



ENGINEERING FLOW SOLUTIONS

HMS DAP

REWINDABLE SUBMERSIBLE MOTORS



REWINDABLE SUBMERSIBLE MOTORS

DAP SERIES

DAP is a new series of asynchronous submersible rewindable motors designed and manufactured by Livnynasos (HMS Group's division in Livny, Russia).

APPLICATION

The motor is rigidly coupled with a submersible borehole pump forming a pumping unit applicable for the underground water intake facilities, booster modules, water level lowering, fountains, etc.

WARRANTY

The DAP series motors are covered with a three (3) year warranty. It is highly recommended to connect the borehole pumping unit to the power supply via HMS Control series control panel or similar control & protection units.

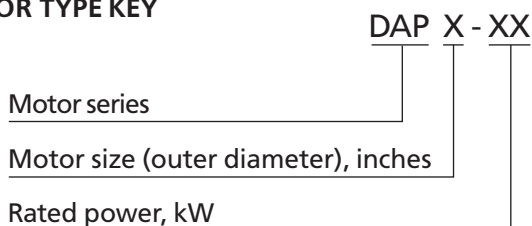
RELIABILITY

- Motor's inner chamber is insulated from pumped water that prevents sand ingress into the bearings and corrosion, resulting in increased service life
- High efficiency through entire service life

TECHNICAL DATA

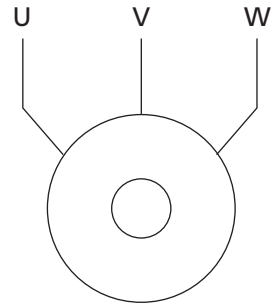
Diameter range, inches 6, 8, 10
 Power range..... up to 130 kW
 Rotation speed.....3000 rpm
 Rated voltage..... 50 Hz, 3-phase, 380/400 V
 Min. cooling flow-rate0.2 m/sec

MOTOR TYPE KEY



POWER SUPPLY CONNECTION

DOL (Direct On-Line)

