



HORIZONTAL SELF-PRIMING PUMPS 50 HZ

**EHsp 5/5**



# STAINLESS STEEL HORIZONTAL MULTISTAGE PUMPS

## FEATURES AND BENEFITS

### APPLICATIONS



Water Distribution  
Pressure Boosting



Circulation of hot+cold water  
for heating, cooling,  
conditioning systems



Irrigation  
Gardening, Sprinklers



Wash down unit



Domestic, industrial and  
agricultural systems

### COMPACT CLOSE-COUPLED DESIGN

- Reinforced with tie rods and corrosion resistance (EH 15-20)
- Materials WRAS and ACS certificated
- Flexible application base plate (only for EH and EH DTm)
- Floating neck ring in PPS
- Heavy duty oversize motor shaft
- Impellers and diffusers are made of stainless steel
- Easy maintenance
- Connections: Rp threaded for inlet and outlet (NPT optional)
- Mechanical seal Type E0 = Carbon graphite / Ceramic alumina / EPDM: EH 3-5-9, EHsp 3-5; EH DTm 3-5-9
- Mechanical seal Type E1 = Carbon graphite / Silicon carbide / EPDM: EH 15-20

### SUPERIOR EFFICIENCY AND PERFORMANCE

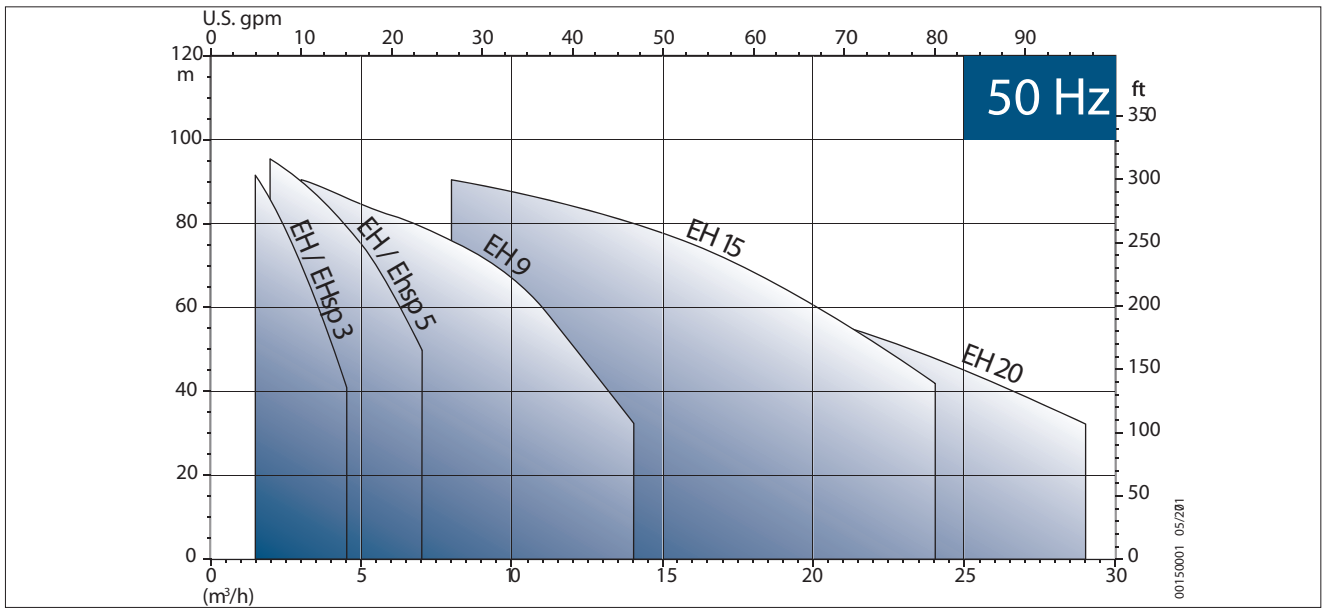
- Flow: up to 29 m<sup>3</sup>/h
- Head: up to 104 m
- Maximum working pressure 10 Bar
- Max. altitude at nominal load: 1000 m
- Maximum allowable amount of sand: 50 g/m<sup>3</sup> (EH)
- Maximum ambient temperature: 40 °C
- The hydraulic characteristics are guaranteed, according to ISO standard 9906:2012, grade 3B

