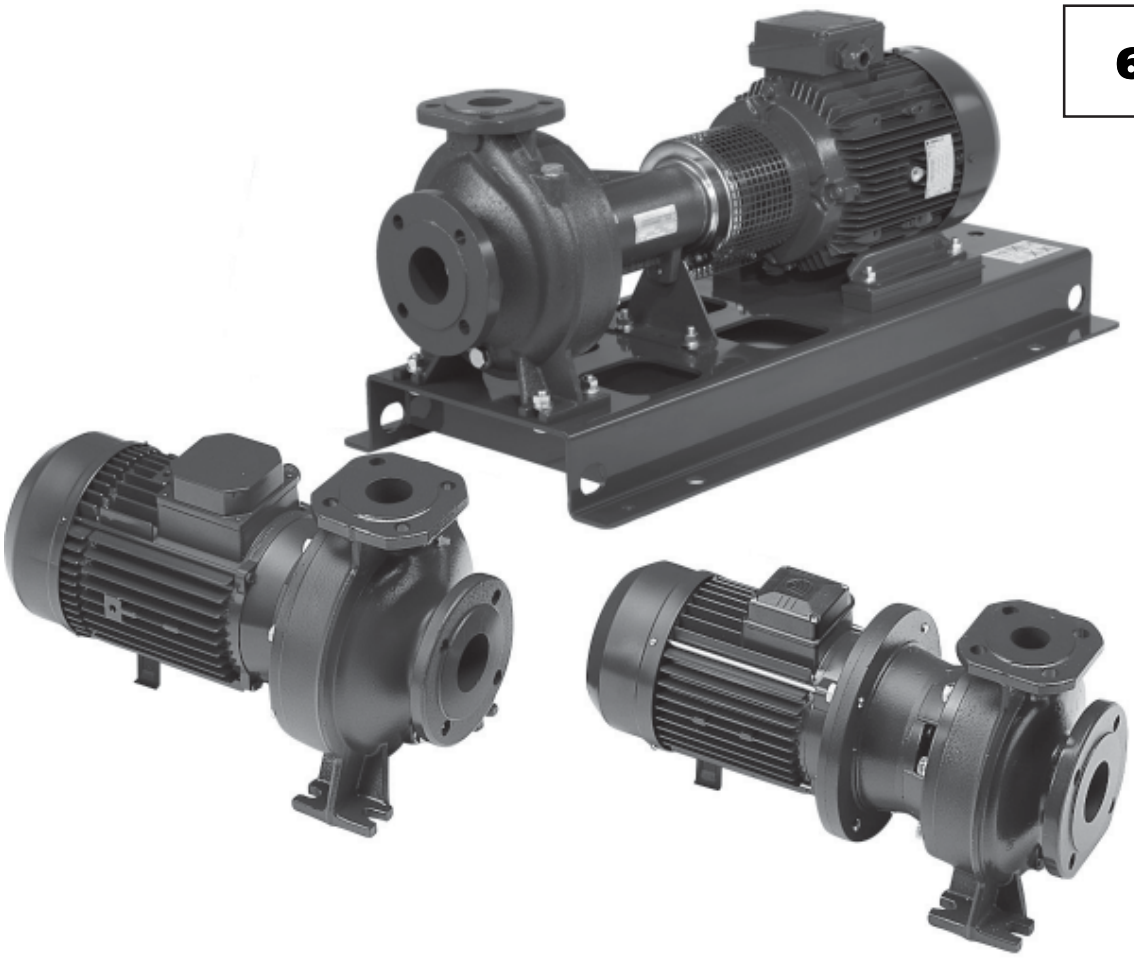
60 Hz



FH Series

CENTRIFUGAL ELECTRIC PUMPS MANUFACTURED TO STANDARD EN 733
EQUIPPED WITH IE2/IE3 MOTORS COMPLYING WITH REGULATION (EC) no. 640/2009

Cod. 191012421 Rev.B Ed.06/2012

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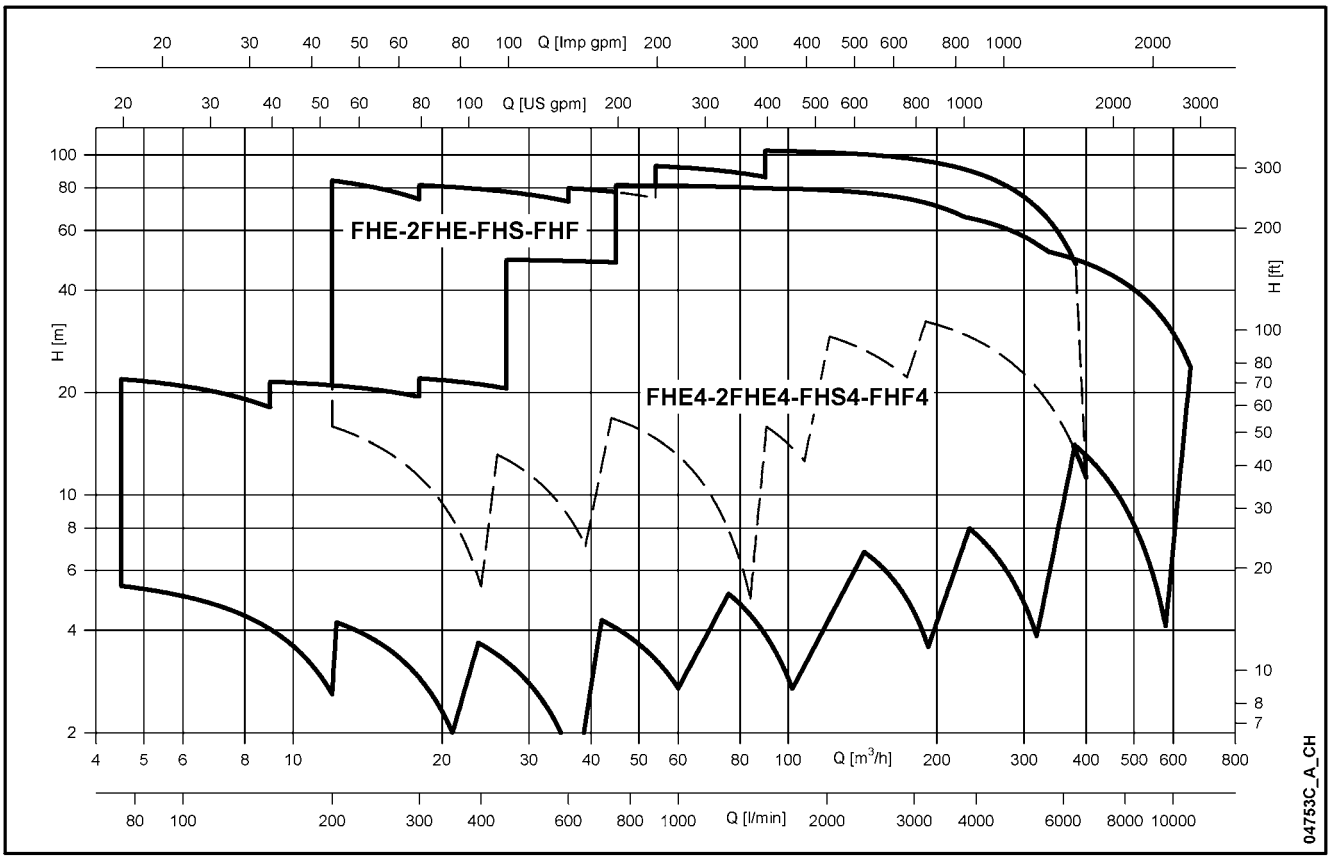
FH SERIES
HYDRAULIC PERFORMANCE RANGE AT 60 Hz



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CONTENTS

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Centrifugal electric pumps manufactured to Standard EN 733

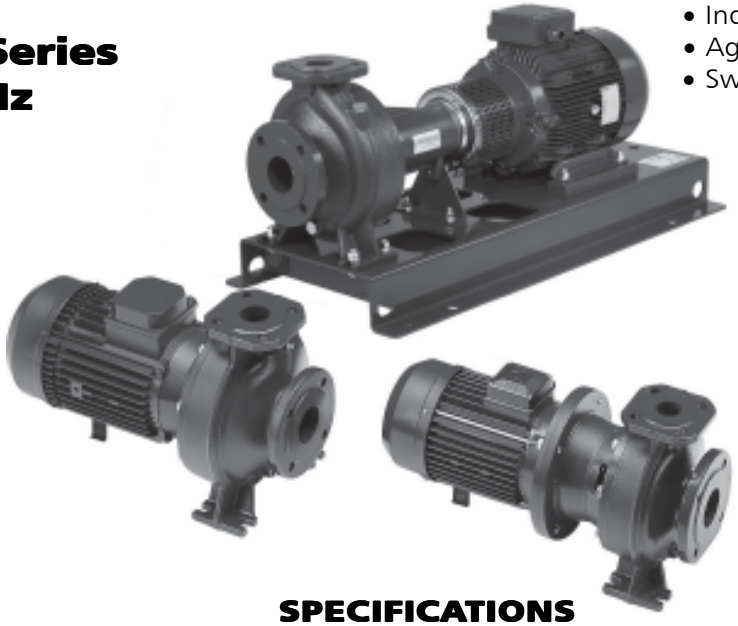
FH Series 60 Hz

MARKET SECTORS

CIVIL, AGRICULTURAL, INDUSTRIAL.

APPLICATIONS

- Handling of clean, chemically non-aggressive water and liquids.
- Water supply and pressure boosting.
- Irrigation.
- Water circulation in air conditioning systems.
- Washing systems.
- Industry.
- Agriculture.
- Swimming pools.



SPECIFICATIONS

PUMP

- **Delivery** up to 480 m³/h, 2 poles.
  750 m³/h, 4 poles.
- **Head** over 100 m, 2 poles.
  80 m, 4 poles.
- **Temperature** of pumped liquid:
  - -20°C to +85°C for FH 32, 40, 50, 65, 80 standard version.
  - -30°C to +120°C for FH 100, 125, 150 standard version (65-315 80-315 and 80-400 included).
  - Upon request, up to +140°C for FH 100, 125, 150.
- Maximum operating **pressure**:
  - 12 bar (PN 12) up to FH 80.
  - PN 16 flanges for FH 100, 125, 150. Maximum pressure in pump casing: 12 bar for temperatures up to 120°C, 10 bar for temperatures ranging from 120°C to 140°C.
- Wear rings made of AISI 316L stainless steel on impeller front and rear wear plates up to FH 80 (65-315, 80-315, and 80-400 excluded).
- Mechanical seal according to EN12756 (ex DIN 24960).
- Mechanical seal lubricated by internal recirculation of pumped liquid to seal housing for FH 32, 40, 50, 65, 80 (65-315, 80-315 and 80-400 excluded).
- Mechanical seal locking pin slot for FH32, 40, 50, 65, 80 (65-315, 80-315 and 80-400 excluded).
- Counter-clockwise rotation when looking at pump from the suction port size.
- **Impeller**: made of AISI 316L stainless steel, **laser technology** welded for sizes 32, 40, 50, 65-125, cast iron for sizes 65-160, 65-200, 65-250, 65-315, 80, 100, 125, 150.
- **Bronze impeller available on request** (for models normally equipped with cast iron impeller).

MOTOR

- Squirrel cage in short circuit, aluminum casing, enclosed construction with external ventilation.
- **Standard supplied IE2/IE3 motors are compliant with Regulation (EC) no. 640/2009 and IEC 60034-30**.
- IP55 protection.
- Class 155 (F) insulation.
- Performances according to EN 60034-1
- Continuous duty.
- Maximum ambient temperature:+40°C.
- Condensation drain plugs on all LOWARA motors.
- **Standard voltage**:

  2-pole motors

  Single-phase: 220-230 V, 60 Hz.
  Three-phase : 220-380 V, 60 Hz.

  4-pole motors

  Three-phase : 220-380 V, 60 Hz.

CONSTRUCTION CHARACTERISTICS

- Cast iron centrifugal pump with end suction and radial discharge ports.
- Hydraulic sizes and nominal diameter (DN) of suction and discharge ports according to EN 733 (ex DIN 24255).
- Flanges according to EN 1092-2 (ex UNI 2236 and DIN 2532).
- Back pull-out design (impeller, adaptor and motor can be extracted without disconnecting the pump body from the pipes).

MOTOR-PUMP COUPLING

Three different types of motor/pump coupling are available:

- **FHE**: close-coupled by means of an adaptor bracket with an impeller keyed directly to the motor shaft extension.
- **FHS**: with a bracket, adaptor and rigid coupling keyed to the standard motor shaft extension.
- **FHF**: with bracket, support, flexible coupling and aligning and anchoring base.
- Bare shaft pump and version with spacer coupling are also available upon request.

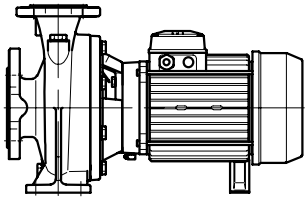
ACCESSORIES ON REQUEST

- AISI 316 stainless steel or galvanized iron counterflanges.
- Intermediate flange with pressure gauge connection.
- Pump and motor shims.

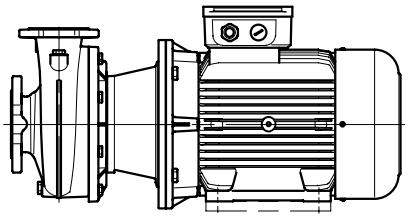
OPTIONAL FEATURES

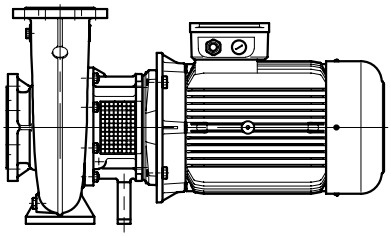
- Different voltages and frequencies.
- Special materials for the mechanical seal and gaskets.
- Model with air valve.
- Mechanical seal with anti-rotation lockpin.
- Model with external fluxing of the mechanical seal.
- Tropicalized motors.
- Version with Hydrovar® control system.
- FHF with flexible coupling with spacer.
- Diesel engines.
- Version with bronze impeller.
- ATEX 94/9/CE, Gruppo II, Category 3, gas atmosfere (G).

FHE - FHE4

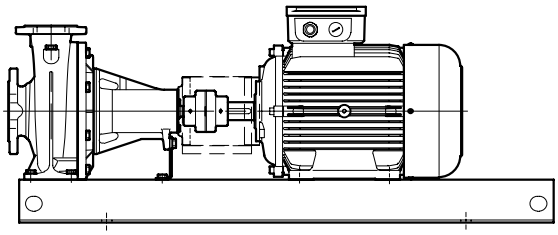


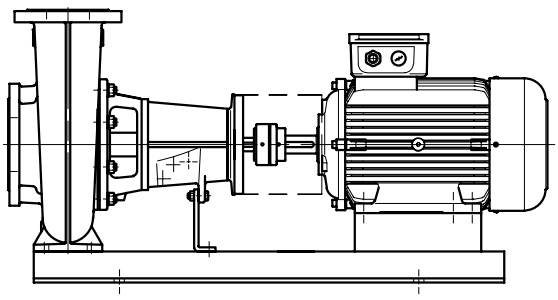
FHS - FHS4





FHF - FHF4





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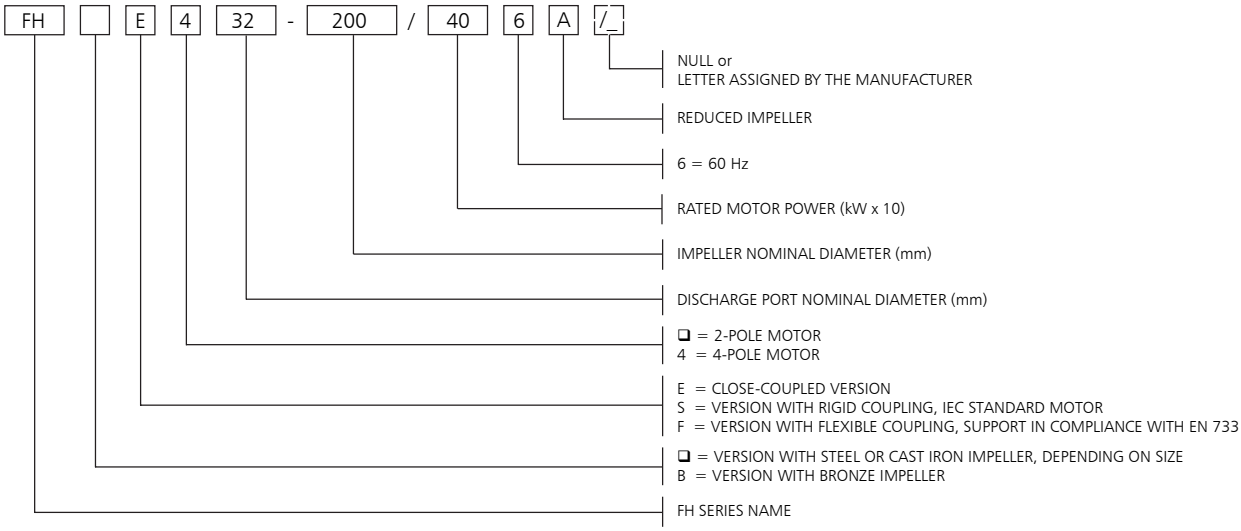
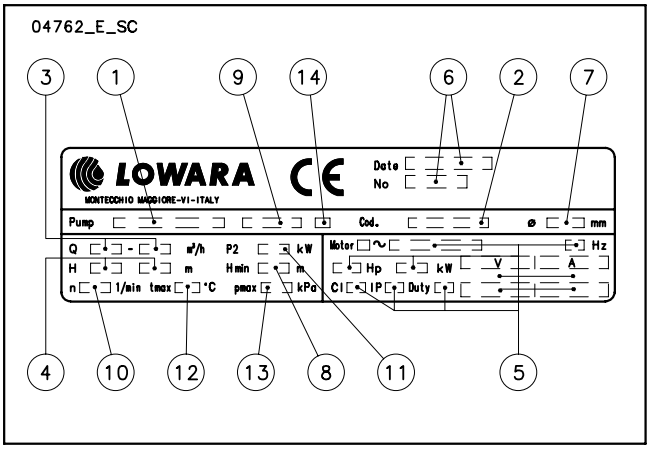
FH SERIES
IDENTIFICATION CODE



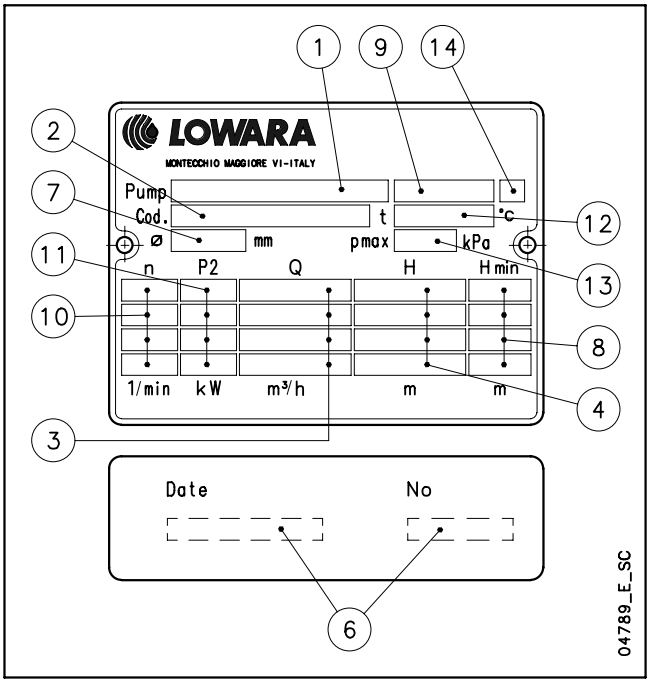
FHE - FHS RATING PLATE



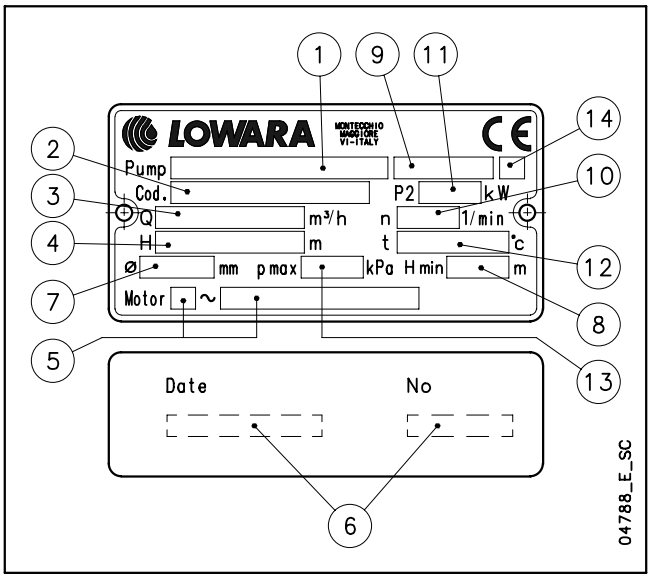
LEGEND

1 - Electric pump type
2 - Code
3 - Delivery range
4 - Head range
5 - Motor type
6 - Date of manufacturing and serial number
7 - Impeller diameter
8 - Minimum head
9 - Mechanical seal material identification code
10 - Speed
11 - Rated power
12 - Maximum operating temperature
13 - Maximum operating pressure
14 - O-ring material identification code

FHF RATING PLATE (PUMP ONLY)



FHF RATING PLATE (ELECTRIC PUMP)



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LIST OF MODELS, FH 60 Hz SERIES
2 POLES

SIZE	kW	VERSION				
		FHEM	2FHE	FHE	FHS	FHF
32-125/116	1,1	•	–	•	•	•
32-160/156	1,5	•	–	•	•	•
32-160/226	2,2	•	–	•	•	•
32-200/306	3	–	–	•	•	•
32-200/406	4	–	–	•	•	•
32-250/556	5,5	–	•	–	–	–
32-250/756	7,5	–	•	–	–	–
40-125/156	1,5	•	–	•	•	•
40-125/226	2,2	•	–	•	•	•
40-160/306	3	–	–	•	•	•
40-160/406	4	–	–	•	•	•
40-200/556	5,5	–	–	•	•	•
40-200/756	7,5	–	–	•	•	•
40-250/926	9,2	–	–	•	–	–
40-250/1106A	11	–	–	–	•	•
40-250/1106	11	–	–	•	•	•
40-250/1506	15	–	–	•	•	•
50-125/306	3	–	–	•	•	•
50-125/406	4	–	–	•	•	•
50-160/556	5,5	–	–	•	•	•
50-160/756	7,5	–	–	•	•	•
50-200/926	9,2	–	–	•	–	–
50-200/1106A	11	–	–	–	•	•
50-200/1106	11	–	–	•	•	•
50-250/1506	15	–	–	•	•	•
50-250/1856	18,5	–	–	•	•	•
50-250/2206	22	–	–	•	•	•
65-125/556	5,5	–	–	•	•	•
65-125/756	7,5	–	–	•	•	•
65-160/926	9,2	–	–	•	–	–
65-160/1106A	11	–	–	–	•	•
65-160/1106	11	–	–	•	•	•
65-160/1506	15	–	–	•	•	•
65-200/1856	18,5	–	–	•	•	•
65-200/2206	22	–	–	•	•	•
65-250/2206	22	–	–	•	•	•
65-250/3006	30	–	–	–	•	•
65-250/3706	37	–	–	–	•	•
80-160/1506	15	–	–	•	•	•
80-160/1856	18,5	–	–	•	•	•
80-200/2206	22	–	–	•	•	•
80-200/3006	30	–	–	–	•	•
80-250/3706	37	–	–	–	•	•
80-250/4506	45	–	–	–	•	•
80-250/5506	55	–	–	–	•	•

• = Available

fh_fhe-fhs-fhf_2p60-en_b_tem

SIZE	kW	VERSION	
		FHS	FHF
100-160/3006	30	•	•
100-160/3706	37	–	•
100-160/4506	45	–	•
100-160/5506	55	–	•
100-200/3006	30	•	•
100-200/3706	37	•	•
100-200/4506	45	–	•
100-200/5506	55	–	•
100-200/7506	75	–	•
100-250/5506	55	–	•
100-250/7506	75	–	•
100-250/9006	90	–	•

• = Available

lm_fhs_fhf_2p60-en_a_tem

LEGEND

FHE : Close-coupled version with adapter, and impeller keyed directly to the motor shaft extension.

2FHE : Close-coupled version with adapter, and 2 impellers keyed directly to the motor shaft extension.

FHE M : FHE version with single-phase motor.

FHS : Coupled by means of adapter, bracket and rigid coupling keyed to the standard motor shaft extension.

FHF : Coupled by means of adapter, support, flexible coupling and aligning and anchoring base.

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LIST OF MODELS, FH 60 Hz SERIES
4 POLES

SIZE	kW	VERSION			
		FHE4	2FHE4	FHS4	FHF4
32-125/026	0,25	•	-	-	•
32-160/026	0,25	•	-	-	•
32-160/036	0,37	•	-	-	•
32-200/036	0,37	•	-	-	•
32-200/056	0,55	•	-	-	•
32-250/076	0,75	-	•	-	-
32-250/116	1,1	-	•	-	-
40-125/026	0,25	•	-	-	•
40-125/036	0,37	•	-	-	•
40-160/036	0,37	•	-	-	•
40-160/056	0,5	•	-	-	•
40-200/076	0,75	•	-	•	•
40-200/116	1,1	•	-	•	•
40-250/116	1,1	•	-	•	•
40-250/156	1,5	•	-	•	•
40-250/226	2,2	•	-	•	•
50-125/036	0,37	•	-	-	•
50-125/056	0,5	•	-	-	•
50-160/076	0,75	•	-	•	•
50-160/116	1,1	•	-	•	•
50-200/116	1,1	•	-	•	•
50-200/156	1,5	•	-	•	•
50-250/226A	2,2	•	-	•	•
50-250/226	2,2	•	-	•	•
50-250/306	3	•	-	•	•
65-125/076	0,75	•	-	•	•
65-125/116	1,1	•	-	•	•
65-160/116	1,1	•	-	•	•
65-160/156	1,5	•	-	•	•
65-160/226	2,2	•	-	•	•
65-200/226	2,2	•	-	•	•
65-200/306	3	•	-	•	•
65-250/306	3	•	-	•	•
65-250/406	4	•	-	•	•
65-250/556	5,5	•	-	•	•
65-315/556	5,5	-	-	•	•
65-315/756	7,5	-	-	•	•
65-315/1106	11	-	-	•	•
65-315/1506	15	-	-	•	•
65-315/1856	18,5	-	-	•	•
80-160/156	1,5	•	-	•	•
80-160/226	2,2	•	-	•	•
80-200/306	3	•	-	•	•
80-200/406	4	•	-	•	•
80-250/406	4	•	-	•	•
80-250/556	5,5	•	-	•	•
80-250/756	7,5	•	-	•	•
80-315/1106	11	-	-	•	•
80-315/1506	15	-	-	•	•
80-315/1856	18,5	-	-	•	•
80-315/2206	22	-	-	•	•
80-315/3006	30	-	-	-	•
80-400/2206	22	-	-	-	•
80-400/3006	30	-	-	-	•
80-400/3706	37	-	-	-	•
80-400/4506	45	-	-	-	•
80-400/5506	55	-	-	-	•

• = Available

fh_fhe4-fhs4-fhf4_4p60-en_b_tem

SIZE	kW	VERSION	
		FHS4	FHF4
100-160/406	4	•	•
100-160/556	5,5	•	•
100-160/756	7,5	-	•
100-200/406	4	•	•
100-200/556	5,5	•	•
100-200/756	7,5	•	•
100-200/1106	11	•	•
100-250/1106	11	•	•
100-250/1506	15	•	•
100-250/1856	18,5	•	•
100-250/2206	22	-	•
100-315/2206	22	•	•
100-315/3006	30	•	•
100-315/3706	37	-	•
100-400/3006	30	-	•
100-400/3706	37	-	•
100-400/4506	45	-	•
100-400/5506	55	-	•
100-400/7506	75	-	•
125-200/756	7,5	•	•
125-200/1106	11	•	•
125-200/1506	15	•	•
125-250/1106	11	•	•
125-250/1506	15	•	•
125-250/1856	18,5	•	•
125-250/2206	22	•	•
125-250/3006	30	•	•
125-315/3006	30	•	•
125-315/3706	37	-	•
125-315/4506	45	-	•
125-315/5506	55	-	•
125-315/7506	75	-	•
125-400/4506	45	-	•
125-400/5506	55	-	•
125-400/7506	75	-	•
150-250/2206	22	•	•
150-250/3006	30	•	•
150-250/3706	37	-	•
150-250/4506	45	-	•
150-315/3706	37	-	•
150-315/4506	45	-	•
150-315/5506	55	-	•
150-315/7506	75	-	•
150-400/5506	55	-	•
150-400/7506	75	-	•

• = Available

lm_fhs4-fhf4_4p60-en_a_tem

2FHE-2FHE4 SERIES
LIST OF MODELS AND TABLE OF MATERIALS

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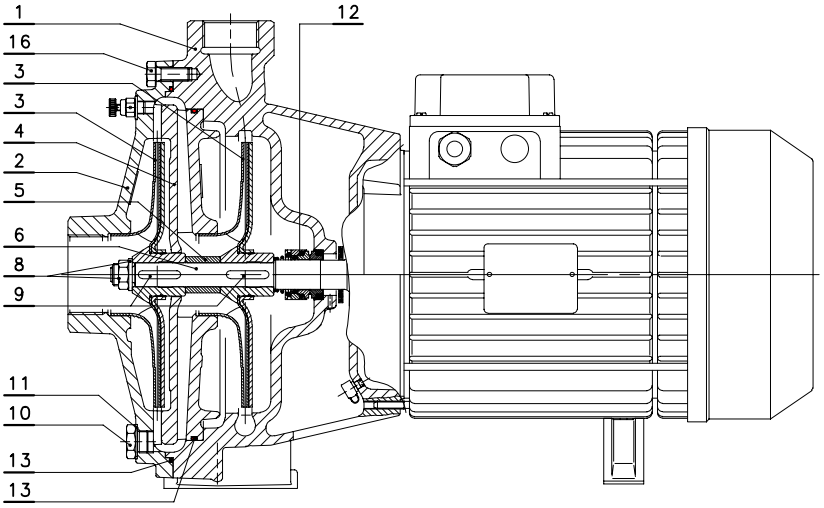

VERSIONS	
2 POLES	4 POLES
2FHE 32-250/556	2FHE4 32-250/076
2FHE 32-250/756	2FHE4 32-250/116

fh-2fhe-p-en_a_mo

REF. N.	PART	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
2	Suction flange	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
3	Impeller	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
4	Diffuser	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
5	Impeller spacer	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 lock nut and washer	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
9	Tab	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
10	Fill and drain plugs	Nickel-plated brass	EN 12164-CuZn39Pb3 (CW614N)	-
11	Fill and drain plugs seals	Aluminium	EN 573-AW-Al99,5 (AW1050A)	-
12	Mechanical seal	Ceramic / Carbon / NBR (standard version)		
13	Elastomers	NBR (standard version)		
16	Pump body fastening bolts and screws	Galvanized steel		

fh_2fhe-en_a_tm

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FHE-FHE4 SERIES
LIST OF MODELS AND TABLE OF MATERIALS

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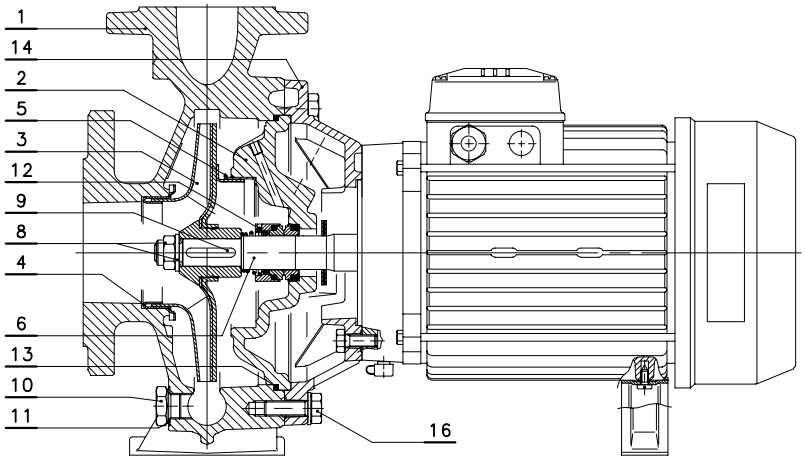


VERSIONS	
2 POLES	4 POLES
FHE 32-125/116	FHE4 32-200/056
FHE 32-160/156	FHE4 40-160/056
FHE 32-160/226	FHE4 40-200/076
FHE 32-200/306	FHE4 40-200/116
FHE 32-200/406	FHE4 40-250/116
FHE 40-125/156	FHE4 40-250/156
FHE 40-125/226	FHE4 40-250/226
FHE 40-160/306	FHE4 50-125/056
FHE 40-160/406	FHE4 50-160/076
FHE 40-200/556	FHE4 50-160/116
FHE 40-200/756	FHE4 50-200/116
FHE 40-250/926	FHE4 50-200/156
FHE 40-250/1106	FHE4 50-250/226A
FHE 50-125/306	FHE4 50-250/226
FHE 50-125/406	FHE4 50-250/306
FHE 50-160/556	FHE4 65-125/076
FHE 50-160/756	FHE4 65-125/116
FHE 50-200/926	FHE4 65-160/116
FHE 50-200/1106	FHE4 65-160/156
FHE 65-125/556	FHE4 65-160/226
FHE 65-125/756	FHE4 65-200/226
FHE 65-160/926	FHE4 65-200/306
FHE 65-160/1106	FHE4 65-250/306
	FHE4 65-250/406
	FHE4 65-250/556
	FHE4 80-160/156
	FHE4 80-160/226
	FHE4 80-200/306
	FHE4 80-200/406
	FHE4 80-250/406
	FHE4 80-250/556
	FHE4 80-250/756

fhe-fhe4-p-en_a_mo

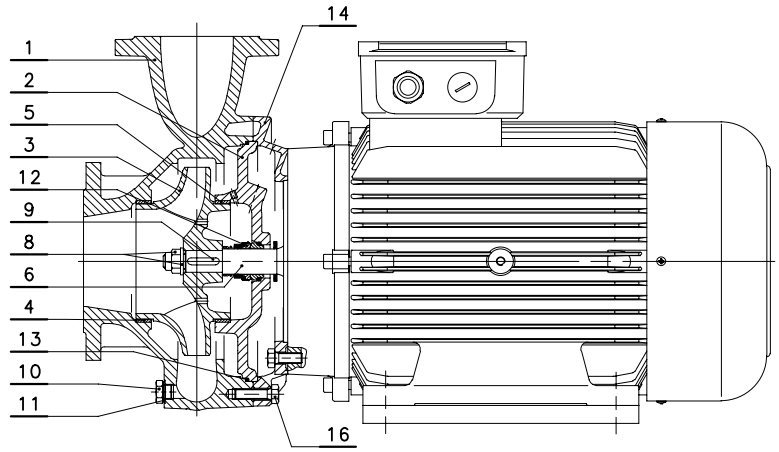
REF. N.	PART	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
2	Seal housing	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
3	Impeller	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
	Impeller	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
	Impeller	Bronze	EN 1982-CuSn10-C (CC480K)	UNS C90700
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	Shaft rigid coupling	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
8	Impeller lock nut 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 and drain plugs	Nickel-plated brass	EN 12164-CuZn39Pb3 (CW614N)	-
11	Fill and drain plugs seals	Aluminium	EN 573-AW-Al99,5 (AW1050A)	-
12	Mechanical seal	Ceramic / Carbon / NBR (standard version)		
13	Elastomers	NBR (standard version)		
14	Adapter *	Aluminium	EN 1706-AC-AlSi11Cu2 (Fe) (AC46100)	-
	Adapter	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
16	Pump body fastening bolts and screws	Galvanized steel		

* For 32/40-125 2/4 pole, 32/40-160 2/4 pole versions

fh_fhe-en_c_tm

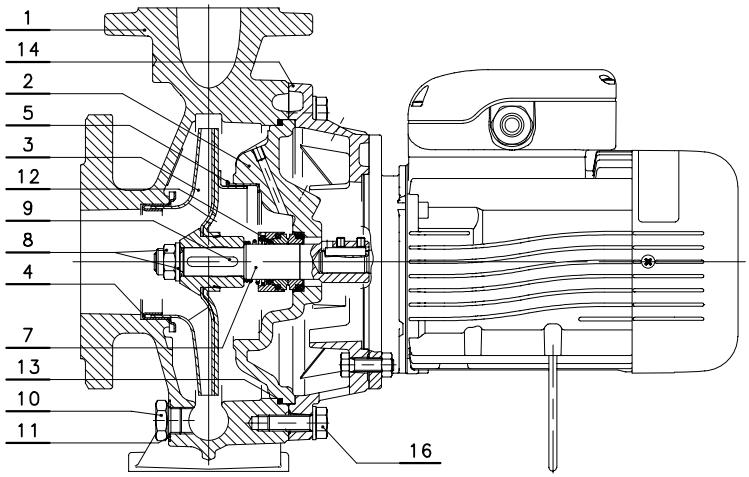
FHE-FHE4 SERIES
LIST OF MODELS AND TABLE OF MATERIALS

04702A_B_DS



VERSIONS 2 POLES
FHE 40-250/1506
FHE 50-250/1506
FHE 50-250/1856
FHE 50-250/2206
FHE 65-160/1506
FHE 65-200/1856
FHE 65-200/2206
FHE 65-250/2206
FHE 80-160/1506
FHE 80-160/1856
FHE 80-200/2206

fh-fhe-s-en_a_mo



VERSIONS 4 POLES
FHE4 32-125/026
FHE4 32-160/026
FHE4 32-160/036
FHE4 32-200/036
FHE4 40-125/026
FHE4 40-125/036
FHE4 40-160/036
FHE4 50-125/036

fh-fhe4-p-en_a_mo

REF. N.	PART	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
2	Seal housing	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
3	Impeller	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
	Impeller	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
	Impeller	Bronze	EN 1982-CuSn10-C (CC480K)	UNS C90700
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	Shaft rigid coupling	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
8	Impeller lock nut 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 and drain plugs	Nickel-plated brass	EN 12164-CuZn39Pb3 (CW614N)	-
11	Fill and drain plugs seals	Aluminium	EN 573-AW-Al99,5 (AW1050A)	-
12	Mechanical seal	Ceramic / Carbon / NBR (standard version)		
13	Elastomers	NBR (standard version)		
14	Adapter *	Aluminium	EN 1706-AC-AlSi11Cu2 (Fe) (AC46100)	-
	Adapter	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
16	Pump body fastening bolts and screws	Galvanized steel		

* For 32/40-125 2/4 pole, 32/40-160 2/4 pole versions

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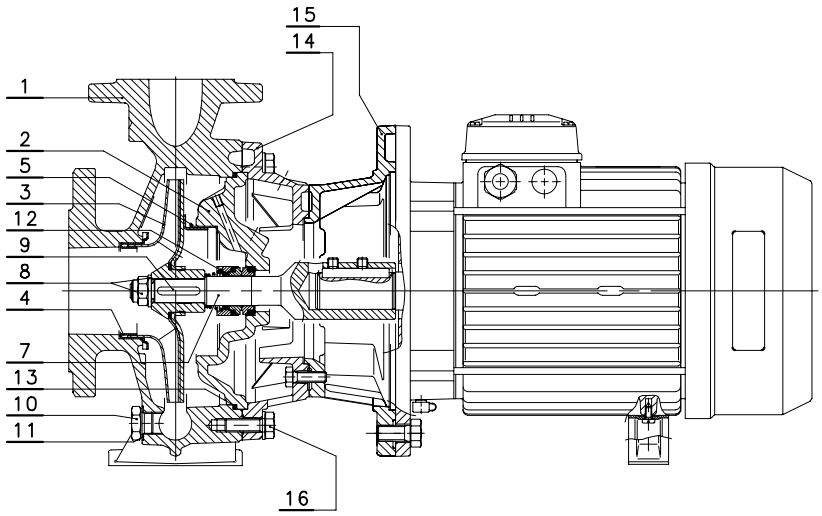
FHS-FHS4 SERIES
LIST OF MODELS AND TABLE OF MATERIALS

04756_B_DS



VERSIONS	
2 POLES	4 POLES
FHS 32-125/116	FHS4 40-200/076
FHS 32-160/156	FHS4 40-200/116
FHS 32-160/226	FHS4 40-250/116
FHS 32-200/306	FHS4 40-250/156
FHS 32-200/406	FHS4 40-250/226
FHS 40-125/156	FHS4 50-160/076
FHS 40-125/226	FHS4 50-160/116
FHS 40-160/306	FHS4 50-200/116
FHS 40-160/406	FHS4 50-200/156
FHS 40-200/556	FHS4 50-250/226A
FHS 40-200/756	FHS4 50-250/226
FHS 50-125/306	FHS4 50-250/306
FHS 50-125/406	FHS4 65-125/076
FHS 50-160/556	FHS4 65-125/116
FHS 50-160/756	FHS4 65-160/116
FHS 65-125/556	FHS4 65-160/156
FHS 65-125/756	FHS4 65-160/226
	FHS4 65-200/226
	FHS4 65-200/306
	FHS4 65-250/306
	FHS4 65-250/406
	FHS4 65-250/556
	FHS4 80-160/156
	FHS4 80-160/226
	FHS4 80-200/306
	FHS4 80-200/406
	FHS4 80-250/406
	FHS4 80-250/556
	FHS4 80-250/756

fhs-fhs4-p-en_a_mo

REF. N.	PART	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
2	Seal housing	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
3	Impeller	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
	Impeller	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
	Impeller	Bronze	EN 1982-CuSn10-C (CC480K)	UNS C90700
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	Shaft rigid coupling	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
8	Impeller lock nut 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 and drain plugs	Nickel-plated brass	EN 12164-CuZn39Pb3 (CW614N)	-
11	Fill and drain plug seals	Aluminium	EN 573-AW-Al99,5 (AW1050A)	-
12	Mechanical seal	Ceramic / Carbon / NBR (standard version)		
13	Elastomers	NBR (standard version)		
14	Adapter *	Aluminium	EN 1706-AC-AlSi11Cu2 (Fe) (AC46100)	-
	Adapter	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
15	Adapter motor connector	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
16	Pump body fastening bolts and screws	Galvanized steel		

* For 32/40-125 2/4 pole, 32/40-160 2/4 pole

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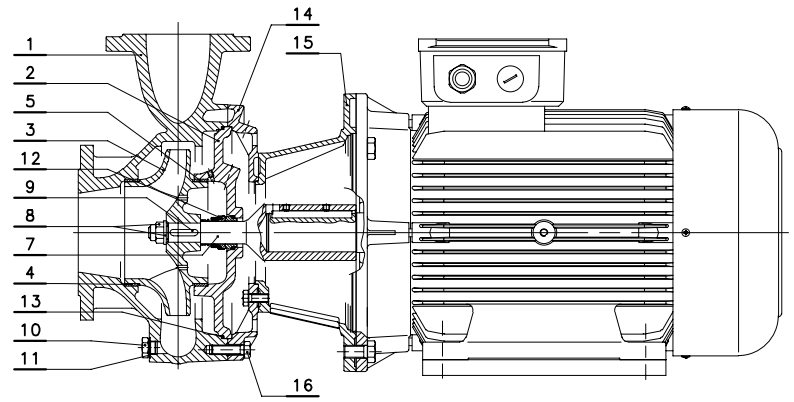
FHS SERIES
LIST OF MODELS AND TABLE OF MATERIALS

04757_B_DS



VERSIONS 2 POLES	
FHS 40-250/1106A	FHS 65-160/1106A
FHS 40-250/1106	FHS 65-160/1106
FHS 40-250/1506	FHS 65-160/1506
FHS 50-200/1106A	FHS 65-200/1856
FHS 50-200/1106	FHS 65-200/2206
FHS 50-250/1506	FHS 65-250/2206
FHS 50-250/1856	FHS 80-160/1506
FHS 50-250/2206	FHS 80-160/1856
	FHS 80-200/2206

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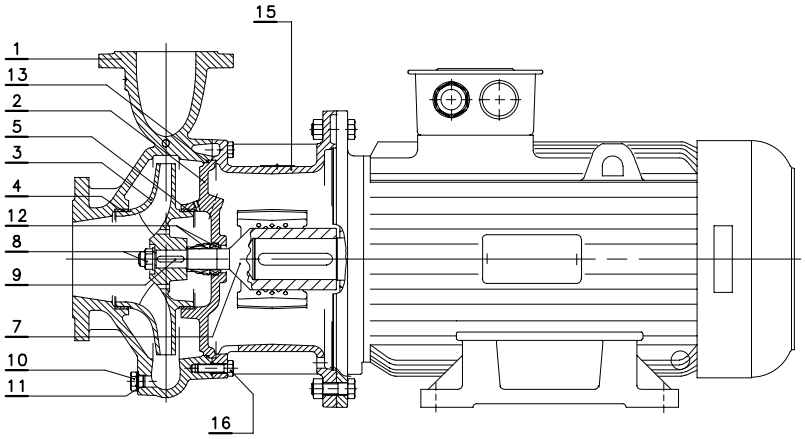

VERSIONS 2 POLES
FHS 65-250/3006
FHS 65-250/3706
FHS 80-200/3006
FHS 80-250/3706
FHS 80-250/4506
FHS 80-250/5506

fh-fhs30-55-s-en_a_mo

REF. N.	PART	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
2	Seal housing	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
3	Impeller	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
	Impeller	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
	Impeller	Bronze	EN 1982-CuSn10-C (CC480K)	UNS C90700
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	Shaft rigid coupling	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
8	Impeller lock nut 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 and drain plugs	Nickel-plated brass	EN 12164-CuZn39Pb3 (CW614N)	-
11	Fill and drain plug seals	Aluminium	EN 573-AW-Al99,5 (AW1050A)	-
12	Mechanical seal	Ceramic / Carbon / NBR (standard version)		
13	Elastomers	NBR (standard version)		
14	Adapter *	Aluminium	EN 1706-AC-AlSi11Cu2 (Fe) (AC46100)	-
	Adapter	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
15	Adapter motor connector	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
16	Pump body fastening bolts and screws	Galvanized steel		

* For 32/40-125 2/4 pole, 32/40-160 2/4 pole

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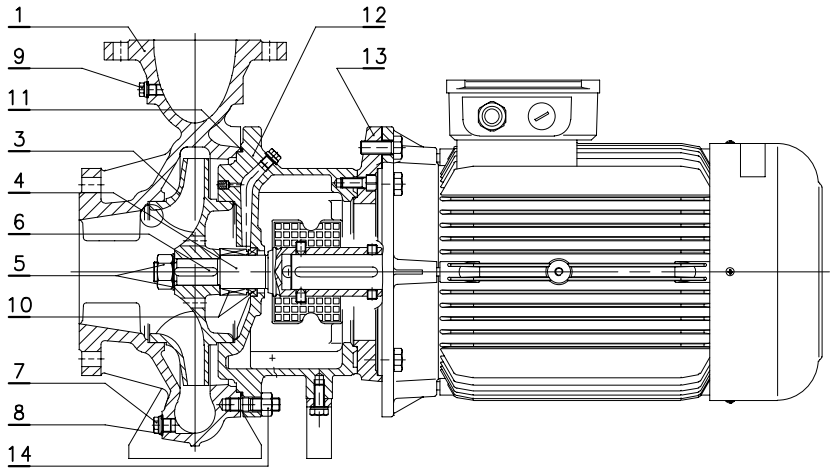
FHS-FHS4 SERIES
LIST OF MODELS AND TABLE OF MATERIALS

04766_C_DS



VERSIONS	
2 POLES	4 POLES
FHS 100-160/3006	FHS4 65-315/556
FHS 100-200/3006	FHS4 65-315/756
FHS 100-200/3706	FHS4 65-315/1106
	FHS4 65-315/1506
	FHS4 65-315/1856
	FHS4 80-315/1106
	FHS4 80-315/1506
	FHS4 80-315/1856
	FHS4 80-315/2206
	FHS4 100-160/556
	FHS4 100-200/556
	FHS4 100-200/756
	FHS4 100-200/1106
	FHS4 100-250/1106
	FHS4 100-250/1506
	FHS4 100-250/1856
	FHS4 100-315/2206
	FHS4 100-315/3006
	FHS4 125-200/756
	FHS4 125-200/1106
	FHS4 125-200/1506
	FHS4 125-250/1106
	FHS4 125-250/1506
	FHS4 125-250/1856
	FHS4 125-250/2206
	FHS4 125-250/3006
	FHS4 125-315/3006
	FHS4 150-250/2206
	FHS4 150-250/3006

lm-fhs65-150-s-en_b_mo

REF. N.	PART	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
2	Seal housing	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
3	Impeller	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
		Bronze	EN 1982-CuSn10-C (CC480K)	UNS C90700
4	Rigid coupling	Stainless steel	EN 10088-1-X20Cr13 (1.4021)	AISI 420
5	Impeller lock nut and washer	Steel		
6	Tab	Steel	EN 10083-1-C45E (1.1191)	-
7	Fill and drain plugs	Steel		
8	Fill/drain plug seals	Asbestos-free synthetic fiber AFM34 ®		
9	Plugs for gauge connectors	Steel		
10	Mechanical seal	Silicon carbide / Carbon / EPDM (standard version)		
11	Elastomers	EPDM (standard version)		
12	Adapter	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
13	Adapter motor connector	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
14	Pump body fastening bolts and screws	Steel		

lm_fhs 65-150-en_c_tm

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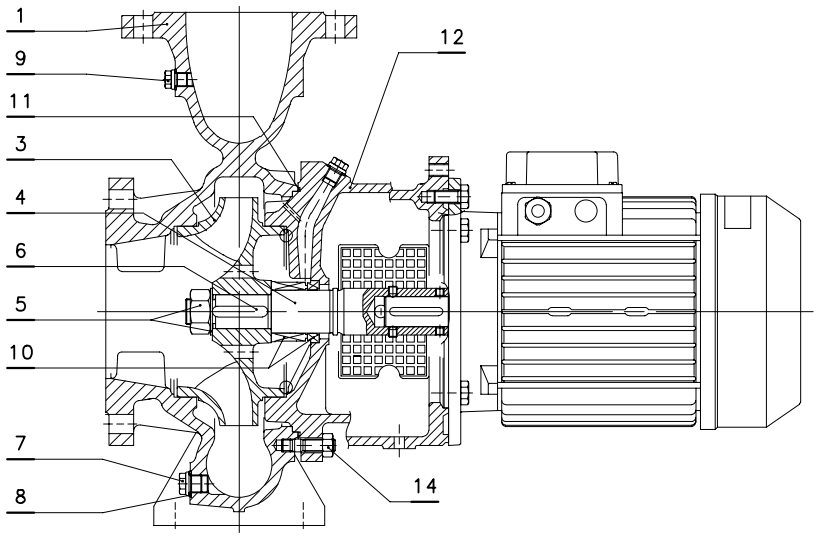
FHS4 SERIES
LIST OF MODELS AND TABLE OF MATERIALS

04767_D_DS



VERSIONS 4 POLES
FHS4 100-160/406
FHS4 100-200/406

lm-fhs4-p-en_a_mo

REF. N.	PART	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
2	Seal housing	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
3	Impeller	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
		Bronze	EN 1982-CuSn10-C (CC480K)	UNS C90700
4	Rigid coupling	Stainless steel	EN 10088-1-X20Cr13 (1.4021)	AISI 420
5	Impeller lock nut and washer	Steel		
6	Tab	Steel	EN 10083-1-C45E (1.1191)	-
7	Fill and drain plugs	Steel		
8	Fill/drain plug seals	Asbestos-free synthetic fiber AFM34 ®		
9	Plugs for gauge connectors	Steel		
10	Mechanical seal	Silicon carbide / Carbon / EPDM (standard version)		
11	Elastomers	EPDM (standard version)		
12	Adapter	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
13	Adapter motor connector	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
14	Pump body fastening bolts and screws	Steel		

lm_fhs 65-150-en_c_tm

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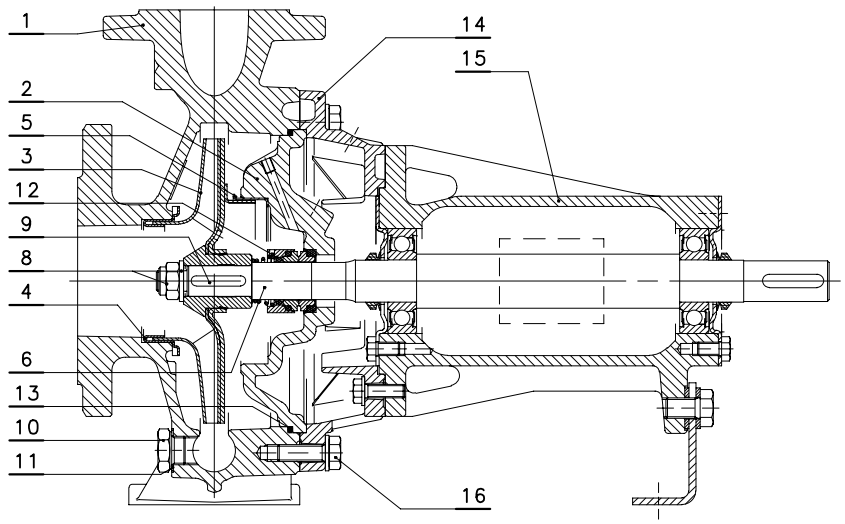
FHF BARE SHAFT SERIES
LIST OF MODELS AND TABLE OF MATERIALS

04779_B_DS



VERSIONS
FHF 32-125
FHF 32-160
FHF 32-200
FHF 40-125
FHF 40-160
FHF 40-200
FHF 40-250
FHF 50-125
FHF 50-160
FHF 50-200
FHF 50-250
FHF 65-125
FHF 65-160
FHF 65-200
FHF 65-250
FHF80-160
FHF 80-200
FHF 80-250

fh-fhf-p-en_a_mo

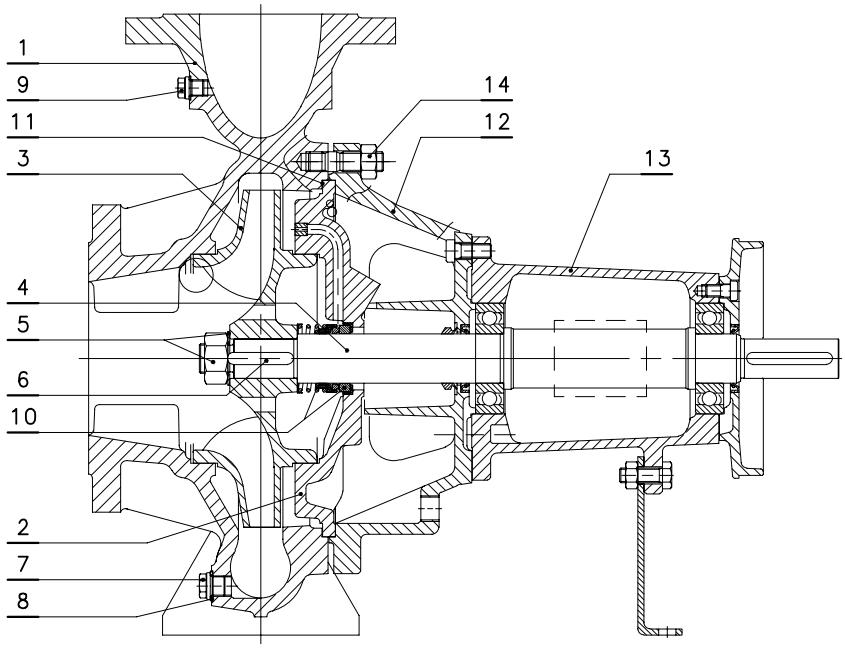
REF. N.	PART	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
2	Seal housing	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
3	Impeller	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
	Impeller	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
	Impeller	Bronze	EN 1982-CuSn10-C (CC480K)	UNS C90700
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 lock nut 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 and drain plugs	Nickel-plated brass	EN 12164-CuZn39Pb3 (CW614N)	-
11	Fill and drain plug seals	Aluminium	EN 573-AW-Al99,5 (AW1050A)	-
12	Mechanical seal	Ceramic / Carbon / NBR standard version)		
13	Elastomers	NBR (standard version)		
14	Adapter *	Aluminium	EN 1706-AC-AlSi11Cu2 (Fe) (AC46100)	-
	Adapter	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
15	Transmission support body	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
16	Pump body fastening bolts and screws	Galvanized steel		

* For 32/40-125 2/4 pole, 32/40-160 2/4 pole versions

fh_fhf-en_a_tm

FHF BARE SHAFT SERIES
LIST OF MODELS AND TABLE OF MATERIALS

04784_C_DS



VERSIONS
FHF 65-315
FHF 80-315
FHF 80-400
FHF 100-160
FHF 100-200
FHF 100-250
FHF 100-315
FHF 100-400
FHF 125-200
FHF 125-250
FHF 125-315
FHF 125-400
FHF 150-250
FHF 150-315
FHF150-400

l-fhf-p-en_a_mo

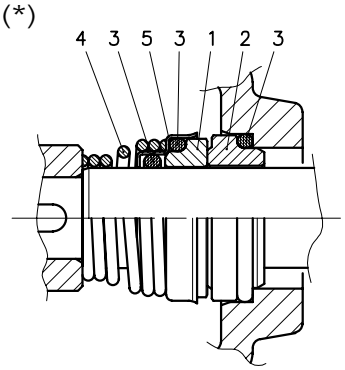
REF. N.	PART	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
2	Seal housing	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
3	Impeller	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
		Bronze	EN 1982-CuSn10-C (CC480K)	UNS C90700
4	Shaft extension	Stainless steel	EN 10088-1-X20Cr13 (1.4021)	AISI 420
5	Impeller lock nut and washer	Steel		
6	Tab	Steel	EN 10083-1-C45E (1.1191)	-
7	Fill and drain plugs	Steel		
8	Fill/drain plug seals	Asbestos-free synthetic fiber AFM34 ®		
9	Plugs for gauge connectors	Steel		
10	Mechanical seal	Silicon carbide / Carbon / EPDM (standard version)		
11	Elastomers	EPDM (standard version)		
12	Adapter	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
13	Support body	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
14	Pump body fastening bolts and screws	Steel		

l-fhf 65-150-en_c_tm

FH MECHANICAL SEAL, ACCORDING TO EN 12756

Mechanical seal with mounting dimensions according to EN12756 (ex DIN 24960) and ISO 3069.
(A version with anti-rotation lockpin and/or external flushing are available on request.)

