

BMS

BMS hs, BMS hp, BMSX

Pressure boosting and reverse osmosis systems

50/60 Hz



1. Product data	4
Product introduction	4
Features and benefits	5
Performance range	7
Product range	8
2. General description, BMS hs and BMS hp	11
Type key	11
Pumped liquids	11
Curve conditions	11
Parallel operation	12
Flushing	12
Filtration	12
Automatic control devices	12
Automatic safety devices	13
3. Grundfos BMS hs	14
Applications	14
Standard pumps	14
Operating limits	14
Operating conditions	15
Construction	15
Motor types	15
CUE frequency converter	16
4. Grundfos BMS hp	19
Applications	19
Standard pumps	19
Operating limits	19
Motor	20
Frequency converter	20
Operating conditions	20
5. High pressure booster systems	21
BMS hs booster system	21
BMS hp booster system	21
6. Reverse osmosis systems	22
BMS hs system	22
BMSX system	22
7. Sectional drawings	24
Material specification for BMS hs and BMS hp pump	24
Material specification for thrust-bearing housing	25
Material specification for thrust-bearing housing, BMS 7-42	25
8. Sizing	26
9. Performance curves	33
BMS hs, 7-42	33
BMS hs, 17-22	34
BMS hs, 30-14	35
BMS hs, 30-26	36
BMS hs, 46-17	37
BMS hs, 60-17	38
BMS hp, 17-3, 17-5 and 17-7	39
BMS hp, 30-3, 30-5 and 30-7	40
BMS hp, 46-2, 46-4 and 46-6A	41
BMS hp, 60-2, 60-4 and 60-6	42
BMS hp, 77-2A and 77-3	43
BMS hp, 95-2 and 95-3	44
BMS hp, 125-1 and 125-2AA	45
BMS hp, 160-1A, 160-1 and 160-2AA	46
BMS hp, 215-1A and 215-1	47

10. Dimensions and weight	48
BMS hs PM booster system	48
Frequency converter for PM motor	49
Service connector	49
BMS hs AC booster system	50
BMS hp MG booster system 6"	51
BMS hp MG booster system 8"	52
BMS hp MGE booster system 6"	53
BMS hp MGE booster system 8"	54
11. Accessories	55
IBMS hp	55
Customised BMS pumps	55
12. Grundfos Product Center	56

1. Product data

Product introduction

Reducing CO₂ emissions is one of the greatest challenges in connection with saving the environment. That is one of the reasons why Grundfos has developed the new booster systems, Grundfos BMS hs (high speed) and BMS hp (high-pressure inlet).

Grundfos BMS hs

BMS hs is a range of booster systems for reverse osmosis and filtration applications. These booster systems offer higher efficiency than the previous ranges. The reason is a direct-coupled pump which is powered by a permanent-magnet high-speed motor (PM) or an asynchronous high-speed motor (AC). The permanent-magnet motor is supplied with a CUE frequency converter. Both the permanent-magnet and asynchronous motor are only suitable for 400 V. The asynchronous motor has to be controlled by a variable-frequency drive to reach high speed. The variable-frequency drive must fit both motor voltages and the mains supply at the installation site. We recommend the CUE frequency converter for the AC motor. Together with an improved design, this makes both maintenance and service easier than ever, and you have a winning concept.

The BMS hs pump is delivered with a built-in non-return valve.



CAUTION

If you use a permanent-magnet or asynchronous motor in countries with different voltages than 400 V, ensure that the variable-frequency drive can convert to 400 V.



Fig. 1 BMS hs booster system

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Grundfos BMS hp

BMS hp is especially used when a high inlet pressure is needed. BMS hp is a range of booster systems for reverse osmosis and filtration applications offering higher efficiency than previous ranges. BMS hp is available with both MG and MGE motor (maximum size 30 kW).



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Fig. 2 BMS hp booster system

EuP ready

BMS hp pumps are energy-optimised and comply with the EuP Directive (Commission Regulation (EC) No 547/2012) which became effective on 1 January 2013. As from this date, all pumps are classified and graduated in a new energy efficiency index (MEI).



Minimum Efficiency Index (MEI) is the dimensionless scale unit for hydraulic pump efficiency at best efficiency point, part load and overload.

EU regulations set efficiency requirements to MEI ≥ 0.1 as from 1 January 2013 and MEI ≥ 0.4 as from 1 January 2015. An indicative benchmark for the best-performing water pumps available on the market in 2012 is MEI ≥ 0.70 .

Efficiency and MEI index

Pump type	Efficiency [%]	MEI
BMS hp 17-9	74	≥ 0.76
BMS hp 30-9	75	≥ 0.50
BMS hp 46-9	76	≥ 0.50
BMS hp 60-9	77	≥ 0.60
BMS hp 77-9	78	≥ 0.44
BMS hp 95-9	79	≥ 0.50
BMS hp 125-9	79	≥ 0.37
BMS hp 160-9	80	≥ 0.39
BMS hp 215-9	83	≥ 0.46

For more information about the new energy directive and MEI index, please visit: europump.eu/efficiencycharts.

Features and benefits

BMS hs booster system

The BMS hs booster system consists of a standard SP pump centred in a stainless-steel sleeve and a permanent-magnet high-speed motor (PM) or an asynchronous high-speed motor (AC). As the motor is directly coupled to the pump, it is easy to find a pump that suits your needs in Grundfos Product Center.

If the BMS hs booster system is to be used in a BMSX system, Grundfos has developed an easy-to-use selection tool. Fill in information about your needs, and the tool will tell you what to order.

BMS hs PM

Features

- Motor controlled by variable-frequency drive
- built-in non-return valve
- speed range of 4500-5500 rpm
- set from factory
- high-pressure booster up to 82.7 bar (1200 psi)
- add-on module for external communication.

Benefits

- No need for external non-return valve
- easy-to-use selection tool
- log on anywhere via Internet connection
- plug and play, configured from factory
- small footprint
- low weight
- easy access to shaft seal and thrust bearing
- reduced maintenance
- only three tools for dismantling
- service connector
- automatic ramp-up/ramp-down
- variable-frequency drive self-test at startup
- built-in thrust bearing
- NBR/LSR pump bearings and seal rings
- ceramic/carbon thrust bearing
- silicon carbide/carbon shaft seal, especially designed for high pressure
- overload protection while running
- low downtime
- inlet and outlet pipes connected using Victaulic couplings, style 77DX
- high efficiency means energy savings
- easy maintenance and alignment
- extreme durability and reliability
- easy integration in any water treatment system
- designed for a high flow rate and pressure.

BMS hs AC

Features

- Motor can be controlled by a variable-frequency drive.
- built-in non-return valve
- speed range of 4500-5500 rpm.
- set BMS hs AC according to the installation and operating instructions
- high-pressure booster up to 82.7 bar (1200 psi).

Benefits

- No need for external non-return valve
- easy-to-use selection tool
- easy access to shaft seal and thrust bearing
- reduced maintenance
- only three tools for dismantling
- service connector
- automatic ramp-up/ramp-down
- built-in thrust bearing
- NBR/LSR pump bearings and seal rings
- ceramic/carbon thrust bearing
- silicon carbide/carbon shaft seal, especially designed for a high pressure
- overload protection while running
- low downtime
- inlet and outlet pipes connected using Victaulic couplings, style 77DX
- easy maintenance and alignment
- extreme durability and reliability
- easy integration in any water treatment system
- designed for a high flow rate and pressure.

BMS hp booster system

The BMS hp booster system consists of a standard SP pump with a high inlet pressure and an MG, MGE or Siemens motor. If the BMS hp booster system is to be used in a BMSX system, Grundfos has developed an easy-to-use selection tool. Fill in information about your needs, and the tool will tell you what to order.

BMS hp MG

Features

- Motor can be controlled by variable-frequency drive
- speed range of 1700-3500 rpm
- reduced system wear
- high inlet pressure up to 82.7 bar (1200 psi).

Benefits

- Perfect process control
- easy-to-use selection tool
- small footprint
- low weight
- extreme durability and reliability
- easy integration in any water treatment system
- designed for a high flow rate and pressure
- built-in non-return valve as option
- inlet and outlet pipes connected using Victaulic couplings, style 77DX
- LSR/NSR pump bearings and seal rings
- Silicon carbide/carbon shaft seal.

BMS hp MGE

Features

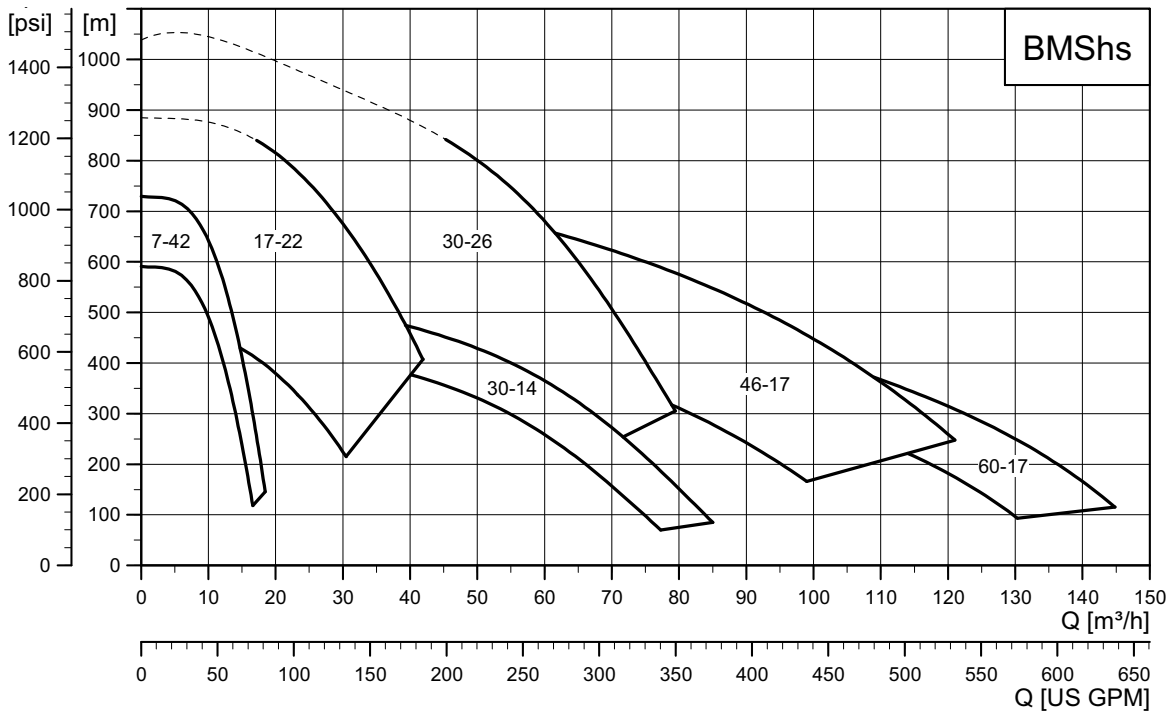
- Motor controlled by variable-frequency drive
- speed range of 1700-3500 rpm
- factory-set ramp times
- extra functions I/O functionality
- data collection
- reduced system wear
- high inlet pressure up to 82.7 bar (1200 psi).

Benefits

- Perfect process control
- remote control, monitoring and data collection of the application and pump performance
- reduced installation and wiring costs
- easy-to-use selection tool
- small footprint
- low weight
- extreme durability and reliability
- easy integration in any water treatment system
- designed for a high flow rate and pressure
- built-in non-return valve as an option
- inlet and outlet pipes connected using Victaulic couplings, style 77DX
- NBR/LSR pump bearings and seal rings
- Silicon carbide/carbon shaft seal.

Performance range

BMS hs PM/AC booster system

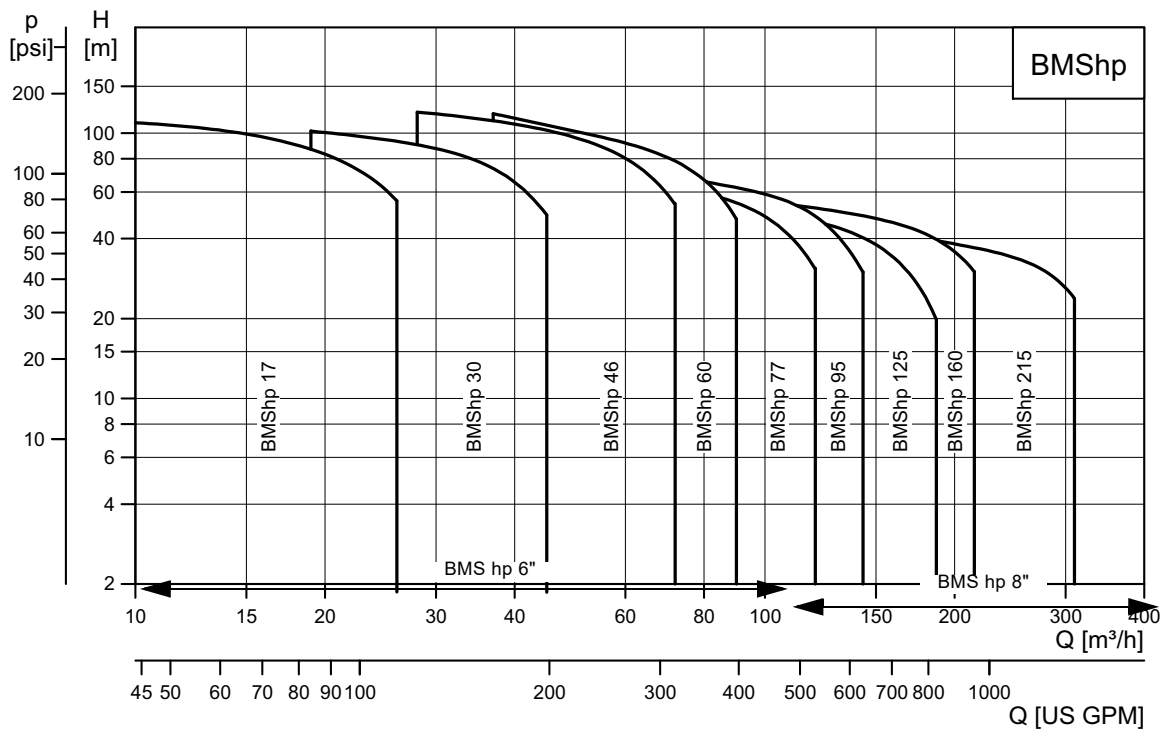


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Fig. 3 Performance range, BMS hs, PM/AC

Note that we offer customised variants of the BMS type for a variety of applications. Contact Grundfos for further information.

BMS hp MG/MGE booster system



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Fig. 4 Performance range, BMS hp MG/MGE, 60 Hz

Note that we offer customised variants of the BMS type for a variety of applications. Contact Grundfos for further information.

Product range

BMS hs PM booster system factory-supplied with frequency converter

BMS hs booster	Power P2		Max. speed	Frequency converter	Product number
	[kW]	[hp]	[rpm]		
BMS 17-22 HS-E-C-P-A	70	94	5500	CUE 3 × 380-500 V IP55 75 kW	99470789
BMS 17-22 HS-E-C-P-A	85	114	5500	CUE 3 × 380-500 V IP55 90 kW	99470792
BMS 17-22 HS-E-C-P-A	70	94	5000	CUE 3 × 380-500 V IP55 75 kW	99471122
BMS 17-22 HS-E-C-P-A	44	59	4500	CUE 3 × 380-500 V IP55 45 kW	99471131
BMS 17-22 HS-E-C-P-A	52	70	4500	CUE 3 × 380-500 V IP55 55 kW	99471148
BMS 30-14 HS-E-C-P-A	85	114	5500	CUE 3 × 380-500 V IP55 90 kW	99539742
BMS 30-26 HS-E-C-P-A	140	188	5500	CUE 3 × 380-500 V IP54 160 kW	99471199
BMS 30-26 HS-E-C-P-A	160	215	5500	CUE 3 × 380-500 V IP54 160 kW	99471213
BMS 30-26 HS-E-C-P-A	140	188	5000	CUE 3 × 380-500 V IP54 160 kW	99471220
BMS 30-26 HS-E-C-P-A	100	134	4500	CUE 3 × 380-500 V IP54 110 kW	99471222
BMS 46-17 HS-E-C-P-A	180	241	5500	CUE 3 × 380-500 V IP54 200 kW	99471243
BMS 46-17 HS-E-C-P-A	140	188	5000	CUE 3 × 380-500 V IP54 160 kW	99471246
BMS 46-17 HS-E-C-P-A	160	215	5000	CUE 3 × 380-500 V IP54 160 kW	99471248
BMS 60-17 HS-E-C-P-A	180	241	5000	CUE 3 × 380-500 V IP54 200 kW	99471276

BMS hs AC booster system

BMS hs booster	Power P2		Max. speed	Product number
	[kW]	[hp]	[rpm]	
BMS 7-42 HS-B-C-P-B	30	40	5000	99277174
BMS 17-22 HS-B-C-P-A	52	70	5000	99022832
BMS 17-22 HS-B-C-P-A	70	94	5500	99022843
BMS 17-22 HS-B-C-P-A	85	114	5500	99022844
BMS 30-14 HS-B-C-P-A	85	114	5500	99022845
BMS 30-26 HS-B-C-P-A	120	161	4500	99022846
BMS 30-26 HS-B-C-P-A	140	188	5500	99022847
BMS 30-26 HS-B-C-P-A	160	215	5500	99022848
BMS 46-17 HS-B-C-P-A	160	215	5500	99022849
BMS 46-17 HS-B-C-P-A	180	241	5500	99059893
BMS 60-17 HS-B-C-P-A	180	241	5000	99022850

Recommended frequency converter for BMS hs AC systems

Frequency converter	Part number
CUE 3 × 380-500 V IP55 30 kW	99616770
CUE 3 × 380-500 V IP55 45 kW	99616772
CUE 3 × 380-500 V IP55 55 kW	99616773
CUE 3 × 380-500 V IP55 75 kW	99616774
CUE 3 × 380-500 V IP55 90 kW	99616775
CUE 3 × 380-500 V IP54 110 kW	99616776
CUE 3 × 380-500 V IP54 132 kW	99616777
CUE 3 × 380-500 V IP54 160 kW	99616778
CUE 3 × 380-500 V IP54 200 kW	99616779

BMS hp MG booster system 6"

Type	Motor output [P2]		Rated current I_N [A]	Efficiency total η [%]	Length [L]		Weight [kg]		Ship. vol. [m ³]	Product number R-version
	[kW]	[hp]			[mm]	[in]	Net	Gross		
BMS 17-3 HP	3	4.0	6.8 - 5.4	64	1281.0	50.4	96.1	186.1	0.962	98872087
BMS 17-5 HP	5.5	7.5	10.6 - 9.3	66	1458.0	57.4	96.1	186.1	0.155	98872088
BMS 17-7 HP	7.5	10.0	14.2 - 12.0	67	1567.0	61.7	135.2	225.2	0.155	98872090
BMS 30-3 HP	5.5	7.5	10.6 - 9.3	66	1432.0	56.4	119.9	209.9	0.152	98872101
BMS 30-5 HP	7.5	10.0	14.2 - 12.0	68	1624.0	63.9	136.1	226.1	0.160	98872102
BMS 30-7 HP	11	15.0	20.8 - 17.2	68	2018.0	79.4	189.3	279.3	0.270	98872103
BMS 46-2 HP	5.5	7.5	10.6 - 9.3	63	1382.0	54.4	118.5	208.5	0.148	98872104
BMS 46-4 HP	11	15.0	20.8 - 17.2	66	1798.0	70.8	183.4	273.4	0.243	98872105
BMS 46-6A HP	15	20.0	28.0 - 22.4	67	2024.0	79.7	202.7	292.7	0.271	98872106
BMS 60-2 HP	7.5	10.0	14.2 - 12.0	60	1370.0	53.9	128.7	218.7	0.137	98872107
BMS 60-4 HP	11	15.0	20.8 - 17.2	66	1798.0	70.8	183.3	273.3	0.243	98872109
BMS 60-6 HP	18.5	25.0	34.5 - 28.0	69	2068.0	81.4	215.9	305.9	0.277	98872110

BMS hp MG is available for other voltages on request.

BMS hp MG booster system 8"

Type	Motor output [P2]		Rated current I_N [A]	Efficiency total η [%]	Length [L]		Weight [kg]		Ship. vol. [m ³]	Product number R-version
	[kW]	[hp]			[mm]	[in]	Net	Gross		
BMS 77-2A HP	11.0	15.0	20.8 - 17.2	64	1857.0	73.1	225.0	325.0	0.250	98872111
BMS 77-3 HP	18.5	25.0	34.5 - 28.0	70	2029.0	79.9	256.0	356.0	0.272	98872112
BMS 95-2 HP	15.0	20.0	28.0 - 22.4	69	1857.0	73.1	234.0	334.0	0.250	98872113
BMS 95-3 HP	22.0	30.0	40.0 - 32.5	71	2055.0	80.9	270.0	370.0	0.311	98872116
BMS 125-1 HP	18.5	25.0	34.5 - 28.0	68	1807.0	71.1	255.0	355.0	0.244	98872117
BMS 125-2AA HP	22.0	30.0	40.0 - 32.5	69	1988.0	78.3	281.0	381.0	0.302	98872119
BMS 160-1A HP	15.0	20.0	28.0 - 22.4	62	1763.0	69.4	208.0	308.0	0.239	98872120
BMS 160-1 HP	22.0	30.0	40.0 - 32.5	68	1833.0	72.2	271.0	371.0	0.280	98872121
BMS 160-2AA HP	30.0	41.0	56.0 - 50.0	76	2022.0	79.6	300.0	390.0	0.514	98494526
BMS 215-1A HP	30.0	41.0	56.0 - 50.0	78	2005.0	78.9	300.0	390.0	0.510	98494527
BMS 215-1 HP	37.0	50.0	68.0 - 61.0	79	2030.0	79.9	346.0	436.0	0.516	98494528

BMS hp MG is available for other voltages on request.