### CONSTRUCTION OPTIONS

- Special mechanical seal (EH)
- Inlet and outlet connections NPT threaded

# FAMILY CURVES

## EH-EHsp



## PUMP IDENTIFICATION CODE

15 / 3 I 022 T 5 E1

- Three-phase motor efficiency (IE3)
- Pumps speciality - "empty" (standard configuration)
- Mechanical seal type
- Frequency: 5 (50 Hz); 6 (60 Hz)
- M (Single-phase); T (Three-phase)
- Motor power kW x 10
- Pump material: I (AISI 304); N(AISI 316)
- Number of stages
- Nominal flow rate in m<sup>3</sup>/h
- Pump model: EH (standard)  
EHsp (self-priming)  
EH DTm (with Drive-Tech MINI)

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## GENERAL FEATURES

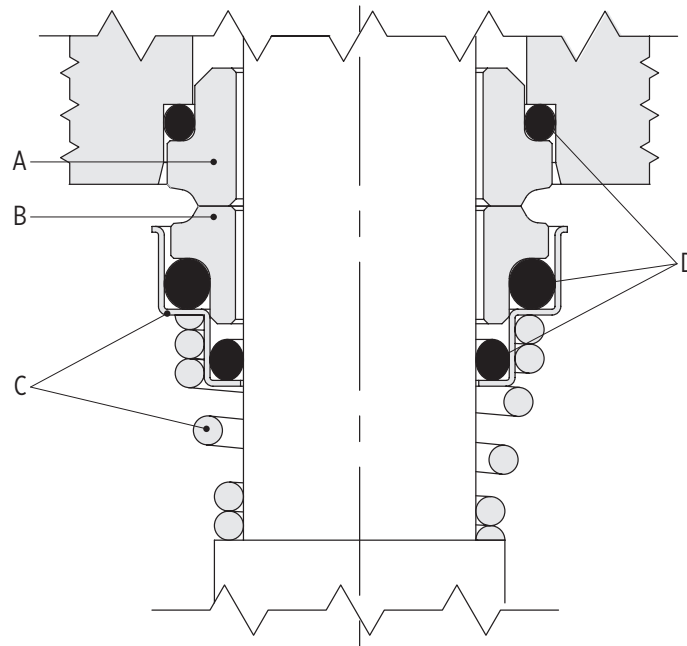
Model		3	5	9	15	20
Nominal flow [m <sup>3</sup> /h]		3.2	5.1	9.1	16.4	19
Maximum liquid temperature [°C]	Single-phase	55	55	55	55	55
	Three-phase (only industrial uses)	110	110	110	110	110
	Three-phase (domestic, commercial, other uses)	85	85	85	85	85
	Three-phase (drinking water)	85	85	85	85	85
	Version with Drive-tech <sub>MINI</sub>	85	85	85	-	-
	Self-priming version	35	35	-	-	-
Max. D hydraulic [%]	Standard version	45.5	56.8	61	66.7	68.2
	Version with Drive-tech <sub>MINI</sub>	42	56.8	61	-	-
	Self-priming version	40	53	-	-	-
Range [m <sup>3</sup> /h]	Standard version	1.5 - 4.5	2 - 7	3 - 14	8 - 24	10 - 28
	Version with Drive-tech <sub>MINI</sub>	1.0 - 5.5	1.2 - 8.5	3 - 17	-	-
Pressione max. [bar]	Standard version	10	10	10	10	10
Material versions	I (AISI 304)	•	•	•	•	•
	N (AISI 316L)	•	•	•	•	•
Hydraulic connection (dimensions)	Rp (inlet - outlet) - standard	1"¼ - 1"	1"¼ - 1"	1"½ - 1"¼	2" - 1"½	2" - 1"½
	NPT (inlet - outlet) - optional	1"¼ - 1"	1"¼ - 1"	1"½ - 1"¼	2" - 1"½	2" - 1"½

