

Fittings Part Numbering

Example: Prefix
1 4 P - 24 - 90 HB 24 (9" rung spacing is standard)

Series	Height	Material	Width	Angle	Type	Radius
1	<ul style="list-style-type: none"> ● 4 = 148 ● 5 = 156 ● 6 = 166 ● 7 = 176 	<ul style="list-style-type: none"> ● P = Pre-Galvanized ● G = HDGAF 	<ul style="list-style-type: none"> ● 06 = 6" (152) ● 09 = 9" (228) ● 12 = 12" (305) ● 18 = 18" (457) ● 24 = 24" (609) ● 30 = 30" (762) ● 36 = 36" (914) 	<ul style="list-style-type: none"> ● 30 = 30° ● 45 = 45° ● 60 = 60° ● 90 = 90° 	<ul style="list-style-type: none"> ● HB = Horizontal Bend ● HT = Horizontal Tee ● HX = Horizontal Cross ● VI = Vertical Inside Bend ● VO = Vertical Outside Bend ● LR = Left Reducer ● RR = Right Reducer ● SR = Straight Reducer 	<ul style="list-style-type: none"> ● 12 = 12" (305) ● 24 = 24" (609) ● 36 = 36" (914)

For steel 4", 5", 6", 7" vented or non-vented add 04 or SB as shown below.

Prefix
15P04 - 24 - 90HB24
 Vented Bottom

Prefix
15PSB - 24 - 90HB24
 Non-Ventilated

● Green = Fastest shipped items ● Black = Normal lead-time items ● Red = Normally long lead-time items

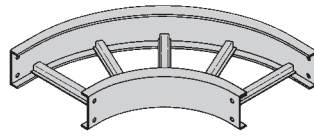
All dimensions in parentheses are millimeters unless otherwise specified.

Series 1 Steel - Fittings

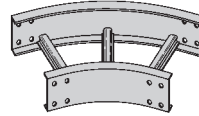
Horizontal Bends 90° 60° 45° 30° (HB)

1 pair splice plates with hardware included.

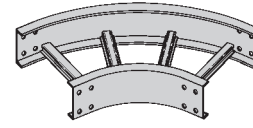
Bottoms manufactured:
Ladder = 9" Rung Spacing
04 = 4" Rung Spacing
SB = Flat sheet over 12" Rung Spacing



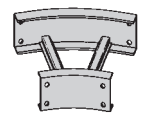
90° Horizontal Bend



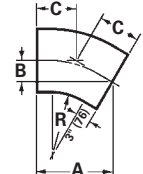
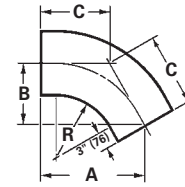
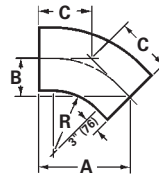
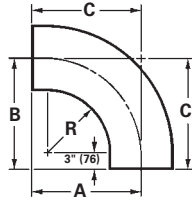
45° Horizontal Bend



