

# ESH Series

HORIZONTAL CENTRIFUGAL ELECTRIC PUMPS MADE IN AISI 316 STAINLESS STEEL

**ErP 2009/125/CE**

## Directive 2009/125/EC of the European Union

The **Directive 2005/32/EC** on energy-using products (**EuP**) and the subsequent **Directive 2009/125/EC** on energy-related products (**ErP**) established the ecodesign requirements for products to reduce their energy consumption and consequently their environmental impact.

These requirements apply to products placed and used in the European Economic Area (European Union plus Iceland, Liechtenstein and Norway) as a stand-alone unit or as integrated parts in other products.

The following tables show the Regulations that define the requirements applicable to Lowara products.

- Some types of **pump** used for pumping clean water:

Regulations	From	Target
(EU) N. 547/2012 and subsequent updates	1 January 2015	<b>MEI</b> $\geq 0,4$

- **Circulators** with a rated hydraulic output power of between 1 and 2500 W, designed for use in heating systems or in secondary circuits of cooling distribution systems:

Regulations	From	Target
(EC) N. 641/2009 and subsequent updates	1 August 2015	<b>EEl</b> $< 0,23$

- **Three-phase motors** with frequency 50 or 60 or 50/60 Hz and voltages between 50 and 1000 V (S1 and D.O.L.):

Regulations	From	Target
(EU) 2019/1781 and subsequent updates	1 July 2023	<b>IE2</b> : motors with a rated output $\geq 0,12$ and $< 0,75$ kW <b>IE3</b> : motors with a rated output $\geq 0,75$ and $< 75$ kW <b>IE4</b> : motors with a rated output $\geq 75$ and $< 201$ kW <b>IE3</b> : motors with a rated output $\geq 201$ and $< 1000$ kW

- **Single-phase motors** with frequency 50 or 60 or 50/60 Hz and voltages between 50 and 1000 V (S1 and D.O.L.):

Regulations	From	Target
(EU) 2019/1781 and subsequent updates	1 July 2023	<b>IE2</b> : motors with a rated output $\geq 0,12$

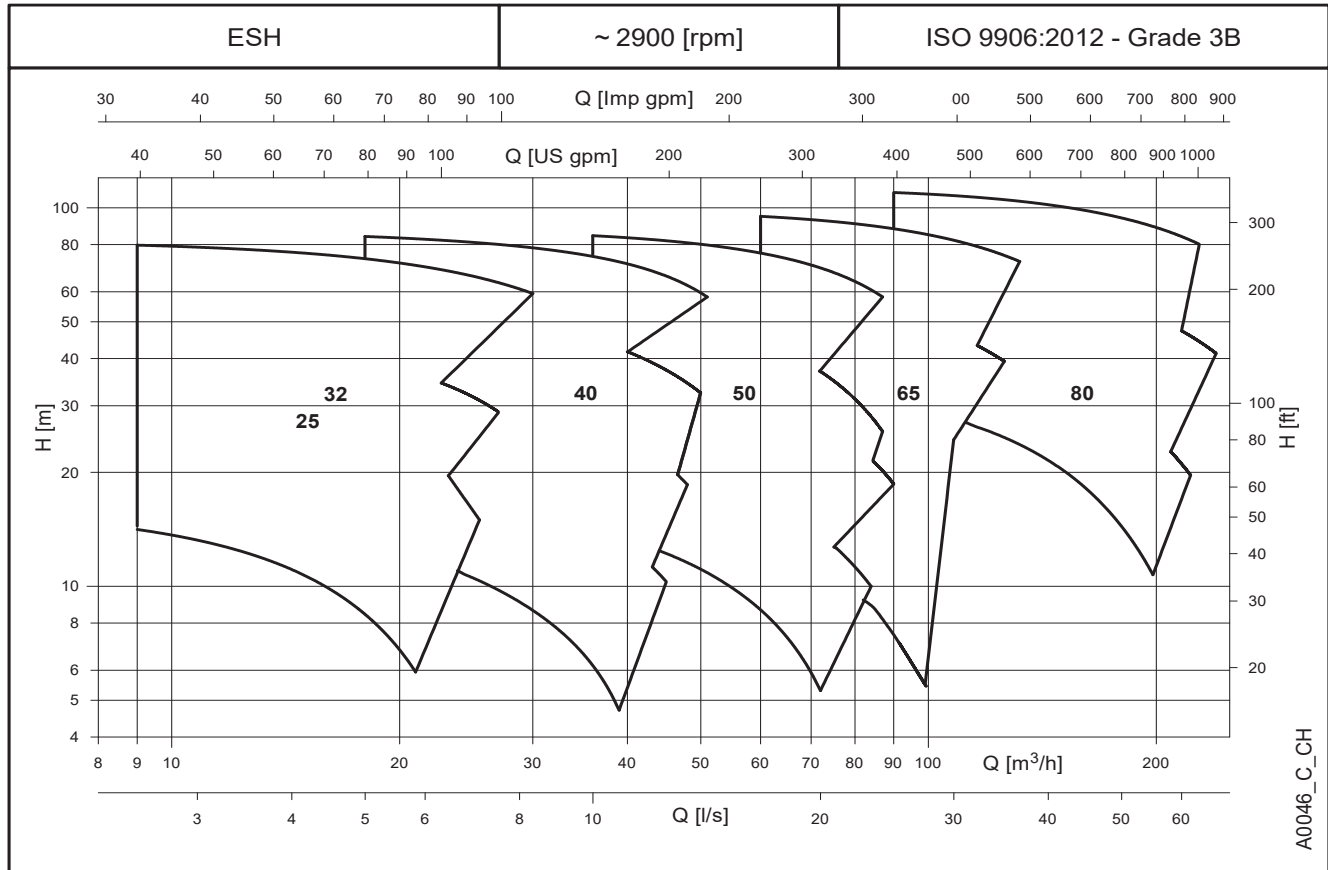
- **Variable speed drives** (VSD) with three-phase input and rated output power from 0,12 kW up to 1000 kW, rated for operating with motor included in the same regulations:

Regulations	From	Target
(EU) 2019/1781 and subsequent updates	1 July 2021	<b>IE2</b>

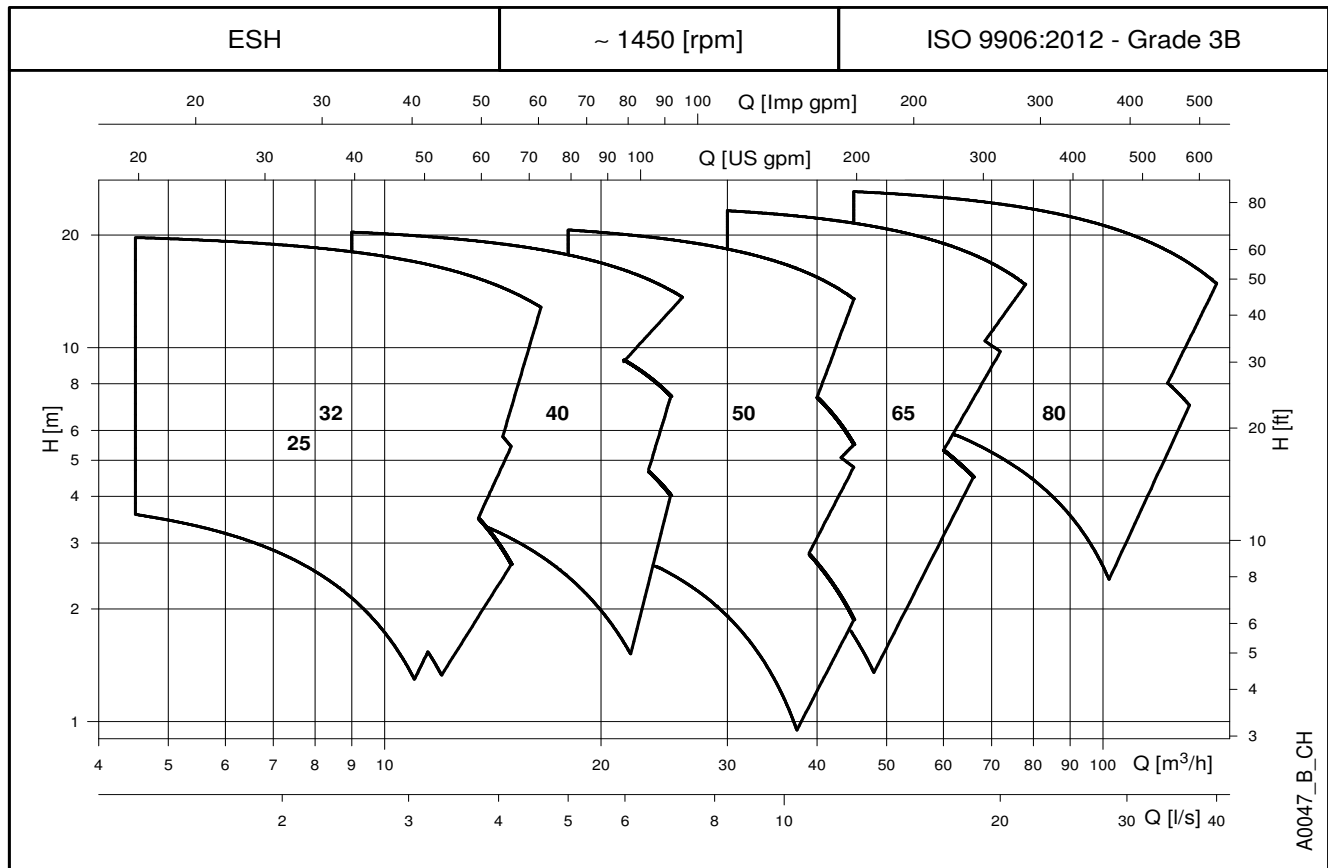
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**ESH SERIES  
HYDRAULIC PERFORMANCE RANGE AT 50 Hz, 2 POLES**



**HYDRAULIC PERFORMANCE RANGE AT 50 Hz, 4 POLES**



## ESH SERIES

### GENERAL INTRODUCTION

The new and improved **Lowara ESH Series** is a high performance stainless steel centrifugal end-suction electro-pump with single stage, axial flanged suction port, radial flanged discharge, and horizontal shaft. The **ESH** is fully made in **AISI 316 stainless steel** which makes it suitable for handling water as well as non-aggressive or moderately aggressive fluids.

The pumps are equipped with interchangeable mechanical seals, **high efficiency motors**, and have a back pull-out design (impeller, bracket and motor can be extracted without disconnecting the pump body from the piping). The **ESH** series pumps are available in the following constructions:

#### Extended shaft

Close-coupled by means of an adapter bracket with an impeller keyed directly to the special motor shaft extension.



#### Stub shaft

Rigid-coupled with a bracket, an adapter and a rigid coupling keyed to the standard motor shaft extension.



#### Frame mounted (EN 733)

Flexible-coupled with bracket, support, flexing coupling (special version with spacer on demand), aligning and anchoring base.



#### Bare shaft pump (EN 733)

Version without driver suitable to be coupled with a standard electric motor.



#### Hydraulic specifications

- Maximum delivery: up to **240** m<sup>3</sup>/h for 2 poles range.  
up to **144** m<sup>3</sup>/h for 4 poles range.
- Maximum head: up to **110** m for 2 poles range.  
up to **27** m for 4 poles range.
- Hydraulic performance compliant with ISO 9906:2012 Grade 3B.
- Fluid temperature range:
  - standard version (with FKM\* gaskets) **-10 to +120 °C**
  - versions on request (with EPDM gaskets) **-30 to +120 °C**.
- Maximum operating pressure: **12 bar @ 50 °C** and **10,9 bar @ 120 °C**
- Connection dimensions according to EN 733 for bare shaft and frame mounted version (except for ESH 25 models)

\* Fluoro-elastomer: FPM (old ISO), FKM (ASTM & new ISO).

#### Motor specifications

- Squirrel cage in short circuit enclosed construction with external ventilation (TEFC).
- 2-pole and 4-pole ranges.
- **IP55** protection degree as motor (EN 60034-5), IPX5 as electro-pump (EN 60529).
- Performances according to EN 60034-1.
- **155 (F)** insulation class.
- Standard voltage:
  - 1 x 220-240 V 50 Hz for power up to 1,5 kW
  - 3 x 220-240/380-415 V 50 Hz for power up to 3 kW
  - 3 x 380-415/660-690 V 50 Hz for power above 3 kW
- Maximum ambient temperature: 40, 45 or 50°C (depending on model and nominal power)

Note

- Anti-clockwise rotation when facing pump's suction port.
- Pump does not include counter-flanges.

## **ESH SERIES COMMERCIAL BUILDING SERVICES (CBS) APPLICATIONS & BENEFITS**

### **Applications**

The **Lowara ESH Series** is suitable for many different applications demanding reliable and efficient products that require constant or variable duty points in cost saving operation.

The Lowara ESH Series can be used for the following CBS applications:

- **HVAC**
  - Liquid transfer in heating and air-conditioning systems.
  - Liquid transfer in ventilation systems.
  - Liquid transfer with mildly aggressive liquids or environment.
- **Water Supply**
  - Pressure boosting in commercial buildings.
  - Irrigation systems.
  - Water transfer for green houses.
- **Diverse OEM applications**



### **Benefits**

The Lowara ESH Series permit to achieve the following benefits.

- **Performances:** the ESH pumps are ErP 2015 compliant, equipped with high efficiency motors and provide improved performance vs. the old SH series of pumps. Its AISI 316 material configuration makes it ideal for pumping mildly aggressive liquids or pumping in aggressive environment. With a standard version designed for up to PN12 pressure rating, 120 °C maximum fluid temperature, and FKM elastomer, and easy maintenance, the ESH provides the solution to many CBS needs.
- **Reliability:** the high quality in production, the robust construction and operation, the easily interchangeable mechanical seals, and wear rings guarantee a continuous operation without faults and a shorter down time for maintenance.
- **Total cost ownership:** the best hydraulic and electric efficiency, the drive equipped versions, the easy and quick maintenance, permit to reduce the operation and maintenance cost and to save energy when the pump is working.
- **Pre-post sales support:** we are continuously working close to our customers to help them in selecting the right pump for the specific application. An improved user-friendly selection software improved with many selection tools is available on the website. Experienced engineers are fully dedicated to big projects for Municipality.

### **Features**

- Discharge ports DN25 to DN80.
- Wide performance range up to 110 m head and 240 m<sup>3</sup>/h flow.
- Nominal pressure of 12 bar.
- Wide range of temperatures for pumped liquids: -30°C to +120°C.
- Wide range of materials for many different kinds of pumped liquid.
- Wide range of voltages.
- High performance motors.
- Variable speed by drive.

## ESH SERIES for INDUSTRY APPLICATIONS & BENEFITS

### Applications

The **Lowara ESH Series** is suitable for many different applications demanding reliable and efficient products. The reliability, robustness, and **AISI 316 material** configuration of the **ESH** series makes it ideal for use in aggressive environments or for pumping of mildly aggressive fluids. Finally the **ESH** series compactness and reliability allows for use in diverse OEM applications.

The Lowara ESH Series can be used for the following Industry applications:

- **Process**
  - Process cooling and Process heating
  - Heat recovery
- **Water Supply**
  - Pressure boosting
  - Irrigation systems
  - Water transfer for green houses
  - Liquid transfer with mildly aggressive liquids or environment.
- **Water treatment**
  - Washing and cleaning
  - Water treatment.
- **Diverse OEM applications**

### Benefits

The Lowara ESH Series permit to achieve the following benefits:

- **Performances:** the ESH pumps are ErP 2015 compliant, equipped with high efficiency motors and provide improved performance vs. the old SH series of pumps. Its AISI 316 material configuration makes it ideal for pumping mildly aggressive liquids or pumping in aggressive environment. With a standard version designed for up to PN12 pressure rating, 120 °C maximum fluid temperature, an FKM elastomer, and with easy maintenance, the ESH provides the solution to many Industry needs.
- **Reliability:** the high quality in production, the robust construction and operation, the easily interchangeable mechanical seals, and wear rings guarantee a continuous operation without faults and a shorter down time for maintenance.
- **Know How:** the perfect configuration for an application can be made with the selection tool or with the support of our industrial experienced employees.
- **Pre-post sales support:** we are continuously working close to our customers to help them in selecting the right pump for the specific application. An improved user-friendly selection software improved with many selection tools is available on the website. Experienced engineers are fully dedicated to big projects for Municipality.

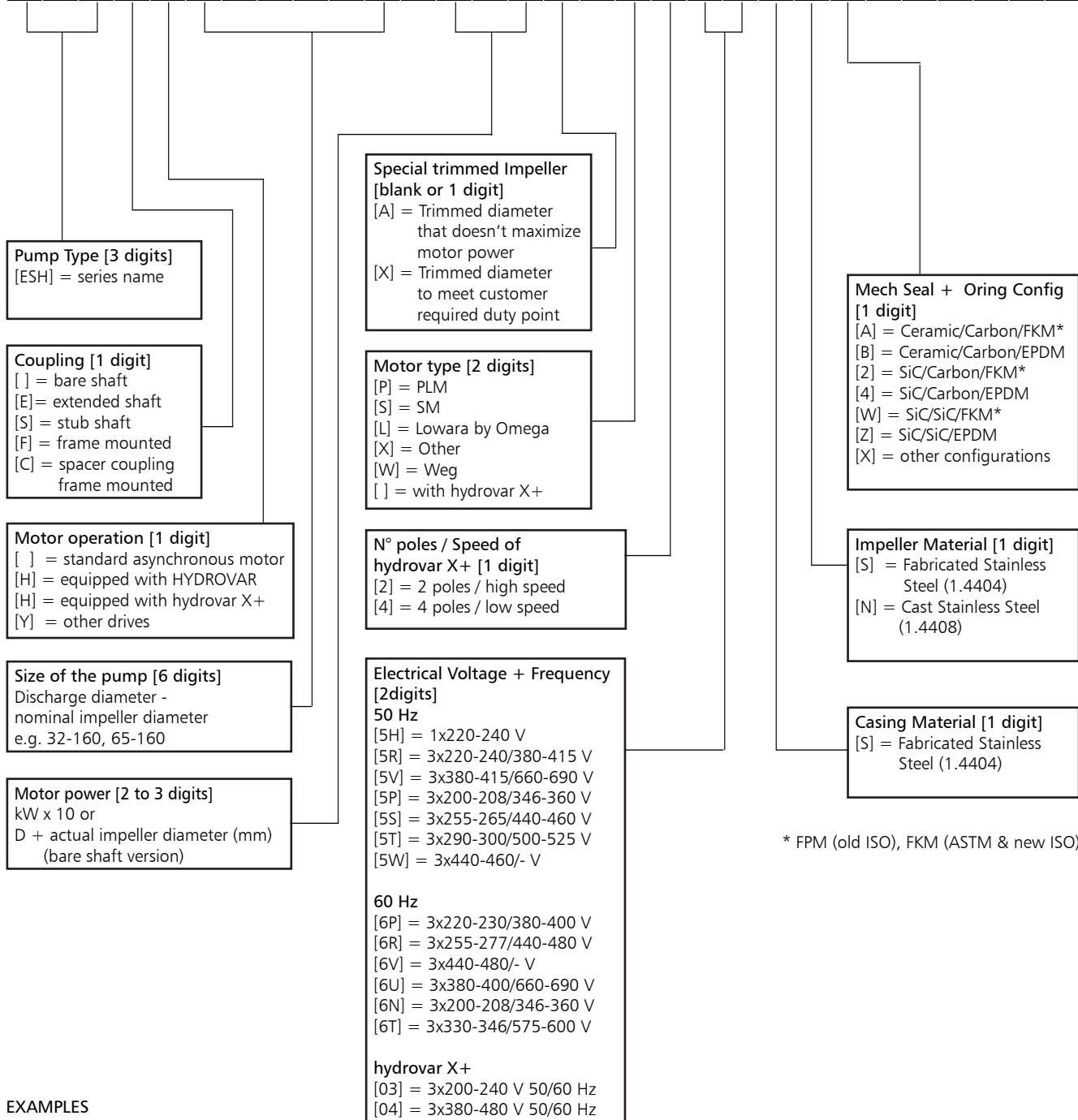
### Features

- Discharge ports DN25 to DN80.
- Wide performance range up to 110 m head and 240 m<sup>3</sup>/h flow.
- Nominal pressure 12 bar.
- Wide range of temperatures for pumped liquids: -30°C to +120°C.
- Wide range of materials for many different kinds of pumped liquid.
- Wide range of voltages.
- High performance motors.
- Variable speed by drive.



## ESH SERIES IDENTIFICATION CODE

**E S H F 6 5 - 1 6 0 / 1 1 0 A / P 2 5 V S N A**



\* FPM (old ISO), FKM (ASTM & new ISO)

### EXAMPLES

#### ESH80-200/300/L25VSN A

End-suction, electric pump with stub shaft coupling, DN 80 nominal discharge port, 200 mm nominal impeller diameter, 30 kW rated motor power, Lowara by Omega IE3 model, 2-pole, 50 Hz 380-415/660-690 V, fabricated stainless steel casing, cast stainless steel impeller, Ceramic/Carbon/FKM mechanical seal.

#### ESHF80-160/22A/P45RSNA

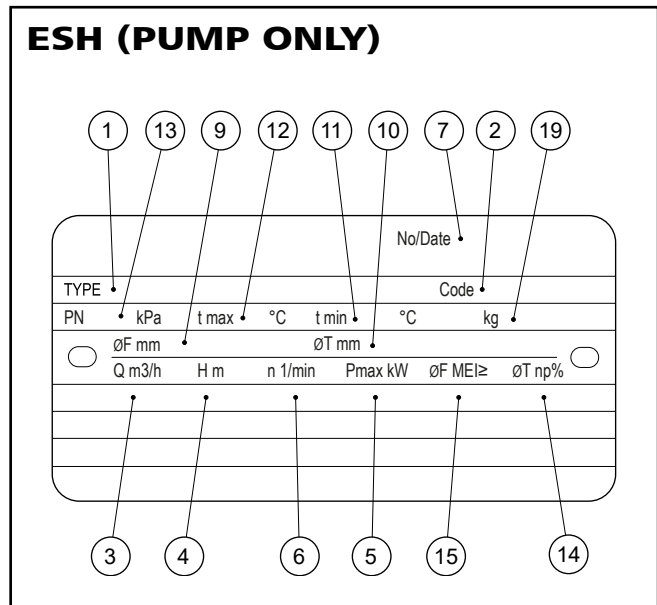
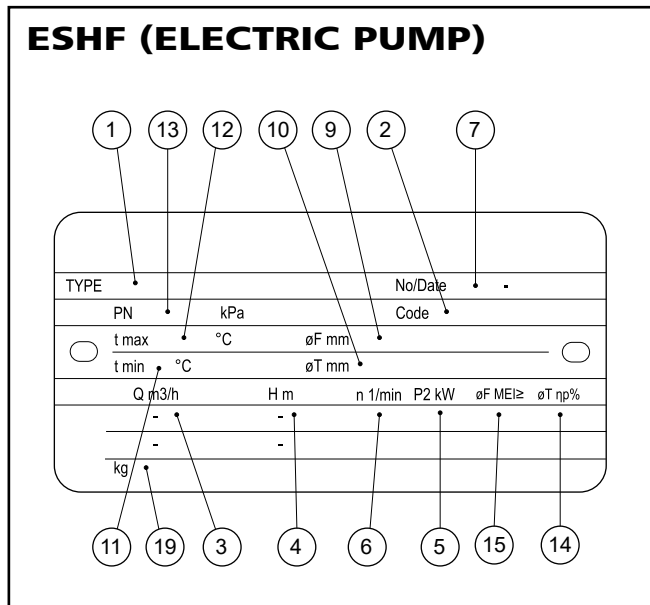
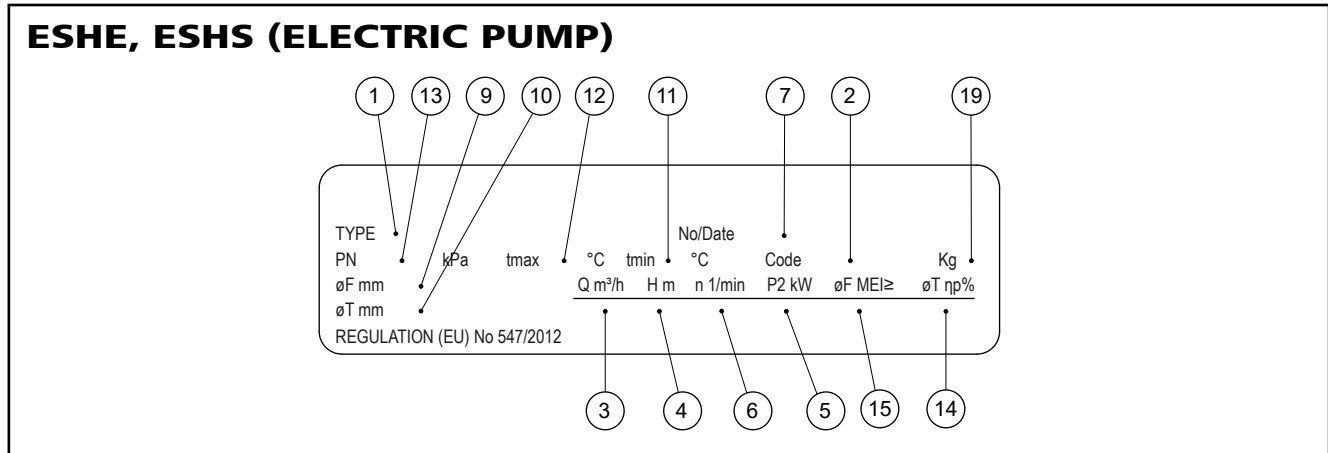
End-suction, electric pump with frame mounted coupling, DN 80 nominal discharge port, 160 mm nominal impeller diameter, 2,2 kW rated motor power, trimmed impeller, PLM IE3 model, 4-pole, 50 Hz 220-240/380-415 V, fabricated stainless steel casing, cast stainless steel impeller, Ceramic/Carbon/FKM mechanical seal.

#### ESH50-250/D224SSA

End-suction, bare shaft pump, DN 50 nominal discharge port, 250 mm nominal impeller diameter, 224 mm actual impeller diameter, fabricated stainless steel casing, fabricated stainless steel impeller, Ceramic/Carbon/FKM mechanical seal.



**ESH SERIES  
RATING PLATE**



**LEGEND**

- 1 - Electric pump unit type
- 2 - Electric pump unit code
- 3 - Flow range
- 4 - Head range
- 5 - Nominal or maximum pump power
- 6 - Speed
- 7 - Serial number, or order number + order position number
- 9 - Full impeller diameter (only filled in for trimmed impellers)
- 10 - Trimmed impeller diameter (only filled in for trimmed impellers)
- 11 - Minimum operating liquid temperature
- 12 - Maximum operating liquid temperature
- 13 - Maximum operating pressure
- 14 - Hydraulic efficiency in best efficiency point (50 Hz)
- 15 - Minimum efficiency index MEI, as per Regulation (EU) No 547/2012 (50 Hz)
- 19 - Weight

**LEGEND**

- 1 - Pump type
- 2 - Pump code
- 3 - Flow range
- 4 - Head range
- 5 - Maximum absorbed pump power
- 6 - Speed
- 7 - Serial number, or order number + order position number
- 9 - Full impeller diameter (only filled in for trimmed impellers)
- 10 - Trimmed impeller diameter (only filled in for trimmed impellers)
- 11 - Minimum operating liquid temperature
- 12 - Maximum operating liquid temperature
- 13 - Maximum operating pressure
- 14 - Hydraulic efficiency in best efficiency point (50 Hz)
- 15 - Minimum efficiency index MEI, as per Regulation (EU) No 547/2012 (50 Hz)
- 19 - Weight

Note for electric pump unit: refer to motor data plate for electrical data.

## ESH SERIES

### LIST OF MODELS AT 50 Hz, 2 POLES

SIZE ESH..2	kW	VERSION			
		ESHE	ESHS	ESHF	ESHC
25-125/07(*)	0,75	•	•	•	-
25-125/11(*)	1,1	•	•	•	-
25-160/15(*)	1,5	•	•	•	-
25-160/22	2,2	•	•	•	-
25-200/30	3	•	•	•	-
25-200/40	4	•	•	•	-
25-250/55	5,5	•	•	•	-
25-250/75	7,5	•	•	•	-
25-250/110	11	•	•	•	-
32-125/07(*)	0,75	•	•	•	•
32-125/11(*)	1,1	•	•	•	•
32-160/15(*)	1,5	•	•	•	•
32-160/22	2,2	•	•	•	•
32-200/30	3	•	•	•	•
32-200/40	4	•	•	•	•
32-250/55	5,5	•	•	•	•
32-250/75	7,5	•	•	•	•
32-250/110	11	•	•	•	•
40-125/11(*)	1,1	•	•	•	•
40-125/15(*)	1,5	•	•	•	•
40-125/22	2,2	•	•	•	•
40-160/30	3	•	•	•	•
40-160/40	4	•	•	•	•
40-200/55	5,5	•	•	•	•
40-200/75	7,5	•	•	•	•
40-250/92	9,2	•	-	-	-
40-250/110A	11	-	•	•	•
40-250/110	11	•	•	•	•
40-250/150	15	•	•	•	•
50-125/22	2,2	•	•	•	•
50-125/30	3	•	•	•	•
50-125/40	4	•	•	•	•
50-160/55	5,5	•	•	•	•
50-160/75	7,5	•	•	•	•
50-200/92	9,2	•	-	-	-
50-200/110A	11	-	•	•	•
50-200/110	11	•	•	•	•
50-250/150	15	•	•	•	•
50-250/185	18,5	•	•	•	•
50-250/220	22	•	•	•	•

• = Available

ESH\_models-2p50-en\_c\_sc

SIZE ESH..2	kW	VERSION			
		ESHE	ESHS	ESHF	ESHC
65-160/40	4	•	•	•	•
65-160/55	5,5	•	•	•	•
65-160/75	7,5	•	•	•	•
65-160/92	9,2	•	-	-	-
65-160/110A	11	-	•	•	•
65-160/110	11	•	•	•	•
65-200/150	15	•	•	•	•
65-200/185	18,5	•	•	•	•
65-200/220	22	•	•	•	•
65-250/300	30	-	•	•	•
65-250/370	37	-	•	•	•
80-160/110	11	•	•	•	•
80-160/150	15	•	•	•	•
80-160/185	18,5	•	•	•	•
80-200/220	22	•	•	•	•
80-200/300	30	-	•	•	•
80-200/370	37	-	•	•	•
80-250/450	45	-	-	•	•
80-250/550	55	-	-	•	•
80-250/750	75	-	-	•	•

(\*) Models available also in single-phase version.

## LEGEND

**ESHE** : Extended shaft.

**ESHS** : Stub shaft.

**ESHF** : Frame mounted.

**ESHC** : Frame mounted with spacer coupling.

## ESH SERIES

### LIST OF MODELS AT 50 Hz, 4 POLES

SIZE ESH..4	kW	VERSION			
		ESHE	ESHS	ESHF	ESHC
25-125/02A	0,25	•	-	-	-
25-125/02	0,25	•	-	-	-
25-160/02A	0,25	•	-	-	-
25-160/02	0,25	•	-	-	-
25-200/03	0,37	•	-	-	-
25-200/05	0,55	•	-	-	-
25-250/07	0,75	•	•	•	-
25-250/11	1,1	•	•	•	-
25-250/15	1,5	•	•	•	-
32-125/02A	0,25	•	-	-	-
32-125/02	0,25	•	-	-	-
32-160/02A	0,25	•	-	-	-
32-160/02	0,25	•	-	-	-
32-200/03	0,37	•	-	-	-
32-200/05	0,55	•	-	-	-
32-250/07	0,75	•	•	•	-
32-250/11	1,1	•	•	•	-
32-250/15	1,5	•	•	•	-
40-125/02A	0,25	•	-	-	-
40-125/02	0,25	•	-	-	-
40-160/03	0,37	•	-	-	-
40-160/05	0,55	•	-	-	-
40-200/07	0,75	•	•	•	-
40-200/11	1,1	•	•	•	-
40-250/11	1,1	•	•	•	-
40-250/15	1,5	•	•	•	-
40-250/22	2,2	•	•	•	-
50-125/02	0,25	•	-	-	-
50-125/03	0,37	•	-	-	-
50-125/05	0,55	•	-	-	-
50-160/07	0,75	•	•	•	-
50-160/11	1,1	•	•	•	-
50-200/11	1,1	•	•	•	-
50-200/15	1,5	•	•	•	-
50-250/22A	2,2	•	•	•	-
50-250/22	2,2	•	•	•	-
50-250/30	3	•	•	•	-

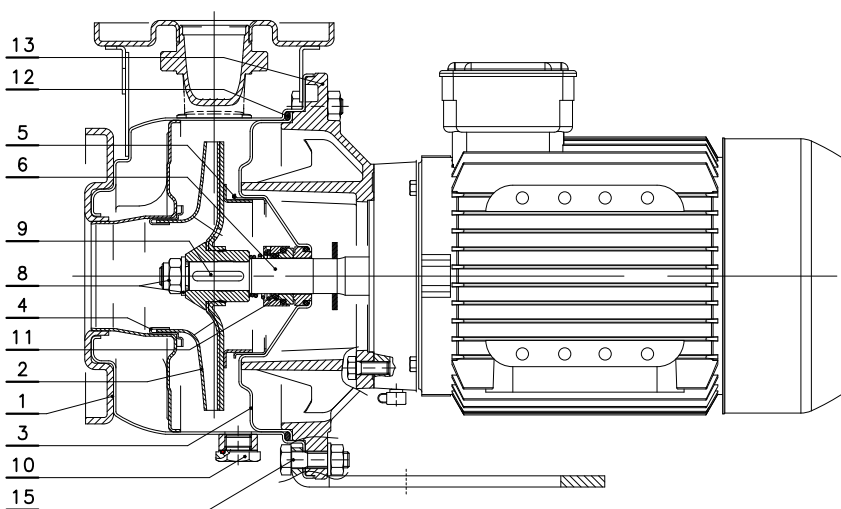
• = Available

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SIZE ESH..4	kW	VERSION			
		ESHE	ESHS	ESHF	ESHC
65-160/05	0,55	•	•	-	-
65-160/07	0,75	•	•	•	-
65-160/11A	1,1	•	•	•	-
65-160/11	1,1	•	•	•	-
65-160/15	1,5	•	•	•	-
65-200/15	1,5	•	•	•	-
65-200/22	2,2	•	•	•	-
65-200/30	3	•	•	•	-
65-250/40	4	•	•	•	-
65-250/55	5,5	•	•	•	-
80-160/15	1,5	•	•	•	-
80-160/22A	2,2	•	•	•	-
80-160/22	2,2	•	•	•	-
80-200/30	3	•	•	•	-
80-200/40	4	•	•	•	-
80-250/55	5,5	•	•	•	-
80-250/75	7,5	•	•	•	-
80-250/110	11	•	•	•	-

## ESHE SERIES ELECTRIC PUMP CROSS-SECTION AND MAIN COMPONENTS

04906\_C\_DS



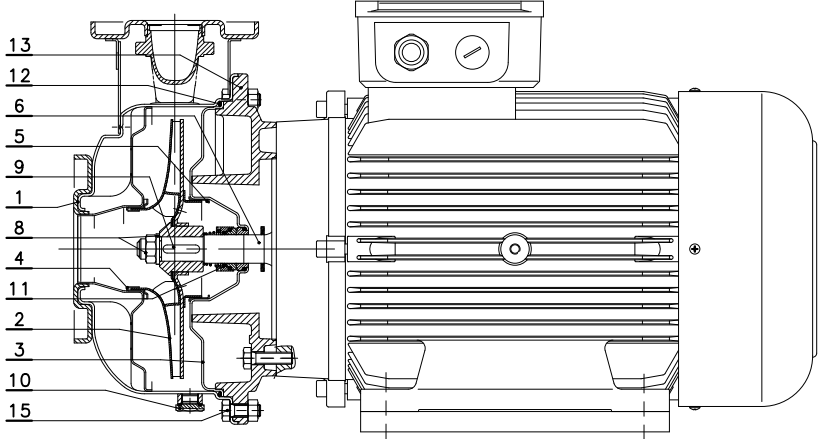
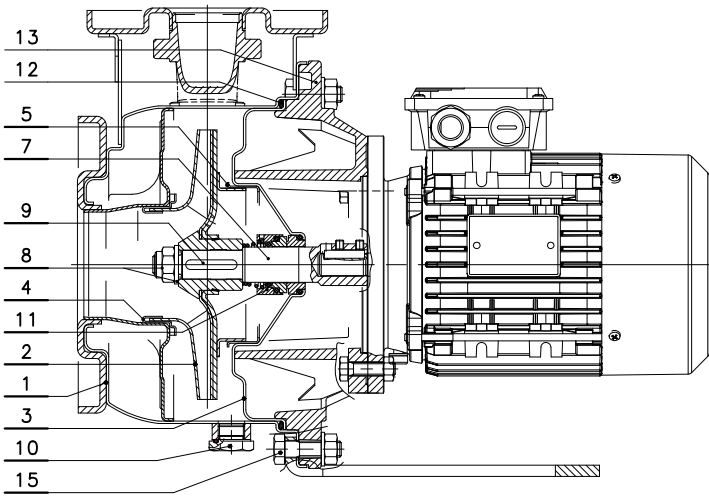
(ESHE) VERSIONS	
2 POLES	4 POLES
25-125/07	25-200/05
25-125/11	25-250/07
25-160/15	25-250/11
25-160/22	25-250/15
25-200/30	32-200/05
25-200/40	32-250/07
25-250/55	32-250/11
25-250/75	32-250/15
25-250/110	40-160/05
32-125/07	40-200/07
32-125/11	40-200/11
32-160/15	40-250/11
32-160/22	40-250/15
32-200/30	40-250/22
32-200/40	50-125/05
32-250/55	50-160/07
32-250/75	50-160/11
32-250/110	50-200/11
40-125/11	50-200/15
40-125/15	50-250/22A
40-125/22	50-250/22
40-160/30	50-250/30
40-160/40	65-160/05
40-200/55	65-160/07
40-200/75	65-160/11A
40-250/92	65-160/11
40-250/110	65-160/15
50-125/22	65-200/15
50-125/30	65-200/22
50-125/40	65-200/30
50-160/55	65-250/40
50-160/75	65-250/55
50-200/92	80-160/15
50-200/110	80-160/22A
65-160/40	80-160/22
65-160/55	80-200/30
65-160/75	80-200/40
65-160/92	80-250/55
65-160/110	80-250/75
80-160/110	

ESHE-p-en\_b\_mo

REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
2	Impeller (25, 32, 40, 50)	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
	impeller (25-125, 32-125, 65, 80)	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF8M (cast AISI 316)
3	Seal housing	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
4	Wear ring	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
5	Counterwear ring	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
6	Shaft extension	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
7	Rigid shaft coupling	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
8	Impeller locknut and washer	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
9	Tab	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
10	Fill/drain plugs	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
11	Mechanical seal	Ceramic / Carbon / FKM (standard version)		
12	Elastomers	FKM (standard version)		
13	Adapter *	Aluminium	EN 1706-AC-AISI11Cu2 (Fe) (AC46100)	-
	Adapter	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
15	Pump body fastening bolts & screws	Galvanized steel		

\* 2/4 pole: 25/32/40-125, 25/32/40-160, 25/32/40-200

## ESHE SERIES ELECTRIC PUMP CROSS-SECTION AND MAIN COMPONENTS

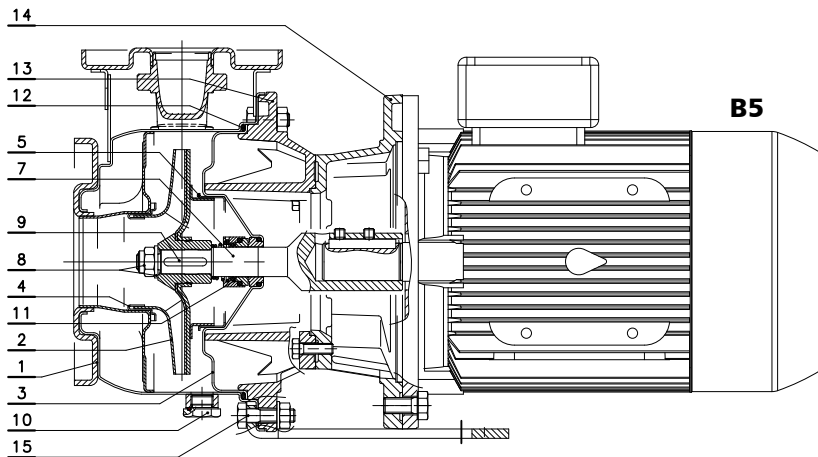
<p>04902_C_DS</p> 	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th colspan="2">(ESHE) VERSIONS</th> </tr> <tr> <th>2 POLES</th> <th>4 POLES</th> </tr> </thead> <tbody> <tr><td>40-250/150</td><td>80-250/110</td></tr> <tr><td>50-250/150</td><td></td></tr> <tr><td>50-250/185</td><td></td></tr> <tr><td>50-250/220</td><td></td></tr> <tr><td>65-200/150</td><td></td></tr> <tr><td>65-200/185</td><td></td></tr> <tr><td>65-200/220</td><td></td></tr> <tr><td>80-160/150</td><td></td></tr> <tr><td>80-160/185</td><td></td></tr> <tr><td>80-200/220</td><td></td></tr> </tbody> </table> <p style="text-align: right; font-size: small;">ESHE-s-en_a_mo</p>	(ESHE) VERSIONS		2 POLES	4 POLES	40-250/150	80-250/110	50-250/150		50-250/185		50-250/220		65-200/150		65-200/185		65-200/220		80-160/150		80-160/185		80-200/220	
(ESHE) VERSIONS																									
2 POLES	4 POLES																								
40-250/150	80-250/110																								
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	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th colspan="2">(ESHE) VERSIONS</th> </tr> <tr> <th colspan="2">4 POLES</th> </tr> </thead> <tbody> <tr><td>25-125/02A</td><td>40-125/02A</td></tr> <tr><td>25-125/02</td><td>40-125/02</td></tr> <tr><td>25-160/02A</td><td>40-160/03</td></tr> <tr><td>25-160/02</td><td>50-125/02</td></tr> <tr><td>25-200/03</td><td>50-125/03</td></tr> <tr><td>32-125/02A</td><td></td></tr> <tr><td>32-125/02</td><td></td></tr> <tr><td>32-160/02A</td><td></td></tr> <tr><td>32-160/02</td><td></td></tr> <tr><td>32-200/03</td><td></td></tr> </tbody> </table> <p style="text-align: right; font-size: small;">ESHE4-p-en_a_mo</p>	(ESHE) VERSIONS		4 POLES		25-125/02A	40-125/02A	25-125/02	40-125/02	25-160/02A	40-160/03	25-160/02	50-125/02	25-200/03	50-125/03	32-125/02A		32-125/02		32-160/02A		32-160/02		32-200/03	
(ESHE) VERSIONS																									
4 POLES																									
25-125/02A	40-125/02A																								
25-125/02	40-125/02																								
25-160/02A	40-160/03																								
25-160/02	50-125/02																								
25-200/03	50-125/03																								
32-125/02A																									
32-125/02																									
32-160/02A																									
32-160/02																									
32-200/03																									

REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
2	Impeller (25, 32, 40, 50) impeller (25-125, 32-125, 65, 80)	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
		Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF8M (cast AISI 316)
3	Seal housing	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
4	Wear ring	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
5	Counterwear ring	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
6	Shaft extension	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
7	Rigid shaft coupling	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
8	Impeller locknut and washer	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
9	Tab	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
10	Fill/drain plugs	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
11	Mechanical seal	Ceramic / Carbon / FKM (standard version)		
12	Elastomers	FKM (standard version)		
13	Adapter *	Aluminium	EN 1706-AC-AISI11Cu2 (Fe) (AC46100)	-
	Adapter	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
15	Pump body fastening bolts & screws	Galvanized steel		

\* 2/4 pole: 25/32/40-125, 25/32/40-160, 25/32/40-200

## ESHS SERIES ELECTRIC PUMP CROSS-SECTION AND MAIN COMPONENTS

04956\_D\_DS



(ESHS) VERSIONS	
2 POLES	4 POLES
25-125/07	25-250/07
25-125/11	25-250/11
25-160/15	25-250/15
25-160/22	32-250/07
25-200/30	32-250/11
25-200/40	32-250/15
25-250/55	40-200/07
25-250/75	40-200/11
32-125/07	40-250/11
32-125/11	40-250/15
32-160/15	40-250/22
32-160/22	50-160/07
32-200/30	50-160/11
32-200/40	50-200/11
32-250/55	50-200/15
32-250/75	50-250/22A
40-125/11	50-250/22
40-125/15	50-250/30
40-125/22	65-160/05
40-160/30	65-160/07
40-160/40	65-160/11A
40-200/55	65-160/11
40-200/75	65-160/15
50-125/22	65-200/15
50-125/30	65-200/22
50-125/40	65-200/30
50-160/55	65-250/40
50-160/75	65-250/55
65-160/40	80-160/15
65-160/55	80-160/22A
65-160/75	80-160/22
	80-200/30
	80-200/40
	80-250/55
	80-250/75

ESHS-p-en\_b\_mo

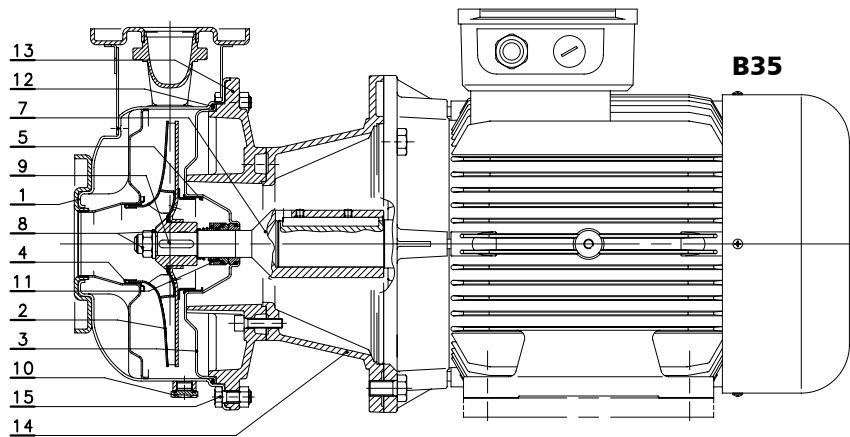
REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
2	Impeller (25, 32, 40, 50)	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
	Impeller (25-125, 32-125, 65, 80)	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF8M (cast AISI 316)
3	Seal housing	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
4	Wear ring	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
5	Counterwear ring	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
7	Rigid shaft coupling	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
8	Impeller locknut and washer	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
9	Tab	Acciaio inox	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
10	Fill/drain plugs	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
11	Mechanical seal	Ceramic / Carbon / FKM (standard version)		
12	Elastomers	FKM (standard version)		
13	Adapter *	Aluminium	EN 1706-AC-AISI11Cu2 (Fe) (AC46100)	-
	Adapter	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
14	Adapter motor coupling	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
15	Pump body fastening bolts & screws	Galvanized steel		

\* 2/4 pole: 25/32/40-125, 25/32/40-160, 25/32/40-200

ESHS-en\_d\_tm

## ESHS SERIES ELECTRIC PUMP CROSS-SECTION AND MAIN COMPONENTS

04952\_B\_DS



(ESHS) VERSIONS	
2 POLES	4 POLES
25-250/110	80-250/110
32-250/110	
40-250/110A	
40-250/110	
40-250/150	
50-200/110A	
50-200/110	
50-250/150	
50-250/185	
50-250/220	
65-160/110A	
65-160/110	
65-200/150	
65-200/185	
65-200/220	
65-250/300	
65-250/370	
80-160/110	
80-160/150	
80-160/185	
80-200/220	
80-200/300	
80-200/370	

ESHS-s-en\_a\_mo

REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
2	Impeller (25, 32, 40, 50)	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
	Impeller (25-125, 32-125, 65, 80)	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF8M (cast AISI 316)
3	Seal housing	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
4	Wear ring	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
5	Counterwear ring	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
7	Rigid shaft coupling	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
8	Impeller locknut and washer	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
9	Tab	Acciaio inox	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
10	Fill/drain plugs	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
11	Mechanical seal	Ceramic / Carbon / FKM (standard version)		
12	Elastomers	FKM (standard version)		
13	Adapter *	Aluminium	EN 1706-AC-AISI11Cu2 (Fe) (AC46100)	-
	Adapter	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
14	Adapter motor coupling	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
15	Pump body fastening bolts & screws	Galvanized steel		

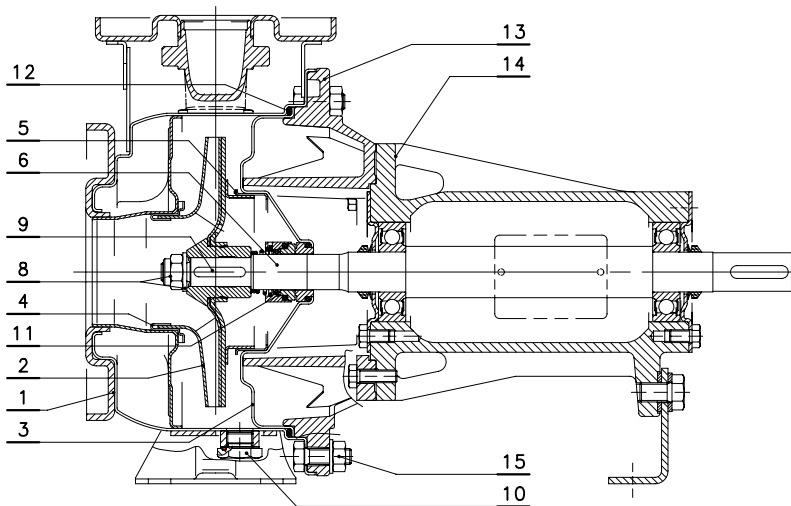
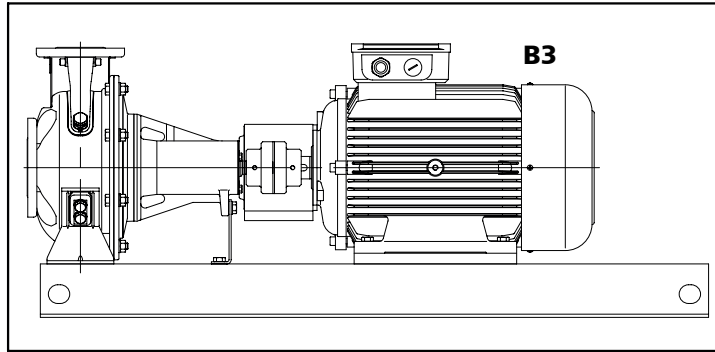
\* 2/4 pole: 25/32/40-125, 25/32/40-160, 25/32/40-200

ESHS-en\_d\_tm

## ESH, ESHF, ESHC SERIES

### ELECTRIC PUMP CROSS-SECTION AND MAIN COMPONENTS

04979\_C\_DS



VERSIONS	
ESH, ESHF, ESHC	
25-125	
25-160	
25-200	
25-250	
32-125	
32-160	
32-200	
32-250	
40-125	
40-160	
40-200	
40-250	
50-125	
50-160	
50-200	
50-250	
65-160	
65-200	
65-250	
80-160	
80-200	
80-250	

ESHF-p-en\_a\_mo

REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
2	Impeller (25, 32, 40, 50)	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
	Impeller (25-125, 32-125, 65, 80)	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF8M (cast AISI 316)
3	Seal housing	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
4	Wear ring	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
5	Counterwear ring	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
6	Shaft extension	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
8	Impeller locknut and washer	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
9	Tab	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
10	Fill/drain plugs	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
11	Mechanical seal	Ceramic / Carbon / FKM (standard version)		
12	Elastomers	FKM (standard version)		
13	Adapter *	Aluminium	EN 1706-AC-AISI11Cu2 (Fe) (AC46100)	-
	Adapter	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
14	Transmission support body	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
15	Pump body fastening bolts & screws	Galvanized steel		

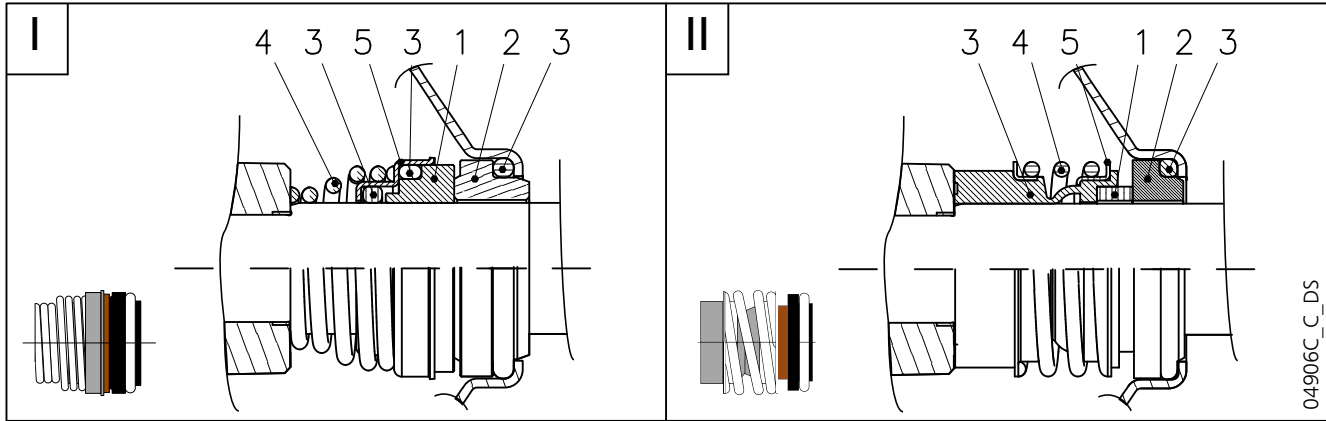
\* 2/4 pole: 25/32/40-125, 25/32/40-160, 25/32/40-200

ESHF-en\_d\_tm



## ESH SERIES MECHANICAL SEAL

Mechanical seal with mounting dimensions according to EN 12756 and ISO 3069



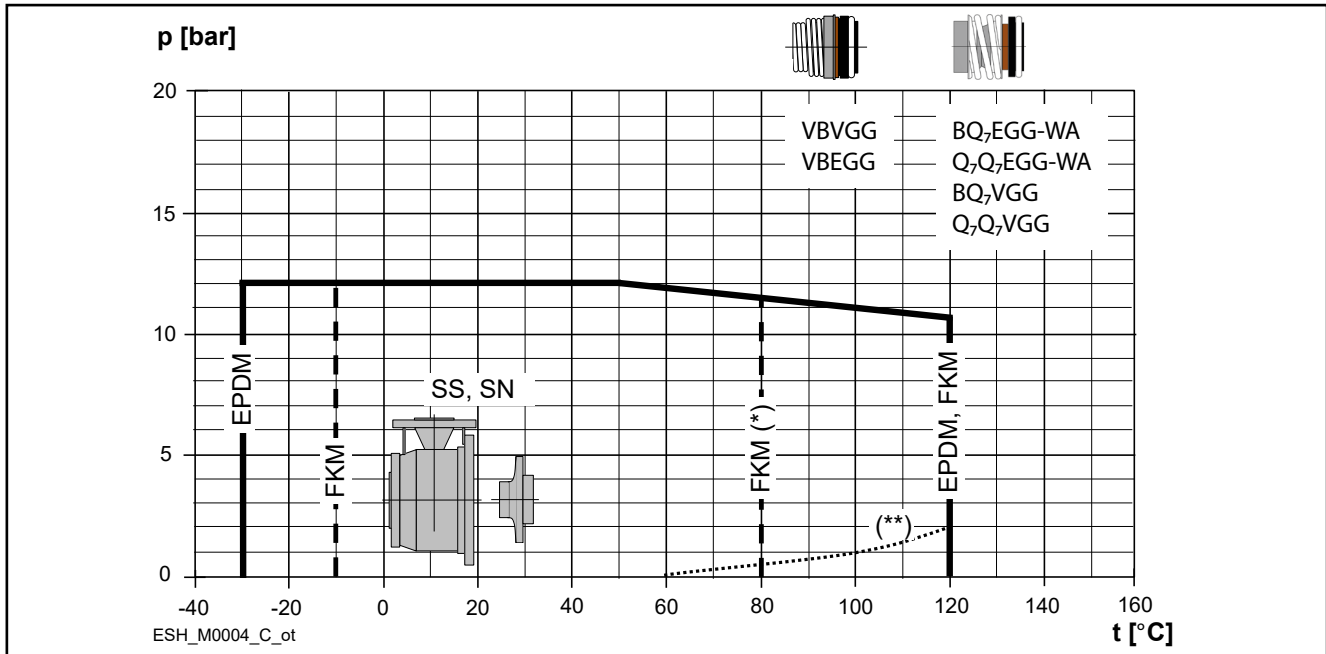
POSITION 1 - 2	POSITION 3	POSITION 4 - 5
<b>B</b> : Resin impregnated carbon	<b>E</b> : EPDM	<b>G</b> : AISI 316
<b>Q<sub>7</sub></b> : Silicon carbide	<b>V</b> : FKM (FPM)	
<b>V</b> : Ceramic		

sh\_ten-mec-en\_c\_tm

TYPE	REF	POSITION					TEMPERATURE (°C)
		1 ROTATING ASSEMBLY	2 FIXED ASSEMBLY	3 ELASTOMERS	4 SPRINGS	5 OTHER COMPONENTS	
<b>STANDARD MECHANICAL SEAL</b>							
VBVGG	I	V	B	V	G	G	-10 +120
<b>OTHER MECHANICAL SEAL TYPES</b>							
VBEGG	I	V	B	E	G	G	-30 +120
BQ <sub>7</sub> EGG-WA	II	B	Q <sub>7</sub>	E	G	G	-30 +120
Q <sub>7</sub> Q <sub>7</sub> EGG-WA	II	Q <sub>7</sub>	Q <sub>7</sub>	E	G	G	-30 +120
BQ <sub>7</sub> VGG	II	B	Q <sub>7</sub>	V	G	G	-10 +120
Q <sub>7</sub> Q <sub>7</sub> VGG	II	Q <sub>7</sub>	Q <sub>7</sub>	V	G	G	-10 +120

sh\_tipi-ten-mec-en\_b\_tc

## PRESSURE/TEMPERATURE APPLICATION LIMITS FOR COMPLETE PUMP



(\*) hot water max +80°C (\*\*) minimum pressure required at mechanical seal (hot water; could be different in case of other liquids).

## ESH SERIES MOTORS (ErP 2009/125/EC)

- Short-circuit squirrel-cage motor, enclosed construction with external ventilation (TEFC).
- **IP55** protection degree.
- Insulation class **155 (F)**.
- Electrical performances according to EN 60034-1.
- Supplied **single-phase** surface motors with **IE2** efficiency level
- Supplied **three-phase** surface motors with **IE2** efficiency level (power < 0,75 kW), **IE3** efficiency level (power < 75 kW) and **IE4** efficiency level (power < 201 kW).
- Metric cable gland according to EN 50262.
- PTC included in motors from 30 to 55 kW (one per phase, 155°C).
- **Single-phase** version:  
220-240 V 50 Hz  
Built-in automatic reset overload protection  
Maximum ambient temperature: 45 °C.
- **Three-phase** version:  
220-240/380-415 V 50 Hz for power up to 3 kW.  
380-415/660-690 V 50 Hz for power above 3 kW.  
Overload protection to be provided by the user.  
Maximum ambient temperature: 40 o 50 °C (depending on model and power)

From 1 July 2023 in accordance with the **Regulations (EU) 2019/1781 and 2021/341**, the three-phase 50 Hz, 60 Hz or 50/60 Hz **surface motors** with **power outputs ranging from 0,12 to 0,749 kW** must have a minimum level **IE2** efficiency. The motors with power outputs ranging **from 0,75 and 74,9 kW** must have a minimum level of **IE3** efficiency; the ones with power outputs ranging **from 75 and 200 kW** must have a minimum level of **IE4** efficiency. The single-phase **surface motors** with **power outputs ranging from 0,12 kW** must have a minimum level **IE2** efficiency.

The following tables also contain the mandatory information pursuant to Annex I, section 2, of the aforementioned Regulations.

## ESHE SERIES SINGLE-PHASE MOTORS AT 50 Hz, 2 POLES

P <sub>N</sub> kW	MOTOR TYPE	IEC SIZE*	Construction Design	INPUT CURRENT I <sub>n</sub> (A) 220-240 V	CAPACITOR		DATA FOR 230 V 50 Hz VOLTAGE						OPERATING CONDITIONS **			
					μF	V	min <sup>-1</sup>	I <sub>s</sub> / I <sub>n</sub>	η %	cosφ	T <sub>n</sub> Nm	T <sub>s</sub> /T <sub>n</sub>	T <sub>m</sub> /T <sub>n</sub>	Altitude asl m	T. amb min/max °C	ATEX
0.75	SM90RB14S2/1075 E2	90R	B14	4,38-4,27	25	450	2865	5.11	77.4	0.97	2.50	0.40	2.26	1000 VI	-15/45	No
1.1	SM90RB14S2/1115 E2	90R	B14	6,26-5,93	30	450	2860	4.78	79.6	0.98	3.67	0.50	2.14			
1.5	PLM90B14S2/1155 E2	90	B14	8,41-7,87	50	450	2890	6.71	81.3	0.97	4.95	0.59	2.78			

\* R = Reduced size of motor casing as compared to shaft extension and flange.

ESHE-motm-2p50-en\_d\_te

\*\* Operating conditions related only to the motor. For the electric pump refer to the IOM.

## ESHE SERIES THREE-PHASE MOTORS AT 50 Hz, 2 POLES

P <sub>N</sub> kW	Manufacturer		IEC SIZE*	Construction Design	N. of Poles	f <sub>N</sub> Hz	Data for 400 V / 50 Hz Voltage														
	Xylem Service Italia Srl Reg. No. 07520560967 Montecchio Maggiore Vicenza - Italia						cosφ	I <sub>s</sub> / I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>s</sub> /T <sub>N</sub>	T <sub>m</sub> /T <sub>N</sub>										
	Model																				
0,75	SM90RB14S/307PE		90R	SPECIAL	2	50	0,78	7,38	2,48	3,57	3,75										
1,1	SM90RB14S/311PE		90R				0,79	8,31	3,63	3,95	3,95										
1,5	SM90RB14S/315PE		90R				0,80	8,80	4,96	4,31	4,10										
2,2	PLM90B14S2/322 E3		90				0,80	8,77	7,28	3,72	3,70										
3	PLM90B14S2/330 E3		90				0,79	7,81	9,93	4,26	3,94										
4	PLM112RB14S2/340 E3		112R				0,85	9,13	13,2	3,82	4,32										
5,5	PLM112B14S2/355 E3		112				0,85	10,5	18,1	4,74	5,11										
7,5	PLM132B14S2/375 E3		132				0,85	10,2	24,4	3,43	4,76										
9,2	PLM132B14S2/392 E3		132				0,85	10,1	30,0	3,73	4,81										
11	PLM132B14S2/3110 E3		132				0,86	9,89	35,90	3,46	4,59										
	PLM132B14S3/3110 E3		132																		
15	PLM160B34S3/3150 E3		160				0,88	9,51	48,6	2,73	4,32										
18,5	PLM160B34S3/3185 E3		160				0,88	9,81	59,9	2,81	4,53										
22	PLM160B34S3/3220 E3		160				0,85	10,9	71,1	3,26	5,12										

P <sub>N</sub> kW	Voltage U <sub>N</sub> V											η <sub>N</sub> min <sup>-1</sup>	Operating conditions **		
	Δ			Y			Δ			Y			Altitude Above Sea Level (m)	T. amb min/max °C	ATEX
	220 V	230 V	240 V	380 V	400 V	415 V	380 V	400 V	415 V	660 V	690 V				
	I <sub>N</sub> (A)														
0,75	2,96	2,94	2,96	1,71	1,70	1,71	1,70	1,69	1,70	0,98	0,98	2875 ÷ 2895	≤ 1000	-15 / 50	No
1,1	4,19	4,14	4,16	2,42	2,39	2,40	2,41	2,38	2,38	1,39	1,37	2870 ÷ 2900			
1,5	5,56	5,49	5,51	3,21	3,17	3,18	3,21	3,18	3,19	1,85	1,84	2870 ÷ 2895			
2,2	7,97	7,90	7,98	4,60	4,56	4,61	4,57	4,54	4,57	2,64	2,62	2880 ÷ 2900			
3	11,0	11,0	11,2	6,35	6,33	6,44	6,29	6,27	6,34	3,63	3,62	2865 ÷ 2895			
4	13,6	13,4	13,4	7,87	7,75	7,74	7,80	7,62	7,61	4,50	4,40	2885 ÷ 2910			
5,5	18,1	17,9	18,1	10,4	10,4	10,4	10,6	10,5	10,7	6,10	6,05	2880 ÷ 2910			
7,5	24,8	24,4	24,3	14,3	14,1	14,0	14,4	14,1	14,2	8,32	8,16	2920 ÷ 2935			
9,2	30,6	30,1	30,2	17,6	17,4	17,5	17,5	17,2	17,3	10,1	9,93	2920 ÷ 2935			
11	35,7	35,0	34,9	20,6	20,2	20,2	20,6	20,2	20,2	11,9	11,7	2910 ÷ 2930			
15	47,6	46,1	45,2	27,5	26,6	26,1	27,5	26,6	26,1	15,9	15,3	2940 ÷ 2950			
18,5	58,3	56,7	55,6	33,7	32,7	32,1	34,0	33,0	32,7	19,6	19,0	2940 ÷ 2950			
22	72,9	73,1	73,7	42,1	42,2	42,6	40,9	40,4	40,6	23,6	23,3	2950 ÷ 2960			

P <sub>N</sub> kW	Efficiency η <sub>N</sub> %																		IE
	Δ 220 V Y 380 V			Δ 230 V Y 400 V			Δ 240 V Y 415 V			Δ 380 V Y 660 V			Δ 400 V Y 690 V			Δ 415 V			
	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	
0,75	82,5	83,1	81,3	82,8	82,7	80,1	82,6	82,0	78,9	82,5	82,0	78,9	82,5	82,0	78,9	82,5	82,0	78,9	3
1,1	84,0	84,7	83,4	84,4	84,5	82,5	84,3	84,0	81,4	84,0	84,0	81,4	84,0	84,0	81,4	84,0	84,0	81,4	
1,5	85,6	86,5	85,8	85,9	86,4	84,9	86,0	86,0	84,0	85,6	86,0	84,0	85,6	86,0	84,0	85,6	86,0	84,0	
2,2	86,5	87,4	86,8	86,4	86,9	85,7	86,6	86,7	85,0	86,4	86,7	85,0	86,4	86,7	85,0	86,4	86,7	85,0	
3	87,2	88,5	88,3	87,5	88,2	87,5	87,5	87,8	86,4	87,2	87,8	86,4	87,2	87,8	86,4	87,2	87,8	86,4	
4	89,1	90,1	89,2	89,1	90,1	89,2	89,1	90,1	89,2	89,1	90,3	90,4	89,6	90,4	89,9	89,6	90,1	89,2	
5,5	89,5	89,6	88,0	89,5	89,6	88,0	89,5	89,6	88,0	89,5	90,3	89,9	89,7	90,0	89,0	89,6	89,6	88,0	
7,5	90,6	90,5	89,0	90,6	90,5	89,0	90,6	90,5	89,0	90,6	91,0	90,2	90,8	90,8	89,6	90,7	90,5	89,0	
9,2	90,8	91,0	89,7	90,8	91,0	89,7	90,8	91,0	89,7	90,8	91,4	90,8	91,1	91,3	90,3	91,1	91,0	89,7	
11	91,3	92,0	91,1	91,3	92,0	91,1	91,3	92,0	91,1	91,3	92,2	92,2	91,6	92,2	91,7	91,7	92,0	91,1	
15	92,5	92,4	91,2	92,5	92,4	91,2	92,5	92,4	91,2	92,7	93,3	92,9	93,1	93,3	92,7	92,5	92,4	91,2	
18,5	92,6	93,1	92,4	92,6	93,1	92,4	92,6	93,1	92,4	92,6	93,2	93,0	92,9	93,3	92,8	92,9	93,1	92,4	
22	93,0	92,7	91,3	93,0	92,7	91,3	93,0	92,7	91,3	93,0	93,2	92,4	93,1	93,0	91,9	93,0	92,7	91,3	

\* R = Reduced size of motor casing as compared to shaft extension and flange.

ESHE-IE3-mott-2p50-en\_c\_te

\*\* Operating conditions to be referred to motor only. About electric pump, refer to limits in user's manual.