BMS hp MGE booster system 6"

Type	Motor output [P2]		Rated current I_N [A]	Efficiency total η [%]	Length [L]		Weight [kg]		Ship. vol. [m ³]	Product number R-version
	[kW]	[hp]			[mm]	[in]	Net	Gross		
BMS 17-3 HP	3	4	6.2 - 5.00	64	1281	50.4	101.4	191.4	0.399	98494496
BMS 17-5 HP	5.5	7.5	11.0 - 8.80	66	1458	57.4	103.0	192.8	0.399	98494497
BMS 17-7 HP	7.5	10	14.8 - 11.6	67	1567	61.7	145.6	235.6	0.234	98494498
BMS 30-3 HP	5.5	7.5	11.0 - 8.80	68	1432	56.4	126.6	216.6	0.399	98494499
BMS 30-5 HP	7.5	10.0	14.8 - 11.6	68	1624	63.9	146.5	236.6	0.399	98494500
BMS 30-7 HP	11.0	15	22.5 - 18.8	69	2018	79.4	219.9	309.8	0.441	98494511
BMS 46-2 HP	5.5	7.5	11.0 - 8.80	69	1382	54.4	125.0	215.0	0.399	98494512
BMS 46-4 HP	11.0	15	22.5 - 18.8	70	1798	70.8	213.8	303.8	0.399	98494513
BMS 46-6A HP	15	20	30.0 - 26.0	71	2024	79.7	235	325	0.442	98494514
BMS 60-2 HP	7.5	10	14.8 - 11.6	70	1370	53.9	139.0	229.1	0.399	98494515
BMS 60-4 HP	11.0	15.0	22.5 - 18.8	71	1798	70.8	213.7	303.7	0.399	98494516
BMS 60-6 HP	18.5	25.0	29.9 - 35.7	72	2068	81.4	248.3	338.3	0.500	98494517

BMS hp MGE is available for other voltages on request.

BMS hp MGE booster system 8"

Type	Motor output [P2]		Rated current I_N [A]	Efficiency total η [%]	Length [L]		Weight [kg]		Ship. vol. [m ³]	Product number R-version
	[kW]	[hp]			[mm]	[in]	Net	Gross		
BMS 77-2A HP	11	15	22.5 - 18.8	70	1.822	71.7	153	243	0.388	98494518
BMS 77-3 HP	18.5	25	37-31	71	1.994	78.5	180	270	0.425	98494519
BMS 95-2 HP	15	20	30-26	72	1.822	71.7	167	257	0.388	98494520
BMS 95-3 HP	22	30	44-35	72	2.020	79.5	197	287	0.435	98494521
BMS 125-1 HP	18.5	25	37-31	74	1.771	69.7	180	270	0.378	98494522
BMS 125-2AA HP	22	30	44-35	74	1.952	76.9	197	287	0.42	98494523
BMS 160-1A HP	15	20	30-26	74	1.727	67.9	167	257	0.368	98494524
BMS 160-1 HP	22	30	44-35	75	1.797	70.7	197	287	0.387	98494525

BMS hp MGE is available for other voltages on request.

Parallel operation

If a flow rate higher than that of a single module is required, several modules are connected in parallel. Find the resulting flow rate by adding the flow rate of each individual module. The pressure will be the same as for one pump.

Flushing

When the booster system is used in a reverse osmosis system or similar applications, such as pumping seawater or aggressive water, install a flush pump to avoid corrosion. Flush the system with clean fresh water until the salinity is lower than 1000 ppm TDS in the entire system.

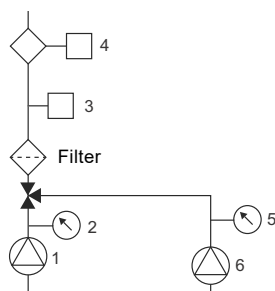
Filtration

BMS hs, BMS hp: Filter the raw water to maximum 30 microns.

BMSX (up to and including PX 180): Filter the raw water to maximum 5 microns.

BMSX (larger than PX 180): Filter the raw water to maximum 10 microns.

Pump type	Filter [micron absolute]
BMS hs	30
BMS hp	30
Pressure exchanger	10



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Fig. 5 Filtration

Pos.	Description
1	Raw-water feed pump
2	Pressure gauge (raw water)
3	Flowmeter
4	Low-pressure switch
5	Pressure gauge (fresh-water pump)
6	Fresh-water flush pump

Automatic control devices

To protect the pumps against dry running, fit the system with flow or pressure control devices.

A pressure switch on the inlet side is sized in accordance with the estimated inlet pressure. At a pressure lower than 1 bar (14.5 psi), an alarm is given and the pump will stop.

The control devices ensure correct inlet pressure.

Flow switch cutting-in is adjusted for a minimum time delay corresponding to the maximum starting frequency of the system.

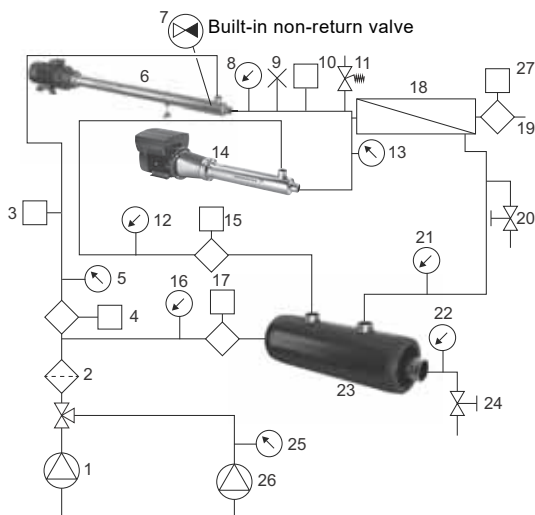
Automatic safety devices

The safety devices below must be built into the system to protect the pump. See fig. 6.

- Flow switch and/or low-pressure switch to ensure a minimum flow of water and lubricate the thrust bearing, shaft seal and pump bearings.
- Low-pressure switch on the booster system inlet sized in accordance with the estimated inlet pressure. At a pressure lower than 1 bar (14.5 psi), an alarm is given, and the pump will stop.
- High-pressure switch on the outlet pipe. The high-pressure switch will stop the pump at a set maximum pressure.

The above safety devices ensure correct inlet pressure and a minimum flow for lubrication.

A minimum time delay equivalent to the maximum starting frequency of the system has been set for flow switch cutting-in.



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Fig. 6 Example of a BMSX booster system

Pos.	Description
1	Raw-water feed pump
2	Filter
3	Low-pressure switch
4	Flowmeter
5	Pressure gauge (raw water)
6	BMS hs pump with built-in non-return valve
7	Non-return valve (built into BMS hs)
8	Pressure gauge (BMS hs outlet pressure)
9	Vent
10	High-pressure switch
11	Pressure relief valve
12	Pressure gauge (BMS hp inlet pressure)
13	Pressure gauge (BMS hp outlet pressure)
14	BMS hp pump
15	Flowmeter (high-pressure raw water)
16	Pressure gauge (low-pressure raw water)
17	Flowmeter (low-pressure raw water)
18	Membrane filter
19	Permeate
20	Cleaning flush valve
21	Pressure gauge (high-pressure concentrate)
22	Pressure gauge (low-pressure concentrate)
23	Pressure exchanger
24	Concentrate valve
25	Pressure gauge (fresh water)
26	Fresh-water flush pump
27	Flowmeter for permeate

3. Grundfos BMS hs



Fig. 7 BMS hs pump

Applications

The BMS hs booster system is suitable for the following applications:

- Water treatment plants
 - reverse osmosis in domestic water supply systems
 - hospitals, laboratories as well as chemical, electronics and metal industries
 - painting workshops, metal and mineral industries
- Pressure boosting
- Nano filtration
- High-pressure wash and cleaning
- Liquid transfer.

Reverse osmosis systems

Grundfos offers two different systems for reverse osmosis:

- Grundfos BMS hs
- Grundfos BMSX.

Standard pumps

BMS hs booster system

The following standard pumps are used for the BMS hs booster system:

- SP 7-42
- SP 17-22
- SP 30-14
- SP 30-26
- SP 46-17
- SP 60-17.

Note that the pumps are supplied with non-return valves.

Operating limits

We recommend that you always keep the capacity of the booster systems within the recommended flow rate and pressure range of each individual pump.

BMS hs booster system

Recommended flow rate at 25 °C (77 °F)						
Type	[m ³ /h]		US [gpm]			
BMS hs 7-42	5-15		22-66			
BMS hs 17-22	4-40		17.6 - 176			
BMS hs 30-14	7-70		31-308			
BMS hs 30-26	7.5 - 75		33-330			
BMS hs 46-17	11-110		48.2 - 482			
BMS hs 60-17	12-120		53-530			

Recommended pressure						
Type	Inlet pressure				Outlet pressure	
	Min. [bar]	Min. [psi]	Max. [bar]	Max. [psi]	Max. [bar]	Max. [psi]
BMS hs 7-42						
BMS hs 17-22						
BMS hs 30-14	1	14.5	65	942	82.7	1200
BMS hs 30-26						
BMS hs 46-17						
BMS hs 60-17						

Note that if there is a risk of exceeding the maximum inlet or outlet pressure, we recommend that you install a safety valve.

Note that maximum permissible liquid temperature is 40 °C (104 °F). If you have an application for higher temperature, contact Grundfos.

Operating conditions

Sound pressure level

The sound pressure level of pumps with a 4500 rpm motor is lower than 90 dB(A).

The sound pressure level of pumps with a 5000 or 5500 rpm motor is lower than 95 dB(A).

Construction

Modified standard submersible pumps are used for the BMS hs booster systems. The pumps are centred in a stainless-steel (Duplex) sleeve.

BMS hs pumps are supplied with a high-speed motor which need to be controlled by a frequency converter.

The high-speed motors are fitted with insulated ceramic hybrid bearings.

Inlet and outlet: 3" Victaulic couplings.

Motor types

Permanent-magnet high-speed motor (PM)

The BMS hs PM booster system is supplied with a high-class synchronous permanent-magnet motor. The PM motors are smaller and lighter: the weight is approximately 1/4 and the size 1/3 of a standard asynchronous motor.



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Fig. 8 Example of a permanent-magnet motor

The permanent-magnet motor is controlled by a frequency converter (CUE) and as standard protected by PTC sensors.

Enclosure class: IP55.

Power P2: 44-180 kW (59-241 hp).

Optional: PT100.

Optional: space heater/anti-condensation heater.

Rated speed

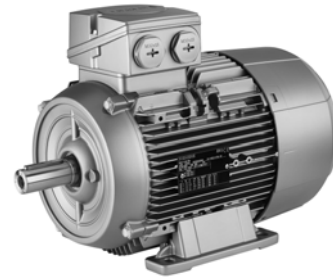
Normal operation: 4000-5500 min⁻¹.

Flush operation: down to 1700 min⁻¹.

The motor is controlled by factory-set ramp times.

Asynchronous high-speed motor (AC)

The BMS hs AC booster system is supplied with an asynchronous high-speed motor. The motor is smaller and lighter than a standard asynchronous motor.



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Fig. 9 Example of AC motor

The asynchronous high-speed motor is controlled by a frequency converter and as standard protected by PT100 sensors.

Enclosure class: IP54.

Power P2: 30-180 kW (40-241 hp).

Certificate: cURus approval.

Optional: space heater/anti-condensation heater.

Other options on request

Rated speed

Normal operation: 4000-5500 min⁻¹.

Flush operation: down to 1700 min⁻¹.

The motor is controlled by ramp times.

CUE frequency converter

Grundfos CUE is a series of external frequency converters designed for speed control of a wide range of Grundfos pumps.

When CUE is installed, the motor requires no further motor protection.

CUE offers quick and easy setup and commissioning compared to a standard frequency converter because of the startup guide. Simply enter application-specific variables such as motor data, pump family, control function (for example constant pressure), sensor type, and setpoint, and CUE will automatically set all necessary parameters.

CUE enables gentle pumping and thereby protects the water reservoir and the rest of the distribution system, as water hammer can be avoided by adjusting ramp times up and down.

Overview of the CUE range

Supply voltage [V]	Power range [kW]					
	0.55	0.75	1.1	7.5	11	45 250
3 × 525-690						
3 × 525-600						
3 × 380-500						
3 × 200-240						
1 × 200-240						

CUE is available in two enclosure classes:

- IP20/21
- IP54/55
- IP66 (US markets).

Note that the maximum CUE frequency is 590 Hz.

RFI filters

To meet the EMC requirements, CUE comes with the following types of built-in radio frequency interference filter (RFI).

Voltage [V]	Typical shaft power, P2 [kW]	RFI filter type	Application
1 × 200-240	1.1 - 7.5	C1	Domestic
3 × 200-240	0.75 - 45	C1	
3 × 380-500	0.55 - 90	C1	Domestic/industry
	110-250	C2	
3 × 525-600	0.75 - 7.5	C3	Industry
3 × 525-690	11-25	C3	



Fig. 10 The CUE range

Functions

CUE has a wide range of pump-specific functions, such as the following:

- constant differential pressure
- constant proportional pressure
- constant level
- constant flow rate
- constant temperature
- constant curve.

CUE features

- Startup guide
CUE incorporates an innovative startup guide for the general setting of CUE including the setting of the correct direction of rotation. The startup guide is started the first time when CUE is connected to the power supply.
- Check of direction of rotation.
- Duty/standby operation.
- Dry-running protection.
- Low-flow stop function.

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Inputs and outputs

CUE incorporates various inputs and outputs:

- one RS-485 GENIbus connection
- one analog input, 0-10 V, 0/4-20 mA
 - external setpoint
- one analog input, 0-10 V, 0/4-20 mA
 - sensor input, feedback sensor
- one analog output, 0/4-20 mA
 - six digital inputs
 - two inputs can be changed to digital outputs
 - all digital inputs and outputs are programmable
- two signal relays (C/NO/NC)
 - programmable.

Accessories for CUE

Grundfos offers various accessories for CUE.

MCB 114 sensor input module

MCB 114 offers additional analog inputs for CUE:

- one analog input, 0/4-20 mA
- two inputs for Pt100 and Pt1000 temperature sensors.

Output filters

Output filters are used primarily to protect the motor against overvoltage and increased operating temperature. However, you can also use output filters to reduce acoustic noise from the motor.

Grundfos offers two types of output filter as accessories for CUE:

- dU/dt filters
- sine-wave filters.

Floor-mounting option

CUE is as standard installed on the wall. You can also install the enclosures D1 and D2 on the floor on a pedestal designed for that purpose.

For information about enclosures, see the product-specific documentation for CUE.

IP21/NEMA1 option

You can upgrade an IP20 enclosure to IP21/NEMA1 by using the IP21/NEMA1 option. The power terminals (mains and motor) will be covered.

Sensors

You can use the following sensors in connection with CUE. All sensors are with 4-20 mA output signal:

- pressure sensors, up to 25 bar
- temperature sensors
- differential-pressure sensors
- differential-temperature sensors
- flowmeters
- potentiometer box for external setpoint setting.

Gateways

CUE has a standard RS-485 GENIbus interface. Gateways to convert to other bus standards are available as accessories.

The CIU family (CIU = Communication Interface Units) can convert from GENIbus to the most common fieldbuses in the world:

- CIU 100 converts from GENIbus to LonWorks.
- CIU 150 converts from GENIbus to Profibus DP.
- CIU 200 converts from GENIbus to Modbus RTU.
- CIU 250 is a GSM modem which can send SMS messages in case of, for example, alarms.

Control MPC

Control MPC, a multipump control system for the control of parallel-connected CUE pump solutions.

Use of output filters

The table below shows in which cases an output filter is required. From the table, you can see if a filter is required, and which type to use.

The selection depends on these factors:

- pump type
- motor cable length
- the required reduction of acoustic noise from the motor.

Cables used in CUE installations

Note that when CUE is installed in connection with BMS pumps, in EMC-sensitive sites, we recommend to use screened cables. See fig. 11.

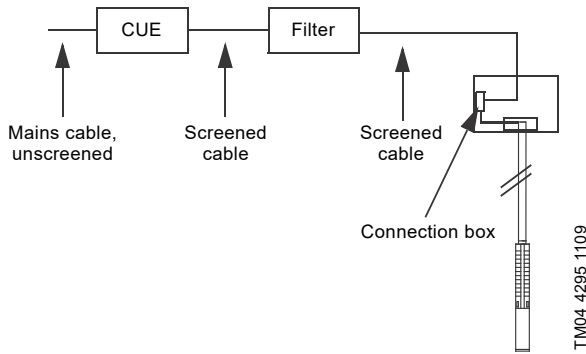


Fig. 11 Example of installation in EMC-sensitive sites

Screened cables are required in those parts of the installation where the surroundings must be protected against EMC.

CUE is the right choice of frequency converter in BMS installations as it meets all basic issues. CUE has a pre-installed startup guide that takes the installer through all the necessary settings.

The table below shows the different issues to be considered when using frequency converters in BMS installations.

Issues to be considered	Explanation
Ramp (up and down): Maximum 3 seconds.	Lubricate the journal bearings in order to limit wear and overheating of windings.
Use temperature monitoring by Pt sensor.	Overheating of the motor => low insulation resistance => sensitive to voltage peaks.
Reduce peak voltages (maximum 800 V peaks).	Never exceed peak voltages of 850 V at motor leads.
For MS and MMS, we recommend that you use motors with 10 % extra in given duty point. For MMS, always use motors (PE2-PA-wound).	CUE with output filter is a safe solution.
Remember output filter.	Cables act as an amplifier => measure peaks at the motor.
Limit the rise time (dU/dt) to a maximum of 1000 V/ μ s. Determined by the equipment in CUE.	Time between switches is an expression of losses, so in the future, we might have to exceed the limit of 1000 V/ μ s. The solution is not higher insulation of the motor, but filter in the output from CUE.
Minimum 30 Hz. Use a 60 Hz motor for larger range.	Too low speed => no lubrication of journal bearings.
Size the CUE in respect of the current, not the power output.	Can end up with a too small CUE.
Size cooling provision for stator tube at duty point with lowest flow rate.	Consider a flow minimum along the stator housing.
Ensure that the pump is used within the range of the pump curve.	Focus on the outlet pressure and sufficient NPSH, as vibrations will damage the motor.

4. Grundfos BMS hp



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Fig. 12 BMS hp pump

Applications

The Grundfos BMS hp booster system is suitable for industrial and water supply applications where the inlet pressure is high, up to 82.7 bar (1200 psi). BMS hp booster systems are used to increase the system pressure up to 82.7 bar (1200 psi).

The BMS hp booster system is the optimum solution for applications requiring the following:

- pumps capable of coping with high system pressures
- a minimum of maintenance.

Typical applications

BMS hp booster systems are suitable for the following typical applications:

- Water treatment where energy recovery devices (ERD), like pressure exchangers are used, such as:
 - reverse osmosis in domestic water supply systems
 - hospitals, laboratories as well as chemical, electronics and metal industries
 - ultra-filtration in chemical and galvanic industries
 - painting workshops, and mineral industries.
- Liquid transfer.
- Pressure boosting.
- Closed circulation systems with a high static pressure.

Standard pumps

The following standard pumps are available for the BMS hp booster systems:

- SP 17-3, 17-5 and 17-7
- SP 30-3, 30-5 and 30-7
- SP 46-2, 46-4 and 46-6A
- SP 60-2, 60-4 and 60-6
- SP 77-2 and 77-3
- SP 95-2 and 95-3
- SP 125-1 and 125-2
- SP 160-1 and 160-2
- SP 215-1.

SP standard pumps are with a 6" sleeve in range 17-60 and 8" sleeve in range 77-215.

Note that BMS hp booster systems come without non-return valves.

Operating limits

We recommend that you always keep the capacity of the booster systems within the recommended flow rate and pressure range of each individual pump.

BMS hp

Recommended flow rate at 25 °C (77 °F)		
Type	[m ³ /h]	US [gpm]
BMS hp 17-3, 17-5 and 17-7	10-26	44 - 114.5
BMS hp 30-3, 30-5 and 30-7	19-45	83.7 - 198
BMS hp 46-2, 46-4 and 46-6A	28-72	123-317
BMS hp 60-2, 60-4 and 60-6	37-90	163 - 396.3
BMS hp 77-2 and 77-3	47-120	207-528
BMS hp 95-3	57-143	251-629
BMS hp 125-2	75-187	330-823
BMS hp 160-2	90-215	396-946
BMS hp 215-1	115-310	506-1364

Recommended pressure						
Type	Inlet pressure				Outlet pressure	
	Min. [bar]	Min. [psi]	Max. [bar]	Max. [psi]	Max. [bar]	Max. [psi]
BMS hp 17-3, 17-5 and 17-7	1	14.5	80	1160	82.7	1200
BMS hp 30-3, 30-5 and 30-7	1	14.5	80	1160	82.7	1200
BMS hp 46-2, 46-4 and 46-6A	1	14.5	80	1160	82.7	1200
BMS hp 60-2, 60-4 and 60-6	1	14.5	80	1160	82.7	1200
BMS hp 77-3	1	14.5	80	1160	82.7	1200
BMS hp 95-3	1	14.5	80	1160	82.7	1200
BMS hp 125-2	1	14.5	80	1160	82.7	1200
BMS hp 160-2AA	1	14.5	80	1160	82.7	1200
BMS hp 215-1	1	14.5	80	1160	82.7	1200

Note that if there is a risk of exceeding the maximum inlet or outlet pressure, we recommend that you install a safety valve.

Note that maximum permissible liquid temperature is 40 °C (104 °F). If you have an application for higher temperature, contact Grundfos.

Construction

Modified standard submersible pumps are used for the BMS hp booster systems. The pumps are centred in a stainless-steel (Duplex) sleeve.

Inlet and outlet:

- BMS hp 6": 3" Victaulic couplings
- BMS hp 8": 6" Victaulic couplings.

Motor

Asynchronous motor with integrated variable-frequency drive (Grundfos standard MG, MGE and Siemens motors).

Motor type

You can fit BMS hp with a totally enclosed, fan-cooled, 2-pole Grundfos standard MG or MGE motor. The motor has principal dimensions according to EN standards and electrical tolerances according to EN 60034.