60° Horizontal Bend



30° Horizontal Bend



Bend Radius R	Tray Width	90° Horizontal Bend Dimensions				60° Horizontal Bend Dimensions			
		Catalog No.	A	B	C	Catalog No.	A	B	C
in. (mm)	in. (mm)		in. (mm)	in. (mm)	in. (mm)		in. (mm)	in. (mm)	in. (mm)
12 (305)	6 (152)	(Pre)-06-90HB12	18 (457)	18 (457)	18 (457)	(Pre)-06-60HB12	17 ¹ / ₂ (445)	10 ¹ / ₈ (257)	11 ¹¹ / ₁₆ (297)
	9 (228)	(Pre)-09-90HB12	19 ¹ / ₂ (495)	19 ¹ / ₂ (495)	19 ¹ / ₂ (495)	(Pre)-09-60HB12	18 ¹³ / ₁₆ (478)	10 ⁷ / ₈ (276)	12 ¹ / ₂ (318)
	12 (305)	(Pre)-12-90HB12	21 (533)	21 (533)	21 (533)	(Pre)-12-60HB12	20 ¹ / ₁₆ (510)	11 ⁵ / ₈ (295)	13 ³ / ₈ (340)
	18 (457)	(Pre)-18-90HB12	24 (610)	24 (610)	24 (610)	(Pre)-18-60HB12	22 ¹¹ / ₁₆ (576)	13 ¹ / ₈ (333)	15 ¹ / ₈ (384)
	24 (609)	(Pre)-24-90HB12	27 (686)	27 (686)	27 (686)	(Pre)-24-60HB12	25 ⁵ / ₁₆ (643)	14 ⁵ / ₈ (372)	16 ⁷ / ₈ (429)
	30 (762)	(Pre)-30-90HB12	30 (762)	30 (762)	30 (762)	(Pre)-30-60HB12	27 ⁷ / ₈ (708)	16 ¹ / ₈ (410)	18 ⁹ / ₁₆ (472)
	36 (914)	(Pre)-36-90HB12	33 (838)	33 (838)	33 (838)	(Pre)-36-60HB12	30 ¹ / ₂ (775)	17 ⁵ / ₈ (448)	20 ⁵ / ₁₆ (516)
24 (609)	6 (152)	(Pre)-06-90HB24	30 (762)	30 (762)	30 (762)	(Pre)-06-60HB24	27 ⁷ / ₈ (708)	16 ¹ / ₈ (410)	18 ⁹ / ₁₆ (472)
	9 (228)	(Pre)-09-90HB24	31 ¹ / ₂ (800)	31 ¹ / ₂ (800)	31 ¹ / ₂ (800)	(Pre)-09-60HB24	29 ³ / ₁₆ (741)	16 ⁷ / ₈ (429)	19 ⁷ / ₁₆ (494)
	12 (305)	(Pre)-12-90HB24	33 (838)	33 (838)	33 (838)	(Pre)-12-60HB24	30 ¹ / ₂ (775)	17 ⁵ / ₈ (448)	20 ⁵ / ₁₆ (516)
	18 (457)	(Pre)-18-90HB24	36 (914)	36 (914)	36 (914)	(Pre)-18-60HB24	33 ¹ / ₁₆ (840)	19 ¹ / ₈ (486)	22 ¹ / ₁₆ (560)
	24 (609)	(Pre)-24-90HB24	39 (991)	39 (991)	39 (991)	(Pre)-24-60HB24	35 ¹¹ / ₁₆ (907)	20 ⁵ / ₈ (524)	23 ¹³ / ₁₆ (605)
	30 (762)	(Pre)-30-90HB24	42 (1067)	42 (1067)	42 (1067)	(Pre)-30-60HB24	38 ¹ / ₄ (972)	22 ¹ / ₈ (562)	25 ¹ / ₂ (648)
	36 (914)	(Pre)-36-90HB24	45 (1143)	45 (1143)	45 (1143)	(Pre)-36-60HB24	40 ⁷ / ₈ (1038)	23 ⁵ / ₈ (600)	27 ¹ / ₄ (692)
		45° Horizontal Bend				30° Horizontal Bend			
12 (305)	6 (152)	(Pre)-06-45HB12	15 ³ / ₄ (400)	6 ¹ / ₂ (165)	9 ³ / ₁₆ (233)	(Pre)-06-30HB12	13 ¹ / ₈ (333)	3 ¹ / ₂ (89)	7 (175)
	9 (228)	(Pre)-09-45HB12	16 ¹³ / ₁₆ (427)	6 ¹⁵ / ₁₆ (176)	9 ¹³ / ₁₆ (249)	(Pre)-09-30HB12	13 ⁷ / ₈ (352)	3 ¹¹ / ₁₆ (94)	7 ⁷ / ₁₆ (189)
	12 (305)	(Pre)-12-45HB12	17 ⁷ / ₈ (454)	7 ³ / ₈ (187)	10 ⁷ / ₁₆ (265)	(Pre)-12-30HB12	14 ⁵ / ₈ (372)	3 ¹⁵ / ₁₆ (100)	7 ¹³ / ₁₆ (198)
	18 (457)	(Pre)-18-45HB12	20 (500)	8 ¹ / ₄ (210)	11 ¹¹ / ₁₆ (297)	(Pre)-18-30HB12	16 ¹ / ₈ (410)	4 ⁵ / ₁₆ (135)	8 ⁵ / ₈ (219)
	24 (609)	(Pre)-24-45HB12	22 ¹ / ₁₆ (560)	9 ¹ / ₈ (232)	12 ¹⁵ / ₁₆ (329)	(Pre)-24-30HB12	17 ⁵ / ₈ (448)	4 ¹¹ / ₁₆ (119)	9 ⁷ / ₁₆ (240)
	30 (762)	(Pre)-30-45HB12	24 ³ / ₁₆ (614)	10 (250)	14 ³ / ₁₆ (360)	(Pre)-30-30HB12	19 ¹ / ₈ (486)	5 ¹ / ₈ (130)	10 ¹ / ₄ (260)
	36 (914)	(Pre)-36-45HB12	26 ⁵ / ₁₆ (668)	10 ¹⁵ / ₁₆ (278)	15 ⁷ / ₁₆ (392)	(Pre)-36-30HB12	20 ⁵ / ₈ (524)	5 ¹ / ₂ (140)	11 ¹ / ₁₆ (281)
24 (609)	6 (152)	(Pre)-06-45HB24	24 ³ / ₁₆ (614)	10 (250)	14 ³ / ₁₆ (360)	(Pre)-06-30HB24	19 ¹ / ₈ (486)	5 ¹ / ₈ (130)	10 ¹ / ₄ (260)
	9 (228)	(Pre)-09-45HB24	25 ¹ / ₄ (641)	10 ¹ / ₂ (267)	14 ¹³ / ₁₆ (376)	(Pre)-09-30HB24	19 ⁷ / ₈ (505)	5 ⁵ / ₁₆ (135)	10 ⁵ / ₈ (270)
	12 (305)	(Pre)-12-45HB24	26 ⁵ / ₁₆ (668)	10 ¹⁵ / ₁₆ (278)	15 ⁷ / ₁₆ (392)	(Pre)-12-30HB24	20 ⁵ / ₈ (524)	5 ¹ / ₂ (140)	11 ¹ / ₁₆ (281)
	18 (457)	(Pre)-18-45HB24	28 ⁷ / ₁₆ (722)	11 ¹³ / ₁₆ (300)	16 ¹¹ / ₁₆ (424)	(Pre)-18-30HB24	22 ¹ / ₈ (562)	5 ¹⁵ / ₁₆ (151)	11 ¹³ / ₁₆ (300)
	24 (609)	(Pre)-24-45HB24	30 ⁹ / ₁₆ (776)	12 ¹¹ / ₁₆ (322)	17 ¹⁵ / ₁₆ (456)	(Pre)-24-30HB24	23 ⁵ / ₈ (600)	6 ⁵ / ₁₆ (160)	12 ⁵ / ₈ (321)
	30 (762)	(Pre)-30-45HB24	32 ¹¹ / ₁₆ (830)	13 ⁹ / ₁₆ (345)	19 ¹ / ₈ (486)	(Pre)-30-30HB24	25 ¹ / ₈ (638)	6 ³ / ₄ (172)	13 ⁷ / ₁₆ (341)
	36 (914)	(Pre)-36-45HB24	34 ¹³ / ₁₆ (884)	14 ⁷ / ₁₆ (367)	20 ³ / ₈ (518)	(Pre)-36-30HB24	26 ⁵ / ₈ (676)	7 ¹ / ₈ (181)	14 ¹ / ₄ (362)

(Pre) See page H-18 for catalog number prefix.