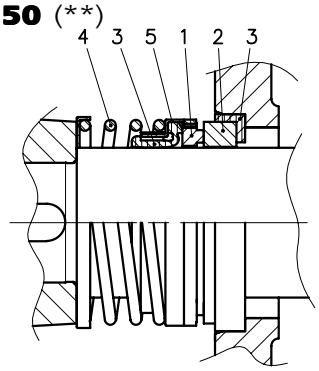
FH 32÷80 (*)



04706B_B_DS

(*) 65-315, 80-315 and 80-400 excluded

FH 100÷150 (**)



04706C_B_DS

(**) 65-315, 80-315 and 80-400 included

LIST OF MATERIALS

POSITION 1 - 2	POSITION 3	POSITION 4 - 5
B : Resin impregnated carbon	E : EPDM	G : AISI 316
Q_1 : Silicon carbide	P : NBR	
V : Ceramic	V : FPM	

FHE-FHS-FHF 32÷80 SEAL TYPE (65-315, 80-315 and 80-400 excluded)

fh_ten-mec-en_a_tm

TYPE	POSITION 1	2	3	4	5	TEMPERATURE (°C)
	ROTATING ASSEMBLY	FIXED ASSEMBLY	ELASTOMERS	SPRINGS	OTHER COMPONENTS	
STANDARD MECHANICAL SEAL						
V B P G G	V	B	P	G	G	-20 +85
OTHER TYPES OF MECHANICAL SEAL						
V B V G G	V	B	V	G	G	-10 +120
Q_1 B V G G	Q_1	B	V	G	G	-10 +120
Q_1 Q_1 V G G	Q_1	Q_1	V	G	G	-10 +120
V B E G G	V	B	E	G	G	-30 +120
Q_1 B E G G	Q_1	B	E	G	G	-30 +120
Q_1 Q_1 E G G	Q_1	Q_1	E	G	G	-30 +120

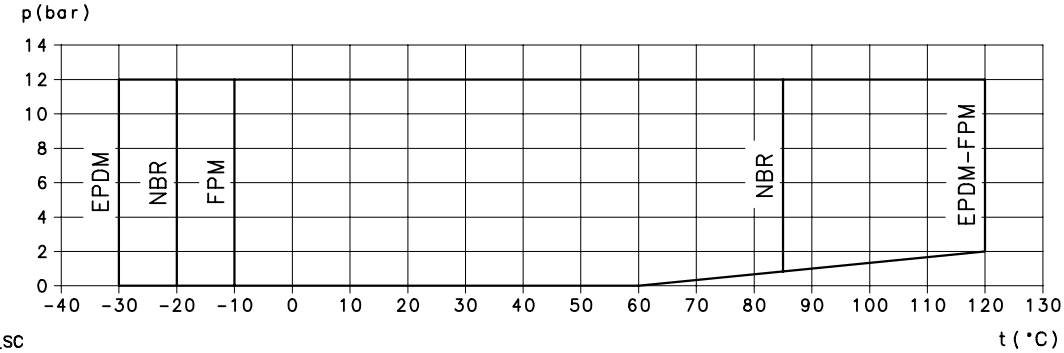
FHS-FHF 100÷150 SEAL TYPE (65-315, 80-315 and 80-400 included)

fh_tipi-ten-mec-en_a_tc

TYPE	POSITION 1	2	3	4	5	TEMPERATURE (°C)
	ROTATING ASSEMBLY	FIXED ASSEMBLY	ELASTOMERS	SPRINGS	OTHER COMPONENTS	
STANDARD MECHANICAL SEAL						
Q_1 B E G G	Q_1	B	E	G	G	-30 +120
OTHER TYPES OF MECHANICAL SEAL						
Q_1 B V G G	Q_1	B	V	G	G	-10 +120
Q_1 Q_1 V G G	Q_1	Q_1	V	G	G	-10 +120

PRESSURE / TEMPERATURE APPLICATION LIMITS FOR COMPLETE PUMP (WITH ANY OF THE SEALS LISTED ABOVE)

lm-fh_tipi-ten-mec-en_a_tc



04707A_A_SC

MOTORS FOR FH SERIES

Standard supplied IE2/IE3 three-phase surface motors ≥ 0,75 kW are compliant with Regulation (EC) no. 640/2009 and IEC 60034-30.

Enclosed short circuit squirrel cage motor (TEFC), with external ventilation.
Electrical performances according to EN 60034-1.
Insulation class 155 (F).
IP55 protection.
Condensate drain plugs on standard version.
Cooling by fan according to EN 60034-6.
Cable gland metric size according to EN 50262.
Standard voltage:

- **Single-phase** version: 220-230 V 60 Hz, with incorporated automatic-reset overload protection up to 1,5 kW.
- **Three-phase** version : 220-380 V 60 Hz. Overload protection to be provided by the user.

FHE SERIES
SINGLE-PHASE MOTORS AT 60 Hz, 2 POLES

P_N kW	MOTOR TYPE	IEC SIZE*	Construction Design	INPUT CURRENT In (A) 220-230 V	CAPACITOR µF	CAPACITOR V	DATA FOR 220 V 50 Hz VOLTAGE min^{-1}	Is / In	η %	cosφ	Tn Nm	Ts/Tn	Tm/Tn
1,1	SM90RB14S/1116	90R	SPECIAL	6,94-6,89	30	450	3435	4,54	74,2	0,97	3,06	0,62	2,03
1,5	SM90RB14S/1156	90R		9,28-9.35	40	450	3455	4,91	76,3	0,96	4,14	0,49	2,19
2,2	PLM90B14S/1226	90		12,3-11,7	60	450	3455	4,99	83,4	0,98	6,08	0,54	2,06

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

fhe-motm-2p60-en_c_te

LOWARA
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FHE SERIES
THREE-PHASE MOTORS AT 60 Hz, 2 POLES

P_N kW	Efficiency η_{IN} %												IE	Year of manufacture
	Δ 220 V Y 380 V			Δ 230 V Y 400 V			Δ 380 V Y 660 V			Δ 400 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		
1,1	85,6	85,0	82,1	85,6	85,0	82,1	85,6	85,0	82,1	85,6	85,0	82,1	3	By June 2011
1,5	87,2	87,0	84,6	87,2	87,0	84,6	87,2	87,0	84,6	87,2	87,0	84,6		
2,2	85,5	85,5	84,5	85,5	85,5	84,5	85,5	85,5	84,5	85,5	85,5	84,5	2	
3	87,8	88,0	86,0	87,8	88,0	86,0	87,8	88,0	86,0	87,8	88,0	86,0		
4	87,5	87,5	86,8	87,5	87,5	86,8	87,5	87,5	86,8	87,5	87,5	86,8		
5,5	88,5	88,5	88,5	88,5	88,5	88,5	88,5	88,5	88,5	88,5	88,5	88,5		
7,5	89,5	89,5	88,5	89,5	89,5	88,5	89,5	89,5	88,5	89,5	89,5	88,5		
9,2	89,5	89,5	89,5	89,5	89,5	89,5	89,5	89,5	89,5	89,5	89,5	89,5		
11	90,2	90,2	89,7	90,2	90,2	89,7	90,2	90,2	89,7	90,2	90,2	89,7		
15	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2		
18,5	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0		
22	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0		

P_N kW	Manufacturer: Lowara srl Unipersonale, Reg. No. 341820260, Montecchio Maggiore Vicenza - Italia. Model	IEC SIZE*	Construction Design	N. of Poles	f_N Hz	Data for 380 V / 60 Hz Voltage				
						cosφ	Is / I_N	T_N Nm	Ts/T_N	Tm/Tn
1,1	SM90RB14S/311PE	90R	SPECIAL	2	60	0,80	9,11	3,01	4,15	4,29
1,5	SM90RB14S/315PE	90R				0,82	9,79	4,10	4,36	4,37
2,2	PLM90B14S/322	90				0,83	9,59	6,00	3,80	4,02
3	PLM90B14S/330	90				0,84	9,12	8,22	3,52	3,65
4	PLM112RB14S/340	112R				0,87	10,0	10,9	2,82	4,58
5,5	PLM112B14S/355	112				0,89	11,4	15,0	4,28	5,80
7,5	PLM132B14S/375	132				0,88	9,83	20,3	3,21	4,68
9,2	PLM132B14S/392	132				0,89	10,2	24,9	3,11	4,78
11	PLM132B14S/3110	132				0,88	10,2	29,8	3,43	4,51
15	PLM160B34S/3150	160				0,91	8,60	40,4	2,24	3,84
18,5	PLM160B34S/3185	160				0,89	9,97	49,7	2,78	4,59
22	PLM160B34S/3220	160				0,91	9,64	59,2	2,76	4,25

P_N kW	Voltage U_N V								n_N min^{-1}	Observe the regulations and codes locally in force regarding sorted waste disposal.	Operating conditions **		
	Δ		Y		Δ		Y				Altitude above sea Level (m)	T. amb min/max °C	ATEX
	220 V	230 V	380 V	400 V	380 V	400 V	660 V	690 V					
	I_N (A)												
1,1	4,24	4,24	2,45	2,45	2,44	2,43	1,41	1,40	3490 ÷ 3505		≤ 1000	-15 / 40	No
1,5	5,58	5,53	3,22	3,19	3,23	3,22	1,86	1,86	3485 ÷ 3505				
2,2	8,14	8,12	4,70	4,69	4,69	4,68	2,71	2,70	3495 ÷ 3505				
3	10,7	10,5	6,19	6,06	6,20	6,11	3,58	3,53	3480 ÷ 3495				
4	13,5	13,5	7,82	7,77	7,84	7,77	4,52	4,49	3510 ÷ 3520				
5,5	18,2	18,1	10,5	10,4	10,5	10,4	6,07	6,02	3505 ÷ 3515				
7,5	25,2	24,7	14,6	14,3	14,6	14,1	8,40	8,16	3525 ÷ 3535				
9,2	30,2	29,6	17,5	17,1	17,5	17,1	10,1	9,86	3525 ÷ 3530				
11	36,1	35,2	20,8	20,3	21,1	20,7	12,2	12,0	3520 ÷ 3540				
15	47,1	45,6	27,2	26,4	27,3	26,3	15,8	15,2	3545 ÷ 3550				
18,5	59,2	58,2	34,2	33,6	34,3	33,6	19,8	19,4	3550 ÷ 3555				
22	69,1	67,4	39,9	38,9	39,8	38,2	23,0	22,0	3545 ÷ 3555				

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

fhe-ie2-mott-2p60-en_b_te

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

LOWARA
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FHS SERIES
THREE-PHASE MOTORS AT 60 Hz, 2 POLES

P_N kW	Efficiency η_N % Δ 220 V Y 380 V 4/4	3/4	2/4	Δ 230 V Y 400 V 4/4	3/4	2/4	Δ 380 V Y 660 V 4/4	3/4	2/4	Δ 400 V Y 690 V 4/4	3/4	2/4	IE	Year of manufacture
1,1	85,6	85,0	82,1	85,6	85,0	82,1	85,6	85,0	82,1	85,6	85,0	82,1	3	By June 2011
1,5	87,2	87,0	84,6	87,2	87,0	84,6	87,2	87,0	84,6	87,2	87,0	84,6		
2,2	85,5	85,5	84,5	85,5	85,5	84,5	85,5	85,5	84,5	85,5	85,5	84,5	2	
3	87,8	88,0	86,0	87,8	88,0	86,0	87,8	88,0	86,0	87,8	88,0	86,0		
4	87,5	87,5	86,8	87,5	87,5	86,8	87,5	87,5	86,8	87,5	87,5	86,8		
5,5	88,5	88,5	88,5	88,5	88,5	88,5	88,5	88,5	88,5	88,5	88,5	88,5		
7,5	89,5	89,5	88,5	89,5	89,5	88,5	89,5	89,5	88,5	89,5	89,5	88,5		
11	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2		
15	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2		
18,5	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0		
22	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0		

P_N kW	Manufacturer: Lowara srl Unipersonale, Reg. No. 341820260, Montecchio Maggiore Vicenza - Italia. Model	IEC SIZE*	Construction Design	N. of Poles	f_N Hz	Data for 380 V / 60 Hz Voltage: cosφ	Is / I_N	T_N Nm	Ts/T_N	Tm/Tn
1,1	SM80B5/311PE	80	B5	2	60	0,80	9,11	3,01	4,15	4,29
1,5	SM90RB5/315PE	90R				0,82	9,79	4,10	4,36	4,37
2,2	PLM90B5/322	90				0,83	9,59	6,00	3,80	4,02
3	PLM100RB5/330	100R				0,84	9,12	8,22	3,52	3,65
4	PLM112RB5/340	112R				0,87	10,0	10,9	2,82	4,58
5,5	PLM132RB5/355	132R				0,89	11,4	15,0	4,28	5,80
7,5	PLM132B5/375	132				0,88	9,83	20,3	3,21	4,68
11	PLM160B35/3110	160	B35			0,89	8,85	29,6	2,44	4,20
15	PLM160B35/3150	160				0,91	8,60	40,4	2,24	3,84
18,5	PLM160B35/3185	160				0,89	9,97	49,7	2,78	4,59
22	PLM180RB35/3220	180R				0,91	9,64	59,2	2,76	4,25

P_N kW	Voltage U_N V Δ 220 V	Δ 230 V	Y 380 V	Y 400 V	Δ 380 V	Δ 400 V	Y 660 V	Y 690 V	n_N min^{-1}	Observe the regulations and codes locally in force regarding sorted waste disposal.	Operating conditions ** Altitude above sea Level (m)	T. amb min/max °C	ATEX
	I_N (A)												
1,1	4,24	4,24	2,45	2,45	2,44	2,43	1,41	1,40	3490 ÷ 3505				
1,5	5,58	5,53	3,22	3,19	3,23	3,22	1,86	1,86	3485 ÷ 3505				
2,2	8,14	8,12	4,70	4,69	4,69	4,68	2,71	2,70	3495 ÷ 3505				
3	10,7	10,5	6,19	6,06	6,20	6,11	3,58	3,53	3480 ÷ 3495				
4	13,5	13,5	7,82	7,77	7,84	7,77	4,52	4,49	3510 ÷ 3520				
5,5	18,2	18,1	10,5	10,4	10,5	10,4	6,07	6,02	3505 ÷ 3515		≤ 1000	-15 / 40	No
7,5	25,2	24,7	14,6	14,3	14,6	14,1	8,40	8,16	3525 ÷ 3535				
11	36,0	35,1	20,8	20,3	20,8	20,1	12,0	11,6	3545 ÷ 3550				
15	47,1	45,6	27,2	26,4	27,3	26,3	15,8	15,2	3545 ÷ 3550				
18,5	59,2	58,2	34,2	33,6	34,3	33,6	19,8	19,4	3550 ÷ 3555				
22	69,1	67,4	39,9	38,9	39,8	38,2	23,0	22,0	3545 ÷ 3555				

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

fhs-ie2-mott-2p60-en_b_te

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

LOWARA
a xylem brand

FHF SERIES
THREE-PHASE MOTORS AT 60 Hz, 2 POLES (up to 18,5 kW)

P_N	Efficiency η_{IN} %												IE	Year of manufacture
	Δ 220 V Y 380 V			Δ 230 V Y 400 V			Δ 380 V Y 660 V			Δ 400 V Y 690 V				
kW	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4		
1,1	85,6	85,0	82,1	85,6	85,0	82,1	85,6	85,0	82,1	85,6	85,0	82,1	3	By June 2011
1,5	84,0	84,0	83,3	84,0	84,0	83,3	84,0	84,0	83,3	84,0	84,0	83,3		
2,2	85,5	85,5	84,5	85,5	85,5	84,5	85,5	85,5	84,5	85,5	85,5	84,5		
3	87,5	87,5	86,8	87,5	87,5	86,8	87,5	87,5	86,8	87,5	87,5	86,8		
4	87,5	87,5	87,5	87,5	87,5	87,5	87,5	87,5	87,5	87,5	87,5	87,5		
5,5	88,5	88,5	87,2	88,5	88,5	87,2	88,5	88,5	87,2	88,5	88,5	87,2	2	
7,5	89,5	89,5	88,5	89,5	89,5	88,5	89,5	89,5	88,5	89,5	89,5	88,5		
11	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2		
15	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2	90,2		
18,5	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0		

P_N	Manufacturer: Lowara srl Unipersonale, Reg. No. 341820260, Montecchio Maggiore Vicenza - Italia	IEC SIZE	Construction Design	N. of Poles	f_N	Data for 380 V / 60 Hz Voltage				
kW	Model				Hz	cosφ	Is / I_N	T_N Nm	Ts/T_N	Tm/Tn
1,1	SM80B3/311PE	80	B3	2	60	0,80	9,11	3,01	4,15	4,29
1,5	PLM90B3/315	90				0,86	8,86	4,10	3,24	3,48
2,2	PLM90B3/322	90				0,83	9,59	6,00	3,80	4,02
3	PLM100B3/330	100				0,86	10,2	8,15	3,27	3,61
4	PLM112B3/340	112				0,88	10,3	10,9	3,54	4,61
5,5	PLM132B3/355	132				0,86	10,4	14,8	3,23	4,81
7,5	PLM132B3/375	132				0,88	9,83	20,3	3,21	4,68
11	PLM160B3/3110	160				0,89	8,85	29,6	2,44	4,20
15	PLM160B3/3150	160				0,91	8,60	40,4	2,24	3,84
18,5	PLM160B3/3185	160				0,89	9,97	49,7	2,78	4,59

P_N	Voltage U_N V								n_N	Observe the regulations and codes locally in force regarding sorted waste disposal.	Operating conditions **		
	Δ		Y		Δ		Y				Altitude above sea Level (m)	T. amb min/max °C	ATEX
kW	220 V	230 V	380 V	400 V	380 V	400 V	660 V	690 V	min^{-1}				
	I_N (A)												
1,1	4,24	4,24	2,45	2,45	2,44	2,43	1,41	1,40	3490 ÷ 3505		≤ 1000	-15 / 40	No
1,5	5,21	5,08	3,01	2,93	3,00	2,94	1,73	1,70	3490 ÷ 3505				
2,2	8,14	8,12	4,70	4,69	4,69	4,68	2,71	2,70	3495 ÷ 3505				
3	10,6	10,6	6,06	6,11	6,03	5,98	3,48	3,45	3510 ÷ 3520				
4	13,3	13,0	7,66	7,52	7,66	7,49	4,42	4,33	3495 ÷ 3510				
5,5	19,1	19,1	11,1	11,0	11,1	11,0	6,39	6,34	3535 ÷ 3540				
7,5	25,2	24,7	14,6	14,3	14,6	14,1	8,40	8,16	3525 ÷ 3535				
11	36,0	35,1	20,8	20,3	20,8	20,1	12,0	11,6	3545 ÷ 3550				
15	47,1	45,6	27,2	26,4	27,3	26,3	15,8	15,2	3545 ÷ 3550				
18,5	59,2	58,2	34,2	33,6	34,3	33,6	19,8	19,4	3550 ÷ 3555				

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

fhf-ie2-mott-2p60-en_b_te

LOWARA
a xylem brand

FHF SERIES
THREE-PHASE MOTORS AT 60 Hz, 2 POLES (from 22 to 90 kW)

P_N kW	Efficiency η_N % Δ 220 V Y 380 V 4/4	3/4	2/4	IE	Year of manufacture
22	92,0	92,0	91,8	2	By June 2011
30	92,4	92,4	91,5		
37	92,4	92,4	92,0		
45	93,5	93,0	91,8		
55	93,5	93,5	92,8		
75	93,6	93,6	92,2		
90	94,6	94,3	92,8		

P_N kW	Manufacturer: WEG Equipamentos Eletricos S.A Reg. No. 07.175.725/0010-50 Jaragua do Sul - SC (Brazil) Model	IEC SIZE	Construction Design	N. of Poles	f_N Hz	Data for 380 V / 60 Hz Voltage: cosφ	Is / I_N	T_N Nm	Ts/T_N	Tm/Tn
22	W22 180L2-B3 22kW	180	B3	2	60	0,87	7,00	59,30	1,90	2,80
30	W22 200L2-B3 30kW	200	B3 B35			0,86	6,40	80,65	2,10	2,40
37	W22 200L2-B3 37kW	200				0,86	7,20	98,98	2,40	2,60
45	W22 225S/M2-B3 45kW	225				0,89	7,80	120,5	2,20	2,90
55	W22 250S/M2-B3 55kW	250				0,89	7,70	147,0	2,20	2,80
75	W22 280S/M2-B3 75kW	280	B3			0,88	7,70	199,9	1,90	2,80
90	W22 280S/M2-B3 90kW	280				0,88	7,70	240,1	2,00	2,90

P_N kW	Voltage U_N V Δ 220 V	Y 380 V	I_N (A)	n_N min^{-1}	Observe the regulations and codes locally in force regarding sorted waste disposal.	Operating conditions ** Altitude above sea Level (m)	T. amb min/max °C	ATEX
22	72,20	41,80		3535		≤ 1000	-15 / 40	No
30	99,00	57,30		3550				
37	122,00	70,70		3555				
45	142,00	82,20		3560				
55	173,00	100,00		3560				
75	238,00	138,00		3575				
90	284,00	164,00		3575				

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

fhf-ie2-mott-90-2p60-en_a_te

LOWARA
a xylem brand

FHE4 SERIES
THREE-PHASE MOTORS AT 60 Hz, 4 POLES

P_N	Efficiency η_N %												IE	Year of construction
	Δ 220 V Y 380 V			Δ 230 V Y 400 V			Δ 380 V Y 660 V			Δ 400 V Y 690 V				
kW	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	-	-	-	-	-	-	-	-	-	-	-	-	-	By June 2011
0,37	-	-	-	-	-	-	-	-	-	-	-	-	-	
0,55	-	-	-	-	-	-	-	-	-	-	-	-	-	
0,75	83,2	82,3	78,4	83,2	82,3	78,4	83,2	82,3	78,4	83,2	82,3	78,4	2	
1,1	84,0	84,0	81,0	84,0	84,0	81,0	84,0	84,0	81,0	84,0	84,0	81,0		
1,5	84,5	84,5	82,5	84,5	84,5	82,5	84,5	84,5	82,5	84,5	84,5	82,5		
2,2	87,5	87,5	85,7	87,5	87,5	85,7	87,5	87,5	85,7	87,5	87,5	85,7		
3	87,5	87,5	84,7	87,5	87,5	84,7	87,5	87,5	84,7	87,5	87,5	84,7		
4	87,9	87,9	87,6	87,9	87,9	87,6	87,9	87,9	87,6	87,9	87,9	87,6		
5,5	89,5	89,5	88,7	89,5	89,5	88,7	89,5	89,5	88,7	89,5	89,5	88,7		
7,5	89,5	89,5	89,2	89,5	89,5	89,2	89,5	89,5	89,2	89,5	89,5	89,2		

P_N	Manufacturer: Lowara srl Unipersonale, Reg. No. 341820260, Montecchio Maggiore Vicenza - Italia	IEC SIZE*	Construction Design	N. of Poles	f_N	Data for 380 V / 60 Hz				
kW	Model				Hz	cosφ	Is / I_N	TN Nm	Ts/T_N	Tm/Tn
0,25	SM471B5/302	71	B5	4	60	0,68	3,45	1,45	2,37	2,15
0,37	SM471B5/304	71				0,68	3,52	2,17	2,65	2,05
0,55	SM490RB14S/305	90R	SPECIAL			0,77	3,55	3,18	1,80	1,90
0,75	LLM490RB14S/307	90R				0,75	6,26	4,14	2,82	3,53
1,1	PLM490B5S/311	90				0,71	6,70	6,01	2,57	3,60
1,5	PLM490B5S/315	90				0,68	7,19	8,18	3,04	3,74
2,2	PLM4100B5S/322	100				0,76	8,01	12,0	2,69	4,33
3	PLM4100B5S/330	100				0,72	8,19	16,3	2,98	4,28
4	PLM4112B5S/340	112				0,78	8,48	21,8	3,01	4,22
5,5	PLM4132B14S/355	132				0,78	7,85	29,8	2,61	3,48
7,5	PLM4132B14S/375	132				0,79	7,84	40,8	2,43	3,59

P_N	Voltage U_N V								n_N	Observe the regulations and codes locally in force regarding sorted waste disposal.	Operating conditions **		
	Δ		Y		Δ		Y				Altitude above sea Level (m)	T. amb min/max °C	ATEX
kW	220 V	230 V	380 V	400 V	380 V	400 V	660 V	690 V	I_N (A)				
0,25	1,51		0,87						1650		≤ 1000	-15 / 40	No
0,37	2,18		1,26						1630				
0,55	2,74		1,58						1650				
0,75	3,15	3,13	1,82	1,81	1,81	1,80	1,05	1,04	1730 ÷ 1735				
1,1	4,78	4,80	2,76	2,77	2,74	2,74	1,58	1,58	1745 ÷ 1750				
1,5	6,69	6,77	3,86	3,91	3,87	3,92	2,23	2,26	1750 ÷ 1755				
2,2	8,6	8,57	4,98	4,95	4,95	4,92	2,86	2,84	1755 ÷ 1760				
3	12,5	12,6	7,20	7,26	7,00	7,02	4,04	4,05	1760 ÷ 1765				
4	15,3	15,2	8,82	8,78	8,80	8,72	5,08	5,03	1755 ÷ 1755				
5,5	20,9	20,6	12,1	11,9	12,2	12,0	7,04	6,91	1760 ÷ 1765				
7,5	27,9	27,6	16,1	15,9	16,2	16,0	9,34	9,21	1750 ÷ 1755				

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

fhe4-ie2-mott-4p60-en_a_te

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

LOWARA
a xylem brand

FHS4-FHF4 SERIES
THREE-PHASE MOTORS AT 60 Hz, 4 POLES (up to 15 kW)

P_N	Efficiency η_N %												IE	Year of construction
	Δ 220 V Y 380 V			Δ 230 V Y 400 V			Δ 380 V Y 660 V			Δ 400 V Y 690 V				
kW	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	-	-	-	-	-	-	-	-	-	-	-	-	-	By June 2011
0,37	-	-	-	-	-	-	-	-	-	-	-	-	-	
0,55	-	-	-	-	-	-	-	-	-	-	-	-	-	
0,75	83,2	82,3	78,4	83,2	82,3	78,4	83,2	82,3	78,4	83,2	82,3	78,4	2	
1,1	84,0	84,0	81,0	84,0	84,0	81,0	84,0	84,0	81,0	84,0	84,0	81,0		
1,5	84,5	84,5	82,5	84,5	84,5	82,5	84,5	84,5	82,5	84,5	84,5	82,5		
2,2	87,5	87,5	85,7	87,5	87,5	85,7	87,5	87,5	85,7	87,5	87,5	85,7		
3	87,5	87,5	84,7	87,5	87,5	84,7	87,5	87,5	84,7	87,5	87,5	84,7		
4	87,9	87,9	87,6	87,9	87,9	87,6	87,9	87,9	87,6	87,9	87,9	87,6		
5,5	89,5	89,5	88,7	89,5	89,5	88,7	89,5	89,5	88,7	89,5	89,5	88,7		
7,5	89,5	89,5	89,2	89,5	89,5	89,2	89,5	89,5	89,2	89,5	89,5	89,2		
11	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0	91,0		
15	91,0	91,0	90,4	91,0	91,0	90,4	91,0	91,0	90,4	91,0	91,0	90,4		

P_N	Manufacturer: Lowara srl Unipersonale Reg. No. 341820260 Montecchio Maggiore Vicenza - Italia	IEC SIZE	Construction Design	N. of Poles	f_N	Data for 380 V / 60 Hz				
kW	Model				Hz	cosφ	Is / I_N	TN Nm	Ts/T_N	Tm/Tn
0,25	SM471B3/302	71	B3	4	60	0,68	3,45	1,45	2,37	2,15
0,37	SM471B3/304	71				0,68	3,52	2,17	2,65	2,05
0,55	SM480B3 (B5) /305	80	B3 / B5			0,77	3,55	3,18	1,80	1,90
0,75	LLM480B3 (B5) /307	80				0,75	6,26	4,14	2,82	3,53
1,1	PLM490B3 (B5) /311	90				0,71	6,70	6,01	2,57	3,60
1,5	PLM490B3 (B5) /315	90				0,68	7,19	8,18	3,04	3,74
2,2	PLM4100B3 (B5) /322	100				0,76	8,01	12,0	2,69	4,33
3	PLM4100B3 (B5) /330	100				0,72	8,19	16,3	2,98	4,28
4	PLM4112B3 (B5) /340	112				0,78	8,48	21,8	3,01	4,22
5,5	PLM4132B3 (B5) /355	132				0,78	7,85	29,8	2,61	3,48
7,5	PLM4132B3 (B5) /375	132				0,79	7,84	40,8	2,43	3,59
11	PLM4160B3 (B5) /3110	160				0,85	7,25	59,4	2,27	3,07
15	PLM4160B3 (B5) /3150	160				0,82	8,17	80,7	2,65	3,64

P_N	Voltage U_N V								n_N	Observe the regulations and codes locally in force regarding sorted waste disposal.	Operating conditions **		
	Δ		Y		Δ		Y				Altitude above sea Level (m)	T. amb min/max °C	ATEX
kW	220 V	230 V	380 V	400 V	380 V	400 V	660 V	690 V	I_N (A)				
0,25	1,51		0,87						1650		≤ 1000	-15 / 40	No
0,37	2,18		1,26						1630				
0,55	2,74		1,58						1650				
0,75	3,15	3,13	1,82	1,81	1,81	1,80	1,05	1,04	1730 ÷ 1735				
1,1	4,78	4,80	2,76	2,77	2,74	2,74	1,58	1,58	1745 ÷ 1750				
1,5	6,69	6,77	3,86	3,91	3,87	3,92	2,23	2,26	1750 ÷ 1755				
2,2	8,6	8,57	4,98	4,95	4,95	4,92	2,86	2,84	1755 ÷ 1760				
3	12,5	12,6	7,20	7,26	7,00	7,02	4,04	4,05	1760 ÷ 1765				
4	15,3	15,2	8,82	8,78	8,80	8,72	5,08	5,03	1755 ÷ 1755				
5,5	20,9	20,6	12,1	11,9	12,2	12,0	7,04	6,91	1760 ÷ 1765				
7,5	27,9	27,6	16,1	15,9	16,2	16,0	9,34	9,21	1750 ÷ 1755				
11	37,9	37,9	21,9	21,9	21,9	21,5	12,6	12,4	1765 ÷ 1770				
15	52,9	53,4	30,6	30,8	30,2	29,9	17,4	17,3	1770 ÷ 1775				

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

fhs4-ie2-mott-4p60-en_a_te

LOWARA
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FHS4-FHF4 SERIES
THREE-PHASE MOTORS AT 60 Hz, 4 POLES (from 18,5 to 75 kW)

P_N	Efficiency η_N %						IE	Year of construction
	Δ 220 V Y 380 V			Δ 230 V Y 400 V				
kW	4/4	3/4	2/4	4/4	3/4	2/4		
18,5	92,8	92,8	92,0	92,8	92,8	92,0	2	By June 2011
22	93,0	92,8	92,5	93,0	92,8	92,5		
30	93,4	93,2	92,7	93,4	93,2	92,7		
37	93,6	93,2	93	93,6	93,2	93		
45	94,1	93,7	93,5	94,1	93,7	93,5		
55	94,4	94,2	93,9	94,4	94,2	93,9		
75	94,6	94,5	94,0	94,6	94,5	94,0		

P_N	Manufacturer: WEG Equipamentos Eletricos S.A. Reg. No 07.175.725/0010-50 Jaragua do Sul - SC (Brazil)	IEC SIZE	Construction Design	N. of Poles	f_N	Data for 380 V / 60 Hz				
kW	Model				Hz	cosφ	Is / I_N	TN Nm	Ts/T_N	Tm/Tn
18,5	W22 180M4-B3 18.5kW	180	B5 B3	4	60	0,81	6,80	100,0	2,70	3,00
22	W22 180M4-B3 22kW	180				0,84	6,40	119,0	2,30	2,70
30	W22 200L4-B3 30kW	200				0,85	6,20	162,0	2,00	2,30
37	W22 225S7M4-B3 37kW	225	B3			0,85	6,20	200,0	2,50	2,60
45	W22 225S/M4-B3 45kW	225				0,86	7,20	242,0	2,40	2,60
55	W22 250S/M4-B3 55kW	250				0,87	7,20	296,0	2,40	2,60
75	W22 280S/M4-B3 75kW	280				0,87	7,20	404,0	2,40	2,80

P_N	Voltage U_N V				n_N	Observe the regulations and codes locally in force regarding sorted waste disposal.	Operating conditions **		
	Δ		Y				Altitude above sea Level (m)	T. amb min/max °C	ATEX
kW	220 V	230 V	380 V	400 V	min^{-1}				
	I_N (A)								
18,5	64,60	61,80	37,40	35,54	1765 ÷ 1765		≤ 1000	-15 / 40	No
22	74,00	70,80	42,84	40,71	1765 ÷ 1765				
30	99,20	94,90	57,43	54,57	1770 ÷ 1770				
37	122,00	117,0	70,63	67,28	1770 ÷ 1770				
45	146,00	140,0	84,53	80,50	1775 ÷ 1775				
55	176,00	168,0	101,89	96,60	1775 ÷ 1775				
75	240,00	230,0	138,95	132,25	1775 ÷ 1775				

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

fhf4-ie2-mott-75-4p60-en_a_te

MOTOR NOISE

The tables show the mean sound pressure (Lp) measured as per Curve A (Standard ISO 1680).
Noise values were measured with the 60 Hz motor running idle with a tolerance of 3 dB (A).

FHE-FHS MOTORS 2 POLES 60 Hz

POWER kW	MOTOR TYPE IEC* SIZE	NOISE LpA dB
1,1	90R	<70
1,5	90R	<70
2,2	90R	<70
3	90	<70
4	112R	<70
5,5	112	<70
7,5	112	75
9,2	132	77
11	132	77
15	160	74
18,5	160	75
22	160	73
30	200	74
37	200	74
45	225	79
55	250	79

FHF MOTORS 2 POLES 60 Hz

POWER kW	MOTOR TYPE IEC SIZE	NOISE LpA dB
1,1	80	<70
1,5	90	<70
2,2	90	<70
3	100	<70
4	112	<70
5,5	132	<70
7,5	132	75
11	160	74
15	160	74
18,5	160	75
22	180	72
30	200	74
37	200	74
45	225	79
55	250	79
75	280	81
90	280	81

FHE4 MOTORS 4 POLES 60 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

FHS4-FHF4 MOTORS 4 POLES 60 Hz

POWER kW	MOTOR TYPE IEC SIZE	NOISE LpA dB
0,25	71	<70
0,37	71	<70
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
15	160	<70
18,5	180	<70
22	180	<70
30	200	<70
37	225	<70
45	225	<70
55	250	<70
75	280	73

*R=reduced motor casing size with respect to shaft extension and related flange.

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AVAILABLE VOLTAGES
MOTORS FOR FH SERIES (up to 22 kW)

P_N kW	IEC SIZE	SINGLE-PHASE 50 Hz			SINGLE-PHASE 60 Hz				
		1 x 220-240	1 x 100	1 x 110-120	1 x 220-230	1 x 100	1x 110-115	1 x 120-127	1 x 200-210
0,75	80	s	-	o	s	-	o	-	o
1,1	80	s	-	o	s	-	o	-	o
1,5	80	s	-	-	s	-	o	-	o
2,2	90	s	-	-	s	-	-	-	-

P_N kW	THREE-PHASE - 2 POLES 50 Hz							60 Hz							50/60 Hz	
	3 x 220-230-240/380-400-415	3 x 380-400-415/660-690	3 x 200-208/346-360	3 x 255-265/440-460	3 x 290-300/500-525	3 x 440-460/-	3 x 500-525/-	3 x 220-230/380-400	3 x 255-265-277/440-460-480	3 x 380-400/660-690	3 x 440-460-480/-	3 x 110-115/190-200	3 x 200-208/346-360	3 x 330-346/575-600	3 x 575/-	3 x 230/400 50 Hz 3 x 265/460 60 Hz	3 x 400/690 50 Hz 3 x 460/- 60 Hz
0,75	s	o	o	o	o	o	o	s	o	o	o	o	o	o	o	o	o
1,1	s	o	o	o	o	o	o	s	o	o	o	o	o	o	o	o	o
1,5	s	o	o	o	o	o	o	s	o	o	o	o	o	o	o	o	o
2,2	s	o	o	o	o	o	o	s	o	o	o	o	o	o	o	o	o
3	s	o	o	o	o	o	o	s	o	o	o	o	o	o	o	o	o
4	o	s	o	o	o	o	o	s	o	o	o	o	o	o	o	o	o
5,5	o	s	o	o	o	o	o	s	o	o	o	o	o	o	o	o	o
7,5	o	s	o	o	o	o	o	s	o	o	o	o	o	o	o	o	o
9,2	o	s	o	o	o	o	o	s	o	o	o	o	o	o	o	o	o
11	o	s	o	o	o	o	o	s	o	o	o	o	o	o	o	o	o
15	o	s	o	o	o	o	o	s	o	o	o	o	o	o	o	o	o
18,5	o	s	o	o	o	o	o	s	o	o	o	o	o	o	o	o	o
22	o	s	o	o	o	o	o	s	o	o	o	o	o	o	o	o	o

s = Standard voltage o = Optional voltage - = Not available

fh-volt-lowa-en_a_te

MOTORS FOR FH SERIES (≥ 22 kW)

PN kW	THREE-PHASE - 2 POLES 50 Hz								60 Hz								50/60 Hz	
	3 x 220-230-240/380-400-415	3 x 380-400-415/660-690	3 x 110/190	3 x 200-208/346-360	3 x 255-265/440-460	3 x 290-300/500-525	3 x 440-460/-	3 x 500-525/-	3 x 230/380	3 x 380-400/660-690	3 x 440-480/-	3 x 110-115/190-200	3 x 200-208/346-360	3 x 255-265-277/440-460-480	3 x 330-346/575-600	3 x 575/-	3 x 230/400 50 Hz 3 x 265/460 60 Hz	3 x 400/690 50 Hz 3 x 460/- 60 Hz
22	o	s	o	o	o	o	o	o	s	o	o	o	o	o	o	o	o	o
30	o	s	o	o	o	o	o	o	s	o	o	o	o	o	o	o	o	o
37	o	s	o	o	o	o	o	o	s	o	o	o	o	o	o	o	o	o
45	o	s	o	o	o	o	o	o	s	o	o	o	o	o	o	o	o	o
55	o	s	o	o	o	o	o	o	s	o	o	o	o	o	o	o	o	o
75	o	s	o	o	o	o	o	o	s	o	o	o	o	o	o	o	o	o
90	o	s	-	o	o	o	o	o	s	o	o	-	o	o	o	o	o	o
110	o	s	-	o	o	o	o	o	s	o	o	-	o	o	o	o	o	o
132	o	s	-	o	o	o	o	o	s	o	o	-	o	o	o	o	o	o

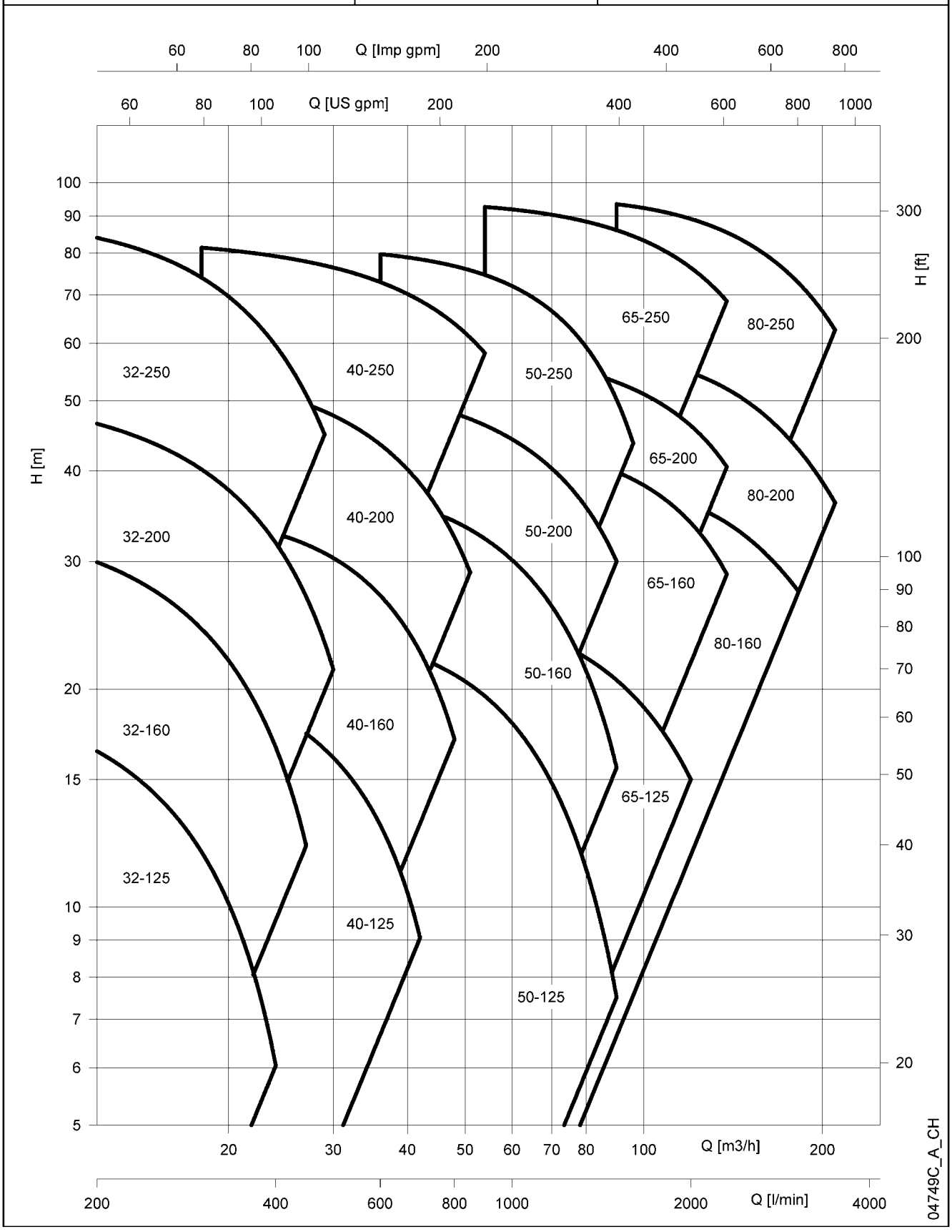
s = Standard voltage o = Optional voltage - = Not available

fh-volt-weg-en_b_te

LOWARA
a xylem brand

FHE-2FHE-FHS-FHF SERIES
HYDRAULIC PERFORMANCE RANGE AT 60 Hz, 2 POLES

FHE-2FHE-FHS-FHF	~ 3500 [rpm]	ISO 9906 - Annex A



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

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FHE-2FHE-FHS-FHF SERIES
HYDRAULIC PERFORMANCE TABLE AT 60 Hz, 2 POLES

PUMP TYPE	RATED POWER		Q = DELIVERY																		
			l/min 0	100	200	300	400	500	600	800	900	1000	1250	1500	1750	2000	2250	2500	2750	3500
			m^3/h 0	6	12	18	24	30	36	48	54	60	75	90	105	120	135	150	165	210
	kW	HP	H =TOTAL HEAD METRES COLUMN OF WATER																		
32-125/116*	1,1	1,5	20,5		16,4	11,9	6,0														
32-160/156*	1,5	2	25,1		20,8	15,6	8,0														
32-160/226*	2,2	3	35,0		29,9	24,2	16,6														
32-200/306	3	4	45,6		37,5	30,3	20,8														
32-200/406	4	5,5	52,9		46,5	40,2	31,8	21,3													
32-250/556	5,5	7,5	76,9	74,6	68,9	58,9	44,6														
32-250/756	7,5	10	91,7	89,5	83,9	74,0	59,6														
40-125/156	1,5	2	17,0			15,5	13,8	11,5	8,7												
40-125/226	2,2	3	22,3			20,2	18,5	16,1	13,0												
40-160/306	3	4	30,0			28,4	26,6	23,9	20,3												
40-160/406	4	5,5	36,0			34,4	32,8	30,3	26,9	17,1											
40-200/556	5,5	7,5	44,9			41,9	40,2	37,7	34,0	21,8											
40-200/756	7,5	10	57,0			53,6	51,1	47,7	43,5	32,4											
40-250/**	**	**	60,2			56,9	54,9	52,3	48,9	39,4											
40-250/1106	11	15	69,2			65,2	63,0	60,1	56,5	46,8											
40-250/1506	15	20	84,9			81,4	79,2	76,4	72,9	63,9	58,2										
50-125/306	3	4	20,0						18,0	16,0	14,7	13,1	8,2								
50-125/406	4	5,5	25,0						23,0	20,9	19,6	18,0	13,1	7,5							
50-160/556	5,5	7,5	30,7						29,7	26,9	25,0	22,8	16,1								
50-160/756	7,5	10	38,5						36,9	34,1	32,3	30,1	23,7	15,6							
50-200/**	**	**	45,0						43,9	41,3	39,6	37,6	31,3								
50-200/1106	11	15	53,0						50,9	48,1	46,3	44,2	38,1	30,0							
50-250/1506	15	20	63,8						61,2	57,7	55,2	52,3	42,4								
50-250/1856	18,5	25	72,9						70,0	67,0	64,9	62,2	52,9	39,2							
50-250/2206	22	30	82,3						79,7	76,7	74,6	72,0	63,1	50,2							
65-125/556	5,5	7,5	22,9							21,3	20,8	20,2	18,3	15,9	13,2						
65-125/756	7,5	10	27,0							25,5	25,0	24,5	22,8	20,6	18,0	15,0					
65-160/**	**	**	33,5									30,8	28,9	26,4	23,2	19,3					
65-160/1106	11	15	37,8									35,4	33,6	31,3	28,3	24,7					
65-160/1506	15	20	45,3									43,3	41,9	39,9	37,3	33,9	29,7				
65-200/1856	18,5	25	50,1									51,7	49,8	47,3	44,1	40,0					
65-200/2206	22	30	56,2									57,4	55,5	53,1	50,0	46,2	41,6				
65-250/2206	22	30	64,7									61,6	58,4	54,2	49,1	43,1					
65-250/3006	30	40	79,2									77,7	75,0	71,3	66,5	60,7	53,8				
65-250/3706	37	50	92,8									91,9	89,4	86,0	81,7	76,3	70,0				
80-160/1506	15	20	28,3											31,8	30,8	29,4	27,6	25,6	23,5		
80-160/1856	18,5	25	34,3											38,1	37,2	36,0	34,3	32,3	30,0		
80-200/2206	22	30	44,0											47,4	45,8	43,7	41,1	38,1	34,9		
80-200/3006	30	40	52,9											57,7	56,5	54,7	52,4	49,7	46,7	36,2	
80-250/3706	37	50	69,3											71,3	68,9	65,8	62,0	57,7	52,8		
80-250/4506	45	61	78,3											81,0	78,8	75,8	72,3	68,1	63,4		
80-250/5506	55	75	89,1											93,4	91,6	89,1	86,1	82,4	78,2	62,6	

* Available single-phase motor version

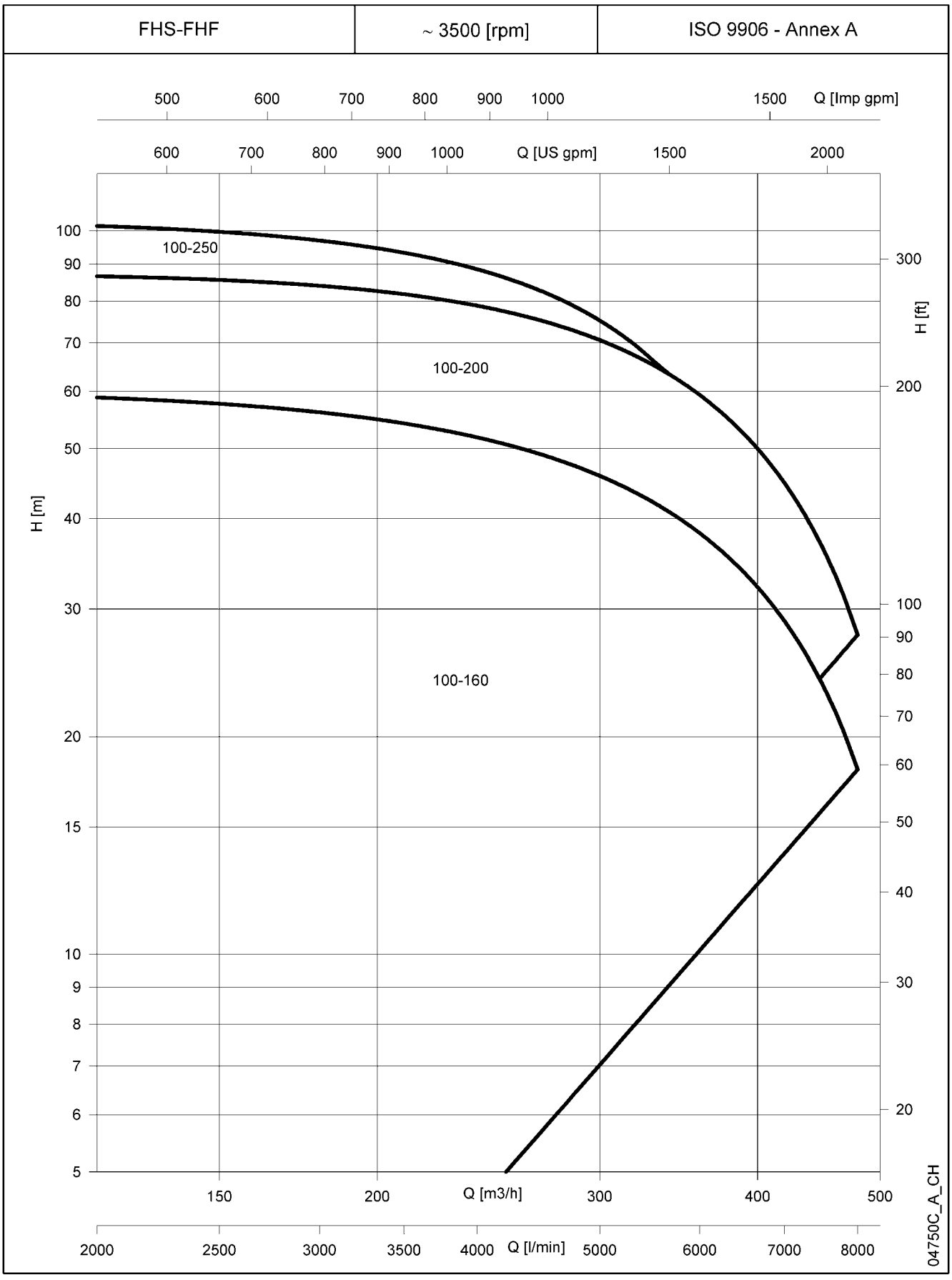
fhe-fhs-fhf-2p60_a_th

** /926 = 9.2kW - 12.5HP in the FHE version ** /1106 = 11kW - 15HP in the FHS-FHF version

Performances according to ISO 9906 - Annex A

FHS-FHF SERIES
HYDRAULIC PERFORMANCE RANGE AT 60 Hz, 2 POLES

FHS-FHF	~ 3500 [rpm]	ISO 9906 - Annex A



These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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FHS-FHF SERIES
HYDRAULIC PERFORMANCE TABLE AT 60 Hz, 2 POLES

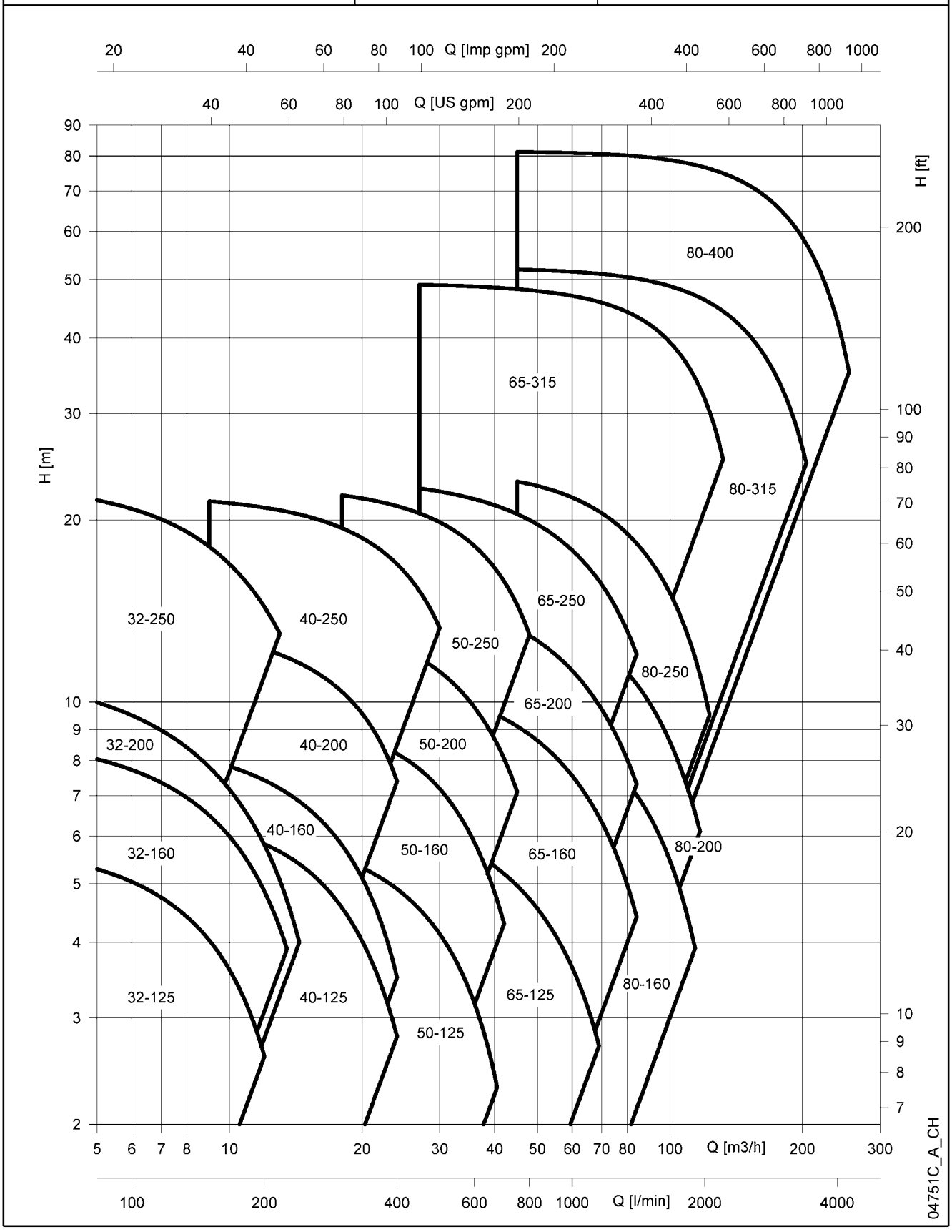
PUMP TYPE	RATED POWER		Q = DELIVERY																	
			l/min 0	1000	1500	2000	2500	3000	3500	4000	4500	5000	5450	5667	6000	6500	6667	7000	7500	8000
			m^3/h 0	60	90	120	150	180	210	240	270	300	327	340	360	390	400	420	450	480
	kW	HP	H =TOTAL HEAD METRES COLUMN OF WATER																	
100-160/3006	30	40	36,3			35,5	34,4	32,9	30,9	28,5	25,8	22,7	19,7	18,2	15,9	12,4	11,3			
100-160/3706	37	50	43,4			42,8	41,9	40,6	38,7	36,4	33,6	30,3	27,1	25,5	22,8	18,8	17,5	14,8		
100-160/4506	45	61	52,3			51,3	50,2	48,6	46,7	44,3	41,5	38,3	35,1	33,4	30,6	26,2	24,6	21,3	16,1	
100-160/5506	55	75	60,0			58,8	57,7	56,1	54,2	51,8	49,1	45,9	42,6	40,9	38,2	33,7	32,2	28,9	23,6	18,0
100-200/3006	30	40	49,7			46,4	43,2	39,3	34,9	29,9	24,5	18,7	13,4	10,7	6,6					
100-200/3706	37	50	54,7			52,2	49,7	46,5	42,6	38,1	32,9	27,0	21,0	18,0	12,9					
100-200/4506	45	61	61,2			59,5	57,4	54,6	51,2	47,2	42,5	37,0	31,3	28,3	23,2	14,5				
100-200/5506	55	75	70,9			69,9	68,2	65,9	63,0	59,3	55,0	49,9	44,6	41,8	37,3	29,7	26,9	21,2		
100-200/7506	75	102	87,0			86,6	85,6	84,0	81,8	78,8	75,1	70,7	65,9	63,4	59,3	52,4	50,0	44,8	36,5	27,6
100-250/5506	55	75	77,4		76,6	75,1	72,6	69,0	64,2	58,0	50,3	41,0	31,0							
100-250/7506	75	102	91,9		91,5	90,2	88,1	85,1	81,0	75,8	69,3	61,3	52,8	48,3	40,7					
100-250/9006	90	122	103,0		103	102	99,7	97,0	93,3	88,5	82,5	75,2	67,4	63,1	56,1					

Performances according to ISO 9906 - Annex A

lm-fhs-fhf-2p60_a_th

FHE4-2FHE4-FHS4-FHF4 SERIES
HYDRAULIC PERFORMANCE RANGE AT 60 Hz, 4 POLES

FHE4-2FHE4-FHS4-FHF4	~ 1750 [rpm]	ISO 9906 - Annex A



These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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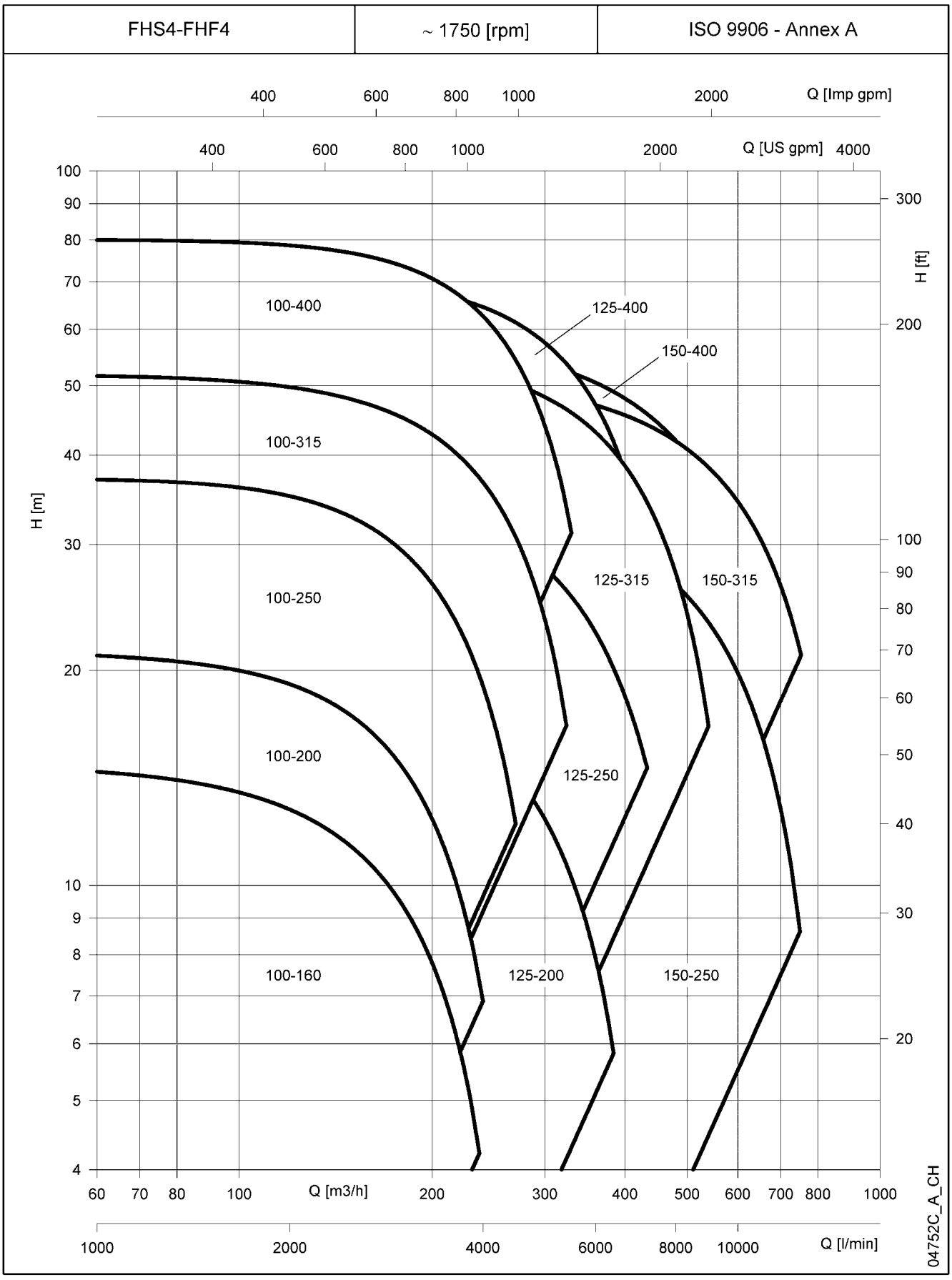
FHE4-2FHE4-FHS4-FHF4 SERIES
HYDRAULIC PERFORMANCE TABLE AT 60 Hz, 4 POLES

