



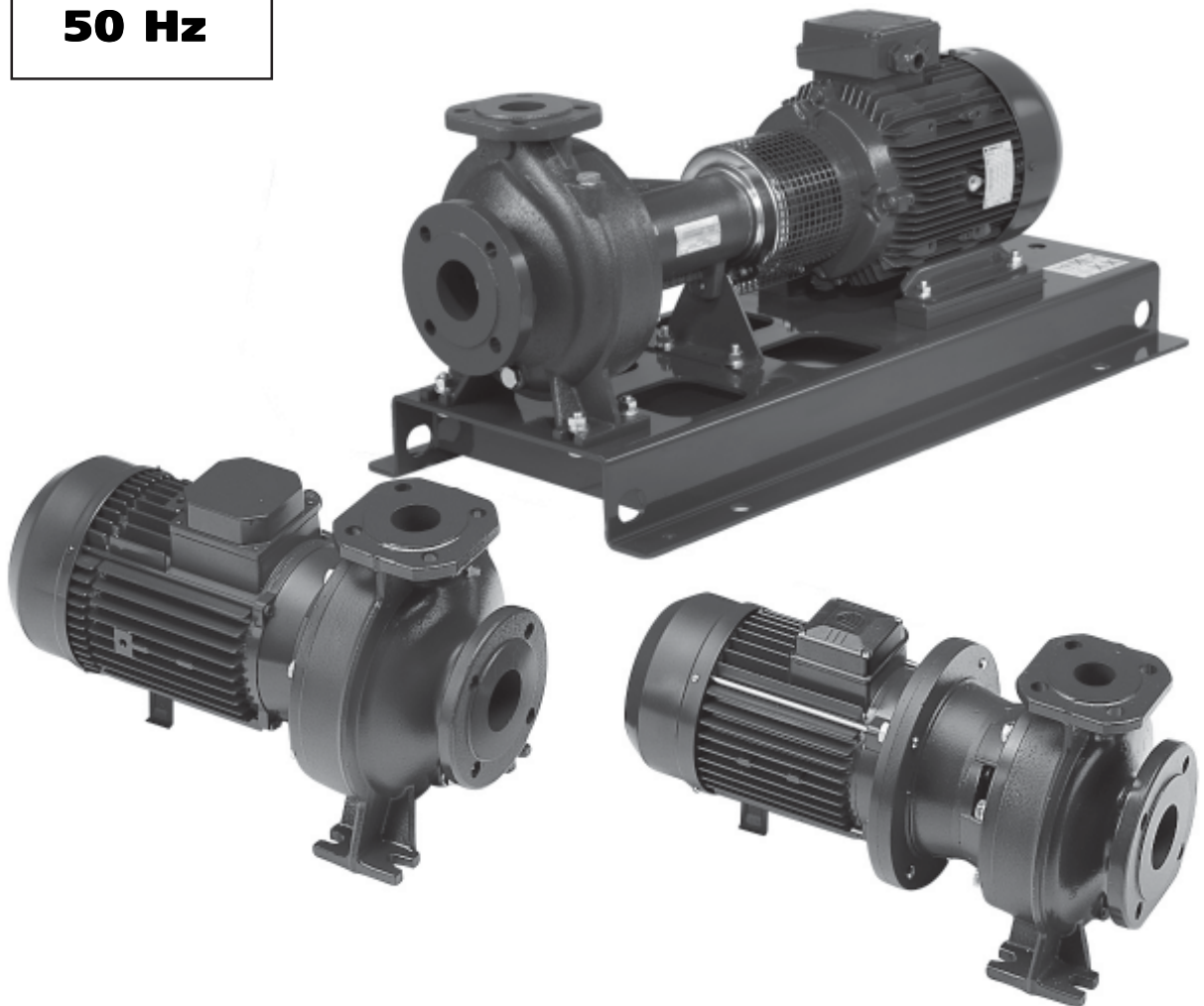
ITT

Lowara

FH Series

Centrifugal Electric pumps
manufactured to standard EN 733
equipped with high
efficiency PLM motors

50 Hz



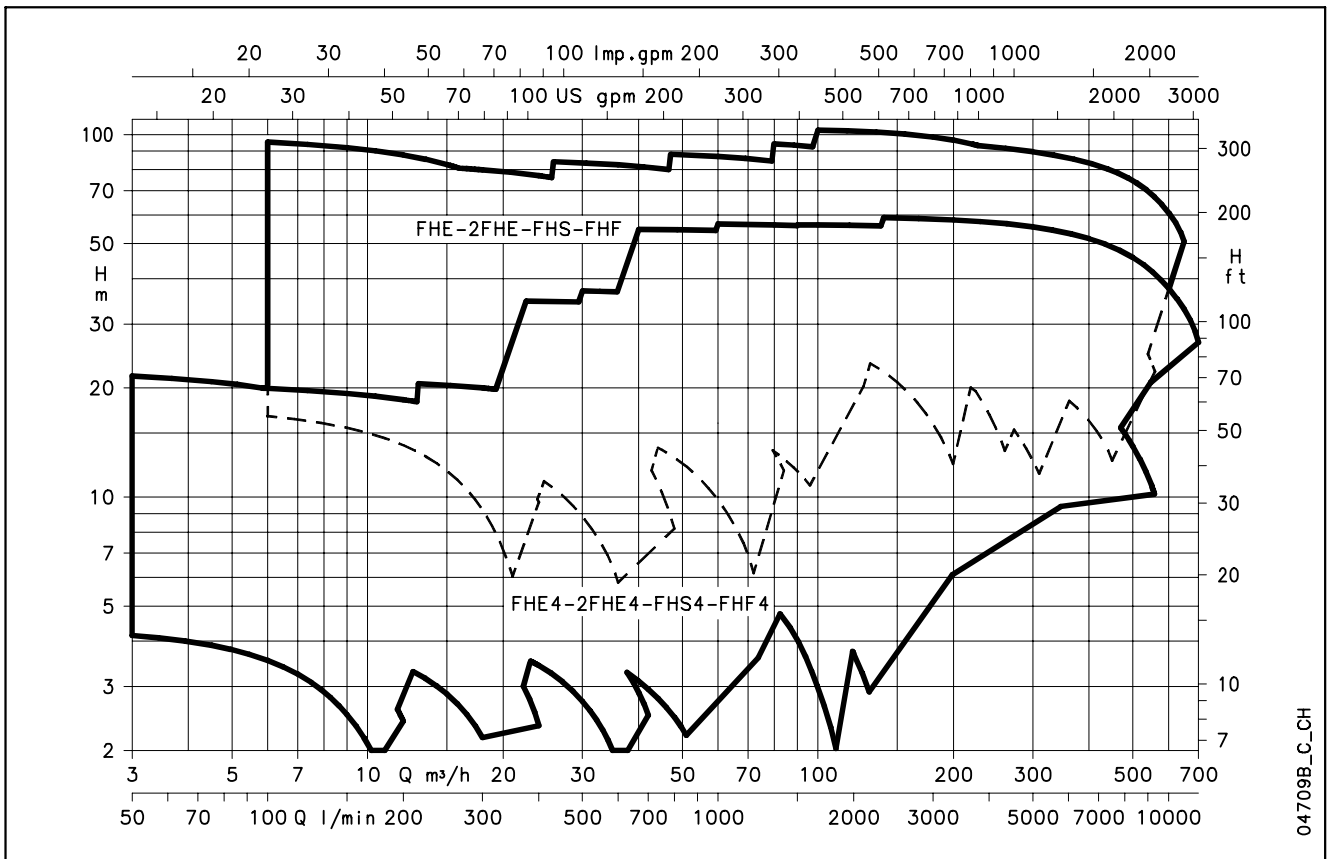
Engineered for life



ITT

Lowara

FH SERIES HYDRAULIC PERFORMANCE RANGE AT 50 Hz





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Lowara

Centrifugal electric pumps manufactured to Standard EN 733

FH Series with high efficiency PLM motors



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 650 m³/h, 2 poles.
750 m³/h, 4 poles.
- **Head** over 100 m, 2 poles.
60 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 FH100, 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 FH80 (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 side.
- **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 supply Lowara motors up to 11 kW (included) for the 4-pole version, and up to 22 kW (included) for the 2-pole version. Other motor brands for higher powers.
- **The Lowara PLM surface motors have efficiency values that fall within the range normally referred to as efficiency class 1.**
- IP 55 protection.
- Class F insulation.
- Performances according to EN 60034-1.
- Continuous duty.
- Max. ambient temperature: 40°C.
- Condensation drain plugs on all LOWARA motors.
- **Standard voltage**:
Single-phase version 220-240 V, 50 Hz
Three-phase version 220-240/380-415 V, 50 Hz for powers up to 3 kW;
380-415/660-690 V, 50 Hz for powers above 3 kW.

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.

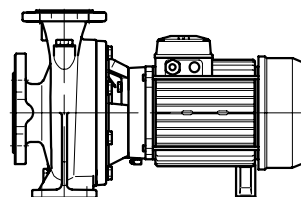
ACCESSORIES ON REQUEST

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

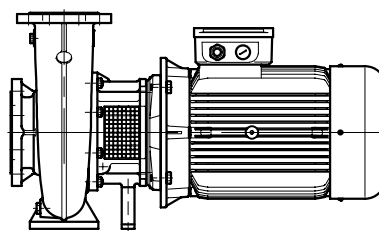
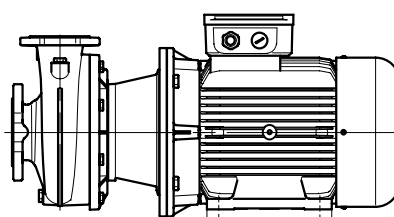
OPTIONAL FEATURES

- 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 atmosphere (G).

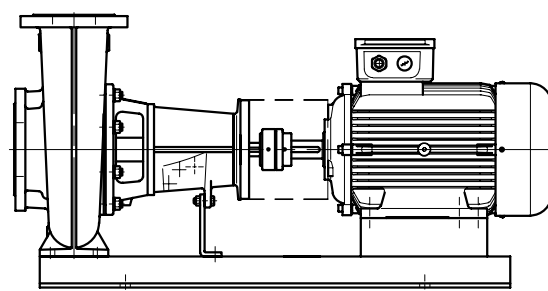
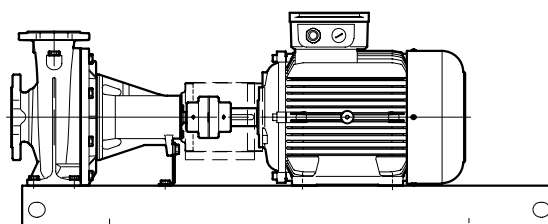
FHE - FHE4



FHS - FHS4



FHF - FHF4



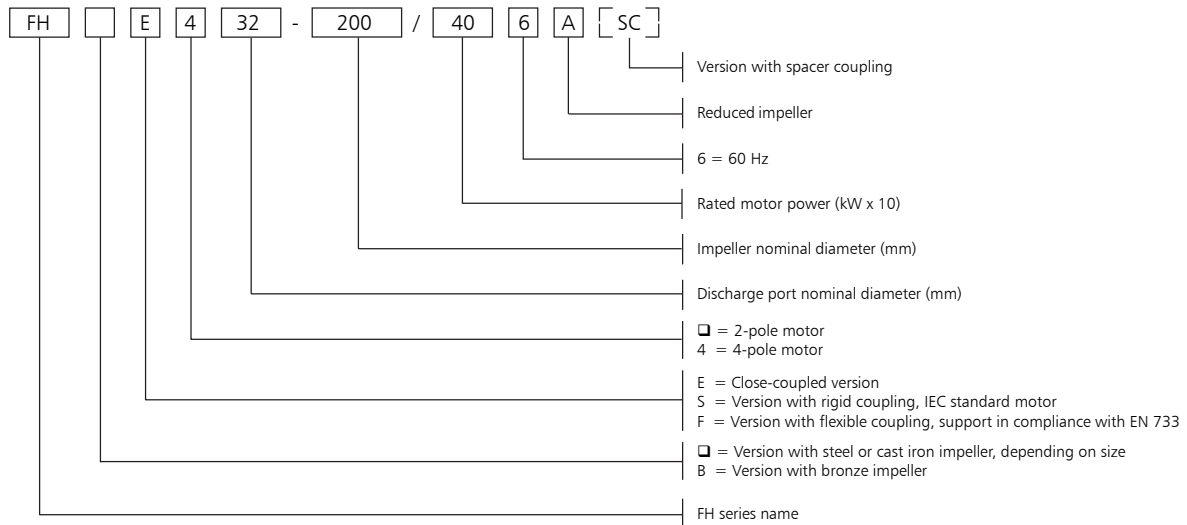
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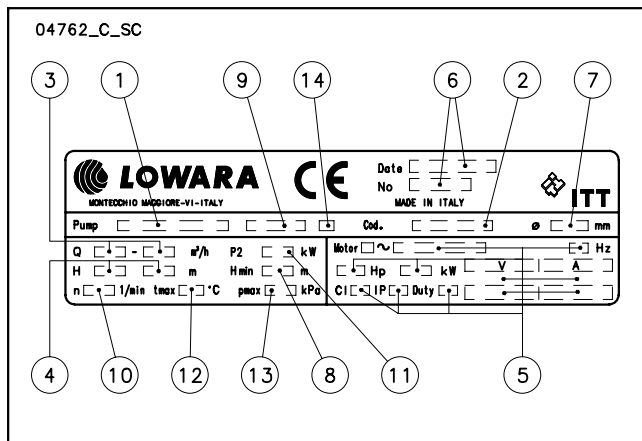
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FH SERIES IDENTIFICATION CODE



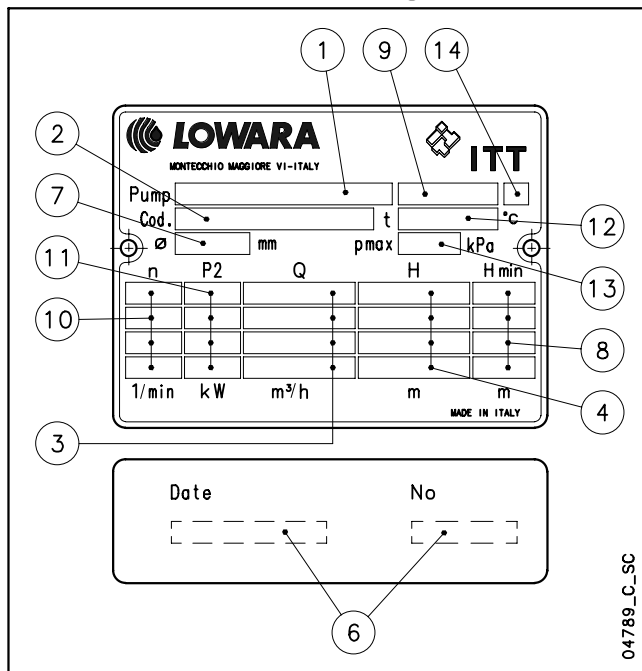
FHE - FHS RATING PLATE



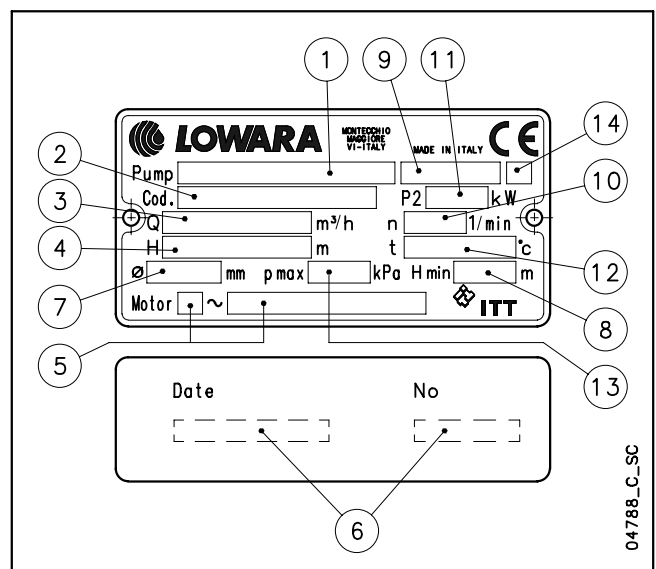
LEGEND

- 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)



LIST OF MODELS, FH 50 Hz SERIES 2 POLES

SIZE	kW	VERSION					
		FHEM	2FHE	FHE	FHS	FHF	FHF..SC
32-125/07	0,75	•	-	•	•	•	•
32-125/11	1,1	•	-	•	•	•	•
32-160/15	1,5	•	-	•	•	•	•
32-160/22	2,2	•	-	•	•	•	•
32-200/30	3	-	-	•	•	•	•
32-200/40	4	-	-	•	•	•	•
32-250/55	5,5	-	•	-	-	-	-
32-250/75	7,5	-	•	-	-	-	-
40-125/11	1,1	•	-	•	•	•	•
40-125/15	1,5	•	-	•	•	•	•
40-125/22	2,2	•	-	•	•	•	•
40-160/30	3	-	-	•	•	•	•
40-160/40	4	-	-	•	•	•	•
40-200/55	5,5	-	-	•	•	•	•
40-200/75	7,5	-	-	•	•	•	•
40-250/92	9,2	-	-	•	-	-	-
40-250/110A	11	-	-	-	•	•	•
40-250/110	11	-	-	•	•	•	•
40-250/150	15	-	-	•	•	•	•
50-125/22	2,2	•	-	•	•	•	•
50-125/30	3	-	-	•	•	•	•
50-125/40	4	-	-	•	•	•	•
50-160/55	5,5	-	-	•	•	•	•
50-160/75	7,5	-	-	•	•	•	•
50-200/92	9,2	-	-	•	-	-	-
50-200/110A	11	-	-	-	•	•	•
50-200/110	11	-	-	•	•	•	•
50-250/150	15	-	-	•	•	•	•
50-250/185	18,5	-	-	•	•	•	•
50-250/220	22	-	-	•	•	•	•
65-125/40	4	-	-	•	•	•	•
65-125/55	5,5	-	-	•	•	•	•
65-125/75	7,5	-	-	•	•	•	•
65-160/92	9,2	-	-	•	-	-	-
65-160/110A	11	-	-	-	•	•	•
65-160/110	11	-	-	•	•	•	•
65-160/150	15	-	-	•	•	•	•
65-200/150	15	-	-	•	•	•	•
65-200/185	18,5	-	-	•	•	•	•
65-200/220	22	-	-	•	•	•	•
65-250/220	22	-	-	•	•	•	•
65-250/300	30	-	-	-	•	•	•
65-250/370	37	-	-	-	•	•	•
80-160/110	11	-	-	•	•	•	•
80-160/150	15	-	-	•	•	•	•
80-160/185	18,5	-	-	•	•	•	•
80-200/220	22	-	-	•	•	•	•
80-200/300	30	-	-	-	•	•	•
80-250/370	37	-	-	-	•	•	•
80-250/450	45	-	-	-	•	•	•
80-250/550	55	-	-	-	•	•	•

• = Available

fh_fhe-fhs-fhf_2p50-en_d_tem

SIZE	kW	VERSION		
		FHS	FHF	FHF..SC
100-160/185	18,5	-	•	•
100-160/220	22	•	•	•
100-160/300	30	•	•	•
100-200/185	18,5	-	•	•
100-200/300	30	•	•	•
100-200/370	37	•	•	•
100-200/450	45	-	•	•
100-250/300	30	-	•	•
100-250/450	45	-	•	•
100-250/550	55	-	•	•
100-250/750	75	-	•	•
100-250/900	90	-	•	•
125-200/300	30	-	•	•
125-200/450	45	-	•	•
125-200/550	55	-	•	•
125-270/750	75	-	•	•
125-270/900	90	-	•	•
125-270/1100	110	-	•	•
125-270/1320	132	-	•	•

• = Available

lm_fhs_fhf_2p50-en_d_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.

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

**LIST OF MODELS, FH 50 Hz SERIES
4 POLES**

SIZE	kW	VERSION			
		FHE4	2FHE4	FHS4	FHF4
32-125/02A	0,25	•	-	-	•
32-125/02	0,25	•	-	-	•
32-160/02	0,25	•	-	-	•
32-160/03	0,37	•	-	-	•
32-200/03	0,37	•	-	-	•
32-200/05	0,55	•	-	-	•
32-250/07	0,75	-	•	-	-
32-250/11	1,1	-	•	-	-
40-125/02A	0,25	•	-	-	•
40-125/02	0,25	•	-	-	•
40-125/03	0,37	•	-	-	•
40-160/03	0,37	•	-	-	•
40-160/05	0,5	•	-	-	•
40-200/07	0,75	•	-	•	•
40-200/11	1,1	•	-	•	•
40-250/11	1,1	•	-	•	•
40-250/15	1,5	•	-	•	•
40-250/22	2,2	•	-	•	•
50-125/03A	0,37	•	-	-	•
50-125/03	0,37	•	-	-	•
50-125/05	0,5	•	-	-	•
50-160/07	0,75	•	-	•	•
50-160/11	1,1	•	-	•	•
50-200/11	1,1	•	-	•	•
50-200/15	1,5	•	-	•	•
50-250/22A	2,2	•	-	•	•
50-250/22	2,2	•	-	•	•
50-250/30	3	•	-	•	•
65-125/05	0,5	•	-	•	•
65-125/07	0,75	•	-	•	•
65-125/11	1,1	•	-	•	•
65-160/11	1,1	•	-	•	•
65-160/15	1,5	•	-	•	•
65-160/22	2,2	•	-	•	•
65-200/15	1,5	•	-	•	•
65-200/22	2,2	•	-	•	•
65-200/30	3	•	-	•	•
65-250/30	3	•	-	•	•
65-250/40	4	•	-	•	•
65-250/55	5,5	•	-	•	•
65-315/40	4	-	-	-	•
65-315/55	5,5	-	-	-	•
65-315/75	7,5	-	-	•	•
65-315/110A	11	-	-	-	•
65-315/110	11	-	-	•	•
80-160/15	1,5	•	-	•	•
80-160/22	2,2	•	-	•	•
80-200/30	3	•	-	•	•
80-200/40	4	•	-	•	•
80-250/40	4	•	-	•	•
80-250/55	5,5	•	-	•	•
80-250/75	7,5	•	-	•	•
80-315/55	5,5	-	-	-	•
80-315/75	7,5	-	-	-	•
80-315/110	11	-	-	•	•
80-315/150	15	-	-	•	•
80-400/185	18,5	-	-	-	•
80-400/220	22	-	-	-	•
80-400/300	30	-	-	-	•

• = Available

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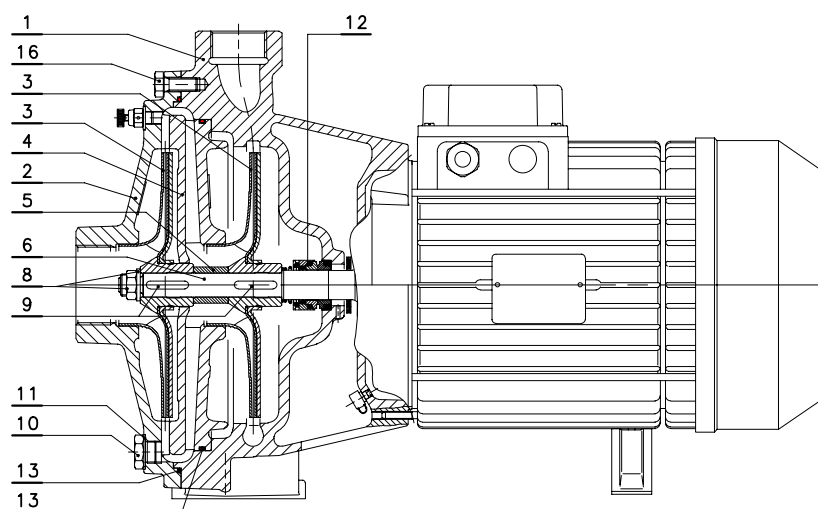
SIZE	kW	VERSION	
		FHS4	FHF4
100-160/22	2,2	-	•
100-160/30	3	•	•
100-160/40	4	-	•
100-200/22	2,2	-	•
100-200/40	4	•	•
100-200/55	5,5	•	•
100-250/40	4	-	•
100-250/55	5,5	-	•
100-250/75	7,5	•	•
100-250/110	11	•	•
100-315/150	15	•	•
100-315/185	18,5	•	•
100-315/220	22	•	•
100-400/300	30	-	•
100-400/450	45	-	•
125-200/40	4	-	•
125-200/55	5,5	•	•
125-200/75	7,5	•	•
125-250/75	7,5	-	•
125-250/110	11	•	•
125-250/150	15	•	•
125-250/185	18,5	•	•
125-270/75	7,5	-	•
125-270/110	11	-	•
125-270/150	15	-	•
125-315/185	18,5	-	•
125-315/220	22	•	•
125-315/300	30	•	•
125-315/370	37	-	•
125-400/220	22	-	•
125-400/300	30	-	•
125-400/450	45	-	•
125-400/550	55	-	•
150-250/150	15	•	•
150-250/185	18,5	•	•
150-250/220	22	•	•
150-250/300	30	•	•
150-315/300	30	•	•
150-315/370	37	-	•
150-315/450	45	-	•
150-315/550	55	-	•
150-400/300	30	-	•
150-400/370	37	-	•
150-400/450	45	-	•
150-400/550	55	-	•
150-400/750	75	-	•
150-400/900	90	-	•

• = Available

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

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VERSIONS	
2 POLES	4 POLES
2FHE 32-250/55	2FHE4 32-250/07
2FHE 32-250/75	2FHE4 32-250/11

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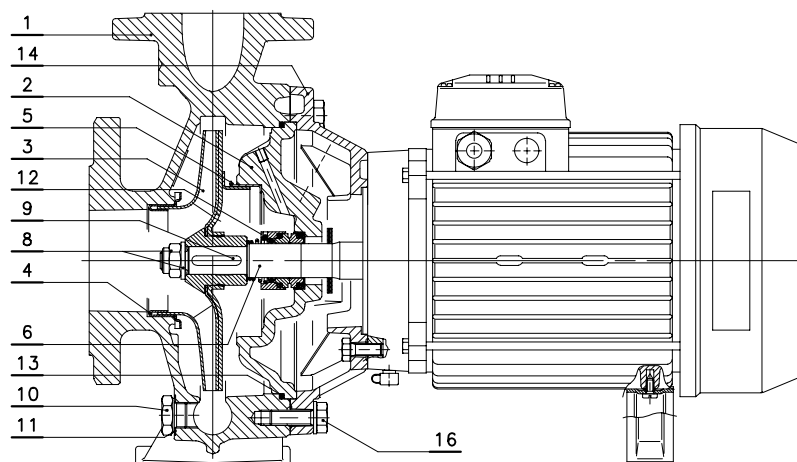
REF. N.	PART	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
2	Suction flange	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
3	Impeller	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
4	Diffuser	Cast iron	EN 1561-GJL-200 (JL1030)	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

FHE-FHE4 SERIES

LIST OF MODELS AND TABLE OF MATERIALS

04702_B_DS



VERSIONS

2 POLES	4 POLES
FHE 32-125/07	FHE4 32-200/05
FHE 32-125/11	FHE4 40-160/05
FHE 32-160/15	FHE4 40-200/07
FHE 32-160/22	FHE4 40-200/11
FHE 32-200/30	FHE4 40-250/11
FHE 32-200/40	FHE4 40-250/15
FHE 40-125/11	FHE4 40-250/22
FHE 40-125/15	FHE4 50-125/05
FHE 40-125/22	FHE4 50-160/07
FHE 40-160/30	FHE4 50-160/11
FHE 40-160/40	FHE4 50-200/11
FHE 40-200/55	FHE4 50-200/15
FHE 40-200/75	FHE4 50-250/22A
FHE 40-250/92	FHE4 50-250/22
FHE 40-250/110	FHE4 50-250/30
FHE 50-125/22	FHE4 65-125/05
FHE 50-125/30	FHE4 65-125/07
FHE 50-125/40	FHE4 65-125/11
FHE 50-160/55	FHE4 65-160/11
FHE 50-160/75	FHE4 65-160/15
FHE 50-200/92	FHE4 65-160/22
FHE 50-200/110	FHE4 65-200/15
FHE 65-125/40	FHE4 65-200/22
FHE 65-125/55	FHE4 65-200/30
FHE 65-125/75	FHE4 65-250/30
FHE 65-160/92	FHE4 65-250/40
FHE 65-160/110	FHE4 65-250/55
FHE 80-160/110	FHE4 80-160/15
	FHE4 80-160/22
	FHE4 80-200/30
	FHE4 80-200/40
	FHE4 80-250/40
	FHE4 80-250/55
	FHE4 80-250/75

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-AI99,5 (AW1050A)	-
12	Mechanical seal	Ceramic / Carbon / NBR (standard version)		
13	Elastomers	NBR (standard version)		
14	Adapter *	Aluminium	EN 1706-AC-AISI11Cu2 (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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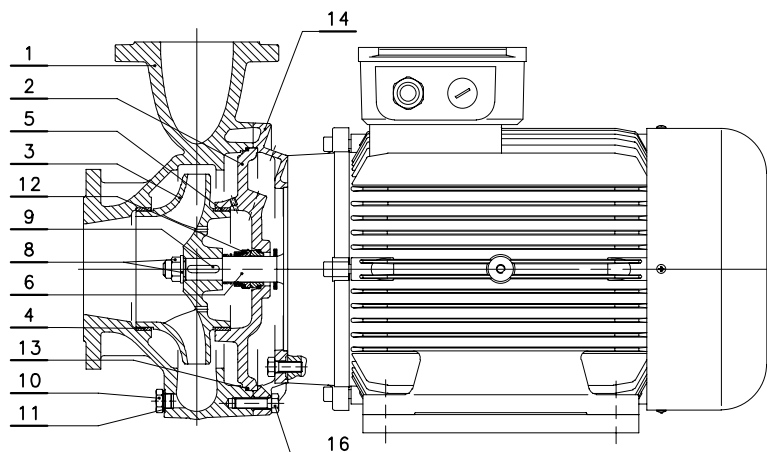
ITT

Lowara

FHE-FHE4 SERIES

LIST OF MODELS AND TABLE OF MATERIALS

04702A_B_DS

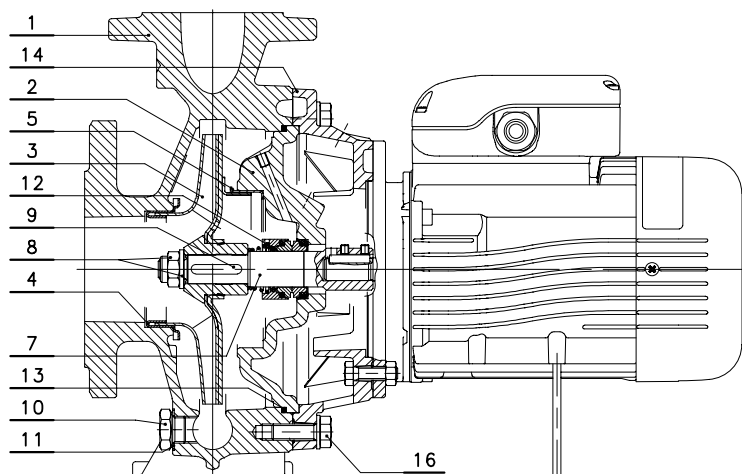


VERSIONS

2 POLES

FHE 40-250/150
FHE 50-250/150
FHE 50-250/185
FHE 50-250/220
FHE 65-160/150
FHE 65-200/150
FHE 65-200/185
FHE 65-200/220
FHE 65-250/220
FHE 80-160/150
FHE 80-160/185
FHE 80-200/220

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VERSIONS

4 POLES

FHE4 32-125/02A
FHE4 32-125/02
FHE4 32-160/02
FHE4 32-160/03
FHE4 32-200/03
FHE4 40-125/02A
FHE4 40-125/02
FHE4 40-125/03
FHE4 40-160/03
FHE4 50-125/03A
FHE4 50-125/03

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		

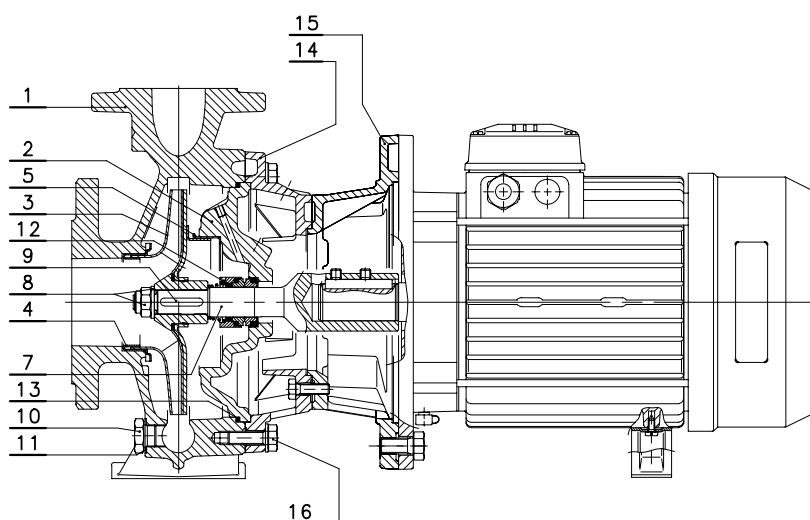
* For 32/40-125 2/4 pole, 32/40-160 2/4 pole versions

fh_fhe-en_c_tm

FHS-FHS4 SERIES

LIST OF MODELS AND TABLE OF MATERIALS

04756_B_DS



VERSIONS	
2 POLES	4 POLES
FHS 32-125/07	FHS4 40-200/07
FHS 32-125/11	FHS4 40-200/11
FHS 32-160/15	FHS4 40-250/11
FHS 32-160/22	FHS4 40-250/15
FHS 32-200/30	FHS4 40-250/22
FHS 32-200/40	FHS4 50-160/07
FHS 40-125/11	FHS4 50-160/11
FHS 40-125/15	FHS4 50-200/11
FHS 40-125/22	FHS4 50-200/15
FHS 40-160/30	FHS4 50-250/22A
FHS 40-160/40	FHS4 50-250/22
FHS 40-200/55	FHS4 50-250/30
FHS 40-200/75	FHS4 65-125/05
FHS 50-125/22	FHS4 65-125/07
FHS 50-125/30	FHS4 65-125/11
FHS 50-125/40	FHS4 65-160/11
FHS 50-160/55	FHS4 65-160/15
FHS 50-160/75	FHS4 65-160/22
FHS 65-125/40	FHS4 65-200/15
FHS 65-125/55	FHS4 65-200/22
FHS 65-125/75	FHS4 65-200/30
	FHS4 65-250/30
	FHS4 65-250/40
	FHS4 65-250/55
	FHS4 80-160/15
	FHS4 80-160/22
	FHS4 80-200/30
	FHS4 80-200/40
	FHS4 80-250/40
	FHS4 80-250/55
	FHS4 80-250/75

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
	Adapter motor connector	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
16	Pump body fastening bolts and screws	Galvanized steel		

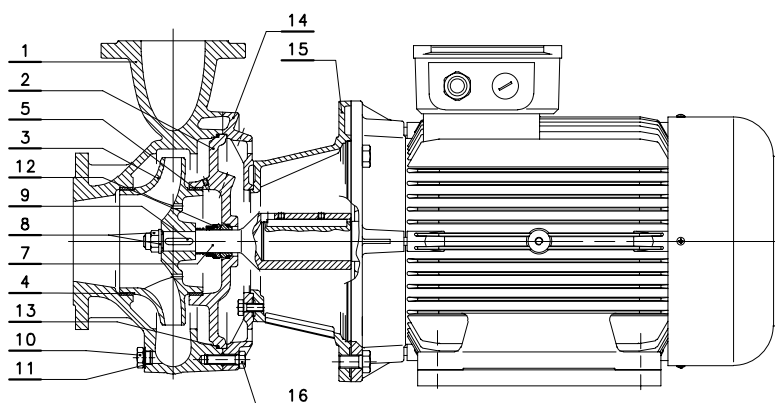
* For 32/40-125 2/4 pole, 32/40-160 2/4 pole

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FHS SERIES

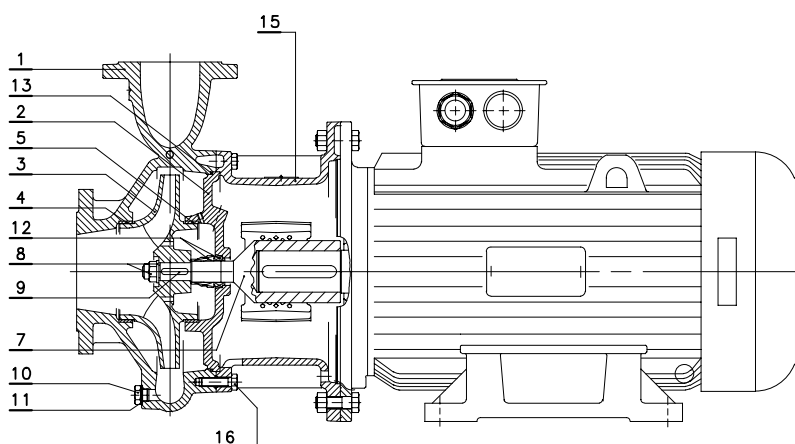
LIST OF MODELS AND TABLE OF MATERIALS

04757_B_DS



VERSIONS 2 POLES	
FHS 40-250/110A	FHS 65-160/110A
FHS 40-250/110	FHS 65-160/110
FHS 40-250/150	FHS 65-160/150
FHS 50-200/110A	FHS 65-200/150
FHS 50-200/110	FHS 65-200/185
FHS 50-250/150	FHS 65-200/220
FHS 50-250/185	FHS 65-250/220
FHS 50-250/220	FHS 80-160/110
	FHS 80-160/150
	FHS 80-160/185
	FHS 80-200/220

fh-fhs-s-en_a_mo



VERSIONS 2 POLES	
FHS 65-250/300	
FHS 65-250/370	
FHS 80-200/300	
FHS 80-250/370	
FHS 80-250/450	
FHS 80-250/550	

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
	Adapter motor connector	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
16	Pump body fastening bolts and screws	Galvanized steel		

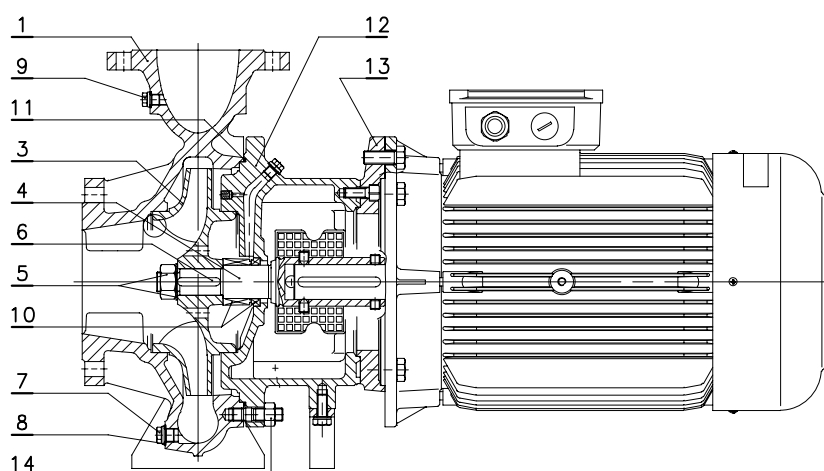
* For 32/40-125 2/4 pole, 32/40-160 2/4 pole

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FHS-FHS4 SERIES

LIST OF MODELS AND TABLE OF MATERIALS

04766_C_DS



VERSIONS	
2 POLES	4 POLES
FHS 100-160/185	FHS4 65-315/75
FHS 100-160/220	FHS4 65-315/110
FHS 100-160/300	FHS4 80-315/110
FHS 100-200/300	FHS4 80-315/150
FHS 100-200/370	FHS4 100-200/55
	FHS4 100-250/75
	FHS4 100-250/110
	FHS4 100-315/150
	FHS4 100-315/185
	FHS4 100-315/220
	FHS4 125-200/55
	FHS4 125-200/75
	FHS4 125-250/110
	FHS4 125-250/150
	FHS4 125-250/185
	FHS4 125-315/220
	FHS4 125-315/300
	FHS4 150-250/150
	FHS4 150-250/185
	FHS4 150-250/220
	FHS4 150-250/300
	FHS4 150-315/300

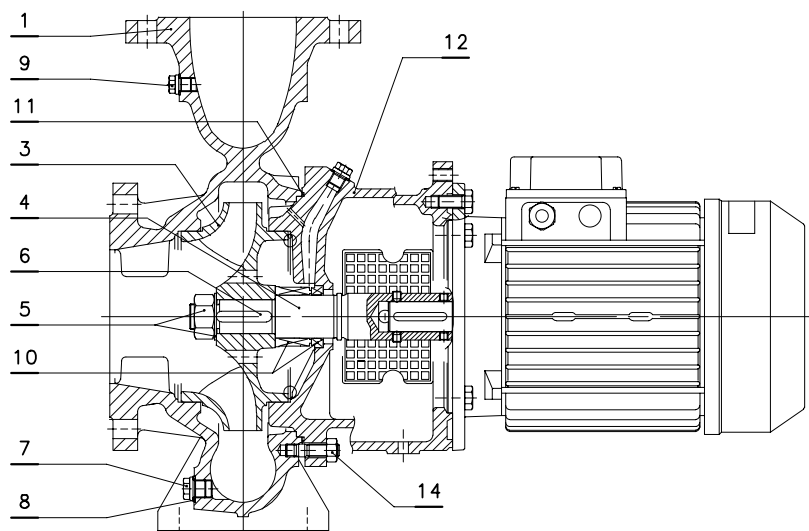
lm-fhs-fhs4-s-en_b_mo

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

FHS4 SERIES
LIST OF MODELS AND TABLE OF MATERIALS

04767_D_DS


VERSIONS
4 POLES

FHS4 100-160/30

FHS4 100-200/40

lm-fhs4-p-en_a_mo

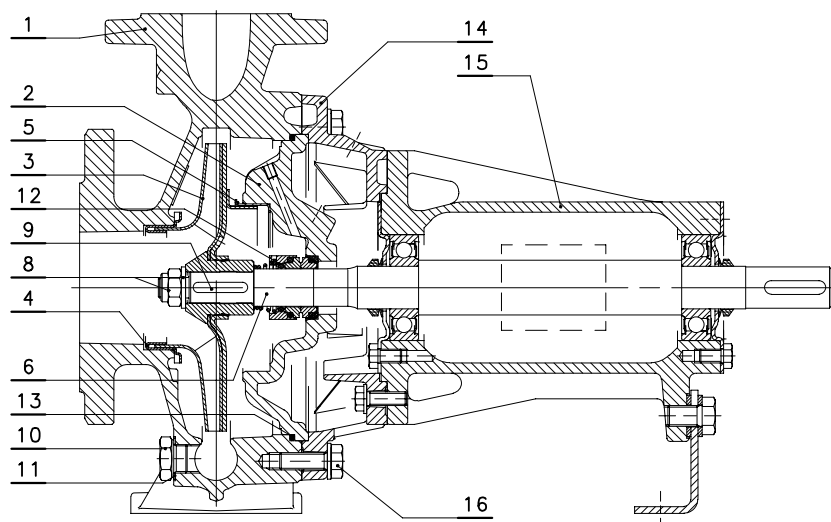
REF. N.	PART	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
2	Seal housing	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
3	Impeller	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
		Bronze	EN 1982-CuSn10-C (CC480K)	UNS C90700
4	Rigid coupling	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

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		

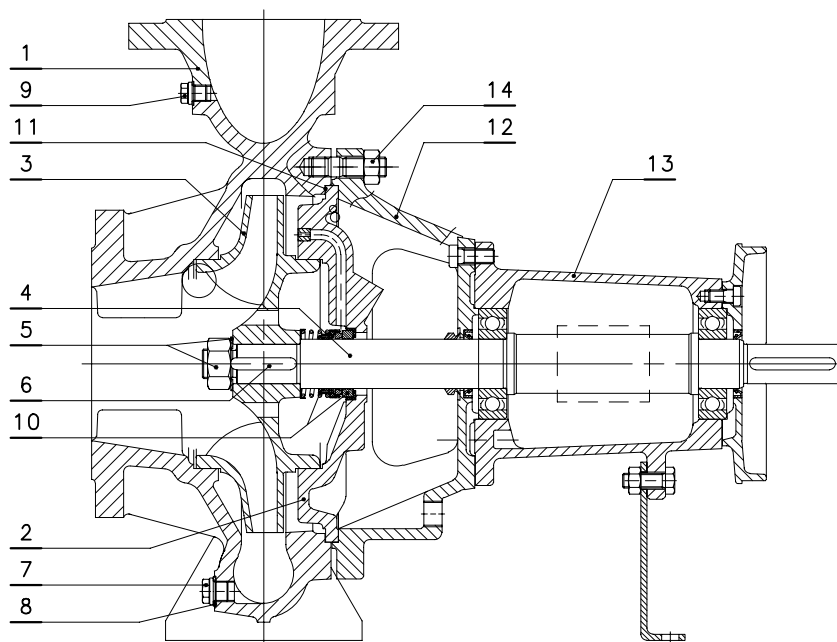
* For 32/40-125 2/4 pole, 32/40-160 2/4 pole versions

fh-fhf-en_a_tm

FHF BARE SHAFT SERIES

LIST OF MODELS AND TABLE OF MATERIALS

04784_B_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 125-270
FHF 125-315
FHF 125-400
FHF 150-250
FHF 150-315
FHF 150-400

l-fhf-p-en_a_mo

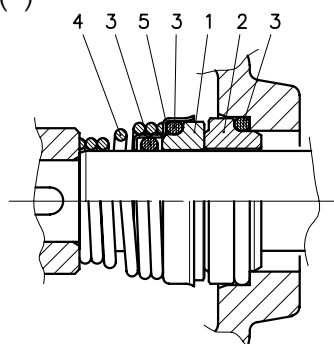
REF. N.	PART	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
2	Seal housing	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
3	Impeller	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
		Bronze	EN 1982-CuSn10-C (CC480K)	UNS C90700
4	Shaft extension	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.)

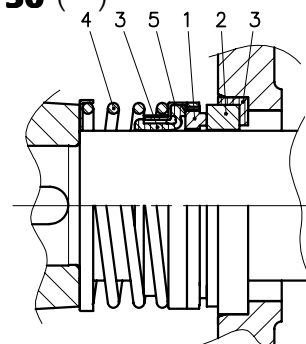
FH 32÷80 (*)



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
Q₁ : 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					TEMPERATURE (°C)
	1 ROTATING ASSEMBLY	2 FIXED ASSEMBLY	3 ELASTOMERS	4 SPRINGS	5 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

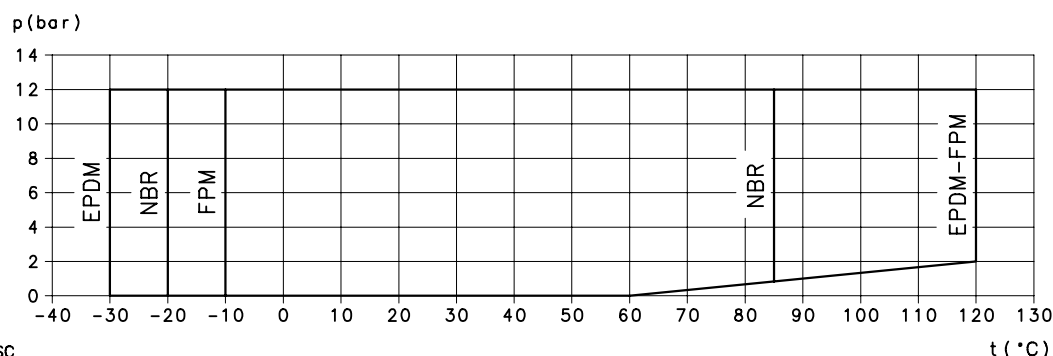
FHS-FHF 100÷150 SEAL TYPE (65-315, 80-315 and 80-400 included)

fh_tipi-ten-mec-en_a_tc

TYPE	POSITION					TEMPERATURE (°C)
	1 ROTATING ASSEMBLY	2 FIXED ASSEMBLY	3 ELASTOMERS	4 SPRINGS	5 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

Squirrel cage motor in short circuit (TEFC), enclosed construction with external ventilation. The standard supply features Lowara motors for powers up to 15 kW (included) in the 4-pole version, and up to 22 kW (included) in the 2-pole version. Other motor are used for higher powers.

The Lowara PLM surface motors have efficiency values that fall within the range normally referred to as efficiency class 1.

Cooling is ensured by a fan according to EN 60034-6.

The cable gland has standard passage dimensions according to EN 50262 (metric size).

The standard protection IP55, insulation class F.

Standard voltage:

- Single-phase version: 220/240 V 50 Hz, with incorporated automatic-reset overload protection up to 1,5 kW.
- Three-phase version: 220-240/380-415 V 50 Hz for powers up to 3 kW. 380-415/660-690 V 50 Hz for powers above 3 kW. Overload protection to be provided by the user.

• Type of motor used:

2-Pole

Single-phase: Lowara SM (up to 1,5 kW).

Lowara PLM (above 1,5 kW).

Three-phase: Lowara SM (up to 2,2 kW).

Lowara PLM (above 2,2 kW).

4-Pole

Three-phase: Lowara SM (up to 0,75 kW).

Lowara PLM (above 0,75 kW).

FHE SERIES

SINGLE-PHASE 50 Hz, 2-POLE MOTORS

MOTOR TYPE			INPUT CURRENT In (A) 220-240 V	CAPACITOR		DATA FOR 230 V 50 Hz VOLTAGE					
kW	IEC SIZE *	CONSTRUCTION DESIGN		μF	V	min ⁻¹	Is / In	η %	cosφ	Tn Nm	Ts/Tn**
0,75	90R	B14	5,02-5,39	30	450	2875	5,10	70,6	0,91	2,49	0,71
1,1	90R	B14	7,07-6,81	30	450	2800	3,80	73,8	0,95	3,75	0,47
1,5	90R	B14	9,32-8,63	40	450	2780	3,45	75,5	0,97	5,15	0,47
2,2	90	B14	12,7-11,8	70	450	2835	4,35	81,3	0,97	7,42	0,56

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

fhe-motm-2p50-en_c_te

** Ts/Tn = ratio between starting torque and nominal torque.

FHE SERIES

THREE-PHASE 50 Hz, 2-POLE MOTORS

MOTOR TYPE			INPUT CURRENT In (A)				DATA FOR 400 V 50 Hz VOLTAGE					
kW	IEC SIZE *	CONSTRUCTION DESIGN	Δ 220-240 V	Y 380-415 V	Δ 380-415 V	Y 660-690 V	min ⁻¹	Is / In	η %	cosφ	Tn Nm	Ts/Tn**
0,75	90R	B14	3,74	2,16	-	-	2915	8,23	77,7	0,65	2,45	5,20
1,1	90R	B14	4,52	2,61	-	-	2875	6,78	78,9	0,77	3,65	3,49
1,5	90R	B14	5,98	3,45	-	-	2875	7,04	80,1	0,78	4,98	3,83
2,2	90R	B14	8,71	5,03	-	-	2860	7,32	81,1	0,78	7,34	4,12
3	90	B14	10,8	6,25	-	-	2880	8,25	86,7	0,80	9,96	4,02
4	112R	B14	-	-	7,71	4,45	2900	9,51	89,1	0,84	13,2	3,93
5,5	112	B14	-	-	10,4	6,00	2895	10,3	89,0	0,86	18,2	4,47
7,5	132	B14	-	-	13,9	8,03	2925	9,52	89,9	0,87	24,5	3,24
9,2	132	B14	-	-	16,7	9,64	2930	10,1	91,6	0,87	30,0	3,10
11	132	B14	-	-	20,2	11,7	2915	9,49	91,2	0,86	36,0	3,57
15	160	B34	-	-	26,2	15,1	2945	8,23	92,3	0,89	48,6	2,37
18,5	160	B34	-	-	33,4	19,3	2955	9,25	93,1	0,86	59,8	2,62
22	160	B34	-	-	37,9	21,9	2950	9,37	93,1	0,90	71,2	2,68

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

fhe-mott-2p50-en_c_te

** Ts/Tn = ratio between starting torque and nominal torque.



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Lowara

FHS-FHF SERIES THREE-PHASE 50 Hz, 2-POLE MOTORS

MOTOR TYPE				INPUT CURRENT				DATA FOR 400 V 50 Hz VOLTAGE					
kW	IEC SIZE *	CONSTRUCTION		In (A)				min ⁻¹	Is / In	η %	cosφ	Tn Nm	Ts/Tn**
		FHS	FHF	Δ 220-240 V	Y 380-415 V	Δ 380-415 V	Y 660-690 V						
0,75	80R	B5	-	3,50	2,02	-	-	2855	5,81	74,3	0,72	2,51	3,76
0,75	80	-	B3	3,72	2,15	-	-	2915	8,23	77,7	0,65	2,45	5,20
1,1	80	B5	B3	4,52	2,61	-	-	2875	6,78	78,9	0,77	3,65	3,49
1,5	90R	B5	-	5,98	3,45	-	-	2875	7,04	80,1	0,78	4,98	3,83
1,5	90	-	B3	5,23	3,02	-	-	2885	7,44	84,2	0,85	4,97	3,08
2,2	90R	B5	-	8,71	5,03	-	-	2860	7,32	81,1	0,78	7,34	4,12
2,2	90	-	B3	8,11	4,68	-	-	2890	8,28	85,6	0,79	7,27	3,72
3	100R	B5	-	10,8	6,25	-	-	2880	8,25	86,7	0,8	9,96	4,02
3	100	-	B3	10,0	5,77	-	-	2910	9,36	88,0	0,85	9,84	3,98
4	112R	B5	-	-	-	7,71	4,45	2900	9,51	89,1	0,84	13,2	3,93
4	112	-	B3	-	-	7,59	4,38	2890	8,62	87,7	0,87	13,2	3,48
5,5	132R	B5	-	-	-	10,4	6,00	2895	10,3	89,0	0,86	18,2	4,47
5,5	132	-	B3	-	-	10,7	6,18	2935	9,82	89,4	0,83	17,9	3,47
7,5	132	B5	B3	-	-	13,9	8,03	2925	9,52	89,9	0,87	24,5	3,24
11	160	B35	B3	-	-	19,8	11,4	2940	7,59	90,8	0,89	35,7	2,11
15	160	B35	B3	-	-	26,2	15,1	2945	8,23	92,3	0,89	48,6	2,37
18,5	160	B35	B3	-	-	33,4	19,3	2955	9,25	93,1	0,86	59,8	2,62
22	180R	B35	-	-	-	37,9	21,9	2950	9,37	93,1	0,90	71,2	2,68
22	180	-	B3	-	-	41,7	24,1	2930	7,10	90,8	0,84	72,0	2,50
30	200	B35	B3	-	-	54	31,2	2950	6,80	92,5	0,87	97,0	2,40
37	200	B35	B3	-	-	65	37,5	2950	7,20	92,9	0,88	120	2,50
45	225	B35	B3	-	-	80	46	2960	6,70	92,9	0,88	145	2,40
55	250	B35	B3	-	-	99	57	2955	6,70	93,0	0,87	178	2,40
75	280	-	B3	-	-	133	77	2960	6,80	93,8	0,87	242	2,30
90	280	-	B3	-	-	157	91	2960	7,20	94,2	0,88	290	2,30
110	315	-	B3	-	-	196	113	2970	6,20	94,2	0,86	353	2,00
132	315	-	B3	-	-	235	136	2970	6,00	94,3	0,86	424	2,00

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

fhs-fhf-mott-2p50-en_d_te

** Ts/Tn = ratio between starting torque and nominal torque.



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FHE SERIES THREE-PHASE 50 Hz, 4-POLE MOTORS

MOTOR TYPE			INPUT CURRENT				DATA FOR 400 V 50 Hz VOLTAGE					
kW	IEC SIZE *	CONSTRUCTION	In (A)				min ⁻¹	Is / In	η %	cosφ	Tn Nm	Ts/Tn**
		DESIGN	Δ 220-240 V	Y 380-415 V	Δ 380-415 V	Y 660-690 V						
0,25	71	B5	1,71	0,99	-	-	1390	3,58	62,0	0,59	1,71	3,16
0,37	71	B5	2,53	1,46	-	-	1370	3,39	61,4	0,60	2,57	3,40
0,55	90R	B14	3,03	1,75	-	-	1390	3,95	68,2	0,67	3,77	2,45
0,75	90R	B5	4,04	2,33	-	-	1395	4,06	70,1	0,66	5,13	2,73
1,1	90	B5	4,66	2,69	-	-	1445	5,78	83,9	0,71	7,28	2,11
1,5	90	B5	6,46	3,73	-	-	1445	6,84	85,3	0,68	9,88	2,84
2,2	100	B5	8,11	4,68	-	-	1450	6,97	86,8	0,79	14,6	2,58
3	100	B5	11,8	6,81	-	-	1455	7,53	87,6	0,73	19,7	3,12
4	112	B5	-	-	8,48	4,90	1450	7,67	88,3	0,77	26,4	2,71
5,5	132	B14	-	-	11,3	6,52	1455	7,13	89,5	0,79	36,0	2,88
7,5	132	B14	-	-	15,4	8,89	1455	7,38	90,1	0,78	49,1	3,10

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

fhe-mott-4p50-en_c_te

** Ts/Tn = ratio between starting torque and nominal torque.

FHS-FHF SERIES THREE-PHASE 50 Hz, 4-POLE MOTORS

MOTOR TYPE				INPUT CURRENT				DATA FOR 400 V 50 Hz VOLTAGE					
kW	IEC SIZE *	CONSTRUCTION		In (A)				min ⁻¹	Is / In	η %	cosφ	Tn Nm	Ts/Tn**
		FHS	FHF	Δ 220-240 V	Y 380-415 V	Δ 380-415 V	Y 660-690 V						
0,25	71	-	B3	1,71	0,99	-	-	1390	3,58	62,0	0,59	1,71	3,16
0,37	71	-	B3	2,53	1,46	-	-	1370	3,39	61,4	0,60	2,57	3,40
0,55	80	B5	B3	3,03	1,75	-	-	1390	3,95	68,2	0,67	3,77	2,45
0,75	80	B5	B3	4,04	2,33	-	-	1395	4,06	70,1	0,66	5,13	2,73
1,1	90	B5	B3	4,66	2,69	-	-	1445	5,78	83,9	0,71	7,28	2,11
1,5	90	B5	B3	6,46	3,73	-	-	1445	6,84	85,3	0,68	9,88	2,84
2,2	100	B5	B3	8,11	4,68	-	-	1450	6,97	86,8	0,79	14,6	2,58
3	100	B5	B3	11,8	6,81	-	-	1455	7,53	87,6	0,73	19,7	3,12
4	112	B5	B3	-	-	8,48	4,90	1450	7,67	88,3	0,77	26,4	2,71
5,5	132	B5	B3	-	-	11,3	6,52	1455	7,13	89,5	0,79	36,0	2,88
7,5	132	B5	B3	-	-	15,4	8,89	1455	7,38	90,1	0,78	49,1	3,10
11	160	B5	B3	-	-	21,1	12,2	1465	6,92	91,1	0,83	71,6	2,39
15	160	B5	B3	-	-	30,7	17,7	1475	8,05	92,0	0,77	97,2	2,93
18,5	180	B5	B3	-	-	37,0	21,4	1465	6,20	90,2	0,80	120	2,30
22	180	B5	B3	-	-	42,0	24,2	1465	6,30	90,8	0,83	143	2,40
30	200	B5	B3	-	-	58	33,5	1465	6,60	91,6	0,82	195	2,40
37	225	-	B3	-	-	68	39,3	1470	6,50	93,1	0,85	240	2,30
45	225	-	B3	-	-	80	46,2	1475	6,50	93,4	0,87	291	2,40
55	250	-	B3	-	-	97	56	1475	6,40	93,7	0,88	356	2,30
75	280	-	B3	-	-	135	78	1480	7,00	93,7	0,86	483	2,50
90	280	-	B3	-	-	157	91	1480	7,10	94,5	0,88	580	2,70

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

fhs-fhf-mott-4p50-en_c_te

** Ts/Tn = ratio between starting torque and nominal torque.

MOTOR NOISE

The tables show the mean sound pressure (Lp) measured as per Curve A (Standard ISO 1680). Noise values were measured with the 50 Hz motor running idle with a tolerance of 3 dB (A).

