NK, NKE

50 Hz APAC
Fixed speed range
Speed-controlled, non-sensor range
Speed-controlled, Series 2000, 2-channel sensor range
Single-stage end-suction pumps



GRUNDFOS

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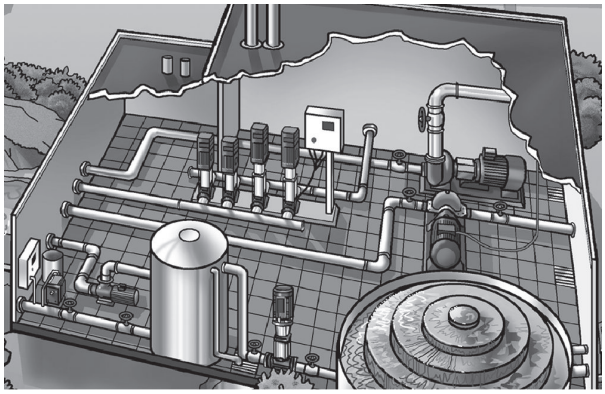
1. Applications

Introduction

NK are multipurpose pumps suitable for a variety of different applications demanding reliable and cost-efficient supply.

NK pumps are used in five main fields of application:

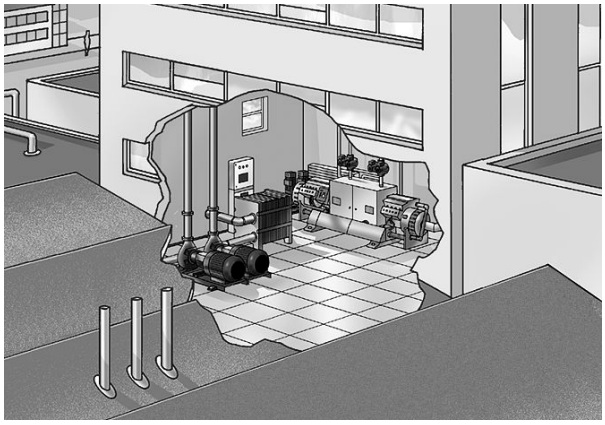
- water supply
- industrial pressure boosting
- industrial liquid transfer
- HVAC
- irrigation.


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Water supply

Besides general water supply in municipal and industrial waterworks, the NK pumps are used for these specific applications:

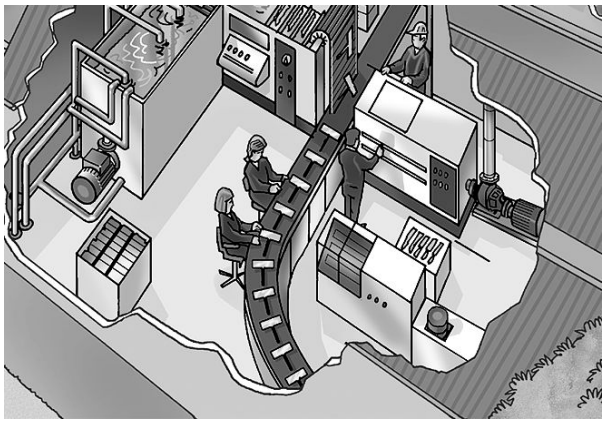
- filtration and transfer at waterworks
- pressure boosting in mains
- pressure boosting in high-rise buildings, hotels, etc.
- pressure boosting in industrial buildings
- various swimming bath applications.


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Industrial pressure boosting

Pressure boosting in these applications:

- industrial washing and cleaning systems
- industrial wash-down systems
- vehicle washing tunnels
- firefighting systems.


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Industrial liquid transfer

Liquid transfer in these applications:

- cooling and air-conditioning systems, refrigerants
- boiler-feed and condensate systems
- aquafarming
- industrial heating systems
- district heating plants.

HVAC

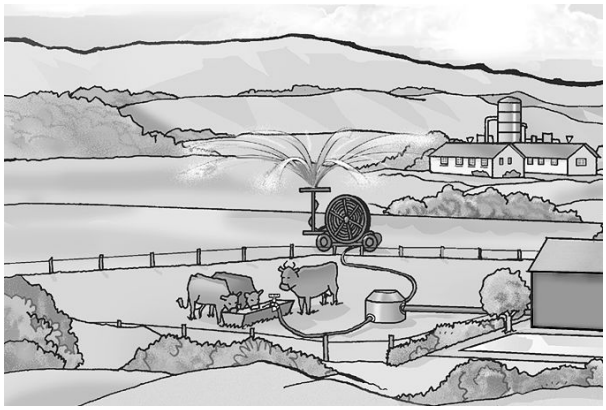
Liquid transfer in these applications:

- heating systems
- ventilation systems
- air-conditioning systems.

Irrigation

Irrigation covers these applications:

- field irrigation, flooding
- sprinkler irrigation
- drip-feed irrigation.

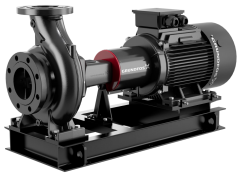


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2. Features and benefits

NK pumps offer the following features and benefits:

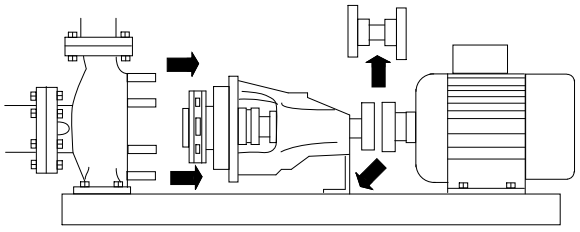
- The pumps are non-self-priming, single-stage, centrifugal volute pumps with axial inlet port, radial outlet port and horizontal shaft.
- All pumps are according to ISO 5199.
- Inlet and outlet flanges are according to EN 1092-2.
- Connection dimensions are according to EN 733.
- Pumps are for 10/16/25 bar operation.
- The mechanical shaft seal has dimensions according to EN 12756.
- The pumps can be equipped with an MGE motor with integrated frequency converter or connected to a Grundfos CUE external frequency converter.
- All pumps are statically balanced according to ISO 1940-1 class 6.3.
  Impellers are hydraulically balanced.



TM1040532

NK pump

- For NK pumps the back pull-out design enables removal of the motor, motor stool and impeller without disturbing the pump housing or pipes. Even the largest pumps can thus be serviced by a single person with a crane.



TM031004

NK back pull-out design

- The NK pump is long-coupled with a totally enclosed fan-cooled standard motor with main dimensions to IEC and DIN standards and mounting designation B3 (IM 1001).

Pumps with standard motors

IE3 IE4

NK pumps are fitted with standard motors with efficiency class IE3 for low-voltage three-phase motors. IE4 motors are available on request.

Pumps with electronic speed control

IE5

NKE pumps are NK pumps equipped with a motor with built-in frequency converter and the necessary application software to achieve an all-in-one solution enabling electronic speed control.

Electronic speed control enables continuously variable control of motor speed which again enables adaptation of the performance to a given requirement.

If a sensor is installed, NKE pumps allow for any of these configurations and control methods:

- constant pressure
- proportional control
- temperature control
- constant flow.

NKE pumps with medium speed motors up to 22 kW and low speed motors up to 7.5 kW are fitted with Grundfos permanent-magnet MGE motors that have motor efficiency class IE5 according to IEC 60034-30-2.

Why select an E-pump

A pump with electronic speed control offers these benefits:

- energy savings
- increased comfort
- control and monitoring of pump performance
- communication with the pump.

For further information on electronic speed control, see section Speed-controlled pumps.

Related information

9. Speed-controlled pumps

Energy-optimised pumps

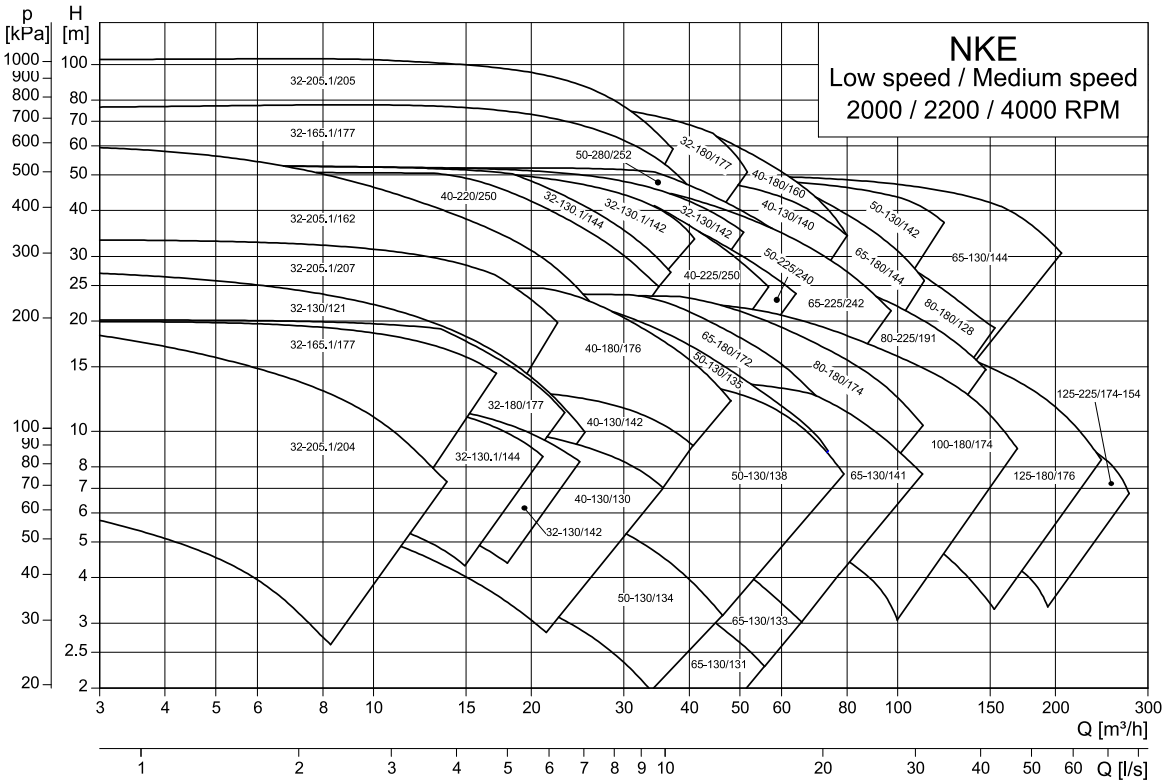
NK pumps are energy-optimised and comply with the EuP Directive, Commission Regulation (EC) No 547/2012, in which most pumps are classified or graduated in an energy efficiency index (MEI). See also section Minimum efficiency index.

Related information

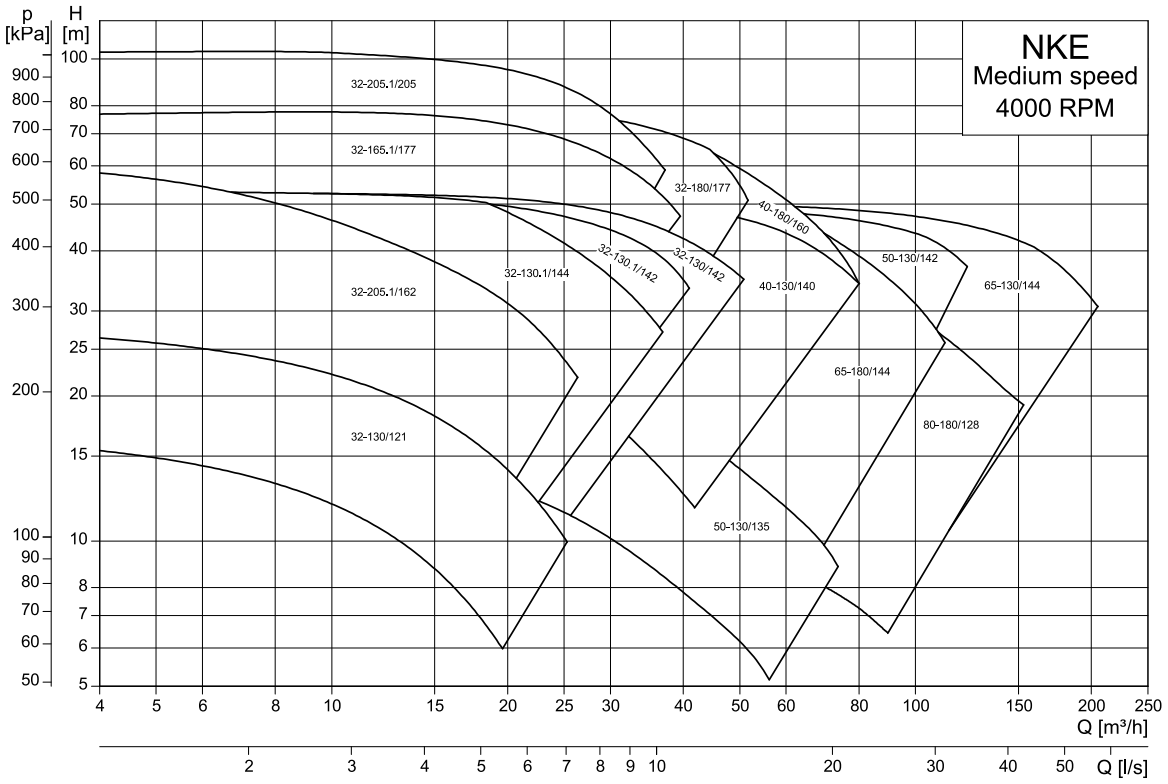
18. Minimum efficiency index

3. Performance range

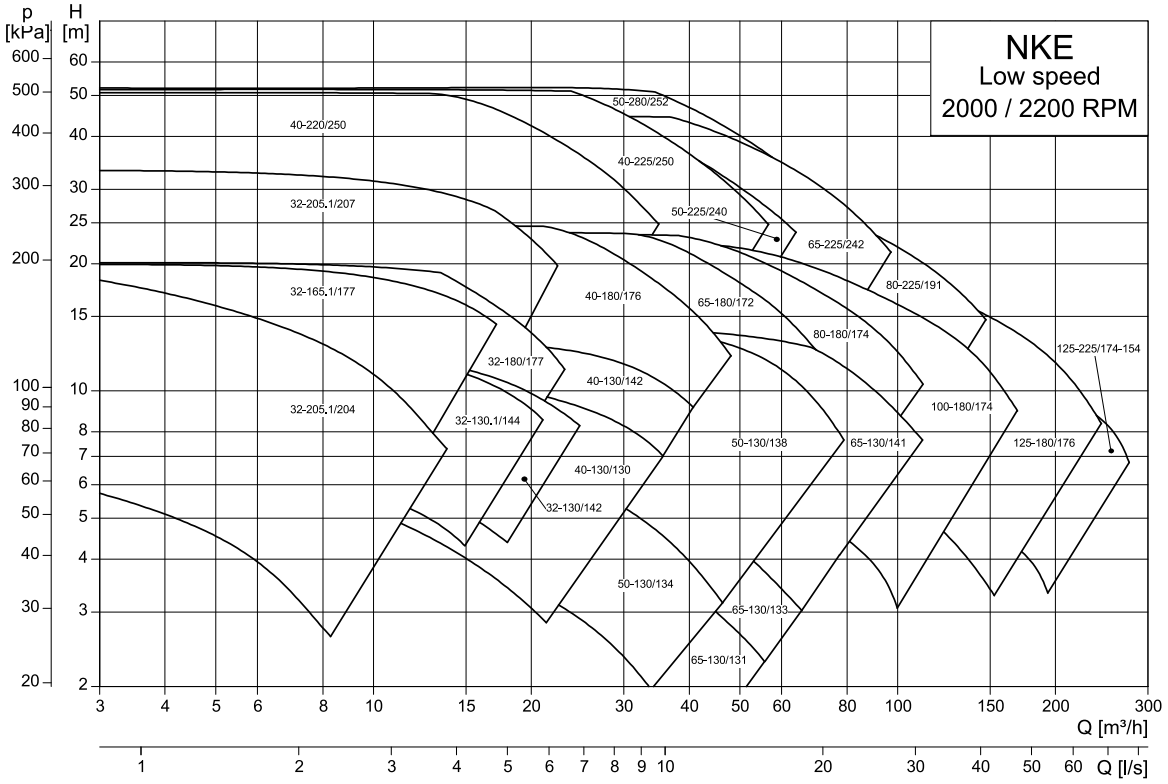
NKE Full range



NKE Medium speed

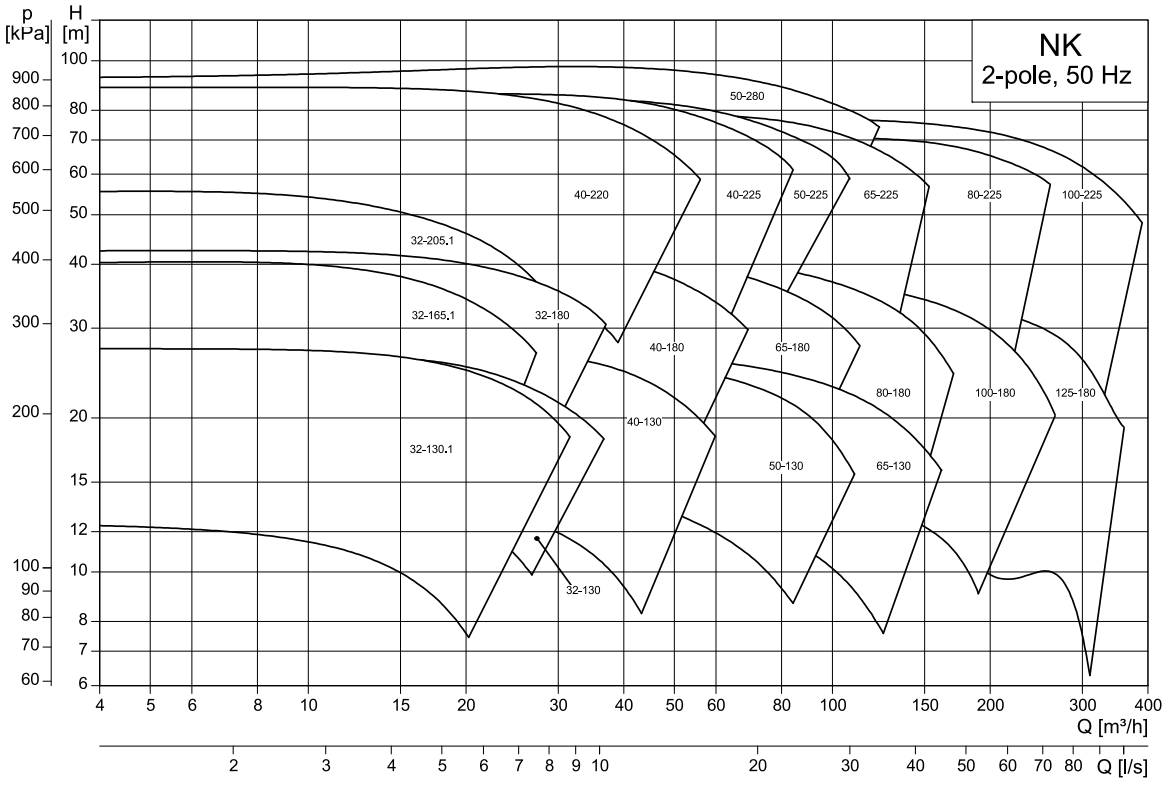


NKE Low speed



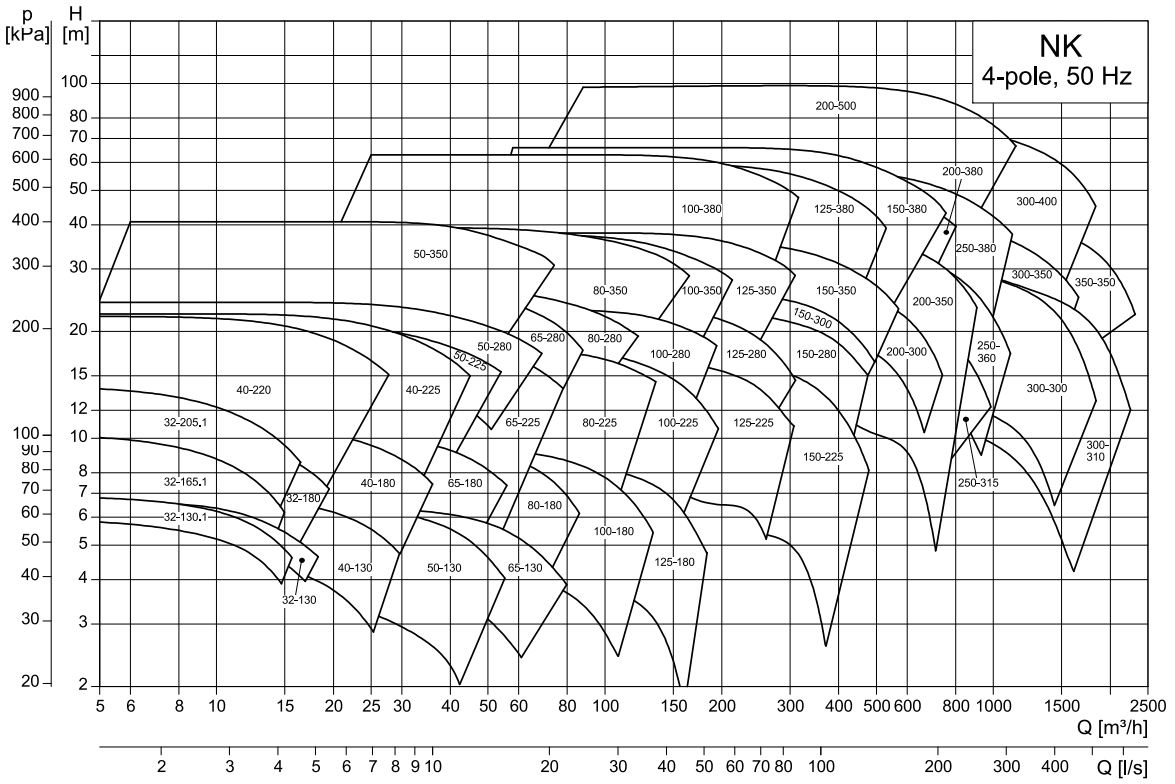
TM082124

NK, 2-pole



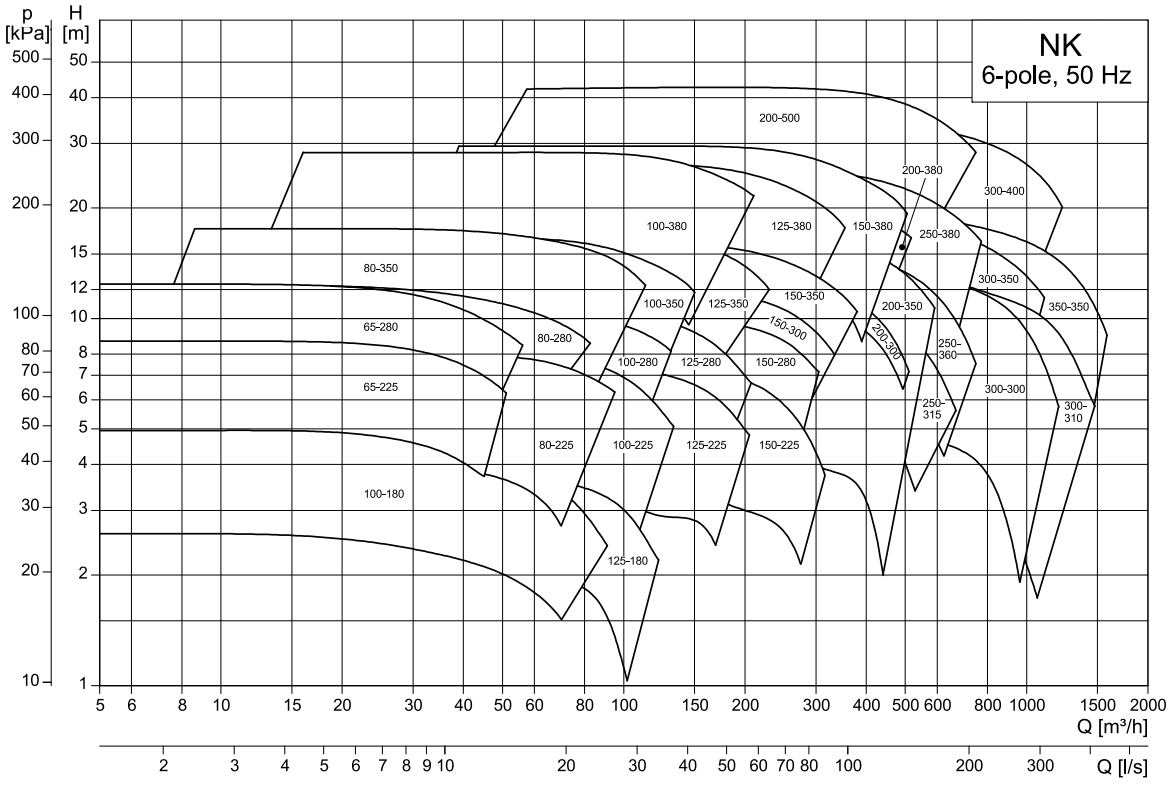
TM1040303

NK, 4-pole



TM1040304

NK, 6-pole



TM1040305

4. Product range

The tables on the following pages show the complete product ranges of NK, NKE pumps. The standard range has been combined on the basis of the following parameters:

Pump

- Pump housings have outlet flanges from DN 32 to DN 350.
- In general, cast iron pumps have either fixed flanges or loose flanges depending on pump models and rated pressure.

Motor

- Motors are for 50 Hz.
- NK pumps are available with 2-, 4- and 6-pole motors; NKE with medium speed and low speed motors..
- NK pumps are as standard available with IE3 motors.
- Motors with power rating up to and including 3 kW are available for "low voltage"; motors as from 4 kW are available for "high voltage".
- Some pumps can be equipped with an MGE motor with integrated frequency converter.
- Some pumps can be connected to a Grundfos CUE external frequency converter.
- All pumps with non-E-motor can be connected to an external frequency converter.

Custom-built pumps

See the data booklet "NB, NBG, NK, NKG, NBE, NBGE, NKE, NKGE - Custom-built pumps according to EN 733 and ISO 2858", or contact Grundfos.

NK, 2-pole

50 Hz, 2-pole		NK - Standard range											NK Options							
		Cast iron pump variants											Bearing bracket				Pump	Motor		
		NKE		Pressure rating and flange type				Pump material codes [1]			Bearing bracket design		Heavy duty (HD) bearing design							
				Flange mounting [2]									Lubrication type							
													Re-grease		Oil					
Pump type	P2 [kW]	No sensor	Integrated sensor	PN 10	PN 16	PN25	Flange standard [3]	PN 10	PN 16	PN25	Standard [4]	Heavy duty (HD) [5]	SPM fittings [6]	Pt100 sensors [6]	SPM fittings [6]	Pt100 sensors [6]	Special seals	Special motor brand	Special voltage	Insulated bearings for VFD operation
32-130.1	0.75	-	-	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.1	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.5	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4 [7]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5 [7]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
32-130	1.1	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.5	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4 [7]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5 [7]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5 [7]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
32-165.1	1.5	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5 [7]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5 [7]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	11 [7]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
32-180	1.5	-	-	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5 [7]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	11 [7]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
32-205.1	3	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	11 [7]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
40-130	1.5	-	-	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5 [7]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	11 [7]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●

50 Hz, 2-pole		NK - Standard range											NK Options							
				Cast iron pump variants									Bearing bracket				Pump	Motor		
		NKE		Pressure rating and flange type				Pump material codes [1]			Bearing bracket design		Heavy duty (HD) bearing design							
				Flange mounting [2]									Lubrication type							
													Re-grease		Oil					
Pump type	P2 [kW]	No sensor	Integrated sensor	PN 10	PN 16	PN25	Flange standard [3]	PN 10	PN 16	PN25	Standard [4]	Heavy duty (HD) [5]	SPM fittings [6]	Pt100 sensors [6]	SPM fittings [6]	Pt100 sensors [6]	Special seals	Special motor brand	Special voltage	Insulated bearings for VFD operation
40-180	2.2	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	11	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
40-220	5.5	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
	7.5	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
	11	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
	15	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
	18.5	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
40-225	5.5	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
	7.5	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
	11	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
	15	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
	18.5	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
	22	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
50-130	3	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	11 [7]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	15 [7]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
50-225	5.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	11	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	15	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	18.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	22	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	30	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
50-280	15	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	18.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
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	45	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
65-130	4	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	11	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	15 [7]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	18.5 [7]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	22 [7]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●

50 Hz, 2-pole		NK - Standard range										NK Options							
		Cast iron pump variants										Bearing bracket				Pump	Motor		
		NKE		Pressure rating and flange type				Pump material codes [1]			Bearing bracket design	Heavy duty (HD) bearing design							
				Flange mounting [2]								Lubrication type							
												Re-grease		Oil					
Pump type	P2 [kW]	No sensor	Integrated sensor	PN 10	PN 16	PN25	Flange standard [3]	PN 10	PN 16	PN25	Standard [4]	Heavy duty (HD) [5]	SPM fittings [6]	Pt100 sensors [6]	SPM fittings [6]	Pt100 sensors [6]	Special seals	Special motor brand	Special voltage	Insulated bearings for VFD operation
65-180	3	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	11	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	15	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
65-225	11	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
	15	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
	18.5	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
	22	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
	30	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
	37	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
80-180	4	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	11	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	15	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	18.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
80-225	18.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	22	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	30	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	37	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	45	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	55	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
100-180	7.5	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
	11	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
	15	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
	18.5	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
	22	-	-	F	F	L	F	C	C	D	-	●	□	□	■	□	●	●	●	●
100-225	22	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	30	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	37	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	45	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	55	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	75	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
125-180	11	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	15	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	18.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	22	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	30	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●

1) C = S3, S4, S5, S8, S9, SK, SL, T2, T3; D = QE, QF, QG, QH, SB, SC, SD, SG, SH,SI, SJ, TA, TB

2) F = Fixed flange; L = Loose flange; NA = Not available

3) F = DIN flange machining; G = ANSI flange machining; J = JIS flange machining

4) Standard bearing bracket with greased for life bearings

5) Heavy duty bearing bracket, re-greaseable or oil lubricated bearings

6) □ = Optional; ■ = Standard

7) Only for E-pumps

NK, 4-pole

50 Hz, 4-pole		NKE		NK - Standard range									NK Options							
				Cast iron pump variants									Bearing bracket				Pump	Motor		
				Pressure rating and flange type				Pump material codes [8]			Bearing bracket design		Heavy duty (HD) bearing design							
				Flange mounting [9]									Lubrication type							
													Re-grease		Oil					
Pump type	P2 [kW]	No sensor	Integrated sensor	PN 10	PN 16	PN25	Flange standard [10]	PN 10	PN 16	PN25	Standard [11]	Heavy duty (HD) [12]	SPM fittings [13]	Pt100 sensors [13]	SPM fittings [13]	Pt100 sensors [13]	Special seals	Special motor brand	Special voltage	Insulated bearings for VFD operation
32-130.1	0.25	-	-	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.37	-	-	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.55 [14]	-	-	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.75 [14]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
32-130	0.25	-	-	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.37	-	-	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.55 [14]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.75 [14]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
32-165.1	0.25	-	-	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.37	-	-	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.55	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.75 [14]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.1 [14]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
32-180	0.25	-	-	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.37	-	-	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.55	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.75	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.1 [14]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
32-205.1	0.37	-	-	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.55	-	-	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.75	-	-	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
40-130	0.25	-	-	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.37	-	-	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.55	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.75 [14]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.1 [14]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.5 [14]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
40-180	0.37	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.55	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.75	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.1	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.5 [14]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2 [14]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
40-220	0.55	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.75	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.1	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.5	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3 [14]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4 [14]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●

50 Hz, 4-pole		NK - Standard range											NK Options							
				Cast iron pump variants									Bearing bracket				Pump	Motor		
		NKE		Pressure rating and flange type				Pump material codes [8]			Bearing bracket design		Heavy duty (HD) bearing design							
				Flange mounting [9]									Lubrication type							
													Re-grease		Oil					
Pump type	P2 [kW]	No sensor	Integrated sensor	PN 10	PN 16	PN25	Flange standard [10]	PN 10	PN 16	PN25	Standard [11]	Heavy duty (HD) [12]	SPM fittings [13]	Pt100 sensors [13]	SPM fittings [13]	Pt100 sensors [13]	Special seals	Special motor brand	Special voltage	Insulated bearings for VFD operation
40-225	0.75	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.1	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4 [14]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5 [14]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
50-130	0.37	-	-	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.55	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.75	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.1	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.5 [14]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2 [14]	●	●	F	F	F	F	C	C	D	●	-	□	□	■	□	●	●	●	●
50-225	0.75	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.1	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5 [14]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
50-280	2.2	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5 [14]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
50-350	3	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	11	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
65-130	0.55	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.75	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.1	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.5 [14]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2 [14]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3 [14]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
65-180	0.55	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.75	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.1	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.5	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2 [14]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3 [14]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●

50 Hz, 4-pole		NK - Standard range											NK Options							
		Cast iron pump variants											Bearing bracket				Pump	Motor		
		NKE		Pressure rating and flange type				Pump material codes [8]			Bearing bracket design		Heavy duty (HD) bearing design							
				Flange mounting [9]									Lubrication type							
													Re-grease		Oil					
Pump type	P2 [kW]	No sensor	Integrated sensor	PN 10	PN 16	PN25	Flange standard [10]	PN 10	PN 16	PN25	Standard [11]	Heavy duty (HD) [12]	SPM fittings [13]	Pt100 sensors [13]	SPM fittings [13]	Pt100 sensors [13]	Special seals	Special motor brand	Special voltage	Insulated bearings for VFD operation
65-225	1.1	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5 [14]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5 [14]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
65-280	3	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
80-180	0.75	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.1	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.5	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3 [14]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4 [14]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
80-225	1.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
80-280	4	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	11	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
80-350	5.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	11	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	15	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	18.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
100-180	1.1	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.5	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4 [14]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5 [14]	●	●	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
100-225	3	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●

50 Hz, 4-pole		NK - Standard range										NK Options							
		Cast iron pump variants										Bearing bracket				Pump	Motor		
		NKE		Pressure rating and flange type				Pump material codes [8]			Bearing bracket design	Heavy duty (HD) bearing design							
				Flange mounting [9]								Lubrication type							
												Re-grease		Oil					
Pump type	P2 [kW]	No sensor	Integrated sensor	PN 10	PN 16	PN25	Flange standard [10]	PN 10	PN 16	PN25	Standard [11]	Heavy duty (HD) [12]	SPM fittings [13]	Pt100 sensors [13]	SPM fittings [13]	Pt100 sensors [13]	Special seals	Special motor brand	Special voltage	Insulated bearings for VFD operation
100-280	5.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	11	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	15	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
100-350	7.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	11	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	15	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	18.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	22	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
100-380	22	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	30	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	37	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	45	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	55	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	75	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
125-180	1.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
125-225	5.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	11	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	15	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
125-280	7.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	11	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	15	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	18.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
125-350	11	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	15	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	18.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	22	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	30	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	37	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
125-380	30	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	37	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	45	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	55	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	75	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	90	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
150-225	5.5	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	7.5	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	11	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	15	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	18.5	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●

50 Hz, 4-pole		NK - Standard range										NK Options							
		Cast iron pump variants										Bearing bracket				Pump	Motor		
		NKE		Pressure rating and flange type				Pump material codes [8]			Bearing bracket design	Heavy duty (HD) bearing design							
				Flange mounting [9]								Lubrication type							
												Re-grease		Oil					
Pump type	P2 [kW]	No sensor	Integrated sensor	PN 10	PN 16	PN25	Flange standard [10]	PN 10	PN 16	PN25	Standard [11]	Heavy duty (HD) [12]	SPM fittings [13]	Pt100 sensors [13]	SPM fittings [13]	Pt100 sensors [13]	Special seals	Special motor brand	Special voltage	Insulated bearings for VFD operation
	11	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	15	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
150-280	18.5	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	22	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	30	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
150-300	22	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	30	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	18.5	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	22	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
150-350	30	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	37	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	45	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	55	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	55	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	75	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
150-380	90	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	110	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	132	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	30	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
200-300	37	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	45	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	22	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	30	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	37	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
200-350	45	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	55	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	75	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	90	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	55	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	75	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
200-380	90	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	110	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	132	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	132	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	160	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	185	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
200-500	200	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	220	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	250	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	280	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●

50 Hz, 4-pole		NK - Standard range										NK Options							
				Cast iron pump variants								Bearing bracket				Pump	Motor		
		NKE		Pressure rating and flange type				Pump material codes [8]			Bearing bracket design	Heavy duty (HD) bearing design							
				Flange mounting [9]								Lubrication type							
												Re-grease		Oil					
Pump type	P2 [kW]	No sensor	Integrated sensor	PN 10	PN 16	PN25	Flange standard [10]	PN 10	PN 16	PN25	Standard [11]	Heavy duty (HD) [12]	SPM fittings [13]	Pt100 sensors [13]	SPM fittings [13]	Pt100 sensors [13]	Special seals	Special motor brand	Special voltage	Insulated bearings for VFD operation
	22	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	30	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
250-315	37	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	45	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	55	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	37	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	45	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
250-360	55	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	75	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	90	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	55	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	75	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
250-380	90	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	110	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	132	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	160	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	45	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	55	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
300-300	75	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	90	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	110	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	55	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	75	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
300-310	90	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	110	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	132	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	90	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	110	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
300-350	132	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	160	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	200	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	220	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
300-400	250	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	280	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	315	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	110	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	132	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
350-350	160	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	185	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	200	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●

8) C = S3, S4, S5, S8, S9, SK, SL, T2, T3; D = QE, QF, QG, QH, SB, SC, SD, SG, SH,SI, SJ, TA, TB

9) F = Fixed flange; L = Loose flange; NA = Not available

10) F = DIN flange machining; G = ANSI flange machining; J = JIS flange machining

11) Standard bearing bracket with greased for life bearings

12) Heavy duty bearing bracket, re-greaseable or oil lubricated bearings

13) □ = Optional; ■ = Standard

14) Only for E-pumps

NK, 6-pole

50 Hz, 6-pole		NK - Standard range										NK Options							
		Cast iron pump variants										Bearing bracket				Pump	Motor		
		NKE		Pressure rating and flange type				Pump material codes [15]			Bearing bracket design	Heavy duty (HD) bearing design							
				Flange mounting [16]								Lubrication type							
												Re-grease		Oil					
Pump type	P2 [kW]	No sensor	Integrated sensor	PN 10	PN 16	PN25	Flange standard [17]	PN 10	PN 16	PN25	Standard [18]	Heavy duty (HD) [19]	SPM fittings [20]	Pt100 sensors [20]	SPM fittings [20]	Pt100 sensors [20]	Special seals	Special motor brand	Special voltage	Insulated bearings for VFD operation
65-225	0.55	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.75	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.1	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
65-280	0.75	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.1	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
80-225	0.75	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.1	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
80-280	1.1	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
80-350	2.2	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
100-180	0.37	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.55	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.75	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.1	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
100-225	1.1	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
100-280	1.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
100-350	2.2	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
100-380	5.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	11	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	15	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	18.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●

50 Hz, 6-pole		NK - Standard range										NK Options							
		Cast iron pump variants										Bearing bracket				Pump	Motor		
		NKE		Pressure rating and flange type				Pump material codes [15]			Bearing bracket design	Heavy duty (HD) bearing design							
				Flange mounting [16]								Lubrication type							
												Re-grease		Oil					
Pump type	P2 [kW]	No sensor	Integrated sensor	PN 10	PN 16	PN25	Flange standard [17]	PN 10	PN 16	PN25	Standard [18]	Heavy duty (HD) [19]	SPM fittings [20]	Pt100 sensors [20]	SPM fittings [20]	Pt100 sensors [20]	Special seals	Special motor brand	Special voltage	Insulated bearings for VFD operation
125-180	0.37	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.55	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	0.75	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	1.1	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
125-225	1.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	2.2	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
125-280	2.2	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	3	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	4	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
125-350	4	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	5.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	7.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	11	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
125-380	11	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	15	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	18.5	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	22	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
	30	-	-	F	F	L	F	C	C	D	●	-	□	□	■	□	●	●	●	●
150-225	2.2	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	3	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	4	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	5.5	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
150-280	3	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	4	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	5.5	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	7.5	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
150-300	7.5	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	11	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
150-350	4	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	5.5	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	7.5	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	11	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	15	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
150-380	15	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	18.5	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	22	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	30	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	37	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
200-300	11	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	15	-	-	F	L	L	F	C	D	D	●	-	□	□	■	□	●	●	●	●

50 Hz, 6-pole		NK - Standard range										NK Options							
				Cast iron pump variants								Bearing bracket				Pump	Motor		
		NKE		Pressure rating and flange type				Pump material codes [15]			Bearing bracket design	Heavy duty (HD) bearing design							
				Flange mounting [16]								Lubrication type							
												Re-grease		Oil					
Pump type	P2 [kW]	No sensor	Integrated sensor	PN 10	PN 16	PN25	Flange standard [17]	PN 10	PN 16	PN25	Standard [18]	Heavy duty (HD) [19]	SPM fittings [20]	Pt100 sensors [20]	SPM fittings [20]	Pt100 sensors [20]	Special seals	Special motor brand	Special voltage	Insulated bearings for VFD operation
200-350	5.5	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	7.5	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	11	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	15	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	18.5	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	22	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
200-380	15	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	18.5	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	22	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	30	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
200-500	37	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	45	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	55	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	75	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	90	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
250-315	7.5	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	11	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	15	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
250-360	11	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	15	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	18.5	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	22	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	30	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
250-380	18.5	-	-	F	F	F	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	22	-	-	F	F	F	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	30	-	-	F	F	F	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	37	-	-	F	F	F	F	C	D	D	●	-	□	□	■	□	●	●	●	●
	45	-	-	F	F	F	F	C	D	D	●	-	□	□	■	□	●	●	●	●
300-300	11	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	15	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	18.5	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	22	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	30	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
300-310	15	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	18.5	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	22	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	30	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	37	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
300-350	30	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	37	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	45	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
300-400	55	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	75	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	90	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●

50 Hz, 6-pole		NK - Standard range										NK Options							
		Cast iron pump variants										Bearing bracket				Pump	Motor		
		NKE		Pressure rating and flange type				Pump material codes [15]			Bearing bracket design	Heavy duty (HD) bearing design							
				Flange mounting [16]								Lubrication type							
												Re-grease		Oil					
Pump type	P2 [kW]	No sensor	Integrated sensor	PN 10	PN 16	PN25	Flange standard [17]	PN 10	PN 16	PN25	Standard [18]	Heavy duty (HD) [19]	SPM fittings [20]	Pt100 sensors [20]	SPM fittings [20]	Pt100 sensors [20]	Special seals	Special motor brand	Special voltage	Insulated bearings for VFD operation
350-350	30	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	37	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	45	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●
	55	-	-	F	F	F	F	D	D	D	●	-	□	□	■	□	●	●	●	●

15) C = S3, S4, S5, S8, S9, SK, SL, T2, T3; D = QE, QF, QG, QH, SB, SC, SD, SG, SH,SI, SJ, TA, TB

16) F = Fixed flange; L = Loose flange; NA = Not available

17) F = DIN flange machining; G = ANSI flange machining; J = JIS flange machining

18) Standard bearing bracket with greased for life bearings

19) Heavy duty bearing bracket, re-greaseable or oil lubricated bearings

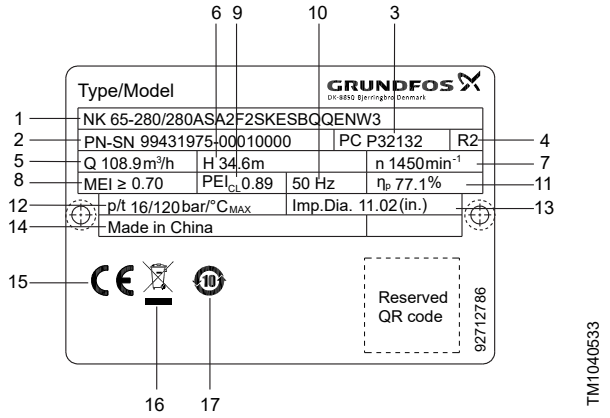
20) □ = Optional; ■ = Standard

E-pumps

P2, MGE motor [kW]	Medium speed, 4000 RPM	Low speed, 2000 / 2200 RPM
0.55	-	●
0.75	-	●
1.1	●	●
2.2	●	●
3	●	●
4	●	●
5.5	●	●
7.5	●	●
11	●	-
15	●	-
18.5	●	-
22	●	-

5. Identification

Nameplate



Example of NK nameplate

Pos.	Description	
1	Type designation	
2	Identification code	
	99431975	Product number
	00010000	Serial number
3	Production code - production site, year and week	
4	Range identification (service range code)	
5	Nominal flow rate	
6	Nominal pump head	
7	Rated pump speed	
8	Minimum efficiency index (MEI)	
9	Pump Energy Index (PEI), constant load	
10	Frequency	
11	Hydraulic pump efficiency	
12	Pressure rating and maximum temperature	
13	Actual impeller diameter	
14	Country of origin	
15	CE mark [21)]	
16	EU/WEEE mark	
17	China RoHS mark	

21) For Chinese language nameplate, there is no CE mark.

Type key

Example 1: NK 32-180/166AAEF2S3ESBQQEGX4
Example 2: NK 150-350/328-324AAEF2TBESBQQEWX4
Example 3: NKE 65-225/242ASA2F2SKESBQQENWA

Pos.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Example 1	NK	32	-180	/166		A		AE	F	2	S3	E	S	BQQE	G	X	4
Example 2	NK	150	-350	/328-324		A		AE	F	2	TB	E	S	BQQE	W	X	4
Example 3	NKE	65	-225	/242		A	S	A2	F	2	SK	E	S	BQQE	N	W	A

Pos.	Explanation
1	Type range
2	Nominal diameter of outlet port (DN)
3	Nominal impeller diameter [mm]
4	Actual impeller diameter [mm]
5	**Impeller type** 'blank': Closed impeller, cylindrical trim. If one dimension is shown, the impeller has a cylindrical trim, for example 166. 'blank': Closed impeller, conical trim. If two dimensions are shown, the impeller has a conical trim, for example 328-324. S: Special open impeller V: Super vortex impeller
6	**Hydraulic version** A: 1st version B: 2nd version C: 3rd version D: 4th version
7	**Sensor/motor version** 'blank': Pump without sensor C: Without built-in sensor, one cable and one pressure sensor are supplied with the pump. S: Pump with built-in differential-pressure sensor, Series 2000 G: Non -E pump/ -E pump with semi-integrated VFD/CUE: Motor with Grounding ring: Non drive-end H: Non -E pump/ -E pump with semi-integrated VFD/CUE: Motor with hybrid bearing (HYB): Non drive-end I: Non -E pump/ -E pump with semi-integrated VFD/CUE: Motor with insulated bearing: Non drive-end
8	**Code for pump version; the codes may be combined** A1: Basic version, grease-lubricated standard bearing design, standard coupling A2: Basic version, grease-lubricated standard bearing design, spacer coupling B: Oversize motor (+E): With ATEX approval, certificate or test report, the second character of the pump version code is an E G1: Grease-lubricated heavy-duty bearing design, standard coupling G2: Grease-lubricated heavy-duty bearing design, spacer coupling H1: Oil-lubricated heavy-duty bearing design, standard coupling H2: Oil-lubricated heavy-duty bearing design, spacer coupling I1: Pump without motor, grease-lubricated standard bearing design, standard coupling I2: Pump without motor, grease-lubricated standard bearing design, spacer coupling J1: Pump without motor, grease-lubricated heavy-duty bearing design, standard coupling J2: Pump without motor, grease-lubricated heavy-duty bearing design, spacer coupling K1: Pump without motor, oil-lubricated heavy-duty bearing design, standard coupling K2: Pump without motor, oil-lubricated heavy-duty bearing design, spacer coupling Y1: Bare shaft + grease lub. std. bearing design W1: Bare shaft + grease lubricated H.D. bearing design X: Special version; used in case of further customisation than already listed
9	**Pipe connection** E: Table E flange F: DIN flange G: ANSI flange J: JIS flange
10	**Flange pressure rating (PN - rated pressure)** 1: 10 bar 2: 16 bar 3: 25 bar 4: 40 bar 5: Other pressure rating

Pos.	Explanation				
11	**Code for materials**				
	Code	**Pump housing**	**Impeller**	**Wear ring**	**Shaft**
	S3	EN-GJL-250	1.4308	No wear ring	1.4301 + 1.0503
	S4	EN-GJL-250	1.4308	No wear ring	1.4401
	S5	EN-GJL-250	1.4308	No wear ring	1.4462
	S8	EN-GJL-250	1.4408	No wear ring	1.4401
	S9	EN-GJL-250	1.4408	No wear ring	1.4462
	SB	EN-GJS-500-7 ductile	1.4308	No wear ring	1.4301 + 1.0503
	SC	EN-GJS-500-7 ductile	1.4308	No wear ring	1.4401
	SD	EN-GJS-500-7 ductile	1.4308	No wear ring	1.4462
	SG	EN-GJS-500-7 ductile	1.4408	No wear ring	1.4401
	SH	EN-GJS-500-7 ductile	1.4408	No wear ring	1.4462
	SI	EN-GJS-500-7 ductile	1.4308	No wear ring	1.4410
	SJ	EN-GJS-500-7 ductile	1.4408	No wear ring	1.4410
	SK	EN-GJL-250	1.4308	No wear ring	1.4410
	SL	EN-GJL-250	1.4408	No wear ring	1.4410
	T2	EN-GJL-250	1.4517	No wear ring	1.4462
	T3	EN-GJL-250	1.4517	No wear ring	1.4410
	TA	EN-GJS-500-7 ductile	1.4517	No wear ring	1.4462
	TB	EN-GJS-500-7 ductile	1.4517	No wear ring	1.4410
	X	Special version			
12	**Rubber parts in pump** E: EE F: FF G: FE H: KE I: KM J: KV K: KK M: MN N: ME O: OO V: VV • The first letter indicates material of elastomer between pump housing and cover, and elastomer between cover and split cover. • The second letter indicates material of elastomer between split cover and seal housing. See the material description in the table below.				
	Code	**Material description**			
	E	EPDM			
	F	FXM (Fluoraz®)			
	K	FFKM (Kalrez®)			
	M	FEPS (PTFE-sheathed silicone O-ring)			
	O	HNBR			
	V	FKM (Viton®)			
13	**Shaft seal arrangement** B: Stuffing box C: Cartridge seal, single D: Cartridge seal, double O: Back-to-back, double seal P: Tandem, double seal S: Single seal				
14	**Shaft seal(s) in pump** Letter or digit code for mechanical shaft seal and shaft seal rubber parts • 4 letters: Single mechanical shaft seal, such as BQQE, or single cartridge seal, such as HBQV • 4 digits: - double seal solution; example 2716, where 27 is DQQV, primary seal, and 16 is BQQV, secondary seal; - double cartridge seal; example 5150, where 51 is HQQU, primary seal, and 50 is HBQV, secondary seal The relation between letters and digits of the shaft seals is described in Codes for shaft seals.				

Pos.	Explanation
15	Code for rated motor power [kW]. See Codes for rated motor power.
16	Code for phase and voltage [V] or other information. See Codes for phase and voltage or other information.
17	Code for speed variant [rpm]. See Codes for speed variant.

Example 1: NK 32-180/166AAEF2S3ESBQQEGX4 shows an NK 32-180 pump with these characteristics:

- 166 mm closed impeller, cylindrical trim
- hydraulic version A
- pump without sensor
- grease-lubricated standard bearing design
- with certificate/report (with standard coupling)
- DIN flange to EN1092-2
- 16 bar flange pressure rating
- cast iron pump housing, EN-GJL-250
- stainless steel impeller, 1.4308
- no wear ring
- stainless steel shaft, 1.4301
- EPDM O-rings for pump cover and seal cover
- single shaft seal arrangement
- BQQE shaft seal
- 1.1 kW motor, no motor or US DOE Regulated Motor (CC marked motor), 4-pole, 60 Hz.

Example 2: NK 150-350/328-324AAEF2TBESBQQEWX2 shows an NK 150-350 pump with these characteristics:

- 328-324 mm closed impeller, conical trim
- hydraulic version A
- pump without sensor
- grease-lubricated standard bearing design
- with certificate/report (with standard coupling)
- DIN flange to EN1092-2
- 16 bar flange pressure rating
- ductile iron pump housing, EN-GJS-500-7
- duplex stainless steel impeller, 1.4517
- no wear ring
- super duplex stainless steel shaft, 1.4410
- EPDM O-rings for pump cover and seal cover
- single shaft seal arrangement
- BQQE shaft seal
- 90 kW motor, no motor or US DOE Regulated Motor (CC marked motor), 2-pole, 60 Hz.

Example 3: NKE 65-225/242ASA2F2SKESBQQENWA shows an NKE 65-225 pump with these characteristics:

- 242 mm closed impeller, cylindrical trim
- hydraulic version A
- Built-in differential-pressure sensor, Series 2000
- grease-lubricated standard bearing design
- spacer coupling
- DIN flange to EN1092-2
- 16 bar flange pressure rating
- cast iron pump housing, EN-GJL-250
- stainless steel impeller, 1.4308
- no wear ring
- super duplex stainless steel shaft, 1.4410
- EPDM O-rings for pump cover and seal cover
- single shaft seal arrangement
- BQQE shaft seal
- 11 kW motor, not for sale in North American, 1450-2200 rpm.

Related information

- *[TOPIC NOT IN MAP (empty topicRef)]*

href=Codes-for-shaft-seals.dita

Codes for rated motor power

Codes for phase and voltage or other information

Codes for speed variant

Codes for shaft seals

Digits	Letters	Description
12	BBQE	Single mechanical shaft seal
13	BBQV	Single mechanical shaft seal
15	BQQE	Single mechanical shaft seal
16	BQQV	Single mechanical shaft seal
19	AQAE	Single mechanical shaft seal
20	AQAV	Single mechanical shaft seal
21	AQQE	Single mechanical shaft seal
22	AQQV	Single mechanical shaft seal
23	AQQX	Single mechanical shaft seal
24	AQQK	Single mechanical shaft seal
25	DAQF	Single mechanical shaft seal
26	DQQE	Single mechanical shaft seal
27	DQQV	Single mechanical shaft seal
28	DQQX	Single mechanical shaft seal
29	DQQK	Single mechanical shaft seal
50	HBQV	Cartridge seal
51	HQQU	Cartridge seal
52	HAQK	Cartridge seal
	SNEA	Stuffing box
	SNEB	Stuffing box
	SNEC	Stuffing box
	SNED	Stuffing box
	SNOA	Stuffing box
	SNOB	Stuffing box
	SNOC	Stuffing box
	SNOD	Stuffing box
	SNFA	Stuffing box
	SNFB	Stuffing box
	SNFC	Stuffing box
	SNFD	Stuffing box

Letter codes for shaft seals

Pos. 14 in NK type key example.

Code	Description	Explanation
B	Shaft seal type	A: O-ring seal with fixed driver B: Rubber bellows seal D: O-ring seal, balanced H: Cartridge seal, balanced
Q	Material of rotating seal face	A: Carbon, metal-impregnated with antimony which is not approved for potable water B: Carbon, resin-impregnated Q: Silicon carbide
Q	Material of stationary seal	A: Carbon, metal-impregnated with antimony which is not approved for potable water Q: Silicon carbide
E	Material of secondary seal and other rubber and composite parts, except the wear ring	E: EPDM V: FKM (Viton®) F: FXM (Fluoraz®) K: FFKM (Kalrez®) X: HNBR U: Dynamic O-rings in FFKM and static O-rings in PTFE

For a thorough description of shaft seal types and materials, see the data booklet "NB, NBG, NK, NKG, NBE, NBGE, NKE, NKGE - Custom-built pumps according to EN 733 and ISO 2858".

Codes for rated motor power

Pos. 15 in NK type key example.

Code	Description	
	[hp]	[kW]
A	0.16	0.12
B	0.25	0.18
C	0.33	0.25
D	0.5	0.37
E	0.75	0.55
F	1	0.75
G	1.5	1.1
H	2	1.5
I	3	2.2
J	4	3
K	5 (5.5 [22])	3.7 (4 [22])
L	7.5	5.5
M	10	7.5
N	15	11
O	20	15
P	25	18.5
Q	30	22
R	40	30
S	50	37
T	60	45
U	75	55
V	100	75
W	125	90
X	Bare shaft pump	
Y	> 200 [23]	> 150 [23]
1	150	110
2	175	132
3	200	150
4	215 [24]	160 [24]
5	250 [24]	185 [24]

22) Value in bracket is for the standard IEC motor size. Value outside bracket is for the motor size according to NEMA standards.

23) Used for pumps where the pump shaft input power exceeds 200 hp (150 kW) and is not regulated under the DOE pump rule.

24) Special cases with power sizes above 200 hp (150 kW) which are still regulated under the DOE pump rule. For example: Pump has a P2 value of 198 hp (147.6 kW) in its duty point (in DOE scope) but customer wants the 215 hp (160 kW) motor instead of the 200 hp (150 kW). The pump is in scope of the DOE regulation and requires a PEI value and a motor code.

Codes for phase and voltage or other information

Pos. 16 in NK type key example.

Code	Description
A	E-motor (ECM [25]), 1 x 200-240 V
B	E-motor (ECM [25]), 3 x 200-240 V
C	E-motor (ECM [25]), 3 x 440-480 V
D	E-motor (ECM [25]), 3 x 380-500 V
W	Not for sale in North America
X	No motor or US DOE regulated motor (CC marked motor)
Y	Out of DOE scope
Z	E-motor, asynchronous motor

25) ECM: Electronically Commutated Motor.

Codes for speed variant

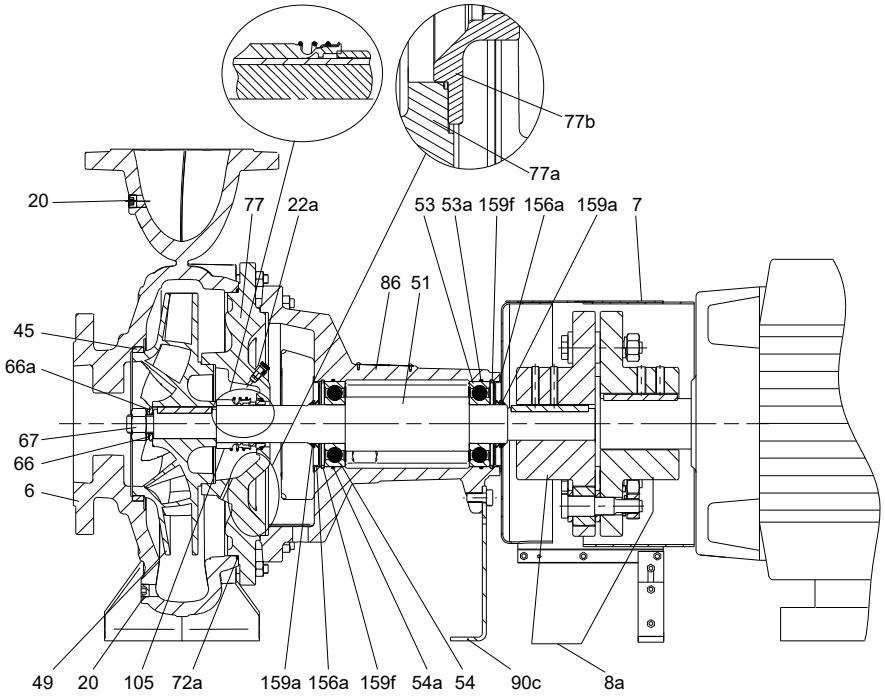
Pos. 17 in NK type key example.

Code	Description
A	1450-2200 RPM, E-motor (ECM [26])
B	2900-4000 RPM, E-motor (ECM [26])
C	4000-5900 RPM, E-motor (ECM [26])
1	2-pole, 50 Hz (Asynchronous motor)
2	2-pole, 60 Hz (Asynchronous motor)
3	4-pole, 50 Hz (Asynchronous motor)
4	4-pole, 60 Hz (Asynchronous motor)
5	6-pole, 50 Hz (Asynchronous motor)
6	6-pole, 60 Hz (Asynchronous motor)
7	8-pole, 50 Hz (Asynchronous motor)
8	8-pole, 60 Hz (Asynchronous motor)

26) ECM: Electronically Commutated Motor.

6. Construction

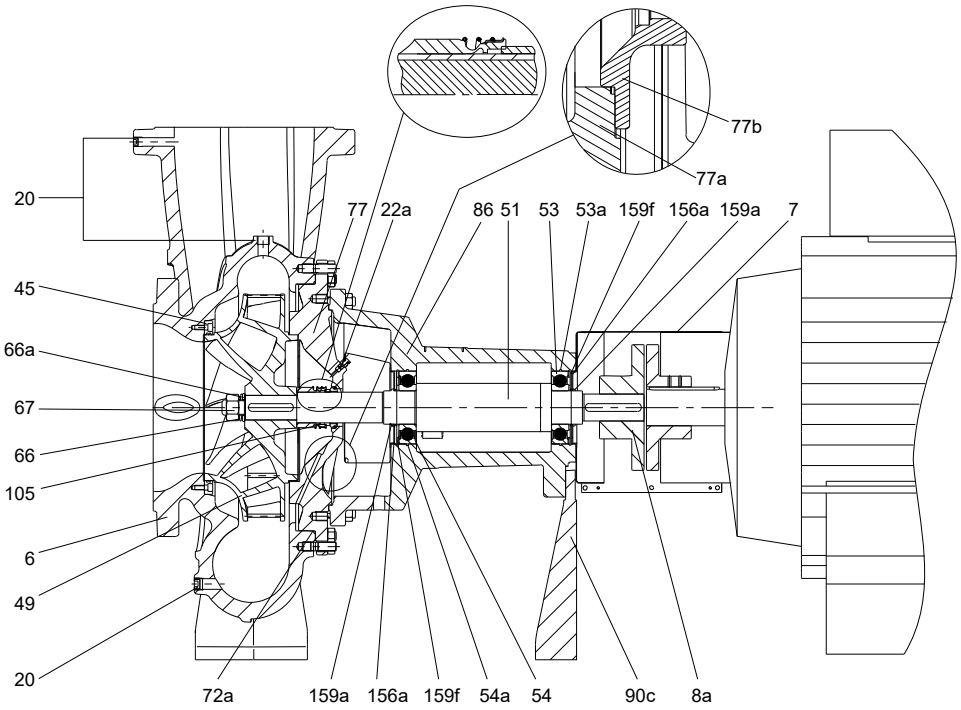
NK, centre-line outlet



TM1040097

Sectional drawing, centre-line outlet

NK, tangential outlet



TM1040098

Sectional drawing, with tangential outlet

Material specification, NK

Pos.	Description	Materials	Material code																
			S3	S4	S5	S8	S9	SB	SC	SD	SG	SH	SI	SJ	SK	SL	T2	T3	TA	TB
6	Pump housing	EN-GJL-250	●	●	●	●	●	-	-	-	-	-	-	-	●	●	●	●	-	-
6	Pump housing	EN-GJS-500-7	-	-	-	-	-	●	●	●	●	●	●	●	-	-	-	-	●	●
7	Coupling guard	1.0301+ powder paint	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
8a	Standard coupling	EN-GJL-250	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
8a	Spacer coupling	1.0503/1.7045	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
11	Key	1.4401/AISI 316	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
11a	Key	Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
20	Hexagon socket head plug	Class 5.8 carbon steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
20b	Hexagon socket head plug	Class 5.8 carbon steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
45	Wear ring	CuZn37Pb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
49	Impeller	1.4308/CF8	●	●	●	-	-	●	●	●	-	-	●	-	●	-	-	-	-	-
49	Impeller	1.4408/CF8M	-	-	-	●	●	-	-	-	●	●	-	●	-	●	-	-	-	-
49	Impeller	1.4517/ASTM A890 CD4MCuN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	●	●	●	●
51	Shaft + Sleeve	1.0503 + 1.4301/304	●	-	-	-	-	●	-	-	-	-	-	-	-	-	-	-	-	-
51	Shaft	1.4401/316	-	●	-	●	-	-	●	-	●	-	-	-	-	-	-	-	-	-
51	Shaft	1.4462/SAF2205	-	-	●	-	●	-	-	●	-	●	-	-	-	-	●	-	●	-
51	Shaft	1.4410/SAF2507	-	-	-	-	-	-	-	-	-	-	●	●	●	●	-	●	-	●
53 [27)]	Deep-groove ball bearings	2ZR.C3	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Angular contact bearing	BECBJ	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
53a	O-ring	EPDM/FKM	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
54 [27)]	Deep-groove ball bearings	2ZR.C3	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Roller bearing	ECJ	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
54a	O-ring	EPDM/FKM	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
66	Washer	1.4301/AISI 304	●	-	-	-	-	●	-	-	-	-	-	-	-	-	-	-	-	-
66	Washer	1.4401/AISI 316	-	●	-	●	-	-	●	-	●	-	-	-	-	-	-	-	-	-
66	Washer	1.4539/AISI 904L	-	-	●	-	●	-	-	●	-	●	-	-	-	-	●	-	●	-
66	Washer	1.4410/SAF2507	-	-	-	-	-	-	-	-	-	-	●	●	●	●	-	●	-	●
66a	Spring lock washer	1.4301/AISI 304	●	-	-	-	-	●	-	-	-	-	-	-	-	-	-	-	-	-
66a	Spring lock washer	1.4401/AISI 316	-	●	-	●	-	-	●	-	●	-	-	-	-	-	-	-	-	-
66a	Spring lock washer	1.4539/AISI 904L	-	-	●	-	●	-	-	●	-	●	-	-	-	-	●	-	●	-
66a	Spring lock washer	1.4410/SAF2507	-	-	-	-	-	-	-	-	-	-	●	●	●	●	-	●	-	●
67	Impeller nut	1.4301/AISI 304	●	-	-	-	-	●	-	-	-	-	-	-	-	-	-	-	-	-
67	Impeller nut	1.4401/AISI 316	-	●	-	●	-	-	●	-	●	-	-	-	-	-	-	-	-	-
67	Impeller nut	1.4539/AISI 904L	-	-	●	-	●	-	-	●	-	●	-	-	-	-	●	-	●	-
67	Impeller nut	1.4410/SAF2507	-	-	-	-	-	-	-	-	-	-	●	●	●	●	-	●	-	●
72a	O-ring	E / F / K / M / V / X	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
77	Cover	EN-GJL-250	●	●	●	●	●	-	-	-	-	-	-	-	●	●	●	●	-	-
77a	Split cover	EN-GJS-500-7	-	-	-	-	-	●	●	●	●	●	●	●	-	-	-	-	-	-
77b	Seal cover	1.4517/CD4MCuN	-	-	-	-	-	●	●	●	●	●	●	●	-	-	-	-	-	-
86	Bearing bracket	EN-GJL-250	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
90c	Foot	EN-GJL-250/1.0338/ carbon steel DC04	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
105	Shaft seal	Burgmann 1.4401/ AISI 316	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Burgmann 2.4610/ Hastelloy C-4	-	-	-	-	-	-	-	-	-	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.