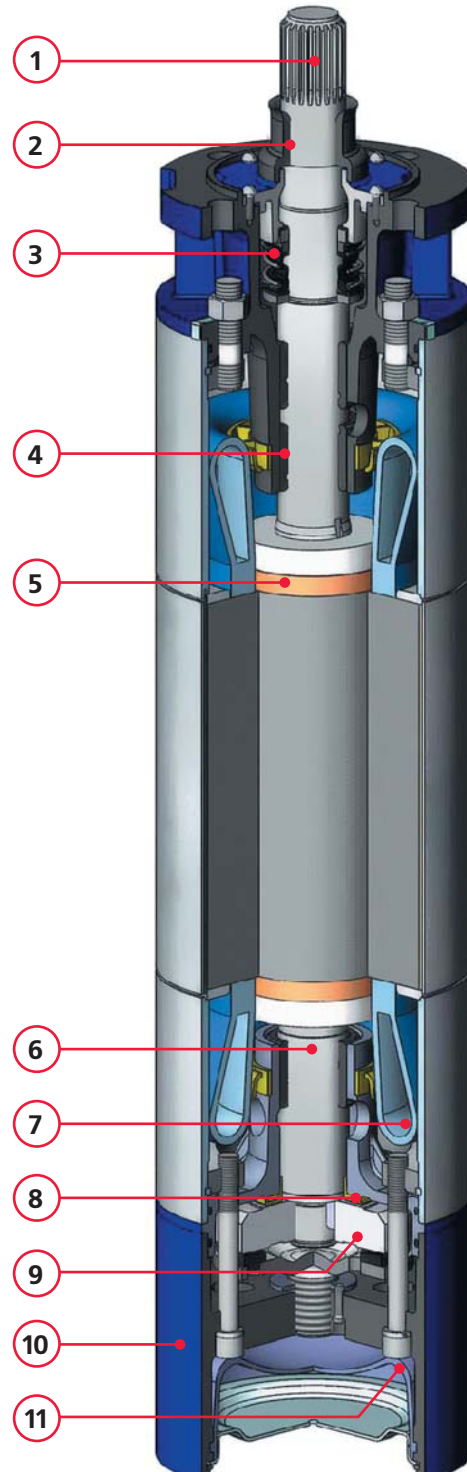


FEATURES, ADVANTAGES, BENEFITS

- Motor is filled with a liquid allowing contact with potable water
- Motor storage temperature: -30...+60 °C (-22...140 F)
- Lack of the liquid can be refilled with clean water (at storage temperature above +4 °C)
- Vertical and horizontal installation are equally possible (e.g. booster modules)
- Flanges and shafts are made in accordance with appropriate NEMA standards
- Resistance to unstable voltage
- Casing made of AISI 316 stainless steel*
- Sand guard for mechanical seal protection from the solid particles
- Rotor's "squirrel cage" is made of copper for increased efficiency
- High-temperature rewindable winding with PE2/PA insulation (up to 100 °C); temperature sensor is optionally available for overheating protection
- Radial bearings of composite materials with spiral grooves for better lubrication
- Heavy duty self-aligning water lubricated thrust bearing
- Counter thrust bearing for the rotor upward movement prevention
- Reliable mechanical seal from the world's leading manufacturers
- Rubber diaphragm for the liquid expansion compensation

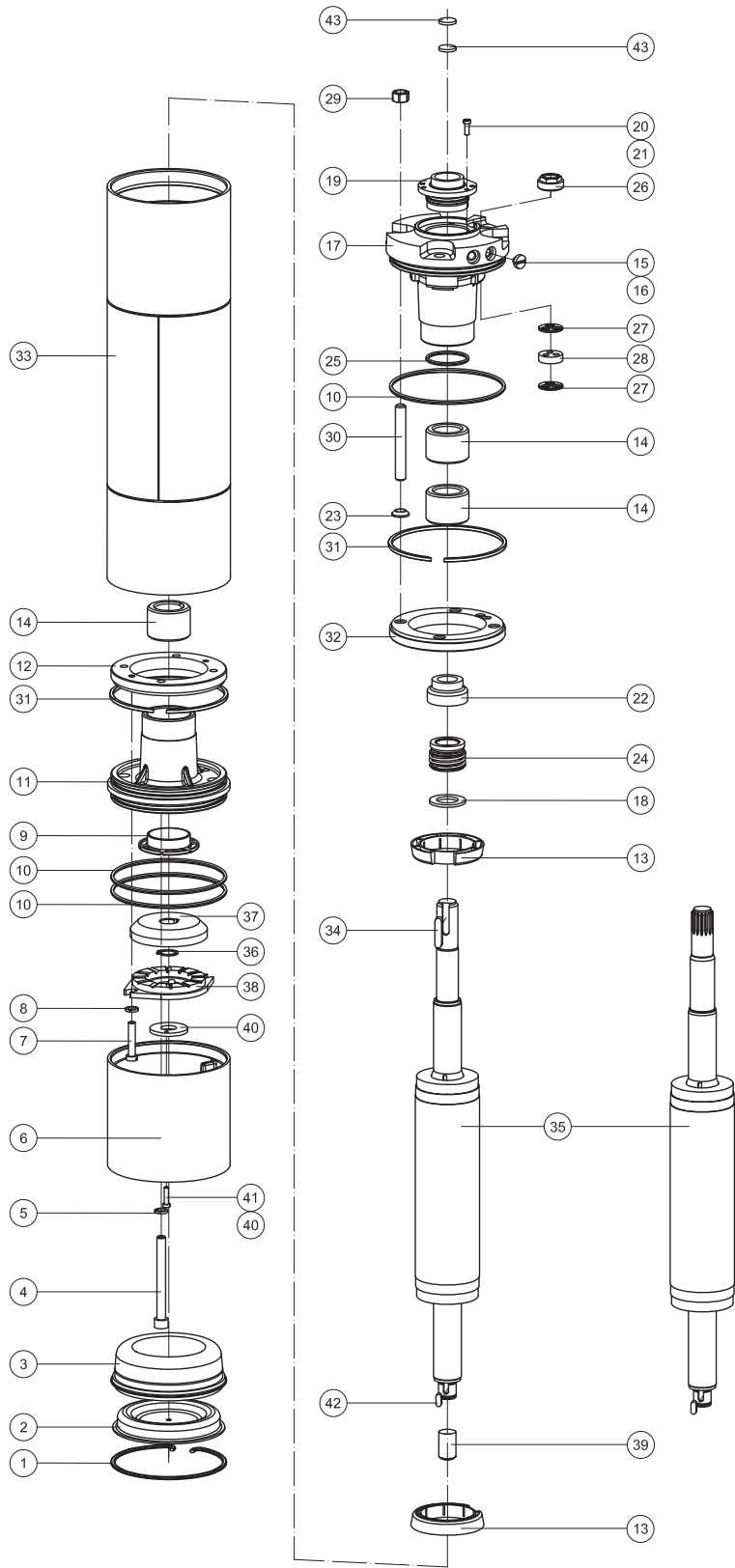
1. NEMA flange
2. Sand guard
3. Mechanical seal
4. Radial bearing
5. Squirrel cage made of copper
6. Rotor shaft made of AISI 409 stainless steel
7. PE2/PA winding is standard
8. Counter thrust bearing
9. Self-aligning thrust bearing
10. Cast Iron bottom part
11. Rubber diaphragm

