



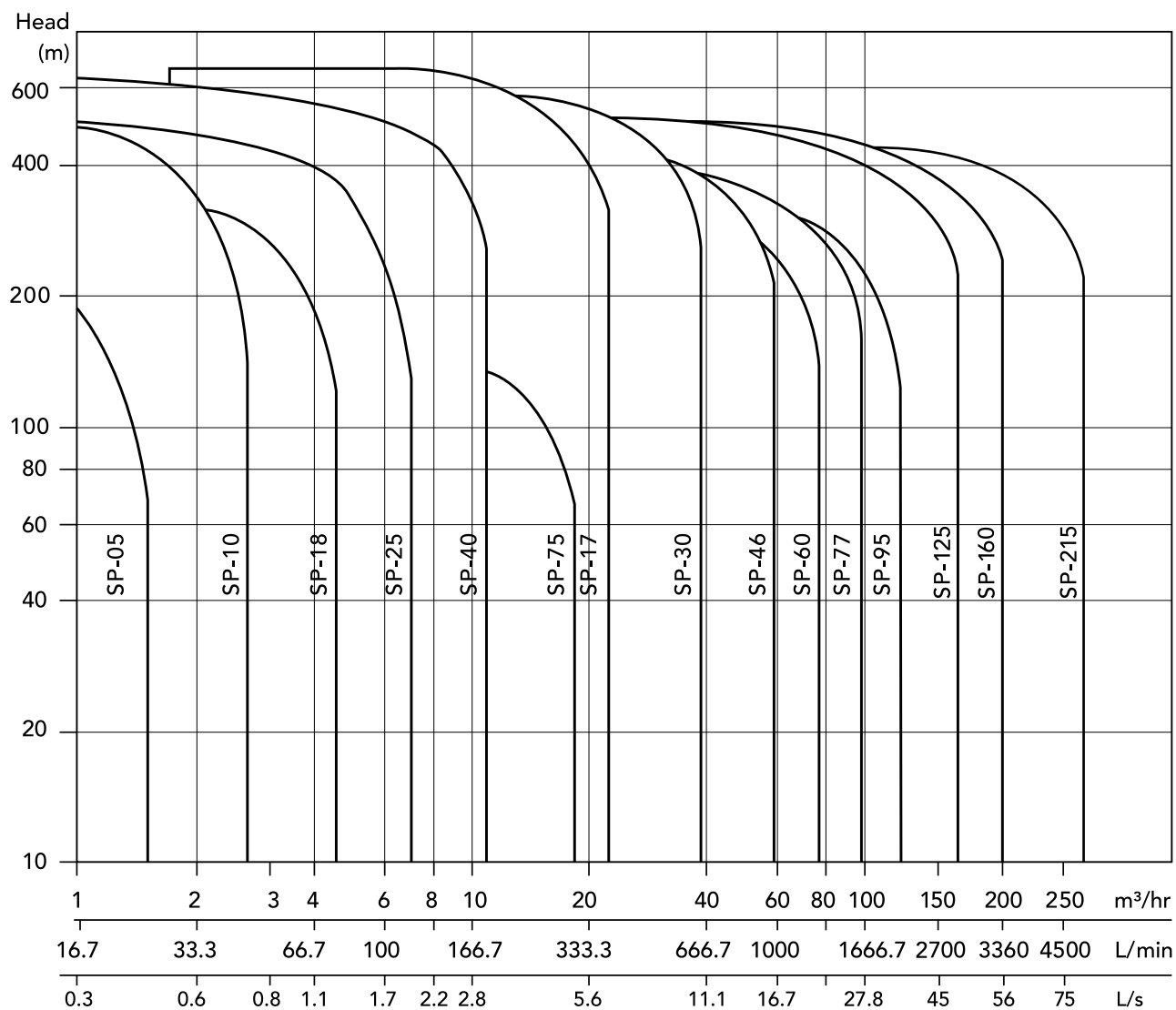
SUBMERSIBLE DEEP WELL
4", 6", 8", 10" - 50Hz

MCKARLEN

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General Curve



General Description

SP 4", 6" & 8"

McKarlen is one of the main manufacturer of Deep Well Submersible Pumps made of high quality stainless steel for bore holes. Special design on the impeller and diffuser make this pump resistant to sands for up to 1%.

The state of the art design is very energy efficient and offer a high performance pumping therefore easy installation and low maintenance costs.

Technical Data:

- Motor
 - Single Phase, 1x220 ~ 230V -50hz 220 Volt, 2850 rpm, 50 Hz
 - Three Phase, 3x380 ~ 400V -50hz 380 Volt, 2850 rpm, 50 Hz
- NEMA Standard Dimensions
- Capacity up to 4500 L/min, 270 m³/hr
- Total Head up to 510 Meter
- Liquid temperature up to 40°C

Submersible rewindable motors:

- 4" motors, single-phase up to 3HP, 2.2 kW
- 4" motors, three-phase up to 10HP, 7.5 kW
- 6" motors, three-phase from 7.5HP, 5.5 kW to 50HP, 37 kW
- 8" motors, three-phase up to 150 HP, 110 kW

Application :

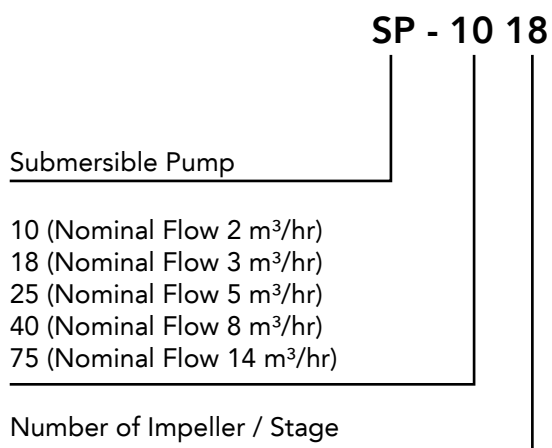
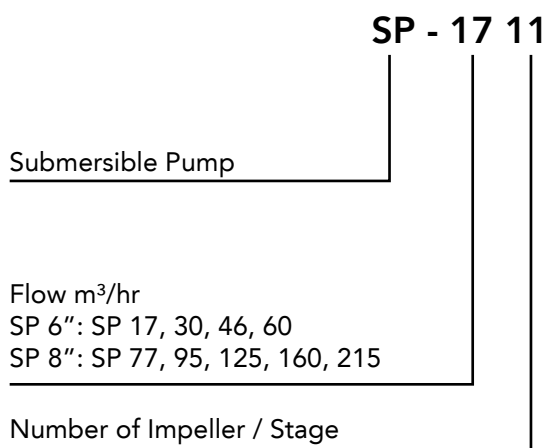
- Supply of raw water for households
- Supply of water from the wells to the reservoir
- Irrigation, Plantation and Agriculture
- Industrial and municipal application



Pump range

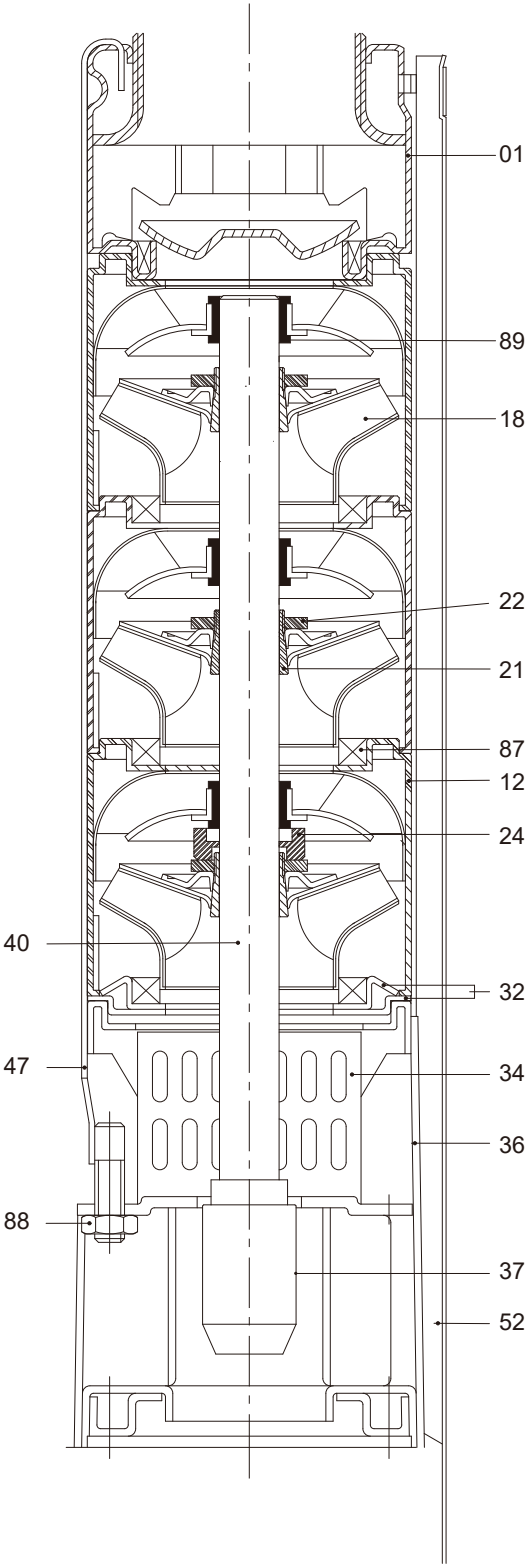
TYPE	SP 05	SP 10	SP 18	SP 25	SP 40	SP 75	SP 17	SP30	SP 46	SP 60	SP 77	SP 95	SP 125	SP 160	SP 215
MATERIAL	STAINLESS STEEL 304														
DIMENSION, Inch	4"						6"				8"			10"	
CONNECTION	1 1/4"	1 1/4"	1 1/4"	1 1/2"	2"	2"	2 1/2"	3"	4"	4"	5"	5"	6"	6"	6"

Type key



Material Specification

SP 4"

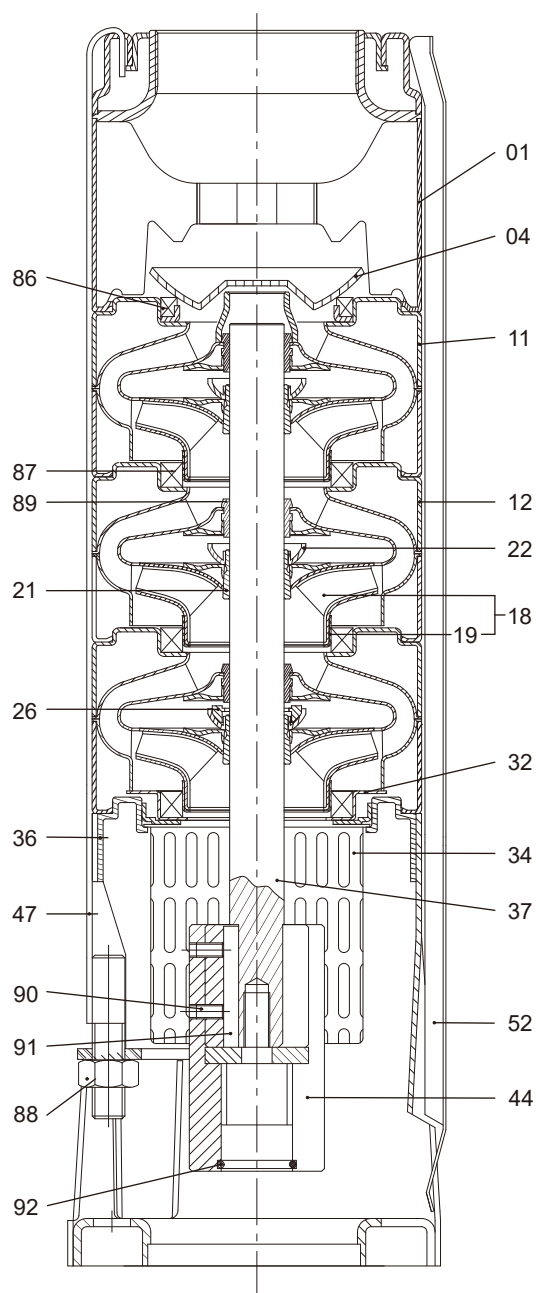


Pos.	Part Name	Materials
1	Discharge	SUS304 / SUS316
12	Diffuser	SUS304 / SUS316
18	Impeller	SUS304 / SUS316
21	Split Cone	SUS304 / SUS316
22	Split Cone Nut	SUS304 / SUS316
24	Stop Ring	Carbon+Graphite+PTFE
32	Neck Ring Retainer	SUS304 / SUS316
34	Strainer	SUS304 / SUS316
36	Suction Interconnector	SUS304 / SUS316
37	Coupling	SUS304 / SUS316
40	Pump Shaft	SUS304 / SUS431 / SUS316
47	Strap	SUS304 / SUS316
52	Cable Guard	SUS304 / SUS316
87	Neck Ring	SUS304+NBR / HNBR
88	Nut	SUS304 / SUS316
89	Bearing	NBR / HNBR

*AISI 316 stainless steel pumps are available on request.

Material Specification

SP 6"

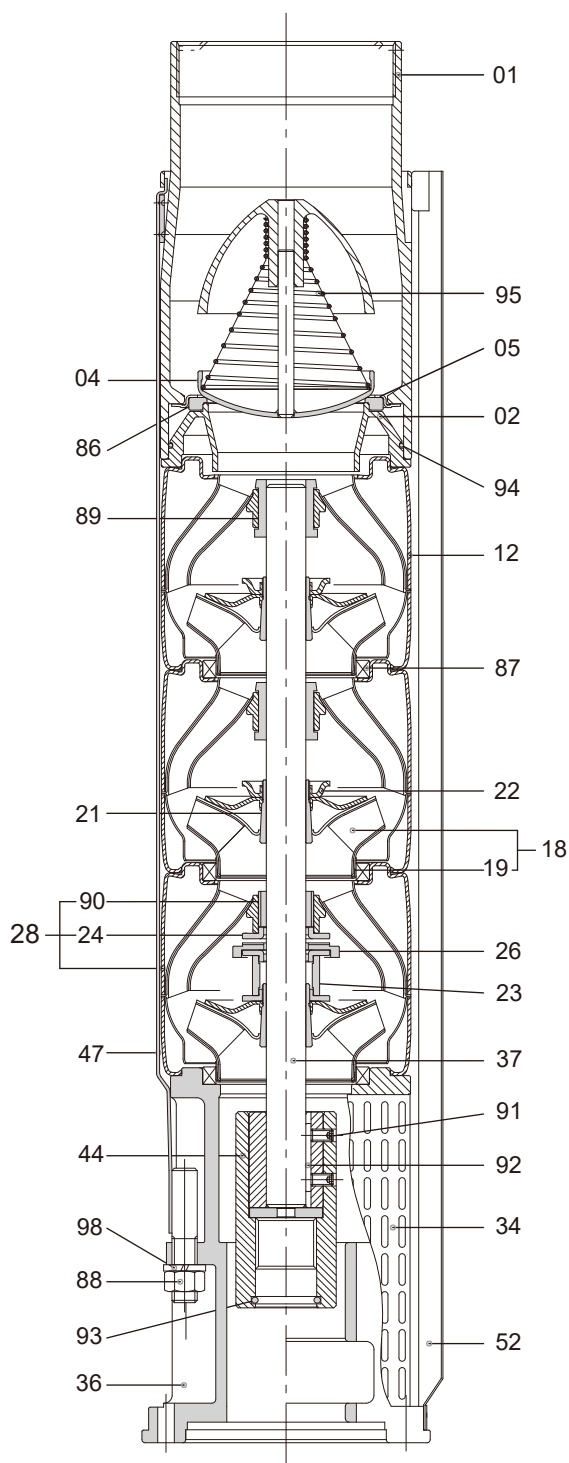


Pos.	Part Name	Materials
1	Discharge	SUS304 / SUS316
4	Valve Cone	SUS304 / SUS316
11	Top Diffuser	SUS304 / SUS316
12	Diffuser	SUS304 / SUS316
18	Impeller	SUS304 / SUS316
19	Ring of Impeller	SUS304 / SUS316
21	Split Cone	SUS304 / SUS316
22	Split Cone Nut	SUS304 / SUS316
26	Spacing Washer For Stop Ring	Carbon+Graphite+PTFE
32	Neck Ring Retainer	SUS304 / SUS316
34	Strainer	SUS304 / SUS316
36	Suction Interconnector	SUS304 / SUS316
37	Pump Shaft	SUS431 / SUS316
44	Coupling	SUS431 / SUS316
47	Strap	SUS304 / SUS316
52	Cable Guard	SUS304 / SUS316
86	Valve Seat	SUS304+NBR / HNBR
87	Neck Ring Nut	SUS304+NBR / HNBR
88	Nut	SUS304 / SUS316
89	Bearing	NBR / HNBR
90	Screw	SUS304 / SUS316
91	Key	SUS304 / SUS316
92	O-ring	NBR / HNBR

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Material Specification

SP 8"

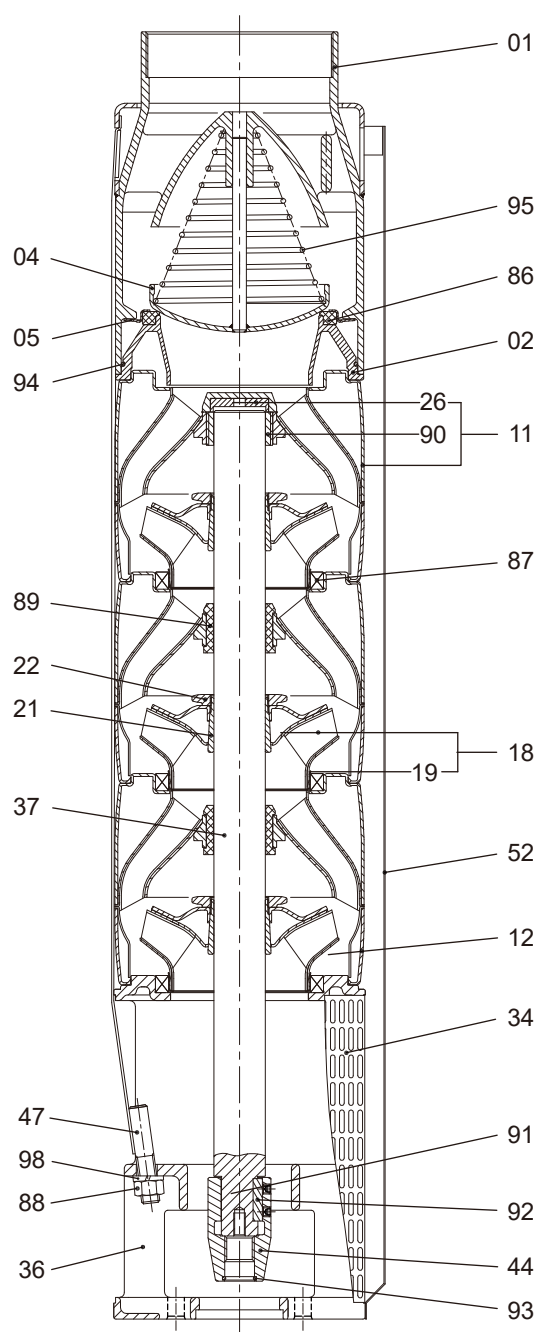


Pos.	Part Name	Materials
1	Discharge	SUS304 / SUS316
2	Lower Valve Seat Retainer	SUS304 / SUS316
4	Valve Cup	SUS304 / SUS316
5	Upper Valve Seat Retainer	SUS304 / SUS316
12	Diffuser	SUS304 / SUS316
18	Impeller	SUS304 / SUS316
19	Ring Of impeller	SUS304 / SUS316
21	Split Cone	SUS304 / SUS316
22	Split Cone Nut	SUS304 / SUS316
23	Nut For Stop Ring	SUS304 / SUS316
24	Stop Ring	SUS304 / SUS316
26	Spacing Washer For Stop Ring	Carbon+Graphite+PTFE
28	Bottom Diffuser	SUS304 / SUS316
34	Strainer	SUS304 / SUS316
36	Suction Interconnector	SUS304 / SUS316
37	Pump Shaft	SUS431 / SUS316
44	Coupling	SUS304 / SUS316
47	Strap	SUS304 / SUS316
52	Cable Guard	SUS304 / SUS316
86	Valve Seat	NBR / HNBR
87	Neck Ring	SUS304+NBR / HNBR
88	Nut	SUS304 / SUS316
89	Bearing	NBR / HNBR
90	Bearing	SUS304+NBR / SUS316+HNBR
91	Screw	SUS304 / SUS316
92	Key	SUS304 / SUS316
93	O-ring	NBR / HNBR
94	O-ring	NBR / HNBR
95	Spring	SUS304 / SUS316
98	Spring Washer	SUS304 / SUS316

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Material Specification

SP 10"



Pos.	Part Name	Materials
1	Discharge	SUS304 / SUS316
2	Lower Valve Seat Retainer	SUS304 / SUS316
4	Valve Cup	SUS304 / SUS316
5	Upper Valve Seat Retainer	SUS304 / SUS316
11	Upper Diffuser	SUS304 / SUS316
+ 26	Spacing Washer For Stop Ring	Carbon Fiber+MoS2+PTFE
+ 90	Upper Bearing	SUS304+NBRGO / SUS316+HNBR
12	Diffuser	SUS304 / SUS316
18	Impeller	SUS304 / SUS316
18	Impeller-A	SUS304 / SUS316
+ 19	Ring Of Impeller	SUS304 / SUS316
21	Spit Cone	SUS304 / SUS316
22	Split Cone Nut	SUS304 / SUS316
34	Strainer-one lead	SUS304 / SUS316
34	Strainer-two leads	SUS304 / SUS316
36	Suction Interconnector-6"	SUS304 / SUS316
36	Suction Interconnector-8"	SUS304 / SUS316
37	Shaft	SUS431 / SUS316
44	Coupling-6"	SUS304 / SUS316
44	Coupling-8"	SUS304 / SUS316
47	Strap	SUS304 / SUS316
52	Cable Guard	SUS304 / SUS316
86	Valve Seat	NBR70 / HNBR70
87	Neck Ring	PPS+NBR / HNBR
88	Nut	SUS304 / SUS316
89	Bearing	NBR70 / HNBR70
91	Screw-6"	SUS304 / SUS316
91	Screw-8"	SUS304 / SUS316
92	Key-6"	SUS304 / SUS316
92	Key-8"	SUS304 / SUS316
93	O-ring-6"	NBR70/HNBR70
93	O-ring-8"	NBR70 / HNBR70
94	O-ring	NBR70 / HNBR70
95	Spring	SUS304 / SUS316
98	Spring Washer	SUS304 / SUS316

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Submersible Rewindable Motors

Characters :

- Conform to international standard of IEC34-1,CE, whole blocked asynchronous motor with squirrel cage rotor.
- Outer shell, shaft and bottom made of stainless steel.
- Brass alloy or Nickel plated cast-iron upper bracket.
- Swedish bearing or equivalent products can undertake higher thrust load
- Italian mechanical seal.
- Pressure automatic adjusting device made of oil-proof and waterproof reformed butyl rubber.
- Flange connector conform to the standard of NEMA (USA National Electrical Manufacturing Association).
- Lacquer-coated wire conforms to USA standard of NEMA MW37-C.