Width dimensions are to inside wall. Manufacturing tolerances apply to all dimensions.

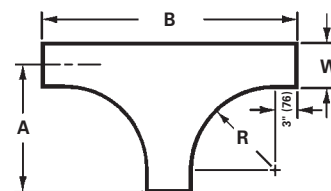
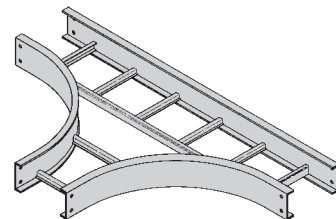
All dimensions in parentheses are millimeters unless otherwise specified.

Horizontal Tee (HT)

2 pair splice plates with hardware included.

Bend Radius R	Tray Width	Horizontal Tee Dimensions		
		Catalog No.	A	B
in. (mm)	in. (mm)		in. (mm)	in. (mm)
12 (305)	6 (152)	(Prefix)-06-HT12	18 (457)	36 (914)
	9 (228)	(Prefix)-09-HT12	19 ¹ / ₂ (495)	39 (991)
	12 (305)	(Prefix)-12-HT12	21 (533)	42 (1067)
	18 (457)	(Prefix)-18-HT12	24 (610)	48 (1219)
	24 (609)	(Prefix)-24-HT12	27 (686)	54 (1372)
	30 (762)	(Prefix)-30-HT12	30 (762)	60 (1524)
24 (609)	36 (914)	(Prefix)-36-HT12	33 (838)	66 (1676)
	6 (152)	(Prefix)-06-HT24	30 (762)	60 (1524)
	9 (228)	(Prefix)-09-HT24	31 ¹ / ₂ (800)	63 (1600)
	12 (305)	(Prefix)-12-HT24	33 (838)	66 (1676)
	18 (457)	(Prefix)-18-HT24	36 (914)	72 (1829)
	24 (609)	(Prefix)-24-HT24	39 (991)	78 (1981)
24 (609)	30 (762)	(Prefix)-30-HT24	42 (1067)	84 (2134)
	36 (914)	(Prefix)-36-HT24	45 (1143)	90 (2286)

(Prefix) See page H-18 for catalog number prefix.

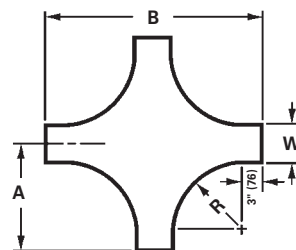
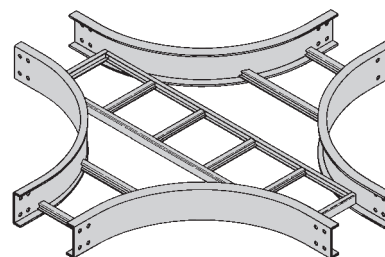


Horizontal Cross (HX)

3 pair splice plates with hardware included.

Bend Radius R	Tray Width	Horizontal Cross Dimensions		
		Catalog No.	A	B
in. (mm)	in. (mm)		in. (mm)	in. (mm)
12 (305)	6 (152)	(Prefix)-06-HX12	18 (457)	36 (914)
	9 (228)	(Prefix)-09-HX12	19 ¹ / ₂ (495)	39 (991)
	12 (305)	(Prefix)-12-HX12	21 (533)	42 (1067)
	18 (457)	(Prefix)-18-HX12	24 (610)	48 (1219)
	24 (609)	(Prefix)-24-HX12	27 (686)	54 (1372)
	30 (762)	(Prefix)-30-HX12	30 (762)	60 (1524)
24 (609)	36 (914)	(Prefix)-36-HX12	33 (838)	66 (1676)
	6 (152)	(Prefix)-06-HX24	30 (762)	60 (1524)
	9 (228)	(Prefix)-09-HX24	31 ¹ / ₂ (800)	63 (1600)
	12 (305)	(Prefix)-12-HX24	33 (838)	66 (1676)
	18 (457)	(Prefix)-18-HX24	36 (914)	72 (1829)
	24 (609)	(Prefix)-24-HX24	39 (991)	78 (1981)
24 (609)	30 (762)	(Prefix)-30-HX24	42 (1067)	84 (2134)
	36 (914)	(Prefix)-36-HX24	45 (1143)	90 (2286)

(Prefix) See page H-18 for catalog number prefix.



Width dimensions are to inside wall. Manufacturing tolerances apply to all dimensions.

All dimensions in parentheses are millimeters unless otherwise specified.

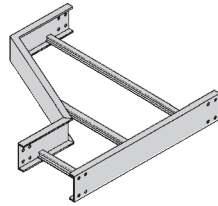
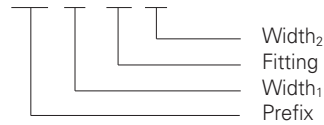
Series 1 Steel - Fittings

Reducers (LR, SR, RR)

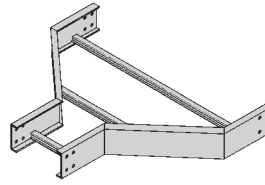
1 pair splice plates with hardware included.

