

BRACKETS

WELD FITTINGS

ELBOWS

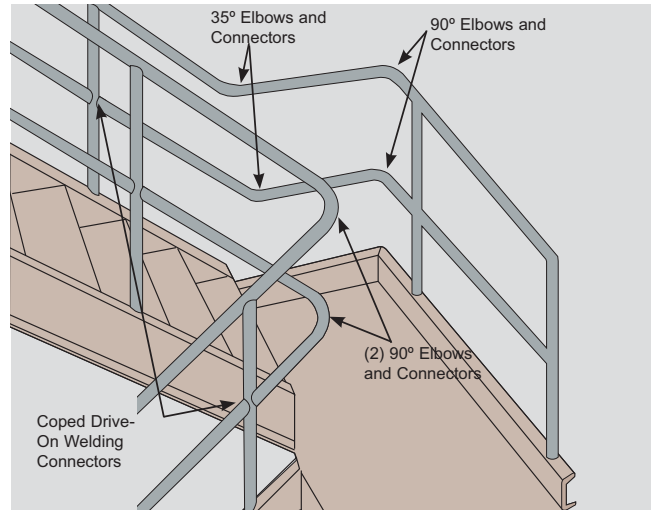
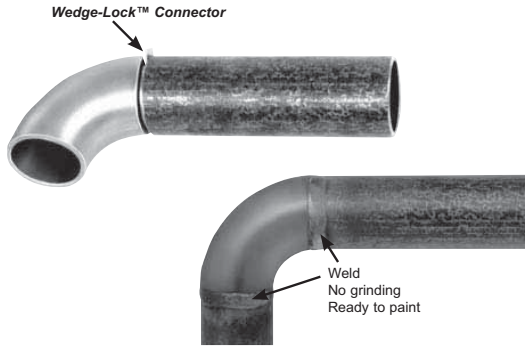
FLANGES

SPHERES CAPS

SLIP-ON FITTINGS

FLUSH WELD FITTINGS

Clean, aesthetic flush fittings are utilized in the assembly of railings joined by **Wagner** unique **Wedge-Lock™ Weld Connectors** shown on page 167. After welding and grinding smooth, railing section is complete and ready for installation. Or wire weld with no grinding – as shown. **Wedge-Locks™** are available for pipe and tube sizes.



Typical Pipe Stair Railings

MISCELLANEOUS RADIUS PIPE AND OD TUBE ELBOWS

These **Handrail Bends** are mandrel bent and have no visible seam unless noted.

Elbows are supplied with a mill finish. They are also available galvanized, zinc plated, anodized or polished to a satin or bright finish.

Numbers in *italics* denote items that may not be available for immediate shipment.

r = Inside Radius
R = Center Line Radius
C-C = Center to Center Diameter



Mandrel Bent Elbow



Typical **Handrail Wall Return** – see page 187 – 2½" and 3" from center line of pipe to wall

90° ELBOW

These elbows have no visible seam unless noted.

Pipe Size	OD	Wall Thick.	r	R	Steel	Aluminum	Stainless
1.500"	.120"	1.50"	2.25"	7914*	7930*	7946*	
2.500"	.120"	3.75"	5.00"	9610	9613		
2½"	2.880"	.203"	3.56"	5.00"	9600	9603	
	3.000"	.120"	3.50"	5.00"	9620	9623	
3"	3.500"	.216"	4.25"	6.00"	9630	9633	
4"	4.500"	.237"	5.75"	8.00"	9640	9643	

* Denotes an elbow with a seam. These elbows are ADA Elbows and provide 1½" clearance.

90° ELBOW WITH TWO 4" TANGENTS

These elbows have no visible seam unless noted.

Pipe Size	OD	Wall Thick.	r	R	Steel	Aluminum	Stainless	Brass	Bronze
2.500"	.120"	3.75"	5.00"	9611	9614	9616	9618		
2½"	2.880"	.203"	3.56"	5.00"	9601	9604	9606	9608	
	3.000"	.120"	3.50"	5.00"	9621	9624	9626	9628	
3"	3.500"	.216"	4.25"	6.00"	9631	9634	9636		9638
4"	4.500"	.237"	5.75"	8.00"	9641	9644	9646		9648

180° ELBOW WITH TWO 4" TANGENTS

These elbows have no visible seam unless noted.

Pipe Size	OD	Wall Thick.	r	R	C-C	Steel	Aluminum	Stainless	Brass	Bronze
2.500"	.120"	3.75"	5.00"	10.00"	9612	9615	9617	9619		
2½"	2.880"	.203"	3.56"	5.00"	10.00"	9602	9605	9607		
	3.000"	.120"	3.50"	5.00"	12.00"	9622	9625	9627	9629	
3"	3.500"	.216"	4.25"	6.00"	12.00"	9632	9635	9637		9639
4"	4.500"	.237"	5.75"	8.00"	16.00"	9642	9645	9647		9649

Allloys:

- Steel
- Aluminum
 - 3003 **Seamed Elbows**
 - 6061 **Tubing Elbows**
 - 6063 **Pipe Elbows**
- Stainless
 - Type 304
- Brass
 - C33000
- Bronze
 - C23000
- Stainless Steel
 - Type 316 and Bronze Alloy 38500 are available upon request to modifiedstock@mailwagner.com.



1" INSIDE RADIUS FLUSH WELD ELBOWS

These 1" inside radius elbows have a seam unless noted.

90° and 180° elbows with tangents are mandrel bent and have no seam. The 1" inside radius on these elbows is tighter than anyone else in the market can provide.

Elbows are supplied with a mill finish. They are also available galvanized, zinc plated, anodized or polished to a satin or bright finish. All elbows may also be purchased with tangents. Contact **Wagner** with your requirements.

Numbers in *Italics* denote items that may not be available for immediate shipment.

See page 167 for optional **Wedge-Lock™** connectors. See page 187 for typical wall returns.

See page 261 for issues relating to deformation in bent elbows.

Nominal Pipe Size	OD	Inside Radius (r)	Center Line Radius (R)	Theoretical Center to Center Diam. (C-C)
¾"	1.050"	1.000"	1.525"	3.050"
1"	1.315"	1.000"	1.658"	3.316"
1¼"	1.660"	1.000"	1.830"	3.660"
1½"	1.900"	1.000"	1.950"	3.900"
2"	2.375"	1.000"	2.188"	



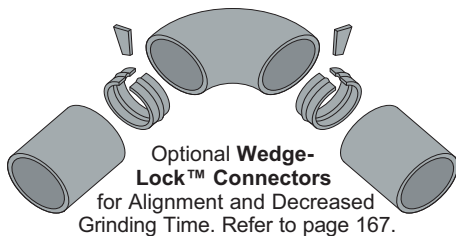
254 Steel 45° 1" IR



266 Steel 90° 1" IR



269-6 Steel 180° with two tangents 1" IR



Alloys:

- Steel
- Aluminum 3003 Seamed Elbows
6063 Pipe Elbows
- Stainless Steel Type 304
- Stainless Steel Type 316 and Brass Alloy C23000 are available upon request to **modifiedstock@mailwagner.com**.



35° ELBOW

These elbows have a seam unless noted.

Pipe Size	Sch.	OD	Wall Thick.	Steel	Aluminum	Stainless
¾"	40	1.050"	.113"	151†		
1"	40	1.315"	.133"	200		
1¼"	40	1.660"	.140"	248	272	297
1½"	40	1.900"	.145"	320	344	369
2"	40	2.375"	.154"	392†		

† Denotes an elbow without a seam.



45° ELBOW

These elbows have a seam unless noted.

Pipe Size	Sch.	OD	Wall Thick.	Steel	Aluminum	Stainless
¾"	40	1.050"	.113"	153†		
1"	40	1.315"	.133"	206		
1¼"	40	1.660"	.140"	254•	278	303
1½"	40	1.900"	.145"	326	344	369
2"	40	2.375"	.154"	398	350	375

† Denotes an elbow without a seam.

• Denotes part shown in photograph.



55° ELBOW

These elbows have a seam unless noted.

Pipe Size	Sch.	OD	Wall Thick.	Steel	Aluminum	Stainless
¾"	40	1.050"	.113"	155†		
1"	40	1.315"	.133"	212		
1¼"	40	1.660"	.140"	260	284	309
1½"	40	1.900"	.145"	332	356	381
2"	40	2.375"	.154"	404		

† Denotes an elbow without a seam.



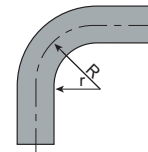
90° ELBOW

These elbows have a seam unless noted.

Pipe Size	Sch.	OD	Wall Thick.	Steel	Aluminum	Stainless
¾"	40	1.050"	.113"	157†	167†	
1"	40	1.315"	.133"	218	242	219-S
1"	40	1.315"	.133"	218-S†	242-S†	
1¼"	40	1.660"	.140"	266•	290	315
1¼"	40	1.660"	.140"		290-S†	
1½"	40	1.900"	.145"	338	362	387
1½"	40	1.900"	.145"		362-S†	
2"	40	2.375"	.154"	410	434	459-1

† Denotes an elbow without a seam.

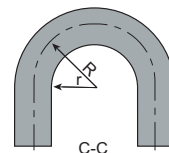
• Denotes part shown in photograph.



90° ELBOW WITH TWO 2" TANGENTS Without Seam

Pipe Size	Sch.	OD	Wall Thick.	Steel	Aluminum	Stainless
¾"	40	1.050"	.113"	157-8†	166†	
1"	40	1.315"	.133"	218-2†	242-2†	219S-2†
1¼"	40	1.660"	.140"	266-2†	290-2†	315-2†
1½"	40	1.900"	.145"	338-2†	362-2†	387-2†

† Denotes an elbow without a seam.



180° ELBOW WITH TWO 2" TANGENTS Without Seam

Pipe Size	Sch.	OD	Wall Thick.	Steel	Aluminum	Stainless
¾"	40	1.050"	.113"	159†	169†	
1"	40	1.315"	.133"	218-4†	242-4†	219S-4†
1¼"	40	1.660"	.140"	266-4†	290-4†	
1½"	40	1.900"	.145"	338-4†	362-4†	

† Denotes an elbow without a seam.

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SPHERES CAPS

SLIP-ON FITTINGS

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SPHERES CAPS

SLIP-ON FITTINGS

1 5/8" INSIDE RADIUS FLUSH WELD ELBOWS

These **Elbows** are precision mandrel bent parts – without seams – except as noted.

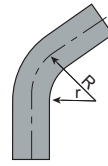
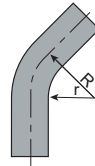
1.000" OD **Tube Elbows** have an inside radius of 1.560".

Elbows are supplied with a mill finish. They are also available galvanized, zinc plated, anodized or polished to a satin or bright finish. All **Elbows** may also be purchased with tangents. Contact **Wagner** with your requirements.

Numbers in *Italics* denote items that may not be available for immediate shipment.

See page 167 for optional **Wedge-Lock™** connectors. See page 187 for typical wall returns.

See page 261 for issues relating to deformation in **Bent Elbows**.



Nominal Pipe Size	OD	Inside Radius (r)	Center Line Radius (R)	Theoretical Center to Center Diam. (C-C)
	1.000"	1.500"	2.120"	4.240"
3/4"	1.050"	1.625"	2.150"	4.300"
	1.250"	1.625"	2.250"	4.500"
1"	1.315"	1.625"	2.282"	4.565"
	1.500"	1.625"	2.375"	4.750"
1 1/4"	1.660"	1.625"	2.455"	4.900"
1 1/2"	1.900"	1.625"	2.575"	5.150"



35° ELBOW

These elbows have no visible seam unless noted.

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
	1.000"	.083"	7800		
3/4"	1.050"	.113"	151-1	160-1	171-1
	1.250"	.065"	7850		
1"	1.315"	.133"	4501	4515	4529
	1.500"	.120"	6900		
1 1/4"	1.660"	.140"	4431*	4441	4651
1 1/4"	1.660"	.140"	4431-S		
1 1/2"	1.900"	.145"	4461*	4471	4681
1 1/2"	1.900"	.145"	4461-S		

* Denotes an elbow with a seam.

35° ELBOW WITH TWO 2" TANGENTS

These elbows have no visible seam unless noted.

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
3/4"	1.050"	.113"	151-2		
	1.250"	.065"			7883T
	1.250"	.120"		7867	
1"	1.315"	.133"	4502		4530
	1.500"	.120"	6901	6917	6933
1 1/4"	1.660"	.140"	4720	4725	
1 1/2"	1.900"	.145"	4730	4735	



45° ELBOW

These elbows have no visible seam unless noted.

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
	1.000"	.083"	7802		
3/4"	1.050"	.113"	152-1	162-1	172-1
	1.250"	.065"	7852		
1"	1.315"	.133"	4503	4517	4531
	1.500"	.120"	6902		
1 1/4"	1.660"	.140"	4432*	4442	4652
1 1/4"	1.660"	.145"	4432-S		
1 1/2"	1.900"	.140"	4462*	4472	4682
1 1/2"	1.900"	.145"	4462-S		

* Denotes an elbow with a seam.

45° ELBOW WITH TWO 2" TANGENTS

These elbows have no visible seam unless noted.

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
	1.000"	.083"	7803		
3/4"	1.050"	.113"	152-2		
	1.250"	.065"	7853		7885T
1"	1.315"	.133"	4504		4532
	1.500"	.120"	6903	6919	6935
1 1/4"	1.660"	.140"	4721	4726	
1 1/2"	1.900"	.145"	4731	4736	

55° ELBOW

These elbows have no visible seam unless noted.

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
	1.000"	.083"	7804		
3/4"	1.050"	.113"	153-1	163-1	173-1
	1.250"	.065"	7854		
1"	1.315"	.133"	4505	4519	4533
	1.500"	.120"	6904		
1 1/4"	1.660"	.140"	4433*	4443	4653
1 1/4"	1.660"	.140"	4433-S		
1 1/2"	1.900"	.145"	4463*	4473	4683
1 1/2"	1.900"	.145"	4463-S		

* Denotes an elbow with a seam.

55° ELBOW WITH TWO 2" TANGENTS

These elbows have no visible seam unless noted.

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
3/4"	1.050"	.113"	153-2		
1"	1.315"	.133"	4506		4534
	1.500"	.120"	6905		6937
1 1/4"	1.660"	.140"	4722	4727	
1 1/2"	1.900"	.145"	4732	4737	

Alloys:

- Steel
- Aluminum

- 3003 Seamed Elbows
- 6061 Tubing Elbows
- 6062 Pipe Elbows



- Stainless Steel Type 304
- Stainless Steel Type 316; Brass Alloys C23000 and C27200; and Bronze C38500 are available upon request to **modifiedstock@mailwagner.com**.



Mandrel Bent Elbow



Seamed Elbow

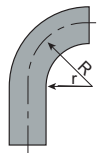


90° ELBOW

These elbows have no visible seam unless noted.

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1.000"	1.000"	.083"	7806		7838
	1.000"	.120"		7822	
3/4"	1.050"	.113"	154-1	164-1	174-1
	1.250"	.065"	7856		7888T
	1.250"	.120"		7872	
1"	1.315"	.133"	4507	4521	4535
	1.500"	.120"	6906	6922	6938
1 1/4"	1.660"	.140"	4434*	4444	4654
1 1/4"	1.660"	.140"	4434-S		
1 1/2"	1.900"	.145"	4464*	4474	4684
1 1/2"	1.900"	.145"	4464-S		

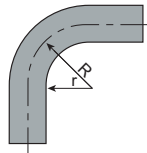
* Denotes an elbow with a seam.



90° ELBOW WITH ONE 2" TANGENT

These elbows have no visible seam unless noted.

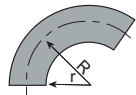
Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1.000"	1.000"	.083"	7807		7839
	1.000"	.120"		7823	
3/4"	1.050"	.113"	155-7	165-1	175-1
	1.250"	.065"	7857		7889T
	1.250"	.120"		7873	
1"	1.315"	.133"	4508	4522	4536
	1.500"	.120"	6907	6923	6939
1 1/4"	1.660"	.140"	4635	4645	4655
1 1/2"	1.900"	.145"	4665	4675	4685



90° ELBOW WITH TWO 2" TANGENTS

These elbows have no visible seam unless noted.

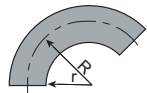
Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1.000"	1.000"	.083"	7808		7840
3/4"	1.050"	.113"	155-8		
	1.250"	.065"	7858		7890T
	1.250"	.120"		7874	
1"	1.315"	.133"	4509	4523	4537
	1.500"	.120"	6908	6924	6940
1 1/4"	1.660"	.140"	4723	4728	4656
1 1/2"	1.900"	.145"	4733	4738	4686



125° ELBOW

These elbows have no visible seam unless noted.

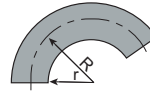
Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1.000"	1.000"	.083"	7809		
3/4"	1.050"	.113"	156-7	166-1	176-1
	1.250"	.065"	7859		
1"	1.315"	.133"	4510	4524	4538
	1.500"	.120"	6909		
1 1/4"	1.660"	.140"	4636	4646	4657
1 1/2"	1.900"	.145"	4666	4676	4687



135° ELBOW

These elbows have no visible seam unless noted.

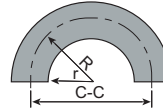
Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1.000"	1.000"	.083"	7810		
3/4"	1.050"	.113"	157-7	167-1	177-1
	1.250"	.065"	7860		
1"	1.315"	.133"	4511	4525	4539
	1.500"	.120"	6910		
1 1/4"	1.660"	.140"	4637	4647	4658
1 1/2"	1.900"	.145"	4667	4677	4688



145° ELBOW

These elbows have no visible seam unless noted.

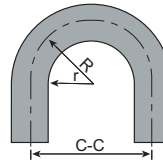
Pipe Size	OD	Wall Thickness	Steel	Aluminum	Stainless
1.000"	1.000"	.083"	7811		
3/4"	1.050"	.113"	158-1	168-1	178-1
	1.250"	.065"	7861		
1"	1.315"	.133"	4512	4526	4540
	1.500"	.120"	6911		
1 1/4"	1.660"	.140"	4724	4729	4659
1 1/2"	1.900"	.145"	4734	4739	4689



180° ELBOW

These elbows have no visible seam unless noted.

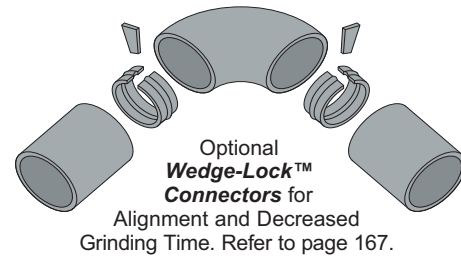
Pipe Size	OD	Wall Thickness	Steel	Aluminum	Stainless
1.000"	1.000"	.083"	7812		7844
	1.000"	.120"		7828	
3/4"	1.050"	.113"	159-1	169-1	179-1
	1.250"	.065"	7862		7894T
	1.250"	.120"		7878	
1"	1.315"	.133"	4513	4527	4541
	1.500"	.120"	6912	6928	6944
1 1/4"	1.660"	.140"	4638	4648	4660
1 1/2"	1.900"	.145"	4668	4678	4690



180° ELBOW WITH TWO 2" TANGENTS

These elbows have no visible seam unless noted.

Pipe Size	OD	Wall Thickness	Steel	Aluminum	Stainless
1.000"	1.000"	.083"	7813		7845
	1.000"	.120"		7829	
3/4"	1.050"	.113"	159-2	169-2	179-2
	1.250"	.065"	7863		7895T
	1.250"	.120"		7879	
1"	1.315"	.133"	4514	4528	4542
	1.500"	.120"	6913	6929	6945
1 1/4"	1.660"	.140"	4639	4649	4661
1 1/2"	1.900"	.145"	4669	4679	4691



Assemble your own wall returns using **Wagner** elbows and heavy flush base flanges on page 187.



BRACKETS

WELD FITTINGS

ELBOWS

FLANGES

SPHERES CAPS

SLIP-ON FITTINGS

2" INSIDE RADIUS FLUSH WELD ELBOWS

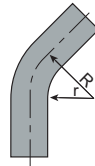
These elbows are precision mandrel bent parts – **without seams** – except as noted.

Elbows are supplied with a mill finish. They are also available galvanized, zinc plated, anodized or polished to a satin or bright finish. All elbows may also be purchased with tangents. Contact **Wagner** with your requirements.

