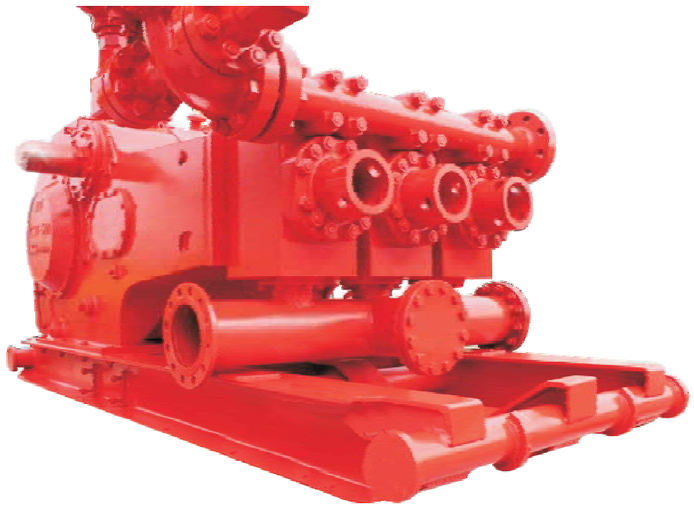
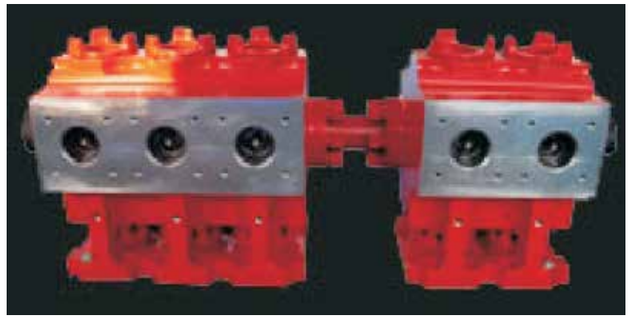
TTAAN-Series of Triplex Mud Pumps





Specifications of Mud Pump

Model	F-500	F-800	F-1000	F-1300	F-1600	F-2200
Type	Triplex piston	Triplex piston	Triplex piston	Triplex piston	Triplex piston	Triplex piston
Max. liner size × stokes mm	170×191	170×229	170×254	180×305	180×305	230×356
Rating strokes rpm	165	150	140	120	120	105
Rating power KW(HP)	373(500)	596(800)	746(1000)	969(1300)	1193(1600)	1640(2200)
Gear ratio	4.286:1	4.185:1	4.207:1	4.206:1	4.206:1	3.521:1
Lubricating system	Pressure and splash	Pressure and splash	Pressure and splash	Pressure and splash	Pressure and splash	Pressure and splash
Suction inlet	8″ Flange	10″ Flange	12″ Flange	12″ Flange	12″ Flange	12″ Flange
Discharge outlet	4″ Flange	5″ Flange	5″ Flange	5″ Flange	5″ Flange	5″ Flange
Diameter of pinion shaft mm	139.7	177.8	196.9	215.9	215.9	254
Weight Kg	9770	14500	18790	24572	24791	38460

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Pumps and Valves
TTAAN

I. Basic Structure

1. Power End (frame, pinion shaft, crankshaft, crosshead and extension rod)

1.1 Power end features

• Continuous tooth herringbone gear
• One-piece alloy steel crank
• Renewable crosshead guide
• The frame is made of welded steel plate to provide the frame with high strength, good rigidity and light weight.
• The extension rod packing is duplex seal structure to provide the good seal result.

The power end uses the combined lubricating system of forced lubrication and splash lubrication.