FHE-FHS MOTORS 2 POLES 50 Hz

POWER	MOTOR TYPE	NOISE
kW	IEC* SIZE	LpA dB
0,75	90R	<70
1,1	90R	<70
1,5	90R	<70
2,2	90R	<70
3	90	<70
3	100R	<70
4	112R	<70
5,5	112	<70
7,5	132	71
9,2	132	73
11	132	73
11	160	71
15	160	71
18,5	160	73
22	160	70
22	180R	70
30	200	80
37	200	80
45	225	84
55	250	84

FHF MOTORS 2 POLES 50 Hz

POWER	MOTOR TYPE	NOISE
kW	IEC SIZE	LpA dB
0,75	80	<70
1,1	80	<70
1,5	90	<70
2,2	90	<70
3	100	<70
4	112	<70
5,5	132	71
7,5	132	71
11	160	71
15	160	71
18,5	160	73
22	180	78
30	200	80
37	200	80
45	225	84
55	250	84
75	280	84
90	280	84
110	315	83
132	315	83

FHE4-FHS4 MOTORS 4 POLES 50 Hz

POWER	MOTOR TYPE	NOISE
kW	IEC* SIZE	LpA dB
0,25	71	<70
0,37	71	<70
0,55	90R	<70
0,75	90R	<70
1,1	90	<70
1,5	90	<70
2,2	100	<70
3	100	<70
4	112	<70
5,5	132	<70
7,5	132	<70
11	160	<70
15	160	<70
18,5	180	<70
22	180	<70
30	200	<70

FHF4 MOTORS 4 POLES 50 Hz

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

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

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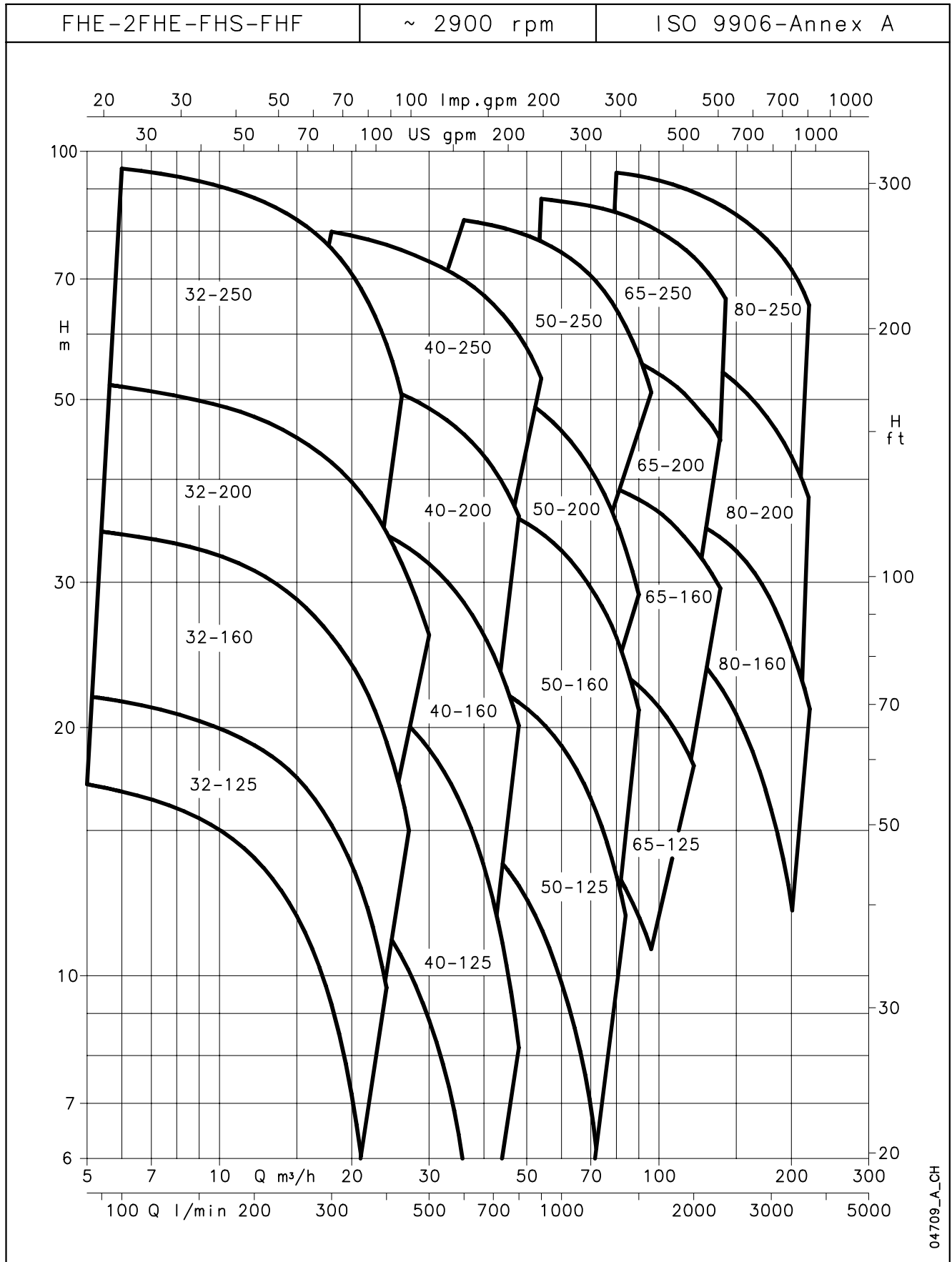


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FH-2FHE-FHS-FHF SERIES

HYDRAULIC PERFORMANCE RANGE AT 50 Hz, 2 POLES



These performances are valid for liquids with density $\rho = 1,0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.



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Lowara

FHE-2FHE-FHS-FHF SERIES

HYDRAULIC PERFORMANCE TABLE AT 50 Hz, 2 POLES

PUMP TYPE	RATED POWER		Q = DELIVERY																		
			l/min 0	100	150	250	300	400	450	600	700	800	900	1200	1400	1500	1800	2000	2300	3000	3500
			m³/h 0	6	9	15	18	24	27	36	42	48	54	72	84	90	108	120	138	180	210
	kW	HP	H = TOTAL HEAD METRES COLUMN OF WATER																		
32-125/07*	0,75	1	16,9		14,6	11	8,7														
32-125/11*	1,1	1,5	21,9		19,6	16,3	14,2	9													
32-160/15*	1,5	2	27,3		24,5	20,5	17,8	11													
32-160/22*	2,2	3	34,7		32	28	25,3	18,8	15												
32-200/30	3	4	44,2		39,8	35,2	32,2	24,6	19,8												
32-200/40	4	5,5	54,4		50	45	41,9	34,6	30,3												
32-250/55	5,5	7,5	79	74,7	71	62	56	37													
32-250/75	7,5	10	99	95,3	92	83	76	58													
40-125/11*	1,1	1,5	14,5				13	11,3	10,1	5,8											
40-125/15*	1,5	2	18,1				16,7	15	13,9	9,6	6										
40-125/22*	2,2	3	24,5				23	21	20,1	15,8	12,3	8,2									
40-160/30	3	4	31,5				29,4	27,5	26,1	21,5	17,4										
40-160/40	4	5,5	38				36,2	34	33	28,5	24,5	20,1									
40-200/55	5,5	7,5	46,5				44	41,5	40,2	34,5	29,5										
40-200/75	7,5	10	57				54	52	50	45,5	41	36,1									
40-250/**	**	**	64				59	56	55	49	45	39,5									
40-250/110	11	15	72				67,5	65	63	57	52	47									
40-250/150	15	20	85				80	77	75	70	65	60									
50-125/22*	2,2	3	17							15,1	14	12,8	11,4	6,2							
50-125/30	3	4	20							18,8	18	16,9	15,6	10,5							
50-125/40	4	5,5	24							23,1	22,5	21,5	20,3	15,8	11,8						
50-160/55	5,5	7,5	32							30,6	29,5	28	26,6	20,5	14,8						
50-160/75	7,5	10	40							38	37	36	34,4	29	24	21					
50-200/**	**	**	50,5							46,8	45	43	40,9	32,5	25,7						
50-200/110	11	15	58							54	53	50	48,3	40	33	29					
50-250/150	15	20	68							64	63	61	59	50	41						
50-250/185	18,5	25	77							73	72	70	68	60	52	47					
50-250/220	22	30	86							82,5	81	80	78	70	61	57					
65-125/40	4	5,5	19									17,3	16,8	14,5	13	11,8					
65-125/55	5,5	7,5	23									21,3	20,9	19	17,5	16,7	13,7				
65-125/75	7,5	10	27									26	25,6	24,5	23	22,5	20	18			
65-160/**	**	**	33										31,5	30	28	27,1	24	21,5			
65-160/110	11	15	36										34,5	33	31,5	30,8	28	25,5			
65-160/150	15	20	42										41	40	38,5	37,8	35	33	29,5		
65-200/150	15	20	45										45,5	43	41	40,2	36,5	34			
65-200/185	18,5	25	52										52	51	49	48	44,5	42			
65-200/220	22	30	59										59,5	58	56	55	52	49,5	44,5		
65-250/220	22	30	62										61	58	56	54	48,5	44			
65-250/300	30	40	76										74,5	73	71	69	64	61	54		
65-250/370	37	50	90										88	86	84	83	78	75	68		
80-160/110	11	15	27													27,3	26	24,5	22,5	16	
80-160/150	15	20	33													32,5	31	30	28	22	16,5
80-160/185	18,5	25	39													38	36,5	35,5	34	28,5	23,3
80-200/220	22	30	48													47	45	43,5	41	32,5	24,5
80-200/300	30	40	60													59,5	58	57	54,5	47	40,5
80-250/370	37	50	71													70	67	65	61	49	38
80-250/450	45	61	80													80,5	78	76	73	62	51
80-250/550	55	75	92													93	91	90	87	77	68

* Single-phase version (FHEM) also available

fhe-fhs-fhf-2p50-en_b_th

** /92 = 9,2kW - 12,5HP FHE ** /110 = 11kW - 15HP FHS

Performances according to ISO 9906 - Annex A.

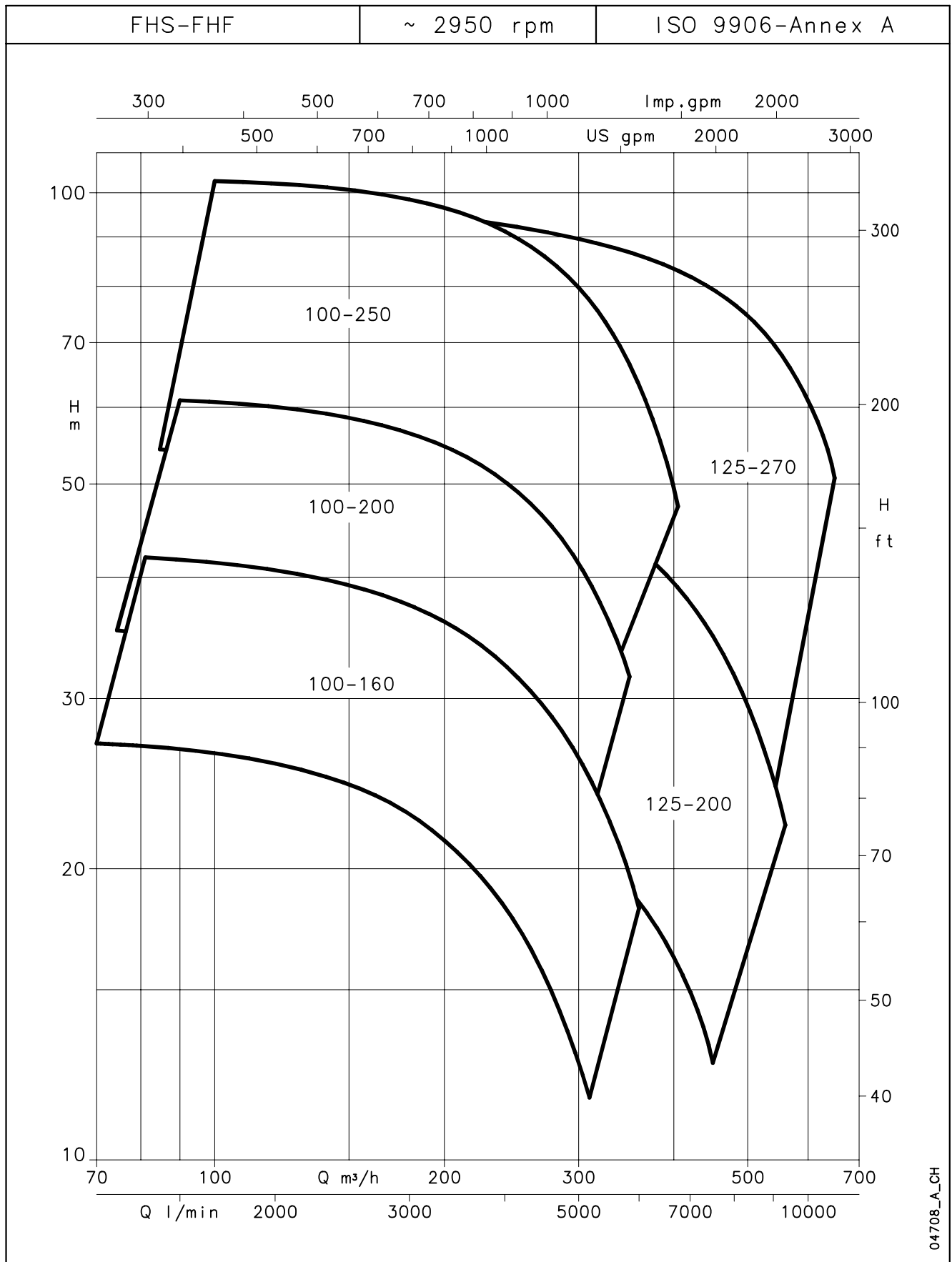


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Lowara

FHS-FHF SERIES

HYDRAULIC PERFORMANCE RANGE AT 50 Hz, 2 POLES



These performances are valid for liquids with density $\rho = 1,0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.



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Lowara

FHS-FHF SERIES

HYDRAULIC PERFORMANCE TABLE AT 50 Hz, 2 POLES

PUMP TYPE	RATED POWER		Q = DELIVERY														
			l/min 0	1333	1500	1667	2000	2500	3333	4167	5000	5833	6667	8333	9167	10000	10833
	m³/h 0	79,98	90	100	120	150	200	250	300	350	400	500	550	600	650		
	kW	HP	H = TOTAL HEAD METRES COLUMN OF WATER														
100-160/185	18,5	25	26,7	26,8	26,6	26	25,8	24,5	21,4	17,4	12,6						
100-160/220	22	30	33	33	32,7	32,4	31,6	30	26,6	22,2	16,8						
100-160/300	30	40	42,3	42	42	42	41	39	36	31,5	26	19,6					
100-200/185	18,5	25	36,4		34,5	34	32,4	29,5	23,2	15,2							
100-200/300	30	40	49		48,5	48	47	45	40	33,2	24,6						
100-200/370	37	50	56		55,6	55	54	52	48	41	33,2						
100-200/450	45	60	61		61	61	60	59	55	49	41	31,6					
100-250/300	30	40	54,6			53,3	52	48	41	29,5	14,9						
100-250/450	45	60	68,8			68,1	67	65	58	49	36,3						
100-250/550	55	75	78,5			78,1	77	75	70	62	49	34					
100-250/750	75	100	91,8			91,7	91	89	85	78	68	54					
100-250/900	90	120	103			102,8	102	101	97	90	80	66	49				
125-200/300	30	40	32,4				30,5	29,1	26,5	23,9	21,4	19	16,2				
125-200/450	45	60	47				45,5	44	42	39,2	36,2	32,9	29,4	21,0			
125-200/550	55	75	57,3				55,7	55	53	50	47	44	39,5	29,5	23,5		
125-270/750	75	100	64,9					64,6	63	60	57	54	50	40	34,1		
125-270/900	90	120	75,1					74,5	73	71	68	65	61	51	46	36,7	
125-270/1100	110	150	87,6					86,7	85	83	80	77	74	64	56	47	
125-270/1320	132	180	96,8					96,1	94	92	90	87	83	75	69	61	50,7

Performances according to ISO 9906 - Annex A.

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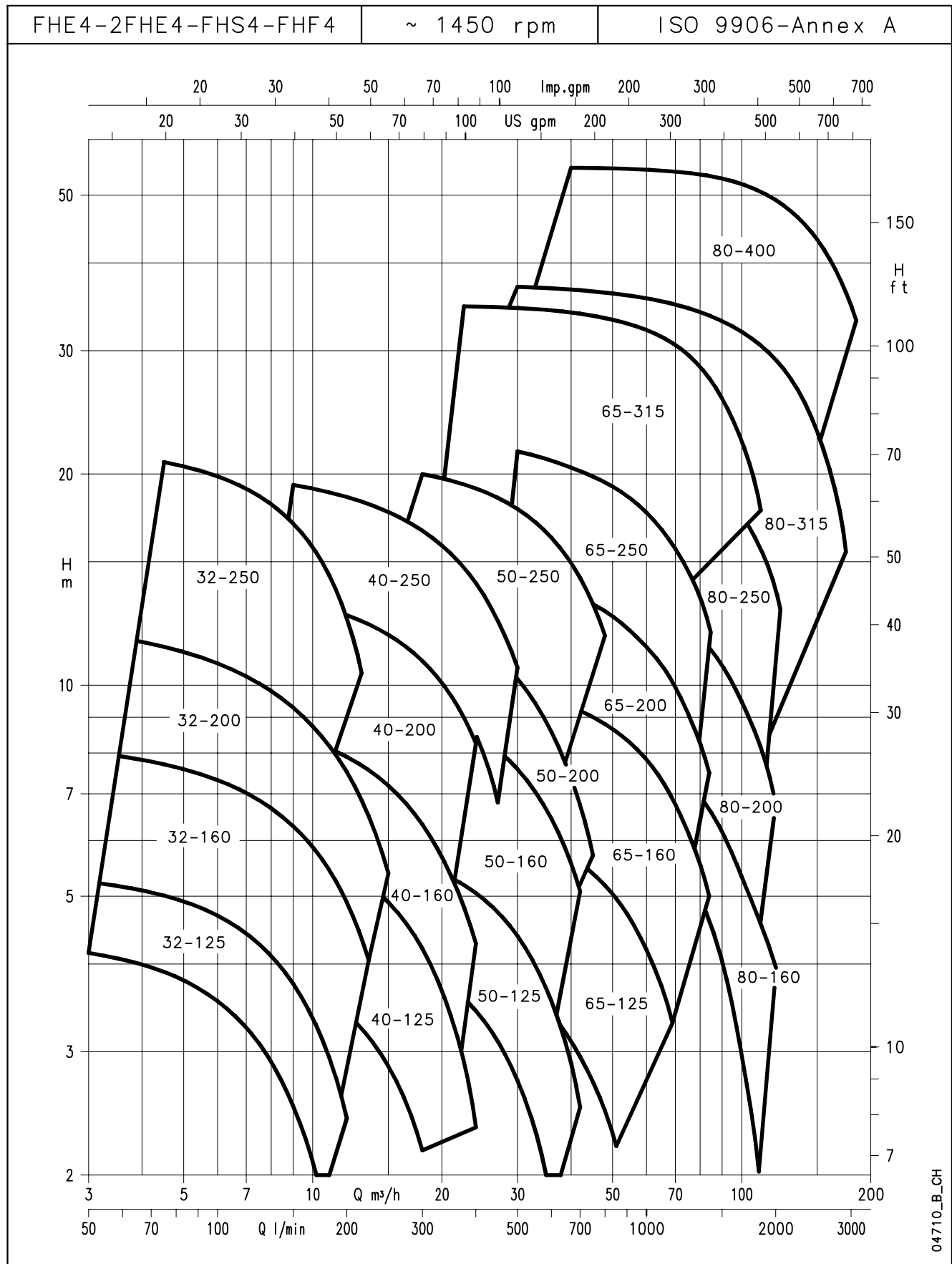


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Lowara

FHE4-2FHE4-FHS4-FHF4 SERIES

HYDRAULIC PERFORMANCE RANGE AT 50 Hz, 4 POLES



These performances are valid for liquids with density $\rho = 1,0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.



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FHE4-2FHE4-FHS4-FHF4 SERIES

HYDRAULIC PERFORMANCE TABLE AT 50 Hz, 4 POLES

PUMP TYPE	RATED POWER		Q = DELIVERY																			
			l/min 0	75	100	150	175	200	300	400	450	500	600	700	750	1000	1200	1400	1600	1800	2333	2500
	kW	HP	m³/h 0	4,5	6	9	10,5	12	18	24	27	30	36	42	45	60	72	84	96	108	140	150
H = TOTAL HEAD METRES COLUMN OF WATER																						
32-125/02A*	0,25	0,33	4,4	3,9	3,5	2,5	1,8															
32-125/02*	0,25	0,33	5,5	5	4,7	3,8	3,1	2,4														
32-160/02*	0,25	0,33	6,5	5,8	5,4	4,3	3,6	2,8														
32-160/03*	0,37	0,5	8,5	7,7	7,3	6	5,7	4,9														
32-200/03*	0,37	0,5	9,9	8,7	8,1	6,7	5,9	5														
32-200/05*	0,55	0,75	12,5	11,3	10,7	9,3	8,4	7,5														
32-250/07	0,75	1	19,4	17,7	16,7	13,8	11,7	9														
32-250/11	1,1	1,5	22,5	20,8	19,9	17,0	15	12,5														
40-125/02A*	0,25	0,33	4			3,8	3,6	3,4	2,2													
40-125/02*	0,25	0,33	5,1			4,7	4,5	4,3	3,1													
40-125/03*	0,37	0,5	6,3			5,8	5,6	5,4	4,2	2,3												
40-160/03*	0,37	0,5	7,4			6,7	6,4	6,1	4,6													
40-160/05*	0,55	0,75	9,1			8,4	8,2	7,9	6,3	4,3												
40-200/07	0,75	1	11,6			10,8	10,5	10,2	8,4													
40-200/11	1,1	1,5	14,1			13,2	12,9	12,6	10,8	8,3												
40-250/11	1,1	1,5	15			13,7	13,3	13	11,2	8,5	6,8											
40-250/15	1,5	2	17,5			16,2	15,8	15,5	13,5	10,8	9,2											
40-250/22	2,2	3	21			19,3	19	18,5	16,6	14	12,4	10,6										
50-125/03A*	0,37	0,5	4,3						3,9	3,4	3,1	2,7	1,8									
50-125/03*	0,37	0,5	5,0						4,4	3,9	3,6	3,3	2,4									
50-125/05*	0,55	0,75	6						5,5	5,1	4,7	4,4	3,5	2,5								
50-160/07	0,75	1	7,9						7,4	6,8	6,3	5,8	4,7									
50-160/11	1,1	1,5	9,7						9,1	8,5	8,1	7,6	6,5	5,1								
50-200/11	1,1	1,5	12,1						10,8	9,9	9,2	8,6	7,1	5,2								
50-200/15	1,5	2	13,9						12,6	11,6	10,9	10,2	8,6	6,7	5,7							
50-250/22A	2,2	3	16,5						15,6	14,6	14	13,2	11,4	9,1								
50-250/22	2,2	3	18,6						17,4	16,5	15,9	15,2	13,4	10,1	9,8							
50-250/30	3	4	21,1						20	19	18,5	17,8	16,2	14,2	13							
65-125/05	0,55	0,75	4,6						4,1	4	3,8	3,4	2,9	2,7								
65-125/07	0,75	1	5,6						5,2	5	4,9	4,5	4,2	3,9	2,6							
65-125/11	1,1	1,5	6,6						6,3	6,2	6,1	5,9	5,6	5	4,2							
65-160/11	1,1	1,5	8,0								7,3	7	6,6	6,3	4,8	3,4						
65-160/15	1,5	2	9								8,3	8	7,6	7,4	6	4,6						
65-160/22	2,2	3	10,3								9,8	9,5	9,2	9	7,8	6,5	5,0					
65-200/15	1,5	2	10								9,6	9,1	8,5	8,2	6,4	4,6						
65-200/22	2,2	3	12,4								12,2	11,8	11,3	11	9,3	7,6						
65-200/30	3	4	14,4								14,3	13,8	13,4	13,1	11,3	9,6	7,5					
65-250/30	3	4	15,4								14,8	14,6	13,9	13,1	12,6	9,7	6,7					
65-250/40	4	5,5	19								18,6	18,3	17,8	17,2	16,9	14,4	11,7					
65-250/55	5,5	7,5	22,3								21,5	21,3	20,9	20,3	19,9	17,7	15,1	12,0				
65-315/40	4	5,5	18,6								18,3	18,1	17,9	17,3	16,7	16,2	13,3					
65-315/55	5,5	7,5	22,1								21,8	21,7	21,6	21,2	20,6	20,2	17,3	14				
65-315/75	7,5	10	26,5								26,2	26,1	26	25,6	25,2	24,9	23	20,8	17,6			
65-315/110A	11	15	30,6								30,5	30,4	30,3	30	29,7	29,5	27,9	25,8	22,8	18,6		
65-315/110	11	15	34,8								34,7	34,6	34,5	34,2	33,9	33,7	32,1	30,2	27,4	23,7	18,7	
80-160/15	1,5	2	7,2												7,1	6,4	5,5	4,6	3,5			
80-160/22	2,2	3	8,5												8,6	8,0	7,4	6,6	5,7	5		
80-200/30	3	4	11,2												11,0	10,1	9,2	8	6,6			
80-200/40	4	5,5	13,8												13,8	13,3	12,4	11,3	10	9		
80-250/40	4	5,5	16,5												16,0	14,8	13,2	11,4	9			
80-250/55	5,5	7,5	19,8												19,5	18,4	17,2	15,5	13,5	11,1		
80-250/75	7,5	10	23,6												23,5	22,5	21,3	19,9	18,1	16		
80-315/55	5,5	7,5	19,7									19,5	19,4	19,2	19,1	18,1	16,8	15	12,8	10,1		
80-315/75	7,5	10	24,6									24,4	24,3	24,1	23,9	23	21,9	20,4	18,6	16,3		
80-315/110	11	15	29,9									29,7	29,6	29,5	29,4	28,8	28,1	27	25,5	23,6	16,5	13,5
80-315/150	15	20	36,8									37	36,8	36,6	36,4	35,6	34,7	33,6	32,4	30,9	25,3	23
80-400/185	18,5	25	40,3												39,7	39,7	39,1	38,4	37,3	35,9	34,1	27,3
80-400/220	22	30	45,1												44,7	44,6	44,2	43,6	42,6	41,4	39,8	33,4
80-400/300	30	40	55,1												54,7	54,7	54,4	54	53,3	52,2	50,9	45,4

* FHE4 VERSION ONLY

fhe4-fhs4-fhf4-4p50-en_d_th

Performances according to ISO 9906 - Annex A.

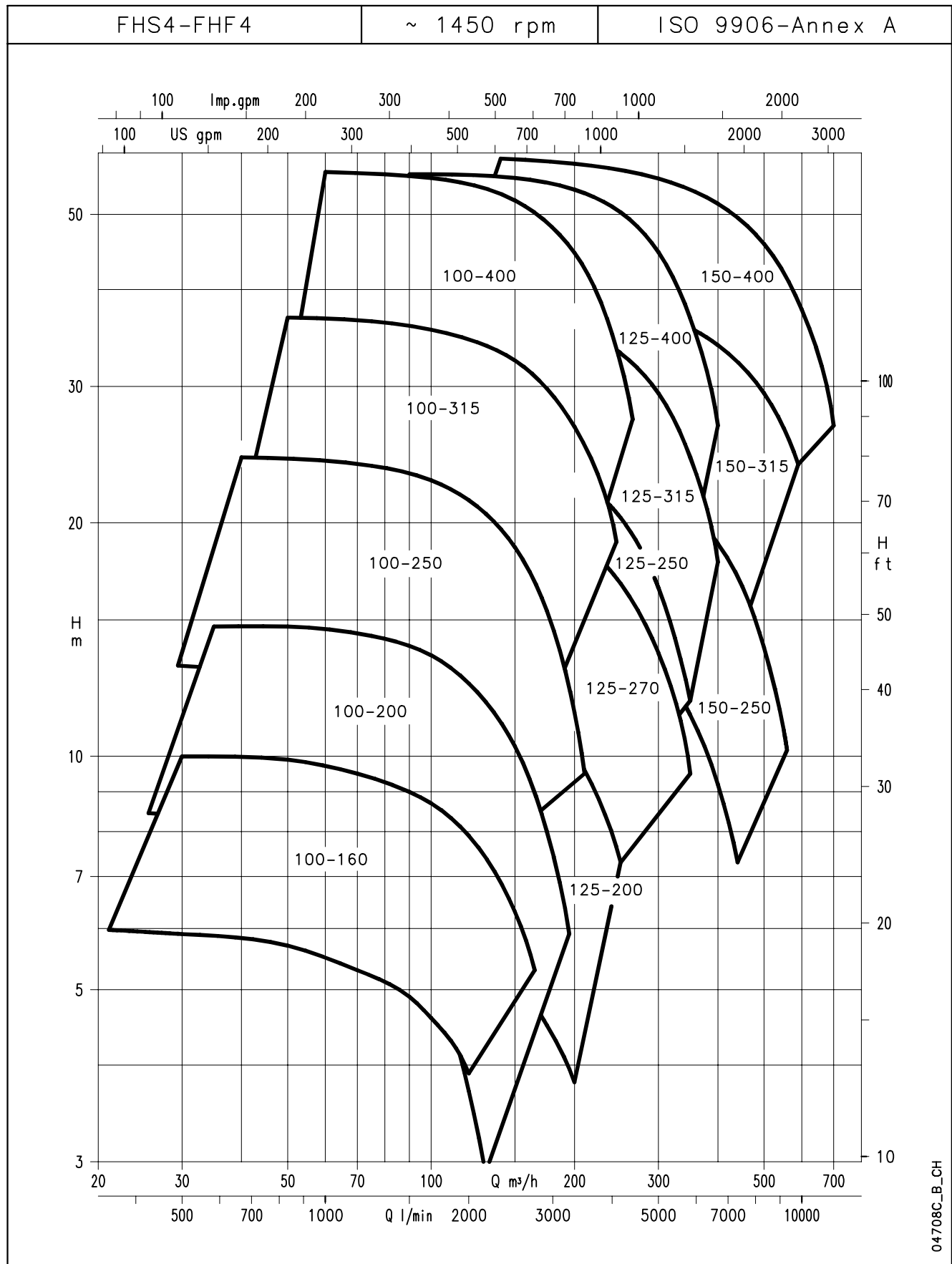


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FHS4-FHF4 SERIES

HYDRAULIC PERFORMANCE RANGE AT 50 Hz, 4 POLES



FHS4-FHF4 SERIES
HYDRAULIC PERFORMANCE TABLE AT 50 Hz, 4 POLES

PUMP TYPE	RATED POWER		Q = DELIVERY																
	kW	HP	l/min 0	500	583	667	833	1000	1500	1667	1833	2333	2500	3333	4167	5000	6667	8333	10000
			m³/h 0	30	35	40	50	60	90	100	110	140	150	200	250	300	400	500	600
			H = TOTAL HEAD METRES COLUMN OF WATER																
100-160/22	2,2	3	5,9	5,9	5,9	5,8	5,7	5,5	4,9	4,6	4,3								
100-160/30	3	4	8,2	8,2	8,1	8,1	8	7,9	7,2	6,9	6,5	5,1							
100-160/40	4	5,5	10	10	10	10	9,9	9,7	9	8,7	8,3	6,9	6,3						
100-200/22			8,5		8,3	8,2	7,9	7,5	5,9	5,2	4,5								
100-200/40	4	5,5	11,8		11,8	11,8	11,6	11,4	10,3	9,7	9,1	6,8	5,9						
100-200/55	5,5	7,5	14,8		14,7	14,7	14,7	14,5	13,8	13,5	13	11,1	10,3						
100-250/40	4	5,5	12,9			12,9	12,6	12,1	10,1	9,2	8,2								
100-250/55	5,5	7,5	15,9			15,9	15,7	15,5	14,1	13,4	12,5	9,2	7,9						
100-250/75	7,5	10	19,5			19,5	19,4	19,2	18,1	17,6	16,9	14	12,7						
100-250/110	11	15	24,3			24,3	24,2	24,1	23,1	22,7	22,1	19,7	18,6	11,4					
100-315/150	15	20	29,9				29,7	29,5	28,6	28,1	27,5	25	24	16,8					
100-315/185	18,5	25					34,4	34,2	33,3	32,8	32,2	30	29	22,4					
100-315/220	22	30	37				36,8	36,7	35,9	35,5	35,1	33,2	32,4	26,6					
100-400/300	30	40	46,4					46	46	45	44	42	40	29,6					
100-400/450	45	60	57,1					56,7	56	56	55	53	52	45	32,1				
125-200/40	4	5,5	7,9					7,4	6,7	6,5	6,2	5,4	5,2	3,8					
125-200/55	5,5	7,5	11,4					10,8	10,2	10	9,7	8,9	8,6	6,9					
125-200/75	7,5	10	14,1					13,6	13,1	12,9	12,7	11,9	11,6	9,6					
125-250/75	7,5	10	15,4					15,3	15	14,8	14,6	13,6	13,1						
125-250/110	11	15	19,4					19,3	19,1	19	18,9	18,1	17,8	15,3	11,7				
125-250/150	15	20	23,2					23,3	23,1	23	22,9	22	22	19,8	16,5	12,3			
125-250/185	18,5	25	25,6					25,5	25,5	25,4	25,3	24,9	24,7	23	20,3	16,5			
125-270/75	7,5	10	14,4					14,4	13,9	13,7	13,5	12,6	12,2	10,1	7,3				
125-270/110	11	15	18,0					18,1	17,8	17,7	17,5	16,8	16,5	14,5	11,8	8,3			
125-270/150	15	20	22,6					22,6	22,3	22,1	21,9	21,2	21	19,2	16,7	13,6			
125-315/185	18,5	25	27,3							26,9	26,7	25,9	25,6	23,3	19,7	14,9			
125-315/220	22	30	30							29,7	29,6	28,9	28,6	26,5	23,2	18,4			
125-315/300	30	40	35,6							35,4	35,3	34,8	34,6	32,9	30,1	26,1			
125-315/370	37	50	38,2							38	37,9	37,4	37,2	35,7	33,1	29,4	17,8		
125-400/220	22	30	33,4						32,8	32,5	32,1	30,5	29,7	24,7	17,3				
125-400/300	30	40	41						41	40,5	40,3	39,2	38,6	34,4	27,5	18,3			
125-400/450	45	60	51,4						51	50,9	50,8	50,1	49,8	47	42,2	34,8			
125-400/550	55	75	56,5						56,3	56,3	56,2	55,9	55,7	53,8	50,3	44,7	26,7		
150-250/150	15	20	17,5										16,8	15,9	14,7	13,2	9,2		
150-250/185	18,5	25	21,3										20,8	20	18,9	17,5	13,8	8,7	
150-250/220	22	30	24										23,6	23	22	20,8	17,1	12	
150-250/300	30	40	25,5										25	24,5	23,5	22	18,8	13,8	
150-315/300	30	40	30,2										29,7	29	27,9	26,4	22,3		
150-315/370	37	50	33,6										33,5	32,7	31,7	30,4	26,7	21,4	
150-315/450	45	60	37,7										37,6	36,9	35,9	34,7	31,3	26,5	
150-315/550	55	75	40										40	39,3	38,4	37,2	33,9	29,4	
150-400/300	30	40	32,9										32	31,7	30,2	28,2	25,5	18,6	
150-400/370	37	50	38,3										37,5	37,3	36	34	31,4	24,3	
150-400/450	45	60	42,8										42,2	42	41	39	36,6	30	21,2
150-400/550	55	75	48,2										47,7	48	46	45	42	36,8	29,2
150-400/750	75	100	55,4										55	55	54	53	51	47	41
150-400/900	90	120	59,5										59	59	58	57	56	52	46
																			37,2

Performances according to ISO 9906 - Annex A.

lm-fhs4fhf4-4p50-en_d_th

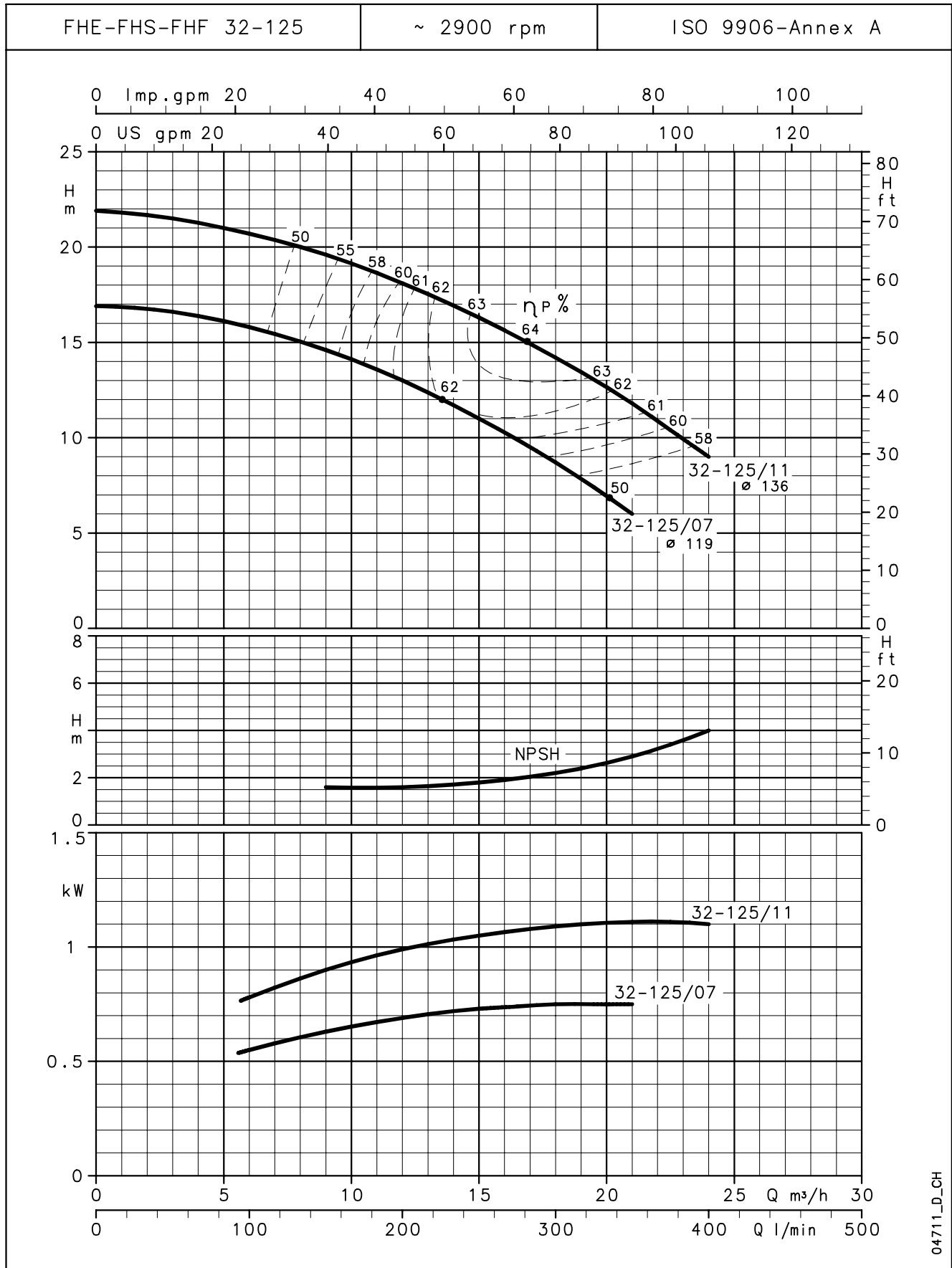


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Lowara

FHE-FHS-FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES



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

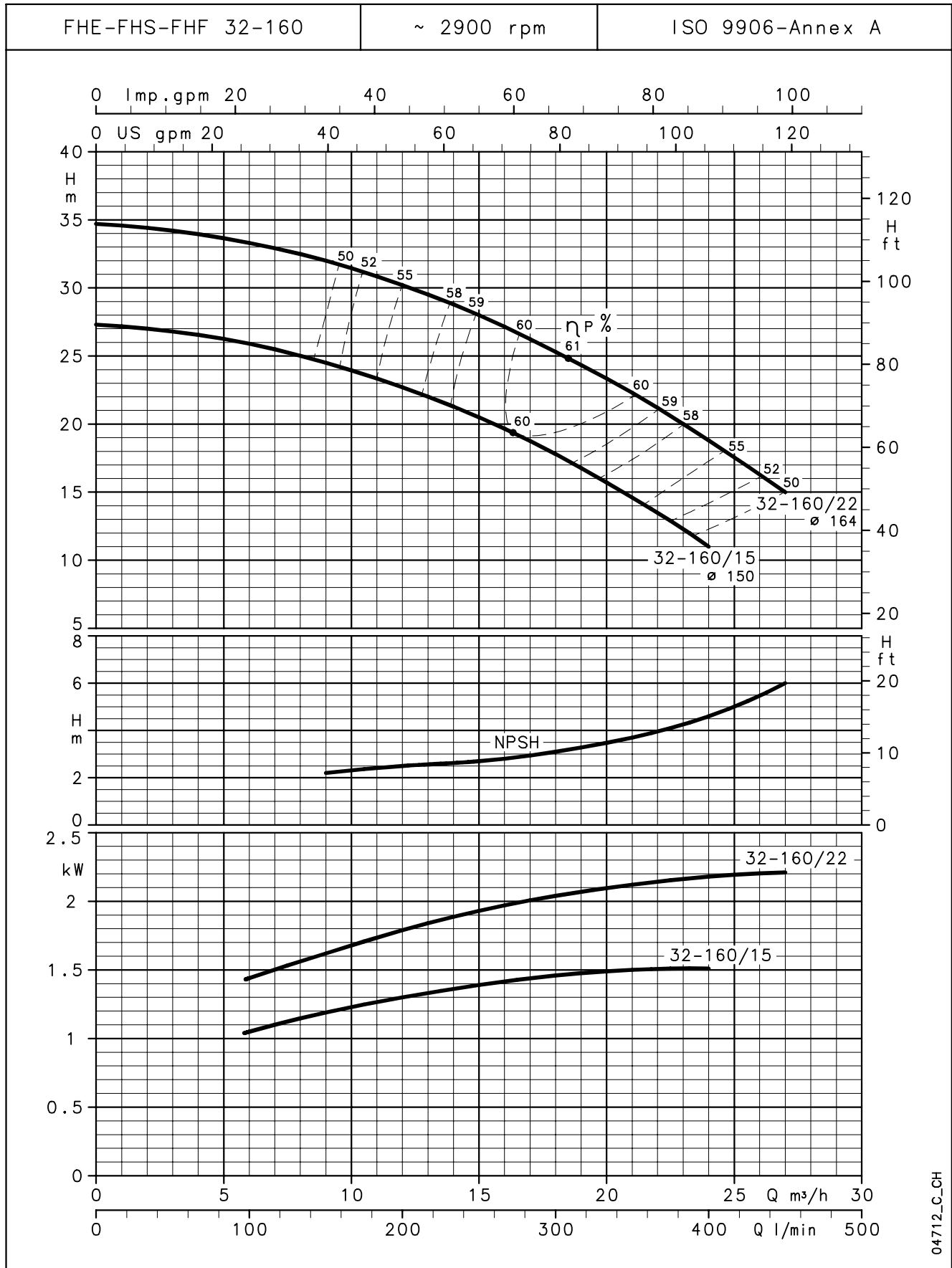


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Lowara

FHE-FHS-FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES



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



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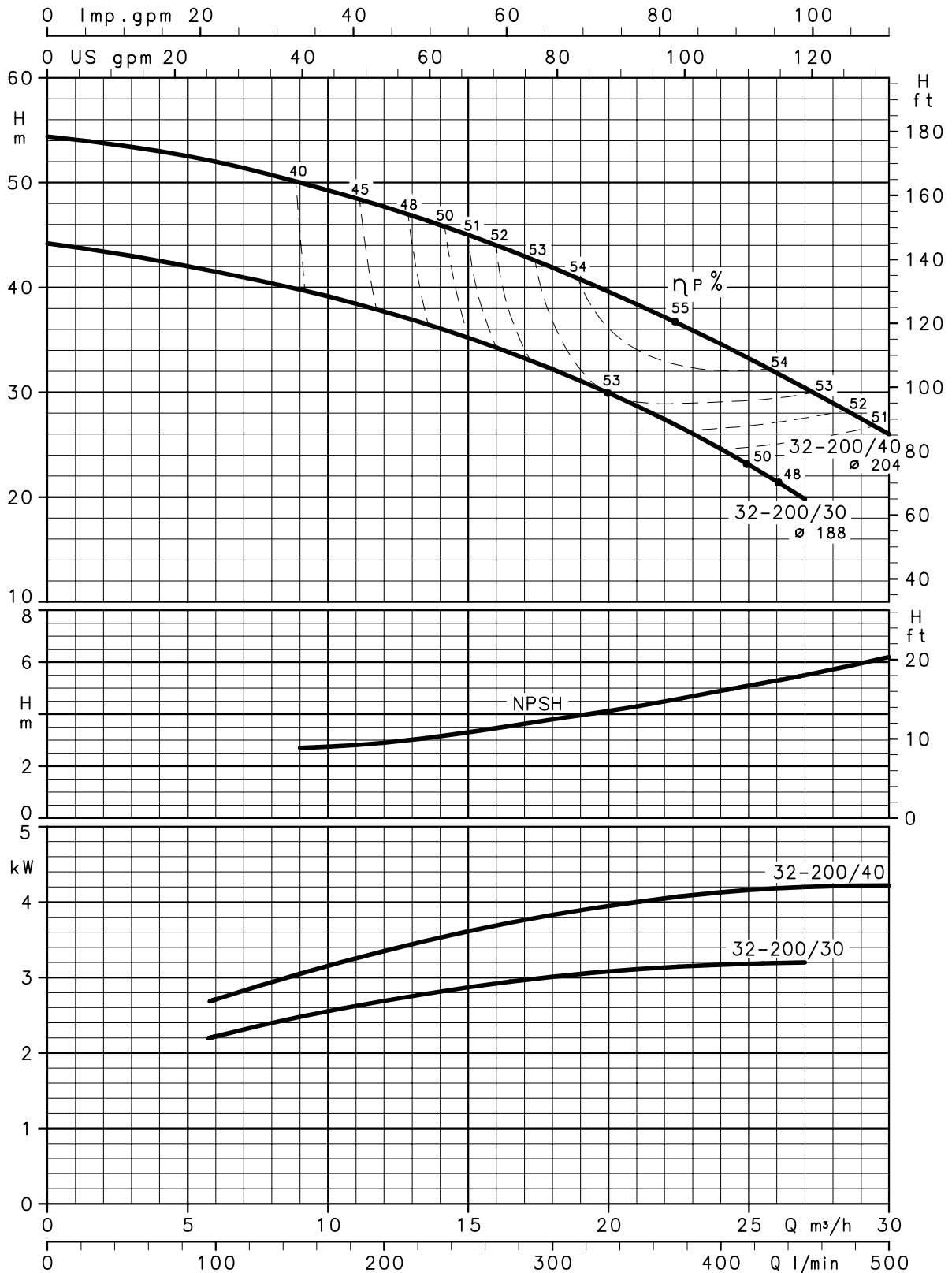
FHE-FHS-FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

FHE-FHS-FHF 32-200

~ 2900 rpm

ISO 9906-Annex A



04713_C_CH

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

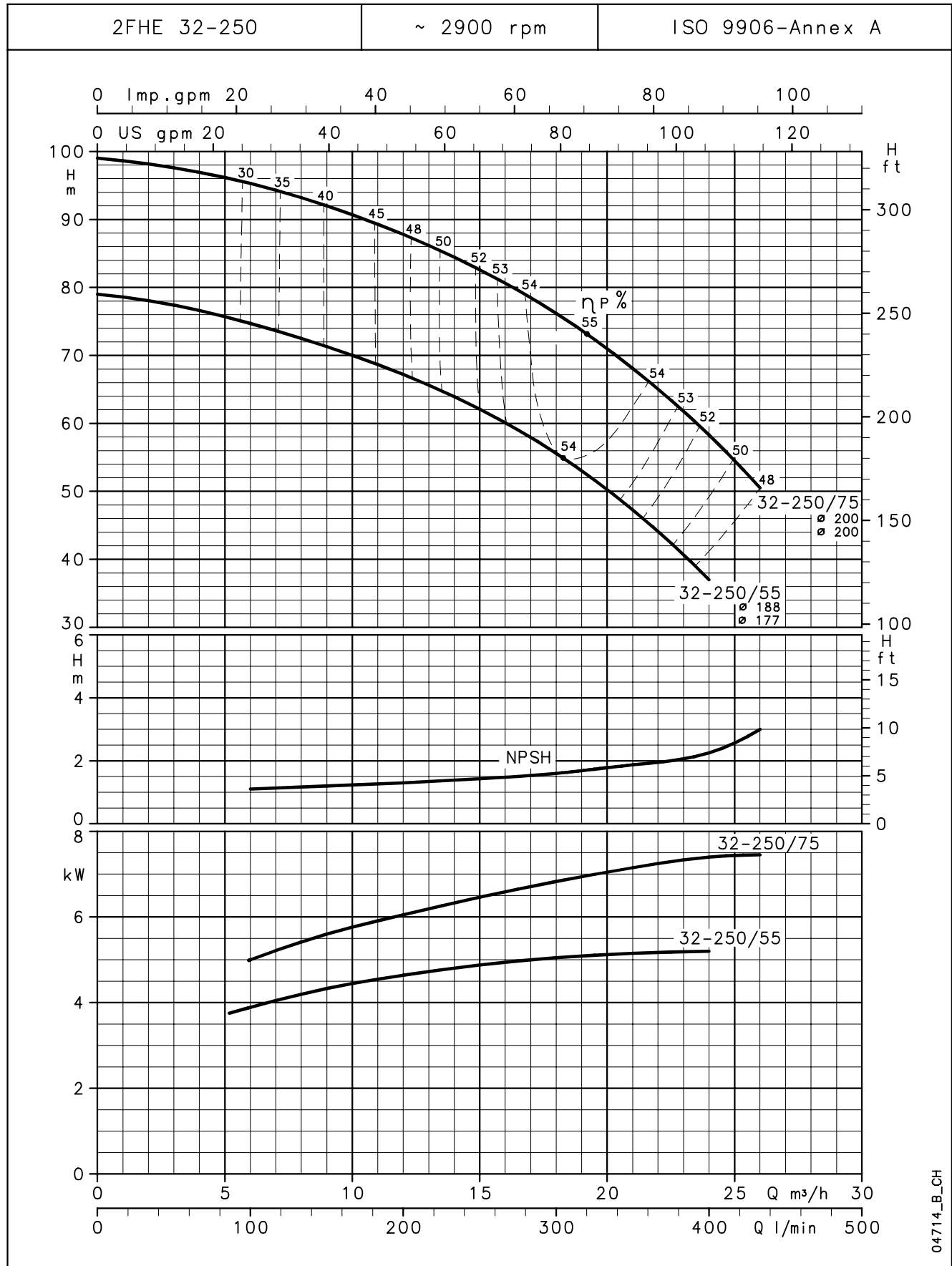


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2FHE SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES



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



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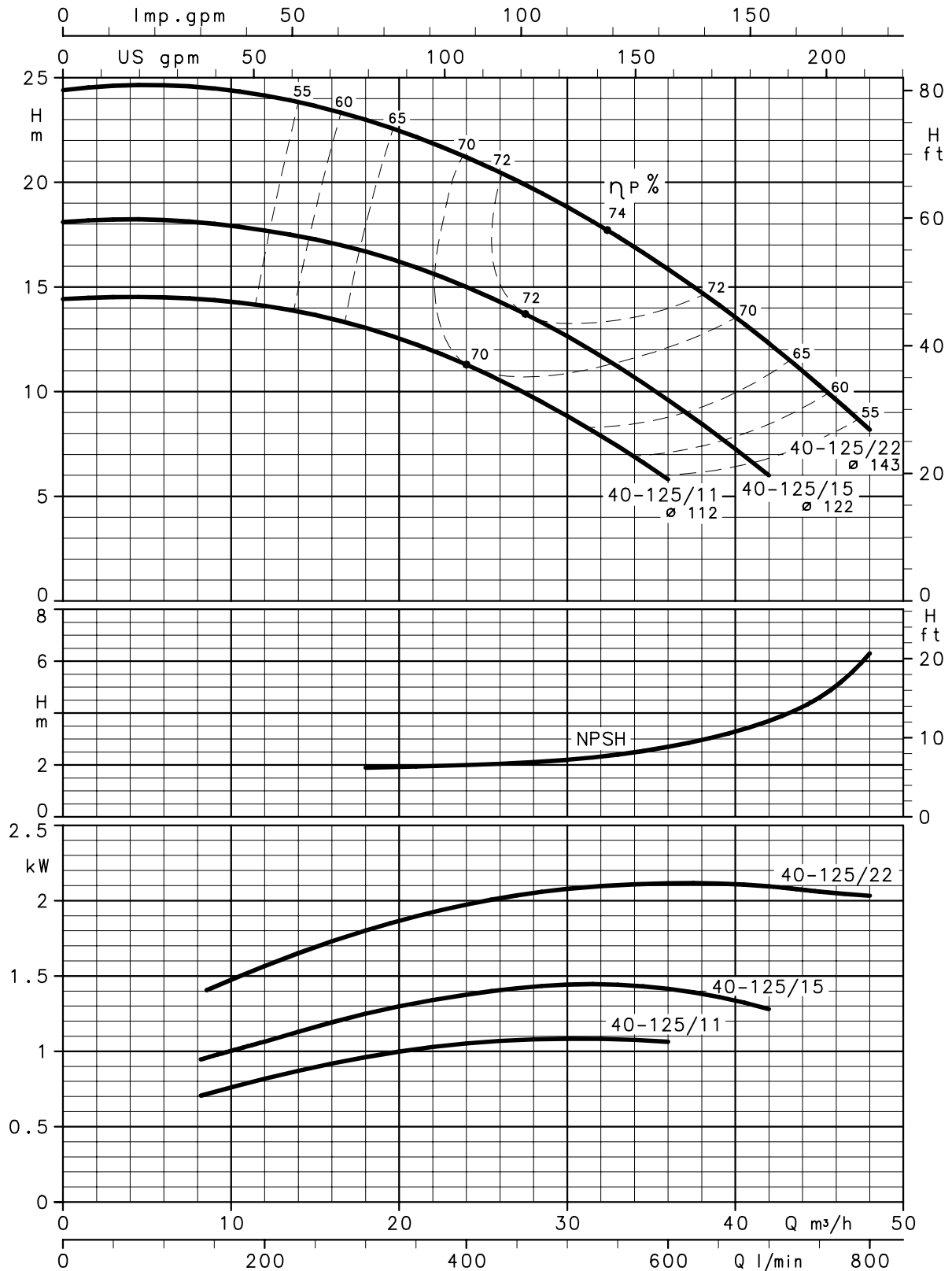
FHE-FHS-FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

FHE-FHS-FHF 40-125

~ 2900 rpm

ISO 9906-Annex A



04715_D_CH

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



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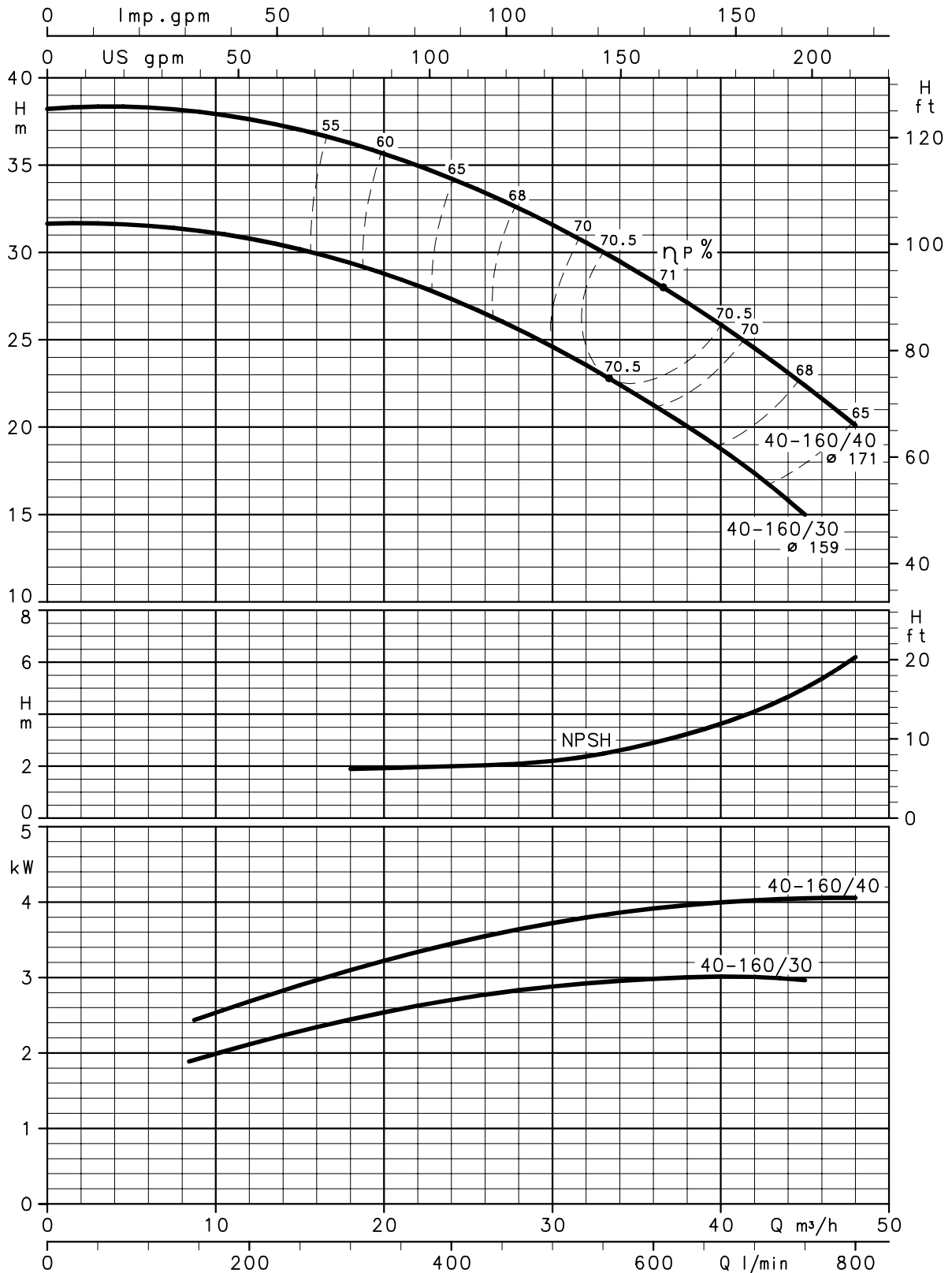
FHE-FHS-FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

FHE-FHS-FHF 40-160

~ 2900 rpm

ISO 9906-Annex A



04716_B_CH

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



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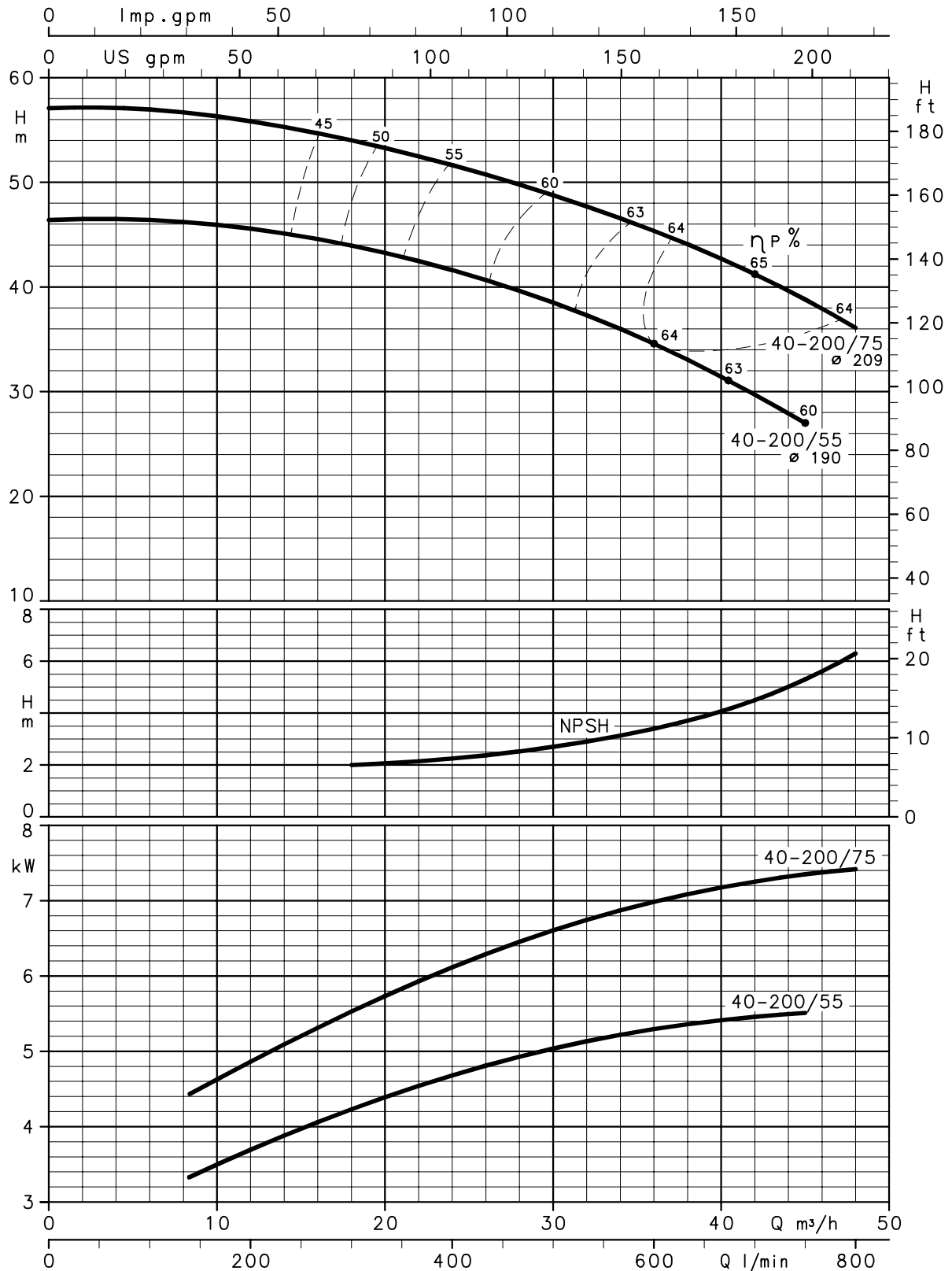
FHE-FHS-FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

FHE-FHS-FHF 40-200

~ 2900 rpm

ISO 9906-Annex A



04717_B_CH

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

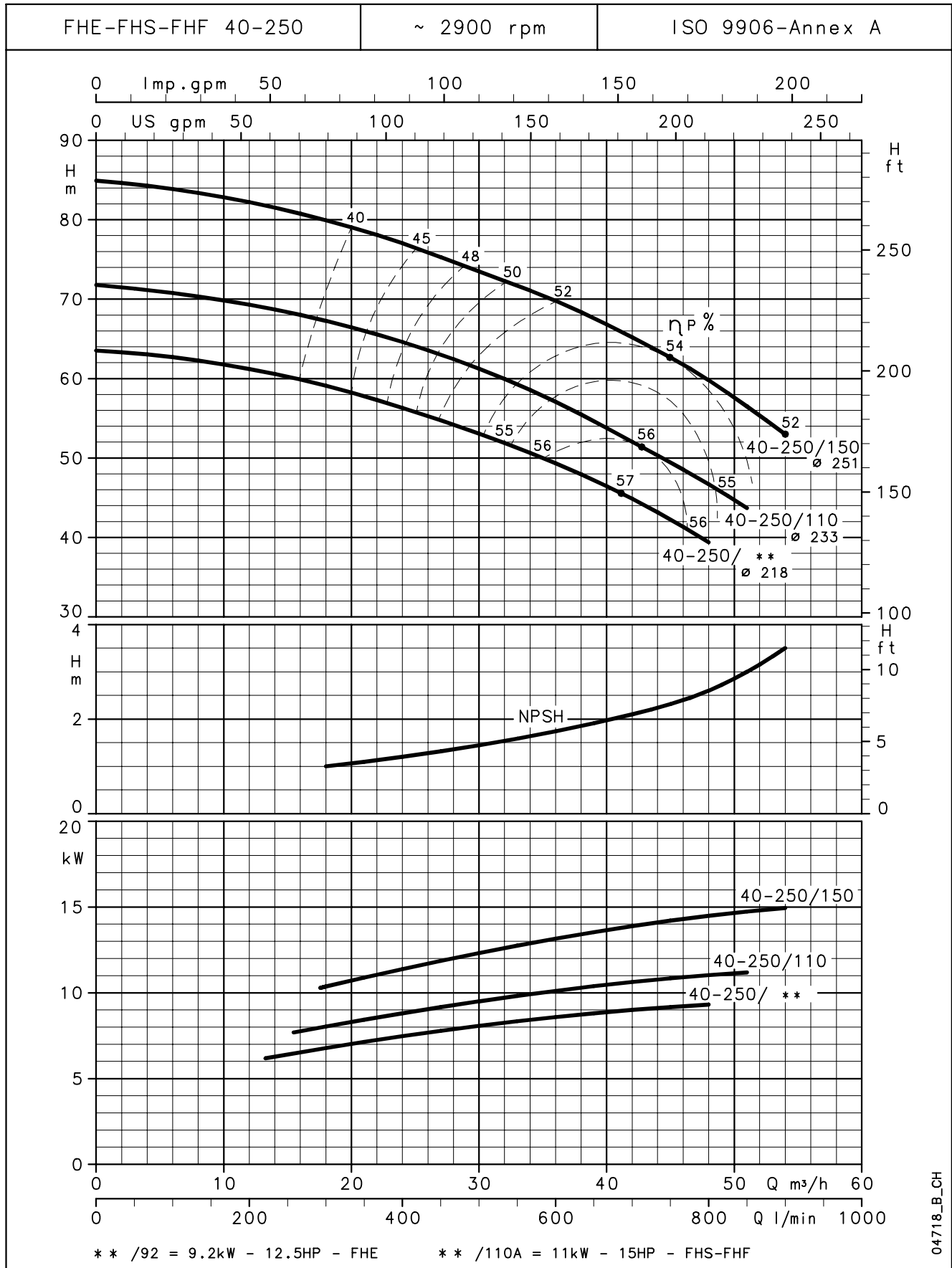


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Lowara

FHE-FHS-FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES



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

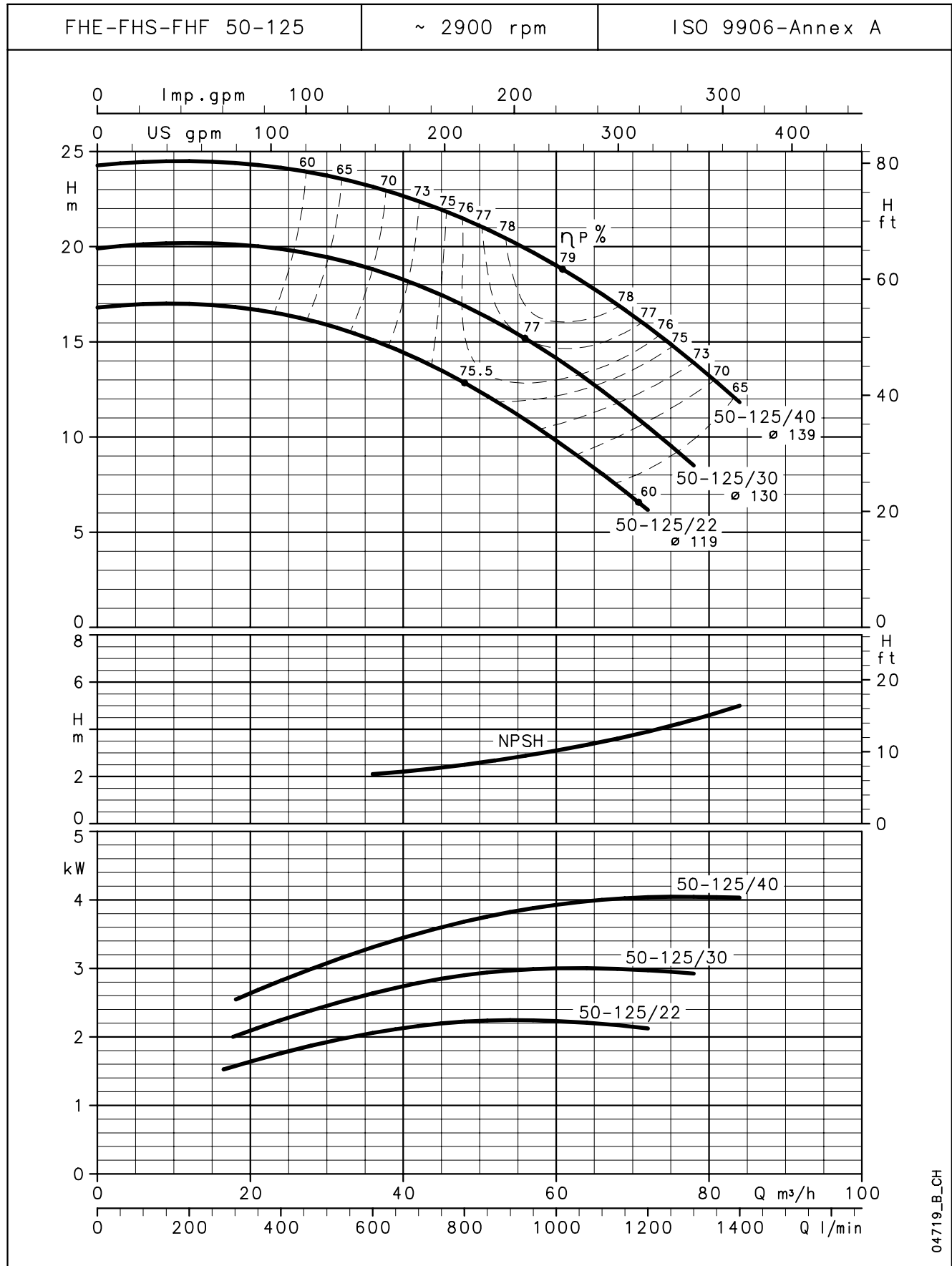


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Lowara

FHE-FHS-FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES



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



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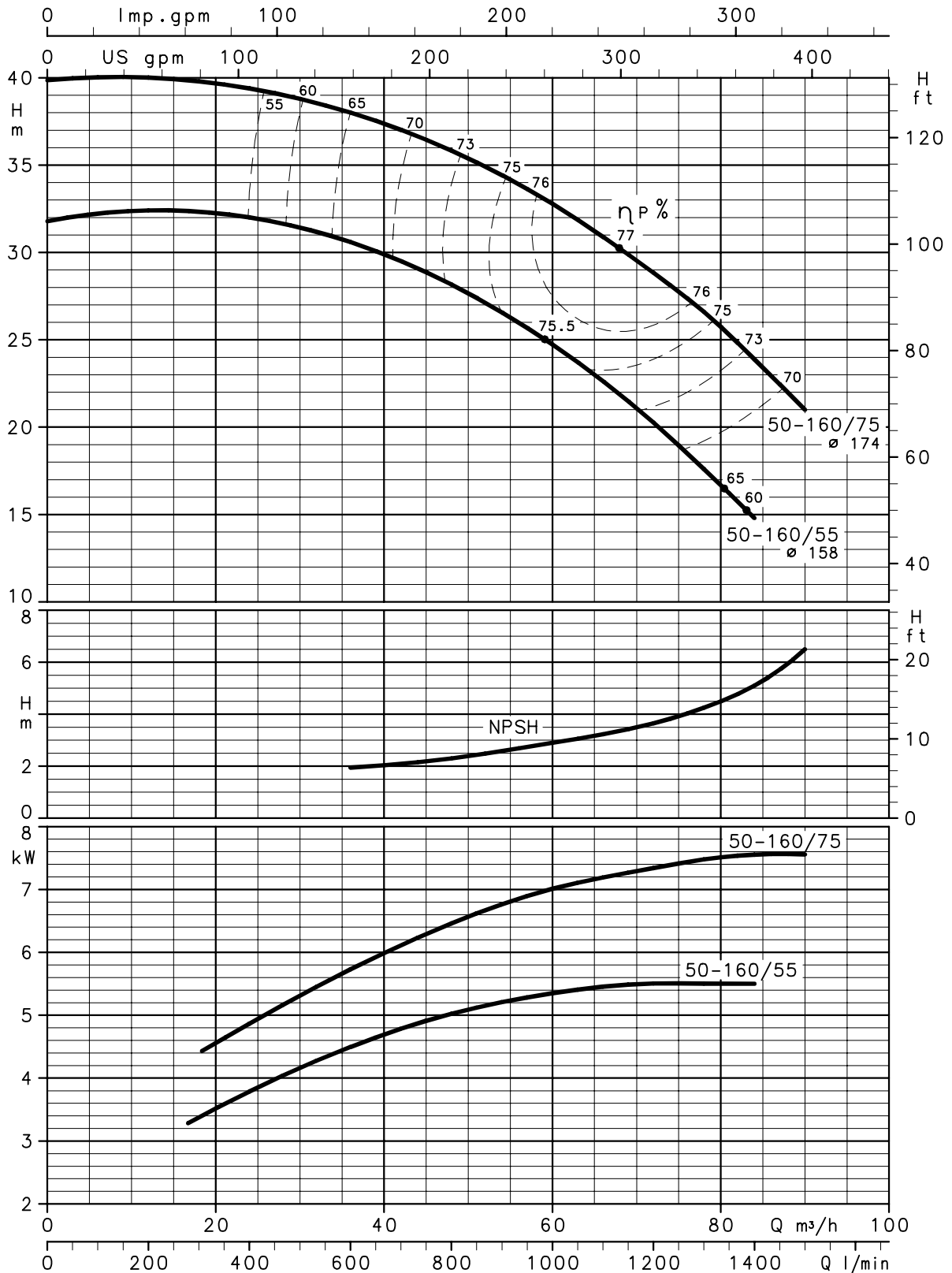
FHE-FHS-FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

FHE-FHS-FHF 50-160

~ 2900 rpm

ISO 9906-Annex A



04720_B_CH

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

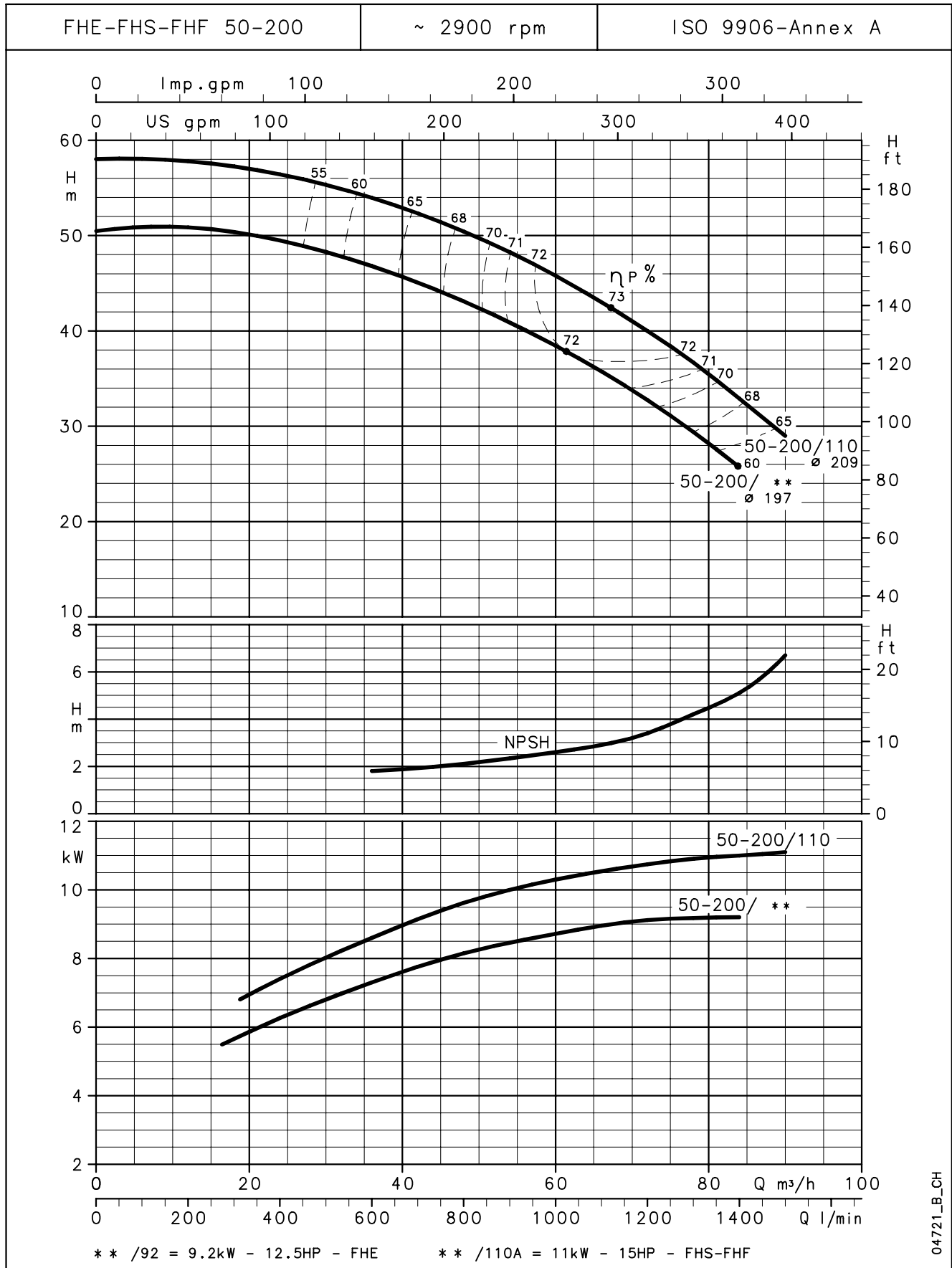


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Lowara

FHE-FHS-FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES



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

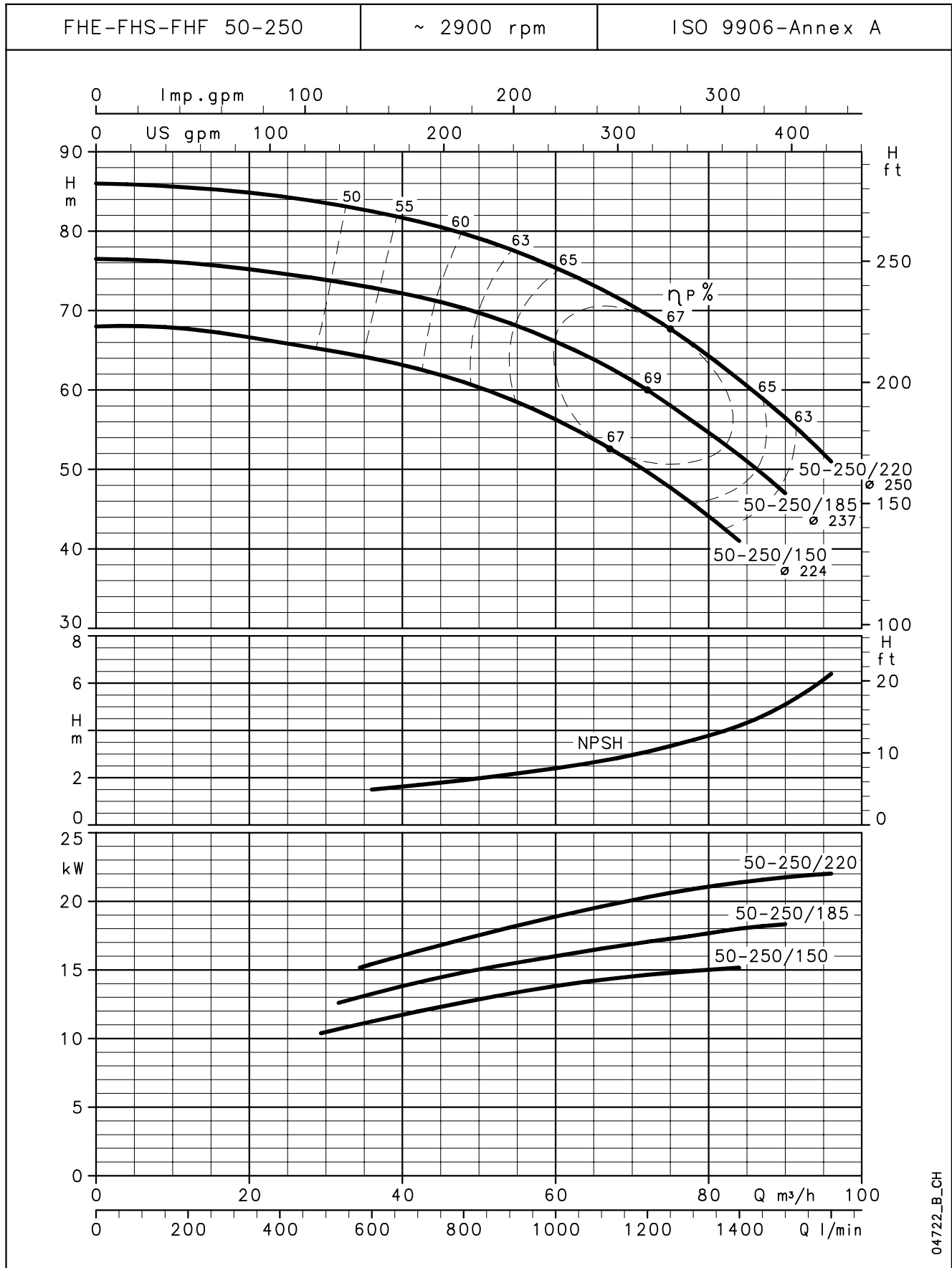


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Lowara

FHE-FHS-FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES



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

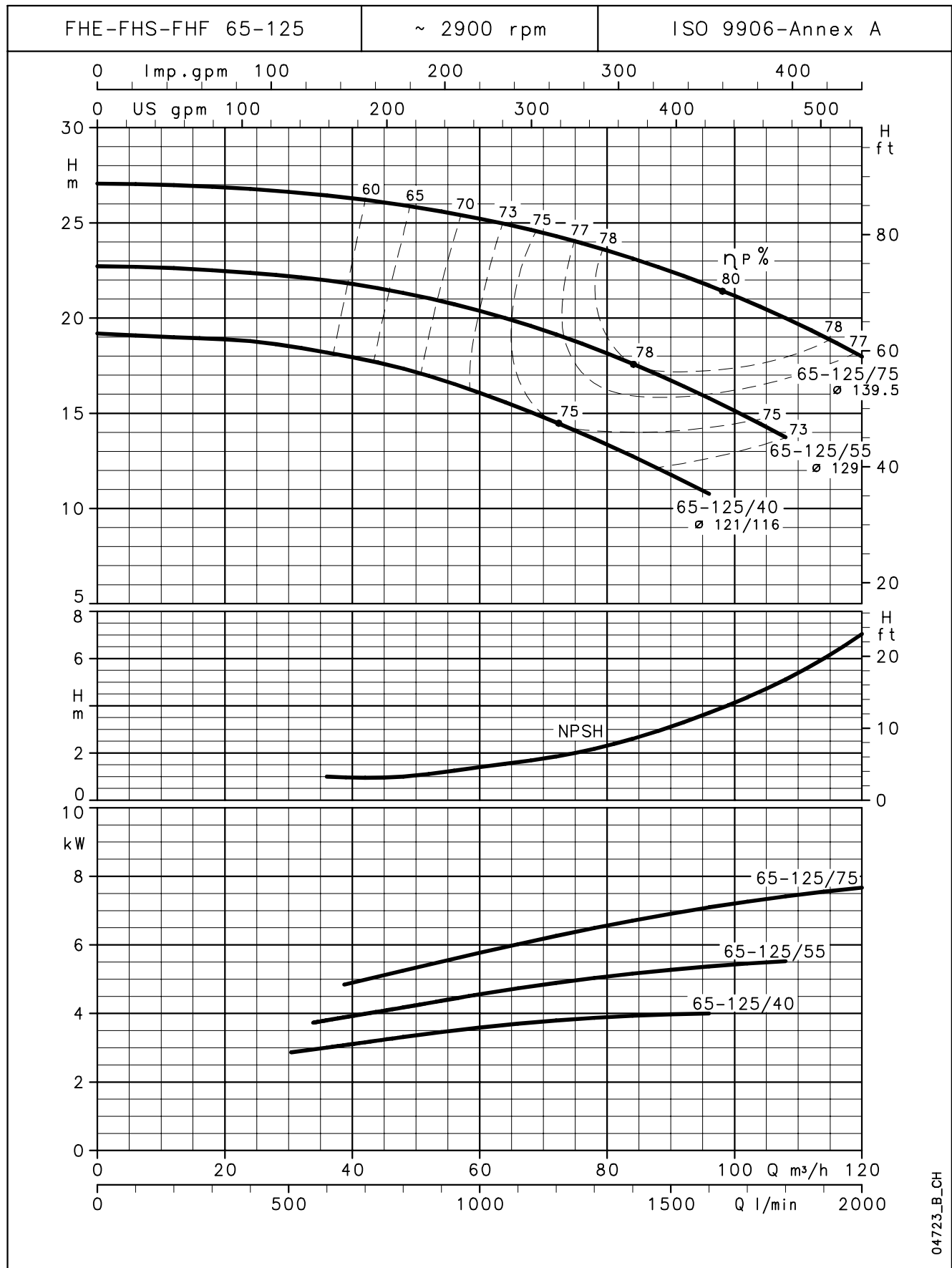


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Lowara

FHE-FHS-FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES



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

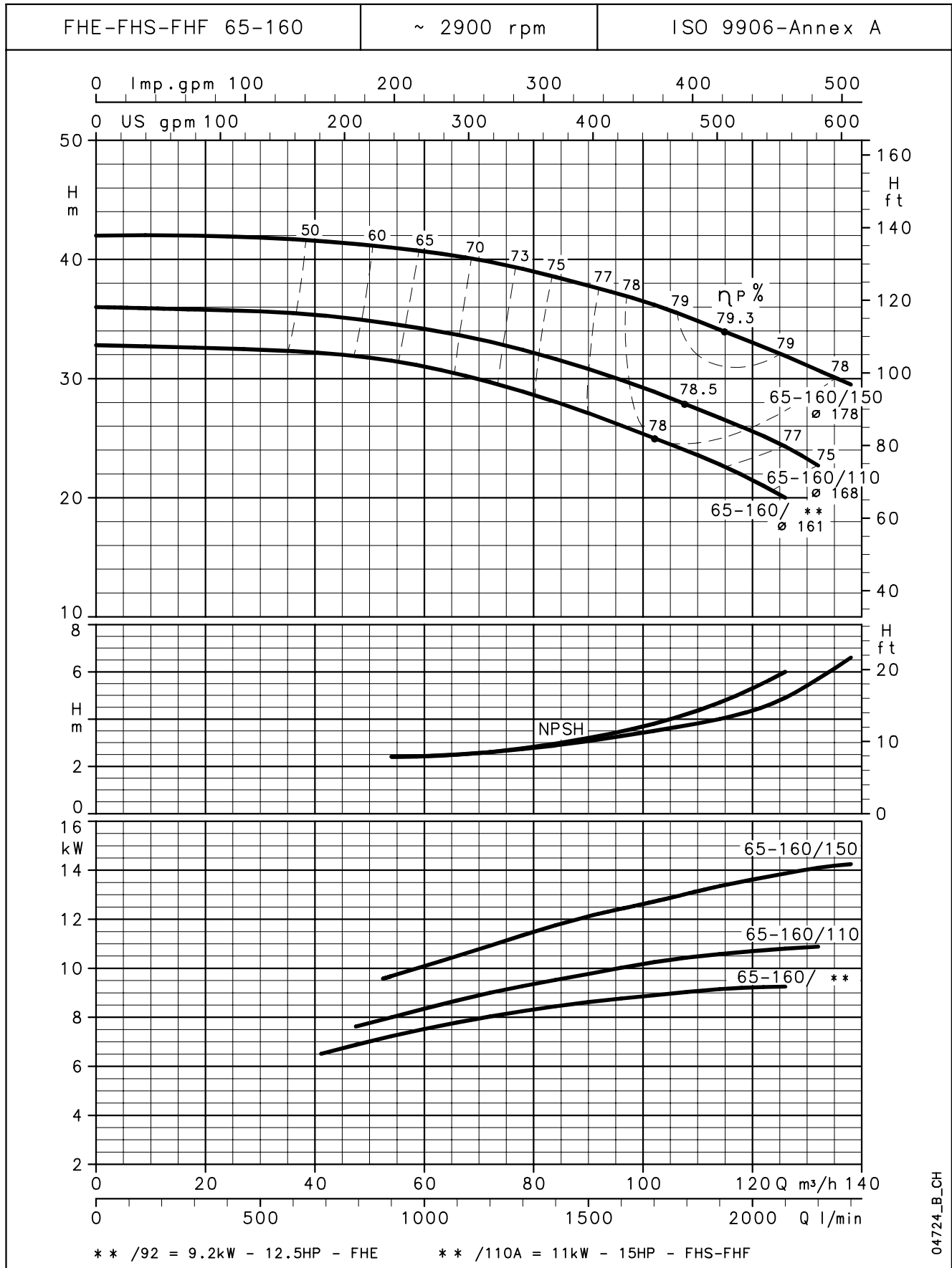


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Lowara

FHE-FHS-FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES



04724_B_CH

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

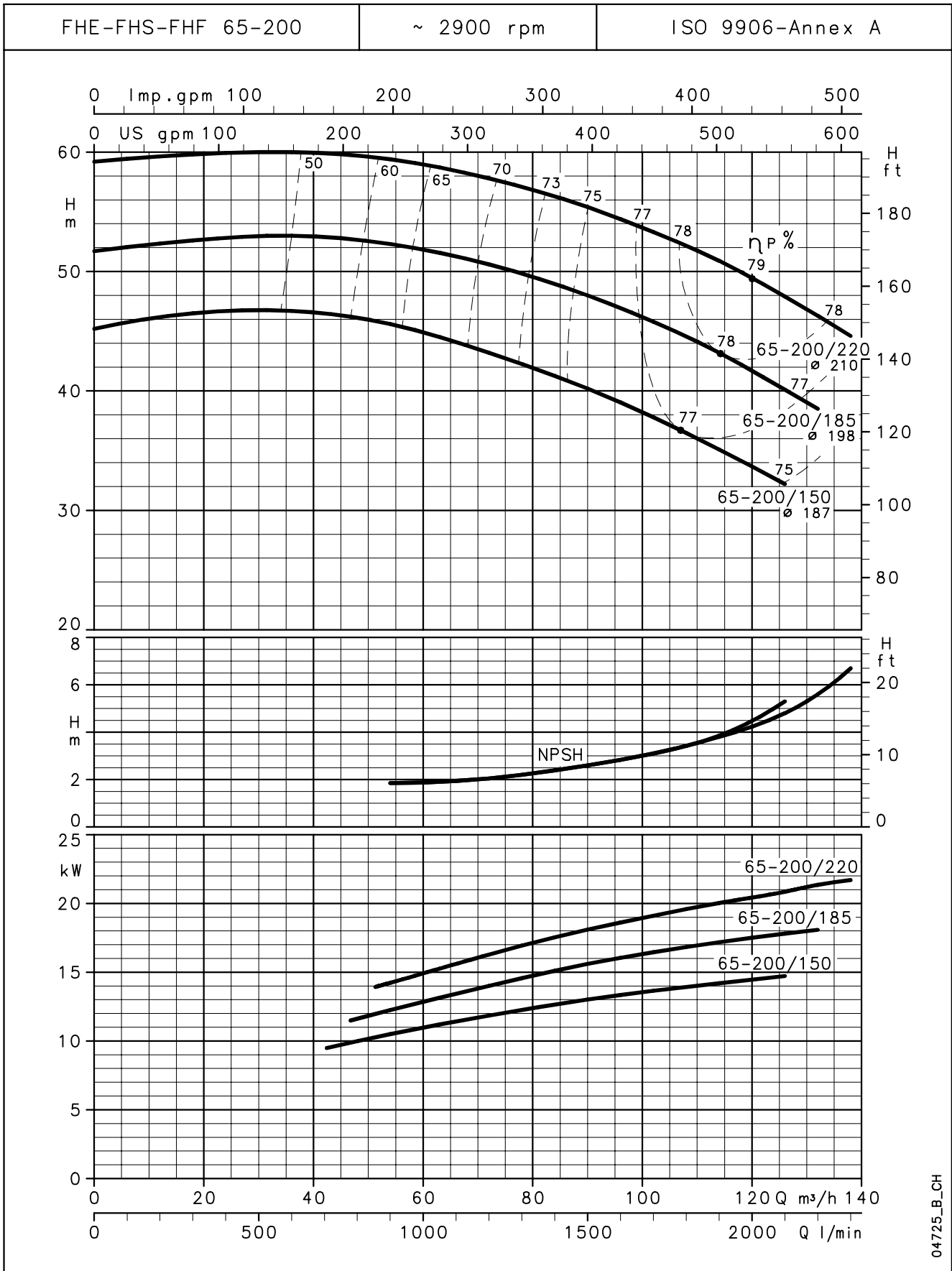


ITT

Lowara

FHE-FHS-FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES



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



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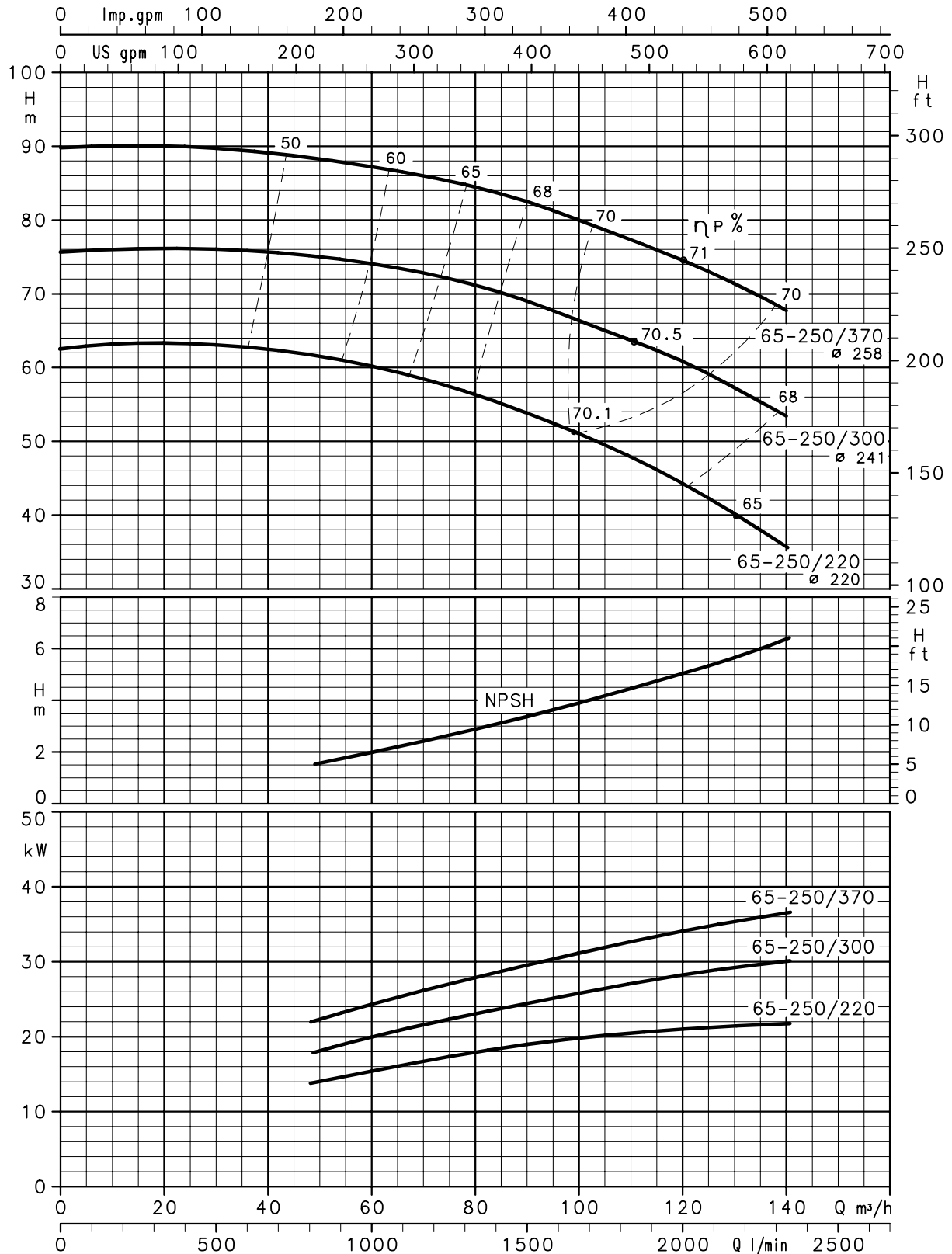
FHE-FHS-FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

FHE-FHS-FHF 65-250

~ 2900 rpm

ISO 9906-Annex A



04726_B_CH

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

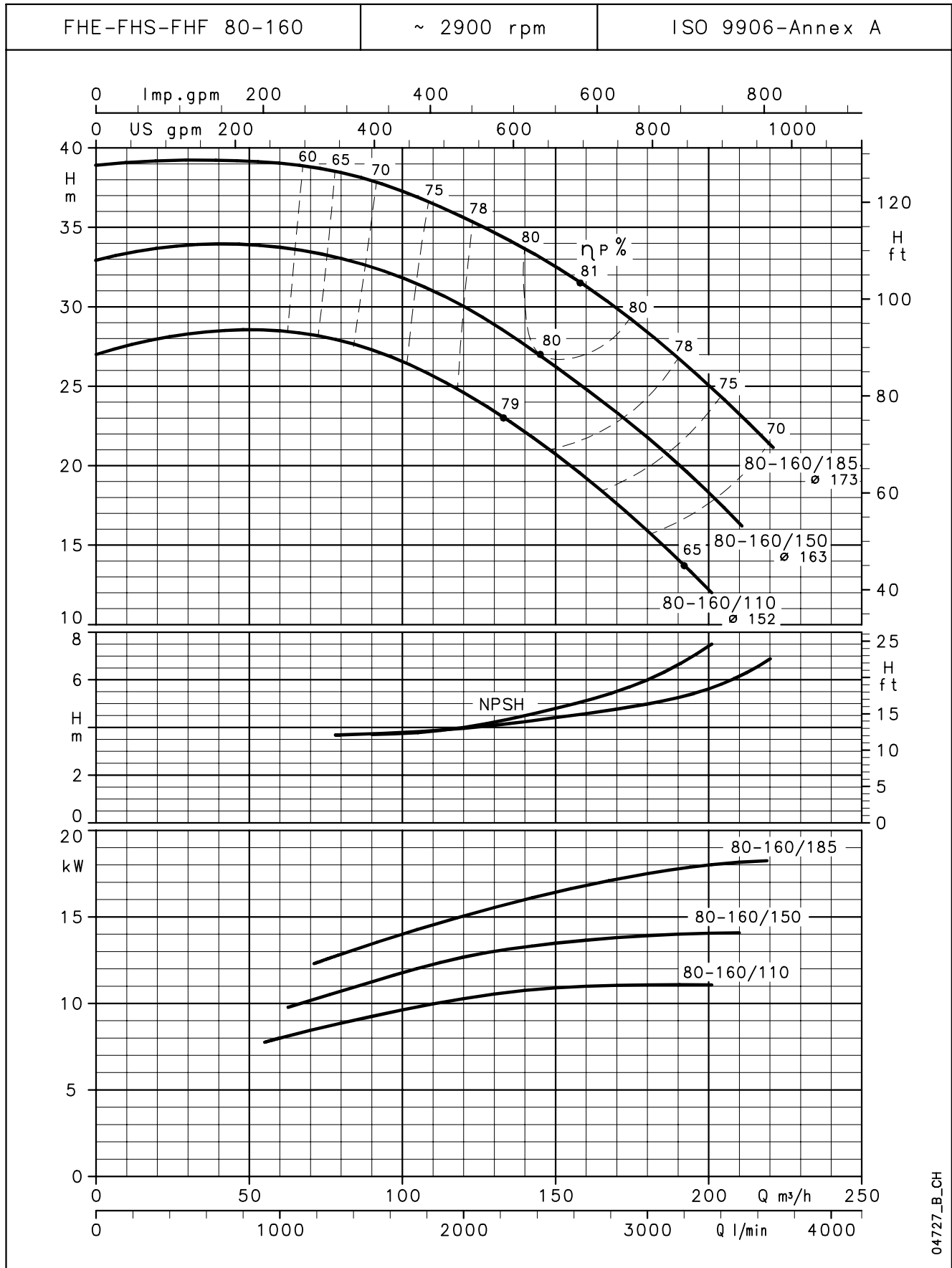


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Lowara

FHE-FHS-FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES



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

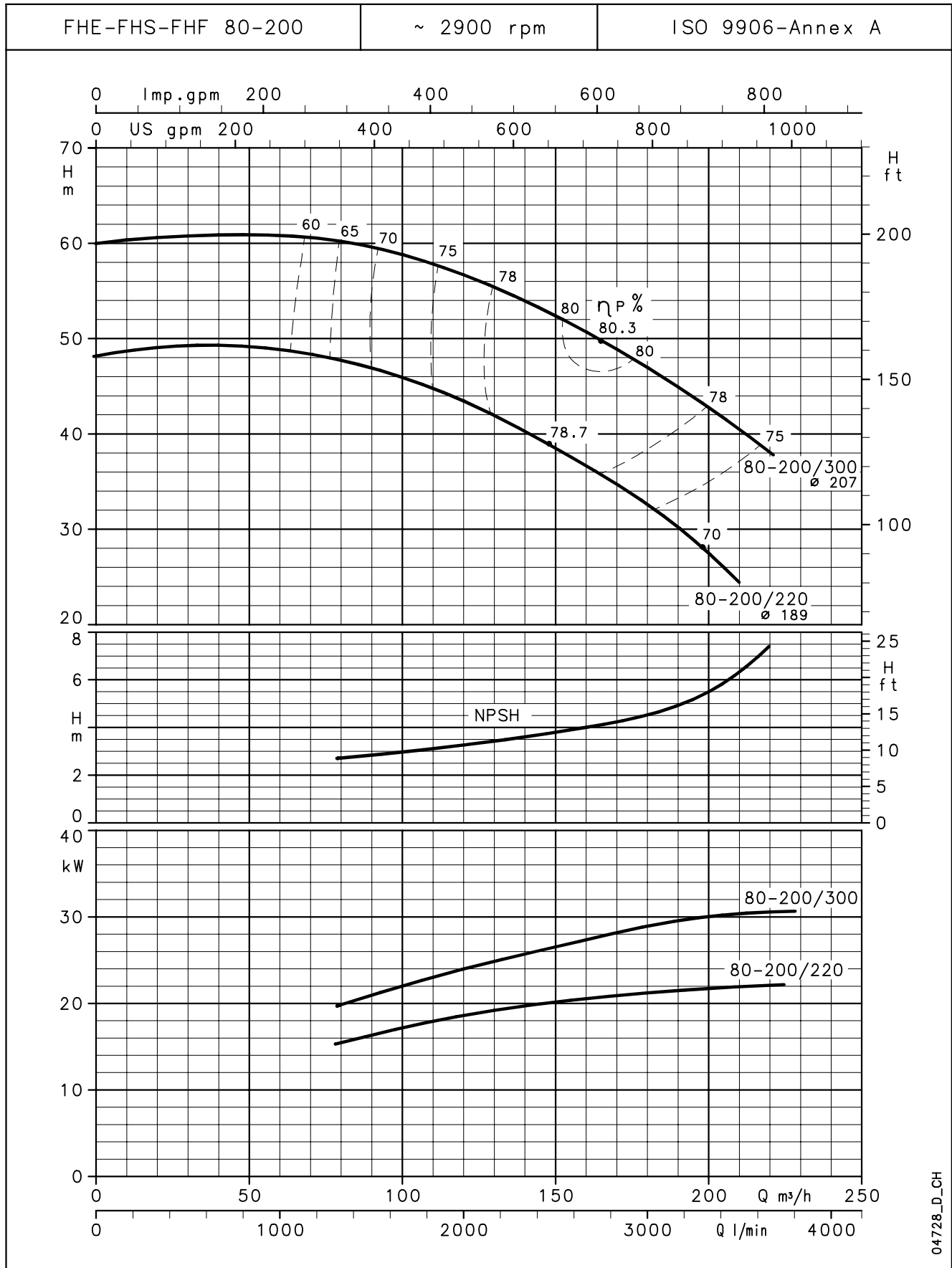


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Lowara

FHE-FHS-FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES



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

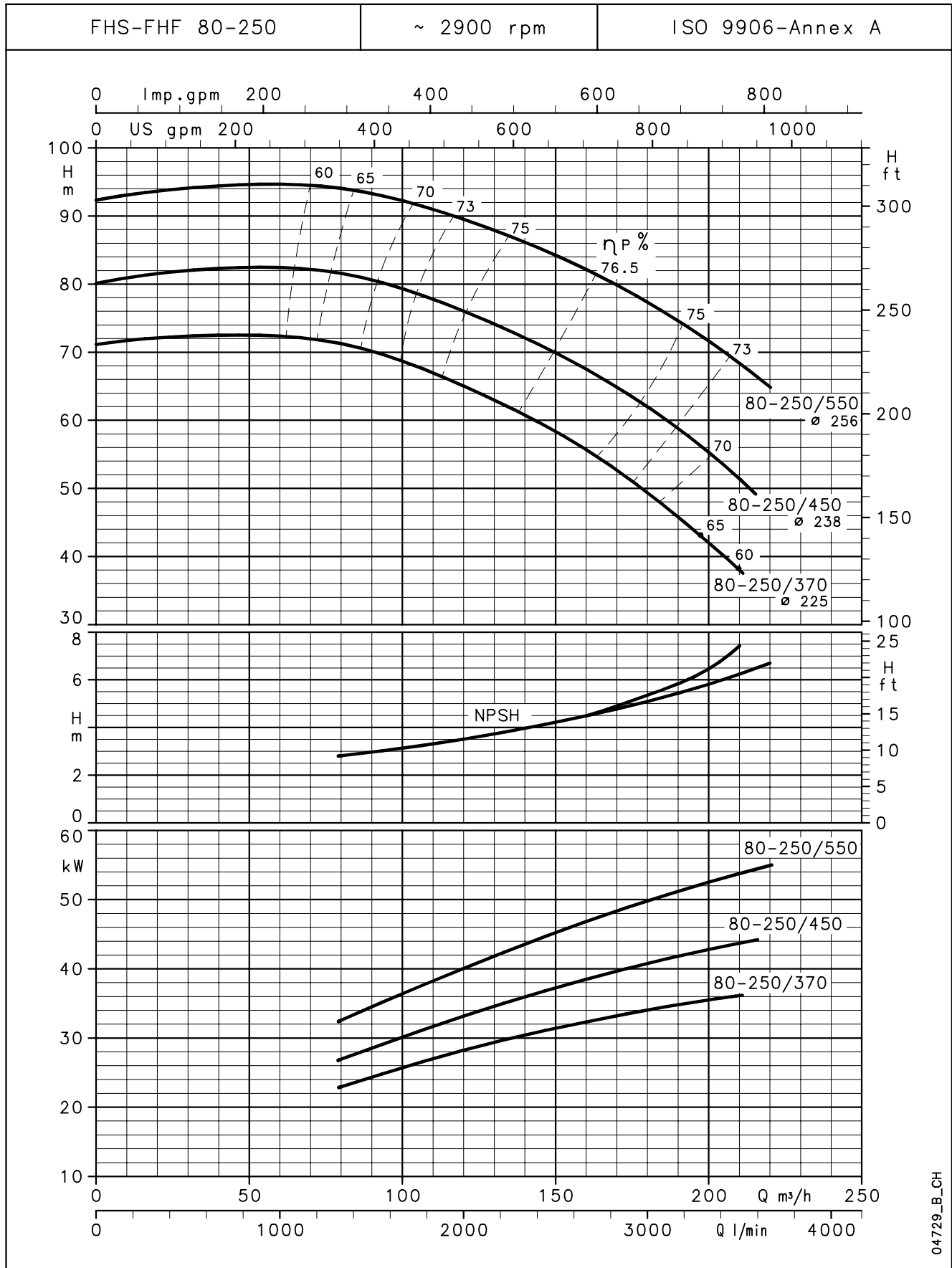


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Lowara

FHS-FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES



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



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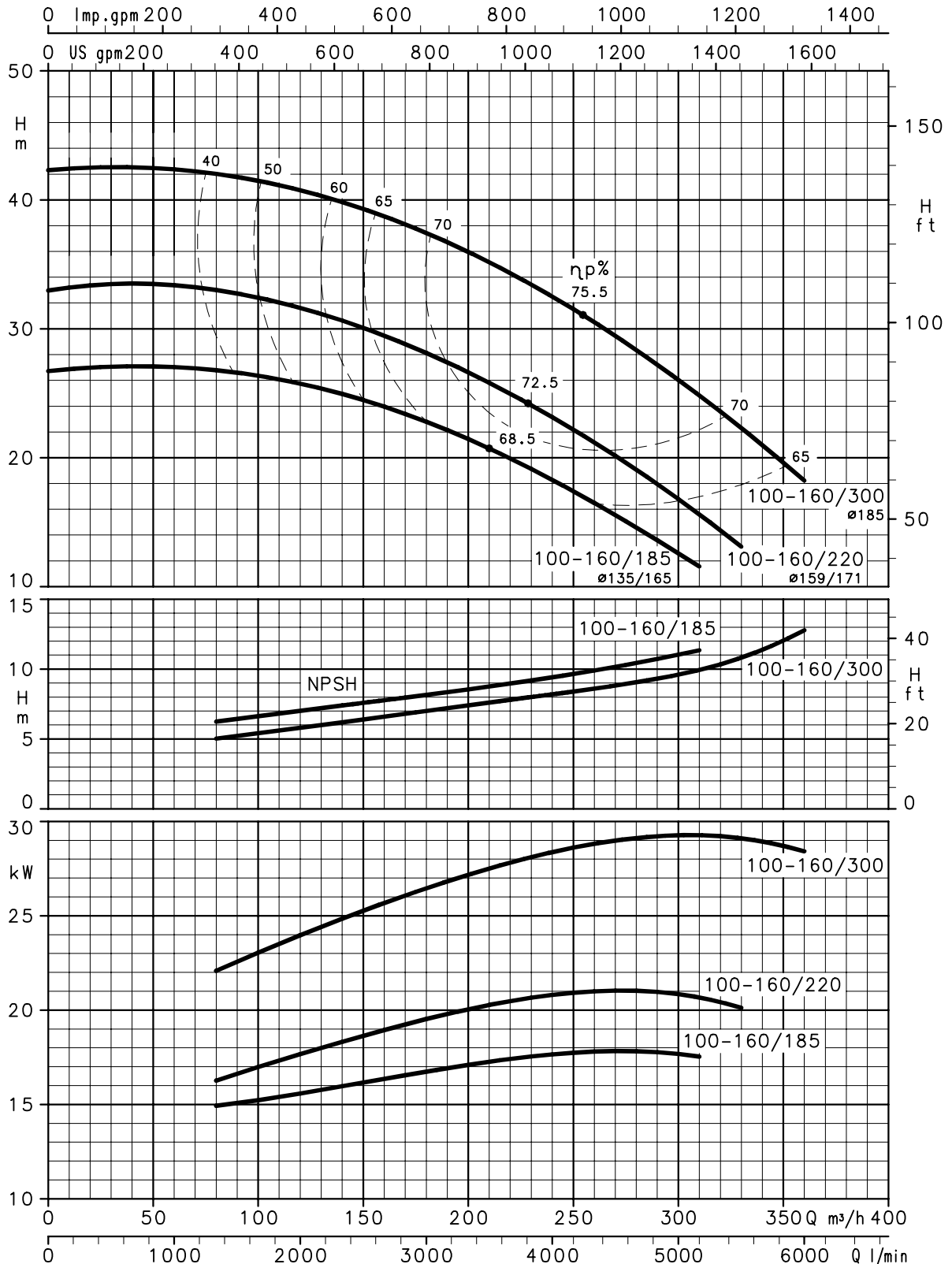
FHS-FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

FHS-FHF 100-160

~ 2950 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 $\rho = 1,0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.



