

Drilling Mud Pumps

CNPC has 40 years' experience in designing and manufacturing mud pumps and is the one with the most varieties and manufactures the largest quantities of the mud pumps in the world so far.

Authorized by LTV Co. of U.S. to manufacture F-500, F-800 and F-1000 mud pumps. In order to meet the drilling technology requirements for high pump pressure and large displacement in oilfields, designed and manufactured F-1300, F-1600, F-1600L, F-2200 and F-2200 mud pumps with large power and F-1600HL, F-2200HL high pump pressure based on the said three kinds F-series mud pumps that formed complete F-series single acting triplex mud pumps. In recent years, we designed F1-800, F1-1600 light weight series mud pumps and QDP-3000 large power five cylinder mud pumps.

CNPC mud pumps are famous for advanced technology, reliable quality and extraordinary performance which are approved by the customer domestic and abroad. Our mud pumps have been exported to dozens of countries and areas, such as Pakistan, Kazakhstan, Mexico, Indonesia, Uzbekistan, Turkmenistan, U.K., USA and Canada, etc which are equipped most for the rigs and exported most. We have got praises such as first brand of customer satisfying in Chinese market, Chinese annual top ten brand in the overall market (for oilfield mechanism), New record of company in China, Brand name in petroleum and petro chemistry in China etc.

Technical Features

- F-1300, F-1600, F-1300L and F-1600L mud pump has a Max. Pump pressure of 34.5MPa(5000Psi) and a displacement of 46.5L/S with a liner of $\Phi 180\text{mm}$. These two models are the first choice for the medium and deep drilling rig as an assorted component.
- F-1600HL, F-2200HL mud pump with high-power and high-pressure are developed to meet the drilling technology requirements of the offshore deep-water and terrestrial and horizontal well, especially desert areas.
- F1-800, F1-1600 light-weight series mud pumps are newly designed. Compared with same power F series mud pumps, the advance of less volume and weight which are appropriate for the rigs work in swamp and helicopter-lifting rigs.
- QDP-3000 five cylinders mud pump with large power, high pressure, big displacement, small size, light weight, especially suits for offshore platform and drill ship.



F-series Mud Pumps

F-series mud pumps include power end, fluid end, spraying system, lubricating system and charging system.

A1. Power End

Power end features:

- Continuous tooth herringbone gear.
- The crankshaft is made by alloy steel.
- Changeable 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.



A2. Fluid End

Fluid end features:

- Each sealing part adopts rigidity compaction and has good high pressure tightness;
- Vertical fluid end features good suction performance;
- L fluid end features high pressure resistance, convenient for replacing the valve assembly ;
- Discharge damper ,shear relief valve and discharge filter are fitted at the discharge outlet.

1. Cylinders

Cylinders are made of forged alloy steel, three cylinders of each pump are interchangeable. At customers're-quest, the cylinder surface may be nickel plated to improve the abrasion resistance.

2. Valve Assembly

The suction valve and the discharge valve for F-series mud pumps are interchangeable. F-500 mud pump uses API#5 valve. F-800 and F-1000 mud pumps use API#6 valve. F-1300 , F-1600, F-1600L and F-1600HL mud pumps use API#7 valve. F-2200L and F-2200HL mud pumps use API#8 valve .

3. Liners

Bi-metal liners are used. The sleeve is made of wear-resistant cast iron, liners feature wear resistance, corrosion resistance.

F-1600HL and F-2200HL mud pumps can choose ceramic liners in order to improve service life.

4. Pistons and Piston Rods

They are slide fitted, sealed with rubber seal ring and finally fastened with lock nuts to prevent the piston from looseness and to play a role in sealing.

5. plunger

Fluid end, liners, pistons, valves, valve seats, valve springs, seal rings and gasket ,valve cover and cylinder head of fluid end assembly for F-800 and F-1000 mud pumps are interchangeable.

Fluid end assemblies of F-1300 and F-1600 mud pump are interchangeable. Fluid end assemblies of F-1300HL and F-1600HL mud pump are interchangeable, too.



A3.Spraying System

The spraying system consists mainly of spray pump, cooling water box, and spray pipe, the function is to cool and flush liners and pistons to improve their service life. The centrifugal spray pump can be driven by a sheave mounted on the input shaft extension end or a separate motor and cooled and lubricated by water.

The spray pipe is mounted on the coupling between the extension rod and the piston rod and can reciprocate with the piston. Nozzles is near the piston end so that the lubricating-cooling fluid can rinse the contact surface between the piston and liner all the time. The durable fixed spray pipe may be used, too.

