



412 Fabricated Steel Tapping Sleeves

Built-in benefits make these heavy fabricated steel sleeves increasingly popular for making larger taps on all types of pipe. By placing the design emphasis on eliminating problems inherent with older pipe and field installations, 412 Tapping Sleeves have taken the complexity out of tapping larger pipe.

Built in range assures proper fit on more than one class of pipe - reducing inventory requirements and the chance of not having the right size sleeve.

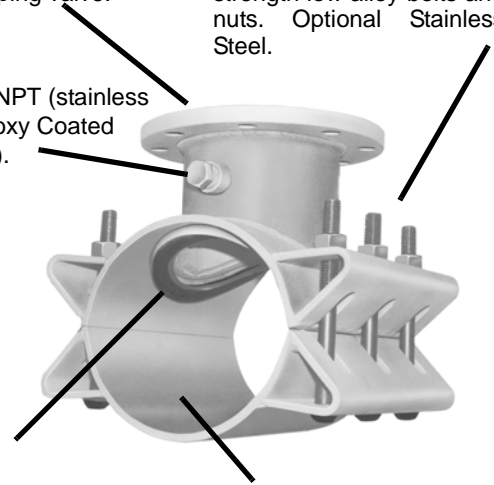
Ease of assembly eliminates extra equipment, time and specially trained personnel.

Ready availability means taps can be made without long delays - even taps on special sizes of pipe - or services requiring high pressure flanges.

Direct reinforcement of the pipe by the sleeve eliminates flexing or deflection of pipe opposite the

Alignment recess for aligning sleeve and tapping valve. Corrosion resistant, high strength low alloy bolts and nuts. Optional Stainless Steel.

Test Plug 3/4" NPT (stainless steel in the Epoxy Coated tapping sleeve).



MATERIAL SPECIFICATIONS - 412 FABRICATED TAPPING SLEEVE

BODY: ASTM 283 Grade C or ASTM A-36 Steel.

BOLTS: Corrosion Resistant, high strength low alloy (AWWA C-111, ANSI A21.11). Optional Stainless Steel 18-8 Type 304.

FLANGE: AWWA C207 Class D, ANSI 150lb. Drilling, recessed for tapping valve MSS-SP60. Other flanges and outlets available upon request.

GASKET: Compounded for use with water, salt solutions, mild acids and bases.

FINISH: Heavy coat of corrosion resistant metal primer. Optional Fusion Epoxy Coating available.

SERVICE RATING: 4" to 12" Outlets: 175 PSI. Higher service rating available for specific applications and sizes.

412 TAPPING SLEEVE DIMENSIONS

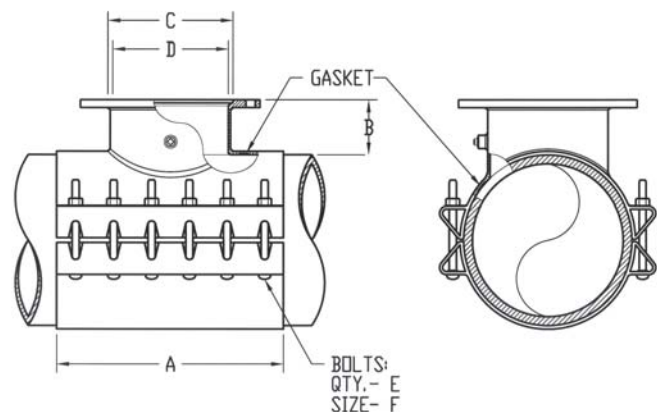
Flange Size*	A	B	C	D	E	F
3	12	5	4-1/32	3-1/2	6	3/4
4	12	5	5-1/32	4-1/2	6	3/4
6	12	5	7-1/32	*6-1/2	6	3/4
8	16	5-1/8	9-1/32	8-1/8	8	3/4
10	20	5-1/2	11-1/16	10-1/4	10	3/4
12	24	5-3/4	13-1/16	12-1/4	12	3/4

For outlets 14" and larger the manufacturer of the tapping valve must be specified to assure proper alignment recess dimension.