Reducer Part Numbering

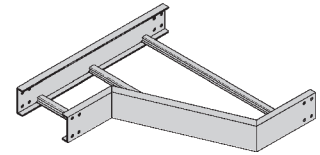
14P - 24 - RR 18



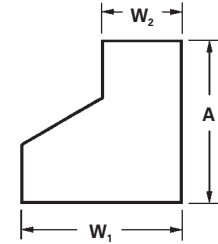
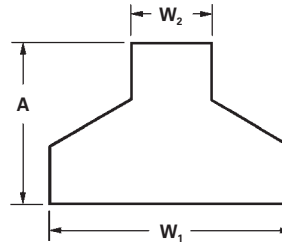
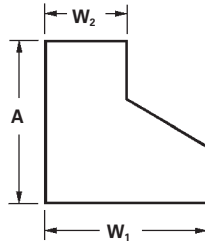
Left Reducer - LR



Straight Reducer - SR



Right Reducer - RR



Tray Width		Left Reducer - LR		Straight Reducer - SR		Right Reducer - RR	
W ₁	W ₂	Catalog No.	A	Catalog No.	A	Catalog No.	A
in. (mm)	in. (mm)		in. (mm)		in. (mm)		in. (mm)
9 (228)	6 (152)	(Prefix)-09-LR06	9 ³ / ₄ (248)	(Prefix)-09-SR06	8 ⁷ / ₈ (225)	(Prefix)-09-RR06	9 ³ / ₄ (248)
12 (305)	6 (152)	(Prefix)-12-LR06	11 ¹ / ₂ (292)	(Prefix)-12-SR06	9 ³ / ₄ (248)	(Prefix)-12-RR06	11 ¹ / ₂ (292)
	9 (228)	(Prefix)-12-LR09	9 ³ / ₄ (248)	(Prefix)-12-SR09	8 ⁷ / ₈ (225)	(Prefix)-12-RR09	9 ³ / ₄ (248)
18 (457)	6 (152)	(Prefix)-18-LR06	14 ¹⁵ / ₁₆ (379)	(Prefix)-18-SR06	11 ¹ / ₂ (292)	(Prefix)-18-RR06	14 ¹⁵ / ₁₆ (379)
	9 (228)	(Prefix)-18-LR09	13 ³ / ₁₆ (335)	(Prefix)-18-SR09	10 ⁵ / ₈ (270)	(Prefix)-18-RR09	13 ³ / ₁₆ (335)
	12 (305)	(Prefix)-18-LR12	11 ¹ / ₂ (292)	(Prefix)-18-SR12	9 ³ / ₄ (248)	(Prefix)-18-RR12	11 ¹ / ₂ (292)
24 (609)	6 (152)	(Prefix)-24-LR06	18 ³ / ₈ (467)	(Prefix)-24-SR06	13 ³ / ₁₆ (335)	(Prefix)-24-RR06	18 ³ / ₈ (467)
	9 (228)	(Prefix)-24-LR09	16 ¹¹ / ₁₆ (424)	(Prefix)-24-SR09	12 ³ / ₈ (314)	(Prefix)-24-RR09	16 ¹¹ / ₁₆ (424)
	12 (305)	(Prefix)-24-LR12	14 ¹⁵ / ₁₆ (379)	(Prefix)-24-SR12	11 ¹ / ₂ (292)	(Prefix)-24-RR12	14 ¹⁵ / ₁₆ (379)
	18 (457)	(Prefix)-24-LR18	11 ¹ / ₂ (292)	(Prefix)-24-SR18	9 ³ / ₄ (248)	(Prefix)-24-RR18	11 ¹ / ₂ (292)
30 (762)	6 (152)	(Prefix)-30-LR06	21 ⁷ / ₈ (555)	(Prefix)-30-SR06	14 ¹⁵ / ₁₆ (379)	(Prefix)-30-RR06	21 ⁷ / ₈ (555)
	9 (228)	(Prefix)-30-LR09	20 ¹ / ₈ (511)	(Prefix)-30-SR09	14 ¹ / ₁₆ (358)	(Prefix)-30-RR09	20 ¹ / ₈ (511)
	12 (305)	(Prefix)-30-LR12	18 ³ / ₈ (467)	(Prefix)-30-SR12	13 ³ / ₁₆ (335)	(Prefix)-30-RR12	18 ³ / ₈ (467)
	18 (457)	(Prefix)-30-LR18	14 ¹⁵ / ₁₆ (379)	(Prefix)-30-SR18	11 ¹ / ₂ (292)	(Prefix)-30-RR18	14 ¹⁵ / ₁₆ (379)
	24 (609)	(Prefix)-30-LR24	11 ¹ / ₂ (292)	(Prefix)-30-SR24	9 ³ / ₄ (248)	(Prefix)-30-RR24	11 ¹ / ₂ (292)
36 (914)	6 (152)	(Prefix)-36-LR06	25 ⁵ / ₁₆ (643)	(Prefix)-36-SR06	16 ¹¹ / ₁₆ (424)	(Prefix)-36-RR06	23 ⁵ / ₁₆ (643)
	9 (228)	(Prefix)-36-LR09	23 ⁹ / ₁₆ (598)	(Prefix)-36-SR09	15 ¹³ / ₁₆ (402)	(Prefix)-36-RR09	23 ⁹ / ₁₆ (598)
	12 (305)	(Prefix)-36-LR12	21 ⁷ / ₈ (555)	(Prefix)-36-SR12	14 ¹⁵ / ₁₆ (379)	(Prefix)-36-RR12	21 ⁷ / ₈ (555)
	18 (457)	(Prefix)-36-LR18	18 ³ / ₈ (467)	(Prefix)-36-SR18	13 ³ / ₁₆ (335)	(Prefix)-36-RR18	18 ³ / ₈ (467)
	24 (609)	(Prefix)-36-LR24	14 ¹⁵ / ₁₆ (379)	(Prefix)-36-SR24	11 ¹ / ₂ (292)	(Prefix)-36-RR24	14 ¹⁵ / ₁₆ (379)
	30 (762)	(Prefix)-36-LR30	11 ¹ / ₂ (292)	(Prefix)-36-SR30	9 ³ / ₄ (248)	(Prefix)-36-RR30	11 ¹ / ₂ (292)

