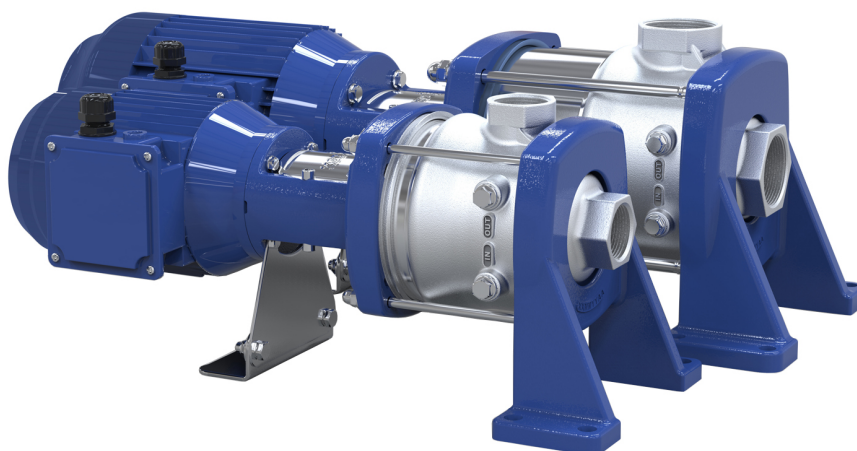


Multistage Horizontal High-pressure Centrifugal Pump



Type Series Booklet DPH(S)I



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Type Series Booklet DPH(S)I

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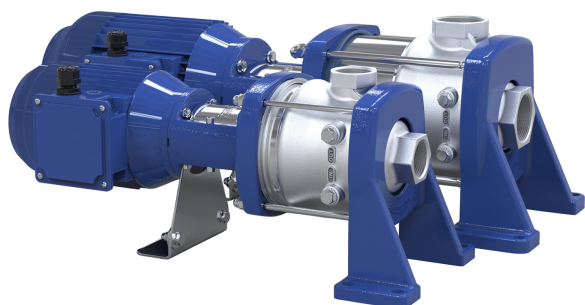
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High-pressure Pumps

Multistage Horizontal High-pressure Centrifugal Pump

DPH(S)I



19068612107

Main applications

- Spray irrigation systems
- General irrigation systems
- Washing plants
- Fire-fighting systems
- Pressure boosting
- Industrial plants
- Water supply systems
- Heating, ventilation and air-conditioning systems
- Marine applications

Fluids handled

- Hot water
- Clear water
- Condensate
- Cooling water
- Fire-fighting water
- Oil
- Cleaning agents
- And others

Operating data

Operating properties

Characteristic		Value
Flow rate	Q [m³/h]	≤ 26,3
Head	H [m]	≤ 195
Fluid temperature	T [°C]	≥ -20
		≤ +140
Operating pressure	p [bar]	≤ 25

Design details

Design

- High-pressure pump
- Maximum pressure class PN 25
- Centrifugal pump
- Single-stage or multistage

Installation

- Horizontal installation

Drive

- Surface-cooled DP squirrel-cage motor
- Thermal class F to IEC 34-1
- Efficiency class IE3 to IEC 60034-30 (≥ 0.75 kW)
- Enclosure IP55
- Frequency 50 Hz/60 Hz

Optional:

- Harting connector, type HAN 10E

Shaft seal

- Uncooled maintenance-free mechanical seal
 - Fixed mechanical seal
 - Easy Access mechanical seal
 - Cartridge mechanical seal

Bearings

- Tungsten carbide plain bearings at the hydraulic rotor



Designation

Designation example

Position																							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
D	P	H	S	I	1	5	/	0	4	-	B	4	S	1	3	F	E	1	1	2	B	7	U
See name plate and data sheet												See data sheet											

Designation key

Position	Code	Description
1-2	Pump type	
	DP	DP
3-4	Design	
	H	Cast steel (1.4308)
	HS	Cast steel (1.4408)
5	Connection type	
	I	Internal thread
6-7	Size	
	02	2
	...	...
	15	15
9-10	Number of stages	
	01	1
	...	...
	14	14
11	Number of stages with special impeller	
	_1)	No stage with a special impeller
	L	First stage with a special impeller for lower NPSH values
12	Product generation	
	B	DP from 2010
13	Connection standard	
	4	Internal thread (EN ISO 228-1)
14	Material variant	
	S	Cast steel (1.4408 - 1.4408 - EN-GJS-400-15)
15-16	Seal code	
	11	BQ1EGG
	12	BQ1VGG
	13	Q1BEGG
	14	Q1BVGG
	15	U3U3X4GG
	16	U3U3VGG
	18	U3BEGG
	23	Q1BEGG
	24	Q1Q1VGG
	28	Q1Q1X4GG
	29	Q1Q1EGG
17	Mechanical seal design	
	F	Fixed mechanical seal
	E	Easy Access mechanical seal
	C	Cartridge mechanical seal
18	Drive	
	E	Without motor
	-	Standard IEC
19-21	Motor size	
	056	NEMA 56C
	071	IEC 71
	080	IEC 80
	090	IEC 90
	100	IEC 100
	112	IEC 112

1) Blank

Position	Code	Description
19-21	132	IEC 132
	143	NEMA 143TC
	145	NEMA 145TC
	160	IEC 160
	180	IEC 180
	182	NEMA 182TC
	184	NEMA 184TC
	200	IEC 200
	215	NEMA 215TC
	225	IEC 225
	256	NEMA 256TC
	284	NEMA 284TC
	286	NEMA 286TC
	324	NEMA 324TC
	326	NEMA 326TC
	364	NEMA 364TC
22	Pressure class	
	A	PN16 / PN25
	B	PN25
23	Frequency, number of motor poles	
	5	50 Hz, 2 poles
	6	60 Hz, 2 poles
	7	50 Hz, 4 poles
	8	60 Hz, 4 poles
24	Motor specification	
	A	0.37/0.55 kW, without IE classification
	M	230 V, single-phase AC motor
	U	230/400 V - IE3
	V	400/690 V - IE3
	W	230/400 V - IE4/IE5
	X	400/690 V - IE4/IE5

Materials

Overview of materials depending on the design

Part No.	Description	Variant	
		H	HS
10-6	Pump shroud	1.4301	1.4404
101	Pump casing	1.4408	1.4408
108	Stage casing	1.4301	1.4404
160	Discharge cover	1.4301	1.4404
210	Shaft	1.4057	1.4460
230	Impeller	1.4301	1.4404
341	Drive lantern	EN-GJL-250 ²⁾ / EN-GJS-400-15 ³⁾	
412	O-ring	EPDM-WRc / ACS	FPM / HNBR
525	Spacer sleeve	1.4301	1.4401
529	Bearing sleeve	Tungsten carbide / aluminium oxide	
89-11	Retaining bracket	1.4301	
890	Baseplate	EN-GJS-400-15	
905	Tie bolt	1.4057	
920	Nut	1.4301	1.4404
932	Circlip	1.4571	

Comparison of materials

EN	ASTM
EN-GJL-250	A48 Class 35 B
EN-GJS-400-15	A536 Gr. 60-40-18
1.4057	SS 431
1.4301	SS 304

- 2) Sizes 2B, 4B, 6B, 10B, 15B (≤ 4 kW)
3) Sizes 2B, 4B, 6B, 10B, 15B (≥ 5.5 kW)

EN	ASTM
1.4308	Gr. CF8
1.4404	SS 316L
1.4408	Gr. CF8M
1.4460	SS 329
1.4571	SS 316Ti

Coating and preservation

Coating of pump components

Component	Coating
Drive lantern	Cataphoretic coating
Pump foot	Powder coating

Product benefits

- Reliable: product-lubricated plain bearings made of tungsten carbide, cast pump foot, torsion-resistant pump shroud and confined O-rings
- Long service life: corrosion-resistant hydraulic components made of stainless steel
- Easy to service: can be fitted with any standardised mechanical seal (to EN 12756)
- Easy to install underneath other machinery due to horizontal installation

Acceptance tests and warranty

- Pressure test
 - to EN 809

- Leak test
 - with water
- Materials testing
 - Certificate of compliance with the order (corresponds to EN 10204)
In the certificate of compliance with the order the manufacturer confirms by way of an informal report without specifying test results that the delivery complies with the stipulations of the purchase order.
 - Test report 2.2 on request
- Final inspection
 - Inspection certificate 3.1 to EN 10204 on request
- Hydraulic test
The duty point of each pump is guaranteed to ISO 9906:2012 Grade 3B.
This test is always carried out using the original motor. The NPSH and the suction lift are not measured (3.2 certificate available).
- Warranties
Warranties are given within the scope of the valid terms and conditions of sale and delivery.

Selection information

Impeller for lower NPSH values

An impeller for lower NPSH values is available for sizes 2, 4, 6, 10 and 15.

This type of impeller ensures that the pump's NPSH curve is significantly improved.

The solution is based on a newly developed impeller for lower NPSH values and a modified stage casing. Cavitation inside the pump can hence be prevented in the case of critical inlet conditions.

Risks of cavitation:

- Reduced lifetime of the pump due to damaged parts and unbalanced hydraulic system
- Excessive wear of pump parts or motor bearings
- Insufficient cooling and/or lubrication of the mechanical seal and pump bearing

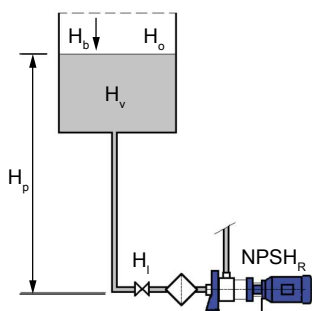
Benefits of using impellers for lower NPSH values:

- More suitable in critical inlet conditions
- Easy adaptation to non-optimised application parameters
- The suction lift (Hp) is less crucial (the frame height of the degassing tank used in boiler feeding can be reduced).

Consequences of using impellers for lower NPSH values:

- No need to change pump installation heights or pump nozzles
- Minor adjustments to the characteristic curve

Calculation:



$$\begin{aligned} \text{NPSH}_A &\geq \text{NPSH}_R + H_z \\ \text{NPSH}_A &= H_b + H_o + H_p - H_v - H_l \\ x &= H_b + H_o + H_p - H_v - H_l - \text{NPSH}_R - H_z \\ x &\geq 0 \end{aligned}$$

Fig. 1: Calculating the NPSH_A

NPSH_A	NPSH system value at operating point
NPSH_R	NPSH pump value at operating point (see characteristic curve of the pump)
H_b	Atmospheric pressure [mWc]
H_o	Positive pressure (with tank closed) [mWc]
H_p	Suction lift [mWc]
H_v	Vaporisation pressure [mWc] (see water vaporisation pressure diagram)
H_l	Friction losses in pipes and accessories [mWc]
H_z	Safety margin (min. 0,5 m)
x	Minimum pressure

Result:

If the minimum pressure (x) is positive, there is no risk of cavitation.

If the minimum pressure (x) is negative, there is a risk of cavitation which can be avoided by using an impeller for lower NPSH values. Another option is to change one of the other values so that the value becomes positive.

Example:

- Boiler feed water: 105 °C
- Positive height of tank: 2 m
- Positive pressure in tank: 3 mWc
- Flow rate: 5 m³/h
- Head: 100 m (10 bar)
- Size selected: 4

Calculation of positive pressure on suction flange:

Calculation of positive pressure on suction flange:	Standard impeller	Special impeller for lower NPSH values
Atmospheric pressure [mWc]	10,3	10,3
Positive pressure (with tank closed)	3,0	3,0
Suction lift	2,0	2,0
Vaporisation pressure [mWc] (see water vaporisation pressure diagram)	-12,5	-12,5
Friction losses in pipes and accessories [mWc]	-1,0	-1,0
Safety margin (min. 0,5 m)	-0,5	-0,5
NPSH pump value at operating point (see characteristic curve of the pump)	-2,1	-0,8
Minimum pressure	-0,8	+0,5
Conclusion	Cavitation will occur.	No cavitation

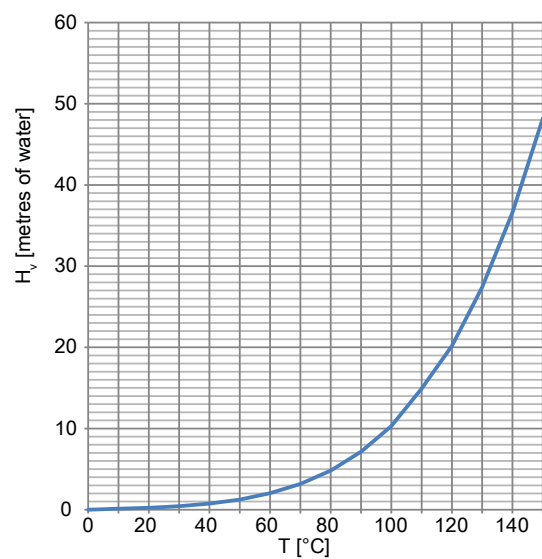


Fig. 2: Vaporisation pressure diagram (H_v) for water

Information about the characteristic curve

NPSH [m], [ft]:

- The NPSH values given in the individual characteristic curves are minimum values which correspond to the cavitation limit.
- A safety margin of at least 0.5 m must be added when selecting the pump to compensate for measuring inaccuracies.
- The NPSH curves reflect average values.
- A safety margin of 0.5 m must be added to the NPSH value of the characteristic curve when selecting a system.

P [kW], [hp]:

- The power input is indicated per stage (St = 1).
The pump input power can be calculated accordingly.
Calculation: value indicated in the diagram (St = 1) × number of stages
Example: DPH(S)I 15/4: P = (St = 1) × 4

Fluid handled

The actual operating conditions must always be checked (concentration, temperature, solids content). Penetration of air into the system must be avoided by all means.

If the fluid handled contains solids such as steel chips or steel chip dust, check the permissible particle concentration with DP.

Minimum flow rate and maximum flow rate

Minimum flow rate and maximum flow rate Q at a fluid temperature ≤ +20 °C depending on the speed, 50 Hz

DPH(S)I	Q			
	2900 rpm		1450 rpm	
	Min.	Max.	Min.	Max.
	[m³/h]	[m³/h]	[m³/h]	[m³/h]
2B	0,2	3,3	-	-
4B	0,4	6,5	-	-
6B	0,6	9,0	-	-
10B	1,1	13,2	0,5	6,6
15B	1,6	22,5	0,8	11,3

Minimum flow rate and maximum flow rate Q at a fluid temperature ≤ +20 °C depending on the speed, 60 Hz

DPH(S)I	Q			
	3500 rpm		1750 rpm	
	Min.	Max.	Min.	Max.
	[m³/h]	[m³/h]	[m³/h]	[m³/h]
2B	0,2	4,0	-	-
4B	0,5	7,8	-	-
6B	0,8	8,6	-	-
10B	1,3	15,8	0,6	7,9
15B	2,0	27,0	1,0	13,5

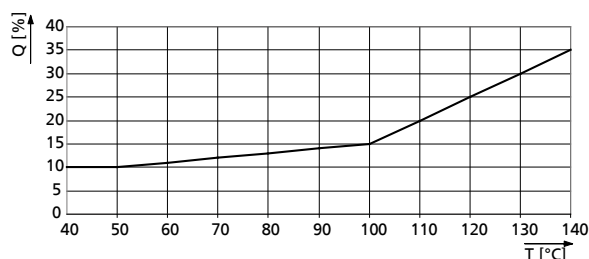


Fig. 3: Minimum flow rate required as a function of fluid temperature at a fluid temperature > +20 °C

Overview of product features / selection tables

Overview of fluids handled

The data refer to the chemical resistance of the materials. The relevant regulations / standards governing individual pump applications have to be complied with.

If the operating conditions differ from the data given (e.g. mixed products) or if the fluids handled are not included in the table below, please contact the manufacturer.

- **Temperature ranges:**
 - Reference temperature: +20 °C
 - For temperatures <0 °C: contact the manufacturer.
 - For temperatures > +50 °C: check and observe the vapour pressure of the fluid handled.
 - Max. temperature = +120 °C, unless indicated otherwise.
- Max. concentration = 100 % unless indicated otherwise.
- Mechanical seal silicon carbide / carbon (Q1B): not suitable for fluids containing solid substances. This rule also covers particles developing as a result of salt crystallisation at low fluid temperatures.
- Mechanical seal tungsten carbide / tungsten carbide (U3U3): solids content max. 20 ppm (depending on particle size), with the exception of corrosive fluids. Fluids with a higher solids content are not permitted (ppm = 1 mg/kg).
- Caution: High temperatures will increase corrosion (reference temperature = +20 °C).
- Under unfavourable conditions (high temperatures, deposits, long idle periods), chloride contents of more than 300 mg/l may result in localised corrosion.

Selecting the design of pump and mechanical seal depending on the fluid to be handled

Fluid handled			Design															
Substance contained	Max. percentage	T _{max.}	H								HS							
	[%]	[°C]	Seal code															
			11	12	13	14	15	16	18	11	12	13	14	15	16	18		
Alum, acid-free	≤ 3	+50	-	X	-	X	-	-	-	-	X	-	X	-	-	-		
Alum, acid-free	≤ 3	+80	-	-	-	-	-	-	-	-	X	-	X	-	-	-		
Alkaline solution, bottle rinsing, max. 2 % sodium hydroxide	≤ 100	+40	-	-	-	-	X	-	-	-	-	-	-	X	-			
Alcohol																		
▪ Butanol	≤ 100	+60	X	-	X	-	-	-	-	X	-	X	-	-	-	-		
▪ Ethanol	≤ 100	+60	X	-	X	-	-	-	-	X	-	X	-	-	-	-		
▪ Propanol	≤ 100	+80	X	-	X	-	-	-	-	X	-	X	-	-	-	-		
▪ Spirits (40 % ethanol)	≤ 100	+60	X	-	X	-	-	-	-	X	-	X	-	-	-	-		
Wine (white, red)	≤ 100	+60	X	X	X	X	-	-	-	X	X	X	X	-	-	-		
Tartaric acid	≤ 100	+60	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Ammonium bicarbonate	≤ 10	+40	X	-	X	-	-	-	-	X	-	X	-	-	-	-		
Aluminium sulphate, acid-free	≤ 5	+50	-	-	-	-	-	X	-	-	-	-	-	-	X	-		
Aluminium sulphate, acid-free	≤ 5	+60	-	-	-	-	-	-	-	-	-	-	-	-	X	-		
Ammonium sulphate	≤ 20	+60	X	-	X	-	-	-	-	X	-	X	-	-	-	-		
Calcium acetate, acid-free	≤ 10	+60	X	-	X	-	-	-	-	X	-	X	-	-	-	-		
Calcium nitrate, acid-free	≤ 10	+60	-	-	-	-	-	X	-	-	-	-	-	-	X	-		
Ferric sulphate (II)	≤ 5	+80	-	-	-	-	-	X	-	-	-	-	-	-	X	-		
Water-oil emulsion (95 %, 5 %), free of solids	≤ 100	+80	-	X	-	X	-	-	-	-	X	-	X	-	-	-		
Ethylene glycol base anti-freeze, inhibited, closed system	≤ 20	+110	X ⁴⁾	X	X ⁴⁾	X	-	X	-	X ⁴⁾	X	X ⁴⁾	X	-	X	-		
	≤ 25	+110	X ⁴⁾	X	X ⁴⁾	X	-	X	-	X ⁴⁾	X	X ⁴⁾	X	-	X	-		
	≤ 30	+110	X ⁴⁾	X	X ⁴⁾	X	-	X	-	X ⁴⁾	X	X ⁴⁾	X	-	X	-		
	≤ 35	+110	X ⁴⁾	X	X ⁴⁾	X	-	X	-	X ⁴⁾	X	X ⁴⁾	X	-	X	-		
	≤ 40	+110	X ⁴⁾	X	X ⁴⁾	X	-	X	-	X ⁴⁾	X	X ⁴⁾	X	-	X	-		
	≤ 45	+110	X ⁴⁾	X	X ⁴⁾	X	-	X	-	X ⁴⁾	X	X ⁴⁾	X	-	X	-		
	≤ 50	+110	X ⁴⁾	X	X ⁴⁾	X	-	X	-	X ⁴⁾	X	X ⁴⁾	X	-	X	-		
Ethylene glycol base anti-freeze, inhibited, open system	≤ 20	+110	X ⁴⁾	X	X ⁴⁾	X	-	X	-	X ⁴⁾	X	X ⁴⁾	X	-	X	-		
	≤ 25	+110	X ⁴⁾	X	X ⁴⁾	X	-	X	-	X ⁴⁾	X	X ⁴⁾	X	-	X	-		
	≤ 30	+110	X ⁴⁾	X	X ⁴⁾	X	-	X	-	X ⁴⁾	X	X ⁴⁾	X	-	X	-		
	≤ 35	+110	X ⁴⁾	X	X ⁴⁾	X	-	X	-	X ⁴⁾	X	X ⁴⁾	X	-	X	-		
	≤ 40	+110	X ⁴⁾	X	X ⁴⁾	X	-	X	-	X ⁴⁾	X	X ⁴⁾	X	-	X	-		
	≤ 45	+110	X ⁴⁾	X	X ⁴⁾	X	-	X	-	X ⁴⁾	X	X ⁴⁾	X	-	X	-		

4) ≤ 100 °C

Fluid handled			Design															
Substance contained	Max. percentage	T _{max.}	H								HS							
			Seal code															
	[%]	[°C]	11	12	13	14	15	16	18	11	12	13	14	15	16	18		
Ethylene glycol base anti-freeze, inhibited, open system	≤ 50	+110	X ⁴⁾	X	X ⁴⁾	X	-	X	-	X ⁴⁾	X	X ⁴⁾	X	-	X	-		
Glycerine	≤ 40	+80	X	X	X	X	-	-	-	X	X	X	X	-	-	-		
Ethylene glycol (pure)	≤ 100	+100	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Diethylene glycol	≤ 100	+100	X	X	X	X	-	-	-	X	X	X	X	-	-	-		
Ethylene glycol	≤ 100	+100	X	X	X	X	-	-	-	X	X	X	X	-	-	-		
Potassium hydroxide	≤ 5	+40	-	-	-	-	X	-	-	-	-	-	-	X	-	-		
Potassium nitrate, acid-free	≤ 5	+30	-	-	-	-	X	-	-	-	-	-	-	X	-	-		
Potassium sulphate, acid-free	≤ 3	+20	-	X	-	X	-	-	-	-	X	-	X	-	-	-		
Copper sulphate	≤ 5	+80	-	-	-	-	X	-	-	-	-	-	-	X	-	-		
Magnesium sulphate	≤ 10	+80	-	X	-	X	-	-	-	-	X	-	X	-	-	-		
Milk	≤ 100	+60	X	X	X	X	-	-	-	X	X	X	X	-	-	-		
Lactic acid	≤ 40	+60	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Miscella ⁵⁾	≤ 100	+40	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Sodium carbonate	≤ 6	+60	X	-	X	-	-	-	-	X	-	X	-	-	-	-		
Sodium hydroxide	≤ 5	+60	-	-	-	-	X	-	-	-	-	-	-	X	-	-		
Sodium nitrate, acid-free	≤ 10	+30	X	-	X	-	-	-	-	X	-	X	-	-	-	-		
Sodium nitrate, acid-free	≤ 10	+60	X	-	X	-	-	-	-	-	-	-	-	-	-	-		
Sodium sulphate, acid-free	≤ 5	+60	X	-	X	-	-	-	-	X	-	X	-	-	-	-		
Oil																		
▪ Peanut oil	≤ 100	+90	-	X	-	X	-	-	-	-	X	-	X	-	-	-		
▪ Peanut oil	≤ 100	+100	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
▪ Linseed oil, ≤ 3 % H ₂ SO ₄	≤ 100	+20	-	X	-	X	-	-	-	-	X	-	X	-	-	-		
▪ Linseed oil, ≤ 3 % H ₂ SO ₄	≤ 100	+60	-	-	-	-	-	-	-	-	X	-	X	-	-	-		
▪ Hydraulic oil ⁵⁾	≤ 100	+80	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
▪ Linseed oil	≤ 100	+60	-	X	-	X	-	-	-	-	X	-	X	-	-	-		
▪ Linseed oil	≤ 100	+60	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
▪ Corn oil	≤ 100	+100	-	X	-	X	-	-	-	-	X	-	X	-	-	-		
▪ Mineral oil ⁵⁾	≤ 100	+80	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
▪ Vegetable oil ⁵⁾	≤ 100	+100	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
▪ Rapeseed oil	≤ 100	+100	-	X	-	X	-	-	-	-	X	-	X	-	-	-		
▪ Salad oil	≤ 100	+100	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
▪ Lubricating oil ⁵⁾	≤ 100	+100	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
▪ Silicone oil ⁵⁾	≤ 100	+60	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
▪ Soybean oil	≤ 100	+100	-	X	-	X	-	-	-	-	X	-	X	-	-	-		
▪ Turpentine oil ⁵⁾	≤ 100	+60	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
▪ Turbine oil (no SDF oils) ⁵⁾	≤ 100	+100	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
▪ Oil-water mixtures	≤ 100	+100	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Paraffin ⁵⁾	≤ 100	+100	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Kerosene	≤ 100	+80	-	X	-	X	-	-	-	-	X	-	X	-	-	-		
Polyethylene glycol ⁵⁾	≤ 100	+80	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Polyglycol ⁵⁾	≤ 100	+80	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Crude oil ⁵⁾	≤ 100	+80	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Crude oil condensate ⁵⁾	≤ 100	+80	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Juice (fruit and sugar juice)	≤ 100	+60	-	X	-	X	-	-	-	-	X	-	X	-	-	-		
Acid																		
▪ Acetic acid	≤ 10	+60	X	-	X	-	-	-	-	X	-	X	-	-	-	-		
▪ Acetic acid	≤ 5	+60	X	-	X	-	-	-	-	X	-	X	-	-	-	-		