"-" = not available

• = available



# MECHANICAL SEAL SPECIFICATIONS



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## STANDARD VERSION

Model	Type				Position				Temperature [°C]
					A Stationary part	B Rotating part	C Other components	D Elastomers	
EH 3-5-9 / EHsp 3-5 / EH DTm 3-5-9									
E0	V	B	G	E	Ceramic alumina	Carbon graphite	AISI 316	EPDM	-15 / +110
EH 15-20									
E1	B	Q	G	E	Carbon graphite	Silicon Carbide	AISI 316	EPDM	-15 / +110

## AVAILABLE ON REQUEST (ONLY FOR EH)

Model	Type				Position				Temperature [°C]
					A Stationary part	B Rotating part	C Other components	D Elastomers	
E2	Q	Q	G	E	Silicon Carbide	Silicon Carbide	AISI 316	EPDM	-15 / +110
V3*	Q	Q	G	V	Silicon Carbide	Silicon Carbide	AISI 316	FKM	-10 / +110
V8*	Q	U	G	V	Silicon Carbide	Tungsten Carbide	AISI 316	FKM	-10 / +110

\* on request version with stopper pin

Type	Material
B	Carbon graphite
E	EPDM
G	AISI 316
Q	Silicon Carbide
V	FKM
V	Ceramic alumina
U	Tungsten Carbide

## MOTOR SPECIFICATIONS 50 HZ - EH-EHsp

- Asynchronous, TEFC (Totally Enclosed, Fan-Cooled)
- 2 pole
- Protection degree: IP55
- Insulation class: F
- Frequency of starts:
  - Max. 60 starts/hour for motor power up to 3 kW (with min. 1 minute resting time)
  - Max. 30 starts/hour for motor power from 4 kW (with min. 2 minute resting time)

### SINGLE-PHASE VERSION

- Standard voltage 220-240 V ± 5%
- Thermal protection built into the motor

P <sub>N</sub> [kW]	MOTOR SIZE	INPUT CURRENT I <sub>N</sub> [A]	Capacitor		230 V - 50 Hz						
			μF	V	η <sub>N</sub> [min <sup>-1</sup> ]	I <sub>s</sub> /I <sub>N</sub>	η %	cos φ	T <sub>N</sub> [Nm]	T <sub>s</sub> /T <sub>N</sub>	T <sub>M</sub> /T <sub>N</sub>
0.33	71	2.5	16	450	2920	6.5	64.8	0.88	1.08	1	1.6
0.45	71	3	16	450	2890	5.4	69.7	0.92	1.5	0.72	1.6
0.55	71	3.5	16	450	2860	4.6	72.6	0.94	1.83	0.59	1.85
0.75	71	4.67	16	450	2790	3.5	72.2	0.97	2.56	0.42	1.87
0.9	71	5.45	30	450	2875	4.8	75.3	0.93	3	0.47	1.67
1.1	71	6.6	30	450	2820	3.9	77	0.96	3.7	0.38	1.86
1.3	80	7.46	30	450	2860	4.2	80.8	0.94	4.35	0.57	1.86
1.5	80	8.56	30	450	2830	3.6	79.9	0.95	5.05	0.5	1.92
1.85	90	10.9	60	450	2760	2.8	76.6	0.96	6.4	0.39	2.4
2.2	90	12.6	60	450	2870	2.2	76.7	0.99	7.3	0.51	1.99

### THREE-PHASE VERSION

- Efficiency class: IE3 (Premium Efficiency) according to IEC 60034-30-1:2014
- Electrical performance according to IEC 60034-2-1:2007
- Standard voltage:
  - 220-240 / 380-415 V ± 5 % up to 3 kW
  - 380-415 / 660-690 V ± 5 % from 4 kW
- Thermal protection to be provided into the starter panel by the installer