**ESHS SERIES**
**THREE-PHASE MOTORS AT 50 Hz, 2 POLES (up to 22 kW)**

P <sub>N</sub> kW	Manufacturer		IEC SIZE*	Construction Design	N. of Poles	f <sub>N</sub> Hz	Data for 400 V / 50 Hz Voltage							
	Xylem Service Italia Srl Reg. No. 07520560967 Montecchio Maggiore (VI) - Italia						cosφ	I <sub>s</sub> / I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>s</sub> /T <sub>N</sub>	T <sub>m</sub> /T <sub>n</sub>			
	Model													
0,75	SM80B5/307PE		80	B5	2	50	0,78	7,38	2,48	3,57	3,75			
1,1	SM80B5/311PE		80				0,79	8,31	3,63	3,95	3,95			
1,5	SM90RB5/315PE		90R				0,80	8,80	4,96	4,31	4,10			
2,2	PLM90B5/322 E3		90				0,80	8,77	7,28	3,72	3,70			
3	PLM100RB5/330 E3		100R				0,79	7,81	9,93	4,26	3,94			
4	PLM112RB5/340 E3		112R				0,85	9,13	13,2	3,82	4,32			
5,5	PLM132RB5/355 E3		132R				0,85	10,5	18,1	4,74	5,11			
7,5	PLM132B5/375 E3		132				0,85	10,2	24,4	3,43	4,76			
11	PLM160B35/3110 E3		160				B35			0,88	8,59	35,6	2,36	4,14
15	PLM160B35/3150 E3		160							0,88	9,51	48,6	2,73	4,32
18,5	PLM160B35/3185 E3		160	0,88	9,81	59,9				2,81	4,53			
22	PLM180RB35/3220 E3		180R	0,85	10,9	71,1				3,26	5,12			

P <sub>N</sub> kW	Voltage U <sub>N</sub> V										η <sub>N</sub> min <sup>-1</sup>	Operating conditions **			
	Δ			Y			Δ			Y		Altitude Above Sea Level (m)	T. amb min/max °C	ATEX	
	220 V	230 V	240 V	380 V	400 V	415 V	380 V	400 V	415 V	660 V					690 V
	I <sub>N</sub> (A)											≤ 1000	-15 / 50	No	
0,75	2,96	2,94	2,96	1,71	1,70	1,71	1,70	1,69	1,70	0,98	0,98				2875 ÷ 2895
1,1	4,19	4,14	4,16	2,42	2,39	2,40	2,41	2,38	2,38	1,39	1,37				2870 ÷ 2900
1,5	5,56	5,49	5,51	3,21	3,17	3,18	3,21	3,18	3,19	1,85	1,84				2870 ÷ 2895
2,2	7,97	7,90	7,98	4,6	4,56	4,61	4,57	4,54	4,57	2,64	2,62				2880 ÷ 2900
3	11,0	11,0	11,2	6,35	6,33	6,44	6,29	6,27	6,34	3,63	3,62				2865 ÷ 2895
4	13,6	13,4	13,4	7,87	7,75	7,74	7,80	7,62	7,61	4,50	4,40				2885 ÷ 2910
5,5	18,1	17,9	18,1	10,4	10,4	10,4	10,6	10,5	10,7	6,10	6,05				2880 ÷ 2910
7,5	24,8	24,4	24,3	14,3	14,1	14,0	14,4	14,1	14,2	8,32	8,16				2920 ÷ 2935
11	35,0	33,9	33,0	20,2	19,6	19,1	20,4	19,6	19,2	11,8	13,3				2935 ÷ 2950
15	47,6	46,1	45,2	27,5	26,6	26,1	27,5	26,6	26,1	15,9	15,3				2940 ÷ 2950
18,5	58,3	56,7	55,6	33,7	32,7	32,1	34,0	33,0	32,7	19,6	19,0				2940 ÷ 2950
22	72,9	73,1	73,7	42,1	42,2	42,6	40,9	40,4	40,6	23,6	23,3	2950 ÷ 2960			

P <sub>N</sub> kW	Efficiency η <sub>N</sub> %																		IE
	Δ 220 V Y 380 V			Δ 230 V Y 400 V			Δ 240 V Y 415 V			Δ 380 V Y 660 V			Δ 400 V Y 690 V			Δ 415 V			
	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	
0,75	82,5	83,1	81,3	82,8	82,7	80,1	82,6	82,0	78,9	82,5	82,0	78,9	82,5	82,0	78,9	82,5	82,0	78,9	3
1,1	84,0	84,7	83,4	84,4	84,5	82,5	84,3	84,0	81,4	84,0	84,0	81,4	84,0	84,0	81,4	84,0	84,0	81,4	
1,5	85,6	86,5	85,8	85,9	86,4	84,9	86,0	86,0	84,0	85,6	86,0	84,0	85,6	86,0	84,0	85,6	86,0	84,0	
2,2	86,5	87,4	86,8	86,4	86,9	85,7	86,6	86,7	85,0	86,4	86,7	85,0	86,4	86,7	85,0	86,4	86,7	85,0	
3	87,2	88,5	88,3	87,5	88,2	87,5	87,5	87,8	86,4	87,2	87,8	86,4	87,2	87,8	86,4	87,2	87,8	86,4	
4	89,1	90,1	89,2	89,1	90,1	89,2	89,1	90,1	89,2	89,1	90,3	90,4	89,6	90,4	89,9	89,6	90,1	89,2	
5,5	89,5	89,6	88,0	89,5	89,6	88,0	89,5	89,6	88,0	89,5	90,3	89,9	89,7	90,0	89,0	89,6	89,6	88,0	
7,5	90,6	90,5	89,0	90,6	90,5	89,0	90,6	90,5	89,0	90,6	91,0	90,2	90,8	90,8	89,6	90,7	90,5	89,0	
11	91,8	92,3	91,5	91,8	92,3	91,5	91,8	92,3	91,5	91,8	92,3	91,9	92,2	92,5	91,8	92,3	92,4	91,5	
15	92,5	92,4	91,2	92,5	92,4	91,2	92,5	92,4	91,2	92,7	93,3	92,9	93,1	93,3	92,7	92,5	92,4	91,2	
18,5	92,6	93,1	92,4	92,6	93,1	92,4	92,6	93,1	92,4	92,6	93,2	93,0	92,9	93,3	92,8	92,9	93,1	92,4	
22	93,0	92,7	91,3	93,0	92,7	91,3	93,0	92,7	91,3	93,0	93,2	92,4	93,1	93,0	91,9	93,0	92,7	91,3	

\* R = Reduced size of motor casing as compared to shaft extension and flange.

ESHS-IE3-mott-2p50-en\_c\_te

\*\* Operating conditions to be referred to motor only. About electric pump, refer to limits in user's manual.

## ESHF, ESHC SERIES

### THREE-PHASE MOTORS AT 50 Hz, 2 POLES (up to 18,5 kW)

P <sub>N</sub> kW	Manufacturer		IEC SIZE	Construction Design	N. of Poles	f <sub>N</sub> Hz	Data for 400 V / 50 Hz Voltage				
	Xylem Service Italia Srl Reg. No. 07520560967 Montecchio Maggiore (VI) - Italia						cosφ	I <sub>s</sub> / I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>s</sub> /T <sub>N</sub>	T <sub>m</sub> /T <sub>N</sub>
	Model										
0,75	SM80B3/307PE		80	B3	2	50	0,78	7,38	2,48	3,57	3,75
1,1	SM80B3/311PE		80				0,79	8,31	3,63	3,95	3,95
1,5	PLM90B3/315 E3		90				0,86	8,04	4,96	3,34	3,27
2,2	PLM90B3/322 E3		90				0,80	8,77	7,28	3,72	3,70
3	PLM100B3/330 E3		100				0,84	9,65	9,84	3,59	4,26
4	PLM112B3/340 E3		112				0,86	9,41	13,2	3,95	4,46
5,5	PLM132B3/355 E3		132				0,83	10,0	17,9	3,33	4,65
7,5	PLM132B3/375 E3		132				0,85	10,2	24,4	3,43	4,76
11	PLM160B3/3110 E3		160				0,88	8,59	35,6	2,36	4,14
15	PLM160B3/3150 E3		160				0,88	9,51	48,6	2,73	4,32
18,5	PLM160B3/3185 E3		160				0,88	9,81	59,9	2,81	4,53

P <sub>N</sub> kW	Voltage U <sub>N</sub> V											η <sub>N</sub> min <sup>-1</sup>	Operating conditions **		
	Δ			Y			Δ			Y			Altitude Above Sea Level (m)	T. amb min/max °C	ATEX
	220 V	230 V	240 V	380 V	400 V	415 V	380 V	400 V	415 V	660 V	690 V				
	I <sub>N</sub> (A)														
0,75	2,96	2,94	2,96	1,71	1,70	1,71	1,70	1,69	1,70	0,98	0,98	2875 ÷ 2895	≤ 1000	-15 / 50	No
1,1	4,19	4,14	4,16	2,42	2,39	2,40	2,41	2,38	2,38	1,39	1,37	2870 ÷ 2900			
1,5	5,35	5,11	5,04	3,09	2,95	2,91	3,09	2,96	2,91	1,78	1,71	2865 ÷ 2890			
2,2	7,97	7,90	7,98	4,60	4,56	4,61	4,57	4,54	4,57	2,64	2,62	2880 ÷ 2900			
3	10,2	10,0	10,1	5,91	5,79	5,82	5,94	5,83	5,87	3,43	3,37	2895 ÷ 2920			
4	13,3	13,1	13,1	7,69	7,56	7,55	7,70	7,56	7,57	4,45	4,36	2885 ÷ 2905			
5,5	18,9	18,8	18,9	10,9	10,9	10,9	10,7	10,6	10,7	6,20	6,14	2925 ÷ 2940			
7,5	24,8	24,4	24,3	14,3	14,4	14,0	14,4	14,1	14,2	8,32	8,16	2920 ÷ 2935			
11	35,0	33,9	33,0	20,2	19,6	19,1	20,4	19,6	19,2	11,8	11,3	2935 ÷ 2950			
15	47,6	46,1	45,2	27,5	26,6	26,1	27,5	26,6	26,1	15,9	15,3	2940 ÷ 2950			
18,5	58,3	56,7	55,6	33,7	32,7	32,1	34,0	33,0	32,7	19,6	19,0	2940 ÷ 2950			

P <sub>N</sub> kW	Efficiency η <sub>N</sub> %																		IE
	Δ 220 V			Δ 230 V			Δ 240 V			Δ 380 V			Δ 400 V			Δ 415 V			
	Y 380 V			Y 400 V			Y 415 V			Y 660 V			Y 690 V						
	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	
0,75	82,5	83,1	81,3	82,8	82,7	80,1	82,6	82,0	78,9	82,5	82,0	78,9	82,5	82,0	78,9	82,5	82,0	78,9	3
1,1	84,0	84,7	83,4	84,4	84,5	82,5	84,3	84,0	81,4	84,0	84,0	81,4	84,0	84,0	81,4	84,0	84,0	81,4	
1,5	84,6	85,8	85,4	85,5	86,3	85,2	85,9	86,2	84,8	84,6	85,8	84,8	84,6	85,8	84,8	84,6	85,8	84,8	
2,2	86,5	87,4	86,8	86,4	86,9	85,7	86,6	86,7	85,0	86,4	86,7	85,0	86,4	86,7	85,0	86,4	86,7	85,0	
3	88,7	89,5	89,1	89,1	89,5	88,4	89,1	89,1	87,7	88,7	89,1	87,7	88,7	89,1	87,7	88,7	89,1	87,7	
4	88,6	89,0	87,6	88,6	89,0	87,6	88,6	89,0	87,6	88,7	89,6	89,1	88,6	89,2	88,3	88,9	89,0	87,6	
5,5	90,1	89,8	88,0	90,1	89,8	88,0	90,1	89,8	88,0	90,2	90,5	89,5	90,3	90,2	88,8	90,1	89,8	88,0	
7,5	90,6	90,5	89,0	90,6	90,5	89,0	90,6	90,5	89,0	90,6	91,0	90,2	90,8	90,8	89,6	90,7	90,5	89,0	
11	91,8	92,3	91,5	91,8	92,3	91,5	91,8	92,3	91,5	91,8	92,3	91,9	92,2	92,5	91,8	92,3	92,4	91,5	
15	92,5	92,4	91,2	92,5	92,4	91,2	92,5	92,4	91,2	92,7	93,3	92,9	93,1	93,3	92,7	92,5	92,4	91,2	
18,5	92,6	93,1	92,4	92,6	93,1	92,4	92,6	93,1	92,4	92,6	93,2	93,0	92,9	93,3	92,8	92,9	93,1	92,4	

\*\* Operating conditions to be referred to motor only. About electric pump, refer to limits in user's manual.

ESHF-IE3-mott18-2p50-en\_c\_te

**ESHS SERIES (B35 from 30 to 37 kW)**  
**ESHF SERIES (B3 from 22 to 75 kW)**  
**THREE-PHASE MOTORS AT 50 Hz, 2 POLES**

P <sub>N</sub> kW	Manufacturer		IEC SIZE	Construction Design	N. of Poles	f <sub>N</sub> Hz	Data for 400 V / 50 Hz Voltage				
	OMEGA MOTOR SANAYI A.Ş. Dudullu Organize Sanayi Bölgesi 2. Cadde No: 10 34775 Ümraniye İSTANBUL/TURKEY Reg. No. 913733						cosφ	I <sub>s</sub> / I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>s</sub> /T <sub>N</sub>	T <sub>m</sub> /T <sub>N</sub>
	Model										
22	3MAS 180M2 B3 22KW E3		180	B3	2	50	0,90	8,5	70,9	3,0	3,4
30	3MAS 200LA2 B3 30KW E3		200	B3			0,89	7,8	96,9	2,6	3,1
	3MAS 200LA2 B35 30KW E3			B35							
37	3MAS 200LB2 B3 37KW E3		200	B3			0,90	8,0	119	2,9	3,2
	3MAS 200LB2 B35 37KW E3			B35							
45	3MAS 225M2 B3 45KW E3		225	B3			0,91	8,2	144	2,7	3,3
55	3MGS 250M2 B3 55KW E3		250				0,90	7,6	176	2,5	3,0
75	3MGS 280SA2 75KW E4		280		0,88	8,6	240	2,6	3,4		

P <sub>N</sub> kW	Voltage U <sub>N</sub> V					n <sub>N</sub> min <sup>-1</sup>	Operating conditions **		
	Δ			Y			Altitude Above Sea Level (m)	T. amb min/max °C	ATEX
	380 V	400 V	415 V	660 V	690 V				
	I <sub>N</sub> (A)								
22	39,7	38,2	37,2	22,9	22,1	2955	≤ 1000	-20 / 50	No
30	55,3	52,2	50,8	31,8	30,3	2965			
37	66,6	63,9	61,5	38,4	37,0	2965			
45	80,6	75,9	73,7	46,4	44,0	2975			
55	98,2	92,7	89,7	56,5	53,7	2975			
75	135,0	129,0	124,0	77,9	74,5	2985			

P <sub>N</sub> kW	Efficiency η <sub>N</sub>									IE
	Δ 380 V Y 660 V			Δ 400 V Y 690 V			Δ 415 V			
	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	
22	92,4	92,9	92,6	92,7	93,2	93,0	92,8	93,2	93,1	3
30	93,0	93,1	93,0	93,3	93,5	93,4	93,4	93,6	93,4	
37	93,5	94,0	93,7	93,7	94,1	93,8	93,8	94,2	93,9	
45	93,8	94,0	93,5	94,0	94,2	93,6	94,2	94,4	93,8	
55	93,8	94,0	93,9	94,3	94,6	94,5	94,4	94,7	94,5	
75	95,6	95,7	95,0	95,6	95,7	95,0	95,6	95,7	95,0	

\*\* Operating conditions to be referred to motor only. About electric pump, refer to limits in user's manual.

## ESHE SERIES

### THREE-PHASE MOTORS AT 50 Hz, 4 POLES

P <sub>N</sub> kW	Manufacturer		IEC SIZE*	Construction Design	N. of Poles	f <sub>N</sub> Hz	Data for 400 V / 50 Hz Voltage				
	Xylem Service Italia Srl Reg. No. 07520560967 Montecchio Maggiore Vicenza - Italia						cosφ	I <sub>s</sub> / I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>s</sub> /T <sub>N</sub>	T <sub>m</sub> /T <sub>n</sub>
	Model										
0,25	LLM471B5/302		71	B5	4	50	0,77	3,90	1,80	1,80	2,00
0,37	LLM471B5/304		71				0,70	4,60	2,60	2,70	2,20
0,55	LLM490RB14S2/305		90R				0,76	4,40	3,80	2,30	2,40
0,75	LLM490RB5S2/307 E3		90R				0,80	6,38	5,00	2,73	3,13
1,1	PLM490B5S2/311 E3		90				0,71	6,22	7,28	2,75	3,44
1,5	PLM490B5S2/315 E3		90				0,68	6,92	9,89	3,29	4,01
2,2	PLM4100B5S3/322 E3		100				0,78	7,47	14,50	2,38	3,69
3	PLM4100B5S3/330 E3		100				0,74	7,75	19,70	2,48	4,21
4	PLM4112B5S3/340 E3		112				0,79	8,32	26,30	3,19	4,02
5,5	PLM4132B14S4/355 E3		132				0,76	7,64	35,90	2,85	3,65
7,5	PLM4132B14S4/375 E3		132				0,79	7,70	49,10	2,69	3,57
11	PLM4160B34S4/3110 E3		160	0,81	7,19	71,50	2,45	3,26			

P <sub>N</sub> kW	Voltage U <sub>N</sub> V											n <sub>N</sub> min <sup>-1</sup>	Operating conditions **		
	Δ			Y			Δ			Y			Altitude above sea level (m)	T. amb min/max °C	ATEX
	220 V	230 V	240 V	380 V	400 V	415 V	380 V	400 V	415 V	660 V	690 V				
	I <sub>N</sub> (A)														
0,25	1,28	1,20	1,16	0,74	0,70	0,67	-	-	-	-	-	1390	≤ 1000	-15 / 40	No
0,37	1,82	1,80	1,66	1,05	1,00	0,96	-	-	-	-	-	1410			
0,55	2,42	2,60	2,25	1,40	1,35	1,30	-	-	-	-	-	1420			
0,75	2,90	2,85	2,85	1,70	1,65	1,65	1,70	1,65	1,65	0,98	0,95	1420 ÷ 1435			
1,1	4,61	4,59	4,62	2,66	2,65	2,67	2,64	2,63	2,65	1,53	1,52	1435 ÷ 1445			
1,5	6,34	6,41	6,41	3,66	3,70	3,70	3,65	3,68	3,69	2,11	2,13	1440 ÷ 1450			
2,2	8,19	8,04	7,97	4,73	4,64	4,60	4,70	4,62	4,56	2,71	2,67	1445 ÷ 1455			
3	11,5	11,5	11,5	6,66	6,62	6,67	6,63	6,59	6,63	3,83	3,81	1450 ÷ 1460			
4	14,8	14,6	14,5	8,52	8,40	8,36	8,40	8,23	8,19	4,85	4,75	1445 ÷ 1455			
5,5	20,0	19,7	19,4	11,6	11,4	11,2	11,7	11,5	11,4	6,75	6,62	1455 ÷ 1465			
7,5	26,6	26,1	25,8	15,4	15,1	14,9	15,5	15,2	15,1	8,95	8,75	1450 ÷ 1460			
11	38,3	37,3	37,5	22,1	21,8	21,7	21,9	21,4	21,3	12,6	12,3	1465 ÷ 1470			

P <sub>N</sub> kW	Efficiency η <sub>N</sub>																		IE
	Δ 220 V			Δ 230 V			Δ 240 V			Δ 380 V			Δ 400 V			Δ 415 V			
	Y 380 V			Y 400 V			Y 415 V			Y 660 V			Y 690 V						
	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	
0,25	70,6	72,5	70,8	70,9	71,5	69,0	71,8	71,5	67,1	-	-	-	-	-	-	-	-	-	2
0,37	75,9	76,0	72,0	75,8	74,6	70,1	75,2	73,4	68,1	-	-	-	-	-	-	-	-	-	
0,55	78,8	80,3	78,9	79,0	79,7	77,6	79,6	79,6	76,7	-	-	-	-	-	-	-	-	-	
0,75	83,0	84,3	83,5	83,4	84,1	82,6	83,8	84,0	81,9	83,0	84,3	83,5	83,4	84,1	82,6	83,8	84,0	81,9	3
1,1	84,9	85,7	84,7	85,3	85,5	83,8	85,3	85,0	82,7	84,9	85,0	82,7	84,9	85,0	82,7	84,9	85,0	82,7	
1,5	86,6	87,0	85,7	86,7	86,9	84,5	86,4	85,9	83,3	86,4	85,9	83,3	86,4	85,9	83,3	86,4	85,9	83,3	
2,2	87,6	88,6	88,3	88,2	88,8	87,9	88,5	88,7	87,4	87,6	88,6	87,4	87,6	88,6	87,4	87,6	88,6	87,4	
3	88,5	89,2	88,5	88,6	88,9	87,6	88,6	88,6	86,8	88,5	88,6	86,8	88,5	88,6	86,8	88,5	88,6	86,8	
4	88,6	89,1	87,9	88,6	89,1	87,9	88,6	89,1	87,9	88,6	89,2	88,9	88,6	89,2	88,4	88,8	89,1	87,9	
5,5	90,4	90,9	89,7	90,4	90,9	89,7	90,4	90,9	89,7	90,4	91,0	90,5	90,9	91,1	90,2	90,9	90,9	89,7	
7,5	90,4	91,2	90,4	90,4	91,2	90,4	90,4	91,2	90,4	90,4	91,2	91,1	90,7	91,3	90,8	90,9	91,2	90,4	
11	91,5	92,2	91,4	91,5	92,2	91,4	91,5	92,2	91,4	91,5	92,4	92,4	91,9	92,5	92,0	91,9	92,2	91,4	

\* R = Reduced size of motor casing as compared to shaft extension and flange.

ESHE-IE3-mott-4p50-en\_c\_te

\*\* Operating conditions to be referred to motor only. About electric pump, refer to limits in user's manual.

**ESHS SERIES (B5/B35 from 0,55 to 11 kW)**  
**ESHF SERIES (B3 from 0,75 to 11 kW)**  
**THREE-PHASE MOTORS AT 50 Hz, 4 POLES**

P <sub>N</sub> kW	Manufacturer		IEC SIZE	Construction Design	N. of Poles	f <sub>N</sub> Hz	Data for 400 V / 50 Hz Voltage				
	Xylem Service Italia Srl Reg. No. 07520560967 Montecchio Maggiore Vicenza - Italia						cosφ	I <sub>s</sub> / I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>s</sub> /T <sub>N</sub>	T <sub>m</sub> /T <sub>N</sub>
	Model										
0,55	LLM480B5/305		80	B5			0,76	4,40	3,80	2,30	2,40
0,75	LLM480B3/307		80	B3			0,80	6,38	5,00	2,73	3,31
	LLM480B5/307			B5							
1,1	PLM490B3/311 E3		90	B3			0,71	6,22	7,28	2,75	3,44
	PLM490B5/311 E3			B5							
1,5	PLM490B3/315 E3		90	B3			0,68	6,92	9,89	3,29	4,01
	PLM490B5/315 E3			B5							
2,2	PLM4100B3/322 E3		100	B3			0,78	7,47	14,5	2,38	3,69
	PLM4100B5/322 E3			B5							
3	PLM4100B3/330 E3		100	B3			0,74	7,75	19,7	2,48	4,21
	PLM4100B5/330 E3			B5							
4	PLM4112B3/340 E3		112	B3			0,79	8,32	26,3	3,19	4,02
	PLM4112B5/340 E3			B5							
5,5	PLM4132B3/355 E3		132	B3			0,76	7,64	35,9	2,85	3,65
	PLM4132B5/355 E3			B5							
7,5	PLM4132B3/375 E3		132	B3			0,79	7,70	49,1	2,69	3,57
	PLM4132B5/375 E3			B5							
11	PLM4160B3/3110 E3		160	B3			0,81	7,19	71,5	2,45	3,26
	PLM4160B35/3110 E3			B35							

P <sub>N</sub> kW	Voltage U <sub>N</sub> V											n <sub>N</sub> min <sup>-1</sup>	Operating conditions **		
	Δ			Y			Δ			Y			Altitude Above Sea Level (m)	T. amb min/max °C	ATEX
	220 V	230 V	240 V	380 V	400 V	415 V	380 V	400 V	415 V	660 V	690 V				
	I <sub>N</sub> (A)														
0,55	2,42	2,60	2,25	1,40	1,35	1,30	-	-	-	-	-	1420	≤ 1000	-15 / 40	No
0,75	2,90	2,85	2,85	1,70	1,65	1,65	1,70	1,65	1,65	0,98	0,95	1420 ÷ 1435			
1,1	4,61	4,59	4,62	2,66	2,65	2,67	2,64	2,63	2,65	1,53	1,52	1435 ÷ 1445			
1,5	6,34	6,41	6,41	3,66	3,70	3,70	3,65	3,68	3,69	2,11	2,13	1440 ÷ 1450			
2,2	8,19	8,04	7,97	4,73	4,64	4,60	4,70	4,62	4,56	2,71	2,67	1445 ÷ 1455			
3	11,5	11,5	11,5	6,66	6,62	6,67	6,63	6,59	6,63	3,83	3,81	1450 ÷ 1460			
4	14,8	14,6	14,5	8,52	8,40	8,36	8,40	8,23	8,19	4,85	4,75	1445 ÷ 1455			
5,5	20,0	19,7	19,4	11,6	11,4	11,2	11,7	11,5	11,4	6,75	6,62	1455 ÷ 1465			
7,5	26,6	26,1	25,8	15,4	15,1	14,9	15,5	15,2	15,1	8,95	8,75	1450 ÷ 1460			
11	38,3	37,3	37,5	22,1	21,8	21,7	21,9	21,4	21,3	12,6	12,3	1465 ÷ 1470			

P <sub>N</sub> kW	Efficiency η <sub>N</sub> %																		IE
	Δ 220 V Y 380 V			Δ 230 V Y 400 V			Δ 240 V Y 415 V			Δ 380 V Y 660 V			Δ 400 V Y 690 V			Δ 415 V			
	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	
0,55	78,8	80,3	78,9	79,0	79,7	77,6	79,6	79,6	76,7	-	-	-	-	-	-	-	-	-	2
0,75	83,0	84,3	83,5	83,4	84,1	82,6	83,8	84,0	81,9	83,0	84,3	83,5	83,4	84,1	82,6	83,8	84,0	81,9	3
1,1	84,9	85,7	84,7	85,3	85,5	83,8	85,3	85,0	82,7	84,9	85,0	82,7	84,9	85,0	82,7	84,9	85,0	82,7	
1,5	86,6	87,0	85,7	86,7	86,9	84,5	86,4	85,9	83,3	86,4	85,9	83,3	86,4	85,9	83,3	86,4	85,9	83,3	
2,2	87,6	88,6	88,3	88,2	88,8	87,9	88,5	88,7	87,4	87,6	88,6	87,4	87,6	88,6	87,4	87,6	88,6	87,4	
3	88,5	89,2	88,5	88,6	88,9	87,6	88,6	88,6	86,8	88,5	88,6	86,8	88,5	88,6	86,8	88,5	88,6	86,8	
4	88,6	89,1	87,9	88,6	89,1	87,9	88,6	89,1	87,9	88,6	89,2	88,9	88,6	89,2	88,4	88,8	89,1	87,9	
5,5	90,4	90,9	89,7	90,4	90,9	89,7	90,4	90,9	89,7	90,4	91,0	90,5	90,9	91,1	90,2	90,9	90,9	89,7	
7,5	90,4	91,2	90,4	90,4	91,2	90,4	90,4	91,2	90,4	90,4	91,2	91,1	90,7	91,3	90,8	90,9	91,2	90,4	
11	91,5	92,2	91,4	91,5	92,2	91,4	91,5	92,2	91,4	91,5	92,4	92,4	91,9	92,5	92,0	91,9	92,2	91,4	

\*\* Operating conditions to be referred to motor only. About electric pump, refer to limits in user's manual.



## ESH SERIES MOTOR NOISE

The tables below show the mean sound pressure levels (Lp) measured at 1 meter distance in a free field according to EN ISO 11203.

The noise values are measured on 50 Hz motors and have a tolerance of 3 dB (A) according to EN ISO 4871.

### ESHE, ESHS MOTORS 2 POLES 50 Hz

POWER kW	MOTOR TYPE IEC SIZE*	NOISE LpA dB
0,75	90R	<70
1,1	90R	<70
1,5	90R - 90	<70
2,2	90	<70
3	90	<70
3	100R	<70
4	112R	<70
5,5	112	<70
5,5	132R	<70
7,5	132	71
9,2	132	73
11	132	73
11	160R	73
11	160	71
15	160	71
18,5	160	73
22	160	70
22	180R	70
30	200	69
37	200	69

### ESHF, ESHC MOTORS 2 POLES 50 Hz

POWER kW	MOTOR TYPE IEC SIZE	NOISE LpA dB
0,75	80	<70
1,1	80	<70
1,5	90	<70
2,2	90	<70
3	100	<70
4	112	<70
5,5	132	71
7,5	132	71
11	160	71
15	160	71
18,5	160	73
22	180	67
30	200	69
37	200	69
45	225	74
55	250	74
75	280	77

### ESHE MOTORS 4 POLES 50 Hz

POWER kW	MOTOR TYPE IEC SIZE*	NOISE LpA dB
0,25	71	<70
0,37	71	<70
0,55	90R	<70
0,75	90R	<70
1,1	90	<70
1,5	90	<70
2,2	100	<70
3	100	<70
4	112	<70
5,5	132	<70
7,5	132	<70
11	160	<70

### ESHS, ESHF MOTORS 4 POLES 50 Hz

POWER kW	MOTOR TYPE IEC SIZE	NOISE LpA dB
0,55	80	<70
0,75	80	<70
1,1	90	<70
1,5	90	<70
2,2	100	<70
3	100	<70
4	112	<70
5,5	132	<70
7,5	132	<70
11	160	<70

\*R=Reduced size of motor as compared to shaft extension and flange.

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## ESH SERIES PUMPS (ErP 2009/125/EC)

With the **Regulation (EU) N. 547/2012**, the European Commission has established the requirements of ecodesign for some typologies of **pumps** used for pumping **clean water**, placed on the market and operated as stand-alone units or as parts of other products.

For end-suction close-coupled pumps (ESCC for the Regulation) and end-suction own-bearing pumps (ESOB for the Regulation) the requirements refers to:

- just the pump and not the pump and motor assembly (electric or combustion);
- pumps with:
  - just one impeller;
  - a nominal pressure PN not higher than 16 bar (1600 kPa);
  - a minimum nominal flow not less than 6 m<sup>3</sup>/h;
  - a maximum nominal power at the shaft not higher than 150 kW;
  - a speed of 2900 min<sup>-1</sup> (for electric pumps this means 50 Hz 2-pole electric motors) and with a head not greater than 140 metres;
  - a speed of 1450 min<sup>-1</sup> (for electric pumps this means 50 Hz 4-pole electric motors) and with a head not greater than 90 metres;
- use with clean water at a temperature ranging from -10°C to 120°C (the test is performed with cold water at a temperature not higher than 40°C).

This regulation states that water pumps shall have index MEI coming from a dedicated formula which considers hydraulic efficiency values at 'best efficiency point' (BEP), 75 % of the flow at BEP (Part load – PL) and 110 % of the flow at BEP (Over load – OL).

The Regulation also establishes the following deadline:

from	minimum efficiency index (MEI)
1 <sup>st</sup> January 2015	MEI ≥ 0,4

According to the definitions established in the Regulation ESHE and ESHS versions correspond to the "end-suction close-coupled pump" (ESCC); while ESH, ESHF and ESHC versions correspond to the "end-suction own bearing pump" (ESOB).

### **Regulation (EU) n. 547/2012 – Annex II – point 2 (Product information requirements)**

- 1) Minimum efficiency index: see MEI values in specific tables on following page.
- 2) The benchmark for most efficient water pumps is MEI ≥ 0,70.
- 3) Year of manufacture: see date on rating plate (≥ 2014).
- 4) Manufacturer: Xylem Service Italia Srl - Via dott. Vittorio Lombardi 14, 36075 Montecchio Maggiore (VI), Italia - Reg. No 07520560967.
- 5) Product type: see the PUMP TYPE column in the tables in the *Hydraulic performance* section.
- 6) Hydraulic pump efficiency with trimmed impeller: see  $\eta_p$  and  $\emptyset$  columns in the tables in the *Hydraulic performance* section.
- 7) Pump performance curves, including the performance curve: see the *Operating Characteristics* graphs in the following pages.
- 8) The efficiency of a pump with a trimmed impeller is usually lower than that of a pump with the full impeller diameter. The trimming of the impeller will adapt the pump to a fixed duty point, leading to reduced energy consumption. The minimum efficiency index (MEI) is based on the full impeller diameter.
- 9) The operation of this water pump with variable duty points may be more efficient and economic when controlled, for example, by the use of a variable speed drive that matches the pump duty to the system.
- 10) Information relevant for disassembly, recycling or disposal at end-of-life: observe the current laws and by-laws governing sorted waste disposal. Consult the product operating manual.
- 11) "Designed for use below – 10 °C only": note not applicable to these products.
- 12) "Designed for use above 120 °C only": note not applicable to these products.
- 13) Specific instructions for pumps as per points 11 and 12: not applicable to these products.
- 14) "Information on benchmark efficiency is available at": [www.europump.org](http://www.europump.org) (Ecodesign section).
- 15) The benchmark efficiency graphs with MEI = 0.7 and MEI = 0.4 are available at [www.europump.org](http://www.europump.org), (Ecodesign, Efficiency charts). Refer to "ESCC 1450 rpm", "ESCC 2900 rpm", "ESOB 1450 rpm", "ESOB 2900 rpm".

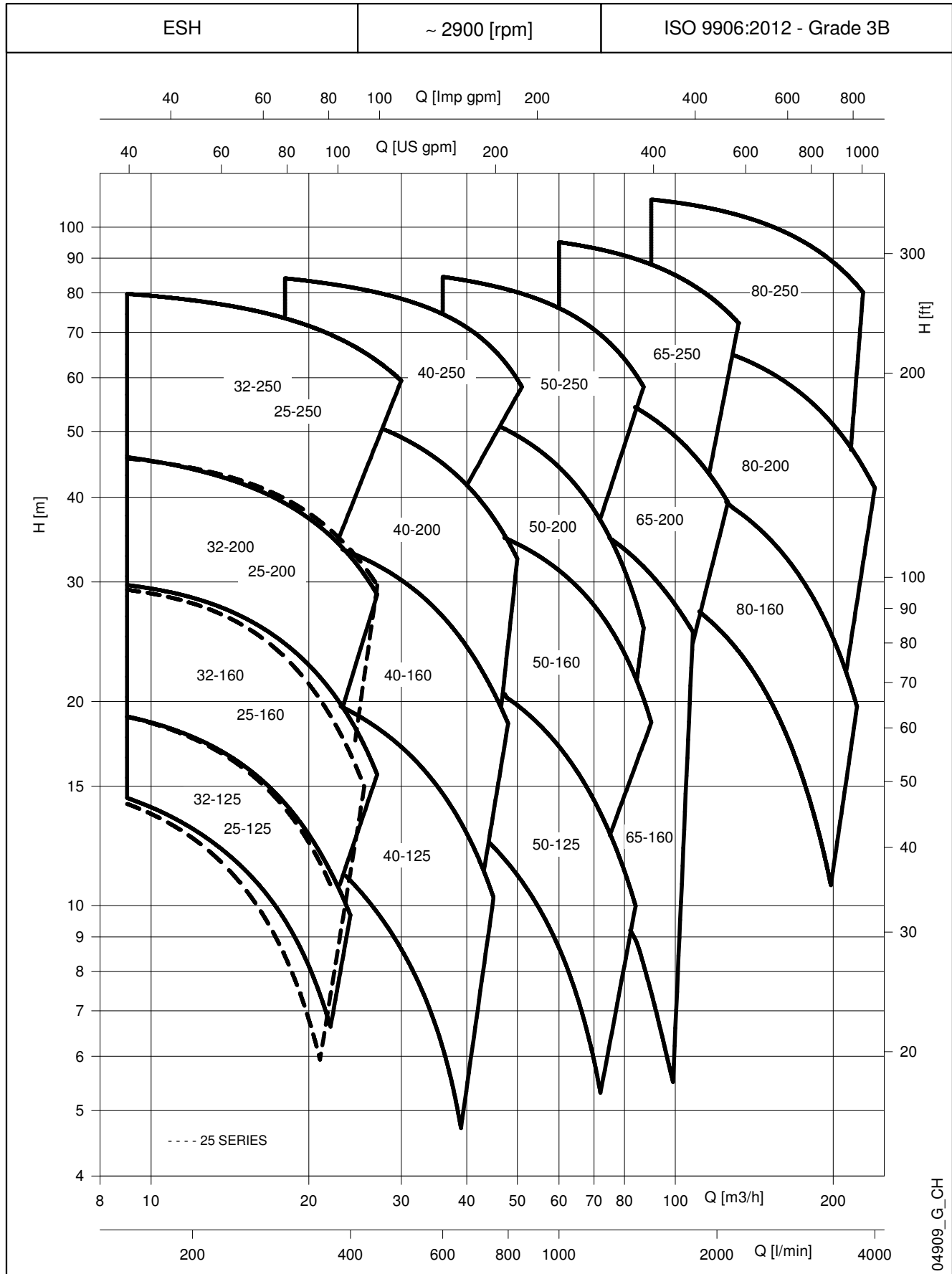
## ESH SERIES MINIMUM EFFICIENCY INDEX (MEI)

PUMP SIZE	2-POLE	
	ESH, ESHE ESHF, ESHC	ESHS
25-125/128	≥ 0,40	≥ 0,40
25-160/154	≥ 0,40	≥ 0,40
25-200/195	≥ 0,40	≥ 0,40
25-250/244,5	≥ 0,40	≥ 0,40
32-125/128	≥ 0,40	≥ 0,40
32-160/154	≥ 0,40	≥ 0,40
32-200/195	≥ 0,40	≥ 0,40
32-250/244,5	≥ 0,40	≥ 0,40
40-125/133	≥ 0,40	≥ 0,40
40-160/171	≥ 0,40	≥ 0,40
40-200/209	≥ 0,40	≥ 0,40
40-250/251	≥ 0,40	≥ 0,40
50-125/131	≥ 0,40	≥ 0,40
50-160/174	≥ 0,40	≥ 0,40
50-200/209	≥ 0,40	≥ 0,40
50-250/250	≥ 0,40	≥ 0,40
65-160/176	≥ 0,40	≥ 0,40
65-200/210	≥ 0,40	≥ 0,40
65-250/255	≥ 0,40	≥ 0,40
80-160/186	≥ 0,40	≥ 0,40
80-200/226	≥ 0,40	≥ 0,40
80-250/270	≥ 0,40	≥ 0,40

PUMP SIZE	4-POLE	
	ESH, ESHE ESHF	ESHS
25-125/128	≥ 0,40	≥ 0,40
25-160/154	≥ 0,40	≥ 0,40
25-200/195	≥ 0,40	≥ 0,40
25-250/244,5	≥ 0,40	≥ 0,40
32-125/128	≥ 0,40	≥ 0,40
32-160/154	≥ 0,40	≥ 0,40
32-200/195	≥ 0,40	≥ 0,40
32-250/244,5	≥ 0,40	≥ 0,40
40-125/133	≥ 0,40	≥ 0,40
40-160/171	≥ 0,40	≥ 0,40
40-200/209	≥ 0,40	≥ 0,40
40-250/251	≥ 0,40	≥ 0,40
50-125/131	≥ 0,40	≥ 0,40
50-160/174	≥ 0,40	≥ 0,40
50-200/209	≥ 0,40	≥ 0,40
50-250/250	≥ 0,40	≥ 0,40
65-160/176	≥ 0,40	≥ 0,40
65-200/219	≥ 0,40	≥ 0,40
65-250/255	≥ 0,40	≥ 0,40
80-160/186	≥ 0,40	≥ 0,40
80-200/220	≥ 0,40	≥ 0,40
80-250/270	≥ 0,40	≥ 0,40

ESH-MEI-en\_c\_sc

**ESH SERIES**  
**HYDRAULIC PERFORMANCE RANGE AT 50 Hz, 2 POLES**



## ESH 25, 32, 40, 50 SERIES HYDRAULIC PERFORMANCE TABLE AT 50 Hz, 2 POLES

PUMP TYPE	P <sub>N</sub> kW	Ø Impeller (mm)		Q = DELIVERY														
		○ ● (1)	η <sub>p</sub> % (2)	l/s m <sup>3</sup> /h	0	1,9	2,5	3,1	3,6	4,2	4,7	5,3	6,1	6,7	7,2	7,8	8,3	
				H = TOTAL HEAD METRES COLUMN OF WATER														
25-125/07*	0,75	114	○	59,7	16,1		14,1	13,1	12,0	10,7	9,2	7,6						
25-125/11*	1,1	128	●	63,8	20,7		19,0	18,1	17,1	16,0	14,6	13,2	10,7					
25-160/15*	1,5	141	○	55,9	24,4		23,0	22,0	20,7	19,2	17,4	15,4	12,1	9,7				
25-160/22	2,2	154	●	58,1	30,6		29,2	28,4	27,3	25,9	24,2	22,2	19,0	16,7				
25-200/30	3	178	○	55,0	38,8		35,7	34,5	33,2	31,6	29,7	27,6	24,0	21,4				
25-200/40	4	195	●	57,6	48,4		45,6	44,7	43,6	42,2	40,7	38,9	35,8	33,5	31,0			
25-250/55	5,5	203	○	50,3	53,0	51,5	50,7	49,8	48,7	47,4	45,8	44,1	41,0					
25-250/75	7,5	223,5	○	48,7	66,5		64,4	63,4	62,1	60,7	59,0	57,0	53,8	51,3	48,6			
25-250/110	11	244,5	●	49,0	82,4		79,7	78,6	77,4	75,9	74,3	72,5	69,4	67,2	64,8	62,2	59,4	
32-125/07*	0,75	114	○	62,4	16,0		14,4	13,5	12,5	11,4	10,2	8,9	6,6					
32-125/11*	1,1	128	●	64,4	20,7		19,0	18,2	17,2	16,1	14,8	13,5	11,2	9,7				
32-160/15*	1,5	141	○	57,2	24,6		23,3	22,4	21,2	19,7	18,1	16,3	13,3	11,1				
32-160/22	2,2	154	●	60,7	30,8		29,7	28,9	27,9	26,6	25,1	23,5	20,8	18,8	16,7			
32-200/30	3	178	○	56,8	39,4		36,7	35,7	34,5	33,2	31,7	30,0	27,2	25,1				
32-200/40	4	195	●	56,4	49,0		45,8	44,7	43,3	41,8	40,1	38,2	35,1	32,7	30,1			
32-250/55	5,5	203	○	50,7	53,0	51,7	51,0	50,1	49,0	47,8	46,3	44,6	41,6					
32-250/75	7,5	223,5	○	50,4	66,5		64,8	63,9	62,8	61,5	60,0	58,2	55,1	52,8	50,1			
32-250/110	11	244,5	●	50,1	82,1		80,3	79,3	78,0	76,5	74,8	73,0	70,1	68,1	65,9	63,5	61,0	

PUMP TYPE	P <sub>N</sub> kW	Ø Impeller (mm)		Q = DELIVERY														
		○ ● (1)	η <sub>p</sub> % (2)	l/s m <sup>3</sup> /h	0	3,9	4,7	5,8	6,7	7,5	8,6	9,4	10,6	11,4	12,2	13,3	14,2	
				H = TOTAL HEAD METRES COLUMN OF WATER														
40-125/11*	1,1	112	○	67,9	15,7	14,1	13,3	12,0	10,9	9,8	8,2	7,0	5,2					
40-125/15*	1,5	125	○	71,7	19,9		17,4	16,2	15,2	14,0	12,4	11,2	9,4	8,0				
40-125/22	2,2	133	●	70,5	23,4		20,3	19,4	18,3	16,8	15,6	13,8	12,3	10,8				
40-160/30	3	152	○	64,0	30,9		27,7	26,4	24,9	22,7	20,9	18,6	16,8	15,0				
40-160/40	4	171	●	69,4	37,9		34,4	33,2	31,8	29,7	27,9	25,4	23,4	21,4	18,6			
40-200/55	5,5	190	○	65,0	49,1		45,2	43,8	42,2	39,7	37,6	34,5	31,9	29,1	25,0			
40-200/75	7,5	209	●	66,5	58,2		53,9	52,4	50,8	48,4	46,3	43,3	40,9	38,2	34,4			
40-250/92	9,2	218	○	59,0	64,9		60,9	59,6	58,1	55,6	53,3	49,5	45,9					
40-250/110A	11	218	○	59,0	64,9		60,9	59,6	58,1	55,6	53,3	49,5	45,9					
40-250/110	11	233	○	58,5	74,6		70,3	69,0	67,6	65,2	63,1	59,6	56,4	52,7				
40-250/150	15	251	●	58,0	87,7		82,9	81,6	80,1	77,8	75,9	72,9	70,2	67,2	62,4	58,2		

PUMP TYPE	P <sub>N</sub> kW	Ø Impeller (mm)		Q = DELIVERY														
		○ ● (1)	η <sub>p</sub> % (2)	l/s m <sup>3</sup> /h	0	7,8	9,2	10,8	12,2	13,9	15,6	17,2	18,6	20,3	21,9	23,3	25,0	
				H = TOTAL HEAD METRES COLUMN OF WATER														
50-125/22	2,2	114	○	73,1	17,5	15,5	14,7	13,6	12,5	11,2	9,7	8,1	6,7					
50-125/30	3	123	○	74,1	20,6		18,5	17,4	16,3	14,9	13,4	11,7	10,3	8,6				
50-125/40	4	131	●	75,1	24,8		22,1	21,0	19,7	18,2	16,6	15,2	13,5	11,7	10,2			
50-160/55	5,5	158	○	71,7	33,8		30,5	29,3	27,7	25,9	24,0	22,3	20,2	18,0	16,1			
50-160/75	7,5	174	●	74,0	40,7		36,8	35,6	34,1	32,4	30,6	28,8	26,5	24,0	21,7	18,6		
50-200/92	9,2	197	○	70,0	52,9		46,4	44,6	42,0	39,1	35,9	32,9	29,0	24,6	20,8			
50-200/110A	11	197	○	70,0	52,9		46,4	44,6	42,0	39,1	35,9	32,9	29,0	24,6	20,8			
50-200/110	11	209	●	72,0	59,7		53,5	51,7	49,3	46,4	43,2	40,2	36,3	32,0	28,1			
50-250/150	15	224	○	69,5	70,2		65,9	64,6	62,7	60,3	57,3	54,3	50,0					
50-250/185	18,5	237	○	68,4	79,9		74,1	72,7	70,6	68,2	65,4	62,7	58,9	54,4				
50-250/220	22	250	●	67,3	88,9		83,7	82,2	80,2	77,8	75,0	72,4	68,8	64,7	60,7			

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A)

ESH-25-32-40-50\_2p50-en\_d\_th

(1) ● = Full impeller diameter - ○ = Trimmed impeller diameter (2) Hydraulic efficiency of pump.

\*Available also in single-phase version.

## ESH 65, 80 SERIES

### HYDRAULIC PERFORMANCE TABLE AT 50 Hz, 2 POLES

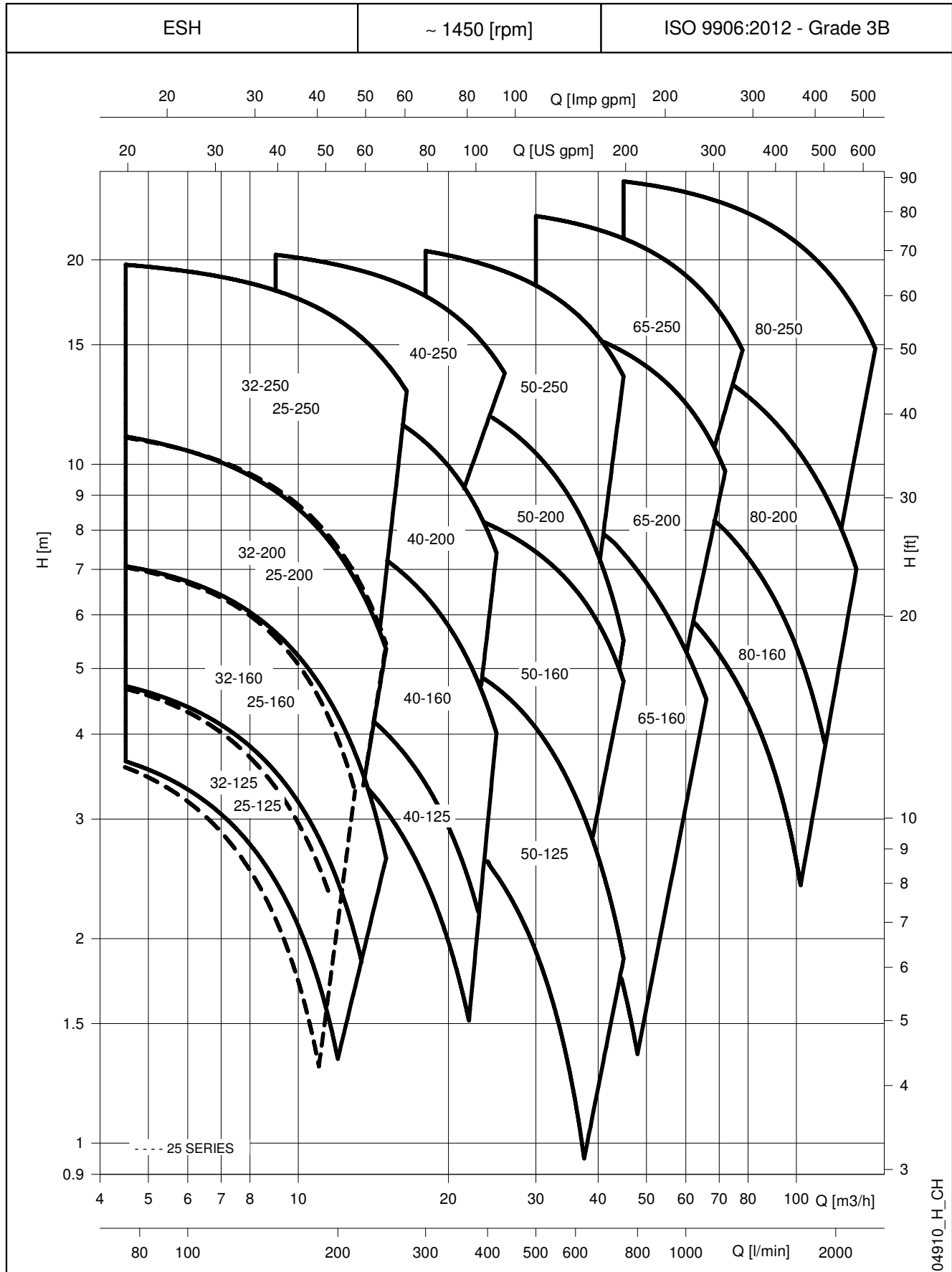
PUMP TYPE	P <sub>N</sub> kW	Ø Impeller (mm)			Q = DELIVERY												
		○ ● (1)	η <sub>p</sub> % (2)	l/s	8,1	10,6	13,3	15,8	18,3	21,1	23,6	26,4	28,9	31,4	34,2	36,7	
				m <sup>3</sup> /h	29	38	48	57	66	76	85	95	104	113	123	132	
H = TOTAL HEAD METRES COLUMN OF WATER																	
65-160/40	4	127	○	71,0	19,1	18,7	17,8	16,5	14,9	13,0	10,9	8,6	6,4				
65-160/55	5,5	140	○	75,1	24,6		23,4	22,2	20,8	19,1	17,2	15,1	12,7	10,1	7,4		
65-160/75	7,5	154	○	74,7	30,7			28,4	26,7	24,9	22,9	20,8	18,5	16,0	13,2		
65-160/92	9,2	164	○	77,6	35,7			33,8	32,5	30,9	28,9	26,5	23,8	20,8	17,5		
65-160/110A	11	164	○	77,6	35,7			33,8	32,5	30,9	28,9	26,5	23,8	20,8	17,5		
65-160/110	11	176	●	76,0	41,6				38,5	36,8	34,6	32,1	29,4	26,6			
65-200/150	15	192	○	70,0	53,6			50,0	48,1	45,9	43,2	40,3	37,0	33,4	29,7		
65-200/185	18,5	203	○	71,5	60,7				55,8	53,7	51,2	48,4	45,2	41,8	38,2		
65-200/220	22	210	●	71,5	63,9				60,4	58,6	56,4	53,9	51,0	47,8	44,3	40,7	
65-250/300	30	240	○	74,5	83,7					80,7	78,8	76,5	73,8	70,7	67,0	62,9	
65-250/370	37	255	●	73,5	96,5					93,8	91,8	89,4	86,7	83,6	80,1	76,3	

PUMP TYPE	P <sub>N</sub> kW	Ø Impeller (mm)			Q = DELIVERY												
		○ ● (1)	η <sub>p</sub> % (2)	l/s	20,0	24,2	28,6	32,8	36,9	41,1	45,6	49,7	53,9	58,1	62,5	66,7	
				m <sup>3</sup> /h	72	87	103	118	133	148	164	179	194	209	225	240	
H = TOTAL HEAD METRES COLUMN OF WATER																	
80-160/110	11	169x15°	○	75,0	34,0	31,7	30,3	28,4	26,2	23,6	20,7	17,7	14,6	11,6			
80-160/150	15	177	○	76,5	40,8	38,6	37,2	35,4	33,3	30,7	27,9	24,9	21,7	18,4	15,3		
80-160/185	18,5	186	●	78,0	47,8	45,4	44,1	42,4	40,3	38,0	35,3	32,4	29,3	26,0	22,6		
80-200/220	22	198	○	80,5	53,5	51,2	49,9	48,2	46,2	43,9	41,3	38,4	35,3	32,0	28,7		
80-200/300	30	215	○	81,0	64,0	62,4	61,2	59,7	57,7	55,4	52,7	49,7	46,5	43,0	39,5	36,1	
80-200/370	37	226	●	81,5	71,7	70,5	69,5	68,2	66,5	64,3	61,8	59,0	55,8	52,4	48,8	45,1	
80-250/450	45	237	○	79,5	83,9			78,8	76,5	73,8	70,6	66,9	62,9	58,5	53,8		
80-250/550	55	252	○	80,0	95,9			91,8	89,7	87,2	84,2	80,8	76,9	72,8	68,5		
80-250/750	75	270	●	78,0	112,2			108,4	106,5	104,1	101,2	98,0	94,3	90,2	85,9	81,4	

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A)

ESH-65-80\_2p50-en\_c\_th

(1) ● = Full impeller diameter - ○ = Trimmed impeller diameter (2) Hydraulic efficiency of pump.

**ESH SERIES**
**HYDRAULIC PERFORMANCE RANGE AT 50 Hz, 4 POLES**


## ESH 25, 32, 40, 50 SERIES

### HYDRAULIC PERFORMANCE RANGE AT 50 Hz, 4 POLES

PUMP TYPE	P <sub>N</sub> kW	Ø Impeller (mm)		Q = DELIVERY													
		○ ● (1)	η <sub>p</sub> % (2)	l/s	0,8	1,4	1,7	1,9	2,2	2,5	3,1	3,3	3,6	3,9	4,2	4,4	
				m <sup>3</sup> /h	0	3	5	6	7	8	9	11	12	13	14	15	16
H = TOTAL HEAD METRES COLUMN OF WATER																	
25-125/02A	0,25	114	○	56,1	4,0		3,5	3,2	2,9	2,5	2,1	1,3					
25-125/02	0,25	128	●	60,7	5,2		4,6	4,3	4,0	3,7	3,3	2,6					
25-160/02A	0,25	141	○	53,8	5,9		5,4	5,1	4,8	4,4	3,9	2,8	2,2				
25-160/02	0,25	154	●	56,6	7,4		6,9	6,7	6,4	6,0	5,6	4,5	3,9	3,3			
25-200/03	0,37	178,0	○	52,3	9,4		8,1	7,8	7,3	6,9	6,3	5,1	4,5	3,7			
25-200/05	0,55	195	●	54,5	12,0		10,8	10,5	10,1	9,7	9,2	8,2	7,5	6,9	6,2		
25-250/07	0,75	203	○	46,6	13,0		12,2	11,9	11,6	11,2	10,7	9,7	9,1	8,4	7,7	6,9	
25-250/11	1,1	223,5	○	46,6	16,4		15,8	15,5	15,1	14,6	14,1	12,9	12,3	11,6	10,8	10,1	9,3
25-250/15	1,5	244,5	●	46,7	20,4		19,5	19,2	18,9	18,5	18,0	17,0	16,3	15,7	14,9	14,1	13,3
32-125/02A	0,25	114	○	58,5	4,1		3,5	3,3	3,1	2,8	2,4	1,7	1,3				
32-125/02	0,25	128	●	63,3	5,2		4,6	4,4	4,1	3,8	3,5	2,8	2,4	2,0			
32-160/02A	0,25	141	○	55,2	6,0		5,5	5,2	4,9	4,5	4,1	3,2	2,6				
32-160/02	0,25	154	●	57,9	7,5		7,0	6,7	6,4	6,1	5,7	4,8	4,3	3,8	3,2	2,6	
32-200/03	0,37	178	○	53,7	9,4		8,2	7,9	7,5	7,1	6,6	5,5	4,9	4,3			
32-200/05	0,55	195	●	53,9	12,0		10,8	10,5	10,1	9,6	9,1	8,0	7,4	6,8	6,1	5,3	
32-250/07	0,75	203	○	47,7	13,1		12,3	12,0	11,7	11,3	10,9	9,9	9,3	8,7	8,0	7,3	
32-250/11	1,1	223,5	○	47,7	16,4		15,9	15,6	15,3	14,8	14,4	13,2	12,6	11,9	11,2	10,4	9,6
32-250/15	1,5	244,5	●	48,2	20,4		19,6	19,3	19,0	18,6	18,2	17,3	16,7	16,1	15,4	14,7	13,9

PUMP TYPE	P <sub>N</sub> kW	Ø Impeller (mm)		Q = DELIVERY													
		○ ● (1)	η <sub>p</sub> % (2)	l/s	0	2,2	2,8	3,1	3,6	4,2	4,4	5,0	5,3	5,8	6,4	6,7	6,9
				m <sup>3</sup> /h	0	8	10	11	13	15	16	18	19	21	23	24	25
H = TOTAL HEAD METRES COLUMN OF WATER																	
40-125/02A	0,25	125	○	69,2	4,9	4,3	4,0	3,8	3,5	3,1	2,9	2,4	2,2	1,7			
40-125/02	0,25	133	●	68,1	5,7		4,9	4,7	4,4	4,0	3,8	3,4	3,2	2,7	2,2	1,9	
40-160/03	0,37	152	○	61,4	7,4	6,6	6,2	6,0	5,5	5,0	4,7	4,1	3,8	3,2	2,5	2,2	
40-160/05	0,55	171	●	66,5	9,2		8,3	8,1	7,7	7,2	7,0	6,4	6,1	5,5	4,8	4,4	4,0
40-200/07	0,75	190	○	64,3	11,9		11,0	10,8	10,3	9,7	9,3	8,6	8,2	7,3	6,3	5,8	
40-200/11	1,1	209	●	62,9	14,2		13,1	12,9	12,4	11,8	11,5	10,8	10,4	9,5	8,5	8,0	7,4
40-250/11	1,1	218	○	55,8	15,6		14,4	14,2	13,7	13,0	12,7	11,9	11,4	10,3			
40-250/15	1,5	233	○	57,0	18,1		16,8	16,6	16,1	15,5	15,2	14,4	14,0	13,1	12,0	11,4	
40-250/22	2,2	251	●	58,1	21,5		20,1	19,9	19,4	18,8	18,4	17,7	17,3	16,4	15,4	14,8	14,2

PUMP TYPE	P <sub>N</sub> kW	Ø Impeller (mm)		Q = DELIVERY													
		○ ● (1)	η <sub>p</sub> % (2)	l/s	0	4,2	5,0	5,6	6,4	7,2	8,1	8,6	9,4	10,3	11,1	11,7	12,5
				m <sup>3</sup> /h	0	15	18	20	23	26	29	31	34	37	40	42	45
H = TOTAL HEAD METRES COLUMN OF WATER																	
50-125/02	0,25	114	○	70,9	4,2	3,6	3,3	3,1	2,7	2,4	2,0	1,7	1,3	0,9			
50-125/03	0,37	123	○	72,5	4,9		4,2	4,0	3,6	3,2	2,8	2,6	2,1	1,7	1,2		
50-125/05	0,55	131	●	72,2	6,0		5,3	5,1	4,8	4,4	4,0	3,7	3,3	2,9	2,5	2,2	1,7
50-160/07	0,75	158	○	71,3	8,2		7,3	7,1	6,8	6,4	6,0	5,7	5,3	4,8	4,2	3,8	
50-160/11	1,1	174	●	73,0	9,8		8,8	8,6	8,3	7,9	7,6	7,3	6,9	6,4	5,8	5,4	4,8
50-200/11	1,1	197	○	69,1	12,8		11,2	10,8	10,2	9,6	8,8	8,3	7,4	6,5	5,5	4,8	
50-200/15	1,5	209	●	70,1	14,7		13,0	12,7	12,1	11,4	10,6	10,1	9,3	8,3	7,3	6,6	5,5
50-250/22A	2,2	224	○	70,0	17,4		16,0	15,7	15,2	14,6	14,0	13,5	12,7	11,7	10,6	9,7	
50/250/22	2,2	237	○	69,0	19,4		17,8	17,5	17,0	16,4	15,7	15,2	14,4	13,5	12,4	11,6	
50-250/30	3	250	●	67,9	21,9		20,6	20,3	19,8	19,2	18,6	18,1	17,3	16,4	15,4	14,7	13,5

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A)

ESH-25-32-40-50\_4p50-en\_c\_th

(1) ● = Full impeller diameter - ○ = Trimmed impeller diameter (2) Hydraulic efficiency of pump.



## ESH 65, 80 SERIES

### HYDRAULIC PERFORMANCE RANGE AT 50 Hz, 4 POLES

PUMP TYPE	P <sub>N</sub> kW	Ø Impeller (mm)			Q = DELIVERY												
		○ ● (1)	η <sub>p</sub> % (2)	l/s	0	4,2	5,6	7,2	8,9	10,6	11,9	13,6	15,3	16,9	18,3	20,0	21,7
				m <sup>3</sup> /h	0	15	20	26	32	38	43	49	55	61	66	72	78
H = TOTAL HEAD METRES COLUMN OF WATER																	
65-160/05	0,55	127	○	69,1	4,7	3,7	3,2	2,7	2,2	1,6							
65-160/07	0,75	140	○	72,8	6,1	5,2	4,8	4,3	3,8	3,3	2,7						
65-160/11A	1,1	154	○	74,7	7,7	6,8	6,4	5,9	5,4	4,8	4,2	3,5	2,8				
65-160/11	1,1	164	○	73,9	8,7	7,8	7,4	6,9	6,4	5,9	5,3	4,7	4,0				
65-160/15	1,5	176	●	73,2	10,2	9,5	9,1	8,6	8,0	7,3	6,7	6,0	5,4	4,8			
65-200/15	1,5	187	○	67,4	12,1	10,6	10,0	9,3	8,6	7,8	7,0	6,1	5,2				
65-200/22	2,2	203	○	68,9	14,6	13,2	12,6	12,0	11,3	10,5	9,7	8,8	7,9	7,0			
65-200/30	3	219	●	70,8	17,5	16,3	15,9	15,3	14,8	14,1	13,4	12,6	11,7	10,8	9,8		
65-250/40	4	240	○	71,9	20,4		19,3	18,8	18,3	17,6	16,9	16,1	15,2	14,2	13,0		
65-250/55	5,5	255	●	71,0	23,7		23,1	22,6	22,0	21,4	20,7	19,9	19,1	18,1	17,1	16,0	14,7

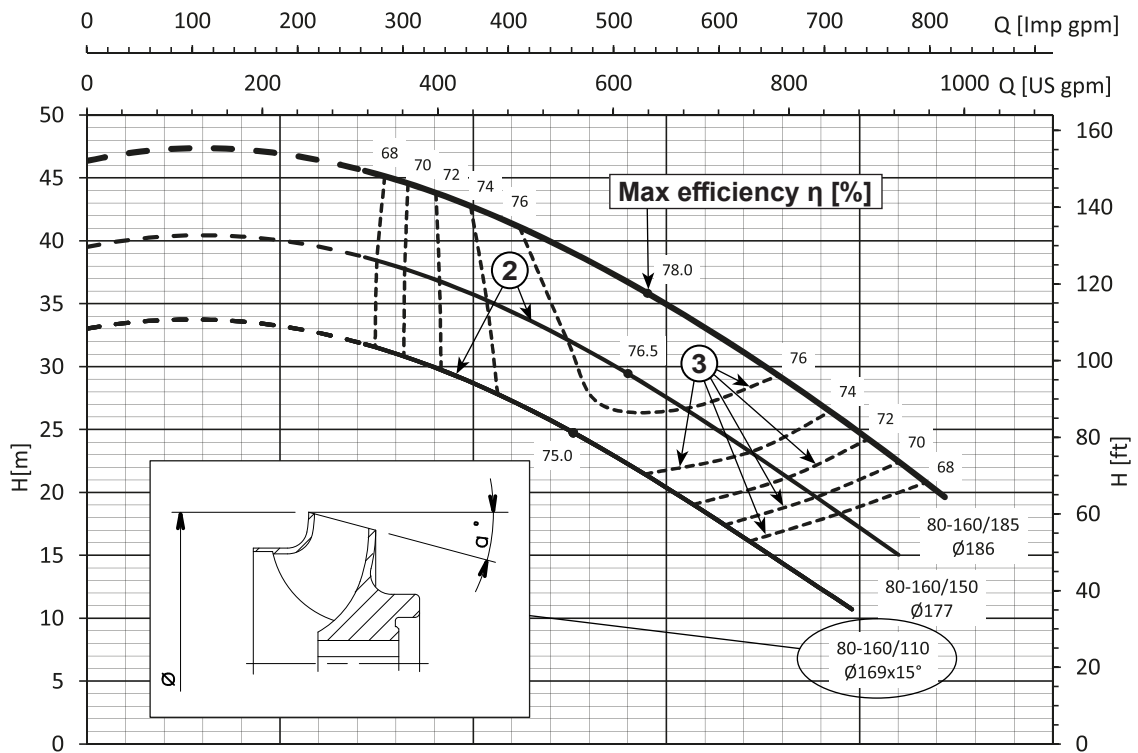
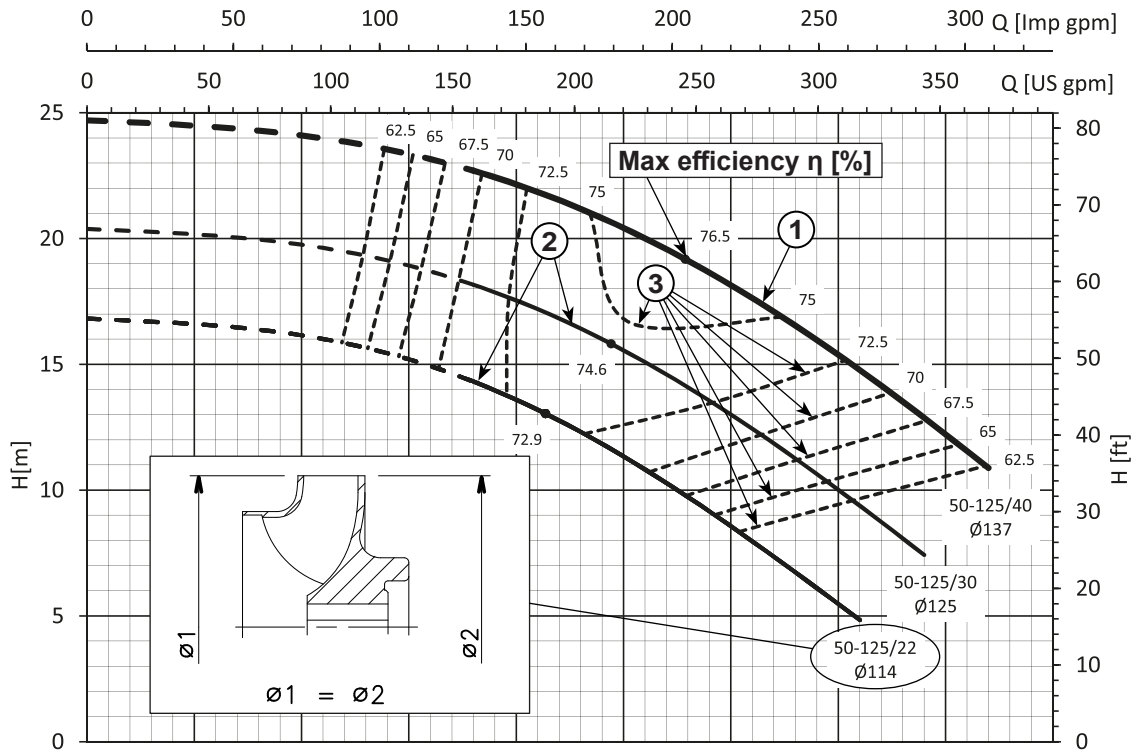
PUMP TYPE	P <sub>N</sub> kW	Ø Impeller (mm)			Q = DELIVERY												
		○ ● (1)	η <sub>p</sub> % (2)	l/s	0	10,0	12,8	15,6	18,1	20,8	23,6	26,4	29,2	31,9	34,4	37,2	40,0
				m <sup>3</sup> /h	0	36	46	56	65	75	85	95	105	115	124	134	144
H = TOTAL HEAD METRES COLUMN OF WATER																	
80-160/15	1,5	169x15°	○	75,2	8,0	7,6	7,0	6,3	5,6	4,8	4,0	3,1					
80-160/22A	2,2	177	○	74,2	9,4	9,0	8,5	7,8	7,1	6,3	5,4	4,5	3,5				
80-160/22	2,2	186	●	73,4	10,8	10,4	9,9	9,2	8,5	7,7	6,8	5,9	4,9				
80-200/30	3	198	○	80,5	12,3		11,9	11,2	10,4	9,5	8,5	7,5	6,4	5,3			
80-200/40	4	220	●	78,3	15,4		15,3	14,7	13,9	13,0	12,1	11,1	10,1	9,0	7,9		
80-250/55	5,5	237	○	77,5	20,3		19,5	18,8	17,9	16,9	15,8	14,4	12,9	11,2	9,3		
80-250/75	7,5	252	○	76,7	23,1		22,2	21,6	20,8	19,9	19,0	17,8	16,6	15,2	13,6		
80-250/110	11	270	●	74,3	26,6		26,1	25,5	24,7	23,9	22,9	21,8	20,6	19,3	17,9	16,4	14,8

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A)

ESH-65-80\_4p50-en\_c\_th

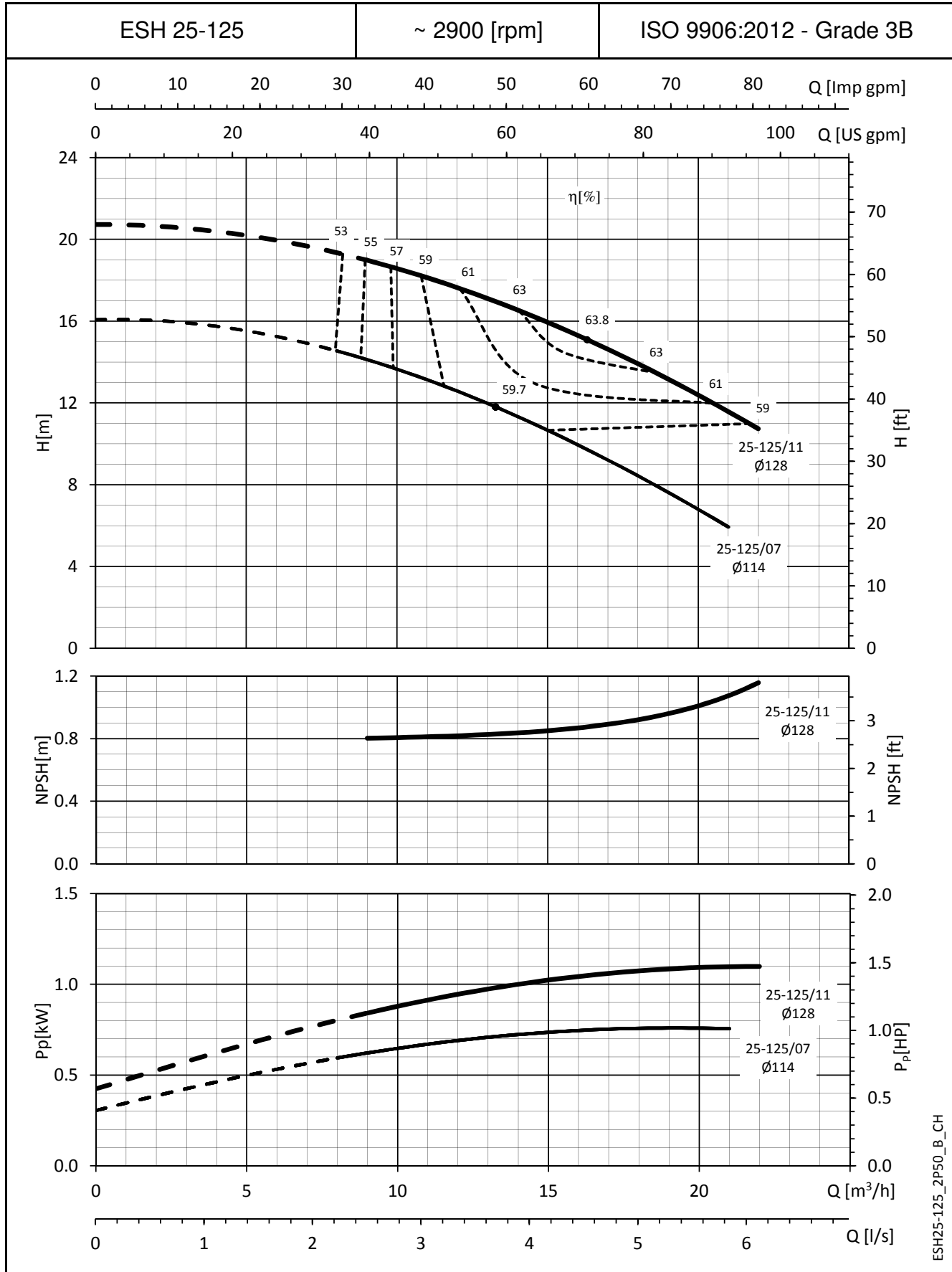
(1) ● = Full impeller diameter - ○ = Trimmed impeller diameter (2) Hydraulic efficiency of pump.