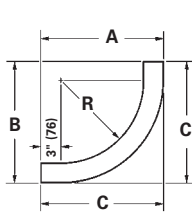
(Prefix) See page H-18 for catalog number prefix.

Width dimensions are to inside wall. Manufacturing tolerances apply to all dimensions.

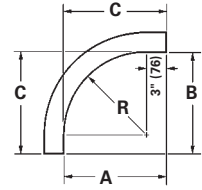
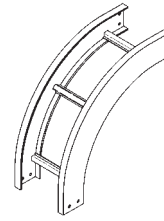
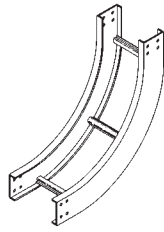
All dimensions in parentheses are millimeters unless otherwise specified.

Vertical Bend 90° (VO, VI)

1 pair splice plates with hardware included.



90° Vertical Inside



90° Vertical Outside

90° Vertical Inside Bend (VI)

Bend Radius R in. (mm)	Width in. (mm)	Catalog No.	VI Dimensions [in. (mm)]											
			Series 14 Steel			Series 15 Steel			Series 16 Steel			Series 17 Steel		
			A	B	C	A	B	C	A	B	C	A	B	C
12 (305)	6 (152)	(Pre)-06-90VI12												
	9 (228)	(Pre)-09-90VI12												
	12 (305)	(Pre)-12-90VI12												
	18 (457)	(Pre)-18-90VI12	18 ⁷ / ₁₆ (468)	18 ⁷ / ₁₆ (468)	18 ⁷ / ₁₆ (468)	19 ³ / ₁₆ (487)	19 ³ / ₁₆ (487)	19 ³ / ₁₆ (487)	20 ³ / ₁₆ (513)	20 ³ / ₁₆ (513)	20 ³ / ₁₆ (513)	21 ³ / ₁₆ (538)	21 ³ / ₁₆ (538)	21 ³ / ₁₆ (538)
	24 (609)	(Pre)-24-90VI12												
	30 (762)	(Pre)-30-90VI12												
24 (609)	6 (152)	(Pre)-06-90VI24												
	9 (228)	(Pre)-09-90VI24												
	12 (305)	(Pre)-12-90VI24												
	18 (457)	(Pre)-18-90VI24	30 ⁷ / ₁₆ (773)	30 ⁷ / ₁₆ (773)	30 ⁷ / ₁₆ (773)	31 ³ / ₁₆ (792)	31 ³ / ₁₆ (792)	31 ³ / ₁₆ (792)	32 ³ / ₁₆ (817)	32 ³ / ₁₆ (817)	32 ³ / ₁₆ (817)	33 ³ / ₁₆ (843)	33 ³ / ₁₆ (843)	33 ³ / ₁₆ (843)
	24 (609)	(Pre)-24-90VI24												
	30 (762)	(Pre)-30-90VI24												
36 (914)	(Pre)-36-90VI24													

90° Vertical Outside Bend (VO)

Bend Radius R in. (mm)	Width in. (mm)	Catalog No.	VO Dimensions [in. (mm)]		
			All Series 1		
			A	B	C
12 (305)	6 (152)	(Pre)-06-90VO12			
	9 (228)	(Pre)-09-90VO12			
	12 (305)	(Pre)-12-90VO12			
	18 (457)	(Pre)-18-90VO12	15 (381)	15 (381)	15 (381)
	24 (609)	(Pre)-24-90VO12			
	30 (762)	(Pre)-30-90VO12			
24 (609)	6 (152)	(Pre)-06-90VO24			
	9 (228)	(Pre)-09-90VO24			
	12 (305)	(Pre)-12-90VO24			
	18 (457)	(Pre)-18-90VO24	27 (686)	27 (686)	27 (686)
	24 (609)	(Pre)-24-90VO24			
	30 (762)	(Pre)-30-90VO24			
36 (914)	(Pre)-36-90VO24				

(Pre) See page H-18 for catalog number prefix.

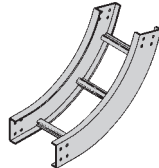
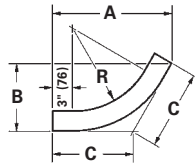
Manufacturing tolerances apply to all dimensions.

All dimensions in parentheses are millimeters unless otherwise specified.

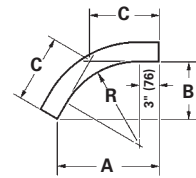
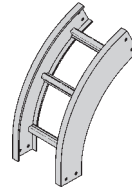
Series 1 Steel - Fittings

Vertical Bend 60° (VO, VI)

1 pair splice plates with hardware included.



