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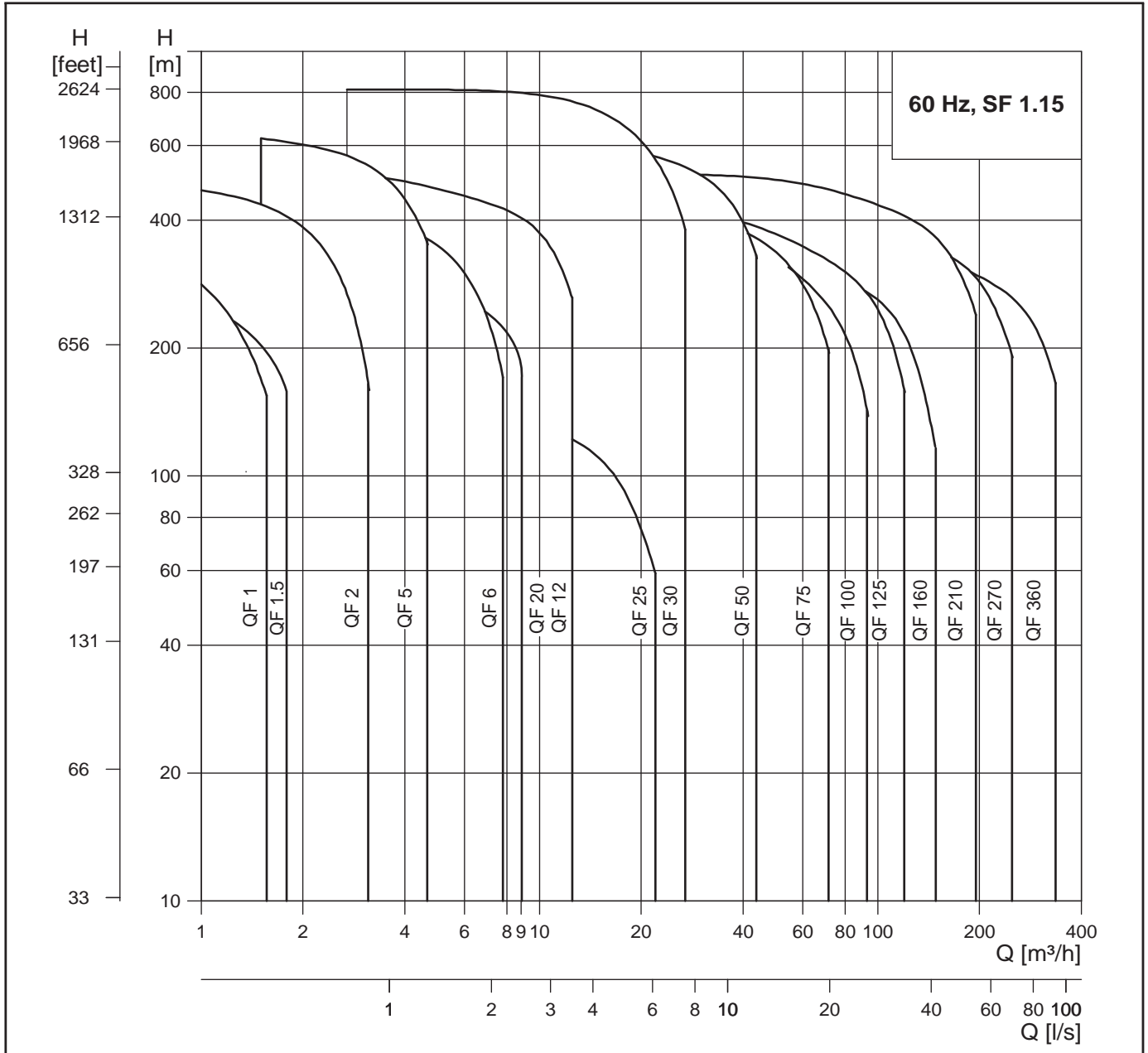
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Performance Range



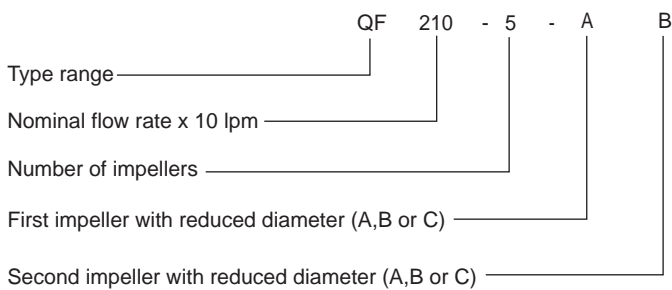
Applications

The pumps are suitable for the following applications :

- Raw water supply
- Irrigation systems
- Groundwater lowering
- Pressure boosting
- Industrial applications

Type Key

Example



Pumped Liquids

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

Operating Conditions

Flow rate, Q : 0.1 - 335 m³/h.

Head, H: Maximum 810m.

Maximum Liquid Temperature:

Motor	Installation		
	Flow velocity- past motor	Vertical	Horizontal
Shakti 4", 6" & 8"	0.15 m/s	40°C	40°C

Operating pressure: Maximum 810m (81 bar)

Curve Conditions

The conditions below apply to the curves shown on the following pages :

General

- Curve tolerance according to ISO 9906, Annex A.
- The performance curves show pump performance at actual speed of standard motor range.
The speed of the motors is approximately :
4" motors : n=3460 min⁻¹
6" motors : n=3450 min⁻¹
8" to 12" motors : n=3500 min⁻¹
- The measurements were made with airless water at a temperature of 20°C. The curves apply to a kinematic viscosity of 1mm²/s. When pumping liquids with a density higher than that of water, motors with correspondingly higher outputs must be used.
- The bold curves indicate the recommended performance range.
- The performance curves are inclusive of possible losses such as non-return valve loss.

QF1, QF1.5, QF2, QF5, QF6, QF12, QF20, QF25 Curve

- **Q/H** : The curves are inclusive of valve and inlet losses at the actual speed.
- **Power Curve** : BPkW/Stage shows pump power input per stage.
- **Efficiency Curve** : Efficiency shows pump stage efficiency.

QF30, QF50, QF75, QF100, QF125, QF160, QF210, QF270, QF360 Curve

- **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 nominal performance by 0.5 to 1.0 m.
- **NPSH** The curve is inclusive of suction case and shows required inlet pressure.
- **Power Curve**: It shows pump power input at the actual speed for each individual pump size.
- **Efficiency Curve** : Efficiency shows pump stage efficiency.

General Data

Submersible Pumps
QF

Pump Range

Type	QF 1	QF 1.5	QF 2	QF 5	QF 6	QF 12	QF 20	QF 25	QF 30	QF 50	QF 75	QF 100	QF 125	QF 160	QF 210	QF 270	QF 360
Steel : AISI SS 304	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Connection : Rp (Inches) BSP Thread	1 1/4	1	1 1/4	1 1/4	1 1/2	2	2	2	2 1/2	3	3 4	3 4	5	5	6	6	6
NPT Thread	1 1/4	1	1 1/4	1 1/4	1 1/2	2	2	2	3	3	3 4	3 4	5	5	6	6	6
Flange Connection													5"	5"	6"	6"	6"

Motor Range

Motor Output[kW]	0.25	0.37	0.55	0.75	1.1	1.5	2.2	3.0	3.7	4.0	5.5	7.5	9.2	11	13	15	18.5	22	26	30	37	45	55	63	75	92	110	132	147	170	185	190	220	
Single Phase	+	+	+	+	+	+	+																											
Three Phase		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Rewindable motor	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Steel : AISI 304	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+										
Steel : AISI 304 And Cast Iron	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Direct - on - Line starting is recommended up to 75 kW.
Soft starter or autotransformer is recommended above 75 kW.
Motors with star / delta are available from 4.0 kW.

Features and Benefits

A Wide Pump Range

We offers submersible pumps with energy- efficient duty points ranging from 0.1 to 335 m³/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 Pumps 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.

Example:

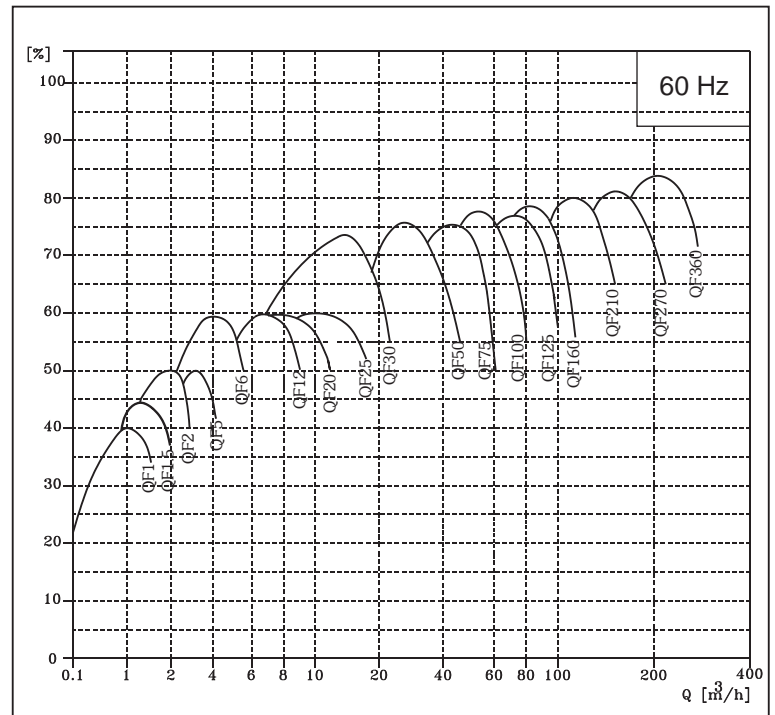
When pumping 125 m³/h with a head of 200m for a period of 10 years \$ 60,000 will be saved if a pumps and motors having a 10% higher efficiency is chosen and the price is \$ 0.10 per kWh.

Applications

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

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. In addition pumps will be as new after service due to the high wear resistance of stainless steel.



Bearings with Sand Channels

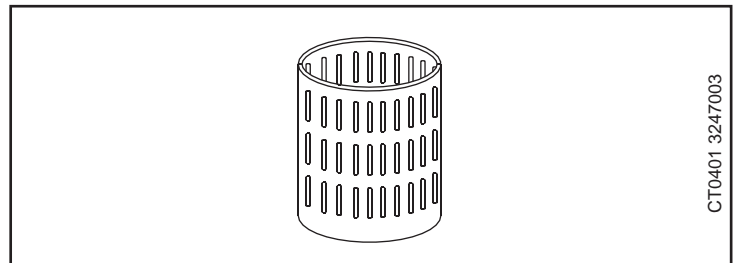
All bearings are water-Lubricated and have a squared shape enabling sand particles, If any, to leave the pump together with the pumped liquid.



CT 0401 0113003

Inlet Strainer

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



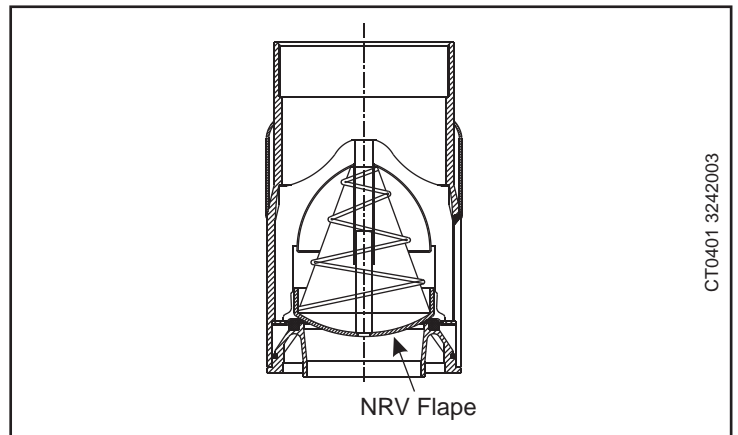
CT0401 3247003

Non-Return Valve

All pumps are equipped with a reliable non-return valve in the valve casing preventing back flow 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 minimize the pressure loss across the valve and thus contributes to the high efficiency of the pump.



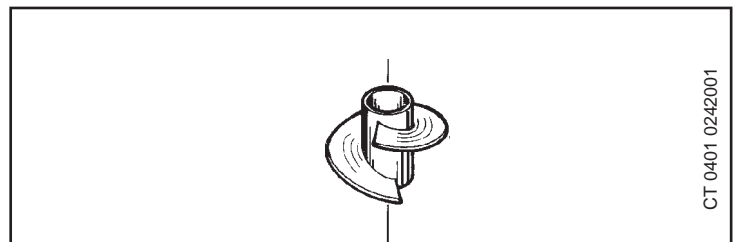
CT0401 3242003

Priming Screw

All QF and QF 30 pumps are fitted with a priming screw. Consequently, dry running is prevented because the priming screw will make sure that pump bearings are always lubricated.

Due to the semi-axial impellers of large QF pumps (except for QF 30) this priming is automatically provided.

However, it applies to all pump types that if the water table is lowered to a level below the pump inlet neither pump nor motor will be protected against dry running.



CT 0401 0242001

Stop ring

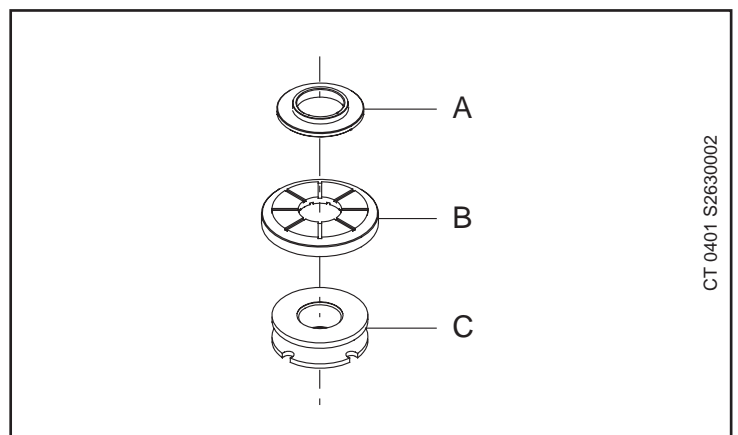
The stop ring prevents damage to the pump during transport and in case of up-thrust in connection with start - up.

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

Example : QF 125

The stationary part of the stop ring (A) is secured in the top bowl (Upper intermediate chamber).

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

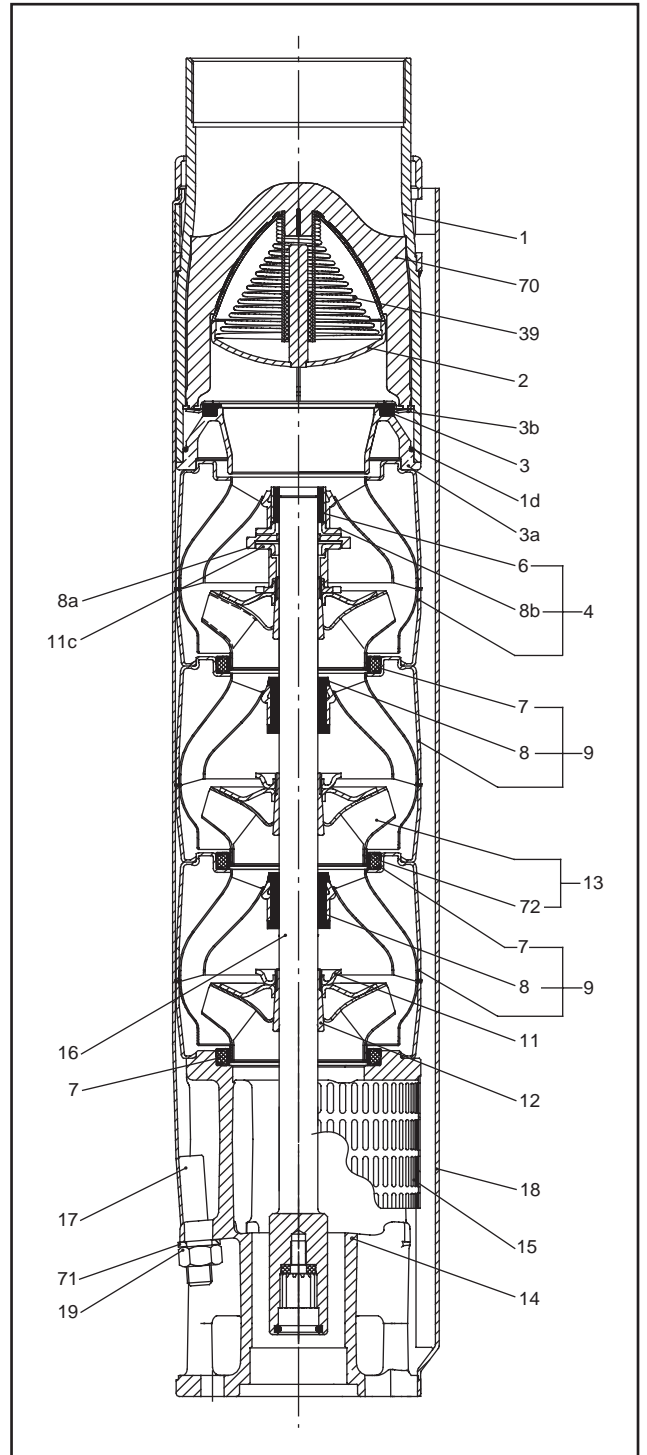


CT 0401 S2630002

Material specification

Pos.	Components	Materials	Standard	N-version
1	Valve casing	Stainless steel	304	316
1d	O-ring	NBR		
2	valve cup	Stainless Steel	304	316
3	Valve seat	Stainless Steel	304	316
3a	Lower valve seat retainer	Stainless Steel	304	316
3b	Upper valve seat retainer	Stainless Steel	304	316
4	Top chamber	Stainless Steel	304	316
6	Upper bearing	Stainless Steel NBR	304	316
7	Necking	NBR / PPS		
8	Bearing	NBR		
8a	Washer for stop ring	Cabron/graphite HY 22 in PTFE mass		
8b	Stop ring	Stainless Steel	316	316
9	chamber	Stainless Steel	304	316
11	split cone nut	Stainless Steel	304	316
11c	Nut for stop ring	Stainless Steel	316	316
12	Split cone	Stainless Steel	304	316
13	Impeller	Stainless Steel	304	316
14	Suction Interconnector	Stainless Steel	304	316
15	Strainer	Stainless Steel	304	316
16	Shaft complete	Stainless Steel	431	316
17	Strap	Stainless Steel	304	316
18	Cabel guard	Stainless Steel	304	316
19	Nut for strap	Stainless Steel	304	316
39	Spring for valve cup	Stainless Steel	304	316
70	Valve guide	Stainless Steel	304	316
71	Washer	Stainless Steel	316	316
72	Wear ring	Stainless Steel	304	316

Example : QF 125



Features and Benefits

A complete Motor Range

Shakti pumps offers a complete submersible motor range in different voltages :

- + 4" motors, single - phase up to 4 kW.
- + 4" motors, three-phase up to 7.5 kW.
- + 6" motors, three-phase from 2.2 kW to 37 kW.
- + 8" motors, three-phase from 11 kW to 220 kW.

High Motor Efficiency

Within the area of high motor efficiency Shakti is a market leader. This is due to newly developed motor concept which is introduced with the MS 100, MS 101 and MS 150.

Rewindable motors

The two pole Shakti submersible motors are easily rewinded. The windings of the stator are made of a special water-proof wire of pure electrolytic copper sheathed with special non-hydroscopic thermoplastic material. The high dielectric strength properties of this material allow direct contact between the windings and the liquid for efficient cooling of the windings.



Over temperature protection

Both for Shakti MS submersible motors accessories for protection against over temperature is available. When the temperature becomes too high, the protection device will cut-out and damage to the pump and motor be avoided.

Restart of the motor after cut-out can be achieved in two ways:

- manual restart or
- automatic restart.

Automatic restart means that the control unit attempts to restart the motor after 15 min. If the first attempt is not successful, restarting will be re-attempted at 30-minute intervals.

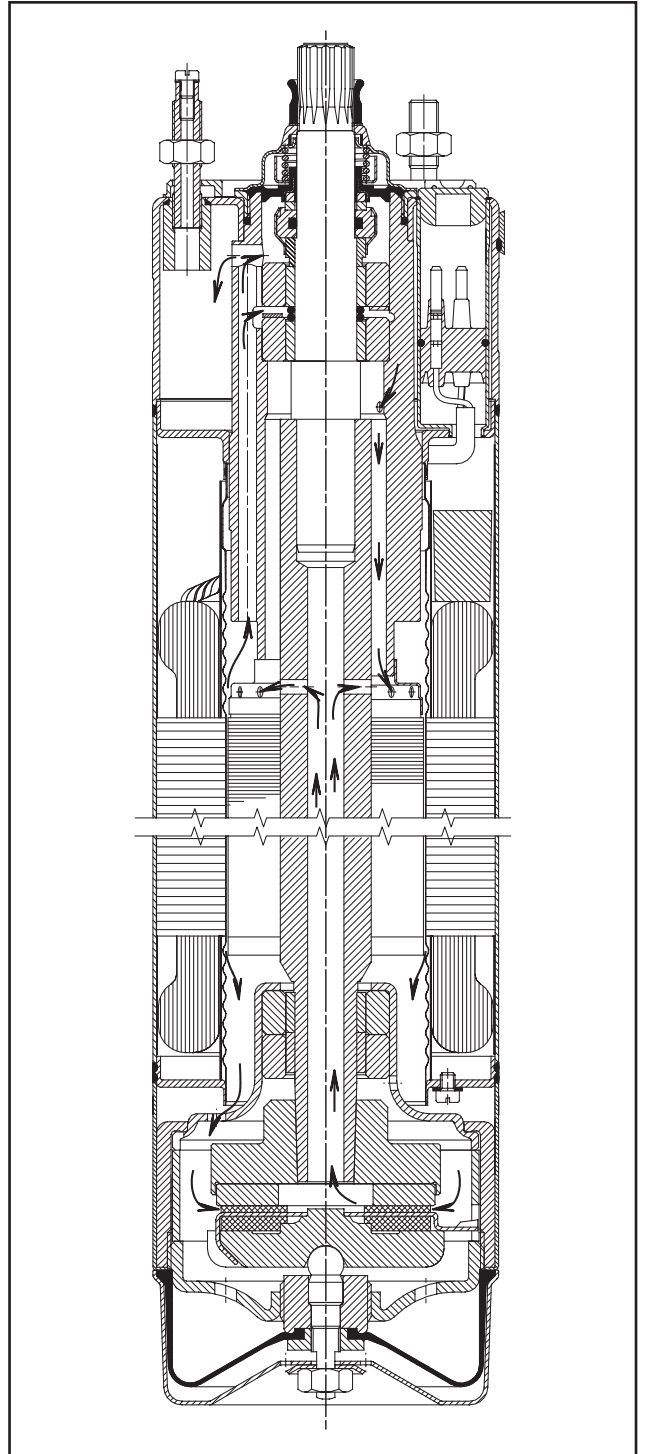
Protection against upthrust

In case of a very small counter pressure in connection with start-up there is a risk that the entire pump body may rise. This is called upthrust. Upthrust may damage both pump and motor. Therefore both pumps and motors are protected against upthrust as standard, preventing upthrust from occurring in the critical start-up phase. The protection consist of either a built-in stop ring or hydraulic balancing.

Built-in cooling chambers

In all submersible motors an efficient cooling is ensured by cooling chambers at the top and at the bottom of the motor, and by an internal circulation of motor liquid. As long as the required flow velocity cooling of the motor will be efficient.

Example : MS101



Lightning protection

The smallest Shakti submersible motors, i.e. of the type MS 101, are all insulated in order to minimize the risk of motor burnout caused by stroke of lightning.

Reduced risk of short-circuit

The embedded stator winding in the Shakti MS submersible motor is hermetically enclosed in stainless steel. The result is high mechanical stability and optimum cooling. Also, this eliminates the risk of short circuit of the windings caused by condensed water.

Shaft seal

MS 101

The shaft seal is of the lip seal type characterized by low friction against the rotor shaft.

The choice of rubber offers good wear resistance, good elasticity and resistance to particles. The rubber material is approved for use in drinking water.

MS 100, MS 150

The choice of material is ceramic/tungsten carbide providing optimum sealing, optimum wear resistance and long life.

The spring loaded shaft seal is designed with a large surface and a sand shield. The result is a minimum exchange of pumped and motor liquids and no penetration of particles.

Rewindable motors

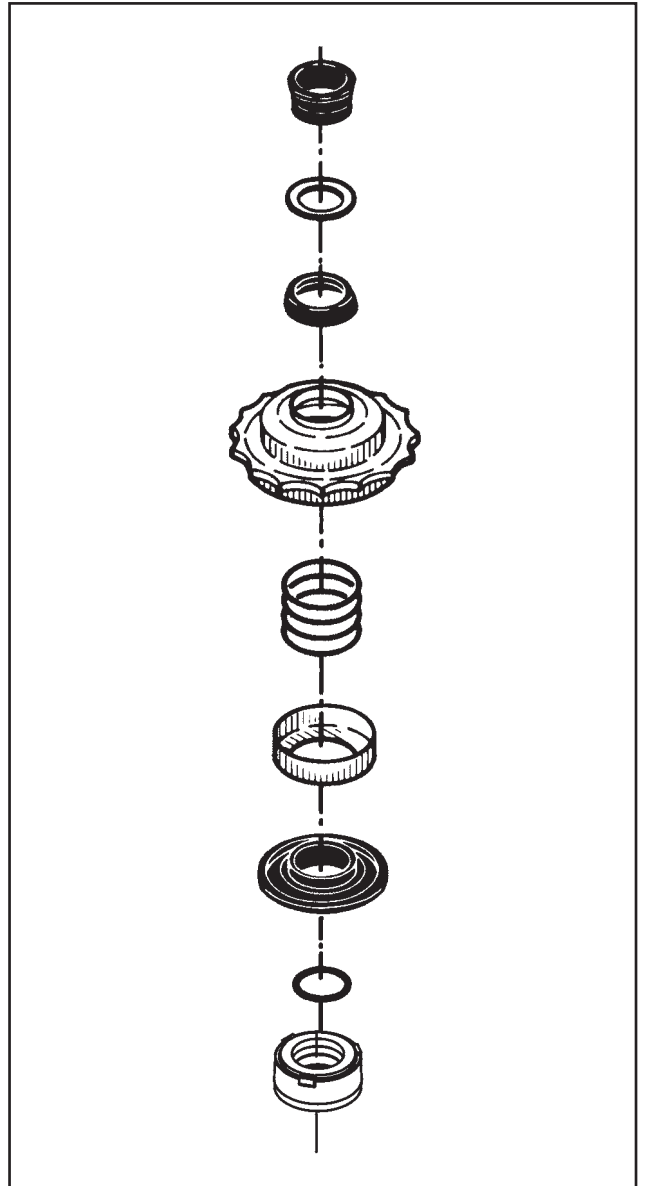
The standard shaft seal is a rubber lip type. The shaft seal is replaceable.

The material features good wear resistance and resistance to particles.

Together with the shaft seal housing, the sand shield forms a labyrinth seal, which during normal operating conditions prevents penetration of sand particles into the shaft seal.

On request, motors can be supplied with a SiC/SiC seal.

Example : MS101

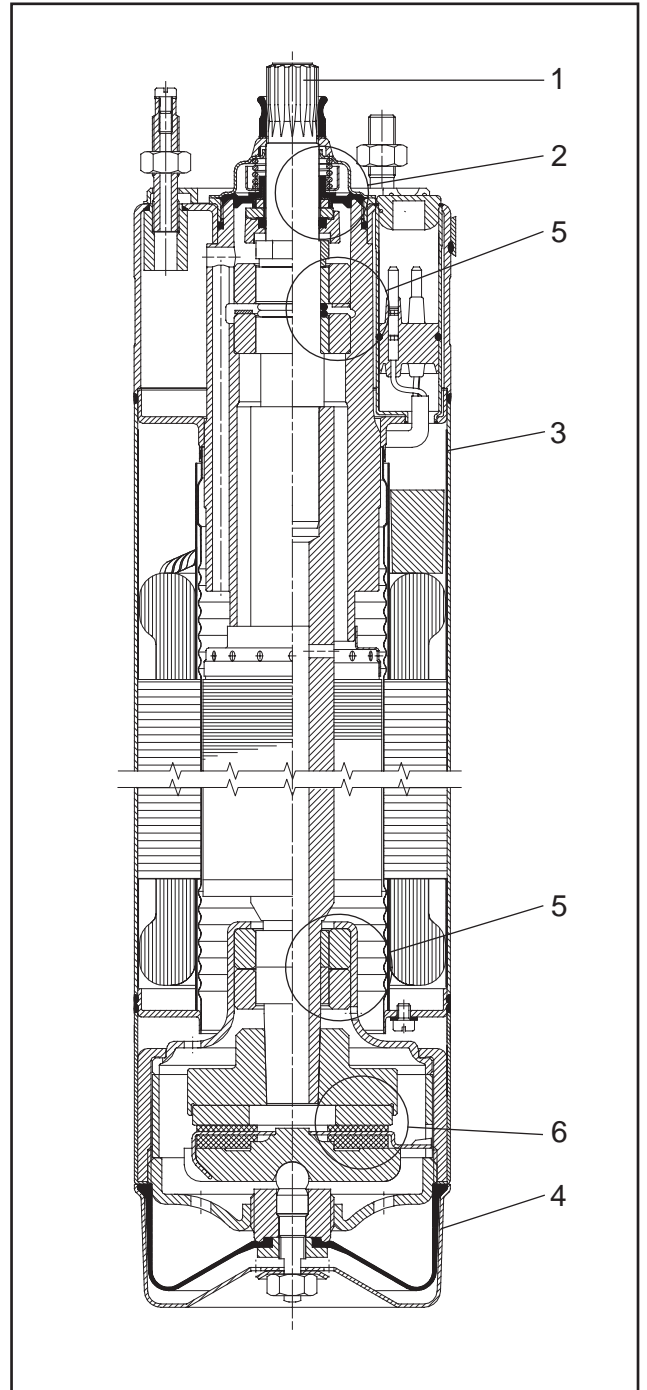


Material specification for MS motors

Example : MS101

Submersible motors

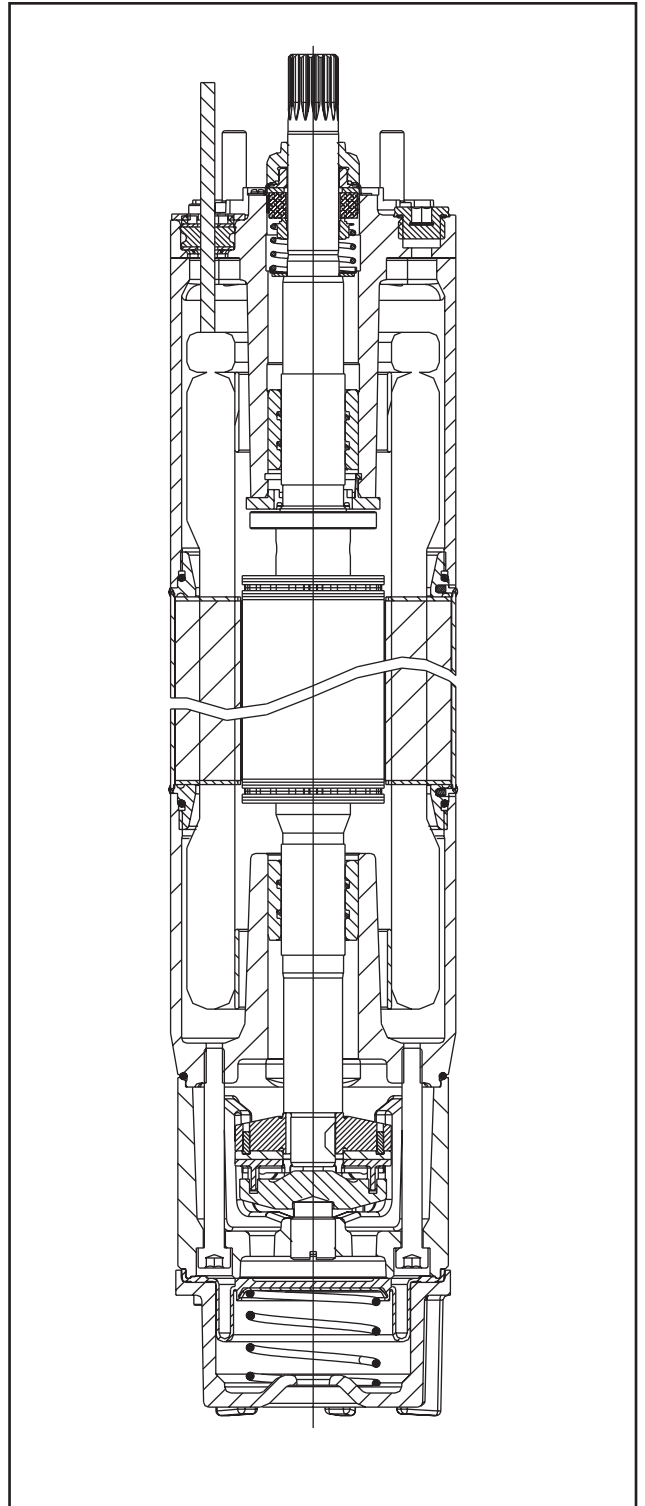
Pos.	Part	MS 100	MS 101 MS 150
1	Shaft	SSAISI 431	SSAISI 316
2	Shaft seal	NBR	Tungsten carbide/ ceramic
3	Motor sleeve	SSAISI 304	SSAISI 304
4	Motor end shield	SSAISI 304	SSAISI 304
5	Radial bearing	Ceramic	Cermic / tungsten carbide
6	Axial bearing	Ceramic/ carbon	Ceramic / carbon
	Rubber parts	NBR	NBR



Rewindable

Example : MTSFC150

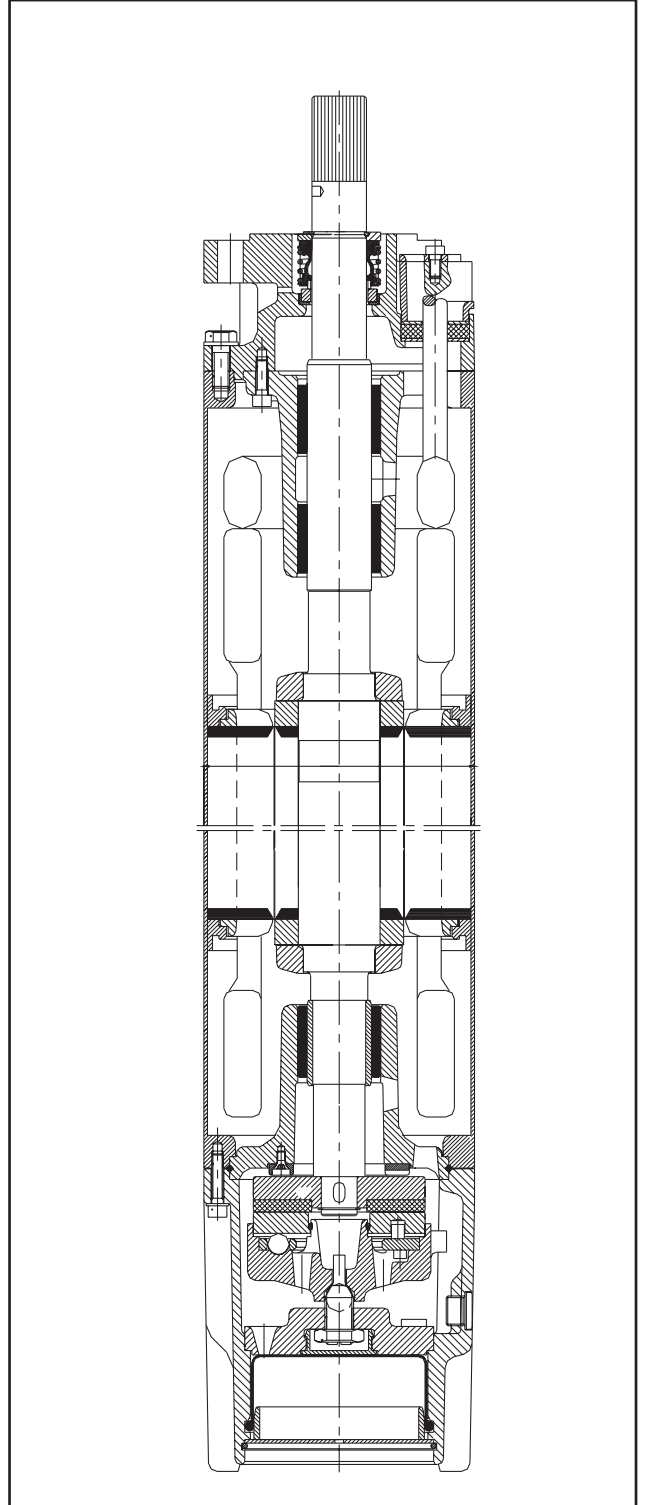
Part	Material AISI	
	304 (Standard)	316
Shell	(SS AISI 304)	(SS AISI 316)
Endbell, Diaphragm cover	Cast Iron / powder coated	(SS AISI 316)
Housing thrust bearing	Cast Iron / powder coated	(SS AISI 316)
Seals	BUNA N	BUNA N
Seal Cover	(SS AISI 304)	(SS AISI 316)
Shaft Seal	SiC	SiC
Shaft end 4kW – 22kW	(SS AISI 316)	(SS AISI 316)
Shaft end 26kW – 37kW	(SS AISI 410)	(SS AISI 316)
Diaphragm	EPDM	EPDM
Lead	EPR	EPR