Properties :

- Power: Single-phase: 0.25kW - 2.2kW, Three-phase: 0.55kW - 220kW
- Voltage: Single-phase 180/230V (-6% +10%) or 230/240V (+6% -10%) 50Hz Three-phase 230V or 400V $\pm$ 10% 50Hz
- Thrust load:
 - 1500N (0.25kW - 0.75kW)
 - 2500N (1.1kW - 5.5kW)
 - 4500N (3.0kW - 7.5kW)
- Degree of protection: 1P68
- Insulation: Class B
- Max. Water Temperature : 35°C, Max. Ambient temperature: 40°C
- Minimum cooling flow along the motor: 8cm/sec.
- Water pH: 6.5 - 8.0
- Maximum submerged depth: 4" Max. 150 meters, 6" Max. 300 meters
- Vertical or horizontal mounting position
- Flat water-proof cable 4x1.5 mm² or 4x2.5 mm² with separated earth wire (see table enclosed)
 - Dimension: 19.2 X 6.2 mm²
 - Length: 0.9m (0.37- 0.55kW);
 - 1.2m (0.75-1.1kW);
 - 1.5m (1.5-2.2kW);
 - 1.6m (3.0kW);
 - 2.0m (4.0-5.5kW);
 - 2.5m (7.5kW)
- Special request product required by customers can be provided

Materials :

- High-quality cold-rolled silicon steel lamination.
- Special mechanical seal design.
- 220°C-resistant lacquer-coated wires.
- High-quality bearing undertaking big thrust load.

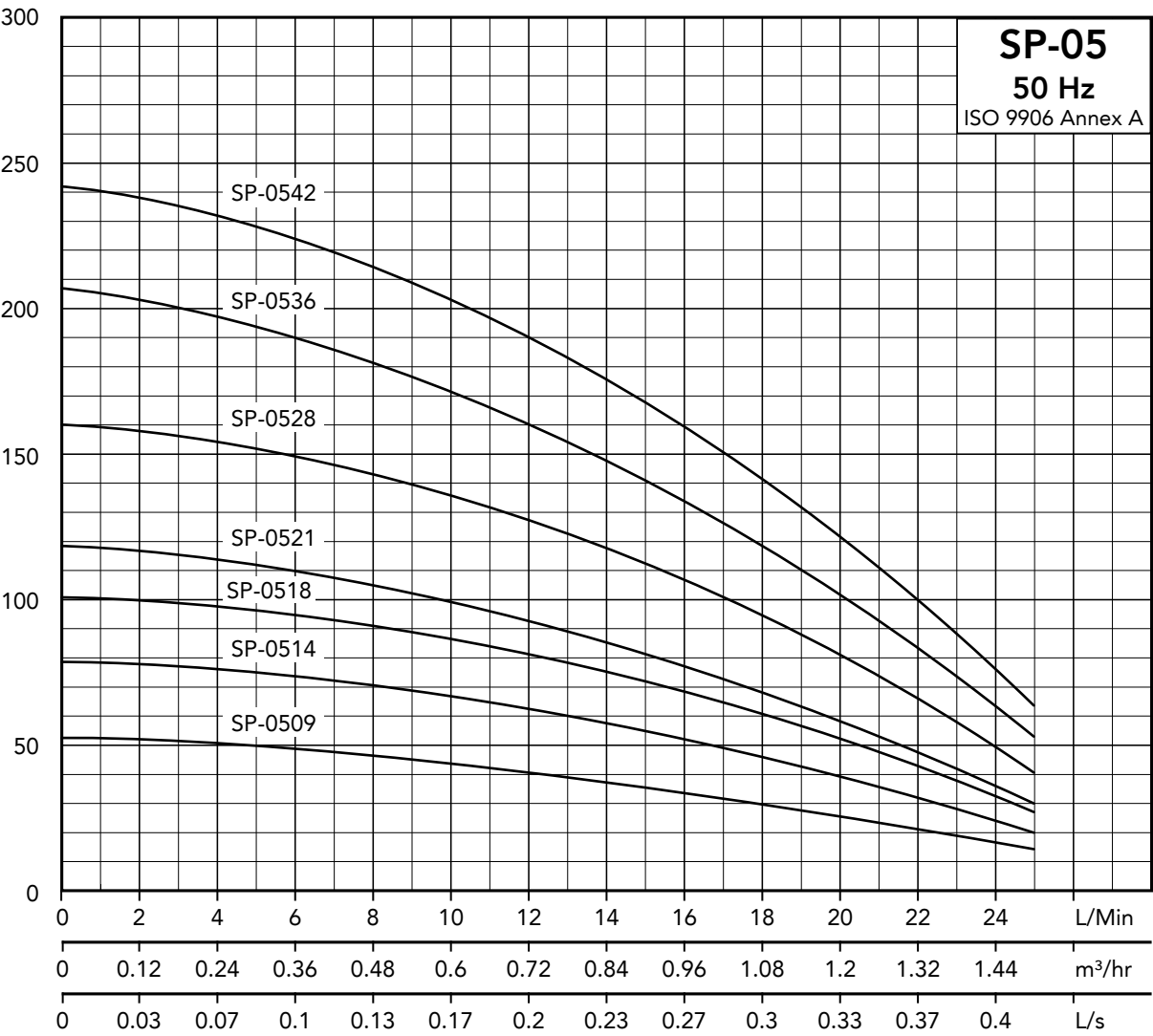


Oil Cooling Motor

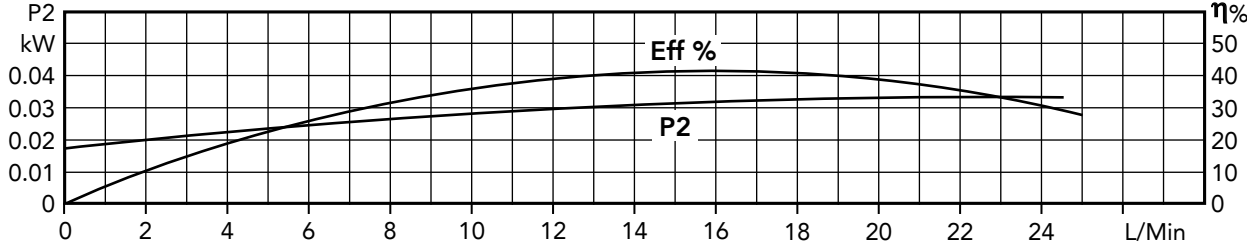
Motor Size	Phase	Output		Current (A)	Cos ϕ	rpm	L mm	W kg
		HP	kW					
4"	220/230 V 50 Hz 1 Phase	0.33	0.25	3.0	0.86	2830	290	7
		0.5	0.37	3.6	0.88	2830	315	8
		0.75	0.55	4.8	0.89	2830	335	8
		1	0.75	6.3	0.90	2830	360	9
		1.5	1.1	8.6	0.90	2850	390	11
		2	1.5	10.6	0.94	2850	435	12
		3	2.2	14.0	0.96	2850	480	14
	380/415 V 50 Hz 3 Phase	0.75	0.55	1.7	0.80	2850	385	8
		1.0	0.75	2.2	0.81	2850	405	9
		1.5	1.1	3.0	0.82	2850	425	10
		2.0	1.5	3.0	0.82	2850	432	11
		3.0	2.2	5.6	0.83	2850	492	14
		4.0	3.0	7.3	0.83	2850	581	19
		5.5	4.0	10.3	0.83	2850	621	21
		7.5	5.5	13.0	0.85	2850	740	25
		10	7.5	17.0	0.85	2850	860	31
		7.5	5.5	12.9	0.83	2850	580	31
6"	380/415 V 50 Hz 3 Phase	10	7.5	16.5	0.85	2850	620	34.4
		12.5	9.2	19.5	0.87	2850	655	38
		15	11	23	0.87	2860	685	41.4
		17.5	13	26.3	0.88	2860	715	44
		20	15	29.5	0.88	2860	755	58.3
		25	18.5	36.3	0.89	2860	820	61.4
		30	22	43.1	0.89	2860	880	69
		35	26	50.2	0.9	2860	930	77
		40	30	57.4	0.9	2860	980	84
		50	37	70.7	0.81	2860	1118	92
		60	45	86	0.91	2860	1178	100
		7.5	5.5	12.9	0.83	2850	580	31
8"	380/415 V 50 Hz 3 Phase	30	22	48	0.84	2860	1596	115
		35	26	56.5	0.85	2860	1596	125
		40	30	64	0.85	2860	1596	140
		50	37	78.5	0.85	2860	1596	140
		60	45	96.5	0.82	2860	1596	156
		75	55	114	0.85	2860	1596	179
		86	63	132	0.83	2860	1996	198
		102	75	152	0.86	2860	1996	215
		125	93	186	0.86	2860	1996	247
		150	110	224	0.87	2860	1996	285
		7.5	5.5	12.9	0.83	2850	580	31

Performance Curve SP 05

Total Head (m)



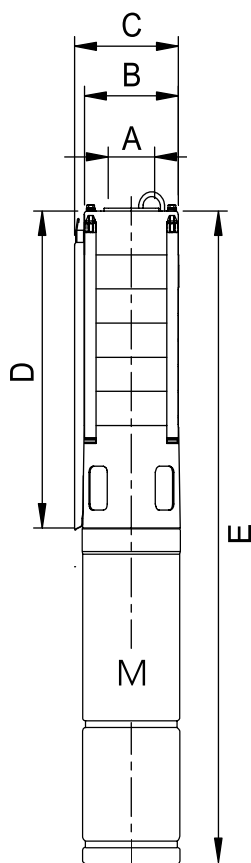
Power per Stage / Impeller



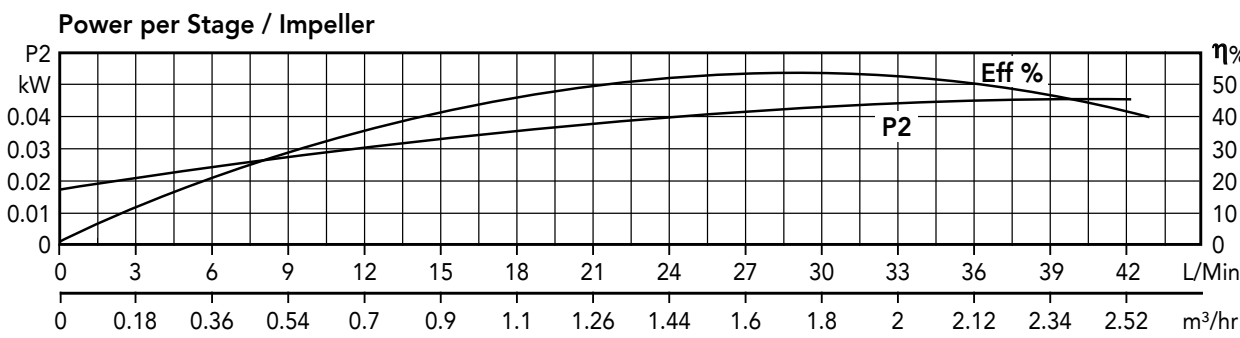
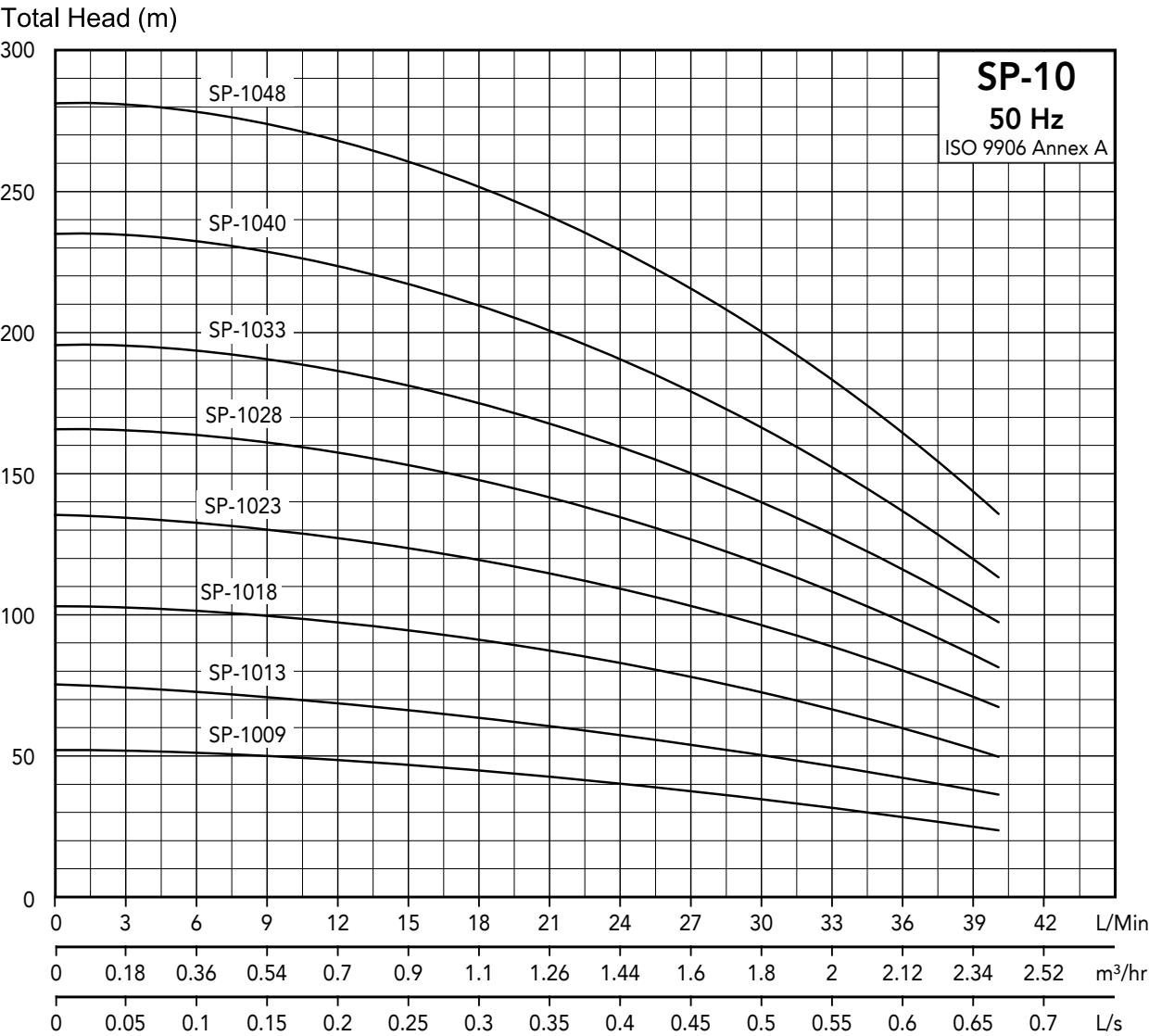
Dimensions and weights

SP 05

TYPE	DIMENSION (mm)				BARE PUMP	MOTOR		PUMP & MOTOR		
						HP	kW	Height 1 Phase	Height 3 Phase	Weight
	A	B (mm)	C (mm)	D (mm)	Kg			E (mm)		Kg
SP-0509	1 1/4"	86.7	98	354	3.1	0.5	0.37	669		11.1
SP-0514				459	4	0.5	0.37	774		12
SP-0518				543	4.7	0.75	0.55	878	903	12.7
SP-0521				606	5.2	0.75	0.55	941	966	13.2
SP-0528				753	6.6	1	0.75	1113	1173	15.6
SP-0536				946	8.6	1.5	1.1	1336	1391	19.6
SP-0542				1072	9.8	1.5	1.1	1462	1517	20.8