### ESH SERIES IDENTIFICATION OF IMPELLER TYPOLOGY



REF	TYPE	DESCRIPTION
①		Full Diameter impeller operating range
②		Trimmed diameter impeller operating range
③		Isoefficiency curves

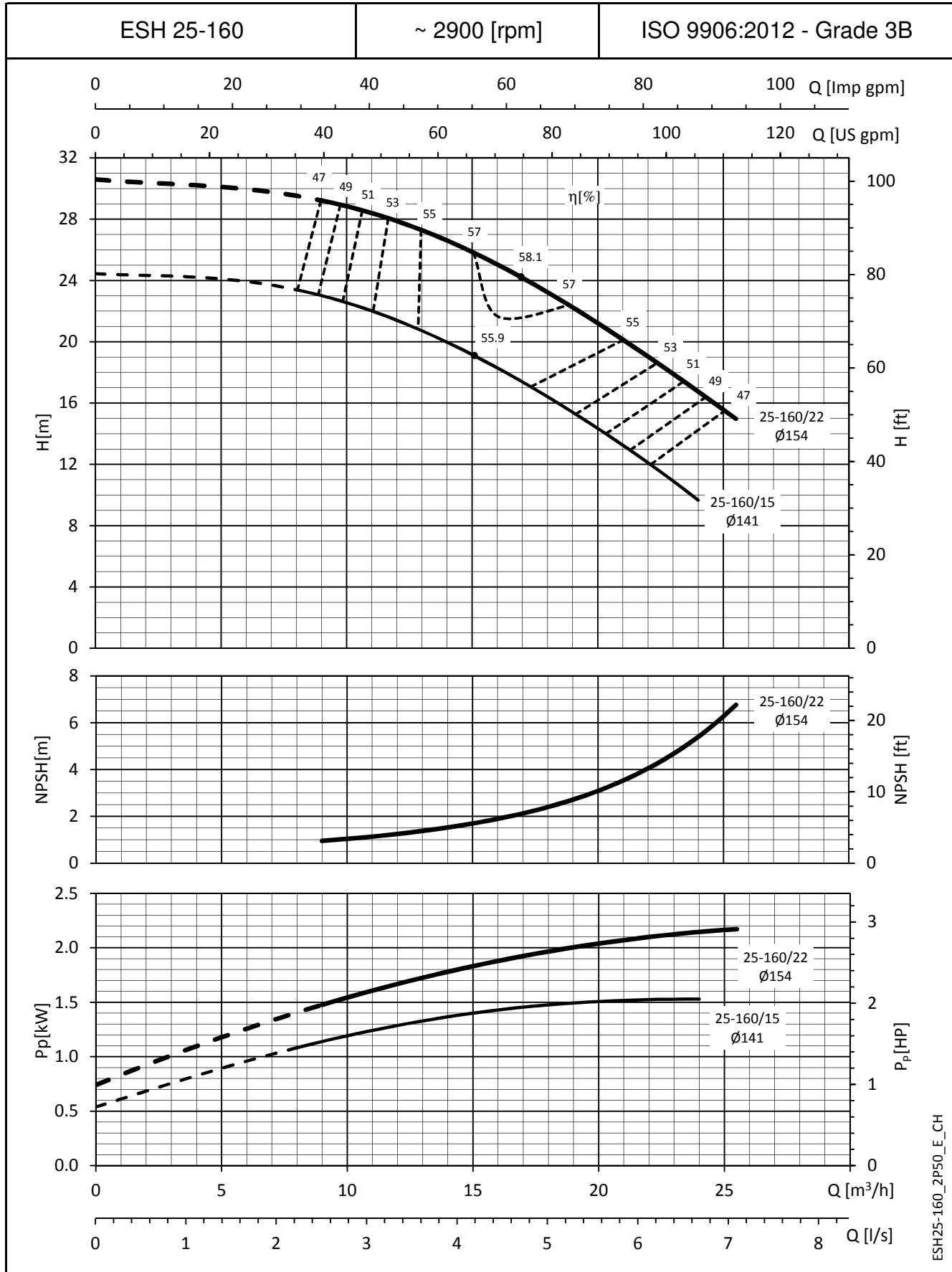
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**



ESH25-125\_2P50\_B\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

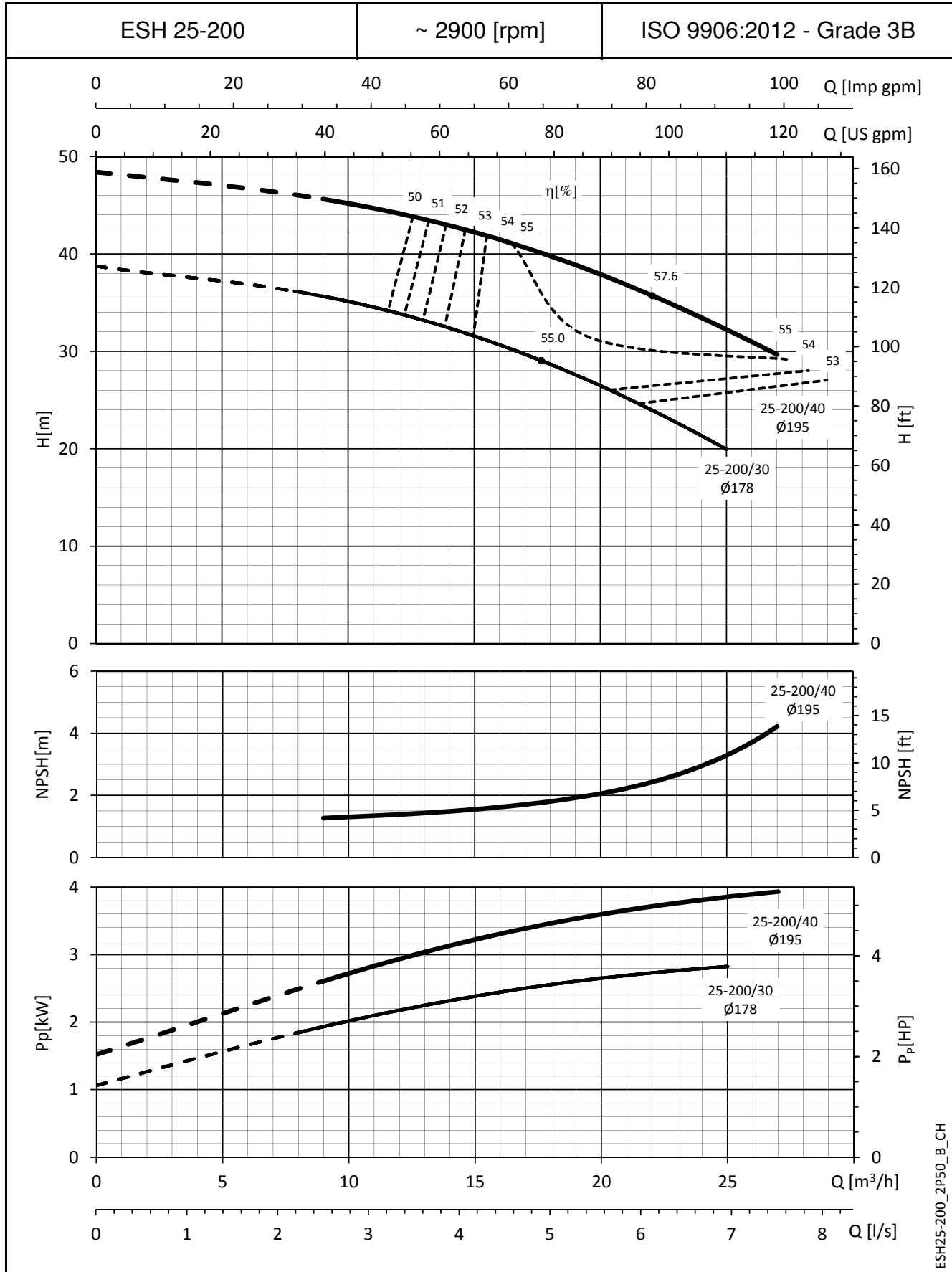
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**



ESH25-160\_2P50\_E\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

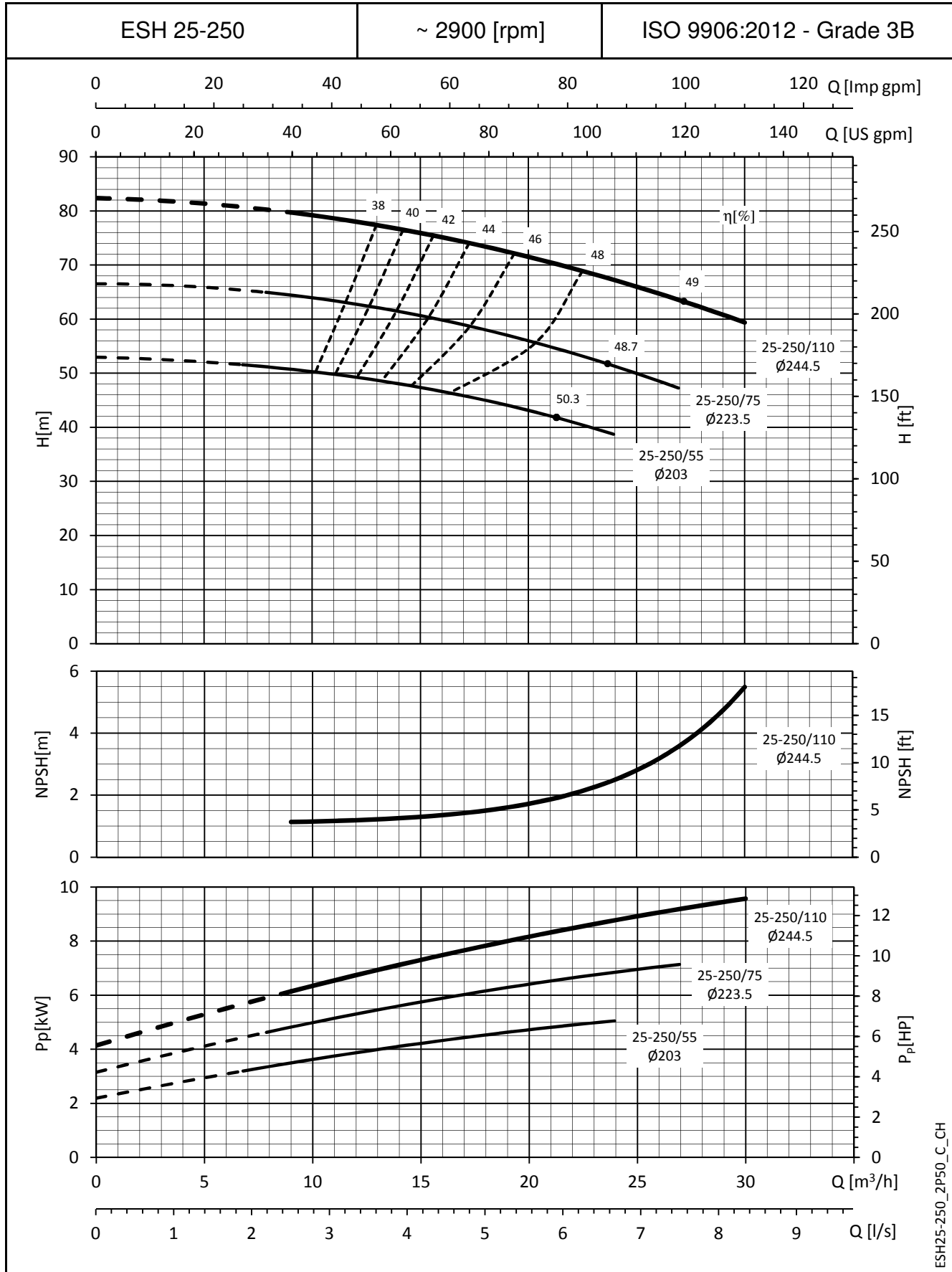
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**



ESH25-200\_2P50\_B\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

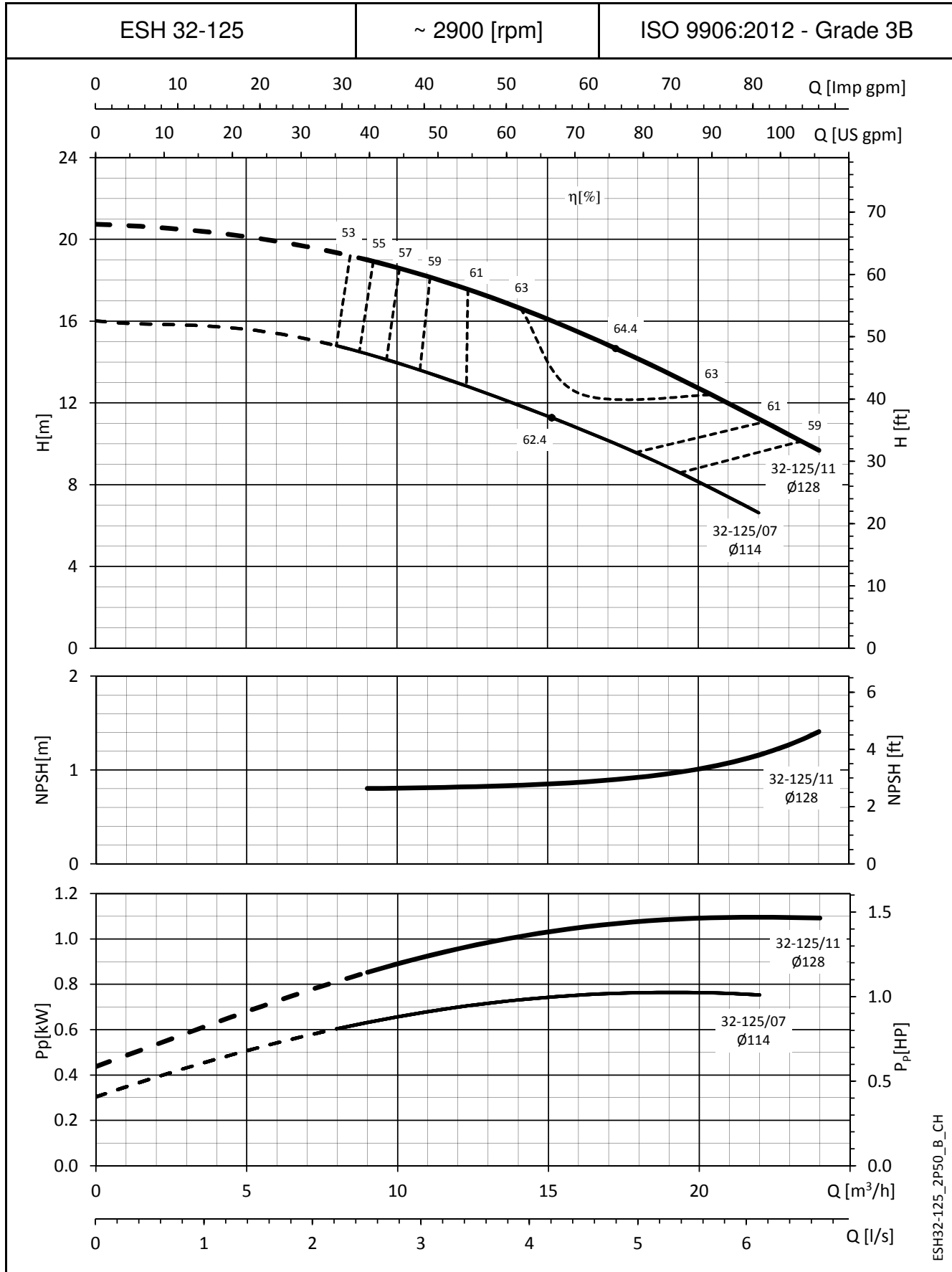
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**



ESH25-250\_2P50\_C\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

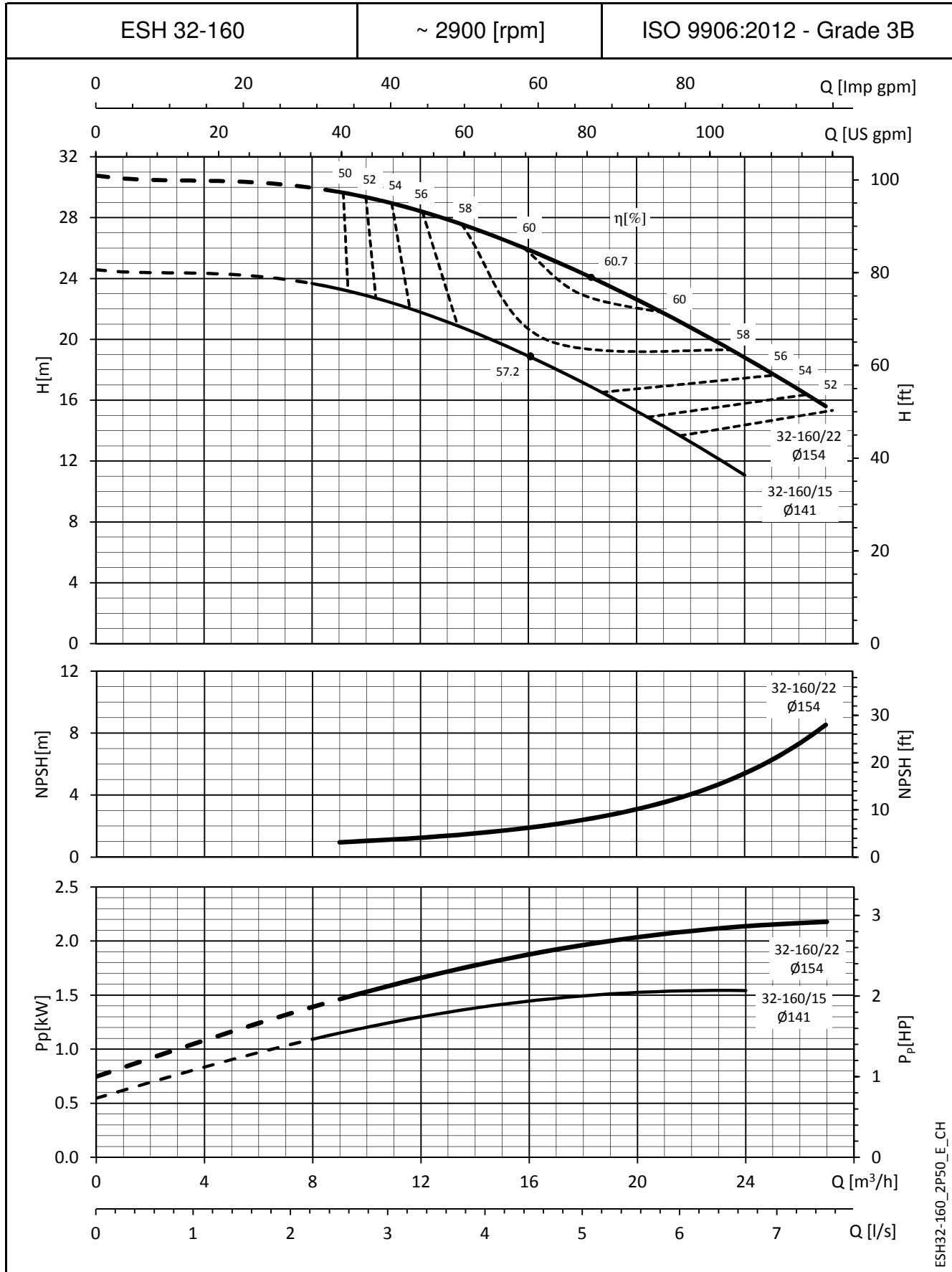
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**



ESH32-125\_2P50\_B\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**

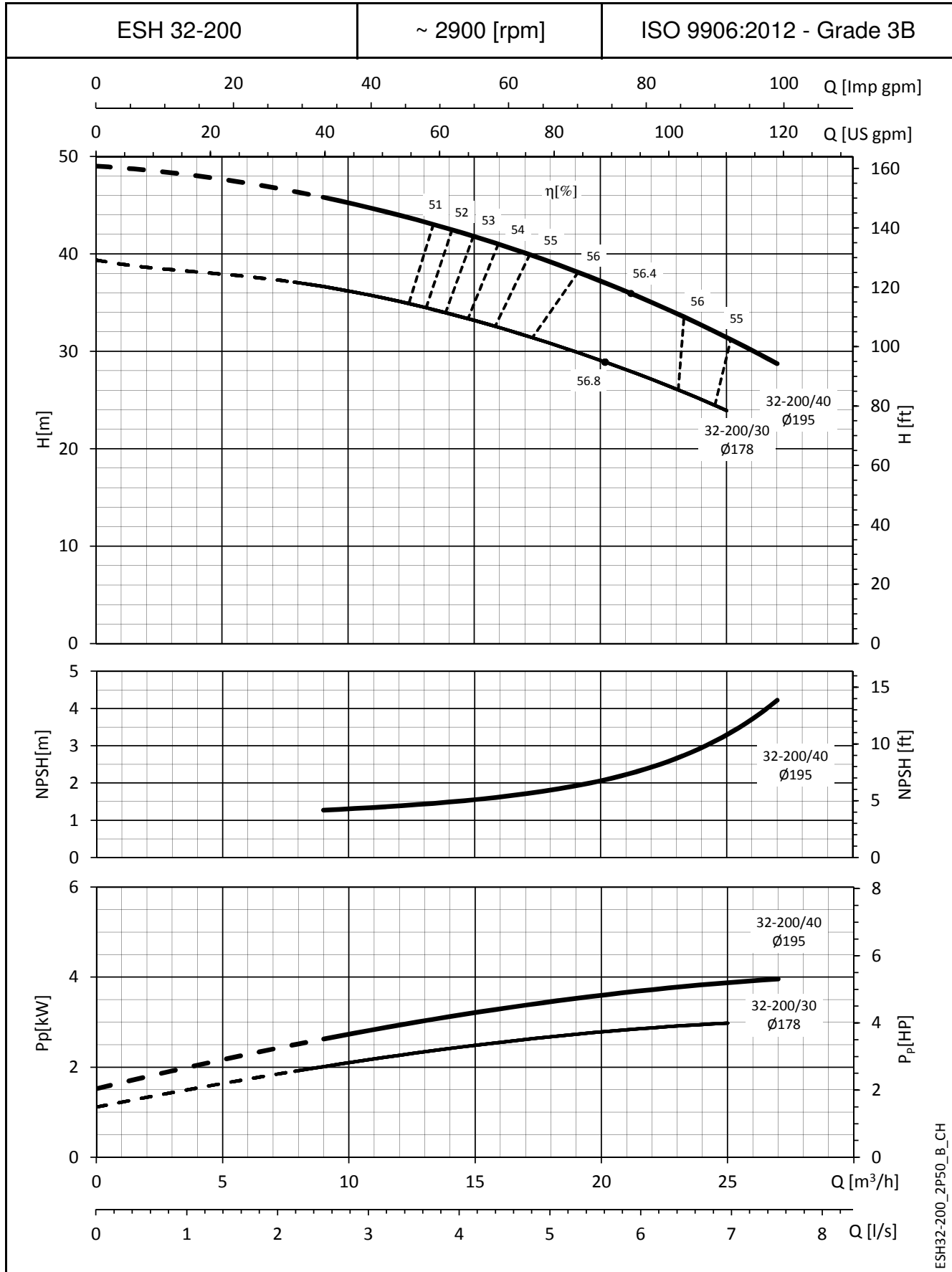


ESH32-160\_2P50\_E\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .



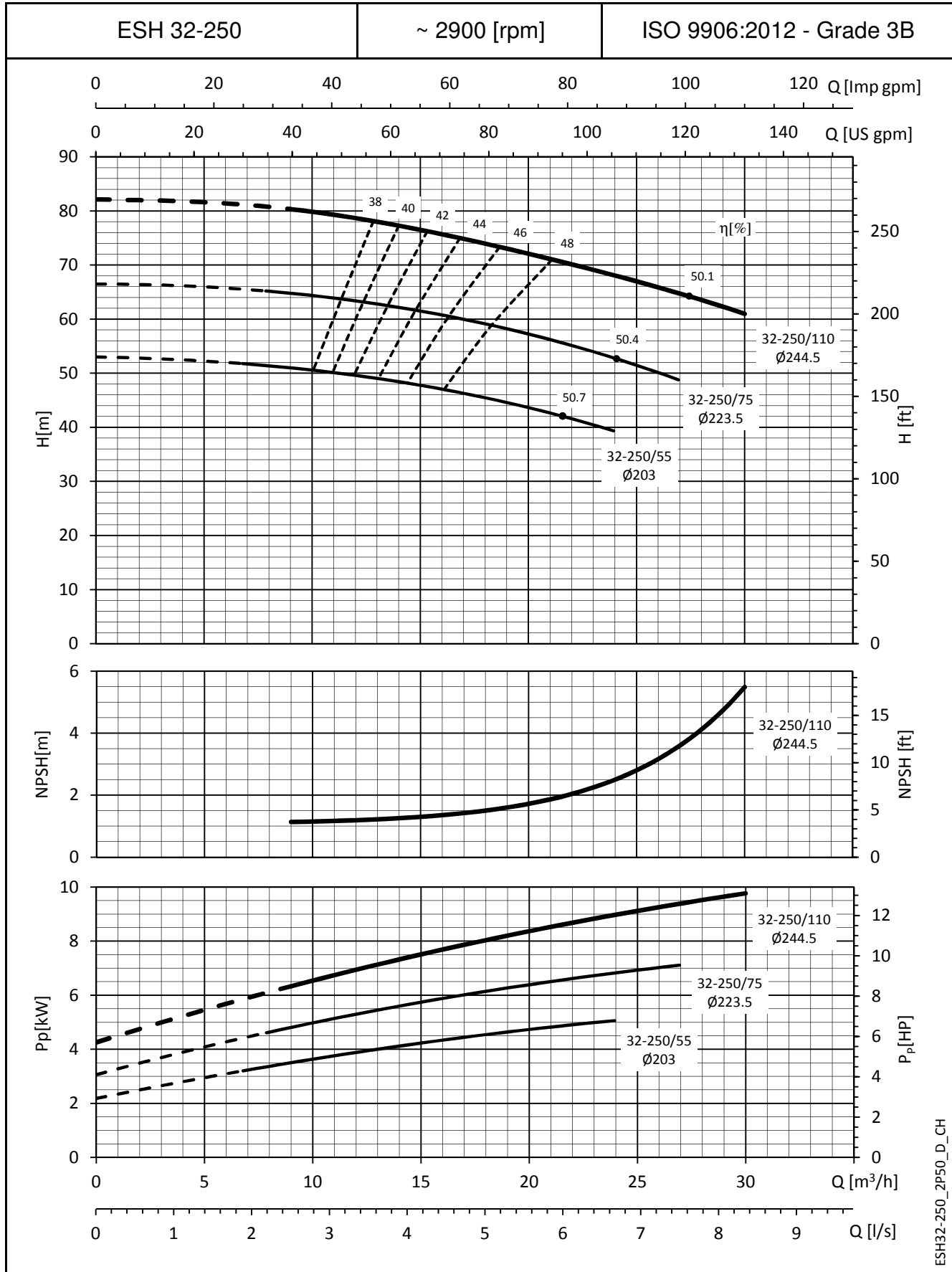
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**



ESH32-200\_2P50\_B\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

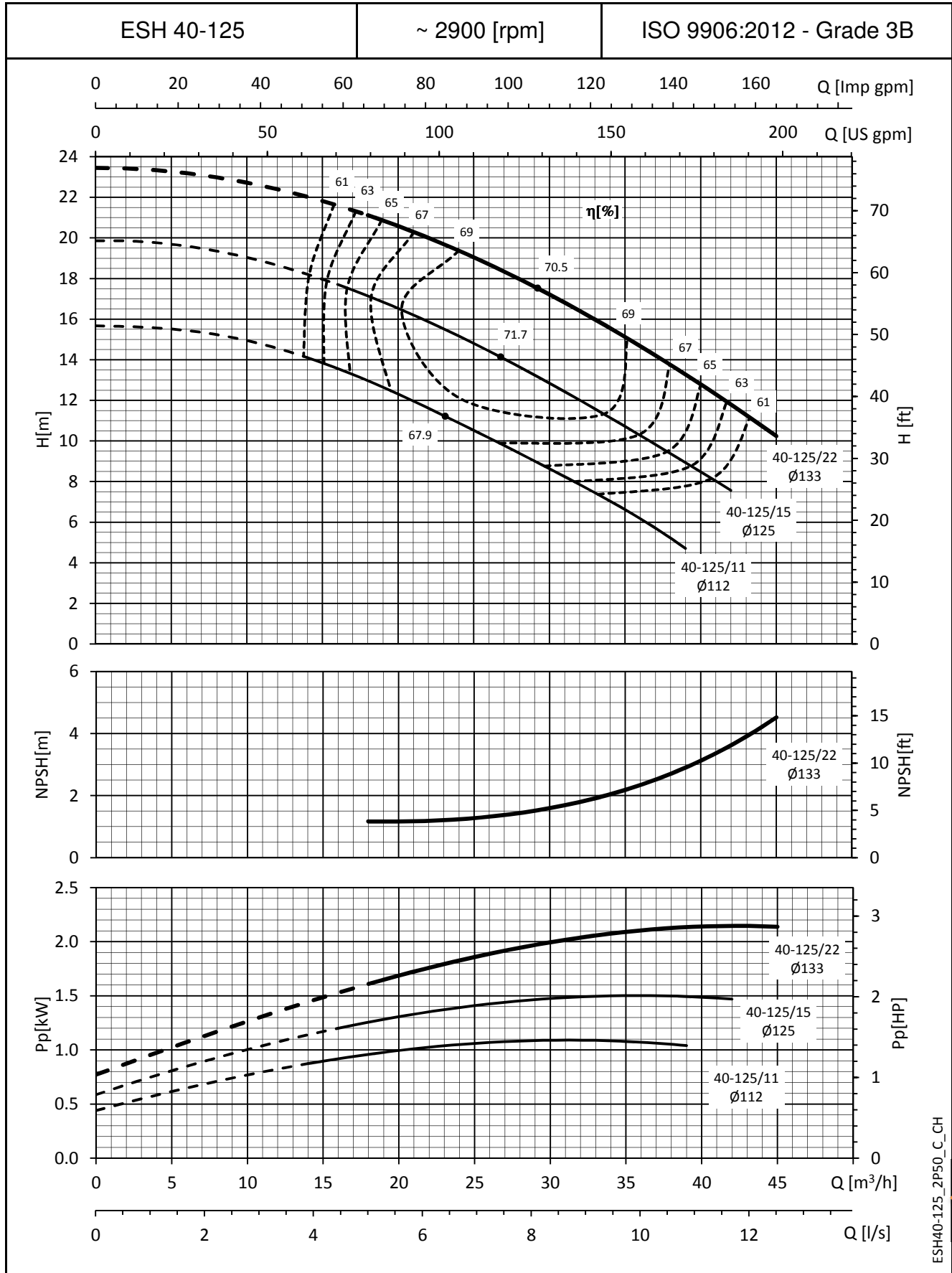
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**



ESH32-250\_2P50\_D\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

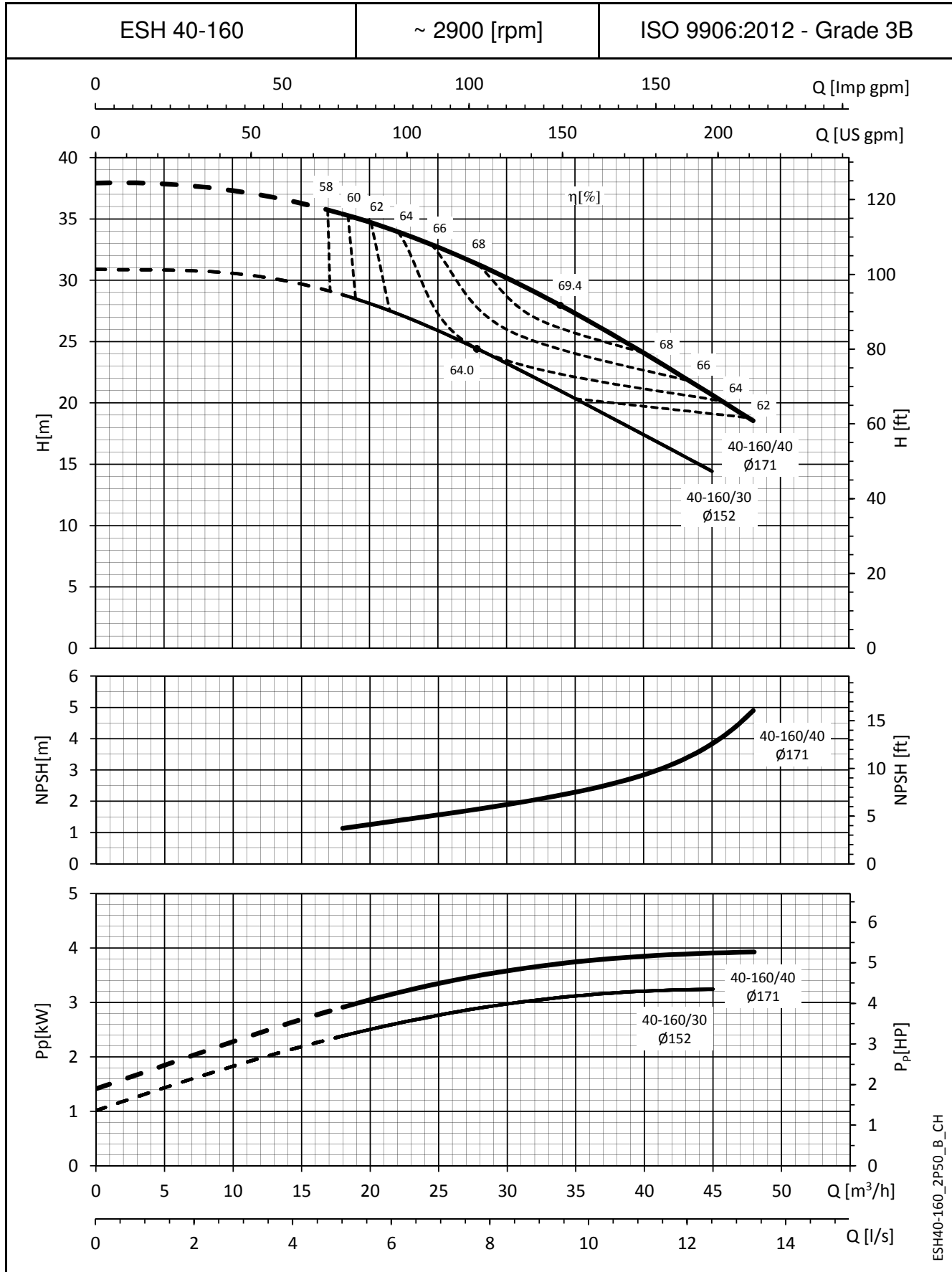
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**



ESH40-125\_2P50\_C\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

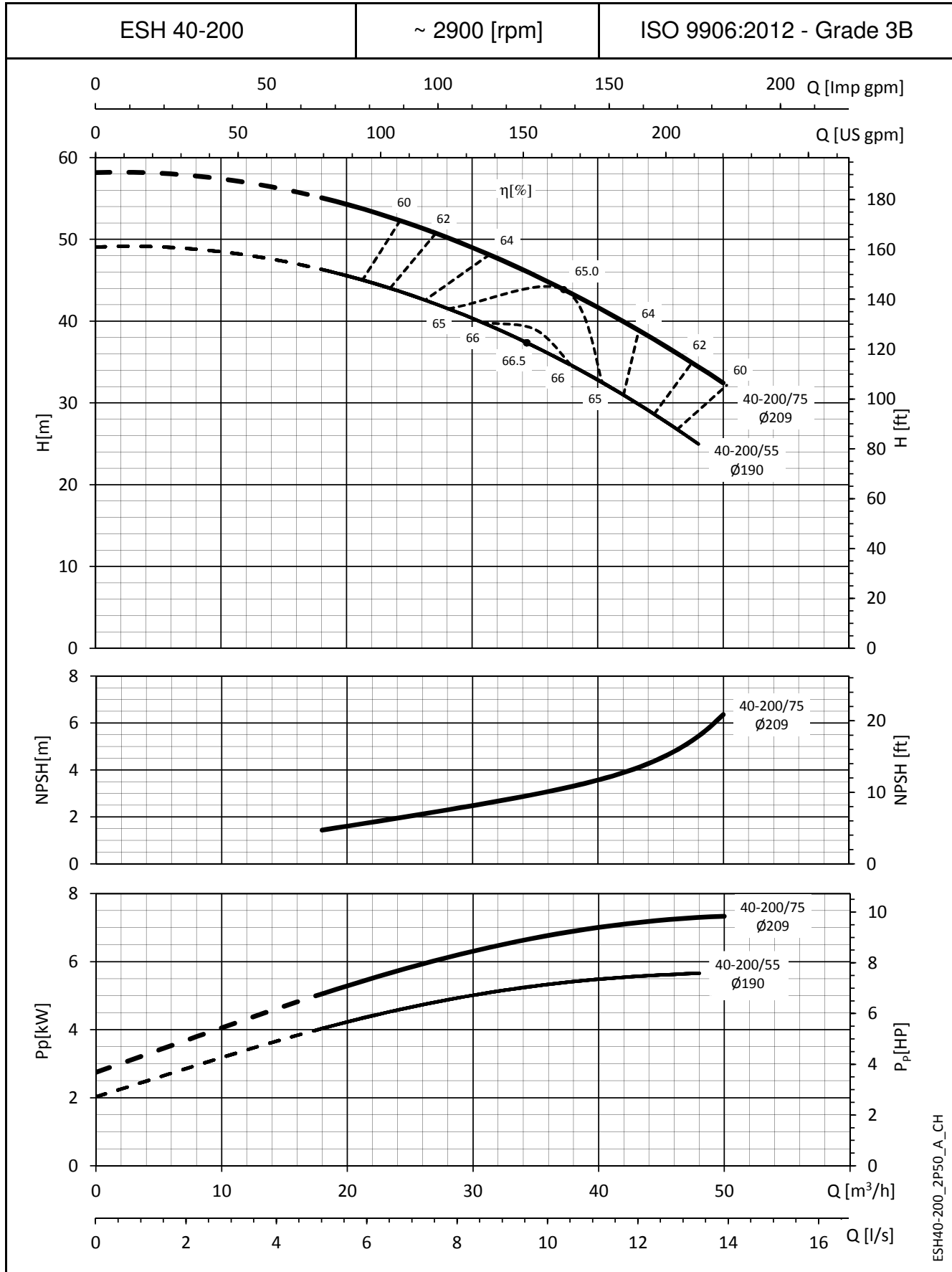
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**



ESH40-160\_2P50\_B\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

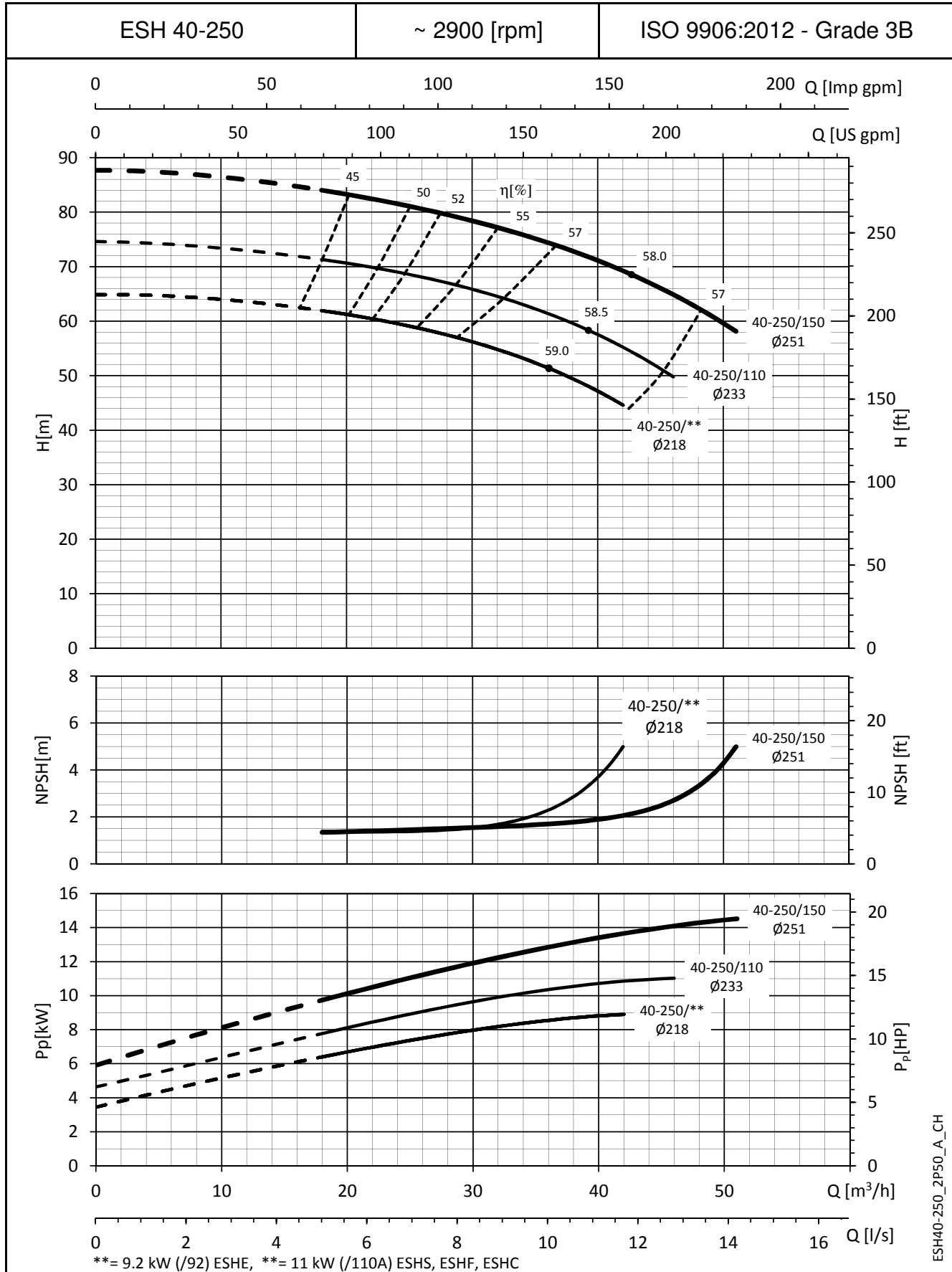
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**



ESH40-200\_2P50\_A\_CH

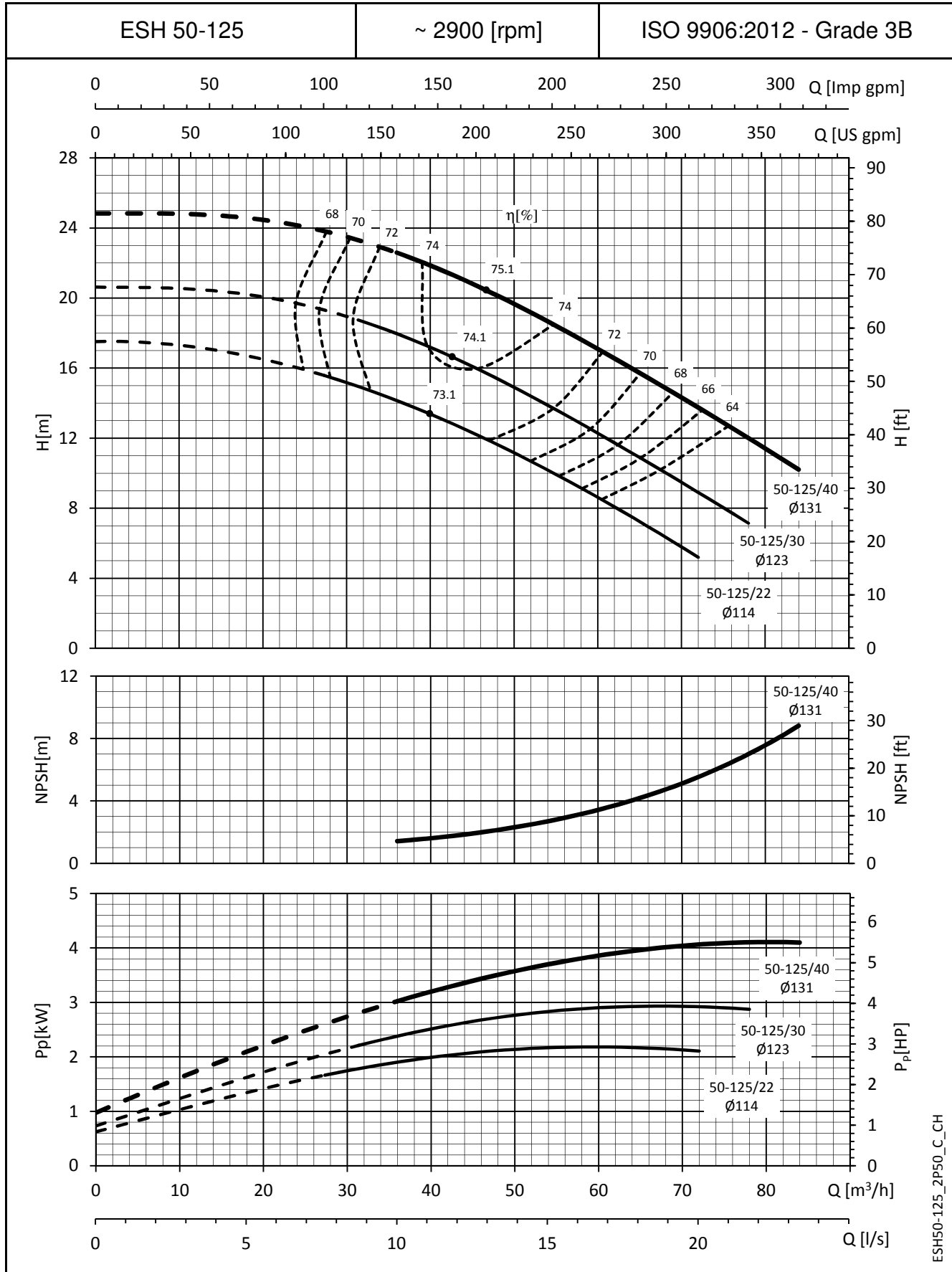
The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**



The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
 These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

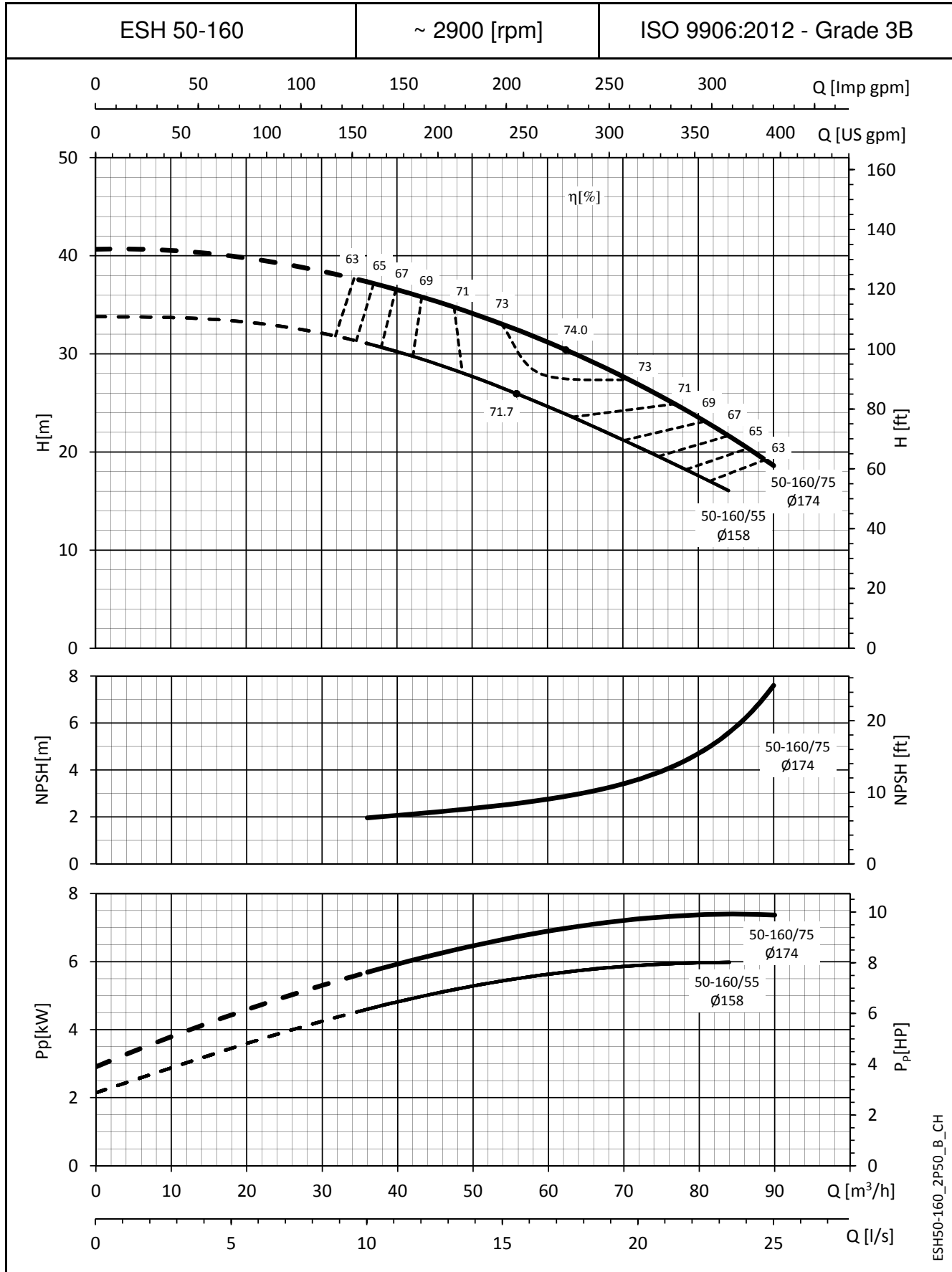
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**



ESH50-125\_2P50\_C\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**

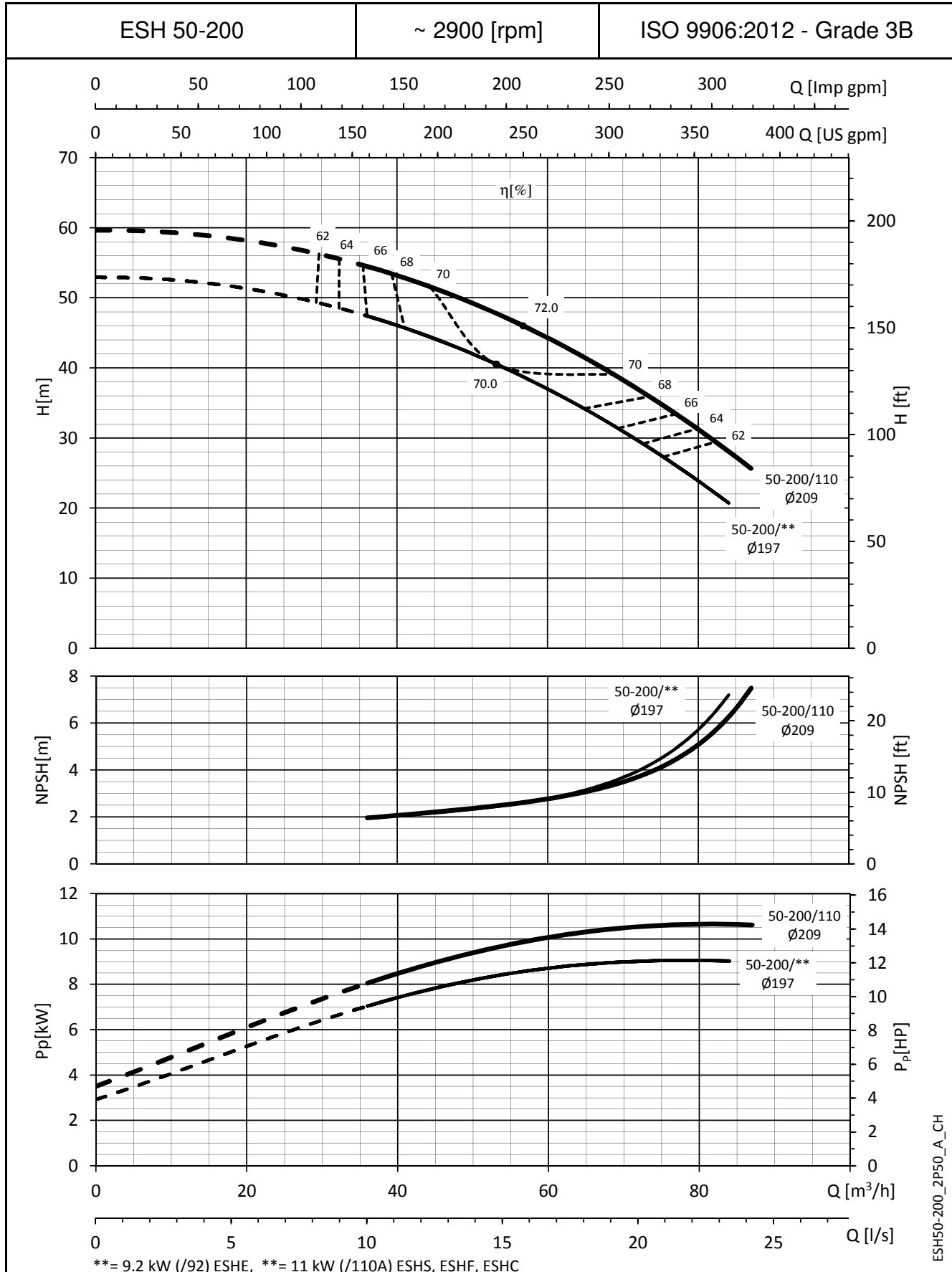


ESH50-160\_2P50\_B\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .



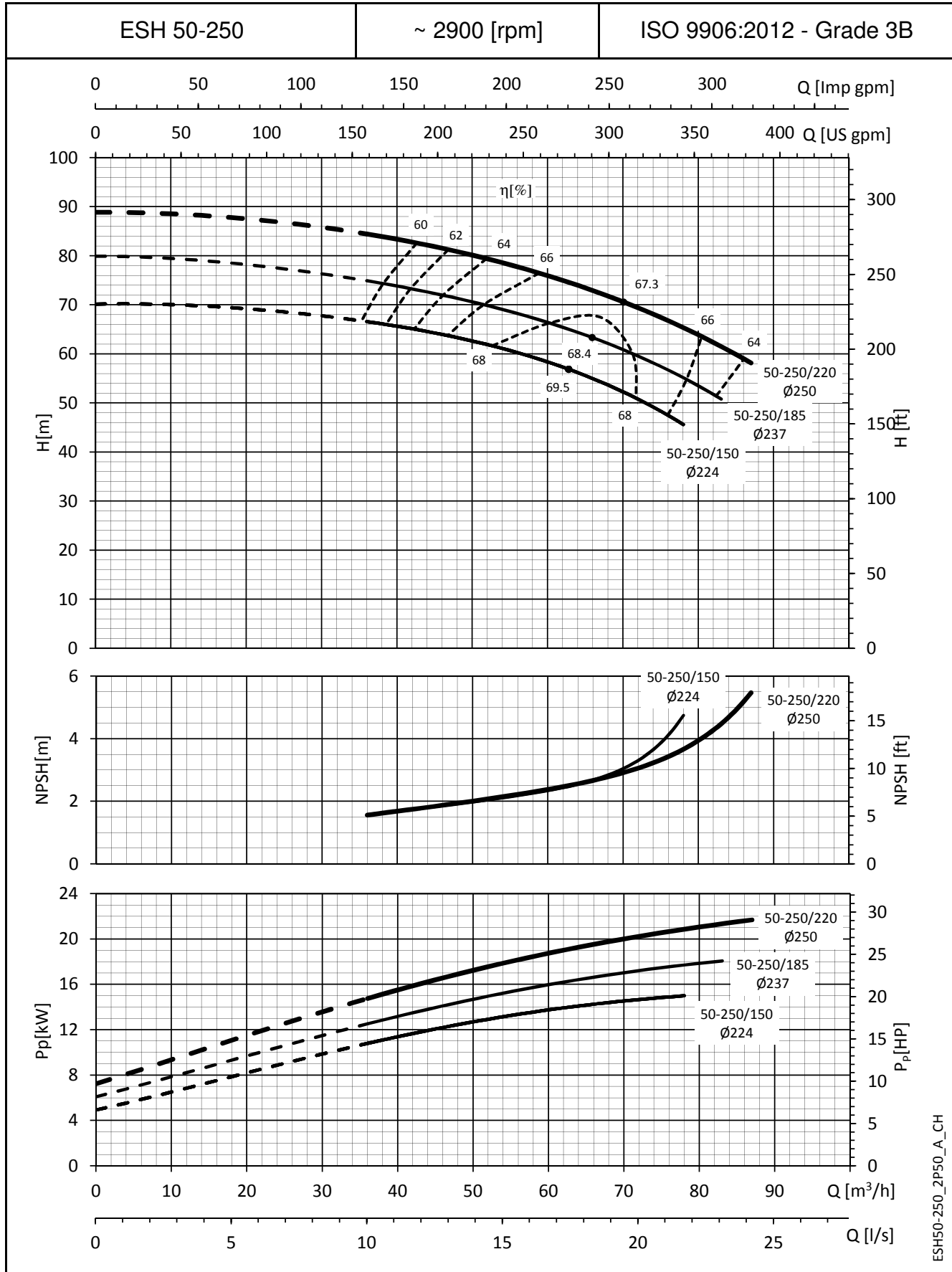
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**



\*\* = 9.2 kW (/92) ESHE, \*\* = 11 kW (/110A) ESHS, ESHF, ESHC

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

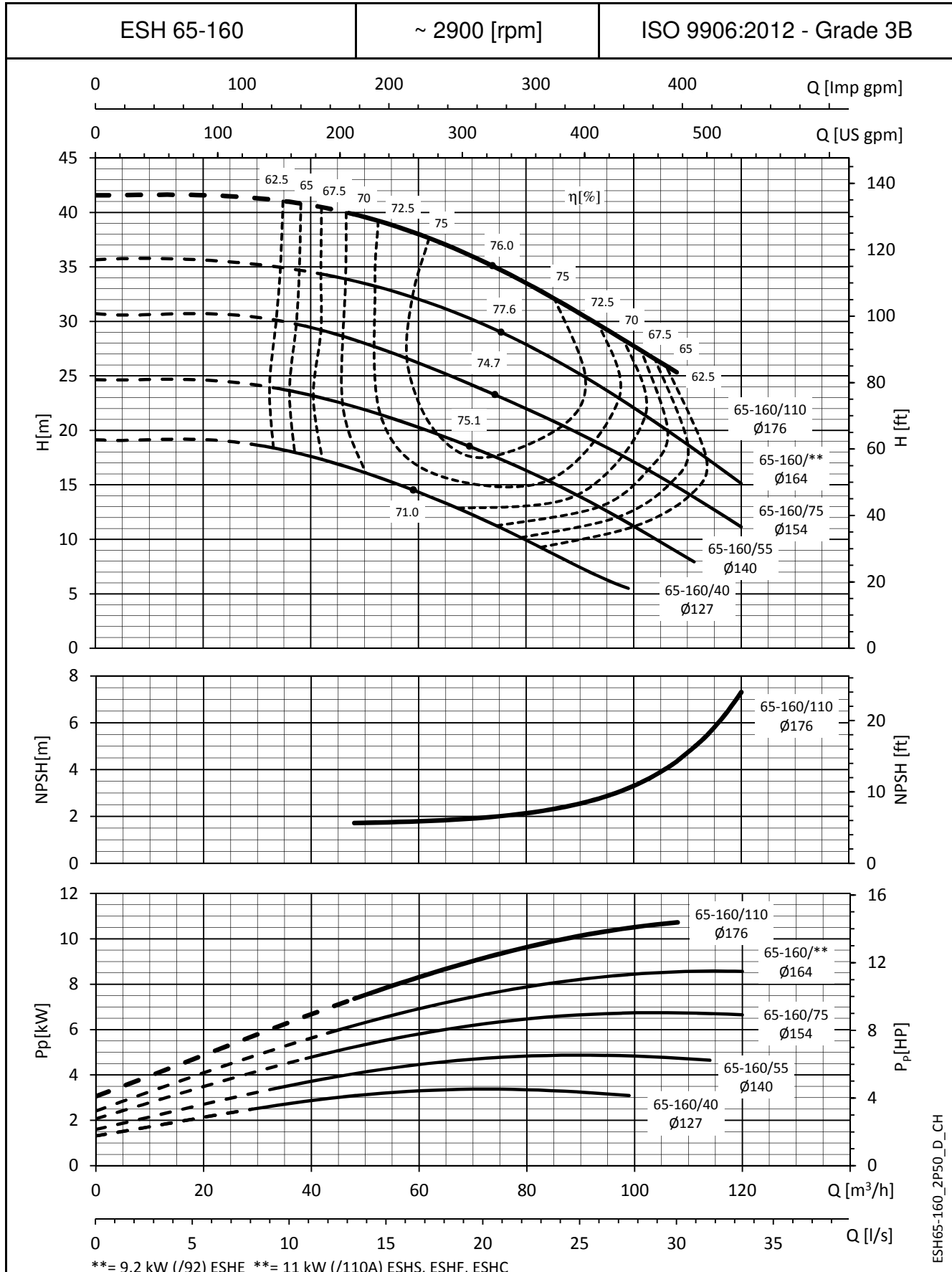
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**



ESH50-250\_2P50\_A\_CH

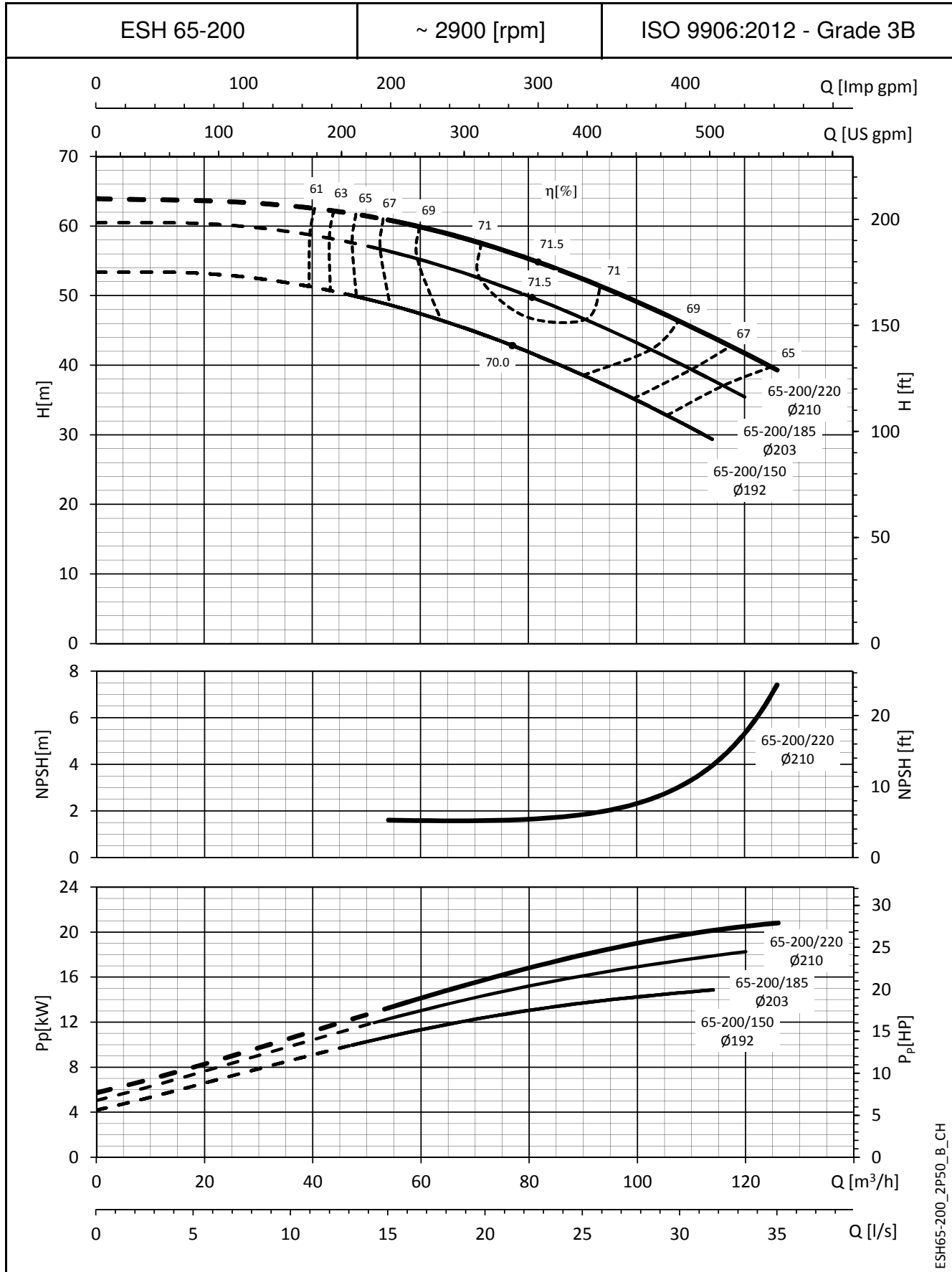
The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**



The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

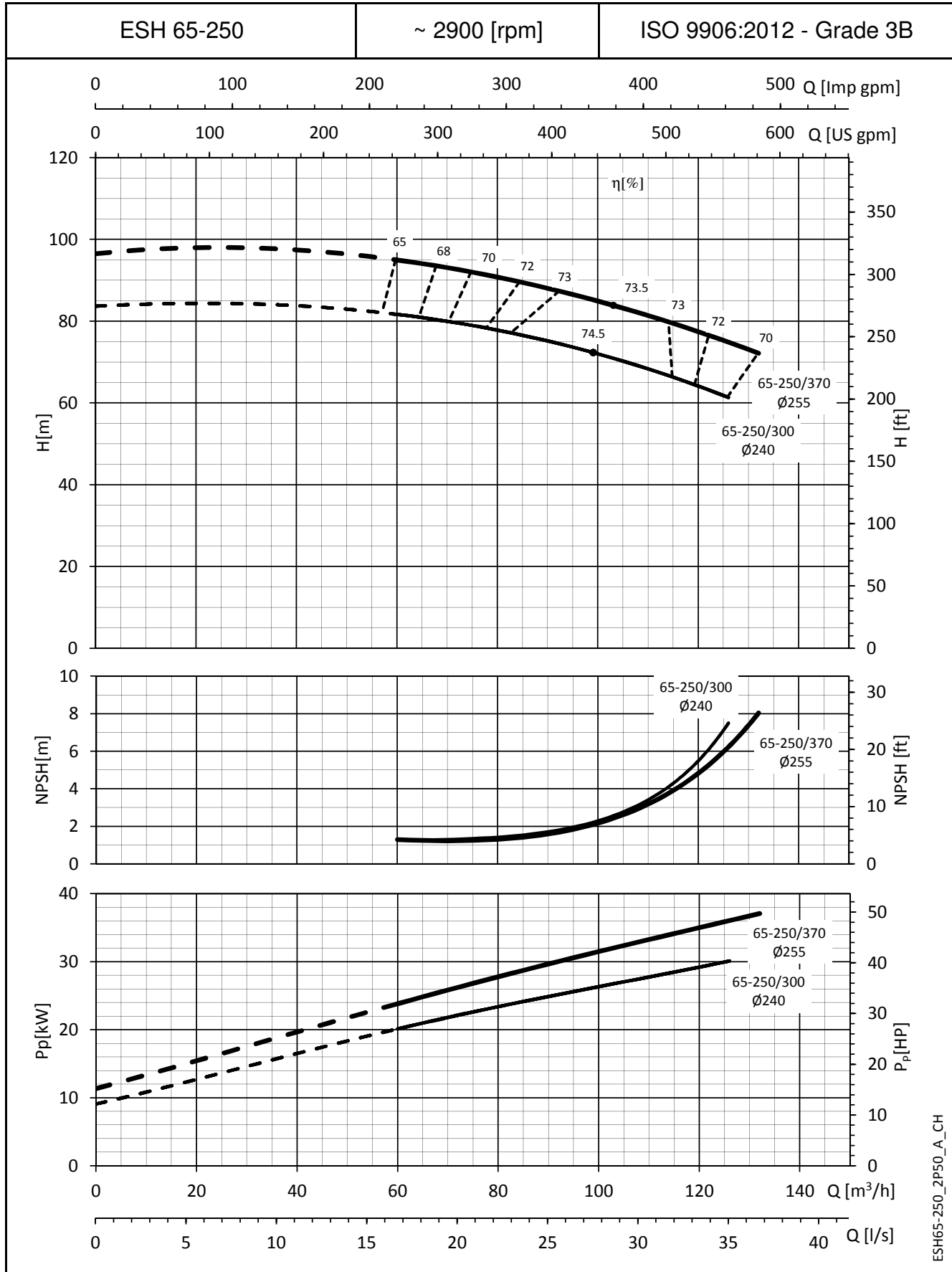
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**