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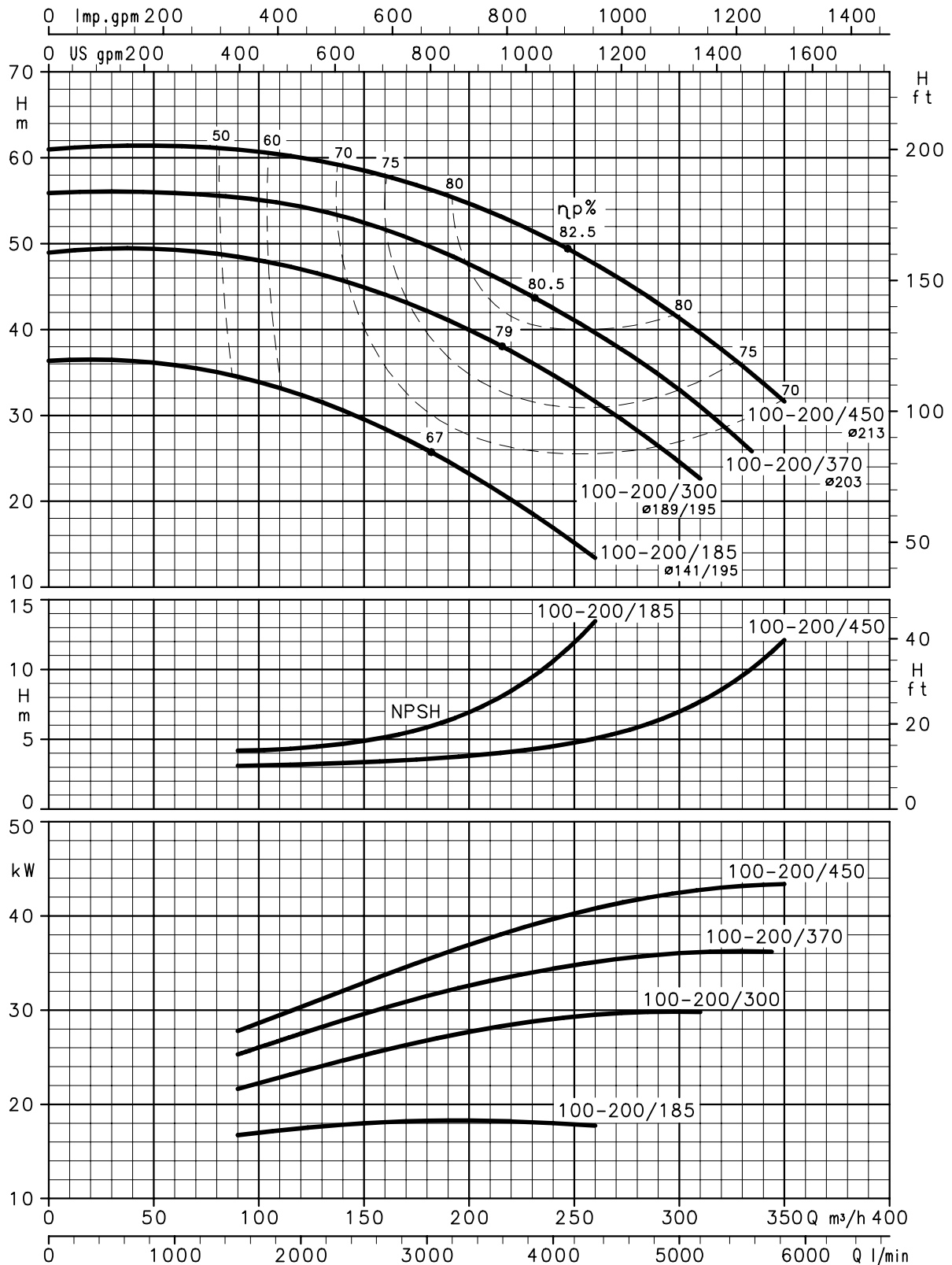
FHS-FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

FHS-FHF 100-200

~ 2950 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 $\rho = 1,0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.



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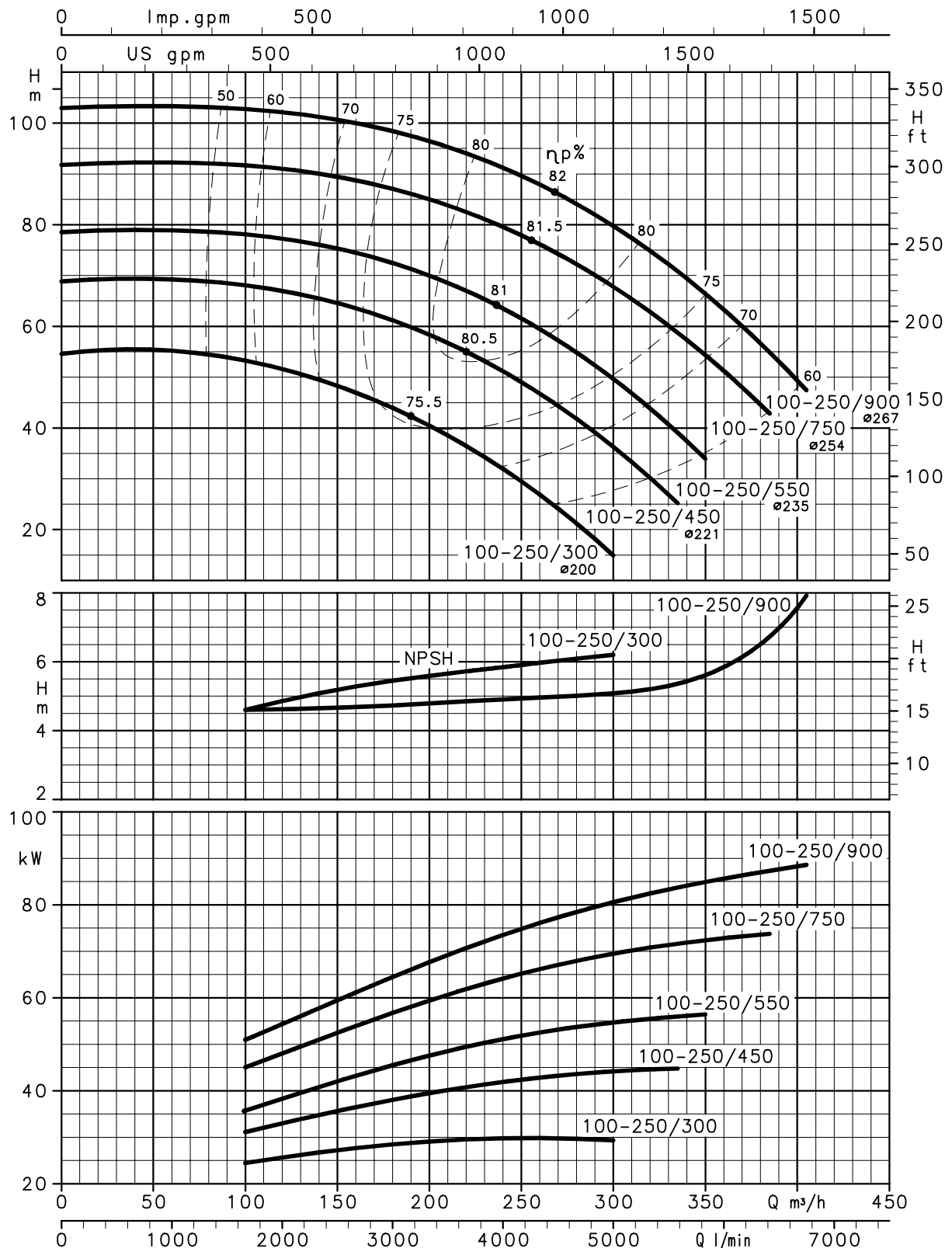
FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

FHF 100-250

~ 2950 rpm

ISO 9906-Annex A



04739_B_CH

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

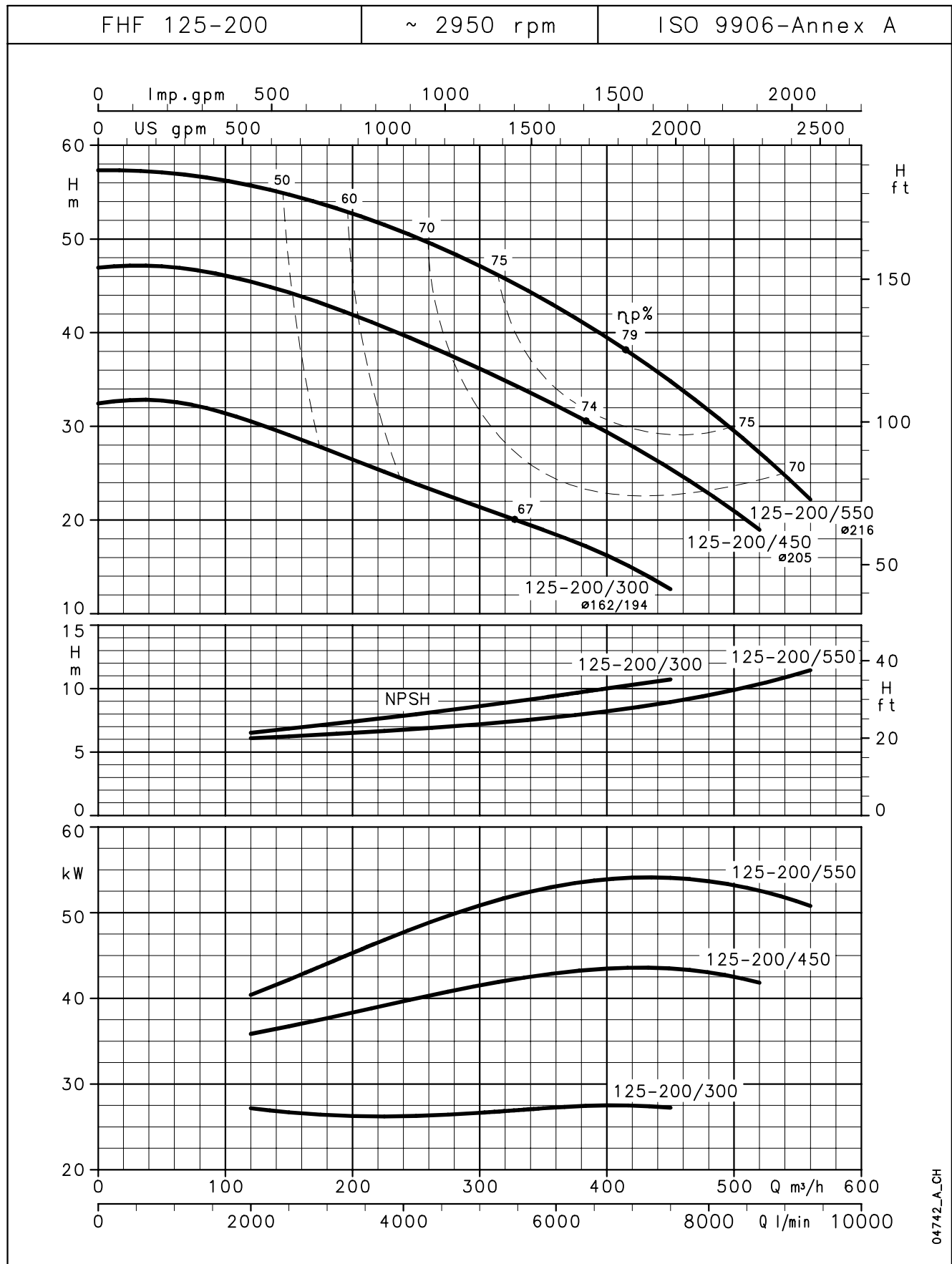


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Lowara

FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES



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

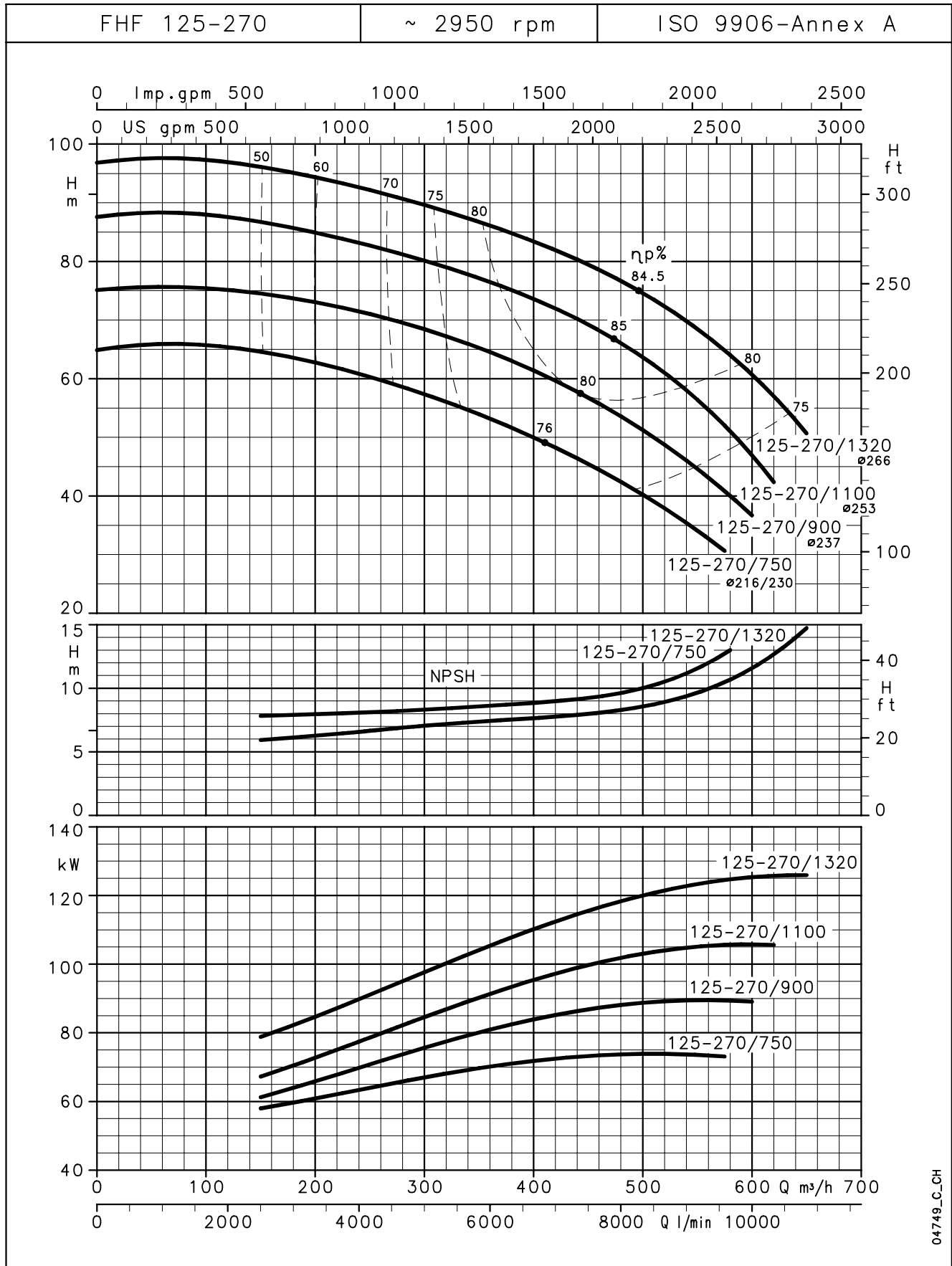


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Lowara

FHF SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES



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

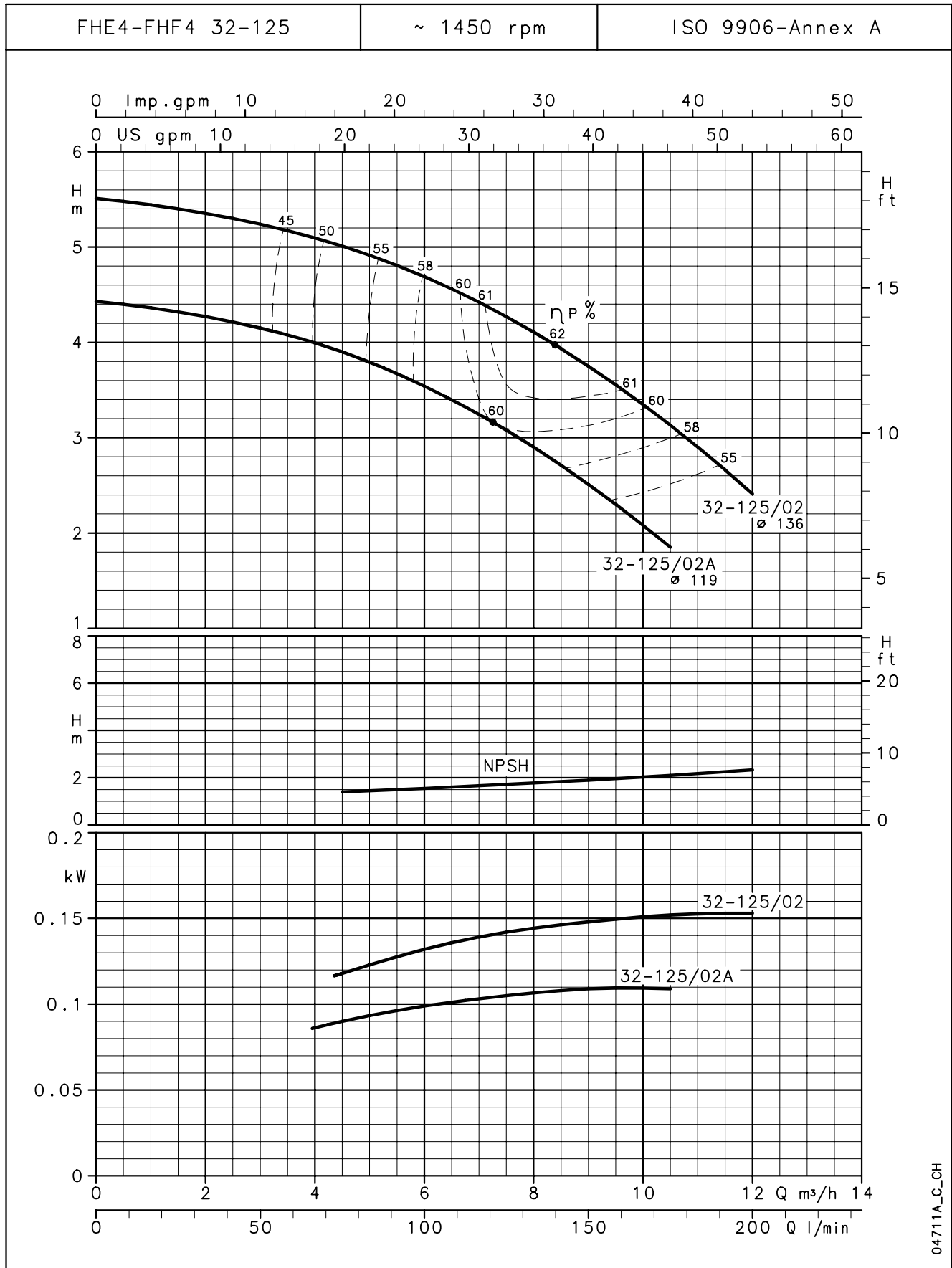


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Lowara

FHE4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES



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

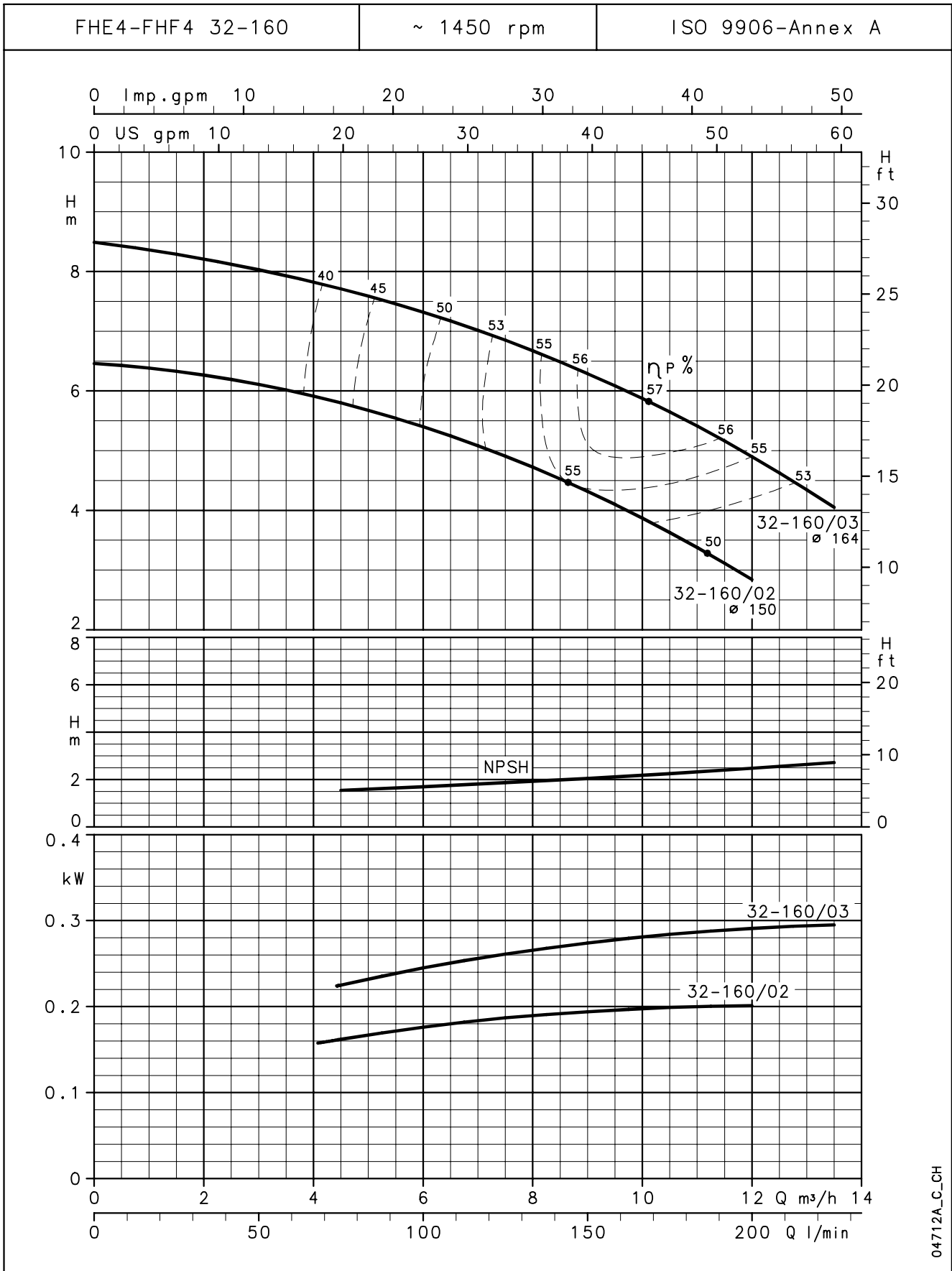


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Lowara

FHE4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES



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

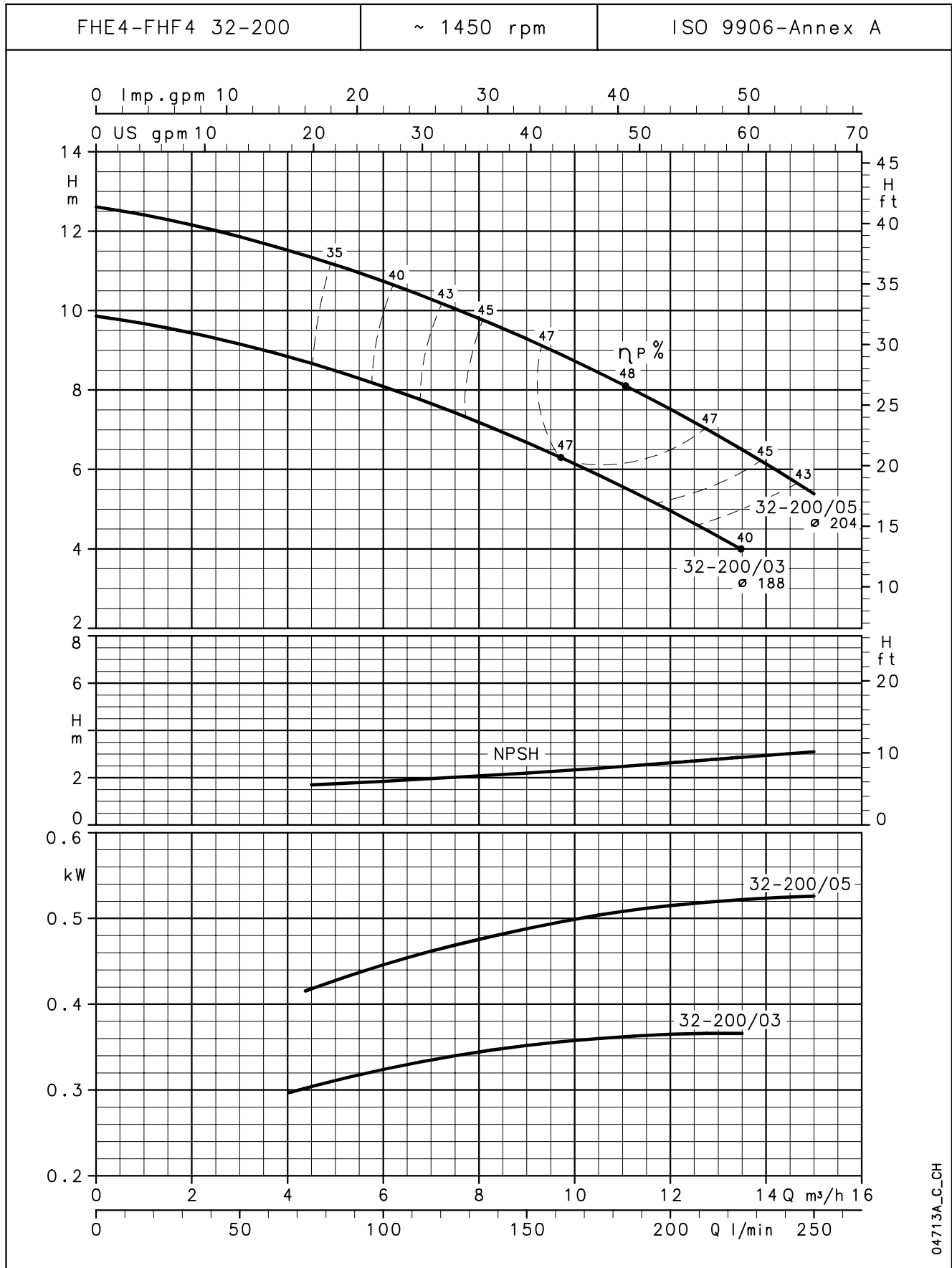


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Lowara

FHE4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES



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

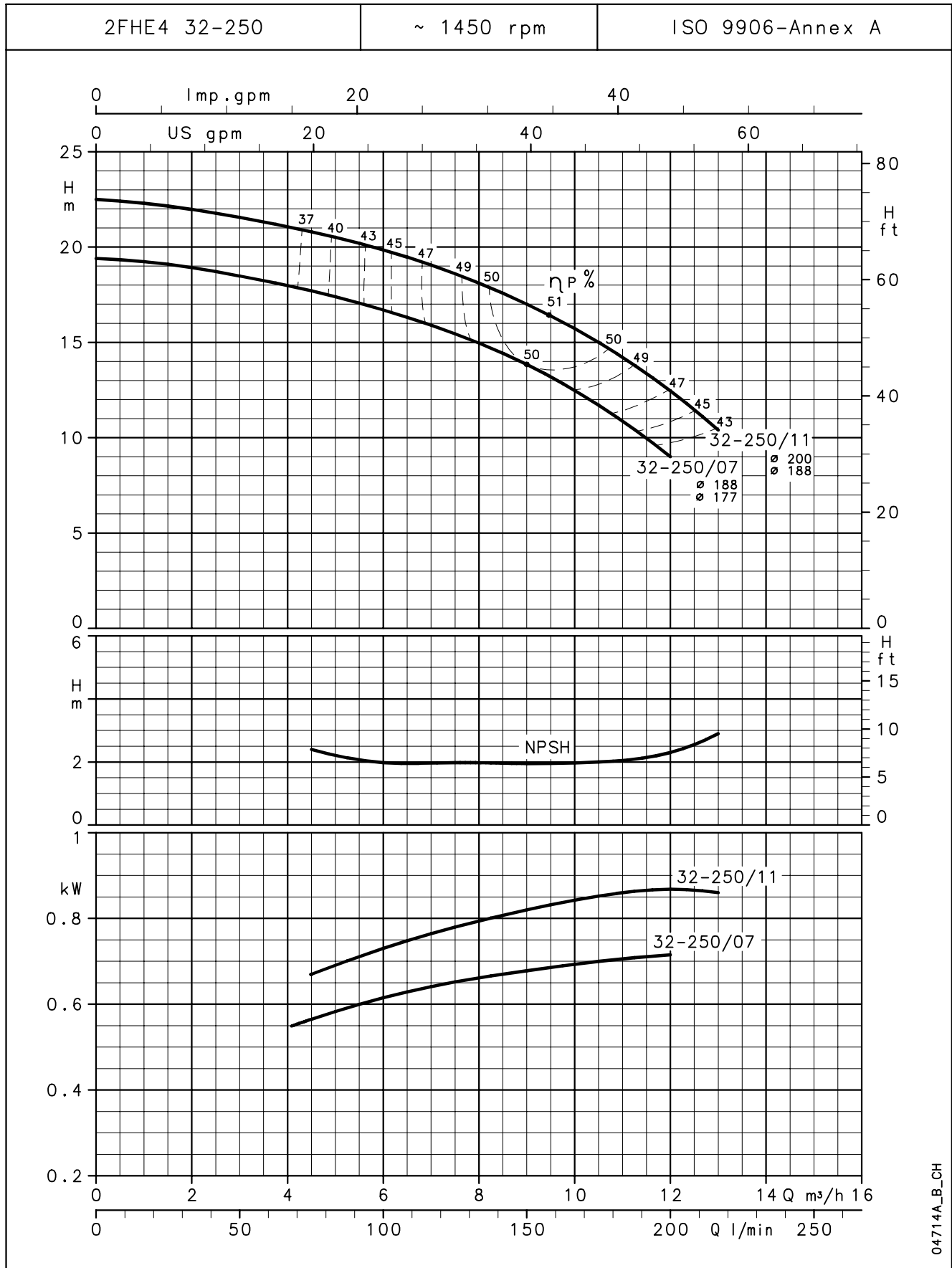


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Lowara

2FHE4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES



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

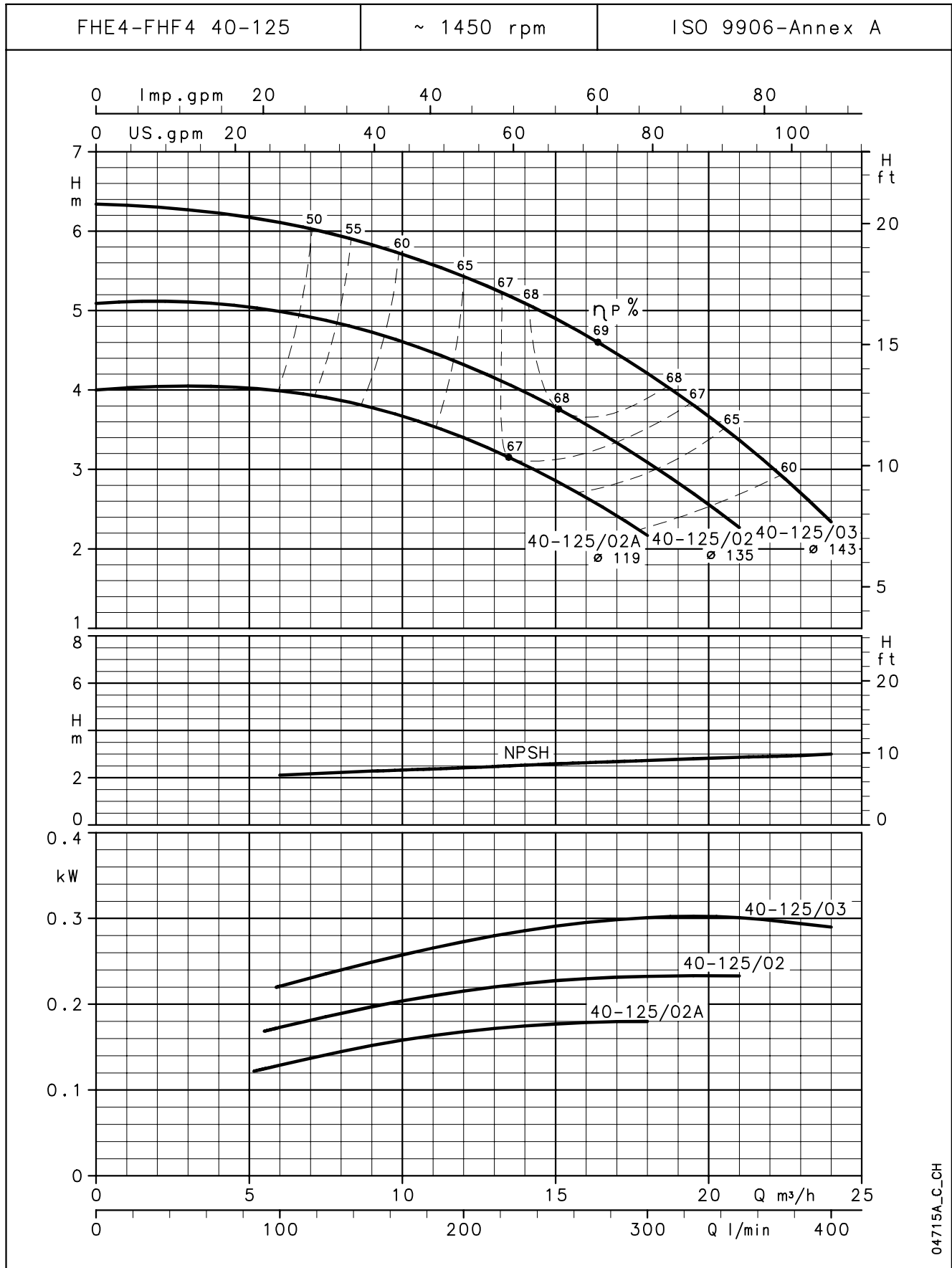


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FHE4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES



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

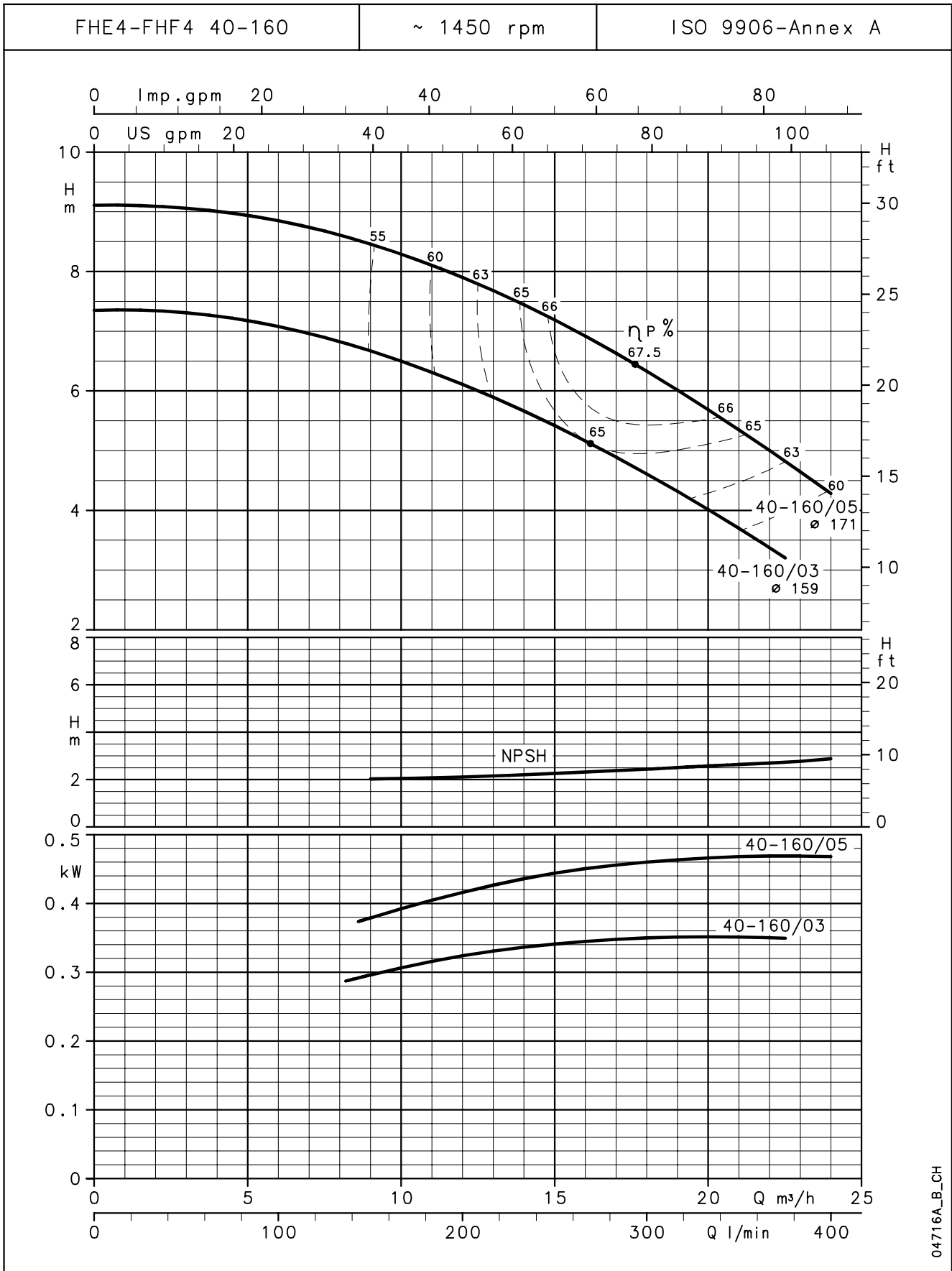


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FHE4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES



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



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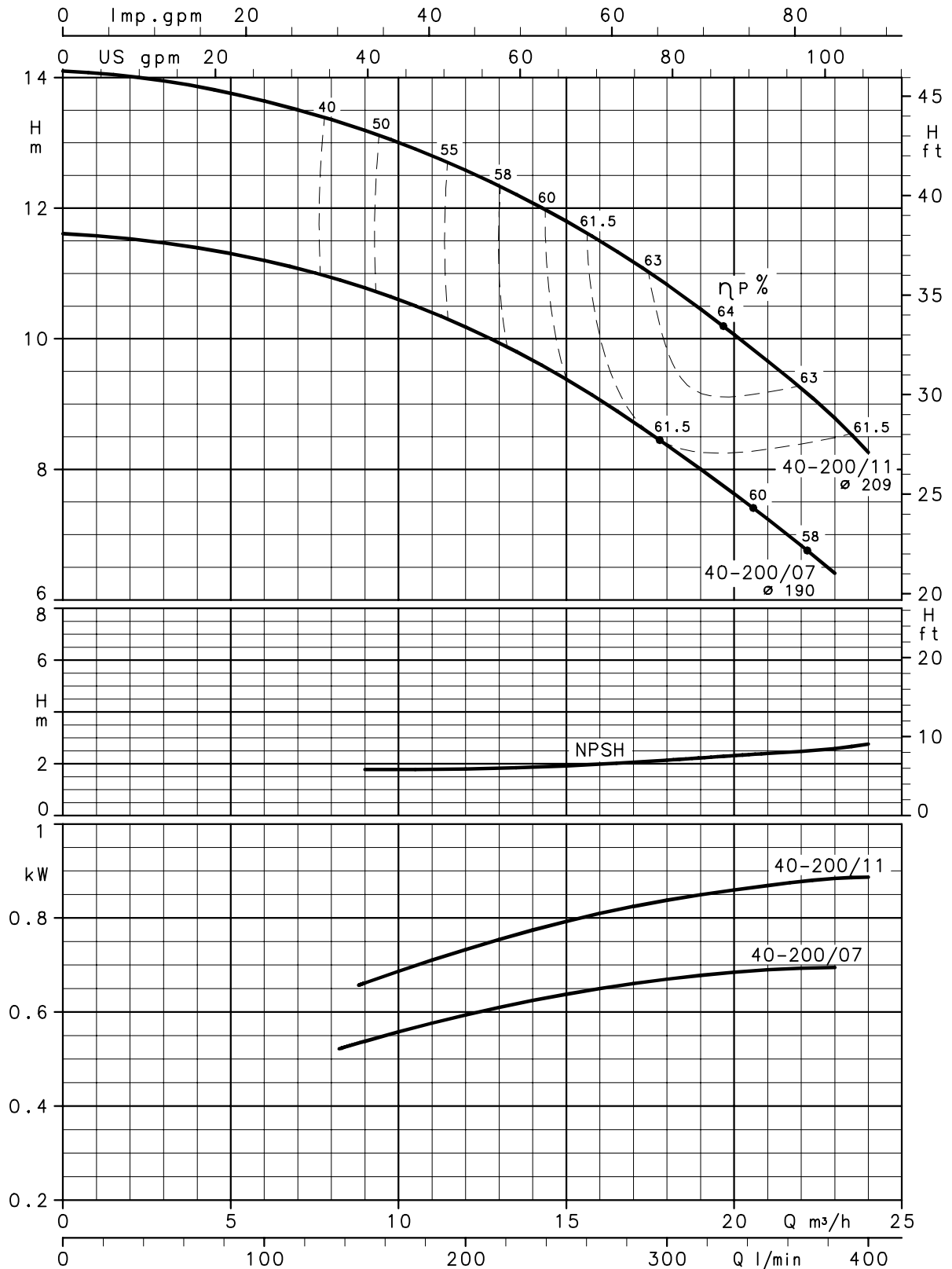
FHE4-FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHE4-FHS4-FHF4 40-200

~ 1450 rpm

ISO 9906-Annex A



04717A_B_CH

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



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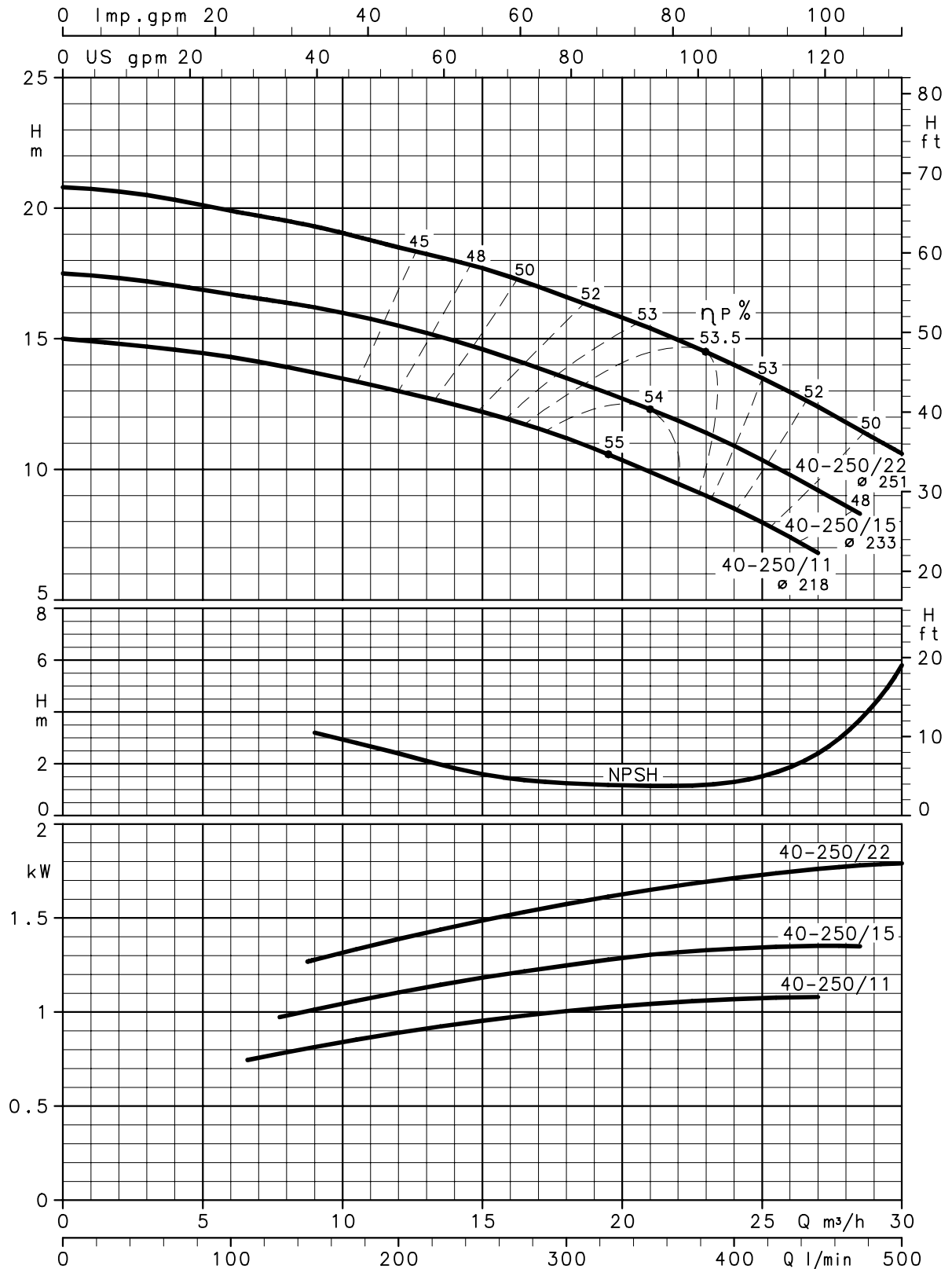
FHE4-FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHE4-FHS4-FHF4 40-250

~ 1450 rpm

ISO 9906-Annex A



04718A_B_CH

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

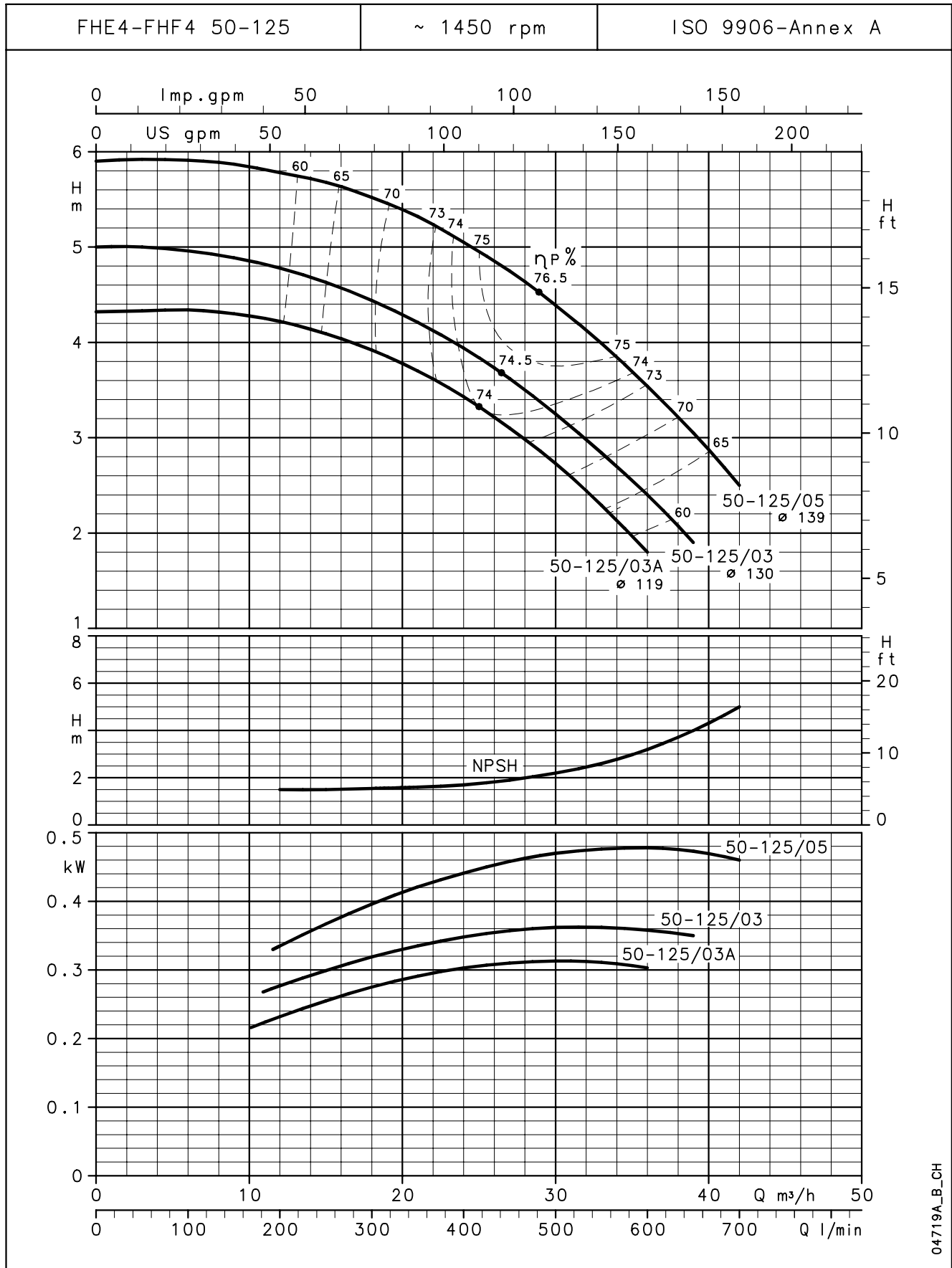


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Lowara

FHE4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES



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



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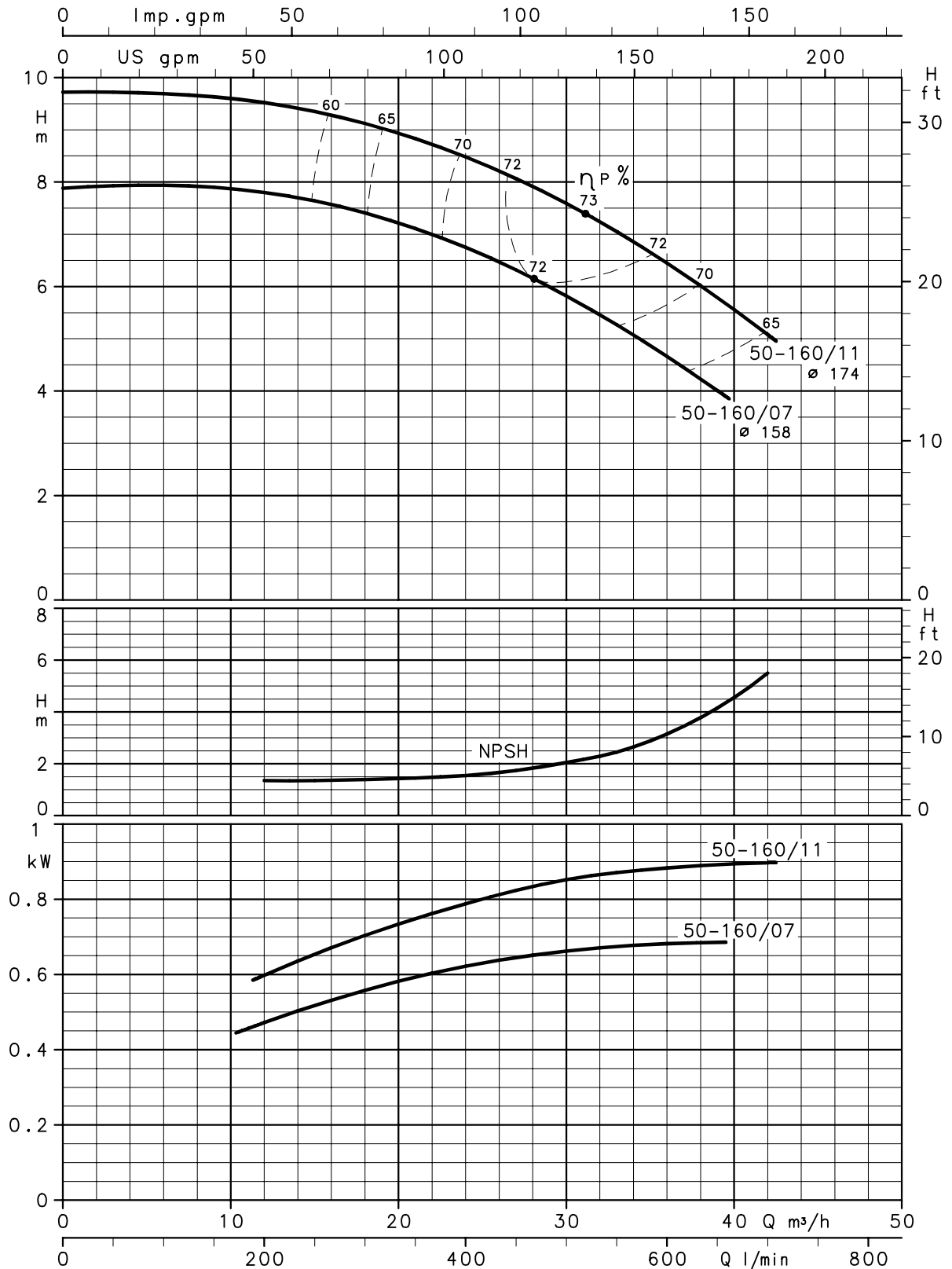
FHE4-FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHE4-FHS4-FHF4 50-160

~ 1450 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 $\rho = 1,0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.