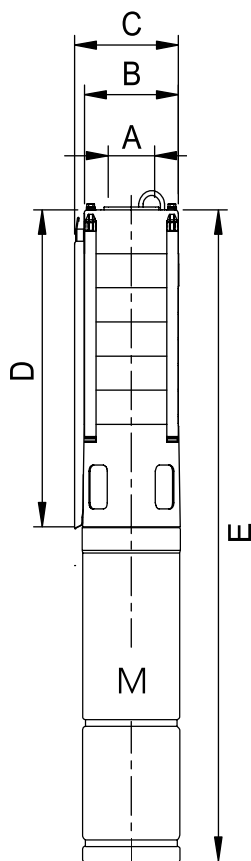
Performance Curve SP 10



Dimensions and weights

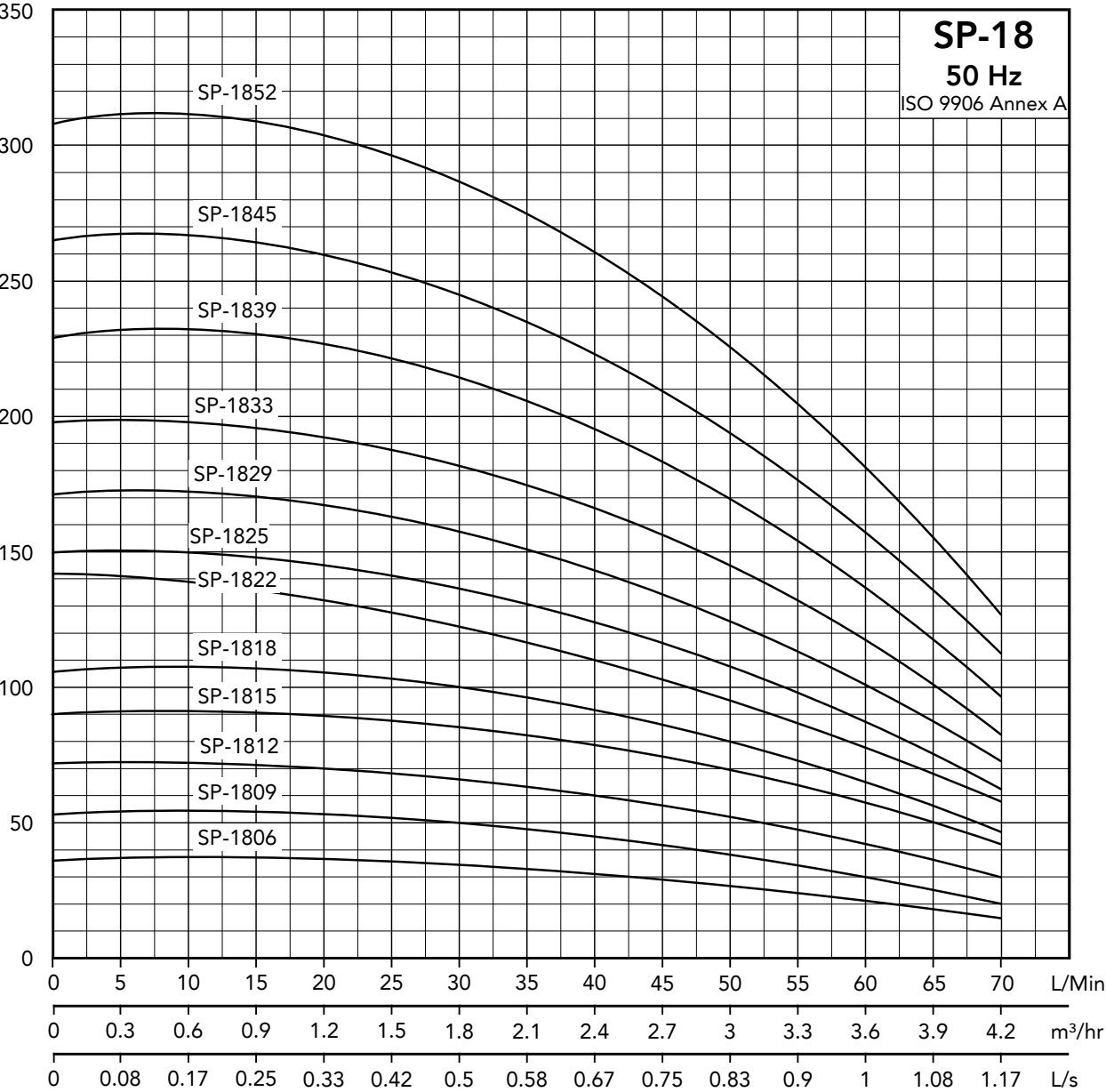
SP 10

TYPE	DIMENSION (mm)				BARE PUMP	MOTOR		PUMP & MOTOR		
						HP	kW	Height 1 Phase	Height 3 Phase	Weight
	A	B (mm)	C (mm)	D (mm)	Kg			E (mm)		Kg
SP-1009	1 1/4"	86.7	98	354	3.2	0.5	0.37	669		11.2
SP-1013				438	4	0.75	0.55	773	798	12
SP-1018				543	5.1	1	0.75	903	963	14.1
SP-1023				648	6.2	1.5	1.1	1038	1093	17.2
SP-1028				753	7	2	1.5	1188	1238	19
SP-1033				858	8.1	2	1.5	1293	1343	20.1
SP-1040				1041	10.4	3	2.2	1521	1586	24.4
SP-1048				1209	12.1	3	2.2	1689	1754	26.1

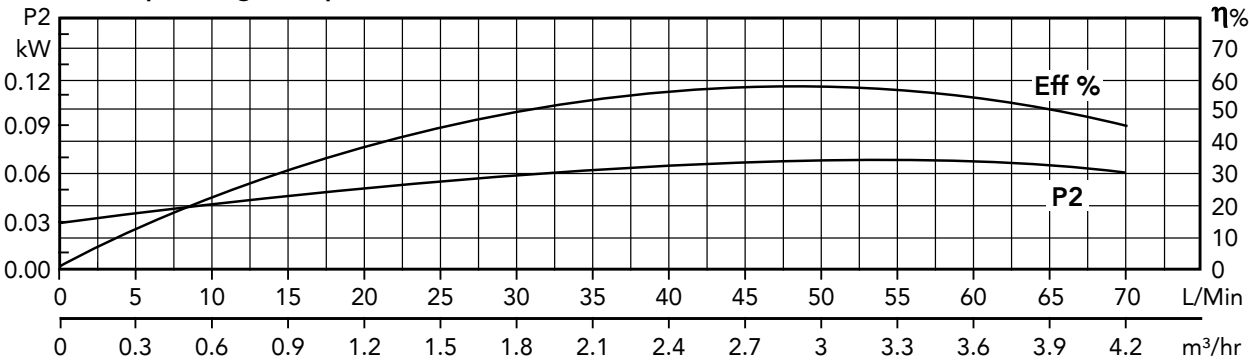


Performance Curve SP 18

Total Head (m)



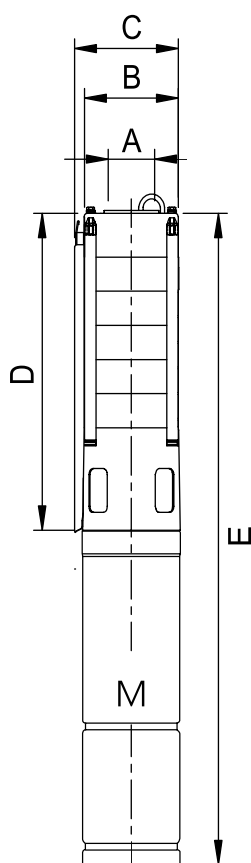
Power per Stage / Impeller



Dimensions and weights

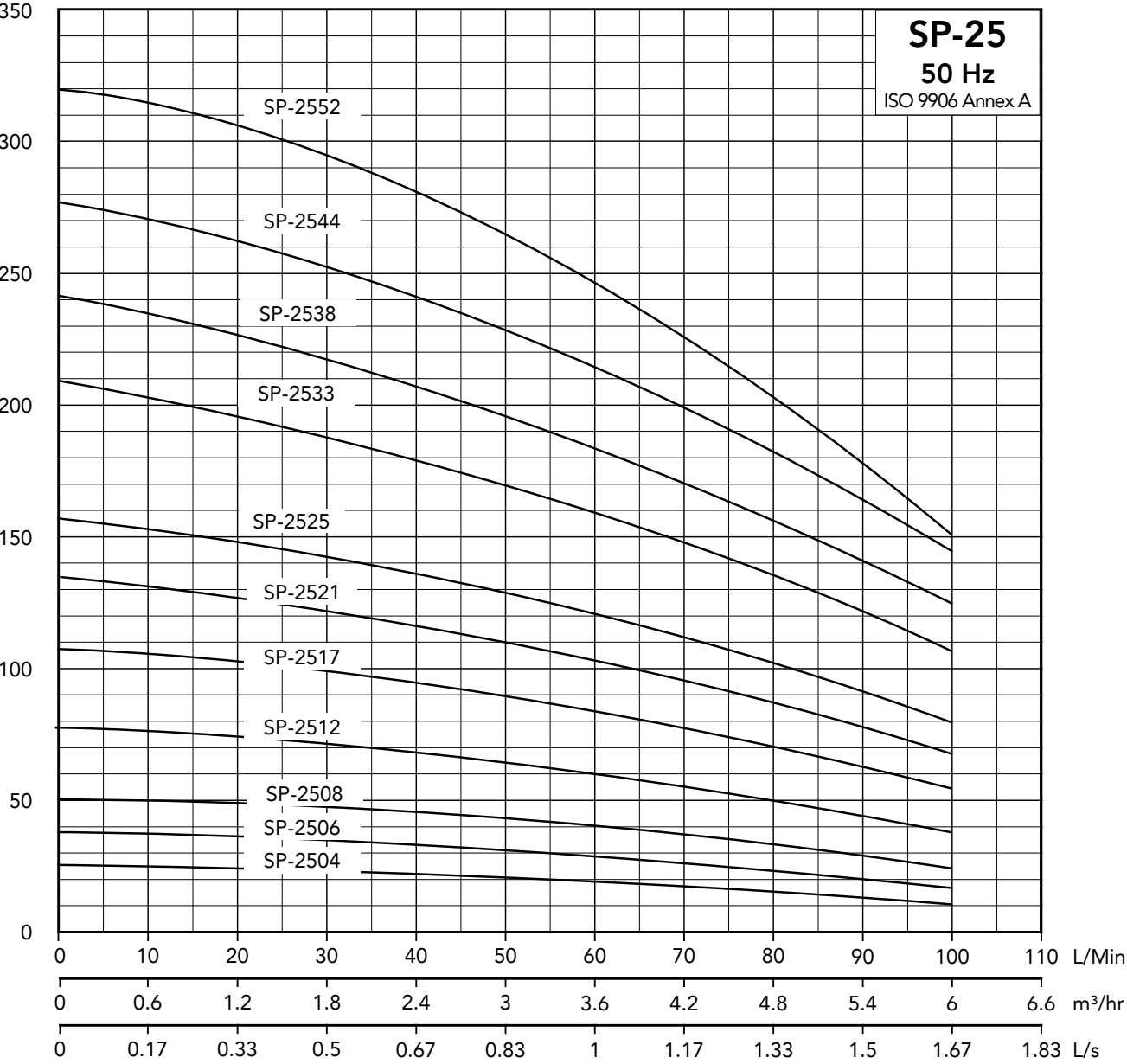
SP 18

TYPE	DIMENSION (mm)				BARE PUMP	MOTOR		PUMP & MOTOR		
						HP	kW	Height 1 Phase	Height 3 Phase	Weight
	A	B (mm)	C (mm)	D (mm)	Kg			E (mm)		Kg
SP-1806	1 1/4"	86.7	98	291	2.6	0.5	0.37	606		10.6
SP-1809				354	3.1	0.75	0.55	689	714	11.1
SP-1812				417	3.7	1	0.75	777	837	12.7
SP-1815				480	4.2	1.5	1.1	870	925	15.2
SP-1818				543	4.9	1.5	1.1	933	988	15.9
SP-1822				627	5.4	2	1.5	1062	1112	17.4
SP-1825				690	6	2	1.5	1125	1175	18
SP-1829				774	6.9	3	2.2	1254	1319	20.9
SP-1833				858	7.9	3	2.2	1338	1403	21.9
SP-1839				984	9.2	4	3		1584	9.2
SP-1845				1110	10.4	4	3		1710	10.4
SP-1852				1257	11.8	5.5	4		1927	11.8

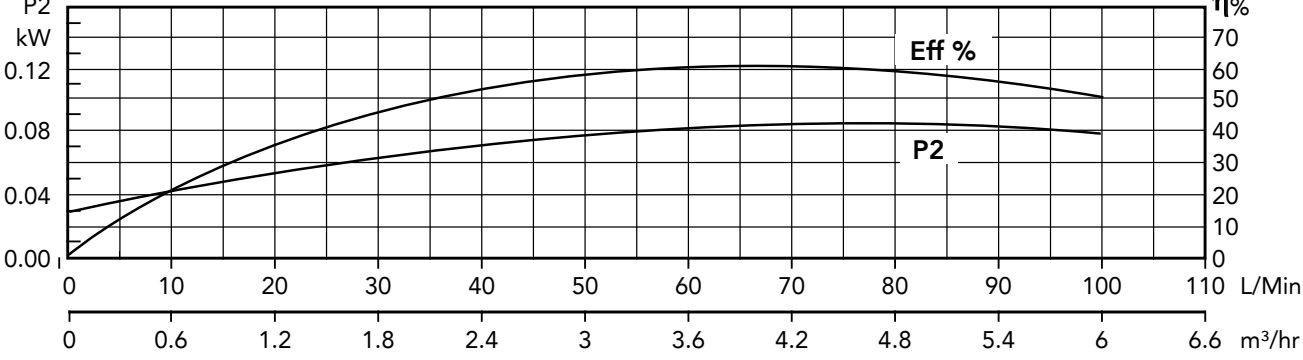


Performance Curve SP 25

Total Head (m)



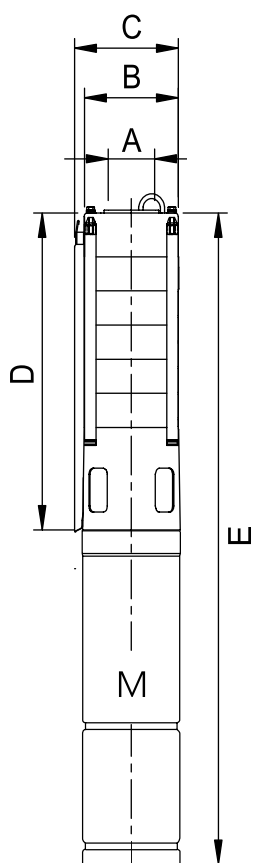
Power per Stage / Impeller



Dimensions and weights

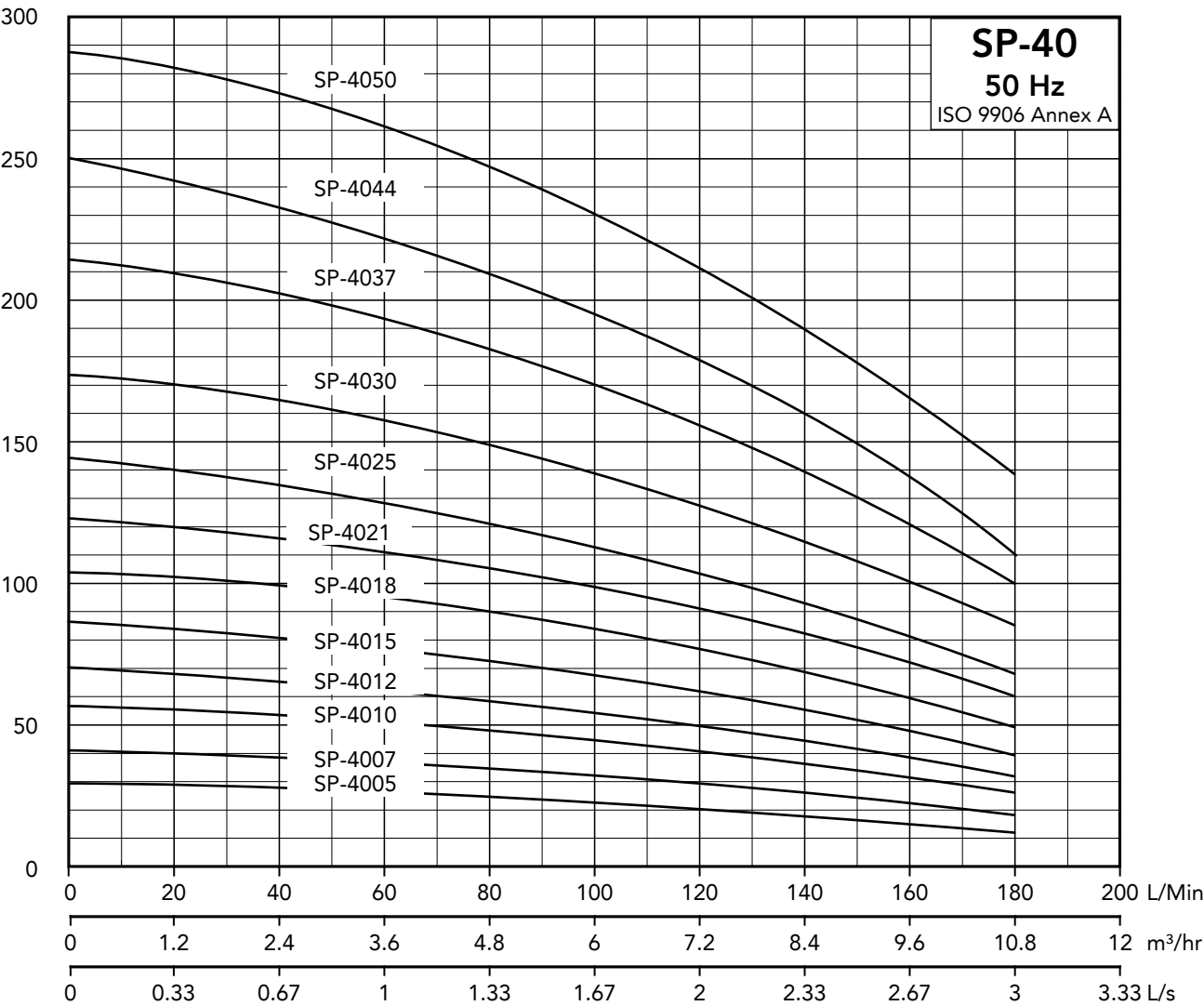
SP 25

TYPE	DIMENSION (mm)				BARE PUMP	MOTOR		PUMP & MOTOR		
						HP	kW	Height 1 Phase	Height 3 Phase	Weight
	A	B (mm)	C (mm)	D (mm)	Kg			E (mm)		Kg
SP-2504	1 1/2"	86.7	98	249	2.2	0.5	0.37	564		10.2
SP-2506				291	2.3	0.75	0.55	626	651	10.3
SP-2508				333	2.9	1	0.75	693	753	11.9
SP-2512				417	3.7	1.5	1.1	807	862	14.7
SP-2517				522	4.7	2	1.5	957	1007	16.7
SP-2521				606	5.3	3	2.2	1086	1151	19.3
SP-2525				690	6.4	3	2.2	1170	1235	20.4
SP-2533				858	7.8	4	3		1458	26.8
SP-2538				999	9.7	5.5	4		1669	30.7
SP-2544				1125	11	5.5	4		1795	32
SP-2552				1293	13.2	7.5	5.5		2078	38.2

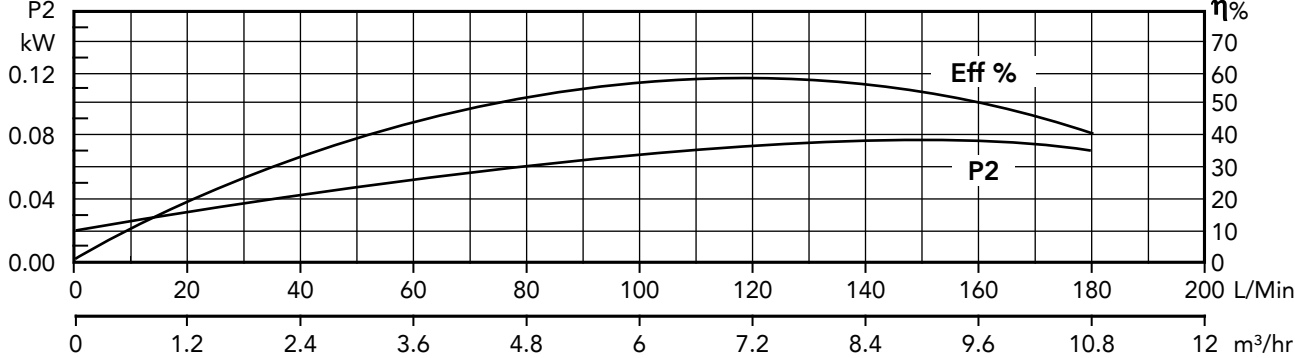


Performance Curve SP 40

Total Head (m)