Size on size tapping sleeve requires 1/2" undersize cutter to assure proper cutter clearance and complete severance of the coupon.

*On nominal pipe size 7.45 and smaller dimension D is 6-1/8".

For All Stainless Steel, see 432 and 452 All Stainless Steel Tapping Sleeve.



412 Fabricated Steel Tapping Sleeves

NOM. PIPE SIZE (IN.)	SLEEVE O.D. RANGE (IN.)	SLEEVE NUMBER X ANY OUTLET	OUTLET SIZES AVAILABLE	APPR. WT. EACH (LBS.)
6	6.63 (SEE 422)	412-0690	X 3	74
	6.83 - 7.16	412-0720	X 4	76
	7.05 - 7.40	412-0745	X 6	82
	7.40 - 7.73			
8	8.63 (SEE 422)	412-0905	X 3	83
	8.98 - 9.37	412-0940	X 4	85
	9.27 - 9.69		X 6	88
			X 8	118
10	9.83 - 10.25	*412-1000	X 3	90
	10.64 - 10.86	412-1075	X 4	92
	11.03 - 11.47	412-1110	X 6	96
	11.36 - 11.80	412-1140	X 8	125
	11.76 - 12.24	412-1200	X 10	168
12	12.62 - 12.88	412-1275	X 3	98
	13.13 - 13.60	412-1320	X 4	100
	13.60 - 14.09	412-1392	X 6	104
	14.08 - 14.56	412-1420	X 8	140
			X 10	176
14	14.59 - 15.08	412-1475	X 12	216
	15.23 - 15.80	412-1530	X 3	113
	15.73 - 16.22	412-1600	X 4	115
	16.30 - 16.73	412-1650	X 6	116
			X 8	150
16	16.74 - 17.26	412-1684	X 10	190
	17.33 - 17.87	412-1740	X 12	220
	17.88 - 18.43	412-1800	X 3	113
	18.62 - 19.19	412-1875	X 4	115
			X 6	120
18	18.87 - 19.45	412-1920	X 8	162
	19.41 - 20.01	412-1950	X 10	210
	20.00 - 20.60	412-2000	X 12	230
	20.29 - 20.94	412-2050	X 3	120
	20.93 - 21.57	412-2130	X 4	122
20	21.51 - 22.15	412-2160	X 6	126
	22.16 - 22.81	412-2254	X 8	180
	22.78 - 23.45	412-2294	X 10	240
	23.46 - 24.16	412-2400	X 12	245
	24.15 - 24.85	412-2450	X 3	131
24	24.82 - 25.52	412-2502	X 4	133
	25.71 - 26.41	412-2580	X 6	140
	26.55 - 27.25	412-2715	X 8	185
	27.26 - 27.96	412-2746	X 10	245
	28.14 - 28.84	412-2834	X 12	255
30	29.78 - 30.48	412-3000	X 3	143
	30.48 - 31.18	412-3075	X 4	143
	31.52 - 32.22	412-3200	X 6	160
			X 8	215
			X 10	280
		X 12	312	

412 Tapping Sleeves furnished with test plugs unless otherwise specified.

*These sizes not available with size on size outlets.

For Size On Size Outlets A 1/2" Undersize Shell Cutter Is Required.

HOW TO ORDER IFT 412 Tapping Sleeves

1. Determine O.D. of Pipe.
2. Select proper sleeve O.D. range.
3. Specify sleeve number and outlet size.

Options:

- Epoxy with alloy bolts, add (E)
- Epoxy with stainless steel bolts, add (ESS)
- Metal primer with stainless steel bolts, add (SS)

Example: For A/C pipe with 14.21 O.D. with 6" outlet, epoxy coated with stainless bolts, order:

412-1420 x 6 ESS

LARGER SIZES AND OUTLETS AVAILABLE

For outlets 14" and larger, the tapping valve to be used must be specified to assure proper alignment recess dimension.



