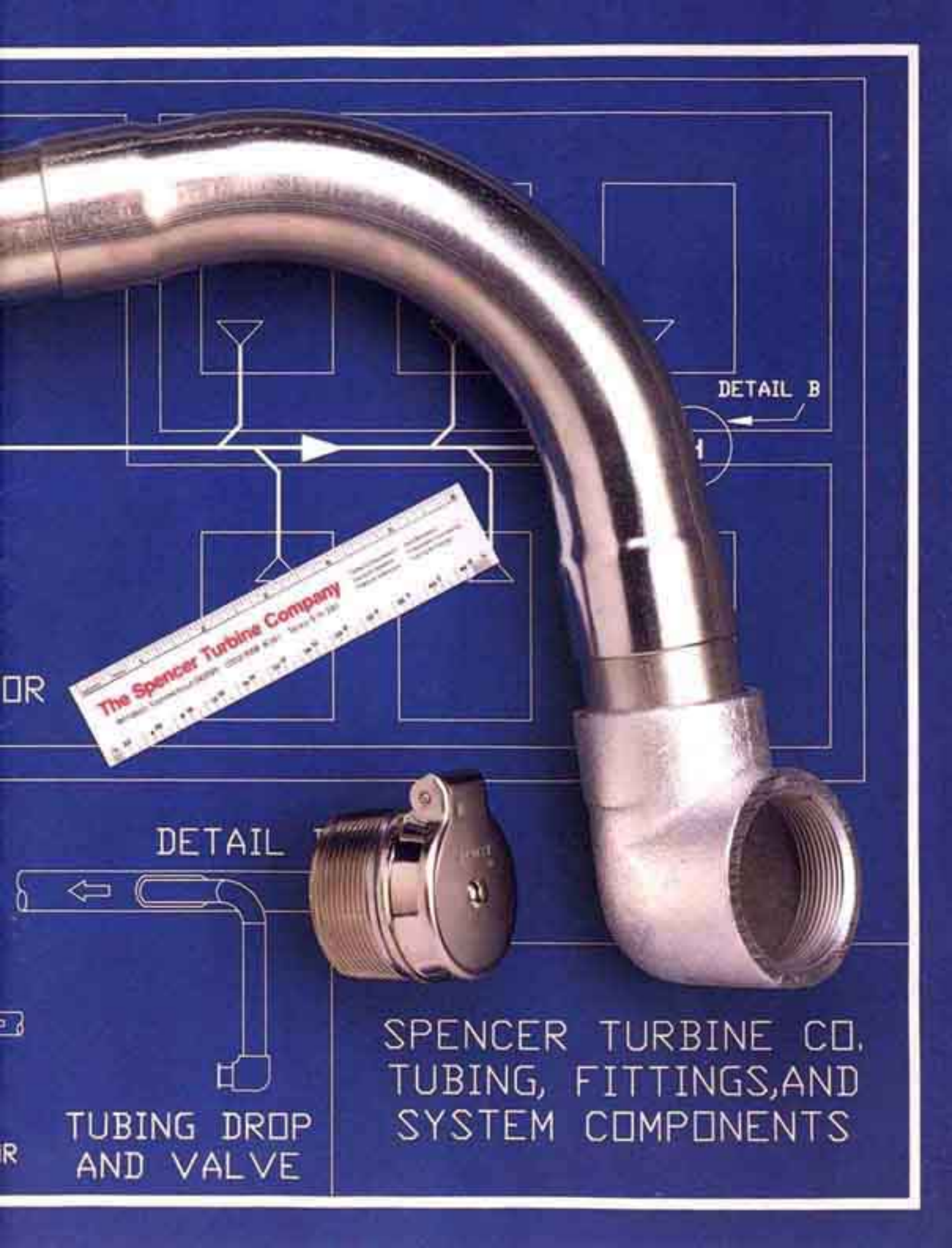

DETAIL B
The Spencer Turbine Company
DETAIL
TUBING DROP
AND VALVE
SPENCER TURBINE CO.
TUBING, FITTINGS, AND
SYSTEM COMPONENTS

LAYING OUT A TUBING SYSTEM

Before laying out a tubing system a review of the building should be performed. This will bring out any structural peculiarities the building may have.

Sizing of the tubing should be made to assure a velocity that will allow materials to flow freely without "dropout" or high abrasion. The friction loss chart (on page 4) can help with sizing problems.

Generally the use of good plumbing practices will give satisfactory results. Remember that a smooth and continuous flow of air throughout the system is the chief goal. Tubing should be arranged so that there are no connections into which heavier material will drop by gravity or which can cause line obstructions.

TUBING ASSEMBLY

Time spent in preparing the tubing and fittings for assembly will save time in installation and possible problems later. All burrs should be removed and ends where joints are to be made should be cleaned of oil, grease, dust, etc.

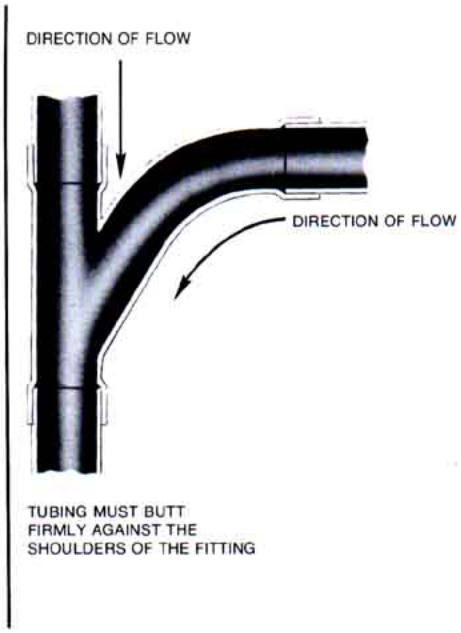
Tubing may be joined by adhesive, heat shrinkable sleeves, welding, brazing or compression couplings. (Note: Adhesive is not recommended for lines over 6" O.D.)

Heat shrinkable sleeves are the most popular method for joining Spencer tubing and fittings. The tubing is slipped into the expanded end of the fitting and heat sealed. A slip coupling is used to join two sections of tubing.

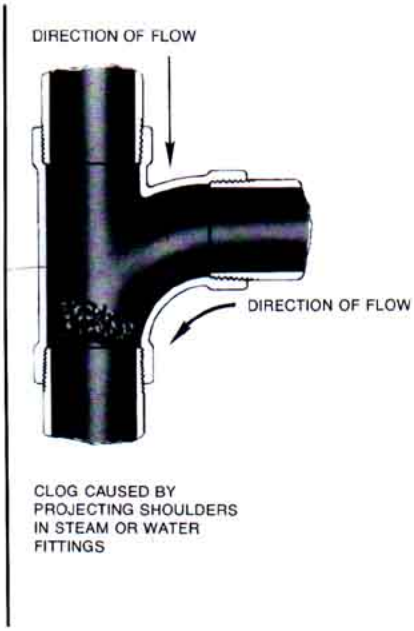
Short runs can be assembled on the floor and then raised into position. Horizontal runs should be supported every 8-10 feet under normal conditions. Risers and drops should be supported to prevent movement which can cause deterioration of the joints.

Regardless of the sealing method used, tubing systems should be tested for leaks prior to enclosing them in walls or other structures where it would be difficult to make an effective repair. Testing should be done under vacuum.