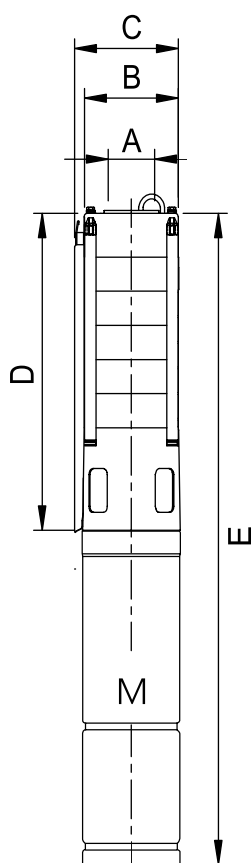
Power per Stage / Impeller



Dimensions and weights

SP 40

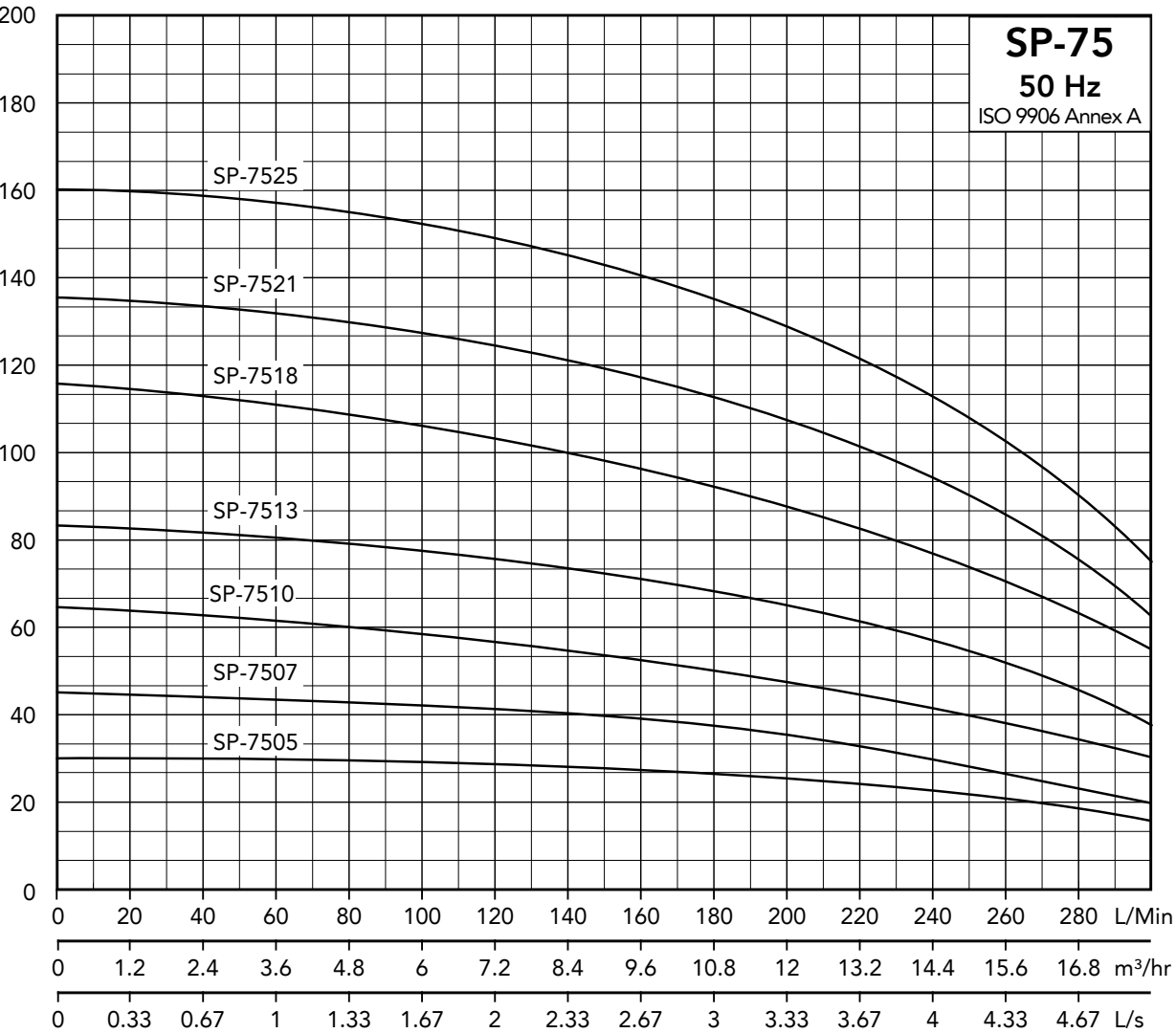
TYPE	DIMENSION (mm)				BARE PUMP	MOTOR		PUMP & MOTOR		
						HP	kW	Height 1 Phase	Height 3 Phase	Weight
	A	B (mm)	C (mm)	D (mm)	Kg			E (mm)		Kg
SP-4005	2"	87.3	98	385	4	1	0.75	745	805	13
SP-4007				469	5.1	1.5	1.1	859	914	16.1
SP-4010				595	6.6	2	1.5	1030	1080	18.6
SP-4012				679	7.6	3	2.2	1159	1224	21.6
SP-4015				805	9.1	3	2.2	1285	1350	23.1
SP-4018				931	10.6	4	3		1531	29.6
SP-4021				1057	12.1	5.5	4		1727	33.1
SP-4025				1225	14.1	5.5	4		1895	25.1
SP-4030				1435	16.6	7.5	5.5		2220	27.6
SP-4037				1729	20.1	7.5	5.5		2514	31.1
SP-4044				2049	23.7	10	7.5		2969	34.7
SP-4050				2275	26.6	10	7.5		3195	37.6



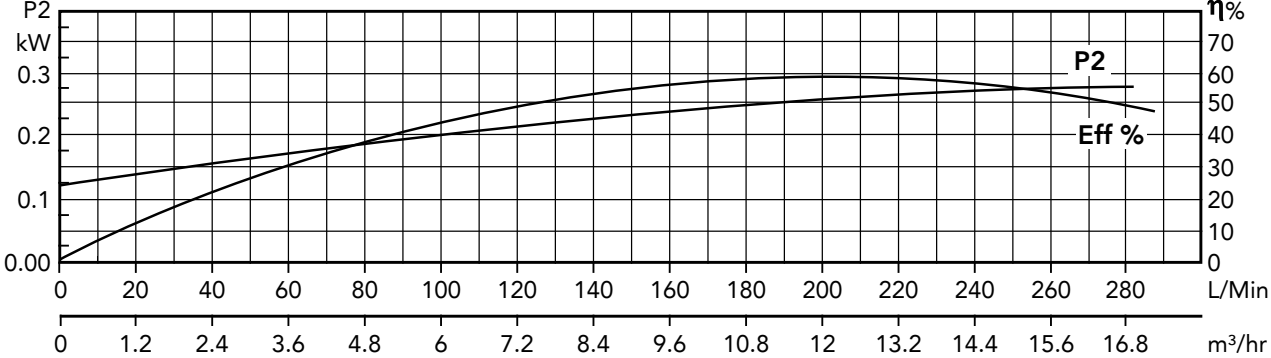
Performance Curve

SP 75

Total Head (m)



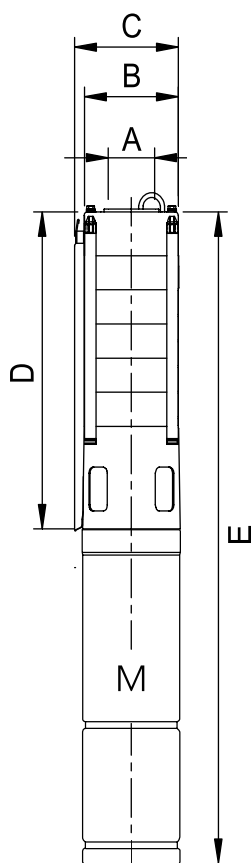
Power per Stage / Impeller



Dimensions and weights

SP 75

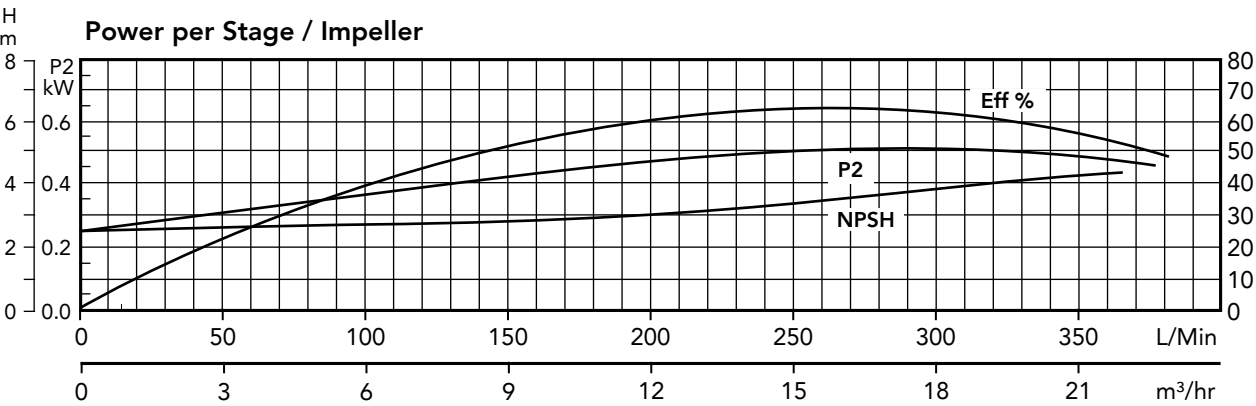
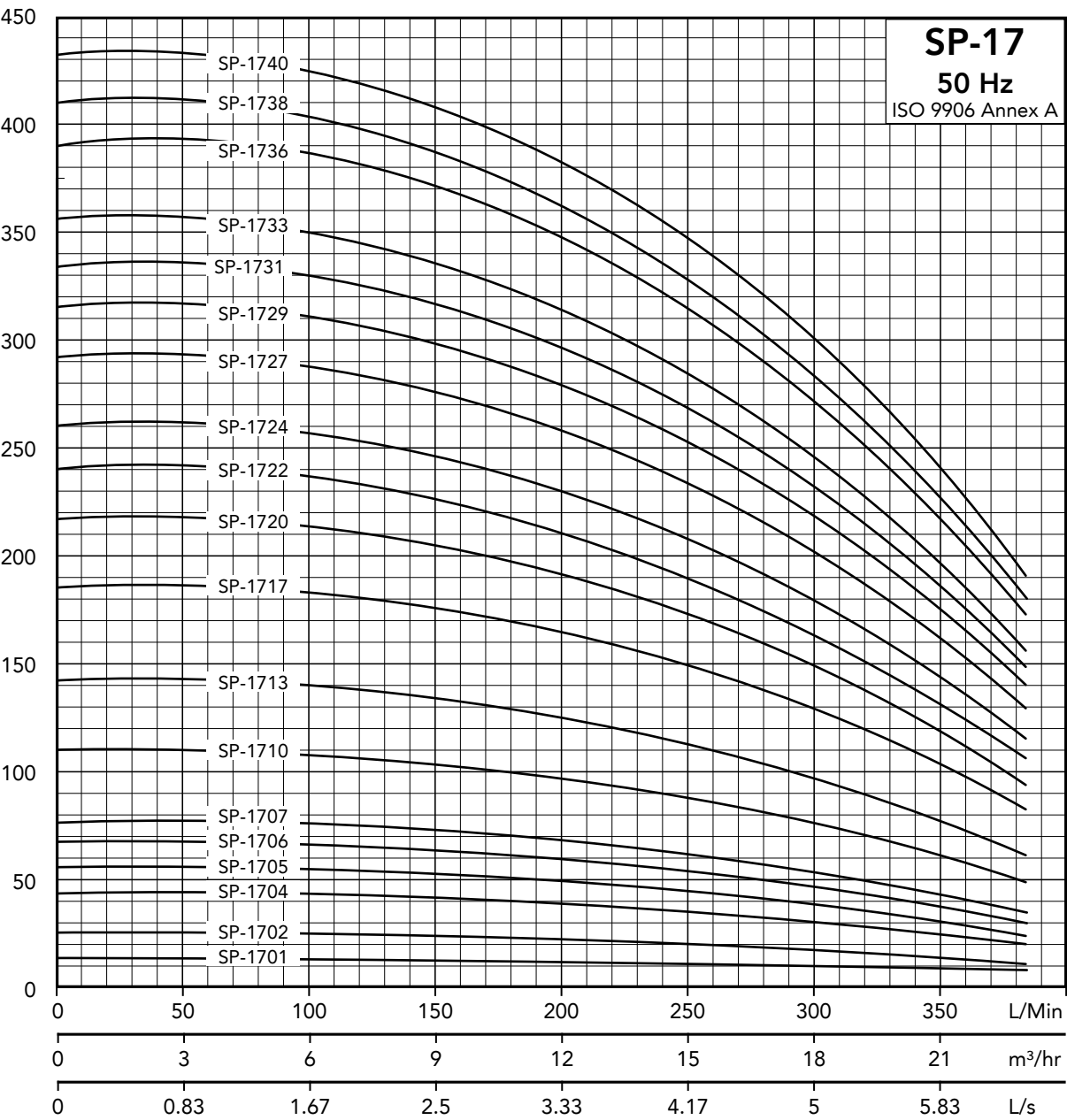
TYPE	DIMENSION (mm)				BARE PUMP	MOTOR		PUMP & MOTOR		
						HP	kW	Height 1 Phase	Height 3 Phase	Weight
	A	B (mm)	C (mm)	D (mm)	Kg			E (mm)		Kg
SP-7505	2"	87.3	98	503	5.4	2	1.5	440.4	988	16.4
SP-7507				633	6.8	3	2.2	486.8	1178	20.8
SP-7510				828	7.4	4	3		1428	26.4
SP-7513				1023	8.9	5.5	4		1693	29.9
SP-7518				1348	13.7	7.5	5.5		2133	38.7
SP-7521				1543	15.1	10	7.5		2463	46.1
SP-7525				1803	17.9	10	7.5		2723	48.9



Performance Curve

SP 17

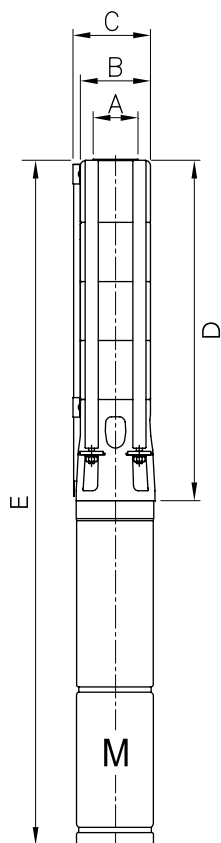
Total Head (m)



Dimensions and weights

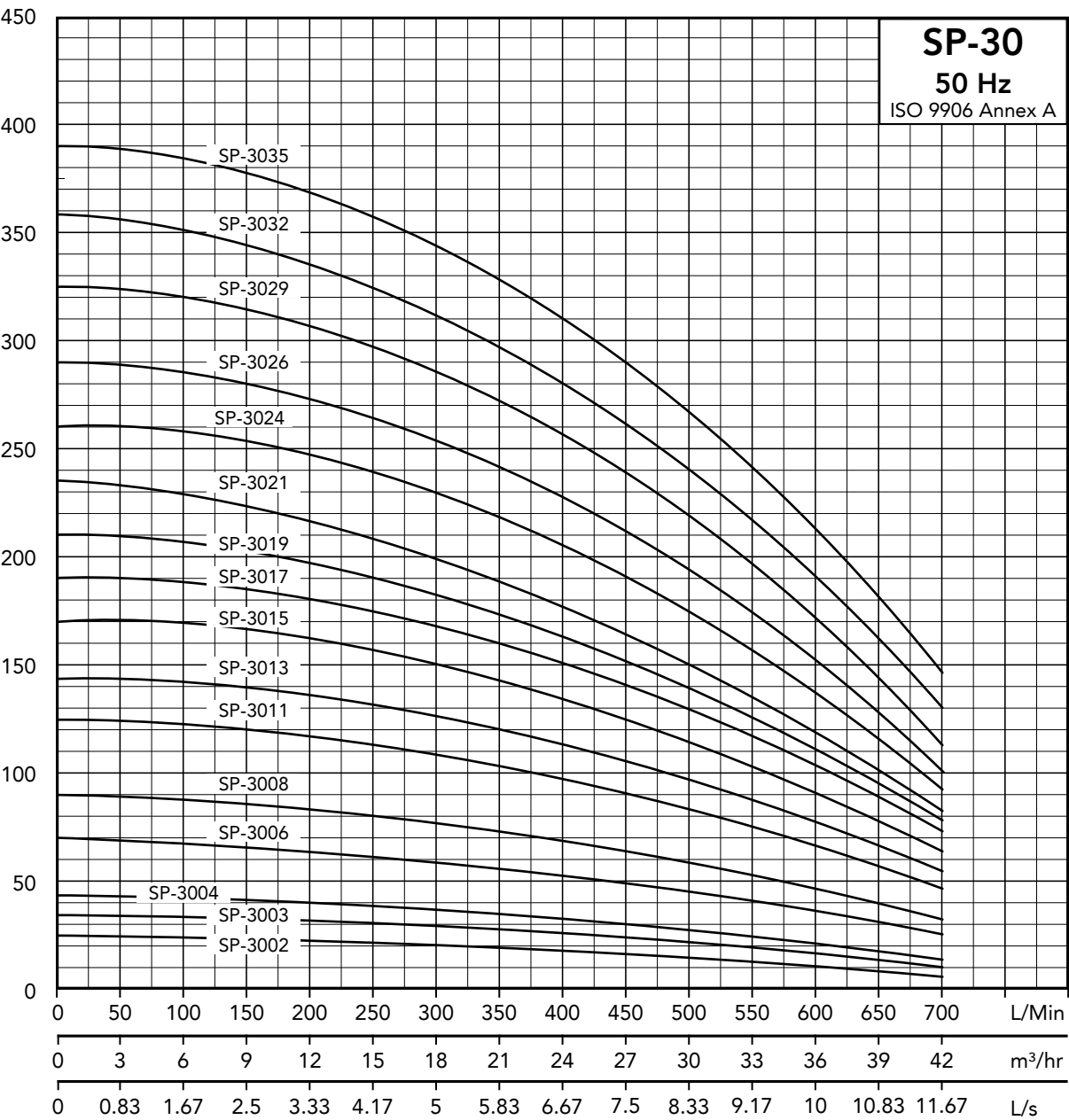
SP 17

TYPE	DIMENSION (mm)				BARE PUMP	MOTOR		PUMP & MOTOR				
						HP	kW	Height 1 Phase 4"	Height 3 Phase 4"	Height 3 Phase 6"	Weight 1 Phase	Weight 3 Phase
	A	B (mm)	C (mm)	D (mm)	Kg			E (mm)			Kg	
SP-1701	2 1/2"	121.3	135	317	4.6	0.75	0.55	652	677		12.6	12.6
SP-1702				377	5.9	1.5	1.1	767	822		16.9	15.9
SP-1704				497	8.5	3	2.2	977	1042		22.5	22.5
SP-1705				557	9.8	5	3		1157			28.8
SP-1706				617	11.1	5.5	4		1287			32.1
SP-1707				677	12.4	5.5	4		1347			33.4
SP-1710				857	16.1	7.5	5.5		1642	1437		888
SP-1713				1052	20.3	10	7.5		1972	1672		1086.4
SP-1717				1292	25.4	12.5	9.3			1947		1330
SP-1720				1472	29.2	15	11			2157		1513.3
SP-1722				1592	31.8	17.5	13			2307		1636
SP-1724				1712	34.3	17.5	13			2427		1756
SP-1727				1892	38.2	20	15			2647		1950.3
SP-1729				2012	40.8	25	18.5			2832		2073.4
SP-1731				2132	43.4	25	18.5			2952		2193.4
SP-1733				2252	46	25	18.5			3072		2313.4
SP-1736				2432	49.9	30	22			3312		2501
SP-1738				2552	52.5	30	22			3432		2621
SP-1740				2672	55.1	30	22			2552		2741

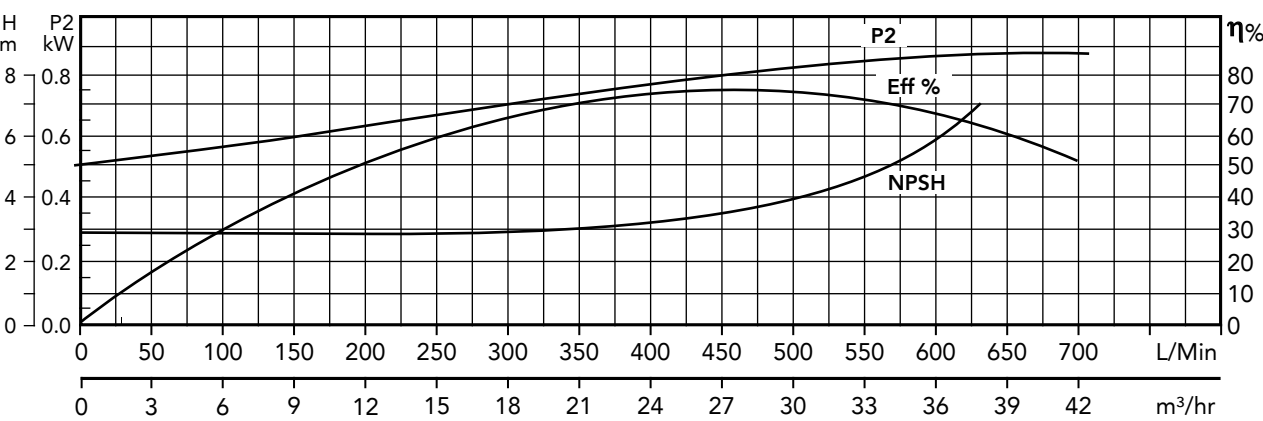


Performance Curve SP 30

Total Head (m)