P <sub>N</sub> [kW]	Rendimento / Efficiency η <sub>N</sub> %						IE
	Δ 230 V Y 400 V			Δ 400 V Y 690 V			
	4/4	3/4	2/4	4/4	3/4	2/4	
0.75	80.9	81.5	79.6	-	-	-	3
1.1	82.7	84.6	84.2	-	-	-	
1.5	84.3	85.7	85.3	-	-	-	
2.2	86.1	86.7	85.4	-	-	-	
3	87.1	87.5	86.1	-	-	-	
4	-	-	-	88.1	88.7	87.7	
5.5	-	-	-	89.2	89.4	88.1	

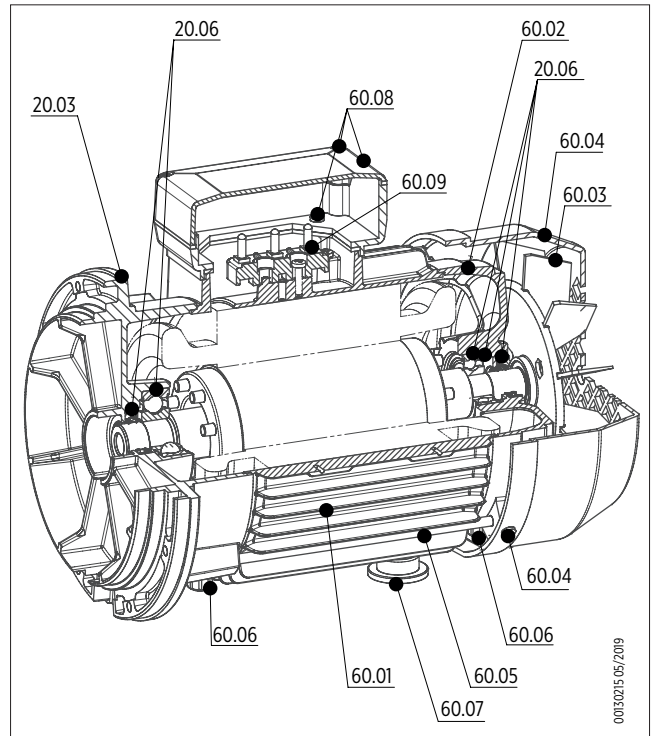
$P_N$ [kW]	MOTOR SIZE	N. of poles	$f_N$ [Hz]	400 V - 50 Hz				
				$\cos \varphi$	$I_s / I_N$	$T_N$ [Nm]	$T_s / T_N$	$T_M / T_N$
0.75	71	2	50	0.83	6.8	2.6	3.6	3.7
1.1	71			0.82	5.9	3.7	3.2	3.1
1.5	80			0.79	6.8	5.1	3.2	3.2
2.2	90			0.8	9.6	7.3	4.3	4.4
3	90			0.83	9.6	9.9	4.7	4.9
4	100			0.85	8.1	13.2	2.8	3
5.5	112			0.81	8.4	18.1	4.3	4.5

$P_N$ [kW]	VOLTAGE $U_N$				$n_N$ [min <sup>-1</sup> ]	Motor operating conditions		
	$\Delta$ 230 V	Y 400 V	$\Delta$ 400 V	Y 690 V		Altitude Above Sea Level [m]	T. amb min/max [°C]	ATEX
	$I_N$ [A]							
0.75	2.8	1.6	-	-	2800	≤ 1000	-15 / +40	No
1.1	4.1	2.3	-	-	2840			
1.5	5.7	3.3	-	-	2830			
2.2	8	4.6	-	-	2880			
3	10.4	6	-	-	2900			
4	-	-	7.7	4.4	2900			
5.5	-	-	11	6.4	2900			