Correct Fitting
use long turn 90 "TY" fitting

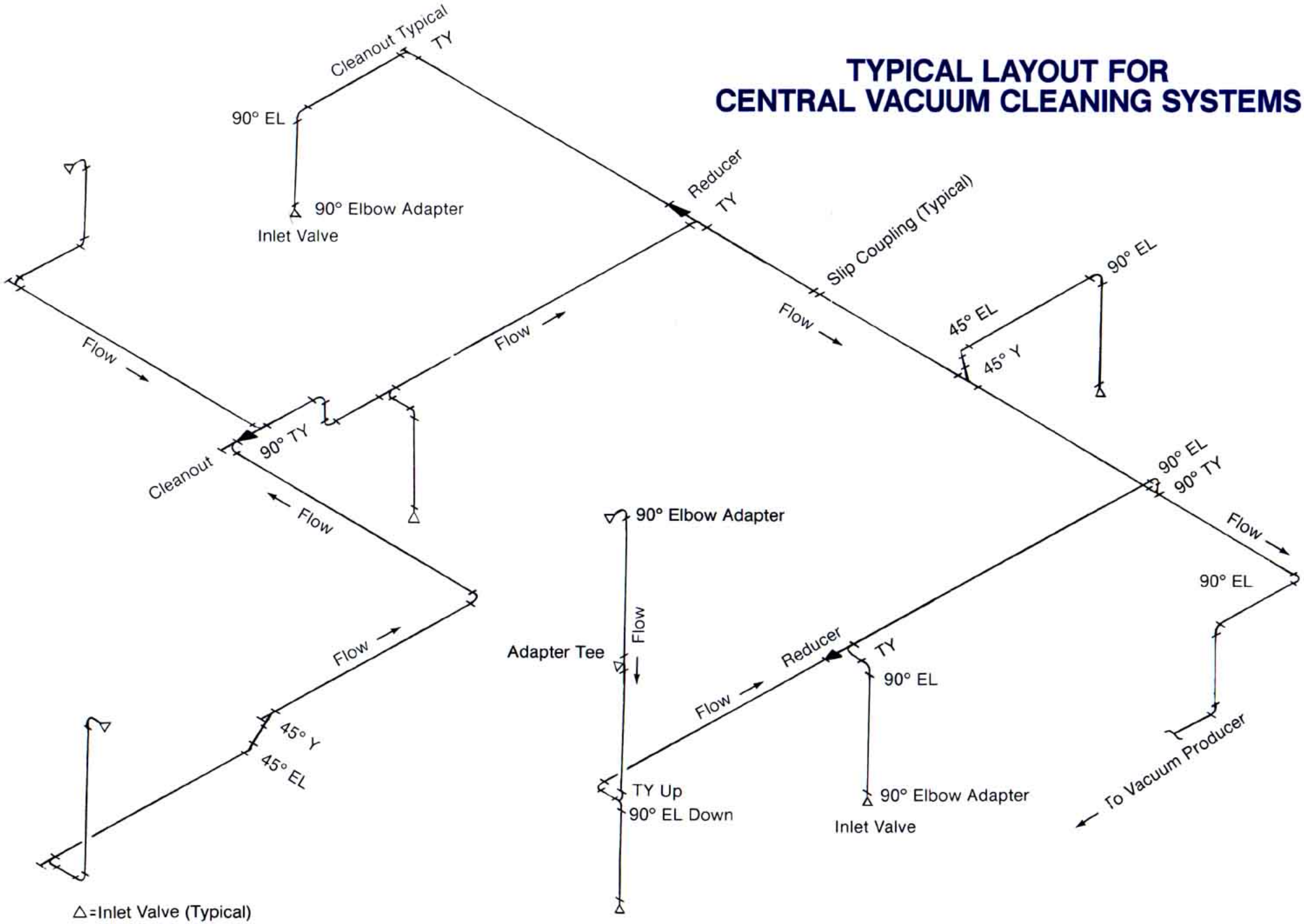


Incorrect Fitting
do not use steam or water fittings



Correct Connection
where two horizontal mains join

TYPICAL LAYOUT FOR CENTRAL VACUUM CLEANING SYSTEMS



FRICTION LOSS CHART

This chart may be used to compute friction losses in a piping system. For example, determine the friction loss incurred with 70 CFM flows through a 2″ pipe, 50′ long.

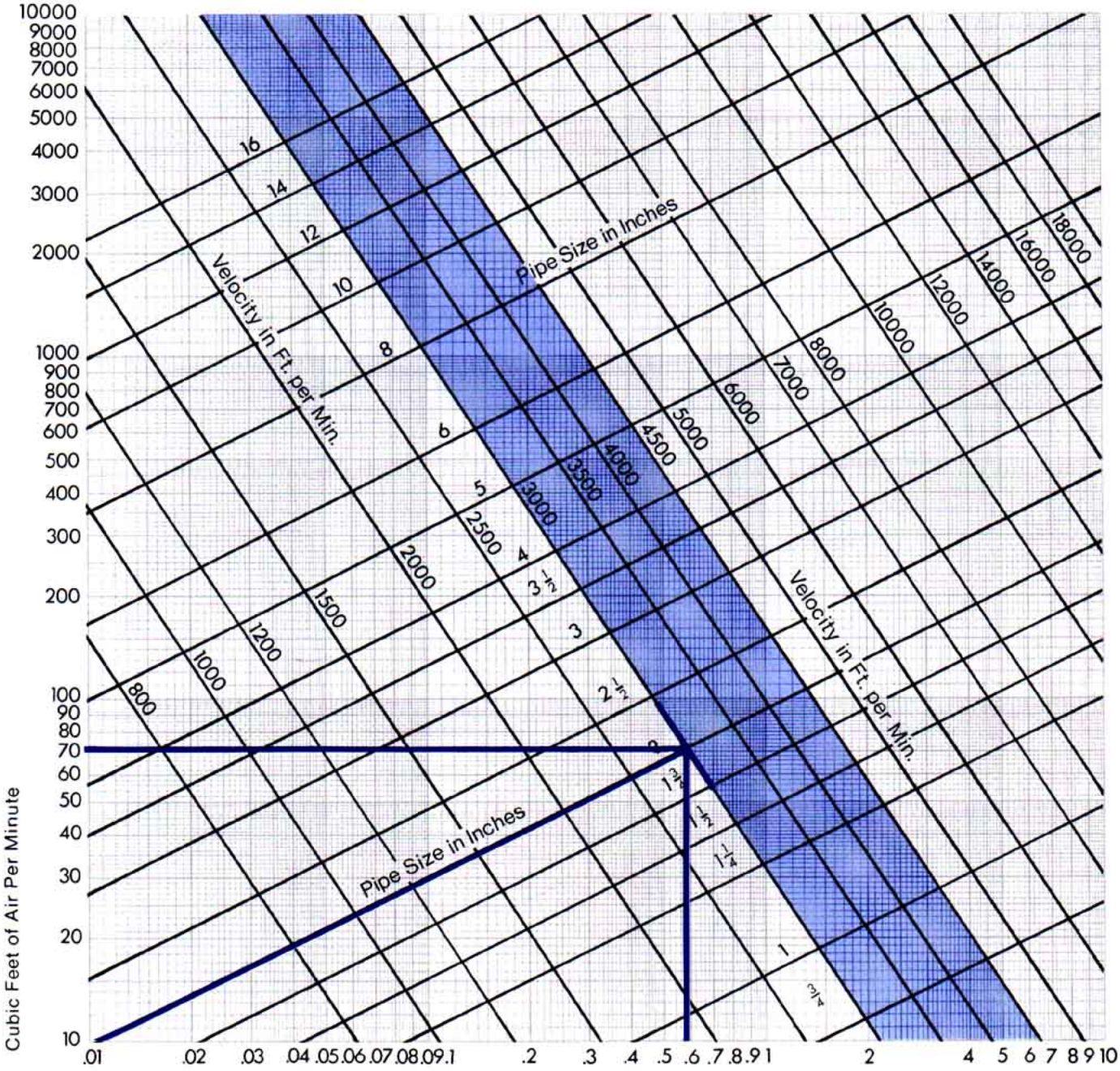
Step 1: Intersect 70 CFM and the sloping line for 2″ pipe as shown.

Step 2: Drop a vertical from this point of intersection and read the loss/100′ of line, in this case, .60Hg/100′.

Step 3: Multiply the loss/100′ of line by the length of run/100′.
The loss for 50′, then, is

$$.60\left(\frac{\text{length of run}}{100'}\right) = .60\left(\frac{50'}{100'}\right) = 0.30'' \text{ Hg.}$$

Also: Velocity in the line may be read from the negatively sloping lines on the graph. Here, to get 70 CFM through a 2″ line, the air must travel at a velocity of approximately 3000 FPM.



Friction Loss in Inches of Hg. Per 100 Ft. of Line With Inlet Air at 70°F. and 14.7 P.S.I.A

TUBING

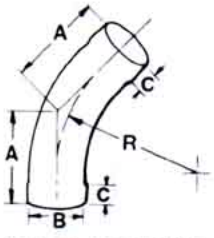
Spencer
Stock Tubing

Available in
Carbon steel
Zinc coated steel
Stainless steel
Aluminum

Cat. No.	(O.D.)	Standard Length		Gauge
		Steel	Aluminum	
20T20	2⅛"	20ft.	20ft.	16
25T20	2½"	20ft.	20ft.	16
30T20	3"	20ft.	20ft.	16
35T20	3½"	20ft.	20ft.	16
40T20	4"	20ft.	20ft.	16
50T20	5"	20ft.	20ft.	14
60T20	6"	20ft.	20ft.	14
80T20	8"	20ft.	20ft.	14
10T20	10"	20ft.	20ft.	12
12T20	12"	20ft.	10ft.	12
14T20	14"	20ft.	10ft.	12

ELBOWS

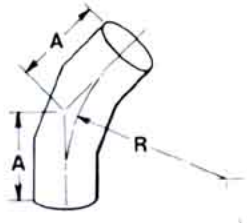
45° Elbows



Ends are expanded through 6". Straight ends on request. 8" and larger, straight ends only.