Pos.	Description	Materials	Material code																
			S3	S4	S5	S8	S9	SB	SC	SD	SG	SH	SI	SJ	SK	SL	T2	T3	TA	TB
156a	Cover, bearing	1.0338/carbon steel DC04	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
159a	Thrower	EPDM	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
159f	Locking ring, circlip	DIN 472 (C75 DIN 17 222)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

27) The actual bearing type depends on the pump model and the speed.

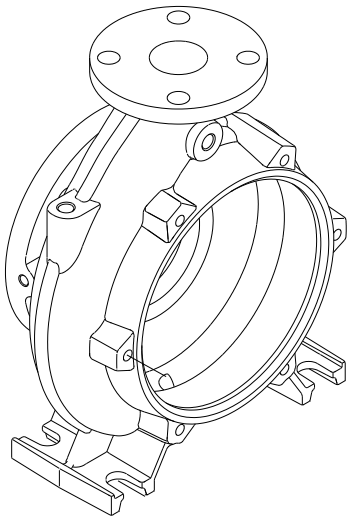
Mechanical construction

Pump housing

The volute pump housing has an axial inlet port and a radial outlet centre-line port. Flange dimensions are in accordance with EN 1092-2.

For DN 200 outlet and above, the outlet port is tangential.

The pump houses have both a priming and a drain hole closed by plugs.



TM1040537

NK pump housing with centre-line outlet

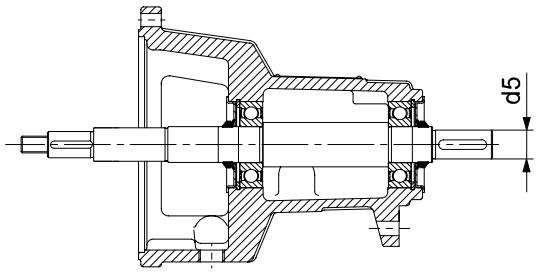
Bearing bracket and shaft, NK

The bearing bracket has two sturdy anti-friction, lubricated-for-life bearings.

The bearing bracket is made of cast iron EN-GJL-250 and supported by a foot made of EN-GJL-250 or carbon steel.

The shaft can be provided in different material grades depending on the application. Shaft diameter d5 is either ∅16, ∅24, ∅32, ∅42, ∅48 or ∅60 where the coupling is mounted.

A thrower on the shaft prevents liquid from entering the bearing bracket.



TM030233

Bearing bracket and shaft

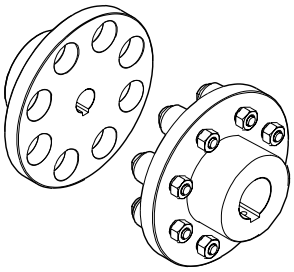
All NK pumps are fitted with one of six shaft, shaft seal and bearing sizes. As the bearings and shafts are large, the NK pumps can be driven by a belt drive or a diesel engine, if required.

For prolonged lifetime and to suit high inlet pressure, heavy duty bearing brackets are available. See the data booklet "NB, NBG, NK, NKG, NBE, NBGE, NKE, NKGE - Custom-built pumps according to EN 733 and ISO 2858", or contact Grundfos.

Coupling, NK

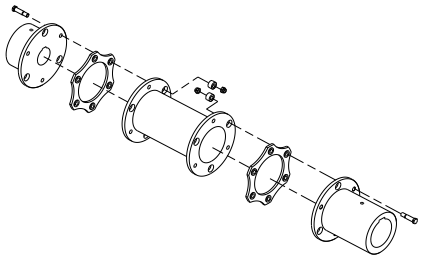
NK pumps are available with two types of coupling:

- standard coupling
- spacer coupling.



TM035394

Standard coupling



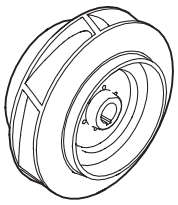
TM082554

Spacer coupling

Pumps fitted with a spacer coupling can be serviced without dismantling the motor from the base frame and without removing the pump housing from the pipes. This saves realignment of pump and motor after service.

Impeller

The impeller is a closed impeller with double-curved blades with smooth surfaces. This ensures high efficiency.



TM030231

Impeller, NK pumps

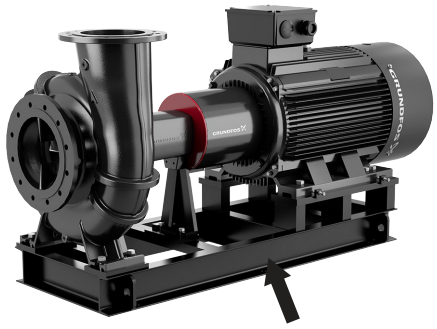
All impellers are statically and hydraulically balanced. The hydraulic balancing compensates for axial thrust.

The direction of rotation of the impeller is clockwise when viewed from the motor.

All impellers can be adapted to the duty point as requested by the customer.

Base frame, NK

C-channel base frame



TM1040534

Schematic view of NK pump mounted on a C-channel base frame

Pump and motor are mounted on a common steel base frame optimised for the length of the pump and motor.

Dimensions are not in accordance with EN 23661. All C-channel base frames can be grouted.

Surface treatment

Internal and external surfaces are protected by 1 layer of Primer (4-6 mil inch/ 100-150 µm).

The assembled pump will have a final layer of paint (4-6 mil inch/100-150 µm) on all external parts.

The color code for the finished product is NCS 9000/AL 9005.

Test pressure

Pressure testing was made with 20 °C water containing corrosion inhibitor.

Pressure stage	Operating pressure		Test pressure	
	[bar]	[MPa]	[bar]	[MPa]
PN 10	10	1.0	15	1.5
PN 16	16	1.6	24	2.4
PN 25	25	2.5	37.5	3.75

Motors and drives

For NK, NKE pumps Grundfos can provide a wide range of motors and drives within these two main categories:

- standard motors
- speed-controlled motors.

Standard motors are mains-operated whereas the speed-controlled motors can be started and operated in various ways.

The speed-controlled NK pumps can be driven in two ways:

- by a standard motor with an external frequency converter. The frequency converter can be a Grundfos CUE solution or another make.
- by a motor with an integrated frequency converter, a Grundfos MGE motor.

Standard motors

The motor is a totally enclosed, fan-cooled standard motor with main dimensions according to IEC and DIN standards. Electrical tolerances are to IEC 60034.

Motor protection

Three-phase motors must be connected to a motor-protective circuit breaker according to local regulations.

Three-phase Grundfos MG motors as from 3 kW have a built-in PTC thermistor according to DIN 44082 (IEC 34-11: TP 211).

Energy efficiency classification

IE3 IE4

Along with the international discussion on energy efficiency a worldwide harmonised energy efficiency classification system has been established for low-voltage, three-phase asynchronous motors. The International Electrotechnical Commission, IEC, has developed and issued a new standard for the determination of motor efficiencies worldwide. The new standard IEC 60034-30 defines and harmonises the efficiency classes IE3 for low-voltage, three-phase motors from 0.25 to 375 kW for 2-, 4- and 6-pole motors.

IE4 motors are available on request.

Standard motor ranges

The table shows the range of standard motors currently used for NK pumps. The motors stated in section Dimensional drawings and dimensions are MMG-W motors.

IE class	Motor	Poles	P2 [kW]																												
			0.25	0.37	0.55	0.75	1.1	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200	250	315	355
IE3	MMG-W	2	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-
		4	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-
		6	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-
	MMG-G	2	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-
		4	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-
		6	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-
IE4	MMG-H	2	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-
		4	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-
		6	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-
	MMG-W	2	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-
		4	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-
		6	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-

Note: Not all motor makes are available worldwide. For specific information about the motor makes available in your region, contact your Grundfos Customer Service Unit (CSU).

Related information

Dimensional drawings, NK/E

Speed-controlled standard motors

General considerations

If you connect an external frequency converter to your standard motor, the motor insulation is exposed to higher voltage peaks due to the operation of the frequency converter. This causes the motor to be more noisy than in normal operation. In addition, large motors are exposed to bearing currents caused by the frequency converter.

If you operate the motor via a frequency converter, consider the following:

- In 2-, 4- and 6-pole motors, frame size 225 and up, isolate one of the motor bearings electrically to prevent damaging currents from passing through the motor bearings.
- In noise-sensitive applications, you can reduce the motor noise by fitting a dU/dt filter between the motor and the frequency converter. For particularly noise-sensitive applications, we recommend a sinusoidal filter.
- The length of the cable between motor and frequency converter affects the motor load. Therefore, check that the cable length meets the specifications laid down by the frequency converter supplier.
- For supply voltages between 500 and 690 V, fit a dU/dt filter to reduce voltage peaks, or use a motor with reinforced insulation.
- For supply voltages of 690 V, use a motor with reinforced insulation, and fit a dU/dt filter.

Grundfos CUE

Pumps connected to Grundfos CUE external frequency converters



TM1040611

Grundfos CUE frequency converters

Grundfos CUE is a complete range of wall-mounted frequency converters for pump control in a wide range of applications.

Grundfos CUE provides a variety of benefits to the end-user, such as:

- Grundfos E-pump functionality and user interface
- application- and pump family-related functions
- increased comfort compared to fixed-speed pump solutions
- simple installation and commissioning compared to standard frequency converters
- speed control of pumps up to 250 kW.

Intuitive startup guide

The startup guide enables easy installation and commissioning as well as plug-and-pump convenience. Few settings need to be made by the installer as the rest is done automatically or preset from the factory.

Smart user interface



TM043283

Grundfos CUE user interface

Grundfos CUE features a unique user-friendly operating panel with graphic display and easy-to-use buttons.

Controlling the selected parameter

Grundfos CUE has a built-in PI controller offering closed-loop control of these parameters:

- constant differential pressure
- proportional pressure
- constant temperature
- constant flow rate.

Wide product range

The CUE product range is quite comprehensive, covering five different voltage ranges, enclosure classes IP20/21 (NEMA 1) and IP54/55 (NEMA 12), and a wide range of output powers.

The table below provides a general overview.

Input voltage [V]	Output voltage [V]	Motor [kW]
1 x 200-240	3 x 200-240	1.1 - 7.5
3 x 200-240	3 x 200-240	0.75 - 45
3 x 380-500	3 x 380-500	0.55 - 250
3 x 525-600	3 x 525-600	0.75 - 7.5
3 x 525-690	3 x 525-690	11-250

External communication

Grundfos CUE can communicate by means of LON, PROFIBUS, Modbus or BACnet via Grundfos CIU.

E-solution range

IE5

NKE pumps with a motor with an integrated frequency converter.



TM11040535

Motor protection

The motor requires no external motor protection. MGE motors incorporate thermal protection against steady overload and stalled condition (IEC 34-11: TP 211).

Benefits

Grundfos MGE motors provide a variety of benefits to the end-user, such as:

- Grundfos E-pump functionality and user interface
- a perfect match between pump and frequency drive
- application- and pump family-related functions
- increased comfort compared to fixed-speed pump solutions
- simple installation and commissioning compared to standard frequency converters.

Smart user interface



TM1040536

Grundfos MGE motors feature a user-friendly operating panel with easy-to-use buttons.

Controlling the selected parameter

Grundfos MGE has a built-in PI controller offering closed-loop control of these parameters:

- constant differential pressure
- proportional pressure
- constant temperature
- constant flow rate.

E-solution range

		P2 [kW]												
	IE class	0.55	0.75	1.1	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22
Medium speed	IE5	-	-	•	•	•	•	•	•	•	•	•	•	•
Low speed	IE5	•	•	•	•	•	•	•	•	•	-	-	-	-

External communication

Grundfos MGE can communicate by means of LON, PROFIBUS, Modbus or BACnet as described in section Communication with E-pumps.

Related information

Communication with E-pumps

Optional motors

The Grundfos standard range of motors covers a wide variety of application requirements. However, for special applications or operating conditions, custom-built motor solutions can be provided.

For special applications or operating conditions, Grundfos offers custom-built motors such as:

- motors with anti-condensation heating unit
- motors with thermal protection.

7. Operating conditions

Pump location

The pump is designed for installation in a non-aggressive and non-explosive atmosphere.

The relative air humidity must not exceed 95 %.

Ambient temperature and installation altitude

The ambient temperature and the installation altitude are important factors for the motor life, as they affect the life of the bearings and the insulation system.

The installation altitude is the height of the installation site above sea level.

If the ambient temperature exceeds the recommended maximum ambient temperature or maximum altitude above sea level, see figure Maximum motor output in relation to ambient temperature and altitude, the motor must not be fully loaded due to the low density and consequently low cooling effect of the air. In such cases, it may be necessary to use a motor with a higher output.

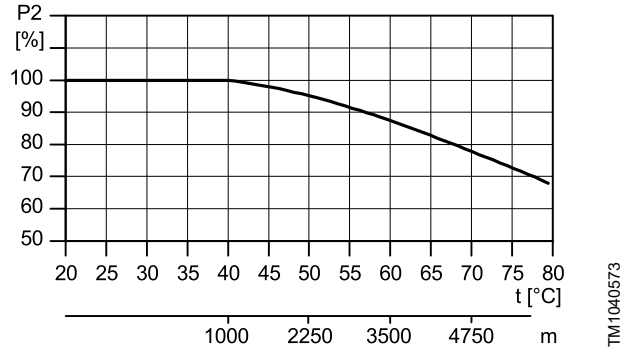
Pump with standard motor

Ambient temperature

Motor make	Motor P2	Permissible ambient temperature
MMG-W	0.25 - 315 kW	-15 to +40 °C
MMG-H	0.25 - 315 kW	-15 to +40 °C
MMG-G	0.25 - 315 kW	-20 to +40 °C

Maximum motor output in relation to ambient temperature and altitude

Motor make	Motor P2	Derating curve
MMG-W	0.25 - 315 kW	As below
MMG-H	0.25 - 315 kW	As below
MMG-G	0.25 - 315 kW	As below



Maximum motor output in relation to ambient temperature and altitude

Example with a pump with a 1.1 kW IE3 MMG-W motor:

If the pump is installed 4750 m above sea level, the motor must not be loaded more than 77 % of rated output. At an ambient temperature of 75 °C, the motor must not be loaded more that 72 % of rated output. If the pump is installed 4750 m above sea level at an ambient temperature of 75 °C, the motor must not be loaded more than 77 % x 72 % equal to 55.4 % of the rated output.

Pump with Grundfos MGE motor

Ambient temperature

Motor make	Motor P2	Permissible ambient temperature
Grundfos MGE	1.1 - 22 kW, 2-pole	-20 to +50 °C
	0.55 - 7.5 kW, 4-pole	-20 to +50 °C

The motor can operate with the rated power output, P2, at 50 °C, but continuous operation at higher temperatures reduces the expected product life. If the motor is to operate at ambient temperatures between 50 and 60 °C, select an oversize motor.

Contact Grundfos for further information.

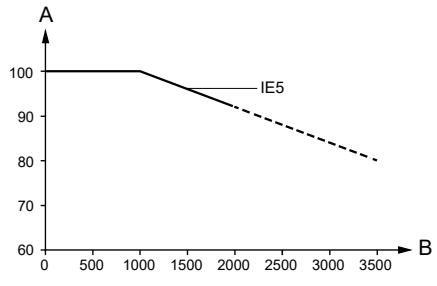
Installation altitude

Installation altitude is the height above sea level of the installation site.

The motors can be installed up to 3500 m above sea level.

Motors installed up to 1000 m above sea level can be loaded 100 %.

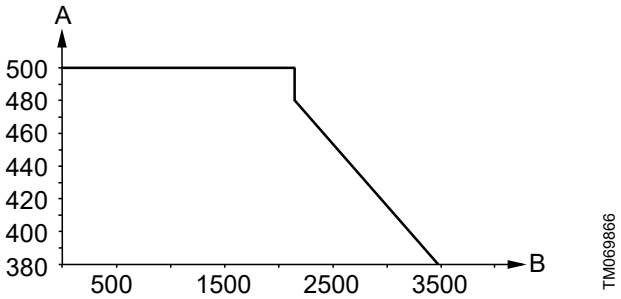
Motors installed more than 1000 meters above sea level must not be fully loaded due to the low density and consequent low cooling effect of the air.



Motor output power in relation to altitude

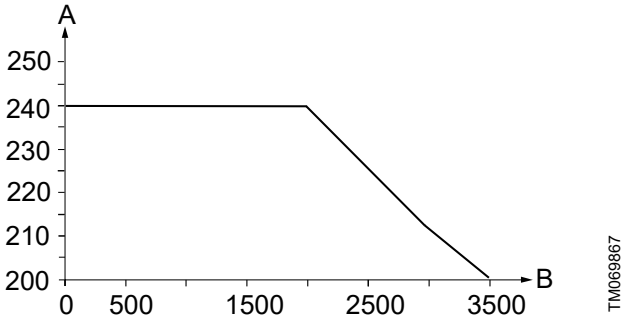
Pos.	Description
A	P2 [%]
B	Altitude [m]

In order to maintain the galvanic isolation and ensure correct clearance according to EN 60664-1:2007, you must adapt the supply voltage to the altitude:



Supply voltage for three-phase motor in relation to altitude

Pos.	Description
A	Supply voltage [V]
B	Altitude [m]



Supply voltage for single-phase motor in relation to altitude

Pos.	Description
A	Supply voltage [V]
B	Altitude [m]

Note:

If the motor is to operate at ambient temperatures between 50 and 60 °C, select an oversized motor. Contact Grundfos.

Flow rates

Minimum flow rate

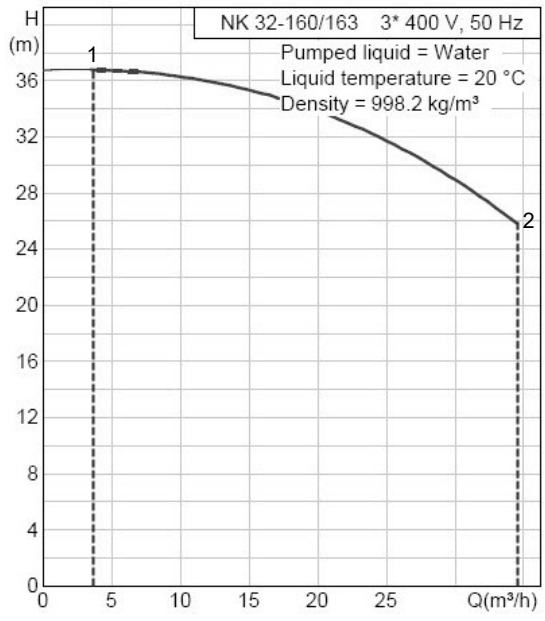
The pump must not run against a closed outlet valve as this causes an increase in temperature or formation of steam in the pump. This may cause shaft damage, impeller erosion, short life of bearings, damage to stuffing boxes or mechanical shaft seals due to stress or vibration.

The continuous flow rate must be at least 10 % of the maximum flow rate.

Maximum flow rate

The maximum flow rate must not be exceeded as otherwise there is a risk of for instance cavitation and overload.

The maximum flow rate can be read either from the performance curve pages or from a curve on a specific pump when selecting it in Grundfos Product Center.



TM051652

Example from Grundfos Product Center showing minimum and maximum flow rate

Pos.	Description
1	Minimum flow rate
2	Maximum flow rate

Sound pressure level

Data in this table apply to pump including motor.

Motor [kW]	Maximum sound pressure level [dB(A)] - ISO 3743		
	Three-phase motors		
	2-pole	4-pole	6-pole
0.25	-	55	-
0.37	-	55	57
0.55	-	55	57
0.75	66	55	58
1.1	67	55	58
1.5	69	55	58
2.2	69	55	59
3	69	55	60
4	69	56	60
5.5	70	62	60
7.5	70	64	67
11	77	66	67
15	77	66	67
18.5	79	67	68
22	80	67	68
30	85	70	69
37	85	72	70
45	85	72	72
55	88	74	72
75	88	77	75
90	-	77	75
110	-	78	-
132	-	87	-
160	-	87	-
185	-	87	-
200	-	88	-
220	-	90	-
250	-	90	-
280	-	90	-
315	-	90	-

Liquid temperatures

Liquids with temperatures ranging from -25 to +140 °C are covered in this data booklet.

For liquids from -40 to +220 °C, see the data booklet "NB, NBG, NK, NKG, NBE, NBGE, NKE, NKGE - Custom-built pumps according to EN 733 and ISO 2858", or contact Grundfos. In that data booklet, you will also find information about the seals being used for other liquids than water and glycols, i.e. oils, chemicals and silicone oil. Further seal types are also described to support more application types and pumped liquids.

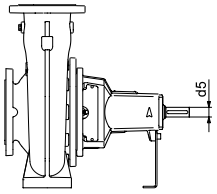
The maximum liquid temperature is stamped on the nameplate.

Note that the maximum liquid temperature limits stated by Grundfos may be overruled by local regulations and various laws.

Operating range of mechanical shaft seals

The temperature range applies to water and coolants.

Seals with a temperature range of 0 °C and up are mainly used for pumping water, while seals for temperatures below 0 °C are mainly intended for coolants.

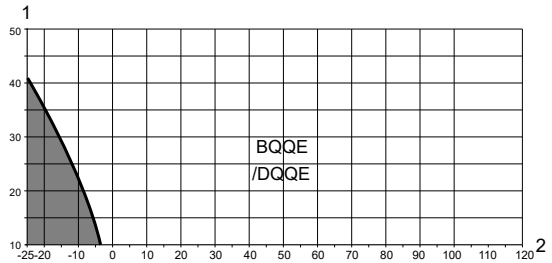


Shaft seal diameter [mm]	**NK**		**20**	**28, 38**	**48**	**55**	**60**		
d5 [mm]	**NK**		**16**	**24, 32**	**42**	**48**	**60**		
Shaft seal type	**Code**	**Temperature range**	**Maximum pressure [bar]**					**Seal faces**	**Rubber**
 Bellows seal, type B, unbalanced	BBQE [28), 29)]	0-120 °C	16	16	16	16	16	BQ_1	EPDM
	BBQV	0-90 °C	16	16	16	16	16	BQ_1	FKM
	BQQE [28)]	-25 to +120 °C	16	16	16	16	16	Q_7Q_7	EPDM
	BQQV	-10 to +90 °C	16	16	16	16	16	Q_7Q_7	FKM
 O-ring seal, type D, balanced	DAQF	0-140 °C	25	25	25	25	25	AQ_1	FXM
	DQQE	-20 to +120 °C	25	25	25	25	25	Q_6Q_6	EPDM

28) Shaft seals with drinking water approvals.

29) For ultra pure water applications having a conductivity lower than 2 microSiemens, contact Grundfos for a special shaft seal version.

Recommended shaft seal for water-glycol mixture



TM061032

Operating range of EPDM shaft seals

Pos.	Description
1	Glycol content [%]
2	Temperature [°C]

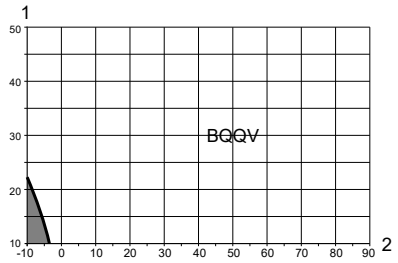
Carbon-silicon carbide (xAQx), (xBQx)

Mechanical shaft seals with carbon-silicon carbide seal faces have a wide range of applications and are especially suitable if there is risk of dry running and/or if the temperature is high. These mechanical shaft seals are not suitable for liquids containing abrasive particles as the carbon parts will be worn. At temperatures below 0 °C, corrosion inhibitors containing abrasive particles are usually added to the pumped liquid, and these seals will thus not be suitable.

Note: The antimony impregnation (A) is not approved for potable water applications.

Silicon carbide-silicon carbide (xQQx)

Mechanical shaft seals with silicon carbide-silicon carbide seal faces also have a very wide range of applications. These seals are very resistant to abrasive particles and well suited at liquid temperatures up to 120 °C for Q_7 types. At higher temperatures, the reduced lubricating properties of the pumped liquid may cause noise problems and limit the life of the seal faces.



TM061034

Operating range of FKM shaft seals

Pos.	Description
1	Glycol content [%]
2	Temperature [°C]

EPDM (xxxE)

Mechanical shaft seals with EPDM (xxxE) rubber are primarily suitable for water.

If the water contains oil or if chemicals or other liquids than water are pumped, you may have to replace the rubber parts of the mechanical shaft seal.

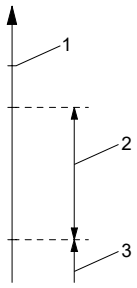
FKM (xxxV)

Mechanical shaft seals with FKM (xxxV) rubber have excellent resistance against oil and a number of chemicals.

Note: For detailed information about properties of all shaft seal components, see the data booklet "NB, NBG, NK, NKG, NBE, NBGE, NKE, NKGE - Custom-built pumps according to EN 733 and ISO 2858".

Pressures in the pump

Maximum operating pressure



TM075513

Pressures in the pump

Pos.	Description
1	Maximum operating pressure (pressure above atmospheric pressure)
2	Pump pressure
3	Inlet pressure

The inlet pressure + pump pressure must be lower than the maximum operating pressure (p) stated on the pump nameplate. The maximum operating pressure can be checked by closing the outlet valve briefly for maximum 30 seconds.

Minimum inlet pressure

The minimum inlet pressure must be according to the NPSH curve + correction for vapour pressure. We do, however, recommend that you calculate the inlet pressure in these cases:

- The liquid temperature is high.
- The flow rate is considerably higher than the pump's rated flow rate.
- The pump is operating in an open system with suction lift.
- The liquid is sucked through long pipes.
- The inlet conditions are poor.
- The operating pressure is low.

Maximum inlet pressure

The inlet pressure + pump pressure must be lower than the maximum operating pressure (p) stated on the pump nameplate. The maximum operating pressure can be checked by closing the outlet valve briefly for maximum 30 seconds.

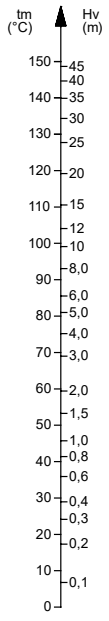
Suction lift in open systems

Calculation of suction lift in open systems (water)

The suction lift "H" in metres head required during operation to avoid cavitation in the pump can be calculated by means of the following formula:

$H = p_b \times 10.2 - NPSH - H_f - H_v$

H	Suction lift
p_b	Barometric pressure in bar. The barometric pressure can be taken as equal to 1 bar. In closed systems, p_b indicates system pressure in bar.
NPSH	Net Positive Suction Head in metres head. The NPSH value can be read from the NPSH curve at the highest flow rate the pump will be delivering. The maximum flow rate must not exceed the maximum flow rate shown on the QH curve. The NPSH curve and QH curve for the individual pump can be found in Grundfos Product Center and in the relevant data booklet.
H_f	Friction loss in the inlet pipe in metres head at the highest flow rate the pump will be delivering.
H_v	Vapour pressure in metres head. See figure below.



TM003037

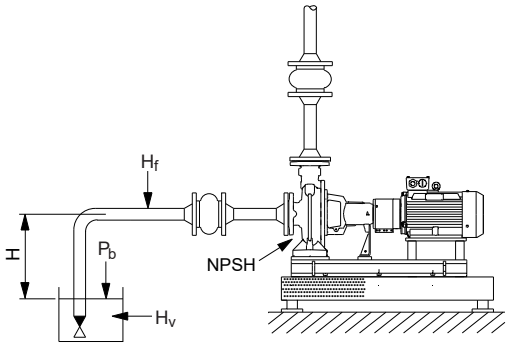
Relation between liquid temperature and vapour pressure

Positive H value

Example:

Liquid temperature:	20 °C
Pump type:	NK 100-350/326, 4-pole, 50 Hz
Flow rate:	200 m^3/h
p_b:	1 bar
NPSH:	4.2 m head
H_f:	3.0 m head
H_v:	0.24 m head
$H = p_b \times 10.2 - NPSH - H_f - H_v$ [m head]	
H = 1 x 10.2 - 4.2 - 3.0 - 0.24 **= 2.76m head**	

If the calculated value of H is positive, the pump can operate with a maximum suction lift of H metres.



TM1040099

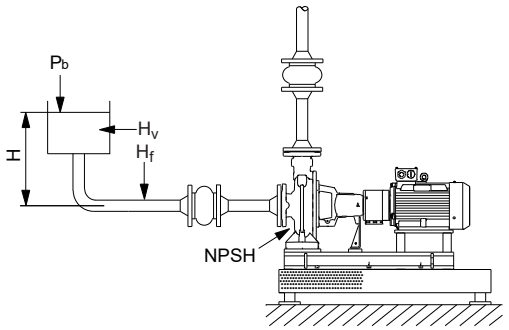
Suction lift with positive H

Negative H value

Example:

Liquid temperature:	90 °C
Pump type:	NK 100-350/326, 4-pole, 50 Hz
Flow rate:	200 m^3/h
p_b:	1 bar
NPSH:	4.2 m head
H_f:	3.0 m head
H_v:	7.2 m head
$H = p_b \times 10.2 - NPSH - H_f - H_v$ [m head]	
H = 1 x 10.2 - 4.2 - 3.0 - 7.2 **= -4.2 m head**	

If the calculated value of H is negative, a minimum suction head of H metres is required. The calculated H must be present during operation.



TM1040100

Suction lift with negative H

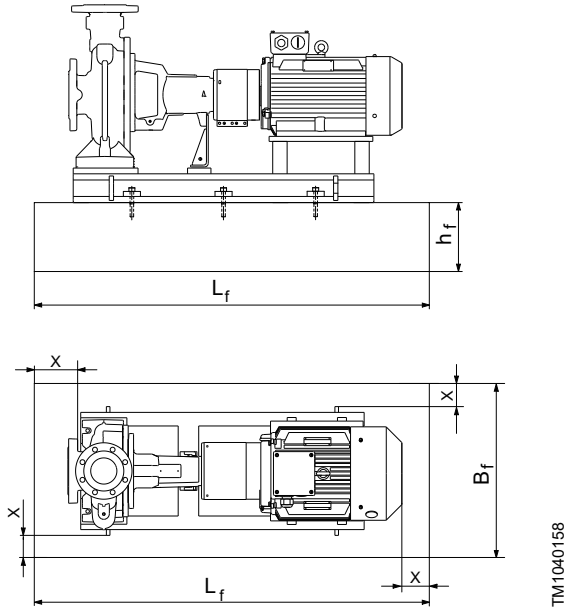
8. Mechanical installation

Foundation and grouting

Foundation

We recommend that you install the pump on a plane and rigid concrete foundation which is heavy enough to provide permanent support for the entire pump. The foundation must be capable of absorbing any vibration, normal strain or shock. As a rule of thumb, the weight of the concrete foundation must be 1.5 times the weight of the pump.

The foundation must be 100 mm larger than the base frame on all four sides. See figure below.



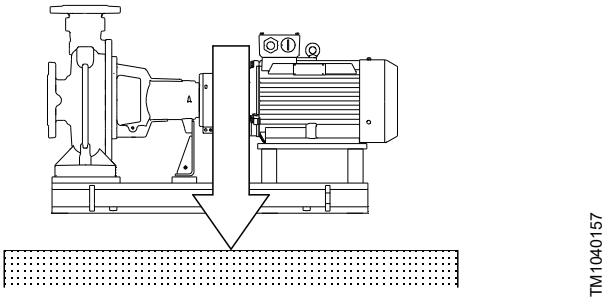
Foundation, X is equal to minimum 100 mm

The minimum height of the foundation (h_f) can then be calculated:

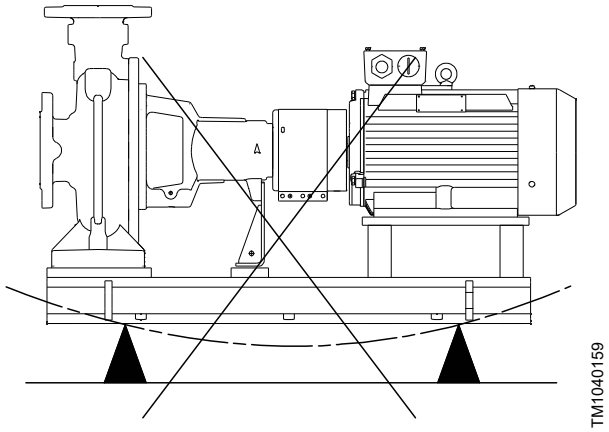
$$h_f = \frac{m_{pump} \times 1.5}{L_f \times B_f \times \delta_{concrete}}$$

The density (δ) of concrete is usually taken as 2200 kg/m^3.

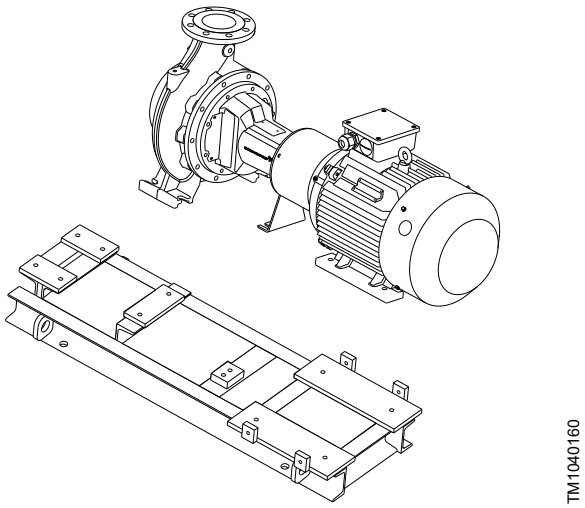
Place the pump on the foundation, and fasten it. The base frame must be supported under its entire area. See figure below.



Correct foundation



Incorrect foundation



Base frame prepared for grouting

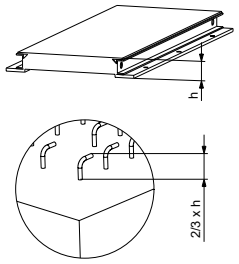
Grouting

Grouting compensates for uneven foundation, distributes the weight of the unit, dampens vibrations and prevents shifting.

All NK pumps can be delivered with base frames prepared for grouting as an option.

NOTE: For 2-pole NK pumps with motors as from 55 kW, grouting of the base frame is mandatory in order to prevent vibration energy from the rotating motor and the liquid flow.

Use an approved, non-shrinking grout. If in doubt, contact your grout supplier.



TM040490

Reinforcing steel bars embedded in foundation

Use reinforcing steel bars embedded in the foundation to ensure proper grouting.

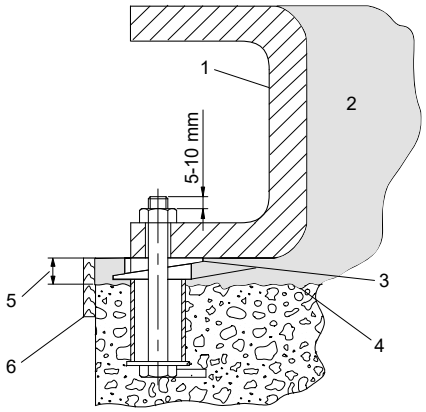
Build a strong formwork around the foundation.

Soak the top of the concrete foundation thoroughly, and remove surface water.

Fill the formwork with grout up to the base frame top level. See figure below. Allow the grout to dry thoroughly before attaching pipes to the pump. 24 hours is sufficient time with approved grouting procedure.

When the grout has thoroughly hardened, check the anchor bolt nuts and tighten, if necessary.

Approximately two weeks after the grout has been poured, or when the grout has thoroughly dried, apply an oil-based paint to the exposed edges of the grout to prevent air and moisture from getting into contact with the grout.



TM032946

Sectional view of foundation with anchor bolt, grouting and base frame

Pos.	Description
1	Base frame
2	Grout
3	Levelling wedges or shims left in place
4	Top of foundation (rough)
5	19 to 32 mm grout
6	Formwork

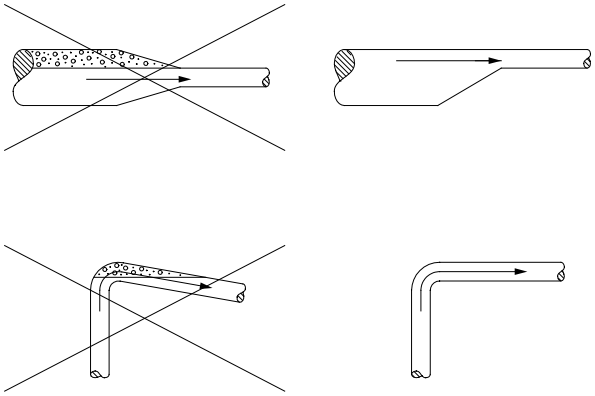
Pipes

Pipes

When installing the pipes, make sure that the pump housing is not stressed by the pipes.

The inlet and outlet pipes must be of an adequate size, taking the pump inlet pressure into account.

Install the pipes so that air locks are avoided, especially on the inlet side of the pump. See figure below.

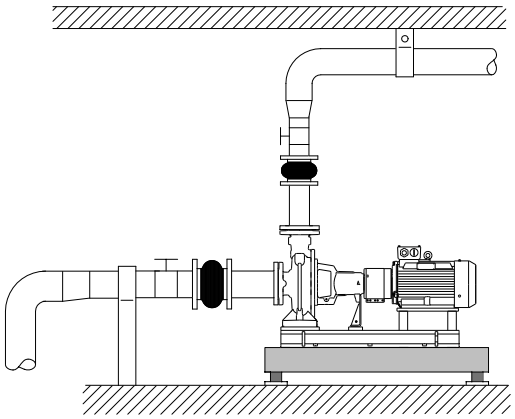


TM002263

Pipelines

Fit isolating valves on either side of the pump to avoid having to drain the system if the pump needs to be cleaned or repaired.

Make sure that the pipes are adequately supported as close to the pump as possible, both on the inlet and the outlet side. The counterflanges must lie true against the pump flanges without being stressed as this would cause damage to the pump.



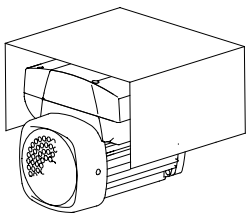
TM1040358

Pipeline mounting

Condensation cover

When installing the pumps outdoors, provide the motor with a suitable cover to protect the pump and motor against the direct effects of the elements.

When mounting the condensation cover on top of the motor, make sure to leave enough space for the air to cool the motor.



TM1040101

Motors with condensation cover

Elimination of noise and vibrations

In order to achieve optimum operation and minimum noise and vibration, consider vibration dampening of the pump. Generally, always consider this for pumps with motors above 11 kW. Smaller motor sizes, however, may also cause undesirable noise and vibration.

Noise and vibration are generated by the revolutions of the motor and pump and by the flow in pipes and fittings. The effect on the environment is subjective and depends on correct installation and the state of the remaining system.

Elimination of noise and vibrations is best achieved by means of vibration dampers and expansion joints. See figure Pipeline mounting.

Vibration dampers

To prevent the transmission of vibrations to buildings, we recommend that you isolate the pump foundation from building parts by means of vibration dampers.

The selection of the right vibration damper requires the following data:

- forces transmitted through the damper
- motor speed considering speed control, if any
- required dampening in %; the suggested value is 70 %.

The selection of vibration damper differs from installation to installation. In certain cases, a wrong damper may increase the vibration level. Vibration dampers must therefore be sized by the supplier of the vibration dampers.

If you install the pump on a foundation with vibration dampers, always fit expansion joints on the pump flanges. This is important to prevent the pump from "hanging" in the flanges.

Expansion joints

Install expansion joints for these purposes:

- to absorb expansions or contractions in the pipes caused by changing liquid temperature
- to reduce mechanical strains in connection with pressure surges in the pipes
- to isolate mechanical structure-borne noise in the pipes; this applies only to rubber bellows expansion joints.

Note: Do not install expansion joints to make up for inaccuracies in the pipes, such as centre displacement or misalignment of flanges.

Fit the expansion joints at a minimum distance of 1 to 1 1/2 pipe diameters (DN) away from the pump on the inlet and the outlet side. This prevents turbulence in the joints, thus ensuring optimum suction conditions and minimum pressure loss on the outlet side. At flow velocities greater than 5 m/s, we recommend that you fit larger expansion joints matching the pipes.

The illustration below shows examples of rubber bellows expansion joints with or without limiting rods.



TM024979



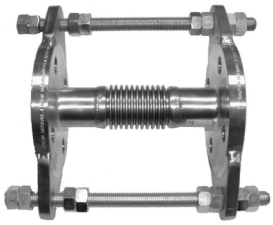
TM024981

Rubber bellows expansion joints with and without limiting rods

Expansion joints with limiting rods can be used to reduce the effects of the expansion or contraction forces on the pipes. We always recommend expansion joints with limiting rods for flanges larger than DN 100.

Anchor the pipes in such a way that they do not stress the expansion joints and the pump. Follow the supplier's instructions and pass them on to advisers or pipe installers.

The illustration below shows an example of a metal bellows expansion joint with limiting rods.



TM024980

Metal bellows expansion joint with limiting rods

Due to the risk of rupture of the rubber bellows, metal bellows expansion joints may be preferred at temperatures above 100 °C combined with high pressure.

Alignment

In a complete pump unit assembled and supplied from factory, the coupling halves have been accurately aligned. Alignment is made by inserting shims under the pump and motor mounting surfaces as required.

The pump-motor alignment may be affected during transport. Always check alignment after the pump has been installed.

If misalignment has occurred due to radial or angular shifting, realign by inserting or removing shims under the feet of the pump or the motor.

Take care to align carefully, as this increases the lives of the coupling, bearings and shaft seal considerably.

Note: Check the final alignment when the pump has obtained its operating temperature under normal operating conditions.

9. Speed-controlled pumps

NK pumps are available with MGE motors with integrated speed control. These pumps are also called E-pumps and the pump designation is NKE.

E-pumps are suitable for applications where the pressure, temperature, flow rate or another parameter is to be controlled on the basis of signals from a sensor at some point in the system.

There are two variants of E-pumps for NK products:

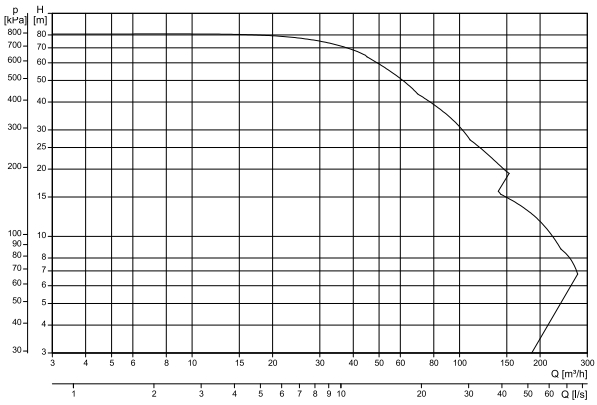
- NKE pumps without sensors from the factory
- NKE Series 2000 pumps with factory-fitted differential-pressure sensors



TM1040535

E-pump type	Medium speed	Low speed
NKE	1.1 - 22 kW	0.55 - 7.5 kW
NKE Series 2000	1.1 - 22 kW	0.55 - 7.5 kW

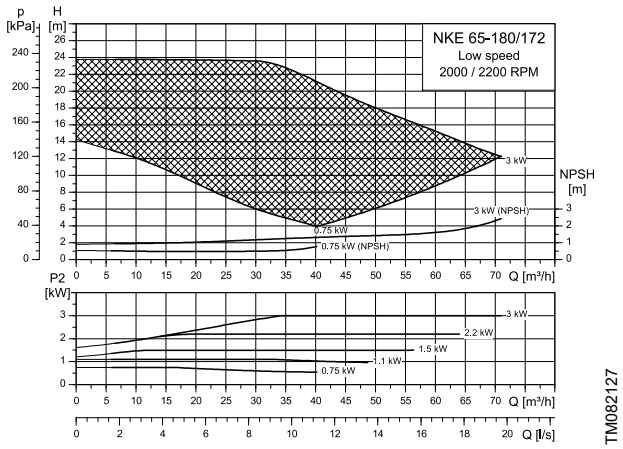
Pumps larger than 11 kW, 2-pole and 7.5 kW, 4-pole, and 6-pole and 8-pole can be connected to a Grundfos CUE or an external frequency converter.



TM082126

E-pumps full performance range

Extra performance range with the same motor power



TM082127

Example: NKE 65-180/172

This E- pump has got a power range from 0.75 to 3 kW and is equipped with the same impeller trim size for all different motor sizes.

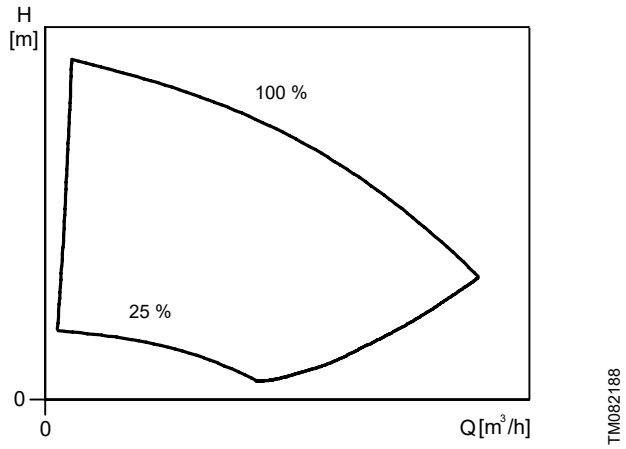
The NKE pump utilizes the best possible hydraulic efficiency that is obtained from having the largest possible impeller diameter in combination with - at all times - a maximum speed of the motor, based on load conditions of the motor.

The E-motor maintains a speed of approximately 2200 rpm until the motor reaches its power limit (in this example around 30 m^3/h) and the E-motor makes a controlled speed down to avoid overload when reaching for larger flows. What happens is that the NKE motor maintains the maximum power output until the maximum flow is reached (approximately 71 m^3/h) - illustrated by a linear curve for both Flow-Head and Flow-Power performance. In comparison, the fixed speed NKE pump operates at approximately 1750 rpm in the entire performance range.

This feature for the NKE pump provides a large extension to the performance range from zero to the maximum flow as compared to the fixed speed pump, and in addition makes it possible to adjust the given load in the system based on the given control parameter.

E-pumps in connection with a CUE

Pumps larger than 11 kW, 2-pole and 7.5 kW, 4-pole, and 6-pole can be connected to a Grundfos CUE or an external frequency converter. The external speed control enables the pump to operate at any duty point between 25 % and 100 % speed. The performance adapts to current conditions and keeps the energy consumption at a minimum. The 100 % curve corresponds to the curve of a pump with a mains-operated motor.



Duty range of E-pumps in connection with a CUE

Why select an E-pump

The main reasons for choosing the Grundfos E-motor instead of a conventional standard motor and separate frequency converter are the following:

1. Unique product
   - The motor and frequency converter are perfectly matched. The customer will not experience the same problems which may occur when using a standard motor with separate frequency converter, such as noise due to switch frequency.
   - Predefined intelligent control modes, such as constant pressure and constant level. These predefined control modes make it easy to fit the pump into any application.
2. Full application adaptation
   - Functionality is matched to the specific pump application.
   - Grundfos makes a customised configuration file to suit the customer's requirements.
   - Full adaptation to any control management system by means of various interfaces.
3. Simple and easy installation
   - Reduced installation and wiring costs compared to standard frequency converters.
   - No further programming required. An E-motor is a plug-and-pump product.
   - On-site customisation of the software configuration file to adapt to changed operating parameters.
   - Control, monitor, install, commission, and email reports all from your smart device via the Grundfos GO technology.
4. One supplier
   - Complete product is supplied by one sole supplier. This gives the customer security as only one supplier needs to be contacted in case of problems or complaints.

For more information on the E-pumps for NKE and detailed functionalities, see the data booklet "NB, NBG, NK, NKG, NBE, NBGE, NKE, NKGE - Custom-built pumps according to EN 733 and ISO 2858".

Maximum speed of the impeller

For stainless steel impellers (1.4408/1.4517), the limit is 3600 min^{-1} regardless of impeller size.

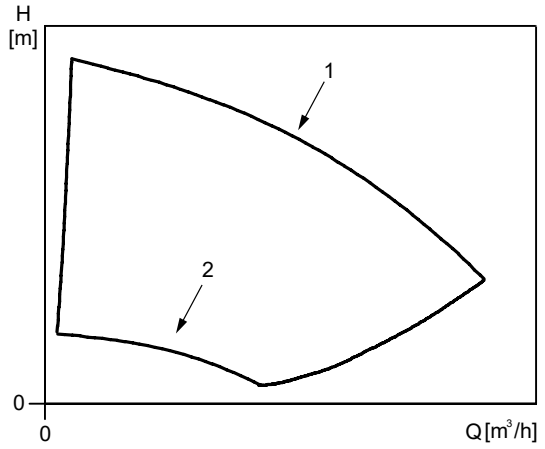
Affinity equations

Normally, NKE pumps are used in applications characterised by a variable flow. Consequently, it is not possible to select a pump that is constantly operating at its optimum efficiency.

To achieve optimum operating economy, select the pump on the basis of the following criteria:

- The maximum duty point required must be as close as possible to the QH curve of the pump.
- The flow rate at the duty point required must be close to the optimum efficiency (eta) for most operating hours

Between the minimum and maximum performance curve, NKE pumps have an infinite number of performance curves each representing a specific speed. It may therefore not be possible to select a duty point close to the maximum curve.



Minimum and maximum performance curves

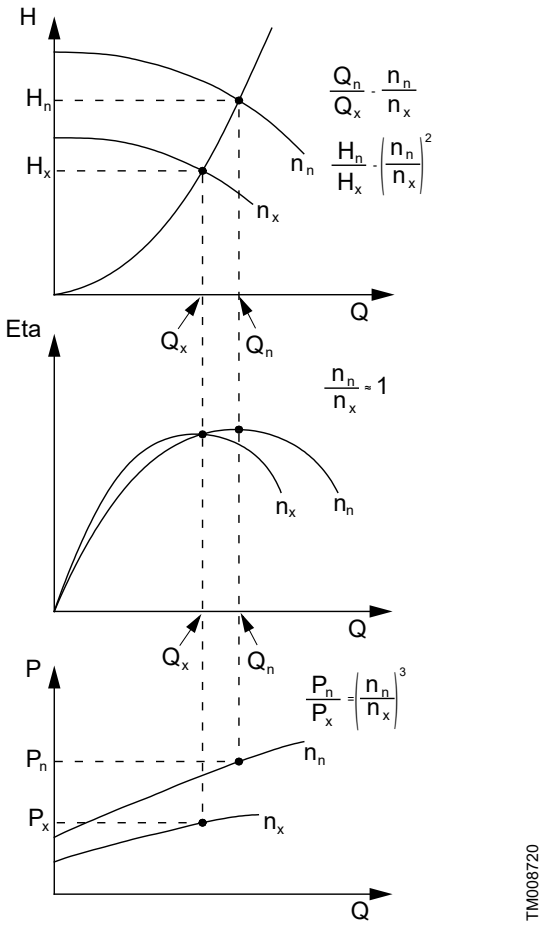
Pos.	Description
1	Maximum curve
2	Minimum curve

In situations where it is not possible to select a duty point close to the maximum curve, use the affinity equations below. The head (H), the flow rate (Q) and the input power (P) are the appropriate variables you need to be able to calculate the motor speed (n).

Note: The approximated formulas apply on condition that the system characteristic remains unchanged for n_n and n_x and that it is based on the formula H = k × Q2, where k is a constant.

The power equation implies that the pump efficiency is unchanged at the two speeds. In practice, this is not quite correct.

Finally, it is worth noting that the efficiencies of the frequency converter and the motor must be taken into account if a precise calculation of the power saving resulting from a reduction of the pump speed is wanted.



Affinity equations

H_n	Rated head in m
H_x	Actual head in m
Q_n	Rated flow rate in m^3/h
Q_x	Actual flow rate in m^3/h
P_n	Rated input power in kW
P_x	Actual input power in kW
n_n	Rated motor speed in min^{-1}
n_x	Actual motor speed in min^{-1}
η_n	Rated efficiency in %
η_x	Actual efficiency in %

Grundfos.com webpage

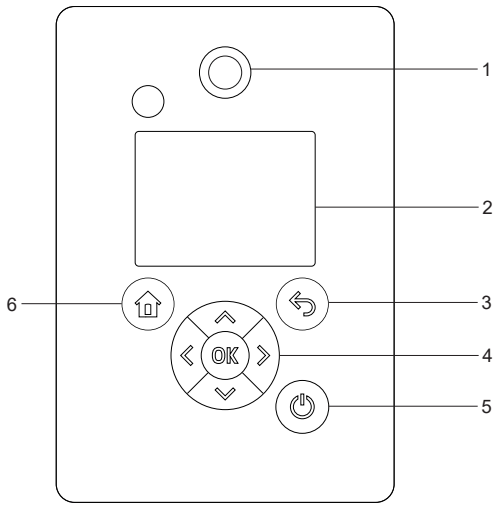
Via the Grundfos.com 'solutions' the complete range of Grundfos pumps are available. Here it is possible to calculate the exact duty point and energy consumption of any NK or NKE pump.

Communication with the E-solution

	E-solution	
	MGE	CUE
Operating panel on unit	x	x
Grundfos GO control	x	-
Central building management system	x	x

Operating panel

Operating panel for 1.1 - 22 kW, 2-pole and 0.55 - 22 kW 4-pole motors



TM082874

Pos.	Symbol	Description
1		**Grundfos Eye:** The indicator light shows the operating status of the product.
2	-	Graphical colour display.
3		**Back**: Press the button to go one step back.
4		**Left**/**Right**: Press the buttons to navigate between main menus, displays and digits. When you change the menu, the display shows the top display of the new menu.
		Up/**Down**: Press the buttons to navigate between submenus or change the value settings. If you have disabled the possibility to make settings with the **Enable/disable settings** function, you can enable it again temporarily by pressing these buttons simultaneously for at least 5 seconds.
	OK	**OK**: Press the button to do as follows: • save changed values, reset alarms and expand the value field • enable communication with Grundfos GO and other products of the same type. When you try to establish radio communication between the product and Grundfos GO or another product, the green indicator light in Grundfos Eye flashes. In the controller display, a note states that a device wants to connect to the product. Press **OK** on the product operating panel to allow communication with Grundfos GO or Grundfos GO Link and other products of the same type.
5		**Start/Stop**: Press the button to make the product ready for operation or to start and stop the product. **Start**: If you press the button when the product is stopped, the product starts if no other functions with higher priority have been enabled. **Stop**: If you press the button when the product is running, the product always stops. When you press the button, the stop icon appears at the bottom of the display.
6		**Home**: Press the button to go to the **Home** menu.

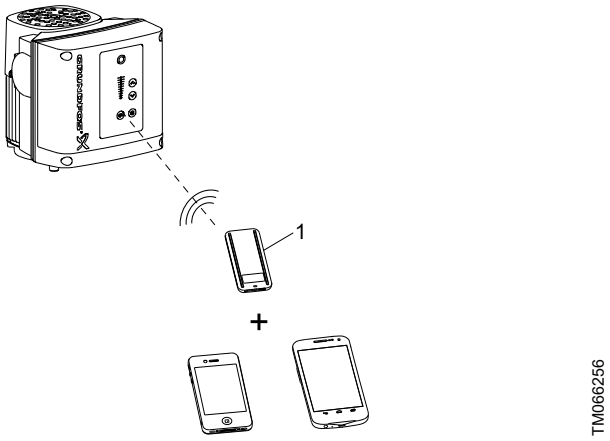
Remote control

Grundfos GO

The pump is designed for wireless radio or infrared communication with Grundfos GO.

Grundfos GO enables setting of functions and gives access to status overviews, technical product information and actual operating parameters.

Grundfos GO offers the following mobile interface, MI.



Grundfos GO communicating with the pump via radio or infrared connection, IR

Pos.	Description
1	Grundfos MI 301: Separate module enabling radio or infrared communication. You can use the module in conjunction with an Android or iOS-based smart device with Bluetooth connection.

Communication

When Grundfos GO initiates communication with the pump, the indicator light in the middle of Grundfos Eye flashes green.

Radio communication

Radio communication can take place at distances up to 98.4 ft (30 metres). The first time Grundfos GO communicates with the pump, you must enable communication by pressing ⓞ or OK on the pump control panel. Later when communication takes place, the pump is recognised by Grundfos GO, and you can select the pump from the "List" menu.

Infrared communication

When communicating via infrared light, Grundfos GO must be pointed at the pump control panel.

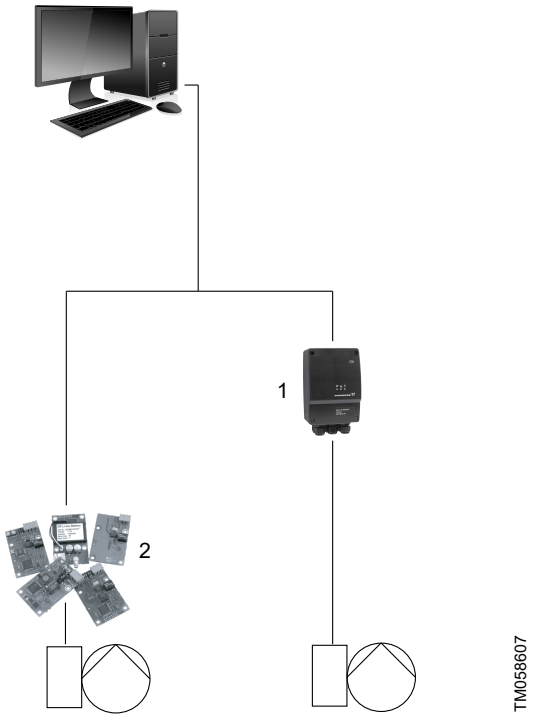
Communication with E-pumps

Communication with E-pumps is possible via a central building management system, remote control (Grundfos GO) or operating panel.

Central building management system

The operator can communicate with an E-pump at a distance by means of the CIU or CIM. Communication can take place via a central building management system allowing the operator to monitor and change control modes and setpoint settings.

The CIU unit can be used for all NKE pumps and CIM module can only be used for pumps with MGE motors. Both can be ordered as accessory. For ordering details, see section CIU communication interface units and CIM communication interface modules.



Structure of a central building management system

Pos.	Description
1	CIU 100: LonWorks CIU 150: PROFIBUS DP CIU 200: Modbus RTU CIU 250: GSM CIU 270: GRM CIU 300: BACnet MS/TP CIU 500: Modbus TCP CIU 500: PROFINET IO
2	CIM 100: LONWorks CIM 150: PROFIBUS DP CIM 200: Modbus RTU CIM 260: 3G/4G cellular CIM 280: GRM GiC 3G/4G CIM 300: BACnet MS/TP CIM 500: PROFINET CIM 500: Modbus TCP CIM 500: BACnet IP CIM 500: EtherNet/IP CIM 500: GRM IP

Related information

CIU communication interface units

CIM communication interface modules

10. Pumps connected in parallel

Control of pumps connected in parallel

In some applications, parallel pump operation is required for one or more of the following reasons:

- One pump cannot achieve the required performance or flow rate.
- Standby capacity is required to ensure reliability of supply.
- Overall efficiency needs to be improved in case of big variations in the flow rate demand.

NK, NKE pumps connected in parallel can be controlled by Control MPC.



TM040210_SH

Control MPC

Pumps connected to Control MPC

NK, NKE pumps can be connected directly to Grundfos Control MPC.

Control MPC incorporates, among others, a CU 352 controller that can control up to six pumps.

By means of an external sensor, Control MPC can ensure optimum adaptation of the performance to the demand by closed-loop control of these parameters:

- proportional differential pressure
- constant differential pressure
- differential pressure, remote
- flow rate
- temperature.

CU 352 incorporates features such as those below:

Startup wizard

Correct installation and commissioning is a prerequisite for attaining optimum performance of the system and trouble-free operation year in and year out.

During commissioning of the system, a startup wizard is shown on the display of the CU 352. The wizard guides the operator through the various steps via a series of dialogue boxes to ensure that all settings are done in the correct sequence.

Application-optimised software

CU 352 incorporates application-optimised software which helps you set your system to the application in question.

Furthermore, you can easily navigate through the menus of the controller. You do not need any training to be able to set and monitor the system.

Ethernet connection

CU 352 incorporates an Ethernet connection which makes it possible to get full and unlimited access to the setting and monitoring of the system via a remote PC.

Service port, GENI TTL

The service port of the CU 352 enables easy access to updating software and data logging in service situations.

External communication

Control MPC enables communication with other fieldbus protocols. In order to communicate with other fieldbus protocols, a GENIbus module and a gateway is needed.

Control MPC can communicate with LON, PROFIBUS, Modbus or BACnet via Grundfos CIU.

Note: For further information about Control MPC, see the "Control MPC" data booklet. The data booklet is available in Grundfos Product Center on www.grundfos.com. For further information on Grundfos Product Center, see section Grundfos Product Center.

Related information

23. Grundfos Product Center

11. Saving time for selecting the product

Key application data sheet

Our "Key application data sheet" can be used to gather the information typically needed in order to make the most suitable pump configuration.

Consider the following aspects when configuring a pump:

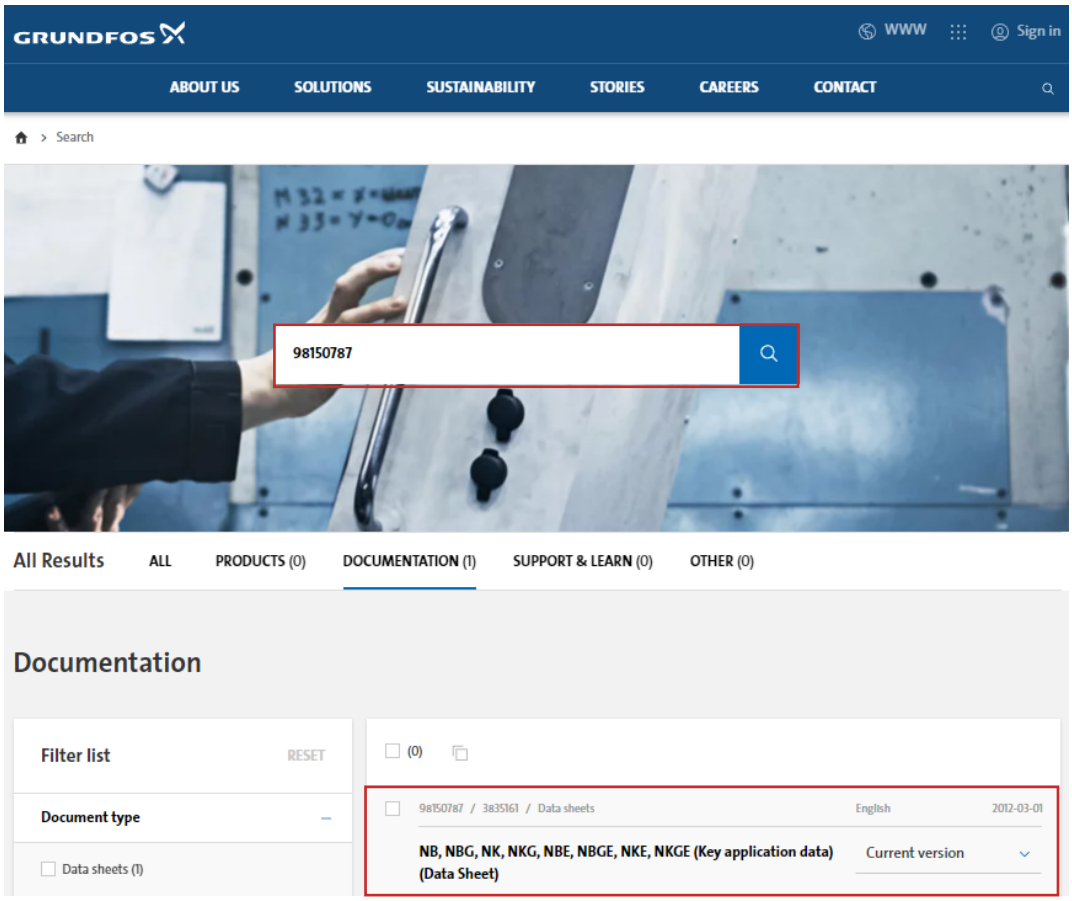
- the pumped liquid
- viscosity and density
- solids in the liquid
- operating temperatures and pressures
- customer-specific requirements.

These and other operating conditions listed in the data sheet are important for choosing the right pump material, shaft seal and shaft seal arrangement.

The data sheet can be seen as a check list and can be filled in by the customer alone or together with a Grundfos representative.

We recommend that you always fill in this data sheet as it saves a lot of time for the customer and for Grundfos.

The "Key application data sheet" can be found via the Grundfos.com web page.



TM1040614

How to find the "Key application data sheet" via the Grundfos.com web page.

Pump size

Select the pump size on the basis of these conditions:

- required flow rate and pressure at the draw-off point
- pressure loss as a result of height differences
- friction loss in the pipes. It may be necessary to account for pressure loss in connection with long pipes, bends or valves, etc.
- optimum efficiency at the estimated duty point.

Efficiency

If you expect the pump to always operate at the same duty point, select a pump which operates at a duty point corresponding to the optimum efficiency of the pump.

In case of controlled operation or varying consumption, select a pump whose optimum efficiency falls within the duty range covering the greater part of the duty time.

Material

Select the material variant on the basis of the liquid to be pumped. See section Pumped liquids.

Related information

General recommendations

Motor size

Select the motor size on the basis of the power required to achieve the duty point of the chosen pump. This information can be found in the power chart below each performance chart. See section Performance curves. When a pump is fitted with a stuffing box, select the motor size according to ISO 5199.

Find the power curve corresponding to the required QH-value or interpolate between curves.

To select the motor size, read the value of the P2 curve at the duty point and add a 5 % safety margin.

If the motor size must be selected according to ISO 5199, see the table below.