Rewindable

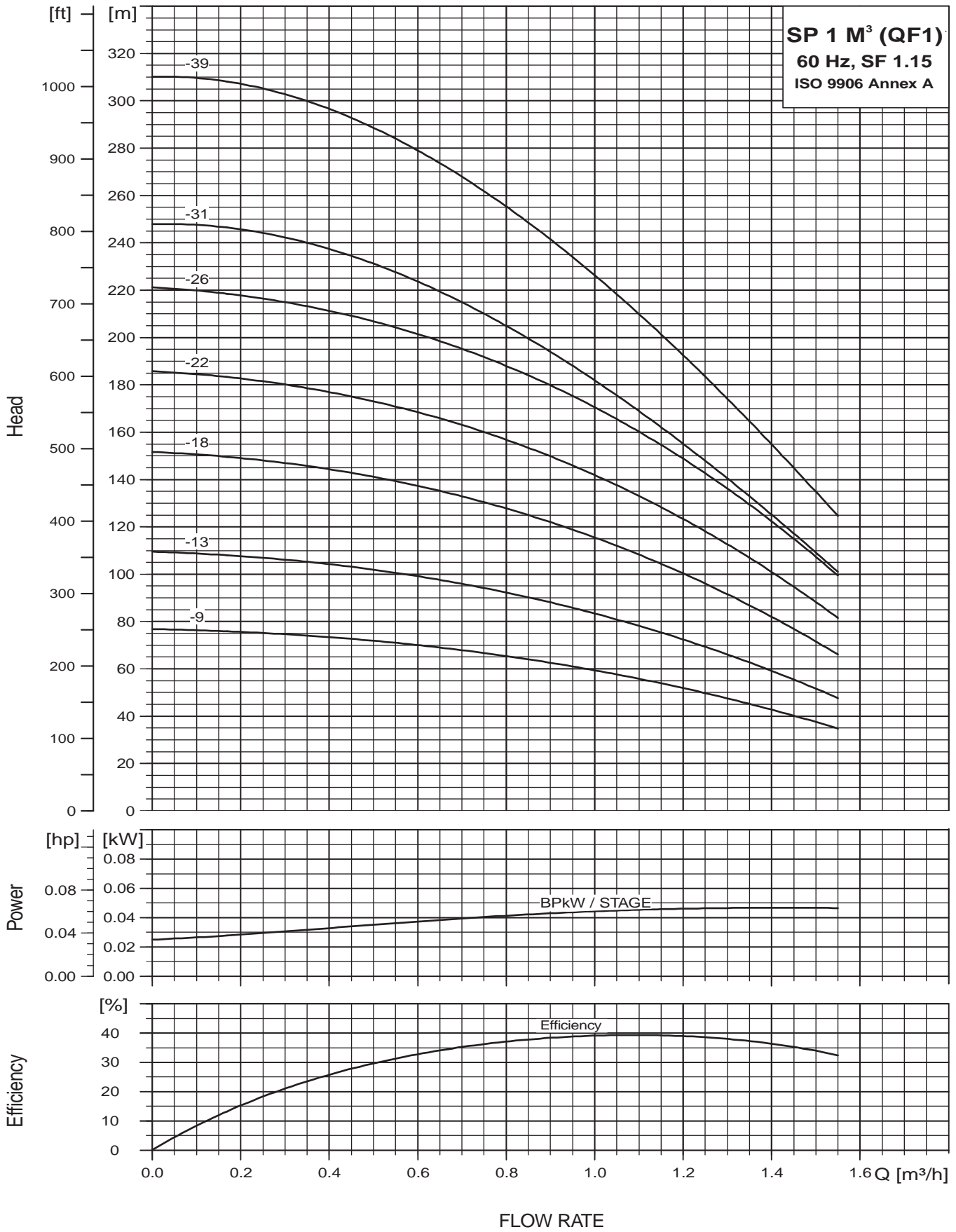
Part	Material DIN /AISI	
	304 (Standard)	316
Stator shell	SS AISI 304	SS AISI 316
End bell	Cast Iron / powder coated	SS AISI 316
Thrust housing	Cast Iron / powder coated	SS AISI 316
Seals	BUNA-N	BUNA-N
Seal cover	PPO - GF20	SS AISI 316
Shaft seal	SiC	SiC
Shaft end	SS AISI 304	SS AISI 316
Diaphragm	NBR 60	NBR 60
Diaphragm cover	SS AISI 304	SS AISI 316
Lead	EPR	EPR

Example : MTSFC200



Performance Curve

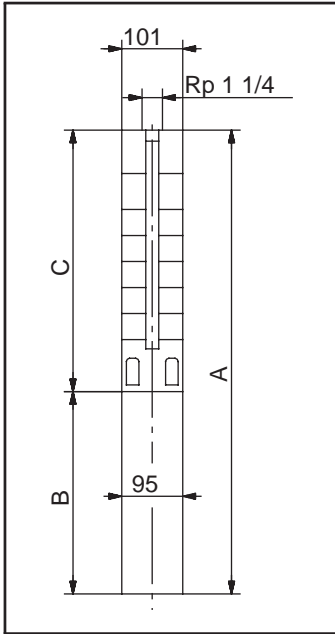
Submersible Pump
QF1



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Technical Data

Submersible Pump
QF1

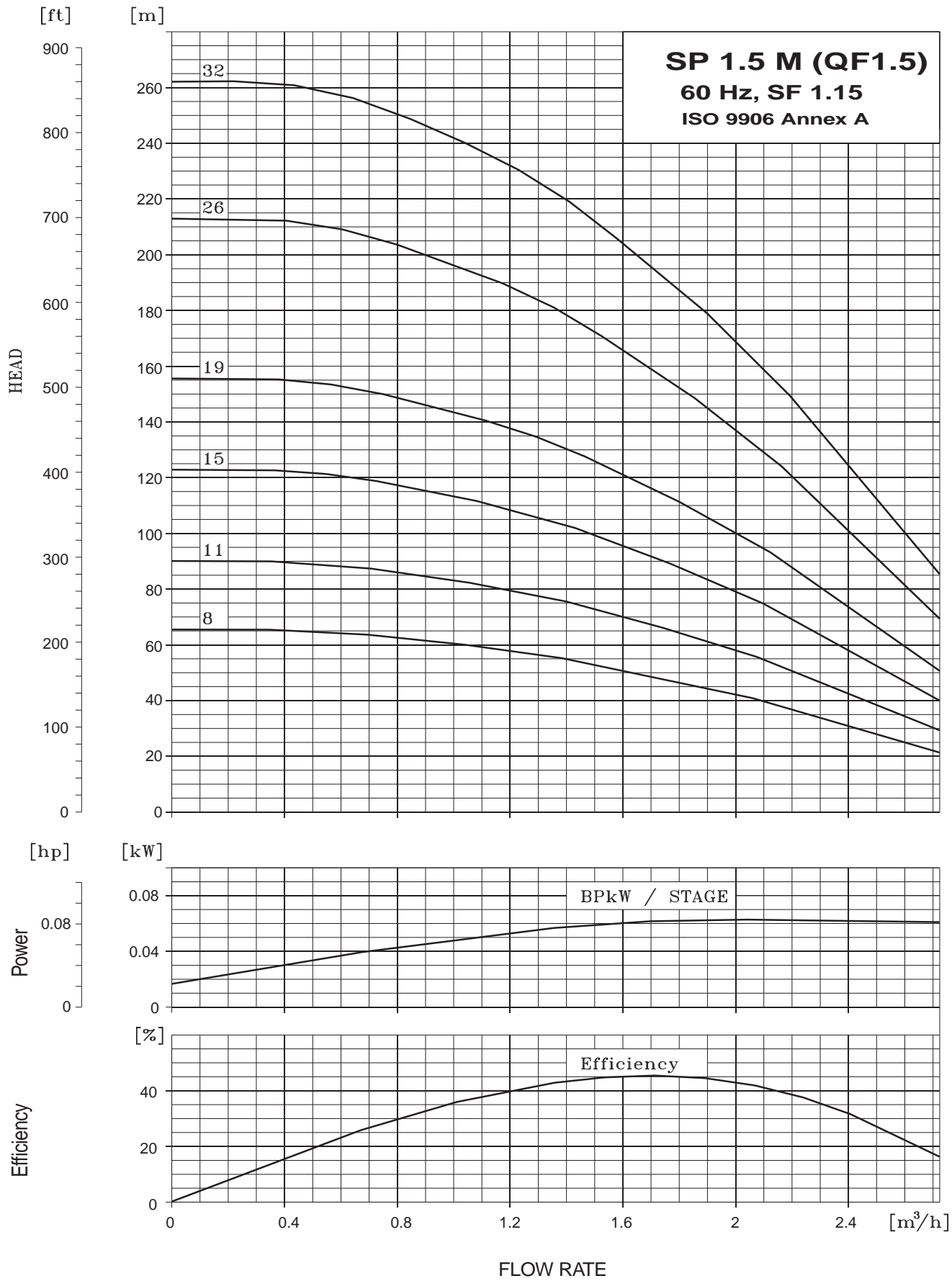


E = Maximum diameter of pump inclusive of cable guard & motor.

Pump Type	Motor		Dimensions [mm]			Net weight [kg]
	Type	Power [kW]	C	B	A	
				3x220V 3x380V 3x460V	3x220V 3x380V 3x460V	3x220V 3x380V 3x460V
QF1-9	MS100	0.37	344	226	570	9
QF1-13	MS100	0.37	428	226	654	10
QF1-18	MS100	0.55	533	241	774	12
QF1-22	MS100	0.75	617	276	893	14
QF1-26	MS100	1.1	701	306	1007	16
QF1-31	MS100	1.1	851	306	1157	22
QF1-39	MS100	1.5	1019	346	1365	26

Performance Curve

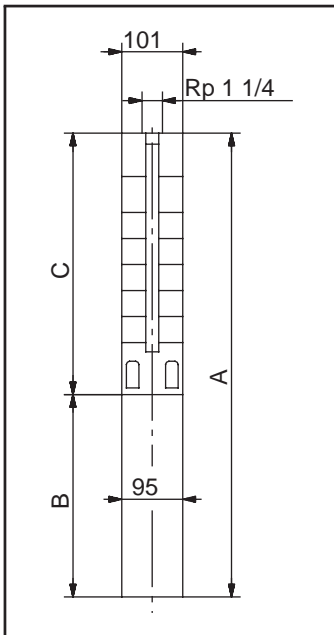
Submersible Pump
QF1.5



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Technical Data

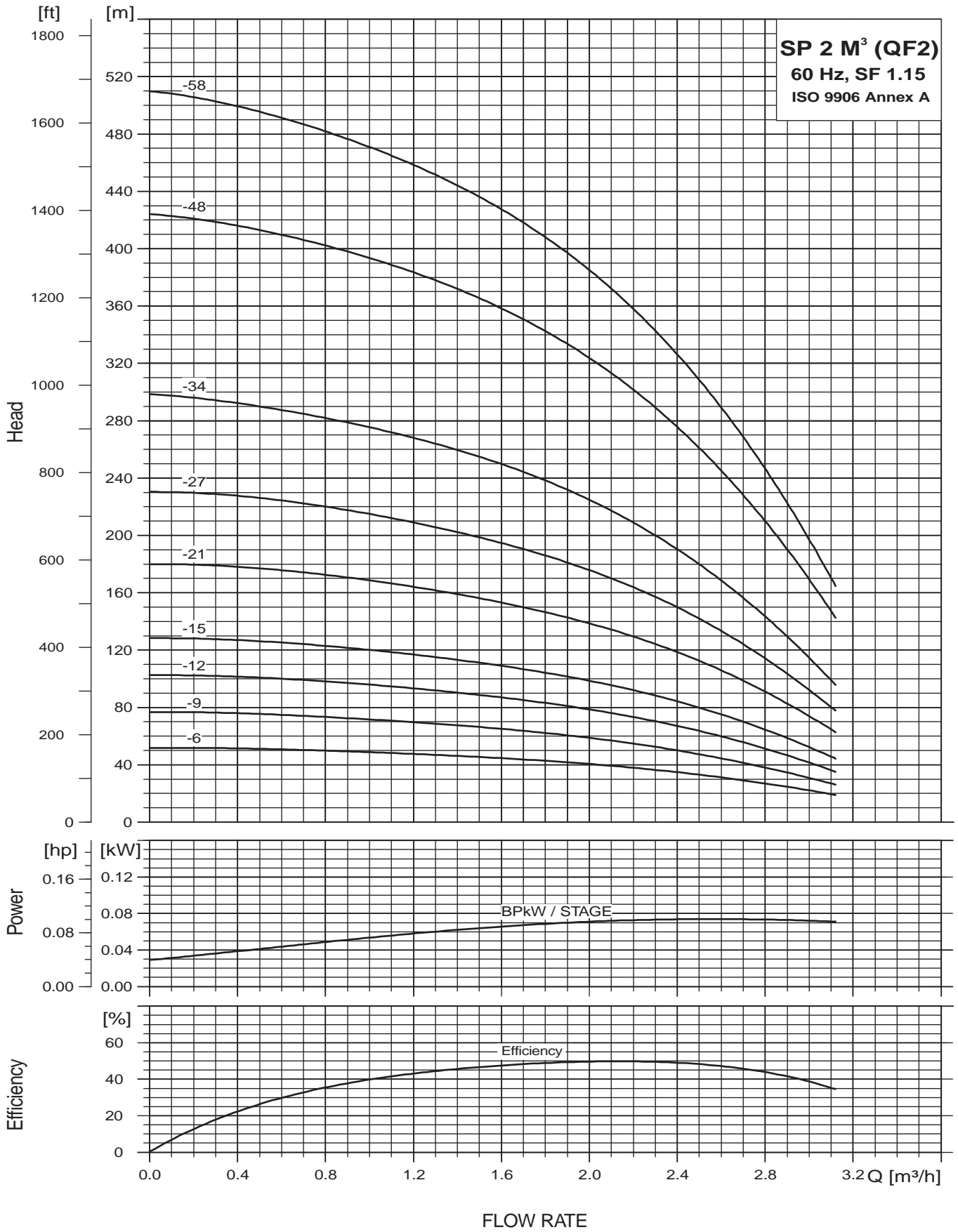
Submersible Pump
QF1.5



Pump type	Moter			Dimensions [mm]				Net weight [kg]		
	Type	Power [kw]	C	B		A			D	E
				1x220V	3x400V	1x220V	3x400V			
QF 1.5-8	MS100	0.25	323	259	228	665	614	95	101	27
QF 1.5-11	MS100	0.37	386	279	228	665	614	95	101	30
QF 1.5-15	MS100	0.55	470	294	244	764	714	95	101	33
QF 1.5-19	MS100	0.75	554	309	279	863	833	95	101	36
QF 1.5-26	MS100	1.1	701	348	309	1049	1010	95	101	46
QF 1.5-32	MS100	1.5	827	348	348	1175	1175	95	101	59

Performance Curve

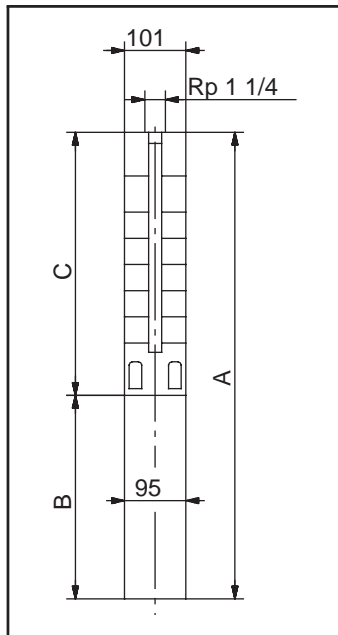
Submersible Pump
QF2



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Technical Data

Submersible Pump QF2

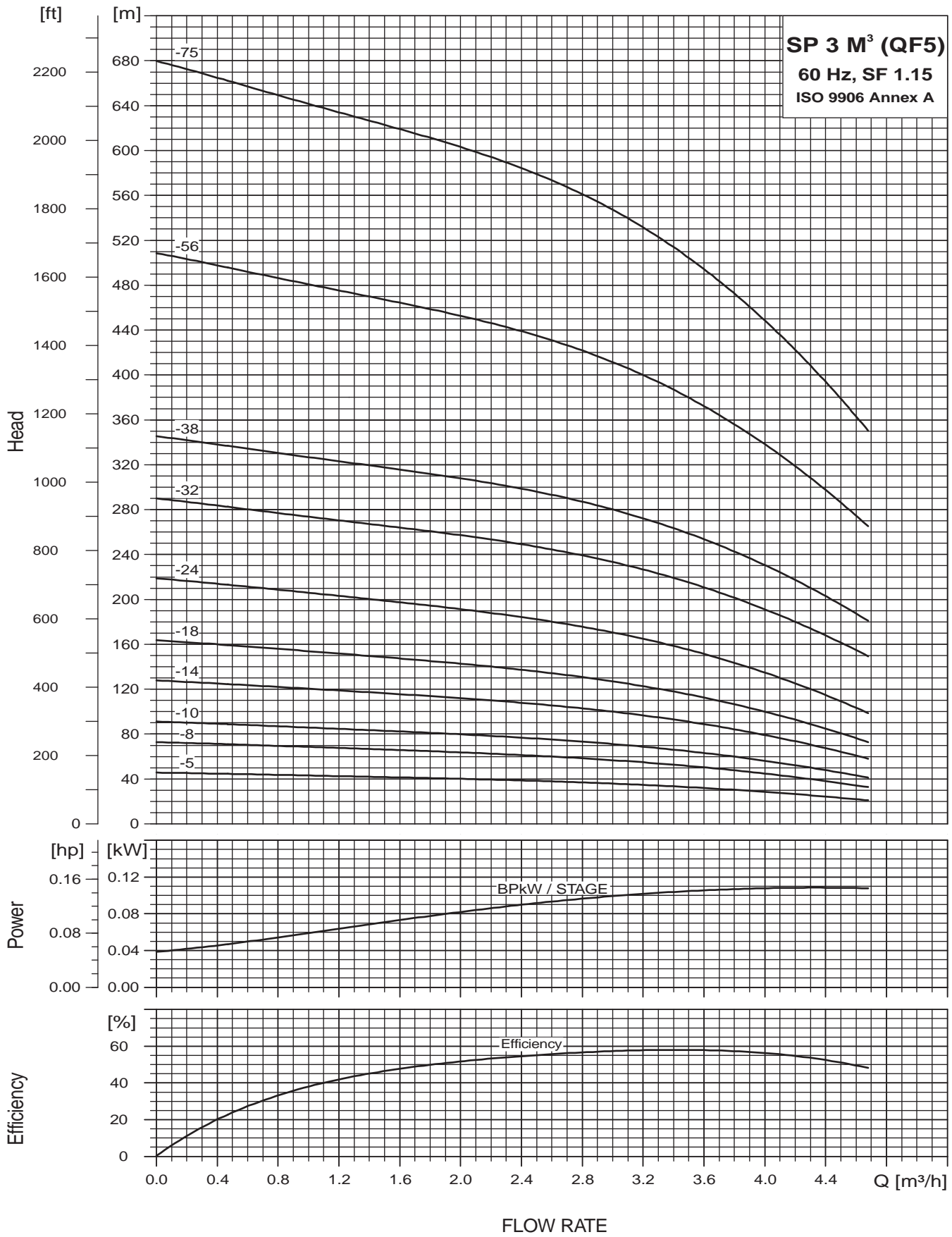


101 mm = Maximum diameter of pump inclusive of cable guard & motor.
 QF2-58 are mounted in sleeve for R1¹/₄ connection and with max. diameter 108 mm.

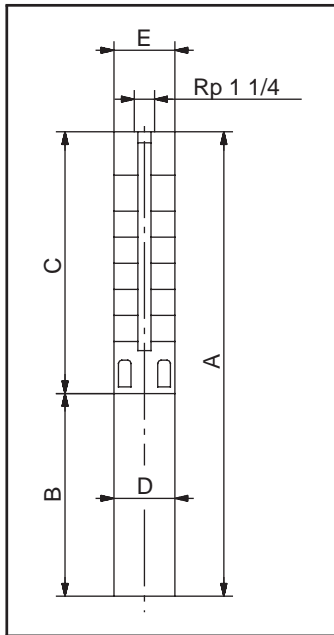
Pump type	Motor		Dimensions [mm]				Net weight [kg]		
	Type	Power [kW]	C	B		A		1x220V	3x220V 3x380V 3x460V
				1x220V	3x220V 3x380V 3x460V	1x220V	3x220V 3x380V 3x460V		
QF2-6	MS 100	0.25	281	256		537		10	
QF2-6	MS 100	0.37	281		226		507		9
QF2-9	MS 100	0.37	344	276	226	620	570	12	9
QF2-12	MS 100	0.55	407	291	241	698	648	13	11
QF2-15	MS 100	0.75	470	306	276	776	746	14	13
QF2-21	MS 100	1.1	569	346	306	942	902	17	15
QF2-27	MS 100	1.5	722		346		1068		18
QF2-34	MS 101	2.2	914		453		1367		30
QF2-48	MS 101	4.0	1208		573		1781		39
QF2-58	MS 101	4.0	1597		573		2170		50

Performance Curve

Submersible Pump
QF5



DOC-SPL-0401-QF560 005



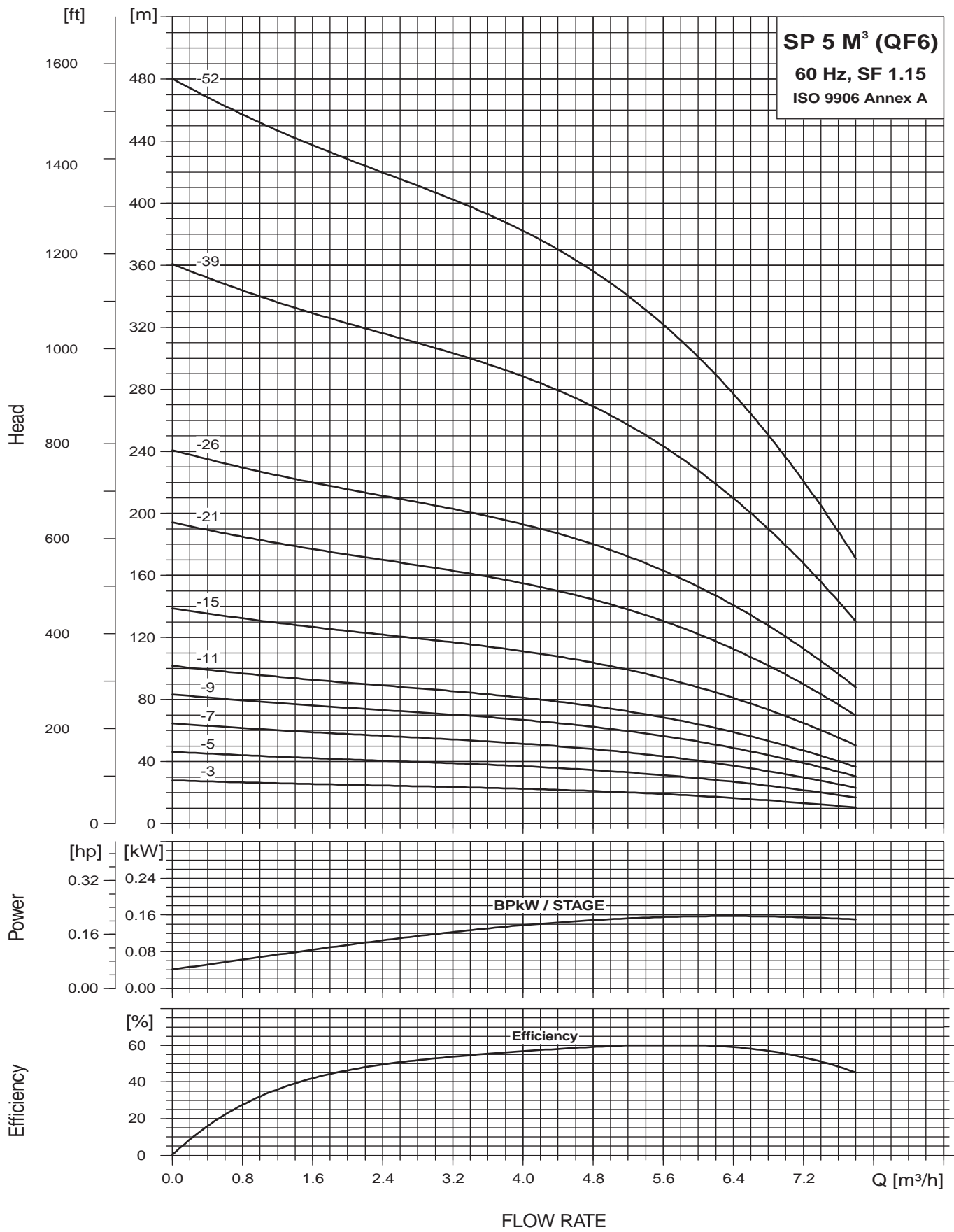
QF5-56 and QF 5-75 are mounted in sleeve for R1¹/₄ connection.

Pump type	Motor		Dimensions [mm]							Net weight [kg]	
	Type	Power [kW]	C	B		A		D	E	Net weight [kg]	
				1x220V	3x220V 3x380V 3x460V	1x220V	3x220V 3x380V 3x460V			1x220V	3x220V 3x380V 3x460V
QF5-5	MS 100	0.37	260	256	226	516	486	95	101	11	8
QF5-5N	MS 101R	0.75	305		398		703	95	101		17
QF5-8	MS 100	0.55	323	291	241	614	564	95	101	12	10
QF5-8N	MS 101R	0.75	368		398		766	95	101		18
QF5-10	MS 100	0.75	365	306	276	671	641	95	101	13	12
QF5-10N	MS 101R	0.75	410		398		808	95	101		19
QF5-14	MS 100	1.1	449	346	306	795	755	95	101	15	14
QF5-14N	MS 101R	1.1	494		413		907	95	101		21
QF5-18	MS 100	1.5	533		346		879	95	101		16
QF5-18N	MS 101R	1.5	578		413		991	95	101		23
QF5-24	MS 100	2.2	659		453		1112	95	101		23
QF5-24N	MS 101R	2.2	704		453		1157	95	101		27
QF5-32	MS 100	3.0	872		493		1365	95	101		30
QF5-32N	MS 101R	3.0	872		493		1365	95	101		30
QF5-38	MS 100	4.0	998		573		1571	95	101		36
QF5-38N	MS 101R	4.0	998		573		1571	95	101		36
QF5-56	MS 100	5.5	1747		673		2420	95	101		65
QF5-56	MS 150	5.5	1747		541		2228	138	140		75
QF5-75	MS 150	7.5	2146		571		2717	138	140		86

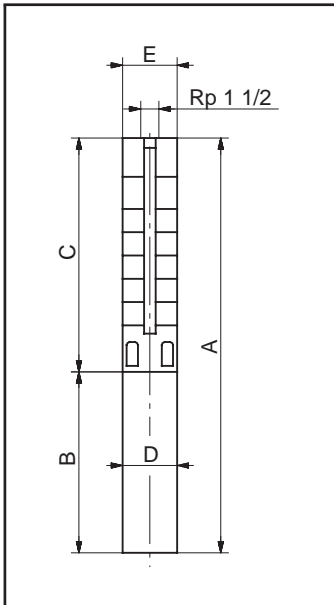
E = Maximum diameter of pump inclusive of cable guard and motor.

Performance Curve

Submersible Pump
QF6



DOC-SPL-0401-QF660 006



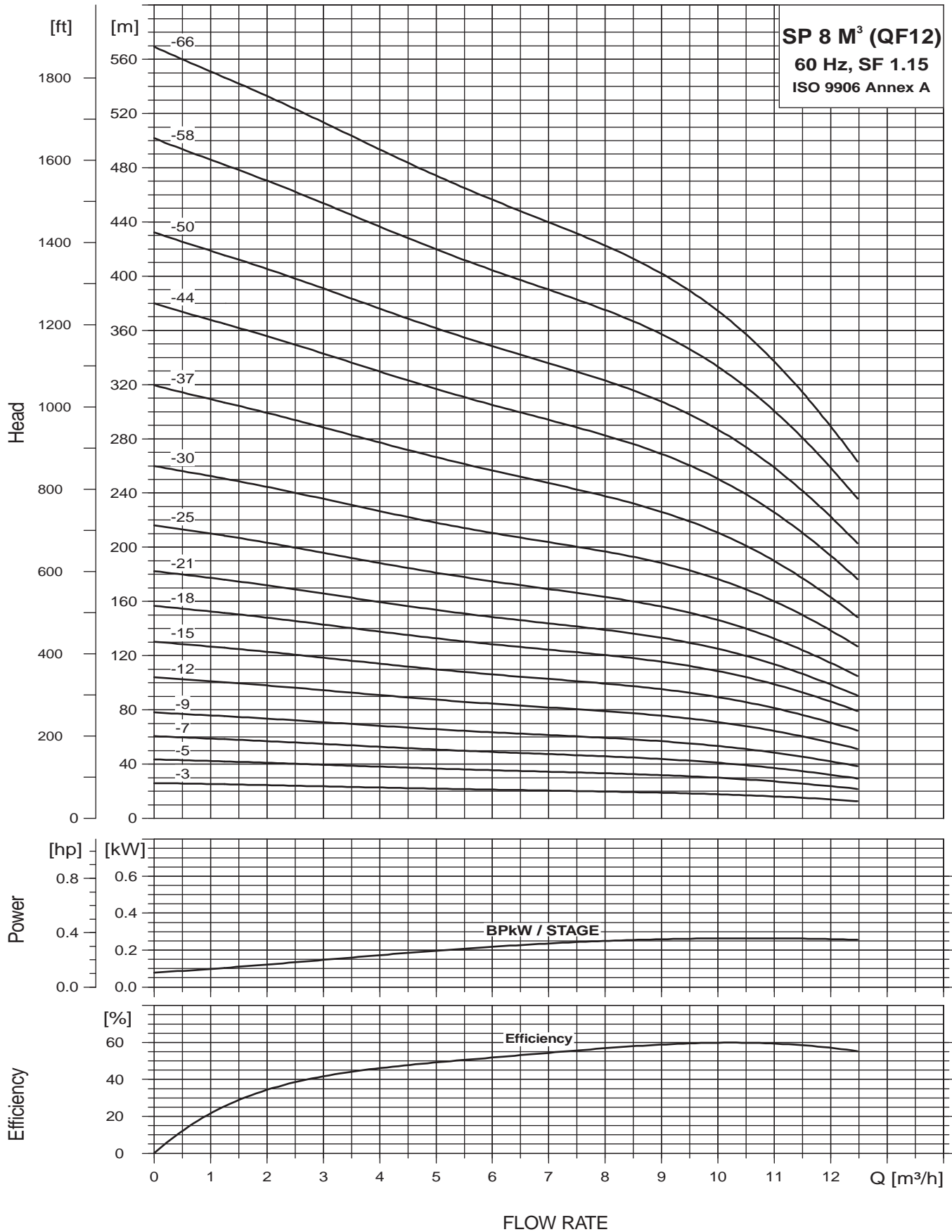
QF6-52 are mounted in sleeve for R1 $\frac{1}{2}$ connection.

Pump type	Motor		Dimensions [mm]							Net weight [kg]	
	Type	Power [kW]	C	B		A		D	E	Net weight [kg]	
				1x220V	3x220V 3x380V 3x460V	1x220V	3x220V 3x380V 3x460V			1x220V	3x220V 3x380V 3x460V
QF6-3	MS 100	0.37	219	276	226	495	445	95	101	10	8
QF6-3N	MS 101R	0.75	263		398		661	95	101		17
QF6-5	MS 100	0.55	261	291	241	552	502	95	101	11	9
QF6-5N	MS 101R	0.75	305		398		703	95	101		17
QF6-7	MS 100	0.75	303	306	276	609	579	95	101	12	11
QF6-7N	MS 101R	0.75	347		398		745	95	101		18
QF6-9	MS 100	1.1	345	346	306	691	651	95	101	14	13
QF6-9N	MS 101R	1.1	389		413		802	95	101		20
QF6-11	MS 100	1.5	387		346		733	95	101		15
QF6-11N	MS 101R	1.5	431		413		844	95	101		20
QF6-15	MS 101	2.2	471		453		924	95	101		21
QF6-15N	MS 101R	2.2	515		453		968	95	101		24
QF6-21	MS 101	3.0	597		493		1090	95	101		23
QF6-21N	MS 101R	3.0	641		493		1134	95	101		26
QF6-26	MS 101	4.0	702		573		1275	95	101		29
QF6-26N	MS 101R	4.0	746		573		1319	95	101		32
QF6-39	MS 101	5.5	1019		673		1692	95	101		41
QF6-39N	MS 101R	5.5	1019		673		1692	95	101		41
QF6-39	MS 150	5.5	1081		541		1622	138	138		55
QF6-39N	MS 150R	5.5	1081		541		1622	138	138		55
QF6-52	MS 150	7.5	1663		571		2234	138	140		74

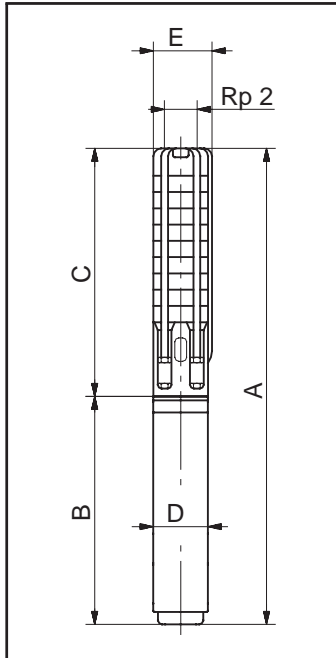
E = Maximum diameter of pump inclusive of cable guard and motor.

Performance Curve

Submersible Pump
QF12



DOC-SPL-0401-QF1260 0012



QF12-50 to 12 - 66 are mounted in sleeve for Rp 2 connection.