* The bottom casing part is made of cast iron with powder coating.



EXPLOSION VIEW DIAGRAM

1. Locking ring
2. Diaphragm cover
3. Diaphragm
4. Screw
5. Washer
6. Bottom
7. Screw
8. Washer
9. Reverse thrust bearing
10. O-ring
11. Lower bearing casing
12. Ring
13. Winding fixator
14. Sleeve bearing
15. Plug
16. O-ring
17. Upper bearing casing
18. Washer
19. Mechanical seal cover
20. Screw
21. Washer
22. Sand protector
23. Stud sealing
24. Mechanical seal
25. O-ring
26. Cable nut
27. Cable sealing
28. Cable sealing
29. Cable sealing
30. Stud
31. Lock ring
32. Thrust ring
33. Stator
34. Key
35. Rotor
36. Ring
37. Thrust journal
38. Thrust bearing
39. Screw
40. Lock nut
41. Screw
42. Key
43. Plate



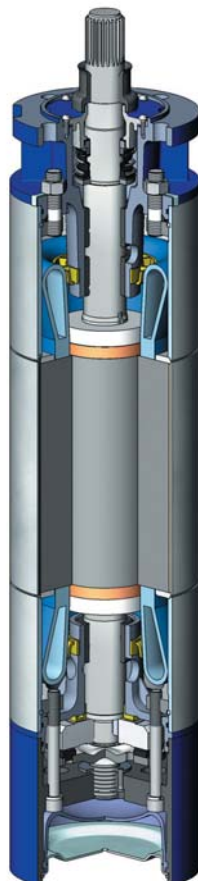
TECHNICAL DATA

Parameters	DAP 6 series	DAP 8 series	DAP 10 series
Max diameter (D), mm	144	189	235
Protection	IP68		
Starts per hour	≤ 20		
Water temperature	up to +30 °C (86 °F)		
Voltage	50 Hz, 3 x 400 V		
Voltage tolerance	-15 ... +10%		
Synchronous rotation speed, rpm	3000		

