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BORANA

Stainless Steel Submersible Pumps

HAPPY PUMPING

SAVE MORE
EARN MORE
year after year

50 Hz

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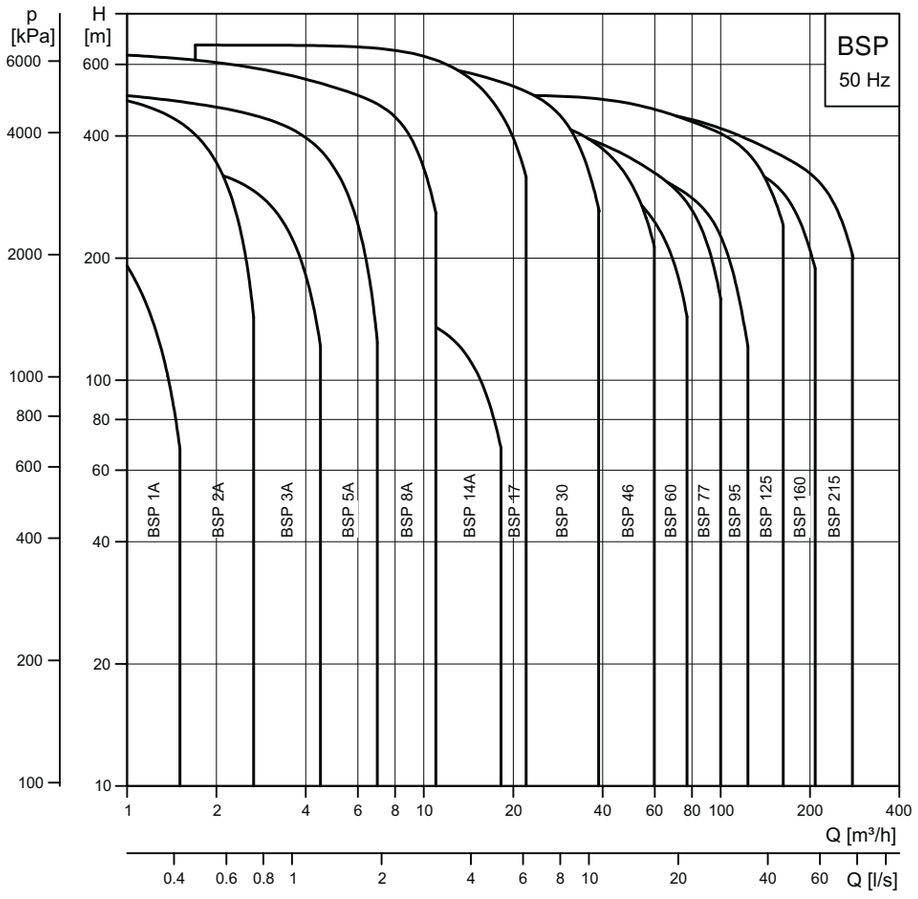
General description



Efficiency and MEI index for BSP pumps

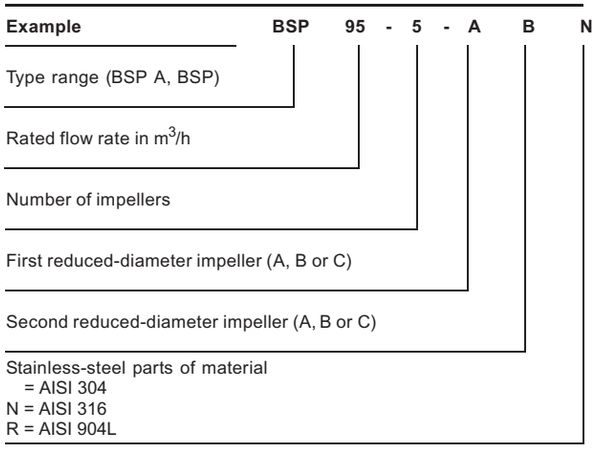
Pump type	Pump size	Efficiency [%]	MEI
BSP 1A-9	4"	39	≥ 0.80
BSP 2A-9	4"	50	≥ 0.80
BSP 3A-9	4"	58	≥ 0.80
BSP 5A-12	4"	60	≥ 0.56
BSP 8A-10	4"	61	≥ 0.14
BSP 11A-9	4"	60	≥ 0.10
BSP 14A-10	4"	61	≥ 0.10
BSP 17-9	6"	74	≥ 0.76
BSP 30-9	6"	75	≥ 0.50
BSP 46-9	6"	76	≥ 0.50
BSP 60-9	6"	77	≥ 0.60
BSP 77-9	8"	78	≥ 0.44
BSP 95-9	8"	79	≥ 0.50
BSP 125-9	10"	79	≥ 0.37
BSP 160-9	10"	80	≥ 0.39
BSP 215-9	10"	83	≥ 0.46

1.2 Applications

The BSP A and BSP pumps are suitable for the following applications:

- Raw-water supply
- Groundwater lowering
- Fountain applications
- Off-shore applications.
- Irrigation
- Pressure boosting
- Mining applications

1.3 Type key



1.4 Pumped liquids

Clean, thin, non-aggressive liquids without solid particles or fibres.

The special BSP A-N and BSP-N versions made of stainless steel to AISI 316 and BSP A-R and BSP-R versions made of stainless steel to AISI 904L are available for applications involving aggressive liquids.

1.5 Operating conditions

Maximum liquid temperature

Borana motor	Flow velocity past motor [m/s]	Max. liquid temperature [°C]
BM 4"	0.15	40
BSF 6" with PVC in the windings	0.15	25
	0.50	30
BMCI 8", 10" rewindable with PVC in the windings	0.15	25
	0.50	30

Operating pressure

Motor	Maximum operating pressure
BM 4" and 6"	6 MPa (60 bar)
BM 6" to 10" rewindable	

1.6 Curve conditions

The conditions below apply to the curves on pages 8 to 64:

General conditions

- Curve tolerances according to ISO 9906, 2012 Grade 3B.
- The performance curves show pump performance at actual speed, cf. standard motor range. Approximate motor speeds:
  4" motors: n = 2870 min $^{-1}$
  6" motors: n = 2870 min $^{-1}$
  8" to 10" motors: n = 2900 min $^{-1}$.
- The measurements were made with airless water at a temperature of 20°C. The curves apply to a kinematic viscosity of 1 mm^2/s (1 cSt). When pumping liquids with a density higher than that of water, use motors with correspondingly higher outputs.
- The bold curves indicate the recommended performance range.
- The performance curves are inclusive of possible losses such as non-return valve loss.

BSP A, BSP curves

- **Q/H:** The curves are inclusive of valve and inlet losses at the actual speed.
  Operation without non-return valve will increase the actual head at rated performance by 0.5 to 1.0 m.
- **NPSH:** The curve is inclusive of pressure loss in the suction interconnector and shows required inlet pressure.
- **Power curve:** Power Curve shows the pump power input of each stage for the individual pump size when the pump is running at the rated speed.
- **Efficiency curve:** Efficiency curve shows pump stage efficiency. If Efficiency curve for the actual pump size is needed, please consult www.boranapumps.com.

1.7 Pump range

Type		BSP1A	BSP2A	BSP3A	BSP5A	BSP8A	BSP14A	BSP17	BSP30	BSP46	BSP60	BSP77	BSP95	BSP125	BSP160	BSP215
Steel: AISI 304		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Steel: (N) AISI 316				•	•	•	•	•	•	•	•	•	•	•	•	•
Steel: (R) AISI 904L					•	•		•	•	•	•	•	•	•	•	•
Connection*	Rp	1¼	1¼ (R 1¼)	1¼	1½ (R 1½)	2 (R 2)	2	2½ (R 3)	3 (R 3)	3 4 (R 4)	3 4	5	5	6	6	6
	NPT	1"	1¼"	1½"		2"	2"	3" (3")	3" (3")	3" 4" (4")	3" 4"	5"	5"	6"	6"	6"
Flange connection: Borana flange												5"	5"	6”	6”	6”

*Figures in brackets ( ) indicate connection for pumps with sleeve.

2.1 Features and benefits

A wide pump range

Borana offers energy-efficient submersible pumps ranging from 1 to 280 m^3/h. The pump range consists of many pump sizes, and each pump size is available with an optional number of stages to match any duty point.

High pump efficiency

Often pump efficiency is a neglected factor compared to the price. However, the observant user will notice that price variations are without importance to water supply economics compared to the importance of pump and motor efficiencies.

Material and pumped liquids

Borana offers a complete range of pumps and motors which, as standard, are made completely of stainless steel to AISI 304. This ensures good wear resistance and a reduced risk of corrosion when pumping ordinary cold water with a minor chloride content.

A pump range made of upgraded stainless steel is available for more aggressive liquids:

BSP N: AISI 316

BSP R: AISI 904L

For slightly polluted liquids containing for example oil, Borana offers a complete range of stainless-steel BSP NE pumps to AISI 316 with all rubber parts made of FKM.

Low installation costs

Stainless steel means low weight facilitating the handling of pumps and resulting in low equipment costs and reduced installation and service time.

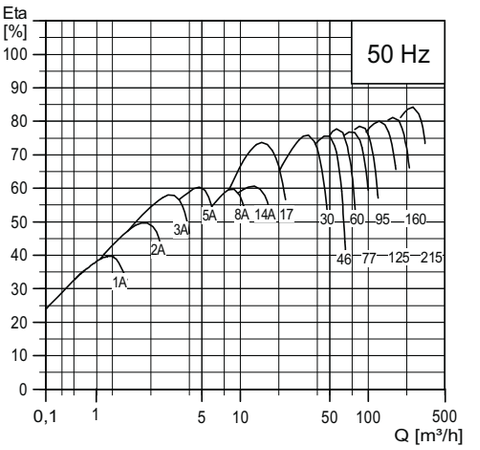


Fig. 1 Pump/motor efficiencies in relation to flow

Fig. 2 Various BSP pumps

Bearings with sand channels

All bearings are water-lubricated and have a squared shape enabling sand particles, if any, to leave the pump together with the pumped liquid.

Fig. 3 Bearing

Inlet strainer

The inlet strainer prevents particles over a certain size from entering the pump.

Fig. 4 Inlet strainer

Non-return valve

All pumps have a reliable non-return valve in the valve casing preventing backflow in connection with pump stoppage.

Furthermore, the short closing time of the non-return valve means that the risk of destructive water hammer is reduced to a minimum.

The valve casing is designed for optimum hydraulic properties to minimise the pressure loss across the valve and thus to contribute to the high efficiency of the pump.

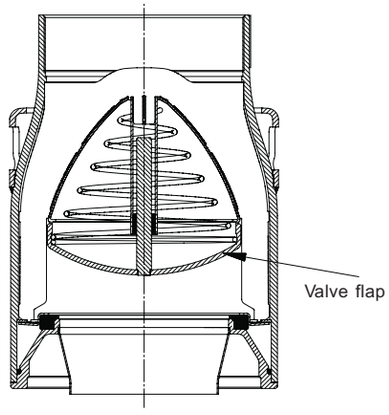


Fig. 5 Non-return valve

Priming screw

All Borana pumps with radial impellers are fitted with a priming screw. Consequently, dry running is prevented because the priming screw will ensure that the pump bearings are always lubricated.

BSP pumps with semi-axial impellers require no priming screw. The pumps are primed automatically.
It applies to all pump types, however, that neither pump nor motor will be protected against dry running if the water table is lowered to a level below the pump inlet.

Fig. 6 Priming screw

Stop ring

The stop ring prevents damage to the pump during transport and in case of up-thrust in connection with start-up.

The stop ring, which is designed as a thrust bearing, limits axial movements of the pump shaft.

The stationary part of the stop ring (A) is secured in the upper chamber.

The rotating part (B) is fitted above the split cone (C).

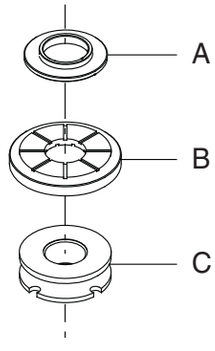


Fig. 7 Stop ring (rotating and stationary parts) and split cone

2.2 Material specification

Pos.	Component	Materials	Standard	N-version	R-version
			EN/AISI		
1	Valve casing	Stainless steel	304	316	904L
1d	O-ring	NBR			
2	Valve cup	Stainless steel	304	316	904L
3	Valve seat	Standard/N-version: NBR R-version: FKM			
3a	Lower valve seat retainer	Stainless steel	304	316	1.4517
3b	Upper valve seat retainer	Stainless steel	304	316	904L
4	Top chamber	Stainless steel	304	316	904L
6	Upper bearing	Stainless steel/NBR	304	316	904L
7	Neck ring	NBR/PPS			
8	Bearing	NBR			
8a	Washer for stop ring	Carbon / graphite HY22 in PTFE mass			
8b	Stop ring	Stainless steel	316	316	904L
9	Chamber	Stainless steel	304	316	904L
11	Split cone nut	Stainless steel	304	316	904L
11c	Nut for stop ring	Stainless steel	316	316	904L
12	Split cone	Stainless steel	304	316	904L
13	Impeller	Stainless steel	304	316	904L
14	Suction interconnector	Stainless steel	304	316	1.4517
15	Strainer	Stainless steel	304	316	904L
16	Shaft complete	Stainless steel	431	329	904L
17	Strap	Stainless steel	304	316	904L
18	Cable guard	Stainless steel	304	316	904L
19	Nut for strap	Stainless steel	304	316	904L
39	Spring for valve cup	Stainless steel	304	316	1.4462/ SAF 2205
70	Valve guide	Stainless steel	304	316	904L
71	Washer	Stainless steel	316	316	904L
72	Wear ring	Stainless steel	304	316	904L

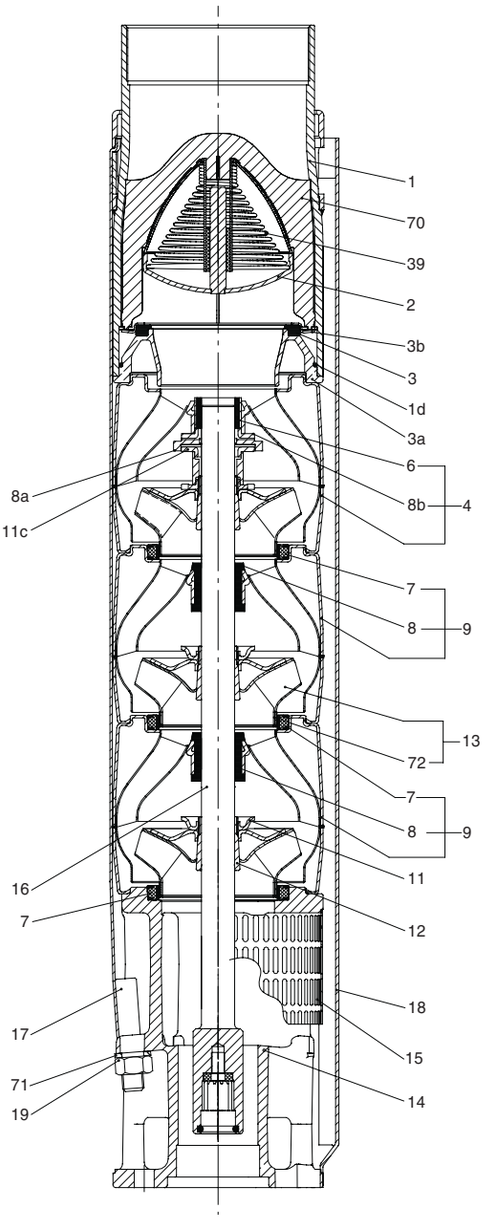
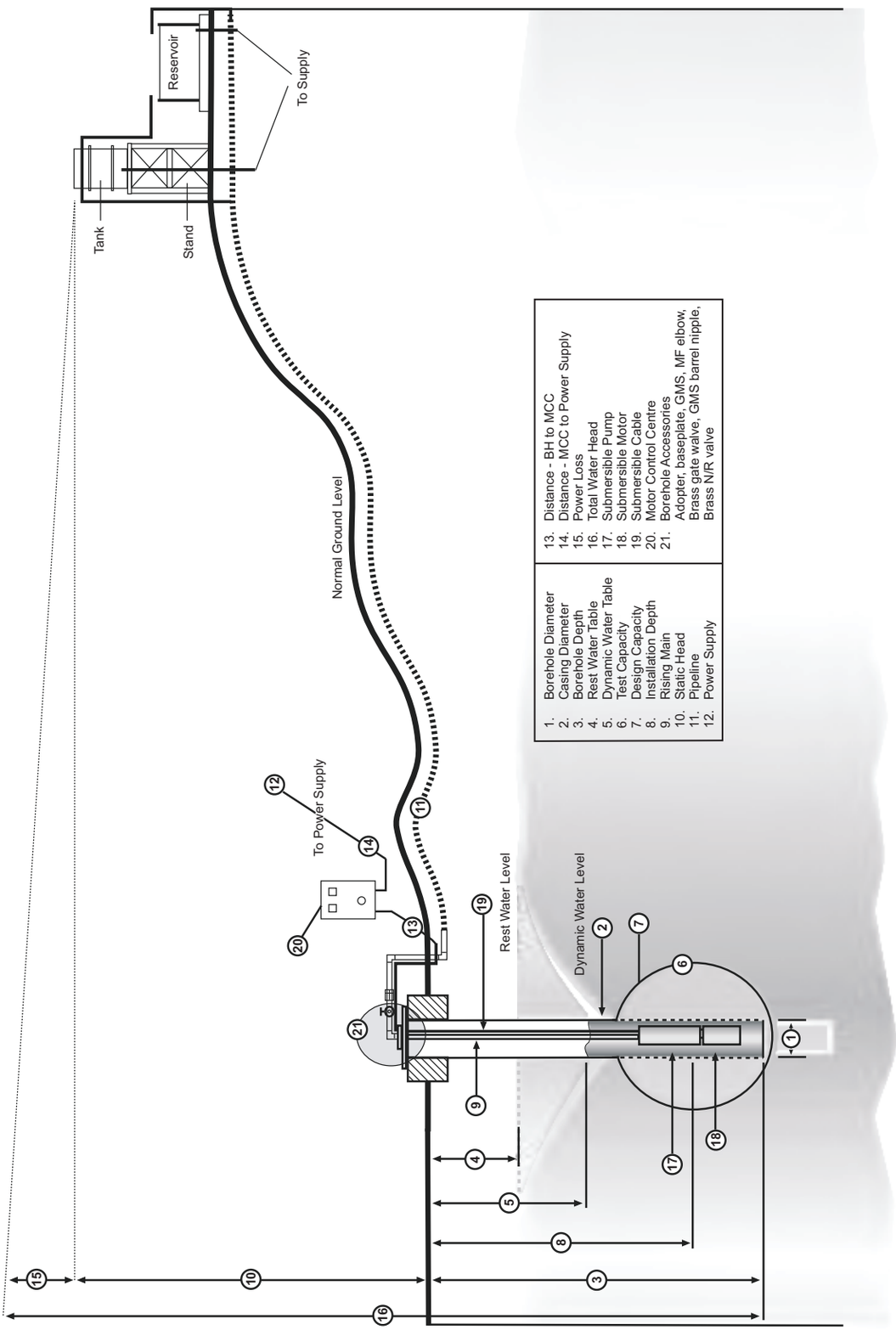
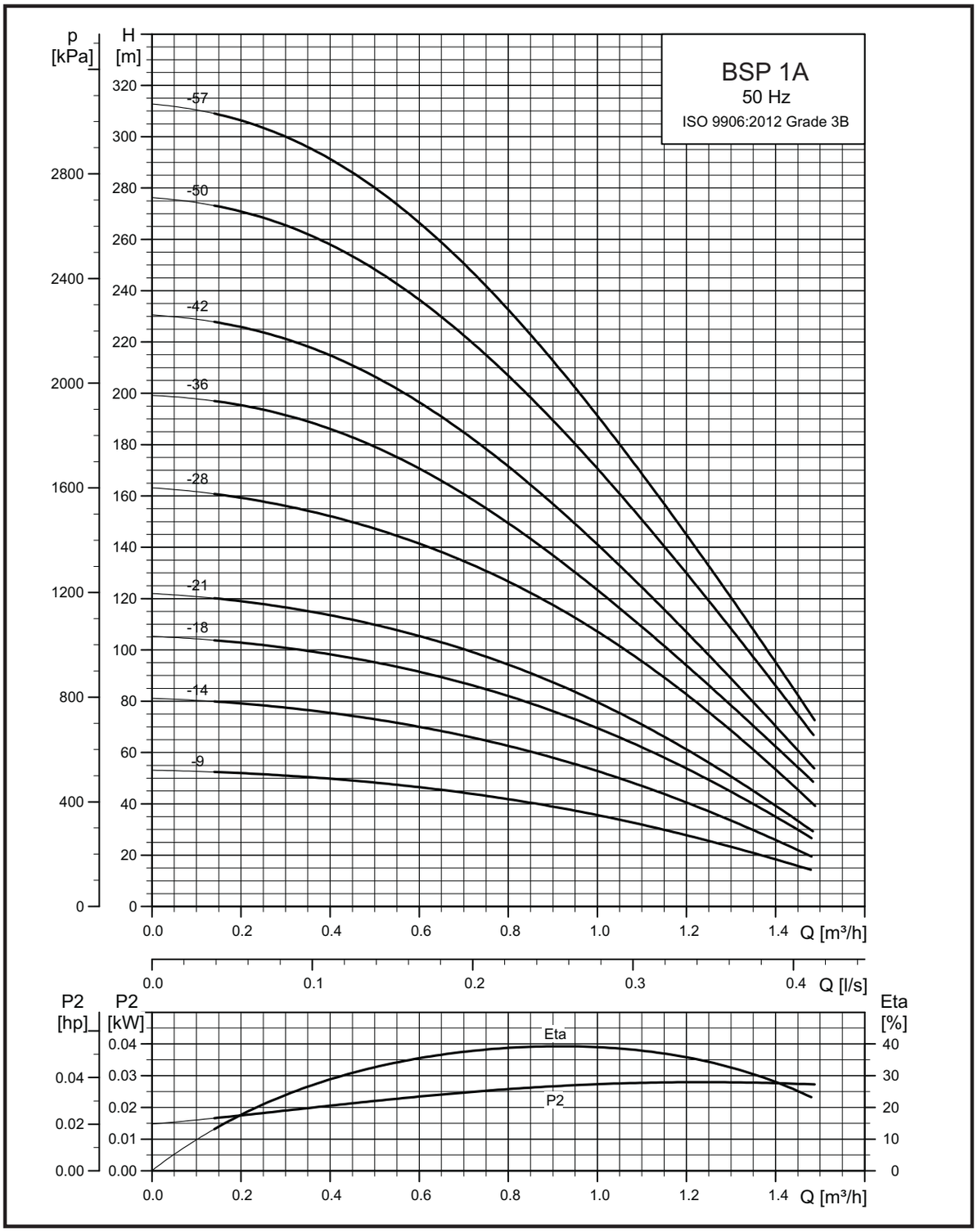


Fig. 8 BSP 77

2.3 Installation Drawing

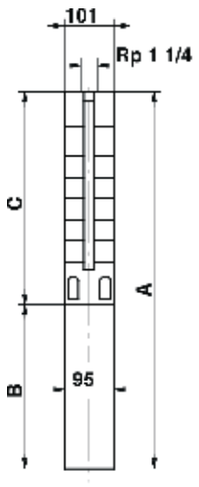


3.1 BSP 1A - Performance curve



BSP 1A - Technical Data

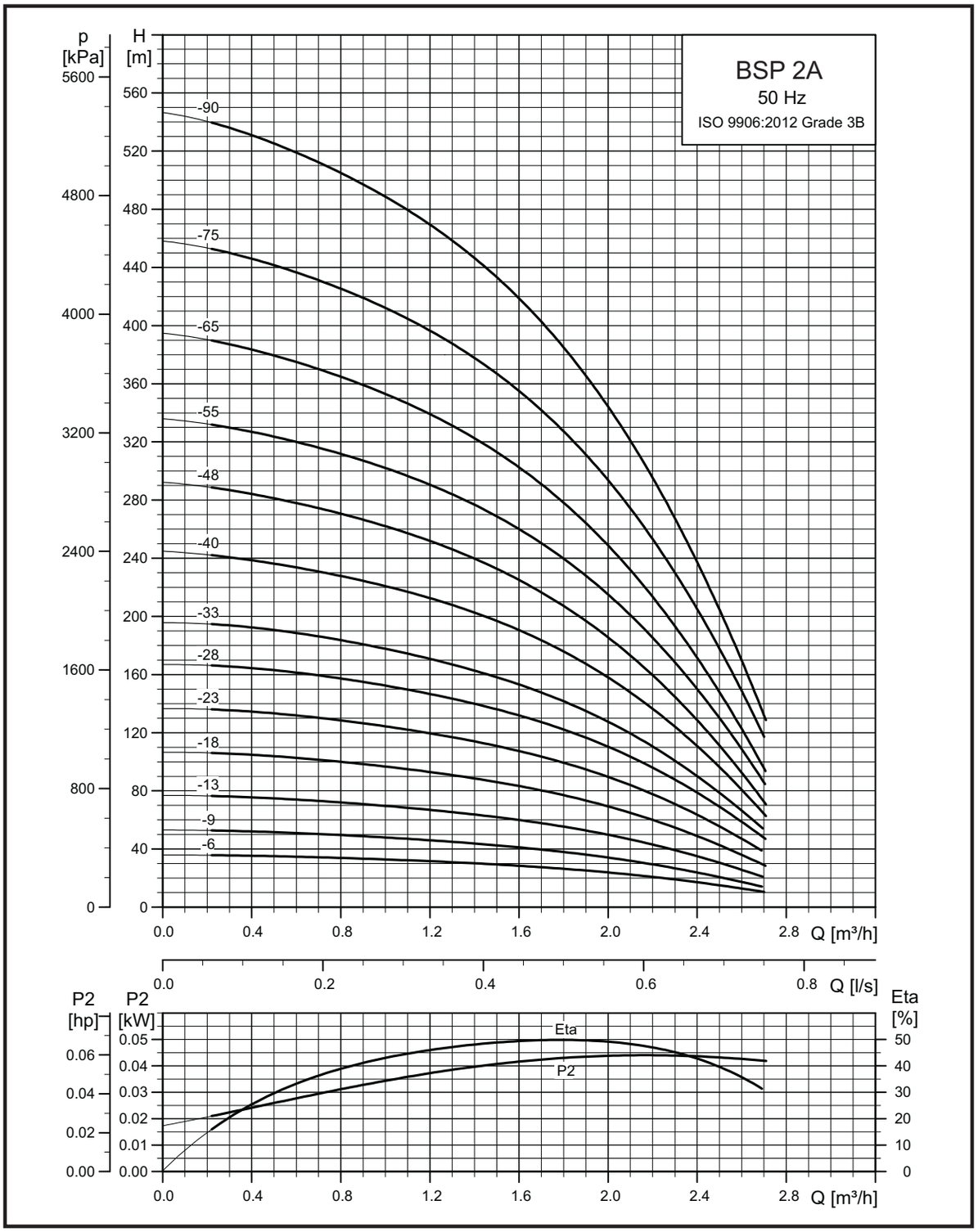
Dimensions and weights



101 mm = Maximum diameter of pump inclusive of cable guard and motor.

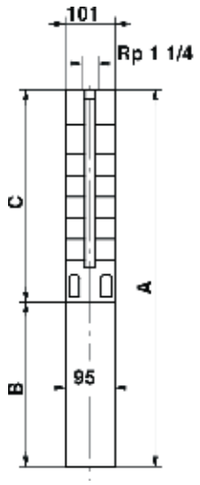
Pump type	Motor			Dimensions [mm]				Net weight [kg]	
				B		A			
	Type	Power [kW]	C	1x230V	3x230V 3x400V	1x230V	3x230V 3x400V	1x230V	3x230V 3x400V
BSP 1A-9	BM 4	0.37	344	256	226	600	570	11	9
BSP 1A-14	BM 4	0.37	449	256	226	705	675	12	10
BSP 1A-18	BM 4	0.55	533	291	241	824	774	14	12
BSP 1A-21	BM 4	0.55	596	291	241	887	837	14	12
BSP 1A-28	BM 4	0.75	743	306	276	1049	1019	16	15
BSP 1A-36	BM 4	1.1	956	346	306	1302	1262	25	23
BSP 1A-42	BM 4	1.1	1082	346	306	1428	1388	27	25
BSP 1A-50	BM 4	1.5	1250	346	346	1596	1596	30	29
BSP 1A-57	BM 4	1.5	1397	346	346	1743	1743	32	32

3.2 BSP 2A - Performance curve



BSP 2A - Technical Data

Dimensions and weights

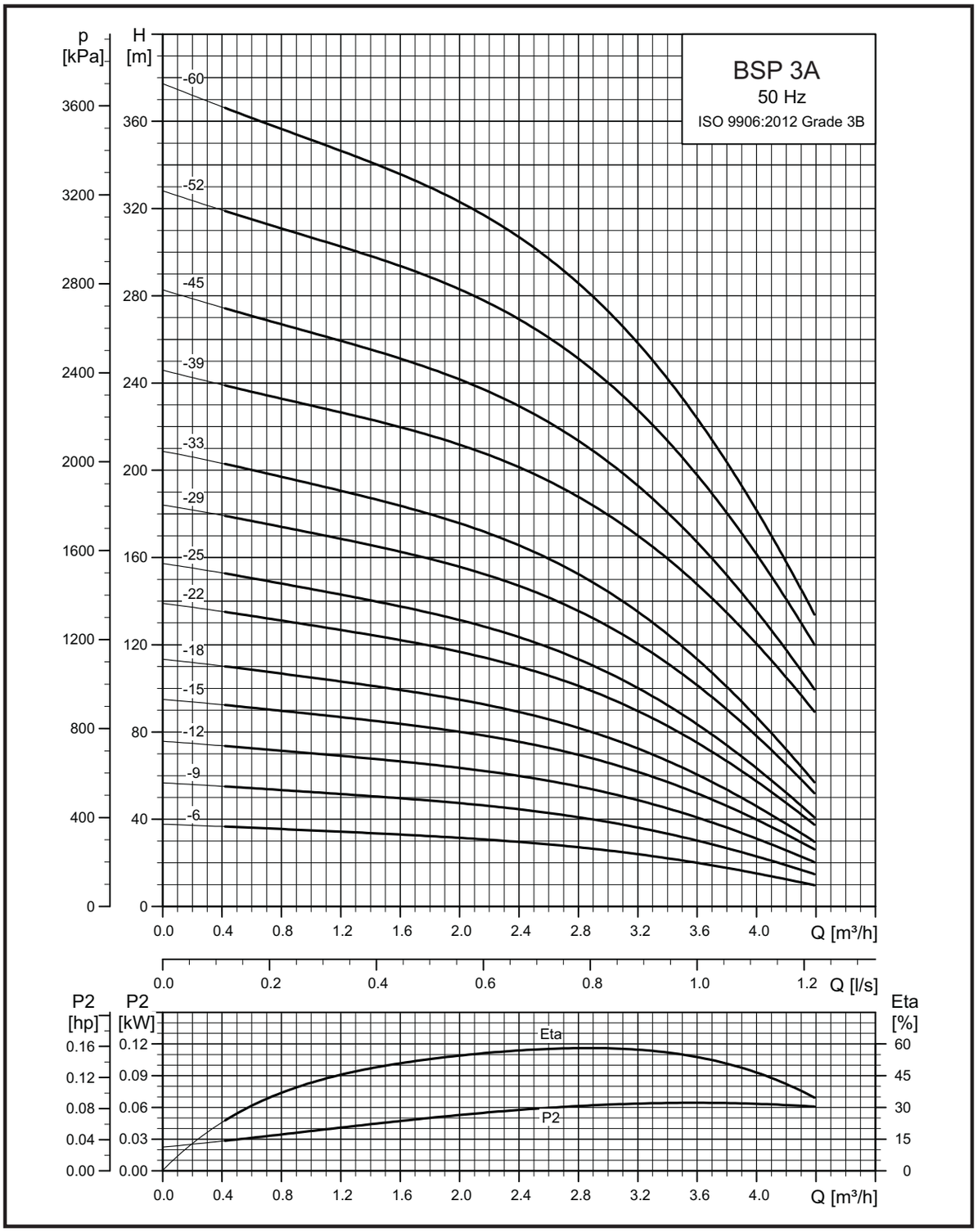


101 mm = Maximum diameter of pump inclusive of cable guard and motor.