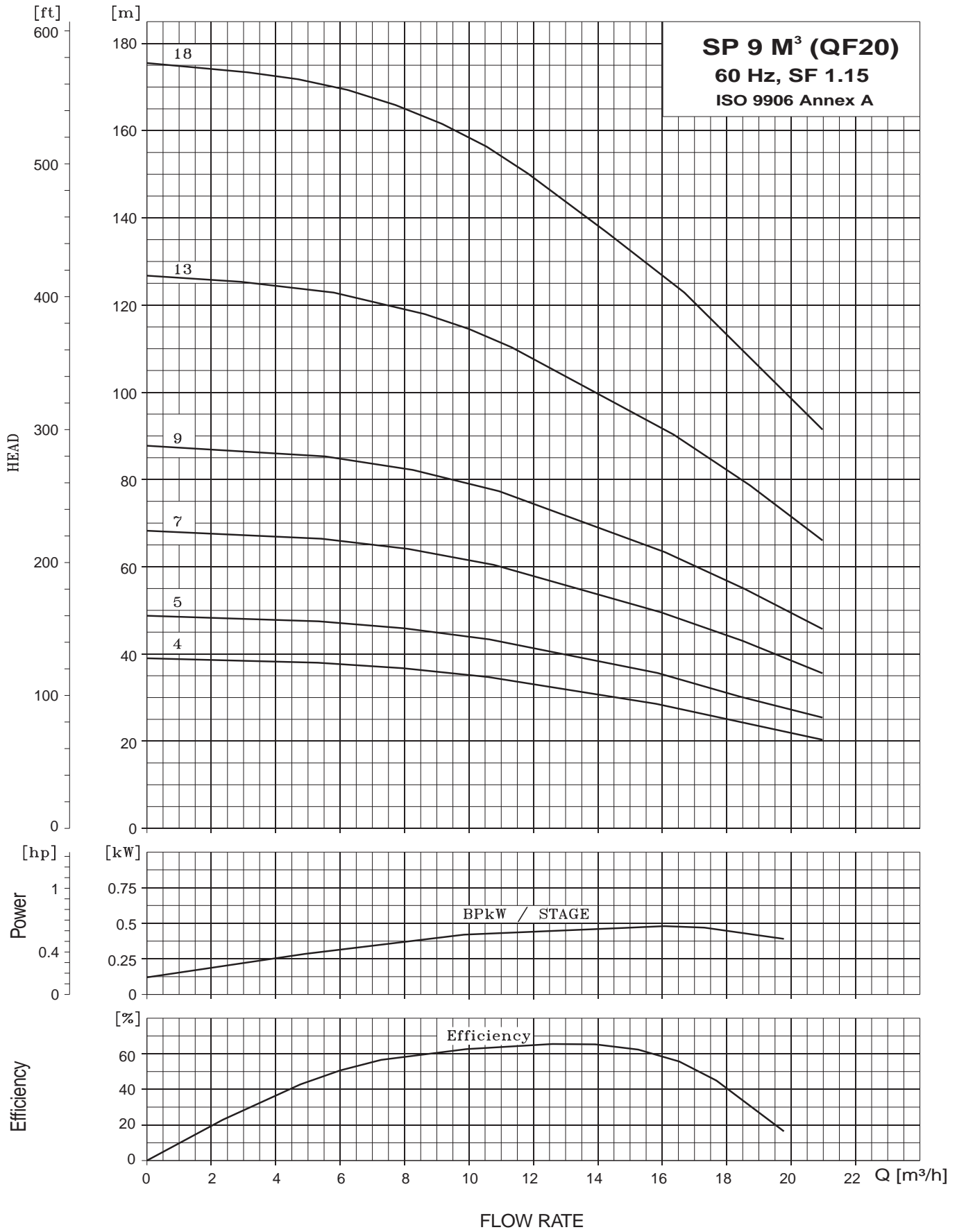
Pump type	Motor		Dimensions [mm]							Net weight [kg]	
	Type	Power [kW]	C	B		A		D	E	1x220V	3x220V 3x380V 3x460V
				1x220V	3x220V 3x380V 3x460V	1x220V	3x220V 3x380V 3x460V				
QF128-3	MS 100	0.55	325	291	241	616	566	95	101	13	11
QF12-3N	MS 101R	0.75	325		398		723	95	101		18
QF12-3R	MS 101	0.75	325		398		723	95	101		18
QF12-5	MS 100	1.1	409	346	306	755	723	95	101	16	25
QF12-5N	MS 101R	1.1	409		413		715	95	101		20
QF12-5R	MS 101	1.1	409		413		822	95	101		20
QF12-7	MS 100	1.5	493		453		822	95	101		17
QF12-7N	MS 101R	1.5	493		413		839	95	101		21
QF12-7R	MS 101	1.5	493		413		906	95	101		21
QF12-9	MS 101	2.2	577		453		1030	95	101		24
QF12-9N	MS 101R	2.2	577		453		1030	95	101		24
QF12-9R	MS 101	2.2	577		453		1030	95	101		24
QF12-12	MS 101	3.0	703		493		1196	95	101		26
QF12-12N	MS 101R	3.0	703		493		1196	95	101		26
QF12-12R	MS 101	3.0	703		493		1106	95	101		26
QF12-15	MS 101	4.0	829		573		1402	95	101		32
QF12-15N	MS 101R	4.0	829		573		1402	95	101		32
QF12-15R	MS 101	4.0	829		573		1402	95	101		32
QF12-18	MS 101	5.5	955		673		1628	95	101		38
QF12-18N	MS 101R	5.5	955		673		1628	95	101		38
QF12-21	MS 101	5.5	1081		673		1754	95	101		40
QF12-21N	MS 101R	5.5	1081		673		1754	95	101		40
QF12-25	MS 101	5.5	1249		673		1922	95	101		42
QF12-25N	MS 101R	5.5	1245		673		1922	95	101		42
QF12-30	MS 101	7.5	1459		773		2232	95	101		50
QF12-30N	MS 101R	7.5	1459		773		2232	95	101		50
QF12-18	MS 150	5.5	1017		541		1558	138	138		50
QF12-18N	MS 150R	5.5	1017		541		1558	138	138		50
QF12-21	MS 150	5.5	1143		541		1684	138	138		51
QF12-21N	MS 150R	5.5	1143		541		1684	138	138		51
QF12-25	MS 150	5.5	1311		541		1852	138	138		53
QF12-25N	MS 150R	5.5	1311		541		1852	138	138		53
QF12-30	MS 150	7.5	1521		571		2092	138	138		59
QF12-30N	MS 150R	7.5	1521		571		2092	138	138		59
QF12-37	MS 150	9.2	1815		601		2416	138	138		59
QF12-37N	MS 150R	9.2	1815		601		2416	138	138		69
QF12-44	MS 150	11.0	2109		601		2740	138	138		75
QF12-44N	MS 150R	11.0	2109		631		2740	138	138		75
QF12-50	MS 150	13.0	2677		661		3338	138	140		103
QF12-50N	MS 150R	13.0	2677		661		3338	138	140		103
QF12-58	MS 150	15.0	3013		696		3700	138	140		114
QF12-58N	MS 150R	15.0	3013		696		3700	138	140		114
QF12-66	MS 150	15.0	3349		696		4045	138	140		121
QF12-66N	MS 150R	15.0	3349		696		4045	138	140		121

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

Performance Curve

Submersible Pump
QF20

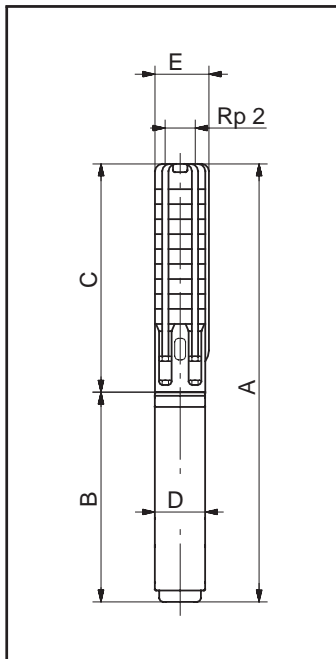
SP 9 M³ (QF20)
60 Hz, SF 1.15
ISO 9906 Annex A



DOC-SPL-0401-QF260 002

Technical Data

Submersible Pump
QF20

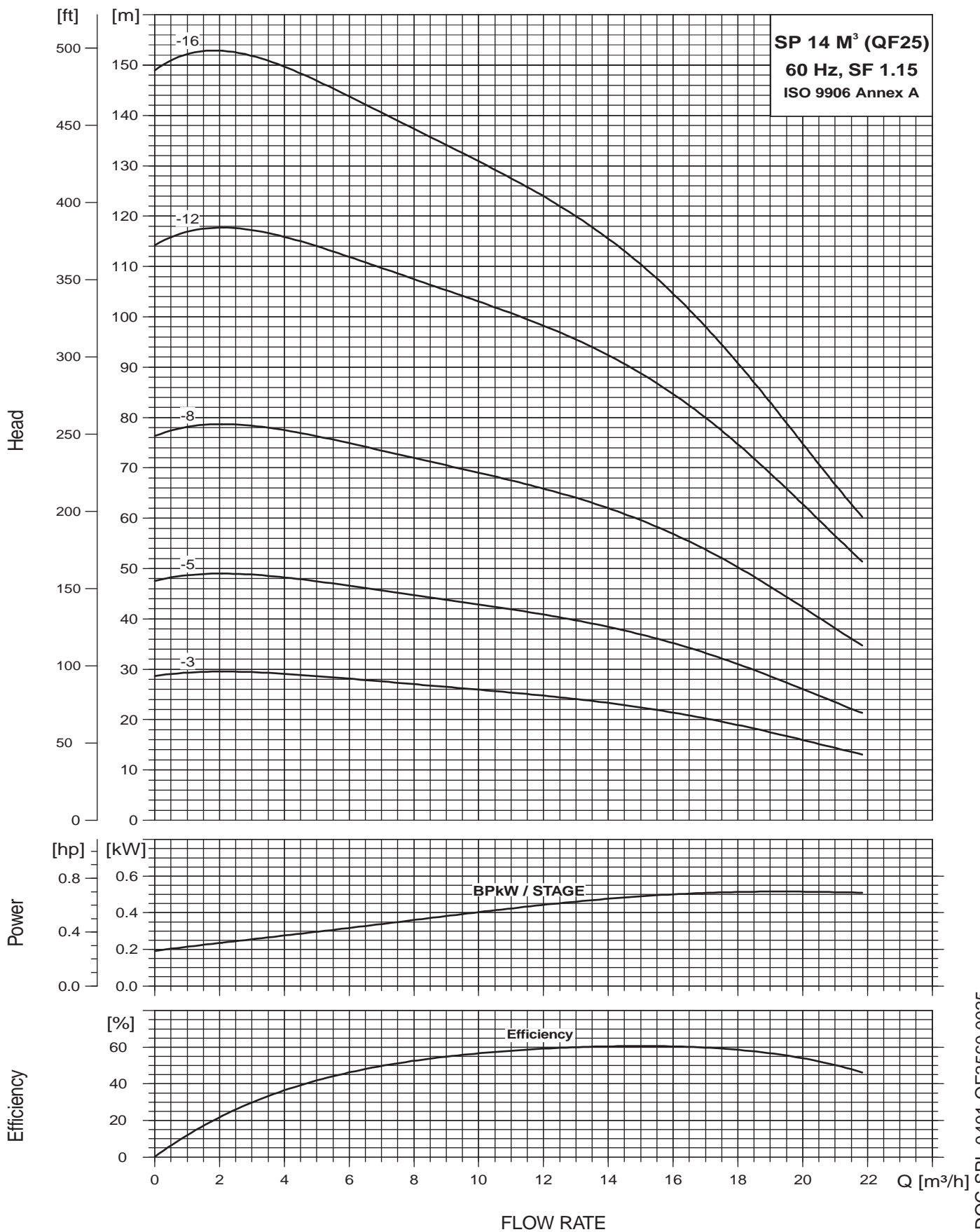


Pump type	Motor			Dimensions [mm]				Net weight [kg]		
	Type	Power [kw]	C	B		A				
				1x220V	3x460V	1x220V	3x460V		D	E
QF20-4	MS100	1.5	445	348	348	793	793	95	101	39
QF20-5	MS100	2.2	510	348	348	858	858	95	101	64
QF20-7	MS101	3.7	640		577		1217	95	101	75
QF20-9	MS101	3.7	770		577		1347	95	101	80
QF20-13*	MS101	5.5	1030		676		1706	95	101	105
QF20-18*	MS101	7.5	1355		777		2132	95	101	160

*ALSO AVAILABLE 6" MOTOR

Performance Curve

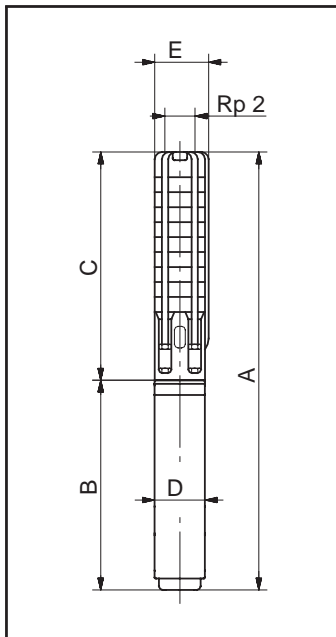
Submersible Pump
QF25



DOC-SPL-0401-QF2560 0025

Technical Data

Submersible Pump
QF25

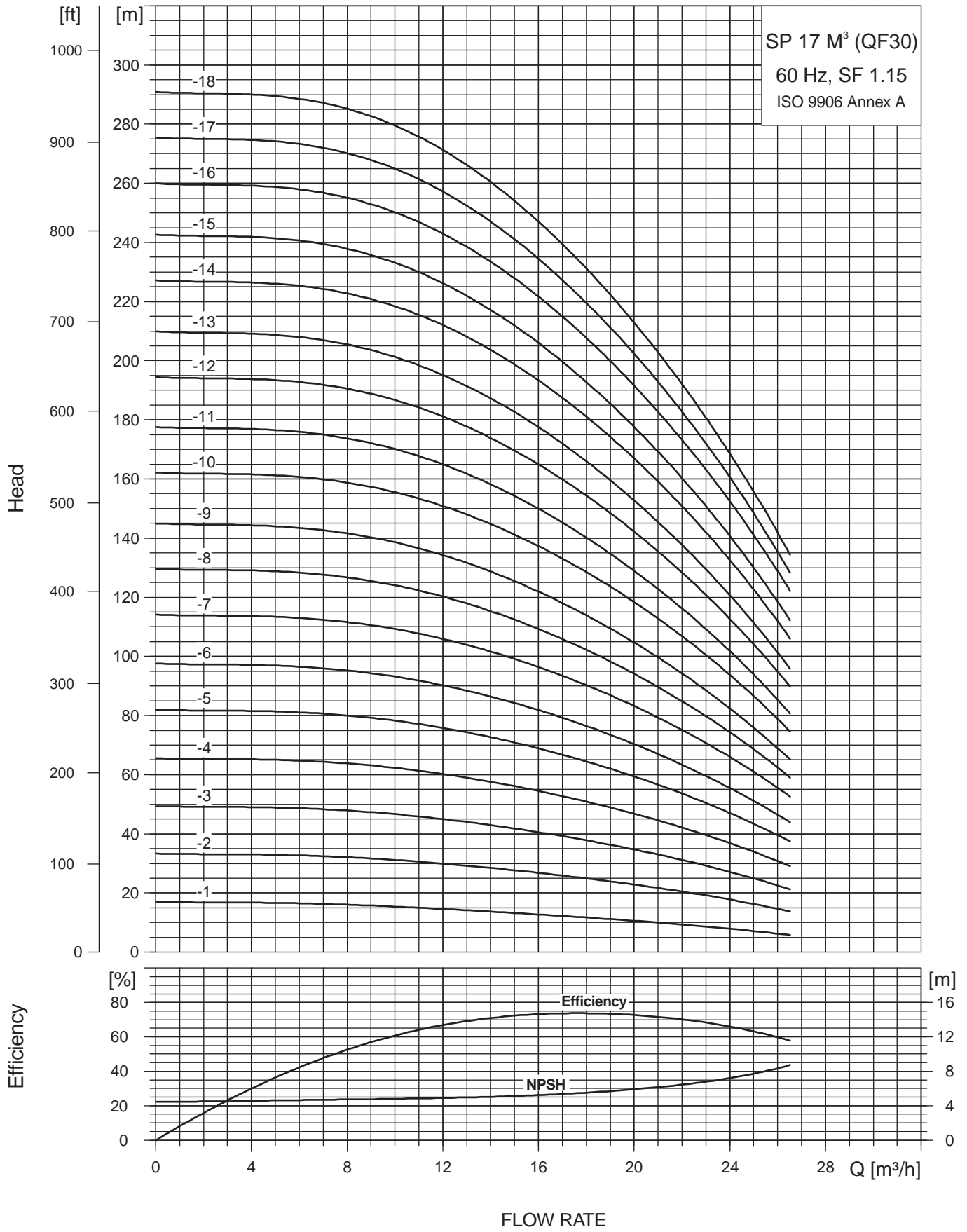


Pump type	Motor		Dimensions [mm]					Net weight [kg]
	Type	Power [kW]	C	B	A	B	E	3x220V
				3x280V	3x280V			3x380V
QF25-3	MS 100	1.5	380	346	726	95	101	16
QF25-5	MS 101	2.2	510	453	963	95	101	23
QF25-8	MS 100	4.0	705	573	1278	95	101	30
QF25-12	MS 101	5.5	965	673	1638	95	101	37
QF25-16	MS 101	7.5	1225	773	1998	95	101	50
QF25-12	MS 150	5.5	1027	541	1568	138	138	48
QF25-16	MS 150	7.5	1287	571	1858	138	138	54

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

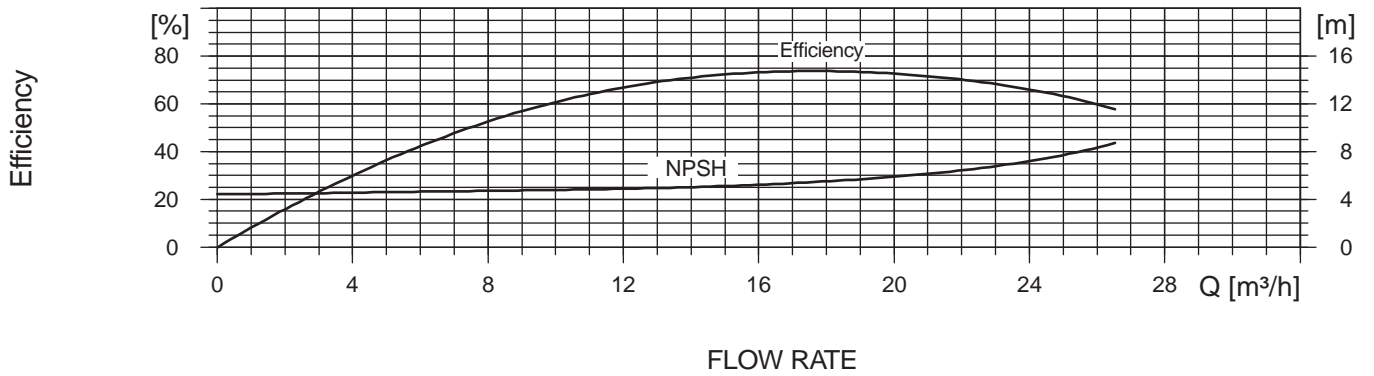
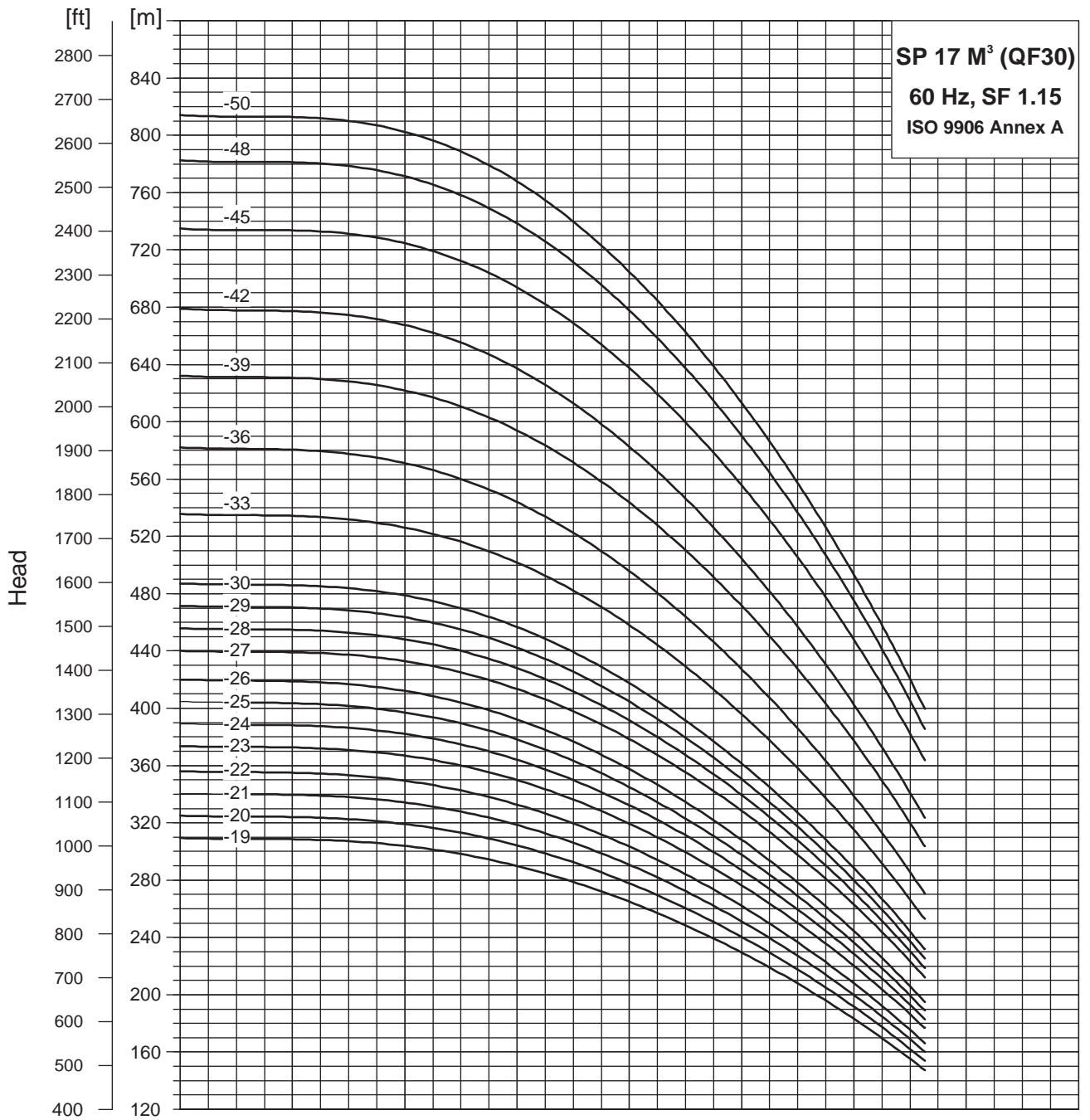
Performance Curve

Submersible Pump
QF30



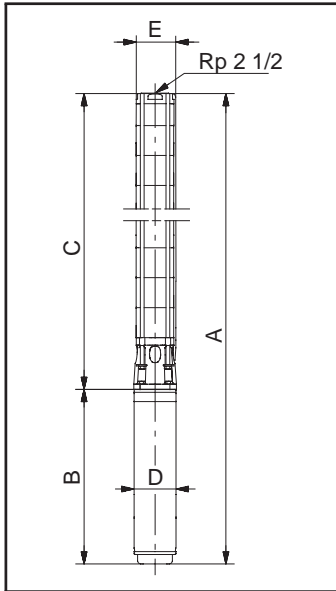
Performance Curve

Submersible Pump
QF30



DOC-SPL-0401-QF3060 0030

Dimensions and Weights



QF30 - 33 to QF30 -39 are mounted in sleeve for Rp 3 connection.

Pump type	Motor		Dimensions [mm]					Net weight [kg]
	Type	Power [kw]	C	B	A	D	E*	
QF30-1	MS 101	1.1	314	413	727	95	131	18
QF30-2	MS 101	2.2	374	454	828	95	131	22
QF30-3	MS 101	3	435	494	929	95	131	24
QF30-4	MS 101	4	495	574	1069	95	131	29
QF30-5	MS 101	5.5	556	674	1230	95	131	35
QF30-6	MS 101	5.5	616	674	1290	95	131	36
QF30-7	MS 101	7.5	677	773	1450	95	131	43
QF30-8	MS 101	7.5	737	773	1510	95	131	44
QF30-9	MS 101	7.5	798	773	1571	95	131	45
QF30-5	MS 150	5.5	572	544	1116	138	142	47
QF30-6	MS 150	5.5	632	544	1176	138	142	48
QF30-7	MS 150	7.5	693	574	1267	138	142	50
QF30-8	MS 150	7.5	753	574	1327	138	142	51
QF30-9	MS 150	7.5	814	574	1388	138	142	52
QF30-10	MS 150	9.2	874	604	1478	138	142	59
QF30-11	MS 150	9.2	935	604	1539	138	142	60
QF30-12	MS 150	11	995	634	1629	138	142	64
QF30-13	MS 150	11	1056	634	1690	138	142	65
QF30-14	MS 150	13	1116	664	1780	138	142	69
QF30-15	MS 150	13	1177	664	1841	138	142	71
QF30-16	MS 150	15	1237	699	1936	138	142	76
QF30-17	MS 150	15	1298	699	1997	138	142	77
QF30-18	MS 150	15	1358	699	2057	138	142	78
QF30-19	MS 150	18.5	1419	754	2173	138	142	85
QF30-20	MS 150	18.5	1479	754	2233	138	142	87
QF30-21	MS 150	18.5	1540	754	2294	138	142	88
QF30-22	MS 150	18.5	1600	754	2354	138	142	89
QF30-23	MS 150	22	1661	814	2475	138	142	96
QF30-24	MS 150	22	1721	814	2535	138	142	97
QF30-25	MS 150	22	1782	814	2596	138	142	99
QF30-26	MS 150	22	1842	814	2656	138	142	100
QF30-27	MS 150	26	1903	874	2777	138	142	106
QF30-28	MS 150	26	1963	874	2837	138	142	107
QF30-29	MS 150	26	2024	874	2898	138	142	108
QF30-30	MS 150	26	2084	874	2958	138	142	110
QF30-33	MS 150	30	2513	944	3457	138	175	155
QF30-36	MS 150	30	2694	944	3638	138	175	160
QF30-39	MS150	37	2876	1405	4281	138	175	203
QF30-42	MTSFC 200	37	3006	1160	4166	192	192	250
QF30-45	MTSFC 200	45	3188	1270	4458	192	192	276
QF30-48	MTSFC 200	45	3369	1270	4639	192	192	281
QF30-50	MTSFC 200	45	3490	1270	4760	192	192	285

* Maximum diameter of pump with one motor cable.

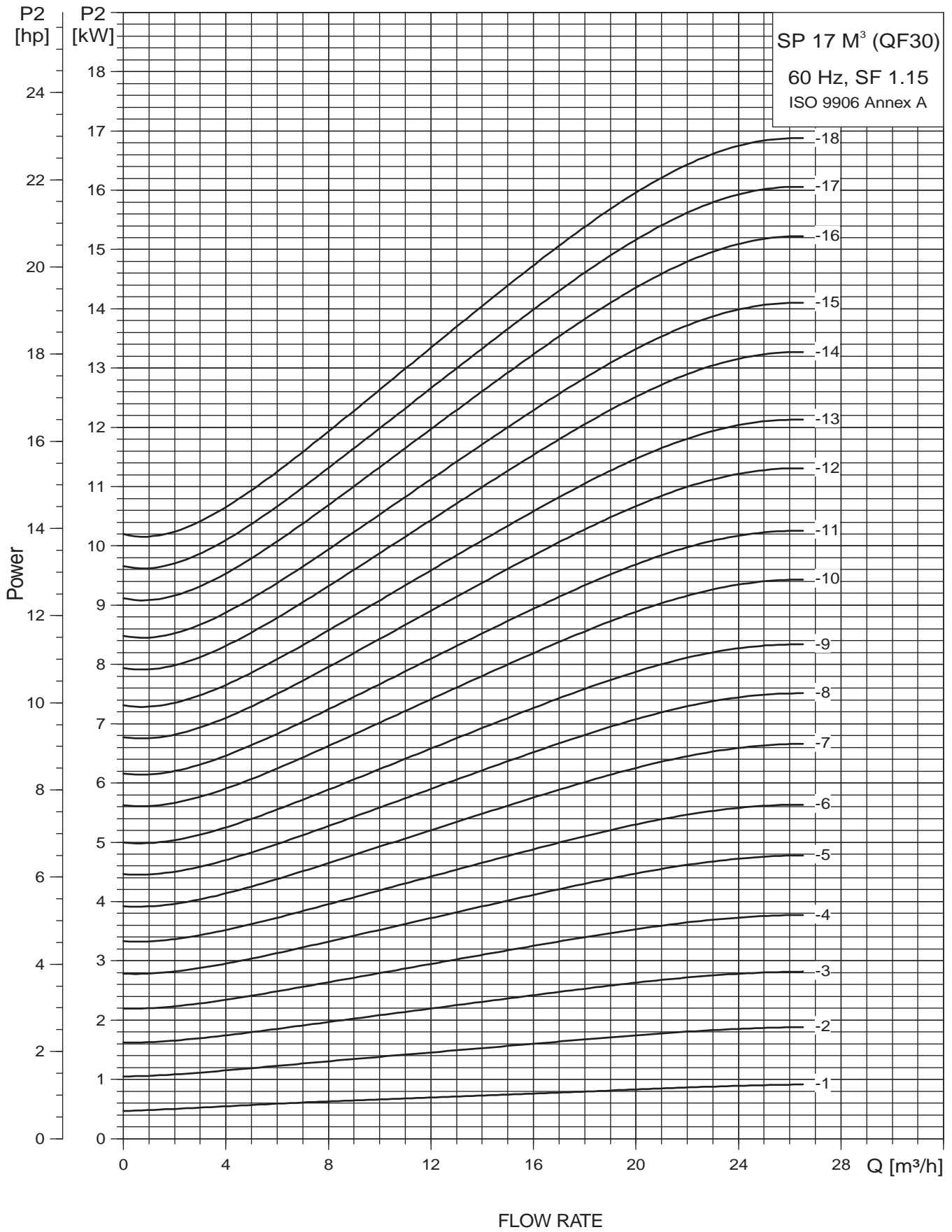
Also available 45 kW in 6" joining.

All pumps are also available in N version.

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

Performance Curve

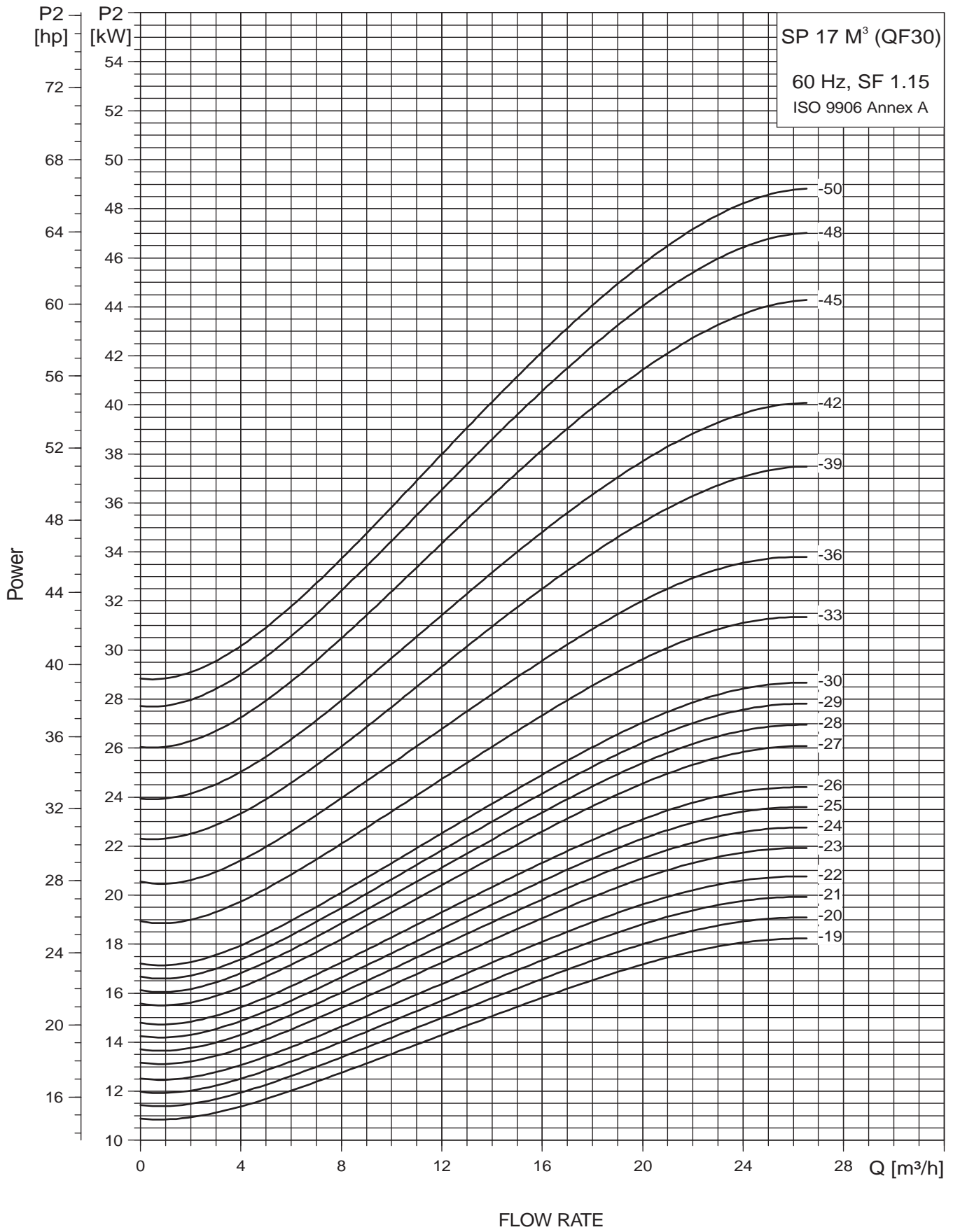
Submersible Pump
QF30



DOC-SPL-0401-QF3060 0030

Performance Curve

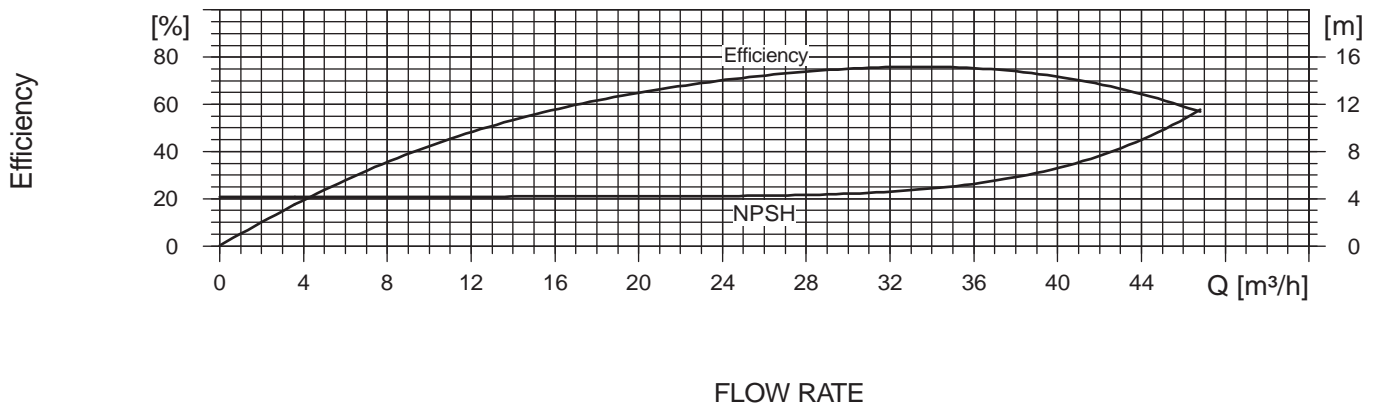
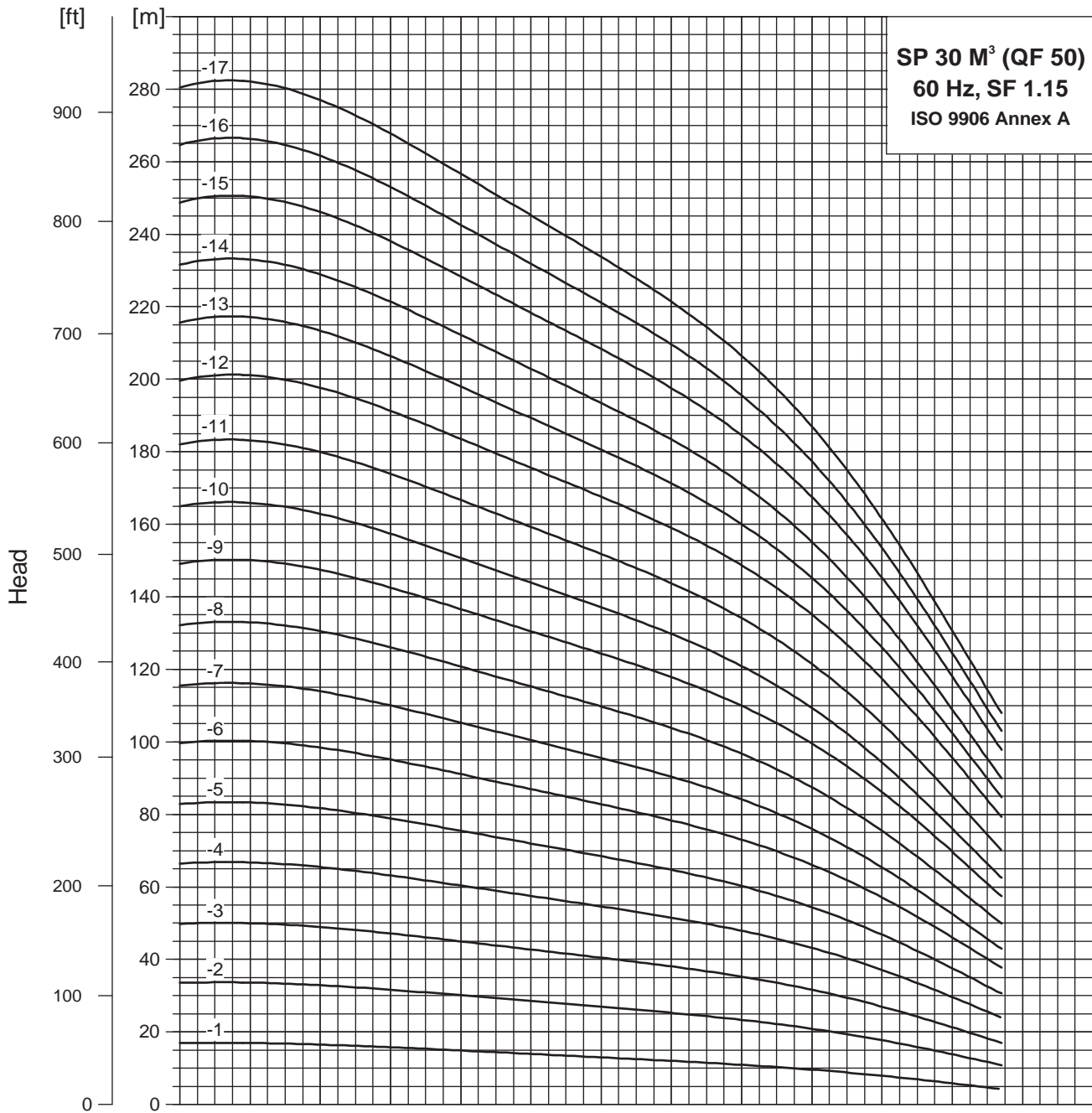
Submersible Pump
QF30



DOC-SPL-0401-QF3060 0030

Performance Curve

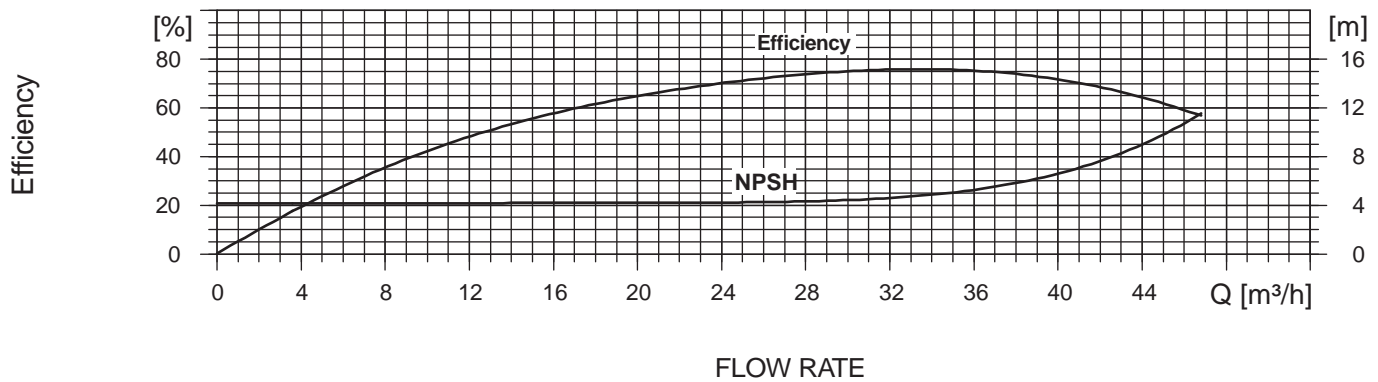
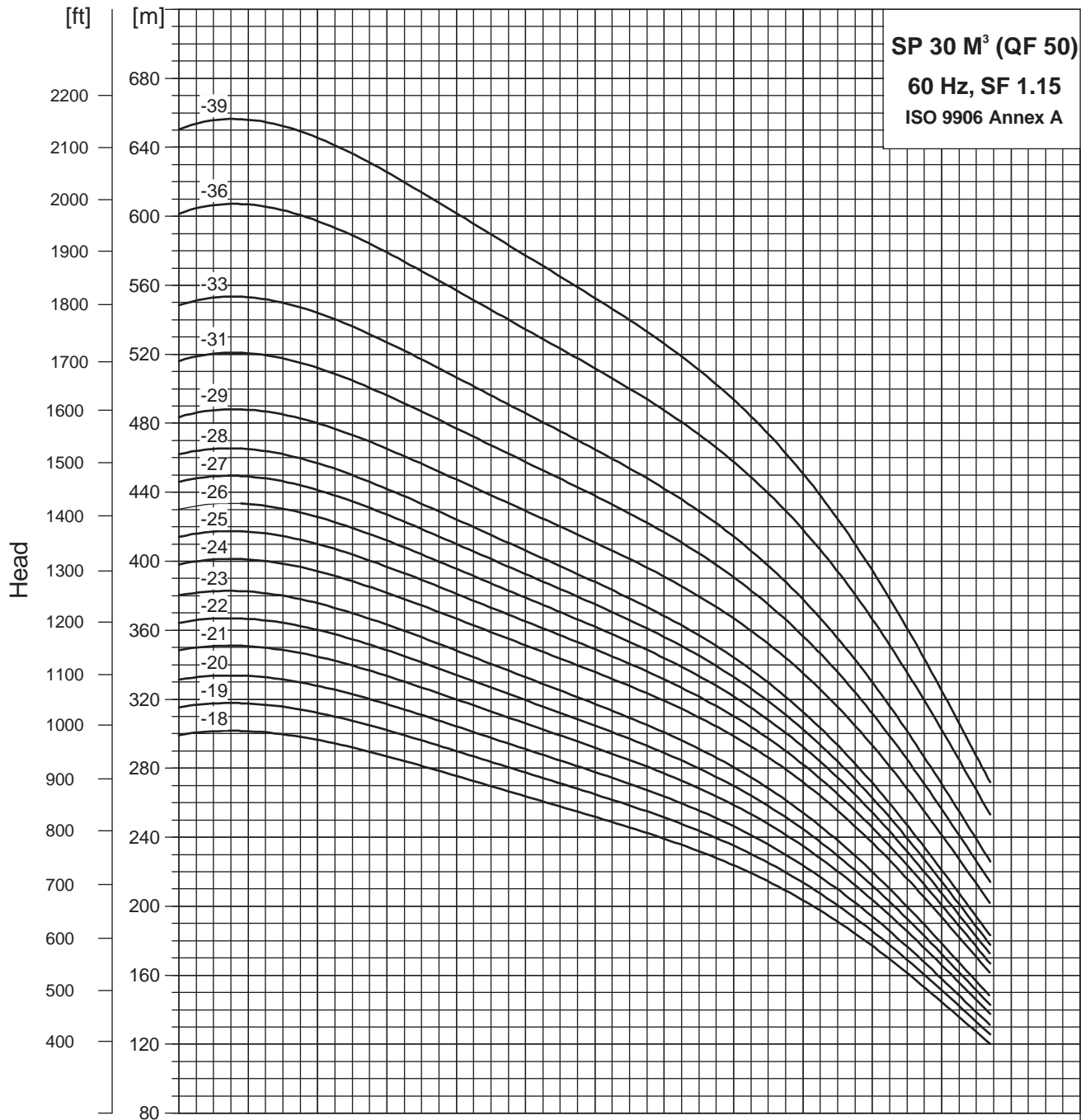
Submersible Pump
QF50



DOC-SPL-0401-QF5060 0050

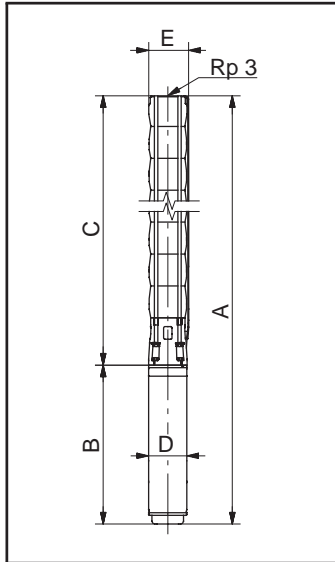
Performance Curve

Submersible Pump
QF50



DOC-SPL-0401-QF5060 0050

Dimensions and Weights



QF50 - 24 to QF50-39 are mounted in sleeve for Rp 3 connection.

