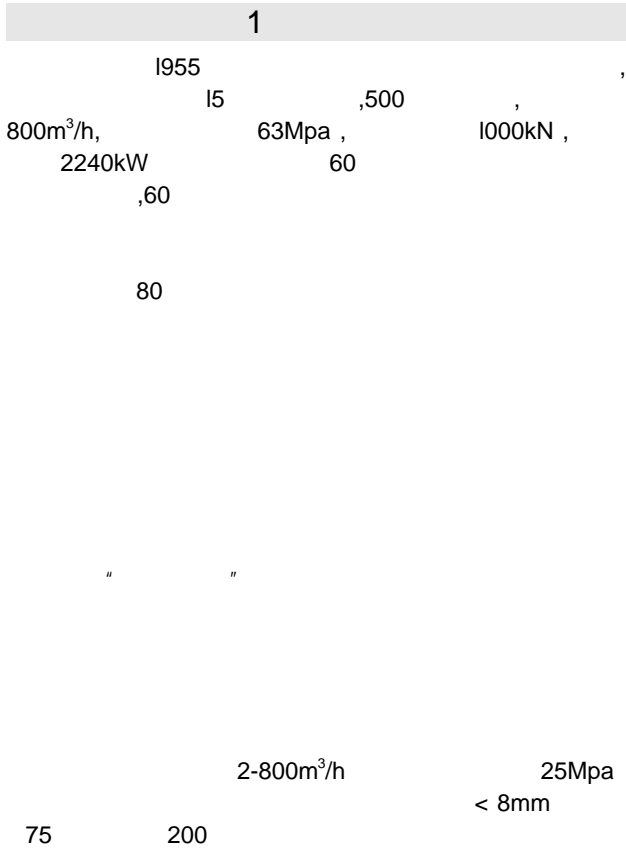




Hydraulic Diaphragm Pumps



1.General

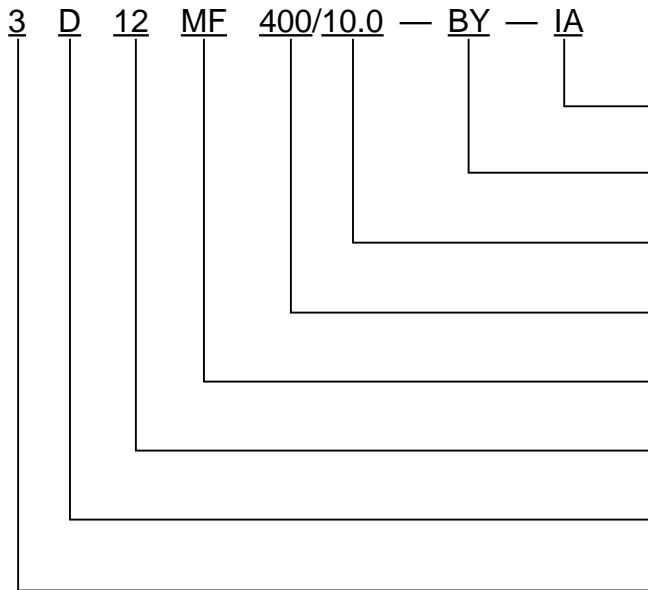
The company has accumulated decades of rich experience in design, fabrication and service of reciprocating pump which, since its successful manufacture of the first hi-pressure triplex reciprocating pump in 1955, has now developed the reciprocating pump into of 15 frame series and of more than 500 specifications, offering maximum discharge capacity up to 63 MPa, maximum plunger force to 1000 kN, maximum power to 1400 kW, and possessed many patented technologies.

The hydraulic diaphragm metering pump was begun to be developed and produced in the middle of the 1960s, and exported to Romania, Albania and other countries in the end of the 1960s.