3 to 22 kW (4 to 30 hp): E-pumps with three-phase MGE motors.

Grundfos MGE 100, MGE 132, MGE 160 and MGE 180 motors offer these features:

- Three-phase mains connection.
- Three-phase, asynchronous squirrel-cage induction motors designed to IEC, DIN and VDE guidelines and standards. The motors incorporate a frequency converter and PI controller.
- Used for continuous variable-speed control of Grundfos E-pumps.

Note that motors without an integrated variable-frequency drive require an external variable-frequency drive to obtain duty points shown on the performance curves.

Voltages

- 3 × 380-480 V.

Enclosure class

- IP55 (IEC 34-5).

Required ramp times

The ramp-up and ramp-down times ensure safe operation during startup, normal operation and shutdown.

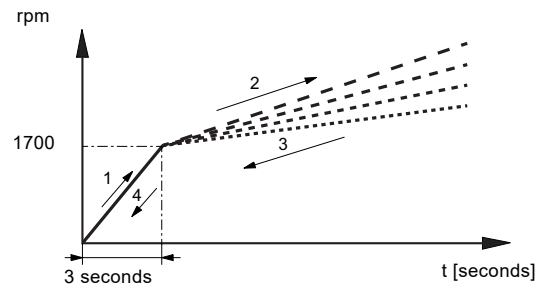


Fig. 13 Ramp up, BMS hp

1. Ramp up: From 0 to 1700 rpm, maximum 3 seconds.
2. Ramp up: From 1700 rpm to maximum speed, 1500 rpm
3. Ramp down: From maximum speed to 1700 rpm, 1500 rpm
4. Ramp down: From 1700 to 0 rpm, maximum 3 seconds.

Frequency converter

We recommend Grundfos CUE frequency converters. MGE motors are fitted with an integrated frequency drive.

Operating conditions

Sound pressure level

The sound pressure level of BMS hp 6" booster systems is below 72 dB(A), and the sound pressure level of BMS hp 8" booster systems is below 80 dB(A).

Temperature

Storage and transport temperature: -40 to +60 °C (-40 to +140 °F)

Operating temperature: -20 to +40 °C (-68 to +104 °F),

Humidity

Relative humidity in accordance with IEC 60068-2-56: lower than 90 % non-condensing.

Altitude

0 to 4000 m, with derating of operating temperature of 0.6 °C per 100 m between 1000 and 4000 m.

Rated speed

60 Hz: 3500 min⁻¹.

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5. High pressure booster systems

The following subsections describe systems which are typically used for high-pressure booster applications.

BMS hs booster system

You can use the BMS hs booster system in several different fresh-water applications.

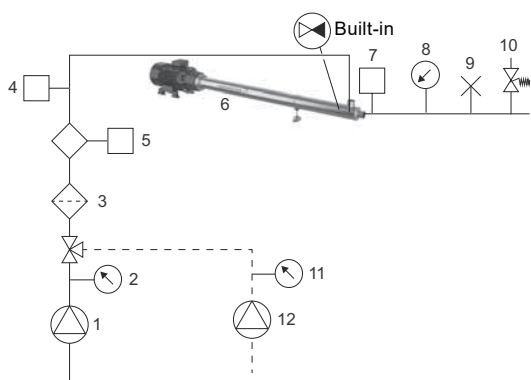


Fig. 14 Example of a BMS hs booster system

Pos.	Description
1	Raw-water feed pump
2	Pressure gauge (raw water)
3	Filter
4	Low-pressure switch
5	Flowmeter
6	BMS hs pump with built-in non-return valve
7	High-pressure switch
8	Pressure gauge (BMS hs outlet pressure)
9	Vent
10	Pressure relief valve
11	Pressure gauge (fresh-water pump)
12	Fresh-water flush pump*

* A fresh-water flush pump must be installed in applications for seawater desalination or similar applications.

The function of a BMS hs booster system

The BMS hs pump creates the needed flow rate and pressure in the system. The frequency converter ensures low operating costs and safe ramp-up and ramp-down. The factory-set ramp times prevent damage from water hammer.

BMS hp booster system

You can use the BMS hp booster system in several different high-pressure applications. Especially when you need a high inlet pressure.

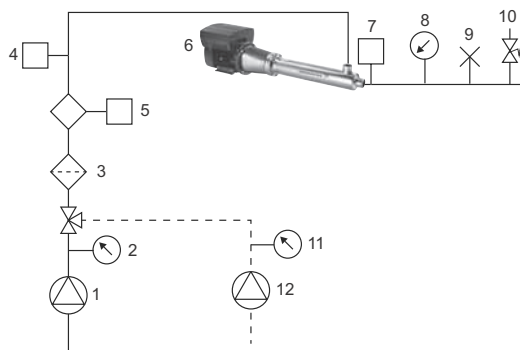


Fig. 15 Example of a BMS hp booster system

Pos.	Description
1	Raw-water feed pump
2	Pressure gauge (raw water)
3	Filter
4	Low-pressure switch
5	Flowmeter
6	BMS hp pump
7	High-pressure switch
8	Pressure gauge (BMS hp outlet pressure)
9	Vent
10	Pressure relief valve
11	Pressure gauge (fresh-water pump)
12	Fresh-water flush pump*

* A fresh-water flush pump must be installed in applications for seawater desalination or similar applications.

The function of a BMS hp booster system

The BMS hp pump creates the needed flow rate and pressure in the system. The frequency converter ensures low operating costs and safe ramp-up and ramp-down. The factory-set ramp times prevent damage from water hammer.

6. Reverse osmosis systems

The following subsections describe three systems typically used for the reverse osmosis process.

BMS hs system

You can use the BMS hs booster system in reverse osmosis systems.

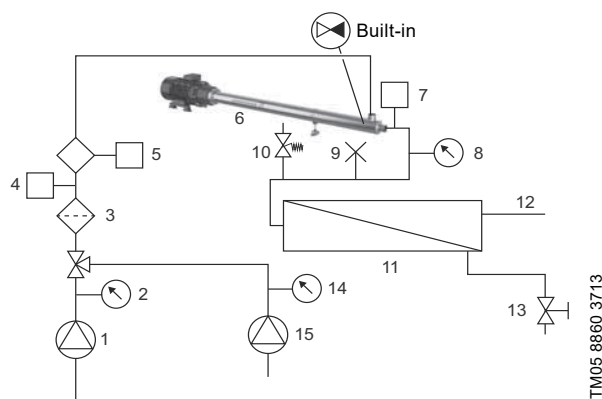


Fig. 16 Example of a BMS hs booster system

Pos.	Description
1	Raw-water feed pump
2	Pressure gauge (raw water)
3	Filter
4	Low-pressure switch
5	Flowmeter
6	BMS hs pump with built-in non-return valve
7	High-pressure switch
8	Pressure gauge (BMS hs outlet pressure)
9	Vent
10	Pressure relief valve
11	Membrane filter
12	Permeate
13	Pressure control valve
14	Pressure gauge (fresh water)
15	Fresh-water flush pump

How does it work?

The BMS hs pump creates the needed flow rate and pressure through the membranes of the system. The frequency converter ensures low operating costs and safe ramp-up and ramp-down. The factory-set ramp times prevent damage from water hammer.

BMSX system

A BMSX booster system consists of a BMS hs high-speed pump, a BM hp high inlet pressure pump and an isobaric pressure exchanger.

High efficiency

The BMSX system has a unique design dedicated to desalination of seawater and brackish water. The isobaric pressure exchanger has an efficiency of up to 98 % thus ensuring high energy recovery and low operating costs.

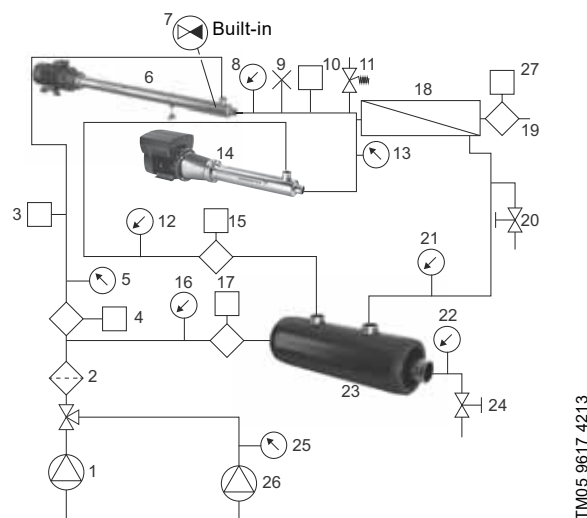


Fig. 17 Example of a BMSX booster system

Pos.	Description
1	Raw-water feed pump
2	Filter
3	Low-pressure switch
4	Flowmeter
5	Pressure gauge (raw water)
6	BMS hs pump with built-in non-return valve
7	Non-return valve (built into BMS hs)
8	Pressure gauge (BMS hs outlet pressure)
9	Vent
10	High-pressure switch
11	Pressure relief valve
12	Pressure gauge (BMS hp inlet pressure)
13	Pressure gauge (BMS hp outlet pressure)
14	BMS hp pump
15	Flowmeter (high-pressure raw water)
16	Pressure gauge (low-pressure raw water)
17	Flowmeter (low-pressure raw water)
18	Membrane filter
19	Permeate
20	Cleaning flush valve
21	Pressure gauge (high-pressure concentrate)
22	Pressure gauge (low-pressure concentrate)
23	Pressure exchanger
24	Concentrate valve
25	Pressure gauge (fresh water)
26	Fresh-water flush pump
27	Flowmeter

How does it work?

The BMS hp pump creates the needed flow rate and pressure through the membranes of the system.

However, only 40 % of the energy needed is generated by the BMS hp pump. The remaining 60 % is provided by the pressure exchanger. The pressure exchanger transfers energy from the high-pressure concentrate outlet to the raw-water inlet thus increasing the raw-water pressure from 2 bar to the system pressure.

This is what makes it possible to reach the high efficiency of up to 97 % for the pressure exchanger.

The pressure loss in the pressure exchanger is evened out by BMS hp and the frequency converter that maintain the desired pressure for the entire reverse osmosis process.

7. Sectional drawings

Material specification for BMS hs and BMS hp pump

Pos.	Component	Materials	R-version		
			DIN	AISI	PREN
1	Top chamber	Stainless steel	1.4539	904L	34
2	Top bearing	Stainless steel/NBR	1.4539	904L	34
3	Bearing	Stainless steel/NBR	1.4539	904L	34
4	Neck ring	NBR/PPS	-	-	-
5	Intermediate bearing	NBR/LSR	-	-	-
6	Spacing washer for stop ring	Carbon/graphite, PTFE	-	904L	34
8	Chamber	Stainless steel	1.4539	904L	34
10	Nut for split cone	Stainless steel	1.4539	904L	34
12	Split cone	Stainless steel	1.4539	904L	34
13	Impeller	Stainless steel	1.4539	904L	34
14	Inlet interconnector	Stainless steel	1.4539	904L	34
16	Shaft	Stainless steel	1.4462	SAF 2205	34
17	Strap	Stainless steel	1.4539	904L	34
18	Nut for strap	Stainless steel	1.4539	904L	34
19	Coupling	Stainless steel	1.4462	SAF 2205	34
20	Wear ring	Stainless steel	1.4539	904L	34
21	Non-return valve	Stainless steel	1.4539	904L	34
22	Sleeve	Stainless steel	1.4462	SAF 2205	34
23	Inlet	Super duplex stainless steel**	1.4410	SAF 2507	43
24	Outlet	Super duplex stainless steel**	1.4410	SAF 2507	43

* Optional for BMS hp

** The super duplex material is used in areas with stagnant water to reduce the risk of crevice corrosion.

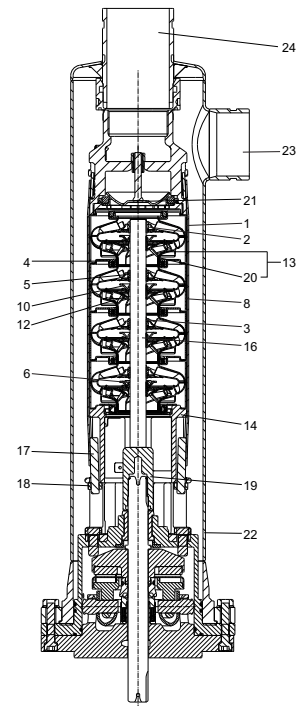
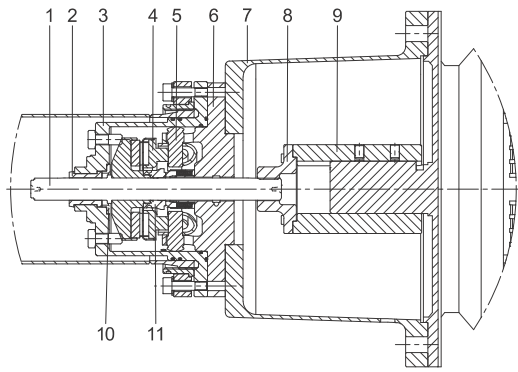


Fig. 18 BMS hp

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Material specification for thrust-bearing housing



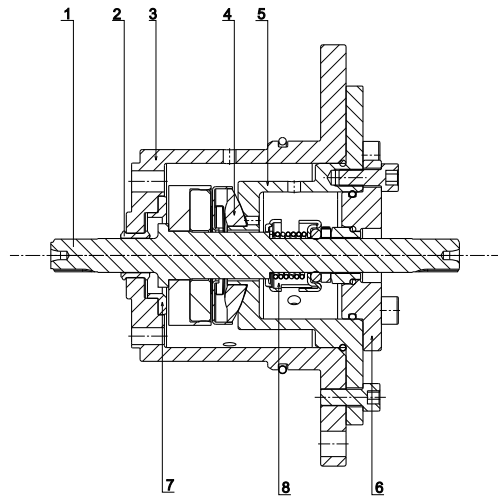
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Fig. 19 Sectional drawing for BMS hs

Pos.	Component	Materials*	R-version		
			DIN	AISI	PREN
1	Shaft with thrust bearing for BMS	Stainless steel/ceramic	1.4462/1.4539	SAF 2205/904L	34
2	Bearing	NBR	-	-	-
3	Housing for thrust bearing	Super duplex stainless steel*	1.4410	SAF 2507	43
4	Thrust bearing CPL	Stainless steel/carbon	1.4547/1.4462/1.4539	254SMO/SAF 2205/904L	43/34/34
5	Pin	Super duplex stainless steel*	1.4410	SAF 2507	43
6	Housing for shaft seal	Super duplex stainless steel*	1.4410	SAF 2507	43
7	Housing for bell, GG-RV	Cast iron GG25	0.6025	-	-
8	Coupling spline for BMS		1.4462	-	-
9	Shaft bushing D55	CK45	CK45	1045	-
10	Axial bearing	Acoflon 214G	-	-	-
11	Shaft seal Roten SGR5	Ceramic/silicon carbide	-	-	-

* The super duplex material is used in areas with stagnant water to reduce the risk of crevice corrosion.

Material specification for thrust-bearing housing, BMS 7-42



TM07 5553 4419

Fig. 20 Sectional drawing for BMS hs

8. Sizing

Pos.	Component	Materials*	R-version		
			DIN	AISI	PREN
1	Shaft with thrust bearing for BMS	Stainless steel/silicon carbide	1.4462/1.4410	SAF 2205/SAF 2507	34/43
2	Bearing	LSR	-	-	-
3	Housing for thrust bearing BMS hs small	Super duplex stainless steel	1.4410	SAF 2507	43
4	Thrust bearing CPL BMS hs small	Stainless steel/silicon carbide	1.4539/1.4410	904L/SAF 2507	34/43
5	Housing for shaft seal BMS hs small CPL	Super duplex stainless steel	1.4410	SAF 2507	43
6	Housing cover for shaft seal BMS hs small	Super duplex stainless steel	1.4410	SAF 2507	43
7	Axial bearing	Acoflon 214G	-	-	-
8	Shaft seal Type A U7U7E TM N 16	Tungsten carbide/tungsten carbide	-	-	-

Sizing in Grundfos Product Center.

We recommend that you size your BMS system in Grundfos Product Center which is a selection program offered by Grundfos. For further information, see page 56.

The screenshot shows the 'Advanced sizing by application' interface in Grundfos Product Center. It features a navigation bar with 'Sizing', 'Catalogue', and 'Replace a' options. Below the navigation bar, there are three tabs: 'Quick sizing', 'Advanced sizing by application', and 'Guided selection'. The 'Advanced sizing by application' tab is active, showing a form with various parameters and their values. The parameters are: Application (Pressure boosting), Application area (Commercial buildings), Installation (Reverse osmosis), Pre feed pressure (2 bar), Feed pressure (70 bar), Permeate flow (40 m³/h), Pressure loss (2 bar), Recovery (40%), and Density (1030 kg/m³). Red numbers 1, 2, 3, and 4 are placed next to the Application, Installation, Density, and Permeate flow fields respectively.

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Fig. 21 Advanced sizing in Grundfos Product Center

Pos.	Description
1	"Advanced Sizing" allows you to size pumps with a full range of pump sizing parameters and options.
2	"Reverse Osmosis" is a new type of installation applicable to commercial buildings, municipal water supply and industrial plant service systems.
3	"Evaluation Criterion" allows you to sort and prioritise results based on price, energy consumption or price + energy costs.
4	Default values and units of measurement.

Configure unit system settings

You can choose between four types of unit systems depending on your requirements:

SI units:

- Pressure: kpa
- Flow: m³/h
- Density: kg/m³

US units:

- Pressure: psi
- Flow: US GPM
- Density: lb/ft³

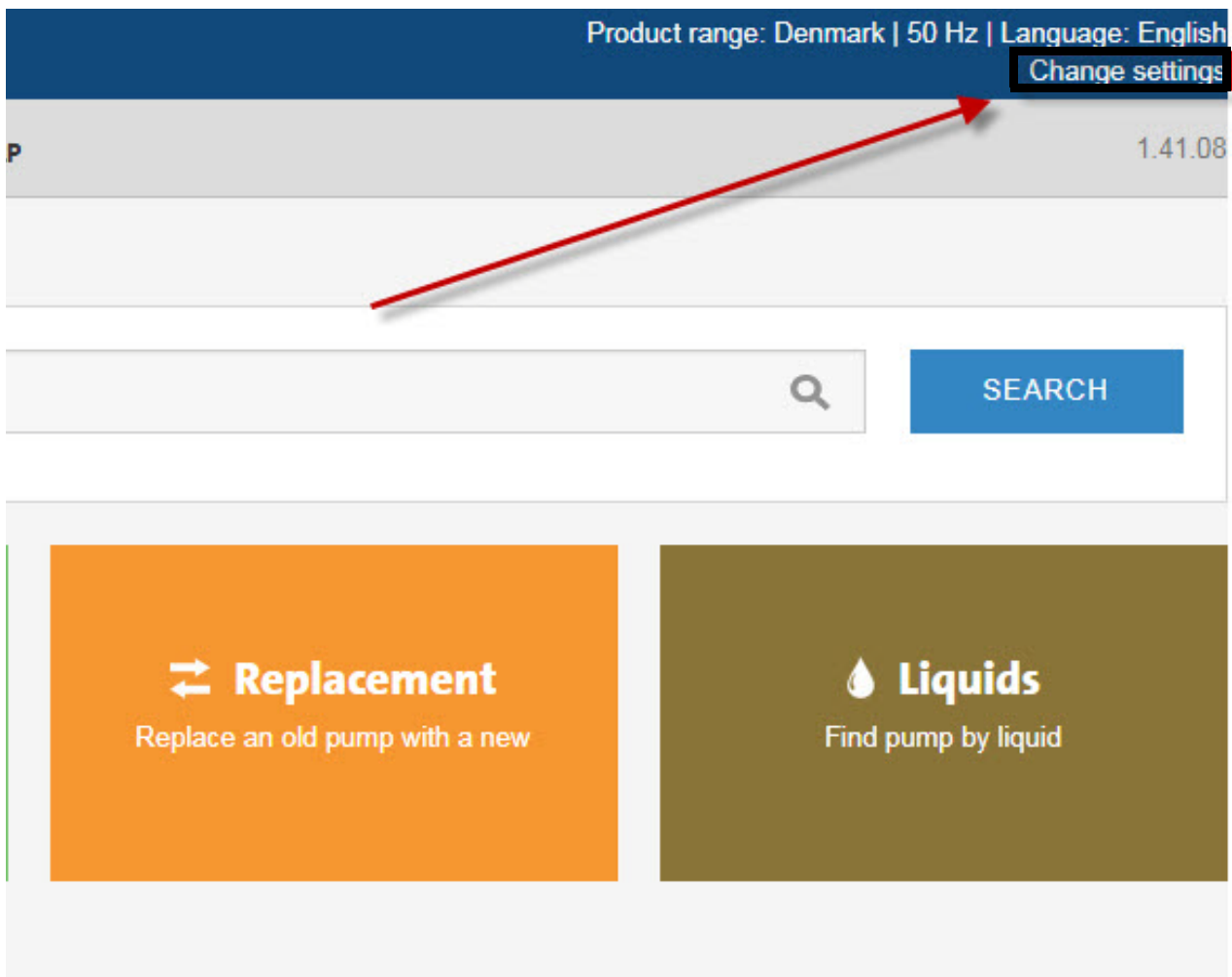
Default units:

- Pressure: bar
- Flow: m³/h
- Density: kg/m³

User defined units:

Use "User defined units" for customised and personalised unit settings.

Select [Change settings].



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Fig. 22 Selecting [Change settings]

Select the required unit system settings.

CHANGE REGIONAL SETTINGS

Product range:

Frequency: 50 Hz
 60 Hz

Language:

Unit system:

Currency:

TM07_3956_0519

Fig. 23 Selecting unit system settings

Filtering options

Booster pump and pressure-exchanger safety margins can be set to oversize the products.

- Minimum input is 0 % which is also the default value.
- Maximum value for the safety margin is 30 %.

The best solutions are automatically found using parallel operation for large capacities.