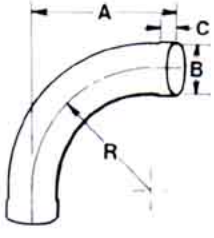
Cat. No.	(O.D.)	A	B(I.D.)	C	R	Gauge
20L45	2⅛	4 1/16	2⅛	1⅜	5	16
25L45	2½	4½	2½	1⅜	6	16
30L45	3	5⅛	3	1⅜	7½	16
35L45	3½	5⅝	3½	1⅜	8¾	16
40L45	4	6⅛	4	1⅜	10	16
50L45	5	7½	5	1⅝	12	14
60L45	6	8¾	6	1⅝	15	14
80L45	8	13	—	—	24	14

45° Segmented Elbows



Cat. No.	(O.D.)	A	B	C	R	Gauge
80L45	8	11	—	—	16	14
10L45	10	11 5/16	—	—	20	12
12L45	12	13⅛	—	—	24	12
14L45	14	14 13/16	—	—	28	12

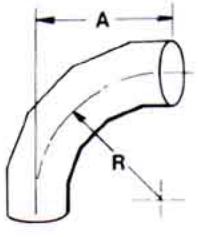
90° Elbows



Cat. No.	(O.D.)	A	B(I.D.)	C	R	Gauge
20L90	2⅛	7	2⅛	1⅜	5	16
25L90	2½	8	2½	1⅜	6	16
30L90	3	9½	3	1⅜	7½	16
35L90	3½	10¾	3½	1⅜	8¾	16
40L90	4	12	4	1⅜	10	16
50L90	5	14½	5	1⅝	12	14
60L90	6	17½	6	1⅝	15	14
80L90	8	27	—	—	24	14

Ends are expanded through 6". Straight ends on request. 8" and larger, straight ends only.

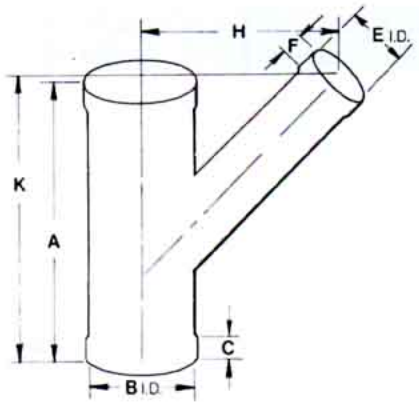
90° Segmented Elbows



Cat. No.	(O.D.)	A	B	C	R	Gauge
80L90	8	18¾	—	—	16	14
10L90	10	22	—	—	20	12
12L90	12	26½	—	—	24	12
14L90	14	31	—	—	28	12

Important — Specify material. Available: Carbon Steel, Zinc Galvanized Coated Steel, Stainless Steel and Aluminum.

45°Y's



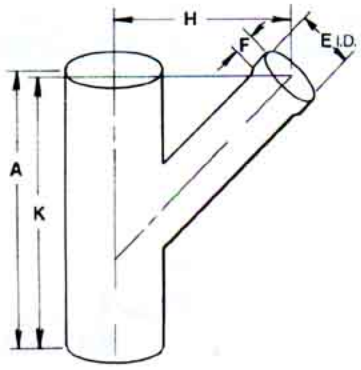
Ends are expanded through 6". Straight ends on request. 8" and larger, straight ends only.

Cat. No.	Size (O.D.)	A	B	C	E	F	H	K
24Y52	2⅛×2⅛	9	2⅛	1⅜	2⅛	1⅜	4⅛	7½
25Y42	2½×2⅛	9	2½	1⅜	2⅛	1⅜	4¼	7½
25Y25	2½×2½	9	2½	1⅜	2½	1⅜	4⅜	7¾
34Y52	3×2⅛	9	3	1⅜	2⅛	1⅜	4½	7½
34Y25	3×2½	9	3	1⅜	2½	1⅜	4⅝	7¾
34Y53	3×3	9	3	1⅜	3	1⅜	4¾	7⅞
35Y42	3½×2⅛	10	3½	1⅜	2⅛	1⅜	4¾	8
35Y25	3½×2½	10	3½	1⅜	2½	1⅜	4⅞	8¼
35Y43	3½×3	10	3½	1⅜	3	1⅜	5⅛	8⅜
35Y35	3½×3½	10	3½	1⅜	3½	1⅜	5¼	8½
44Y52	4×2⅛	11	4	1⅜	2⅛	1⅜	5	8½
44Y25	4×2½	11	4	1⅜	2½	1⅜	5⅛	8¾
44Y53	4×3	11	4	1⅜	3	1⅜	5⅜	8⅞
44Y35	4×3½	11	4	1⅜	3½	1⅜	5½	9
44Y54	4×4	11	4	1⅜	4	1⅜	5⅝	9¼
54Y52	5×2⅛	13	5	1⅝	2⅛	1⅜	5½	9½
54Y25	5×2½	13	5	1⅝	2½	1⅜	5⅝	9¾
54Y53	5×3	13	5	1⅝	3	1⅜	5⅞	9⅞
54Y35	5×3½	13	5	1⅝	3½	1⅜	6⅛	10
54Y54	5×4	13	5	1⅝	4	1⅜	6¼	10¼
54Y55	5×5	13	5	1⅝	5	1⅜	7⅛	11
64Y52	6×2⅛	14	6	1⅝	2⅛	1⅜	6	10
64Y25	6×2½	14	6	1⅝	2½	1⅜	6⅛	10¼
64Y53	6×3	14	6	1⅝	3	1⅜	6 5/16	10⅜
64Y35	6×3½	14	6	1⅝	3½	1⅜	6½	10½
64Y54	6×4	14	6	1⅝	4	1⅜	6¾	10⅝
64Y55	6×5	14	6	1⅝	5	1⅝	7½	11½
64Y56	6×6	14	6	1⅝	6	1⅝	7⅞	11⅞

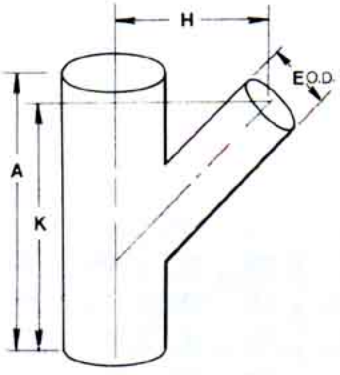
2⅛" O.D. to 4" O.D. — #16 gauge material
5" O.D. to 8" O.D. — #14 gauge material
10" O.D. to 14" O.D. — #12 gauge material

Important — Specify material.
Available: Carbon Steel, Zinc Coated Steel, Stainless Steel and Aluminum.
All welded construction.

45°Y's



Branches 6" and below have expanded ends.



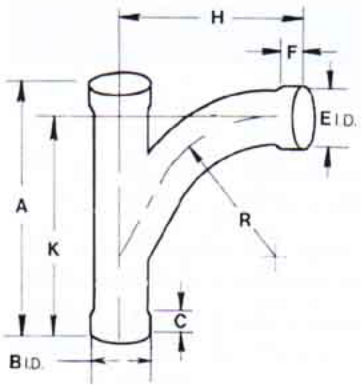
Branches 8" and above have straight ends.

Cat. No.	Size (O.D.)	Fig. No	A	E	F	H	K
84Y52	8×2⅛	1	15	2⅛	1⅜	7	10½
84Y25	8×2½	1	15	2½	1⅜	7⅛	10⅝
84Y53	8×3	1	15	3	1⅜	7 5/16	10⅞
84Y35	8×3½	1	15	3½	1⅜	7 9/16	11
84Y54	8×4	1	15	4	1⅜	7¾	11¼
84Y55	8×5	1	18	5	1⅝	8½	13½
84Y56	8×6	1	18	6	1⅝	8⅞	13⅞
84Y58	8×8	2	24	8	—	10¼	18⅜
10Y52	10×2⅛	1	20	2⅛	1⅜	8	13
10Y25	10×2½	1	20	2½	1⅜	8⅛	13¼
10Y53	10×3	1	20	3	1⅜	8 5/16	13⅜
10Y35	10×3½	1	20	3½	1⅜	8½	13½
10Y54	10×4	1	20	4	1⅜	8¾	13¾
10Y55	10×5	1	24	5	1⅝	9½	16½
10Y56	10×6	1	24	6	1⅝	9⅞	16⅞
10Y58	10×8	2	30	8	—	11¼	22¼
10Y10	10×10	2	30	10	—	13½	24½
12Y52	12×2⅛	1	20	2⅛	1⅜	9	13
12Y25	12×2½	1	20	2½	1⅜	9¼	13¼
12Y53	12×3	1	20	3	1⅜	9 5/16	13⅜
12Y35	12×3½	1	20	3½	1⅜	9½	13½
12Y54	12×4	1	20	4	1⅜	9 11/16	13¾
12Y55	12×5	1	24	5	1⅝	10½	16½
12Y56	12×6	1	24	6	1⅝	10⅞	16⅞
12Y58	12×8	2	32	8	—	12¼	22¼
12Y10	12×10	2	32	10	—	14½	24½
12Y12	12×12	2	32	12	—	15¼	25¼
14Y52	14×2⅛	1	20	2⅛	1⅜	10	13
14Y25	14×2½	1	20	2½	1⅜	10⅛	13¼
14Y53	14×3	1	20	3	1⅜	10 5/16	13⅜
14Y35	14×3½	1	20	3½	1⅜	10½	13½
14Y54	14×4	1	20	4	1⅜	10¾	13¾
14Y55	14×5	1	24	5	1⅝	11½	16½
14Y56	14×6	1	24	6	1⅝	11⅞	16⅞
14Y58	14×8	2	32	8	—	13¼	22¼
14Y10	14×10	2	32	10	—	15½	24½
14Y12	14×12	2	32	12	—	16 3/16	25¼
14Y14	14×14	2	36	14	—	16⅞	28

2⅛" O.D. to 4" O.D. — #16 gauge material.
5" O.D. to 8" O.D. — #14 gauge material.
10" O.D. to 14" O.D. — #12 gauge material.