The hydraulic diaphragm pump was developed out of the triplex reciprocating pump and diaphragm metering pump in the end of the 1990s and has been now evolved to series of products. This series of products are horizontally single-acting piston reciprocating diaphragm pumps. With the diaphragm which totally separates the pumped fluid from the piston cylinder parts, the lifetime of wear-and tears parts such as piston, sealing ring and cylinder bush is greatly prolonged for delivering high abrasive pulps. The pump is designed with oil compensating limit device, double-diaphragm type rupture signaling, even flowing without depositing and special combined valve set for abrasive product containing solids liable to deposit and corrosive fluids. The pump set features reliable and smooth operation, durable vale set and diaphragm, ease of maintenance. In this series of products, the lower speed diaphragm pumps are used for hi-temperature, highly abrasive and/or corrosive ore pulps liable to settle and containing big solids (size 8 mm, content up to 75%) at the temperature 200 , coal pulp, iron slag in nonferrous metal industry wet-process metallurgy and coal chemical industry; and the intermediate speed pump for sewage, corrosive and non-corrosive solutions in recovery of petroleum, electric power and chemical industries, etc.

The triplex diaphragm pump, single-cylinder diaphragm pump and multiplex pump in line are available for different applications, offering capacities from 2 to 800m³/h and the maximum working pressure up to 20 MPa.

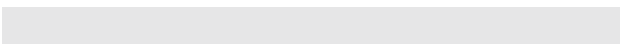
Explanation to the model number of pump



For single-cylinder pump and multiplex pump in line

Materials for Main Wetted Parts

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3



3.3

3.3 Lubrication system

- Separate lubrication system for power frame in which the oil pump feeds the moving parts with full lubricating oil.
- Pressure gage, safety valve, rough / fine filters for the oil line.
- Monitor system and local indicator for oil line system, which sends a signal in case the oil temperature and/or pressure exceed a setting value, ensuring safe operation of the machine.

3.4

3.4 Base

- Welded base made of section steel with lifting eye, setting screw for ease of lifting and installation of pump, speed reducer, motor oil pump, cooler, .and coupling guard
- Skid-mounted combination of diesel engine, clutch and variable-speed drive available for field operation according to individual customer' s demand.

3.5

3.5 Speed reducer

Hardened tooth surface gear reducer offers high driving efficiency and low noise. Small-power reducer is cooled naturally and large-power one by softened cooling water.

3.6

3.6 Damper

- Cylindrical damper made of high-quality seamless steel tube with optional automatic air charger (patented) or manual charging.
- Spherical damper of bladder type is charged with nitrogen. The bladder is provided with protection device.

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4

4. Monitor system of pump set

consisting of dry-type transformer, AC frequency conversion cabinet, local control panel and on-site primary instruments realizes digital communication control.

4.1

4.1 AC Frequency conversion cabinet

includes power fuse cabinet, rectifier cabinet, and dc-to-ac converter cabinet, used to control the motor speed to obtain the infinitely variable capacity. Automatic control of capacity may be obtained through the communication module which receives and sends a signal of DC 4 20 mA.

DC4 20mA

4.2

4.2 Local control panel includes

power module, CPU module, communication module, I/O module, analog module, power pack with switch, and electrical elements, used for local / remote control of operation of diaphragm pump and oil pump. Under remote control mode, the panel receives digital control signal from the communication system, and feeding back the signals of operation condition and fault of pump to DCS system so that the central control room can perform on-line monitoring and control of equipment under operation.

cpu

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DCS

4.3

4.3 Main interlocking control activities

- Main motor start / stop / frequency regulation
- Monitoring of diaphragm rupture signaling



- Oil pumps (for main pump and speed reducer) start / stop
- Detection of oil temperature and pressure
- Detection of oil heating
- Detection of temperatures of motor windings and bearings
- Detection of oil temperature and pressure for speed reducer
- Local / remote / operation

5. Capacity adjustment methods

- AC frequency converter for infinitely variable capacity over a range of 10 100 ;
- Hydraulic coupler for infinitely variable capacity over a range of 30 95 .