PUMP TYPE	RATED POWER		Q = DELIVERY																		
			l/min 0	75	100	150	200	300	350	400	450	500	650	750	1150	1300	1650	2000	3000	4000
			m^3/h 0	4,5	6	9	12	18	21	24	27	30	39	45	69	78	99	120	180	240
	kW	HP	H =TOTAL HEAD METRES COLUMN OF WATER																		
32-125/026*	0,25	0,34	6,0	5,4	5,0	4,0	2,6														
32-160/026**	0,25	0,34	7,6	6,8	6,3	5,1	3,4														
32-160/036**	0,37	0,5	9,1	8,2	7,7	6,5	4,9														
32-200/036**	0,37	0,5	10,4	9,2	8,5	6,8	4,7														
32-200/056**	0,55	0,75	11,5	10,2	9,5	7,8	5,8														
32-250/076*	0,75	1	19,3	17,9	16,9	14,0	10,3														
32-250/116*	1,1	1,5	23,3	21,9	20,9	18,1	14,4														
40-125/026*	0,25	0,34	5,1			4,7	4,3	2,9	2,0												
40-125/036**	0,37	0,5	6,6			6,2	5,8	4,6	3,7	2,8											
40-160/036**	0,37	0,5	7,2			6,6	6,0	4,2	3,1												
40-160/056**	0,55	0,75	8,5			8,0	7,4	5,8	4,7	3,5											
40-200/076	0,75	1,0	11,1			10,2	9,6	7,7	6,4												
40-200/116	1,1	1,5	13,9			12,9	12,2	10,4	9,1	7,4											
40-250/116	1,1	1,5	14,4			13,5	12,9	11,1	9,8	8,2	6,2										
40-250/156	1,5	2	16,5			15,5	14,9	13,2	12,0	10,5	8,6										
40-250/226	2,2	3	22,3			21,5	21,0	19,4	18,3	16,9	15,2	13,3									
50-125/036**	0,37	0,5	5,1					4,3	4,0	3,6	3,2	2,8									
50-125/056**	0,55	0,75	6,2					5,5	5,2	4,9	4,5	4,1	2,6								
50-160/076	0,75	1	7,6					7,2	6,9	6,5	6,0	5,4	3,3								
50-160/116	1,1	1,5	9,3					8,9	8,6	8,2	7,7	7,2	5,1								
50-200/116	1,1	1,5	11,2					10,7	10,4	9,9	9,4	8,8	6,4								
50-200/156	1,5	2	13,7					13,1	12,8	12,3	11,8	11,2	9,0	7,1							
50-250/226A	2,2	3	15,8					14,7	14,3	13,8	13,2	12,4	9,2								
50-250/226	2,2	3	19,2					17,9	17,5	17,0	16,3	15,6	12,6	9,8							
50-250/306	3	4	23,1					22,0	21,6	21,1	20,5	19,8	17,0	14,5							
65-125/076	0,75	1	5,9							5,4	5,2	5,1	4,5	4,1							
65-125/116	1,1	1,5	6,8							6,3	6,2	6,0	5,4	5,0	2,7						
65-160/116	1,1	1,5	8,3									7,4	6,7	6,1	3,4						
65-160/156	1,5	2	9,6									8,6	7,9	7,4	4,6	3,4					
65-160/226	2,2	3	11,2									10,3	9,6	9,1	6,5	5,3	2,2				
65-200/226	2,2	3	12,7									12,4	11,7	11,0	7,5	6,0					
65-200/306	3	4	14,9									14,6	13,8	13,2	9,9	8,4	4,6				
65-250/306	3	4	15,8								15,2	14,9	13,8	12,9	7,9						
65-250/406	4	5,5	19,8								19,1	18,8	17,7	16,8	12,0	9,8					
65-250/556	5,5	7,5	23,5								22,6	22,3	21,3	20,5	15,9	13,6	7,4				
65-315/556	5,5	7,5	23,8								23,0	22,9	22,1	21,2	15,1	11,7	2,1				
65-315/756	7,5	10	28,4								27,8	27,7	27,0	26,4	21,8	19,1	10,4				
65-315/1106	11	15	36,3								35,9	35,8	35,3	34,8	31,4	29,3	22,0	10,3			
65-315/1506	15	20	43,9								43,6	43,5	43,2	42,9	40,4	38,8	33,0	23,4			
65-315/1856	18,5	25	49,3								49,0	49,0	48,6	48,2	45,9	44,5	39,7	31,7			
80-160/156	1,5	2	6,5											7,0	5,6	4,9	3,0				
80-160/226	2,2	3	9,0											9,5	8,2	7,5	5,6				
80-200/306	3	4	10,7											11,4	9,6	8,7	6,0				
80-200/406	4	5,5	13,3											14,1	12,4	11,4	8,7				
80-250/406	4	5,5	15,5											15,5	12,6	11,0	6,5				
80-250/556	5,5	7,5	19,9											19,8	17,2	15,7	11,6				
80-250/756	7,5	10	23,0											23,2	20,7	19,3	15,3	10,3			
80-315/1106	11	15	30,8											30,0	28,4	27,6	24,8	20,7			
80-315/1506	15	20	38,1											37,5	36,4	35,8	33,5	30,0			
80-315/1856	18,5	25	42,8											42,4	41,5	41,0	39,1	36,0			
80-315/2206	22	30	47,0											46,7	45,9	45,4	43,6	40,9	26,2		
80-315/3006	30	41	52,1											52,0	51,1	50,6	48,9	46,2	33,0		
80-400/2206	22	30	45,7											45,3	44,4	43,7	41,3	37,4	17,2		
80-400/3006	30	41	54,5											54,5	53,8	53,3	51,5	48,5	31,3		
80-400/3706	37	50	63,2											63,2	62,7	62,3	60,7	58,2	43,3		
80-400/4506	45	61	72,0											72,1	71,5	71,1	69,6	67,3	54,3	28,3	
80-400/5506	55	75	80,8											81,3	80,7	80,3	78,9	76,6	64,7	42,6	

Performances according to ISO 9906 - Annex A * FHE4 VERSION ONLY ** FHE4, FHF4 VERSION ONLY fhe4-fhs4-fhf4-4p60_a_th

FHS4-FHF4 SERIES
HYDRAULIC PERFORMANCE RANGE AT 60 Hz, 4 POLES

FHS4-FHF4	~ 1750 [rpm]	ISO 9906 - Annex A



These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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FHS4-FHF4 SERIES
HYDRAULIC PERFORMANCE TABLE AT 60 Hz, 4 POLES

PUMP TYPE	RATED POWER		Q = DELIVERY																	
			l/min 0	1000	1250	1500	1667	3000	4000	5000	5500	6000	6500	7000	8000	9000	10000	11000	12000	12500
			m^3/h 0	60	75	90	100	180	240	300	330	360	390	420	480	540	600	660	720	750
	kW	HP	H =TOTAL HEAD METRES COLUMN OF WATER																	
100-160/406	4	5,5	9,4	9,2	9,0	8,7	8,4	4,5												
100-160/556	5,5	7,5	12,9	12,6	12,3	12,0	11,7	7,6												
100-160/756	7,5	10	14,7	14,4	14,2	13,8	13,5	9,4												
100-200/406	4	5,5	12,5	11,5	10,9	10,1	9,4													
100-200/556	5,5	7,5	14,8	14,2	13,8	13,2	12,6	5,4												
100-200/756	7,5	10	17,7	17,4	17,0	16,6	16,2	9,8												
100-200/1106	11	15	21,4	21,0	20,7	20,3	20,0	14,6	6,9											
100-250/1106	11	15	25,4	25,3	24,9	24,2	23,7	14,5												
100-250/1506	15	20	31,2	31,2	30,8	30,4	29,9	22,2	10,6											
100-250/1856	18,5	25	34,7	34,7	34,4	34,0	33,6	26,7	16,0											
100-250/2206	22	30	37,0	37,0	36,8	36,4	36,0	29,3	19,0											
100-315/2206	22	30	36,4	36,4	36,0	35,5	35,0	27,6	16,3											
100-315/3006	30	41	46,1	46,3	45,9	45,4	45,0	38,3	28,6	14,2										
100-315/3706	37	50	51,5	51,6	51,4	51,0	50,7	45,1	36,7	23,5										
100-400/3006	30	41	49,2	48,9	48,7	48,3	47,8	35,3	15,6											
100-400/3706	37	50	56,9	56,7	56,7	56,4	56,0	45,8	28,0											
100-400/4506	45	61	63,3	63,1	63,1	62,9	62,6	53,8	37,7											
100-400/5506	55	75	72,6	72,5	72,4	72,2	71,9	64,8	51,4	29,4										
100-400/7506	75	102	80,2	80,0	79,9	79,7	79,4	73,6	62,7	44,0	31,1									
125-200/756	7,5	10	13,8			12,5	12,3	10,0	7,7	4,8										
125-200/1106	11	15	17,5			16,4	16,2	13,9	11,3	7,8	5,7									
125-200/1506	15	20	22,0			21,2	21,0	18,6	15,9	12,4	10,3	7,9								
125-250/1106	11	15	19,5			19,4	19,3	16,3	12,0											
125-250/1506	15	20	24,7			24,6	24,5	22,0	18,2	12,9	9,7									
125-250/1856	18,5	25	28,0			28,0	27,9	25,6	22,0	16,9	13,8									
125-250/2206	22	30	30,0			30,0	29,9	27,8	24,4	19,3	16,4	13,2								
125-250/3006	30	41	35,4			35,6	35,6	34,2	31,7	27,8	25,4	22,6	19,5	16,1						
125-315/3006	30	41	35,7				35,3	33,1	29,7	24,5	21,2	17,3	12,8							
125-315/3706	37	50	41,5				41,3	39,5	36,6	31,9	28,8	25,3	21,3	16,8						
125-315/4506	45	61	46,4				46,1	44,8	42,3	38,3	35,6	32,4	28,7	24,5	14,5					
125-315/5506	55	75	53,2				53,1	52,0	49,8	46,2	43,8	40,9	37,5	33,6	24,2					
125-315/7506	75	102	55,0				54,9	53,8	51,7	48,2	45,9	43,1	39,8	36,1	27,3	16,7				
125-400/4506	45	61	53,8				53,2	49,5	43,2	32,9	25,9	17,5								
125-400/5506	55	75	59,4				59,1	55,6	50,0	41,1	35,2	28,2								
125-400/7506	75	102	71,4				71,3	68,8	64,5	57,5	52,7	47,0	40,3	32,5						
150-250/2206	22	30	21,7					20,8	19,3	17,3	16,1	14,9	13,5	12,2	9,2	6,1				
150-250/3006	30	41	29,0					28,1	26,9	25,4	24,4	23,4	22,3	21,0	18,2	15,0	11,2	6,9		
150-250/3706	37	50	32,6					31,8	30,7	29,2	28,3	27,4	26,3	25,2	22,5	19,5	15,9	11,6		
150-250/4506	45	61	36,0					35,2	34,2	32,8	32,0	31,1	30,1	28,9	26,4	23,3	19,8	15,8	11,2	8,6
150-315/3706	37	50	35,4					34,3	33,0	31,1	29,9	28,7	27,2	25,6	22,0					
150-315/4506	45	61	39,5					38,8	37,7	36,0	34,9	33,7	32,4	30,9	27,4	23,2	18,3			
150-315/5506	55	75	44,0					43,4	42,5	41,1	40,1	39,1	37,8	36,4	33,2	29,3	24,9	20,0		
150-315/7506	75	102	51,6					51,0	50,1	48,8	47,9	47,0	45,9	44,7	41,9	38,5	34,4	29,7	24,3	21,3
150-400/5506	55	75	48,8					47,1	45,1	42,4	40,7	38,9	36,8	34,5	29,3	23,2	16,0			
150-400/7506	75	102	58,1					57,5	55,9	53,6	52,2	50,5	48,7	46,6	41,9	36,3	29,9	22,5		

Performances according to ISO 9906 - Annex A

lm-fhs4-fhf4-4p60_a_th

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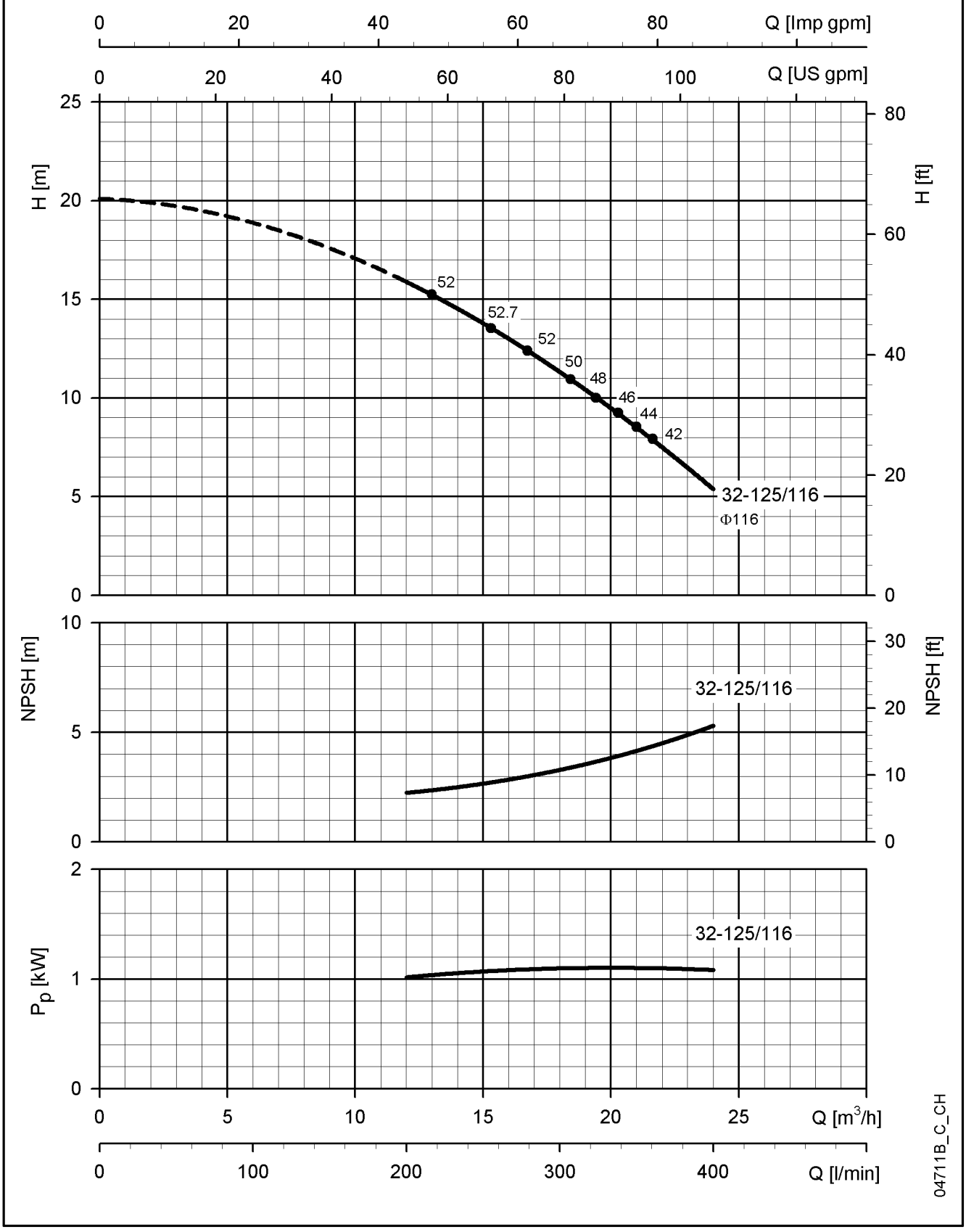
FHE-FHS-FHF SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES

FHE-FHS-FHF 32-125	~ 3500 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm^3 and kinematic viscosity ν = 1 mm^2/sec.

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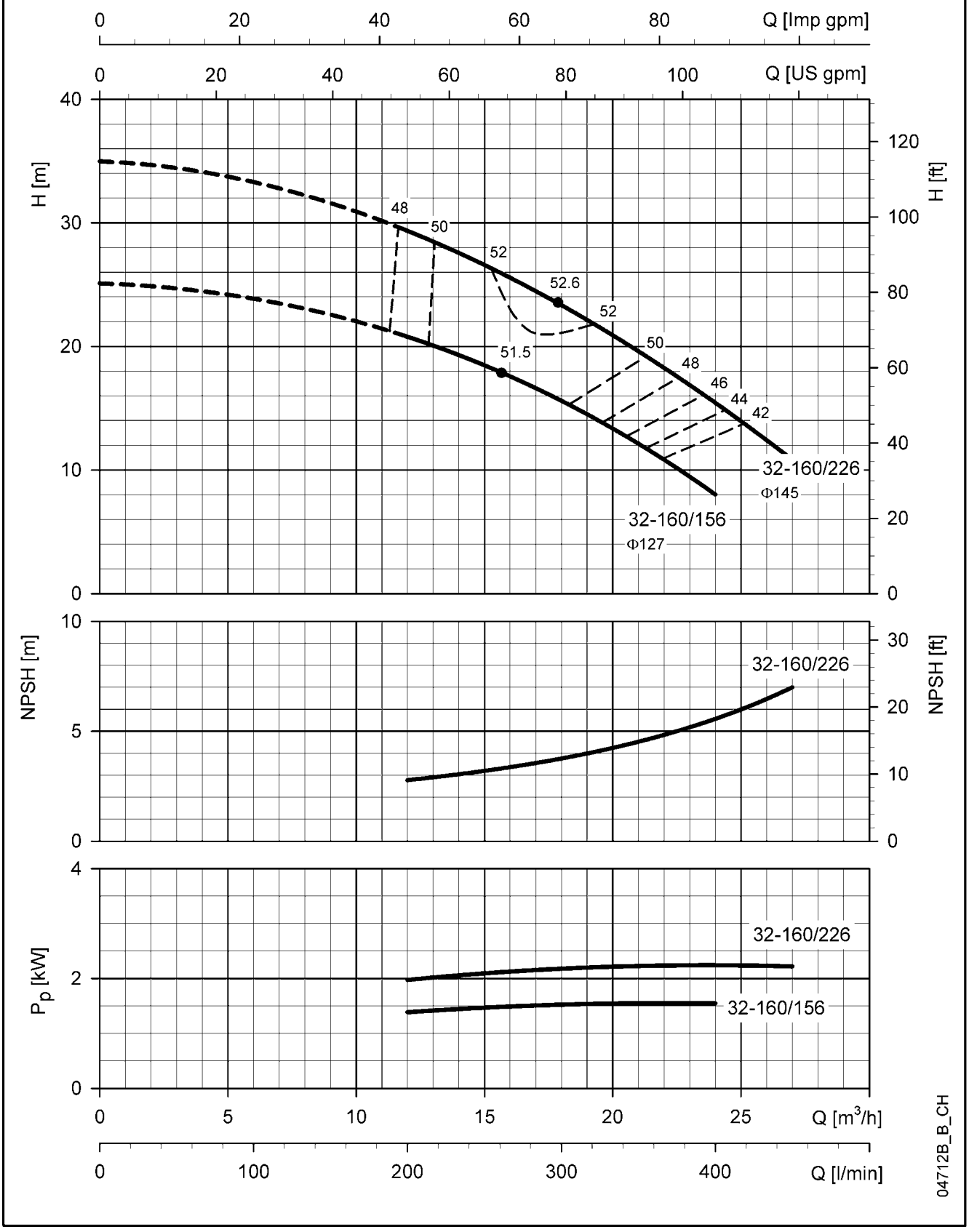
FHE-FHS-FHF SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES

FHE-FHS-FHF 32-160	~ 3500 [rpm]	ISO 9906 - Annex A

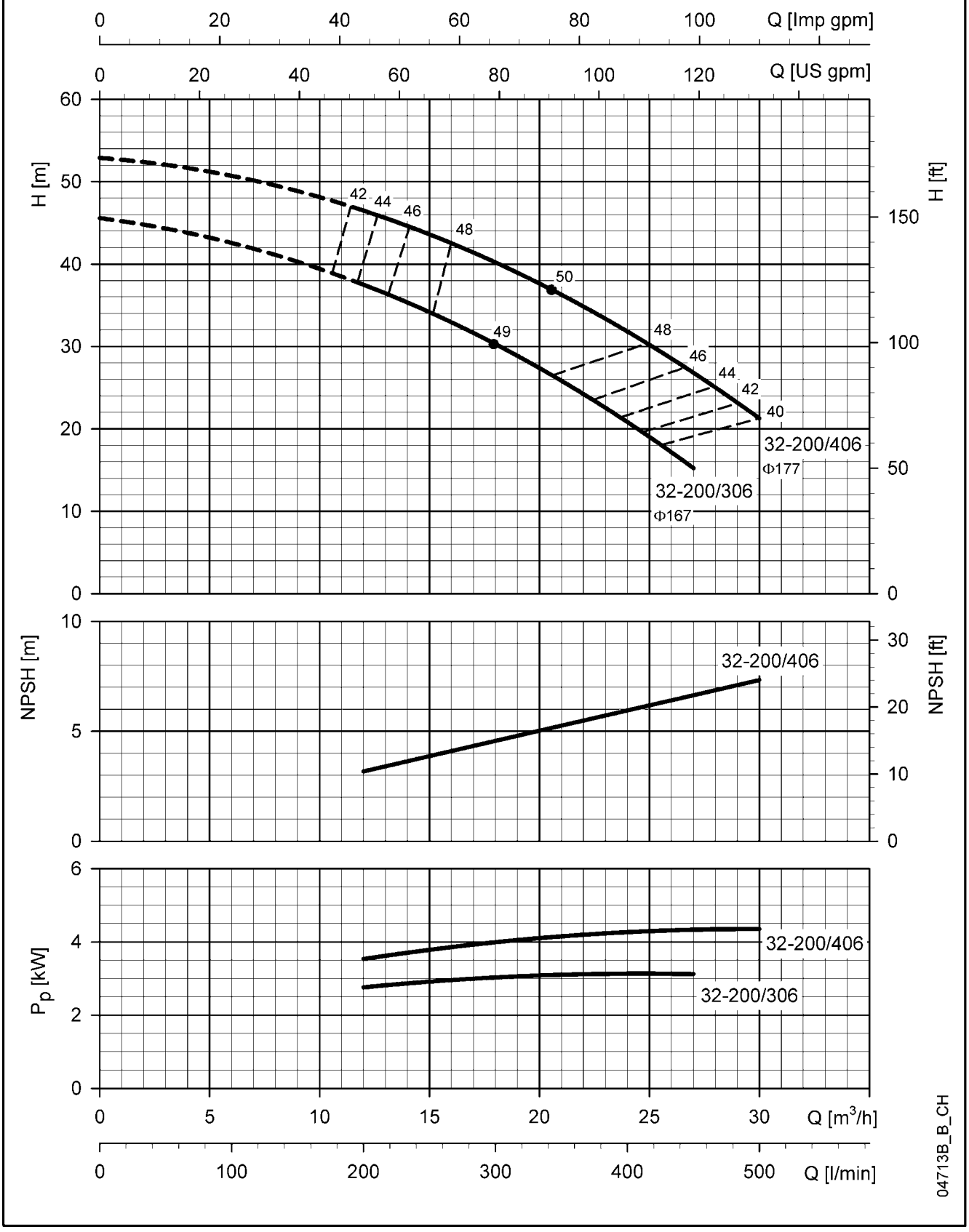


The NPSH values are laboratory values: for practical use we suggest increasing these values by 0,5 m.
These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

LOWARA
a xylem brand

FHE-FHS-FHF SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES

FHE-FHS-FHF 32-200	~ 3500 [rpm]	ISO 9906 - Annex A

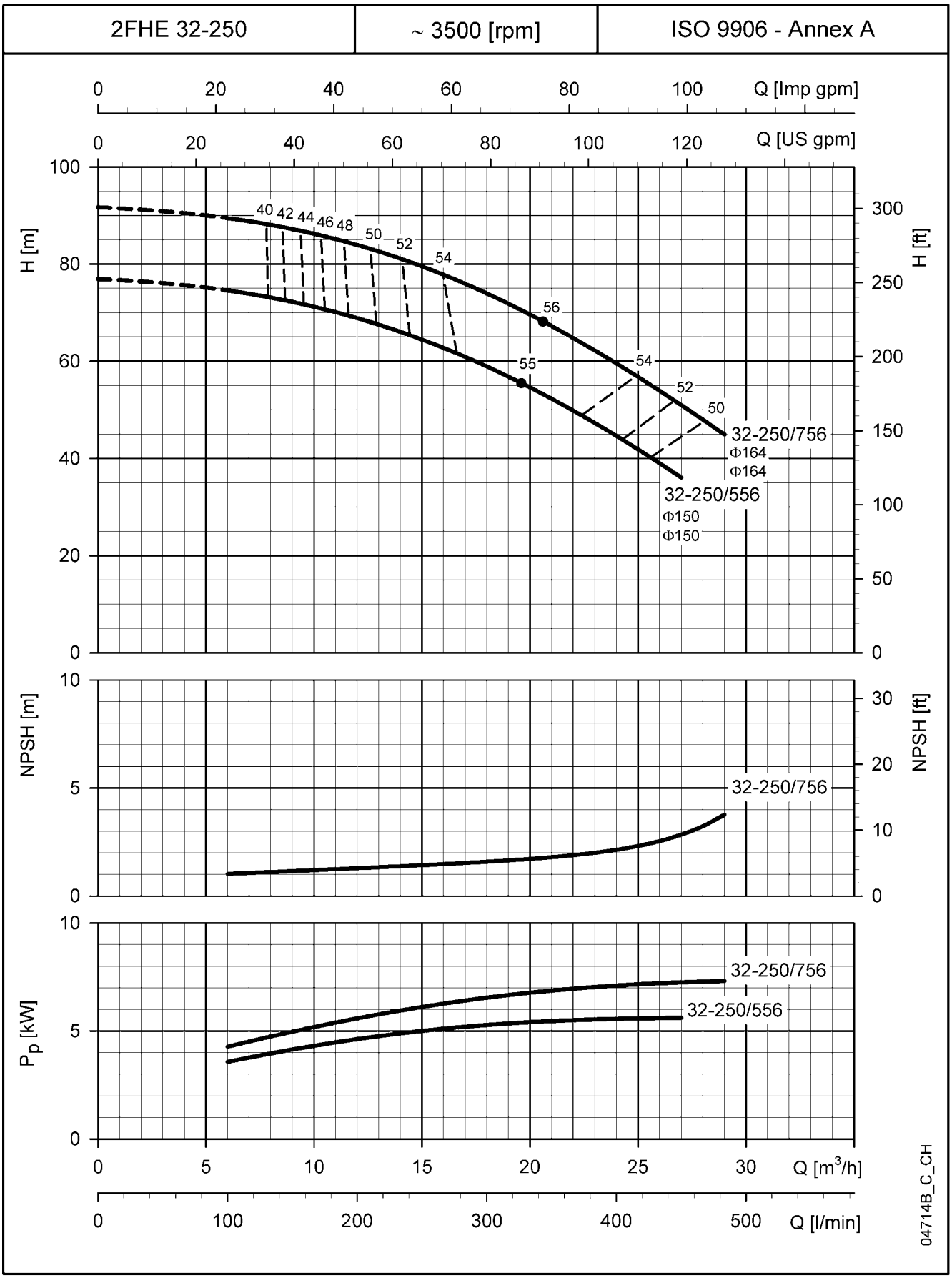


The NPSH values are laboratory values: for practical use we suggest increasing these values by 0,5 m.
These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

LOWARA
a xylem brand

2FHE SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES

2FHE 32-250	~ 3500 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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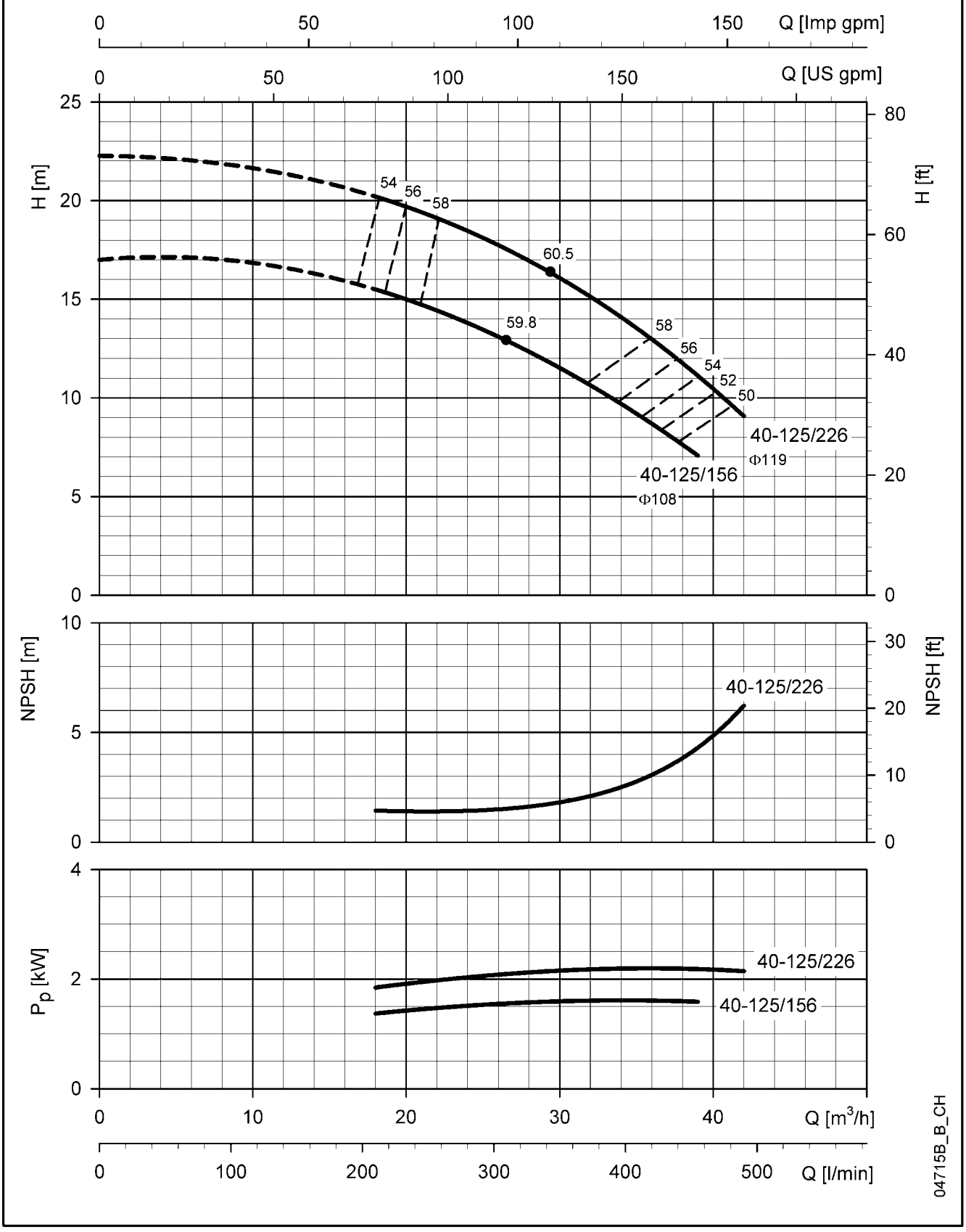
a xylem brand

FHE-FHS-FHF SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES

FHE-FHS-FHF 40-125	~ 3500 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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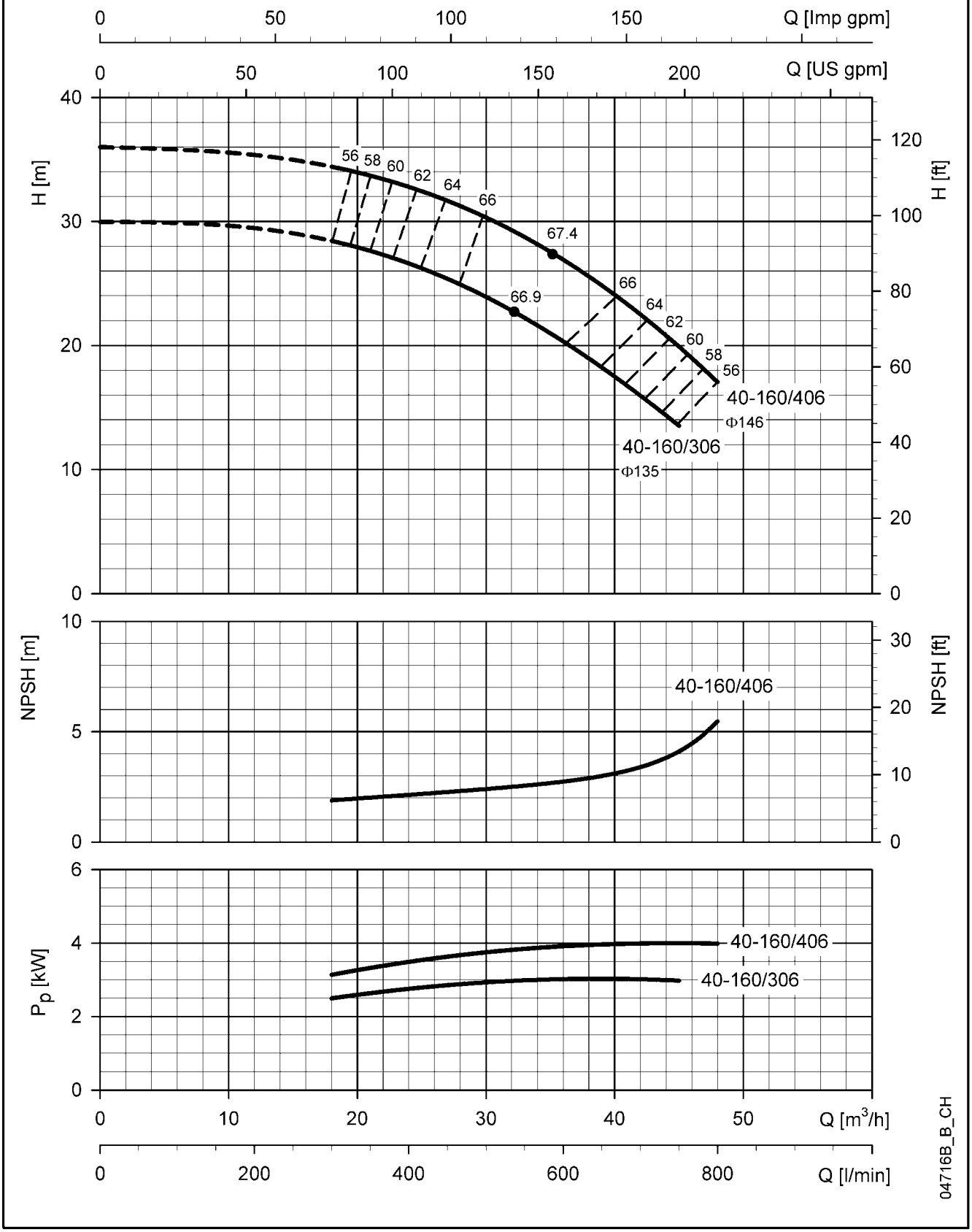
a xylem brand

FHE-FHS-FHF SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES

FHE-FHS-FHF 40-160	~ 3500 [rpm]	ISO 9906 - Annex A

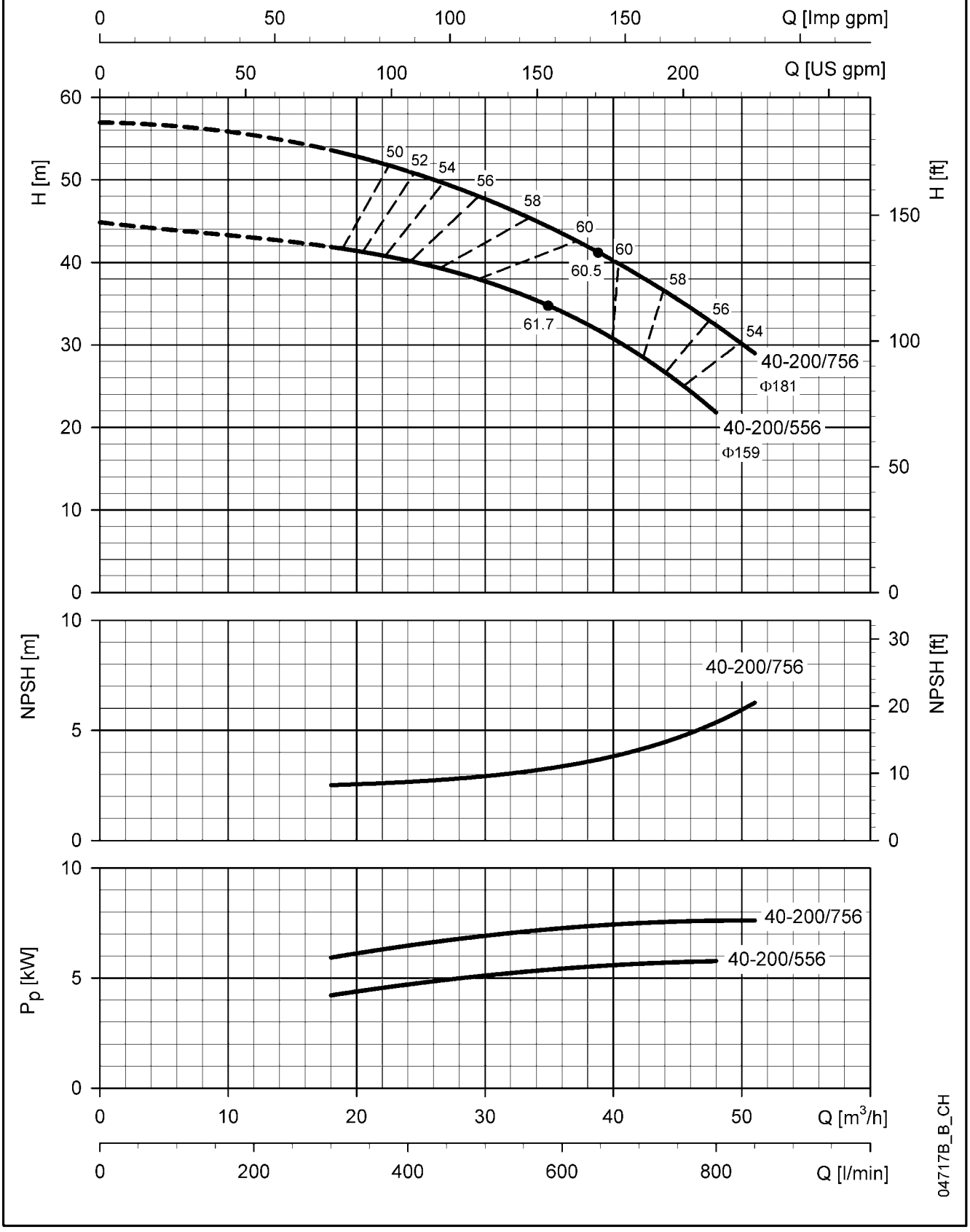


The NPSH values are laboratory values: for practical use we suggest increasing these values by 0,5 m.
These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

LOWARA
a xylem brand

FHE-FHS-FHF SERIES
OPERATING CHARACTERSTICS AT 60 Hz, 2 POLES

FHE-FHS-FHF 40-200	~ 3500 [rpm]	ISO 9906 - Annex A



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These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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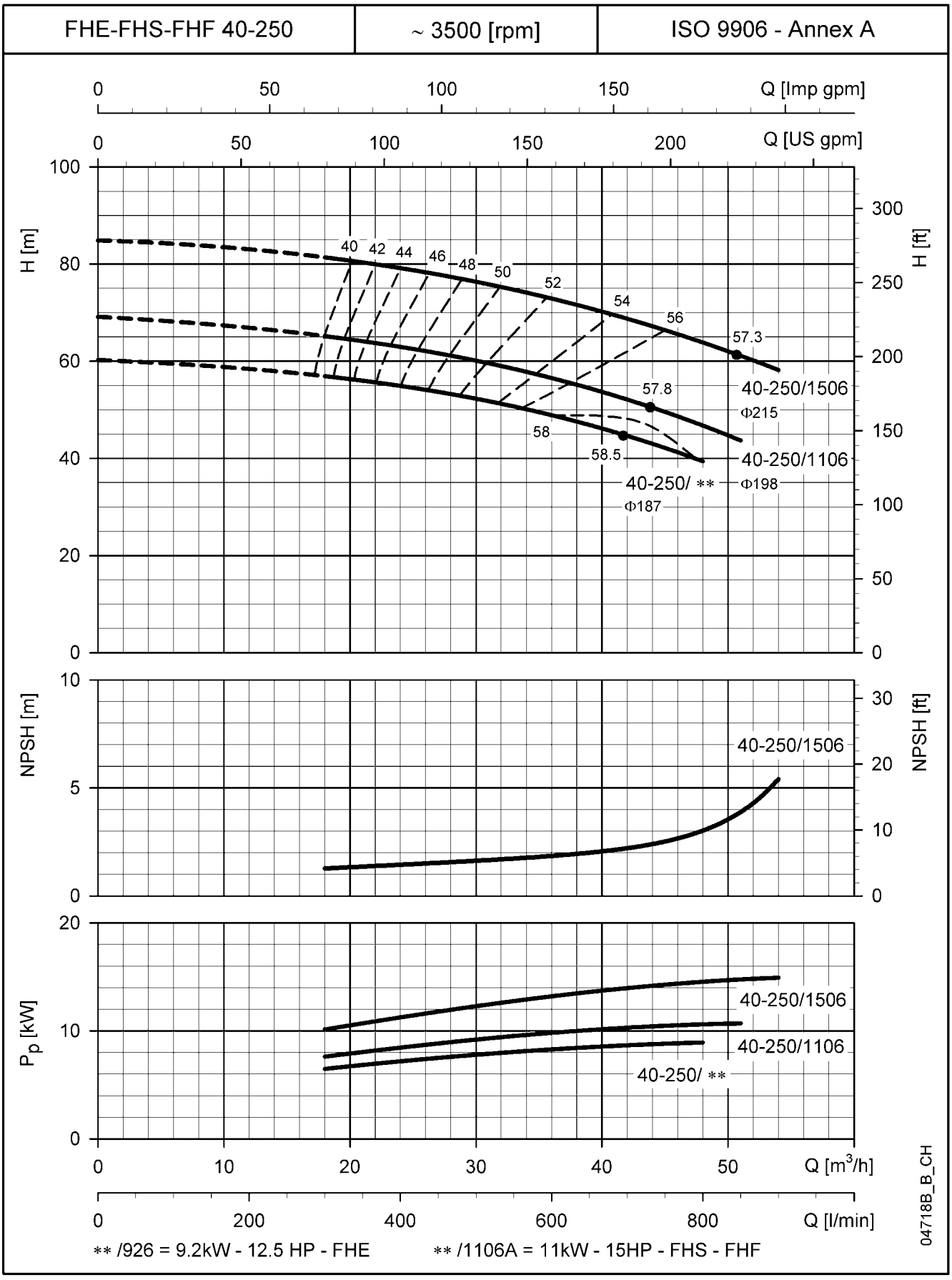
a xylem brand

FHE-FHS-FHF SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES



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These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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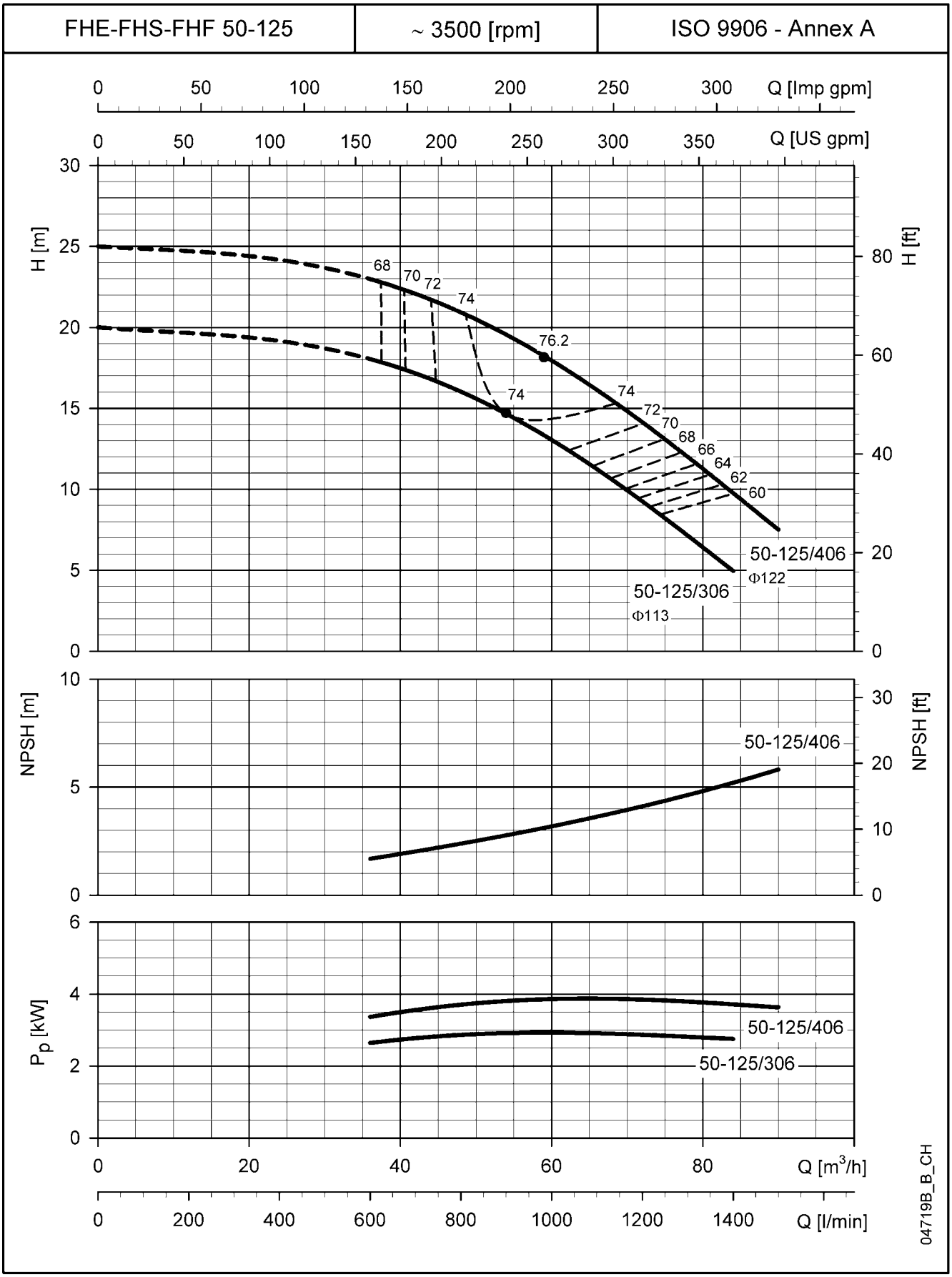
a xylem brand

FHE-FHS-FHF SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES

FHE-FHS-FHF 50-125	~ 3500 [rpm]	ISO 9906 - Annex A



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These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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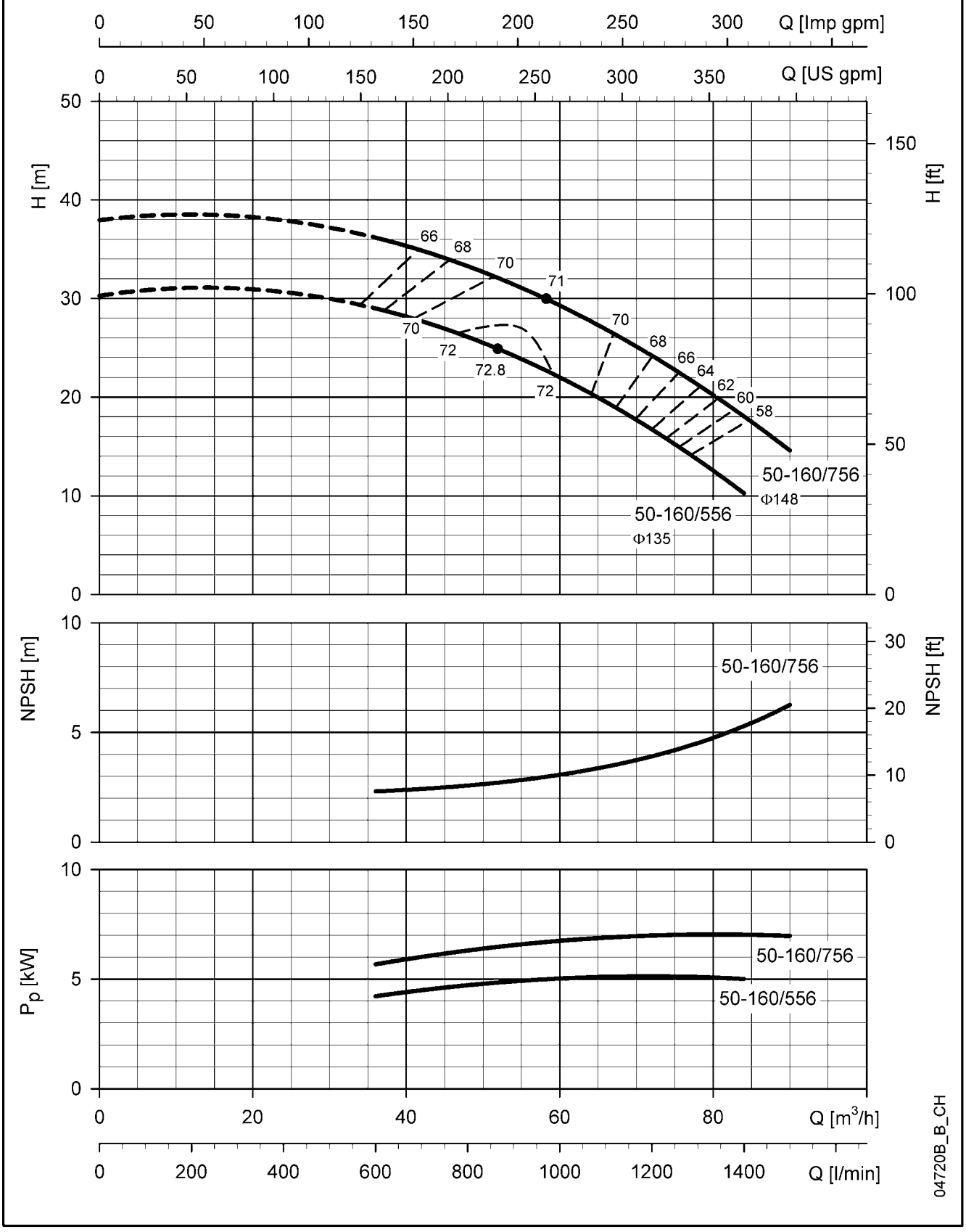
a xylem brand

FHE-FHS-FHF SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES

FHE-FHS-FHF 50-160	~ 3500 [rpm]	ISO 9906 - Annex A



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These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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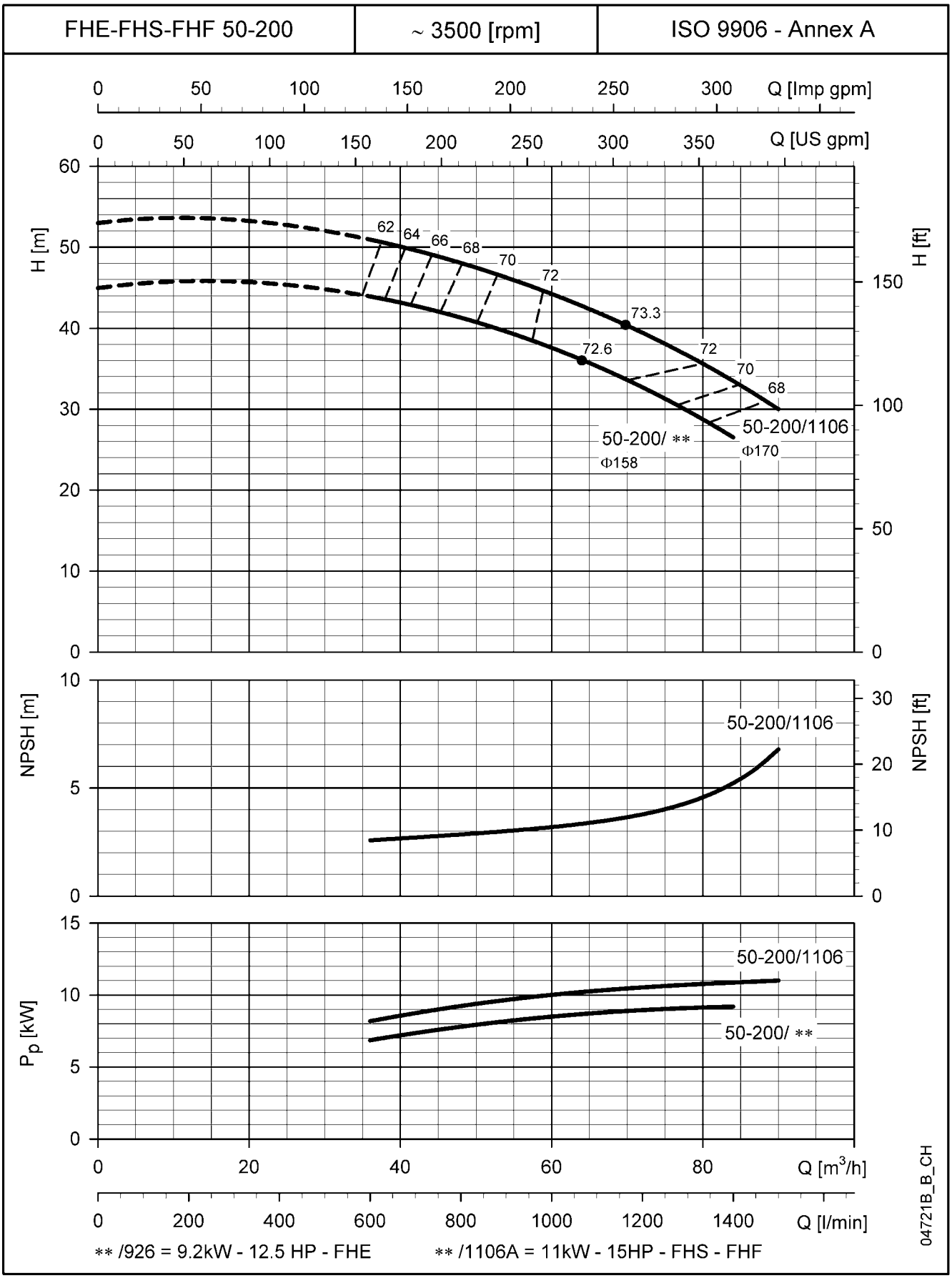
a xylem brand

FHE-FHS-FHF SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES



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These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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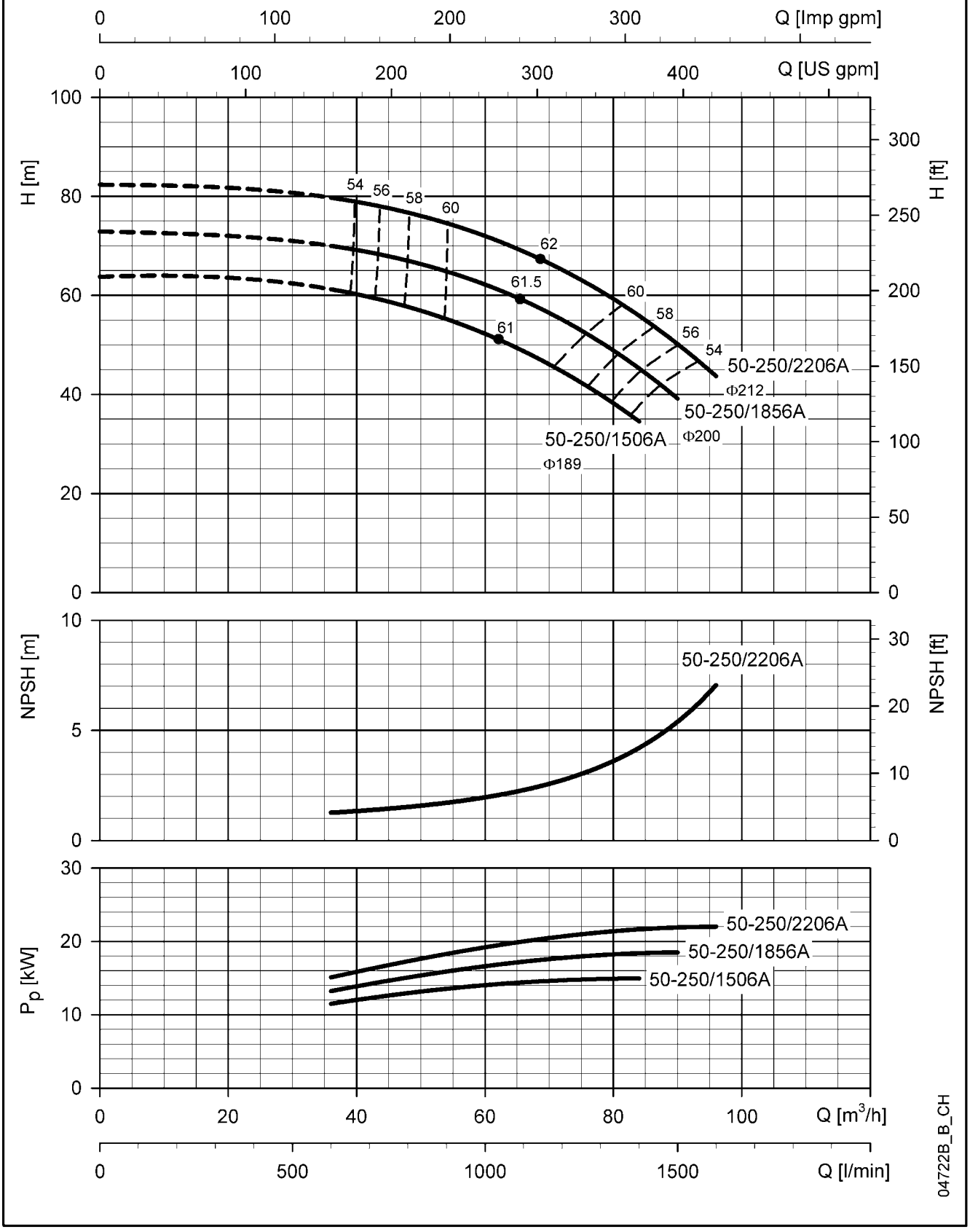
a xylem brand

