



TECH BULLETIN

074
7/95

Published regarding engineering changes and improvements

SUBJECT: Torque Chart

Piston and Plunger Pumps

ITEM	THREAD SIZE	TOOL SIZE	TOOL PART NO.	TORQUE		
				in. lbs.	ft. lbs.	Nm
Bearing Cover Screws						
2DX, 3DX, 66DX PLGR.....All Models	M6	M10 Hex	25082	50	4.0	5.4
2SF, 2SFSEEL, 2SFX, 4SF PLGR.....All Models	M6	M10 Hex	25082	50	4.0	5.4
3CP PLGR.....All Models	M6	M10 Hex	25082	50	4.0	5.4
3SP PLGR.....All Models	M6	M10 Hex	25082	50	4.0	5.4
3, 4, 5, 10 FR PSTN.....280, 290, 333, 430, 323, 390, 623, 820, 1010	M6	M10 Hex	25082	50	4.0	5.4
3, 5 FR PLGR.....All Models	M6	M10 Hex	25082	50	4.0	5.4
4HP, 5DX, 6DX PLGR.....All Models	M8	M13 Hex	25324	115	9.58	13.0
5CP, 7CP PLGR.....All 5CP Models, 7CP6170	M8	M13 Hex	25324	115	9.58	13.0
7, 8 FR PLGR.....51, 53, 55, 56, 57, 59, 60, 70, 530, 550, 781	M6	M10 Hex	25082	115	9.58	13.0
15, 18 FR PLGR.....650, 651, 660, 661, 1050, 1051, 1057,1530, 1531, 1540, 1851, 1861	M6	M10 Hex	25082	50	4.0	5.4
25 FR PSTN.....1020, 1520, 2020, 2520, 2520C	M8	M13 Hex	25324	115	9.58	13.0
25, 28 FR PLGR.....2510, 2511, 2530, 2531, 2537, 2831	M8	M13 Hex	25324	115	9.58	13.0
35, 38 FR PLGR.....3507, 3510, 3515, 3517, 3520, 3521,3527, 3531, 3535, 3537, 3541, 3545, 35603801, 3811, 3821, 3831, 3841	M8	M13 Hex	25324	115	9.58	13.0
60 FR PSTN.....6020, 6024, 6040, 6044	M10	M17 Hex	25083	220	18.0	24.0
60, 68 FR PLGR.....6747, 6760, 6761, 6762, 6767, 6811, 68216831, 6841, 6861	M10	M17 Hex	25083	220	18.0	24.0
Bubble Oil Gauge						
.....All Models	M28	Oil Gauge Tool	44050	45	3.8	5.0
Connecting Rod Screws						
3CP, 5CP, 7CP PLGR.....All Models	M7	M10 Hex	25082	95	8.0	11.0
3, 4, 5 FR PSTN.....280, 290, 333, 430, 323, 390	M7	M10 Hex	25082	95	8.0	11.0
3, 5 FR PLGR.....All Models	M7	M10 Hex	25082	95	8.0	11.0
10, 25 FR PSTN.....623, 820, 1010, 1020, 1520, 2020, 2520C	M8	M13 Hex	25324	130	10.8	15.0
7, 8, 15, 18, 25, 28 FR PLGR.....All Models	M8	M13 Hex	25324	216	18.0	24.0
35, 38 FR PLGR.....3507, 3510, 3515, 3517, 3520, 3521,3527, 3531, 3535, 3537, 3541, 3545, 35603801, 3811, 3821, 3831, 3841	M10	M17 Hex	25083	395	33.0	45.0
60 FR PSTN.....6020, 6024, 6040, 6044	M10	M17 Hex	25083	390	32.5	44.0
60, 68 FR PLGR.....6747, 6760, 6761, 6762, 6767, 6811, 68216831, 6841, 6861	M10	M17 Hex	25083	390	32.5	44.0