ESH65-200\_2P50\_B\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

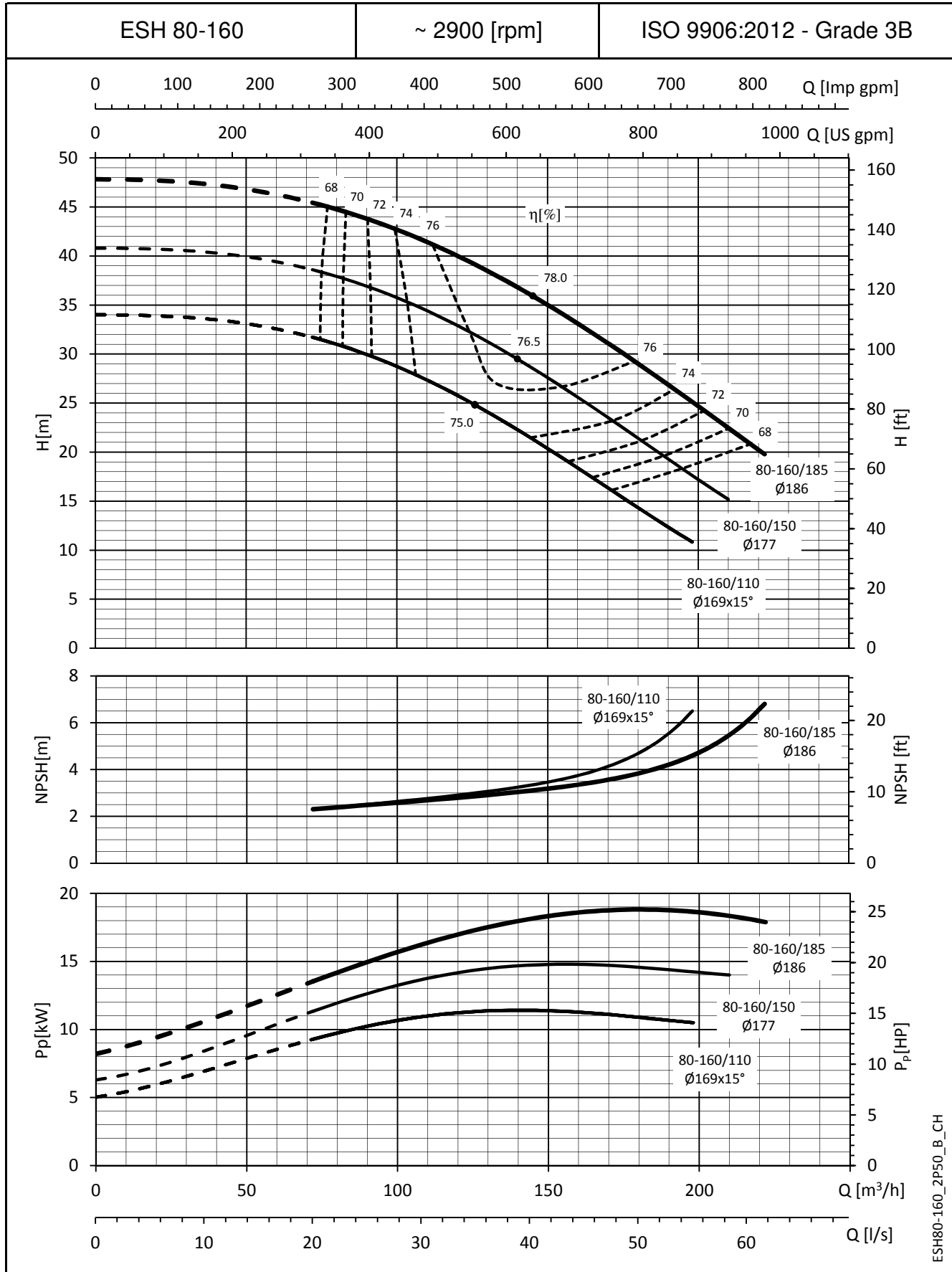
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**



ESH65-250\_2P50\_A\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

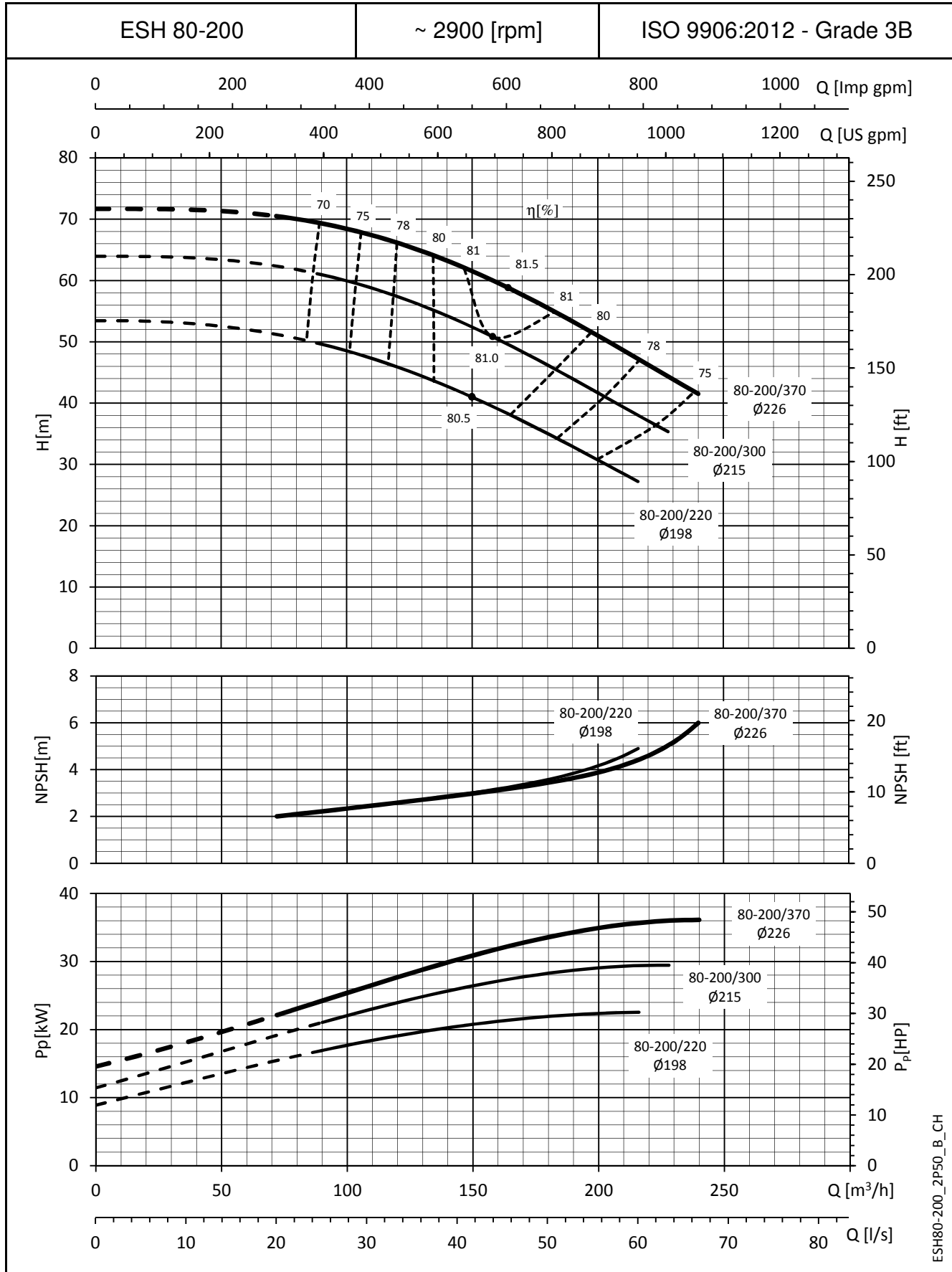
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**



ESH80-160\_2P50\_B\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

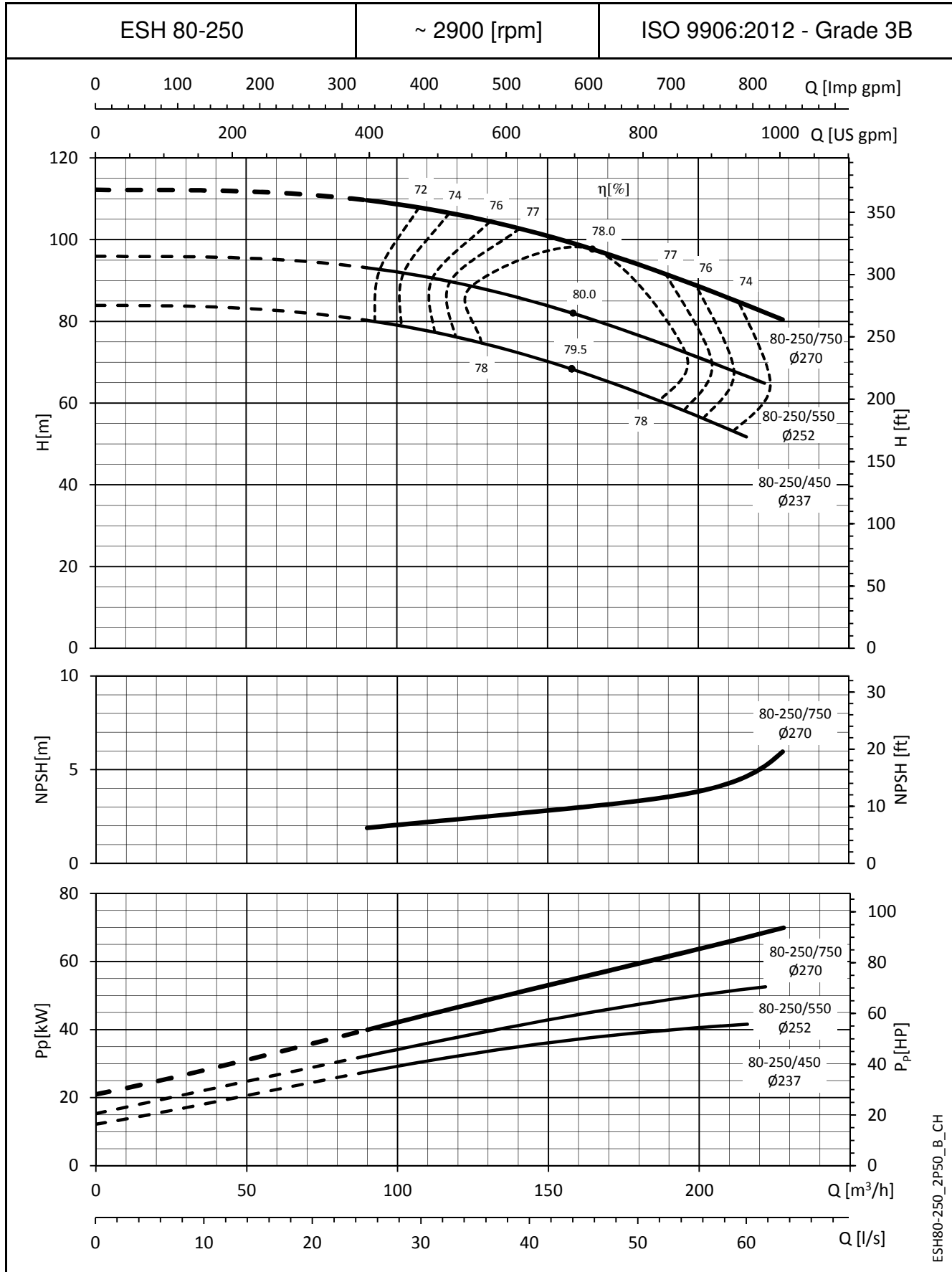
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**



ESH80-200\_2P50\_B\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES**

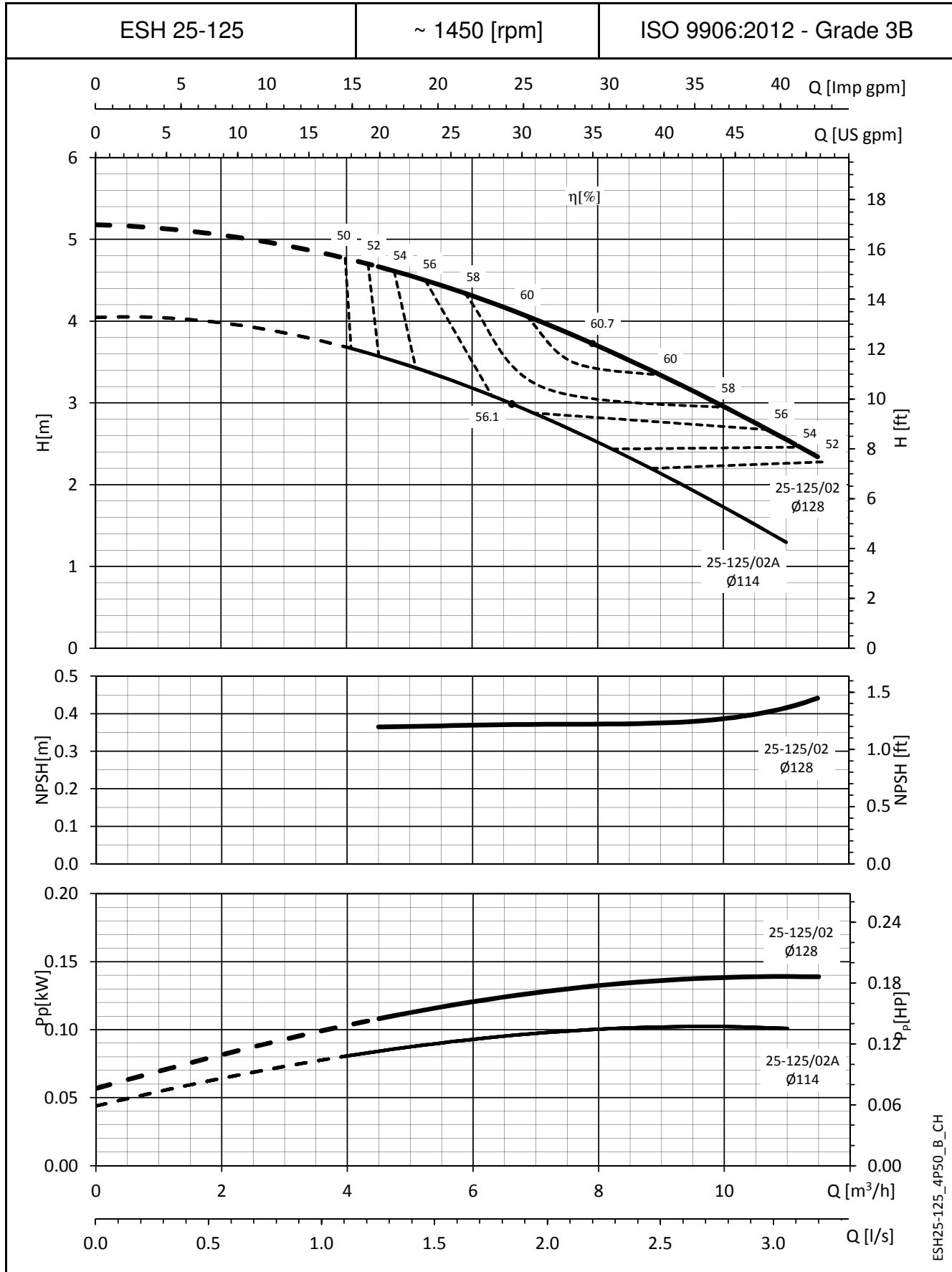


ESH80-250\_2P50\_B\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .



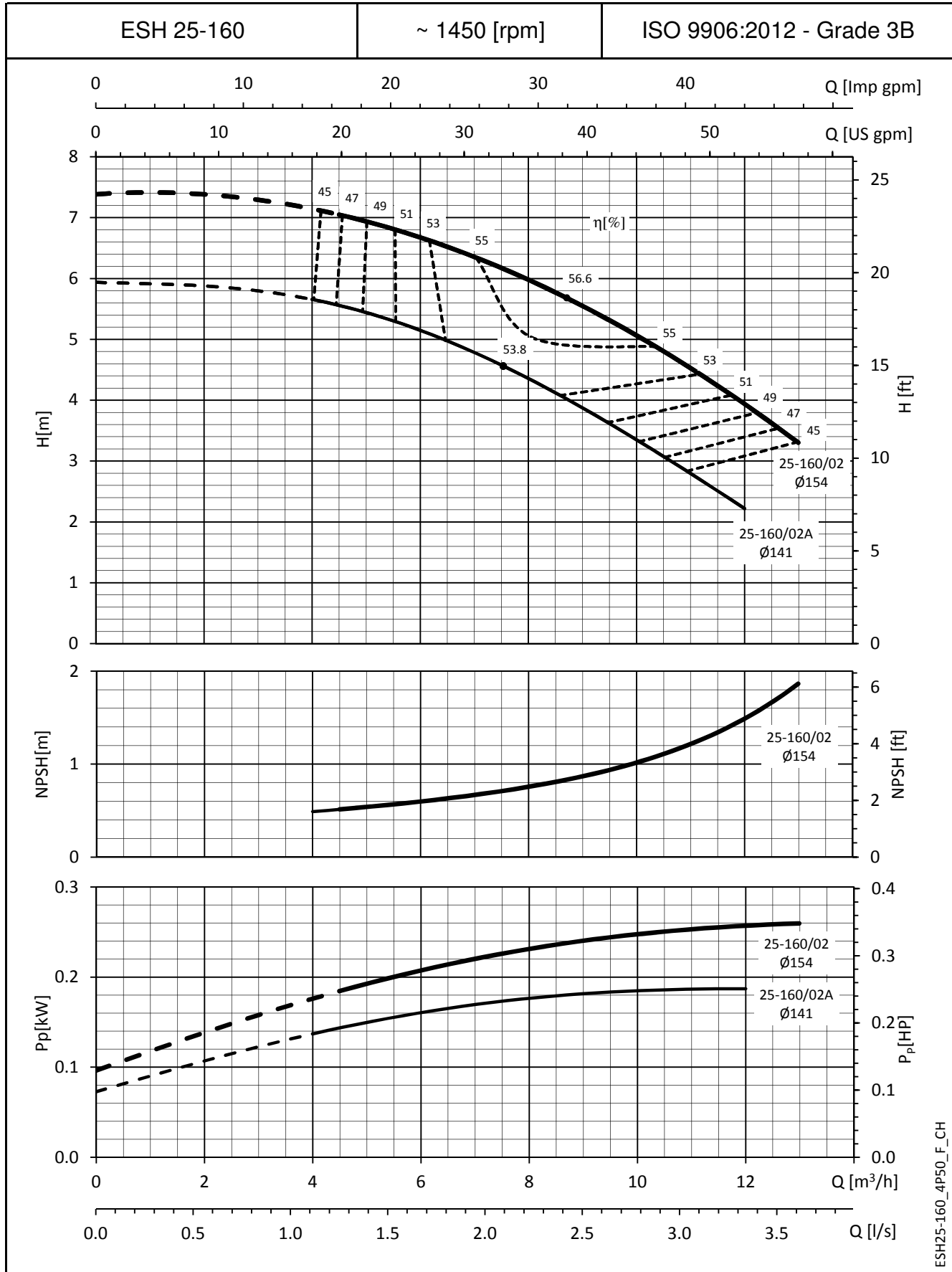
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**



ESH25-125\_4P50\_B\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

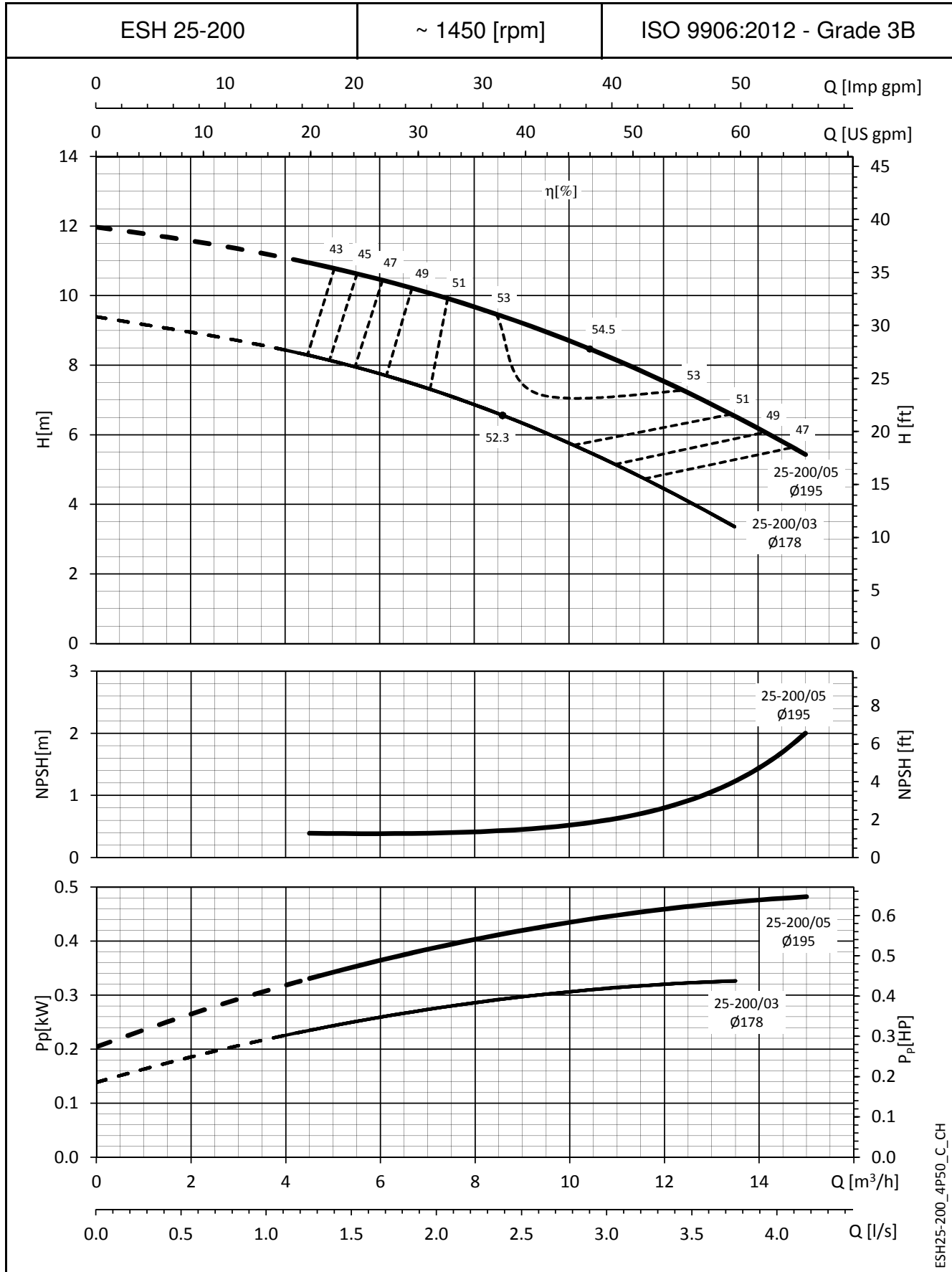
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**



ESH25-160\_4P50\_F\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

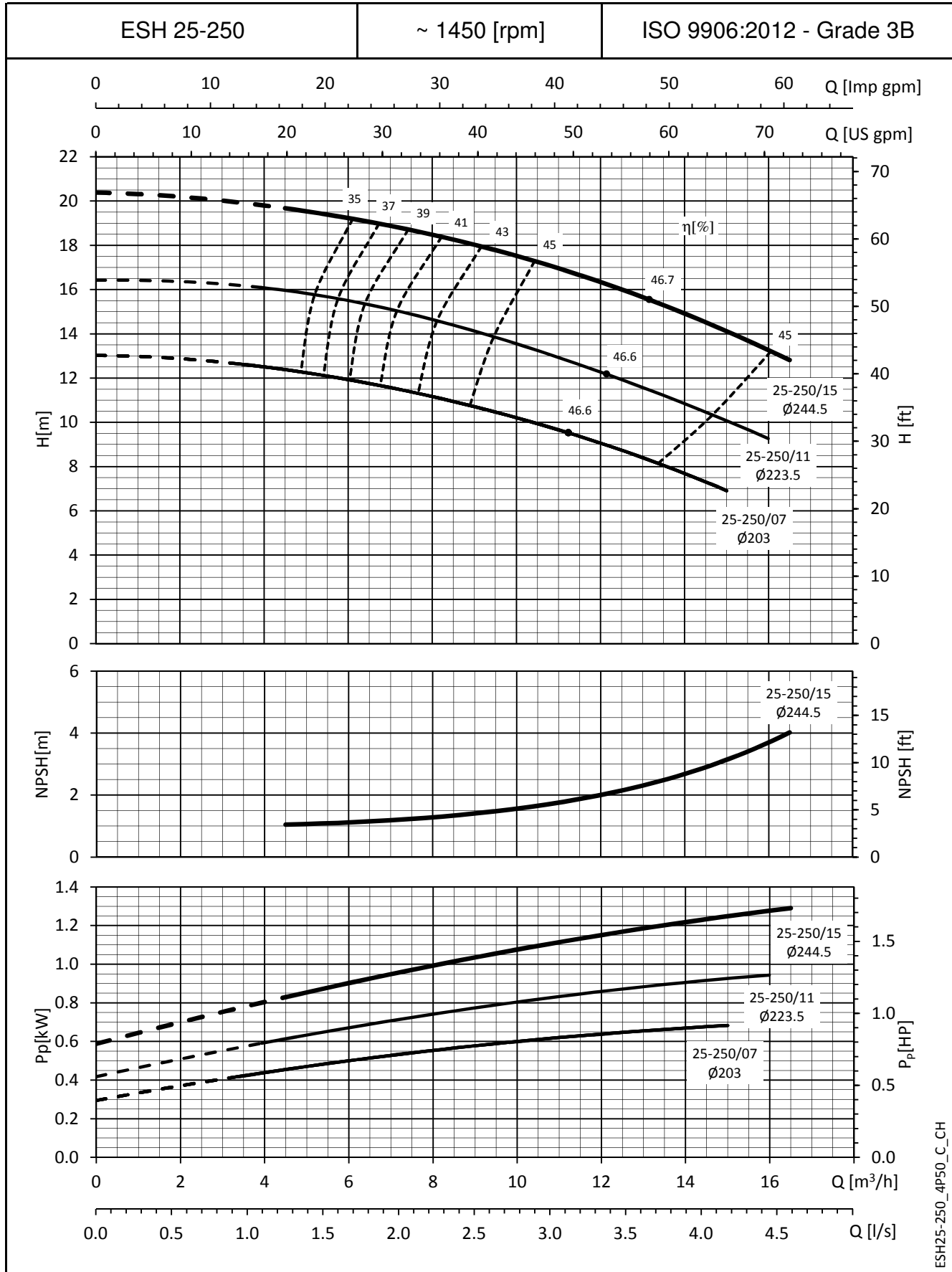
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**



ESH25-200\_4P50\_C\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

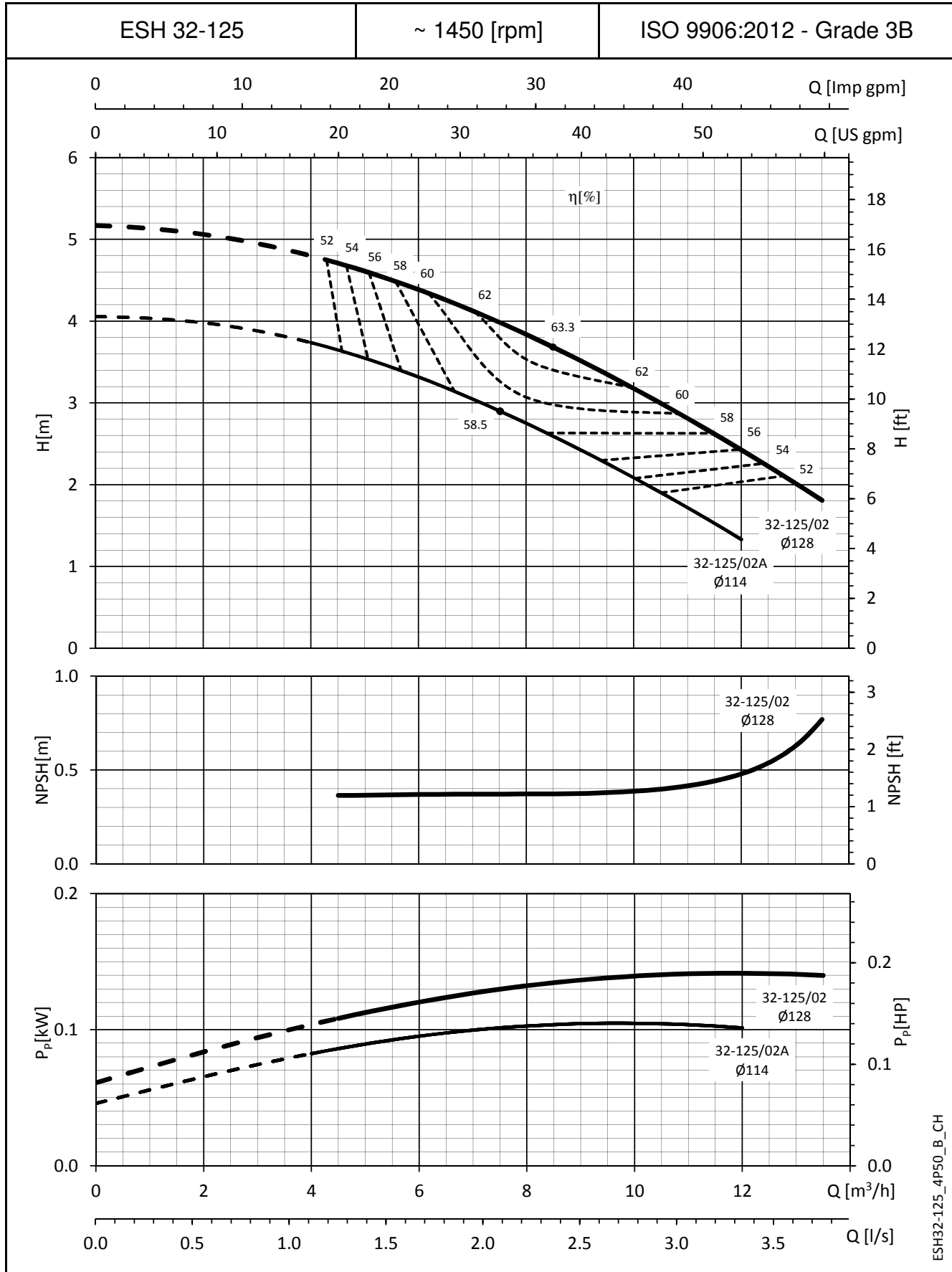
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**



ESH25-250\_4P50\_C\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

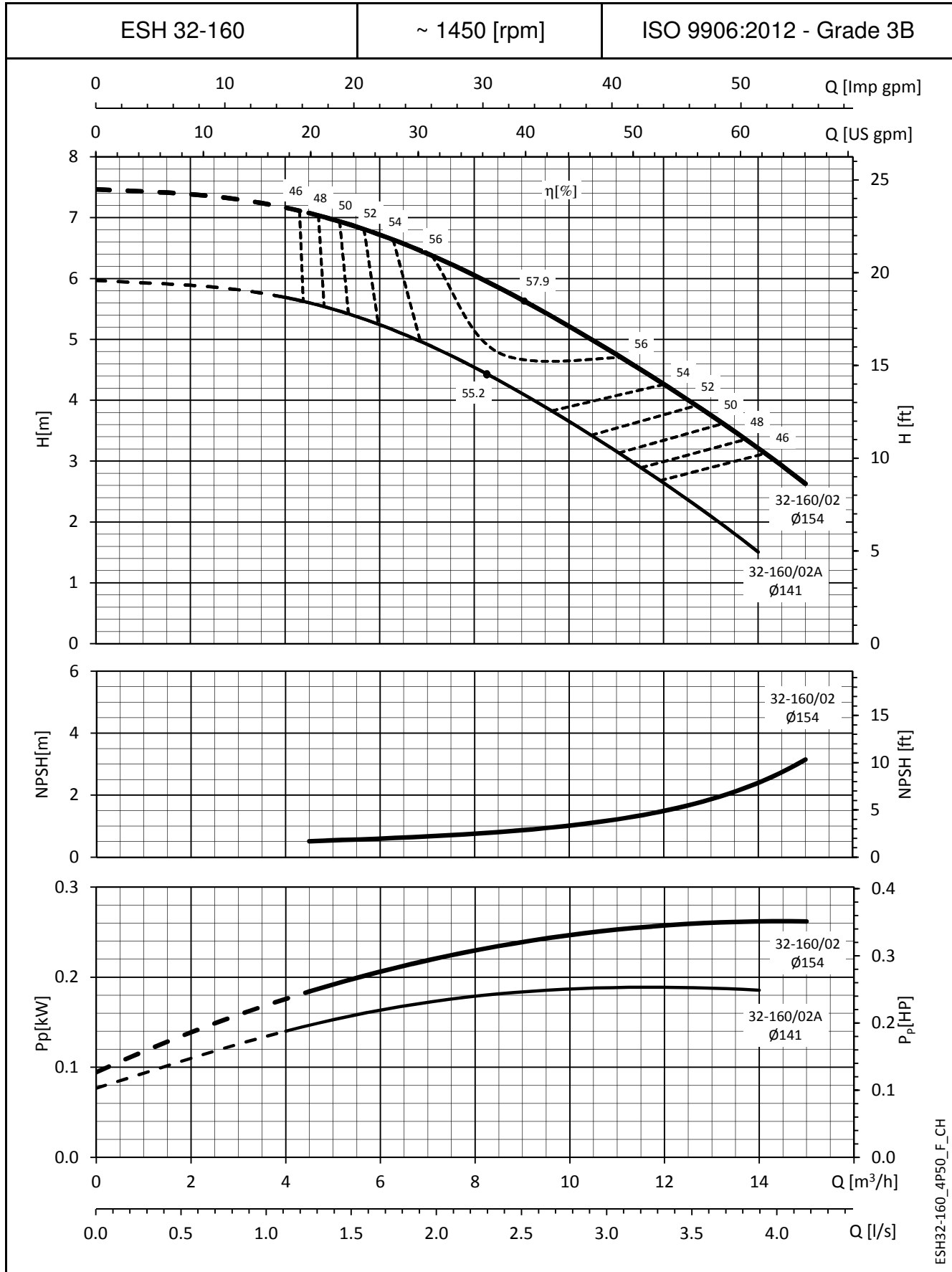
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**



ESH32-125\_4P50\_B\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

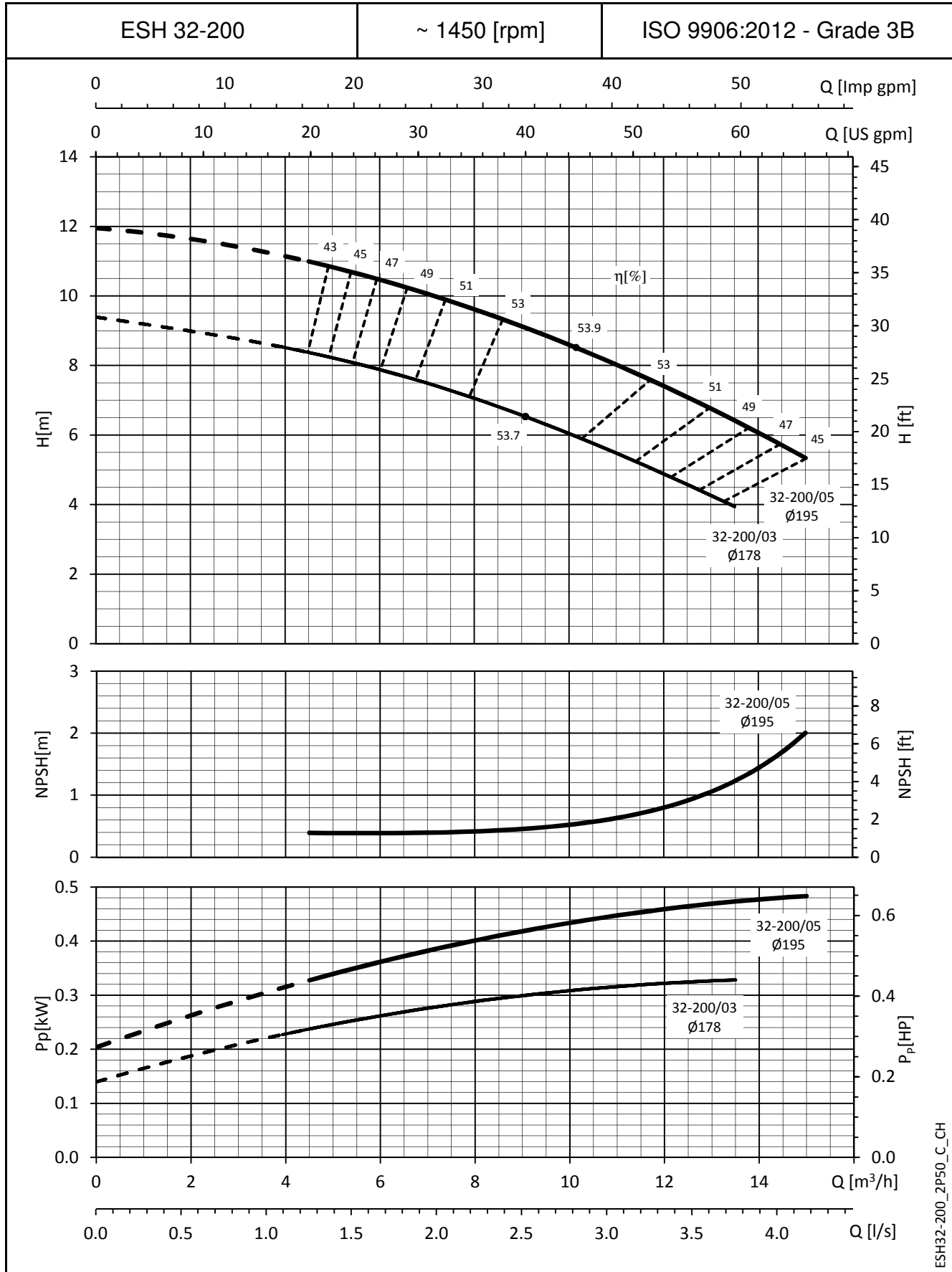
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**



ESH32-160\_4P50\_F\_CH

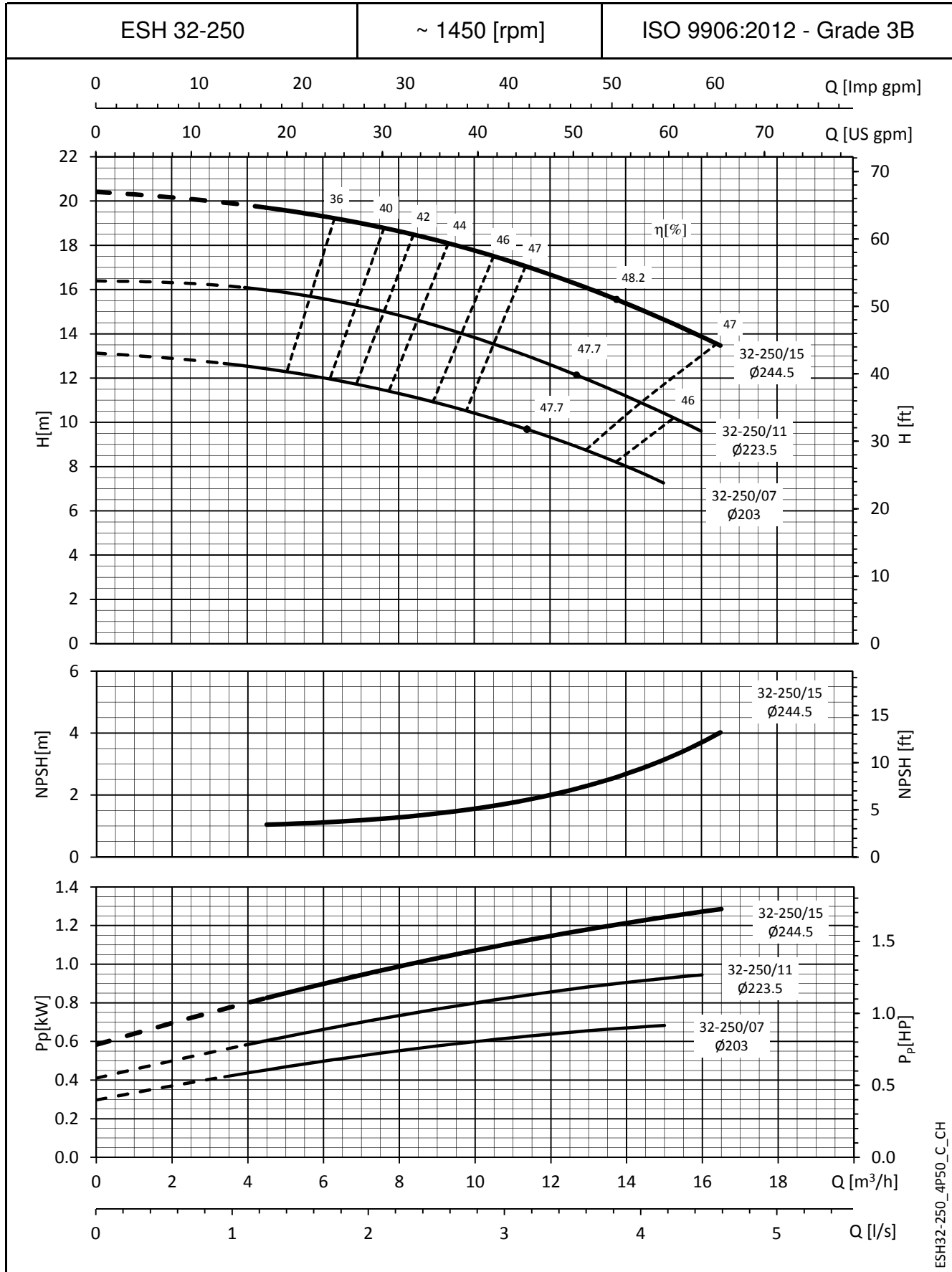
The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**



The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
 These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**

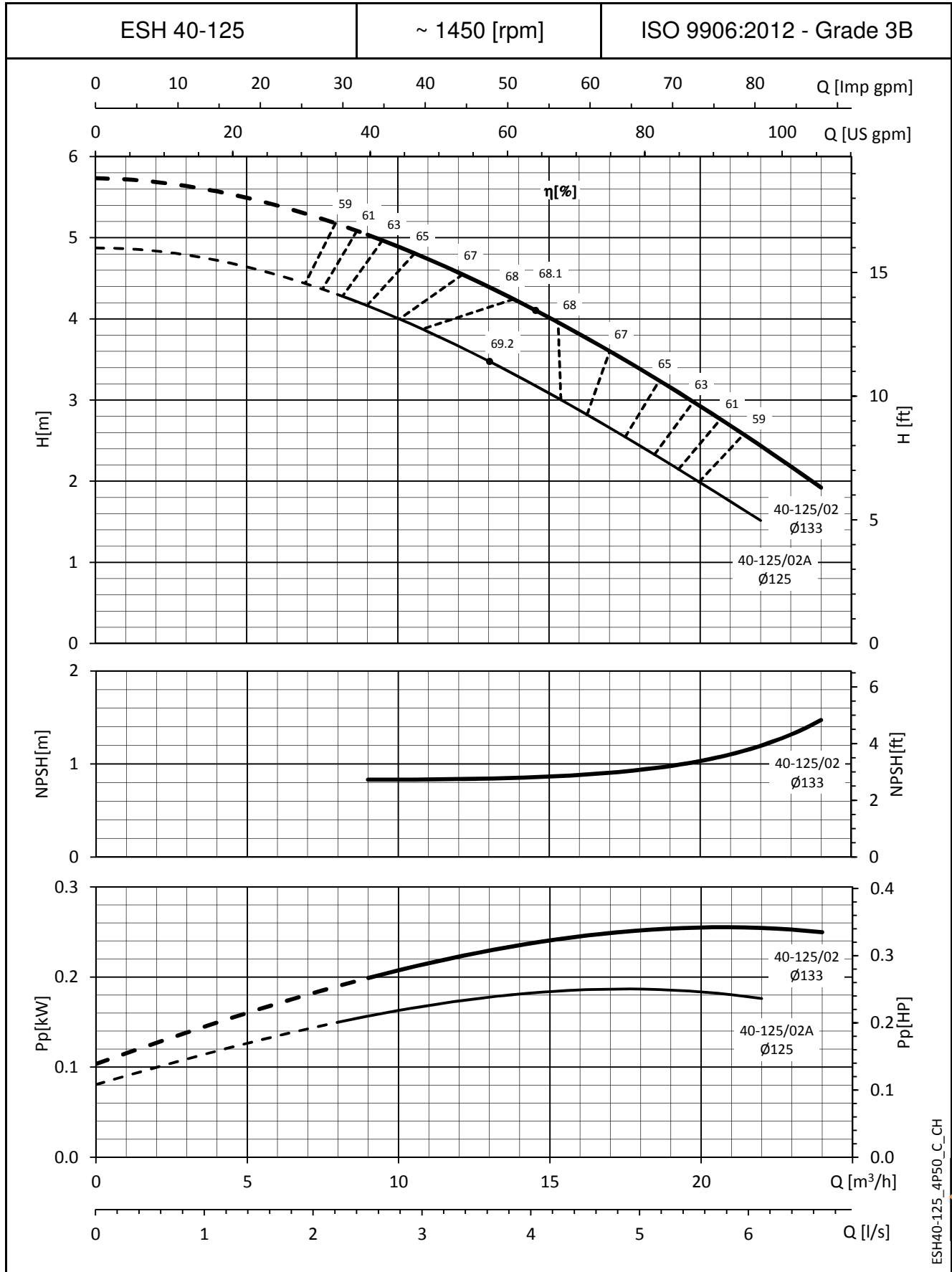


ESH32-250\_4P50\_C\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .



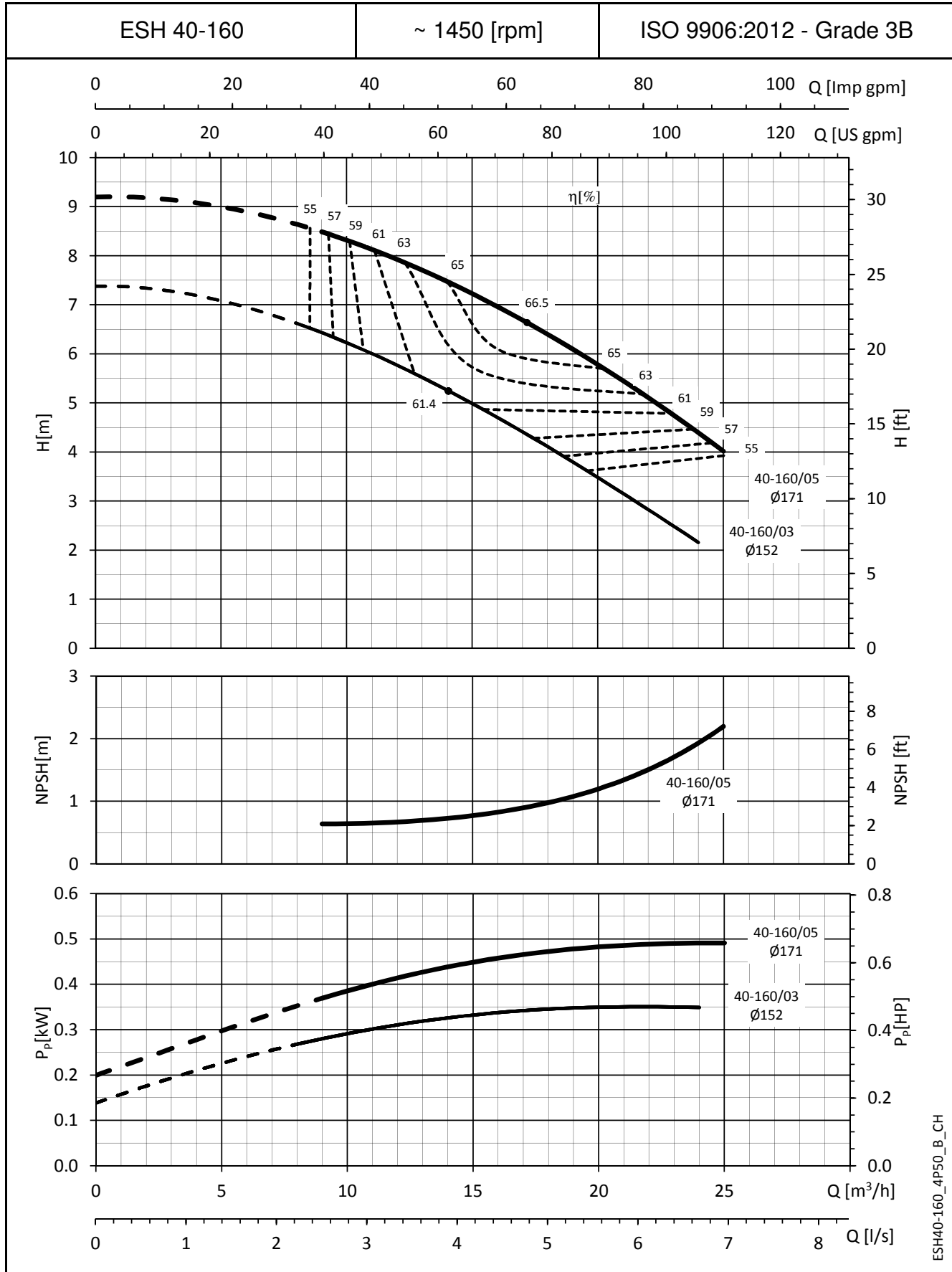
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**



ESH40-125\_4P50\_C\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

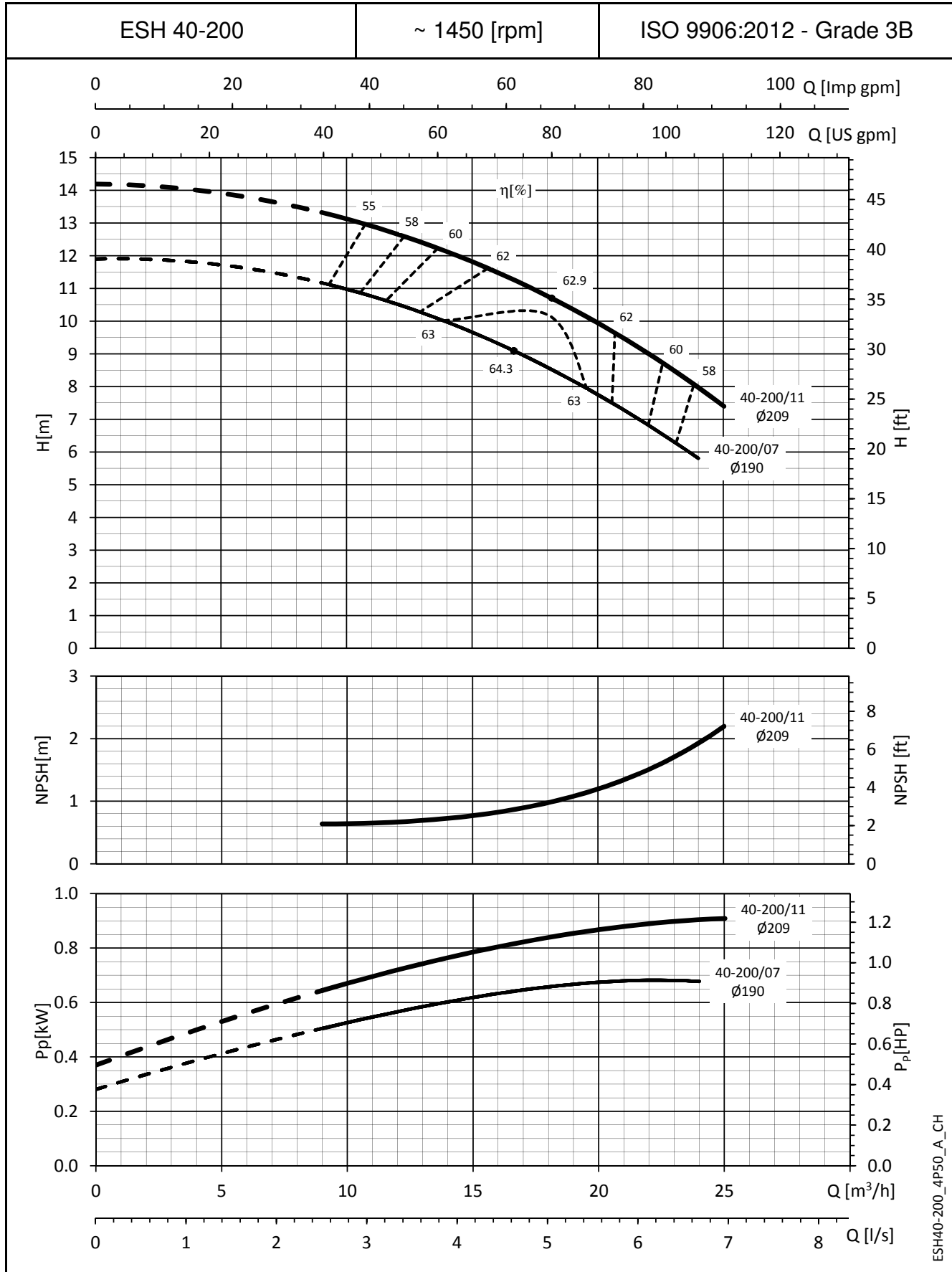
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**



ESH40-160\_4P50\_B\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

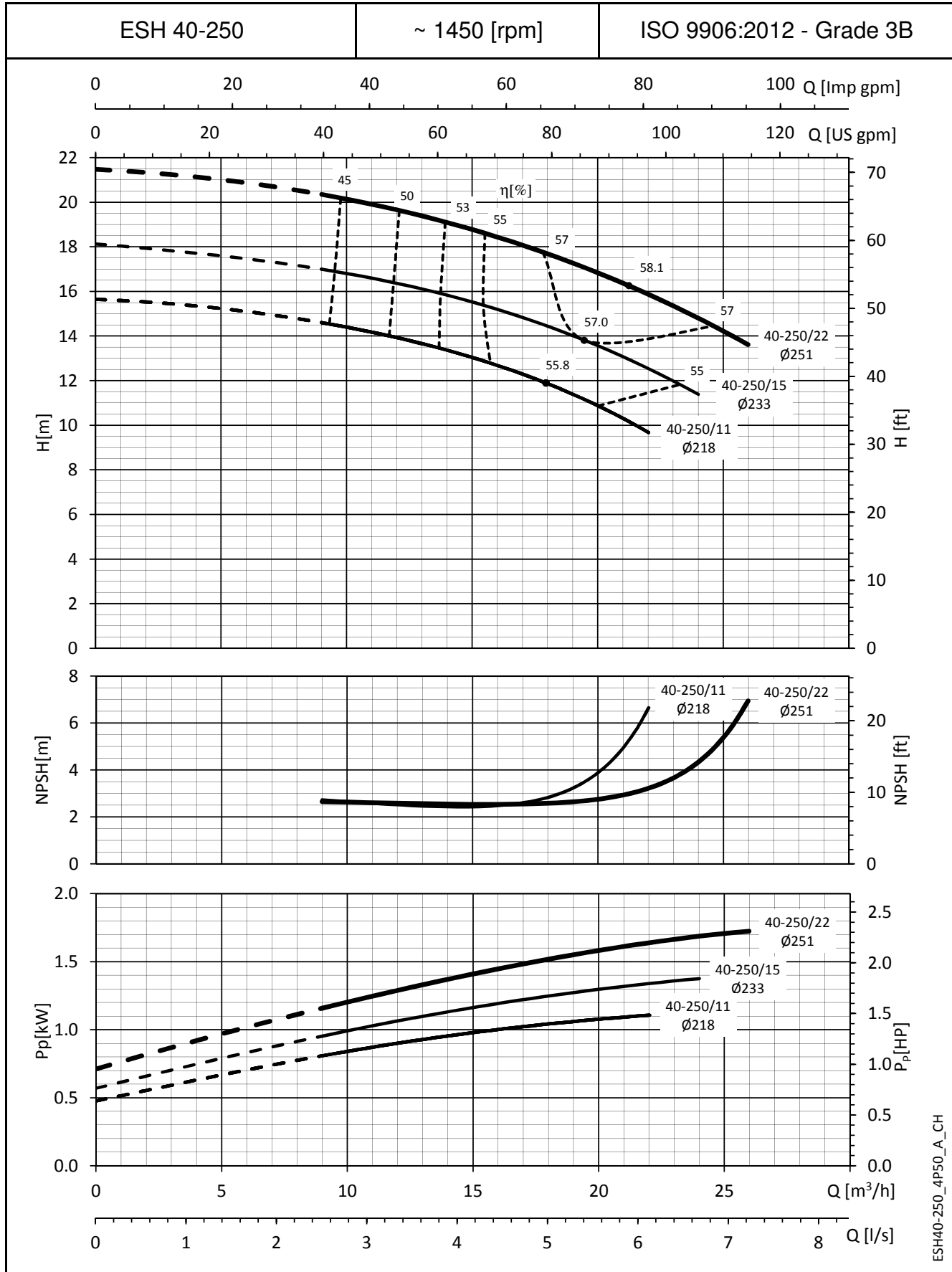
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**



ESH40-200\_4P50\_A\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

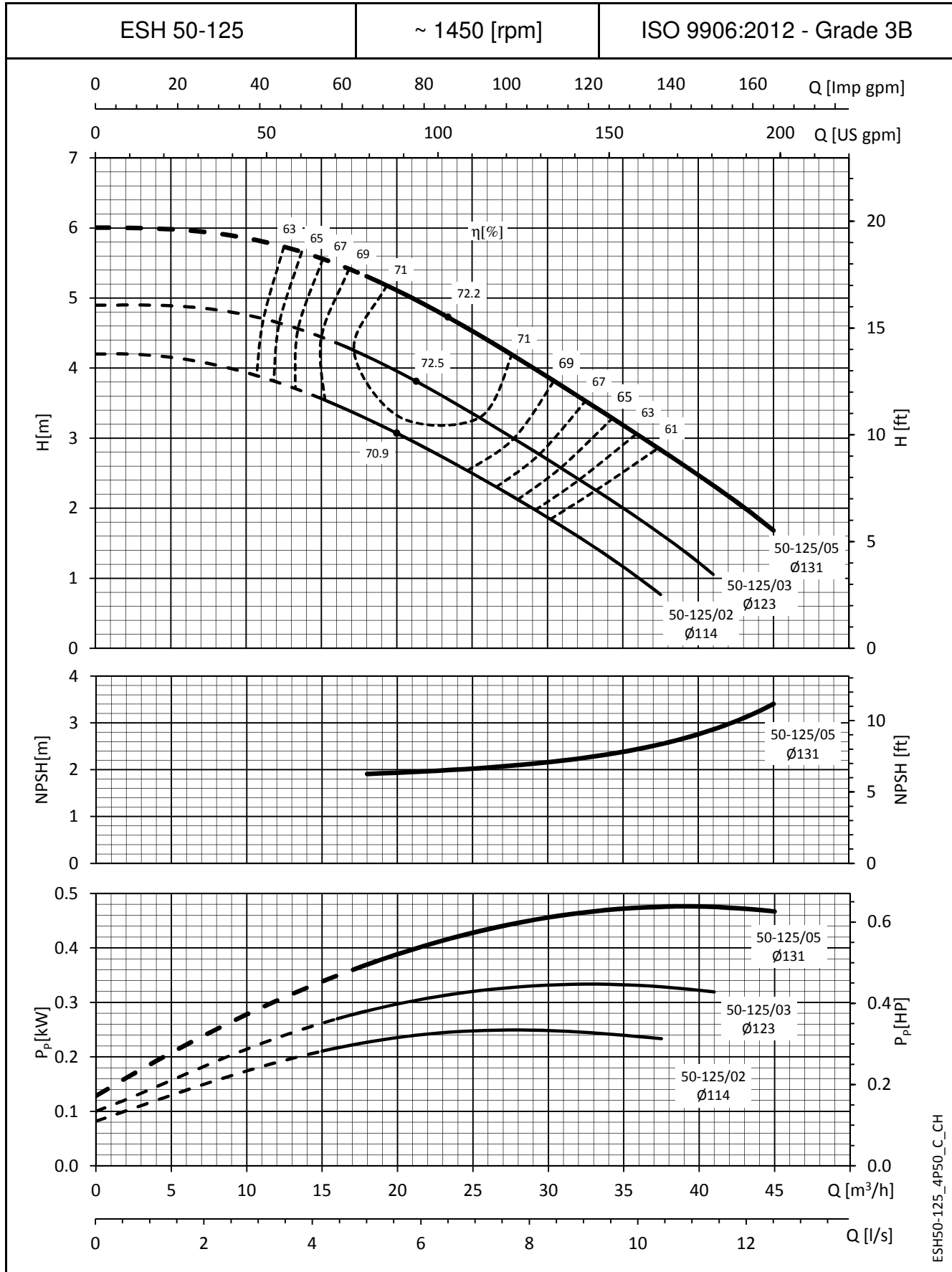
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**



ESH40-250\_4P50\_A\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

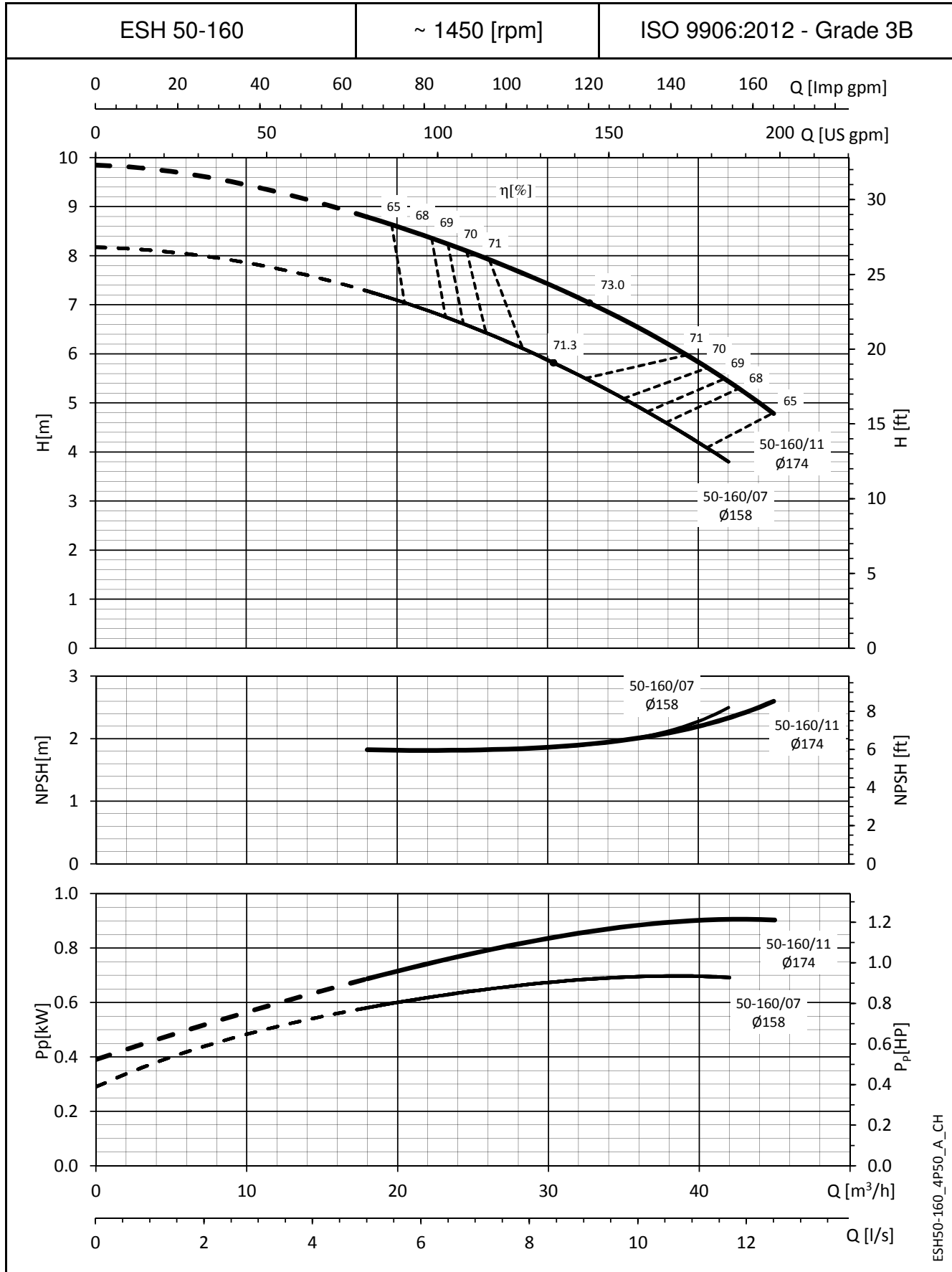
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**



ESH50-125\_4P50\_C\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

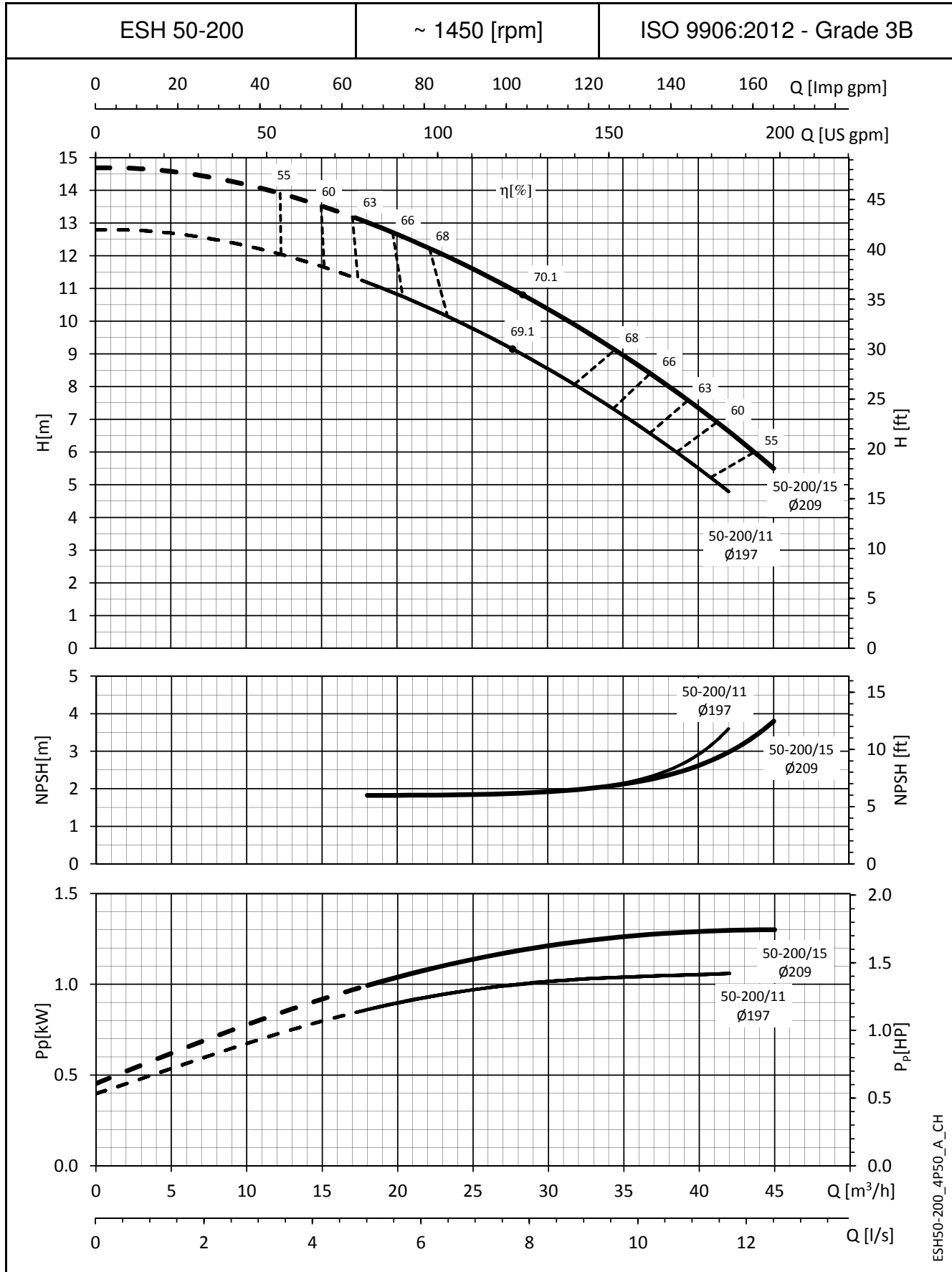
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**



ESH50-160\_4P50\_A\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

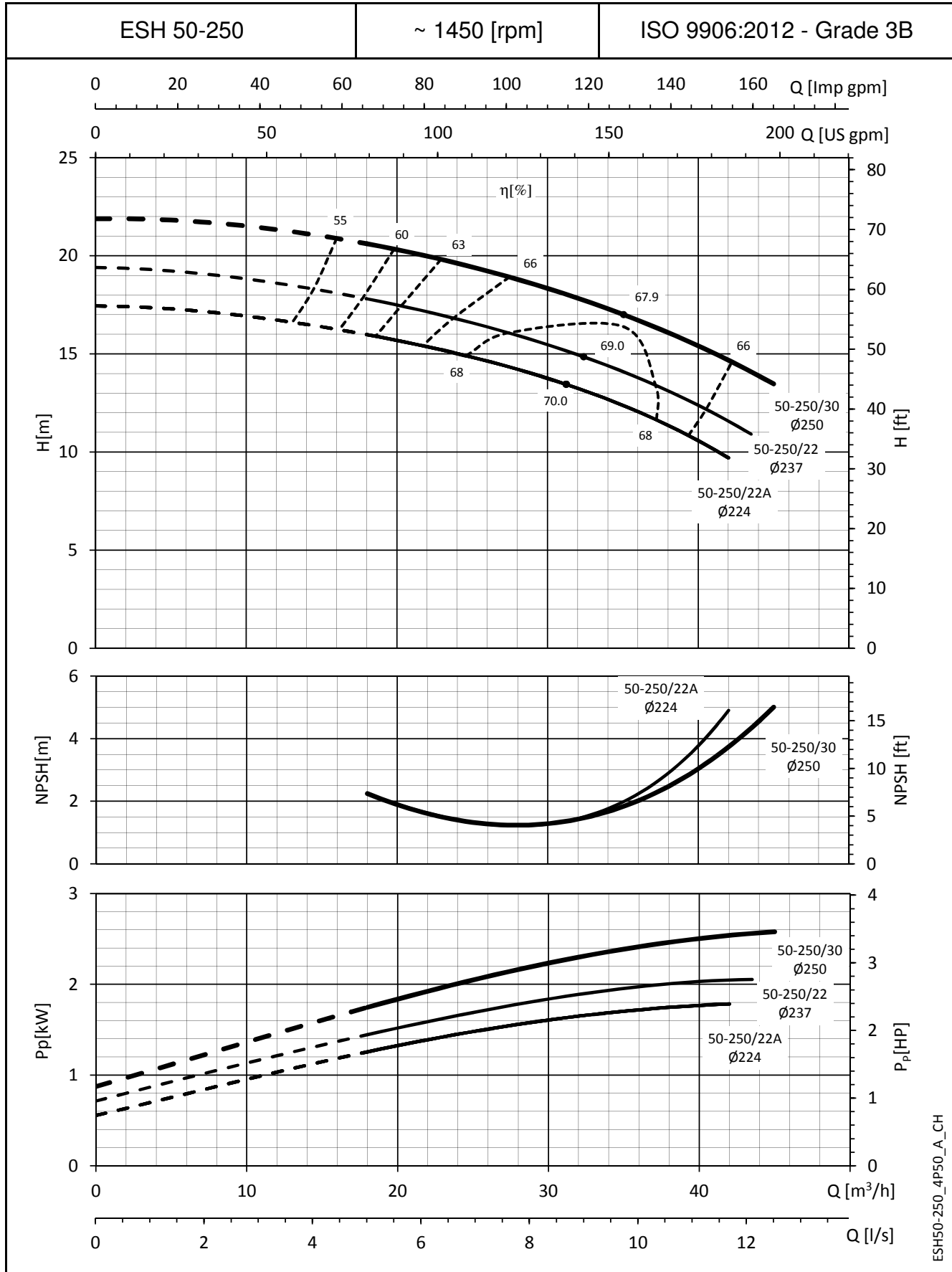
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**



ESH50-200\_4P50\_A\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**

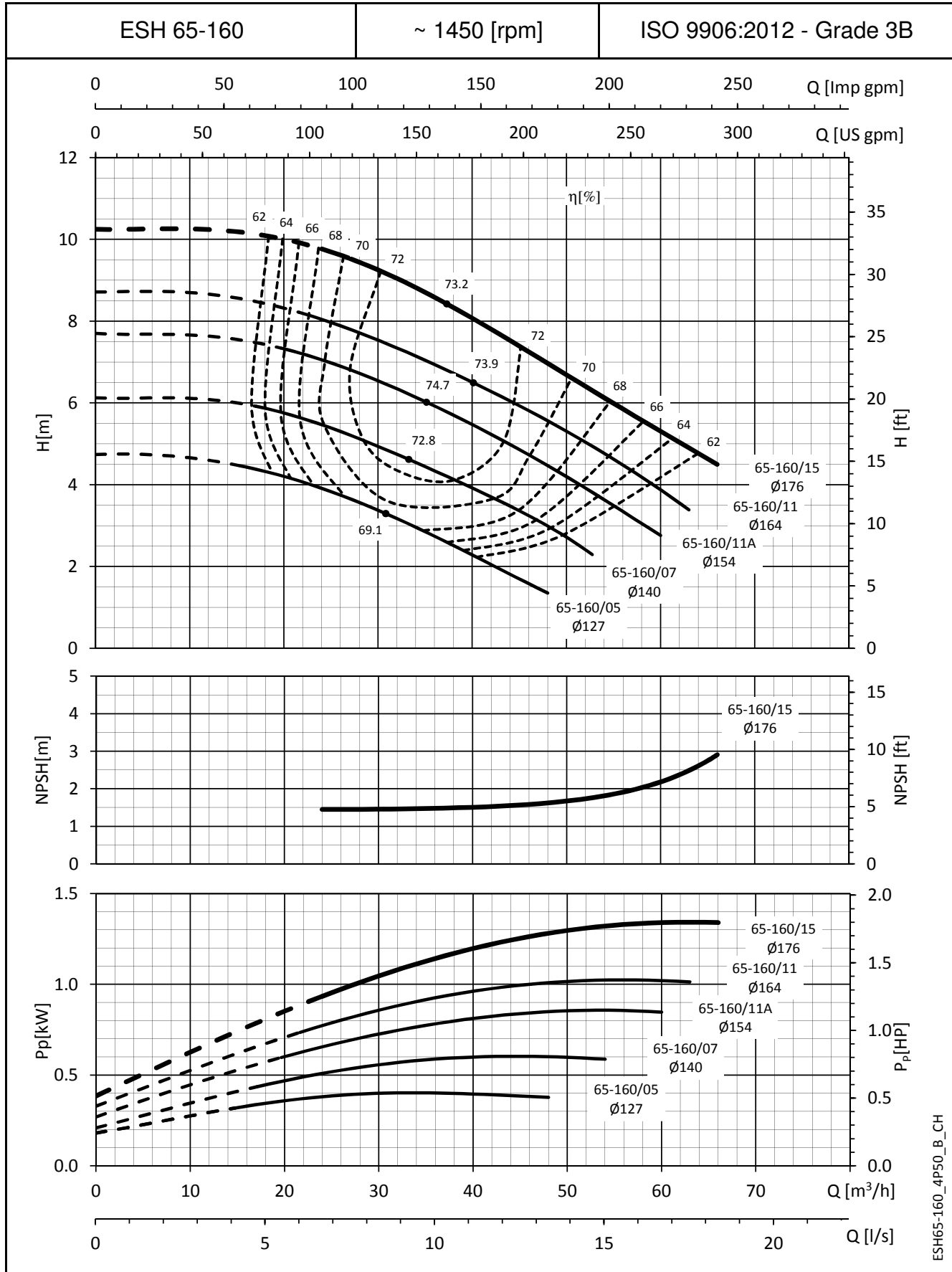


ESH50-250\_4P50\_A\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .



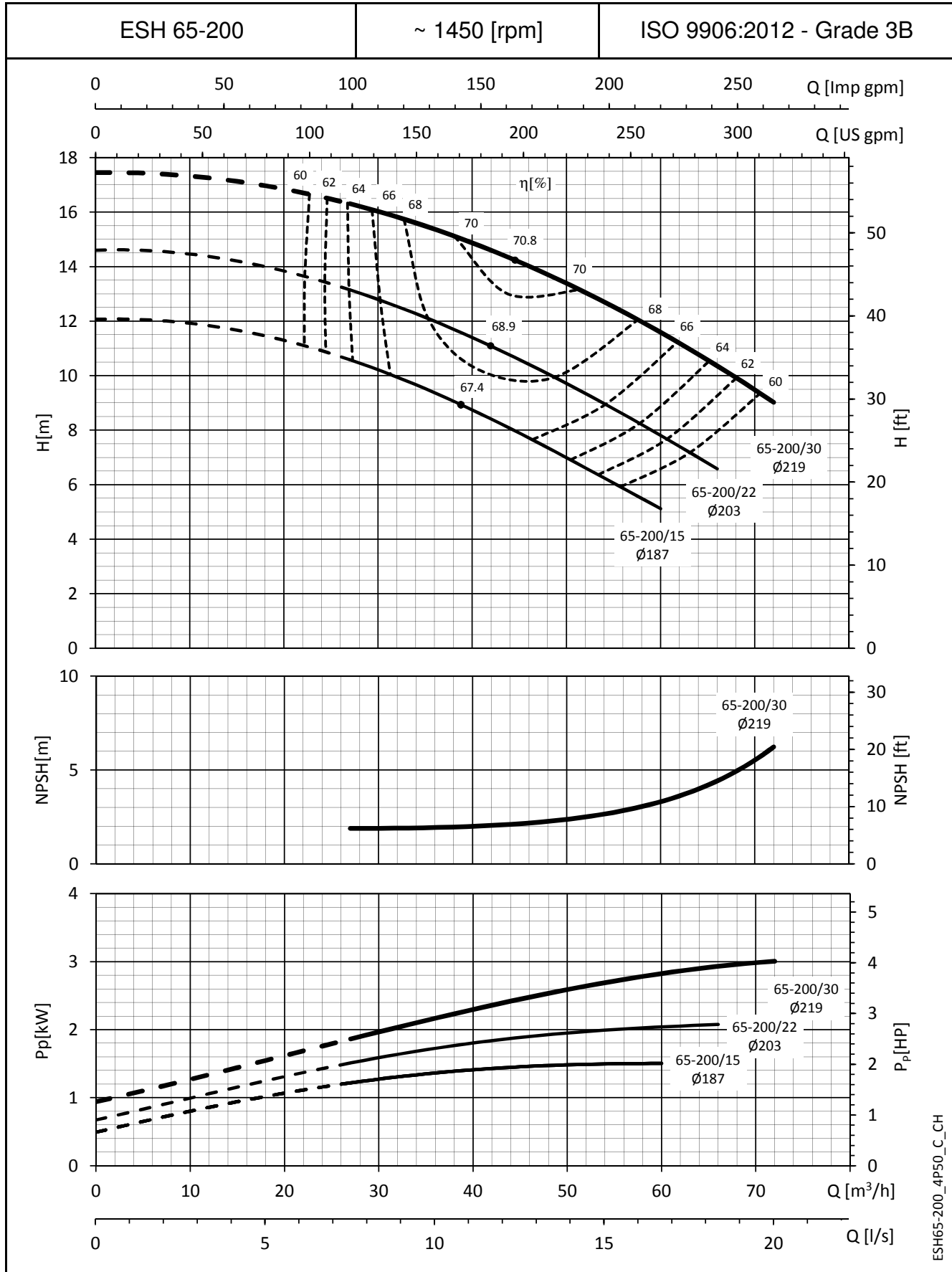
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**



ESH65-160\_4P50\_B\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

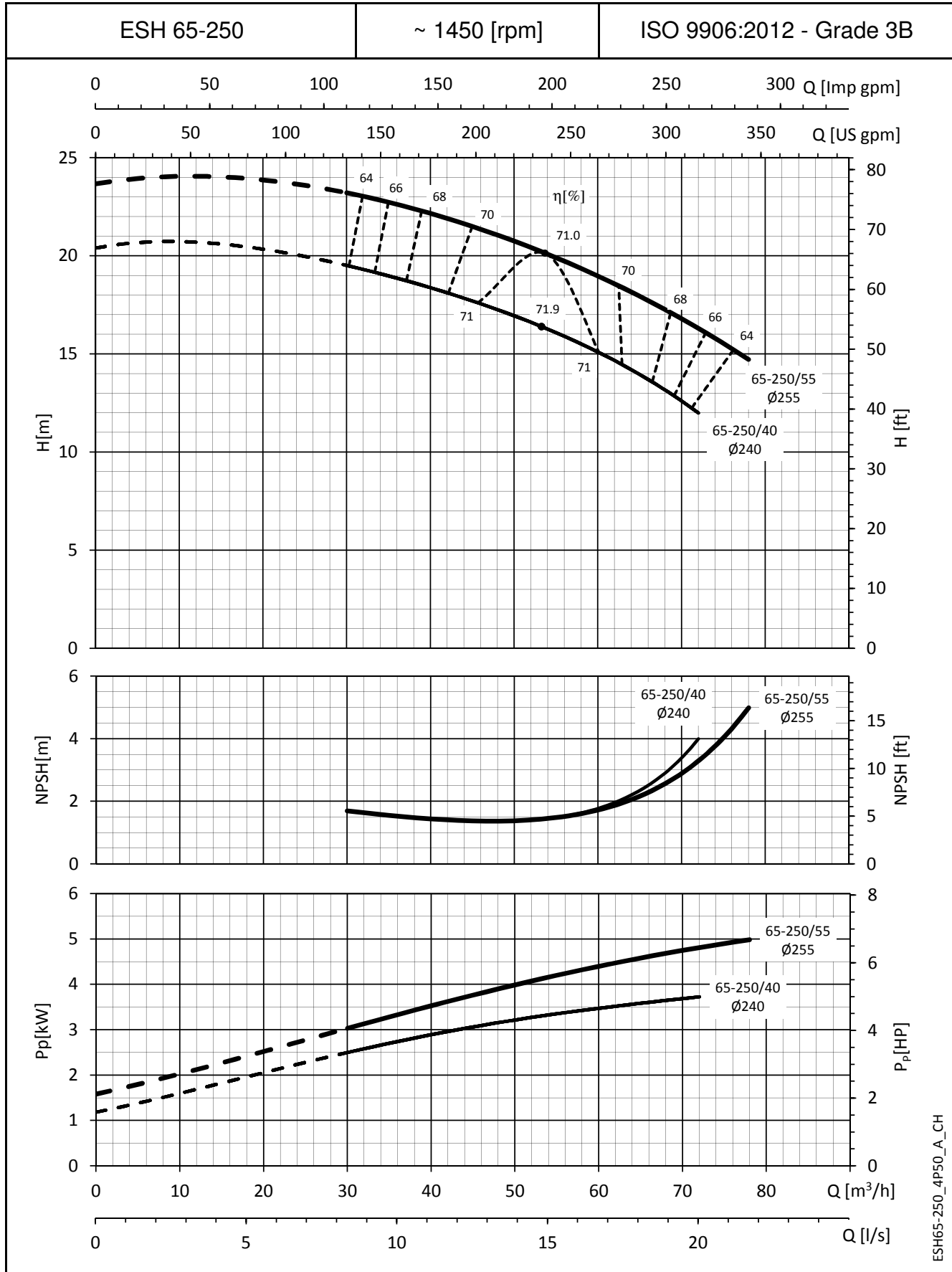
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**



ESH65-200\_4P50\_C\_CH

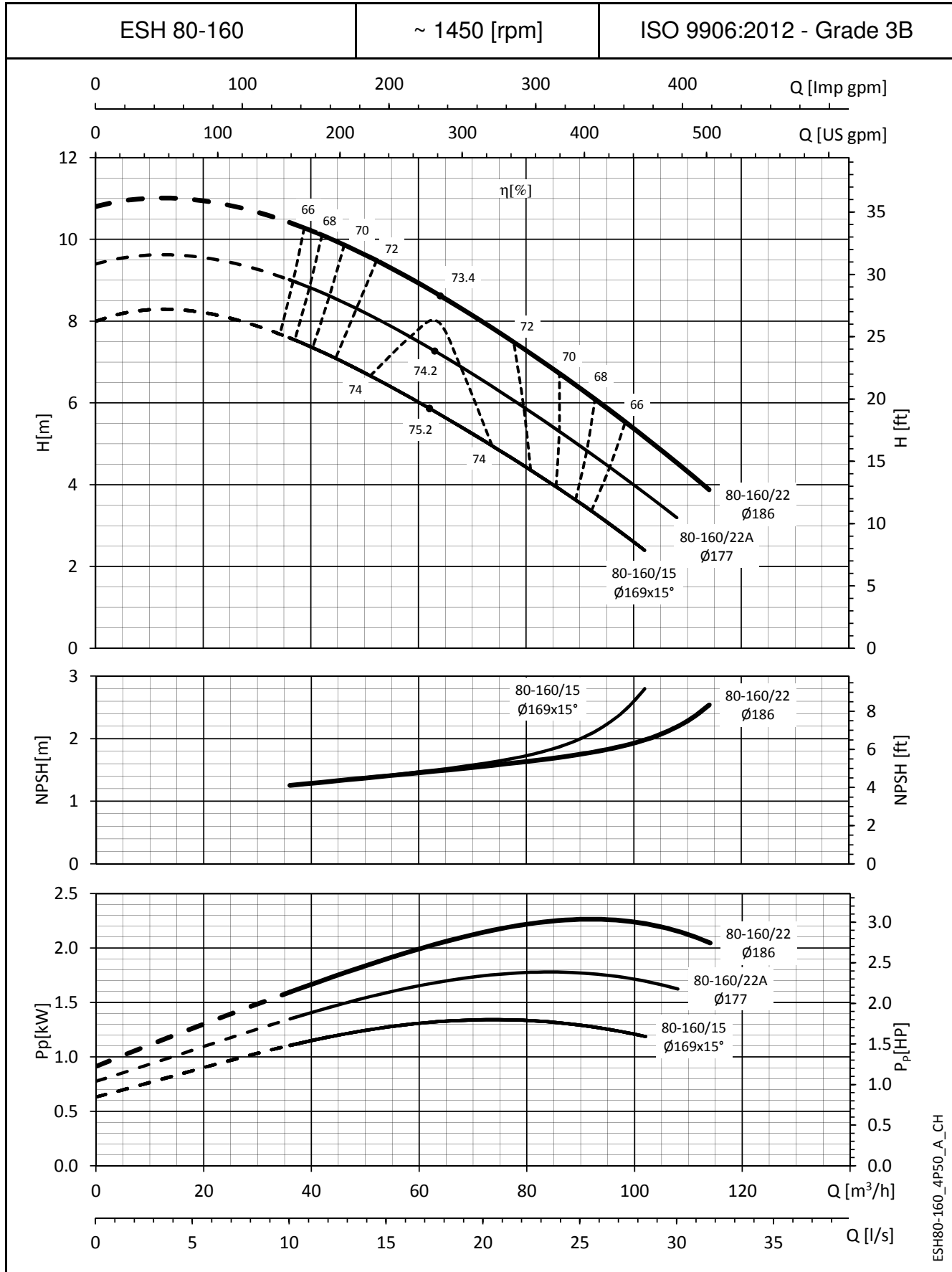
The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**



The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

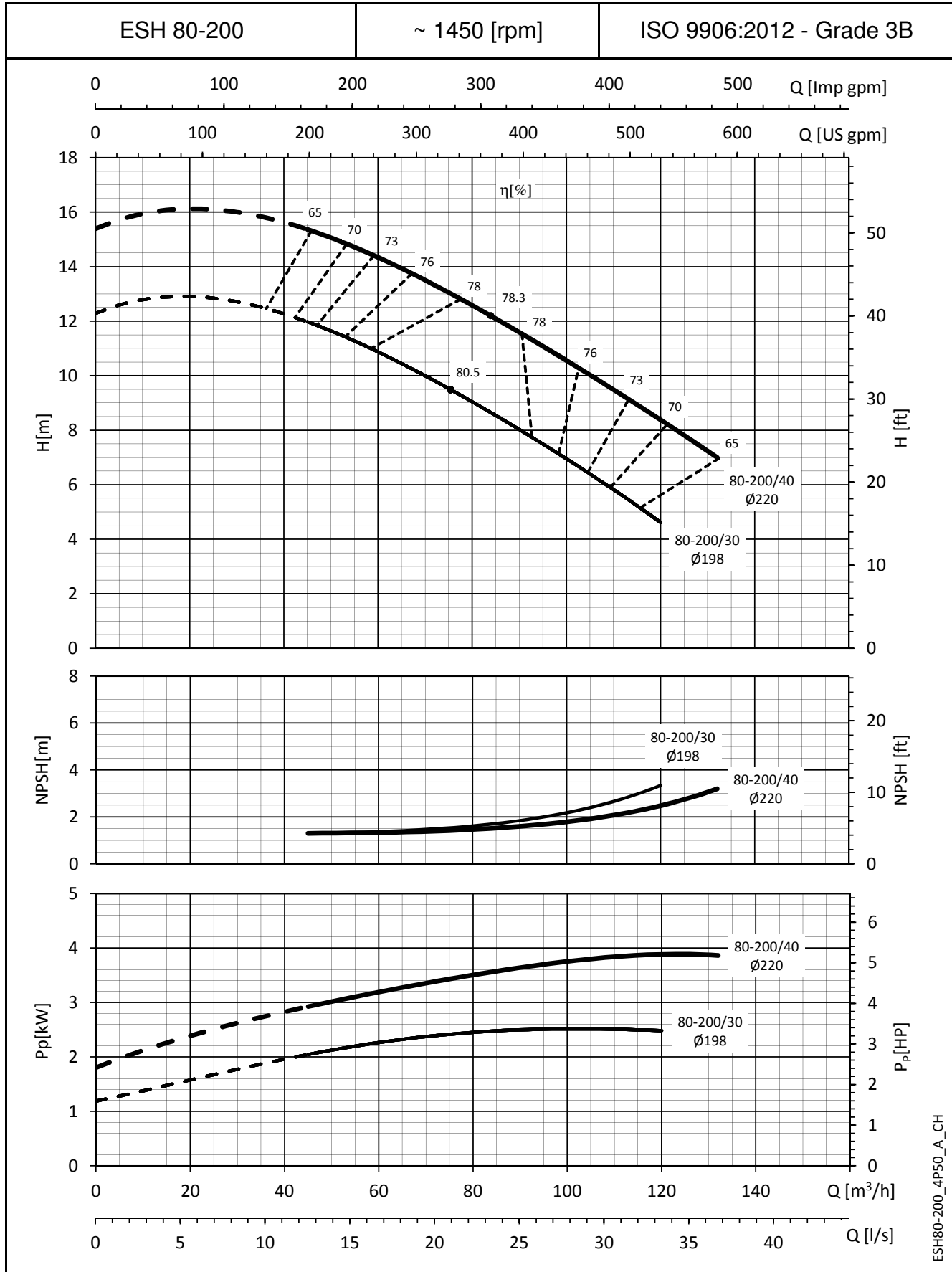
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**



ESH80-160\_4P50\_A\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

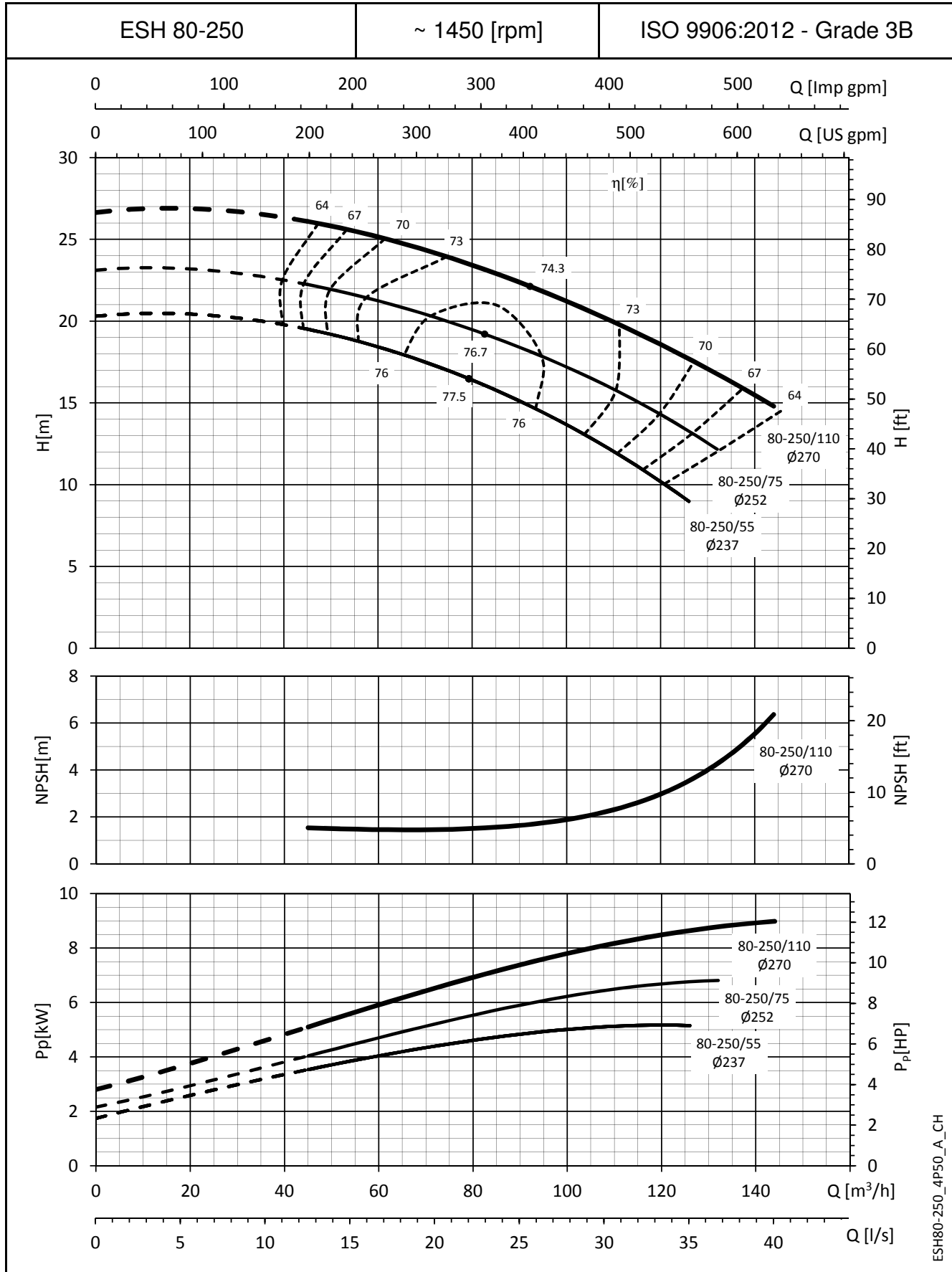
**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**



ESH80-200\_4P50\_A\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

**ESH SERIES**  
**OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES**

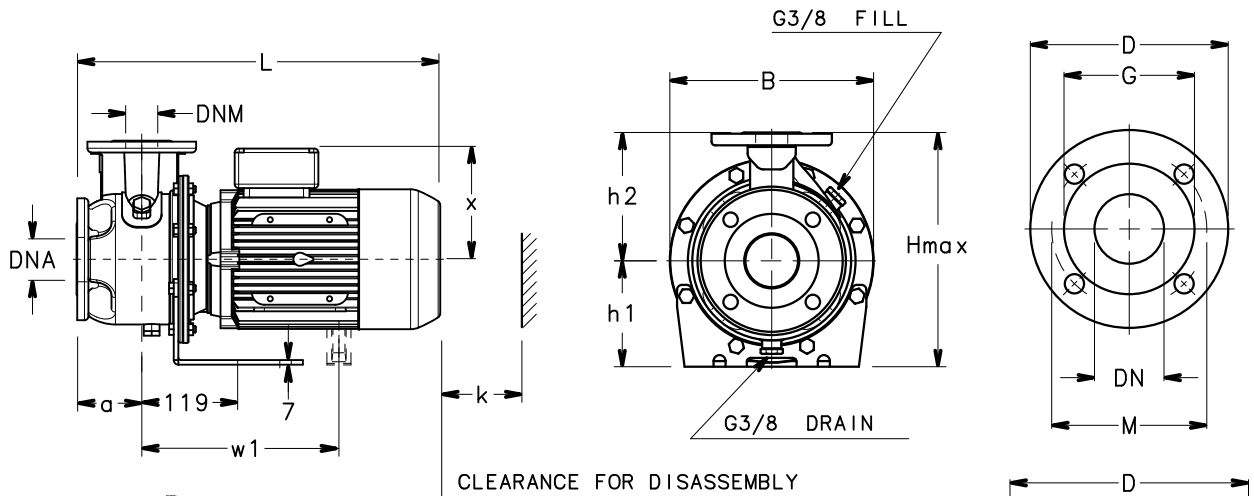


ESH80-250\_4P50\_A\_CH

The NPSH values are laboratory values; for practical use we suggest increasing these values by 0,5 m.  
These performances are valid for liquids with density  $\rho = 1,0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

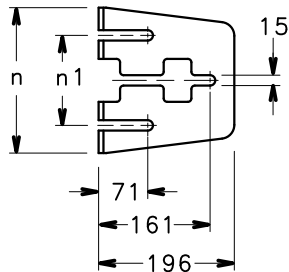
# **DIMENSIONS AND WEIGHTS**

**ESHE SERIES**  
**DIMENSIONS AND WEIGHTS AT 50 Hz, 2 POLES**



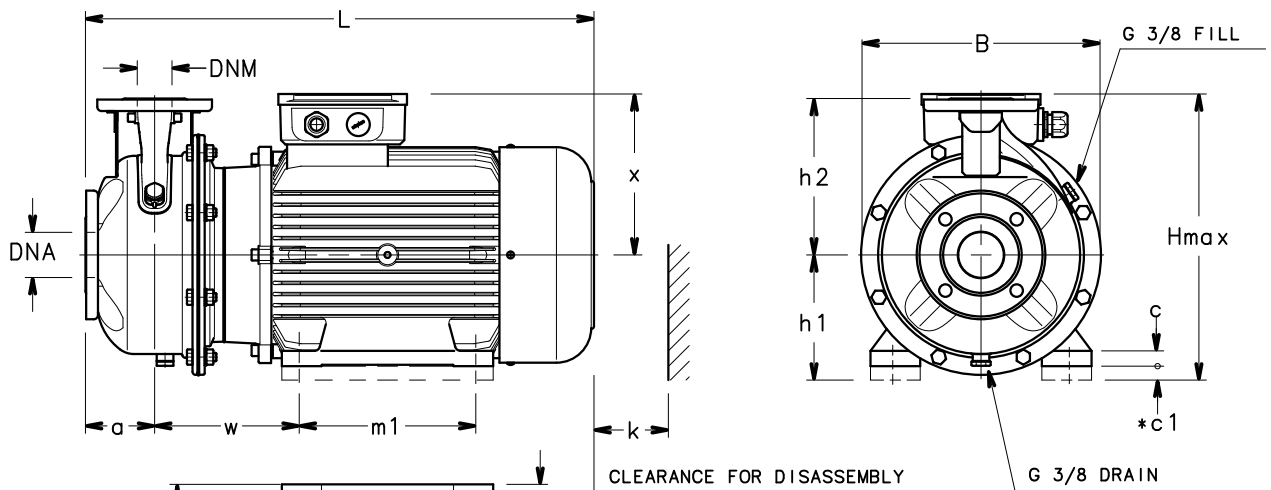
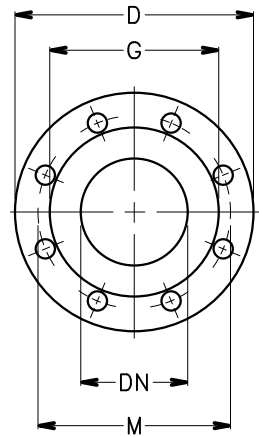
CLEARANCE FOR DISASSEMBLY

**PUMP SUPPORT FOOT  
WITH MOTORS UP TO 11 KW**



**PUMP FLANGES**

DN	D	M	G	HOLES		MAX. THICKNESS
				N°	DIA.	
25	115	85	56	4	18	16
32	140	100	64	4	18	16
40	150	110	68	4	18	16
50	165	125	83	4	18	18
65	185	145	104	4	18	18
80	200	160	116	8	18	20
100	225	180	142	8	18	20



CLEARANCE FOR DISASSEMBLY

**PUMP SUPPORT FOOT WITH  
MOTORS FROM 15 TO 22 KW**

Accessories on request.  
See page 131.



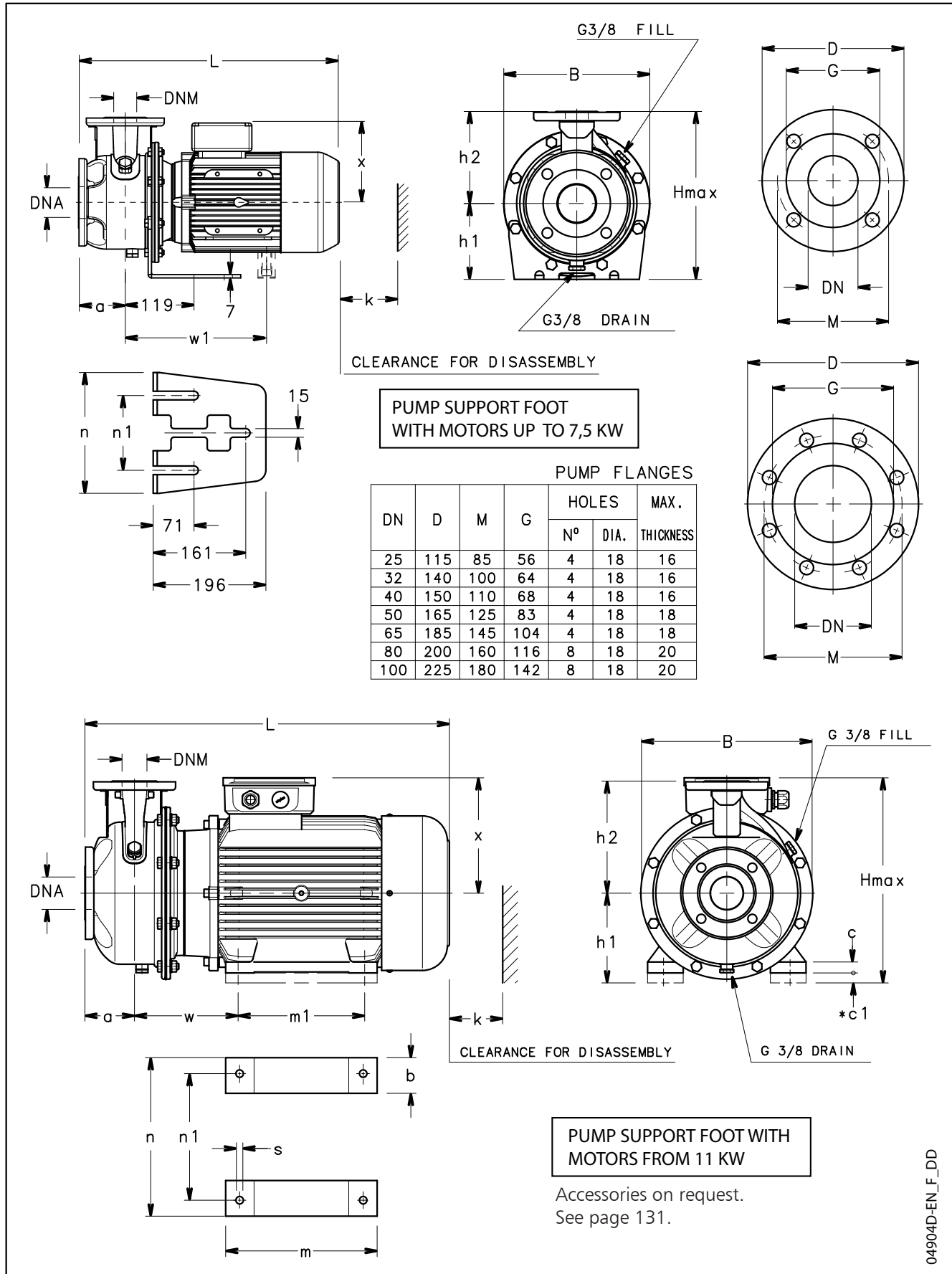
## ESHE SERIES DIMENSIONS AND WEIGHTS AT 50 Hz, 2 POLES

PUMP TYPE ESHE..2	DIMENSIONS (mm)																	B	H max	L	k	WEIGHT kg
	PUMP							SUPPORT														
	DNM	DNA	a	h2	w	w1	x	b	c	*c1	h1	m	m1	n	n1	s						
25-125/07/S	25	50	80	140	-	-	129	-	-	-	160	-	-	190	130	-	218	300	443	98	18,6	
25-125/11/S	25	50	80	140	-	-	129	-	-	-	160	-	-	190	130	-	218	300	443	98	20,6	
25-160/15/S	25	50	80	160	-	-	129	-	-	-	160	-	-	210	130	-	253	320	443	98	24,4	
25-160/22/P	25	50	80	160	-	-	134	-	-	-	160	-	-	210	130	-	253	320	478	98	29	
25-200/30/P	25	50	80	180	-	-	134	-	-	-	160	-	-	230	130	-	284	340	478	98	38	
25-200/40/P	25	50	80	180	-	-	154	-	-	-	160	-	-	230	130	-	284	340	499	98	41	
25-250/55/P	25	50	100	225	-	-	168	-	-	-	180	-	-	265	130	-	345	405	553	98	66	
25-250/75/P	25	50	100	225	-	305	191	-	-	-	180	-	-	265	130	-	345	405	567	98	84	
25-250/110/P	25	50	100	225	-	343	191	-	-	-	180	-	-	265	130	-	345	405	605	98	92	
32-125/07/S	32	50	80	140	-	-	129	-	-	-	112	-	-	190	130	-	218	252	443	98	18,6	
32-125/11/S	32	50	80	140	-	-	129	-	-	-	112	-	-	190	130	-	218	252	443	98	20,6	
32-160/15/S	32	50	80	160	-	-	129	-	-	-	132	-	-	210	130	-	253	292	443	98	24,4	
32-160/22/P	32	50	80	160	-	-	134	-	-	-	132	-	-	210	130	-	253	292	478	98	29	
32-200/30/P	32	50	80	180	-	-	134	-	-	-	160	-	-	230	130	-	284	340	478	98	38	
32-200/40/P	32	50	80	180	-	-	154	-	-	-	160	-	-	230	130	-	284	340	499	98	41	
32-250/55/P	32	50	100	225	-	-	168	-	-	-	180	-	-	265	130	-	345	405	553	98	66	
32-250/75/P	32	50	100	225	-	305	191	-	-	-	180	-	-	265	130	-	345	405	567	98	84	
32-250/110/P	32	50	100	225	-	343	191	-	-	-	180	-	-	265	130	-	345	405	605	98	92	
40-125/11/S	40	65	80	140	-	-	129	-	-	-	112	-	-	190	130	-	218	252	443	100	21,6	
40-125/15/S	40	65	80	140	-	-	129	-	-	-	112	-	-	190	130	-	218	252	443	100	22,4	
40-125/22/P	40	65	80	140	-	-	134	-	-	-	112	-	-	190	130	-	218	252	478	100	30	
40-160/30/P	40	65	80	160	-	-	134	-	-	-	132	-	-	210	130	-	253	292	478	100	32	
40-160/40/P	40	65	80	160	-	-	154	-	-	-	132	-	-	210	130	-	253	292	499	100	40	
40-200/55/P	40	65	100	180	-	-	168	-	-	-	160	-	-	230	130	-	284	340	553	100	52	
40-200/75/P	40	65	100	180	-	305	191	-	-	-	160	-	-	230	130	-	284	340	567	100	65	
40-250/92/P	40	65	100	225	-	343	191	-	-	-	180	-	-	265	130	-	345	405	605	107	89	
40-250/110/P	40	65	100	225	-	343	191	-	-	-	180	-	-	265	130	-	345	405	605	107	94	
40-250/150/P	40	65	100	225	208	-	240	49	5	20	180	304	210	304	254	15	345	420	694	107	130	
50-125/22/P	50	65	100	160	-	-	134	-	-	-	132	-	-	210	130	-	253	292	498	104	30	
50-125/30/P	50	65	100	160	-	-	134	-	-	-	132	-	-	210	130	-	253	292	498	104	33	
50-125/40/P	50	65	100	160	-	-	154	-	-	-	132	-	-	210	130	-	253	292	519	104	40	
50-160/55/P	50	65	100	180	-	-	168	-	-	-	160	-	-	210	130	-	253	340	553	104	52	
50-160/75/P	50	65	100	180	-	305	191	-	-	-	160	-	-	210	130	-	253	351	567	104	67	
50-200/92/P	50	65	100	200	-	343	191	-	-	-	160	-	-	245	130	-	310	360	605	104	84	
50-200/110/P	50	65	100	200	-	343	191	-	-	-	160	-	-	245	130	-	310	360	605	104	88	
50-250/150/P	50	65	100	225	208	-	240	49	5	20	180	304	210	304	254	15	345	420	694	107	131	
50-250/185/P	50	65	100	225	208	-	240	49	5	20	180	304	254	304	254	15	345	420	694	107	144	
50-250/220/P	50	65	100	225	208	-	240	49	5	20	180	304	254	304	254	15	345	420	694	107	147	
65-160/40/P	65	80	100	200	-	-	154	-	-	-	160	-	-	245	130	-	310	360	519	130	56	
65-160/55/P	65	80	100	200	-	-	168	-	-	-	160	-	-	245	130	-	310	360	553	130	63	
65-160/75/P	65	80	100	200	-	305	191	-	-	-	160	-	-	245	130	-	310	360	567	130	80	
65-160/92/P	65	80	100	200	-	343	191	-	-	-	160	-	-	245	130	-	310	360	605	130	95	
65-160/110/P	65	80	100	200	-	343	191	-	-	-	160	-	-	245	130	-	310	360	605	130	102	
65-200/150/P	65	80	100	225	208	-	240	49	5	20	180	304	210	304	254	15	310	420	694	130	131	
65-200/185/P	65	80	100	225	208	-	240	49	5	20	180	304	254	304	254	15	310	420	694	130	141	
65-200/220/P	65	80	100	225	208	-	240	49	5	20	180	304	254	304	254	15	310	420	694	130	151	
80-160/110/P	80	100	125	225	-	343	191	-	-	-	180	-	-	265	130	-	345	405	630	160	94	
80-160/150/P	80	100	125	225	208	-	240	49	5	20	180	304	210	304	254	15	345	420	719	160	128	
80-160/185/P	80	100	125	225	208	-	240	49	5	20	180	304	254	304	254	15	345	420	719	160	139	
80-200/220/P	80	100	125	250	208	-	240	49	5	20	180	304	254	304	254	15	345	430	719	160	156	

\* Motor shim on request

ESHE\_2p50-en\_a\_td

**ESHE SERIES**  
**DIMENSIONS AND WEIGHTS AT 50 Hz, 4 POLES**



04904D-EN\_F\_DD

## ESHE SERIES

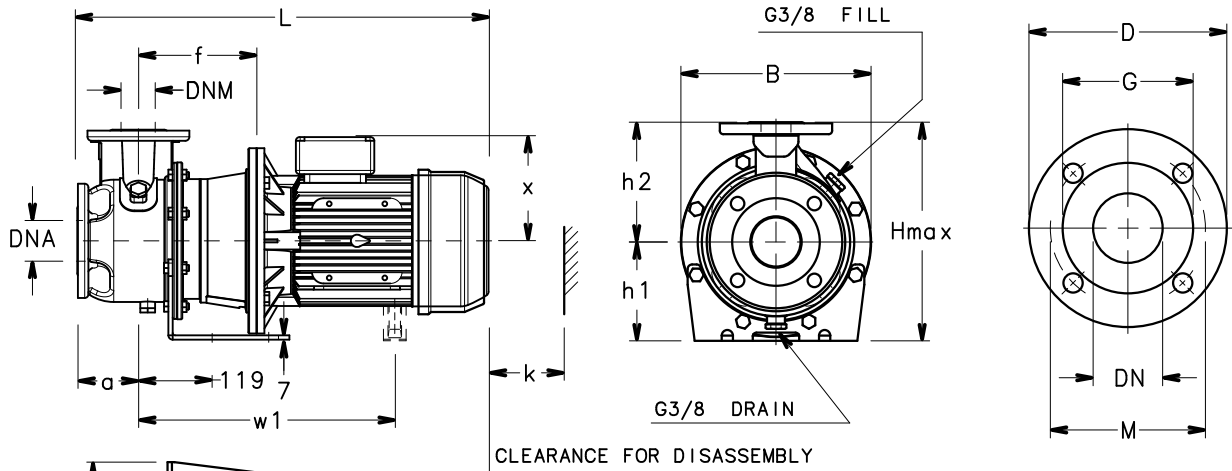
### DIMENSIONS AND WEIGHTS AT 50 Hz, 4 POLES

PUMP TYPE ESHE..4	DIMENSIONS (mm)																	WEIGHT kg			
	PUMP										SUPPORT					B	H		L	k	
DNM	DNA	a	h2	w	w1	x	b	c	*c1	h1	m	m1	n	n1	s	max					
25-125/02A/X	25	50	80	140	-	-	110	-	-	-	160	-	-	190	130	-	218	300	393	98	14
25-125/02/X	25	50	80	140	-	-	110	-	-	-	160	-	-	190	130	-	218	300	393	98	15
25-160/02A/X	25	50	80	160	-	-	110	-	-	-	160	-	-	210	130	-	253	320	393	98	17
25-160/02/X	25	50	80	160	-	-	110	-	-	-	160	-	-	210	130	-	253	320	393	98	18
25-200/03/X	25	50	80	180	-	-	110	-	-	-	160	-	-	230	130	-	284	340	393	98	24
25-200/05/X	25	50	80	180	-	-	128	-	-	-	160	-	-	230	130	-	284	340	411	98	26
25-250/07/X	25	50	100	225	-	-	128	-	-	-	180	-	-	265	130	-	345	405	431	98	42
25-250/11/P	25	50	100	225	-	-	134	-	-	-	180	-	-	265	130	-	345	405	498	98	49
25-250/15/P	25	50	100	225	-	-	134	-	-	-	180	-	-	265	130	-	345	405	498	98	51
32-125/02A/X	32	50	80	140	-	-	110	-	-	-	112	-	-	190	130	-	218	252	393	98	14
32-125/02/X	32	50	80	140	-	-	110	-	-	-	112	-	-	190	130	-	218	252	393	98	15
32-160/02A/X	32	50	80	160	-	-	110	-	-	-	132	-	-	210	130	-	253	292	393	98	17
32-160/02/X	32	50	80	160	-	-	110	-	-	-	132	-	-	210	130	-	253	292	393	98	18
32-200/03/X	32	50	80	180	-	-	110	-	-	-	160	-	-	230	130	-	284	340	393	98	24
32-200/05/X	32	50	80	180	-	-	128	-	-	-	160	-	-	230	130	-	284	340	411	98	26
32-250/07/X	32	50	100	225	-	-	128	-	-	-	180	-	-	265	130	-	345	405	431	98	42
32-250/11/P	32	50	100	225	-	-	134	-	-	-	180	-	-	265	130	-	345	405	498	98	49
32-250/15/P	32	50	100	225	-	-	134	-	-	-	180	-	-	265	130	-	345	405	498	98	51
40-125/02A/X	40	65	80	140	-	-	110	-	-	-	112	-	-	190	130	-	218	252	393	100	15
40-125/02/X	40	65	80	140	-	-	110	-	-	-	112	-	-	190	130	-	218	252	393	100	16
40-160/03/X	40	65	80	160	-	-	110	-	-	-	132	-	-	210	130	-	253	292	393	100	18
40-160/05/X	40	65	80	160	-	-	128	-	-	-	132	-	-	210	130	-	253	292	411	100	23
40-200/07/X	40	65	100	180	-	-	128	-	-	-	160	-	-	230	130	-	285	340	431	100	27
40-200/11/P	40	65	100	180	-	-	134	-	-	-	160	-	-	230	130	-	285	340	498	100	35
40-250/11/P	40	65	100	225	-	-	134	-	-	-	180	-	-	265	130	-	345	405	498	107	47
40-250/15/P	40	65	100	225	-	-	134	-	-	-	180	-	-	265	130	-	345	405	498	107	61
40-250/22/P	40	65	100	225	-	-	168	-	-	-	180	-	-	265	130	-	345	405	522	107	65
50-125/02/X	50	65	100	160	-	-	110	-	-	-	132	-	-	210	130	-	253	292	413	104	19
50-125/03/X	50	65	100	160	-	-	110	-	-	-	132	-	-	210	130	-	253	292	413	104	18
50-125/05/X	50	65	100	160	-	-	128	-	-	-	132	-	-	210	130	-	253	292	413	104	25
50-160/07/X	50	65	100	180	-	-	128	-	-	-	160	-	-	210	130	-	253	340	431	104	30
50-160/11/P	50	65	100	180	-	-	134	-	-	-	160	-	-	210	130	-	253	340	498	104	40
50-200/11/P	50	65	100	200	-	-	134	-	-	-	160	-	-	245	130	-	310	360	498	104	48
50-200/15/P	50	65	100	200	-	-	134	-	-	-	160	-	-	245	130	-	310	360	498	104	51
50-250/22A/P	50	65	100	225	-	-	168	-	-	-	180	-	-	265	130	-	345	405	522	107	56
50-250/22/P	50	65	100	225	-	-	168	-	-	-	180	-	-	265	130	-	345	405	522	107	56
50-250/30/P	50	65	100	225	-	-	168	-	-	-	180	-	-	265	130	-	345	405	553	107	62
65-160/05/X	65	80	100	200	-	-	128	-	-	-	160	-	-	245	130	-	310	360	431	130	31
65-160/07/X	65	80	100	200	-	-	128	-	-	-	160	-	-	245	130	-	310	360	431	130	36
65-160/11A/P	65	80	100	200	-	-	134	-	-	-	160	-	-	245	130	-	310	360	498	130	44
65-160/11/P	65	80	100	200	-	-	134	-	-	-	160	-	-	245	130	-	310	360	498	130	45
65-160/15/P	65	80	100	200	-	-	134	-	-	-	160	-	-	245	130	-	310	360	498	130	48
65-200/15/P	65	80	100	225	-	-	134	-	-	-	180	-	-	245	130	-	310	405	498	130	56
65-200/22/P	65	80	100	225	-	-	168	-	-	-	180	-	-	245	130	-	310	405	522	130	64
65-200/30/P	65	80	100	225	-	-	168	-	-	-	180	-	-	245	130	-	310	405	553	130	64
65-250/40/P	65	80	100	250	-	315	168	-	-	-	200	-	-	265	130	-	345	450	598	140	84
65-250/55/P	65	80	100	250	-	343	191	-	-	-	200	-	-	265	130	-	345	450	605	140	97
80-160/15/P	80	100	125	225	-	-	134	-	-	-	180	-	-	265	130	-	345	405	523	160	55
80-160/22A/P	80	100	125	225	-	-	168	-	-	-	180	-	-	265	130	-	345	405	547	160	63
80-160/22/P	80	100	125	225	-	-	168	-	-	-	180	-	-	265	130	-	345	405	547	160	66
80-200/30/P	80	100	125	250	-	-	168	-	-	-	180	-	-	265	130	-	345	430	578	160	69
80-200/40/P	80	100	125	250	-	315	168	-	-	-	180	-	-	265	130	-	345	430	623	160	88
80-250/55/P	80	100	125	280	-	343	191	-	-	-	200	-	-	303	210	-	383	480	630	160	102
80-250/75/P	80	100	125	280	-	343	191	-	-	-	200	-	-	303	210	-	383	480	630	160	106
80-250/110/P	80	100	125	280	208	-	240	49	5	40	200	304	210	304	254	15	383	480	719	160	145

\* Motor shim on request

ESHE\_4p50-en\_c\_td

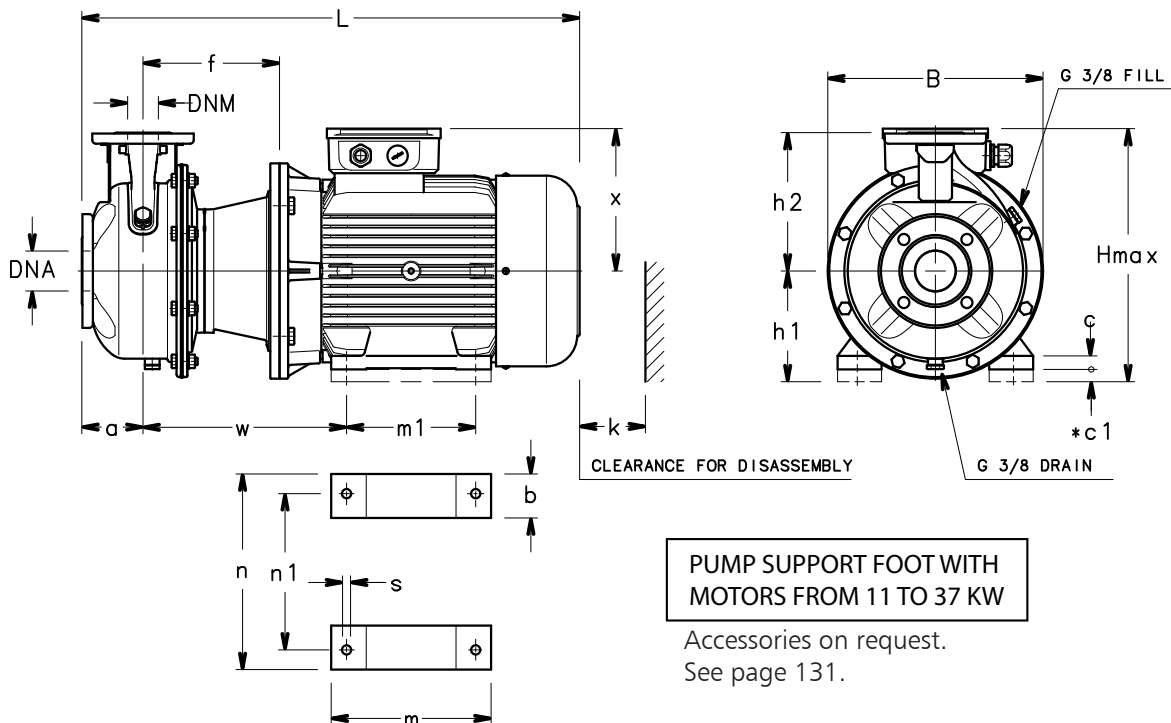
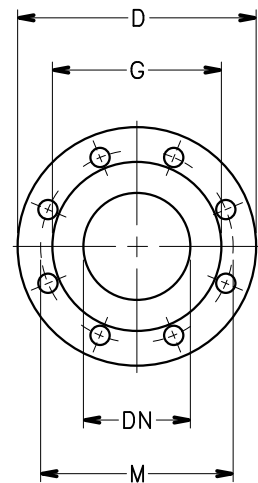
**ESHS SERIES**  
**DIMENSIONS AND WEIGHTS AT 50 Hz, 2 POLES**



**PUMP SUPPORT FOOT  
WITH MOTORS UP TO 7,5 KW**

**PUMP FLANGES**

DN	D	M	G	HOLES		MAX.
				N°	DIA.	THICKNESS
25	115	85	56	4	18	16
32	140	100	64	4	18	16
40	150	110	68	4	18	16
50	165	125	83	4	18	18
65	185	145	104	4	18	18
80	200	160	116	8	18	20
100	225	180	142	8	18	20



**PUMP SUPPORT FOOT WITH  
MOTORS FROM 11 TO 37 KW**

Accessories on request.  
See page 131.

04953D-EN\_G\_DD

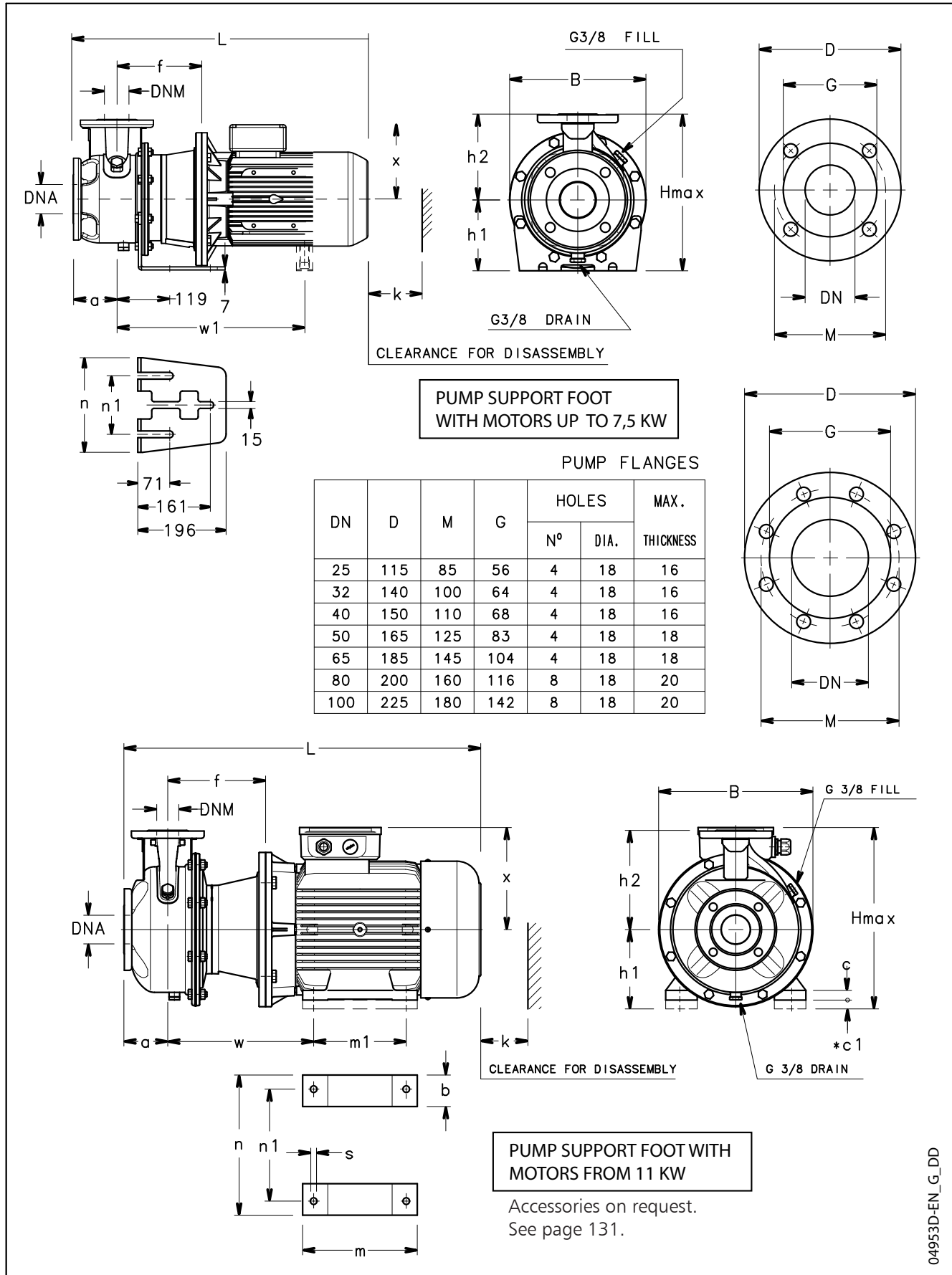
**ESHS SERIES  
DIMENSIONS AND WEIGHTS AT 50 Hz, 2 POLES**

PUMP TYPE ESHS..2	DIMENSIONS (mm)																	B	H max	L	k	WEIGHT kg
	DNM	DNA	PUMP				SUPPORT															
	a	f	h2	w	w1	x	b	c	*c1	h1	m	m1	n	n1	s							
25-125/07/S	25	50	80	155	140	-	-	129	-	-	-	160	-	-	190	130	-	218	300	498	98	24
25-125/11/S	25	50	80	155	140	-	-	129	-	-	-	160	-	-	190	130	-	218	300	498	98	25
25-160/15/S	25	50	80	155	160	-	-	129	-	-	-	160	-	-	210	130	-	253	320	498	98	27
25-160/22/P	25	50	80	155	160	-	-	134	-	-	-	160	-	-	210	130	-	253	320	533	98	33
25-200/30/P	25	50	80	165	180	-	-	134	-	-	-	160	-	-	230	130	-	284	340	543	98	44
25-200/40/P	25	50	80	165	180	-	-	154	-	-	-	160	-	-	230	130	-	284	340	564	98	51
25-250/55/P	25	50	100	192	225	-	399	168	-	-	-	180	-	-	265	130	-	345	405	667	98	77
25-250/75/P	25	50	100	192	225	-	397	191	-	-	-	180	-	-	265	130	-	345	405	659	98	91
25-250/110/P	25	50	100	222	225	330	-	240	49	5	20	180	304	210	304	254	15	350	420	816	98	130
32-125/07/S	32	50	80	155	140	-	-	129	-	-	-	112	-	-	190	130	-	218	252	498	98	24
32-125/11/S	32	50	80	155	140	-	-	129	-	-	-	112	-	-	190	130	-	218	252	498	98	25
32-160/15/S	32	50	80	155	160	-	-	129	-	-	-	132	-	-	210	130	-	253	292	498	98	27
32-160/22/P	32	50	80	155	160	-	-	134	-	-	-	132	-	-	210	130	-	253	292	533	98	33
32-200/30/P	32	50	80	165	180	-	-	134	-	-	-	160	-	-	230	130	-	284	340	543	98	44
32-200/40/P	32	50	80	165	180	-	-	154	-	-	-	160	-	-	230	130	-	284	340	564	98	51
32-250/55/P	32	50	100	192	225	-	399	168	-	-	-	180	-	-	265	130	-	345	405	667	98	77
32-250/75/P	32	50	100	192	225	-	397	191	-	-	-	180	-	-	265	130	-	345	405	659	98	91
32-250/110/P	32	50	100	222	225	330	-	240	49	5	20	180	304	210	304	254	15	350	420	816	98	130
40-125/11/S	40	65	80	155	140	-	-	129	-	-	-	112	-	-	190	130	-	218	252	498	100	26
40-125/15/S	40	65	80	155	140	-	-	129	-	-	-	112	-	-	190	130	-	218	252	498	100	26
40-125/22/P	40	65	80	155	140	-	-	134	-	-	-	112	-	-	190	130	-	218	252	533	100	32
40-160/30/P	40	65	80	165	160	-	-	134	-	-	-	132	-	-	210	130	-	253	292	543	100	42
40-160/40/P	40	65	80	165	160	-	-	154	-	-	-	132	-	-	210	130	-	253	292	564	100	48
40-200/55/P	40	65	100	192	180	-	399	168	-	-	-	160	-	-	230	130	-	300	340	667	100	63
40-200/75/P	40	65	100	192	180	-	397	191	-	-	-	160	-	-	230	130	-	300	351	659	100	80
40-250/110A/P	40	65	100	222	225	330	-	240	49	5	20	180	304	210	304	254	15	350	420	816	107	129
40-250/110/P	40	65	100	222	225	330	-	240	49	5	20	180	304	210	304	254	15	350	420	816	107	129
40-250/150/P	40	65	100	222	225	330	-	240	49	5	20	180	304	210	304	254	15	350	420	816	107	142
50-125/22/P	50	65	100	155	160	-	-	134	-	-	-	132	-	-	210	130	-	253	292	553	104	36
50-125/30/P	50	65	100	165	160	-	-	134	-	-	-	132	-	-	210	130	-	253	292	563	104	37
50-125/40/P	50	65	100	165	160	-	-	154	-	-	-	132	-	-	210	130	-	253	292	584	104	48
50-160/55/P	50	65	100	192	180	-	399	168	-	-	-	160	-	-	210	130	-	300	340	667	104	62
50-160/75/P	50	65	100	192	180	-	397	191	-	-	-	160	-	-	210	130	-	300	351	659	104	81
50-200/110A/P	50	65	100	222	200	330	-	240	49	5	20	180	304	210	304	254	15	350	420	816	104	126
50-200/110/P	50	65	100	222	200	330	-	240	49	5	20	180	304	210	304	254	15	350	420	816	104	130
50-250/150/P	50	65	100	222	225	330	-	240	49	5	20	180	304	210	304	254	15	350	420	816	107	148
50-250/185/P	50	65	100	222	225	330	-	240	49	5	20	180	304	254	304	254	15	350	420	816	107	156
50-250/220/P	50	65	100	222	225	330	-	240	49	5	20	180	304	254	304	254	15	350	420	816	107	162
65-160/40/P	65	80	100	165	200	-	-	154	-	-	-	160	-	-	245	130	-	310	360	584	130	60
65-160/55/P	65	80	100	192	200	-	399	168	-	-	-	160	-	-	245	130	-	310	360	667	130	78
65-160/75/P	65	80	100	192	200	-	397	191	-	-	-	160	-	-	245	130	-	310	360	659	130	93
65-160/110A/P	65	80	100	222	200	330	-	240	49	5	20	180	304	210	304	254	15	350	420	816	130	116
65-160/110/P	65	80	100	222	200	330	-	240	49	5	20	180	304	210	304	254	15	350	420	816	130	120
65-200/150/P	65	80	100	222	225	330	-	240	49	5	20	180	304	210	304	254	15	350	420	816	130	147
65-200/185/P	65	80	100	222	225	330	-	240	49	5	20	180	304	254	304	254	15	350	420	816	130	153
65-200/220/P	65	80	100	222	225	330	-	240	49	5	20	180	304	254	304	254	15	350	420	816	130	167
65-250/300/L	65	80	100	228	250	361	-	285	69	27	-	200	355	305	408	318	19	408	485	999	140	260
65-250/370/L	65	80	100	228	250	361	-	285	69	27	-	200	355	305	408	318	19	408	485	999	140	276
80-160/110/P	80	100	125	222	225	330	-	240	49	5	20	180	304	210	304	254	15	350	420	841	160	116
80-160/150/P	80	100	125	222	225	330	-	240	49	5	20	180	304	210	304	254	15	350	420	841	160	152
80-160/185/P	80	100	125	222	225	330	-	240	49	5	20	180	304	254	304	254	15	350	420	841	160	160
80-200/220/P	80	100	125	222	250	330	-	240	49	5	20	180	304	254	304	254	15	350	430	841	160	162
80-200/300/L	80	100	125	228	250	361	-	285	69	27	-	200	355	305	408	318	19	408	485	999	160	260
80-200/370/L	80	100	125	228	250	361	-	285	69	27	-	200	355	305	408	318	19	408	485	999	160	276

\* Motor shim on request

ESHS\_2p50-en\_b\_td

**ESHS SERIES**  
**DIMENSIONS AND WEIGHTS AT 50 Hz, 4 POLES**



## ESHS SERIES

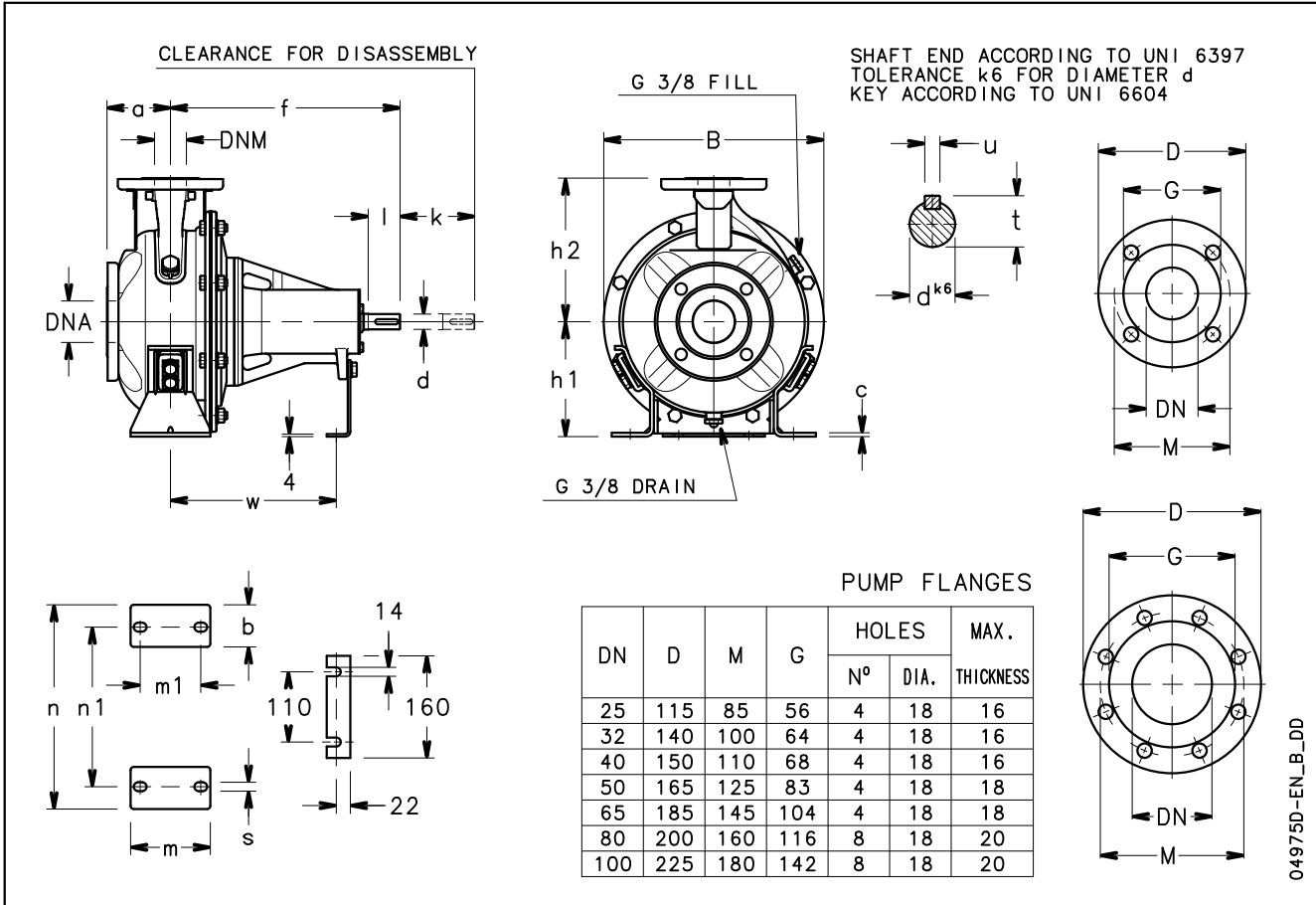
### DIMENSIONS AND WEIGHTS AT 50 Hz, 4 POLES