A4.Lubricating System

The power end uses the combined lubricating system of forced lubrication and splash lubrication. The pressure oil is conveyed through lubricating pipeline, crosshead, Intermediate rod and all bearings by a gear oil pump within the oil box to realize the forced lubrication. The working condition of the gear oil pump may be understood from the pressure gauge behind the frame.

A5.Charging System

To prevent the air lock occurring for low pump inlet pressure, every mud pump is furnished with a complete charging system. It consists of charging pump, pump base, butterfly valve and corresponding manifold. Mounted on the suction manifold of the mud pump, the charging pump is driven by the special purpose motor or the input shaft of the mud pump through V-belts to reduce the power consumption.

A6、 Technical Parameter

Model	F-500	F-800	F-1000	F-1300
Type	Triplex single acting piston	Triplex single acting piston	Triplex single acting piston	Triplex single acting piston
Max.Liner size × stroke	170 × 191mm (6 3/4" × 7.5")	170 × 229mm (6 3/4" × 9")	170 × 254mm (6 3/4" × 10")	180 × 305mm (7" × 12")
Strokes Rating	165 r/min	150 r/min	140 r/min	120 r/min
Power Rating	373kW (500HP)	597kW (800HP)	746kW (1000HP)	969kW (1300HP)
Gear type	herringbone gear	herringbone gear	herringbone gear	herringbone gear
Gear ratio	4.286:1	4.185:1	4.207:1	4.206:1
Lubricating	Forced and splashing	Forced and splashing	Forced and splashing	Forced and splashing
Suction Inlet Flange	8" Flange (203mm Approx)	10" Flange (254mm Approx)	12" Flange (305mm Approx)	12" Flange (305mm Approx)
Discharge Outlet Flange	4" Flange, 5000psi	5" Flange, 5000 psi	5" Flange, 5000 psi	5" Flange, 5000 psi
Pinion Shaft Dia.	139.7mm (5 1/2")	177.8mm (7")	196.9mm (7 3/4")	215.9mm (8 1/2")
Key	31.75 × 31.75mm (1 1/4" × 1 1/4")	44.45 × 44.45mm (1 3/4" × 1 3/4")	50.8 × 50.8mm (2" × 2")	50.8 × 50.8mm (2" × 2")
Valve Pots	Valve-Over-Valve, API #5	Valve-Over-Valve, API #6	Valve-Over-Valve, API #6	Valve-Over-Valve, API #7
Approx Weight	9770kg (21540lb)	14500kg (31970lb)	18790kg (41420lb)	24572kg (54170lb)

Model	F-1600/1600L	F-1600HL	F-2200	F-2200HL
Type	Triplex single acting piston	Triplex single acting plunger piston	Triplex single acting piston	Triplex single acting plunger piston
Max.Liner size × stroke	180 × 305mm (7" × 12")	190 × 305mm (7 1/2" × 12")	230 × 356mm (9" × 14")	230 × 356mm (9" × 14")
Strokes Rating	120 r/min	120 r/min	105 r/min	105 r/min
Power Rating	1193kW (1600HP)	1193kW (1600HP)	1640kW (2200HP)	1640kW (2200HP)
Gear type	herringbone gear	herringbone gear	herringbone gear	herringbone gear
Gear ratio	4.206:1	4.206:1	3.512:1	3.512:1
Lubricating	Forced and splashing	Forced and splashing	Forced and splashing	Forced and splashing
Suction Inlet Flange	12" Flange (305mm Approx)	12" Flange (305mm Approx)	12" Flange (305mm Approx)	12" Flange (305mm Approx)
Discharge Outlet Flange	5" Flange, 5000 psi	5" Flange, 10000psi	5" Flange, 5000 psi	5" Flange, 10000 psi
Pinion Shaft Dia	215.9mm (8 1/2")	215.9mm (8 1/2")	254mm (10")	254196.9mm (10")
Key	50.8 × 50.8mm (2" × 2")	50.8 × 50.8mm (2" × 2")	63.5 × 44.45mm (2 1/2" × 1 3/4")	63.5 × 44.45mm (2 1/2" × 1 3/4")
Valve Pots	Valve-Over-Valve, API #7/L type, API #7	L type, API #7	Valve-Over-Valve, API #8	L type, API #8
Approx Weight	27020kg /26030kg	29400kg (64820lb)	38460kg (84790lb)	43080kg (94980lb)