5) 4) Fluid details required

Fluid handled			Design															
Substance contained	Max. percentage	T _{max.}	H								HS							
			Seal code															
		[%]	[°C]	11	12	13	14	15	16	18	11	12	13	14	15	16	18	
▪ Tannic acid	≤ 20	+80	-	✗	-	✗	-	-	-	-	✗	-	✗	-	-	-	-	
▪ Maleic acid	≤ 10	+60	-	✗	-	✗	-	-	-	-	✗	-	✗	-	-	-	-	
▪ Lactic acid	≤ 5	+60	-	✗	-	✗	-	-	-	-	✗	-	✗	-	-	-	-	
▪ Lactic acid	≤ 40	+60	-	✗	-	✗	-	-	-	-	✗	-	✗	-	-	-	-	
▪ Phosphoric acid	≤ 5	+20	-	✗	-	✗	-	-	-	-	✗	-	✗	-	-	-	-	
▪ Sulphuric acid	≤ 5	+20	-	-	-	-	-	-	-	-	-	-	-	-	-	✗	-	
▪ Tartaric acid	≤ 8	+40	-	-	-	-	-	-	-	-	✗	-	✗	-	-	-	-	
▪ Citric acid	≤ 25	+30	-	✗	-	✗	-	-	-	-	✗	-	✗	-	-	-	-	
▪ Citric acid	≤ 10	+30	-	✗	-	✗	-	-	-	-	✗	-	✗	-	-	-	-	
Fuel																		
▪ Diesel oil	≤ 100	+80	-	✗	-	✗	-	-	-	-	✗	-	✗	-	-	-	-	
▪ Fuel oil	≤ 100	+80	-	✗	-	✗	-	-	-	-	✗	-	✗	-	-	-	-	
▪ Jet fuel	≤ 100	+80	-	✗	-	✗	-	-	-	-	✗	-	✗	-	-	-	-	
Trisodium phosphate	≤ 4	+80	-	-	-	-	-	✗	-	-	-	-	-	-	✗	-	-	
Water																		
▪ Deionised water (fully desalinated)	≤ 100	+140	✗	-	✗	-	-	-	✗ ⁶⁾	✗	-	✗	-	-	-	-	✗ ⁶⁾	
▪ Distilled water	≤ 100	+140	✗	-	✗	-	-	-	-	✗	-	✗	-	-	-	-	-	
▪ Dealkalised water	≤ 100	+120	-	-	-	-	✗	-	-	-	-	-	-	✗	-	-	-	
▪ Decarbonised water	≤ 100	+120	-	-	-	-	✗	-	-	-	-	-	-	✗	-	-	-	
▪ Swimming pool water (no brine)	≤ 100	+100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
▪ Permeate (osmosis)	≤ 100	+140	✗	-	✗	-	-	-	✗ ⁶⁾	✗	-	✗	-	-	-	-	✗ ⁶⁾	
▪ Partly desalinated water	≤ 100	+120	-	-	-	-	✗	-	-	-	-	-	-	✗	-	-	-	
▪ Fire-fighting water	≤ 100	+60	-	-	-	-	✗	-	✗	-	-	-	-	✗	-	✗	-	
▪ Heating water in accordance with VDI 2035	≤ 100	+100	✗	-	✗	-	-	-	✗	✗	-	✗	-	-	-	-	✗	
▪ High-temperature hot water treated in accordance with VdTÜV 1466	≤ 100	+140	✗ ⁴⁾	-	✗ ⁴⁾	-	-	-	✗ ⁶⁾	✗ ⁴⁾	-	✗ ⁴⁾	-	-	-	-	✗ ⁶⁾	
▪ Boiler feed water to VdTÜV 1466	≤ 100	+140	✗ ⁴⁾	-	✗ ⁴⁾	-	-	-	✗ ⁶⁾	✗ ⁴⁾	-	✗ ⁴⁾	-	-	-	-	✗ ⁶⁾	
▪ Condensate treated in acc. with VdTÜV 1466	≤ 100	+140	✗ ⁴⁾	-	✗ ⁴⁾	-	-	-	✗ ⁶⁾	✗ ⁴⁾	-	✗ ⁴⁾	-	-	-	-	✗ ⁶⁾	
▪ Vapour condensate (brewery)	≤ 100	+140	✗ ⁴⁾	-	✗ ⁴⁾	-	-	-	✗ ⁶⁾	✗ ⁴⁾	-	✗ ⁴⁾	-	-	-	-	✗ ⁶⁾	
▪ Cooling water	≤ 100	+100	-	-	-	-	-	✗	-	-	-	-	-	-	-	✗	-	
▪ Tap water	≤ 100	+60	✗	-	✗	-	-	-	-	✗	-	✗	-	-	-	-	-	
▪ Brewing water	≤ 100	+60	✗	-	✗	-	-	-	-	✗	-	✗	-	-	-	-	-	
▪ Ice water (brewery)	≤ 100	+60	✗	-	✗	-	-	-	-	✗	-	✗	-	-	-	-	-	
▪ Drinking water / tap water	≤ 100	+60	✗	-	✗	-	-	-	-	✗	-	✗	-	-	-	-	-	
▪ Hot water (brewery)	≤ 100	+60	✗	-	✗	-	-	-	-	✗	-	✗	-	-	-	-	-	
▪ Clean water	≤ 100	+60	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	
▪ Brackish water	≤ 100	+15	-	-	-	-	-	-	-	-	-	-	-	-	-	✗	-	
▪ Seawater	≤ 100	+15	-	-	-	-	-	-	-	-	-	-	-	-	-	✗	-	
▪ Raw water	≤ 100	+60	-	-	-	-	✗	-	-	-	-	-	-	-	✗	-	-	
▪ Grey water, slightly contaminated water	≤ 100	+60	-	-	-	-	✗	-	-	-	-	-	-	-	✗	-	-	
▪ River water	≤ 100	+60	-	-	-	-	✗	-	-	-	-	-	-	-	✗	-	-	
▪ Lake water	≤ 100	+60	-	-	-	-	✗	-	-	-	-	-	-	-	✗	-	-	

6) ≤ 120 °C, depending on the pressure classes

Fluid handled			Design															
Substance contained	Max. percentage	T _{max.}	H								HS							
	[%]	[°C]	Seal code															
			11	12	13	14	15	16	18	11	12	13	14	15	16	18		
▪ Dam water	≤ 100	+60	-	-	-	-	X	-	-	-	-	-	-	X	-	-		
▪ Surface water	≤ 100	+60	-	-	-	-	X	-	-	-	-	-	-	X	-	-		
▪ Fresh water	≤ 100	+60	-	X	-	X	-	-	-	-	X	-	X	-	-	-		
▪ Barrier water	≤ 100	+70	-	-	-	-	-	X	-	-	-	-	-	-	X	-		
▪ Rinsing water	≤ 100	+70	-	-	-	-	-	X	-	-	-	-	-	-	X	-		
▪ Rainwater, with strainer	≥ 20	+60	-	-	-	-	-	X	-	-	-	-	-	-	X	-		
▪ Water-glycol mixture	≤ 100	+100	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

Shaft seal

Available mechanical seals

Mechanical seal							T		p [bar]
Code	Type	Code to EN 12756	Elastomer	Design			Min.	Max.	
				C	E	F	[°C]	[°C]	
11	MG-G60	B Q1 E G G	EPDM	X	X	X	-20	+100	10
12	MG-G60	B Q1 V G G	FPM	X	X	X	-20	+120	10
13	RMG-G606	Q1 B E G G	EPDM WRAS / ACS	X	X	X	-20	+100	25
14	RMG-G606	Q1 B V G G	FPM	X	X	X	-20	+120	25
15	RMG-G606	U3 U3 X4 G G	HNBR	X	X	X	-20	+120 ⁷⁾	25
16	RMG-G606	U3 U3 V G G	FPM	X	X	X	-20	+120 ⁷⁾	25
18	RMG-G606	U3 B E G G	EPDM 559236	X	X	X	-20	+120 ⁷⁾	25
23	RMG-G606	Q1 B E G G	EPDM	X	X	X	-20	+100	25
24	MG-G60	Q1 Q1 V G G	FPM	X	X	X	-20	+120	10
28	MG-G60	Q1 Q1 X4 G G	HNBR	X	X	X	-20	+120	10
29	MG-G60	Q1 Q1 E G G	EPDM	X	X	X	-20	+100	10

Key to mechanical seal materials

Description	Code to EN 12756	Seal face materials / secondary seals
Primary ring	B	Hard carbon, resin-impregnated
	U3	Tungsten carbide (CrNiMo binder)
	Q1	Silicon carbide (sintered without pressure)
Mating ring	B	Hard carbon, resin-impregnated
	U3	Tungsten carbide (CrNiMo binder)
	Q1	Silicon carbide (sintered without pressure)
Elastomer	E	EPDM (ethylene propylene rubber)
	V	FPM (fluoroelastomer)
	X4	HNBR
Spring	G	CrNiMo steel
Other metal parts	G	CrNiMo steel

Pressure limits and temperature limits

The pump's pressure limits and temperature limits are indicated on the name plate.

7) Temperatures up to 140 °C if the pressure does not exceed 16 bar

Technical data

Motors

- Efficiency class IE3 to IEC 60034-30 (for three-phase motors ≥ 0.75 kW)

Technical motor data, 50 Hz

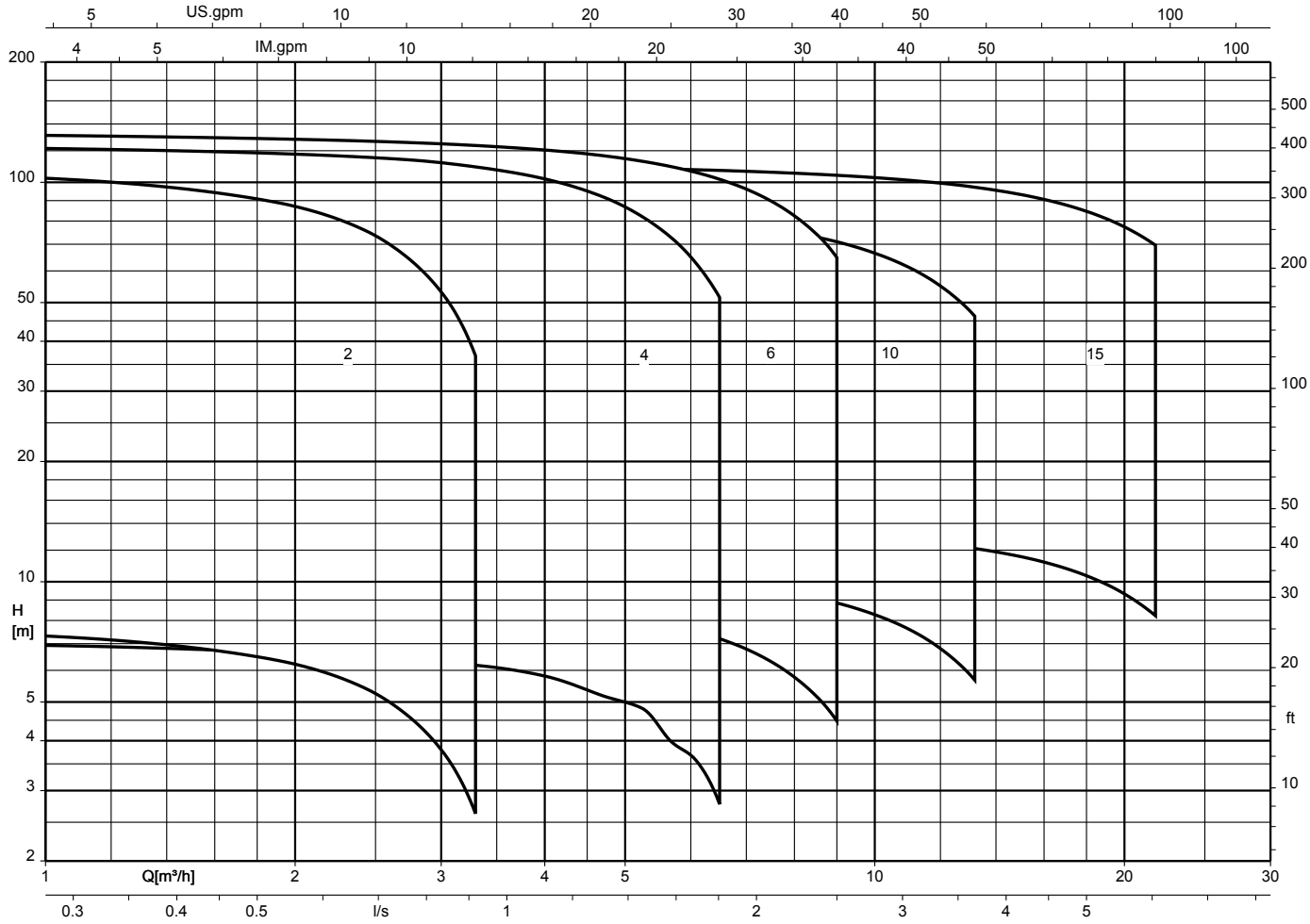
P _N	U _N	I _A	I _A /I _N	cos φ	Tolerance U _N	n	η	L _p	Cable gland	Maximum frequency of starts
[kW]	[V]	[A]			[%]	rpm	[%]	[dB]		[h ⁻¹]
0,37	1 x 230	2,6	3,7	0,92	+/-10	2750	67	58	1xM18x1.5	20
0,55	1 x 230	3,69	3,9	0,92	+/-10	2760	70	56	1xM18x1.5	20
0,75	1 x 230	5	3,9	0,92	+/-10	2780	70	56	1xM20x1.5	20
1,1	1 x 230	6,68	4,3	0,95	+/-10	2790	75	58	1xM20x1.5	20
1,5	1 x 230	8,99	4,8	0,95	+/-10	2800	76	58	1xM20x1.5	20
2,2	1 x 230	13,04	4,8	0,95	+/-10	2800	77	58	1xM20x1.5	20
0,37	230/400	1.6/0.95	4,6	0,76	+/-10	2865	76	60	1xM20x1.5	50
0,55	230/400	2.1/1.2	5,3	0,8	+/-10	2880	82	60	1xM20x1.5	50
0,75	230/400	3.1/1.8	6,6	0,76	+/-10	2880	80.7	55	1xM20x1.5	50
1,1	230/400	4.0/2.3	6,4	0,81	+/-10	2880	84	55	1xM20x1.5	50
1,5	230/400	5.5/3.2	8	0,81	+/-10	2880	84.2	55	1xM20x1.5	50
2,2	230/400	8.0/4.6	8,8	0,8	+/-10	2900	85,9	55	1xM20x1.5	50
3	230/400	10.2/5.8	9,3	0,85	+/-10	2920	87,1	57	2xM20x1.5	30
3	400/690	5.8/3.3	9,3	0,85	+/-10	2920	87,1	57	2xM20x1.5	30
4	230/400	12.8/7.4	9,5	0,89	+/-10	2930	88,1	58	2xM20x1.5	30
4	400/690	7.4/4.3	9,5	0,89	+/-10	2930	88,1	58	2xM20x1.5	30
5,5	230/400	17.3/10.0	8,8	0,89	+/-10	2940	89.2	63	2xM25x1.5	20
5,5	400/690	10.0/5.80	8,8	0,89	+/-10	2940	89,2	63	2xM25x1.5	20
7,5	230/400	23.0/13.3	9,2	0,89	+/-10	2940	90.1	63	2xM25x1.5	20
7,5	400/690	13.3/7.7	9,2	0,89	+/-10	2940	90,1	63	2xM25x1.5	20
0,55	230/400	2.34/1.34	5,3	0,73	+/-10	1425	80.7	57	1xM20x1.5	20
0,75	230/400	3.13/1.8	6,5	0,73	+/-10	1425	82,5	57	1xM20x1.5	20
1,1	230/400	4.21/2.42	6,5	0,78	+/-10	1440	84.4	58	1xM20x1.5	20
1,5	230/400	5.59/3.21	7	0,79	+/-10	1440	85.3	58	1xM25x1.5	20
2,2	230/400	7.86/4.52	7,5	0,81	+/-10	1445	86,7	59	2xM25x1.5	20
3	230/400	10.6/6.10	7,5	0,81	+/-10	1445	87,7	59	2xM25x1.5	20
3	400/690	6.10/3.53	7,5	0,81	+/-10	1445	87,7	59	2xM25x1.5	20
4	230/400	14.0/8.05	8,5	0,81	+/-10	1450	88,5	60	2xM25x1.5	20
4	400/690	8.05/4.66	8,5	0,81	+/-10	1450	88,6	60	2xM25x1.5	20
5,5	230/400	19.0/10.9	8,5	0,81	+/-10	1460	89.9	60	2xM32x1.5	20
5,5	400/690	10.9/6.34	8,5	0,81	+/-10	1460	89,6	60	2xM32x1.5	20
7,5	230/400	25.4/14.6	8,5	0,82	+/-10	1460	90.4	60	2xM32x1.5	20
7,5	400/690	14.6/8.47	8,5	0,82	+/-10	1460	90,4	60	2xM32x1.5	20

Technical motor data, 60 Hz

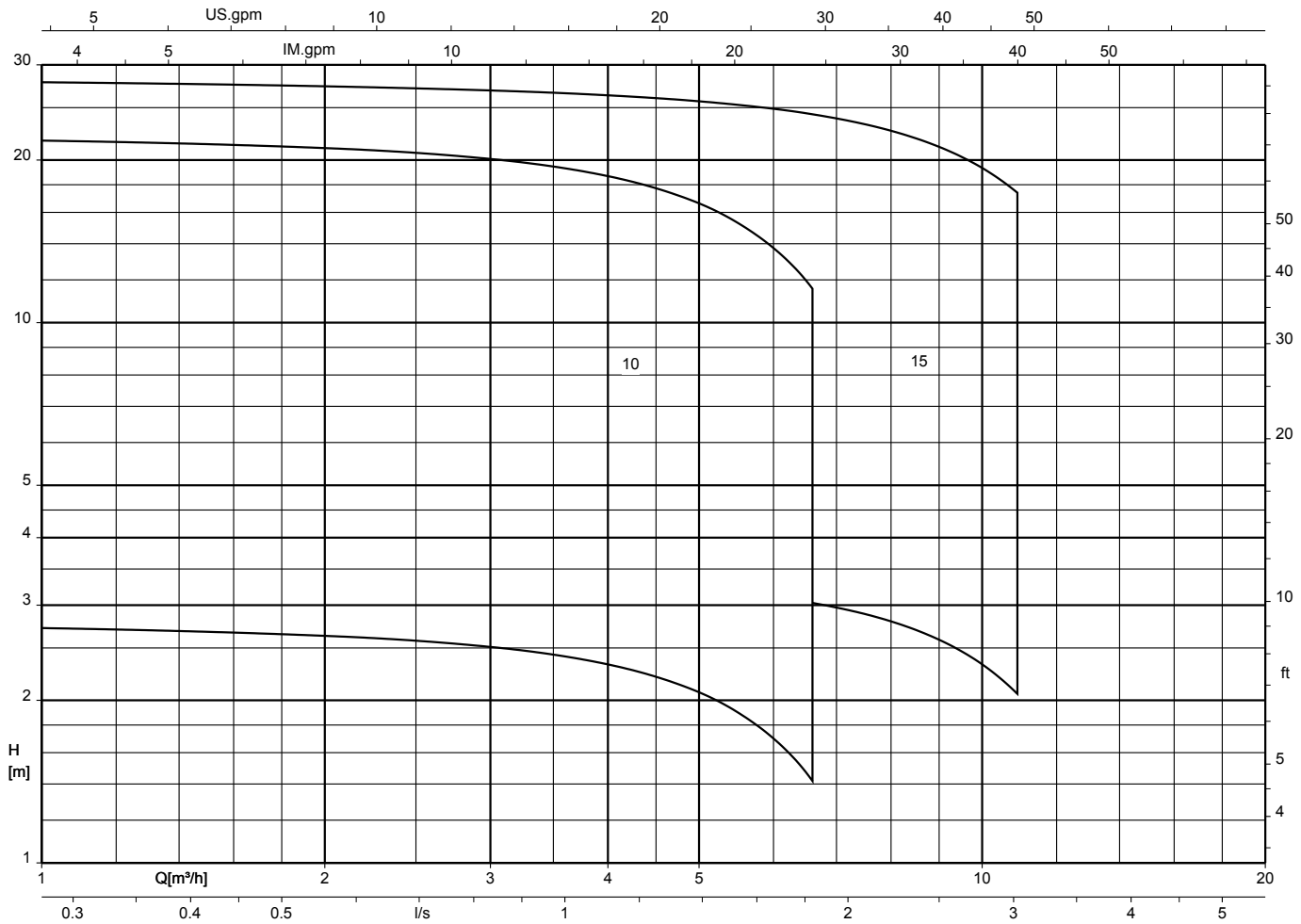
P _N	U _N	I _A	I _A /I _N	cos φ	Tolerance U _N	n	η	L _p	Cable gland	Maximum frequency of starts
[kW]	[V]	[A]			[%]	[rpm]	[%]	[dB]		[h ⁻¹]
0,37	230/400	1.6/0.95	4,5	0,76	-10,+20	3430	76	58	1xM20x1.5	50
0,55	230/400	2.1/1.2	5,3	0,8	-10,+20	3460	82	60	1xM20x1.5	50
0,75	230/400	2.8/1.6	6,2	0,84	-10,+25	3460	80.7	58	1xM20x1.5	50
1,1	230/400	3.8/2.2	6,4	0,86	-10,+25	3440	84	58	1xM20x1.5	50
1,5	230/400	5.1/2.9	7,5	0,88	-10,+25	3455	84	58	1xM20x1.5	50
2,2	230/400	7.1/4.1	8,6	0,9	-10,+25	3480	86.5	58	1xM20x1.5	50
3	230/400	9.7/5.6	7,6	0,9	-10,+25	3495	86,4	61	2xM20x1.5	30
3	400/690	5.6/3.2	7,6	0,9	-10,+25	3495	86.4	61	2xM20x1.5	30
4	230/400	12.5/7.2	8,8	0,92	-10,+25	3525	87,2	62	2xM20x1.5	30
4	400/690	7.2/4.2	8,8	0,92	-10,+25	3525	87.2	62	2xM20x1.5	30
5,5	230/400	17/9.8	7,8	0,92	-10,+25	3525	88.5	67	2xM25x1.5	20
5,5	400/690	9.8/5.6	7,8	0,92	-10,+25	3525	88.5	67	2xM25x1.5	20
7,5	230/400	22.5/13.0	8	0,93	-10,+25	3525	89,5	67	2xM25x1.5	20
7,5	400/690	13.0/7.5	8	0,93	-10,+25	3525	89.5	67	2xM25x1.5	20
0,55	230/400	2.30/1.32	4,5	0,74	-5/+20	1710	81	57	1xM20x1.5	20
0,75	230/400	3.1/1.8	6	0,74	-10/+20	1720	82.7	60	1xM20x1.5	25

P_N	U_N	I_A	$I_A[I_N]$	$\cos \varphi$	Tolerance U_N	n	η	L_p	Cable gland	Maximum frequency of starts
[kW]	[V]	[A]			[%]	[rpm]	[%]	[dB]		[h ⁻¹]
1,1	230/400	4.1/2.4	6	0,79	-10/+20	1730	84.3	61	2xM25x1.5	25
1,5	230/400	5.5/3.2	6	0,8	-10/+20	1730	85.5	61	2xM25x1.5	25
2,2	230/400	7.7/4.5	6,5	0,82	-10/+20	1720	86,7	57	2xM25x1.5	20
3	230/400	10.4/6.0	6,5	0,82	-10/+20	1740	87,9	62	2xM25x1.5	20
3	400/690	6.0/3.5	6,5	0,82	-10/+20	1740	87,9	62	2xM25x1.5	20
4	230/400	13.8/7.9	7	0,82	-10/+20	1740	88.8	63	2xM25x1.5	20
4	400/690	7.9/4.6	7	0,82	-10/+20	1750	88,8	63	2xM25x1.5	20
5,5	230/400	18.7/10.8	7	0,82	-10/+20	1755	89,6	63	2xM32x1.5	20
5,5	400/690	10.7/6.2	6	0,83	-10/+20	1750	89,5	62	2xM32x1.5	20
7,5	230/400	25.0/14.4	7	0,83	-10/+20	1755	90,6	63	2xM32x1.5	20
7,5	400/690	14.4/8.3	7	0,83	-10/+20	1755	90,6	63	2xM32x1.5	20

