

Round Tube													
Tube OD (mm)	Std CLR (mm)	Other CLR's (mm) (Special Set Up Charges Apply)											
3.2		12											
6.3		12	15	25									
8.0		10											
9.5		10	15	22	25	31	55	72					
10.0		13											
12.7	25	19	20	28	35	38	60	77	120	150			
14.0		21	27	42	100								
15.0													
15.9	25	19	22	23	24	33	35	38	40	41	57	65	72
17.2		20	23										
18.0		28											
19.1	35	19	21	25	28	29	31	38	40	41	49	50	58
		62	65	76	80	104	120	126					
20.0		29	37										
22.2	44	40	55	80	90	126							
25.4	44	30	38	50	76	83	102	150	176	220			
28.6		41	85										
31.8	58	40	44	48	50	60	69	87	102	150	195	240	
35.0		135											
38.1	76	57	102	111	126	157							
40.0		80	285										
41.3		65											
44.5	80	188											
50.8	102	76	150	203									
54.0		69											
57.6		116											
63.5	114	96	250										
76.2	140	114	300										
88.9													
101.6	152												

Formers for bending mild steel, stainless steel, aluminium, copper and brass tube with wall thickness from 0.9mm up to solid bar (smaller sizes only). Larger OD sizes may need 1.5/1.6mm minimum wall thickness. Draw bending requires clamping the tube before each bend. Usual clamp length is 4x tube diameter although for some tooling the length may vary. Please enquire for more information

Tube OD (mm)	Std CLR (mm)	CLR's (mm) (Special set up charges apply)											
4.8		57	64										
7.9		71	165										
9.5		42	53	65	76								
12.7		52	68	84	120								
15.9		47	56	58	65	70							
		85	92	108	110	147							
19.1		47	54	70	73	85	90	96	116	143	147	157	171
		175	180	182	200	225	230	250	275	280	300	335	355
		359	385	410	425	435							
22.2		104											
25.4		255	310	315									
31.8		310											

Formers used for bending smaller size mild steel, stainless steel, aluminium, copper and brass thin wall tube at larger radii without a mandrel. May not be suitable for some applications

Tube OD (mm)	Std CLR (mm)	CLR's (mm) (Special set up charges apply)											
22.2		31											
25.4		25											
35.0		44											
38.1		51											
41.3		50											
44.5		31	44										

Formers without wiper dies for bending heavy wall mild steel, stainless steel, aluminium, copper and brass tube

Square Tube			
Tube OD (mm)	Std CLR	Other CLR's (mm)	
19.1 x 19.1	58	77	
25.4 x 25.4	77	106	
30.0 x 30.0	108		
31.8 x 31.8	109		
35.0 x 35.0	117	250	
38.1 x 38.1	112		
40.0 x 40.0	125		
50.8 x 50.8	135		

This tooling bends wall thicknesses from 0.9mm up to solid bar (smaller sizes). Larger OD sizes may need 1.5/1.6mm wall as a minimum.

Rolling		
Tube OD (mm)	Minimum CLR (mm)	
	Std Roll	Pressure Roll
9.5	200	
12.7	200	
15.9	200	
19.0	200	
22.2	225	
25.4	250	
28.6	275	
31.8	300	
35.0	350	
38.1	400	
44.5	450	
50.8	500	300
63.5	700	350
76.2	1000	450
101.6	1500	600
127.0	2000	1200

Pipe OD (mm)	Minimum CLR (mm)	
	Std Roll	
42.4	200	
48.3	200	
60.3	250	

These radii are a general guideline. The actual radii that can be achieved will depend on the material and wall thickness. As the radius gets tighter, the roll ends will have a small bump where it meets the straight and the bend arc will go increasingly out of round. For larger sizes, rolling under pressure can reduce this distortion so tighter radii are possible. The process used does not allow for any straights. Only the bend arc trimmed to the tangent is supplied. A degree of OD shrinkage can occur. In these cases, the ends are rounded up and expanded to the original OD.

Croxing
Croxing (for hose attachment) Only available for 0.9 or 1.2mm wall thicknesses and round tube sizes from 12.700D to 25.40D

Nominal Bore Pipe					
Tube OD (Inches)	Tube OD(mm)	Std CLR	Other CLR's (mm)		
1/2"	21.3	40	105		
3/4"	26.6	54	45		
1"	33.7	77	52	67	133
1 1/4"	42.4	76	53		
1 1/2"	48.3	96	65	150	185
2"	60.3	120	155	260	
2 1/2"	73.0	150			
2 1/2"	76.2	140	114	300	
3"	88.9	230			
3 1/2"	101.6	152			
4"	114.3	220	(Only 6mm wall or heavier)		

For bending schedule 5 to schedule 160 mild steel and stainless steel pipe

Coils (3mm - 25.4 OD tube sizes)			
Drum OD (mm)	Type	Length of Drum (mm)	Finished Coil OD (mm)
20	Plain	110	27 to 30
25	Plain	250	30 to 35
42.2	Plain	400	50 to 55
48.3	Plain	400	55 to 65
50	Plain	180	60 to 70
60.3	Plain	400	70 to 85
75	Plain	280	85 to 95
75	Plain	250	85 to 95
75	Plain	300	85 to 95
90	Plain	550	110 to 115
100	Plain	250	115 to 125
114	Plain	600	130 to 140
140	Plain	300	160 to 170
142	Plain	800	160 to 170
170	Plain	750	185 to 200
220	Plain	330	245 to 260
220	Plain	550	245 to 260
255	Grooved	330	245 to 260
265	Plain	600	300 to 315
290	Grooved	380	310 to 330
295	Plain	400	325 to 350

Minimum OD size of coil is generally 10x tube OD. This ratio can vary depending on tube size and wall thickness

Swaging		
Tube OD(mm)	Expand to OD (mm)	Length of Expansion (mm)
50.8	58.0	50
63.5	73.0	50
76.2	84.0	50
101.6	110.0	50
127.0	135.0	50

Swaging (expand tube end for slip-in joint)