Important — Specify material.
Available: Carbon Steel, Zinc Coated Steel, Stainless Steel and Aluminum.
All welded construction.

90°TY's



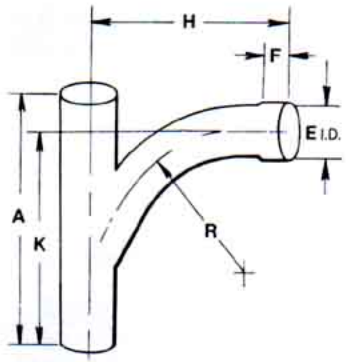
Ends are expanded through 6". Straight ends on request. 8" and larger, straight ends only.

Cat. No.	Size (O.D.)	A	B	C	E	F	H	K	R
29T02	2⅛×2⅛	9	2⅛	1⅜	2⅛	1⅜	8⅞	8	5
25T92	2½×2⅛	9	2½	1⅜	2⅛	1⅜	8½	7½	5
25T25	2½×2½	9	2½	1⅜	2½	1⅜	9⅝	8	6
39T02	3×2⅛	9	3	1⅜	2⅛	1⅜	8¾	7½	5
39T25	3×2½	9	3	1⅜	2½	1⅜	9¾	8	6
39T03	3×3	9	3	1⅜	3	1⅜	11	8¾	7½
35T92	3½×2⅛	10	3½	1⅜	2⅛	1⅜	9	8	5
35T25	3½×2½	10	3½	1⅜	2½	1⅜	10	8½	6
35T93	3½×3	10	3½	1⅜	3	1⅜	11¼	9¼	7½
35T35	3½×3½	10	3½	1⅜	3½	1⅜	12½	9¾	8¾
49T02	4×2⅛	11	4	1⅜	2⅛	1⅜	9¼	8½	5
49T25	4×2½	11	4	1⅜	2½	1⅜	10¼	9	6
49T03	4×3	11	4	1⅜	3	1⅜	11½	9¾	7½
49T35	4×3½	11	4	1⅜	3½	1⅜	12¾	10¼	8¾
49T04	4×4	11	4	1⅜	4	1⅜	13½	10½	10
59T02	5×2⅛	13	5	1⅝	2⅛	1⅜	9¾	9½	5
59T25	5×2½	13	5	1⅝	2½	1⅜	10¾	10	6
59T03	5×3	13	5	1⅝	3	1⅜	12	10¾	7½
59T35	5×3½	13	5	1⅝	3½	1⅜	13¼	11¼	8¾
59T04	5×4	13	5	1⅝	4	1⅜	14	11½	10
59T05	5×5	13	5	1⅝	5	1⅝	15¾	12½	12
69T02	6×2⅛	14	6	1⅝	2⅛	1⅜	10¼	10	5
69T25	6×2½	14	6	1⅝	2½	1⅜	11¼	10½	6
69T03	6×3	14	6	1⅝	3	1⅜	12½	11¼	7½
69T35	6×3½	14	6	1⅝	3½	1⅜	13¾	11¾	8¾
69T04	6×4	14	6	1⅝	4	1⅜	14½	12	10
69T05	6×5	14	6	1⅝	5	1⅝	16¼	13	12
69T06	6×6	14	6	1⅝	6	1⅝	18¼	13½	15

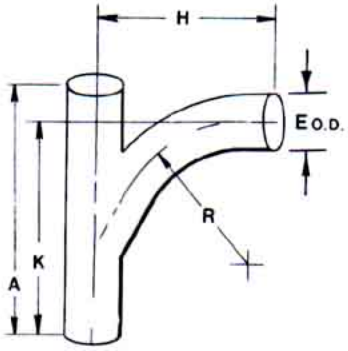
2⅛" O.D. to 4" O.D. — #16 gauge material.
5" O.D. to 8" O.D. — #14 gauge material.
10" O.D. to 14" O.D. — #12 gauge material.

Important — Specify material.
Available: Carbon Steel, Zinc Coated Steel, Stainless Steel and Aluminum.
All welded construction.

90°TY's



Branches 6" and below have expanded ends.



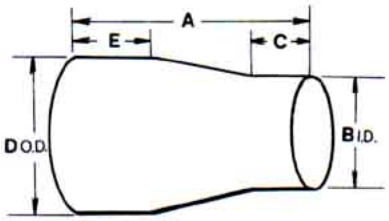
Branches 8" and above have straight ends.

Cat. No.	Size (O.D.)	Fig. No.	A	E	F	H	K	R
89T02	8×2⅛	1	15	2⅛	1⅜	11¼	10½	5
89T25	8×2½	1	15	2½	1⅜	12¼	11	6
89T03	8×3	1	15	3	1⅜	13½	11¾	7½
89T35	8×3½	1	15	3½	1⅜	14¾	12¼	8¾
89T04	8×4	1	15	4	1⅜	15½	12½	10
89T05	8×5	1	18	5	1⅝	17¼	15	12
89T06	8×6	1	18	6	1⅝	19¼	15½	15
89T08	8×8	2	24	8	—	28	22	24
10T02	10×2⅛	1	20	2⅛	1⅜	12¼	13	5
10T25	10×2½	1	20	2½	1⅜	13¼	13½	6
10T03	10×3	1	20	3	1⅜	14½	14¼	7½
10T35	10×3½	1	20	3½	1⅜	15¾	14¾	8¾
10T04	10×4	1	20	4	1⅜	16½	15	10
10T05	10×5	1	24	5	1⅝	18¼	18	12
10T06	10×6	1	24	6	1⅝	20¼	18½	15
10T08	10×8	2	30	8	—	29	26	24
10T10	10×10	2	30	10	—	24½	25½	20
12T02	12×2⅛	1	20	2⅛	1⅜	13¼	13	5
12T25	12×2½	1	20	2½	1⅜	14¼	13½	6
12T03	12×3	1	20	3	1⅜	15½	14¼	7½
12T35	12×3½	1	20	3½	1⅜	16¾	14¾	8¾
12T04	12×4	1	20	4	1⅜	17½	15	10
12T05	12×5	1	24	5	1⅝	19¼	18	12
12T06	12×6	1	24	6	1⅝	21¼	18½	15
12T08	12×8	2	32	8	—	30	26	24
12T10	12×10	2	32	10	—	25½	24½	20
12T12	12×12	2	32	12	—	28½	24½	24
14T02	14×2⅛	1	20	2⅛	1⅜	14¼	13	5
14T25	14×2½	1	20	2½	1⅜	15¼	13½	6
14T03	14×3	1	20	3	1⅜	16½	14¼	7½
14T35	14×3½	1	20	3½	1⅜	17¾	14¾	8¾
14T04	14×4	1	20	4	1⅜	18½	15	10
14T05	14×5	1	24	5	1⅝	20¼	18	12
14T06	14×6	1	24	6	1⅝	22¼	18½	15
14T08	14×8	2	32	8	—	31	26	24
14T10	14×10	2	32	10	—	26½	25½	20
14T12	14×12	2	32	12	—	29½	24½	24
14T14	14×14	2	36	14	—	32	27	28

2⅛" O.D. to 4" O.D. — #16 gauge material.
5" O.D. to 8" O.D. — #14 gauge material.
10" O.D. to 14" O.D. — #12 gauge material.

Important — Specify material.
Available: Carbon Steel, Zinc Coated Steel, Stainless Steel and Aluminum.
All welded construction.

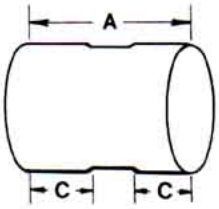
Reducing Couplings



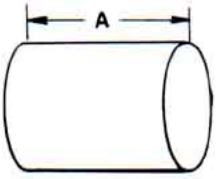
Large end straight and small end expanded on all sizes.