# MOTOR SPARE PARTS

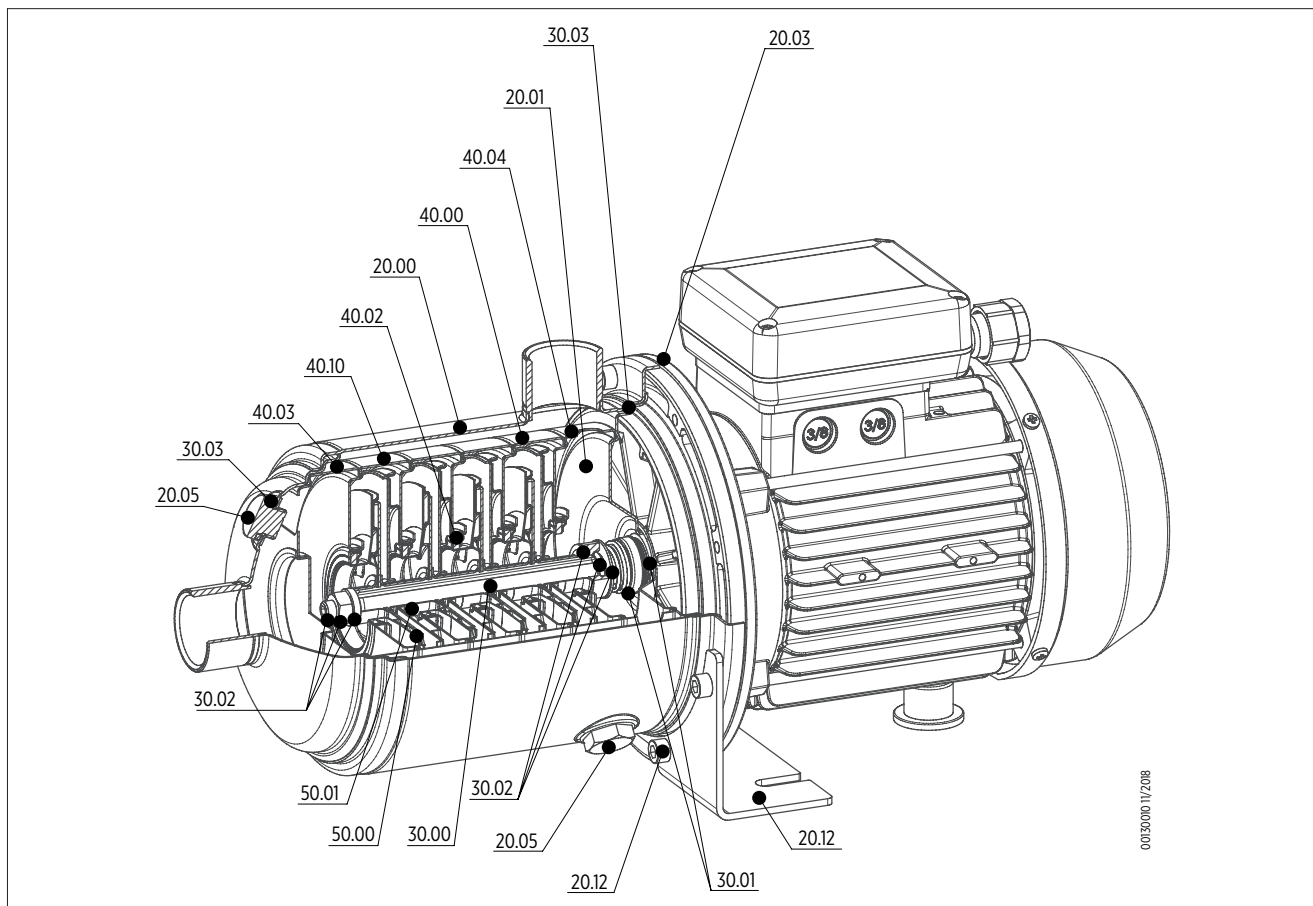
## SPARE PARTS LIST

Ref. No.	Part description
20.03	Motor bracket
20.06	Kit bearings
60.01	Motor housing and stator
60.02	Bearing housing
60.03	Fan
60.04	Fan cover and screws
60.05	Motor tie rods
60.06	Kit motor spare components
60.07	Motor housing foot
60.08	Terminal box cover and base
60.09	Terminal board