A7、Specifications

Performance Data of F-500 Pump

Strokes per minute	Rated Power		Liner size(mm) and Pressure Rating MPa(psi)															
			170		160		150		140		130		120		110		100	
	kW	HP	9.4	1365	10.6	1540	12.1	1750	13.9	2010	16.1	2335	18.9	2740	22.5	3260	27.2	3945
	Displacement L/s (GPM)																	
170	384	515	36.75 (582)	32.56 (516)	28.61 (453)	24.93 (395)	21.49 (340)	18.31 (290)	15.39 (244)	12.72 (201)								
*165	373	500	35.67 (565)	31.60 (501)	27.77 (440)	24.19 (383)	20.86 (330)	17.77 (281)	14.93 (236)	12.34 (195)								
150	339	455	32.43 (514)	28.73 (455)	25.25 (400)	21.99 (348)	18.96 (300)	16.16 (256)	13.58 (215)	11.22 (178)								
140	316	424	30.27 (480)	26.81 (425)	23.56 (373)	20.53 (325)	17.70 (280)	15.08 (239)	12.67 (201)	10.47 (166)								
130	294	394	28.11 (445)	24.90 (394)	21.88 (347)	19.06 (302)	16.44 (260)	14.00 (222)	11.77 (186)	9.73 (154)								
120	271	364	25.94 (411)	22.98 (364)	20.20 (320)	17.60 (279)	15.17 (240)	12.93 (205)	10.86 (172)	8.98 (142)								
110	249	333	23.78 (377)	21.07 (334)	18.52 (293)	16.13 (255)	13.91 (220)	11.85 (188)	9.96 (158)	8.23 (130)								
1			0.2162 (3.427)	0.1915 (3.036)	0.1683 (2.668)	0.1466 (2.324)	0.1264 (2.004)	0.1077 (1.707)	0.0905 (1.435)	0.0748 (1.186)								

Note:

1. Performance data are calculated by 100% volumetric efficiency and 90% mechanical efficiency.
2. The * present the recommended stroke numbers of pump and the input power when it continuous running.

Performance Data of F-800 Pump

Strokes per minute	Rated Power		Liner size(mm) and Pressure Rating MPa(psi)																	
			170		160		150		140		130		120		110		100			
	kW	HP	13.8	2000	15.6	2260	17.7	2570	20.3	2950	23.6	3420	27.7	4015	33.0	4780	34.5	5000		
			Displacement L/s (GPM)																	
160	636	853	41.51 (658)	36.77 (583)	32.32 (512)	28.15 (446)	24.27 (385)	20.68 (328)	17.38 (275)	14.36 (227)										
*150	596	800	38.92 (617)	34.47 (546)	30.30 (480)	26.39 (418)	22.76 (360)	19.39 (307)	16.29 (258)	13.47 (213)										
140	557	747	36.32 (575)	32.17 (510)	28.28 (448)	24.63 (390)	21.24 (336)	18.10 (287)	15.21 (241)	12.57 (199)										
130	517	693	33.73 (534)	29.88 (473)	26.26 (416)	22.87 (362)	19.72 (312)	16.81 (266)	14.12 (224)	11.67 (185)										
120	477	640	31.13 (493)	27.58 (437)	24.24 (384)	21.11 (334)	18.21 (288)	15.51 (246)	13.03 (206)	10.77 (171)										
110	437	587	28.54 (452)	25.28 (400)	22.22 (352)	19.35 (307)	16.69 (264)	14.22 (225)	11.95 (189)	9.87 (156)										
1			0.2594 (4.112)	0.2298 (3.643)	0.2020 (3.202)	0.1759 (2.789)	0.1517 (2.405)	0.1293 (2.049)	0.1086 (1.722)	0.0898 (1.423)										

Note:

1. Performance data are calculated by 100% volumetric efficiency and 90% mechanical efficiency.
2. The * present the recommended stroke numbers of pump and the input power when it continuous running.

Performance Data of F-1000 Pump

Strokes per minute	Rated Power		Liner size(mm) and Pressure Rating MPa(psi)																	
			170		160		150		140		130		120		110					
	kW	HP	16.6	2410	18.8	2725	21.4	3100	24.5	3555	28.4	4125	33.4	4840	34.5	5000				
			Displacement L/s (GPM)																	
150	799	1071	43.24 (685)	38.30 (607)	33.66 (533)	29.33 (465)	25.29 (401)	21.55 (341)	18.10 (287)											
*140	746	1000	40.36 (639)	35.75 (566)	31.42 (498)	27.37 (434)	23.60 (374)	20.11 (318)	16.90 (268)											
130	692	929	37.47 (594)	33.20 (526)	29.18 (462)	25.42 (403)	21.91 (347)	18.67 (296)	15.69 (248)											
120	639	857	34.59 (548)	30.64 (485)	26.93 (427)	23.46 (372)	20.23 (320)	17.24 (273)	14.48 (229)											
110	586	786	31.71 (502)	28.09 (445)	24.69 (391)	21.51 (341)	18.54 (294)	15.80 (250)	13.28 (210)											
100	533	714	28.83 (457)	25.53 (404)	22.44 (355)	19.55 (310)	16.86 (267)	14.36 (227)	12.07 (191)											
1			0.2883 (4.569)	0.2553 (4.047)	0.2244 (3.557)	0.1955 (3.099)	0.1686 (2.672)	0.1436 (2.277)	0.1207 (1.913)											

Note:

1. Performance data are calculated by 100% volumetric efficiency and 90% mechanical efficiency.
2. The * present the recommended stroke numbers of pump and the input power when it continuous running.