Numbers in *Italics* denote items that may not be available for immediate shipment.

See page 167 for optional **Wedge-Lock™** connectors. See page 187 for typical wall returns.

See page 261 for issues relating to deformation in bent elbows.



45° ELBOW WITH TWO 2" TANGENTS

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1.500"	.065"		7903		7935
1.500"	.120"		7903.120	7919	7935.120
1.625"	.065"				7935T
1.625"	.120"			7919T	
1½"	1.660"	.140"	257-2	281-2	
1½"	1.900"	.145"	329-2	353-2	
2.000"	.120"			7969	7985

55° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	210*	226	
1"	1.315"	.133"	210-S		265-S
1.500"	.065"		7904		
1.500"	.120"		7904.120		
1.625"	.120"		7904T		
1¼"	1.660"	.140"	262*	286	311
1¼"	1.660"	.140"	262-S		
1½"	1.900"	.145"	334*	358	383
1½"	1.900"	.145"	334-S		
2.000"	.120"		7954		
2"	2.375"	.134"	400*	414*	431*†

* Denotes an elbow with a seam.

† Denotes Sch. 10

Nominal Pipe Size	OD	Inside Radius (r)	Center Line Radius (R)	Theoretical Center to Center Diam. (C-C)
1"	1.315"	2.000"	2.675"	5.350"
1.500"	1.625"	2.000"	2.750"	5.500"
1.625"	2.000"	2.812"	5.624"	
1¼"	1.660"	2.000"	2.830"	5.660"
1.750"	2.000"	2.875"	5.750"	
1½"	1.900"	2.000"	2.950"	5.900"
2.000"	2.000"	3.000"	6.000"	
2"	2.375"	2.000"	3.188"	6.375"

35° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	204*	220	
1"	1.315"	.133"	204-S		252-S
1.500"	.065"		7900		
1.500"	.120"		7900.120		
1.625"	.120"		7900T		
1¼"	1.660"	.140"	250*	274	299
1¼"	1.660"	.140"	250-S		
1½"	1.900"	.145"	322*	346	371
1½"	1.900"	.145"	322-S		
2.000"	.120"		7950		
2"	2.375"	.134"	394*	408*	425*†

* Denotes an elbow with a seam.

† Denotes Sch. 10

35° ELBOW WITH TWO 2" TANGENTS

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1.500"	.065"		7901		7933
1.500"	.120"		7901.120	7917	7933.120
1.625"	.065"				7933T
1¼"	1.660"	.140"	251-2	275-2	
1½"	1.900"	.145"	323-S	347-2	
2.000"	.120"		7951	7967	7983

45° ELBOW

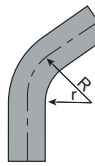
Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	208*	222	259-S
1"	1.315"	.133"	208-S		
1.500"	.065"		7902		
1.500"	.120"		7902.120		
1.625"	.120"		7902T		
1¼"	1.660"	.140"	256*	280	305
1¼"	1.660"	.140"	256-S		
1½"	1.900"	.145"	328*	352	377
1½"	1.900"	.145"	328-S		
2.000"	.120"		7952		
2"	2.375"	.134"	396*	412-2*	427*†

* Denotes an elbow with a seam.

† Denotes Sch. 10

55° ELBOW WITH TWO 2" TANGENTS

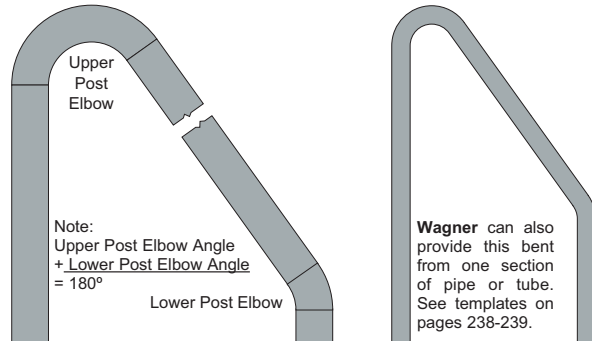
Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1.500"	.065"		7905		7937
1.500"	.120"		7905.120	7921	7937.120
1.625"	.065"				7937T
1¼"	1.660"	.140"	263-2	287-2	
1½"	1.900"	.145"	335-S	359-2	
2.000"	.120"		7955		7987



Mandrel Bent Elbow



Seamed Elbow



Note:
Upper Post Elbow Angle
+ Lower Post Elbow Angle
= 180°

Wagner can also provide this bent from one section of pipe or tube. See templates on pages 238-239.

BRACKETS

WELD FITTINGS

ELBOWS

FLANGES

SPHERES CAPS

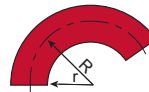
SLIP-ON FITTINGS



90° ELBOW

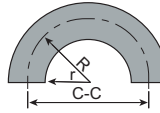
Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	214*	228	
1"	1.315"	.133"	214-S		271-S
	1.500"	.065"	7906		7938
	1.500"	.120"	7906.120	7922	7938.120
	1.625"	.065"			7938T
	1.625"	.120"	7906T	7922T	
1¼"	1.660"	.140"	268*	292	317
1¼"	1.660"	.140"	268-S		
1½"	1.900"	.145"	340*	364	389
1½"	1.900"	.145"	340-S		
	2.000"	.120"	7956	7972	7988
2"	2.375"	.134"	402*	418*	433*†

* Denotes an elbow with a seam.
† Denotes Sch. 10



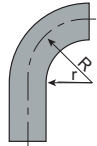
145° ELBOW

Pipe Size	OD	Wall Thick.	Steel
1.500"	.065"	7911	
1.500"	.120"	7911.120	
1.625"	.120"	7911T	
2.000"	.120"	7961	



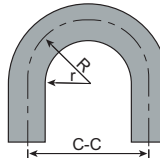
180° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1.500"	.065"	7912		7944	
1.500"	.120"	7912.120	7928	7944.120	
	1.625"	.065"			7944T
	1.625"	.125"	7912T	7928T	
1¼"	1.660"	.140"	269-2	293-2	
1½"	1.900"	.145"	341-2	365-2	
2.000"	.120"	7962	7978	7994	



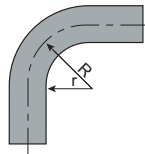
90° ELBOW WITH ONE 2" TANGENT

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	214-1	228-1	
	1.500"	.065"	7907		7939
	1.500"	.120"	7907.120	7923	7939.120
	1.625"	.065"			7939T
	1.625"	.120"	7907T	7923T	
1¼"	1.660"	.140"	269-3	293-3	317-1
1½"	1.900"	.145"	341-3	365-3	389-1
	2.000"	.120"	7957	7973	7989



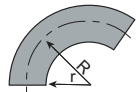
180° ELBOW WITH TWO 2" TANGENTS

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	217	233	271-S3
	1.500"	.065"	7913		7945
	1.500"	.120"	7913.120	7929	7945.120
	1.625"	.065"			7945T
	1.625"	.125"	7913T	7929T	
1¼"	1.660"	.140"	269-6	293-6	317-2
1½"	1.900"	.145"	341-6	365-6	389-4
2.000"	.120"	7963	7979	7995	



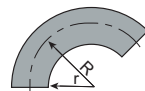
90° ELBOW WITH TWO 2" TANGENTS

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	214-2	228-2	271-S2
	1.500"	.065"	7908		7940
	1.500"	.120"	7908.120	7924	7940.120
	1.625"	.065"			7940T
	1.625"	.120"	7908T	7924T	
1¼"	1.660"	.140"	269-7	293-7	317-3
1½"	1.900"	.145"	341-7	365-7	389-3
	2.000"	.120"	7958	7974	7990



125° ELBOW

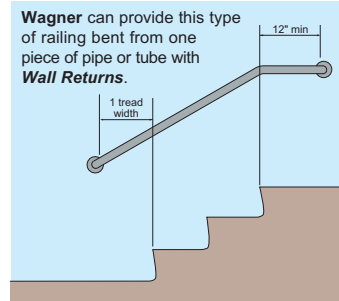
Pipe Size	OD	Wall Thick.	Steel	Aluminum
1.500"	.065"	7909		
1.500"	.120"	7909.120		
	1.625"	.120"	7909T	
1¼"	1.660"	.140"	269-4	293-4
1½"	1.900"	.145"	341-4	365-4
2.000"	.120"	7959		



135° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum
1.500"	.065"	7910		
1.500"	.120"	7910.120		
	1.625"	.120"	7910T	
1¼"	1.660"	.140"	269-5	293-5
1½"	1.900"	.145"	341-5	365-5
2.000"	.120"	7960		

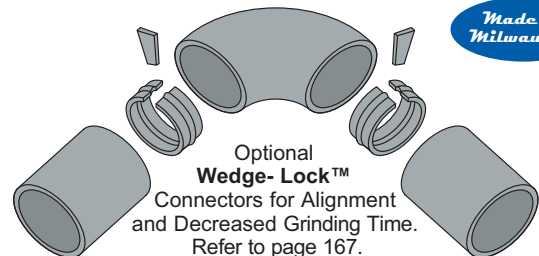
Americans With Disabilities Act Accessibility Guidelines



The ADA has specific requirements regarding handrailing. The detail to the left is a typical wall mount application. The railing must extend 12" beyond the top tread nosing and a tread width plus 12" at the bottom of the stairs. For more information on these and other code requirements, refer to page 261.

Alloys:

- Steel
- Aluminum
 - 3003 Seamed Elbows
 - 6061 Tubing Elbows
 - 6062 Pipe Elbows
- Stainless Steel Type 304
- Stainless Steel Type 316; Brass Alloys C23000 and C27200; and Bronze C38500 are available upon request to **modifiedstock@mailwagner.com**.



Optional **Wedge-Lock™** Connectors for Alignment and Decreased Grinding Time. Refer to page 167.

BRACKETS
WELD FITTINGS
ELBOWS
FLANGES
SPHERES CAPS
SLIP-ON FITTINGS

3" Inside Radius Flush Weld Elbows

See page 261 for issues relating to deformation in bent elbows.

3" INSIDE RADIUS FLUSH WELD ELBOWS

These elbows are precision mandrel bent parts – **without seams** – except as noted.

Numbers in *Italics* denote items that may not be available for immediate shipment.

Nominal Pipe Size	OD	Inside Radius (r)	Center Line Radius (R)	Theoretical Center to Center Diam. (C-C)
1"	1.315"	3.000"	3.675"	7.350"
	1.500"	3.000"	3.750"	7.500"
1¼"	1.660"	3.000"	3.830"	7.660"
1½"	1.900"	3.000"	3.950"	7.900"
2"	1.750"	3.000"	4.188"	8.375"



35° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	501	511	521
	1.500"	.120"	6950		
1¼"	1.660"	.140"	252*	276	461
1½"	1.900"	.145"	324*	348	373
1½"	1.900"	.145"	324-S		
2"	2.375"	.154"	412-3	437	453-3†

* Denotes an elbow with a seam. † Denotes Sch. 10

35° ELBOW WITH TWO 2" TANGENTS

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
	1.500"	.120"	6951	6964	6972
1¼"	1.660"	.140"	253-2		
1½"	1.900"	.145"	325-2	349-2	
2"	2.375"	.154"	413		

45° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	503	513	523
	1.500"	.120"	6952		
1¼"	1.660"	.140"	258*	282	462
1¼"	1.660"	.140"	258-S		
1½"	1.900"	.145"	330*	354	379
1½"	1.900"	.145"	330-S		
2"	2.375"	.154"	415	439	455†

* Denotes an elbow with a seam. † Denotes Sch. 10

45° ELBOW WITH TWO 2" TANGENTS

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
	1.500"	.120"	6953	6965	6973
1¼"	1.660"	.140"	259-2		
1½"	1.900"	.145"	331-2	355-2	
2"	2.375"	.154"	417		

55° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	505	515	525
	1.500"	.120"	6954		
1¼"	1.660"	.140"	264*	288	463
1¼"	1.660"	.140"	264-S		
1½"	1.900"	.145"	336*	360	385
1½"	1.900"	.145"	336-S		
2"	2.375"	.154"	419	442	457†

* Denotes an elbow with a seam. † Denotes Sch. 10

55° ELBOW WITH TWO 2" TANGENTS

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
	1.500"	.120"	6955		6974
1¼"	1.660"	.140"	265-2	288-2	
1½"	1.900"	.145"	337-2	361-2	
2"	2.375"	.154"	420		



90° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	507	517	527
	1.500"	.120"	6956	6967	6975
1¼"	1.660"	.140"	270*	294	464
1½"	1.900"	.145"	342*	366	391
2"	2.375"	.154"	421	444	459-3†

* Denotes an elbow with a seam. † Denotes Sch. 10

90° ELBOW WITH ONE 2" TANGENT

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	507-1	517-1	527-1
	1.500"	.120"	6957	6968	6976
1¼"	1.660"	.140"	271-3	295-3	464-1
1½"	1.900"	.145"	343-3	367-3	391-1
2"	2.375"	.154"	423	445	460†

† Denotes Sch. 10

90° ELBOW WITH TWO 2" TANGENTS

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	507-2	517-2	527-2
	1.500"	.120"	6958	6969	6977
1¼"	1.660"	.140"	271-7	295-7	464-2
1½"	1.900"	.145"	343-7	367-7	391-2
2"	2.375"	.154"	424	446	465†

† Denotes Sch. 10

125° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum
1"	1.315"	.133"	507-3	517-3
	1.500"	.120"	6959	
1¼"	1.660"	.140"	271-4	295-4
1½"	1.900"	.145"	343-4	367-4
2"	2.375"	.154"	426	448

135° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum
1"	1.315"	.133"	507-4	517-4
	1.500"	.120"	6960	
1¼"	1.660"	.140"	271-5	295-5
1½"	1.900"	.145"	343-5	367-5
2"	2.375"	.154"	430	449

145° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum
1"	1.315"	.133"	507-5	517-5
	1.500"	.120"	6961	
1¼"	1.660"	.140"	271-8	295-8
1½"	1.900"	.145"	343-8	367-8
2"	2.375"	.154"	432	450

180° ELBOW

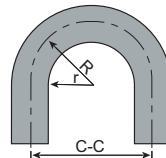
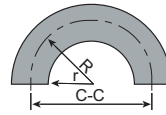
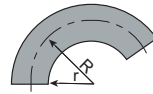
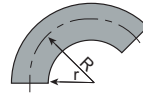
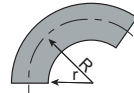
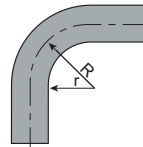
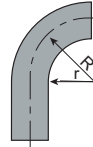
Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	507-6	517-6	527-6
	1.500"	.120"	6962	6970	6978
1¼"	1.660"	.140"	271-2	295-2	464-6
1½"	1.900"	.145"	343-2	367-2	391-6
2"	2.375"	.154"	435	451	469†

† Denotes Sch. 10

180° ELBOW WITH TWO 2" TANGENTS

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	509	519	527-7
	1.500"	.120"	6963	6971	6979
1¼"	1.660"	.140"	271-6	295-6	464-7
1½"	1.900"	.145"	343-6	367-6	391-7
2"	2.375"	.154"	436	452	470†

† Denotes Sch. 10



BRACKETS

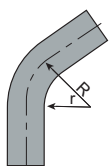
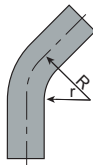
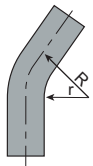
WELD FITTINGS

ELBOWS

FLANGES

SPHERES CAPS

SLIP-ON FITTINGS



4" INSIDE RADIUS FLUSH WELD ELBOWS

These elbows are precision mandrel bent parts – **without seams** – except as noted.

1.50" tube elbows have a 4.250" inside radius

Numbers in *Italics* denote items that may not be available for immediate shipment.

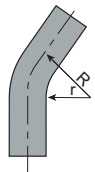
Nominal Pipe Size	OD	Inside Radius (r)	Center Line Radius (R)	Theoretical Center to Center Diam. (C-C)
1"	1.315"	4.092"	4.750"	9.500"
	1.500"	4.250"	5.000"	10.000"
1¼"	1.660"	4.000"	4.830"	9.660"
1½"	1.900"	4.000"	4.950"	9.900"
2"	2.375"	4.000"	5.188"	10.375"



35° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	5601	5611	5621
	1.500"	.120"	6950-5		
1¼"	1.660"	.140"	5631*		
1½"	1.900"	.145"	5661	5671	5681
2"	2.375"	.154"	5720	5734	5748†

* Denotes an elbow with a seam.
† Denotes Sch. 10



35° ELBOW WITH TWO 2" TANGENTS

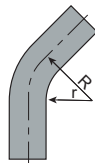
Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
	1.500"	.120"	6951-5	6964-5	6972-5
1¼"	1.660"	.140"	5631-2		
1½"	1.900"	.145"	5661-2		
2"	2.375"	.154"	5721		



45° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	5602	5612	5622
	1.500"	.120"	6952-5		
1¼"	1.660"	.140"	5632*		
1½"	1.900"	.145"	5662	5672	5682
2"	2.375"	.154"	5722	5736	5750†

* Denotes an elbow with a seam.
† Denotes Sch. 10



45° ELBOW WITH TWO 2" TANGENTS

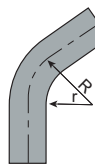
Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
	1.500"	.120"	6953-5	6965-5	6973-5
1¼"	1.660"	.140"	5632-2		
1½"	1.900"	.145"	5662-2		
2"	2.375"	.154"	5723		



55° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	5603	5613	5623
	1.500"	.120"	6954-5		
1¼"	1.660"	.140"	5633*		
1½"	1.900"	.145"	5663	5673	5683
2"	2.375"	.154"	5724	5738	5752†

* Denotes an elbow with a seam.
† Denotes Sch. 10



55° ELBOW WITH TWO 2" TANGENTS

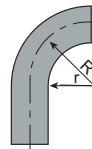
Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
	1.500"	.120"	6955-5	6966-5	6974-5
1¼"	1.660"	.140"	5633-3		
1½"	1.900"	.145"	5663-3		
2"	2.375"	.154"	5725		



90° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	5604	5614	5624
	1.500"	.120"	6956-5	6967-5	6975-5
1¼"	1.660"	.140"	5634*	5644	5654
1½"	1.900"	.145"	5664	5674	5684
2"	2.375"	.154"	5726	5740	5754†

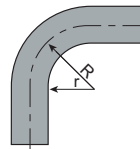
* Denotes an elbow with a seam.
† Denotes Sch. 10



90° ELBOW WITH ONE 2" TANGENT

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	5605	5615	5625
	1.500"	.120"	6957-5	6968-5	6976-5
1¼"	1.660"	.140"	5635	5645	5655
1½"	1.900"	.145"	5665	5675	5685
2"	2.375"	.154"	5727	5741	5755†

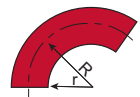
† Denotes Sch. 10



90° ELBOW WITH TWO 2" TANGENTS

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	5606	5617	5626
	1.500"	.120"	6958-5	6969-5	6976-5
1¼"	1.660"	.140"	5640	5650	5656
1½"	1.900"	.145"	5670	5680	5690
2"	2.375"	.154"	5728	5742	5756†

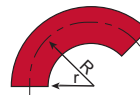
† Denotes Sch. 10



125° ELBOW

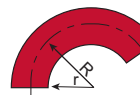
Pipe Size	OD	Wall Thick.	Steel
1"	1.315"	.133"	5607-2
	1.500"	.120"	6959-5
1¼"	1.660"	.140"	5636
1½"	1.900"	.145"	5666
2"	2.375"	.154"	5729

Alloys:
• Steel
• Aluminum:
3003, 6061, 6063
• Stainless Steel:
Type 304
Upon request:
• Stainless Steel:
Type 316
• Brass:
C23000, C27200
• Bronze:
C38500



135° ELBOW

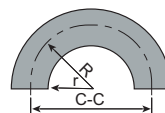
Pipe Size	OD	Wall Thick.	Steel
1"	1.315"	.133"	5607-3
	1.500"	.120"	6960-5
1¼"	1.660"	.140"	5637
1½"	1.900"	.145"	5667
2"	2.375"	.154"	5730



145° ELBOW

Pipe Size	OD	Wall Thick.	Steel
1"	1.315"	.133"	5607-4
	1.500"	.120"	6961-5
1¼"	1.660"	.140"	5637-4
1½"	1.900"	.145"	5667-4
2"	2.375"	.154"	5731

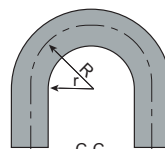
Elbows are supplied with a mill finish. They are also available galvanized, zinc plated, anodized or polished to a satin or bright finish.



180° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	5608	5618	5629
	1.500"	.120"	6962-5	6970-5	6978-5
1¼"	1.660"	.140"	5638	5648	5657
1½"	1.900"	.145"	5668	5678	5688
2"	2.375"	.154"	5732	5746	5760†

† Denotes Sch. 10



180° ELBOW WITH TWO 3" TANGENTS

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	5609B	5619B	5630B
	1.500"	.120"	6963-5B	6971-5B	6979-5B
1¼"	1.660"	.140"	5639B	5649B	5658B
1½"	1.900"	.145"	5669B	5679B	5689B
2"	2.375"	.154"	5733B	5747B	5761B†

† Denotes Sch. 10

BRACKETS

WELD FITTINGS

ELBOWS

FLANGES

SPHERES CAPS

SLIP-ON FITTINGS

5" INSIDE RADIUS FLUSH WELD ELBOWS

These elbows are precision mandrel bent parts – **without seams**.

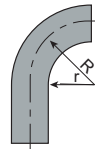
1" pipe and 1.500" tube elbows have a 5.250" inside radius

Numbers in *Italics* denote items that may not be available for immediate shipment.

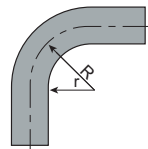
Nominal Pipe Size	OD	Inside Radius (r)	Center Line Radius (R)	Theoretical Center to Center Diam. (C-C)
1"	1.315"	5.250"	5.908"	11.815"
1.500"	1.500"	5.250"	6.000"	12.000"
1¼"	1.660"	5.000"	5.830"	11.660"
1½"	1.900"	5.000"	5.950"	11.900"
2"	2.375"	5.000"	6.188"	12.375"



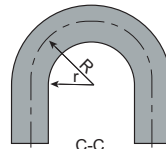
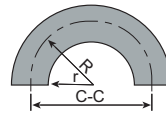
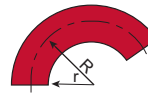
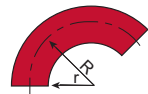
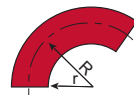
† Denotes Sch. 10



† Denotes Sch. 10



† Denotes Sch. 10



† Denotes Sch. 10

90° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	7007	7027	7047
	1.500"	.120"	6956-6	6967-6	6975-6
1¼"	1.660"	.140"	7067	7088	7107
1½"	1.900"	.145"	7127	7147	7167
2"	2.375"	.154"	7187	7207	7227†

90° ELBOW WITH ONE 2" TANGENT

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	7008	7028	7048
	1.500"	.120"	6957-6	6968-6	6976-6
1¼"	1.660"	.140"	7068	7089	7108
1½"	1.900"	.145"	7128	7148	7168
2"	2.375"	.154"	7188	7208	7228†

90° ELBOW WITH TWO 2" TANGENTS

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	7009	7029	7049
	1.500"	.120"	6958-6	6969-6	6977-6
1¼"	1.660"	.140"	7069	7090	7109
1½"	1.900"	.145"	7129	7149	7169
2"	2.375"	.154"	7189	7209	7229†

125° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	7010		
	1.500"	.120"	6959-6		
1¼"	1.660"	.140"	7070		
1½"	1.900"	.145"	7130		
2"	2.375"	.154"	7190		

- Alloys:**
- Steel
 - Aluminum: 6061 Tubing Elbows, 6063 Pipe Elbows
 - Stainless Steel: Type 304

- Upon request:
- Stainless Steel: Type 316
 - Brass: C23000, C27200
 - Bronze: C38500



135° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	7011		
	1.500"	.120"	6960-6		
1¼"	1.660"	.140"	7071		
1½"	1.900"	.145"	7131		
2"	2.375"	.154"	7191		

145° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	7012		
	1.500"	.120"	6961-6		
1¼"	1.660"	.140"	7072		
1½"	1.900"	.145"	7132		
2"	2.375"	.154"	7192		

Elbows are supplied with a mill finish. They are also available galvanized, zinc plated, anodized or polished to a satin or bright finish.

180° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	7013		
	1.500"	.120"	6962-6	6970-6	6978-6
1¼"	1.660"	.140"	7073		
1½"	1.900"	.145"	7133		
2"	2.375"	.154"	7193		

180° ELBOW WITH TWO 3" TANGENTS

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	7014B	7034B	7054B
	1.500"	.120"	6963-6B	6971-6B	6979-6B
1¼"	1.660"	.140"	7074B	7094B	7114B
1½"	1.900"	.145"	7134B	7154B	7174B
2"	2.375"	.154"	7194B	7214B	7234B†

BRACKETS

WELD FITTINGS

ELBOWS

FLANGES

SPHERES CAPS

SLIP-ON FITTINGS



35° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	7001	7021	7041
	1.500"	.120"	6950-6		
1¼"	1.660"	.140"	7061	7081	7101
1½"	1.900"	.145"	7121	7141	7161
2"	2.375"	.154"	7181	7201	7221†

† Denotes Sch. 10



45° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	7003	7023	7043
	1.500"	.120"	6952-6		
1¼"	1.660"	.140"	7063	7083	7103
1½"	1.900"	.145"	7123	7143	7163
2"	2.375"	.154"	7183	7202	7223†

† Denotes Sch. 10



55° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	7005	7025	7045
	1.500"	.120"	6954-6		
1¼"	1.660"	.140"	7065	7086	7105
1½"	1.900"	.145"	7125	7145	7165
2"	2.375"	.154"	7185	7205	7225†

† Denotes Sch. 10



Smiley • Bending

6" INSIDE RADIUS FLUSH WELD ELBOWS

These elbows are precision mandrel bent parts – **without seams**.

1" pipe elbows have a 6.250" inside radius

Numbers in *Italics* denote items that may not be available for immediate shipment.

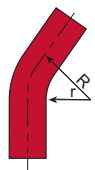
Nominal Pipe Size	OD	Inside Radius (r)	Center Line Radius (R)	Theoretical Center to Center Diam. (C-C)
1"	1.315"	6.250"	6.908"	13.815"
1¼"	1.660"	6.000"	6.830"	13.660"
1½"	1.900"	6.000"	6.950"	13.900"
2"	2.375"	6.000"	7.188"	14.375"
3½"	4.000"	6.000"	8.000"	16.000"



35° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	7401	7421	7441
1¼"	1.660"	.140"	7461	7481	7501
1½"	1.900"	.145"	7521	7541	7561
2"	2.375"	.154"	7581	7601	7621†

† Denotes Sch. 10



35° ELBOW WITH TWO 2" TANGENTS

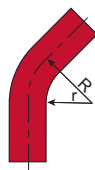
Pipe Size	OD	Wall Thick.	Steel
1¼"	1.660"	.140"	7462
1½"	1.900"	.145"	7522
2"	2.375"	.154"	7582



45° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	7403	7423	7443
1¼"	1.660"	.140"	7463	7483	7503
1½"	1.900"	.145"	7523	7543	7563
2"	2.375"	.154"	7583	7603	7623†

† Denotes Sch. 10



45° ELBOW WITH TWO 2" TANGENTS

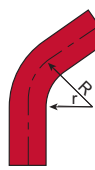
Pipe Size	OD	Wall Thick.	Steel
1¼"	1.660"	.140"	7464
1½"	1.900"	.145"	7524
2"	2.375"	.154"	7584



55° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	7405	7425	7445
1¼"	1.660"	.140"	7465	7485	7505
1½"	1.900"	.145"	7525	7545	7565
2"	2.375"	.154"	7585	7605	7625†

† Denotes Sch. 10



55° ELBOW WITH TWO 2" TANGENTS

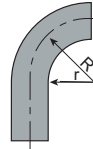
Pipe Size	OD	Wall Thick.	Steel
1¼"	1.660"	.140"	7466
1½"	1.900"	.145"	7526
2"	2.375"	.154"	7586



90° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	7407	7427	7447
1¼"	1.660"	.140"	7467	7487	7507
1½"	1.900"	.145"	7527	7547	7567
2"	2.375"	.154"	7587	7607	7627†

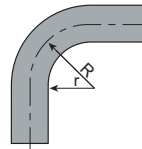
† Denotes Sch. 10



90° ELBOW WITH ONE 2" TANGENT

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	7408	7428	7448
1¼"	1.660"	.140"	7468	7488	7508
1½"	1.900"	.145"	7528	7548	7568
2"	2.375"	.154"	7588	7608	7628†

† Denotes Sch. 10

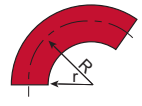


90° ELBOW WITH TWO 2" TANGENTS

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	7409	7429	7449
1¼"	1.660"	.140"	7469	7489	7509
1½"	1.900"	.145"	7529	7549	7569
2"	2.375"	.154"	7589	7609	7629†
3½"	4.000"	.226"	90160*	91160*	92160*

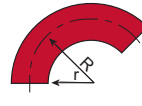
* 4" tangents

† Denotes Sch. 10



125° ELBOW

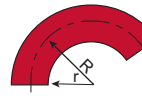
Pipe Size	OD	Wall Thick.	Steel	Alloys:
1"	1.315"	.133"	7410	• Steel
1¼"	1.660"	.140"	7470	• Aluminum: 6063
1½"	1.900"	.145"	7530	• Stainless Steel: Type 304
2"	2.375"	.154"	7590	



135° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Alloys:
1"	1.315"	.133"	7411	• Stainless Steel: Type 316
1¼"	1.660"	.140"	7471	• Brass: C23000, C27200
1½"	1.900"	.145"	7531	• Bronze: C38500
2"	2.375"	.154"	7591	

Upon request:
• Stainless Steel: Type 316
• Brass: C23000, C27200
• Bronze: C38500

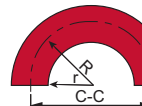


145° ELBOW

Pipe Size	OD	Wall Thick.	Steel
1"	1.315"	.133"	7412
1¼"	1.660"	.140"	7472
1½"	1.900"	.145"	7532
2"	2.375"	.154"	7592

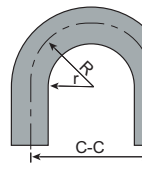


Elbows are supplied with a mill finish. They are also available galvanized, zinc plated, anodized or polished to a satin or bright finish.



180° ELBOW

Pipe Size	OD	Wall Thick.	Steel
1"	1.315"	.133"	7413
1¼"	1.660"	.140"	7473
1½"	1.900"	.145"	7533
2"	2.375"	.154"	7593



180° ELBOW WITH TWO 3" TANGENTS Untrimmed

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	7414B	7434B	7454B
1¼"	1.660"	.140"	7474B	7494B	7514B
1½"	1.900"	.145"	7534B	7554B	7574B
2"	2.375"	.154"	7594B	7614B	7634B†
3½"	4.000"	.226"	90161B*	91161B*	92161B*

* 4" tangents

† Denotes Sch. 10



BRACKETS

WELD FITTINGS

ELBOWS

FLANGES

SPHERES CAPS

SLIP-ON FITTINGS

7" INSIDE RADIUS FLUSH WELD ELBOWS

These *Elbows* are precision mandrel bent parts – **without seams**.

1" pipe *Elbows* have a 7.300" inside radius

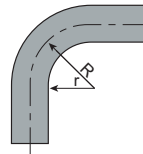
Numbers in *Italics* denote items that may not be available for immediate shipment.

See page 261 for issues relating to deformation in bent *Elbows*.



90° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	8506		
1¼"	1.660"	.140"	8556	8570	8584
1½"	1.900"	.145"	8606	8620	8634



90° ELBOW WITH TWO 2" TANGENTS

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	8508	8522	8536
1¼"	1.660"	.140"	8558	8572	8586
1½"	1.900"	.145"	8608	8622	8636

Nominal Pipe Size	OD	Inside Radius (r)	Center Line Radius (R)	Theoretical Center to Center Diam. (C-C)
1"	1.315"	7.300"	7.957"	15.914"
1¼"	1.660"	7.000"	7.830"	15.660"
1½"	1.900"	7.000"	7.950"	15.900"



35° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1¼"	1.660"	.140"	8550	8564	8578
1½"	1.900"	.145"	8600	8614	8628



45° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1¼"	1.660"	.140"	8552	8566	8580
1½"	1.900"	.145"	8602	8616	8630



55° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1¼"	1.660"	.140"	8554	8568	8582
1½"	1.900"	.145"	8604	8618	8632



Greg • Maintenance



Mandrel Bent Elbow

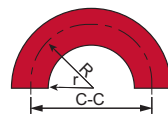
Elbows are supplied with a mill finish. They are also available galvanized, zinc plated, anodized or polished to a satin or bright finish.

Alloys:

- Steel
- Aluminum: 6063
- Stainless Steel: Type 304

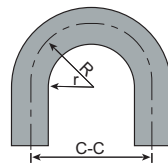
Upon request to **modifiedstock@mailwagner.com**:

- Stainless Steel: Type 316
- Brass: C23000, C27200
- Bronze: C38500



180° ELBOW

Pipe Size	OD	Wall Thick.	Steel
1"	1.315"	.133"	8512
1¼"	1.660"	.140"	8562
1½"	1.900"	.145"	8612



180° ELBOW WITH TWO 3" TANGENTS Untrimmed

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	8513B	8527B	8541B
1¼"	1.660"	.140"	8563B	8577B	8591B
1½"	1.900"	.145"	8613B	8627B	8641B



Amy • Inventory Control

BRACKETS

WELD FITTINGS

ELBOWS

FLANGES

SPHERES CAPS

SLIP-ON FITTINGS

8" INSIDE RADIUS FLUSH WELD ELBOWS

These elbows are precision mandrel bent parts – **without seams**.

1" pipe elbows have a 8.650" inside radius

Numbers in *Italics* denote items that may not be available for immediate shipment.

See page 261 for issues relating to deformation in bent elbows.

Nominal Pipe Size	OD	Inside Radius (r)	Center Line Radius (R)	Theoretical Center to Center Diam. (C-C)
1"	1.315"	8.650"	9.282"	18.565"
1¼"	1.660"	8.000"	8.830"	17.660"
1½"	1.900"	8.000"	8.950"	17.900"
2"	2.375"	8.000"	9.188"	18.375"
2½"	2.875"	8.000"	9.438"	18.875"



35° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum
1"	1.315"	.133"	<i>7650</i>	
1¼"	1.660"	.140"	7700	7714
1½"	1.900"	.145"	7750	7764
2"	2.375"	.154"	8100	8114
2½"	2.875"	.203"	8142	8156



45° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum
1"	1.315"	.133"	<i>7652</i>	
1¼"	1.660"	.140"	7702	7716
1½"	1.900"	.145"	7752	7766
2"	2.375"	.154"	8102	8116
2½"	2.875"	.203"	8144	8158



55° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum
1"	1.315"	.133"	<i>7654</i>	
1¼"	1.660"	.140"	7704	7718
1½"	1.900"	.145"	7754	7768
2"	2.375"	.154"	8104	8118
2½"	2.875"	.203"	8146	8160

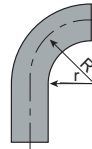


Brett • Press



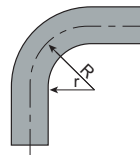
90° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	7656		
1¼"	1.660"	.140"	7706	7720	7734
1½"	1.900"	.145"	7756	7770	7784
2"	2.375"	.154"	8106	8120	
2½"	2.875"	.203"	8148	8162	



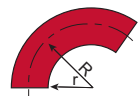
90° ELBOW WITH ONE 2" TANGENT

Pipe Size	OD	Wall Thick.	Steel	Aluminum
1¼"	1.660"	.140"	7707	7721
1½"	1.900"	.145"	7757	7771
2"	2.375"	.154"	8107	8121



90° ELBOW WITH TWO 2" TANGENTS

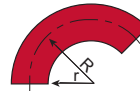
Pipe Size	OD	Wall Thick.	Steel	Aluminum
1"	1.315"	.133"	7658	
1¼"	1.660"	.140"	7708	7722
1½"	1.900"	.145"	7758	7772
2"	2.375"	.154"	8108	
2½"	2.875"	.203"	8150	



125° ELBOW

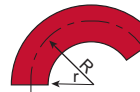
Pipe Size	OD	Wall Thick.	Steel	Aluminum
1"	1.315"	.133"	<i>7659</i>	
1¼"	1.660"	.140"	7709	
1½"	1.900"	.145"	7759	
2"	2.375"	.154"	8109	
2½"	2.875"	.203"	8151	

- Alloys:**
- Steel
 - Aluminum: 6063
 - Stainless Steel: Type 304
- Upon request:
- Stainless Steel: Type 316
 - Brass: C23000, C27200
 - Bronze: C38500



135° ELBOW

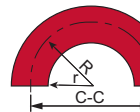
Pipe Size	OD	Wall Thick.	Steel
1"	1.315"	.133"	<i>7660</i>
1¼"	1.660"	.140"	7710
1½"	1.900"	.145"	7760
2"	2.875"	.203"	8152



145° ELBOW

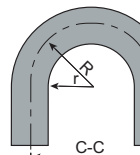
Pipe Size	OD	Wall Thick.	Steel
1"	1.315"	.133"	<i>7661</i>
1¼"	1.660"	.140"	7711
1½"	1.900"	.145"	7761
2"	2.375"	.154"	8111
2½"	2.875"	.203"	8153

Elbows are supplied with a mill finish. They are also available galvanized, zinc plated, anodized or polished to a satin or bright finish.



180° ELBOW

Pipe Size	OD	Wall Thick.	Steel
1"	1.315"	.133"	<i>7662</i>
1¼"	1.660"	.140"	7712
1½"	1.900"	.145"	7762
2"	2.375"	.154"	8112
2½"	2.875"	.203"	8154



180° ELBOW WITH TWO 3" TANGENTS

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	7663B		
1¼"	1.660"	.140"	7713B	7727B	7741B
1½"	1.900"	.145"	7763B	7777B	7791B
2"	2.375"	.154"	8113B	8127B	
2½"	2.875"	.203"	8155B	8169B	

BRACKETS

WELD FITTINGS

ELBOWS

FLANGES

SPHERES CAPS

SLIP-ON FITTINGS

10" INSIDE RADIUS FLUSH WELD ELBOWS

These elbows are precision mandrel bent parts – **without seams**.

1" pipe elbows have 10.300" inside radius

Elbows are supplied with a mill finish. They are also available galvanized, zinc plated, anodized or polished to a satin or bright finish. All elbows may also be purchased with tangents. Contact **Wagner** with your requirements.

Numbers in *Italics* denote items that may not be available for immediate shipment.

See page 167 for optional **Wedge-Lock™** connectors.

See page 261 for issues relating to deformation in bent elbows.

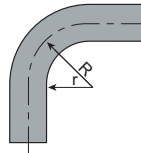
Nominal Pipe Size	OD	Inside Radius (r)	Center Line Radius (R)	Theoretical Center to Center Diam. (C-C)
1"	1.315"	10.300"	10.958"	21.915"
1¼"	1.660"	10.000"	10.830"	21.660"
1½"	1.900"	10.000"	10.950"	21.900"
2"	2.375"	10.000"	11.188"	22.375"



90° ELBOW

Pipe Size	OD	Wall Thickness	Steel	Aluminum	Stainless
1"	1.315"	.133"	8206		
1¼"	1.660"	.140"	8256	8270	8284
1½"	1.900"	.145"	8306	8320	8334
2"	2.375"	.154"	8356	8370	8384†

† Denotes Sch. 10



90° ELBOW WITH TWO 2" TANGENTS

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	8208		
1¼"	1.660"	.140"	8258	8272	8286
1½"	1.900"	.145"	8308	8322	8336
2"	2.375"	.154"	8358	8372	8386†

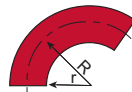
† Denotes Sch. 10



35° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	8200		
1¼"	1.660"	.140"	8250	8264	8278
1½"	1.900"	.145"	8300	8314	8328
2"	2.375"	.154"	8350		8378†

† Denotes Sch. 10



125° ELBOW

Pipe Size	OD	Wall Thick.	Steel
1"	1.315"	.133"	8209
1¼"	1.660"	.140"	8259
1½"	1.900"	.145"	8309
2"	2.375"	.154"	8359

Alloys:

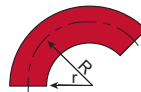
- Steel
 - Aluminum: 6063
 - Stainless Steel: Type 304
- Upon request:
- Stainless Steel: Type 316
 - Brass: C23000, C27200
 - Bronze: C38500



45° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	8202		
1¼"	1.660"	.140"	8252	8266	8280
1½"	1.900"	.145"	8302	8316	8330
2"	2.375"	.154"	8352		8380†

† Denotes Sch. 10



135° ELBOW

Pipe Size	OD	Wall Thick.	Steel
1"	1.315"	.133"	8210
1¼"	1.660"	.140"	8260
1½"	1.900"	.145"	8310
2"	2.375"	.154"	8360



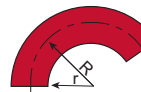
Mandrel Bent Elbow



55° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	8204		
1¼"	1.660"	.140"	8254	8268	8282
1½"	1.900"	.145"	8304	8318	8332
2"	2.375"	.154"	8354		8382†

† Denotes Sch. 10



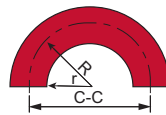
145° ELBOW

Pipe Size	OD	Wall Thick.	Steel
1"	1.315"	.133"	8211
1¼"	1.660"	.140"	8261
1½"	1.900"	.145"	8311
2"	2.375"	.154"	8361

Elbows are supplied with a mill finish. They are also available galvanized, zinc plated, anodized or polished to a satin or bright finish.