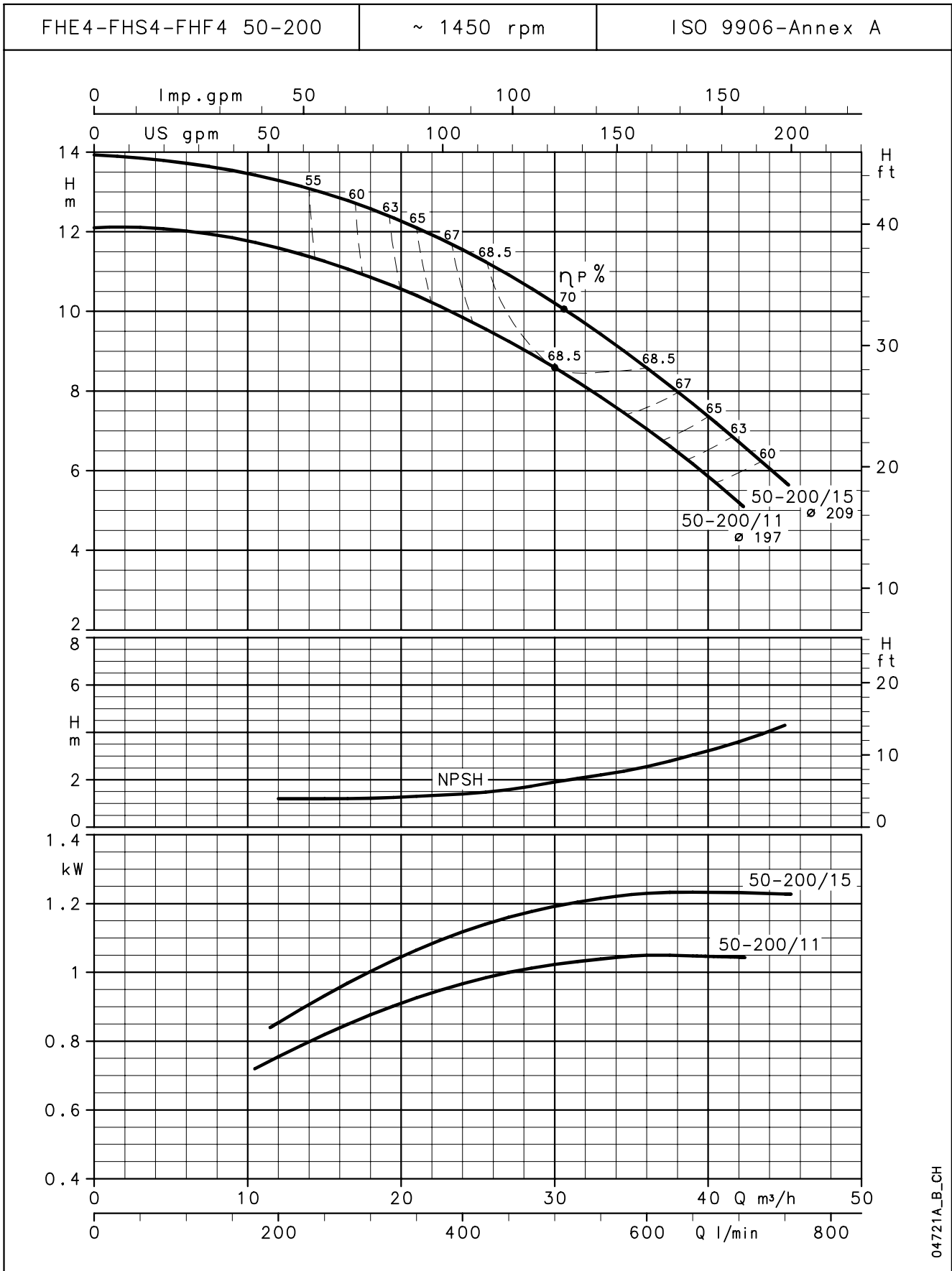


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FHE4-FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES



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

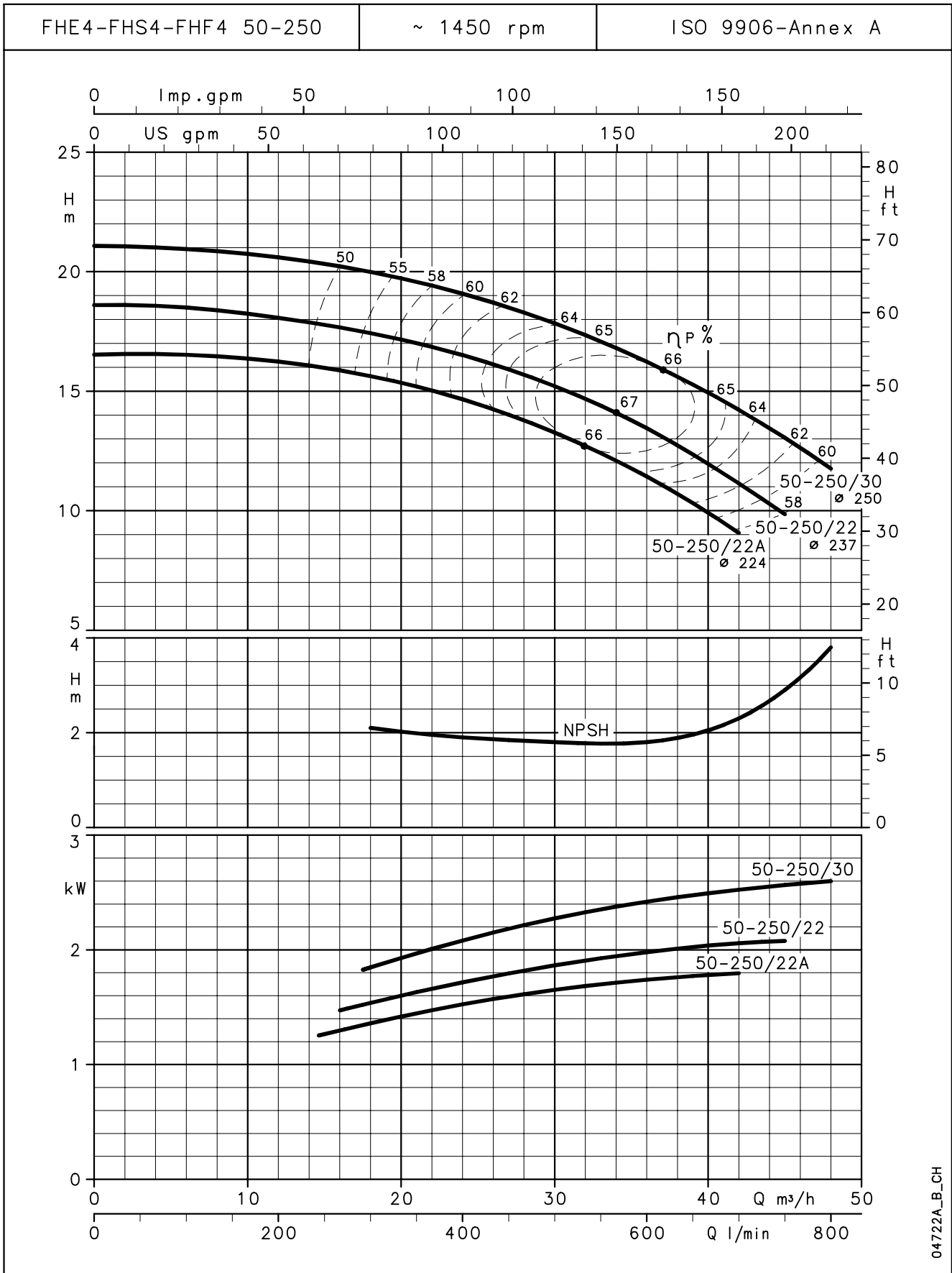


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Lowara

FHE4-FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES



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



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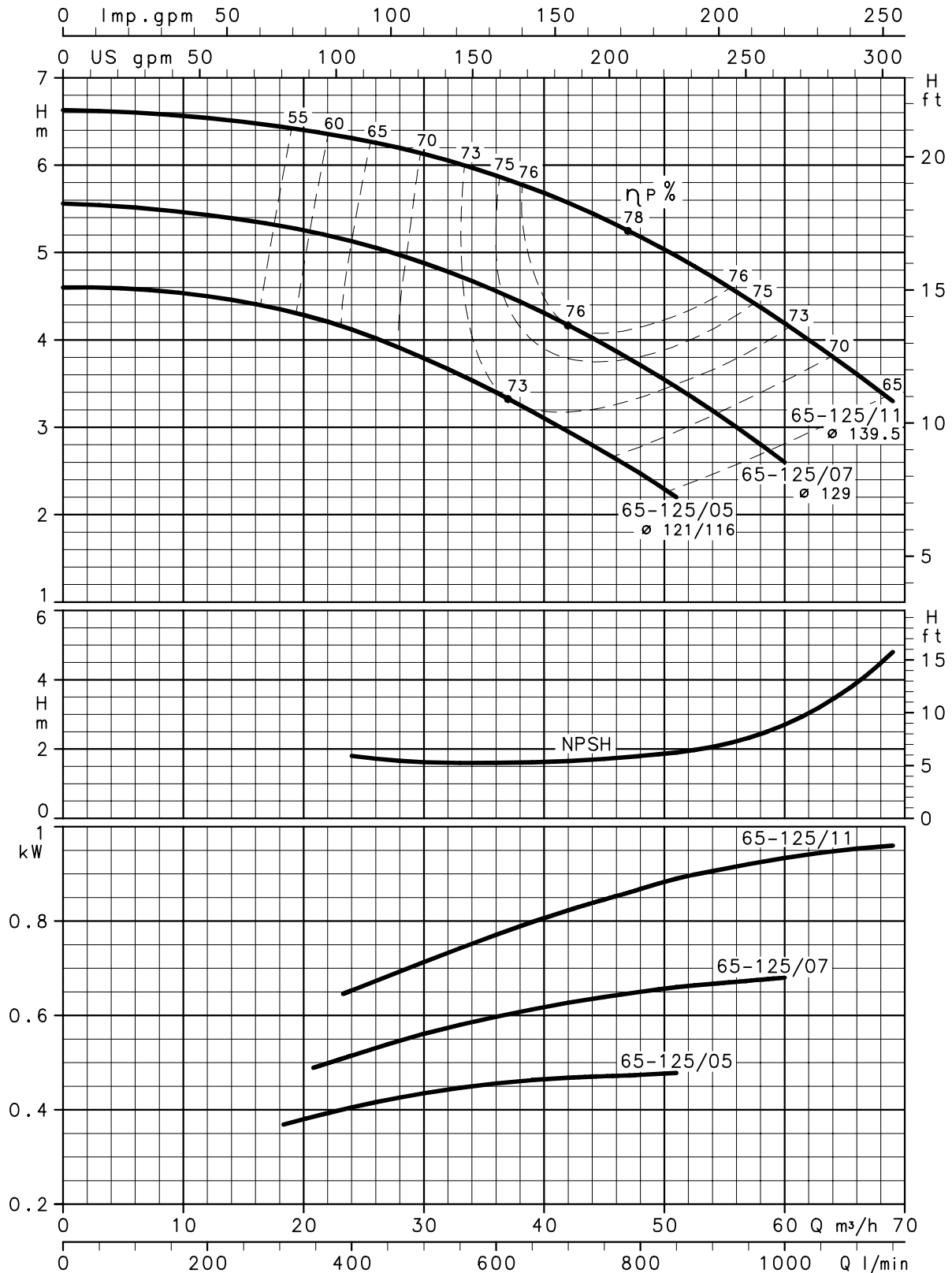
FHE4-FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHE4-FHS4-FHF4 65-125

~ 1450 rpm

ISO 9906-Annex A



04723A_B_CH

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



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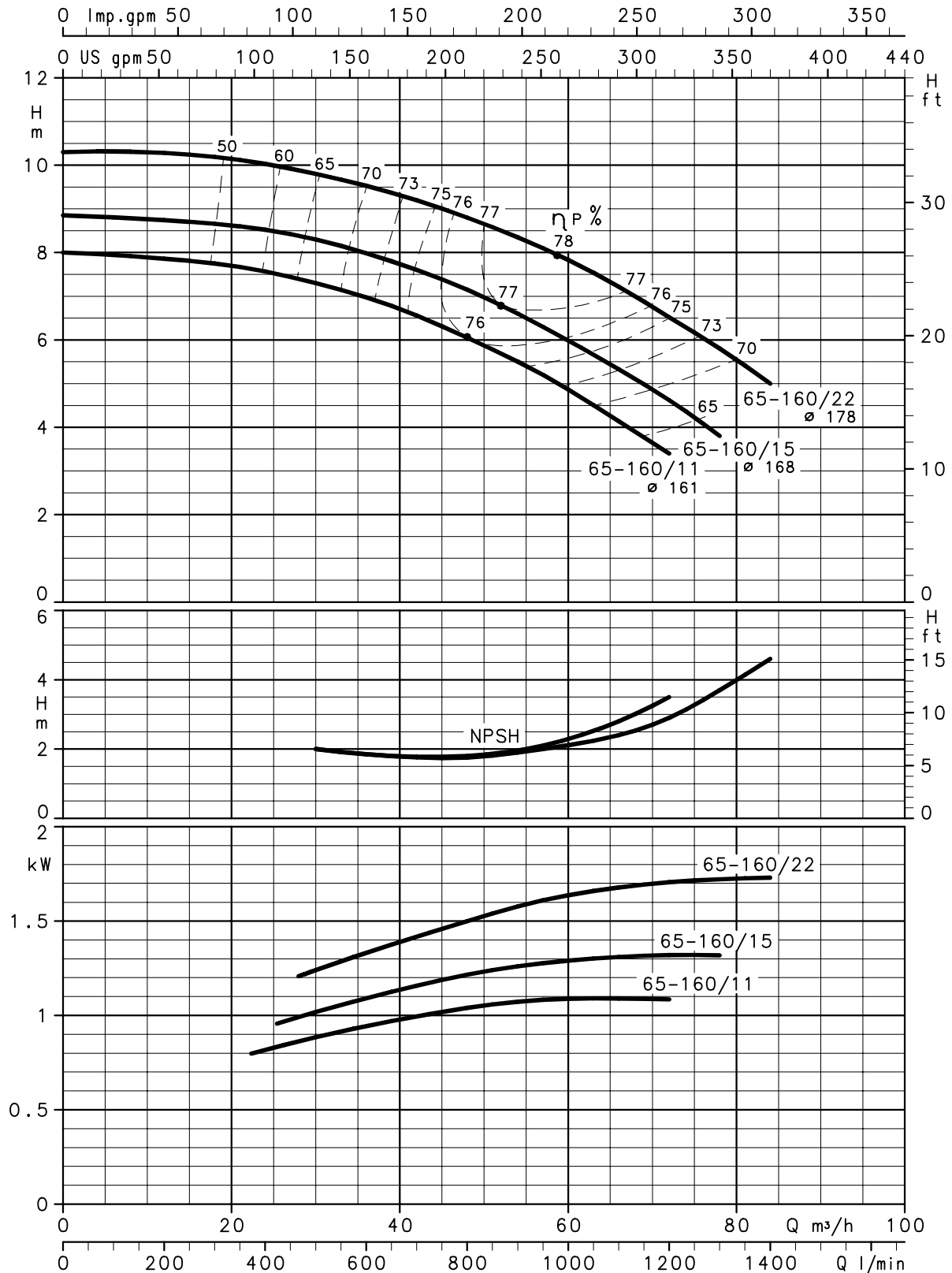
FHE4-FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHE4-FHS4-FHF4 65-160

~ 1450 rpm

ISO 9906-Annex A



04724A_B_CH

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



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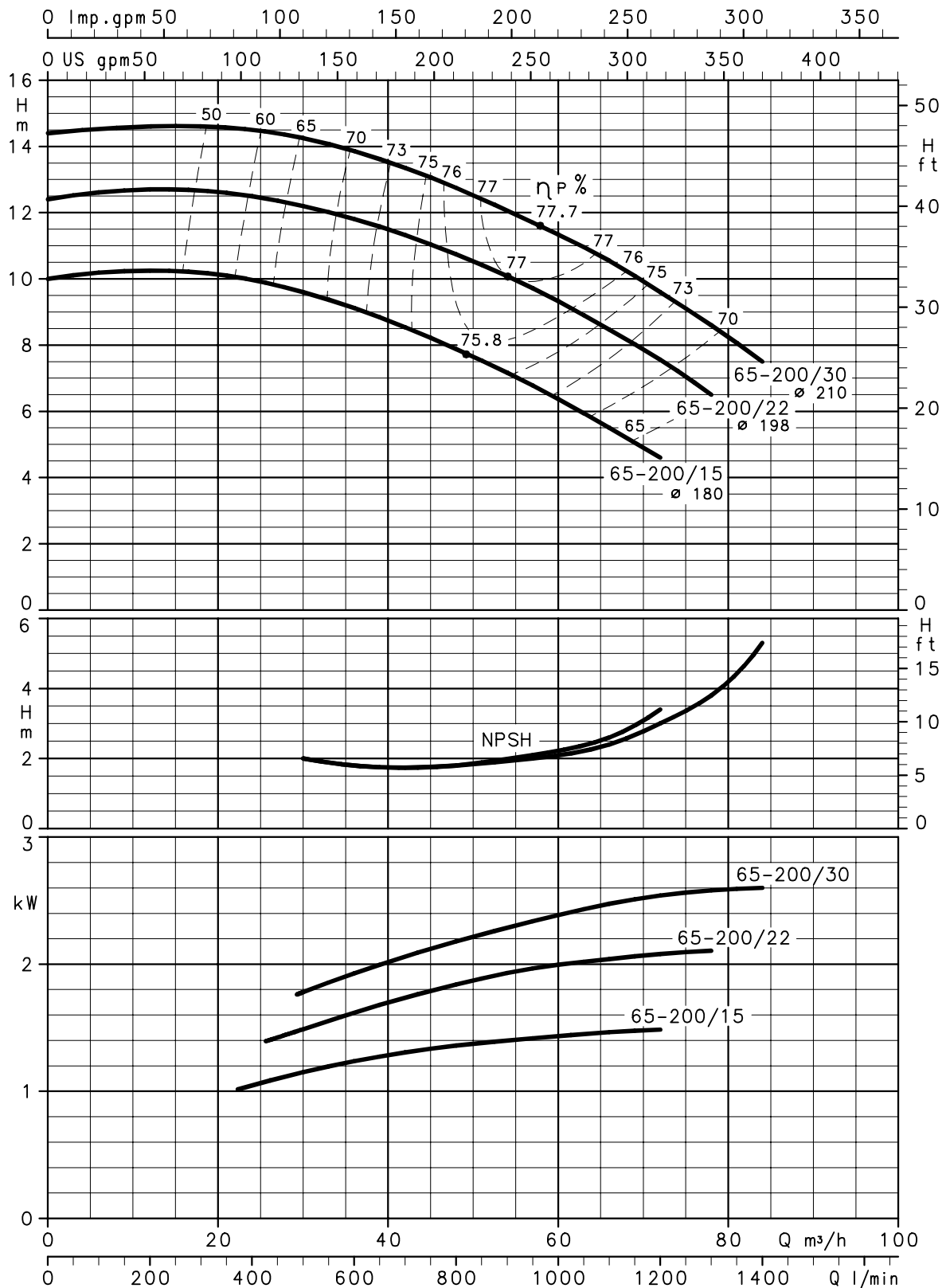
FHE4-FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHE4-FHS4-FHF4 65-200

~ 1450 rpm

ISO 9906-Annex A



04725A_B_CH

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



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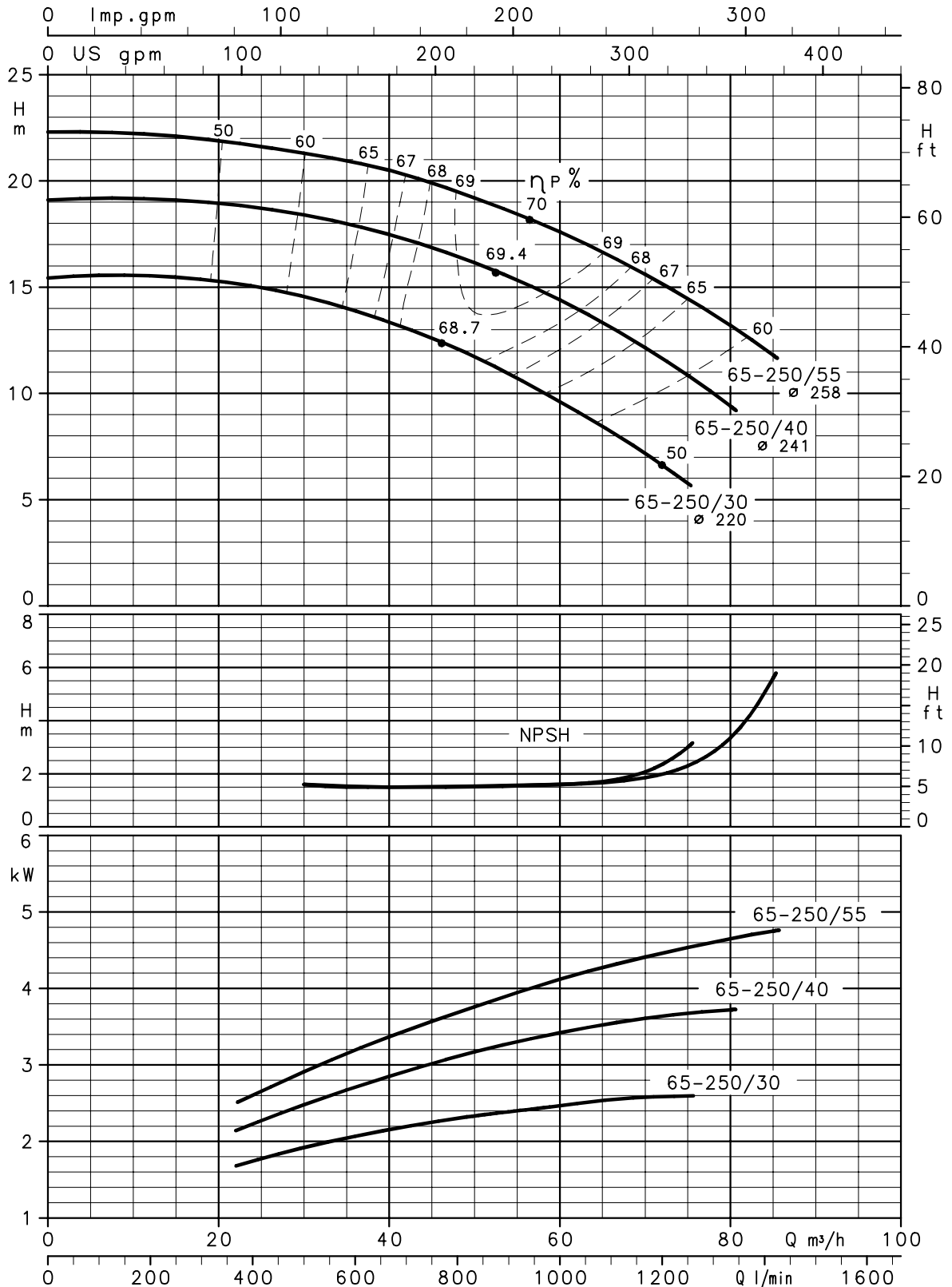
FHE4-FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHE4-FHS4-FHF4 65-250

~ 1450 rpm

ISO 9906-Annex A



04726A_B_CH

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



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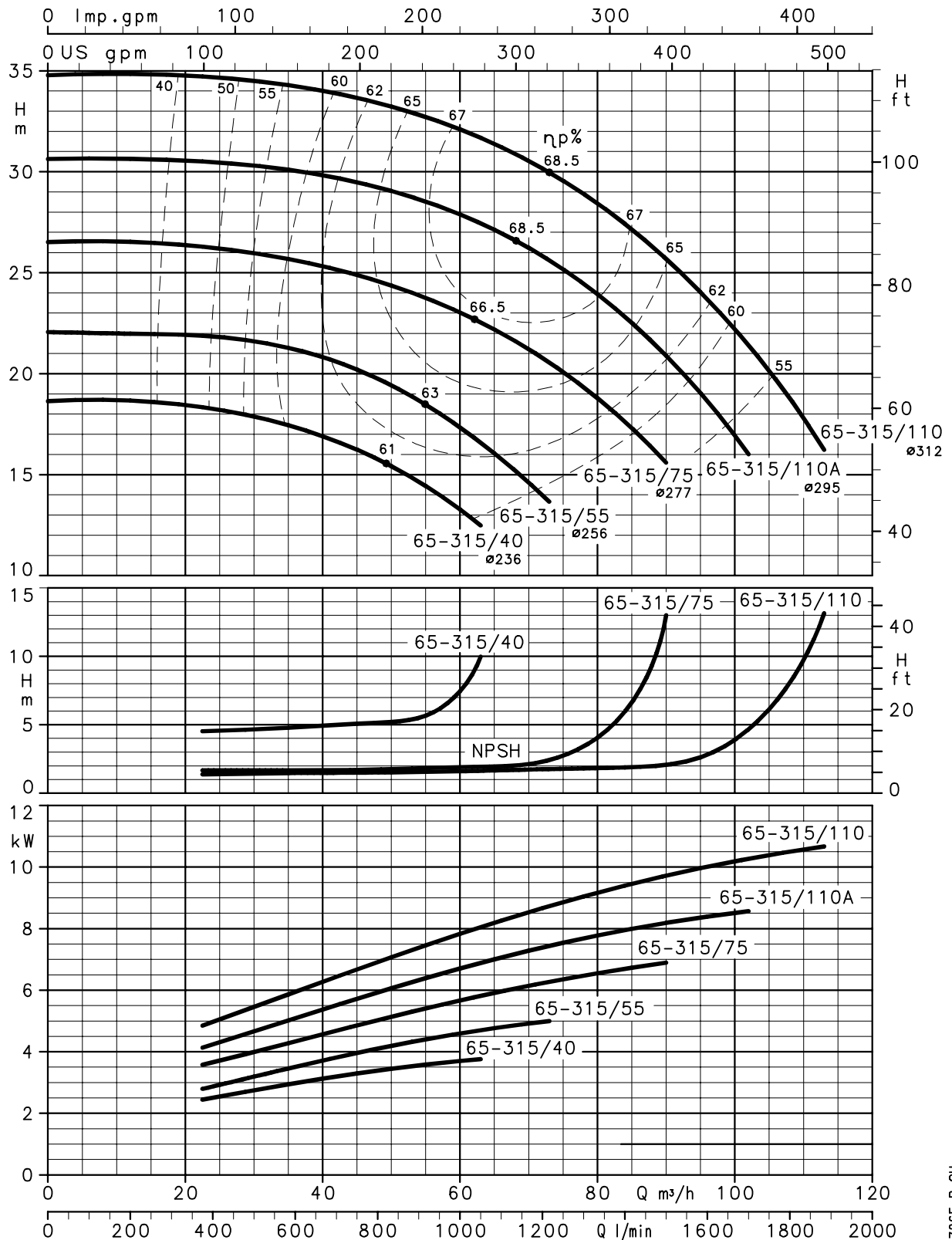
FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHS4-FHF4 65-315

~ 1450 rpm

ISO 9906-Annex A



04726E_B_CH

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



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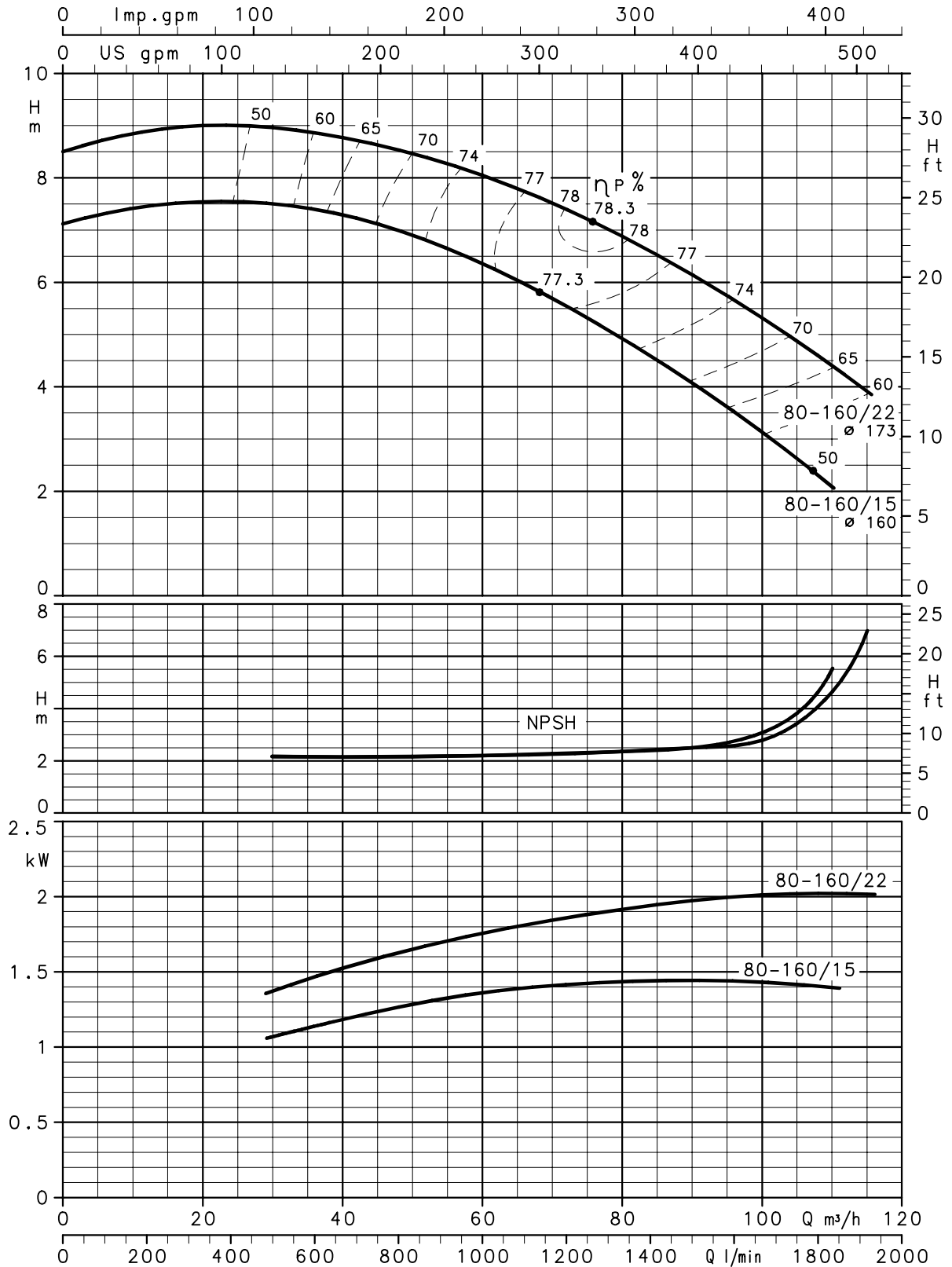
FHE4-FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHE4-FHS4-FHF4 80-160

~ 1450 rpm

ISO 9906-Annex A



04727A_B_CH

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



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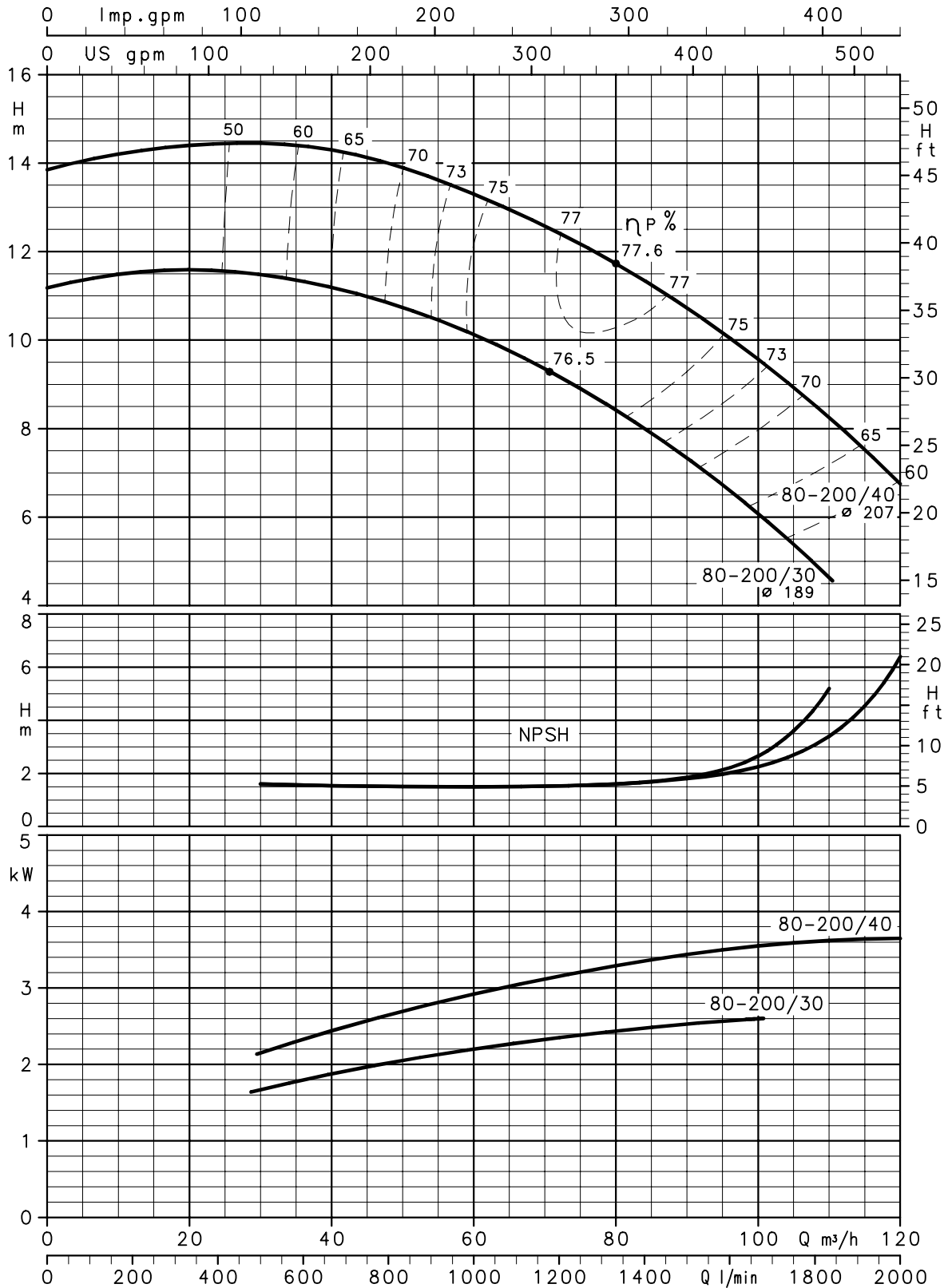
FHE4-FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHE4-FHS4-FHF4 80-200

~ 1450 rpm

ISO 9906-Annex A



04728A_C_CH

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



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Lowara

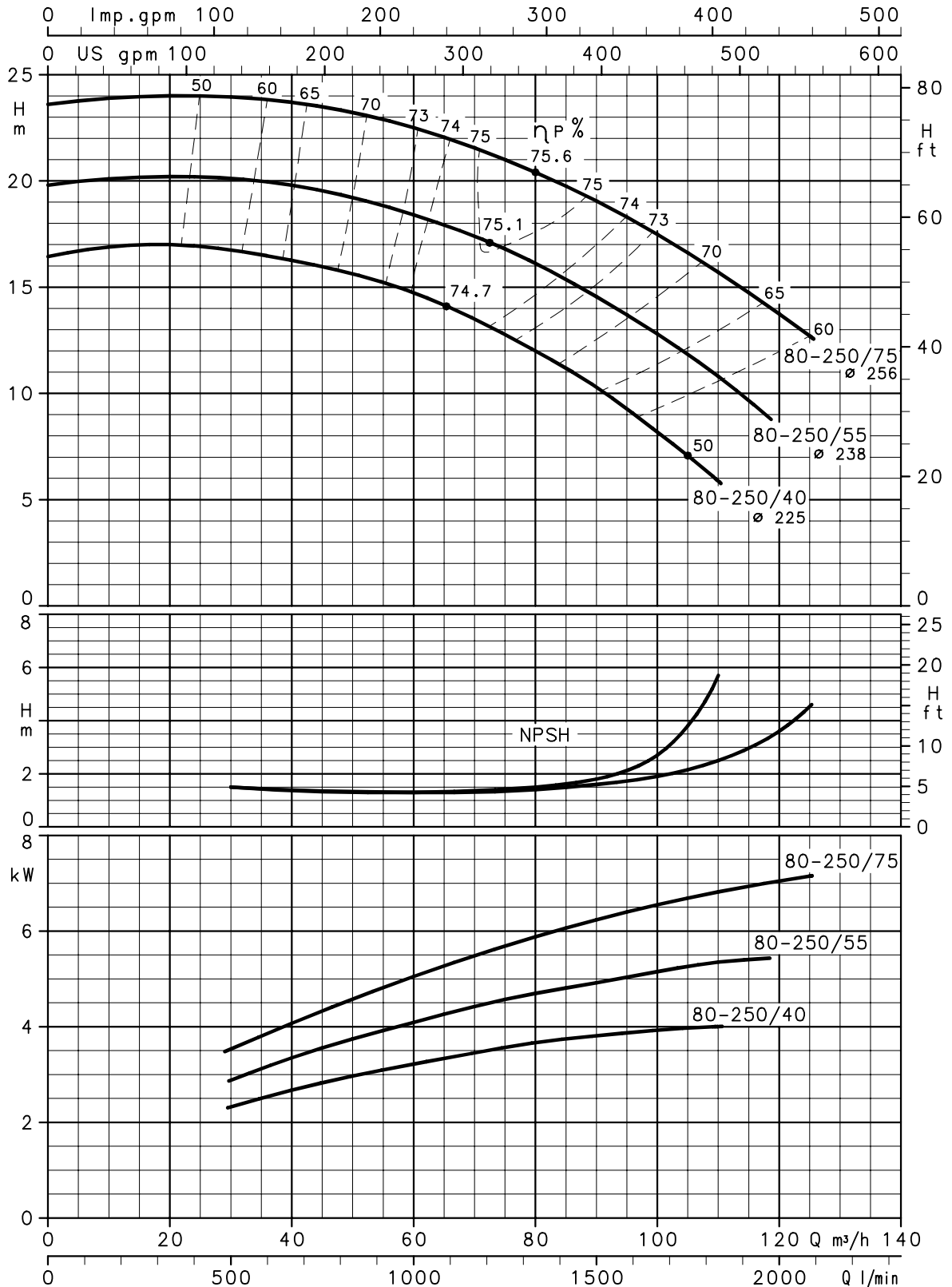
FHE4-FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHE4-FHS4-FHF4 80-250

~ 1450 rpm

ISO 9906-Annex A



04729A_B_CH

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



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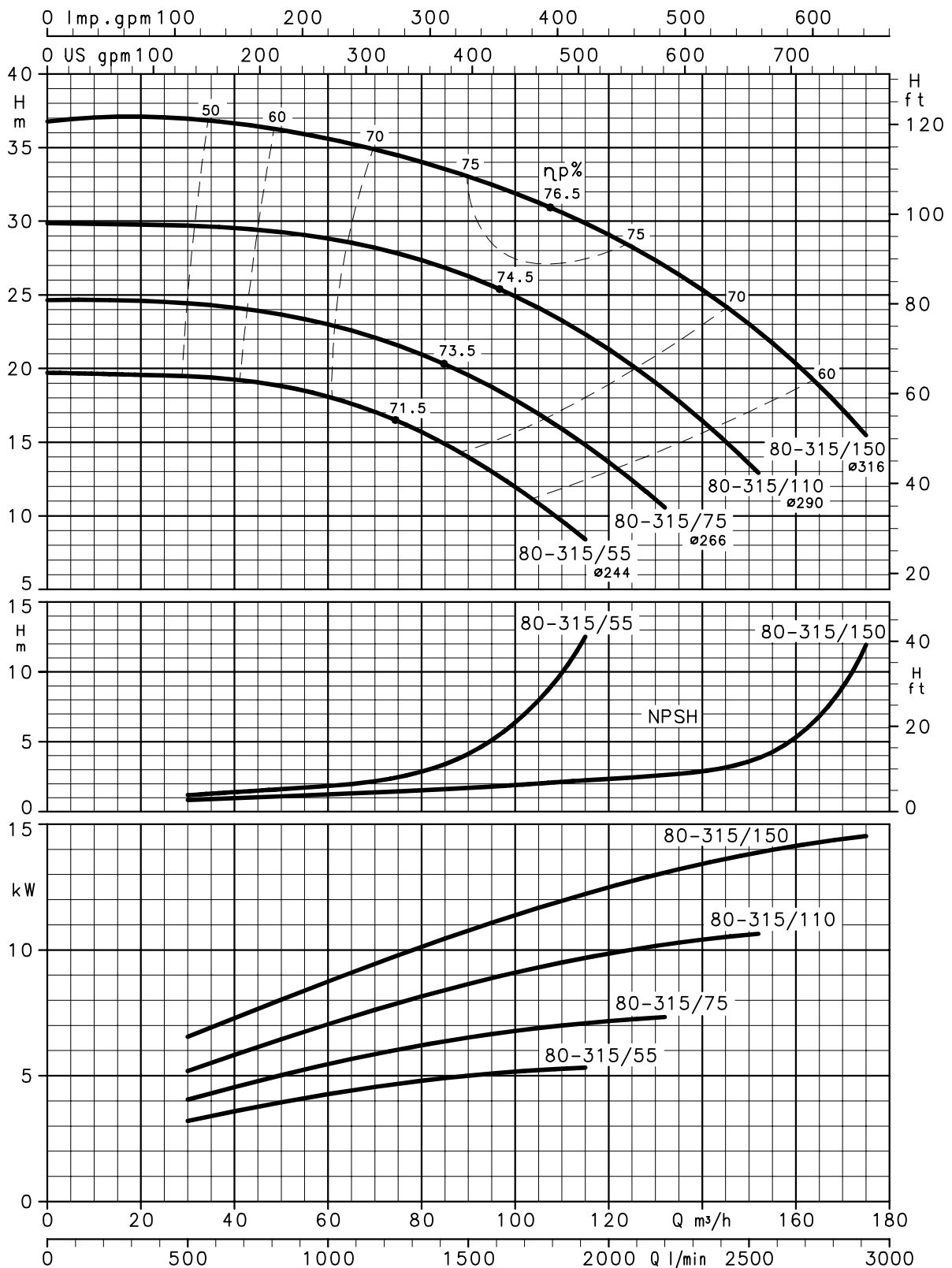
FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHS4-FHF4 80-315

~ 1450 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 $\rho = 1,0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.

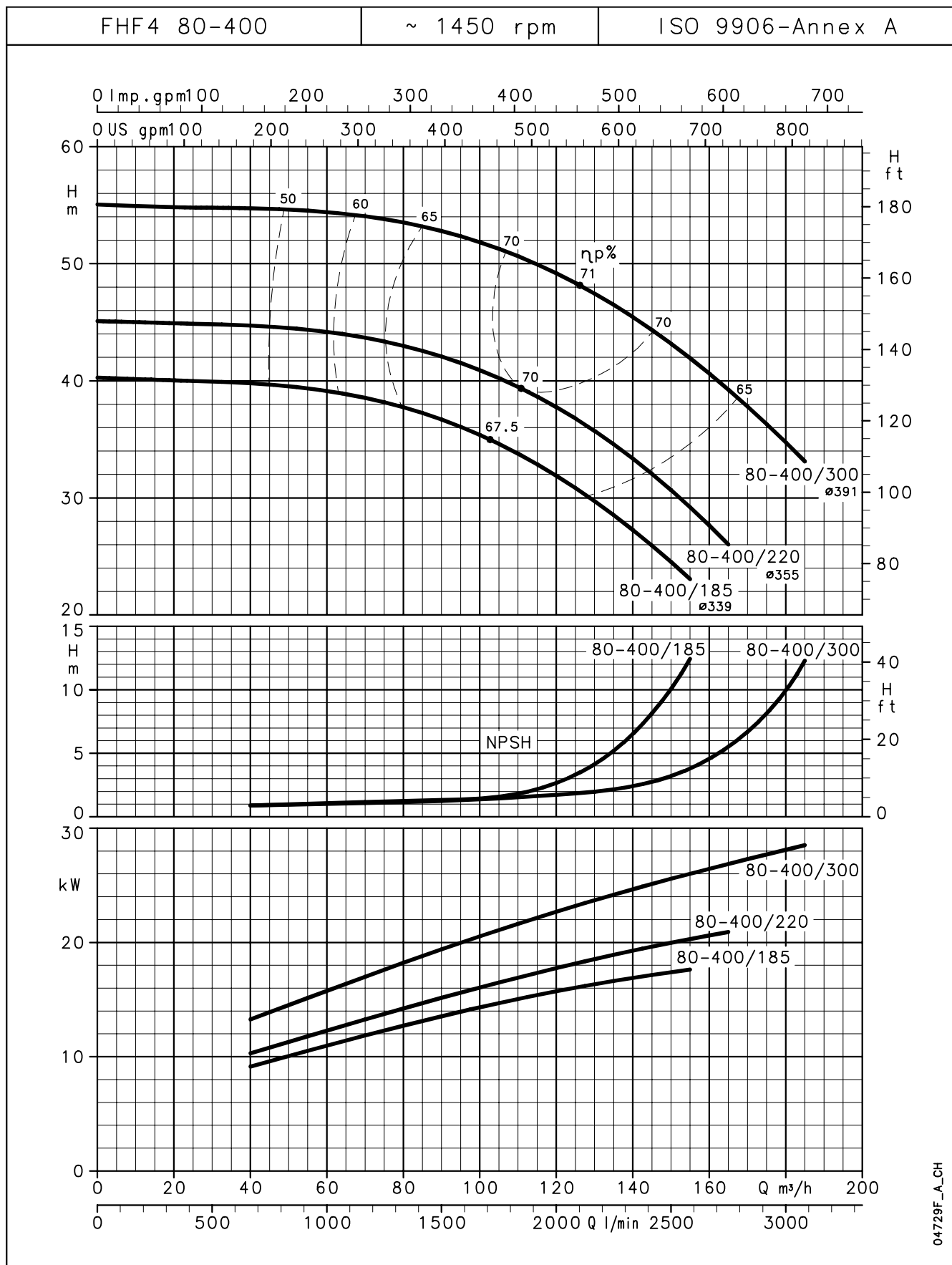


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Lowara

FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES



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



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Lowara

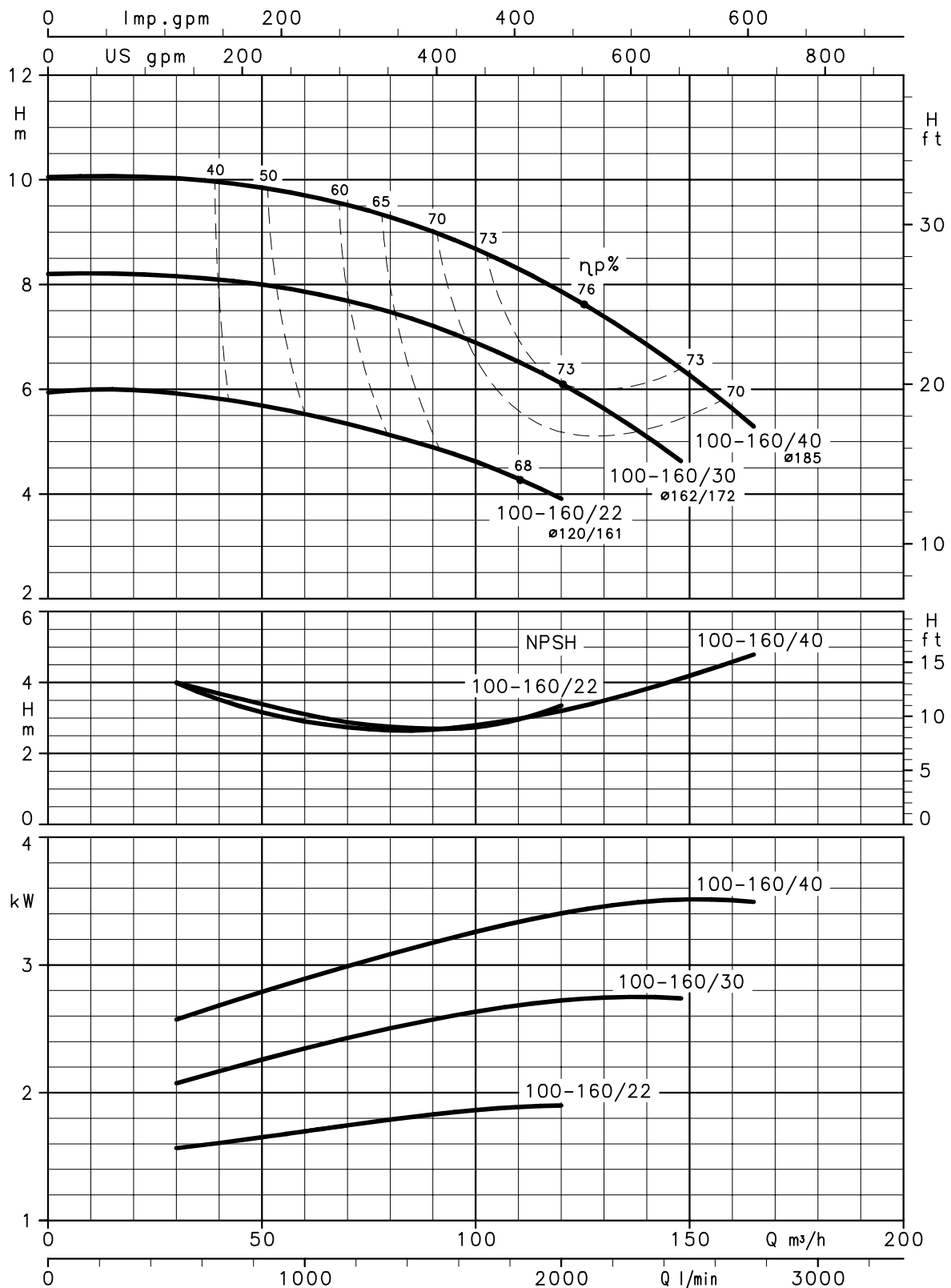
FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHS4-FHF4 100-160

~ 1450 rpm

ISO 9906-Annex A



04737A_B_CH

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



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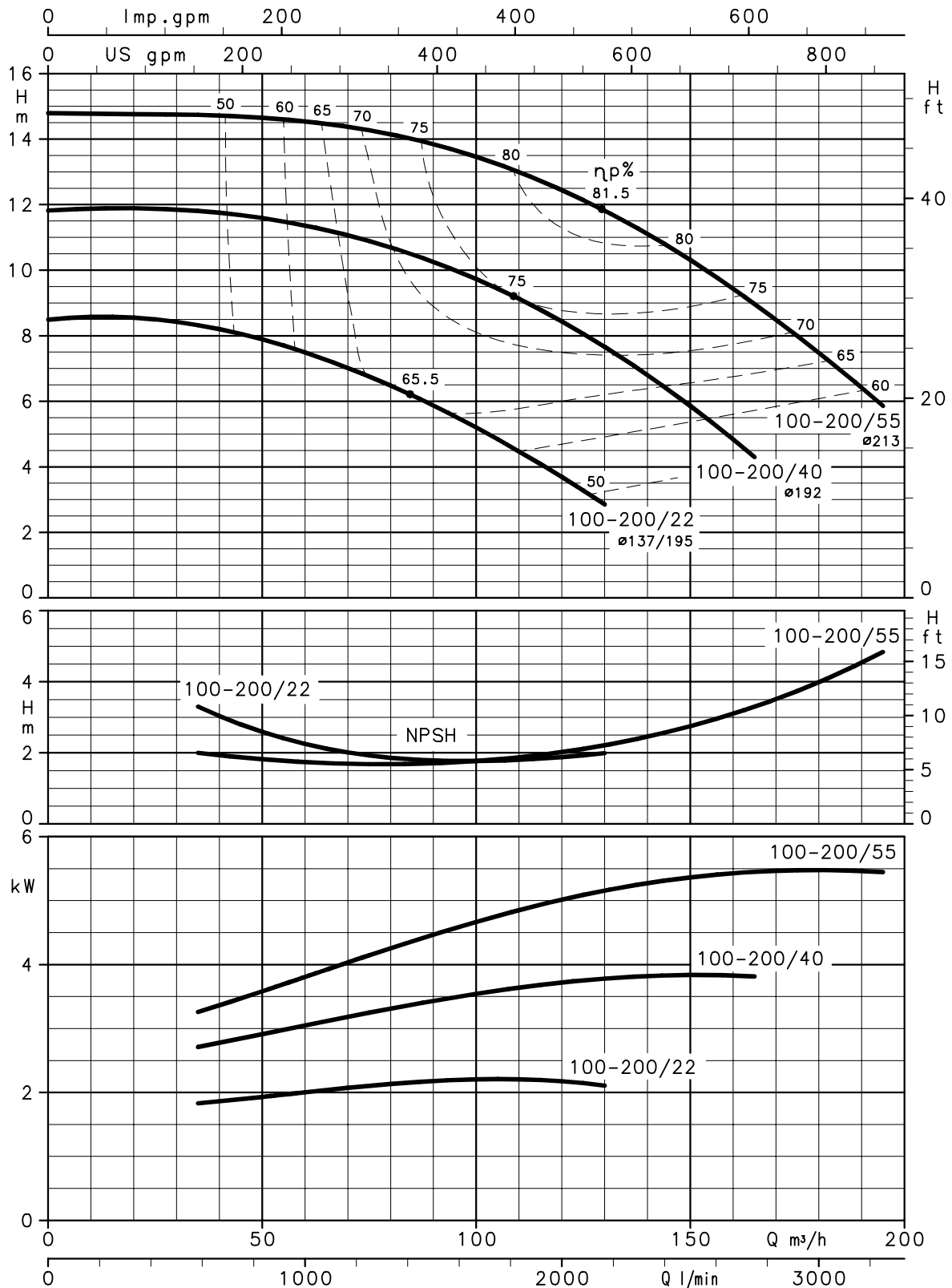
FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHS4-FHF4 100-200

~ 1450 rpm

ISO 9906-Annex A



04738A_B_CH

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



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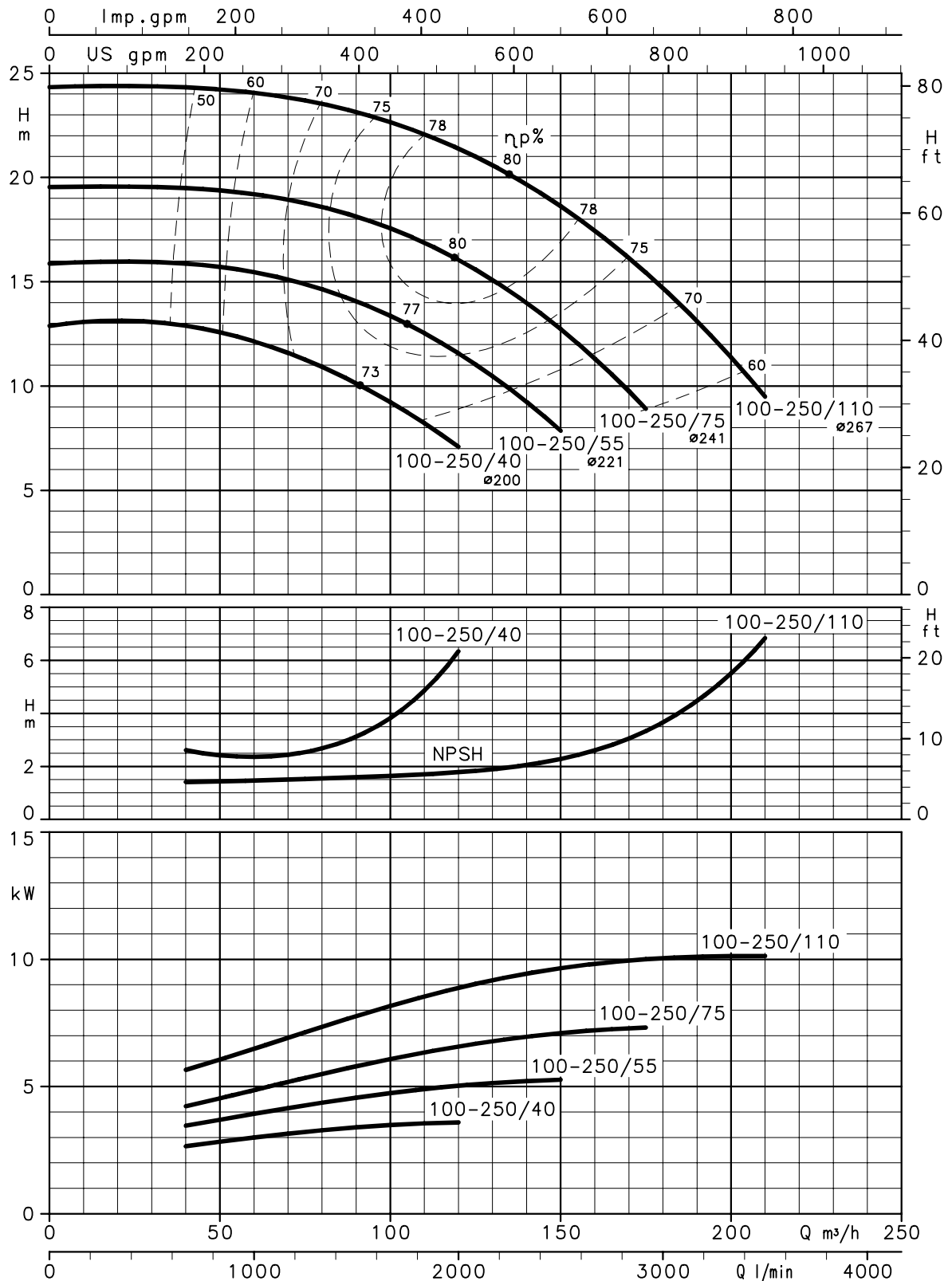
FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHS4-FHF4 100-250

~ 1450 rpm

ISO 9906-Annex A



04739A_B_CH

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



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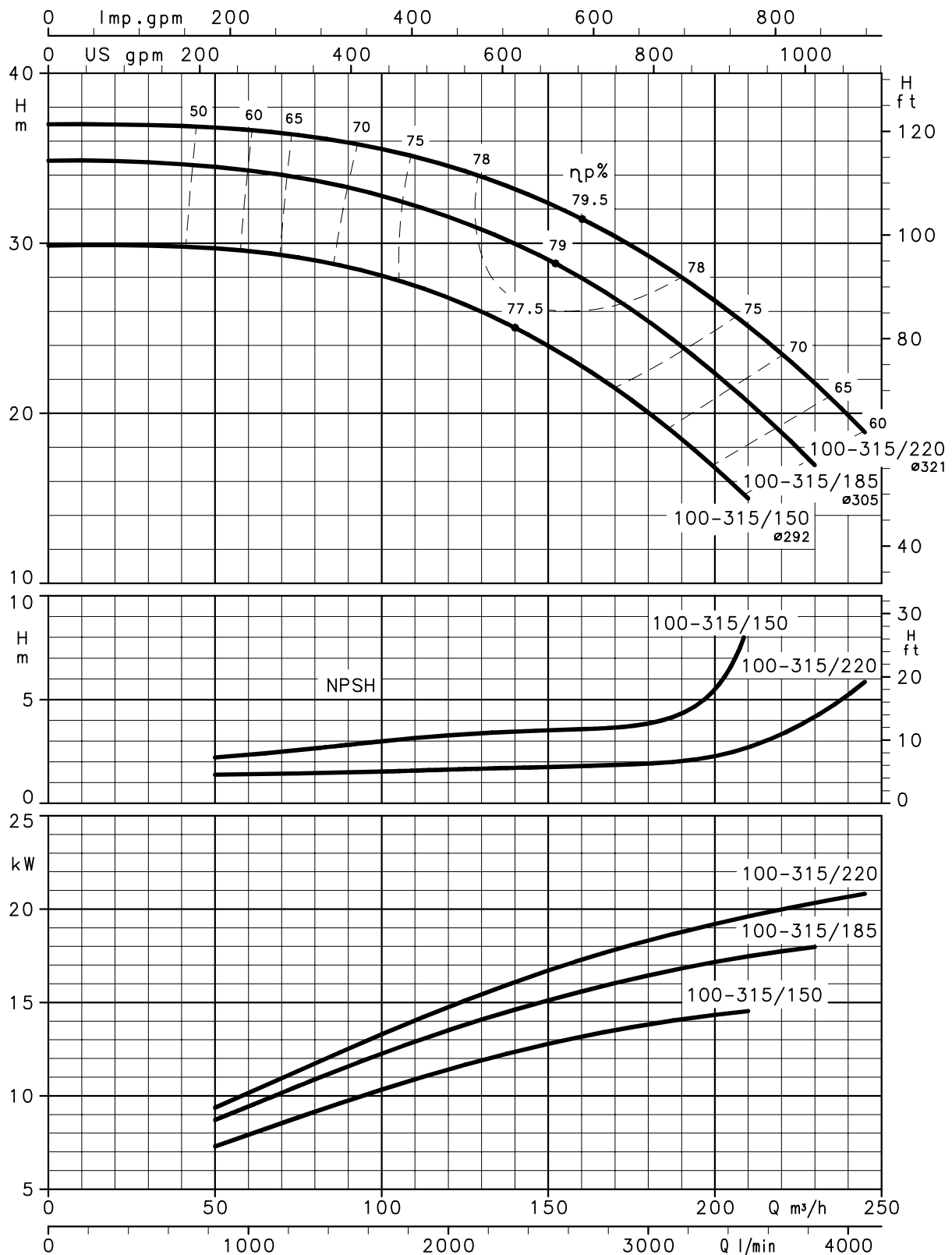
FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHS4-FHF4 100-315

~ 1450 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 $\rho = 1,0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.