Cat. No.	Size D(O.D.)×B(I.D.)	A	C	E	Gauge
*22R15	2⅛×1½	4¾	1⅜	1¾	16
25R22	2½×2⅛	4¾	1⅜	2	16
03R22	3×2⅛	5	1⅜	2	16
32R25	3×2½	5	1⅜	2	16
35R22	3½×2⅛	6½	1⅜	2	16
35R25	3½×2½	5½	1⅜	2	16
35R23	3½×3	5	1⅜	2	16
04R22	4×2⅛	8	1⅜	2	16
42R25	4×2½	7	1⅜	2	16
04R23	4×3	5¾	1⅜	2	16
42R35	4×3½	5	1⅜	2	16
05R22	5×2⅛	11½	1⅜	2	14&16
52R25	5×2½	11½	1⅜	2	14&16
05R23	5×3	8	1⅜	2	16
52R35	5×3½	6¾	1⅜	2	16
05R24	5×4	6	1⅜	2	16
06R22	6×2⅛	13⅝	1⅜	2	14&16
06R23	6×3	11½	1⅜	2	14&16
62R35	6×3½	10¾	1⅜	2	14&16
06R24	6×4	7	1⅜	2	14
06R25	6×5	6½	1⅝	2	14
08R24	8×4	13	1⅜	3	14&16
08R25	8×5	12½	1⅝	3	14
08R26	8×6	9	1⅝	3	14
10R25	10×5	14⅝	1⅝	4	12&14
10R26	10×6	15½	1⅝	4	12&14
10R28	10×8	16⅜	3	4	12&14
12R28	12×8	17⅜	3	6	12&14
12R10	12×10	19½	3	6	12
14R10	14×10	19¾	4	6	12
14R12	14×12	20	4	6	12

Slip Couplings



Standard



Straight Through

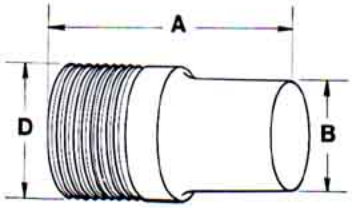
Cat. No.	Size (I.D.)	A	C		Gauge
02C20	2⅛	3¼	1⅜		16
25C00	2½	3¼	1⅜		16
03C30	3	4	1⅜		16
35C00	3½	4	1⅜		16
04C40	4	5	1⅜		16
05C50	5	5	1⅝		14
06C60	6	6	1⅝		14
08C80	8	8	thru		14
10C10	10	8	thru		12
12C12	12	8	thru		12
14C14	14	8	thru		12

Important — Specify material.
Available: Carbon Steel, Zinc Coated Steel, Stainless Steel and Aluminum.
All welded construction.

*Size is O.D. × O.D.

ADAPTERS

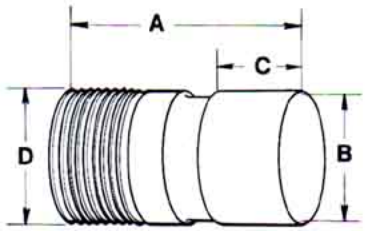
Male Adapters



Caution: Do not confuse with Expanded Male Adapters.

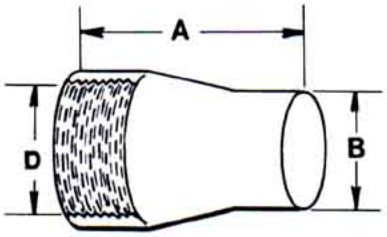
Cat. No.	(MPT) (O.D.) D x B	A		Gauge
23M82	2×2⅛	4		16
25M25	2½×2½	4		16
33M83	3×3	4½		16
35M35	3½×3½	4½		16
43M84	4×4	4½		16
53M85	5×5	5		14
63M86	6×6	6		14
83M88	8×8	7		14
10M10	10×10	9½		12
12M12	12×12	10		12
14M14	14×14	11½		12

Expanded Male Adapters



Cat. No.	(MPT) (I.D.) D x B	A	C	Gauge
02E32	2×2⅛	4	1⅜	16
25E25	2½×2½	4	1⅜	16
03E33	3×3	4½	1⅜	16
35E35	3½×3½	4½	1⅜	16
04E34	4×4	4½	1⅜	16
05E35	5×5	5	1⅝	14
06E36	6×6	6	1⅝	14

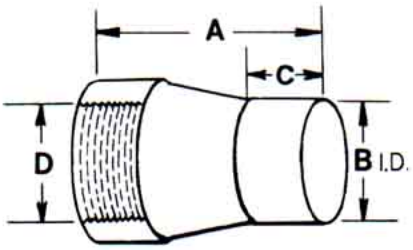
Female Adapters



Caution: Do not confuse with Expanded Female Adapters.

Cat. No.	(FPT) (O.D.) D x B	A		Gauge
22F82	2×2⅛	4		16
25F25	2½×2½	4½		16
32F83	3×3	5		16
35F35	3½×3½	5½		16
42F84	4×4	6		16
52F85	5×5	6½		14
62F86	6×6	6¾		14
82F88	8×8	9		14
10F10	10×10	11½		12
12F12	12×12	12		12
14F14	14×14	13½		12

Expanded Female Adapters



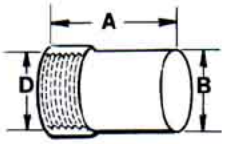
Half pipe coupling

Cat. No.	(FPT) (I.D.) D x B	A	C	Gauge
02X42	2×2⅛	4	1⅜	16
25X25	2½×2½	4½	1⅜	16
03X43	3×3	5	1⅜	16
35X35	3½×3½	5½	1⅜	16
04X44	4×4	6	1⅜	16
05X45	5×5	6½	1⅝	14
06X46	6×6	6¾	1⅝	14

Important — Specify material.
Available: Carbon Steel, Zinc Coated Steel, Stainless Steel and Aluminum.
All welded construction.

ADAPTERS

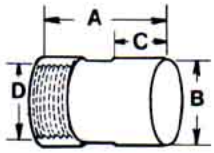
Female Reducing Adapters



Cat. No.	(O.D.) (FPT) B x D	A		Gauge
25E02	2½×2	4		16

Caution: Do not confuse with Female Adapters.
All welded construction.

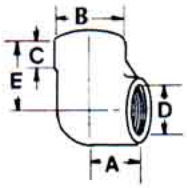
Expanded Female Reducing Adapters



Cat. No.	(I.D.) (FPT) B x D	A	C	Gauge
02E52	2½×2	4	1⅜	16

Caution: Do not confuse with Expanded Female Adapters.
All welded construction.

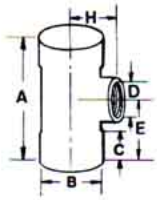
90° Elbow Adapters



Cat. No.	(I.D.) (FPT) B x D	A	C	E
02D92	2⅛×2	1¾	1 1/16	2⅝

Important — Specify material.
Available: Cast Iron, Zinc Coated Cast Iron, Cast Aluminum or Fabricated Stainless Steel.

Adapter Tees



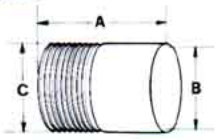
Cat. No.	(I.D.) (FPT) B x D	A	C	E	H
02D62	2⅛×2	4¾	1 1/16	2⅜	1⅝
25D62	2½×2	6½	1⅜	3¼	2⅛
03D62	3×2	6½	1⅜	3¼	2¾
03D52	3½×2	6½	1⅜	3¼	3½
04D62	4×2	6½	1⅜	3¼	3½

Important — Specify material.
02D62 available in Cast Iron or Zinc Coated Cast Iron. Other sizes fabricated in Carbon Steel, Zinc Coated Steel, Stainless Steel or Aluminum.
All welded construction.

45° Female Elbow Adapter

Cat. No.	(I.D.) (FPT) B x D	A	C	R	Gauge
02D72	2⅛×2	4 1/16	1⅜	5	16
25D72	2½×2	4½	1⅜	6	16
25D25	2½×2½	4½	1⅜	6	16

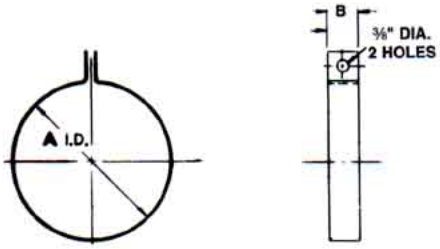
Male Adapter Nipples



Cat. No.	(I.D.) B	A	(MPT) C	
02N22	2⅛	2	2	

Important — Specify material.
Available: Zinc Coated Steel, Stainless Steel and Aluminum.
All welded construction.

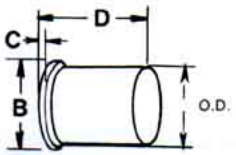
Tubing Hangers



Cat. No.	Size (I.D.) A	B
00H20	2⅛	⅞
00H25	2½	⅞
00H30	3	⅞
00H35	3½	⅞
00H40	4	⅞
00H50	5	⅞
00H60	6	⅞
00H80	8	⅞
10H00	10	⅞
12H00	12	⅞
14H00	14	⅞

Material — No. 16 Ga.
Important — Specify material.
Available: Zinc Coated Steel only.