BSP 2A-75 and BSP 2A-90 are mounted in sleeve for R 1 1/4 connection and with a maximum diameter of 108 mm.

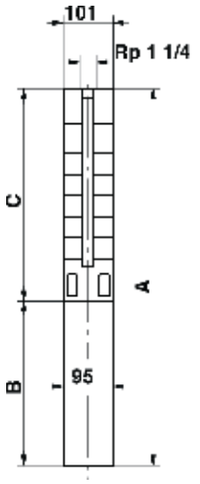
Pump type	Motor			Dimensions [mm]				Net weight [kg]	
				B		A			
	Type	Power [kW]	C	1x230V	3x230V 3x400V	1x230V	3x230V 3x400V	1x230V	3x230V 3x400V
BSP 2A-6	BM 4	0.37	281	256	226	537	507	10	9
BSP 2A-9	BM 4	0.37	344	256	226	600	570	11	9
BSP 2A-13	BM 4	0.55	428	291	241	719	669	13	11
BSP 2A-18	BM 4	0.75	533	306	276	839	809	15	13
BSP 2A-23	BM 4	1.1	638	346	306	984	944	17	16
BSP 2A-28	BM 4	1.5	743	346	346	1089	1089	19	18
BSP 2A-33	BM 4	1.5	844	346	346	1190	1190	20	19
BSP 2A-40	BM 4	2.2	1040	573		1613		37	
BSP 2A-40	BM 4	2.2	1040		346		1386		27
BSP 2A-48	BM 4	2.2	1208	573		1781		39	
BSP 2A-48	BM 4	2.2	1208		346		1554		30
BSP 2A-55	BM 4	3.0	1355		493		1848		38
BSP 2A-65	BM 4	3.0	1565		493		2058		41
BSP 2A-75	BM 4	4.0	1954		573		2527		57
BSP 2A-90	BM 4	4.0	2269		573		2842		64

3.3 BSP 3A - Performance curve



BSP 3A - Technical Data

Dimensions and weights

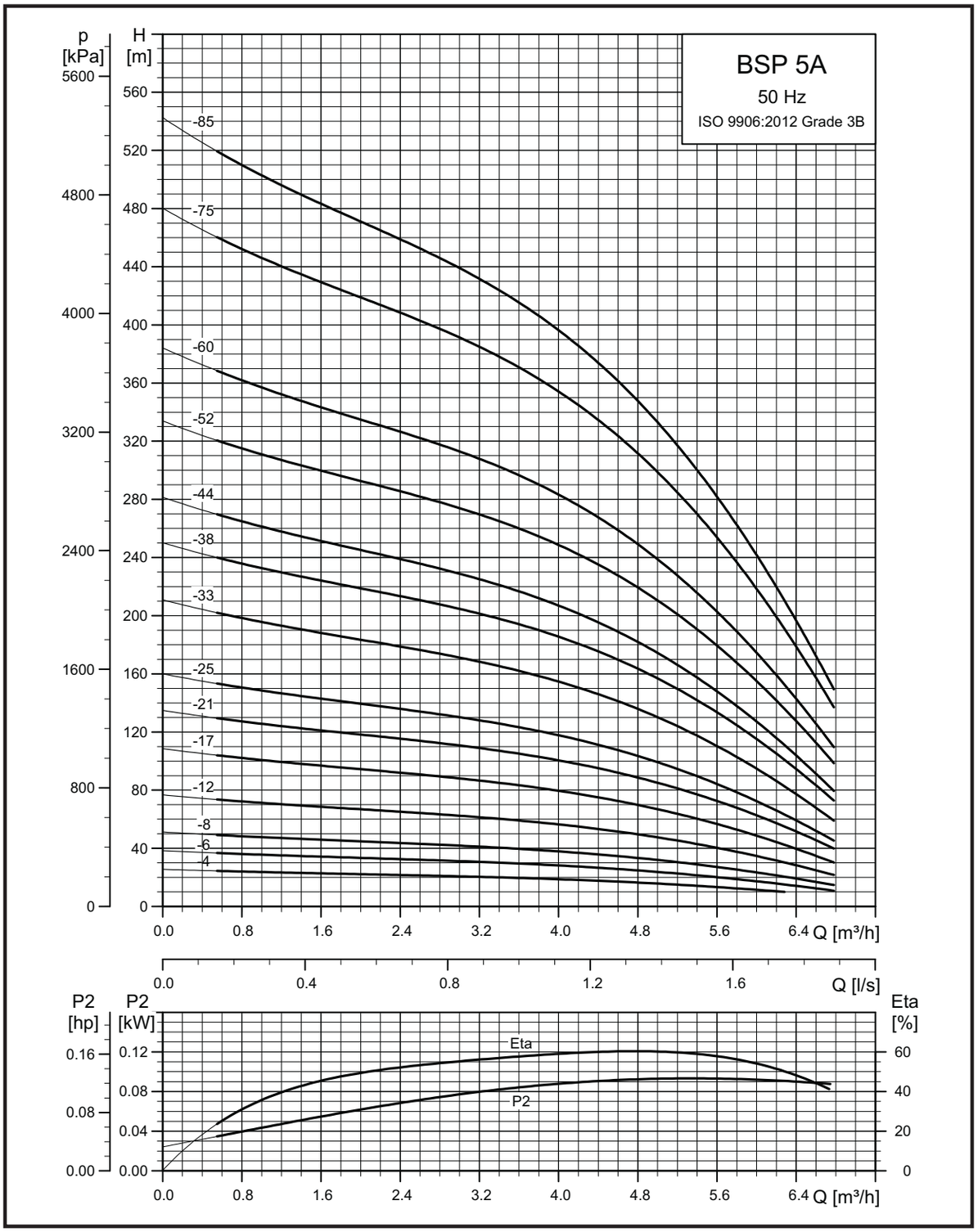


101 mm = Maximum diameter of pump inclusive of cable guard and motor.

Pump type	Motor			Dimensions [mm]				Net weight [kg]	
				B		A			
	Type	Power [kW]	C	1x230V	3x230V 3x400V	1x230V	3x230V 3x400V	1x230V	3x230V 3x400V
BSP 3A-6*	BM 4	0.37	281	256	226	537	507	10	9
BSP 3A-6N	BM 4	2.2	326	573		899		26	
BSP 3A-6N	BM 4	0.75	326		398		724		18
BSP 3A-9*	BM 4	0.55	344	291	241	635	585	12	10
BSP 3A-9N	BM 4	2.2	389	573		962		27	
BSP 3A-9N	BM 4	0.75	389		398		787		19
BSP 3A-12*	BM 4	0.75	407	306	276	713	683	13	12
BSP 3A-12N	BM 4	2.2	452	573		1025		28	
BSP 3A-12N	BM 4	0.75	452		398		850		20
BSP 3A-15*	BM 4	1.1	470	346	306	816	776	16	14
BSP 3A-15N	BM 4	2.2	515	573		1088		29	
BSP 3A-15N	BM 4	1.1	515		413		928		22
BSP 3A-18*	BM 4	1.1	533	346	306	879	839	16	15
BSP 3A-18N	BM 4	2.2	578	573		1151		30	
BSP 3A-18N	BM 4	1.1	578		413		991		23
BSP 3A-22*	BM 4	1.5	617	346	346	963	963	18	17
BSP 3A-22N	BM 4	2.2	662	573		1235		31	
BSP 3A-22N	BM 4	1.5	662		413		1075		24
BSP 3A-25*	BM 4	1.5	680	346	346	1026	1026	18	18
BSP 3A-25N	BM 4	2.2	725	573		1298		32	
BSP 3A-25N	BM 4	1.5	725		413		1138		25
BSP 3A-29*	BM 4	2.2	764	573		1337		29	
BSP 3A-29*	BM 4	2.2	764		346		1110		20
BSP 3A-29N	BM 4	2.2	809	573	453	1382	1262	33	28
BSP 3A-33*	BM 4	2.2	848	573		1421		30	
BSP 3A-33*	BM 4	2.2	848		346		1194		21
BSP 3A-33N	BM 4	2.2	893	573	453	1466	1346	34	29
BSP 3A-39	BM 4	3.0	1019		493		1512		32
BSP 3A-45	BM 4	3.0	1145		493		1638		34
BSP 3A-52	BM 4	4.0	1292		573		1865		41
BSP 3A-60	BM 4	4.0	1460		573		2033		43

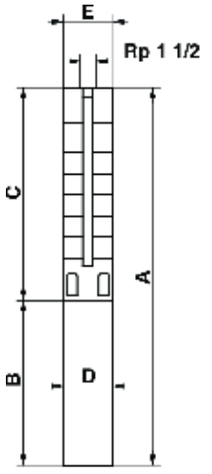
* Pumps with spline shaft are only available in stainless steel AISI 304.
Note: All other pumps listed above are also available in N- and R-versions. See page 3.

3.4 BSP 5A - Performance curve



BSP 5A - Technical Data

Dimensions and weights



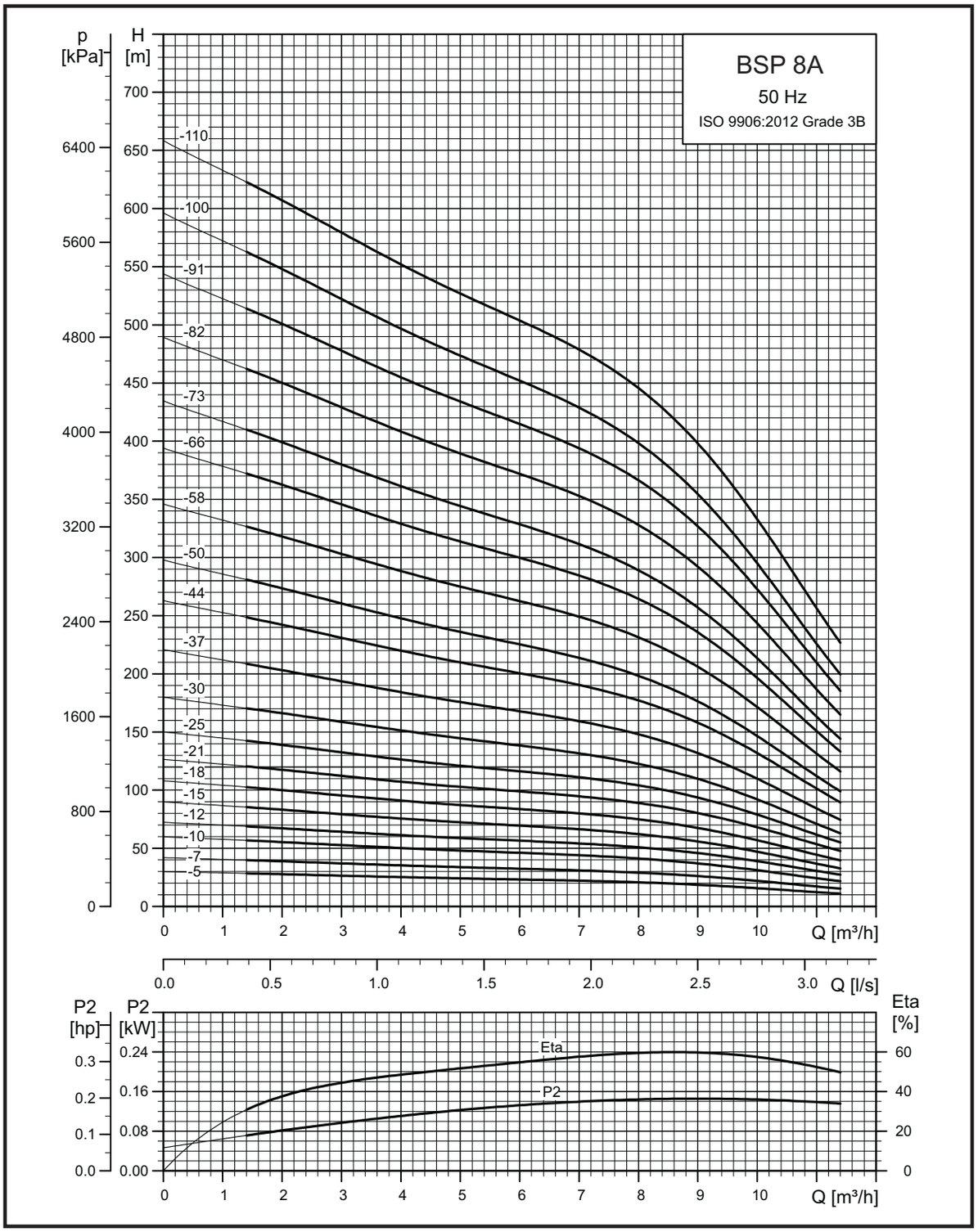
BSP 5A-75 and BSP 5A-85 are mounted in sleeve for R 1 1/2 connection.

Pump type	Motor			Dimensions [mm]						Net weight [kg]	
				B		A					
	Type	Power [kW]	C	1x230V	3x230V 3x400V	1x230V	3x230V 3x400V	D	E	1x230V	3x230V 3x400V
BSP 5A-4*	BM 4	0.37	240	256	226	496	466	95	101	10	8
BSP 5A-4N	BM 4	2.2	284	573		857		95	101	25	
BSP 5A-4N	BM 4	0.75	284		398		682	95	101		17
BSP 5A-6*	BM 4	0.55	282	291	241	573	523	95	101	11	10
BSP 5A-6N	BM 4	2.2	326	573		899		95	101	26	
BSP 5A-6N	BM 4	0.75	326		398		724	95	101		18
BSP 5A-8*	BM 4	0.75	324	306	276	630	600	95	101	13	11
BSP 5A-8N	BM 4	2.2	368	573		941		95	101	27	
BSP 5A-8N	BM 4	0.75	368		398		766	95	101		19
BSP 5A-12*	BM 4	1.1	408	346	306	754	714	95	101	15	13
BSP 5A-12N	BM 4	2.2	452	573		1025		95	101	28	
BSP 5A-12N	BM 4	1.1	452		413		865	95	101		21
BSP 5A-17*	BM 4	1.5	513	346	346	859	859	95	101	17	16
BSP 5A-17N	BM 4	2.2	557	573		1130		95	101	29	
BSP 5A-17N	BM 4	1.5	557		413		970	95	101		22
BSP 5A-21*	BM 4	2.2	597	573		1170		95	101	27	
BSP 5A-21*	BM 4	2.2	597		346		943	95	101		18
BSP 5A-21N	BM 4	2.2	641	573	453	1214	1094	95	101	30	25
BSP 5A-25*	BM 4	2.2	681	573		1254		95	101	28	
BSP 5A-25*	BM 4	2.2	681		346		1027	95	101		19
BSP 5A-25N	BM 4	2.2	725	573	453	1298	1178	95	101	32	27
BSP 5A-33*	BM 4	3.0	849		493		1342	95	101		26
BSP 5A-33N	BM 4	3.0	893		493		1386	95	101		30
BSP 5A-38	BM 4	4.0	998		573		1571	95	101		36
BSP 5A-44	BM 4	4.0	1124		573		1697	95	101		38
BSP 5A-52	BM 4	5.5	1292		673		1965	95	101		46
BSP 5A-60	BM 4	5.5	1460		673		2133	95	101		48
BSP 5A-52	BSF 6	5.5	1354		541		1895	138	138		60
BSP 5A-60	BSF 6	5.5	1522		541		2063	138	138		63
BSP 5A-75	BSF 6	7.5	2146		571		2717	138	140		86
BSP 5A-85	BSF 6	7.5	2356		571		2927	138	140		92

E = Maximum diameter of pump inclusive of cable guard and motor.
* Pumps with spline shaft are only available in stainless steel AISI 304.

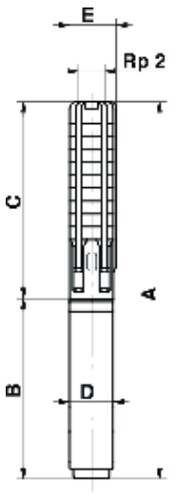
Note: All other pump listed above are also available in N- and R-versions. See page 3.
Pumps mounted in sleeve are only available in standard and N-versions.

3.5 BSP 8A - Performance curve



BSP 8A - Technical Data

Dimensions and weights

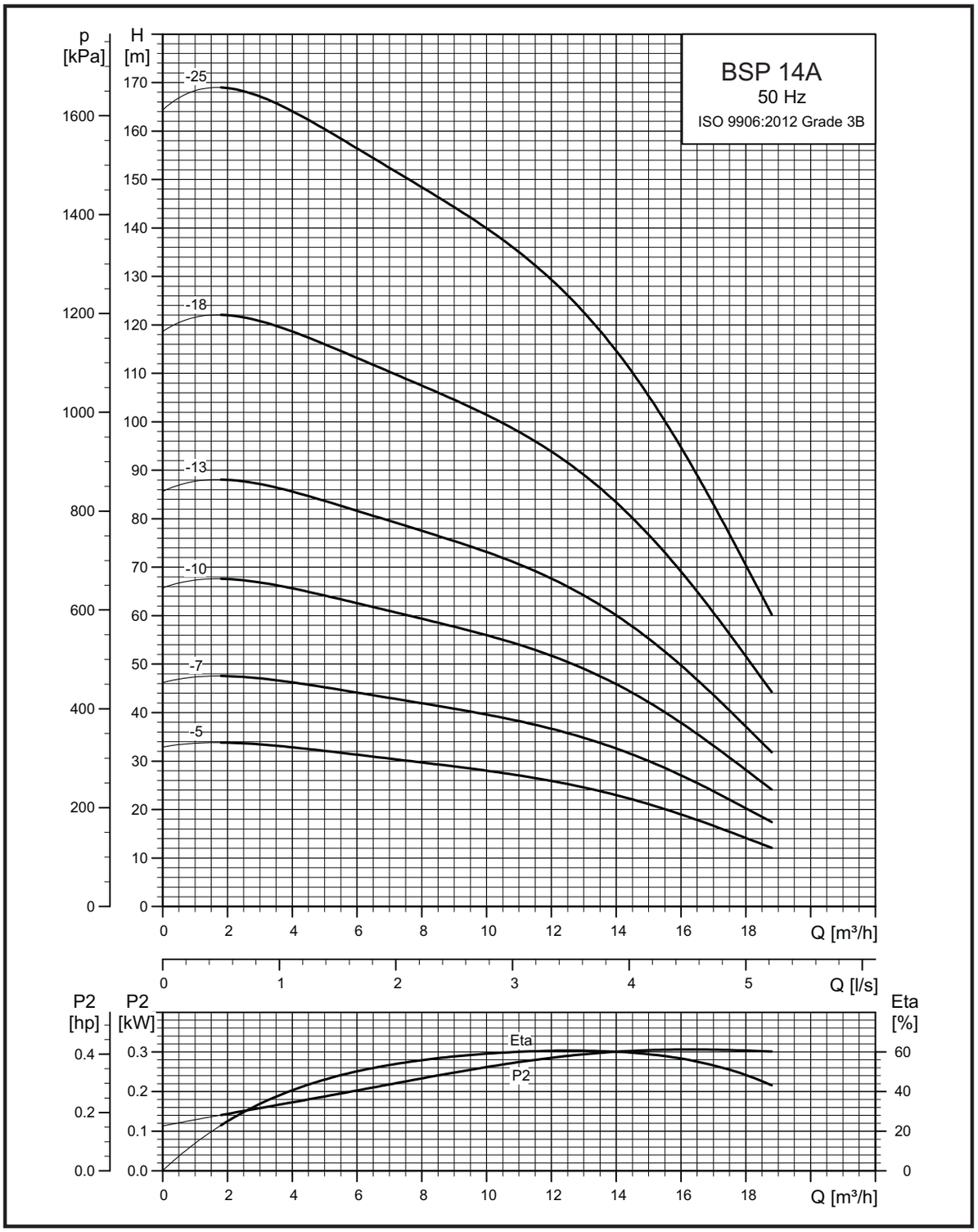


BSP 8A-58(B) to BSP 8A-110(N) are mounted in sleeve for R 2 connection.

Pump type	Motor			Dimensions [mm]						Net weight [kg]	
	Type	Power [kW]	C	B		A		D	E		
				1x230V	3x230V 3x400V	1x230V	3x230V 3x400V			1x230V	3x230V 3x400V
BSP 8A-5	BM 4	0.75	409	306	276	715	685	95	101	15	13
BSP 8A-5	BM 4	2.2	409	573		982		95	101	27	
BSP 8A-5	BM 4	0.75	409		398		807	95	101		19
BSP 8A-7	BM 4	1.1	493	346	306	839	799	95	101	17	16
BSP 8A-7	BM 4	2.2	493	573		1066		95	101	28	
BSP 8A-7	BM 4	1.1	493		413		906	95	101		21
BSP 8A-10	BM 4	1.5	619	346	346	965	965	95	101	19	19
BSP 8A-10	BM 4	2.2	619	573		1192		95	101	30	
BSP 8A-10	BM 4	1.5	619		413		1032	95	101		23
BSP 8A-12	BM 4	2.2	703	573		1276		95	101	30	
BSP 8A-12	BM 4	2.2	703		346		1049	95	101		21
BSP 8A-12	BM 4	2.2	703	573	453	1276	1156	95	101	30	25
BSP 8A-15	BM 4	2.2	829	573		1402		95	101	32	
BSP 8A-15	BM 4	2.2	829		346		1175	95	101		23
BSP 8A-15	BM 4	2.2	829	573	453	1402	1282	95	101	32	27
BSP 8A-18	BM 4	3.0	955		493		1448	95	101		29
BSP 8A-21	BM 4	4.0	1081		573		1654	95	101		35
BSP 8A-25	BM 4	4.0	1249		573		1822	95	101		37
BSP 8A-30	BM 4	5.5	1459		673		2132	95	101		45
BSP 8A-37	BM 4	5.5	1753		673		2426	95	101		49
BSP 8A-30	BSF 6	5.5	1521		541		2062	138	138		56
BSP 8A-37	BSF 6	5.5	1521		541		2356	138	138		60
BSP 8A-44	BSF 6	7.5	1815		773		2824	95	101		60
BSP 8A-44	BSF 6	7.5	2109		571		2680	138	138		66
BSP 8A-50	BSF 6	7.5	2303		773		3076	95	101		64
BSP 8A-50	BSF 6	7.5	2361		571		2932	138	138		70
BSP 8A-58	BSF 6	9.2	3013		601		3614	138	140		104
BSP 8A-66	BSF 6	11.0	3349		631		3980	138	140		114
BSP 8A-73	BSF 6	11.0	3643		631		4274	138	140		120
BSP 8A-82	BSF 6	13.0	4021		661		4682	138	140		131
BSP 8A-91	BSF 6	15.0	4399		696		5095	138	140		143
BSP 8A-100	BSF 6	15.0	4777		696		5473	138	140		150
BSP 8A-110	BSF 6	18.5	5197		751		5948	138	140		164

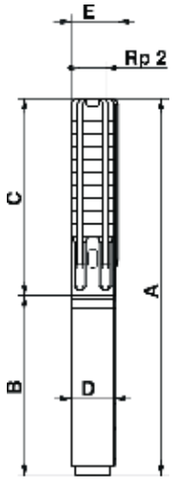
E = Maximum diameter of pump inclusive of cable guard and motor.
Note: The pump types above are also available in N- and R-versions. See page 3.
Pumps mounted in sleeve are only available in standard and N-versions.

3.6 BSP 14A - Performance curve



BSP 14A - Technical Data

Dimensions and weights

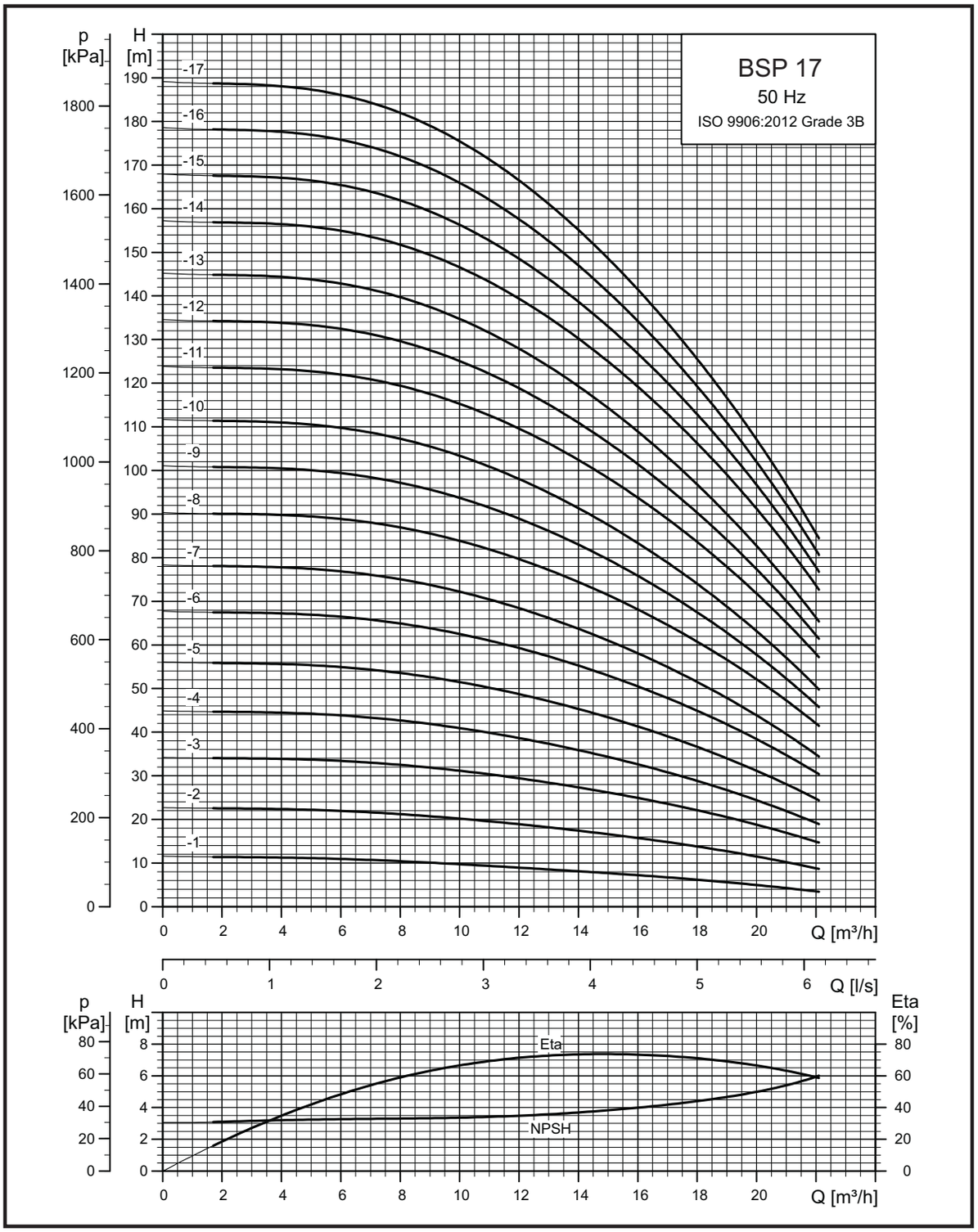


Pump type	Motor			Dimensions [mm]						Net weight [kg]	
				B		A		D	E		
	Type	Power [kW]	C	1x230V	3x230V 3x400V	1x230V	3x230V 3x400V			1x230V	3x230V 3x400V
BSP 14A-5	BM 4	1.5	510	346	346	856	856	95	101	18	17
BSP 14A-7	BM 4	2.2	640	573		1213		95	101	29	
BSP 14A-7	BM 4	2.2	640		346		986	95	101		19
BSP 14A-10	BM 4	3.0	835		493		1328	95	101		27
BSP 14A-13	BM 4	4.0	1030		573		1603	95	101		33
BSP 14A-18	BM 4	5.5	1355		673		2028	95	101		41
BSP 14A-25	BM 4	7.5	1810		773		2584	95	101		67
BSP 14A-18	BSF 6	5.5	1417		541		1958	138	138		52
BSP 14A-25	BSF 6	7.5	1872		571		2443	138	138		60

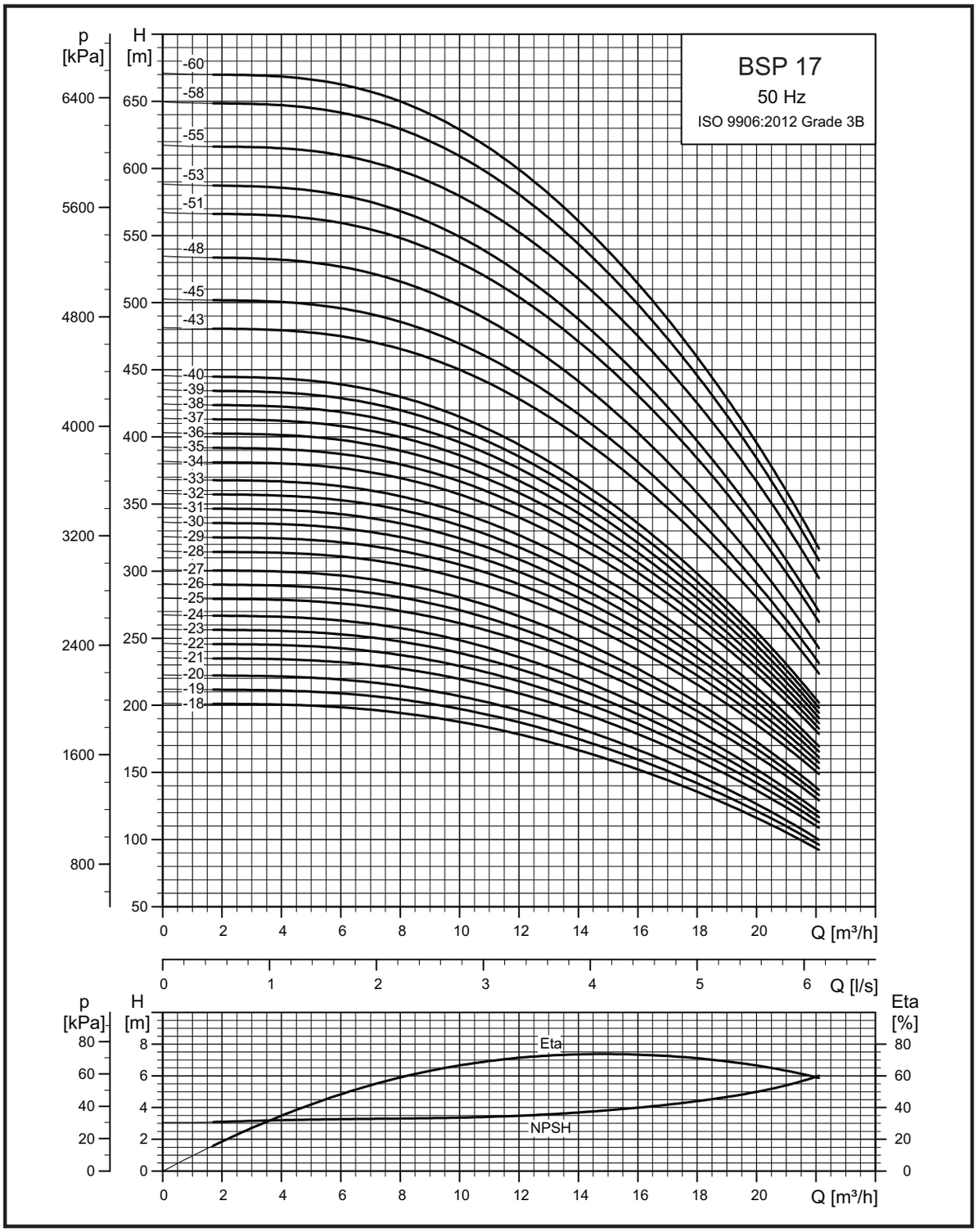
E = Maximum diameter of pump inclusive of cable guard and motor.