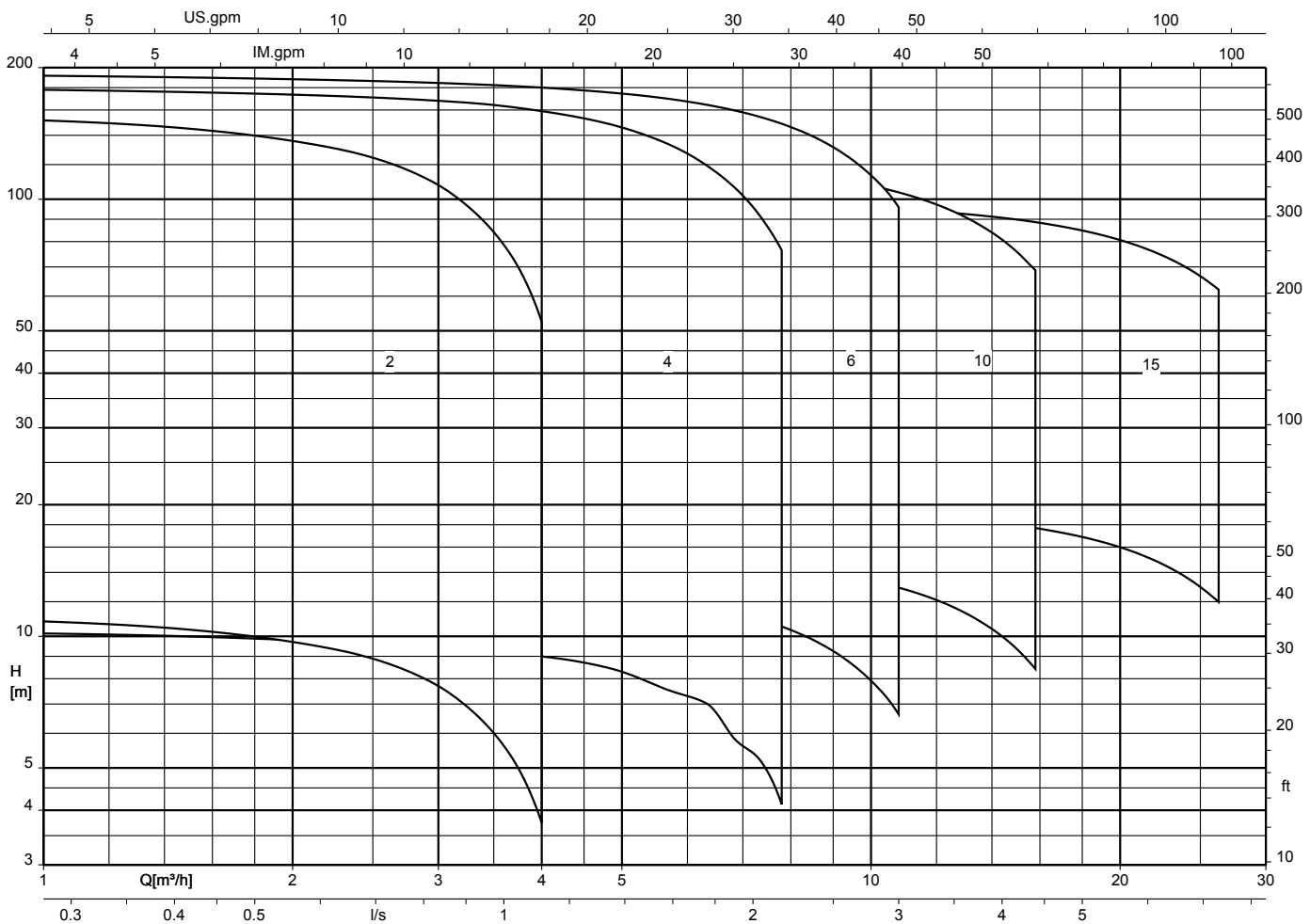
Selection chart
DPH(S)I, 2P 50 Hz



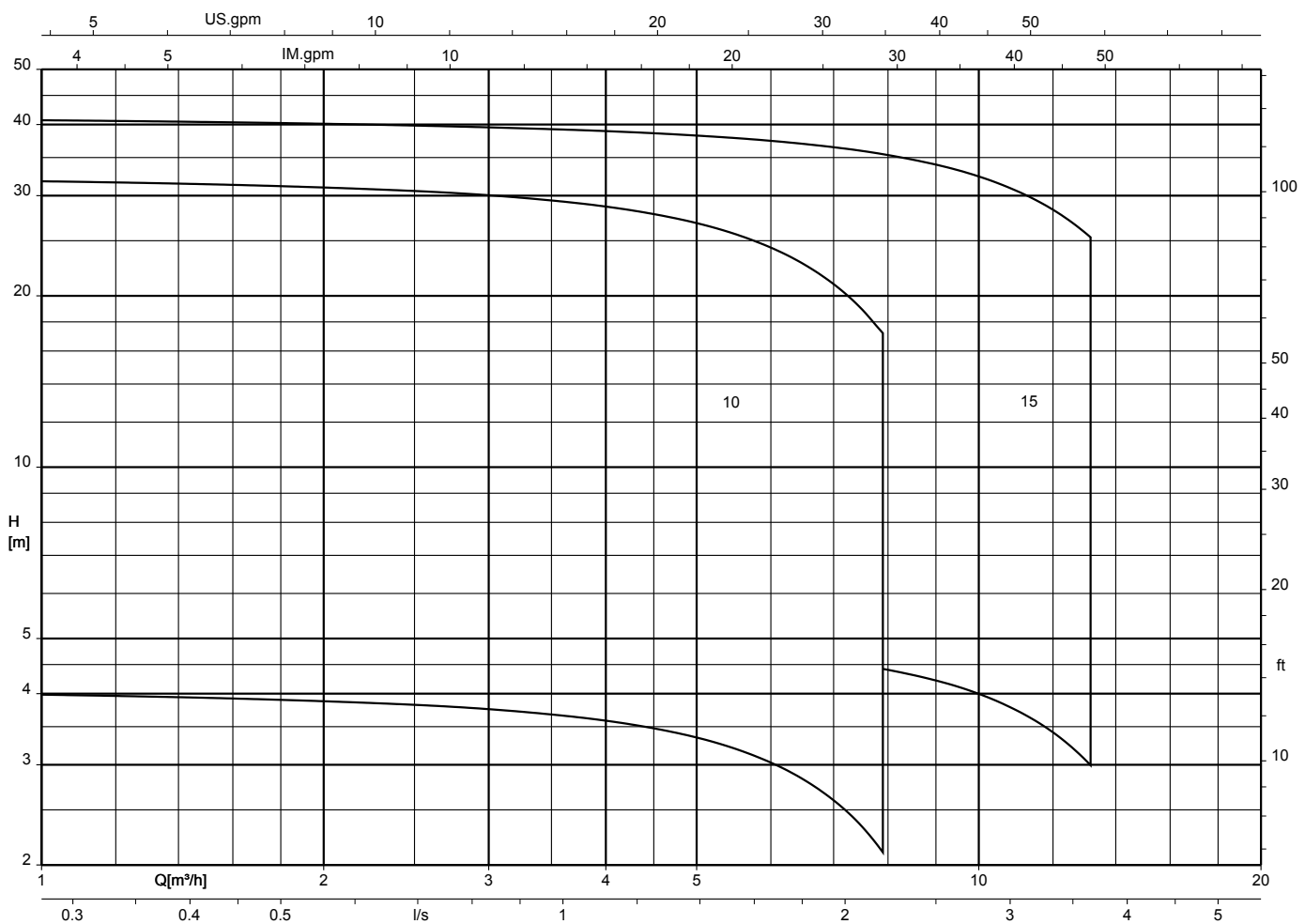
DPH(S)I, 4P 50 Hz



DPH(S)I, 2P 60 Hz



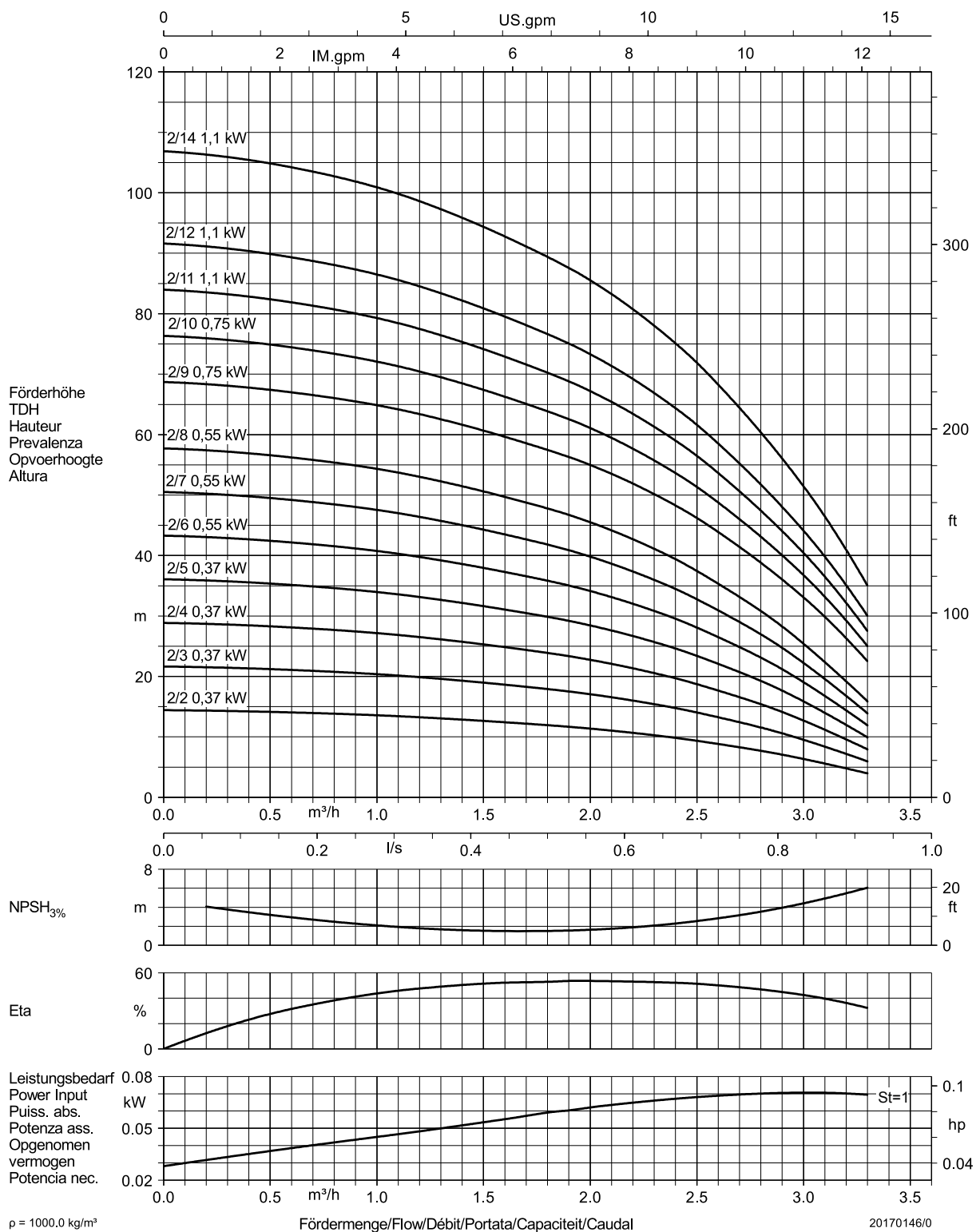
DPH(S)I, 4P 60 Hz





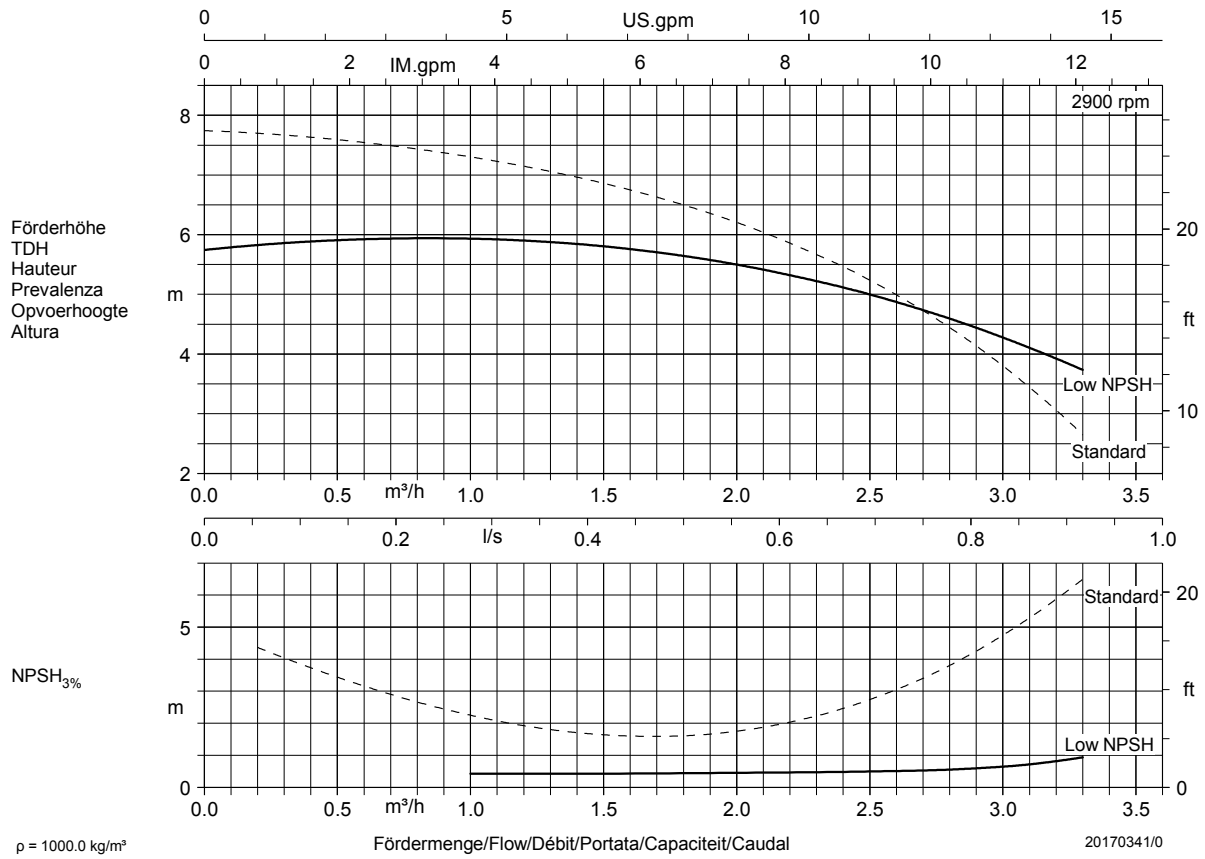
Characteristic curves

DPH(S)I, 2B, 2P 50 Hz



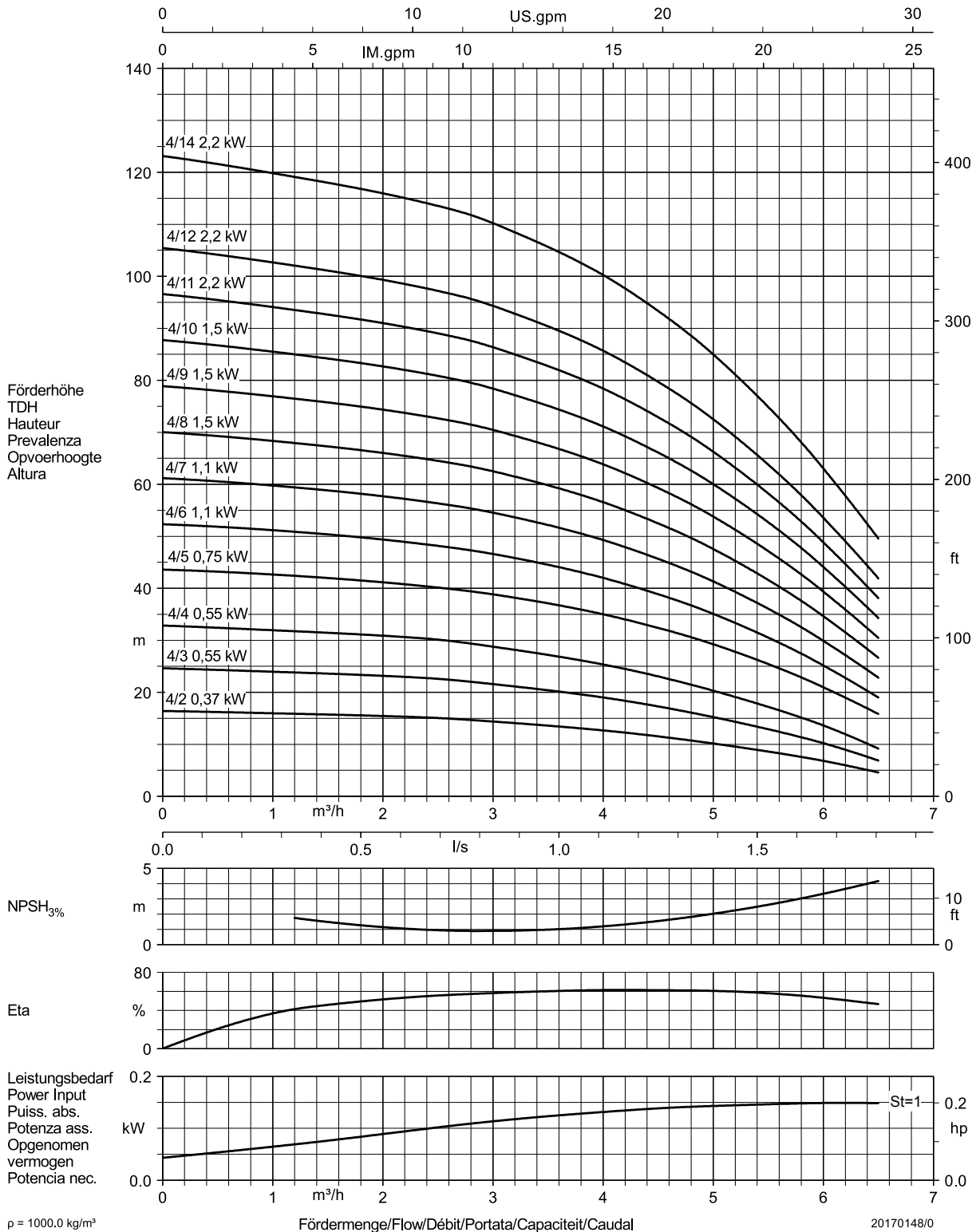
St = 1 | P per stage

DPH(S)I, 2-LB, 2P 50 Hz



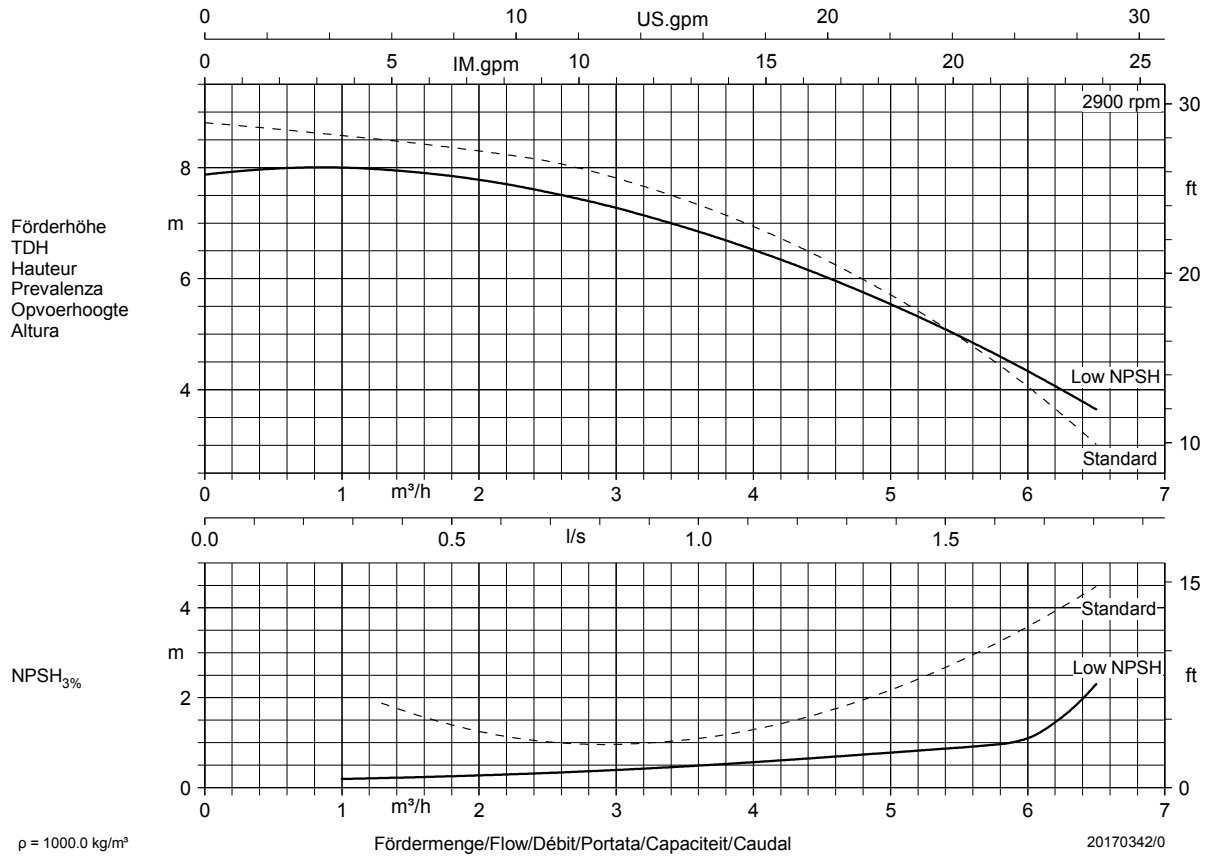


DPH(S)I, 4B, 2P 50 Hz



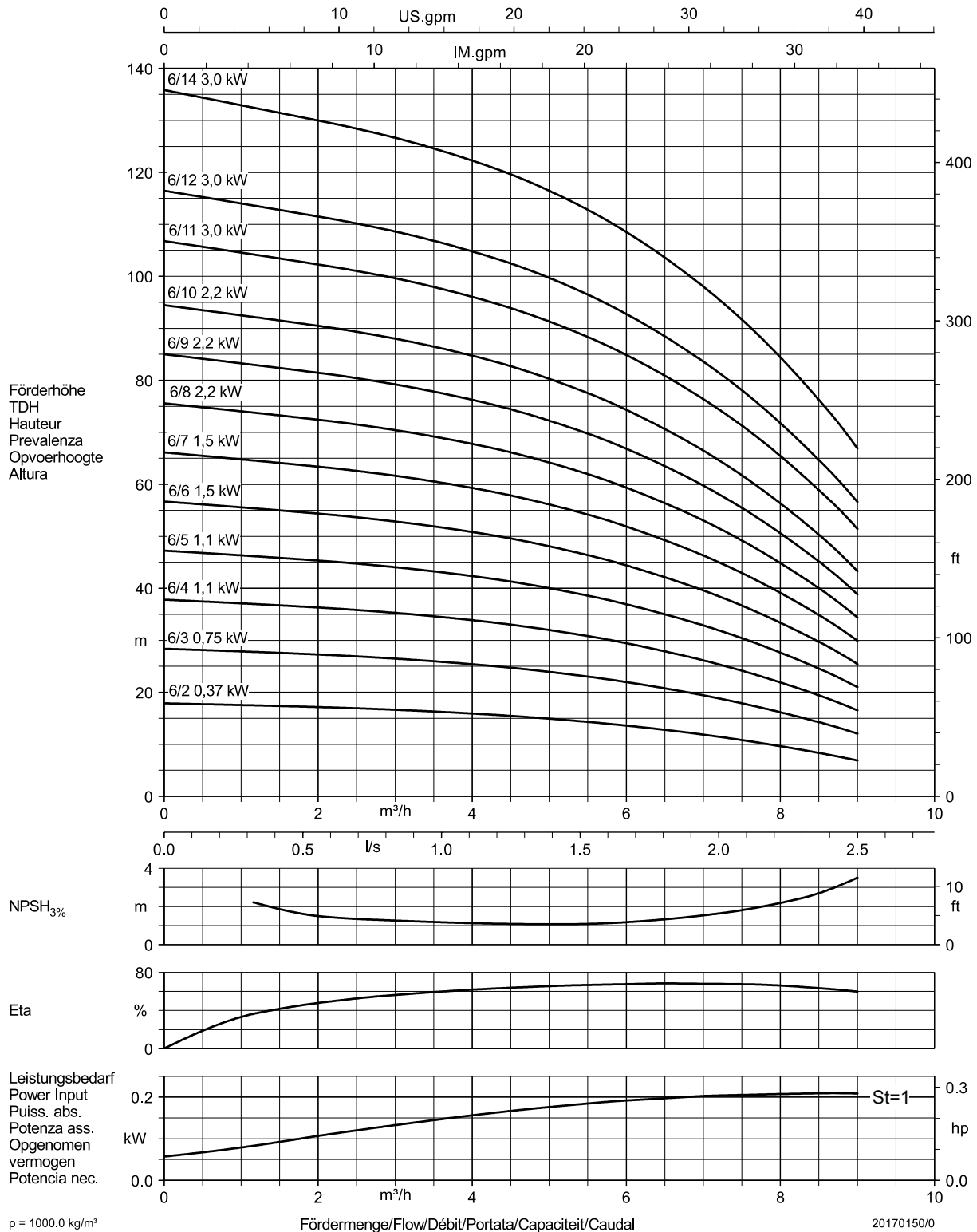
St = 1 | P per stage