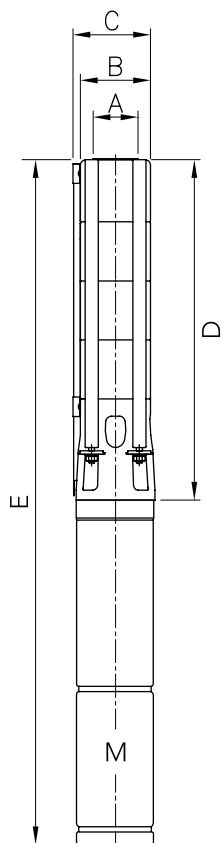
Power per Stage / Impeller



Dimensions and weights

SP 30

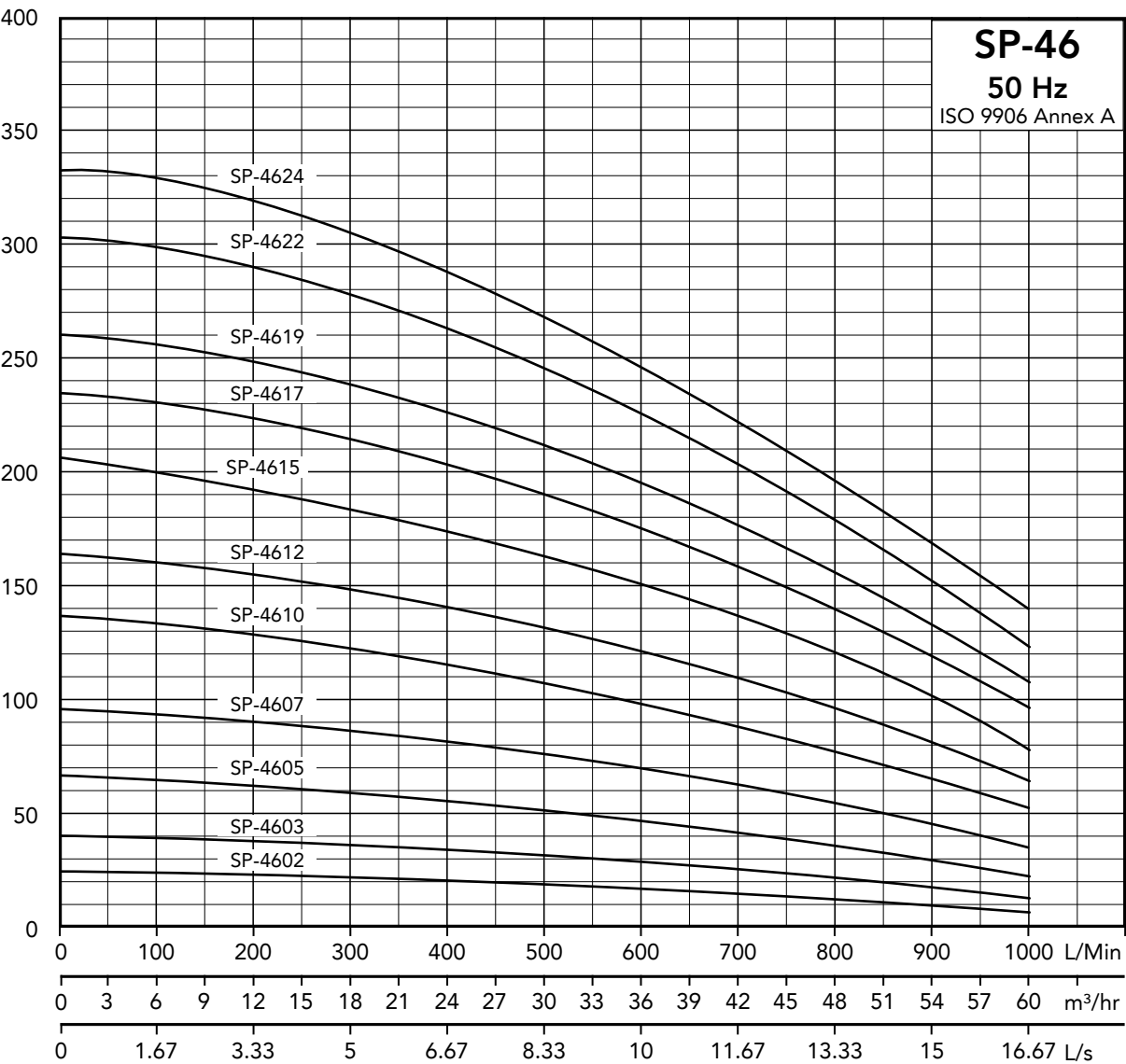
TYPE	DIMENSION (mm)				BARE PUMP	MOTOR		PUMP & MOTOR				
						HP	kW	Height 1 Phase 4"	Height 3 Phase 4"	Height 3 Phase 6"	Weight 1 Phase	Weight 3 Phase
	A	B (mm)	C (mm)	D (mm)	Kg			E (mm)			Kg	
SP-3002	3"	121.3	135	449	6.5	3	2.2	764	994		20.5	20.5
SP-3003				545	8.2	4	3		1145			27.2
SP-3004				641	9.9	5.5	4		1311			30.9
SP-3006				833	13.8	7.5	5.5		1618	1431		38.8
SP-3008				1025	17.3	10	7.5		1945	1645		48.3
SP-3011				1313	22.7	12.5	9.3			1998		64.1
SP-3013				1505	26.1	15	11			2190		67.5
SP-3015				1697	29.6	17.5	13			2452		87.9
SP-3017				1889	33.2	20	15			2644		91.5
SP-3019				2081	36.7	25	18.5			2901		98.1
SP-3021				2273	40.2	25	18.5			3093		101.6
SP-3024				2561	45.3	30	22			3441		114.3
SP-3026				2753	48.7	30	22			3633		117.7
SP-3029				3041	53.8	35	26			3971		130.8
SP-3032				3329	58.9	40	30			4309		142.9
SP-3035				3617	64	40	30			4597		148



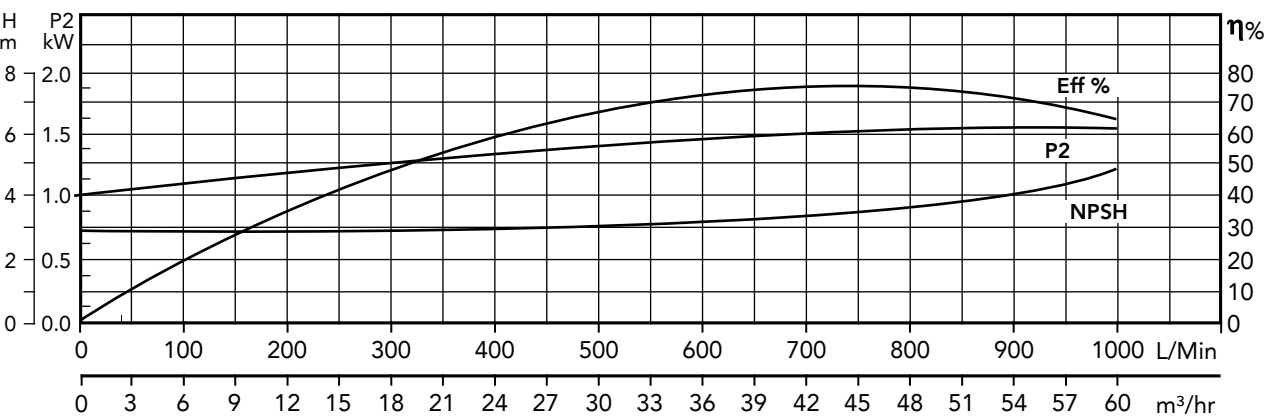
Performance Curve

SP 46

Total Head (m)



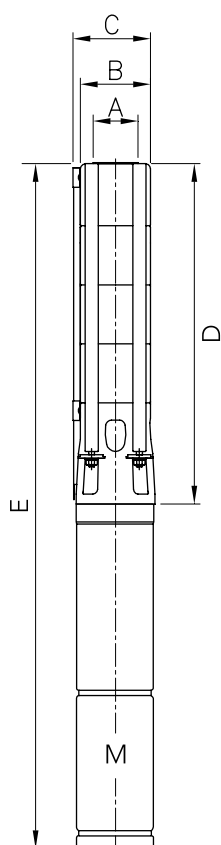
Power per Stage / Impeller



Dimensions and weights

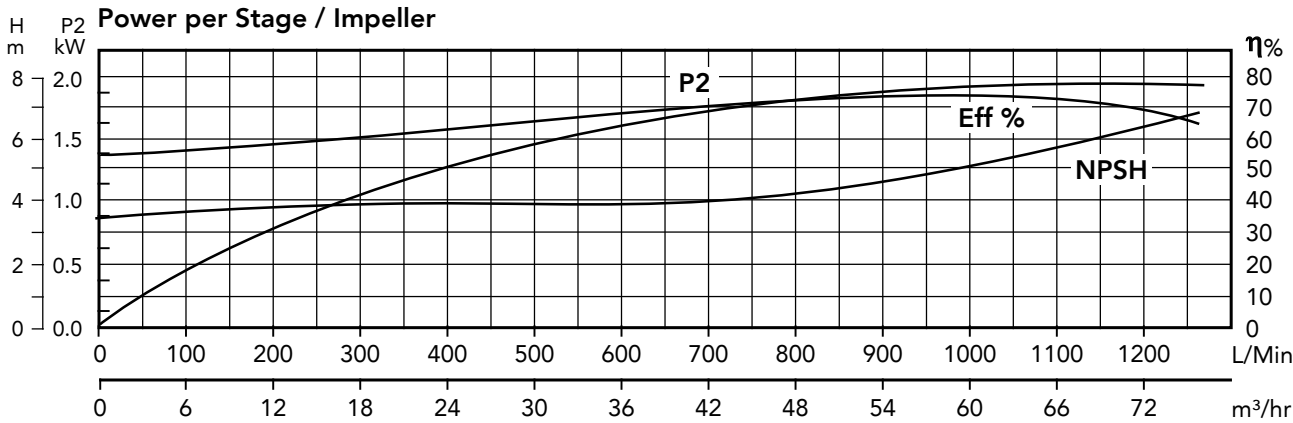
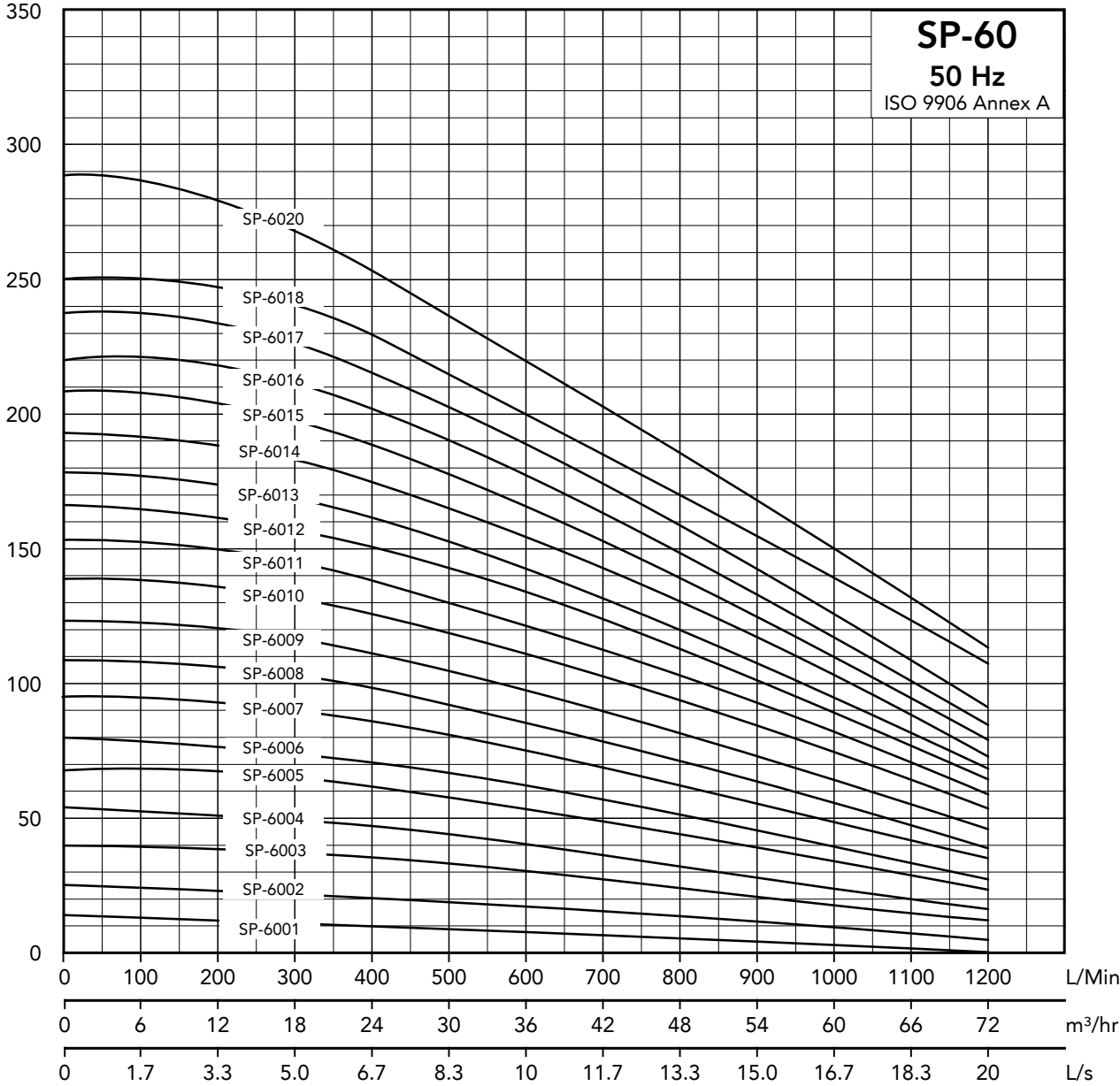
SP 46

TYPE	DIMENSION (mm)				BARE PUMP	MOTOR		PUMP & MOTOR		
						HP	kW	Height 3 Phase 4"	Height 3 Phase 6"	Weight 3 Phase
	A	B (mm)	C (mm)	D (mm)	Kg			E (mm)		Kg
SP-4602	4"	132	152	504	8.45	4	3	1104		27.45
SP-4603				617	10.7	7.5	5.5	1287	1197	41.7
SP-4605				858	15.2	10	7.5	1643	1478	49.6
SP-4607				1084	19.7	15	11		1769	61.1
SP-4610				1423	26.5	20	15		2178	84.8
SP-4612				1649	31	25	18.5		2469	92.4
SP-4615				1988	37.8	30	22		2868	106.8
SP-4617				2214	42.3	35	26		3144	119.3
SP-4619				2440	46.7	40	30		3420	130.7
SP-4622				2779	53.3	50	37		3897	145.3
SP-4624				2892	57.8	50	37		4010	14.8



Performance Curve SP 60

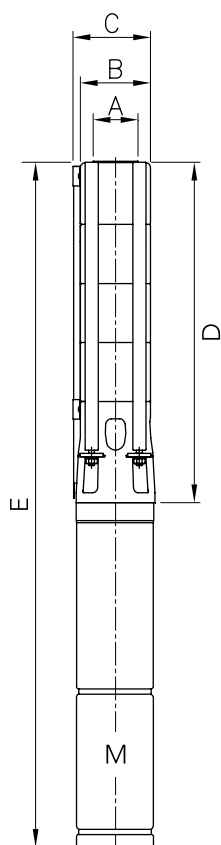
Total Head (m)



Dimensions and weights

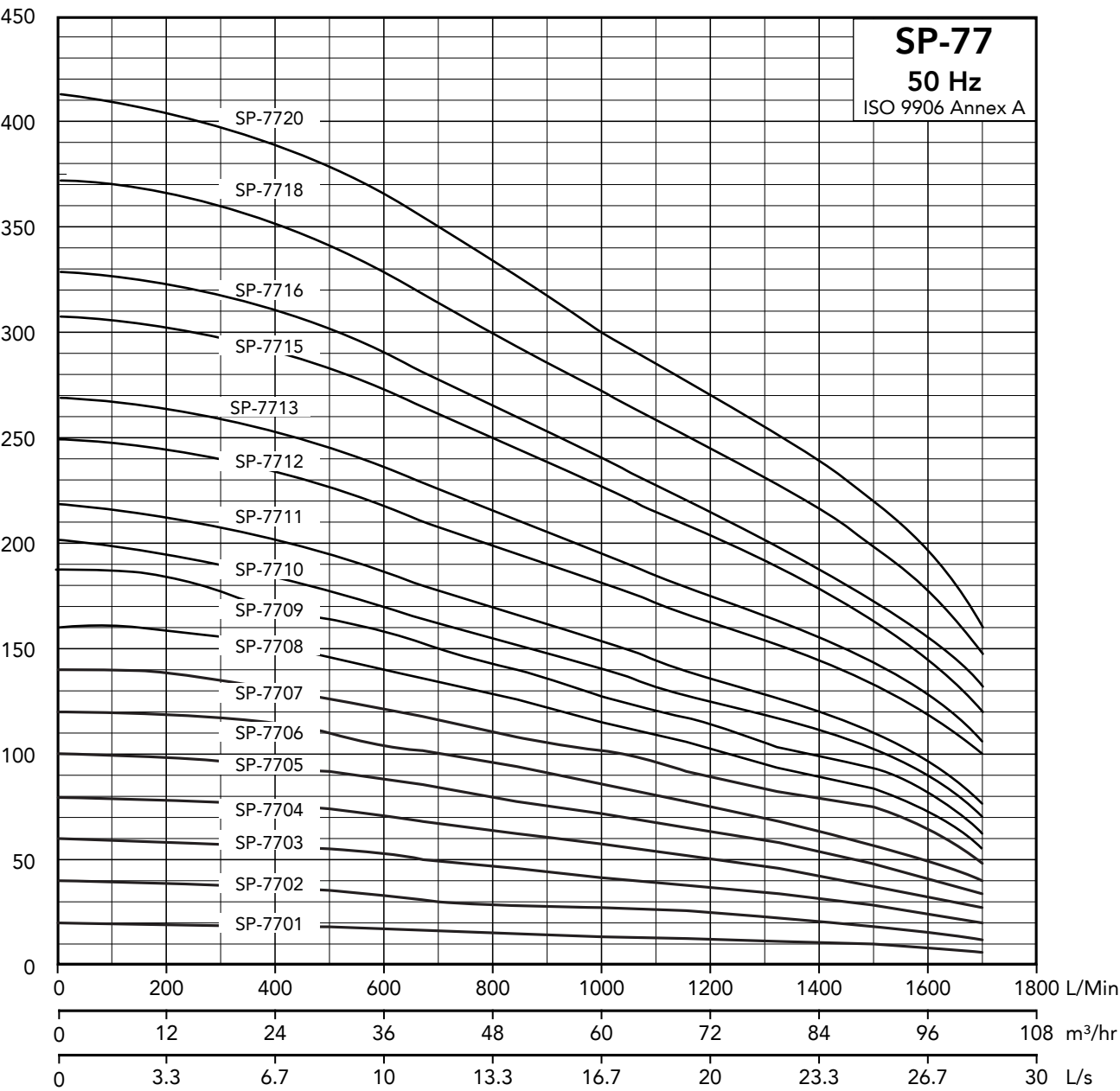
SP 60

TYPE	DIMENSION (mm)				BARE PUMP	MOTOR		PUMP & MOTOR		
						HP	kW	Height 3 Phase 4"	Height 3 Phase 6"	Weight 3 Phase
	A	B (mm)	C (mm)	D (mm)	Kg			E (mm)		Kg
SP-6001	4"	132	152	391	6.4	3	2.2	936		20.4
SP-6002				504	8.7	5.5	4	1174		29.7
SP-6003				617	11	7.5	5.5	1402	1197	42
SP-6004				745	13.2	10	7.5	1665	1365	47.6
SP-6005				873	15.4	12.5	9.3		1528	53.4
SP-6006				971	17.8	15	11		1656	59.2
SP-6007				1084	20.1	17.5	13		1799	64.1
SP-6008				1197	22.3	20	15		1952	80.6
SP-6009				1314	24.6	25	18.5		2134	86
SP-6010				1423	26.9	25	18.5		2243	88.3
SP-6011				1536	29.2	30	22		2416	98.2
SP-6012				1762	31.4	30	22		2642	100.4
SP-6013				1649	33.7	35	26		2579	110.7
SP-6014				1878	36	35	26		2808	113
SP-6015				1988	38.2	35	26		2918	115.2
SP-6016				2098	40.4	40	30		3078	124.4
SP-6017				2208	42.6	40	30		3326	134.6
SP-6018				2318	44.8	50	37		3436	136.8
SP-6020				2538	49.2	50	37		3656	141.2