FR = Frame size PSTN = Piston Pump PLGR = Plunger Pump

CAT PUMPS
Technical Services Department

Rev. 06/04 1 of 3

Piston and Plunger Pumps

ITEM	THREAD SIZE	TOOL SIZE	TOOL PART NO.	TORQUE		
				in. lbs.	ft. lbs.	Nm
Direct Mount Screws (Threaded holes on bottom of pump)						
3CP, 5CP PLGR.....All Models	M8	M13 Hex	25324	115	9.58	13.0
3, 4, 5 FR PSTN.....All Models	M8	M13 Hex	25324	115	9.58	13.0
3, 5, 7, 8 FR PLGR.....All Models	M8	M13 Hex	25324	115	9.58	13.0
10 FR PSTN.....623, 820, 1010	M10	M17 Hex	25083	205	17.0	23.0
15, 18 FR PLGR.....All Models	M10	M17 Hex	25083	355	30.0	40.0
35, 38 FR PLGR.....3507, 3510, 3515, 3517, 3520, 3521,3527, 3531, 3535, 3537, 3541, 3545, 35603801, 3811, 3821, 3831, 3841	M14	M22 Hex	N/A	570	47.5	64.0
60 FR PSTN.....6020, 6024, 6040, 6044	M16	M24 Hex	N/A	792	66.0	90.0
60, 68 FR PLGR.....6747, 6760, 6761, 6762, 67676811, 6821, 6831, 6841, 6861	M16	M24 Hex	N/A	792	66.0	90.0
Discharge Manifold Screws						
3CP PLGR.....1121, 1131, 1141, 1221, 1231, 1241	M10	M8 Allen	33046	140	12.0	16.0
3 FR PLGR.....230, 231, 237, 240, 241, 247, 270, 271, 277	M10	M8 Allen	33046	220	18.0	24.0
5CP PLGR.....6121, 6141, 6151, 6221, 6241CS, 6251	M12	M10 Allen	33047	260	22.0	30.0
8, 15 FR PLGR.....781, 1540	M10	M8 Allen	33046	250	21.0	28.0
15 FR PLGR.....1530, 1531	M12	M10 Allen	33047	355	30.0	40.0
25, 28 FR PLGR.....2510, 2511, 2530, 2531, 2537, 2831	M12	M10 Allen	33047	355	30.0	40.0
35, 38 FR PLGR.....3507, 3510, 3515, 3517, 3520, 3521,3527, 3531, 3535, 3537, 3541, 3545, 35603801, 3811, 3821, 3831, 3841	M12	M10 Allen	33047	355	30.0	40.0
60 FR PLGR.....6747, 6760, 6761, 6762, 6767	M16	M14 Allen	33049	565	47.0	64.0
68 FR PLGR.....6811, 6821, 6831 (Upper) 6841, 6861	M16	M14 Allen	33049	660	55.0	75.0
68 FR PLGR.....6811, 6821, 6831 (Lower)	M12	M10 Allen	33047	355	30.0	40.0
Inlet Manifold Screws						
3CP, 5CP PLGR.....All Stainless Steel Models	M8	M6 Allen	30941	115	9.58	13.0
3 FR PLGR.....230, 231, 237, 240, 241, 247, 270, 271, 277	M10	M8 Allen	33046	220	18.0	24.0
5 FR PSTN.....323	M10	M17 Hex	25083	220	18.0	24.0
5 FR PSTN.....390	M10	M8 Allen	33046	220	18.0	24.0