DPH(S)I, 4-LB, 2P 50 Hz





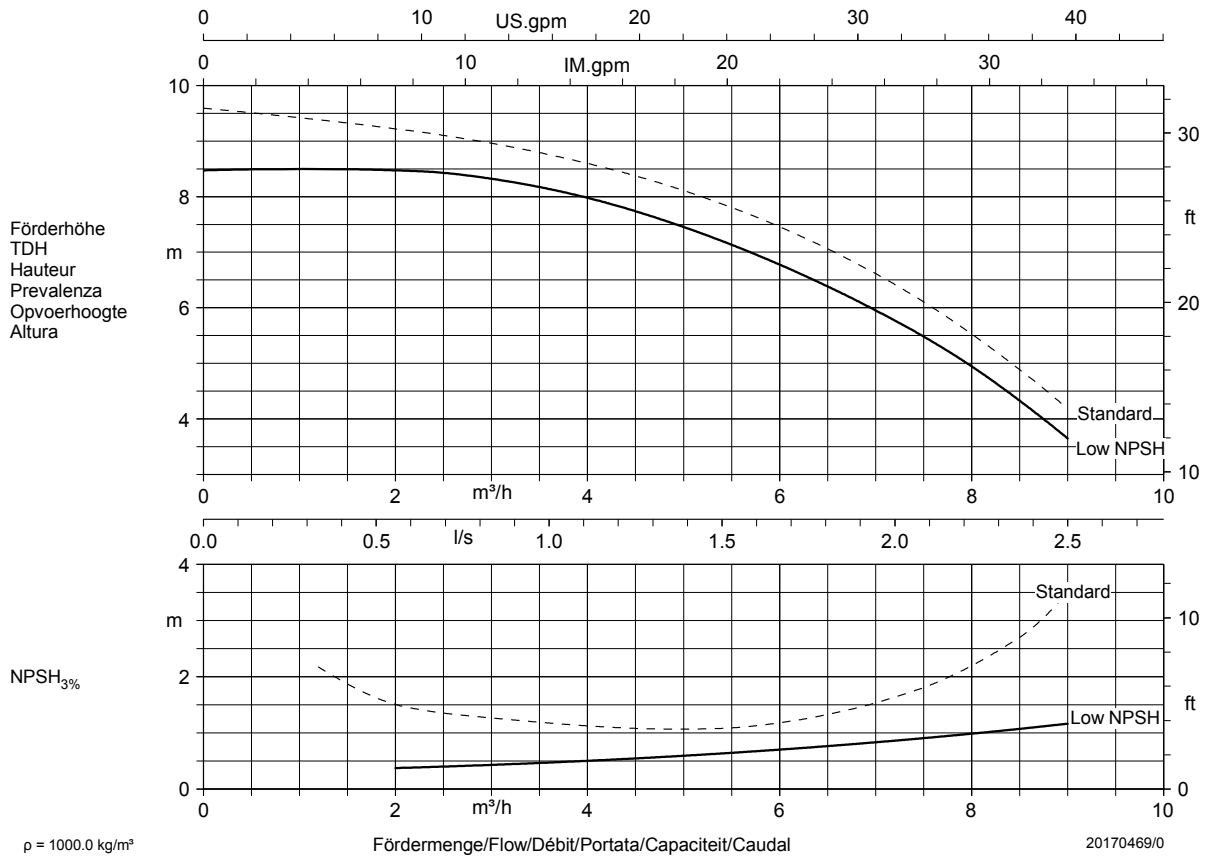
DPH(S)I, 6B, 2P 50 Hz



St = 1 | P per stage

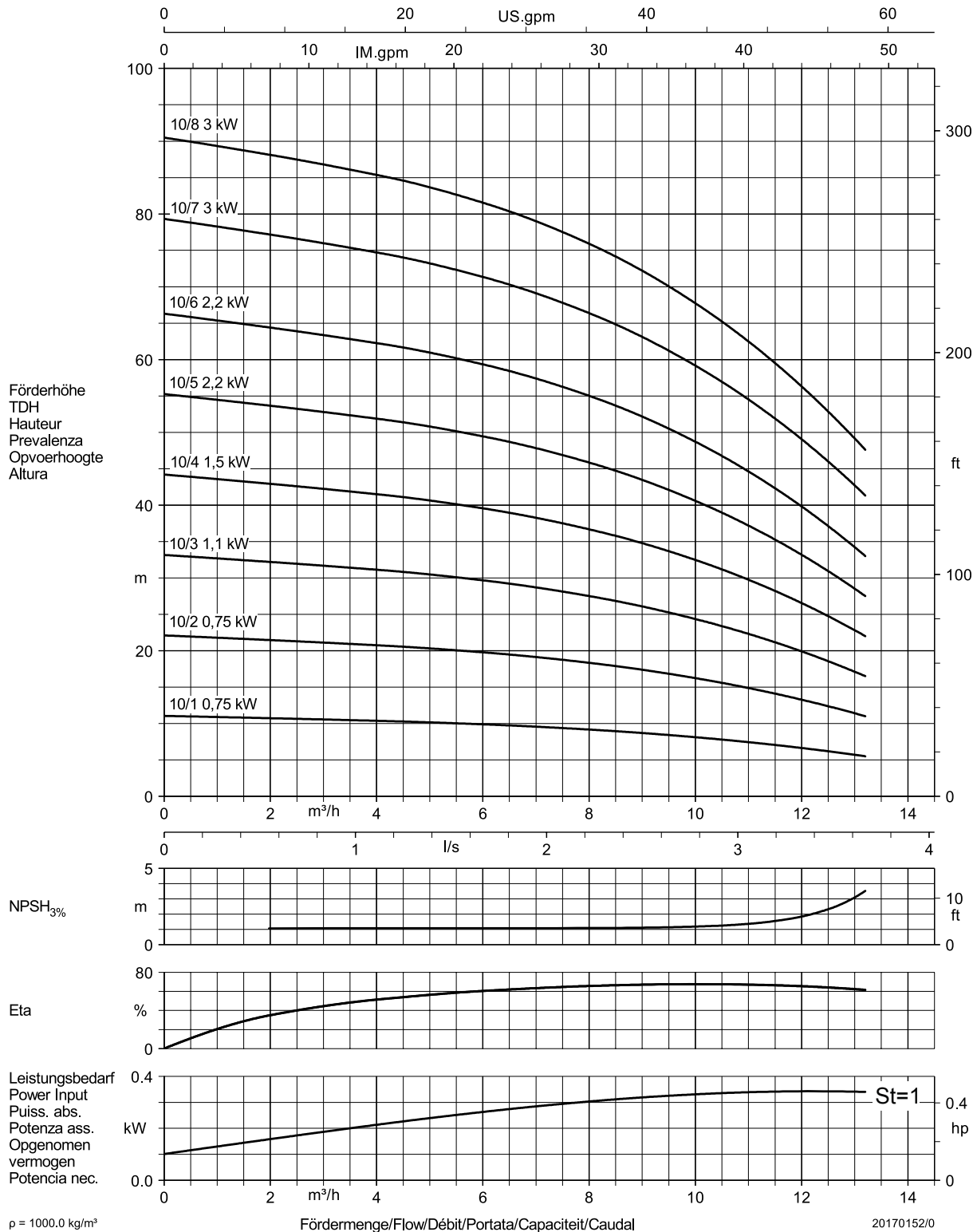


DPH(S)I, 6-LB, 2P 50 Hz





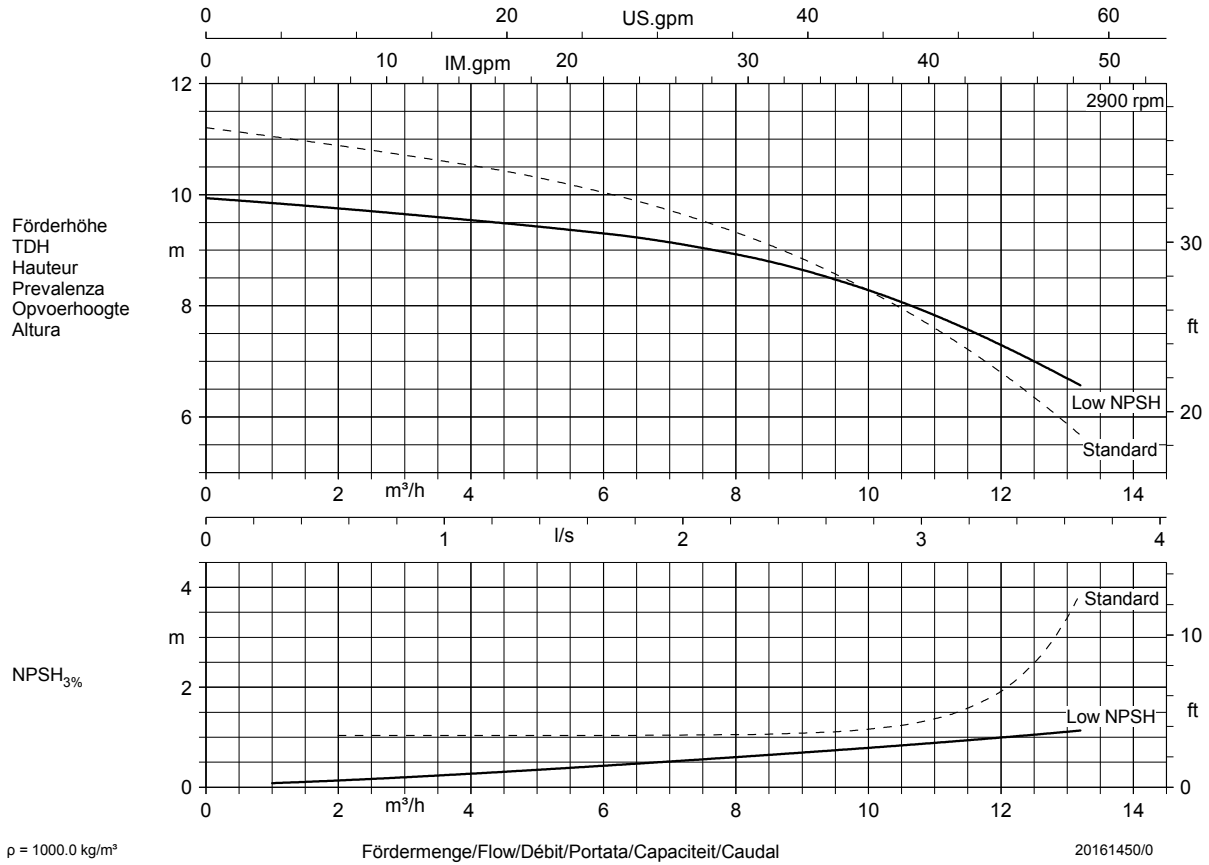
DPH(S)I, 10B, 2P 50 Hz



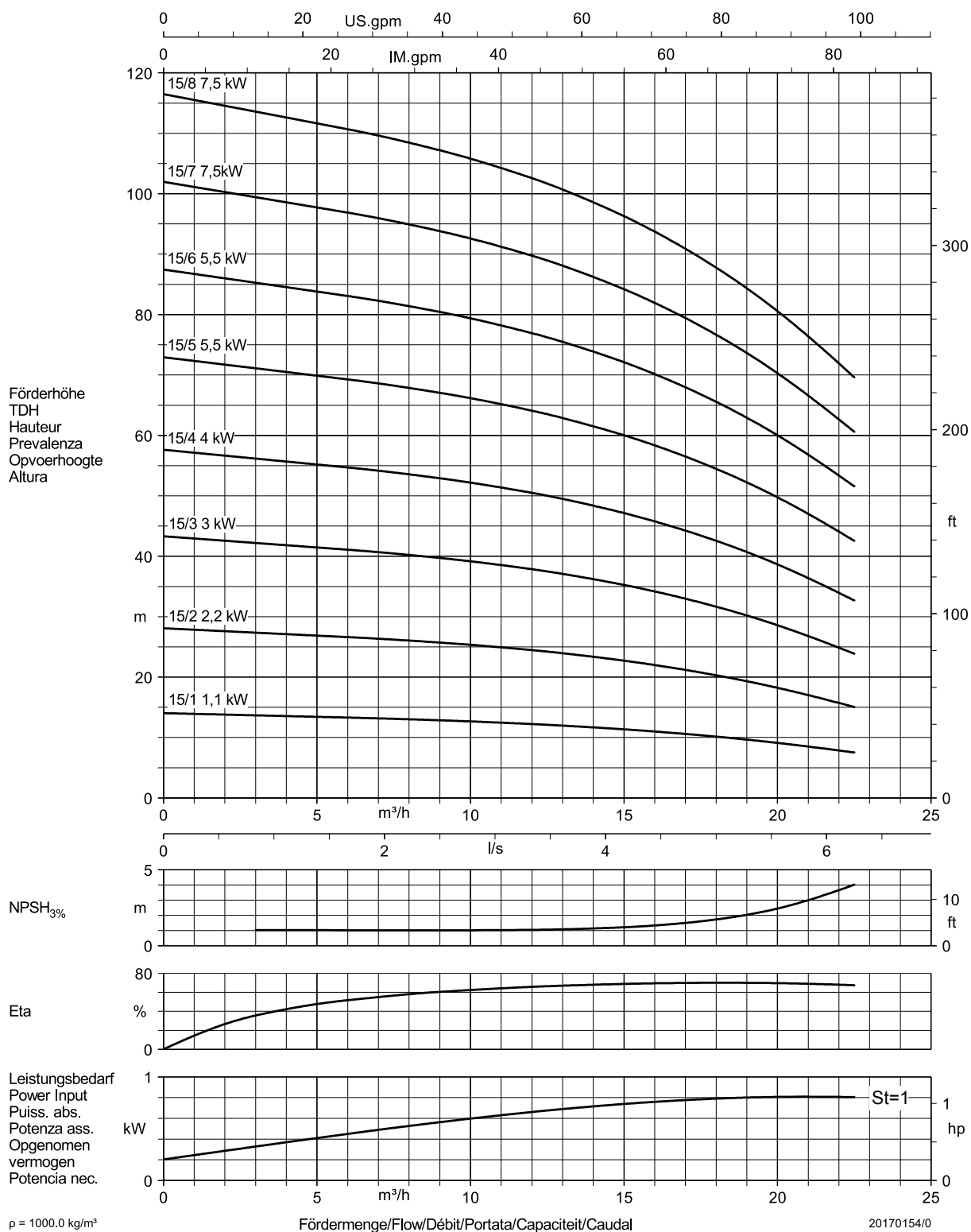
St = 1 | P per stage



DPH(S)I, 10-LB, 2P 50 Hz



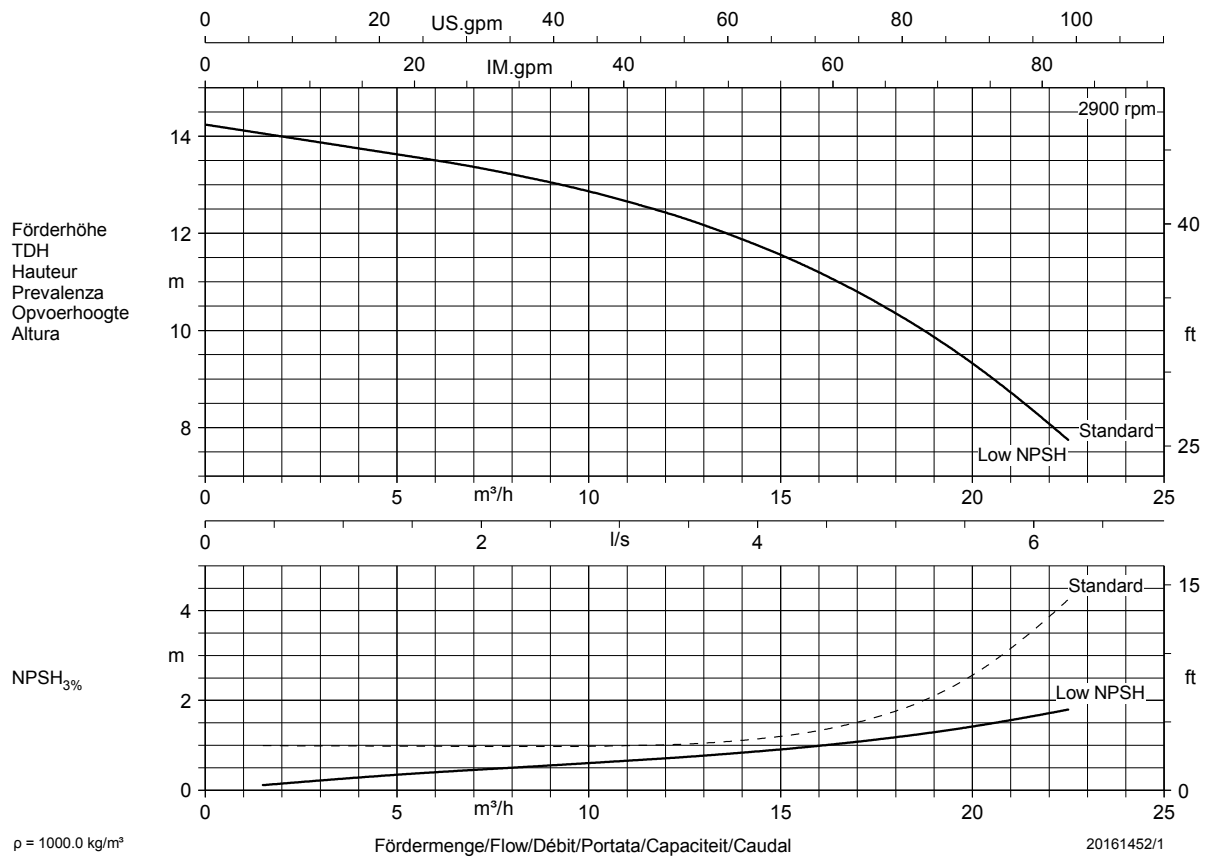
DPH(S)I, 15B, 2P 50 Hz



St = 1	P per stage
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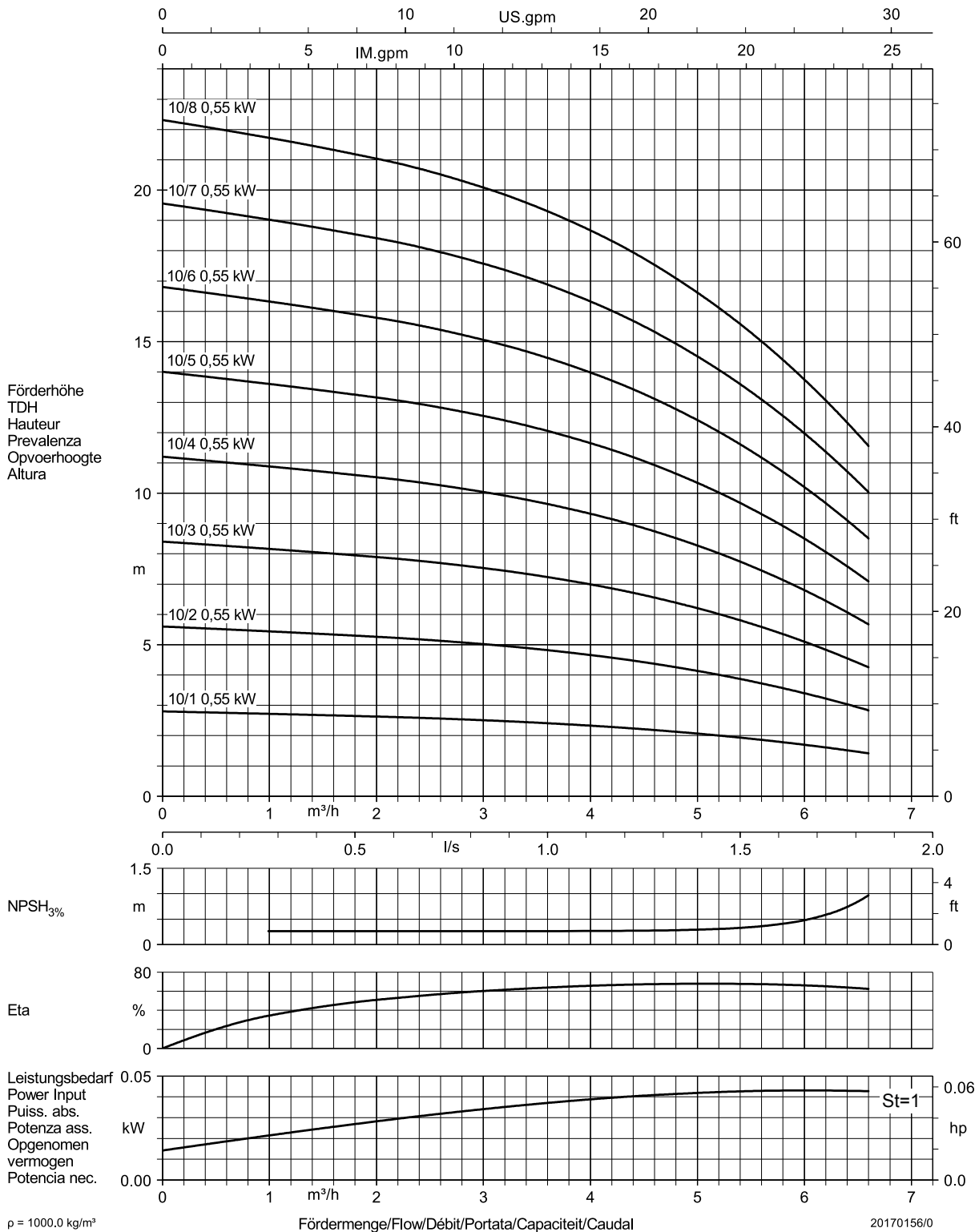