Note: The pump types above are also available in N-versions. See page 3.

3.7 BSP 17 - Performance curve

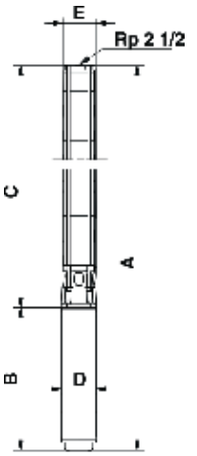


BSP 17 - Performance Curve



BSP 17 - Technical Data

Dimensions and Weights



BSP17-43 to BSP17-60 are mounted in sleeve for R 3 connection.

The pump types above are also available in N- and R-versions. See page no.3

Pumps mounted in sleeve are only available in standard and N-versions.

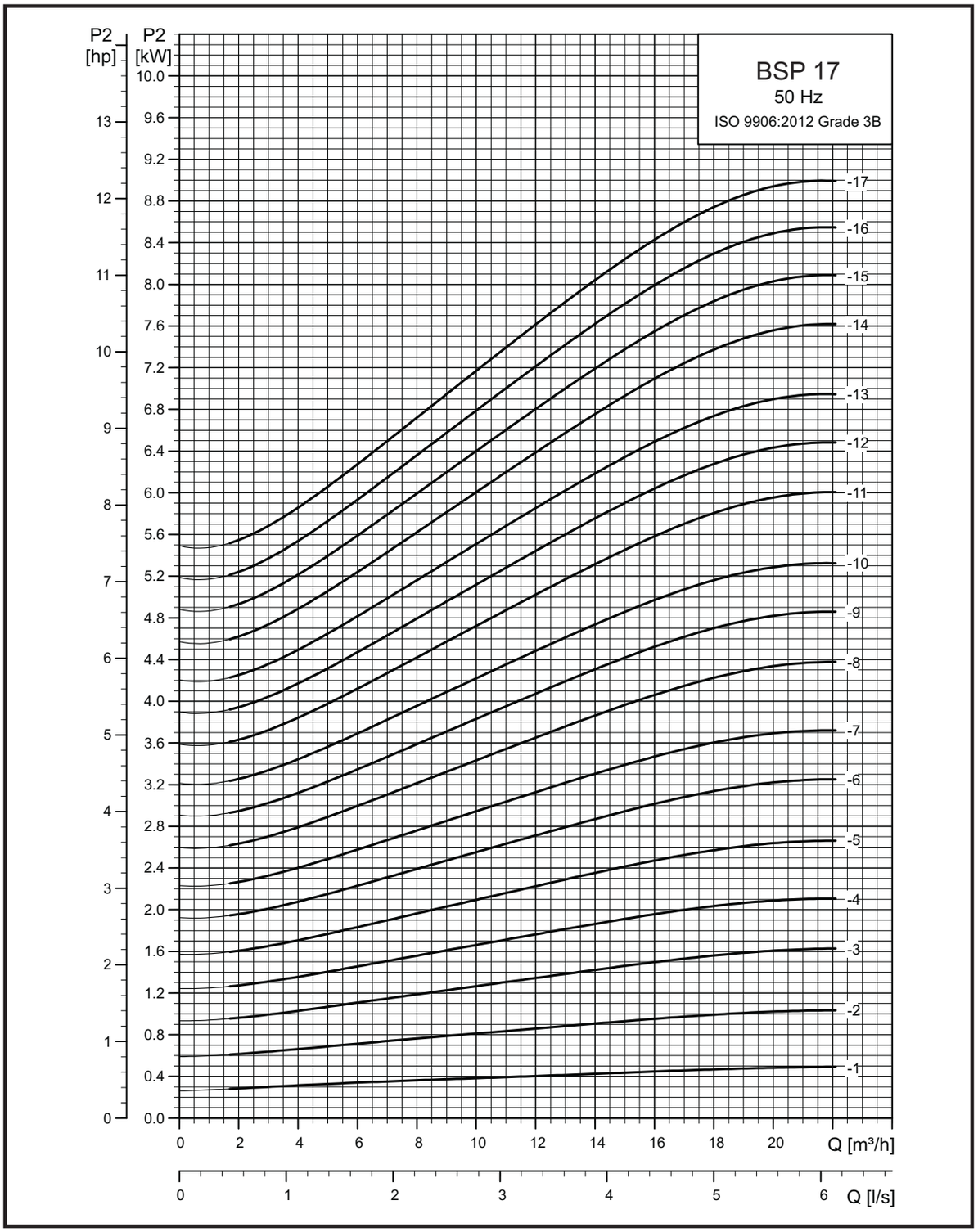
Other types of connection are possible by means of connecting pieces.

*Maximum diameter of pump with one motor cable.

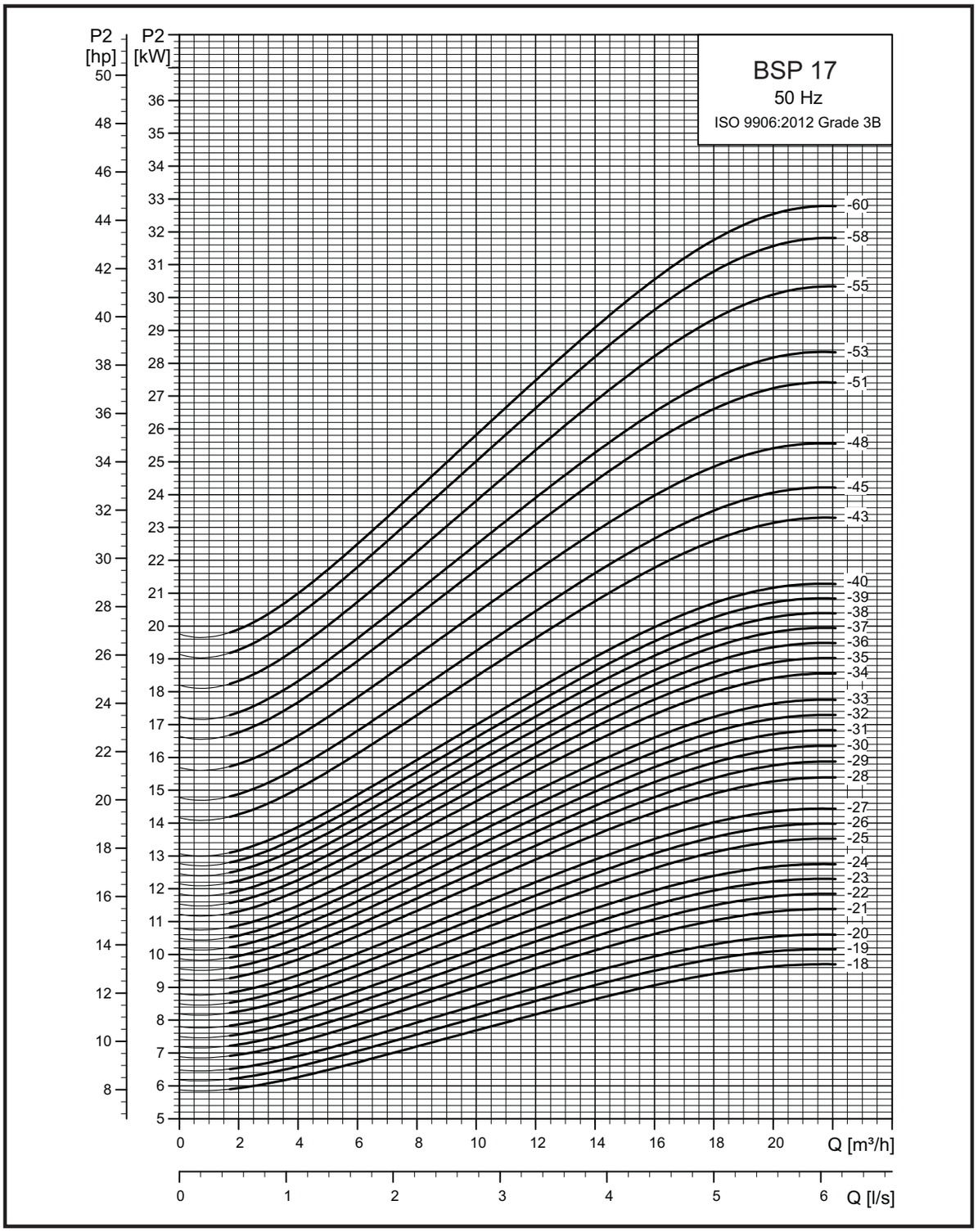
** Maximum diameter of pump with two motor cables.

Pump type	Motor		Dimensions [mm]						Net weight [kg]
	Type	Power [kW]	C	B	A	D	E*	E**	
Single-phase, 1 x 230 V									
BSP 17-1	BM 4	2.2	341	577	918	95	134		26
BSP 17-2	BM 4	2.2	402	577	979	95	134		27
BSP 17-3	BM 4	2.2	462	577	1039	95	134		28
BSP 17-4	BM 4	2.2	523	577	1100	95	134		30
Three-phase, 3 x 230 V / 3 x 400 V									
BSP 17-1	BM 4	0.75	341	402	743	95	134		18
BSP 17-2	BM 4	1.1	402	417	819	95	134		20
BSP 17-3	BM 4	2.2	462	457	919	95	134		23
BSP 17-4	BM 4	2.2	523	457	980	95	134		25
BSP 17-5	BM 4	3	583	497	1080	95	134		27
BSP 17-6	BM 4	4	644	577	1221	95	134		32
BSP 17-7	BM 4	4	704	577	1281	95	134		34
BSP 17-8	BM 4	5.5	765	677	1442	95	134		40
BSP 17-9	BM 4	5.5	825	677	1502	95	134		42
BSP 17-10	BM 4	5.5	886	677	1563	95	134		43
BSP 17-11	BM 4	7.5	946	777	1723	95	134		50
BSP 17-12	BM 4	7.5	1007	777	1784	95	134		51
BSP 17-13	BM 4	7.5	1067	777	1844	95	134		53
BSP 17-8	BSF 6	5.5	765	544	1309	143	142	144	49
BSP 17-9	BSF 6	5.5	825	544	1369	143	142	144	50
BSP 17-10	BSF 6	5.5	886	544	1430	143	142	144	52
BSP 17-11	BSF 6	7.5	946	574	1520	143	142	144	56
BSP 17-12	BSF 6	7.5	1007	574	1581	143	142	144	58
BSP 17-13	BSF 6	7.5	1067	574	1641	143	142	144	59
BSP 17-14	BSF 6	9.2	1128	604	1732	143	142	144	66
BSP 17-15	BSF 6	9.2	1188	604	1792	143	142	144	67
BSP 17-16	BSF 6	9.2	1249	604	1853	143	142	144	69
BSP 17-17	BSF 6	9.2	1309	634	1943	143	142	144	70
BSP 17-18	BSF 6	11	1370	634	2004	143	142	144	75
BSP 17-19	BSF 6	11	1430	634	2064	143	142	144	76
BSP 17-20	BSF 6	11	1491	664	2155	143	142	144	77
BSP 17-21	BSF 6	13	1551	664	2215	143	142	144	82
BSP 17-22	BSF 6	13	1612	664	2276	143	142	144	83
BSP 17-23	BSF 6	13	1672	664	2336	143	142	144	84
BSP 17-24	BSF 6	13	1733	699	2432	143	142	144	86
BSP 17-25	BSF 6	15	1793	699	2492	143	142	144	91
BSP 17-26	BSF 6	15	1854	699	2553	143	142	144	92
BSP 17-27	BSF 6	18.5	1914	754	2668	143	142	144	94
BSP 17-28	BSF 6	18.5	1975	754	2729	143	142	144	101
BSP 17-29	BSF 6	18.5	2035	754	2789	143	142	144	102
BSP 17-30	BSF 6	18.5	2096	754	2850	143	142	144	103
BSP 17-31	BSF 6	18.5	2156	754	2910	143	142	144	105
BSP 17-32	BSF 6	18.5	2217	754	2971	143	142	144	106
BSP 17-33	BSF 6	18.5	2277	754	3031	143	142	144	108
BSP 17-34	BSF 6	22	2338	814	3152	143	142	144	115
BSP 17-35	BSF 6	22	2398	814	3212	143	142	144	116
BSP 17-36	BSF 6	22	2459	814	3273	143	142	144	118
BSP 17-37	BSF 6	22	2519	814	3333	143	142	144	119
BSP 17-38	BSF 6	22	2580	814	3394	143	142	144	120
BSP 17-39	BSF 6	22	2640	814	3454	143	142	144	122
BSP 17-40	BSF 6	22	2701	814	3515	143	142	144	123
BSP 17-43	BSF 6	26	2882	874	3756	143	175	181	164
BSP 17-45	BSF 6	26	3003	874	3877	143	175	181	167
BSP 17-48	BSF 6	26	3185	874	4129	143	175	181	173
BSP 17-51	BSF 6	30	3366	944	4310	143	175	181	186
BSP 17-53	BSF 6	30	3487	944	4799	143	175	181	189
BSP 17-55	BSF 6	37	3608	1312	4920	144	175	181	234
BSP 17-58	BSF 6	37	3790	1312	5102	144	175	181	140
BSP 17-60	BSF 6	37	3911	1312	3911	144	175	181	243

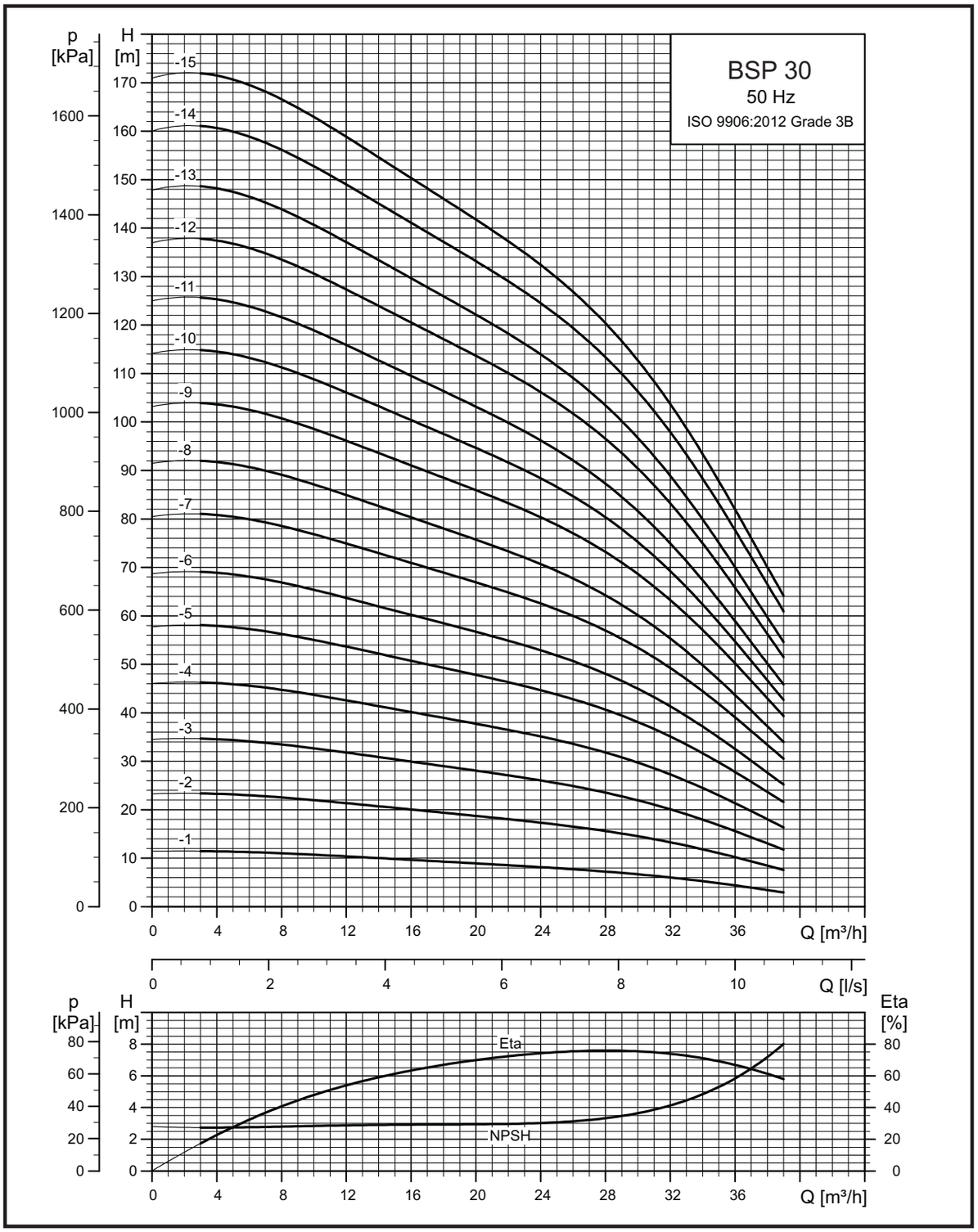
BSP 17 - Power Curve



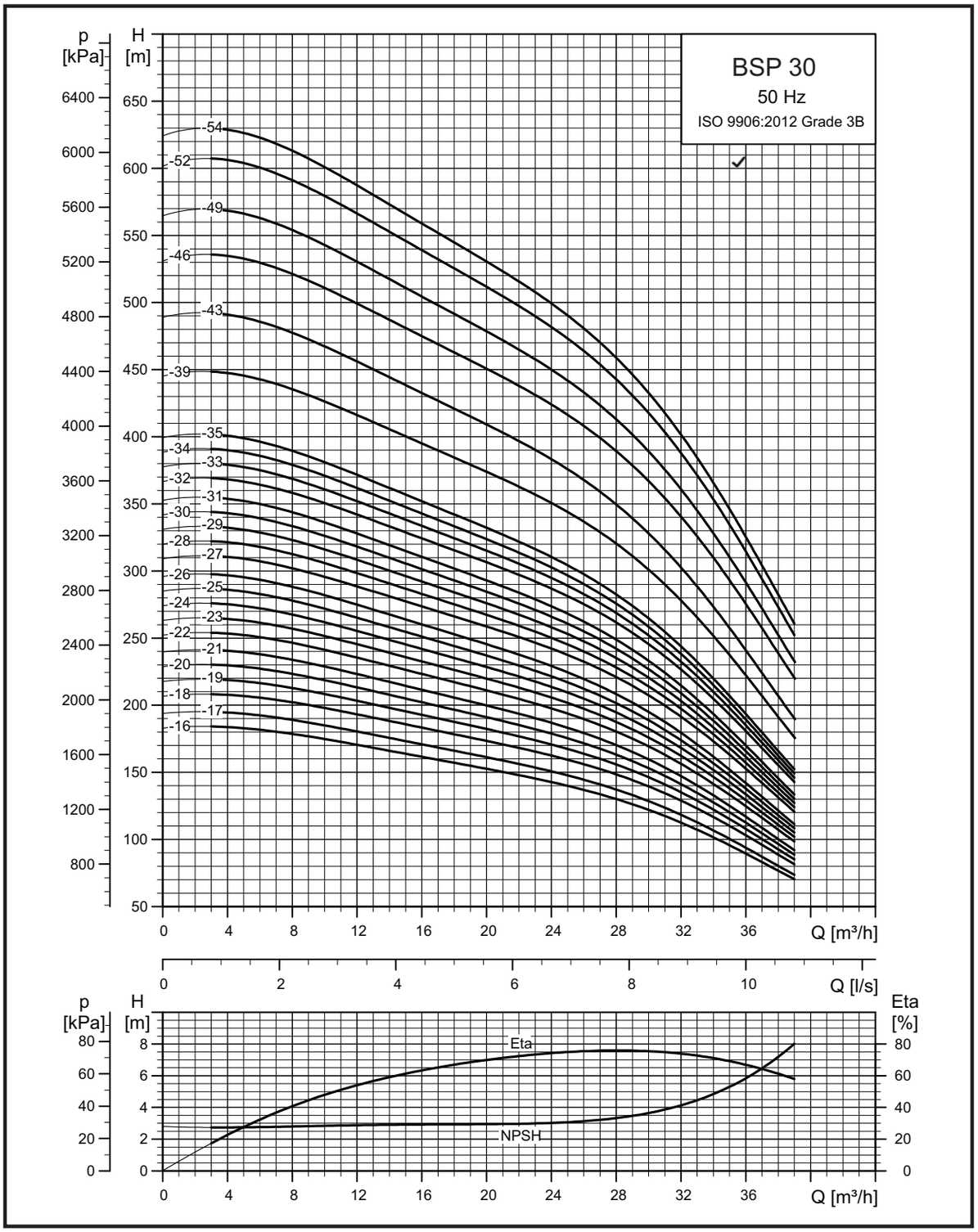
BSP 17 - Power Curve



3.8 BSP 30 - Performance Curve

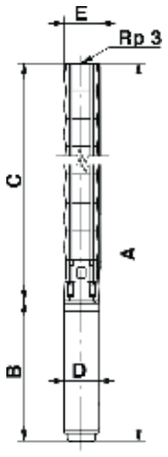


BSP 30 - Performance Curve



BSP 30 - Technical Data

Dimensions and Weights

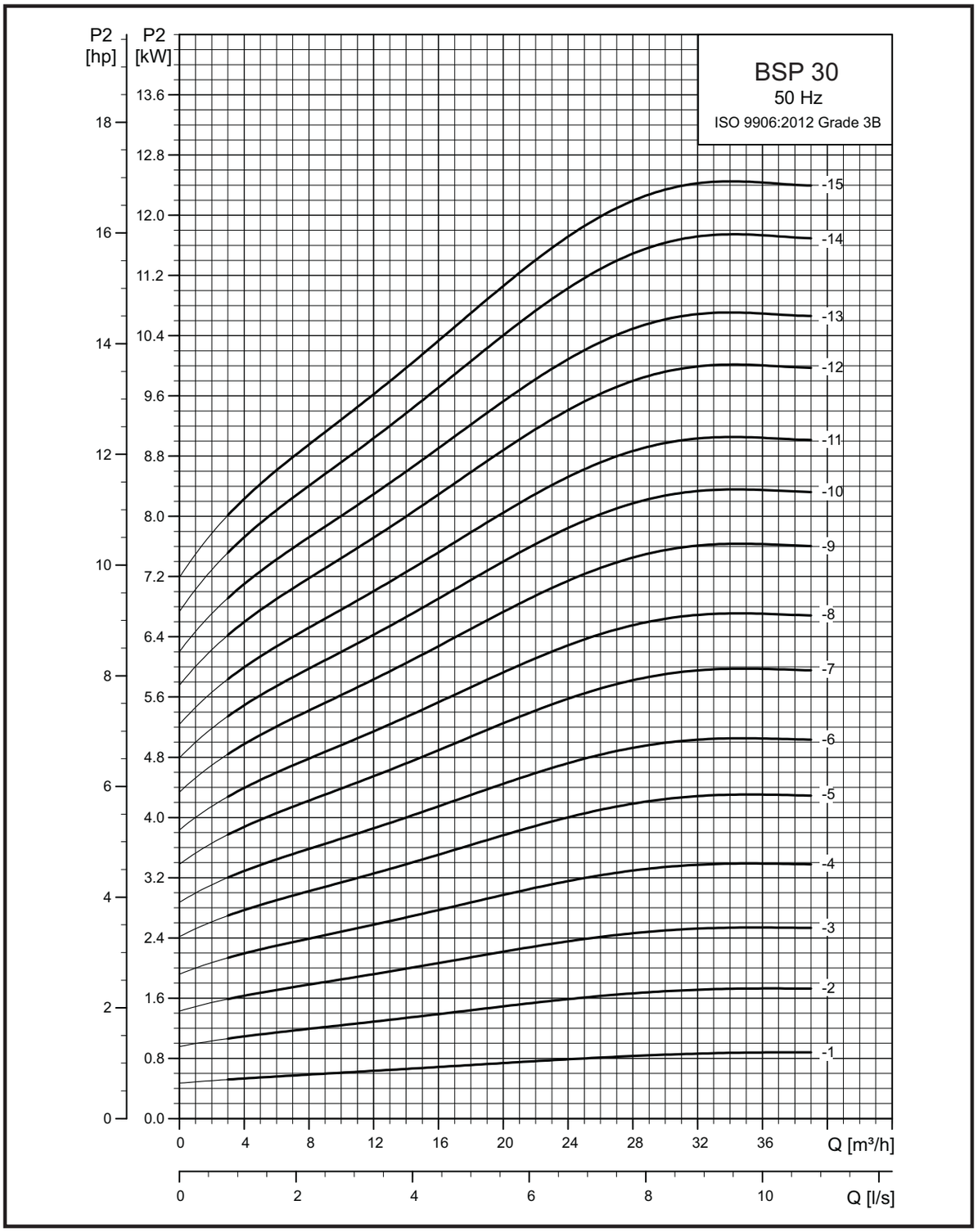


BSP 30-39 to BSP 30-54 are mounted in sleeve for R 3 connection.

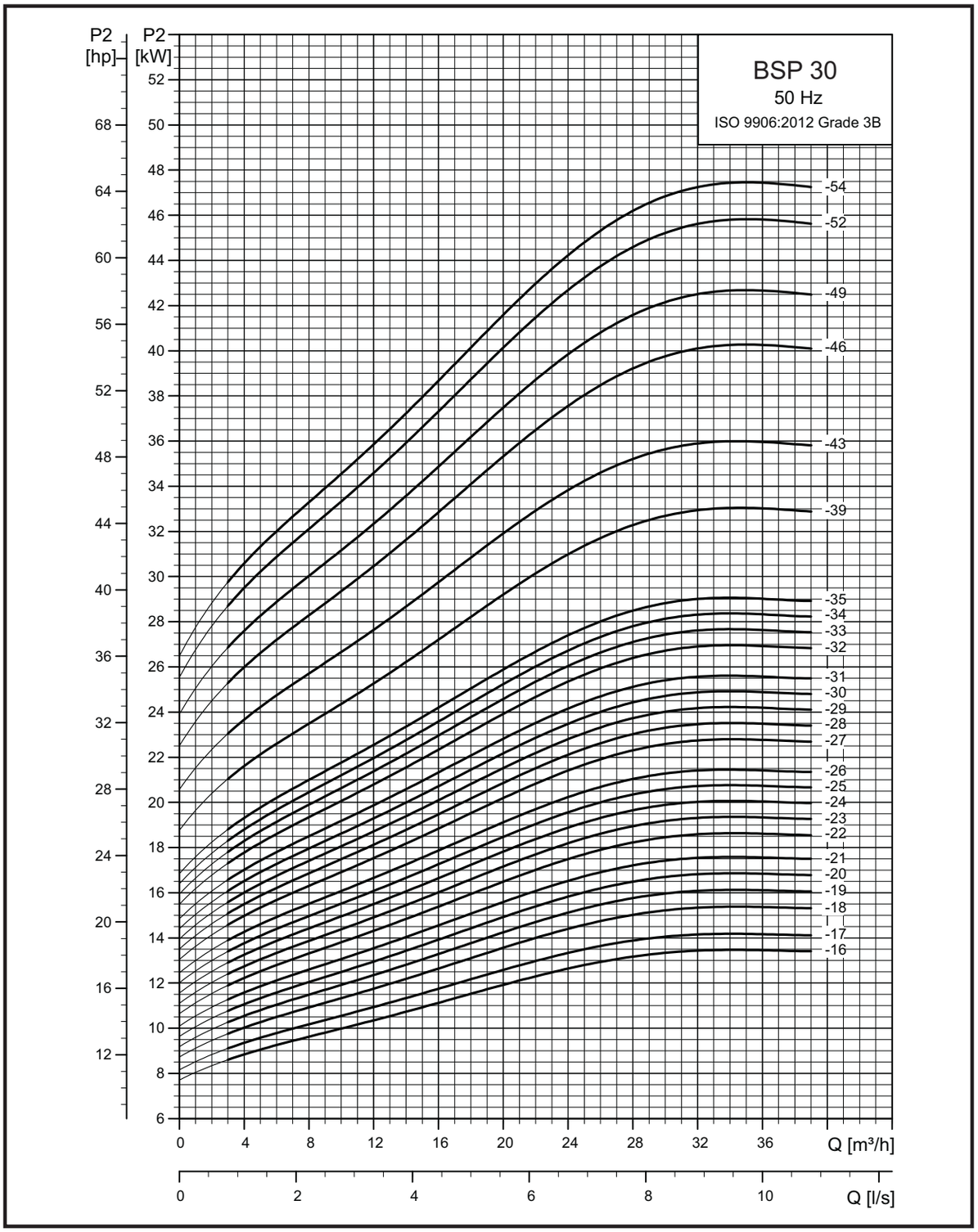
Pump type	Motor		Dimensions [mm]						Net weight [kg]
	Type	Power [kW]	C	B	A	D	E*	E**	
Single-phase, 1 x 230 V									
BSP 30-1	BM 4	2.2	373	577	950	95	134		27
BSP 30-2	BM 4	2.2	469	577	1046	95	134		29
Three-phase, 3 x 230 V / 3 x 400 V									
BSP 30-1	BM 4	1.1	373	417	790	95	134		20
BSP 30-2	BM 4	2.2	469	457	926	95	134		24
BSP 30-3	BM 4	3	565	497	1062	95	134		26
BSP 30-4	BM 4	4	661	577	1238	95	134		32
BSP 30-5	BM 4	5.5	757	677	1434	95	134		39
BSP 30-6	BM 4	5.5	853	677	1530	95	134		41
BSP 30-7	BM 4	7.5	949	777	1726	95	134		48
BSP 30-8	BM 4	7.5	1045	777	1822	95	134		50
BSP 30-5	BSF 6	5.5	757	544	1301	143	142		47
BSP 30-6	BSF 6	5.5	853	544	1397	143	142		49
BSP 30-7	BSF 6	7.5	949	574	1523	143	142		55
BSP 30-8	BSF 6	7.5	1045	574	1619	143	142		57
BSP 30-9	BSF 6	9.2	1141	604	1745	143	142		64
BSP 30-10	BSF 6	9.2	1237	604	1841	143	142	144	66
BSP 30-11	BSF 6	9.2	1333	604	1937	143	142	144	68
BSP 30-12	BSF 6	11	1429	634	2063	143	142	144	73
BSP 30-13	BSF 6	11	1525	634	2159	143	142	144	75
BSP 30-14	BSF 6	13	1621	664	2285	143	142	144	80
BSP 30-15	BSF 6	13	1717	664	2381	143	142	144	82
BSP 30-16	BSF 6	15	1813	699	2512	143	142	144	88
BSP 30-17	BSF 6	15	1909	699	2608	143	142	144	90
BSP 30-18	BSF 6	18.5	2005	754	2759	143	142	144	97
BSP 30-19	BSF 6	18.5	2101	754	2855	143	142	144	99
BSP 30-20	BSF 6	18.5	2197	754	2951	143	142	144	101
BSP 30-21	BSF 6	18.5	2293	754	3047	143	142	144	103
BSP 30-22	BSF 6	22	2389	814	3203	143	142	144	111
BSP 30-23	BSF 6	22	2485	814	3299	143	142	144	113
BSP 30-24	BSF 6	22	2581	814	3395	143	142	144	115
BSP 30-25	BSF 6	22	2677	814	3491	143	142	144	117
BSP 30-26	BSF 6	22	2773	814	3587	143	142	144	119
BSP 30-27	BSF 6	26	2869	874	3743	143	142	144	126
BSP 30-28	BSF 6	26	2965	874	3839	143	142	144	128
BSP 30-29	BSF 6	26	3061	874	3935	143	142	144	130
BSP 30-30	BSF 6	26	3157	874	4031	143	142	144	132
BSP 30-31	BSF 6	26	3253	874	4127	143	142	144	134
BSP 30-32	BSF 6	30	3349	944	4293	143	142	144	144
BSP 30-33	BSF 6	30	3445	944	4389	143	142	144	146
BSP 30-34	BSF 6	30	3541	944	4485	143	142	144	148
BSP 30-35	BSF 6	30	3637	944	4581	143	142	144	150
BSP 30-39	BSF 6	37	4021	1312	5333	144	175	181	248
BSP 30-43	BSF 6	37	4405	1312	5717	144	175	181	259
BSP 30-46	BMCI 8	45	4693	1270	5963	192	192	192	326
BSP 30-49	BMCI 8	45	4981	1270	6251	192	192	192	334
BSP 30-52	BMCI 8	55	5269	1350	6619	192	192	192	357
BSP 30-54	BMCI 8	55	5461	1350	6811	192	192	192	362

The pump types above are also available in N- and R-versions. See page 3.
Pumps mounted in sleeve are only available in standard and N-versions.
Other types of connection are possible by means of connecting pieces.