Performance Data of F-1300、F-1600 and F-1600L Pump

Strokes per minute	Liner size(mm) and Pressure Rating MPa(psi)													
			180		170		160		150		140		130	
	F-1300		18.7	2720	21.0	3050	23.7	3440	27.0	3915	31.0	4495	34.5	5000
	F-1600/1600L		23.1	3345	25.9	3750	29.2	4235	33.2	4820	34.5	5000	34.5	5000
	Rated Power				Displacement L/s (GPM)									
	F-1300		F-1600/1600L											
kW	HP	kW	HP											
130	1050	1408	1293	1733	50.42 (799)	44.97 (713)	39.83 (631)	35.01 (555)	30.50 (483)	26.30 (417)				
*120	969	1300	1193	1600	46.54 (737)	41.51 (658)	36.77 (583)	32.32 (512)	28.15 (446)	24.27 (385)				
110	889	1192	1094	1467	42.66 (676)	38.05 (603)	33.71 (534)	29.62 (469)	25.81 (409)	22.25 (352)				
100	808	1083	994	1333	38.78 (614)	34.59 (548)	30.64 (485)	26.93 (427)	23.46 (372)	20.23 (320)				
90	727	975	895	1200	34.90 (553)	31.13 (493)	27.58 (437)	24.24 (384)	21.11 (334)	18.21 (288)				
1					0.3878 (6.147)	0.3459 (5.483)	0.3064 (4.857)	0.2693 (4.269)	0.2346 (3.719)	0.2023 (3.206)				

Note:

1. Performance data are calculated by 100% volumetric efficiency and 90% mechanical efficiency.
2. The * present the recommended stroke numbers of pump and the input power when it continuous running.

Performance Data of F-1600HL Pump

Strokes per minute	Rated Power		Liner size(mm) and Pressure Rating MPa(psi)							
			190	180	170	160	150	**140	**130	**120
	kW	HP	20.7 (3005)	23.1 (3345)	25.9 (3750)	29.2 (4235)	33.2 (4820)	38.1 (5530)	44.2 (6415)	51.9 (7500)
			Displacement L/s (GPM)							
130	1293	1733	56.17 (890)	50.42 (799)	44.97 (713)	39.83 (631)	35.01 (555)	30.50 (483)	26.30 (417)	22.41 (355)
*120	*1193	1600	51.85 (822)	46.54 (737)	41.51 (658)	36.77 (583)	32.32 (512)	28.15 (446)	24.27 (385)	20.68 (328)
110	1094	1467	47.53 (753)	42.66 (676)	38.05 (603)	33.71 (534)	29.62 (469)	25.81 (409)	22.25 (352)	18.96 (300)
100	994	1333	43.21 (685)	38.78 (614)	34.59 (548)	30.64 (485)	26.93 (427)	23.46 (372)	20.23 (320)	17.24 (273)
90	895	1200	38.89 (614)	34.90 (553)	31.13 (493)	27.58 (437)	24.24 (384)	21.11 (334)	18.21 (288)	15.51 (246)
80	795	1067	34.56 (548)	31.02 (492)	27.67 (438)	24.51 (388)	21.54 (341)	18.77 (297)	16.18 (256)	13.79 (218)
1			0.4321 (6.849)	0.3878 (6.147)	0.3459 (5.483)	0.3064 (4.857)	0.2693 (4.269)	0.2346 (3.719)	0.2023 (3.206)	0.1724 (2.732)

Note:

1. Performance data are calculated by 100% volumetric efficiency and 90% mechanical efficiency.
2. The * present the recommended stroke numbers of pump and the input power when it continuous running.