Mandrel Bent Elbow

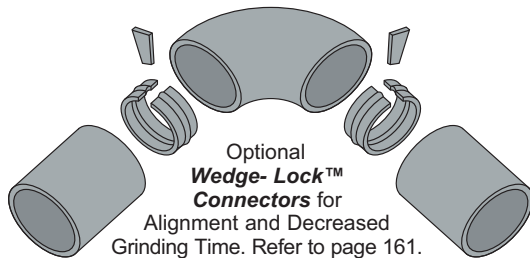


180° ELBOW

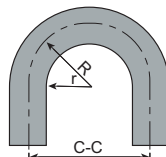
Pipe Size	OD	Wall Thick.	Steel
1"	1.315"	.133"	8212
1¼"	1.660"	.140"	8262
1½"	1.900"	.145"	8312
2"	2.375"	.154"	8362



Refer to LEED statement on page 263.



Optional **Wedge-Lock™** Connectors for Alignment and Decreased Grinding Time. Refer to page 161.



180° ELBOW WITH TWO 3" TANGENTS

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1"	1.315"	.133"	8213B		
1¼"	1.660"	.140"	8263B	8277B	8291B
1½"	1.900"	.145"	8313B	8327B	8341B
2"	2.375"	.154"	8363B	8377B	8391B†

† Denotes Sch. 10

12" CENTER LINE RADIUS FLUSH WELD ELBOWS

These elbows are precision mandrel bent parts – **without seams**.

Numbers in *Italics* denote items that may not be available for immediate shipment.

See page 261 for issues relating to deformation in bent elbows.

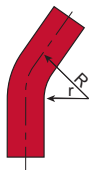
Nominal Pipe Size	OD	Inside Radius (r)	Center Line Radius (R)	Theoretical Center to Center Diam. (C-C)
1¼"	1.660"	11.170"	12.000"	24.000"
1½"	1.900"	11.050"	12.000"	24.000"
2"	2.375"	10.812"	12.000"	24.000"
2½"	2.875"	10.562"	12.000"	24.000"



35° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1¼"	1.660"	.140"	9250	9264	9278
1½"	1.900"	.145"	9300	9314	9328
2"	2.375"	.154"	9350	9364	9378†

† Denotes Sch. 10



35° ELBOW WITH TWO 2" TANGENTS

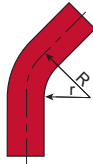
Pipe Size	OD	Wall Thick.	Steel
1¼"	1.660"	.140"	9251
1½"	1.900"	.145"	9301
2"	2.375"	.154"	9351



45° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1¼"	1.660"	.140"	9252	9266	9280
1½"	1.900"	.145"	9302	9316	9330
2"	2.375"	.154"	9352	9366	9380†

† Denotes Sch. 10



45° ELBOW WITH TWO 2" TANGENTS

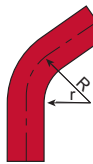
Pipe Size	OD	Wall Thick.	Steel
1¼"	1.660"	.140"	9253
1½"	1.900"	.145"	9303
2"	2.375"	.154"	9353



55° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1¼"	1.660"	.140"	9254	9268	9282
1½"	1.900"	.145"	9304	9318	9332
2"	2.375"	.154"	9354	9368	9382†

† Denotes Sch. 10



55° ELBOW WITH TWO 2" TANGENTS

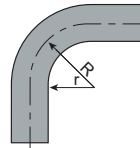
Pipe Size	OD	Wall Thick.	Steel
1¼"	1.660"	.140"	9255
1½"	1.900"	.145"	9305
2"	2.375"	.154"	9355



90° ELBOW

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1¼"	1.660"	.140"	9256	9270	9284
1½"	1.900"	.145"	9306	9320	9334
2"	2.375"	.154"	9356	9370	9384†
2½"	2.875"	.203"	9456	9470	9484

† Denotes Sch. 10

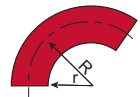


90° ELBOW WITH TWO 2" TANGENTS

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1¼"	1.660"	.140"	9258	9272	9286
1½"	1.900"	.145"	9308	9322	9336
2"	2.375"	.154"	9358	9372	9386*
2½"	2.875"	.203"	9458	9472	9486*

† Denotes Sch. 10

* Denotes an elbow with 4" Tangents



125° ELBOW

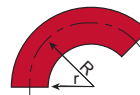
Pipe Size	OD	Wall Thick.	Steel
1¼"	1.660"	.140"	9259
1½"	1.900"	.145"	9309
2"	2.375"	.154"	9359

Alloys:

- Steel
- Aluminum: 6063
- Stainless Steel: Type 304

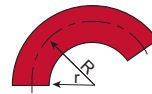
Upon request:
• Stainless Steel: Type 316

- Brass: C23000, C27200
- Bronze: C38500



135° ELBOW

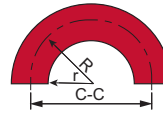
Pipe Size	OD	Wall Thick.	Steel
1¼"	1.660"	.140"	9260
1½"	1.900"	.145"	9310
2"	2.375"	.154"	9360



145° ELBOW

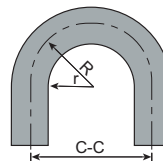
Pipe Size	OD	Wall Thick.	Steel
1¼"	1.660"	.140"	9261
1½"	1.900"	.145"	9311
2"	2.375"	.154"	9361

Elbows are supplied with a mill finish. They are also available galvanized, zinc plated, anodized or polished to a satin or bright finish.



180° ELBOW

Pipe Size	OD	Wall Thick.	Steel
1¼"	1.660"	.140"	9262
1½"	1.900"	.145"	9312
2"	2.375"	.154"	9362



180° ELBOW WITH TWO 3" TANGENTS

Untrimmed

Pipe Size	OD	Wall Thick.	Steel	Aluminum	Stainless
1¼"	1.660"	.140"	9263B	9277B	9291B
1½"	1.900"	.145"	9313B	9327B	9341B
2"	2.375"	.154"	9363B	9377B	9391B†
2½"	2.875"	.203"	9463B	9477B	9491B

† Denotes Sch. 10

BRACKETS

WELD FITTINGS

ELBOWS

FLANGES

SPHERES CAPS

SLIP-ON FITTINGS

BRACKETS

WELD FITTINGS

ELBOWS

FLANGES

SPHERES CAPS

SLIP-ON FITTINGS

SQUARE TUBE FLUSH WELD ELBOWS

Stock *Square Tubing Elbows* have a .083" wall tubing except as noted. Contact **Wagner** regarding availability of other radii and thickness - .065" to .125" wall.

Numbers in *Italics* denote items that may not be available for immediate shipment.

r = Inside Radius
R = Center Line Radius
C-C = Center to Center Diameter



35° ELBOW

Square Tube	r	R	Steel
1.000"	2½"	3"	6300
1.250"	3⅛"	3¾"	6330
1.500"	3¾"	4½"	6360
2.000"	7"	8"	6380†

† Denotes .120" wall

- Alloys:**
- Steel: A53, A500
 - Aluminum: 6063
 - Upon request:
 - Stainless Steel: Type 304



45° ELBOW

Square Tube	r	R	Steel
1.000"	2½"	3"	6302
1.250"	3⅛"	3¾"	6332
1.500"	3¾"	4½"	6362
2.000"	7"	8"	6382†

† Denotes .120" wall



55° ELBOW

Square Tube	r	R	Steel
1.000"	2½"	3"	6304
1.250"	3⅛"	3¾"	6334
1.500"	3¾"	4½"	6364
2.000"	7"	8"	6384†

† Denotes .120" wall

Elbows are supplied with a mill finish. They are also available galvanized, zinc plated, anodized or polished to a satin or bright finish.



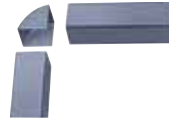
90° ELBOW

Square Tube	r	R	Steel
1.000"	2½"	3"	6306
1.250"	3⅛"	3¾"	6336
1.500"	3¾"	4½"	6366
2.000"	7"	8"	6386†

† Denotes .120" wall



Chuck • Plant 2



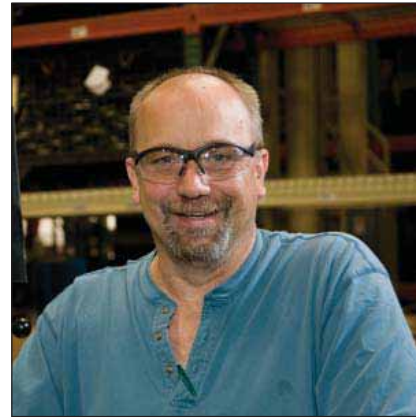
SQUARE TUBE FLUSH WELD CORNER

No Miter — No Sharp Corners

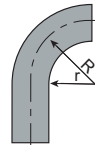
This cost-cutting corner simplifies fit-up and shortens fabrication. Simply square cut your tubing.

Radius equals the tube size. Not recommended for square corner extruded tube.

Square Tube	Wall Thick.	Steel	Alloy 3003 Aluminum	Alloy 304 Stainless
1.000"	.075"	9210	9211	9212
1.250"	.075"	9215	9216	9217
1.500"	.075"	9220	9221	9222
2.000"	.075"	9225	9226	9227
4.000"	.104"	3900136B		



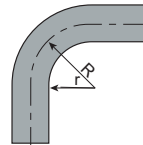
Norm • Bending



90° ELBOW WITH ONE 2" TANGENT

Square Tube	r	R	Steel	Aluminum
1.000"	2½"	3"	6307	6407
1.250"	3⅛"	3¾"	6337	
1.500"	3¾"	4½"	6367	
2.000"	7"	8"	6387†	

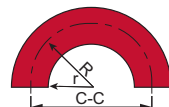
† Denotes .120" wall



90° ELBOW WITH TWO 2" TANGENTS

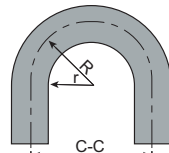
Square Tube	r	R	Steel	Aluminum
1.000"	2½"	3"	6308	6408
1.250"	3⅛"	3¾"	6338	
1.500"	3¾"	4½"	6368	
2.000"	7"	8"	6388†	

† Denotes .120" wall



180° ELBOW

Square Tube	r	R	C-C	Steel
1.000"	2½"	3"	6"	6312
1.250"	3⅛"	3¾"	7½"	6342
1.500"	3¾"	4½"	9"	6372



180° ELBOW WITH TWO 2" TANGENTS

Square Tube	r	R	C-C	Steel	Aluminum
1.000"	2½"	3"	6"	6313	6413
1.250"	3⅛"	3¾"	7½"	6343	
1.500"	3¾"	4½"	9"	6373	
2.000"	7"	8"	16"	6393†	

† Denotes .120" wall

FLUSH WELD WALL RETURNS

The items shown on this page are generally kept in stock.

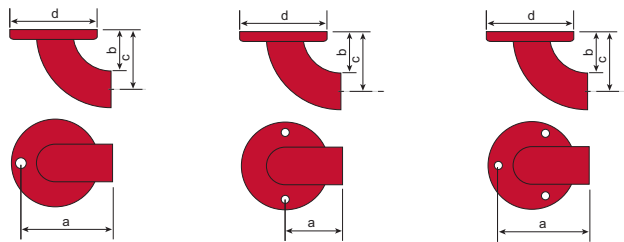
The following options are available on special order – contact modifiedstock@mailwagner.com:

- Polished, galvanized or anodized finishes.
- Returns for 1.250" and 2.000" OD tubing.
- Variations in the center-line projections (noted as c in the tables).



Please notify **Wagner** when ordering if any **Returns** are to be used with an **Anchor Plate**.

Wall Returns for 1.500" tubing are designed to meet the 1992 ADA guidelines requiring a 1½" clearance between the wall and handrail. Newer ICC, NFPA, ANSI and the 2004 *ADA Accessibility Guidelines* now note this as a *minimum* clearance. Confirm your local requirements before specifying any **Wagner** product. Refer to page 263 for code and accessibility information.



FLUSH WELD WALL RETURN WITH ONE 3/8" HOLE

Pipe Size	OD	Wall Thick.	a	b	c	d	Steel
1.500"	.120"	3.81"	1.50"	2.25"	3.50"	1150-1	
1¼"	1.660"	.140"	3.88"	1.67"	2.50"	3.50"	1100-1
1¼"	1.660"	.140"	4.44"	2.17"	3.00"	3.50"	1103-1
1¼"	1.660"	.140"	4.44"	2.42"	3.25"	3.50"	1160-1
1½"	1.900"	.145"	3.75"	1.55"	2.50"	3.50"	1130-1
1½"	1.900"	.145"	4.44"	2.05"	3.00"	3.50"	1133-1
1½"	1.900"	.145"	4.44"	2.30"	3.25"	3.50"	1164-1

FLUSH WELD WALL RETURN WITH TWO 5/16" HOLES

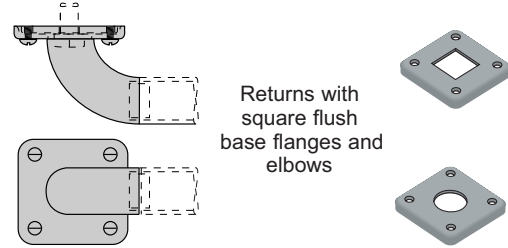
Pipe Size	OD	Wall Thick.	a	b	c	d	Steel
1.500"	.120"	2.25"	1.50"	2.25"	3.88"	1150-2	
1¼"	1.660"	.140"	2.44"	1.67"	2.50"	3.88"	1100-2
1¼"	1.660"	.140"	2.88"	2.17"	3.00"	3.88"	1103-2
1¼"	1.660"	.140"	2.88"	2.42"	3.25"	3.88"	1160-2
1½"	1.900"	.145"	2.25"	1.55"	2.50"	4.44"	1130-2
1½"	1.900"	.145"	2.94"	2.05"	3.00"	4.44"	1133-2
1½"	1.900"	.145"	2.94"	2.30"	3.25"	4.44"	1164-2

FLUSH WELD WALL RETURN WITH TWO 5/16" HOLES

Pipe Size	OD	Wall Thick.	a	b	c	d	Steel
1.500"	.120"	3.75"	1.50"	2.25"	3.88"	1150-3	
1¼"	1.660"	.140"	3.94"	1.67"	2.50"	3.88"	1100-3
1¼"	1.660"	.140"	4.38"	2.17"	3.00"	3.88"	1103-3
1¼"	1.660"	.140"	4.38"	2.42"	3.25"	3.88"	1160-3
1½"	1.900"	.145"	4.00"	1.55"	2.50"	4.44"	1130-3
1½"	1.900"	.145"	4.69"	2.05"	3.00"	4.44"	1133-3
1½"	1.900"	.145"	4.38"	2.30"	3.25"	4.44"	1164-3

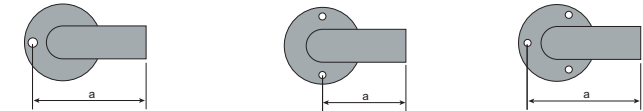
SQUARE FLANGE RETURNS

Refer to page 199 for **Square Flush Base Flanges** which may be used to assemble **Wall Returns** for square or round **Handrail** sections.



Refer to page 167-169 for **Splice-Lock™** connectors and page 167 for **Wedge-Lock™** Connectors.

Aluminum **Wall Returns** are made from a combination of the following alloys: 3003, 6061 and 6063. Stainless wall returns are alloy 304.



WALL RETURN WITH ONE 3/8" HOLE AND 2" TANGENT

Pipe Size	OD	Wall Thick.	a	b	c	d	Aluminum	Satin Stainless
1.500"	.120"	4.91"	1.50"	2.25"	3.50"	1151-1	1152-1	
1¼"	1.660"	.140"	6.00"	1.67"	2.50"	3.50"	1109-1	1115-1
1¼"	1.660"	.140"	6.38"	2.17"	3.00"	3.50"	1112-1	1118-1
1¼"	1.660"	.140"	6.38"	2.42"	3.25"	3.50"	1161-1	1162-1
1½"	1.900"	.145"	6.00"	1.55"	2.50"	3.50"	1139-1	1145-1
1½"	1.900"	.145"	6.50"	2.05"	3.00"	3.50"	1142-1	1148-1
1½"	1.900"	.145"	6.50"	2.30"	3.25"	3.50"	1165-1	1166-1

WALL RETURN WITH TWO 5/16" HOLES AND 2" TANGENT

Pipe Size	OD	Wall Thick.	a	b	c	d	Aluminum	Satin Stainless
1.500"	.120"	4.35"	1.50"	2.25"	3.88"	1151-2	1152-2	
1¼"	1.660"	.140"	4.44"	1.67"	2.50"	3.88"	1109-2	1115-2
1¼"	1.660"	.140"	4.81"	2.17"	3.00"	3.88"	1112-2	1118-2
1¼"	1.660"	.140"	4.81"	2.42"	3.25"	3.88"	1161-2	1162-2
1½"	1.900"	.145"	4.56"	1.55"	2.50"	4.44"	1139-2	1145-2
1½"	1.900"	.145"	4.94"	2.05"	3.00"	4.44"	1142-2	1148-2
1½"	1.900"	.145"	4.94"	2.30"	3.25"	4.44"	1165-2	1166-2

WALL RETURN WITH THREE 5/16" HOLES AND 2" TANGENT

Pipe Size	OD	Wall Thick.	a	b	c	d	Aluminum	Satin Stainless
1.500"	.120"	5.85"	1.50"	2.25"	3.88"	1151-3	1152-3	
1¼"	1.660"	.140"	5.94"	1.67"	2.50"	3.88"	1109-3	1115-3
1¼"	1.660"	.140"	6.38"	2.17"	3.00"	3.88"	1112-3	1118-3
1¼"	1.660"	.140"	6.38"	2.42"	3.25"	3.88"	1161-3	1162-3
1½"	1.900"	.145"	6.69"	1.55"	2.50"	4.50"	1139-3	1145-3
1½"	1.900"	.145"	6.75"	2.05"	3.00"	4.50"	1142-3	1148-3
1½"	1.900"	.145"	6.75"	2.30"	3.25"	4.50"	1165-3	1166-3

Aluminum flanges on this page are intended for cover flange use only. Set screws are not for structural use.

	Standard Alloys	Thickness
Steel	1006 - 1010	.134"
Aluminum	3003	.125"

Other alloys are available on special request. Supplied with a mill finish. Contact **Wagner** regarding polishing, plating, galvanizing, anodizing or special finishes.

PLAIN FLANGE

Pipe Size	OD	Steel	Aluminum
.750"		610T	650T
1/2"	.840"	610-1	650-1
1.000"		618T	658T
3/4"	1.050"	610	650
1.250"		626T	666T
1"	1.315"	618	658
1.500"		634T	674T
1 1/4"	1.660"	626•	666
1 1/2"	1.900"	634	674
2.000"		642T	682T
2"	2.375"	642	682

FLANGE WITH TWO HOLES

Pipe Size	OD	Steel	Aluminum
.750"		611T	
1.000"		619T	
3/4"	1.050"	611	651
1.250"		627T	667T
1"	1.315"	619	659
1.500"		635T	
1 1/4"	1.660"	627•	667
1 1/2"	1.900"	635	675
2.000"		643T	
2"	2.375"	643	683

FLANGE WITH THREE HOLES

Pipe Size	OD	Steel	Aluminum
.750"		611AT	
1.000"		619AT	
3/4"	1.050"	611A	651A
1.250"		627AT	
1"	1.315"	619A	659A
1.500"		635AT	
1 1/4"	1.660"	627A•	667A
1 1/2"	1.900"	635A	675A
2.000"		643AT	
2"	2.375"	643A	683A

FLANGE WITH FOUR HOLES

Pipe Size	OD	Steel	Aluminum
.750"		612T	
1.000"		620T	
3/4"	1.050"	612	652
1.250"		628T	
1"	1.315"	620	660
1.500"		636T	
1 1/4"	1.660"	628•	668
1 1/2"	1.900"	636	676
2.000"		644T	
2"	2.375"	644	684

THREADED FLANGE

Specify Two, Three or Four Holes as Required.