1.2. The frame is made of welded steel plate and stress

• Relief treated to obtain the good rigidity and high strength. The place where the crankshaft bearing is fitted is strengthened by using ribbed plates. The frame is furnished with the necessary oil basin and oil way system for cooling and lubricating purpose.
• Our triplex and quintuplex pumps, cementing and fracturing equipments are interchangeable to global famous brands: Weir spm, Serva, BJ, Gardner Denver, Halliburton, Oilwell, OPI and so on. We make a full line of Module assy and fluid end expendables for popular mud pumps in the world, including continental Emsco, National, Gardner Denver, Oilwell, Ideco, Wheatly, Wilson,wirth, opi, Ellis Willianms, etc The main products are sold to USA, Middle Asia, Canada, Mexico, Middle East & Russia.

EMSCO (F350/500/650/800/1000/1300/1600)
GARDNER DENVER(PZ-7/8/9/10/11)
NATIONAL (7P-50, 8P-80, 9P100,10P-130,12P-160)
IDECO (T800/1000/1300/1600)
• OILWELL(A350/560/650/850/1100/1400/1700)

1.3. Crankshaft

• The crankshaft is made of casted alloy steel and furnished with herringbone gear, connecting rod and bearing. The tooth form of the big geared ring is herringbone gear. The gear bore and the crankshaft surface are interference fitted and they are both fastened with bolts and lock nuts. The big end of the connecting rod is mounted on three eccentric straps of the crankshaft through single row short cylindrical roller bearings and the small end on the crosshead pin through double row long cylindrical roller bearing. Double row radial spherical roller bearings are mounted at both endsl

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1.2. The frame

• The frame is made of welded steel plate and stress relief treated to obtain the good rigidity and high strength. The place where the crankshaft bearing is fitted is strengthened by using ribbed plates. The frame is furnished with the necessary oil basin and oil way system for cooling and lubricating purpose.

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• The crankshaft is made of casted alloy steel and furnished with herringbone gear, connecting rod and bearing. The tooth form of the big geared ring is herringbone gear. The gear bore and the crankshaft surface are interference fitted and they are both fastened with bolts and lock nuts. The big end of the connecting rod is mounted on three eccentric straps of the crankshaft through single row short cylindrical roller bearings and the small end on the crosshead pin through double row long cylindrical roller bearing. Double row radial spherical roller bearings are mounted at both ends of the crankshaft.

1.4. Pinion shaft

• The pinion shaft is made of forged alloy steel on
• which a herringbone gear with the medium-hard tooth surface is machined. For easy maintenance, the single row radial long cylindrical roller bearing with inner ring (without sides) is used. The both ends of the pinion shaft extend out, so that the sheave or the sprocket can be mounted on either end.
• Bonded Urethane Pistons, Bonded Rubber pistons, Bonded Urethane Triplex Pistons

1.5. Crosshead and Extension Rod

• The crosshead and crosshead guide are made of ASTM A48-83 meehanite cast iron featured by good abrasion resistance and long service life. Upper and lower guides are used for F-800 and F-1000 mud pumps, so that the concentricity can be adjusted by adding shimes beneath the lower guide. F-500 mud pump is the cylindrical structure. The connection between the crosshead and the extension rod is made by using bolted flange. The rigid connection ensures the concentricity of the crosshead and the extension rod. The coupling is used for connecting the extension rod to the piston rod. The light-weight coupling enables the extension rod and the piston rod to connect to each other easily and reliably.
• Power End Parts (pinion shaft and crank shaft and crosshead)

2. Fluid End (cylinders, valve assembly, liners and pistons)

2.1. Cylinders

• Cylinders are made of forged alloy steel, three cylinders of each pump are interchangeable. Valve-over-valve (through type cylinder) design reduces the cylinder volume and promote the volumetric efficiency. At customers' request, the cylinder surface may be nickel plated to improve the abrasion resistance.
• Discharge pulsation dampener, shear relief valve and discharge strainer are furnished at the outlet. F-500 pump suction inlet is fitted with 8"flange, F-500 pump suction inlet with 10"flange and F-1000 pump suction inlet with 12"flange.