DPH(S)I, 15-LB, 2P 50 Hz





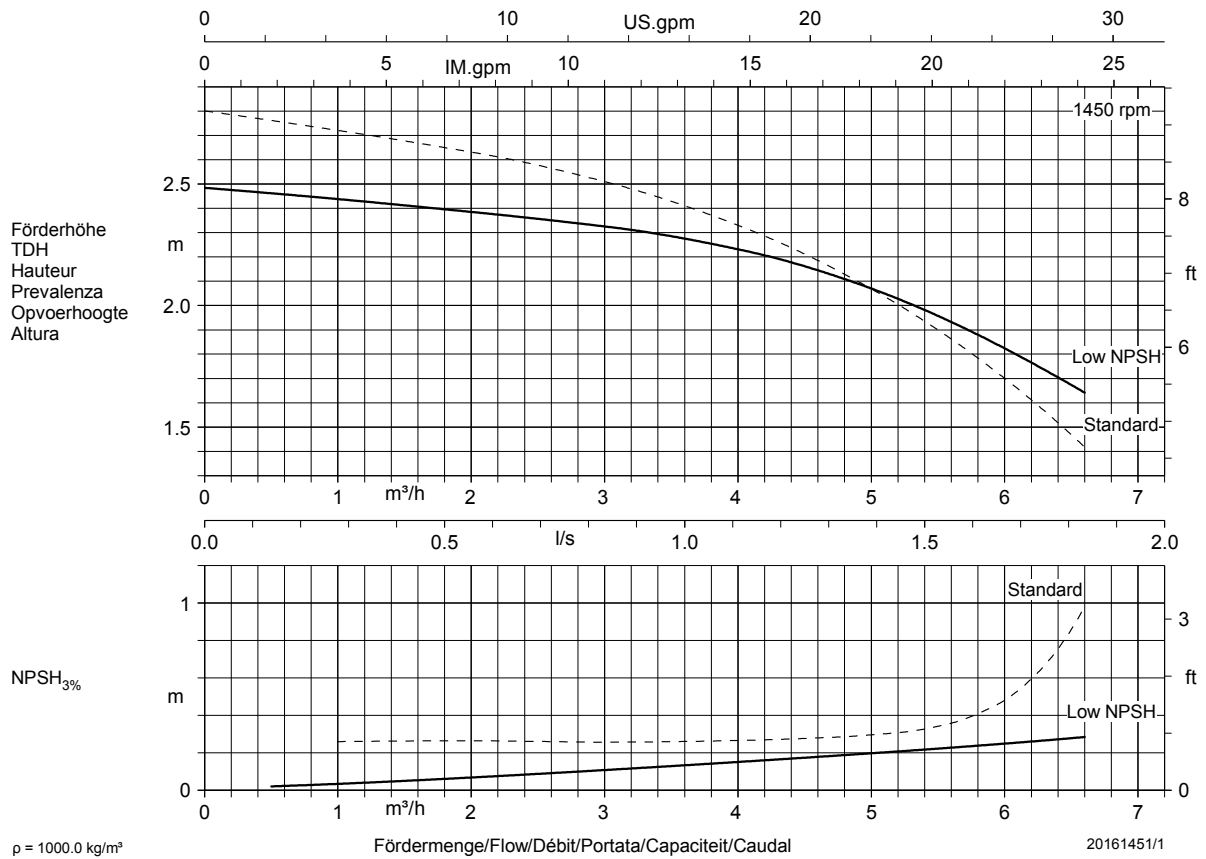
DPH(S)I, 10B, 4P 50 Hz



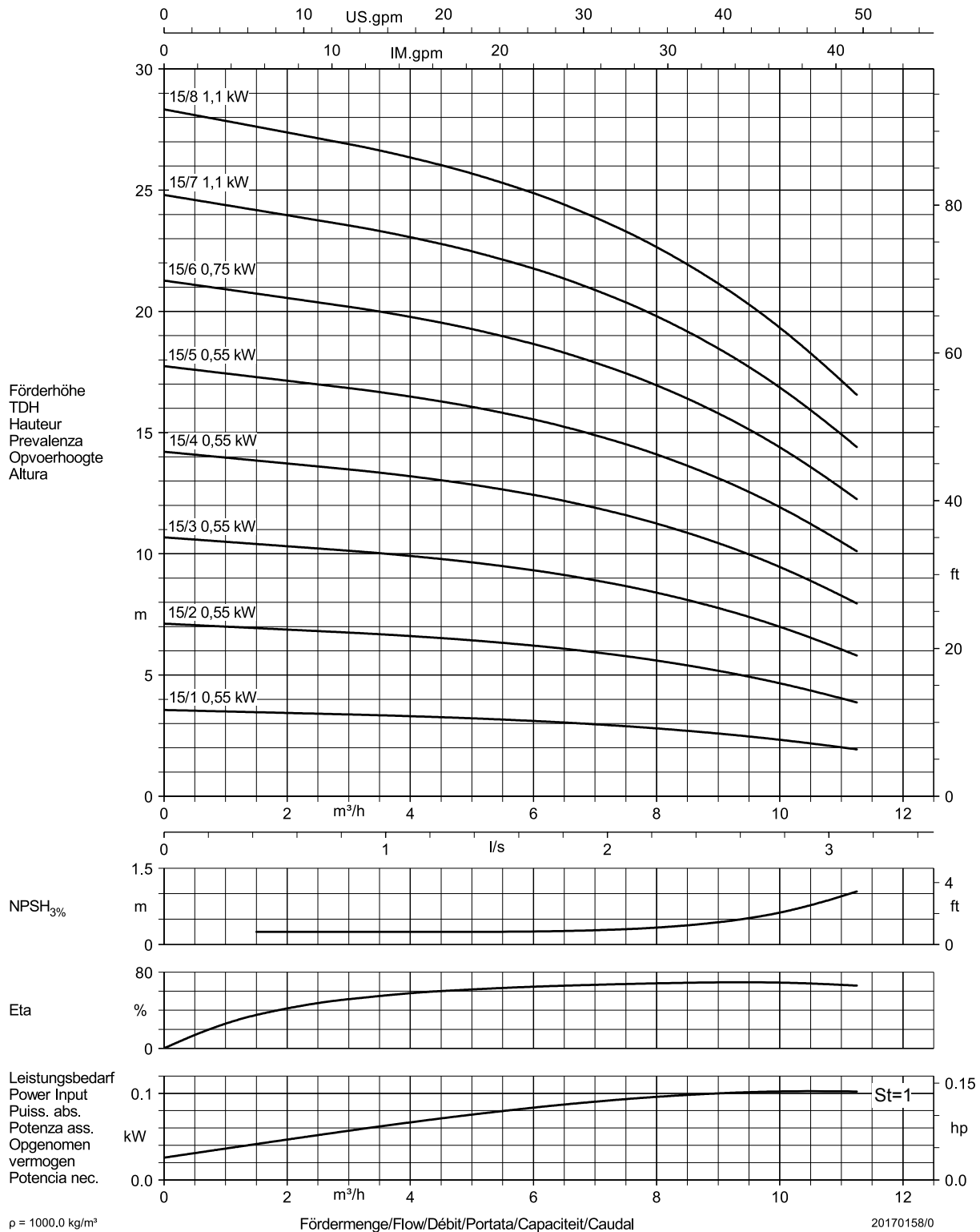
St = 1 | P per stage



DPH(S)I, 10-LB, 4P 50 Hz



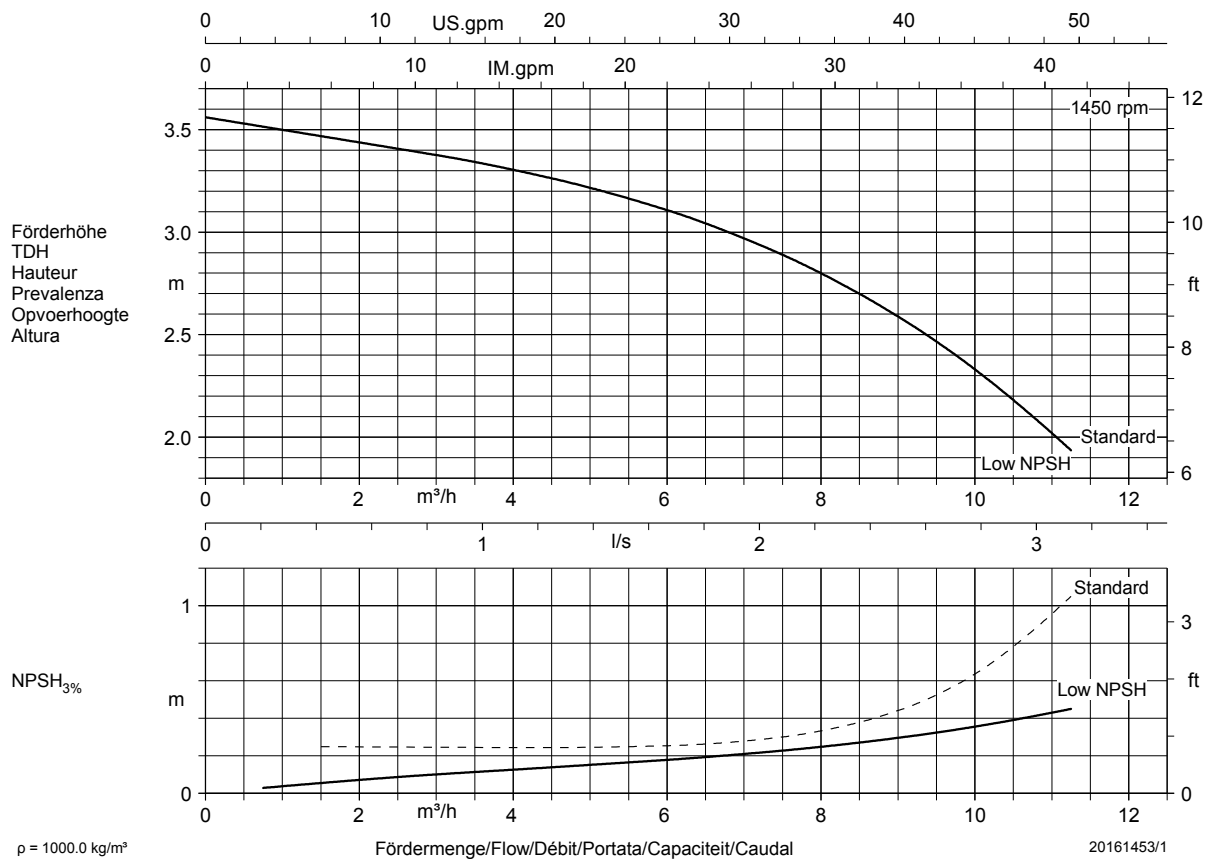
DPH(S)I, 15B, 4P 50 Hz



St = 1 | P per stage

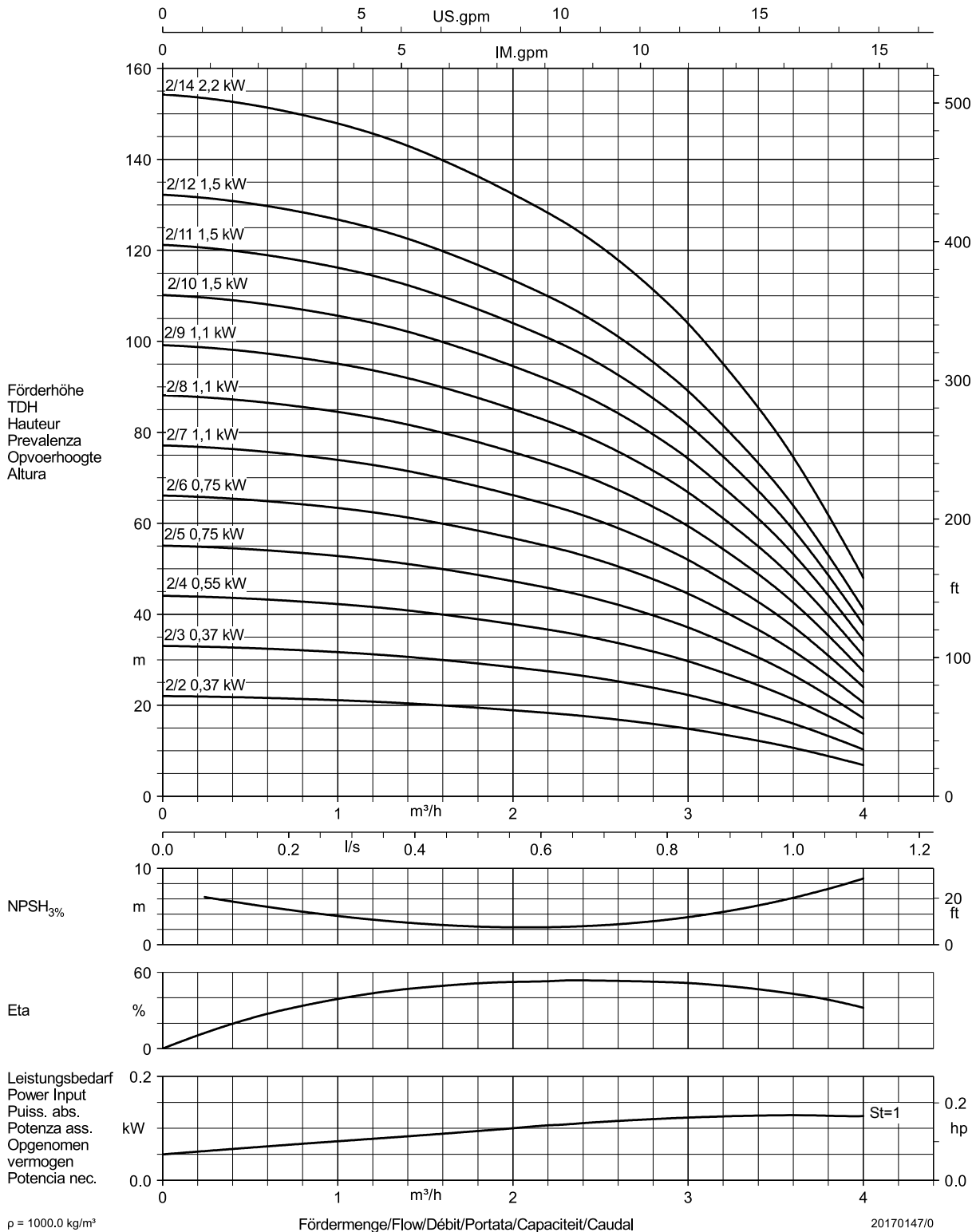


DPH(S)I, 15-LB, 4P 50 Hz





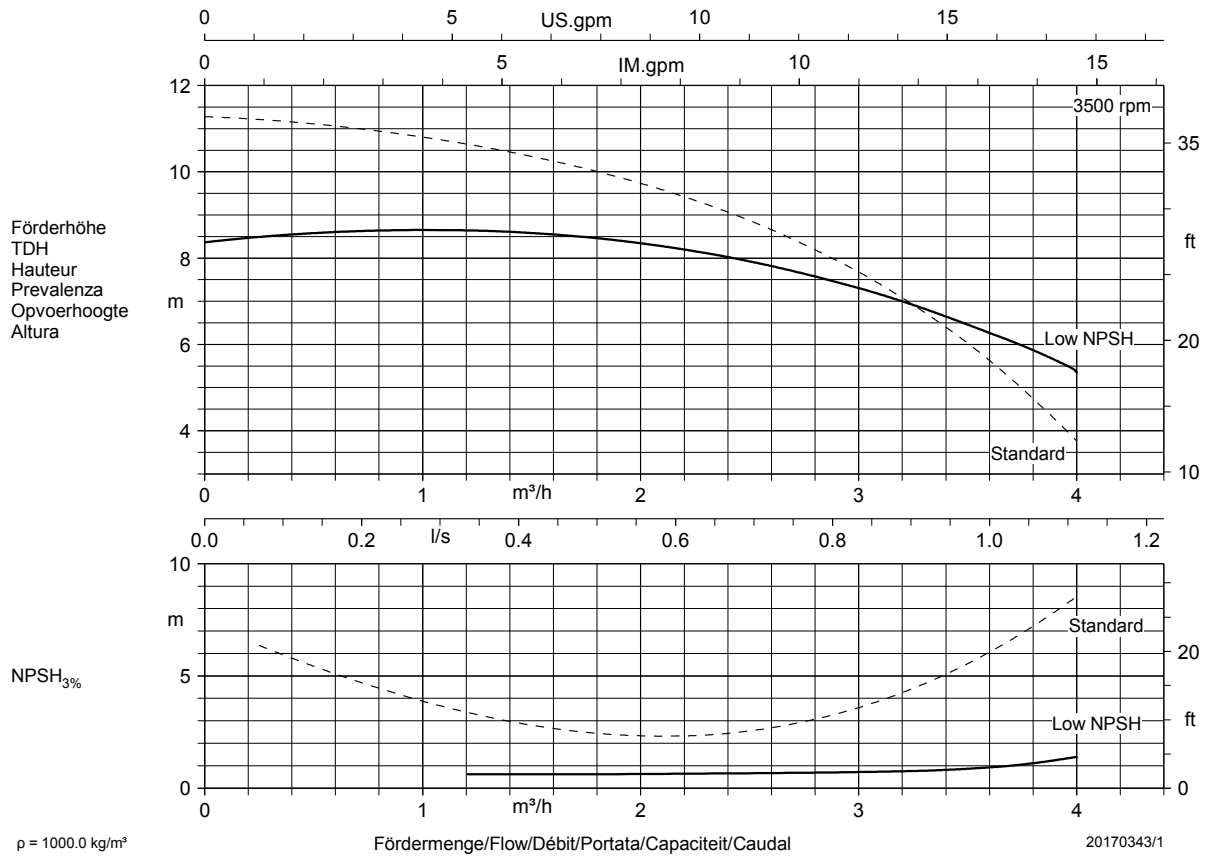
DPH(S)I, 2B, 2P 60 Hz



St = 1 | P per stage

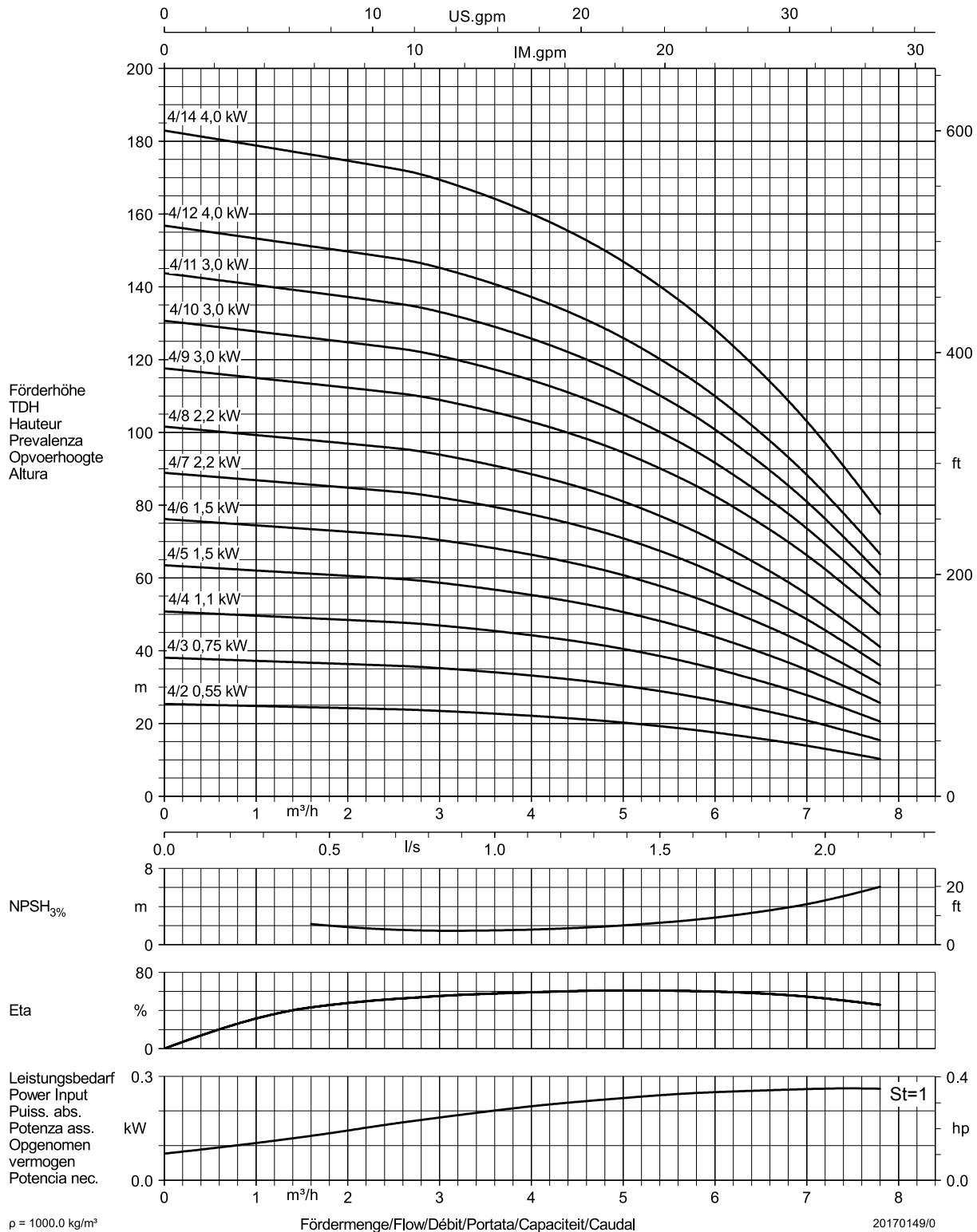


DPH(S)I, 2-LB, 2P 60 Hz



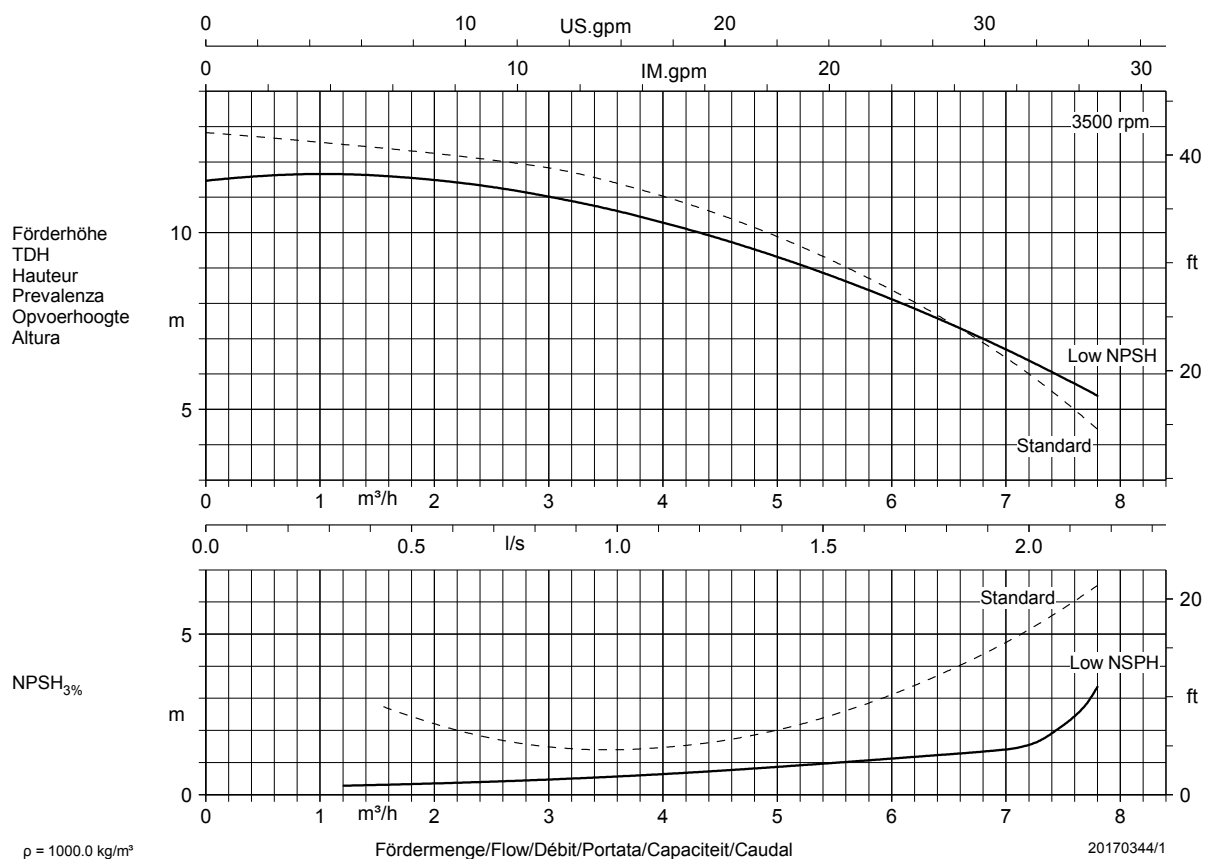


DPH(S)I, 4B, 2P 60 Hz



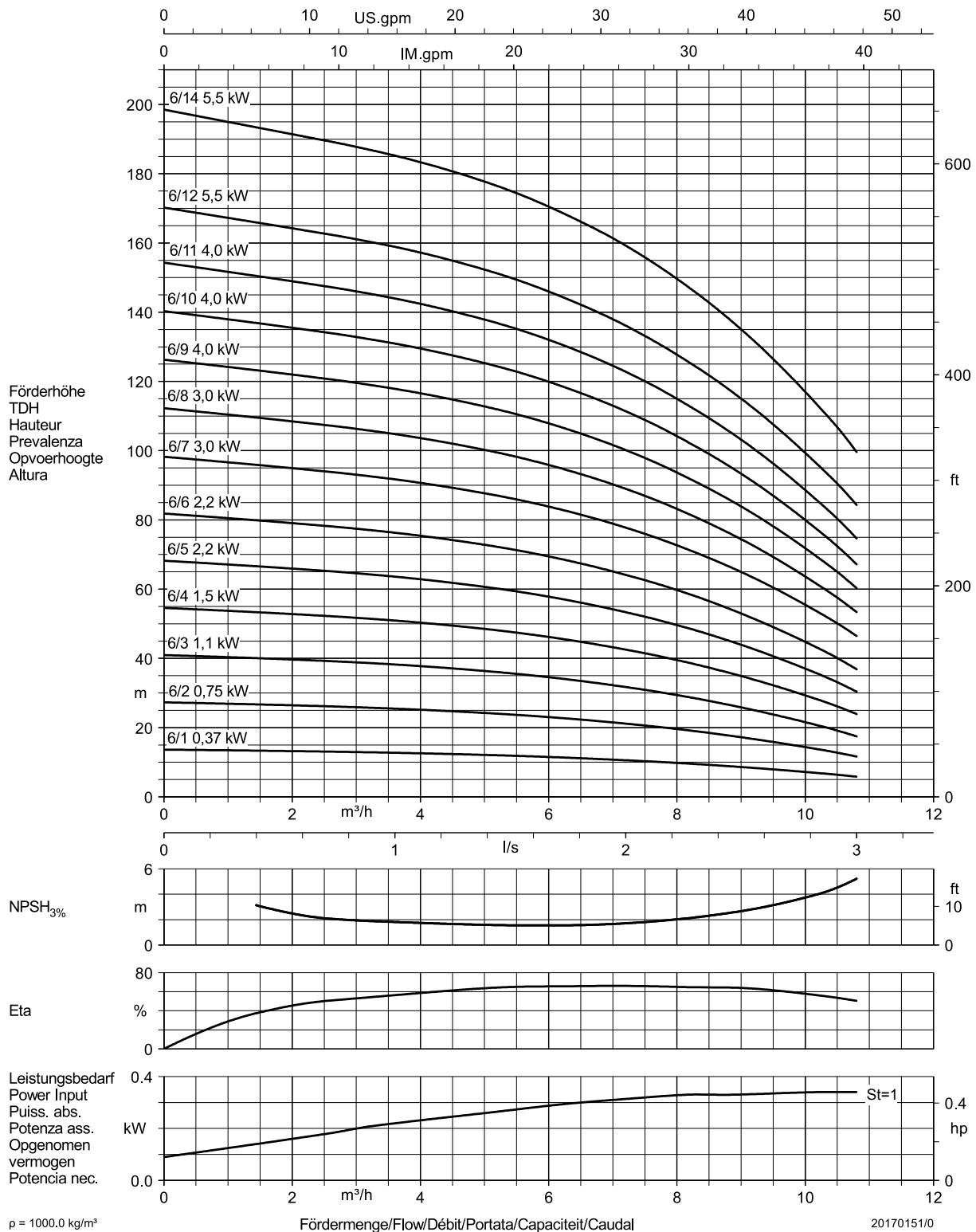
St = 1 | P per stage

DPH(S)I, 4-LB, 2P 60 Hz





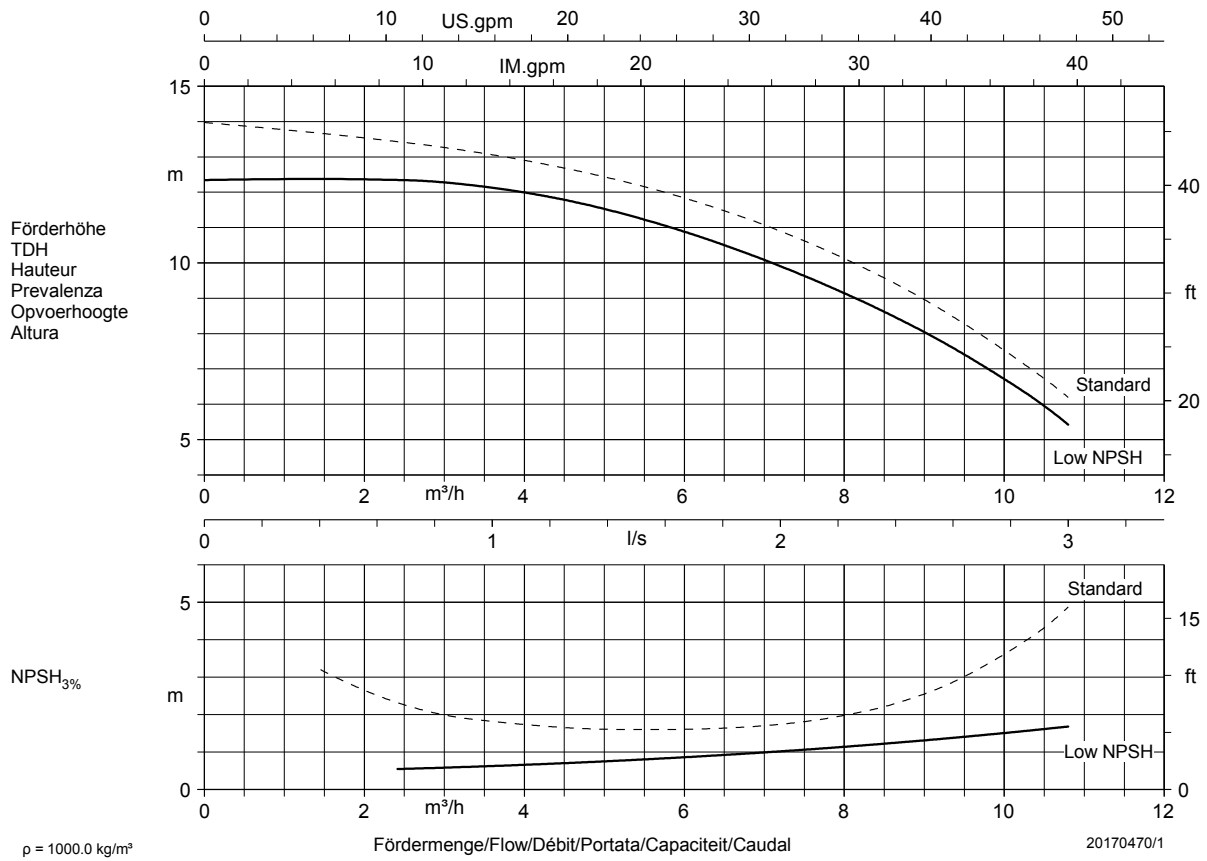
DPH(S)I, 6B, 2P 60 Hz



St = 1 | P per stage

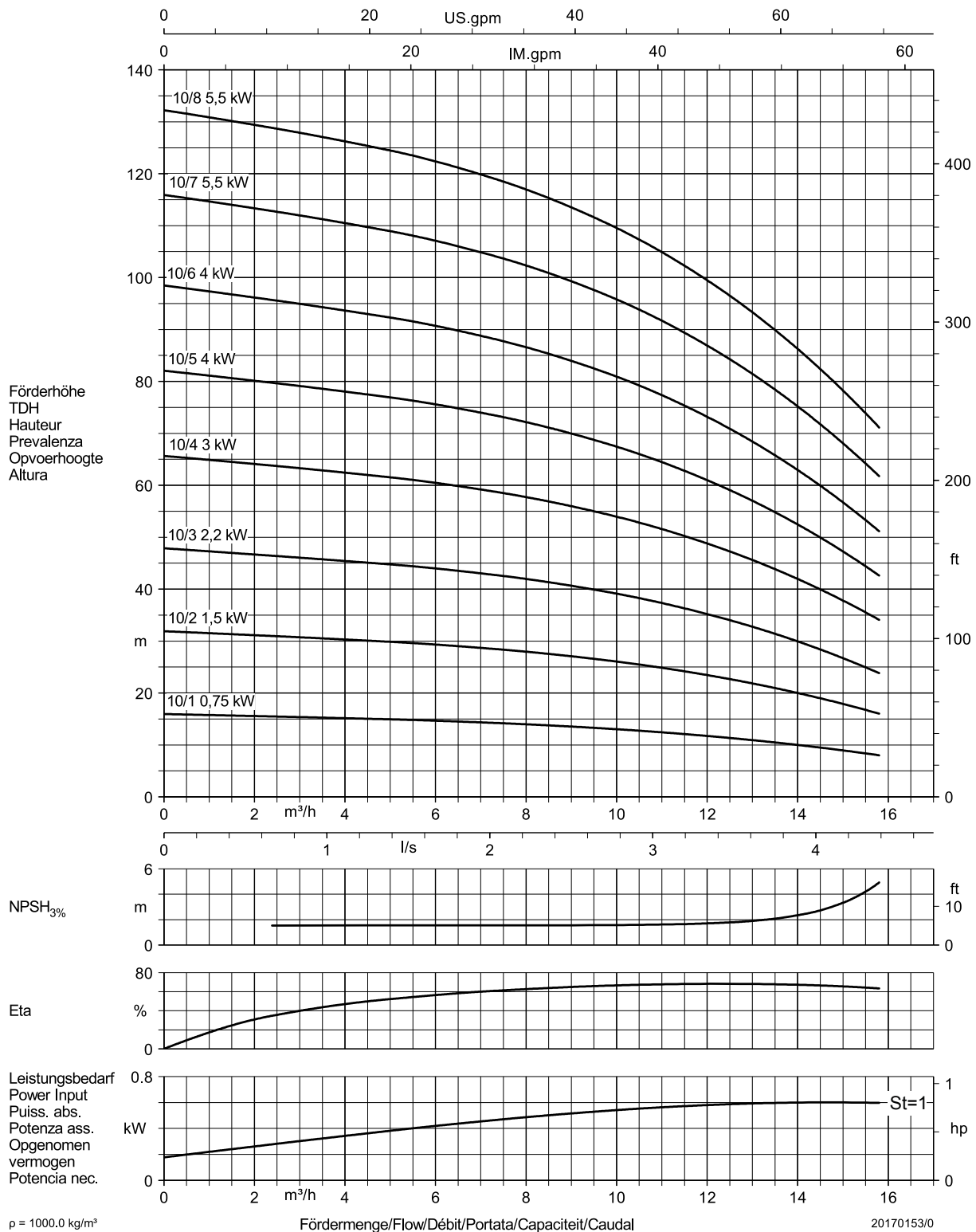


DPH(S)I, 6-LB, 2P 60 Hz





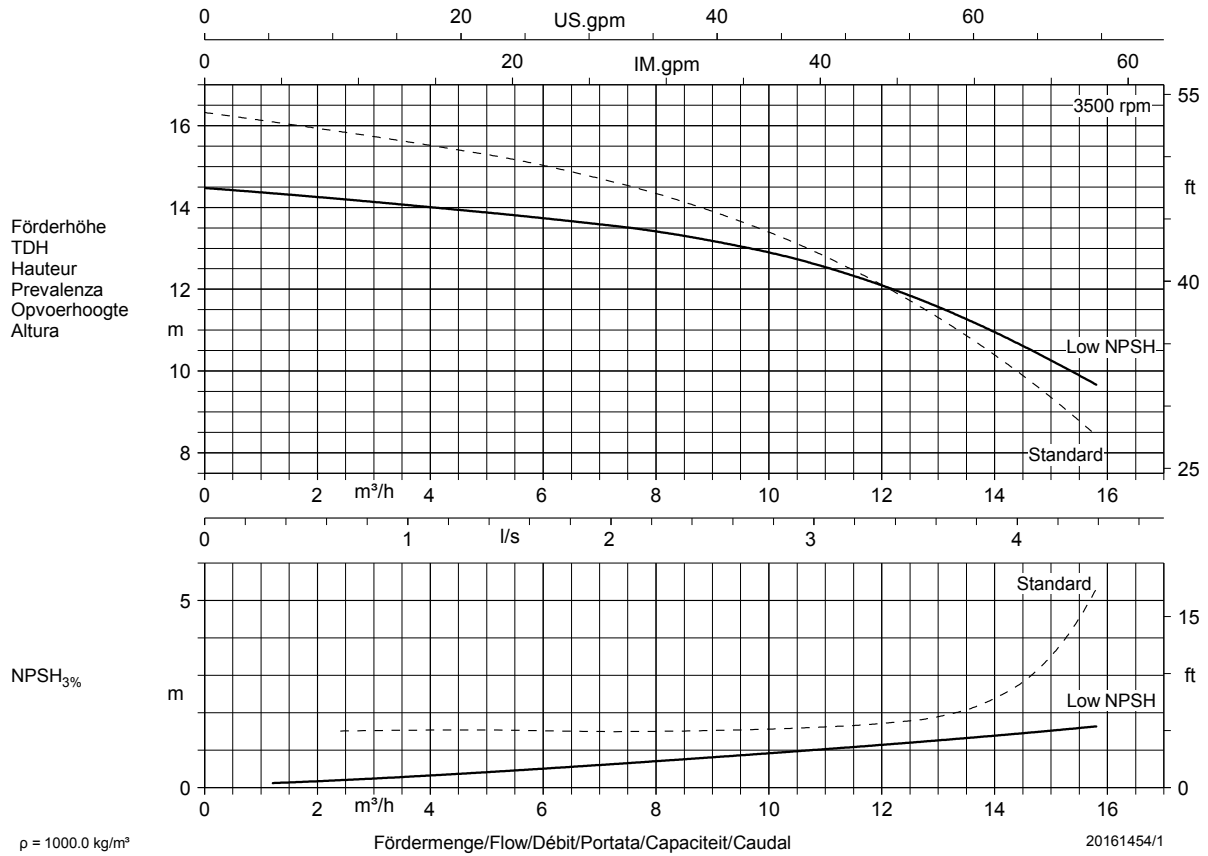
DPH(S)I, 10B, 2P 60 Hz



St = 1 | P per stage

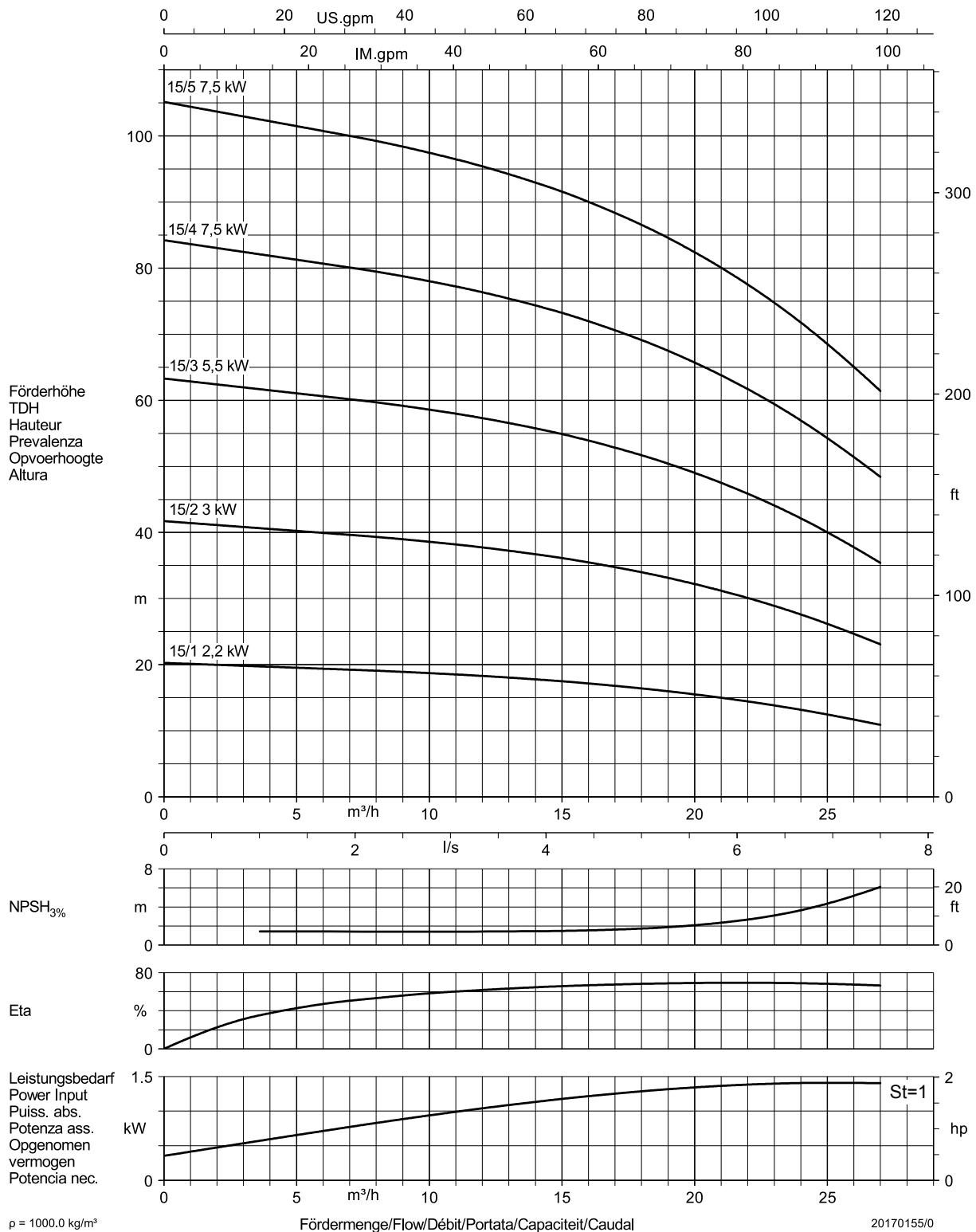


DPH(S)I, 10-LB, 2P 60 Hz





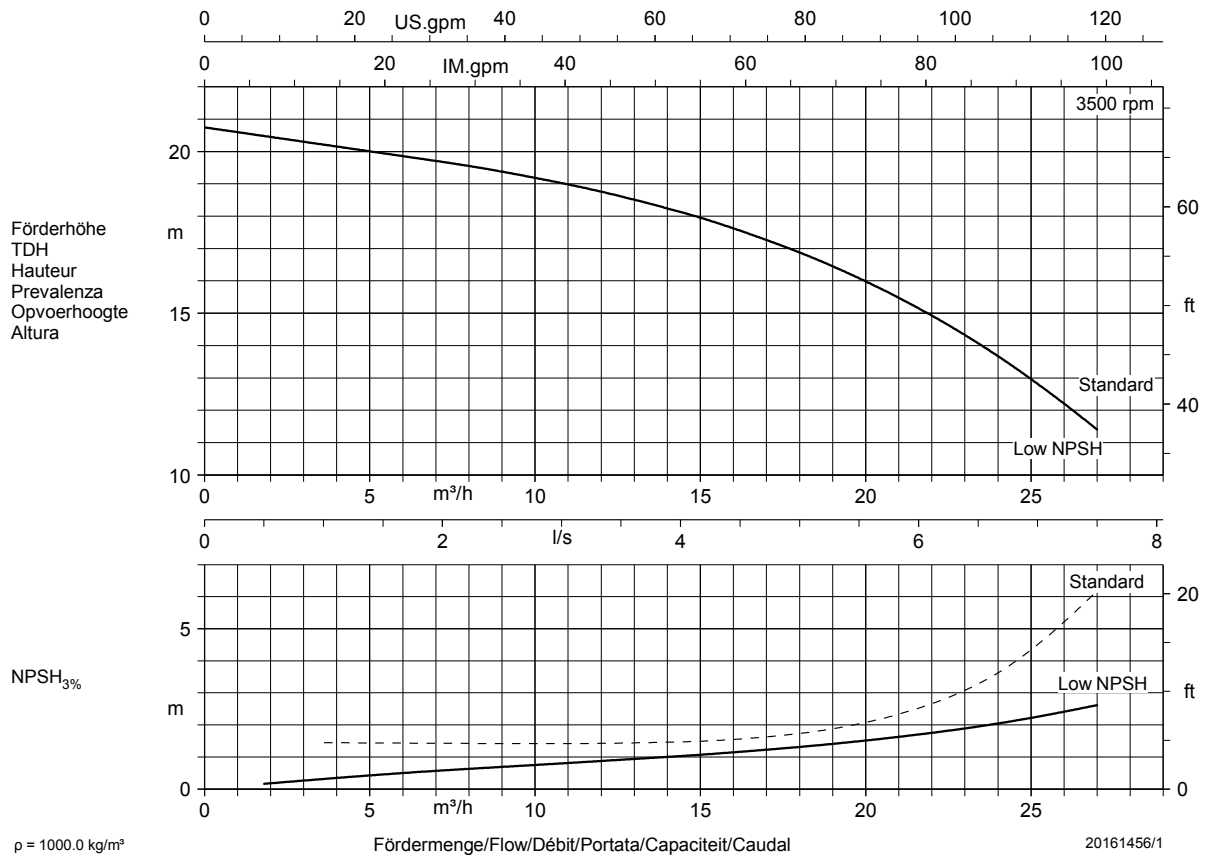
DPH(S)I, 15B, 2P 60 Hz



St = 1 | P per stage

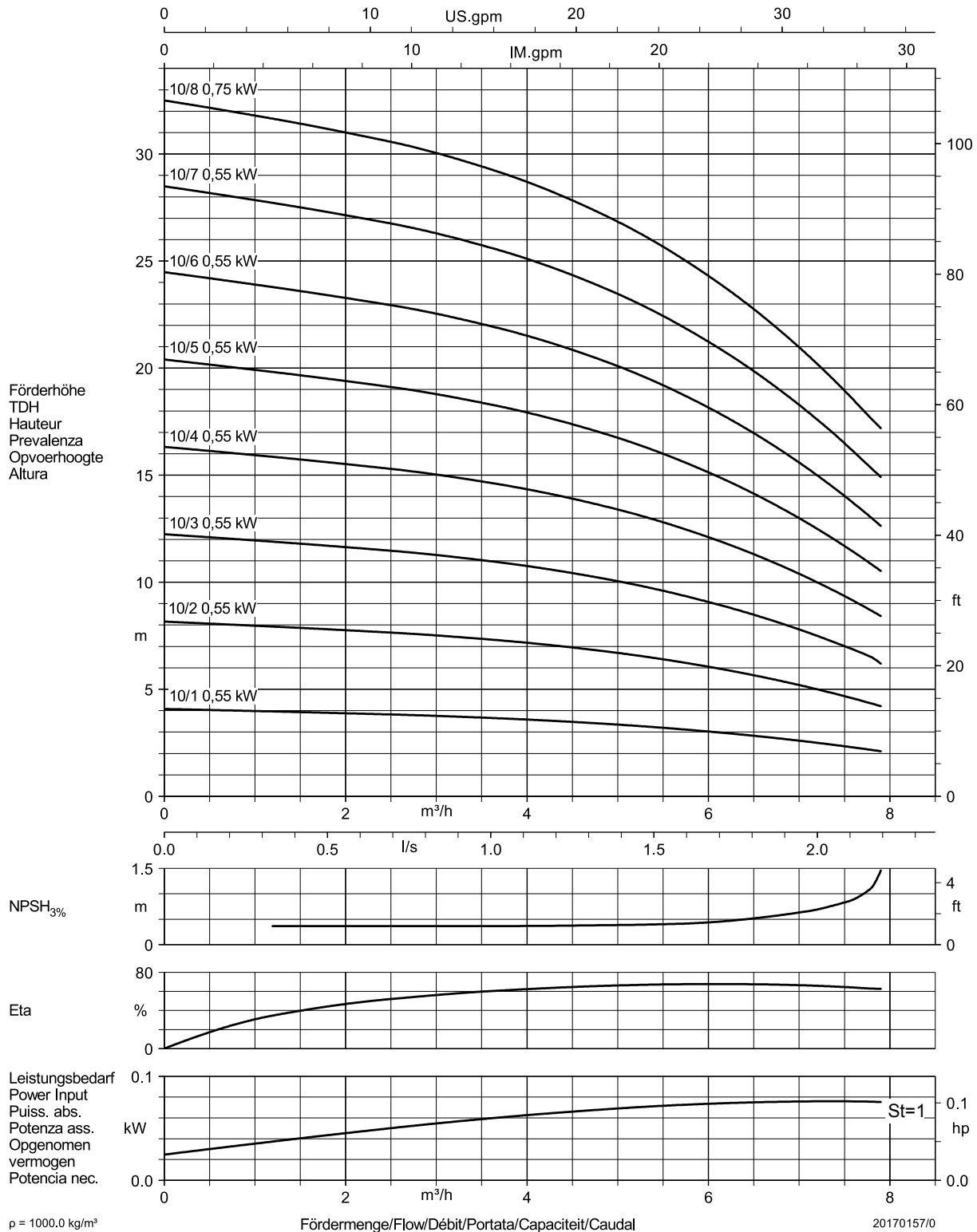


DPH(S)I, 15-LB, 2P 60 Hz





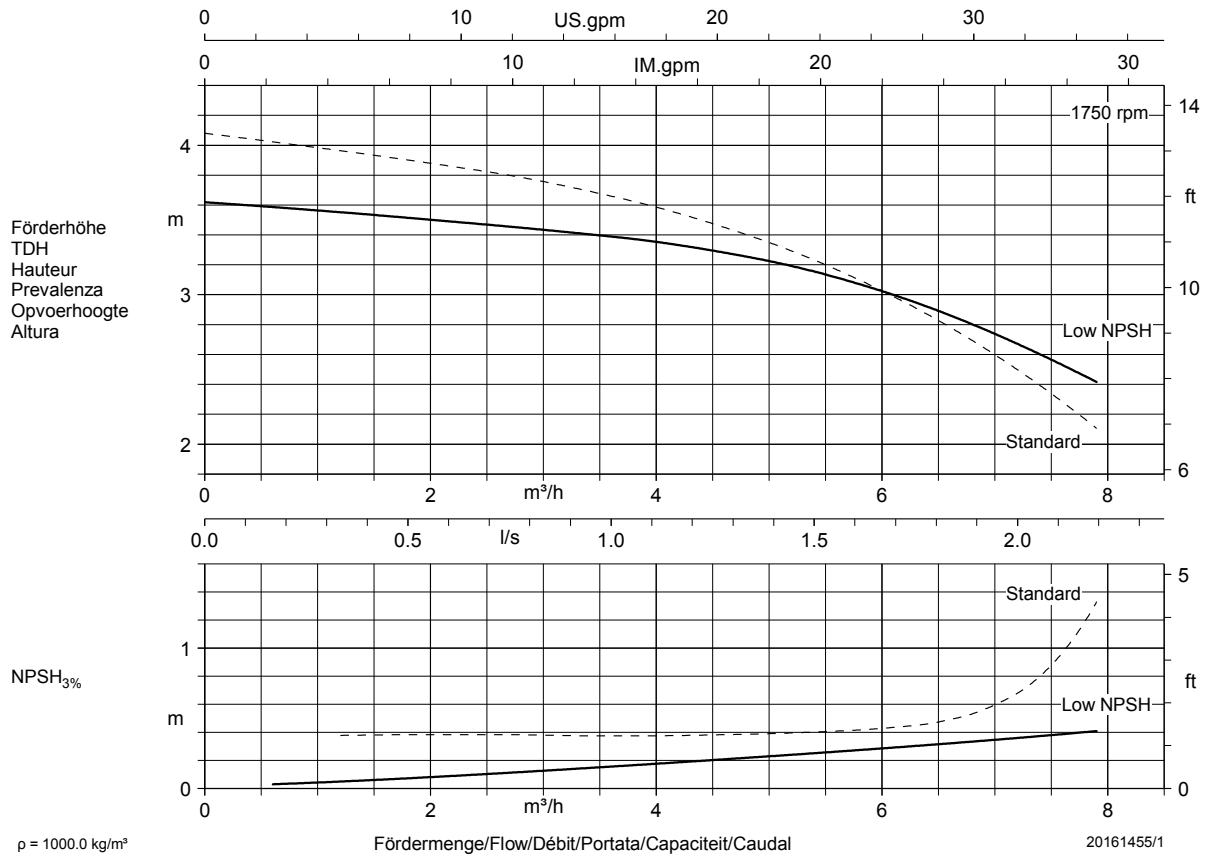
DPH(S)I, 10B, 4P 60 Hz



St = 1 | P per stage

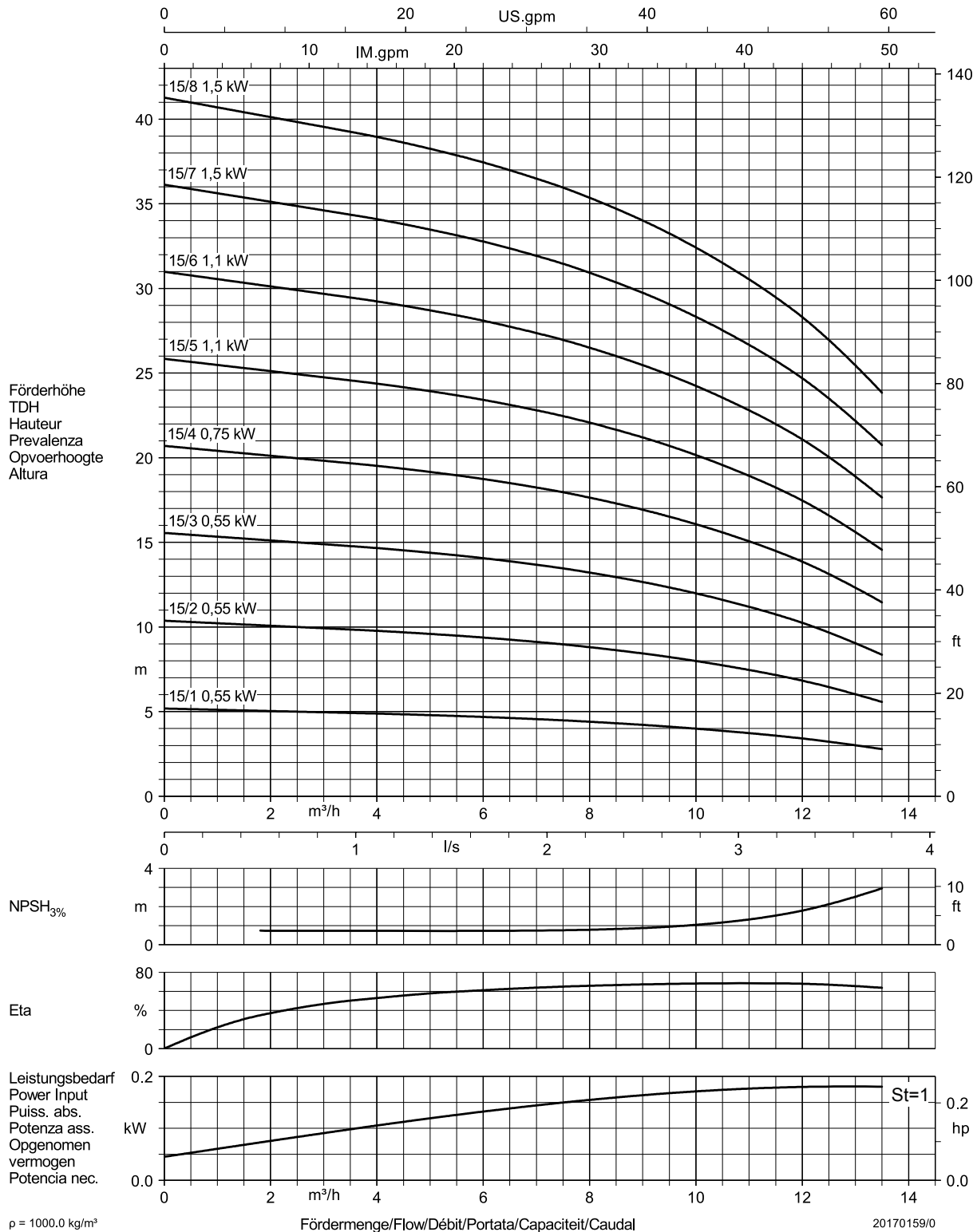


DPH(S)I, 10-LB, 4P 60 Hz





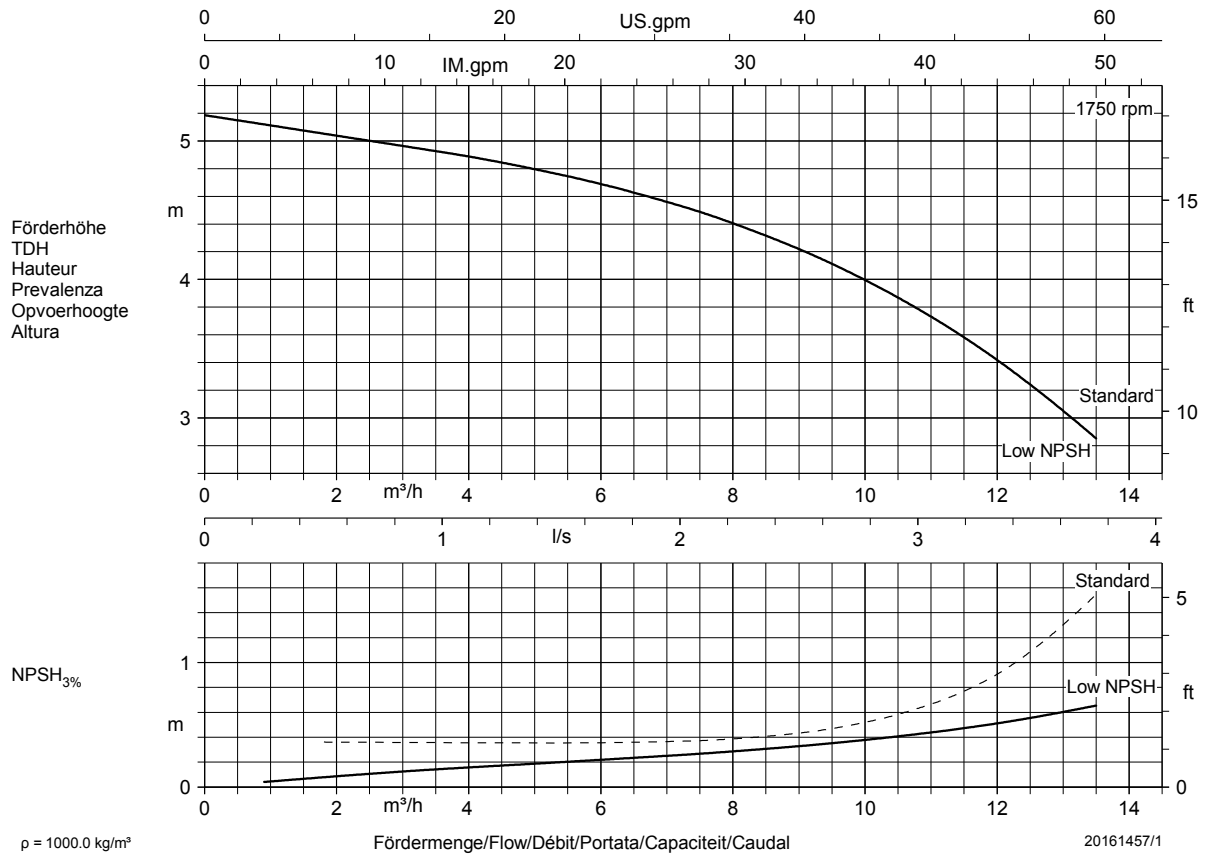
DPH(S)I, 15B, 4P 60 Hz



St = 1 | P per stage



DPH(S)I, 15-LB, 4P 60 Hz



Installation types

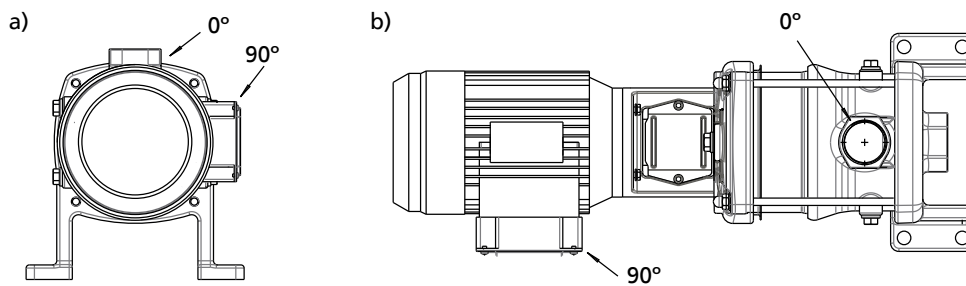


Fig. 4: Standard installation type a) Side view (seen from the motor) b) Top view

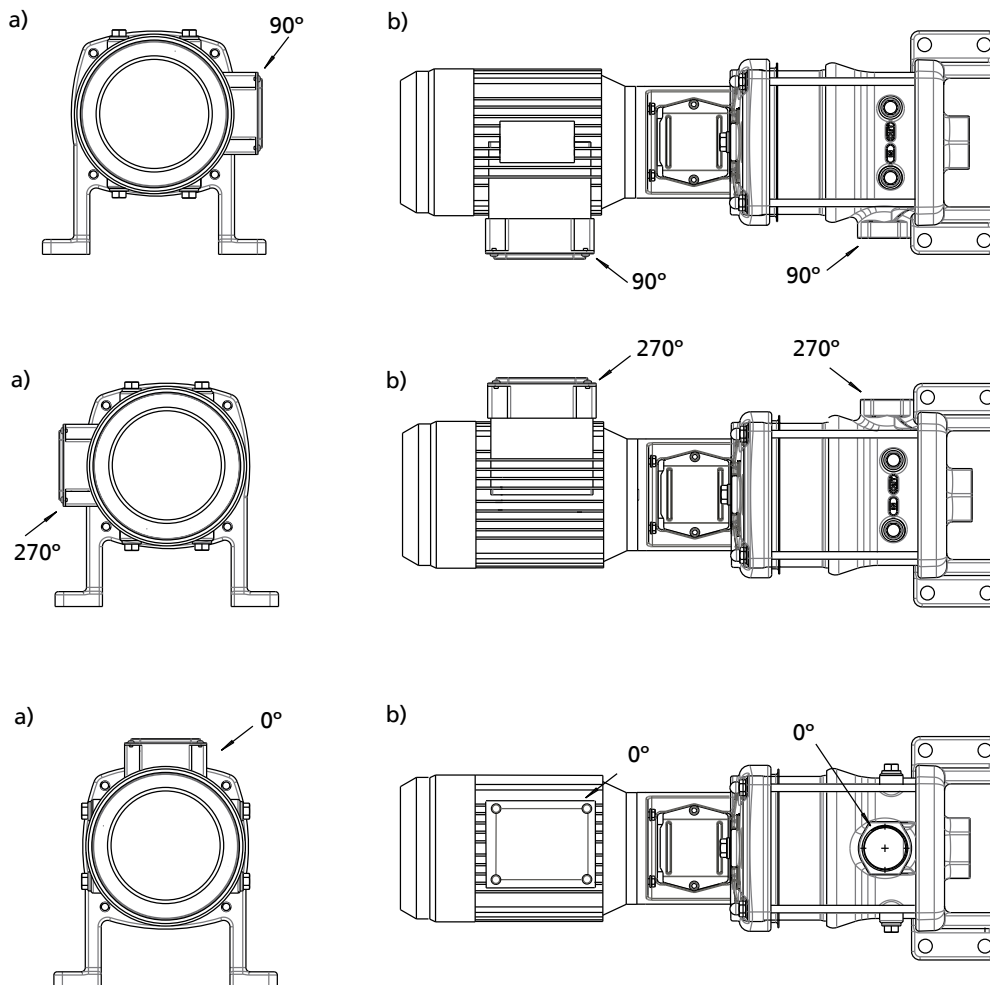