Pipe Size	OD	Steel
3/4"	1.050"	616
1"	1.315"	624
1 1/4"	1.660"	632•
1 1/2"	1.900"	640
2"	2.375"	648



• Denotes part shown in photograph



FLANGE WITH SET SCREW

Pipe Size	OD	Steel	Aluminum
.750"		613T	655T
1.000"		621T	661T
3/4"	1.050"	613	653
1.250"		629T	669T
1"	1.315"	621	661
1.500"		637T	677T
1 1/4"	1.660"	629•	669
1 1/2"	1.900"	637	677
2.000"		645T	685T
2"	2.375"	645	685

FLANGE WITH SET SCREW AND TWO HOLES

Pipe Size	OD	Steel
.750"		614T
1.000"		622T
3/4"	1.050"	614
1.250"		630T
1"	1.315"	622
1.500"		638T
1 1/4"	1.660"	630•
1 1/2"	1.900"	638
2.000"		646T
2"	2.375"	646

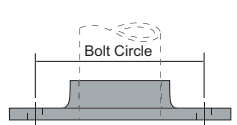
FLANGE WITH SET SCREW AND THREE HOLES

Pipe Size	OD	Steel
.750"		614AT
1.000"		622AT
3/4"	1.050"	614A
1.250"		630AT
1"	1.315"	622A
1.500"		638AT
1 1/4"	1.660"	630A•
1 1/2"	1.900"	638A
2.000"		646AT
2"	2.375"	646A

FLANGE WITH SET SCREW AND FOUR HOLES

Pipe Size	OD	Steel
.750"		615T
1.000"		623T
3/4"	1.050"	615
1.250"		631T
1"	1.315"	623
1.500"		639T
1 1/4"	1.660"	631•
1 1/2"	1.900"	639
2.000"		647T
2"	2.375"	647

FLANGE DIMENSIONS



Pipe Size	OD	Base Diam.	Bolt Circle	Hole Diam.	Height
.750"		3/4"	2 1/2"	5/16"	7/16"
1/2"	.840"	3/4"	2 1/2"	5/16"	7/16"
1.000"		3/4"	2 1/2"	5/16"	7/16"
3/4"	1.050"	3/4"	2 1/2"	5/16"	5/8"
1.250"		3/4"	2 1/2"	5/16"	9/16"
1"	1.320"	3/4"	2 1/2"	5/16"	5/8"
1.500"		3/4"	3"	5/16"	9/16"
1 1/4"	1.660"	3/4"	3"	5/16"	9/16"
1 1/2"	1.900"	4/4"	3 1/2"	5/16"	1 1/16"
2.000"		4/4"	3 1/2"	5/16"	3/4"
2"	2.375"	4 3/4"	3 3/8"	3/8"	3/4"

Note: Verify material OD prior to order – see page 261.

BRACKETS

WELD FITTINGS

ELBOWS

FLANGES

SPHERES CAPS

SLIP-ON FITTINGS



Refer to LEED statement on page 263.



Numbers in *Italics* denote items that may not be available for immediate shipment.



Aluminum flanges on this page are intended for cover flange use only. Set screws are not for structural use.

	Standard Alloys	Thickness
Steel	1006 - 1010	.179"
Aluminum	3003	.190"
Stainless Steel	Type 304	.187"
Brass	C2600	.187"



Other alloys are available on special request. Supplied mill finish. Contact **Wagner** regarding polishing, plating, galvanizing or anodizing. Holes may be countersunk on request.

Numbers in *Italics* denote items that may not be available for immediate shipment.

• Denotes part shown in photograph

PLAIN FLANGE

Pipe Size	OD	Steel	Aluminum	Stainless	Brass
3/4"	1.050"	1600-1	1650-1	1600S-1	
	1.250"	1608A-T	1630-T	1608A-TSS	BRS1608A-T
1"	1.315"	1600	1650	1600-S	
	1.500"	1620-T	1640-T	1620-TSS	BRS1620-T
1 1/4"	1.660"	1610•	1630	1610-S	
1 1/2"	1.900"	1620	1640	1620-S	
	2.000"	1660-T	1670-T	1660-TSS	BRS1660-T
2"	2.375"	1660	1670	1660-S	
	2.500"	1680-T	1690-T	1680-TSS	BRS1680-T
2 1/2"	2.875"	1680	1690	1680-S	
	3.000"	1700-T	1700A-T	1700-TSS	BRS1700-T
3"	3.500"	1700	1700A	1700-S	
3 1/2"	4.000"	1700-3	1700-3A	1700-3S	
4"	4.500"	1700-4	1700-4A	1700-4S	



Note: Verify material OD prior to order – see page 261.

FLANGE WITH TWO HOLES

Pipe Size	OD	Steel	Aluminum
1.250"		1609-T	1631-T
1"	1.315"	1601	1651
	1.500"	1621-T	1641-T
1 1/4"	1.660"	1611•	1631
1 1/2"	1.900"	1621	1641
	2.000"	1661-T	1671-T
2"	2.375"	1661	1671
2 1/2"	2.875"	1681	1691



FLANGE WITH THREE HOLES

Pipe Size	OD	Steel	Aluminum
1.250"		1610-T	1632-T
1"	1.315"	1602	1652
	1.500"	1622-T	1642-T
1 1/4"	1.660"	1612•	1632
1 1/2"	1.900"	1622	1642
	2.000"	1662-T	1672-T
2"	2.375"	1662	1672
2 1/2"	2.875"	1682	1692



FLANGE WITH FOUR HOLES

Pipe Size	OD	Steel	Aluminum
1.250"		1611-T	1633-T
1"	1.315"	1603	1653
	1.500"	1623-T	1643-T
1 1/4"	1.660"	1613•	1633
1 1/2"	1.900"	1623	1643
	2.000"	1663-T	1673-T
2"	2.375"	1663	1673
2 1/2"	2.875"	1683	1693



PLAIN FLANGE WITH SET SCREW

Pipe Size	OD	Steel	Aluminum	Stainless
1"	1.315"	1604	1654	1604-S
1 1/4"	1.660"	1614•	1634	1614-S
1 1/2"	1.900"	1624	1644	1624-S
2"	2.375"	1664	1674	1664-S
2 1/2"	2.875"	1684	1694	1684-S



PLAIN FLANGE WITH SET SCREW AND TWO HOLES

Pipe Size	OD	Steel
1"	1.315"	1605
1 1/4"	1.660"	1615•
1 1/2"	1.900"	1625
2"	2.375"	1665
2 1/2"	2.875"	1685



PLAIN FLANGE WITH SET SCREW AND THREE HOLES

Pipe Size	OD	Steel
1"	1.315"	1606
1 1/4"	1.660"	1616•
1 1/2"	1.900"	1626
2"	2.375"	1666
2 1/2"	2.875"	1686



PLAIN FLANGE WITH SET SCREW AND FOUR HOLES

Pipe Size	OD	Steel
1"	1.315"	1607
1 1/4"	1.660"	1617•
1 1/2"	1.900"	1627
2"	2.375"	1667
2 1/2"	2.875"	1687

UNIVERSAL ANCHOR PLATE

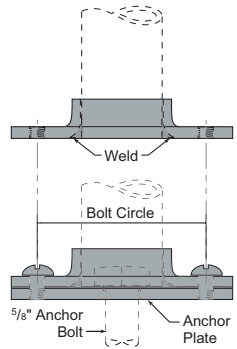
May be used with two, three or four hole flanges. Anchor plate is provided with six holes for mounting screws. Material is 7 gauge thick with 1/16" diameter center mounting hole or 3/8" anchor bolt. Four mounting screws are provided.



Pipe Size	OD	Steel	Zinc Plated Steel	Bolt Size
1.250"		B1616	PLB1616	1/4" x 3/8"
1"	1.315"	B1608•	PLB1608	3/8" x 3/8"
	1.500"	B1608	PLB1608	3/8" x 3/8"
1 1/4"	1.660"	B1608	PLB1608	3/8" x 3/8"
1 1/2"	1.900"	B1628	PLB1628	3/8" x 3/8"
	2.000"	B1628	PLB1628	3/8" x 3/8"
2"	2.375"	B1668	PLB1668	3/8" x 3/8"
2 1/2"	2.875"	B1688	PLB1688	3/8" x 3/8"

FLANGE DIMENSIONS

Pipe Size	OD	Base Diam.	Bolt Circle	Hole Diam.	Height
3/4"	1.050"	3 3/4"	3"	5/16"	9/16"
	1.250"	3 3/4"	3"	5/16"	3/4"
1"	1.320"	4 1/8"	3 1/4"	13/32"	5/8"
	1.500"	4 1/8"	3 1/4"	13/32"	3/4"
1 1/4"	1.660"	4 1/8"	3 1/4"	13/32"	1 1/16"
1 1/2"	1.900"	4 1 1/16"	3 3/4"	13/32"	3/4"
	2.000"	4 5/8"	3 3/4"	13/32"	3/4"
2"	2.375"	5 1/8"	3 3/8"	13/32"	7/8"
	2.500"	5 1/8"	3 3/8"	13/32"	1"
2 1/2"	2.875"	6 1/8"	5"	13/32"	1"
	3.000"	6 1/8"	5"	13/32"	1"
3"	3.500"	7"			1"
3 1/2"	4.000"	10"			1"
4"	4.500"	10"			1"



BRACKETS
WELD FITTINGS
ELBOWS
FLANGES
SPHERES CAPS
SLIP-ON FITTINGS

BRACKETS

WELD FITTINGS

ELBOWS

FLANGES

SPHERES CAPS

SLIP-ON FITTINGS

HEAVY BASE FLANGES

Aluminum flanges on these page are intended for cover flange use only. Set screws are not for structural use.

Where pipe or tube posts are set on wood or concrete floors, or walls, **Wagner** steel flanges may be used as a cover flange – with or without set screw – or flanges may be welded to pipe posts and anchored with screws or expansion bolts.

	Standard Alloys	Thickness
Steel	1008	.134"
Aluminum	3003	.125"
Stainless Steel	Type 304	.120"
Bronze	C2800	.125"
Brass	C2600	.125"



Other alloys are available on special request. Supplied with a mill finish. Contact **Wagner** regarding polishing, plating, galvanizing, anodizing or special finishes – modifiedstock@mailwagner.com.

Numbers in *Italics* denote items that may not be available for immediate shipment.

HEAVY BASE PLAIN FLANGE

Pipe Size	OD	Steel	Aluminum	Stainless	Brass	Bronze
.750"		1410T		1510T	BRS1410T	
1.000"		1418T	1458T	1518T	BRS1418T	
¾"	1.050"	1410	1450	1510		BZ1410
	1.250"	1426T		1526T	BRS1426T	
1"	1.315"	1418	1458	1518		BZ1418
	1.500"	1434T	1474T	1534T	BRS1434T	
1¼"	1.660"	1426•	1466	1526		BZ1426
1½"	1.900"	1434	1474	1534		BZ1434
	2.000"	1442T	1482T	1542T	BRS1442T	
2"	2.375"	1442	1482	1542		BZ1442
	2.500"	1449T	1490T	1549T	BRS1449T	
2½"	2.875"	1488	1489	1490		
	3.000"	1492T	1493T	1494T	BRS1492T	
3"	3.500"	1492	1493	1494		

• Denotes part shown in photograph

HEAVY BASE FLANGE WITH TWO HOLES

Pipe Size	OD	Steel	Aluminum	Stainless
.750"		1411T	1451T	1511T
1.000"		1419T	1459T	1519T
¾"	1.050"	1411	1451	1511
	1.250"	1427T	1467T	1527T
1"	1.315"	1419	1459	
	1.500"	1435T	1475T	1535T
1¼"	1.660"	1427•	1467	1527
1½"	1.900"	1435	1475	1535
	2.000"	1443T	1483T	1543T
2"	2.375"	1443	1483	1543

• Denotes part shown in photograph

HEAVY BASE FLANGE WITH THREE HOLES

Pipe Size	OD	Steel	Aluminum	Stainless
.750"		1411AT	1451AT	1511AT
1.000"		1419AT	1459AT	1519AT
¾"	1.050"	1411A	1451A	1511A
	1.250"	1427AT	1467AT	1527AT
1"	1.315"	1419A	1459A	
	1.500"	1435AT	1475AT	1535AT
1¼"	1.660"	1427A•	1467A	1527A
1½"	1.900"	1435A	1475A	1535A
	2.000"	1443AT	1483AT	1543AT
2"	2.375"	1443A	1483A	1543A

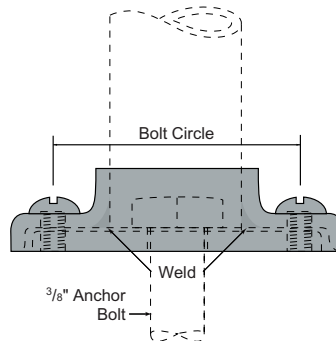
• Denotes part shown in photograph



HEAVY BASE FLANGE WITH FOUR HOLES

Pipe Size	OD	Steel	Aluminum	Stainless
.750"		1412T	1452T	1512T
1.000"		1420T	1460T	1520T
¾"	1.050"	1412	1452	1512
	1.250"	1428T	1468T	1528T
1"	1.315"	1420	1460	1520
	1.500"	1436T	1476T	1536T
1¼"	1.660"	1428•	1468	1528
1½"	1.900"	1436	1476	1536
	2.000"	1444T	1484T	1544T
2"	2.375"	1444	1484	1544

• Denotes part shown in photograph



Floor Flange with Anchor Plate

HEAVY BASE FLANGE DIMENSIONS

Pipe Size	OD	Base Diam.	Bolt Circle	Hole Diam.	Height
.750"		3½"	2½"	⅝"	1½"
1.000"		3½"	2½"	⅝"	1½"
¾"	1.050"	3½"	2½"	⅝"	1½"
	1.250"	3½"	2½"	⅝"	2⅜"
1"	1.315"	3½"	3"	⅝"	1⅜"
	1.500"	3⅞"	3"	⅝"	1⅜"
1¼"	1.660"	3⅞"	3"	⅝"	7⁄8"
1½"	1.900"	4½"	3½"	⅝"	1⅝"
	2.000"	4½"	3½"	⅝"	1⅝"
2"	2.375"	4⅞"	3⅞"	7⁄8"	1"
	2.500"	4⅞"	3⅞"	⅝"	1½"
2½"	2.875"	6"			1⅜"
	3.000"	6"			1⅜"
3"	3.500"	6"			1⅜"



Where pipe or tube posts are set on wood or concrete floors, or walls, **Wagner** steel flanges may be used as a cover flange – with or without set screw – or flanges may be welded to pipe posts and anchored with screws or expansion bolts.



HEAVY BASE PLAIN FLANGE WITH SET SCREW

Pipe Size	OD	Steel	Aluminum	Stainless
.750"		1413T	1453T	1513T
1.000"		1421T	1461T	1521T
¾"	1.050"	1413	1453	1513
	1.250"	1429T	1469T	1529T
1"	1.315"	1421	1461	1521
	1.500"	1437T	1477T	1537T
1¼"	1.660"	1429•	1469	1529
1½"	1.900"	1437	1477	1537
	2.000"	1445T	1485T	1545T
2"	2.375"	1445	1485	1545

Note: Verify material OD prior to order – see page 261.

• Denotes part shown in photograph

	Standard Alloys	Thickness
Steel	1008	.134"
Aluminum	3003	.125"
Stainless Steel	Type 304	.120"
Bronze	C2800	.125"
Brass	C2600	.125"

Other alloys are available on special request. Supplied with a mill finish. Contact **Wagner** regarding polishing, plating, galvanizing, anodizing or special finishes.

Numbers in *Italics* denote items that may not be available for immediate shipment.



HEAVY BASE FLANGE WITH SET SCREW AND TWO HOLES

Pipe Size	OD	Steel	Stainless
.750"		1414T	1514T
1.000"		1422T	1522T
¾"	1.050"	1414	1514
	1.250"	1430T	1530T
1"	1.315"	1422	1522
	1.500"	1438T	1538T
1¼"	1.660"	1430•	1530
1½"	1.900"	1438	1538
	2.000"	1446T	1546T
2"	2.375"	1446	1546

• Denotes part shown in photograph



HEAVY BASE FLANGE WITH SET SCREW AND THREE HOLES

Pipe Size	OD	Steel	Stainless
.750"		1414AT	1514AT
1.000"		1422AT	1522AT
¾"	1.050"	1414A	1514A
	1.250"	1430AT	1530AT
1"	1.315"	1422A	1522A
	1.500"	1438AT	1538AT
1¼"	1.660"	1430A•	1530A
1½"	1.900"	1438A	1538A
	2.000"	1446AT	1546AT
2"	2.375"	1446A	1546A

• Denotes part shown in photograph



HEAVY BASE FLANGE WITH SET SCREW AND FOUR HOLES

Set screws are not for structural use.

Pipe Size	OD	Steel	Stainless
.750"		1415T	1515T
1.000"		1423T	1523T
¾"	1.050"	1415	1515
	1.250"	1431T	1531T
1"	1.315"	1423	1523
	1.500"	1439T	1539T
1¼"	1.660"	1431•	1531
1½"	1.900"	1439	1539
	2.000"	1447T	1547T
2"	2.375"	1447	1547

• Denotes part shown in photograph



UNIVERSAL ANCHOR PLATE

May be used with two, three or four hole flanges.

Use stainless or zinc plated plates with aluminum flanges.

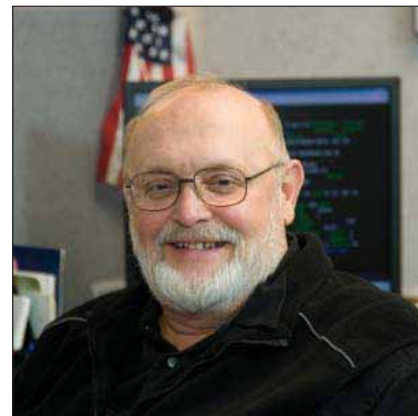


¾" Anchor Plate is provided with six holes for mounting screws. Center mounting hole is 1/16" diameter.

Fasten the plate to the wall or floor with a ¾" anchor bolt and then bolt the flange to the plate with two, three or four screws – as appropriate.

Pipe Size	OD	Steel	Zinc Plated Steel	Stainless	Plate Diameter	Bolt Size
.750"		B1416	PLB1416	B1516	3¼"	¼" x ¾"
1.000"		B1416	PLB1416	B1516	3¼"	¼" x ¾"
¾"	1.050"	B1416	PLB1416	B1516	3¼"	¼" x ¾"
	1.250"	B1416	PLB1416	B1516	3¼"	¼" x ¾"
1"	1.315"	B1432•	PLB1432	B1532	3½"	¼" x ¾"
	1.500"	B1432	PLB1432	B1532	3½"	¼" x ¾"
1¼"	1.660"	B1432	PLB1432	B1532	3½"	¼" x ¾"
1½"	1.900"	B1440	PLB1440	B1540	4"	¼" x ¾"
	2.000"	B1440	PLB1440	B1540	4"	¼" x ¾"
2"	2.375"	B1448	PLB1448	B1548	4½"	¾" x ¾"

For blank disks, refer to page 197.



Dave • Engineering

BRACKETS

WELD FITTINGS

ELBOWS

FLANGES

SPHERES CAPS

SLIP-ON FITTINGS

BRACKETS

WELD FITTINGS

ELBOWS

FLANGES

SPHERES CAPS

SLIP-ON FITTINGS

HEAVY FLUSH BASE FLANGES

Set screws are not for structural use.

	Standard Alloys	Thickness
Steel	1008	.134"
Aluminum	3003	.125"
Stainless Steel	Type 304	.120"
Bronze	C2800	.125"
Brass	C2600	.125"

Other alloys are available on special request. Supplied with a mill finish. Contact **Wagner** regarding polishing, plating, galvanizing, anodizing or special finishes – modifiedstock@mailwagner.com.