60° Vertical Inside



60° Vertical Outside

60° Vertical Inside Bend (VI)

Bend Radius R in. (mm)	Width in. (mm)	Catalog No.	VI Dimensions [in. (mm)]											
			Series 14 Steel			Series 15 Steel			Series 16 Steel			Series 17 Steel		
			A	B	C	A	B	C	A	B	C	A	B	C
12 (305)	6 (152)	(Pre)-06-60VI12												
	9 (228)	(Pre)-09-60VI12												
	12 (305)	(Pre)-12-60VI12												
	18 (457)	(Pre)-18-60VI12	18 ¹ / ₁₆ (459)	10 ⁷ / ₁₆ (265)	12 (305)	18 ¹ / ₂ (470)	10 ¹¹ / ₁₆ (271)	12 ³ / ₈ (314)	19 ³ / ₈ (492)	11 ³ / ₁₆ (284)	12 ¹⁵ / ₁₆ (328)	20 ¹ / ₄ (514)	11 ¹¹ / ₁₆ (297)	13 ¹ / ₂ (343)
	24 (609)	(Pre)-24-60VI12												
	30 (762)	(Pre)-30-60VI12												
24 (609)	6 (152)	(Pre)-06-60VI24												
	9 (228)	(Pre)-09-60VI24												
	12 (305)	(Pre)-12-60VI24												
	18 (457)	(Pre)-18-60VI24	28 ⁷ / ₁₆ (722)	16 ⁷ / ₁₆ (417)	18 ¹⁵ / ₁₆ (481)	28 ¹⁵ / ₁₆ (735)	18 ¹¹ / ₁₆ (424)	19 ¹ / ₄ (489)	29 ³ / ₄ (755)	17 ³ / ₁₆ (436)	19 ⁷ / ₈ (505)	30 ⁵ / ₈ (778)	17 ¹¹ / ₁₆ (449)	20 ⁷ / ₁₆ (519)
	24 (609)	(Pre)-24-60VI24												
	30 (762)	(Pre)-30-60VI24												
	36 (914)	(Pre)-36-60VI24												

60° Vertical Outside Bend (VO)

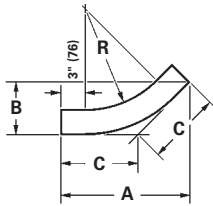
Bend Radius R in. (mm)	Width in. (mm)	Catalog No.	VO Dimensions [in. (mm)]		
			All Series 1		
			A	B	C
12 (305)	6 (152)	(Pre)-06-60VO12			
	9 (228)	(Pre)-09-60VO12			
	12 (305)	(Pre)-12-60VO12			
	18 (457)	(Pre)-18-60VO12	14 ⁷ / ₈ (378)	8 ⁵ / ₈ (219)	9 ¹⁵ / ₁₆ (252)
	24 (609)	(Pre)-24-60VO12			
	30 (762)	(Pre)-30-60VO12			
24 (609)	6 (152)	(Pre)-06-60VO24			
	9 (228)	(Pre)-09-60VO24			
	12 (305)	(Pre)-12-60VO24			
	18 (457)	(Pre)-18-60VO24	25 ⁵ / ₁₆ (643)	14 ⁵ / ₈ (371)	16 ⁷ / ₈ (428)
	24 (609)	(Pre)-24-60VO24			
	30 (762)	(Pre)-30-60VO24			
	36 (914)	(Pre)-36-60VO24			

(Pre) See page H-18 for catalog number prefix.
Manufacturing tolerances apply to all dimensions.

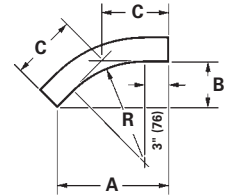
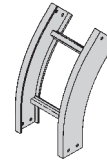
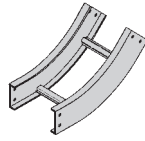
All dimensions in parentheses are millimeters unless otherwise specified.

Vertical Bend 45° (VO, VI)

1 pair splice plates with hardware included.



45° Vertical Inside



45° Vertical Outside

45° Vertical Inside Bend (VI)

Bend Radius R in. (mm)	Width in. (mm)	Catalog No.	VI Dimensions [in. (mm)]											
			Series 14 Steel			Series 15 Steel			Series 16 Steel			Series 17 Steel		
			A	B	C	A	B	C	A	B	C	A	B	C
12 (305)	6 (152)	(Pre)-06-45VI12	16 ³ / ₁₆ (411)	6 ¹ / ₁₆ (170)	9 ¹ / ₂ (241)	16 ⁹ / ₁₆ (420)	6 ⁷ / ₈ (174)	9 ¹ / ₁₆ (246)	17 ¹ / ₄ (438)	7 ³ / ₁₆ (182)	10 ¹ / ₈ (257)	18 (457)	7 ⁷ / ₁₆ (189)	10 ⁹ / ₁₆ (268)
	9 (228)	(Pre)-09-45VI12												
	12 (305)	(Pre)-12-45VI12												
	18 (457)	(Pre)-18-45VI12												
	24 (609)	(Pre)-24-45VI12												
	30 (762)	(Pre)-30-45VI12												
36 (914)	(Pre)-36-45VI12													
24 (609)	6 (152)	(Pre)-06-45VI24	24 ¹ / ₁₆ (627)	10 ³ / ₁₆ (259)	14 ⁷ / ₁₆ (367)	25 ¹ / ₁₆ (792)	10 ³ / ₈ (792)	14 ¹ / ₁₆ (373)	25 ³ / ₄ (654)	10 ¹ / ₁₆ (271)	15 ¹ / ₁₆ (382)	26 ¹ / ₂ (673)	11 (279)	15 ¹ / ₂ (394)
	9 (228)	(Pre)-09-45VI24												
	12 (305)	(Pre)-12-45VI24												
	18 (457)	(Pre)-18-45VI24												
	24 (609)	(Pre)-24-45VI24												
	30 (762)	(Pre)-30-45VI24												
36 (914)	(Pre)-36-45VI24													