Fig. 5: Optional installation types for terminal box position = position discharge side connection a) Side view (seen from the motor) b) Top view

8) Optional: connection height 160 mm

Dimensions and connections

DPH(S)I 2B, 2P 50 Hz

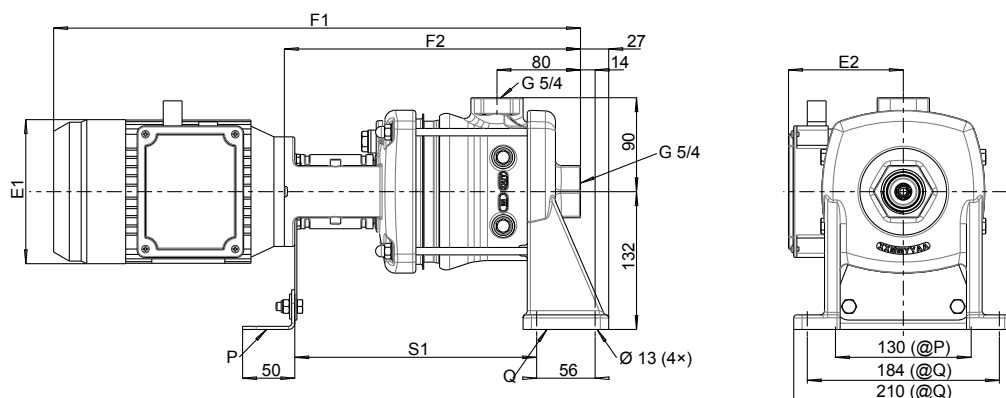


Fig. 6: Dimensions and connections of DPH(S)I 2 with V18 motor⁸⁾

Dimensions [mm]

Number of stages	Power [kW]	Motor	E1	E2	F1	F2	S1
2	0,37	V18	134	107	503	284	231
3	0,37	V18	134	107	524	305	253
4	0,37	V18	134	107	546	327	274
5	0,37	V18	134	107	567	348	296
6	0,55	V18	134	107	613	370	317
7	0,55	V18	134	107	634	391	339
8	0,55	V18	134	107	656	413	360
9	0,75	V18	150	115	678	444	392
10	0,75	V18	150	115	700	466	413
11	1,1	V18	150	115	751	487	435
12	1,1	V18	150	115	773	509	456
14	1,1	V18	150	115	816	552	499

DPH(S)I 2B, 2P 60 Hz

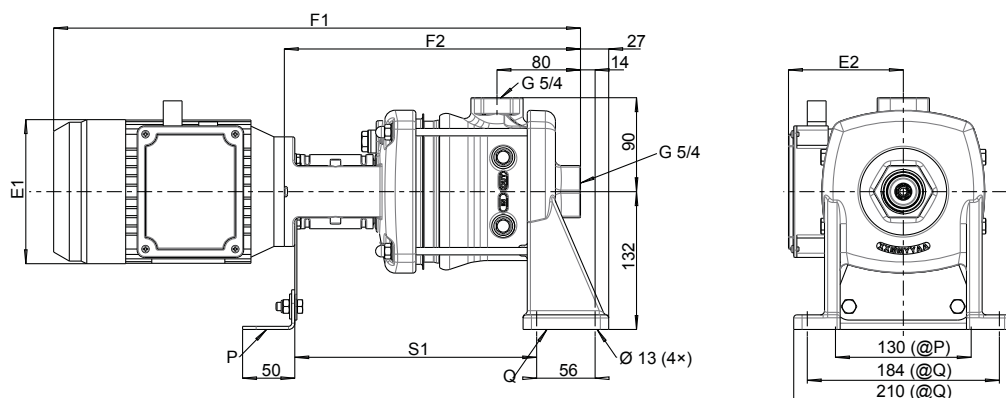


Fig. 7: Dimensions and connections of DPH(S)I 2 with V18 motor⁹⁾

Dimensions [mm]

Number of stages	Power [kW]	Motor	E1	E2	F1	F2	S1
2	0,37	V18	134	107	503	284	231
3	0,37	V18	134	107	524	305	253
4	0,55	V18	134	107	570	327	274
5	0,75	V18	150	115	592	358	306
6	0,75	V18	150	115	614	380	327
7	1,1	V18	150	115	665	401	349
8	1,1	V18	150	115	687	423	370
9	1,1	V18	150	115	708	444	392
10	1,5	V18	185	139	757	476	421
11	1,5	V18	185	139	778	497	443
12	1,5	V18	185	139	800	519	464
14	2,2	V18	185	139	868	562	507

9) Optional: connection height 160 mm

DPH(S)I 4B, 2P 50 Hz

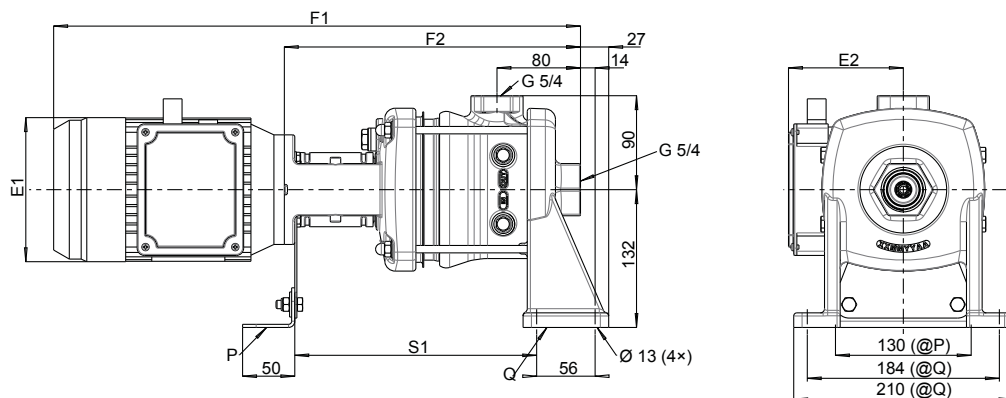


Fig. 8: Dimensions and connections of DPH(S)I 4 with V18 motor¹⁰⁾

Dimensions [mm]

Number of stages	Power [kW]	Motor	E1	E2	F1	F2	S1
2	0,37	V18	134	107	503	284	231
3	0,55	V18	134	107	548	305	253
4	0,55	V18	134	107	570	327	274
5	0,75	V18	150	115	592	358	306
6	1,1	V18	150	115	644	380	327
7	1,1	V18	150	115	665	401	349