Numbers in *Italics* denote items that may not be available for immediate shipment.



HEAVY FLUSH BASE PLAIN FLANGE

Pipe Size	OD	Steel	Aluminum	Stainless	Brass	Bronze
.750"		2510T	2550T	2590T	BRS2510T	
1.000"		2518T	2558T	2598T	BRS2518T	
¾"	1.050"	2510	2550	2590		BZ2510
	1.250"	2526T	2566T	2606T	BRS2526T	
1"	1.315"	2518	2558	2598		BZ2518
	1.500"	2534T	2574T	2614T	BRS2534T	
1¼"	1.660"	2526•	2566	2606		BZ2526
1½"	1.900"	2534	2574	2614		BZ2534
	2.000"	2542T	2582T	2622T	BRS2542T	
2"	2.375"	2542	2582	2622		BZ2542
2½"	2.875"	2545	2585	2625		BZ2545
	3.000"	2646T	2686T	2626T	BRS2646T	
3"	3.500"	2546	2586	2626		BZ2546

• Denotes part shown in photograph



HEAVY BASE OFFSET FLANGE WITH ONE HOLE

Pipe Size	Tube OD	Steel	Aluminum	Stainless
	1.000"	2518RT	2558RT	2598RT
	1.250"	2526RT		2606RT
1"	1.315"	2518R	2558R	2598R
	1.500"	2534RT	2574RT	2614RT
1¼"	1.660"	2526R•	2566R	2606R
1½"	1.900"	2534R	2574R	2614R
	2.000"	2542RT	2582RT	2622RT
2"	2.375"	2542R		

• Denotes part shown in photograph



HEAVY FLUSH BASE FLANGE WITH TWO HOLES

Pipe Size	OD	Steel	Aluminum	Stainless
.750"		2511T	2551T	2591T
1.000"		2519T		2599T
¾"	1.050"	2511	2551	2591
	1.250"	2527T		2607T
1"	1.315"	2519	2559	2599
	1.500"	2535T	2575T	2615T
1¼"	1.660"	2527•	2567	2607
1½"	1.900"	2535	2575	2615
	2.000"	2543T	2583T	2623T
2"	2.375"	2543	2583	2623

• Denotes part shown in photograph



HEAVY FLUSH BASE FLANGE WITH THREE HOLES

Pipe Size	OD	Steel	Aluminum	Stainless
.750"		2511AT	2551AT	2591AT
1.000"		2519AT		2599AT
¾"	1.050"	2511A	2551A	2591A
	1.250"	2527AT		2607AT
1"	1.315"	2519A	2559A	2599A
	1.500"	2535AT	2575AT	2615AT
1¼"	1.660"	2527A•	2567A	2607A
1½"	1.900"	2535A	2575A	2615A
	2.000"	2543AT	2583AT	2623AT
2"	2.375"	2543A	2583A	2623A

Note: Verify material OD prior to order – see page 261.



HEAVY FLUSH BASE FLANGE WITH FOUR HOLES

Pipe Size	OD	Steel	Aluminum	Stainless
.750"		2512T	2552T	2592T
1.000"		2520T		2600T
¾"	1.050"	2512	2552	2592
	1.250"	2528T		2608T
1"	1.315"	2520		2600
	1.500"	2536T	2576T	2616T
1¼"	1.660"	2528•	2568	2608
1½"	1.900"	2536	2576	2616
	2.000"	2544T	2584T	2624T
2"	2.375"	2544	2584	2624

UNIVERSAL ANCHOR PLATE

May be used with two, three or four hole flanges. Use stainless or zinc plated anchor plates with aluminum flanges.



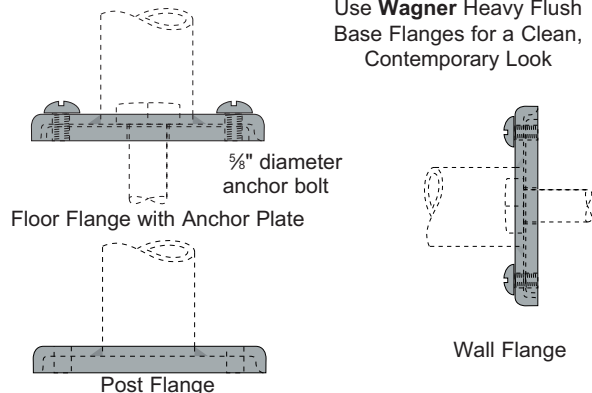
¾" Anchor Plate is provided with six holes for mounting screws. Center mounting hole is 1½" diameter.

Fasten the plate to the wall or floor with a 5/8" anchor bolt and then bolt the flange to the plate with two, three or four screws – as appropriate.

Pipe Size	OD	Steel	Zinc Plated Steel	Stainless	Plate Diameter	Bolt Size
.750"		B1416	PLB1416	B1516	3¼"	¼" x ¾"
1.000"		B1416	PLB1416	B1516	3¼"	¼" x ¾"
¾"	1.050"	B1416	PLB1416	B1516	3¼"	¼" x ¾"
	1.250"	B1416	PLB1416	B1516	3¼"	¼" x ¾"
1"	1.315"	B1432•	PLB1432	B1532	3½"	¼" x ¾"
	1.500"	B1432	PLB1432	B1532	3½"	¼" x ¾"
1¼"	1.660"	B1432	PLB1432	B1532	3½"	¼" x ¾"
1½"	1.900"	B1440	PLB1440	B1540	4"	¼" x ¾"
	2.000"	B1440	PLB1440	B1540	4"	¼" x ¾"
2"	2.375"	B1448	PLB1448	B1548	4½"	¾" x ¾"

For blank disks, refer to page 203.

Use **Wagner Heavy Flush Base Flanges** for a Clean, Contemporary Look



HEAVY FLUSH BASE BEVEL FLANGES

- These heavy base bevel flanges are for slopes 15° to 36° – best when used for slopes of 30° to 36°.
- For ramp slopes up to 6°, use heavy flush base flange on opposite page.



HEAVY FLUSH BASE PLAIN BEVEL FLANGE

Pipe Size	OD	Steel	Aluminum	Stainless
1¼"	1.660"	2826•	2866	2906
1½"	1.900"	2834		2914



HEAVY FLUSH BASE BEVEL FLANGE WITH TWO HOLES

Pipe Size	OD	Steel
1¼"	1.660"	2827•
1½"	1.900"	2835

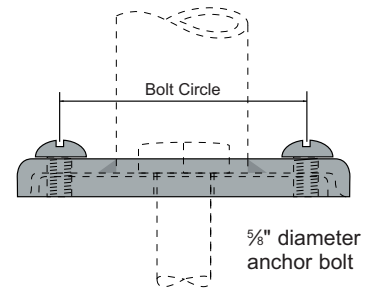


HEAVY FLUSH BASE BEVEL FLANGE WITH FOUR HOLES

Pipe Size	OD	Steel
1¼"	1.660"	2828•
1½"	1.900"	2836



Kelly • Estimating



Floor Flange with Anchor Plate

HEAVY FLUSH BASE FLANGE DIMENSIONS

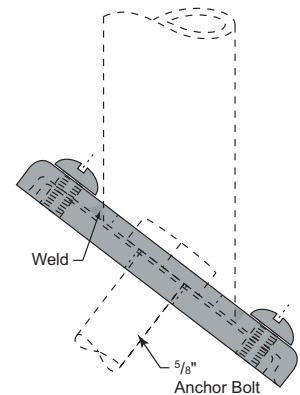
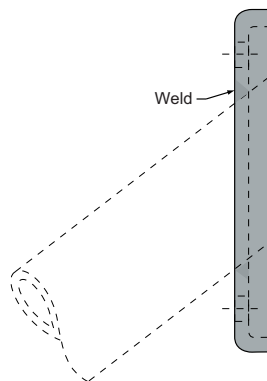
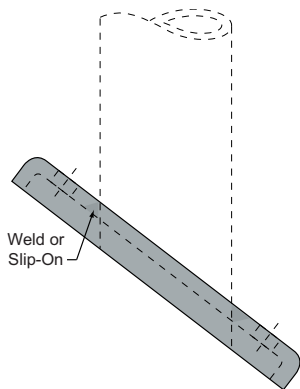
Pipe Size	OD	Base Diam.	Bolt Circle	Hole Diam.	Height
	.750"	3½"	2½"	5/16"	3/8"
	1.000"	3½"	2½"	5/16"	3/8"
¾"	1.050"	3½"	2½"	5/16"	3/8"
	1.250"	3½"	2½"	5/16"	3/8"
1"	1.315"	3¾"	3"	5/16"	3/8"
	1.500"	3¾"	3"	5/16"	3/8"
1¼"	1.660"	3¾"	3"	5/16"	3/8"
1½"	1.900"	4½"	3½"	5/16"	3/8"
	2.000"	4½"	3½"	5/16"	3/8"
2"	2.375"	4¾"	3¾"	7/16"	3/8"
	2.500"	4¾"	3¾"	7/16"	3/8"
2½"	2.875"	6"			5/8"
	3.000"	6"			5/8"
3"	3.500"	6"			5/8"

Note: Verify material OD prior to order – see page 261.

	Standard Alloys	Thickness
Steel	1008	.134"
Aluminum	3003	.125"
Stainless Steel	Type 304	.120"
Bronze	C2800	.125"
Brass	C2600	.125"

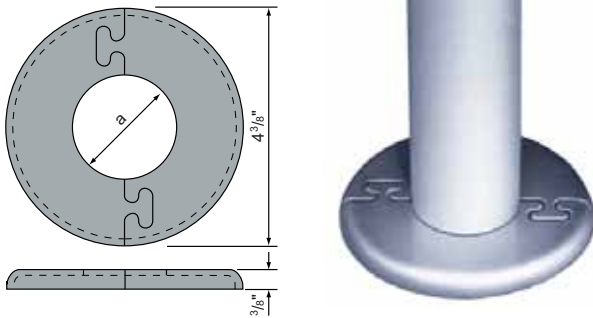
Other alloys are available on special request. Supplied with a mill finish. Contact **Wagner** regarding polishing, plating, galvanizing, anodizing or special finishes.

Numbers in *Italics* denote items that may not be available for immediate shipment.



PUZZLE-LOCK SPLIT FLANGE

The answer to those *forgotten* covers.



Hides Grout • Covers discoloration • Covers *Rust Ring*

A unique concept for the installation of cover flanges around existing pipe posts. This two piece flange locks together to appear as one. Use epoxy for attachment to surface.

Produced from 1/8" thick stock and supplied with a mill finish. Special finishes are available upon request.

Note: Due to manufacturing variations, Puzzle-Lock Flanges should be kept in sets as shipped.

PUZZLE-LOCK SPLIT FLANGE

Pipe Size	OD	Steel	Aluminum	Stainless
	1.000"			26419
	1.250"	26404	26414	26424
1"	1.315"	26401	26411	26421
	1.500"	26405	26415	26425
1 1/4"	1.660"	26402	26412	26422
1 1/2"	1.900"	26403	26413	26423
	2.000"	26406	26416	26426

BRACKETS

WELD FITTINGS

ELBOWS

FLANGES

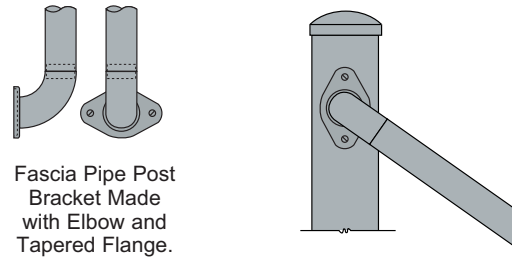
TAPERED FLAT BASE PIPE FLANGES

- Supplied mill finish. Other finishes are available on request.
- 3/4" and 1" pipe sizes are available by special order.
- Set screws are not for structural use.

	Standard Alloys	Thickness
Steel	1008	.179"
Aluminum	3003	.190"
Stainless Steel	Type 304	.187"

Other alloys are available on special request. Supplied with a mill finish. Contact **Wagner** regarding polishing, plating, galvanizing, anodizing or special finishes.

Numbers in *Italics* denote items that may not be available for immediate shipment.



Fascia Pipe Post Bracket Made with Elbow and Tapered Flange.

Note: Verify material OD prior to order – see page 261.

TAPERED BASE PLAIN FLANGE

Pipe Size	OD	Steel	Aluminum	Stainless
1 1/4"	1.660"	4810•	4840	4870
1 1/2"	1.900"	4815	4845	4875
2"	2.375"	4820	4850	4880

- Denotes part shown in photograph

TAPERED BASE FLANGE WITH TWO HOLES

Pipe Size	OD	Steel	Aluminum	Stainless
1 1/4"	1.660"	4811	4841	4871
1 1/2"	1.900"	4816•	4846	4876
2"	2.375"	4821	4851	4881

- Denotes part shown in photograph

TAPERED BASE PLAIN FLANGE WITH SET SCREW

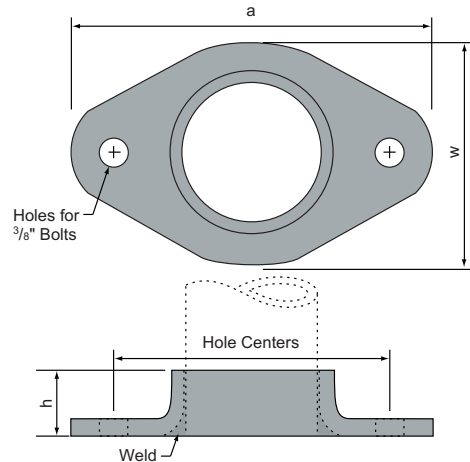
Pipe Size	OD	Steel	Stainless
1 1/4"	1.660"	4812•	4872
1 1/2"	1.900"	4817	4877
2"	2.375"	4822	4882

- Denotes part shown in photograph

TAPERED BASE FLANGE WITH SET SCREW AND TWO HOLES

Pipe Size	OD	Steel	Stainless
1 1/4"	1.660"	4813	4873
1 1/2"	1.900"	4818•	4878
2"	2.375"	4823	4883

- Denotes part shown in photograph



TAPERED BASE FLANGE DIMENSIONS

Pipe Size	a	w	Hole Centers	h
1 1/4"	4 1/4"	2 3/4"	3 1/4"	3/4"
1 1/2"	4 1/2"	3"	3 1/2"	7/8"
2"	5"	3 1/2"	4"	7/8"



SPHERES CAPS

SLIP-ON FITTINGS

TAPERED HEAVY BASE FLANGES

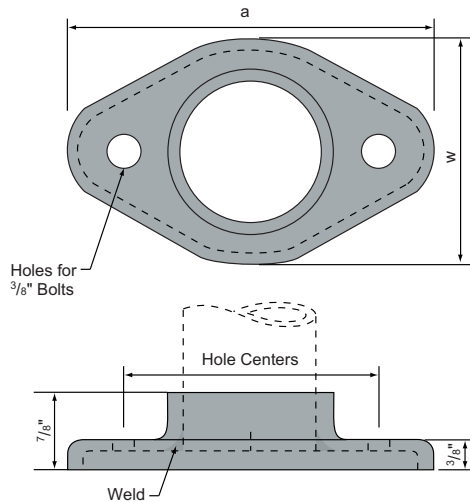
Set screws are not for structural use.

	Standard Alloys	Thickness
Steel	1006 - 1010	.179"
Aluminum	3003	.190"
Stainless Steel	Type 304	.187"

Other alloys are available on special request. Supplied with a mill finish. Contact **Wagner** regarding polishing, plating, galvanizing, anodizing or special finishes.

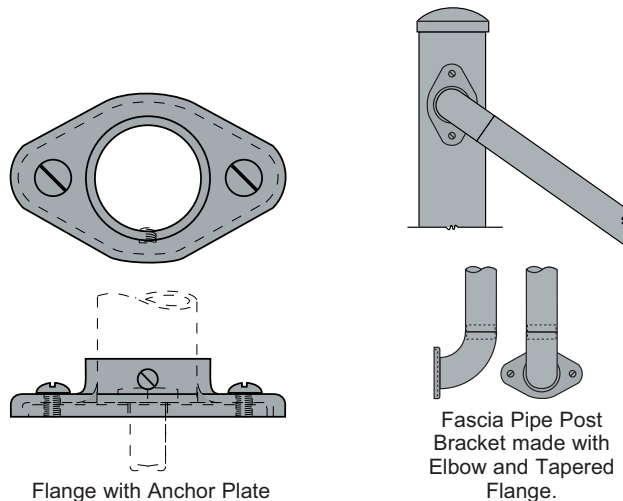
Numbers in *Italics* denote items that may not be available for immediate shipment.

Note: Verify material OD prior to order – see page 261.



TAPERED BASE FLANGE DIMENSIONS

Pipe Size	Tube OD	a	w	Hole Centers
.750"	.750"	4 1/4"	2 3/4"	3"
1.000"	1.000"	4 1/4"	2 3/4"	3"
1.250"	1.250"	4 1/4"	2 3/4"	3"
1.500"	1.500"	4 1/4"	2 3/4"	3"
1 1/4"	1.660"	4 1/4"	2 3/4"	3"
1 1/2"	1.900"	4 1/2"	3"	3 1/4"



Flange with Anchor Plate

Fascia Pipe Post Bracket made with Elbow and Tapered Flange.



TAPERED HEAVY BASE PLAIN FLANGE

Pipe Size	OD	Steel	Aluminum	Stainless
.750"	.750"	4900T	4930T	4960T
1.000"	1.000"	4905T	4935T	4965T
1.250"	1.250"	4910T	4940T	4970T
1.500"	1.500"	4915T	4945T	4975T
1 1/4"	1.660"	4910•	4940	4970
1 1/2"	1.900"	4915	4945	4975

• Denotes part shown in photograph



TAPERED HEAVY BASE FLANGE WITH TWO HOLES

Pipe Size	OD	Steel	Aluminum	Stainless
.750"	.750"	4901T	4931T	4961T
1.000"	1.000"	4906T	4936T	4966T
1.250"	1.250"	4911T	4941T	4971T
1.500"	1.500"	4916T	4946T	4976T
1 1/4"	1.660"	4911•	4941	4971
1 1/2"	1.900"	4916	4946	4976

• Denotes part shown in photograph



TAPERED HEAVY BASE PLAIN FLANGE WITH SET SCREW

Pipe Size	OD	Steel	Aluminum	Stainless
.750"	.750"	4902T	4932T	4962T
1.000"	1.000"	4907T	4937T	4967T
1.250"	1.250"	4912T	4942T	4972T
1.500"	1.500"	4917T	4947T	4977T
1 1/4"	1.660"	4912•	4942	4972
1 1/2"	1.900"	4917	4947	4977

• Denotes part shown in photograph



TAPERED HEAVY BASE FLANGE WITH SET SCREW AND TWO HOLES

Pipe Size	OD	Steel	Stainless
.750"	.750"	4903T	4963T
1.000"	1.000"	4908T	4968T
1.250"	1.250"	4913T	4973T
1.500"	1.500"	4918T	4978T
1 1/4"	1.660"	4913•	4973
1 1/2"	1.900"	4918	4978

• Denotes part shown in photograph

ANCHOR PLATE

3/16" Anchor Plate is provided with three holes for mounting screws. Center mounting hole is 1/16" diameter. Fasten the plate to the wall or floor with a 5/8" anchor bolt and then bolt the flange to the plate with two 5/16" x 3/8" bolts that are provided.



Pipe Size	OD	Steel	Stainless
.750"	.750"	4914•	4974
1.000"	1.000"	4914	4974
1.250"	1.250"	4914	4974
1.500"	1.500"	4914	4974
1 1/4"	1.660"	4914	4974
1 1/2"	1.900"	4919	4979

• Denotes part shown in photograph

BRACKETS

WELD FITTINGS

ELBOWS

FLANGES

SPHERES CAPS

SLIP-ON FITTINGS

BRACKETS

ALUMINUM COVER PLATE WITH SET SCREW

Alloy 6063
 3/8" thick x 4 1/8" diameter
 Set screw is 3/16" x 1 1/4"
 Use as slip mount with set screw or weld.
 Mill finish. Satin and/or anodized finishes are available on request.
 Numbers in *Italics* denote items that may not be available for immediate shipment.