45° Vertical Outside Bend (VO)

Bend Radius R in. (mm)	Width in. (mm)	Catalog No.	VO Dimensions [in. (mm)]		
			All Series 1		
			A	B	C
12 (305)	6 (152)	(Pre)-06-45VO12	13 ⁵ / ₈ (346)	5 ⁵ / ₈ (143)	8 (203)
	9 (228)	(Pre)-09-45VO12			
	12 (305)	(Pre)-12-45VO12			
	18 (457)	(Pre)-18-45VO12			
	24 (609)	(Pre)-24-45VO12			
	30 (762)	(Pre)-30-45VO12			
36 (914)	(Pre)-36-45VO12				
24 (609)	6 (152)	(Pre)-06-45VO24	22 ¹ / ₁₆ (560)	9 ¹ / ₈ (232)	12 ¹⁵ / ₁₆ (328)
	9 (228)	(Pre)-09-45VO24			
	12 (305)	(Pre)-12-45VO24			
	18 (457)	(Pre)-18-45VO24			
	24 (609)	(Pre)-24-45VO24			
	30 (762)	(Pre)-30-45VO24			
36 (914)	(Pre)-36-45VO24				

(Pre) See page H-18 for catalog number prefix.

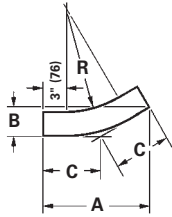
Manufacturing tolerances apply to all dimensions.

All dimensions in parentheses are millimeters unless otherwise specified.

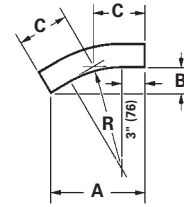
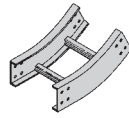
Series 1 Steel - Fittings

Vertical Bend 30° (VO, VI)

1 pair splice plates with hardware included.



30° Vertical Inside



30° Vertical Outside

30° Vertical Inside Bend (VI)

Bend Radius R in. (mm)	Width in. (mm)	Catalog No.	VI Dimensions [in. (mm)]											
			Series 14 Steel			Series 15 Steel			Series 16 Steel			Series 17 Steel		
			A	B	C	A	B	C	A	B	C	A	B	C
12 (305)	6 (152)	(Pre)-06-30VI12												
	9 (228)	(Pre)-09-30VI12												
	12 (305)	(Pre)-12-30VI12												
	18 (457)	(Pre)-18-30VI12	13 ⁷ / ₁₆ (341)	3 ⁵ / ₈ (92)	7 ³ / ₁₆ (182)	13 ¹¹ / ₁₆ (347)	3 ¹¹ / ₁₆ (93)	7 ⁵ / ₁₆ (186)	14 ³ / ₁₆ (360)	3 ¹³ / ₁₆ (97)	7 ⁵ / ₈ (193)	14 ¹¹ / ₁₆ (373)	3 ¹⁵ / ₁₆ (100)	7 ⁷ / ₈ (200)
	24 (609)	(Pre)-24-30VI12												
	30 (762)	(Pre)-30-30VI12												
24 (609)	6 (152)	(Pre)-06-30VI24												
	9 (228)	(Pre)-09-30VI24												
	12 (305)	(Pre)-12-30VI24												
	18 (457)	(Pre)-18-30VI24	19 ⁷ / ₁₆ (494)	5 ³ / ₁₆ (132)	10 ⁷ / ₁₆ (265)	19 ¹¹ / ₁₆ (500)	5 ⁵ / ₁₆ (135)	10 ⁹ / ₁₆ (268)	20 ³ / ₁₆ (513)	5 ⁷ / ₁₆ (138)	10 ¹³ / ₁₆ (274)	20 ¹¹ / ₁₆ (525)	5 ⁹ / ₁₆ (141)	11 ¹ / ₁₆ (281)
	24 (609)	(Pre)-24-30VI24												
	30 (762)	(Pre)-30-30VI24												
36 (914)	(Pre)-36-30VI24													

30° Vertical Outside Bend (VO)

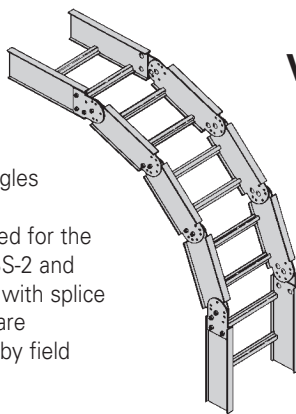
Bend Radius R in. (mm)	Width in. (mm)	Catalog No.	VO Dimensions [in. (mm)]		
			All Series 1		
			A	B	C
12 (305)	6 (152)	(Pre)-06-30VO12			
	9 (228)	(Pre)-09-30VO12			
	12 (305)	(Pre)-12-30VO12			
	18 (457)	(Pre)-18-30VO12	11 ⁵ / ₈ (295)	3 ¹ / ₈ (79)	6 ³ / ₁₆ (157)
	24 (609)	(Pre)-24-30VO12			
	30 (762)	(Pre)-30-30VO12			
24 (609)	6 (152)	(Pre)-06-30VO24			
	9 (228)	(Pre)-09-30VO24			
	12 (305)	(Pre)-12-30VO24			
	18 (457)	(Pre)-18-30VO24	17 ⁵ / ₈ (448)	4 ¹¹ / ₁₆ (119)	9 ⁷ / ₁₆ (240)
	24 (609)	(Pre)-24-30VO24			
	30 (762)	(Pre)-30-30VO24			
36 (914)	(Pre)-36-30VO24				

(Pre) See page H-18 for catalog number prefix.
Manufacturing tolerances apply to all dimensions.