For example:

- permeate flow = 150 m³/h.
- Default value is set to 1.6.

▼ **Your requirements** (Safety margin booster pump, Safety margin pressure exchanger ...)

Safety margin booster pump	<input type="text" value="0"/>	%
Safety margin pressure exchanger	<input type="text" value="0"/>	%
Number of high pressure pumps	<input type="text" value="1..6"/>	▼
Number of booster pumps	<input type="text" value="1..6"/>	▼
Number of pressure exchangers	<input type="text" value="1..6"/>	▼

TM07 3957 0519

Fig. 24 Selecting booster pump and pressure-exchanger safety margin

You can make the application return a particular BMS product by inputting the product number into the highlighted fields.

▼ **Hit list settings** (Limit high-pressure pump to .., Limit booster pump to)

<input type="text" value="Limit high-pressure pump to .."/>	<input type="text"/>	Calculate
<input type="text" value="Limit booster pump to .."/>	<input type="text"/>	
<input type="text" value="Limit pressure exchanger to .."/>	<input type="text"/>	
Max. hits total	<input type="text" value="20"/>	
Energy price	<input type="text" value="2.23"/>	DKK/kWh
Increase of energy price	<input type="text" value="3"/>	%
Interest rate	<input type="text"/>	%
Calculation period	<input type="text" value="15"/>	years

TM07 3958 0519

Fig. 25 Searching for particular BMS products

To limit the number of hits, input the required amount of hits in the "Max. hits total" field.

Sizing results

Sizing results are controlled and filtered based on the parameters you entered in advanced sizing. Results are sorted by relevance in a descending order.

Sizing result

Basic sizing parameters [EDIT SIZING PARAMETERS](#)

Application Pressure boosting	Application area Commercial buildings	Installation Reverse osmosis	Pre feed pressure 2 bar	Feed pressure 70 bar	Permeate flow 40 m ³ /h
Pressure loss 2 bar	Recovery 40 %	Density 1030 kg/m ³	Evaluation criterion Price + energy costs		

ALL SUITABLE PRODUCTS (2)

Batch actions: EXPORT TO ADD TO PROJECT Table size: Show full width

	System	Product No	Product name	Motor type	Booster pump	Pressure exchanger	Energy [kWh/year]	Energy costs [EUR/year]	Li	
<input type="checkbox"/>	X	98467182 + ...	2 x BMS 30-26 HS-E-C-P-A	PM	98872112 BMS 77-3 HP-A-C-P-A	MG	98674624 Q300	1363000	3039479	5
<input type="checkbox"/>	X	98467182 + ...	2 x BMS 30-26 HS-E-C-P-A	PM	98494519 BMS 77-3 HP-C-C-P-A	MGE	98674624 Q300	1363000	3039479	5

[Save sizing parameters](#) [Load sizing parameters](#)

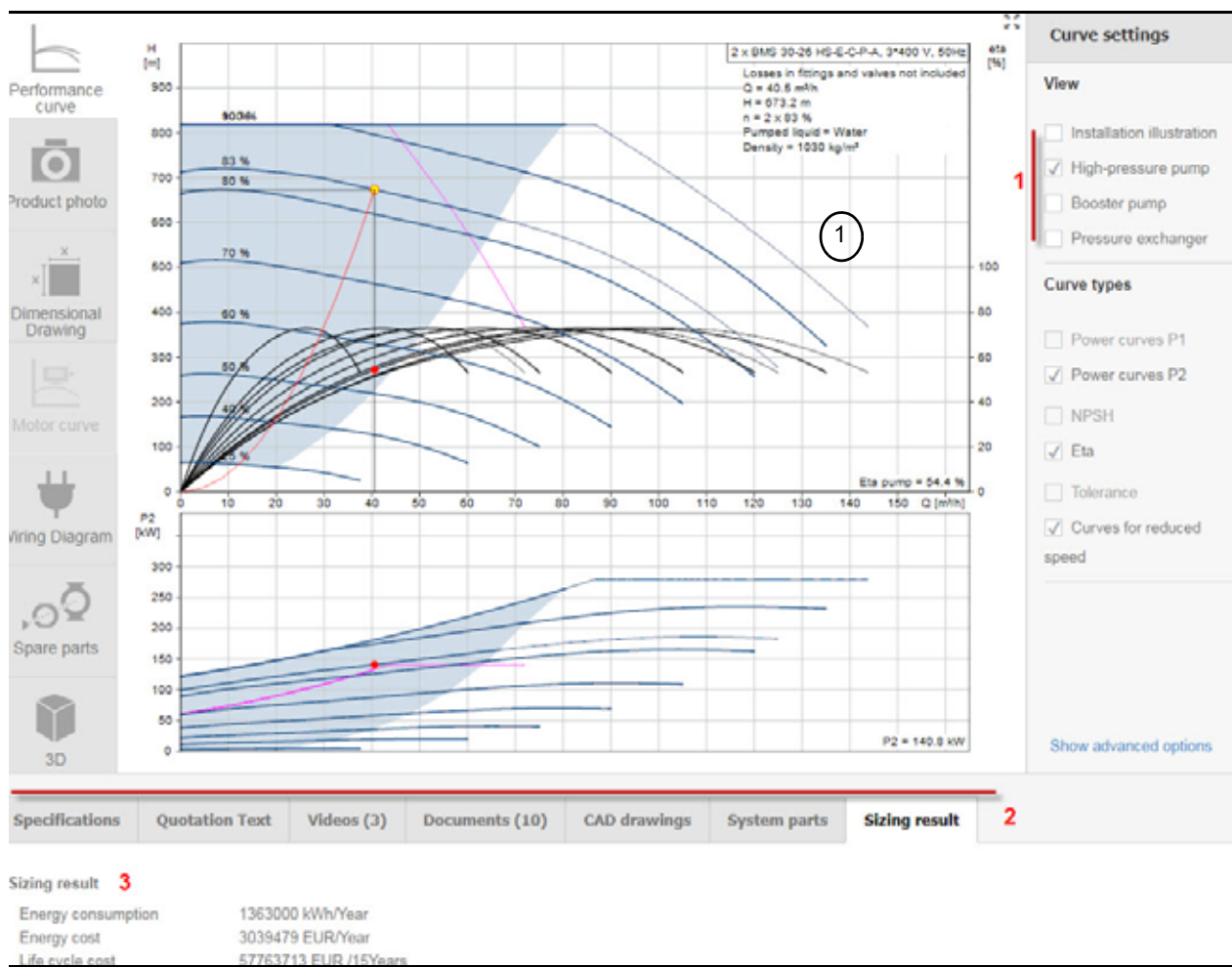
TM07 3968 0519

Fig. 26 Display of sizing results based on entered parameters

Save and load parameters allow you to save defined input values and reuse these parameters for future use. Note that these functions are only enabled once you are logged in.

Product detail page

This page consists of detailed technical information for a system or product.



TM07 3969 0519

Fig. 27 Product detail page

Pos.	Description
1	The "View" panel
2	Technical information, related videos and documents tabs
3	Summary of the calculation for the chosen product

Print / PDF

The [Print PDF] button can be found in the upper right page of the product detail page.

This allows you to print all of the information from the reverse osmosis installation type defined by the user together with the calculation.

The screenshot shows the 'Product Information' and 'Parts information' sections of the BMS software interface. The 'Product Information' section contains a list of checkboxes with red annotations 1-4 pointing to 'Curve', 'Sizing result', 'Installation illustration', and 'Accessories' respectively. The 'Parts information' section includes a 'Language' dropdown set to 'English', 'Parts information' dropdown, 'Pump' dropdown, and 'Parts print options' section with a list of checkboxes for 'Pos', 'Description', 'Annotation', 'Classification Data', 'Part no.', 'Qty.', and 'Unit'.

TM07 3970 0519

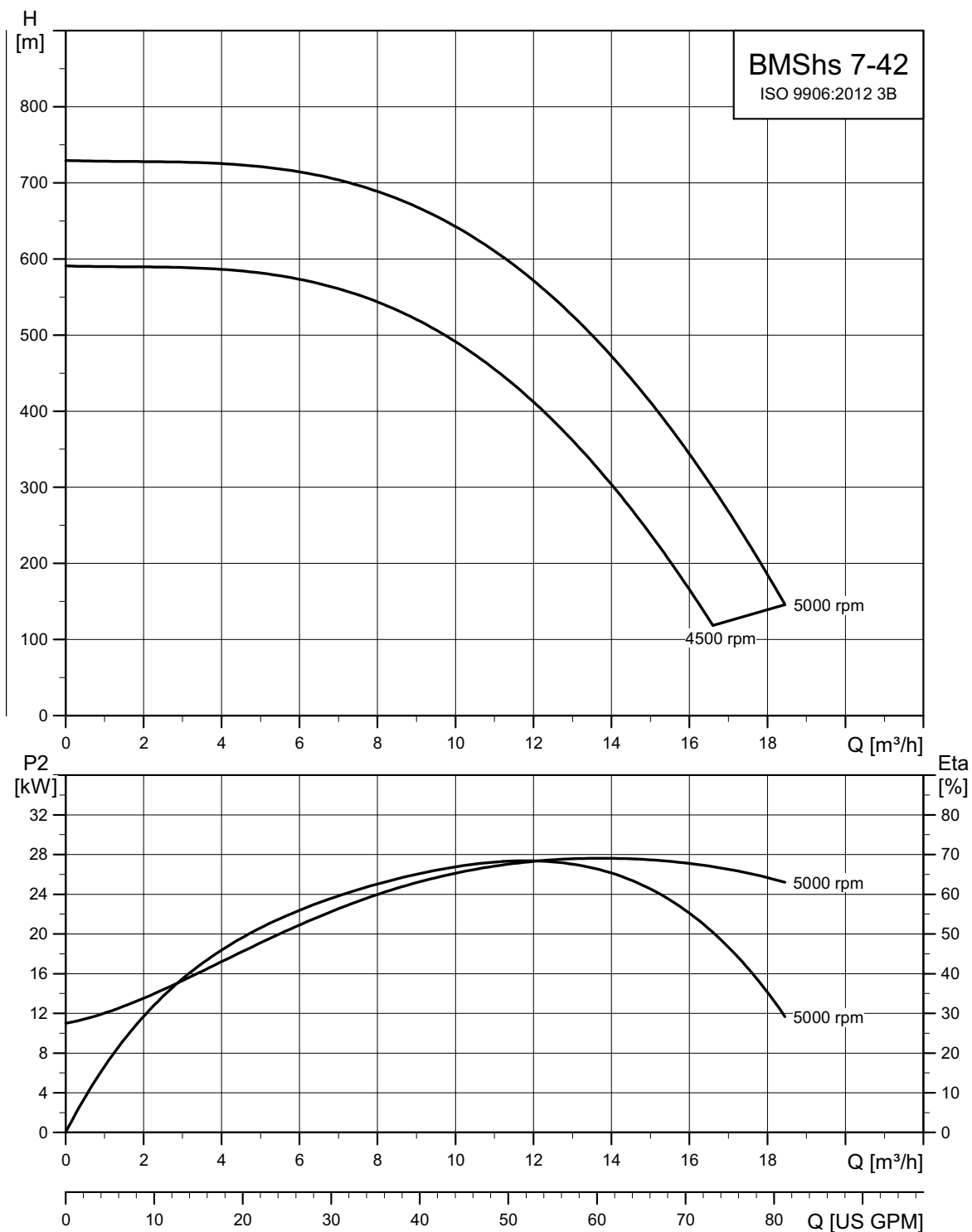
Fig. 28 Printing and creating PDF

Pos.	Description
1	Curve - prints the performance curve of the product.
2	Sizing result - prints the technical information and calculation of the product.
3	Installation illustration - prints an overview showing the efficiency of the motor.
4	Accessories - Enables printing accessories in the file.

9. Performance curves

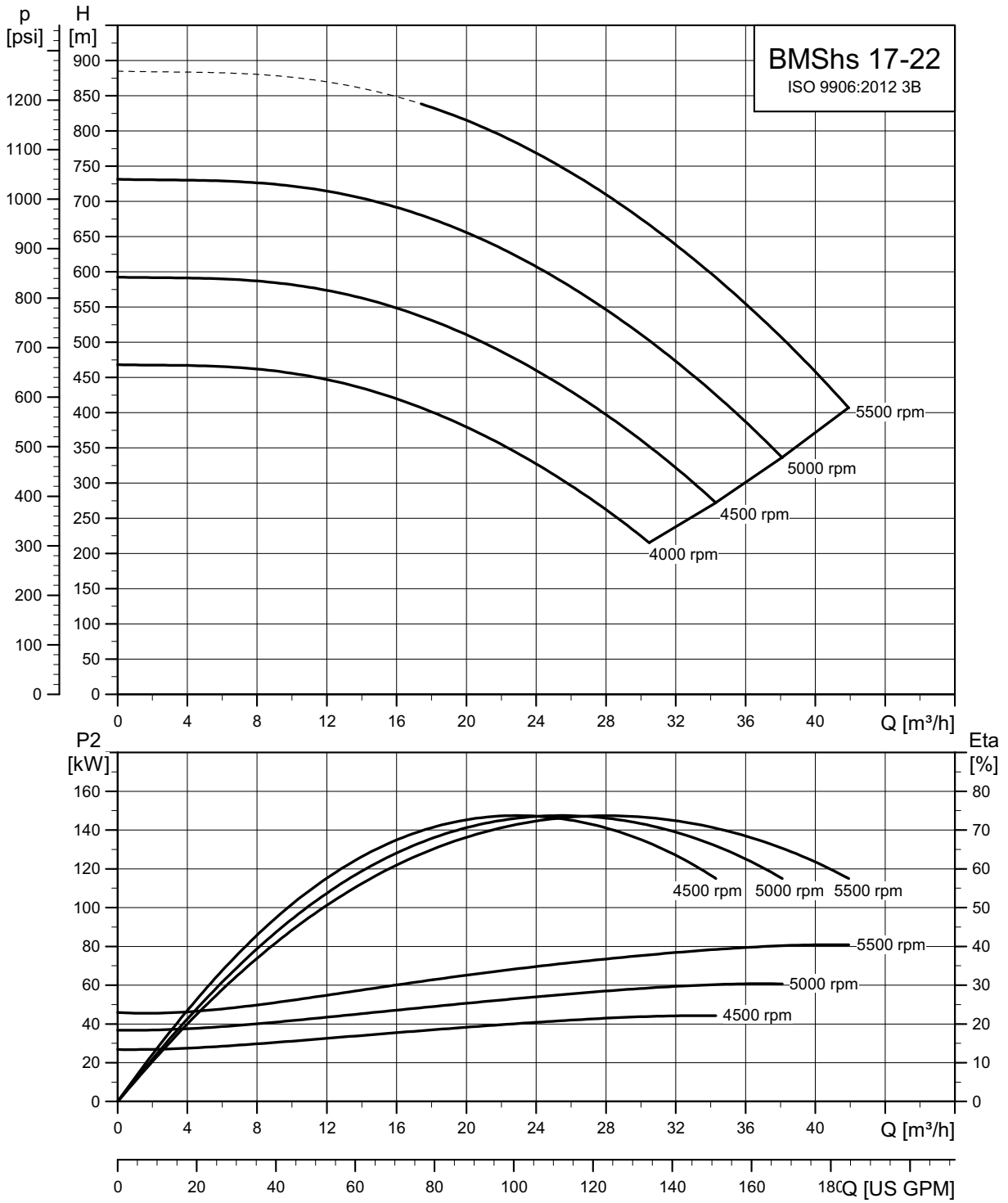
Power and efficiency curves for BMS hs pumps. Values for motor and frequency converter are not included in the power and efficiency curves displayed. See section [Performance range](#) on page 7.

BMS hs, 7-42



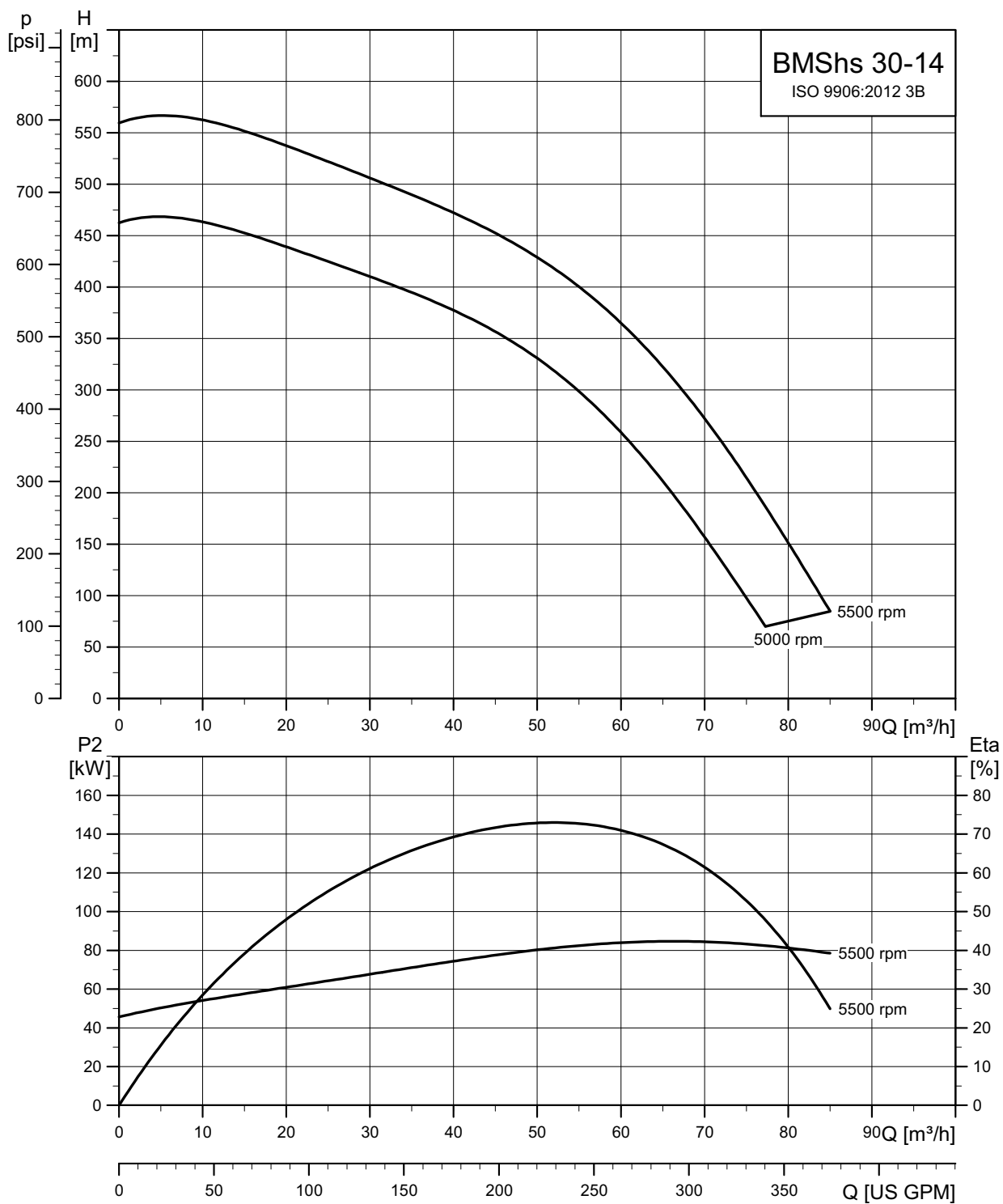
TM07 6698 4620

BMS hs, 17-22



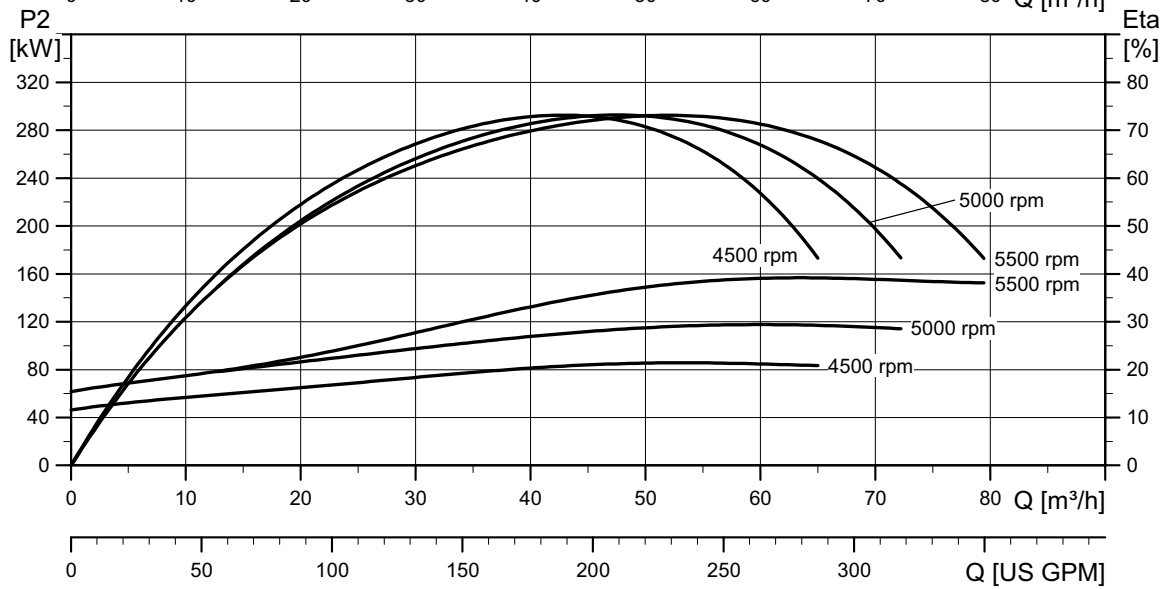
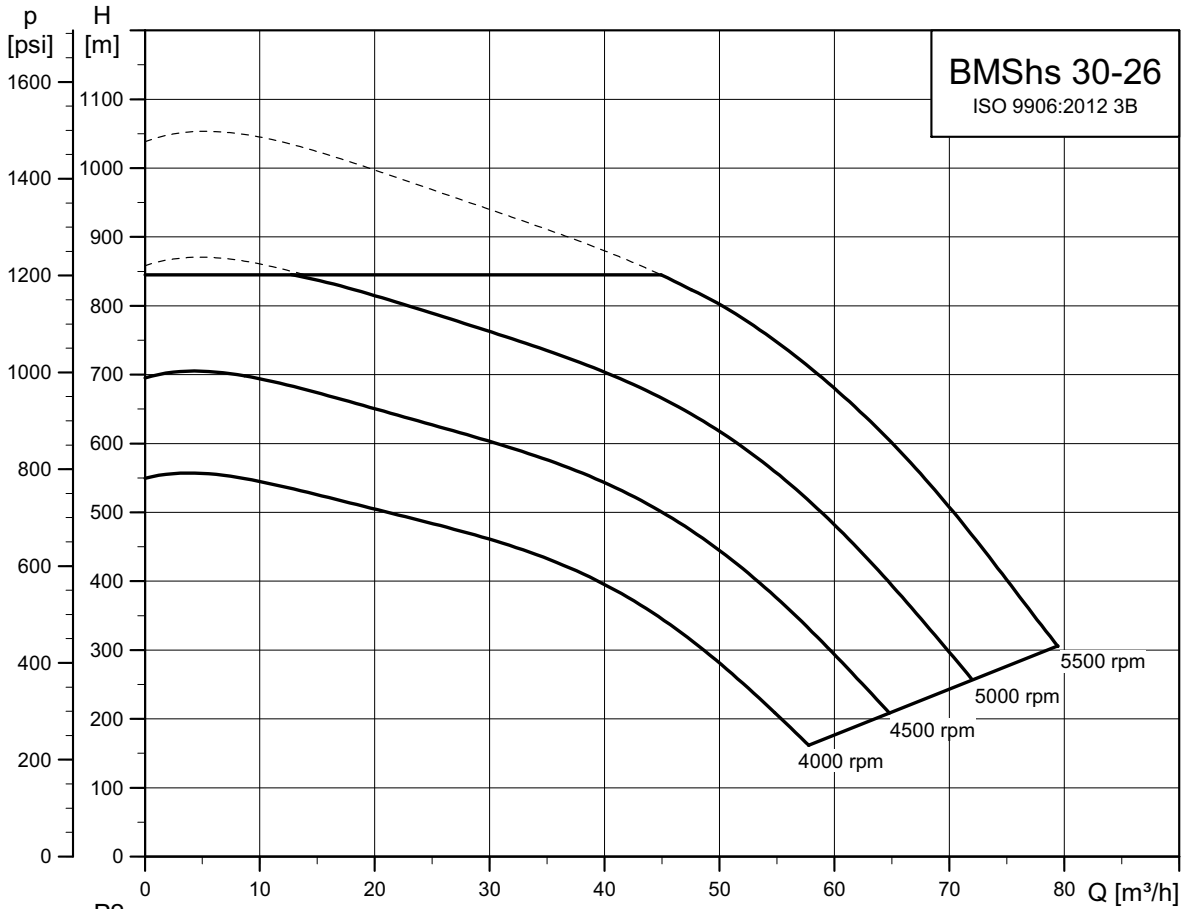
TM07 6304 4620