6. Scope of supply

Diaphragm pump	1 set
Speed reducer (including built -in type)	1 set
Frequency controlled AC motor	1 set
Common base, coupling and guard	1 set
Suction damper	1 set
Discharge damper	1 set
Local control panel	1 set
AC frequency conversion cabinet	1 set
Hydraulic assembling/disassembling tool and special tool	1 set
Accompanying spare parts	1 set
Technical documents	1 set

7. Points for attention when ordering

- When placing an order for goods, please sp



Capacity m ³ /h	Pressure Mpa	Plunger dia. mm	Pump speed min ⁻¹	Motor power kw	Outside dia Inlet mm	wall thick.Outlet mm
2.4	20	90	39	30	68× 10	60× 12
2.7			44	37		
3			*49	45		
3.3			55	45		
3	16	*100	39	30		
3.3			44	37		
3.8			*49	45		
4			55	45		
3.5	13	110	39	30	76× 10	68× 12
4			44	37		
4.5			*49	45		
5			55	45		
4.8	10	*125	39	30		
5.5			44	37		
6			*49	45		
6.5			55	45		
6	8	140	39	30	89× 10	76× 11
6.8			44	37		
7.5			*49	45		
8.5			55	45		
8	6.3	*160	39	30		
9			44	37		
10			*49	45		
11			55	45		
10	5	180	39	30	108× 10	89× 11
11			44	37		
12.5			*49	45		
14			55	45		
12.5	4	*200	39	30		
14			44	37		
16			*49	45		
17.5						



2-D8MF
Table of Parameter of Model 2- D8MF Diaphragm Pump for Pulps

Capacity m ³ /h	Pressure Mpa	Plunger dia. mm	Pump speed min ⁻¹	Motor power kw	Outside dia Inlet mm	wall thick.Outlet mm
5	20	90	39	45	83× 10	60× 12
5.5			44	55		
6.3			*49	55		
7			55	75		
6.3	16	*100	39	45		
7			44	55		
8			*49	55		
9			55	75		
7.5	13	110	39	45	95× 10	68× 12
8.5			44	55		
9.5			*49	55		
11			55	75		
10	10	*125	39	45		
11			44	55		
12.5			*49	55		
14			55	75		
12.5	8	140	39	45	114× 10	76× 12
14			44	55		
16			*49	55		
18			55	75		
16.5	6.3	*160	39	45		
18.5			44	55		
21			*49	55		
23			55	75		
21	5	180	39	45	140× 10	89× 12
24			44	55		
26.5			*49	55		
30			55	75		
26	4	*200	39	45		
29			44	55		
32.5			*49	55		
36.5			55	75		
33	3.2	225	39	45	168× 10	102× 10
37			44	55		
41.5			*49	55		
46.5			55	75		
41	2.5	*250	39	45		
46.5			44	55		
52			*49	55		
58			55	75		
52	2	280	39	45	185× 10	108× 10
58			44	55		
65			*49	55		
73			55	75		

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Note:*denotes preferred series.



3D9MF
Table of Parameter of Model 3D9MF Diaphragm Pump for Pulps

Capacity m ³ /h	Pressure Mpa	Plunger dia. mm	Pump speed min ⁻¹	Motor power kw	Outside dia Inlet mm	wall thick.Outlet mm
19	20	*125	39	132	133× 10	127× 14
21.5			44	160		
24			*49	185		
27			55	200		
24	16	140	39	132		
27			44	160		
30			*49	185		
34			55	200		
32	12.5	*160	39	132	168× 10	133× 14
36			44	160		
40			*49	185		
45			55	200		
40	10	180	39	132		
45			44	160		
50			*49	185		
56			55	200		
50	8	*200	39	132	203× 10	159× 12
56			44	160		
62			*49	185		
70			55	200		
63	6.3	225	39	132		
71			44	160		
79			*49	185		
89			55	200		
78	5	*250	39	132	219× 10	168× 12
88			44	160		
98			*49	185		
110			55	200		
98	4	280	39	132		
110			44	160		
123			*49	185		
138			55	200		

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Note:*denotes preferred series.

3D10MF
Table of Parameter of Model 3D10MF Diaphragm Pump for Pulps

Capacity m ³ /h	Pressure Mpa	Plunger dia. mm	Pump speed min ⁻¹	Motor power kw	Outside dia Inlet mm	wall thick.Outlet mm
40	20	*160	39	280	180× 10	168× 20
45			44	315		
50			*49	355		
57			55	400		
51	16	180	39	280		
57			44	315		
63			*49	355		
71			55	400		
63	12.5	*200	39	280	237× 10	180× 16
71			44	315		
81			*49	355		
91			55	400		
81	10	225	39	280		
91			44	315		
102			*49	355		
114			55	400		
100	8	*250	39	280	273× 10	219× 14
113			44	315		
125			*49	355		
141			55	400		
125	6.3	280	39	280		
141			44	315		
158			*49	355		
178			55	400		
160	5	*315	39	280	325× 10	245× 12
180			44	315		
200			*49	355		
225			55	400		
203	4	355	39	280		
230			44	315		
255			*49	355		
286			55	400		

: *

Note:*denotes preferred series.



