

TAPPING SCREW PERFORMANCE SPECIFICATIONS

F.I.P. - 1000.1 THROUGH F.I.P. - 1000.7

SPECIFICATION F.I.P. - 1000.1

TYPE A
— INCH ONLY —



SIZE	DUCTILITY minimum degrees	MINIMUM TORSIONAL STRENGTH lb.-in.	TEST PLATES (FIP 70-85)		HYDROGEN EMBRITTLMENT TORQUE lb.-in.
			Thickness ±.002	Hole Size ±.001	
2-32	10	4	.048	.076	SEE HYDROGEN EMBRITTLMENT TEST
2-28	10	5	.048	.081	
4-24	10	12	.048	.086	
6-20	10	18	.048	.106	
8-18	10	24	.075	.136	
10-16	10	30	.075	.155	
12-14	10	36	.075	.155	
14-12	10	42	.075	.155	
16-10	10	48	.075	.155	
18-8	10	63	.106	.185	
20-7	10	72	.106	.185	
24-6	10	108	.136	.215	
28-5	10	144	.166	.245	
32-4	10	180	.196	.275	
Minimum Sample Size	8 pc	4 pc			13 pc

SPECIFICATION F.I.P. - 1000.2

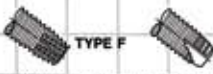
TYPE AB, B, BT(25)
— INCH AND METRIC —



SIZE	DUCTILITY minimum degrees	MINIMUM TORSIONAL STRENGTH lb.-in.	TEST PLATES (FIP 70-85)		HYDROGEN EMBRITTLMENT TORQUE lb.-in.
			Thickness ±.002 lb"	Hole Size ±.001 lb"	
2-32	10	4	.048	.076	SEE HYDROGEN EMBRITTLMENT TEST
2-28	10	5	.048	.081	
4-24	10	12	.048	.086	
6-20	10	18	.048	.106	
8-18	10	24	.075	.136	
10-16	10	30	.075	.155	
12-14	10	36	.075	.155	
14-12	10	42	.075	.155	
16-10	10	48	.075	.155	
18-8	10	63	.106	.185	
20-7	10	72	.106	.185	
24-6	10	108	.136	.215	
28-5	10	144	.166	.245	
32-4	10	180	.196	.275	
Minimum Sample Size	8 pc	4 pc			13 pc

SPECIFICATION F.I.P. - 1000.3

TYPE F, AND T(23)
— INCH —



SIZE	DUCTILITY minimum degrees	MINIMUM TORSIONAL STRENGTH lb.-in.	TEST PLATES (FIP 70-85)		HYDROGEN EMBRITTLMENT TORQUE lb.-in.
			Thickness ±.002	Hole Size ±.001	
2-56	10	5	.076	.076	SEE HYDROGEN EMBRITTLMENT TEST
2-48	10	5	.094	.081	
4-40	10	13	.102	.086	
6-40	10	18	.109	.101	
8-32	10	24	.140	.125	
8-32	10	42	.140	.140	
10-24	10	36	.167	.135	
10-32	10	74	.167	.177	
12-24	10	36	.185	.155	
14-20	10	140	.250	.238	
16-18	10	179	.250	.234	
18-16	10	306	.312	.290	
20-14	10	375	.312	.290	
Minimum Sample Size	8 pc	4 pc			

SPECIFICATION F.I.P. - 1000.4

TYPE F, AND T(23)
— METRIC —



SIZE	DUCTILITY minimum degrees	MINIMUM TORSIONAL STRENGTH lb.-in.	TEST PLATES (FIP 70-85)		HYDROGEN EMBRITTLMENT TORQUE lb.-in.	
			Thickness ±.002 lb"	Hole Size ±.001 lb"		
M2 x .04	10	4	.076	.067	SEE HYDROGEN EMBRITTLMENT TEST	
M2.5 x 0.45	10	10	.094	.083		
M3 x 0.5	10	18	.102	.102		
M3.5 x 0.6	10	27	.140	.122		
M4 x 0.7	10	41	.140	.136		
M5 x 0.8	10	63	.185	.177		
M6 x 1.0	10	142	.250	.210		
M8 x 1.25	10	304	.312	.291		
Minimum Sample Size	8 pc	4 pc				13 pc

SPECIFICATION F.I.P. - 1000.5

THREAD ROLLING SCREWS
— INCH —



SIZE	DUCTILITY min. degrees	MINIMUM TORSIONAL STRENGTH lb.-in.	TEST PLATES (FIP 70-85)		DRIVE TORQUE		HYDROGEN EMBRITTLMENT TORQUE lb.-in.	
			Thickness ±.002	Hole Size ±.001	Phos & Oil Cad	Zinc		
2-32	10	6	.125	.075	4.5	6	SEE HYDROGEN EMBRITTLMENT TEST	
2-28	10	6	.125	.087	7.3	9.3		
4-24	10	14	.125	.098	9	13		
6-20	10	22	.125	.119	12	16		
8-18	10	34	.125	.140	14	20		
10-16	10	46	.167	.147	25	32		
12-14	10	68	.167	.166	36	52		
14-12	10	90	.167	.172	39	52		
16-10	10	112	.250	.219	90	120		
18-8	10	144	.250	.237	150	240		
20-7	10	180	.250	.240	240	360		
Minimum Sample Size	8 pc	4 pc			4 pc	4 pc		13 pc