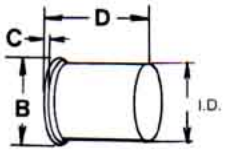
Tubing Plugs (O.D.)



Cat. No.	Size (O.D.)	B	C	D	
02G01	2⅛	2¼	⅛	1⅜	—
02G51	2½	2¾	⅛	1⅜	—
03G01	3	3¼	⅛	1⅜	—
03G51	3½	3¾	⅛	1⅜	—
04G01	4	4¼	⅛	1⅜	—
05G01	5	5¼	⅛	1½	—
06G01	6	6¼	⅛	1½	—

Important — Specify material.
Available: Zinc Coated Steel up to 14". Stainless Steel and Aluminum up to 8".

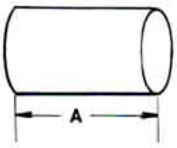
Tubing Plugs (I.D.)



Cat. No.	Size (I.D.)	B	C	D	
08G01	8	8¼	⅛	2	—
10G01	10	10¼	⅛	2	—
12G01	12	12¼	⅛	2	—
14G01	14	14¼	⅛	2	—

Important — Specify material.
Available: Zinc Coated Steel up to 14". Stainless Steel and Aluminum up to 8".
All welded construction.

Tubing Nipples

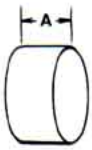


Cat. No.	Size (O.D.)	A	Gauge
02N12	2⅛	2½	16
25N12	2½	2½	16
03N13	3	2½	16
03N53	3½	2½	16
04N14	4	2½	16
05N15	5	3	14
06N16	6	3	14
08N18	8	4	14
10N10	10	4	12
12N12	12	4	12
14N14	14	4	12

Important — Specify material.
Available: Zinc Coated Steel, Stainless Steel and Aluminum.

MISCELLANEOUS

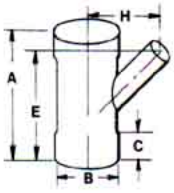
Slip Welding Collars



Cat. No.	Size (I.D.)	A	Gauge
08W28	8	3	14
10W10	10	3	12
12W12	12	3	12
14W14	14	3	12

Important — Specify Material.
Available: Carbon Steel, Zinc Coated Steel, Stainless Steel and Aluminum.

45° 7/8" Y's



Cat. No.	Size (O.D.)	A	B–I.D.	C	E	H	Gauge
20Y78	2⅛×⅞	6	2⅛	1⅜	5⅛	3⅛	16
25Y78	2½×⅞	6	2½	1⅜	5⅛	3⅜	16
30Y78	3×⅞	6	3	1⅜	5⅛	3⅝	16
35Y78	3½×⅞	6	3½	1⅜	5⅛	3⅞	16
40Y78	4×⅞	6	4	1⅜	5⅛	4⅛	16

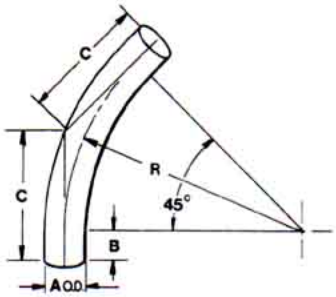
Important — Specify material.
Available: Carbon Steel, Zinc Coated Steel, Stainless Steel and Aluminum.

Ends are expanded on straight section.
Y section straight ends only.

BENDS

Long Radius Bends — 45° on 30" Center Line

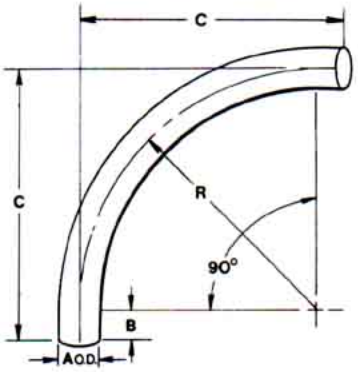
Furnished with straight ends as standard.



Cat. No.	Size (O.D.)	B	C	R	Gauge
32U45	3	6	18 7/16	30	16
35U45	3½	6	18 7/16	30	16
42U45	4	6	18 7/16	30	16
52U45	5	6	18 7/16	30	14
62U45	6	6	18 7/16	30	14
82U45	8	6	18 7/16	32	14

Long Radius Bends — 90° on 30" Center Line

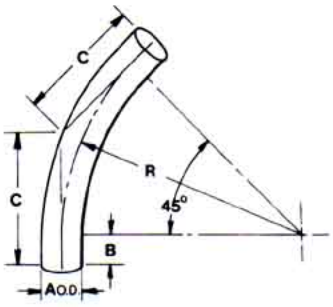
Furnished with straight ends as standard.



Cat. No.	Size (O.D.)	B	C	R	Gauge
32U90	3	6	36	30	16
35U90	3½	6	36	30	16
42U90	4	6	36	30	16
52U90	5	6	36	30	14
62U90	6	6	36	30	14
82U90	8	6	36	32	14

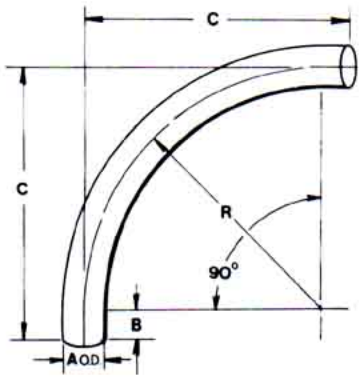
BENDS

Long Radius Bends — 45° on 36″ Center Line
Furnished with straight ends as standard.



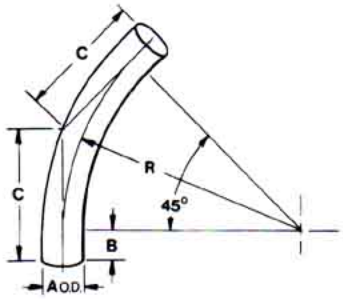
Cat. No.	Size (O.D.)	B	C	R	Gauge
23J45	2⅛	6	20 15/16	36	16
25J45	2½	6	20 15/16	36	16

Long Radius Bends — 90° on 36″ Center Line
Furnished with straight ends as standard.



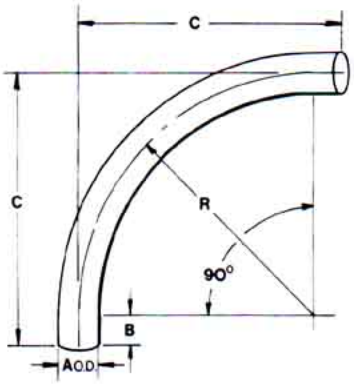
Cat. No.	Size (O.D.)	B	C	R	Gauge
23J90	2⅛	6	42	36	16
25J90	2½	6	42	36	16

Long Radius Bends — 45° on 48″ Center Line
Furnished with straight ends as standard.



Cat. No.	Size (O.D.)	B	C	R	Gauge
34K45	3	6	25⅞	48	16
35K45	3½	6	25⅞	48	16
44K45	4	6	25⅞	48	16
54K45	5	6	25⅞	48	14
64K45	6	6	25⅞	48	14
84K45	8	6	25⅞	48	14

Long Radius Bends — 90° on 48″ Center Line
Furnished with straight ends as standard.



Cat. No.	Size (O.D.)	B	C	R	Gauge
34K90	3	6	54	48	16
35K90	3½	6	54	48	16
44K90	4	6	54	48	16
54K90	5	6	54	48	14
64K90	6	6	54	48	14
84K90	8	6	54	48	14

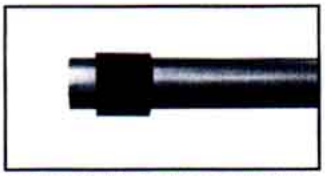
Important — Specify Material. Available: Carbon Steel, Zinc Coated Steel, Stainless Steel and Aluminum.

SHRINK SLEEVES

Cat. No.	Part No.	Tube Size
20S20	SLV90002	2⅛
25S25	SLV90002	2½
30S30	SLV90003	3
35S35	SLV90004	3½
40S40	SLV90004	4
50S50	SLV90006	5
60S60	SLV90006	6
80S80	SLV90007	8
10S10	SLV90023	10 TAPE
12S12	SLV90024	12 TAPE
14S12	SLV90014	14 TAPE

Shrink Tape
SLV90012 – 82 ft. x 4" wide roll

Shrink sleeves are 4" long polyolefin bands lined with a meltable adhesive for sealing tubing joints under vacuum. Applying billowy flame or other heat source causes the sleeve to shrink tightly around a tubing joint while the adhesive melts and fills any minor voids making a vacuum tight joint.