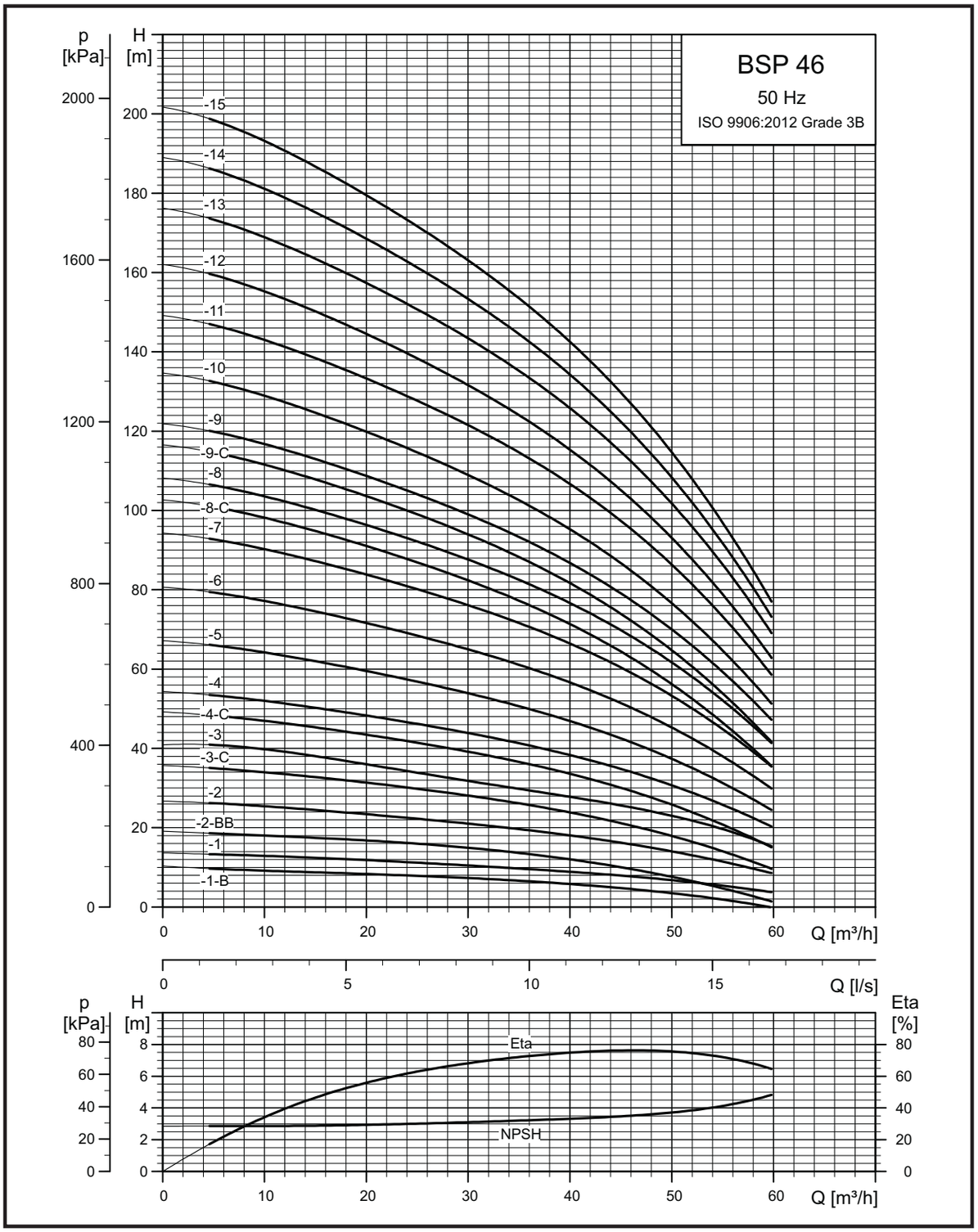
BSP 30 - Power Curve



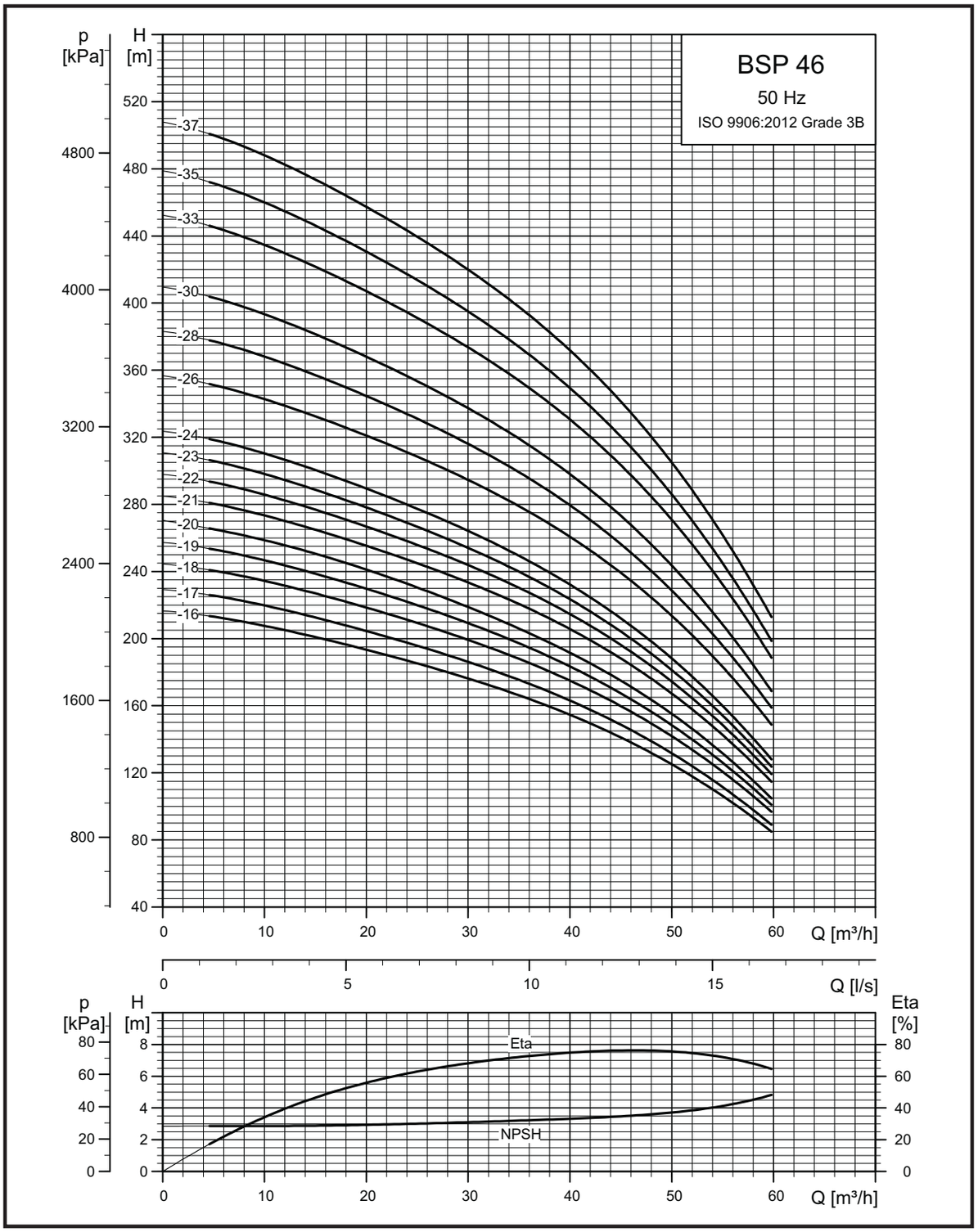
BSP 30 - Power Curve



3.9 BSP 46 - Performance Curve

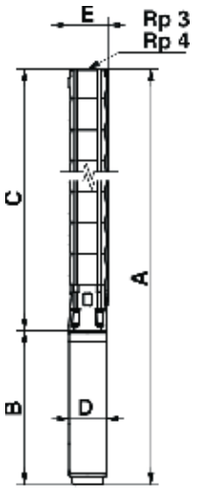


BSP 46 - Performance Curve



BSP 46 - Technical Data

Dimensions and Weights

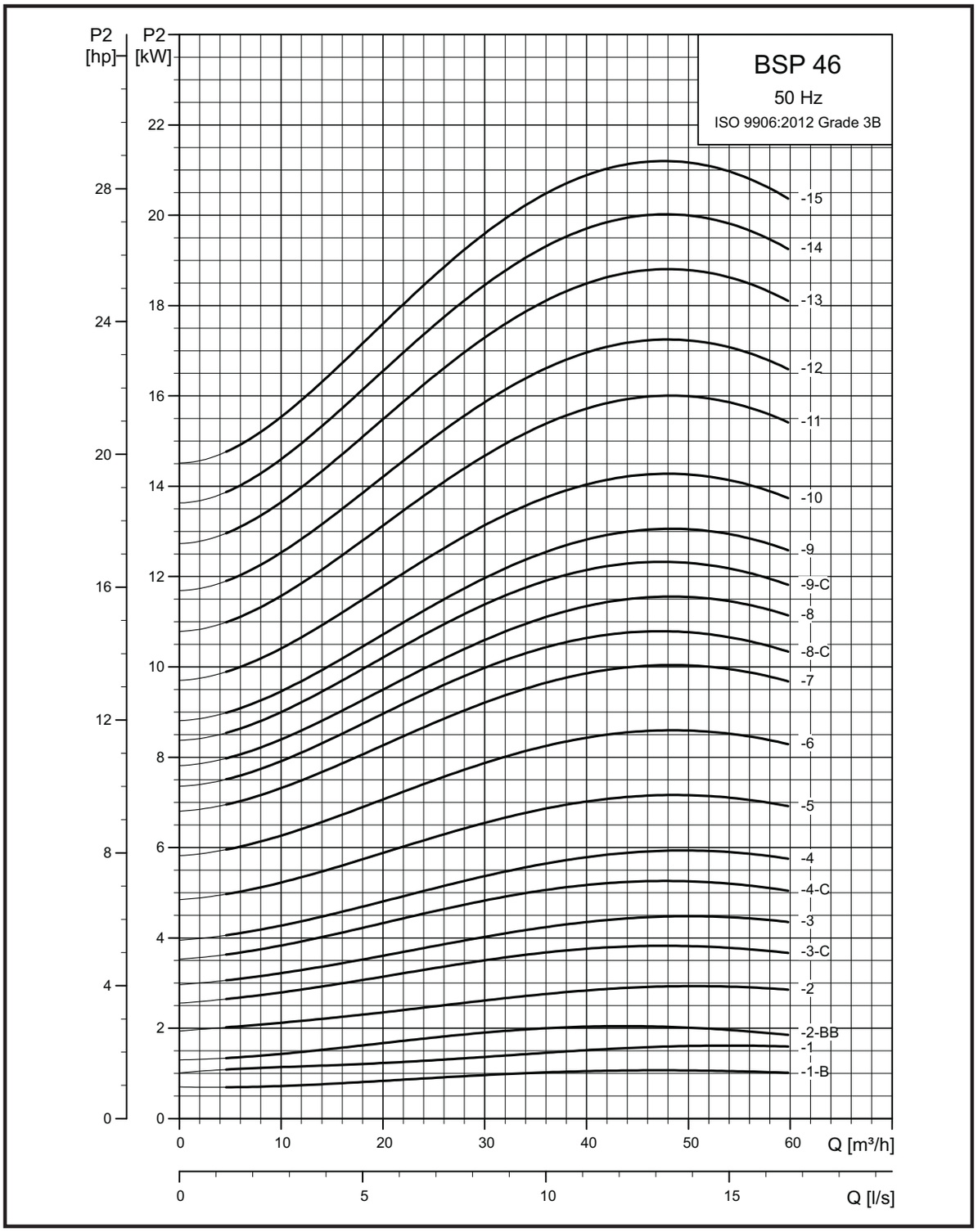


BSP 46-26 to BSP 46-37 are mounted in sleeve for R 4 connection.

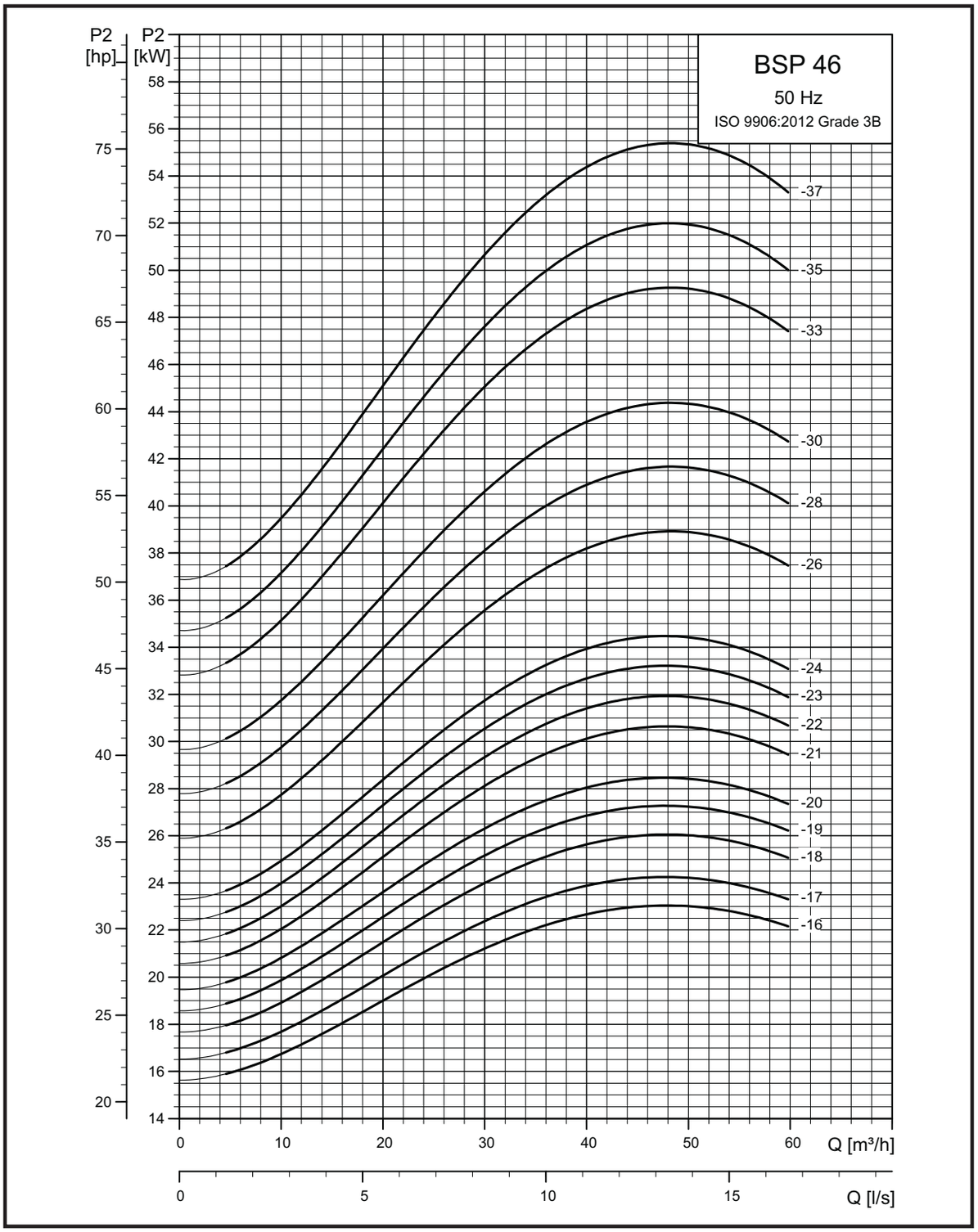
Pump type	Motor		Dimensions [mm]						Net weight [kg]
	Type	Power [kW]	Rp 3 / Rp 4 connection				B	D	
			A	C	E*	E**			
BSP 46-1-B	BM 4	1.1	816	399	146		417	95	21
BSP 46-1	BM 4	2.2	856	399	146		457	95	23
BSP 46-2-BB	BM 4	2.2	969	512	146		457	95	26
BSP 46-2	BM 4	3	1009	512	146		497	95	27
BSP 46-3-C	BM 4	4	1202	625	146		577	95	33
BSP 46-3	BM 4	5.5	1302	625	146		677	95	38
BSP 46-4-C	BM 4	5.5	1415	738	146		677	95	40
BSP 46-4	BM 4	7.5	1515	738	146		777	95	45
BSP 46-5	BM 4	7.5	1628	851	146		777	95	48
BSP 46-3	BSF 6	5.5	1169	625	148	151	544	143	48
BSP 46-4-C	BSF 6	5.5	1282	738	148	151	544	143	51
BSP 46-4	BSF 6	7.5	1312	738	148	151	574	143	54
BSP 46-5	BSF 6	7.5	1425	851	148	151	574	143	57
BSP 46-6	BSF 6	9.2	1568	964	148	151	604	143	64
BSP 46-7	BSF 6	11	1711	1077	148	151	634	143	70
BSP 46-8-C	BSF 6	11	1824	1190	148	151	634	143	72
BSP 46-8	BSF 6	13	1854	1190	148	151	664	143	75
BSP 46-9-C	BSF 6	13	1967	1303	148	151	664	143	78
BSP 46-9	BSF 6	15	2002	1303	148	151	699	143	82
BSP 46-10	BSF 6	15	2115	1416	148	151	699	143	84
BSP 46-11	BSF 6	18.5	2283	1529	148	151	754	143	92
BSP 46-12	BSF 6	18.5	2396	1642	148	151	754	143	94
BSP 46-13	BSF 6	22	2569	1755	148	151	814	143	103
BSP 46-14	BSF 6	22	2682	1868	148	151	814	143	106
BSP 46-15	BSF 6	22	2795	1981	148	151	814	143	108
BSP 46-16	BSF 6	26	2968	2094	148	151	874	143	116
BSP 46-17	BSF 6	26	3081	2207	148	151	874	143	118
BSP 46-18	BSF 6	30	3264	2320	148	151	944	143	129
BSP 46-19	BSF 6	30	3377	2433	148	151	944	143	131
BSP 46-20	BSF 6	30	3490	2546	148	151	944	143	134
BSP 46-21	BSF 6	37	3971	2659	150	153	1312	144	176
BSP 46-22	BSF 6	37	4084	2772	150	153	1312	144	179
BSP 46-23	BSF 6	37	4197	2885	150	153	1312	144	181
BSP 46-24	BSF 6	37	4310	2998	150	153	1312	144	183
BSP 46-26	BMCI 8	45	4494	3224	192	192	1270	192	278
BSP 46-28	BMCI 8	45	4720	3450	192	192	1270	192	284
BSP 46-30	BMCI 8	45	4946	3676	192	192	1270	192	290
BSP 46-33	BMCI 8	55	5365	4015	192	192	1350	192	314
BSP 46-35	BMCI 8	55	5591	4241	192	192	1350	192	320
BSP 46-37	BMCI 8	63	5957	4467	192	192	1490	192	352

*Maximum diameter of pump with one motor cable.
** Maximum diameter of pump with two motor cables.
The pump types above are also available in N-versions. See page 3.
Pumps mounted in sleeve are only available in standard and N-versions.
Other types of connection are possible by means of connecting pieces.