8 FR PLGR.....781	M10	M8 Allen	33046	250	21.0	28.0
15 FR PLGR.....1530, 1531, 1540	M10	M8 Allen	33046	222	18.5	25.0
25, 28 FR PLGR.....2510, 2511, 2530, 2531, 2537, 2831	M12	M10 Allen	33047	355	30.0	40.0
35 FR PLGR.....3507, 3510, 3515, 3517, 3520, 3521,3527, 3531, 3535, 3537, 3541, 3545, 3560	M14	M12 Allen	33048	480	40.0	54.0
38 FR PLGR.....3801, 3811, 3821, 3831, 3841	M14	M12 Allen	33048	500	41.6	56.0
60 FR PLGR.....6747, 6760, 6761, 6762, 6767	M16	M24 Hex	44046	565	47.0	64.0
68 FR PLGR.....6811, 6821, 6831, 6841, 6861	M16	M14 Allen	33049	620	51.6	70.0
Manifold Head Screws						
2DX, 3DX, 3SP PLGR.....All Models	M6	M5 Allen	N/A	55	4.6	6.2
2SF, 2SFX, 2SFSEEL, 4SF PLGR.....All Models	M8	M6 Allen	30941	115	9.58	13.0
3CP PLGR.....1120, 1130, 1140	M8	M6 Allen	30941	115	9.58	13.0
4HP, 5DX, 6DX, 66DX PLGR.....All Models	M8	M6 Allen	30941	132	11.0	15.0
5CP PLGR.....All Models (Except 5CP Stainless Steel)	M8	M6 Allen	30941	115	9.58	13.0
5 FR PLGR.....31, 34, 35, 310, 311, 317340, 341, 347, 350, 351, 35742HS, 43HS, 45	M10	M8 Allen	33046	220	18.0	24.0
7CP PLGR.....7CP6170	M8	M6 Allen	30941	115	9.58	13.0
Manifold Stud / Nut or Cylinder Bolts						
3, 4, 5 FR PSTN.....280, 284, 290, 333, 430, 323, 390	M8	M12 Hex	N/A	115	9.58	13.0
7 FR PLGR.....51, 53, 55, 56, 57, 58, 59, 60, 70, 530, 550	M10	M14 Hex	25053	220	18.0	24.0
10 FR PSTN.....623, 820, 1010	M10	M17 Hex	25083	220	18.0	24.0
15 FR PLGR.....650, 651, 660, 661, 1050, 1051, 1057	M10	M17 Hex	25083	220	18.0	24.0
18 FR PLGR.....1851, 1861	M10	M17 Hex	25083	250	21.0	28.0
25 FR PSTN.....1020, 1520, 2520, 2520C	M12	M19 Hex	N/A	350	29.0	39.5
60 FR PSTN.....6020, 6024, 6040, 6044	M16	M24 Hex	44046	565	47.0	64.0
Piston/Plunger Rod Nut						
2SF, 2SFX, 4SF.....All Models	M6	M10 Hex	25082	55	4.6	6.2
3 FR PSTN.....284	M4	M8 Hex	25052	25	2.0	3.0
3, 4, 5, 10 FR PSTN.....280, 290, 333, 430, 323, 390, 623, 820, 1010	M6	M10 Hex	25082	55	4.6	6.2
25 FR PSTN.....1020, 1520, 2520, 2520C	M8	M13 Hex	25324	115	9.58	13.0
60 FR PSTN.....6020, 6040	M14	M24 Hex	44046	390	32.5	44.0
60 FR PSTN.....6024, 6044	M10	M17 Hex	25083	220	18.0	24.0