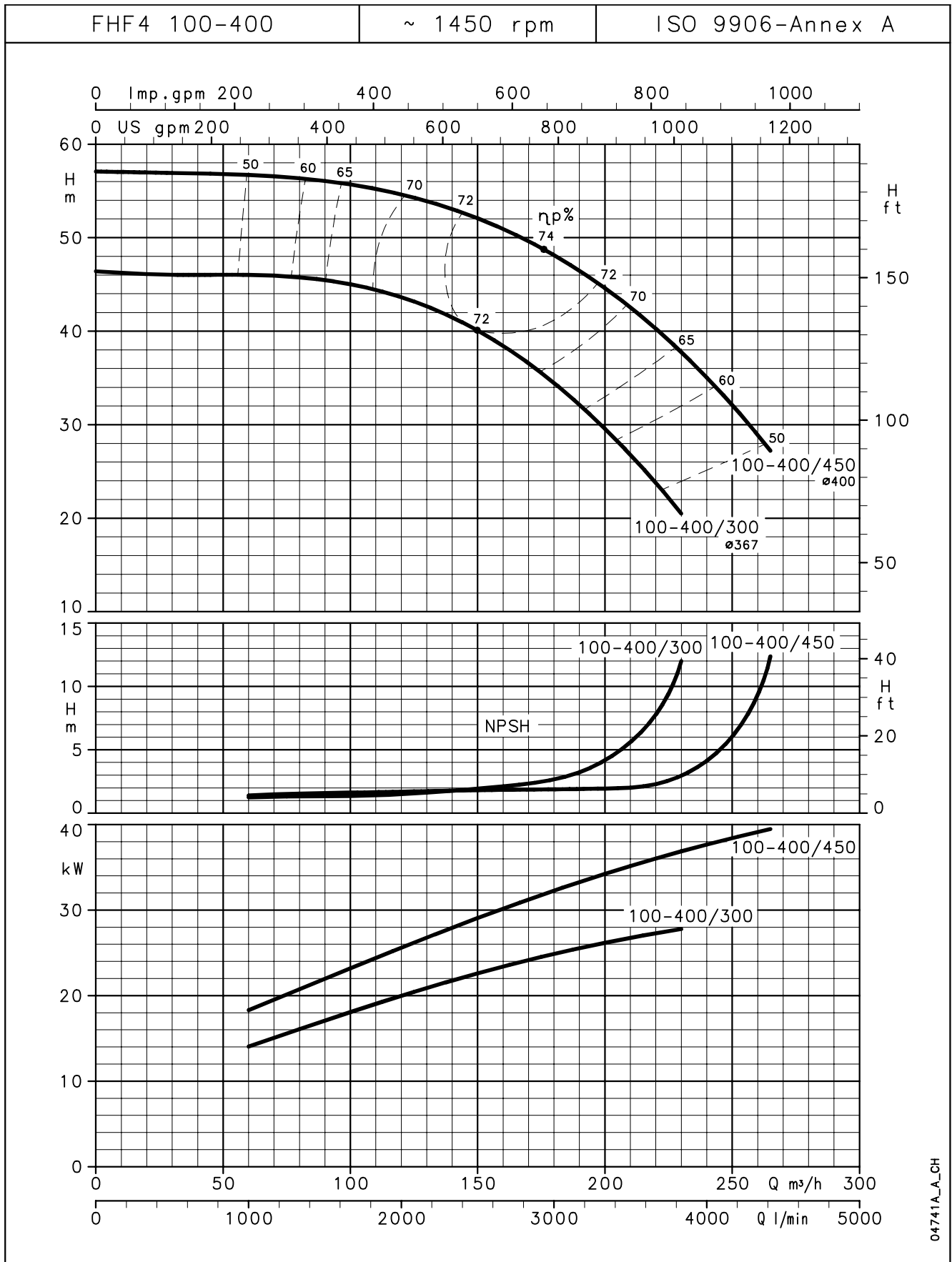


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Lowara

FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES



04741A_A_CH

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



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Lowara

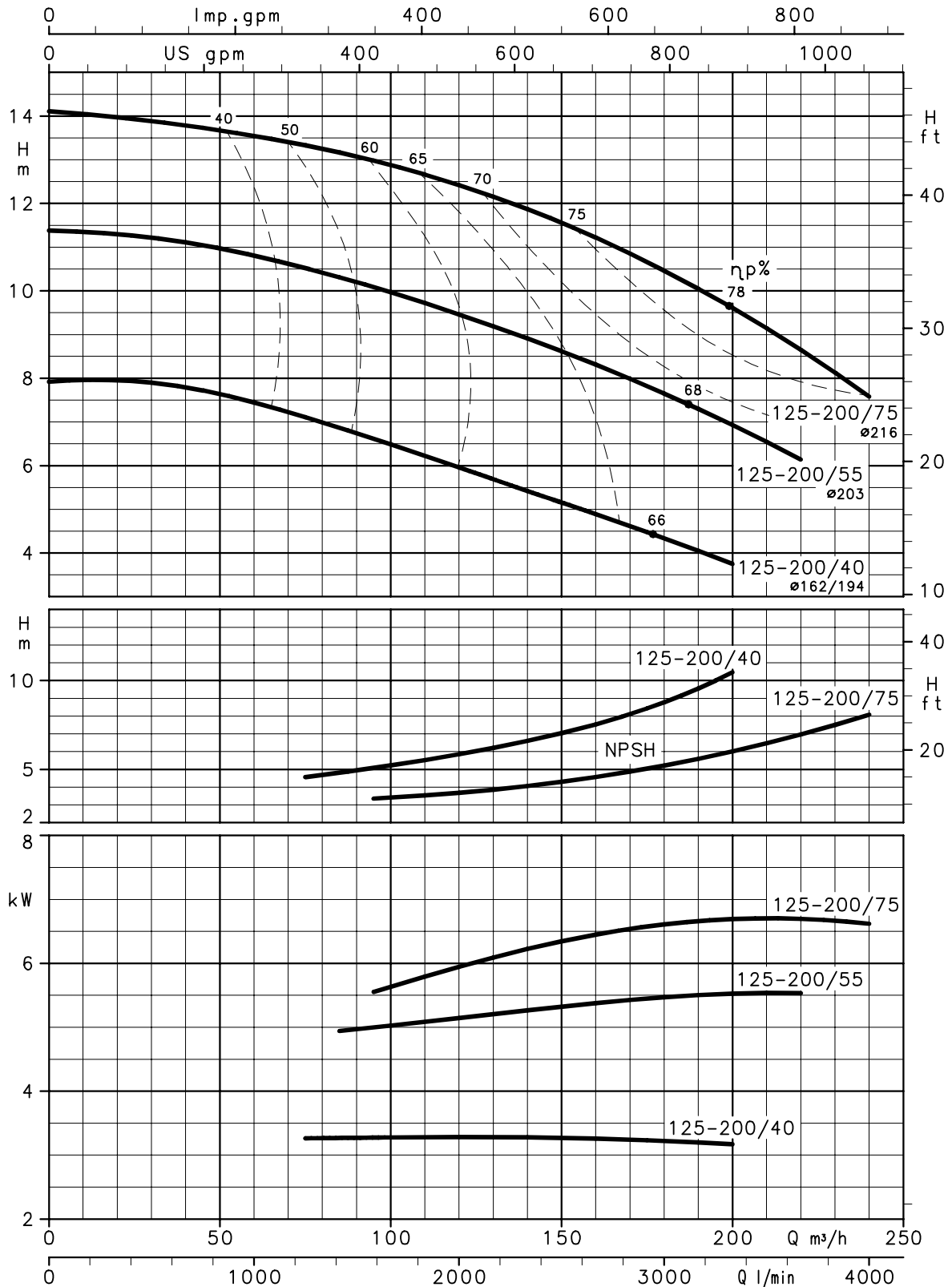
FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHS4-FHF4 125-200

~ 1450 rpm

ISO 9906-Annex A



04742A_C_CH

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



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Lowara

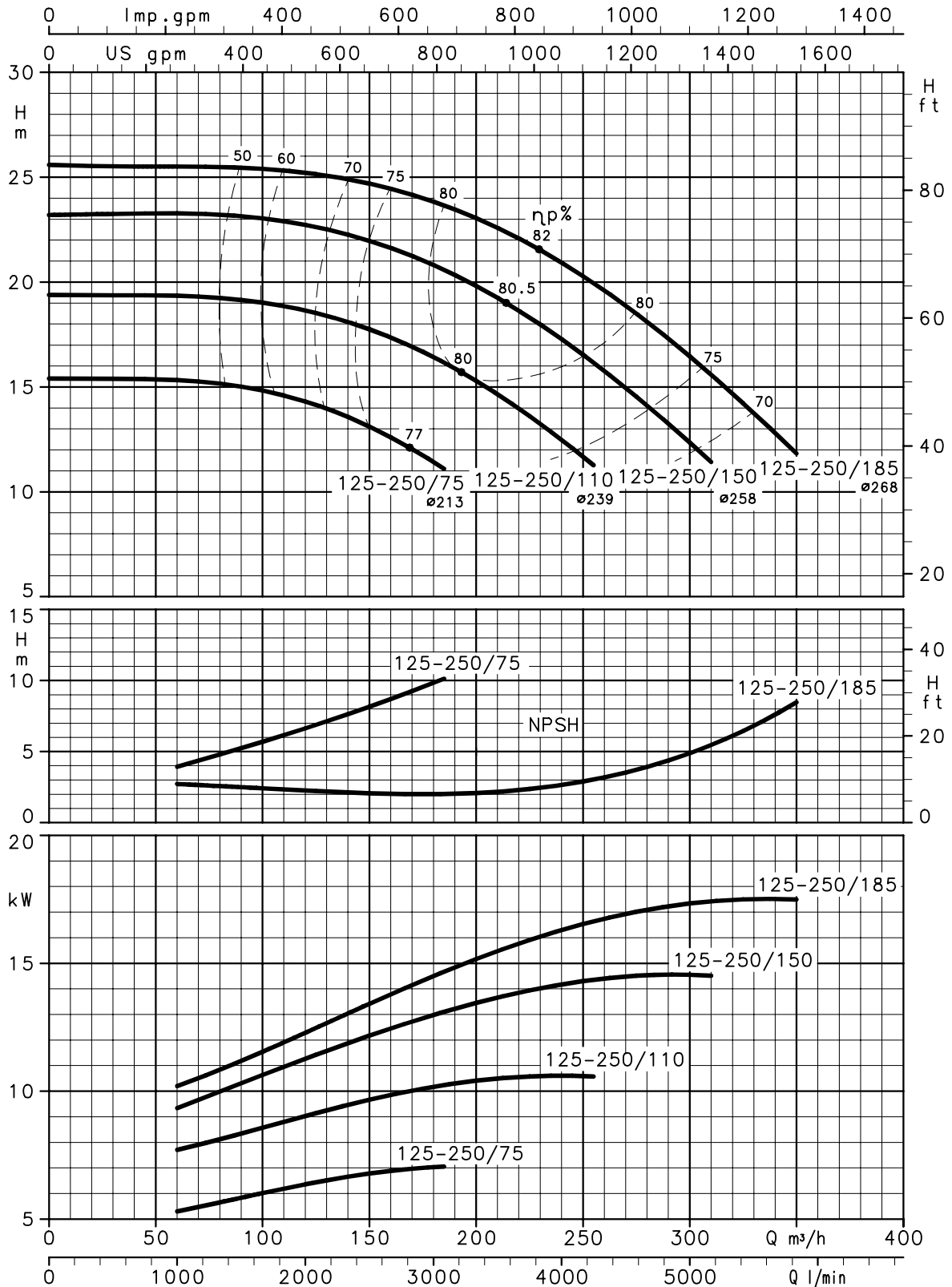
FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHS4-FHF4 125-250

~ 1450 rpm

ISO 9906-Annex A



04743A_B_CH

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

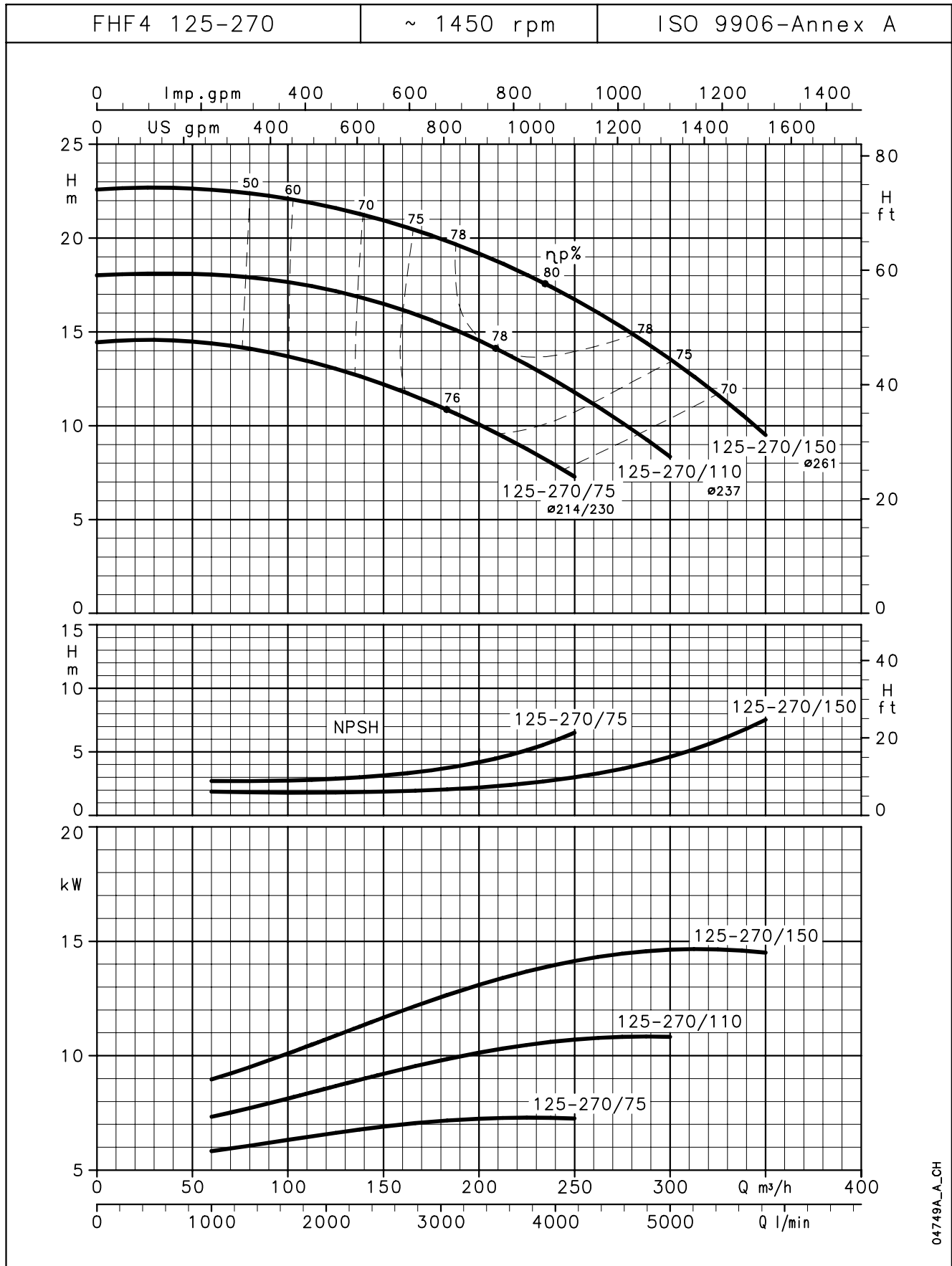


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FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES



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



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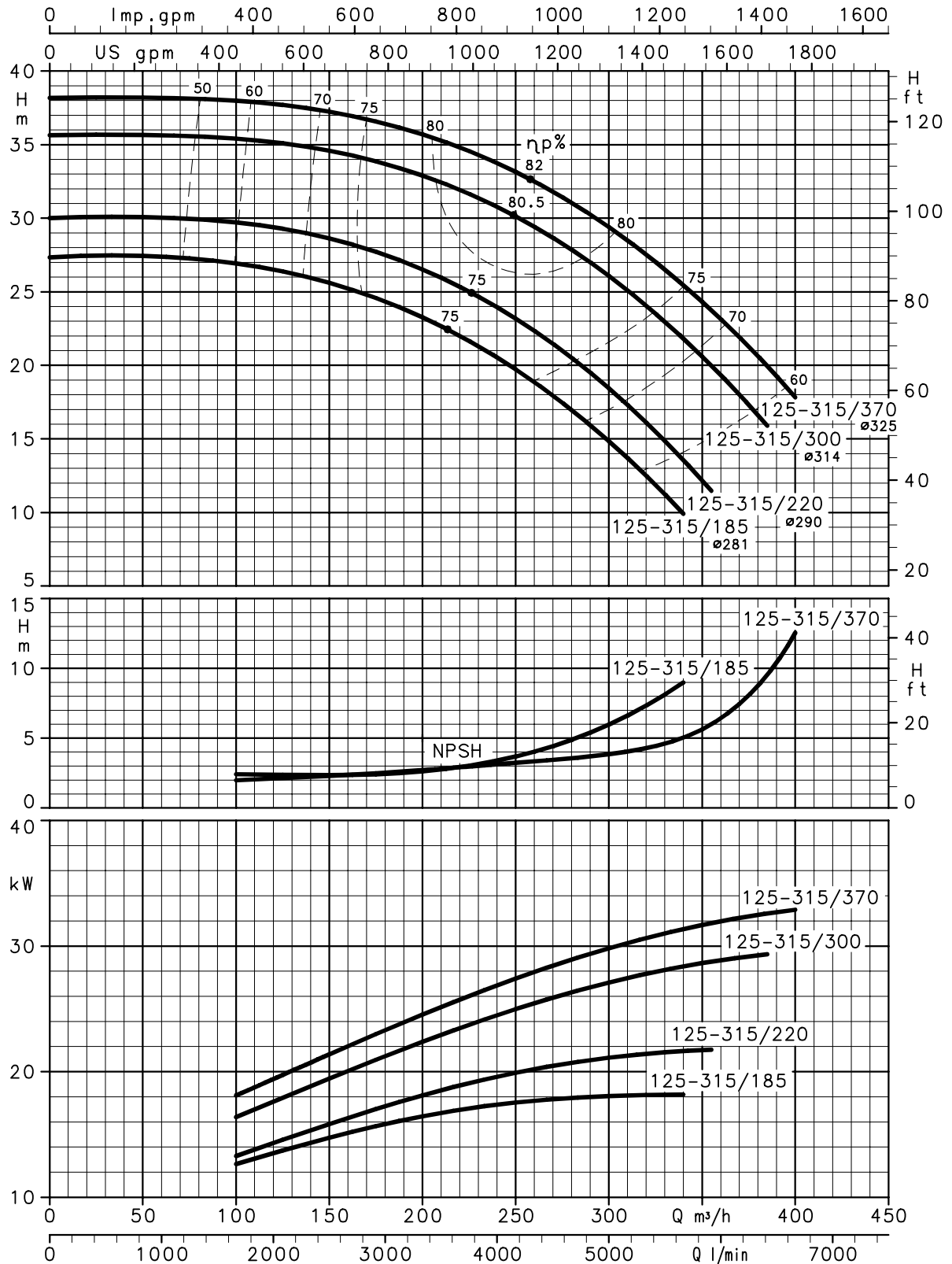
FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHS4-FHF4 125-315

~ 1450 rpm

ISO 9906-Annex A



04744A_B_CH

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

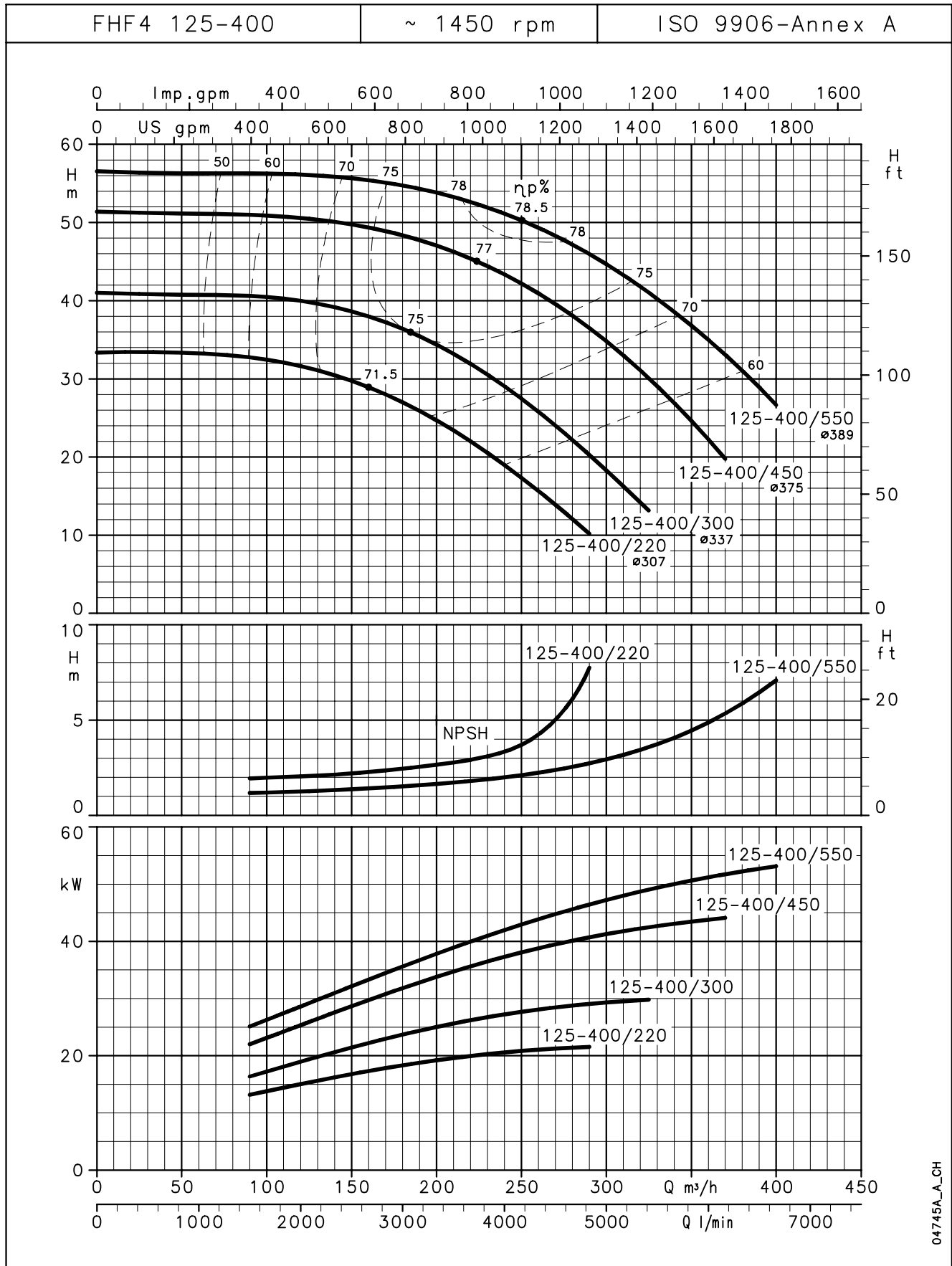


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FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES



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



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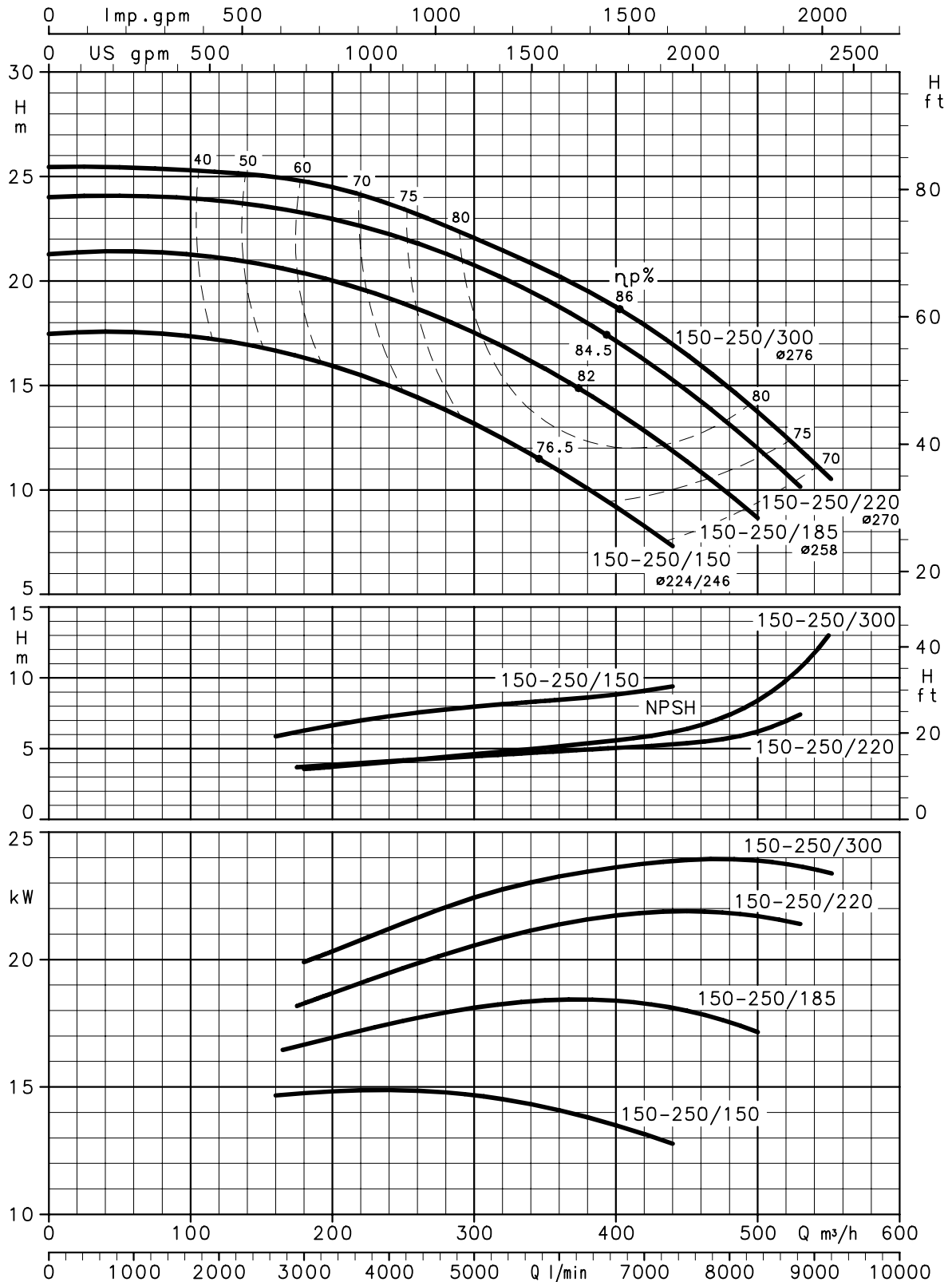
FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHS4-FHF4 150-250

~ 1450 rpm

ISO 9906-Annex A



04746A_C_CH

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



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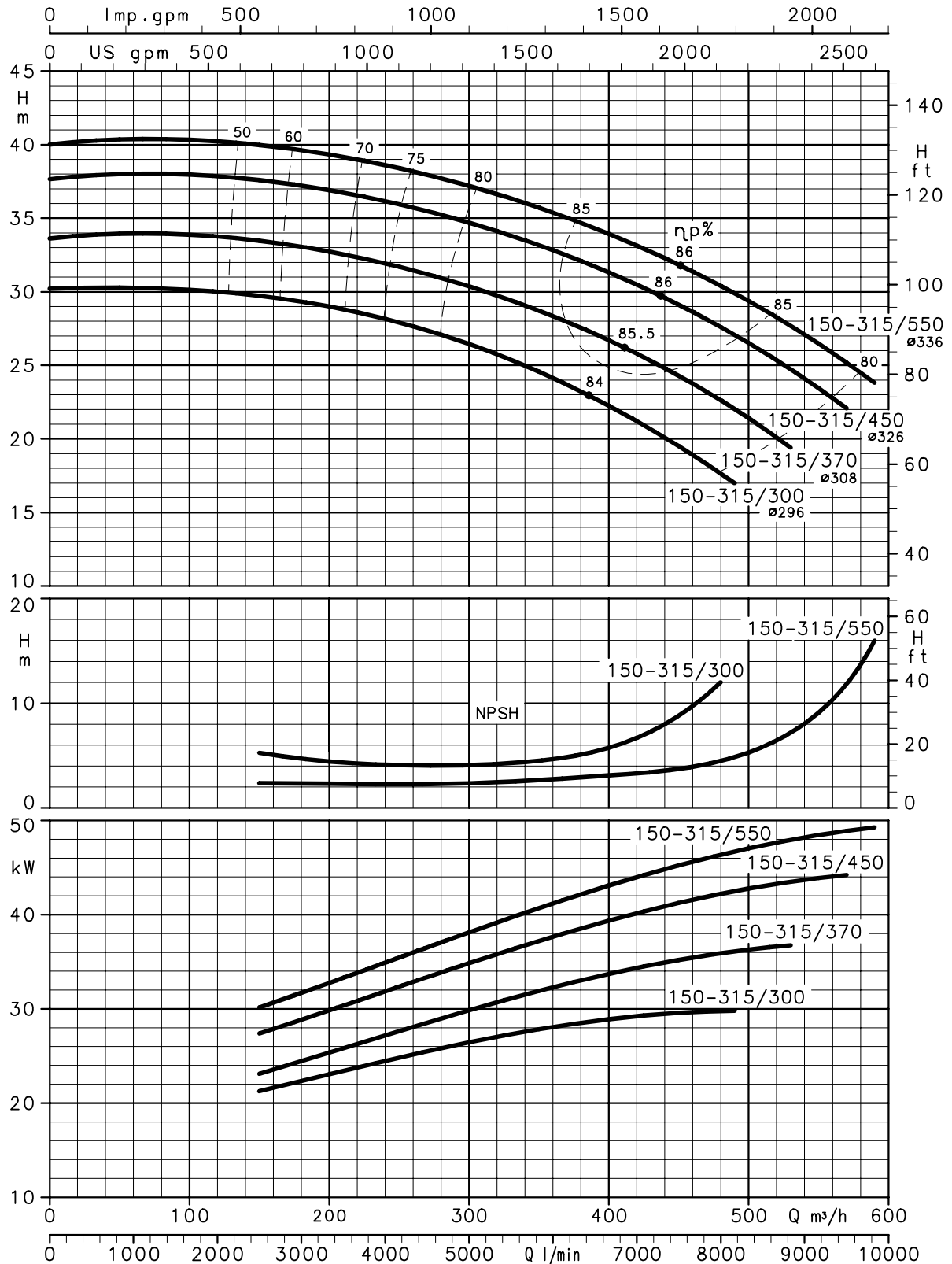
FHS4-FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

FHS4-FHF4 150-315

~ 1450 rpm

ISO 9906-Annex A



04747A_B_CH

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

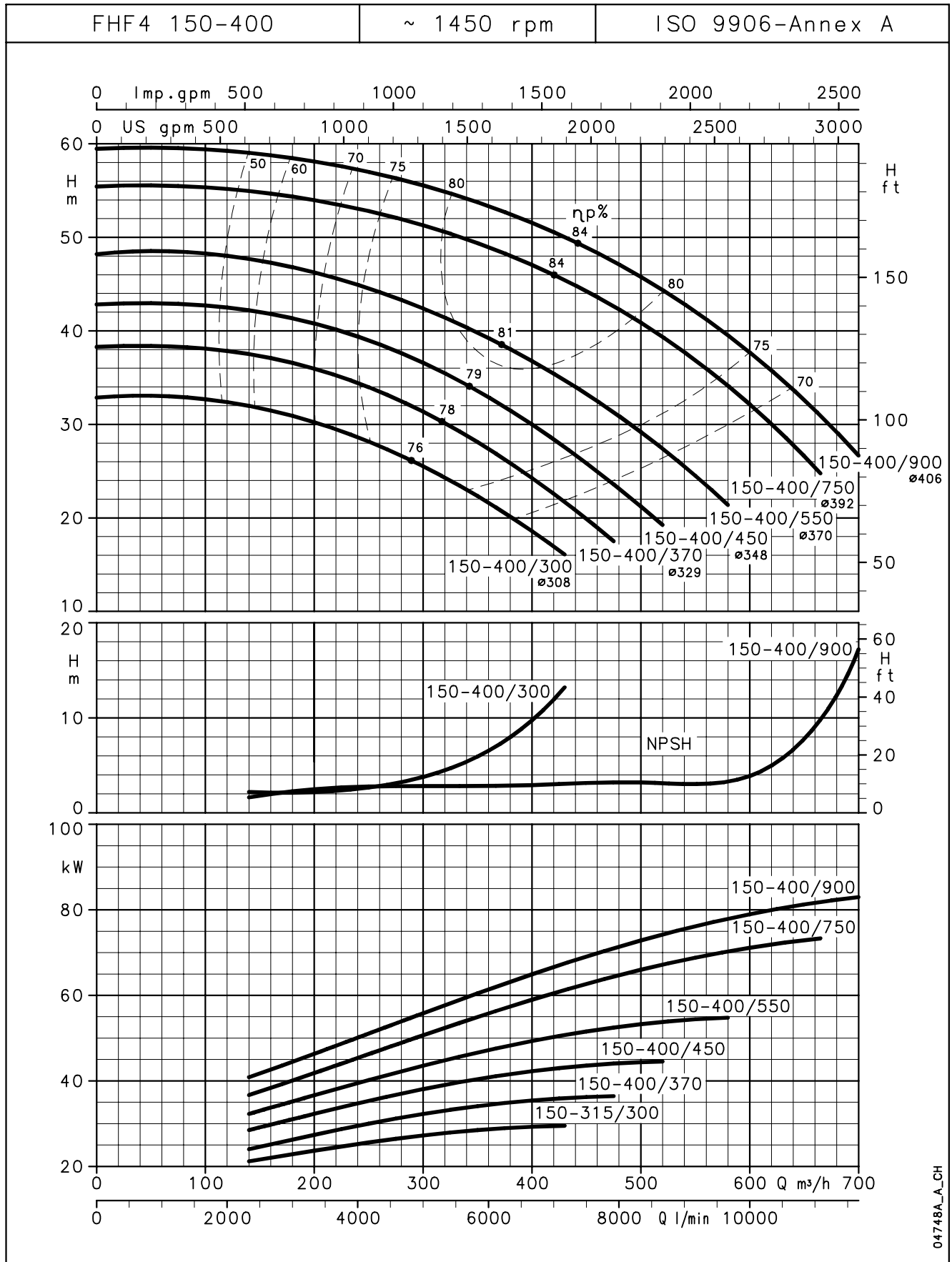


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FHF4 SERIES

OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES



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

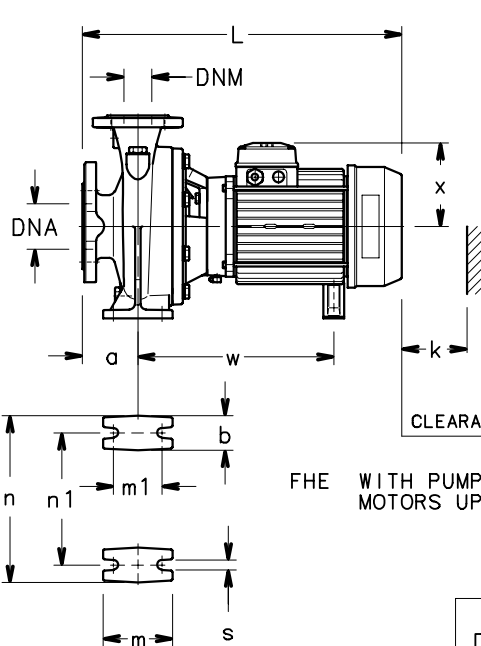
DIMENSIONS AND WEIGHTS



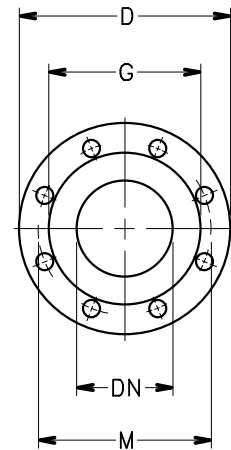
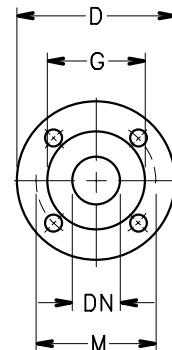
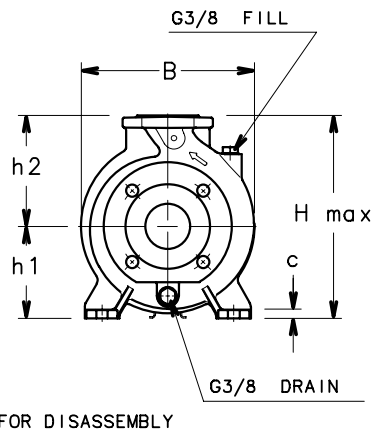
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FHE SERIES DIMENSIONS AND WEIGHTS

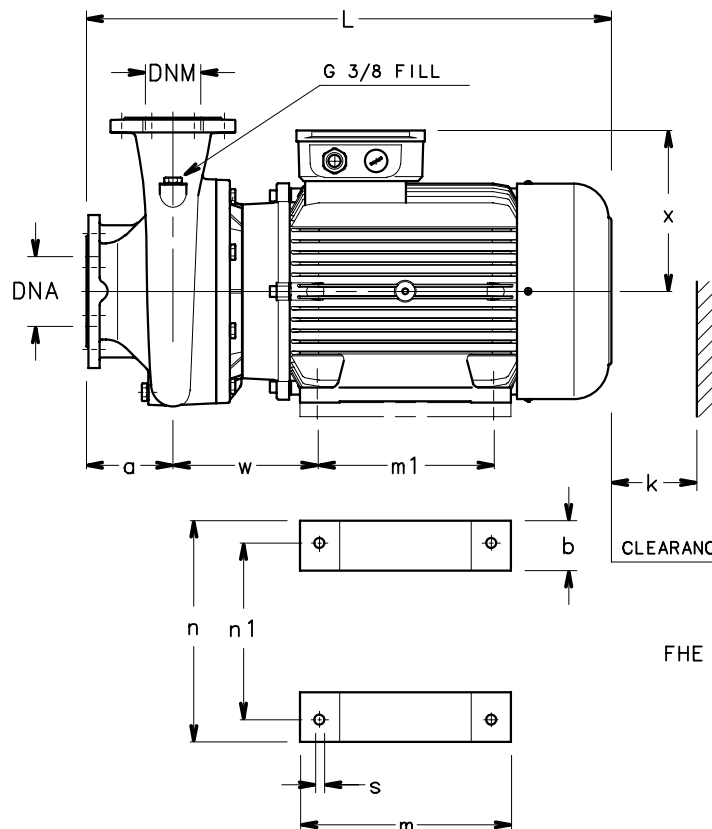


FHE WITH PUMP STAND
MOTORS UP TO 11kW

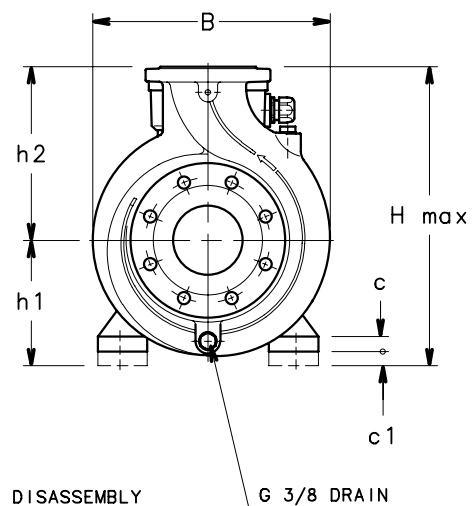


PUMP FLANGES

DN	D	M	G	HOLES		MAX THICKNESS
				Nº	D I A.	
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_C_DD

FHE SERIES

DIMENSIONS AND WEIGHTS

PUMP TYPE	DIMENSIONS (mm)															B	H	L	k	WEIGHT
	PUMP						STAND													
	DNM	DNA	a	h2	w	x	b	c	c1	h1	m	m1	n	n1	s					
FHE 32-125/07	32	50	80	140	235	129	50	12	-	112	100	70	190	140	14	233	252	443	86	27
FHE 32-125/11	32	50	80	140	235	129	50	12	-	112	100	70	190	140	14	233	252	443	86	28
FHE 32-160/15	32	50	80	160	235	129	50	12	-	132	100	70	240	190	14	235	292	443	86	31
FHE 32-160/22	32	50	80	160	235	129	50	12	-	132	100	70	240	190	14	235	292	443	86	34
FHE 32-200/30	32	50	80	180	245	134	50	12	-	160	100	70	240	190	14	285	340	478	86	47
FHE 32-200/40	32	50	80	180	273	154	50	12	-	160	100	70	240	190	14	285	340	499	86	54
FHE 40-125/11	40	65	80	140	235	129	50	12	-	112	100	70	210	160	14	233	252	443	88	29,8
FHE 40-125/15	40	65	80	140	235	129	50	12	-	112	100	70	210	160	14	233	252	443	88	31
FHE 40-125/22	40	65	80	140	235	129	50	12	-	112	100	70	210	160	14	233	252	443	88	33
FHE 40-160/30	40	65	80	160	245	134	50	12	-	132	100	70	240	190	14	250	292	478	88	40
FHE 40-160/40	40	65	80	160	273	154	50	12	-	132	100	70	240	190	14	250	292	499	88	47
FHE 40-200/55	40	65	100	180	285	168	50	12	-	160	100	70	265	212	14	285	340	553	88	62
FHE 40-200/75	40	65	100	180	305	191	50	12	-	160	100	70	265	212	14	285	351	567	88	79
FHE 40-250/92	40	65	100	225	343	191	65	14	-	180	125	95	320	250	14	335	405	605	107	96
FHE 40-250/110	40	65	100	225	343	191	65	14	-	180	125	95	320	250	14	335	405	605	107	104
FHE 40-250/150	40	65	100	225	208	240	49	5	20	180	304	210	304	254	15	335	420	694	107	128
FHE 50-125/22	50	65	100	160	237	129	50	12	-	132	100	70	240	190	14	255	292	463	92	37
FHE 50-125/30	50	65	100	160	247	134	50	12	-	132	100	70	240	190	14	255	292	500	92	43
FHE 50-125/40	50	65	100	160	275	154	50	12	-	132	100	70	240	190	14	255	292	521	92	50
FHE 50-160/55	50	65	100	180	287	168	50	12	-	160	100	70	265	212	14	285	340	555	92	71
FHE 50-160/75	50	65	100	180	307	191	50	12	-	160	100	70	265	212	14	285	351	569	92	87
FHE 50-200/92	50	65	100	200	345	191	50	12	-	160	100	70	265	212	14	305	360	607	92	86
FHE 50-200/110	50	65	100	200	345	191	50	12	-	160	100	70	265	212	14	305	360	607	92	91
FHE 50-250/150	50	65	100	225	208	240	49	5	20	180	304	210	304	254	15	340	420	694	107	128
FHE 50-250/185	50	65	100	225	208	240	49	5	20	180	304	254	304	254	15	340	420	694	107	131
FHE 50-250/220	50	65	100	225	208	240	49	5	20	180	304	254	304	254	15	340	420	694	107	151
FHE 65-125/40	65	80	100	180	275	154	65	14	-	160	125	95	280	212	14	285	340	521	105	69
FHE 65-125/55	65	80	100	180	287	168	65	14	-	160	125	95	280	212	14	285	340	555	105	75
FHE 65-125/75	65	80	100	180	307	191	65	14	-	160	125	95	280	212	14	285	351	569	105	91
FHE 65-160/92	65	80	100	200	343	191	65	14	-	160	125	95	280	212	14	331	360	605	112	100
FHE 65-160/110	65	80	100	200	343	191	65	14	-	160	125	95	280	212	14	331	360	605	112	108
FHE 65-160/150	65	80	100	200	208	240	49	5	-	160	304	210	304	254	15	331	400	694	112	132
FHE 65-200/150	65	80	100	225	208	240	49	5	20	180	304	210	304	254	15	335	420	694	112	132
FHE 65-200/185	65	80	100	225	208	240	49	5	20	180	304	254	304	254	15	335	420	694	112	135
FHE 65-200/220	65	80	100	225	208	240	49	5	20	180	304	254	304	254	15	335	420	694	112	155
FHE 65-250/220	65	80	100	250	208	240	49	5	40	200	304	254	304	254	15	332	450	694	112	161
FHE 80-160/110	80	100	125	225	343	191	65	14	-	180	125	95	320	250	14	332	405	630	129	114
FHE 80-160/150	80	100	125	225	208	240	49	5	20	180	304	210	304	254	15	332	420	719	129	138
FHE 80-160/185	80	100	125	225	208	240	49	5	20	180	304	254	304	254	15	332	420	719	129	141
FHE 80-200/220	80	100	125	250	208	240	49	5	20	180	304	254	304	254	15	332	430	719	129	161

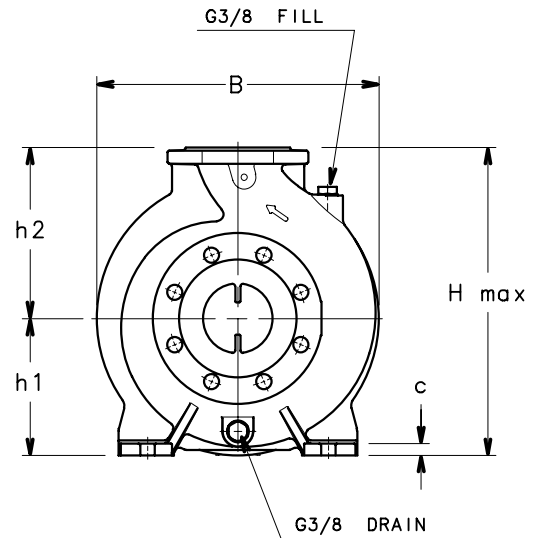
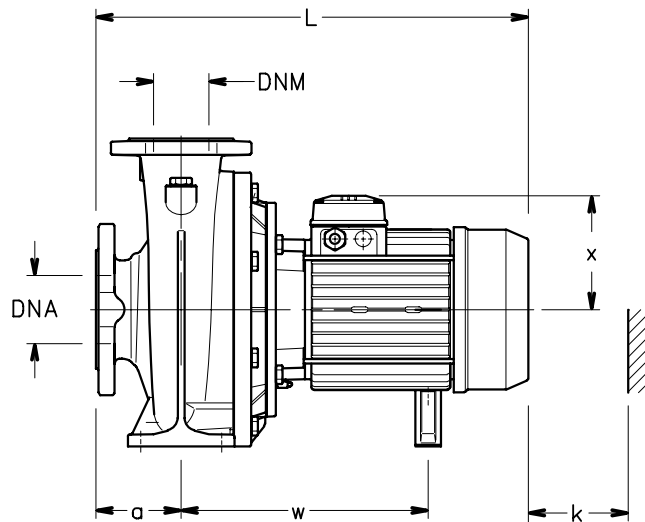
fh-fhe-2p50-en_c_td



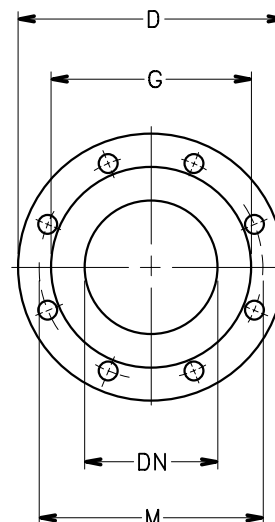
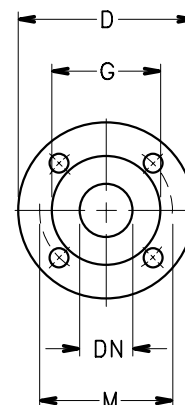
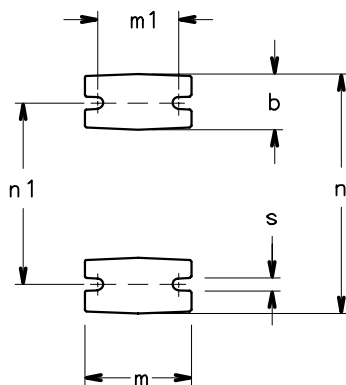
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FHE4 SERIES DIMENSIONS AND WEIGHTS



CLEARANCE FOR DISASSEMBLY



PUMP FLANGES

DN	D	M	G	HOLES		MAX. THICKNESS
				N°	DIA.	
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