3D11MF
Table of Parameter of Model 3D11MF Diaphragm Pump for Pulps

Capacity m ³ /h	Pressure Mpa	Plunger dia. mm	Pump speed min ⁻¹	Motor power kw	Outside dia Inlet mm	wall thick.Outlet mm
78	20	*200	39	560	245× 12	219× 24
88			44	630		
98			*49	710		
110			55	800		
100			16	225		
112	44	630				
125	*49	710				
140	55	800				
124	13	*250				
140			44	630		
155			*49	710		
175			55	800		
156			10	280	39	560
176	44	630				
196	*49	710				
220	55	800				
200	8	*315			39	560
225			44	630		
250			*49	710		
280			55	800		
255			6.3	355	39	560
286	44	630				
320	*49	710				
360	55	800				
325	5	*400			39	560
365			44	630		
408			*49	710		
458			55	800		
415			4	450	39	560
468	44	630				
520	*49	710				
585	55	800				

: *

Note:*denotes preferred series.





3D13MF

Table of Parameter of Model 3D13MF Diaphragm Pump for Pulps

Capacity m ³ /h	Pressure Mpa	Plunger dia. mm	Pump speed min ⁻¹	Motor power kw	Outside dia Inlet mm	wall thick.Outlet mm
155	20	*250	39	1120	377× 12	273× 30
175			44	1250		
195			*49	1400		
218			55	1600		
195	16	280	39	1120	377× 12	299× 31
220			44	1250		
245			*49	1400		
275			55	1600		
250	13	*315	39	1120	406× 14	325× 30
280			44	1250		
312			*49	1400		
350			55	1600		
320	10	355	39	1120	457× 14	356× 30
358			44	1250		
400			*49	1400		
450			55	1600		
405	8	*400	39	1120	508× 14	406× 30
455			44	1250		
507			*49	1400		
570			55	1600		
460	6.3	450	35	1000	530× 14	426× 30
515			*39	1120		
580			44	1250		
645			49	1400		
569	5	*500	35	1000	580× 14	457× 30
635			*39	1120		
715			44	1250		
800			49	1400		

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Note:*denotes preferred series.



Capacity m ³ /h	Pressure Mpa	Plunger dia. mm	Pump speed min ⁻¹	Motor power kw	Outside dia Inlet mm	wall thick.Outlet mm
6.5	20	90	98	75	76× 5	60× 10
9			138	110		
8	16	*100	98	75		
11.5			138	10		
10	13	110	98	75	89× 5	68× 10
14			138	110		
13	10	*125	98	75		
18			138	110		
14.5	8	140	88	75	108× 6	76× 10
20			123	90		
19	6.3	*160	88	75		
27			123	90		
24.5	5	180	88	75	127× 6	89× 10
34			123	90		
30.5	4	*200	88	75		
42.5			123	90		
34.5	3.2	225	79	75	159× 6	95× 8
47.5			109	90		
42.5	2.5	*250	79	75		
59			109	90		
53.5	2	280	79	75	168× 6	108× 8
74			109	90		

**3-D8MF****Table of Parameter of Model 3-D8MF Diaphragm Pump for Solutions**

Capacity m ³ /h	Pressure Mpa	Plunger dia. mm	Pump speed min ⁻¹	Motor power kw	Outside dia Inlet mm	wall thick.Outlet mm
19	20	90	98	160	127× 6	89× 12
28			138	200		
24	16	*100	98	160		
34			138	200		
29	13	110	98	160	159× 7	102× 12
41			138	200		
38	10	*125	98	160		
53			138	200		
44	8	140	88	132	195× 7	114× 12
60			123	180		
57	6.3	*160	88	132		
80			123	180		
73	5	180	88	132	237× 7	140× 10
102			123	180		
90	4	*200	88	132		
125			123	180		
103	3.2	225	79	132	273× 8	159× 8
142			109	160		
128	2.5	*250	79	132		
176			109	160		
160	2	280	79	110	299× 8	180× 8
220			109	160		