2.2. Valve Assembly

• The suction valve and the discharge valve for above three mud pumps are interchangeable. F-500 mud pump uses API#5 valve pot, F-800 and F-1000 mud pumps use API#6 valve pots.
• High pressure valves and seats, stem-guided valves and cross-arms seats
• Three wing valves and full open seats
• Double Angle O-ring valves
• Standard plate type valves
• Four wing valves and full open seats
• Hydraulic valve seat puller and Head

2.3. Liner

• Bi-metal liners are used. The sleeve is made of wear-resistant cast iron, the surface hardness is HRC60-65. Therefore, liners feature wear resistance, corrosion resistance and high surface finish. Liners are put in from the cylinder cover bore in the front of the cylinder and fixed with liner cage, cylinder cover plug and cylinder cover when installing.
• Premium liners, Ceramic Liners, Chromium plated liners, Hardened Liners.
• EMSCO (F350/500/650/800/1000/1300/1600,FB1300/1600,FA1300/1600,FC2000,D375/700,DA700,DB550)
GARDNER DENVER(PZ-7/8/9/10/11)
NATIONAL (7P-50, 8P-80, 9P100,10P-130,12P-160,14P-220, N1300,C250/350,K380/500/700,E700,G1000,JWS400)
IDECO (T500/800/1000/1300/1600)
OILWELL(A350/560/650/850/1100/1400/1700)

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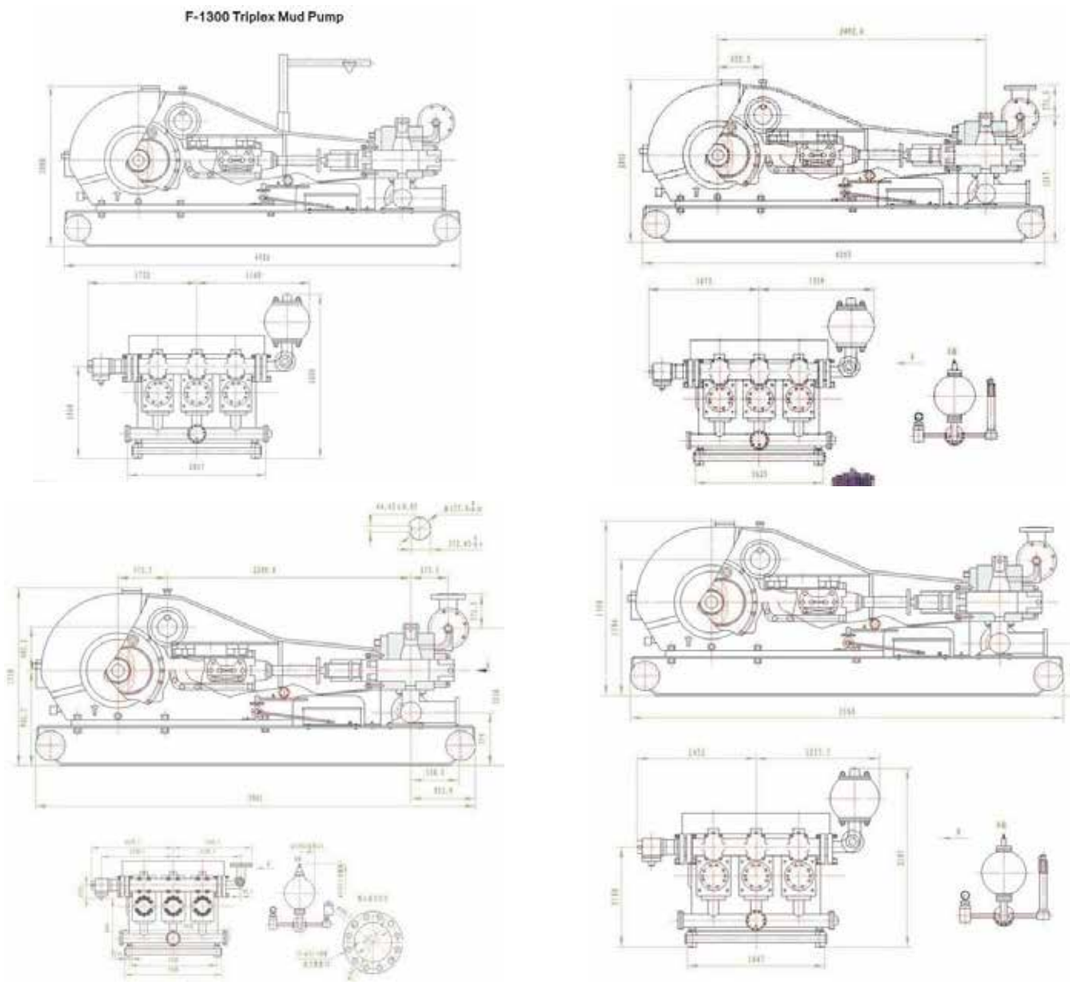
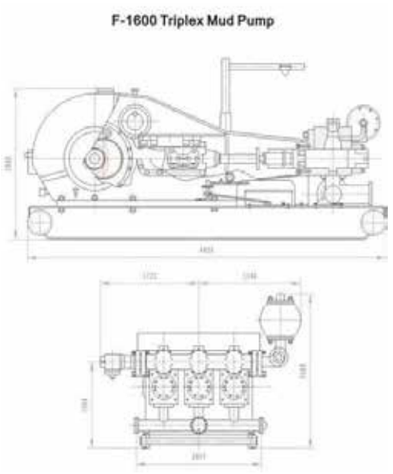
F-1300 Triplex Mud Pump