PUMP TYPE ESHS..4	DIMENSIONS (mm)																			B	H max	L	k	WEIGHT kg
	PUMP									SUPPORT														
	DNM	DNA	a	f	h2	w	w1	x	b	c	*c1	h1	m	m1	n	n1	s							
25-250/07/X	25	50	100	155	225	-	-	128	-	-	-	180	-	-	265	130	-	345	405	486	98	42		
25-250/11/P	25	50	100	155	225	-	-	134	-	-	-	180	-	-	265	130	-	345	405	553	98	49		
25-250/15/P	25	50	100	155	225	-	-	134	-	-	-	180	-	-	265	130	-	345	405	553	98	50		
32-250/07/X	32	50	100	155	225	-	-	128	-	-	-	180	-	-	265	130	-	345	405	486	98	42		
32-250/11/P	32	50	100	155	225	-	-	134	-	-	-	180	-	-	265	130	-	345	405	553	98	49		
32-250/15/P	32	50	100	155	225	-	-	134	-	-	-	180	-	-	265	130	-	345	405	553	98	50		
40-200/07/X	40	65	100	155	180	-	-	128	-	-	-	160	-	-	230	130	-	284	340	486	100	31		
40-200/11/P	40	65	100	155	180	-	-	134	-	-	-	160	-	-	230	130	-	284	340	553	100	37		
40-250/11/P	40	65	100	155	225	-	-	134	-	-	-	180	-	-	265	130	-	345	405	553	107	51		
40-250/15/P	40	65	100	155	225	-	-	134	-	-	-	180	-	-	265	130	-	345	405	553	107	64		
40-250/22/P	40	65	100	165	225	-	-	168	-	-	-	180	-	-	265	130	-	345	405	587	107	68		
50-160/07/X	50	65	100	155	180	-	-	128	-	-	-	160	-	-	210	130	-	253	340	486	104	30		
50-160/11/P	50	65	100	155	180	-	-	134	-	-	-	160	-	-	210	130	-	253	340	553	104	36		
50-200/11/P	50	65	100	155	200	-	-	134	-	-	-	160	-	-	245	130	-	310	360	553	104	49		
50-200/15/P	50	65	100	155	200	-	-	134	-	-	-	160	-	-	245	130	-	310	360	553	104	52		
50-250/22A/P	50	65	100	165	225	-	-	168	-	-	-	180	-	-	265	130	-	345	405	587	107	58		
50-250/22/P	50	65	100	165	225	-	-	168	-	-	-	180	-	-	265	130	-	345	405	587	107	59		
50-250/30/P	50	65	100	165	225	-	-	168	-	-	-	180	-	-	265	130	-	345	405	618	107	65		
65-160/05/X	65	80	100	155	200	-	-	128	-	-	-	160	-	-	245	130	-	310	360	486	130	33		
65-160/07/X	65	80	100	155	200	-	-	128	-	-	-	160	-	-	245	130	-	310	360	486	130	38		
65-160/11A/P	65	80	100	155	200	-	-	134	-	-	-	160	-	-	245	130	-	310	360	553	130	46		
65-160/11/P	65	80	100	155	200	-	-	134	-	-	-	160	-	-	245	130	-	310	360	553	130	48		
65-160/15/P	65	80	100	155	200	-	-	134	-	-	-	160	-	-	245	130	-	310	360	553	130	51		
65-200/15/P	65	80	100	155	225	-	-	134	-	-	-	180	-	-	245	130	-	310	405	553	130	54		
65-200/22/P	65	80	100	165	225	-	-	168	-	-	-	180	-	-	245	130	-	310	405	587	130	71		
65-200/30/P	65	80	100	165	225	-	-	168	-	-	-	180	-	-	245	130	-	310	405	618	130	72		
65-250/40/P	65	80	100	165	250	-	380	168	-	-	-	200	-	-	265	130	-	345	450	663	140	97		
65-250/55/P	65	80	100	192	250	-	435	191	-	-	-	200	-	-	265	130	-	345	450	697	140	104		
80-160/15/P	80	100	125	155	225	-	-	134	-	-	-	180	-	-	265	130	-	345	405	578	160	59		
80-160/22A/P	80	100	125	165	225	-	-	168	-	-	-	180	-	-	265	130	-	345	405	612	160	67		
80-160/22/P	80	100	125	165	225	-	-	168	-	-	-	180	-	-	265	130	-	345	405	612	160	67		
80-200/30/P	80	100	125	165	250	-	-	168	-	-	-	180	-	-	265	130	-	345	430	643	160	72		
80-200/40/P	80	100	125	165	250	-	380	168	-	-	-	180	-	-	265	130	-	345	430	688	160	88		
80-250/55/P	80	100	125	192	280	-	435	191	-	-	-	200	-	-	303	210	-	383	480	722	160	107		
80-250/75/P	80	100	125	192	280	-	435	191	-	-	-	200	-	-	303	210	-	383	480	722	160	113		
80-250/110/P	80	100	125	222	280	330	-	240	49	5	40	200	304	210	304	254	15	383	480	841	160	153		

\* Motor shim on request

ESHS\_4p50-en\_c\_td

**ESH SERIES**  
**DIMENSIONS AND WEIGHTS (BARE SHAFT)**



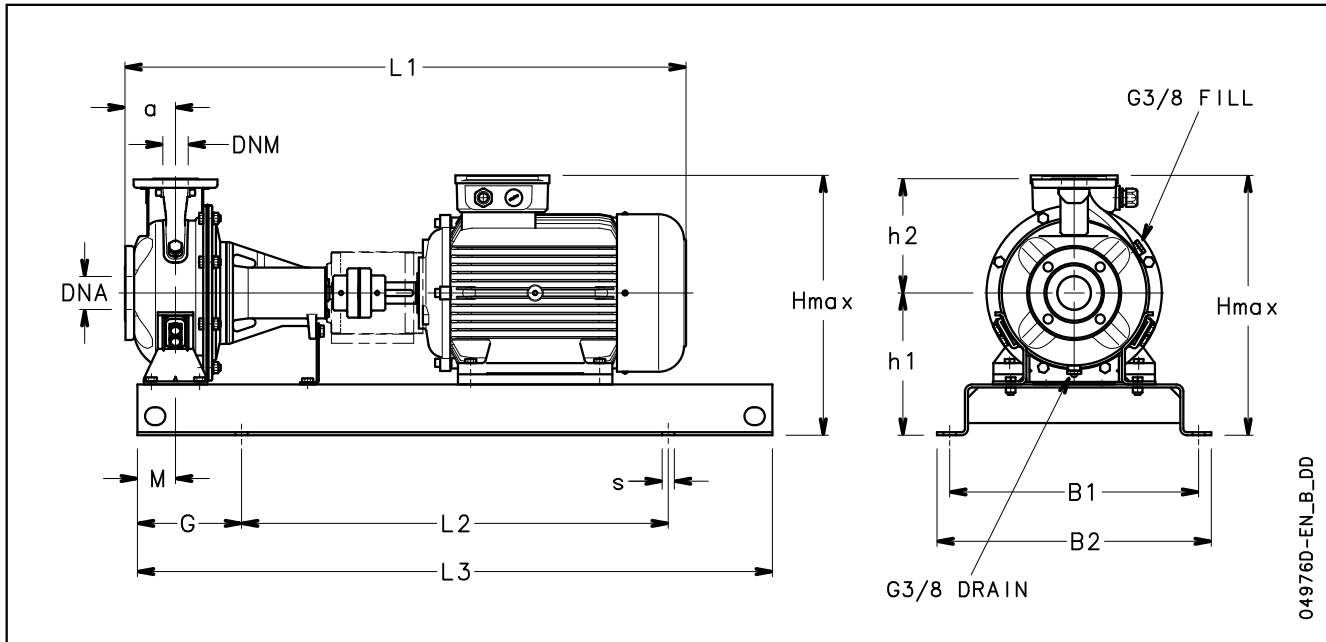


## ESH SERIES DIMENSIONS AND WEIGHTS (BARE SHAFT)

PUMP TYPE ESH (BARE SHAFT)	DIMENSIONS (mm)																		B	k	WEIGHT kg
	PUMP						SUPPORT						SHAFT								
	DNM	DNA	a	f	h1	h2	b	c	m	m1	n	n1	s	w	d	l	t	u			
25-125	25	50	80	360	112	140	47	3	100	70	190	140	14	260	24	50	27	8	218	98	14
25-160	25	50	80	360	132	160	48	3	100	70	240	190	14	260	24	50	27	8	253	98	17
25-200	25	50	80	360	160	180	47	3	100	70	240	190	14	260	24	50	27	8	284	98	20
25-250	25	50	100	360	180	225	54	6	125	95	320	250	14	260	24	50	27	8	345	98	34
32-125	32	50	80	360	112	140	47	3	100	70	190	140	14	260	24	50	27	8	218	98	14
32-160	32	50	80	360	132	160	48	3	100	70	240	190	14	260	24	50	27	8	253	98	17
32-200	32	50	80	360	160	180	47	3	100	70	240	190	14	260	24	50	27	8	284	98	20
32-250	32	50	100	360	180	225	54	6	125	95	320	250	14	260	24	50	27	8	345	98	34
40-125	40	65	80	360	112	140	47	3	100	70	210	160	14	260	24	50	27	8	218	100	16
40-160	40	65	80	360	132	160	48	3	100	70	240	190	14	260	24	50	27	8	253	100	18
40-200	40	65	100	360	160	180	50	3	100	70	265	212	14	260	24	50	27	8	284	100	20
40-250	40	65	100	360	180	225	54	6	125	95	320	250	14	260	24	50	27	8	345	107	33
50-125	50	65	100	360	132	160	48	3	100	70	240	190	14	260	24	50	27	8	253	104	17
50-160	50	65	100	360	160	180	48	3	100	70	265	212	14	260	24	50	27	8	253	104	24
50-200	50	65	100	360	160	200	40	6	100	70	265	212	14	260	24	50	27	8	310	104	30
50-250	50	65	100	360	180	225	54	6	125	95	320	250	14	260	24	50	27	8	345	107	37
65-160	65	80	100	360	160	200	48	6	125	95	280	212	14	260	24	50	27	8	310	130	31
65-200	65	80	100	360	180	225	65	15	125	95	320	250	14	260	24	50	27	8	310	130	42
65-250	65	80	100	470	200	250	80	18	160	120	360	280	18	340	32	80	35	10	345	140	55
80-160	80	100	125	360	180	225	54	6	125	95	320	250	14	260	24	50	27	8	345	160	37
80-200	80	100	125	470	180	250	65	15	125	95	345	280	14	340	32	80	35	10	345	160	55
80-250	80	100	125	470	200	280	80	18	160	120	400	315	18	340	32	80	35	10	383	160	67

ESHbs-en\_a\_td

**ESHF SERIES  
DIMENSIONS AND WEIGHTS AT 50 Hz, 2 POLES**

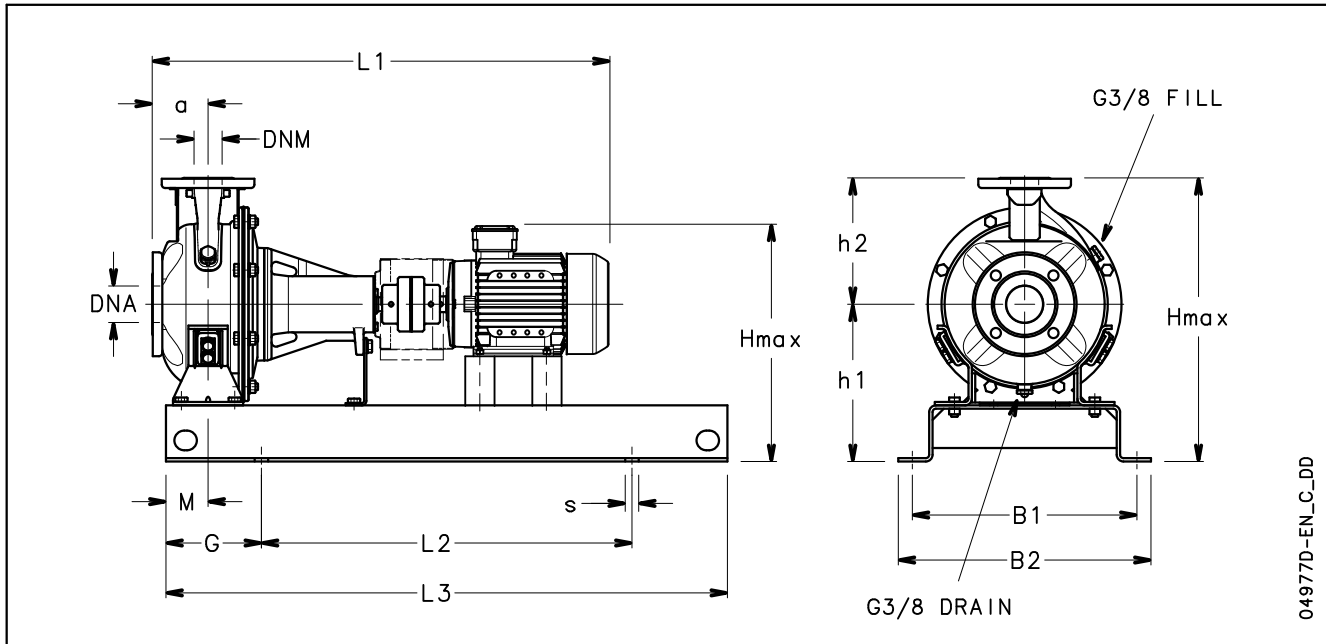


## ESHF SERIES

### DIMENSIONS AND WEIGHTS AT 50 Hz, 2 POLES

PUMP TYPE ESHF..2	DIMENSIONS (mm)													S FOR SCREWS	WEIGHT kg	COUPLING TYPE
	DNM	DNA	a	B1	B2	L1	L2	L3	G	M	h1	h2	Hmax			
25-125/07/S	25	50	80	320	360	746	540	800	130	60	212	140	352	M16	67	A2
25-125/11/S	25	50	80	320	360	746	540	800	130	60	212	140	352	M16	69	A2
25-160/15/P	25	50	80	350	390	791	600	900	150	60	232	160	392	M16	73	A3
25-160/22/P	25	50	80	350	390	791	600	900	150	60	232	160	392	M16	75	A3
25-200/30/P	25	50	80	350	390	822	600	900	150	60	260	180	440	M16	95	B1
25-200/40/P	25	50	80	350	390	825	600	900	150	60	260	180	440	M16	97	B1
25-250/55/P	25	50	100	440	490	910	740	1120	190	75	280	225	505	M20	130	C1
25-250/75/P	25	50	100	440	490	910	740	1120	190	75	280	225	505	M20	134	C1
25-250/110/P	25	50	100	490	540	1067	840	1250	205	75	280	225	520	M20	181	C2
32-125/07/S	32	50	80	320	360	746	540	800	130	60	212	140	352	M16	67	A2
32-125/11/S	32	50	80	320	360	746	540	800	130	60	212	140	352	M16	69	A2
32-160/15/P	32	50	80	350	390	791	600	900	150	60	232	160	392	M16	73	A3
32-160/22/P	32	50	80	350	390	791	600	900	150	60	232	160	392	M16	75	A3
32-200/30/P	32	50	80	350	390	822	600	900	150	60	260	180	440	M16	95	B1
32-200/40/P	32	50	80	350	390	825	600	900	150	60	260	180	440	M16	97	B1
32-250/55/P	32	50	100	440	490	910	740	1120	190	75	280	225	505	M20	130	C1
32-250/75/P	32	50	100	440	490	910	740	1120	190	75	280	225	505	M20	134	C1
32-250/110/P	32	50	100	490	540	1067	840	1250	205	75	280	225	520	M20	181	C2
40-125/11/S	40	65	80	350	390	746	600	900	150	60	212	140	352	M16	70	A2
40-125/15/P	40	65	80	350	390	791	600	900	150	60	212	140	352	M16	74	A3
40-125/22/P	40	65	80	350	390	791	600	900	150	60	212	140	352	M16	77	A3
40-160/30/P	40	65	80	350	390	822	600	900	150	60	232	160	392	M16	92	B1
40-160/40/P	40	65	80	350	390	825	600	900	150	60	232	160	400	M16	96	B1
40-200/55/P	40	65	100	400	450	910	660	1000	170	60	260	180	451	M20	123	C1
40-200/75/P	40	65	100	400	450	910	660	1000	170	60	260	180	451	M20	128	C1
40-250/110A/P	40	65	100	490	540	1067	840	1250	205	75	280	225	520	M20	167	C2
40-250/110/P	40	65	100	490	540	1067	840	1250	205	75	280	225	520	M20	170	C2
40-250/150/P	40	65	100	490	540	1067	840	1250	205	75	280	225	520	M20	175	C2
50-125/22/P	50	65	100	350	390	811	600	900	150	60	232	160	392	M16	84	A3
50-125/30/P	50	65	100	350	390	842	600	900	150	60	232	160	392	M16	92	B1
50-125/40/P	50	65	100	350	390	845	600	900	150	60	232	160	400	M16	95	B1
50-160/55/P	50	65	100	400	450	910	660	1000	170	60	260	180	451	M20	120	C1
50-160/75/P	50	65	100	400	450	910	660	1000	170	60	260	180	451	M20	122	C1
50-200/110A/P	50	65	100	440	490	1067	740	1120	190	60	260	200	500	M20	145	C2
50-200/110/P	50	65	100	440	490	1067	740	1120	190	60	260	200	500	M20	150	C2
50-250/150/P	50	65	100	490	540	1067	840	1250	205	75	280	225	520	M20	165	C2
50-250/185/P	50	65	100	490	540	1067	840	1250	205	75	280	225	520	M20	170	C2
50-250/220/L	50	65	100	490	540	1164	840	1250	205	75	280	225	533	M20	235	D1
65-160/40/P	65	80	100	400	450	845	660	1000	170	75	260	200	460	M20	133	B1
65-160/55/P	65	80	100	440	490	910	740	1120	190	75	260	200	460	M20	155	C1
65-160/75/P	65	80	100	440	490	910	740	1120	190	75	260	200	460	M20	159	C1
65-160/110A/P	65	80	100	490	540	1067	840	1250	205	75	260	200	500	M20	162	C2
65-160/110/P	65	80	100	490	540	1067	840	1250	205	75	260	200	500	M20	162	C2
65-200/150/P	65	80	100	490	540	1067	840	1250	205	75	280	225	520	M20	185	C2
65-200/185/P	65	80	100	490	540	1067	840	1250	205	75	280	225	520	M20	190	C2
65-200/220/L	65	80	100	490	540	1164	840	1250	205	75	280	225	533	M20	235	D1
65-250/300/L	65	80	100	550	610	1354	940	1400	230	90	310	250	595	M24	315	E1
65-250/370/L	65	80	100	550	610	1354	940	1400	230	90	310	250	595	M24	330	E1
80-160/110/P	80	100	125	490	540	1092	840	1250	205	75	280	225	520	M20	198	C2
80-160/150/P	80	100	125	490	540	1092	840	1250	205	75	280	225	520	M20	209	C2
80-160/185/P	80	100	125	490	540	1092	840	1250	205	75	280	225	520	M20	220	C2
80-200/220/L	80	100	125	490	540	1299	840	1250	205	75	280	250	533	M20	235	D2
80-200/300/L	80	100	125	550	610	1379	940	1400	230	75	310	250	595	M24	315	E1
80-200/370/L	80	100	125	550	610	1379	940	1400	230	75	310	250	595	M24	330	E1
80-250/450/L	80	100	125	550	610	1409	940	1400	230	90	365	280	674	M24	395	E1
80-250/550/L	80	100	125	600	660	1505	1060	1600	270	90	390	280	752	M24	601	F1
80-250/750/L	80	100	125	670	730	1611	1200	1800	300	90	420	280	819	M24	783	G1

**ESHF SERIES  
DIMENSIONS AND WEIGHTS AT 50 Hz, 4 POLES**



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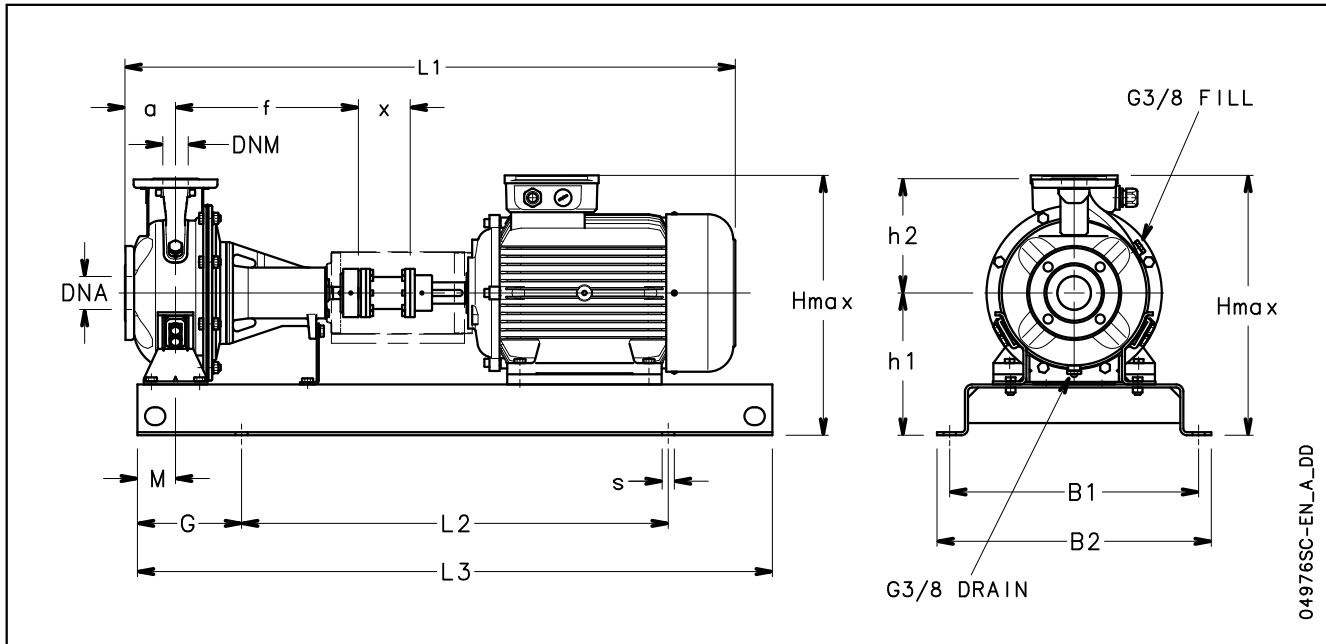
## ESHF SERIES

### DIMENSIONS AND WEIGHTS AT 50 Hz, 4 POLES

PUMP TYPE ESHF..4	DIMENSIONS (mm)													s FOR SCREWS	WEIGHT kg	COUPLING TYPE
	DNM	DNA	a	B1	B2	L1	L2	L3	G	M	h1	h2	Hmax			
25-250/07/X	25	50	100	400	450	734	660	1000	170	75	280	225	505	M20	98	A2
25-250/11/P	25	50	100	400	450	811	660	1000	170	75	280	225	505	M20	106	A3
25-250/15/P	25	50	100	400	450	811	660	1000	170	75	280	225	505	M20	108	A3
32-250/07/X	32	50	100	400	450	734	660	1000	170	75	280	225	505	M20	98	A2
32-250/11/P	32	50	100	400	450	811	660	1000	170	75	280	225	505	M20	106	A3
32-250/15/P	32	50	100	400	450	811	660	1000	170	75	280	225	505	M20	108	A3
40-200/07/X	40	65	100	350	390	734	600	900	150	60	260	180	440	M16	70	A2
40-200/11/P	40	65	100	350	390	811	600	900	150	60	260	180	440	M16	78	A3
40-250/11/P	40	65	100	400	450	811	660	1000	170	75	280	225	505	M20	105	A3
40-250/15/P	40	65	100	400	450	811	660	1000	170	75	280	225	505	M20	108	A3
40-250/22/P	40	65	100	400	450	888	660	1000	170	75	280	225	505	M20	131	B1
50-160/07/X	50	65	100	350	390	734	600	900	150	60	260	180	440	M16	69	A2
50-160/11/P	50	65	100	350	390	811	600	900	150	60	260	180	440	M16	77	A3
50-200/11/P	50	65	100	350	390	811	600	900	150	60	260	200	460	M16	88	A3
50-200/15/P	50	65	100	350	390	811	600	900	150	60	260	200	460	M16	91	A3
50-250/22A/P	50	65	100	400	450	888	660	1000	170	75	280	225	505	M20	132	B1
50-250/22/P	50	65	100	400	450	888	660	1000	170	75	280	225	505	M20	132	B1
50-250/30/P	50	65	100	400	450	888	660	1000	170	75	280	225	505	M20	136	B1
65-160/07/X	65	80	100	350	390	734	600	900	150	75	260	200	460	M16	86	A2
65-160/11A/P	65	80	100	400	450	811	600	1000	170	75	260	200	460	M20	94	A3
65-160/11/P	65	80	100	400	450	811	660	1000	170	75	260	200	460	M20	94	A3
65-160/15/P	65	80	100	400	450	811	660	1000	170	75	260	200	460	M20	97	A3
65-200/15/P	65	80	100	400	450	811	660	1000	170	75	280	225	505	M20	109	A3
65-200/22/P	65	80	100	440	490	888	740	1120	190	75	280	225	505	M20	133	B1
65-200/30/P	65	80	100	440	490	888	740	1120	190	75	280	225	505	M20	137	B1
65-250/40/P	65	80	100	440	490	1031	740	1120	190	90	310	250	550	M20	178	C3
65-250/55/P	65	80	100	440	490	1058	740	1120	190	90	310	250	550	M20	193	C4
80-160/15/P	80	100	125	400	450	836	660	1000	170	75	280	225	505	M20	127	A3
80-160/22A/P	80	100	125	440	490	913	740	1120	190	75	280	225	505	M20	143	B1
80-160/22/P	80	100	125	440	490	913	740	1120	190	75	280	225	505	M20	143	B1
80-200/30/P	80	100	125	440	490	1023	740	1120	190	75	280	250	530	M20	162	C3
80-200/40/P	80	100	125	440	490	1056	740	1120	190	75	280	250	530	M20	171	C3
80-250/55/P	80	100	125	490	540	1083	840	1250	205	90	310	280	590	M20	194	C4
80-250/75/P	80	100	125	490	540	1083	840	1250	205	90	310	280	590	M20	198	C4
80-250/110/P	80	100	125	490	540	1202	840	1250	205	90	310	280	590	M20	256	C5

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**ESHC SERIES**  
**DIMENSIONS AND WEIGHTS AT 50 Hz, 2 POLES**



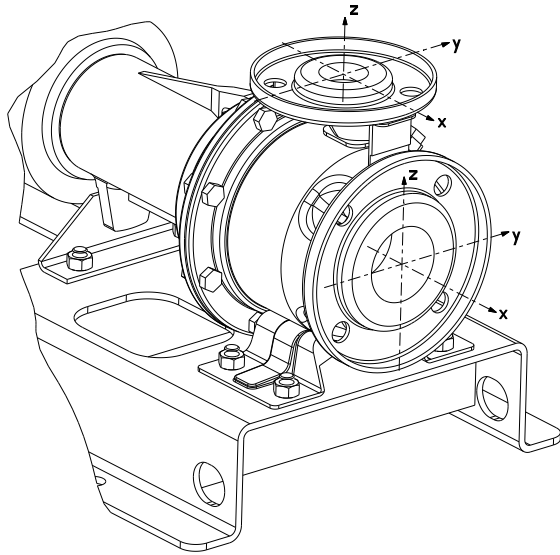
## ESHC SERIES

### DIMENSIONS AND WEIGHTS AT 50 Hz, 2 POLES

PUMP TYPE ESHC..2	DIMENSIONS (mm)															s FOR SCREWS	WEIGHT kg	COUPLING TYPE
	DNM	DNA	a	B1	B2	L1	L2	L3	G	M	h1	h2	Hmax	f	x			
32-125/07/S	32	50	80	320	360	845	540	800	130	60	212	140	352	360	100	M16	69	A2S
32-125/11/S	32	50	80	320	360	845	540	800	130	60	212	140	352	360	100	M16	71	A2S
32-160/15/P	32	50	80	350	390	889	600	900	150	60	232	160	392	360	100	M16	75	A3S
32-160/22/P	32	50	80	350	390	889	600	900	150	60	232	160	392	360	100	M16	77	A3S
32-200/30/P	32	50	80	350	390	920	600	900	150	60	260	180	440	360	100	M16	97	B1S
32-200/40/P	32	50	80	350	390	923	600	900	150	60	260	180	440	360	100	M16	99	B1S
32-250/55/P	32	50	100	440	490	1007	740	1120	190	75	280	225	505	360	100	M20	132	C1S
32-250/75/P	32	50	100	440	490	1007	740	1120	190	75	280	225	505	360	100	M20	136	C1S
32-250/110/P	32	50	100	490	540	1164	840	1250	205	75	280	225	520	360	100	M20	183	C2S
40-125/11/S	40	65	80	350	390	845	600	900	150	60	212	140	352	360	100	M16	72	A2S
40-125/15/P	40	65	80	350	390	889	600	900	150	60	212	140	352	360	100	M16	76	A3S
40-125/22/P	40	65	80	350	390	889	600	900	150	60	212	140	352	360	100	M16	79	A3S
40-160/30/P	40	65	80	350	390	920	600	900	150	60	232	160	392	360	100	M16	94	B1S
40-160/40/P	40	65	80	350	390	923	600	900	150	60	232	160	400	360	100	M16	98	B1S
40-200/55/P	40	65	100	400	450	1007	660	1000	170	60	260	180	451	360	100	M20	125	C1S
40-200/75/P	40	65	100	400	450	1007	660	1000	170	60	260	180	451	360	100	M20	130	C1S
40-250/110A/P	40	65	100	490	540	1164	840	1250	205	75	280	225	520	360	100	M20	169	C2S
40-250/110/P	40	65	100	490	540	1164	840	1250	205	75	280	225	520	360	100	M20	172	C2S
40-250/150/P	40	65	100	490	540	1164	840	1250	205	75	280	225	520	360	100	M20	177	C2S
50-125/22/P	50	65	100	350	390	909	600	900	150	60	232	160	392	360	100	M16	86	A3S
50-125/30/P	50	65	100	350	390	940	600	900	150	60	232	160	392	360	100	M16	94	B1S
50-125/40/P	50	65	100	350	390	943	600	900	150	60	232	160	400	360	100	M16	97	B1S
50-160/55/P	50	65	100	400	450	1007	660	1000	170	60	260	180	451	360	100	M20	122	C1S
50-160/75/P	50	65	100	400	450	1007	660	1000	170	60	260	180	451	360	100	M20	124	C1S
50-200/110A/P	50	65	100	440	490	1164	740	1120	190	60	260	200	500	360	100	M20	147	C2S
50-200/110/P	50	65	100	440	490	1164	740	1120	190	60	260	200	500	360	100	M20	152	C2S
50-250/150/P	50	65	100	490	540	1164	840	1250	205	75	280	225	520	360	100	M20	167	C2S
50-250/185/P	50	65	100	490	540	1164	840	1250	205	75	280	225	520	360	100	M20	172	C2S
50-250/220/L	50	65	100	490	540	1298	840	1250	205	75	280	225	533	360	100	M20	243	D1S
65-160/40/P	65	80	100	400	450	943	660	1000	170	75	260	200	460	360	100	M20	135	B1S
65-160/55/P	65	80	100	440	490	1007	740	1120	190	75	260	200	460	360	100	M20	157	C1S
65-160/75/P	65	80	100	440	490	1007	740	1120	190	75	260	200	460	360	100	M20	161	C1S
65-160/110A/P	65	80	100	490	540	1164	840	1250	205	75	260	200	500	360	100	M20	164	C2S
65-160/110/P	65	80	100	490	540	1164	840	1250	205	75	260	200	500	360	100	M20	164	C2S
65-200/150/P	65	80	100	490	540	1164	840	1250	205	75	280	225	520	360	100	M20	187	C2S
65-200/185/P	65	80	100	490	540	1164	840	1250	205	75	280	225	520	360	100	M20	192	C2S
65-200/220/L	65	80	100	490	540	1298	840	1250	205	75	280	225	533	360	100	M20	243	D1S
65-250/300/L	65	80	100	550	610	1505	940	1400	230	90	310	250	595	470	140	M24	323	E1S
65-250/370/L	65	80	100	550	610	1505	940	1400	230	90	310	250	595	470	140	M24	338	E1S
80-160/110/P	80	100	125	490	540	1189	840	1250	205	75	280	225	520	360	100	M20	200	C2S
80-160/150/P	80	100	125	490	540	1189	840	1250	205	75	280	225	520	360	100	M20	211	C2S
80-160/185/P	80	100	125	490	540	1189	840	1250	205	75	280	225	520	360	100	M20	222	C2S
80-200/220/L	80	100	125	490	540	1433	840	1250	205	75	280	250	533	470	100	M20	243	D2S
80-200/300/L	80	100	125	550	610	1530	940	1400	230	75	310	250	595	470	140	M24	323	E1S
80-200/370/L	80	100	125	550	610	1530	940	1400	230	75	310	250	595	470	140	M24	338	E1S
80-250/450/L	80	100	125	550	610	1500	940	1400	230	90	365	280	674	470	140	M24	403	E1S
80-250/550/L	80	100	125	600	660	1583	1060	1600	270	90	390	280	752	470	140	M24	609	F1S
80-250/750/L	80	100	125	670	730	1688	1200	1800	300	90	420	280	819	470	140	M24	791	G1S

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**ESH SERIES**  
**FORCES AND MOMENTS AT PUMP FLANGES**  
**Valid for pump standing on the support foot**



Forces at the pump flanges calculated according to EN ISO 5199:2002.

When the applied loads do not all attain the maximum values allowed, one of these loads may exceed the normal limit, provided that the following supplementary conditions are satisfied:

- any component of a force or of a moment shall be limited to 1,4 times the maximum allowable value;
- the actual forces and moments acting on each flange are governed by the following formula:

$$\left(\frac{\sum |F_{x,y,z}|}{\sum |F_{max}|}\right)^2 + \left(\frac{\sum |M_{x,y,z}|}{\sum |M_{max}|}\right)^2 \leq 2$$



## ESH SERIES

### FORCES AND MOMENTS AT PUMP FLANGES

Valid for pump standing on the support foot

Size	Suction								
	DNS	Fx max [N]	Fy max [N]	Fz max [N]	ΣF max [N]	Mx max [Nm]	My max [Nm]	Mz max [Nm]	ΣM max [Nm]
25-125	50	413	375	338	652	350	250	288	517
25-160	50	413	375	338	652	350	250	288	517
25-200	50	413	375	338	652	350	250	288	517
25-250	50	413	375	338	652	350	250	288	517
32-125	50	413	375	338	652	350	250	288	517
32-160	50	413	375	338	652	350	250	288	517
32-200	50	413	375	338	652	350	250	288	517
32-250	50	413	375	338	652	350	250	288	517
40-125	65	519	469	425	819	375	269	306	554
40-160	65	519	469	425	819	375	269	306	554
40-200	65	519	469	425	819	375	269	306	554
40-250	65	519	469	425	819	375	269	306	554
50-125	65	519	469	425	819	375	269	306	554
50-160	65	519	469	425	819	375	269	306	554
50-200	65	519	469	425	819	375	269	306	554
50-250	65	519	469	425	819	375	269	306	554
65-160	80	625	563	513	985	400	288	325	590
65-200	80	625	563	513	985	400	288	325	590
65-250	80	625	563	513	985	400	288	325	590
80-160	100	838	750	675	1311	438	313	363	648
80-200	100	838	750	675	1311	438	313	363	648
80-250	100	838	750	675	1311	438	313	363	648

Size	Discharge								
	DND	Fx max [N]	Fy max [N]	Fz max [N]	ΣF max [N]	Mx max [Nm]	My max [Nm]	Mz max [Nm]	ΣM max [Nm]
25-125	25	138	125	156	243	163	113	131	238
25-160	25	138	125	156	243	163	113	131	238
25-200	25	138	125	156	243	163	113	131	238
25-250	25	138	125	156	243	163	113	131	238
32-125	32	176	160	200	311	208	144	168	304
32-160	32	176	160	200	311	208	144	168	304
32-200	32	176	160	200	311	208	144	168	304
32-250	32	176	160	200	311	208	144	168	304
40-125	40	220	200	250	388	260	180	210	380
40-160	40	220	200	250	388	260	180	210	380
40-200	40	220	200	250	388	260	180	210	380
40-250	40	220	200	250	388	260	180	210	380
50-125	50	300	270	330	521	280	200	230	414
50-160	50	300	270	330	521	280	200	230	414
50-200	50	300	270	330	521	280	200	230	414
50-250	50	300	270	330	521	280	200	230	414
65-160	65	375	340	415	655	300	215	245	443
65-200	65	375	340	415	655	300	215	245	443
65-250	65	375	340	415	655	300	215	245	443
80-160	80	450	410	500	788	320	230	260	472
80-200	80	450	410	500	788	320	230	260	472
80-250	80	450	410	500	788	320	230	260	472



# **ESH..X: VERSION WITH hydrovar X+**

## ESH..X SERIES

### ESH WITH hydrovar X+

#### Background and context

Xylem is a leading global water technology company committed to solving critical water and infrastructure challenges with innovation.

By providing smart and cutting-edge technology, we are reducing energy consumption to minimum possible levels and increasing sustainability.

There is one thing that Xylem shares with the greatest engineering innovators, that's the continuous investment into new products that reflects into outstanding solutions. You can find all these features in **hydrovar X+**, the answer to innovation, sustainability and easiness all-in-one.

**hydrovar X+** also brings the best energy efficiency performances with its frequency converter coupled with the ultimate synchronous motor, manufactured by Xylem integrating decades of expertise and know-how in pumping solutions.

It's the right combination of motors, variable speed drive and pump ensuring great performance, maximum savings and a rapid return on investment.

#### Sustainability

**hydrovar X+** brings green technology solution by providing best-in-class performance achievement. Rare earths? No thanks! Xylem accepted the challenge to fight price, availability and environmental concerns with a smarter technology that provides the best-in-class performance with a green heart.

#### Ease of use and commissioning

The built-in application software makes it the easiest drive to commission, program and operate, enabling virtually any configuration of pumps. Backward compatibility assures the **hydrovar X+** will work seamlessly with existing systems.

#### Pump solution

Integrated pump functions provide protection for the pump solution, and improve the quality of energy from the grid. All of this means terrific energy savings from a compact, easy-to-use solution suited for nearly any application.

#### Application sectors

- Industrial installations
- Air conditioning
- Water supply systems in residential buildings
- Water treatment plants

#### Regulations (EU) 2019/1781 e 2021/34, Annex I – point 4 (Product information)

The requirements shall not apply to these variable speed drives, as they are integrated to motors that aren't covered by the same regulations.



#### hydrovar X+ (ESH..X)

- IES2 efficiency level (IEC 61800-9-2:2017)
- Three-phase power supply:
  - from 3 kW to 22 kW: 380-480 V +/- 10%, 50/60 Hz
  - from 3 kW to 11 kW: 200-240 V +/- 10%, 50/60 Hz (on request)
- Power up to 22 kW
- Protection class IP 55
- Overload and locked rotor protection with automatic reset incorporated
- Can be linked up to 8 ESH with hydrovar X+ pumps

#### Pump

- Flow rate: up to 222 m<sup>3</sup>/h
- Head: up to 120 m
- Temperature of pumped liquid: up to +120°C
- Maximum operating pressure 12 bar (PN 12)
- The hydraulic performances meet the tolerances specified in ISO 9906:2012

#### Motor

- IE5 efficiency level (IEC TS 60034-30-2:2016)
- Synchronous electric motor with permanent magnet assisted reluctance technology, closed structure, air-cooled (TEFC)
- Insulation class 155 (F)
- Environment temperature: -20°C to +50°C with no performance derating

#### Pressure transmitters

The ESH..X pumps are fitted as standard with one pressure transmitter. The pressure transmitter is supplied unassembled.

## ESH..X SERIES LIST OF MODELS

SIZE ESH..X	PN [kW]	MOTOR		VERSION	
		SIZE	SPEED	ESHE..	ESHS..
25-200	3	B	high (2)	•	-
25-200	4	B	high (2)	•	-
25-250	5.5	B	high (2)	•	-
25-250	7.5	C	high (2)	•	-
25-250	11	C	high (2)	•	-
32-200	3	B	high (2)	•	-
32-200	4	B	high (2)	•	-
32-250	5.5	B	high (2)	•	-
32-250	7.5	C	high (2)	•	-
32-250	11	C	high (2)	•	-
40-125	3	B	high (2)	•	-
40-160	4	B	high (2)	•	-
40-160	5.5	B	high (2)	•	-
40-200	7.5	C	high (2)	•	-
40-250	11	C	high (2)	•	-
40-250	15	D	high (2)	•	-
40-250	18.5	D	high (2)	•	-
50-125	3	B	high (2)	•	-
50-125	4	B	high (2)	•	-
50-125	5.5	B	high (2)	•	-
50-160	7.5	C	high (2)	•	-
50-160	11	C	high (2)	•	-
50-200	15	D	high (2)	-	•
50-200	18.5	D	high (2)	-	•

• = Available

SIZE ESH..X	PN [kW]	MOTOR		VERSION	
		SIZE	SPEED	ESHE..	ESHS..
65-160	4	B	high (2)	•	-
65-160	5.5	B	high (2)	•	-
65-160	7.5	C	high (2)	•	-
65-160	11	C	high (2)	•	-
65-200	15	D	high (2)	•	-
65-200	18.5	D	high (2)	•	-
65-200	22	D	high (2)	•	-
80-160	4	C	low (4)	•	-
80-160	5.5	C	low (4)	•	-
80-160	11	D	high (2)	•	-
80-160	15	D	high (2)	•	-
80-160	18.5	D	high (2)	•	-
80-200	7.5	D	low (4)	-	•
80-200	22	D	high (2)	•	-

ESHX\_models-en\_a\_sc

### LEGEND

**ESHE** : Extended shaft.

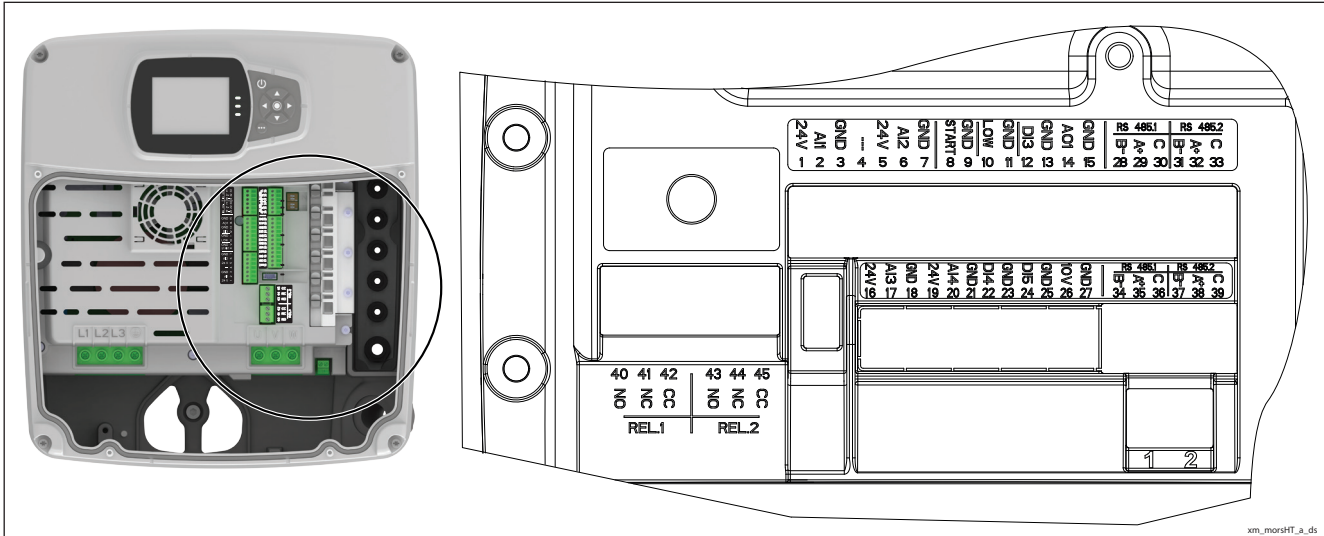
**ESHS** : Stub shaft.

## DISPLAY

hydrovar X+ offers a graphical colored display, like in the below picture:



## ESH..X SERIES TERMINAL BOARD



REF.	ITEM	DESCRIPTION	DEFAULT
1		Power supply +24 VDC, max. 60mA (total, terminals 1 + 5)	
2	Analog Input 1	Configurable Analog Input 1	Pressure Sensor 1
3		Electronic GND	
4	Not used	Internal use - Do not connect	
5		Power supply +24 VDC, max. 60mA (total, terminals 1 + 5)	
6	Analog Input 2	Configurable Analog Input 2	Not used
7		Electronic GND	
8	External Start/Stop	Start/Stop digital input, +24 VDC internal pull-up, 6mA contact current	-
9		Electronic GND	
10	External Lack of Water	Low water digital input, +24 VDC internal pull-up, 6mA contact current	-
11		Electronic GND	
12	Digital Input 3	Configurable Digital Input 3, +24 VDC internal pull-up, 6mA contact current	Solo Run
13		Electronic GND	
14	Analog Output	Configurable Analog Output	Motor Speed
15		Electronic GND	
16		Power supply +24 VDC, max. 60mA (total, terminals 16 and 19)	
17	Analog Input 3	Configurable Analog Input 3	Not used
18		Electronic GND	
19		Power supply +24 VDC, max. 60mA (total, terminals 16 and 19)	
20	Analog Input 4	Configurable Analog Input 4	Not used
21		Electronic GND	
22	Digital Input 4	Configurable Digital Input 4, +24 VDC internal pull-up, 6mA contact current	Not used
23		Electronic GND	
24	Digital Input 5	Configurable Digital Input 5, +24 VDC internal pull-up, 6mA contact current	Not used
25		Electronic GND	
26	10 VDC supply	Power supply +10 VDC, max. 3mA	-
27		Electronic GND	
28		RS485 port 1: RS485-1B N (-)	
29	Communication bus 1	RS485 port 1: RS485-1A P (+)	Multipump
30		RS485 port 1: RS485-COM	
31		RS485 port 2: RS485-2B N (-)	
32	Communication bus 2	RS485 port 2: RS485-2A P (+)	Modbus
33		RS485 port 2: RS485-COM	
34		RS485 port 1: RS485-1B N (-)	
35	Communication bus 1	RS485 port 1: RS485-1A P (+)	Multipump
36		RS485 port 1: RS485-COM	
37		RS485 port 2: RS485-2B N (-)	
38	Communication bus 2	RS485 port 2: RS485-2A P (+)	Modbus
39		RS485 port 2: RS485-COM	
40		Configurable relay 1: Normally Open	
41	Relay 1	Configurable relay 1: Normally Closed	Running
42		Configurable relay 1: Common Contact	
43		Configurable relay 2: Normally Open	
44	Relay 2	Configurable relay 2: Normally Closed	Error
45		Configurable relay 2: Common Contact	

xm\_morsHT-en\_a\_sc

## ESH..X SERIES HYDRAULIC PERFORMANCE TABLE

PUMP TYPE ESH..X	MOTOR PN kW TYPE		Q = FLOW									
			l/min 0	58,33	116,7	175	233,3	291,7	350	408,3	466,67	500
			m <sup>3</sup> /h 0	3,5	7	10,5	14	17,5	21	24,5	28	30
H = TOTAL HEAD METRES COLUMN OF WATER												
25-200	3	EXM100../4.030BH2	48,1	47,1	46,2	44,9	42,0	35,0	28,7	22,5		
25-200	4	EXM112../4.040BH2	71,2	70,4	69,3	60,4	52,8	46,2	40,2	34,4		
25-250	5,5	EXM112../4.055BH2	78,1	77,9	77,0	68,6	61,2	54,4	47,8	41,2		
25-250	7,5	EXM132../4.075CH2	87,1	86,8	86,2	85,0	78,7	71,0	63,6	56,3		
25-250	11	EXM132../4.110CH2	120,8	120,6	119,7	117,9	108,5	98,9	89,9	81,4	73,1	68,5

PUMP TYPE ESH..X	MOTOR PN kW TYPE		Q = FLOW									
			l/min 0	58,33	116,7	175	233,3	291,7	350	408,3	466,67	500
			m <sup>3</sup> /h 0	3,5	7	10,5	14	17,5	21	24,5	28	30
H = TOTAL HEAD METRES COLUMN OF WATER												
32-200	3	EXM100../4.030BH2	48,7	47,6	46,9	45,9	40,9	35,1	29,8	24,8		
32-200	4	EXM112../4.040BH2	72,1	71,4	69,2	60,3	52,6	45,8	39,4	33,4		
32-250	5,5	EXM112../4.055BH2	78,2	78,0	77,0	68,8	61,5	54,8	48,3	41,8		
32-250	7,5	EXM132../4.075CH2	87,1	86,9	86,3	85,3	79,0	71,4	64,1	56,9		
32-250	11	EXM132../4.110CH2	120,4	120,5	120,0	117,0	106,9	97,5	88,7	80,6	72,9	68,6

PUMP TYPE ESH..X	MOTOR PN kW TYPE		Q = FLOW									
			l/min 0	100	200	300	400	500	600	700	800	850
			m <sup>3</sup> /h 0	6	12	18	24	30	36	42	48	51
H = TOTAL HEAD METRES COLUMN OF WATER												
40-125	3	EXM100../4.030BH2	35,8	35,7	35,2	34,2	29,8	25,7	21,6	17,9	14,3	
40-160	4	EXM112../4.040BH2	47,7	48,0	47,5	44,6	37,9	32,2	27,1	22,4	18,0	
40-160	5,5	EXM112../4.055BH2	56,0	56,3	55,8	54,8	51,9	44,9	38,8	33,2	28,0	
40-200	7,5	EXM132../4.075CH2	75,2	75,5	74,8	73,6	64,0	55,5	47,8	40,7	34,0	
40-250	11	EXM132../4.110CH2	88,9	89,2	88,5	87,4	84,5	74,9	65,7	56,4	46,3	
40-250	15	EXM160../4.150DH2	95,4	95,7	95,1	93,8	91,9	89,4	85,6	77,3	66,8	61,2
40-250	18,5	EXM160../4.185DH2	117,9	117,9	117,0	115,3	113,2	110,5	102,9	92,5	82,0	76,6

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A)

ESHX-1-en\_a\_th

## ESH..X SERIES HYDRAULIC PERFORMANCE TABLE

PUMP TYPE ESH..X	MOTOR PN kW TYPE		Q = FLOW									
			l/min 0	166,7	333,3	500	666,7	833,3	1000	1167	1333,3	1500
			m <sup>3</sup> /h 0	10	20	30	40	50	60	70	80	90
H = TOTAL HEAD METRES COLUMN OF WATER												
50-125	3	EXM100../4.030BH2	21,6	21,6	21,0	19,9	18,2	16,0	12,7	9,7		
50-125	4	EXM112../4.040BH2	25,4	25,6	25,4	24,6	23,1	21,0	17,7	14,1	11,0	
50-125	5,5	EXM112../4.055BH2	36,3	36,5	36,6	36,0	34,6	30,2	25,1	20,6	16,7	
50-160	7,5	EXM132../4.075CH2	50,0	50,2	49,6	48,3	43,0	37,5	32,4	27,5	22,7	17,9
50-160	11	EXM132../4.110CH2	59,5	59,8	59,3	58,1	56,4	54,0	48,5	42,6	37,0	31,5
50-200	15	EXM160../4.150DH2	77,0	77,0	76,4	74,7	72,0	68,5	63,9	56,4	47,6	38,9
50-200	18,5	EXM160../4.185DH2	87,3	87,4	86,8	85,2	82,5	79,0	74,6	68,9	60,2	50,8

PUMP TYPE ESH..X	MOTOR PN kW TYPE		Q = FLOW									
			l/min 0	233,3	466,7	700	933,3	1167	1400	1633	1866,7	2100
			m <sup>3</sup> /h 0	14	28	42	56	70	84	98	112	126
H = TOTAL HEAD METRES COLUMN OF WATER												
65-160	4	EXM112../4.040BH2	28,0	28,2	27,8	22,9	18,5	14,8	11,4	8,3		
65-160	5,5	EXM112../4.055BH2	34,8	36,2	36,3	31,5	26,2	21,6	17,6	13,9	10,3	
65-160	7,5	EXM132../4.075CH2	41,6	43,2	43,3	39,9	33,5	27,9	22,7	17,7	12,9	
65-160	11	EXM132../4.110CH2	49,6	51,2	51,6	51,1	49,6	43,7	37,2	31,1	25,2	
65-200	15	EXM160../4.150DH2	65,5	65,5	64,9	63,5	61,2	53,5	45,0	37,3	30,0	
65-200	18,5	EXM160../4.185DH2	78,5	78,5	78,0	76,8	74,4	66,0	56,3	47,5	39,3	
65-200	22	EXM180../4.220DH2	92,7	92,6	92,5	91,9	90,0	80,0	68,7	58,7	49,8	42,0

PUMP TYPE ESH..X	MOTOR PN kW TYPE		Q = FLOW									
			l/min 0	416,7	833,3	1250	1667	2083	2500	2917	3333,3	3700
			m <sup>3</sup> /h 0	25	50	75	100	125	150	175	200	222
H = TOTAL HEAD METRES COLUMN OF WATER												
80-160	4	EXM112../4.040CH4	18,5	18,3	17,8	14,8	11,2	8,1	4,9			
80-160	5,5	EXM132../4.055CH4	19,9	20,6	19,7	18,0	15,5	12,6	9,1			
80-200	7,5	EXM132../4.075DH4	29,1	29,1	28,6	27,0	22,5	17,3	13,6			
80-160	11	EXM160../4.110DH2	40,9	40,9	39,7	32,3	26,3	21,3	17,1	13,1	9,5	
80-160	15	EXM160../4.150DH2	50,3	50,4	50,0	46,5	38,8	32,5	27,1	22,2	17,7	13,9
80-160	18,5	EXM160../4.185DH2	55,0	56,7	56,6	55,6	48,8	41,8	35,7	30,3	25,3	21,1
80-200	22	EXM180../4.220DH2	68,8	68,7	68,3	65,9	57,9	50,1	42,8	36,0	29,6	24,6

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A)

ESHX-2-en\_a\_th



## hydrovar X+ ELECTRICAL DATA TABLE

In the speed range indicated for each model in the table, the rated power is guaranteed. Above the maximum speed required by the pump model, the motor is automatically limited. Below the minimum full load rated speed, the motor works partially load.

P <sub>N</sub> kW	MOTOR TYPE	IEC SIZE*	Construction Design	SPEED (RPM)** min <sup>-1</sup>	INPUT CURRENT I (A) 380-480 V	DATA RELATED TO THE VOLTAGE OF 400V					IES	
						In A	cosφ	Tn Nm	η % 4/4 3/4 2/4			
3	EXM100../4.030BH2	100		3000	6,7-5,3	5,8	0,86	9,6	87,5	87,3	86,2	2
				3600		5,7		8,0	87,8	87,6	85,8	
				4000		5,7		7,2	87,7	87,4	85,5	
4	EXM112../4.040BH2	112		3000	7,7-6,6	7,3	0,90	12,7	87,5	88,0	87,5	
				3600		7,2		10,6	88,5	88,6	87,3	
				4000		7,3		9,6	88,0	88,2	86,6	
	EXM112../4.040CH4			1500	9,2-8,5	8,9	0,72	25,5	89,6	89,8	89,4	
				1800		9,0		21,2	90,1	90,6	90,5	
				2000		9,0		19,1	90,3	91,0	91,1	
5,5	EXM112../4.055BH2	132		3000	10,2-8,4	9,5	0,92	17,5	90,0	89,7	88,9	
				3600		9,6		14,6	89,4	89,5	88,7	
				4000		9,6		13,1	89,5	89,0	87,6	
	EXM132../4.055CH4			1500	11,2-10,2	10,8	0,81	35,0	90,7	91,0	90,5	
				1800		10,8		29,2	91,0	91,5	91,3	
				2000		10,8		26,3	90,1	91,2	90,6	
7,5	EXM132../4.075CH2	132		3000	14,4-12,5	13,4	0,85	23,9	90,6	89,7	87,9	
				3600		14,0		19,9	90,8	90,1	88,4	
				4000		13,5		17,9	89,5	88,6	86,4	
	EXM132../4.075DH4			1500	18,7-17,4	18,4	0,66	47,8	89,9	90,2	89,9	
				1800		18,1		39,8	90,7	90,9	90,8	
				2000		18,0		35,8	90,6	91,1	90,3	
11	EXM132../4.110CH2	132		3000	20,3-16,5	18,9	0,93	35,0	91,0	90,9	90,0	
				3600		19,1		29,2	89,7	89,5	88,2	
				4000		19,3		26,3	89,7	89,7	88,7	
11	EXM160../4.110DH2	160		3000	24,5-22,8	22,0	0,79	35,0	91,7	91,4	90,5	
				3600		22,1		29,2	91,6	90,9	89,4	
				4000		21,7		26,3	91,8	91,2	89,9	
15	EXM160../4.150DH2	160		3000	30,2-27,1	26,4	0,81	47,8	91,5	91,4	90,5	
				3600		29,1		39,8	91,7	91,4	90,5	
				4000		29,1		35,8	91,2	91,1	89,7	
18,5	EXM160../4.185DH2	160		3000	33,5-28,6	32,2	0,90	58,9	91,7	91,7	91,2	
				3600		32,1		49,1	91,9	91,7	90,9	
				4000		32,1		44,2	91,9	91,7	90,8	
22	EXM180../4.220DH2	180		3000	38,9-32,4	33,5	0,93	70,0	92,4	92,0	91,2	
				3600		33,3		58,4	92,6	92,1	91,0	
				4000		32,7		52,7	92,5	91,9	90,5	

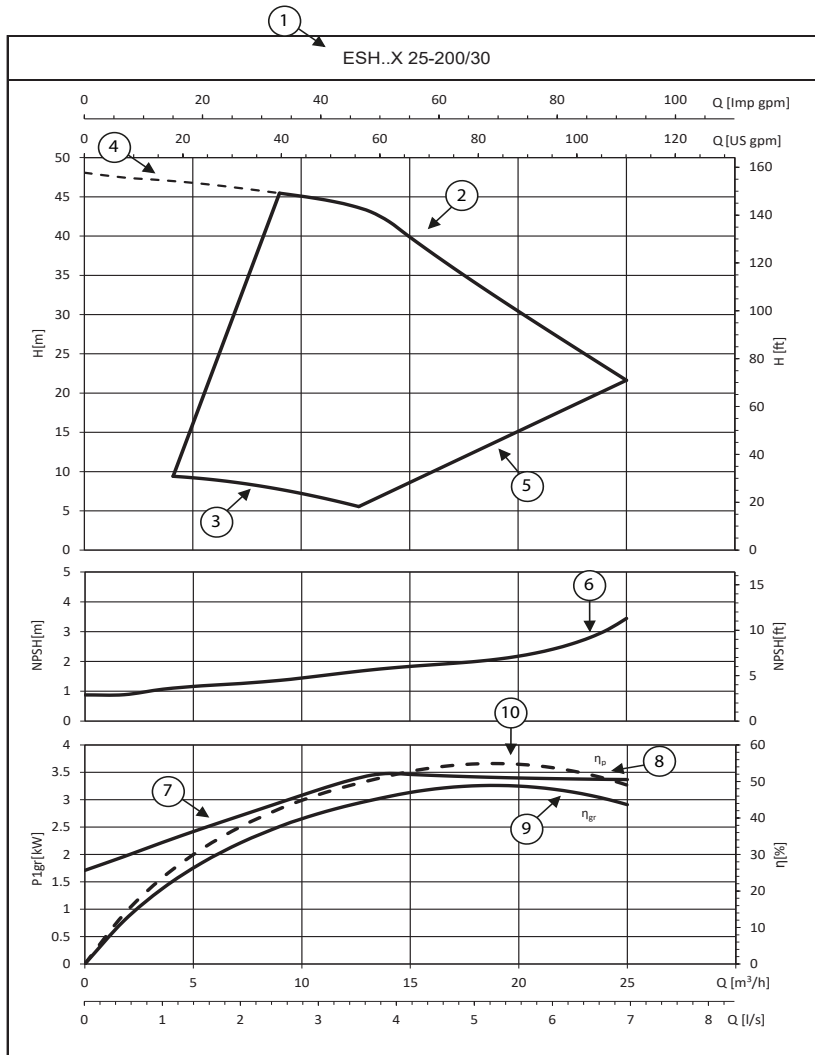
\*\* The indicated rotational speed are representing the upper and lower limits of the rated power operational speed range.

ESHX\_mott-en\_a\_te

Note. **IES** refers to the efficiency class for frequency converter + motor systems (known as power drive system – PDS) with power between 0.12 kW and 1000 kW and between 100 V and 1000 V, according to the standard **IEC 61800-9-2:2017**.

## ESH..X K SERIES HOW TO READ e-NSC WITH hydrovar X+ CURVES

To exploit to the maximum potential of these pumps it's important to properly read working curves:



### hydrovar X+

For maximum precision on the working point it is sufficient to read the display.



⑥ **NPSH**: is the net positive suction head of pump+motor+drive system working at maximum speed.

⑦ **P1<sub>gr</sub>** is the power absorption in kW of pump+motor+drive system working at maximum speed. The curve increases until the unit reaches the power limit. hydrovar X+ controls power consumption (flat part of the curve) at high flow/low head. In this way the motor stays protected from overload and ensure a longer life of pump+motor+drive system.

⑧ **η<sub>p</sub>** is the efficiency of the hydraulic part, working at maximum speed.

⑨ **η<sub>gr</sub>** is the efficiency of pump+motor+drive system working at maximum speed.

⑩ **Working point**: it's important to make sure the pump is working at the best working point, the one at highest

① **Pump model**

② **Maximum curve** (100%): pump running at the maximum set speed or nominal power.

③ **Minimum curve** (0%): it refers to the minimum rpm level the motor can work at, it's calculated depending on the model of pump maximizing for each one the working area and allowing the highest system flexibility.

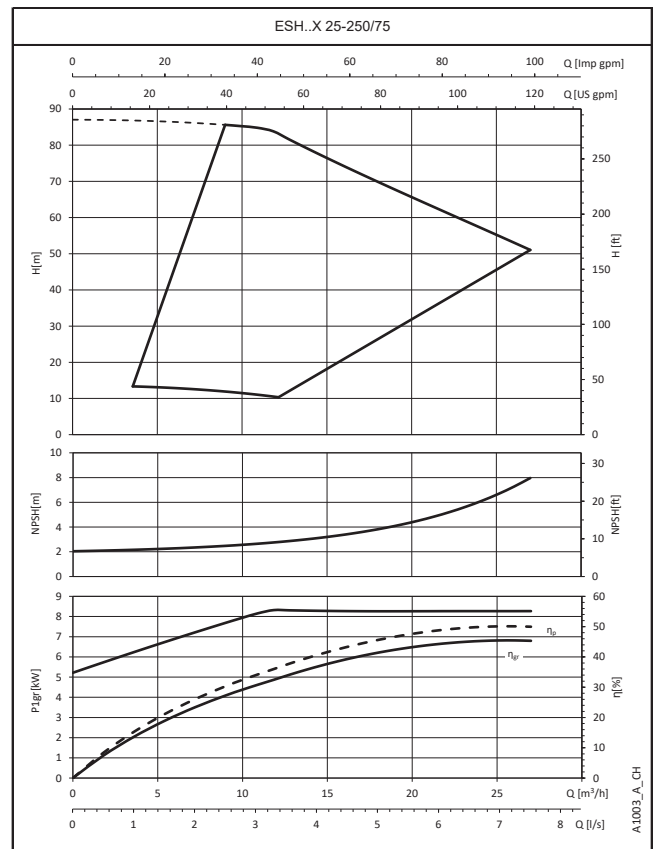
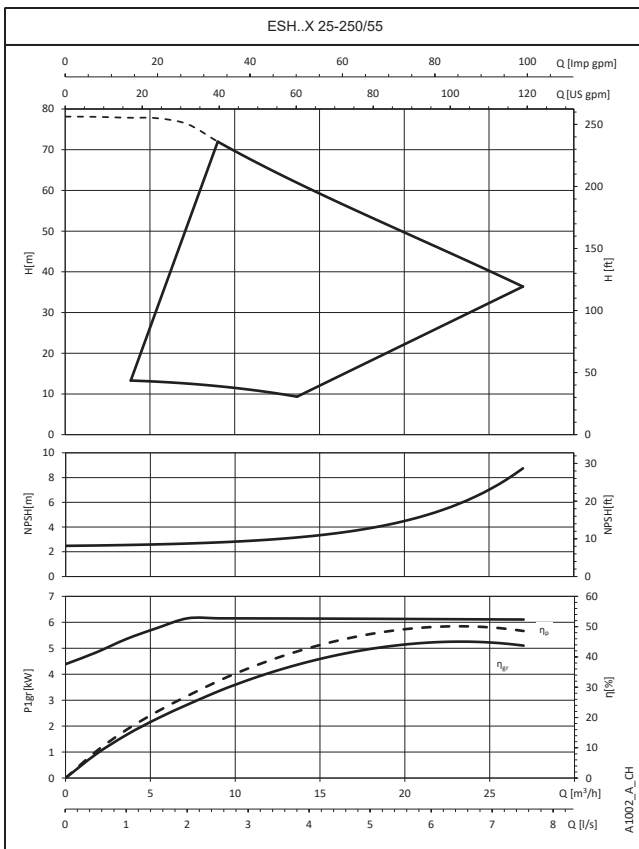
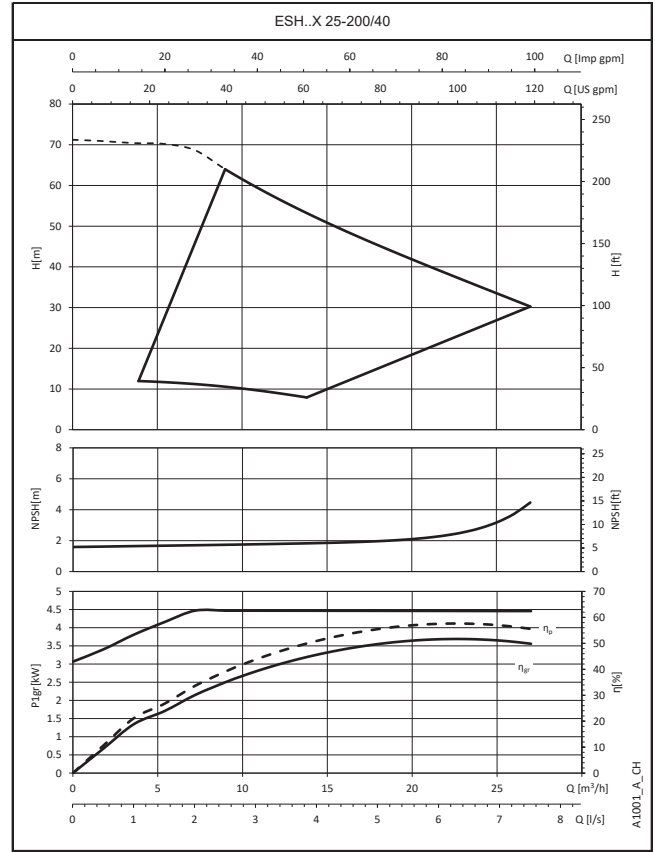
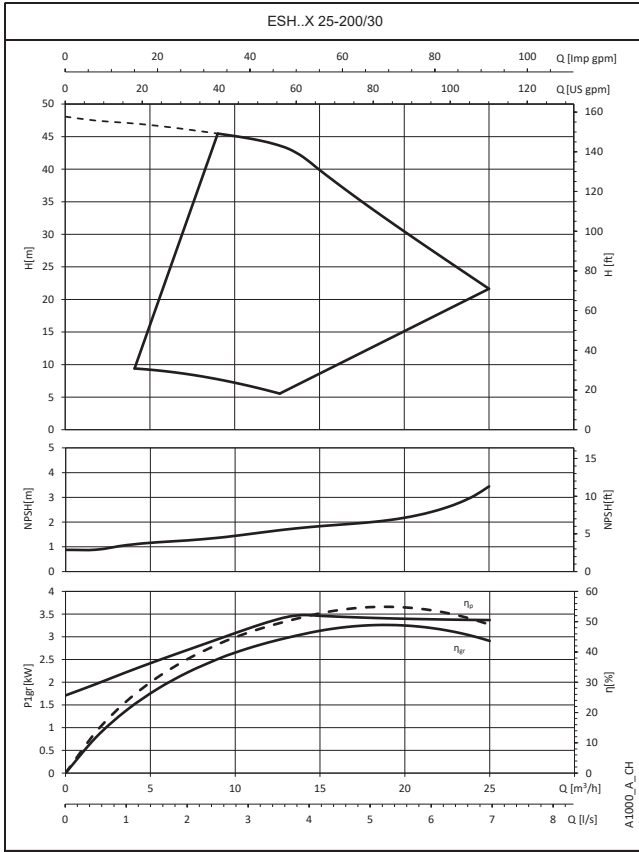
④ The **area within dotted lines** is where the pump can only operate intermittently for short periods of time.

⑤ The **allowable operating range** (AOR) of the pump is defined by the minimum and maximum head capacity curves as well as the minimum and maximum flow rates for a given speed.

efficiency.