Safety margins according to ISO 5199

Required pump power up to [kW]	Motor power P2 [kW]
0.18	0.25
0.27	0.37
0.40	0.55
0.55	0.75
0.81	1.1
1.1	1.5
1.7	2.2
2.3	3
3.2	4
4.3	5.5
6.1	7.5
9.1	11
12.8	15
15.9	18.5
19	22
26	30
32.5	37
40	45
49	55
68	75
81	90
100	110
120	132
145	160
181	200
227	250
286	315
322	355
364	400

Related information

NK pumps with fixed-speed motors

12. Pumped liquids

General recommendations

We recommend NK pumps for thin, clean and non-explosive liquids not containing solid particles or fibres.

Liquids with temperatures ranging from -25 to +140 °C are covered in this data booklet.

For liquids ranging from -40 to +220 °C, see the data booklet "NB, NBG, NK, NKG, NBE, NBGE, NKE, NKGE - Custom-built pumps according to EN 733 and ISO 2858", or contact Grundfos.

Water in heating and ventilating systems often contains additives to prevent negative effects, such as system corrosion or calcareous deposits. In these cases, we recommend special shaft seals to avoid crystallisation/ precipitation between the seal faces.

"Liquids" in Grundfos.com

Via 'Solutions' on the Grundfos.com webpage a "liquids" module is accessible. This is based on the type and properties of the pumped liquid and gives recommendations with regard to materials for the wetted parts of the pump, i.e. recommend suitable and durable materials for pump housing, impeller, shaft, mechanical shaft seal and O-rings.

The "Liquids" module covers more than 170 widely used liquids.

Please note that other factors also affect the chemical resistance of the pump materials:

- solids
- contaminants
- pressure
- cleaning procedures.

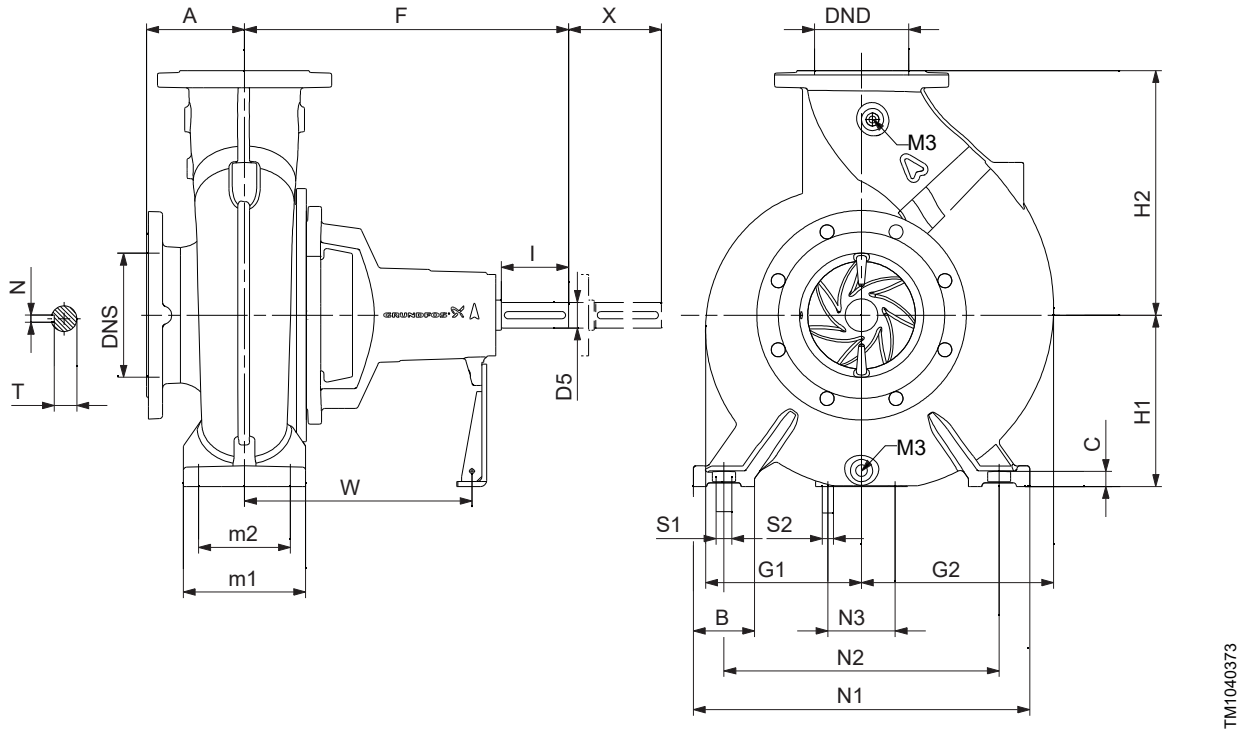
These factors are NOT considered in this tool, and the suitability of the pump material configuration can only be proved through a test.

When selecting the shaft seal and the shaft seal arrangement, we recommend that you consult the data booklet "NB, NBG, NK, NKG, NBE, NBGE, NKE, NKGE - Custom-built pumps" for further information.

For pumped liquids with a density and/or viscosity higher than those of water, use motors with correspondingly higher outputs.

13. NK bare-shaft pumps

NK, centre-line outlet



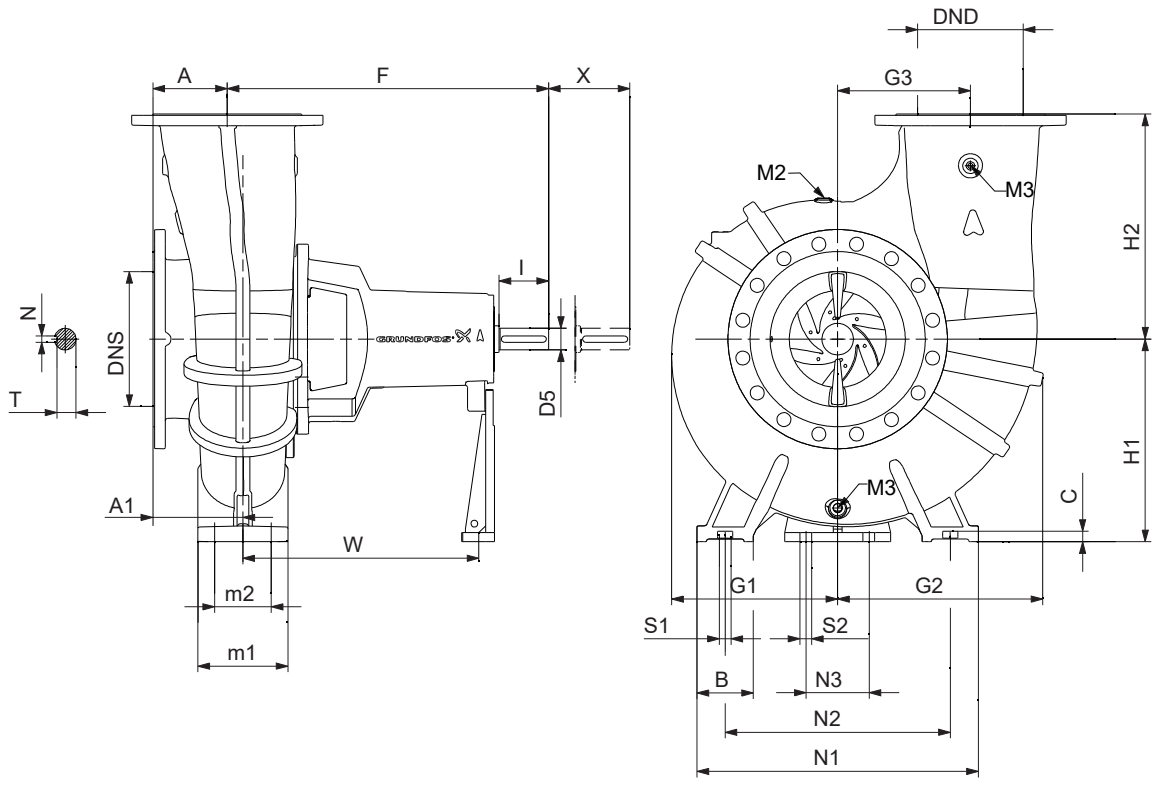
M3	Drain plug or priming plug	

Type	Pole	Pump [mm]									Supporting feet [mm]										Shaft [mm]				
		DNS	DND	A	F	H1	H2	M3	G1	G2	B	m1	m2	N1	N2	N3	W	S1	S2	C	D5	l	X [30]	T	N
32-130.1	2	50	32	80	325	112	140	Rp3/8"	117	117	50	100	70	190	140	110	231	M12	M12	14	16	50	100	18	5
32-130.1	4	50	32	80	325	112	140	Rp3/8"	117	117	50	100	70	190	140	110	231	M12	M12	14	16	50	100	18	5
32-130	2	50	32	80	325	112	140	Rp3/8"	117	117	50	100	70	190	140	110	231	M12	M12	14	16	50	100	18	5
32-130	4	50	32	80	325	112	140	Rp3/8"	117	117	50	100	70	190	140	110	231	M12	M12	14	16	50	100	18	5
32-165.1	2	50	32	80	360	132	160	Rp3/8"	117	122	50	100	70	240	190	110	266	M12	M12	18	24	50	100	27	8
32-165.1	4	50	32	80	325	132	160	Rp3/8"	117	122	50	100	70	240	190	110	231	M12	M12	18	16	50	100	18	5
32-180	2	50	32	80	325	132	180	Rp3/8"	118	132	50	100	70	240	190	110	231	M12	M12	16	16	50	100	18	5
32-180	4	50	32	80	325	132	180	Rp3/8"	118	132	50	100	70	240	190	110	231	M12	M12	16	16	50	100	18	5
32-205.1	2	50	32	80	360	160	180	Rp3/8"	135	137	50	100	70	240	190	110	266	M12	M12	18	24	50	100	27	8
32-205.1	4	50	32	80	325	160	180	Rp3/8"	135	137	50	100	70	240	190	110	231	M12	M12	18	16	50	100	18	5
40-130	2	65	40	80	360	112	140	Rp3/8"	118	118	50	100	70	210	160	110	266	M12	M12	17	24	50	100	27	8
40-130	4	65	40	80	325	112	140	Rp3/8"	118	118	50	100	70	210	160	110	231	M12	M12	17	16	50	100	18	5
40-180	2	65	40	80	360	132	180	Rp3/8"	122	143	50	100	70	240	190	110	266	M12	M12	13	24	50	100	27	8
40-180	4	65	40	80	325	132	180	Rp3/8"	122	143	50	100	70	240	190	110	231	M12	M12	13	16	50	100	18	5
40-220	2	65	40	100	385	180	225	Rp3/8"	167.6	167.6	65	125	95	320	250	110	288	M12	M12	17	24	50	100	27	8
40-220	4	65	40	100	360	180	225	Rp3/8"	167.6	167.6	65	125	95	320	250	110	263	M12	M12	17	24	50	100	27	8
40-225	2	65	40	100	385	180	225	Rp3/8"	169	168	65	125	95	320	250	110	288	M12	M12	17	24	50	100	27	8
40-225	4	65	40	100	360	180	225	Rp3/8"	169	168	65	125	95	320	250	110	263	M12	M12	17	24	50	100	27	8
50-130	2	65	50	100	360	132	160	Rp3/8"	120	138.4	50	100	70	240	190	110	266	M12	M12	17	24	50	100	27	8
50-130	4	65	50	100	325	132	160	Rp3/8"	120	138.4	50	100	70	240	190	110	231	M12	M12	17	16	50	100	18	5
50-225	2	65	50	100	400	180	225	Rp3/8"	168	170	65	125	95	320	250	110	275	M12	M12	19	32	80	100	35	10
50-225	4	65	50	100	360	180	225	Rp3/8"	168	170	65	125	95	320	250	110	263	M12	M12	19	24	50	100	27	8

Type	Pole	Pump [mm]									Supporting feet [mm]										Shaft [mm]				
		DNS	DND	A	F	H1	H2	M3	G1	G2	B	m1	m2	N1	N2	N3	W	S1	S2	C	D5	l	X [30]	T	N
50-280	2	65	50	100	400	180	225	Rp3/8"	164.5	178.8	65	125	95	320	250	110	275	M12	M12	18	32	80	100	35	10
50-280	4	65	50	100	360	180	225	Rp3/8"	164.5	178.8	65	125	95	320	250	110	263	M12	M12	18	24	50	100	27	8
50-350	4	80	50	125	470	225	280	Rp1/2"	206	220	65	125	95	345	280	110	339	M12	M12	17	32	80	140	35	10
65-130	2	80	65	100	360	160	180	Rp3/8"	117	155.5	65	125	95	280	212	110	266	M12	M12	18	24	50	140	27	8
65-130	4	80	65	100	325	160	180	Rp3/8"	117	155.5	65	125	95	280	212	110	231	M12	M12	18	16	50	140	18	5
65-180	2	80	65	100	360	160	200	Rp3/8"	126	147	65	125	95	280	212	110	266	M12	M12	16	24	50	140	27	8
65-180	4	80	65	100	325	160	200	Rp3/8"	126	147	65	125	95	280	212	110	231	M12	M12	16	16	50	140	18	5
65-225	2	80	65	100	400	200	250	Rp3/8"	169	190.5	80	160	116	360	280	110	275	M16	M12	24	32	80	100	35	10
65-225	4	80	65	100	360	200	250	Rp3/8"	169	190.5	80	160	116	360	280	110	263	M16	M12	24	24	50	100	27	8
65-280	4,6	80	65	125	470	200	280	Rp1/2"	183	199	80	160	120	360	280	110	339	M16	M12	17	32	80	140	35	10
80-180	2	100	80	100	360	160	225	Rp3/8"	138	168	65	125	95	280	212	110	266	M12	M12	18	24	50	140	27	8
80-180	4	100	80	100	325	160	225	Rp3/8"	138	168	65	125	95	280	212	110	231	M12	M12	18	16	50	140	18	5
80-225	2	100	80	125	420	200	280	Rp3/8"	174	211.8	80	160	120	400	315	110	295	M16	M12	21	32	80	140	35	10
80-225	4	100	80	125	380	200	280	Rp3/8"	174	211.8	80	160	120	400	315	110	283	M16	M12	21	24	50	140	27	8
80-280	4,6	100	80	125	470	200	315	Rp1/2"	183.2	207	80	160	120	400	315	110	339	M16	M12	19	32	80	140	35	10
80-350	4,6	100	80	125	470	250	315	Rp1/2"	214	245	76	160	120	400	315	110	339	M16	M12	14	32	80	140	35	10
100-180	2	125	100	125	360	180	250	Rp1/2"	140.2	180.7	65	125	95	345	280	110	263	M12	M12	17	24	50	140	27	8
100-180	4	125	100	125	360	180	250	Rp1/2"	140.2	180.7	65	125	95	345	280	110	263	M12	M12	17	24	50	140	27	8
100-225	2	125	100	140	420	225	280	Rp1/2"	183.6	229.3	80	160	120	400	315	110	295	M16	M12	25	32	80	140	35	10
100-225	4	125	100	140	380	225	280	Rp1/2"	183.6	229.3	80	160	120	400	315	110	283	M16	M12	25	24	50	140	27	8
100-280	4,6	125	100	140	470	225	315	Rp1/2"	188.5	229.3	80	160	120	400	315	110	339	M16	M12	21	32	80	140	35	10
100-350	4,6	125	100	140	470	250	315	Rp1/2"	214	250	80	160	116	400	315	110	339	M16	M12	22	32	80	140	35	10
100-380	4,6	125	100	140	530	280	355	Rp1/2"	278	305.3	100	200	150	500	400	110	369	M20	M12	23	42	110	180	45	12
125-180	2	150	125	125	360	200	280	Rp1/2"	162.6	216.2	80	160	120	360	280	110	263	M16	M12	18	24	50	140	27	8
125-180	4	150	125	125	360	200	280	Rp1/2"	162.6	216.2	80	160	120	360	280	110	263	M16	M12	18	24	50	140	27	8
125-225	4,6	150	125	140	420	250	355	Rp1/2"	188	255.6	80	160	120	400	315	110	295	M16	M12	29	32	80	140	35	10
125-280	4,6	150	125	140	470	250	355	Rp1/2"	209.6	273.1	86	160	120	400	315	110	339	M16	M12	24	32	80	180	35	10
125-350	4,6	150	125	140	530	280	355	Rp1/2"	226	272.2	100	200	150	500	400	110	369	M20	M12	22	42	110	180	45	12
125-380	4,6	150	125	140	530	315	400	Rp1/2"	278	340.8	100	200	150	500	400	110	369	M20	M12	25	42	110	180	45	12
150-225	4,6	200	150	160	420	280	375	Rp1/2"	230	300	100	200	150	500	400	110	295	M20	M12	18	32	80	180	35	10
150-280	4,6	200	150	160	530	280	375	Rp1/2"	227	291	100	200	150	500	400	110	369	M20	M12	21.5	42	110	180	45	12
150-300	4,6	200	150	160	540	280	400	Rp1/2"	232.2	307.4	100	200	150	550	450	110	379	M20	M12	18	42	110	180	45	12
150-350	4,6	200	150	160	530	280	400	Rp1/2"	258	317	100	200	150	550	450	110	369	M20	M12	24	42	110	180	45	12
150-380	4,6	200	150	160	670	315	450	Rp1/2"	288	355.7	100	200	150	550	450	140	503	M20	M16	24	48	110	180	51.5	14
200-300	4,6	250	200	160	555	350	400	Rp1/2"	253.4	341	125	200	150	625	500	110	394	M20	M12	32	42	110	200	45	12
200-350	4,6	250	200	160	530	350	450	Rp1/2"	301	399	125	200	150	625	500	110	369	M20	M12	25.5	42	110	180	45	12
200-380	4,6	250	200	185	670	400	500	Rp1/2"	322	411.2	125	200	150	625	500	140	504	M20	M16	28	48	110	200	51.5	14
200-500	4,6	250	200	200	670	400	605	Rp1/2"	378	432	125	200	150	625	500	140	493	M20	M16	29	60	110	250	64	18

30) X is the minimum pull-back length of the bearing bracket required for service of impeller and shaft seal.

NK, tangential outlet



M3	Drain plug or priming plug	

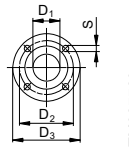
Type	Pole	Pump [mm]											Supporting feet [mm]										Shaft [mm]				
		DNS	DND	A	A1	F	H1	H2	M3	G1	G2	G3	B	m1	m2	N1	N2	N3	W	S1	S2	C	D5	I	X[31]	T	N
250-315	4,6	300	250	185	215	735	400	400	Rp1/2"	334	482.5	270	125	200	150	625	500	140	539	M20	M16	33	48	110	250	51.5	14
250-360	4,6	300	250	175	177.2	739	450	400	Rp1/2"	417.5	572.5	320	125	200	150	625	500	140	562	M20	M16	32	48	110	250	51.5	14
250-380	4,6	300	250	165	200	714	450	500	Rp1/2"	368.8	507.5	295	125	200	150	625	500	140	512	M20	M16	24	48	110	200	51.5	14
300-300	4,6	350	300	200	279	780	510	400	Rp1/2"	429	587.5	345	160	215	180	700	540	140	531	M20	M16	32.5	48	110	250	51.5	14
300-310	4,6	350	300	220	272	780	510	400	Rp1/2"	432	572.5	330	160	215	180	700	540	140	558	M20	M16	30	48	110	300	51.5	14
300-350	4,6	350	300	190	230	735	450	400	Rp1/2"	400	602.5	330	140	210	180	640	500	140	517	M20	M16	30	60	110	250	64	18
300-400	4,6	350	300	190	202	727	450	400	Rp1/2"	416.6	602.5	360	125	200	150	725	600	140	529	M20	M16	31.5	60	110	250	64	18
350-350	4,6	400	350	275	275	710	560	500	Rp1/2"	477	637.5	360	160	215	180	740	580	140	529	M20	M16	31.5	60	110	300	64	18

31) X is the minimum pull-back length of the bearing bracket required for service of impeller and shaft seal.

14. Pump flange dimensions

Pump flanges, EN 1092-2

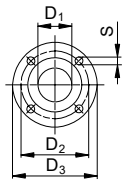
EN 1092-2 is the standard used for cast iron and ductile iron pump flanges. The flange dimensions are stated in mm.



		EN 1092-2												
		Nominal diameter												
		DN 32	DN 40	DN 50	DN 65	DN 80	DN 100	DN 125	DN 150	DN 200	DN 250	DN 300	DN 350	DN 400
	D_1	32	40	50	65	80	100	125	150	200	250	300	350	400
PN 10	D_2	100	110	125	145	160	180	210	240	295	350	400	460	515
	D_3	140	150	165	185	200	220	250	285	340	395	445	505	565
	S	4 x Φ19	4 x Φ19	4 x Φ19	4 x Φ19	8 x Φ19	8 x Φ19	8 x Φ19	8 x Φ23	8 x Φ23	12 x Φ23	12 x Φ23	16 x Φ23	16 x Φ28
PN 16	D_2	100	110	125	145	160	180	210	240	295	355	410	470	525
	D_3	140	150	165	185	200	220	250	285	340	405	460	520	580
	S	4 x Φ19	4 x Φ19	4 x Φ19	4 x Φ19	8 x Φ19	8 x Φ19	8 x Φ19	8 x Φ23	12 x Φ23	12 x Φ28	12 x Φ28	16 x Φ28	16 x Φ31
PN 25	D_2	100	110	125	145	160	190	220	250	310	370	430	490	550
	D_3	140	150	165	185	200	235	270	300	360	425	485	555	620
	S	4 x Φ19	4 x Φ19	4 x Φ19	8 x Φ19	8 x Φ19	8 x Φ23	8 xΦ28	8 xΦ28	12 x Φ28	12 x Φ31	16 x Φ31	16 x Φ34	16 x Φ37

Fixed pump flanges, ASME/ANSI B16.1

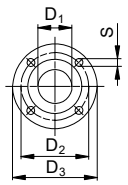
ASME/ANSI B16.1 is the standard used for cast iron pump flanges and flange fittings, classes 125 and 250.



	Class 125											
	Nominal diameter [inch]											
D_1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12
D_2	3 1/2	3 7/8	4 3/4	5 1/2	6	7	7 1/2	8 1/2	9 1/2	11 3/4	14 1/4	17
D_3	4 5/8	5	6	7	7 1/2	8 1/2	9	10	11	13 1/2	16	19
S	4 x ∅5/8	4 x ∅5/8	4 x ∅3/4	4 x ∅3/4	4 x ∅3/4	8 x ∅3/4	8 x ∅3/4	8 x ∅7/8	8 x ∅7/8	8 x ∅7/8	12 x ∅1	12 x ∅1

Loose pump flanges, ASME/ANSI B16.42

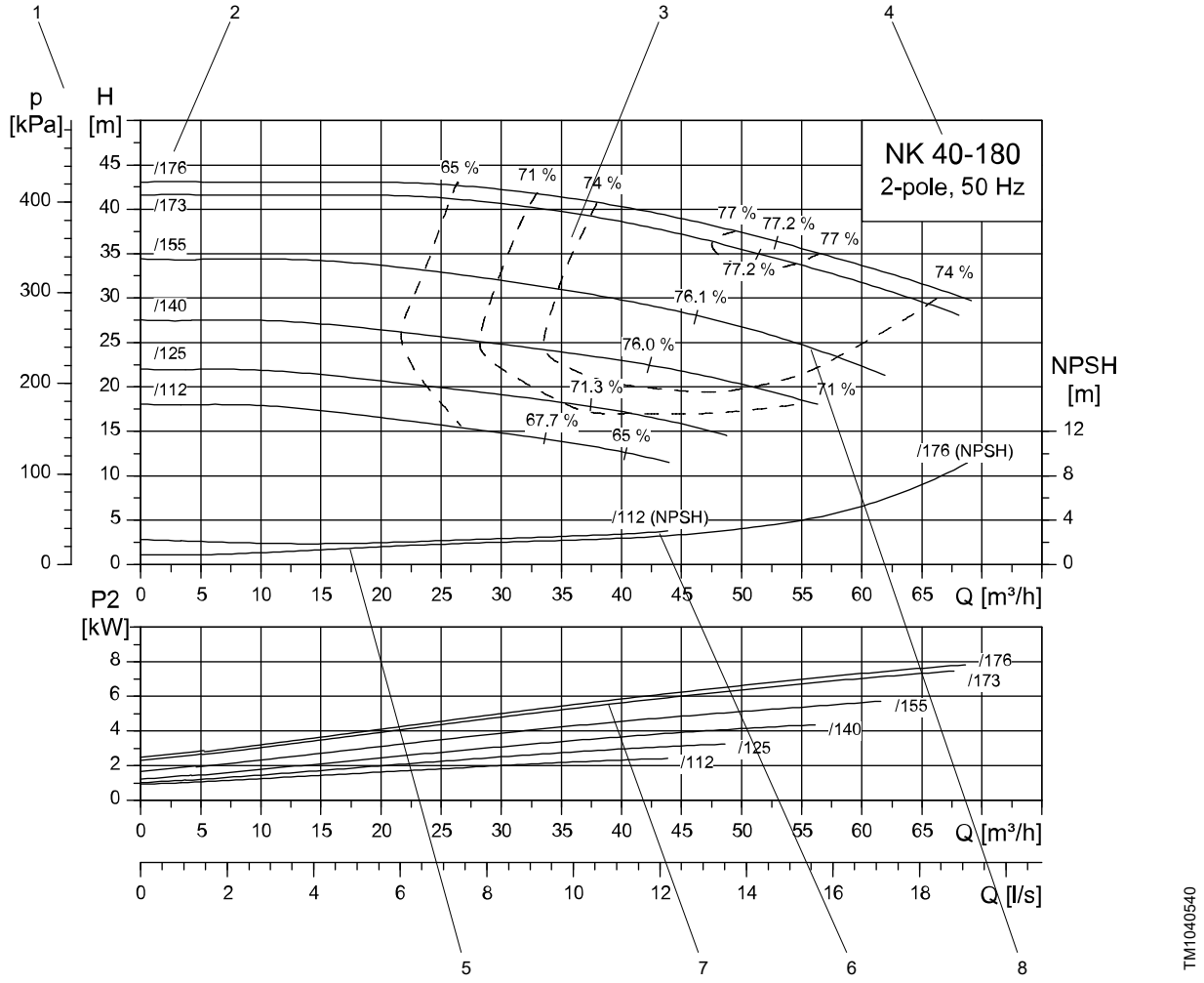
ASME/ANSI B16.42 is the standard used for ductile iron flanges and flanged fittings, classes 150 and 300.



	Class 300											
	Nominal diameter [inch]											
D_1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12
D_2	3 7/8	4 1/2	5	5 7/8	6 5/8	7 1/4	7 7/8	9 1/4	10 5/8	13	15 1/4	17 3/4
D_3	5 1/4	6 1/8	6 1/2	7 1/2	8 1/4	9	10	11	12 1/2	15	17 1/2	20 1/2
S	4 x ∅3/4	4 x ∅7/8	8 x ∅3/4	8 x ∅7/8	8 x ∅7/8	8 x ∅7/8	8 x ∅7/8	8 x ∅7/8	12 x ∅7/8	12 x ∅1	16 x ∅1 1/8	16 x ∅1 1/4

15. Introduction to curves and technical data

How to read the curve charts



Pos.	Description
1	Total pump head, p [kPa] or H [m] is equal to H_{total}
2	Impeller diameter [mm]
3	Hydraulic efficiency curves are shown as dashed lines, eta [%]
4	Pump type, pole number and frequency
5	The NPSH curve is shown for maximum impeller size.
6	The NPSH curve is shown for minimum impeller size.
7	The power curve indicates pump input power P2 [kW]
8	QH curve for the individual pump. The bold curve indicates the recommended performance range.

The shown pump performance curves in section Performance curves represent the pump in combination with an IE3 motor.

Related information

NK pumps with fixed-speed motors

Curve conditions

The guidelines below apply to the curves shown in the section Performance curves.

- Tolerances are according to ISO 9906:2012 Grade 2B.
- The curves show pump performance with different impeller diameters at the nominal speed.
- The bold part of the curves show the recommended operating range.
- We do not recommend the thin parts as the possible operating range here might suggest the selection of a smaller or larger pump type.
- Do not use the pumps at minimum flow rates below 0.1 x Q_{max} because of the danger of overheating the pump.
- The curves apply to the pumping of water at a temperature of 20 °C and a kinematic viscosity of 1 mm^2/s (1 cSt).
- **Eta:** The dashed lines show values of the hydraulic efficiency of the pump.
- **NPSH:** The curves show maximum values measured under the same conditions as the performance curves.
- In case of other densities than 1000 kg/m^3, the outlet pressure is proportional to the density.
- When pumping liquids with a density higher than 1000 kg/m^3, motors with correspondingly higher outputs must be used.
- When stuffing box shaft seal is selected for a pump, select the motor size according to ISO 5199.

Calculation of total head

The total pump head consists of the height difference between the measuring points + the differential head + the dynamic head.

$H_{total} = H_{geo} + H_{stat} + H_{dyn}$

H_{geo}	Height difference between measuring points.
H_{stat}	Differential head between the inlet and outlet sides of the pump.
H_{dyn}	Calculated values based on the velocity of the pumped liquid on the inlet and outlet sides of the pump.

Pump performance testing

NK testers are all capable of performing hydraulic performance tests according to ISO 9906:2012 requirements.

The standard ISO 9906:2012 sets standards for "rotodynamic pumps, Hydraulic performance acceptance tests, Grades 1, 2 and 3".

Performance acceptance grades

Six pump-performance-test acceptance grades, 3B, 2B, 2U, 1B, 1E and 1U are defined in ISO 9906:2012.

Acceptance grade	Mandatory measurements		Optional measurements	
	Q	H	P1	Eta-tot
3B	± 9 %	± 7 %	+ 9 %	- 7 %
2B	± 8 %	± 5 %	+ 8 %	- 5 %
2U	+ 16 %	+ 10 %	+ 16 %	
1B	± 5 %	± 3 %	+ 4 %	- 3 %
1E	± 5 %	± 3 %	+ 4 %	≥0 %
1U	+ 10 %	+ 6 %	+ 10 %	

Q:	Flow
H:	Head
P1:	Total consumed power
Eta-tot:	Total efficiency

These tolerance grades can be used in the contract between the pump manufacturer and the purchaser, or they can be used in a default tolerance factor which will apply if no specific tolerance grade has been agreed between the manufacturer and the customer.

The performance acceptance grades are explained in section Specifying acceptance grades, showing the performance grades related to an ordinary pump curve.

Related information

Specifying acceptance grades

The guarantee point

According to ISO 9906:2012 the acceptance-grade tolerance applies to one guarantee point.

A guarantee point is defined by a guaranteed flow and a guaranteed head.

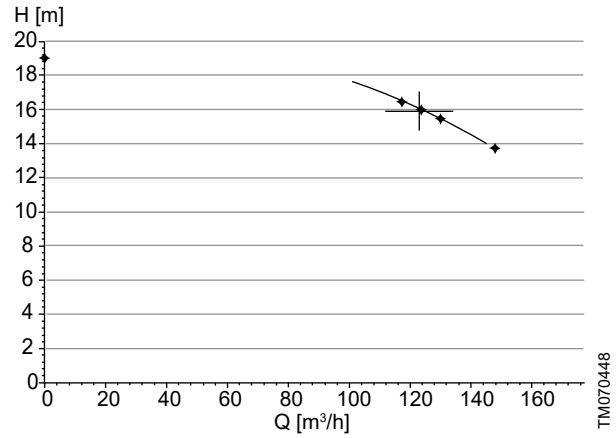
In addition either minimum total efficiency or maximum total input power may be guaranteed at the specified conditions.

This means that the standard sets guidelines for a duty point guaranteed for the following:

- Q and H - or
- Q, H and total efficiency (Eta-total) - or
- Q, H and total consumed power (P1).

The guarantee point is defined by a minimum of five measured test points.

Example on a duty point test living up to ISO 9906:2012 requirements

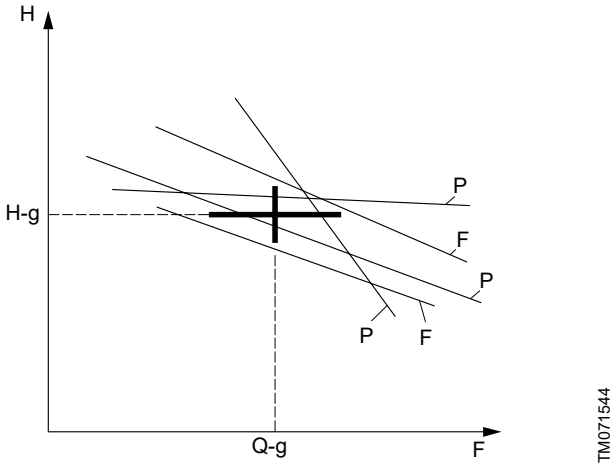


Five measured test points are used to verify one guarantee point

Evaluation of performance

The test must show that the measured pump curve touches or passes through a tolerance surrounding the guarantee point, as defined by the selected acceptance grade.

Guarantee-point evaluation must be made at the rated speed, which for NK, NKE pumps means 50 Hz or 60 Hz.



Pump curves that either pass or fail to cross the tolerance cross of the guarantee point

Pos.	Description
H	Head
H-g	H-guaranteed
Q-g	Q-guaranteed
F	Flow
P	Pass
F	Fail

Performance-test types for end-suction pumps

A duty point test can be made for NK pumps.

Tests carried out on pumps

- Tests are saved for at least five years and can be traced using the pump's unique serial number.
- It is not possible to change acceptance grade on an already tested and supplied pump - if this should be required a re-test of the pump is needed.
- Witness testing can be arranged.

Duty-point-verification test, Grades 3B, 2B, 2U, 1B, 1E and 1U

This test method offers the possibility to perform a duty-point verification of the following:

- Q and H - or
- Q, H and total efficiency (Eta-tot) - or
- Q, H and total consumed power (P1).

Acceptance grade	Mandatory measurements		Optional measurements	
	Q	H	P1	Eta-tot
2B	Standard		Refer to factory	
3B	Refer to factory		Refer to factory	
2U				
1B	Refer to factory		Refer to factory	
1E				
1U				

What Grundfos is able to guarantee for the different acceptance grades will be evaluated case by case. Contact your local sales company on this.

Grundfos makes duty-point verification according to ISO 9906:2012 for one guarantee point at full speed, 50 or 60 Hz. The customer must tell Grundfos which duty point to verify.

The requested duty point is verified by five measured points.

Grade 2B duty-point verification

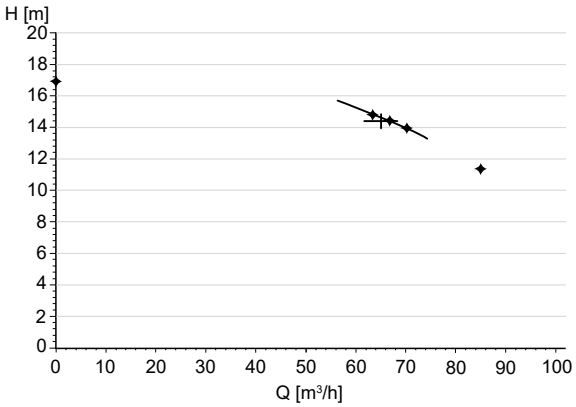
The following example illustrates performance testing according to Grade 2B.

Flow and head are mandatory and efficiency or power consumption, P1, is optional.

Tolerances for a Grade 2B test are as follows:

- Flow: ± 8 %
- Head: ± 5 %
- Efficiency: - 5 %, only equal to or better than the guaranteed value
- P1: + 8 %

Q and H are tested and verified



Measured values for flow and head

Grade 1U duty-point verification

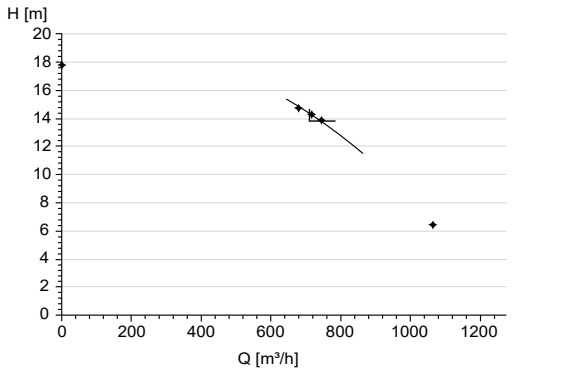
The following example illustrates performance testing according to Grade 1U.

Flow and head are mandatory and efficiency or power consumption, P1, is optional.

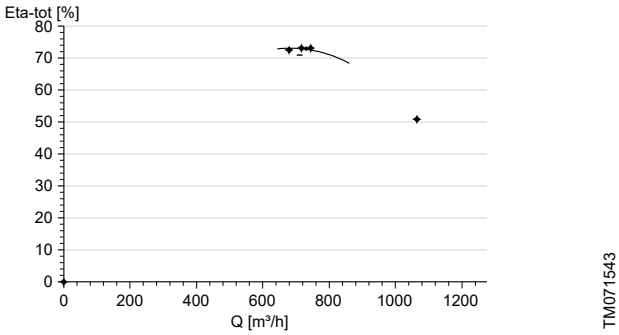
Tolerances for a Grade 1U test are as follows:

- Flow: + 10 %
- Head: + 6 %
- Efficiency: 0 %, only equal to or better than the guaranteed value
- P1: + 10 %

1. Q, H and Eta-tot is tested and verified

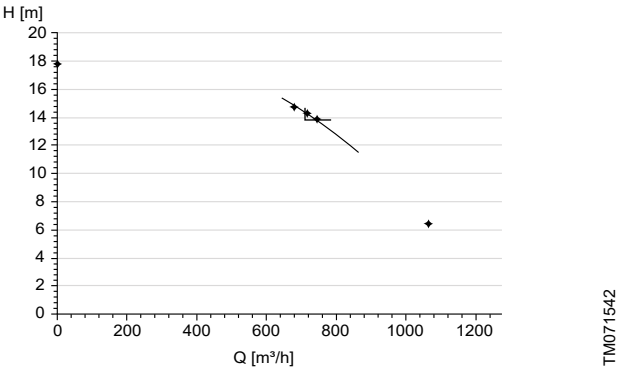


Measured values for flow and head

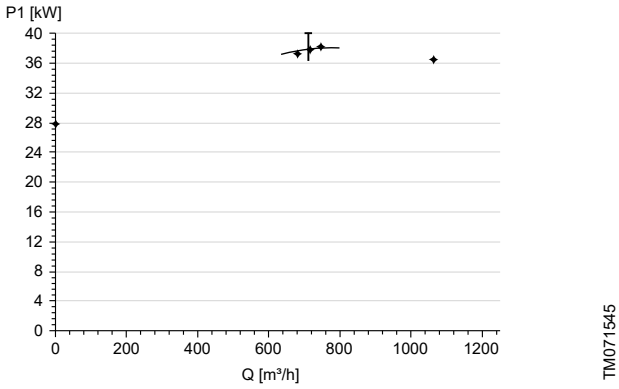


Measured values for total efficiency

2. Q, H and P1 is tested and verified



Measured values for flow and head



Measured values for consumed power

Note that other points than the guarantee point can be measured and displayed in a curve-test report according to Grade 3B tolerances.

Static high pressure test

All produced pumps undergo a static high pressure test of 1.5 x PN (pressure rating of the pump).

Specifying acceptance grades

The graphs in section Acceptance grades and tolerances show the tolerances as stated in the standard, related to an ordinary pump curve. The graphs also show which pump performance to expect if the customer, having the same pump to start with, orders a pump with the same guarantee point for different tolerances (B, E or U) within the acceptance grades.

In some cases it will not be possible to fulfil the same guarantee point for a unilateral tolerance as it will for a bilateral tolerance. This is indicated by the lowered curve for "E" and "U" grades.

If the requested guarantee point is the same for a Grade U pump as for a Grade B pump, the consequence of the production tolerances could result in a larger pump being required to obtain the requested duty point.

What Grundfos is able to guarantee for the different acceptance grades will be evaluated case by case. Contact your local sales company on this.

Acceptance grades and tolerances

Acceptance grade B

This acceptance grade refers to grades with a bilateral tolerance on flow and head and with a tolerance on efficiency.

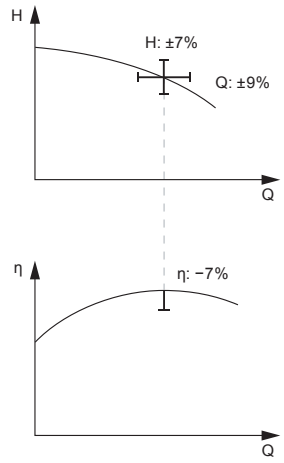
Acceptance grade E

This acceptance grade refers to a grade with a bilateral tolerance on flow and head but without tolerance on efficiency.

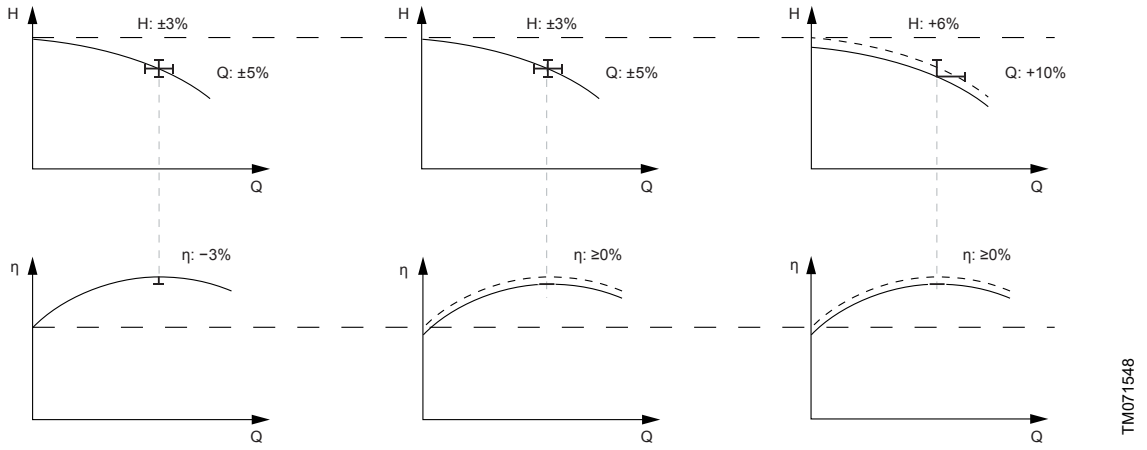
Acceptance grade U

This acceptance grade refers to a grade with a unilateral tolerance on flow and head. For the 2U grade there is a tolerance on efficiency. For the 1U grade there is no tolerance on efficiency.

Note that if the acceptance grade changes from Grade 1B to 1U, the customer does not necessarily get a better pump with a higher efficiency. More likely, he gets a pump where the performance is always to the positive side of the guarantee point.

	Acceptance grade		
	B	E	U
Grade 3			

TM071546

	Acceptance grade		
	B	E	U
Grade 2			
Grade 1			

16. Performance curves

Overview

NKE pumps with speed-controlled motors

Pump size	Medium speed	Low speed
NKE 32-130.1	See *32-130.1*	See *32-130.1*
NKE 32-130	See *32-130*	See *32-130*
NKE 32-165.1	See *32-165.1*	See *32-165.1*
NKE 32-180	See *32-180*	See *32-180*
NKE 32-205.1	See *32-250.1*	See *32-205.1*
NKE 40-130	See *40-130*	See *40-130*
NKE 40-180	See *40-180*	See *40-180*
NKE 40-220	-	See *40-220*
NKE 40-225	-	See *40-225*
NKE 50-130	See *50-130*	See *50-130*
NKE 50-225	-	See *50-225*
NKE 50-280	-	See *50-280*
NKE 65-130	See *65-130*	See *65-130*
NKE 65-180	See *65-180*	See *65-180*
NKE 65-225	-	See *65-225*
NKE 80-180	See *80-180*	See *80-180*
NKE 80-225	-	See *80-225*
NKE 100-180	-	See *100-180*
NKE 125-180	-	See *125-180*
NKE 125-225	-	See *125-225*

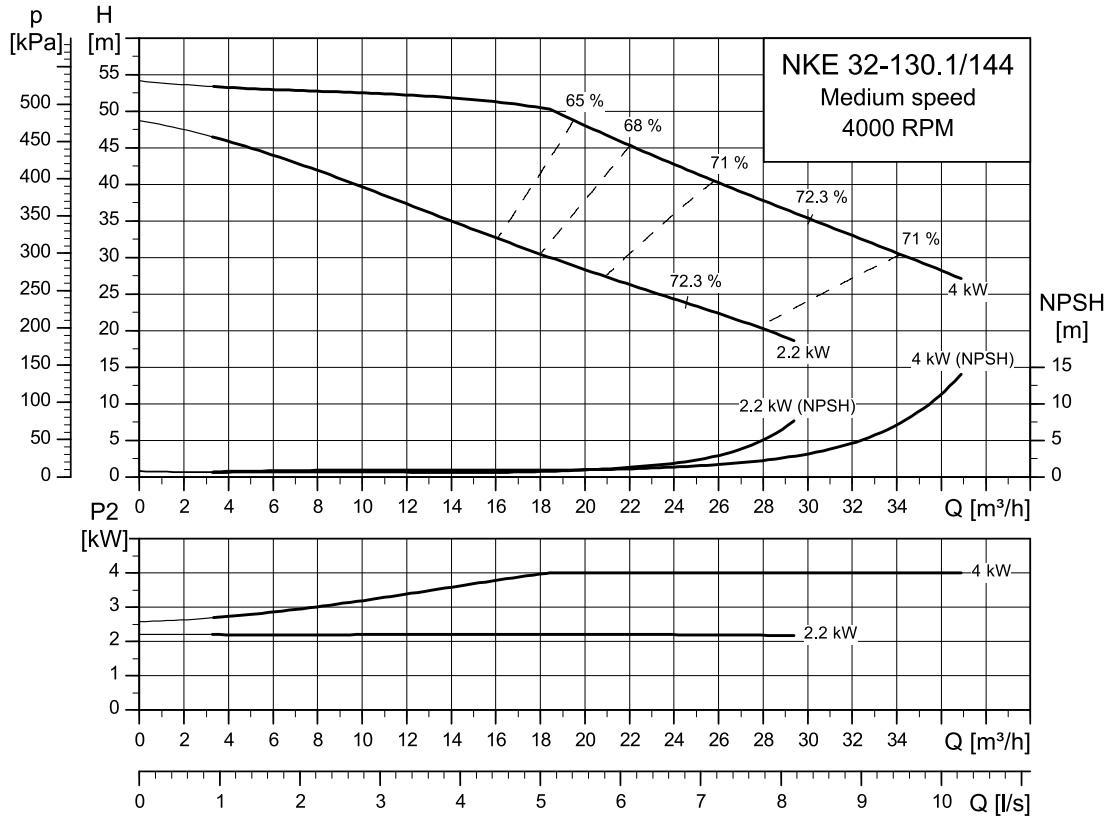
NK pumps with fixed-speed motors

Pump size	2-pole	4-pole	6-pole
NK 032-130	See *32-130*	See *32-130*	-
NK 032-130.1	See *32-130.1*	See *32-130.1*	-
NK 032-165.1	See *32-165.1*	See *32-165.1*	-
NK 032-180	See *32-180*	See *32-180*	-
NK 032-205.1	See *32-205.1*	See *32-205.1*	-
NK 040-130	See *40-130*	See *40-130*	-
NK 040-180	See *40-180*	See *40-180*	-
NK 040-220	See *40-220*	See *40-220*	-
NK 040-225	See *40-225*	See *40-225*	-
NK 050-130	See *50-130*	See *50-130*	-
NK 050-225	See *50-225*	See *50-225*	-
NK 050-280	See *50-280*	See *50-280*	-
NK 050-350	-	See *50-350*	-
NK 065-130	See *65-130*	See *65-130*	-
NK 065-180	See *65-180*	See *65-180*	-
NK 065-225	See *65-225*	See *65-225*	See *65-225*
NK 065-280	-	See *65-280*	See *65-280*
NK 080-180	See *80-180*	See *80-180*	-
NK 080-225	See *80-225*	See *80-225*	See *80-225*
NK 080-280	-	See *80-280*	See *80-280*
NK 080-350	-	See *80-350*	See *80-350*
NK 100-180	See *100-180*	See *100-180*	See *100-180*
NK 100-225	See *100-225*	See *100-225*	See *100-225*
NK 100-280	-	See *100-280*	See *100-280*
NK 100-350	-	See *100-350*	See *100-350*

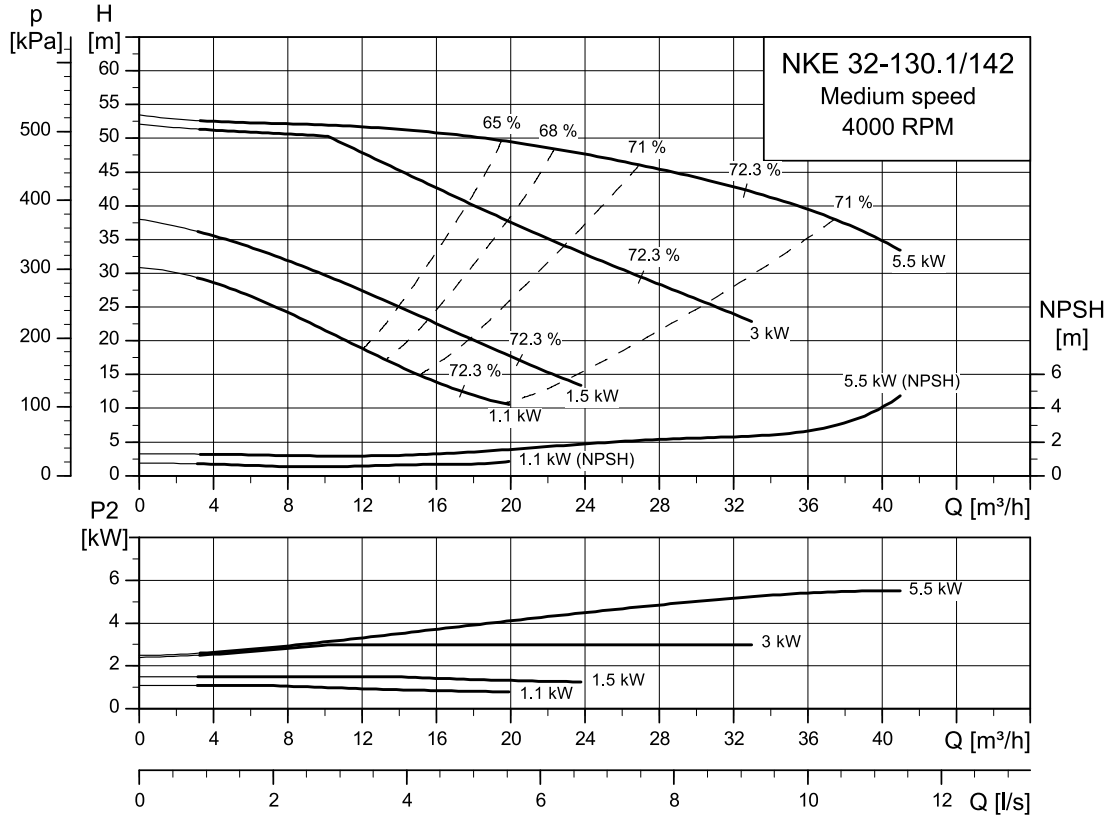
Pump size	2-pole	4-pole	6-pole
NK 100-380	-	See *100-380*	See *100-380*
NK 125-180	See *125-180*	See *125-180*	See *125-180*
NK 125-225	-	See *125-225*	See *125-225*
NK 125-280	-	See *125-280*	See *125-280*
NK 125-350	-	See *125-350*	See *125-350*
NK 125-380	-	See *125-380*	See *125-380*
NK 150-225	-	See *150-225*	See *150-225*
NK 150-280	-	See *150-280*	See *150-280*
NK 150-300	-	See *150-300*	See *150-300*
NK 150-350	-	See *150-350*	See *150-350*
NK 150-380	-	See *150-380*	See *150-380*
NK 200-300	-	See *200-300*	See *200-300*
NK 200-350	-	See *200-350*	See *200-350*
NK 200-380	-	See *200-380*	See *200-380*
NK 200-500	-	See *200-500*	See *200-500*
NK 250-315	-	See *250-315*	See *250-315*
NK 250-360	-	See *250-360*	See *250-360*
NK 250-380	-	See *250-380*	See *250-380*
NK 300-300	-	See *300-300*	See *300-300*
NK 300-310	-	See *300-310*	See *300-310*
NK 300-350	-	See *300-350*	See *300-350*
NK 300-400	-	See *300-400*	See *300-400*
NK 350-350	-	See *350-350*	See *350-350*

Medium speed, 4000 RPM

32-130.1

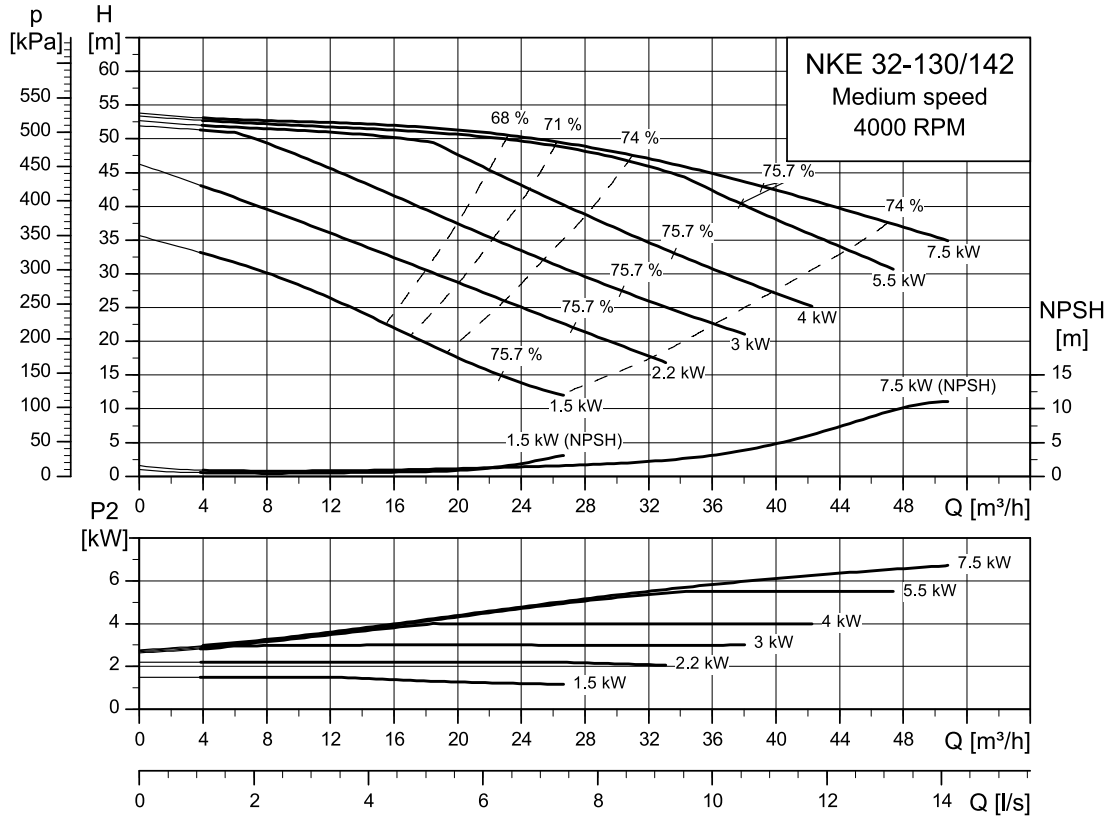


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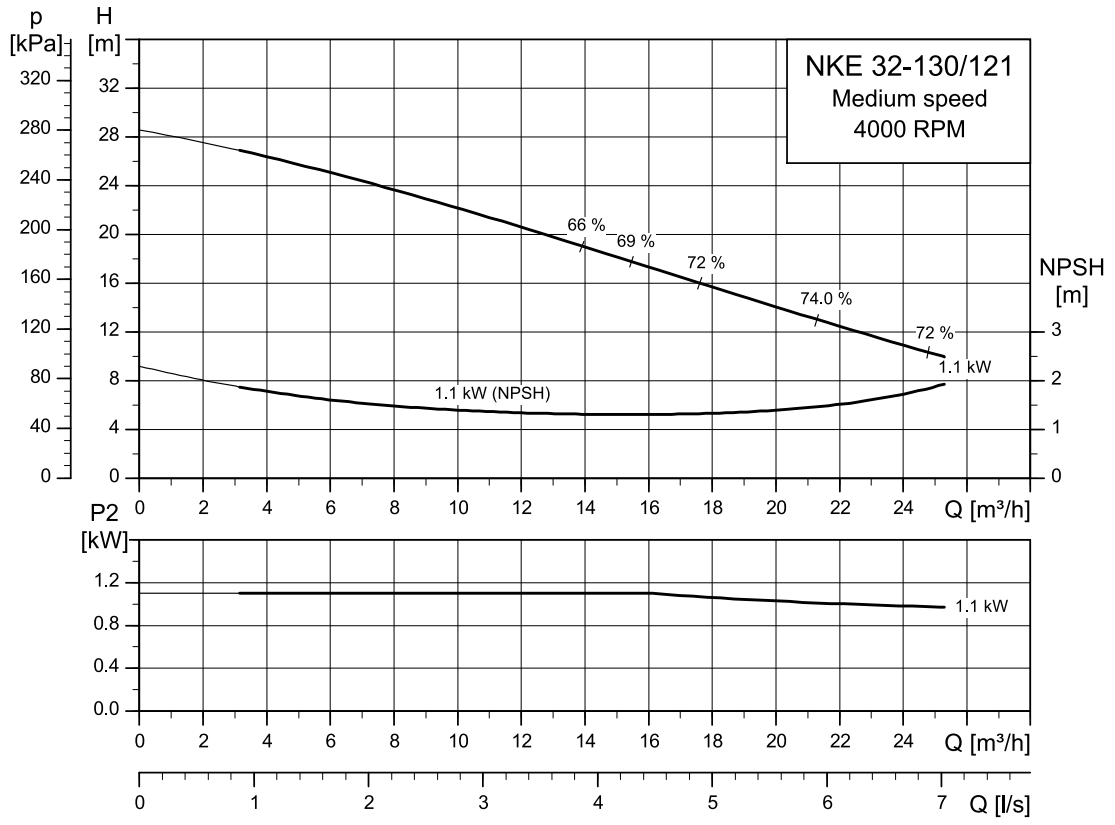


TM085346

32-130

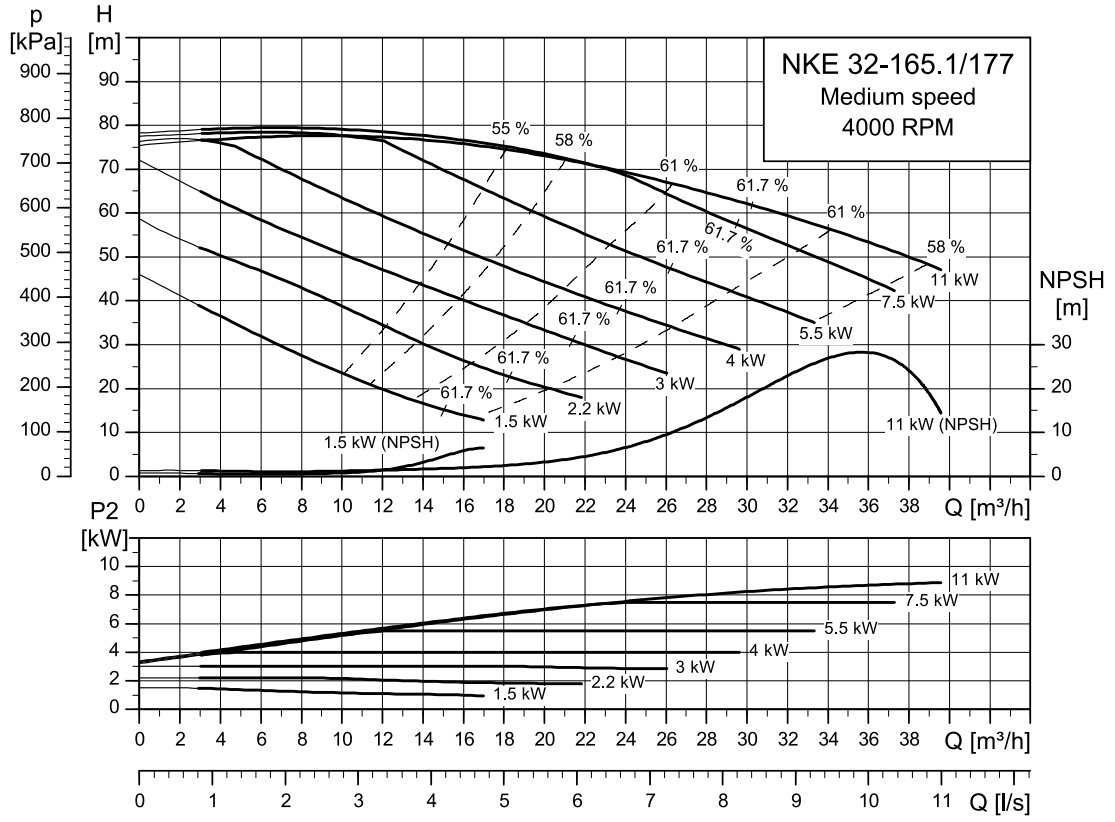


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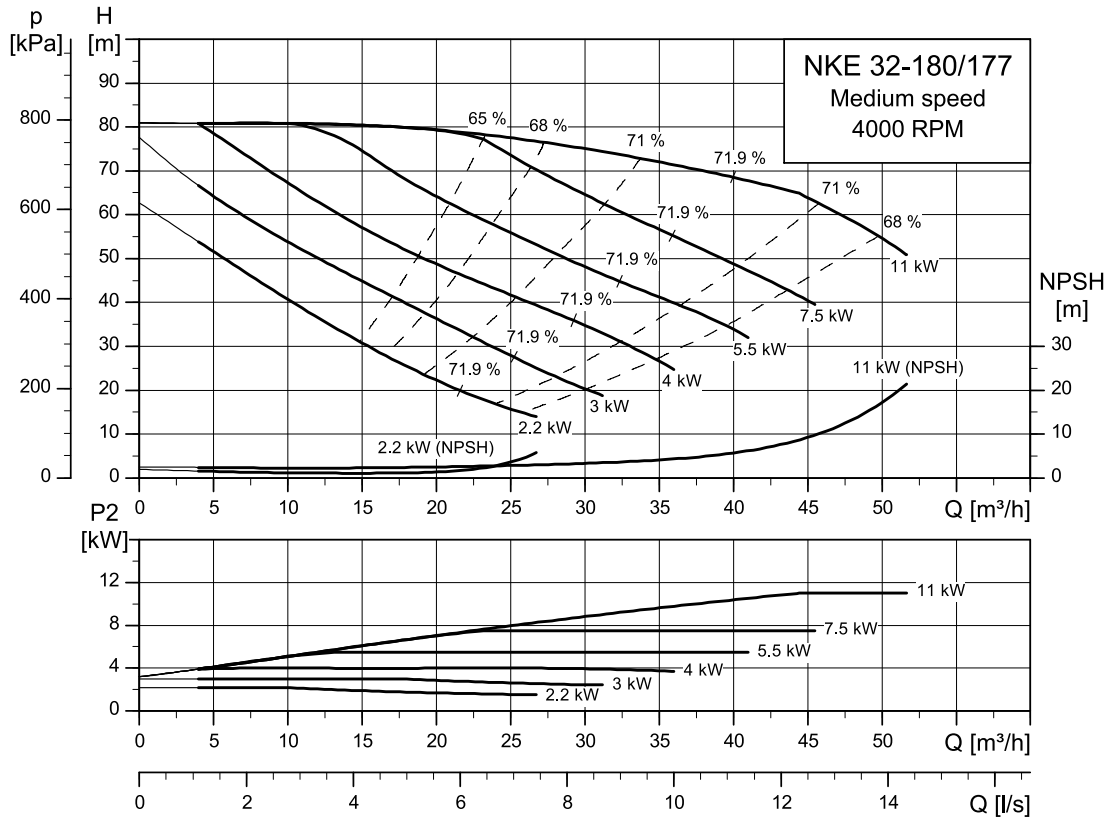
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32-165.1



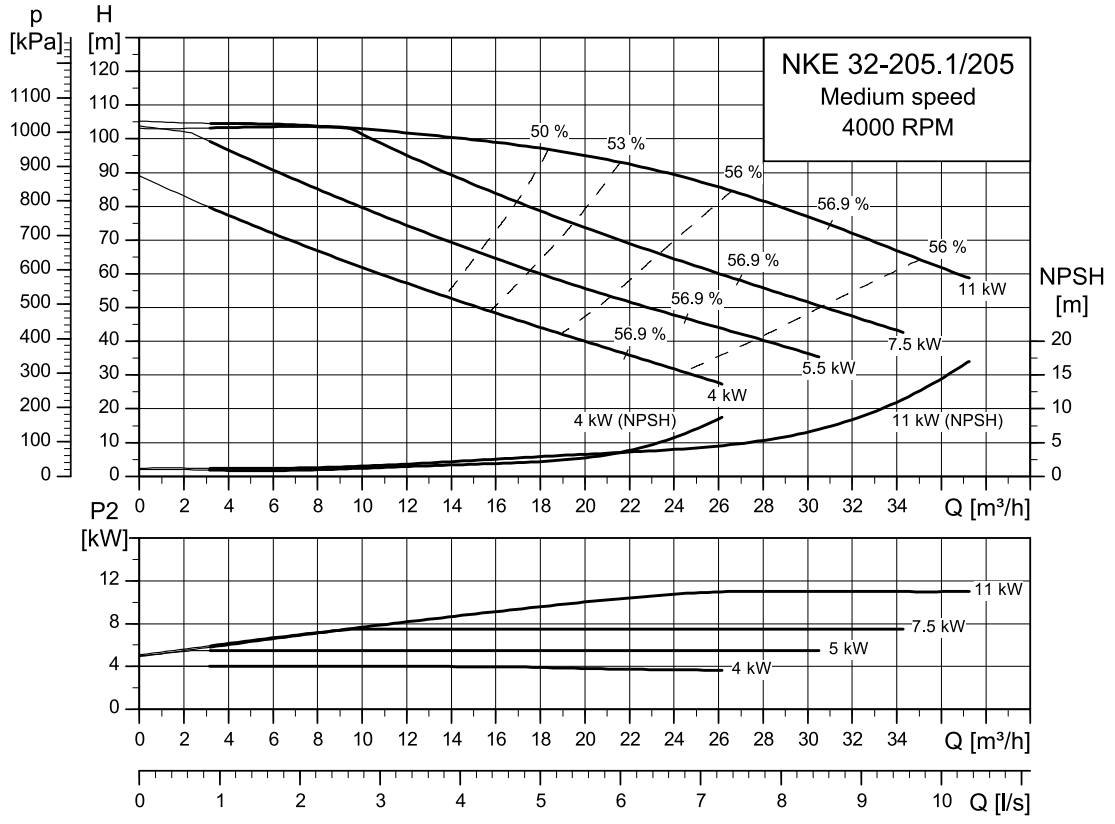
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32-180