Pump type	Motor		Dimensions [mm]						Net weight [kg]
	Type	Power [kW]	C	B	A	D	E*	E**	
QF50-1	MS101	1.5	349	413	762	95	131		21
QF50-2	MS101	3	445	494	939	95	131		24
QF50-3	MS101	4	541	574	1115	95	131		29
QF50-4	MS101	5.5	637	674	1311	95	131		36
QF50-5	MS101	7.5	733	773	1506	95	131		43
QF50-4	MS150	5.5	653	544	1197	138	142	142	47
QF50-5	MS150	7.5	749	574	1323	138	142	142	50
QF50-6	MS150	9.2	845	604	1449	138	142	142	57
QF50-7	MS150	9.2	941	604	1545	138	142	142	59
QF50-8	MS150	11	1037	634	1671	138	142	142	63
QF50-9	MS150	13	1133	664	1797	138	142	142	68
QF50-10	MS150	13	1229	664	1893	138	142	142	70
QF50-11	MS150	15	1325	699	2024	138	142	142	75
QF50-12	MS150	18.5	1421	754	2175	138	142	142	83
QF50-13	MS150	18.5	1517	754	2271	138	142	142	84
QF50-14	MS150	18.5	1613	754	2367	138	142	142	86
QF50-15	MS150	22	1709	814	2523	138	142	142	94
QF50-16	MS150	22	1805	814	2619	138	142	142	95
QF50-17	MS150	22	1901	814	2715	138	142	142	97
QF50-18	MS150	26	1997	874	2871	138	142	142	104
QF50-19	MS150	26	2093	874	2967	138	142	142	106
QF50-20	MS150	26	2189	874	3063	138	142	142	108
QF50-21	MS150	30	2285	944	3229	138	144	145	117
QF50-22	MS150	30	2381	944	3225	138	144	145	119
QF50-23	MS150	30	2477	944	3421	138	144	145	121
QF50-24	MS150	37	2573	1425	3998	144	142	142	170
QF50-25	MS150	37	2669	1425	4094	144	142	142	171
QF50-26	MS150	37	2765	1425	4190	144	142	142	173
QF50-27	MS150	37	2861	1425	4286	144	142	142	175
QF50-28	MS150	37	2957	1425	4282	144	142	142	176
QF50-29	MTSFC200	45	3249	1270	4519	192	192	192	280
QF50-31	MTSFC200	45	3441	1270	4711	192	192	192	285
QF50-33	MTSFC200	45	3633	1270	4903	192	192	192	290
QF50-36	MTSFC200	55	3921	1350	5271	192	192	192	131
QF50-39	MTSFC200	55	4209	1350	5559	192	192	192	322

* Maximum diameter of pump with one motor cable.

** Maximum diameter of pump with two motor cable.

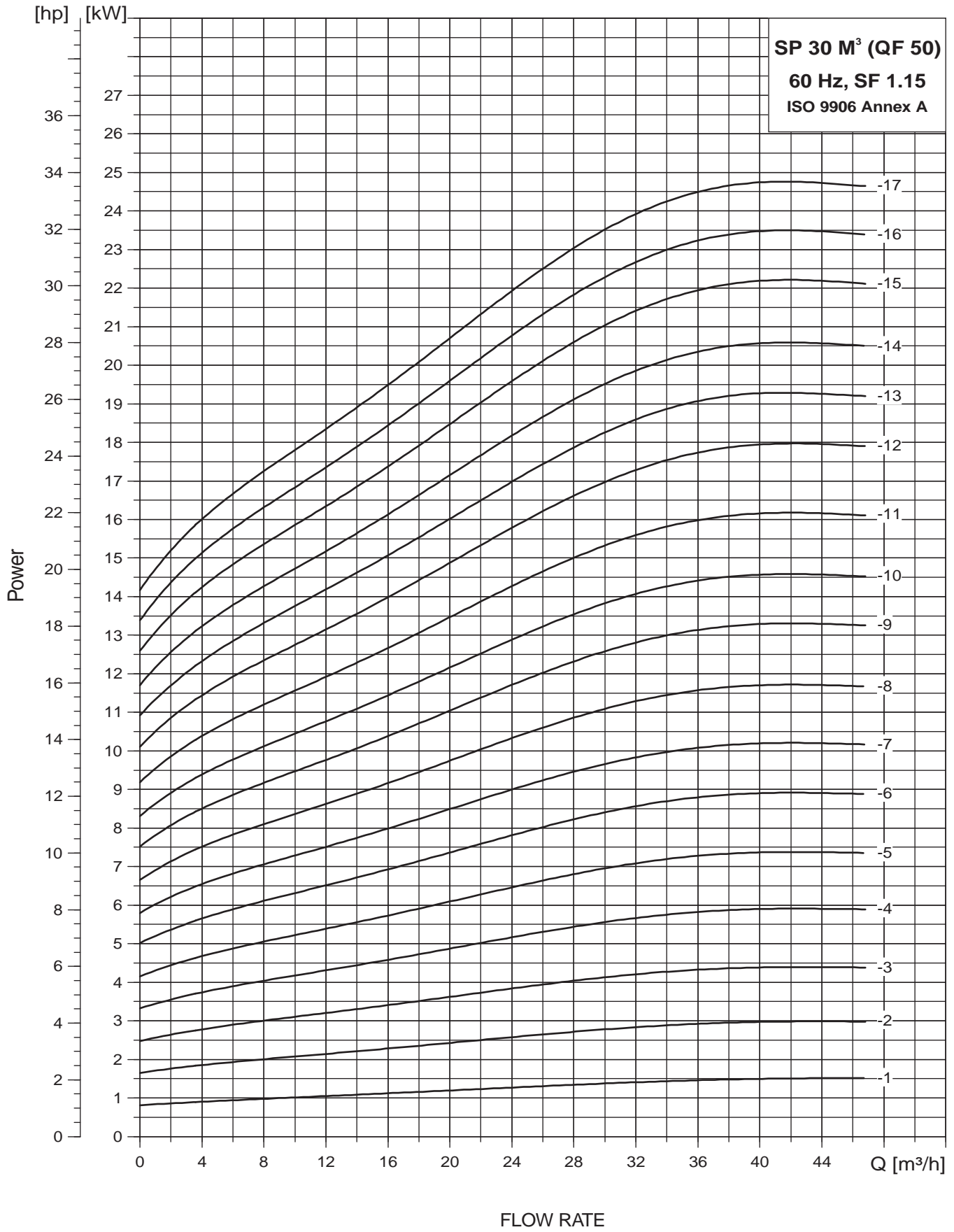
Also available 45 kW in 6" joining.

All pumps are also available in N version.

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

Performance Curve

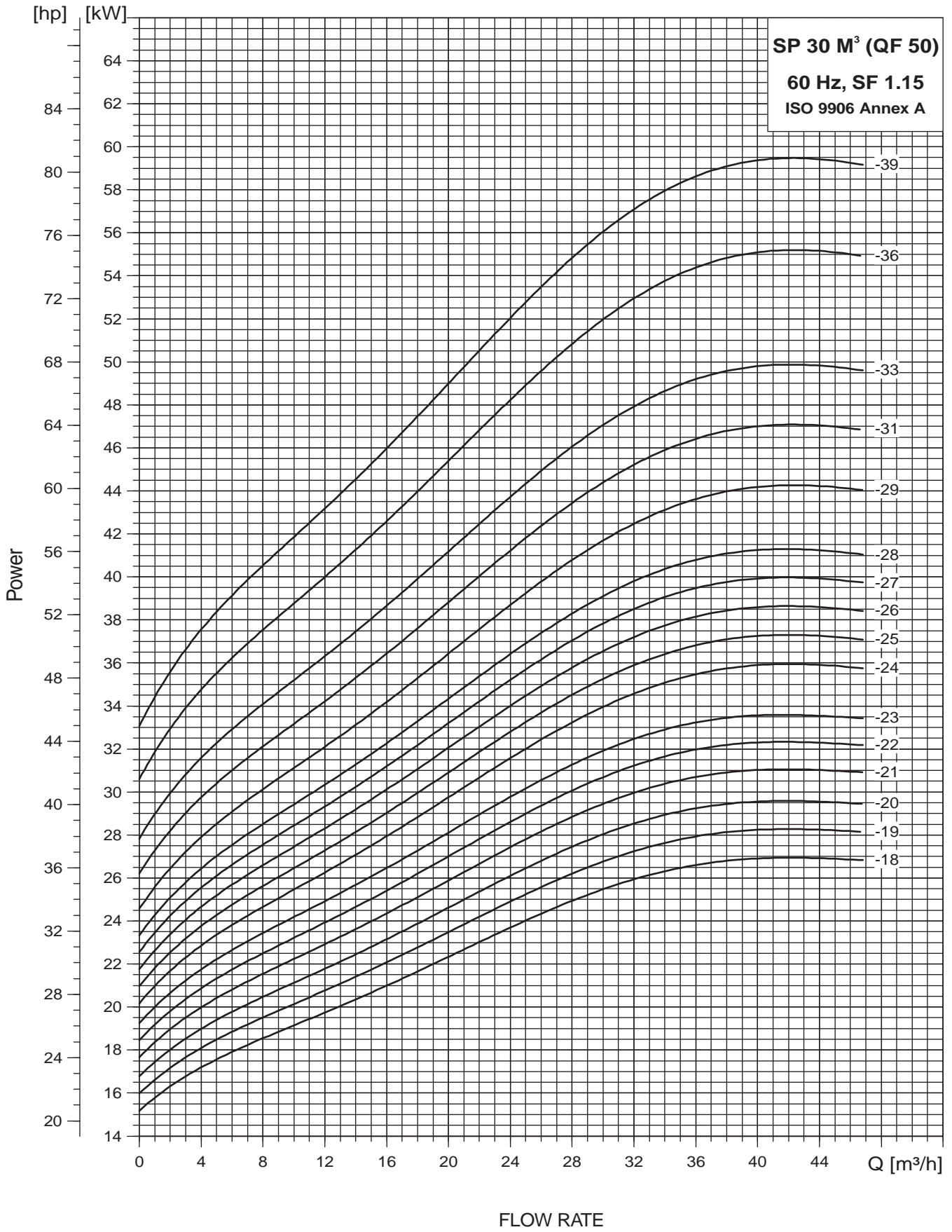
Submersible Pump
QF50



DOC-SPL-0401-QF5060 0050

Performance Curve

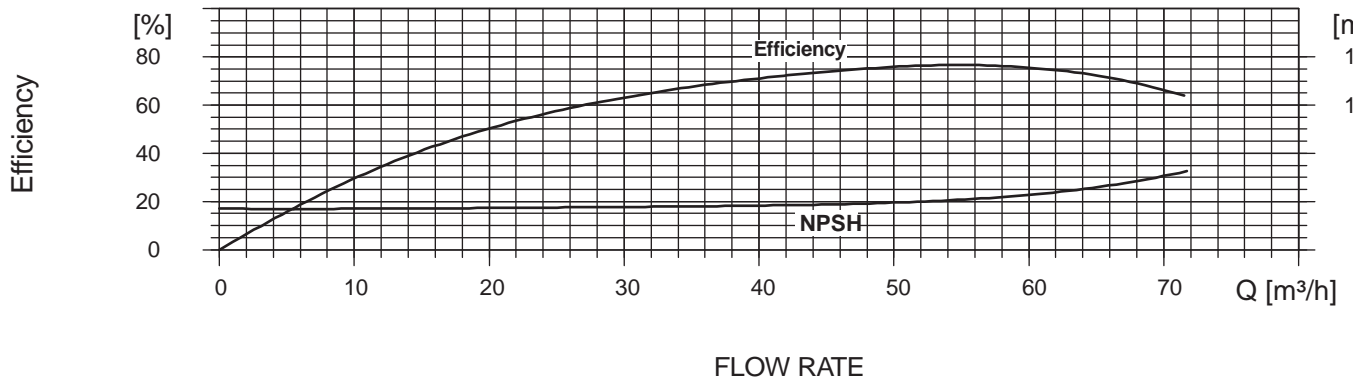
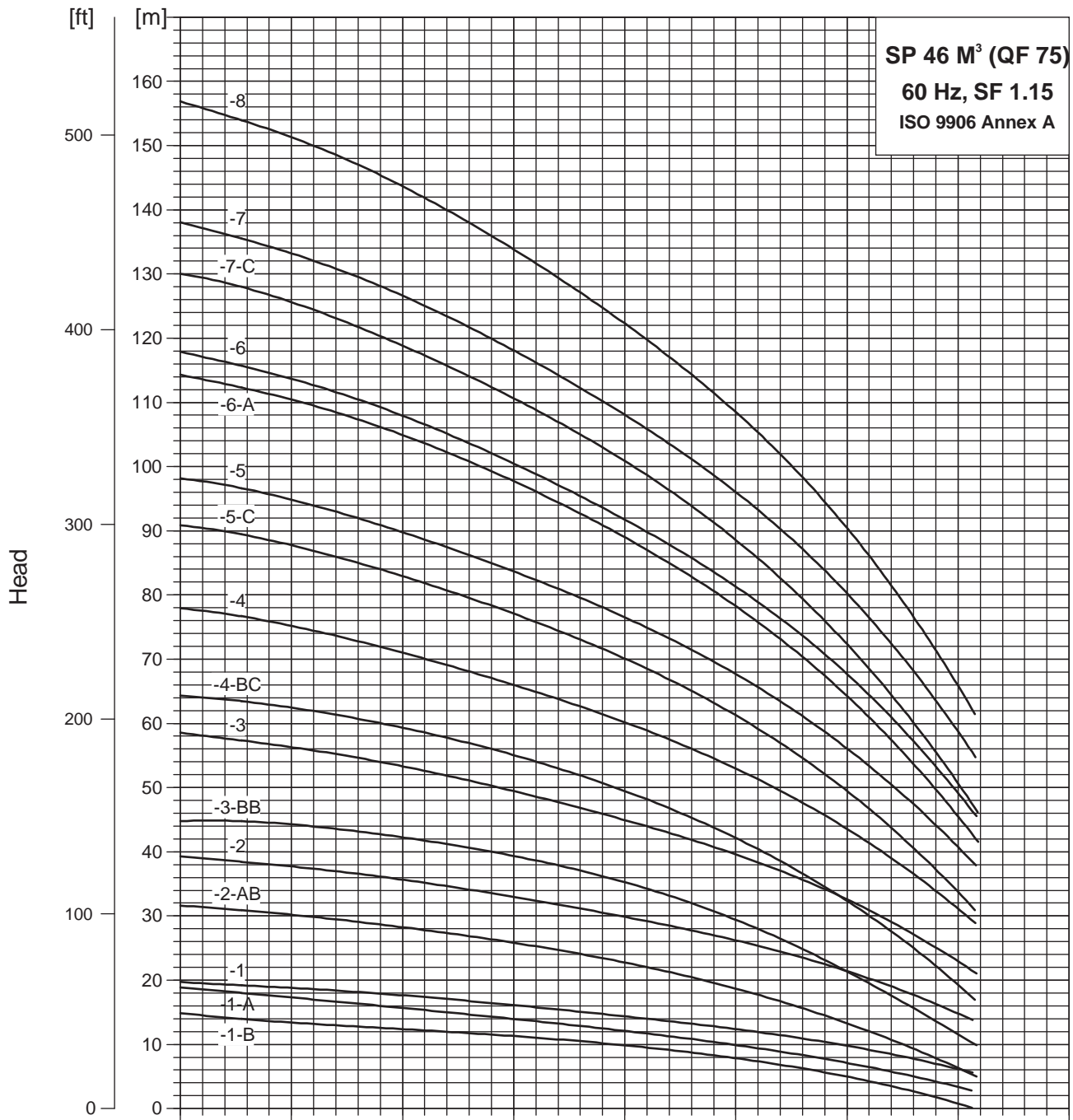
Submersible Pump
QF50



DOC-SPL-0401-QF5060 0050

Performance Curve

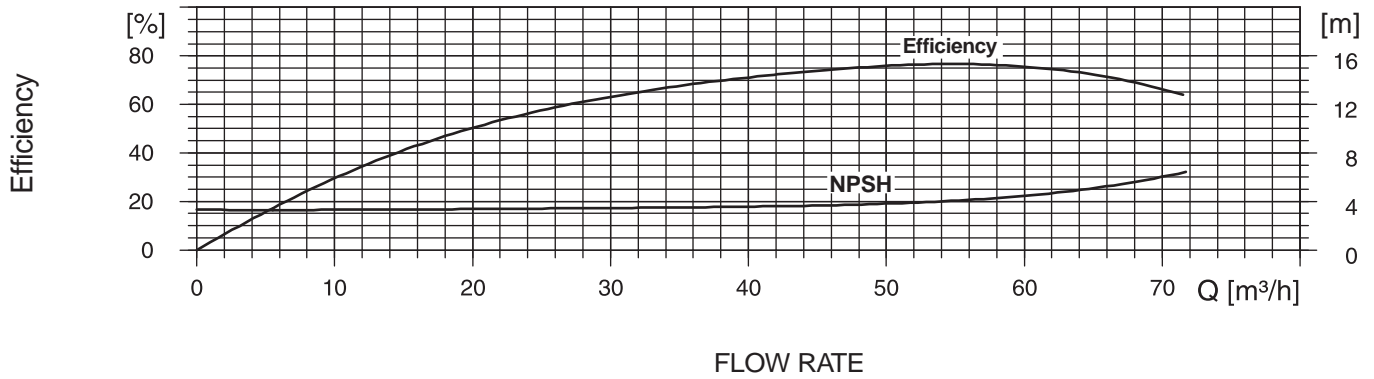
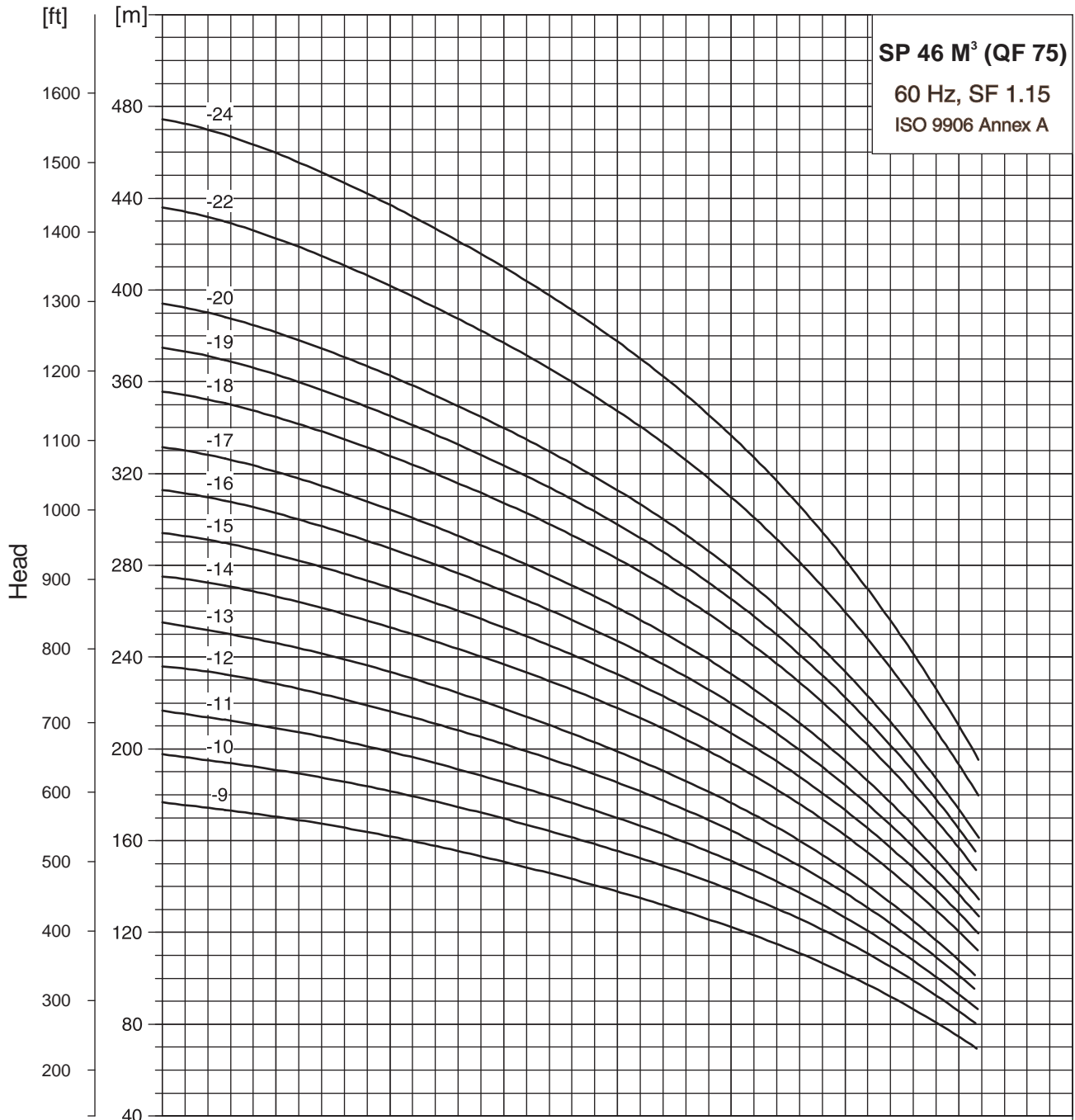
Submersible Pump
QF75



DOC-SPL-0401-QF7560 0075

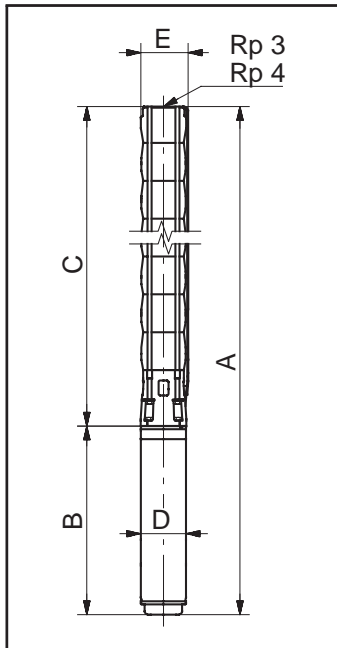
Performance Curve

Submersible Pump
QF75



DOC-SPL-0401-QF7560 0075

Dimensions and Weights



QF 75- 20 to QF 75-24 are mounted in sleeve for Rp 4 connection.

Pump type	Motor		Dimensions [mm]										Net weight [kg]
	Type	Power [kw]	Rp 3 connection				Rp 4 connection				B	D	
			A	C	E*	E**	A	C	E*	E**			
QF75-1-B	MS 101	1.5	780	367	146	148	783	370	146	148	413	95	20
QF75-1-B	MS 100	1.5	713	367	146	148	716	370	146	148	346	95	16
QF75-1-A	MS 101	2.2	821	367	146	148	824	370	146	148	454	95	22
QF75-1	MS 101	3	861	367	146	148	864	370	146	148	494	95	23
QF75-2-AB	MS 101	3.7	974	480	146	148	977	483	146	148	494	95	25
QF75-2	MS 101	5.5	1154	480	146	148	1157	483	146	148	674	95	34
QF75-3-BB	MS 101	5.5	1267	593	146	148	1267	593	146	148	674	95	37
QF75-3	MS 101	7.5	1367	593	149	152	1370	596	149	152	774	95	42
QF75-3	MS 150	7.5	1183	609	149	152	1186	612	149	152	574	138	49
QF75-4-BC	MS 150	7.5	1296	722	149	152	1299	725	149	152	574	138	52
QF75-4	MS 150	9.2	1326	722	149	152	1329	725	149	152	604	138	57
QF75-5-C	MS 150	11	1469	835	149	152	1472	838	149	152	634	138	63
QF75-5	MS 150	13	1499	835	149	152	1502	838	149	152	664	138	66
QF75-6-A	MS 150	13	1612	948	149	152	1615	951	149	152	664	138	68
QF75-6	MS 150	15	1647	948	149	152	1650	951	149	152	699	138	72
QF75-7-C	MS 150	15	1760	1061	149	152	1763	1064	149	152	699	138	75
QF75-7	MS 150	18.5	1815	1061	149	152	1818	1064	149	152	754	138	80
QF75-8	MS 150	18.5	1928	1174	149	152	1931	1177	149	152	754	138	73
QF75-9	MS 150	22	2101	1287	149	152	2104	1290	149	152	814	138	91
QF75-10	MS 150	22	2214	1400	149	152	2217	1403	149	152	814	138	94
QF75-11	MS 150	26	2387	1513	149	152	2390	1516	149	152	874	138	102
QF75-12	MS 150	30	2570	1626	149	152	2573	1629	149	152	944	138	112
QF75-13	MS 150	30	2683	1739	149	152	2686	1742	149	152	944	138	115
QF75-14	MS 150	37	3357	1932	149	152	3360	1935	149	152	1425	138	168
QF75-15	MS 150	37	3470	2045	149	152	3473	2048	149	152	1425	138	170
QF75-16	MS 150	37	3583	2158	149	152	3586	2161	149	152	1425	138	173
QF75-17	MS 150	37	3696	2271	149	152	3699	2274	149	152	1425	138	175
QF75-18	MTSFC 200	45	3603	2333	192	192	3606	2336	192	192	1270	192	228
QF75-19	MTSFC 200	45	3717	2446	192	192	3719	2449	192	192	1270	1925	231
QF75-20	MTSFC 200	45	3829	2559	192	192	3832	2562	192	192	1270	1925	234
QF75-22	MTSFC 200	55	4298	2948	193	195	4301	2951	193	195	1350	192	281
QF75-24	MTSFC 200	55					4527	3177	193	195	1350	192	287

* Maximum diameter of pump with one motor cable.

** Maximum diameter of pump with two motor cable.

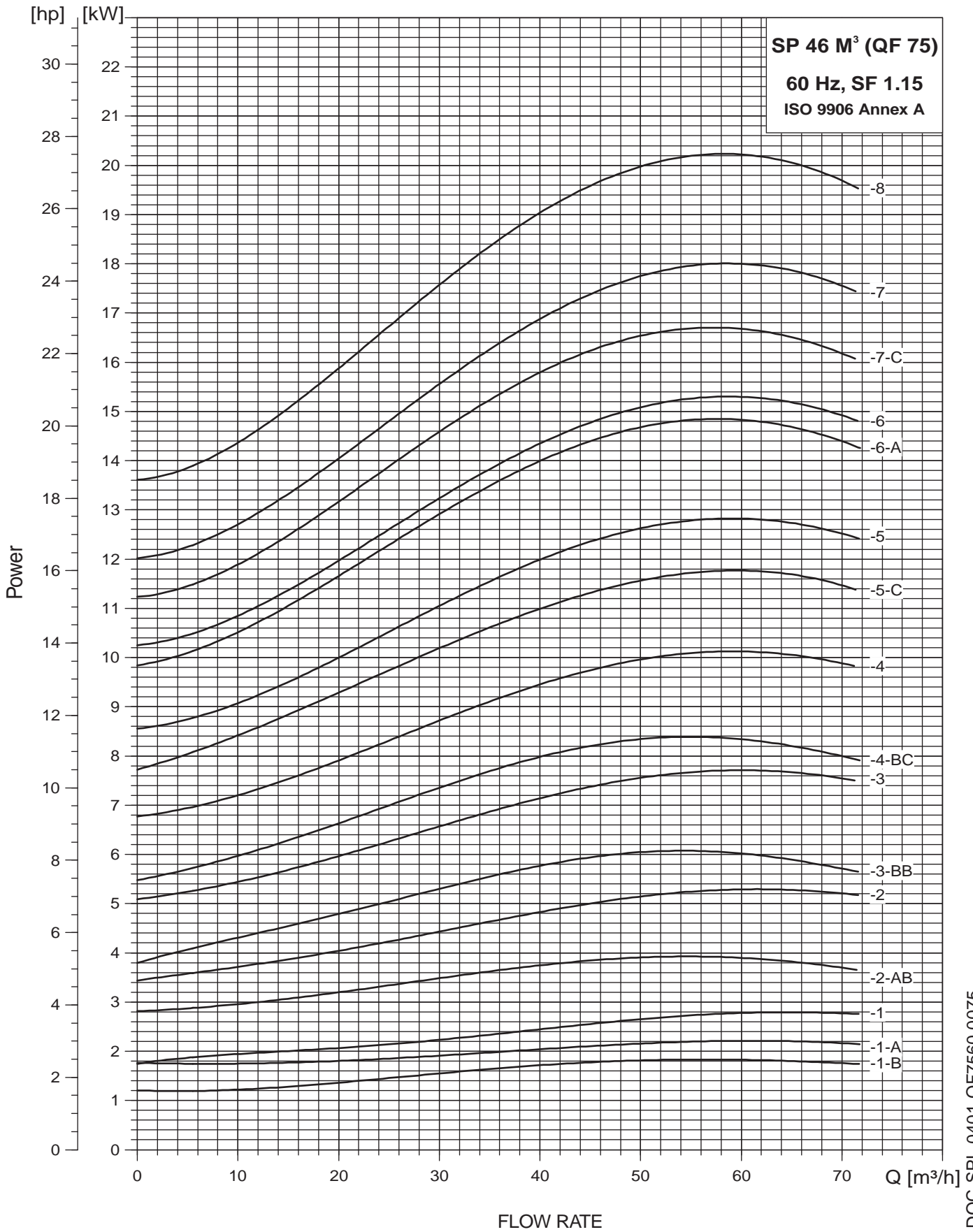
Also available 45 kW in 6" joining.

All pumps are also available in N version.