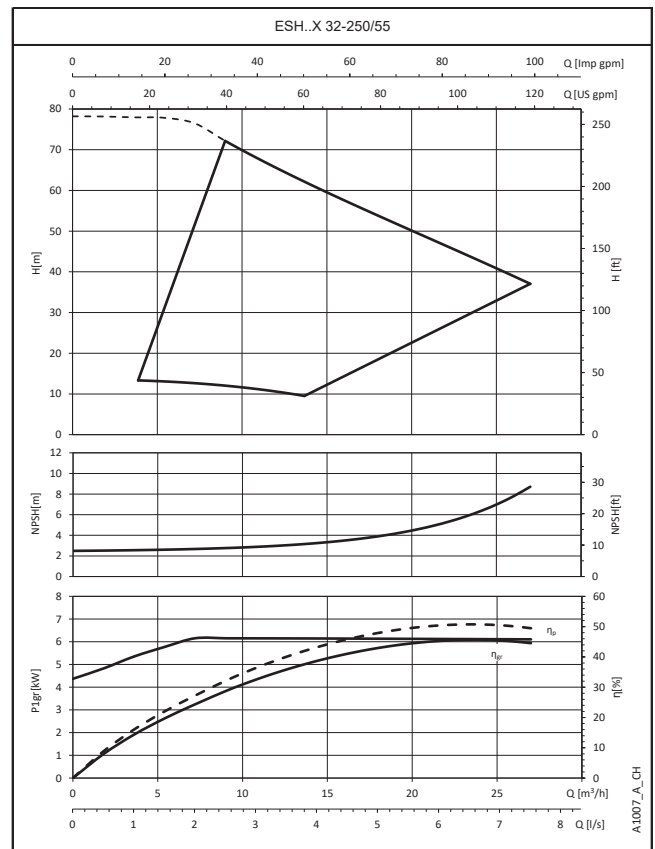
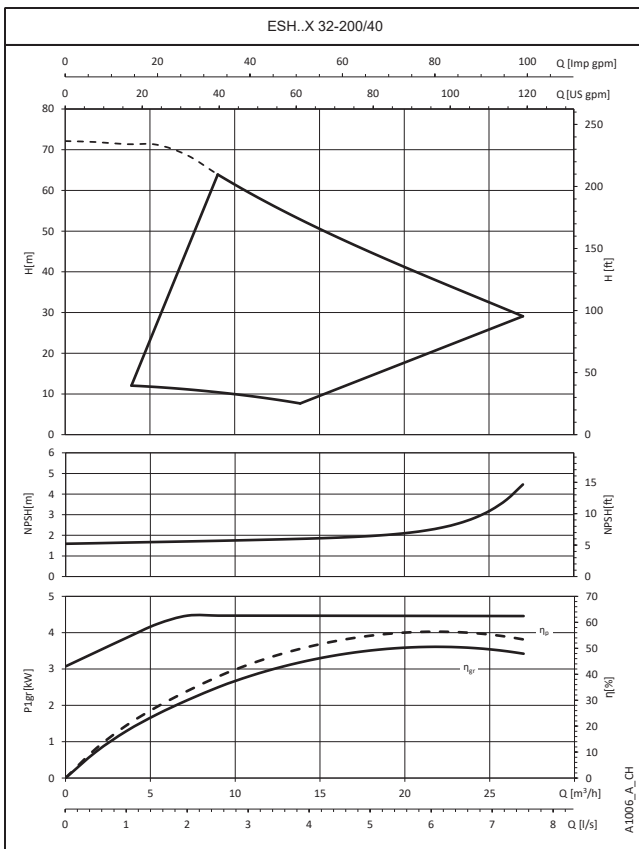
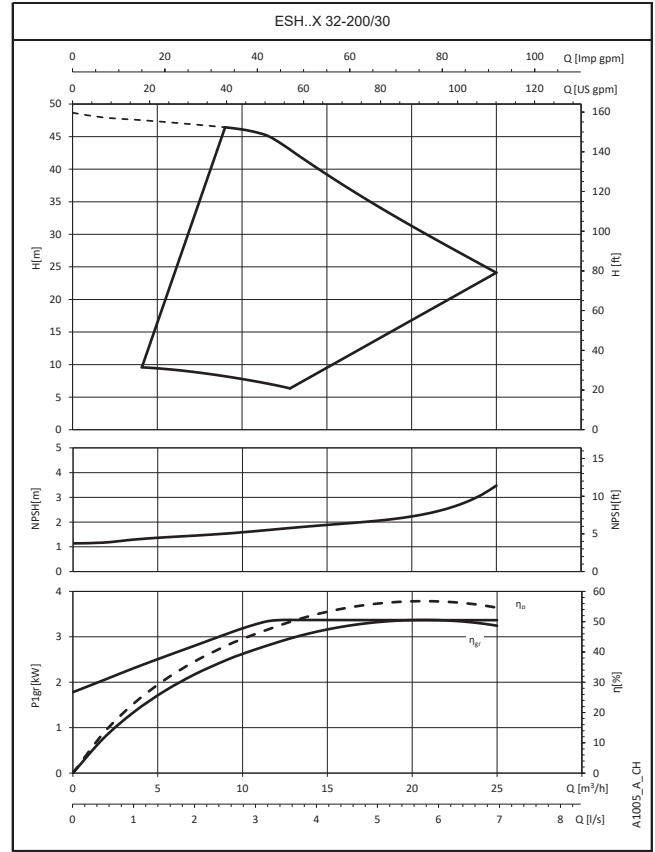
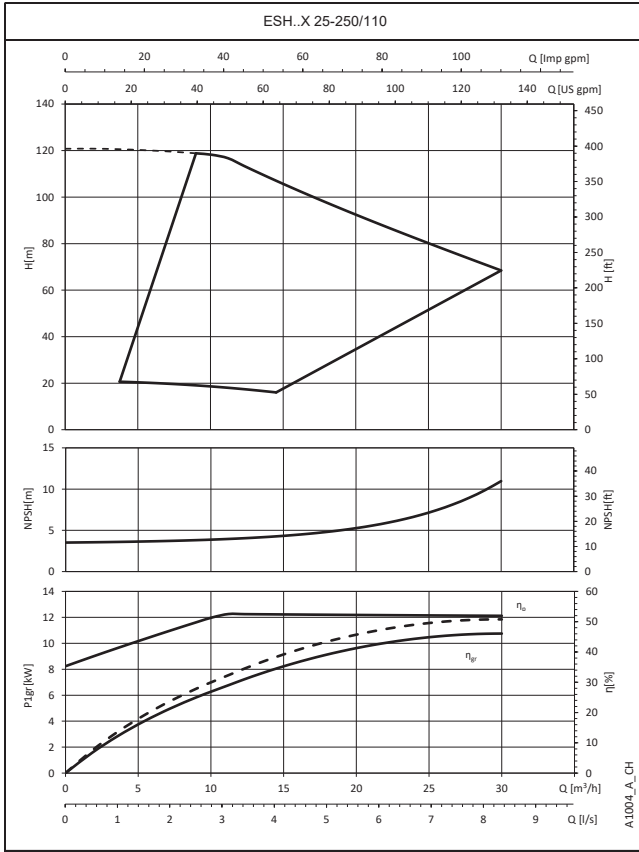
It's easy to find it: it's the highest point of the η<sub>p</sub> pump efficiency curve; once you found it, you can learn also flow values from x-axis called Q and head values from y-axis called H which allow the system to work at the best working point.

**ESH..X SERIES  
OPERATING CHARACTERISTICS**



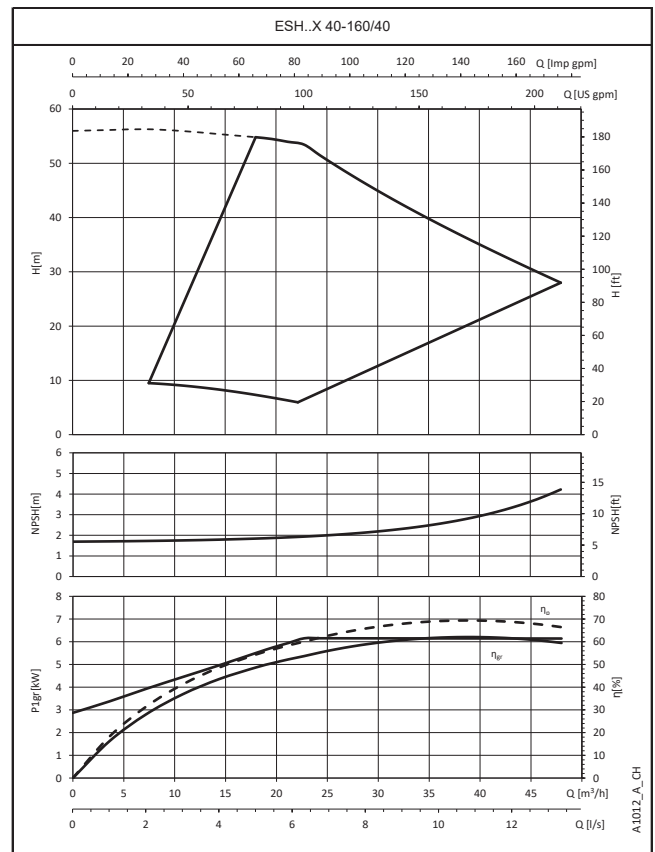
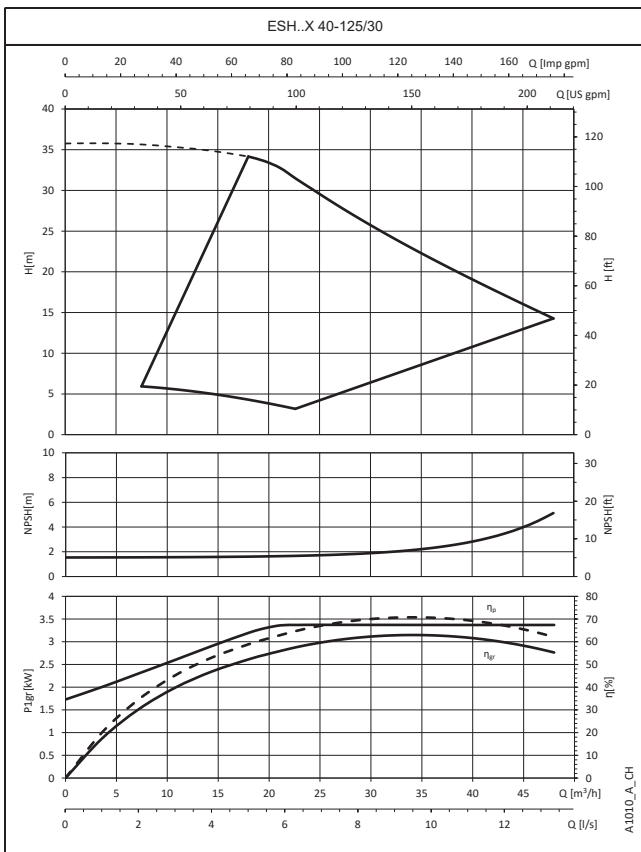
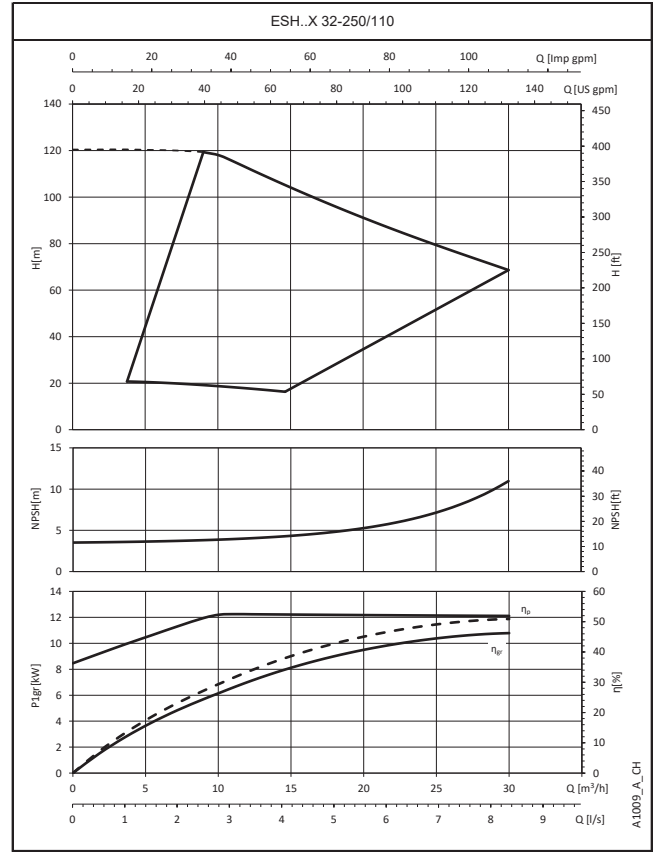
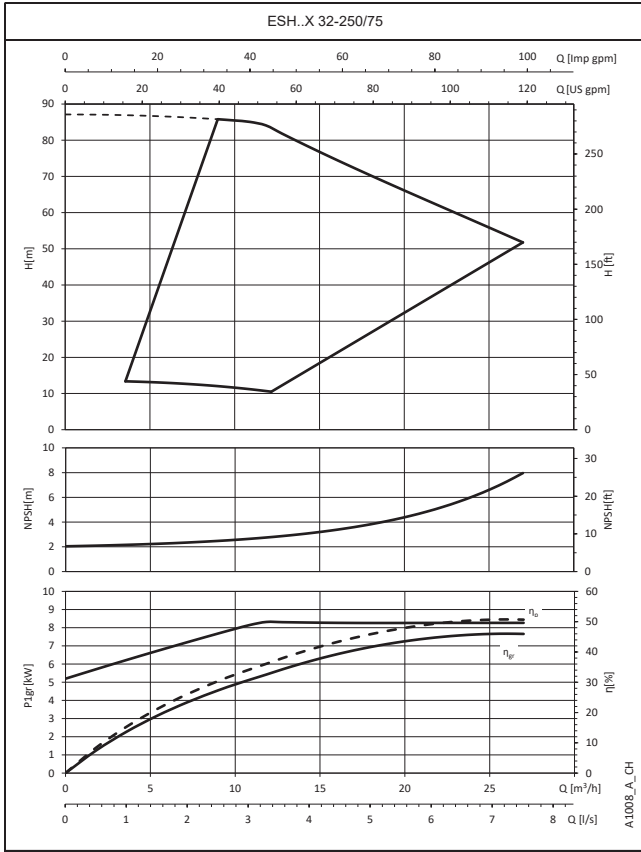
These performances are valid for liquids with density  $\rho = 1.0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

# ESH..X SERIES OPERATING CHARACTERISTICS



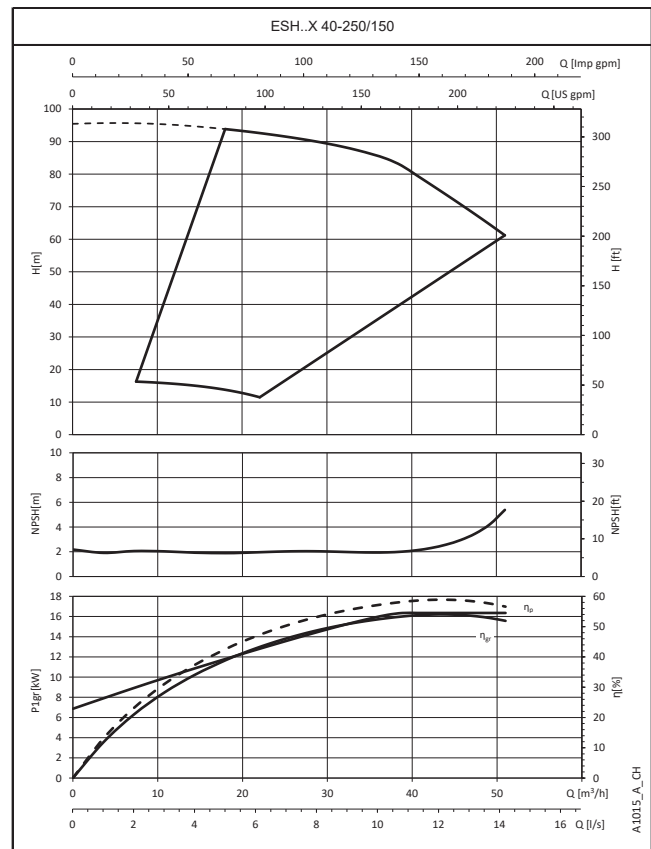
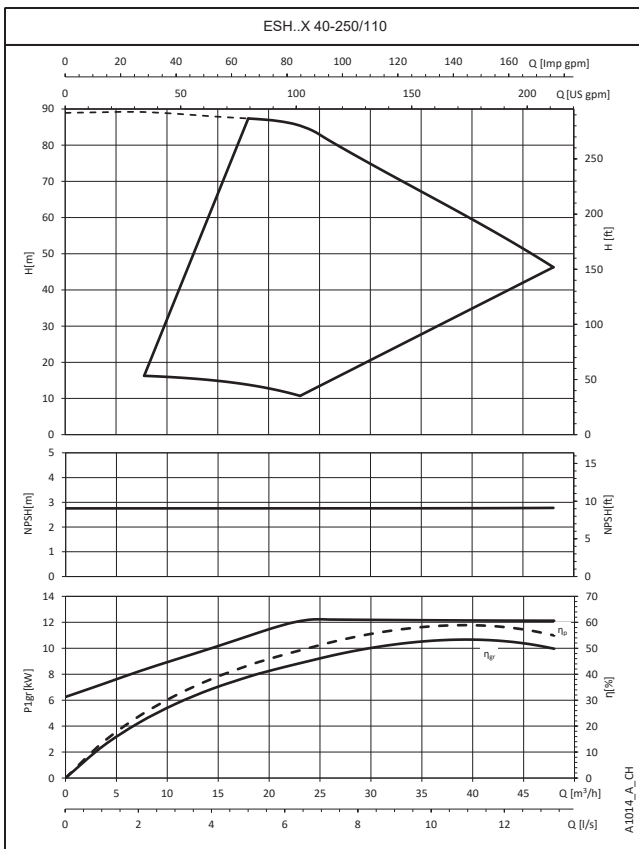
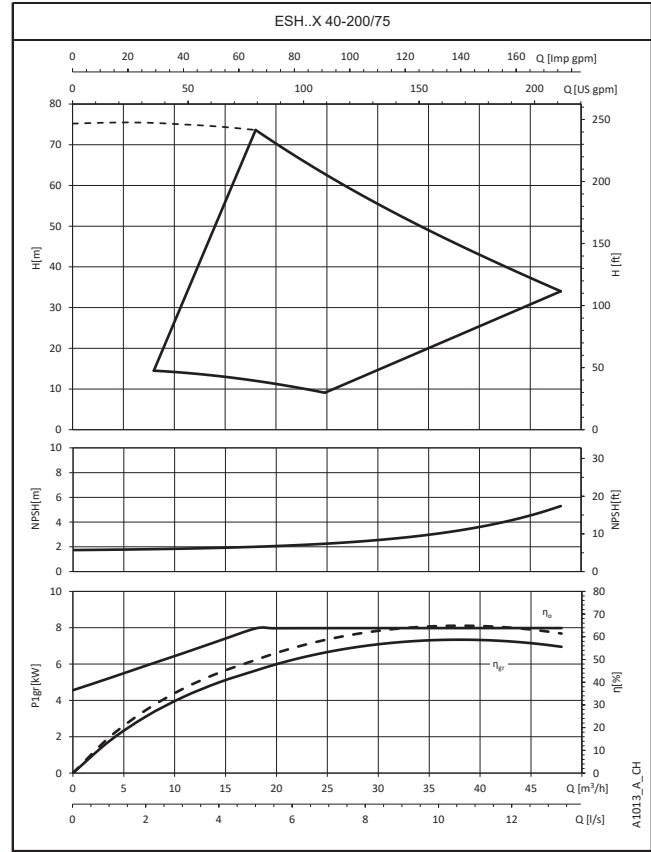
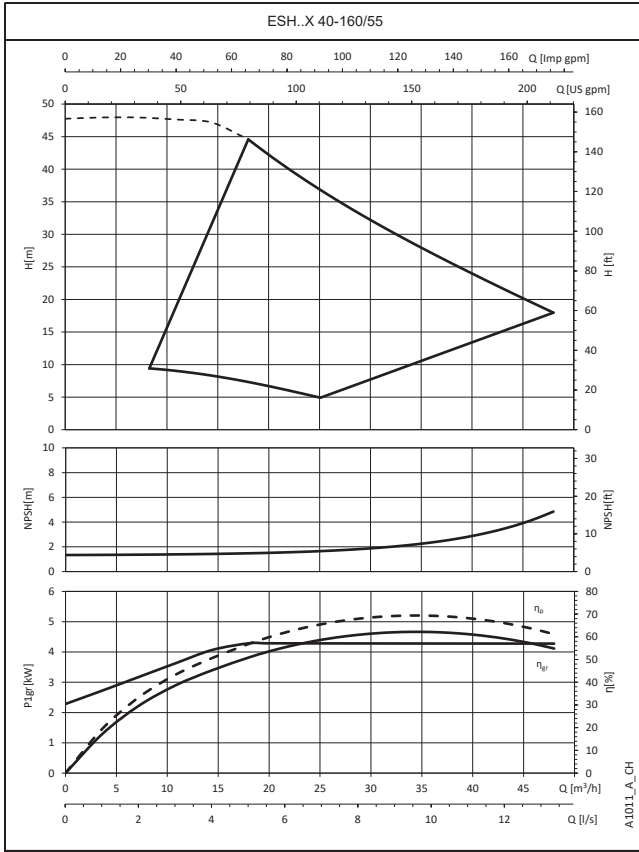
These performances are valid for liquids with density  $\rho = 1.0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

# ESH..X SERIES OPERATING CHARACTERISTICS



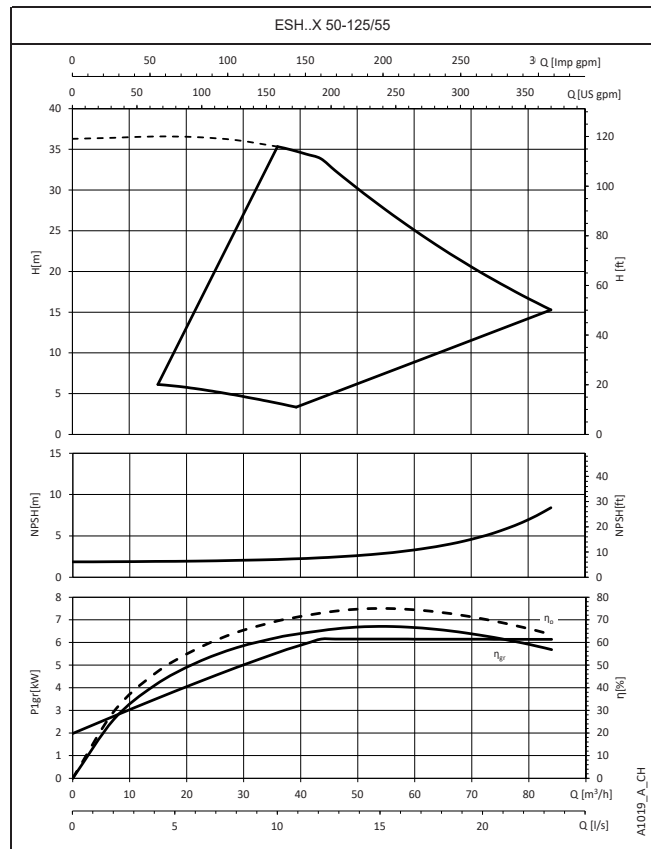
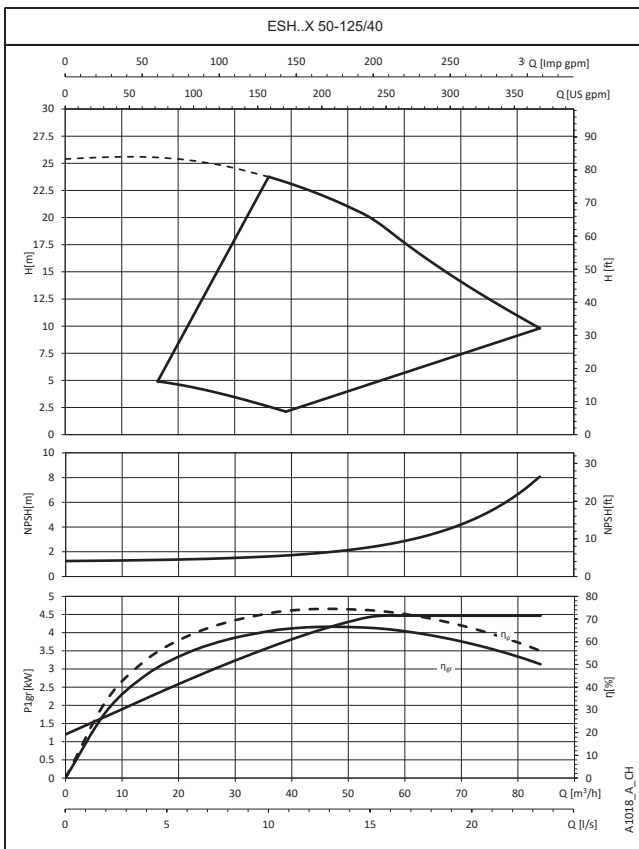
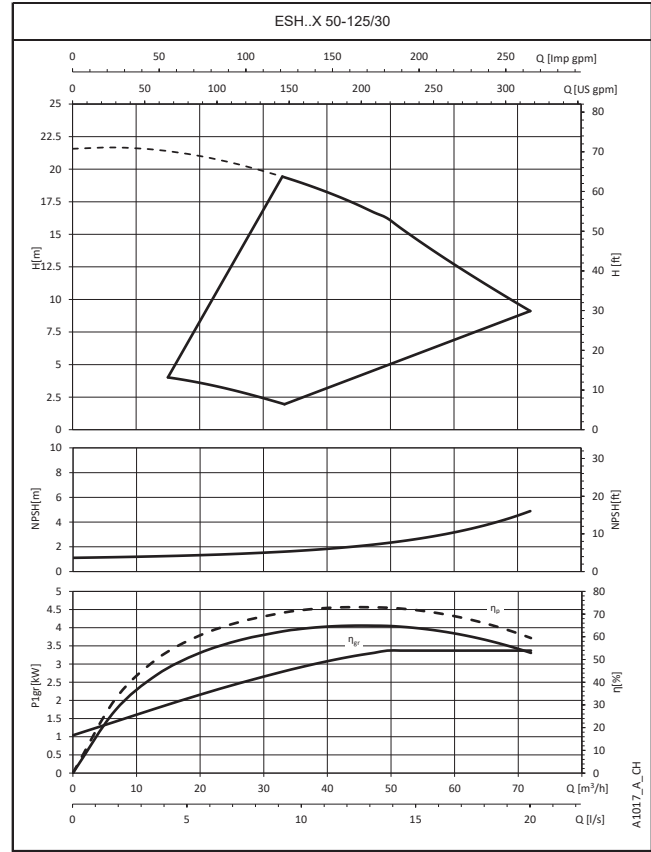
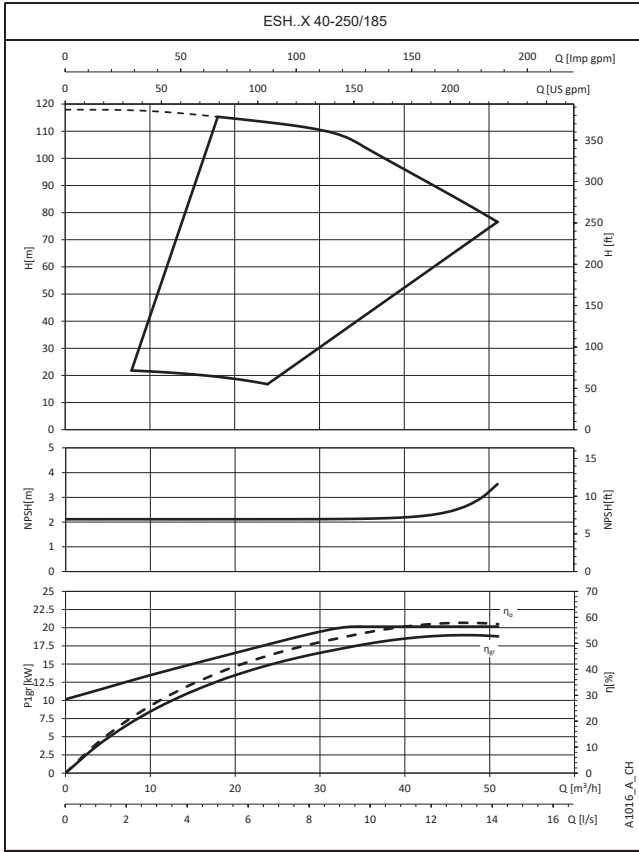
These performances are valid for liquids with density  $\rho = 1.0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

**ESH..X SERIES  
OPERATING CHARACTERISTICS**



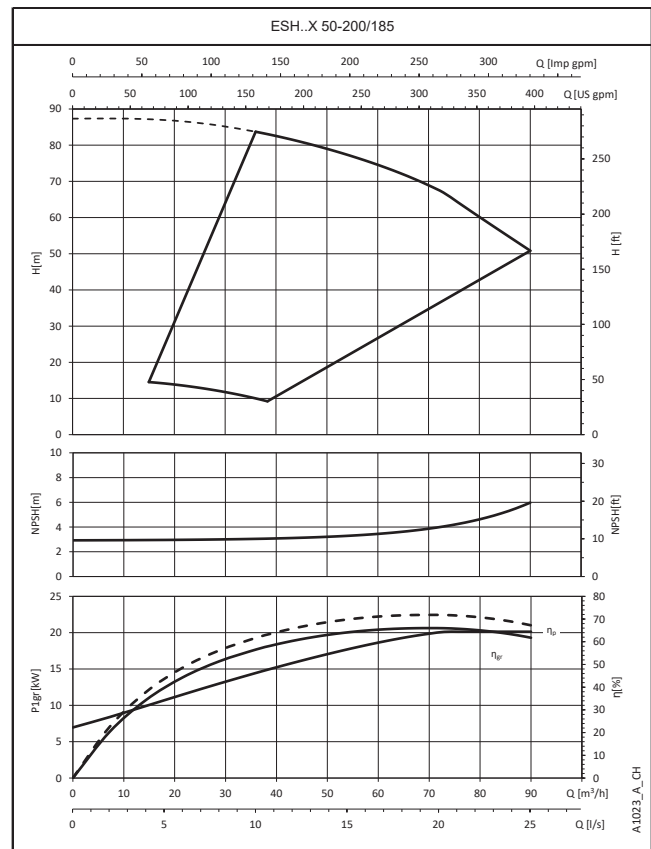
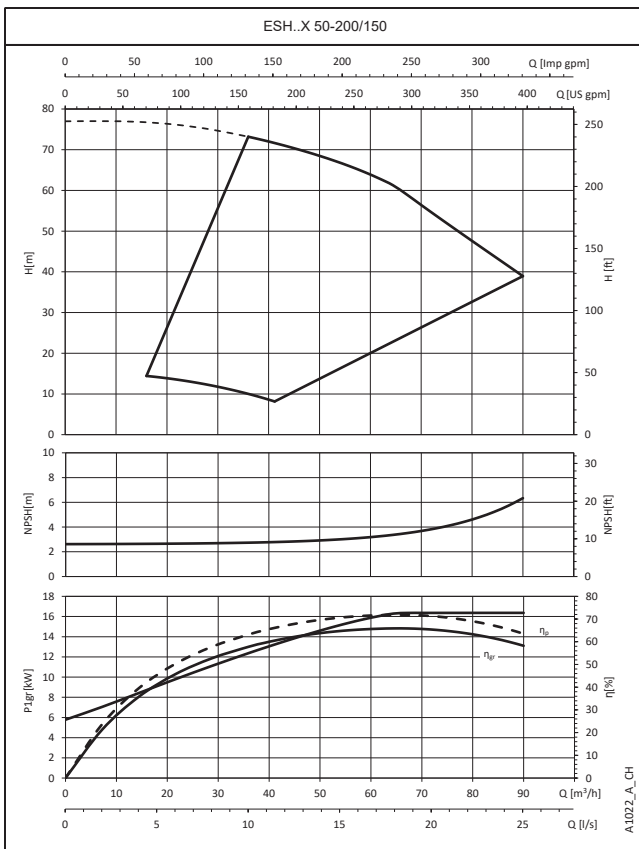
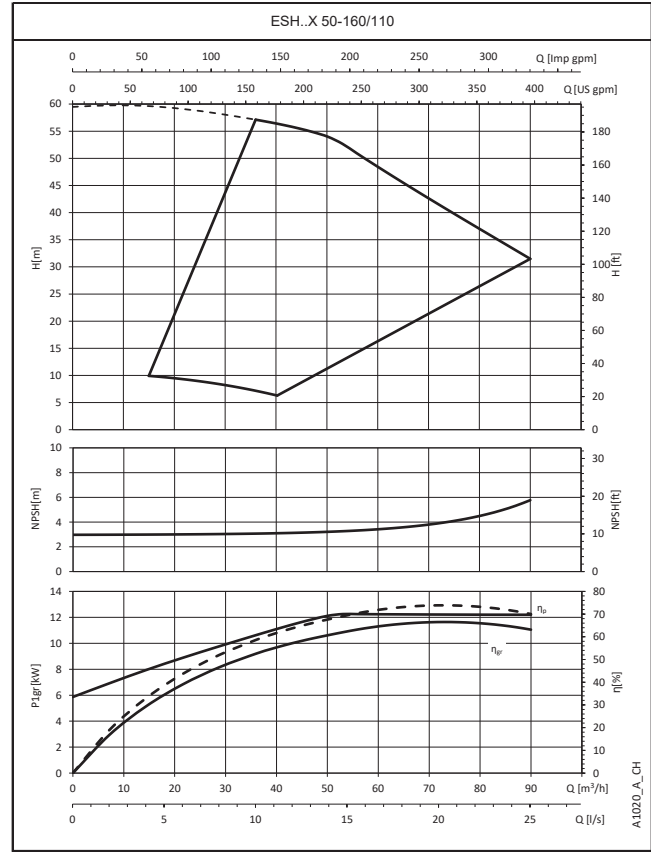
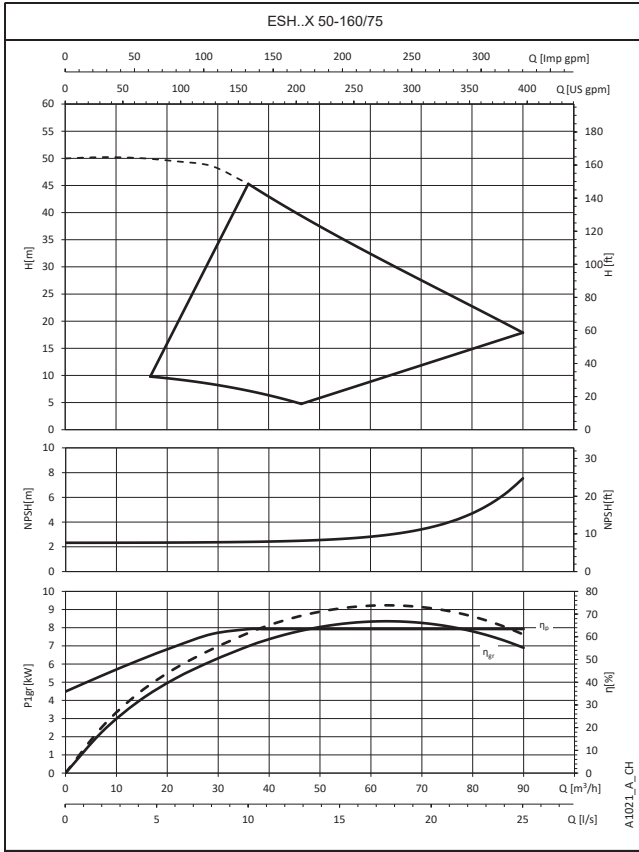
These performances are valid for liquids with density  $\rho = 1.0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

**ESH..X SERIES  
OPERATING CHARACTERISTICS**



These performances are valid for liquids with density  $\rho = 1.0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

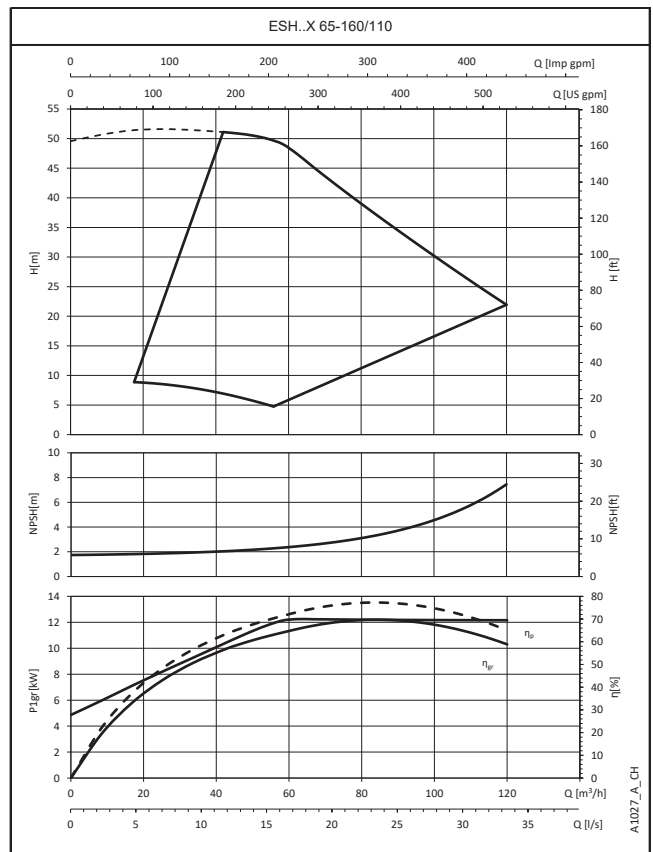
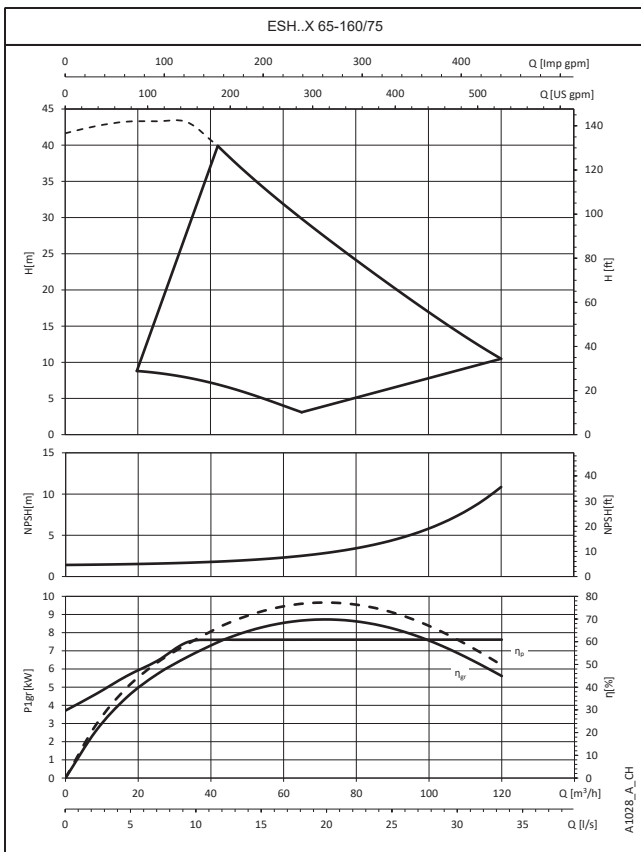
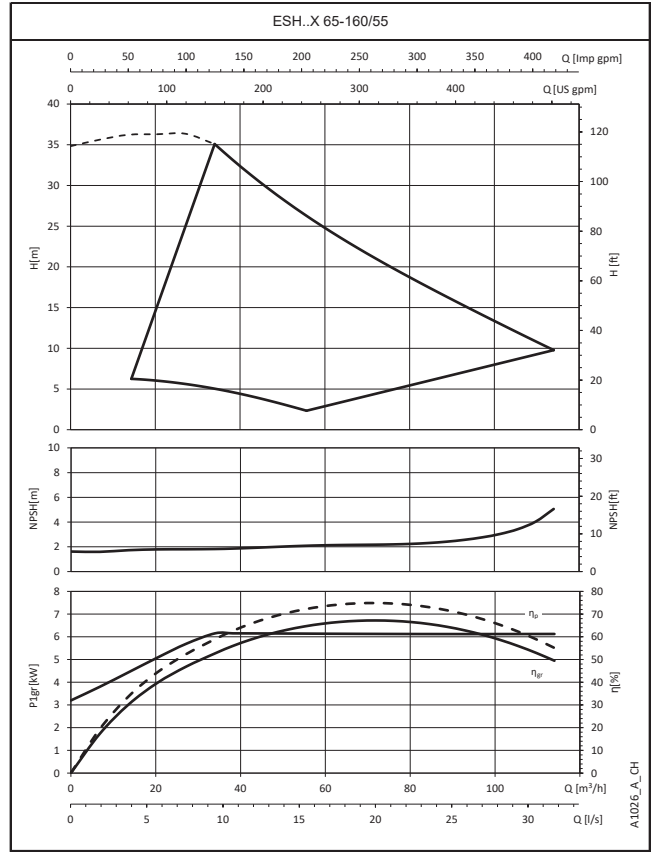
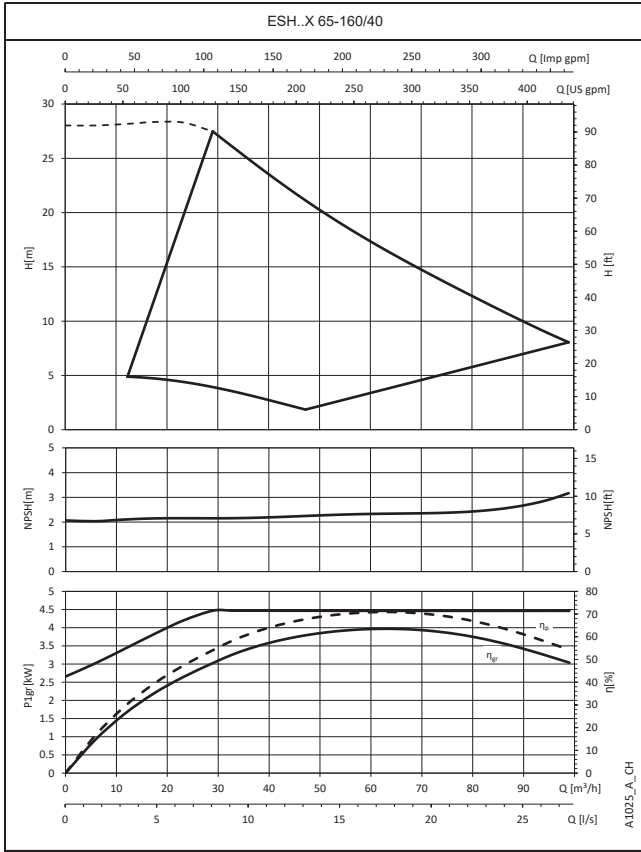
**ESH..X SERIES  
OPERATING CHARACTERISTICS**



These performances are valid for liquids with density  $\rho = 1.0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

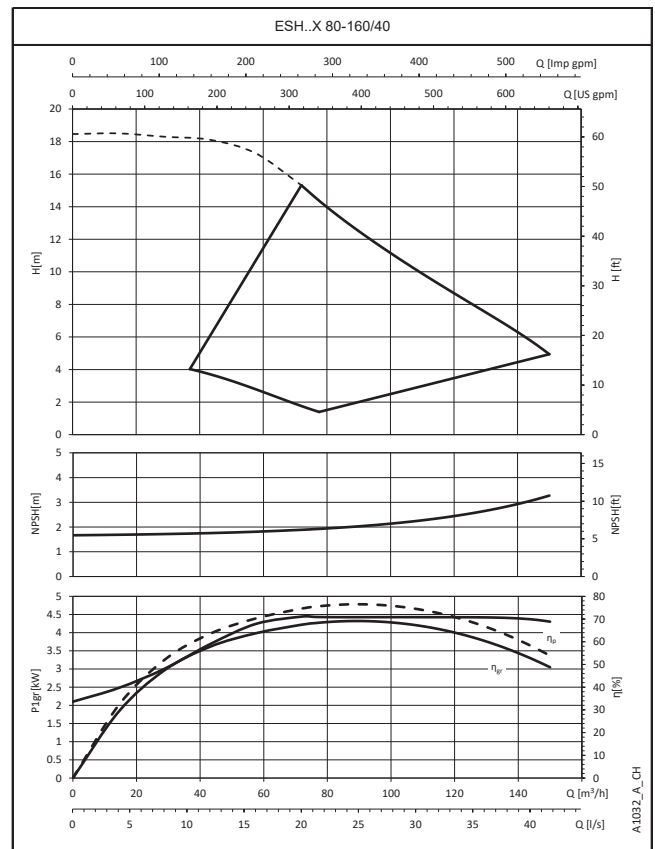
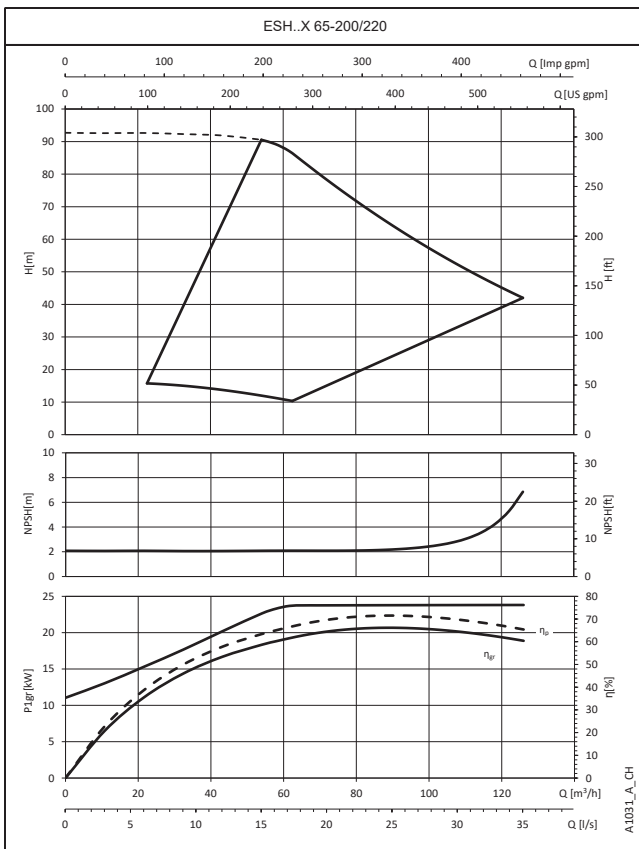
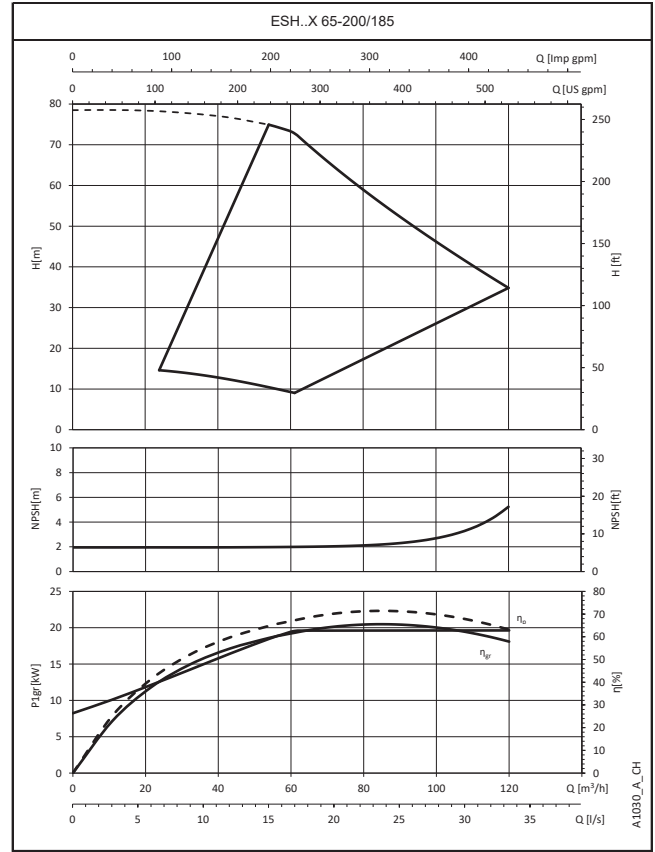
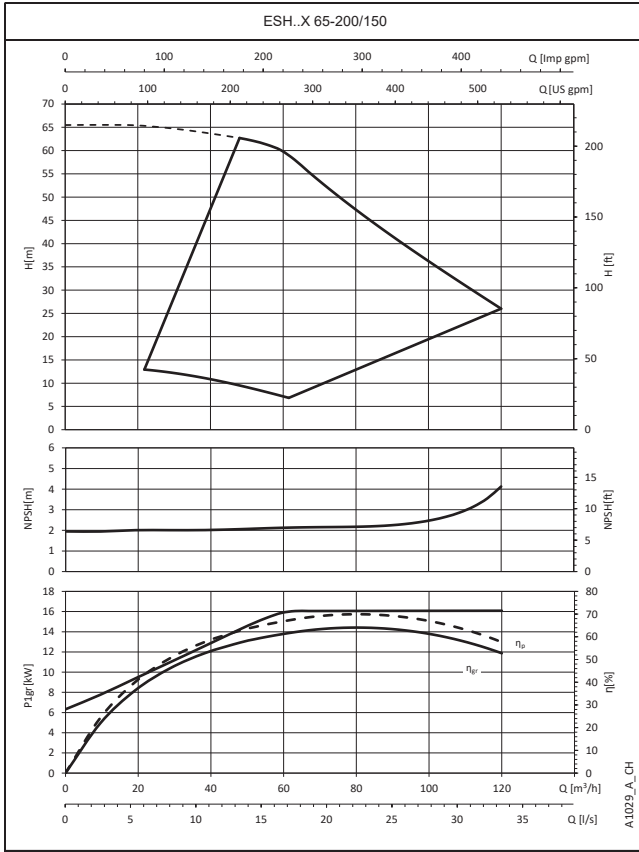


**ESH..X SERIES  
OPERATING CHARACTERISTICS**



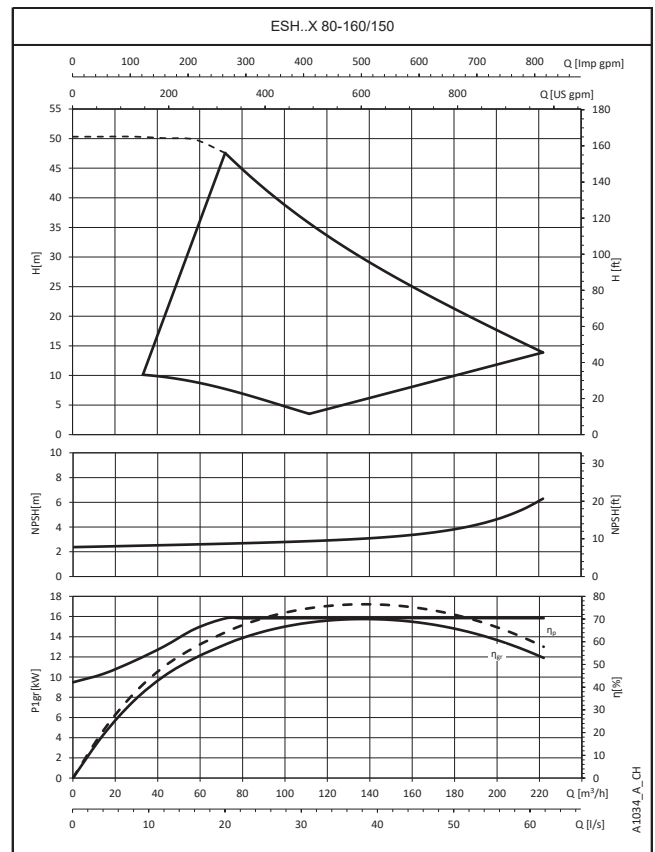
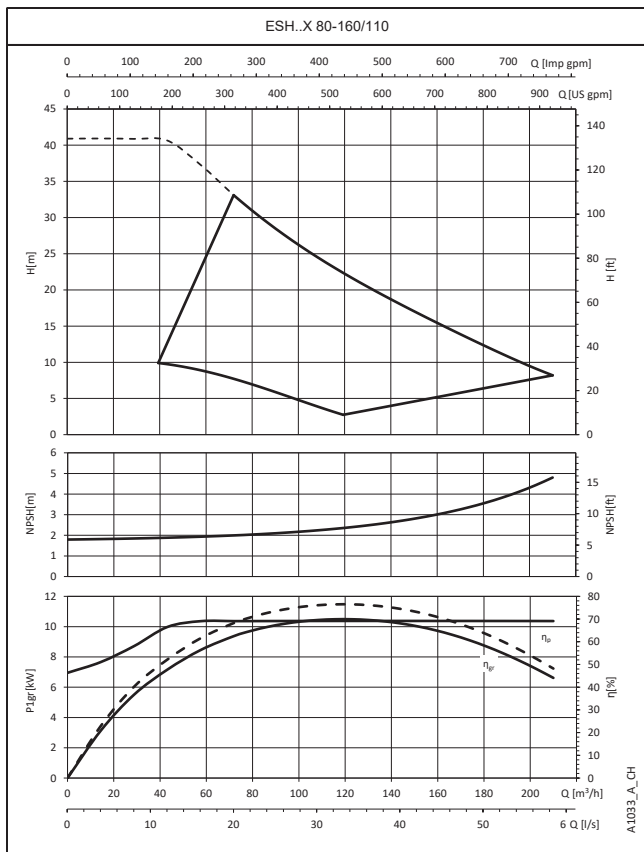
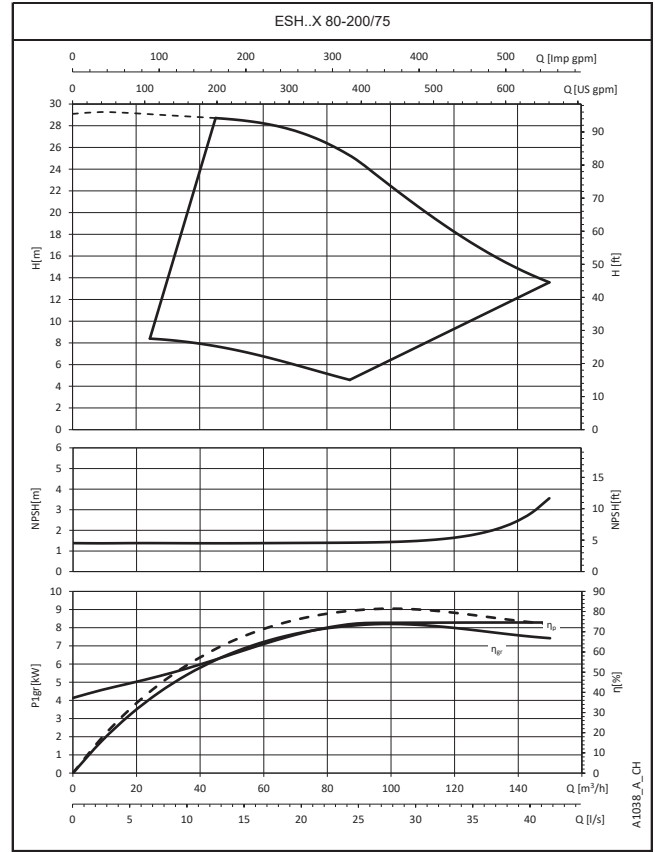
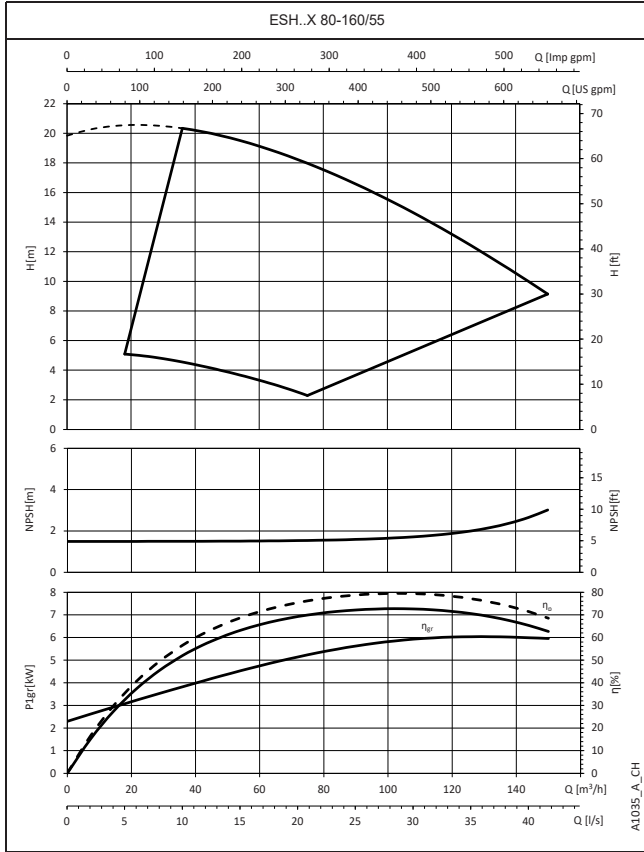
These performances are valid for liquids with density  $\rho = 1.0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

**ESH..X SERIES  
OPERATING CHARACTERISTICS**



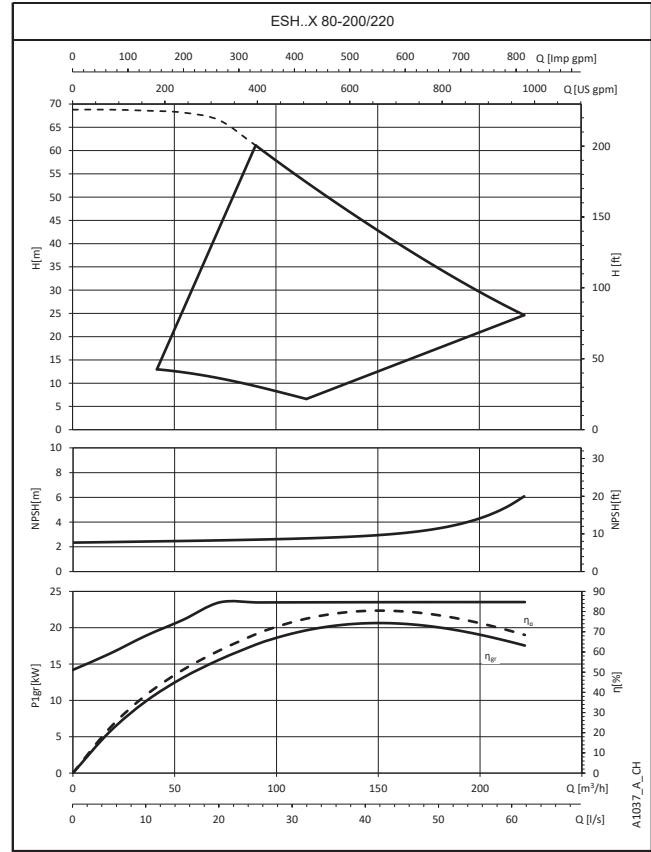
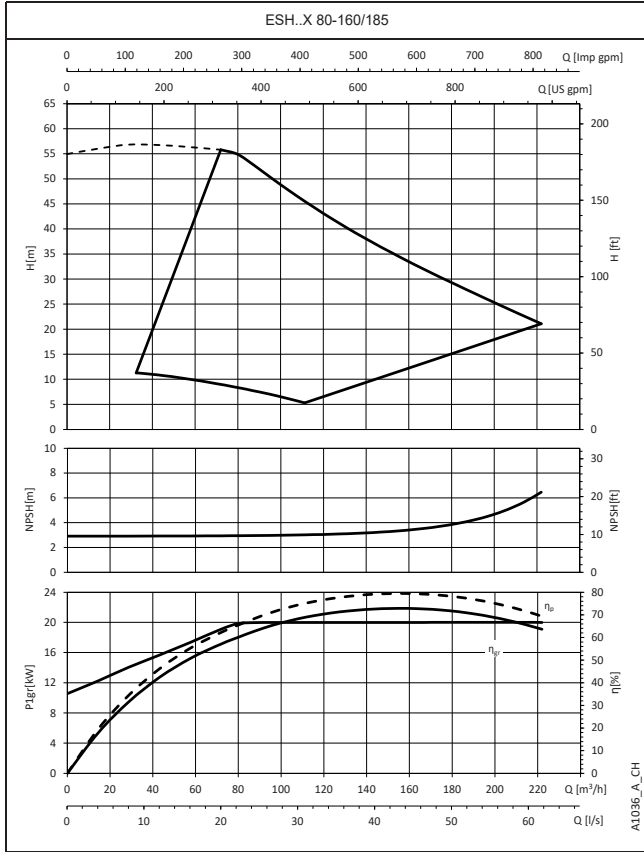
These performances are valid for liquids with density  $\rho = 1.0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

**ESH..X SERIES  
OPERATING CHARACTERISTICS**



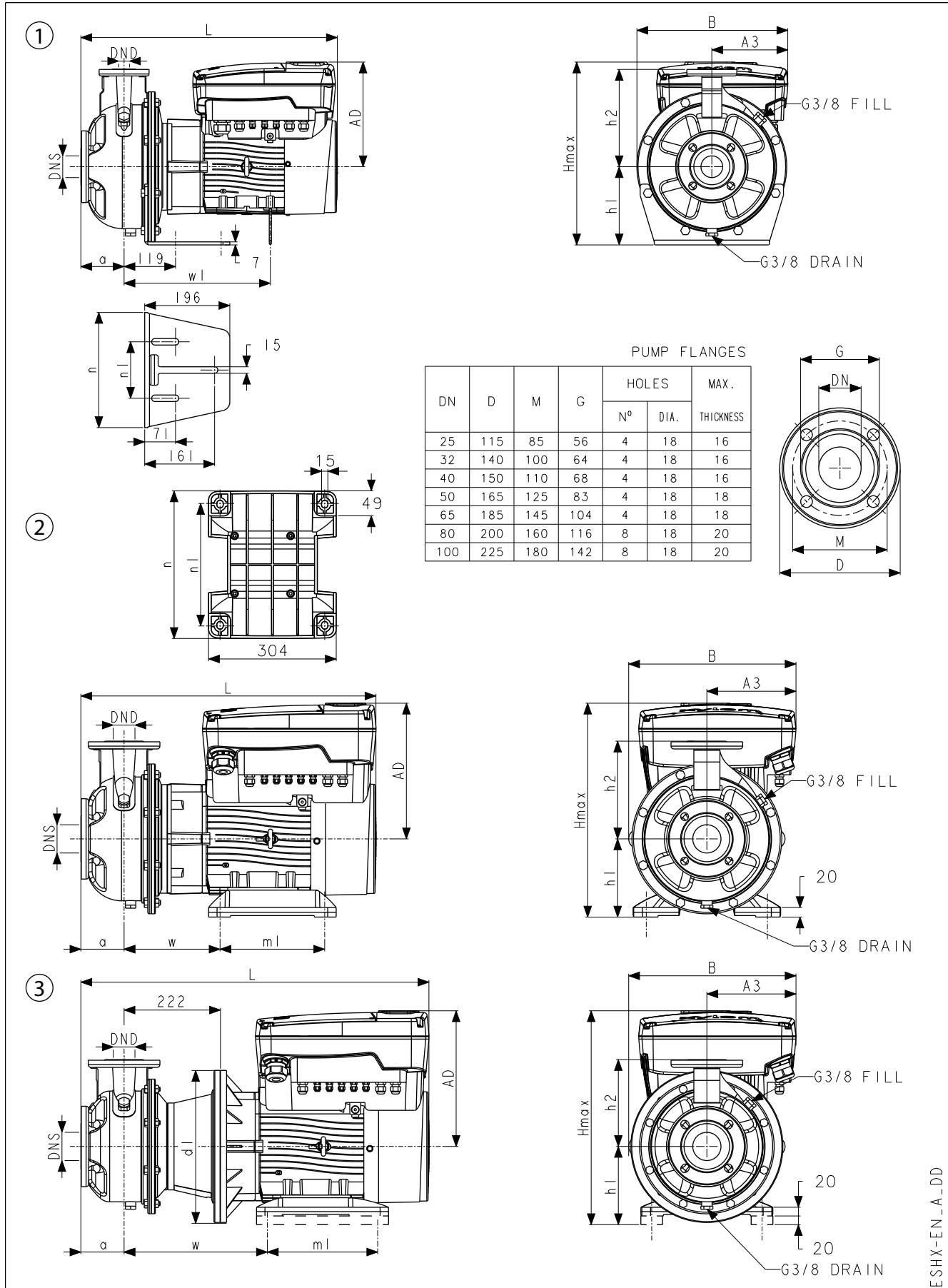
These performances are valid for liquids with density  $\rho = 1.0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

**ESH..X SERIES  
OPERATING CHARACTERISTICS**



These performances are valid for liquids with density  $\rho = 1.0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

### ESH..X SERIES DIMENSIONS AND WEIGHTS



ESHX-EN\_A\_DD

## ESH..X SERIES DIMENSIONS AND WEIGHTS

PUMP TYPE ESH..X	TYPE	IEC Size	DIMENSIONS (mm)																WEIGHT kg	
			PUMP									SUPPORT				B	H max	L		k
			DNM	DNA	a	h1	h2	d1	w	w1	x	m1	n	n1						
ESHEX 25-200/30	1	100	25	50	80	160	180	-	-	-	194	-	230	130	292	354	515	300	36	
ESHEX 25-200/40	1	112	25	50	80	160	180	-	-	-	194	-	230	130	292	354	515	300	36	
ESHEX 25-250/55	1	112	25	50	100	180	224	-	-	-	194	-	265	130	345	405	536	300	50	
ESHEX 25-250/75	1	132	25	50	100	180	224	-	-	337	241	-	265	130	348	421	590	300	65	
ESHEX 25-250/110	1	132	25	50	100	180	224	-	-	337	241	-	265	130	348	421	590	300	72	
ESHEX 32-200/30	1	100	32	50	80	160	180	-	-	-	194	-	230	130	292	354	515	300	37	
ESHEX 32-200/40	1	112	32	50	80	160	180	-	-	-	194	-	230	130	292	354	515	300	37	
ESHEX 32-250/55	1	112	32	50	100	180	225	-	-	-	194	-	265	130	345	405	535	300	50	
ESHEX 32-250/75	1	132	32	50	100	180	225	-	-	337	241	-	265	130	348	421	590	300	65	
ESHEX 32-250/110	1	132	32	50	100	180	225	-	-	337	241	-	265	130	348	421	590	300	72	
ESHEX 40-125/30	1	100	40	65	80	112	140	-	-	-	194	-	210	130	275	306	520	300	34	
ESHEX 40-160/40	1	112	40	65	80	132	160	-	-	-	194	-	210	130	276	326	520	300	34	
ESHEX 40-160/55	1	112	40	65	80	160	160	-	-	-	168	-	210	130	276	326	517	300	35	
ESHEX 40-200/75	1	132	40	65	100	180	180	-	-	337	241	-	265	130	330	401	590	300	54	
ESHEX 40-250/110	1	132	40	65	100	180	225	-	-	337	241	-	265	130	348	421	590	300	76	
ESHEX 40-250/150	2	160	40	65	100	180	225	-	208	-	312	210	304	254	385	492	679	300	95	
ESHEX 40-250/185	2	160	40	65	100	180	225	-	208	-	312	210	304	254	385	492	679	300	101	
ESHEX 50-125/30	1	100	50	65	100	132	160	-	-	-	194	-	210	130	276	326	538	300	35	
ESHEX 50-125/40	1	112	50	65	100	132	160	-	-	-	194	-	210	130	276	326	538	300	35	
ESHEX 50-125/55	1	112	50	65	100	132	160	-	-	-	194	-	210	130	276	326	538	300	35	
ESHEX 50-160/75	1	132	50	65	100	180	180	-	-	337	191	-	210	130	330	401	590	300	52	
ESHEX 50-160/110	1	132	50	65	100	180	180	-	-	337	191	-	210	130	330	401	590	300	59	
ESHSX 50-200/150	3	160	50	65	100	180	200	350	330	-	312	210	304	254	385	492	802	300	104	
ESHSX 50-200/185	3	160	50	65	100	180	200	350	330	-	312	210	304	254	385	492	802	300	109	
ESHEX 65-160/40	1	112	65	80	100	160	200	-	-	-	194	-	245	130	310	360	539	300	44	
ESHEX 65-160/55	1	112	65	80	100	160	200	-	-	-	194	-	245	130	310	360	539	300	48	
ESHEX 65-160/75	1	132	65	80	100	160	200	-	-	337	241	-	245	130	310	401	590	300	63	
ESHEX 65-160/110	1	132	65	80	100	160	200	-	-	337	241	-	245	130	310	401	590	300	71	
ESHEX 65-200/150	2	160	65	80	100	180	225	-	208	-	312	210	304	254	385	492	680	300	94	
ESHEX 65-200/185	2	160	65	80	100	180	225	-	208	-	312	210	304	254	385	492	680	300	101	
ESHEX 65-200/220	2	180	65	80	100	180	225	-	221	-	312	241	340	278	385	492	680	300	107	
ESHEX 80-160/40	1	112	80	100	125	180	225	-	-	-	241	-	265	130	348	421	600	300	70	
ESHEX 80-160/55	1	132	80	100	125	180	225	-	-	-	241	-	265	130	348	421	625	300	79	
ESHEX 80-160/110	1	160	80	100	125	180	225	-	-	394	312	-	265	130	385	492	714	300	94	
ESHEX 80-160/150	2	160	80	100	125	180	225	-	208	-	312	210	304	254	385	492	704	300	99	
ESHEX 80-160/185	2	160	80	100	125	180	225	-	208	-	312	210	304	254	385	492	704	300	105	
ESHSX 80-200/75	3	132	80	100	125	180	225	300	-	471	312	-	265	130	385	492	791	300	108	
ESHEX 80-200/220	2	180	80	100	125	180	225	-	221	-	312	241	340	278	385	492	704	300	112	

Motor shim on request

ESHX-en\_a\_td

\* Clearance for disassembly

# **ESH..H**

# **ESH WITH HYDROVAR**

## ESH..H SERIES ESH WITH HYDROVAR

### Background and context

For all pumping needs in commercial or residential building and in industry applications, the demand for intelligent pumping systems is constantly growing. Controlled systems offer many advantages: reduced operating costs for the lifetime of the pump, lower environmental impact, longer lifetime of piping systems and networks.

For this reason, Lowara has developed the ESH..H: an intelligent pumping system which assures high level performance with energy consumption tailored to the system's demand.

### Benefits of ESH with HYDROVAR

**Saving:** ESH..H transforms the ESH pumps into variable speed intelligent pumping systems. Thanks to the HYDROVAR, the speed of each pump varies so as to maintain a constant flow, a constant pressure, or a differential pressure. In doing so, at any point in time, the pump only receives the energy required. This in turns allows for considerable savings, especially for systems that have varying loads throughout the day.

**Easy installation and space-saving:** ESH..H saves time and space during installation. The Hydrovar is delivered already mounted on the motor (for models up to 22kW). The hydrovar is kept cool by the motor fan and does not require a control panel. In order to function, only fuses on the supply line are needed (Check your local electrical installation regulations). A wall-mounted HYDROVAR version is available for higher power outputs (up to 45 kW).

**Standard motors:** ESH..H models are fitted with three-phase standard TEFC motors with insulation class 155 (F).

### Identification code:

ESH..H models are identified by the letter "H" and "/2", "/3" or "/4" in the standard identification code of the ESH product range.