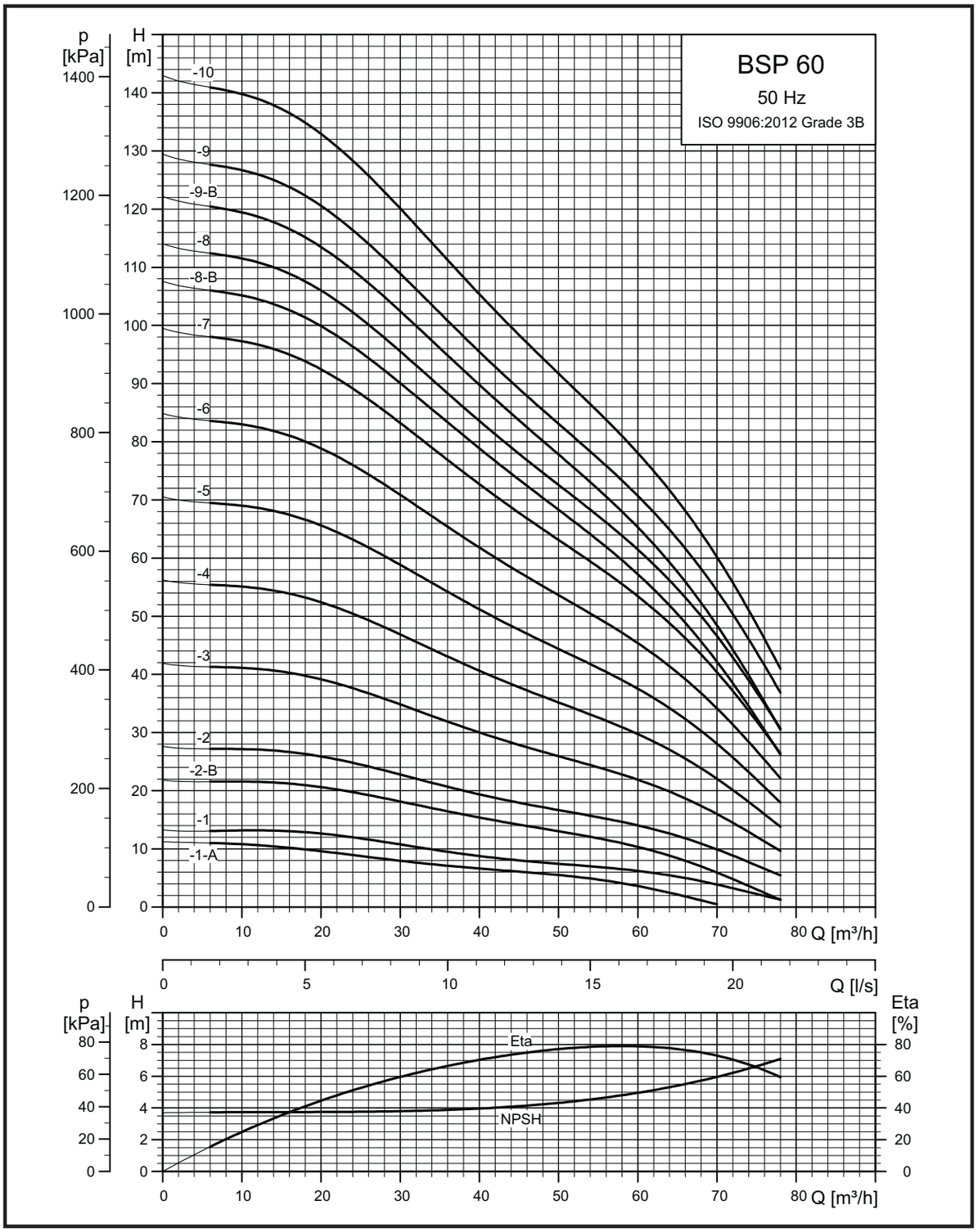
BSP 46 - Power Curve



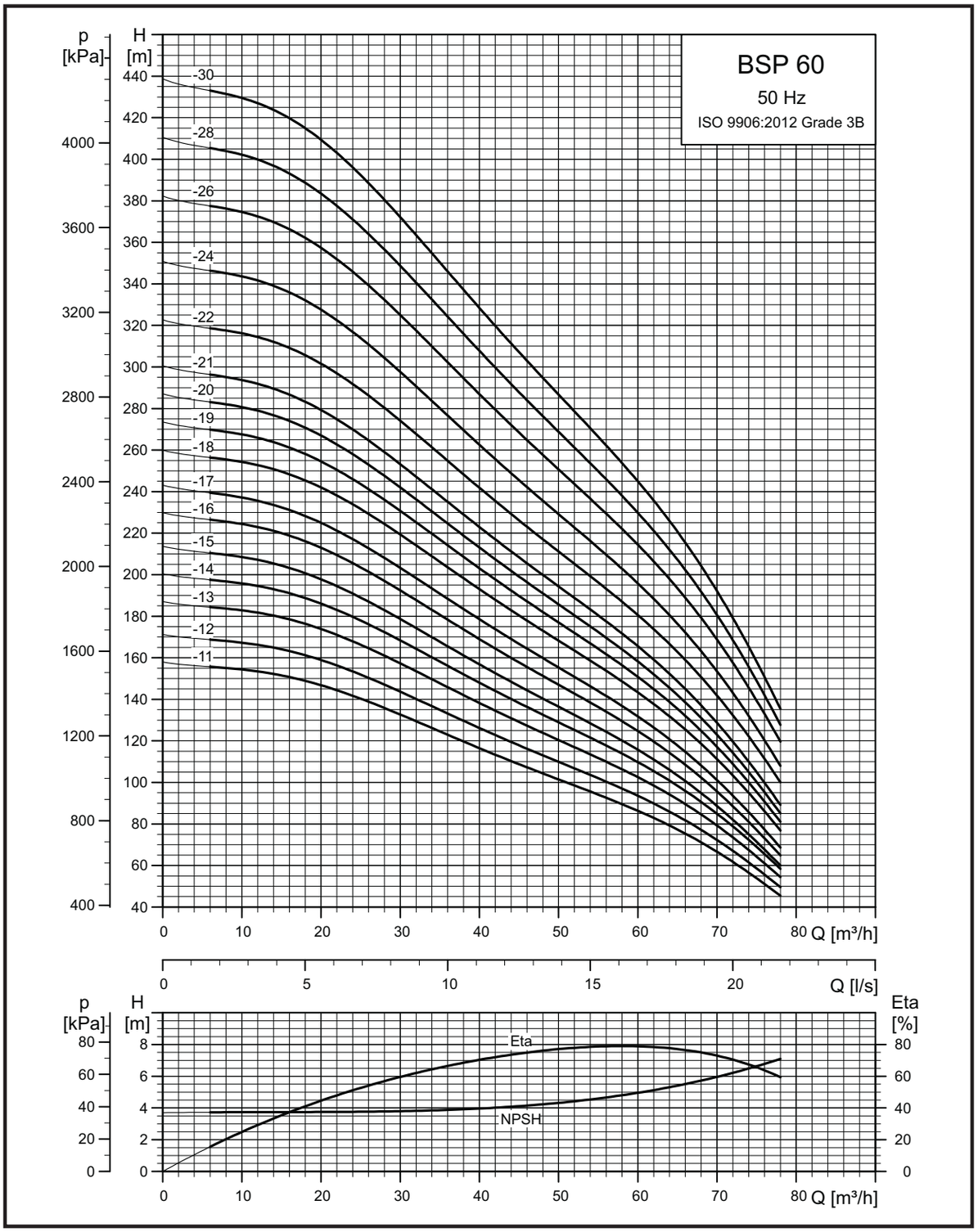
BSP 46 - Power Curve



3.10 BSP 60 - Performance Curve

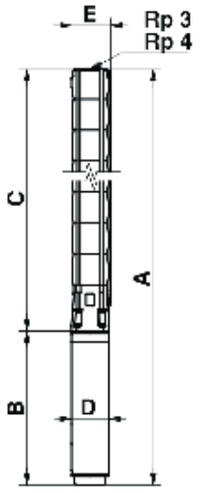


BSP 60 - Performance Curve



BSP 60 - Technical Data

Dimensions and Weights

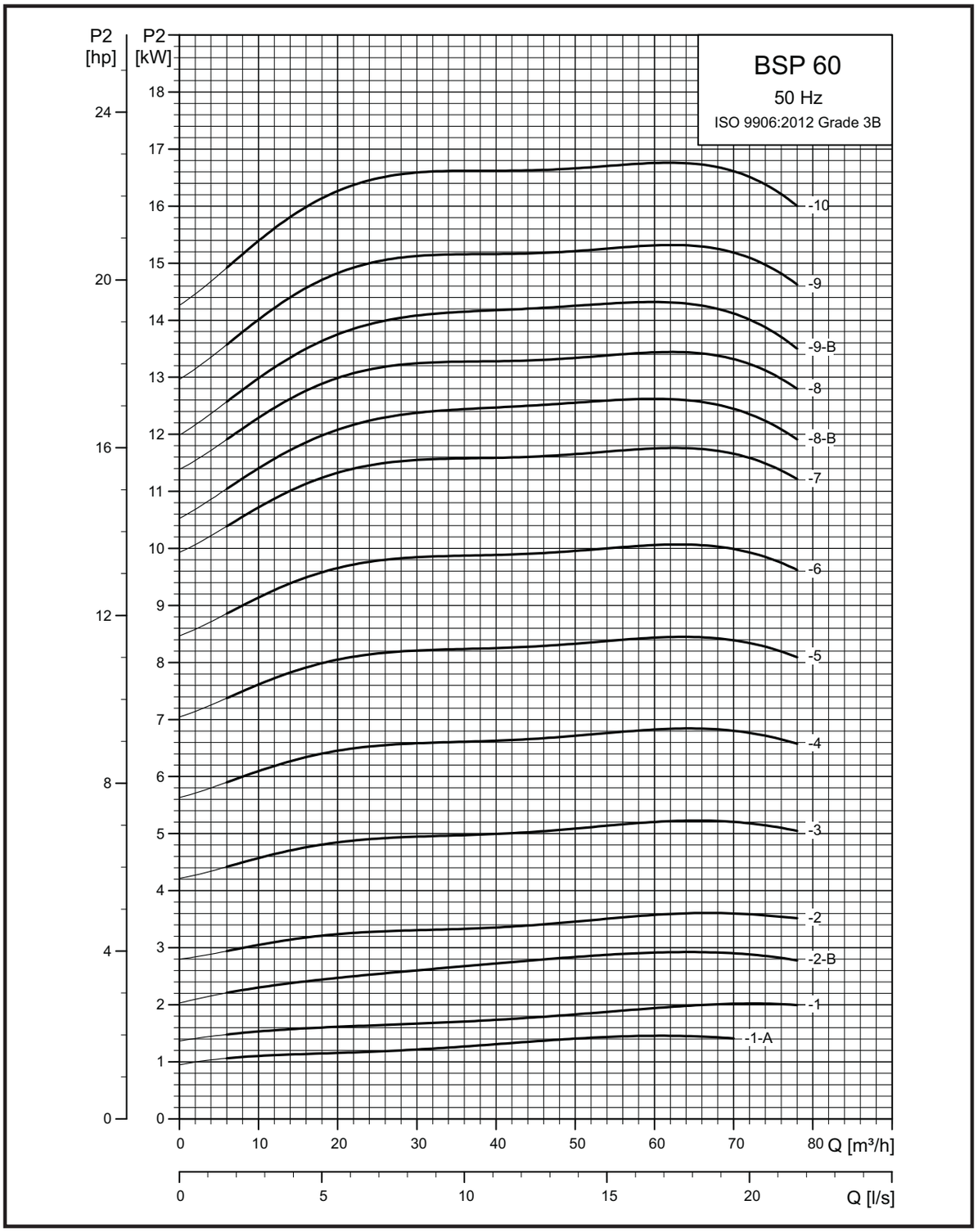


BSP 60-24 to BSP 60-30 are mounted in sleeve for R4 connection

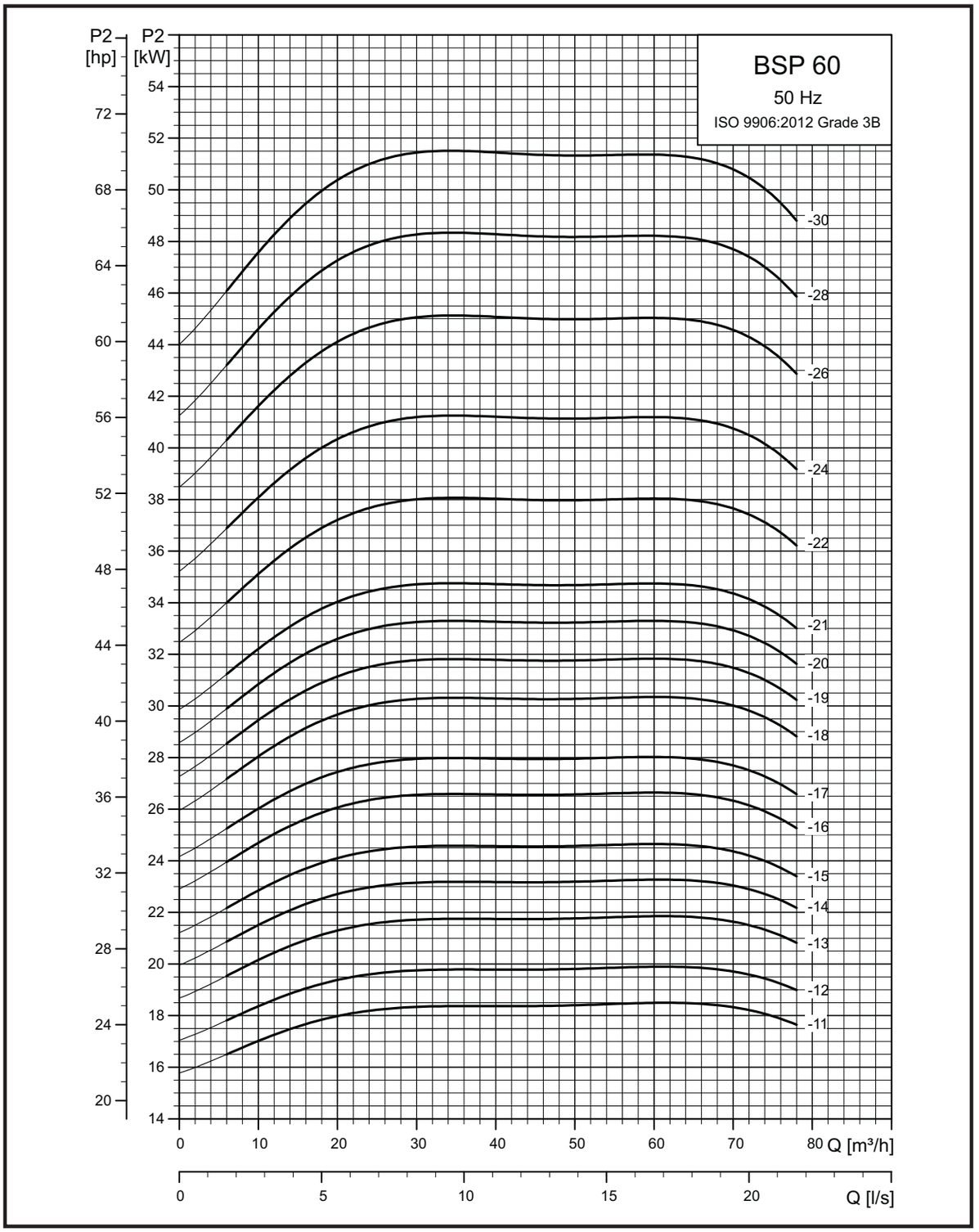
Pump type	Motor		Dimensions [mm]						Net weight [kg]
	Type	Power [kW]	Rp 3 / Rp 4 connection				B	D	
			A	C	E*	E**			
BSP 60-1-A	BM 4	1.5	816	399	146		417	95	21
BSP 60-1	BM 4	2.2	856	399	146		457	95	23
BSP 60-2-B	BM 4	3	1009	512	146		497	95	27
BSP 60-2	BM 4	4	1089	512	146		577	95	31
BSP 60-3	BM 4	5.5	1302	625	146		677	95	38
BSP 60-4	BM 4	7.5	1515	738	146		777	95	45
BSP 60-3	BSF 6	5.5	1169	625	148	151	544	143	48
BSP 60-4	BSF 6	7.5	1312	738	148	151	574	143	54
BSP 60-5	BSF 6	9.2	1455	851	148	151	604	143	62
BSP 60-6	BSF 6	11	1598	964	148	151	634	143	67
BSP 60-7	BSF 6	13	1741	1077	148	151	664	143	73
BSP 60-8-B	BSF 6	13	1854	1190	148	151	664	143	75
BSP 60-8	BSF 6	15	1889	1190	148	151	699	143	79
BSP 60-9-B	BSF 6	15	2002	1303	148	151	699	143	82
BSP 60-9	BSF 6	18.5	2057	1303	148	151	754	143	87
BSP 60-10	BSF 6	18.5	2170	1416	148	151	754	143	90
BSP 60-11	BSF 6	22	2343	1529	148	151	814	143	98
BSP 60-12	BSF 6	22	2456	1642	148	151	814	143	100
BSP 60-13	BSF 6	26	2629	1755	148	151	874	143	109
BSP 60-14	BSF 6	26	2742	1868	148	151	874	143	111
BSP 60-15	BSF 6	26	2855	1981	148	151	874	143	114
BSP 60-16	BSF 6	30	3038	2094	148	151	944	143	124
BSP 60-17	BSF 6	30	3151	2207	148	151	944	143	126
BSP 60-18	BSF 6	37	3632	2320	150	153	1312	144	169
BSP 60-19	BSF 6	37	3745	2433	150	153	1312	144	171
BSP 60-20	BSF 6	37	3858	2546	150	153	1312	144	174
BSP 60-21	BSF 6	37	3971	2659	150	153	1312	144	176
BSP 60-22	BMCI 8	45	4042	2772	192	192	1270	192	239
BSP 60-24	BMCI 8	45	4268	2998	192	192	1270	192	272
BSP 60-26	BMCI 8	55	4574	3224	192	192	1350	192	293
BSP 60-28	BMCI 8	55	4800	3450	192	192	1350	192	299
BSP 60-30	BMCI 8	55	5026	3676	192	192	1350	192	305

*Maximum diameter of pump with one motor cable.
** Maximum diameter of pump with two motor cables.
The pump types above are also available in N-versions. See page 3.
Pumps mounted in sleeve are only available in standard and N-versions.
Other types of connection are possible by means of connecting pieces.

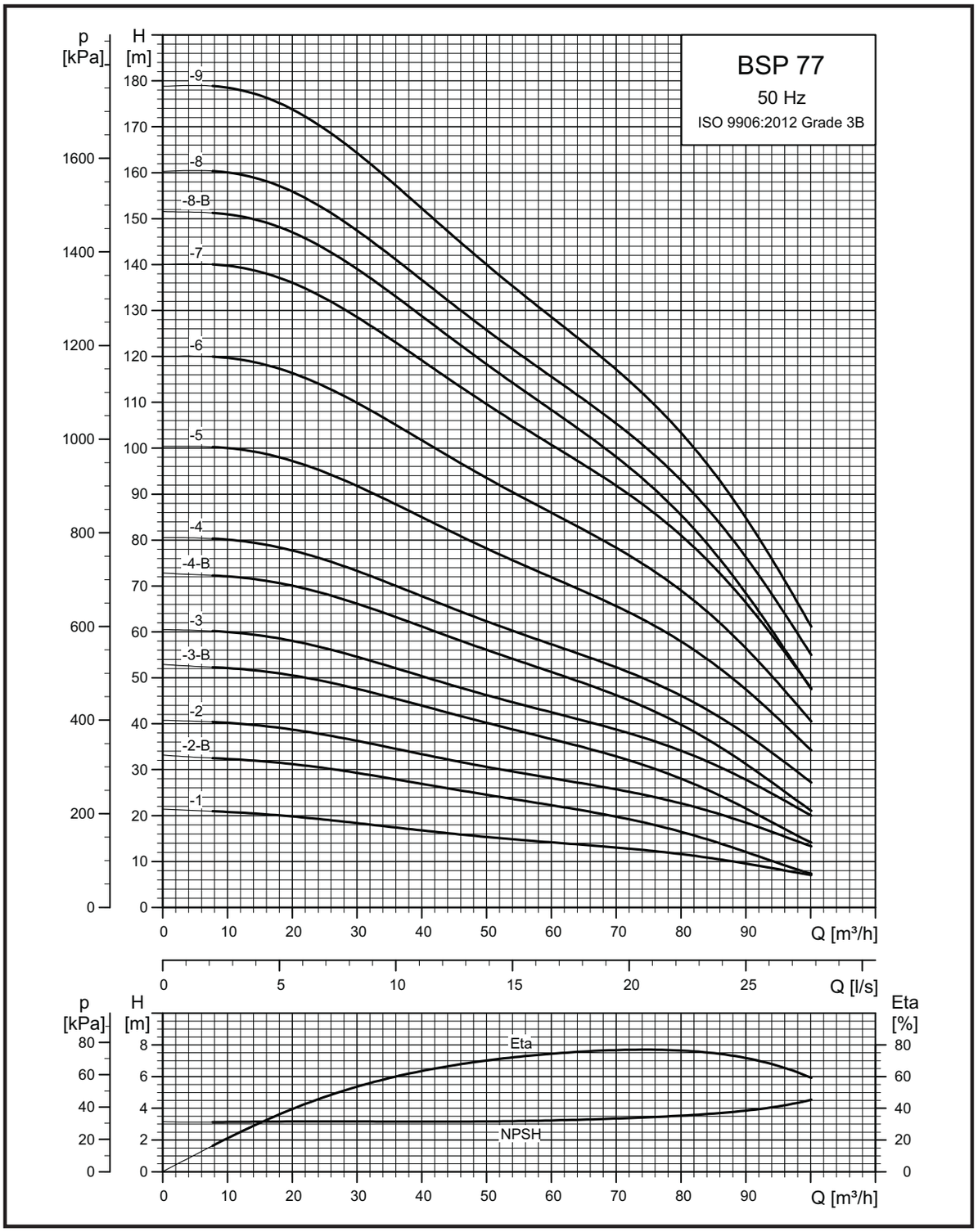
BSP 60 - Power Curve



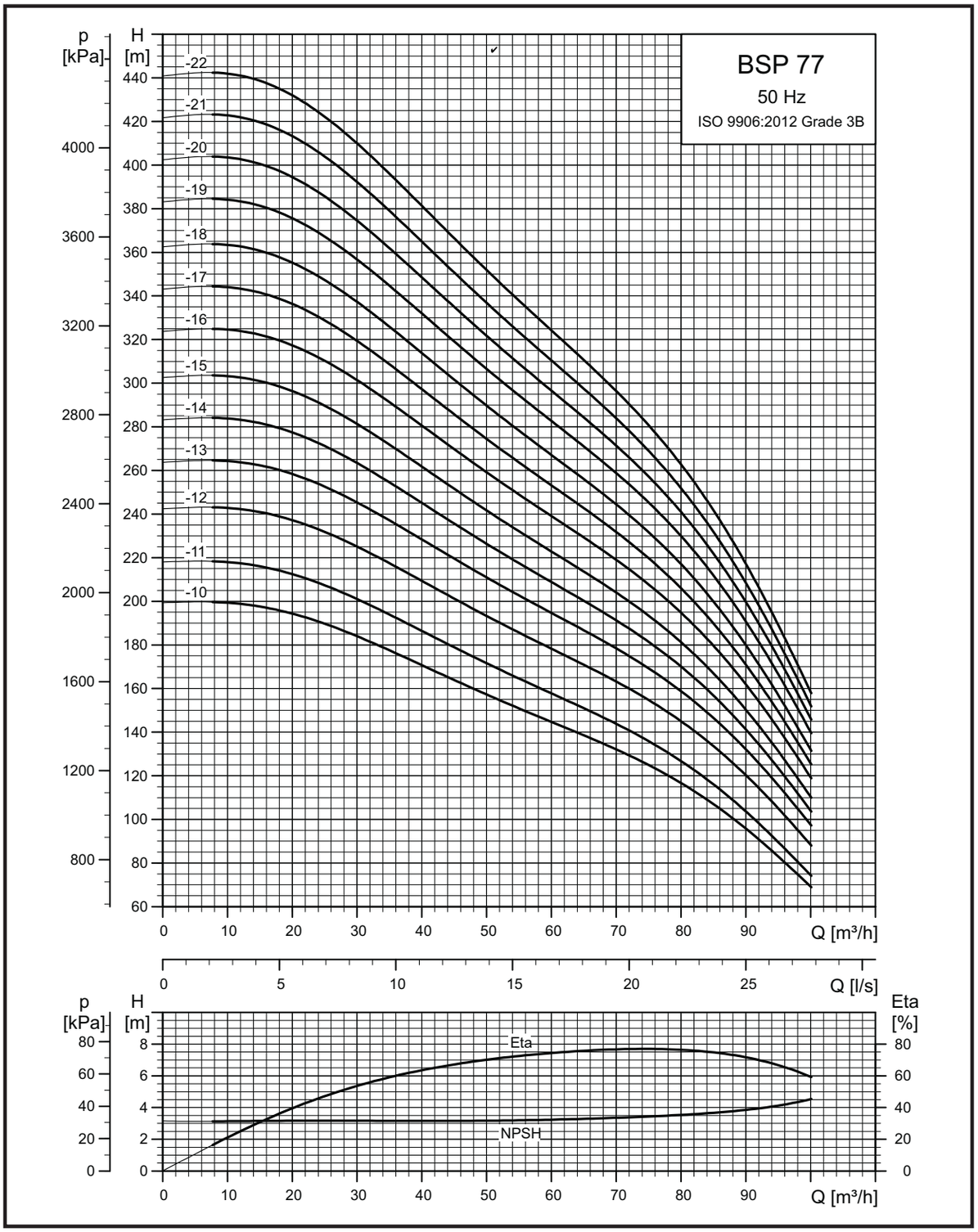
BSP 60 - Power Curve



3.11 BSP 77 - Performance Curve

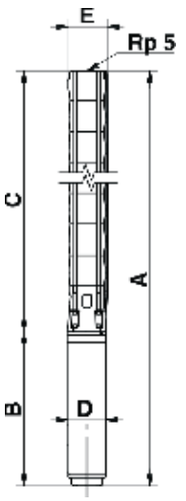


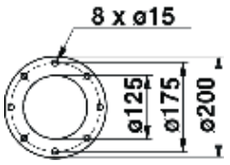
BSP 77 - Performance Curve



BSP 77 - Technical Data

Dimensions and Weights



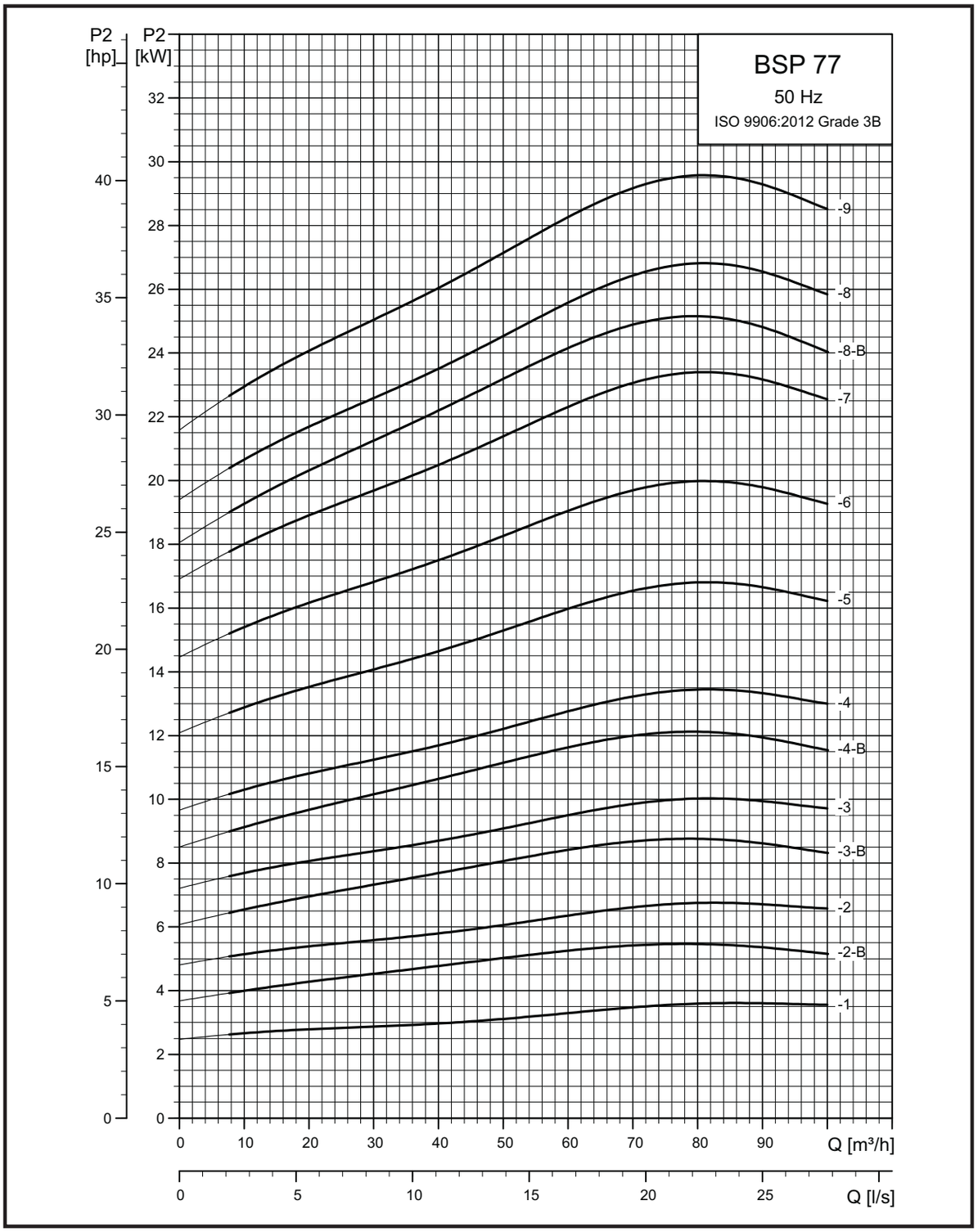


Pump with flange.

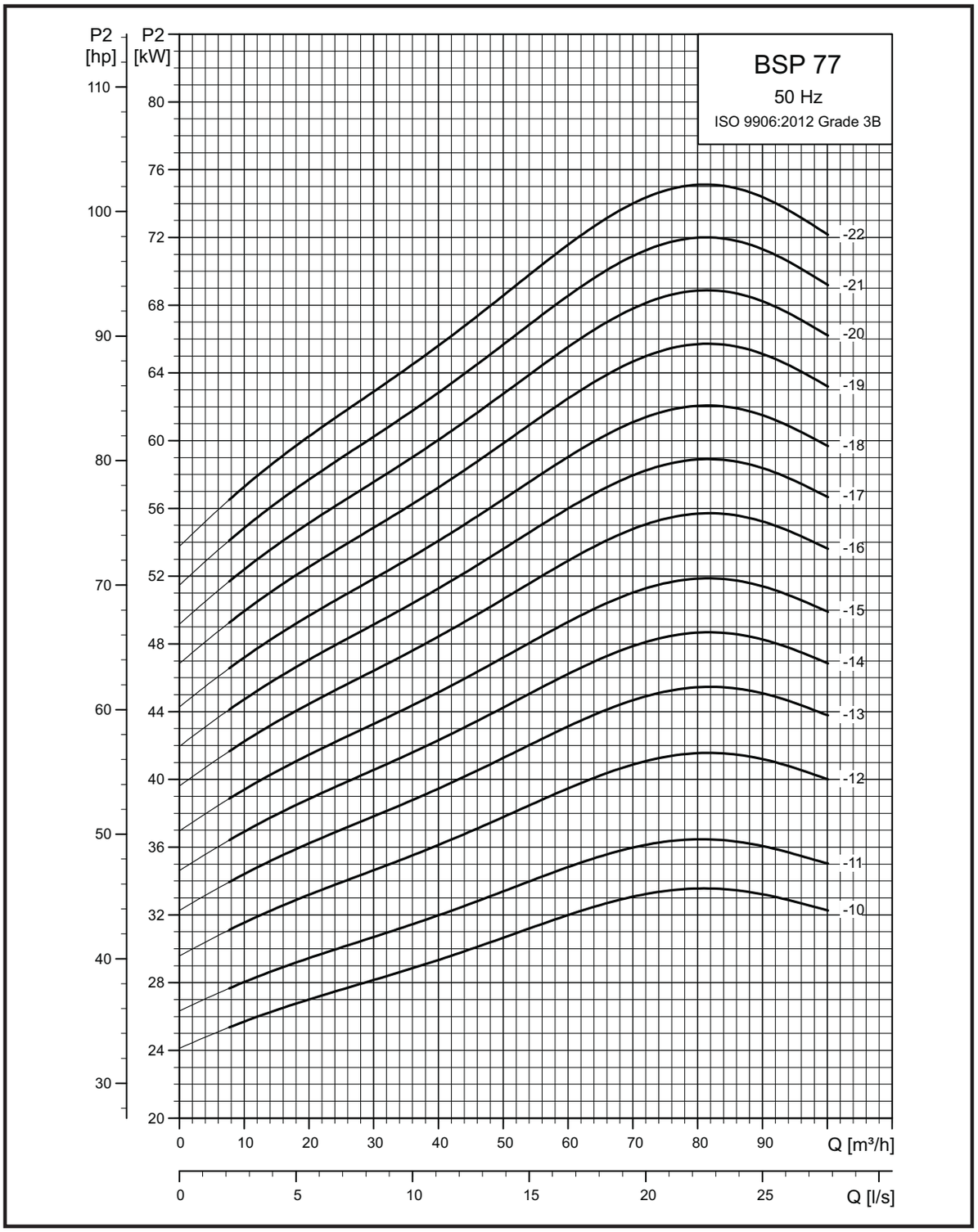
Pump type	Motor		Dimensions [mm]										Net weight [kg]
	Type	Power [kW]	Rp 5 connection				5" flange				B	D	
			A	C	E*	E**	A	C	E*	E**			
BSP 77-1	BSF 6	5.5	1170	626	178	186	1170	626	200	200	544	138	55
BSP 77-2-B	BSF 6	5.5	1298	754	178	186	1298	754	200	200	544	138	59
BSP 77-2	BSF 6	7.5	1328	754	178	186	1328	754	200	200	574	138	63
BSP 77-3-B	BSF 6	9.2	1486	882	178	186	1486	882	200	200	604	138	72
BSP 77-3	BSF 6	11	1516	882	178	186	1516	882	200	200	634	138	75
BSP 77-4-B	BSF 6	13	1674	1010	178	186	1674	1010	200	200	664	138	82
BSP 77-4	BSF 6	15	1709	1010	178	186	1709	1010	200	200	699	138	86
BSP 77-5	BSF 6	18.5	1892	1138	178	186	1892	1138	200	200	754	138	95
BSP 77-6	BSF 6	22	2080	1266	178	186	2080	1266	200	200	814	138	105
BSP 77-7	BSF 6	26	2268	1394	178	186	2268	1394	200	200	874	138	114
BSP 77-8-B	BSF 6	26	2396	1522	178	186	2396	1522	200	200	874	138	118
BSP 77-8	BSF 6	30	2466	1522	178	186	2466	1522	200	200	944	138	126
BSP 77-9	BSF 6	30	2594	1650	178	186	2594	1650	200	200	944	138	129
BSP 77-10	BSF 6	37	3090	1778	178	186	3090	1778	200	200	1312	143	176
BSP 77-11	BSF 6	37	3218	1906	178	186	3218	1906	200	200	1312	143	179
BSP 77-12	BMCI 8	45	3304	2034	200	204	3304	2034	209	209	1270	192	240
BSP 77-13	BMCI 8	55	3512	2162	200	204	3512	2162	209	209	1350	192	259
BSP 77-14	BMCI 8	55	3640	2290	200	204	3640	2290	209	209	1350	192	263
BSP 77-15	BMCI 8	55	3768	2418	200	204					1350	192	266
BSP 77-16	BMCI 8	63	4036	2546	200	204					1490	192	296
BSP 77-17	BMCI 8	63	4164	2674	200	204					1490	192	300
BSP 77-18	BMCI 8	63	4292	2802	200	204					1490	192	304
BSP 77-19	BMCI 8	75	4520	2930	200	204					1590	192	334
BSP 77-20	BMCI 8	75	4648	3058	200	204					1590	192	338
BSP 77-21	BMCI 8	75	4776	3186	200	202					1590	192	342
BSP 77-22	BMCI 8	92	5144	3314	200	202					1830	192	391

*Maximum diameter of pump with one motor cable.
** Maximum diameter of pump with two motor cables.
The pump types above are also available in N-versions. See page 3.
Other types of connection are possible by means of connecting pieces.