FHE4 SERIES

DIMENSIONS AND WEIGHTS

PUMP TYPE	DIMENSIONS (mm)															B	H	L	k	WEIGHT
	PUMP						STAND													
	DNM	DNA	a	h2	w	x	b	c	h1	m	m1	n	n1	s						
FHE4 32-125/02A	32	50	80	140	215	121	50	12	112	100	70	190	140	14	233	252	411	86	25	
FHE4 32-125/02	32	50	80	140	215	121	50	12	112	100	70	190	140	14	233	252	411	86	25	
FHE4 32-160/02	32	50	80	160	215	121	50	12	132	100	70	240	190	14	235	292	411	86	26	
FHE4 32-160/03	32	50	80	160	215	121	50	12	132	100	70	240	190	14	235	292	411	86	26	
FHE4 32-200/03	32	50	80	180	215	121	50	12	160	100	70	240	190	14	285	340	411	86	35	
FHE4 32-200/05	32	50	80	180	235	129	50	12	160	100	70	240	190	14	285	340	443	86	38	
FHE4 40-125/02A	40	65	80	140	215	121	50	12	112	100	70	210	160	14	233	252	411	88	25	
FHE4 40-125/02	40	65	80	140	215	121	50	12	112	100	70	210	160	14	233	252	411	88	25	
FHE4 40-125/03	40	65	80	140	215	121	50	12	112	100	70	210	160	14	233	252	411	88	25	
FHE4 40-160/03	40	65	80	160	215	121	50	12	132	100	70	240	190	14	250	292	411	88	27	
FHE4 40-160/05	40	65	80	160	235	129	50	12	132	100	70	240	190	14	250	292	443	88	29	
FHE4 40-200/07	40	65	100	180	235	129	50	12	160	100	70	265	212	14	285	340	463	88	39	
FHE4 40-200/11	40	65	100	180	245	134	50	12	160	100	70	265	212	14	285	340	498	88	48	
FHE4 40-250/11	40	65	100	225	245	134	65	14	180	125	95	320	250	14	335	405	498	107	58	
FHE4 40-250/15	40	65	100	225	245	134	65	14	180	125	95	320	250	14	335	405	498	107	61	
FHE4 40-250/22	40	65	100	225	285	168	65	14	180	125	95	320	250	14	335	405	522	107	69	
FHE4 50-125/03A	50	65	100	160	217	121	50	12	132	100	70	240	190	14	255	292	433	92	29	
FHE4 50-125/03	50	65	100	160	217	121	50	12	132	100	70	240	190	14	255	292	433	92	29	
FHE4 50-125/05	50	65	100	160	237	129	50	12	132	100	70	240	190	14	255	292	465	92	32	
FHE4 50-160/07	50	65	100	180	237	129	50	12	160	100	70	265	212	14	285	340	465	92	42	
FHE4 50-160/11	50	65	100	180	247	134	50	12	160	100	70	265	212	14	285	340	500	92	51	
FHE4 50-200/11	50	65	100	200	247	134	50	12	160	100	70	265	212	14	305	360	500	92	51	
FHE4 50-200/15	50	65	100	200	247	134	50	12	160	100	70	265	212	14	305	360	500	92	54	
FHE4 50-250/22A	50	65	100	225	285	168	65	14	180	125	95	320	250	14	340	405	522	107	69	
FHE4 50-250/22	50	65	100	225	285	168	65	14	180	125	95	320	250	14	340	405	522	107	69	
FHE4 50-250/30	50	65	100	225	285	168	65	14	180	125	95	320	250	14	340	405	553	107	72	
FHE4 65-125/05	65	80	100	180	237	129	65	14	160	125	95	280	212	14	285	340	465	105	46	
FHE4 65-125/07	65	80	100	180	237	129	65	14	160	125	95	280	212	14	285	340	465	105	46	
FHE4 65-125/11	65	80	100	180	247	134	65	14	160	125	95	280	212	14	285	340	500	105	55	
FHE4 65-160/11	65	80	100	200	245	134	65	14	160	125	95	280	212	14	331	360	498	112	61	
FHE4 65-160/15	65	80	100	200	245	134	65	14	160	125	95	280	212	14	331	360	498	112	65	
FHE4 65-160/22	65	80	100	200	285	168	65	14	160	125	95	280	212	14	331	360	522	112	73	
FHE4 65-200/15	65	80	100	225	245	134	65	14	180	125	95	320	250	14	335	405	498	112	65	
FHE4 65-200/22	65	80	100	225	285	168	65	14	180	125	95	320	250	14	335	405	522	112	73	
FHE4 65-200/30	65	80	100	225	285	168	65	14	180	125	95	320	250	14	335	405	553	112	75	
FHE4 65-250/30	65	80	100	250	285	168	80	16	200	160	120	360	280	18	360	450	553	112	84	
FHE4 65-250/40	65	80	100	250	315	168	80	16	200	160	120	360	280	18	360	450	598	112	125	
FHE4 65-250/55	65	80	100	250	343	191	80	16	200	160	120	360	280	18	360	450	605	112	130	
FHE4 80-160/15	80	100	125	225	245	134	65	14	180	125	95	320	250	14	332	405	523	129	70	
FHE4 80-160/22	80	100	125	225	285	168	65	14	180	125	95	320	250	14	332	405	547	129	78	
FHE4 80-200/30	80	100	125	250	285	168	65	14	180	125	95	345	280	14	345	430	578	129	89	
FHE4 80-200/40	80	100	125	250	315	168	65	14	180	125	95	345	280	14	345	430	623	129	123	
FHE4 80-250/40	80	100	125	280	315	168	80	16	200	160	120	400	315	18	400	480	623	129	120	
FHE4 80-250/55	80	100	125	280	343	191	80	16	200	160	120	400	315	18	400	480	630	129	125	
FHE4 80-250/75	80	100	125	280	343	191	80	16	200	160	120	400	315	18	400	480	630	129	129	

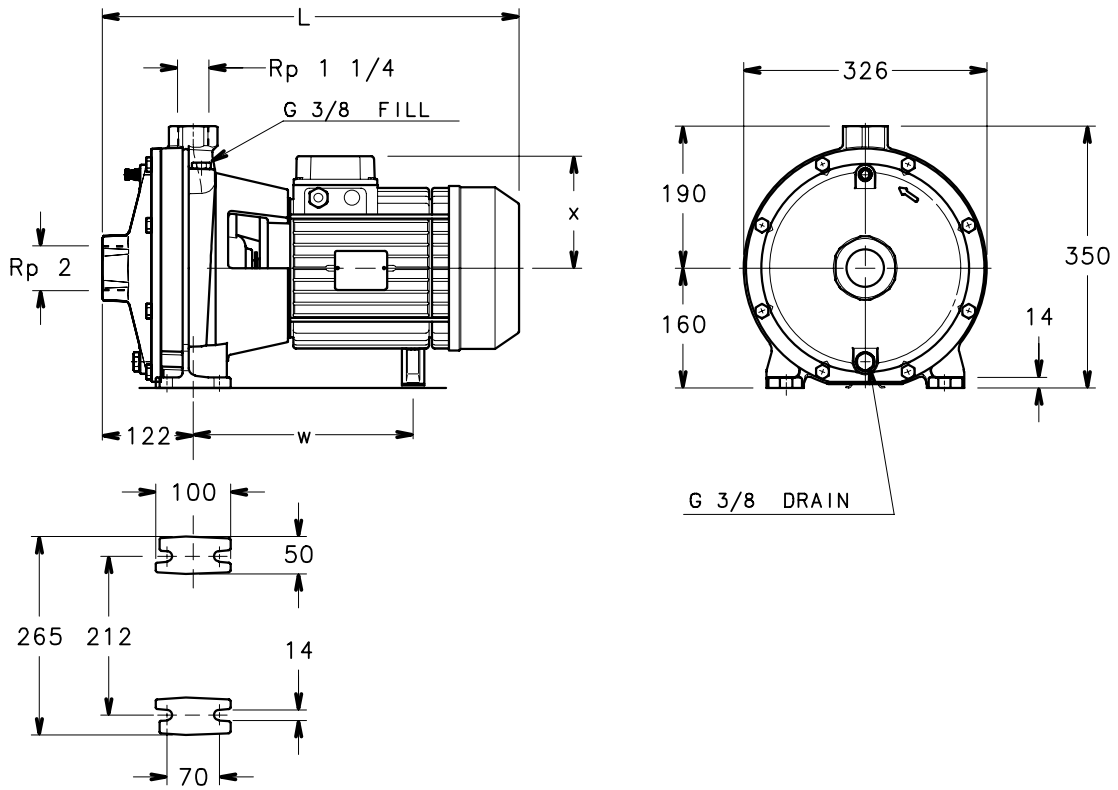
fh-fhe4-4p50-en_c_td



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2FHE SERIES DIMENSIONS AND WEIGHTS



04733D-EN_C_DD

PUMP TYPE	DIMENSIONS (mm)			WEIGHT
	L	w	x	kg
2FHE 32-250/55	572	282	168	74
2FHE 32-250/75	607	323	191	90

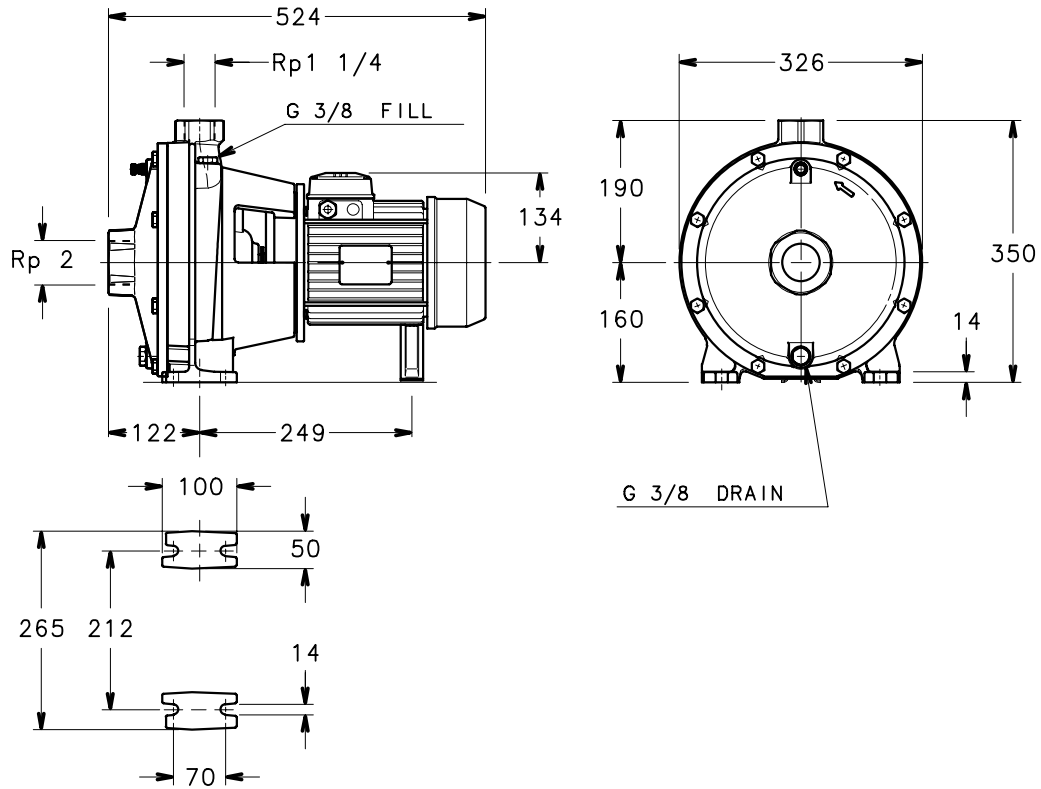
2fhe-2p50-en_b_td



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2FHE4 SERIES DIMENSIONS AND WEIGHTS

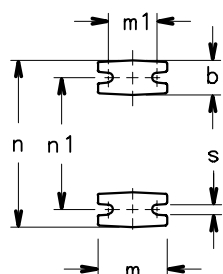
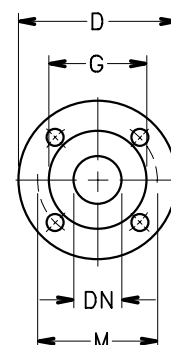
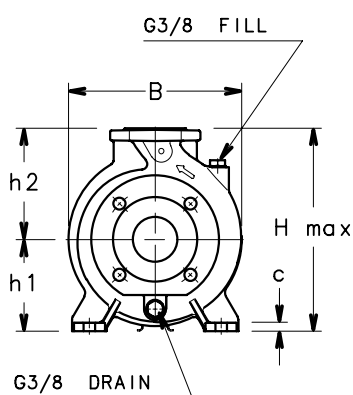
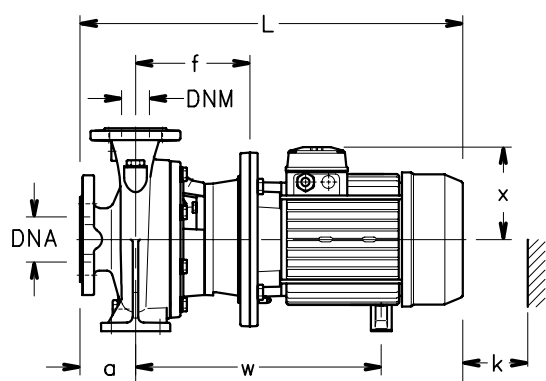


04734D-EN_C_DD

PUMP TYPE	WEIGHT kg
2FHE4 32-250/07	53
2FHE4 32-250/11	55

2fhe4-4p50-en_b_td

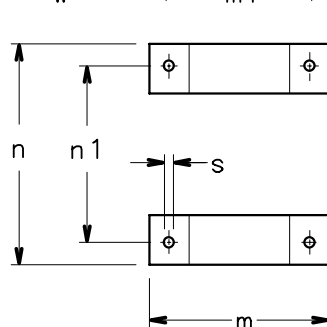
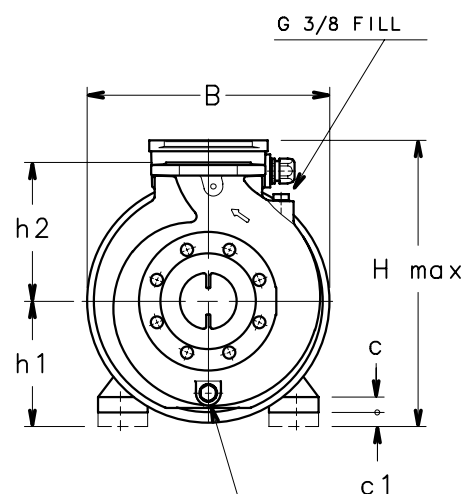
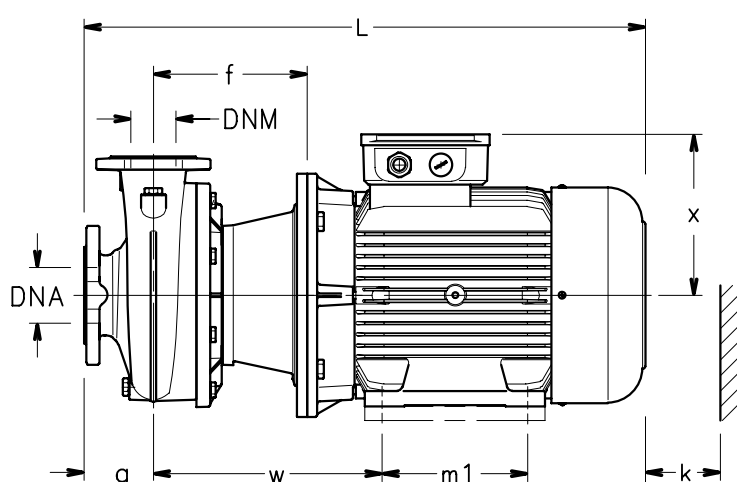
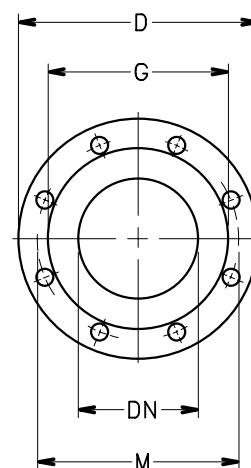
FHS SERIES DIMENSIONS AND WEIGHTS



FHS WITH PUMP STAND
MOTORS UP TO 7.5kW

PUMP FLANGES

DN	D	M	G	HOLES		MAX. THICKNESS
				Nº	DIA.	
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



CLEARANCE FOR DISASSEMBLY

G 3/8 DRAIN

FHS WITH PUMP STAND
MOTORS FROM 11 TO 55kW



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FHS SERIES DIMENSIONS AND WEIGHTS

PUMP TYPE	DIMENSIONS (mm)																B	H	L	k	WEIGHT
	PUMP								STAND												
	DNM	DNA	a	f	h2	w	x	b	c	c1	h1	m	m1	n	n1	s					
FHS 32-125/07	32	50	80	155	140	265	121	50	12	-	112	100	70	190	140	14	233	252	461	86	32
FHS 32-125/11	32	50	80	155	140	290	129	50	12	-	112	100	70	190	140	14	233	252	498	86	34
FHS 32-160/15	32	50	80	155	160	290	129	50	12	-	132	100	70	240	190	14	235	292	498	86	35
FHS 32-160/22	32	50	80	155	160	290	129	50	12	-	132	100	70	240	190	14	235	292	498	86	37
FHS 32-200/30	32	50	80	165	180	310	134	50	12	-	160	100	70	240	190	14	285	340	543	86	55
FHS 32-200/40	32	50	80	165	180	338	154	50	12	-	160	100	70	240	190	14	285	340	564	86	67
FHS 40-125/11	40	65	80	155	140	290	129	50	12	-	112	100	70	210	160	14	233	252	498	88	34
FHS 40-125/15	40	65	80	155	140	290	129	50	12	-	112	100	70	210	160	14	233	252	498	88	36
FHS 40-125/22	40	65	80	155	140	290	129	50	12	-	112	100	70	210	160	14	233	252	498	88	39
FHS 40-160/30	40	65	80	165	160	310	134	50	12	-	132	100	70	240	190	14	250	292	543	88	48
FHS 40-160/40	40	65	80	165	160	338	154	50	12	-	132	100	70	240	190	14	250	292	564	88	60
FHS 40-200/55	40	65	100	192	180	399	168	50	12	-	160	100	70	265	212	14	300	340	667	88	76
FHS 40-200/75	40	65	100	192	180	397	191	50	12	-	160	100	70	265	212	14	300	351	659	88	92
FHS 40-250/110A	40	65	100	222	225	330	240	49	5	20	180	304	210	304	254	15	350	420	816	107	124
FHS 40-250/110	40	65	100	222	225	330	240	49	5	20	180	304	210	304	254	15	350	420	816	107	124
FHS 40-250/150	40	65	100	222	225	330	240	49	5	20	180	304	210	304	254	15	350	420	816	107	138
FHS 50-125/22	50	65	100	157	160	292	129	50	12	-	132	100	70	240	190	14	255	292	520	92	43
FHS 50-125/30	50	65	100	167	160	312	134	50	12	-	132	100	70	240	190	14	255	292	565	92	52
FHS 50-125/40	50	65	100	167	160	340	154	50	12	-	132	100	70	240	190	14	255	292	586	92	61
FHS 50-160/55	50	65	100	194	180	401	168	50	12	-	160	100	70	265	212	14	300	340	669	92	79
FHS 50-160/75	50	65	100	194	180	399	191	50	12	-	160	100	70	265	212	14	300	451	661	92	95
FHS 50-200/110A	50	65	100	224	200	332	240	49	5	20	180	304	210	304	254	15	350	420	818	92	116
FHS 50-200/110	50	65	100	224	200	332	240	49	5	20	180	304	210	304	254	15	350	420	818	92	116
FHS 50-250/150	50	65	100	222	225	330	240	49	5	20	180	304	210	304	254	15	350	420	816	107	138
FHS 50-250/185	50	65	100	222	225	330	240	49	5	20	180	304	254	304	254	15	350	420	816	107	141
FHS 50-250/220	50	65	100	222	225	330	240	49	5	20	180	304	254	304	254	15	350	420	816	107	161
FHS 65-125/40	65	80	100	167	180	340	154	65	14	-	160	125	95	280	212	14	285	340	586	105	75
FHS 65-125/55	65	80	100	194	180	401	168	65	14	-	160	125	95	280	212	14	300	340	669	105	83
FHS 65-125/75	65	80	100	194	180	399	191	65	14	-	160	125	95	280	212	14	300	451	661	105	99
FHS 65-160/110A	65	80	100	222	200	330	240	49	5	20	180	304	210	304	254	15	350	420	816	112	128
FHS 65-160/110	65	80	100	222	200	330	240	49	5	20	180	304	210	304	254	15	350	420	816	112	128
FHS 65-160/150	65	80	100	222	200	330	240	49	5	20	180	304	210	304	254	15	350	420	816	112	142
FHS 65-200/150	65	80	100	222	225	330	240	49	5	20	180	304	210	304	254	15	350	420	816	112	142
FHS 65-200/185	65	80	100	222	225	330	240	49	5	20	180	304	254	304	254	15	350	420	816	112	145
FHS 65-200/220	65	80	100	222	225	330	240	49	5	20	180	304	254	304	254	15	350	420	816	112	165
FHS 65-250/220	65	80	100	222	250	330	240	49	5	40	200	304	254	304	254	15	350	450	816	112	159
FHS 65-250/300	65	80	100	222	250	361	278	60	24	-	200	345	305	360	318	18	400	478	941	112	200
FHS 65-250/370	65	80	100	228	250	361	278	60	24	-	200	345	305	360	318	18	400	478	941	112	218
FHS 80-160/110	80	100	125	222	225	330	240	49	5	20	180	304	210	304	254	15	350	420	841	129	129
FHS 80-160/150	80	100	125	222	225	330	240	49	5	20	180	304	210	304	254	15	350	420	841	129	143
FHS 80-160/185	80	100	125	222	225	330	240	49	5	20	180	304	254	304	254	15	350	420	841	129	152
FHS 80-200/220	80	100	125	222	250	330	240	49	5	20	180	304	254	304	254	15	350	430	841	129	165
FHS 80-200/300	80	100	125	228	250	361	278	60	24	-	200	345	305	360	318	18	400	478	966	129	199
FHS 80-250/370	80	100	125	228	280	361	278	60	24	-	200	345	305	360	318	18	400	480	966	129	213
FHS 80-250/450	80	100	125	228	280	377	298	76	28	-	225	360	311	405	356	18	450	523	1043	129	278
FHS 80-250/550	80	100	125	258	280	426	298	90	28	-	250	406	349	465	406	22	550	548	1073	129	311

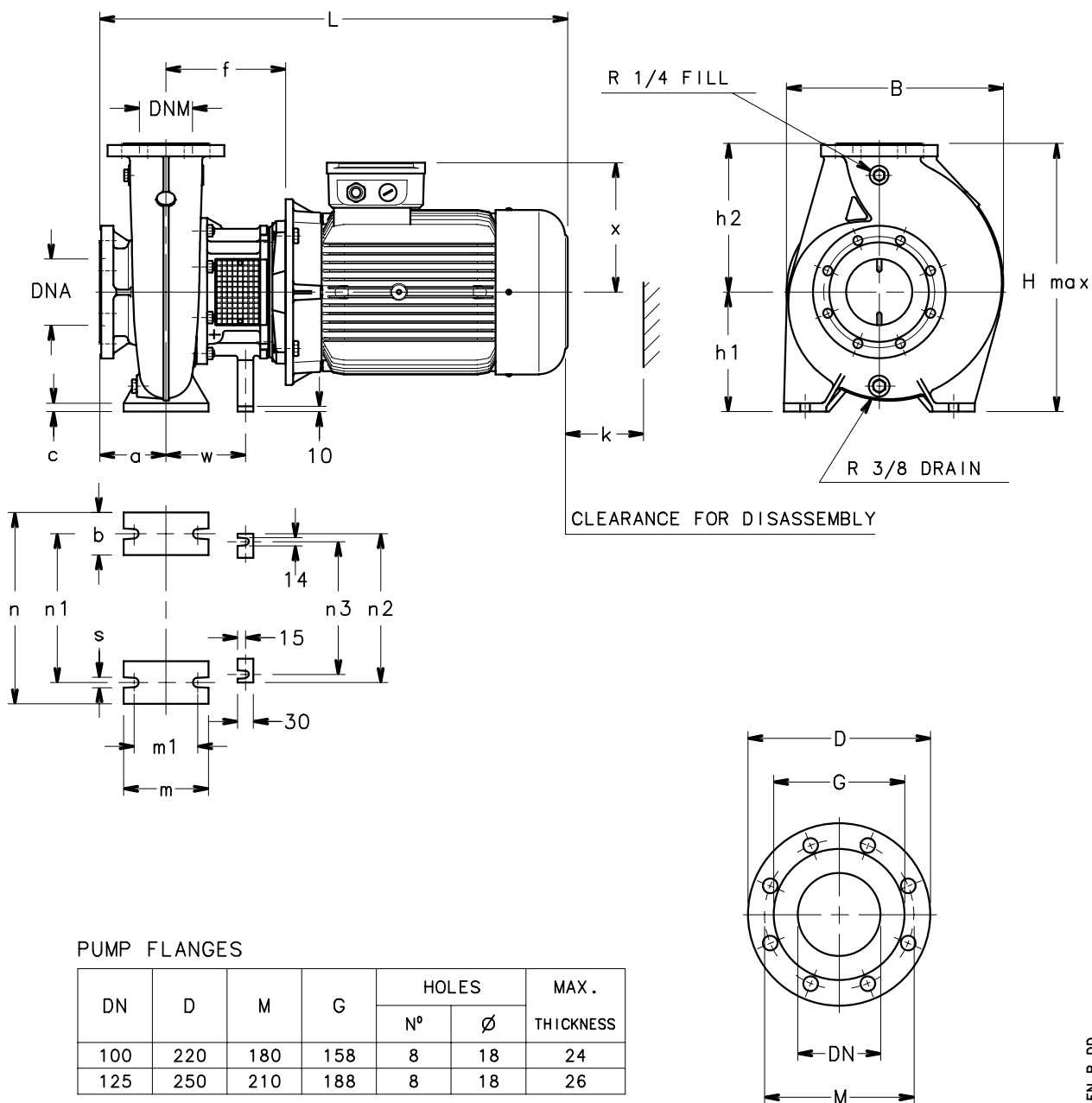
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FHS SERIES DIMENSIONS AND WEIGHTS



04751D-EN_B_DD



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FHS SERIES DIMENSIONS AND WEIGHTS

PUMP TYPE	DIMENSIONS (mm)																	B	H	L	k	WEIGHT
	PUMP							STAND														
	DNM	DNA	a	f	h2	w	x	b	c	h1	m	m1	n	n1	n2	n3	s					
FHS100-160/220	100	125	125	226	280	150	240	80	16	225	160	120	360	280	280	250	18	415	505	845	143	238
FHS100-160/300	100	125	125	231	280	185	278	80	16	225	160	120	360	280	210	180	18	415	505	969	143	348
FHS100-200/300	100	125	125	231	280	185	278	80	18	200	160	120	360	280	210	180	18	385	480	969	153	340
FHS100-200/370	100	125	125	231	280	185	278	80	18	200	160	120	360	280	210	180	18	385	480	969	153	360

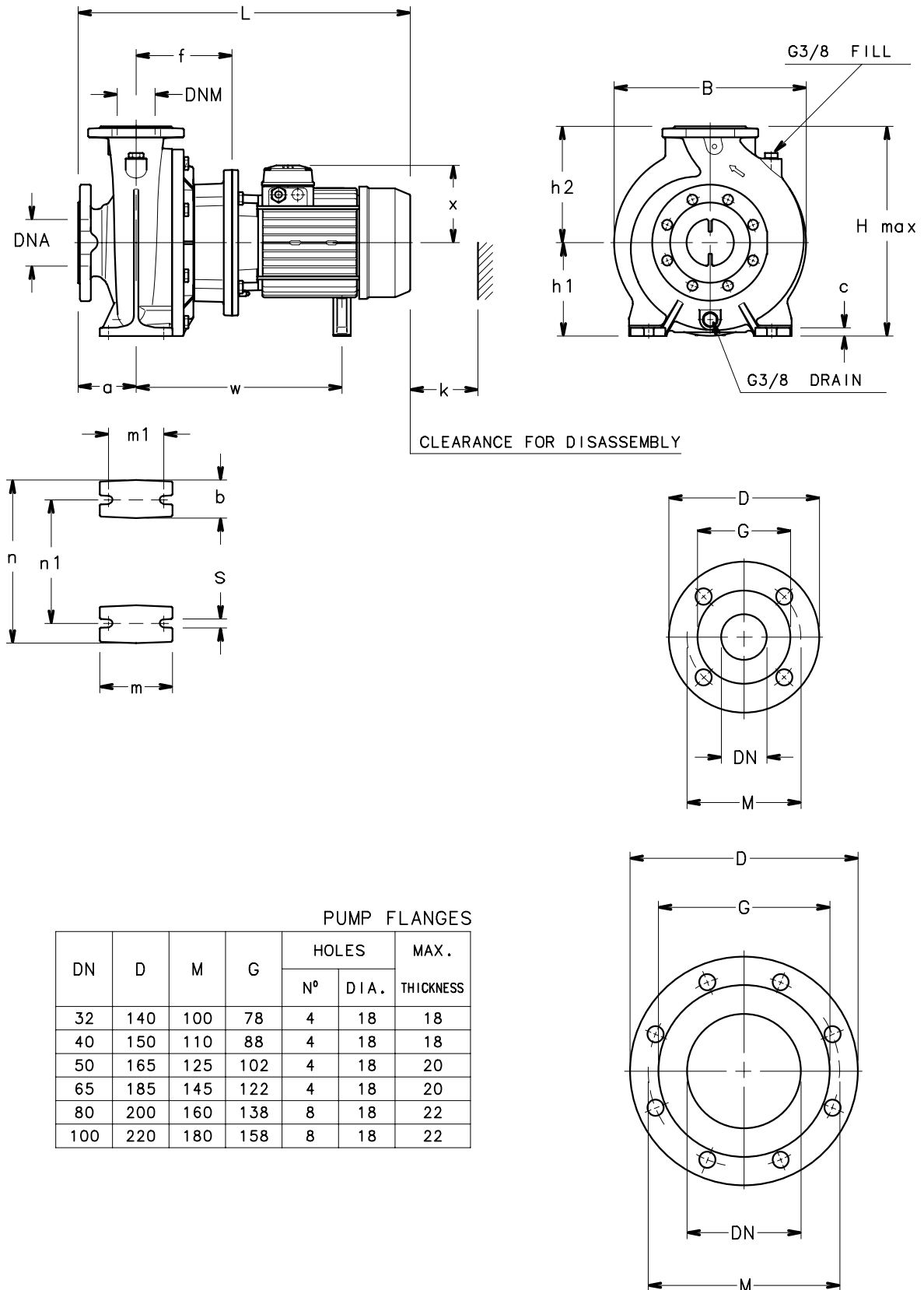
lm-fhs-2p50-en_b_td



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FHS4 SERIES DIMENSIONS AND WEIGHTS



04754D-EN_B_DD



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FHS4 SERIES DIMENSIONS AND WEIGHTS

PUMP TYPE	DIMENSIONS (mm)															B	H	L	k	WEIGHT
	PUMP							STAND												
	DNM	DNA	a	f	h2	w	x	b	c	h1	m	m1	n	n1	s					max
FHS4 40-200/07	40	65	100	155	180	290	129	50	12	160	100	70	265	212	14	285	340	518	88	44
FHS4 40-200/11	40	65	100	155	180	300	134	50	12	160	100	70	265	212	14	285	340	550	88	53
FHS4 40-250/11	40	65	100	155	225	300	134	65	14	180	125	95	320	250	14	335	405	550	107	63
FHS4 40-250/15	40	65	100	155	225	300	134	65	14	180	125	95	320	250	14	335	405	550	107	66
FHS4 40-250/22	40	65	100	165	225	350	168	65	14	180	125	95	320	250	14	335	405	587	107	75
FHS4 50-160/07	50	65	100	157	180	292	129	50	12	160	100	70	265	212	14	285	340	520	92	47
FHS4 50-160/11	50	65	100	157	180	302	134	50	12	160	100	70	265	212	14	285	340	555	92	56
FHS4 50-200/11	50	65	100	157	200	302	134	50	12	160	100	70	265	212	14	305	360	555	92	56
FHS4 50-200/15	50	65	100	157	200	302	134	50	12	160	100	70	265	212	14	305	360	555	92	59
FHS4 50-250/22A	50	65	100	165	225	320	168	65	14	180	125	95	320	250	14	340	405	587	107	75
FHS4 50-250/22	50	65	100	165	225	320	168	65	14	180	125	95	320	250	14	340	405	587	107	75
FHS4 50-250/30	50	65	100	165	225	320	168	65	14	180	125	95	320	250	14	340	405	618	107	78
FHS4 65-125/05	65	80	100	157	180	292	129	65	14	160	125	95	280	212	14	285	340	520	105	51
FHS4 65-125/07	65	80	100	157	180	292	129	65	14	160	125	95	280	212	14	285	340	520	105	53
FHS4 65-125/11	65	80	100	157	180	302	134	65	14	160	125	95	280	212	14	285	340	555	105	60
FHS4 65-160/11	65	80	100	155	200	300	134	65	14	160	125	95	280	212	14	331	360	553	112	67
FHS4 65-160/15	65	80	100	155	200	300	134	65	14	160	125	95	280	212	14	331	360	553	112	70
FHS4 65-160/22	65	80	100	165	200	350	168	65	14	160	125	95	280	212	14	331	360	587	112	79
FHS4 65-200/15	65	80	100	155	225	300	134	65	14	180	125	95	320	250	14	335	405	553	112	70
FHS4 65-200/22	65	80	100	165	225	350	168	65	14	180	125	95	320	250	14	335	405	587	112	79
FHS4 65-200/30	65	80	100	165	225	350	168	65	14	180	125	95	320	250	14	335	405	618	112	82
FHS4 65-250/30	65	80	100	165	250	350	168	80	16	200	160	120	360	280	18	360	450	618	112	88
FHS4 65-250/40	65	80	100	165	250	380	168	80	16	200	160	120	360	280	18	360	450	663	112	121
FHS4 65-250/55	65	80	100	192	250	435	191	80	16	200	160	120	360	280	18	360	450	697	112	123
FHS4 80-160/15	80	100	125	155	225	300	134	65	14	180	125	95	320	250	14	332	405	578	129	77
FHS4 80-160/22	80	100	125	165	225	350	168	65	14	180	125	95	320	250	14	332	405	612	129	85
FHS4 80-200/30	80	100	125	165	250	350	168	65	14	180	125	95	345	280	14	345	430	643	129	91
FHS4 80-200/40	80	100	125	165	250	380	168	65	14	180	125	95	345	280	14	345	430	688	129	124
FHS4 80-250/40	80	100	125	165	280	380	168	80	16	200	160	120	400	315	18	400	480	688	129	130
FHS4 80-250/55	80	100	125	192	280	435	191	80	16	200	160	120	400	315	18	400	480	722	129	132
FHS4 80-250/75	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.

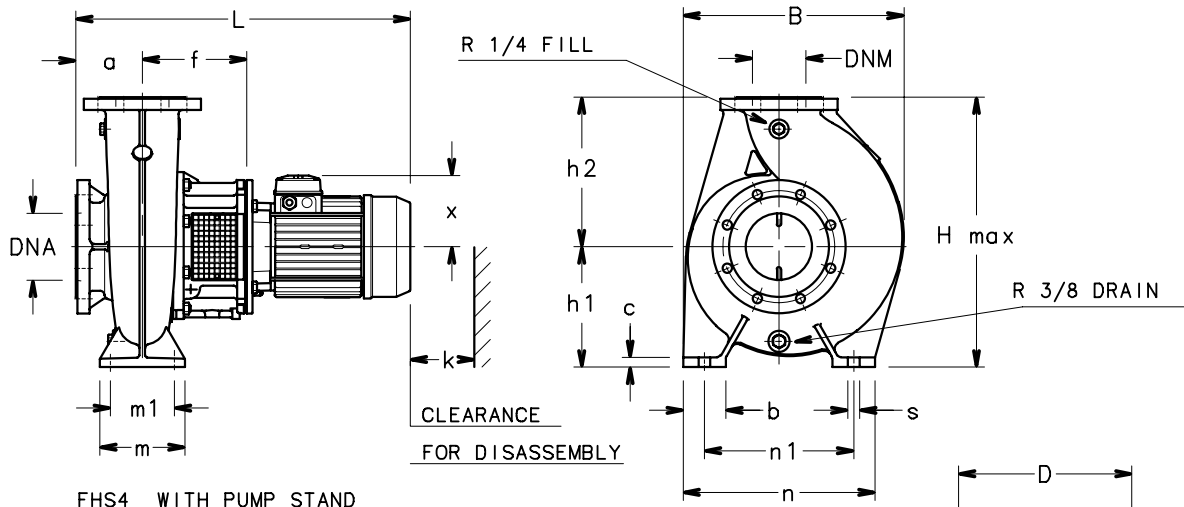
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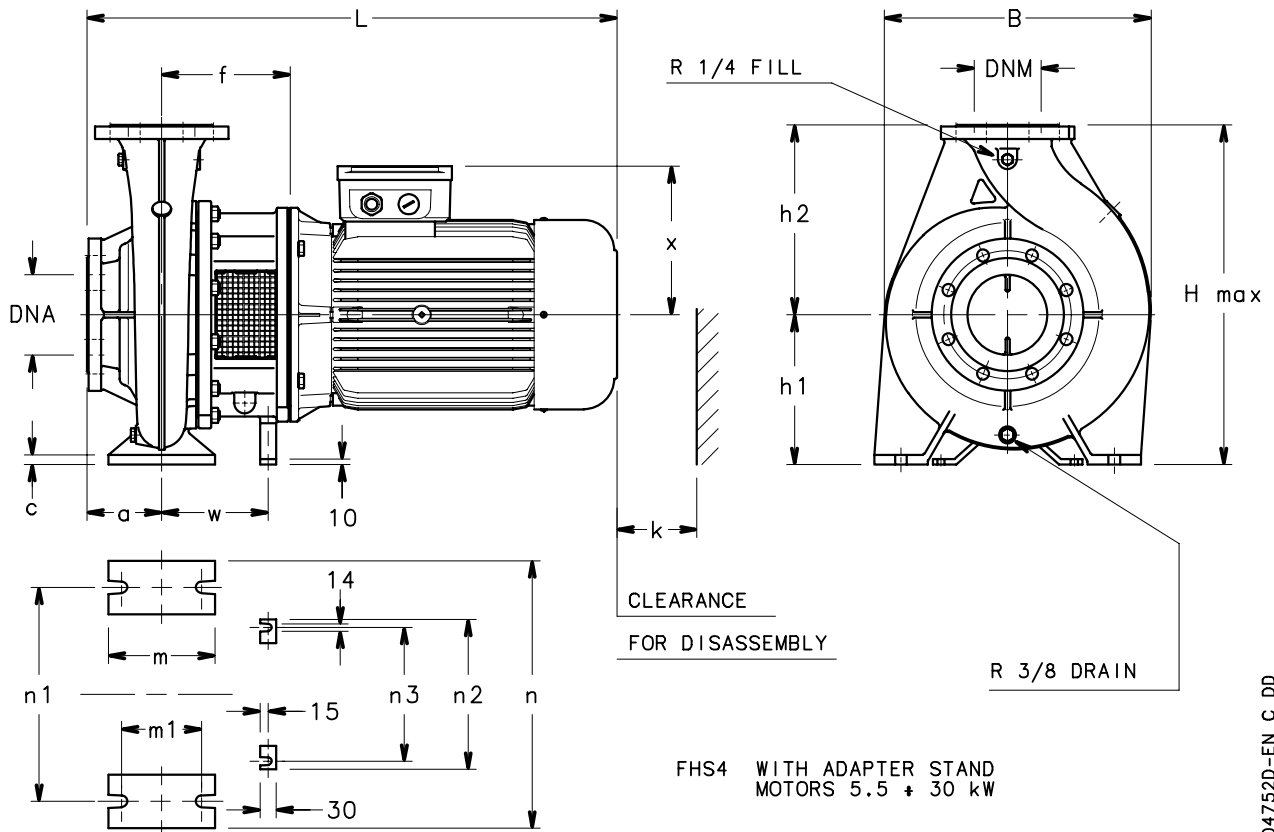
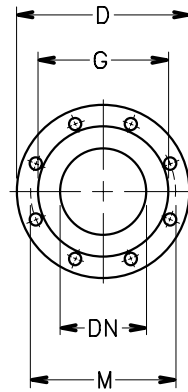
FHS4 SERIES DIMENSIONS AND WEIGHTS



FHS4 WITH PUMP STAND
MOTORS 3 + 4 kW

PUMP FLANGES

DN	D	M	G	HOLES		MAX. THICKNESS
				Nº	DIA.	
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

FHS4 SERIES

DIMENSIONS AND WEIGHTS

PUMP TYPE	DIMENSIONS (mm)																		B	H	L	k	WEIGHT
	PUMP							STAND															
	DNM	DNA	a	f	h2	w	x	b	c	h1	m	m1	n	n1	n2	n3	s						
																		max			kg		
FHS4 65-315/75	65	80	125	196	280	150	191	80	14	225	160	120	400	315	210	180	18	434	505	726	160	181	
FHS4 65-315/110	65	80	125	226	280	150	240	80	14	225	160	120	400	315	210	180	18	434	505	845	160	263	
FHS4 80-315/110	80	100	125	226	315	150	240	80	16	250	160	120	400	315	210	180	18	450	565	845	160	269	
FHS4 80-315/150	80	100	125	226	315	150	240	80	16	250	160	120	400	315	210	180	18	450	565	845	160	278	
FHS4 100-160/30	100	125	125	196	280	-	168	80	16	225	160	120	360	280	-	-	19	415	505	674	143	119	
FHS4 100-200/40	100	125	125	196	280	-	168	80	18	200	160	120	360	280	-	-	19	385	480	719	153	126	
FHS4 100-200/55	100	125	125	196	280	150	191	80	18	200	160	120	360	280	210	180	18	385	480	726	153	150	
FHS4 100-250/75	100	125	140	196	280	150	191	80	16	225	160	120	400	315	210	180	18	425	505	741	150	184	
FHS4 100-250/110	100	125	140	226	280	150	240	80	16	225	160	120	400	315	210	180	18	425	505	860	150	266	
FHS4 100-315/150	100	125	140	226	315	150	240	80	16	250	160	120	400	315	210	180	18	486	565	860	160	287	
FHS4 100-315/185	100	125	140	226	315	150	258	80	16	250	160	120	400	315	210	180	18	486	565	904	160	282	
FHS4 100-315/220	100	125	140	226	315	150	278	80	16	250	160	120	400	315	210	180	18	486	565	979	160	292	
FHS4 125-200/55	125	150	140	211	315	165	191	80	16	250	160	120	400	315	280	250	18	469	565	756	160	181	
FHS4 125-200/75	125	150	140	211	315	165	191	80	16	250	160	120	400	315	280	250	18	469	565	756	160	186	
FHS4 125-250/110	125	150	140	226	355	150	240	80	16	250	160	120	400	315	280	250	18	493	605	860	158	268	
FHS4 125-250/150	125	150	140	226	355	150	240	80	16	250	160	120	400	315	280	250	18	493	605	860	158	277	
FHS4 125-250/185	125	150	140	226	355	150	258	80	16	250	160	120	400	315	280	250	18	493	605	904	158	273	
FHS4 125-315/220	125	150	140	241	355	200	278	100	18	280	200	150	500	400	280	250	22	520	635	994	171	344	
FHS4 125-315/300	125	150	140	241	355	200	278	100	18	280	200	150	500	400	280	250	22	520	635	994	171	429	
FHS4 150-250/150	150	200	160	246	375	200	240	100	18	280	200	150	500	400	280	250	22	550	655	900	181	340	
FHS4 150-250/185	150	200	160	246	375	200	258	100	18	280	200	150	500	400	280	250	22	550	655	944	181	335	
FHS4 150-250/220	150	200	160	246	375	200	278	100	18	280	200	150	500	400	280	250	22	550	655	1019	181	345	
FHS4 150-250/300	150	200	160	246	375	200	278	100	18	280	200	150	500	400	280	250	22	550	655	1019	181	430	
FHS4 150-315/300	150	200	160	241	400	200	278	100	18	280	200	150	550	450	280	250	22	587	680	1014	186	448	

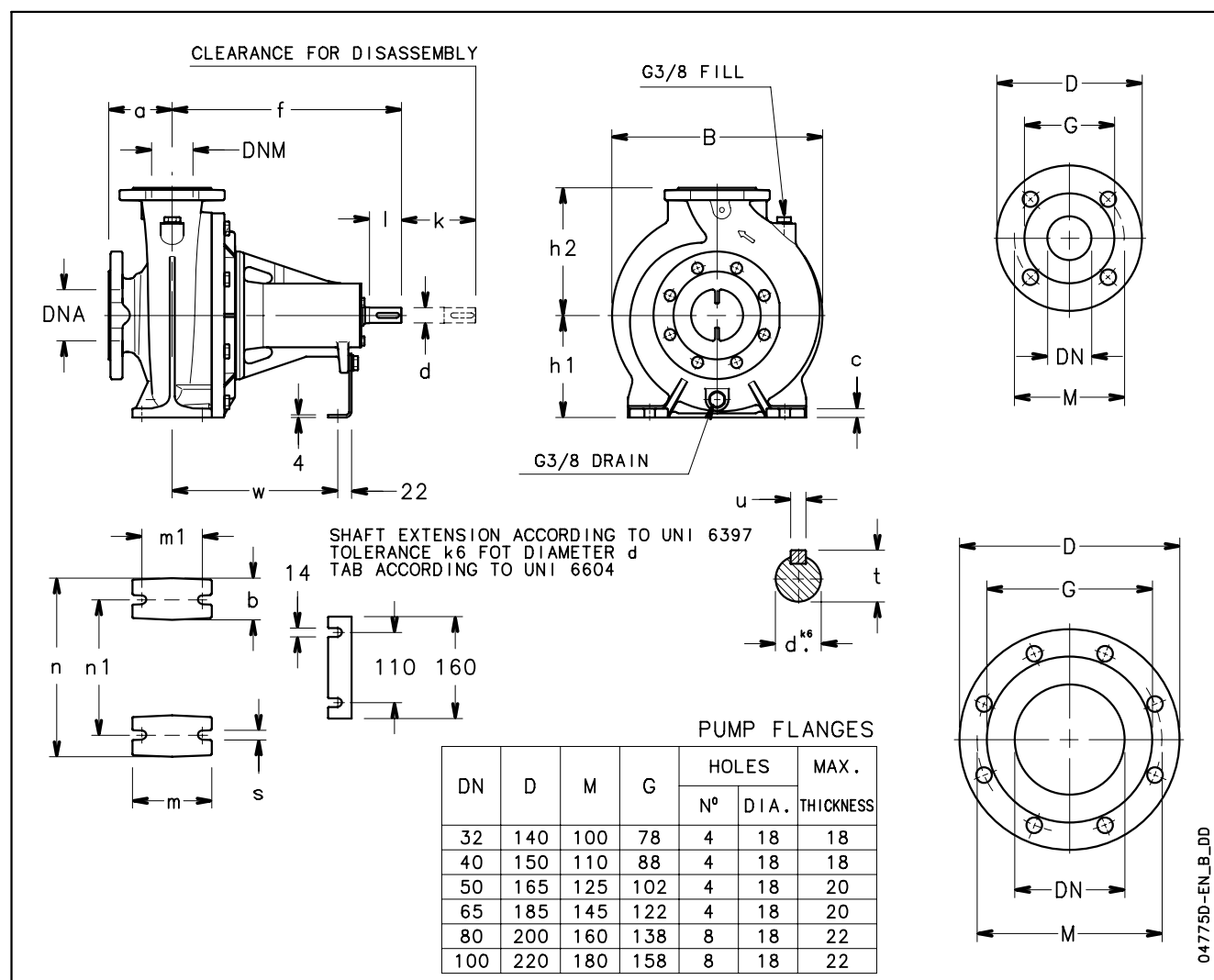
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FHF SERIES BARE SHAFT DIMENSIONS AND WEIGHTS



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 65-315 consult table on following page.