Performance Data of F-2200 Pump

Strokes per minute	Rated Power		Liner size(mm) and Pressure Rating MPa(psi)									
			230	220	210	200	190	180	170	160	150	140
	kW	HP	19.0 (2760)	20.8 (3015)	22.8 (3310)	25.1 (3645)	27.9 (4040)	31.0 (4505)	34.5 (5000)	34.5 (5000) (Max.)	34.5 (5000) (Max.)	34.5 (5000) (Max.)
Displacement L/s (GPM)												
*105	*1640	2200	77.65 (1231)	71.05 (1126)	64.73 (1026)	58.72 (931)	52.99 (840)	47.56 (754)	42.42 (672)	37.58 (596)	33.03 (524)	28.77 (456)
90	1406	1886	66.56 (1055)	60.90 (965)	55.49 (880)	50.33 (798)	45.42 (720)	40.77 (646)	36.36 (576)	32.21 (511)	28.31 (449)	24.66 (391)
80	1250	1676	59.16 (938)	54.13 (858)	49.32 (782)	44.74 (709)	40.37 (640)	36.24 (574)	32.32 (512)	28.63 (454)	25.16 (399)	21.92 (347)
70	1094	1467	51.76 (820)	47.36 (751)	43.16 (684)	39.14 (620)	35.33 (560)	31.71 (503)	28.28 (448)	25.05 (397)	22.02 (349)	19.18 (304)
60	937	1257	44.37 (703)	40.60 (644)	36.99 (586)	33.55 (532)	30.28 (480)	27.18 (431)	24.24 (384)	21.47 (340)	18.87 (299)	16.44 (261)
50	781	1048	36.97 (586)	33.83 (536)	30.83 (489)	27.96 (443)	25.23 (400)	22.65 (359)	20.20 (320)	17.89 (284)	15.73 (249)	13.70 (217)
1			0.7395 (11.72)	0.6766 (10.72)	0.6165 (9.772)	0.5592 (8.863)	0.5047 (8.000)	0.4530 (7.180)	0.4040 (6.404)	0.3579 (5.673)	0.3146 (4.986)	0.2740 (4.343)

Note:

1. Performance data are calculated by 100% volumetric efficiency and 90% mechanical efficiency.
2. The * present the recommended stroke numbers of pump and the input power when it continuous running.

Performance Data of F-2200HL Pump

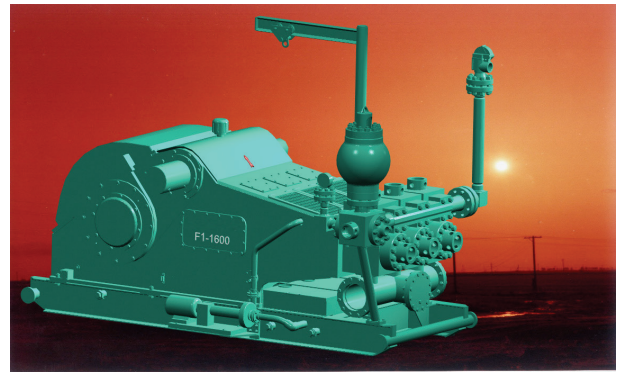
Strokes per minute	Rated Power		Liner size(mm) and Pressure Rating MPa(psi)										
			230	220	210	200	190	180	170	**160	**150	**140	**130
	kW	HP	19.0 (2760)	20.8 (3015)	22.8 (3310)	25.1 (3645)	27.9 (4040)	31.0 (4505)	34.8 (5050)	39.3 (5700)	44.7 (6485)	51.3 (7445)	52.0 (7500) (Max.)
Displacement L/s (GPM)													
*105	*1640	2200	77.65 (1231)	71.05 (1126)	64.73 (1026)	58.72 (931)	52.99 (840)	47.56 (754)	42.42 (672)	37.58 (596)	33.03 (524)	28.77 (456)	24.81 (393)
90	1406	1886	66.56 (1055)	60.90 (965)	55.49 (880)	50.33 (798)	45.42 (720)	40.77 (646)	36.36 (576)	32.21 (511)	28.31 (449)	24.66 (391)	21.26 (337)
80	1250	1676	59.16 (938)	54.13 (858)	49.32 (782)	44.74 (709)	40.37 (640)	36.24 (574)	32.32 (512)	28.63 (454)	25.16 (399)	21.92 (347)	18.90 (300)
70	1094	1467	51.76 (820)	47.36 (751)	43.16 (684)	39.14 (620)	35.33 (560)	31.71 (503)	28.28 (448)	25.05 (397)	22.02 (349)	19.18 (304)	16.54 (262)
60	937	1257	44.37 (703)	40.60 (644)	36.99 (586)	33.55 (532)	30.28 (480)	27.18 (431)	24.24 (384)	21.47 (340)	18.87 (299)	16.44 (261)	14.18 (225)
50	781	1048	36.97 (586)	33.83 (536)	30.83 (489)	27.96 (443)	25.23 (400)	22.65 (359)	20.20 (320)	17.89 (284)	15.73 (249)	13.70 (217)	11.81 (187)
1			0.7395 (11.72)	0.6766 (10.72)	0.6165 (9.772)	0.5592 (8.863)	0.5047 (8.000)	0.4530 (7.180)	0.4040 (6.404)	0.3579 (5.673)	0.3146 (4.986)	0.2740 (4.343)	0.2363 (3.745)

Note:

1. Performance data are calculated by 100% volumetric efficiency and 90% mechanical efficiency.
2. The * present the recommended stroke numbers of pump and the input power when it continuous running.