All dimensions in parentheses are millimeters unless otherwise specified.

Vertical Bend Segments (VBS)

Adjustable Vertical Bends are made up of one or more vertical bend segments and can be used as a vertical inside (VI) or vertical outside (VO) bend. This design provides for vertical changes in direction with angles 45°, 60° and 90° for 12" (305 mm) or 24" (609 mm) radius. The chart below shows the number of segments required for the various combinations of angles and radii. The VBS-1, VBS-2 and VBS-3 include one, two or three segments respectively with splice plates and hardware. Holes for setting standard angles are pre-punched in each segment. Other angles can be set by field drilling another hole for the locking bolt.



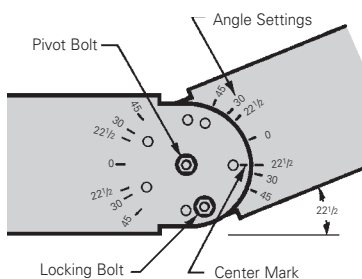
Available for **148P** and **148G** only.

Nominal Bend Radius in. (mm)	Catalog No.	Dimensions					
		VO			VI		
		A in. (mm)	B in. (mm)	R in. (mm)	A in. (mm)	B in. (mm)	R in. (mm)
90° Vertical Inside or Outside							
12 (305)	14(*)†-(‡)-VBS-1	8 ¹ / ₄ (210)	8 ¹ / ₄ (210)	6 ¹ / ₂ (165)	12 ¹ / ₈ (303)	12 ¹ / ₈ (303)	10 ¹ / ₂ (267)
24 (609)	14(*)†-(‡)-VBS-3	24 (610)	24 (610)	22 ¹ / ₄ (565)	27 ⁷ / ₈ (708)	27 ⁷ / ₈ (708)	26 ¹ / ₄ (667)
60° Vertical Inside or Outside							
12 (305)	14(*)†-(‡)-VBS-1	11 ³ / ₄ (298)	6 ¹ / ₂ (165)	12 (305)	14 ³ / ₄ (375)	8 ¹ / ₂ (216)	16 (406)
24 (609)	14(*)†-(‡)-VBS-2	11 ³ / ₄ (298)	6 ¹ / ₂ (165)	12 (305)	14 ³ / ₄ (375)	8 ¹ / ₂ (216)	16 (406)
45° Vertical Inside or Outside							
12 (305)	14(*)†-(‡)-VBS-1	12 ³ / ₄ (324)	5 ¹ / ₄ (133)	17 ¹ / ₈ (435)	15 ¹ / ₂ (394)	6 ⁷ / ₈ (175)	21 (540)
24 (609)	14(*)†-(‡)-VBS-1	12 ³ / ₄ (324)	5 ¹ / ₄ (133)	17 ¹ / ₈ (435)	15 ¹ / ₂ (394)	6 ⁷ / ₈ (175)	21 (540)

Notes:

- (*) Insert material type: P=Pre Galvanized, G=HDGAF
- (†) Contact home office for information on Ventilated Trough and Solid Trough availability
- (‡) Insert width 6, 9, 12, 18, 24, 30, 36

Fitting Hole Pattern



Setting the Angle

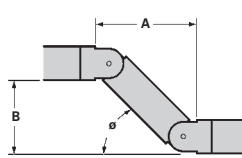
To find correct angle setting, divide angle of offset by the number of segments plus one. The result is equal to the angle setting stamped on the vertical bend segment and the splice plate. After inserting center pivot bolt, align the mark at the end of the segment or splice plate with the angle and insert locking bolt in the pre-punched hole.

Example: 90° bend, 24" radius requires 3 segments
 3 segments + 1 = 4
 90° divided by 4 = 22¹/₂°
 Set all vertical segments at 22¹/₂°

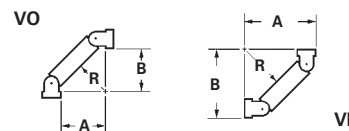
Offset Dimensions

One vertical bend segment can be used to complete a vertical offset. Offset dimensions are shown.

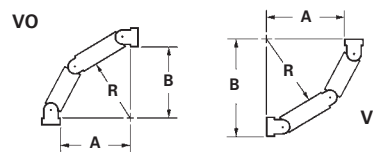
Angle ∅	A in. (mm)	B in. (mm)
45°	12 (305)	8 ¹ / ₂ (216)
30°	14 (355)	5 ³ / ₄ (146)
22 ¹ / ₂ °	14 ¹ / ₄ (362)	5 (127)



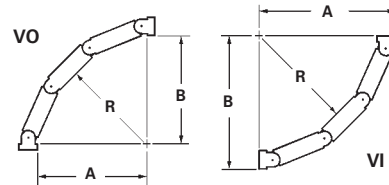
VBS-1 (1 Segment)



VBS-2 (2 Segments)



VBS-3 (3 Segments)



● Green = Fastest shipped items ● Black = Normal lead-time items ● Red = Normally long lead-time items

All dimensions in parentheses are millimeters unless otherwise specified.