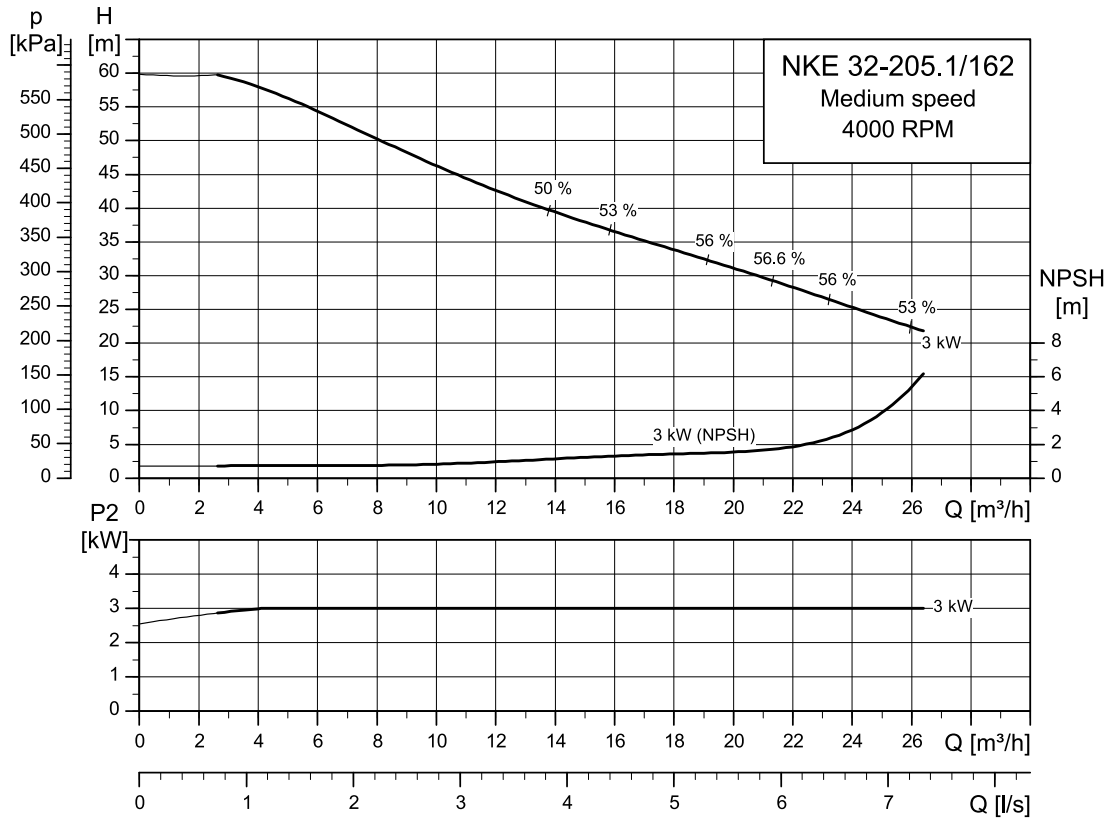


TM082106

32-250.1

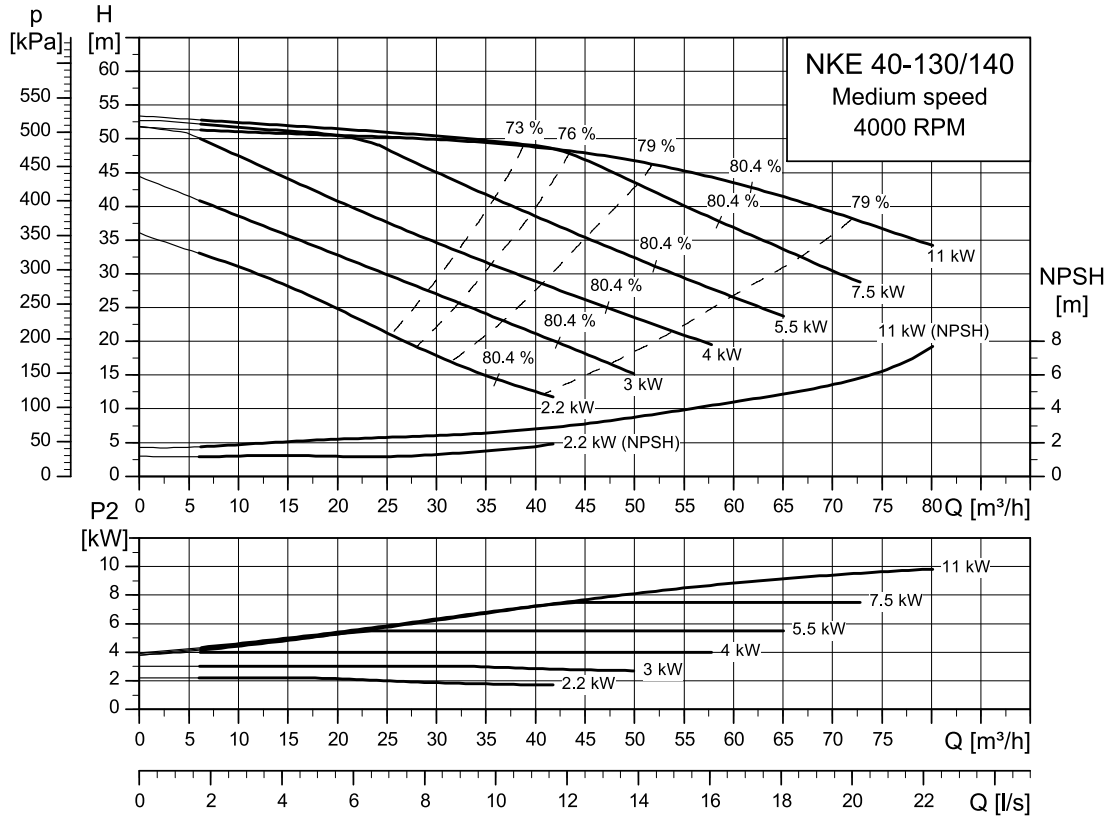


TM085353



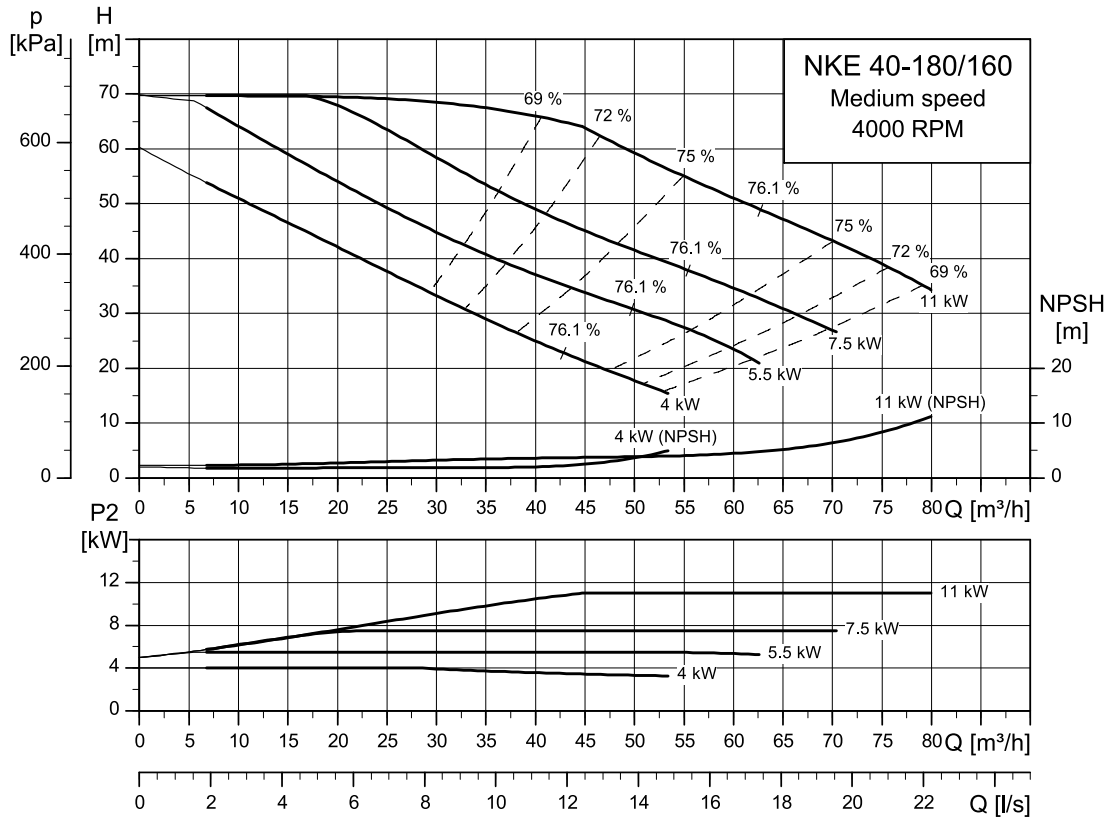
TM085354

40-130



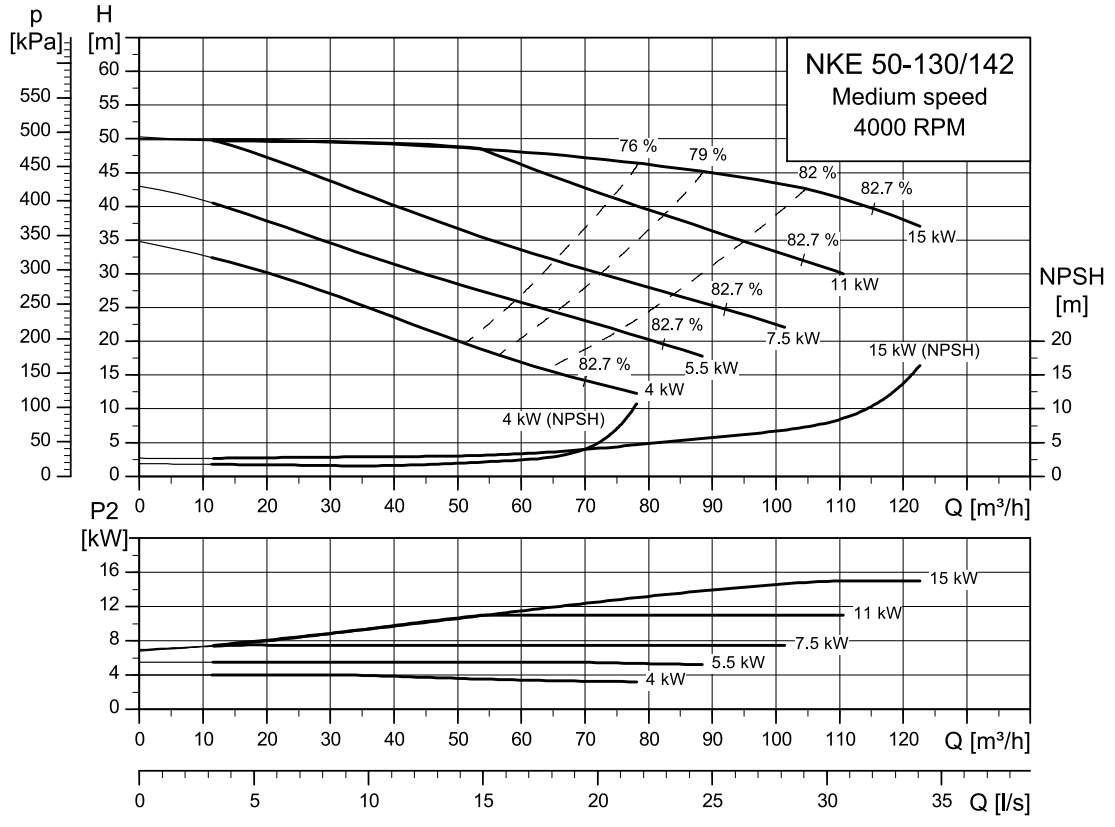
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40-180

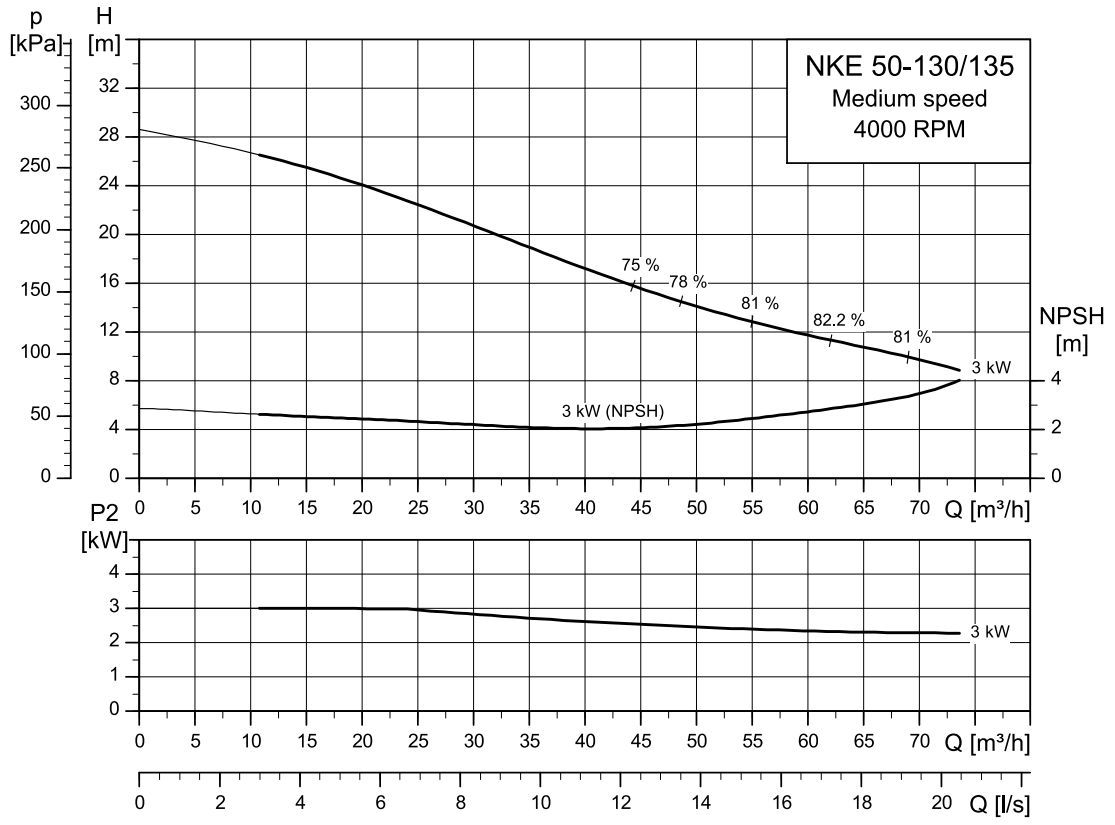


TM082107

50-130

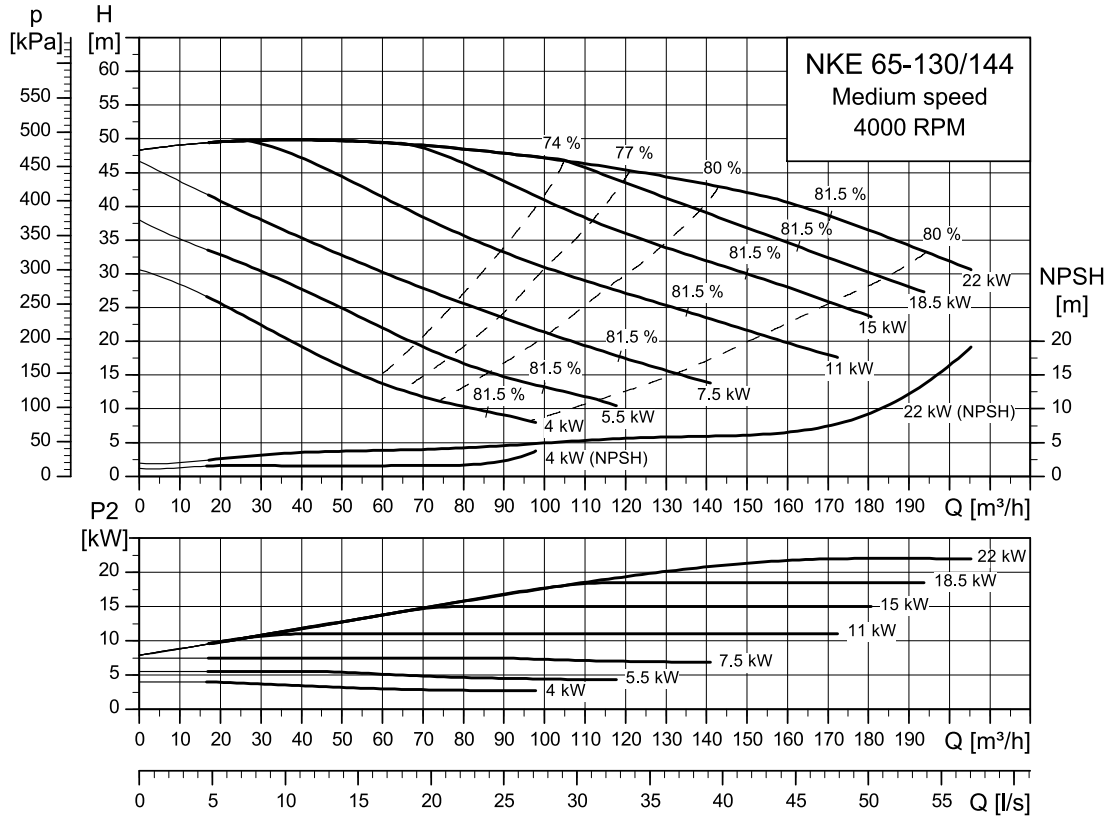


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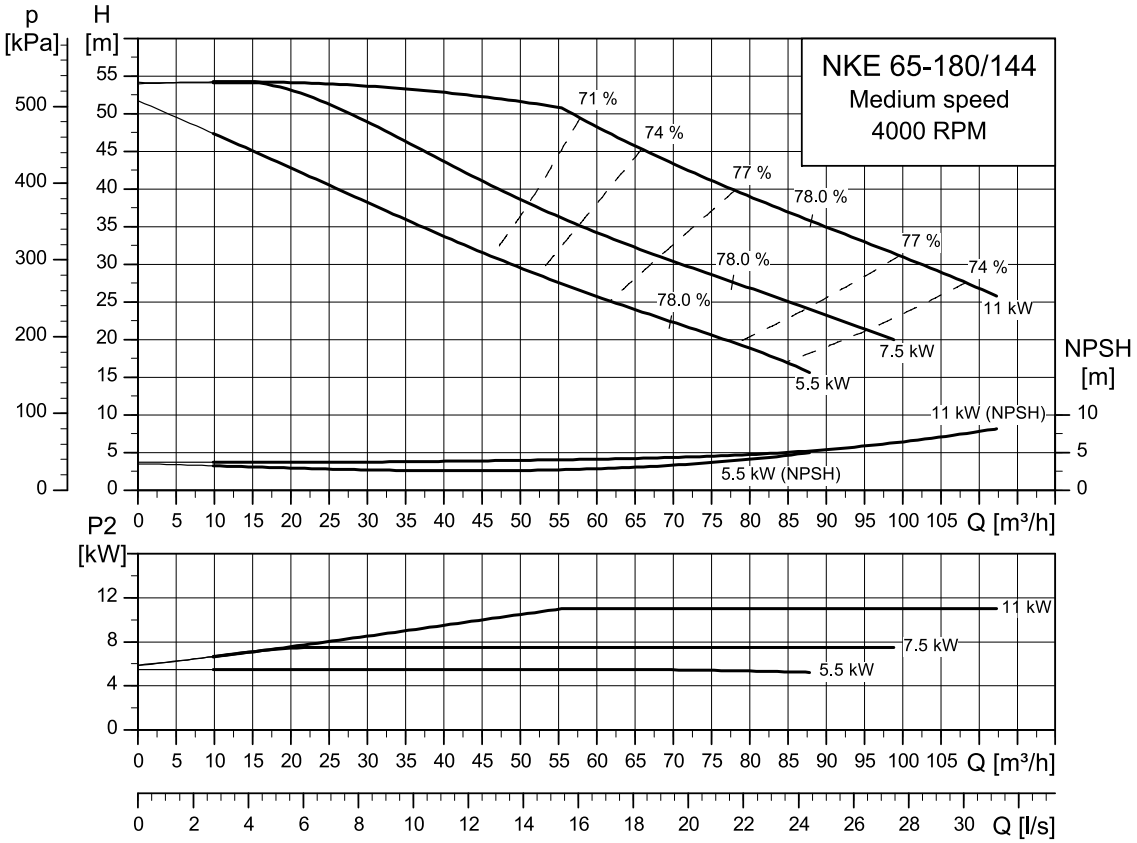
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65-130



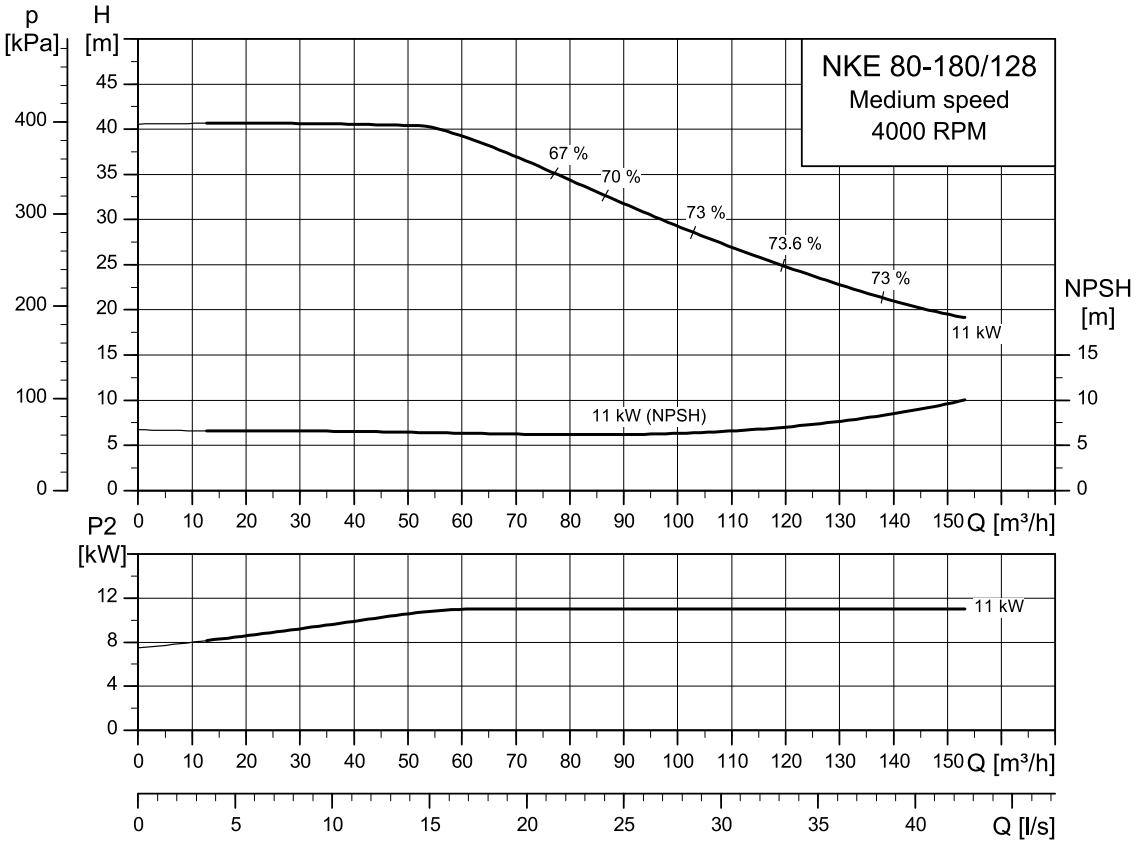
TM085364

65-180



TM082108

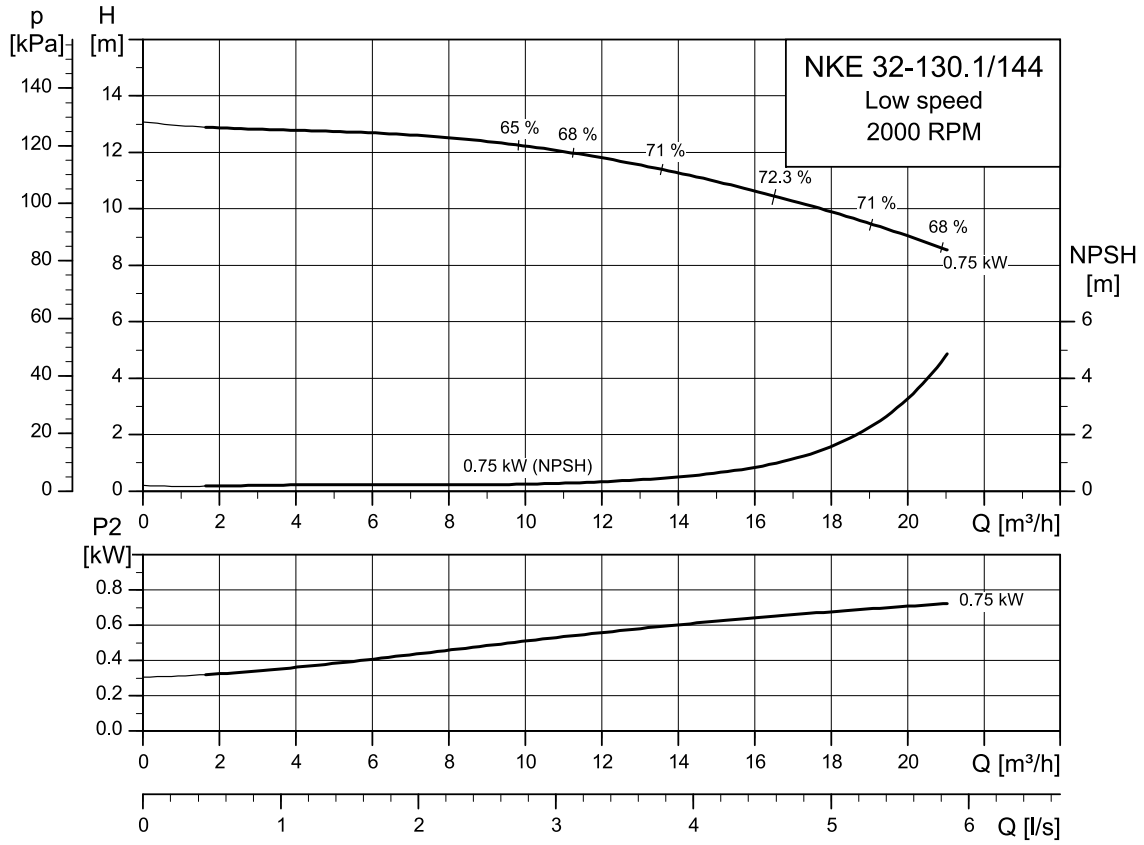
80-180



TM082109

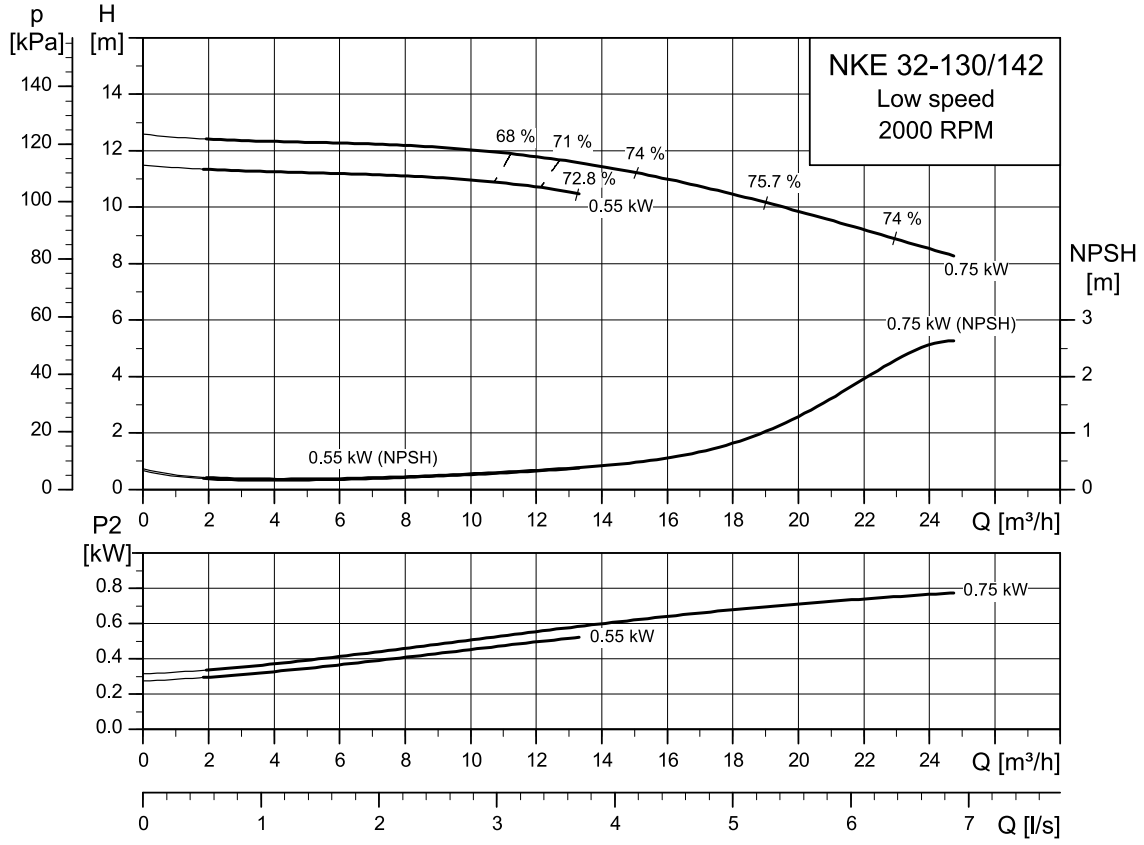
Low speed, 2000 / 2200 RPM

32-130.1



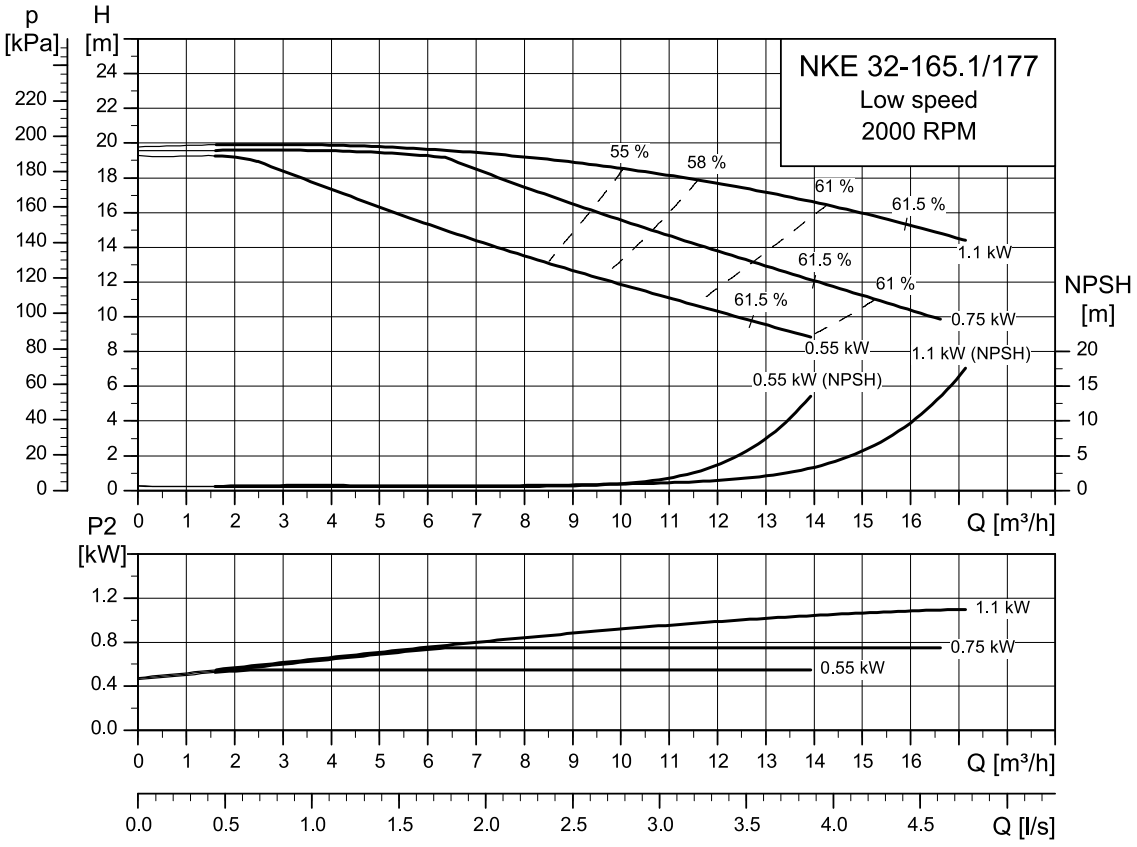
TM085347

32-130



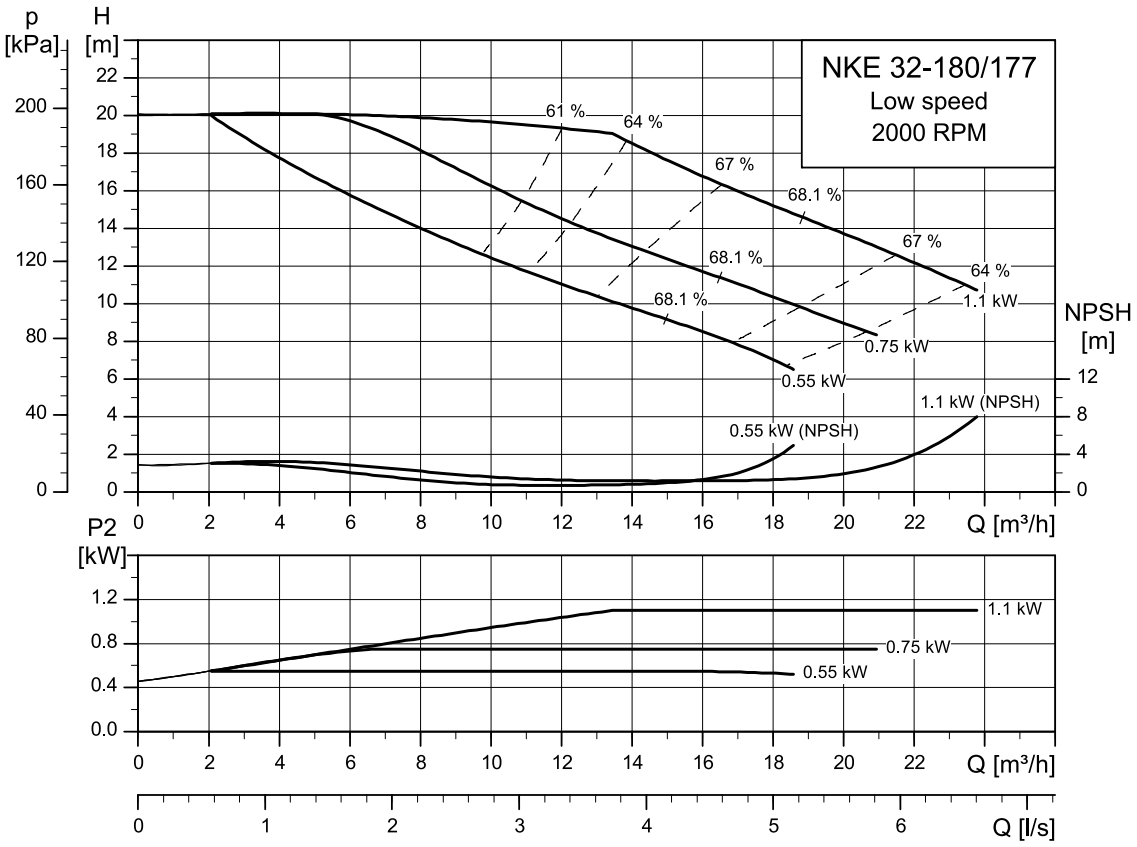
TM085350

32-165.1



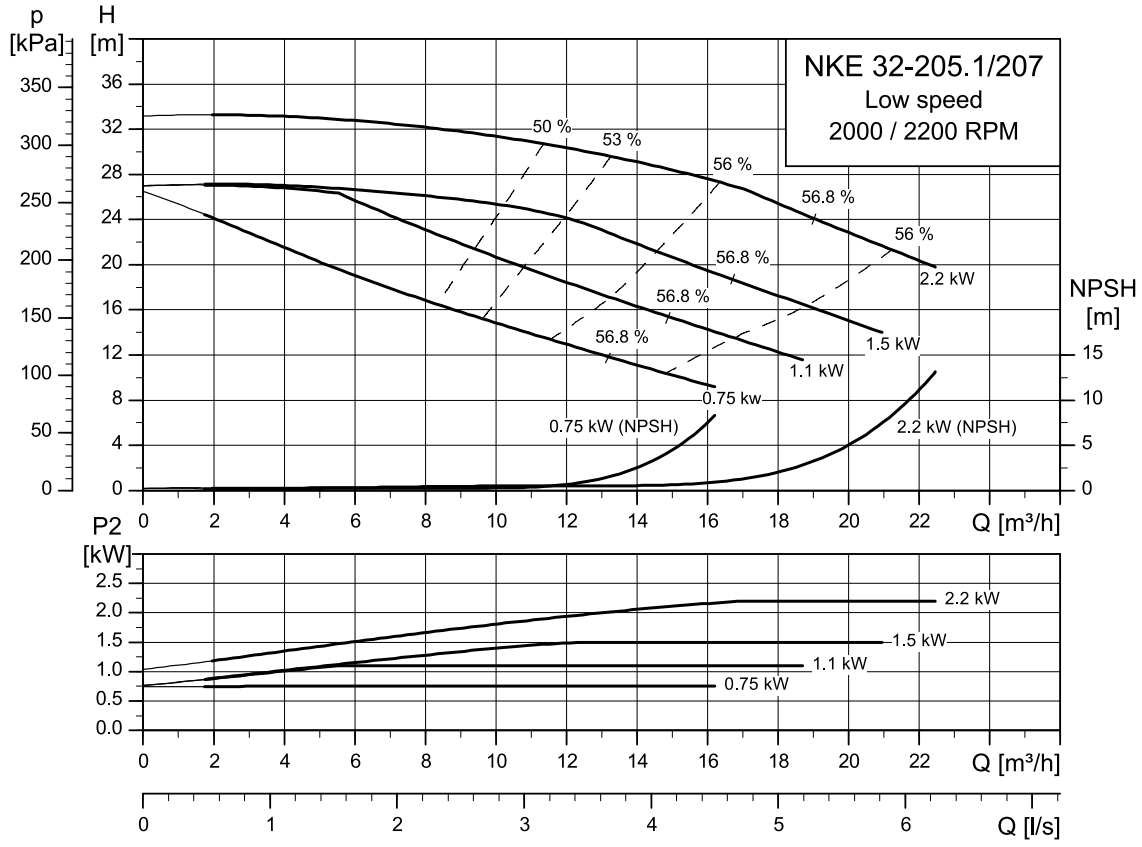
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32-180

