	600
Modulus of Elasticity at Traction	ASTM D638	MPa	4400	n/a	–	950	–	240
Modulus of Elasticity at Flexion	ASTM D790	MPa	3200	2100	–	1100	210	130
Thermal Properties								
Temperature VICAT	ASTM D1525	°C	84	95	70	198	89	–
HDT	ASTM D648	°C	72	60	60	185	–	–
Coefficient of Expansion	ASTM D696	K^{-1}	6x10^{-5}	10^{-5}	8x10^{-5}	8-10x10^{-5}	22x10^{-5}	10^{-5}
Specific Heat	ASTM C351	kJ/kgK	0.94	n/a	1.24	1.7	–	–
Thermal Conductivity	ASTM C177	W/mK	0.14	0.21	0.14	0.29	0.32	0.32
Electrical Properties								
Dielectric Constant	ASTM D150	–	3.2 - 4.0	2.5	3.2	5.0	2.4	2.3
Dielectric Strength	IEC 243	kV/mm	70	25	60	35	90	90
Surface Resistance	IEC 93	Ω	10^{13}	10^{13}	10^{13}	5x10^{11}	10^{13}	10^{13}
Self-Extinguishing								
Self-Extinguishing UL 94 1.6 mm	UL 94	–	V-0	V-0	V-0	V-2	HB	V-2
Self-Extinguishing UL 94 3.2 mm	UL 94	–	V-0	V-0	V-0	V-2	HB	V-2
Hot Wire Test (2 mm)	IEC 695-2-1	°C	960	960	960	650	650	850
Oxygen Number	ASTM D2863	%	43	30	34	25	–	25