F-1600 Triplex Mud Pump



TTAAN-Performance table

Performance Data F-500 Pump

Strokes per minute	Rated Power		Liner size (mm) and Pressure Rating (MPa / psi)													
			170		160		150		140		130		120		110		100	
			9.3	95	10.5	107	11.9	122	13.7	140	15.9	162	18.6	190	22.2	226	26.8	273
	KW	HP	Displacement(L/S)															
170	379	515	36.75	36.75	32.56	32.56	28.61	28.61	24.93	24.93	21.49	21.49	18.31	18.31	15.39	15.39	12.72	12.72
165※	368	500	35.67	35.67	31.60	31.60	27.77	27.77	24.19	24.19	20.86	20.86	17.77	17.77	14.93	14.93	12.34	12.34
150	334	455	32.43	32.43	28.73	28.73	25.25	25.25	21.99	21.99	18.96	18.96	16.16	16.16	13.58	13.58	11.22	11.22
140	312	424	30.27	30.27	26.81	26.81	23.56	23.56	20.53	20.53	17.70	17.70	15.08	15.08	12.67	12.67	10.47	10.47
130	290	394	28.11	28.11	24.90	24.90	21.88	21.88	19.06	19.06	16.44	16.44	14.00	14.00	11.77	11.77	9.73	9.73
120	267	364	25.94	25.94	22.98	22.98	20.20	20.20	17.60	17.60	15.17	15.17	12.93	12.93	10.86	10.86	8.98	8.98
110	245	333	23.78	23.78	21.07	21.07	18.52	18.52	16.13	16.13	13.91	13.91	11.85	11.85	9.96	9.96	8.23	8.23
1			0.2162	0.2162	0.1915	0.1915	0.1683	0.1683	0.1466	0.1466	0.1264	0.1264	0.1077	0.1077	0.0905	0.0905		