412 Fabricated Tapping Sleeve Typical Specifications

412 Fabricated Tapping Sleeve

Tapping Sleeves shall be the high strength type having a wide body, made of a minimum of ASTM 283 Grade C Steel, which conforms to and reinforces the pipe. The sleeves shall have as a minimum 7/8" wide recessed Buna-N gasket around the outlet, 3/4" corrosion resistant alloy bolts (per AWWA C-111, ANSI 21.11), a 3/4" forged steel test outlet and hydrostatic test pressure capability of 300 PSI in 12" and smaller outlet sizes. Flanged outlet shall be indexed per MSS-SP60. Tapping Sleeve shall be furnished with corrosion resistant shop coat paint primer.

Epoxy Coated sleeves shall be furnished with a 3/4" stainless steel type 304 plug in the test outlet and optional stainless steel 18-8 type 304 bolts.

Tapping Sleeve for pipe sizes 36" and larger shall be of the heavy duty type with a body width of 4" wider than smaller sizes and integral strengthening of the outlet half to provide additional gasket sealing and pressure holding capability. Tapping Sleeves shall be 412 or approved equal.

400 Series Tapping Sleeves are ANSI/NSF Standard 61 Certified.

IFT 412 Fabricated Tapping Sleeve Material Specifications

IFT 412 Fabricated Tapping Sleeve

BODY:	ASTM 283 Grade C or ASTM A-36 Steel
BOLTS:	Corrosion resistant, high strength low alloy (AWWA C-111, ANSI 21.11). Optional stainless steel 18-8 Type 304.
FLANGE:	AWWA C207 Class D, ANSI 150 lb. Drilling, recessed for tapping valve MSS-SP60. Optional flanges available upon request.
GASKET:	Compounded for use with water, salt solutions, mild acids and bases.
FINISH:	Heavy coat of corrosion resistant metal primer. Optional fusion epoxy coating available per AWWA C-213.
SERVICE RATING:	4" to 12" Outlets: 175 PSI. Higher service rating available for specific applications and sizes.

IFT 412 Tapping Sleeve Installation Instructions

- * Thoroughly clean pipe surface. Check the size and range of the tapping sleeve to verify correct size product.
- * Check surface where gasket will seat to make certain pipe is free of flaws, gouges and extreme irregularities.
- * Lubricate pipe and face of gasket with soap-water or gasket lubricating solution. **Do not** use grease or pipe lubricant.
- * Position outlet half of body on pipe, making sure outlet is aligned with branch line to be connected. Never position so that rotation is required.
- * Position back half of body and install bolts.
- * Tighten outside bolts first, working toward the center.
- * Tighten bolts evenly. Alternate from one side of sleeve to the other. Tighten bolts to the following torque levels:

Pipe sizes 6" - 12" - 100 ft. lbs. of torque

Pipe sizes 14" & larger - 125 ft. lbs. of torque

NOTE: For test and working pressure above 250 PSI bolts must be tightened to 150 - 170 ft. lbs. of torque. (Contact IFT for proper application.)

On Thin Wall, PVC (SDR21, 26), and Flexible Pipe

50 - 55 ft. lbs. minimum

HDPE SDR11, SDR17 - 6" - 12"

60 ft. lbs. minimum

HDPE SDR11, SDR17 - 14" and Larger

90 ft. lbs. minimum

- * Check inside of sleeve neck to make certain gasket is properly seated and not protruding where tapping cutter may damage it.
- * Install tapping valve. IFT recommends adherence to the AWWA M-44 Manual for proper valve installation, support and trenching.
- * Test assembly seals using test plug provided on sleeve or test connection on tapping machine. Note: No more than 10% above line pressure on HDPE or maximum pipe working pressure rating. When assured that all seals are tight and test is completed, re-check bolt torques after 15 minutes and proceed with tapping operation.

Note: Size on size tapping cutter must not be larger than recommended by pipe manufacturer. Also, tapping operation must not force the pipe away from the gasket seal.