FR = Frame size PSTN = Piston Pump PLGR = Plunger Pump

Piston and Plunger Pumps

ITEM	THREAD SIZE	TOOL SIZE	TOOL PART NO.	TORQUE		
				in. lbs.	ft. lbs.	Nm
Plunger Retainer						
2DX, 3DX, 4HP, 5DX, 6DX, 66DX PLGR.....All Models	M6	M10 Hex	25082	55	4.6	6.2
3CP, 5CP, 7CP PLGRAll Models	M6	M10 Hex	25082	55	4.6	6.2
3 FR PLGR.....230, 240, 270	M6	M11 Hex	44044	55	4.6	6.2
3 FR PLGR.....231, 237, 241, 247, 271, 277	M6	M12 Hex	N/A	55	4.6	6.2
3SP PLGR.....3SP30G11, 3SP35GEI	M6	M10 Hex	25082	55	4.6	6.2
5, 7 FR PLGRAll OEM Models	M6	M11 Hex	44044	55	4.6	6.2
5, 7, 8 FR PLGR.....310, 311, 317, 340, 341, 347, 350, 351, 357, 530, 550, 781	M6	M12 Hex	N/A	55	4.6	6.2
15, 18 FR PLGR.....All Models	M6	M12 Hex	N/A	55	4.6	6.2
25, 28 FR PLGR.....2510, 2511, 2530, 2531, 2537, 2831	M7	M14 Hex	25053	108	9.0	12.2
35 FR PLGR.....3507, 3510, 3560	M7	M14 Hex	25053	90	7.5	10.0
35 FR PLGR.....3515, 3517, 3520, 3521, 3527, 3531, 3535, 3537, 3541, 3545	M10	M21 Hex	N/A	220	18.0	24.0
38 FR PLGR.....3801	M7	M14 Hex	25053	90	7.5	10.0
38 FR PLGR.....3811, 3821, 3831,3841	M10	M21 Hex	N/A	220	18.0	24.0
60, 68 FR PLGR.....6747, 6760, 6761, 6762, 6767, 6841, 6861	M14	M30 Hex	N/A	520	43.0	58.0
68 FR PLGR.....6811, 6821, 6831	M10	M21 Hex	N/A	220	18.0	24.0
Rear Cover Screws						
4HP, 5DX, 6DX, 66DX.....All Models	M6	M10 Hex	25082	50	4.0	5.4
3, 4, 5, 10 FR PSTN280, 290, 333, 430, 323, 390, 623, 820, 1010	M6	M10 Hex	25082	50	4.0	5.4
3CP, 5CP, 7CP PLGR.....All Models	M6	M10 Hex	25082	50	4.0	5.4
3, 5 FR PLGR.....All Models	M6	M10 Hex	25082	50	4.0	6.0
7, 8 FR PLGR.....51, 53, 55, 56, 57, 58, 59, 60, 70, 530, 550, 781	M6	M10 Hex	25082	115	9.58	13.0
15, 18 FR PLGR.....All Models	M6	M10 Hex	25082	50	4.0	5.4
25 FR PSTN1020, 1520, 2520, 2520C	M8	M13 Hex	25324	115	9.58	13.0
25, 28 FR PLGR.....2510, 2511, 2530, 2531, 2537, 2831	M8	M13 Hex	25324	115	9.58	13.0
35, 38 FR PLGR.....3507, 3510, 3515, 3517, 3520, 3521, 3527, 3531, 3535, 3537, 3541, 3545, 3560 3801, 3811, 3821, 3831, 3841	M8	M13 Hex	25324	115	9.58	13.0
60 FR PSTN6020, 6024, 6040, 6044	M10	M17 Hex	25083	220	18.0	24.0
60, 68 FR PLGR.....6747, 6760, 6761, 6762, 6767	M10	M17 Hex	25083	220	18.0	24.0
Seal Cases						
5, 7 FR PLGR.....All Models	N/A	1/2 SOC. DRIVE	33004, 33005	354	29.5	40.0
15 FR PLGR.....650, 651, 660, 661	N/A	1/2 SOC. DRIVE	33006	346	28.8	39.0
15 FR PLGR.....1050, 1051, 1057	N/A	1/2 SOC. DRIVE	33006	390	32.5	44.0
Valve Plugs						
2DX, 3DX, 3SP.....All Models	M20	M19 Hex	N/A	520	43.0	58.0
4HP, 5DX, 6DX, 66DX.....All Models	M22	M24 Hex	44046	870	72.5	98.0
3CP, 5CP PLGR.....All Models	M22	M24 Hex	44046	870	72.5	98.0
5 FR PLGR.....All Models (Except 43HS, 45)	M22	M24 Hex	44046	870	72.5	98.0
5 FR PLGR.....43HS, 45	M25	M24 Hex	44046	520	43.0	58.0
7CP.....7CP6170	M26	M27 Hex	44045	870	72.5	98.0
7, 15 FR PLGR.....All Models	M26	M27 Hex	44045	870	72.5	98.0
15 FR PLGR.....1530, 1531	M36	M32 Hex	N/A	1060	88.0	119.0
25 FR PLGR.....2510, 2511	M42	M36 Hex	N/A	1680	140.0	190.0
35 FR PLGR.....3520, 3521, 3527, 3531, 3535, 3537, 3541, 3545	M45	M41 Hex	N/A	1305	109.0	148.0
60 FR PLGR.....6747, 6760, 6767	M70	M41 Hex	N/A	1390	116.0	157.0
Valve Plug / Cover Screws						
35 FR PLGR.....3507, 3510, 3515, 3517	M10	M8 Allen	33046	220	18.0	24.0
35 FR PLGR.....3560	M14	M12 Allen	33048	486	40.5	55.0
38 FR PLGR.....3801, 3811, 3821, 3831, 3841	M10	M8 Allen	33046	250	21.0	28.0
60 FR PLGR.....6761, 6762	M16	M14 Allen	33049	250	21.0	28.0
68 FR PLGR.....6811, 6821, 6831	M10	M8 Allen	33046	250	21.0	28.0
Valve Block Screws						
18 FR PLGR.....1851, 1861	M12	M10 Allen	33047	355	30.0	40.0
68 FR PLGR.....6841, 6861	M16	M14 Allen	33049	660	55.0	75.0

FR = Frame size PSTN = Piston Pump PLGR = Plunger Pump