SPECIFICATION F.I.P. - 1000.6

THREAD ROLLING SCREWS
— METRIC —



SIZE	DUCTILITY min. degrees	MINIMUM TORSIONAL STRENGTH lb.-in.	TEST PLATES (FIP 70-85)		DRIVE TORQUE		HYDROGEN EMBRITTLMENT TORQUE lb.-in.	
			Thickness ±.002 lb"	Hole Size ±.001 lb"	Phos & Oil Cad	Zinc		
M2 x 0.4	10	6	.125	.070	4	6	SEE HYDROGEN EMBRITTLMENT TEST	
M2.5 x 0.45	10	11	.125	.086	7	9		
M3 x 0.5	10	19	.125	.106	11	15		
M3.5 x 0.6	10	31	.125	.134	17	21		
M4 x 0.7	10	46	.207	.142	22	32		
M5 x 0.8	10	83	.207	.179	42	53		
M6 x 1.0	10	157	.250	.2125	66	81		
M8 x 1.25	10	300	.250	.2575	142	177		
M10 x 1.5	10	770	.384	.362	242	310		
Minimum Sample Size	8 pc	4 pc			4 pc	4 pc		13 pc

SPECIFICATION F.I.P. - 1000.7

SELF DRILLING SCREWS



SIZE	DUCTILITY minimum degrees	TORSIONAL STRENGTH lb.-in.	HYDROGEN EMBRITTLMENT		
			TEST PLATE (FIP 60-85) Thickness ±.002 lb"	TORQUE min. lb.-in.	
4-32	10	14	14	10	SEE HYDROGEN EMBRITTLMENT TEST
6-30	10	24	20	10	
8-28	10	42	38	142	
10-26	10	61	132	173	
12-24	10	92	142	202	
14-22	10	150	179	239	
Minimum Sample Size	8 pc	4 pc			13 pc

NOTES:
1. Finish Classifications:
A. Plating thickness up to 2000 thickness.
B. Plating thickness over 2000 thickness.
C. Chrome plated parts.

2. Sample Size:
A. Lat Size Sample Size Acceptable Deviation
0.010 6 0 0
0.015 12 0 0
0.020 25 0 0
0.025 50 0 0
0.030 100 0 0

B. If any part exceeds drill time double sample size and drill time.
Sample Size Drill Time Deviation
25 1 0
50 2 0
100 3 0
200 3 1

"Drill Time" is time in seconds of the minimum drill time but less than twice the minimum.
"Excessive Drill" is time in excess of minimum drill time but more than twice the minimum.

HYDROGEN EMBRITTLMENT TEST

HYDROGEN EMBRITTLMENT TEST
Test Purpose: To detect parts which may have a delayed failure up to 24 hours after installation in the assembly resulting from hydrogen induced during cleaning or plating. This is a particularly damaging failure because, unlike other types of failures, it does not occur at the time of assembly but only hours after the assembly is made. Its detection and correction after assembly can be costly, involving extensive disassembly, rework and reassembly, or in some cases, complete scrap.

Warning: As a precaution all electroplated tapping screws should be baked after plating a minimum of 4 hours at temperature of 400 degrees Fahrenheit. This should be specified on all purchase orders. Parts must not fracture within 24 hours after being soaked at 80% of the average failure torque of 5 parts from the same lot.

Apparatus required:
A. Specified Test Plates
B. Flat Washers
C. Torque Wrench, accurate within +10% (Till-Exp.)

Minimum Recommended Sample Size:
Procedure:
A. Place washers on 12 screws to ensure that the parts are seated completely on the underside of the head and not on a shoulder or underhead radius. Total thickness of washers should be .080 minimum.
B. Drive all 12 screws into the correct test plate but do not seat. Note: Self-Drilling Screws are required to drill their own hole in the correct test plate.
C. Tighten 5 pieces until screw heads into 2 or more pieces or strips out. Record the 5 values and calculate the average. Multiply that average by .80 (80%) to determine the "Fast Tightening Torque." Note: An optional calculation is to multiply the sum of the 5 failure values by .16 (16%).
D. Seat the 8 remaining pieces to the "Fast Tightening Torque."
Allow parts to sit 24 hours and recheck to the "Fast Tightening Torque."
The entire lot fails if any failed separate from its shank during the 24 hour period or when rechecked.

Failure:

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