FHE-FHS-FHF SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES

FHE-FHS-FHF 50-250	~ 3500 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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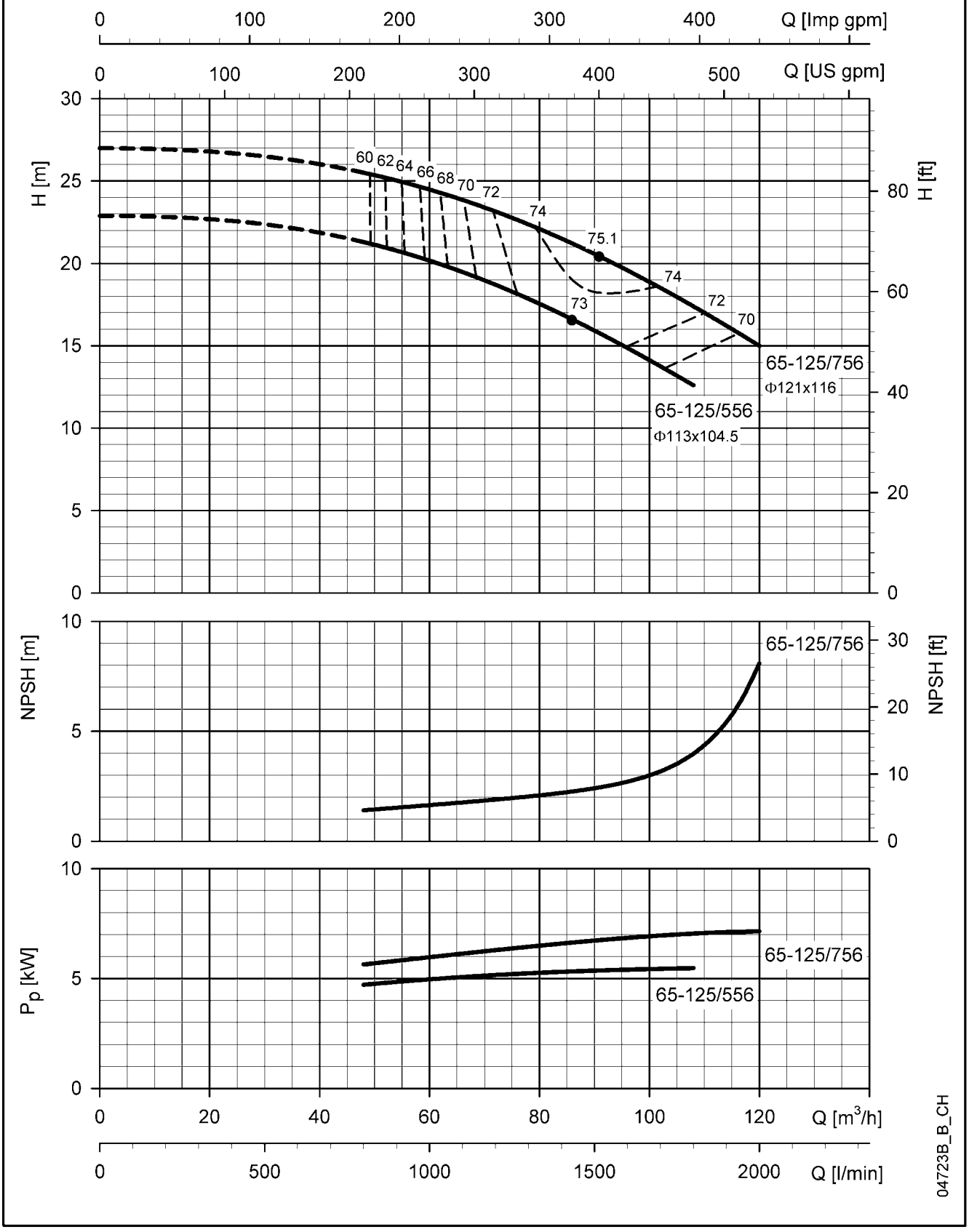
a xylem brand

FHE-FHS-FHF SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES

FHE-FHS-FHF 65-125	~ 3500 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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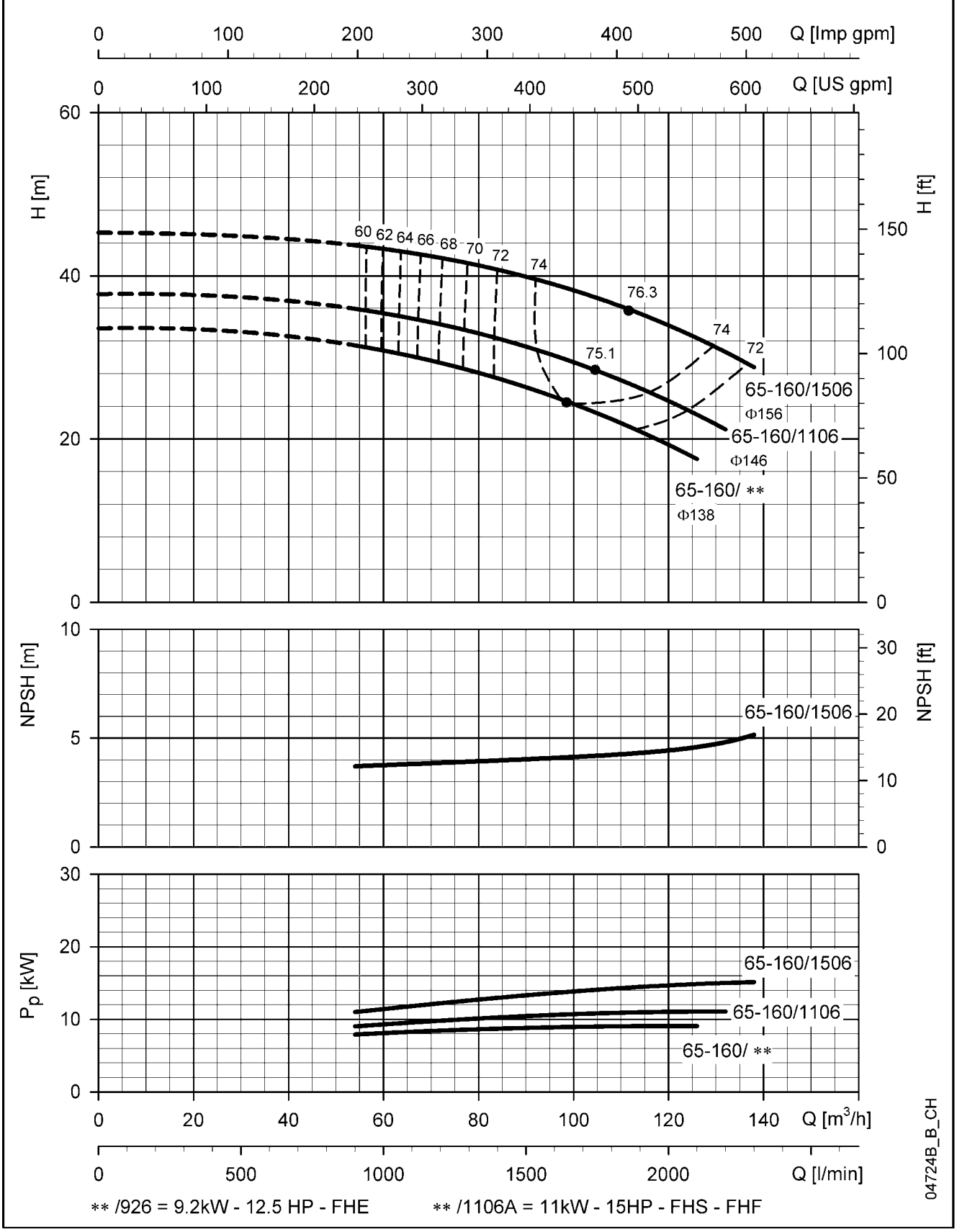
a xylem brand

FHE-FHS-FHF SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES

FHE-FHS-FHF 65-160	~ 3500 [rpm]	ISO 9906 - Annex A



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These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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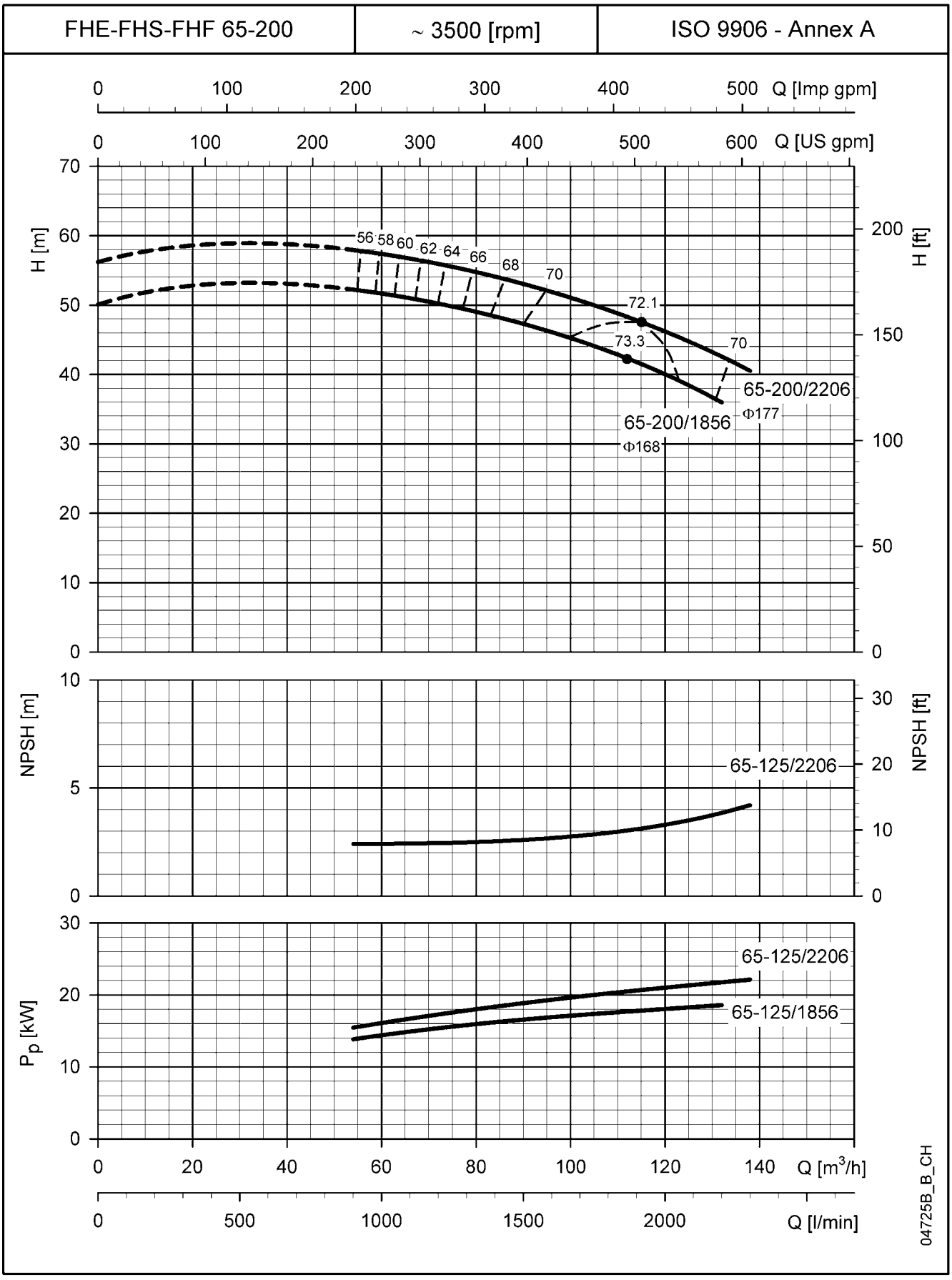
a xylem brand

FHE-FHS-FHF SERIES
OPERATING CHARACTERISTICS AT 60 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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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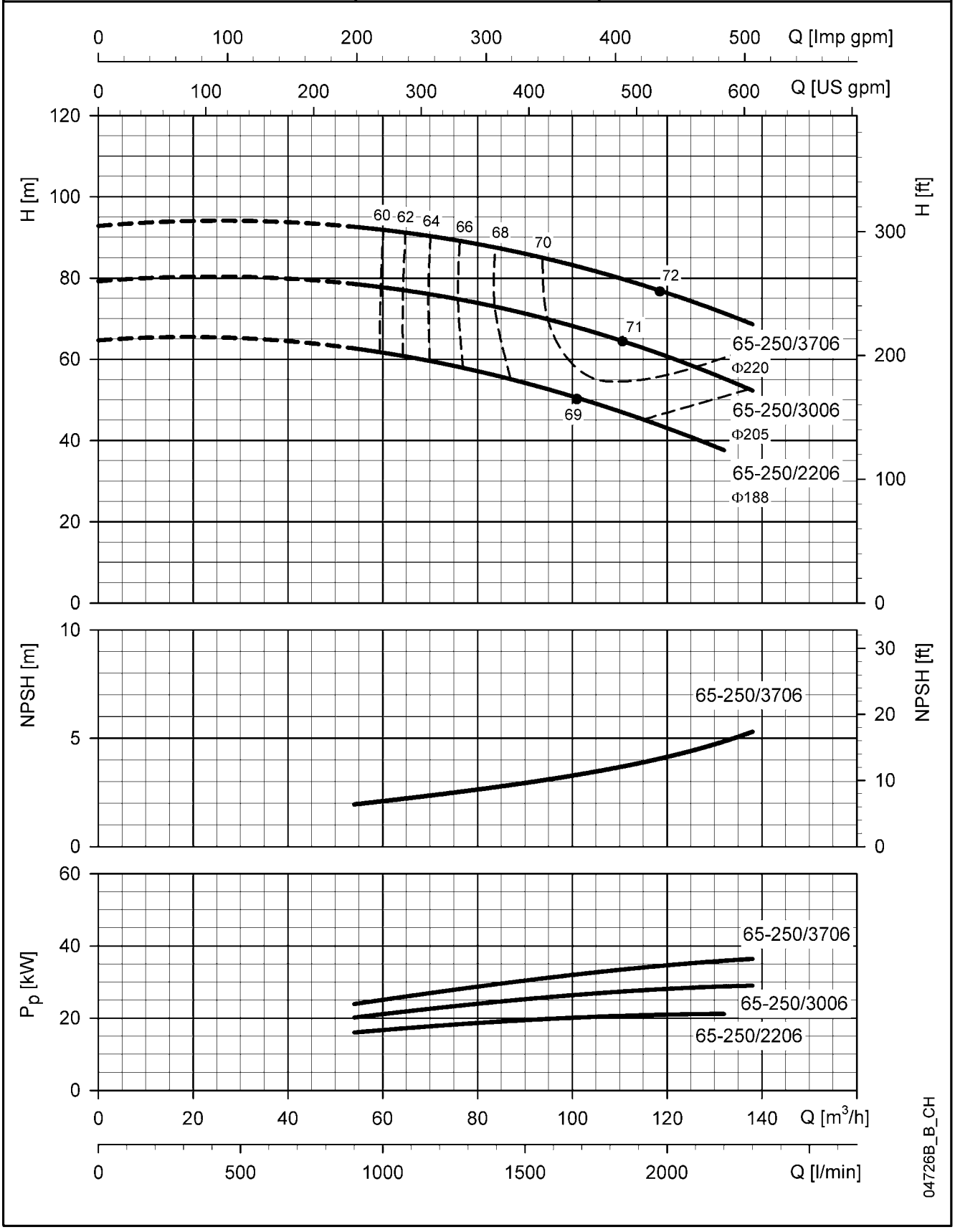
a xylem brand

FHE-FHS-FHF SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES

FHE-FHS-FHF 65-250	~ 3500 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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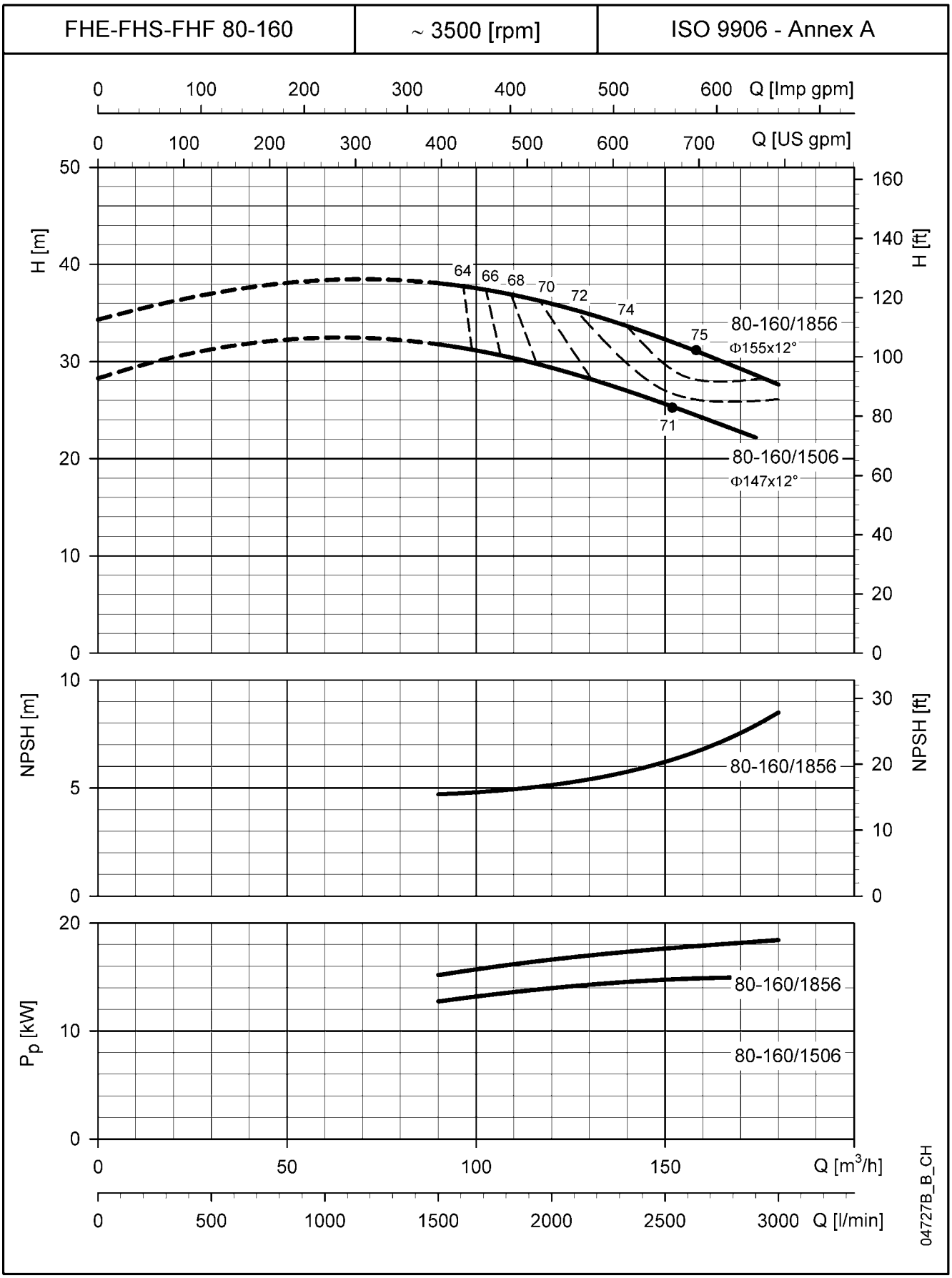
a xylem brand

FHE-FHS-FHF SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES

FHE-FHS-FHF 80-160	~ 3500 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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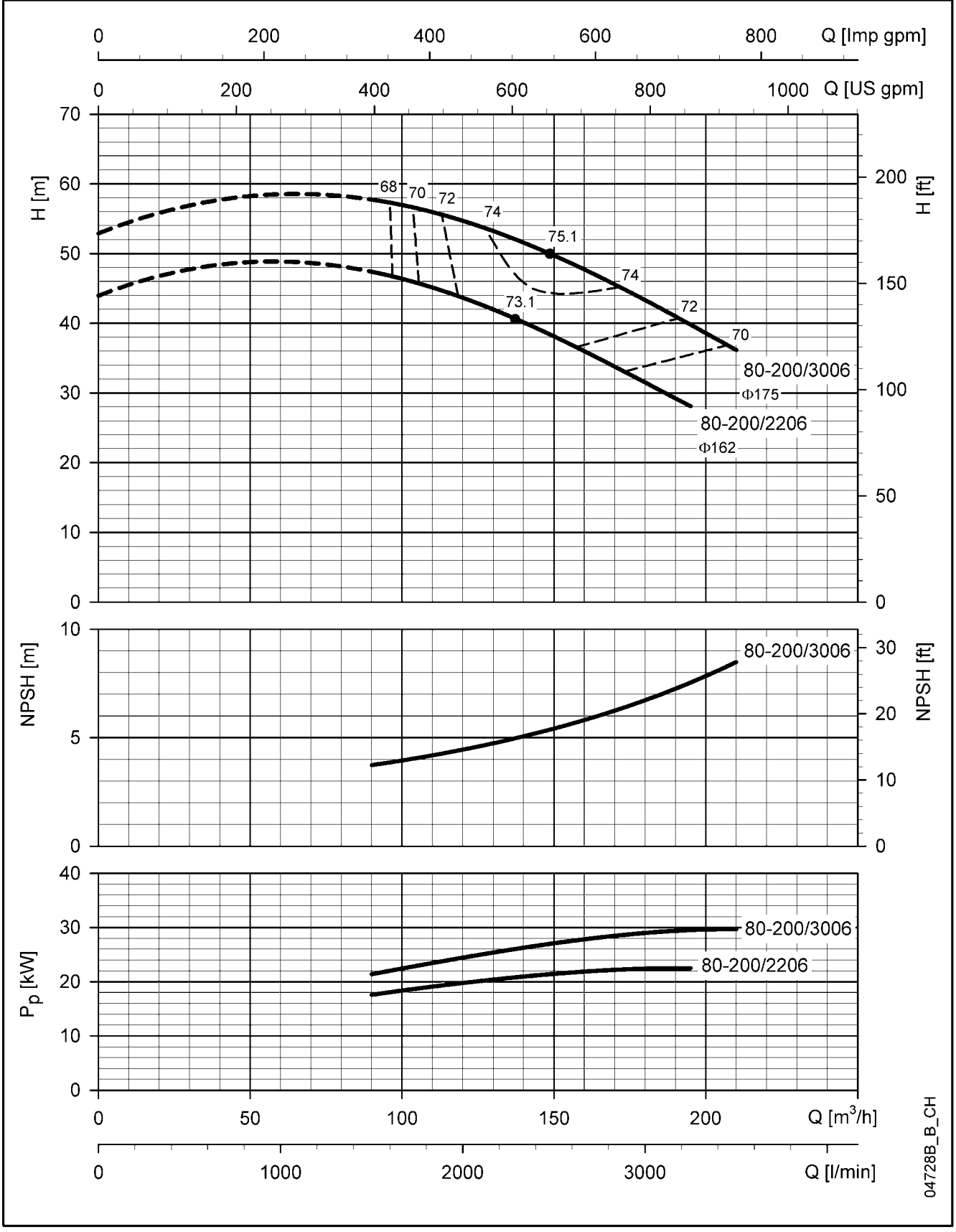
a xylem brand

FHE-FHS-FHF SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES

FHE-FHS-FHF 80-200	~ 3500 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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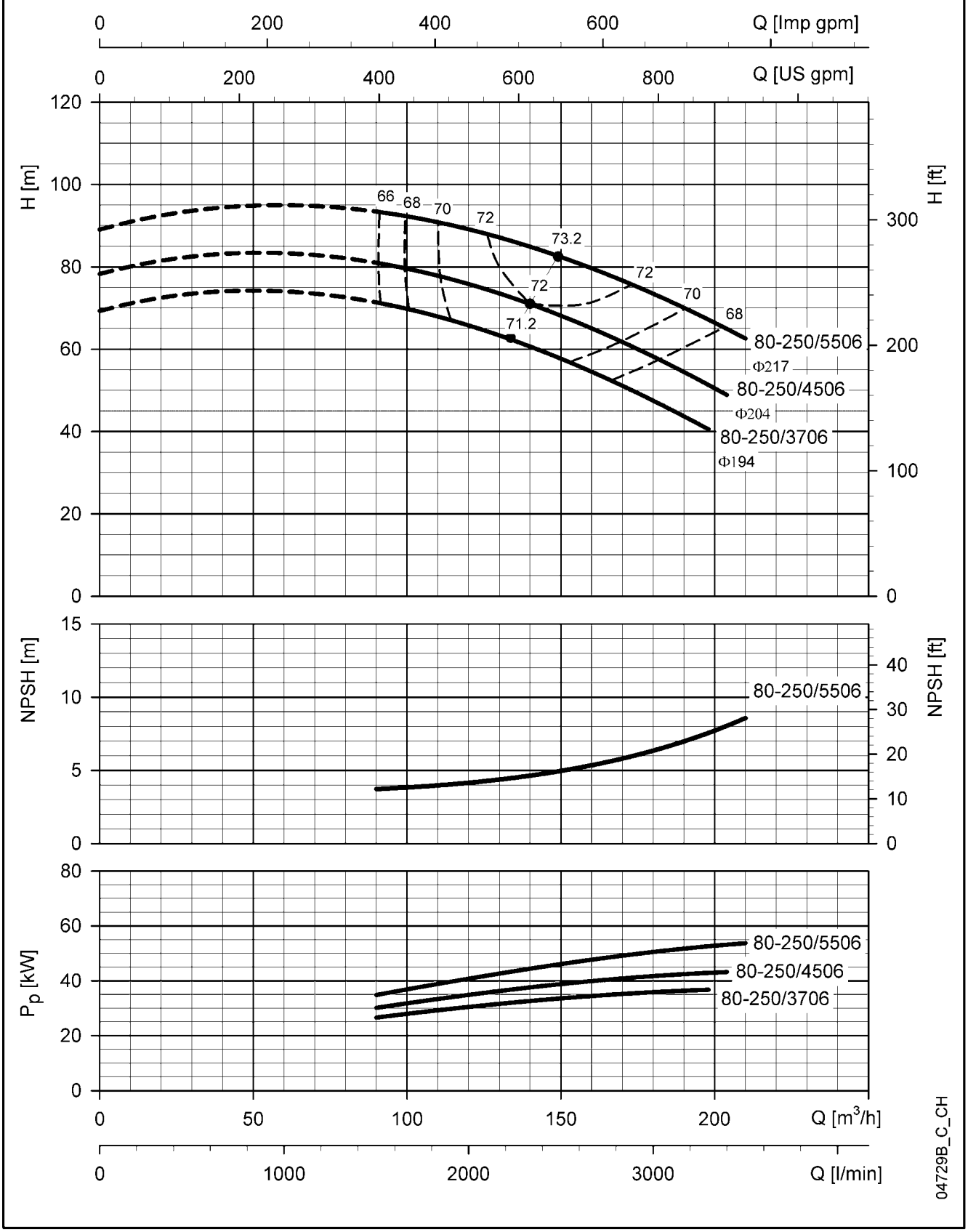
a xylem brand

FHS-FHF SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES

FHS-FHF 80-250	~ 3500 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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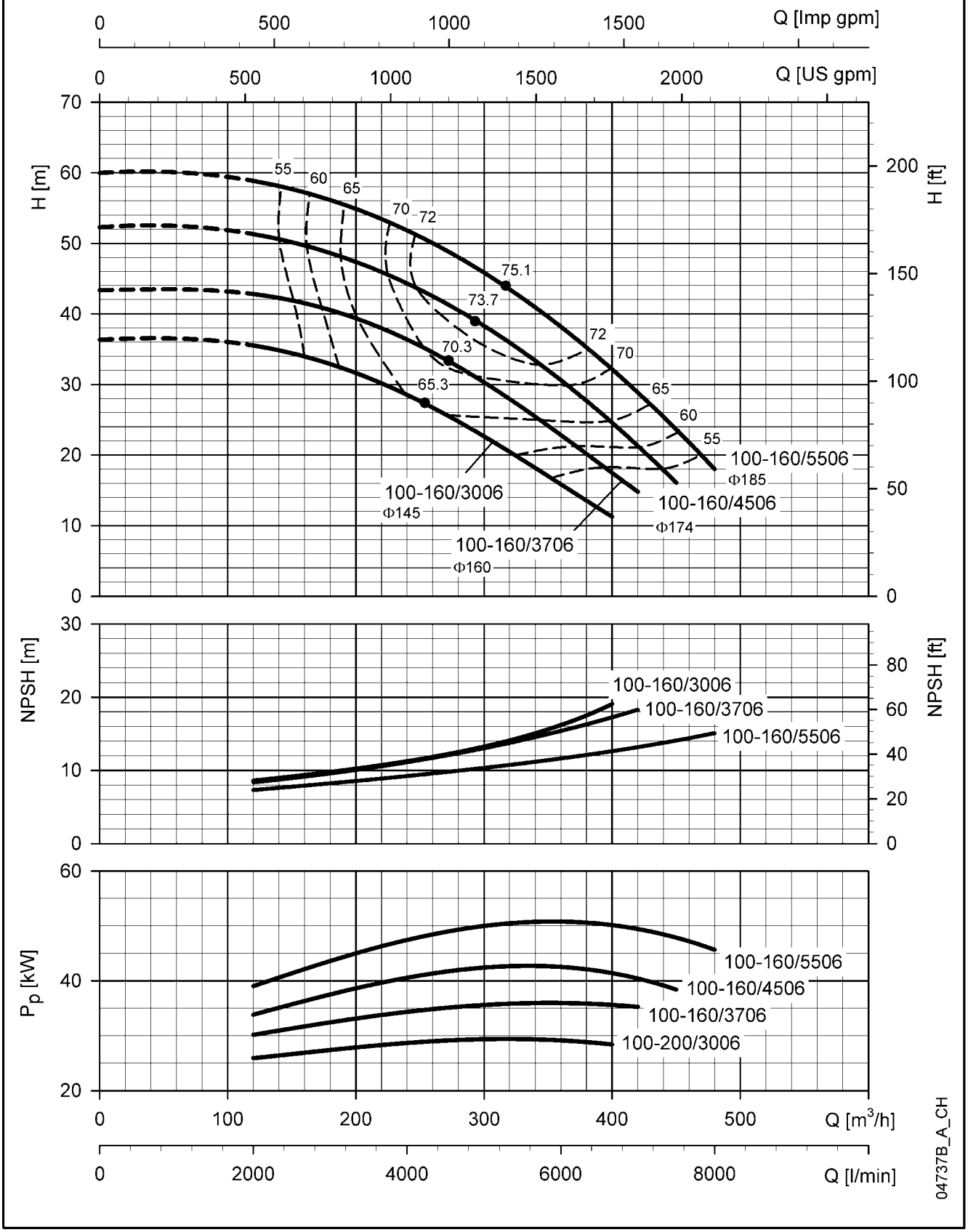
a xylem brand

FHS-FHF SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES

FHS-FHF 100-160	~ 3550 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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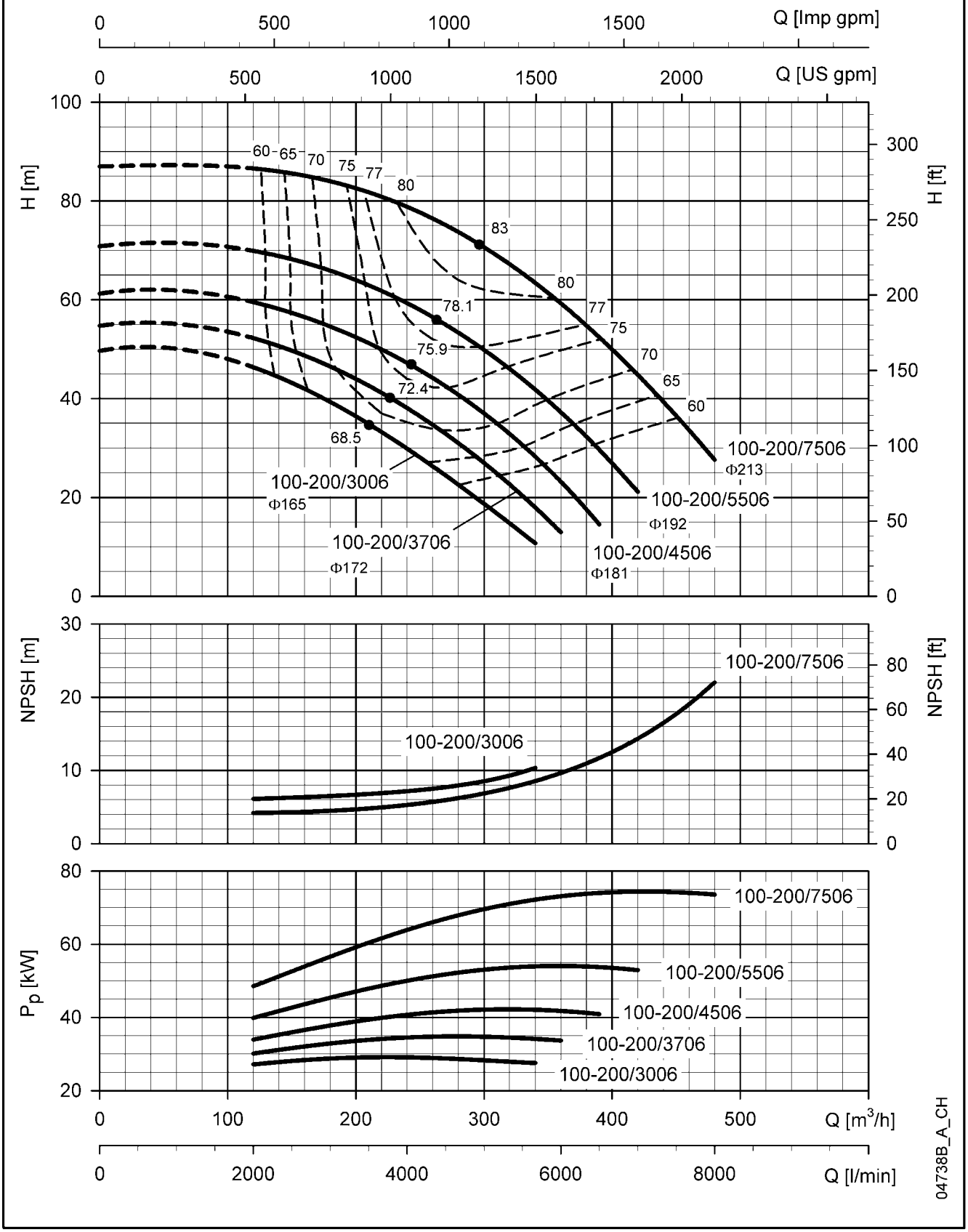
a xylem brand

FHS-FHF SERIES
OPERATING CHARCTERISTICS AT 60 Hz, 2 POLES

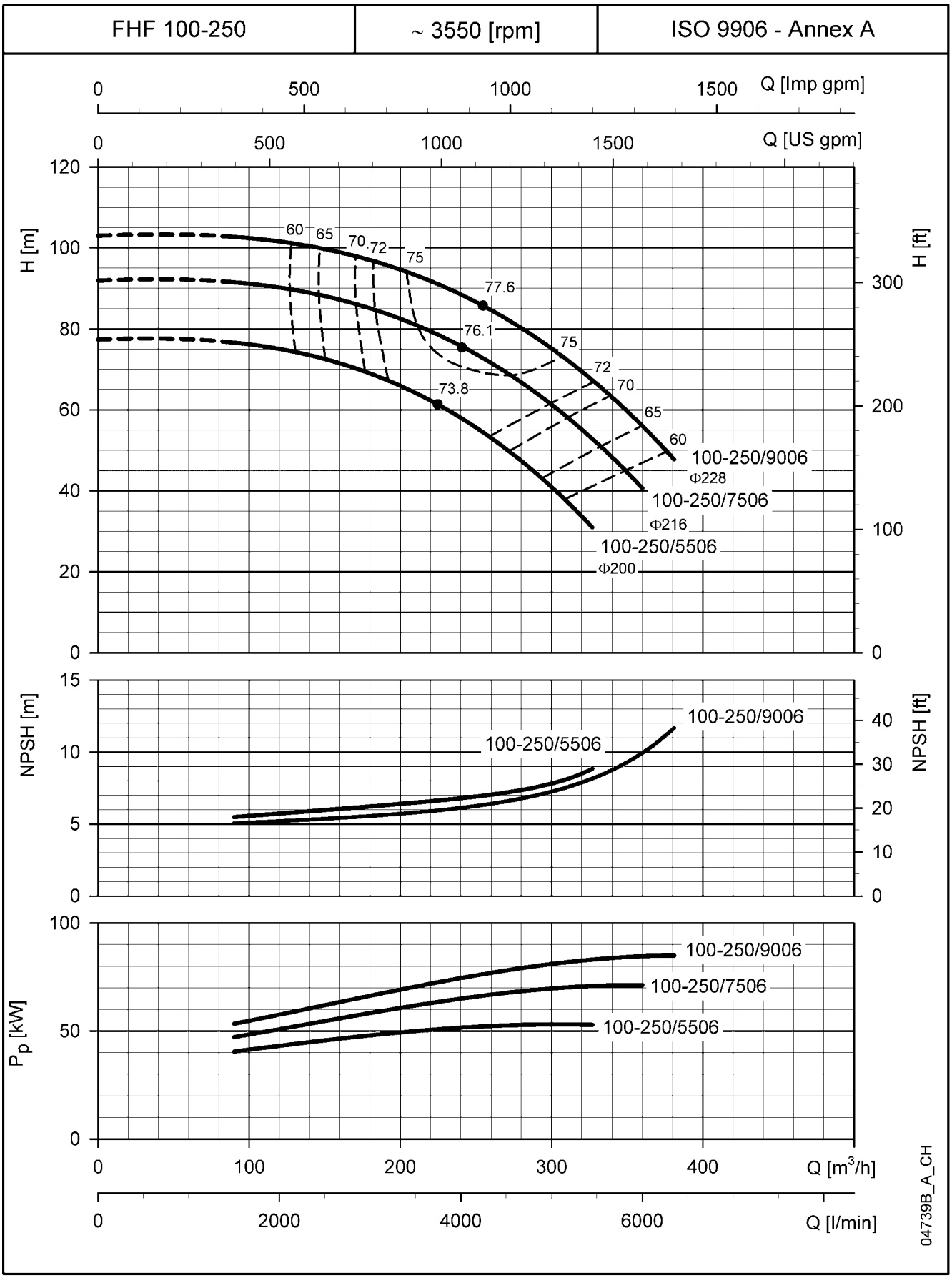
FHS-FHF 100-200	~ 3550 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

FHF SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES

FHF 100-250	~ 3550 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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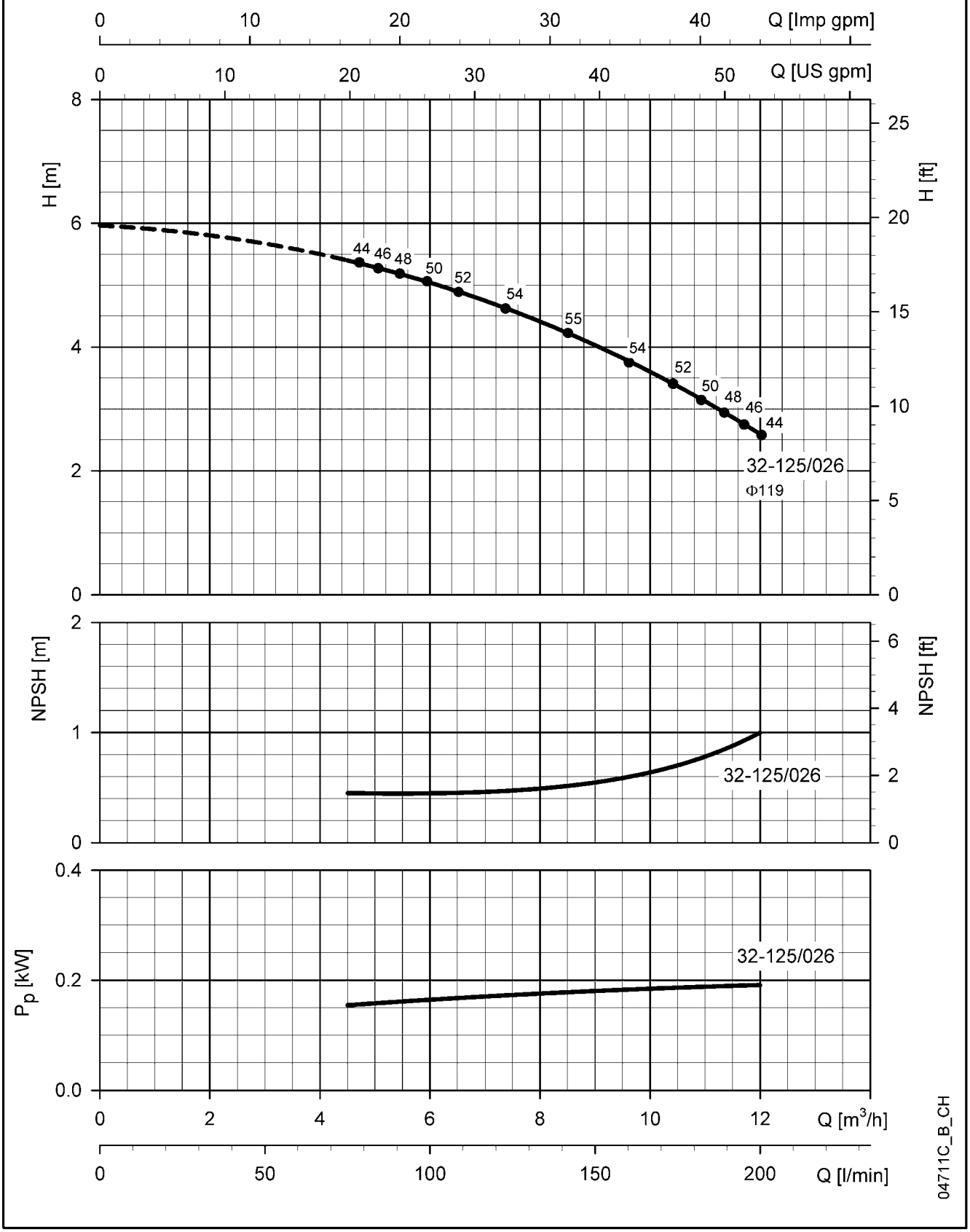
a xylem brand

FHE4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

FHE4-FHF4 32-125	~ 1750 [rpm]	ISO 9906 - Annex A



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These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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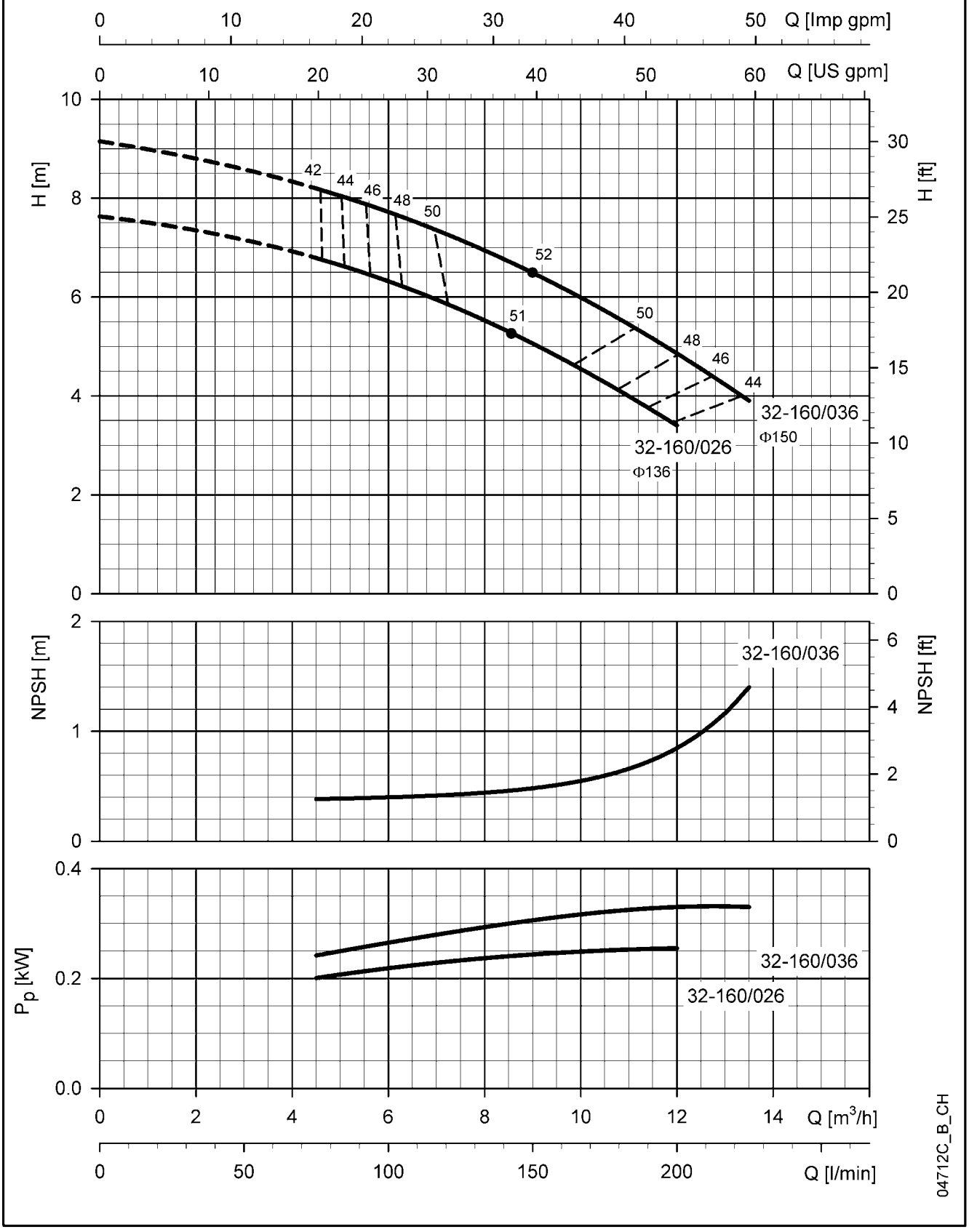
a xylem brand

FHE4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

FHE4-FHF4 32-160	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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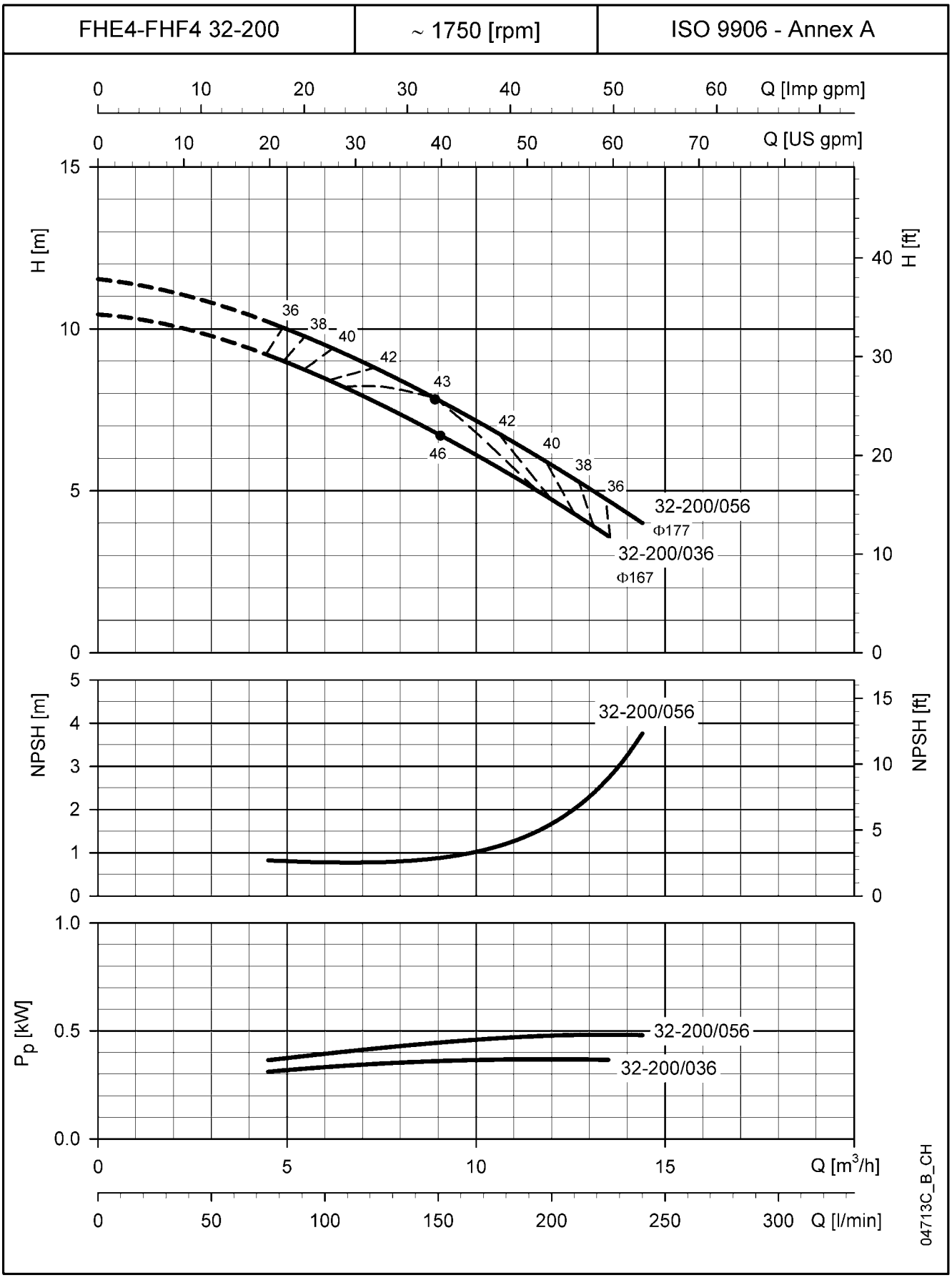
a xylem brand

FHE4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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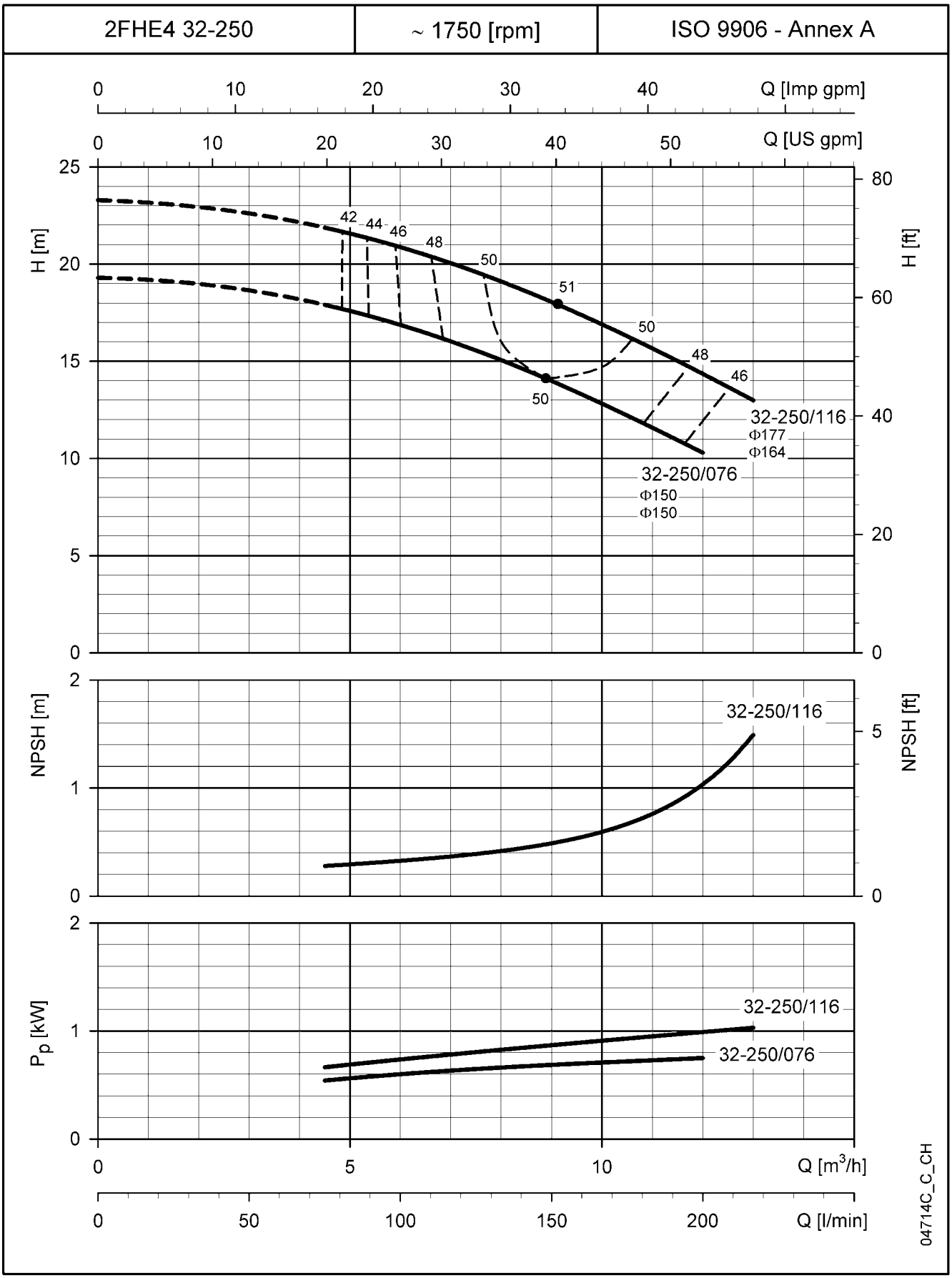
a xylem brand

2FHE4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

2FHE4 32-250	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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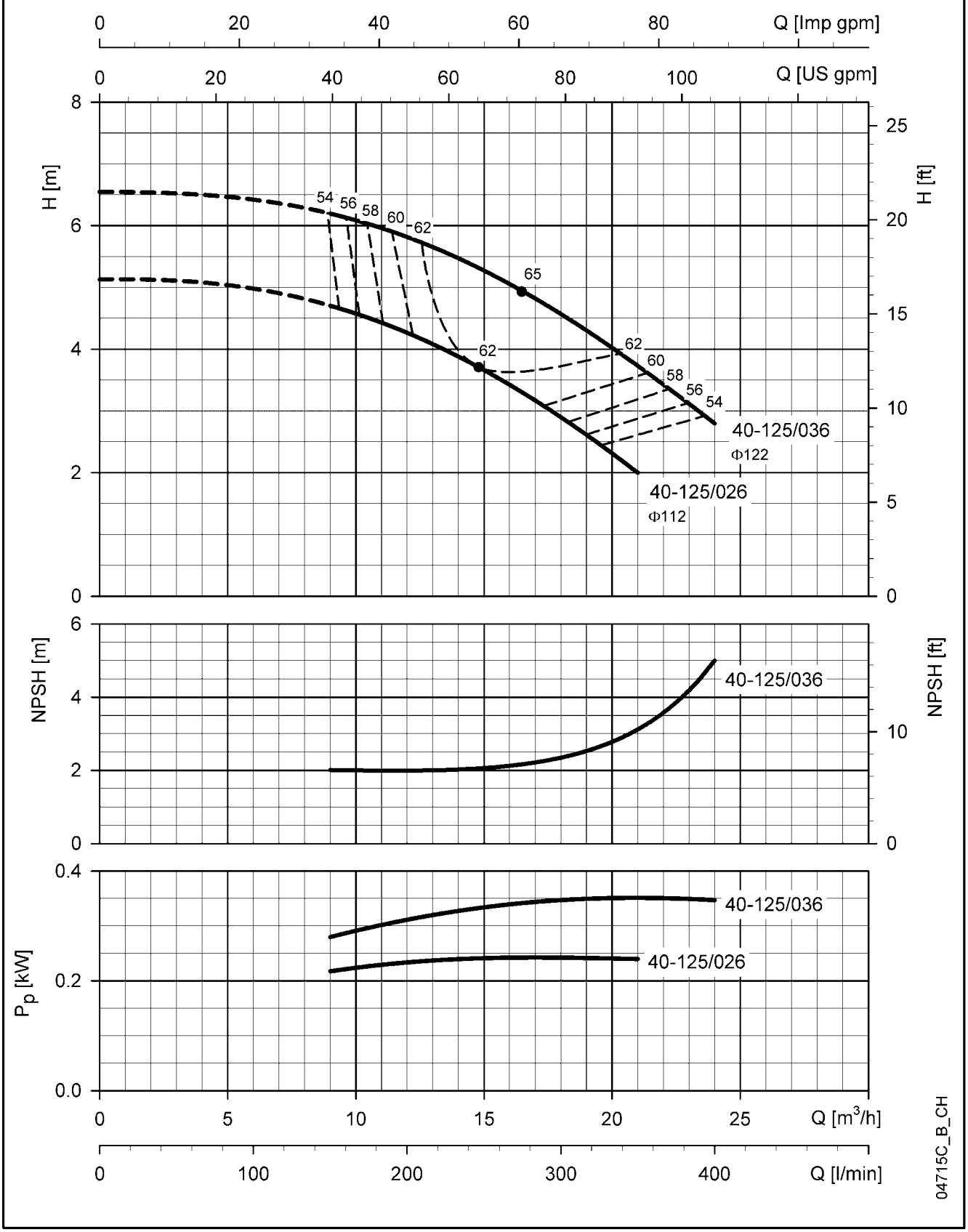
a xylem brand

FHE4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

FHE4-FHF4 40-125	~ 1750 [rpm]	ISO 9906 - Annex A



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These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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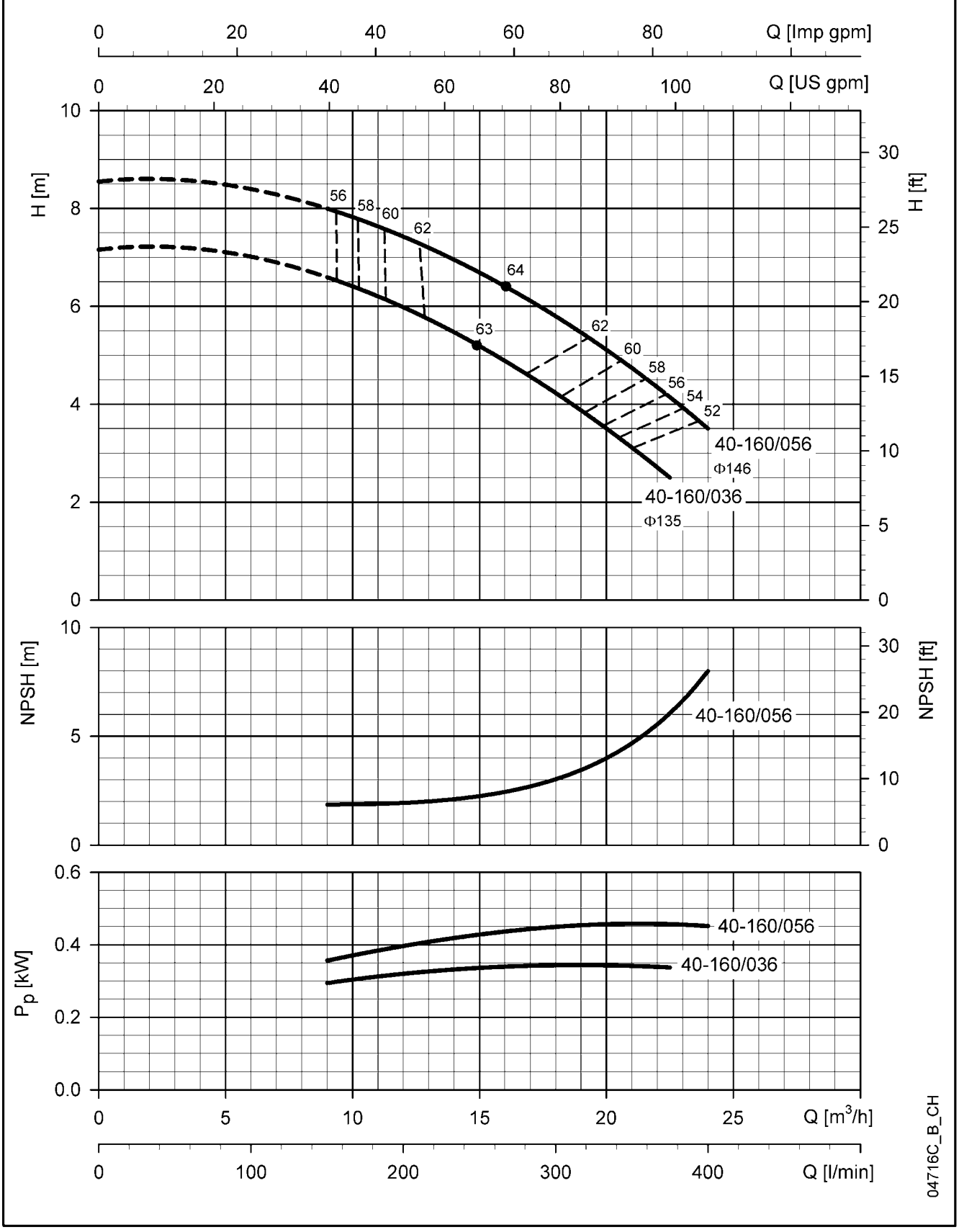
a xylem brand

FHE4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

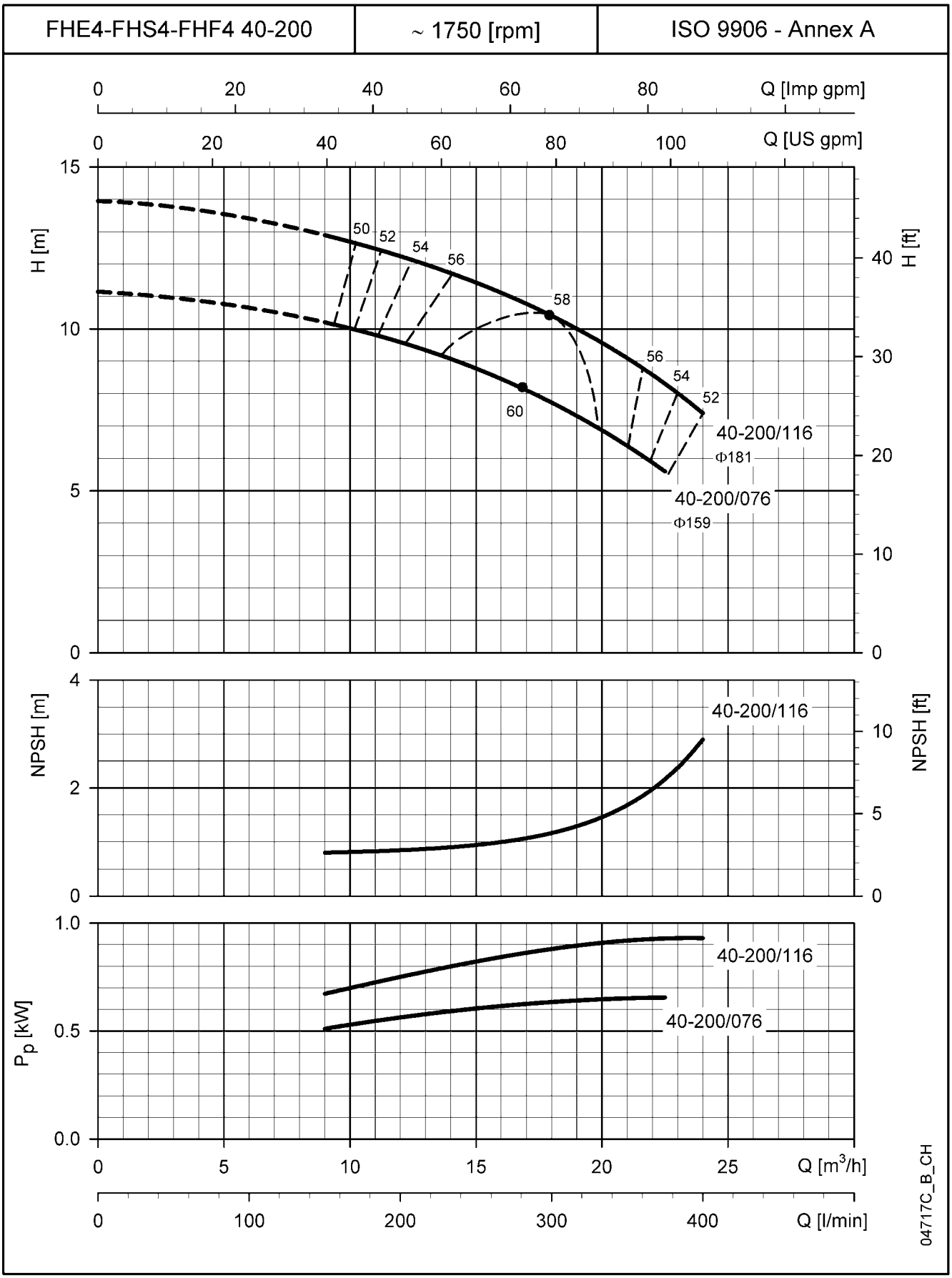
FHE4-FHF4 40-160	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm^3 and kinematic viscosity ν = 1 mm^2/sec.