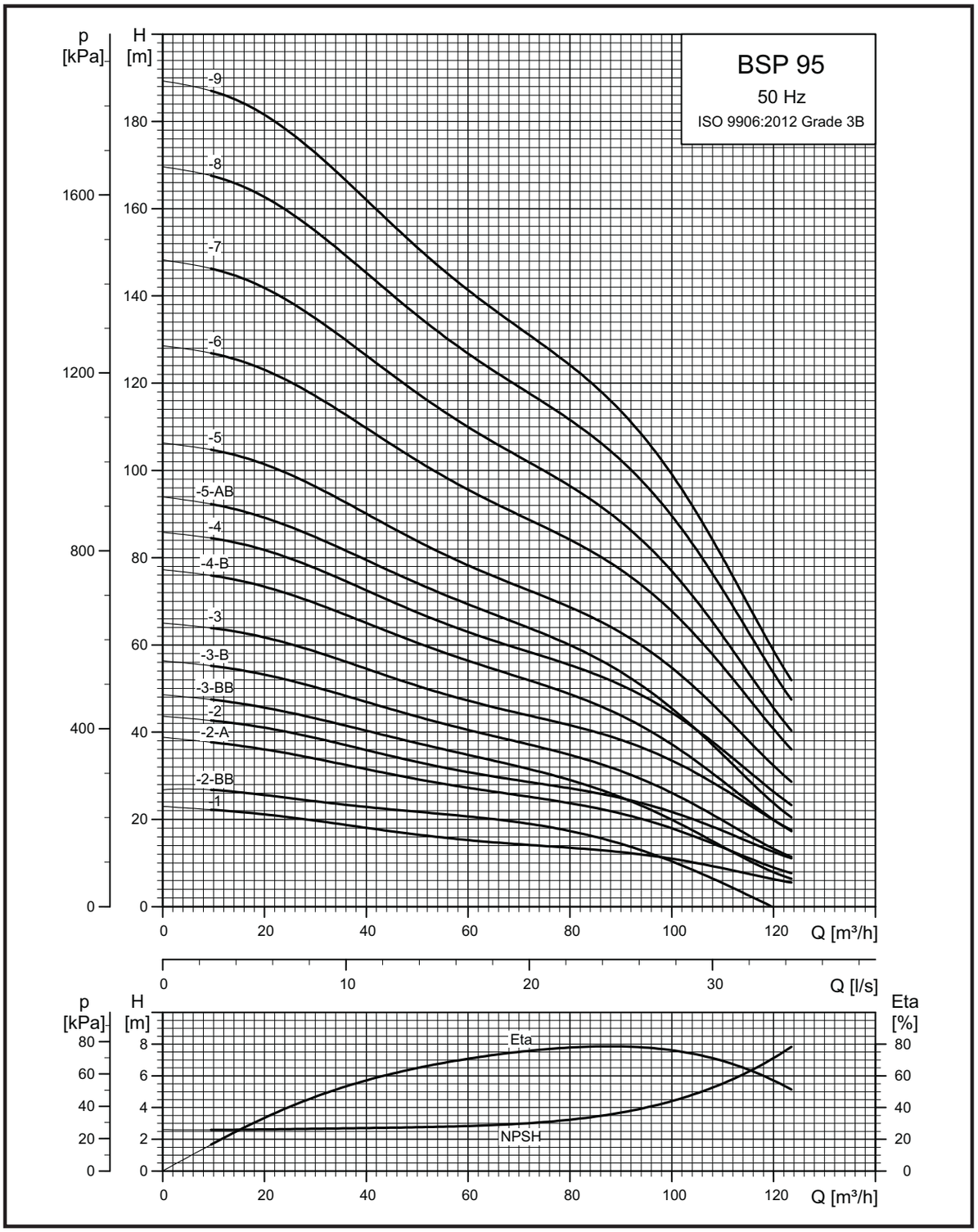
BSP 77 - Power Curve



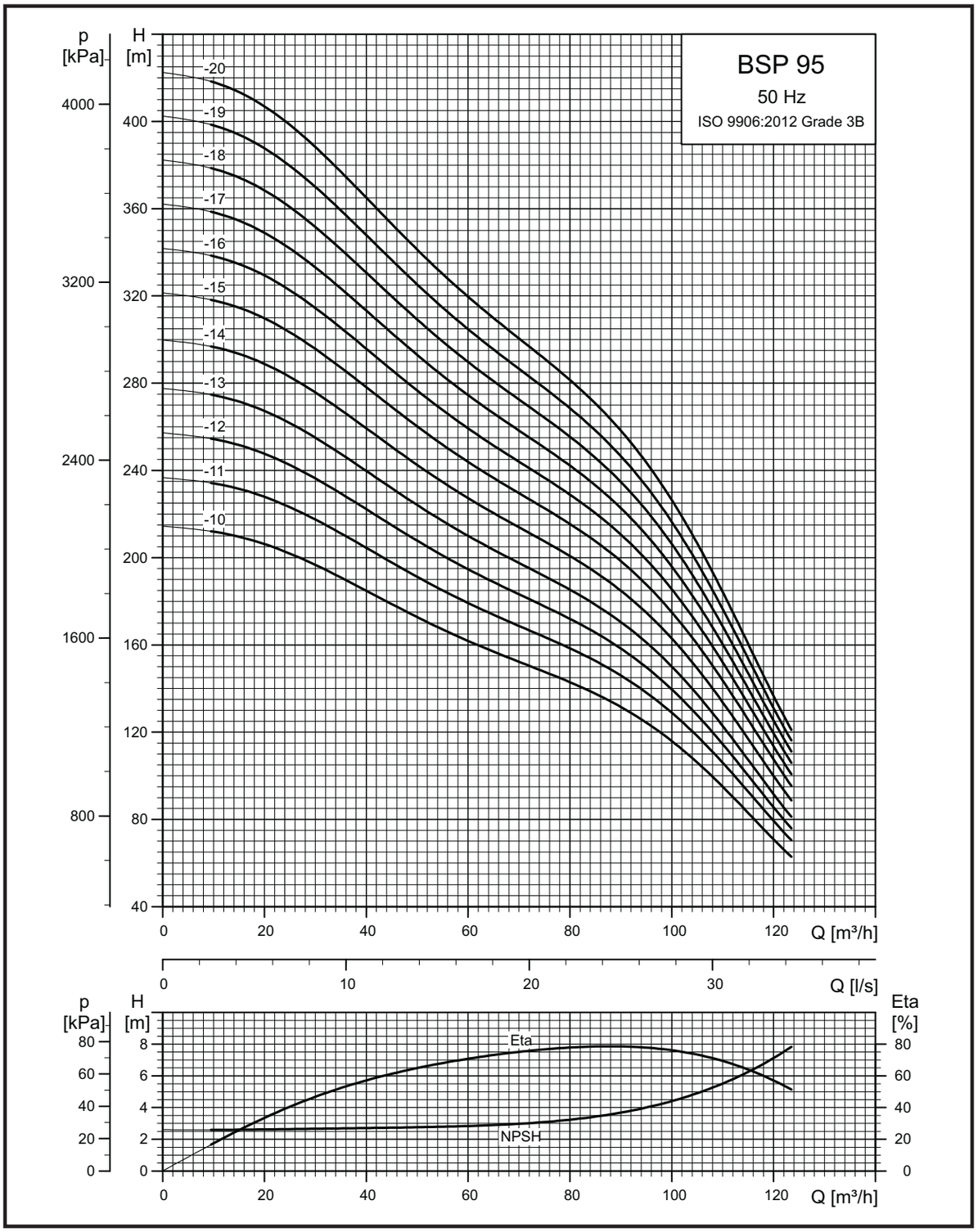
BSP 77 - Power Curve



3.12 BSP 95 - Performance Curve

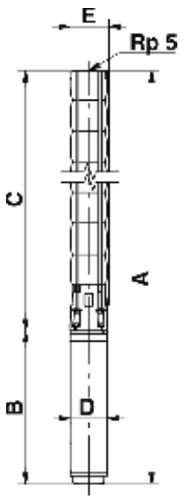


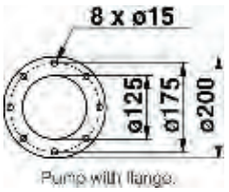
BSP 95 - Performance Curve



BSP 95 - Technical Data

Dimensions and Weights

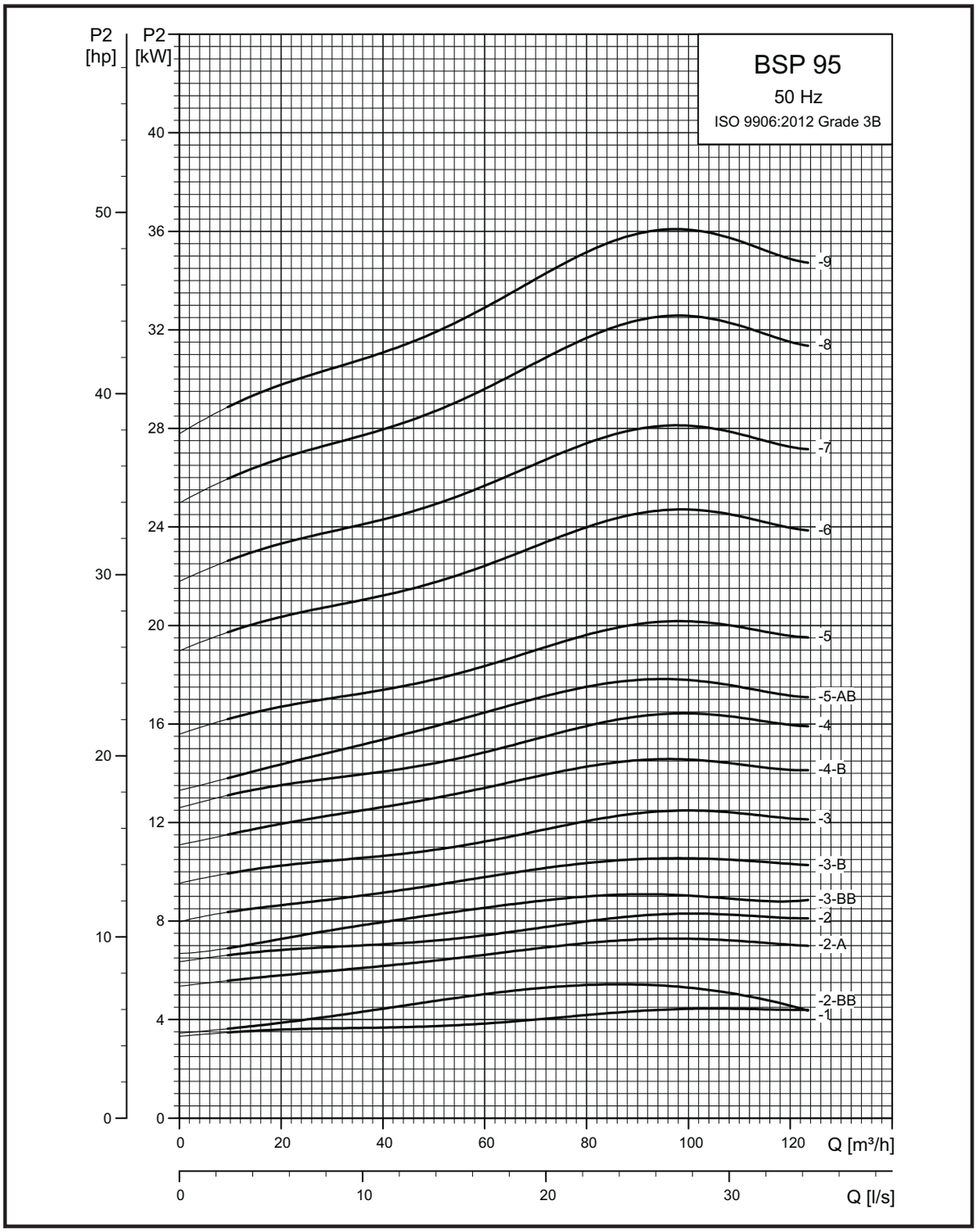




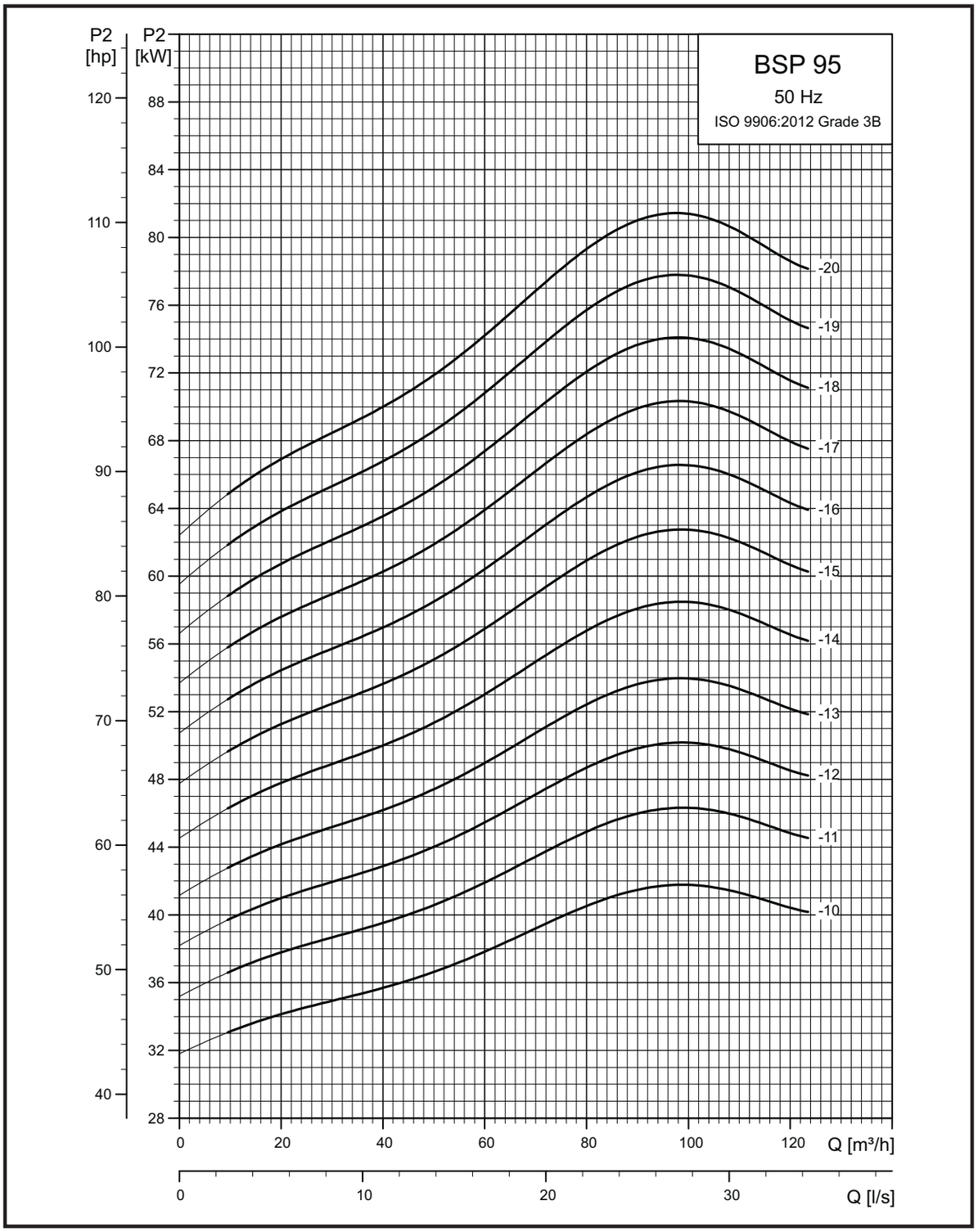
Pump type	Motor		Dimensions [mm]										Net weight [kg]
	Type	Power [kW]	Rp 5 connection				5" flange				B	D	
			A	C	E*	E**	A	C	E*	E**			
BSP 95-1	BSF 6	5.5	1170	626	178	186	1170	626	200	200	544	138	55
BSP 95-2-BB	BSF 6	5.5	1298	754	178	186	1298	754	200	200	544	138	72
BSP 95-2-A	BSF 6	7.5	1328	754	178	186	1328	754	200	200	574	138	63
BSP 95-2	BSF 6	9.2	1358	754	178	186	1358	754	200	200	604	138	68
BSP 95-3-BB	BSF 6	9.2	1486	882	178	186	1486	882	200	200	604	138	72
BSP 95-3-B	BSF 6	11	1516	882	178	186	1516	882	200	200	634	138	75
BSP 95-3	BSF 6	13	1546	882	178	186	1546	882	200	200	664	138	78
BSP 95-4-B	BSF 6	15	1709	1010	178	186	1709	1010	200	200	699	138	86
BSP 95-4	BSF 6	18.5	1764	1010	178	186	1764	1010	200	200	754	138	91
BSP 95-5-AB	BSF 6	18.5	1892	1138	178	186	1892	1138	200	200	754	138	95
BSP 95-5	BSF 6	22	1952	1138	178	186	1952	1138	200	200	814	138	101
BSP 95-6	BSF 6	26	2140	1266	178	186	2140	1266	200	200	874	138	110
BSP 95-7	BSF 6	30	2338	1394	178	186	2338	1394	200	200	944	138	122
BSP 95-8	BSF 6	37	2834	1522	178	186	2834	1522	200	200	1312	143	168
BSP 95-9	BSF 6	37	2962	1650	178	186	2962	1650	200	200	1312	143	172
BSP 95-10	BMCI 8	45	3048	1778	196	204	3048	1778	205	205	1270	192	233
BSP 95-11	BMCI 8	55	3256	1906	196	204	3256	1906	205	205	1350	192	251
BSP 95-12	BMCI 8	55	3384	2034	196	204	3384	2034	205	205	1350	192	255
BSP 95-13	BMCI 8	55	3512	2162	196	204	3512	2162	205	205	1350	192	259
BSP 95-14	BMCI 8	63	3780	2290	196	204	3780	2290	205	205	1490	192	289
BSP 95-15	BMCI 8	75	4008	2418	196	204					1590	192	311
BSP 95-16	BMCI 8	75	4136	2546	196	204					1590	192	315
BSP 95-17	BMCI 8	75	4264	2674	196	204					1590	192	319
BSP 95-18	BMCI 8	92	4632	2802	196	204					1830	192	376
BSP 95-19	BMCI 8	92	4760	2930	196	204					1830	192	380
BSP 95-20	BMCI 8	92	4888	3058	196	204					1830	192	384

*Maximum diameter of pump with one motor cable.
** Maximum diameter of pump with two motor cables.
The pump types above are also available in N-versions. See page 3.
Other types of connection are possible by means of connecting pieces.

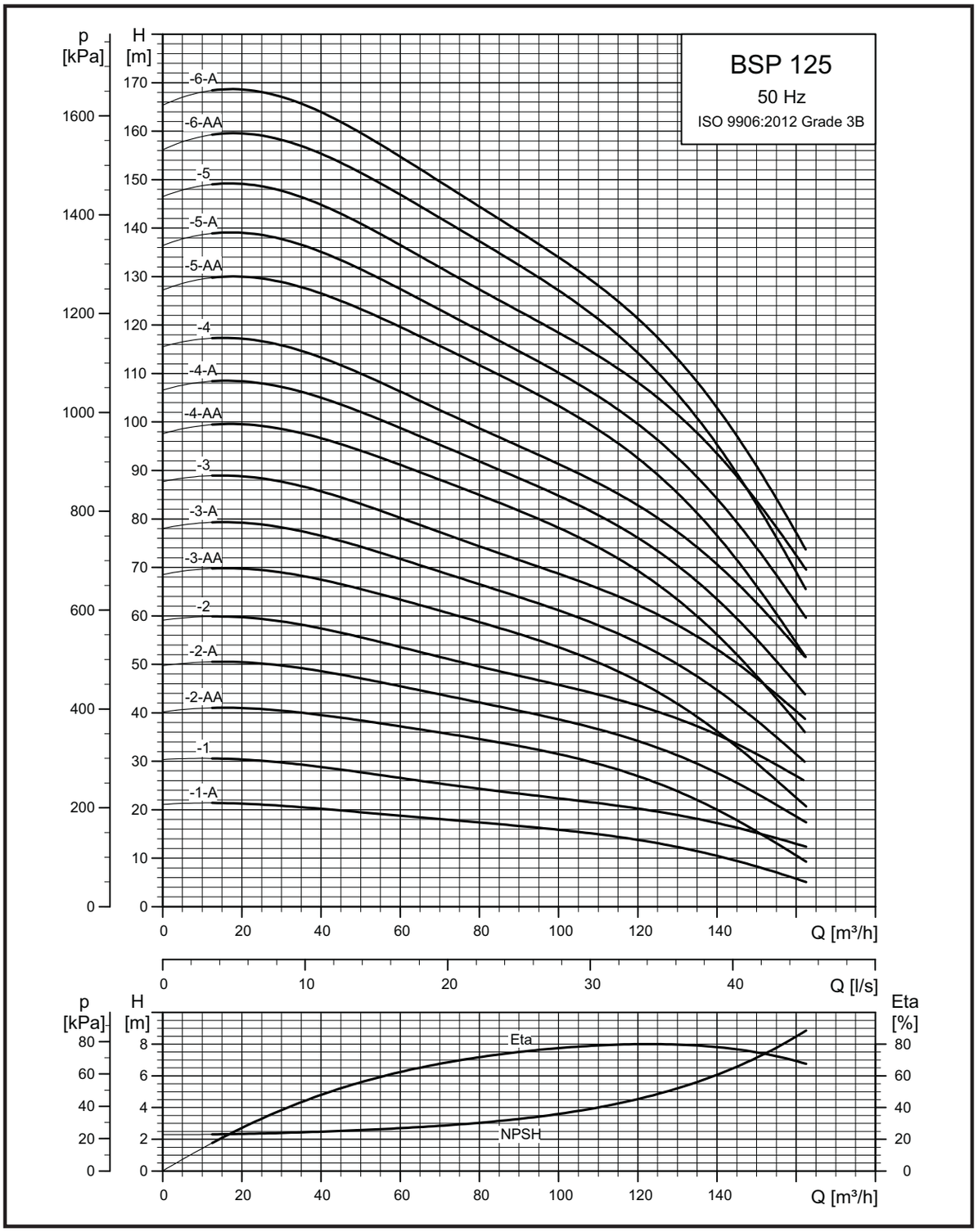
BSP 95 - Power Curve



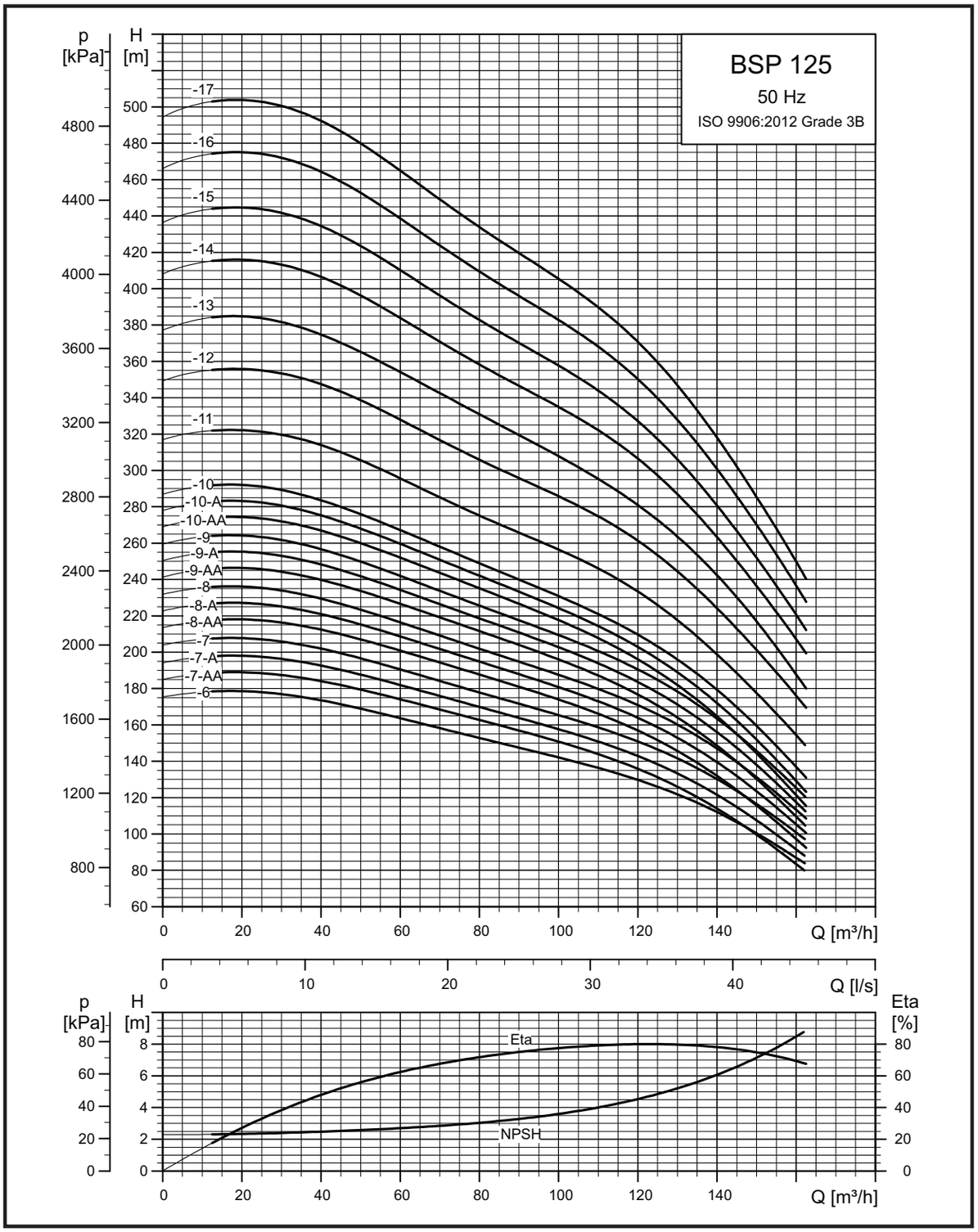
BSP 95 - Power Curve



3.13 BSP 125 - Performance Curve

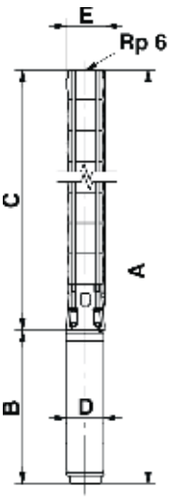


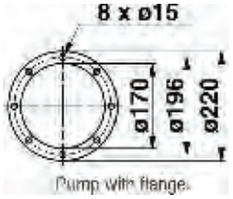
BSP 125 - Performance Curve



BSP 125 - Technical Data

Dimensions and Weights

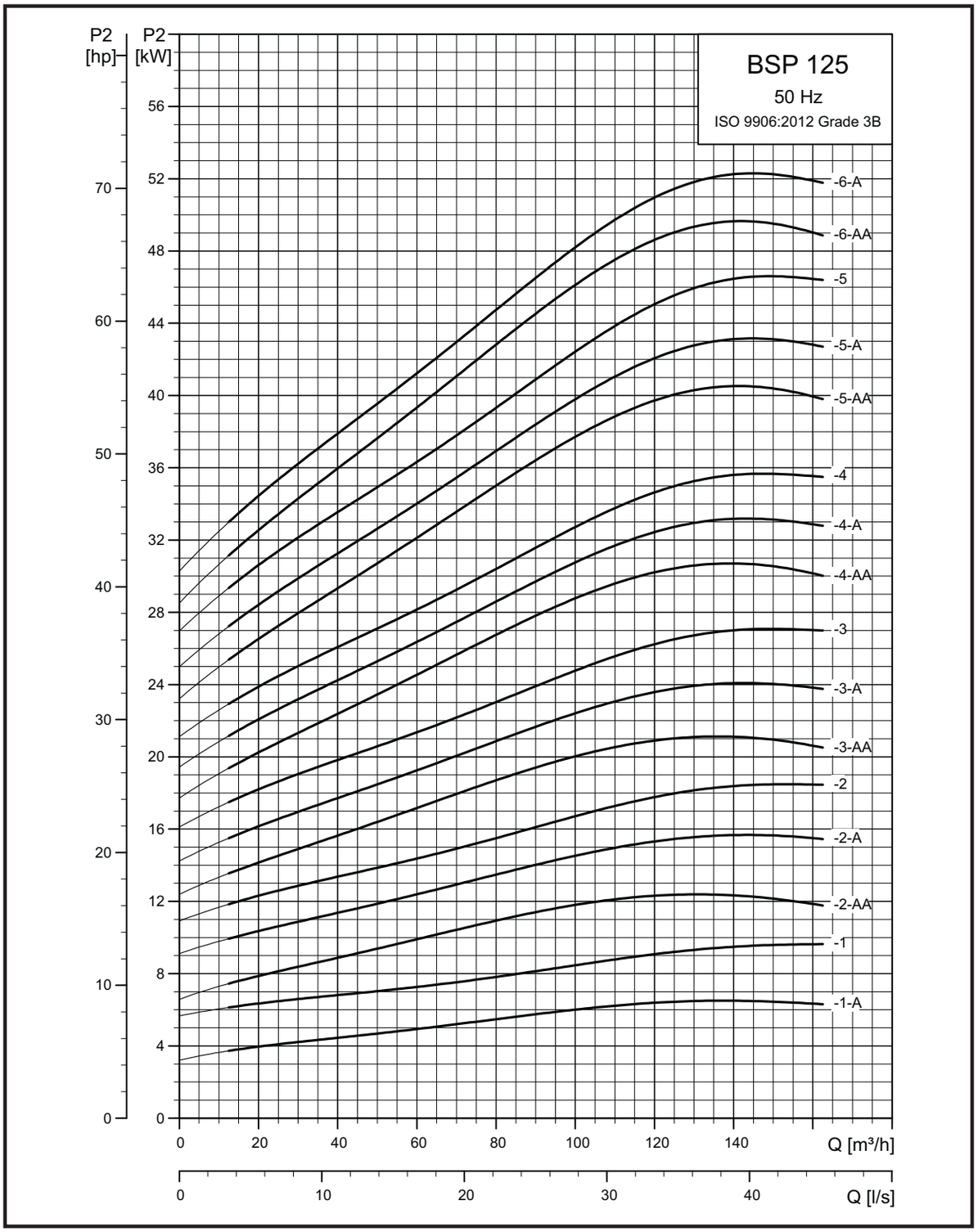




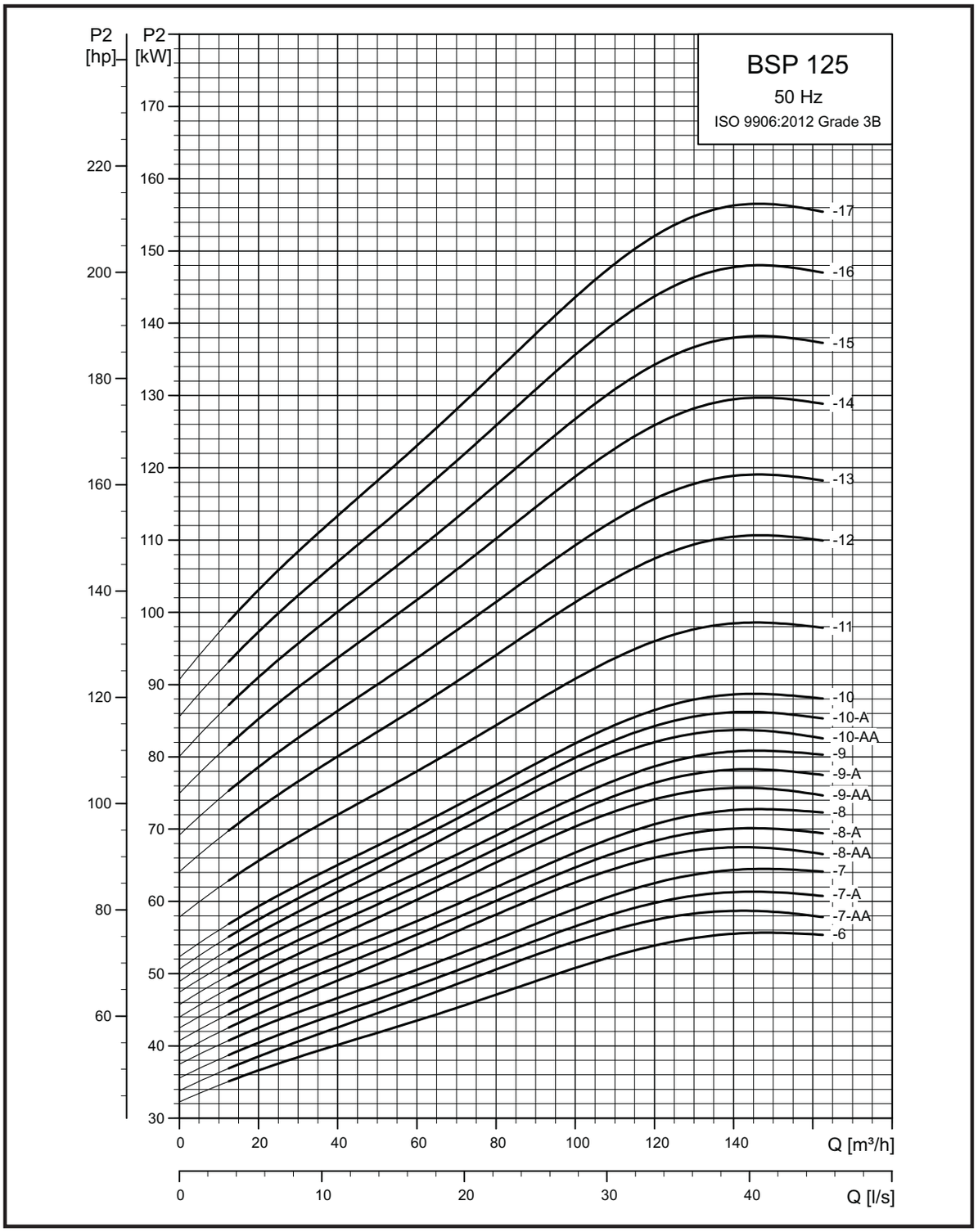
Pump type	Motor		Dimensions [mm]										Net weight [kg]
	Type	Power [kW]	Rp 6 connection				6" flange				B	D	
			A	C	E*	E**	A	C	E*	E**			
BSP 125-1-A	BSF 6	7.5	1230	656	211	218	1230	656	222	226	574	138	70
BSP 125-1	BSF 6	11	1290	656	211	218	1290	656	222	226	634	138	79
BSP 125-2-AA	BSF 6	13	1472	808	211	218	1472	808	222	226	664	138	88
BSP 125-2-A	BSF 6	18.5	1562	808	211	218	1562	808	222	226	754	138	97
BSP 125-2	BSF 6	22	1622	808	211	218	1622	808	222	226	814	138	103
BSP 125-3-AA	BSF 6	22	1774	960	211	218	1774	960	222	226	814	138	109
BSP 125-3-A	BSF 6	26	1834	960	211	218	1834	960	222	226	874	138	115
BSP 125-3	BSF 6	30	1904	960	211	218	1904	960	222	226	944	138	123
BSP 125-4-AA	BSF 6	37	2424	1112	211	218	2424	1112	222	226	1312	143	171
BSP 125-4-A	BSF 6	37	2424	1112	211	218	2424	1112	222	226	1312	143	171
BSP 125-4	BSF 6	37	2424	1112	211	218	2424	1112	222	226	1312	143	171
BSP 125-5-AA	BMCI 8	45	2534	1264	213	218	2534	1264	223	226	1270	192	236
BSP 125-5-A	BMCI 8	45	2534	1264	213	218	2534	1264	223	226	1270	192	236
BSP 125-5	BMCI 8	55	2614	1264	213	218	2614	1264	223	226	1350	192	251
BSP 125-6-AA	BMCI 8	55	2766	1416	213	218	2766	1416	223	226	1350	192	257
BSP 125-6-A	BMCI 8	55	2766	1416	213	218	2766	1416	223	226	1350	192	257
BSP 125-6	BMCI 8	63	2906	1416	218	227	2906	1416	229	232	1490	192	283
BSP 125-7-AA	BMCI 8	63	3058	1568	218	227	3058	1568	229	232	1490	192	289
BSP 125-7-A	BMCI 8	63	3058	1568	218	227	3058	1568	229	232	1490	192	289
BSP 125-7	BMCI 8	75	3158	1568	218	227	3158	1568	229	232	1590	192	308
BSP 125-8-AA	BMCI 8	75	3310	1720	218	227					1590	192	314
BSP 125-8-A	BMCI 8	75	3310	1720	218	227					1590	192	314
BSP 125-8	BMCI 8	75	3310	1720	218	227					1590	192	314
BSP 125-9-AA	BMCI 8	92	3702	1872	218	227					1830	192	366
BSP 125-9-A	BMCI 8	92	3702	1872	218	227					1830	192	366
BSP 125-9	BMCI 8	92	3702	1872	218	227					1830	192	366
BSP 125-10-AA	BMCI 8	92	3854	2024	218	227					1830	192	372
BSP 125-10-A	BMCI 8	92	3854	2024	218	227					1830	192	372
BSP 125-10	BMCI 8	92	3854	2024	218	227					1830	192	372
bSP 125-11	BMCI 8	110	4236	2176	218	227					2060	192	438
BSP 125-12	BMCI 10	132	4198	2328	237	237					1870	237	556
BSP 125-13	BMCI 10	132	4350	2480	237	237					1870	237	562
BSP 125-14	BMCI 10	147	4702	2632	237	237					2070	237	633
BSP 125-15	BMCI 10	147	4854	2784	237	237					2070	237	639
BSP 125-16	BMCI 10	170	5156	2936	237	237					2220	237	685
BSP 125-17	BMCI 10	170	5308	3088	237	237					2220	237	691

*Maximum diameter of pump with one motor cable.
** Maximum diameter of pump with two motor cables.
The pump types above are also available in N-versions. See page 3.
Other types of connection are possible by means of connecting pieces.