Performance Data F-800 Pump

Strokes per minute	Rated Power		Liner size (mm) and Pressure Rating (MPa / psi)													
			170		160		150		140		130		120		110		100	
			13.6	139	15.4	157	17.5	178	20.1	205	23.3	237	27.3	278	32.5	331	34.3	350
	KW	HP	Displacement(L/S)															
160	627	853	41.51	41.51	36.77	36.77	32.32	32.32	28.15	28.15	24.27	24.27	20.68	20.68	17.38	17.38	14.36	14.36
150※	588	800	38.92	38.92	34.47	34.47	30.30	30.30	26.39	26.39	22.96	22.96	19.39	20.68	16.29	16.29	13.47	13.47
140	549	747	36.32	36.32	32.17	32.17	28.28	28.28	24.63	24.63	21.24	21.24	18.10	18.10	15.21	15.21	12.57	12.57
130	510	693	33.73	33.73	29.88	29.88	26.26	26.26	22.87	22.87	19.72	19.72	16.81	16.81	14.12	14.12	11.67	11.67
120	471	640	31.13	31.13	27.58	27.58	24.24	24.24	21.11	21.11	18.21	18.21	15.51	15.51	13.03	13.03	10.77	10.77
110	431	587	28.54	28.54	25.28	25.28	22.22	22.22	19.35	19.35	16.69	16.69	14.22	14.22	11.95	11.95	9.87	9.87
1			0.2594	0.2594	0.2298	0.2298	0.2020	0.2020	0.1759	0.1759	0.1517	0.1517	0.1293	0.1293	0.1086	0.1086	0.0898	0.0898

Performance Data F-1000 Pump

Strokes per minute	Rated Power		Liner size (mm) and Pressure Rating (MPa / psi)											
			170		160		150		140		130		120		110	
			16.4	167	18.5	189	21.1	215	24.2	247	28.0	286	32.9	336	34.3	350
	KW	HP	Displacement(L/S)													
150	788	1072	43.24	43.24	38.30	38.30	33.66	33.66	29.33	29.33	25.29	25.29	21.55	21.55	18.10	18.10
140※	735	1000	40.36	40.36	35.75	35.75	31.42	31.42	27.37	27.37	23.60	23.60	20.11	20.11	16.90	16.90
130	683	929	37.47	37.47	33.20	33.20	29.18	29.18	25.43	25.43	21.91	21.91	18.67	18.67	15.69	15.69
120	630	857	34.59	34.59	30.64	30.64	26.93	26.93	23.46	23.46	20.23	20.23	17.24	17.24	14.48	14.48
110	578	786	31.71	31.71	28.09	28.09	24.69	24.6	21.51	21.51	18.54	18.54	15.80	15.80	13.28	13.28
100	525	714	28.83	28.83	25.53	25.53	22.44	22.44	19.55	19.55	16.86	16.86	14.36	14.36	12.07	12.07
1			0.2883	0.2883	0.2553	0.2553	0.2244	0.2244	0.1955	0.1955	0.1686	0.1686	0.1436	0.1436	0.1207	0.1207

Performance Data F-1300 Pump

Strokes per minute	Rated Power		Liner size (mm) and Pressure Rating (MPa)											
			180		170		160		150		140		(130)	
			18.5	189	20.7	211	23.4	239	26.6	272	30.5	312	34.3	350
	KW	HP	Displacement(L/S)											
130	1036	1408	50.42	50.42	44.97	44.97	39.83	39.83	35.01	35.01	30.50	30.50	26.30	26.30
120※	956	1300	46.54	46.54	41.51	41.51	36.77	36.77	32.32	32.32	28.15	28.15	24.27	24.27
110	876	1192	54.66	54.66	38.05	38.05	33.71	33.71	29.62	29.62	25.81	25.81	22.25	22.25
100	797	1083	38.78	38.78	34.59	34.59	30.64	30.64	26.93	26.93	23.46	23.46	20.23	20.23
90	717	975	34.90	34.90	31.13	31.13	27.58	27.58	24.24	24.24	21.11	21.11	18.21	18.21
1			0.3878	0.3878	0.3459	0.3459	0.3064	0.3064	0.2693	0.2693	0.2346	0.2346	0.2023	0.2023

