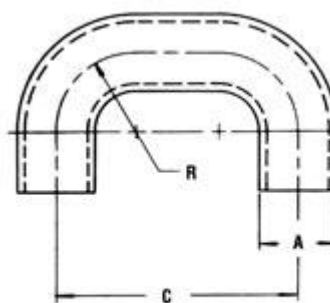


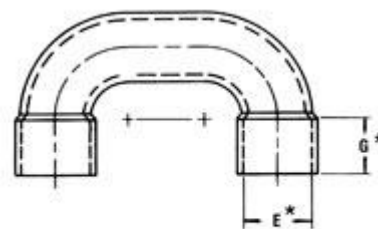
### Engineered Products: Flat and Offset Bends

These bends are used primarily as “space savers” because the overall height can be held to a minimum. They are also made in three types of ends and can be furnished as special offset bends.

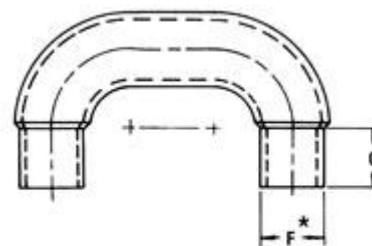
Tube size					Type		
O.D. A	Wall B	Center C	RAD R	TAN. D	4	5	6
5/16	.028	1.732	.50	.50	•		
	.020	1.940	.38	.38	•		
	.025	1.940	.69	.69	•		
	.025	2.400	.69	.69	•		
.343	.028	1.250	.38	.12	•		
3/8	.028	1.000	.38	.25	•		
	.022	1.000	.38	.19	•		
	.020	1.000	.38	.31			•
	.020	1.225	.44	.12	•		
	.025	1.250	.50	.25	•		
	.022	1.300	.50	.25	•		
	.025	1.323	.50	.38	•		
	.025	1.328	.50	.38	•		
	.020	1.390	.50	.25	•		
	.025	1.414	.50	.16			•
	.020	1.500	.50	.38	•		
	.025	1.500	.62	.16	•		
	.025	1.500	.69	.41	•		
	.020	1.600	.62	.59	•		
	.025	1.600	.50	.75	•		
	.028	1.600	.50	.41	•		
	.025	1.609	.50	.25		•	
	.020	1.609	.50	.50	•		
	.028	1.625	.50	.81	•		
	.025	1.653	.50	.81	•		



**TYPE 4**  
Straight Tangent



**TYPE 5**  
Expanded Tangent



**TYPE 6**  
Reduced Tangent



	.025	1.653	.50	.38	•		
	.020	1.677	.50	.50	•		
	.028	1.677	.50	.25	•		
	.022	1.677	.50	.56	•		
	.035	1.687	.50	1.19	•		
	.022	1.718	.50	.88	•		
	.022	1.719	.50	.25	•		
	.020	1.720	.50	.69	•		
	.022	1.732	.50	.75	•		
	.042	1.732	.50	1.06	•		
	.020	1.732	.50	.75			•
	.025	1.732	.62	.41	•		
	.028	1.732	.50	.56	•		
	.025	1.732	.50	.19	•		
	.028	1.732	.50	.31	•		
	.025	1.732	.50	.88	•		
	.022	1.732	.50	.25	•		
	.022	1.732	.50	.81	•		
	.028	1.732	.50	.75	•		
	.035	1.732	.50	.25	•		
	.020	1.732	.50	.38			•
	.028	1.732	.50	.44	•		
	.028	1.732	.50	.50	•		
	.028	1.750	.50	.44	•		
	.022	1.750	.50	.19	•		
	.025	1.778	.62	.41	•		
	.028	1.802	.69	.31	•		
	.020	1.803	.50	.50	•		
	.025	1.803	.62	.41	•		
	.025	1.810	.50	.16			•
	.028	1.812	.50	.81	•		
	.020	1.940	.50	.69	•		
	.020	1.940	.50	.75	•		
	.042	1.952	.75	.56	•		
	.022	1.985	.50	.88	•		