ALUMINUM COVER PLATE WITH SET SCREW

Pipe Size	OD	Aluminum
	1.500"	<i>8068</i>
1 1/4"	1.660"	8063
1 1/2"	1.900"	8064
	2.000"	<i>8069</i>
2"	2.375"	<i>8065</i>

• Denotes part shown in photograph

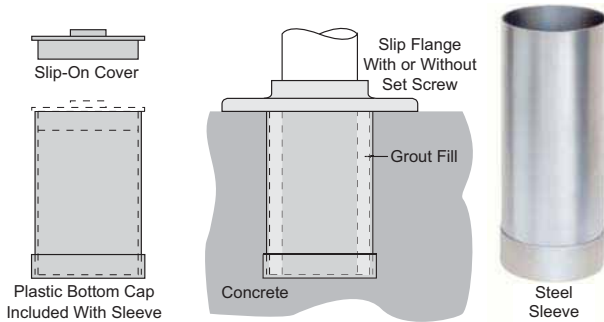


Jay • Plant 2

WELD FITTINGS

ELBOWS

FLANGES



STEEL POST SLEEVES Patented

Refer to pages 201 to 202 for information on Post Sleeves and anchoring cement.

For use with up to 2" outside diameter pipe and tube.

Outside Diameter	Height	Steel .049" Wall	Zinc Plated Steel	Galvanized Steel	Water Proof Plastic Cover
2 1/2"	4"	254-SNC	PL254-SNC	G254-SNC	25-C
2 1/2"	6"	256-SNC	PL256-SNC	G256-SNC	25-C
3"	4"	34-SNC	PL34-SNC	G34-SNC	3-C
3"	6"	36-SNC	PL36-SNC	G36-SNC	3-C

Wagner can supply sleeves to any length or angle. Contact Wagner for pricing.



Garrett • Plant 2

SPHERES CAPS

SLIP-ON FITTINGS

CONCEALED MOUNTING FLANGES

These Mounting Flanges and Anchor Plates permit the concealed mounting of grab bars and wall mounted railings. They are available in steel and stainless steel

For Snap-On Cover Flanges, refer to page 197.

Contact Wagner regarding special finishes and availability for OD tube sizes.



CONCEALED MOUNT FLANGE WITH ANCHOR PLATE

OD	Stainless
1.250"	2631
1.500"	2632

Sold as a set of one flange and one anchor plate. The concealed mount flange comes with four set screws. The anchor plate has a slotted center hole to permit field adjustment when mounting.



For Clean, Concealed Mounting of Posts, Grab Bars and Handrail Brackets.

This system of Base Plates and Snap-On Flanges is engineered for installations that require securely covered anchorage. It provides a unique lock-down system for non-structural covering of anchor bolts in a variety of materials.

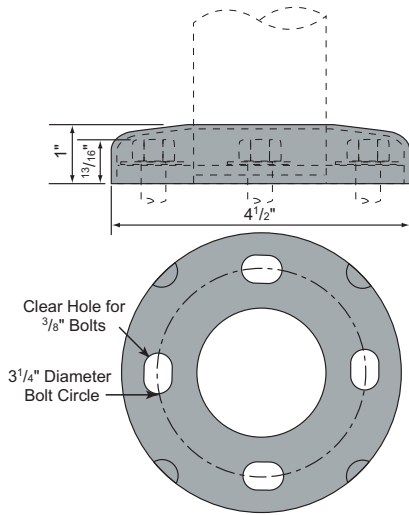
The secure connection of cover to base is provided by formed tabs produced with precise tolerances.

These flanges are available in Steel, Aluminum, Stainless Steel and Bronze in sizes up to 2.375" OD. They are stocked in mill finish, but polishing, galvanizing or anodizing are available on request.

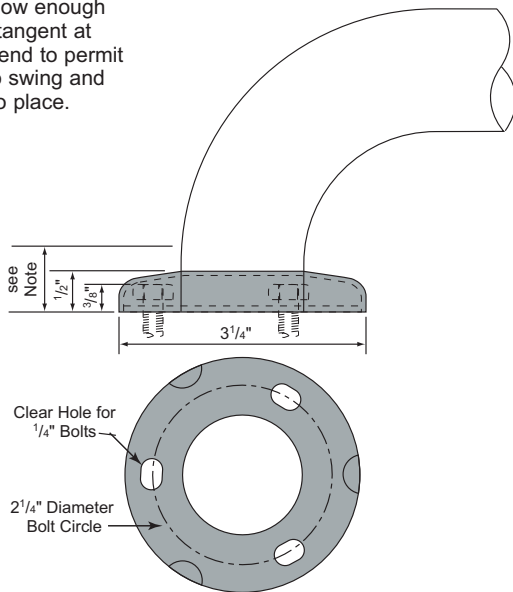
The anchor plate and cover may be dissimilar metals.

	Standard Alloys	Thickness
Steel	1006 - 1010	.048"
Aluminum	3003, 6063	.050"
Stainless Steel	Type 304	.048"
Brass	C26000	.050"

Other alloys are available on special request.



Note: Allow enough straight tangent at end of bend to permit flange to swing and snap into place.



For concealed flanges with set screws turn to page 196 .

Note: Verify material OD prior to order – see page 261.

SNAP-ON COVER FLANGE

18 Gauge.

3/4" Diameter Cover Has Clearance for 1/4" Bolts.

4 1/2" Diameter Cover Has Clearance for 3/8" Bolts.

Pipe Size	OD	Steel	3003 Aluminum	304 Stainless	C26000 Brass	Cover Diameter	Height
.500"		2021	2022	2023	2024	3/4"	1/2"
.625"		2031	2032	2033	2034	3/4"	1/2"
.750"		2041	2042	2043	2044	3/4"	1/2"
1.000"		2051	2052	2053	2054	3/4"	1/2"
1.250"		2061	2062	2063	2064	3/4"	1/2"
1"	1.315"	2055	2056	2057	2058†	3/4"	1/2"
	1.500"	2071	2072	2073	2074	3/4"	1/2"
1 1/4"	1.660"	2065•	2066	2067	2068†	4 1/2"	1"
1 1/2"	1.900"	2075	2076	2077	2078†	4 1/2"	1"
	2.000"	2081	2082	2083	2084	4 1/2"	1"
2"	2.375"	2085	2086	2087	2088†	4 1/2"	1"

†Denotes bronze items, alloy C2800

• Denotes part shown in photograph



GREEN
Refer to LEED statement on page 263.

SNAP-ON COVER FLANGE BASE

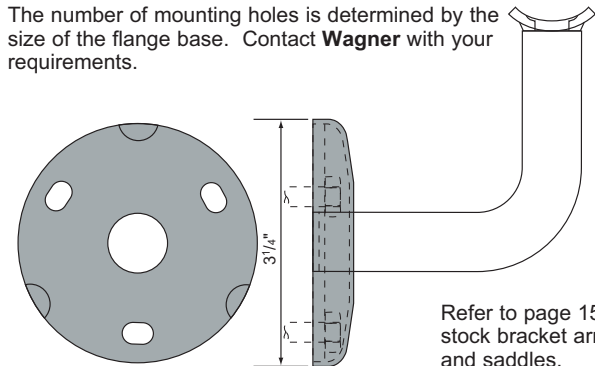
3/8" Diameter Base Has Three Clear Mounting Holes for 1/4" Bolts.

4 3/8" Diameter Base Has Four Clear Mounting Holes for 3/8" Bolts.

Pipe Size	OD	Steel	3003 Aluminum	304 Stainless	C26000 Brass	Cover Diameter	Thickness
.500"		2021B	2022B	2023B	2024B	3/8"	.179"
.625"		2031B	2032B	2033B	2034B	3/8"	.179"
.750"		2041B	2042B	2043B	2044B	3/8"	.179"
1.000"		2051B	2052B	2053B	2054B	3/8"	.179"
1.250"		2061B	2062B	2063B	2064B	3/8"	.179"
1"	1.315"	2055B	2056B	2057B	2058B	3/8"	.179"
	1.500"	2071B	2072B	2073B	2074B	3/8"	.179"
1 1/4"	1.660"	2065B•	2066B	2067B*	2068B	4 3/8"	.250"
1 1/2"	1.900"	2075B	2076B	2077B*	2078B	4 3/8"	.250"
	2.000"	2081B	2082B	2083B*	2084B	4 3/8"	.250"
2"	2.375"	2085B	2086B	2087B*	2088B	4 3/8"	.250"

*Thickness = .188"

The number of mounting holes is determined by the size of the flange base. Contact **Wagner** with your requirements.



Refer to page 151 for stock bracket arms and saddles.

BRACKETS

WELD FITTINGS

ELBOWS

FLANGES

SPHERES CAPS

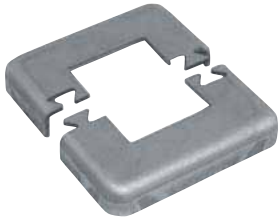
SLIP-ON FITTINGS

SQUARE PUZZLE-LOCK SPLIT FLANGE

A unique concept for the installation of **Cover Flanges** around existing posts. The answer to those *forgotten covers*. This two-piece **Flange** locks together to appear as one. Use **Epoxy** for attachment to surface.

- ¾" High
- Hides Bolt Heads
- Covers 4" Square Base
- Covers Rust Ring
- Mill Finish. Contact **Wagner** for special finishes.

Note: Due to manufacturing variations, Puzzle-Lock Flanges should be kept in sets as shipped.



SQUARE PUZZLE-LOCK SPLIT FLANGE

Square Tube Size	Height	Covers Base Size	Steel	Aluminum	Stainless	Bronze (Muntz)
1.000"	¾"	4" x 4"	26430	26434	26438	26442
1.250"	¾"	4" x 4"	26431	26435	26439	26443
1.500"	¾"	4" x 4"	26432	26436	26440	26444
2.000"	¾"	4" x 4"	26433	26437	26441	26445

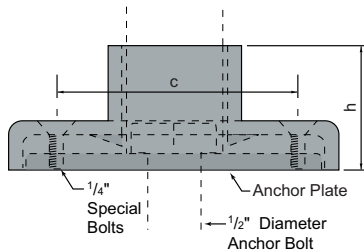


GREEN
Refer to LEED statement on page 263.

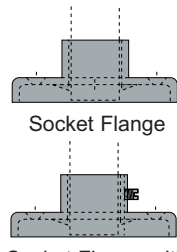
SQUARE TUBE SOCKETS – CAST

Square Tube Size	Height	Base Size	As Cast Malleable Iron	F-214 Satin Finish Aluminum	Alloy 85-315 Satin Finish Bronze
1.000"	1½"	2⅝" x 2⅝"	K1162•	K2162	K5162
1.250"	1⅞"	3⅜" x 3¼"	K1163	K2163	K5163
1.500"	2"	3½" x 3⅝"	K1164	K2164	K5164
2.000"	2⅝"	4¼" x 4⅝"	K1165	K2165	K5165
3.000"	2½"	5⅝" x 5½"	K1166	K2166	K5166

- Denotes part shown in photograph



Socket Flange with Anchor Plate



Socket Flange with Set Screw

TUBE SOCKET FLANGE DIMENSIONS

Square Tube Size	Base	c	h
1.000"	3" x 3"	1"	1¼"
1.250"	3¾" x 3¾"	2¾"	1½"
1.500"	3¾" x 3¾"	2¾"	1¾"

SQUARE TUBE SOCKET FLANGE

Numbers in *Italics* denote items that may not be available for immediate shipment.



PLAIN FLANGE

Square Tube Size	Steel
1.000"	8901
1.250"	8907•
1.500"	8913

- Denotes part shown in photograph

Note: Verify material OD prior to order – see page 261.

FLANGE WITH FOUR COUNTERSUNK HOLES

Square Tube Size	Steel
1.000"	8902
1.250"	8908•
1.500"	8914

- Denotes part shown in photograph



PLAIN FLANGE WITH SET SCREW

Square Tube Size	Steel
1.000"	8904
1.250"	8910•
1.500"	8916

- Denotes part shown in photograph



ANCHOR PLATE

Square Tube Size	Plate Size	Steel	Stainless Steel
1.000"	3" x 3"	8706	8846
1.250"	3¾" x 3¾"	8727•	8867
1.500"	3¾" x 3¾"	8727	8867

All Anchor Plates are ⅜" thick with ¼" x ⅜" bolts.

- Denotes part shown in photograph



Hector • Polishing



• Denotes part shown in photograph

PLAIN FLANGE

* Denotes 16 ga. material

Tube Size	Cover Flange Size	10 Ga.	.125"	.120"
		Steel	Aluminum	Stainless
3/4" x 3/4"	3" x 3"	8701	8771	8841
1" x 1"	3" x 3"	8708•	8778	8848
1 1/4" x 1 1/4"	3" x 3"	8715	8785	8855
1 1/2" x 1 1/2"	3 3/4" x 3 3/4"	8722	8792	8862
1 3/4" x 1 3/4"	3 3/4" x 3 3/4"	8734	8804	8874
2" x 2"	3 3/4" x 3 3/4"	8729	8799	8869
2 1/2" x 2 1/2"	5 1/16" x 5 1/16"	88057*	88027*	88097*
3" x 3"	5 1/16" x 5 1/16"	88064*	88034*	88004*
1" x 1 1/2"	3 3/4" x 3 3/4"	8750	8820	8890
1" x 2"	3 3/4" x 3 3/4"	8757	8827	8897
1 1/2" x 2"	3 3/4" x 3 3/4"	8764	8834	89004



PLAIN FLANGE WITH SET SCREW

Tube Size	Cover Flange Size	10 Ga.	.125"	.120"
		Steel	Aluminum	Stainless
3/4" x 3/4"	3" x 3"	8704	8774	8844
1" x 1"	3" x 3"	8711	8781	8851
1 1/4" x 1 1/4"	3" x 3"	8718•	8788	8858
1 1/2" x 1 1/2"	3 3/4" x 3 3/4"	8725	8795	8865
1 3/4" x 1 3/4"	3 3/4" x 3 3/4"	8736	8806	8876
2" x 2"	3 3/4" x 3 3/4"	8732	8802	8872
1" x 1 1/2"	3 3/4" x 3 3/4"	8753	8823	8893
1" x 2"	3 3/4" x 3 3/4"	8760	8830	8900
1 1/2" x 2"	3 3/4" x 3 3/4"	8767	8837	89007



FLANGE WITH FOUR COUNTERSUNK HOLES

Tube Size	Cover Flange Size	10 Ga.	.125"	.120"
		Steel	Aluminum	Stainless
3/4" x 3/4"	3" x 3"	8702	8772	8842
1" x 1"	3" x 3"	8709•	8779	8849
1 1/4" x 1 1/4"	3" x 3"	8716	8786	8856
1 1/2" x 1 1/2"	3 3/4" x 3 3/4"	8723	8793	8863
1 3/4" x 1 3/4"	3 3/4" x 3 3/4"	8735	8805	8875
2" x 2"	3 3/4" x 3 3/4"	8730	8800	8870
2 1/2" x 2 1/2"	5 1/16" x 5 1/16"	88058*	88028*	88098*
3" x 3"	5 1/16" x 5 1/16"	88065*	88035*	88005*
1" x 1 1/2"	3 3/4" x 3 3/4"	8751	8821	8891
1" x 2"	3 3/4" x 3 3/4"	8758	8828	8898
1 1/2" x 2"	3 3/4" x 3 3/4"	8765	8835	89005

* Denotes 16 ga. material



FLANGE WITH SET SCREW AND FOUR COUNTERSUNK HOLES

Tube Size	Cover Flange Size	10 Ga.	.120"
		Steel	Stainless
3/4" x 3/4"	3" x 3"	8705	8845
1" x 1"	3" x 3"	8712	8852
1 1/4" x 1 1/4"	3" x 3"	8719•	8859
1 1/2" x 1 1/2"	3 3/4" x 3 3/4"	8726	8866
1 3/4" x 1 3/4"	3 3/4" x 3 3/4"	8737	8877
2" x 2"	3 3/4" x 3 3/4"	8733	8873
1" x 1 1/2"	3 3/4" x 3 3/4"	8754	8894
1" x 2"	3 3/4" x 3 3/4"	8761	89001
1 1/2" x 2"	3 3/4" x 3 3/4"	8768	89008



All Anchor Plates are 3/16" thick with 1/4" x 3/8" bolts.

UNIVERSAL ANCHOR PLATE

Tube Size	Plate Size	Steel	Stainless
		3/4" x 3/4"	2 5/8" x 2 5/8"
1" x 1"	2 5/8" x 2 5/8"	8706	8846
1 1/4" x 1 1/4"	2 5/8" x 2 5/8"	8706	8846
1 1/2" x 1 1/2"	3 3/8" x 3 3/8"	8727•	8867
1 3/4" x 1 3/4"	3 3/8" x 3 3/8"	8727	8867
2" x 2"	3 3/8" x 3 3/8"	8727	8867
1" x 1 1/2"	3 3/8" x 3 3/8"	8727	8867
1" x 2"	3 3/8" x 3 3/8"	8727	8867
1 1/2" x 2"	3 3/8" x 3 3/8"	8727	8867

SQUARE FLUSH BASE FLANGES

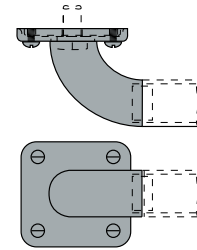
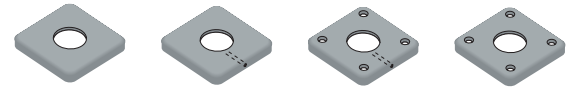
Available in steel, aluminum alloy 3003 and stainless steel type 304. Contact **Wagner** regarding availability in brass, bronze and other finishes.

These flanges may be combined with square or round elbows from pages 172 to 187 to create wall returns as noted below

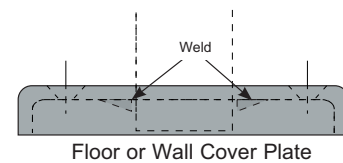
Numbers in *Italics* denote items that may not be available for immediate shipment.

SQUARE FLANGES WITH ROUND HOLES

To order square flanges with round holes for pipe or OD tubing, add **P** after the fitting number for pipe of that size or **T** after fitting number for round tube of that size.



Returns with Square Flush Base Flanges and Elbows



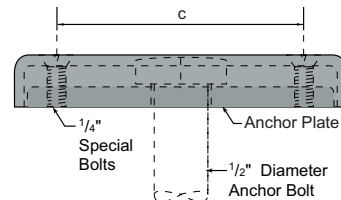
Floor or Wall Cover Plate



Threaded Flanges with Set Screw

SQUARE FLOOR & WALL FORMED FLANGES WITH ANCHOR PLATE

When an Anchor Plate is used with a flange, fasten plate to floor then attach flange to plate with four 1/4" - 20 bolts provided.



Cover Flange Size	c	Hole Diameter	Height	Thickness
3" x 3"	2"	5/16"	1/2"	10 Ga.
3 3/4" x 3 3/4"	2 3/4"	5/16"	1/2"	10 Ga.
5 1/16" x 5 1/16"	3 3/4"	7/16"	7/16"	16 Ga.

BRACKETS

SQUARE TUBE FLANGES

	Standard Alloys	Thickness
Steel	1006-1010	as noted
Aluminum	3003	as noted

Other alloys are available on special request. Supplied with a mill finish. Contact **Wagner** regarding polishing, plating, galvanizing, anodizing or special finishes.

Numbers in *Italics* denote items that may not be available for immediate shipment.

WELD FITTINGS



Note: Verify material OD prior to order – see page 261.

ELBOWS

PLAIN FLANGE – NO MOUNTING HOLES

Tube Size	Base Size	Height	Thickness	Steel	Aluminum
3/4" x 3/4"	3 3/4" x 3 3/4"	7/8"	10 Ga.	8041-3NH	8042-3NH*
1" x 1"	3 3/4" x 3 3/4"	7/8"	10 Ga.	8041-NH	8042-NH*
1 1/4" x 1 1/4"	3 3/4" x 3 3/4"	7/8"	10 Ga.	8045-NH•	8046-NH*
1 1/2" x 1 1/2"	3 3/4" x 3 3/4"	7/8"	10 Ga.	8047-NH	8048-NH*
2" x 2"	5" x 5"	1"	7 Ga.	8051-NH	8052-NH
2 1/2" x 2 1/2"	5" x 5"	1"	7 Ga.	8049-NH	8050-NH
3" x 3"	5" x 5"	5/8"	7 Ga.	8096-NH	8098-NH
1" x 1 1/2"	5" x 5"	1"	7 Ga.	8053-NH	8054-NH
1" x 2"	5" x 5"	1"	7 Ga.	8055-NH	8056-NH
1 1/2" x 2"	5" x 5"	1"	7 Ga.	8055-2NH	8056-2NH

* Thickness = 3/16"
• Denotes part shown in photograph

FLANGES

SPHERES CAPS



All metals have a recycled content and high reclamation rate. Contact **Wagner** for data relating to your specific product selections.