FHE4-FHS4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

FHE4-FHS4-FHF4 40-200	~ 1750 [rpm]	ISO 9906 - Annex A



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These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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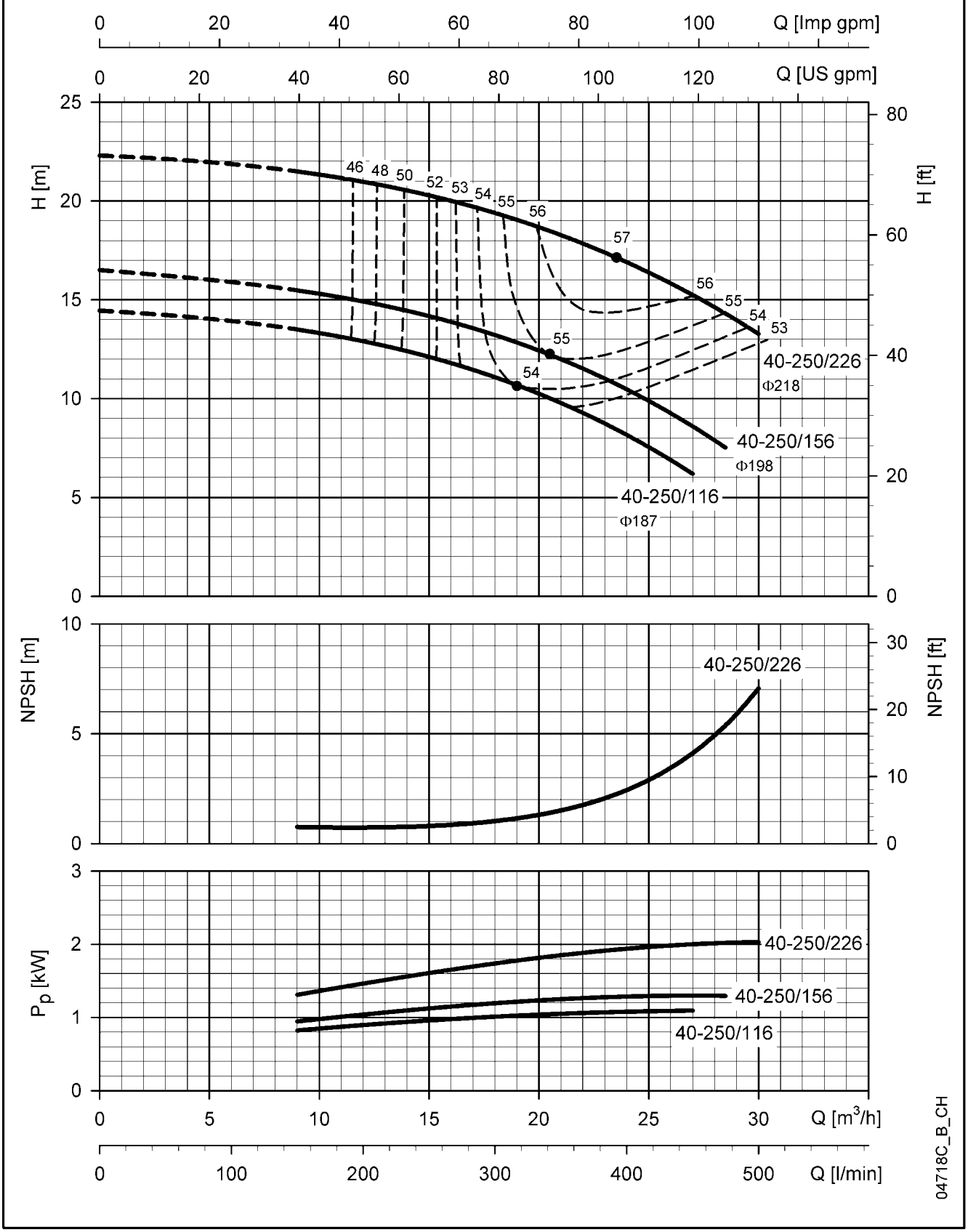
a xylem brand

FHE4-FHS4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

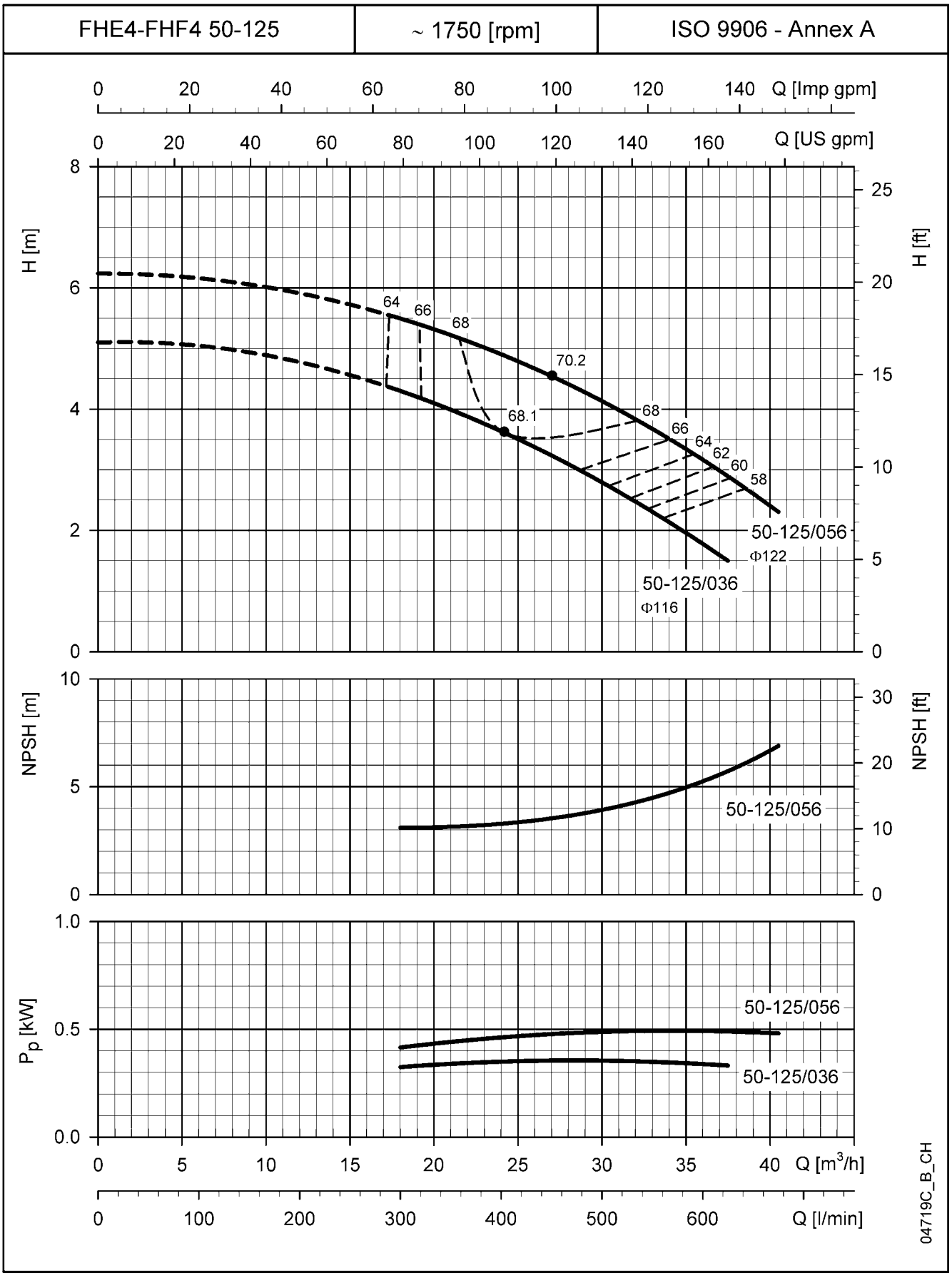
FHE4-FHS4-FHF4 40-250	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

LOWARA
a xylem brand

FHE4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 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 $\rho = 1.0$ Kg/dm^3 and kinematic viscosity $\nu = 1$ mm^2/sec.

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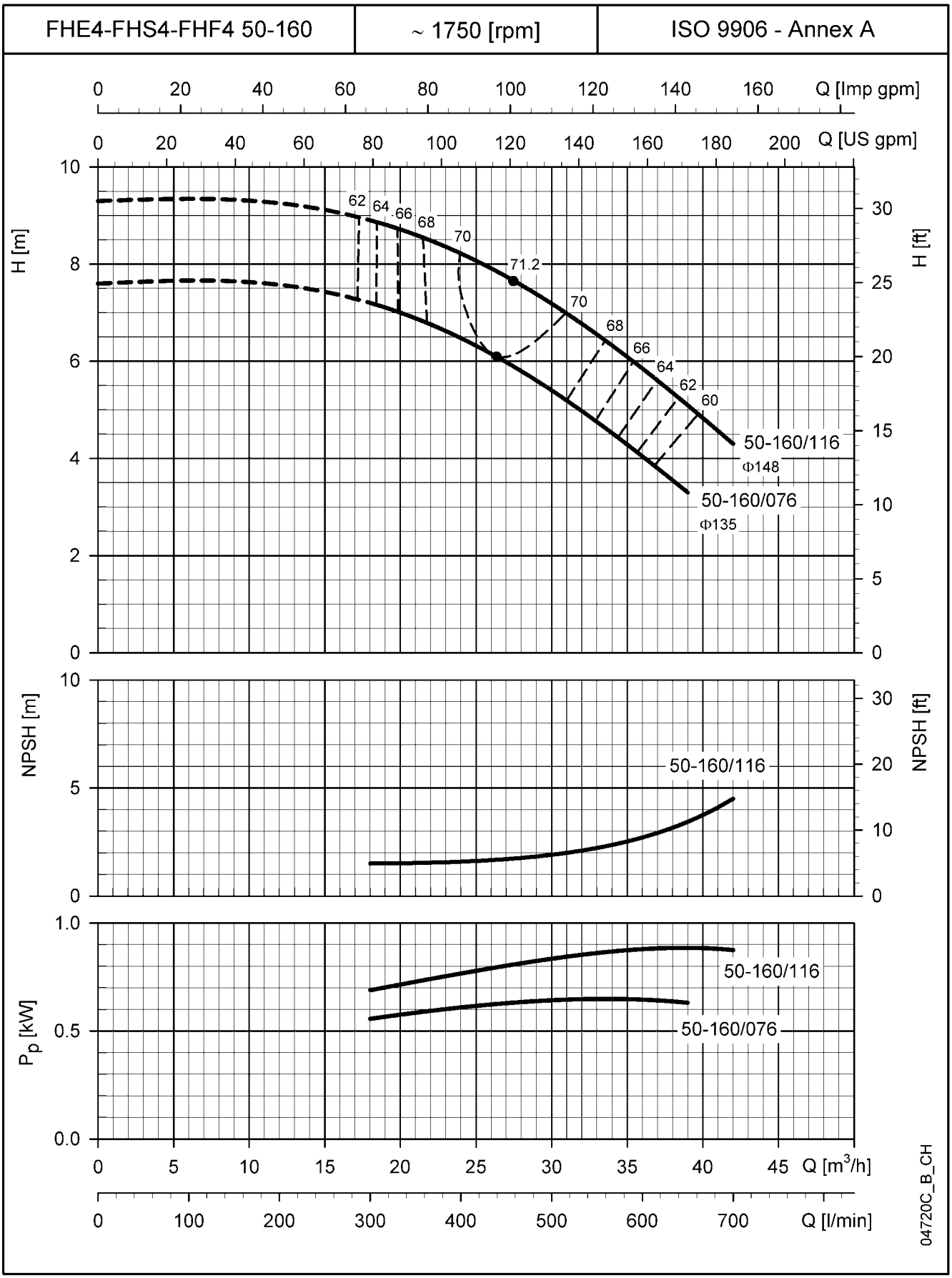
a xylem brand

FHE4-FHS4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

FHE4-FHS4-FHF4 50-160	~ 1750 [rpm]	ISO 9906 - Annex A



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These performances are valid for liquids with density ρ = 1.0 Kg/dm^3 and kinematic viscosity ν = 1 mm^2/sec.

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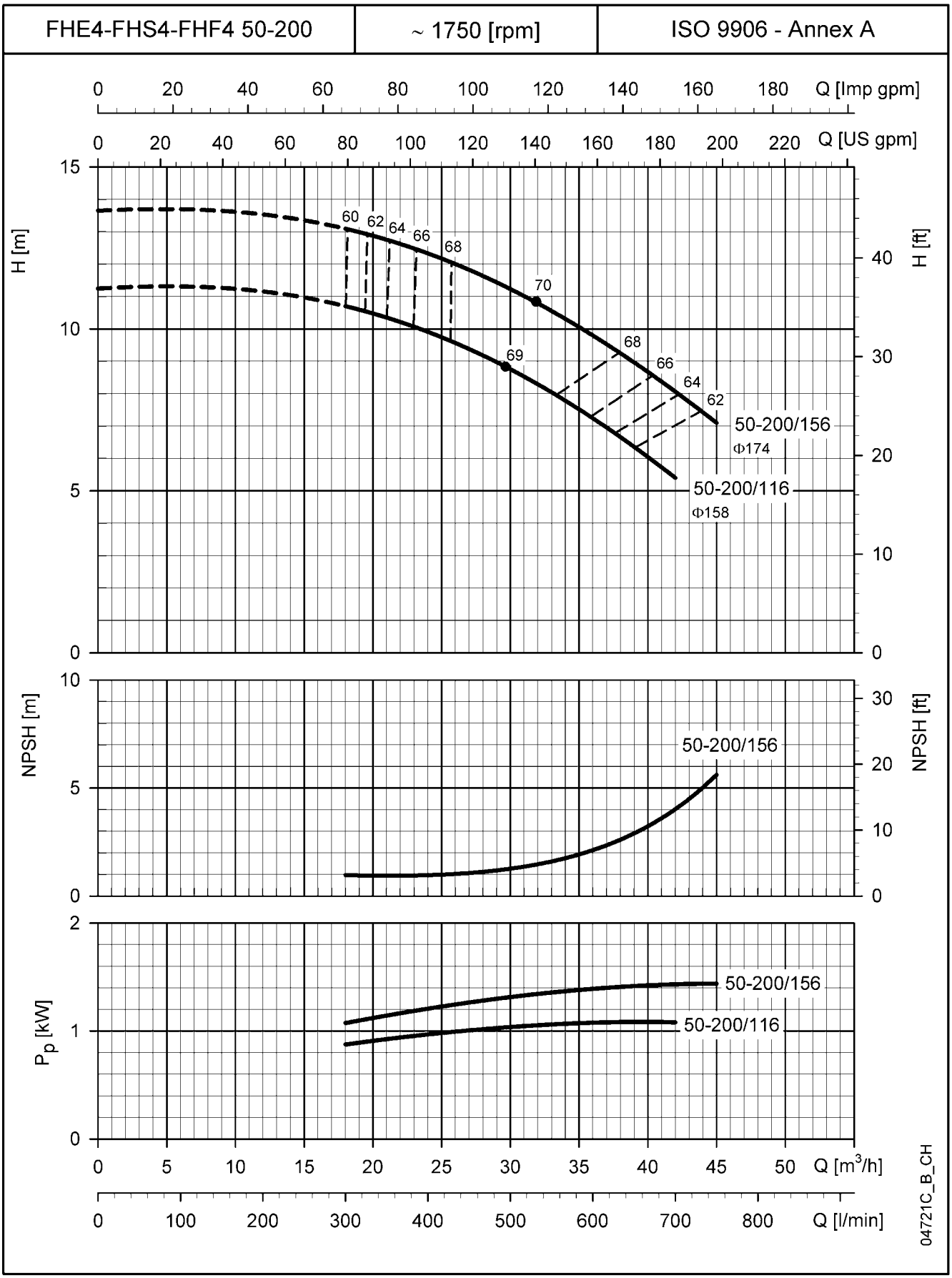
a xylem brand

FHE4-FHS4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

FHE4-FHS4-FHF4 50-200	~ 1750 [rpm]	ISO 9906 - Annex A



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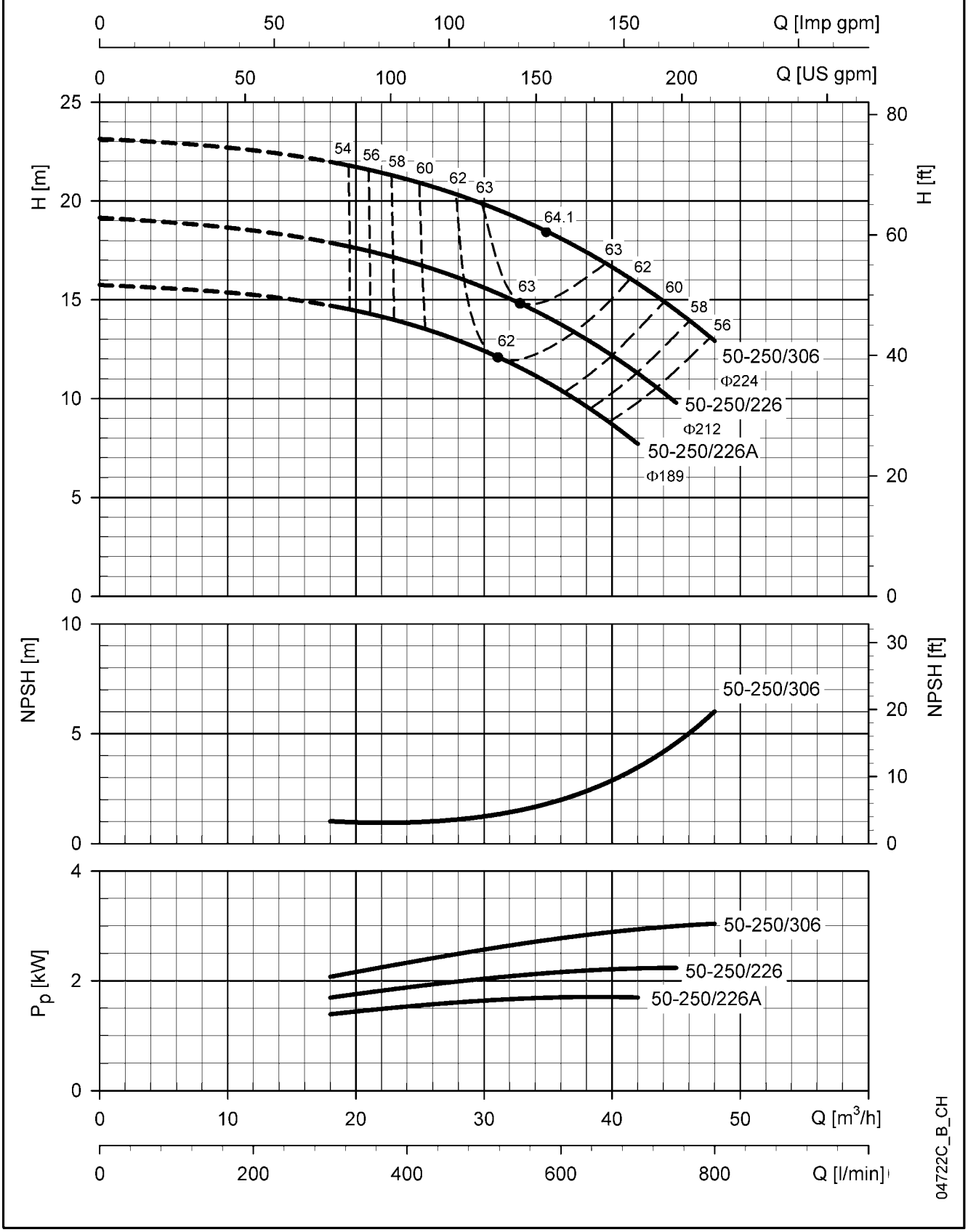
These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

LOWARA
a xylem brand

FHE4-FHS4-FHF4 SERIES
OPERATING CHARCTERISTICS AT 60 Hz, 4 POLES

FHE4-FHS4-FHF4 50-250	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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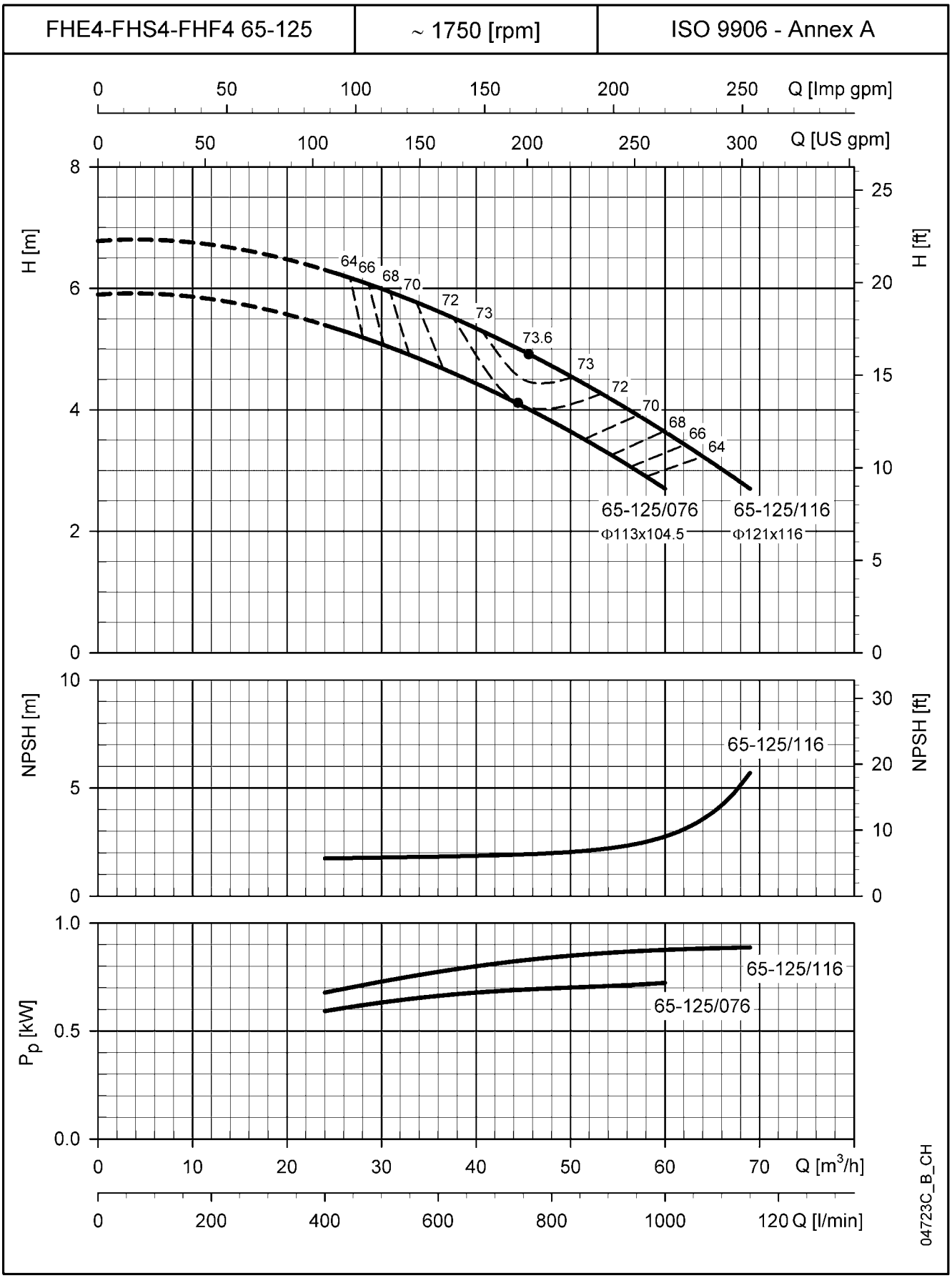
a xylem brand

FHE4-FHS4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

FHE4-FHS4-FHF4 65-125	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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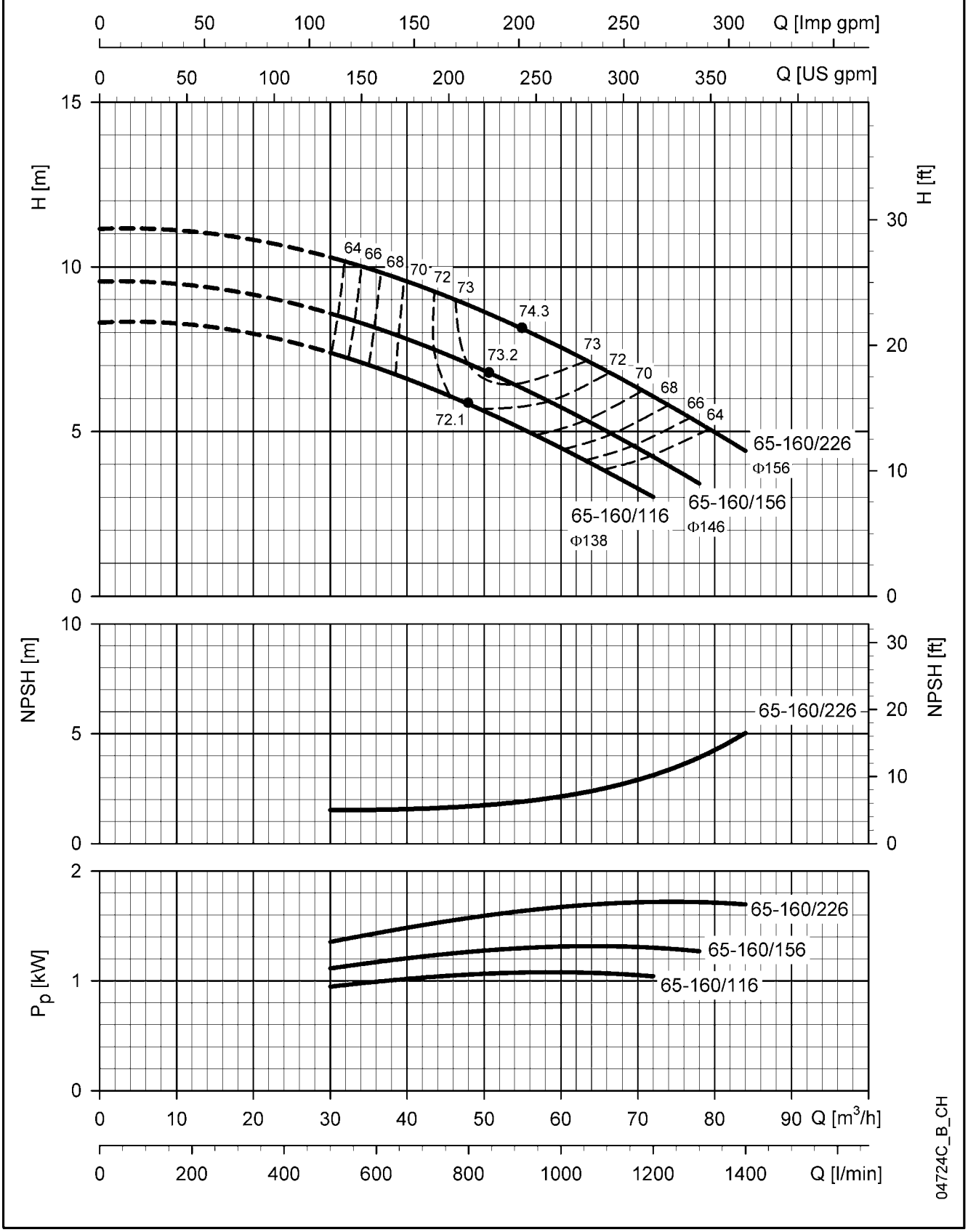
a xylem brand

FHE4-FHS4-FHF4 SERIES
OPERATING CHRACTERISTICS AT 60 Hz, 4 POLES

FHE4-FHS4-FHF4 65-160	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm^3 and kinematic viscosity ν = 1 mm^2/sec.

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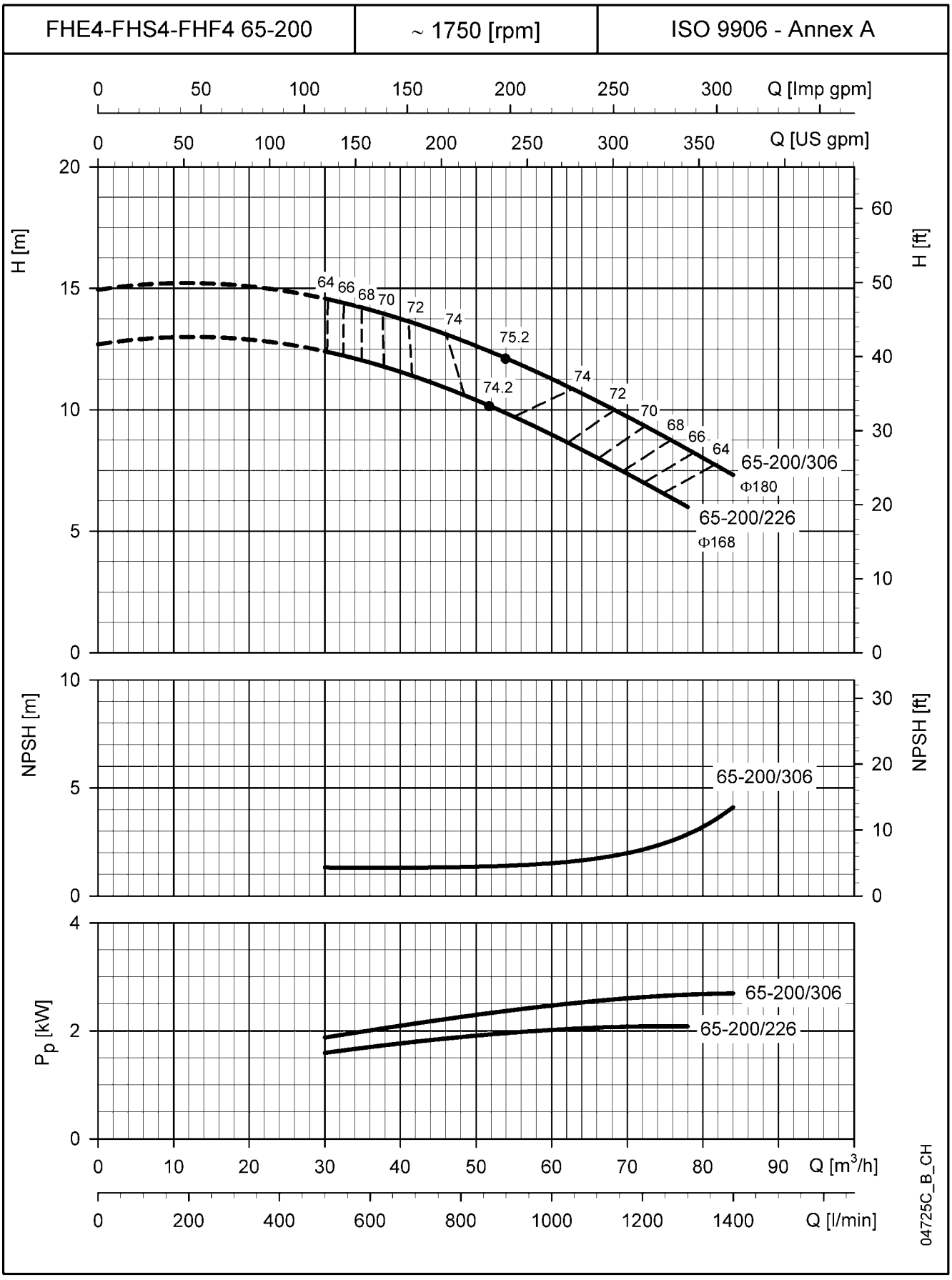
a xylem brand

FHE4-FHS4-FHF4 SERIES
OPERATING CHARCTERISTICS AT 60 Hz, 4 POLES

FHE4-FHS4-FHF4 65-200	~ 1750 [rpm]	ISO 9906 - Annex A



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These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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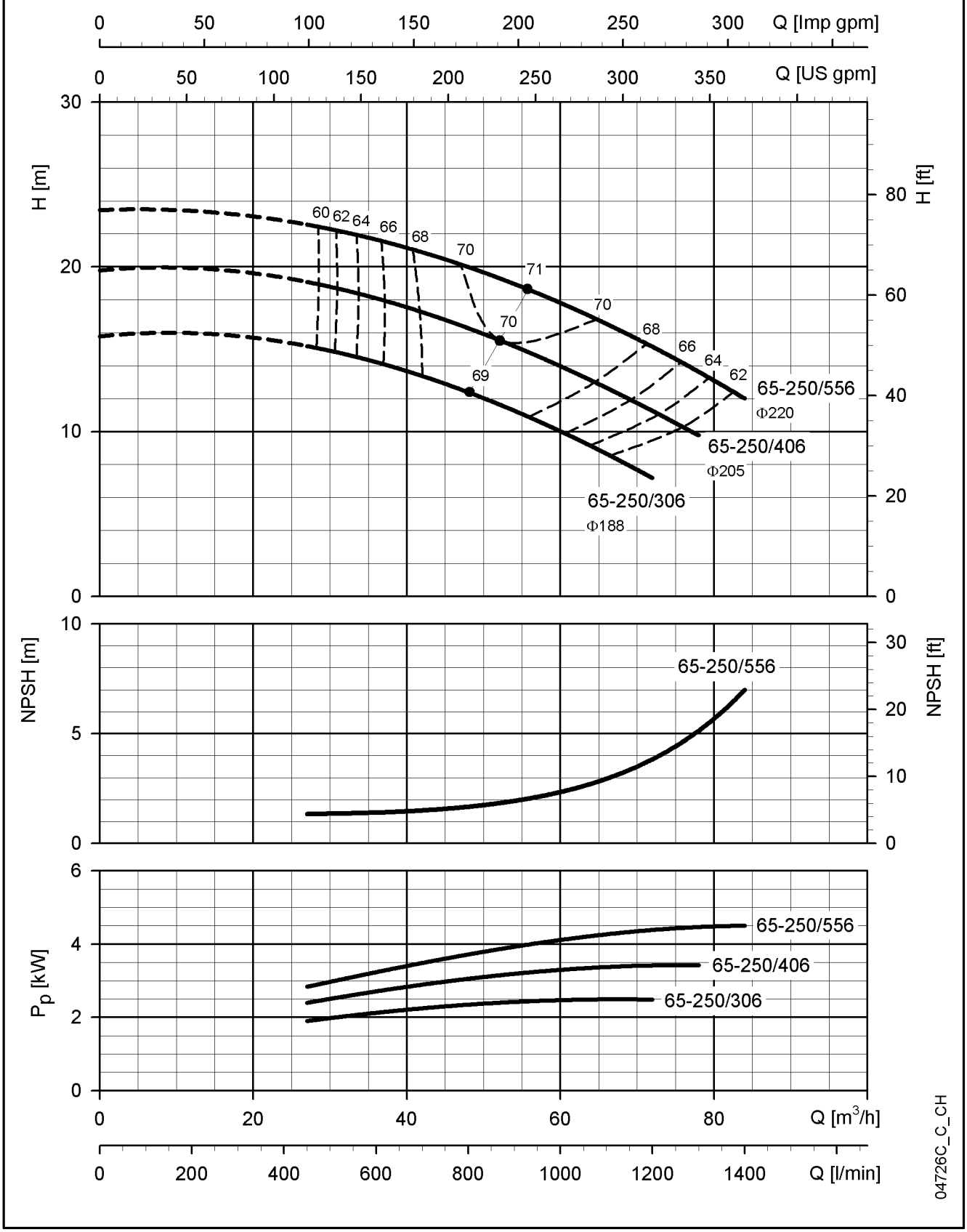
a xylem brand

FHE4-FHS4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

FHE4-FHS4-FHF4 65-250	~ 1750 [rpm]	ISO 9906 - Annex A



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These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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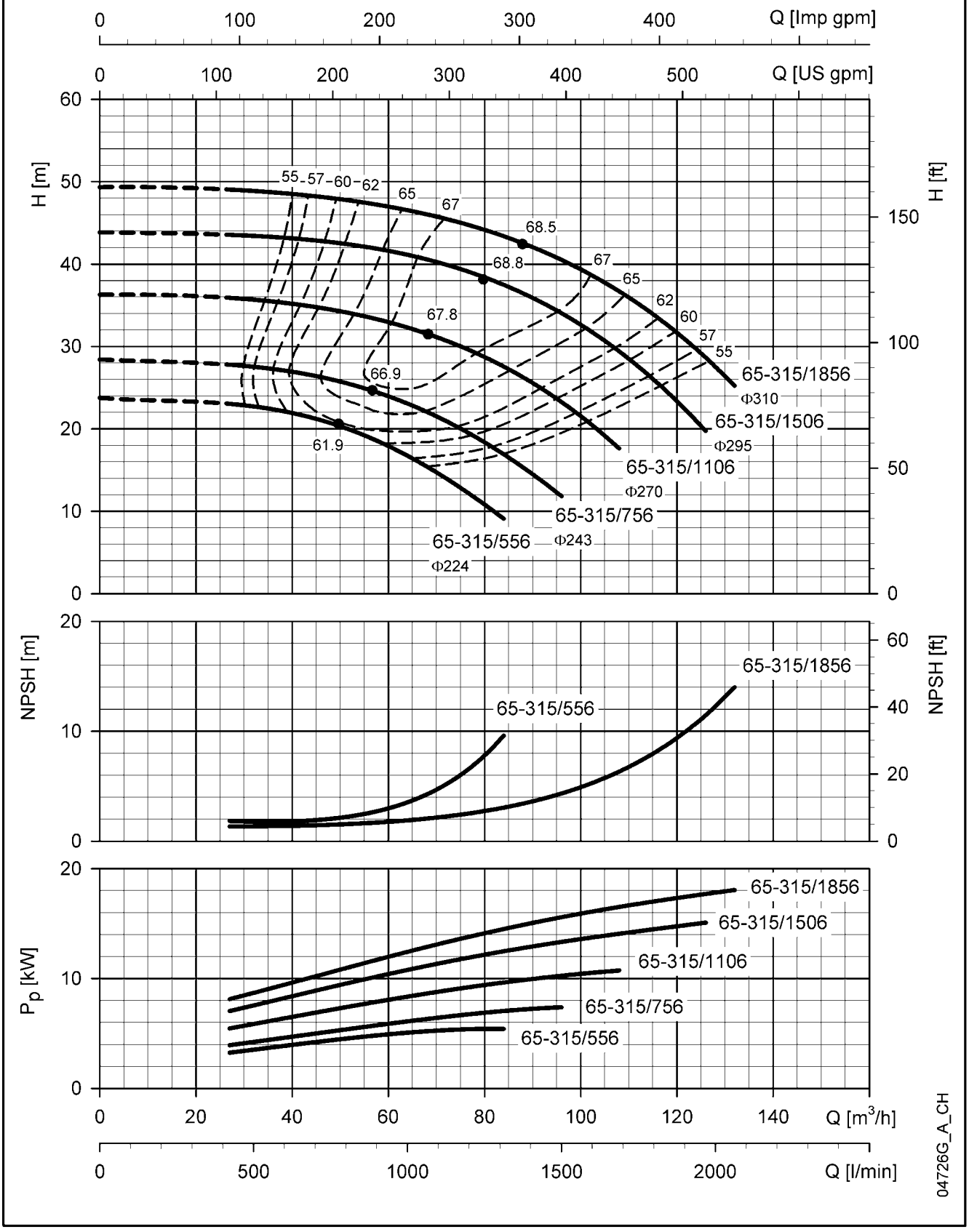
a xylem brand

FHS4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

FHS4-FHF4 65-315	~ 1750 [rpm]	ISO 9906 - Annex A

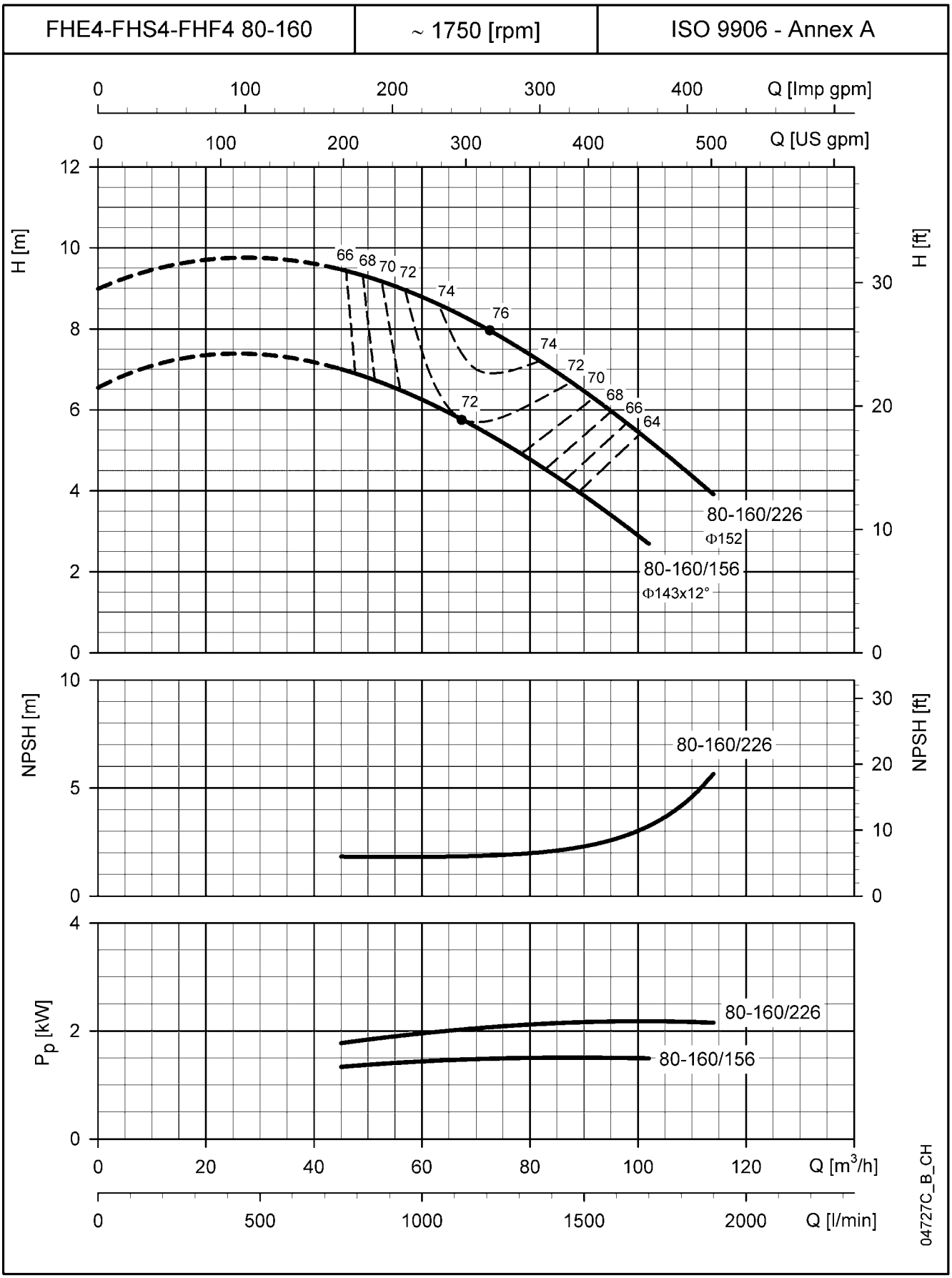


The NPSH values are laboratory values: for practical use we suggest increasing these values by 0,5 m.
These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

LOWARA
a xylem brand

FHE4-FHS4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

FHE4-FHS4-FHF4 80-160	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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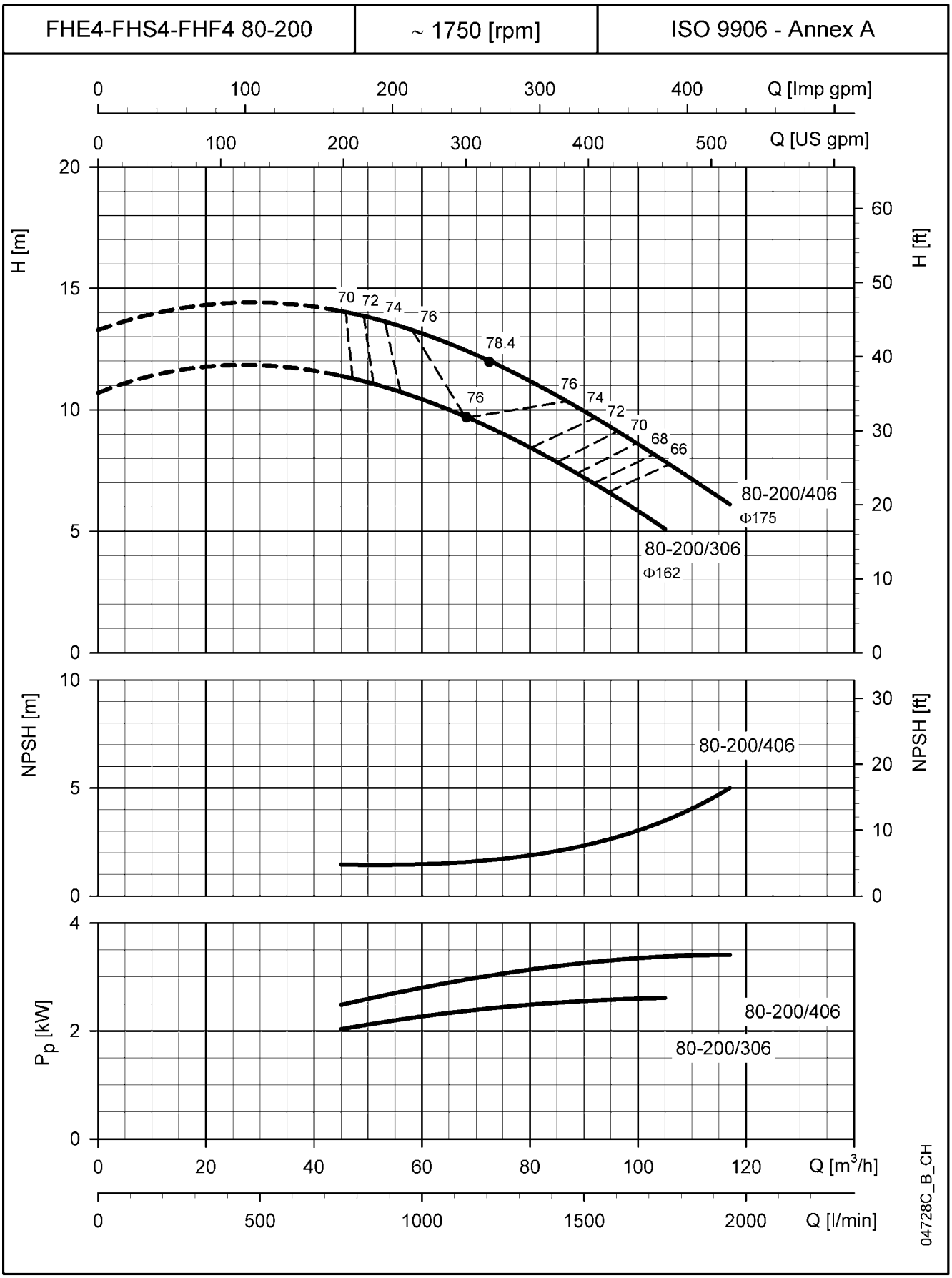
FHE4-FHS4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

FHE4-FHS4-FHF4 80-200	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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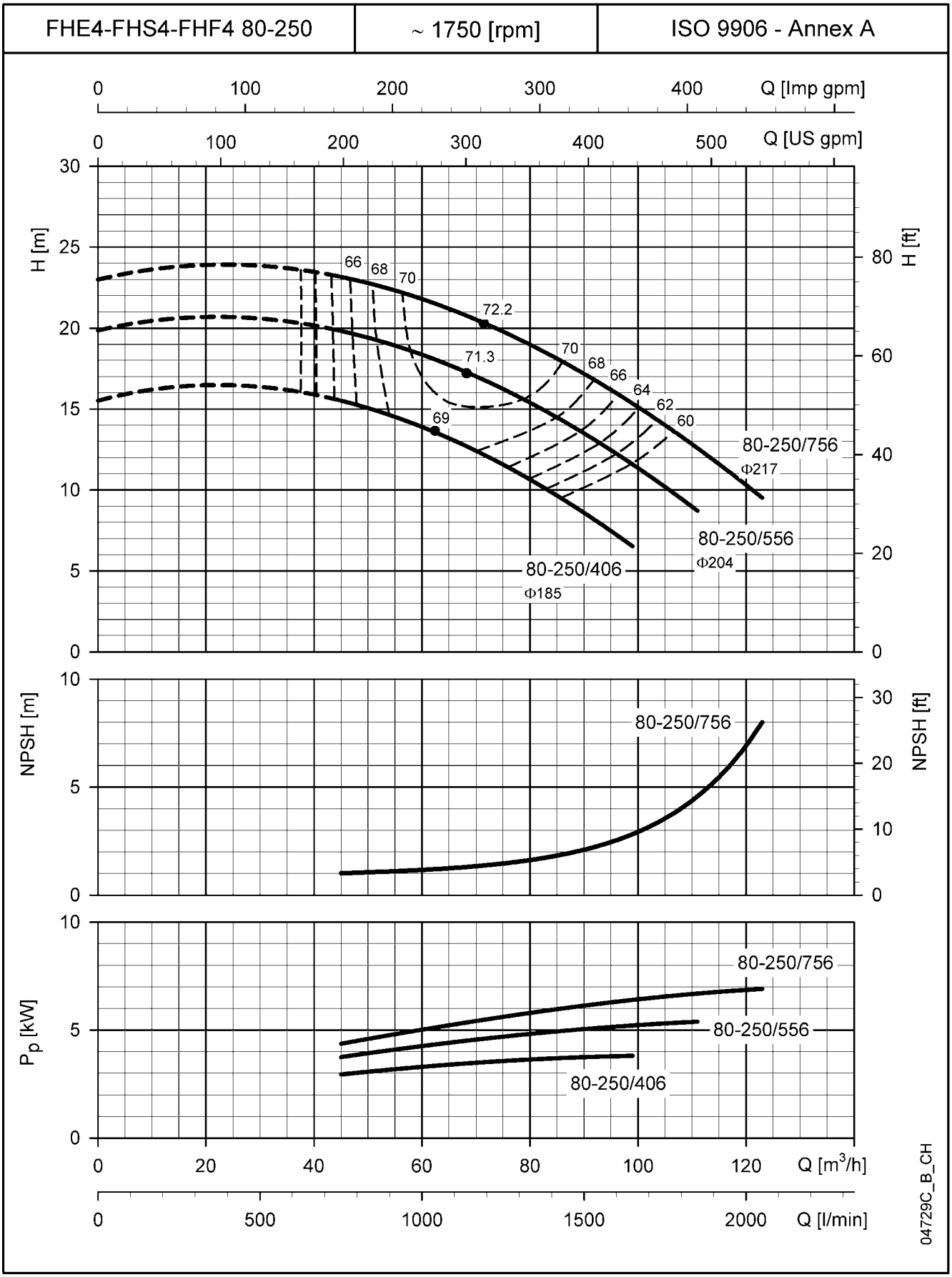
FHE4-FHS4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

FHE4-FHS4-FHF4 80-250	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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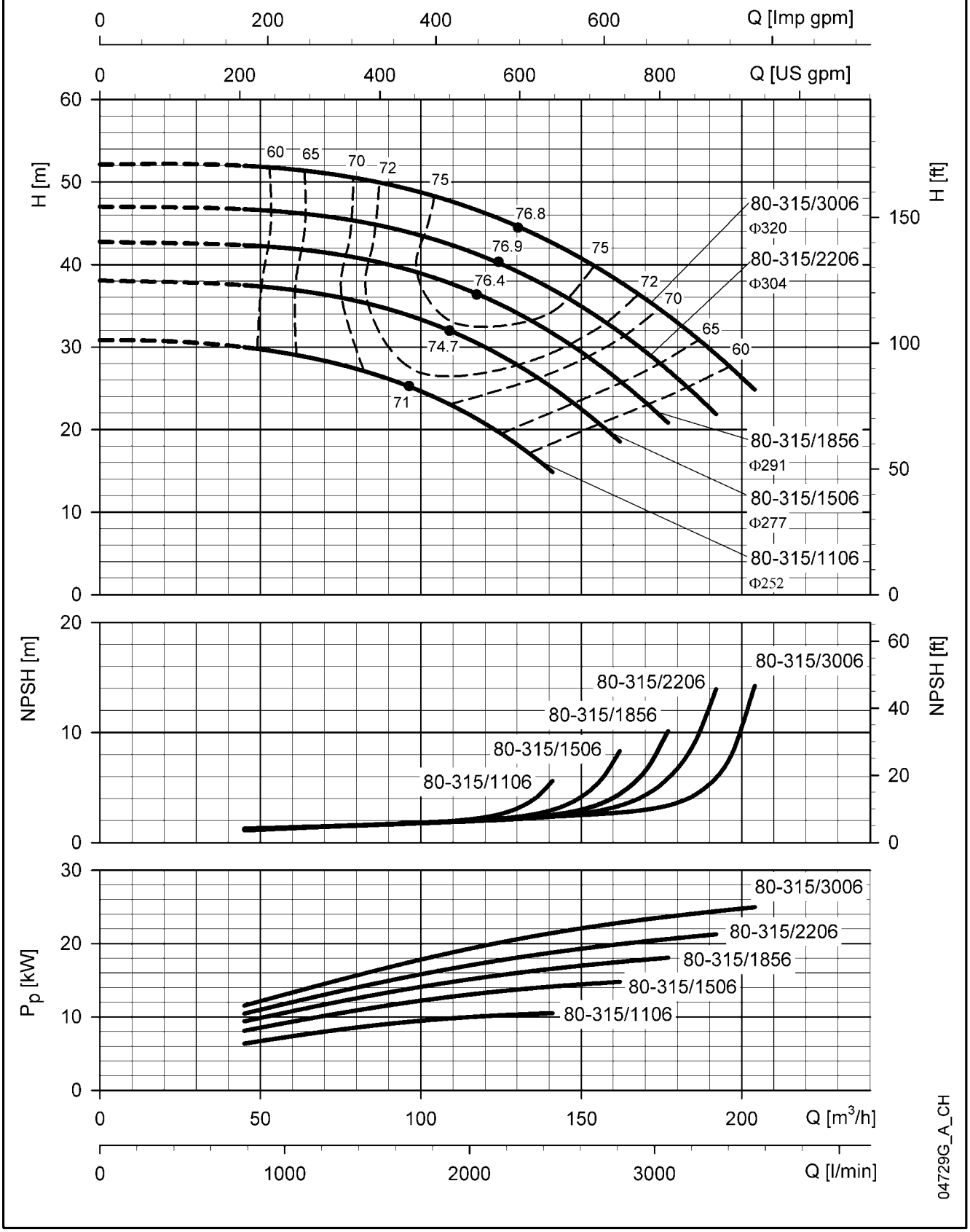
FHS4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