1 Flash joint lightly with torch to remove excess foreign matter, then place Shrink Sleeve on tubing or fitting.

2 Join tubing and fitting together. Center Shrink Sleeve over joint.

3 Heat Shrink Sleeve with wide billowy flame. ***Do Not Use Pin Point Flame.*** Work flame around joint evenly.

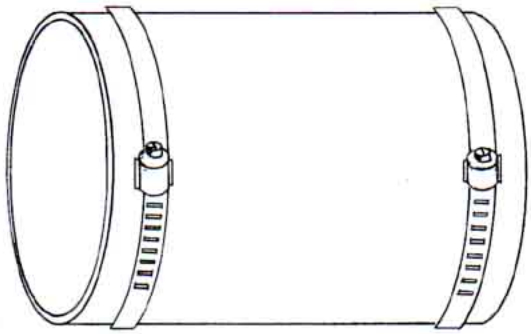
4 At 250°F Shrink Sleeve will tighten around tube and adhesive will appear from sides. Remove flame and allow to cool. Joint is complete.

RUBBER SLEEVES AND CLAMPS

Rubber sleeves and clamps are used as a flexible joint in low pressure and vacuum systems. Spencer Rubber Sleeves are available to fit sheet metal pipe (tubing), wrought iron pipe or cast iron pipe.

Standard sleeves 1⅞" through 10¾" are constructed of 1/16" inner tube, 4 ply duck, and are frictioned cover. 12" through 26" are constructed of 1/16" inner tube, 5 ply duck, and are frictioned cover.

Standard sleeves are good for temperatures 150° and below and 5 psi maximum working conditions. High temperature sleeves are for pressures 5 to 15 psi and are made of a butyl compound of at least 2 ply. They will withstand up to 300°F.



RUBBER SLEEVES AND CLAMPS

Nominal Size	Type	Nominal I.D.	Length	High Temperature With Clamps Part No.	Clamp Part No.	Clamp Size
1 1/2	WP	1 7/8	6	KAC-90006	CLM-90001	40
2	WP	2 1/4	4	KAC-90007	CLM-90001	40
2 1/8	SMP	2 1/8	4	KAC-90008	CLM-90001	40
2 1/2	SMP	2 1/2	4	KAC-90054	CLM-90001	40
2 1/2	WP	2 7/8	6	KAC-90055	CLM-90002	56
3	SMP	3	6	KAC-90010	CLM-90002	56
3	WP	3 1/2	6	KAC-90035	CLM-90002	56
4	SMP	4	6	KAC-90036	CLM-90003	72
4	WP	4 1/2	6	KAC-90037	CLM-90003	72
4	CIP	4.80	6		CLM-90003	72
5	SMP	5	6	KAC-90038	CLM-90005	92
5	WP	5 5/8	6	KAC-90039	CLM-90005	92
6	SMP	6	6	KAC-90040	CLM-90006	108
6	WP	6 5/8	6	KAC-90041	CLM-90006	108
6	CIP	6.90	6		CLM-90006	108
8	SMP	8	6	KAC-90042	CLM-90007	136
8	WP	8 5/8	6	KAC-90043		144
8	CIP	9.05	6			144
10	SMP	10	6	KAC-90044	CLM-90008	168
10	WP	10 3/4	6	KAC-90045		180
10	CIP	11.10	6			180
12	SMP	12	6	KAC-90046	CLM-90009	200
12	WP	12 3/4	6	KAC-90047		212
12	CIP	13.20	6			212
14	SMP/WP	14	12	KAC-90048		
14	CIP	15.30	12			
15	SMP/WP	15	12			
16	SMP/WP	16	12	KAC-90050		
16	CIP	17.40	12			
18	SMP/WP	18	12	KAC-90051		
18	CIP	19.50	12			
20	SMP/WP	20	12	KAC-90052		
20	CIP	21.60	12			
22	SMP/WP	22	12	KAC-90030		
24	SMP/WP	24	12	KAC-90031		
26	SMP/WP	26	12	KAC-90032		
28	SMP/WP	28	12	KAC-90033		
30	SMP/WP	30	12	KAC-90034		

Notes:

Dimensions in inches.

SMP — For Sheet Metal Pipe (SMP sleeve actually 3/16 larger in diameter to fit over piping). Also used for tubing connections.

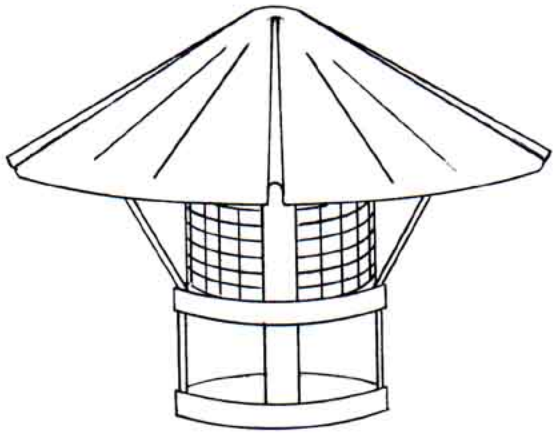
WP — For Wrought Pipe, designed to fit O.D. of Wrought Steel or Wrought Iron Pipe.

CIP — For Cast Iron Pipe, designed to fit O.D. of Cast Iron Pipe.

Special Sleeve — Limited to 220°F and 15 psi maximum working conditions.
6" long sleeves have 2 clamps, 12" long sleeves have 4 clamps.

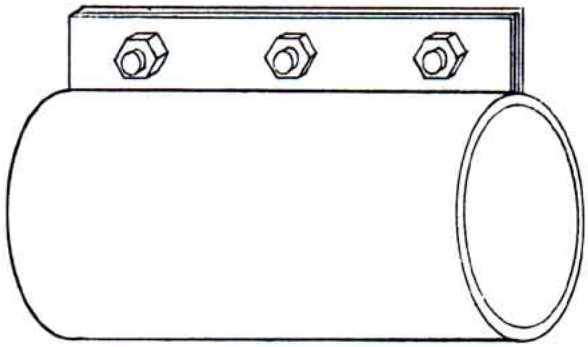
WEATHER CAPS

Weather Caps are used on the intake of a blower or the outlet of an exhauster to eliminate water, snow and other elements from entering the machine. Spencer Weather Caps are available in sizes 4, 5, 6, 8, 10, 12, 14, 16, 20 and 22 inch.



COMPRESSION COUPLING

Compression couplings are used to join a tubing system. It is recommended for use in situations where a system may be taken apart due to cleaning requirements or system changes. Spencer Compression Couplings feature a galvanized housing, galvanized bolts, ground strap, galvanized inner sleeve and black neoprene gasket.

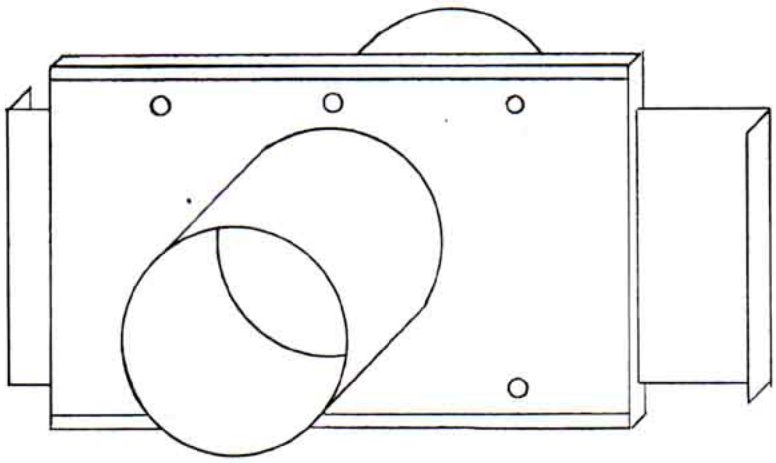


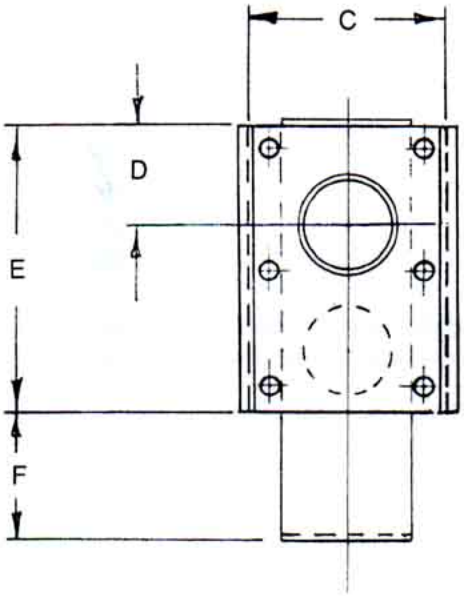
Spencer Catalog No.	Tube Size	Part No.	Number of Bolts	Length	Weight
MC020-2	2⅛	COT-90200	2	4 in.	2.1
MC025-2	2½	COT-90201	2	4 in.	2.6
MC030-3	3	COT-90202	3	6 in.	4.5
MC035-3	3½	COT-90203	3	6 in.	5.9
MC040-3	4	COT-90204	3	6 in.	5.3
MC050-3	5	COT-90205	3	6 in.	6.2
MC060-3	6	COT-90206	3	6 in.	7.0
MC080-3	8	COT-90207	3	6 in.	14.3
MC100-4	10	COT-90208	4	10 in.	21.8
MC120-4	12	COT-90209	4	10 in.	25.5
MC140-4	14	COT-90210	4	10 in.	27.6

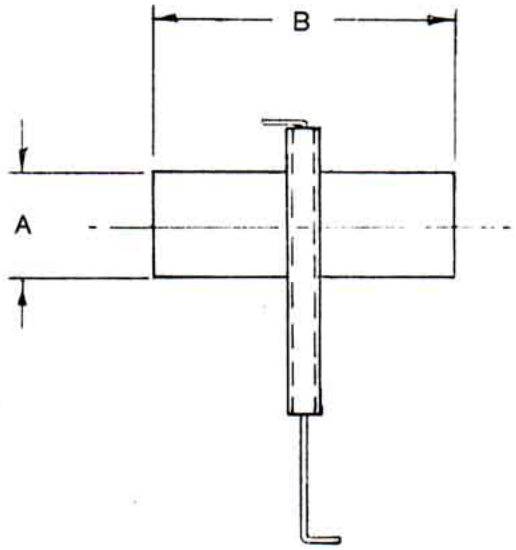
Note: Dimensions in inches.
Fitting should be ordered with straight edges.