BMS hs, 30-14



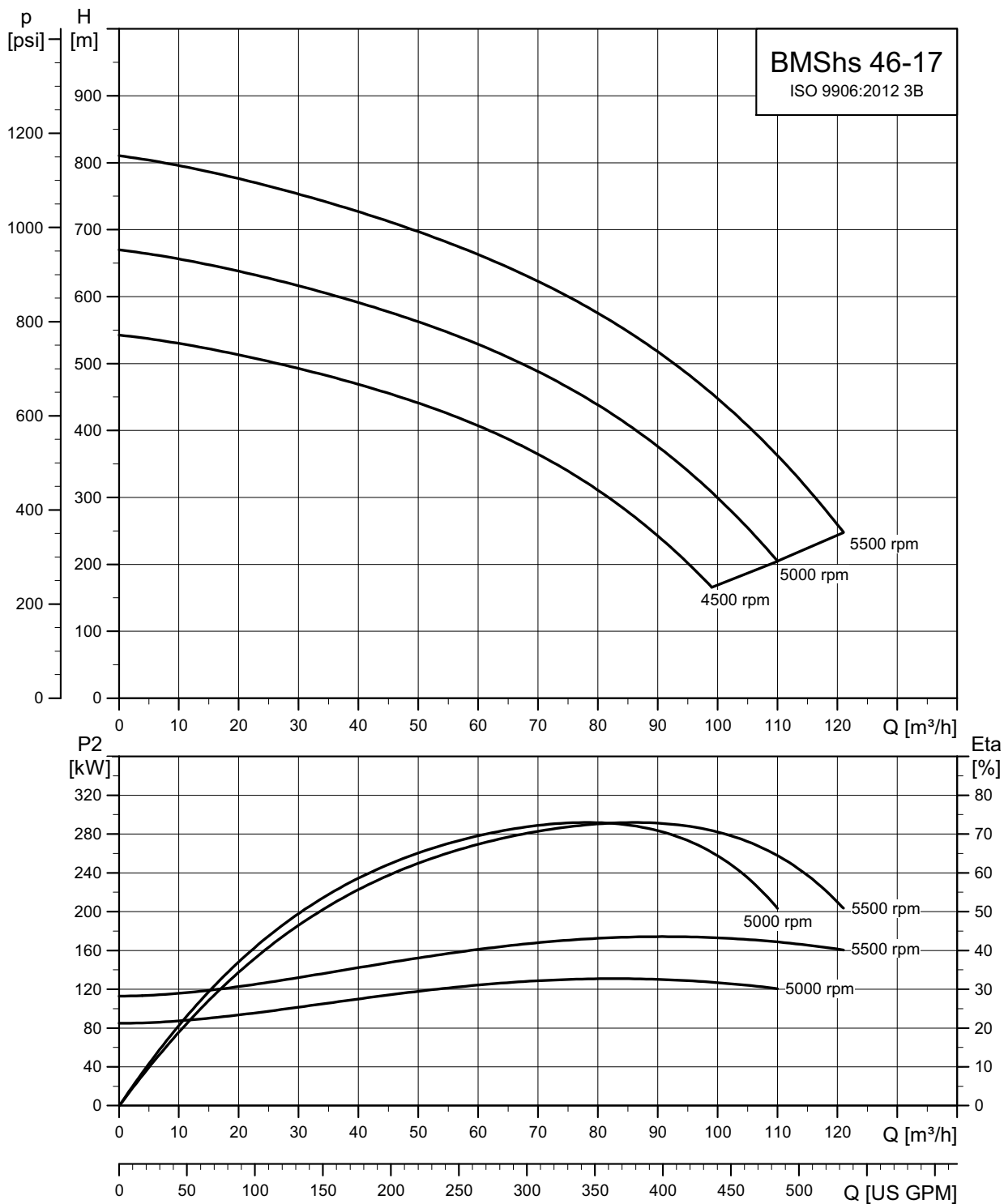
TM07 6305 4620

BMS hs, 30-26



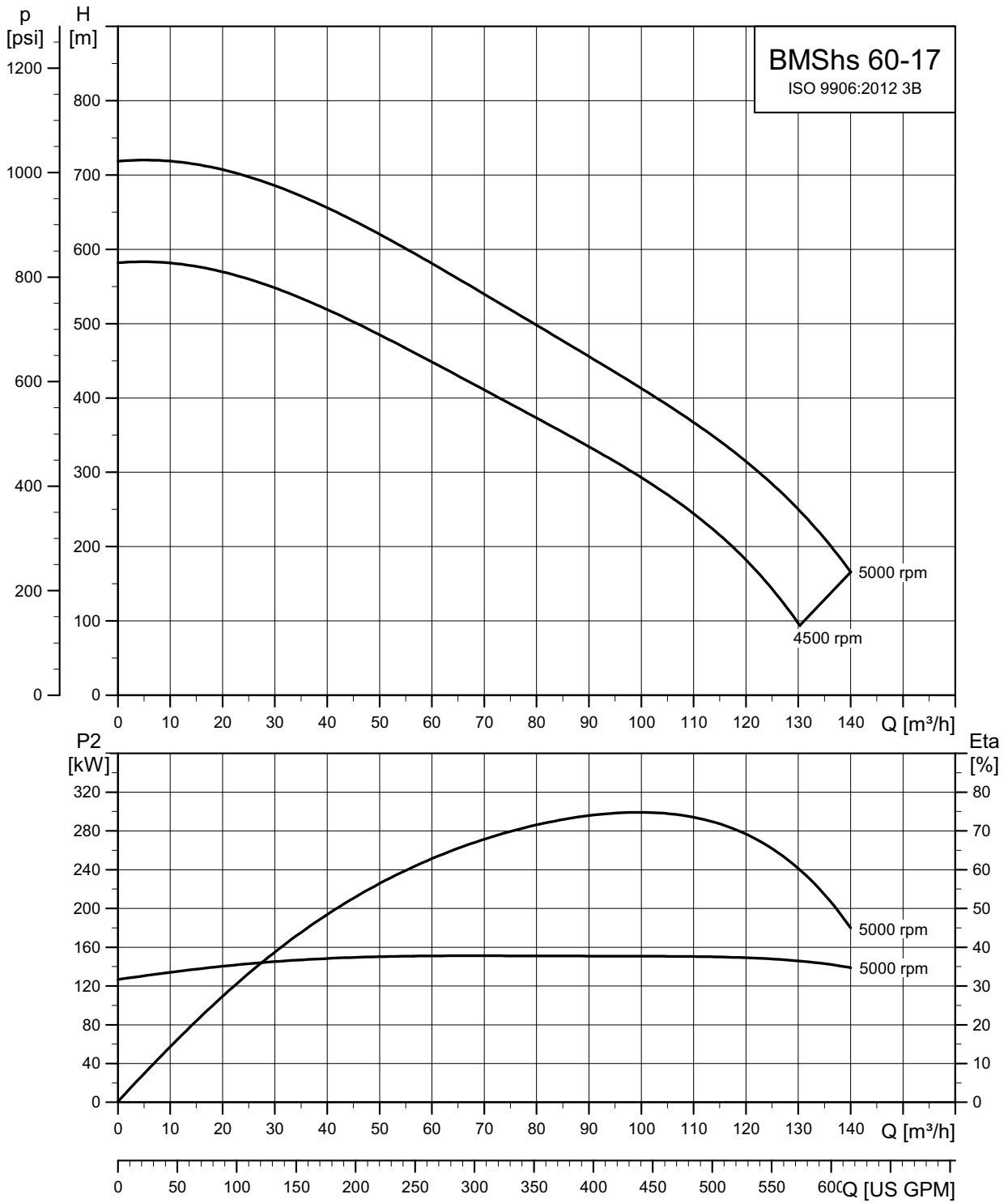
TM07 6306 4620

BMS hs, 46-17



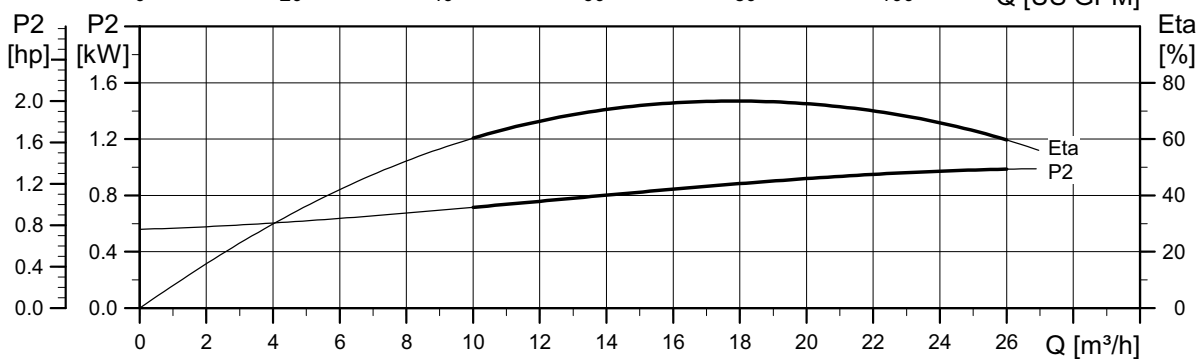
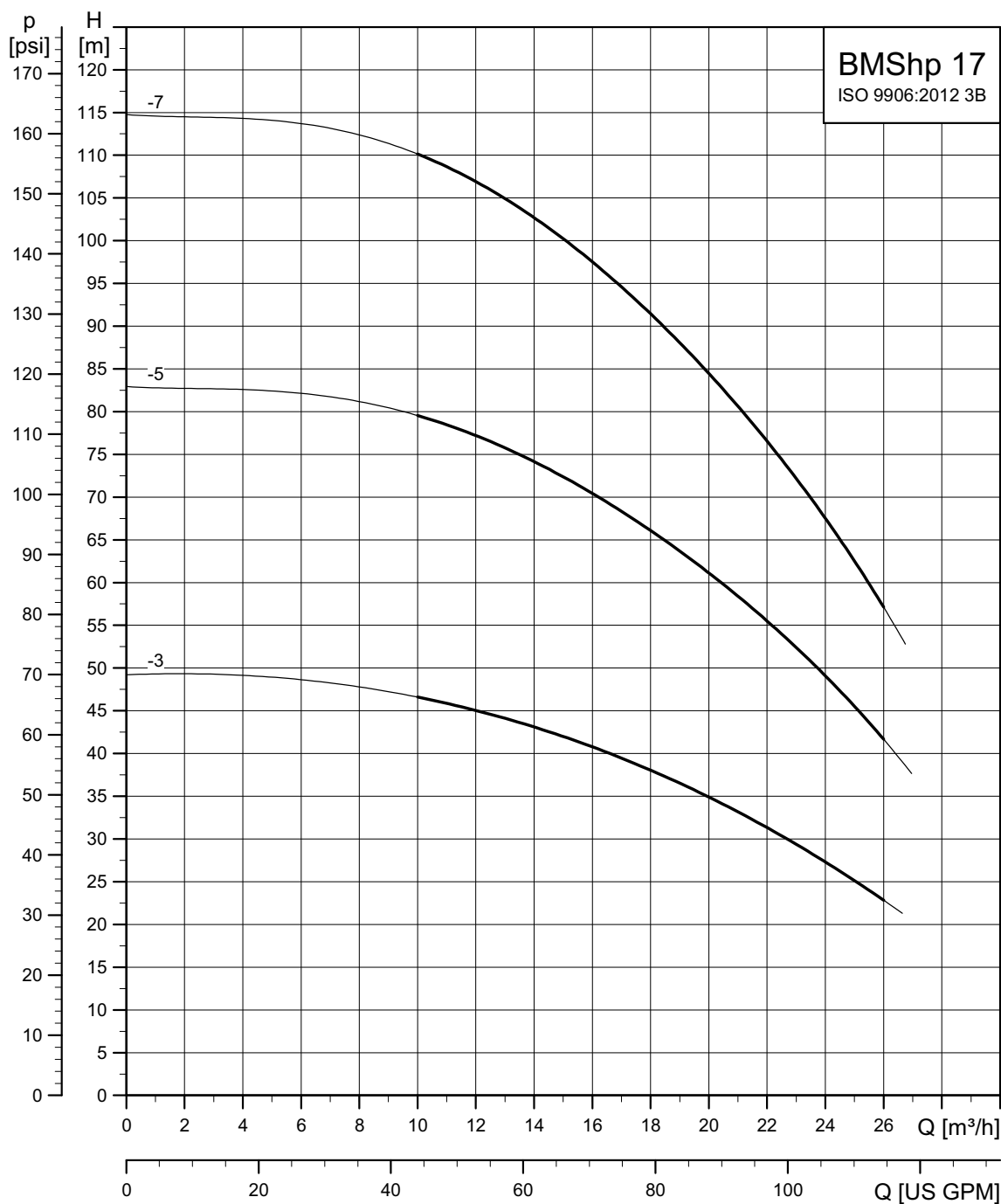
TM06 6307 4620