FHS4-FHF4 80-315	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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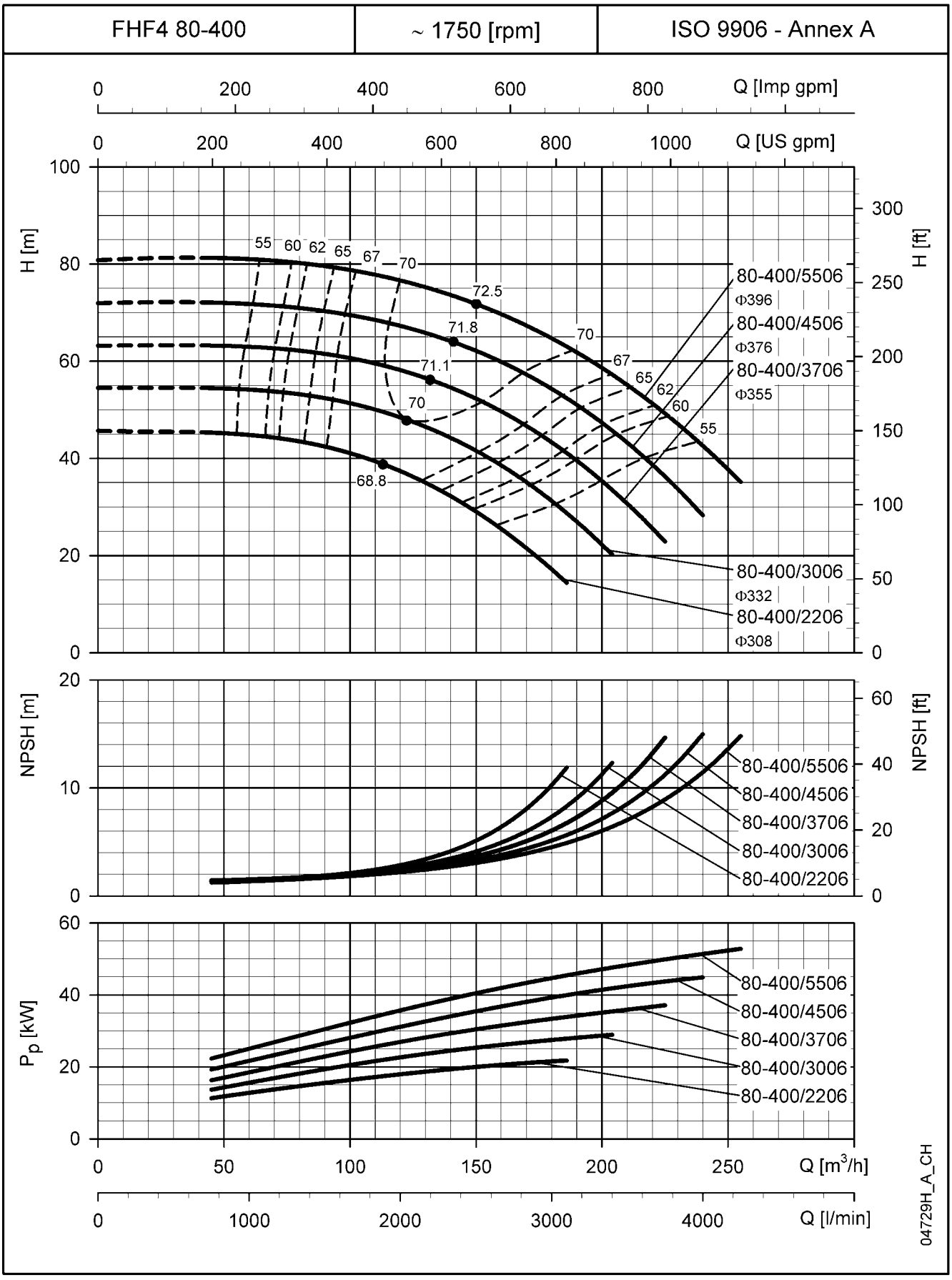
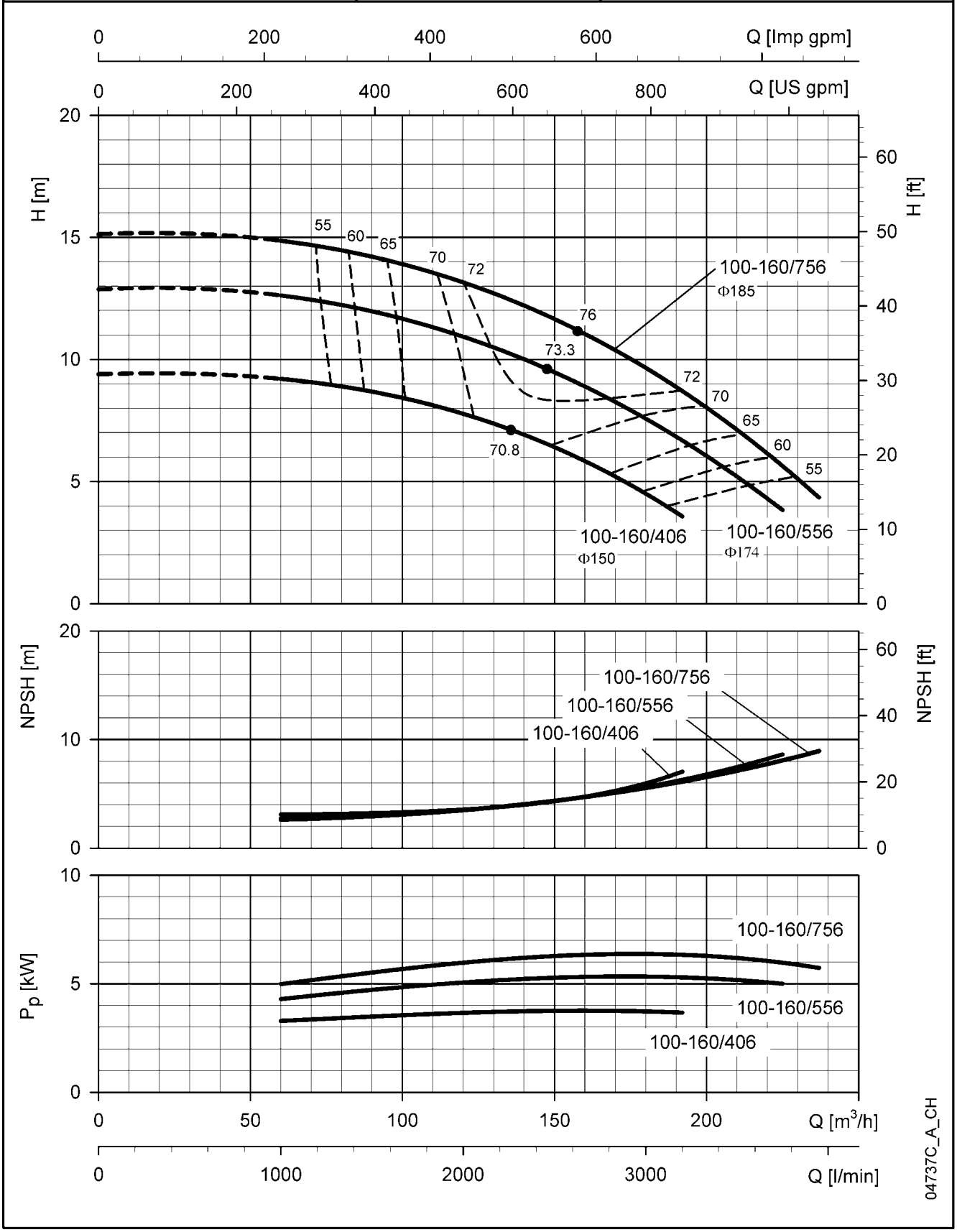
FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

FHS4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

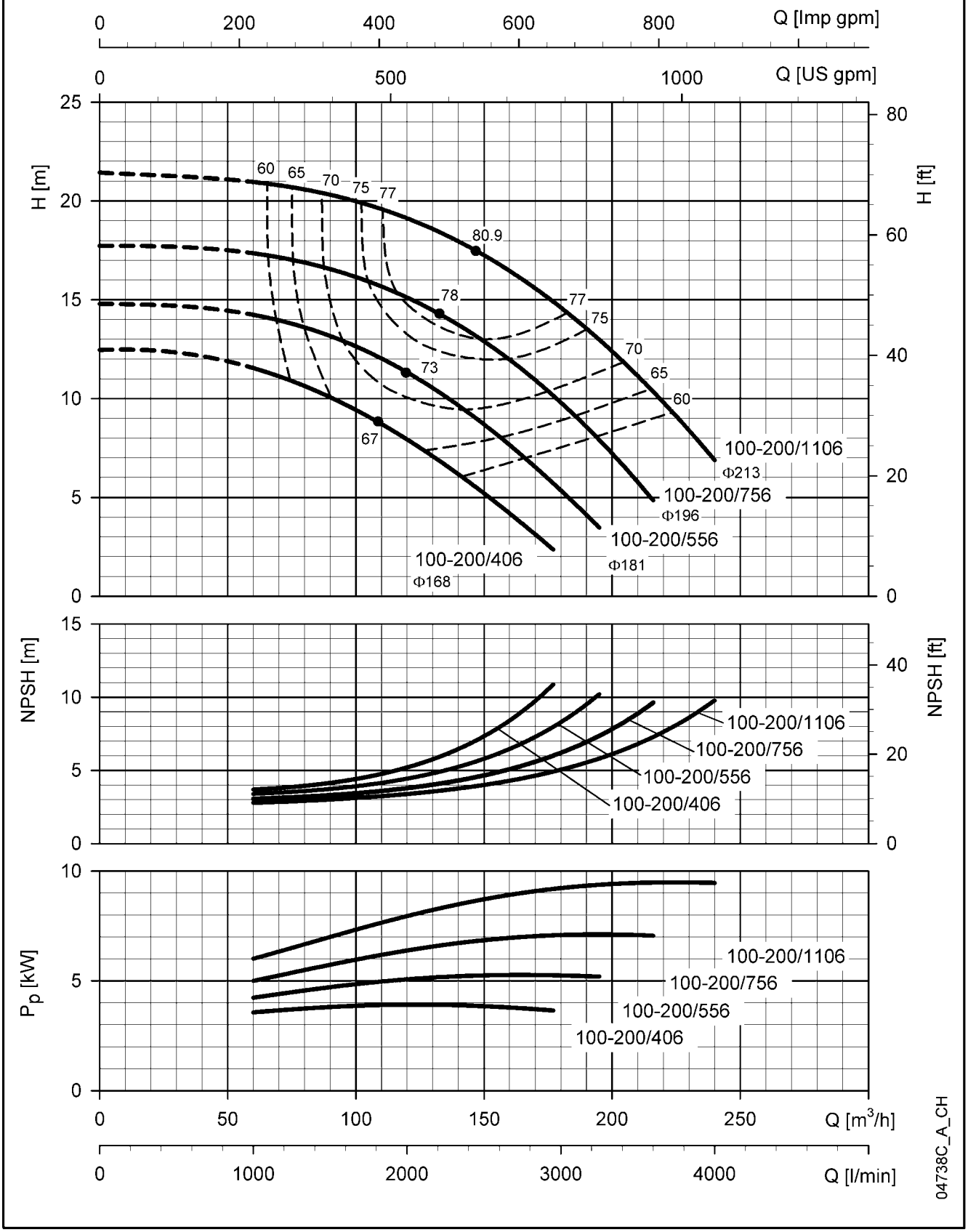
FHS4-FHF4 100-160	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm^3 and kinematic viscosity ν = 1 mm^2/sec.

FHS4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

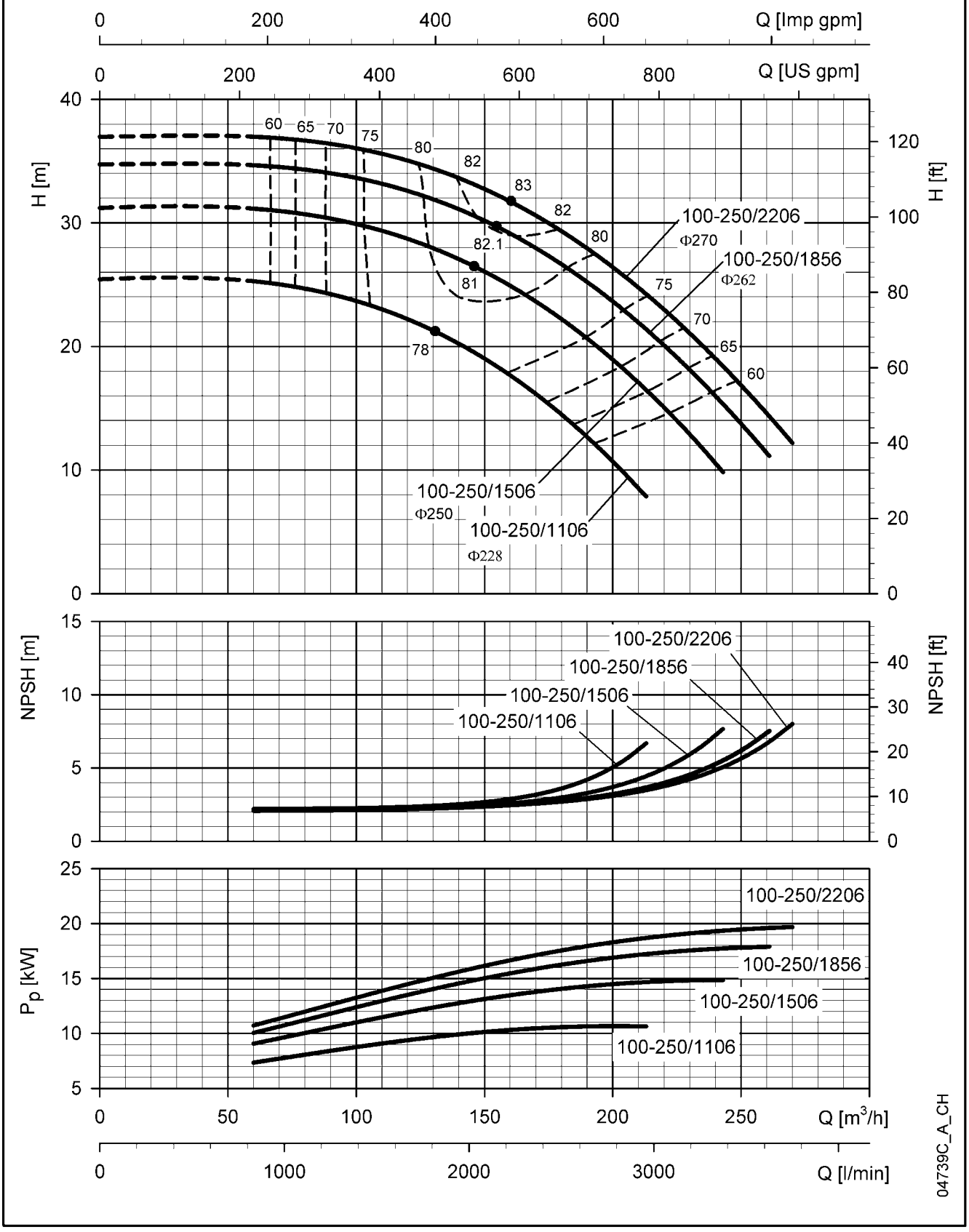
FHS4-FHF4 100-200	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

FHS4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

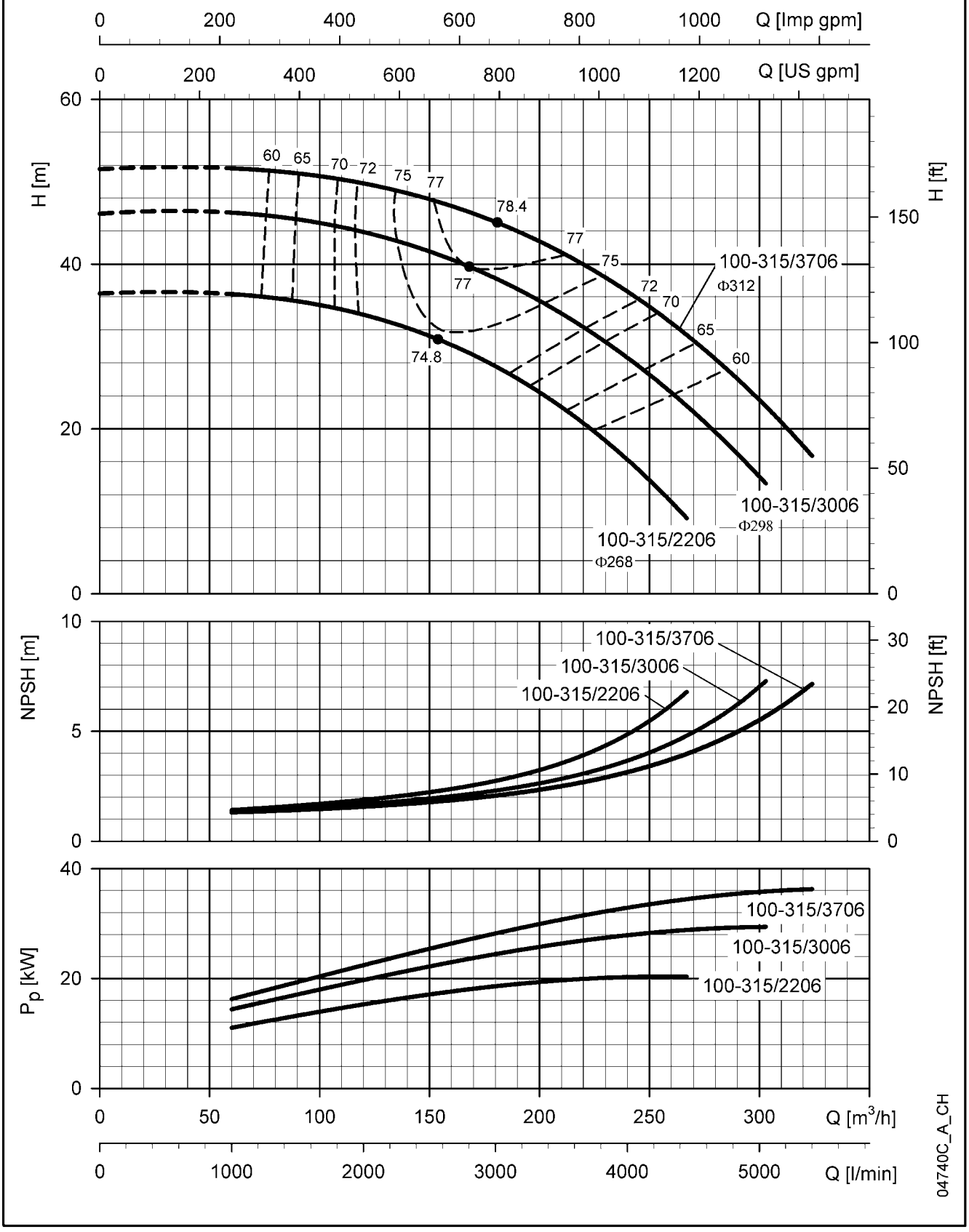
FHS4-FHF4 100-250	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

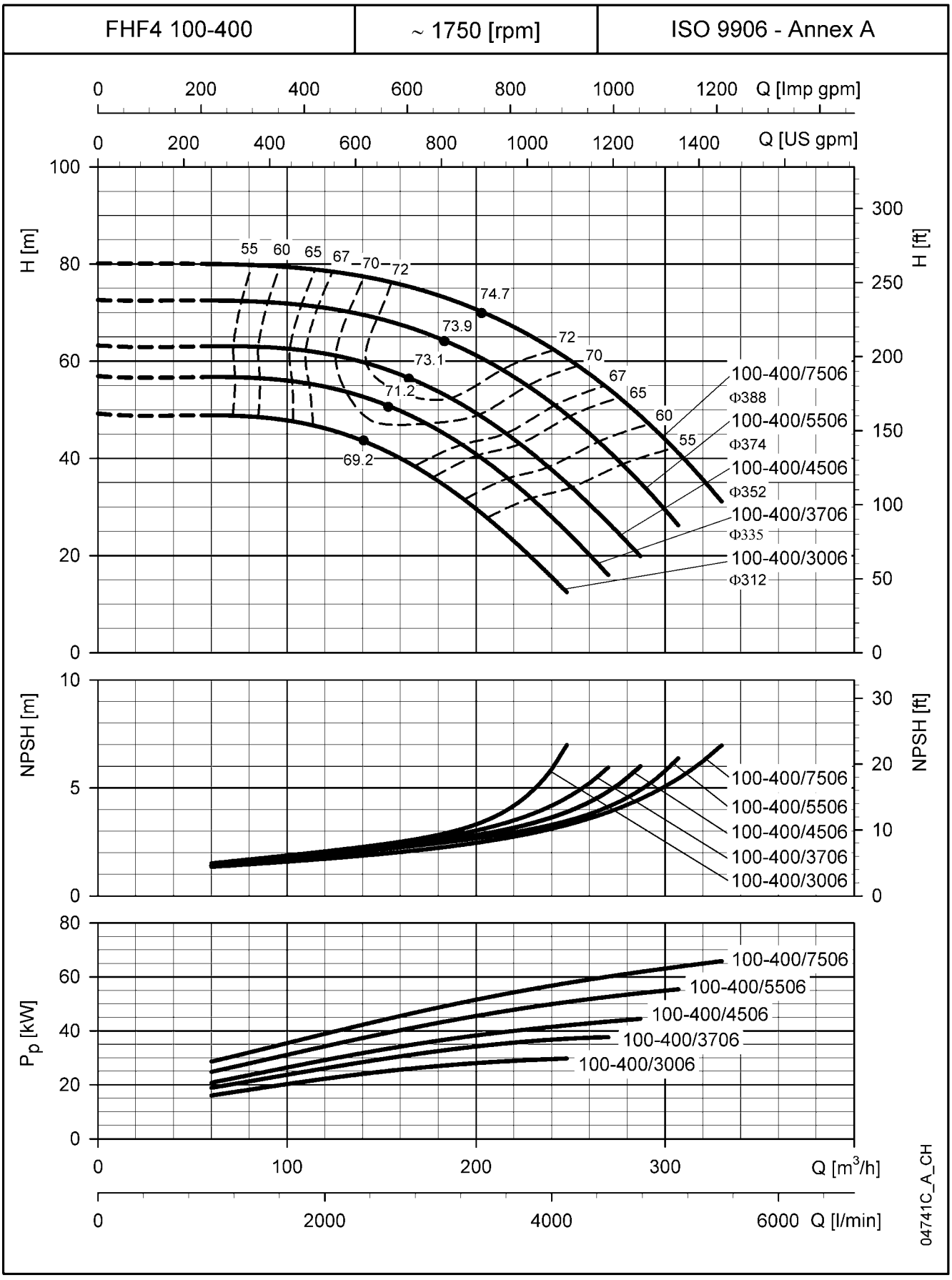
FHS4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

FHS4-FHF4 100-315	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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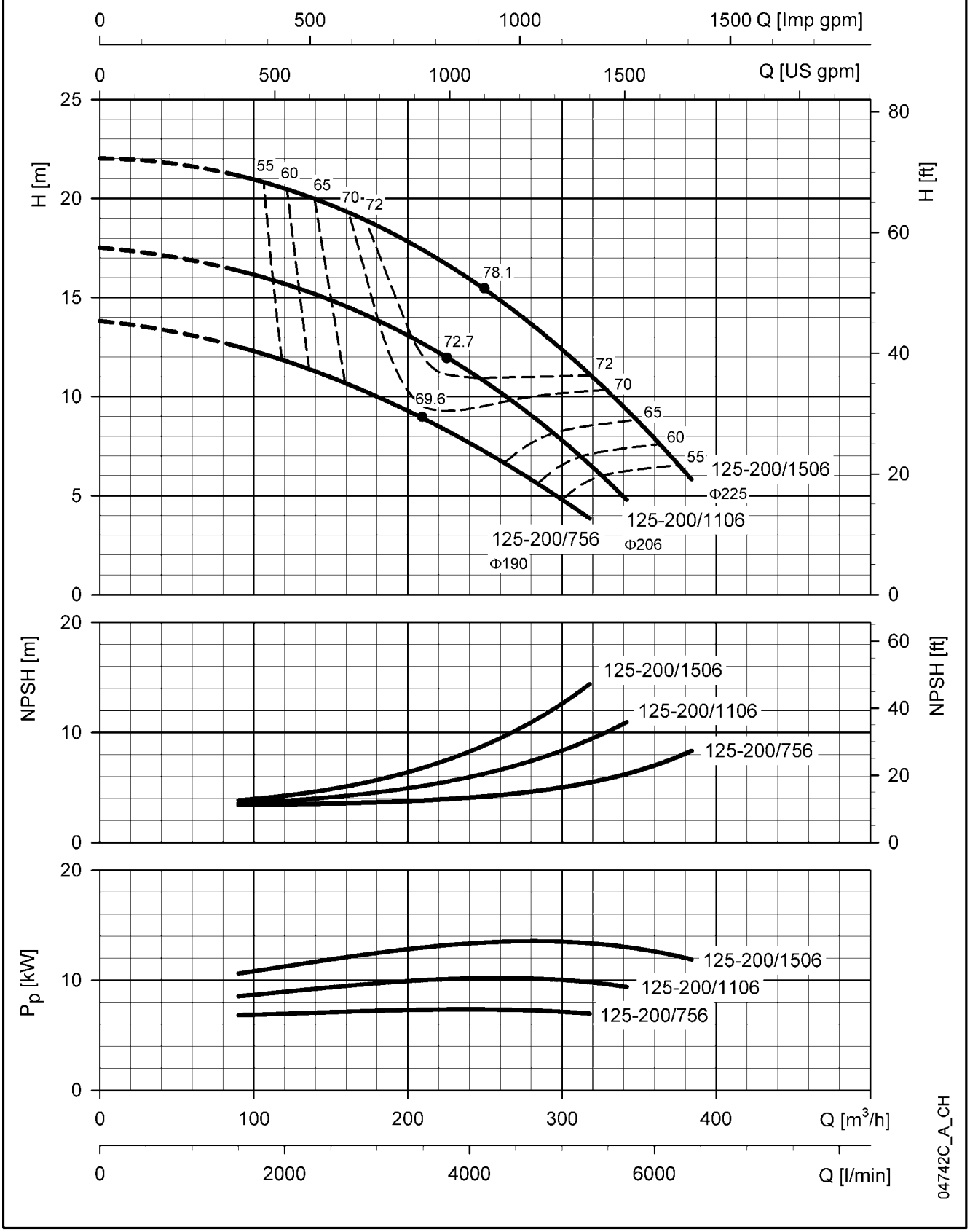
FHS4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

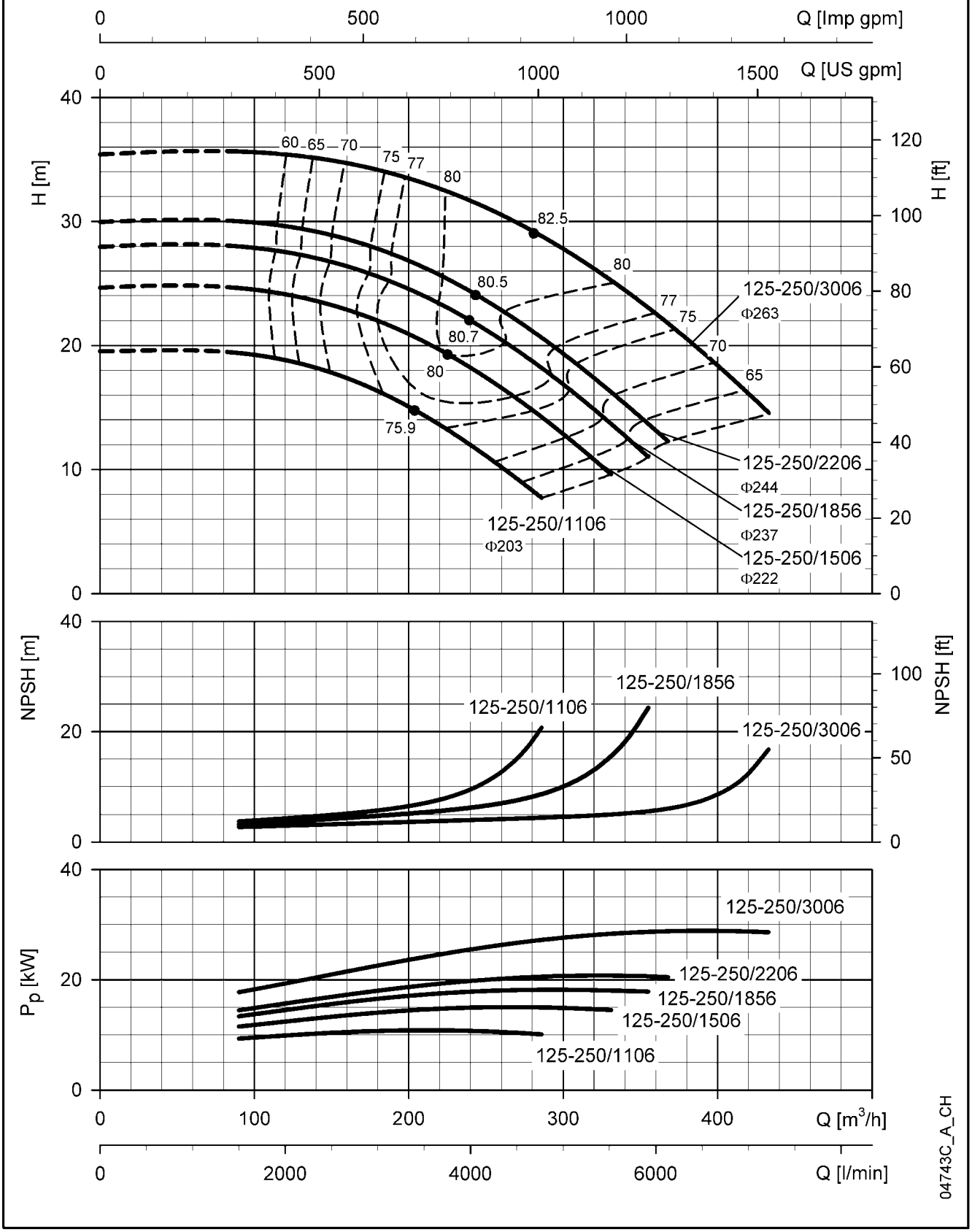
FHS4-FHF4 125-200	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

FHS4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

FHS4-FHF4 125-250	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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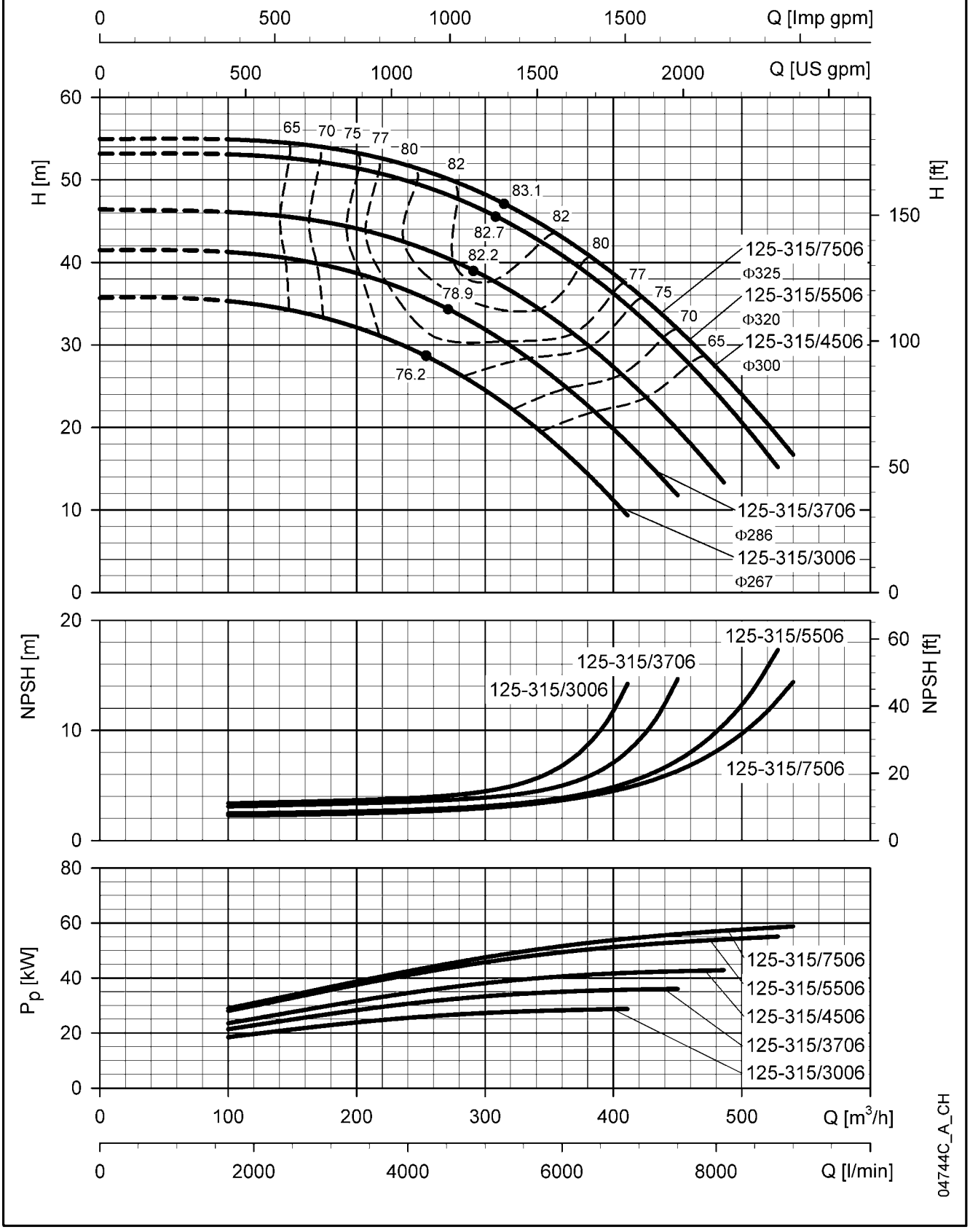
a xylem brand

FHS4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

FHS4-FHF4 125-315	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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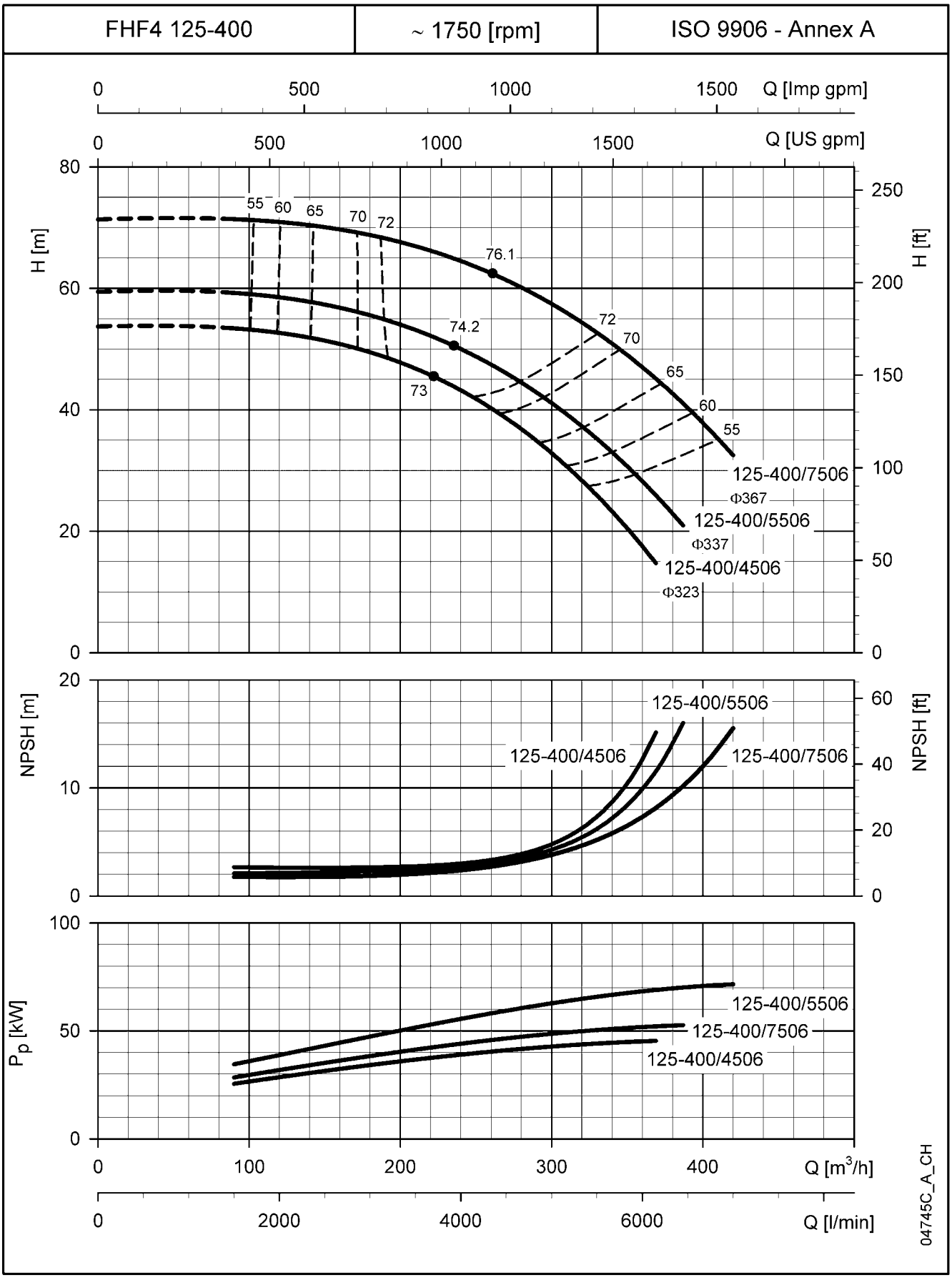
a xylem brand

FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

FHF4 125-400	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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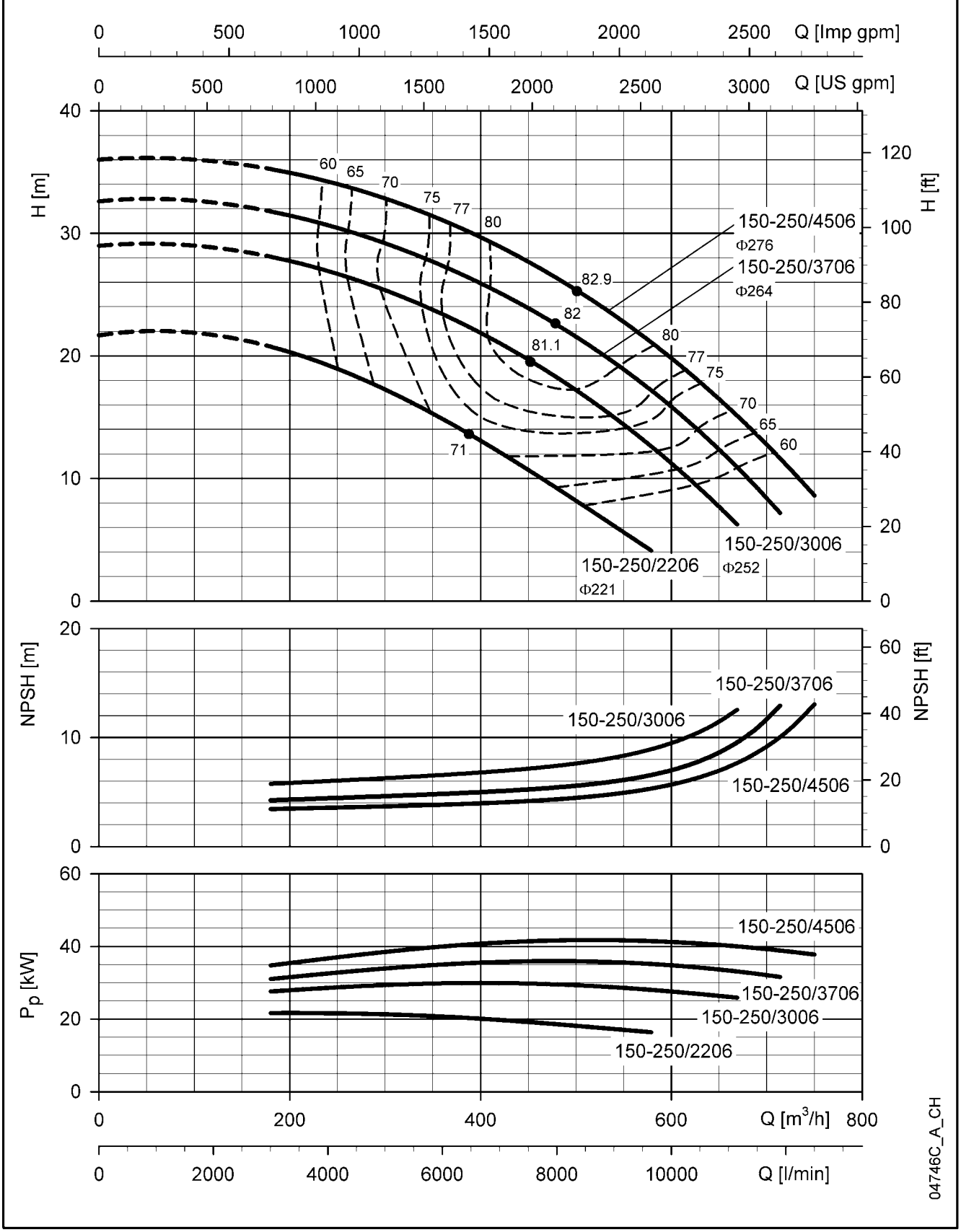
a xylem brand

FHS4-FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

FHS4-FHF4 150-250	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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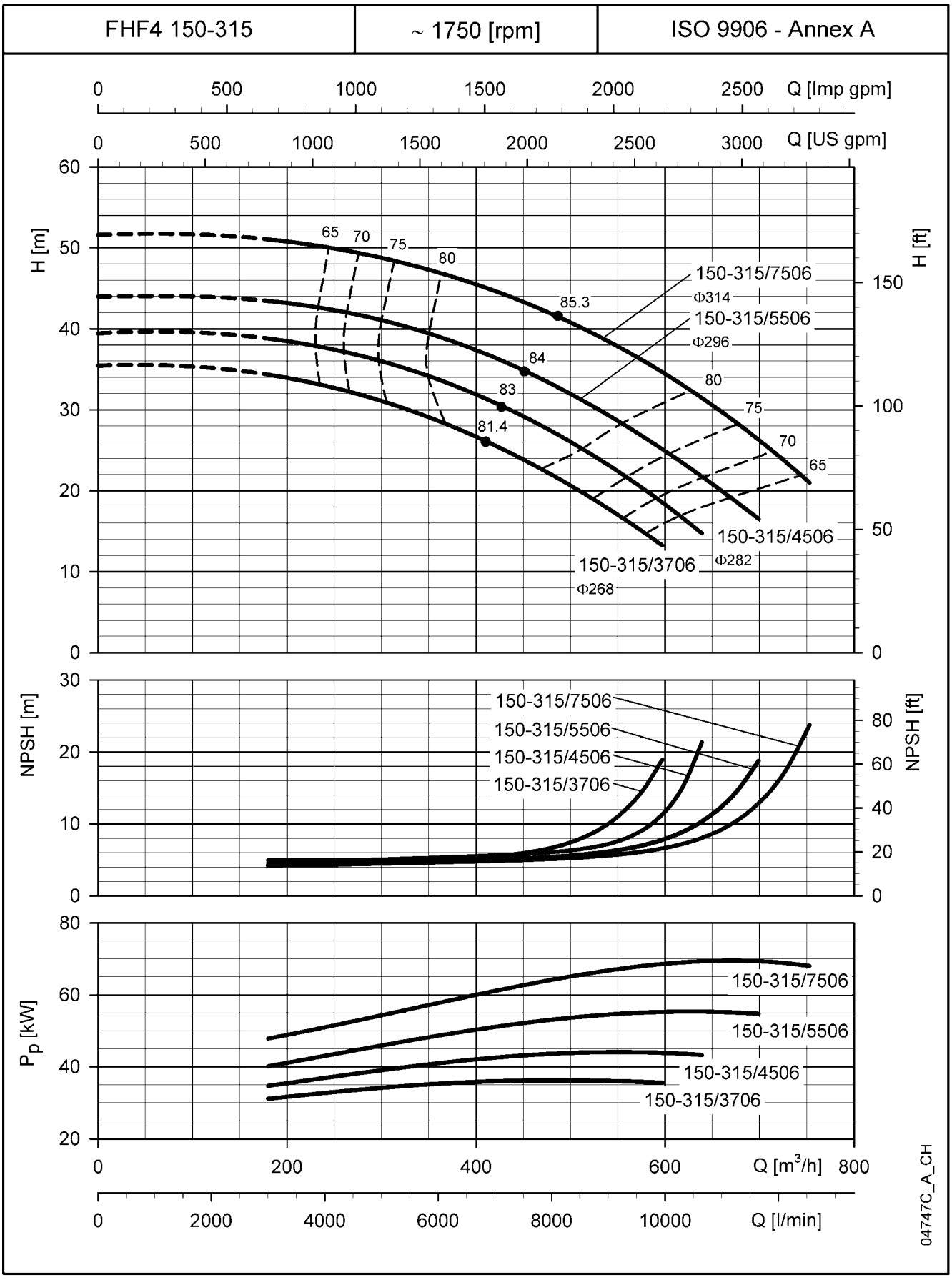
a xylem brand

FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

FHF4 150-315	~ 1750 [rpm]	ISO 9906 - Annex A



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 ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

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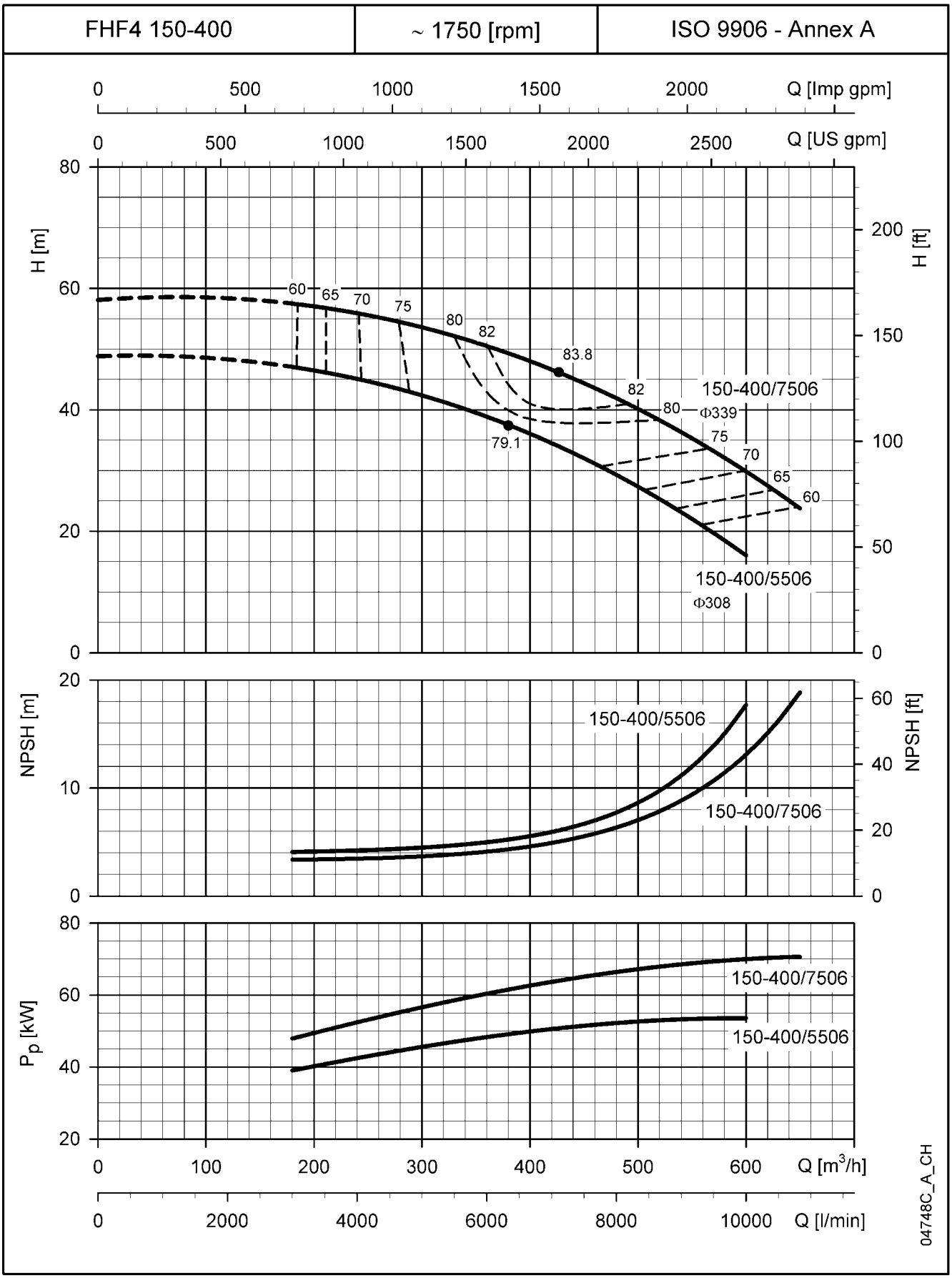
a xylem brand

FHF4 SERIES
OPERATING CHARACTERISTICS AT 60 Hz, 4 POLES

FHF4 150-400	~ 1750 [rpm]	ISO 9906 - Annex A

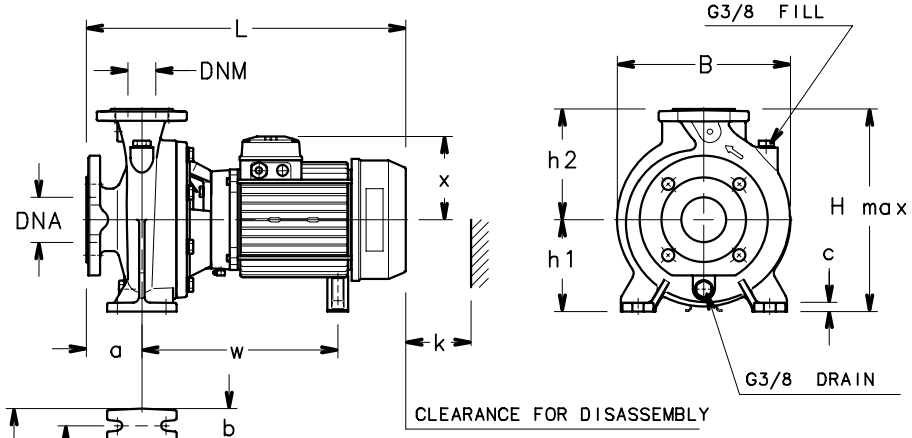


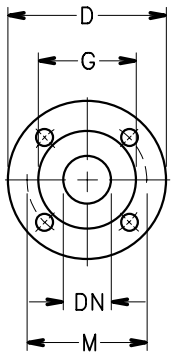
The NPSH values are laboratory values: for practical use we suggest increasing these values by 0,5 m.
These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

LOWARA
a xylem brand

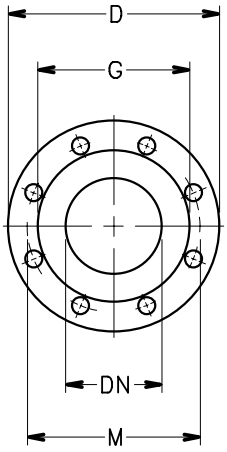
DIMENSIONS AND WEIGHTS

FHE SERIES
DIMENSIONS AND WEIGHTS AT 60 Hz, 2 POLES



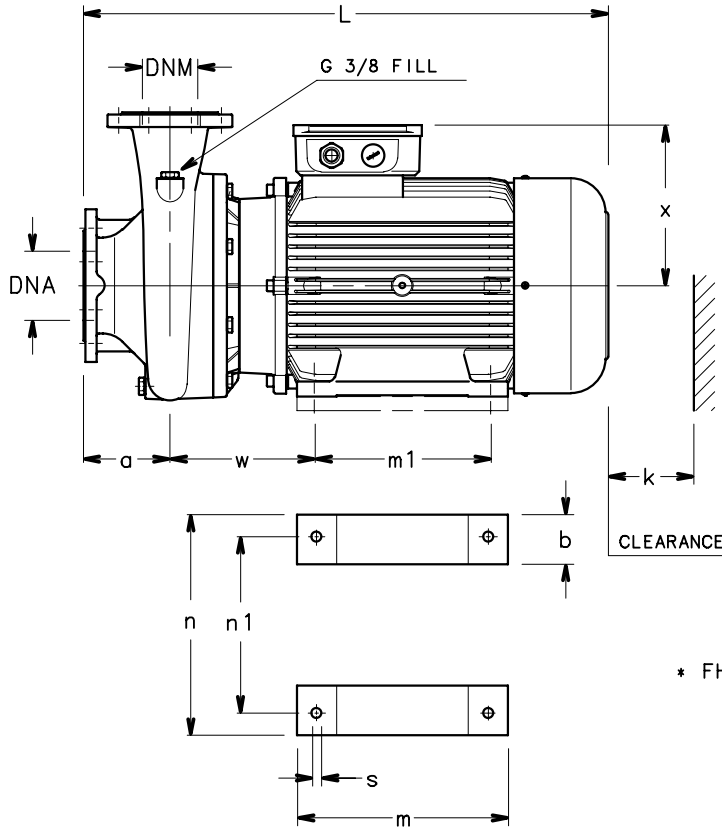


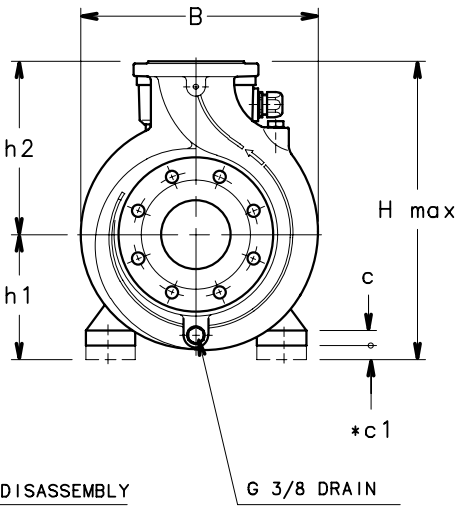
FHE WITH PUMP STAND
MOTORS UP TO 11kW



PUMP FLANGES

DN	D	M	G	HOLES		MAX
				N°	DIA.	THICKNESS
32	140	100	78	4	18	18
40	150	110	88	4	18	18
50	165	125	102	4	18	20
65	185	145	122	4	18	20
80	200	160	138	8	18	22
100	220	180	158	8	18	22





* FHE WITH PUMP STAND
MOTORS FROM 15 TO 22kW

04703D-EN_D_DD

LOWARA
a xylem brand

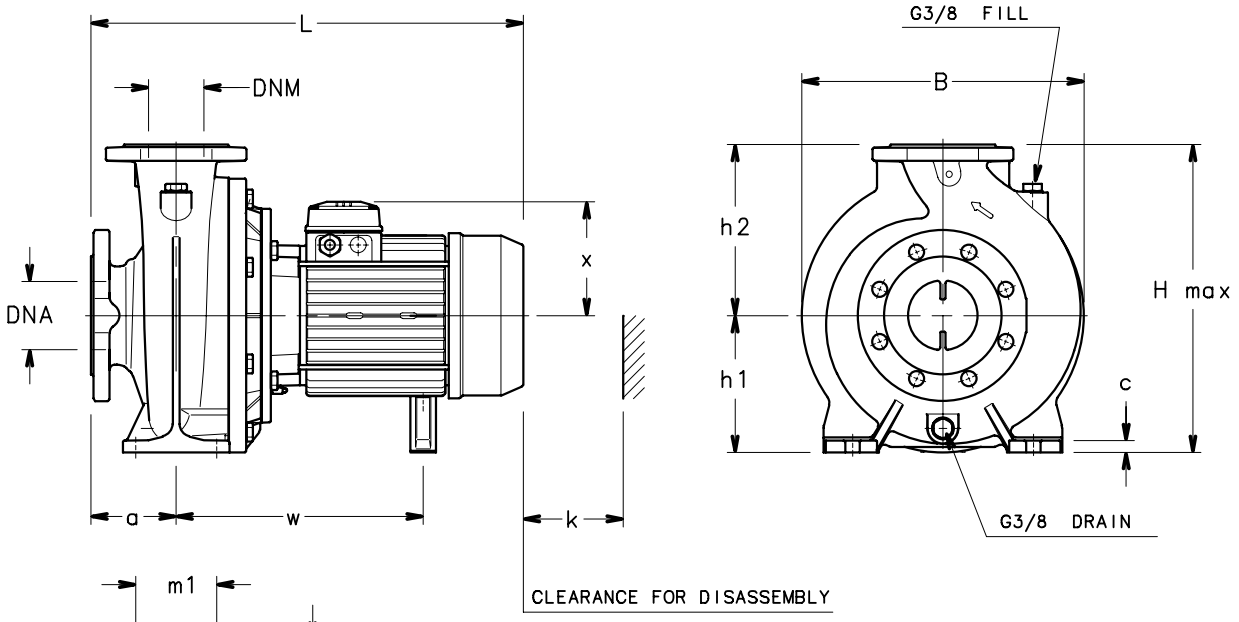
FHE SERIES
DIMENSIONS AND WEIGHTS AT 60 Hz, 2 POLES