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

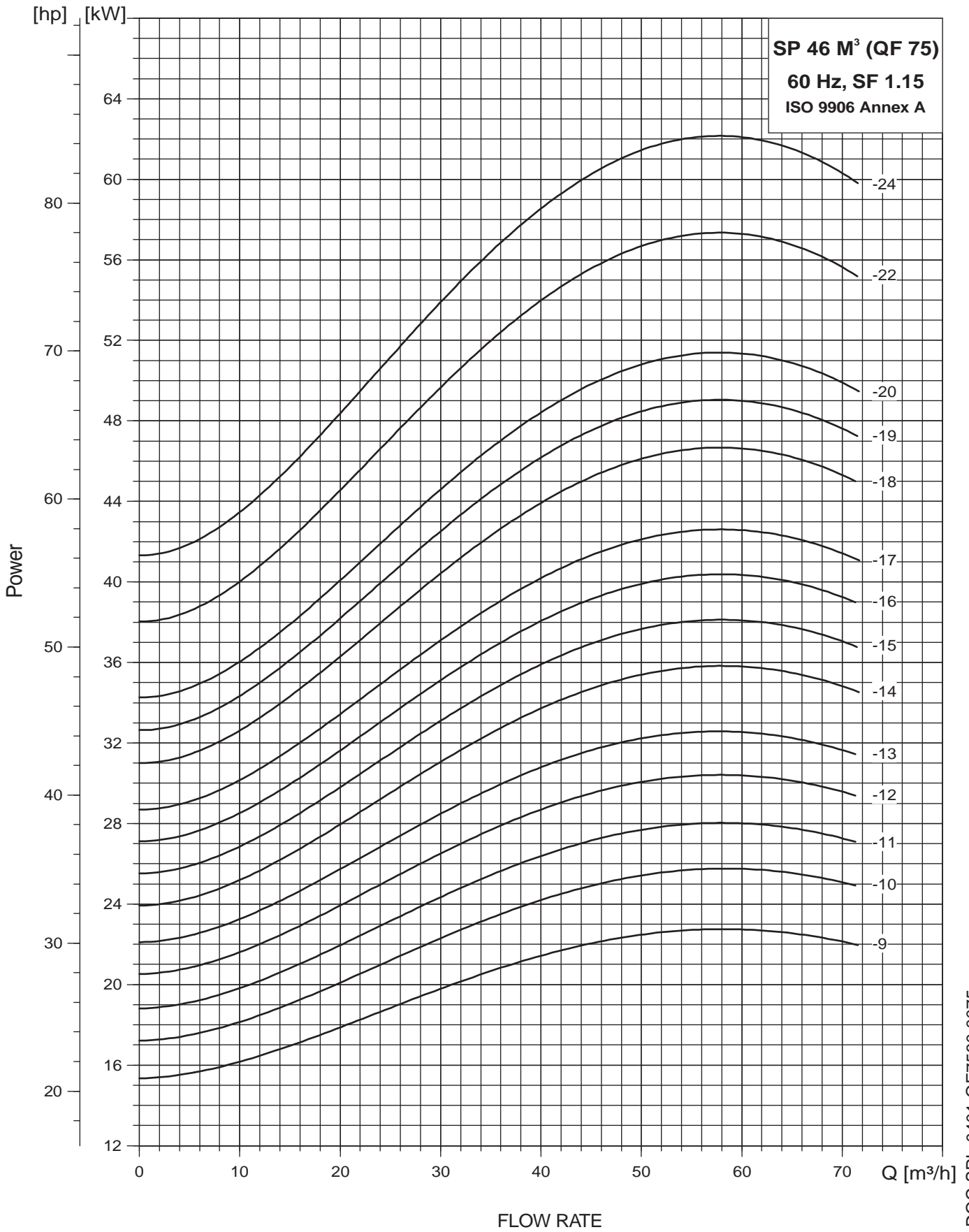
Performance Curve

Submersible Pump
QF75



Performance Curve

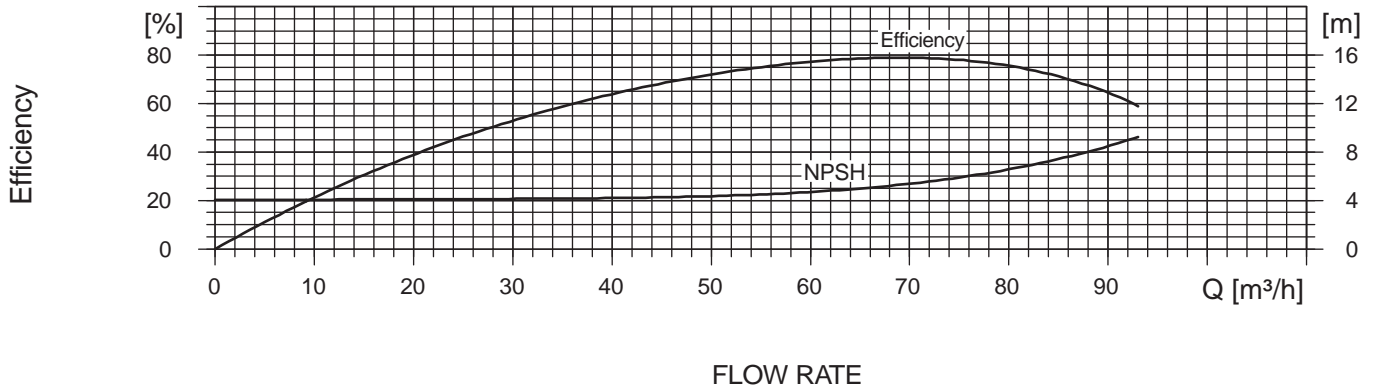
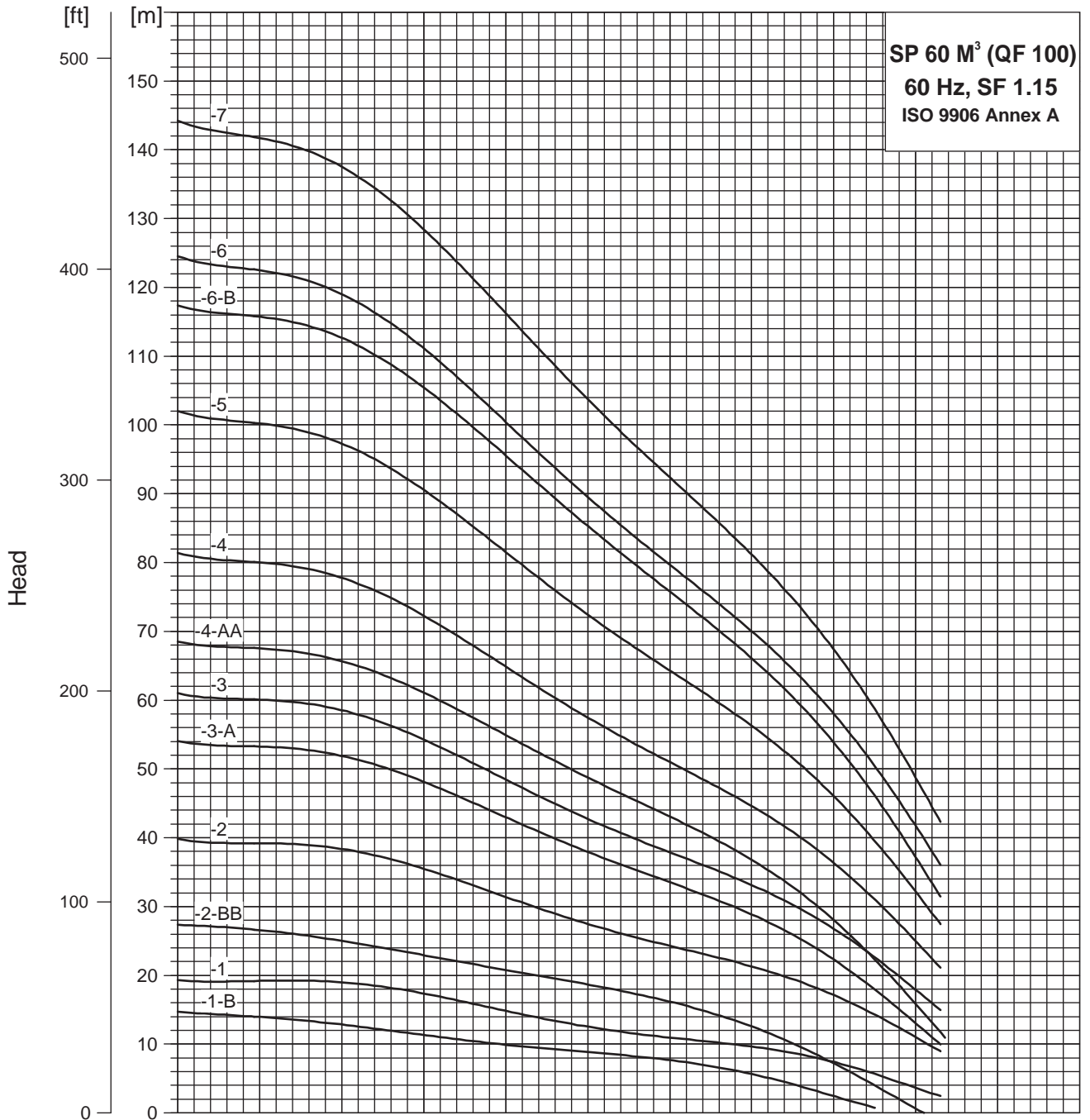
Submersible Pump
QF75



DOC-SPL-0401-QF7560 0075

Performance Curve

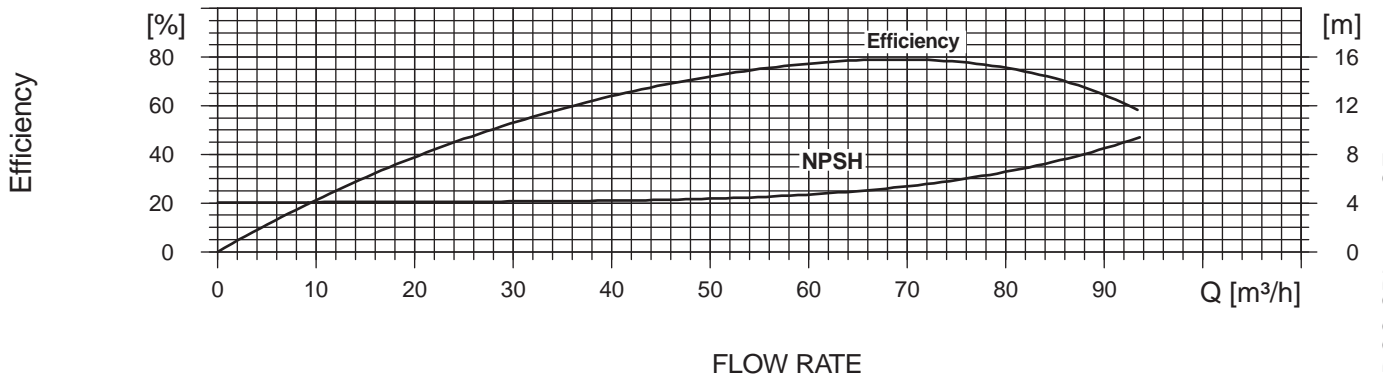
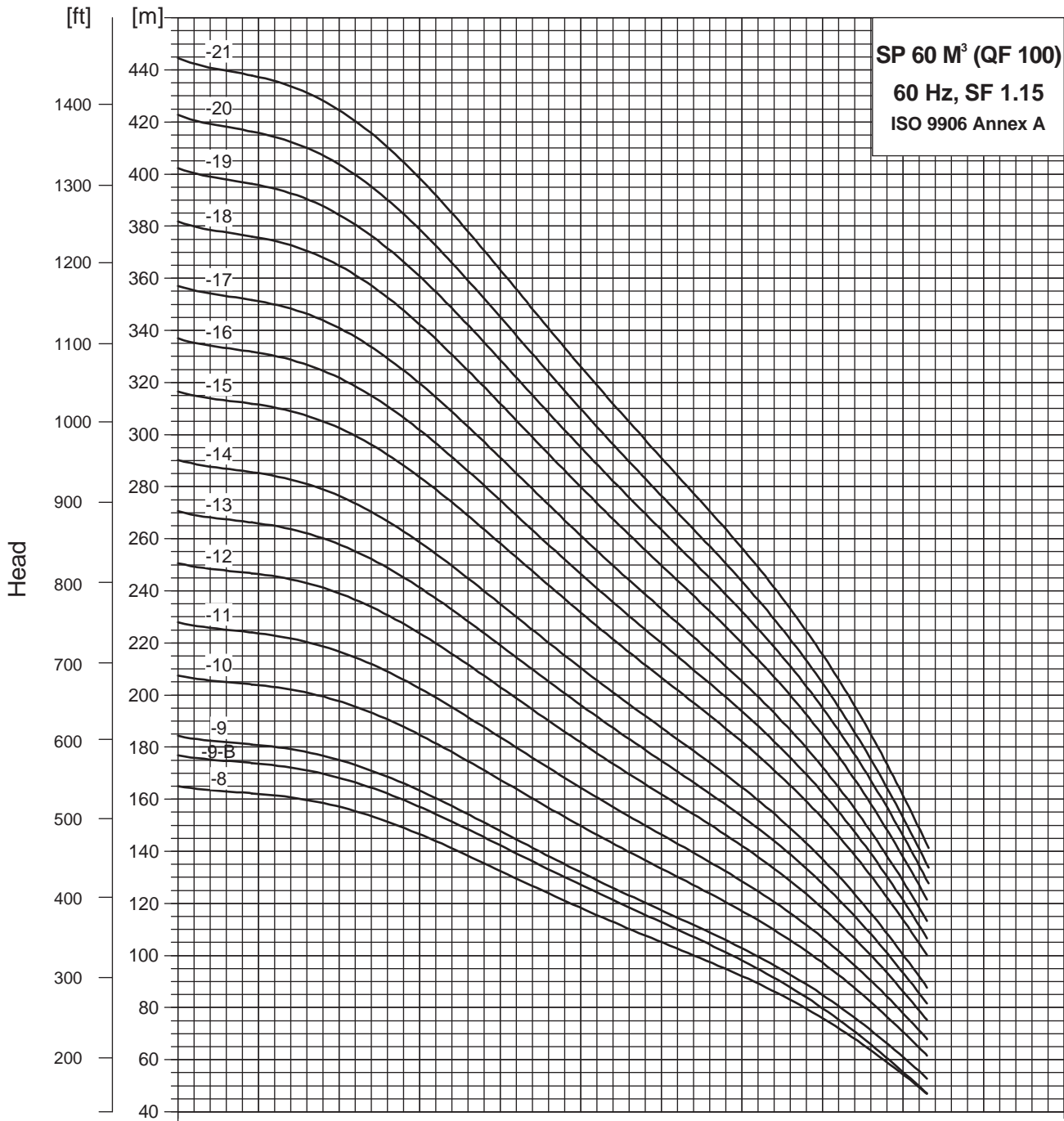
Submersible Pump
QF100



DOC-SPL-0401-QF10060 0100

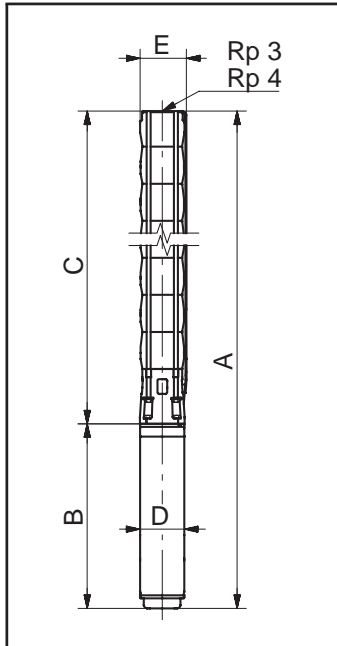
Performance Curve

Submersible Pump
QF100



DOC-SPL-0401-QF10060 0100

Dimensions and Weights



Pump type	Motor		Dimensions [mm]										Net weight [kg]
	Type	Power [kw]	Rp 3 connection				Rp 4 connection				B	D	
			A	C	E*	E**	A	C	E*	E**			
QF100-1-B	MS 101	2.2	821	367	146	148	824	370	146	148	454	95	22
QF100-1-A	MS 101	3.7					864	370	146	148	494	95	23
QF100-1	MS 101	4	941	367	146	148	944	370	146	148	574	95	27
QF100-2-BB	MS 101	3.7	974	480	146	148	977	483	146	148	494	95	25
QF100-2	MS 101	5.5	1154	480	146	148	1157	483	146	148	674	95	34
QF100-3-A	MS 101	7.5	1367	593	146	148	1370	596	146	148	774	95	39
QF100-3-A	MS 150	7.5	1183	609	152	156	1186	612	152	156	574	138	49
QF100-3	MS 150	9.2	1213	609	152	156	1216	612	152	156	604	138	55
QF100-4-AA	MS 150	9.2	1326	722	152	156	1329	725	152	156	604	138	57
QF100-4	MS 150	11	1356	722	152	156	1359	725	152	156	634	138	60
QF100-5	MS 150	13	1499	835	152	156	1502	838	152	156	664	138	66
QF100-6-B	MS 150	15	1647	948	152	156	1650	951	152	156	699	138	72
QF100-6	MS 150	18.5	1702	948	152	156	1705	951	152	156	754	138	78
QF100-7	MS 150	18.5	1815	1061	152	156	1818	1064	152	156	754	138	80
QF100-8	MS 150	22	1988	1174	152	156	1991	1177	152	156	814	138	89
QF100-9-B	MS 150	22	2101	1287	152	156	2104	1290	152	156	814	138	91
QF100-9	MS 150	26	2161	1287	152	156	2164	1290	152	156	874	138	97
QF100-10	MS 150	26	2274	1400	152	156	2277	1403	152	156	874	138	100
QF100-11	MS 150	30	2457	1513	152	156	2460	1516	152	156	944	138	110
QF100-12	MS 150	37	3131	1706	152	156	3134	1709	152	156	1425	138	163
QF100-13	MS 150	37	3244	1819	152	156	3247	1822	152	156	1425	138	165
QF100-14	MS 150	37					3360	1935	152	156	1425	138	168
QF100-15	MTSFC 200	45					3267	1997	192	192	1270	192	221
QF100-16	MTSFC 200	45					3380	2110	192	192	1270	192	223
QF100-17	MTSFC 200	45					3493	2223	192	192	1270	192	226
QF100-18	MTSFC 200	55					3686	2336	192	192	1350	192	243
QF100-19	MTSFC 200	55					3962	2612	193	195	1350	192	272
QF100-20	MTSFC 200	55					4075	2725	193	195	1350	192	275
QF100-21	MTSFC 200	63					4328	2838	193	195	1490	192	304

* Maximum diameter of pump with one motor cable.

** Maximum diameter of pump with two motor cable.

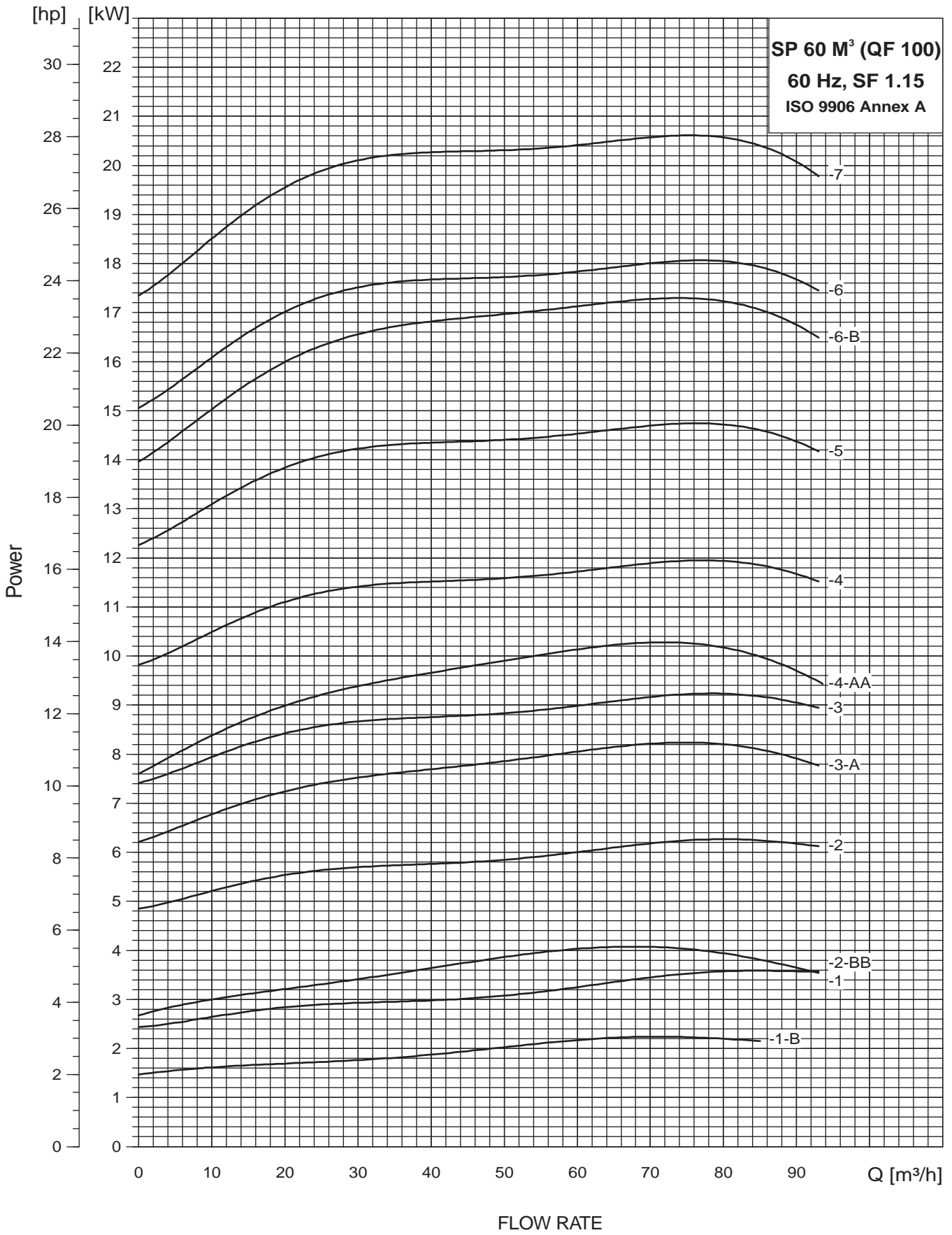
Also available 45 kW in 6" joining.

All pumps are also available in N version.

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

Performance Curve

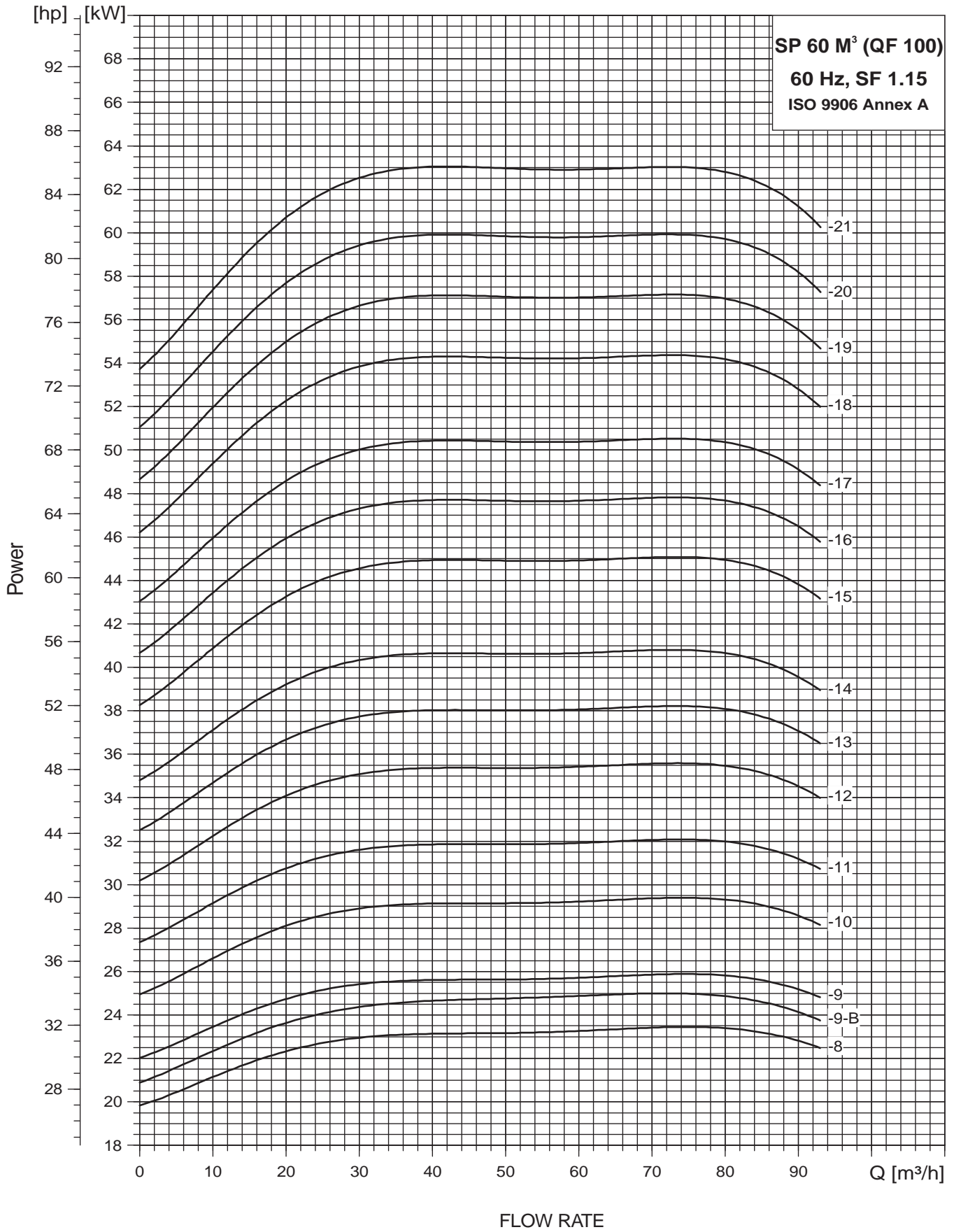
Submersible Pump
QF100



DOC-SPL-0401-QF10060 0100

Performance Curve

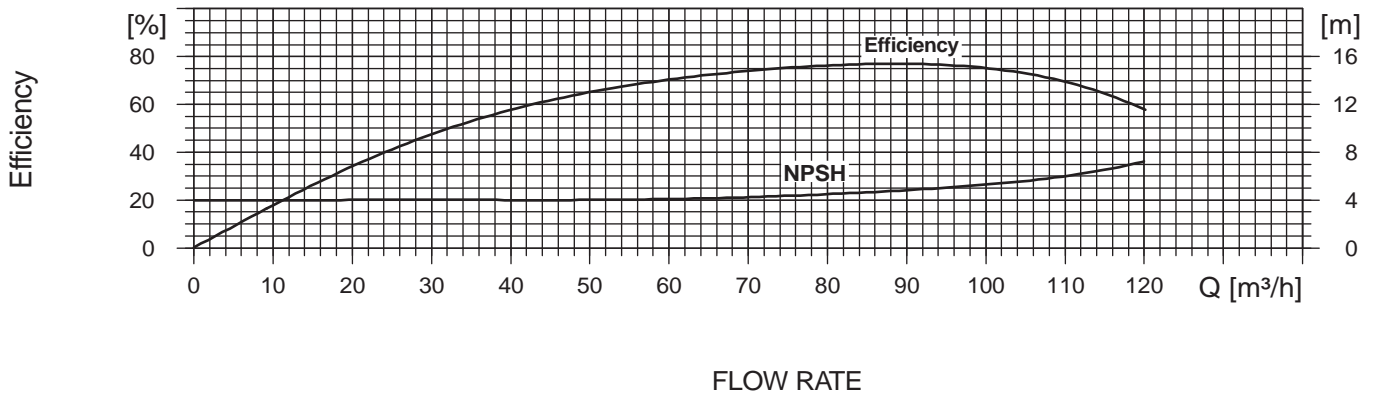
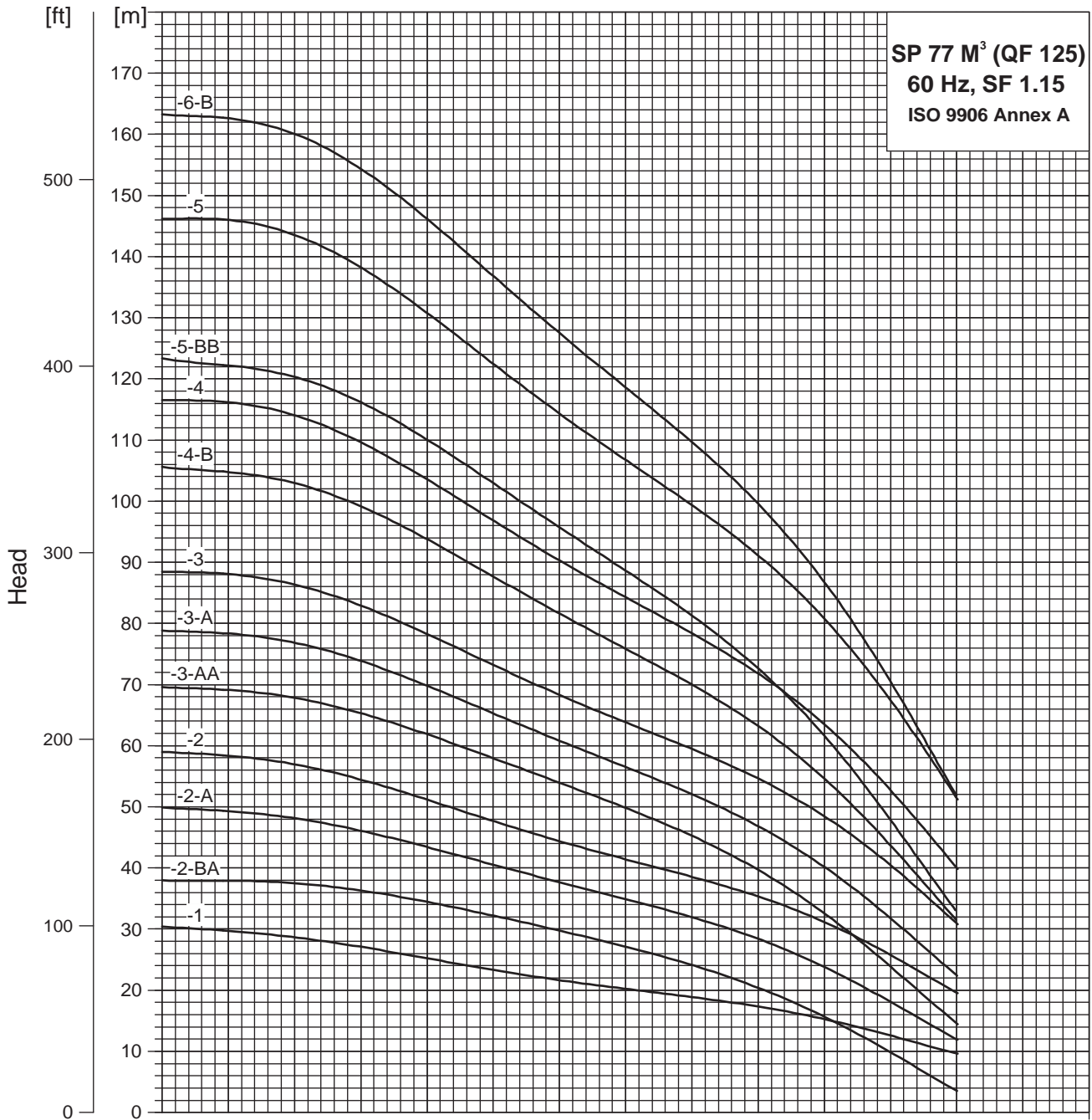
Submersible Pump
QF100



DOC-SPL-0401-QF10060 0100

Performance Curve

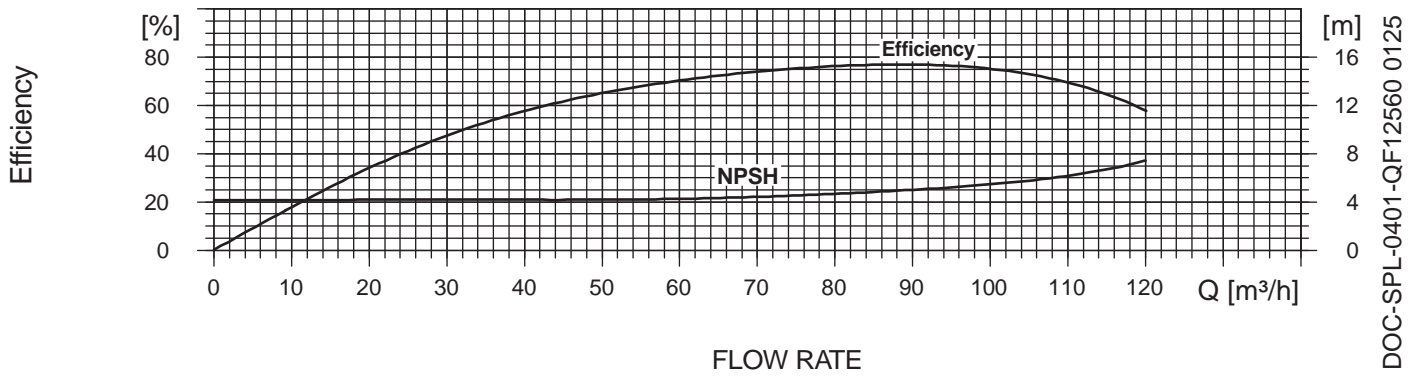
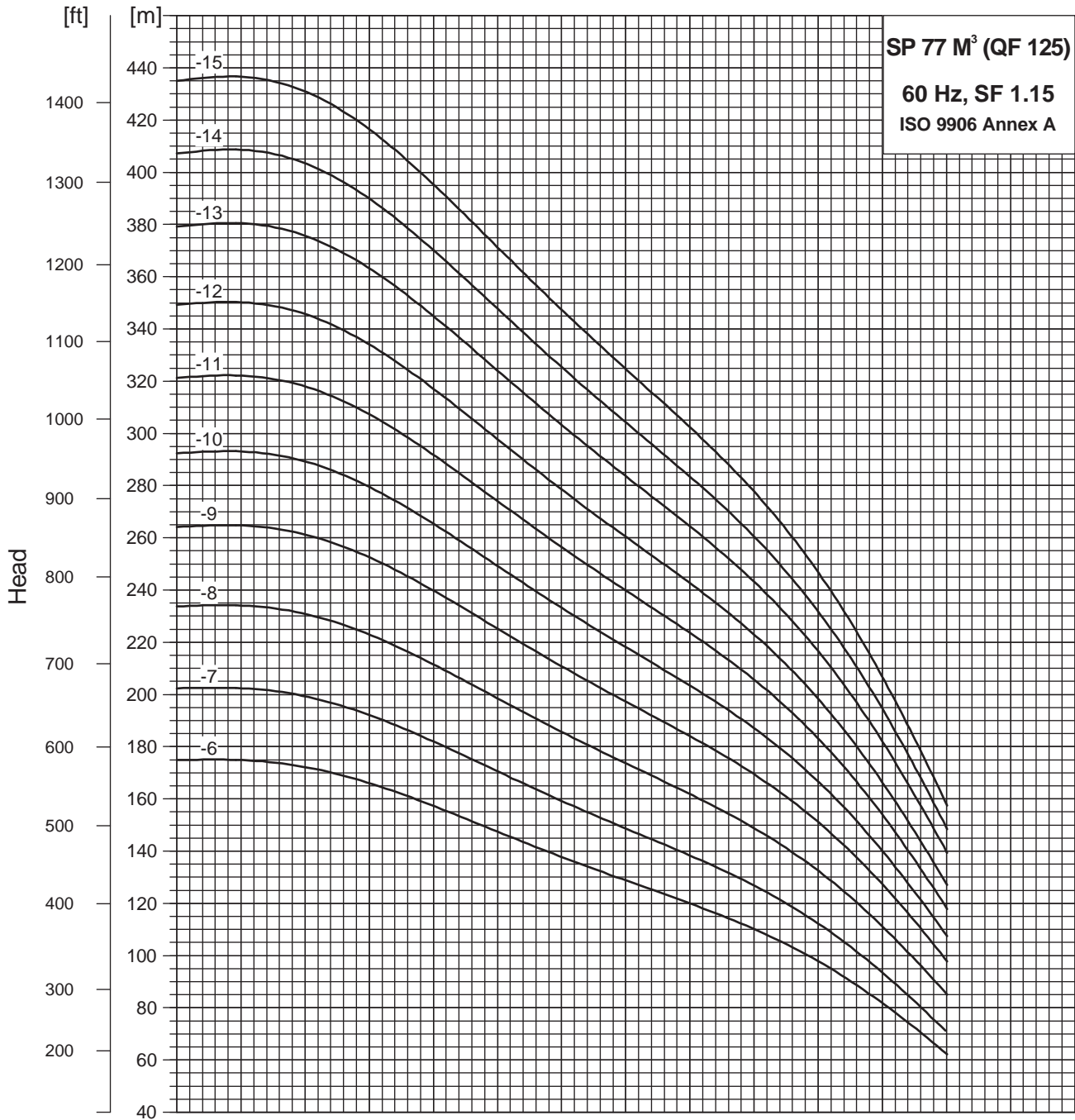
Submersible Pump
QF125



DOC-SPL-0401-QF12560 0125

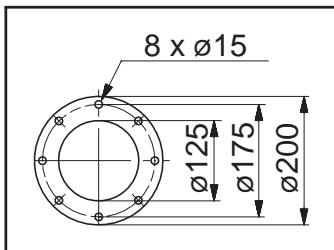
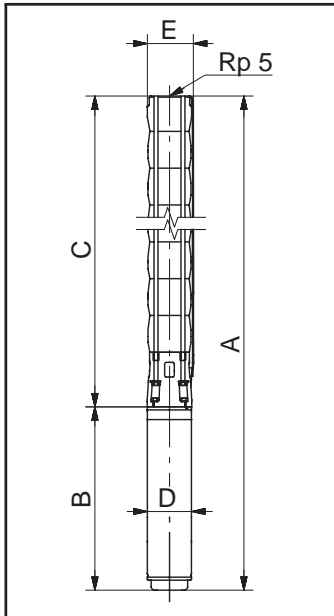
Performance Curve

Submersible Pump
QF125



DOC-SPL-0401-QF12560 0125

Dimensions and Weights



Pump type	Motor		Dimensions [mm]										Net weight [kg]
	Type	Power [kw]	Rp 5 connection				5" Grundfos flange				B	D	
			A	C	E*	E**	A	C	E*	E**			
QF125-1	MS 150	5.5	1162	618	178	186	1162	618	200	200	544	138	55
QF125-2-BA	MS 150	7.5	1320	746	178	186	1320	746	200	200	574	138	63
QF125-2-A	MS 150	9.2	1350	746	178	186	1350	746	200	200	604	138	69
QF125-2	MS 150	11	1380	746	178	186	1380	746	200	200	634	138	71
QF125-3-AA	MS 150	13	1538	874	178	186	1538	874	200	200	664	138	78
QF125-3-A	MS 150	15	1573	874	178	186	1573	874	200	200	699	138	82
QF125-3	MS 150	18.5	1628	874	178	186	1628	874	200	200	754	138	87+
QF125-4-B	MS 150	18.5	1756	1002	178	186	1756	1002	200	200	754	138	91
QF125-4	MS 150	22	1816	1002	178	186	1816	1002	200	200	814	138	97
QF125-5-BB	MS 150	22	1944	1130	178	186	1944	1130	200	200	814	138	101
QF125-5	MS 150	26	2004	1130	178	186	2004	1130	200	200	874	138	106
QF125-6-B	MS 150	30	2202	1258	178	186	2202	1258	200	200	944	138	118
QF125-6	MS 150	37	2683	1258	178	186	2683	1258	200	200	1425	138	166
QF125-7	MS 150	37	2811	1386	178	186	2811	1386	200	200	1425	138	169
QF125-8	MTSFC 200	45	2798	1528	200	204	2798	1528	205	205	1270	192	225
QF125-9	MTSFC 200	55	3006	1656	200	204	3006	1656	205	205	1350	192	244
QF125-10	MTSFC 200	55	3134	1784	200	204	3134	1784	205	205	1350	192	248
QF125-11	MTSFC 200	63	3402	1912	200	204	3402	1912	205	205	1490	192	277
QF125-12	MTSFC 200	63	3530	2040	200	204	3530	2040	205	205	1490	192	281
QF125-13	MTSFC 200	75	3758	2168	200	204	3758	2164	205	205	1590	192	304
QF125-14	MTSFC 200	92	4426	2596	200	202					1830	192	361
QF125-15	MTSFC 200	92	4554	2724	200	202					1830	192	365

* Maximum diameter of pump with one motor cable.