AIR GATE VALVE

Air Gate Valves are versatile in their use. They may be used as a shut-off valve for branch lines or as a substitute for a blast gate on a low pressure system. Spencer Air Gate Valves are available in sizes 2" through 6". Expanded ends available upon request. Contact factory for special valves in stainless steel and aluminum.



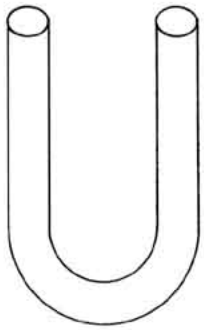




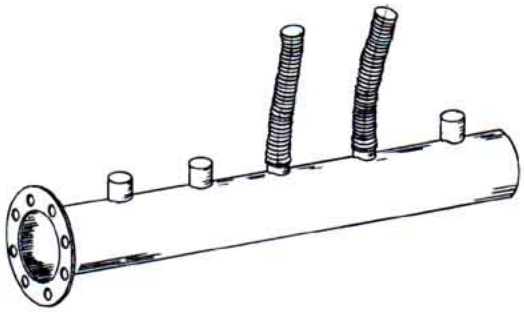
Diameter (A)	Part No.	Cat No.	Length (B)	Housing Width (C)	Tubing ℄ (D)	Housing Length (E)	Adjustment Slide (F)
2⅛	VLV-90125	AG-2000	8 7/16	4	2 1/16	6	2⅝
2½	VLV-90126	AG-2500	8 7/16	4½	2¼	6¾	3
3	VLV-90127	AG-3000	8 7/16	5¼	2½	8	3½
4	VLV-90128	AG-4000	10 7/16	6¼	3	10	4½
6	VLV-90129	AG-6000	12 7/16	8	4	14¼	6¾
8	VLV-90219	AG-8000	12⅝	10	5	18	8 13/16
10	——	AG-1000	12 9/16	13	6	22	10 13/16

Note: Dimensions in inches.

SPECIAL FABRICATED FITTINGS

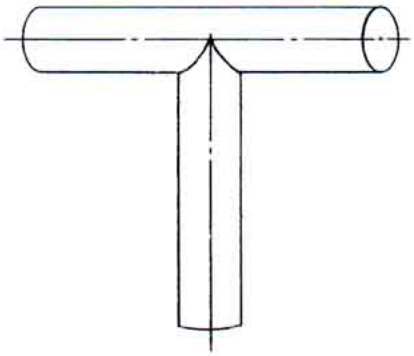


180° Returns — UP to 4″

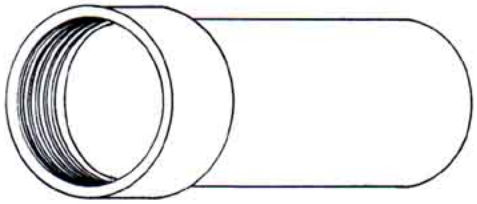


Manifolds

Double Threaded Y's



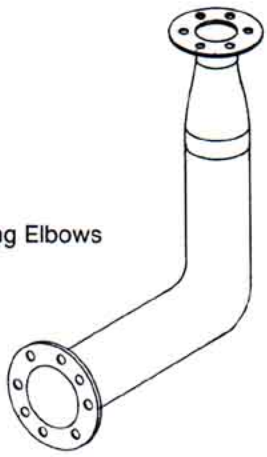
Tees

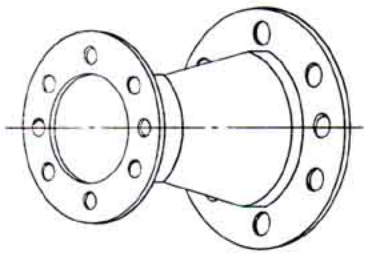


Tube to Pipe Thread Adapters

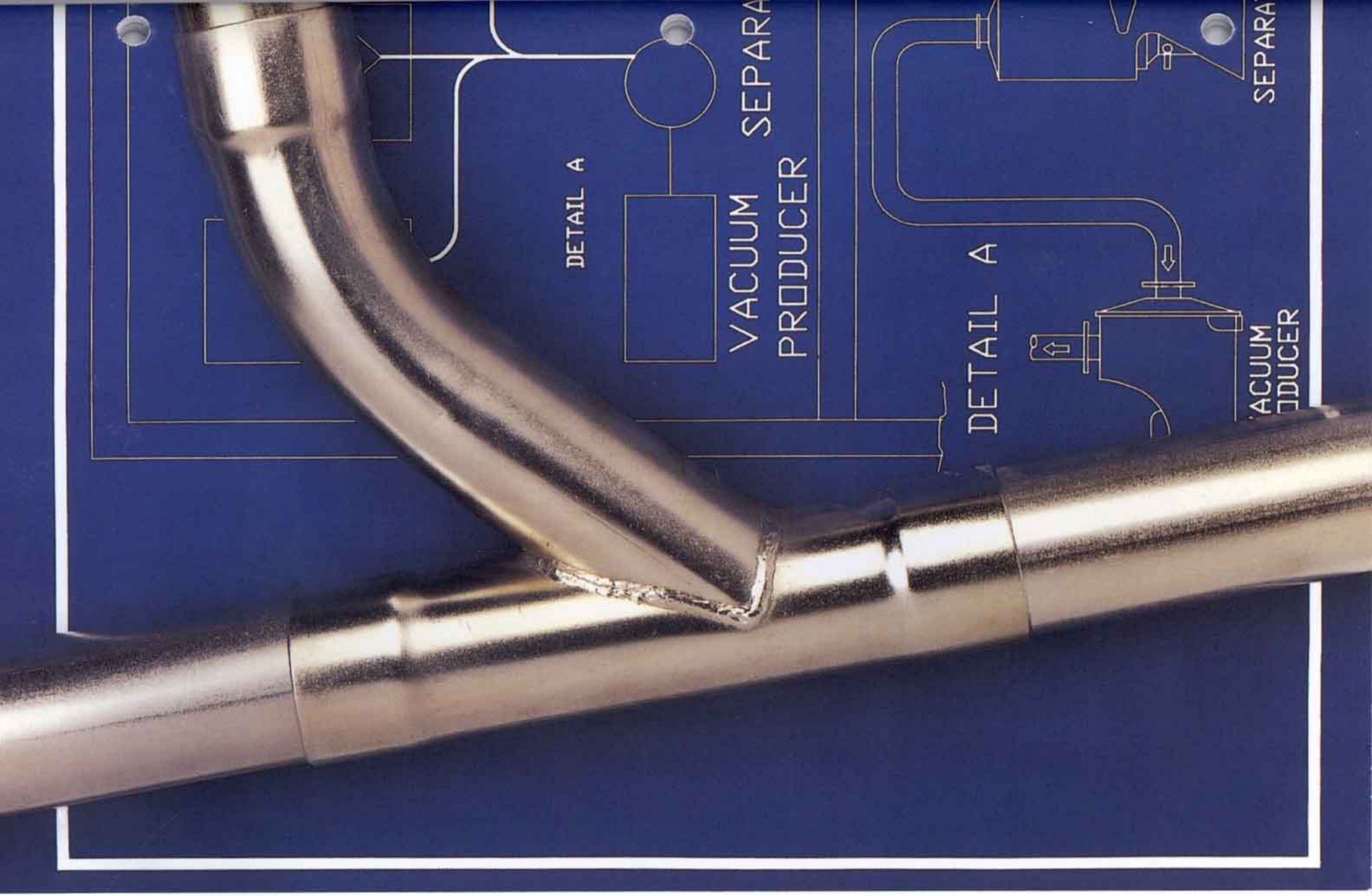
Hose Adapters

Flanged Reducing Elbows





Increasers



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