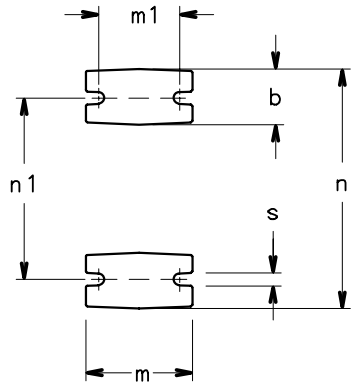
PUMP TYPE	DIMENSIONS (mm)																			WEIGHT
	PUMP						STAND									B	H	L	k	
	DNM	DNA	a	h2	w	x	b	c	*c1	h1	m	m1	n	n1	s		max			kg
FHE 32-125/116/D	32	50	80	140	235	129	50	12	-	112	100	70	190	140	14	233	252	443	86	29,6
FHE 32-160/156/D	32	50	80	160	235	129	50	12	-	132	100	70	240	190	14	235	292	443	86	32,4
FHE 32-160/226/C	32	50	80	160	245	134	50	12	-	132	100	70	240	190	14	235	292	478	86	39
FHE 32-200/306/P	32	50	80	180	245	134	50	12	-	160	100	70	240	190	14	285	340	478	86	47
FHE 32-200/406/P	32	50	80	180	273	154	50	12	-	160	100	70	240	190	14	285	340	499	86	54
FHE 40-125/156/D	40	65	80	140	235	129	50	12	-	112	100	70	210	160	14	233	252	443	88	32,4
FHE 40-125/226/C	40	65	80	140	245	134	50	12	-	112	100	70	210	160	14	233	252	478	88	38
FHE 40-160/306/P	40	65	80	160	245	134	50	12	-	132	100	70	240	190	14	250	292	478	88	40
FHE 40-160/406/P	40	65	80	160	273	154	50	12	-	132	100	70	240	190	14	250	292	499	88	47
FHE 40-200/556/P	40	65	100	180	285	168	50	12	-	160	100	70	265	212	14	285	340	553	88	62
FHE 40-200/756/P	40	65	100	180	305	191	50	12	-	160	100	70	265	212	14	285	351	567	88	79
FHE 40-250/926/P	40	65	100	225	343	191	65	14	-	180	125	95	320	250	14	335	405	605	107	96
FHE 40-250/1106/P	40	65	100	225	343	191	65	14	-	180	125	95	320	250	14	335	405	605	107	104
FHE 40-250/1506/P	40	65	100	225	208	240	49	5	20	180	304	210	304	254	15	335	420	694	107	128
FHE 50-125/306/P	50	65	100	160	247	134	50	12	-	132	100	70	240	190	14	255	292	500	92	43
FHE 50-125/406/P	50	65	100	160	275	154	50	12	-	132	100	70	240	190	14	255	292	521	92	50
FHE 50-160/556/P	50	65	100	180	287	168	50	12	-	160	100	70	265	212	14	285	340	555	92	71
FHE 50-160/756/P	50	65	100	180	307	191	50	12	-	160	100	70	265	212	14	285	351	569	92	87
FHE 50-200/926/P	50	65	100	200	345	191	50	12	-	160	100	70	265	212	14	305	360	607	92	86
FHE 50-200/1106/P	50	65	100	200	345	191	50	12	-	160	100	70	265	212	14	305	360	607	92	91
FHE 50-250/1506/P	50	65	100	225	208	240	49	5	20	180	304	210	304	254	15	340	420	694	107	128
FHE 50-250/1856/P	50	65	100	225	208	240	49	5	20	180	304	254	304	254	15	340	420	694	107	131
FHE 50-250/2206/P	50	65	100	225	208	240	49	5	20	180	304	254	304	254	15	340	420	694	107	151
FHE 65-125/556/P	65	80	100	180	287	168	65	14	-	160	125	95	280	212	14	285	340	555	105	75
FHE 65-125/756/P	65	80	100	180	307	191	65	14	-	160	125	95	280	212	14	285	351	569	105	91
FHE 65-160/926/P	65	80	100	200	343	191	65	14	-	160	125	95	280	212	14	331	360	605	112	100
FHE 65-160/1106/P	65	80	100	200	343	191	65	14	-	160	125	95	280	212	14	331	360	605	112	108
FHE 65-160/1506/P	65	80	100	200	208	240	49	5	-	160	304	210	304	254	15	331	400	694	112	132
FHE 65-200/1856/P	65	80	100	225	208	240	49	5	20	180	304	254	304	254	15	335	420	694	112	135
FHE 65-200/2206/P	65	80	100	225	208	240	49	5	20	180	304	254	304	254	15	335	420	694	112	155
FHE 65-250/2206/P	65	80	100	250	208	240	49	5	40	200	304	254	304	254	15	332	450	694	112	161
FHE 80-160/1506/P	80	100	125	225	208	240	49	5	20	180	304	210	304	254	15	332	420	719	129	138
FHE 80-160/1856/P	80	100	125	225	208	240	49	5	20	180	304	254	304	254	15	332	420	719	129	141
FHE 80-200/2206/P	80	100	125	250	208	240	49	5	20	180	304	254	304	254	15	332	430	719	129	161

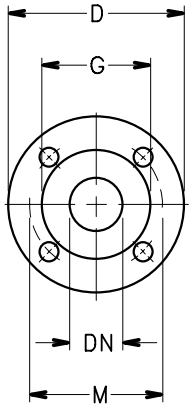
* Motor shim on request

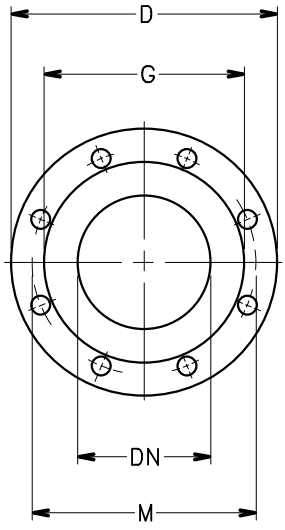
fh-fhe-2p60-en_d_td

FHE4 SERIES
DIMENSIONS AND WEIGHTS AT 60 Hz, 4 POLES









PUMP FLANGES

DN	D	M	G	HOLES		MAX.
				N°	DIA.	THICKNESS
32	140	100	78	4	18	18
40	150	110	88	4	18	18
50	165	125	102	4	18	20
65	185	145	122	4	18	20
80	200	160	138	8	18	22
100	220	180	158	8	18	22

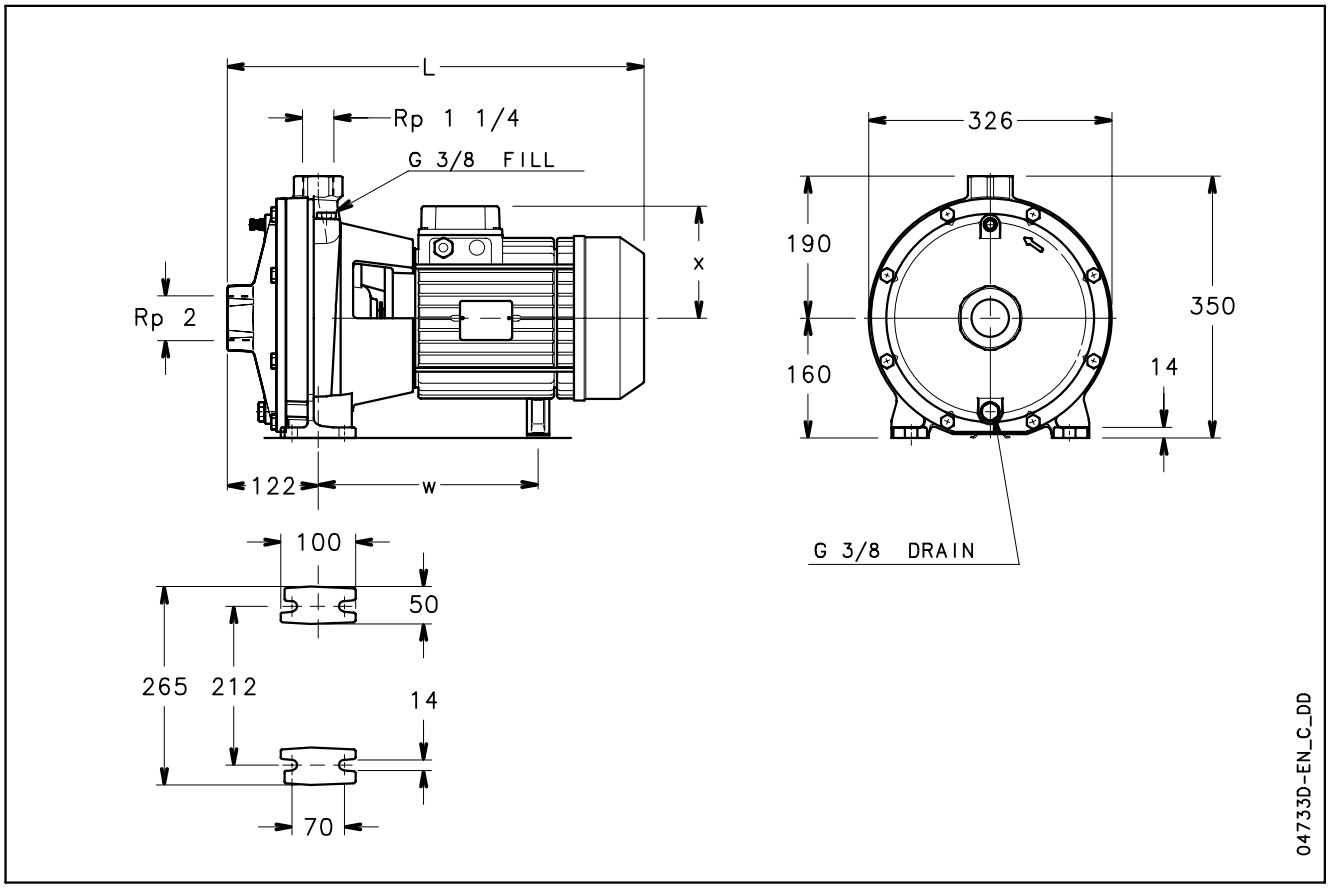
04704D-EN_B_DD

LOWARA
a xylem brand

FHE4 SERIES
DIMENSIONS AND WEIGHTS AT 60 Hz, 4 POLES

PUMP TYPE	DIMENSIONS (mm)																		WEIGHT
	PUMP						STAND								B	H	L	k	
	DNM	DNA	a	h2	w	x	b	c	h1	m	m1	n	n1	s		max			kg
FHE4 32-125/026/A	32	50	80	140	215	121	50	12	112	100	70	190	140	14	233	252	411	86	25
FHE4 32-160/026/A	32	50	80	160	215	121	50	12	132	100	70	240	190	14	235	292	411	86	26
FHE4 32-160/036/A	32	50	80	160	215	121	50	12	132	100	70	240	190	14	235	292	411	86	26
FHE4 32-200/036/A	32	50	80	180	215	121	50	12	160	100	70	240	190	14	285	340	411	86	35
FHE4 32-200/056/A	32	50	80	180	235	129	50	12	160	100	70	240	190	14	285	340	443	86	38
FHE4 40-125/026/A	40	65	80	140	215	121	50	12	112	100	70	210	160	14	233	252	411	88	25
FHE4 40-125/036/A	40	65	80	140	215	121	50	12	112	100	70	210	160	14	233	252	411	88	25
FHE4 40-160/036/A	40	65	80	160	215	121	50	12	132	100	70	240	190	14	250	292	411	88	27
FHE4 40-160/056/A	40	65	80	160	235	129	50	12	132	100	70	240	190	14	250	292	443	88	29
FHE4 40-200/076/C	40	65	100	180	-	128	50	12	160	100	70	265	212	14	285	340	431	88	40
FHE4 40-200/116/P	40	65	100	180	245	134	50	12	160	100	70	265	212	14	285	340	498	88	48
FHE4 40-250/116/P	40	65	100	225	245	134	65	14	180	125	95	320	250	14	335	405	498	107	58
FHE4 40-250/156/P	40	65	100	225	245	134	65	14	180	125	95	320	250	14	335	405	498	107	61
FHE4 40-250/226/P	40	65	100	225	285	168	65	14	180	125	95	320	250	14	335	405	522	107	69
FHE4 50-125/036/A	50	65	100	160	217	121	50	12	132	100	70	240	190	14	255	292	433	92	29
FHE4 50-125/056/A	50	65	100	160	237	129	50	12	132	100	70	240	190	14	255	292	465	92	32
FHE4 50-160/076/C	50	65	100	180	-	128	50	12	160	100	70	265	212	14	285	340	433	92	43
FHE4 50-160/116/P	50	65	100	180	247	134	50	12	160	100	70	265	212	14	285	340	500	92	51
FHE4 50-200/116/P	50	65	100	200	247	134	50	12	160	100	70	265	212	14	305	360	500	92	51
FHE4 50-200/156/P	50	65	100	200	247	134	50	12	160	100	70	265	212	14	305	360	500	92	54
FHE4 50-250/226A/P	50	65	100	225	285	168	65	14	180	125	95	320	250	14	340	405	522	107	69
FHE4 50-250/226/P	50	65	100	225	285	168	65	14	180	125	95	320	250	14	340	405	522	107	69
FHE4 50-250/306/P	50	65	100	225	285	168	65	14	180	125	95	320	250	14	340	405	553	107	72
FHE4 65-125/076/C	65	80	100	180	-	128	65	14	160	125	95	280	212	14	285	340	433	105	47
FHE4 65-125/116/P	65	80	100	180	247	134	65	14	160	125	95	280	212	14	285	340	500	105	55
FHE4 65-160/116/P	65	80	100	200	245	134	65	14	160	125	95	280	212	14	331	360	498	112	61
FHE4 65-160/156/P	65	80	100	200	245	134	65	14	160	125	95	280	212	14	331	360	498	112	65
FHE4 65-160/226/P	65	80	100	200	285	168	65	14	160	125	95	280	212	14	331	360	522	112	73
FHE4 65-200/226/P	65	80	100	225	285	168	65	14	180	125	95	320	250	14	335	405	522	112	73
FHE4 65-200/306/P	65	80	100	225	285	168	65	14	180	125	95	320	250	14	335	405	553	112	75
FHE4 65-250/306/P	65	80	100	250	285	168	80	16	200	160	120	360	280	18	360	450	553	112	84
FHE4 65-250/406/P	65	80	100	250	315	168	80	16	200	160	120	360	280	18	360	450	598	112	125
FHE4 65-250/556/P	65	80	100	250	343	191	80	16	200	160	120	360	280	18	360	450	605	112	130
FHE4 80-160/156/P	80	100	125	225	245	134	65	14	180	125	95	320	250	14	332	405	523	129	70
FHE4 80-160/226/P	80	100	125	225	285	168	65	14	180	125	95	320	250	14	332	405	547	129	78
FHE4 80-200/306/P	80	100	125	250	285	168	65	14	180	125	95	345	280	14	345	430	578	129	89
FHE4 80-200/406/P	80	100	125	250	315	168	65	14	180	125	95	345	280	14	345	430	623	129	123
FHE4 80-250/406/P	80	100	125	280	315	168	80	16	200	160	120	400	315	18	400	480	623	129	120
FHE4 80-250/556/P	80	100	125	280	343	191	80	16	200	160	120	400	315	18	400	480	630	129	125
FHE4 80-250/756/P	80	100	125	280	343	191	80	16	200	160	120	400	315	18	400	480	630	129	129

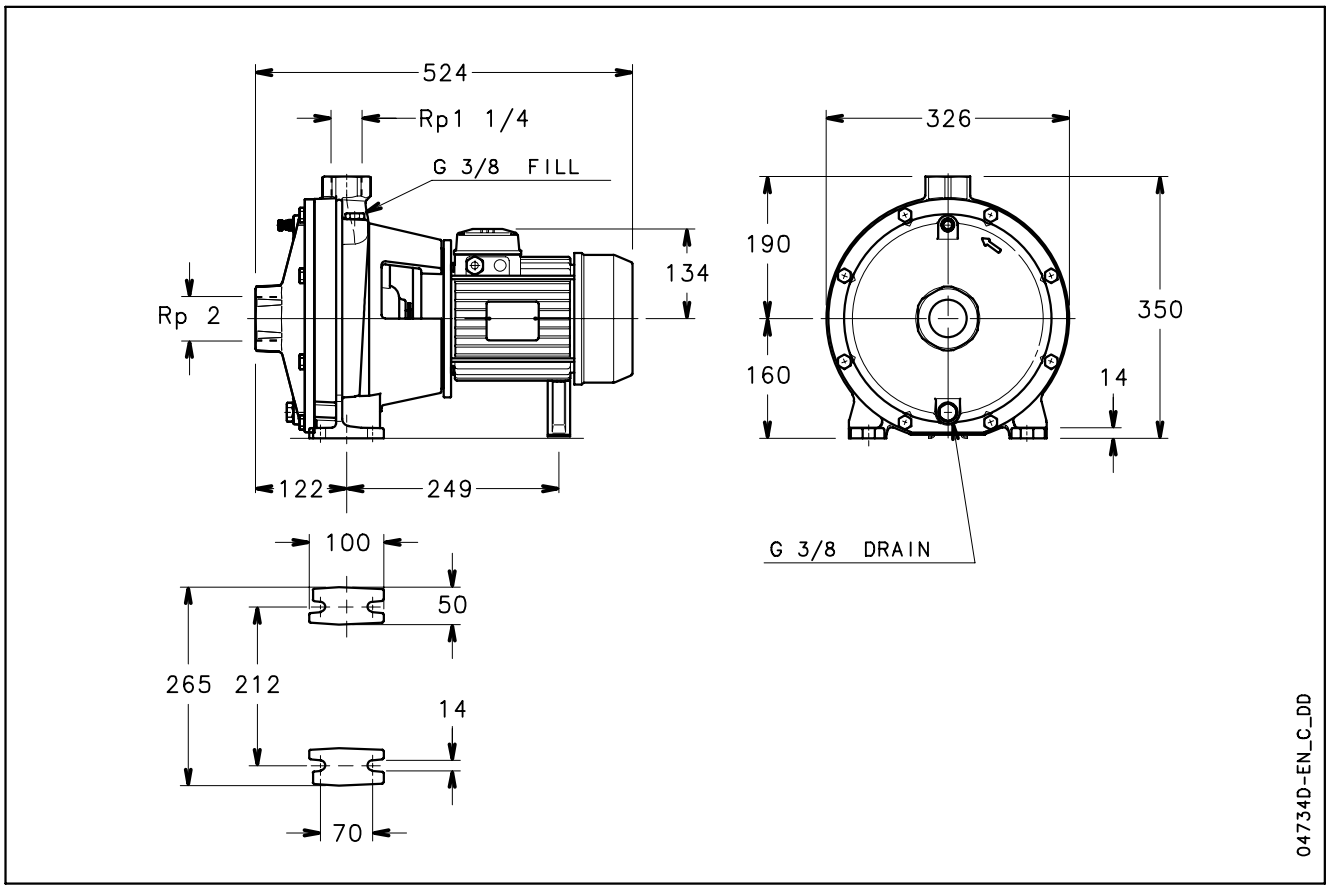
2FHE SERIES
DIMENSIONS AND WEIGHTS AT 60 Hz, 2 POLES



PUMP TYPE	DIMENSIONS (mm)			WEIGHT
	L	w	x	kg
2FHE 32-250/556/P	572	282	168	74
2FHE 32-250/756/P	607	323	191	90

2fhe-2p60-en_c_td

2FHE4 SERIES
DIMENSIONS AND WEIGHTS AT 60 Hz, 4 POLES



PUMP TYPE	WEIGHT kg
2FHE4 32-250/076/P	53
2FHE4 32-250/116/P	55

2fhe4-4p60-en_c_td

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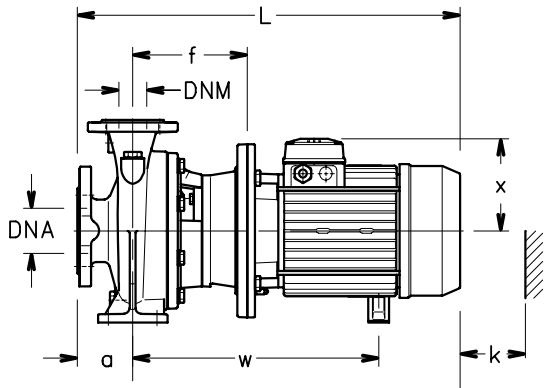
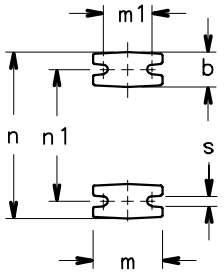
FHS SERIES
DIMENSIONS AND WEIGHTS AT 60 Hz, 2 POLES

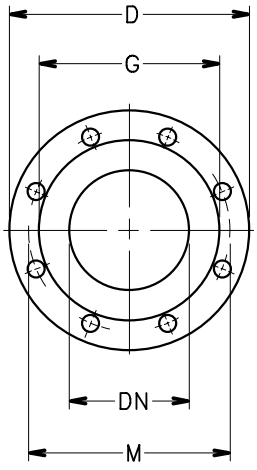


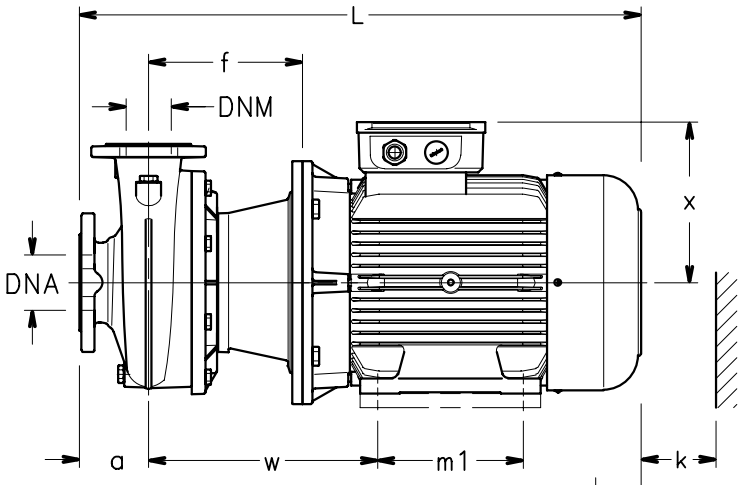


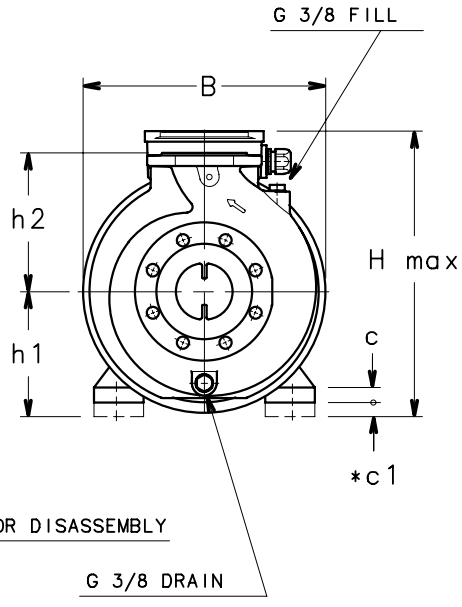
FHS WITH PUMP STAND
MOTORS UP TO 7.5kW

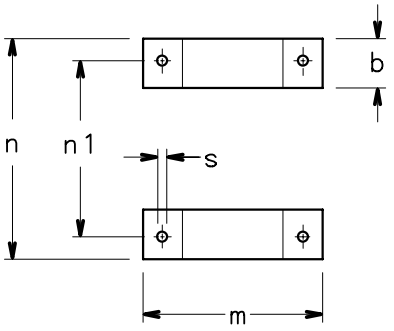
PUMP FLANGES

DN	D	M	G	HOLES		MAX.
				Nº	DIA.	THICKNESS
32	140	100	78	4	18	18
40	150	110	88	4	18	18
50	165	125	102	4	18	20
65	185	145	122	4	18	20
80	200	160	138	8	18	22
100	220	180	158	8	18	22









* FHS WITH PUMP STAND
MOTORS FROM 11 TO 55kW

047553D-EN_D_DD

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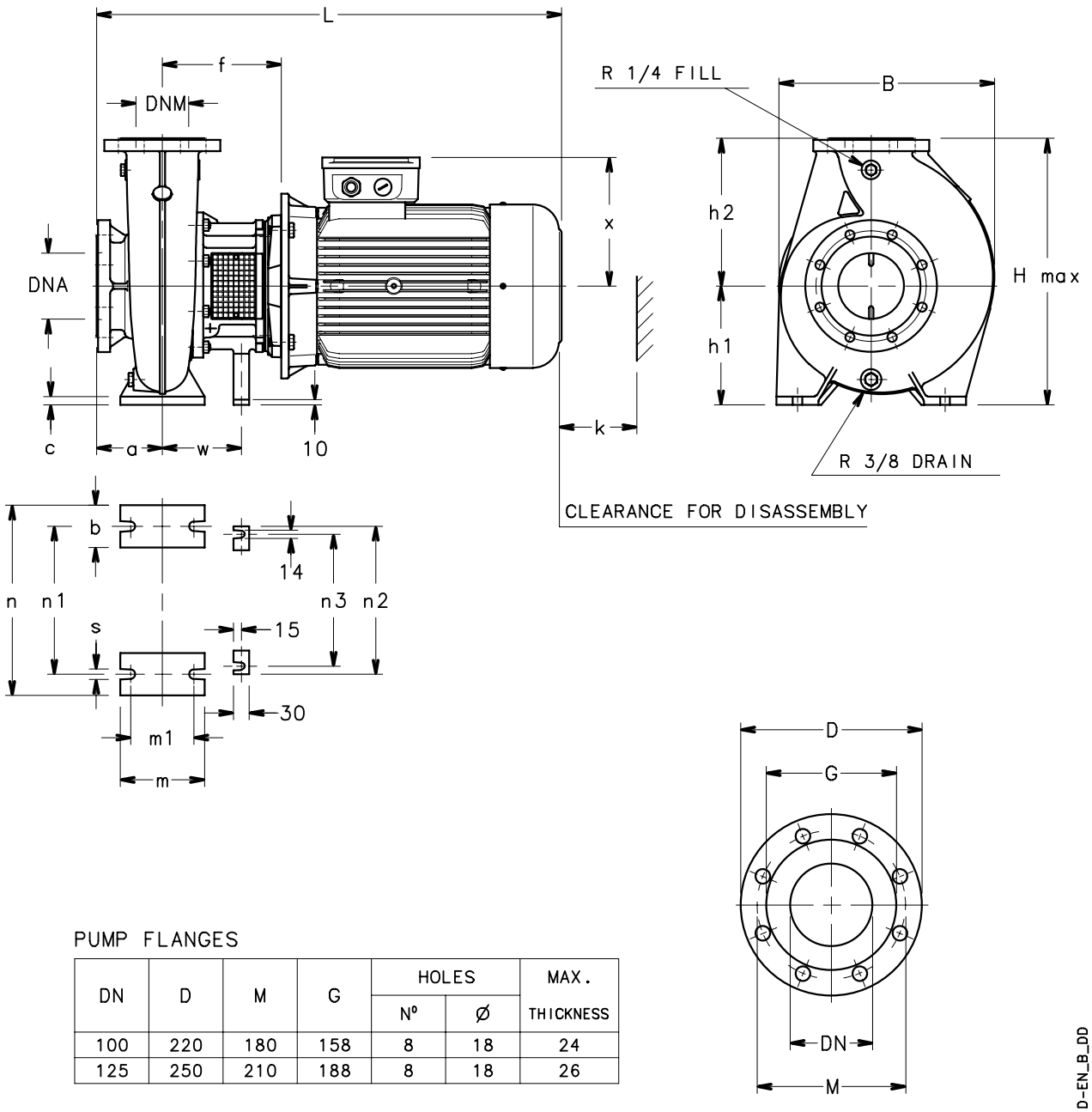
FHS SERIES
DIMENSIONS AND WEIGHTS AT 60 Hz, 2 POLES

PUMP TYPE	DIMENSIONS (mm)																				WEIGHT
	PUMP							STAND									B	H	L	k	
	DNM	DNA	a	f	h2	w	x	b	c	*c1	h1	m	m1	n	n1	s		max			kg
FHS 32-125/116/D	32	50	80	155	140	290	129	50	12	-	112	100	70	190	140	14	233	252	498	86	35,6
FHS 32-160/156/D	32	50	80	155	160	290	129	50	12	-	132	100	70	240	190	14	235	292	498	86	36,4
FHS 32-160/226/C	32	50	80	155	160	300	134	50	12	-	132	100	70	240	190	14	235	292	533	86	42
FHS 32-200/306/P	32	50	80	165	180	310	134	50	12	-	160	100	70	240	190	14	285	340	543	86	55
FHS 32-200/406/P	32	50	80	165	180	338	154	50	12	-	160	100	70	240	190	14	285	340	564	86	67
FHS 40-125/156/D	40	65	80	155	140	290	129	50	12	-	112	100	70	210	160	14	233	252	498	88	37,4
FHS 40-125/226/C	40	65	80	155	140	300	134	50	12	-	112	100	70	210	160	14	233	252	533	88	44
FHS 40-160/306/P	40	65	80	165	160	310	134	50	12	-	132	100	70	240	190	14	250	292	543	88	48
FHS 40-160/406/P	40	65	80	165	160	338	154	50	12	-	132	100	70	240	190	14	250	292	564	88	60
FHS 40-200/556/P	40	65	100	192	180	399	168	50	12	-	160	100	70	265	212	14	300	340	667	88	76
FHS 40-200/756/P	40	65	100	192	180	397	191	50	12	-	160	100	70	265	212	14	300	351	659	88	92
FHS 40-250/1106A/P	40	65	100	222	225	330	240	49	5	20	180	304	210	304	254	15	350	420	816	107	124
FHS 40-250/1106/P	40	65	100	222	225	330	240	49	5	20	180	304	210	304	254	15	350	420	816	107	124
FHS 40-250/1506/P	40	65	100	222	225	330	240	49	5	20	180	304	210	304	254	15	350	420	816	107	138
FHS 50-125/306/P	50	65	100	167	160	312	134	50	12	-	132	100	70	240	190	14	255	292	565	92	52
FHS 50-125/406/P	50	65	100	167	160	340	154	50	12	-	132	100	70	240	190	14	255	292	586	92	61
FHS 50-160/556/P	50	65	100	194	180	401	168	50	12	-	160	100	70	265	212	14	300	340	669	92	79
FHS 50-160/756/P	50	65	100	194	180	399	191	50	12	-	160	100	70	265	212	14	300	351	661	92	95
FHS 50-200/1106A/P	50	65	100	224	200	332	240	49	5	20	180	304	210	304	254	15	350	420	818	92	116
FHS 50-200/1106/P	50	65	100	224	200	332	240	49	5	20	180	304	210	304	254	15	350	420	818	92	116
FHS 50-250/1506/P	50	65	100	222	225	330	240	49	5	20	180	304	210	304	254	15	350	420	816	107	138
FHS 50-250/1856/P	50	65	100	222	225	330	240	49	5	20	180	304	254	304	254	15	350	420	816	107	141
FHS 50-250/2206/P	50	65	100	222	225	330	240	49	5	20	180	304	254	304	254	15	350	420	816	107	161
FHS 65-125/556/P	65	80	100	194	180	401	168	65	14	-	160	125	95	280	212	14	300	340	669	105	83
FHS 65-125/756/P	65	80	100	194	180	399	191	65	14	-	160	125	95	280	212	14	300	351	661	105	99
FHS 65-160/1106A/P	65	80	100	222	200	330	240	49	5	20	180	304	210	304	254	15	350	420	816	112	128
FHS 65-160/1106/P	65	80	100	222	200	330	240	49	5	20	180	304	210	304	254	15	350	420	816	112	128
FHS 65-160/1506/P	65	80	100	222	200	330	240	49	5	20	180	304	210	304	254	15	350	420	816	112	142
FHS 65-200/1856/P	65	80	100	222	225	330	240	49	5	20	180	304	254	304	254	15	350	420	816	112	145
FHS 65-200/2206/P	65	80	100	222	225	330	240	49	5	20	180	304	254	304	254	15	350	420	816	112	165
FHS 65-250/2206/P	65	80	100	222	250	330	240	49	5	40	200	304	254	304	254	15	350	450	816	112	159
FHS 65-250/3006/C	65	80	100	228	250	361	317	82	30	-	200	370	305	385	318	18	400	517	985	112	296
FHS 65-250/3706/C	65	80	100	228	250	361	317	82	30	-	200	370	305	385	318	18	400	517	985	112	325
FHS 80-160/1506/P	80	100	125	222	225	330	240	49	5	20	180	304	210	304	254	15	350	420	841	129	143
FHS 80-160/1856/P	80	100	125	222	225	330	240	49	5	20	180	304	254	304	254	15	350	420	841	129	152
FHS 80-200/2206/P	80	100	125	222	250	330	240	49	5	20	180	304	254	304	254	15	350	430	841	129	165
FHS 80-200/3006/C	80	100	125	228	250	361	317	82	30	-	200	370	305	385	318	18	400	517	1010	129	295
FHS 80-250/3706/C	80	100	125	228	280	361	317	82	30	-	200	370	305	385	318	18	400	517	1010	129	320
FHS 80-250/4506/C	80	100	125	228	280	377	384	80	34	-	225	412	311	436	356	18	450	609	1099	129	424
FHS 80-250/5506/C	80	100	125	258	280	426	402	100	43	-	250	467	349	506	406	24	550	652	1208	129	499

* Motor shim on request

fh-fhs-2p60-en_d_td

FHS SERIES
DIMENSIONS AND WEIGHTS AT 60 Hz, 2 POLES



PUMP FLANGES

DN	D	M	G	HOLES		MAX.
				N°	Ø	THICKNESS
100	220	180	158	8	18	24
125	250	210	188	8	18	26

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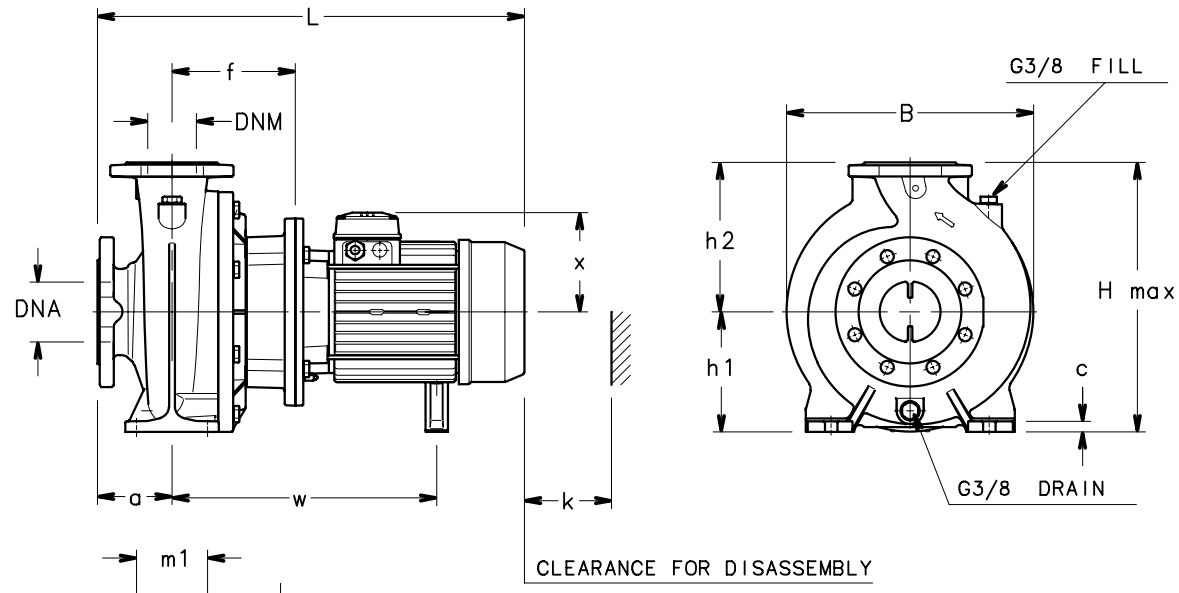
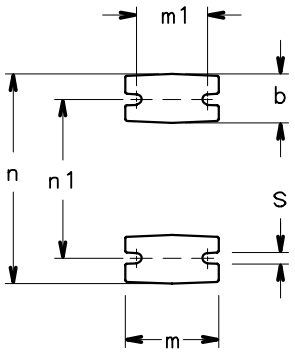
FHS SERIES
DIMENSIONS AND WEIGHTS AT 60 Hz, 2 POLES

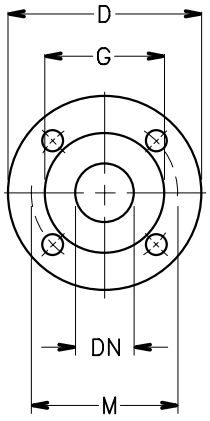
PUMP TYPE	DIMENSIONS (mm)																					WEIGHT
	PUMP							STAND										B	H	L	k	
	DNM	DNA	a	f	h2	w	x	b	c	h1	m	m1	n	n1	n2	n3	s		max			kg
FHS 100-160/3006/C	100	125	125	231	280	185	317	80	16	225	160	120	360	280	210	180	18	435	542	1013	143	348
FHS 100-200/3006/C	100	125	125	231	280	185	317	80	16	200	160	120	360	280	210	180	18	405	517	1013	153	340
FHS 100-200/3706/C	100	125	125	231	280	185	317	80	16	200	160	120	360	280	210	180	18	405	517	1013	153	360

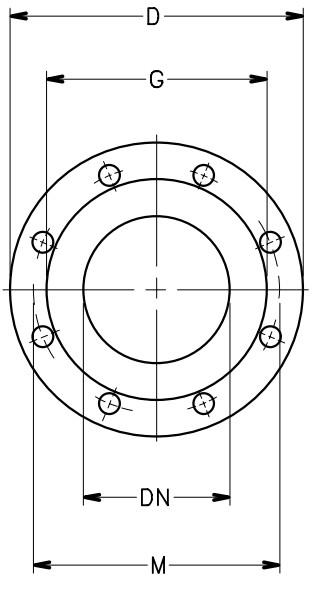
lm-fhs-2p60-en_d_td

FHS4 SERIES
DIMENSIONS AND WEIGHTS AT 60 Hz, 4 POLES









PUMP FLANGES

DN	D	M	G	HOLES		MAX.
				N°	DIA.	THICKNESS
32	140	100	78	4	18	18
40	150	110	88	4	18	18
50	165	125	102	4	18	20
65	185	145	122	4	18	20
80	200	160	138	8	18	22
100	220	180	158	8	18	22

04754D-EN_B_DD

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FHS4 SERIES
DIMENSIONS AND WEIGHTS AT 60 Hz, 4 POLES

PUMP TYPE	DIMENSIONS (mm)																			WEIGHT
	PUMP							STAND								B	H	L	k	
	DNM	DNA	a	f	h2	w	x	b	c	h1	m	m1	n	n1	s		max			kg
FHS4 40-200/076/C	40	65	100	155	180	-	128	50	12	160	100	70	265	212	14	285	340	486	88	45
FHS4 40-200/116/P	40	65	100	155	180	300	134	50	12	160	100	70	265	212	14	285	340	553	88	53
FHS4 40-250/116/P	40	65	100	155	225	300	134	65	14	180	125	95	320	250	14	335	405	553	107	63
FHS4 40-250/156/P	40	65	100	155	225	300	134	65	14	180	125	95	320	250	14	335	405	553	107	66
FHS4 40-250/226/P	40	65	100	165	225	350	168	65	14	180	125	95	320	250	14	335	405	587	107	75
FHS4 50-160/076/C	50	65	100	157	180	-	128	50	12	160	100	70	265	212	14	285	340	488	92	48
FHS4 50-160/116/P	50	65	100	157	180	302	134	50	12	160	100	70	265	212	14	285	340	555	92	56
FHS4 50-200/116/P	50	65	100	157	200	302	134	50	12	160	100	70	265	212	14	305	360	555	92	56
FHS4 50-200/156/P	50	65	100	157	200	302	134	50	12	160	100	70	265	212	14	305	360	555	92	59
FHS4 50-250/226A/P	50	65	100	165	225	350	168	65	14	180	125	95	320	250	14	340	405	587	107	75
FHS4 50-250/226/P	50	65	100	165	225	350	168	65	14	180	125	95	320	250	14	340	405	587	107	75
FHS4 50-250/306/P	50	65	100	165	225	350	168	65	14	180	125	95	320	250	14	340	405	618	107	78
FHS4 65-125/076/C	65	80	100	157	180	-	128	65	14	160	125	95	280	212	14	285	340	488	105	54
FHS4 65-125/116/P	65	80	100	157	180	302	134	65	14	160	125	95	280	212	14	285	340	555	105	60
FHS4 65-160/116/P	65	80	100	155	200	300	134	65	14	160	125	95	280	212	14	331	360	553	112	67
FHS4 65-160/156/P	65	80	100	155	200	300	134	65	14	160	125	95	280	212	14	331	360	553	112	70
FHS4 65-160/226/P	65	80	100	165	200	350	168	65	14	160	125	95	280	212	14	331	360	587	112	79
FHS4 65-200/226/P	65	80	100	165	225	350	168	65	14	180	125	95	320	250	14	335	405	587	112	79
FHS4 65-200/306/P	65	80	100	165	225	350	168	65	14	180	125	95	320	250	14	335	405	618	112	82
FHS4 65-250/306/P	65	80	100	165	250	350	168	80	16	200	160	120	360	280	18	360	450	618	112	88
FHS4 65-250/406/P	65	80	100	165	250	380	168	80	16	200	160	120	360	280	18	360	450	663	112	121
FHS4 65-250/556/P	65	80	100	192	250	435	191	80	16	200	160	120	360	280	18	360	450	697	112	123
FHS4 80-160/156/P	80	100	125	155	225	300	134	65	14	180	125	95	320	250	14	332	405	578	129	77
FHS4 80-160/226/P	80	100	125	165	225	350	168	65	14	180	125	95	320	250	14	332	405	612	129	85
FHS4 80-200/306/P	80	100	125	165	250	350	168	65	14	180	125	95	345	280	14	345	430	643	129	91
FHS4 80-200/406/P	80	100	125	165	250	380	168	65	14	180	125	95	345	280	14	345	430	688	129	124
FHS4 80-250/406/P	80	100	125	165	280	380	168	80	16	200	160	120	400	315	18	400	480	688	129	130
FHS4 80-250/556/P	80	100	125	192	280	435	191	80	16	200	160	120	400	315	18	400	480	722	129	132
FHS4 80-250/756/P	80	100	125	192	280	435	191	80	16	200	160	120	400	315	18	400	480	722	129	137

NOTE: for models FHS4 65-315 and FHS4 80-315 consult the following pages.

fh-fhs4-4p60-en_d_td

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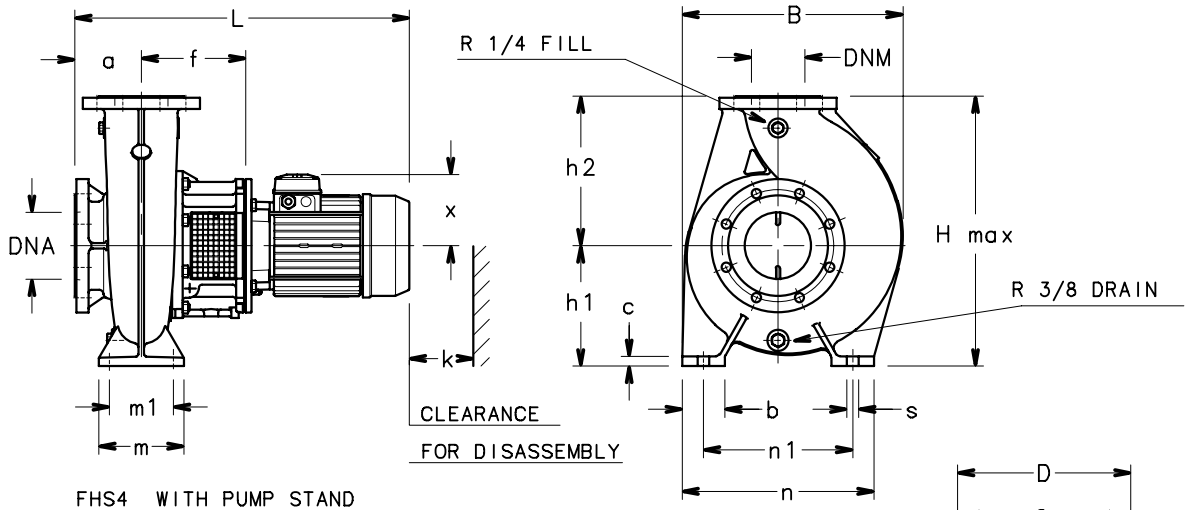
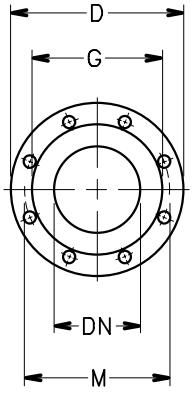
FHS4 SERIES
DIMENSIONS AND WEIGHTS AT 60 Hz, 4 POLES

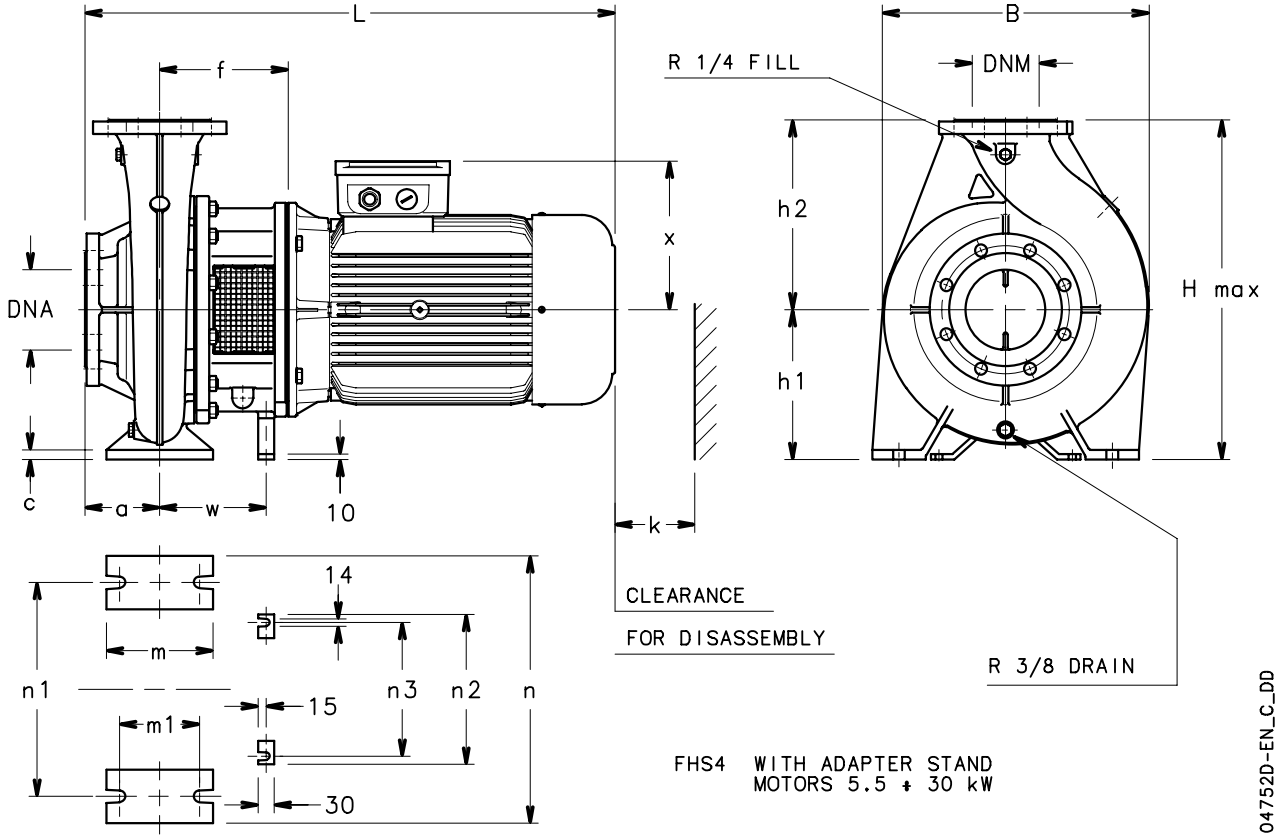


FHS4 WITH PUMP STAND
MOTORS 3 ÷ 4 kW

PUMP FLANGES

DN	D	M	G	HOLES		MAX.
				N°	DIA.	THICKNESS
65	185	145	122	4	18	20
80	200	160	138	8	18	22
100	220	180	158	8	18	24
125	250	210	188	8	18	26
150	285	240	212	8	22	26
200	340	295	268	8	22	26





FHS4 WITH ADAPTER STAND
MOTORS 5.5 ÷ 30 kW

04752D-EN_C_DD

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FHS4 SERIES
DIMENSIONS AND WEIGHTS AT 60 Hz, 4 POLES

PUMP TYPE	DIMENSIONS (mm)																					WEIGHT
	PUMP							STAND										B	H	L	k	
	DNM	DNA	a	f	h2	w	x	b	c	h1	m	m1	n	n1	n2	n3	s		max			kg
FHS4 65-315/556/P	65	80	125	196	280	150	191	80	14	225	160	120	400	315	210	180	18	434	505	726	160	151
FHS4 65-315/756/P	65	80	125	196	280	150	191	80	14	225	160	120	400	315	210	180	18	434	505	726	160	151
FHS4 65-315/1106/P	65	80	125	226	280	150	240	80	14	225	160	120	400	315	210	180	18	434	505	845	160	209
FHS4 65-315/1506/P	65	80	125	226	280	150	240	80	14	225	160	120	400	315	210	180	18	434	505	845	160	217
FHS4 65-315/1856/C	65	80	125	226	280	150	279	80	14	225	160	120	400	315	210	180	18	434	505	905	160	271
FHS4 80-315/1106/P	80	100	125	226	315	150	240	80	16	250	160	120	400	315	210	180	18	450	565	845	160	215
FHS4 80-315/1506/P	80	100	125	226	315	150	240	80	16	250	160	120	400	315	210	180	18	450	565	845	160	224
FHS4 80-315/1856/C	80	100	125	226	315	150	279	80	16	250	160	120	400	315	210	180	18	450	565	905	160	278
FHS4 80-315/2206/C	80	100	125	226	315	150	279	80	16	250	160	120	400	315	210	180	18	450	565	943	160	300
FHS4 100-160/406/P	100	125	125	196	280	-	168	80	16	225	160	120	360	280	-	-	18	415	505	719	143	110
FHS4 100-160/556/P	100	125	125	196	280	150	191	80	16	225	160	120	360	280	280	250	18	415	505	726	143	138
FHS4 100-200/406/P	100	125	125	196	280	-	168	80	18	200	160	120	360	280	-	-	18	385	480	719	153	99
FHS4 100-200/556/P	100	125	125	196	280	150	191	80	18	200	160	120	360	280	210	180	18	385	480	726	153	125
FHS4 100-200/756/P	100	125	125	196	280	150	191	80	18	200	160	120	360	280	210	180	18	385	480	726	153	125
FHS4 100-200/1106/P	100	125	125	226	280	150	240	80	18	200	160	120	360	280	210	180	18	385	480	845	153	171
FHS4 100-250/1106/P	100	125	140	226	280	150	240	80	16	225	160	120	400	315	210	180	18	425	505	860	150	212
FHS4 100-250/1506/P	100	125	140	226	280	150	240	80	16	225	160	120	400	315	210	180	18	425	505	860	150	220
FHS4 100-250/1856/C	100	125	140	226	280	150	279	80	16	225	160	120	400	315	210	180	18	425	505	920	150	274
FHS4 100-315/2206/C	100	125	140	226	315	150	279	80	16	250	160	120	400	315	210	180	18	486	565	958	160	303
FHS4 100-315/3006/C	100	125	140	226	315	150	317	80	16	250	160	120	400	315	210	180	18	486	577	1023	160	339
FHS4 125-200/756/P	125	150	140	211	315	165	191	80	16	250	160	120	400	315	280	250	18	469	565	756	160	158
FHS4 125-200/1106/P	125	150	140	241	315	165	240	80	16	250	160	120	400	315	280	250	18	469	565	875	160	204
FHS4 125-200/1506/P	125	150	140	241	315	165	240	80	16	250	160	120	400	315	280	250	18	469	565	875	160	212
FHS4 125-250/1106/P	125	150	140	226	355	150	240	80	16	250	160	120	400	315	280	250	18	493	605	860	158	214
FHS4 125-250/1506/P	125	150	140	226	355	150	240	80	16	250	160	120	400	315	280	250	18	493	605	860	158	223
FHS4 125-250/1856/C	125	150	140	226	355	150	279	80	16	250	160	120	400	315	280	250	18	493	605	920	158	272
FHS4 125-250/2206/C	125	150	140	226	355	150	279	80	16	250	160	120	400	315	280	250	18	493	605	958	158	294
FHS4 125-250/3006/C	125	150	140	226	355	150	317	80	16	250	160	120	400	315	280	250	18	493	635	1023	158	330
FHS4 125-315/3006/C	125	150	140	241	355	200	317	100	18	280	200	150	500	400	280	250	22	520	635	1038	171	386
FHS4 150-250/2206/C	150	200	160	246	375	200	279	100	18	280	200	150	500	400	280	250	22	550	655	998	181	356
FHS4 150-250/3006/C	150	200	160	246	375	200	317	100	18	280	200	150	500	400	280	250	22	550	655	1063	181	387

lm-fhs4-4p60_d_td

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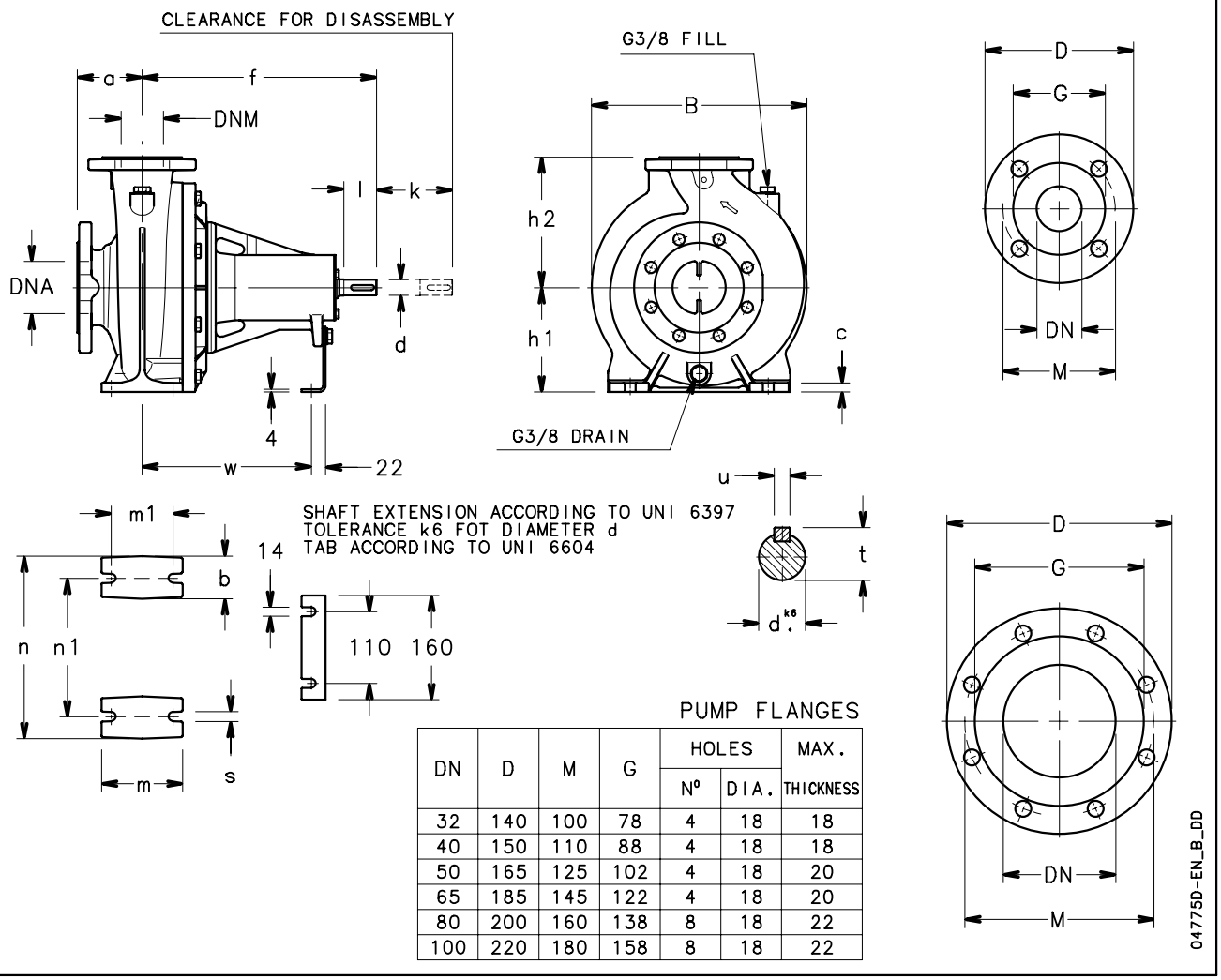
FHF SERIES BARE SHAFT
DIMENSIONS AND WEIGHTS AT 60 Hz



DN	D	M	G	HOLES		MAX.
				Nº	DIA.	THICKNESS
32	140	100	78	4	18	18
40	150	110	88	4	18	18
50	165	125	102	4	18	20
65	185	145	122	4	18	20
80	200	160	138	8	18	22
100	220	180	158	8	18	22

PUMP TYPE	DIMENSIONS (mm)																		B	k	WEIGHT
	PUMP						STAND								SHAFT						
	DNM	DNA	a	f	h1	h2	b	c	m	m1	n	n1	s	w	d	l	t	u			kg
FHF 32-125	32	50	80	360	112	140	50	12	100	70	190	140	14	260	24	50	27	8	233	86	27
FHF 32-160	32	50	80	360	132	160	50	12	100	70	240	190	14	260	24	50	27	8	235	86	30
FHF 32-200	32	50	80	360	160	180	50	12	100	70	240	190	14	260	24	50	27	8	285	86	34
FHF 40-125	40	65	80	360	112	140	50	12	100	70	210	160	14	260	24	50	27	8	233	88	27
FHF 40-160	40	65	80	360	132	160	50	12	100	70	240	190	14	260	24	50	27	8	250	88	29
FHF 40-200	40	65	100	360	160	180	50	12	100	70	265	212	14	260	24	50	27	8	285	88	37
FHF 40-250	40	65	100	360	180	225	65	14	125	95	320	250	14	260	24	50	27	8	335	100	57
FHF 50-125	50	65	100	360	132	160	50	12	100	70	240	190	14	260	24	50	27	8	255	92	31
FHF 50-160	50	65	100	360	160	180	50	12	100	70	265	212	14	260	24	50	27	8	285	92	39
FHF 50-200	50	65	100	360	160	200	50	12	100	70	265	212	14	260	24	50	27	8	305	92	43
FHF 50-250	50	65	100	360	180	225	65	14	125	95	320	250	14	260	24	50	27	8	340	100	57
FHF 65-125	65	80	100	360	160	180	65	14	125	95	280	212	14	260	24	50	27	8	285	100	33
FHF 65-160	65	80	100	360	160	200	65	14	125	95	280	212	14	260	24	50	27	8	331	100	55
FHF 65-200	65	80	100	360	180	225	65	14	125	95	320	250	14	260	24	50	27	8	335	112	61
FHF 65-250	65	80	100	470	200	250	80	16	160	120	360	280	18	340	32	80	35	10	360	112	78
FHF 80-160	80	100	125	360	180	225	65	14	125	95	320	250	14	260	24	50	27	8	332	129	73
FHF 80-200	80	100	125	470	180	250	65	14	125	95	345	280	14	340	32	80	35	10	345	129	80
FHF 80-250	80	100	125	470	200	280	80	16	160	120	400	315	18	340	32	80	35	10	400	129	89

NOTE: for model FHF 65-315 consult table on following page.