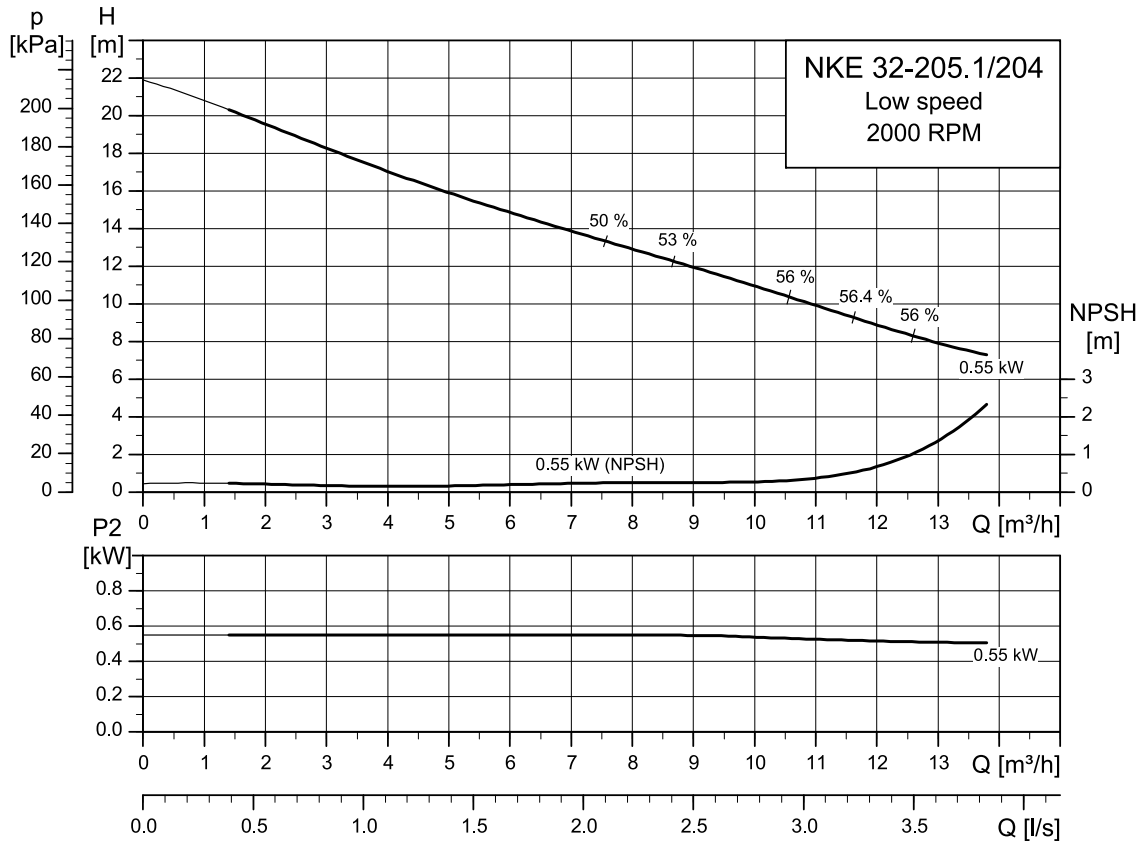


TM082110

32-205.1

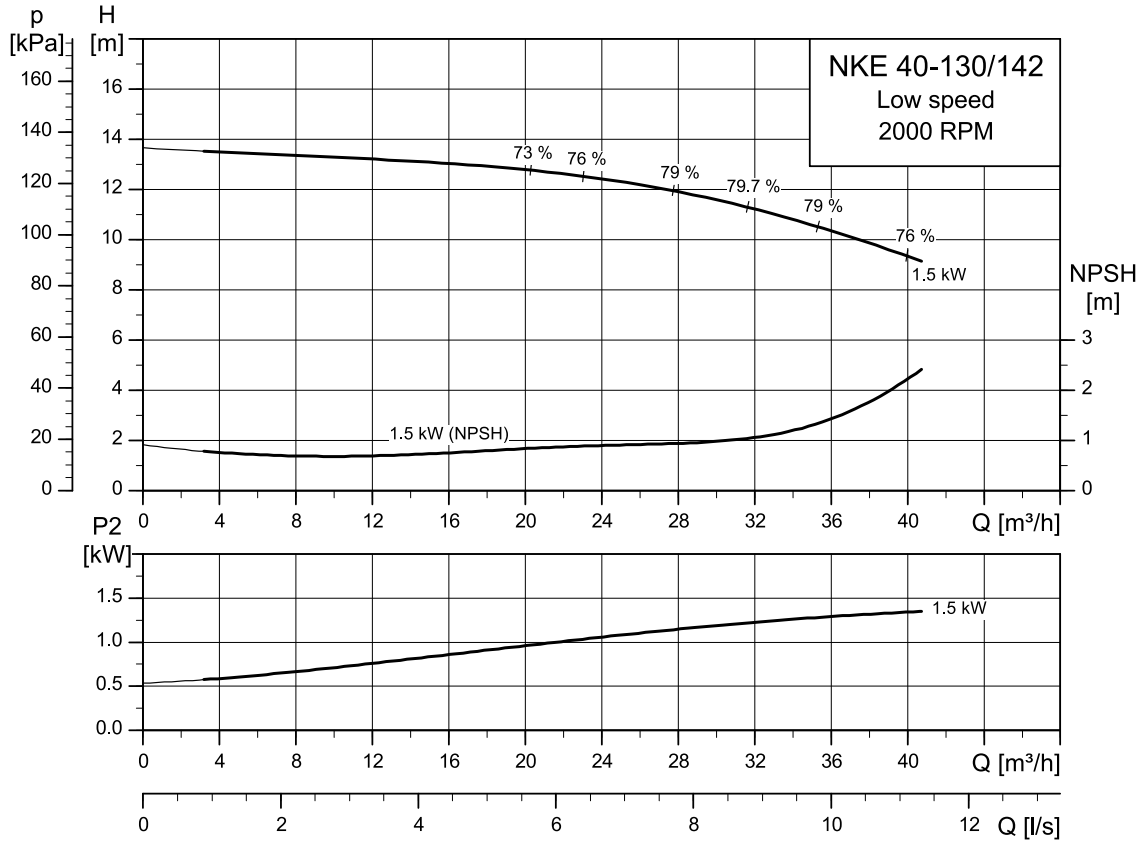


TM085355

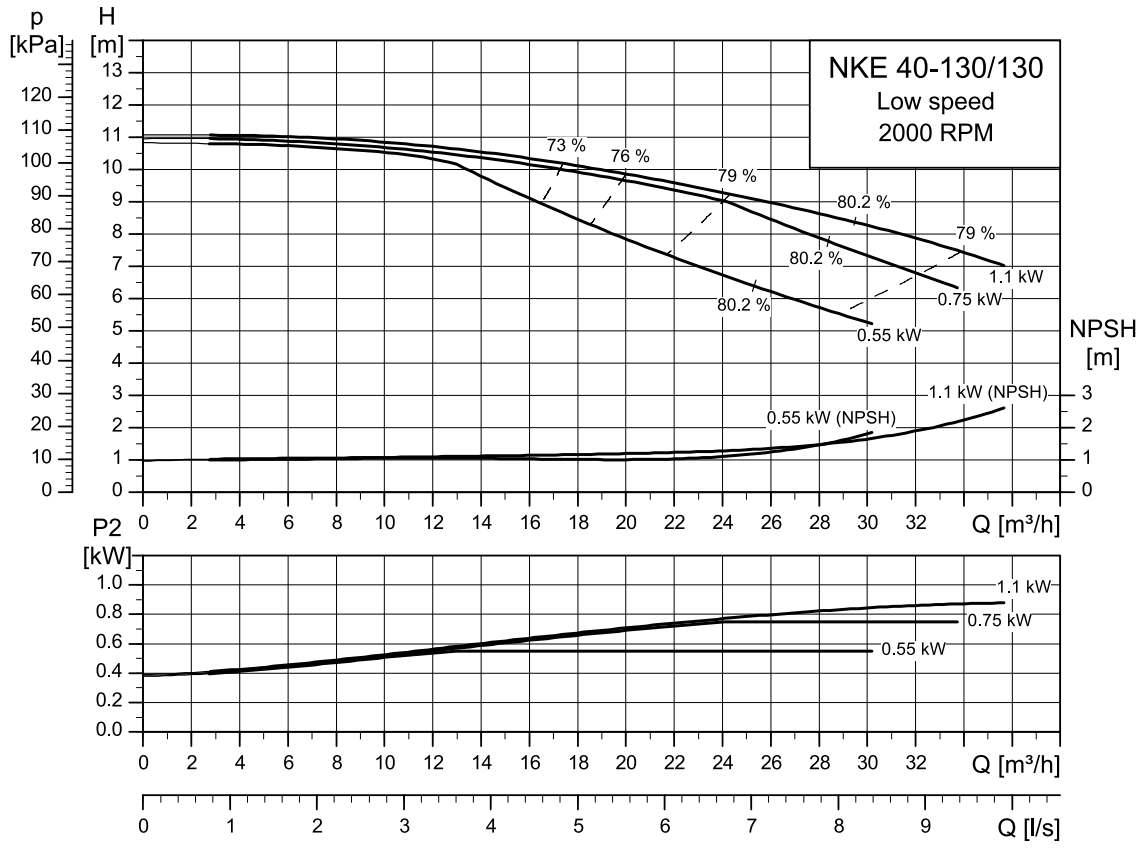


TM085356

40-130

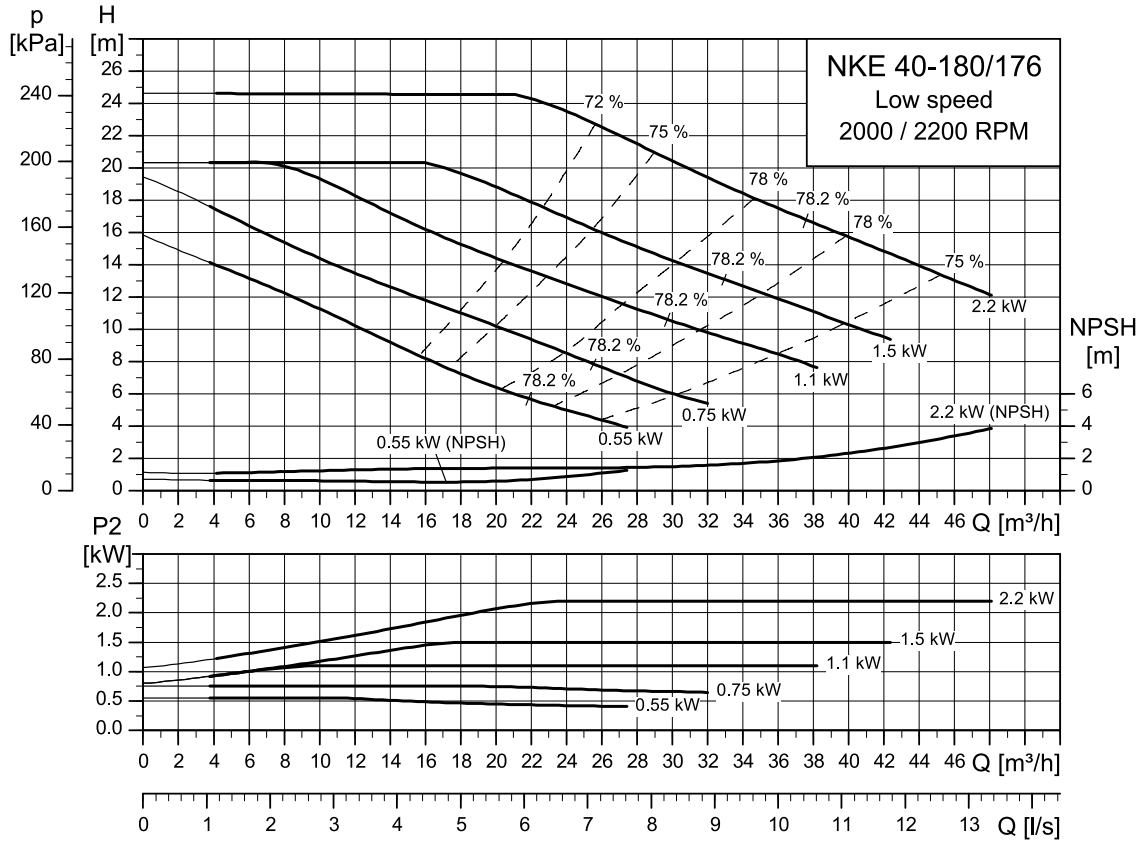


TM085358



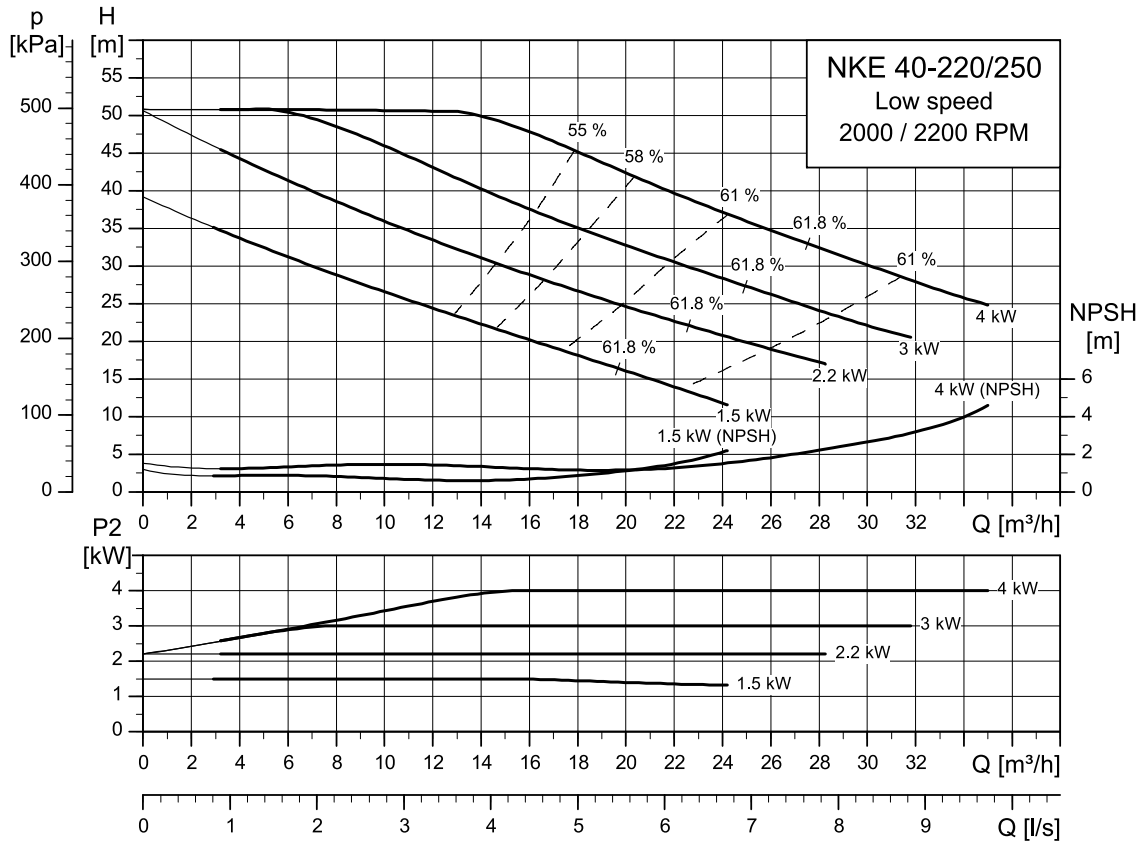
TM085359

40-180



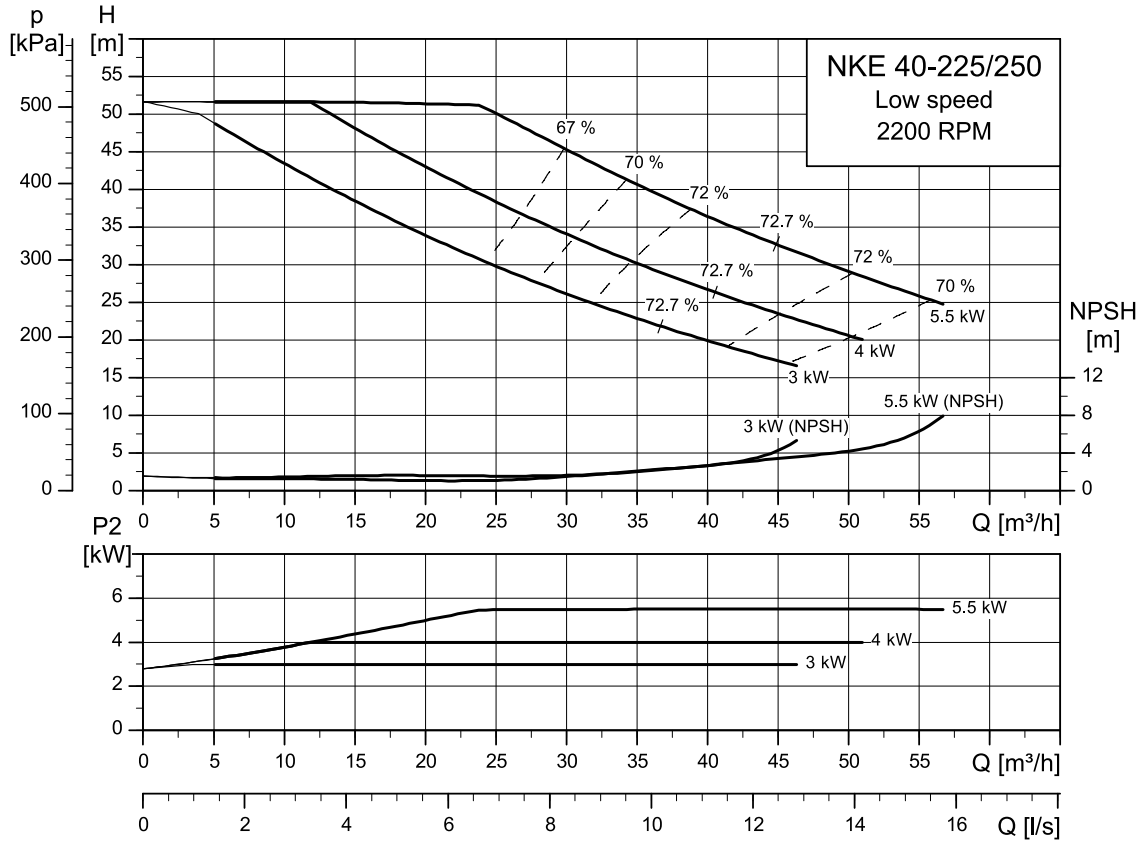
TM082111

40-220



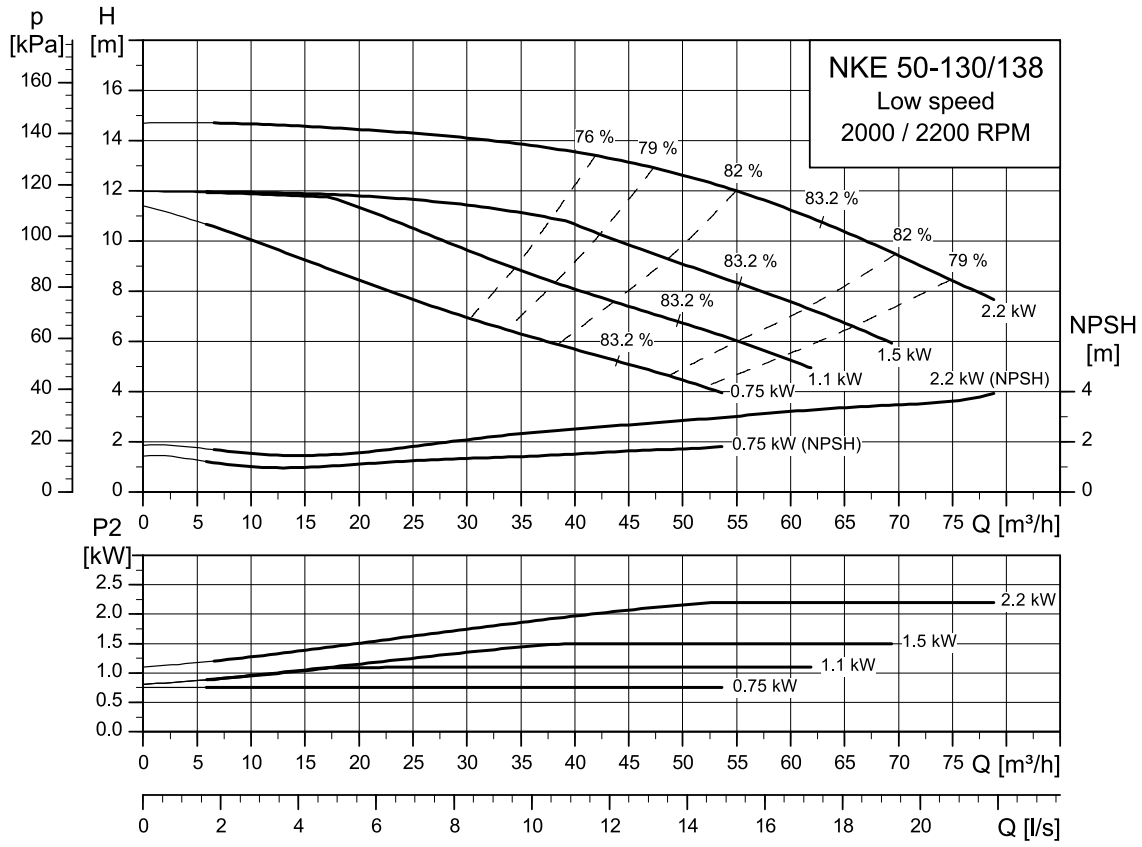
TM082112

40-225

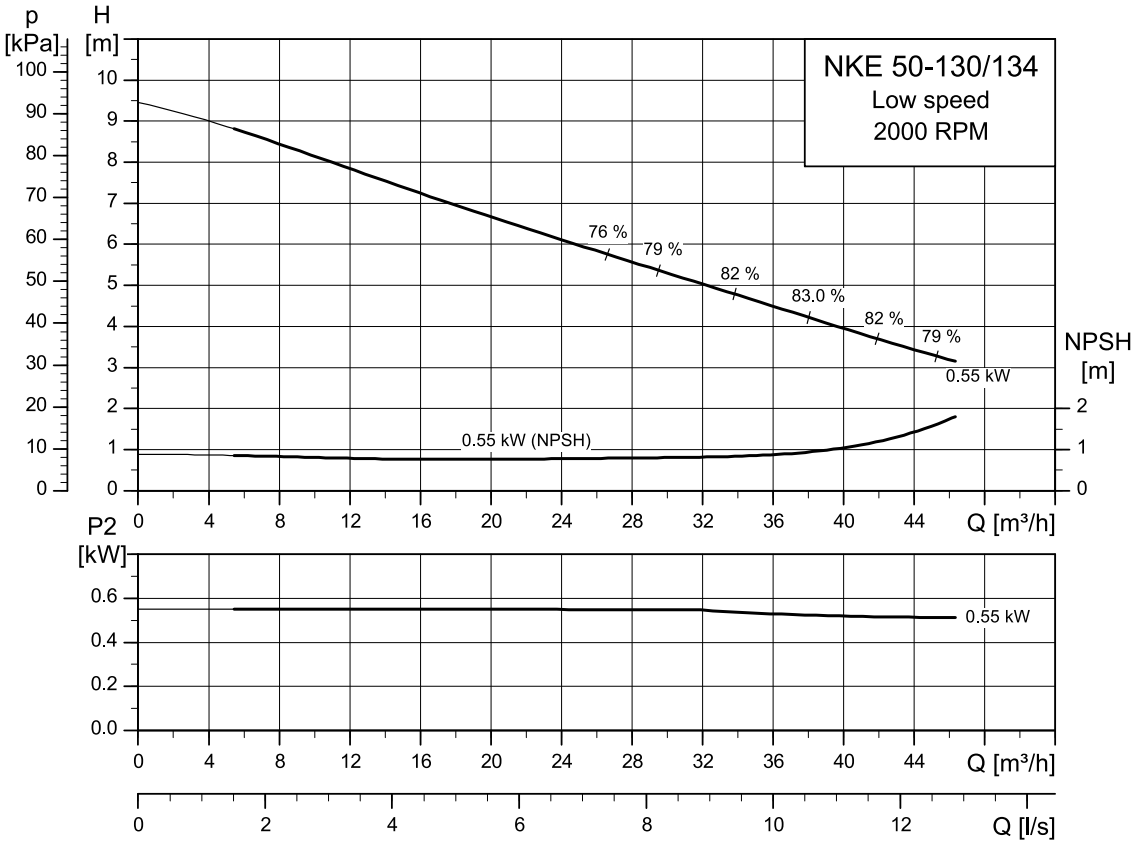


TM082113

50-130

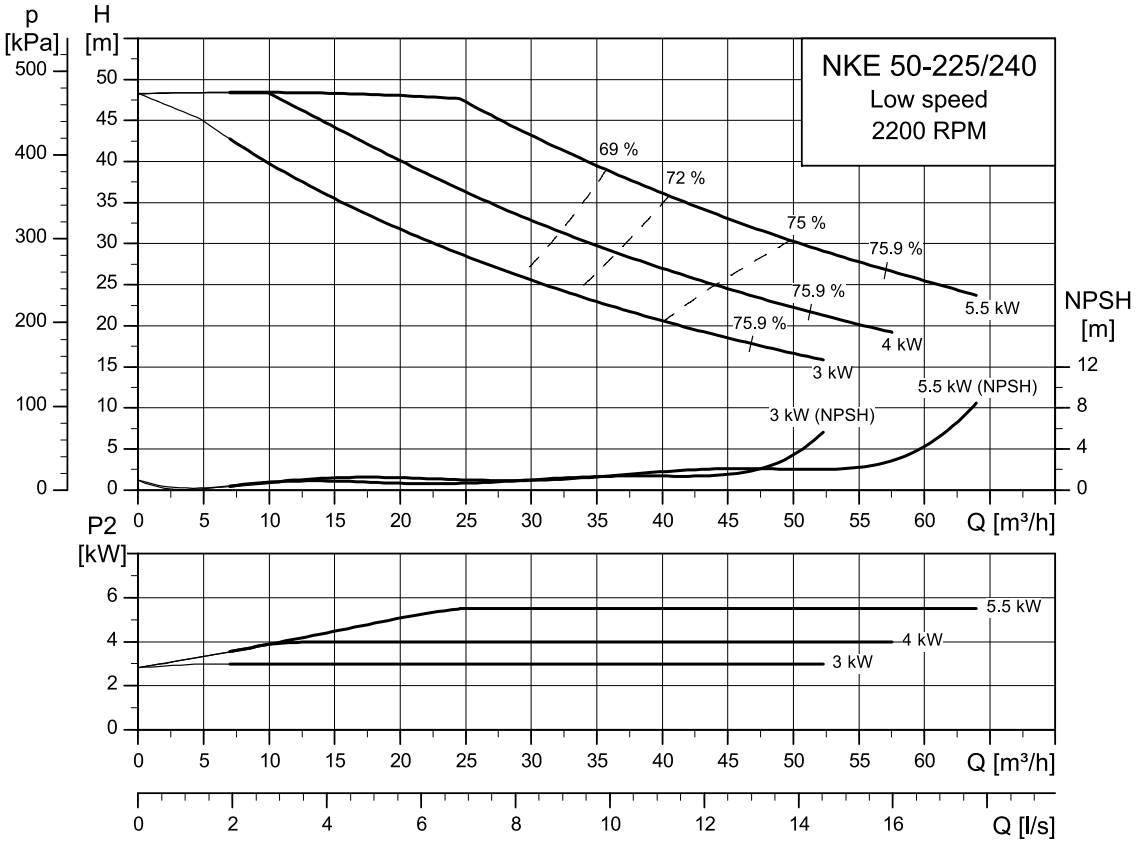


TM085362



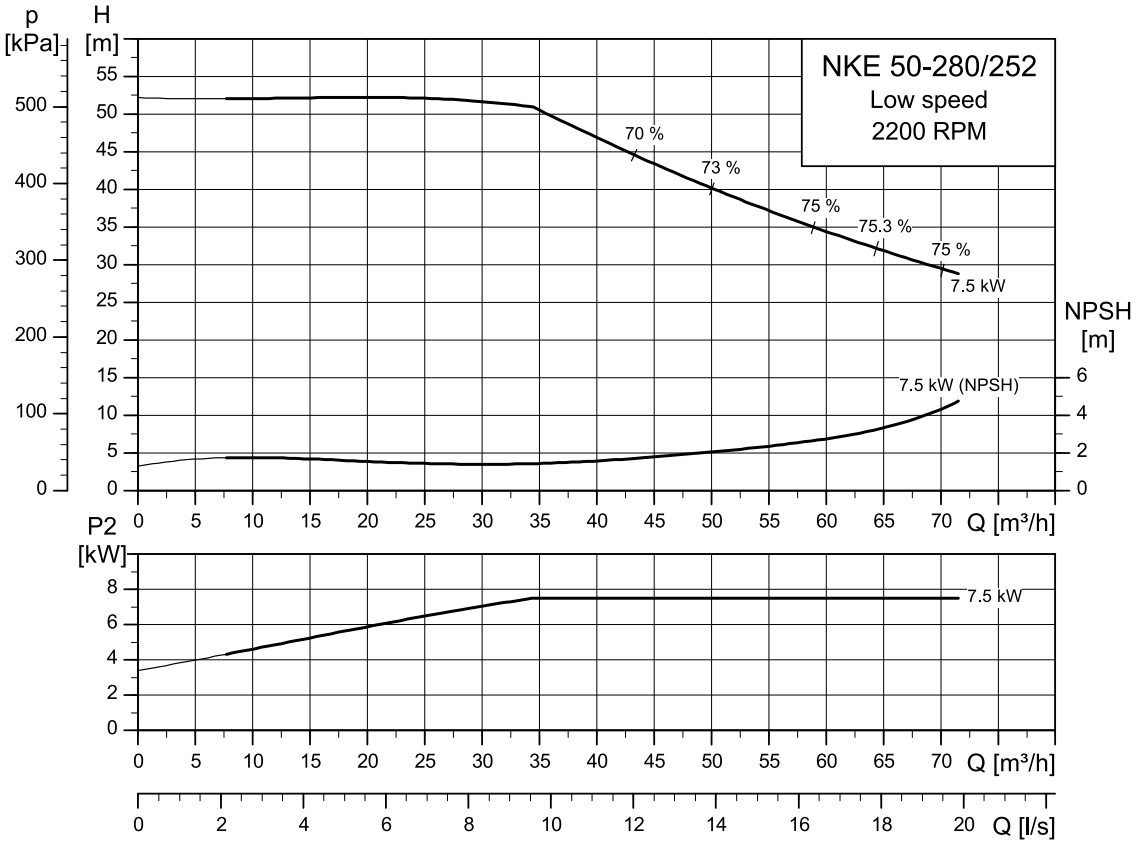
TM085363

50-225



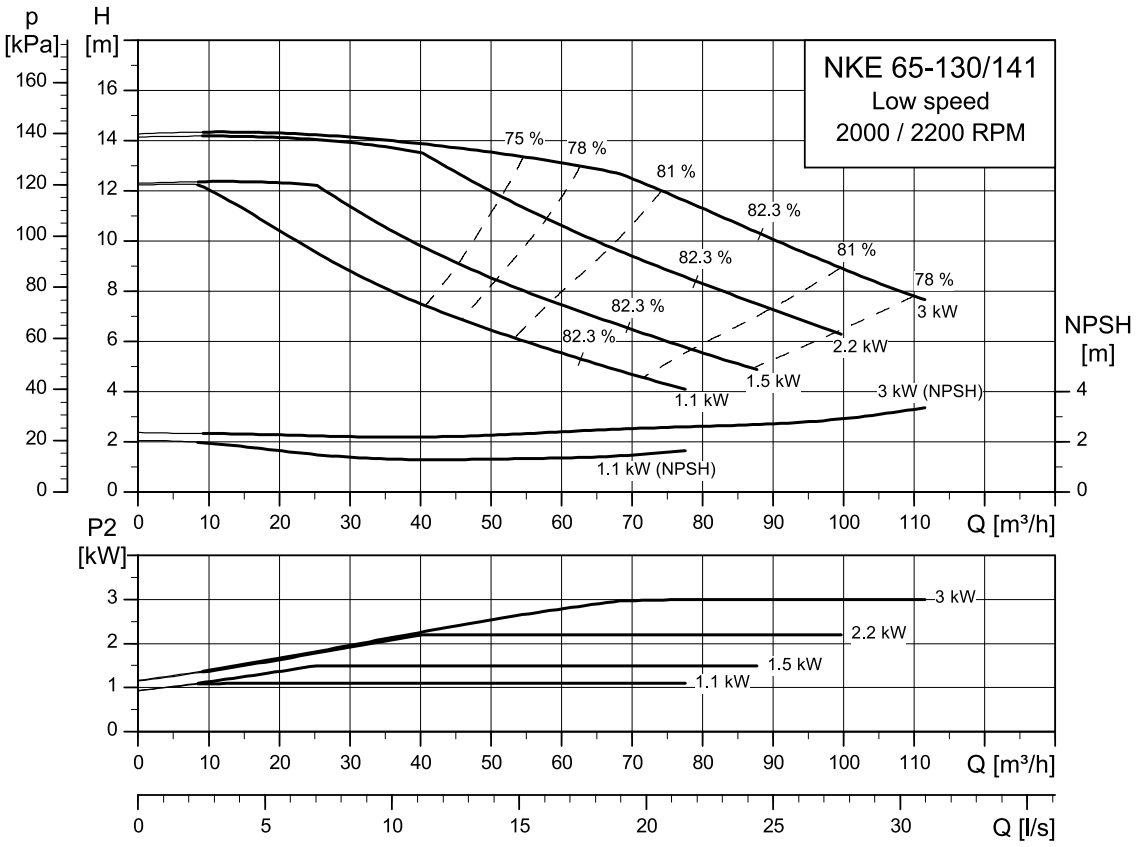
TM082114

50-280

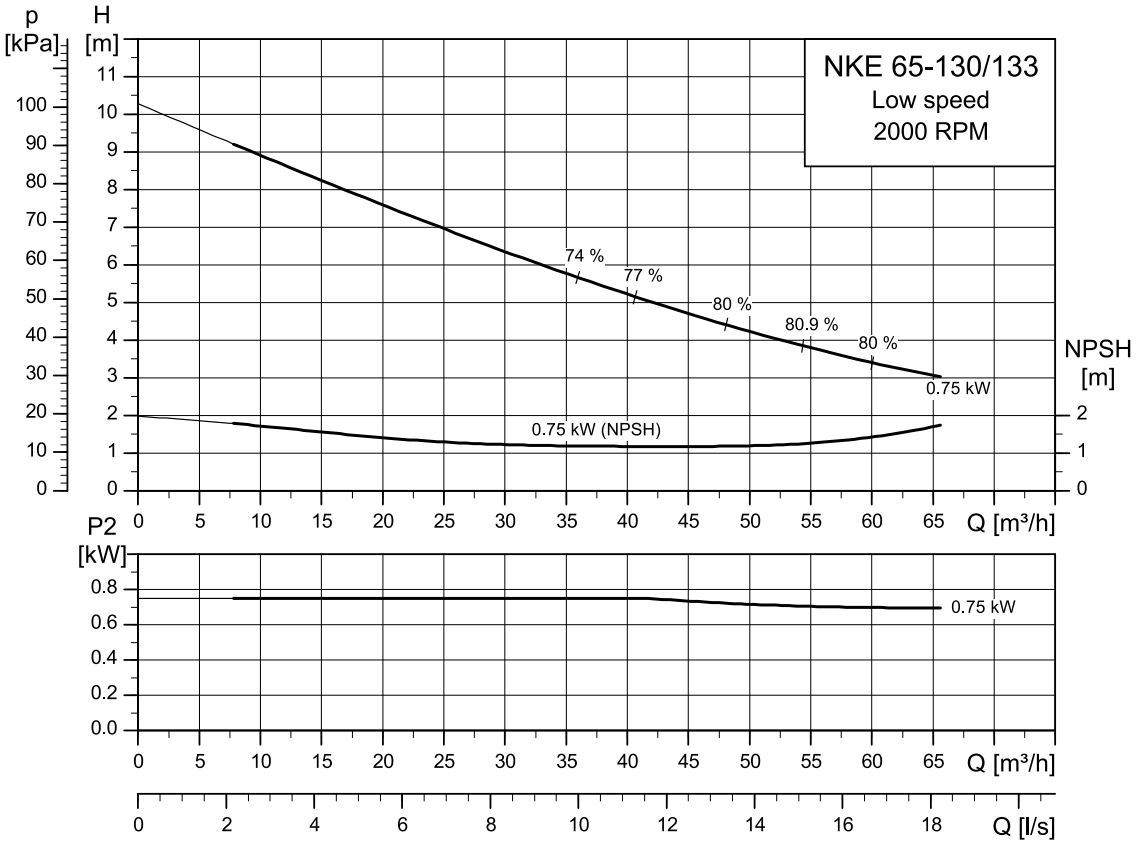


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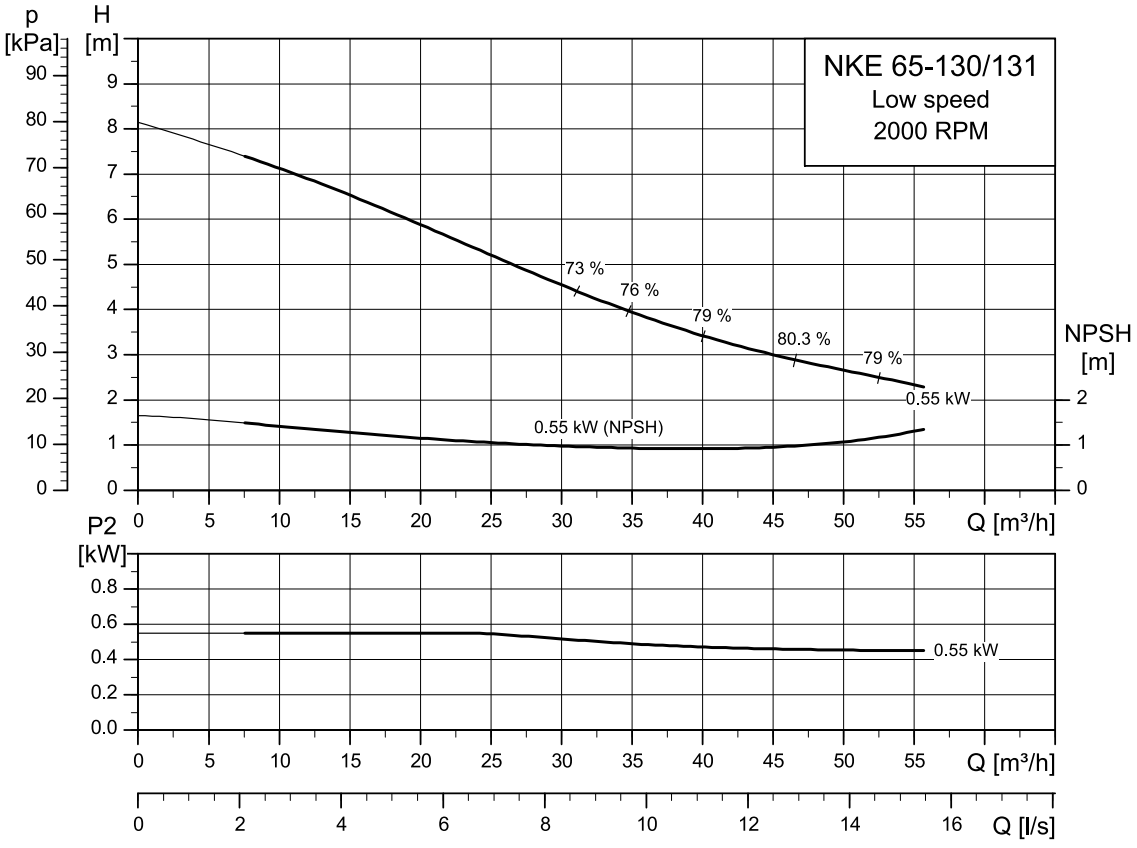
65-130



TM085365

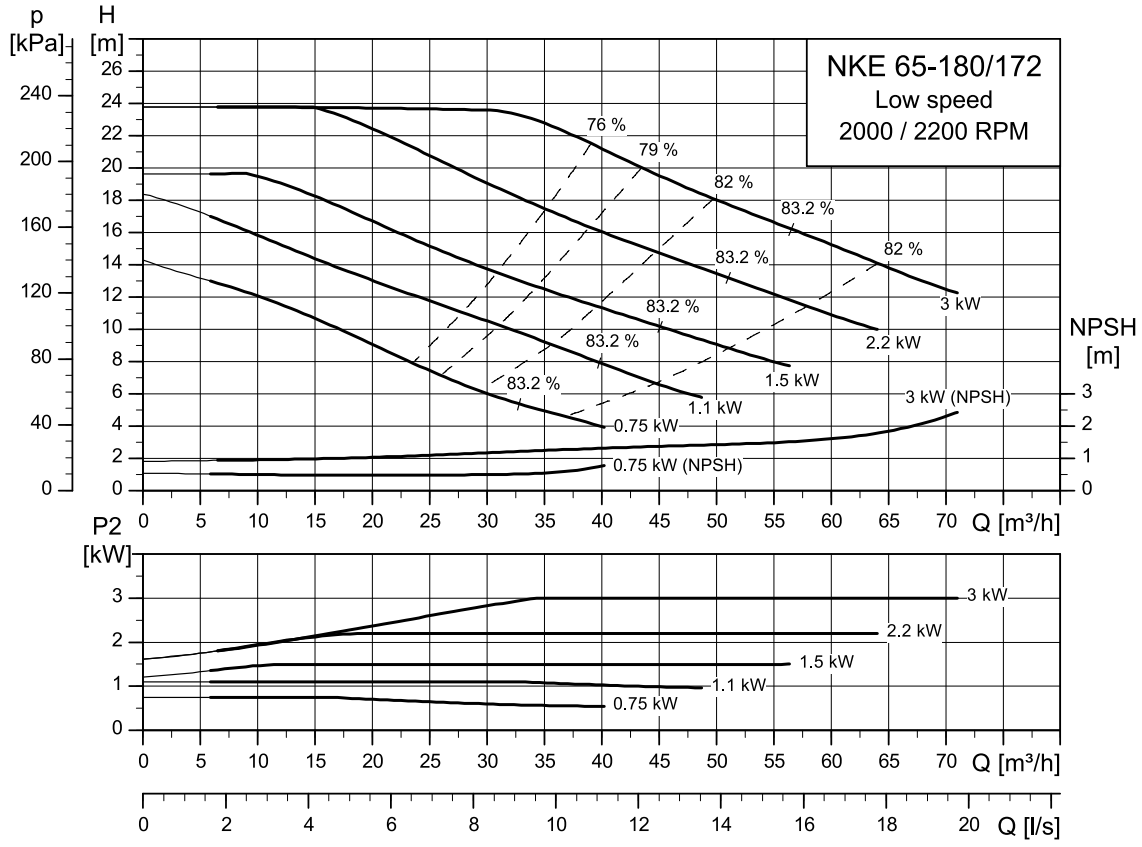


TM085366

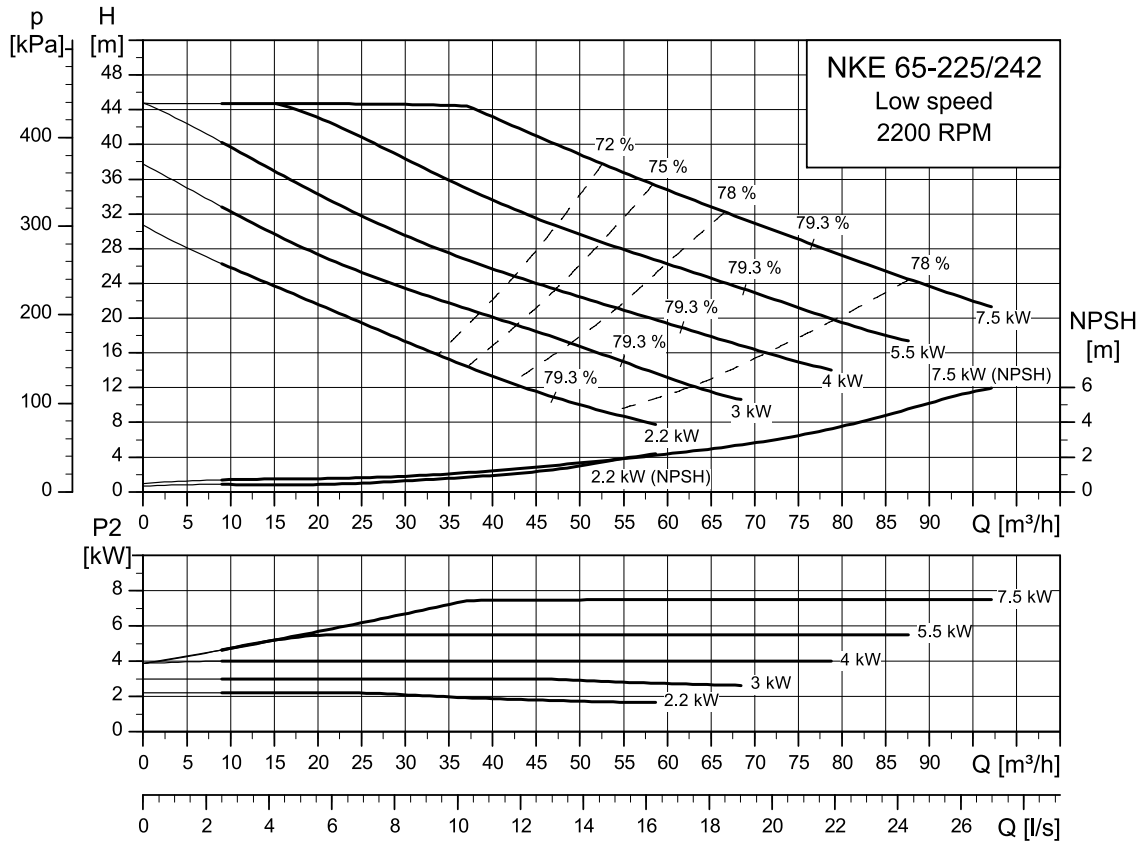


TM085367

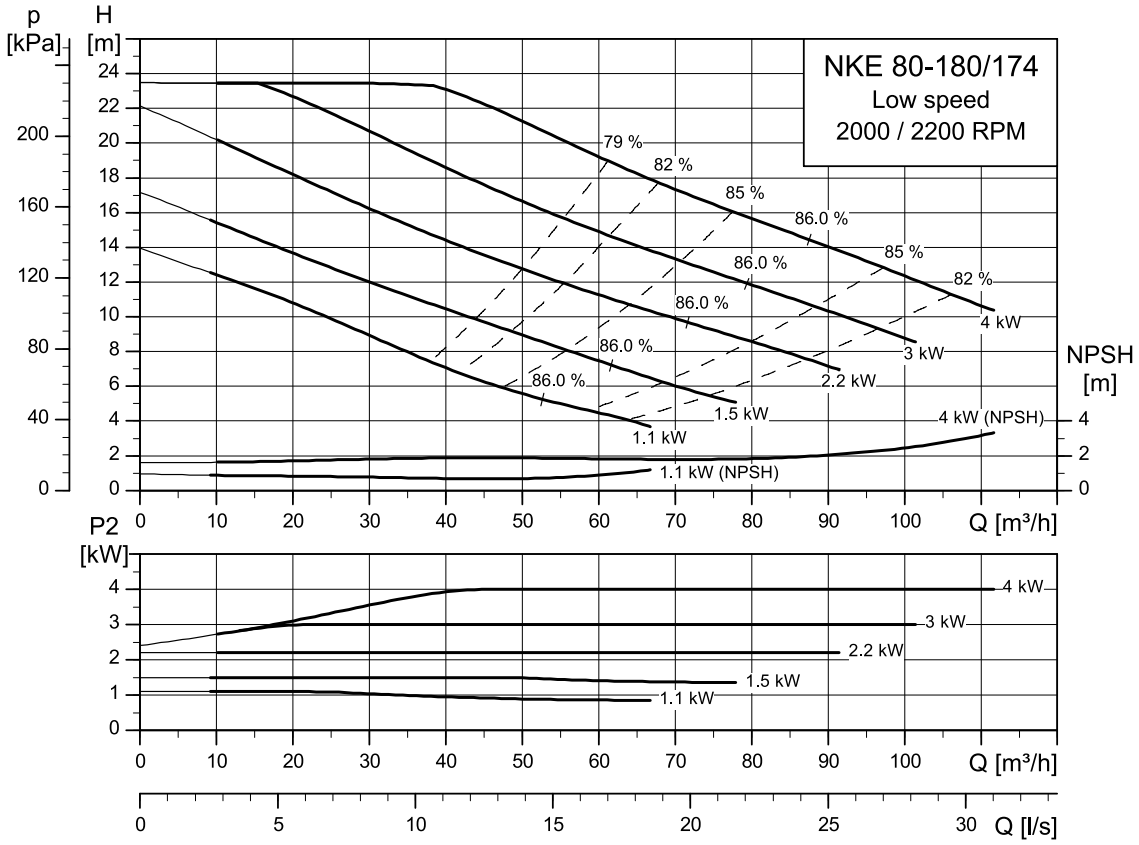
65-180


NKE 65-180/172
Low speed
2000 / 2200 RPM
p [kPa]
H [m]
NPSH [m]
76 %
79 %
82 %
83.2 %
3 kW
2.2 kW
1.5 kW
1.1 kW
0.75 kW
3 kW (NPSH)
0.75 kW (NPSH)
Q [m³/h]
P2 [kW]
Q [l/s]
TM082116

65-225

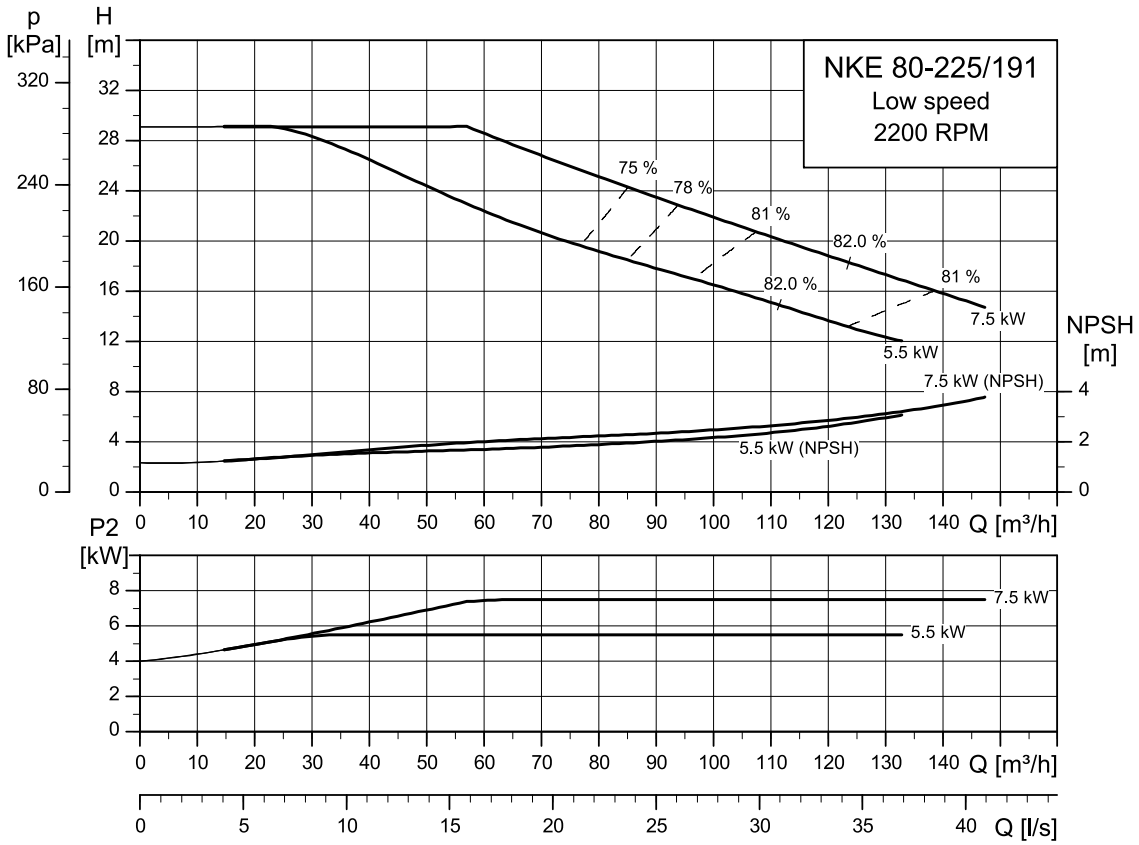

NKE 65-225/242
Low speed
2200 RPM
p [kPa]
H [m]
NPSH [m]
72 %
75 %
78 %
79.3 %
7.5 kW
5.5 kW
4 kW
3 kW
2.2 kW
7.5 kW (NPSH)
2.2 kW (NPSH)
Q [m³/h]
P2 [kW]
Q [l/s]
TM082117

80-180



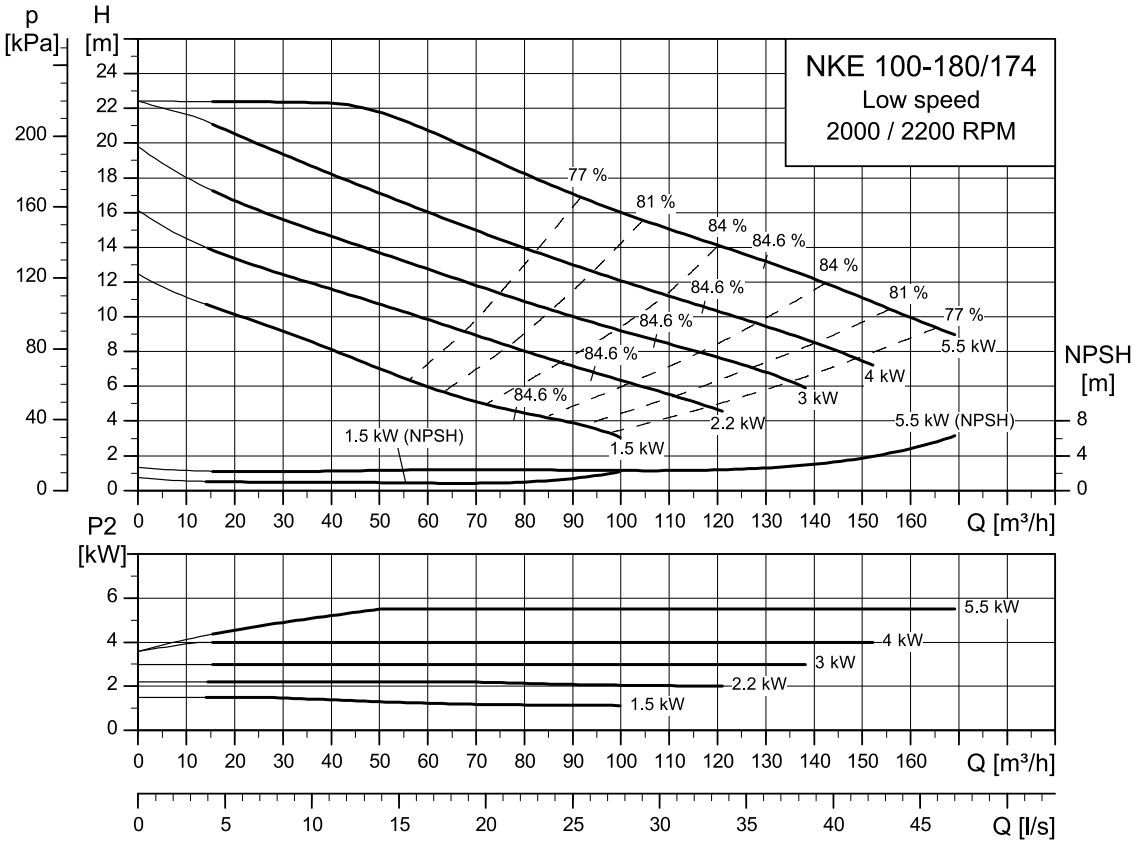
TM082118

80-225



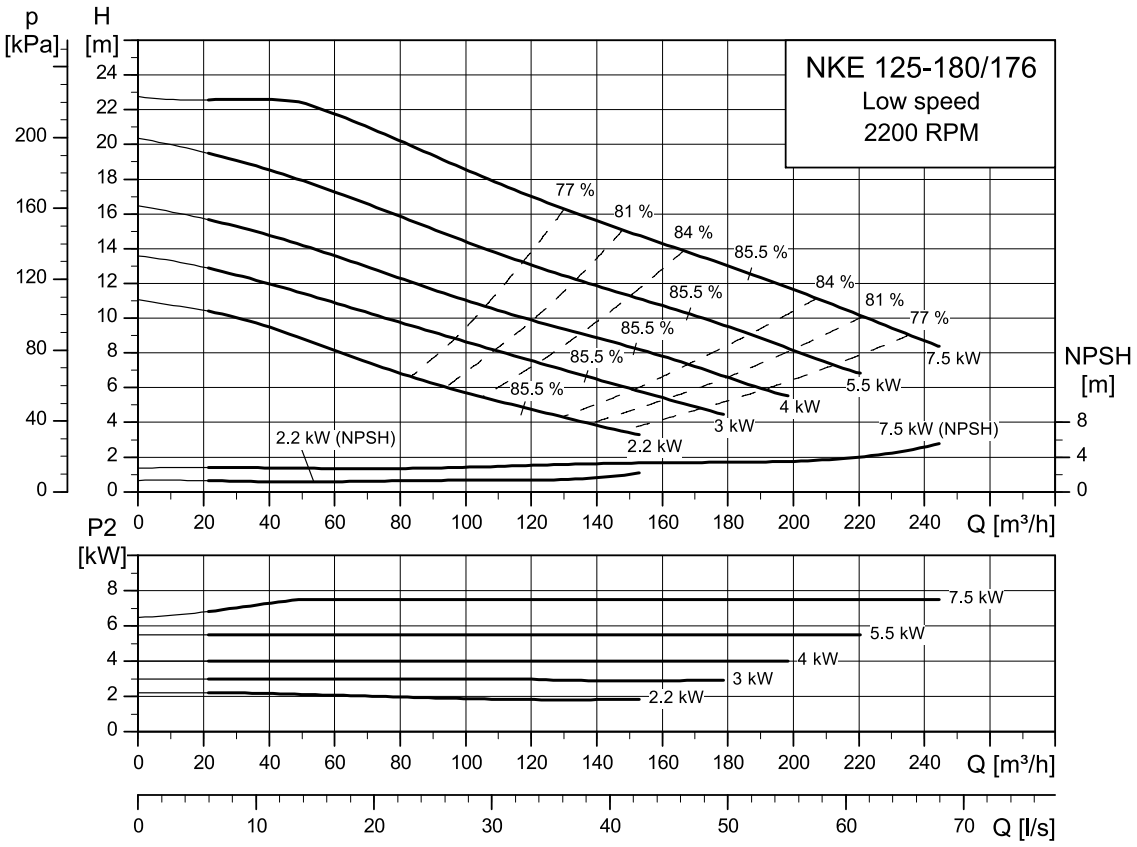
TM082119

100-180



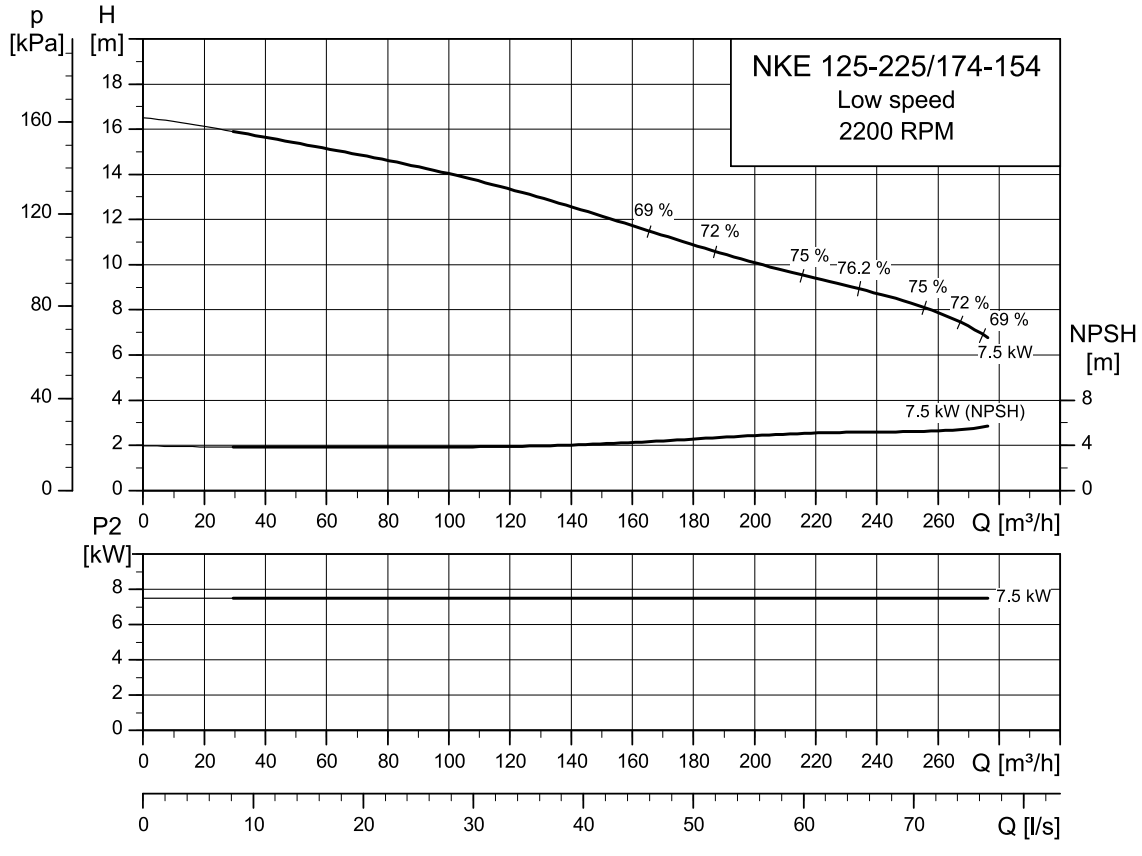
TM082120

125-180



TM082121

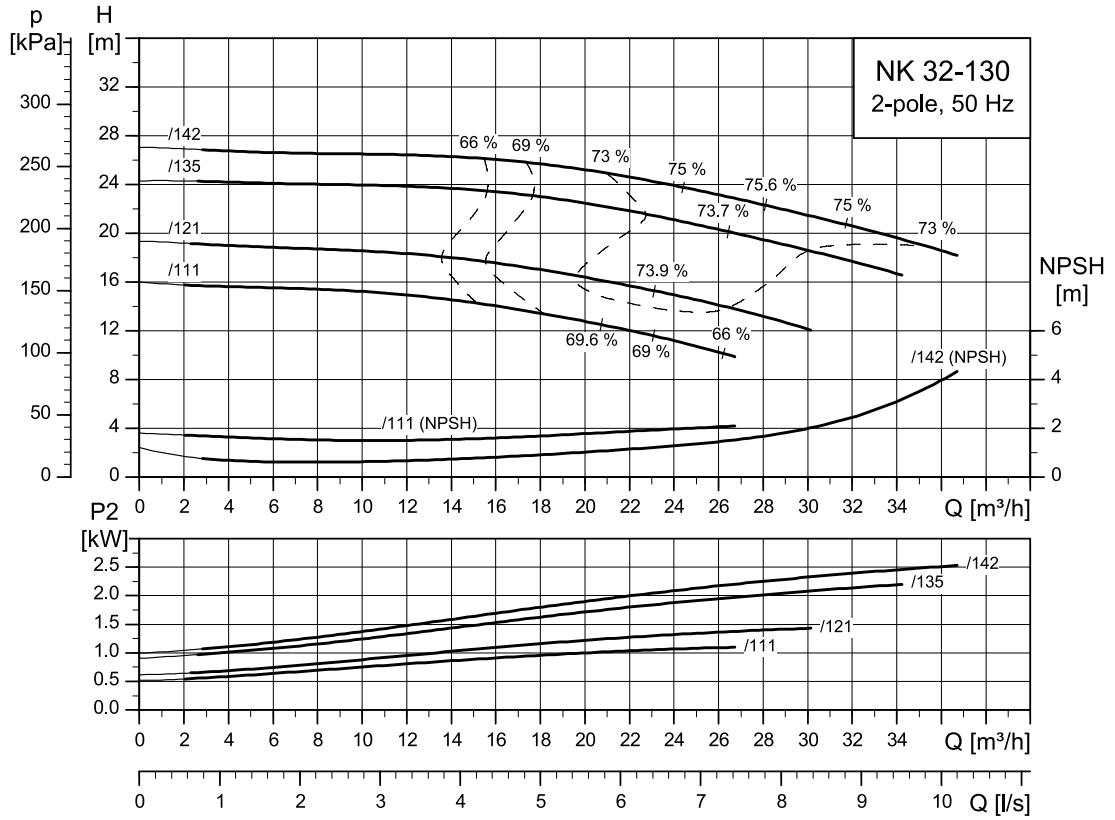
125-225



TM082122

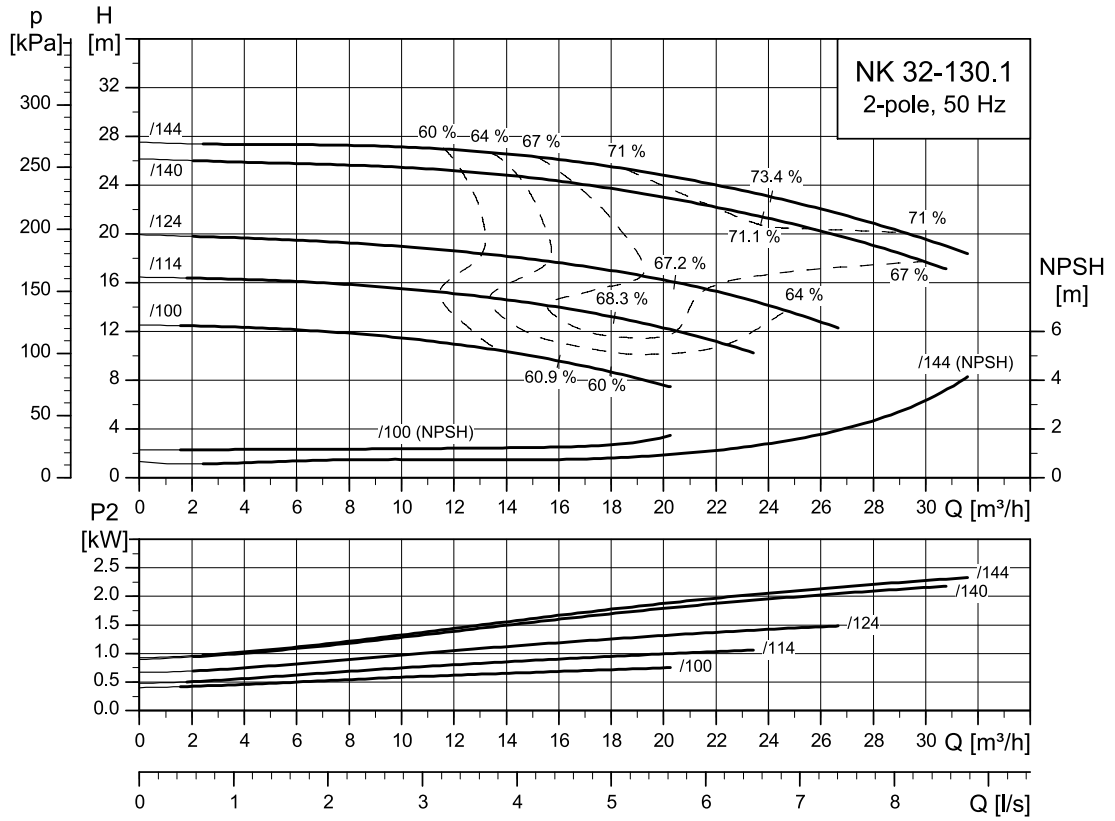
2-pole

32-130



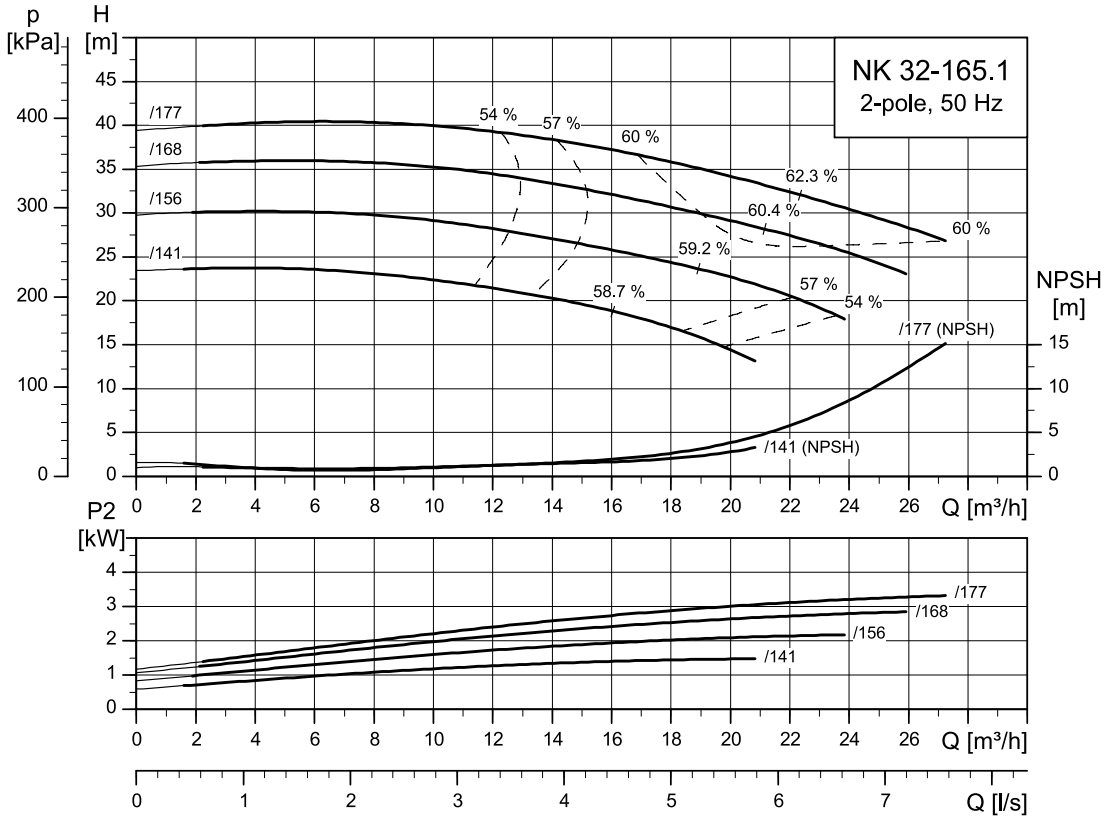
TM083774

32-130.1



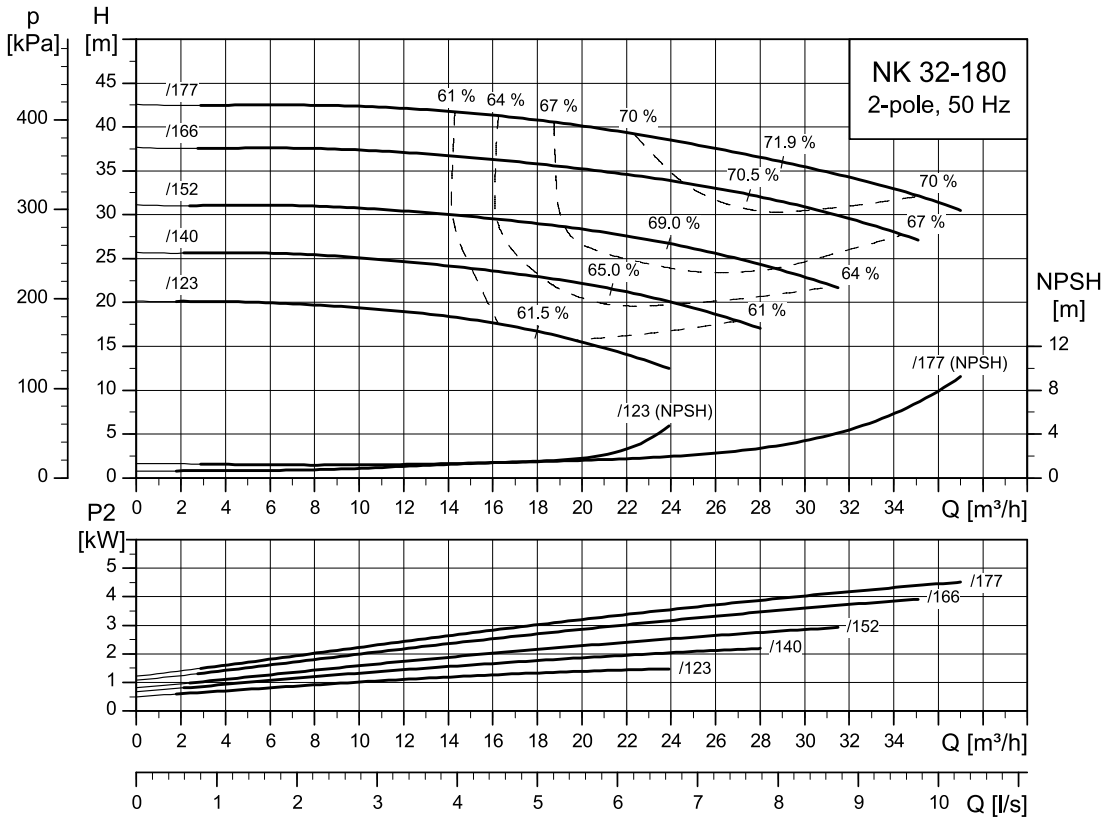
TM083775

32-165.1



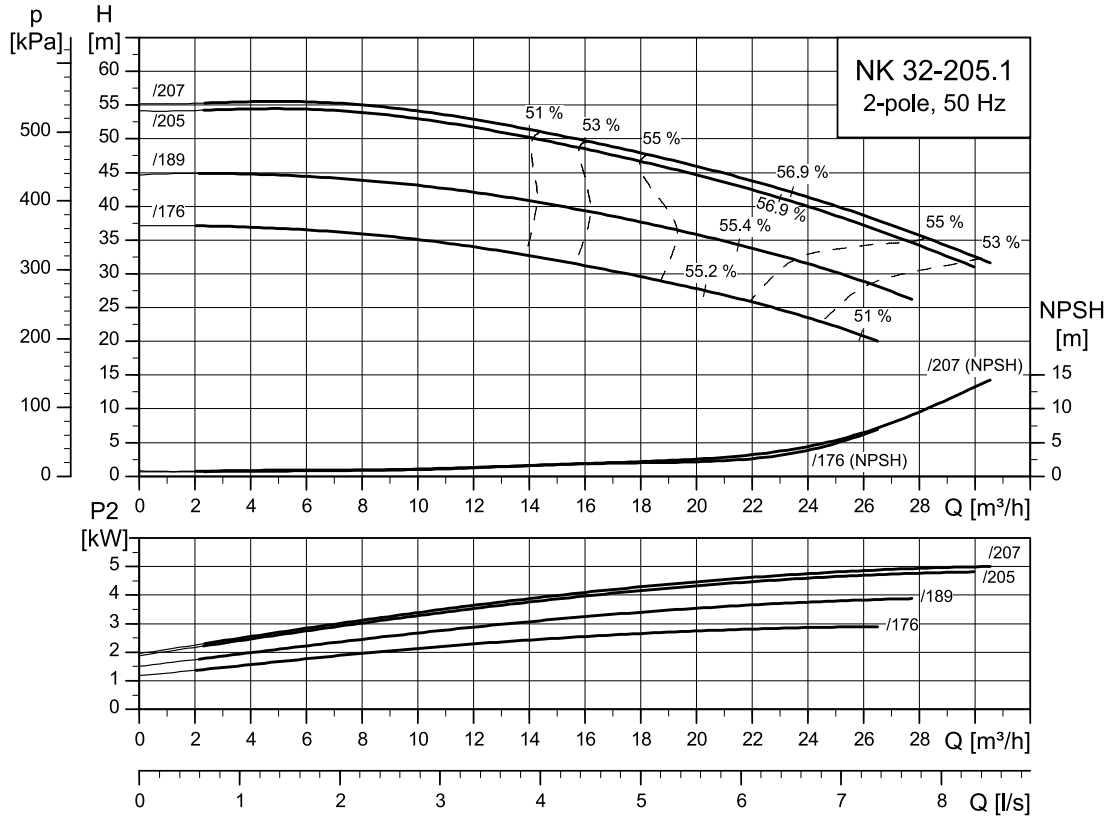
TM083776

32-180



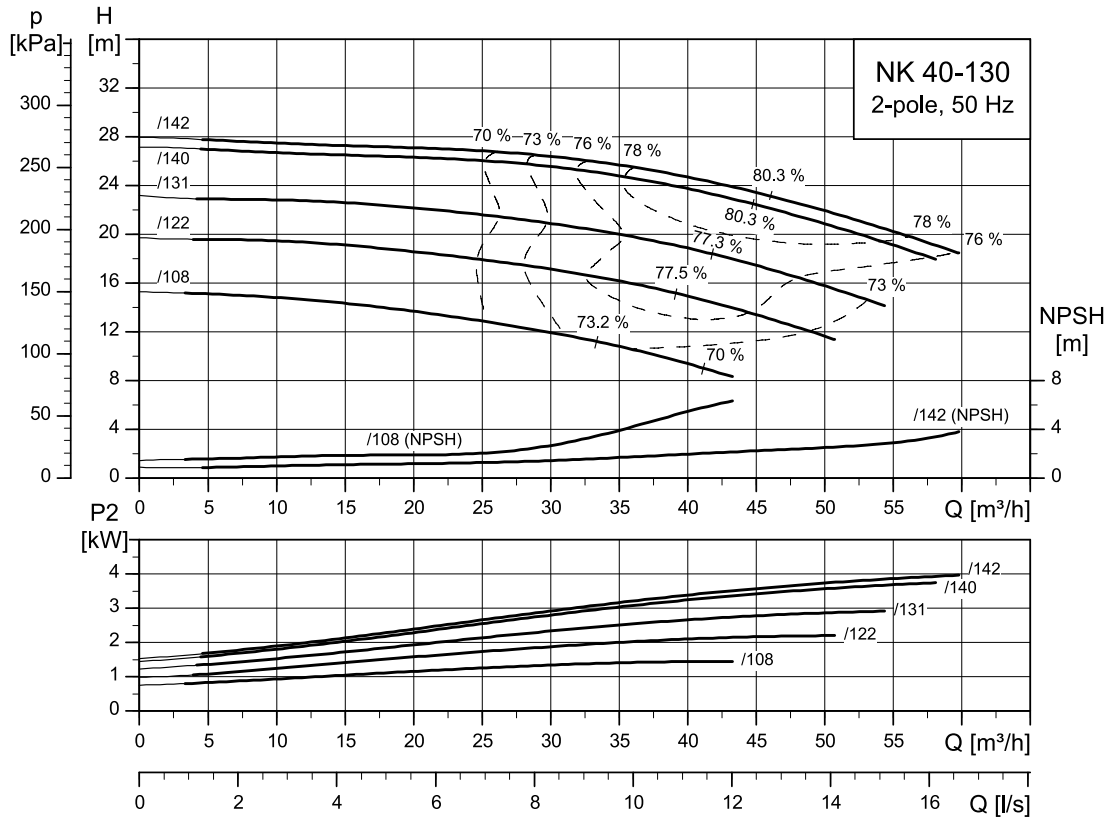
TM1040242

32-205.1



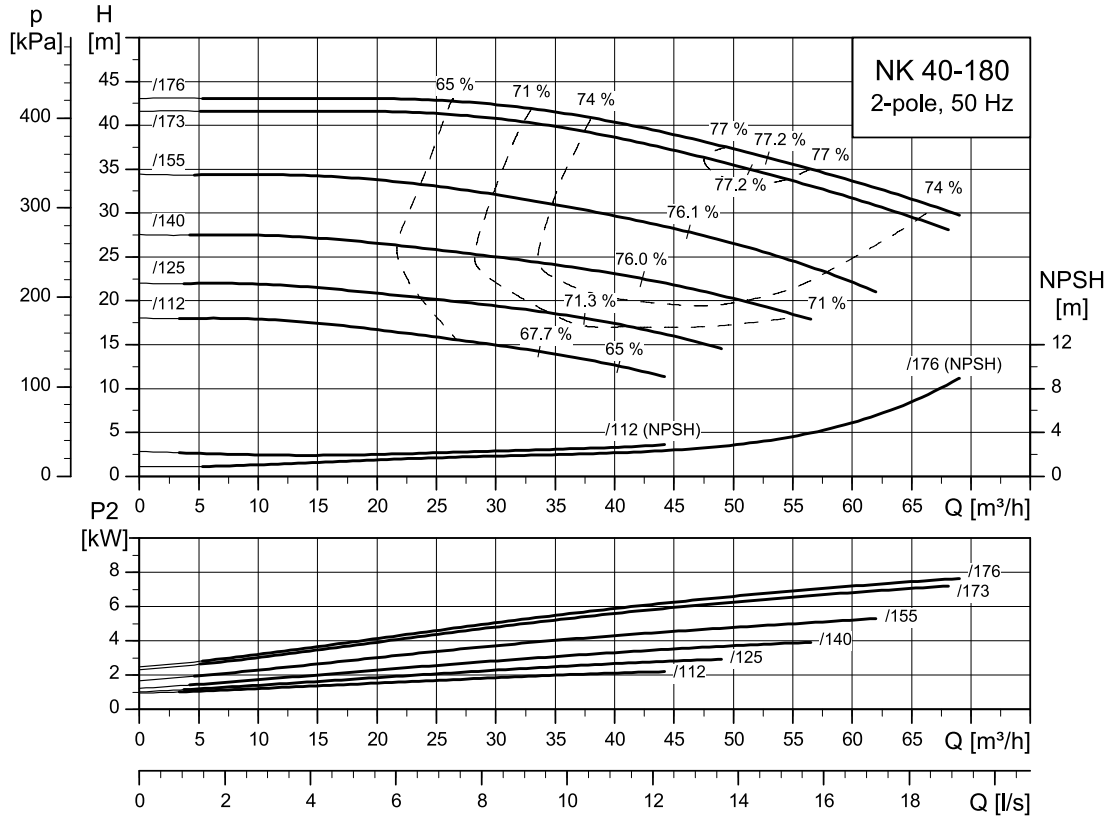
TM083777

40-130

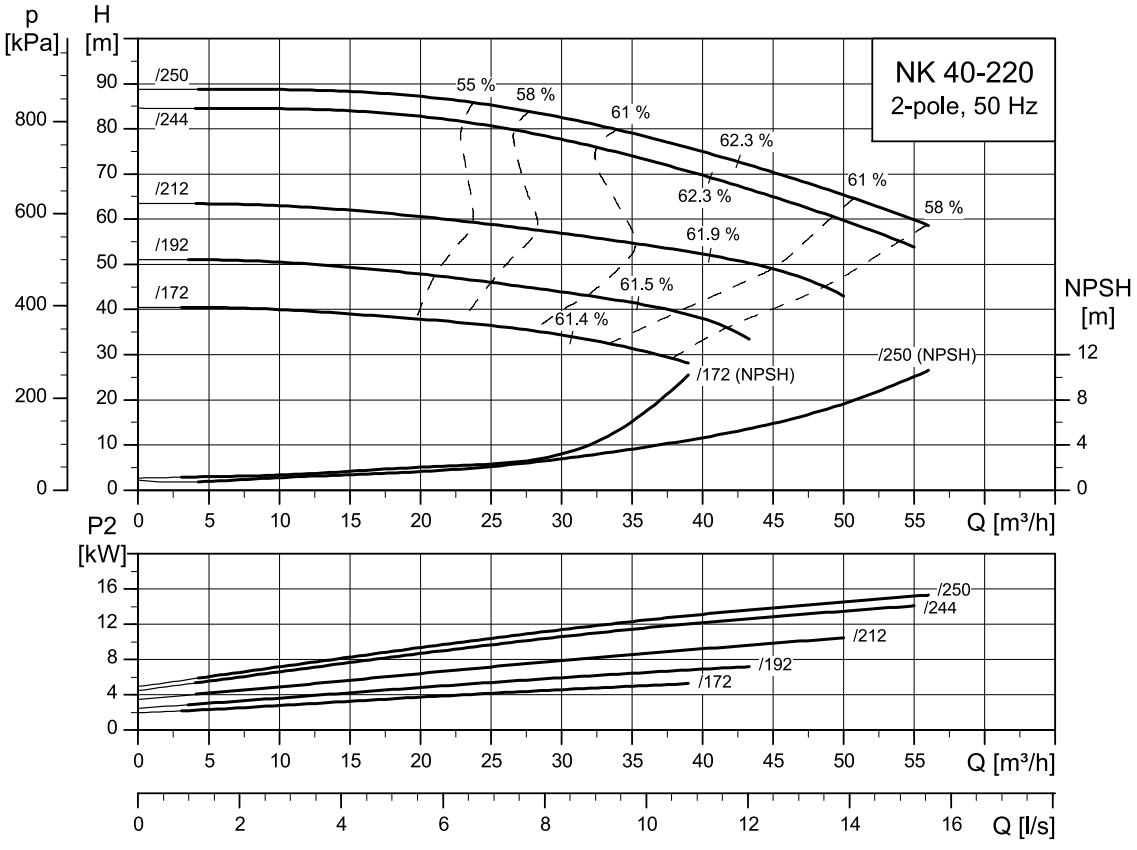


TM083778

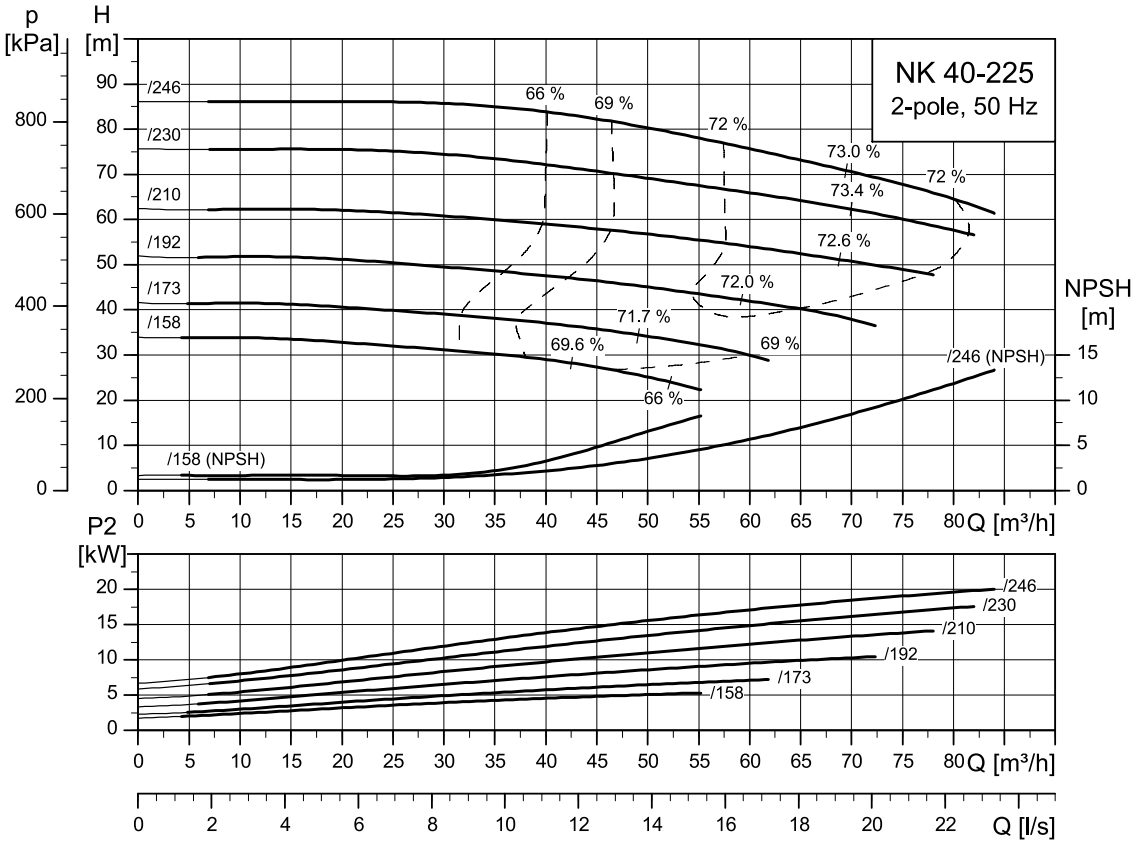
40-180


NK 40-180
2-pole, 50 Hz
p [kPa]
H [m]
NPSH [m]
/176
/173
/155
/140
/125
/112
65 %
71 %
74 %
77 %
77.2 %
76.1 %
76.0 %
71.3 %
67.7 %
/176 (NPSH)
/112 (NPSH)
Q [m³/h]
P2 [kW]
Q [l/s]
TM1040243

40-220

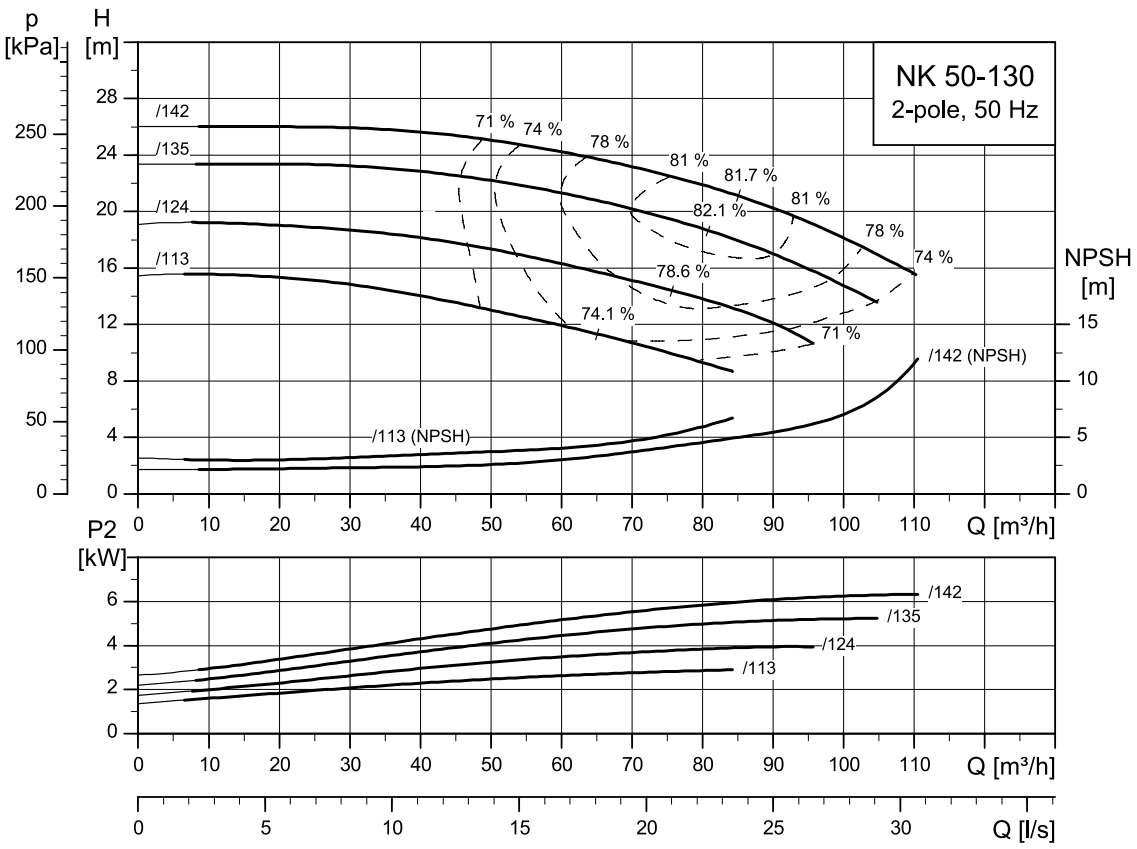

NK 40-220
2-pole, 50 Hz
p [kPa]
H [m]
NPSH [m]
/250
/244
/212
/192
/172
55 %
58 %
61 %
62.3 %
61.9 %
61.5 %
61.4 %
/172 (NPSH)
/250 (NPSH)
Q [m³/h]
P2 [kW]
Q [l/s]
TM1040244