3D9MF**Table of Parameter of Model 3D9MF Diaphragm Pump for Solutions**

Capacity m ³ /h	Pressure Mpa	Plunger dia. mm	Pump speed min ⁻¹	Motor power kw	Outside dia Inlet mm	wall thick.Outlet mm
48	20	*125	98	355	194× 8	140× 18
68			138	500		
61	16	140	98	355		
86			138	500		
72	12.5	*160	88	315	245× 8	159× 16
100			123	450		
92	10	180	88	315		
128			123	450		
113	8	*200	88	315	299× 8	180× 14
158			123	450		
144	6.3	225	88	315		
200			123	450		
160	5	*250	79	280	325× 8	203× 12
220			109	400		
200	4	280	79	280		
278			109	400		

**3D10MF****Table of Parameter of Model 3D10MF Diaphragm Pump for Solutions**

Capacity m ³ /h	Pressure Mpa	Plunger dia. mm	Pump speed min ⁻¹	Motor power kw	Outside dia Inlet mm	wall thick.Outlet mm
82	20	*160	79	630	245× 10	168× 20
114			109	800		
105	16	180	79	630		
145			109	800		
115	12.5	*200	70	500	299× 10	194× 16
161			98	710		
146	10	225	70	500		
205			98	710		
160	8	*250	62	450	356× 10	219× 14
227			88	630		
202	6.3	*280	62	450		
287			88	630		
227	5	*315	55	400	406× 10	245× 12
326			79	560		
288	4	355	55	400		
414			79	560		

3D11MF**Table of Parameter of Model 3D11MF Diaphragm Pump for Solutions**

Capacity m ³ /h	Pressure Mpa	Plunger dia. mm	Pump speed min ⁻¹	Motor power kw	Outside dia Inlet mm	wall thick.Outlet mm
143	20	200	70	1000	356× 12	273× 30
200			98	1400		
182	16	225	70	1000		
255			98	1400		
200	13	250	62	900	406× 12	325× 28
283			88	1250		
250	10	280	62	900		
355			88	1250		
282	8	315	55	800	457× 12	377× 24
405			79	1120		
360	6.3	355	55	800		
518			79	1120		
410	5	*400	49	710	508× 12	377× 20
585			70	1000		



3D12MF

Table of Parameter of Model 3D12MF Diaphragm Pump for Solutions

Capacity m ³ /h	Pressure Mpa	Plunger dia. mm	Pump speed min ⁻¹	Motor power kw	Outside dia Inlet mm	wall thick.Outlet mm
158	20	*200	62	1250	325× 12	219× 25
225			88	2000		
200	16	225	62	1120	325× 12	219× 25
285			88	1600		
221	12.5	*250	55	1000	377× 12	245× 25
318			79	1400		
276	10	280	55	1000	426× 14	356× 25
400			79	1400		
300	9	*290	55	1000		
437			79	1400		
316	8	*315	49	900	457× 14	406× 25
452			70	1250		
360	6.3	355	44	800		
510			62	1100		

3D13MF

Table of Parameter of Model 3D13MF Diaphragm Pump for Solutions

Capacity m ³ /h	Pressure Mpa	Plunger dia. mm	Pump speed min ⁻¹	Motor power kw	Outside dia Inlet mm	wall thick.Outlet mm
221	20	*250	55	1600	377× 12	245× 26
318			79	2240		
276	16	280	55	1600	425× 14	273× 25
400			79	2240		
280	13	*315	44	1250	425× 14	273× 25
395			62	1800		
360	10	355	44	1250	457× 14	299× 20
505			62	1800		
405	8	*400	39	1120	508× 14	299× 20
570			55	1600		
515	6.3	450	39	1120	560× 14	325× 20
725			55	1600		
570	5	*500	35	1000	580× 14	356× 20
800			49	1400		