F1 –Series Drilling Mud Pumps

F1-series drilling mud pumps include power end, fluid end, spraying system, lubricating system and charging system. It has light weight and small volume characters.



I . Power End

Technical features

- Continuous tooth herringbone gear, the gear grinding is carburizing and hardening, which improves the ability of corrosion resistant.
- Furnished with block-type & complete machining crankshaft with advantages of excellent equitability, smooth running and lower vibration & noise.
- The main shaft base uses the “non-cap” structure, which can changes the force condition of bolts in main shaft, and improves the reliability.
- The replaceable cross head guide, and the cross head adopts spraying special metal;
- The frame is made of welded steel plate to provide the frame with high strength, good rigidity and light weight;
- Double sealing structure for extension rod provides good sealing.
- The power end uses the combined lubricating system of forced lubrication and splash lubrication.

II . Fluid End

Technical features

- Each sealing part adopts rigidity compaction and has good high pressure tightness;
- Vertical fluid end features good suction performance;
- Discharge damper, shear relief valve and five way discharge are fitted at the discharge outlet.

III . Spraying System

This system mainly consists of spraying pump, cooling water tank and spraying pipe. The function is to cool and wash the liner and piston so as to prolong their service life.

The centrifugal spray pump is driven by a separate motor and cooled and lubricated by water.

IV Lubricating System

The power end uses the combined lubricating system of forced lubrication and splash lubrication. The pressure oil is conveyed through lubricating pipeline, crosshead, Intermediate rod and all bearings by a gear oil pump within the outside of frame to realize the forced lubrication. The working condition of the gear oil pump may be understood from the pressure gauge behind the frame.

V Charging System

To prevent the air lock occurring for low pump inlet pressure, every mud pump is furnished with a complete charging system. It consists of charging pump, pump base, butterfly valve and corresponding manifold. The charging pump is driven by an independent motor and mounted on the suction manifold of the mud pump.

VI. Specifications

Model	F1-800	F1-1600
Type	Triplex single acting piston	Triplex single acting piston
Max. Liner size × strength	170 × 216mm (6 3/4" × 8.5")	180 × 280mm (7" × 11")
Strokes rating	160 r/min	130 r/min
Power Rating	597kW (800 hp)	1193kW (1600 hp)
Type of gear	Herringbone gear	Herringbone gear
Gear ratio	3.3143:1	3.7381:1
Lubrication	Forcing and splashing	Forcing and splashing
Suction inlet	8" flange (203mm)	10" flange (254mm)
Discharge outlet	4" Flange, 5000 psi	4" Flange, 5000 psi
Pinion Shaft Dia.	177.8mm (7")	215.9mm (8-1/2")
Key	44.45 × 44.45mm (1 3/4" × 1 3/4")	50.8 × 50.8mm (2" × 2")
Valve Pots	valve-over-valve, API #6	valve-over-valve, API #7
Approx. Weight	11536kg (25430lb)	20700kg (45635lb)

VII. Performance Data:

Performance data of F1-800:

Stroke per minute rpm	Power Rating		Liner Size (mm) & pressure Rating (MPa,psi)							
			170	160	150	140	130	120	110	100
	kW	hp	13.7	15.5	17.6	20.2	23.4	27.5	32.7	34.5
			1985	2240	2550	2925	3395	3985	4740	5000
Displacement L/S										
160*	597*	800*	39.22	34.74	30.54	26.60	22.94	19.54	16.42	13.57
150	559	750	36.77	32.57	28.63	24.94	21.50	18.32	15.40	12.72
140	522	700	34.32	30.40	26.72	23.28	20.07	17.10	14.37	11.88
130	485	650	31.87	28.23	24.81	21.61	18.64	15.88	13.34	11.03
120	447	600	29.42	26.06	22.90	19.95	17.20	14.66	12.32	10.18
1			0.2451	0.2171	0.1909	0.1663	0.1434	0.1221	0.1026	0.0848

Note:

1. Performance data are calculated by 100% volumetric efficiency and 90% mechanical efficiency.
2. The * present the recommended stroke numbers of pump and the input power when it continuous running.