** Maximum diameter of pump with two motor cable.

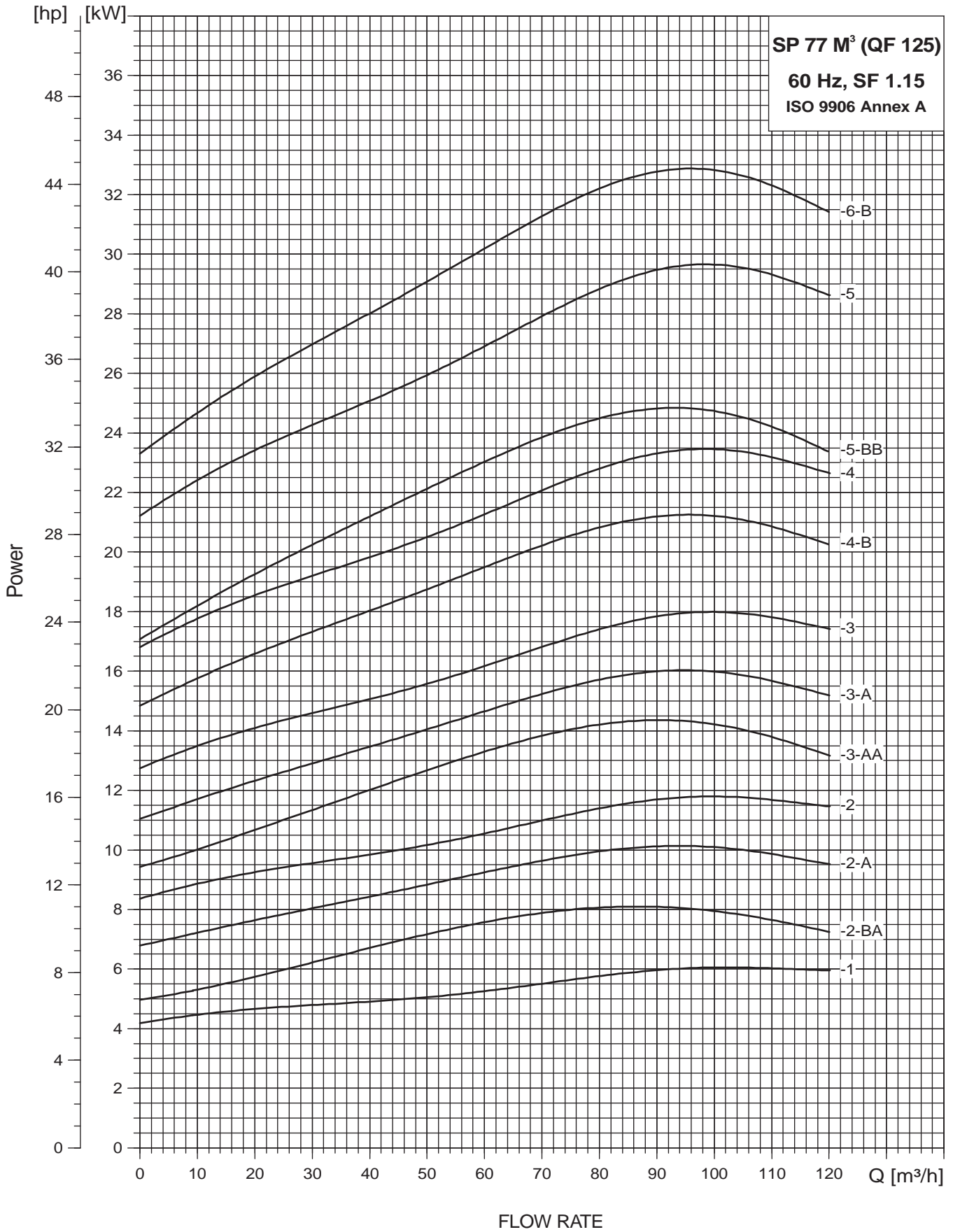
Also available 45 kW in 6" joining.

All pumps are also available in N version.

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

Performance Curve

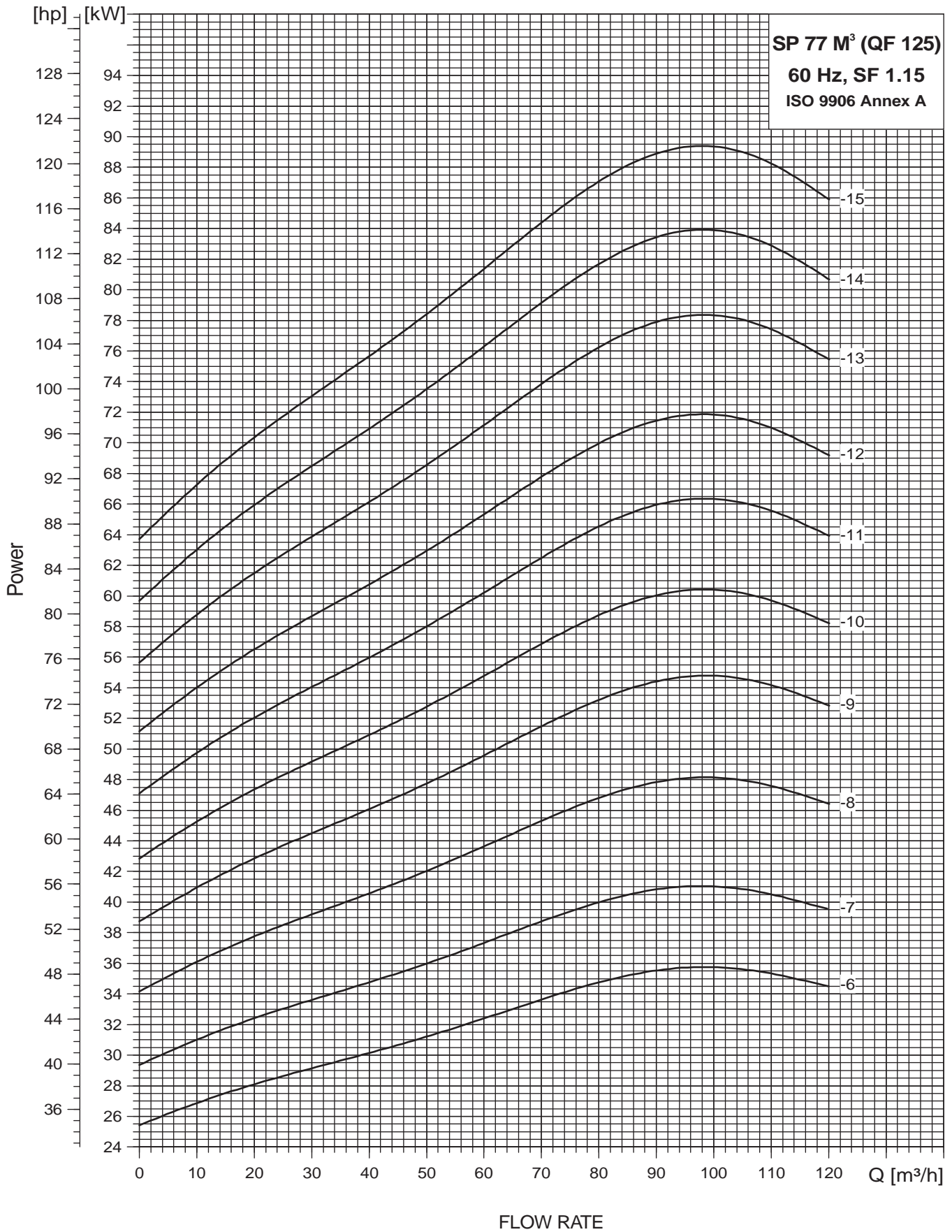
Submersible Pump
QF125



DOC-SPL-0401-QF12560 0125

Performance Curve

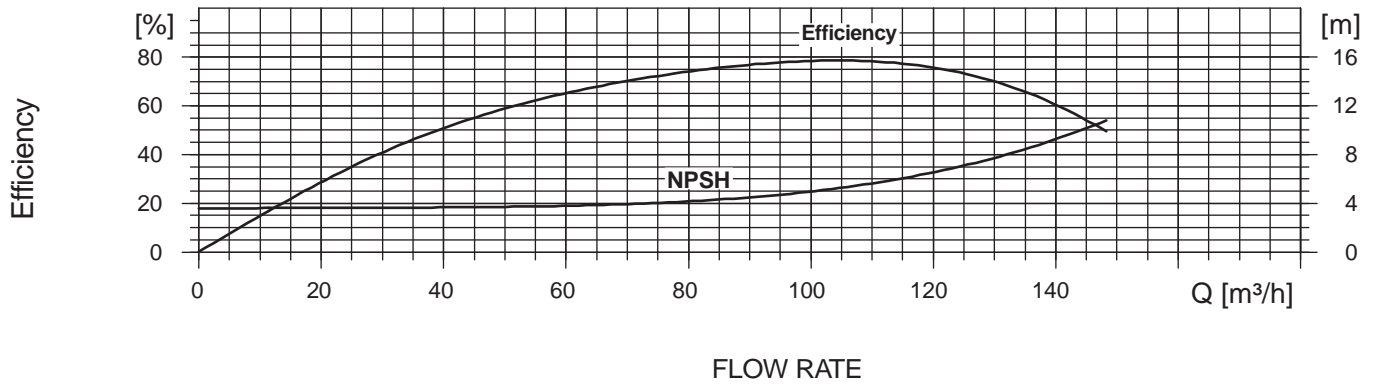
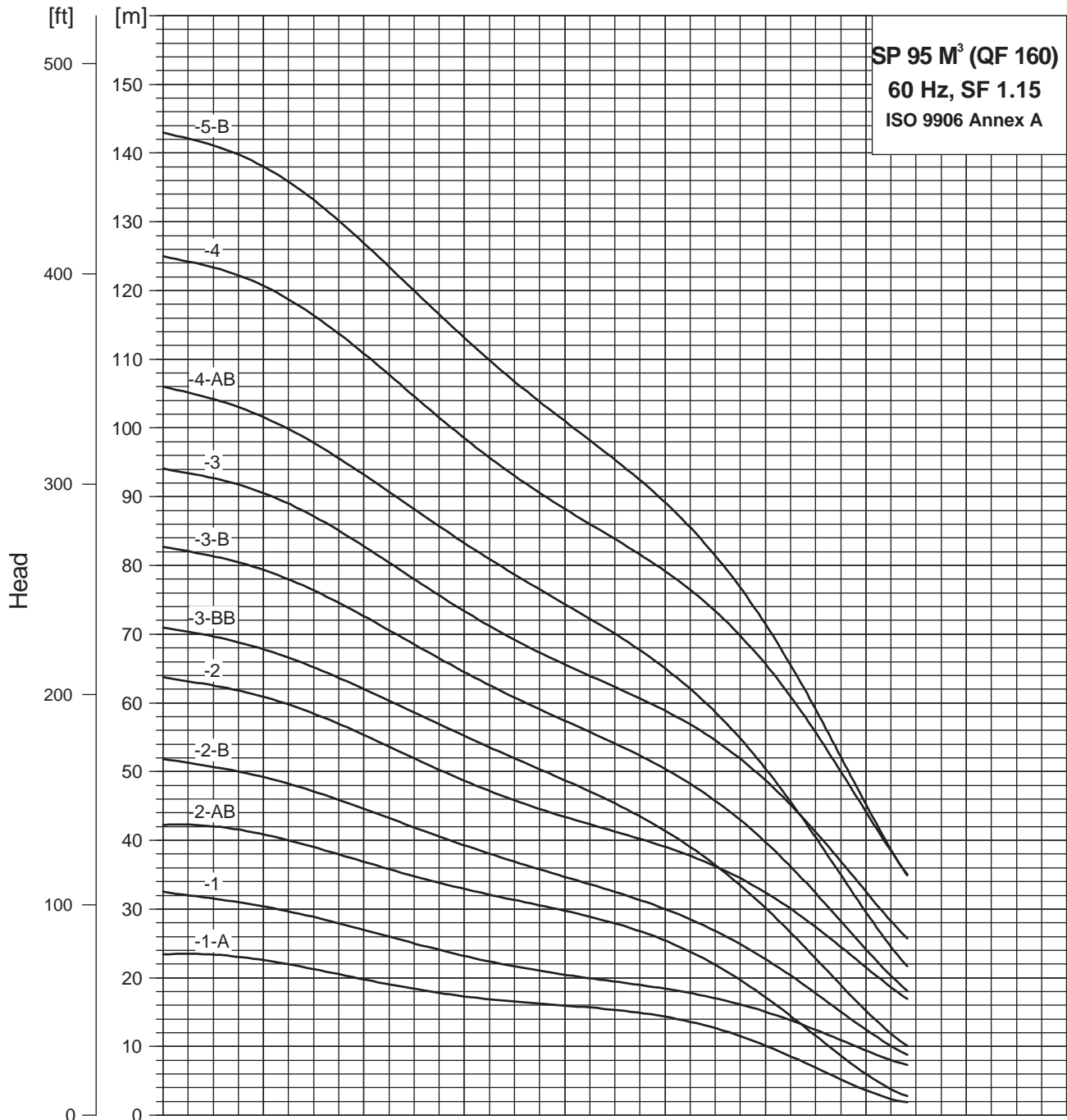
Submersible Pump
QF125



DOC-SPL-0401-QF12560 0125

Performance Curve

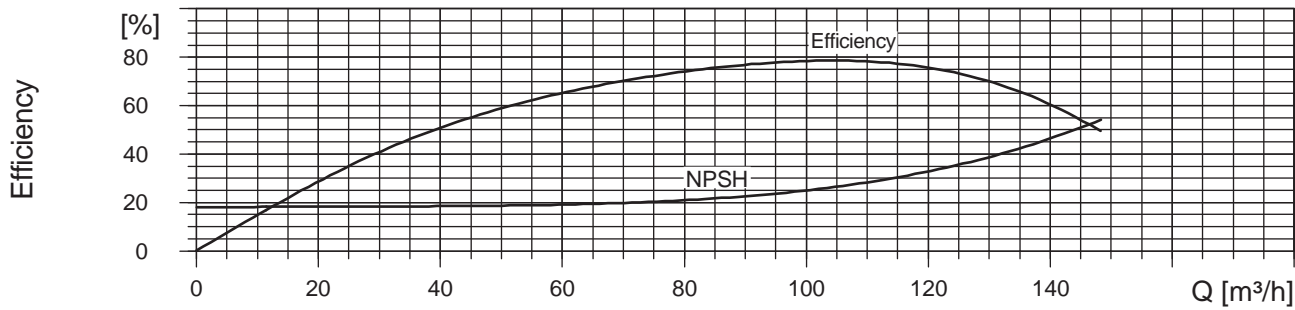
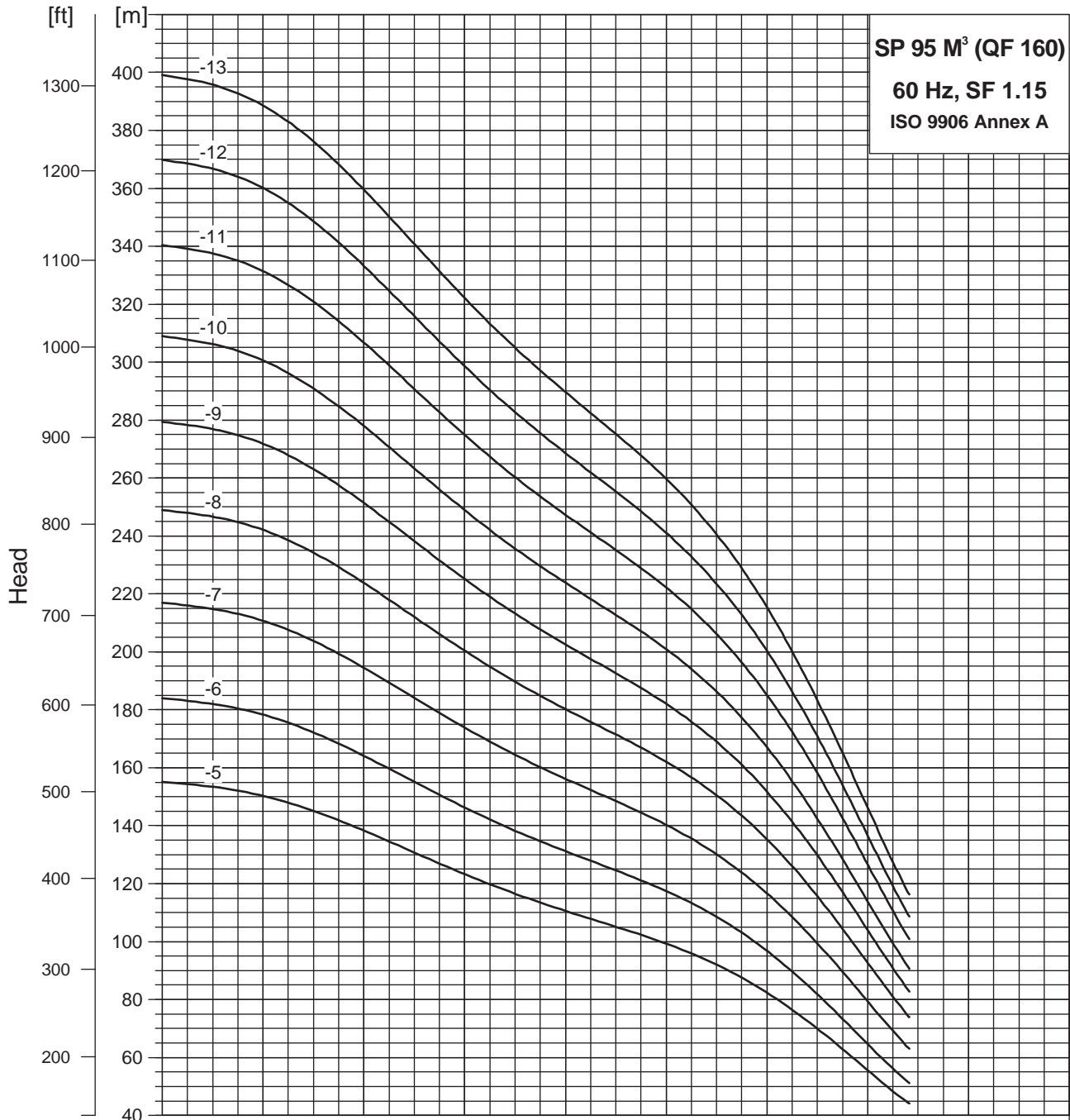
Submersible Pump
QF160



DOC-SPL-0401-QF16060 0160

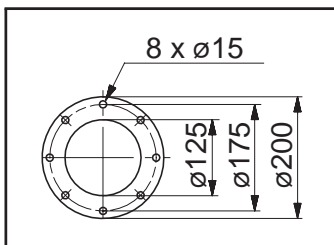
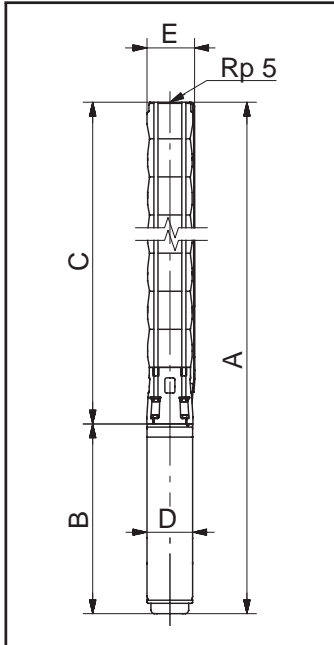
Performance Curve

Submersible Pump
QF160



DOC-SPL-0401-QF16060 0160

Dimensions and Weights



Pump type	Motor		Dimensions [mm]										Net weight [kg]
	Type	Power [kw]	Rp 5 connection				5" Grundfos flange				B	D	
			A	C	E*	E**	A	C	E*	E**			
QF160-1-A	MS 150	5.5	1162	618	179	183	1162	618	200	200	544	138	55
QF160-1	MS 150	7.5	1192	618	179	183	1192	618	200	200	574	138	59
QF160-2-AB	MS 150	9.2	1350	746	179	183	1350	746	200	200	604	138	69
QF160-2-B	MS 150	11	1380	746	179	183	1380	746	200	200	634	138	71
QF160-2	MS 150	13	1410	746	179	183	1410	746	200	200	664	138	74
QF160-3-BB	MS 150	15	1573	874	179	183	1573	874	200	200	699	138	82
QF160-3-B	MS 150	18.5	1628	874	179	183	1628	874	200	200	754	138	87
QF160-3	MS 150	22	1688	874	179	183	1688	874	200	200	815	138	93
QF160-4-AB	MS 150	22	1816	1002	179	183	1816	1002	200	200	814	138	97
QF160-4	MS 150	26	1876	1002	179	183	1876	1002	200	200	874	138	103
QF160-5-B	MS 150	30	2074	1130	179	183	2074	1130	200	200	944	138	114
QF160-5	MS 150	37	2555	1130	179	183	2555	1130	200	200	1425	138	162
QF160-6	MS 150	37	2683	1258	179	183	2683	1258	200	200	1425	138	166
QF160-7	MTSFC 200	45	2670	1400	205	205	2670	1400	200	200	1270	192	221
QF160-8	MTSFC 200	55	2878	1528	205	205	2878	1528	200	202	1350	192	240
QF160-9	MTSFC 200	63	3146	1656	205	205	3146	1656	200	202	1490	192	270
QF160-10	MTSFC 200	63	3274	1784	205	205	3274	1784	200	202	1490	192	274
QF160-11	MTSFC 200	75	3502	1912	205	205					1590	192	296
QF160-12	MTSFC 200	92	3870	2040	205	205					1830	192	346
QF160-13	MTSFC 200	92	3998	2168	205	205					1830	192	350

* Maximum diameter of pump with one motor cable.

** Maximum diameter of pump with two motor cable.

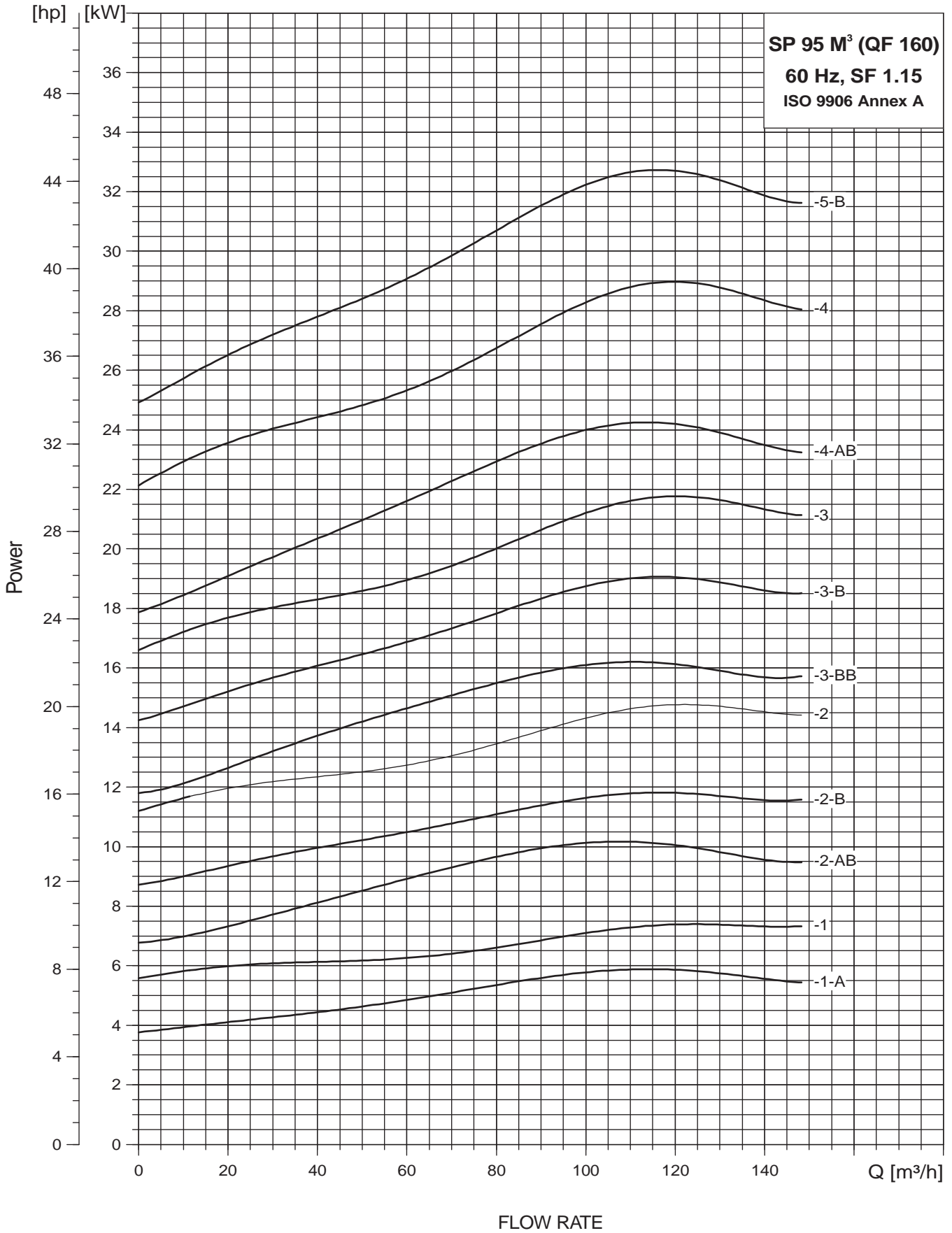
Also available 45 kW in 6" joining.

All pumps are also available in N version.

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

Performance Curve

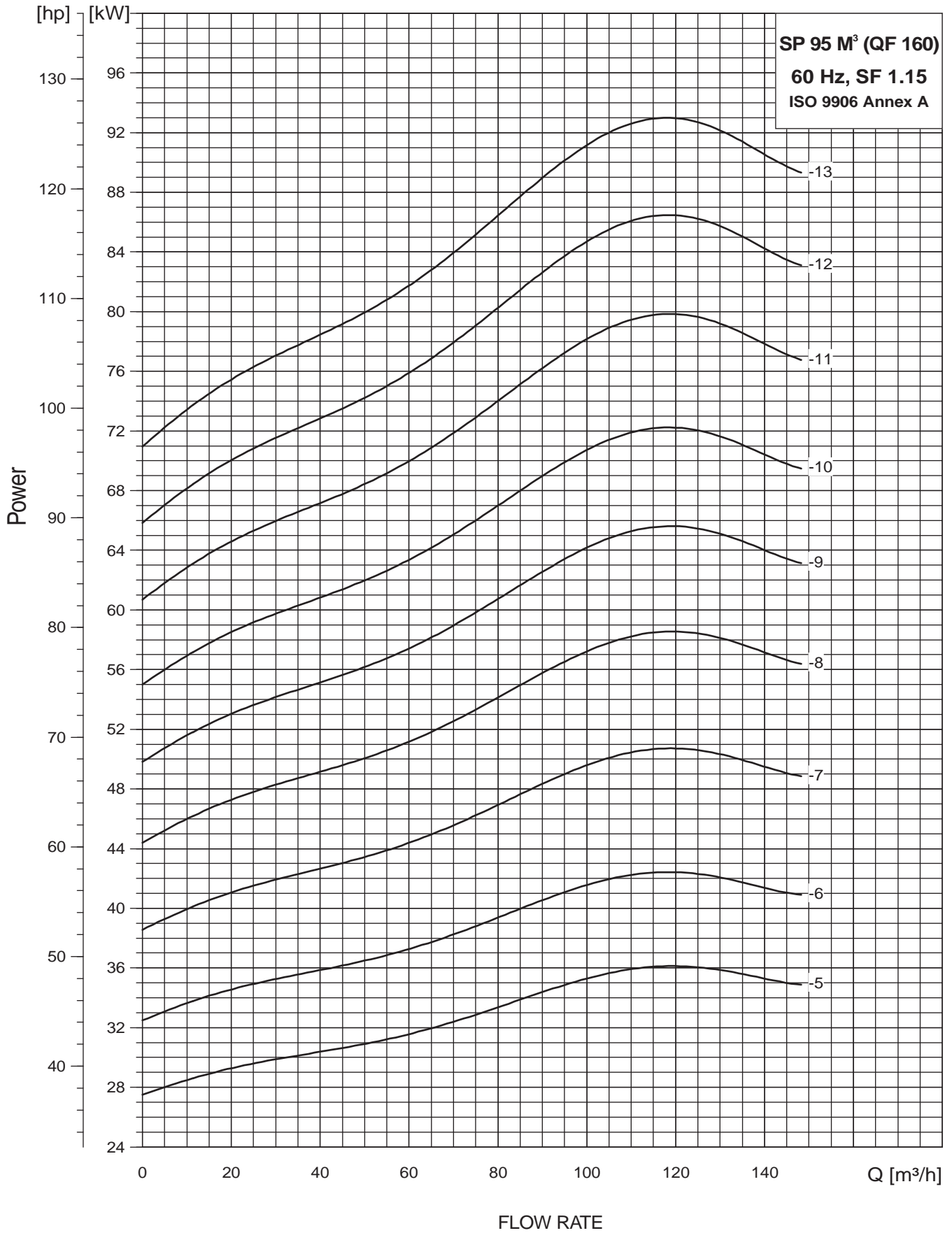
Submersible Pump
QF160



DOC-SPL-0401-QF16060 0160

Performance Curve

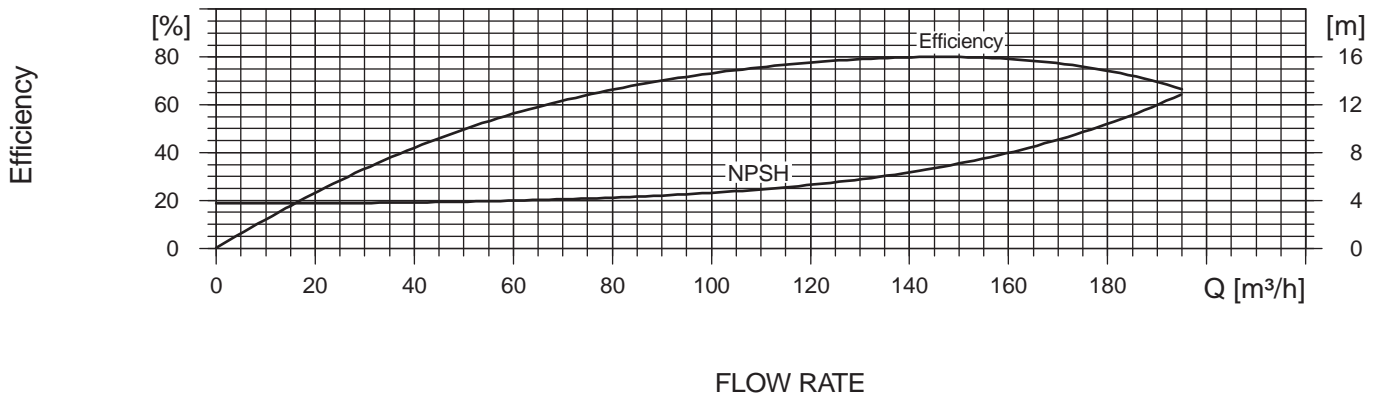
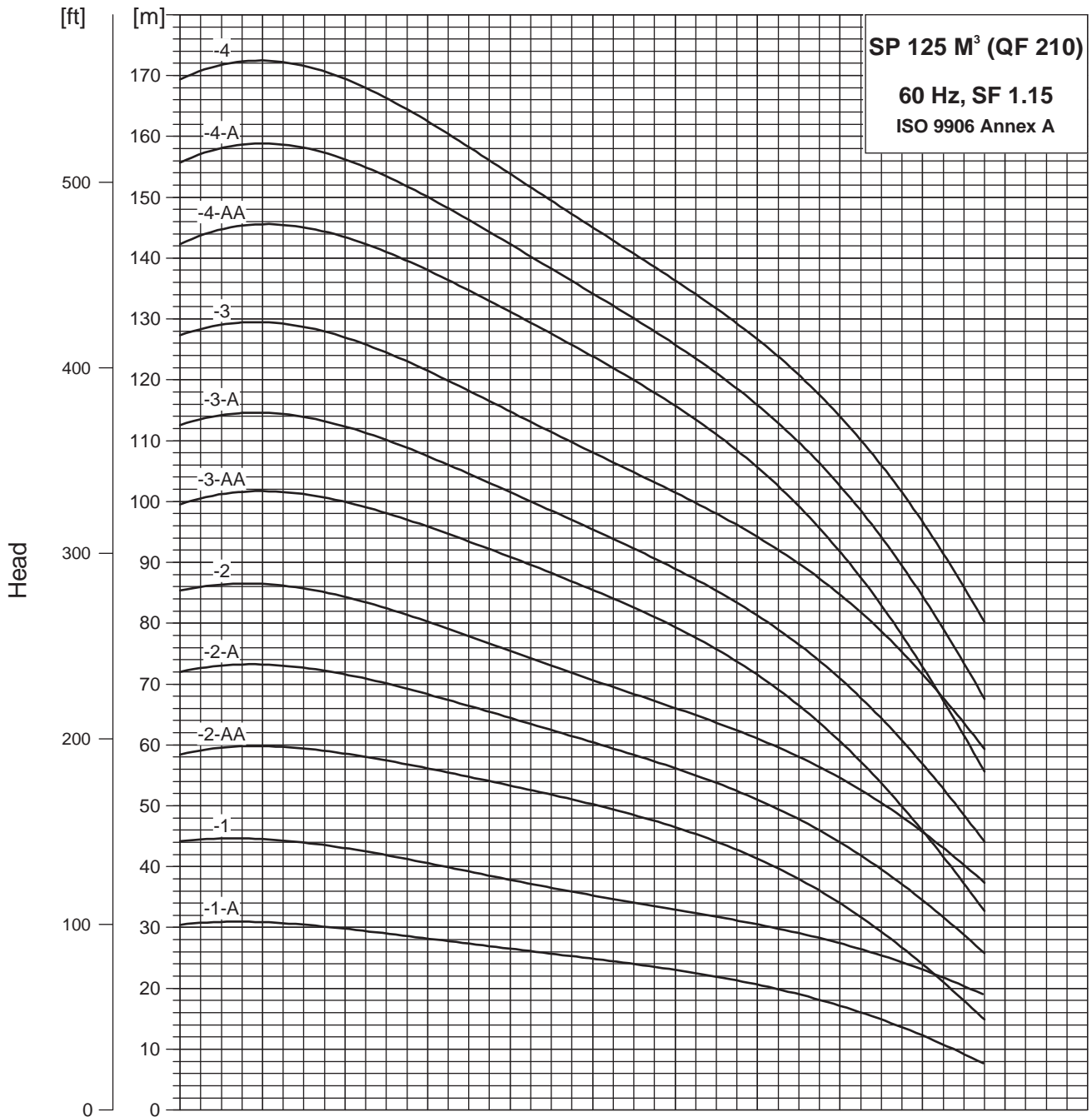
Submersible Pump
QF160



DOC-SPL-0401-QF16060 0160

Performance Curve

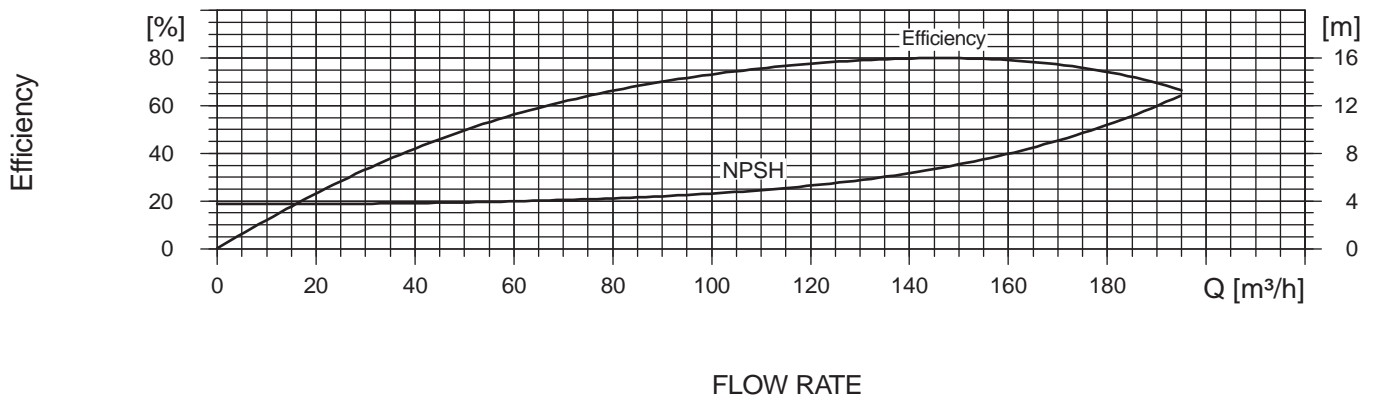
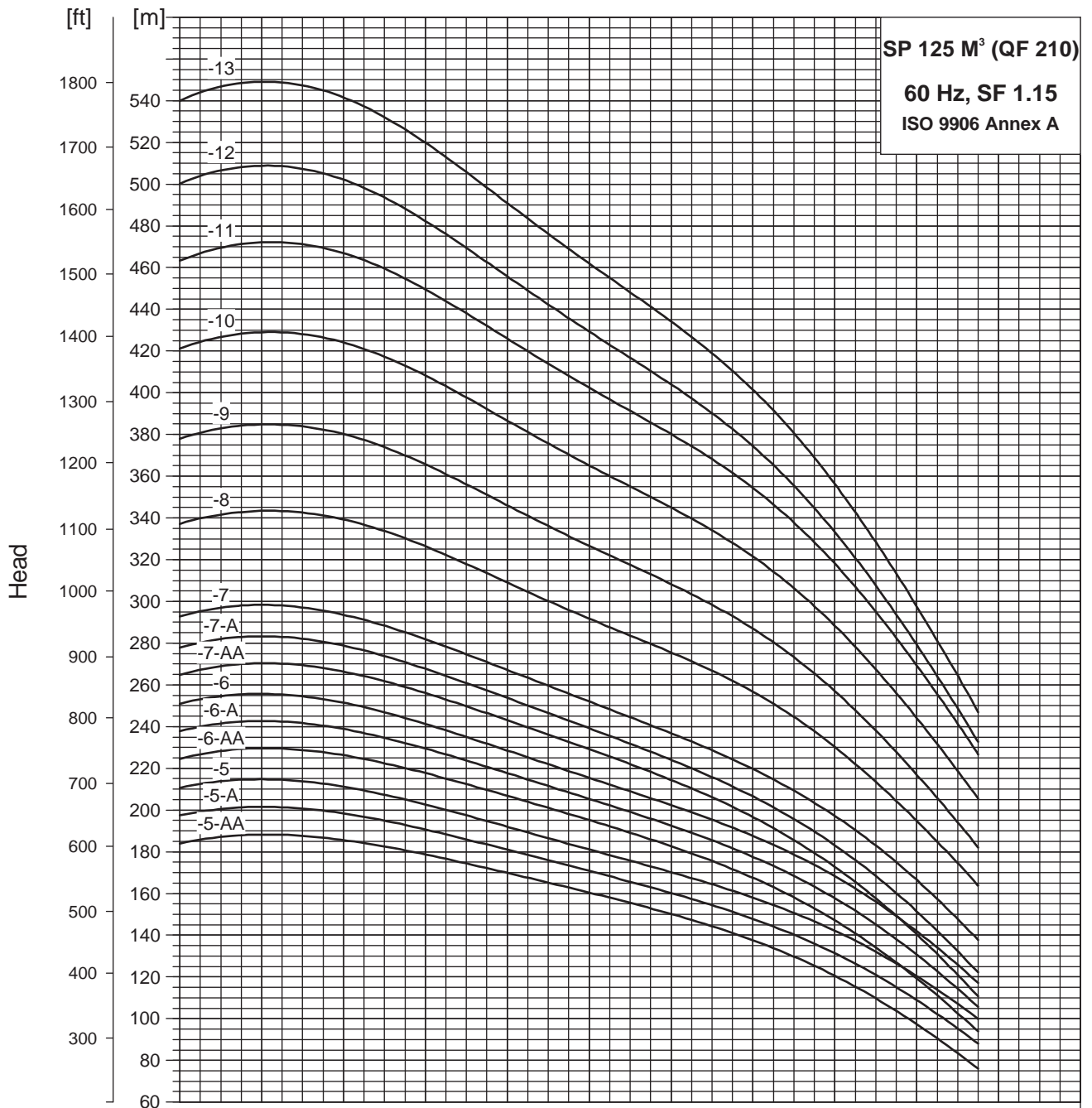
Submersible Pump
QF210