BMS hs, 60-17



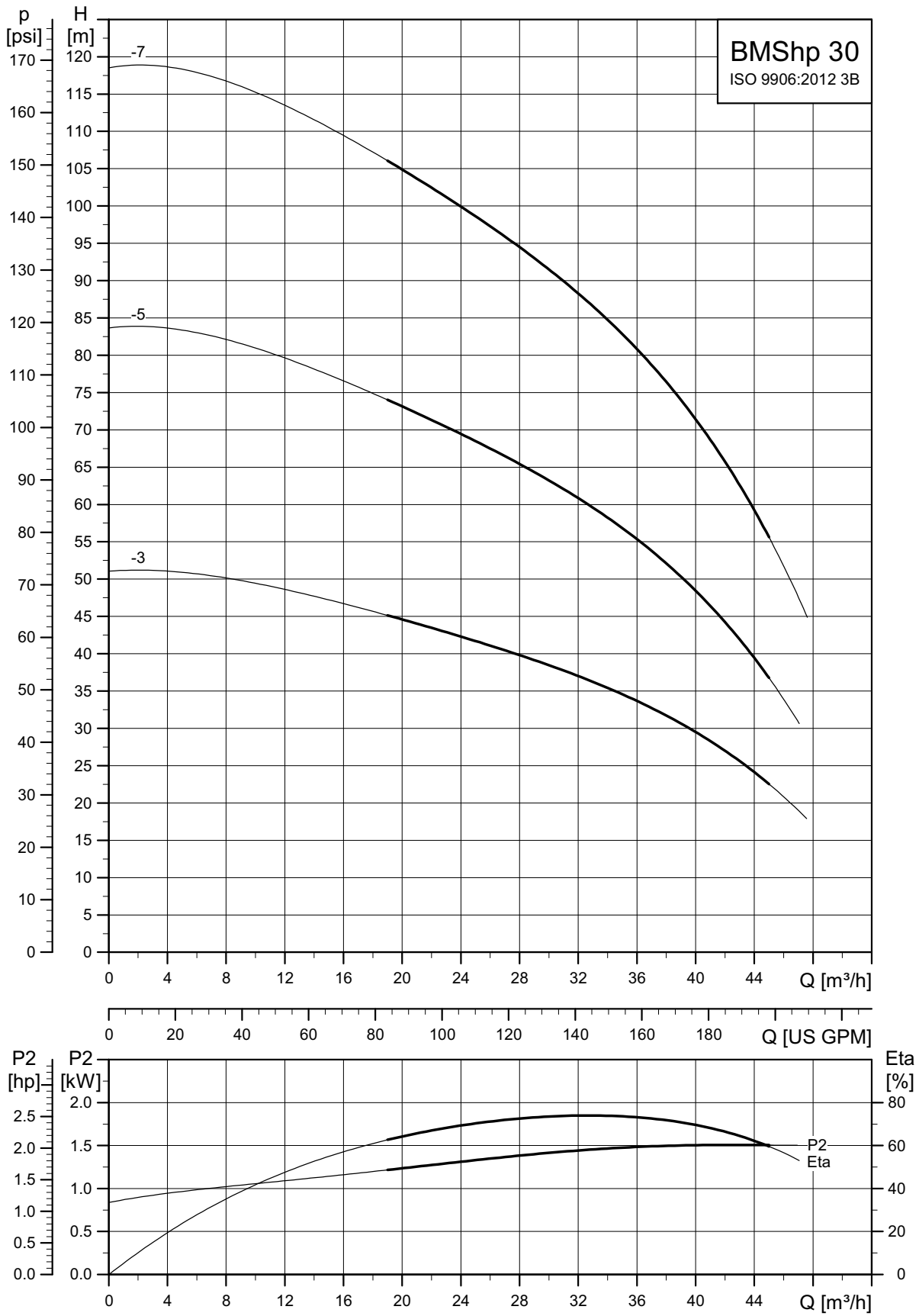
TM07 6308 4620

BMS hp, 17-3, 17-5 and 17-7



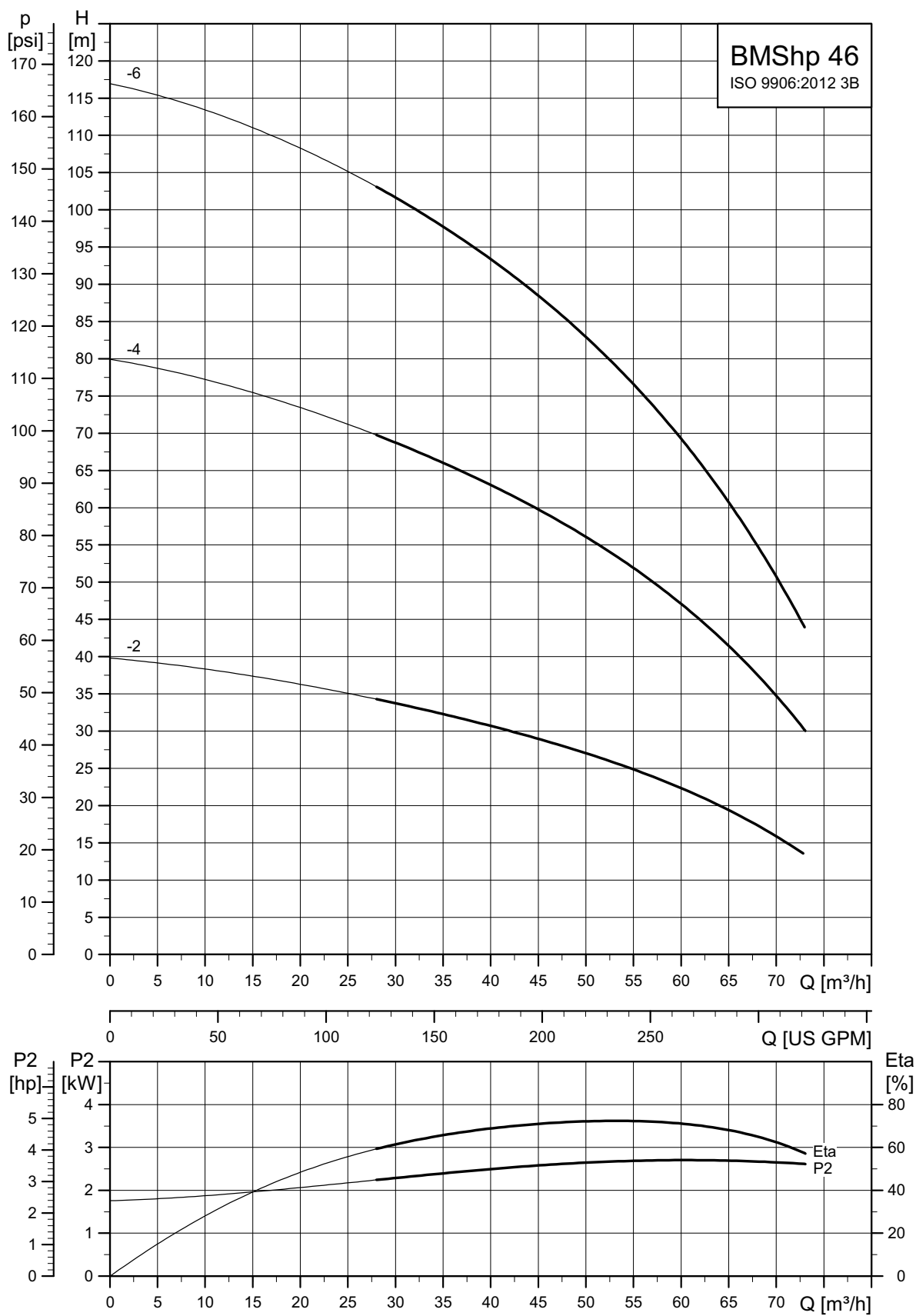
TM06 0725 3620

BMS hp, 30-3, 30-5 and 30-7



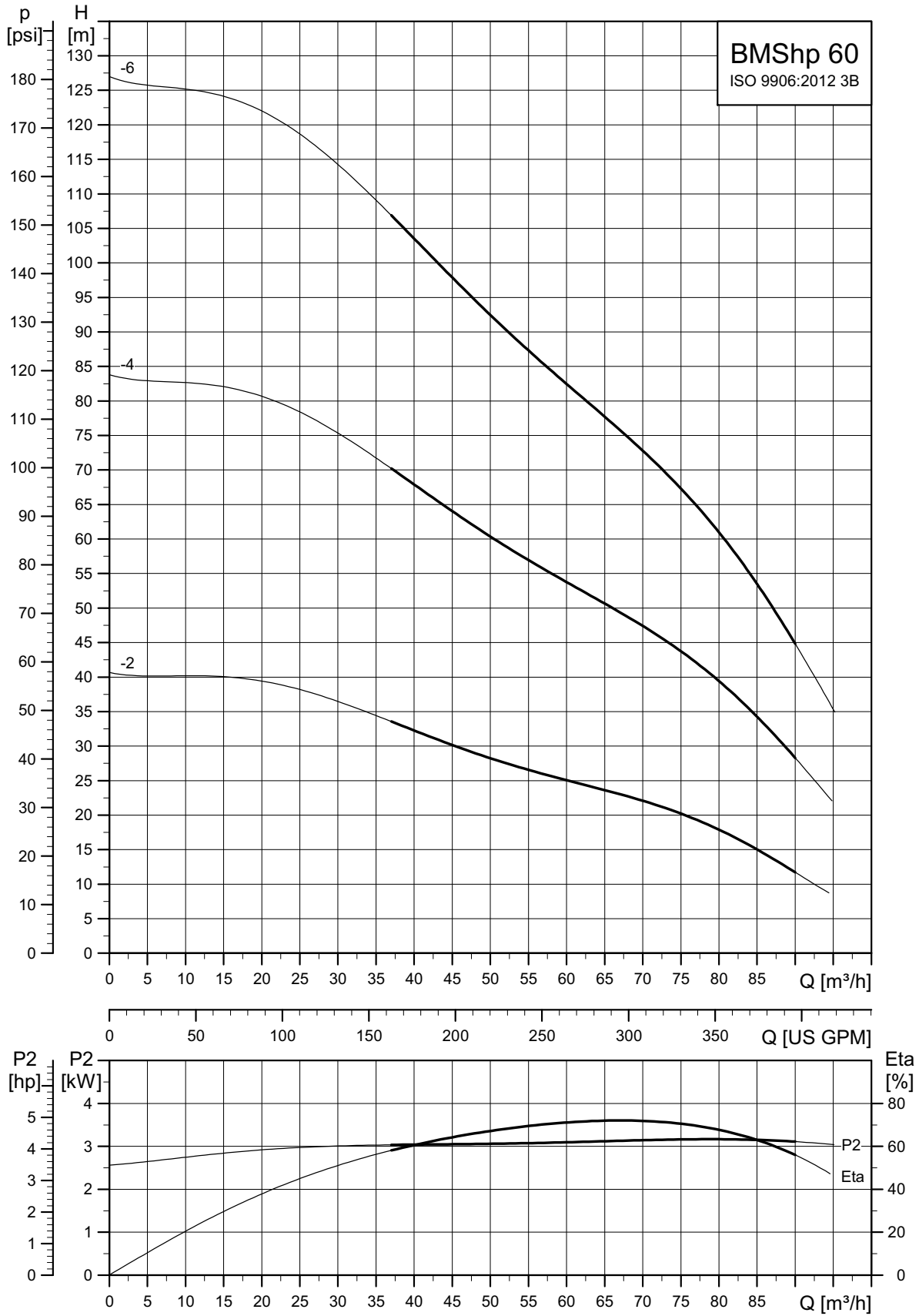
TM06 0726 3620

BMS hp, 46-2, 46-4 and 46-6A



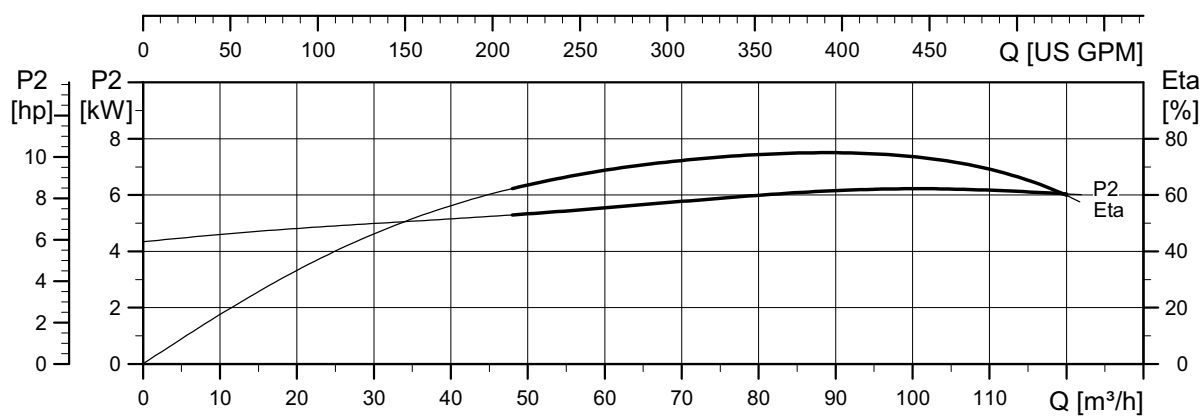
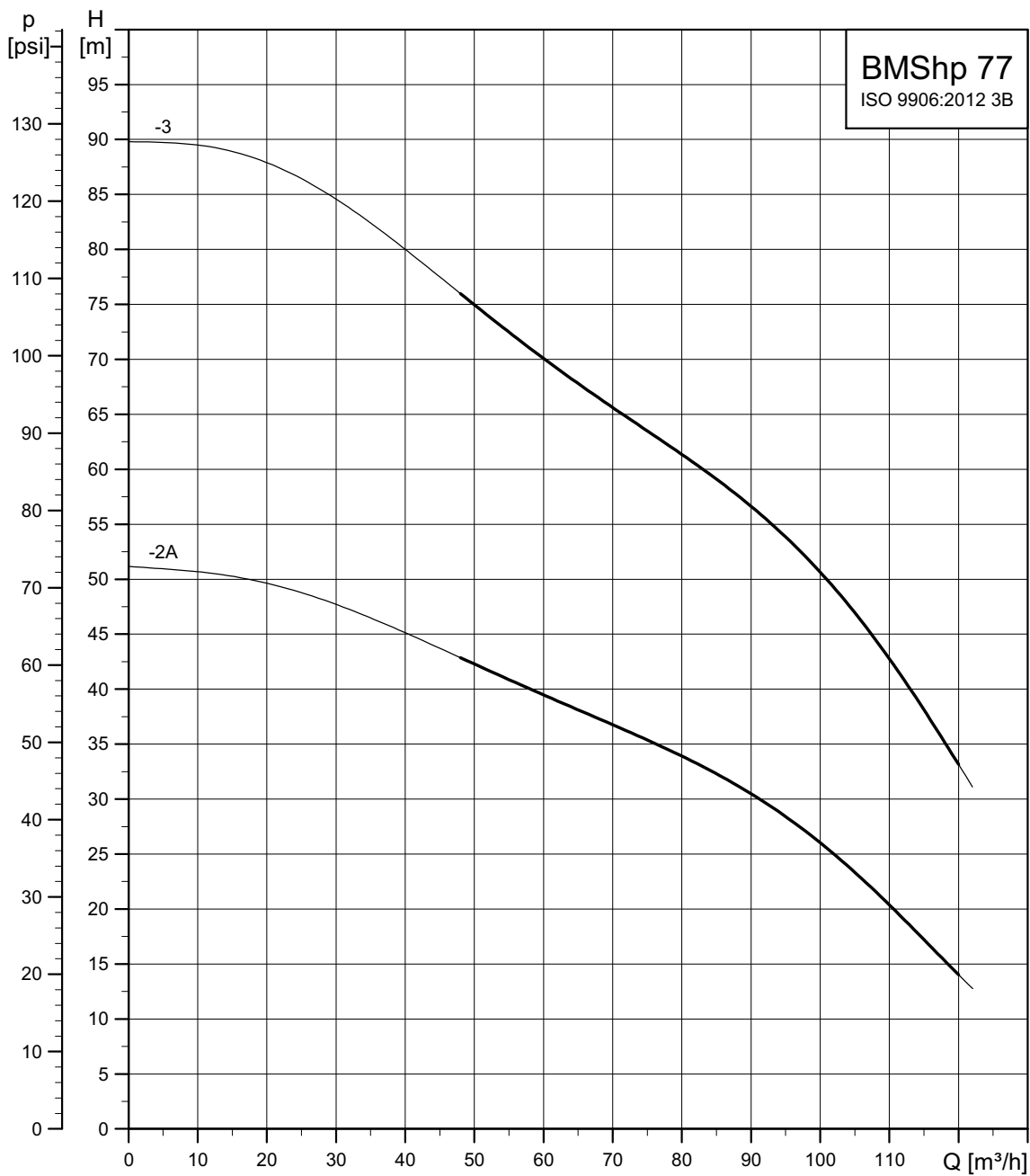
TM06 0727 3620

BMS hp, 60-2, 60-4 and 60-6



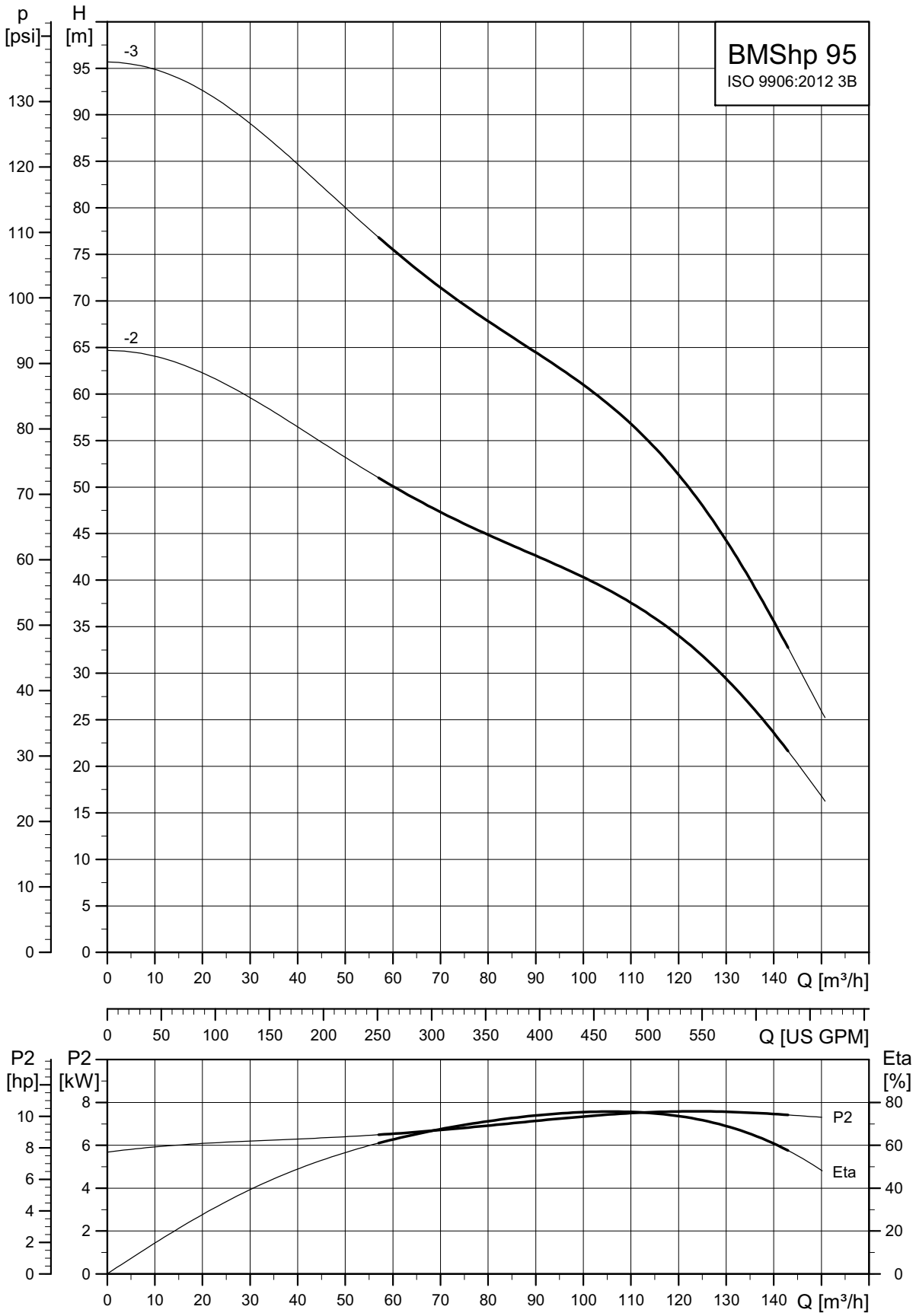
TM06 0728 3620

BMS hp, 77-2A and 77-3



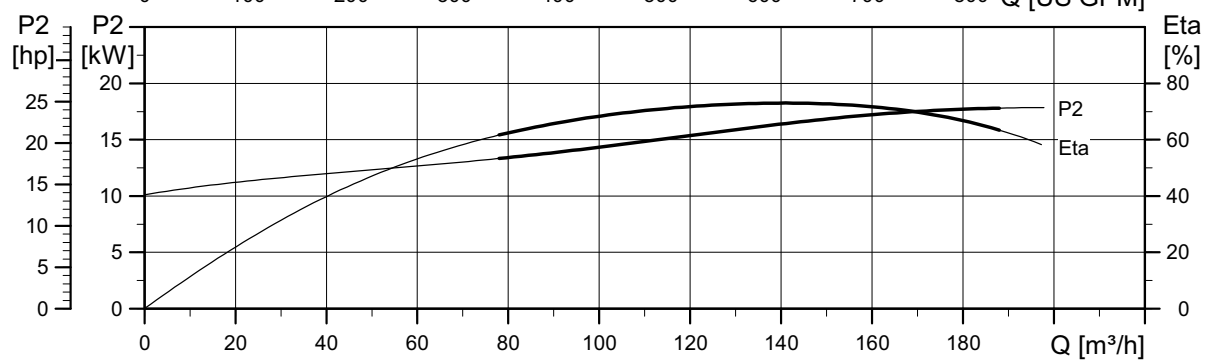
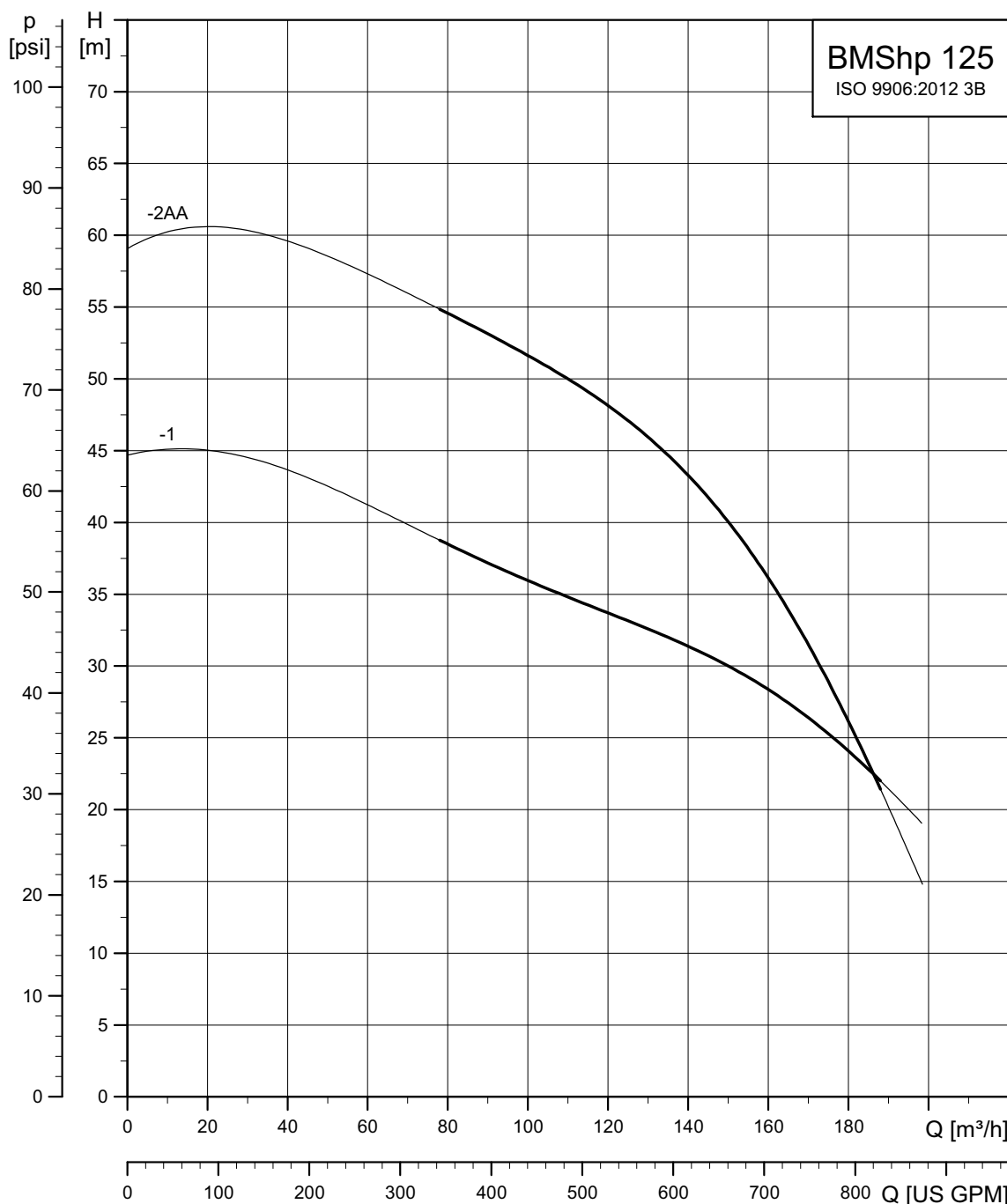
TM06 2412 3620