# SPARE PARTS AND MATERIALS

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## PARTS IN CONTACT WITH LIQUID

Ref. No.	Part description	Material	Standard	
			ASTM/AISI	DIN/EN
20.00	Outer case	Stainless steel	AISI 304	14.301
20.01	Mechanical seal housing	Stainless steel	AISI 304	14.301
20.05	Filling plug	Stainless steel	AISI 304	14.301
30.00	Pump shaft	Stainless steel	AISI 304	14.301
30.01	Mechanical seal	Carbon graphite / Ceramic alumina/ EPDM		
30.02	Mechanical seal fastening kit	Stainless steel	AISI 304	14.301
30.03	Kit O-rings	EPDM		
40.00	Stage housing and diffuser	Stainless steel	AISI 304	14.301
40.02	Floating neck ring	Stainless steel and PPS	AISI 304	14.301
40.03	Initial stage housing	Stainless steel	AISI 304	14.301
40.04	Last Stage with diffuser	Stainless steel	AISI 304	14.301
40.10	Stage housing with priming valve	Stainless steel	AISI 301/304	1.4310/1.4301
50.00	Impeller	Stainless steel	AISI 304	14.301
50.01	Impeller spacer	Stainless steel	AISI 304	14.301



## SPARE PARTS LIST

Ref. No.	Part description
20.00	Outer case
20.01	Mechanical seal housing
20.03	Motor bracket
20.05	Filling plug
20.12	Support foot and screws
30.00	Pump shaft
30.01	Kit mechanical seal
30.02	Mechanical seal fastening kit

Ref. No.	Part description
30.03	Kit O-rings
40.00	Stage housing and diffuser
40.02	Floating neck ring
40.03	Initial stage housing
40.04	Last Stage with diffuser
40.10	Stage housing with priming valve
50.00	Impeller
50.01	Impeller spacer

# TECHNICAL DATA AND PERFORMANCE CURVES AT 50 HZ

## HYDRAULIC PERFORMANCE AT 50 HZ

Pump model	Q = DELIVERY													
	l/min 0	16.7	25.0	33.3	41.7	50.0	58.3	66.7	75.0	83.3	91.7	100.0	116.7	133.3
	m <sup>3</sup> /h 0	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	7.0	8.0
	gpm 0	4.4	6.6	8.8	11.0	13.2	15.4	17.6	19.8	22.0	24.2	26.4	30.8	35.2
H = TOTAL METERS HEAD OF WATER COLUMN [m]														
EHsp 3/4	43.4		38.1	35.3	32.0	28.4	24.5	20.0	14.9					
EHsp 3/5	53.7		46.5	42.8	38.7	34.0	29.1	23.5	17.2					
EHsp 5/4	44.9			41.9	40.7	39.4	37.9	36.2	34.4	32.3	30.0	27.2	20.3	
<b>EHsp 5/5</b>	<b>55.7</b>			<b>51.6</b>	<b>50.0</b>	<b>48.3</b>	<b>46.3</b>	<b>44.1</b>	<b>41.8</b>	<b>39.1</b>	<b>36.2</b>	<b>32.6</b>	<b>24.0</b>	
EHsp 3/4 T	43.7		38.3	35.5	32.3	28.7	24.8	20.3	15.3					
EHsp 3/5 T	54.0		46.9	43.3	39.2	34.7	29.8	24.2	17.9					
EHsp 5/4 T	44.7			41.4	40.2	38.8	37.3	35.6	33.7	31.6	29.3	26.5	19.6	
<b>EHsp 5/5 T</b>	<b>55.4</b>			<b>50.9</b>	<b>49.2</b>	<b>47.4</b>	<b>45.4</b>	<b>43.2</b>	<b>40.8</b>	<b>38.1</b>	<b>35.2</b>	<b>31.6</b>	<b>22.9</b>	