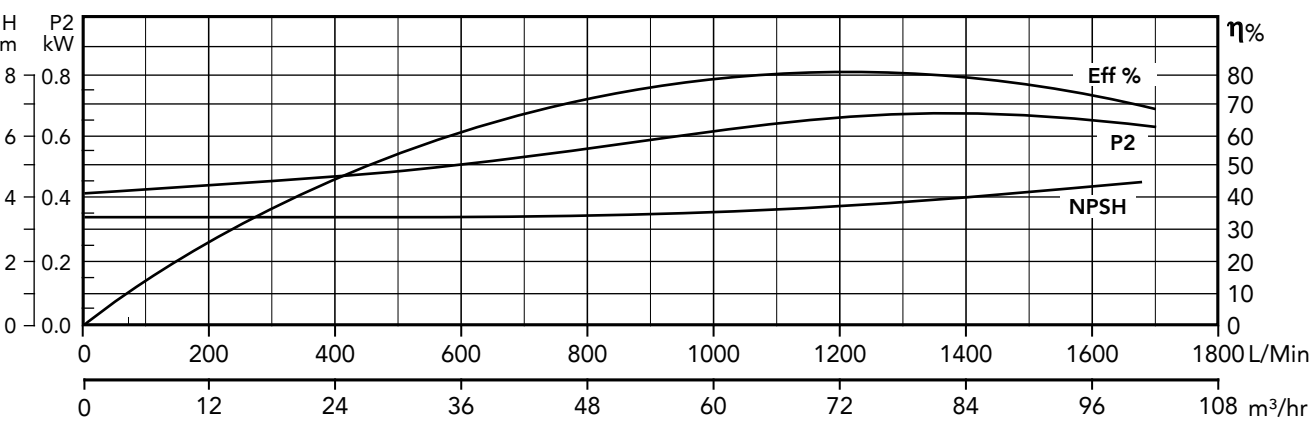


Performance Curve SP 77

Total Head (m)



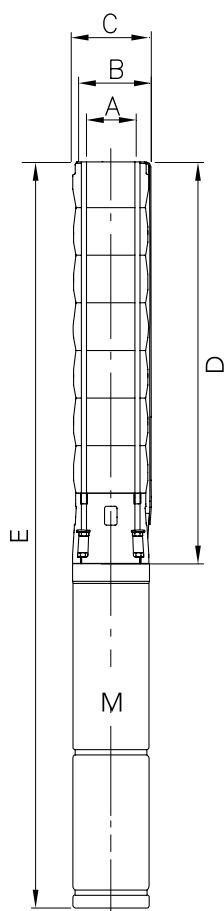
Power per Stage / Impeller



Dimensions and weights

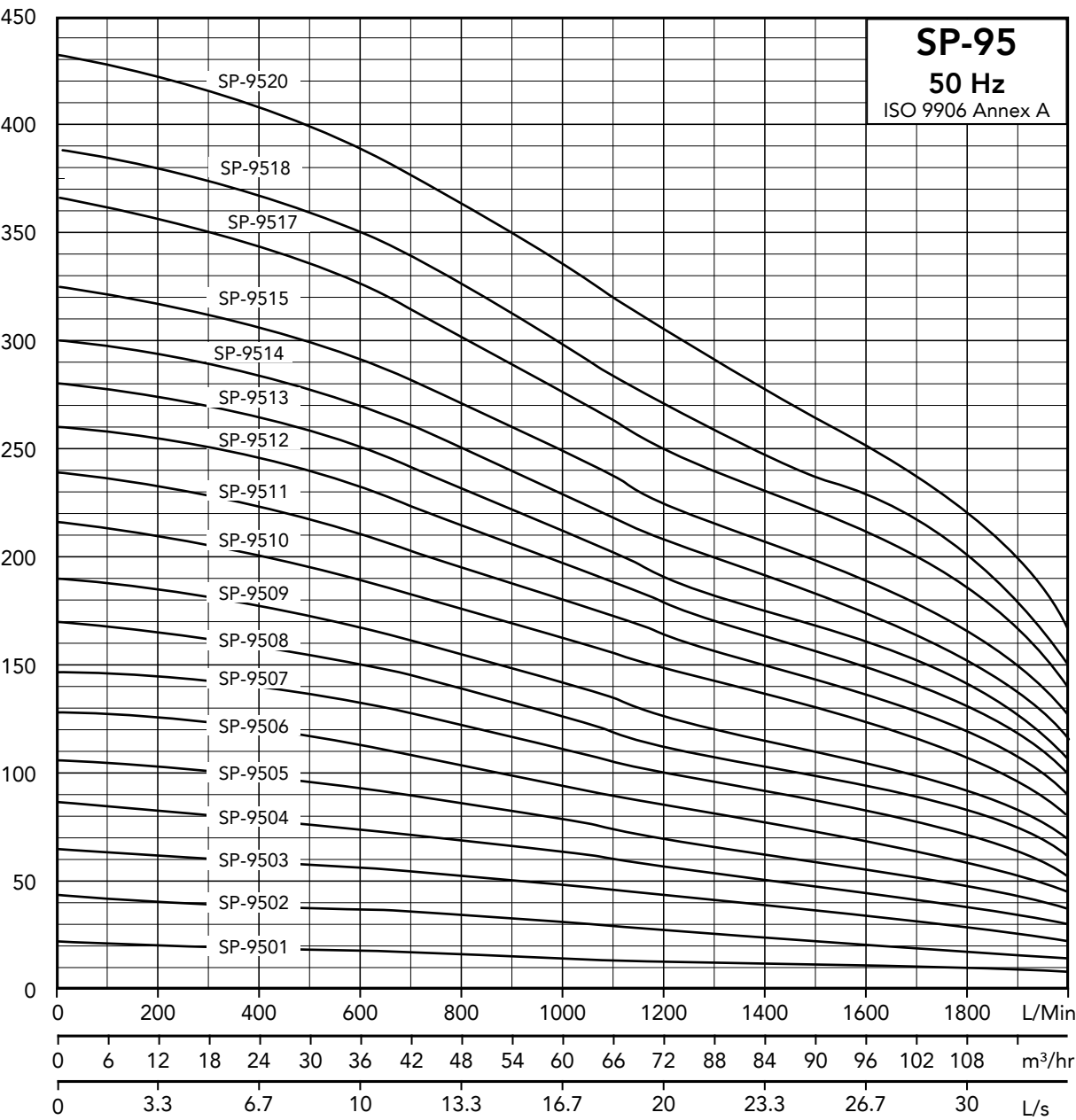
SP 77

TYPE	DIMENSION (mm)				BARE PUMP	MOTOR		PUMP & MOTOR		
						HP	kW	Height 3 Phase 4"	Height 3 Phase 6"	Weight 3 Phase
	A	B (mm)	C (mm)	D (mm)	Kg			E (mm)		Kg
SP-7701	5"	158	205	618	25.1	7.5	55	978	1198	56.1
SP-7702				746	28.7	10	7.5	1166	1366	63.1
SP-7703				874	32.3	15	11		1559	73.7
SP-7704				1003	35.9	20	15		1758	94.2
SP-7705				1131	39.5	25	18.5		1951	100.9
SP-7706				1259	43	30	22		2139	112
SP-7707				1387	46.6	35	26		2317	123.6
SP-7708				1515	50.2	40	30		2495	134.2
SP-7709				1643	53.8	40	30		2623	137.8
SP-7710				1771	57.4	50	37		2889	149.4
SP-7711				1900	61	50	37		3018	153
SP-7712				2039	66	60	45		3217	166
SP-7713				2168	69.6	75	55		3518	259
SP-7715				2424	76.8	75	55		3774	266
SP-7716				2552	80.4	85	63		4042	296
SP-7718				2809	87.6	85	63		4299	304
SP-7720				3065	94.8	100	75		4655	338

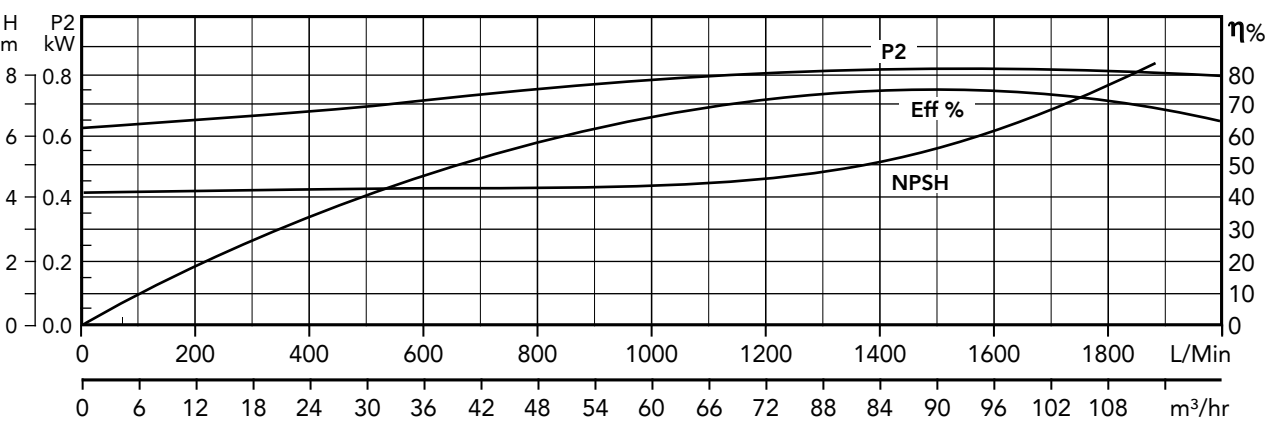


Performance Curve SP 95

Total Head (m)



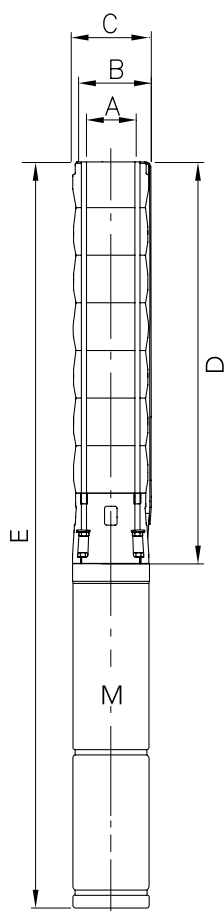
Power per Stage / Impeller



Dimensions and weights

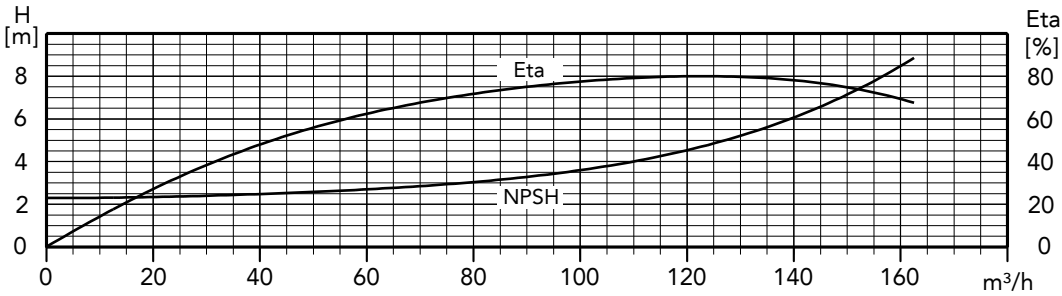
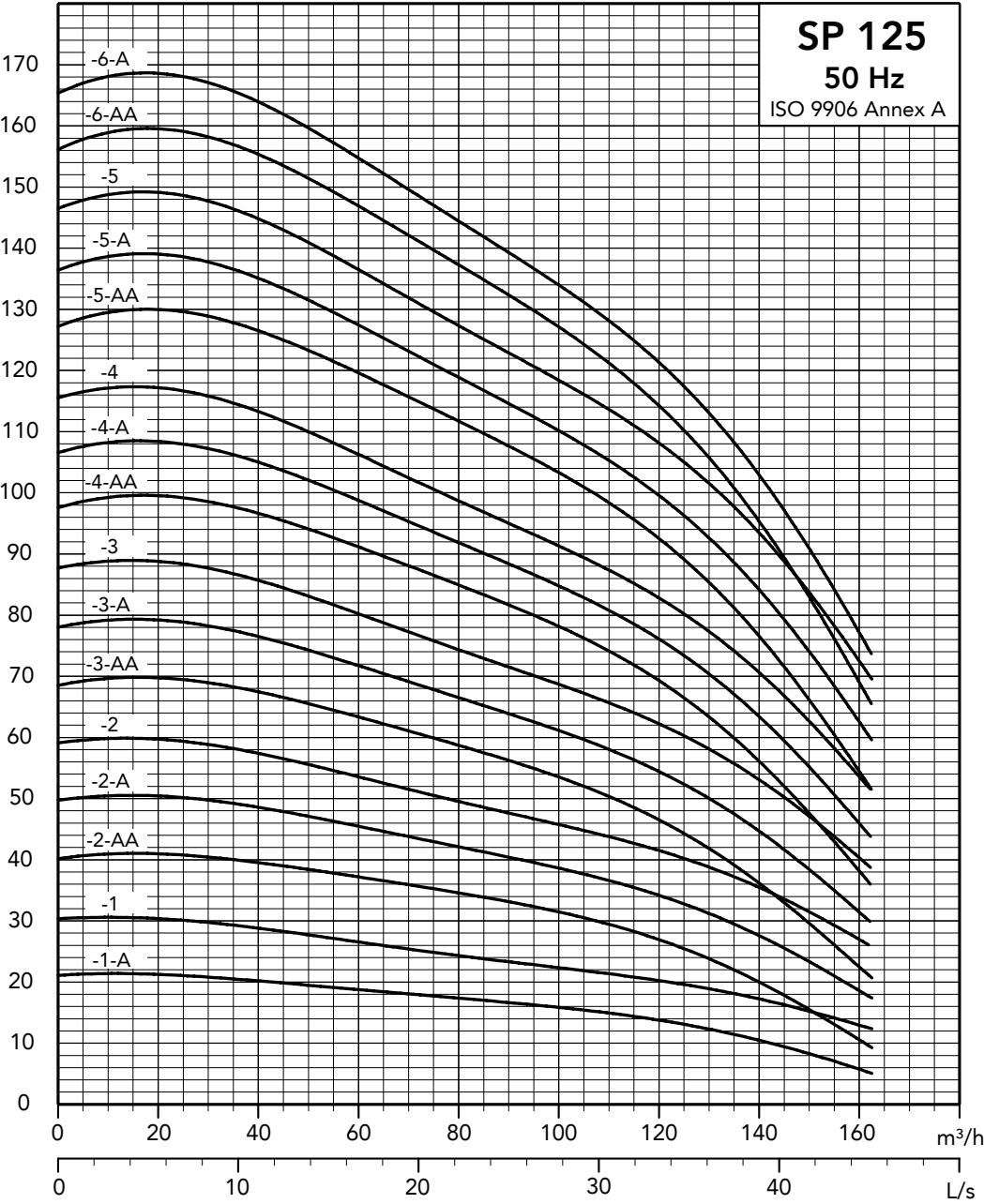
SP 95

TYPE	DIMENSION (mm)				BARE PUMP	MOTOR		PUMP & MOTOR	
						HP	kW	Height 3 Phase 6"	Weight 3 Phase
	A	B (mm)	C (mm)	D (mm)	Kg			E (mm)	Kg
SP-9501	5"	158	205	618	25.1	7.5	5.5	1198	56.1
SP-9502				746	28.7	12.5	9.3	1401	66.7
SP-9503				874	32.3	17.5	13	1589	76.3
SP-9504				1003	35.9	25	18.5	1823	97.3
SP-9505				1131	39.5	30	22	2011	108.5
SP-9506				1259	43	35	26	2189	120
SP-9507				1387	46.6	40	30	2367	130.6
SP-9508				1515	50.2	50	37	2633	142.2
SP-9509				1644	53.8	50	37	2762	145.8
SP-9510				1772	57.4	60	45	2950	157.4
SP-9511				1900	61	75	55	3250	251
SP-9512				2039	66	75	55	3389	255
SP-9513				2168	69.6	75	55	3518	259
SP-9514				2296	76.8	85	63	3786	289
SP-9515				2424	80.4	100	75	4014	311
SP-9517				2680	87.6	100	75	4270	319
SP-9518				2809	94.8	125	93	4639	376
SP-9520				3065	102.2	125	93	4895	384



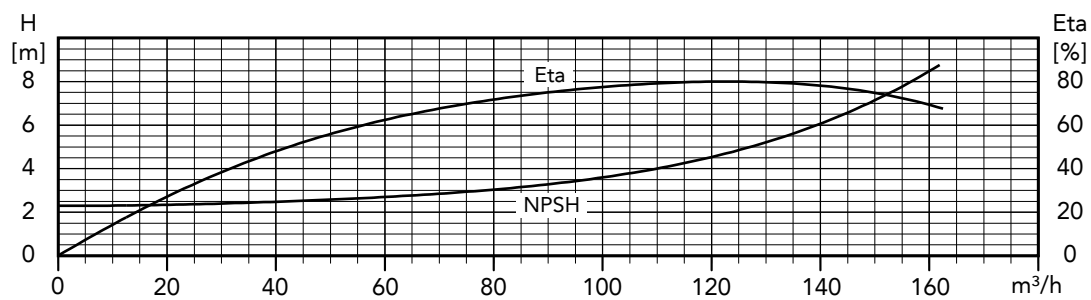
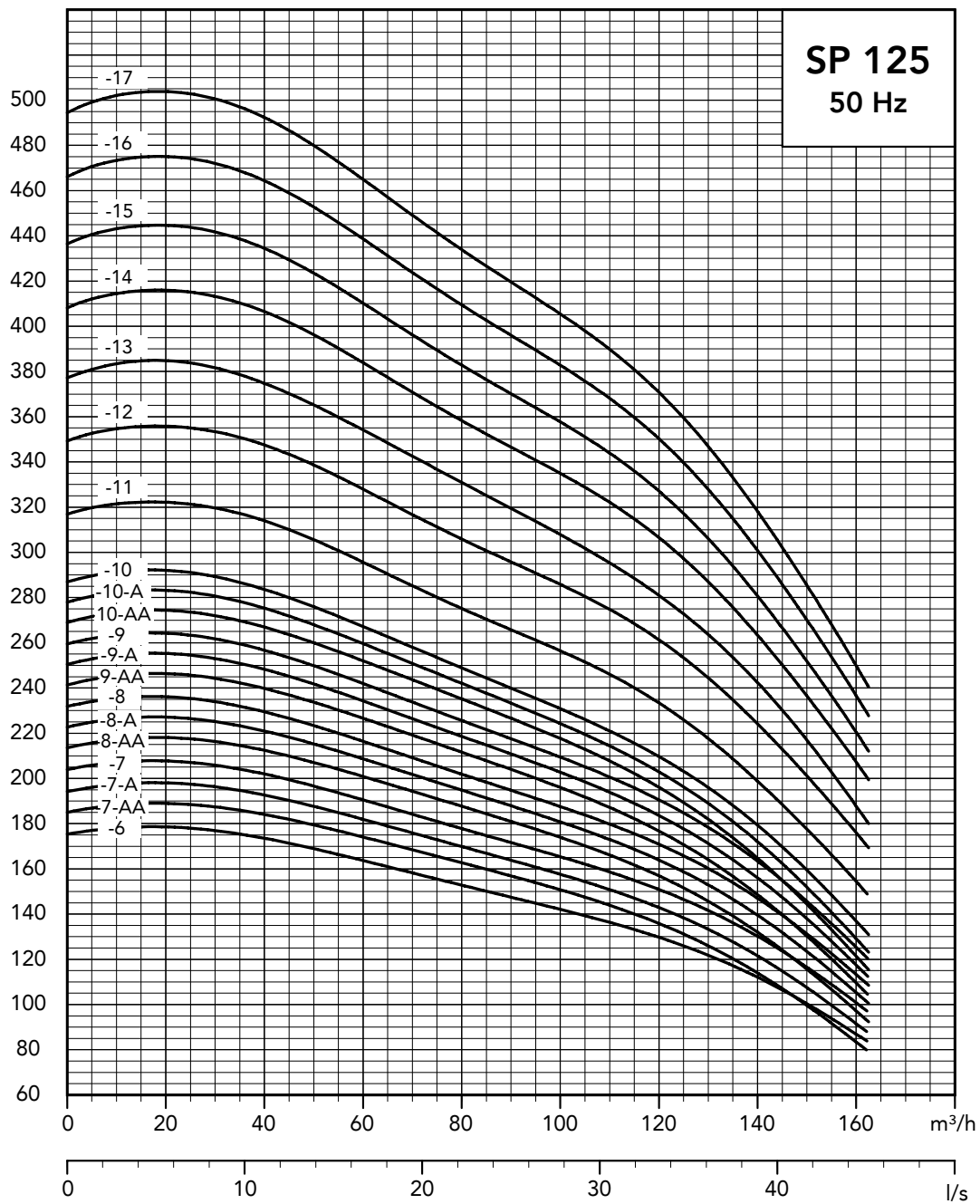
Performance Curve SP 125

Total Head (m)



Performance Curve SP 125

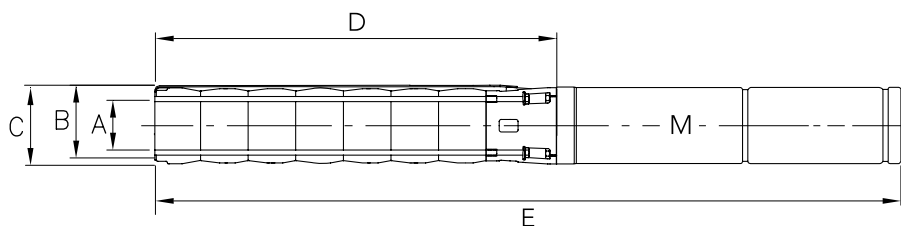
Total Head (m)