8	1,5	V18	185	139	714	433	378
9	1,5	V18	185	139	735	454	400
10	1,5	V18	185	139	757	476	421
11	2,2	V18	185	139	803	497	443
12	2,2	V18	185	139	825	519	464
14	2,2	V18	185	139	868	562	507

10) Optional: connection height 160 mm

DPH(S)I 4B, 2P 60 Hz

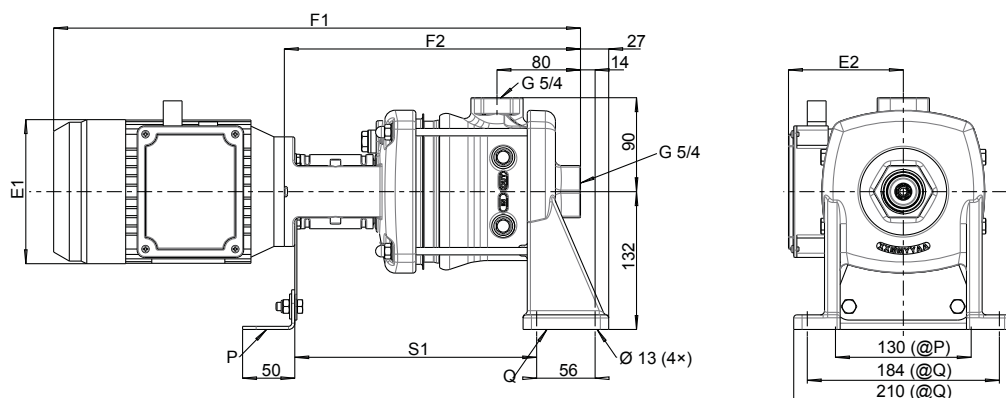


Fig. 9: Dimensions and connections of DPH(S)I 4 with V18 motor¹¹⁾

Dimensions [mm]

Number of stages	Power [kW]	Motor	E1	E2	F1	F2	S1
2	0,55	V18	134	107	527	284	231
3	0,75	V18	150	115	549	315	263
4	1,1	V18	150	115	601	337	284
5	1,5	V18	185	139	649	368	314
6	1,5	V18	185	139	671	390	335
7	2,2	V18	185	139	717	411	357
8	2,2	V18	185	139	739	433	378
9	3	V18	199	150	771	454	400
10	3	V18	199	150	793	476	421
11	3	V18	199	150	814	497	443
12	4	V18	241	165	885	529	474
14	4	V18	241	165	928	572	517

11) Optional: connection height 160 mm

DPH(S)I 6B, 2P 50 Hz

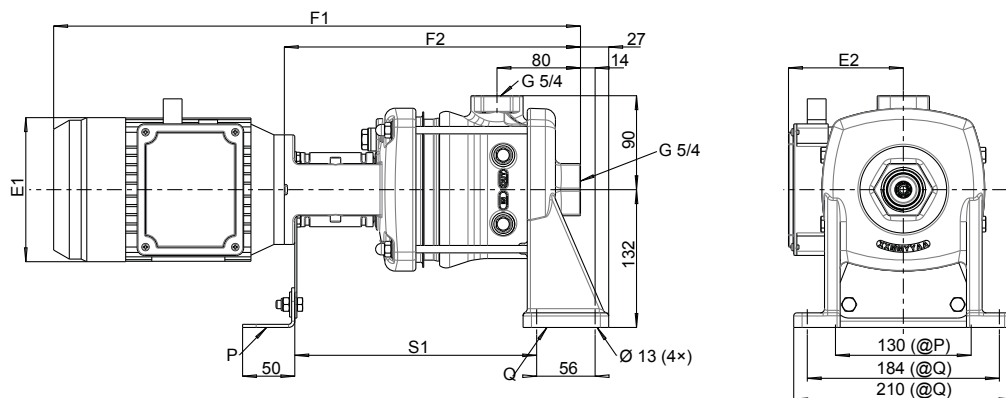


Fig. 10: Dimensions and connections of DPH(S)I 6 with V18 motor¹²⁾

Dimensions [mm]

Number of stages	Power [kW]	Motor	E1	E2	F1	F2	S1
2	0,37	V18	134	107	510	291	239
3	0,75	V18	150	115	560	326	274
4	1,1	V18	150	115	615	351	299
5	1,1	V18	150	115	640	376	324
6	1,5	V18	185	139	692	411	357
7	1,5	V18	185	139	717	436	382
8	2,2	V18	185	139	767	461	407
9	2,2	V18	185	139	792	486	432
10	2,2	V18	185	139	817	511	457
11	3	V18	199	150	863	546	492
12	3	V18	199	150	888	571	517
14	3	V18	199	150	938	621	567

12) Optional: connection height 160 mm

DPH(S)I 6B, 2P 60 Hz

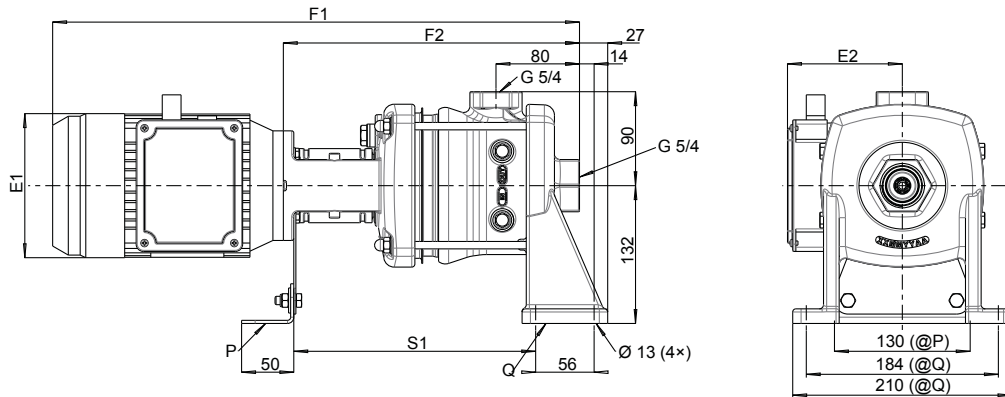


Fig. 11: Dimensions and connections of DPH(S)I 6 with V18 motor¹³⁾

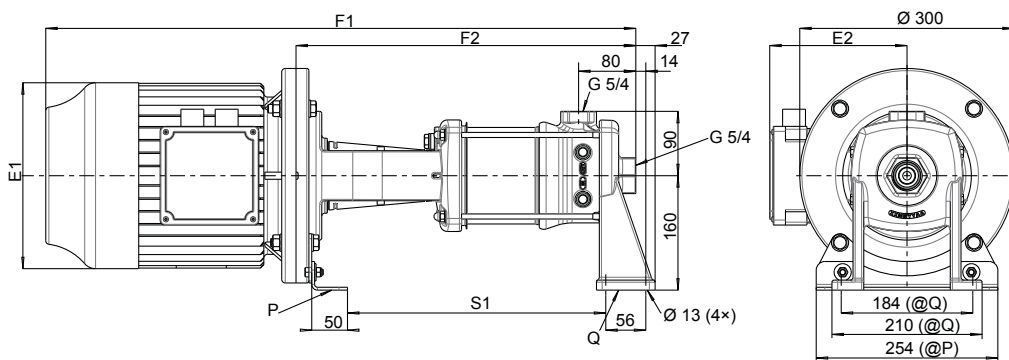


Fig. 12: Dimensions and connections of DPH(S)I 6 with V1 motor

Dimensions [mm]