# EHsp 5 - TECHNICAL DATA

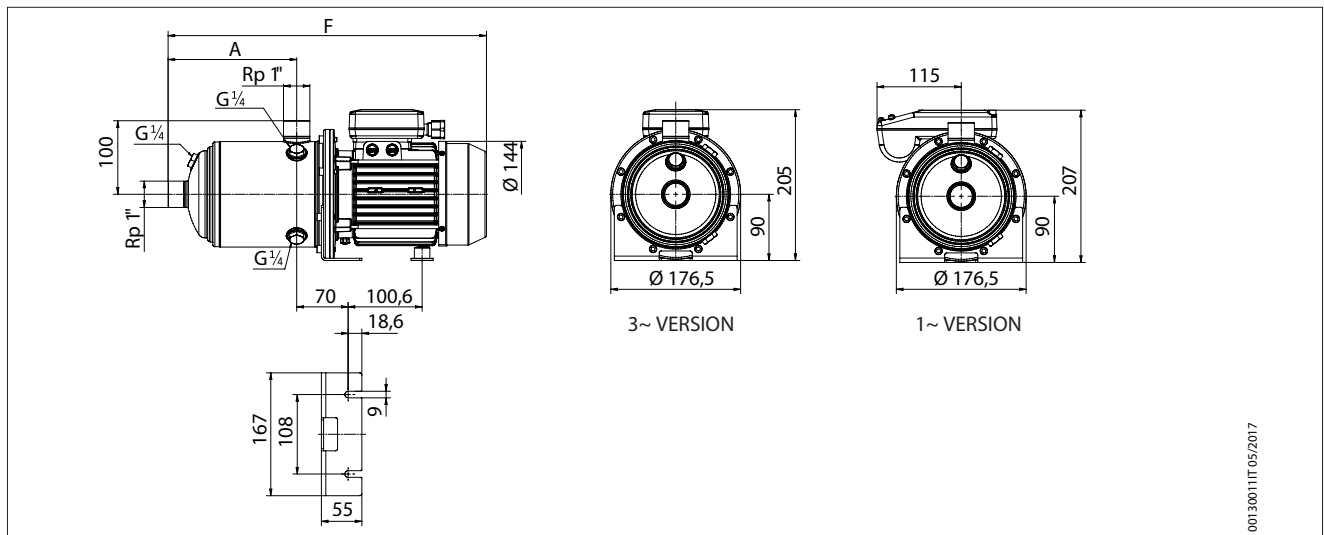
## 1 ~ ELECTRIC PUMP TECHNICAL DATA

Pump model	MOTOR SIZE	MOTOR NOMINAL POWER		INPUT POWER [kW]	Capacitor 450 V [µf]	INPUT CURRENT [A] 220-240 V	Dimensions [mm]		Weight [Kg]
		[kW]	[HP]				A	F	
EHsp 5/4	71	0,9	1,2	1,10	30	5,3	175	435	14
EHsp 5/5	71	1,1	1,5	1,31	30	6,1	199	459	14,6