	.022	2.000	.50	.50	•		
	.016	2.000	.50	.50	•		
	.025	2.000	.50	.66	•		
	.028	2.000	.50	1.12	•		
	.022	2.000	.50	1.06	•		
	.025	2.000	.50	.16	•		
	.025	2.000	.50	.40	•		
	.028	2.000	.50	1.00	•		
	.028	2.000	.50	.56	•		
	.028	2.000	.69	.31	•		
	.025	2.000	.62	.41	•		
	.020	2.000	.50	.19	•		
	.028	2.000	.50	.81	•		
	.035	2.062	.50	.81	•		
	.020	2.117	.40	.88	•		
	.035	2.147	.50	.25	•		
	.035	2.160	.62	.25	•		
	.022	2.160	.50	.78	•		
	.020	2.160	.50	.12	•		
	.025	2.164	.62	.75	•		
	.028	2.164	.62	.19	•		
	.022	2.179	.50	.38	•		
	.250	2.236	.62	.88	•		
	.020	2.250	.50	.31	•		
	.028	2.297	.90	.31	•		
	.020	2.304	.50	.50	•		
	.022	2.305	.50	.56	•		
	.025	2.359	.50	.41	•		
	.025	2.359	.62	.41	•		
	.020	2.400	.40	.38	•		
	.025	2.500	.62	.56	•		
	.022	2.620	.50	1.06	•		
	.020	2.625	.50	.50	•		
	.020	2.644	.50	.38	•		
	.028	2.645	.50	.31	•		



	.022	2.645	.50	.50	•		
	.022	2.646	.50	.81	•		
	.025	2.646	.50	.66	•		
	.020	2.650	.50	.69	•		
	.022	2.650	.50	.19	•		
	.035	2.650	.75	.44	•		
	.022	2.687	.50	.19	•		
	.025	2.693	.62	.41	•		
	.020	2.732	.50	.19	•		
	.042	2.795	.75	.56	•		
	.028	3.000	.50	1.12	•		
	.020	3.000	.50	.50	•		
	.028	3.000	.50	1.19	•		
	.028	3.000	.50	.76	•		
	.025	3.000	.50	.66	•		
	.028	3.000	.50	.50	•		
	.022	3.000	.50	.69	•		
	.028	3.000	.50	1.44	•		
	.028	3.000	.50	.31	•		
	.020	3.162	.50	.62	•		
	.032	3.312	.50	.81	•		
	.022	3.325	.50	.47	•		
	.028	3.465	.50	.38	•		
	.028	3.465	.50	.69	•		
	.020	3.591	.50	.50	•		
	.028	3.593	.50	1.06	•		
	.028	3.594	.50	1.44	•		
	.020	3.605	.50	.81	•		
	.028	3.606	.50	1.87	•		
	.028	3.606	.50	1.44	•		
	.020	3.607	.50	.25	•		
	.028	3.750	.50	.75	•		
	.025	3.750	.62	.91	•		
	.025	3.750	.62	1.41	•		
	.028	4.000	.50	.31			•



	.022	4.123	.62	.44	•		
	.025	4.358	.62	.69	•		
	.025	4.359	.50	.66	•		
	.025	4.582	.62	.56	•		
	.028	4.587	.50	.94	•		
	.025	5.448	.62	.56	•		
	.025	5.640	.62	1.06	•		
	.025	6.250	.62	.75	•		
	.025	6.614	.62	.56	•		
	.025	7.500	.62	.75	•		
	.025	7.806	.62	1.00	•		
	.025	7.806	.62	.56	•		
	.035	8.660	.50	.75	•		
	.025	8.750	.62	.56	•		
	.028	9.000	.50	.69	•		
	.025	9.013	.62	1.00	•		
	.028	15.045	.50	.94	•		
7/16	.032	3.400	.75	.44	•		
	.032	4.125	.75	.44	•		
	.028	4.500	.75	.72	•		
	.032	6.800	.75	.44	•		
1/2	.025	1.375	.50	.44	•		
	.025	1.500	.50	.19			•
	.028	1.625	.62	.38	•		
	.025	1.687	.62	.12	•		
	.025	1.687	.62	.68	•		
	.035	1.750	.62	.69	•		
	.028	1.800	.62	.44	•		
	.025	1.875	.62	.31			•
	.025	1.968	.75	.25	•		
	.025	2.000	.62	.12	•		
	.025	2.031	.75	.25	•		
	.035	2.062	.50	.62	•		
	.025	2.093	.75	.25	•		
	.035	2.121	.75	.25			•



	.035	2.125	.62	.50	•		
	.035	2.125	.62	.25	•		
	.025	2.156	.75	.25	•		
	.025	2.163	.62	1.00	•		
	.028	2.164	.62	.62			•
	.035	2.164	.56	.38			•
	.035	2.164	.56	.97			•
	.025	2.164	.56	1.53			•
	.025	2.165	.62	.38	•		•
	.025	2.165	.62	.31	•	•	•
	.025	2.165	.62	.88	•		
	.022	2.165	.62	.94	•		
	.025	2.165	.62	.25	•		
	.028	2.165	.62	.38			•
	.035	2.165	.62	.94	•		
	.025	2.187	.75	.94	•		
	.025	2.188	.62	.62			•
	.025	2.218	.62	.25	•		
	.035	2.250	.75	.62	•		
	.025	2.493	.62	1.00	•		
	.028	2.500	.62	1.31	•		•
	.028	2.500	.75	.25	•		
	.028	2.500	.75	.75	•		
	.025	2.500	.62	.38			•
	.028	2.500	.62	.69	•		•
	.035	2.500	.62	1.25	•		
	.025	2.500	.62	.59	•		
	.049	2.625	.75	.75	•		
	.025	2.750	.50	.50	•		
	.028	3.000	.62	.38	•		
	.028	3.000	.62	.62	•		
	.028	3.281	.62	.62	•		
	.035	3.307	.56	1.34			•
	.025	3.750	.62	.38		•	
	.028	3.906	.50	.25	•		