40-225



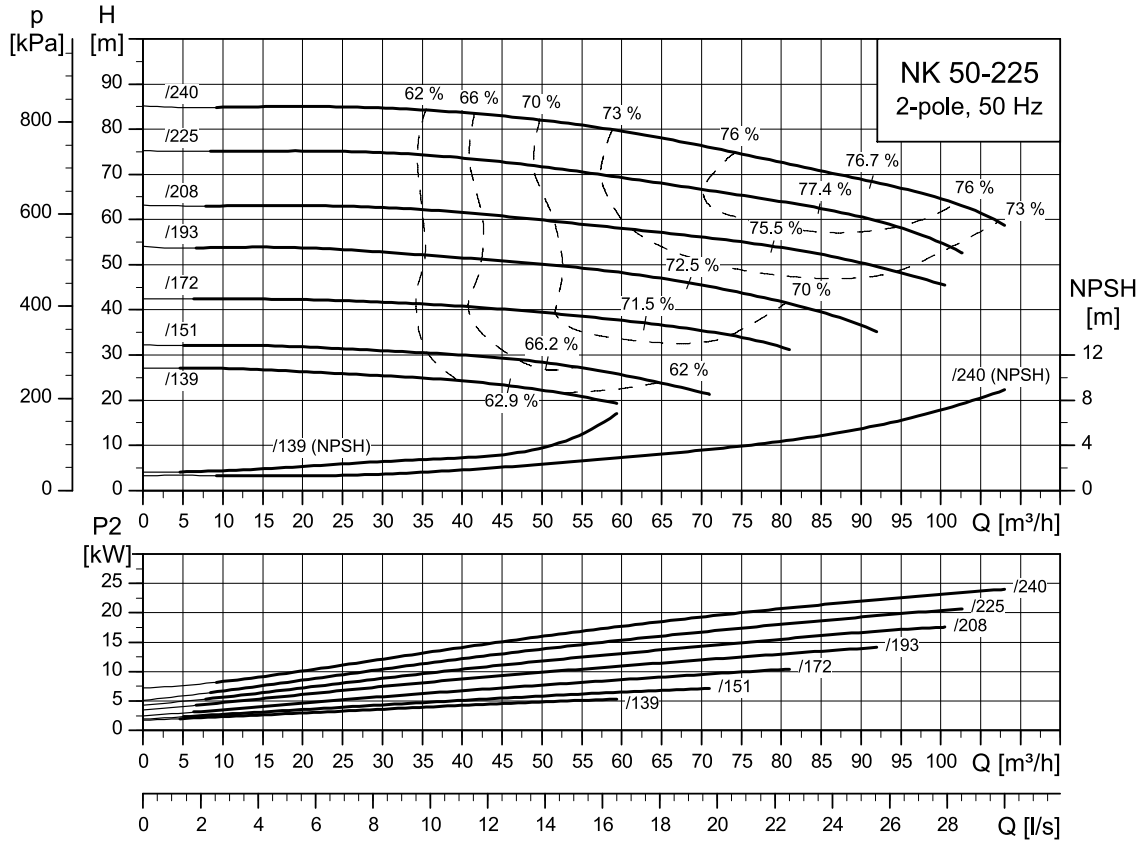
TM1040245

50-130



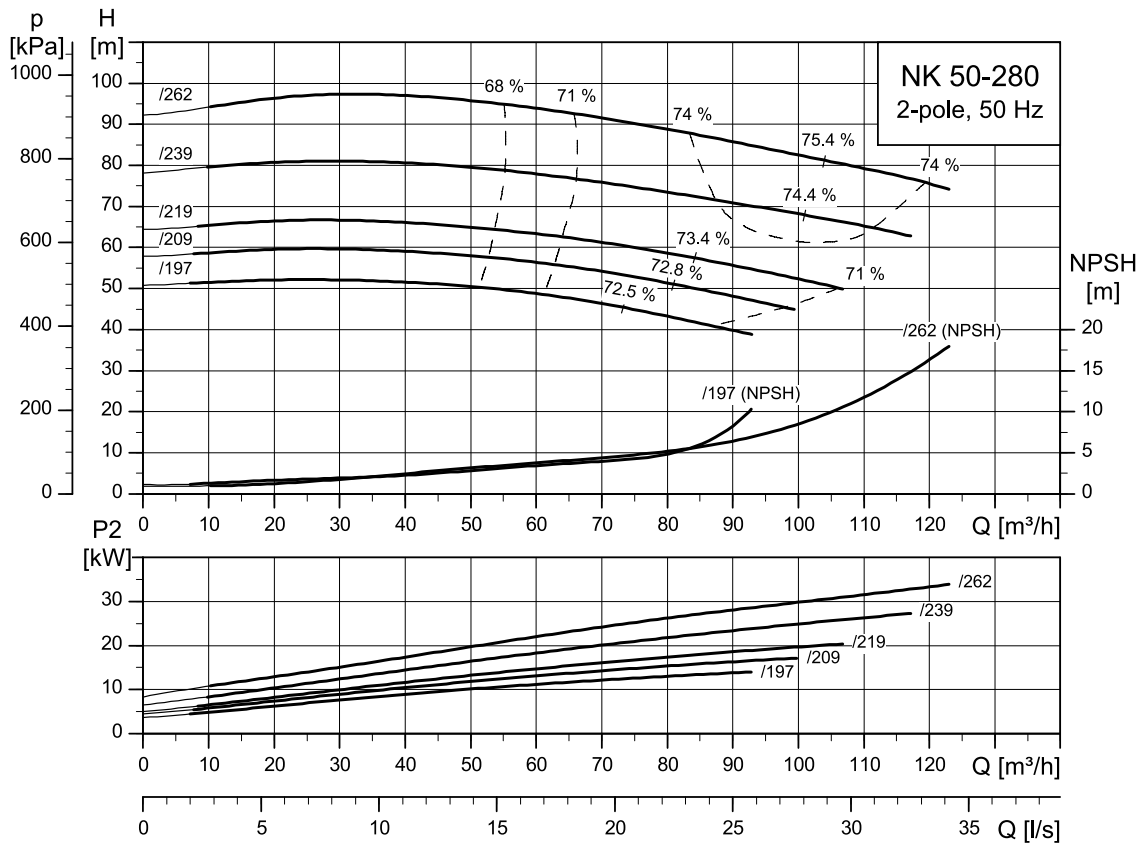
TM083779

50-225



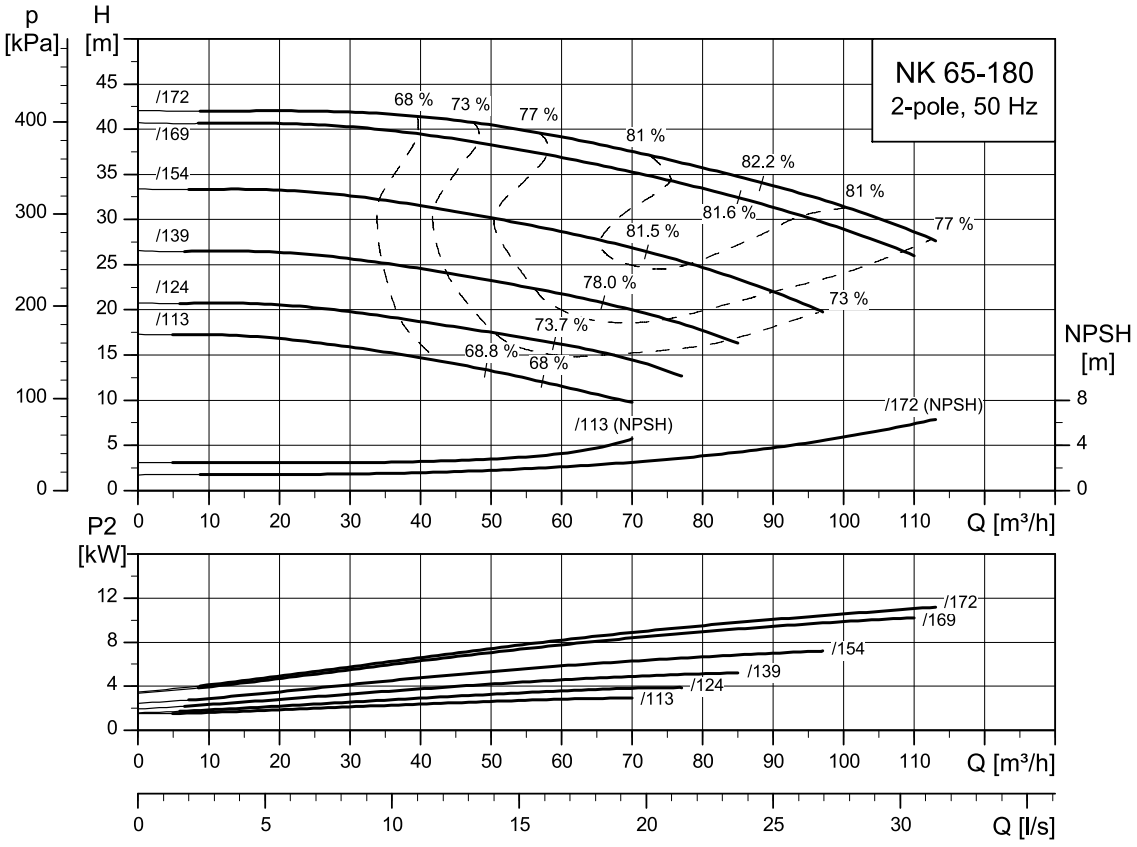
TM1040246

50-280



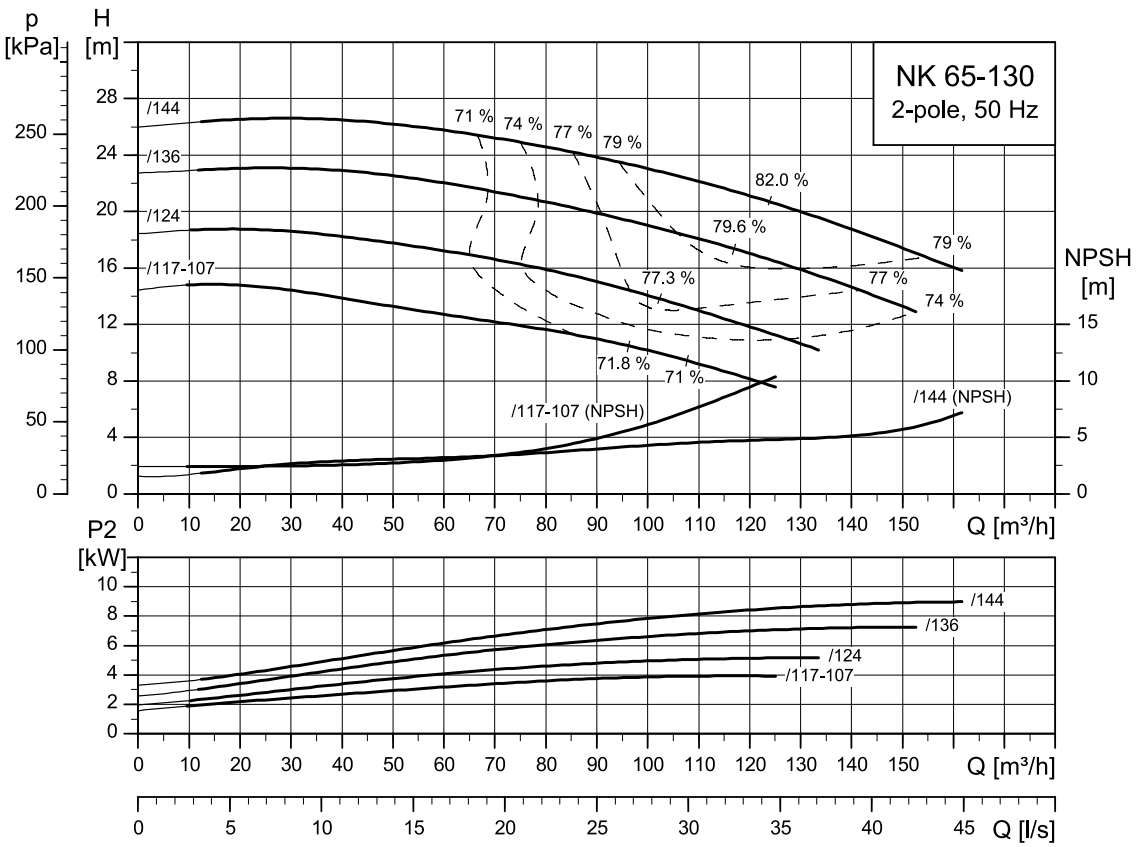
TM084979

65-180



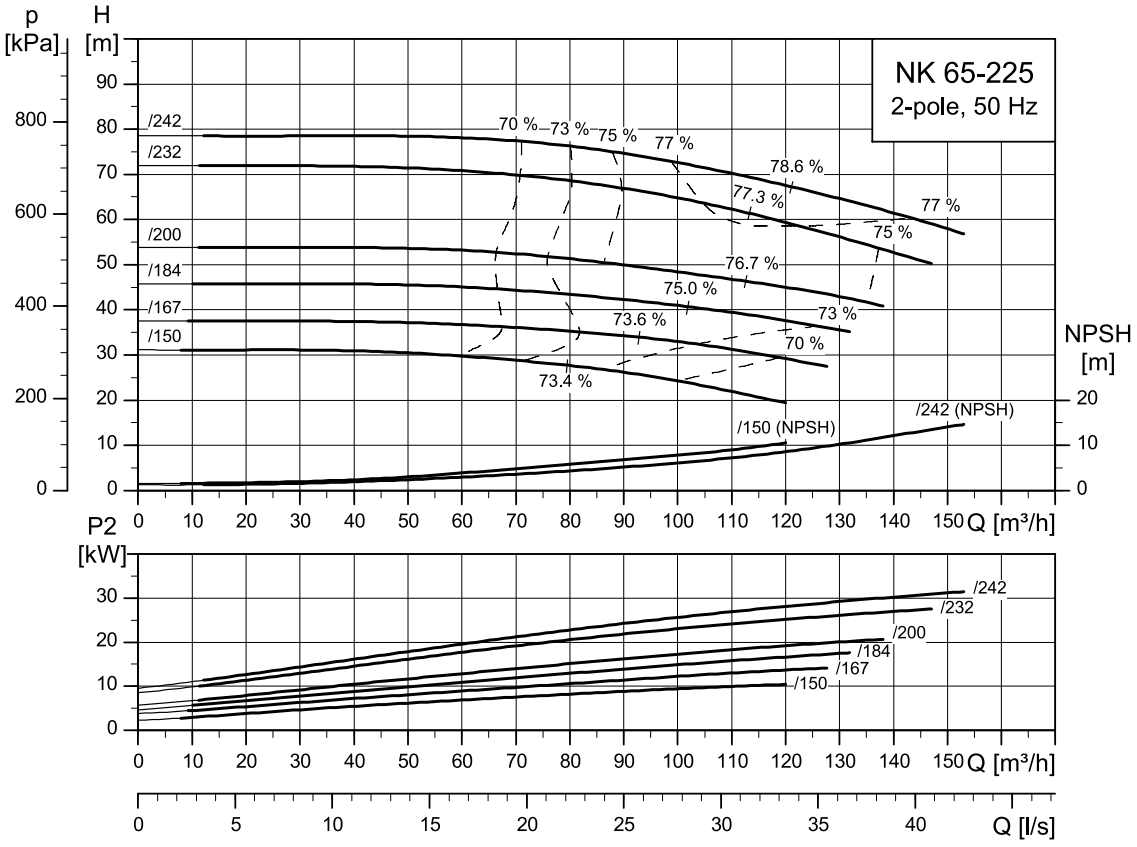
TM1040247

65-130



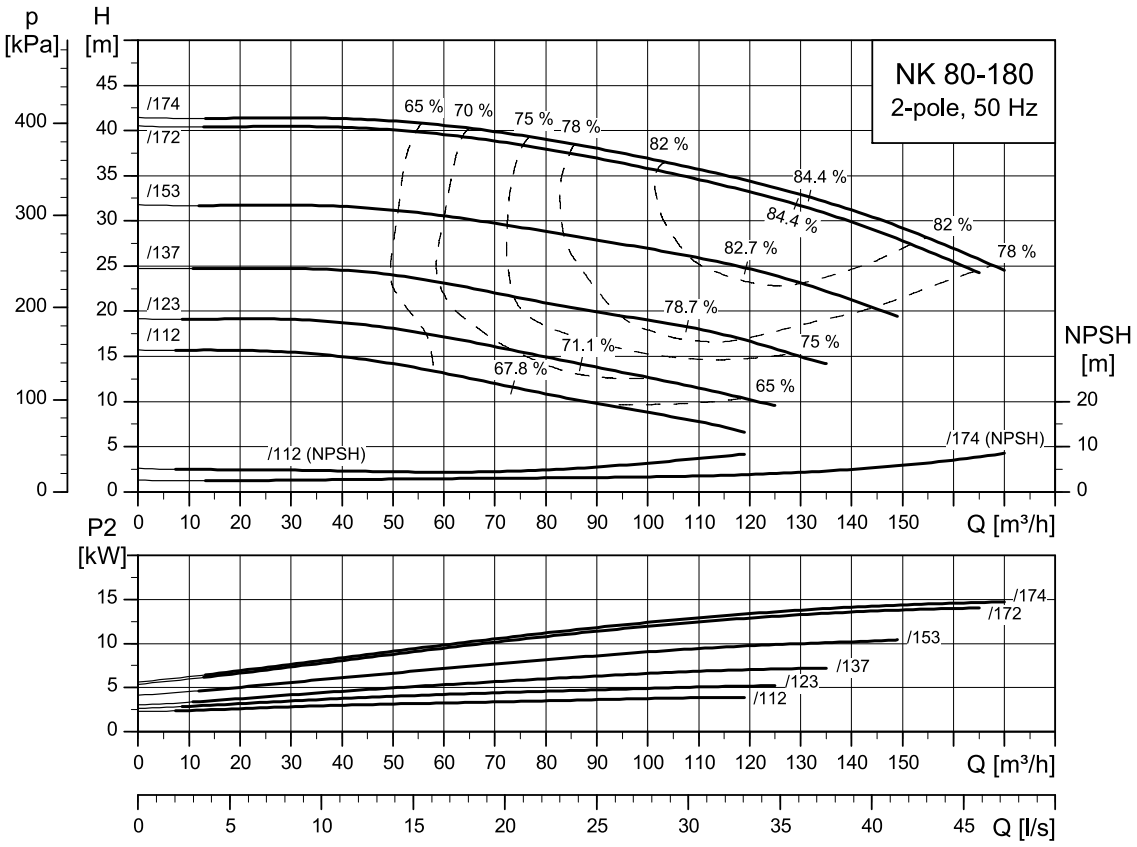
TM083780

65-225



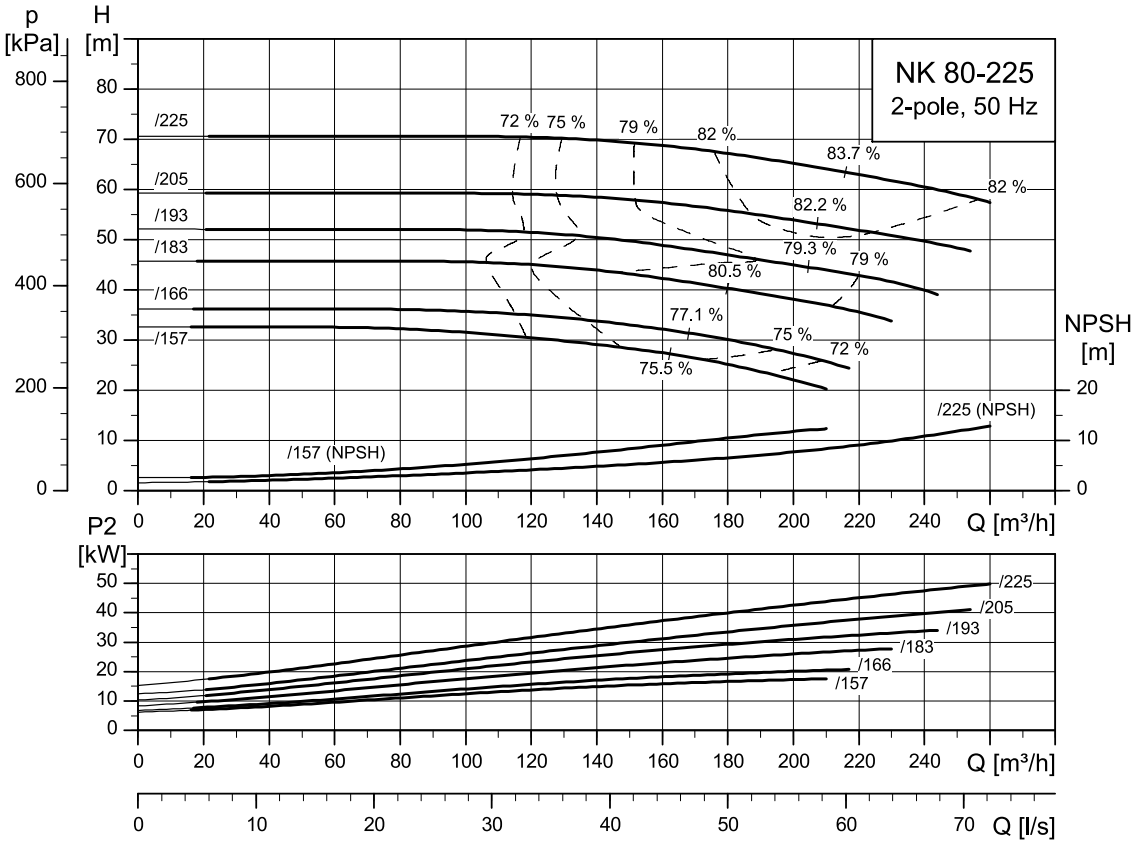
TM1040248

80-180

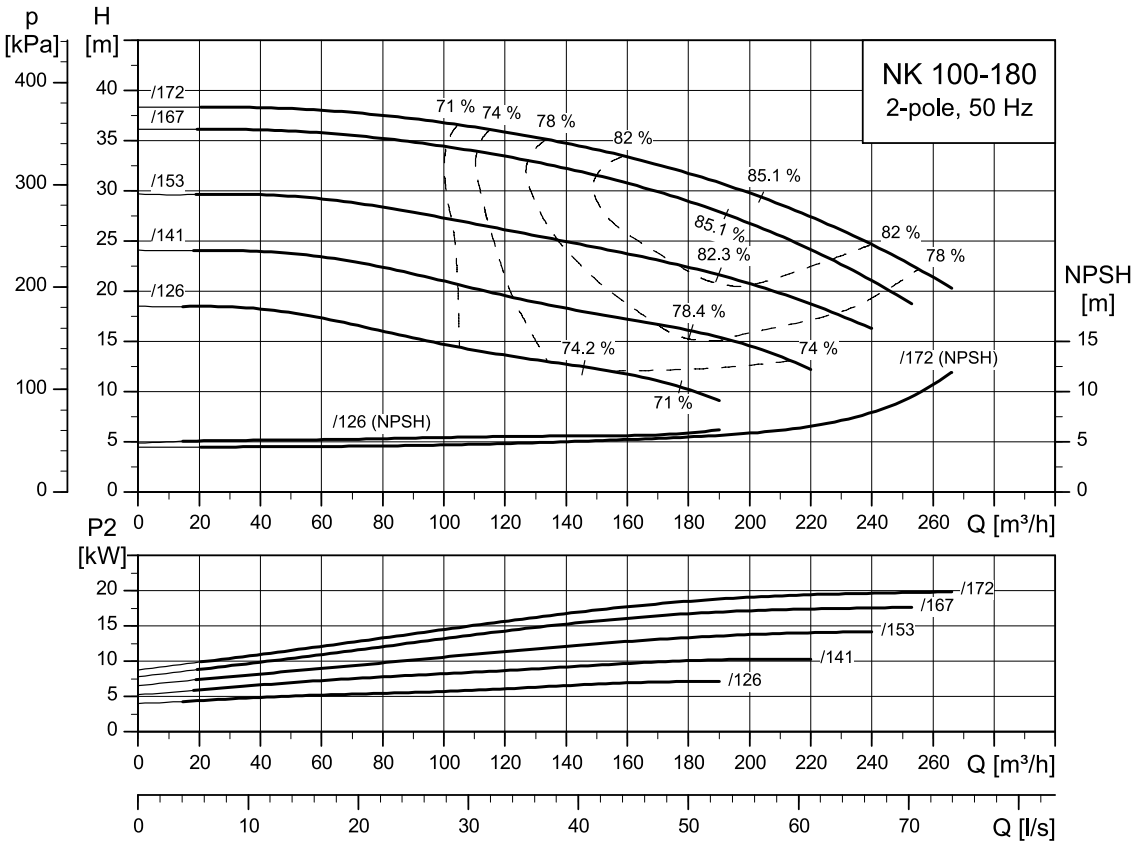


TM1040249

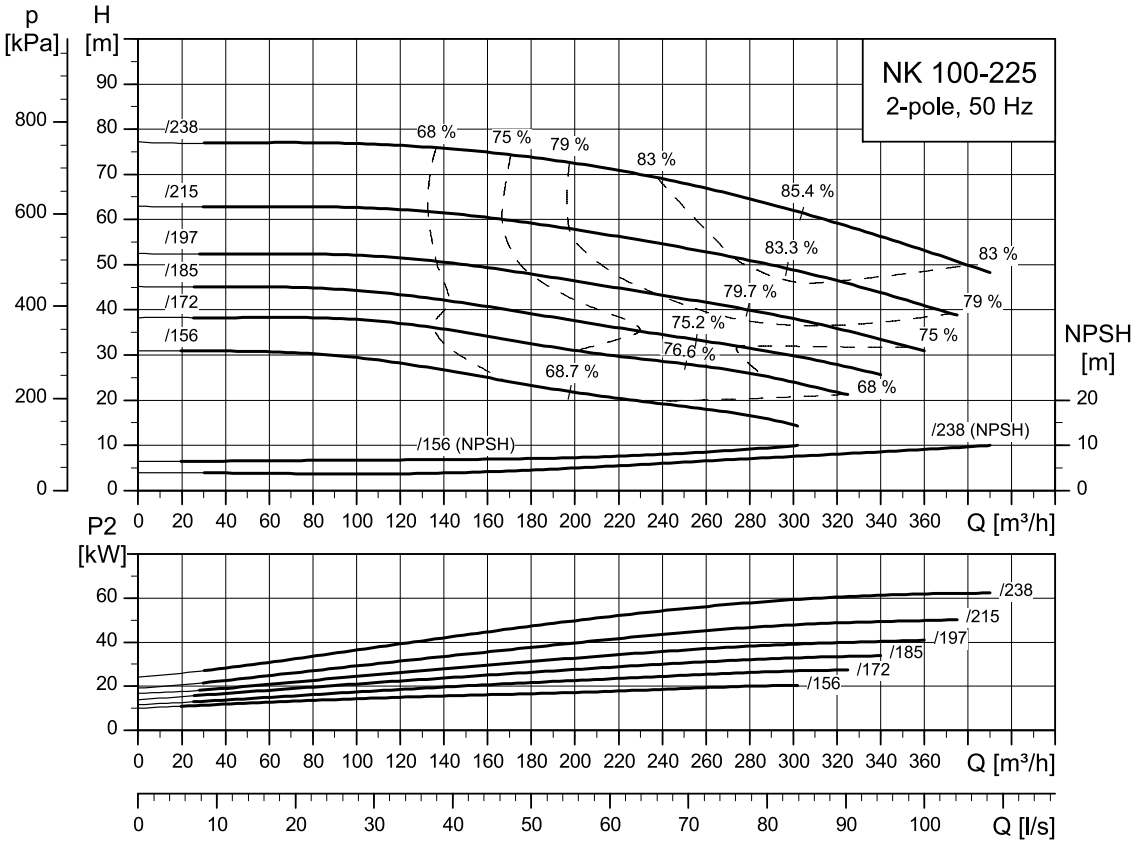
80-225



100-180

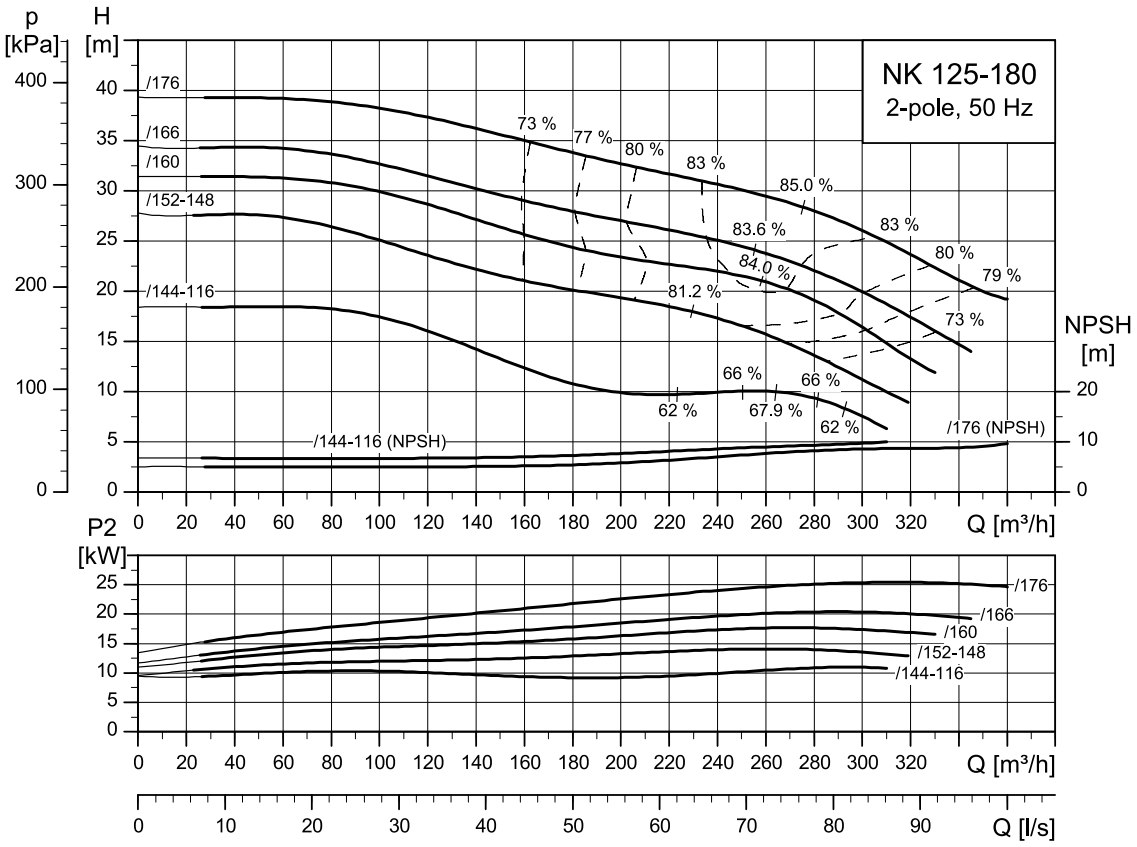


100-225



TM1040252

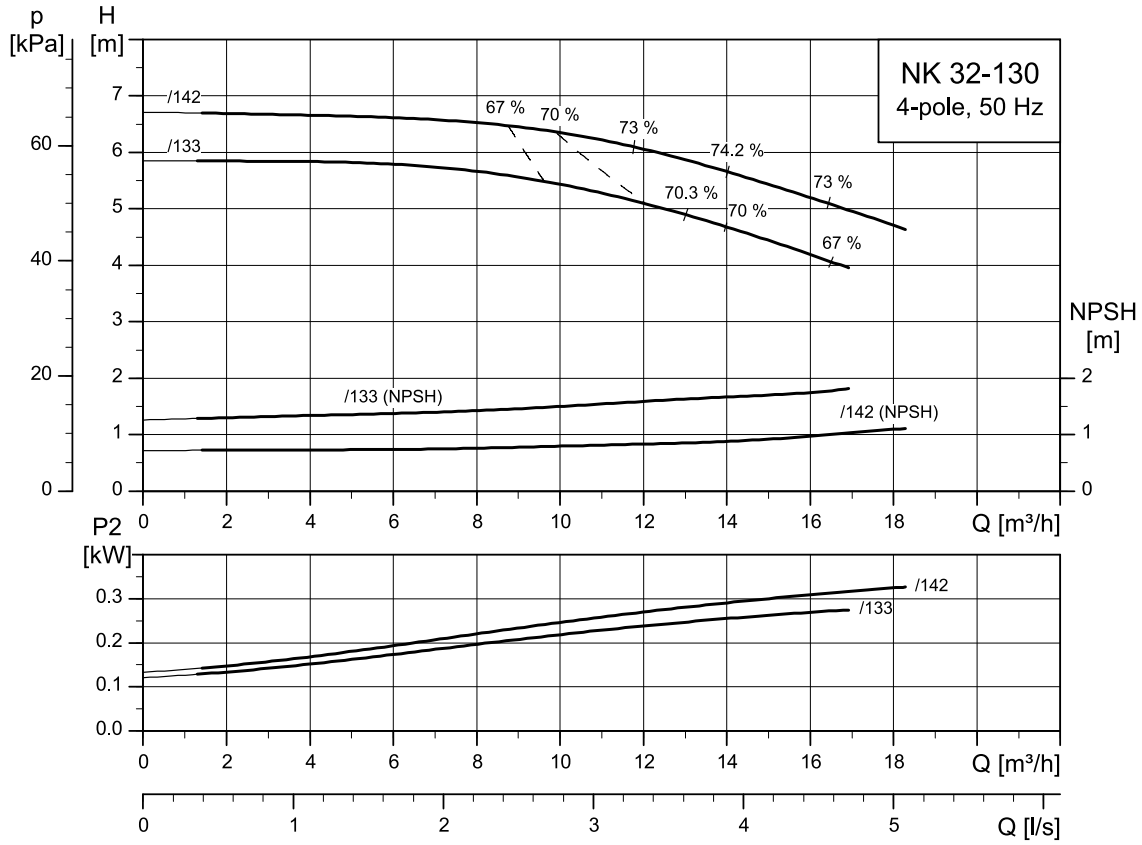
125-180



TM1040253

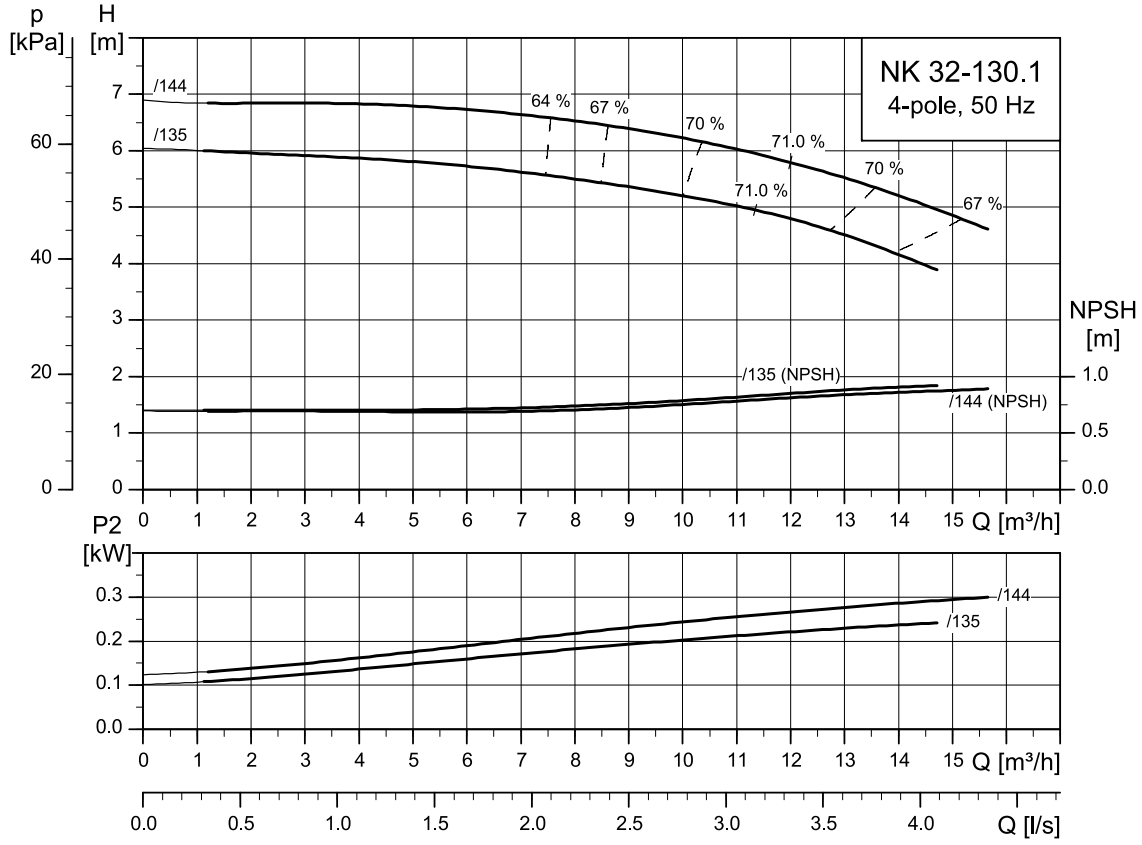
4-pole

32-130



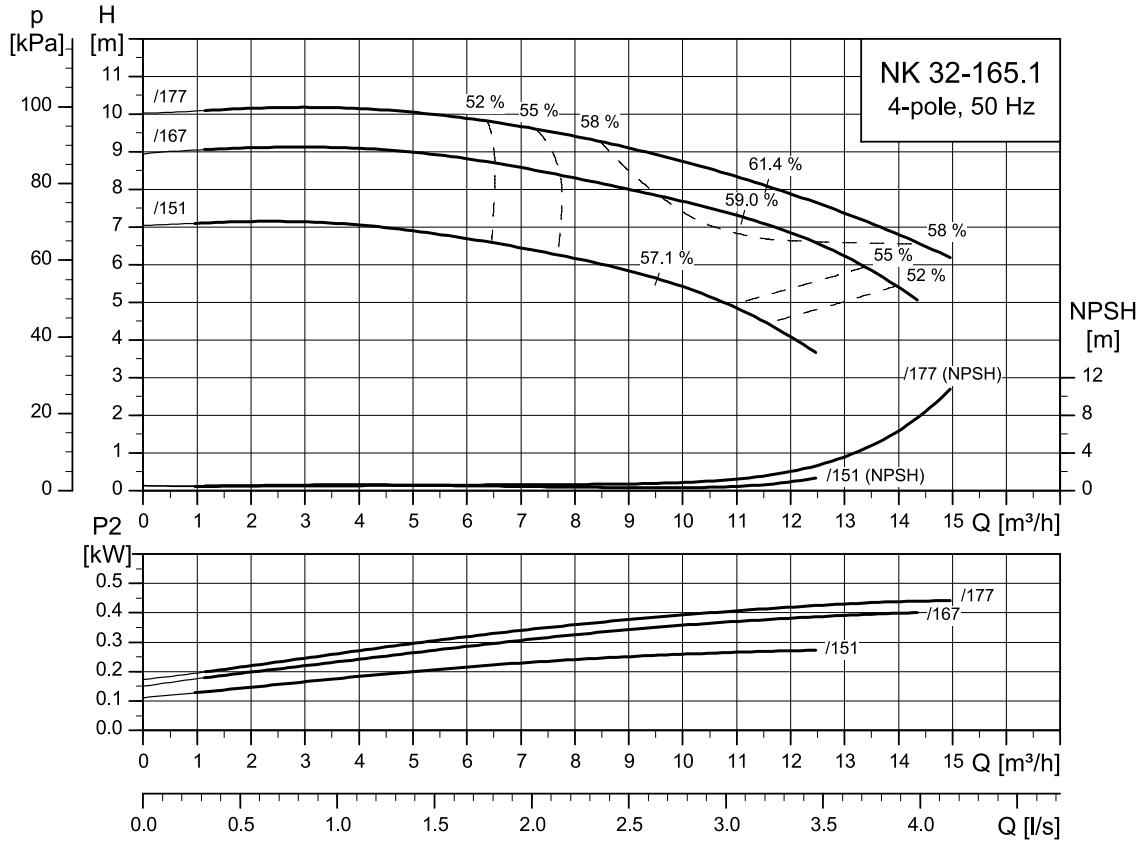
TM083781

32-130.1

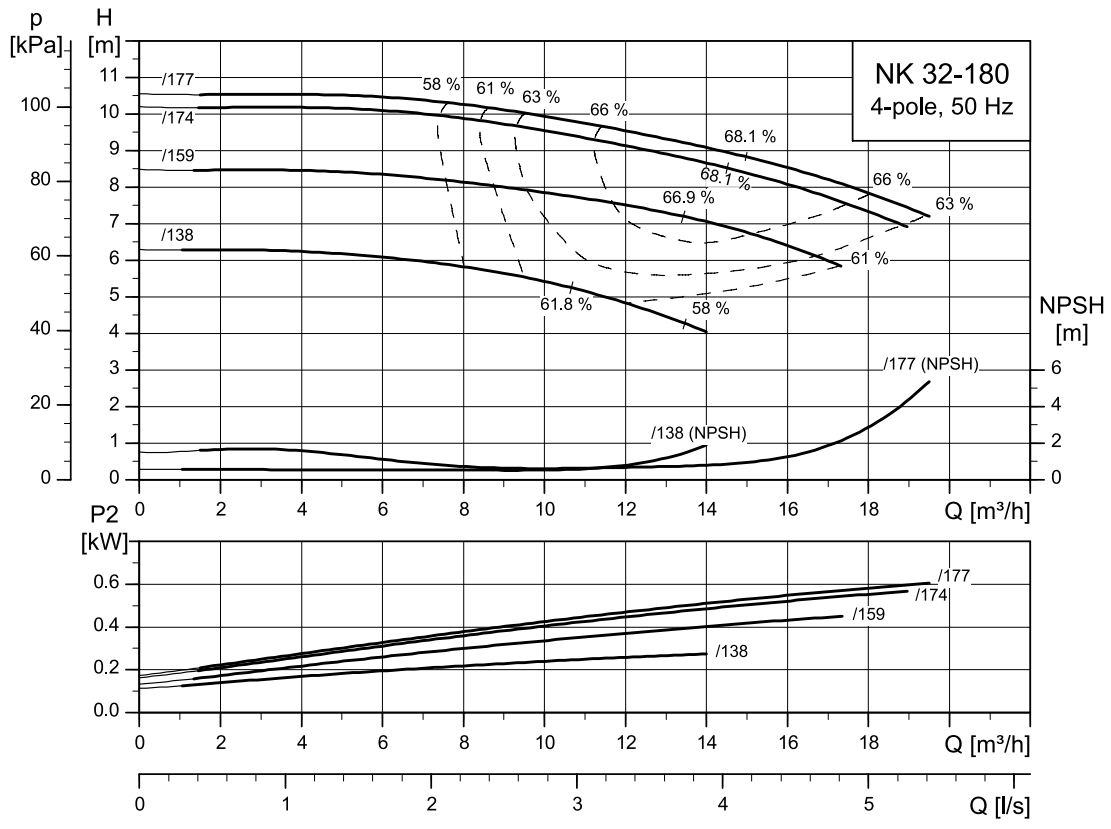


TM083782

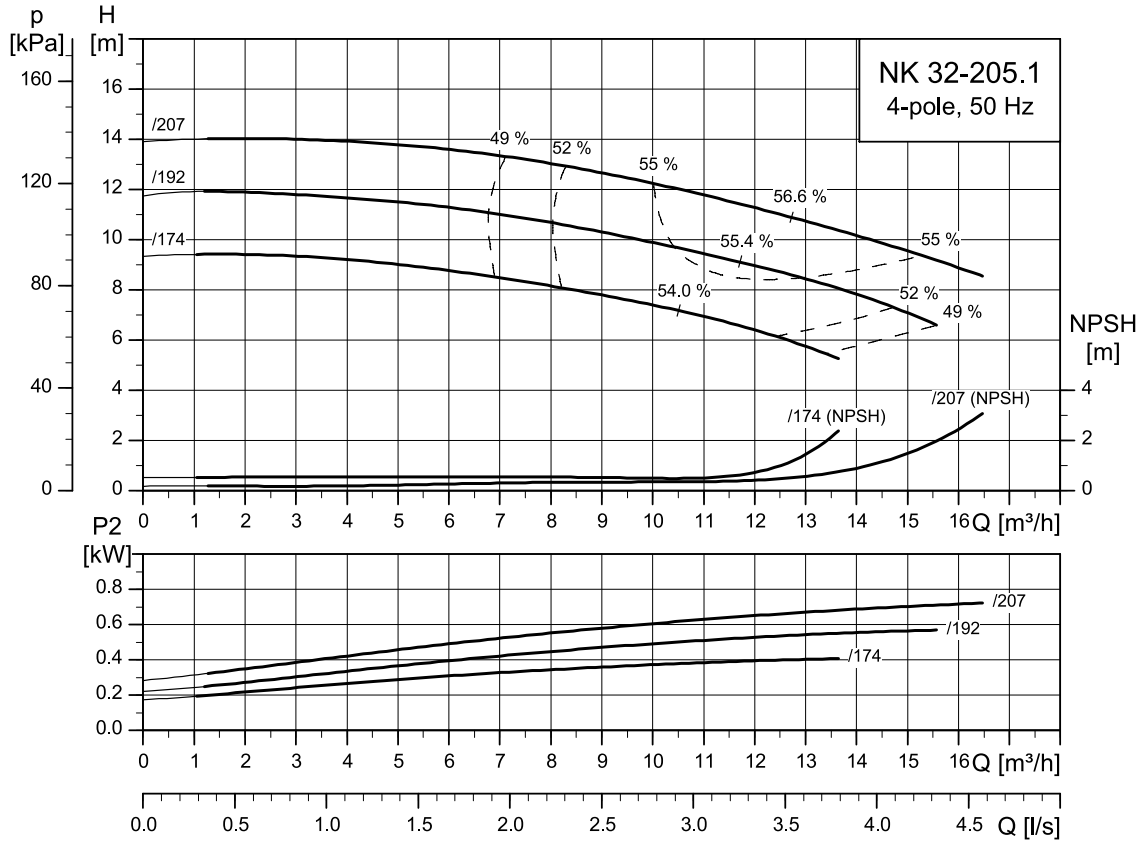
32-165.1



32-180

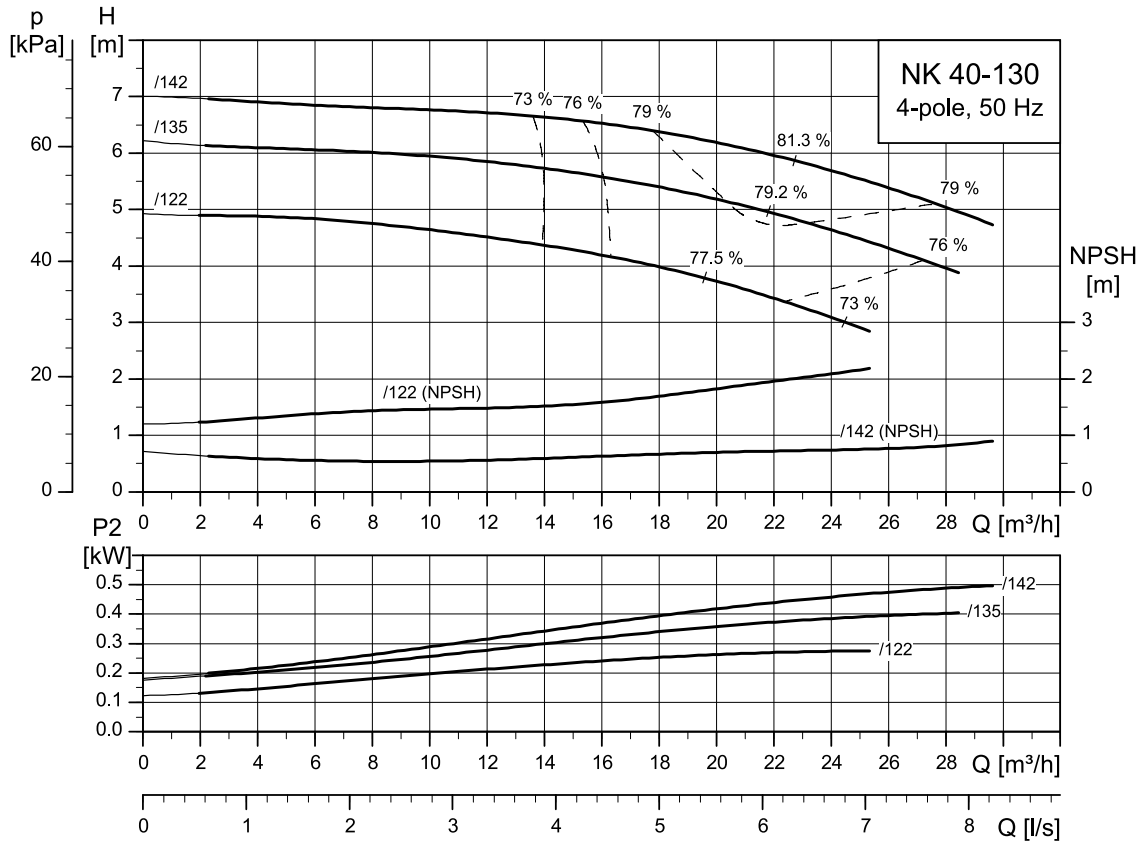


32-205.1



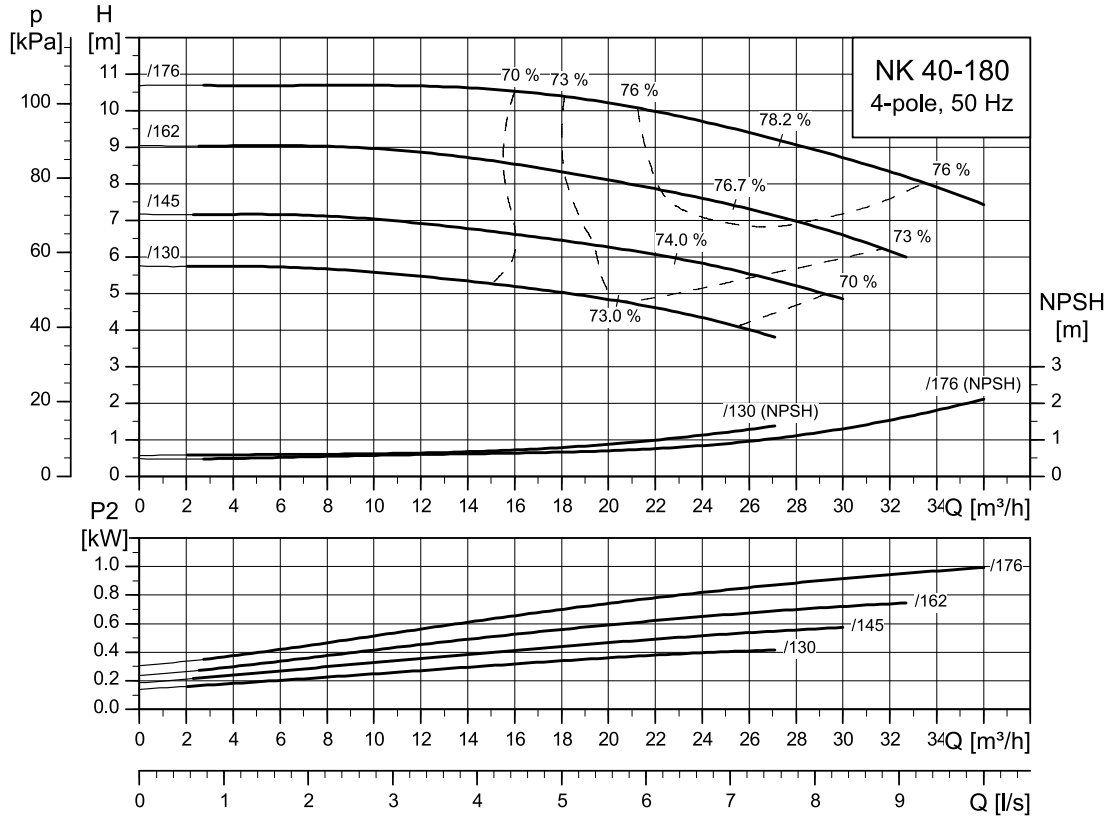
TM084970

40-130



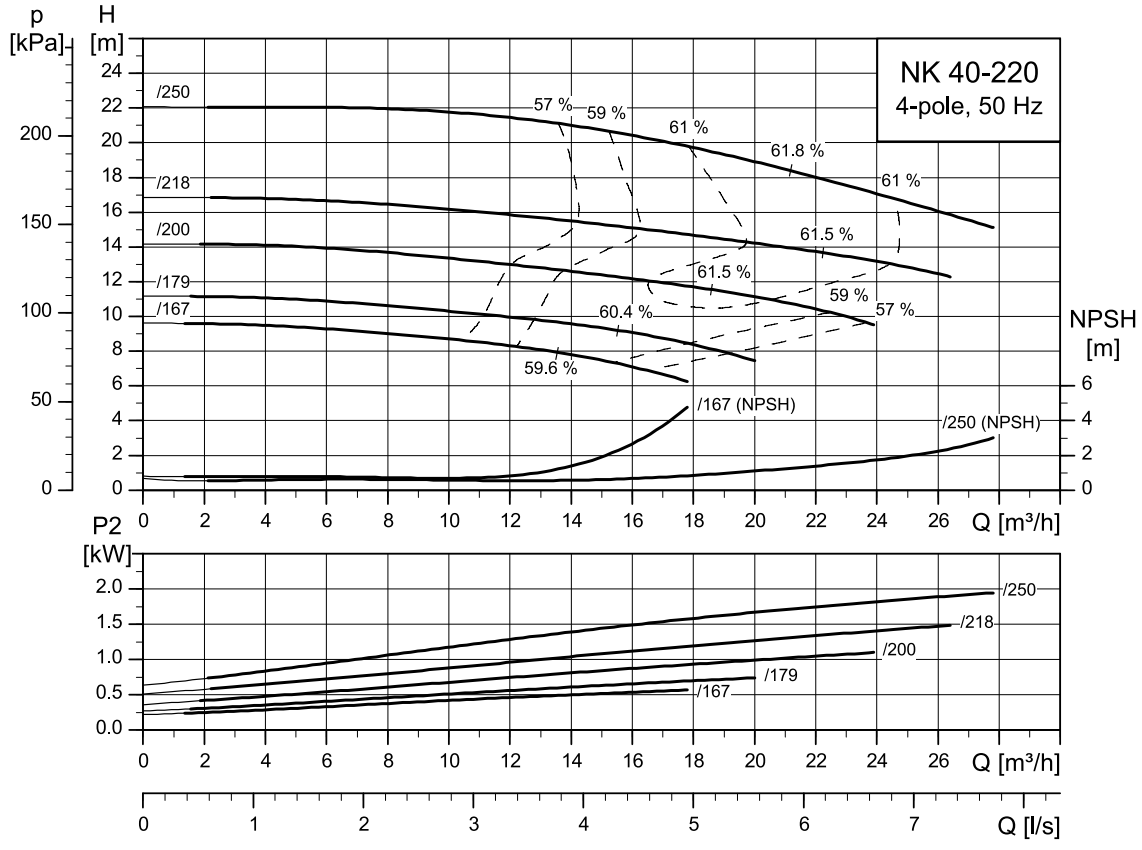
TM083783

40-180



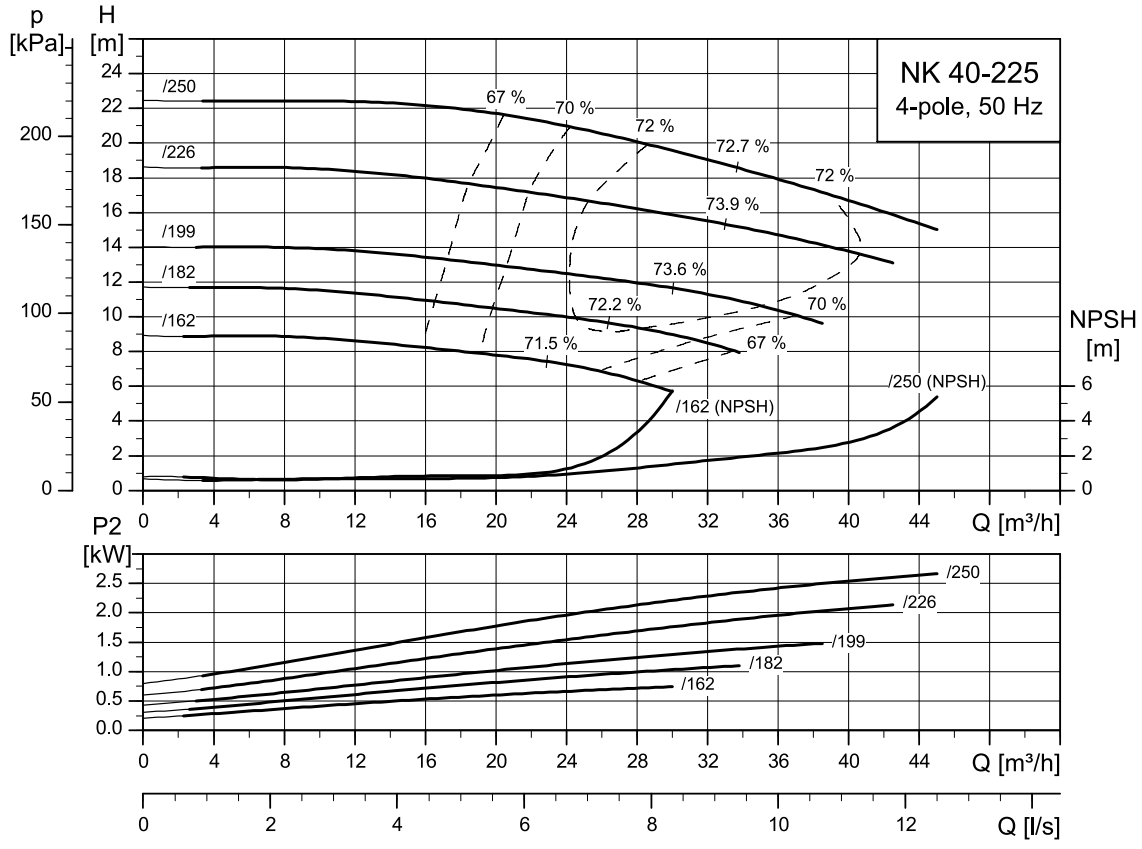
TM1040255

40-220

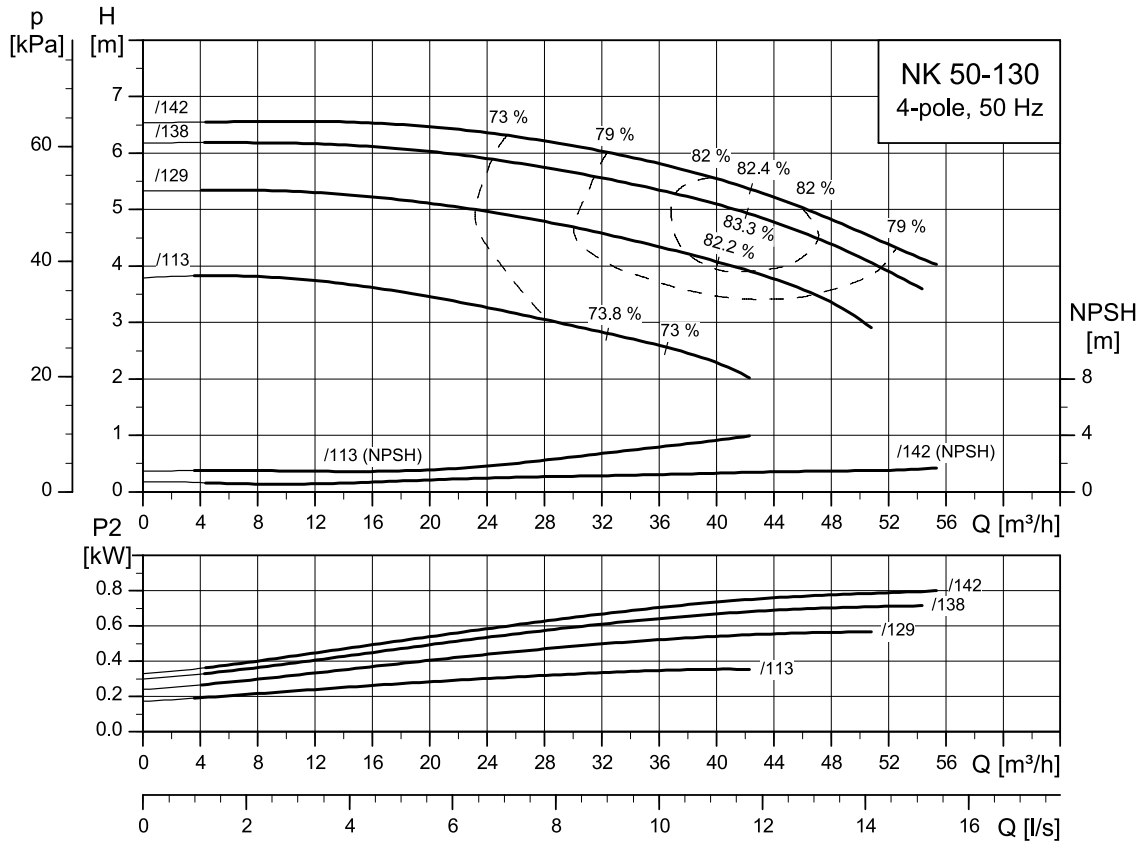


TM1040256

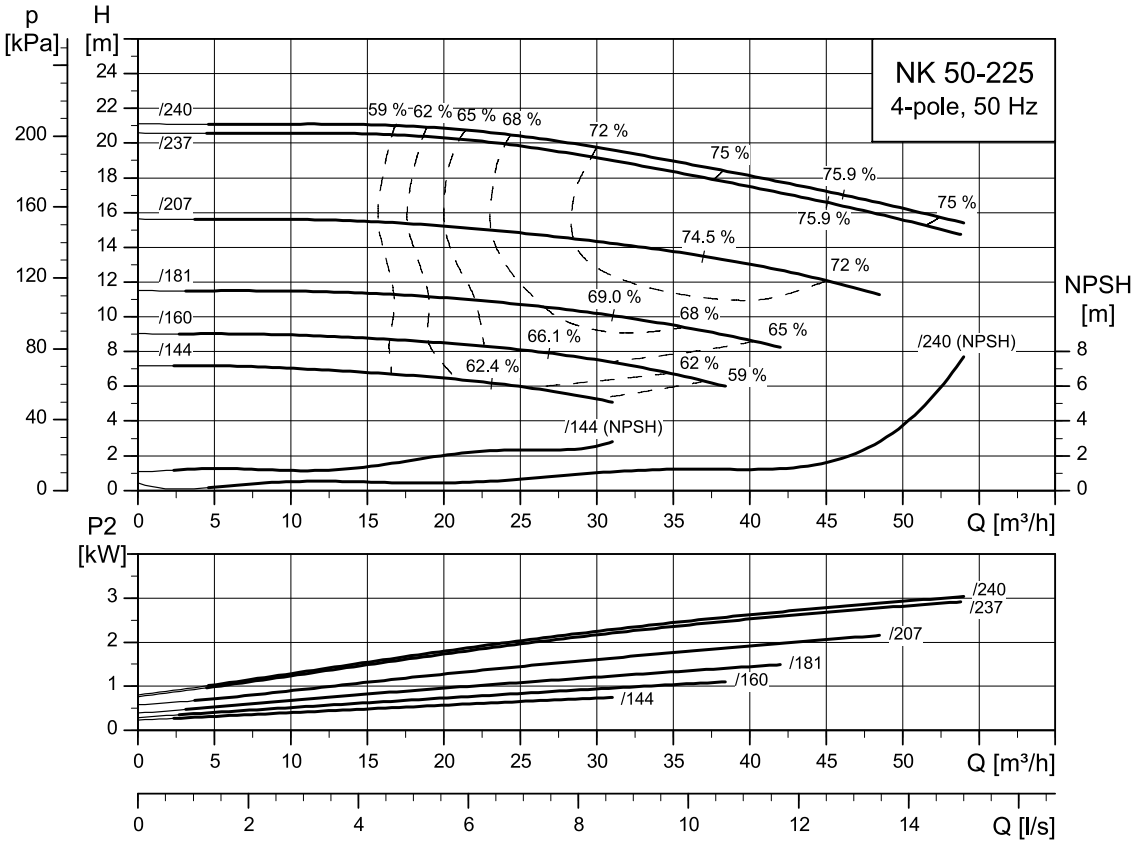
40-225


p [kPa]
H [m]
NK 40-225
4-pole, 50 Hz
/250
/226
/199
/182
/162
67 %
70 %
72 %
72.7 %
72 %
73.9 %
73.6 %
72.2 %
70 %
71.5 %
67 %
/162 (NPSH)
/250 (NPSH)
NPSH [m]
Q [m³/h]
P2 [kW]
Q [l/s]
TM1040257