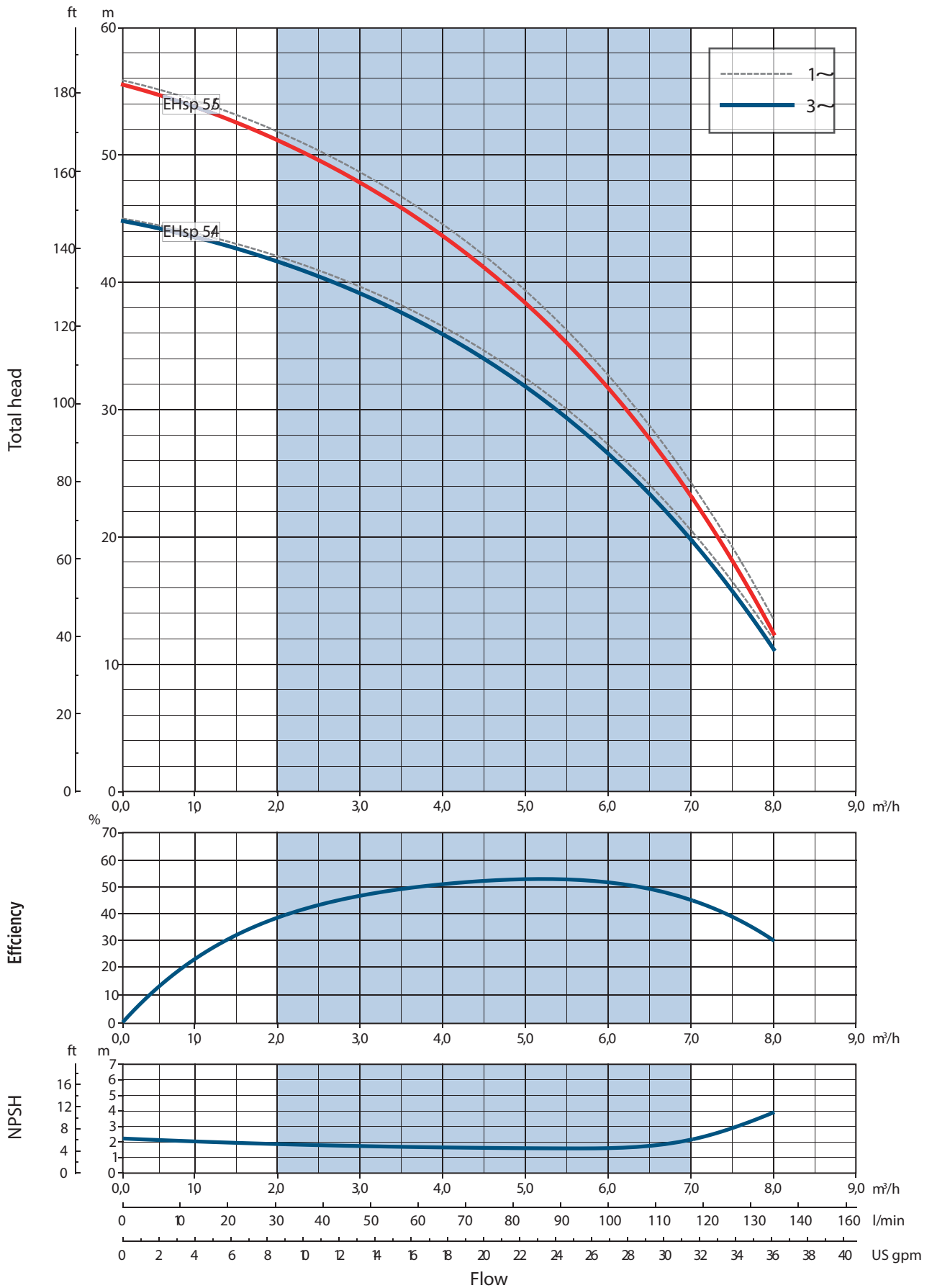
## 3 ~ ELECTRIC PUMP TECHNICAL DATA

Pump model	MOTOR SIZE	MOTOR NOMINAL POWER		INPUT POWER [kW]	INPUT CURRENT [A]		Dimensions [mm]		Weight [Kg]
		[kW]	[HP]		220-240 V	380-415 V	A	F	
EHsp 5/4T	71	1,1	1,5	0,99	3,2	1,9	175	435	12,8
EHsp 5/5T	71	1,1	1,5	1,20	3,7	2,1	199	459	13,4

## DIMENSIONAL DRAWINGS



# EHsp5 - PERFORMANCE CURVES AT 50 HZ



00120010\_05/201



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