PE2/PA winding insulation, up to 100 °C temperature resistance



DAP 6



DAP 8



DAP 10

OPERATING PARAMETERS

Model	Power P2		F	I _n	I _{st} /I _{nom}	Eff.	cosφ	n _n	T _{nom}	T _{st} /T _{nom}	Motor length	Weight	Leads
	kW	HP	kN	A	A	%		rpm	N·m	N·m	L, mm	kg	mm ²
DAP 6-3	3	4	10	7	5.4	77	0.82	2900	10	1.5	597	38	4
DAP 6-4	4	5.5	10	9	5.4	78	0.82	2900	13	1.5	621	40	4
DAP 6-5.5	5.5	7.5	10	12	5.7	79	0.82	2900	18	1.6	641	42	4
DAP 6-7.5	7.5	10	10	17	5.6	80	0.82	2900	25	1.7	706	49	4
DAP 6-9	9	12	10	20	5.6	81	0.82	2900	30	1.6	731	51	4
DAP 6-11	11	15	10	24	6.3	81	0.82	2900	36	1.8	766	55	4
DAP 6-13	13	17.5	10	28	6	81	0.82	2900	43	1.7	821	60	4
DAP 6-15	15	20	10	32	5.9	82	0.82	2900	49	1.8	861	64	4
DAP 6-18.5	18.5	25	10	40	5.8	82	0.82	2900	61	1.8	906	69	4
DAP 6-22	22	30	15.5	48	4.4	84	0.82	2880	73	1.3	980	82	4
DAP 6-26	26	35	15.5	54	5.2	83	0.82	2840	86	1.4	1030	88	6
DAP 6-30	30	40	27.5	62	5.0	84	0.86	2850	99	1.4	1110	98	6
DAP 6-37	37	50	27.5	73	5.0	85	0.89	2830	122	1.6	1190	106	6
DAP 8-11	11	15	15	22	4.7	83	0.86	2870	37	1.1	726	78	10
DAP 8-13	13	17.5	15	27	4.7	83	0.84	2870	43	1.1	756	81	10
DAP 8-15	15	20	15	31	4.7	83	0.84	2870	50	1.2	781	86	10
DAP 8-18.5	18.5	25	15	38	4.7	83	0.84	2870	62	1.2	769	89	10
DAP 8-22	22	30	15	44	5.1	85	0.85	2870	73	1.2	876	106	10
DAP 8-26	26	35	20	52	5.1	85	0.85	2870	87	1.2	911	114	10
DAP 8-30	30	40	20	60	5.1	85	0.85	2870	100	1.1	946	121	10
DAP 8-37	37	50	20	73	5.4	85	0.86	2870	123	1.4	1021	141	10
DAP 8-45	45	60	20	89	5.5	86	0.85	2870	150	1.5	1136	164	10
DAP 8-55	55	75	45	110	5.5	90	0.86	2920	182	1.7	1250	184	16
DAP 8-65	65	90	45	129	5.5	91	0.87	2910	220	1.6	1365	204	16
DAP 8-75	75	100	45	143	5.8	91	0.87	2920	247	1.7	1430	218	16
DAP 8-83	83	110	45	160	6.1	91	0.86	2920	275	1.8	1500	230	16
DAP 8-93	93	125	45	183	6.3	92	0.85	2930	306	1.8	1620	252	16
DAP 10-30	30	40	20	60	4.9	85	0.85	2900	99	1.1	877	144	25
DAP 10-37	37	50	20	72	5.4	86	0.86	2900	122	1.4	902	152	25
DAP 10-45	45	60	30	87	5.5	87	0.86	2900	148	1.5	967	169	25
DAP 10-55	55	74	30	106	5.4	87	0.86	2900	181	1.5	1017	182	25
DAP 10-65	65	87	30	125	5.3	87	0.86	2900	214	1.4	1082	202	25
DAP 10-75	75	100	30	145	4.9	88	0.85	2900	247	1.2	1157	225	25
DAP 10-90	90	121	45	174	5.2	88	0.85	2900	296	1.2	1277	262	35
DAP 10-110	110	161	45	212	5.2	88	0.85	2920	360	1.2	1317	274	50
DAP 10-130	130	174	45	251	5.8	88	0.85	2920	425	1.2	1537	342	50

CABLE SELECTION

Motor power, kW	Maximal nominal current, A	Cable cross-section, mm ²														
		1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240
		Maximal cable length, subject to the 2% voltage drop														
1	4.2	119	198	315												
1.5	5.8	86	143	228	339											
2.2	8	62	104	165	246	403										
3	11	45	75	120	179	293	457									
4	12	38	64	102	153	251	391									
5.5	16	24	41	66	98	162	252	391								
6.3	18	22	36	58	87	144	224	347	474							
7.5	20		32	52	78	128	200	310	423							
11	25			41	61	101	158	245	336							
	30			34	51	84	131	204	280	386						
13	35				44	72	113	175	240	331	418					
15	37				41	68	105	164	225	311	392					
17	38				41	68	106	164	224	309	393					
18.5	45					56	87	136	186	257	325	444				
	49					51	80	125	171	236	299	408	491			
22	55						71	110	151	209	264	362	436			
	60						65	101	138	191	242	332	400	473		
30	67						58	90	124	171	216	297	358	424	492	
32	72						54	84	115	159	201	276	333	394	458	
37	83							72	99	137	173	239	288	342	398	474
45	108								77	106	134	184	222	263	305	363
55	120									95	119	165	199	236	275	328
65	130									88	111	153	184	218	253	301
	135									85	107	147	177	210	244	290
75	146										98	136	164	194	226	269
	155										92	128	154	183	213	253
90	165										87	120	145	172	200	238
	190											104	126	149	173	207
110	250												96	113	131	155
	270													105	121	143
130	285													99	115	136
Allowable continuous current, A		19	25	35	42	55	75	95	120	145	180	220	260	305	350	-

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