Performance Data of F1-1600

Stroke per minute r/min	Power Rating		Liner Size(mm) & pressure Rating (MPa, psi)				
			180	170	160	150	140
	kW	hp	23.2	26.0	29.3	33.4	34.5
			3365	3770	4255	4840	5000
Displacement L/s							
130*	1193	1600	46.31	41.31	36.59	32.16	28.02
120	1101	1477	42.75	38.13	33.78	29.69	25.86
110	1009	1354	39.19	34.95	30.96	27.21	23.71
100	917	1231	35.63	31.78	28.15	24.74	21.55
90	826	1108	32.06	28.60	25.33	22.27	19.40
80	734	985	28.50	25.42	22.52	19.79	17.24

Note:

1. Performance data are calculated by 100% volumetric efficiency and 90% mechanical efficiency.
2. The * present the recommended stroke numbers of pump and the input power when it continuous running.



QDP-3000 Drilling Mud Pump and Pump Unit

QDP-3000 five Cylinders mud pumps include power end, fluid end, spraying system, lubricating system

QDP-3000 mud pumps include AC motor, gearbox and five Cylinders pump

Performance features:

- High-power, Large displacement, High pressure.
- Displacement and discharge pressure evenly.
- Small size and light weight,

Structural characters

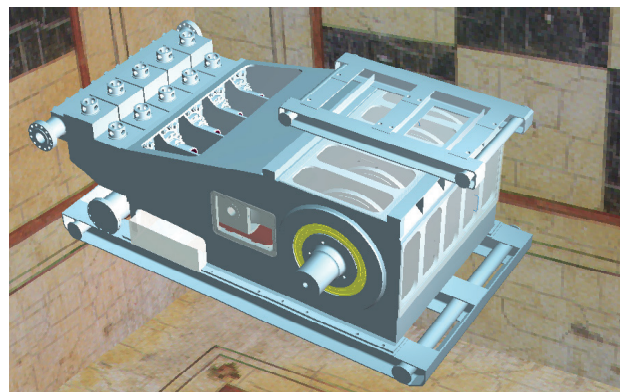
· Drilling mud pump or pump unit adopts modular design, disassembly and moving easily.

· The full processing forged crankshafts have light unbalanced weight , running even, multi-point support and high strength characters.

· In order to reduces the eccentric wear of the partial cylinder liner, joint bearings are used between the crosshead and extension rod. The crosshead surface is sprayed babbitt metal to improve allowable specific pressure and allowable speed.

· The new type hydraulic cylinder reduces its weight, improves suction performance and replaces the suction valve easily.

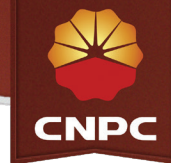
· The main pressure parts of fluid end all adopt alloy steel forgings. “No welding , no casting” design improves their reliability.



QDP-3000 Drilling Mud Pump Basic Parameters

Specifications

Model	QDP-3000					
Rated input power	2237 kW(3000 hp)					
strokes	300mm					
Rated stroke number	117r/min					
Cylinder diameter, mm	φ 130	φ 140	φ 150	φ 160	φ 170	φ 180
The maximum number of stroke, r/min	166	154	144	135	127	120
The maximum discharge pressure, MPa	51.9	44.7	39.0	34.2	30.3	27.0
Maximum Displacement	55.08	59.27	63.62	67.86	72.07	76.34
Rated Rod Load	688, 338 N					
Diameter of suction pipe	305 mm (12 inch)					
Discharge tube diameter	130 mm (51/8" API 10000psi Flange)					
Single Pump Weight	41,018kg					
Pump unit weight	57,695 kg					



Performance Data

Specifications $\phi 130 \times 300 \text{mm}$

Stroke r/min		60	70	80	90	100	110	117**	127	135	144	154	166
Pressure	MPa	51.9	51.9	51.9	51.9	51.9	51.9	51.9	47.8	44.9	42.1	39.4	36.5
	psi	7520	7520	7520	7520	7520	7520	7520	6929	6518	6111	5714	5301
Displacement	L/s	19.91	23.23	26.55	29.86	33.18	36.50	38.82	42.14	44.80	47.78	51.10	55.08
	GPM	316	368	421	473	526	579	615	668	710	757	810	837
Power	kW	1147	1338	1530	1720	1912	2103	2237	2237	2237	2237	2237	2237
	hp	1538	1795	2051	2308	2564	2821	3000	3000	3000	3000	3000	3000