Example:

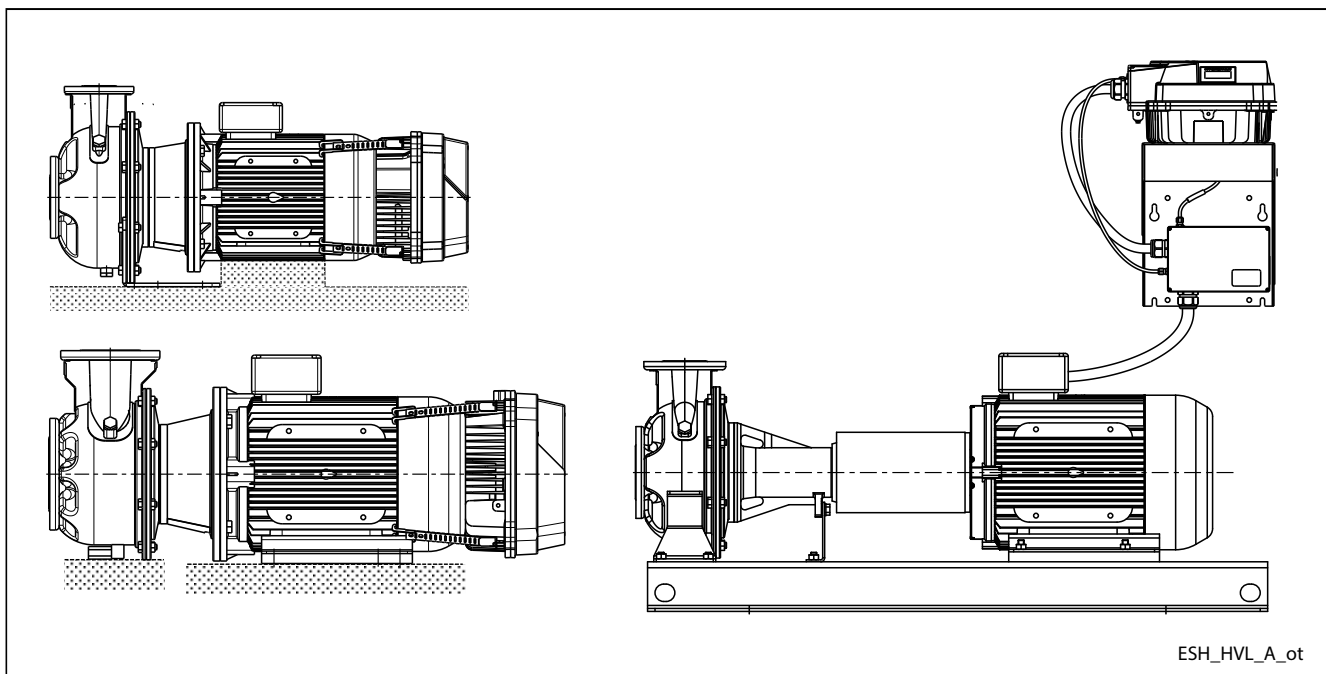
ESHSH40-250/110/P25VSS4 /4

**H** = with integrated HYDROVAR

**/4** = HYDROVAR HVL4.110 [3~ 380-460 V (50/60 Hz)].

### Key Features of the HYDROVAR

- **No need for additional pressure sensors:**  
The ESH..H is fitted with a pressure transmitter or differential pressure transmitters, depending on the application.
- **No need for special pumps or motors.**
- **ESH...H is already pre-wired.**
- **No need for bypass or safety systems:**  
The ESH..H will immediately switch off when demand drops to zero or when it exceeds maximum pump capacity; thus making installation of additional safety devices unnecessary.
- **Anti-condensation device:**  
The HYDROVAR is fitted with anti-condensation devices which switch on when the pump is in standby in order to prevent condensation forming in the unit.
- **No need for IN LINE filters.**  
HYDROVAR already includes the THDi filter embedded as standard.



ESH\_HVL\_A\_ot



## ESH..H SERIES ESH WITH HYDROVAR

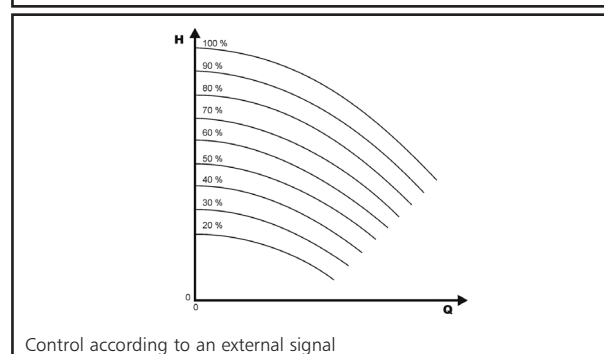
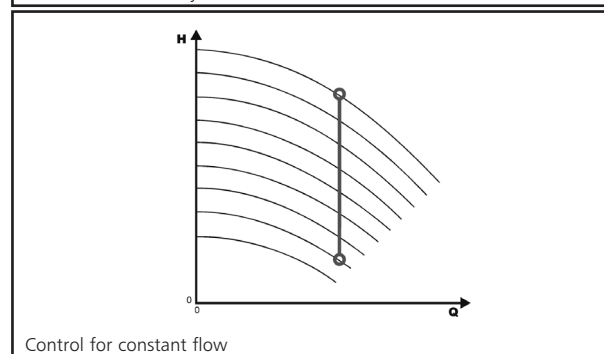
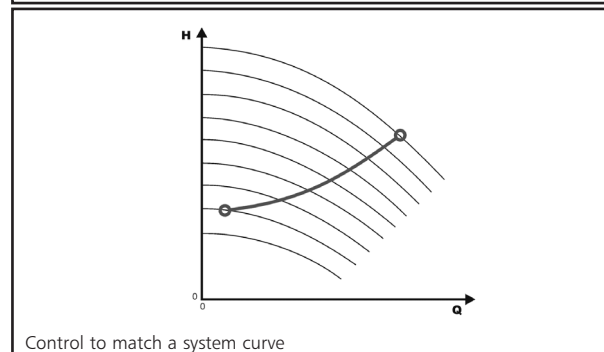
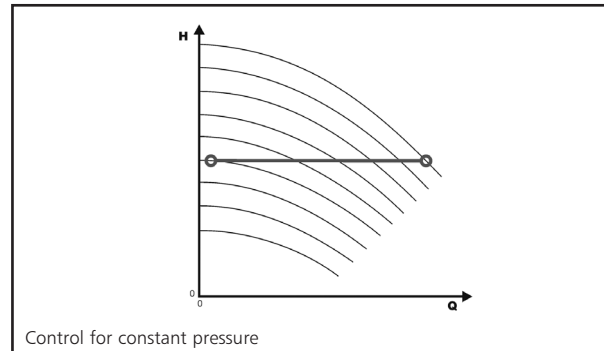
The basic function of the HYDROVAR device is to control the pump to meet the system demands.

### HYDROVAR performs these functions by:

- 1) Measuring the system pressure or flow via a transmitter mounted on the pump's delivery side.
- 2) Calculating the motor speed to maintain the correct flow or pressure.
- 3) Sending out a signal to the pump to start the motor, increase speed, decrease speed or stop.
- 4) In the case of multiple pump installations, HYDROVAR will automatically provide for the cyclic changeover of the pumps' starting sequence.

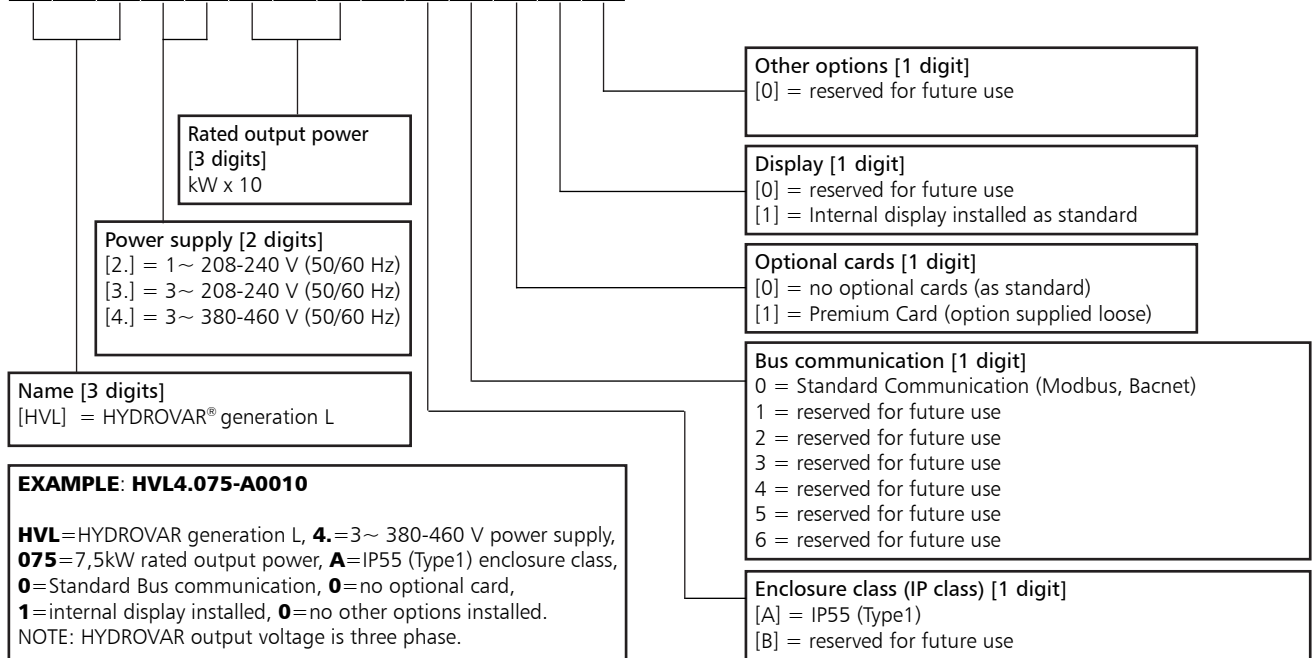
In addition to these basic functions, HYDROVAR can perform controls only manageable by the most advanced computerized control systems. Some examples are:

- Stop the pump(s) at zero demand.
- Stop the pump(s) in case of water failure on the suction side (protection against dry running).
- Stop the pump if the required delivery exceeds the pump's capacity (protection against cavitation caused by excessive demand), or automatically switch on the next pump in a multiple series.
- Protect the pump and motor from over-voltage, under-voltage, overload, and earth fault.
- Vary the pump speed: acceleration and deceleration time.
- Compensate for increased flow resistance at high flow rates.
- Conduct automatic tests at set intervals.
- Monitor the converter and motor operating hours.
- Display the energy consumption (kWh).
- Display all functions on an LCD in different languages (Italian, English, French, German, Spanish, Portuguese, Dutch, etc...).
- Send a signal to a remote control system which is proportional to the pressure and frequency.
- Communicate with external control system via Modbus (RS 485 interface) and Bacnet as standard.



## HYDROVAR HVL IDENTIFICATION CODE

**H V L 4 . 0 7 5 - A 0 0 1 0**



## DIMENSIONS AND WEIGHTS



TYPE	MODELS			DIMENSIONS (mm)				WEIGHT Kg
	/2	/3	/4	L	B	H	X	
SIZE A	HVL2.015 ÷ 2.022	HVL3.015 ÷ 3.022	HVL4.015 ÷ 4.040	216	205	170	243	5,6
SIZE B	HVL2.030 ÷ 2.040	HVL3.030 ÷ 3.055	HVL4.055 ÷ 4.110	276	265	185	305	10,5
SIZE C	-	HVL3.075 ÷ 3.110	HVL4.150 ÷ 4.220	366	337	200	407	15,6

HVL\_dim-en\_b\_td

## ESH..H SERIES HYDROVAR (ErP 2009/125/EC)

From 1 July 2021 in accordance with the new **Regulations (EU) 2019/1781** and **2021/341** the **variance speed drives** with **three-phase input/output current**, rated voltage between **100 V** and **1000 V**, rated for operating with motors included in the same regulation (**0,12- 1000 kW**), must have efficiency level **IE2**.

The tables below also contain the mandatory information pursuant to Annex I, section 4, of the Regulations.

PN kW	Phase	UNin V	Pa kVA	Power losses (PL) with 10 KHz frequency										IE		
				% Pa												
				(% rated speed; % rated torque)												
				stand-by	0;25	0;50	0;100	50;25	50;50	50;100	90;50	90;100				
1,5	~1	208-240		not included in regulation												
2,2																
3																
4																
1,5	~3	208-240	2,45	0,4%	1,3%	1,6%	1,9%	1,4%	1,7%	2,5%	2,0%	3,1%	2			
2,2			3,46	0,3%	1,3%	1,6%	2,4%	1,4%	1,8%	2,7%	2,0%	3,3%				
3			5,15	0,2%	1,1%	1,4%	2,2%	1,3%	1,7%	2,6%	1,9%	3,2%				
4			6,00	0,2%	1,1%	1,3%	2,1%	1,3%	1,6%	2,5%	1,9%	3,1%				
5,5			7,90	0,1%	0,9%	1,1%	1,8%	1,0%	1,4%	2,4%	1,7%	3,2%				
7,5			10,1	0,1%	0,7%	0,9%	1,5%	0,8%	1,1%	2,1%	1,4%	3,1%				
11			15,1	0,1%	0,7%	0,9%	1,7%	0,8%	1,2%	2,3%	1,4%	3,0%				
1,5			~3	380-460	2,56	0,4%	1,2%	1,5%	1,8%	1,3%	1,6%	2,1%		1,6%	2,3%	2
2,2					3,67	0,3%	1,2%	1,3%	1,7%	1,3%	1,5%	2,1%		1,6%	2,3%	
3					5,00	0,2%	1,1%	1,1%	1,5%	1,2%	1,4%	2,1%		1,5%	2,2%	
4	6,20	0,2%			1,0%	0,9%	1,4%	1,1%	1,4%	2,0%	1,4%	2,2%				
5,5	8,30	0,2%			0,8%	0,8%	1,3%	0,9%	1,2%	1,9%	1,3%	2,2%				
7,5	10,7	0,1%			0,7%	0,6%	1,2%	0,7%	1,0%	1,8%	1,2%	2,3%				
11	15,9	0,1%			0,6%	0,6%	1,2%	0,7%	1,0%	1,8%	1,2%	2,2%				
15	21,5	0,1%			0,5%	0,6%	1,2%	0,6%	0,9%	1,6%	1,1%	2,0%				
18,5	25,6	0,1%			0,5%	0,6%	1,2%	0,6%	0,8%	1,6%	1,0%	1,9%				
22	29,4	0,0%			0,5%	0,7%	1,3%	0,6%	0,9%	1,6%	1,0%	2,1%				

hvl-pl-en\_a\_te

PN kW	~	UNin V	Manufacturer		f <sub>Nin</sub> Hz	I <sub>Nin</sub> max A	U <sub>nout</sub> V	f <sub>Nout</sub> Hz	I <sub>nout</sub> max A	Operating conditions*										
			Xylem Service Italia Srl Reg. No. 07520560967 Montecchio Maggiore (VI) - Italia							Altitude asl m	T.amb min/max °C	ATEX								
			Model																	
1,5	1	208-240	HVL 2.015-..		50/60	11,6	0-100% U <sub>Nin</sub>	15-70	7,5	≤1000	-15/40	No								
2,2			HVL 2.022-..			1			15,1											
3			HVL 2.030-..			22,3			14,3											
4			HVL 2.040-..			27,6			16,7											
1,5	3	208-240	HVL 3.015-..		50/60	7	0-100% U <sub>Nin</sub>	15-70	7,5	≤1000	-15/40	No								
2,2			HVL 3.022-..			9,1			10											
3			HVL 3.030-..			13,3			14,3											
4			HVL 3.040-..			16,5			16,7											
5,5			HVL 3.055-..			23,5			24,2											
7,5			HVL 3.075-..			29,6			31											
11			HVL 3.110-..			3			43,9											
1,5			3	380-460		HVL 4.015-..			50/60				3,9	0-100% U <sub>Nin</sub>	15-70	4,1	≤1000	-15/40	No	
2,2						HVL 4.022-..							5,3			5,7				
3						HVL 4.030-..							7,2			7,3				
4	HVL 4.040-..				10,1	10														
5,5	HVL 4.055-..				12,8	13,5														
7,5	HVL 4.075-..				16,9	17														
11	HVL 4.110-..				24,2	24														
15	HVL 4.150-..				33,3	32														
18,5	HVL 4.185-..				38,1	38														
22	HVL 4.220-..				44,7	44														

\*up to 2000 meters or maximum 55°C reducing the supplied power

hvl-en\_b\_te

## HYDROVAR HVL EMC COMPATIBILITY

### EMC requirements

HYDROVAR fulfills the product standard EN61800-3:2004 + A1:2012, which defines categories (C1 to C4) for device application areas.

Depending on the motor cable length, a classification of HYDROVAR by category (based on EN61800-3) is reported in the following tables:

HVL	HYDROVAR classification by categories based on EN61800-3
2.015 ÷ 2.040	C1 (*)
3.015 ÷ 3.110	C2 (*)
4.015 ÷ 4.220	C2 (*)

(\*) 0,75 motor cable length; contact Xylem for further information

En-Rev\_A

## CARD

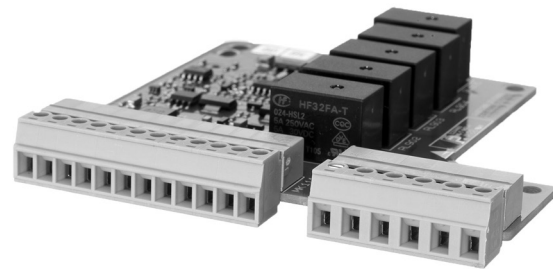
### Premium Card HYDROVAR (optional)

For the ESH series, the Premium Card comes fitted as option on the standalone HYDROVAR.

This allows to control up to five fix speed pumps via an external panel.

The Premium Card will allow additional features listed below:

- 2 additional Analog Inputs
- 2 Analog Outputs
- 1 additional digital input
- 5 relays.



## OPTIONAL COMPONENTS

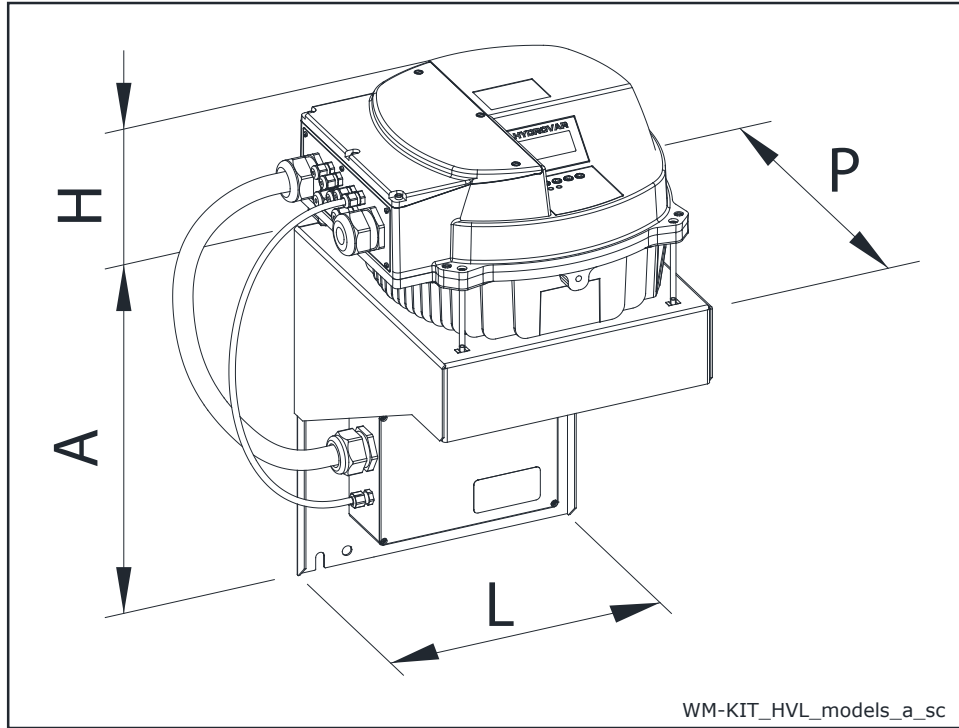
### Sensors

The following sensors are available for HYDROVAR:

- Pressure-transducer
- Differential pressure-transducer
- Temperature-sensor
- Flow indicator (orifice plate, inductive flow meter)
- Level-sensor.

## HYDROVAR HVL (WALL MOUNTING KIT) DIMENSIONS AND WEIGHTS

As an option a HYDROVAR wall mounting kit is also available, this is used where mounting on the pump unit is impossible or where you would like the controls in another location, these are available for the new generation HYDROVAR HVL 2.015-4.220 (22 kW). The speed of the cooling fan modulates with the HYDROVAR usage which optimizes energy consumption and also reduces noise.



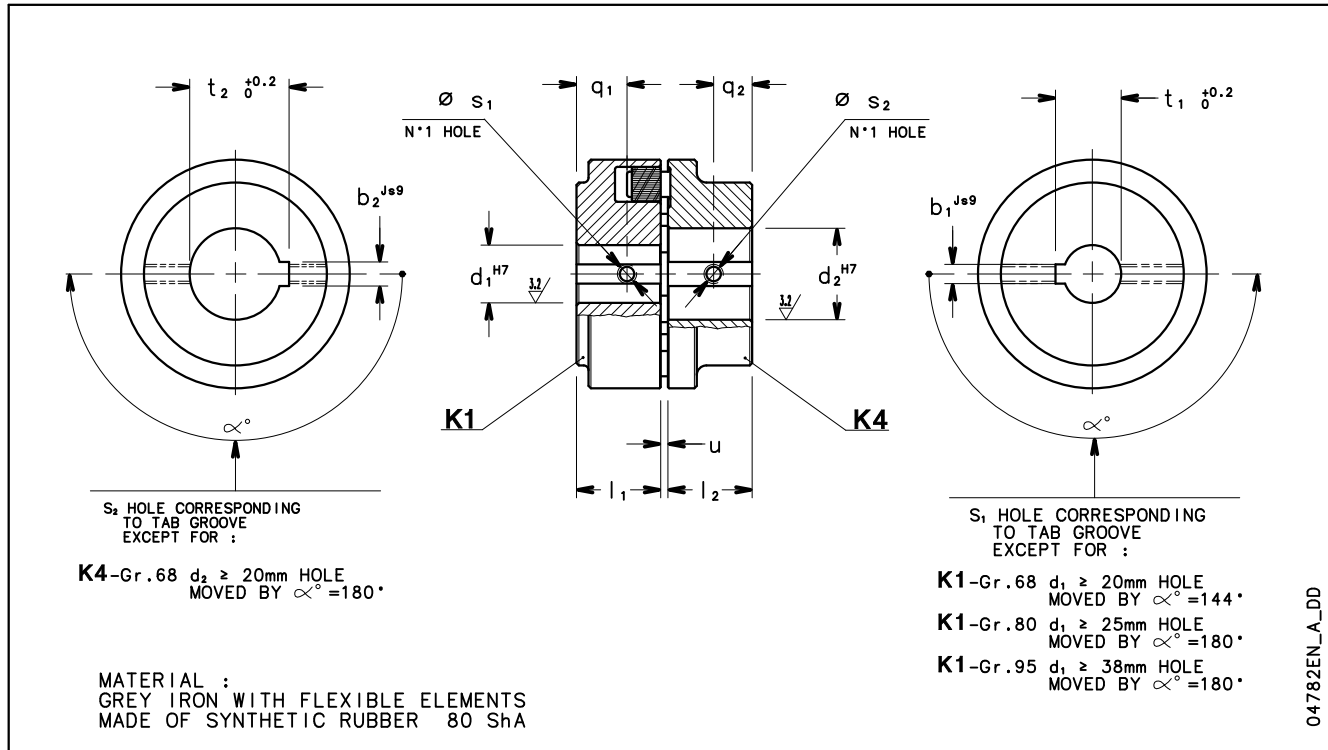
WM KIT TYPE	kW	WM KIT POWER SUPPLY	HVL SIZE	DIMENSIONS (mm)				WEIGHT (kg)	
				A	H	L	P	HVL	WM KIT
WM KIT HVL 2.015	1,5	1~ 230V	A	220	170	202	232	5,6	2,6
WM KIT HVL 2.022	2,2			220	170	202	232	5,6	2,6
WM KIT HVL 2.030	3		B	240	175	258	290	10,5	8,2
WM KIT HVL 2.040	4			320	175	288	305	10,5	5,4
WM KIT HVL 3.015	1,5	3~ 230V	A	220	170	202	232	5,6	2,6
WM KIT HVL 3.022	2,2			220	170	202	232	5,6	2,6
WM KIT HVL 3.030	3		B	240	175	258	290	10,5	8,2
WM KIT HVL 3.040	4			240	175	258	290	10,5	8,2
WM KIT HVL 3.055	5,5		C	240	175	258	290	10,5	8,2
WM KIT HVL 3.075	7,5			400	200	325	365	15,6	11,6
WM KIT HVL 3.110	11		400	200	325	365	15,6	11,6	
WM KIT HVL 4.015	1,5		3~ 400V	A	240	170	258	290	5,6
WM KIT HVL 4.022	2,2	240			170	258	290	5,6	8,2
WM KIT HVL 4.030	3	240			170	258	290	5,6	8,2
WM KIT HVL 4.040	4	240			170	258	290	5,6	8,2
WM KIT HVL 4.055	5,5	B		240	175	258	290	10,5	8,2
WM KIT HVL 4.075	7,5			240	175	258	290	10,5	8,2
WM KIT HVL 4.110	11	C		320	175	288	305	10,5	5,4
WM KIT HVL 4.150	15			400	200	325	365	15,6	11,6
WM KIT HVL 4.185	18,5			400	200	325	365	15,6	11,6
WM KIT HVL 4.220	22			400	200	325	365	15,6	11,6

WM-KIT\_HVL\_models-EN\_b\_td



# ACCESSORIES

## FLEXIBLE COUPLING DIMENSIONS



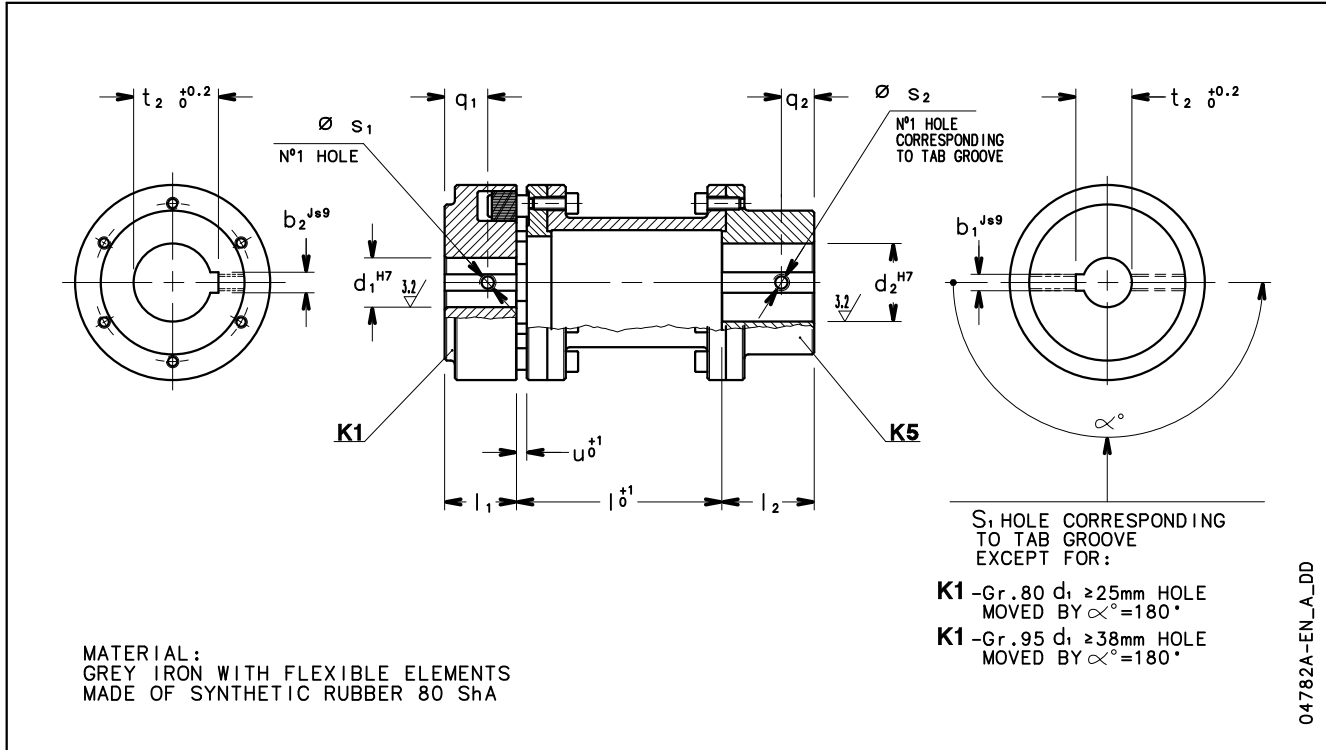
REF.	DENOMINATION	DIMENSIONS (mm)												
		K1 PUMP-SIDE HALF COUPLING						K4 MOTOR-SIDE HALF COUPLING						
		SIZE x $d_1$ x $d_2$	$d_1^{H7}$	$l_1$	$b_1^{js9}$	$t_1^{+0.2}$	$s_1$	$q_1$	$u$	$d_2^{H7}$	$l_2$	$b_2^{js9}$	$t_2^{+0.2}$	$s_2$
A1	B 68 x 24 x 14	24	20	8	27,3	M6	10	2÷4	14	20	5	16,3	M6	8
A2	B 68 x 24 x 19	24	20	8	27,3	M6	10	2÷4	19	20	6	21,8	M6	8
A3	B 68 x 24 x 24	24	20	8	27,3	M6	10	2÷4	24	20	8	27,3	M6	8
B1	B 80 x 24 x 28	24	30	8	27,3	M6	19	2÷4	28	30	8	31,3	M6	12
C1	B 95 x 24 x 38	24	35	8	27,3	M6	20	2÷4	38	35	10	41,3	M6	15
C2	B 95 x 24 x 42	24	35	8	27,3	M6	20	2÷4	42	35	12	45,3	M6	15
C3	B 95 x 32 x 28	32	35	10	35,3	M6	20	2÷4	28	35	8	31,3	M6	15
C4	B 95 x 32 x 38	32	35	10	35,3	M6	20	2÷4	38	35	10	41,3	M6	15
C5	B 95 x 32 x 42	32	35	10	35,3	M6	20	2÷4	42	35	12	45,3	M6	15
D1	B 110 x 24 x 48	24	40	8	27,3	M6	22	2÷4	48	40	14	51,8	M6	18
D2	B 110 x 32 x 48	32	40	10	35,3	M6	22	2÷4	48	40	14	51,8	M6	18
E1	B 125 x 32 x 55	32	50	10	35,3	M8	30	2÷4	55	50	16	59,3	M8	20
F1	B 140 x 32 x 60	32	55	10	35,3	M8	13	2÷4	60	55	18	64,4	M8	22
G1	B 160 x 32 x 65	32	60	10	35,3	M10	13	2÷6	65	60	18	69,4	M10	25

Note.: Non-ATEX version.

shf-giunto-elastico-en\_c\_td



### SPACER COUPLING DIMENSIONS



REF.	DENOMINATION	DIMENSIONS (mm)													
		K1							K5						
		PUMP-SIDE HALF COUPLING							MOTOR-SIDE HALF COUPLING						
SIXE x l x d <sub>1</sub> x d <sub>2</sub>	l <sub>0</sub> <sup>+1</sup>	d <sub>1</sub> <sup>H7</sup>	l <sub>1</sub>	b <sub>1</sub> <sup>js9</sup>	t <sub>1 0</sub> <sup>+0.2</sup>	s <sub>1</sub>	q <sub>1</sub>	u	d <sub>2</sub> <sup>H7</sup>	l <sub>2</sub>	b <sub>2</sub> <sup>js9</sup>	t <sub>2 0</sub> <sup>+0.2</sup>	s <sub>2</sub>	q <sub>2</sub>	
A2S	H 80-100 x 24 x 19	100	24	30	8	27,3	M6	19	5	19	45	6	21,8	M6	15
A3S	H 80-100 x 24 x 24	100	24	30	8	27,3	M6	19	5	24	45	8	27,3	M6	15
B1S	H 80-100 x 24 x 28	100	24	30	8	27,3	M6	19	5	28	45	8	31,3	M6	15
C1S	H 95-100 x 24 x 38	100	24	35	8	27,3	M6	20	5	38	45	10	41,3	M6	20
C2S	H 95-100 x 24 x 42	100	24	35	8	27,3	M6	20	5	42	45	12	45,3	M6	20
D1S	H 110-100 x 24 x 48	100	24	40	8	27,3	M6	22	5	48	50	14	51,8	M6	25
D2S	H 110-100 x 32 x 48	100	32	40	10	35,3	M6	22	5	48	50	14	51,8	M6	25
E1S	H 125-140 x 32 x 55	140	32	50	10	35,3	M8	30	5	55	50	16	59,3	M8	25
F1S	H 140-140 x 32 x 60	140	32	55	10	35,3	M8	13	5	60	65	18	64,4	M8	30
G1S	H 160-140 x 32 x 65	140	32	60	10	35,3	M10	13	6	65	70	18	69,4	M10	35

Note.: Non-ATEX version.

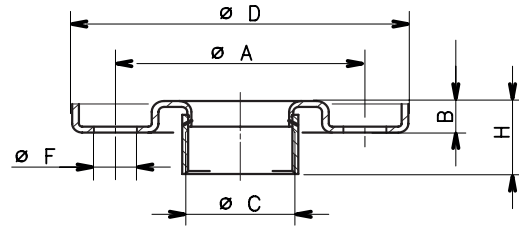
sh-giunto-elastico-con-sp-en\_c\_td

**ESH SERIES**

**DIMENSIONS OF ROUND THREADED COUNTERFLANGES ACCORDING TO EN 1092-1**

DN	ø C	DIMENSIONS (mm)				HOLES			PN
		ø A	B	ø D	H	ø F	N°		
25	Rp 1	85	16	115	32	14	4	16	
32	Rp 1¼	100	16	140	35	18	4	16	
40	Rp 1½	110	16	150	37	18	4	16	
50	Rp 2	125	18	165	42	18	4	16	
65	Rp 2½	145	18	185	47	18	4	16	
80	Rp 3	160	20	200	53	18	8	16	
100	Rp 4	180	20	225	59	18	8	16	

sh-ctf-tonde-f-en\_c\_td

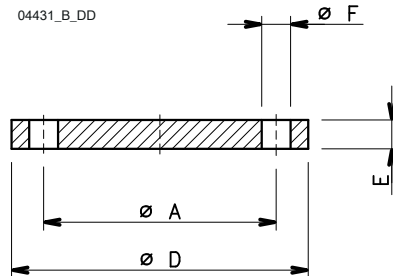


04430ESH\_C\_DD

**DIMENSIONS OF ROUND WELD COUNTERFLANGES ACCORDING TO EN 1092-1**

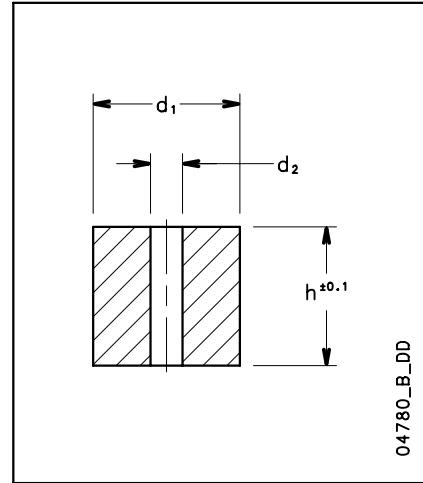
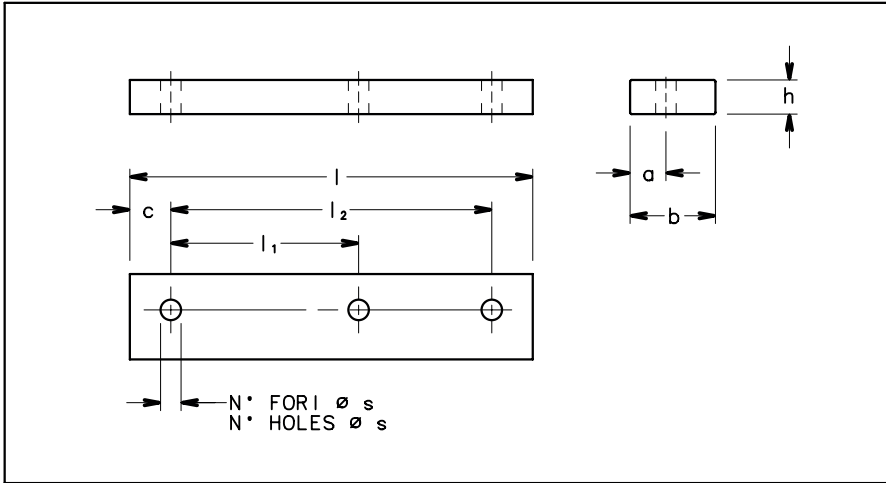
DN	ø C	DIMENSIONS (mm)			HOLES			PN
		ø A	B	ø D	ø F	N°		
65	77	145	18	185	18	4	16	
80	90	160	20	200	18	8	16	
100	115,5	180	22	220	18	8	16	

sh-ctf-tonde-s-en\_b\_td



04431\_B\_DD

## ESH SERIES SHIM FOR MOTOR FEET



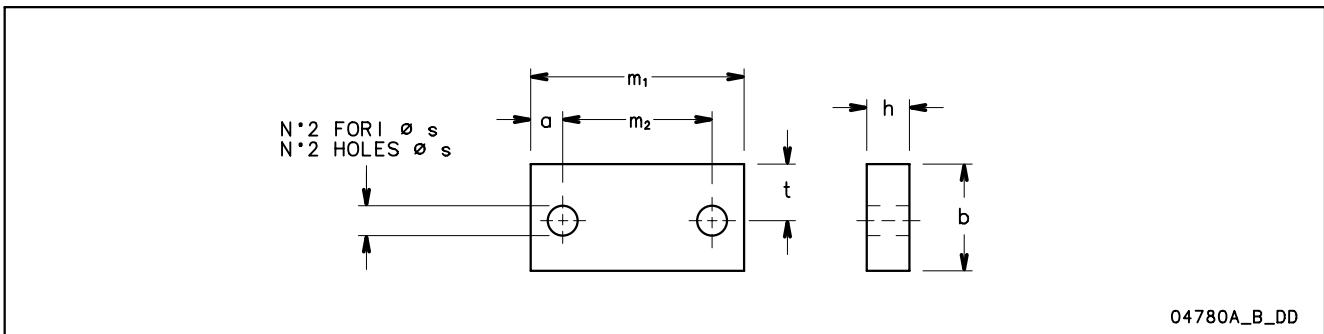
04780\_B\_DD

DENOMINATION		DIMENSIONS (mm)							HOLES	
b	x	h	x	l	a	l <sub>1</sub>	l <sub>2</sub>	c	N°	ø s
35	20	125	17	100	-	12,5	2	10		
40	10	155	20	100	125	15	3	10		
40	12	155	20	100	125	15	3	10		
40	12	180	17	140	-	20	2	14		
40	20	180	17	140	-	20	2	14		
40	30	155	20	100	125	15	3	10		
40	40	180	17	140	-	20	2	14		
50	8	226	21	140	178	24	3	14		
50	20	226	21	140	178	24	3	14		
50	20	304	25	210	254	25	3	14		
50	30	304	25	210	254	25	3	14		
100	30	467	50	311	349	59	3	22		

DENOMINATION		DIMENSIONS (mm)	
d <sub>1</sub>	x	h	d <sub>2</sub>
45	41	10	
45	61	10	
45	89	10	
55	52	12	
55	70	12	
55	80	12	
55	90	12	
55	100	12	
65	60	16	
65	68	16	
65	78	16	
65	80	16	
65	88	16	

sp-mot-shs-shf-en\_d\_td

## SHIM FOR PUMP FEET (ESHF)



04780A\_B\_DD

DESIGNATION		DIMENSIONS (mm)						
b	x	h	x	m <sub>1</sub>	a	m <sub>2</sub>	ø s	t
40	10	160	25	110	14	16,5		
40	20	160	25	110	14	16,5		
40	25	160	25	110	14	16,5		
40	30	160	25	110	14	16,5		
70	20	125	15	95	14	37,5		
80	10	160	20	120	18	42,5		
80	25	160	20	120	18	42,5		
80	30	160	20	120	18	42,5		

sp-pompa-shf-en\_b\_td



# **REPORTS AND DECLARATIONS**

## REPORTS AND DECLARATIONS

### i) Test reports

#### a) Factory Test Report

(not available for all pump types; contact Customer Service in advance)

- Test report compiled at the end of the assembly line, including flow-head performance test (ISO 9906:2012 – Grade 3B) and tightness test.

#### b) Audit Test Report

- Test report for electric pumps compiled in the test room, comprising flow-head-pump input-pump efficiency performance test (ISO 9906:2012 – Grade 3B)

#### c) NPSH Test Report

- Test report for electric pumps compiled in the test room, comprising flow-NPSH performance test (ISO 9906:2012 – Grade 3B)

#### d) Noise Test Report

- Report indicating sound pressure and power measurements (EN ISO 20361, EN ISO 11203, EN ISO 4871)

#### e) Vibration Test Report

(unavailable for submerged or submersible pumps)

- Report indicating vibration measurements (ISO 10816-1)

### ii) Declaration of product conformity with the technical requirements indicated in the order

#### a) EN 10204:2004 - type 2.1

- does not include test results on supplied or similar products.

#### b) EN 10204:2004 - type 2.2

- includes test results (materials certificates) on similar products.

### iii) Issue of a further EC Declaration of Conformity,

- in addition to the one accompanying the product, it comprises references to European law and the main technical standards (e.g.: MD 2006/42/EC, EMC 2014/30/EU, ErP 2009/125/EC).

*N.B.: if the request is made after receipt of the product, communicate the code (name) and serial number (date + progressive number).*

### iv) Manufacturer's declaration of conformity

- relative to one of more types of products without indicating specific codes and serial numbers.

### v) Other certificates and/or documentation on request

- subject to availability or feasibility.

### vi) Duplication of certificates and/or documentation on request

- subject to availability or feasibility.

# **TECHNICAL APPENDIX**

## NPSH

The minimum operating values that can be reached at the pump suction end are limited by the onset of cavitation.

Cavitation is the formation of vapour-filled cavities within liquids where the pressure is locally reduced to a critical value, or where the local pressure is equal to, or just below the vapour pressure of the liquid.

The vapour-filled cavities flow with the current and when they reach a higher pressure area the vapour contained in the cavities condenses. The cavities collide, generating pressure waves that are transmitted to the walls. These, being subjected to stress cycles, gradually become deformed and yield due to fatigue. This phenomenon, characterized by a metallic noise produced by the hammering on the pipe walls, is called incipient cavitation.

The damage caused by cavitation may be magnified by electrochemical corrosion and a local rise in temperature due to the plastic deformation of the walls. The materials that offer the highest resistance to heat and corrosion are alloy steels, especially austenitic steel. The conditions that trigger cavitation may be assessed by calculating the total net suction head, referred to in technical literature with the acronym NPSH (Net Positive Suction Head).

The NPSH represents the total energy (expressed in m.) of the liquid measured at suction under conditions of incipient cavitation, excluding the vapour pressure (expressed in m.) that the liquid has at the pump inlet.

To find the static height  $h_z$  at which to install the machine under safe conditions, the following formula must be verified:

$$hp + h_z \geq (NPSH_r + 0.5) + hf + hpv \quad \textcircled{1}$$

where:

**hp** is the absolute pressure applied to the free liquid surface in the suction tank, expressed in m. of liquid;  $hp$  is the quotient between the barometric pressure and the specific weight of the liquid.

**hz** is the suction lift between the pump axis and the free liquid surface in the suction tank, expressed in m.;  $h_z$  is negative when the liquid level is lower than the pump axis.

**hf** is the flow resistance in the suction line and its accessories, such as: fittings, foot valve, gate valve, elbows, etc.

**h<sub>pv</sub>** is the vapour pressure of the liquid at the operating temperature, expressed in m. of liquid.  $h_{pv}$  is the quotient between the  $P_v$  vapour pressure and the liquid's specific weight.

**0,5** is the safety factor.

The maximum possible suction head for installation depends on the value of the atmospheric pressure (i.e. the elevation above sea level at which the pump is installed) and the temperature of the liquid.

To help the user, with reference to water temperature (4° C) and to the elevation above sea level, the following tables show the drop in hydraulic pressure head in relation to the elevation above sea level, and the suction loss in relation to temperature.

Water temperature (°C)	20	40	60	80	90	110	120
Suction loss (m)	0,2	0,7	2,0	5,0	7,4	15,4	21,5

Elevation above sea level (m)	500	1000	1500	2000	2500	3000
Suction loss (m)	0,55	1,1	1,65	2,2	2,75	3,3

Friction loss is shown in the tables Flow Resistance of this catalogue. To reduce it to a minimum, especially in cases of high suction head (over 4-5 m.) or within the operating limits with high flow rates, we recommend using a suction line having a larger diameter than that of the pump's suction port. It is always a good idea to position the pump as close as possible to the liquid to be pumped.

Make the following calculation:

Liquid: water at ~15°C  $\gamma = 1 \text{ kg/dm}^3$

Flow rate required: 25 m<sup>3</sup>/h

Head for required delivery: 70 m.

Suction lift: 3,5 m.

The selection is an 33SV3G075T pump whose NPSH required value is, at 25 m<sup>3</sup>/h, of 2 m.

For water at 15 °C

$$hp = Pa / \gamma = 10,33\text{m}, h_{pv} = P_v / \gamma = 0,174\text{m} (0,01701 \text{ bar})$$

The  $H_f$  flow resistance in the suction line with foot valves is ~ 1,2 m.

By substituting the parameters in formula  $\textcircled{1}$  with the numeric values above, we have:

$$10,33 + (-3,5) \geq (2 + 0,5) + 1,2 + 0,17$$

from which we have: 6,8 > 3,9

The relation is therefore verified.



**VAPOUR PRESSURE**

**VAPOUR PRESSURE  $p_s$  AND  $\rho$  DENSITY OF WATER TABLE**

t °C	T K	$p_s$ bar	$\rho$ kg/dm <sup>3</sup>	t °C	T K	$p_s$ bar	$\rho$ kg/dm <sup>3</sup>	t °C	T K	$p_s$ bar	$\rho$ kg/dm <sup>3</sup>
0	273,15	0,00611	0,9998	55	328,15	0,15741	0,9857	120	393,15	1,9854	0,9429
1	274,15	0,00657	0,9999	56	329,15	0,16511	0,9852	122	395,15	2,1145	0,9412
2	275,15	0,00706	0,9999	57	330,15	0,17313	0,9846	124	397,15	2,2504	0,9396
3	276,15	0,00758	0,9999	58	331,15	0,18147	0,9842	126	399,15	2,3933	0,9379
4	277,15	0,00813	1,0000	59	332,15	0,19016	0,9837	128	401,15	2,5435	0,9362
5	278,15	0,00872	1,0000	60	333,15	0,1992	0,9832	130	403,15	2,7013	0,9346
6	279,15	0,00935	1,0000	61	334,15	0,2086	0,9826	132	405,15	2,867	0,9328
7	280,15	0,01001	0,9999	62	335,15	0,2184	0,9821	134	407,15	3,041	0,9311
8	281,15	0,01072	0,9999	63	336,15	0,2286	0,9816	136	409,15	3,223	0,9294
9	282,15	0,01147	0,9998	64	337,15	0,2391	0,9811	138	411,15	3,414	0,9276
10	283,15	0,01227	0,9997	65	338,15	0,2501	0,9805	140	413,15	3,614	0,9258
11	284,15	0,01312	0,9997	66	339,15	0,2615	0,9799	145	418,15	4,155	0,9214
12	285,15	0,01401	0,9996	67	340,15	0,2733	0,9793	155	428,15	5,433	0,9121
13	286,15	0,01497	0,9994	68	341,15	0,2856	0,9788	160	433,15	6,181	0,9073
14	287,15	0,01597	0,9993	69	342,15	0,2984	0,9782	165	438,15	7,008	0,9024
15	288,15	0,01704	0,9992	70	343,15	0,3116	0,9777	170	443,15	7,920	0,8973
16	289,15	0,01817	0,9990	71	344,15	0,3253	0,9770	175	448,15	8,924	0,8921
17	290,15	0,01936	0,9988	72	345,15	0,3396	0,9765	180	453,15	10,027	0,8869
18	291,15	0,02062	0,9987	73	346,15	0,3543	0,9760	185	458,15	11,233	0,8815
19	292,15	0,02196	0,9985	74	347,15	0,3696	0,9753	190	463,15	12,551	0,8760
20	293,15	0,02337	0,9983	75	348,15	0,3855	0,9748	195	468,15	13,987	0,8704
21	294,15	0,24850	0,9981	76	349,15	0,4019	0,9741	200	473,15	15,550	0,8647
22	295,15	0,02642	0,9978	77	350,15	0,4189	0,9735	205	478,15	17,243	0,8588
23	296,15	0,02808	0,9976	78	351,15	0,4365	0,9729	210	483,15	19,077	0,8528
24	297,15	0,02982	0,9974	79	352,15	0,4547	0,9723	215	488,15	21,060	0,8467
25	298,15	0,03166	0,9971	80	353,15	0,4736	0,9716	220	493,15	23,198	0,8403
26	299,15	0,03360	0,9968	81	354,15	0,4931	0,9710	225	498,15	25,501	0,8339
27	300,15	0,03564	0,9966	82	355,15	0,5133	0,9704	230	503,15	27,976	0,8273
28	301,15	0,03778	0,9963	83	356,15	0,5342	0,9697	235	508,15	30,632	0,8205
29	302,15	0,04004	0,9960	84	357,15	0,5557	0,9691	240	513,15	33,478	0,8136
30	303,15	0,04241	0,9957	85	358,15	0,5780	0,9684	245	518,15	36,523	0,8065
31	304,15	0,04491	0,9954	86	359,15	0,6011	0,9678	250	523,15	39,776	0,7992
32	305,15	0,04753	0,9951	87	360,15	0,6249	0,9671	255	528,15	43,246	0,7916
33	306,15	0,05029	0,9947	88	361,15	0,6495	0,9665	260	533,15	46,943	0,7839
34	307,15	0,05318	0,9944	89	362,15	0,6749	0,9658	265	538,15	50,877	0,7759
35	308,15	0,05622	0,9940	90	363,15	0,7011	0,9652	270	543,15	55,058	0,7678
36	309,15	0,05940	0,9937	91	364,15	0,7281	0,9644	275	548,15	59,496	0,7593
37	310,15	0,06274	0,9933	92	365,15	0,7561	0,9638	280	553,15	64,202	0,7505
38	311,15	0,06624	0,9930	93	366,15	0,7849	0,9630	285	558,15	69,186	0,7415
39	312,15	0,06991	0,9927	94	367,15	0,8146	0,9624	290	563,15	74,461	0,7321
40	313,15	0,07375	0,9923	95	368,15	0,8453	0,9616	295	568,15	80,037	0,7223
41	314,15	0,07777	0,9919	96	369,15	0,8769	0,9610	300	573,15	85,927	0,7122
42	315,15	0,08198	0,9915	97	370,15	0,9094	0,9602	305	578,15	92,144	0,7017
43	316,15	0,09639	0,9911	98	371,15	0,9430	0,9596	310	583,15	98,70	0,6906
44	317,15	0,09100	0,9907	99	372,15	0,9776	0,9586	315	588,15	105,61	0,6791
45	318,15	0,09582	0,9902	100	373,15	1,0133	0,9581	320	593,15	112,89	0,6669
46	319,15	0,10086	0,9898	102	375,15	1,0878	0,9567	325	598,15	120,56	0,6541
47	320,15	0,10612	0,9894	104	377,15	1,1668	0,9552	330	603,15	128,63	0,6404
48	321,15	0,11162	0,9889	106	379,15	1,2504	0,9537	340	613,15	146,05	0,6102
49	322,15	0,11736	0,9884	108	381,15	1,3390	0,9522	350	623,15	165,35	0,5743
50	323,15	0,12335	0,9880	110	383,15	1,4327	0,9507	360	633,15	186,75	0,5275
51	324,15	0,12961	0,9876	112	385,15	1,5316	0,9491	370	643,15	210,54	0,4518
52	325,15	0,13613	0,9871	114	387,15	1,6362	0,9476	374,15	647,30	221,20	0,3154
53	326,15	0,14293	0,9862	116	389,15	1,7465	0,9460				
54	327,15	0,15002	0,9862	118	391,15	1,8628	0,9445				

G-at\_npsb\_b\_sc

## TABLE OF FLOW RESISTANCE IN 100 m OF STRAIGHT CAST IRON PIPELINE (HAZEN-WILLIAMS FORMULA C=100)

FLOW RATE m <sup>3</sup> /h   l/min		NOMINAL DIAMETER in mm and inches																	
		15 1/2"	20 3/4"	25 1"	32 1 1/4"	40 1 1/2"	50 2"	65 2 1/2"	80 3"	100 4"	125 5"	150 6"	175 7"	200 8"	250 10"	300 12"	350 14"	400 16"	
0,6	10	v	0,94	0,53	0,34	0,21	0,13												
		hr	16	3,94	1,33	0,40	0,13												
0,9	15	v	1,42	0,80	0,51	0,31	0,20												
		hr	33,9	8,35	2,82	0,85	0,29												
1,2	20	v	1,89	1,06	0,68	0,41	0,27	0,17											
		hr	57,7	14,21	4,79	1,44	0,49	0,16											
1,5	25	v	2,36	1,33	0,85	0,52	0,33	0,21											
		hr	87,2	21,5	7,24	2,18	0,73	0,25											
1,8	30	v	2,83	1,59	1,02	0,62	0,40	0,25											
		hr	122	30,1	10,1	3,05	1,03	0,35											
2,1	35	v	3,30	1,86	1,19	0,73	0,46	0,30											
		hr	162	40,0	13,5	4,06	1,37	0,46											
2,4	40	v		2,12	1,36	0,83	0,53	0,34	0,20										
		hr		51,2	17,3	5,19	1,75	0,59	0,16										
3	50	v		2,65	1,70	1,04	0,66	0,42	0,25										
		hr		77,4	26,1	7,85	2,65	0,89	0,25										
3,6	60	v		3,18	2,04	1,24	0,80	0,51	0,30										
		hr		108	36,6	11,0	3,71	1,25	0,35										
4,2	70	v		3,72	2,38	1,45	0,93	0,59	0,35										
		hr		144	48,7	14,6	4,93	1,66	0,46										
4,8	80	v		4,25	2,72	1,66	1,06	0,68	0,40										
		hr		185	62,3	18,7	6,32	2,13	0,59										
5,4	90	v			3,06	1,87	1,19	0,76	0,45	0,30									
		hr			77,5	23,3	7,85	2,65	0,74	0,27									
6	100	v			3,40	2,07	1,33	0,85	0,50	0,33									
		hr			94,1	28,3	9,54	3,22	0,90	0,33									
7,5	125	v			4,25	2,59	1,66	1,06	0,63	0,41									
		hr			142	42,8	14,4	4,86	1,36	0,49									
9	150	v				3,11	1,99	1,27	0,75	0,50	0,32								
		hr				59,9	20,2	6,82	1,90	0,69	0,23								
10,5	175	v				3,63	2,32	1,49	0,88	0,58	0,37								
		hr				79,7	26,9	9,07	2,53	0,92	0,31								
12	200	v				4,15	2,65	1,70	1,01	0,66	0,42								
		hr				102	34,4	11,6	3,23	1,18	0,40								
15	250	v				5,18	3,32	2,12	1,26	0,83	0,53	0,34							
		hr				154	52,0	17,5	4,89	1,78	0,60	0,20							
18	300	v					3,98	2,55	1,51	1,00	0,64	0,41							
		hr					72,8	24,6	6,85	2,49	0,84	0,28							
24	400	v					5,31	3,40	2,01	1,33	0,85	0,54	0,38						
		hr					124	41,8	11,66	4,24	1,43	0,48	0,20						
30	500	v					6,63	4,25	2,51	1,66	1,06	0,68	0,47						
		hr					187	63,2	17,6	6,41	2,16	0,73	0,30						
36	600	v						5,10	3,02	1,99	1,27	0,82	0,57	0,42					
		hr						88,6	24,7	8,98	3,03	1,02	0,42	0,20					
42	700	v						5,94	3,52	2,32	1,49	0,95	0,66	0,49					
		hr						118	32,8	11,9	4,03	1,36	0,56	0,26					
48	800	v						6,79	4,02	2,65	1,70	1,09	0,75	0,55					
		hr						151	42,0	15,3	5,16	1,74	0,72	0,34					
54	900	v						7,64	4,52	2,99	1,91	1,22	0,85	0,62					
		hr						188	52,3	19,0	6,41	2,16	0,89	0,42					
60	1000	v						5,03	3,32	2,12	1,36	0,94	0,69	0,53					
		hr						63,5	23,1	7,79	2,63	1,08	0,51	0,27					
75	1250	v						6,28	4,15	2,65	1,70	1,18	0,87	0,66					
		hr						96,0	34,9	11,8	3,97	1,63	0,77	0,40					
90	1500	v						7,54	4,98	3,18	2,04	1,42	1,04	0,80					
		hr						134	48,9	16,5	5,57	2,29	1,08	0,56					
105	1750	v						8,79	5,81	3,72	2,38	1,65	1,21	0,93					
		hr						179	65,1	21,9	7,40	3,05	1,44	0,75					
120	2000	v						6,63	4,25	2,72	1,89	1,39	1,06	0,68					
		hr						83,3	28,1	9,48	3,90	1,84	0,96	0,32					
150	2500	v						8,29	5,31	3,40	2,36	1,73	1,33	0,85					
		hr						126	42,5	14,3	5,89	2,78	1,45	0,49					
180	3000	v							6,37	4,08	2,83	2,08	1,59	1,02	0,71				
		hr							59,5	20,1	8,26	3,90	2,03	0,69	0,28				
210	3500	v							7,43	4,76	3,30	2,43	1,86	1,19	0,83				
		hr							79,1	26,7	11,0	5,18	2,71	0,91	0,38				
240	4000	v							8,49	5,44	3,77	2,77	2,12	1,36	0,94				
		hr							101	34,2	14,1	6,64	3,46	1,17	0,48				
300	5000	v								6,79	4,72	3,47	2,65	1,70	1,18				
		hr								51,6	21,2	10,0	5,23	1,77	0,73				
360	6000	v								8,15	5,66	4,16	3,18	2,04	1,42				
		hr								72,3	29,8	14,1	7,33	2,47	1,02				
420	7000	v									6,61	4,85	3,72	2,38	1,65	1,21			
		hr									39,6	18,7	9,75	3,29	1,35	0,64			
480	8000	v									7,55	5,55	4,25	2,72	1,89	1,39			
		hr									50,7	23,9	12,49	4,21	1,73	0,82			
540	9000	v									8,49	6,24	4,78	3,06	2,12	1,56	1,19		
		hr									63,0	29,8	15,5	5,24	2,16	1,02	0,53		
600	10000	v										6,93	5,31	3,40	2,36	1,73	1,33		
		hr										36,2	18,9	6,36	2,62	1,24	0,65		

hr = flow resistance for 100 m of straight pipeline (m)

G-at-pct-en\_b\_th

V = water speed (m/s)

## FLOW RESISTANCE

### TABLE OF FLOW RESISTANCE IN BENDS, VALVES AND GATES

The flow resistance is calculated using the equivalent pipeline length method according to the table below:

ACCESSORY TYPE	DN											
	25	32	40	50	65	80	100	125	150	200	250	300
	Equivalent pipeline length (m)											
45° bend	0,2	0,2	0,4	0,4	0,6	0,6	0,9	1,1	1,5	1,9	2,4	2,8
90° bend	0,4	0,6	0,9	1,1	1,3	1,5	2,1	2,6	3,0	3,9	4,7	5,8
90° smooth bend	0,4	0,4	0,4	0,6	0,9	1,1	1,3	1,7	1,9	2,8	3,4	3,9
Union tee or cross	1,1	1,3	1,7	2,1	2,6	3,2	4,3	5,3	6,4	7,5	10,7	12,8
Gate valve	-	-	-	0,2	0,2	0,2	0,4	0,4	0,6	0,9	1,1	1,3
Foot check valve	1,1	1,5	1,9	2,4	3,0	3,4	4,7	5,9	7,4	9,6	11,8	13,9
Non return valve	1,1	1,5	1,9	2,4	3,0	3,4	4,7	5,9	7,4	9,6	11,8	13,9

G-a-pcv-en\_b\_th

The table is valid for the Hazen Williams coefficient  $C=100$  (cast iron pipework);

for steel pipework, multiply the values by 1,41;

for stainless steel, copper and coated cast iron pipework, multiply the values by 1,85;

When the **equivalent pipeline length** has been determined, the flow resistance is obtained from the table of flow resistance.

The values given are guideline values which are bound to vary slightly according to the model, especially for gate valves and non-return valves, for which it is a good idea to check the values supplied by manufacturers.

## VOLUMETRIC CAPACITY

Litres per minute l/min	Cubic metres per hour m <sup>3</sup> /h	Cubic feet per hour ft <sup>3</sup> /h	Cubic feet per minute ft <sup>3</sup> /min	Imperial gallon per minute Imp. gal/min	U.S. gallon per minute US gal/min
<b>1,000</b>	0,0600	2,1189	0,0353	0,2200	0,2642
16,6667	<b>1,0000</b>	35,3147	0,5886	3,6662	4,4029
0,4719	0,0283	<b>1,0000</b>	0,0167	0,1038	0,1247
28,3168	1,6990	60,0000	<b>1,0000</b>	6,2288	7,4805
4,5461	0,2728	9,6326	0,1605	<b>1,0000</b>	1,2009
3,7854	0,2271	8,0208	0,1337	0,8327	<b>1,0000</b>

## PRESSURE AND HEAD

Newton per square metre N/m <sup>2</sup>	kilo Pascal kPa	bar bar	Pound force per square inch psi	Metre of water m H <sub>2</sub> O	Millimetre of mercury mm Hg
<b>1,0000</b>	0,0010	1 x 10 <sup>-5</sup>	1,45 x 10 <sup>-4</sup>	1,02 x 10 <sup>-4</sup>	0,0075
1 000,0000	<b>1,0000</b>	0,0100	0,1450	0,1020	7,5006
1 x 10 <sup>5</sup>	100,0000	<b>1,0000</b>	14,5038	10,1972	750,0638
6 894,7570	6,8948	0,0689	<b>1,0000</b>	0,7031	51,7151
9 806,6500	9,8067	0,0981	1,4223	<b>1,0000</b>	73,5561
133,3220	0,1333	0,0013	0,0193	0,0136	<b>1,0000</b>

## LENGTH

Millimetre mm	Centimetre cm	Metre m	Inch in	Foot ft	Yard yd
<b>1,0000</b>	0,1000	0,0010	0,0394	0,0033	0,0011
10,0000	<b>1,0000</b>	0,0100	0,3937	0,0328	0,0109
1 000,0000	100,0000	<b>1,0000</b>	39,3701	3,2808	1,0936
25,4000	2,5400	0,0254	<b>1,0000</b>	0,0833	0,0278
304,8000	30,4800	0,3048	12,0000	<b>1,0000</b>	0,3333
914,4000	91,4400	0,9144	36,0000	3,0000	<b>1,0000</b>

## VOLUME

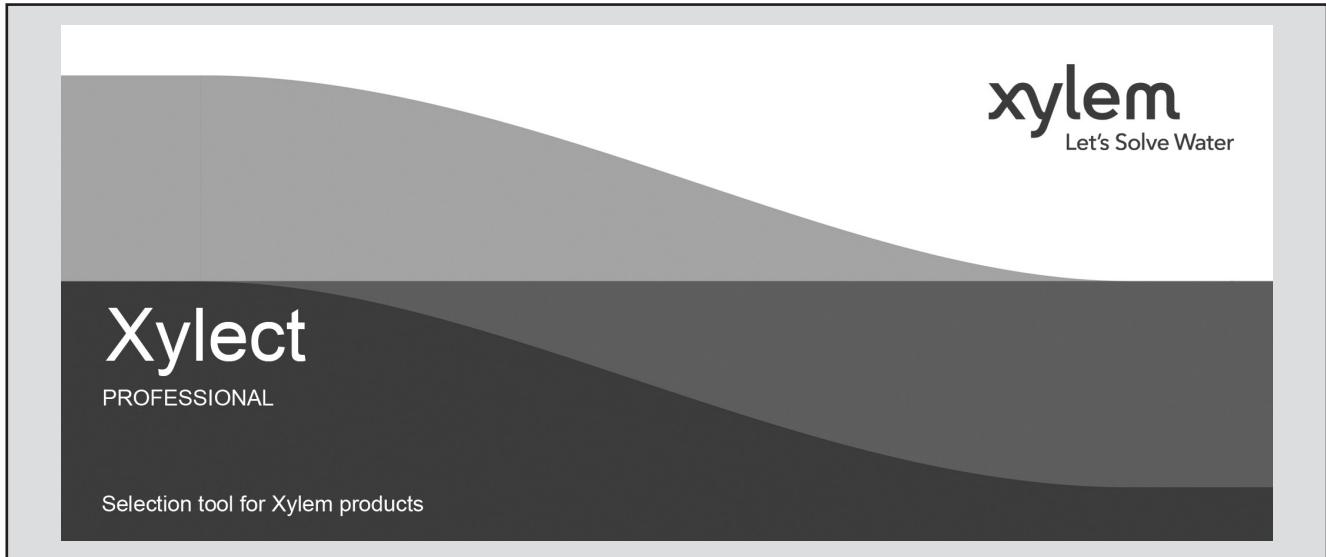
Cubic metre m <sup>3</sup>	Litre L	Millilitre ml	Imperial gallon imp. gal.	U.S. gallon US gal.	Cubic foot ft <sup>3</sup>
<b>1,0000</b>	1 000,0000	1 x 10 <sup>6</sup>	219,9694	264,1720	35,3147
0,0010	<b>1,0000</b>	1 000,0000	0,2200	0,2642	0,0353
1 x 10 <sup>-6</sup>	0,0010	<b>1,0000</b>	2,2 x 10 <sup>-4</sup>	2,642 x 10 <sup>-4</sup>	3,53 x 10 <sup>-5</sup>
0,0045	4,5461	4 546,0870	<b>1,0000</b>	1,2009	0,1605
0,0038	3,7854	3 785,4120	0,8327	<b>1,0000</b>	0,1337
0,0283	28,3168	28 316,8466	6,2288	7,4805	<b>1,0000</b>

## TEMPERATURE

Water	Kelvin K	Celsius °C	Fahrenheit °F	$^{\circ}\text{F} = ^{\circ}\text{C} \times \frac{9}{5} + 32$ $^{\circ}\text{C} = (^{\circ}\text{F} - 32) \times \frac{5}{9}$
icing	273,1500	0,0000	32,0000	
boiling	373,1500	100,0000	212,0000	

G-at\_pp-en\_b\_sc

**FURTHER PRODUCT SELECTION  
AND DOCUMENTATION**  
**Xylect**



Xylect is pump solution selection software with an extensive online database of product information across the entire Lowara range of pumps and related products, with multiple search options and helpful project management facilities. The system holds up-to-date product information on thousands of products and accessories.

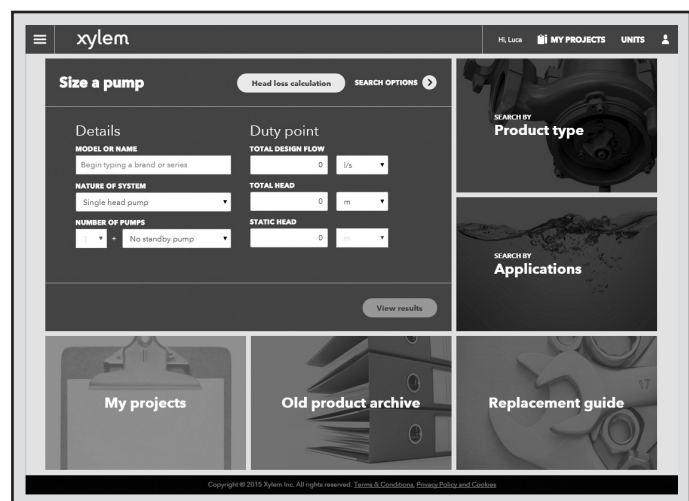
The possibility to search by applications and the detailed information output given makes it easy to make the optimal selection without having detailed knowledge about the Lowara products.

The search can be made by:

- Application
- Product type
- Duty point

Xylect gives a detailed output:

- List with search results
- Performance curves (flow, head, power, efficiency, NPSH)
- Motor data
- Dimensional drawings
- Options
- Data sheet printouts
- Document downloads incl dxf files



*The search by application guides users not familiar with the product range to the right choice.*

## FURTHER PRODUCT SELECTION AND DOCUMENTATION Xylect



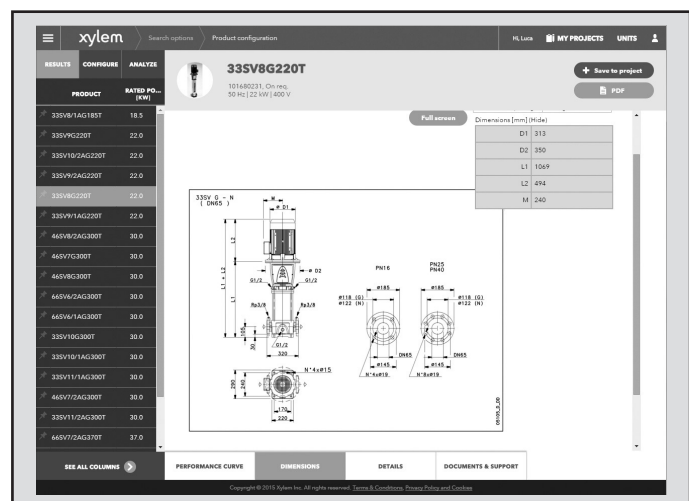
The detailed output makes it easy to select the optimal pump from the given alternatives.

The best way to work with Xylect is to create a personal account. This makes it possible to:

- Set own standard units
- Create and save projects
- Share projects with other Xylect users

Every registered user has a proper space, where all projects are saved.

For more information about Xylect please contact our sales network or visit [www.xylect.com](http://www.xylect.com).



Dimensional drawings appear on the screen and can be downloaded in dxf format.



# Xylem |'zīləm|

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- 2) a leading global water technology company.

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