Dimensions and weights

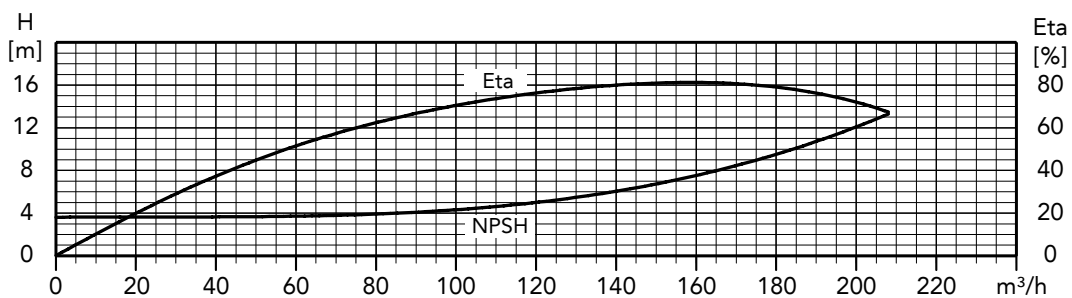
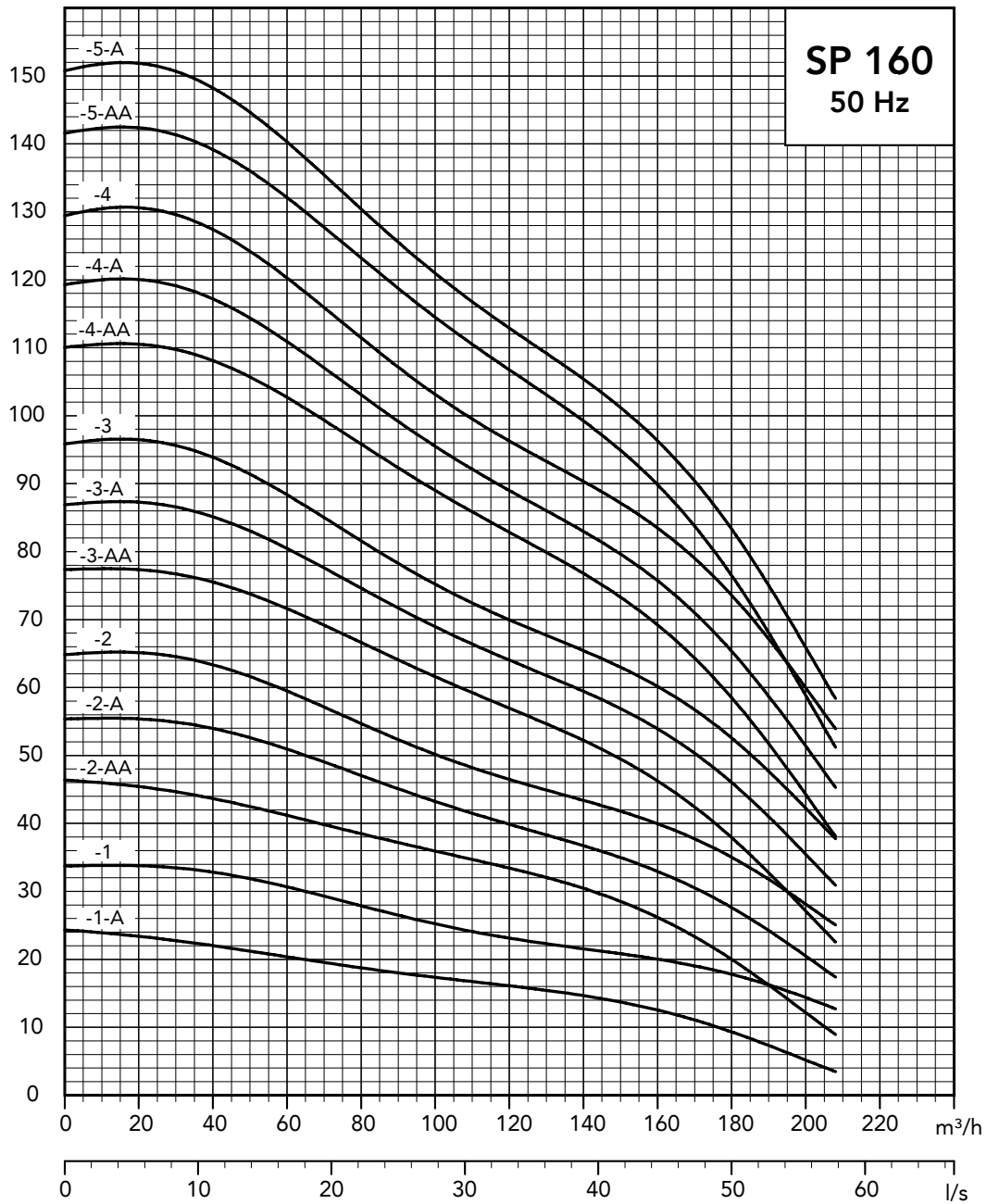
SP 125

TYPE	DIMENSION (mm)				NETT WEIGHT Kg	MOTOR		PUMP & MOTOR
						HP	kW	Height 3 Phase 6"
	A	B (mm)	C (mm)	D (mm)				E (mm)
SP-125-1-A	6"	226 - 232	218 - 237	651	70	10	7.5	1216
SP-125-1				651	79	15	11	1334
SP-125-2-AA				807	88	17.5	13	1515
SP-125-2-A				807	97	25	18.5	1590
SP-125-2				807	103	30	22	1645
SP-125-3-AA				963	109	30	22	1801
SP-125-3-A				963	115	35	26	1866
SP-125-3				963	123	40	30	1931
SP-125-4-AA				1119	176	50	37	2544
SP-125-4-A				1119	176	50	37	2544
SP-125-4				1119	176	50	37	2544
SP-125-5-AA				1275	236	60	45	2545
SP-125-5-A				1275	236	60	45	2545
SP-125-5				1275	251	75	55	2625
SP-125-6-AA				1431	257	75	55	2781
SP-125-6-A				1431	257	75	55	2781
SP-125-6				1431	283	85	63	2921
SP-125-7-AA				1587	289	85	63	3077
SP-125-7-A				1587	289	85	63	3077
SP-125-7				1587	308	100	75	3177
SP-125-8-AA				1743	314	100	75	3333
SP-125-8-A				1743	314	100	75	3333
SP-125-8				1743	314	100	75	3333
SP-125-9-AA				1899	366	125	92	3729
SP-125-9-A				1899	366	125	92	3729
SP-125-9				1899	366	125	92	3729
SP-125-10-AA				2055	372	125	92	3885
SP-125-10-A				2055	372	125	92	3885
SP-125-10				2055	372	125	92	3885
SP-125-11				2507	438	148	110	4567
SP-125-12				2714	556	177	132	4584
SP-125-13				2870	562	177	132	4740
SP-125-14				3025	633	197	147	5095
SP-125-15				3181	639	197	147	5251
SP-125-16				3336	685	228	170	5556
SP-125-17				3492	691	228	170	5712



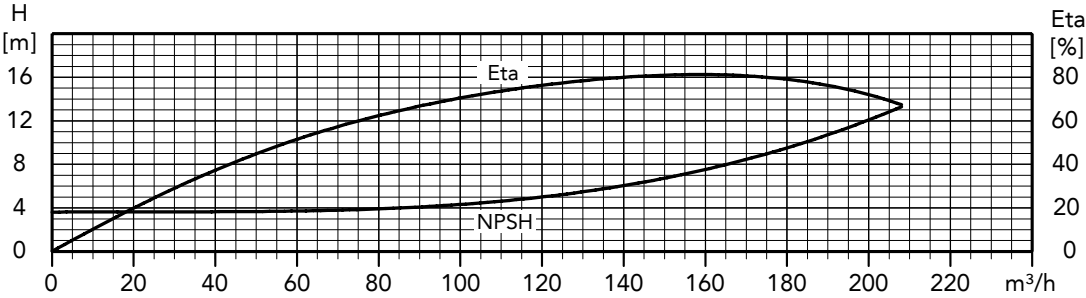
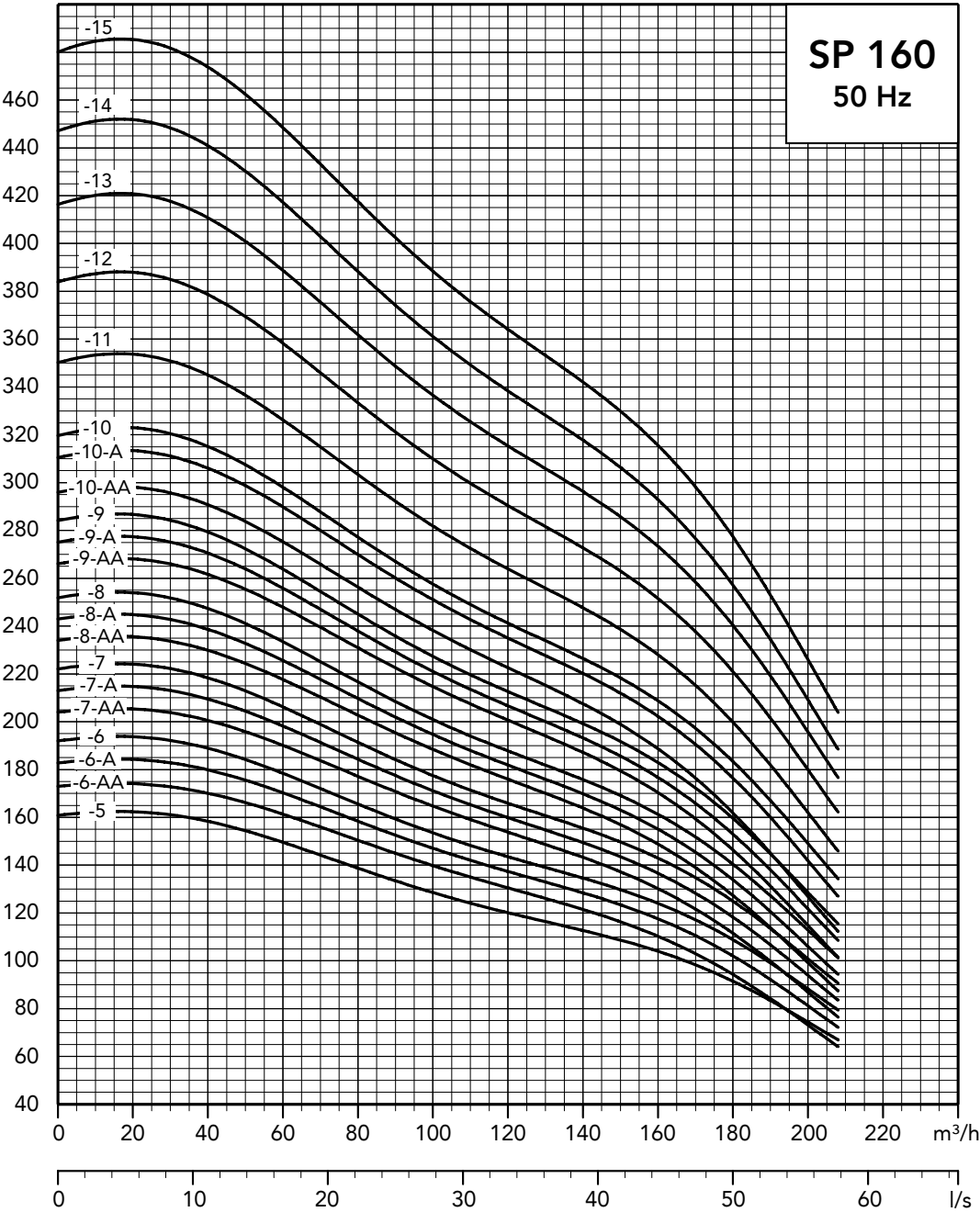
Performance Curve SP 160

Total Head (m)



Performance Curve SP 160

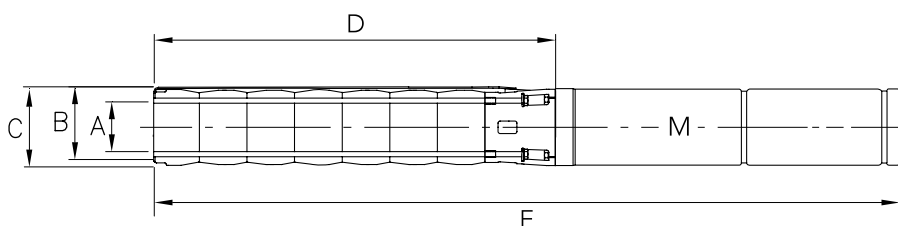
Total Head (m)



Dimensions and weights

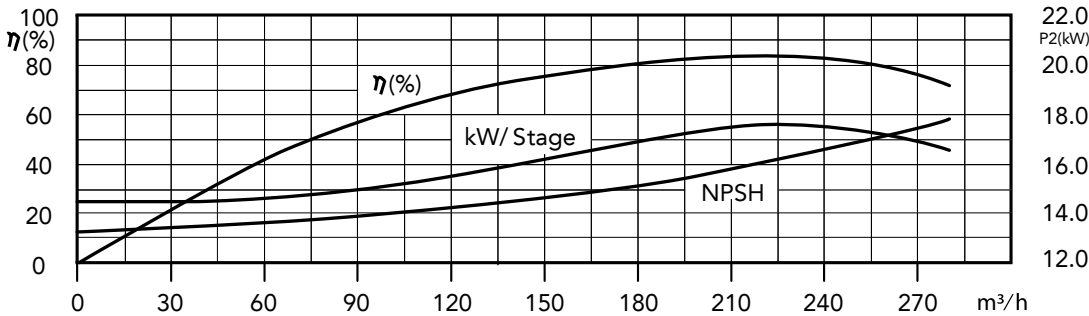
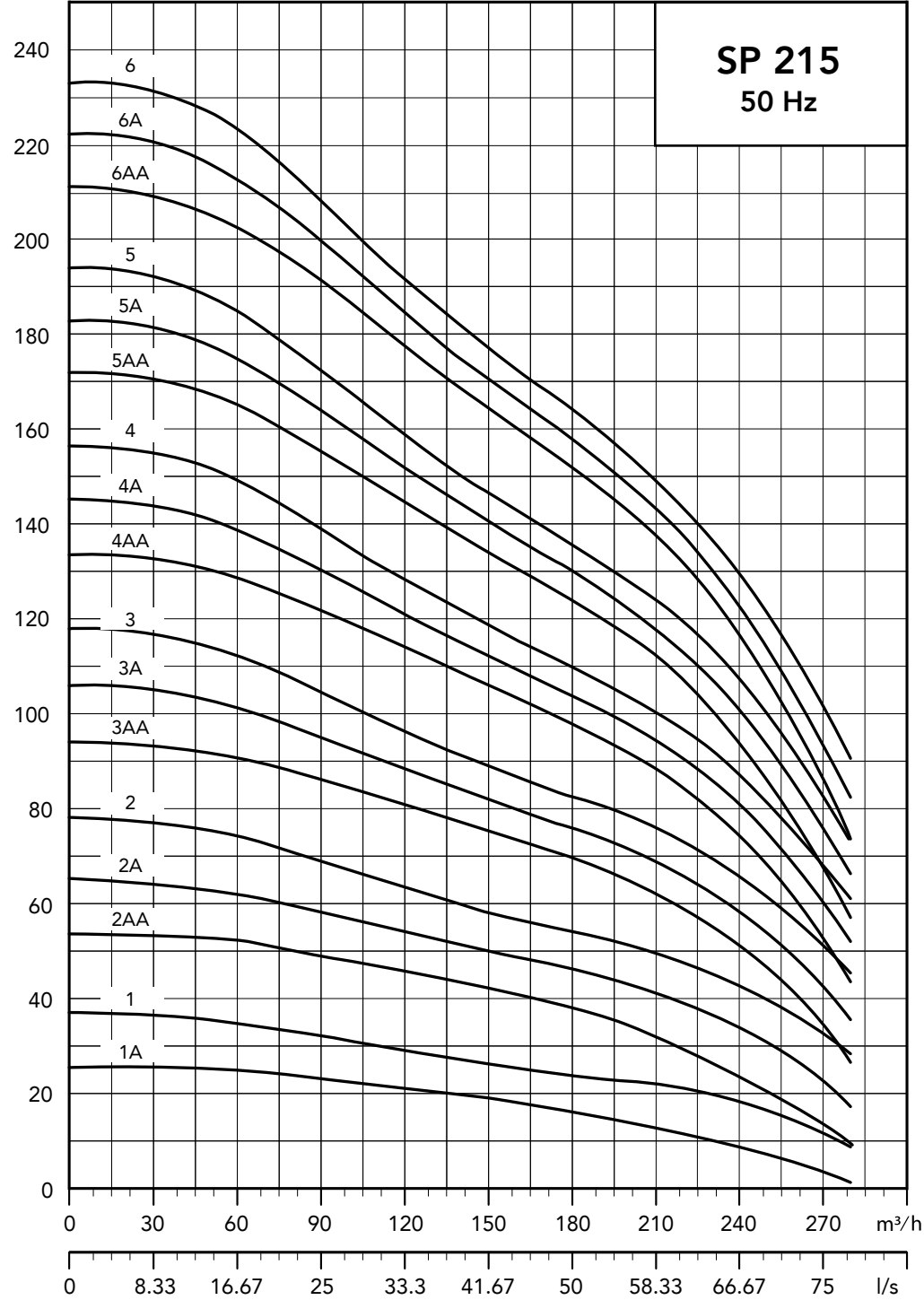
SP 160

TYPE	DIMENSION (mm)				NETT WEIGHT Kg	MOTOR		PUMP & MOTOR
						HP	kW	Height 3 Phase 6"
	A	B (mm)	C (mm)	D (mm)				E (mm)
SP-160-1-A	6"	226 - 232	218 - 286	651	76	12	9.2	1241
SP-160-1				651	82	17.5	13	1359
SP-160-2-AA				807	97	25	18.5	1590
SP-160-2-A				807	103	30	22	1645
SP-160-2				807	109	35	26	1710
SP-160-3-AA				963	123	40	30	1931
SP-160-3-A				963	170	50	37	2388
SP-160-3				963	170	50	37	2388
SP-160-4-AA				1119	230	50	45	2389
SP-160-4-A				1119	230	60	45	2389
SP-160-4				1119	245	75	55	2469
SP-160-5-AA				1275	251	75	55	2625
SP-160-5-A				1275	251	75	55	2625
SP-160-5				1275	277	85	63	2765
SP-160-6-AA				1431	283	85	63	2921
SP-160-6-A				1431	302	100	75	3021
SP-160-6				1431	302	100	75	3021
SP-160-7-AA				1587	302	100	75	3177
SP-160-7-A				1587	354	125	92	3417
SP-160-7				1587	354	125	92	3417
SP-160-8-AA				1743	360	125	92	3573
SP-160-8-A				1743	360	125	92	3573
SP-160-8				1743	360	125	92	3573
SP-160-9-AA				1899	416	148	110	3959
SP-160-9-A				1899	416	148	110	3959
SP-160-9				1899	416	148	110	3959
SP-160-10-AA				2531	432	148	110	4411
SP-160-10-A				2403	544	177	132	4273
SP-160-10				2403	544	177	132	4273
SP-160-11				2559	550	177	132	4429
SP-160-12				2714	621	197	147	4784
SP-160-13				2870	667	228	170	5090
SP-160-14				3025	673	228	170	5245
SP-160-15				3259	803	255	190	5239