DOC-SPL-0401-QF21060 0210

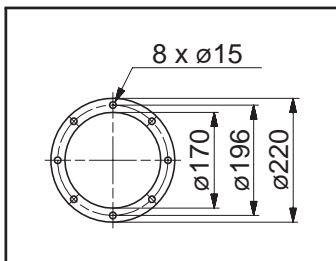
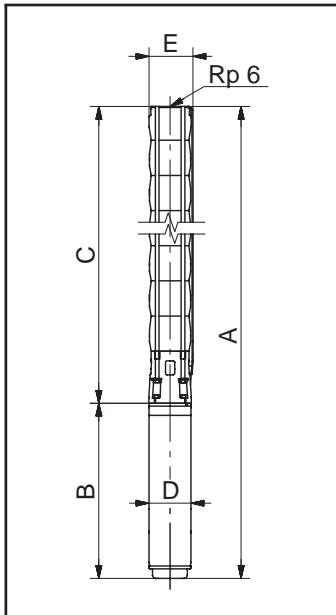
Performance Curve

Submersible Pump
QF210



DOC-SPL-0401-QF21060 0210

Dimensions and Weights



Pump type	Motor		Dimensions [mm]										Net weight [kg]
	Type	Power [kw]	Rp 5 connection				5" Grundfos flange				B	D	
			A	C	E*	E**	A	C	E*	E**			
QF210-1-A	MS 150	11	1286	652	211	215	1286	652	222	226	634	138	81
QF210-1	MS 150	18.5	1406	652	211	215	1406	652	222	226	754	138	93
QF210-2-AA	MS 150	22	1621	807	211	215	1621	807	222	226	814	138	105
QF210-2-A	MS 150	26	1681	807	211	215	1681	807	2522	226	874	138	111
QF210-2	MS 150	30	1751	807	211	215	1751	807	222	226	944	138	119
QF210-3-AA	MS 150	37	2388	963	211	215	2388	963	222	226	1425	138	172
QF210-3-A	MS 150	37	2388	963	211	215	2388	963	222	226	1425	138	172
QF210-3	MTSFC 200	45	2233	963	213	219	2233	963	229	232	1270	192	226
QF210-4-AA	MTSFC 200	55	2468	1118	213	219	2468	1118	229	232	1350	192	247
QF210-4-A	MTSFC 200	55	2468	1118	213	219	2468	1118	229	232	1350	192	247
QF210-4	MTSFC 200	63	2608	1118	213	219	2608	1118	229	232	1490	192	273
QF210-AA	MTSFC 200	75	2864	1274	213	219					1590	192	296
QF210-5-A	MTSFC 200	75	2864	1274	213	219					1590	192	296
QF210-5	MTSFC 200	75	2864	1274	213	219					1590	192	296
QF210-6-AA	MTSFC 200	75	3019	1429	213	219					1590	192	302
QF210-6-A	MTSFC 200	92	3259	1429	213	219					1830	192	348
QF210-6	MTSFC 200	92	3259	1429	213	219					1830	192	348
QF210-7-AA	MTSFC 200	92	3415	1585	213	219					1830	192	354
QF210-7-A	MTSFC 200	92	3415	1585	213	219					1830	192	354
QF210-7	MOTOR 10"	110	3645	1585	213	219					2060	192	404
QF210-8	MOTOR 10"	132	3962	2092	237	237					1870	237	532
QF210-9	MOTOR 10"	132	4118	2248	237	237					1870	237	538
QF210-10	MOTOR 10"	147	4473	2403	237	237					2070	237	609
QF210-11	MOTOR 10"	170	4779	2559	237	237					2220	237	655
QF210-12	MOTOR 12"	185	4527	2793	286	286					1734	286	687
QF210-13	MOTOR 12"	185	4682	2948	286	286					1734	286	693

* Maximum diameter of pump with one motor cable.

** Maximum diameter of pump with two motor cable.

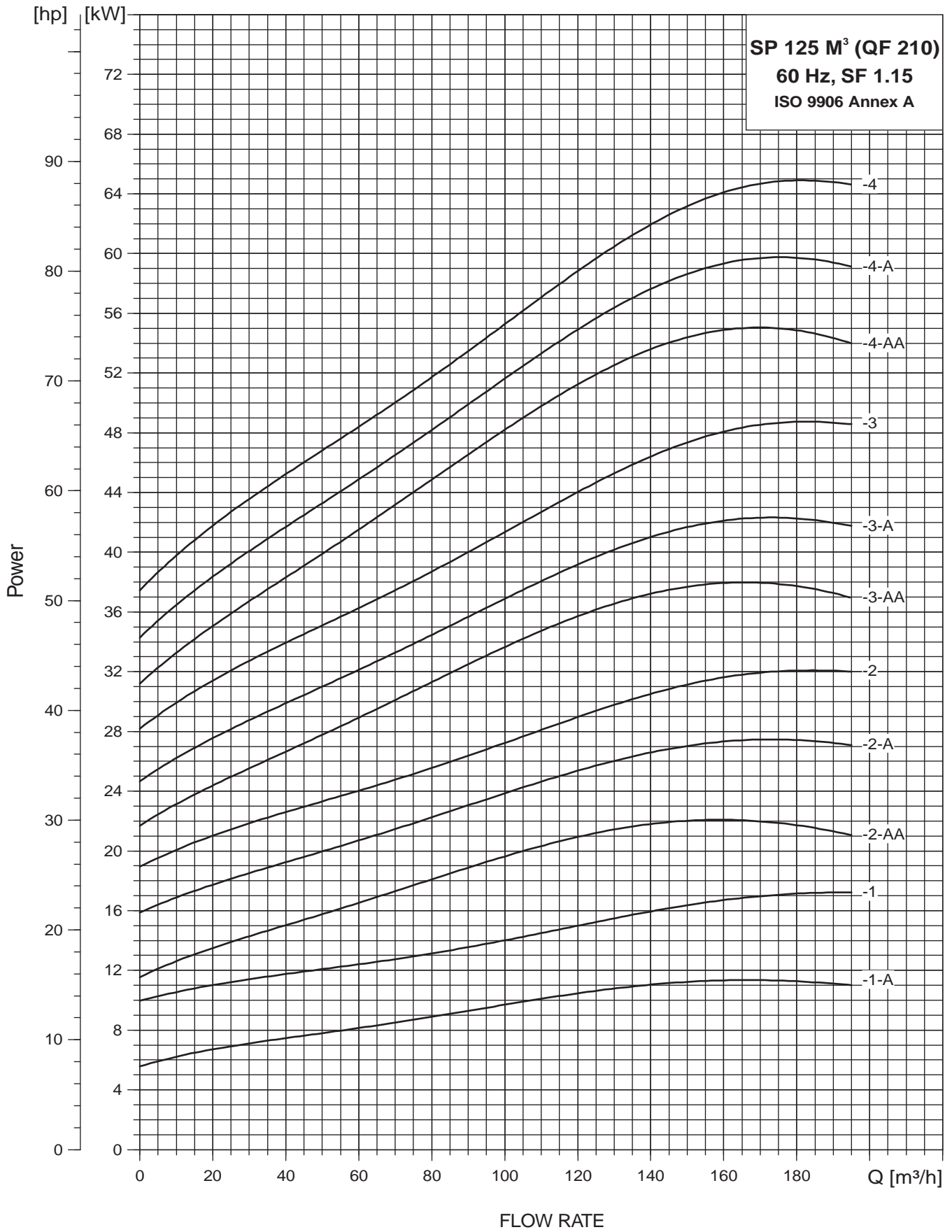
Also available 45 kW in 6" joining.

All pumps are also available in N version.

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

Performance Curve

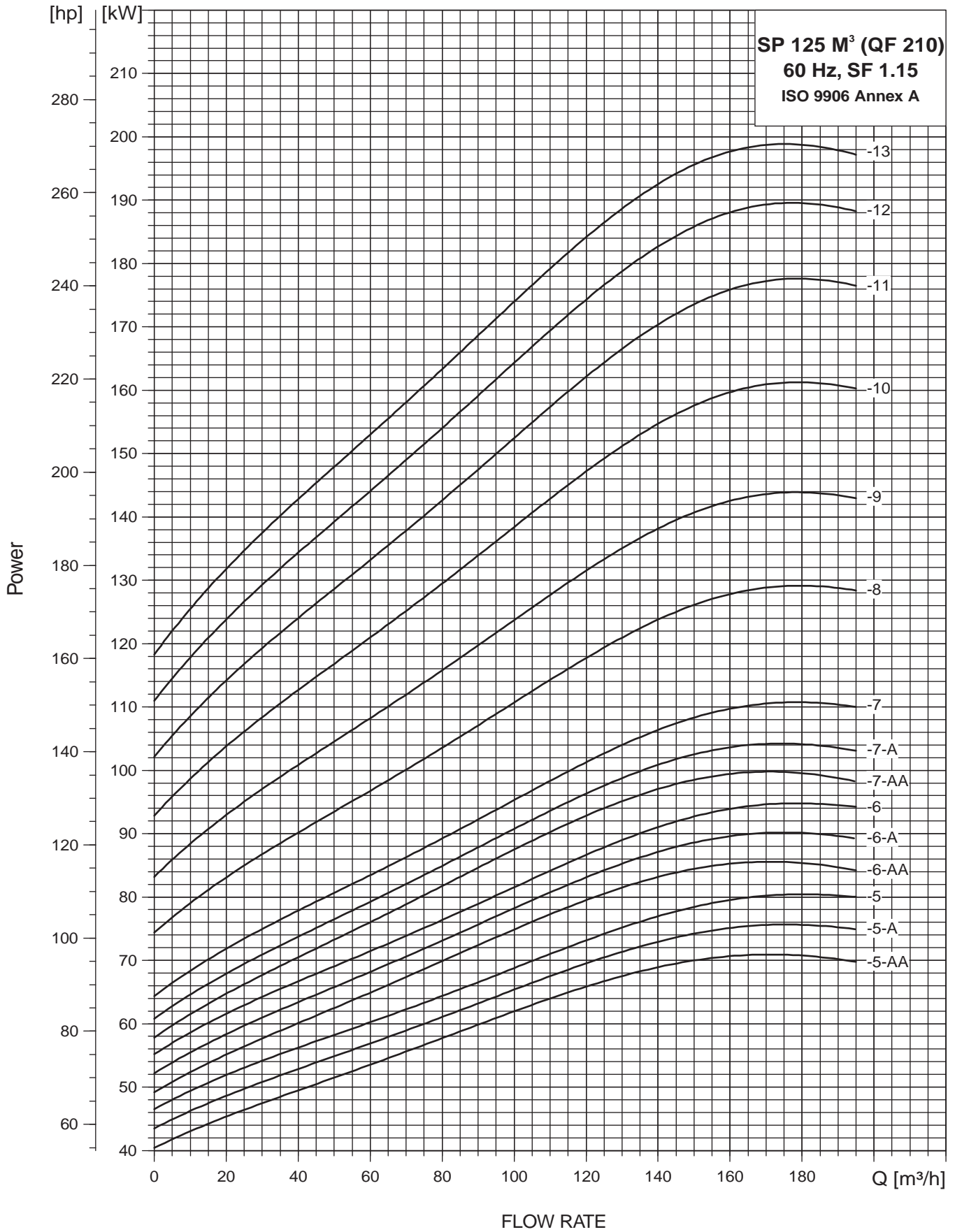
Submersible Pump
QF210



DOC-SPL-0401-QF21060 0210

Performance Curve

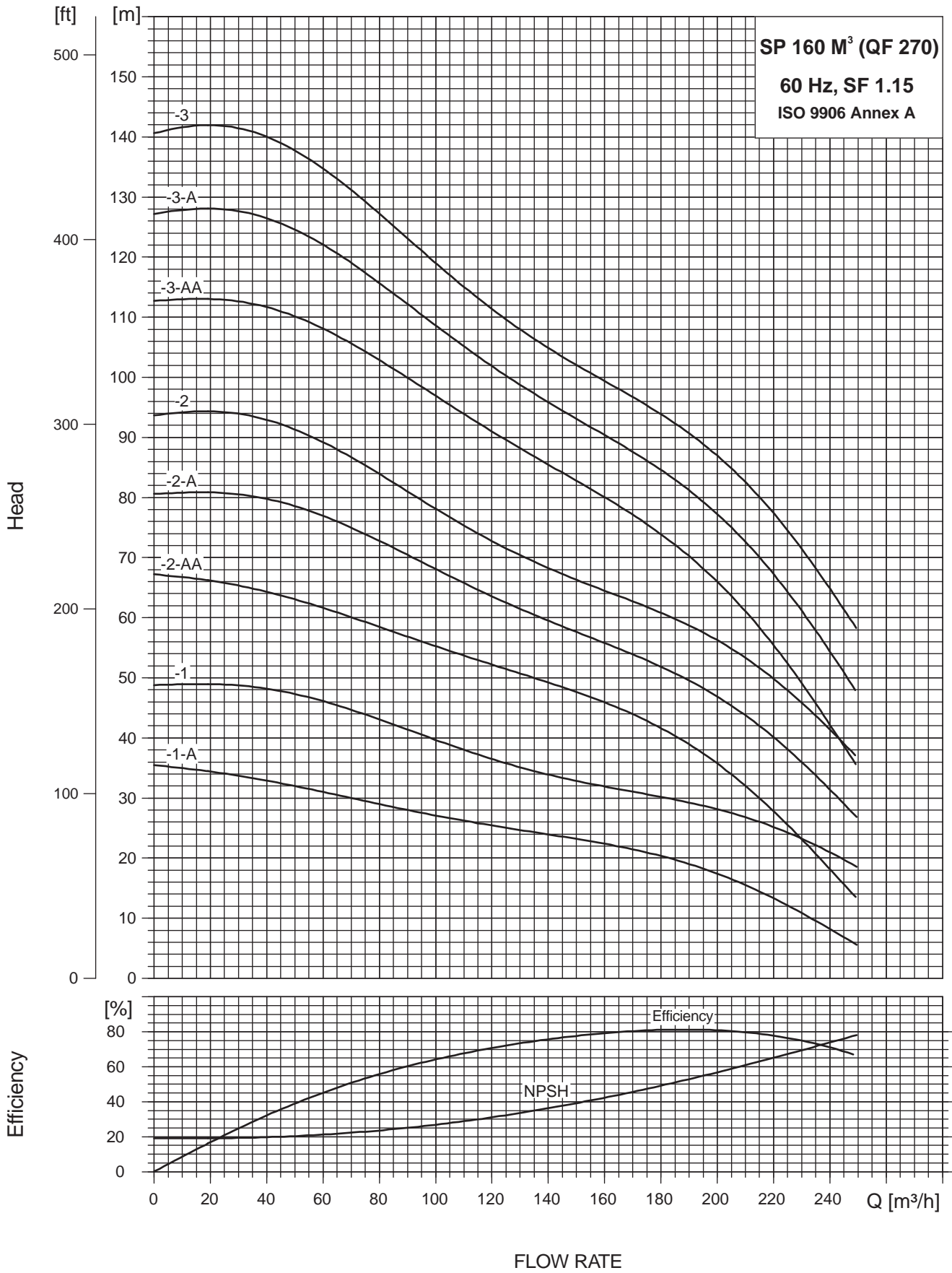
Submersible Pump
QF210



DOC-SPL-0401-QF21060 0210

Performance Curve

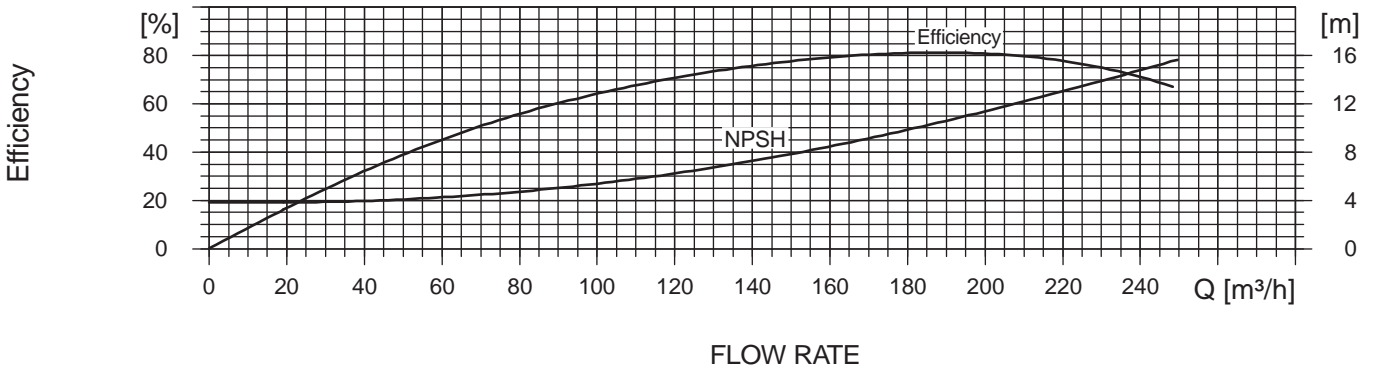
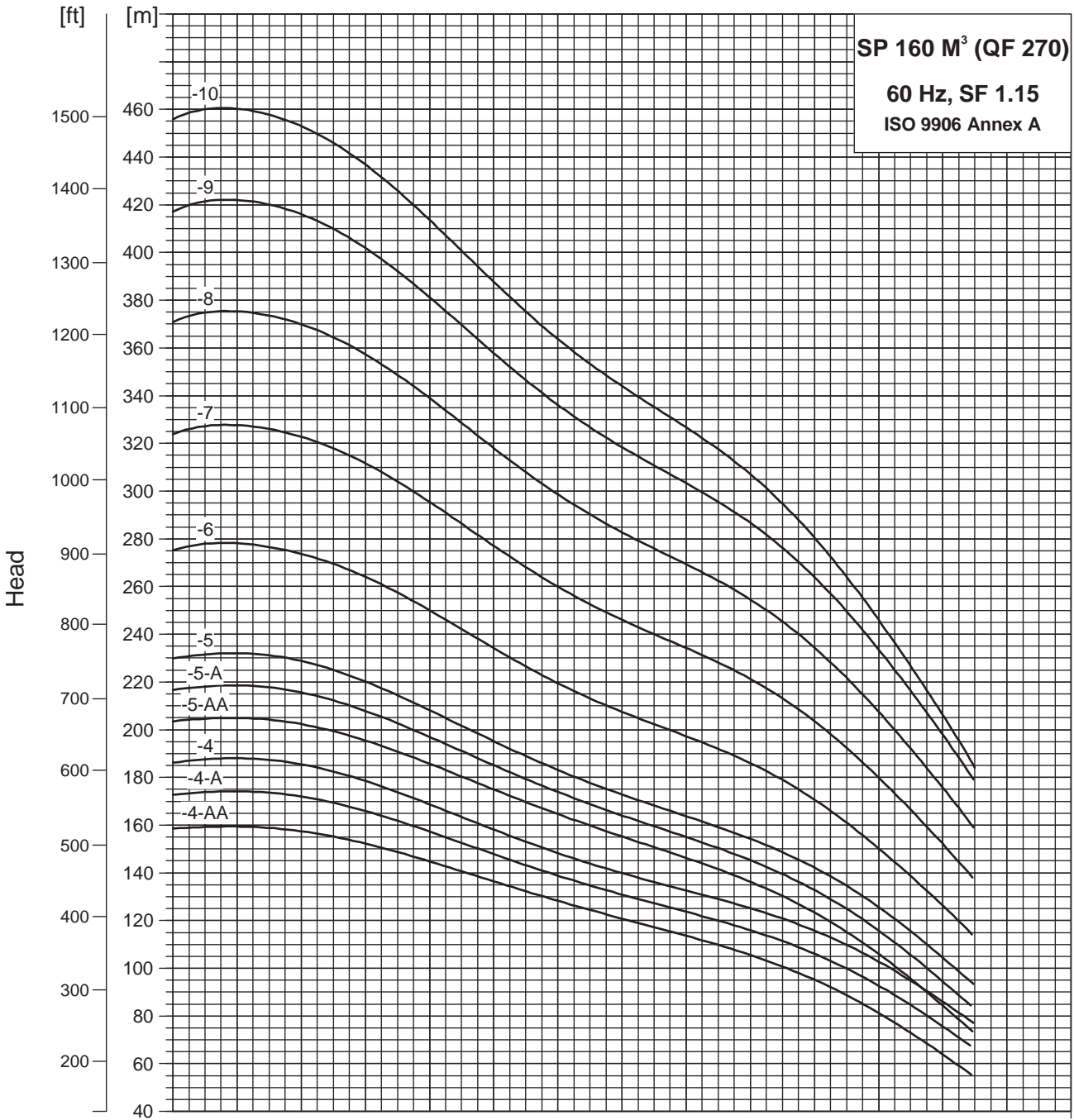
Submersible Pump
QF270



DOC-SPL-0401-QF27060 0270

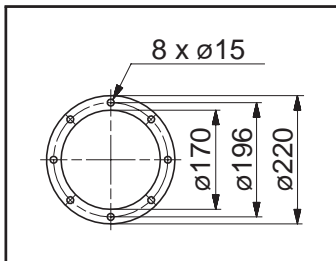
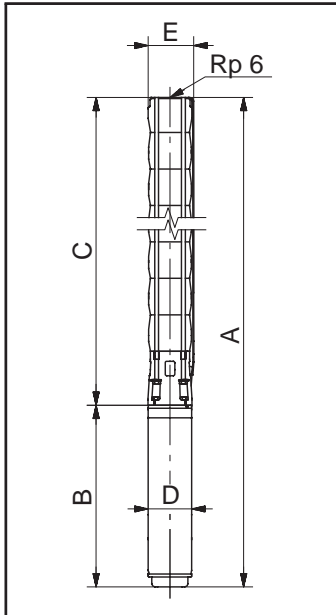
Performance Curve

Submersible Pump
QF270



DOC-SPL-0401-QF27060 0270

Dimensions and Weights



Pump type	Motor		Dimensions [mm]										Net weight [kg]
	Type	Power [kw]	Rp 6 connection				6" Grundfos flange				B	D	
			A	C	E*	E**	A	C	E*	E**			
QF270-1-A	MS 150	15	1351	652	211	215	1351	652	222	226	699	138	88
QF270-1	MS 150	22	1466	652	211	215	1466	652	222	226	814	138	99
QF270-2-AA	MS 150	26	1681	807	211	215	1681	807	222	226	874	138	111
QF270-2-A	MS 150	37	2232	807	211	215	2232	807	222	226	1425	138	166
QF270-2	MS 150	37	2232	807	211	215	2232	807	222	226	1425	138	166
QF270-3-AA	MTSFC200	45	2233	963	213	219	2233	963	229	232	1270	192	226
QF270-3-A	MTSFC200	55	2313	963	213	219	2313	963	229	232	1350	192	241
QF270-3	MTSFC200	55	2313	963	213	219	2313	963	229	232 C	1350	192	241
QF270-4-AA	MTSFC200	63	2608	1118	213	219					1490	192	271
QF270-4-A	MTSFC200	75	2708	1118	213	219					1590	192	290
QF270-4	MTSFC200	75	2708	1118	213	219					1590	192	290
QF270-5-AA	MTSFC200	92	3104	1274	213	219					1830	192	342
QF270-5-A	MTSFC200	92	3104	1274	213	219					1830	192	342
QF270-5	MTSFC200	92	3104	1274	213	219					1830	192	342
QF270-6	MOTOR 10"	110	3789	1729	213	219					2060	192	408
QF270-7	MOTOR 10"	132	3807	1937	237	237					1870	237	526
QF270-8	MOTOR 10"	147	4162	2092	237	237					2070	237	597
QF270-9	MOTOR 10"	170	4468	2248	237	237					2220	237	643
QF270-10	MOTOR 12"	185	4216	2482	286	286					1734	286	675

* Maximum diameter of pump with one motor cable.

** Maximum diameter of pump with two motor cable.

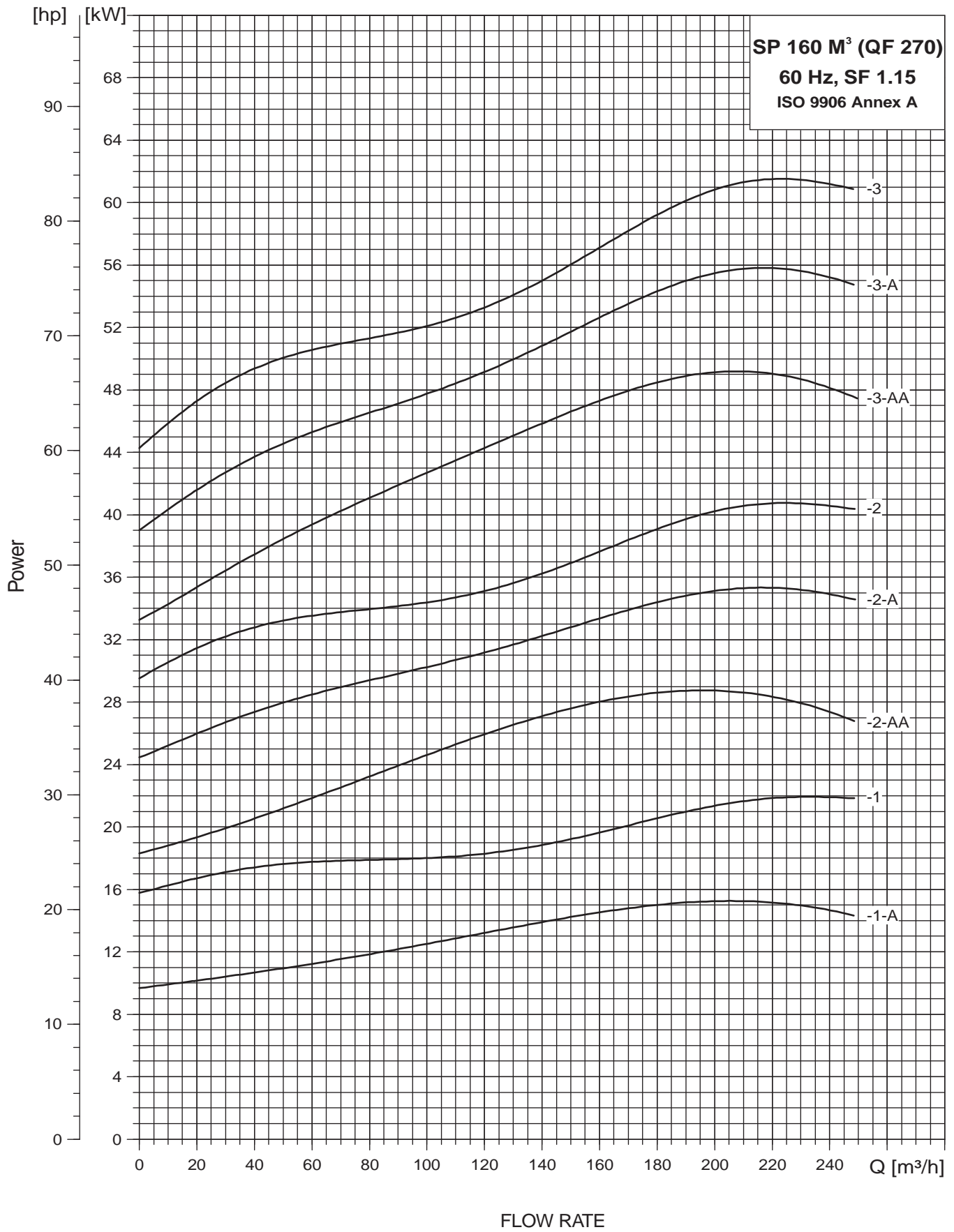
Also available 45 kW in 6" joining.

All pumps are also available in N version.

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

Performance Curve

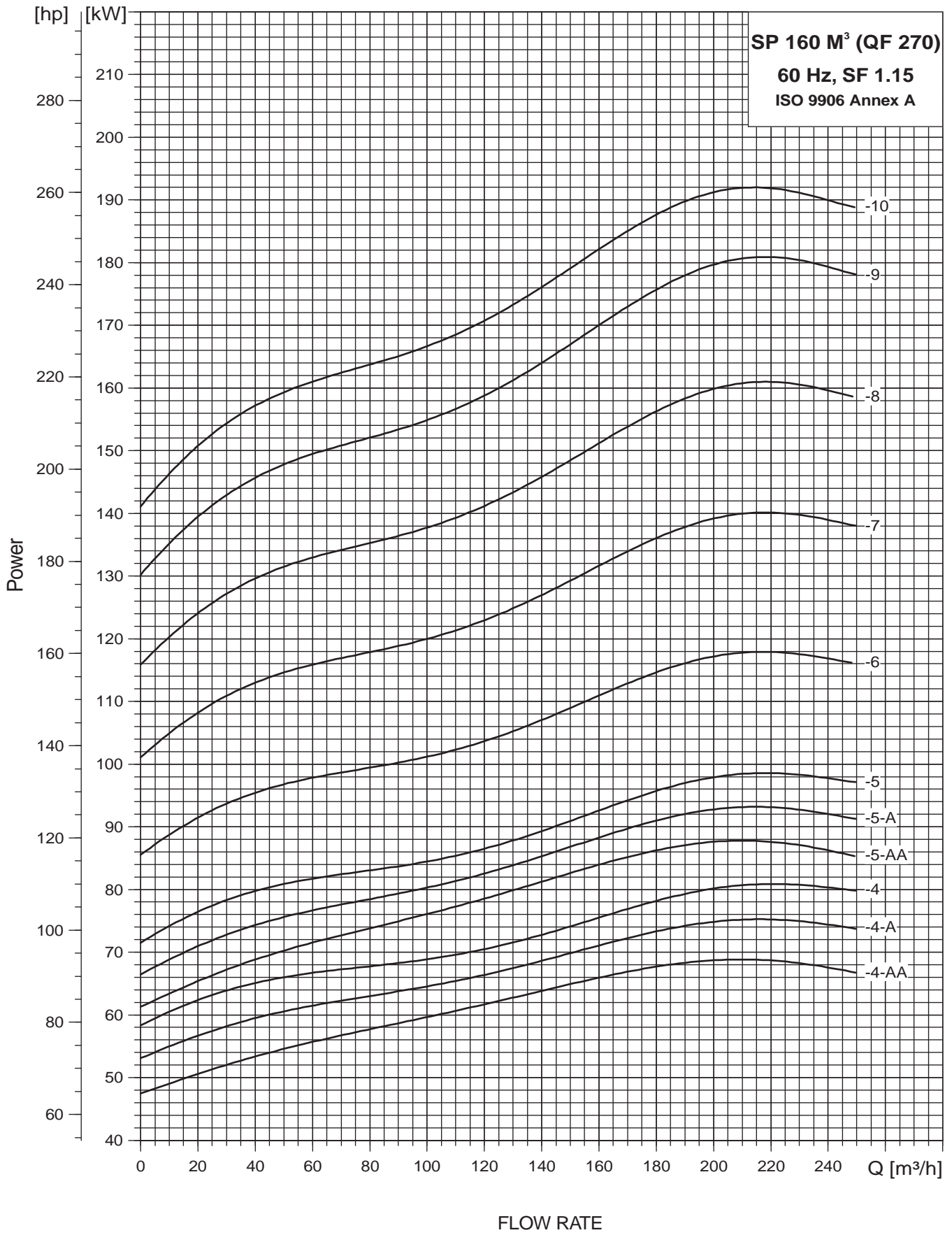
Submersible Pump
QF270



DOC-SPL-0401-QF27060 0270

Performance Curve

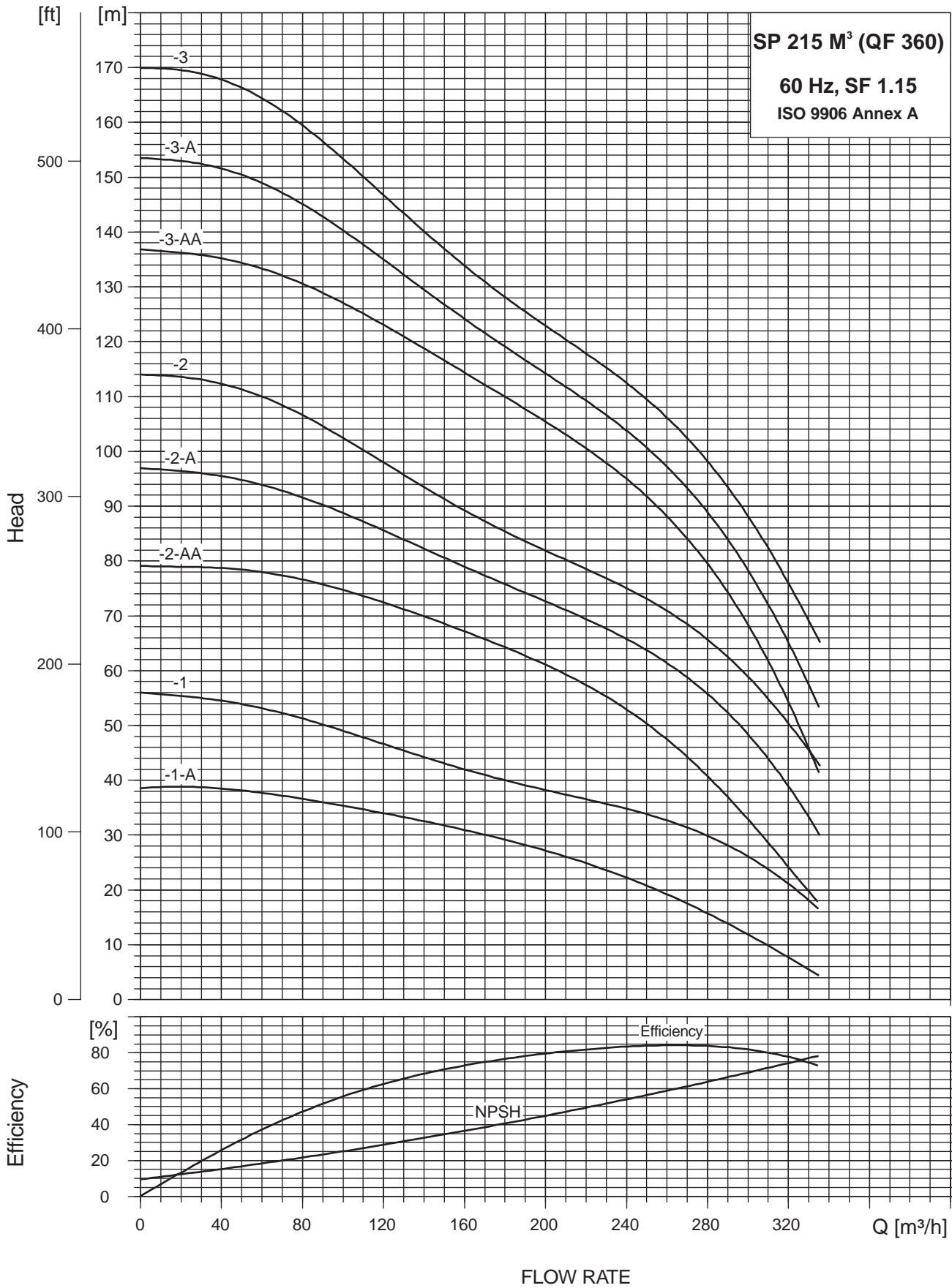
Submersible Pump
QF270



DOC-SPL-0401-QF27060 0270

Performance Curve

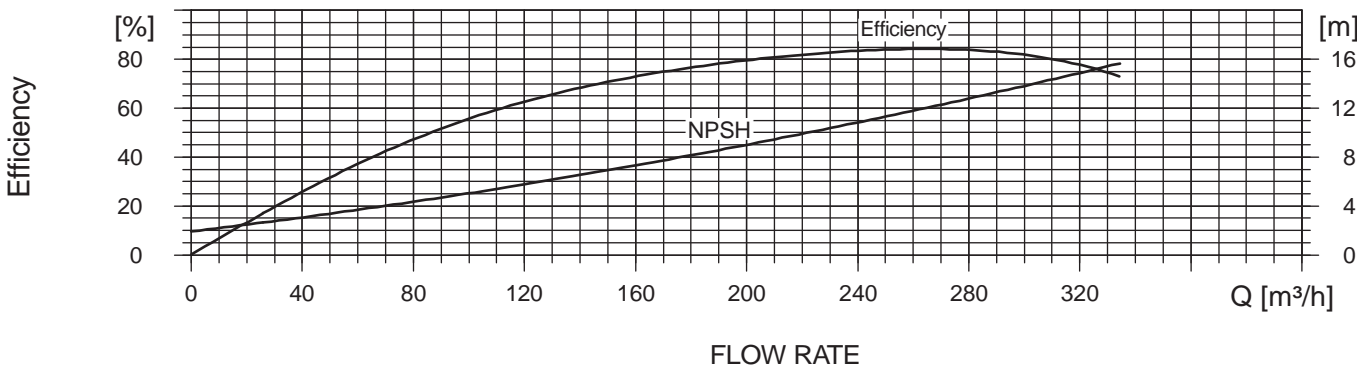
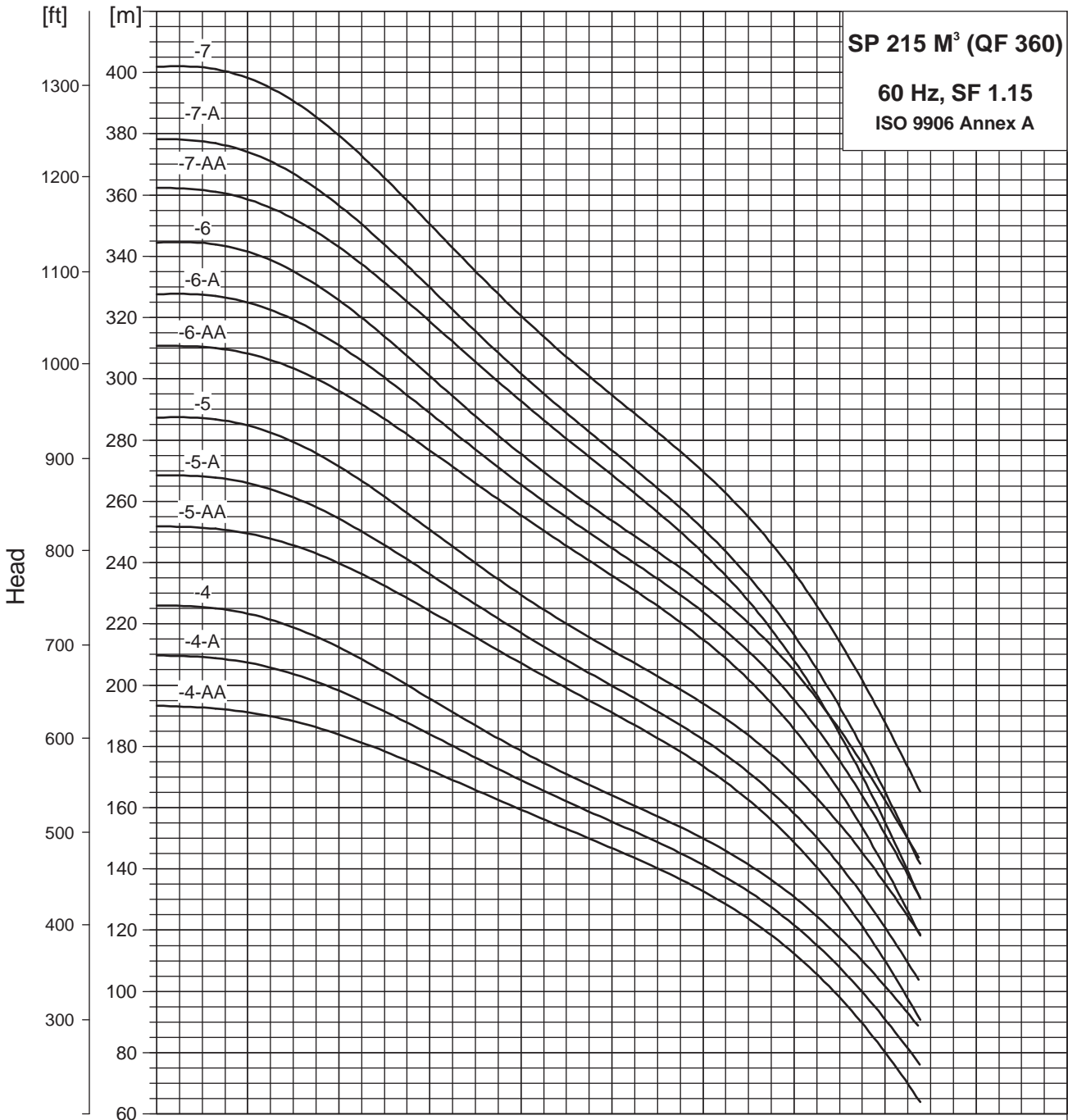
Submersible Pump
QF360