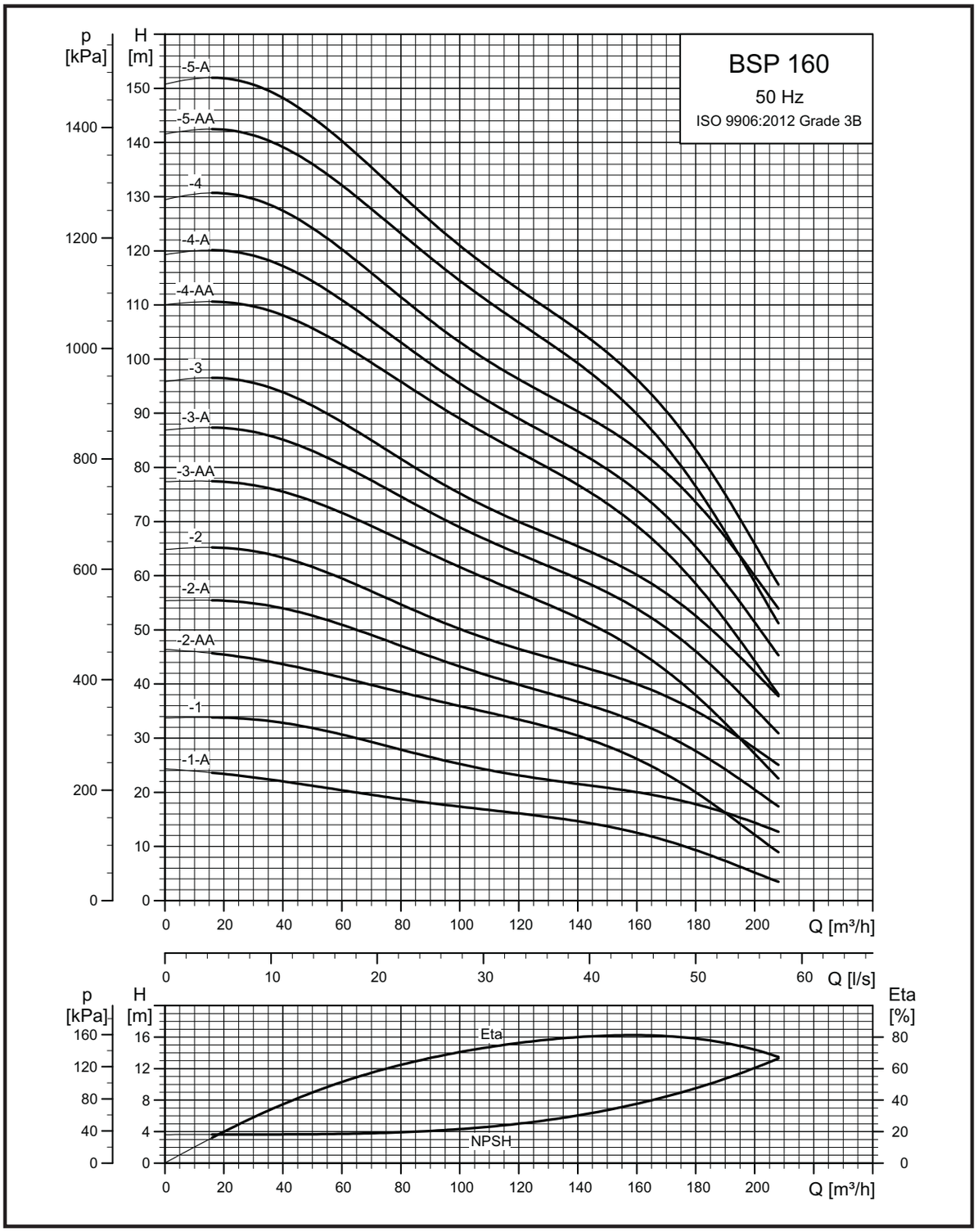
BSP 125 - Power Curve



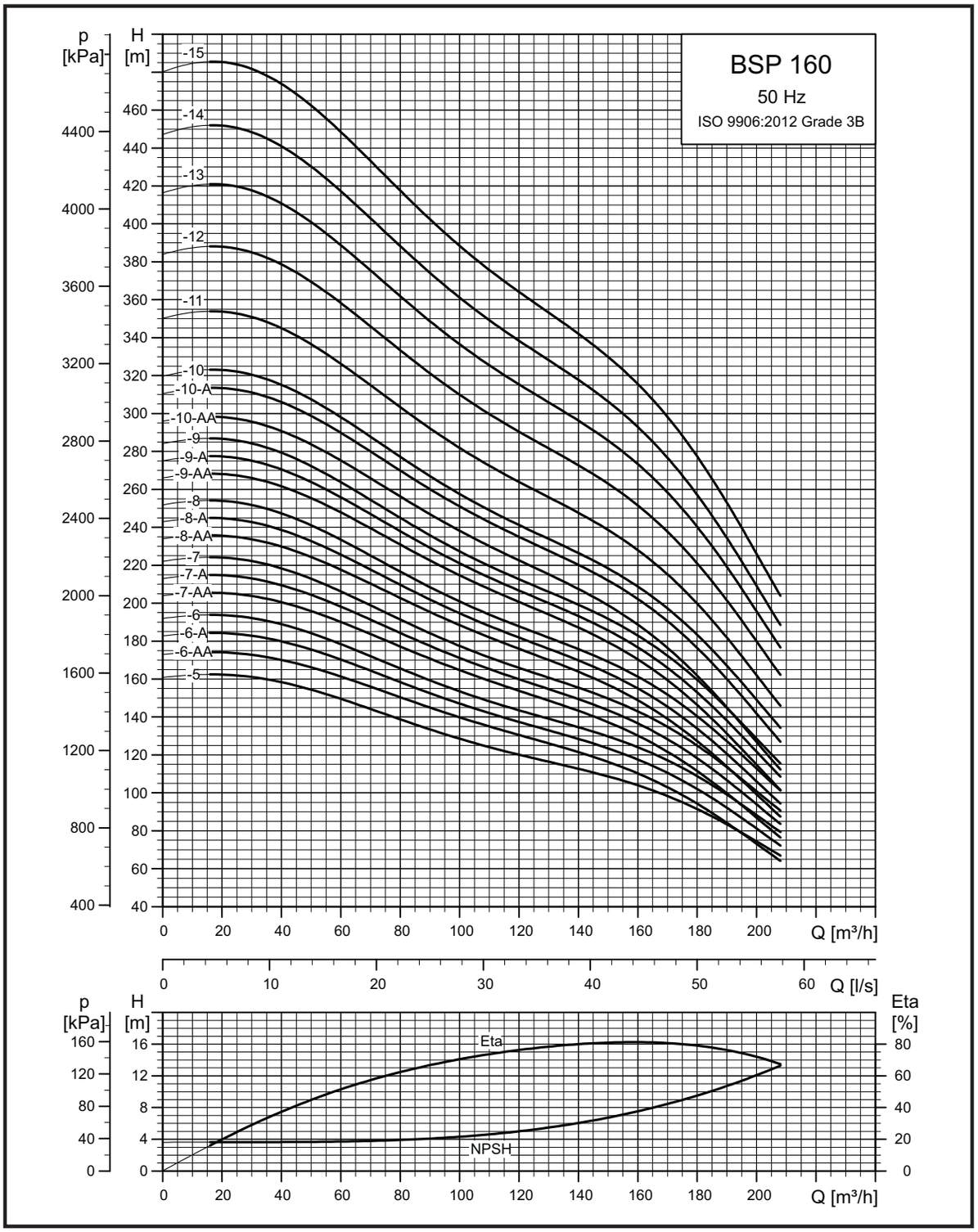
BSP 125 - Power Curve



3.14 BSP 160 - Performance Curve

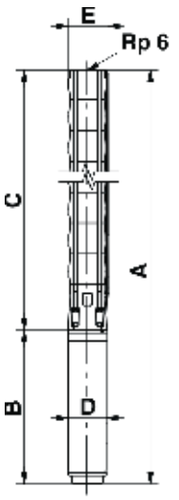


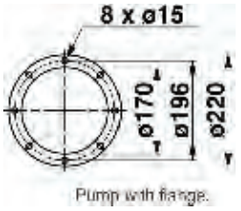
BSP 160 - Performance Curve



BSP 160 - Technical Data

Dimensions and Weights



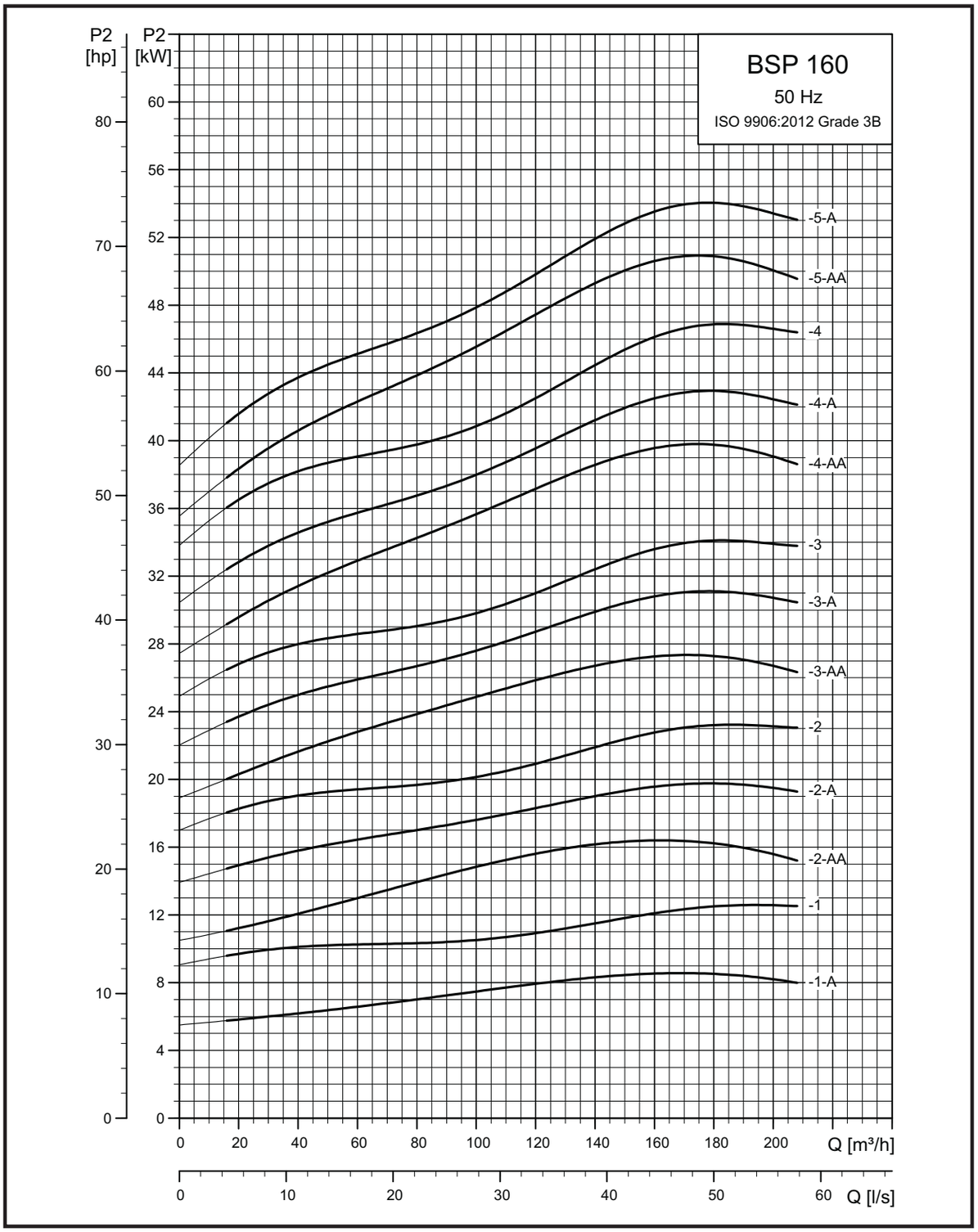


Pump with flange.

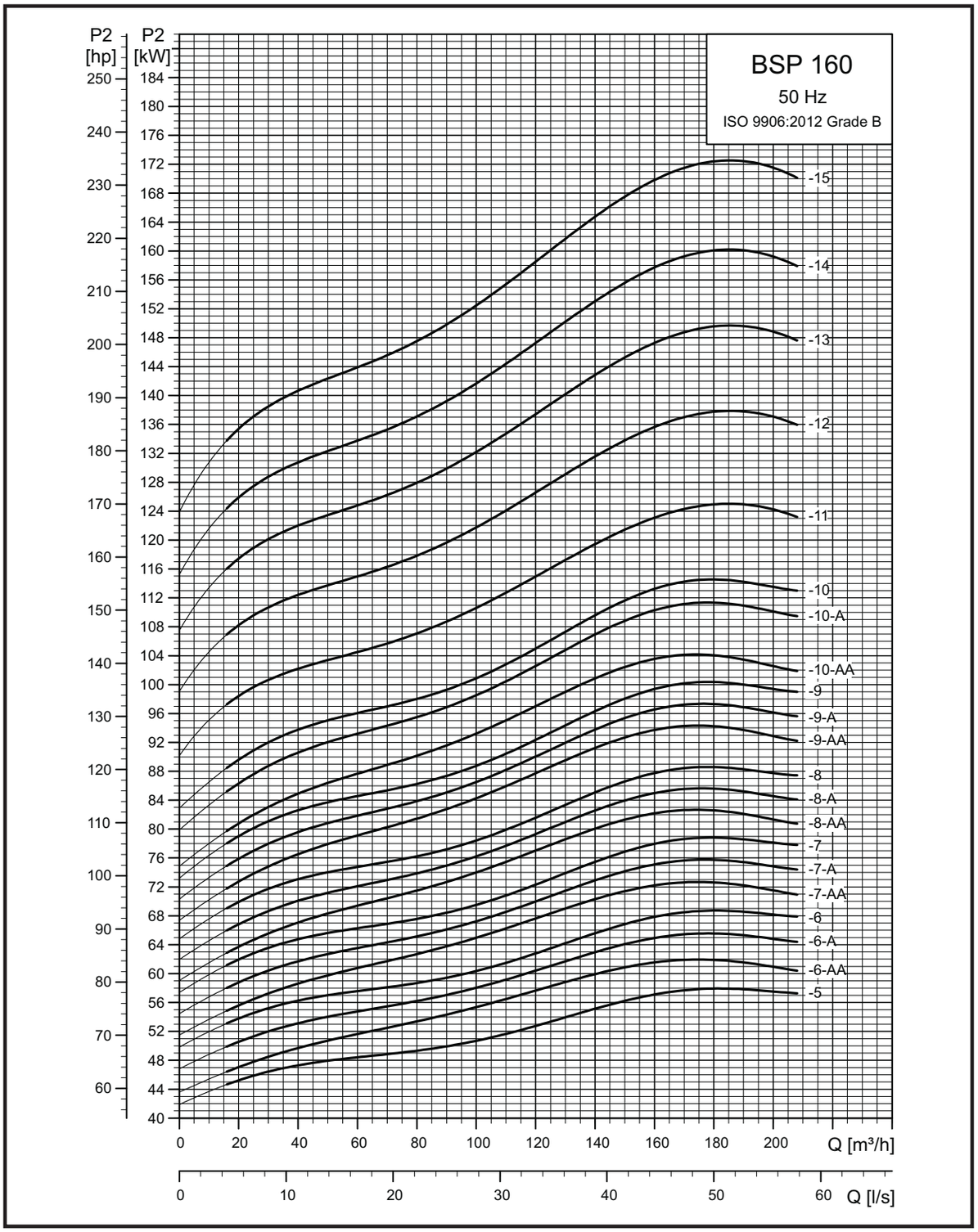
Pump type	Motor		Dimensions [mm]										Net weight [kg]
	Type	Power [kW]	Rp 6 connection				6" flange				B	D	
			A	C	E*	E**	A	C	E*	E**			
BSP 160-1-A	BSF 6	9.2	1255	651	211	218	1255	651	222	226	604	138	76
BSP 160-1	BSF 6	13	1315	651	211	218	1315	651	222	226	664	138	82
BSP 160-2-AA	BSF 6	18.5	1561	807	211	218	1561	807	222	226	754	138	97
BSP 160-2-A	BSF 6	22	1621	807	211	218	1621	807	222	226	814	138	103
BSP 160-2	BSF 6	26	1681	807	211	218	1681	807	222	226	874	138	109
BSP 160-3-AA	BSF 6	30	1907	963	211	218	1907	963	222	226	944	138	123
BSP 160-3-A	BSF 6	37	2275	963	211	218	2275	963	222	226	1312	143	165
BSP 160-3	BSF 6	37	2275	963	211	218	2275	963	222	226	1312	143	165
BSP 160-4-AA	BMCI 8	45	2389	1119	218	227	2389	1119	229	232	1270	192	230
BSP 160-4-A	BMCI 8	45	2389	1119	218	227	2389	1119	229	232	1270	192	230
BSP 160-4	BMCI 8	55	2469	1119	218	227	2469	1119	229	232	1350	192	245
BSP 160-5-AA	BMCI 8	55	2625	1275	218	227	2625	1275	229	232	1350	192	251
BSP 160-5-A	BMCI 8	55	2625	1275	218	227	2625	1275	229	232	1350	192	251
BSP 160-5	BMCI 8	63	2765	1275	218	227	2765	1275	229	232	1490	192	277
BSP 160-6-AA	BMCI 8	63	2921	1431	218	227	2921	1431	229	232	1490	192	283
BSP 160-6-A	BMCI 8	75	3021	1431	218	227	3021	1431	229	232	1590	192	302
BSP 160-6	BMCI 8	75	3021	1431	218	227	3021	1431	229	232	1590	192	302
BSP 160-7-AA	BMCI 8	75	3177	1587	218	227					1590	192	302
BSP 160-7-A	BMCI 8	92	3417	1587	218	227					1830	192	354
BSP 160-7	BMCI 8	92	3417	1587	218	227					1830	192	354
BSP 160-8-AA	BMCI 8	92	3573	1743	218	227					1830	192	360
BSP 160-8-A	BMCI 8	92	3573	1743	218	227					1830	192	360
BSP 160-8	BMCI 8	92	3573	1743	218	227					1830	192	360
BSP 160-9-AA	BMCI 8	110	3959	1899	218	227					2060	192	416
BSP 160-9-A	BMCI 8	110	3959	1899	218	227					2060	192	416
BSP 160-9	BMCI 8	110	3959	1899	218	227					2060	192	416
BSP 160-10-AA	BMCI 8	110	4411	2351	218	227					2060	192	432
BSP 160-10-A	BMCI 10	132	4221	2351	237	237					1870	237	544
BSP 160-10	BMCI 10	132	4221	2351	237	237					1870	237	544
BSP 160-11	BMCI 10	132	4273	2403	237	237					1870	237	550
BSP 160-12	BMCI 10	147	4629	2559	237	237					2070	237	621
BSP 160-13	BMCI 10	170	4934	2714	237	237					2220	237	667
BSP 160-14	BMCI 10	170	5090	2870	237	237					2220	237	673
BSP 160-15	BMCI 12	190	5005	3025	286	286					1980	286	803

*Maximum diameter of pump with one motor cable.
** Maximum diameter of pump with two motor cables.
The pump types above are also available in N-versions. See page 3.
BSP 160-1-A to BSP 160-14 are also available in R-versions. See page 3.
Other types of connection are possible by means of connecting pieces.