BMS hp, 95-2 and 95-3



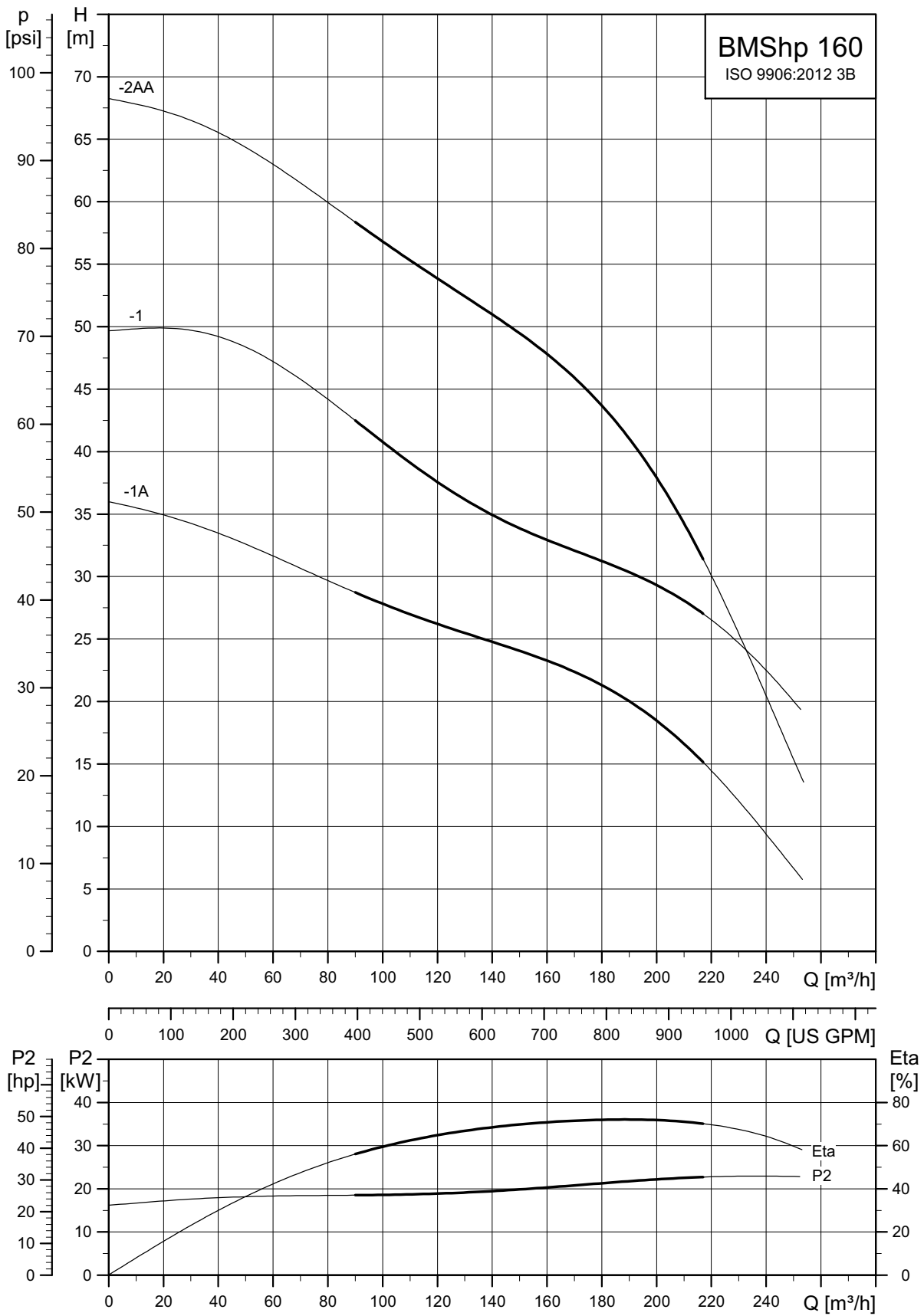
TM06 2413 3620

BMS hp, 125-1 and 125-2AA



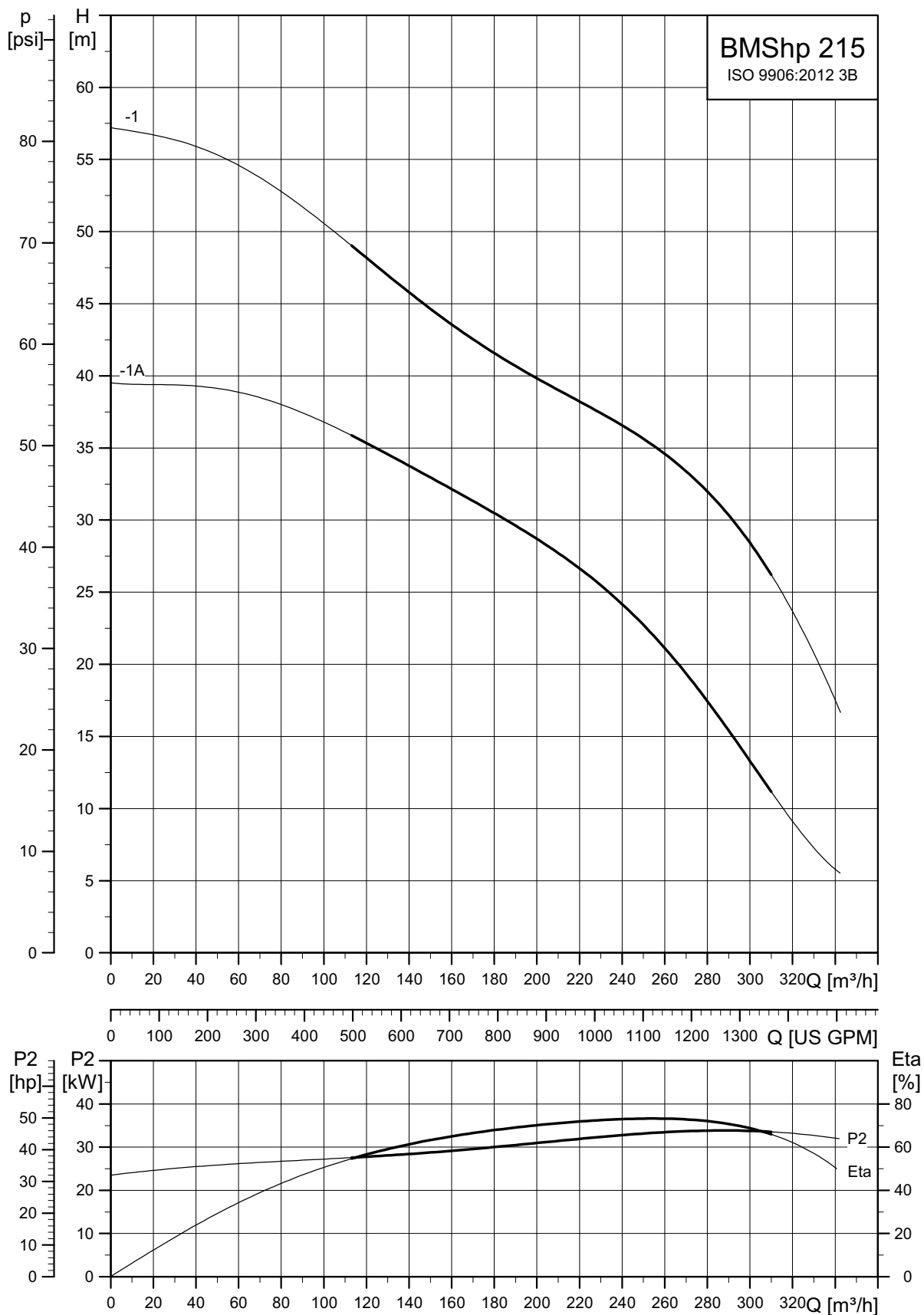
TM06 24 14 3620

BMS hp, 160-1A, 160-1 and 160-2AA



TM06 24 15 3620

BMS hp, 215-1A and 215-1



TM06 24 16 3620

10. Dimensions and weight

BMS hs PM booster system

BMS hs booster type	Product number	Frequency converter		Power P2		Max. speed [rpm]	Inlet/outlet horizontal [A]		Inlet/outlet vertical [B]		Centre height [C]		Sleeve diameter [D]		Total length* [E]		Motor dimension [F]	
		Type	[kW]	[hp]	[mm]		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	
BMS 17-22, HS-E-C-P-A	99470789	CUE 3 × 380-500 V IP55	75 kW	70	94	5500	170	6.7	139	5.5	250	9.8	168.3	6.6	2736	107.7	305	12
	99470792	CUE 3 × 380-500 V IP55	90 kW	85	114	5500	170	6.7	139	5.5	250	9.8	168.3	6.6	2736	107.7	305	12
	99471122	CUE 3 × 380-500 V IP55	75 kW	70	94	5000	170	6.7	139	5.5	250	9.8	168.3	6.6	2736	107.7	305	12
	99471131	CUE 3 × 380-500 V IP55	45 kW	44	59	4500	170	6.7	139	5.5	250	9.8	168.3	6.6	2736	107.7	305	12
	99471148	CUE 3 × 380-500 V IP55	55 kW	52	70	4500	170	6.7	139	5.5	250	9.8	168.3	6.6	2736	107.7	305	12
BMS 30-14, HS-E-C-P-A	99539742	CUE 3 × 380-500 V IP55	90 kW	85	114	5500	170	6.7	139	5.5	250	9.8	168.3	6.6	2749	108.2	305	12
BMS 30-26, HS-E-C-P-A	99471199	CUE 3 × 380-500 V IP54	160 kW	140	188	5500	170	6.7	139	5.5	275	10.8	168.3	6.6	4097	161.3	286	11.3
	99471213	CUE 3 × 380-500 V IP54	160 kW	160	215	5500	170	6.7	139	5.5	275	10.8	168.3	6.6	4097	161.3	286	11.3
	99471220	CUE 3 × 380-500 V IP54	160 kW	140	188	5000	170	6.7	139	5.5	275	10.8	168.3	6.6	4097	161.3	286	11.3
	99471222	CUE 3 × 380-500 V IP54	110 kW	100	134	4500	170	6.7	139	5.5	275	10.8	168.3	6.6	4097	161.3	286	11.3
	99471243	CUE 3 × 380-500 V IP54	200 kW	180	241	5500	170	6.7	139	5.5	275	10.8	168.3	6.6	3522	138.7	286	11.3
BMS 46-17, HS-E-C-P-A	99471246	CUE 3 × 380-500 V IP54	160 kW	140	188	5000	170	6.7	139	5.5	275	10.8	168.3	6.6	3522	138.7	286	11.3
	99471248	CUE 3 × 380-500 V IP54	160 kW	160	215	5000	170	6.7	139	5.5	275	10.8	168.3	6.6	3522	138.7	286	11.3
	99471276	CUE 3 × 380-500 V IP54	200 kW	180	241	5000	170	6.7	139	5.5	275	10.8	168.3	6.6	3522	138.7	286	11.3

BMS hs booster type	Product number	Power P2		Motor dimension [G]		Motor dimension [HD]		Dimension [H]		Dimension [I]		Dimension [J]		Dimension [K]		Dimension [L]		Width [W]		Weight** [kg]
		[kW]	[hp]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	
BMS 17-22, HS-E-C-P-A	99470789	70	94	318	12.5	540	21.3	308.5	12.1	1779	70	140	5.5	13	0.5	400	15.7	402	14.9	262
	99470792	85	114	318	12.5	540	21.3	308.5	12.1	1779	70	140	5.5	13	0.5	400	15.7	402	14.9	262
	99471122	70	94	318	12.5	540	21.3	308.5	12.1	1779	70	140	5.5	13	0.5	400	15.7	402	14.9	247
	99471131	44	59	318	12.5	540	21.3	308.5	12.1	1779	70	140	5.5	13	0.5	400	15.7	402	14.9	247
	99471148	52	70	318	12.5	540	21.3	308.5	12.1	1779	70	140	5.5	13	0.5	400	15.7	402	14.9	262
BMS 30-14, HS-E-C-P-A	99539742	85	114	318	12.5	540	21.3	308.5	12.1	1792	70.5	140	5.5	13	0.5	400	15.7	402	14.9	348
BMS 30-26, HS-E-C-P-A	99471199	140	188	356	14	769	30.3	308.5	12.1	2966	116.8	140	5.5	13	0.5	400	15.7	479	16.5	494
	99471213	160	215	356	14	769	30.3	308.5	12.1	2966	116.8	140	5.5	13	0.5	400	15.7	479	16.5	494
	99471220	140	188	356	14	769	30.3	308.5	12.1	2966	116.8	140	5.5	13	0.5	400	15.7	479	16.5	494
	99471222	100	134	356	14	769	30.3	308.5	12.1	2966	116.8	140	5.5	13	0.5	400	15.7	479	16.5	494
	99471243	180	241	356	14	769	30.3	308.5	12.1	2391	94.1	140	5.5	13	0.5	400	15.7	479	16.5	486
BMS 46-17, HS-E-C-P-A	99471246	140	188	356	14	769	30.3	308.5	12.1	2391	94.1	140	5.5	13	0.5	400	15.7	479	16.5	486
	99471248	160	215	356	14	769	30.3	308.5	12.1	2391	94.1	140	5.5	13	0.5	400	15.7	479	16.5	486
BMS 60-17, HS-E-C-P-A	99471276	180	241	356	14	769	30.3	308.5	12.1	2391	94.1	140	5.5	13	0.5	400	15.7	479	16.5	486

* Length [E] without service connector.

** Weight without frequency converter.

Dimensional sketch

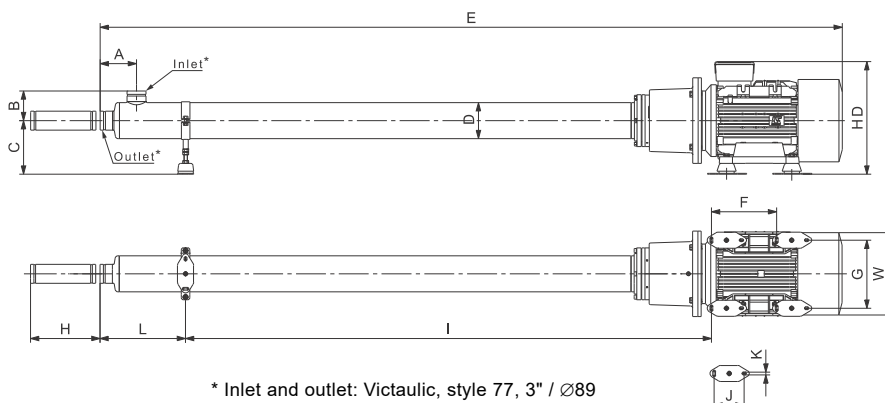


Fig. 29 BMS hs PM booster system with service connector

TM05 9244 3613

Frequency converter for PM motor

Type	Dimensions						Weight [kg]
	H		W		D		
	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	
CUE 3 × 380-500 V IP55 45 kW	685	27	308	12	311	12	45
CUE 3 × 380-500 V IP55 55 kW	685	27	308	12	311	12	45
CUE 3 × 380-500 V IP55 75 kW	767	30	371	14.6	335	13	64
CUE 3 × 380-500 V IP55 90 kW	767	30	371	14.6	335	13	64
CUE 3 × 380-500 V IP54 110 kW	901	35.4	325	12.7	378	14.8	62
CUE 3 × 380-500 V IP54 160 kW	901	35.4	325	12.7	378	14.8	62
CUE 3 × 380-500 V IP54 200 kW	1107	45.3	420	16.5	378	14.8	125



TM07 5552 4419

Service connector

Use the service connector to ensure easy access for maintenance. The service connector is included, when ordering a BMSs pump



TM05 9766 4413

Fig. 30 Service connector

BMS hs AC booster system

BMS hs booster type	Product number	Power P2		Max. speed [rpm]	Inlet/outlet horizontal [A]		Inlet/outlet vertical [B]		Centre height [C]		Sleeve diameter [D]		Total length* [E]		Motor dimension [F]		Motor dimension [G]	
		[kW]	[hp]		[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]
BMS 7-42 HS-B-C-P-A	99277174	30	40.2	5000	145	5.6	97	3.8	250	9.8	114.3	4.5	3373	132.8	305	12	318	12.5
	99022832	52	69.7	5000	170	6.7	139	5.5	250	9.8	168.3	6.6	2752	108.3	305	12	318	12.5
BMS 17-22 HS-B-C-P-A	99022843	70	93.9	5500	170	6.7	139	5.5	275	10.8	168.3	6.6	2768	109.0	311	12.2	356	14
	99022844	85	114	5500	170	6.7	139	5.5	275	10.8	168.3	6.6	2768	109.0	311	12.2	356	14
BMS 30-14 HS-B-C-P-A	99022845	85	114	5500	170	6.7	139	5.5	275	10.8	168.3	6.6	2781	109.5	311	12.2	356	14
	99022846	120	160.9	4500	170	6.7	139	5.5	275	10.8	168.3	6.6	3993	157.2	311	12.2	356	14
BMS 30-26 HS-B-C-P-A	99022847	140	187.7	5500	170	6.7	139	5.5	275	10.8	168.3	6.6	4073	160.4	311	12.2	356	14
	99022848	160	214.6	5500	170	6.7	139	5.5	300	11.8	168.3	6.6	4135	162.8	349	13.7	406	16
BMS 46-17 HS-B-C-P-A	99022849	160	214.6	5500	170	6.7	139	5.5	300	11.8	168.3	6.6	3560	140.2	349	13.7	406	16
	99059893	180	241.4	5500	170	6.7	139	5.5	300	11.8	168.3	6.6	3560	140.2	349	13.7	406	16
BMS 60-17 HS-B-C-P-A	99022850	180	241.4	5000	170	6.7	139	5.5	300	11.8	168.3	6.6	3560	140.2	349	13.7	406	16

BMS hs booster type	Product number	Power P2		Motor dimension [HD]		Dimension [H]		Dimension [I]		Dimension [J]		Dimension [K]		Dimension [L]		Width [W]		Weight** [kg]
		[kW]	[hp]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	
BMS 7-42 HS-B-C-P-A	99277174	30	40.2	565	22.2	308.5	12.1	2424	95.4	140	5.5	13	0.5	400	15.7	396	15.6	313
	99022832	52	69.7	565	22.2	308.5	12.1	1779	69.7	140	5.5	13	0.5	400	15.7	396	15.6	389
BMS 17-22 HS-B-C-P-A	99022843	70	93.9	683	26.9	308.5	12.1	1801	70.9	140	5.5	13	0.5	400	15.7	431	17.7	437
	99022844	85	114	683	26.9	308.5	12.1	1801	70.9	140	5.5	13	0.5	400	15.7	449	17.7	442
BMS 30-14 HS-B-C-P-A	99022845	85	114	683	26.9	308.5	12.1	1814	71.4	140	5.5	13	0.5	400	15.7	449	17.7	440
	99022846	120	160.9	683	26.9	308.5	12.1	2966	116.8	140	5.5	13	0.5	400	15.7	449	17.7	511
BMS 30-26 HS-B-C-P-A	99022847	140	187.7	683	26.9	308.5	12.1	2966	116.8	140	5.5	13	0.5	400	15.7	449	17.7	606
	99022848	160	214.6	802	31.6	308.5	12.1	3016	118.7	140	5.5	13	0.5	400	15.7	497	19.6	643
BMS 46-17 HS-B-C-P-A	99022849	160	214.6	802	31.6	308.5	12.1	2441	96.1	140	5.5	13	0.5	400	15.7	497	19.6	636
	99059893	180	241.4	802	31.6	308.5	12.1	2441	96.1	140	5.5	13	0.5	400	15.7	497	19.6	646
BMS 60-17 HS-B-C-P-A	99022850	180	241.4	802	31.6	308.5	12.1	2441	96.1	140	5.5	13	0.5	400	15.7	497	19.6	646

* Length [E] without service connector.

** Weight without frequency converter (CUE).

Dimensional sketch

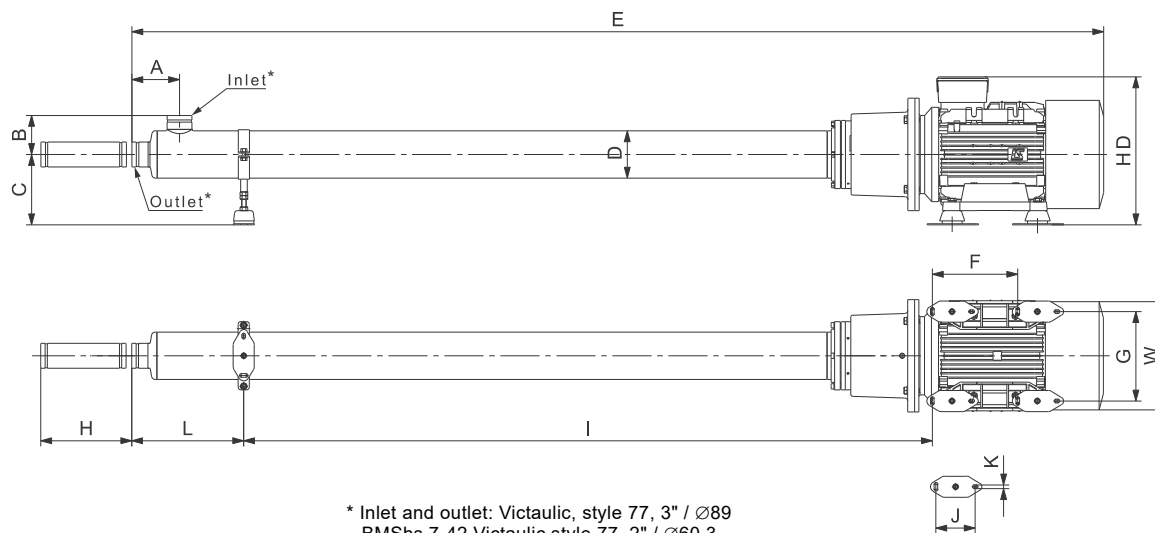


Fig. 31 BMS hs AC booster system with service connector

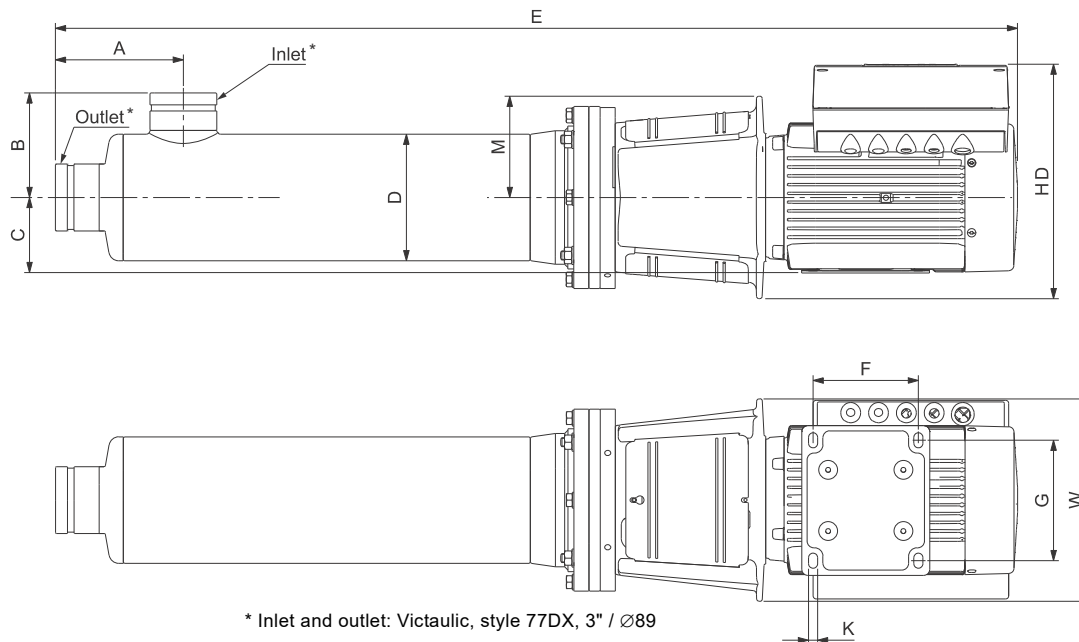
TM05 9244 3613

BMS hp MG booster system 6"