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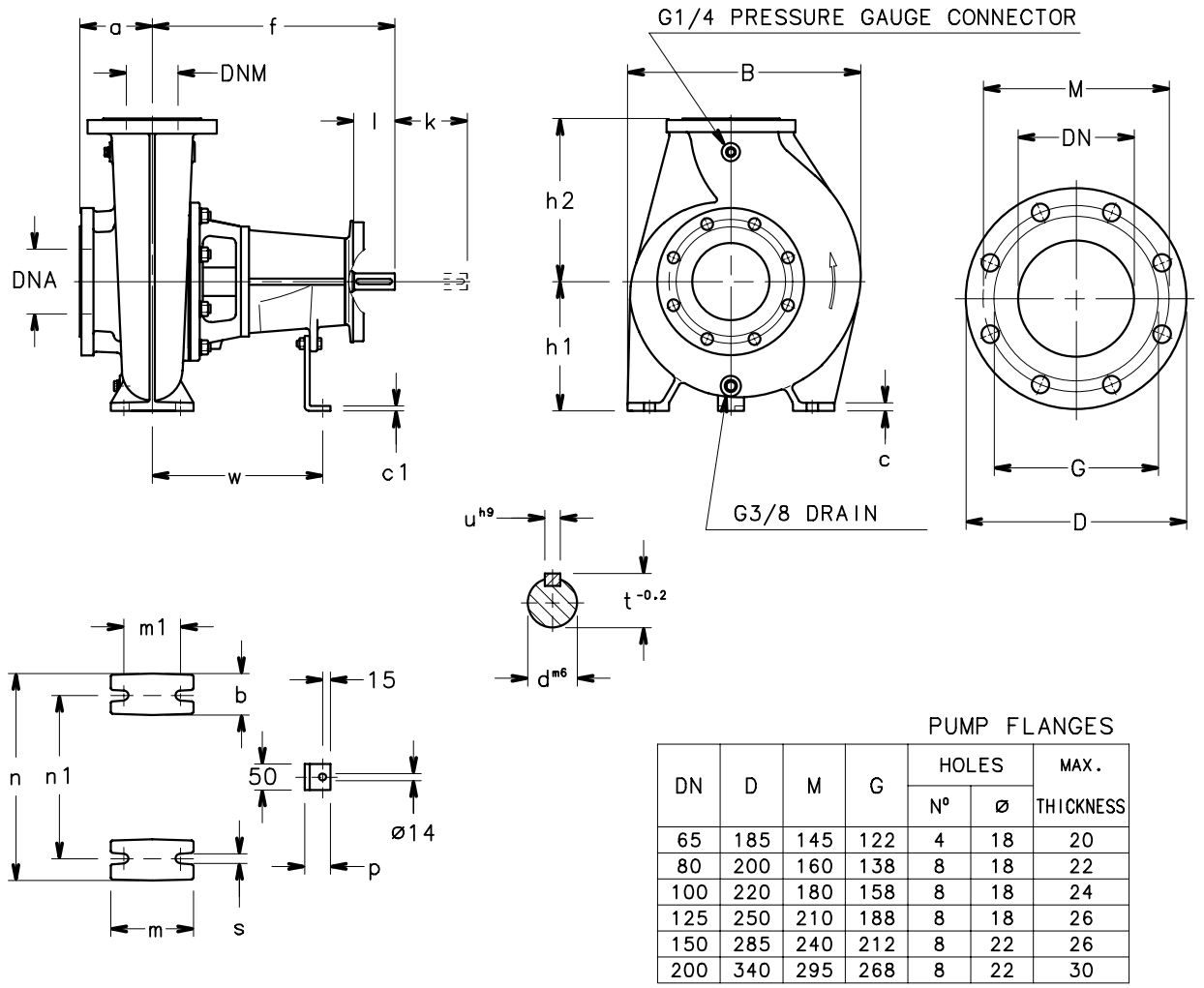
FHF SERIES BARE SHAFT
DIMENSIONS AND WEIGHTS AT 60 Hz



PUMP FLANGES

DN	D	M	G	HOLES		MAX.
				Nº	ø	THICKNESS
65	185	145	122	4	18	20
80	200	160	138	8	18	22
100	220	180	158	8	18	24
125	250	210	188	8	18	26
150	285	240	212	8	22	26
200	340	295	268	8	22	30

04787-EN_C_DD

PUMP TYPE	DIMENSIONS (mm)																						WEIGHT
	PUMP								STAND										SHAFT				
	DNM	DNA	a	f	h1	h2	k	B	b	c	c1	m	m1	n	n1	s	p	w	d	l	t	u	kg
FHF 65-315	65	80	125	470	225	280	140	434	80	14	5	160	120	400	315	18	39	330	32	80	35	10	100
FHF 80-315	80	100	125	470	250	315	140	451	80	16	5	160	120	400	315	18	39	330	32	80	35	10	116
FHF 80-400	80	100	125	530	280	355	140	486	80	20	6	160	120	435	355	18	41	360	42	110	45	12	153
FHF 100-160	100	125	125	470	225	280	140	415	80	16	5	160	120	360	280	18	39	330	32	80	35	10	67
FHF 100-200	100	125	125	470	200	280	140	385	80	18	5	160	120	360	280	18	39	330	32	80	35	10	79
FHF 100-250	100	125	140	470	225	280	140	425	80	18	5	160	120	400	315	18	39	330	32	80	35	10	94
FHF 100-315	100	125	140	470	250	315	140	472	80	18	5	160	120	400	315	18	39	330	32	80	35	10	118
FHF 100-400	100	125	140	530	280	355	140	529	100	20	6	200	150	500	400	22	41	360	42	110	45	12	162
FHF 125-200	125	150	140	530	250	315	140	463	80	18	6	160	120	400	315	18	41	360	42	110	45	12	113
FHF 125-250	125	150	140	470	250	355	140	474	80	18	5	160	120	400	315	18	39	330	32	80	35	10	115
FHF 125-315	125	150	140	530	280	355	140	520	100	20	6	200	150	500	400	22	41	360	42	110	45	12	143
FHF 125-400	125	150	140	530	315	400	140	550	100	20	6	200	150	500	400	22	41	360	42	110	45	12	173
FHF 150-250	150	200	160	535	280	375	140	550	100	20	6	200	150	500	400	22	41	360	42	110	45	12	147
FHF 150-315	150	200	160	530	280	400	140	587	100	20	6	200	150	550	450	22	41	360	42	110	45	12	166
FHF 150-400	150	200	160	530	315	450	140	603	100	20	6	200	150	550	450	22	41	360	42	110	45	12	195

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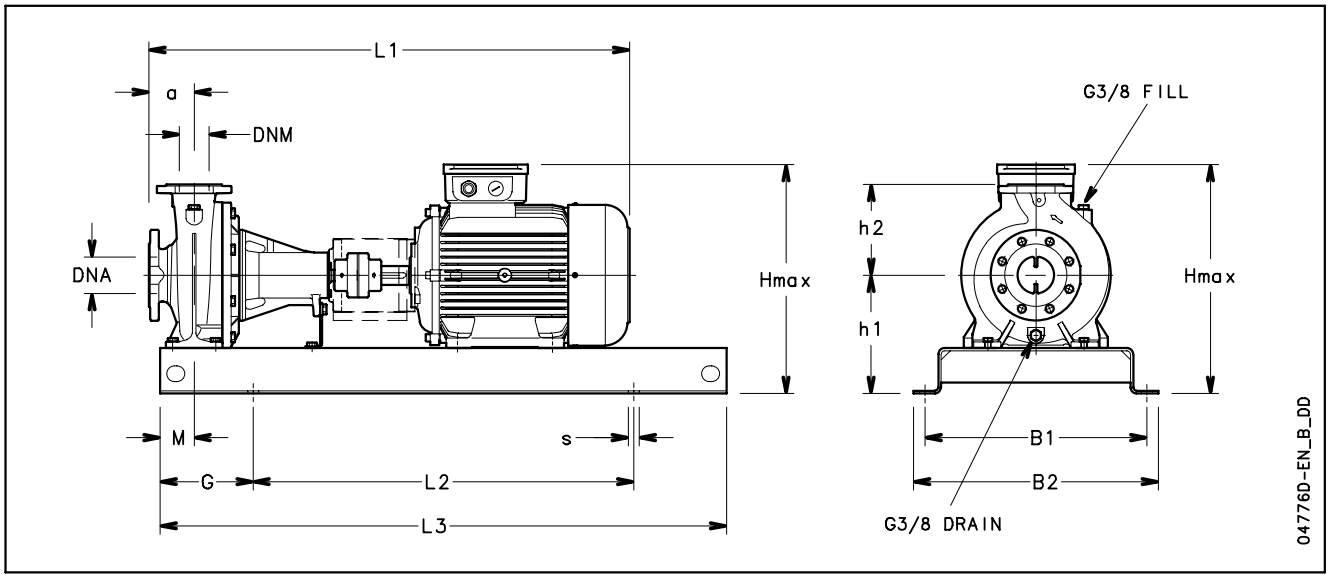
FHF SERIES MOUNTED ON BASE
DIMENSIONS AND WEIGHTS AT 60 Hz, 2 POLES



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FHF SERIES MOUNTED ON BASE
DIMENSIONS AND WEIGHTS AT 60 Hz, 2 POLES

PUMP TYPE	DIMENSIONS (mm)													s FOR	WEIGHT	COUPLING TYPE
	DNM	DNA	a	B1	B2	L1	L2	L3	G	M	h1	h2	Hmax	SCREWS	kg	
FHF 32-125/116/D	32	50	80	320	360	746	540	800	130	60	212	140	352	M16	70,6	A2
FHF 32-160/156/P	32	50	80	350	390	791	600	900	150	60	232	160	392	M16	75	A3
FHF 32-160/226/P	32	50	80	350	390	791	600	900	150	60	232	160	392	M16	77	A3
FHF 32-200/306/P	32	50	80	350	390	822	600	900	150	60	260	180	440	M16	97	B1
FHF 32-200/406/P	32	50	80	350	390	825	600	900	150	60	260	180	440	M16	99	B1
FHF 40-125/156/P	40	65	80	350	390	791	600	900	150	60	212	140	352	M16	78	A3
FHF 40-125/226/P	40	65	80	350	390	791	600	900	150	60	212	140	352	M16	81	A3
FHF 40-160/306/P	40	65	80	350	390	822	600	900	150	60	232	160	392	M16	96	B1
FHF 40-160/406/P	40	65	80	350	390	825	600	900	150	60	232	160	400	M16	100	B1
FHF 40-200/556/P	40	65	100	400	450	910	660	1000	170	60	260	180	451	M20	127	C1
FHF 40-200/756/P	40	65	100	400	450	910	660	1000	170	60	260	180	451	M20	132	C1
FHF 40-250/1106A/P	40	65	100	490	540	1067	840	1250	205	75	280	225	520	M20	183	C2
FHF 40-250/1106/P	40	65	100	490	540	1067	840	1250	205	75	280	225	520	M20	183	C2
FHF 40-250/1506/P	40	65	100	490	540	1067	840	1250	205	75	280	225	520	M20	193	C2
FHF 50-125/306/P	50	65	100	350	390	842	600	900	150	60	232	160	392	M16	97	B1
FHF 50-125/406/P	50	65	100	350	390	845	600	900	150	60	232	160	400	M16	100	B1
FHF 50-160/556/P	50	65	100	400	450	910	660	1000	170	60	260	180	451	M20	126	C1
FHF 50-160/756/P	50	65	100	400	450	910	660	1000	170	60	260	180	451	M20	130	C1
FHF 50-200/1106A/P	50	65	100	440	490	1067	740	1120	190	60	260	200	500	M20	178	C2
FHF 50-200/1106/P	50	65	100	440	490	1067	740	1120	190	60	260	200	500	M20	178	C2
FHF 50-250/1506/P	50	65	100	490	540	1067	840	1250	205	75	280	225	520	M20	184	C2
FHF 50-250/1856/P	50	65	100	490	540	1067	840	1250	205	75	280	225	520	M20	195	C2
FHF 50-250/2206/C	50	65	100	490	540	1127	840	1250	205	75	280	225	559	M20	285	D1
FHF 65-125/556/P	65	80	100	400	450	910	660	1000	170	75	260	180	451	M20	156	C1
FHF 65-125/756/P	65	80	100	400	450	910	660	1000	170	75	260	180	451	M20	160	C1
FHF 65-160/1106A/P	65	80	100	490	540	1067	840	1250	205	75	260	200	500	M20	169	C2
FHF 65-160/1106/P	65	80	100	490	540	1067	840	1250	205	75	260	200	500	M20	169	C2
FHF 65-160/1506/P	65	80	100	490	540	1067	840	1250	205	75	260	200	500	M20	185	C2
FHF 65-200/1856/P	65	80	100	490	540	1067	840	1250	205	75	280	225	520	M20	200	C2
FHF 65-200/2206/C	65	80	100	490	540	1127	840	1250	205	75	280	225	559	M20	281	D1
FHF 65-250/2206/C	65	80	100	490	540	1237	840	1250	205	90	310	250	589	M20	289	D2
FHF 65-250/3006/C	65	80	100	550	610	1340	940	1400	230	90	310	250	627	M24	396	E1
FHF 65-250/3706/C	65	80	100	550	610	1340	940	1400	230	90	310	250	627	M24	422	E1
FHF 80-160/1506/P	80	100	125	490	540	1092	840	1250	205	75	280	225	520	M20	217	C2
FHF 80-160/1856/P	80	100	125	490	540	1092	840	1250	205	75	280	225	520	M20	228	C2
FHF 80-200/2206/C	80	100	125	490	540	1262	840	1250	205	75	280	250	559	M20	311	D2
FHF 80-200/3006/C	80	100	125	550	610	1365	940	1400	230	75	310	250	627	M24	381	E1
FHF 80-250/3706/C	80	100	125	550	610	1365	940	1400	230	90	310	280	627	M24	412	E1
FHF 80-250/4506/C	80	100	125	550	610	1454	940	1400	230	90	365	280	749	M24	511	E1
FHF 80-250/5506/C	80	100	125	600	660	1563	1060	1600	270	90	390	280	792	M24	588	F1

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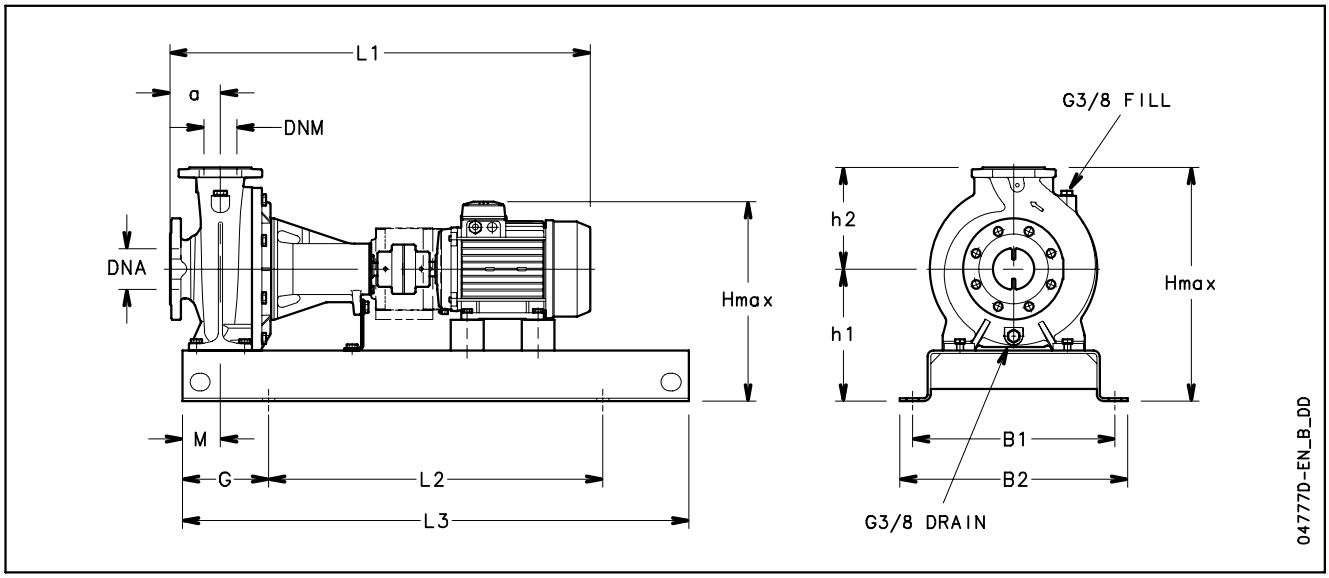
FHF4 SERIES MOUNTED ON BASE
DIMENSIONS AND WEIGHTS AT 60 Hz, 4 POLES



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FHF4 SERIES MOUNTED ON BASE
DIMENSIONS AND WEIGHTS AT 60 Hz, 4 POLES

PUMP TYPE	DIMENSIONS (mm)													s FOR SCREWS	WEIGHT kg	COUPLING TYPE
	DNM	DNA	a	B1	B2	L1	L2	L3	G	M	h1	h2	Hmax			
FHF4 32-125/026/A	32	50	80	320	360	704	540	800	130	60	212	140	352	M16	74	A1
FHF4 32-160/026/A	32	50	80	320	360	704	540	800	130	60	232	160	392	M16	76	A1
FHF4 32-160/036/A	32	50	80	320	360	704	540	800	130	60	232	160	392	M16	78	A1
FHE4 32-200/036/A	32	50	80	320	360	704	540	800	130	60	260	180	440	M16	80	A1
FHF4 32-200/056/A	32	50	80	320	360	746	540	800	130	60	260	180	440	M16	82	A2
FHF4 40-125/026/A	40	65	80	320	360	704	540	800	130	60	212	140	352	M16	61	A1
FHF4 40-125/036/A	40	65	80	320	360	704	540	800	130	60	212	140	352	M16	64	A1
FHF4 40-160/036/A	40	65	80	320	360	704	540	800	130	60	232	160	392	M16	65	A1
FHF4 40-160/056/A	40	65	80	320	360	746	540	800	130	60	232	160	392	M16	66	A2
FHF4 40-200/076/C	40	65	100	350	390	734	600	900	150	60	260	180	440	M16	74	A2
FHF4 40-200/116/P	40	65	100	350	390	811	600	900	150	60	260	180	440	M16	82	A3
FHF4 40-250/116/P	40	65	100	400	450	811	660	1000	170	75	280	225	505	M20	109	A3
FHF4 40-250/156/P	40	65	100	400	450	811	660	1000	170	75	280	225	505	M20	112	A3
FHF4 40-250/226/P	40	65	100	400	450	888	660	1000	170	75	280	225	505	M20	135	B1
FHF4 50-125/036/A	50	65	100	320	360	724	540	800	130	60	232	160	392	M16	64	A1
FHF4 50-125/056/A	50	65	100	320	360	766	540	800	130	60	232	160	392	M16	66	A2
FHF4 50-160/076/C	50	65	100	350	390	734	600	900	150	60	260	180	440	M16	74	A2
FHF4 50-160/116/P	50	65	100	350	390	811	600	900	150	60	260	180	440	M16	82	A3
FHF4 50-200/116/P	50	65	100	350	390	811	600	900	150	60	260	200	460	M16	93	A3
FHF4 50-200/156/P	50	65	100	350	390	811	600	900	150	60	260	200	460	M16	96	A3
FHF4 50-250/226A/P	50	65	100	400	450	888	660	1000	170	75	280	225	505	M20	137	B1
FHF4 50-250/226/P	50	65	100	400	450	888	660	1000	170	75	280	225	505	M20	137	B1
FHF4 50-250/306/P	50	65	100	400	450	888	660	1000	170	75	280	225	505	M20	141	B1
FHF4 65-125/076/C	65	80	100	350	390	734	600	900	150	75	260	180	440	M16	92	A2
FHF4 65-125/116/P	65	80	100	350	390	811	600	900	150	75	260	180	440	M16	101	A3
FHF4 65-160/116/P	65	80	100	400	450	811	660	1000	170	75	260	200	460	M20	106	A3
FHF4 65-160/156/P	65	80	100	400	450	811	660	1000	170	75	260	200	460	M20	116	A3
FHF4 65-160/226/P	65	80	100	400	450	888	660	1000	170	75	260	200	460	M20	135	B1
FHF4 65-200/226/P	65	80	100	440	490	888	740	1120	190	75	280	225	505	M20	139	B1
FHF4 65-200/306/P	65	80	100	440	490	888	740	1120	190	75	280	225	505	M20	142	B1
FHF4 65-250/306/P	65	80	100	440	490	998	740	1120	190	90	310	250	550	M20	166	C3
FHF4 65-250/406/P	65	80	100	440	490	1031	740	1120	190	90	310	250	550	M20	182	C3
FHF4 65-250/556/P	65	80	100	440	490	1058	740	1120	190	90	310	250	550	M20	199	C4
FHF4 80-160/156/P	80	100	125	400	450	836	660	1000	170	75	280	225	505	M20	136	A3
FHF4 80-160/226/P	80	100	125	440	490	913	740	1120	190	75	280	225	505	M20	152	B1
FHF4 80-200/306/P	80	100	125	440	490	1023	740	1120	190	75	280	250	530	M20	171	C3
FHF4 80-200/406/P	80	100	125	440	490	1056	740	1120	190	75	280	250	530	M20	179	C3
FHF4 80-250/406/P	80	100	125	490	540	1056	840	1250	205	90	310	280	580	M20	185	C3
FHF4 80-250/556/P	80	100	125	490	540	1083	840	1250	205	90	310	280	580	M20	199	C4
FHF4 80-250/756/P	80	100	125	490	540	1083	840	1250	205	90	310	280	580	M20	206	C4

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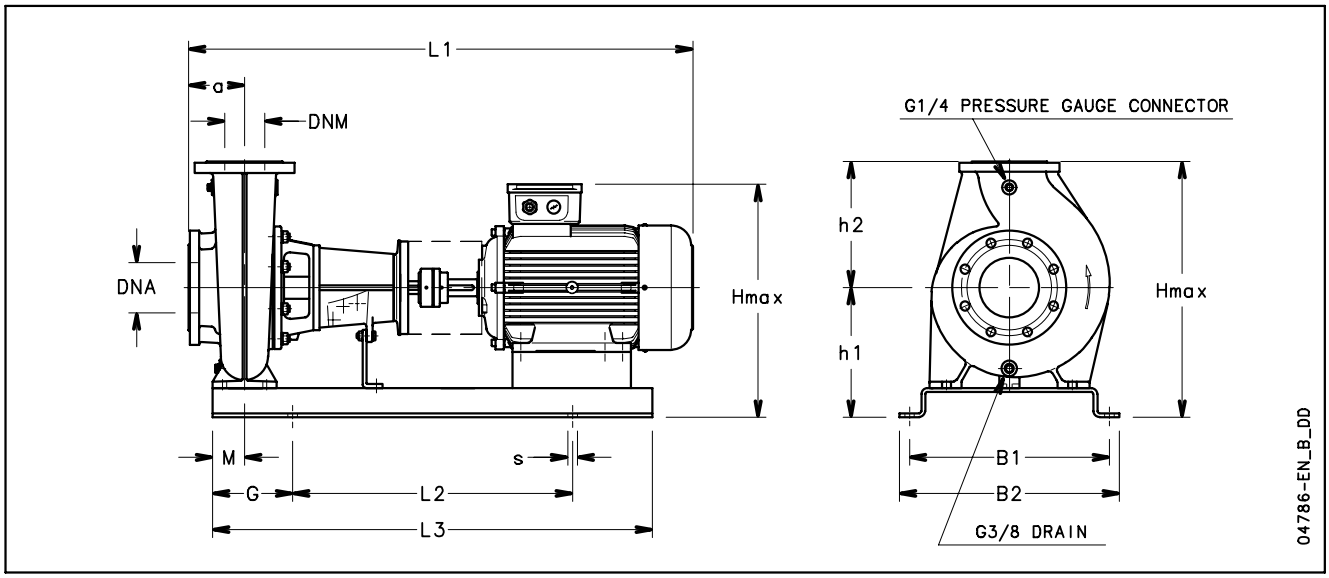
FHF-FHF4 SERIES MOUNTED ON BASE
DIMENSIONS AND WEIGHTS AT 60 Hz



FHF SERIES MOUNTED ON BASE
DIMENSIONS AND WEIGHTS AT 60 Hz, 2 POLES

PUMP TYPE	DIMENSIONS (mm)													s FOR SCREWS	WEIGHT kg	COUPLING TYPE
	DNM	DNA	a	B1	B2	L1	L2	L3	G	M	h1	h2	Hmax			
FHF 100-160/3006/C	100	125	125	500	550	1365	830	1270	220	90	298	280	615	M20	356	E1
FHF 100-160/3706/C	100	125	125	500	550	1365	830	1270	220	90	298	280	615	M20	385	E1
FHF 100-160/4506/C	100	125	125	610	670	1454	940	1420	240	90	318	280	702	M24	522	E1
FHF 100-160/5506/C	100	125	125	610	670	1564	940	1420	240	90	318	280	720	M24	584	F1
FHF 100-200/3006/C	100	125	125	500	550	1365	830	1270	220	90	273	280	590	M20	361	E1
FHF 100-200/3706/C	100	125	125	500	550	1365	830	1270	220	90	273	280	590	M20	390	E1
FHF 100-200/4506/C	100	125	125	610	670	1454	940	1420	240	90	318	280	702	M24	540	E1
FHF 100-200/5506/C	100	125	125	610	670	1564	940	1420	240	90	343	280	745	M24	582	F1
FHF 100-200/7506/C	100	125	125	680	740	1670	1050	1570	260	90	373	280	845	M24	839	G1
FHF 100-250/5506/C	100	125	140	610	670	1578	940	1420	240	90	343	280	745	M24	615	F1
FHF 100-250/7506/C	100	125	140	680	740	1685	1050	1570	260	90	373	280	845	M24	856	G1
FHF 100-250/9006/C	100	125	140	680	740	1685	1050	1570	260	90	373	280	845	M24	879	G1

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FHF4 SERIES MOUNTED ON BASE
DIMENSIONS AND WEIGHTS AT 60 Hz, 4 POLES

PUMP TYPE	DIMENSIONS (mm)													s FOR	WEIGHT	COUPLING TYPE
	DNM	DNA	a	B1	B2	L1	L2	L3	G	M	h1	h2	Hmax	SCREWS	kg	
FHF4 65-315/556/P	65	80	125	500	550	1083	660	1020	180	90	298	280	578	M20	217	C4
FHF4 65-315/756/P	65	80	125	500	550	1083	660	1020	180	90	298	280	578	M20	224	C4
FHF4 65-315/1106/P	65	80	125	500	550	1203	660	1020	180	90	298	280	578	M20	286	C5
FHF4 65-315/1506/P	65	80	125	500	550	1203	700	1100	200	90	298	280	578	M20	289	C5
FHF4 65-315/1856/C	65	80	125	500	550	1320	830	1270	220	90	298	280	578	M20	327	D2
FHF4 80-315/1106/P	80	100	125	500	550	1203	700	1100	200	90	323	315	638	M20	307	C5
FHF4 80-315/1506/P	80	100	125	500	550	1203	700	1100	200	90	323	315	638	M20	310	C5
FHF4 80-315/1856/C	80	100	125	500	550	1262	830	1270	220	90	323	315	638	M20	343	D2
FHF4 80-315/2206/C	80	100	125	500	550	1301	830	1270	220	90	323	315	638	M20	365	D2
FHF4 80-315/3006/C	80	100	125	500	550	1366	830	1270	220	90	323	315	640	M20	401	E1
FHF4 80-400/2206/C	80	100	125	500	550	1360	830	1270	220	90	353	355	708	M20	413	D3
FHF4 80-400/3006/C	80	100	125	500	550	1425	830	1270	220	90	353	355	708	M20	450	E2
FHF4 80-400/3706/C	80	100	125	610	670	1545	940	1420	240	90	373	355	757	M24	588	F2
FHF4 80-400/4506/C	80	100	125	610	670	1545	940	1420	240	90	373	355	757	M24	609	F2
FHF4 80-400/5506/C	80	100	125	610	670	1624	940	1420	240	90	373	355	775	M24	690	G2
FHF4 100-160/406/P	100	125	125	500	550	1056	660	1020	180	90	298	280	578	M20	175	C3
FHF4 100-160/556/P	100	125	125	500	550	1083	660	1020	180	90	298	280	578	M20	181	C4
FHF4 100-160/756/P	100	125	125	500	550	1083	660	1020	180	90	298	280	578	M20	185	C4
FHF4 100-200/406/P	100	125	125	500	550	1056	660	1020	180	90	273	280	553	M20	184	C3
FHF4 100-200/556/P	100	125	125	500	550	1083	660	1020	180	90	273	280	553	M20	194	C4
FHF4 100-200/756/P	100	125	125	500	550	1083	660	1020	180	90	273	280	553	M20	198	C4
FHF4 100-200/1106/P	100	125	125	500	550	1203	700	1100	200	90	272	280	553	M20	262	C5
FHF4 100-250/1106/P	100	125	140	500	550	1218	700	1100	200	90	298	280	578	M20	280	C5
FHF4 100-250/1506/P	100	125	140	500	550	1218	700	1100	200	90	298	280	578	M20	277	C5
FHF4 100-250/1856/C	100	125	140	500	550	1277	830	1270	220	90	298	280	578	M20	328	D2
FHF4 100-250/2206/C	100	125	140	500	550	1315	830	1270	220	90	298	280	578	M20	350	D2
FHF4 100-315/2206/C	100	125	140	500	550	1315	830	1270	220	90	323	315	638	M20	372	D2
FHF4 100-315/3006/C	100	125	140	500	550	1380	830	1270	220	90	323	315	640	M20	411	E1
FHF4 100-315/3706/C	100	125	140	610	670	1500	940	1420	240	90	343	315	727	M24	565	F1
FHF4 100-400/3006/C	100	125	140	610	670	1440	940	1420	240	110	373	355	728	M24	502	E2
FHF4 100-400/3706/C	100	125	140	610	670	1559	940	1420	240	110	373	355	757	M24	623	F2
FHF4 100-400/4506/C	100	125	140	610	670	1559	940	1420	240	110	373	355	757	M24	644	F2
FHF4 100-400/5506/C	100	125	140	610	670	1638	940	1420	240	110	373	355	775	M24	725	G2
FHF4 100-400/7506/C	100	125	140	680	740	1745	1050	1570	260	110	373	355	845	M24	933	H1
FHF4 125-200/756/P	125	150	140	500	550	1158	700	1100	200	90	323	315	638	M20	242	C7
FHF4 125-200/1106/P	125	150	140	500	550	1278	830	1270	220	90	323	315	638	M20	310	C8
FHF4 125-200/1506/P	125	150	140	500	550	1278	830	1270	220	90	323	315	638	M20	313	C8
FHF4 125-250/1106/P	125	150	140	500	550	1218	700	1100	200	90	323	355	678	M20	306	C5
FHF4 125-250/1506/P	125	150	140	500	550	1218	700	1100	200	90	323	355	678	M20	309	C5
FHF4 125-250/1856/C	125	150	140	500	550	1277	700	1100	200	90	323	355	678	M20	342	D2
FHF4 125-250/2206/C	125	150	140	500	550	1240	830	1270	220	90	323	355	678	M20	373	D2
FHF4 125-250/3006/C	125	150	140	500	550	1380	830	1270	220	90	323	355	678	M20	409	E1
FHF4 125-315/3006/C	125	150	140	610	670	1440	940	1420	240	110	373	355	728	M24	483	E2
FHF4 125-315/3706/C	125	150	140	610	670	1559	940	1420	240	110	373	355	757	M24	604	F2
FHF4 125-315/4506/C	125	150	140	610	670	1559	940	1420	240	110	373	355	757	M24	615	F2
FHF4 125-315/5506/C	125	150	140	610	670	1638	940	1420	240	110	373	355	775	M24	696	G2
FHF4 125-315/7506/C	125	150	140	680	740	1745	1050	1570	260	110	373	355	845	M24	916	H1
FHF4 125-400/4506/C	125	150	140	610	670	1560	940	1420	240	110	408	400	808	M24	668	F2
FHF4 125-400/5506/C	125	150	140	610	670	1630	940	1420	240	110	408	400	810	M24	742	G2
FHF4 125-400/7506/C	125	150	140	680	740	1745	1050	1570	260	110	408	400	880	M24	946	H1
FHF4 150-250/2206/C	150	200	160	610	670	1400	940	1420	240	110	373	375	748	M24	450	D3
FHF4 150-250/3006/C	150	200	160	610	670	1465	940	1420	240	110	373	375	748	M24	486	E2
FHF4 150-250/3706/C	150	200	160	610	670	1584	940	1420	240	110	373	375	757	M24	606	F2
FHF4 150-250/4506/C	150	200	160	610	670	1584	940	1420	240	110	373	375	757	M24	627	F2
FHF4 150-315/3706/C	150	200	160	610	670	1579	940	1420	240	110	373	400	773	M24	627	F2
FHF4 150-315/4506/C	150	200	160	610	670	1579	940	1420	240	110	373	400	773	M24	648	F2
FHF4 150-315/5506/C	150	200	160	610	670	1659	940	1420	240	110	373	400	775	M24	711	G2
FHF4 150-315/7506/C	150	200	160	680	740	1765	1050	1570	260	110	373	400	845	M24	942	H1
FHF4 150-400/5506/C	150	200	160	680	740	1659	1050	1570	260	110	408	450	858	M24	780	G2
FHF4 150-400/7506/C	150	200	160	680	740	1765	1050	1570	260	110	408	450	880	M24	976	H1

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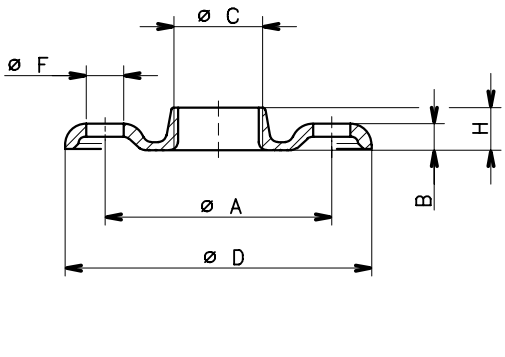
ACCESSORIES

DIMENSIONS OF ROUND THREADED COUNTERFLANGES ACCORDING TO EN 1092-1

		DIMENSIONS (mm)				HOLES		
DN	ø C	ø A	B	ø D	H	ø F	N°	PN
32	Rp 1¼	100	13	140	16	18	4	16
40	Rp 1½	110	14	150	19	18	4	16
50	Rp 2	125	16	165	24	18	4	16
65	Rp 2½	145	16	185	23	18	4	16
80	Rp 3	160	17	200	27	18	8	16
100	Rp 4	180	18	220	31	18	8	16

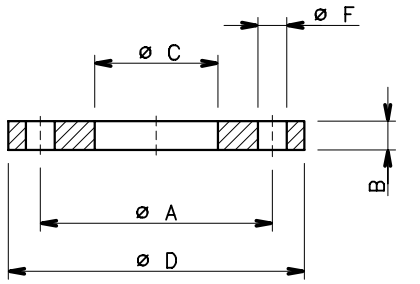
fh-ctf-tonde-f-en_a_td



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

		DIMENSIONS (mm)			HOLES		
DN	ø C	ø A	B	ø D	ø F	N°	PN
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
125	141,5	210	22	250	18	8	16
150	170,5	240	24	285	22	8	16
200	221,5	295	24	340	22	8	10

fh-ctf-tonde-s-en_a_td



AISI 304 FLANGE WITH PRESSURE GAUGE CONNECTOR

DESIGNATION	DIMENSIONS (mm)	
	d	D
25	29	70
32	36	82
40	44	92
50	54	107
65	69	127
80	85	142
100	105	162

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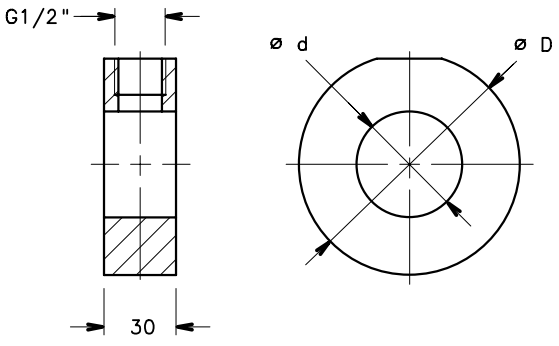
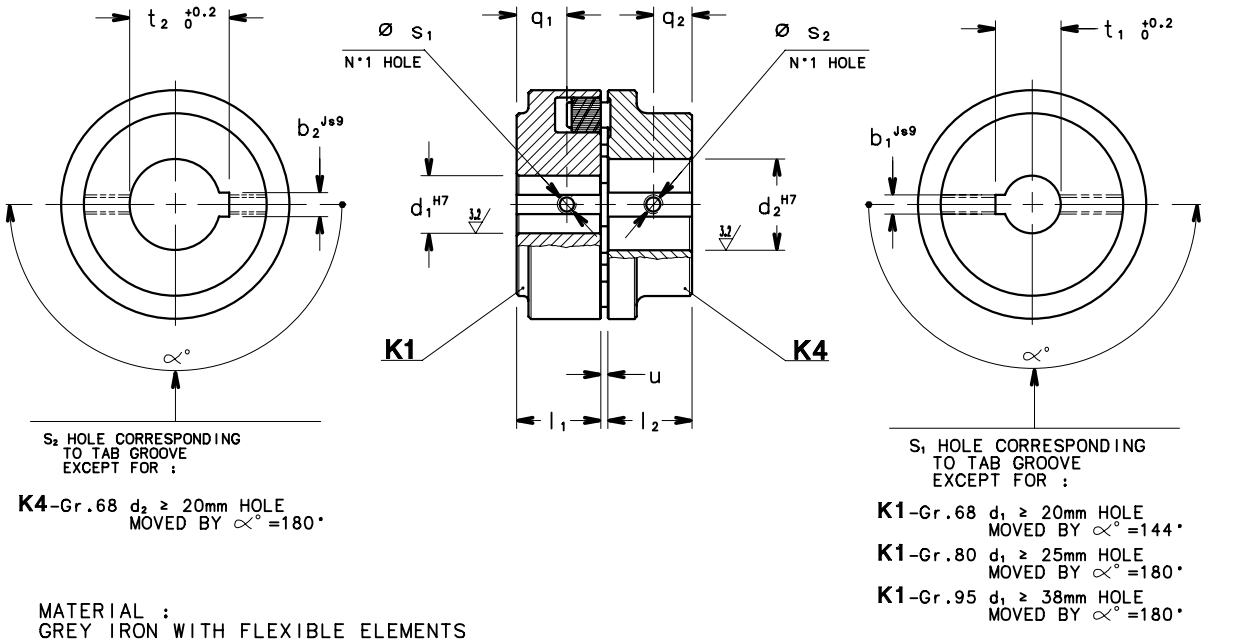


FLEXIBLE COUPLING DIMENSIONS



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}	$t_1{}_0^{+0.2}$	s_1	q_1	u	d_2^{H7}	l_2	b_2^{js9}	$t_2{}_0^{+0.2}$	s_2	q_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
C6	B 95 x 42 x 28	42	35	12	45,3	M6	20	2÷4	28	35	8	31,3	M6	15
C7	B 95 x 42 x 38	42	35	12	45,3	M6	20	2÷4	38	35	10	41,3	M6	15
C8	B 95 x 42 x 42	42	35	12	45,3	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
D3	B 110 x 42 x 48	42	40	12	45,3	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
E2	B 125 x 42 x 55	42	50	12	45,3	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
F2	B 140 x 42 x 60	42	55	12	45,3	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
G2	B 160 x 42 x 65	42	60	12	45,3	M10	13	2÷6	65	60	18	69,4	M10	25
H1	B 180 x 42 x 75	42	70	12	45,3	M12	16	2÷6	75	70	20	79,9	M12	32

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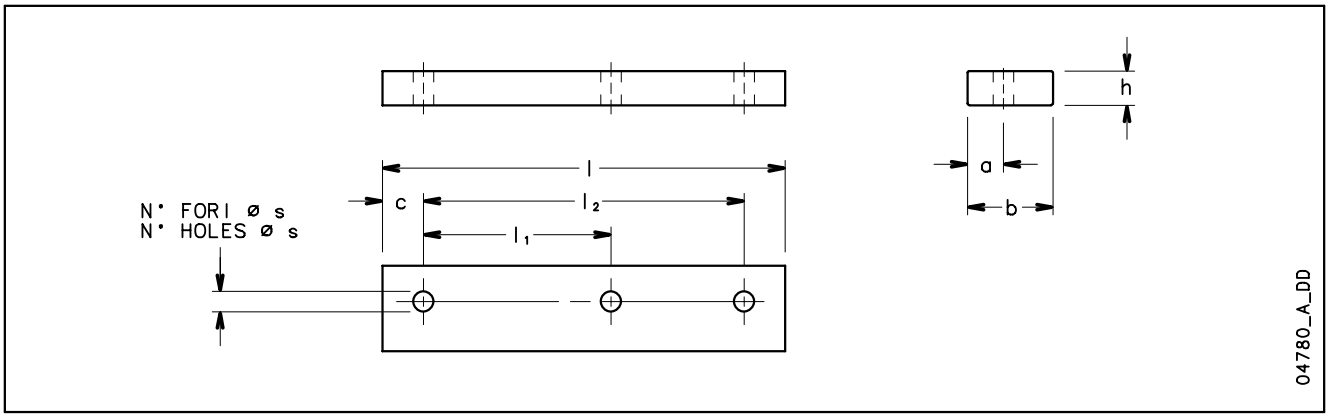
MOTOR SHIM FOR FH 32 ÷ 80 VERSIONS



DIMENSIONS (mm)								
DENOMINATION							HOLES	
b	x h	x l	a	l_1	l_2	c	N°	ø s
35	12	125	17	100	-	12,5	2	10
35	20	125	17	100	-	12,5	2	10
40	8	180	17	140	-	20	2	14
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	334	20	241	279	35	3	14
50	20	304	25	210	254	25	3	16
80	30	360	26,5	-	311	24,5	2	18
90	30	406	30	-	349	28,5	2	22

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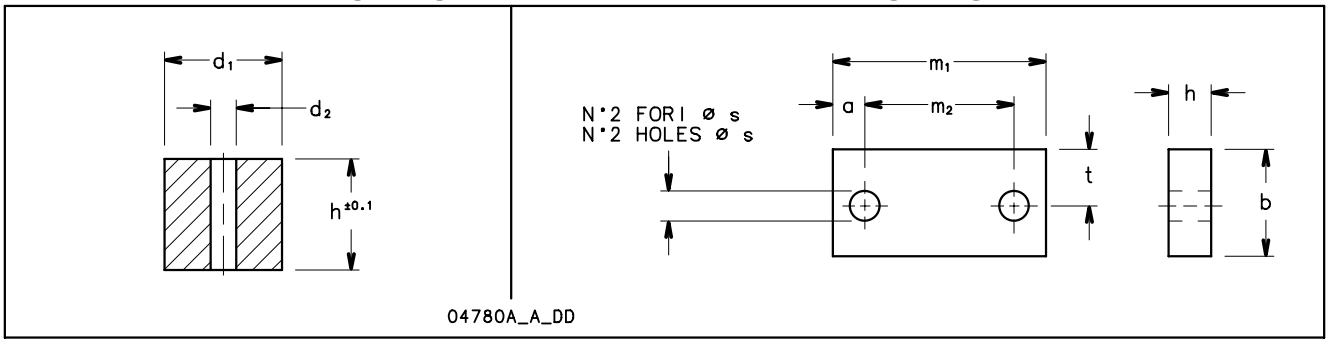
CYLINDRICAL THICKNESS OF MOTORE (FHF)

PUMP THICKNESS (FHF)



DIMENSIONS (mm)		
DENOMINATION		
d_1 x h		d_2
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
65	98	16

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DIMENSIONS (mm)						
DENOMINATION						
b x h x m_1			a	m_2	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

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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 hz at which to install the machine under safe conditions, the following formula must be verified:

hp + hz ≥ (NPSHr + 0.5) + hf + hpv 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.; hz 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.

hpv is the vapour pressure of the liquid at the operating temperature, expressed in m. of liquid. hpv is the quotient between the Pv 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 at pages 126-127 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 $\gamma = 1$ kg/dm^3
Flow rate required: 30 m^3/h
Head for required delivery: 43 m.
Suction lift: 3,5 m.
The selection is an FHE 40-200/75 pump whose NPSH required value is, at 30 m^3/h, di 2,5 m.

For water at 15 °C

hp = Pa / γ = 10,33m, hpv = Pv / γ = 0,174m (0,01701 bar)

The Hf flow resistance in the suction line with foot valves is ~ 1,2 m.
By substituting the parameters in formula ① with the numeric values above, we have:

10,33 + (-3,5) ≥ (2,5 + 0,5) + 1,2 + 0,17

from which we have: 6,8 > 4,4

The relation is therefore verified.

TECHNICAL APPENDIX VAPOUR PRESSURE PS VAPOUR PRESSURE AND ρ DENSITY OF WATER TABLE

t	T	ps	ρ
°C	K	bar	kg/dm^3
0	273,15	0,00611	0,9998
1	274,15	0,00657	0,9999
2	275,15	0,00706	0,9999
3	276,15	0,00758	0,9999
4	277,15	0,00813	1,0000
5	278,15	0,00872	1,0000
6	279,15	0,00935	1,0000
7	280,15	0,01001	0,9999
8	281,15	0,01072	0,9999
9	282,15	0,01147	0,9998
10	283,15	0,01227	0,9997
11	284,15	0,01312	0,9997
12	285,15	0,01401	0,9996
13	286,15	0,01497	0,9994
14	287,15	0,01597	0,9993
15	288,15	0,01704	0,9992
16	289,15	0,01817	0,9990
17	290,15	0,01936	0,9988
18	291,15	0,02062	0,9987
19	292,15	0,02196	0,9985
20	293,15	0,02337	0,9983
21	294,15	0,24850	0,9981
22	295,15	0,02642	0,9978
23	296,15	0,02808	0,9976
24	297,15	0,02982	0,9974
25	298,15	0,03166	0,9971
26	299,15	0,03360	0,9968
27	300,15	0,03564	0,9966
28	301,15	0,03778	0,9963
29	302,15	0,04004	0,9960
30	303,15	0,04241	0,9957
31	304,15	0,04491	0,9954
32	305,15	0,04753	0,9951
33	306,15	0,05029	0,9947
34	307,15	0,05318	0,9944
35	308,15	0,05622	0,9940
36	309,15	0,05940	0,9937
37	310,15	0,06274	0,9933
38	311,15	0,06624	0,9930
39	312,15	0,06991	0,9927
40	313,15	0,07375	0,9923
41	314,15	0,07777	0,9919
42	315,15	0,08198	0,9915
43	316,15	0,09639	0,9911
44	317,15	0,09100	0,9907
45	318,15	0,09582	0,9902
46	319,15	0,10086	0,9898
47	320,15	0,10612	0,9894
48	321,15	0,11162	0,9889
49	322,15	0,11736	0,9884
50	323,15	0,12335	0,9880
51	324,15	0,12961	0,9876
52	325,15	0,13613	0,9871
53	326,15	0,14293	0,9862
54	327,15	0,15002	0,9862

t	T	ps	ρ
°C	K	bar	kg/dm^3
55	328,15	0,15741	0,9857
56	329,15	0,16511	0,9852
57	330,15	0,17313	0,9846
58	331,15	0,18147	0,9842
59	332,15	0,19016	0,9837
60	333,15	0,1992	0,9832
61	334,15	0,2086	0,9826
62	335,15	0,2184	0,9821
63	336,15	0,2286	0,9816
64	337,15	0,2391	0,9811
65	338,15	0,2501	0,9805
66	339,15	0,2615	0,9799
67	340,15	0,2733	0,9793
68	341,15	0,2856	0,9788
69	342,15	0,2984	0,9782
70	343,15	0,3116	0,9777
71	344,15	0,3253	0,9770
72	345,15	0,3396	0,9765
73	346,15	0,3543	0,9760
74	347,15	0,3696	0,9753
75	348,15	0,3855	0,9748
76	349,15	0,4019	0,9741
77	350,15	0,4189	0,9735
78	351,15	0,4365	0,9729
79	352,15	0,4547	0,9723
80	353,15	0,4736	0,9716
81	354,15	0,4931	0,9710
82	355,15	0,5133	0,9704
83	356,15	0,5342	0,9697
84	357,15	0,5557	0,9691
85	358,15	0,5780	0,9684
86	359,15	0,6011	0,9678
87	360,15	0,6249	0,9671
88	361,15	0,6495	0,9665
89	362,15	0,6749	0,9658
90	363,15	0,7011	0,9652
91	364,15	0,7281	0,9644
92	365,15	0,7561	0,9638
93	366,15	0,7849	0,9630
94	367,15	0,8146	0,9624
95	368,15	0,8453	0,9616
96	369,15	0,8769	0,9610
97	370,15	0,9094	0,9602
98	371,15	0,9430	0,9596
99	372,15	0,9776	0,9586
100	373,15	1,0133	0,9581
102	375,15	1,0878	0,9567
104	377,15	1,1668	0,9552
106	379,15	1,2504	0,9537
108	381,15	1,3390	0,9522
110	383,15	1,4327	0,9507
112	385,15	1,5316	0,9491
114	387,15	1,6362	0,9476
116	389,15	1,7465	0,9460
118	391,15	1,8628	0,9445

t	T	ps	ρ
°C	K	bar	kg/dm^3
120	393,15	1,9854	0,9429
122	395,15	2,1145	0,9412
124	397,15	2,2504	0,9396
126	399,15	2,3933	0,9379
128	401,15	2,5435	0,9362
130	403,15	2,7013	0,9346
132	405,15	2,867	0,9328
134	407,15	3,041	0,9311
136	409,15	3,223	0,9294
138	411,15	3,414	0,9276
140	413,15	3,614	0,9258
145	418,15	4,155	0,9214
155	428,15	5,433	0,9121
160	433,15	6,181	0,9073
165	438,15	7,008	0,9024
170	433,15	7,920	0,8973
175	448,15	8,924	0,8921
180	453,15	10,027	0,8869
185	458,15	11,233	0,8815
190	463,15	12,551	0,8760
195	468,15	13,987	0,8704
200	473,15	15,550	0,8647
205	478,15	17,243	0,8588
210	483,15	19,077	0,8528
215	488,15	21,060	0,8467
220	493,15	23,198	0,8403
225	498,15	25,501	0,8339
230	503,15	27,976	0,8273
235	508,15	30,632	0,8205
240	513,15	33,478	0,8136
245	518,15	36,523	0,8065
250	523,15	39,776	0,7992
255	528,15	43,246	0,7916
260	533,15	46,943	0,7839
265	538,15	50,877	0,7759
270	543,15	55,058	0,7678
275	548,15	59,496	0,7593
280	553,15	64,202	0,7505
285	558,15	69,186	0,7415
290	563,15	74,461	0,7321
295	568,15	80,037	0,7223
300	573,15	85,927	0,7122
305	578,15	92,144	0,7017
310	583,15	98,70	0,6906
315	588,15	105,61	0,6791
320	593,15	112,89	0,6669
325	598,15	120,56	0,6541
330	603,15	128,63	0,6404
340	613,15	146,05	0,6102
350	623,15	165,35	0,5743
360	633,15	186,75	0,5275
370	643,15	210,54	0,4518
374,15	647,30	221,20	0,3154

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

FLOW RATE			NOMINAL DIAMETER in mm and INCHES																
m^3/h	l/min		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

The hr values must be multiplied by:
0.71 for galvanized or painted steel pipes
0.54 for stainless steel or copper pipes
0.47 for PVC or PE pipes

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hr = flow resistance for 100m of straight pipeline (m)
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	-	-	-	0,2	0,2	0,2	0,4	0,4	0,6	0,9	1,1	1,3
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_a_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 the manufacturers.

VOLUMETRIC CAPACITY

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

PRESSURE AND HEAD

Newton per square metre N/m^2	kilo Pascal kPa	bar bar	Pound force per square inch psi	metre of water m H_2O	millimetre of mercury mm Hg
1,0000	0,0010	1×10^{-5}	1.45×10^{-4}	1.02×10^{-4}	**0,0075**
1000,0000	**1,0000**	0,0100	0,1450	0,1020	7,5006
1×10^5	100,0000	**1,0000**	14,5038	10,1972	**750,0638**
6894,7570	6,8948	0,0689	**1,0000**	0,7031	**51,7151**
9806,6500	9,8067	0,0981	1,4223	**1,0000**	**73,5561**
133,3220	0,1333	0,0013	0,0193	0,0136	**1,0000**

LENGTH

millimetre mm	centimetre cm	metre m	inch in	foot ft	yard yd
1,0000	0,1000	0,0010	0,0394	0,0033	**0,0011**
10,0000	**1,0000**	0,0100	0,3937	0,0328	0,0109
1000,0000	100,0000	**1,0000**	39,3701	3,2808	**1,0936**
25,4000	2,5400	0,0254	**1,0000**	0,0833	0,0278
304,8000	30,4800	0,3048	12,0000	**1,0000**	**0,3333**
914,4000	91,4400	0,9144	36,0000	3,0000	**1,0000**

VOLUME

cubic metre m^3	litre litro	millilitre ml	imp. Gallon imp. gal.	US gallon US gal.	cubic foot ft^3
1,0000	1000,0000	1×10^6	219,9694	264,1720	**35,3147**
0,0010	**1,0000**	1000,0000	0,2200	0,2642	0,0353
1×10^{-6}	0,0010	**1,0000**	2.2×10^{-4}	2.642×10^{-4}	3.53×10^{-5}
0,0045	4,5461	4546,0870	**1,0000**	1,2009	0,1605
0,0038	3,7854	3785,4120	0,8327	**1,0000**	**0,1337**
0,0283	28,3168	28316,8466	6,2288	7,4805	**1,0000**

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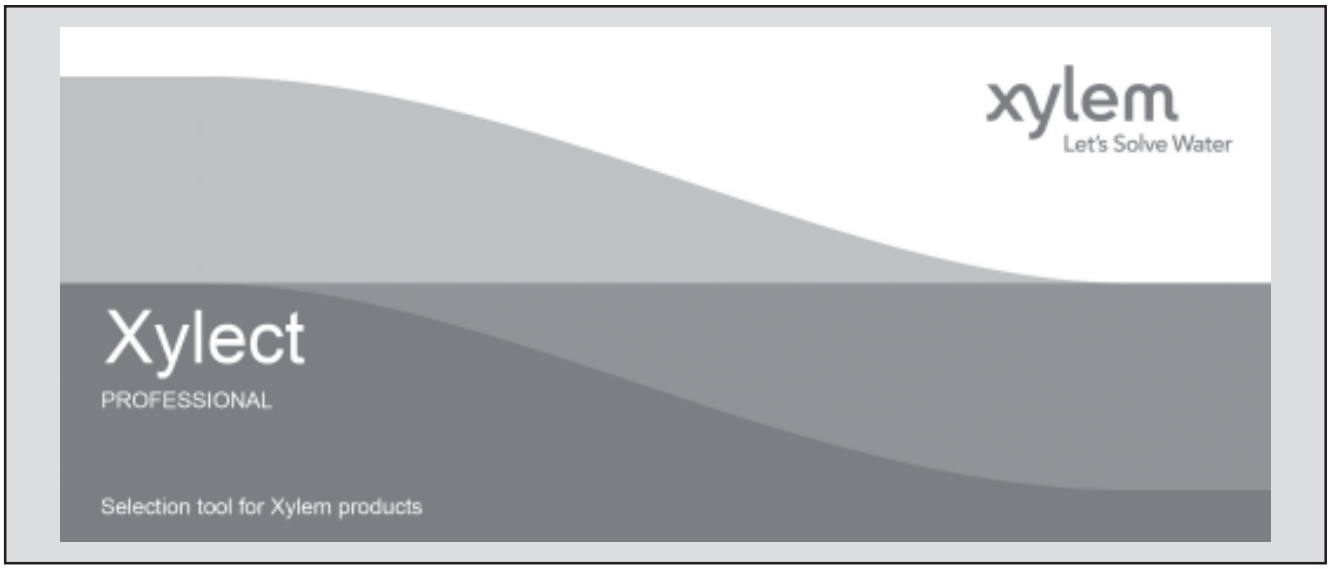
FURTHER PRODUCT SELECTION AND DOCUMENTATION

Xylect



Xylect is pump solution selection software with an extensive online database of product information across the entire Lowara, and Vogel 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.

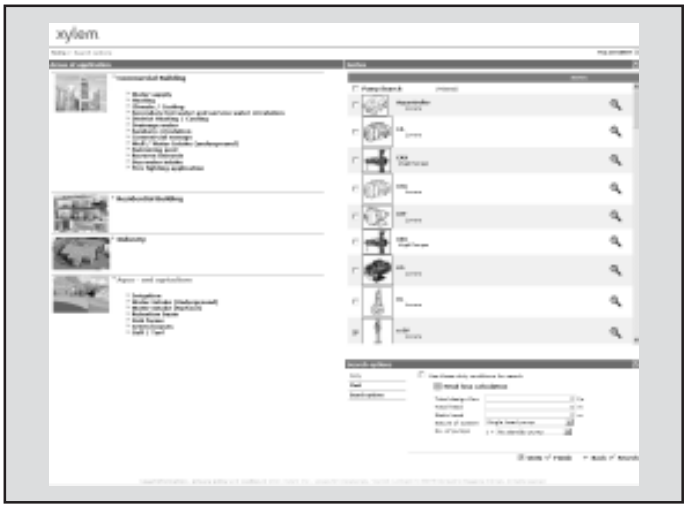
The possibility to search by applications and the detailed information output given makes it easy to make the optimal selection without having detailed knowledge about the Lowara and Vogel products.

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

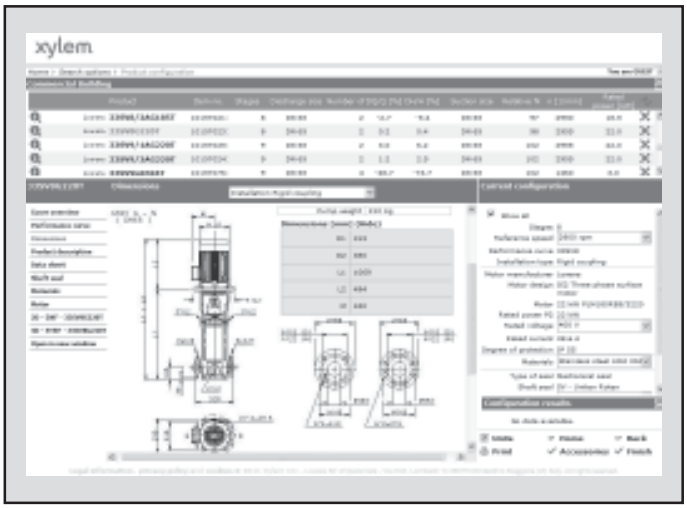
The detailed output makes it easy to select the optimal pump from the given alternatives.

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 user have a My Xylect space, where all projects are saved.

For more information about Xylect please contact our sales network or visit www.xylect.com.



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

Xylem |'zīləm|

1) The tissue in plants that brings water upward from the roots;
2) a leading global water technology company.

We're 12,000 people unified in a common purpose: creating innovative solutions to meet our world's water needs. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. We move, treat, analyze, and return water to the environment, and we help people use water efficiently, in their homes, buildings, factories and farms. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise, backed by a legacy of innovation.

For more information on how Xylem can help you, go to xyleminc.com.

LOWARA
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