Performance Data F-1600 Pump

Strokes per minute	Rated Power		Liner size (mm) and Pressure Rating (MPa)											
			180		170		160		150		140		(130)	
			22.7	232	25.5	260	28.8	294	32.7	334	34.3	350	34.3	350
	KW	HP	Displacement(L/S)											
130	1275	1733	50.42	50.42	44.97	44.97	39.83	39.83	35.01	35.01	30.50	30.50	26.30	26.30
120※	1176	1600	46.54	46.54	41.51	41.51	36.77	36.77	32.32	32.32	28.15	28.15	24.27	24.27
110	1078	1467	54.66	54.66	38.05	38.05	33.71	33.71	29.62	29.62	25.81	25.81	22.25	22.25
100	980	1333	38.78	38.78	34.59	34.59	30.64	30.64	26.93	26.93	23.46	23.46	20.23	20.23
90	882	1200	34.90	34.90	31.13	31.13	27.58	27.58	24.24	24.24	21.11	21.11	18.21	18.21
1			0.3878	0.3878	0.3459	0.3459	0.3064	0.3064	0.2693	0.2693	0.2346	0.2346	0.2023	0.2023

Performance Data F- 2200 Pump

Strokes per minute	Rated Power		Liner size (mm) and Pressure Rating (MPa)									
			230	220	210	200	190	180	170	160	150	140
			19.0	20.8	22.8	25.1	27.9	31.0	34.5 （Max.）	34.5 （Max.）	34.5 （Max.）	34.5 （Max.）
	KW	HP	Displacement(L/S)									
*105	*1640	2200	77.65	71.05	64.73	58.72	52.99	47.56	42.42	37.58	33.03	28.77
90	1406	1886	66.56	60.90	55.49	50.33	45.42	40.77	36.36	32.21	28.31	24.66
80	1250	1676	59.16	54.13	49.32	44.74	40.37	36.24	32.32	28.63	25.16	21.92
70	1094	1467	51.76	47.36	43.16	39.14	35.33	31.71	28.28	25.05	22.02	19.18
60	937	1257	44.37	40.60	36.99	33.55	30.28	27.18	24.24	21.47	18.87	16.44
50	781	1048	36.97	33.83	30.83	27.96	25.23	22.65	20.20	17.89	15.73	13.70
1			0.7395	0.6766	0.6165	0.5592	0.5047	0.4530	0.4040	0.3579	0.3146	0.2740

NOTE: 1. Based on 100% Volumetric efficiency and 90% mechanical efficiency.
2. *Recommended strokes and input power for continuous service.
3. **When the working pressure exceeds 34.5 MPa, the plunger structure is used.

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TORONTECH™

CATALOGUE

2014

TTAAN-Series of Triplex Mud Pumps

PRODUCT BROCHURE

TORONTECH™ PUMPS

TORONTECH.COM

TORONTECH™

Torontech™ is a leading North American based international manufacturer and supplier of pumps, pipes, valves & actuators. The Torontech™ group has established an extensive network in the USA as well as international markets and remains to be a preferred vendor of choice supplying quality pumps for today's leading corporations.

Creating comprehensive solutions for our clients has always been the core value of our company. From sales, to order execution, and post-sales support; every staff member is here to assist you in selecting the solution that best suits your unique requirements and budget.

The Torontech™ group offers a complete range of quality pumps that are,ANSI to ISO approved and engineered to last, ensuring your company continuous production without interruptions.

Since the beginning, we have succeeded in only offering quality manufactured pumps that are currently being used worldwide. We offer the best value for your investment and provide world-class support.

Due to the demand for our quality pumps, Torontech™ has experience explosive growth primarily in the oil & gas, water filtration and chemical refinery industries.

We offer an extensive range of solutions and products for oil & gas projects, refineries, petrochemical plants, and marine applications. Our main class of pumps includes API (American Petroleum Institute) Standard, Mining, Water & Sewage and Firefighting applications. The pumps are offered in various configurations depending on orientation of the pump, required head and type of fuel used for operation.

TORONTECH™

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