DOC-SPL-0401-QF36060 0360

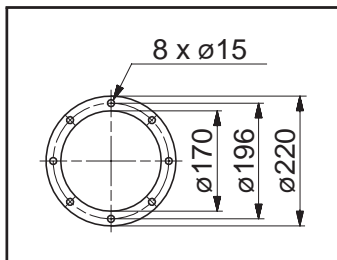
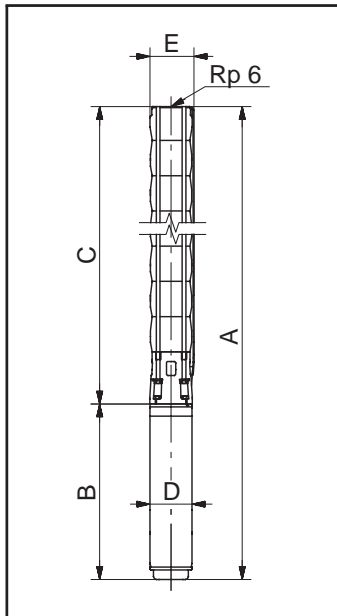
Performance Curve

Submersible Pump
QF360



DOC-SPL-0401-QF36060 0360

Dimensions and Weights



Pump type	Motor		Dimensions [mm]										Net weight [kg]
	Type	Power [kw]	Rp 6 connection				6" Grundfos flange				B	D	
			A	C	E*	E**	A	C	E*	E**			
QF360-1-A	MS 150	22	1604	790	236	239	1604	790	241	247	814	138	106
QF360-1	MS 150	30	1734	790	236	239	1734	790	241	247	944	138	120
QF360-2-AA	MTSFC200	45	2236	966	239	244	2236	966	241	247	1270	192	231
QF360-2-A	MTSFC200	55	2316	966	239	244	2316	966	241	247	1350	192	246
QF360-2	MTSFC200	63	2456	966	239	244	2456	966	241	247	1490	192	272
QF360-3-AA	MTSFC200	75	2732	1142	239	244	2732	1142	241	247	1590	192	301
QF360-3-A	MTSFC200	92	2972	1142	239	244	2972	1142	241	247	1830	192	347
QF360-3	MTSFC200	92	2972	1142	239	244	2972	1142	241	247	1830	192	347
QF360-4-AA	MTSFC200	110	3378	1318	239	244	3378	1318	241	247	2060	192	407
QF360-4-A	MTSFC200	110	3378	1318	239	244	3378	1318	241	247	2060	192	407
QF360-4	MOTOR 10"	110	3378	1318	239	2544	3378	1318	241	247	2060	192	407
QF360-5-AA	MOTOR 10"	132	3364	1494	250	254					1870	237	519
QF360-5-A	MOTOR 10"	132	3364	1494	250	254					1870	237	519
QF360-5	MOTOR 10"	147	3564	1494	250	254					2070	237	584
QF360-6-AA	MOTOR 10"	170	3890	1670	250	254					2220	237	634
QF360-6-A	MOTOR 10"	170	3890	1670	250	254					2220	237	634
QF360-6	MOTOR 10"	170	3890	1670	250	254					2220	237	634
QF360-7-AA	MOTOR 12"	185	3880	2146	286	286					1734	286	665
QF360-7-A	MOTOR 12"	185	3880	2146	286	286					1734	286	665
QF360-7	MOTOR 12"	220	4030	2146	286	286					1884	286	729

* Maximum diameter of pump with one motor cable.

** Maximum diameter of pump with two motor cable.

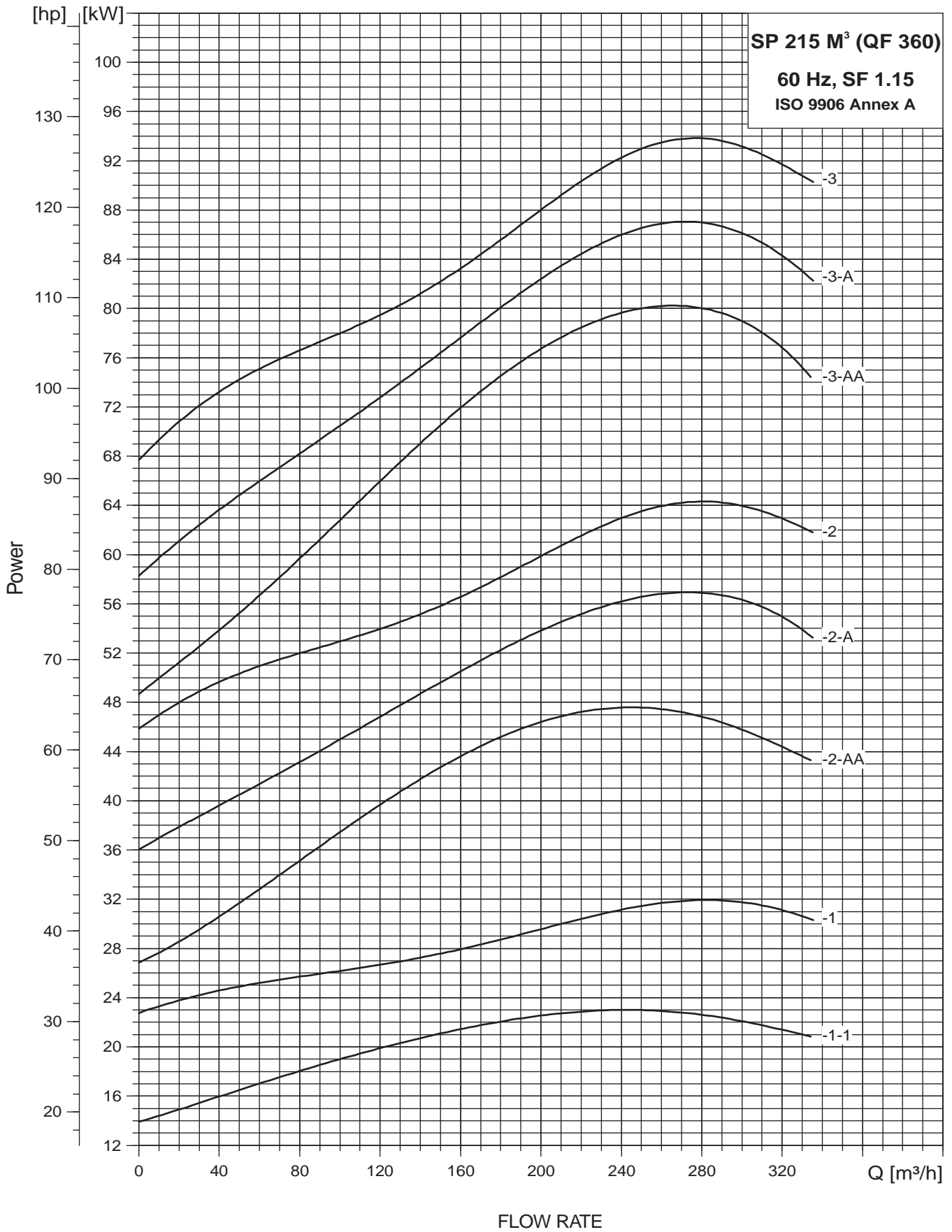
Also available 45 kW in 6" joining.

All pumps are also available in N version.

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

Performance Curve

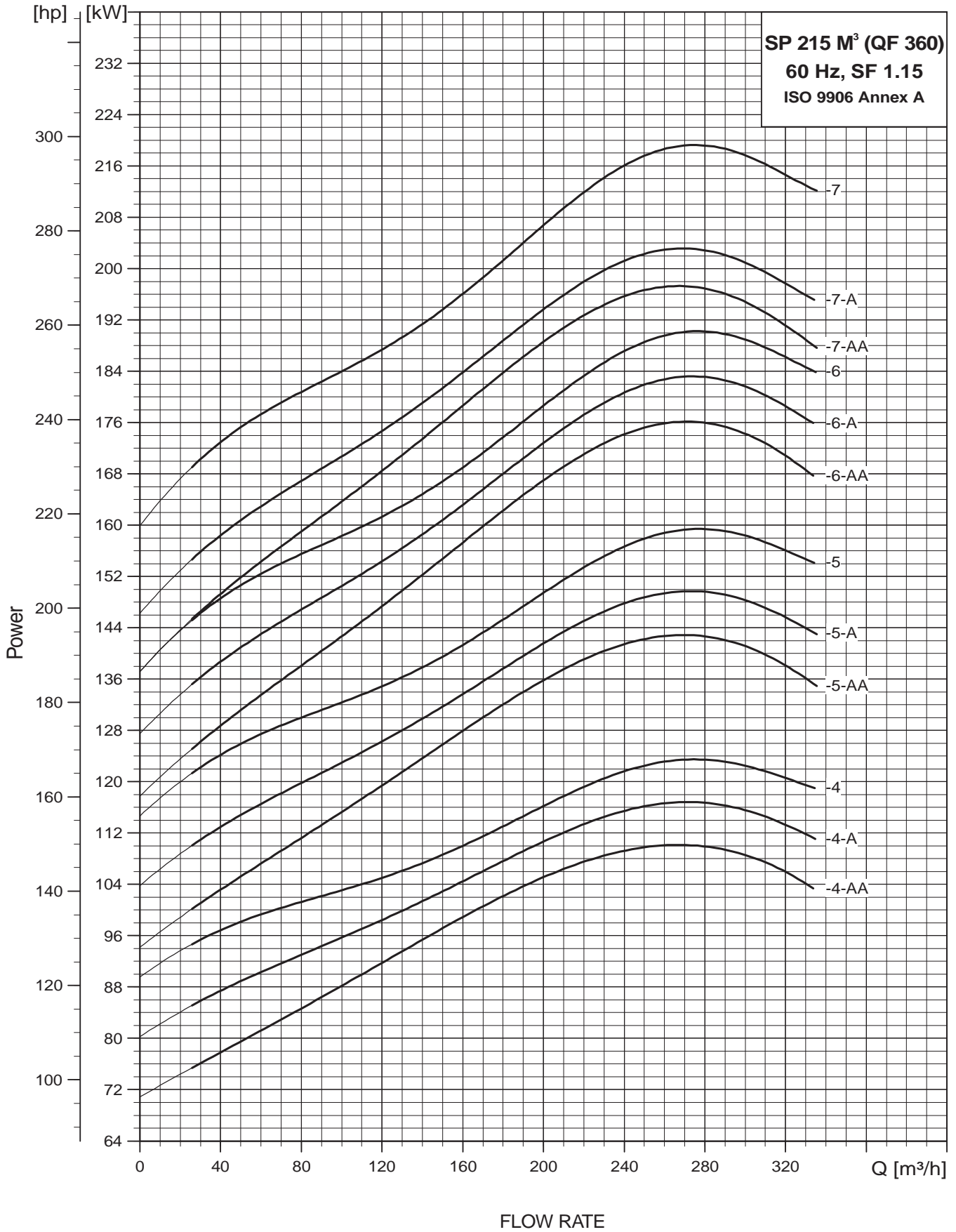
Submersible Pump
QF360



DOC-SPL-0401-QF36060 0360

Performance Curve

Submersible Pump
QF360



DOC-SPL-0401-QF36060 0360

Submersible Motors

Submersible Motors
F+,QF

1 x 220 V, submersible motors Encapsulated

Electrical date											Dimension		
Type	Motor			Full-load current I _n [A]	Motor efficiency (%)			Power factor			1st In	Length [mm]	Weight [lbs]
	Size	Power [kw]	Power [hp]		50%	75%	100%	Cos 50%	Cos 75%	Cos 100%			
MS 100	4"	0.25	0.33	4.2	40	50	55	0.44	0.48	0.50	3*	256	14.99
MS 100	4"	0.37	0.5	5.2	43	52	56	0.44	0.50	0.58	3.6*	256	14.99
MS 100	4"	0.55	0.75	7.1	43	52	58	0.47	0.56	0.62	3.7*	291	18.07
MS 100	4"	0.75	1.0	8.6	48	56	62	0.50	0.58	0.64	3.8*	306	19.62
MS 100	4"	1.1	1.5	11.0	54	63	67	0.56	0.60	0.68	4*	346	23.14
MS 100	4"	1.1	1.5	12.0			74			0.56	4.4**	346	23.14

* Applies to 2 and 3 wire motors

** Applies to 2 wire motors

3 x 220 V, submersible motors Encapsulated

Electrical date											Dimension		
Type	Size	Motor		Full-load current I _n [A]	Motor efficiency (%)			Power factor			1st In	Length [mm]	Weight [lbs]
		Power [kw]	Power [hp]		50%	75%	100%	Cos 50%	Cos 75%	Cos 100%			
MS 100	4"	0.37	0.5	2.5	58	65	69	0.48	0.50	0.56	5.0	226	12.12
MS 100	4"	0.55	0.75	3.4	58	66	69	0.47	0.56	0.62	4.8	241	13.88
MS 100	4"	0.75	1.0	4.2	61	67.5	72	0.50	0.60	0.68	5.0	276	16.97
MS 100	4"	1.1	1.5	5.6	65	71	74	0.50	0.60	0.70	5.5	306	19.62
MS 100	4"	1.5	2.0	7.2	68	74	76	0.54	0.67	0.72	5.5	346	23.14
MS 100	4"	2.2	3.0	10.2	74	77	78	0.58	0.70	0.73	4.7	453	35.27
MS 100	4"	3.0	4.0	13.5	77	79	79	0.60	0.70	0.74	4.7	493	37.47
MS 100	4"	4.0	5.5	1.08	80	80	80	0.68	0.70	0.73	5.4	573	46.29
MS 100	4"	5.5	7.5	24.7	78	81	79	0.64	0.69	0.74	5.1	673	57.32
MS 150	6"	5.5	7.5	22.6	76	80	81	0.63	0.73	0.79	5.3	541	78.26
MS 150	6"	7.5	10	29.7	78	82	83	0.66	0.76	0.80	5.3	571	81.57
MS 150	6"	9.2	12.5	36.0	0.8	81	81	0.68	0.78	0.83	4.4	601	93.69
MS 150	6"	11.0	15.0	43.5	80	83	83	0.71	0.78	0.80	4.3	631	100.31
MS 150	6"	13.0	17.5	50.0	81	83	83	0.69	0.80	0.92	4.5	661	106.92
MS 150	6"	15.0	20.0	56.8	82	84	85	0.70	0.81	0.83	4.9	696	115.74
MS 150	6"	18.5	25.0	70.0	82	85	85	0.68	0.80	0.82	5.0	751	127.86
MS 150	6"	22.0	30.0	62.0	84	85	86	0.73	0.80	0.82	4.7	811	141.09
MS 150	6"	26.0	35.0	97.0	83	85	85	0.73	0.82	0.83	4.6	871	153.22
MS 150	6"	30.0	40.0	112.2	84	85	85	0.72	0.80	0.83	4.6	941	170.85

Submersible Motors

Submersible Motors
F+,QF

3 x 380 V, submersible motors Encapsulated

Electrical date											Dimension		
Type	Size	Motor		Full-load current I _n [A]	Motor efficiency (%)			Power factor			1st In	Length [mm]	Weight [lbs]
		Power [kw]	Power [hp]		50%	75%	100%	Cos 50%	Cos 75%	Cos 100%			
MS 100	4"	0.37	0.5	1.5	58	68	70	0.52	0.6	0.70	5.0	226	12.12
MS 100	4"	0.55	0.75	2.0	58	66	69	0.47	0.59	0.70	4.8	241	13.88
MS 100	4"	0.75	1.0	2.3	61	67	71	0.50	0.63	0.70	5.0	276	16.97
MS 100	4"	1.1	1.5	3.2	65	72	72	0.49	0.62	0.72	5.5	306	19.62
MS 100	4"	1.5	2.0	4.0	68	74	76	0.53	0.67	0.75	5.5	346	23.14
MS 100	4"	2.2	3.0	6.0	71	75	76	0.52	0.64	0.73	4.9	453	35.27
MS 101	4"	3.0	4.0	7.4	74	78	78	0.56	0.70	0.79	4.9	493	37.47
MS 101	4"	4.0	5.5	10.0	78	80	80	0.60	0.74	0.76	5.7	573	46.29
MS 101	4"	5.5	7.5	13.4	80	81	80	0.60	0.74	0.78	5.3	673	57.32
MS 150	6"	5.5	7.5	13.2	76	80	81	0.58	0.70	0.78	4.5	541	78.26
MS 150	6"	7.5	10.0	17.0	80	82	82	0.64	0.74	0.82	4.6	571	81.57
MS 150	6"	9.2	12.5	21.0	77	80	81	0.64	0.74	0.82	4.7	601	93.69
MS 150	6"	11.0	15.0	25.0	80	83	83	0.66	0.76	0.80	4.7	631	100.31
MS 150	6"	13.0	17.5	29.0	80	84	83	0.64	0.76	0.82	4.8	661	106.92
MS 150	6"	15.0	20.0	33.0	81	83	84	0.64	0.76	0.82	5.2	696	115.74
MS 150	6"	18.5	25.0	41.0	82	84	84	0.64	0.76	0.82	5.3	751	127.86
MS 150	6"	22.0	30.0	48.0	83	85	85	0.67	0.77	0.82	5.1	811	141.09
MS 150	6"	26.0	35.0	56.0	83	84	85	0.67	0.77	0.83	5.0	871	153.22
MS 150	6"	30.0	40.0	65.0	83	85	85	0.67	0.77	0.82	5.0	941	170.85

3 x 460 V, submersible motors Encapsulated

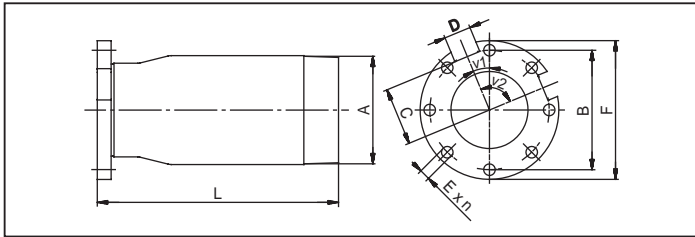
Electrical date											Dimension		
Type	Size	Motor		Full-load current I _n [A]	Motor efficiency (%)			Power factor			1st In	Length [mm]	Weight [lbs]
		Power [kw]	Power [hp]		50%	75%	100%	Cos 50%	Cos 75%	Cos 100%			
MS 100	4"	0.37	0.5	0.9	58.0	65.0	69.0	0.51	0.64	0.75	5.0	226	12.12
MS 100	4"	0.55	0.75	1.3	58.5	65.5	69.0	0.47	0.59	0.77	4.8	241	13.88
MS 100	4"	0.75	1.0	2.1	61.5	67.0	71.0	0.50	0.63	0.72	5.0	276	16.97
MS 100	4"	1.1	1.5	3.0	64.5	70.5	73.0	0.49	0.62	0.63	5.5	306	19.62
MS 100	4"	1.5	2.0	3.7	68.0	72.5	75.0	0.54	0.64	0.68	5.5	346	23.14
MS 100	4"	2.2	3.0	5.1	70.0	75.0	76.0	0.52	0.65	0.71	4.8	453	35.27
MS 100	4"	3.0	4.0	6.2	73.4	77.3	78.0	0.54	0.68	0.78	4.9	493	37.47
MS 101	4"	4.0	5.5	8.8	77.1	79.8	80.0	0.60	0.74	0.71	5.7	573	46.29
MS 101	4"	5.5	7.5	11.0	79.5	80.7	81.0	0.60	0.74	0.78	5.3	673	57.32
MS 101	4"	7.5	10	15.9	78.5	80.7	81.0	0.56	0.69	0.73	5.2	773	68.34
MS 150	6"	5.5	7.5	11.7	76.0	79.5	81.0	0.56	0.68	0.73	4.5	541	78.26
MS 150	6"	7.5	10.0	15.6	78.0	79.0	81.0	0.61	0.73	0.75	4.6	571	81.57
MS 150	6"	9.2	12.5	18.7	77.0	80.0	81.0	0.62	0.73	0.76	4.7	601	93.69
MS 150	6"	11.0	15.0	22.0	79.5	82.5	83.0	0.66	0.76	0.76	4.7	631	100.31
MS 150	6"	13.0	17.5	25.6	80.0	83.0	83.0	0.64	0.74	0.77	4.8	661	106.92
MS 150	6"	15.0	20.0	28.8	81.0	83.5	84.0	0.64	0.75	0.78	5.2	696	115.74
MS 150	6"	18.5	25.0	36.0	81.0	84.0	84.0	0.62	0.73	0.77	5.3	751	127.88
MS 150	6"	22.0	30.0	41.8	82.0	85.0	85.0	0.67	0.78	0.78	5.1	811	141.09
MS 150	6"	26.0	35.0	48.8	82.0	84.0	85.0	0.67	0.77	0.78	5.0	871	153.22
MS 150	6"	30.0	40.0	56.5	82.0	84.0	85.0	0.66	0.76	0.78	5.6	941	170.85

Accessories

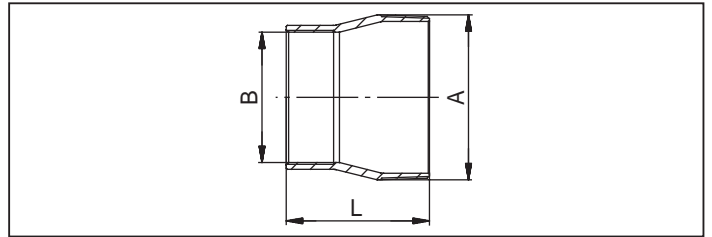
Connecting pieces

The tables below show the range of connecting pieces for connection of thread to flange and thread to thread.

Thread - Flange



Thread - Thread



Type	Pump outlet	Connecting piece	Thread - Flange									Product number		
			A	Dimensions [mm]						V ₁	V ₂	n	DIN W - Nr 1.4301	DIN W - Nr 1.4401
				B	C	D	E	F	L					
SP 17	Rp 2.5	R 2 1/2 → JIS 2	R 2 1/2	100	50.5	30	11	125	200	30	120	6	001425122	00125618
		R 2 1/2 → JIS 2.5	R 2 1/2	115	57	30	11	140	200	22.5	90	8	00125123	00125619
		R 2 1/2 → DIN 50 PN 16	R 2 1/2	125	62.5	22	18	165	95	45	180	4		ID8142
		R 2 1/2 → DIN 50 PN 40	R 2 1/2	125	62.5	22	18	165	97	45	180	4		ID8143
		R 2 1/2 → DIN 65 PN 16	R 2 1/2	145	72.5	22	18	185	100	45	180	4		ID 8144
		R 2 1/2 → DIN 65 PN 40	R 2 1/2	145	72.5	25	18	185	110	22.5	180	8		ID8145
		R 2 1/2 → DIN 80 PN 16	R 2 1/2	160	80	25	18	200	95	22.5	180	8		ID8146
		R 2 1/2 → DIN 80 PN 40	R 2 1/2	160	80	25	18	200	99	22.5	180	8		ID8147
SP 30	Rp 3	R 3 → JIS 3	R 3	136	66	35	15	165	200	22.5	90	8	00135121	00135617
		R 3 → DIN 65 PN 16	R 3	145	72.5	22	18	185	105	45	180	4		ID 8152
		R 3 → DIN 65 PN 40	R 3	145	72.5	25	18	185	109	22.5	180	8		ID8153
		R 3 → DIN 80 PN 16	R 3	160	80	25	18	200	110	22.5	180	8		ID8154
		R 3 → DIN 80 PN 40	R 3	160	80	25	18	200	120	22.5	180	8		ID8155
		R 3 → DIN 100 PN 16	R 3	180	90	25	18	220	107	22.5	180	8		ID8156
		R 3 → DIN 100 PN 40	R 3	190	95	25	22	220	109	22.5	180	8		ID8157
SP 46 SP 60	Rp 3 Rp 4	R 4 → JIS 4	R 4	155	72	35	15	180	200	22.5	90	8	00155124	00155622
		R 3 → DIN 65 PN 16	R 3	145	72.5	22	18	185	105	45	180	4		ID8152
		R 3 → DIN 65 PN 40	R 3	145	72.5	25	18	185	109	22.5	180	4		ID8153
		R 3 → DIN 80 PN 16	R 3	160	80	25	18	200	110	22.5	180	8		ID8154
		R 3 → DIN 80 PN 40	R 3	160	80	25	18	200	120	22.5	180	8		ID8155
		R 3 → DIN 100 PN 16	R 3	180	90	25	18	220	107	22.5	180	8		ID8156
		R 3 → DIN 100 PN 40	R 3	190	95	25	22	220	109	22.5	180	8		ID8157
		R 4 → DIN 100 PN 40	R 4	180	90	25	18	220	120	22.5	180	8		ID8158
		R 4 → DIN 100 PN 40	R 4	190	95	25	22	235	130	22.5	180	8		ID8159
SP 77 SP 95	Rp 5	R 5 → JIS 4	R 5	155	75	35	15	180	313	22.5	90	8	00195042	00195545
		R 5 → JIS 5	R 5	190	97	45	19	225	315	22.5	90	8	00195043	00195546
		R 5 → DIN 100 PN 16	R 5	180	95	45	18	225	315	22.5	90	8	00198926	00198976
		R 5 → DIN 100 PN 40	R 5	190	102.5	45	22	240	314	22.5	90	8	00198927	00198977
		R 5 → DIN 125 PN 16	R 5	210	110	45	18	250	317	22.5	90	8	00198914	00198964
		R 5 → DIN 125 PN 40	R 5	220	120	45	26	270	317	22.5	90	8	00198915	00198965
		R 5 → DIN 150 PN 16	R 5	240	127.5	45	22	285	317	22.5	90	8	00198904	00198954
		R 5 → DIN 150 PN 40	R 5	250	135	45	26	300	323	22.5	90	8	00198905	00198955
SP 125 SP 160 SP 215	Rp 6	R 6 → JIS 5	R 6	190	97	45	19	225	316	22.5	90	8	00205128	00205628
		R 6 → JIS 6	R 6	224	111	45	19	252	317	22.5	90	8	00205129	00205629
		R 6 → DIN 125 PN 16	R 6	210	110	45	18	250	317	22.5	90	8	00198928	00198978
		R 6 → DIN 125 PN 40	R 6	220	120	45	26	270	321	22.5	90	8	00198929	00198979
		R 6 → DIN 150 PN 16	R 6	240	127.5	45	22	285	317	22.5	90	8	00198916	00198966
		R 6 → DIN 150 PN 40	R 6	250	138.5	45	26	300	323	22.5	90	8	00198917	00198967
		R 6 → DIN 200 PN 16	R 6	295	155	45	22	340	317	15	90	12	00198906	00198956
		R 6 → DIN 200 PN 40	R 6	320	172.5	45	30	375	327	15	90	12	00198907	00198957

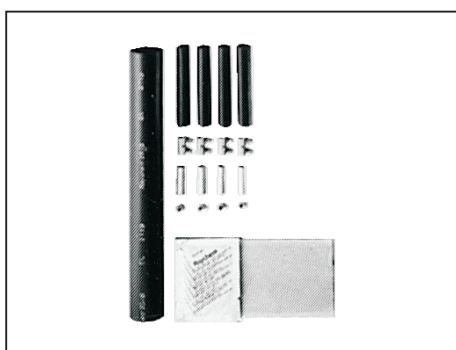
Type	Pump outlet	Connecting piece	Thread - Flange		Product number	
			A	Dimensions [mm]	DIN W - Nr 1.4301	DIN W - Nr 1.4401
SP 77 SP 95	Rp 5	R 5 → Rp 5	R 5	121	190063	190585
		R 5 → Rp 6	R 5	150	190069	190591
	NPT 5	NPT5 → NPT 4	NPT 5	121	190064	190586
		NPT5 → NPT 6	NPT 5	150	190070	190592
SP 125 SP 160 SP 215	Rp 6	R 6 → Rp 5	R 5	150	200130	200640
	NPT 6	NPT6 → NPT 5	NPT 6	150	200135	200645

Cable termination kit with plug



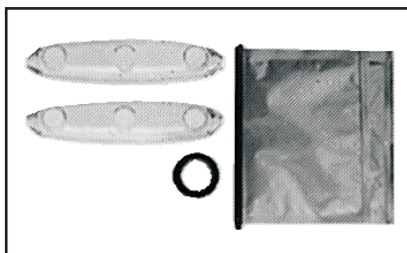
Description	Version	Prod No.
For watertight joining of motor cable and submersible drop cable in an acrylic tube filled with resin. Used for both single and multi-core cables during installation of submersible pumps. 24 hours of hardening is required.	MS 100 and MA 101 up to 7.5 kw: For cables up to 4 x 2.5 mm ²	MS100 001
	For cables up to 4 x 6 mm ²	MS100 002

Cable termination kit type KM



Description	Version			Prod No.
	Motor cable	[mm ²]	Number of leads	
For watertight shrink-joining of motor cable and submersible drop cable. Enables the joining of : - cables of equal size. - cables of different sizes. - a cable lead and a single-lead. The joint is ready for use after a few minutes and requires no long hardening time as do resin joints. The joint cannot be separated.	Flat cable	1.5-6.0 1.5-4.0	3 4	MS100 003
	Flate cable	6-10 10-16	4 3	MS100 004
	Flate cable	16-25	3 4	MS100 005
	3 single leads	1.5-60	3	MS100 006
	3 single leads	10-25	3	MS100 007
	4 single leads	1.5-4.0	4	MS100 008
	4 single leads	6-16	4	MS100 009

Cable termination kit



Description	Version			Prod No.
	Type	Diameter of Joint	For outer cable diameter [mm]	
For watertight joining of motor cable and submersible drop cable.				
For 4" motors and cables up to 4 x 6 mm ²	C 0	40	app. 6-15	MS100 010
For 6" motors and cables up to 4 x 10 mm ²	C 1	46	app. 9-23	MS100 011
For 6" motors and cables up to 4 x 16 mm ²	C 2	52	app. 17-31	MS100 012
For 8" and 10" motors and cables up to 4 x 35 mm ²	C 3	77	app. 26-44	MS100 013
For 8" and 10" motors and cables up to 4 x 70 mm ²	C 4	97	app. 29-55	MS100 014

Flow sleeves

Shakti offers a complete range of stainless steel flow sleeves for both vertical and horizontal operation. Flow sleeves are recommended for all applications in which motor cooling is insufficient. The result is a general extension of motor life. Flow sleeves are to be fitted:

- if the submersible pump is exposed to high thermal load like current unbalance, dry running, overload, high ambient temperature, bad cooling conditions.
- if aggressive liquids are pumped, since corrosion is doubled for every 10°C the temperature rises.
- If sedimentation or deposits occur around and/or on the motor.

Note : More information about accessories is available on request.

Zinc anodes

Application

Cathodic protection by means of zinc can be used for corrosion protection of SP pumps in chloride-containing liquids such as brackish water and sea water.

Sacrificial anodes are placed on the outside of the pump and motor as protection against corrosion.

The number of anodes required depends on the pump and motor in question.

Please contact Shakti for further details.

Liquid temperatures

Sea water: Up to 35°C.

Brackish water (min. 1500 g/m³ chloride): Up to 35°C.

Anode life

The zinc anodes have a life of one to four years, depending on operating conditions (temperature, flow and chloride content).



Product numbers of zinc anodes

Zinc anodes for pumps									
Product Number	Used for pump type								
	QF 30	QF 50	QF 75	QF 100	QF 125	QF 150	QF 210	QF 270	QF 300
ZA 01	●	●	●	●					
ZA 02					●	●			
ZA 03						●			
ZA 04							●		
ZA 05							●	●	●

Zinc anodes for motors			
4" Motors	6" Motors	6" Motors	6" Motors
ZA 06	ZA 07	ZA 07	ZA 08

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"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	5"	6"
			15.75	21.25	27.00	35.75	41.25	52.50	68.00	80.25	92.50	105.0	130.0	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 0.164				
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					46.18 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 3.458	1.316 1.444	
105	1750	29.2								4.340 24.76	3.368 13.30	1.883 3.468	1.535 1.934	
120	2000	33.3								4.960 31.94	3.850 17.16	2.197 4.665	1.754 2.496	
150	2500	41.7									4.812 26.26	2.511 5.995	2.193 3.807	
180	3000	50.0										3.139 9.216	2.632 5.417	
240	4000	66.7										3.767 13.05	3.509 8.926	
300	5000	83.3										5.523 22.72	4.386 14.42	
90°C bends slide valves			1.0	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.6	1.6	1.7	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	6.0	7.0	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 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 .

Table of Head Losses

Miscellaneous

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													
m ³ /h	Litres/min.	Litres/sec.	PELM				PEH									
			25 20.4	32 26.2	40 32.6	50 40.8	63 51.4	75 73.6	90 73.6	110 90.0	125 102.2	140 11406	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	0.3 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	0.5 1.4	0.32 0.43	0.2 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	0.2 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	0.4 0.50	0.28 0.22	0.2 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	0.2 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	0.8 1.80	0.56 0.73	0.39 0.30	0.26 0.12	0.2 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 1.10	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 0.06		
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	1.0 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 7.5			
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 =0.01mm

Water temperature : t =10°C

Subject to alterations