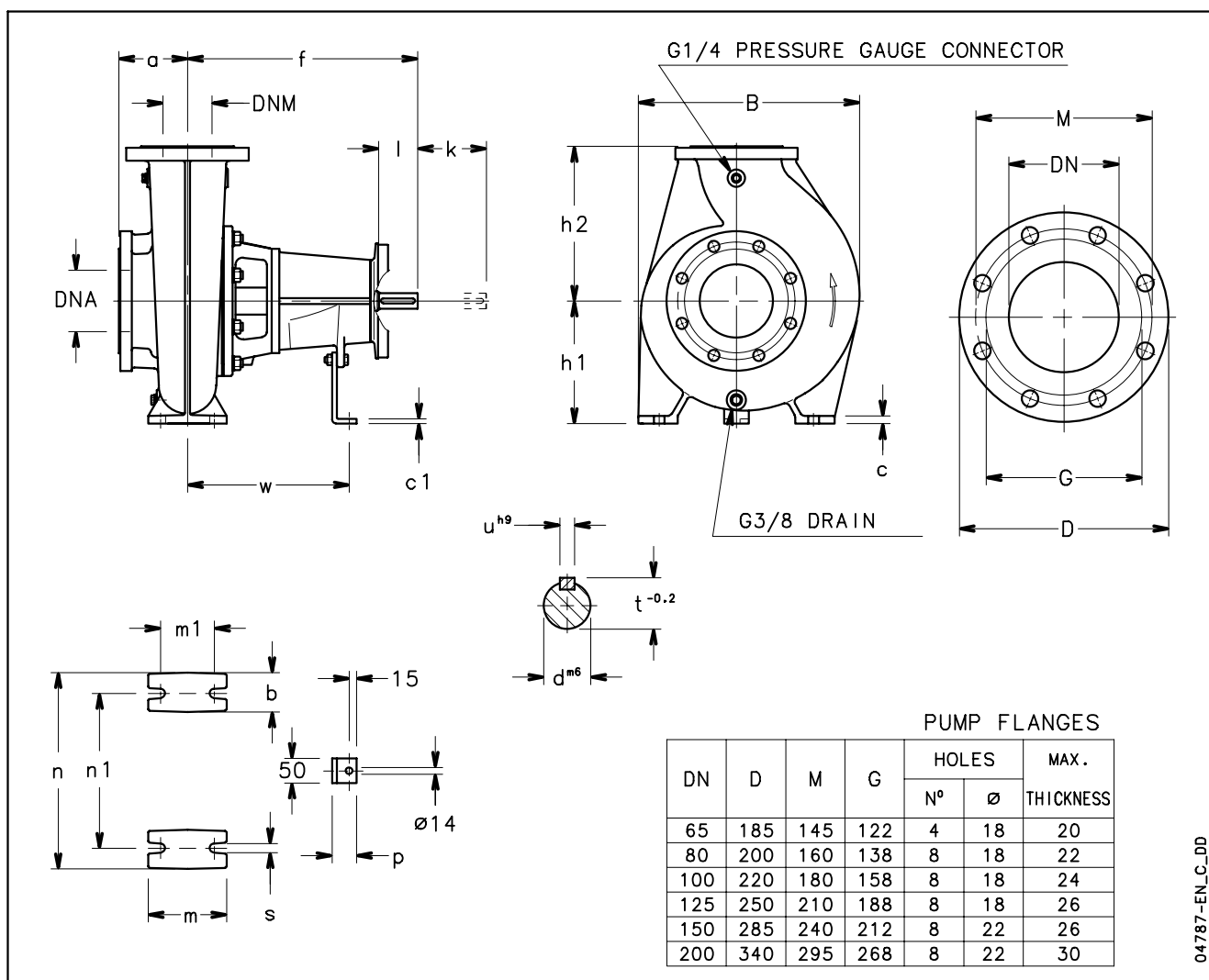
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FHF SERIES BARE SHAFT DIMENSIONS AND WEIGHTS



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	
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 125-270	125	150	140	530	250	355	140	474	80	18	6	160	120	400	315	18	41	360	42	110	45	12	132
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

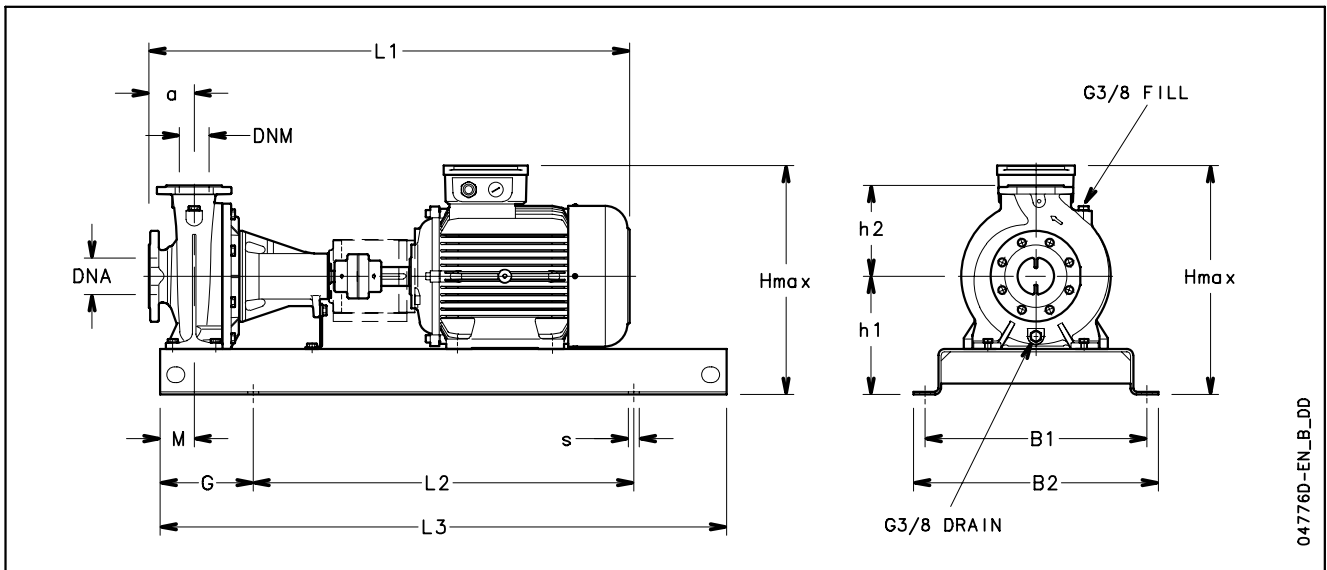
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FHF SERIES MOUNTED ON BASE DIMENSIONS AND WEIGHTS



FHF SERIES MOUNTED ON BASE

DIMENSIONS AND WEIGHTS

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 32-125/07	32	50	80	320	360	746	540	800	130	60	212	140	352	M16	67	A2
FHF 32-125/11	32	50	80	320	360	746	540	800	130	60	212	140	352	M16	69	A2
FHF 32-160/15	32	50	80	350	390	791	600	900	150	60	232	160	392	M16	75	A3
FHF 32-160/22	32	50	80	350	390	791	600	900	150	60	232	160	392	M16	77	A3
FHF 32-200/30	32	50	80	350	390	822	600	900	150	60	260	180	440	M16	97	B1
FHF 32-200/40	32	50	80	350	390	825	600	900	150	60	260	180	440	M16	99	B1
FHF 40-125/11	40	65	80	350	390	746	600	900	150	60	212	140	352	M16	72	A2
FHF 40-125/15	40	65	80	350	390	791	600	900	150	60	212	140	352	M16	78	A3
FHF 40-125/22	40	65	80	350	390	791	600	900	150	60	212	140	352	M16	81	A3
FHF 40-160/30	40	65	80	350	390	822	600	900	150	60	232	160	392	M16	96	B1
FHF 40-160/40	40	65	80	350	390	825	600	900	150	60	232	160	400	M16	100	B1
FHF 40-200/55	40	65	100	400	450	910	660	1000	170	60	260	180	451	M20	127	C1
FHF 40-200/75	40	65	100	400	450	910	660	1000	170	60	260	180	451	M20	132	C1
FHF 40-250/110A	40	65	100	490	540	1067	840	1250	205	75	280	225	520	M20	183	C2
FHF 40-250/110	40	65	100	490	540	1067	840	1250	205	75	280	225	520	M20	183	C2
FHF 40-250/150	40	65	100	490	540	1067	840	1250	205	75	280	225	520	M20	193	C2
FHF 50-125/22	50	65	100	350	390	811	600	900	150	60	232	160	392	M16	89	A3
FHF 50-125/30	50	65	100	350	390	842	600	900	150	60	232	160	392	M16	97	B1
FHF 50-125/40	50	65	100	350	390	845	600	900	150	60	232	160	400	M16	100	B1
FHF 50-160/55	50	65	100	400	450	910	660	1000	170	60	260	180	451	M20	126	C1
FHF 50-160/75	50	65	100	400	450	910	660	1000	170	60	260	180	451	M20	130	C1
FHF 50-200/110A	50	65	100	440	490	1067	740	1120	190	60	260	200	500	M20	178	C2
FHF 50-200/110	50	65	100	440	490	1067	740	1120	190	60	260	200	500	M20	178	C2
FHF 50-250/150	50	65	100	490	540	1067	840	1250	205	75	280	225	520	M20	184	C2
FHF 50-250/185	50	65	100	490	540	1067	840	1250	205	75	280	225	520	M20	195	C2
FHF 50-250/220	50	65	100	490	540	1111	840	1250	205	75	280	225	538	M20	219	D1
FHF 65-125/40	65	80	100	350	390	845	600	900	150	75	260	180	440	M16	138	B1
FHF 65-125/55	65	80	100	400	450	910	660	1000	170	75	260	180	451	M20	156	C1
FHF 65-125/75	65	80	100	400	450	910	660	1000	170	75	260	180	451	M20	160	C1
FHF 65-160/110A	65	80	100	490	540	1067	840	1250	205	75	260	200	500	M20	169	C2
FHF 65-160/110	65	80	100	490	540	1067	840	1250	205	75	260	200	500	M20	169	C2
FHF 65-160/150	65	80	100	490	540	1067	840	1250	205	75	260	200	500	M20	185	C2
FHF 65-200/150	65	80	100	490	540	1067	840	1250	205	75	280	225	520	M20	192	C2
FHF 65-200/185	65	80	100	490	540	1067	840	1250	205	75	280	225	520	M20	200	C2
FHF 65-200/220	65	80	100	490	540	1111	840	1250	205	75	280	225	538	M20	215	D1
FHF 65-250/220	65	80	100	490	540	1221	840	1250	205	90	310	250	568	M20	223	D2
FHF 65-250/300	65	80	100	550	610	1296	940	1400	230	90	310	250	588	M24	300	E1
FHF 65-250/370	65	80	100	550	610	1296	940	1400	230	90	310	250	588	M24	315	E1
FHF 80-160/110	80	100	125	490	540	1092	840	1250	205	75	280	225	520	M20	207	C2
FHF 80-160/150	80	100	125	490	540	1092	840	1250	205	75	280	225	520	M20	217	C2
FHF 80-160/185	80	100	125	490	540	1092	840	1250	205	75	280	225	520	M20	228	C2
FHF 80-200/220	80	100	125	490	540	1246	840	1250	205	75	280	250	538	M20	245	D2
FHF 80-200/300	80	100	125	550	610	1321	940	1400	230	75	310	250	588	M24	285	E1
FHF 80-250/370	80	100	125	550	610	1321	940	1400	230	90	310	280	588	M24	305	E1
FHF 80-250/450	80	100	125	550	610	1398	940	1400	230	90	365	280	663	M24	365	E1
FHF 80-250/550	80	100	125	600	660	1428	1060	1600	270	90	390	280	688	M24	400	F1

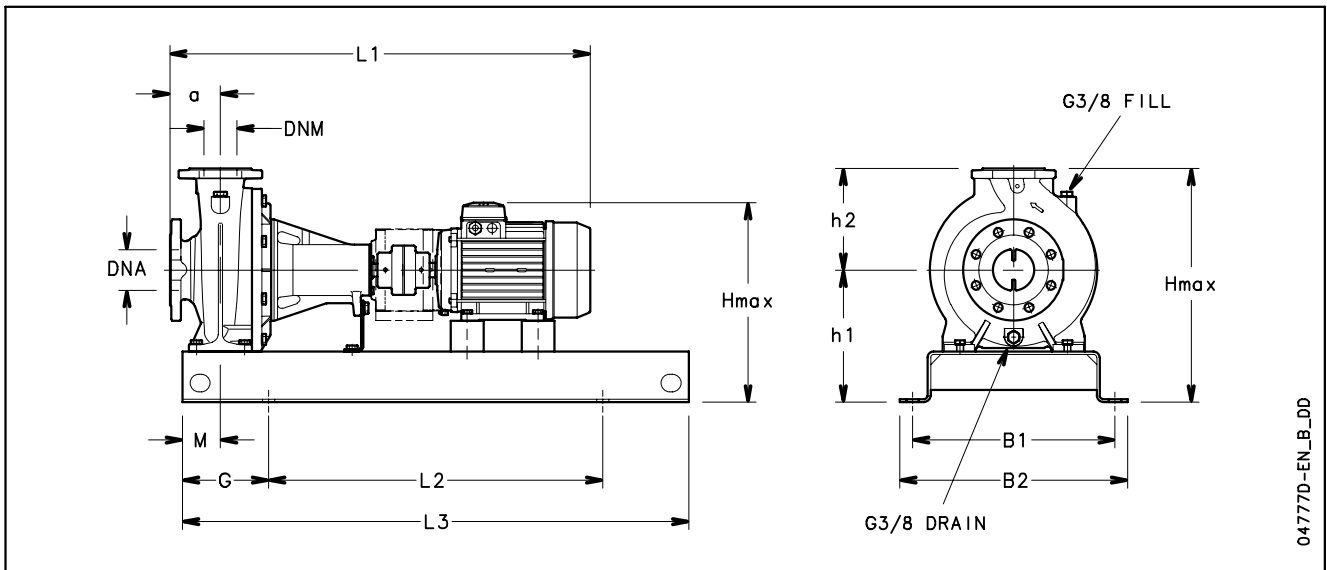
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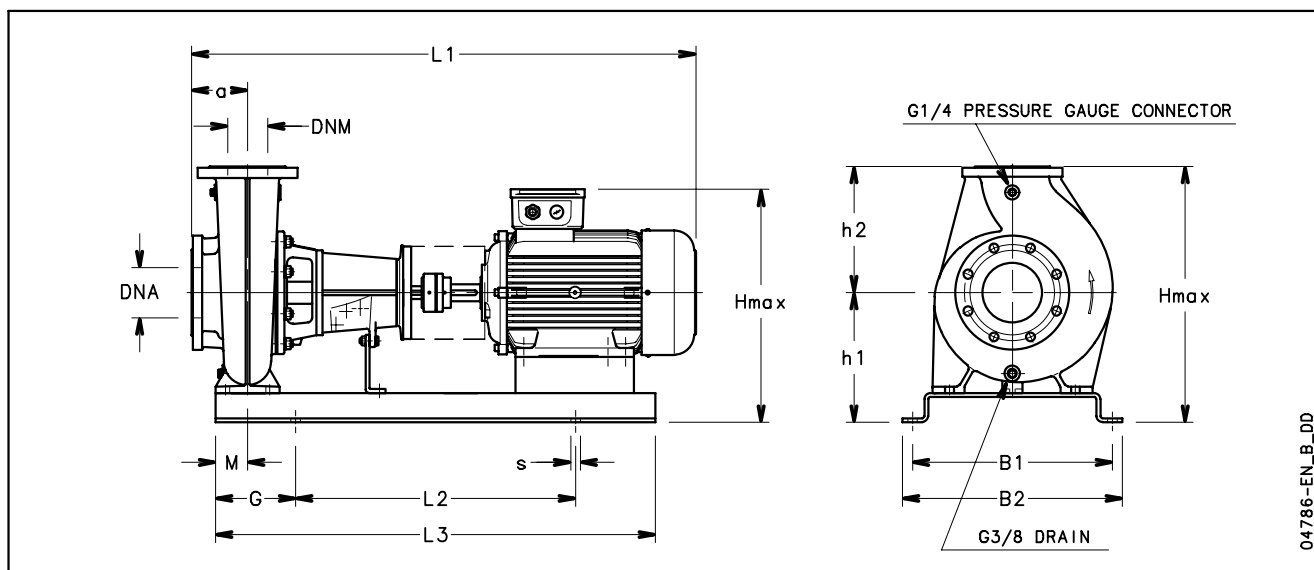
FHF4 SERIES MOUNTED ON BASE DIMENSIONS AND WEIGHTS



FHF4 SERIES MOUNTED ON BASE DIMENSIONS AND WEIGHTS

PUMP TYPE	DIMENSIONS (mm)													S FOR	WEIGHT kg	COUPLING TYPE
	PUMP						STAND									
	DNM	DNA	a	B1	B2	L1	L2	L3	G	M	h1	h2	Hmax	SCREWS		
FHF4 32-125/02A	32	50	80	320	360	704	540	800	130	60	212	140	352	M16	74	A1
FHF4 32-125/02	32	50	80	320	360	704	540	800	130	60	212	140	352	M16	74	A1
FHF4 32-160/02	32	50	80	320	360	704	540	800	130	60	232	160	392	M16	76	A1
FHF4 32-160/03	32	50	80	320	360	704	540	800	130	60	232	160	392	M16	78	A1
FHFE4 32-200/03	32	50	80	320	360	704	540	800	130	60	260	180	440	M16	80	A1
FHF4 32-200/05	32	50	80	320	360	746	540	800	130	60	260	180	440	M16	82	A2
FHF4 40-125/02A	40	65	80	320	360	704	540	800	130	60	212	140	352	M16	61	A1
FHF4 40-125/02	40	65	80	320	360	704	540	800	130	60	212	140	352	M16	61	A1
FHF4 40-125/03	40	65	80	320	360	704	540	800	130	60	212	140	352	M16	64	A1
FHF4 40-160/03	40	65	80	320	360	704	540	800	130	60	232	160	392	M16	65	A1
FHF4 40-160/05	40	65	80	320	360	746	540	800	130	60	232	160	392	M16	66	A2
FHF4 40-200/07	40	65	100	350	390	766	600	900	150	60	260	180	440	M16	73	A2
FHF4 40-200/11	40	65	100	350	390	811	600	900	150	60	260	180	440	M16	82	A3
FHF4 40-250/11	40	65	100	400	450	811	660	1000	170	75	280	225	505	M20	109	A3
FHF4 40-250/15	40	65	100	400	450	811	660	1000	170	75	280	225	505	M20	112	A3
FHF4 40-250/22	40	65	100	400	450	888	660	1000	170	75	280	225	505	M20	135	B1
FHF4 50-125/03A	50	65	100	320	360	724	540	800	130	60	232	160	392	M16	64	A1
FHF4 50-125/03	50	65	100	320	360	724	540	800	130	60	232	160	392	M16	64	A1
FHF4 50-125/05	50	65	100	320	360	766	540	800	130	60	232	160	392	M16	66	A2
FHF4 50-160/07	50	65	100	350	390	766	600	900	150	60	260	180	440	M16	73	A2
FHF4 50-160/11	50	65	100	350	390	811	600	900	150	60	260	180	440	M16	82	A3
FHF4 50-200/11	50	65	100	350	390	811	600	900	150	60	260	200	460	M16	93	A3
FHF4 50-200/15	50	65	100	350	390	811	600	900	150	60	260	200	460	M16	96	A3
FHF4 50-250/22A	50	65	100	400	450	888	660	1000	170	75	280	225	505	M20	137	B1
FHF4 50-250/22	50	65	100	400	450	888	660	1000	170	75	280	225	505	M20	137	B1
FHF4 50-250/30	50	65	100	400	450	888	660	1000	170	75	280	225	505	M20	141	B1
FHF4 65-125/05	65	80	100	350	390	766	600	900	150	75	260	180	440	M16	90	A2
FHF4 65-125/07	65	80	100	350	390	766	600	900	150	75	260	180	440	M16	91	A2
FHF4 65-125/11	65	80	100	350	390	811	600	900	150	75	260	180	440	M16	101	A3
FHF4 65-160/11	65	80	100	400	450	811	660	1000	170	75	260	200	460	M20	106	A3
FHF4 65-160/15	65	80	100	400	450	811	660	1000	170	75	260	200	460	M20	116	A3
FHF4 65-160/22	65	80	100	400	450	888	660	1000	170	75	260	200	460	M20	135	B1
FHF4 65-200/15	65	80	100	400	450	811	660	1000	170	75	280	225	505	M20	118	A3
FHF4 65-200/22	65	80	100	440	490	888	740	1120	190	75	280	225	505	M20	139	B1
FHF4 65-200/30	65	80	100	440	490	888	740	1120	190	75	280	225	505	M20	142	B1
FHF4 65-250/30	65	80	100	440	490	998	740	1120	190	90	310	250	550	M20	166	C3
FHF4 65-250/40	65	80	100	440	490	1031	740	1120	190	90	310	250	550	M20	182	C3
FHF4 65-250/55	65	80	100	440	490	1058	740	1120	190	90	310	250	550	M20	199	C4
FHF4 80-160/15	80	100	125	400	450	836	660	1000	170	75	280	225	505	M20	136	A3
FHF4 80-160/22	80	100	125	440	490	913	740	1120	190	75	280	225	505	M20	152	B1
FHF4 80-200/30	80	100	125	440	490	1023	740	1120	190	75	280	250	530	M20	171	C3
FHF4 80-200/40	80	100	125	440	490	1056	740	1120	190	75	280	250	530	M20	179	C3
FHF4 80-250/40	80	100	125	490	540	1056	840	1250	205	90	310	280	580	M20	185	C3
FHF4 80-250/55	80	100	125	490	540	1083	840	1250	205	90	310	280	580	M20	199	C4
FHF4 80-250/75	80	100	125	490	540	1083	840	1250	205	90	310	280	580	M20	206	C4

FHF-FHF4 SERIES MOUNTED ON BASE DIMENSIONS AND WEIGHTS



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FHF SERIES MOUNTED ON BASE DIMENSIONS AND WEIGHTS

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 100-160/185	100	125	125	500	550	1203	700	1100	200	90	298	280	578	M20	239	C5
FHF 100-160/220	100	125	125	500	550	1247	830	1270	220	90	298	280	578	M20	228	D2
FHF 100-160/300	100	125	125	500	550	1322	830	1270	220	90	298	280	578	M20	260	E1
FHF 100-200/185	100	125	125	500	550	1203	700	1100	200	90	273	280	553	M20	246	C5
FHF 100-200/300	100	125	125	500	550	1322	830	1270	220	90	273	280	553	M20	265	E1
FHF 100-200/370	100	125	125	500	550	1322	830	1270	220	90	273	280	553	M20	283	E1
FHF 100-200/450	100	125	125	610	670	1399	940	1450	240	90	318	280	616	M24	394	E1
FHF 100-250/300	100	125	140	500	550	1337	830	1270	200	90	298	280	578	M20	287	E1
FHF 100-250/450	100	125	140	500	550	1414	830	1270	220	90	298	280	596	M20	360	E1
FHF 100-250/550	100	125	140	610	670	1444	940	1450	240	90	343	280	641	M24	427	F1
FHF 100-250/750	100	125	140	680	740	1573	1050	1570	260	90	373	280	733	M24	561	G1
FHF 100-250/900	100	125	140	680	740	1573	1050	1570	260	90	373	280	733	M24	604	G1
FHF 125-200/300	125	150	140	500	550	1397	830	1270	220	90	323	315	638	M20	312	E2
FHF 125-200/450	125	150	140	610	670	1474	940	1450	240	90	343	315	638	M24	431	E2
FHF 125-200/550	125	150	140	610	670	1504	940	1450	240	90	343	315	658	M24	437	F2
FHF 125-270/750	125	150	140	700	750	1633	600+600	1600	200	90	423	355	783	M20	650	G2
FHF 125-270/900	125	150	140	700	750	1633	600+600	1600	200	90	423	355	783	M20	693	G2
FHF 125-270/1100	125	150	140	820	870	1776	600+600	1600	200	90	478	355	928	M20	1053	G2
FHF 125-270/1320	125	150	140	820	870	1776	600+600	1600	200	90	478	355	928	M20	1058	G2

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FHF4 SERIES MOUNTED ON BASE DIMENSIONS AND WEIGHTS

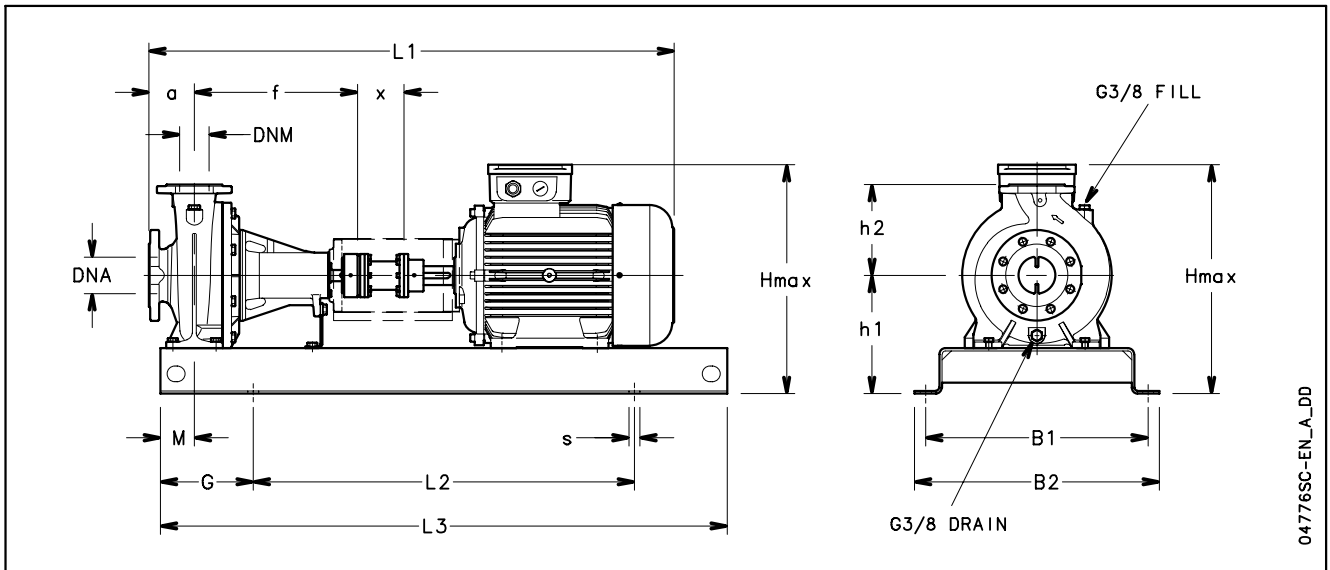
PUMP TYPE	DIMENSIONS (mm)														S FOR	WEIGHT kg	COUPLING TYPE
	DNM	DNA	a	B1	B2	L1	L2	L3	G	M	h1	h2	Hmax	SCREWS			
FHF4 65-315/40	65	80	125	500	550	1057	660	1020	180	90	298	280	578	M20		208	C3
FHF4 65-315/55	65	80	125	500	550	1084	660	1020	180	90	298	280	578	M20		217	C4
FHF4 65-315/75	65	80	125	500	550	1084	660	1020	180	90	298	280	578	M20		224	C4
FHF4 65-315/110A	65	80	125	500	550	1203	700	1100	200	90	298	280	578	M20		286	C5
FHF4 65-315/110	65	80	125	500	550	1203	700	1100	200	90	298	280	578	M20		286	C5
FHF4 80-315/55	80	100	125	390	430	1084	600	920	160	90	303	315	618	M16		219	C4
FHF4 80-315/75	80	100	125	500	550	1084	660	1020	180	90	323	315	638	M20		242	C4
FHF4 80-315/110	80	100	125	500	550	1203	700	1100	200	90	323	315	638	M20		307	C5
FHF4 80-315/150	80	100	125	500	550	1203	700	1100	200	90	323	315	638	M20		310	C5
FHF4 80-400/185	80	100	125	500	550	1307	830	1270	220	90	353	355	708	M20		327	D3
FHF4 80-400/220	80	100	125	500	550	1382	830	1270	220	90	353	355	708	M20		349	D3
FHF4 80-400/300	80	100	125	500	550	1382	830	1270	220	90	353	355	708	M20		374	E2
FHF4 100-160/22	100	125	125	500	550	1024	660	1020	180	90	298	280	578	M20		160	C3
FHF4 100-160/30	100	125	125	500	550	1024	660	1020	180	90	298	280	578	M20		163	C3
FHF4 100-160/40	100	125	125	500	550	1057	660	1020	180	90	298	280	578	M20		175	C3
FHF4 100-200/22	100	125	125	390	430	1024	600	920	160	90	253	280	533	M16		153	C3
FHF4 100-200/40	100	125	125	500	550	1057	660	1020	180	90	273	280	553	M20		184	C3
FHF4 100-200/55	100	125	125	500	550	1084	660	1020	180	90	273	280	553	M20		194	C4
FHF4 100-250/40	100	125	140	500	550	1072	660	1020	180	90	298	280	578	M20		202	C3
FHF4 100-250/55	100	125	140	500	550	1099	660	1020	180	90	298	280	578	M20		211	C4
FHF4 100-250/75	100	125	140	500	550	1099	700	1100	200	90	298	280	578	M20		218	C4
FHF4 100-250/110	100	125	140	500	550	1218	700	1100	200	90	298	280	578	M20		280	C5
FHF4 100-315/150	100	125	140	500	550	1218	700	1100	200	90	323	315	638	M20		312	C5
FHF4 100-315/185	100	125	140	500	550	1262	700	1100	200	90	323	315	638	M20		285	D2
FHF4 100-315/220	100	125	140	500	550	1337	830	1270	220	90	323	315	638	M20		308	D2
FHF4 100-400/300	100	125	140	610	670	1397	940	1420	240	110	373	355	728	M24		426	E2
FHF4 100-400/450	100	125	140	610	670	1504	940	1420	240	110	373	355	728	M24		511	F2
FHF4 125-200/40	125	150	140	500	550	1132	660	1020	180	90	323	315	638	M20		223	C6
FHF4 125-200/55	125	150	140	500	550	1159	700	1100	200	90	323	315	638	M20		235	C7
FHF4 125-200/75	125	150	140	500	550	1159	700	1100	200	90	323	315	638	M20		242	C7
FHF4 125-250/75	125	150	140	500	550	1099	660	1020	180	90	323	355	678	M20		241	C4
FHF4 125-250/110	125	150	140	500	550	1218	700	1100	200	90	323	355	678	M20		306	C5
FHF4 125-250/150	125	150	140	500	550	1218	700	1100	200	90	323	355	678	M20		309	C5
FHF4 125-250/185	125	150	140	500	550	1262	700	1100	200	90	323	355	678	M20		278	D2
FHF4 125-270/75	125	150	140	500	550	1159	700	1100	200	90	323	355	678	M20		261	C7
FHF4 125-270/110	125	150	140	500	550	1278	830	1270	220	90	323	355	678	M20		328	C8
FHF4 125-270/150	125	150	140	500	550	1278	830	1270	220	90	323	355	678	M20		331	C8
FHF4 125-315/185	125	150	140	610	670	1322	940	1420	240	110	373	355	728	M24		360	D3
FHF4 125-315/220	125	150	140	610	670	1397	940	1420	240	110	373	355	728	M24		382	D3
FHF4 125-315/300	125	150	140	610	670	1397	940	1420	240	110	373	355	728	M24		407	E2
FHF4 125-315/370	125	150	140	610	670	1504	940	1420	240	110	373	355	728	M24		469	F2
FHF4 125-400/220	125	150	140	500	550	1397	830	1270	220	110	388	400	788	M20		376	D3
FHF4 125-400/300	125	150	140	500	550	1397	830	1270	220	110	388	400	788	M20		403	E2
FHF4 125-400/450	125	150	140	610	670	1504	940	1420	240	110	408	400	808	M24		535	F2
FHF4 125-400/550	125	150	140	610	670	1504	940	1420	240	110	408	400	808	M24		562	G2
FHF4 150-250/150	150	200	160	610	670	1303	940	1420	240	110	373	375	748	M24		395	C8
FHF4 150-250/185	150	200	160	610	670	1347	940	1420	240	110	373	375	748	M24		364	D3
FHF4 150-250/220	150	200	160	610	670	1422	940	1420	240	110	373	375	748	M24		386	D3
FHF4 150-250/300	150	200	160	610	670	1422	940	1420	240	110	373	375	748	M24		411	E2
FHF4 150-315/300	150	200	160	610	670	1417	940	1420	240	110	373	400	773	M24		430	E2
FHF4 150-315/370	150	200	160	610	670	1524	940	1420	240	110	373	400	773	M24		492	F2
FHF4 150-315/450	150	200	160	610	670	1524	940	1420	240	110	373	400	773	M24		515	F2
FHF4 150-315/550	150	200	160	610	670	1524	940	1420	240	110	373	400	773	M24		531	G2
FHF4 150-400/300	150	200	160	610	670	1417	940	1420	240	110	408	450	858	M24		467	E2
FHF4 150-400/370	150	200	160	610	670	1524	940	1420	240	110	408	450	858	M24		534	F2
FHF4 150-400/450	150	200	160	610	670	1524	940	1420	240	110	408	450	858	M24		557	F2
FHF4 150-400/550	150	200	160	680	740	1524	1050	1570	260	110	408	450	858	M24		600	G2
FHF4 150-400/750	150	200	160	680	740	1653	1050	1570	260	110	408	450	858	M24		699	H1
FHF4 150-400/900	150	200	160	680	740	1653	1050	1570	260	110	408	450	858	M24		770	H1



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FHF SC SERIES MOUNTED ON BASE DIMENSIONS AND WEIGHTS





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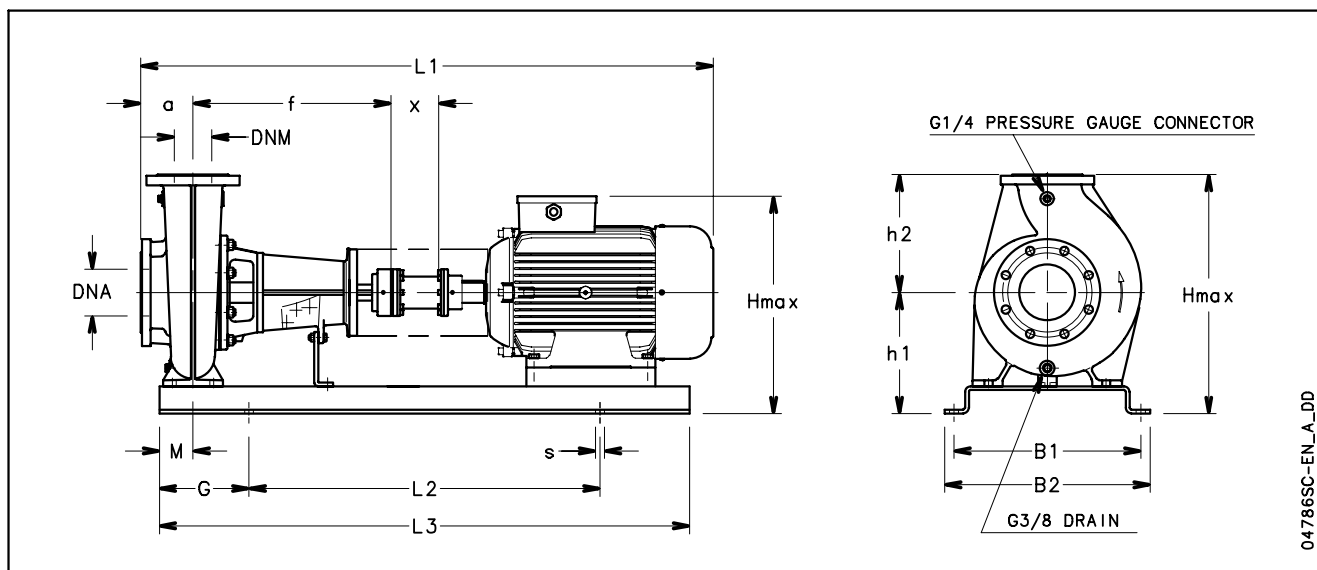
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FHF SC SERIES MOUNTED ON BASE DIMENSIONS AND WEIGHTS

PUMP TYPE	DIMENSIONS (mm)															S FOR SCREWS	WEIGHT kg	COUPLING TYPE
	DNM	DNA	a	B1	B2	L1	L2	L3	G	M	h1	h2	Hmax	f	x			
FHF 32-125/07 SC	32	50	80	320	360	845	540	800	130	60	212	140	352	360	100	M16	69	A2S
FHF 32-125/11 SC	32	50	80	320	360	845	540	800	130	60	212	140	352	360	100	M16	71	A2S
FHF 32-160/15 SC	32	50	80	350	390	889	600	900	150	60	232	160	392	360	100	M16	77	A3S
FHF 32-160/22 SC	32	50	80	350	390	889	600	900	150	60	232	160	392	360	100	M16	79	A3S
FHF 32-200/30 SC	32	50	80	350	390	920	600	900	150	60	260	180	440	360	100	M16	99	B1S
FHF 32-200/40 SC	32	50	80	350	390	923	600	900	150	60	260	180	440	360	100	M16	101	B1S
FHF 40-125/11 SC	40	65	80	350	390	845	600	900	150	60	212	140	352	360	100	M16	74	A2S
FHF 40-125/15 SC	40	65	80	350	390	889	600	900	150	60	212	140	352	360	100	M16	80	A3S
FHF 40-125/22 SC	40	65	80	350	390	889	600	900	150	60	212	140	352	360	100	M16	83	A3S
FHF 40-160/30 SC	40	65	80	350	390	920	600	900	150	60	232	160	392	360	100	M16	98	B1S
FHF 40-160/40 SC	40	65	80	350	390	923	600	900	150	60	232	160	400	360	100	M16	102	B1S
FHF 40-200/55 SC	40	65	100	400	450	1007	660	1000	170	60	260	180	451	360	100	M20	129	C1S
FHF 40-200/75 SC	40	65	100	400	450	1007	660	1000	170	60	260	180	451	360	100	M20	134	C1S
FHF 40-250/110A SC	40	65	100	490	540	1164	840	1250	205	75	280	225	520	360	100	M20	185	C2S
FHF 40-250/110 SC	40	65	100	490	540	1164	840	1250	205	75	280	225	520	360	100	M20	185	C2S
FHF 40-250/150 SC	40	65	100	490	540	1164	840	1250	205	75	280	225	520	360	100	M20	195	C2S
FHF 50-125/22 SC	50	65	100	350	390	909	600	900	150	60	232	160	392	360	100	M16	91	A3S
FHF 50-125/30 SC	50	65	100	350	390	940	600	900	150	60	232	160	392	360	100	M16	99	B1S
FHF 50-125/40 SC	50	65	100	350	390	943	600	900	150	60	232	160	400	360	100	M16	102	B1S
FHF 50-160/55 SC	50	65	100	400	450	1007	660	1000	170	60	260	180	451	360	100	M20	128	C1S
FHF 50-160/75 SC	50	65	100	400	450	1007	660	1000	170	60	260	180	451	360	100	M20	132	C1S
FHF 50-200/110A SC	50	65	100	440	490	1164	740	1120	190	60	260	200	500	360	100	M20	180	C2S
FHF 50-200/110 SC	50	65	100	440	490	1164	740	1120	190	60	260	200	500	360	100	M20	180	C2S
FHF 50-250/150 SC	50	65	100	490	540	1164	840	1250	205	75	280	225	520	360	100	M20	186	C2S
FHF 50-250/185 SC	50	65	100	490	540	1164	840	1250	205	75	280	225	520	360	100	M20	197	C2S
FHF 50-250/220 SC	50	65	100	490	540	1208	840	1250	205	75	280	225	538	360	100	M20	221	D1S
FHF 65-125/40 SC	65	80	100	350	390	943	600	900	150	75	260	180	440	360	100	M16	140	B1S
FHF 65-125/55 SC	65	80	100	400	450	1007	660	1000	170	75	260	180	451	360	100	M20	158	C1S
FHF 65-125/75 SC	65	80	100	400	450	1007	660	1000	170	75	260	180	451	360	100	M20	162	C1S
FHF 65-160/110A SC	65	80	100	490	540	1164	840	1250	205	75	260	200	500	360	100	M20	171	C2S
FHF 65-160/110 SC	65	80	100	490	540	1164	840	1250	205	75	260	200	500	360	100	M20	171	C2S
FHF 65-160/150 SC	65	80	100	490	540	1164	840	1250	205	75	260	200	500	360	100	M20	187	C2S
FHF 65-200/150 SC	65	80	100	490	540	1164	840	1250	205	75	280	225	520	360	100	M20	194	C2S
FHF 65-200/185 SC	65	80	100	490	540	1164	840	1250	205	75	280	225	520	360	100	M20	202	C2S
FHF 65-200/220 SC	65	80	100	490	540	1208	840	1250	205	75	280	225	538	360	100	M20	217	D1S
FHF 65-250/220 SC	65	80	100	490	540	1318	840	1250	205	90	310	250	568	470	100	M20	225	D2S
FHF 65-250/300 SC	65	80	100	550	610	1433	940	1400	230	90	310	250	588	470	140	M24	303	E1S
FHF 65-250/370 SC	65	80	100	550	610	1433	940	1400	230	90	310	250	588	470	140	M24	318	E1S
FHF 80-160/110 SC	80	100	125	490	540	1189	840	1250	205	75	280	225	520	360	100	M20	209	C2S
FHF 80-160/150 SC	80	100	125	490	540	1189	840	1250	205	75	280	225	520	360	100	M20	219	C2S
FHF 80-160/185 SC	80	100	125	490	540	1189	840	1250	205	75	280	225	520	360	100	M20	230	C2S
FHF 80-200/220 SC	80	100	125	490	540	1343	840	1250	205	75	280	250	538	470	100	M20	247	D2S
FHF 80-200/300 SC	80	100	125	550	610	1458	940	1400	230	75	310	250	588	470	140	M24	288	E1S
FHF 80-250/370 SC	80	100	125	550	610	1458	940	1400	230	90	310	280	588	470	140	M24	308	E1S
FHF 80-250/450 SC	80	100	125	550	610	1535	940	1400	230	90	365	280	663	470	140	M24	368	E1S
FHF 80-250/550 SC	80	100	125	600	660	1565	1060	1600	270	90	390	280	688	470	140	M24	405	F1S

fh-fhf-sc-2p50-en_c_td

FHF SC SERIES MOUNTED ON BASE DIMENSIONS AND WEIGHTS



PUMP TYPE	DIMENSIONS (mm)															s FOR	WEIGHT	COUPLING TYPE
	DNM	DNA	a	B1	B2	L1	L2	L3	G	M	h1	h2	Hmax	f	x	SCREWS	kg	
FHF 100-160/185 SC	100	125	125	500	550	1383	700	1270	200	90	298	280	578	470	140	M20	261	C9S
FHF 100-160/220 SC	100	125	125	500	550	1383	830	1270	220	90	298	280	578	470	140	M20	301	D4S
FHF 100-160/300 SC	100	125	125	500	550	1458	830	1400	220	90	298	280	578	470	140	M20	384	E1S
FHF 100-200/185 SC	100	125	125	500	550	1383	700	1270	200	90	273	280	553	470	140	M20	268	C9S
FHF 100-200/300 SC	100	125	125	500	550	1458	830	1400	220	90	273	280	553	470	140	M20	389	E1S
FHF 100-200/370 SC	100	125	125	500	550	1458	830	1400	220	90	273	280	553	470	140	M20	409	E1S
FHF 100-200/450 SC	100	125	125	610	670	1535	940	1450	240	90	318	280	616	470	140	M24	526	E1S
FHF 100-250/300 SC	100	125	140	500	550	1473	830	1400	220	90	298	280	578	470	140	M20	411	E1S
FHF 100-250/450 SC	100	125	140	500	550	1550	830	1400	220	90	298	280	596	470	140	M20	494	E1S
FHF 100-250/550 SC	100	125	140	610	670	1580	940	1450	240	90	343	280	641	470	140	M24	628	G0S
FHF 100-250/750 SC	100	125	140	680	740	1709	1050	1570	260	90	373	280	733	470	140	M24	777	G1S
FHF 100-250/900 SC	100	125	140	680	740	1709	1050	1570	260	90	373	280	733	470	140	M24	847	G1S
FHF 125-200/300 SC	125	150	140	500	550	1533	830	1400	220	90	323	315	638	530	140	M20	436	E3S
FHF 125-200/450 SC	125	150	140	610	670	1610	940	1450	240	90	343	315	658	530	140	M24	662	E3S
FHF 125-200/550 SC	125	150	140	610	670	1640	940	1450	240	90	343	315	658	530	140	M24	633	F2S
FHF 125-270/750 SC	125	150	140	700	750	1850	600+600	1700	200	90	423	355	783	530	140	M20	868	G2S
FHF 125-270/900 SC	125	150	140	700	750	1850	600+600	1700	200	90	423	355	783	530	140	M20	938	G2S
FHF 125-270/1100 SC	125	150	140	820	870	1990	600+600	1700	200	90	478	355	928	530	140	M20	1047	G2S
FHF 125-270/1320 SC	125	150	140	820	870	1990	600+600	1700	200	90	478	355	928	530	140	M20	1094	H0S

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ACCESSORIES



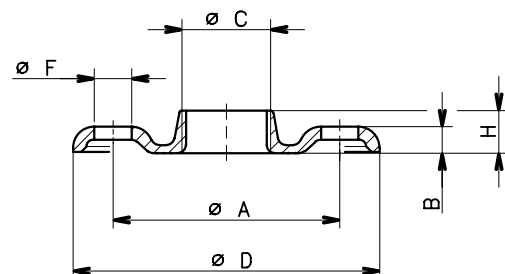
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DIMENSIONS OF ROUND THREADED COUNTERFLANGES ACCORDING TO EN 1092-1

DN	ø C	DIMENSIONS (mm)				HOLES		
		ø A	B	ø D	H	ø F	N°	PN
32	Rp 1 1/4	100	13	140	16	18	4	16
40	Rp 1 1/2	110	14	150	19	18	4	16
50	Rp 2	125	16	165	24	18	4	16
65	Rp 2 1/2	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

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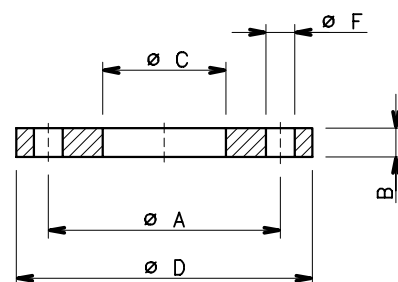


04430_B_DD

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

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

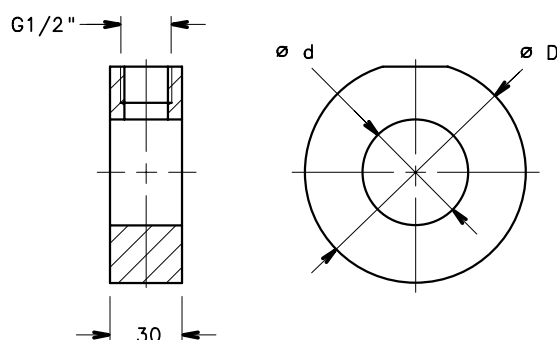


04431_A_DD

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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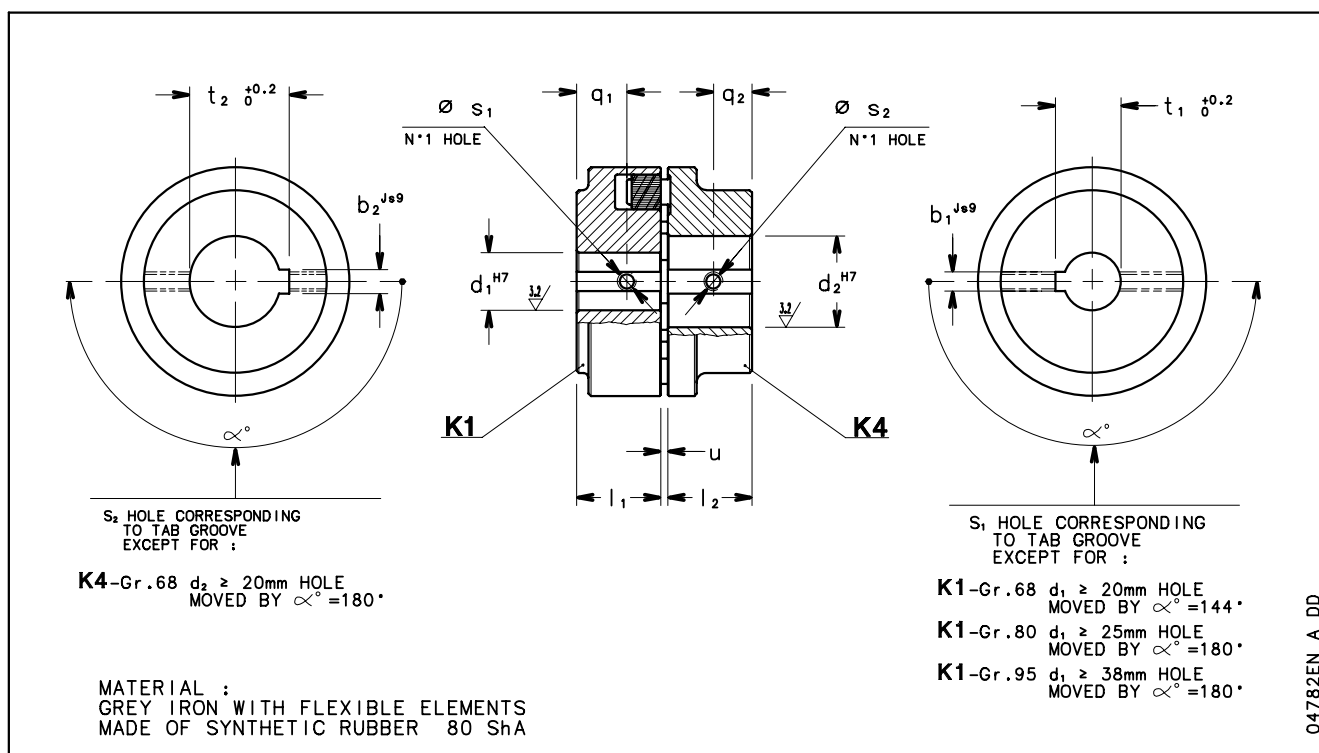
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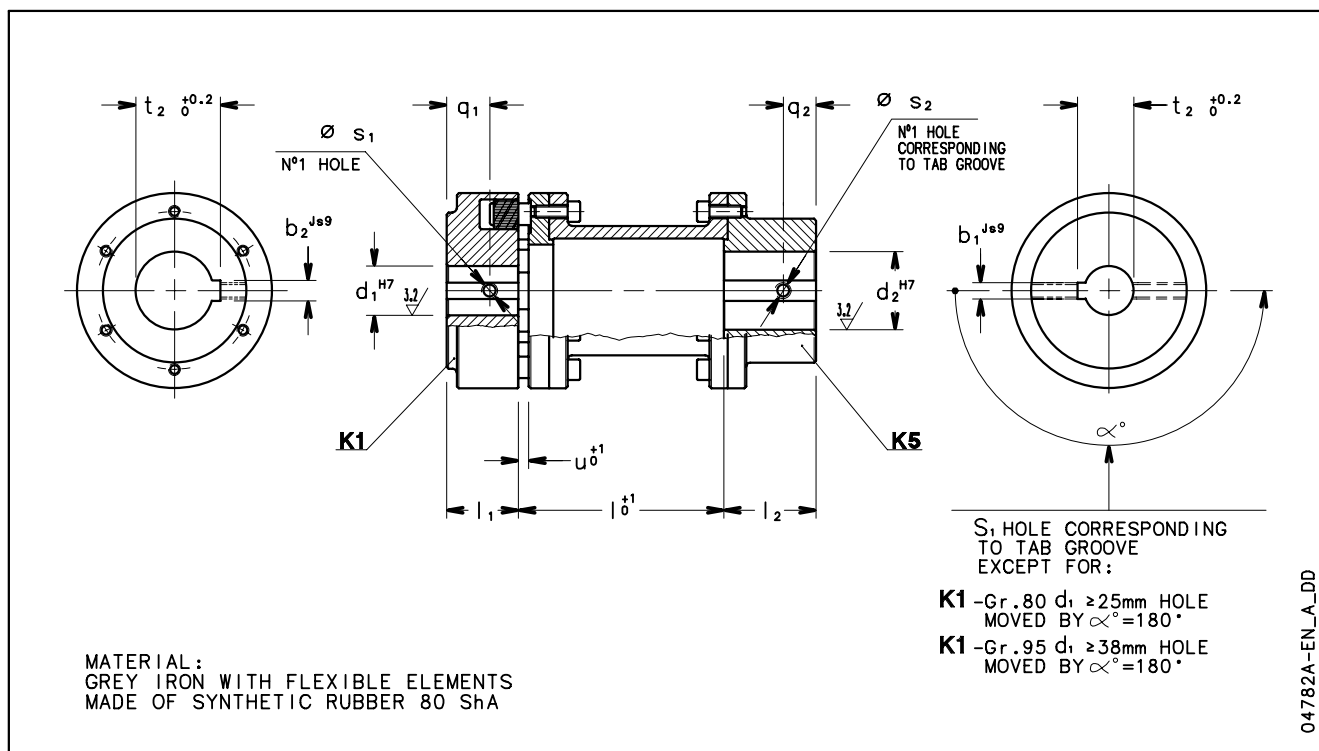
FLEXIBLE COUPLING DIMENSIONS



REF.	DENOMINATION	DIMENSIONS (mm)													
		K1							K4						
		PUMP-SIDE HALF COUPLING							MOTOR-SIDE HALF COUPLING						
	SIZE x d_1 x d_2	d_1^{H7}	l_1	b_1^{js9}	$t_1^{+0.2}_0$	s_1	q_1	u	d_2^{H7}	l_2	b_2^{js9}	$t_2^{+0.2}_0$	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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SPACER COUPLING DIMENSIONS



REF.	DENOMINATION	DIMENSIONS (mm)													
		K1							K5						
		PUMP-SIDE HALF COUPLING							MOTOR-SIDE HALF COUPLING						
	SIZE x l x d ₁ x d ₂	l_0^{+1}	d_1^{H7}	l_1	b_1^{js9}	$t_1^{+0.2}$	s_1	q_1	u	d_2^{H7}	l_2	b_2^{js9}	$t_2^{+0.2}$	s_2	q_2
A2S	H 80-100 x 24 x 19	100	24	30	8	27,3	M6	19	5	19	45	6	21,8	M6	15
A3S	H 80-100 x 24 x 24	100	24	30	8	27,3	M6	19	5	24	45	8	27,3	M6	15
B1S	H 80-100 x 24 x 28	100	24	30	8	27,3	M6	19	5	28	45	8	31,3	M6	15
C1S	H 95-100 x 24 x 38	100	24	35	8	27,3	M6	20	5	38	45	10	41,3	M6	20
C2S	H 95-100 x 24 x 42	100	24	35	8	27,3	M6	20	5	42	45	12	45,3	M6	20
C3S	H 95-100 x 32 x 28	100	32	35	10	35,3	M6	20	5	28	45	8	31,3	M6	20
C4S	H 95-100 x 32 x 38	100	32	35	10	35,3	M6	20	5	38	45	10	41,3	M6	20
C9S	H 95-140 x 32 x 42	140	32	35	10	35,3	M6	20	5	42	45	12	45,3	M6	20
D1S	H 110-100 x 24 x 48	100	24	40	8	27,3	M6	22	5	48	50	14	51,8	M6	25
D2S	H 110-100 x 32 x 48	100	32	40	10	35,3	M6	22	5	48	50	14	51,8	M6	25
D4S	H 110-140 x 32 x 48	140	32	40	10	35,3	M6	22	5	48	50	14	51,8	M6	25
E0S	H 125-100 x 24 x 55	100	24	50	8	27,3	M8	30	5	55	50	16	59,3	M8	25
E1S	H 125-140 x 32 x 55	140	32	50	10	35,3	M8	30	5	55	50	16	59,3	M8	25
E3S	H 125-140 x 42 x 55	140	42	50	12	45,3	M8	30	5	55	50	16	59,3	M8	25
F1S	H 140-140 x 32 x 60	140	32	55	10	35,3	M8	13	5	60	65	18	64,4	M8	30
F2S	H 140-140 x 42 x 60	140	42	55	12	45,3	M8	13	5	60	65	18	64,4	M8	30
G0S	H 160-140 x 32 x 60	140	32	60	10	35,3	M10	13	6	60	70	18	64,4	M10	35
G1S	H 160-140 x 32 x 65	140	32	60	10	35,3	M10	13	6	65	70	18	69,4	M10	35
G2S	H 160-140 x 42 x 65	140	42	60	12	45,3	M10	13	6	65	70	18	69,4	M10	35
H0S	H 180-140 x 42 x 65	140	42	70	12	45,3	M12	16	6	65	80	18	69,4	M12	40

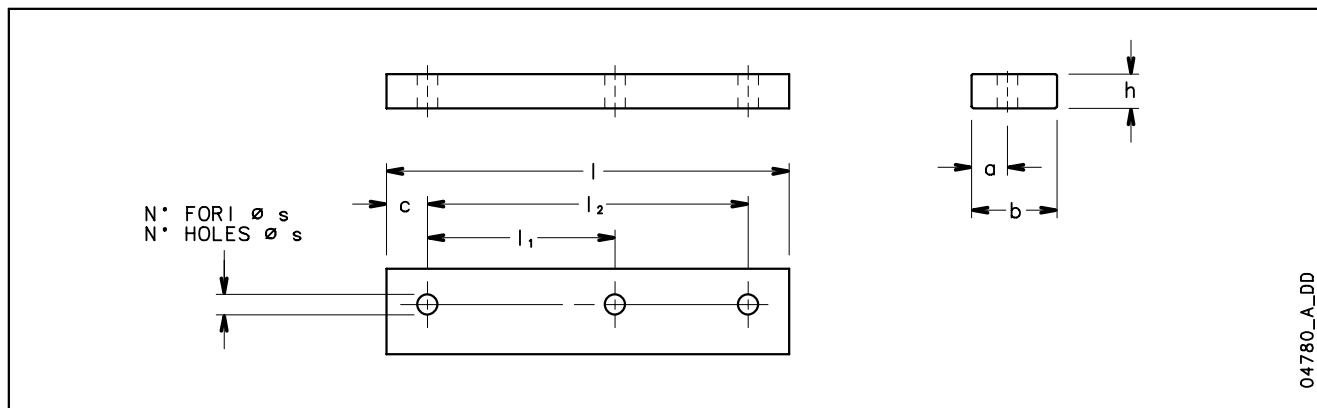
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MOTOR SHIM FOR FHF 32 ÷ 80 VERSIONS

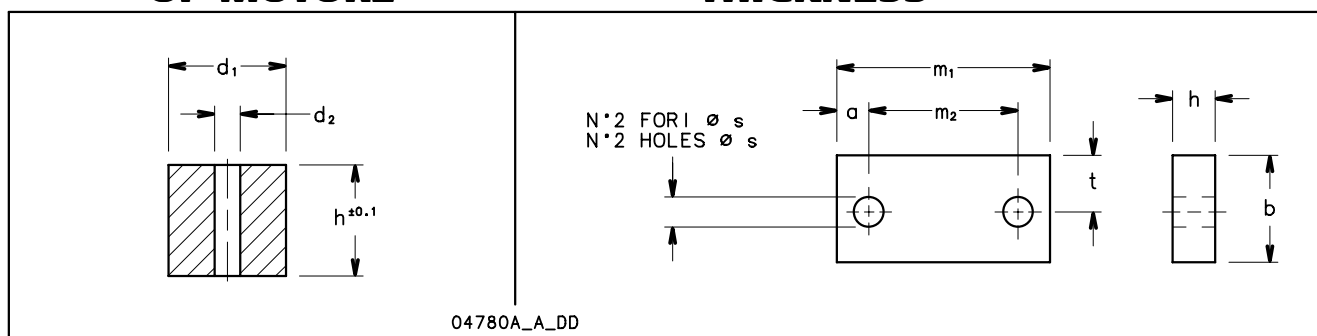


DENOMINATION					DIMENSIONS (mm)				HOLES	
b	x	h	x	l	a	l ₁	l ₂	c	N°	Ø s
35	12	125			17	100	-	12,5	2	10
35	20	125			17	100	-	12,5	2	10
40	8	180			17	140	-	20	2	14
40	10	155			20	100	125	15	3	10
40	12	155			20	100	125	15	3	10
40	12	180			17	140	-	20	2	14
40	20	180			17	140	-	20	2	14
40	30	155			20	100	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

PUMP THICKNESS



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DIMENSIONS (mm)			
DENOMINATION			d ₂
d ₁	x	h	
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				a	m ₂	Ø s	t
b	x	h	m ₁				
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 h_z at which to install the machine under safe conditions, the following formula must be verified:

$$h_p + h_z \geq (\text{NPSH}_r + 0.5) + h_f + h_{pv} \quad (1)$$

where:

- h_p** is the absolute pressure applied to the free liquid surface in the suction tank, expressed in m. of liquid; h_p is the quotient between the barometric pressure and the specific weight of the liquid.
- h_z** is the suction lift between the pump axis and the free liquid surface in the suction tank, expressed in m.; h_z is negative when the liquid level is lower than the pump axis.
- h_f** is the flow resistance in the suction line and its accessories, such as: fittings, foot valve, gate valve, elbows, etc.
- h_{pv}** is the vapour pressure of the liquid at the operating temperature, expressed in m. of liquid. h_{pv} is the quotient between the P_v vapour pressure and the liquid's specific weight.
- 0,5** is the safety factor.

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

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

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

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

Friction loss is shown in the tables at pages 125-126 of this catalogue. To reduce it to a minimum, especially in cases of high suction head (over 4-5 m.) or within the operating limits with high flow rates, we recommend using a suction line having a larger diameter than that of the pump's suction port. It is always a good idea to position the pump as close as possible to the liquid to be pumped.

Make the following calculation:

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

Flow rate required: 30 m³/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 m³/h, di 2,5 m.

For water at 15 °C

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

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

By substituting the parameters in formula (1) with the numeric values above, we have:

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

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

The relation is therefore verified.



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

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

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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	20	25	32	40	50	65	80	100	125	150	175	200	250	300	350	400
			1/2"	3/4"	1"	1 1/4"	1 1/2"	2	2 1/2"	3"	4"	5"	6"	7"	8"	10"	12"	14"	16"
0,6	10	v	0,94	0,53	0,34	0,21	0,13			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									
		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						
		hr							39,6	18,7	9,75	3,29	1,35						
480	8000	v							7,55	5,55	4,25	2,72	1,89						
		hr							50,7	23,9	12,49	4,21	1,73						
540	9000	v							8,49	6,24	4,78	3,06	2,12						
		hr							63,0	29,8	15,5	5,24	2,16						
600	10000	v								6,93	5,31	3,40	2,36						
		hr								36,2	18,9	6,36	2,62						

G-at-pct_a_th

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	0,2640
16,6667	1,0000	35,3147	0,5886	3,6660	4,4030
0,4720	0,0283	1,0000	0,0167	0,1040	0,1250
28,3170	1,6990	60,0000	1,0000	6,2290	7,4800
4,5460	0,2728	9,6326	0,1605	1,0000	1,2010
3,7850	0,2271	8,0209	0,1337	0,8330	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 ₂ O	millimetre di mercury mm Hg
1,0000	0,0010	1×10^{-5}	$1,45 \times 10^{-4}$	$1,02 \times 10^{-4}$	0,0075
1000,0000	1,0000	0,0100	0,1450	0,1020	7,5000
1×10^5	100,0000	1,0000	14,5000	10,2000	750,1000
6895,0000	6,8950	0,0690	1,0000	0,7030	51,7200
9789,0000	9,7890	0,0980	1,4200	1,0000	73,4200
133,3000	0,1333	0,0013	0,0190	0,0140	1,0000

LENGHT

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	220,0000	264,2000	35,3147
0,0010	1,0000	1000,0000	0,2200	0,2642	0,0353
1×10^{-6}	0,0010	1,0000	$2,2 \times 10^{-4}$	$2,642 \times 10^{-4}$	$3,53 \times 10^{-5}$
0,0045	4,5460	4546,0000	1,0000	1,2010	0,1605
0,0038	3,7850	3785,0000	0,8327	1,0000	0,1337
0,0283	28,3170	28317,0000	6,2288	7,4805	1,0000

G-at_pp-en_a_sc

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