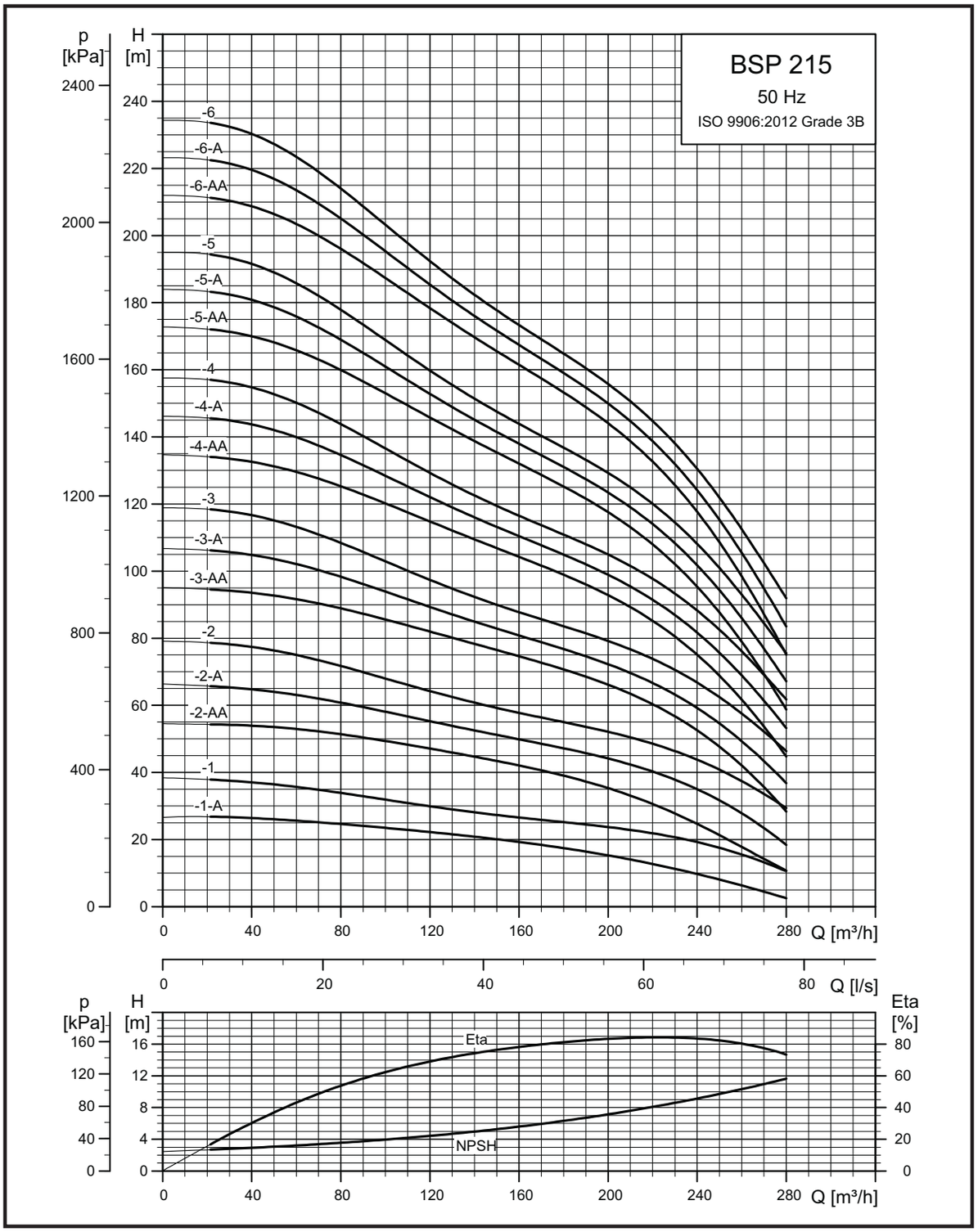
BSP 160 - Power Curve



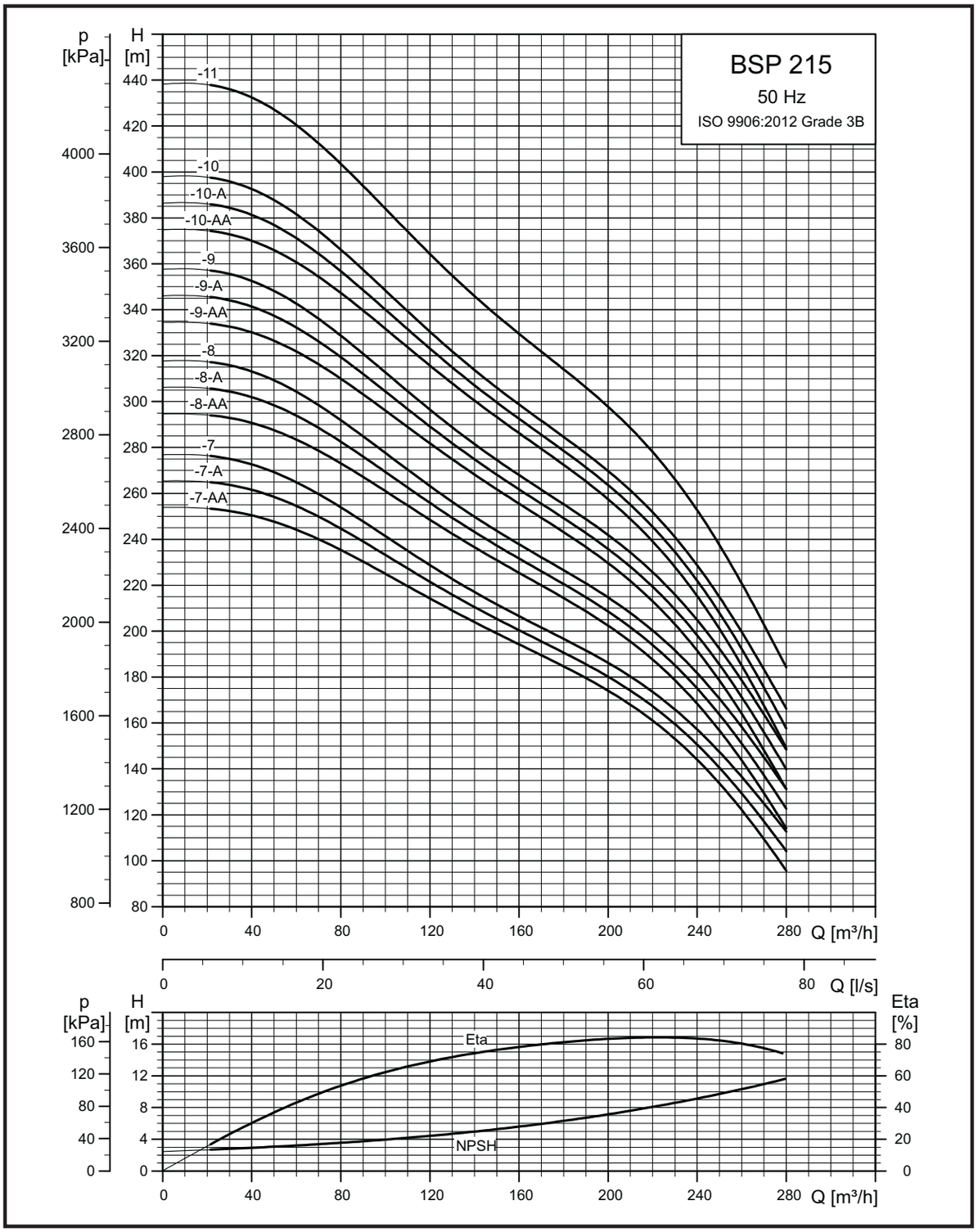
BSP 160 - Power Curve



3.15 BSP 215 - Performance Curve

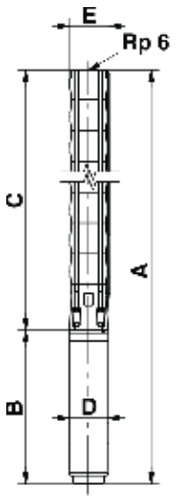


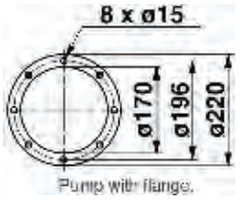
BSP 215 - Performance Curve



BSP 215 - Technical Data

Dimensions and Weights

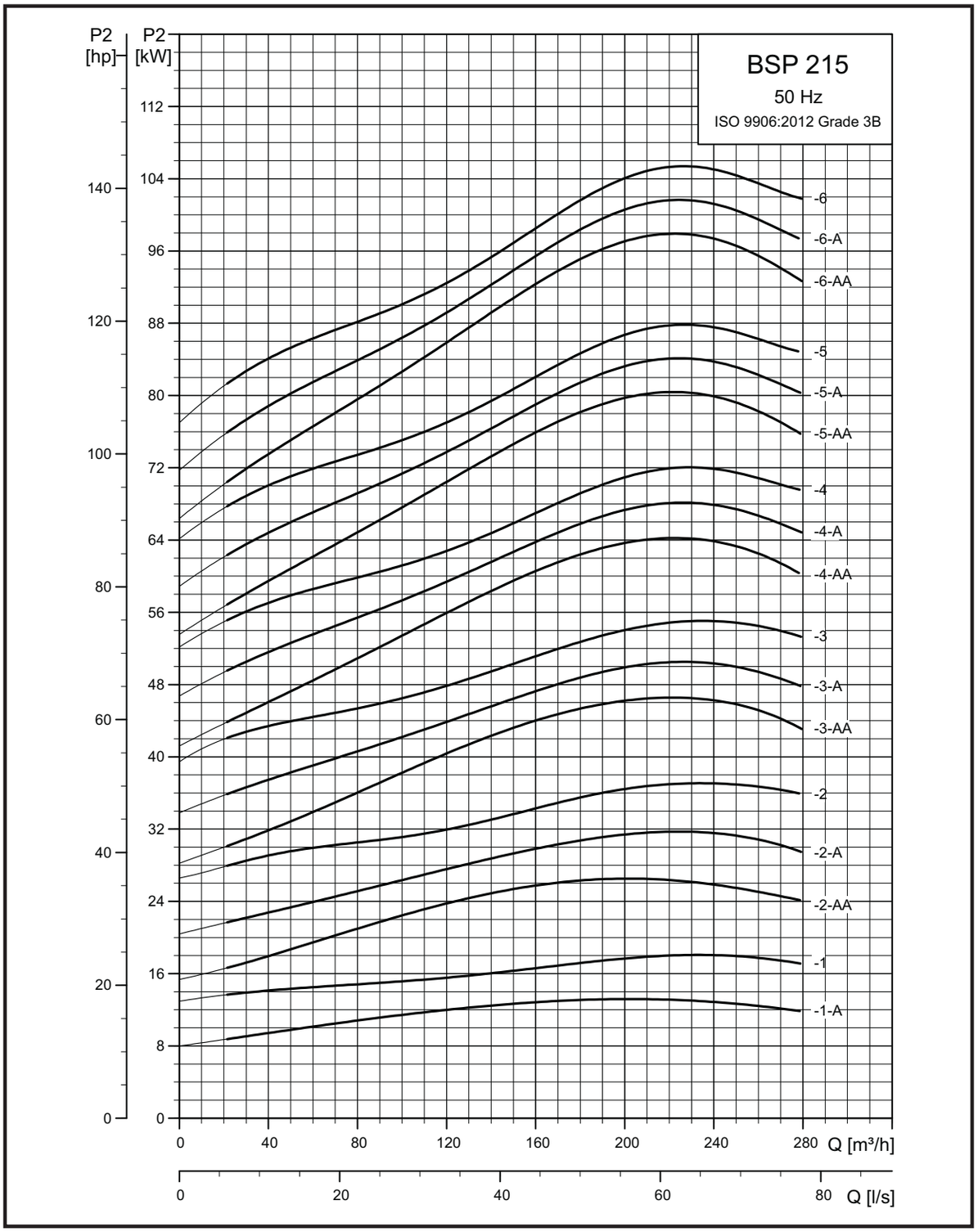




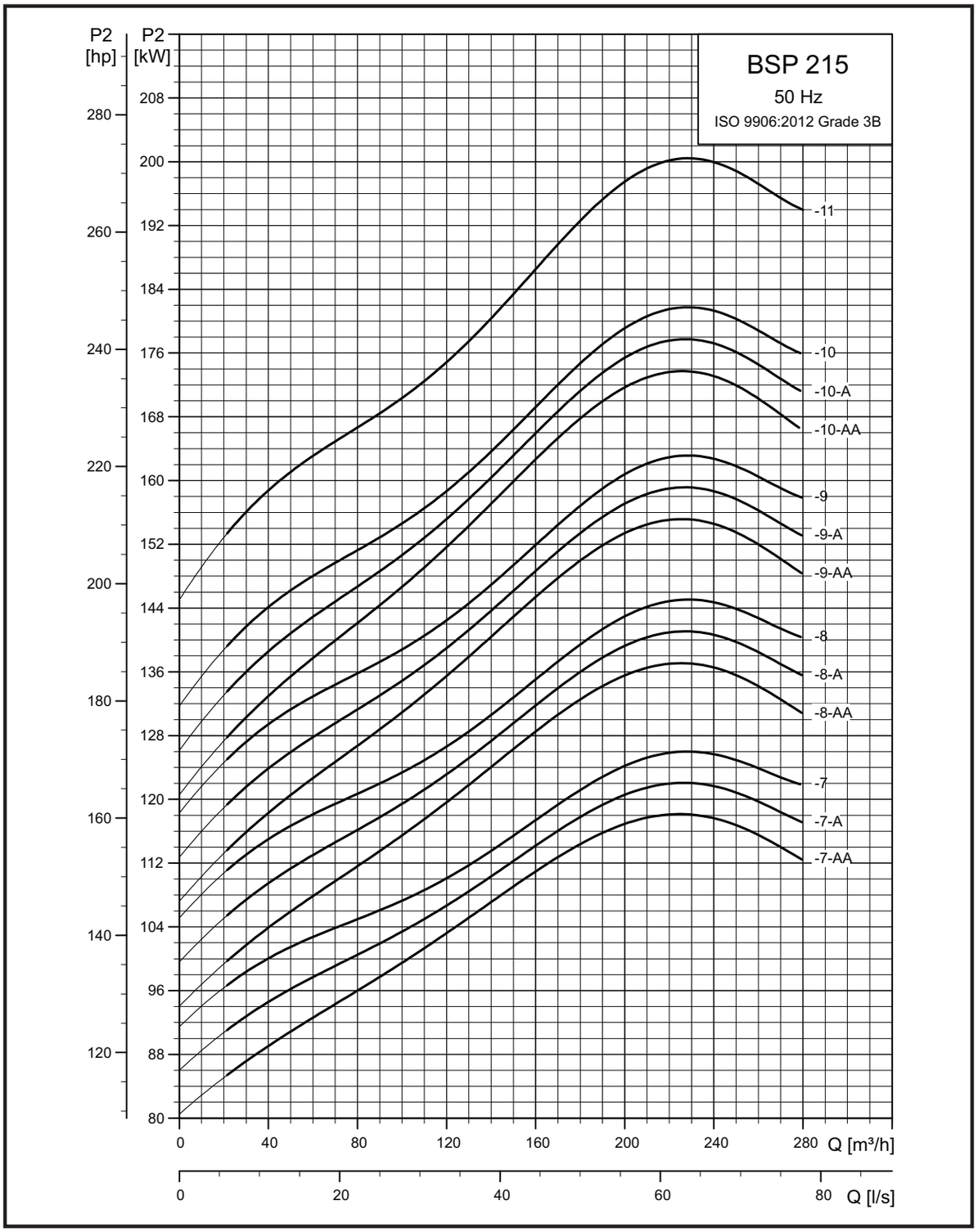
Pump type	Motor		Dimensions [mm]										Net weight [kg]
	Type	Power [kW]	Rp 6 connection				6" flange				B	D	
			A	C	E*	E**	A	C	E*	E**			
BSP 215-1-A	BSF 6	15	1489	790	241	247	1489	790	241	247	699	138	92
BSP 215-1	BSF 6	18.5	1544	790	241	247	1544	790	241	247	754	138	97
BSP 215-2-AA	BSF 6	30	1910	966	241	247	1910	966	241	247	944	138	127
BSP 215-2-A	BSF 6	37	2278	966	241	247	2278	966	241	247	1312	143	169
BSP 215-2	BMCI 8	45	2236	966	241	247	2236	966	241	247	1270	192	228
BSP 215-3-AA	BMCI 8	55	2492	1142	241	247	2492	1142	241	247	1350	192	253
BSP 215-3-A	BMCI 8	55	2492	1142	241	247	2492	1142	241	247	1350	192	253
BSP 215-3	BMCI 8	63	2632	1142	241	247	2632	1142	241	247	1490	192	279
BSP 215-4-AA	BMCI 8	75	2908	1318	241	247	2908	1318	241	247	1590	192	308
BSP 215-4-A	BMCI 8	75	2908	1318	241	247	2908	1318	241	247	1590	192	308
BSP 215-4	BMCI 8	75	2908	1318	241	247	2908	1318	241	247	1590	192	308
BSP 215-5-AA	BMCI 8	92	3324	1494	241	247	3324	1494	241	247	1830	192	364
BSP 215-5-A	BMCI 8	92	3324	1494	241	247	3324	1494	241	247	1830	192	364
BSP 215-5	BMCI 8	92	3554	1494	241	247	3554	1494	241	247	1830	192	364
BSP 215-6-AA	BMCI 8	110	3730	1670	241	247	3730	1670	241	247	2060	192	424
BSP 215-6-A	BMCI 8	110	3730	1670	241	247	3730	1670	241	247	2060	192	424
BSP 215-6	BMCI 8	110	3730	1670	241	247	3730	1670	241	247	2060	192	424
BSP 215-7-AA	BMCI 10	132	4016	2146	241	247					1870	237	547
BSP 215-7-A	BMCI 10	132	4016	2146	241	247					1870	237	547
BSP 215-7	BMCI 10	132	4016	2146	241	247					1870	237	547
BSP 215-8-AA	BMCI 10	147	4392	2322	241	247					2070	237	622
BSP 215-8-A	BMCI 10	147	4392	2322	241	247					2070	237	622
BSP 215-8	BMCI 10	147	4392	2322	241	247					2070	237	622
BSP 215-9-AA	BMCI 10	170	4718	2498	276	276					2220	237	672
BSP 215-9-A	BMCI 10	170	4718	2498	276	276					2220	237	672
BSP 215-9	BMCI 10	170	4718	2498	276	276					2220	237	672
BSP 215-10-AA	BMCI 12	190	4654	2674	276	276					1980	286	793
BSP 215-10-A	BMCI 12	190	4654	2674	276	276					1980	286	793
BSP 215-10	BMCI 12	190	4654	2674	276	276					1980	286	793
BSP 215-11	BMCI 12	220	4990	2850	286	286					2140	286	853

*Maximum diameter of pump with one motor cable.
** Maximum diameter of pump with two motor cables.
The pump types above are also available in N-versions. See page 3.
BSP 215-1-A to BSP 215-9 are also available in R-versions. See page 3.
Other types of connection are possible by means of connecting pieces.

BSP 215 - Power Curve



BSP 215 - Power Curve



4.1 Head Losses in Ordinary Water Pipes

Upper figures indicate the velocity of water in m/sec.
Lower figures indicate head in metres per 100 metres of straight pipes

Quantity of water			Head losses in ordinary water pipes											
m^3/h	Litres/min.	Litres/sec.	Nominal pipe diameter in inches and internal diameter in [mm]											
			1/2" 15.75	3/4" 21.25	1" 27.00	1 1/4" 35.75	1 1/2" 41.25	2" 52.50	2 1/2" 68.00	3" 80.25	3 1/2" 92.50	4" 105.0	5" 130.0	6" 155.5
0.6	10	0.16	0.855 9.910	0.470 2.407	0.292 0.784									
0.9	15	0.25	1.282 20.11	0.705 4.862	0.438 1.570	0.249 0.416								
1.2	20	0.33	1.710 33.53	0.940 8.035	0.584 2.588	0.331 0.677	0.249 0.346							
1.5	25	0.42	2.138 49.93	1.174 11.91	0.730 3.834	0.415 1.004	0.312 0.510							
1.8	30	0.50	2.565 69.34	1.409 16.50	0.876 5.277	0.498 1.379	0.374 0.700	0.231 0.223						
2.1	35	0.58	2.993 91.54	1.644 21.75	1.022 6.949	0.581 1.811	0.436 0.914	0.269 0.291						
2.4	40	0.67		1.879 27.66	1.168 8.820	0.664 2.290	0.499 1.160	0.308 0.368						
3.0	50	0.83		2.349 41.40	1.460 13.14	0.830 3.403	0.623 1.719	0.385 0.544	0.229 0.159					
3.6	60	1.00		2.819 57.74	1.751 18.28	0.996 4.718	0.748 2.375	0.462 0.751	0.275 0.218					
4.2	70	1.12		3.288 76.49	2.043 24.18	1.162 6.231	0.873 3.132	0.539 0.988	0.321 0.287	0.231 0.131				
4.8	80	1.33			2.335 30.87	1.328 7.940	0.997 3.988	0.616 1.254	0.367 0.363	0.263 6.164				
5.4	90	1.50			2.627 38.30	1.494 9.828	1.122 4.927	0.693 1.551	0.413 0.449	0.269 0.203				
6.0	100	1.67			2.919 46.49	1.660 11.90	1.247 5.972	0.770 1.875	0.459 0.542	0.329 0.244	0.248 0.124			
7.5	125	2.08			3.649 70.41	2.075 17.93	1.558 8.967	0.962 2.802	0.574 0.809	0.412 0.365	0.310 0.185	0.241 0.101		
9.0	150	2.50				2.490 25.11	1.870 12.53	1.154 3.903	0.668 1.124	0.494 0.506	0.372 0.256	0.289 0.140		
10.5	175	2.92				2.904 33.32	2.182 16.66	1.347 5.179	0.803 1.488	0.576 0.670	0.434 0.338	0.337 0.184		
12	200	3.33				3.319 42.75	2.493 21.36	1.539 6.624	0.918 1.901	0.659 0.855	0.496 0.431	0.385 0.234	0.251 0.084	
15	250	4.17				4.149 64.86	3.117 32.32	1.924 10.03	1.147 2.860	0.823 1.282	0.620 0.646	0.481 0.350	0.314 0.126	
18	300	5.00					3.740 45.52	2.309 14.04	1.377 4.009	0.988 1.792	0.744 0.903	0.577 0.488	0.377 0.175	0.263 0.074
24	400	6.67					4.987 78.17	3.078 24.04	1.836 6.828	1.317 3.053	0.992 1.530	0.770 0.829	0.502 0.294	0.351 0.124
30	500	8.33						3.848 36.71	2.295 10.40	1.647 4.622	1.240 2.315	0.962 1.254	0.628 0.445	0.439 0.187
36	600	10.0						4.618 51.84	2.753 14.62	1.976 6.505	1.488 3.261	1.155 1.757	0.753 0.623	0.526 0.260
42	700	11.7							3.212 19.52	2.306 8.693	1.736 4.356	1.347 2.345	0.879 0.831	0.614 0.347
48	800	13.3							3.671 25.20	2.635 11.18	1.984 5.582	1.540 3.009	1.005 1.066	0.702 0.445
54	900	15.0							4.130 31.51	2.964 13.97	2.232 6.983	1.732 3.762	1.130 1.328	0.790 0.555
60	1000	16.7							4.589 38.43	3.294 17.06	2.480 8.521	1.925 4.595	1.256 1.616	0.877 0.674
75	1250	20.8								4.117 26.10	3.100 13.00	2.406 7.010	1.570 2.458	1.097 1.027
90	1500	25.0								4.941 36.97	3.720 18.42	2.887 9.892	1.883 3.468	1.316 1.444
105	1750	29.2									4.340 24.76	3.368 13.30	2.197 4.665	1.535 1.934
120	2000	33.3									4.960 31.94	3.850 17.16	2.511 5.995	1.754 2.496
150	2500	41.7										4.812 26.26	3.139 9.216	2.193 3.807
180	3000	50.0											3.767 13.05	2.632 5.417
240	4000	66.7											5.023 22.72	3.509 8.926
300	5000	83.3												4.386 14.42
90 ° bends; slide valves			1.0	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.6	1.7	2.0	2.5
T-pieces, non-return valves			4.0	4.0	4.0	5.0	5.0	5.0	6.0	6.0	6.0	7.0	8.0	9.0

The table is calculated in accordance with H. Lang's new formula a = 0.02 and for a water temperature of 10 °C.
The head loss in bends, slide valves, T-pieces and non-return valves is equivalent to the metres of straight pipes stated in the last two lines of the table.
To find the head loss in foot valves, multiply the loss in T-pieces by two.

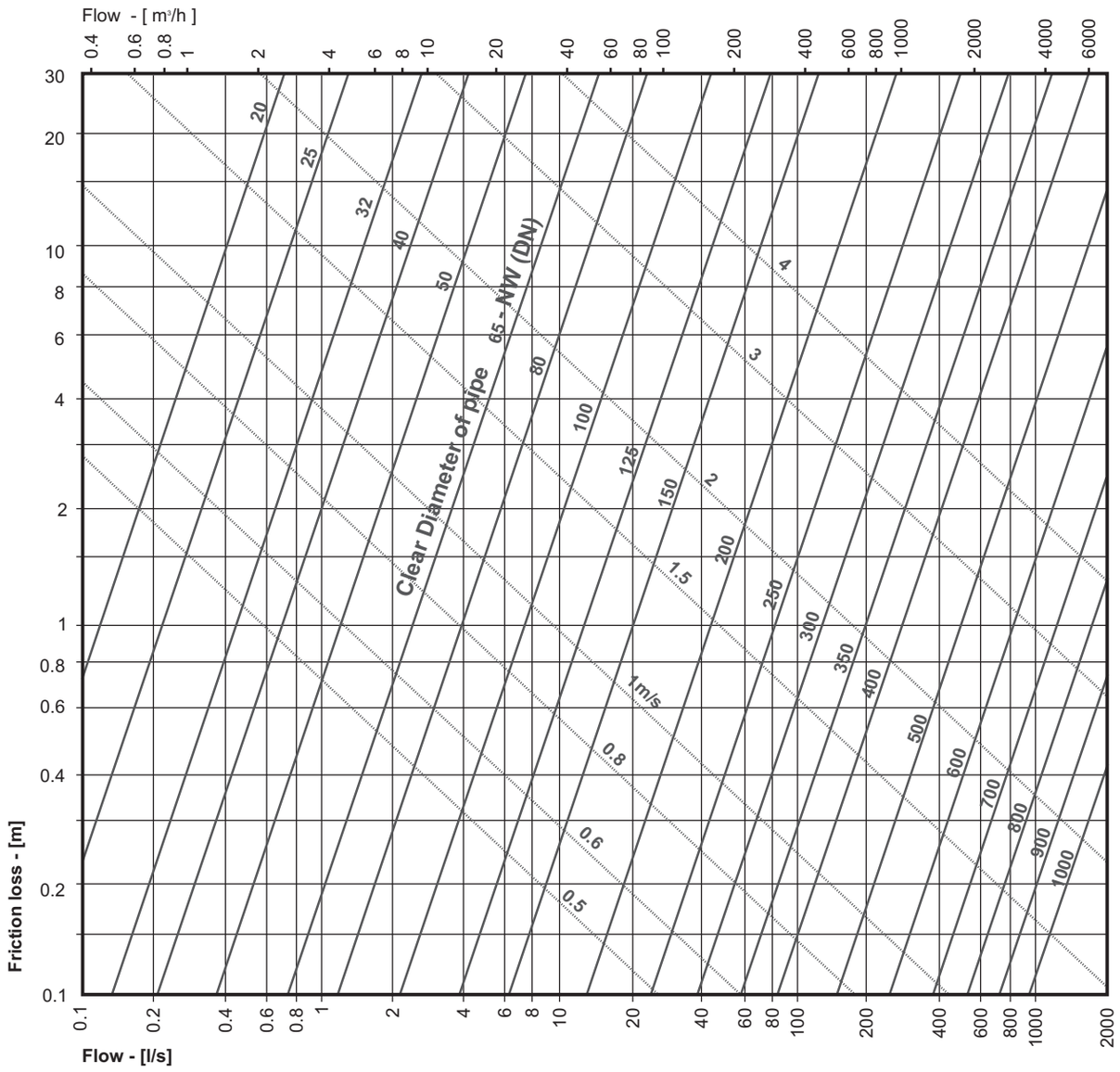
4.2 Head Losses in Plastic Pipes

Upper figures indicate the velocity of water in m/sec.
Lower figures indicate head in metres per 100 metres of straight pipes

Quantity of water			PELM/PEH PN 10											
			PELM						PEH					
m^3/h	Litres/min.	Litres/sec.	25 20.4	32 26.2	40 32.6	50 40.8	63 51.4	75 61.4	90 73.6	110 90.0	125 102.2	140 114.6	160 130.8	180 147.2
0.6	10	0.16	0.49 1.8	0.30 0.66	0.19 0.27	0.12 0.085								
0.9	15	0.25	0.76 4.0	0.46 1.14	0.30 0.6	0.19 0.18	0.12 0.63							
1.2	20	0.33	1.0 6.4	0.61 2.2	0.39 0.9	0.25 0.28	0.16 0.11							
1.5	25	0.42	1.3 10.0	0.78 3.5	0.50 1.4	0.32 0.43	0.20 0.17	0.14 0.074						
1.8	30	0.50	1.53 13.0	0.93 4.6	0.6 1.9	0.38 0.57	0.24 0.22	0.17 0.092						
2.1	35	0.58	1.77 16.0	1.08 6.0	0.69 2.0	0.44 0.70	0.28 0.27	0.20 0.12						
2.4	40	0.67	2.05 22.0	1.24 7.5	0.80 3.3	0.51 0.93	0.32 0.35	0.23 0.16	0.16 0.063					
3.0	50	0.83	2.54 37.0	1.54 11.0	0.99 4.8	0.63 1.40	0.40 0.50	0.28 0.22	0.20 0.09					
3.6	60	1.00	3.06 43.0	1.85 15.0	1.2 6.5	0.76 1.90	0.48 0.70	0.34 0.32	0.24 0.13	0.16 0.050				
4.2	70	1.12	3.43 50.0	2.08 18.0	1.34 8.0	0.86 2.50	0.54 0.83	0.38 0.38	0.26 0.17	0.18 0.068				
4.8	80	1.33		2.47 25.0	1.59 10.5	1.02 3.00	0.64 1.20	0.45 0.50	0.31 0.22	0.20 0.084				
5.4	90	1.50		2.78 30.0	1.8 12.0	1.15 3.50	0.72 1.30	0.51 0.57	0.35 0.26	0.24 0.092	0.18 0.05			
6.0	100	1.67		3.1 39.0	2.0 16.0	1.28 4.6	0.80 1.80	0.56 0.73	0.39 0.30	0.26 0.12	0.20 0.07			
7.5	125	2.08		3.86 50.0	2.49 24.0	1.59 6.6	1.00 2.50	0.70 1.10	0.49 0.50	0.33 0.18	0.25 0.10	0.20 0.055		
9.0	150	2.50			3.00 33.0	1.91 8.6	1.20 3.5	0.84 1.40	0.59 0.63	0.39 0.24	0.30 0.13	0.24 0.075		
10.5	175	2.92			3.5 38.0	2.23 11.0	1.41 4.3	0.99 1.80	0.69 0.78	0.46 0.30	0.36 0.18	0.28 0.09		
12	200	3.33			3.99 50.0	2.55 14.0	1.60 5.5	1.12 2.40	0.78 1.0	0.52 0.40	0.41 0.22	0.32 0.12	0.25 0.065	
15	250	4.17				3.19 21.0	2.01 8.0	1.41 3.70	0.98 1.50	0.66 0.57	0.51 0.34	0.40 0.18	0.31 0.105	0.25 0.060
18	300	5.00				3.82 28.0	2.41 10.5	1.69 4.60	1.18 1.95	0.78 0.77	0.61 0.45	0.48 0.25	0.37 0.13	0.29 0.085
24	400	6.67					3.21 19.0	2.25 8.0	1.57 3.60	1.05 1.40	0.81 0.78	0.65 0.44	0.50 0.23	0.39 0.15
30	500	8.33					4.01 28.0	2.81 11.5	1.96 5.0	1.31 2.0	1.02 1.20	0.81 0.63	0.62 0.33	0.49 0.21
36	600	10.0					4.82 37.0	3.38 15.0	2.35 6.6	1.57 2.60	1.22 1.50	0.97 0.82	0.74 0.45	0.59 0.28
42	700	11.7					5.64 47.0	3.95 24.0	2.75 8.0	1.84 3.50	1.43 1.90	1.13 1.10	0.87 0.60	0.69 0.40
48	800	13.3						4.49 26.0	3.13 11.0	2.09 4.5	1.62 2.60	1.29 1.40	0.99 0.81	0.78 0.48
54	900	15.0						5.07 33.0	3.53 13.5	2.36 5.5	1.83 3.20	1.45 1.70	1.12 0.95	0.08 0.58
60	1000	16.7						5.64 40.0	3.93 16.0	2.63 6.7	2.04 3.90	1.62 2.2	1.24 1.2	0.96 0.75
75	1250	20.8							4.89 25.0	3.27 9.0	2.54 5.0	2.02 3.0	1.55 1.6	1.22 0.95
90	1500	25.0							5.88 33.0	3.93 13.0	3.05 8.0	2.42 4.1	1.86 2.3	1.47 1.40
105	1750	29.2							6.86 44.0	4.59 17.5	3.56 9.7	2.83 5.7	2.17 3.2	1.72 1.9
120	2000	33.3								5.23 23.0	4.06 13.0	3.23 7.0	2.48 4.0	1.96 2.4
150	2500	41.7								6.55 34.0	5.08 18.0	4.04 10.5	3.10 6.0	2.45 3.5
180	3000	50.0								7.86 45.0	6.1 27.0	4.85 14.0	3.72 7.6	2.94 4.4
240	4000	66.7									8.13 43.0	6.47 24.0	4.96 13.0	3.92 7.5
300	5000	83.3										8.08 33.0	6.2 18.0	4.89 11.0

The table is based on a nomogram.
Roughness: K = 0.01 mm.
Water temperature: t = 10 °C.

5.1 Friction Loss in Straight Pipe Work



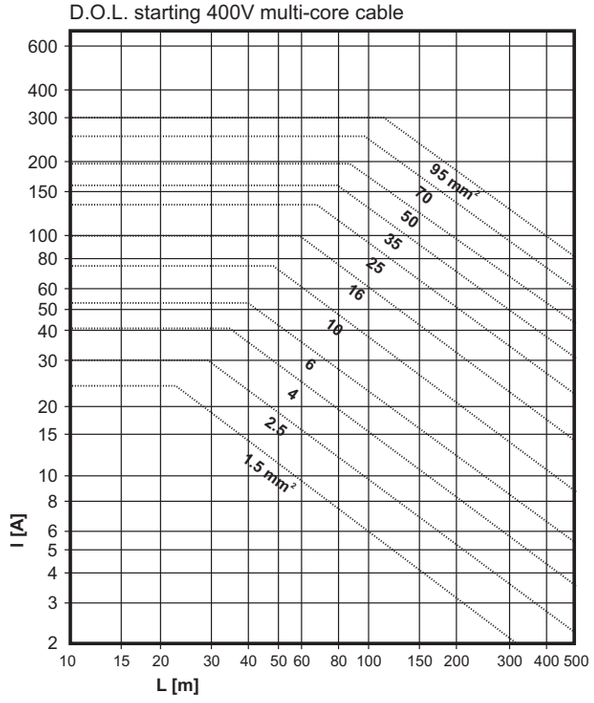
Friction loss in metres for 100m new pipeline of cast iron

The friction loss for:

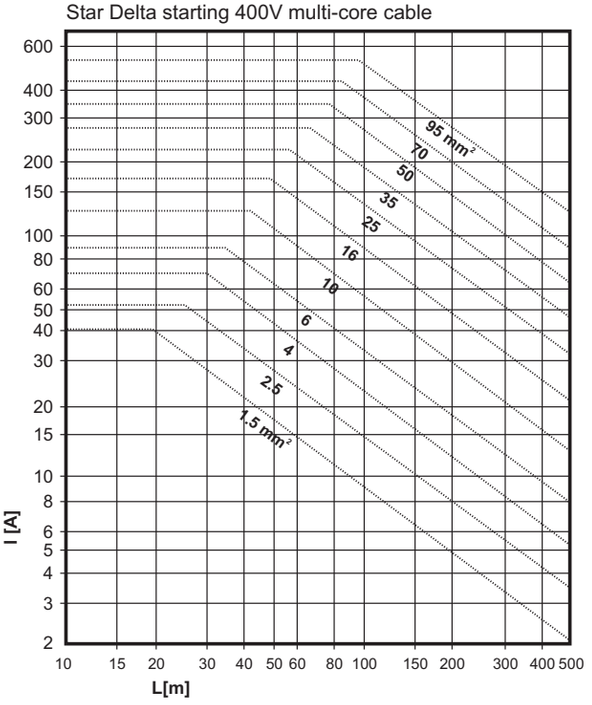
New rolled steel pipes:	0.8 times
New plastic pipes:	0.8 times
Older, rusty cast iron pipes about:	1.25 times
Pipes with encrustations up to:	1.7 times

6.1 Cable Selection Chart

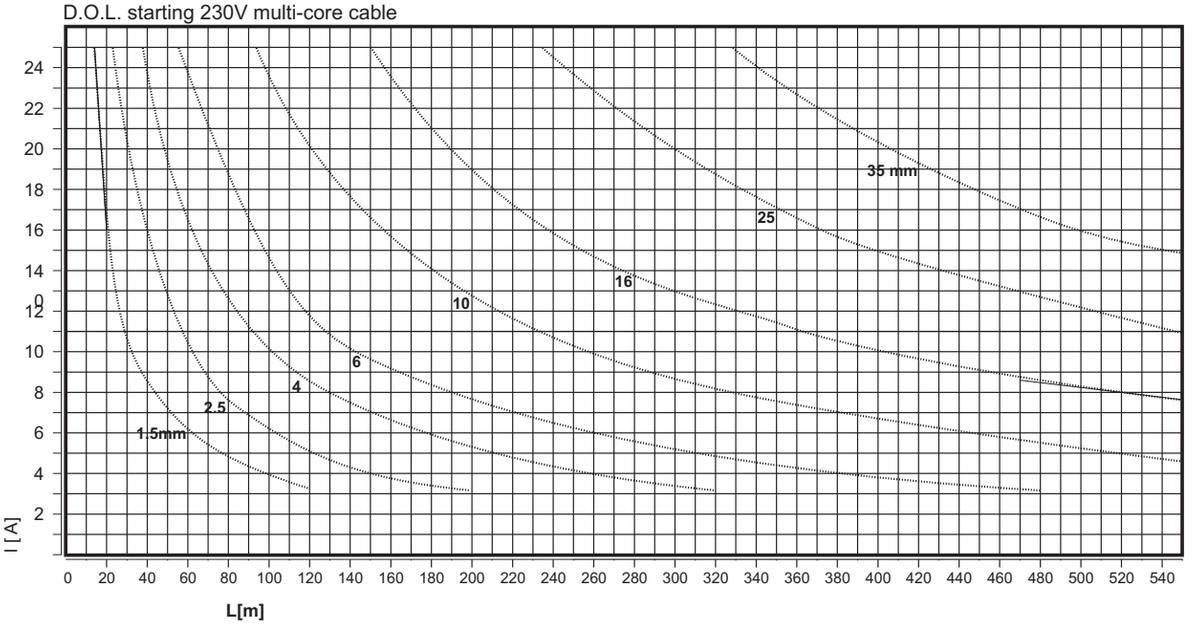
D.O.L. starting 400V multi-core cable



Star Delta starting 400V multi-core cable



D.O.L. starting 230V multi-core cable



7.1 Cable Sizes

Star-Delta Operation (Y/D) MAX. CABLE LENGTH (m)											
Motor Rating (HP)	Cable Size (mm^2)										
	3 x 1.5	3 x 2.5	3 x 4	3 x 6	3 x 10	3 x 16	3 x 25	3 x 35	3 x 50	3 x 70	3 x 95
5.5	97	161	258	388	646	1033	1615	2261	3230	4521	6139
7.5	72	121	193	290	483	773	1207	1690	2415	3381	4588
10	57	96	153	230	383	613	958	1342	1916	2683	3641
12.5	47	78	125	188	313	501	783	1096	1565	2191	2974
15	41	68	109	163	271	434	678	949	1356	1899	2577
17.5	34	57	92	138	230	367	574	803	1148	1607	2181
20	29	49	79	118	196	314	491	688	982	1375	1867
25		40	64	96	159	255	398	558	797	1115	1514
30			54	81	136	217	339	475	678	949	1288
35			46	68	114	182	285	399	570	798	1083
40				60	101	161	252	352	503	705	956
50					84	134	209	293	418	585	794
60					69	110	172	241	344	481	653
70					59	95	149	208	297	416	565
75						90	141	197	281	394	534
80						82	129	180	258	361	490
90						74	115	162	231	323	439
100							103	144	206	289	392
110							95	134	191	267	363
125								118	168	235	319
150								101	144	201	273
175									123	172	233
200										152	207
210										152	196

D.O.L. MAX CABLE LENGTH (m)											
Motor Rating (HP)	Cable Size (mm^2)										
	3 x 1.5	3 x 2.5	3 x 4	3 x 6	3 x 10	3 x 16	3 x 25	3 x 35	3 x 50	3 x 70	3 x 95
5.5	65	108	172	258	431	689	1077	1507	2153	3014	4091
7.5	48	80	129	193	322	515	805	1127	1610	2254	3059
10	38	64	102	153	256	409	639	894	1278	1789	2428
12.5		52	83	125	209	334	522	730	1043	1461	1982
15		45	72	109	181	289	452	633	904	1266	1718
17.5			61	92	153	245	383	536	765	1071	1454
20			52	79	131	210	327	458	655	917	1244
25					106	170	266	372	531	744	1009
30					90	145	226	316	452	633	859
35					76	122	190	266	380	532	722
40					67	107	168	235	336	470	638
50						89	139	195	279	390	529
60							115	160	229	321	435
70								139	198	278	377
75								131	187	262	356
80								120	172	241	326
90									154	215	292
100									137	192	261
110									127	178	242
125										157	213
150											182
175											155
200											
210											

NOTES

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Plot No.6, Behind Basni Police Station
Industrial Area II Phase Basni,
Jodhpur, Rajasthan-342005, INDIA
Call Us :+912912740635
Mail Us : info@boranapumps.com

boranapumps.com