BMS hp	Product number	Inlet/outlet horizontal [A]		Inlet/outlet vertical [B]		Centre height [C]		Sleeve diameter [D]		Total length [E]		Motor dimension [F]	
		[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]
BMS 17-3 HP-A-C-P-A	98872087	170	6.7	139.0	5.5	100	3.9	168.3	6.6	1281	50.4	140	5.5
BMS 17-5 HP-A-C-P-A	98872088	170	6.7	139.0	5.5	132	5.2	168.3	6.6	1458	57.4	140	5.5
BMS 17-7 HP-A-C-P-A	98872090	170	6.7	139.0	5.5	132	5.2	168.3	6.6	1567	61.7	140	5.5
BMS 30-3 HP-A-C-P-A	98872101	170	6.7	139.0	5.5	132	5.2	168.3	6.6	1444	56.4	140	5.5
BMS 30-5 HP-A-C-P-A	98872102	170	6.7	139.0	5.5	132	5.2	168.3	6.6	1624	63.9	140	5.5
BMS 30-7 HP-A-C-P-A	98872103	170	6.7	139.0	5.5	160	6.3	168.3	6.6	2018	79.4	210	8.3
BMS 46-2 HP-A-C-P-A	98872104	170	6.7	139.0	5.5	132	5.2	168.3	6.6	1382	54.4	140	5.5
BMS 46-4 HP-A-C-P-A	98872105	170	6.7	139.0	5.5	160	6.3	168.3	6.6	1798	70.8	210	8.3
BMS 46-6A HP-A-C-P-A	98872106	170	6.7	139.0	5.5	160	6.3	168.3	6.6	2024	79.7	210	8.3
BMS 60-2 HP-A-C-P-A	98872107	170	6.7	139.0	5.5	132	5.2	168.3	6.6	1370	53.9	140	5.5
BMS 60-4 HP-A-C-P-A	98872109	170	6.7	139.0	5.5	160	6.3	168.3	6.6	1798	70.8	210	8.3
BMS 60-6 HP-A-C-P-A	98872110	170	6.7	139.0	5.5	160	6.3	168.3	6.6	2068	81.4	254	10.0

BMS hp	Product number	Motor dimension [G]		Motor dimension [HD]		Dimension [K]		Dimension [M]		Width [W]		Weight [kg]
		[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	
BMS 17-3 HP-A-C-P-A	98872087	160	6.3	255	10.0	12	0.5	135	5.3	198	10.6	96
BMS 17-5 HP-A-C-P-A	98872088	216	8.5	284	11.2	12	0.5	150	5.9	300	11.8	96
BMS 17-7 HP-A-C-P-A	98872090	216	8.5	309	12.2	12	0.5	150	5.9	300	11.8	135
BMS 30-3 HP-A-C-P-A	98872101	216	8.5	284	11.2	12	0.5	150	5.9	300	11.8	120
BMS 30-5 HP-A-C-P-A	98872102	216	8.5	309	12.2	12	0.5	150	5.9	300	11.8	136
BMS 30-7 HP-A-C-P-A	98872103	254	10.0	379	14.9	15	0.6	175	6.9	350	13.8	189
BMS 46-2 HP-A-C-P-A	98872104	216	8.5	284	11.2	12	0.5	150	5.9	300	11.8	119
BMS 46-4 HP-A-C-P-A	98872105	254	10.0	379	14.9	15	0.6	175	6.9	350	13.8	183
BMS 46-6A HP-A-C-P-A	98872106	254	10.0	379	14.9	15	0.6	175	6.9	350	13.8	203
BMS 60-2 HP-A-C-P-A	98872107	216	8.5	309	12.2	12	0.5	150	5.9	300	11.8	129
BMS 60-4 HP-A-C-P-A	98872109	254	10.0	379	14.9	15	0.6	175	6.9	350	13.8	183
BMS 60-6 HP-A-C-P-A	98872110	254	10.0	379	14.9	15	0.6	175	6.9	350	13.8	216

Dimensional sketch



TM06 0941 5114

Fig. 32 BMS hp booster system

BMS hp MG booster system 8"

BMS hp	Product number	Inlet/outlet horizontal [A]		Inlet/outlet vertical [B]		Centre height [C]		Sleeve diameter [D]		Total length [E]		Motor dimension [F]	
		[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]
BMS 77-2A HP-A-C-P-A	98872111	275	10.8	206.5	8.1	160	6.3	273.0	10.7	1857	73.1	210	8.3
BMS 77-3 HP-A-C-P-A	98872112	275	10.8	206.5	8.1	160	6.3	273.0	10.7	2029	79.9	254	10.0
BMS 95-2 HP-A-C-P-A	98872113	275	10.8	206.5	8.1	160	6.3	273.0	10.7	1857	73.1	210	8.3
BMS 95-3 HP-A-C-P-A	98872116	275	10.8	206.5	8.1	180	7.1	273.0	10.7	2055	80.9	241	9.5
BMS 125-1 HP-A-C-P-A	98872117	275	10.8	206.5	8.1	160	6.3	273.0	10.7	1807	71.1	254	10.0
BMS 125-2AA HP-A-C-P-A	98872119	275	10.8	206.5	8.1	180	7.1	273.0	10.7	1988	78.3	241	9.5
BMS 160-1A HP-A-C-P-A	98872120	275	10.8	206.5	8.1	160	6.3	273.0	10.7	1763	69.4	210	8.3
BMS 160-1 HP-A-C-P-A	98872121	275	10.8	206.5	8.1	180	7.1	273.0	10.7	1833	72.2	241	9.5
BMS 160-2AA HP-A-C-P-A	98494526	275	10.8	206.5	8.1	200	7.9	273.0	10.7	2058	81.0	305	12.0
BMS 215-1A HP-A-C-P-A	98494527	275	10.8	206.5	8.1	200	7.9	273.0	10.7	2041	80.4	305	12.0
BMS 215-1 HP-A-C-P-A	98494528	275	10.8	206.5	8.1	200	7.9	273.0	10.7	2066	81.3	305	12.0

BMS hp	Product number	Motor dimension [G]		Motor dimension [HD]		Dimension [K]		Dimension [M]		Width [W]		Weight [kg]
		[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	
BMS 77-2A HP-A-C-P-A	98872111	254	10.0	379	14.9	15	0.6	175	6.9	350	13.8	225
BMS 77-3 HP-A-C-P-A	98872112	254	10.0	379	14.9	15	0.6	175	6.9	350	13.8	256
BMS 95-2 HP-A-C-P-A	98872113	254	10.0	379	14.9	15	0.6	175	6.9	350	13.8	234
BMS 95-3 HP-A-C-P-A	98872116	279	11.0	384	15.1	15	0.6	175	6.9	350	13.8	270
BMS 125-1 HP-A-C-P-A	98872117	254	10.0	379	14.9	15	0.6	175	6.9	350	13.8	255
BMS 125-2AA HP-A-C-P-A	98872119	279	11.0	384	15.1	15	0.6	175	6.9	350	13.8	281
BMS 160-1A HP-A-C-P-A	98872120	254	10.0	379	14.9	15	0.6	175	6.9	350	13.8	240
BMS 160-1 HP-A-C-P-A	98872121	279	11.0	384	15.1	15	0.6	175	6.9	350	13.8	271
BMS 160-2AA HP-A-C-P-A	98494526	318	12.5	515	20.3	19	0.7	200	7.9	400	15.7	392
BMS 215-1A HP-A-C-P-A	98494527	318	12.5	515	20.3	19	0.7	200	7.9	400	15.7	391
BMS 215-1 HP-A-C-P-A	98494528	318	12.5	515	20.3	19	0.7	200	7.9	400	15.7	416

Dimensional sketch

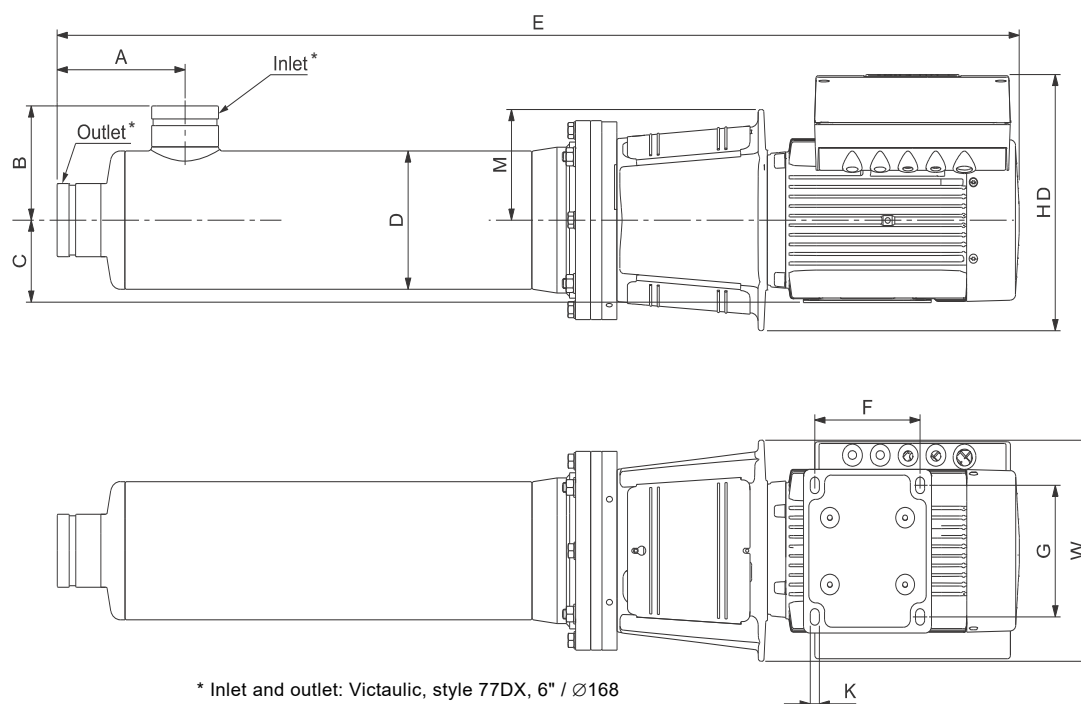


Fig. 33 BMS hp booster system

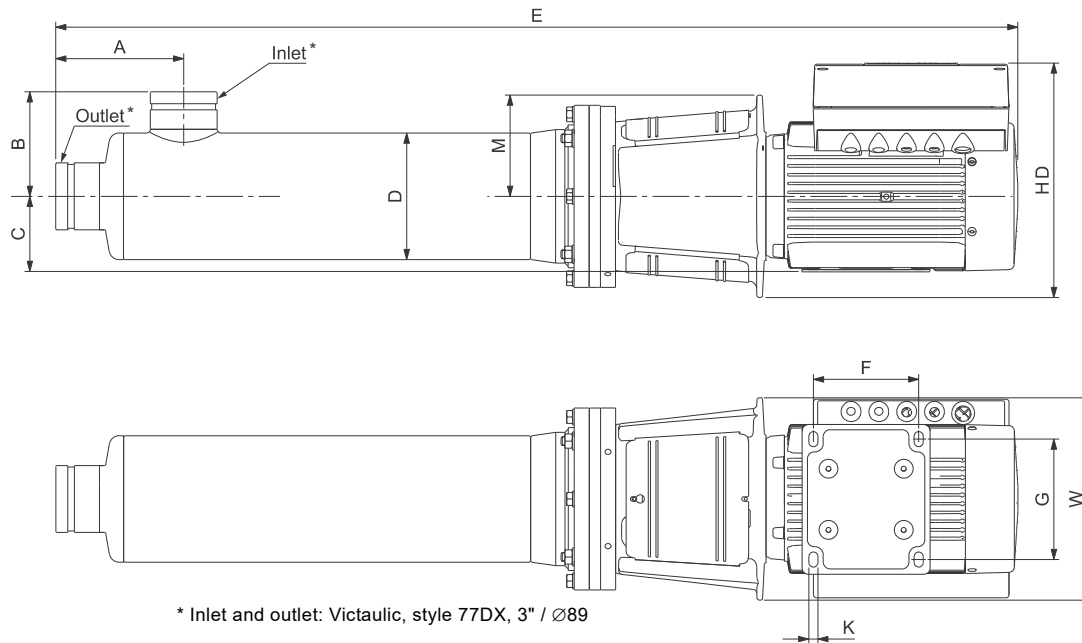
TM06 0941 5114

BMS hp MGE booster system 6"

BMS hp	Product number	Inlet/outlet horizontal [A]		Inlet/outlet vertical [B]		Centre height [C]		Sleeve diameter [D]		Total length [E]		Motor dimension [F]	
		[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]
BMS 17-3 HP-C-C-P-A	98494496	170	6.7	139	5.5	100	3.9	168.3	6.6	1280	50.4	140	5.5
BMS 17-5 HP-C-C-P-A	98494497	170	6.7	139	5.5	132	5.2	168.3	6.6	1432	57.4	140	5.5
BMS 17-7 HP-C-C-P-A	98494498	170	6.7	139	5.5	132	5.2	168.3	6.6	1577	61.7	140	5.5
BMS 30-3 HP-C-C-P-A	98494499	170	6.7	139	5.5	132	5.2	168.3	6.6	1418	56.4	140	5.5
BMS 30-5 HP-C-C-P-A	98494500	170	6.7	139	5.5	132	5.2	168.3	6.6	1634	63.9	140	5.5
BMS 30-7 HP-C-C-P-A	98494511	170	6.7	139	5.5	160	6.3	168.3	6.6	1954	79.4	210	8.3
BMS 46-2 HP-C-C-P-A	98494512	170	6.7	139	5.5	132	5.2	168.3	6.6	1356	54.4	140	5.5
BMS 46-4 HP-C-C-P-A	98494513	170	6.7	139	5.5	160	6.3	168.3	6.6	1733	70.8	210	8.3
BMS 46-6A HP-C-C-P-A	98494514	170	6.7	139	5.5	160	6.3	168.3	6.6	2024	79.7	210	8.3
BMS 60-2 HP-C-C-P-A	98494515	170	6.7	139	5.5	132	5.2	168.3	6.6	1380	53.9	140	5.5
BMS 60-4 HP-C-C-P-A	98494516	170	6.7	139	5.5	160	6.3	168.3	6.6	1733	70.8	210	8.3
BMS 60-6 HP-C-C-P-A	98494517	170	6.7	139	5.5	160	6.3	168.3	6.6	2068	81.4	254	10

BMS hp	Product number	Motor dimension [G]		Motor dimension [HD]		Dimension [K]		Dimension [M]		Width [W]		Weight [kg]
		[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	
BMS 17-3 HP-C-C-P-A	98494496	160	6.3	301	12.2	12	0.5	135	5.3	291	10.6	101
BMS 17-5 HP-C-C-P-A	98494497	216	8.5	351	13.3	12	0.5	150	5.9	300	11.8	103
BMS 17-7 HP-C-C-P-A	98494498	216	8.5	387	14.3	12	0.5	150	5.9	346	11.8	146
BMS 30-3 HP-C-C-P-A	98494499	216	8.5	351	13.3	12	0.5	150	5.9	300	11.8	127
BMS 30-5 HP-C-C-P-A	98494500	216	8.5	387	14.3	12	0.5	150	5.9	346	11.8	147
BMS 30-7 HP-C-C-P-A	98494511	254	10	412	19	15	0.6	175	6.7	350	16.5	220
BMS 46-2 HP-C-C-P-A	98494512	216	8.5	351	13.3	12	0.5	150	5.9	300	11.8	125
BMS 46-4 HP-C-C-P-A	98494513	254	10	412	19	15	0.6	175	6.7	350	16.5	214
BMS 46-6A HP-C-C-P-A	98494514	254	10	483	19	15	0.6	175	6.7	420	16.5	235
BMS 60-2 HP-C-C-P-A	98494515	216	8.5	387	14.3	12	0.5	150	5.9	346	11.8	139
BMS 60-4 HP-C-C-P-A	98494516	254	10	412	19	15	0.6	175	6.7	350	16.5	214
BMS 60-6 HP-C-C-P-A	98494517	254	10	483	19	15	0.6	175	6.7	420	16.5	248

Dimensional sketch



TM06 0941 5114

Fig. 34 BMS hp booster system

BMS hp MGE booster system 8"

BMS hp	Product number	Inlet/outlet horizontal [A]		Inlet/outlet vertical [B]		Centre height [C]		Sleeve diameter [D]		Total length [E]		Motor dimension [F]	
		[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]
BMS 77-2A HP-C-C-P-A	98494518	275	10.8	206.5	8.1	160	6.3	273	10.7	1792	72.9	210	8.3
BMS 77-3 HP-C-C-P-A	98494519	275	10.8	206.5	8.1	160	6.3	273	10.7	2029	79.7	254	9.9
BMS 95-2 HP-C-C-P-A	98494520	275	10.8	206.5	8.1	160	6.3	273	10.7	1857	72.9	210	8.3
BMS 95-3 HP-C-C-P-A	98494521	275	10.8	206.5	8.1	180	7.1	273	10.7	2055	80.7	241	9.5
BMS 125-1 HP-C-C-P-A	98494522	275	10.8	206.5	8.1	160	6.3	273	10.7	1807	70.9	254	9.9
BMS 125-2AA HP-C-C-P-A	98494523	275	10.8	206.5	8.1	180	7.1	273	10.7	1988	78.1	241	9.5
BMS 160-1A HP-C-C-P-A	98494524	275	10.8	206.5	8.1	160	6.3	273	10.7	1763	69.2	210	8.3
BMS 160-1 HP-C-C-P-A	98494525	275	10.8	206.5	8.1	180	7.1	273	10.7	1833	72.0	241	9.5

BMS hp	Product number	Motor dimension [G]		Motor dimension [HD]		Dimension [K]		Dimension [M]		Width [W]		Weight [kg]
		[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	
BMS 77-2A HP-C-C-P-A	98494518	254	9.9	412	19	15	0.6	175	6.9	350	16.5	255
BMS 77-3 HP-C-C-P-A	98494519	254	9.9	483	19	15	0.6	175	6.9	420	16.5	288
BMS 95-2 HP-C-C-P-A	98494520	254	9.9	483	19	15	0.6	175	6.9	420	16.5	267
BMS 95-3 HP-C-C-P-A	98494521	279	11.0	488	19.2	15	0.6	175	6.9	420	16.5	302
BMS 125-1 HP-C-C-P-A	98494522	254	9.9	483	19	15	0.6	175	6.9	420	16.5	287
BMS 125-2AA HP-C-C-P-A	98494523	279	11.0	488	19.2	15	0.6	175	6.9	420	16.5	314
BMS 160-1A HP-C-C-P-A	98494524	254	9.9	483	19	15	0.6	175	6.9	420	16.5	274
BMS 160-1 HP-C-C-P-A	98494525	279	11.0	488	19.2	15	0.6	175	6.9	420	16.5	303

Dimensional sketch

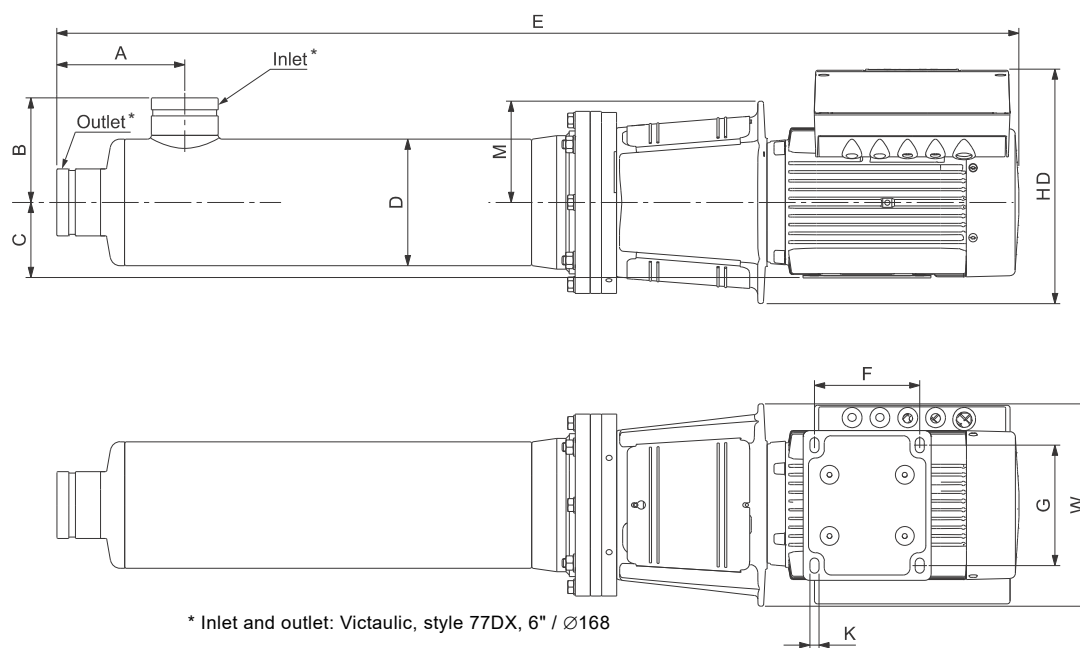




Fig. 35 BMS hp booster system

TM06 0941 5114

11. Accessories

IBMS hp

Parts	Description	Specification	Product number
	TM00 3712 0894 Victaulic coupling in stainless steel 2": Ø60.3 3": Ø89 6": Ø168	NBR seal 2", style 77DX	99429732
		NBR seal 3", style 77DX	97758517
		NBR seal 6", style 77DX	97758320
	TM00 3709 0894 Victaulic coupling liner for welding	R-version 2"	99277422
		R-version 3"	00140968
		R-version 6"	96230662

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