	.035	4.096	.50	2.12	•		
	.035	4.507	.56	.97			•
.512	.049	2.406	.62	.38	•		
	.049	4.812	.69	1.12	•		
.540	.035	2.406	.62	.38	•		
.560	.028	4.812	.69	1.12	•		
9/16	.049	2.406	.69	.38			•
	.032	2.406	.62	.38	•		
	.050	2.406	.62	.38			•
	.032	3.000	.75	.62	•		
	.032	3.000	.75	.69	•		
.570	.028	4.172	.75	1.19	•		
	.028	6.062	.69	1.12	•		
.580	.028	2.406	.69	.25	•		
5/8	.028	2.000	.75	.44			•
	.028	2.062	.62	.38			•
	.042	2.121	.75	.56		•	
	.035	2.188	.62	.31		•	
	.065	2.250	.75	.56		•	
	.035	2.375	.75	.31	•		
	.049	2.406	.69	.28			•
	.049	2.406	.69	.69		•	
	.049	2.406	.69	.56		•	
	.065	2.406	.69	.43	•		
	.049	2.406	.69	.41		•	
	.035	2.598	.75	1.19	•		
	.025	2.600	.75	.38	•		
	.065	2.600	.75	.38	•		
	.035	2.600	.75	.38	•		
	.049	2.600	.75	.38	•		•
	.049	2.600	.75	.62	•		
	.035	2.600	.94	.38	•		
	.035	2.600	.75	.31		•	•
	.049	2.600	.94	.38	•		
	.028	2.600	.75	.38	•		



	.035	2.625	.75	.44		•	
	.028	2.730	.75	.31	•		
	.025	2.750	.93	.25	•		
	.028	2.900	.75	.31	•		
	.070	3.000	.75	.25		•	
	.035	3.000	.75	.31	•	•	
	.070	3.000	.75	.31		•	
	.049	3.000	.75	.31		•	
	.022	3.000	.75	.19	•		
	.035	3.000	.75	.19	•		
	.065	3.000	.75	.31		•	
	.035	3.000	.81	.38	•		
	.035	3.190	.75	.50		•	
	.049	3.250	.75	.50		•	
	.028	3.312	.75	1.25		•	
	.035	3.312	.75	1.19			•
	.025	3.356	.75	.31			•
	.028	3.500	.94	2.11			•
	.035	3.540	.75	.50		•	
	.035	3.672	.69	.50		•	
	.035	3.875	.75	.50		•	
	.035	3.984	.75	1.44	•		
	.035	4.250	1.00	.75		•	
	.035	4.437	.62	.31		•	
	.035	4.500	1.00	.50		•	
	.025	4.500	1.00	1.06		•	
	.065	4.500	1.00	.88			•
	.035	4.500	1.00	1.25		•	
	.035	4.500	1.00	.75	•		
	.035	4.500	.75	2.19	•		
	.025	4.500	1.00	.88			•
	.035	5.656	.75	1.00	•		
	.035	5.750	.95	.50			•
	.035	6.006	.95	.50			•
	.035	6.500	.62	.25		•	





	.049	6.562	1.50	.81	•		
	.028	7.218	.75	1.06	•		
	.025	7.500	1.00	.88			•
	.035	9.750	.62	.31		•	
	.025	10.500	1.00	.88			•
	.035	10.625	1.00	1.12		•	
	.035	10.812	.62	.25		•	
	.035	10.922	1.00	1.38		•	
	.035	11.937	.88	1.06		•	
	.070	15.000	.75	.31		•	
3/4	.035	2.475	.88	.25	•		
	.028	3.000	.75	.75			•
	.025	3.000	1.00	.31			•
	.042	3.437	.94	.44		•	
	.035	3.500	.88	.70			•
	.049	5.187	.94	.44			•
	.042	5.663	1.50	1.12	•		
7/8	.065	3.500	1.00	.69		•	
	.045	5.000	1.25	.50	•		