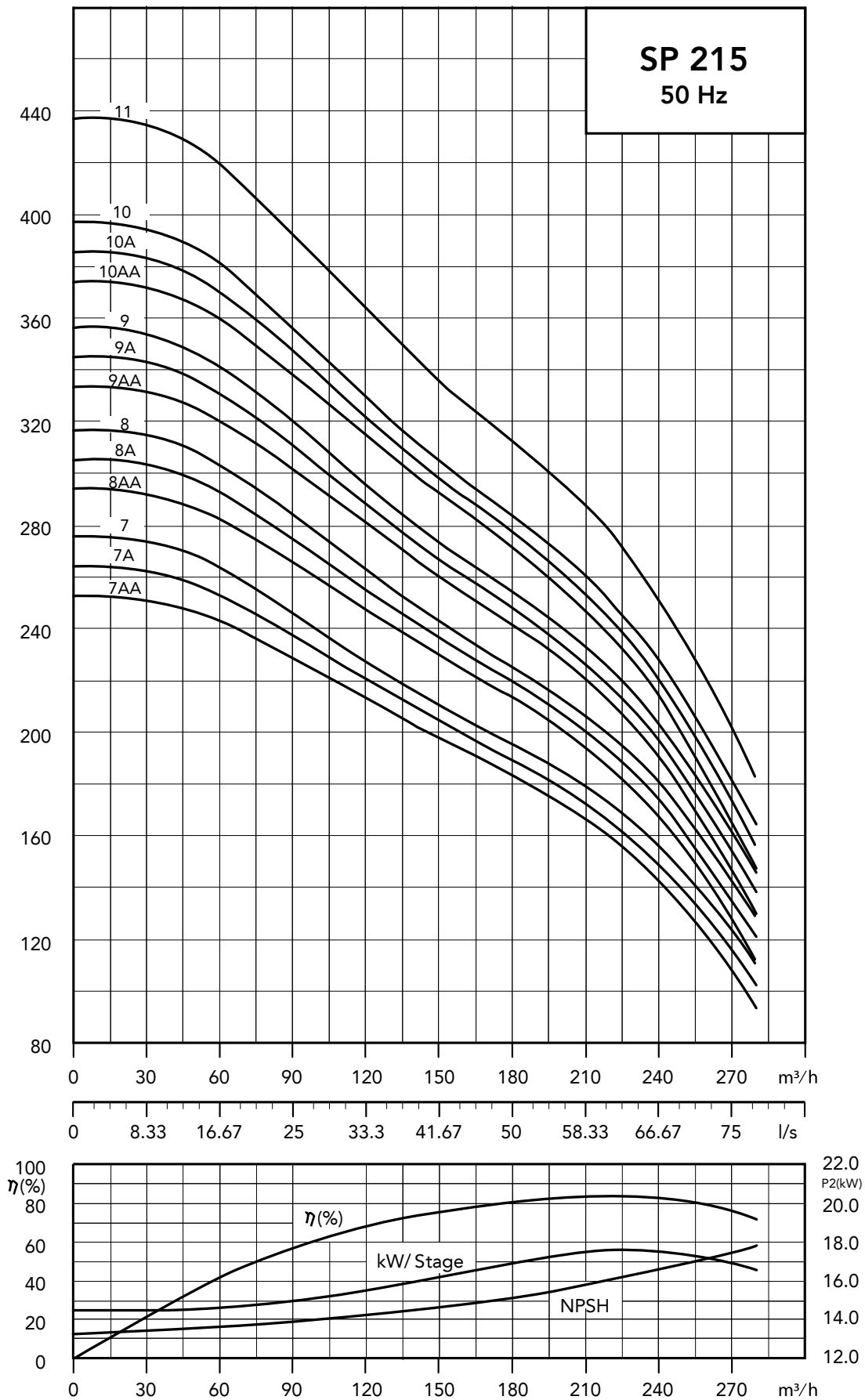
Performance Curve SP 215

Total Head (m)



Performance Curve SP 215

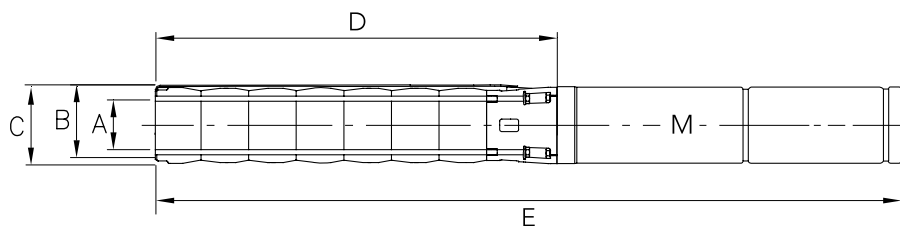
Total Head (m)



Dimensions and weights

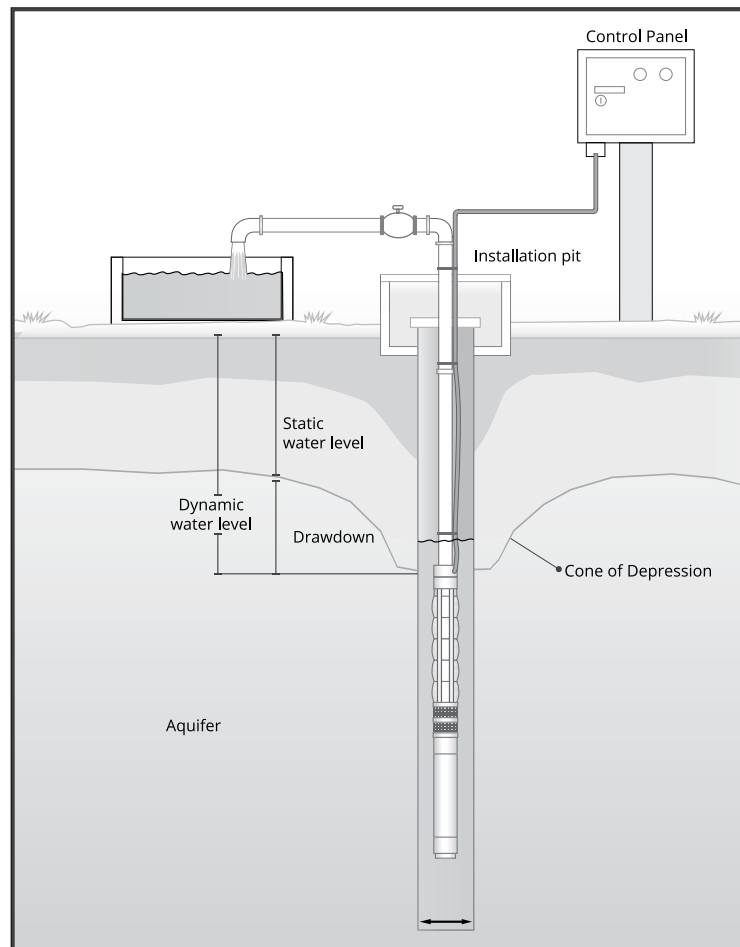
SP 215

TYPE	DIMENSION (mm)				NETT WEIGHT	MOTOR	
	A	B (mm)	C (mm)	D (mm)		HP	kW
SP-215-1-A	6"	237 - 262	241 - 274	772	46	20	15
SP-215-1				772	46	25	18.5
SP-215-2-AA				948	56	40	30
SP-215-2-A				948	56	50	37
SP-215-2				948	56	60	45
SP-215-3-AA				1124	66	75	55
SP-215-3-A				1124	66	75	55
SP-215-3				1124	66	85	63
SP-215-4-AA				1300	76	100	75
SP-215-4-A				1300	76	100	75
SP-215-4				1300	76	125	93
SP-215-5-AA				1476	86	125	93
SP-215-5-A				1476	86	125	93
SP-215-5				1476	86	150	110
SP-215-6-AA				1652	96	150	110
SP-215-6-A				1652	96	150	110
SP-215-6				1652	96	175	132
SP-215-7-AA				1828	111	175	132
SP-215-7-A				1828	111	175	132
SP-215-7				1828	111	200	147
SP-215-8-AA				2004	122	200	147
SP-215-8-A				2004	122	200	147
SP-215-8				2004	122	230	170
SP-215-9-AA				2180	132	230	170
SP-215-9-A				2180	132	230	170
SP-215-9				2180	132	255	190
SP-215-10-AA						255	190
SP-215-10-A						255	190
SP-215-10						255	190
SP-215-11						295	220



Setting Up The Pump

The setting of the pump is the depth at where the pump is installed in the bore hole. It must have the capacity to pump the water from the aquifer to the water surface and gives the required minimum pressure. Once the pump has been installed, the drawdown and the dynamic water level should be known. During operation, the water must never fall below the inlet of the pump. Submersible pumps normally have very small risk of cavitation. But it is important to check the NPSH of the pump in its duty point. Minimum pump inlet to be submerge = $\text{NPSH (m)} - 10 \text{ (m)}$.



Accessories

Pressure Gauge



A Pressure Gauge is needed to monitor a pump's discharge or inlet pressure. They are filled with glycerine for consistent pressure readings.

Well Cover



Well Cover provides robust protection against impact and is configured for easy installation. The casing with pump and rising mains locates readily into the wellhead tube which bolts down to the well chamber. This means that loads from the pump and rising main are supported by the wellhead assembly and not by the casing.

Check Valve



Check valves are designed to prevent backflow, minimizing hydraulic shocks and give years of trouble-free operation without maintenance when installed properly and sized to the pumping application with regards to flow and maximum system pressures. The valve can be installed vertically or horizontally.

The check valve body should be constructed to handle the rated system flow and pressures as stated, and in addition support the weight of the submersible pump, pipe and the water in the riser pipe.

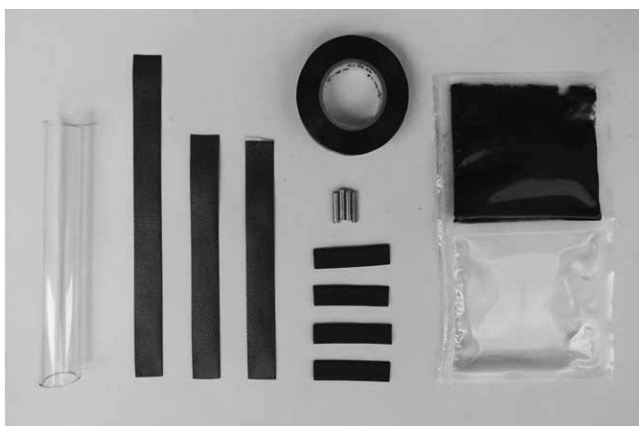
Gate Valve



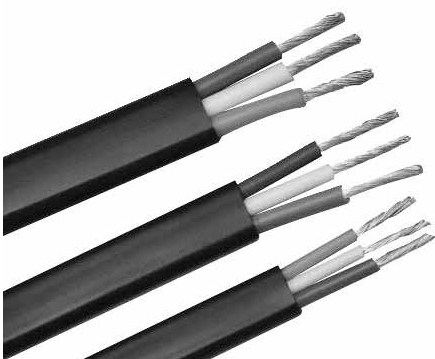
A Gate Valve is a valve that opens by lifting a round or rectangular gate/wedge out of the path of the fluid. They are so-named because the part that either stops or allows flow through the valve acts somewhat like a gate. Gate valves are used for regulating flow.

Cable Termination Kit

Use only a good quality submersible cable joints designed for borehole pump. This is a very crucial aspect of submersible pump installation.



Submersible Drop Cable



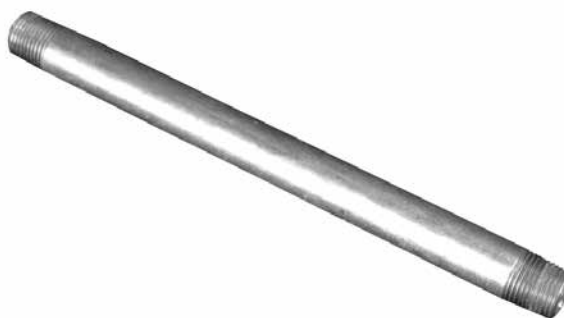
Use only tough & flexible submersible pump cables specially designed to supply power to submersible borehole pumps in a deep borewell. Tested for toughness and performance, the insulation & jacket will stand up to even the most aggressive wet conditions with excellent moisture, abrasion & weather resistance.

Control Panel



A wide range of borehole pump starter panels is available in a number of configurations for single or three phase supply - all are offered with dry-running protection. As well as fixed-speed units, inverter or soft-start panels are also available

Riser Pipe



Riser pipe for installation of submersible pumps in water wells utilises an innovative pipe work mating arrangement. This makes the installation of borehole pumps much simpler, with less effort for the drilling contractor installing borehole pumps.

Head Losses on Iron Pipe (galvanized)
Pressure Loss in meters for every 100 meters of horizontal pipe.

Water Volume			Lost pressure for every 100 meters											
			Pipe Diameter size (Inch)											
m³/hr	L/Min	L/S	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	5"	6"
0.6	10	0.17	9.91	2.41	0.78									
0.9	15	0.25	20.11	4.86	1.57	0.42								
1.2	20	0.33	33.53	8.04	2.59	0.68	0.35							
1.5	25	0.42	49.93	11.91	3.83	1.00	0.51							
1.8	30	0.50	69.34	16.50	5.28	1.38	0.70	0.22						
2.1	35	0.58	91.54	21.75	6.95	1.81	0.91	0.29						
2.4	40	0.67		27.66	8.82	2.29	1.16	0.37						
3	50	0.83		41.40	13.14	3.40	1.72	0.54	0.16					
3.6	60	1.00		57.74	18.28	4.72	2.38	0.75	0.22					
4.2	70	1.17		76.49	24.18	6.23	3.13	0.99	0.29	0.13				
4.8	80	1.33			30.87	7.94	3.99	1.25	0.36	0.16				
5.4	90	1.50			38.30	9.83	4.93	1.55	0.45	0.20				
6	100	1.67			46.49	11.90	5.97	1.88	0.54	0.24	0.12			
7.5	125	2.08			70.41	17.93	8.97	2.80	0.81	0.37	0.19	0.10		
9	150	2.50				25.11	12.53	3.90	1.12	0.51	0.26	0.14		
10.5	175	2.92				33.32	16.66	5.18	1.49	0.67	0.34	0.18		
12	200	3.33				42.75	21.36	6.62	1.90	0.86	0.43	0.23	0.08	
15	250	4.17				64.86	32.32	10.03	2.86	1.28	0.65	0.35	0.13	
18	300	5.00					45.52	14.04	4.01	1.79	0.90	0.49	0.18	0.07
24	400	6.67					78.17	24.04	6.83	3.05	1.53	0.83	0.29	0.12
30	500	8.33						36.71	10.40	4.62	2.32	1.25	0.45	0.19
36	600	10.00						51.84	14.62	6.51	3.26	1.76	0.62	0.26
42	700	11.67							19.52	8.69	4.36	2.35	0.83	0.35
48	800	13.33							25.20	11.18	5.58	3.01	1.07	0.45
54	900	15.00							31.51	13.97	6.98	3.76	1.33	0.56
60	1000	16.67							38.43	17.06	8.52	4.60	1.62	0.67
75	1250	20.83								26.10	13.00	7.01	2.46	1.03
90	1500	25.00								36.97	18.42	9.89	3.47	1.44
105	1750	29.17									24.76	13.30	4.67	1.93
120	2000	33.33									31.94	17.16	6.00	2.50
150	2500	41.67										26.26	9.22	3.81
180	3000	50.00											13.05	5.42
240	4000	66.67											22.72	8.93
300	5000	83.33												14.42
90° Elbow & Slide Valve			1.00	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.60	1.70	2.00	2.50
T, Non Return Valve			4.00	4.00	4.00	5.00	5.00	5.00	6.00	6.00	6.00	7.00	8.00	9.00

Head Losses on PVC pipe
Pressure Loss in meters for every 100 meters of horizontal pipe.

Water Volume			Lost pressure for every 100 meters											
			Pipe Diameter size (Inch)											
m³/hr	L/Min	L/S	1"	1¼"	1½"	2"	2½"	3"	3½"	4"	5"	5½"	6"	7"
0.6	10	0.17	1.80	0.66	0.77	0.09								
0.9	15	0.25	4.00	1.14	0.60	0.18	0.03							
1.2	20	0.33	6.40	2.20	0.90	0.28	0.11							
1.5	25	0.42	10.00	3.50	1.40	0.43	0.17	0.07						
1.8	30	0.50	13.00	4.60	1.90	0.57	0.22	0.09						
2.1	35	0.58	16.00	6.00	2.00	0.70	0.27	0.12						
2.4	40	0.67	22.00	7.50	3.20	0.93	0.35	0.16	0.06					
3	50	0.83	37.00	11.00	4.80	1.40	0.50	0.22	0.09					
3.6	60	1.00	43.00	15.00	6.50	1.90	0.70	0.32	0.13	0.05				
4.2	70	1.17	50.00	18.00	8.00	2.50	0.83	0.38	0.17	0.07				
4.8	80	1.33		25.00	10.50	3.00	1.20	0.50	0.22	0.08				
5.4	90	1.50		30.00	12.00	3.50	1.30	0.57	0.26	0.09	0.05			
6	100	1.67		39.00	16.00	4.60	1.80	0.73	0.30	0.12	0.07			
7.5	125	2.08		50.00	24.00	6.60	2.50	1.10	0.50	0.18	0.10	0.06		
9	150	2.50			33.00	8.60	3.50	1.40	0.63	0.24	0.13	0.08		
10.5	175	2.92			38.00	11.00	4.30	1.80	0.78	0.30	0.18	0.09		
12	200	3.33			50.00	14.00	5.50	2.40	1.00	0.40	0.22	0.12	0.07	
15	250	4.17				21.00	8.00	3.70	1.50	0.57	0.34	0.18	0.11	0.06
18	300	5.00				28.00	10.50	4.60	1.95	0.77	0.45	0.25	0.13	0.09
24	400	6.67					19.00	8.00	3.60	1.40	0.78	0.44	0.23	0.15
30	500	8.33					28.00	11.50	5.00	2.00	1.20	0.63	0.33	0.21
36	600	10.00					37.00	15.00	6.60	2.60	1.50	0.82	0.45	0.28
42	700	11.67					47.00	24.00	8.00	3.50	1.90	1.10	0.60	0.40
48	800	13.33						26.00	11.00	4.50	2.60	1.40	0.81	0.48
54	900	15.00						33.00	13.50	5.50	3.20	1.70	0.95	0.58
60	1000	16.67						44.00	16.00	6.70	3.90	2.20	1.20	0.75
75	1250	20.83							25.00	9.00	5.00	3.00	1.60	0.95
90	1500	25.00							33.00	13.00	8.00	4.10	2.30	1.40
105	1750	29.17							44.00	17.50	9.70	5.70	3.20	1.90
120	2000	33.33								23.00	13.00	7.00	4.00	2.40
150	2500	41.67								34.00	18.00	10.50	6.00	3.50
180	3000	50.00								45.00	27.00	14.00	7.60	4.40
240	4000	66.67									43.00	24.00	13.00	7.50
300	5000	83.33										33.00	18.00	11.00

Cable Dimension for 3 x 400 V, 50 Hz

Motor	kW	I _n (A)	Cos φ 100%	DIMENSION (mm ²)															
				1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
4"	0.37	1.4	0.64	192	318	506	752												
	0.55	2.2	0.64	222	203	322	479	783											
	0.75	2.3	0.72	104	173	275	409	672											
	1.1	3.4	0.72	70	117	186	277	455	712										
	1.5	4.2	0.75	55	91	145	215	354	556	844									
	2.2	5.5	0.82	38	64	101	151	249	393	599	818								
	3	7.85	0.77	29	47	75	112	185	291	442	601	822							
	4	9.6	0.8	22	37	59	89	146	230	350	477	656	874						
	5.5	13	0.81	16	27	43	65	107	168	256	349	480	641	821	983				
	7.5	18.8	0.78		20	31	46	76	120	183	248	340	452	577	687	804	923		
6"	5.5	13.6	0.77	16	27	44	65	107	168	255	347	475	629	801	953				
	7.5	17.6	0.8	12	20	32	48	80	125	191	260	358	477	610	728	855	984		
	9.2	21.8	0.81		16	26	39	64	100	153	208	287	382	490	586	689	795	935	
	11	24.8	0.83		14	22	33	55	86	132	180	248	332	427	512	604	699	826	942
	13	30	0.81			19	28	46	73	111	151	208	278	356	426	501	577	680	772
	15	34	0.82				24	40	64	97	132	182	244	313	375	441	510	601	684
	18.5	42	0.81				20	33	52	79	108	149	198	254	304	358	412	486	551
	22	48	0.84					28	44	67	92	127	170	220	264	312	361	428	489
	26	57	0.84					24	37	57	78	107	144	185	222	263	304	361	412
	30	66.5	0.83						32	49	67	92	124	159	191	225	261	308	351
	37	85.5	0.79							40	54	74	99	126	150	176	203	238	269
	22	48	0.84					28	44	67	92	127	170	220	264	312	361	428	489
	26	56.5	0.85					23	37	57	78	107	144	186	223	265	307	365	418
8"	30	64	0.85						33	50	68	95	127	164	197	234	271	322	369
	37	78.5	0.85						27	41	56	77	104	134	161	191	221	263	301
	45	96.5	0.82							34	47	64	86	110	132	155	180	212	241
	55	114	0.85								38	53	71	92	111	131	152	181	207
	63	132	0.83									47	62	80	96	113	131	155	177
	75	152	0.86									40	53	69	83	98	114	136	156
	92	186	0.86										43	56	68	80	94	111	128
	110	224	0.87											47	56	67	78	93	107

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