50-130

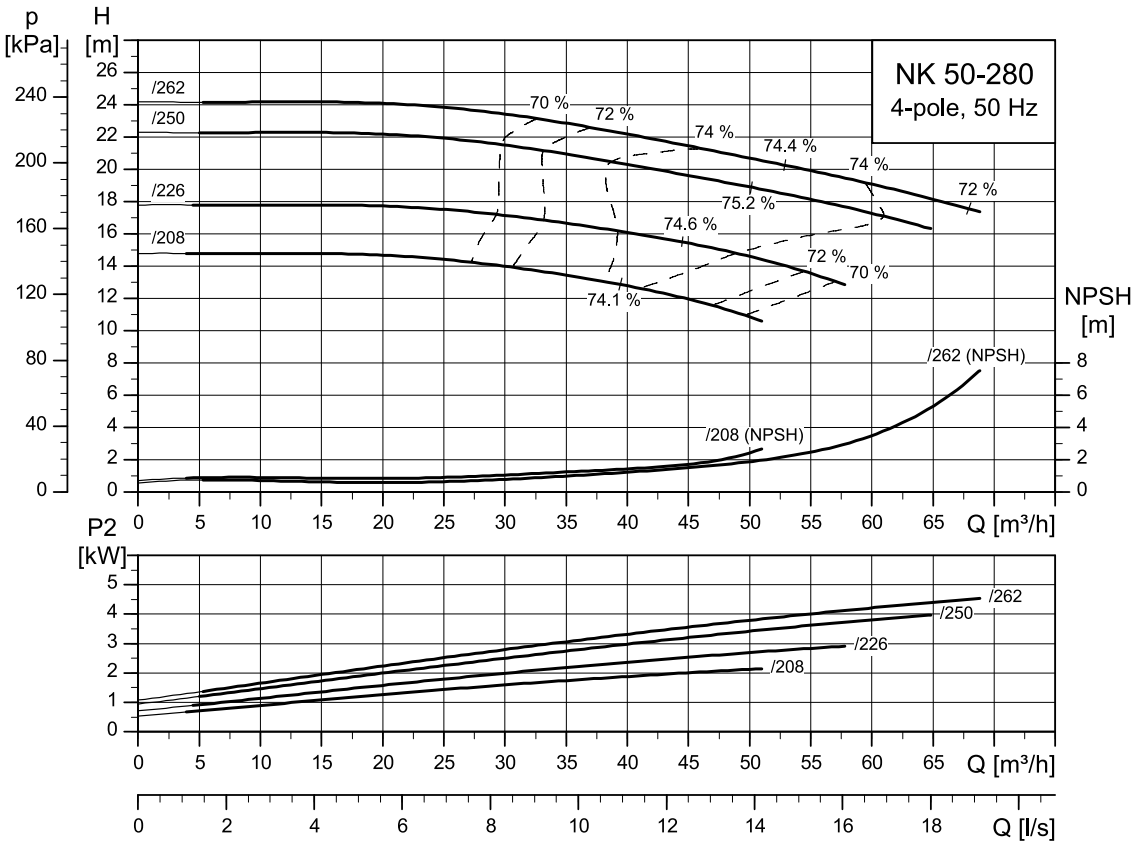

p [kPa]
H [m]
NK 50-130
4-pole, 50 Hz
/142
/138
/129
/113
73 %
79 %
82 %
82.4 %
82 %
83.3 %
82.2 %
79 %
73.8 %
73 %
/113 (NPSH)
/142 (NPSH)
NPSH [m]
Q [m³/h]
P2 [kW]
Q [l/s]
TM083784

50-225



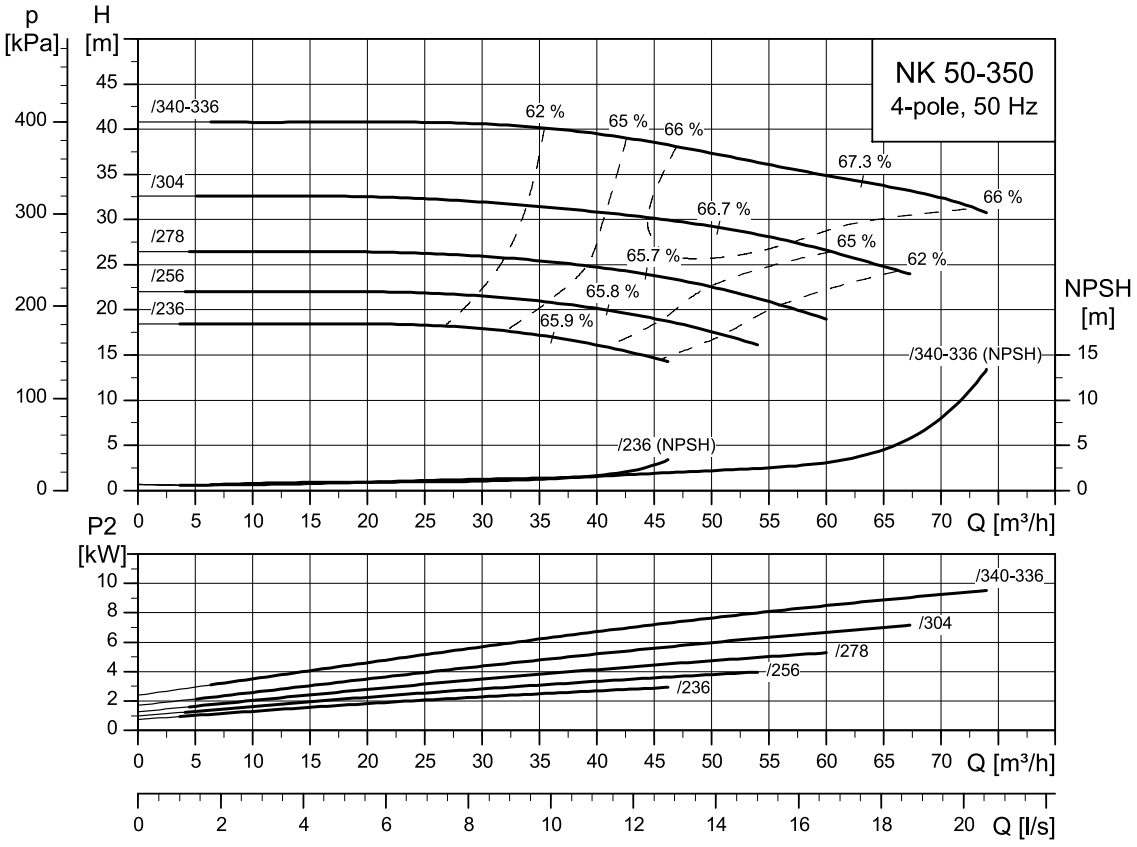
TM1040258

50-280



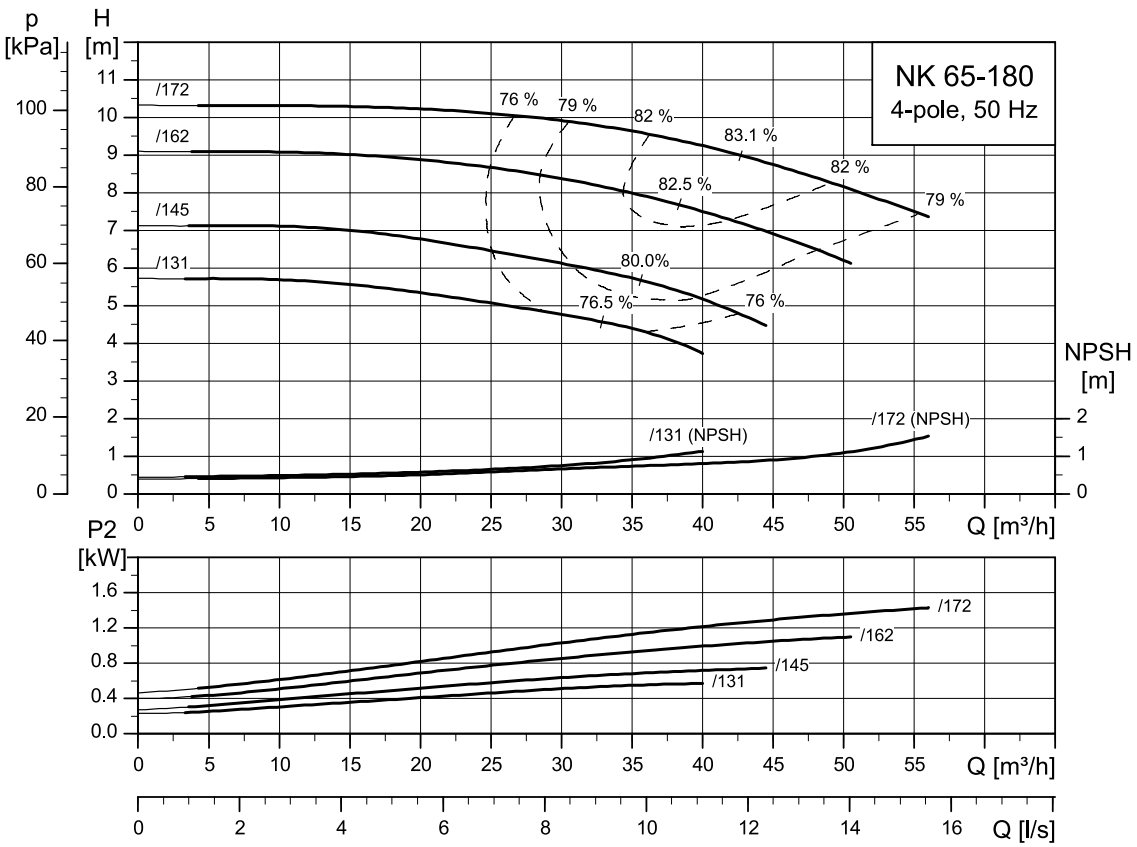
TM1040259

50-350



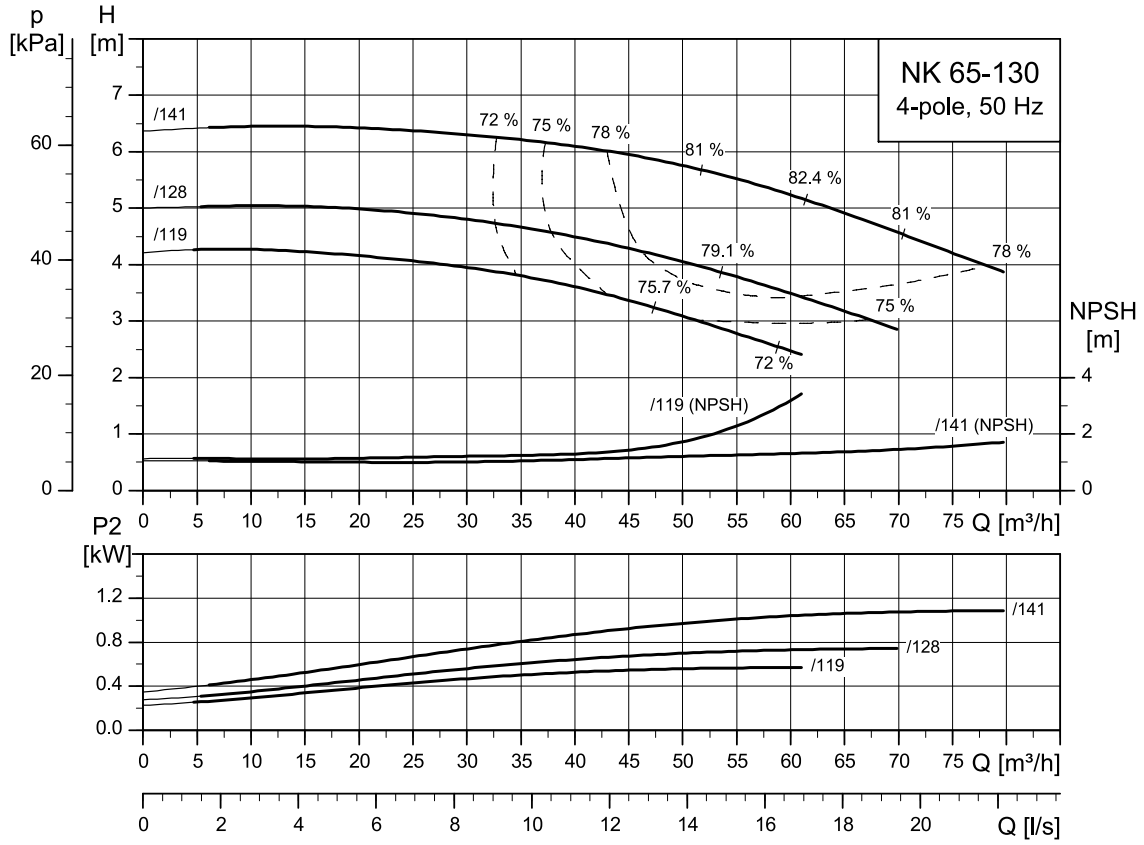
TM1040260

65-180



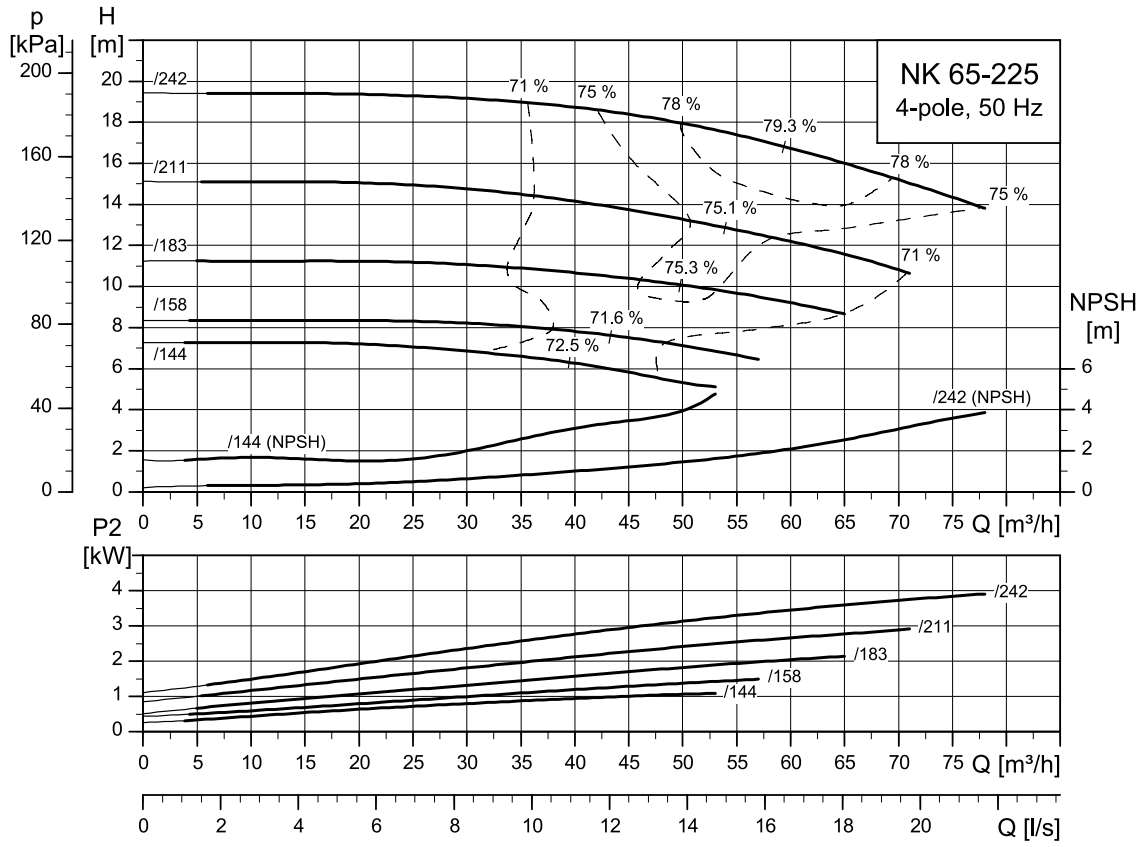
TM1040261

65-130



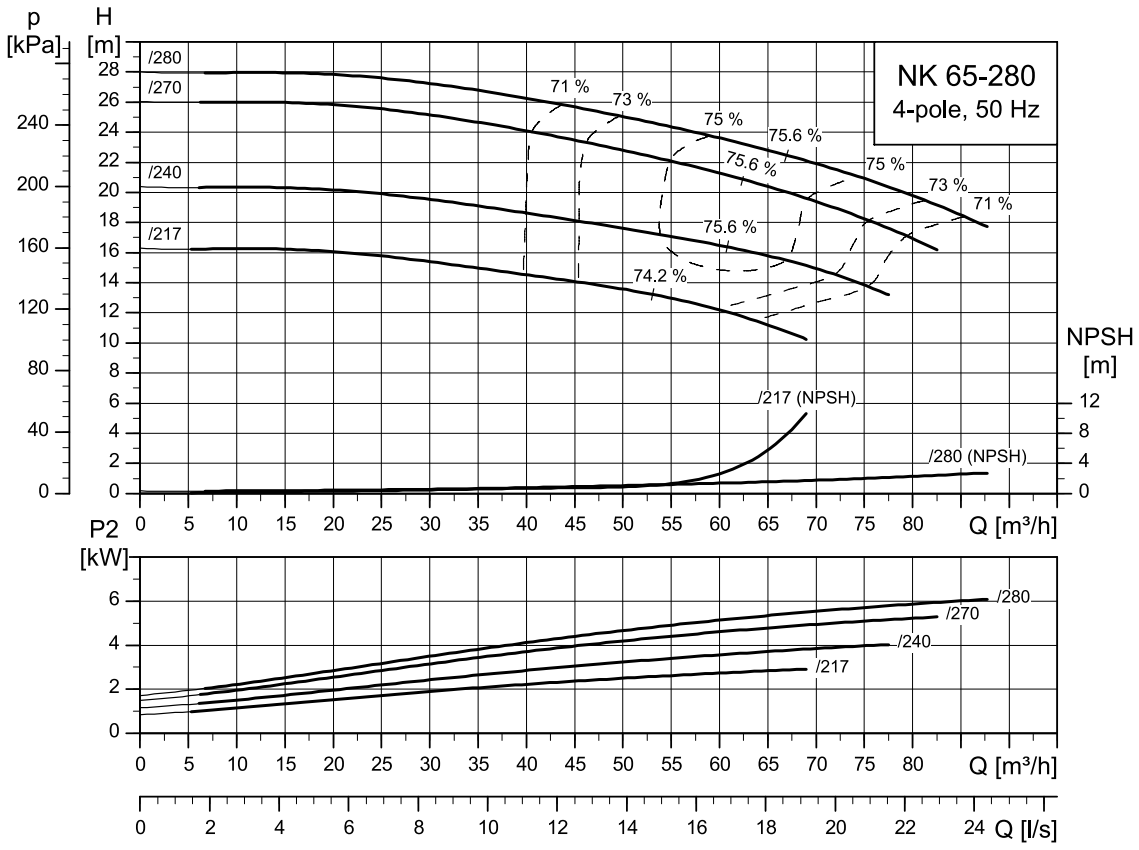
TM083785

65-225



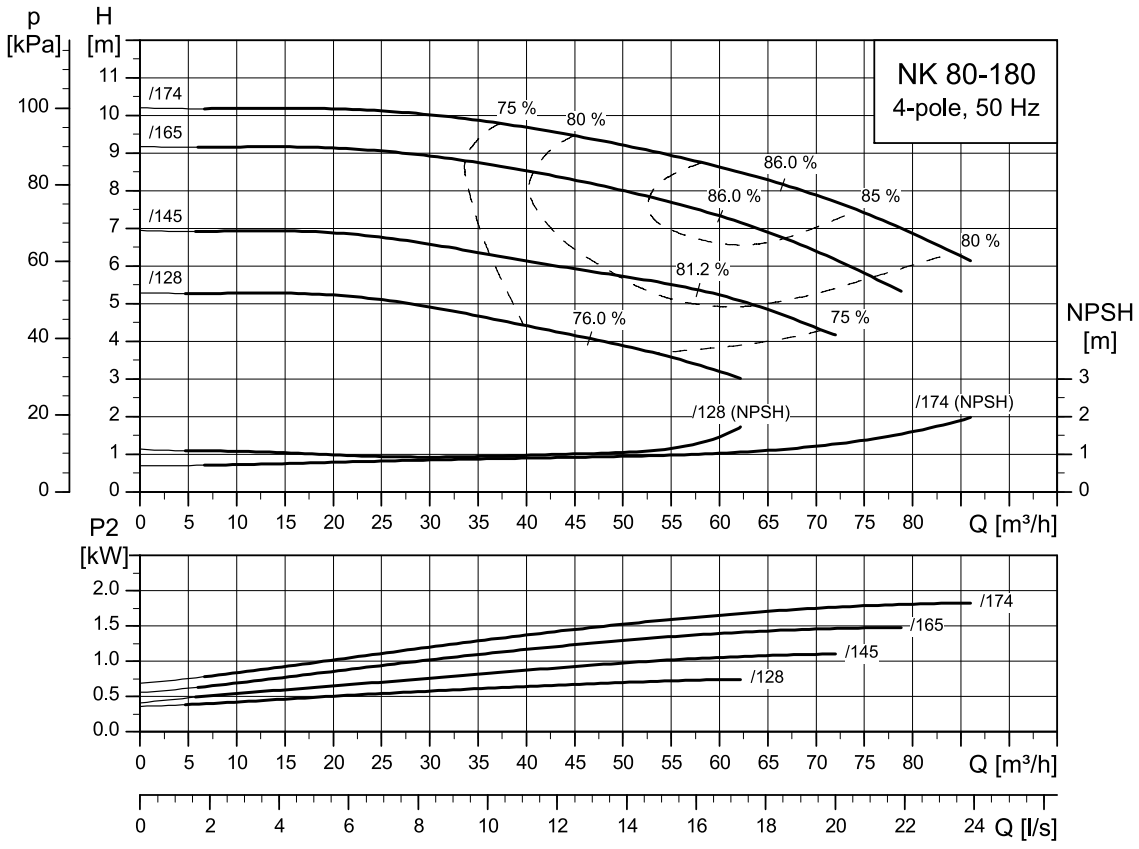
TM1040262

65-280



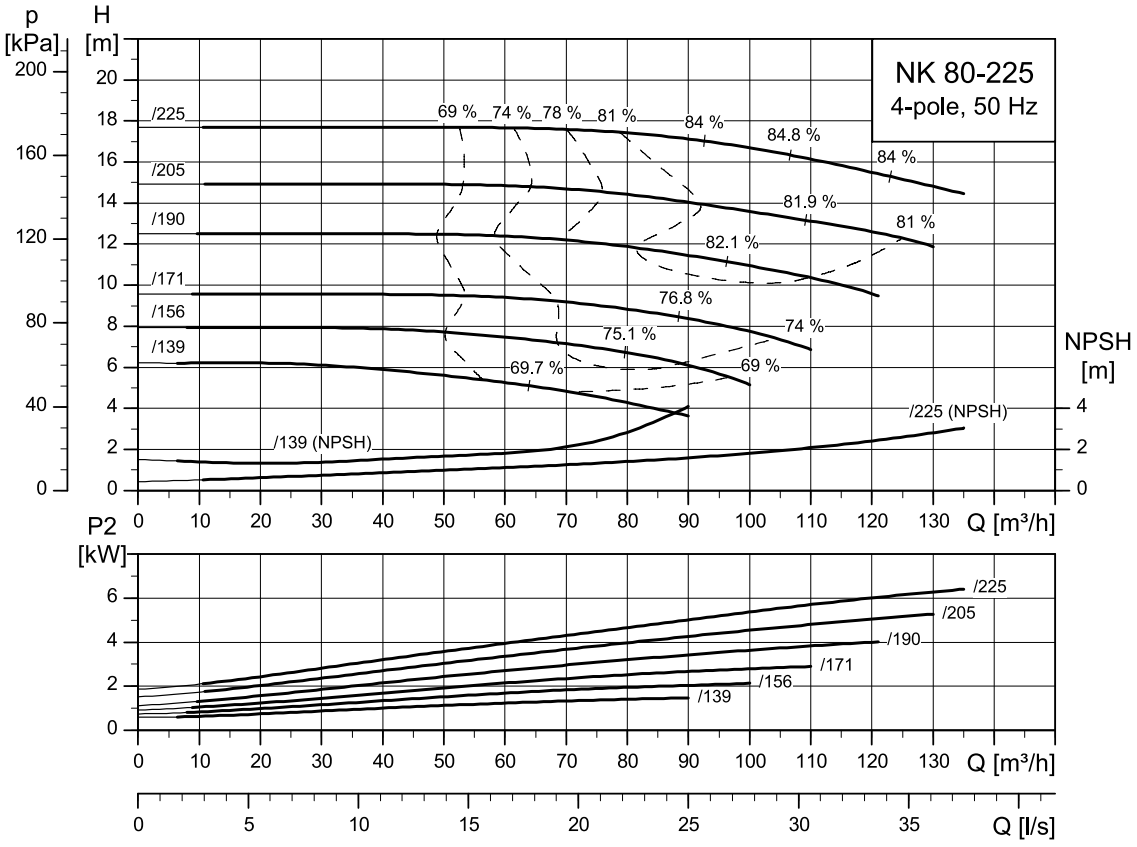
TM1040263

80-180

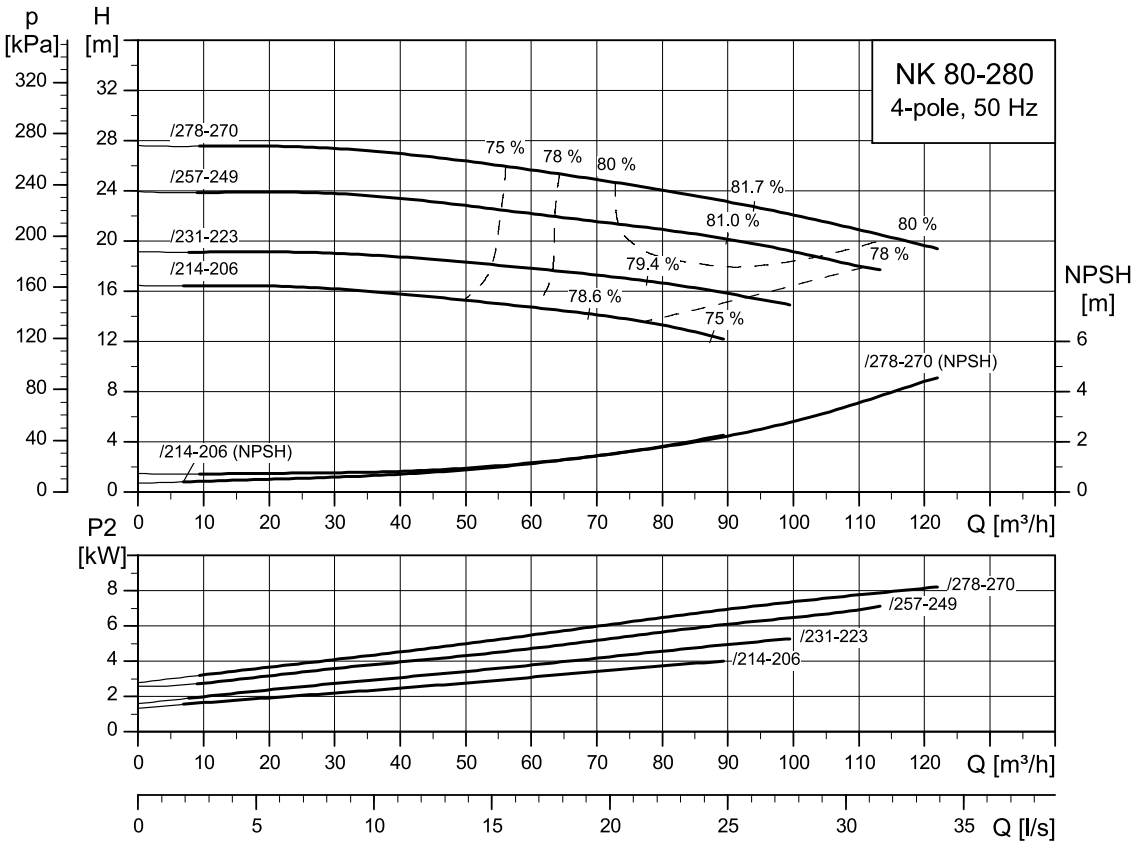


TM1040264

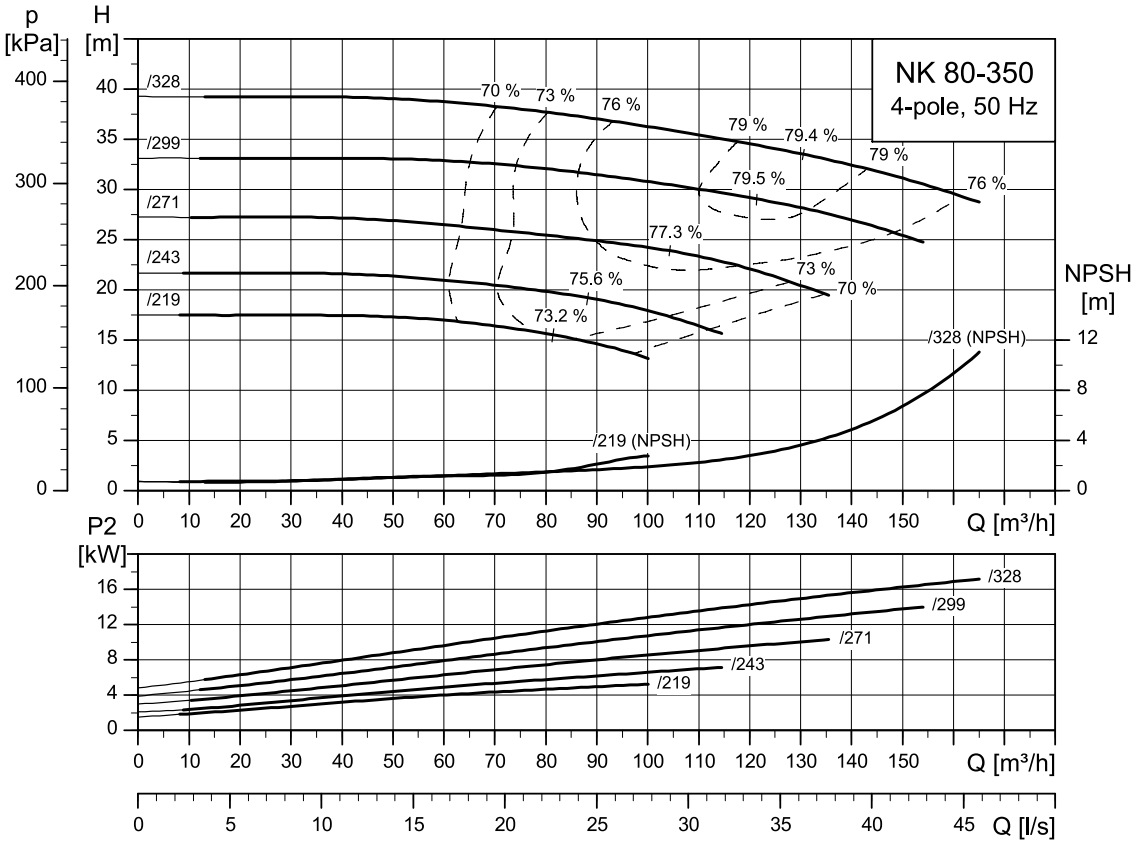
80-225


NK 80-225
4-pole, 50 Hz
p [kPa]
H [m]
/225
/205
/190
/171
/156
/139
69 %
74 %
78 %
81 %
84 %
84.8 %
84 %
81.9 %
81 %
82.1 %
76.8 %
74 %
75.1 %
69 %
69.7 %
/225 (NPSH)
/139 (NPSH)
NPSH [m]
Q [m³/h]
P2 [kW]
Q [l/s]
TM1040265

80-280

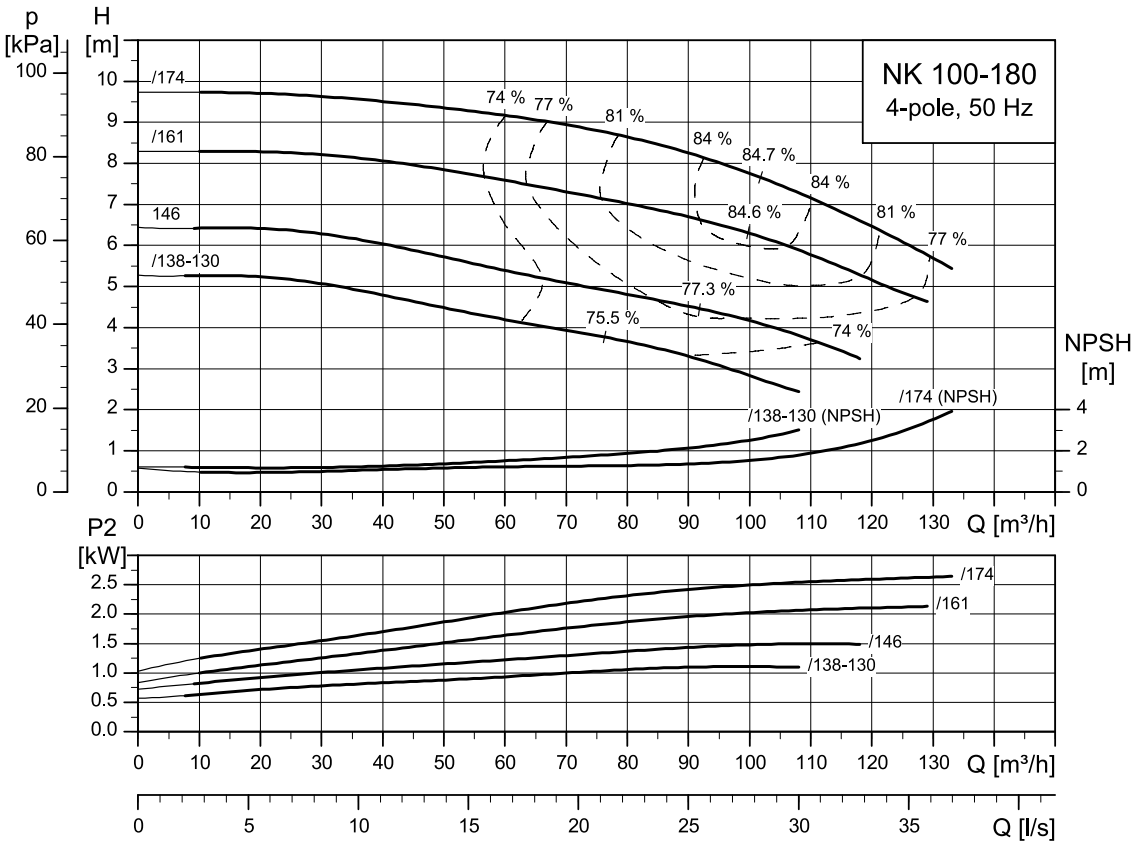

NK 80-280
4-pole, 50 Hz
p [kPa]
H [m]
/278-270
/257-249
/231-223
/214-206
75 %
78 %
80 %
81.7 %
81.0 %
80 %
78 %
79.4 %
78.6 %
75 %
/278-270 (NPSH)
/214-206 (NPSH)
NPSH [m]
Q [m³/h]
P2 [kW]
Q [l/s]
TM1040266