Specifications $\phi 140 \times 300 \text{mm}$

Stroke per minute		60	70	80	90	100	110	117**	127	135	144	154
Pressure	MPa	44.7	44.7	44.7	44.7	44.7	44.7	44.7	41.2	38.8	36.3	34.0
	psi	6483	6483	6483	6483	6483	6483	6483	6323	5974	5620	4927
Displacement	L/s	23.09	26.94	30.79	34.64	38.48	42.33	45.03	48.88	51.95	55.42	59.27
	GPM	366	427	488	549	610	671	714	775	823	878	939
Power	kW	1147	1338	1530	1721	1912	2103	2237	2237	2237	2237	2237
	hp	1538	1795	2051	2308	2564	2821	3000	3000	3000	3000	3000

Specifications $\phi 150 \times 300 \text{mm}$

Stroke r/min		60	70	80	90	100	110	117**	127	135	144
Pressure	MPa	39.0	39.0	39.0	39.0	39.0	39.0	39.0	35.9	33.8	31.6
	psi	5656	5656	5656	5656	5656	5656	5656	5204	4896	4590
Displacement	L/s	26.51	30.93	35.34	39.76	44.18	48.60	51.69	56.11	59.64	63.62
	GPM	420	490	560	630	700	770	819	889	945	1008
Power	kW	1147	1338	1530	1721	1912	2103	2237	2237	2237	2237
	hp	1538	1795	2051	2308	2564	2821	3000	3000	3000	3000

Specifications $\phi 160 \times 300 \text{mm}$

Stroke r/min		60	70	80	90	100	110	117**	127	135
Pressure	MPa	34.2	34.2	34.2	34.2	34.2	34.2	34.2	31.5	29.7
	psi	4960	4960	4960	4960	4960	4960	4960	4574	4303
Displacement	L/s	30.16	35.19	40.21	45.24	50.27	55.29	58.81	63.84	67.86
	GPM	478	558	637	717	797	876	932	1012	1076
Power	kW	1147	1338	1530	1721	1912	2103	2237	2237	2237
	hp	1538	1795	2051	2308	2564	2821	3000	3000	3000

Specifications $\phi 170 \times 300$ mm

Stroke r/min		60	70	80	90	100	110	117**	127
Pressure	MPa	30.3	30.3	30.3	30.3	30.3	30.3	30.3	27.9
	psi	4399	4399	4399	4399	4399	4399	4399	4052
Displacement	L/s	34.05	39.72	45.40	51.07	56.74	62.42	66.39	72.07
	GPM	540	630	720	809	899	989	1052	1142
Power	kW	1147	1338	1530	1721	1912	2103	2237	2237
	hp	1538	1795	2051	2308	2564	2821	3000	3000

Specifications $\phi 180 \times 300$ mm

Stroke r/min		60	70	80	90	100	110	117**	120
Pressure	MPa	27.0	27.0	27.0	27.0	27.0	27.0	27.0	26.4
	psi	3923	3923	3923	3923	3923	3923	3923	3825
Displacement	L/s	38.17	44.53	50.89	57.26	63.62	69.98	74.43	76.34
	GPM	605	706	807	908	1008	1109	1180	1210
Power	kW	1147	1338	1530	1721	1912	2103	2237	2237
	hp	1538	1795	2051	2308	2564	2821	3000	3000

Note:

1. Performance data are calculated by 100% volumetric efficiency and 90% mechanical efficiency.
2. The present the recommended stroke numbers of pump and the input power when it continuous running.
3. Pump rated stroke 117s/min, when the stroke less than the number of ratings, it can reach the highest levels of discharge under the pressure of cylinder; when the impulse is greater than the number of ratings, the displacement increased, but the discharge pressure drops.
4. Exceed the maximum number of stroke not recommended to use, to meet the requirements under the premise of working pressure is recommended larger size cylinder, so that helps reduce the number of red, improve service life of wearing parts.

Mud Pump Ordering Notice

1. See the following form for the specification of the liners and pistons in the mud pumps which are delivered. (There is no any other specification of liner or piston supplied)

F-500/800/1000/1300/1600	F-2200	F-1600HL	F-2200HL	F1-800	F1-1600	QDP-3000
Φ 170mm	Φ 230mm	Φ 180mm	Φ 220mm	Φ 160mm	Φ 170mm	Φ 180mm

Special requirements from the customer should be written clearly in the contract.

2. When delivered, each pump would be equipped with one series of special tools such as hydraulic valve-puller.

3. When delivered, each pump would be equipped with one series of spare parts for the replacement of all the seal components. (Rubber plate is not included). Also, each pump is equipped with 10 shear pins (for safety valves) . Customers should refer to 《the using manual of drilling pumps》 and purchase other wearing parts and spare parts.

4. Belt pulley or chain pulley is not included in single pump. Customers should purchase them if necessary.

5. If customers need the pump back run, they should notice it at the ordering.