Number of stages	Power [kW]	Motor	E1	E2	F1	F2	S1
2	0,75	V18	150	115	535	301	249
3	1,1	V18	150	115	590	326	272
4	1,5	V18	185	139	642	361	307
5	2,2	V18	185	139	692	386	332
6	2,2	V18	185	139	717	411	357
7	3	V18	199	150	753	436	382
8	3	V18	199	150	778	461	407
9	4	V18	241	165	852	496	442
10	4	V18	241	165	877	521	467
11	4	V18	241	165	902	546	492
12	5,5	V1	288	197	1079	647	547
14	5,5	V1	288	197	1129	697	597

13) Optional: connection height 160 mm

DPH(S)I 10B, 4P 50 Hz

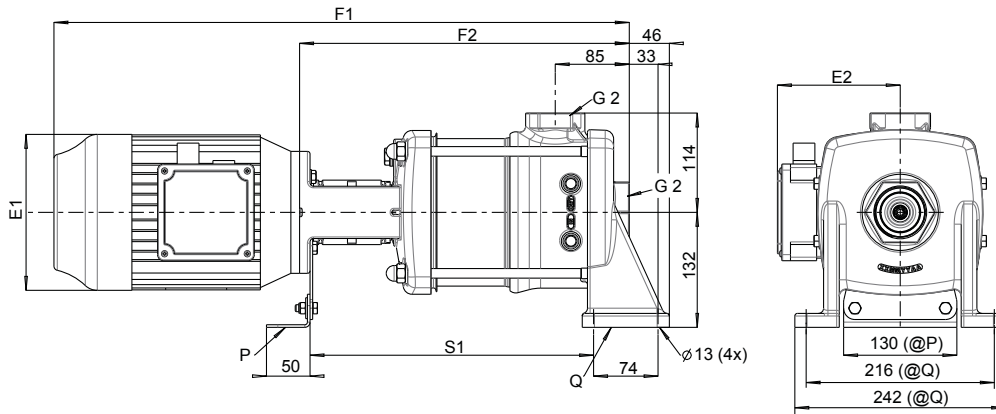


Fig. 13: Dimensions and connections of DPH(S)I 10 with V18 motor¹⁴⁾

Dimensions [mm]

Number of stages	Power [kW]	Motor	E1	E2	F1	F2	S1
1	0,55	V18	150	115	585	342	272
2	0,55	V18	150	115	585	342	272
3	0,55	V18	150	115	612	369	298
4	0,55	V18	150	115	638	395	324
5	0,55	V18	150	115	664	421	351
6	0,55	V18	150	115	691	448	377
7	0,55	V18	150	115	717	474	404
8	0,55	V18	150	115	744	501	430

14) Optional: connection height 160 mm

DPH(S)I 10B, 4P 60 Hz

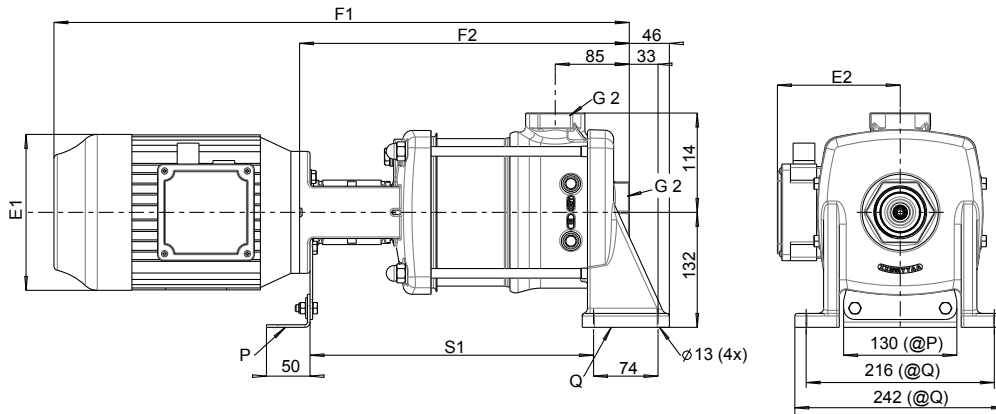


Fig. 14: Dimensions and connections of DPH(S)I 10 with V18 motor¹⁵⁾

Dimensions [mm]

Number of stages	Power [kW]	Motor	E1	E2	F1	F2	S1
1	0,55	V18	150	115	599	342	272
2	0,55	V18	150	115	599	342	272
3	0,55	V18	150	115	626	369	298
4	0,55	V18	150	115	652	395	324
5	0,55	V18	150	115	678	421	351
6	0,55	V18	150	115	705	448	377
7	0,55	V18	150	115	731	474	404
8	0,75	V18	150	115	786	501	430

¹⁵⁾ Optional: connection height 160 mm

DPH(S)I 10B, 2P 50 Hz

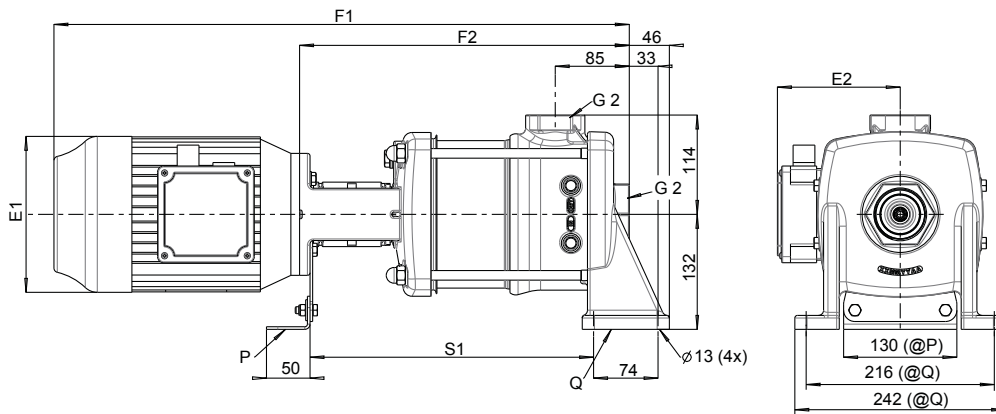


Fig. 15: Dimensions and connections of DPH(S)I 10 with V18 motor¹⁶⁾

Dimensions [mm]

Number of stages	Power [kW]	Motor	E1	E2	F1	F2	S1
1	0,75	V18	150	115	576	342	272
2	0,75	V18	150	115	576	342	272
3	1,1	V18	150	115	633	369	298
4	1,5	V18	185	139	686	405	332
5	2,2	V18	185	139	737	431	359
6	2,2	V18	185	139	764	458	385
7	3	V18	199	150	801	484	412
8	3	V18	199	150	828	511	438

16) Optional: connection height 160 mm

DPH(S)I 10B, 2P 60 Hz

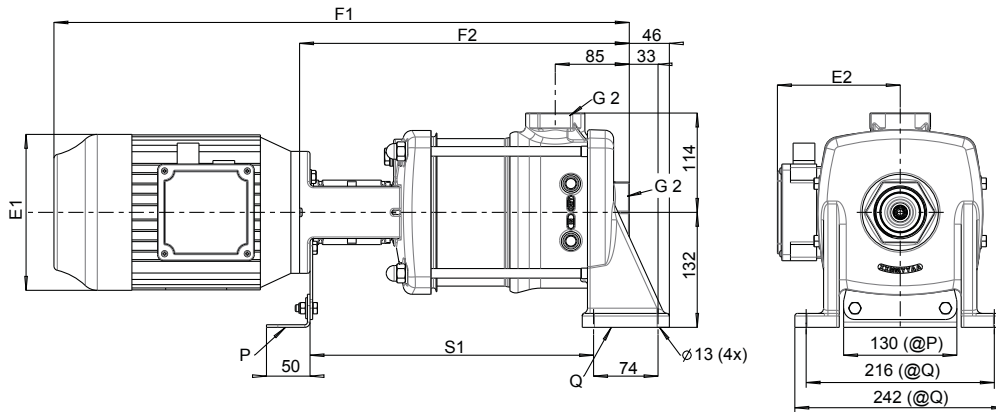


Fig. 16: Dimensions and connections of DPH(S)I 10 with V18 motor¹⁷⁾

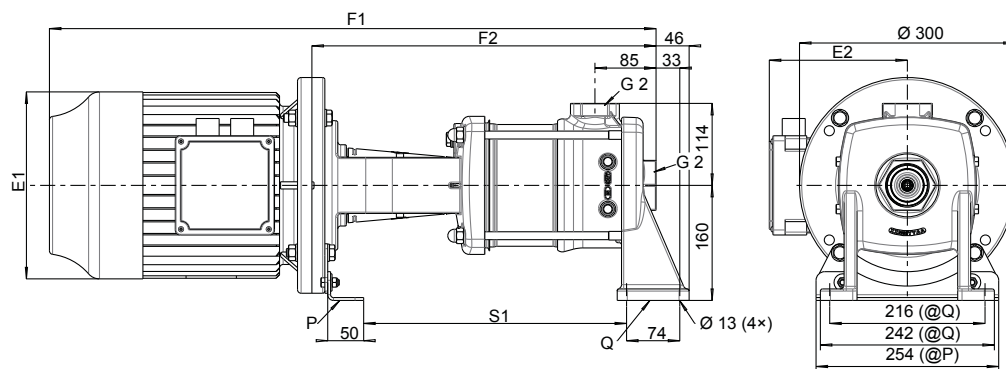


Fig. 17: Dimensions and connections of DPH(S)I 10 with V1 motor

Dimensions [mm]

Number of stages	Power [kW]	Motor	E1	E2	F1	F2	S1
1	0,75	V18	150	115	576	342	272
2	1,5	V18	185	139	633	352	280
3	2,2	V18	185	139	685	379	306
4	3	V18	199	150	722	405	332
5	4	V18	241	165	797	441	369
6	4	V18	241	165	824	468	395
7	5,5	V1	288	197	1005	573	449
8	5,5	V1	288	197	1032	600	475

¹⁷⁾ Optional: connection height 160 mm up to a maximum of 7 stages

DPH(S)I 15B, 4P 50 Hz

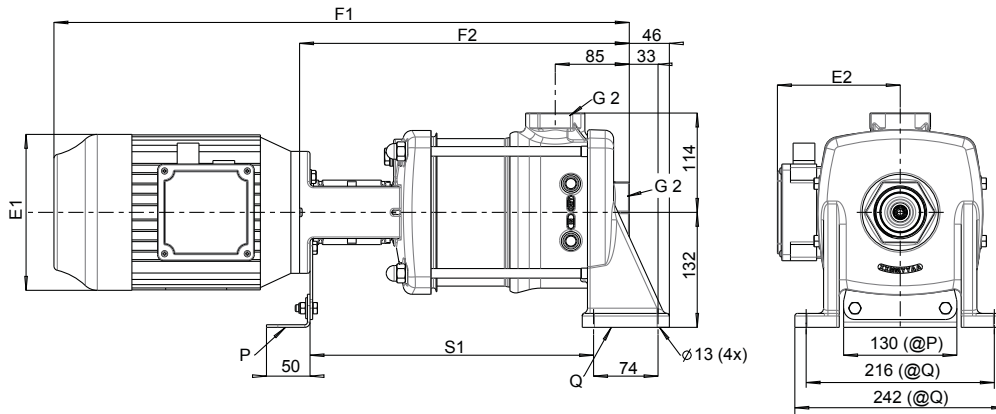


Fig. 18: Dimensions and connections of DPH(S)I 15 with V18 motor¹⁸⁾

Dimensions [mm]

Number of stages	Power [kW]	Motor	E1	E2	F1	F2	S1
1	0,55	V18	150	115	585	342	272
2	0,55	V18	150	115	585	342	272
3	0,55	V18	150	115	612	369	298
4	0,55	V18	150	115	638	395	324
5	0,55	V18	150	115	664	421	351
6	0,75	V18	150	115	682	448	377
7	1,1	V18	180	145	748	484	412
8	1,1	V18	180	145	775	511	438

18) Optional: connection height 160 mm

DPH(S)I 15B, 4P 60 Hz

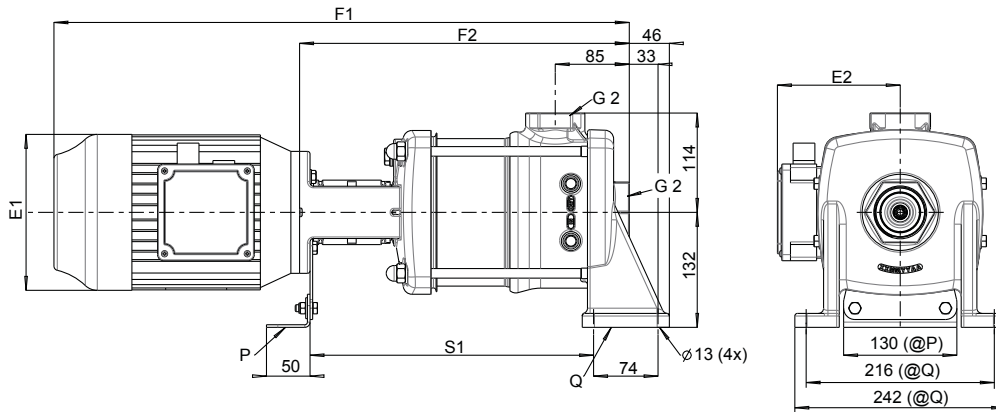


Fig. 19: Dimensions and connections of DPH(S)I 15 with V18 motor¹⁹⁾

Dimensions [mm]

Number of stages	Power [kW]	Motor	E1	E2	F1	F2	S1
1	0,55	V18	150	115	599	342	272
2	0,55	V18	150	115	599	342	272
3	0,55	V18	150	115	626	369	298
4	0,75	V18	150	115	680	395	324
5	1,1	V18	180	145	716	431	359
6	1,1	V18	180	145	743	458	385
7	1,5	V18	180	145	794	484	412
8	1,5	V18	180	145	821	511	438

¹⁹⁾ Optional: connection height 160 mm

DPH(S)I 15B, 2P 50 Hz

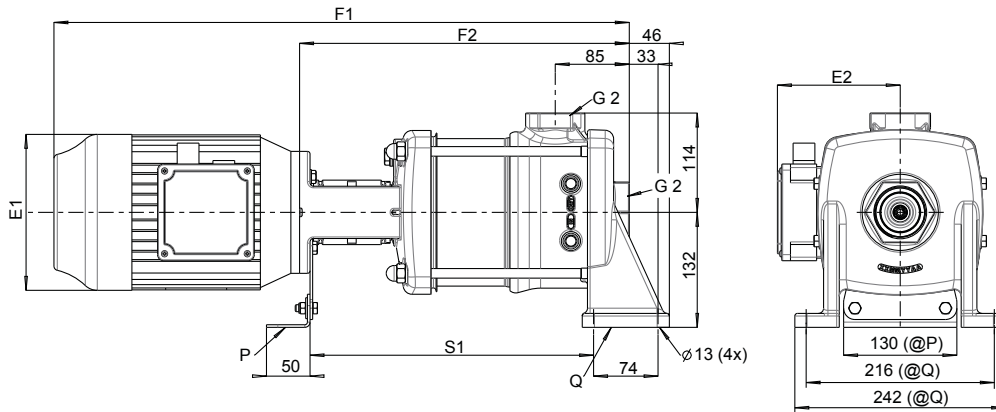


Fig. 20: Dimensions and connections of DPH(S)I 15 with V18 motor²⁰⁾

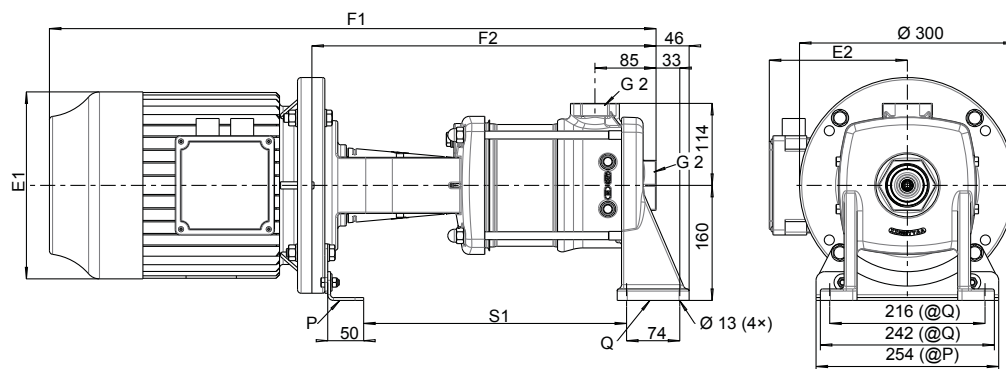


Fig. 21: Dimensions and connections of DPH(S)I 15 with V1 motor

Dimensions [mm]

Number of stages	Power [kW]	Motor	E1	E2	F1	F2	S1
1	1,1	V18	150	115	606	342	272
2	2,2	V18	185	139	658	352	280
3	3	V18	199	150	696	379	306
4	4	V18	241	165	771	415	342
5	5,5	V1	288	197	952	520	446
6	5,5	V1	288	197	979	547	472
7	7,5	V1	288	197	1005	573	499
8	7,5	V1	288	197	1032	600	525

20) Optional: connection height 160 mm up to a maximum of 4 stages

DPH(S)I 15B, 2P 60 Hz

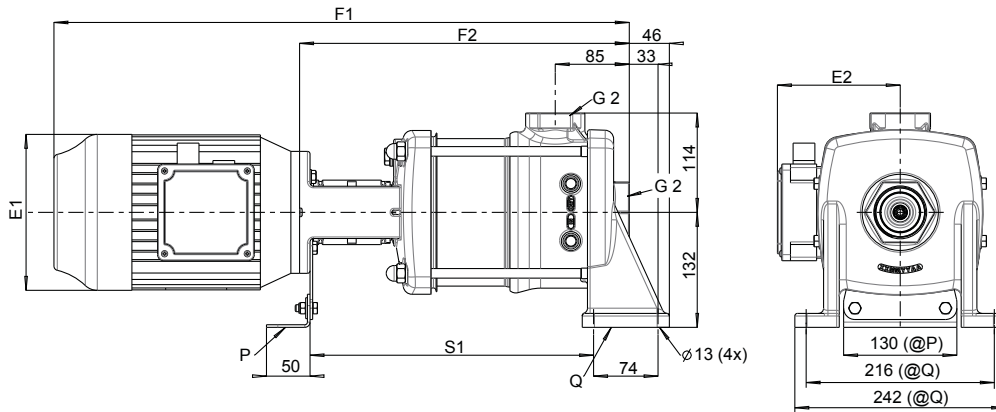


Fig. 22: Dimensions and connections of DPH(S)I 15 with V18 motor²¹⁾

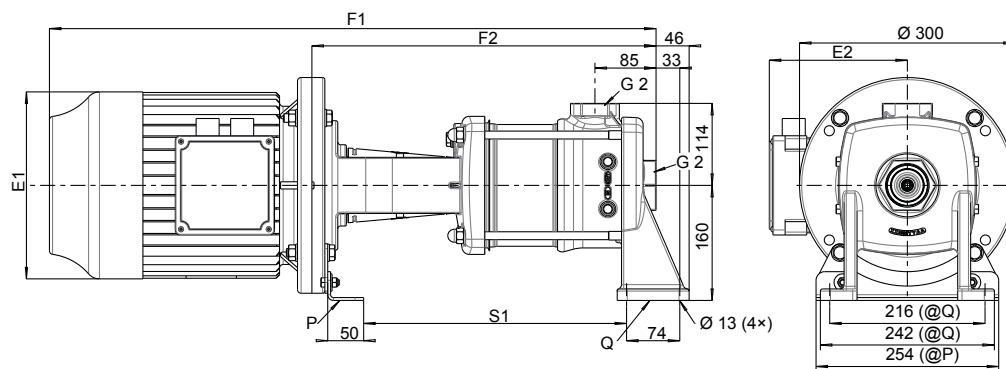


Fig. 23: Dimensions and connections of DPH(S)I 15 with V1 motor

Dimensions [mm]

Number of stages	Power [kW]	Motor	E1	E2	F1	F2	S1
1	2,2	V18	185	139	658	352	280
2	3	V18	199	150	669	352	280
3	5,5	V1	288	197	900	468	393
4	7,5	V1	288	197	926	494	369
5	7,5	V1	288	197	952	520	396

²¹⁾ Optional: connection height 160 mm up to a maximum of 2 stages

General assembly drawing with list of components

DPH(S)I

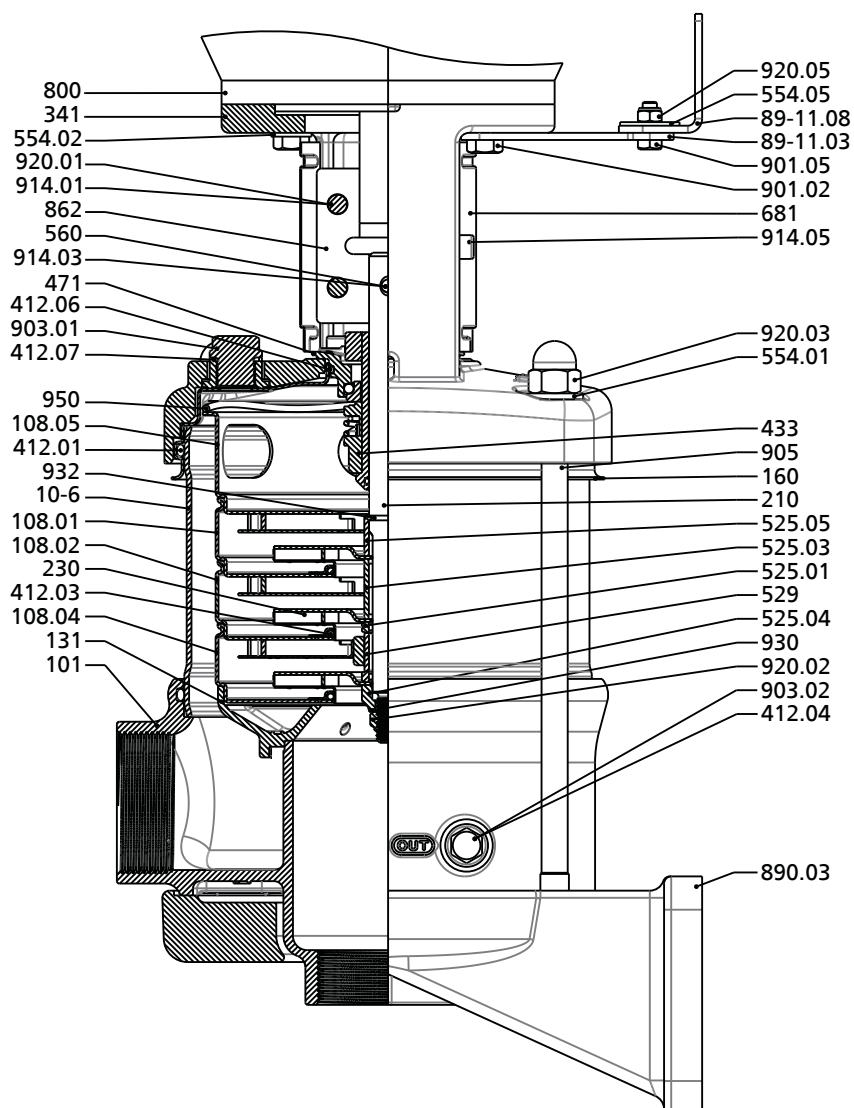


Fig. 24: General assembly drawing

List of components

Part No.	Description	Part No.	Description
10-6	Pump shroud	560	Pin
101	Pump casing	681	Coupling guard
108.01/.02/.04/.05	Stage casing	800	Motor
131	Inlet ring	862	Coupling shell
160	Cover	89-11.03/.08	Retaining bracket
210	Shaft	890.03	Baseplate
230	Impeller	901.02/.05	Hexagon head bolt
341	Drive lantern	903.01/.02	Screw plug
412.01/.03/.04/.06/.07	O-ring	905	Tie bolt
433	Mechanical seal	914.01/.03/.05	Hexagon socket head cap screw
471	Seal cover	920.01/.02/.03/.05	Nut
525.01/.03/.04/.05	Spacer sleeve	930	Safety device
529	Bearing sleeve	932	Circlip
554.01/.02/.05	Washer	950	Spring

DP Pumps

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28/02/2019

97004539 (1798.5560/03-EN)