ANCHOR PLATE

Flange Size	Height	Thickness	Steel
3 3/4" x 3 3/4"	3/16"	3/16"	8057•
5" x 5"	3/16"	3/16"	8043

Anchor Plate includes four 1/4" x 5/16" flat head machine screws (FHMS).

SLIP-ON FITTINGS

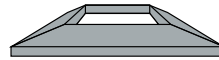
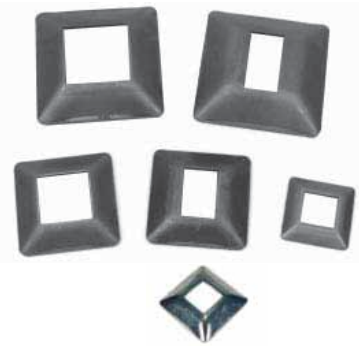
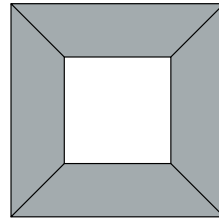


COVER PLATES

	Standard Alloys	Thickness
Steel	1006-1010	1/8"
Aluminum	3003	1/8"

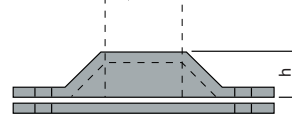
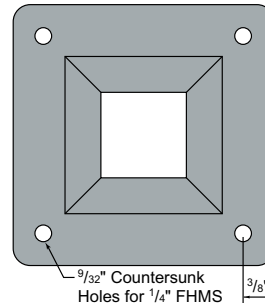
Other alloys are available on special request. Supplied with a mill finish. Contact **Wagner** regarding polishing, plating, galvanizing, anodizing or special finishes.

Numbers in *Italics* denote items that may not be available for immediate shipment.



SLIP-ON COVER PLATE

Tube Size	Base Size	Height	Thickness	Steel	Aluminum
3/4" x 3/4"	2" x 2"	7/16"	10 Ga.	8077	8078
1" x 1"	2" x 2"	3/8"	10 Ga.	8079	8080
1 1/4" x 1 1/4"	3" x 3"	5/8"	10 Ga.	8081•	8082
1 1/2" x 1 1/2"	3" x 3"	5/8"	10 Ga.	8083	8084
2" x 2"	4" x 4"	13/16"	7 Ga.	8085	8086
1" x 1 1/2"	3" x 3"	5/8"	10 Ga.	8089	8090
1" x 2"	4" x 4"	7/8"	7 Ga.	8091	8092
1 1/2" x 2"	4" x 4"	7/8"	7 Ga.	8091-2	8092-2



FLANGE WITH FOUR COUNTERSUNK HOLES

Tube Size	Base Size	Height	Thickness	Steel	Aluminum
3/4" x 3/4"	3 3/4" x 3 3/4"	7/8"	10 Ga.	8041-3	8042-3
1" x 1"	3 3/4" x 3 3/4"	7/8"	10 Ga.	8041•	8042
1 1/4" x 1 1/4"	3 3/4" x 3 3/4"	7/8"	10 Ga.	8045	8046
1 1/2" x 1 1/2"	3 3/4" x 3 3/4"	7/8"	10 Ga.	8047	8048
2" x 2"	5" x 5"	1"	7 Ga.	8051	8052
2 1/2" x 2 1/2"	5" x 5"	1"	7 Ga.	8049	8050
1" x 1 1/2"	3" x 3"	1"	7 Ga.	8053	8054
1" x 2"	5" x 5"	1"	7 Ga.	8055	8056
1 1/2" x 2"	4" x 4"	1"	7 Ga.	8055-2	8056-2

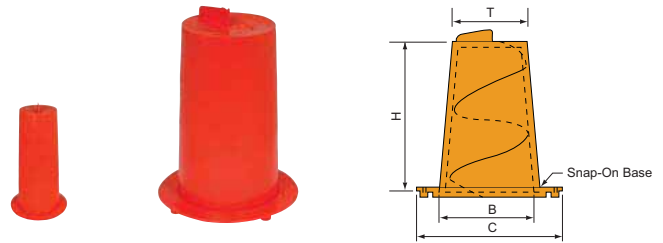
EZ SLEEVE For Mounting Posts in Concrete

EZ Sleeve is the ideal way to form quick and clean post holes in concrete for installing railings or other posts.

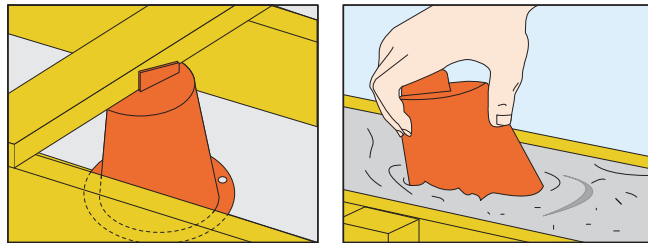
Features:

- **Easy to Use:** Set before or immediately after concrete is poured.
- **Lightweight and Sturdy:** The *EZ Sleeve* is constructed of 1/8" thick plastic.
- **Precise Field Measurements:** Use tab for field measuring and removal of *EZ Sleeve*.
- **Clean:** Sealed tapered tube with snap-on base keeps out debris and water.
- **Convenient:** Creates tapered hole with extra space to plumb post.

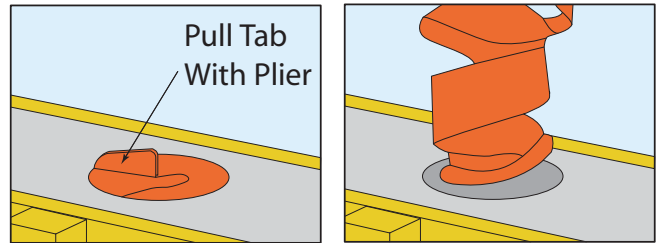
Color is safety orange to safeguard against tripping. Public access to work areas should be prevented.



Model	Pieces	Dimensions				Post Size
		T	B	H	C	
EZ3006	50	3"	3 1/2"	6"	4 3/4"	Up to 2" Pipe (2 3/8" OD) Up to 2" Square
EZ3006-10	10	3"	3 1/2"	6"	4 3/4"	Up to 2" Pipe (2 3/8" OD) Up to 2" Square
EZ4012	30	4"	5"	12"	7"	Up to 3" pipe (3 1/2" OD) Up to 2 1/2" Square
EZ4012-5	5	4"	5"	12"	7"	Up to 3" pipe (3 1/2" OD) Up to 2 1/2" Square



Either...Attach to concrete form work and pour concrete. Or... Press into wet concrete.

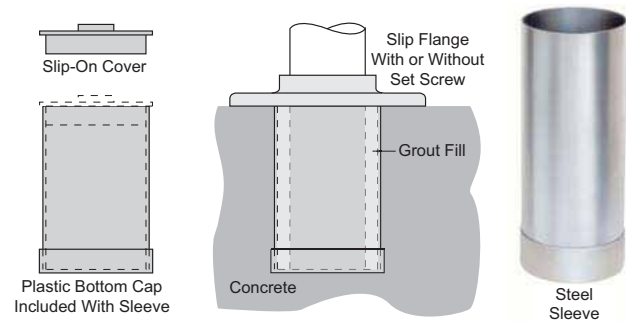


Pull tab, using a pair of pliers, just before installing posts. Do not pull out *EZ Sleeve* until ready for installation. You can use it to verify field measurements and to keep out debris and water which can freeze and crack concrete.

POST SLEEVES Patented

Post Sleeves are to be 1/2" larger than the post OD to allow for placement variations and adequate grouting.

Use the *Slip-On Covers* to keep the *Post Sleeve* clean until you are ready to install the posts. When you are ready to erect the railing, remove the covers, place the post into the clean sleeve and grout with *Rockite*® or *Kwixset*®. Top of cover should be set flush with concrete floor line or stair tread.



STEEL POST SLEEVES

Outside Dia.	Height	Steel	Zinc Plated Steel	Galvanized Steel	Water Proof Plastic Cover
2 1/2"	4"	254-SNC	PL254-SNC	G254-SNC	25-C
2 1/2"	6"	256-SNC	PL256-SNC	G256-SNC	25-C
3"	4"	34-SNC	PL34-SNC	G34-SNC	3-C
3"	6"	36-SNC	PL36-SNC	G36-SNC	3-C

Wagner can supply *Post Sleeves* to any length or angle. Contact Wagner for pricing.



ANCHOR AND PATCHING EXPANSION CEMENT
ROCKITE® **KWIXSET**®

Use only in water proof conditions.
Gypsum-based

Exterior Anchor Cement
Portland-based

50 lb. pail	RK10051	50 lb. pail	KW10402
10 lb. box	RK10010	25 lb. box	KW10401

Follow package instructions when using *Rockite*® or *Kwixset*®.

See page 202 for additional information.



GROUT BAG

White Poly *Grout Bag* 23" long with 3/8" rubber tip permanently molded in bag.

DISPOSABLE GROUT BAG

Made of heavy duty plastic, disposable *Grout Bags* eliminate the need for cleaning. Bags are 21" long. Tips can be cut to the desired opening.

1/pkg.	GBG14391	50/box	GBG14219
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BRACKETS

WELD FITTINGS

ELBOWS

FLANGES

SPHERES CAPS

SLIP-ON FITTINGS

ROCKITE® AND KWIXSET® EXPANSION CEMENTS

Use *Rockite®* and *Kwixset®* to anchor:

- Bolts
- Starter Rods
- Balustrades
- Seats
- Railings
- Motors – Machines
- Security Fencings
- Gates

Use *Rockite* and *Kwixset* for self-level patching:

- Stairs
- Floors
- Ceilings
- Landing
- Walls
- Walkways

ROCKITE® and *KWIXSET®* are fast setting, hydraulic type cement compounds of more than twice the strength of fully cured conventional concrete. When mixed with water to pourable consistency they will flow and seep into place as though they were molten lava.

Rockite® has an initial set within 15-20 minutes. Within one hour it will develop compression strengths of 4500 psi. Its adhesion is due to expansion – hydraulic forces against exterior walls of drilled holes – and when fully set it grips metal to concrete permanently.

One pound of *Rockite®* yields 18³/₄" cubic inches. Ninety-two pounds of *Rockite®* cement yields 1 cubic foot.

Once you try it you'll never be without it.

- Just add water
- Sets in 15 minutes
- Self levelling
- Takes stress loading in two hours
- Minimal wastage – mix as you require
- Indefinite shelf life
- Will set below freezing: down to 25°F
- Easy – economical – safe to use
- Compression strengths for *Rockite®*:
 - 1 Hour: 4,600 psi
 - 24 Hours: 5,000 psi
 - 7 Days: 8,000 psi

In addition to its ease of application, strength and versatility, the important features of *Rockite®* and *Kwixset®* are its **controlled expansion** – unlike iron bearing cement mixtures.

- Cured *Rockite®* is a pleasing grey color that blends with concrete.
- *Rockite®* and *Kwixset®* save costly dollars in down time as they can both be stress loaded within two hours and fully set over seven days.
- The application procedure is so simple that inexperienced labor can handle almost any installation.
- *Rockite®* and *Kwixset®* save repair dollars because they ensure permanent results.



Arturo • Polishing



ANCHOR AND PATCHING EXPANSION CEMENT

ROCKITE®
Use only in water proof conditions.
Gypsum-based

KWIXSET®
Exterior Anchor Cement
Portland-based

50 lb. pail	RK10051	50 lb. pail	KW10402
10 lb. box	RK10010	25 lb. box	KW10401

Follow package instructions when using *Rockite®* or *Kwixset®*.

How to Anchor Posts in Concrete:

- Drill the hole as required – never less than 2 inches.
- Blow out all the dust and loose particles.
- Flush hole with water. Be sure to remove excess water leaving the hole clean and uniformly damp. The substrate can be damp when anchor cement is poured into the hole.
- Follow package directions regarding mixing to obtain a *fluid consistency*.
- Set your post into the hole. Confirm all dimensions.
- Pour the fluid consistency anchor cement around the post – tapping the post to settle the cement.
- Confirm your dimensions and plumb. Use the **Wagner Grout Stand** to assist in post alignment.
- Let the cement harden for at least 30 minutes – initial set is 15 minutes.



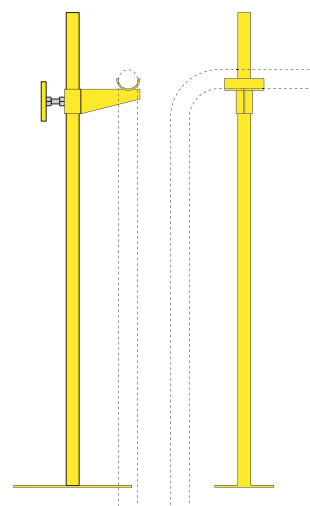
GROUT BAG

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1/pkg.	GBG14391	50/box	GBG14219
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WAGNER GROUT STAND

This 48" tall *Grout Stand* is designed to hold your railing in place while you introduce *Rockite®* or *Kwixset®* into your post hole or pre-inserted *Sleeve* and then holds it in place while the *Rockite®* or *Kwixset®* sets.

The adjustable cradle may be moved and locked into position as necessary for your installation.

Contact **Wagner** for more information on the **Wagner Grout Stand**.

GS1

DISKS AND PLATES

Items on this page are stocked for quick shipment at competitive prices. Call **Wagner** for large quantity pricing. *Discs* and *Plates* are supplied mill finish. They can be supplied in special finishes, and custom sizes and hole configurations. Any custom size *Disk* or *Plate* can be *Waterjet Cut*. See page 249 for more information or call **Wagner** for details and pricing.

Numbers in *Italics* denote items that may not be available for immediate shipment.



ROUND DISKS WITH HOLES

Three 3/16" Holes

Diam.	Thick.	Steel	Aluminum	Stainless
3"	1/8"	D135H*	D136H	D137H
3"	1/4"	D143H	D144H	D145H
3 1/2"	1/4"	D173H	D174H	D175H
4"	1/4"	D203H	D204H	D205H
4 1/2"	1/4"	D246H	D247H	D248H



HEAVY ROUND DISKS

Steel Only

Diam.	Thick.	Steel
3"	3/8"	D500*
3"	1/2"	D501
4"	3/8"	D502
4"	1/2"	D503
5"	3/8"	D504
5"	1/2"	D505
6"	3/8"	D506
6"	1/2"	D507



BLANK PLATES WITH RADIUS CORNERS AND HOLES

Four 7/16" Holes for 3/8" Bolt

Diam.	Thick.	Steel	Aluminum	Stainless
2 3/8"	3/16"	D321H*	D322H*	D323H*
3 3/8"	3/16"	D324H	D325H	D326H
4"	1/4"	D480H	D481H	D482H†
4 5/8"	1/4"	D484H	D485H	D486H†

*Denotes items that have four 3/16" holes

†Denotes items that have 3/16" thickness



PLATES WITH RADIUS CORNERS

Dimensions	Thickness	Steel	Aluminum	Stainless	Brass
1" x 1"	1/8"	3206-1*	3206-1A	3206-1SS	BRS3206-1†
1 1/4" x 1 1/4"	1/8"	3207-1	3207-1A	3207-1SS	BRS3207-1†
1 1/2" x 1 1/2"	1/8"	3220-D	3220-DA	3220-DSS	
2" x 2"	1/8"	3221-D	3221-DA	3221-DSS	BRS3221-D
2 5/8" x 2 5/8"	3/16"	3221-1D	3221-1A	3221-1SS	BRS3221-1D
3 3/8" x 3 3/8"	3/16"	3221-2D	3221-2A	3221-2SS	BRS3221-2D
5" x 5"	3/16"	3221-3D	3221-3A	3221-3SS	BRS3221-3D
4" x 6"	3/16"	D372	D373	D374	D375
4" x 4"	1/4"	D480	D481	D482†	D483
4 5/8" x 4 5/8"	1/4"	D484	D485	D486†	D487

†Denotes items that have 3/16" thickness



BLANK ROUND DISKS

Disks are available in other diameters, thicknesses and alloys contact **Wagner**.

Diameter	Thickness	Steel	Aluminum	304 Stainless	C26000 Brass
1"	1/8"	D001	D002	D003	D004
1"	1/4"	D009		D011	D012

ROUND DISKS (Continued)

Diameter	Thickness	Steel	Aluminum	304 Stainless	C26000 Brass
1 1/4"	1/8"	D015*	D016	D017	D018
1 1/4"	1/4"	D023	D024	D025	D026
1 5/16"	1/8"	D030	D031	D032	D033
1 5/16"	3/16"	3227	3247	3267	D034
1 5/16"	1/4"	D035	D036	D037	D038
1 1/2"	1/8"	D045	D046	D047	D048
1 1/2"	3/16"	D049	D050	D051	D052
1 1/2"	1/4"	D053	D054	D055	D056
1 5/8"	1/8"	D060	D061	D062	D063
1 5/8"	3/16"	3228	3248	3268	D064
1 5/8"	1/4"	D065	D066	D067	D068
1 3/4"	1/8"	D069-1	D069-2	D069-3	D069-4
1 3/4"	1/4"	D071-1	D071-2	D071-3	D071-4
1 7/8"	1/8"	D075	D076	D077	D078
1 7/8"	3/16"	3229	3249	3269	D079
1 7/8"	1/4"	D080	D081	D082	D083
2"	1/8"	D090	D091	D092	D093
2"	3/16"	D094	D095	D096	D097
2"	1/4"	D098	D099	D100	D101
2 3/8"	1/8"	D105	D106	D107	D108
2 3/8"	3/16"	3230	3250	3270	D109
2 3/8"	1/4"	D110	D111	D112	D113
2 1/2"	1/8"	D120	D121	D122	D123
2 1/2"	1/4"	D128	D129	D130	D131
2 7/8"	1/8"	D132-1	D132-2	D132-3	D132-4
2 7/8"	3/16"	D133-1	D133-2	D133-3	
2 7/8"	1/4"	D134-1	D134-2	D134-3	D134-4
3"	1/8"	D135	D136	D137	D138
3"	3/16"	D139	D140	D141	D142
3"	1/4"	D143	D144	D145	D146
3 1/4"	1/8"	D150	D151	D152	D153
3 1/4"	3/16"	D154	D155	D156	D157
3 1/4"	1/4"	D158	D159	D160	D161
3 1/2"	1/8"	D165	D166	D167	D168
3 1/2"	3/16"	D169	D170	D171	D172
3 1/2"	1/4"	D173	D174	D175	D176
3 3/4"	1/8"	D180	D181	D182	D183
3 3/4"	1/4"	D188	D189	D190	D191
4"	1/8"	D195	D196	D197	D198
4"	3/16"	D199	D200	D201	D202
4"	1/4"	D203	D204	D205	D206
4 1/8"	1/4"	D218	D219	D220	D221
4 1/4"	1/8"	D225	D226	D227	D228
4 1/4"	1/4"	D233	D234	D235	D236
4 1/2"	1/8"	D240	D241	D242	D242D
4 1/2"	1/4"	D246	D247	D248	D248D
4 11/16"	1/4"	D263	D264	D265	D266
5"	1/8"	D285	D286	D287	D288
5"	1/4"	D293	D294	D295	D296
5 1/8"	1/8"	D300	D301	D302	D303
5 1/8"	1/4"	D308	D309	D310	D311
6"	1/4"	D327-1	D328-1	D329-1	
6 1/8"	1/8"	D330	D331	D332	D333
6 1/8"	1/4"	D338	D339	D340	D341
6 3/8"	3/16"	D345	D346	D347	D345B
7"	1/8"	D360	D361	D362	D363
7"	1/4"	D368	D369	D370	D371
8"	1/8"	D400	D401	D402	
8"	1/4"	D406	D407	D408	
9"	1/4"	D436	D437		
10"	1/8"	D450	D451	D452	
10"	1/4"	D456	D457		
12"	1/8"	D470	D471	D472	
12"	1/4"	D476	D477		

BRACKETS

WELD FITTINGS

ELBOWS

FLANGES

SPHERES CAPS

SLIP-ON FITTINGS