80-350



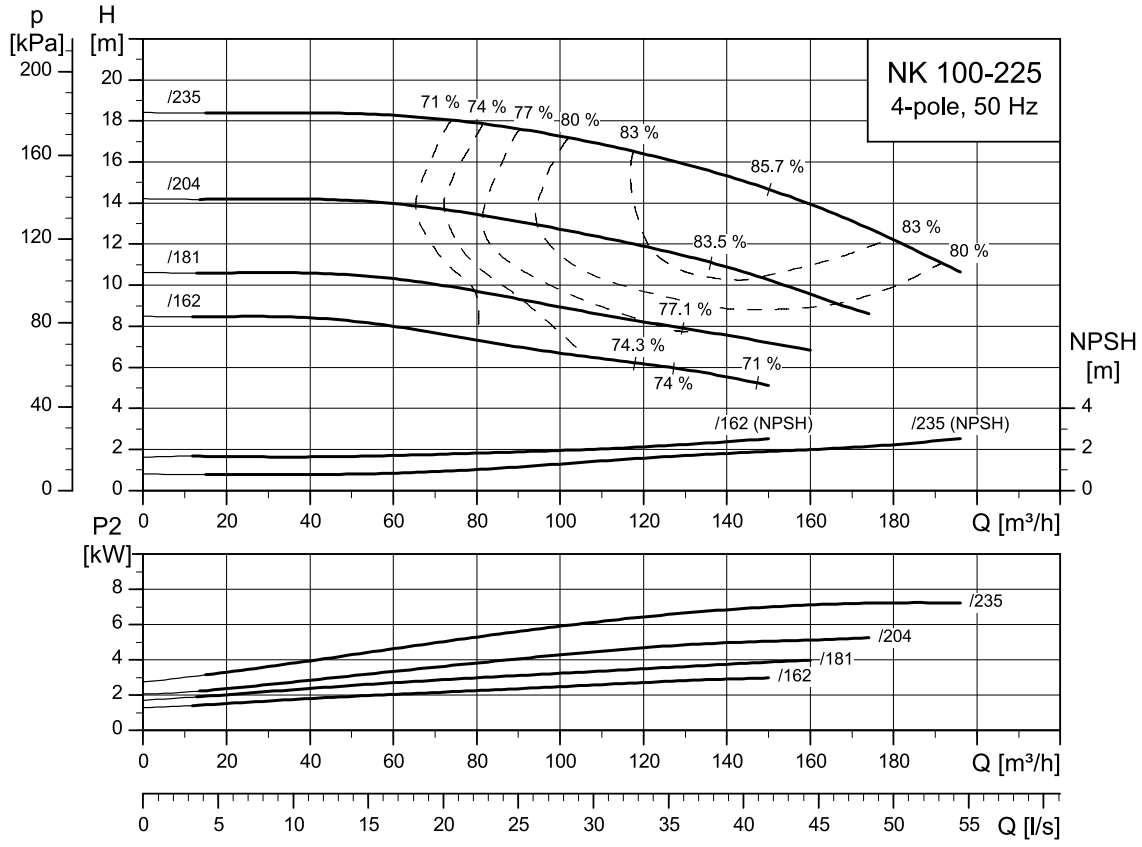
TM1040267

100-180



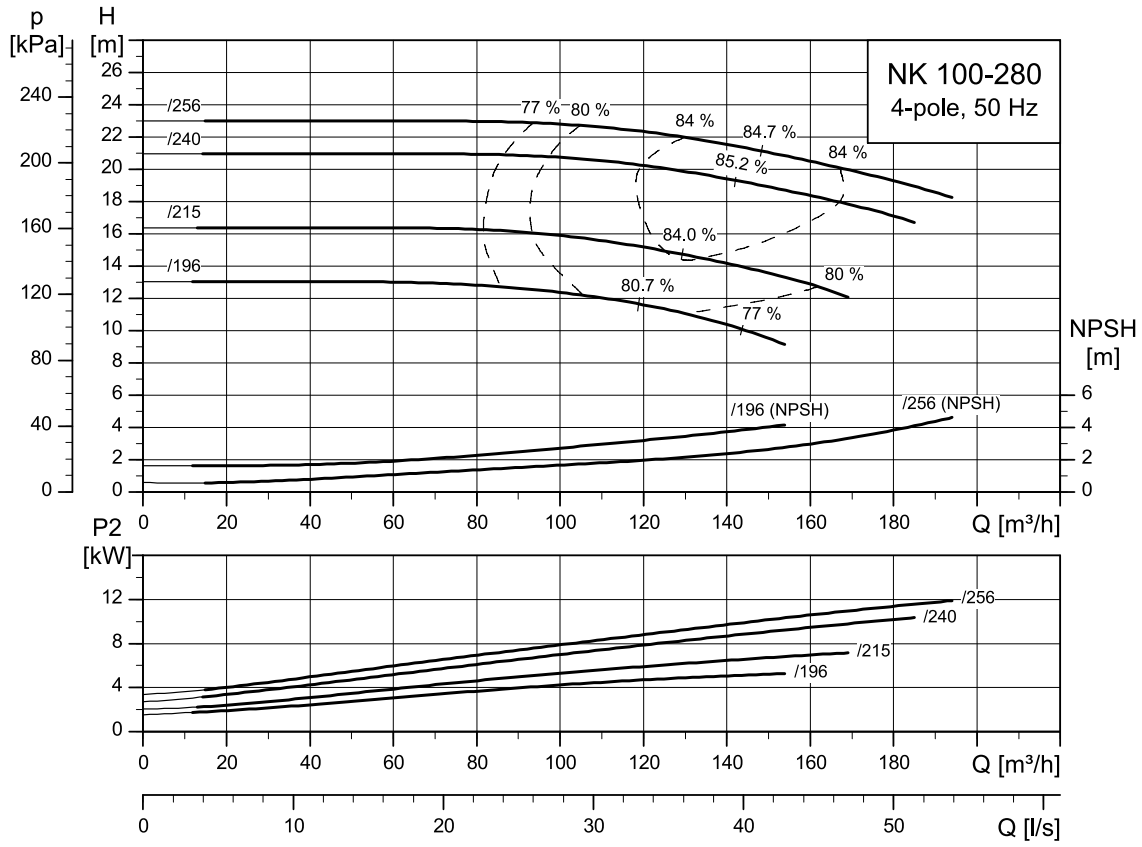
TM1040268

100-225



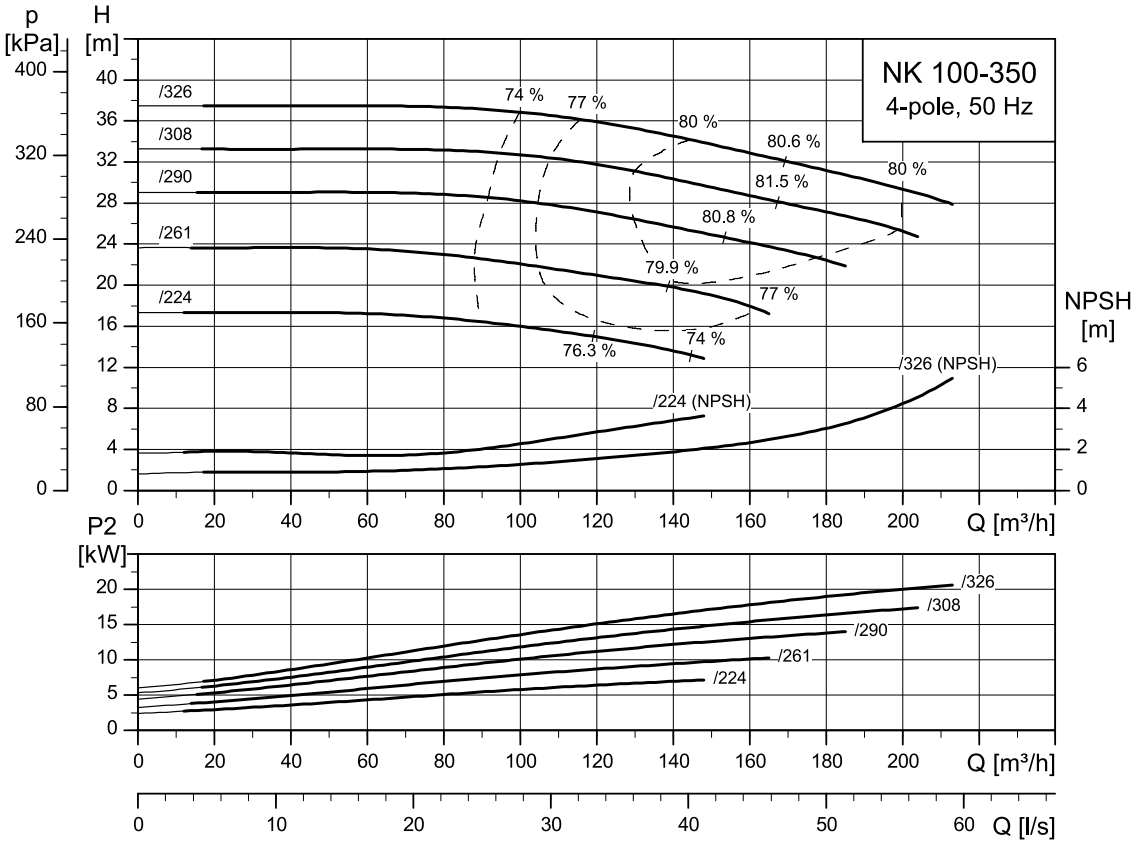
TM1040269

100-280



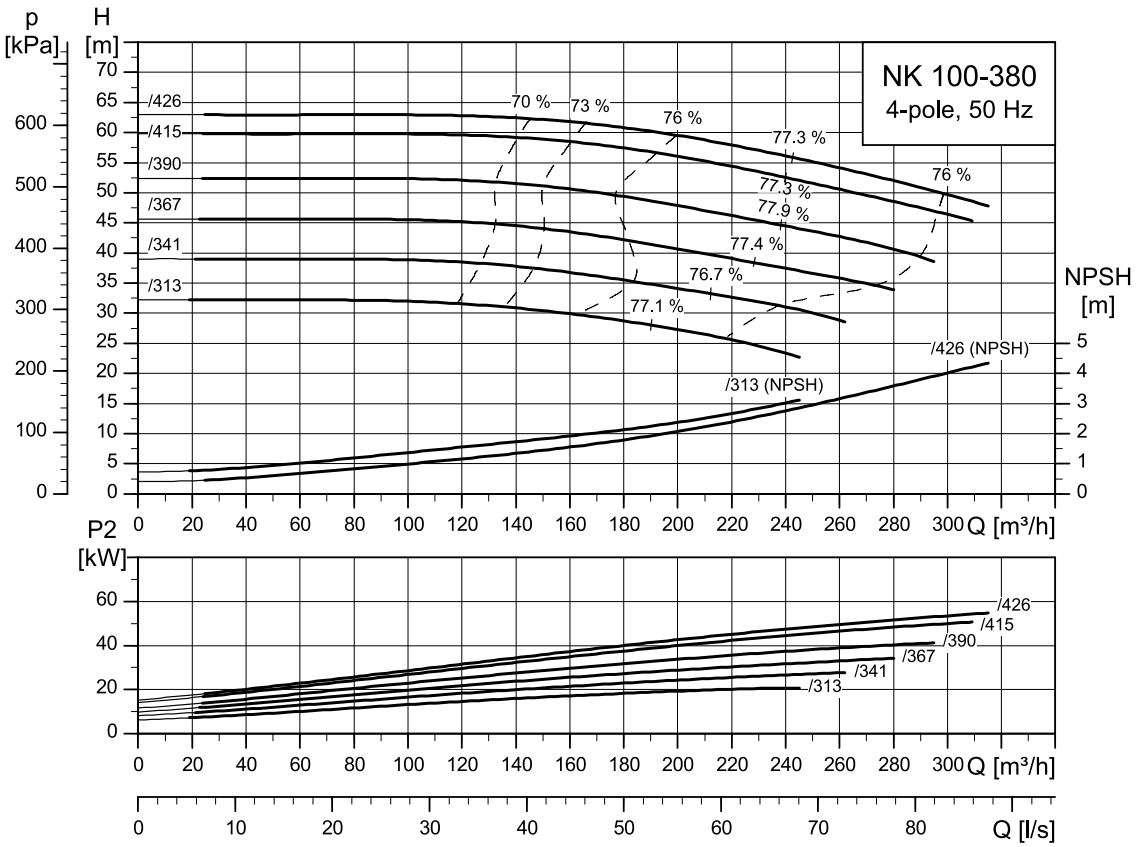
TM1040270

100-350



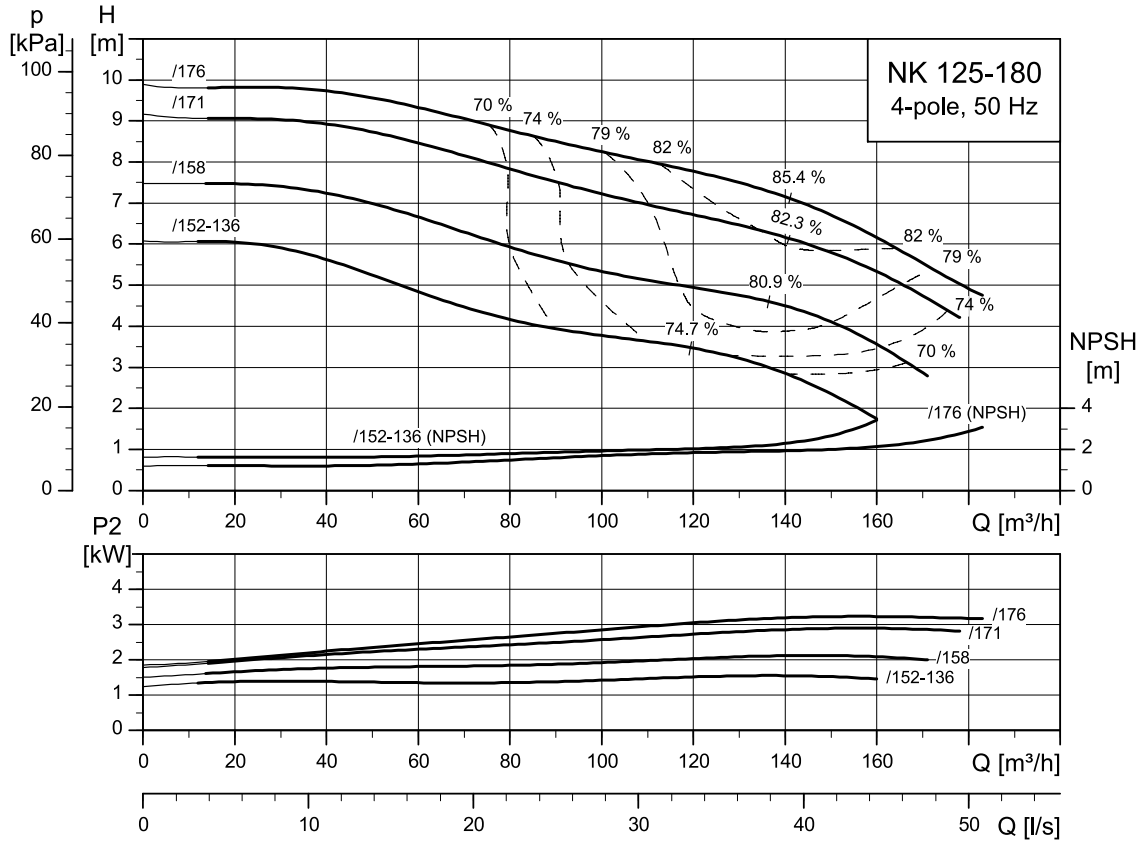
TM1040271

100-380

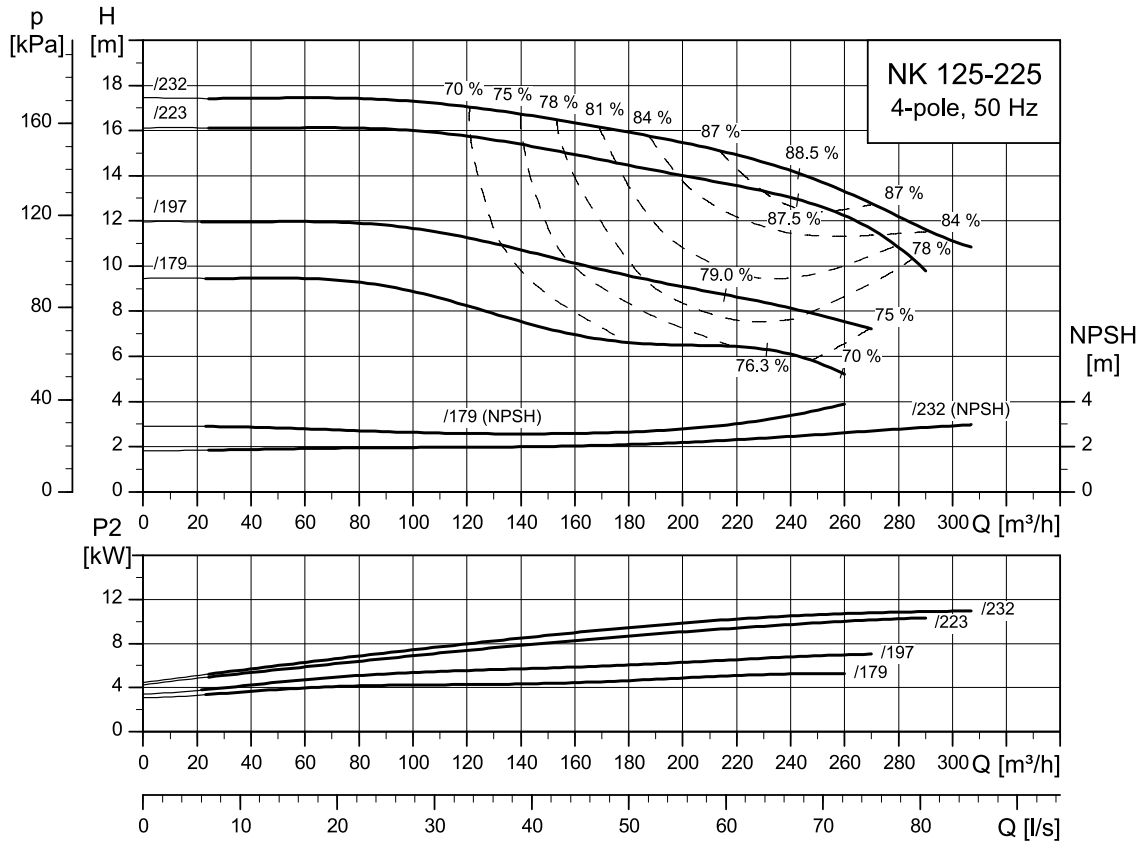


TM1040272

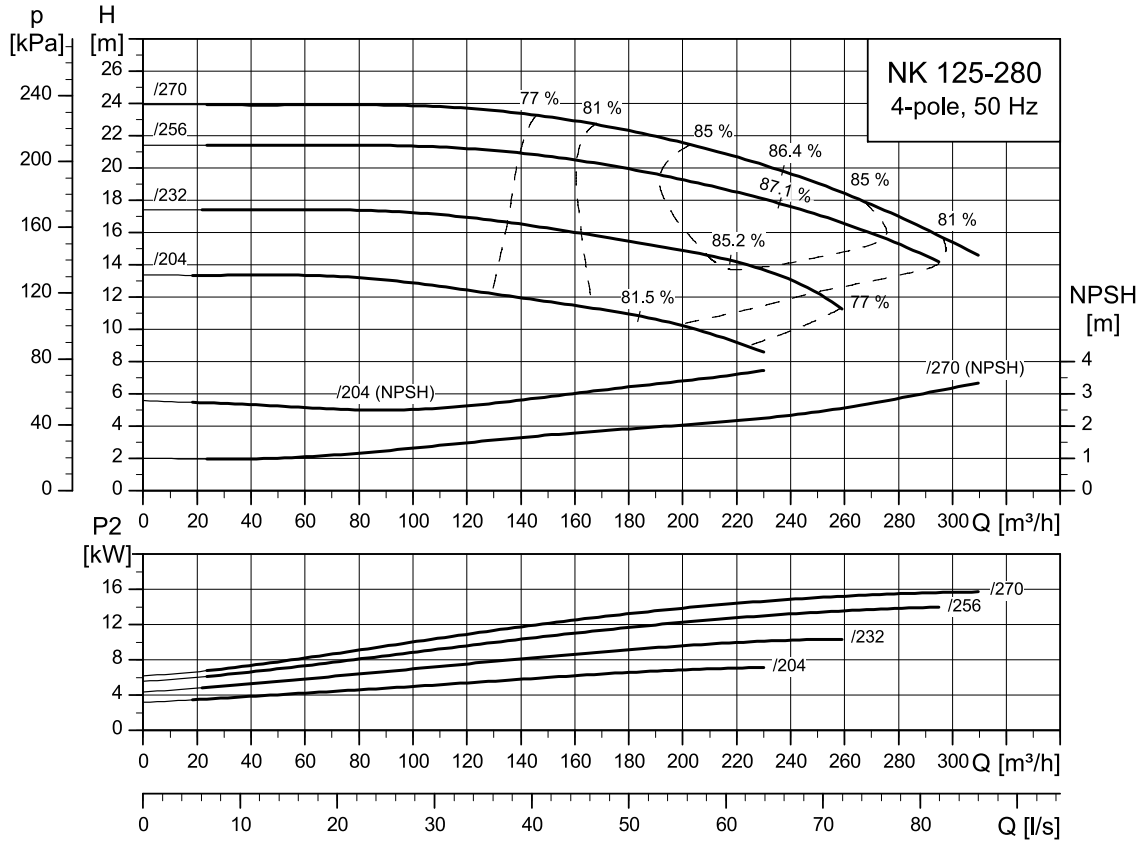
125-180



125-225

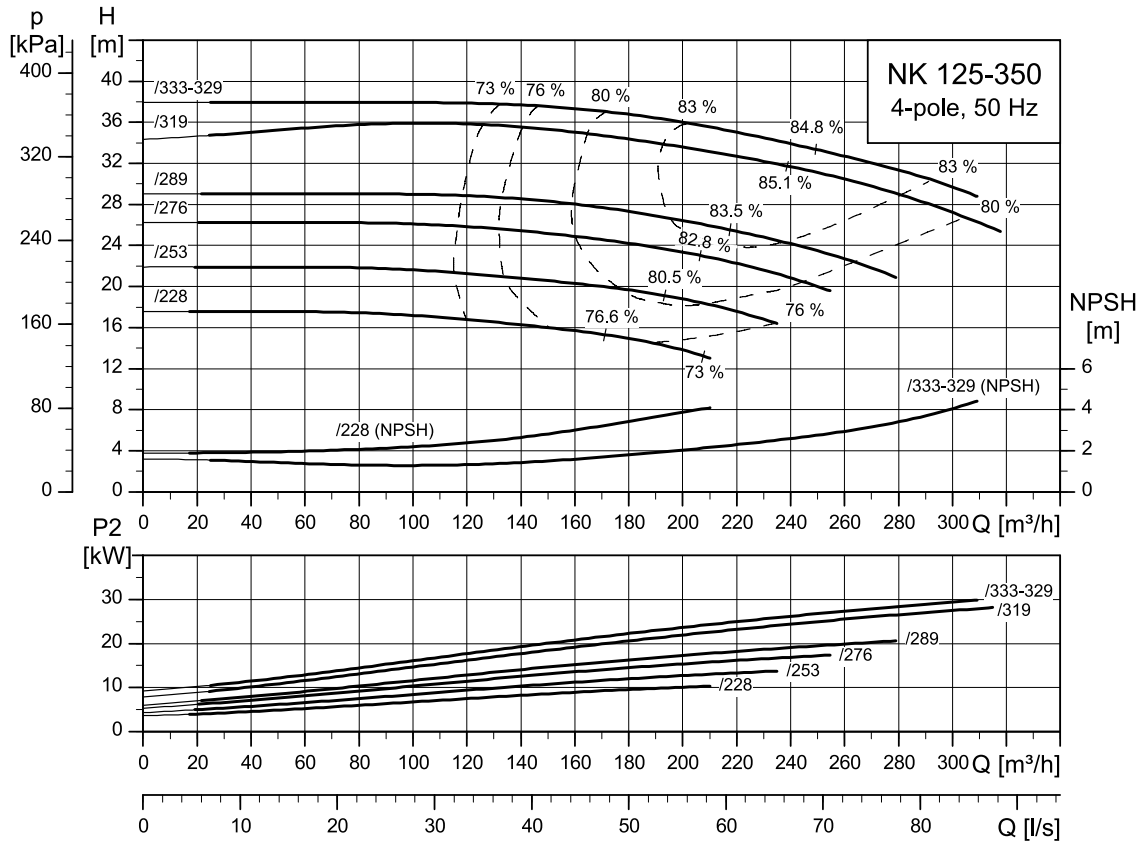


125-280



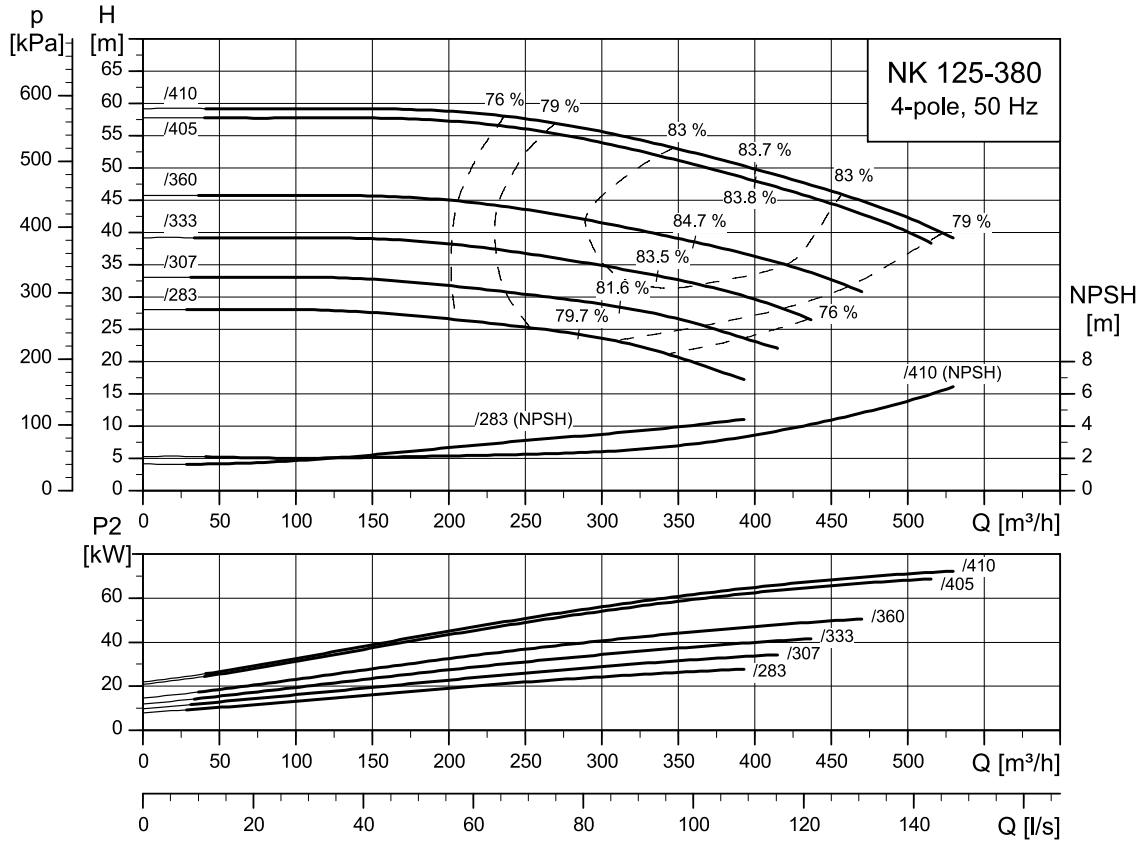
TM1040274

125-350



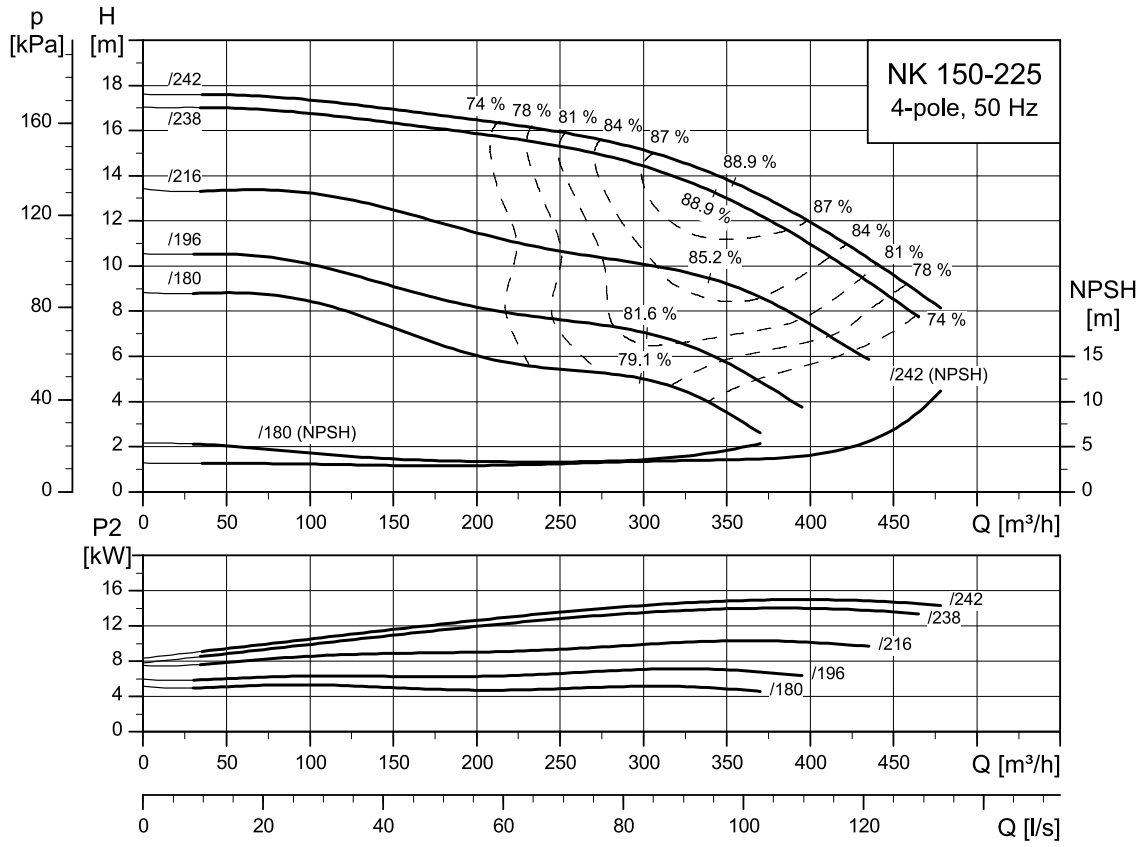
TM1040275

125-380



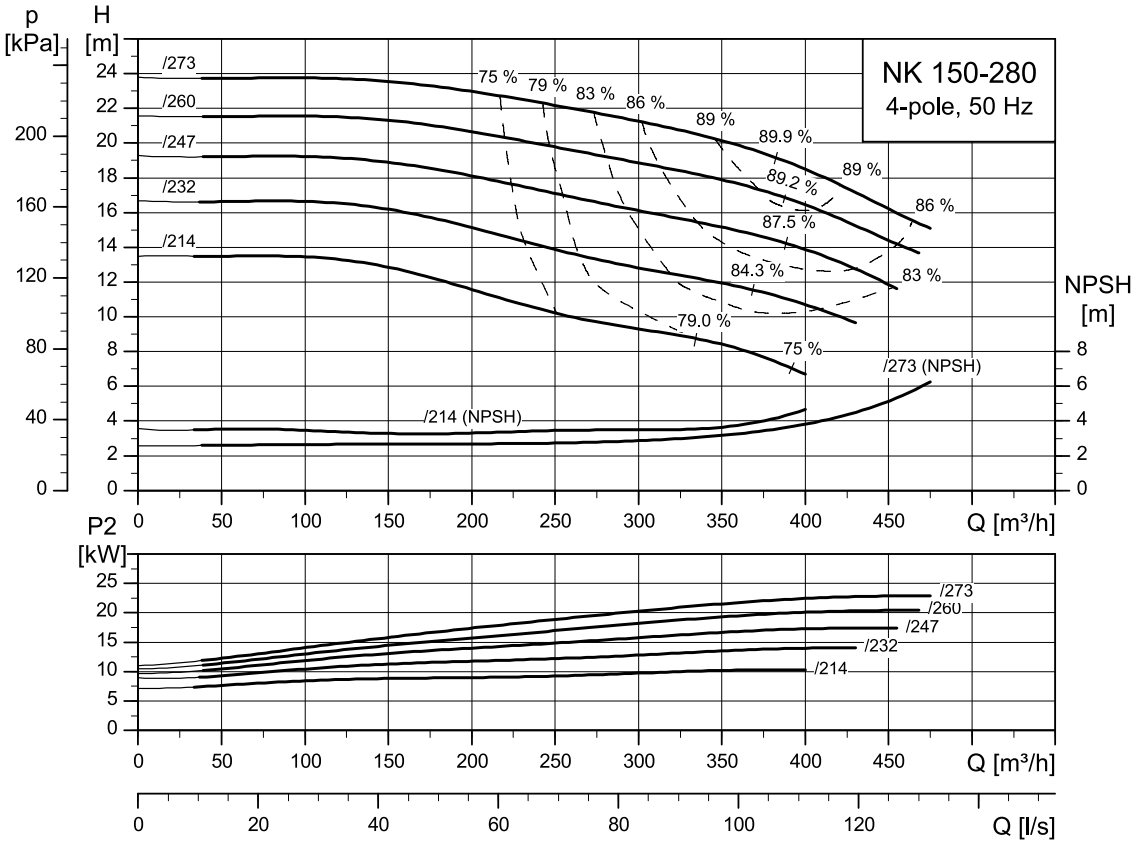
TM1040276

150-225



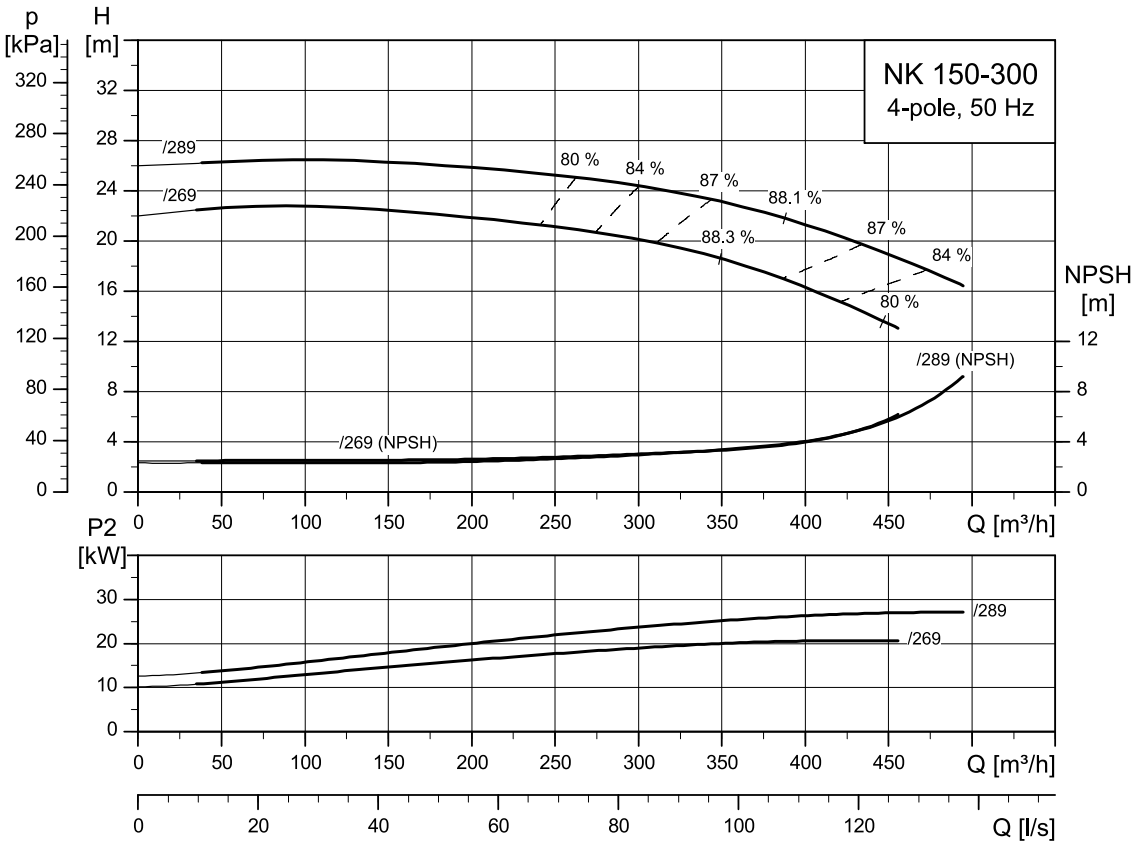
TM1040278

150-280



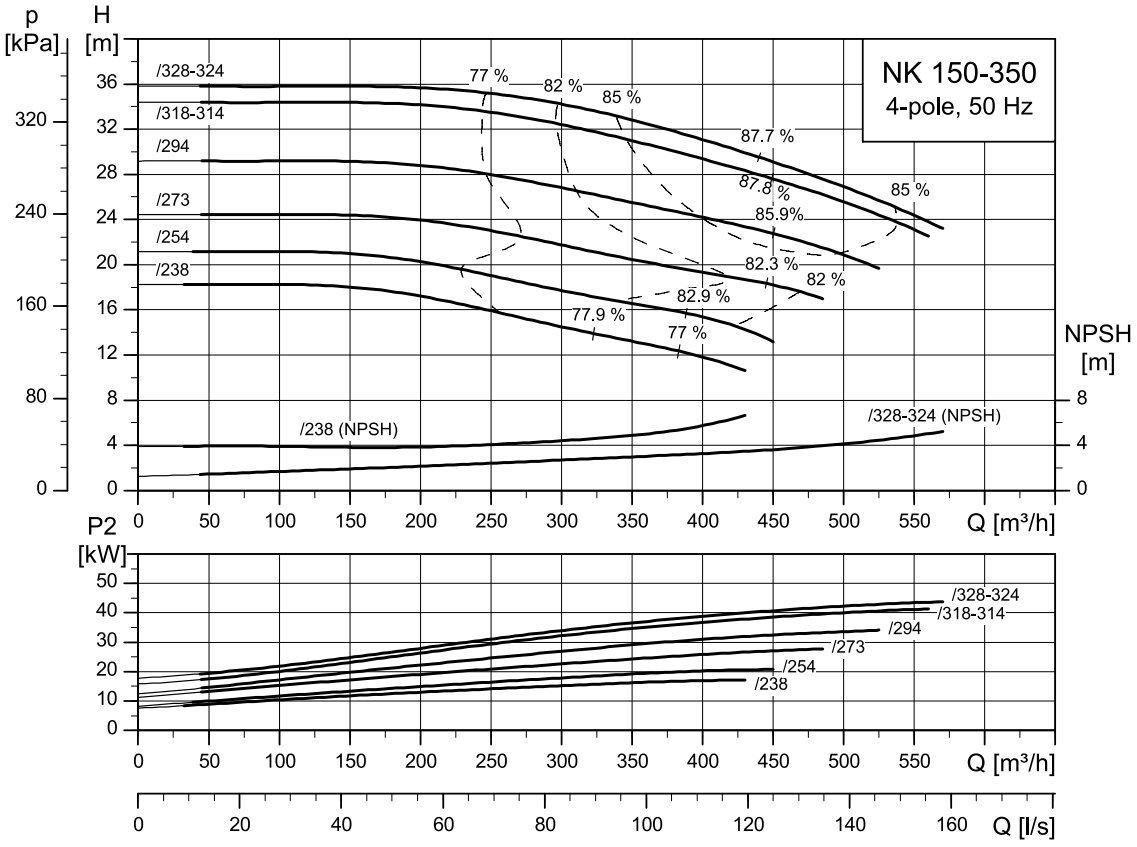
TM1040279

150-300



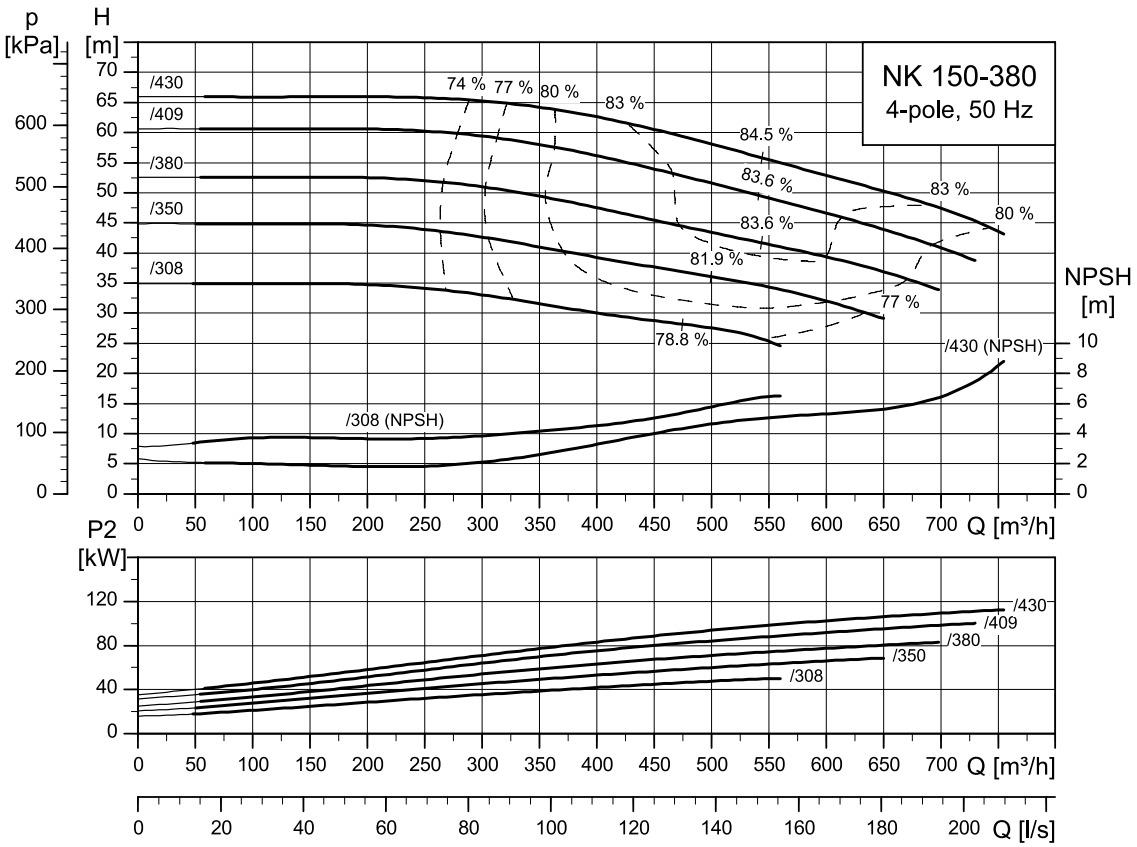
TM084997

150-350



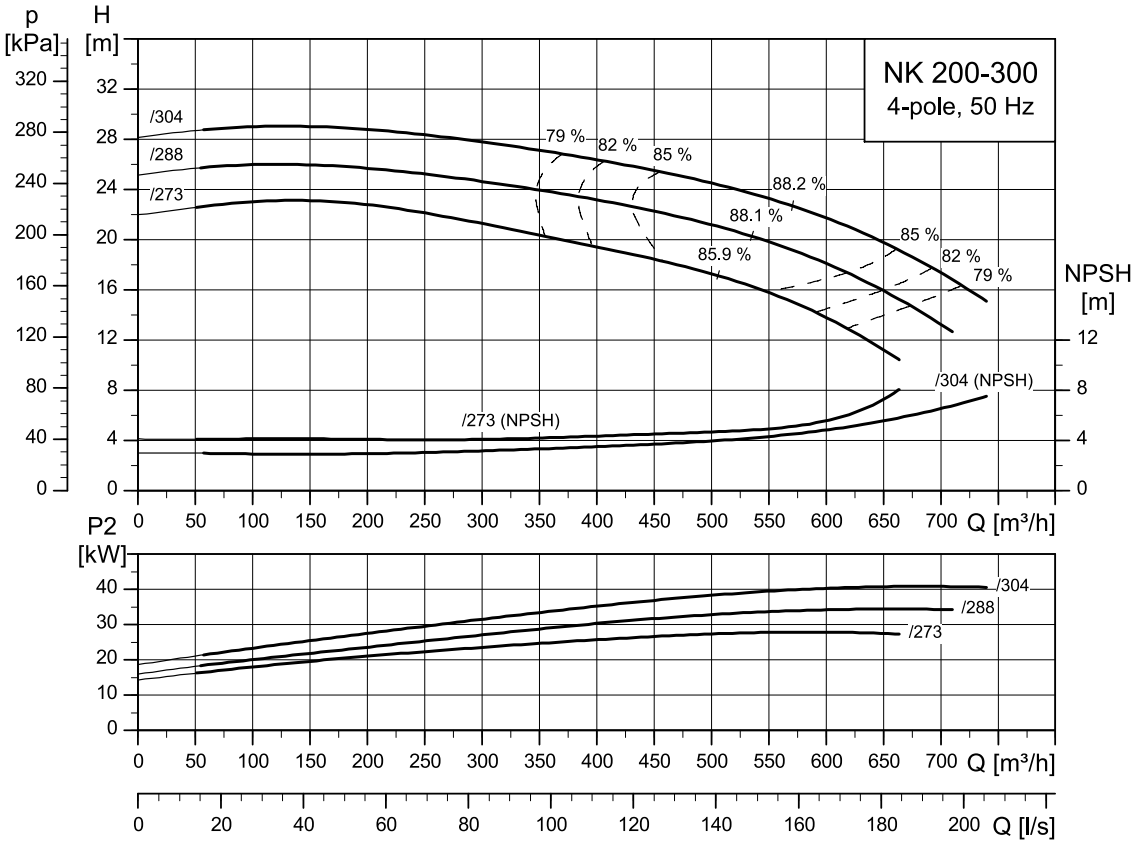
TM1040280

150-380



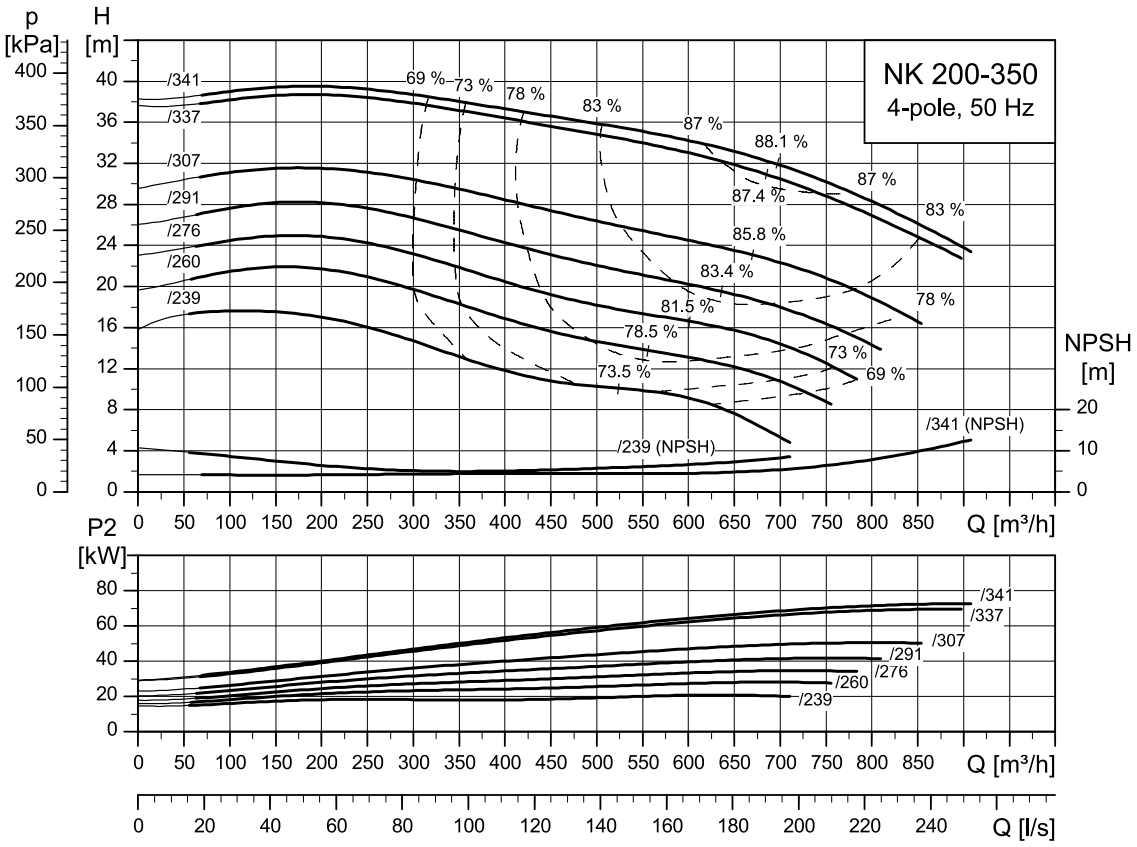
TM1040281

200-300



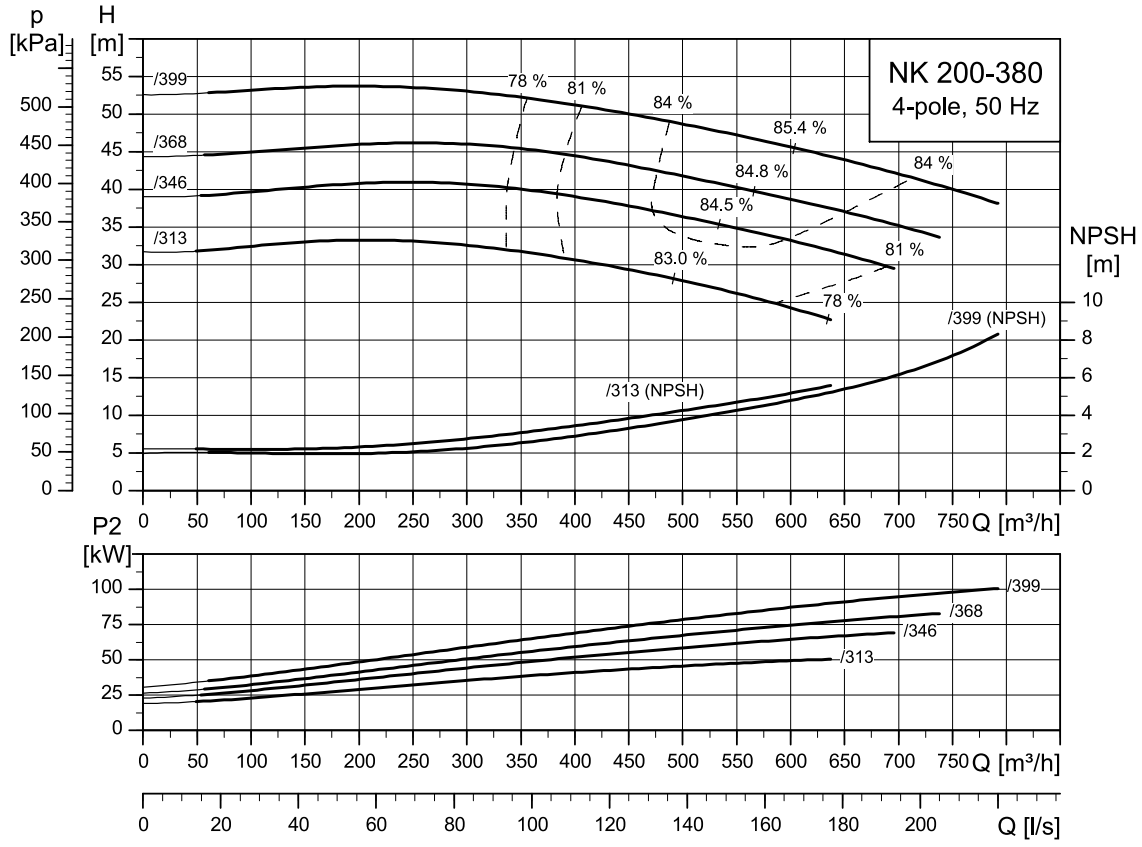
TM085001

200-350



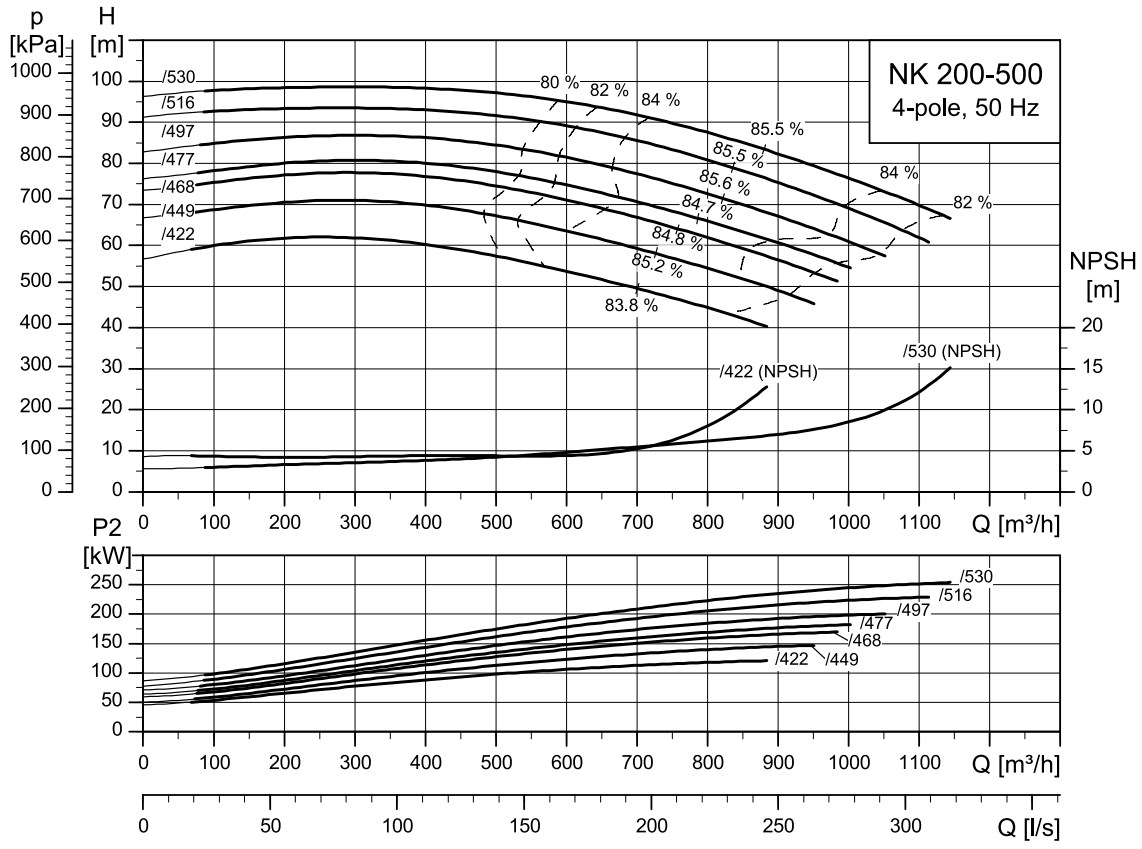
TM085020

200-380



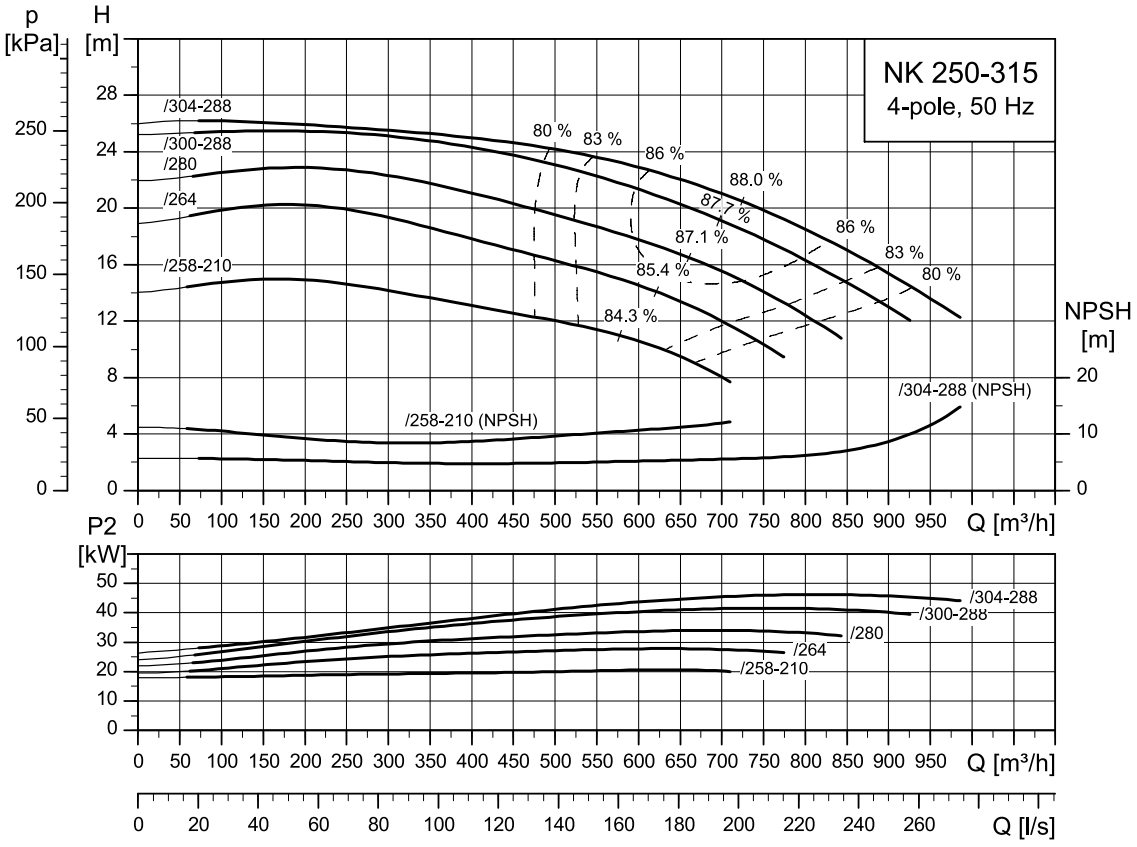
TM084985

200-500



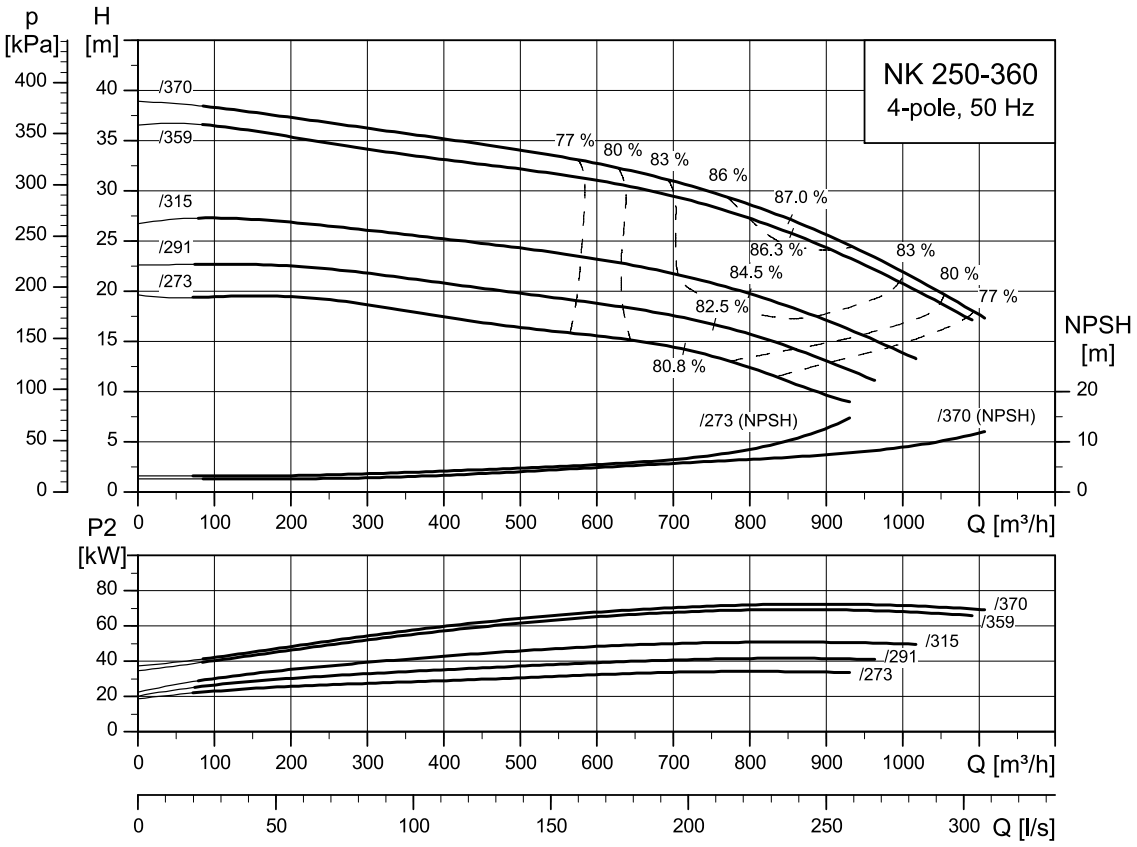
TM085005

250-315



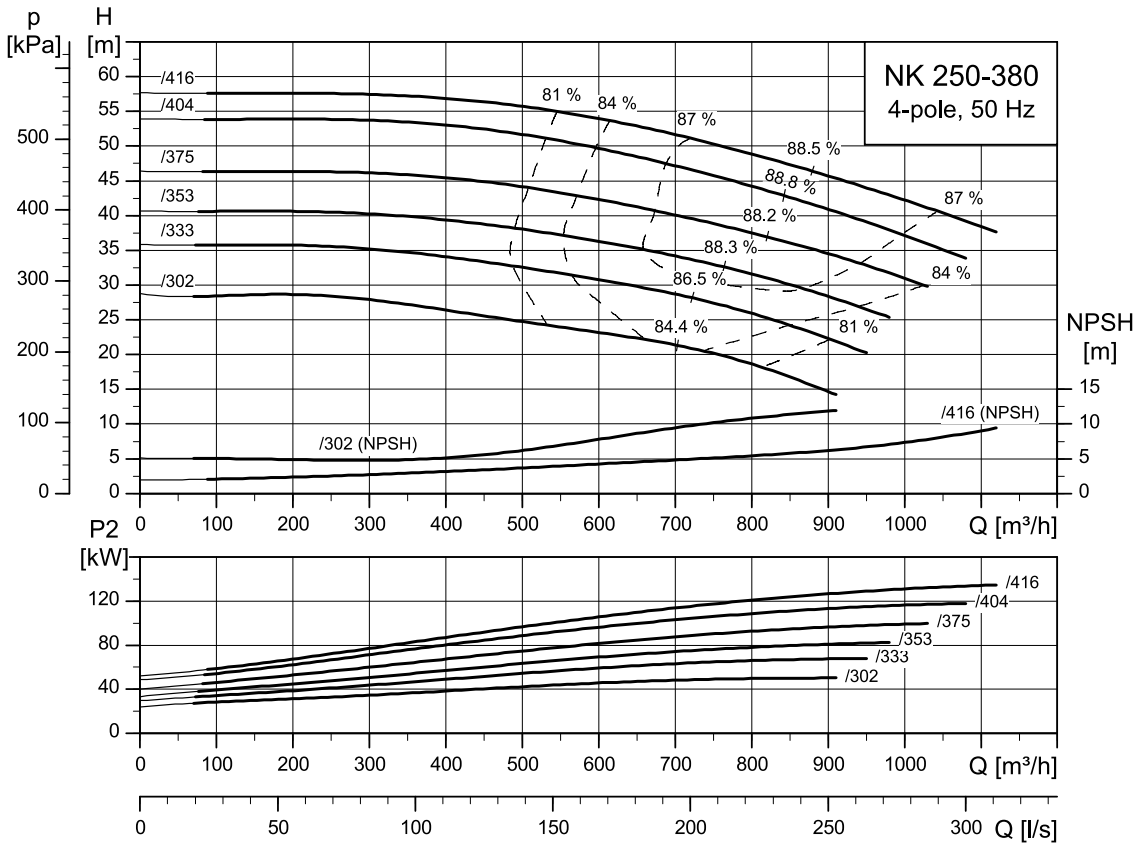
TM085016

250-360



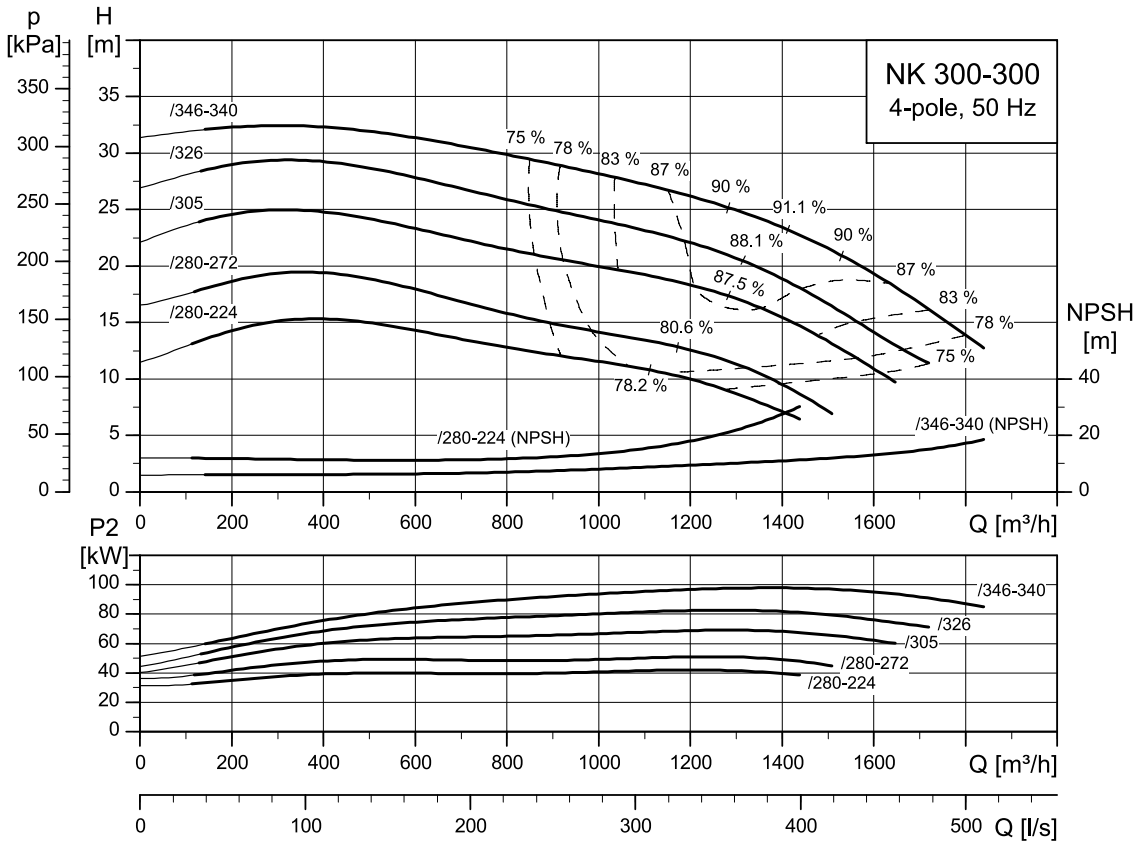
TM084981

250-380



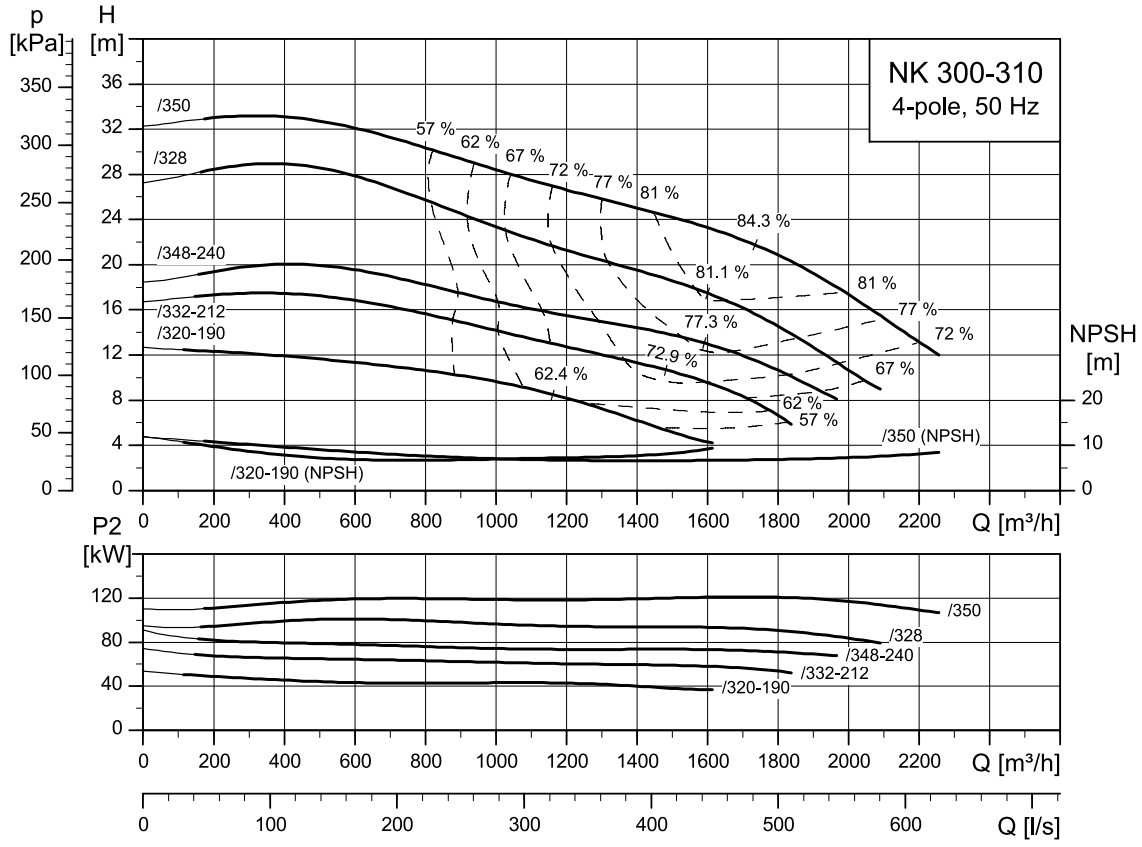
TM1040282

300-300



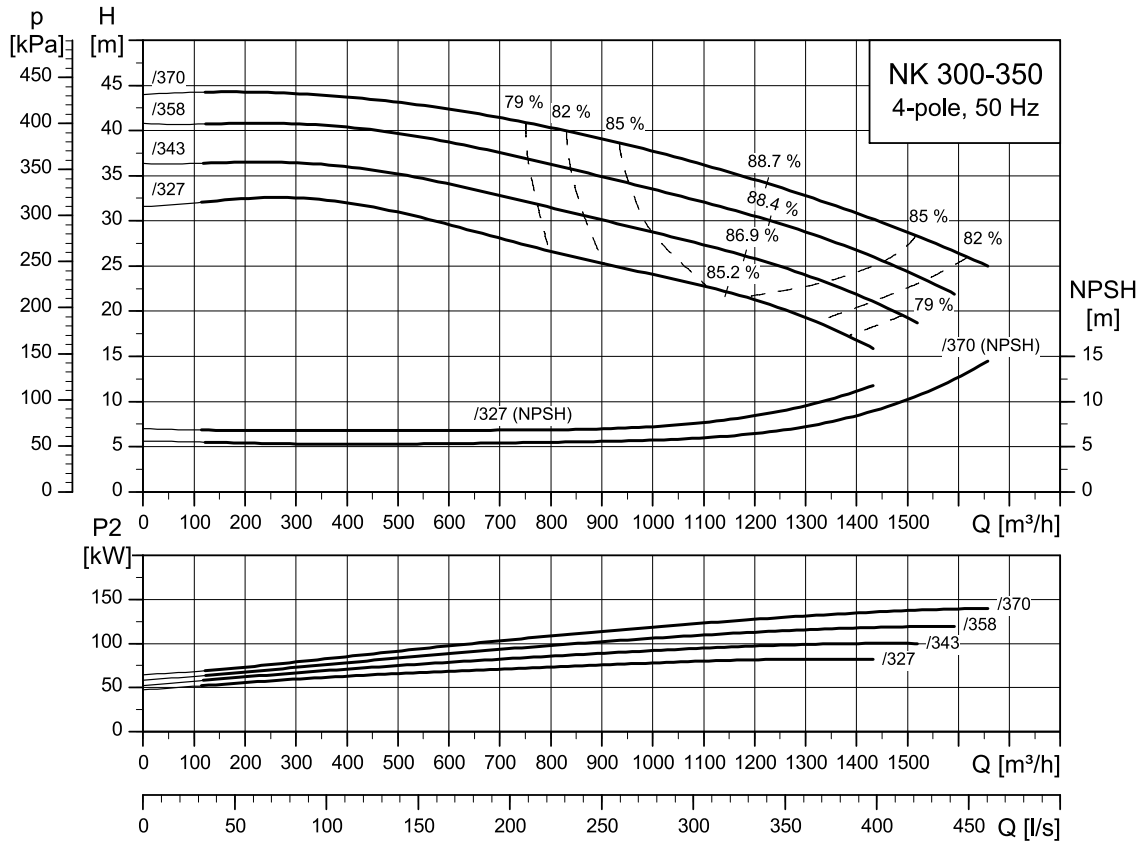
TM084989

300-310



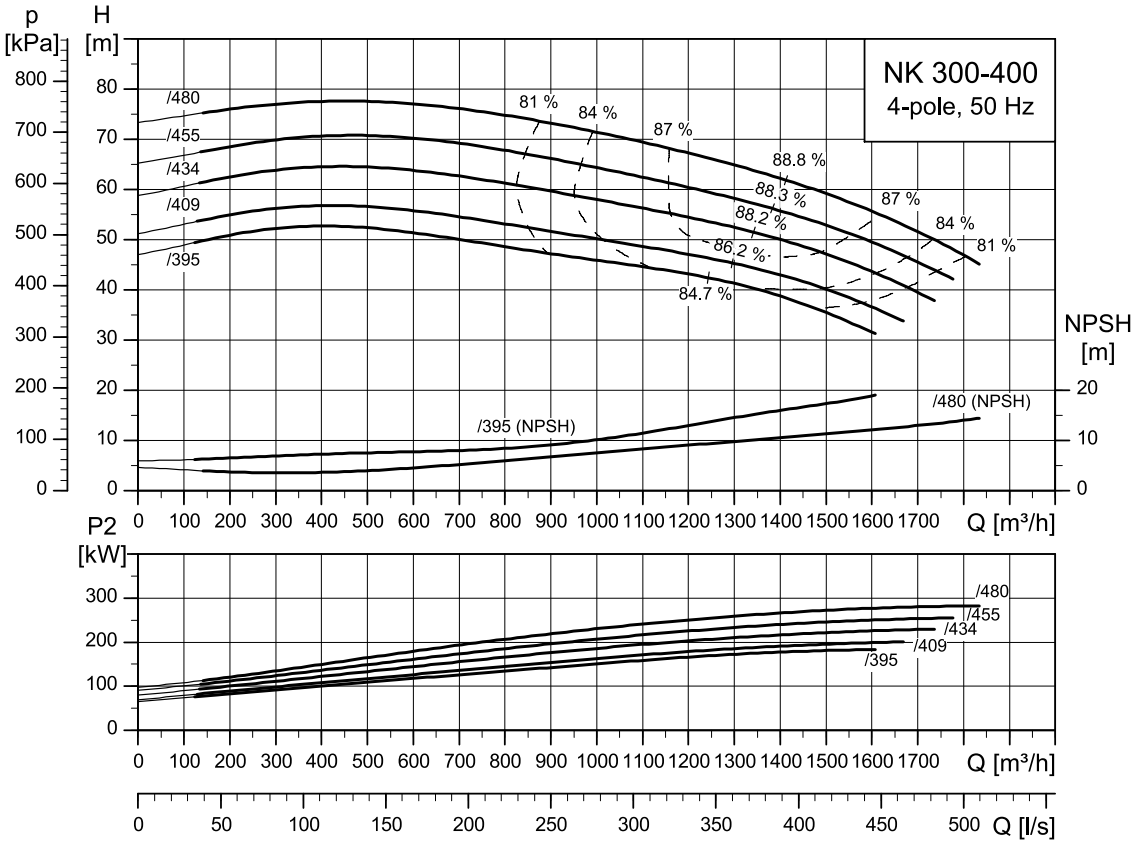
TM085018

300-350



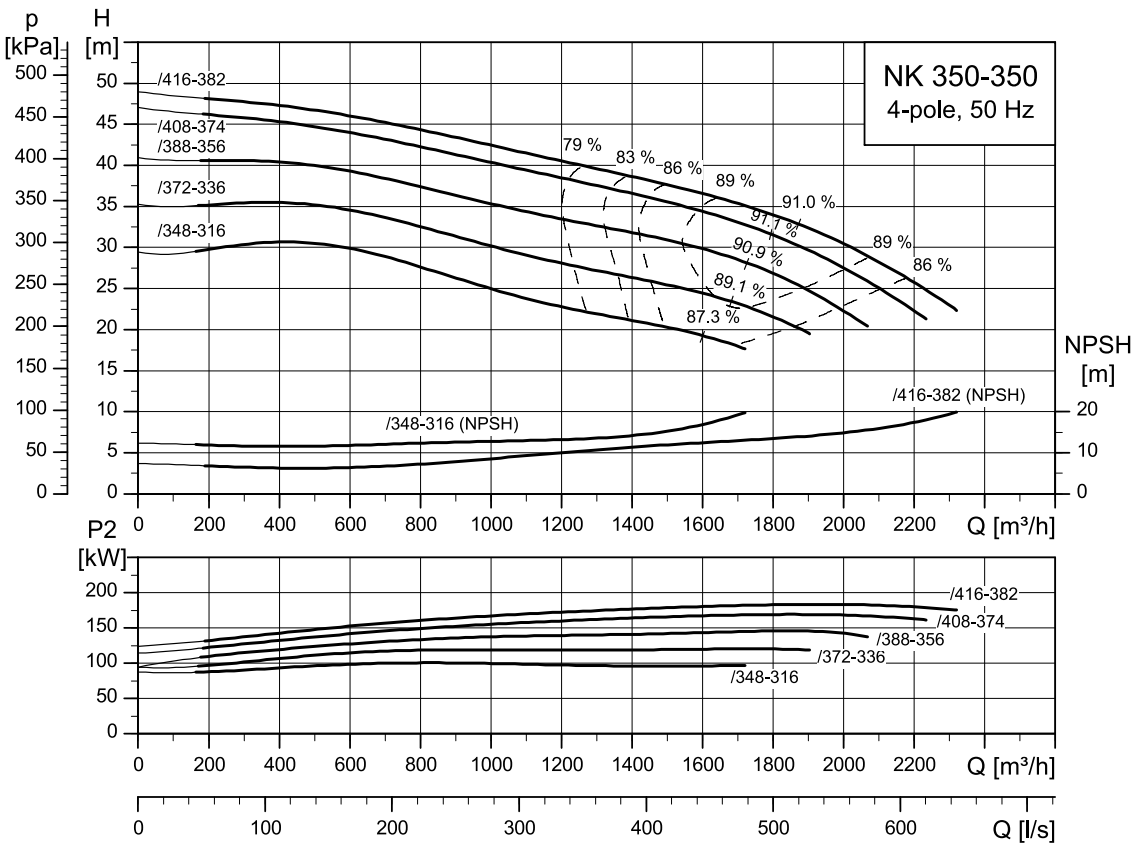
TM085012

300-400



TM085009

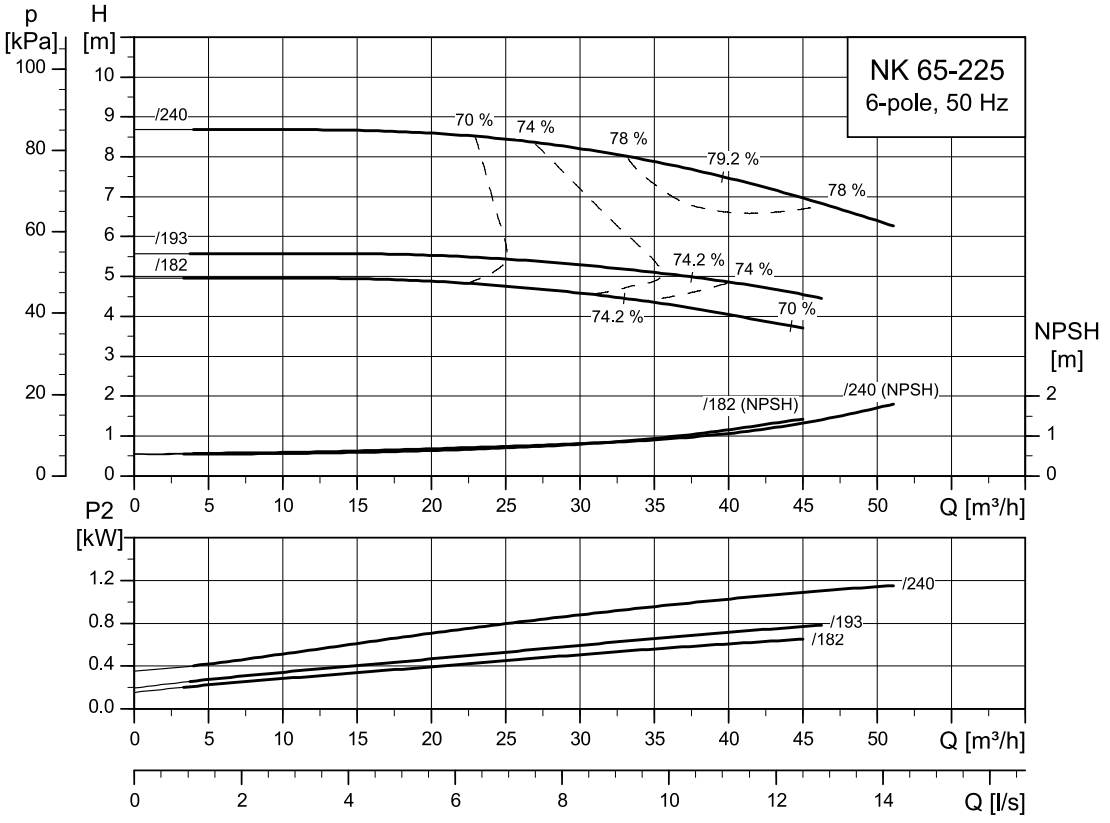
350-350



TM084993

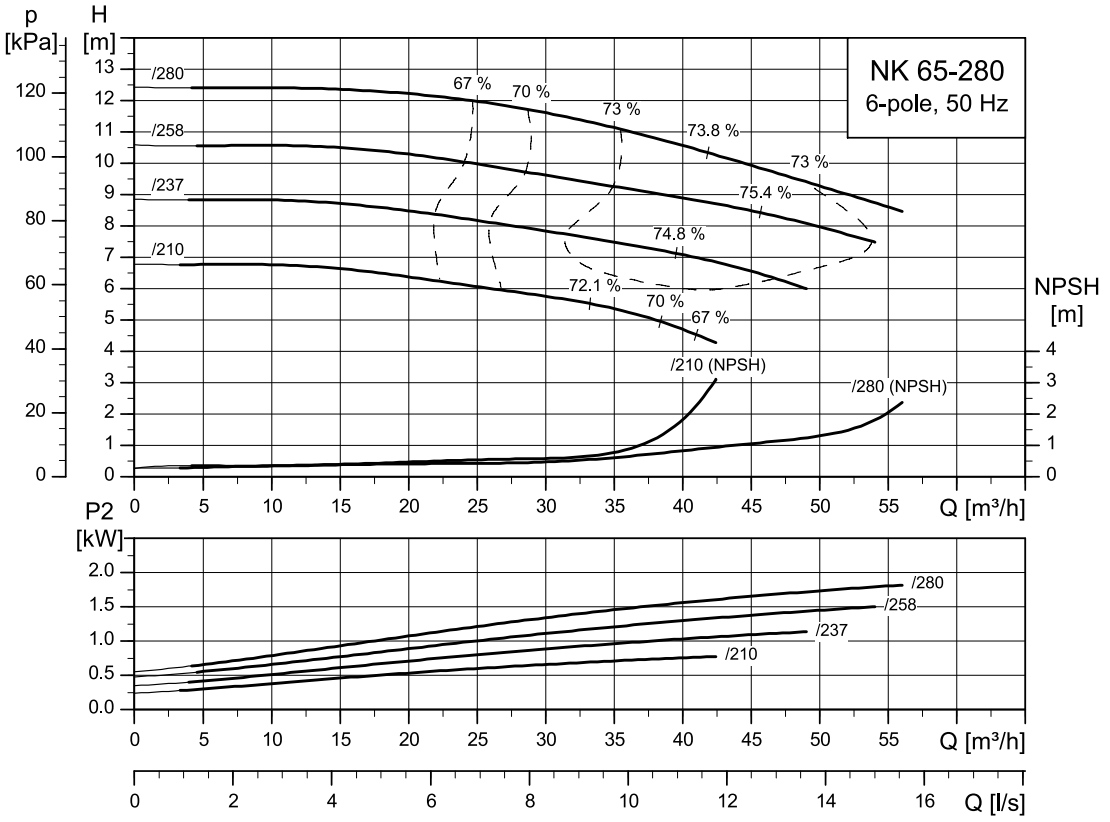
6-pole

65-225



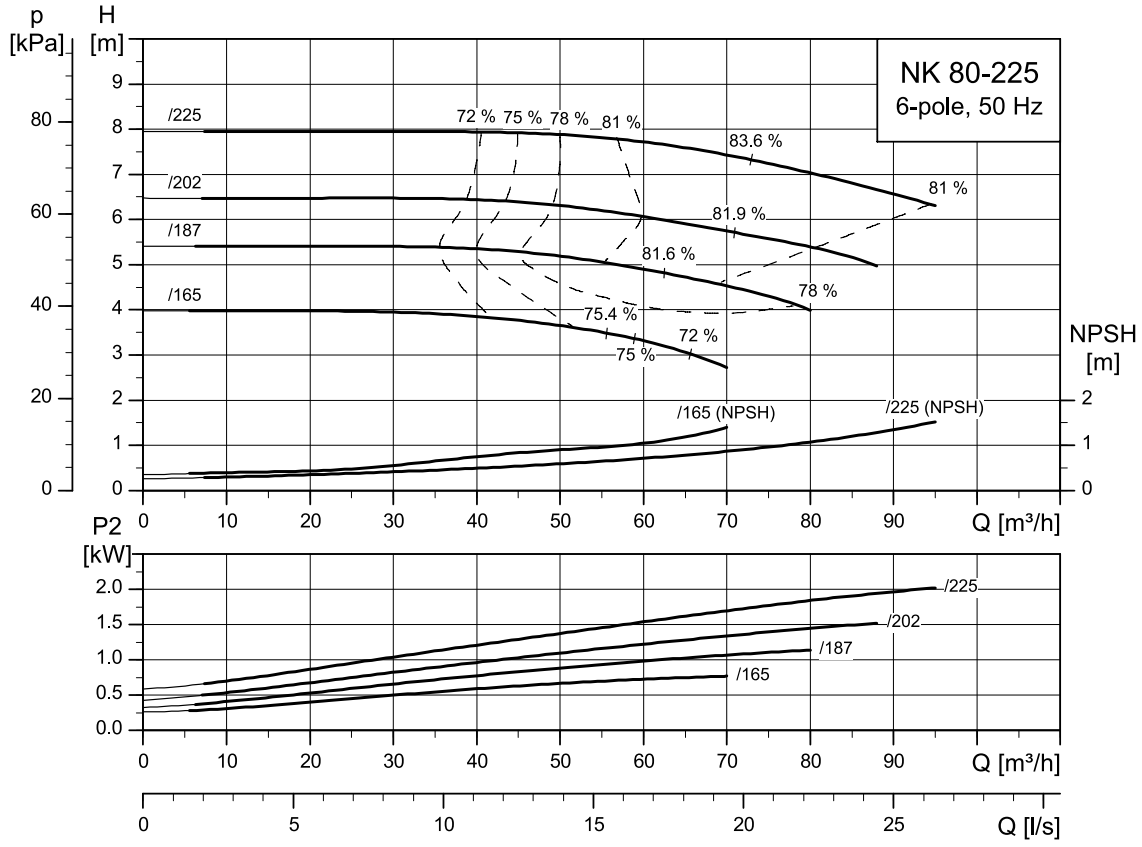
TM1040283

65-280



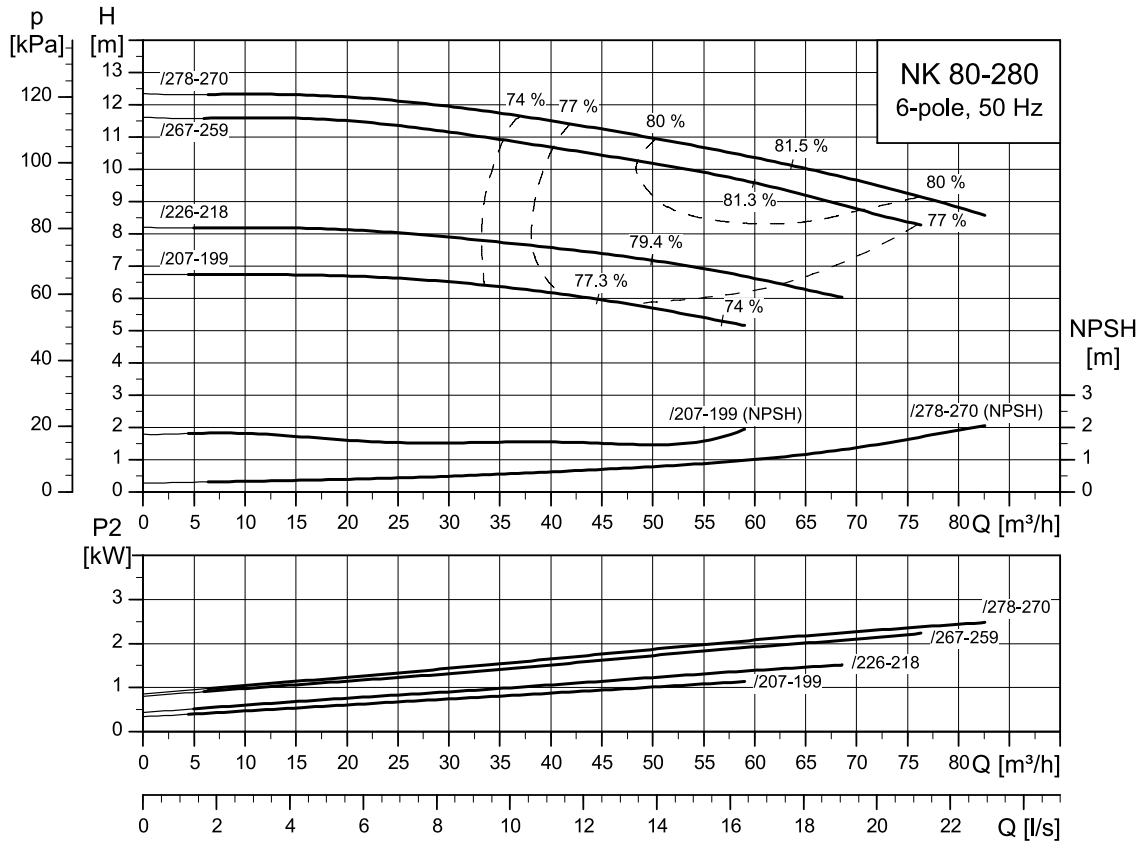
TM1040284

80-225



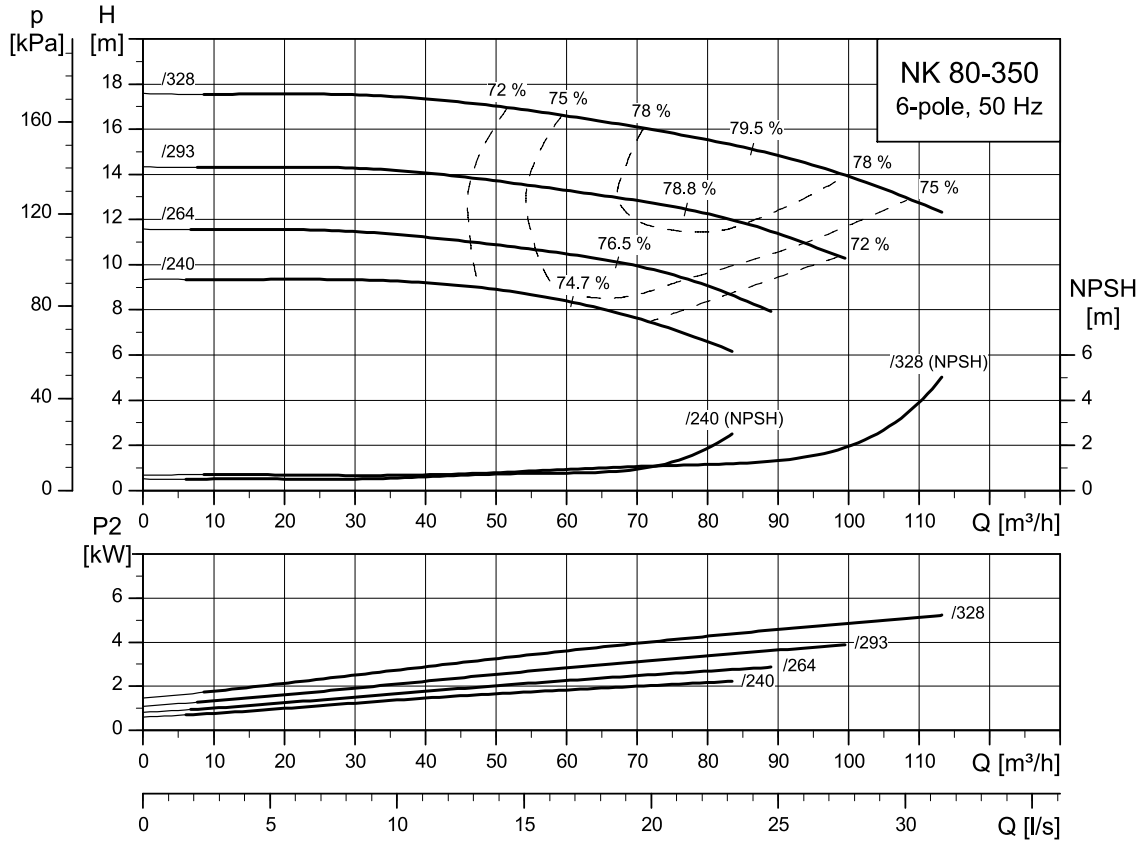
TM1040285

80-280



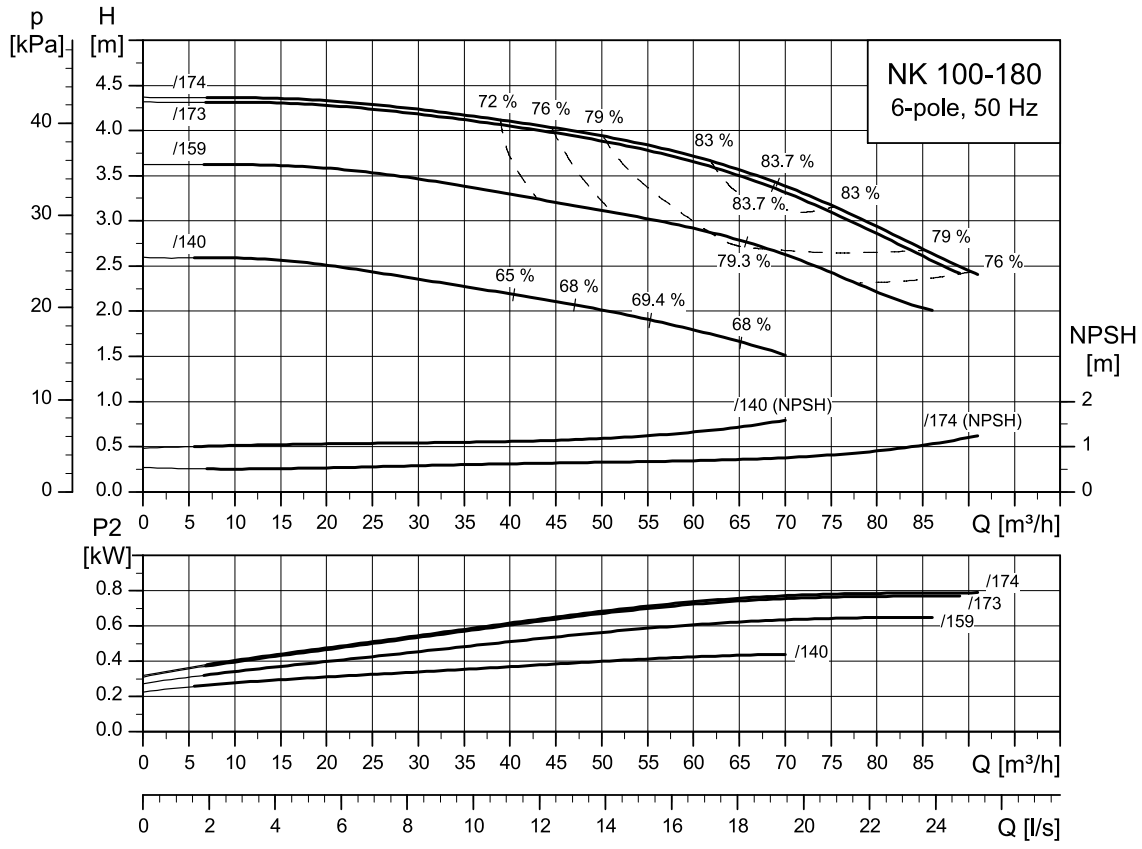
TM1040286

80-350



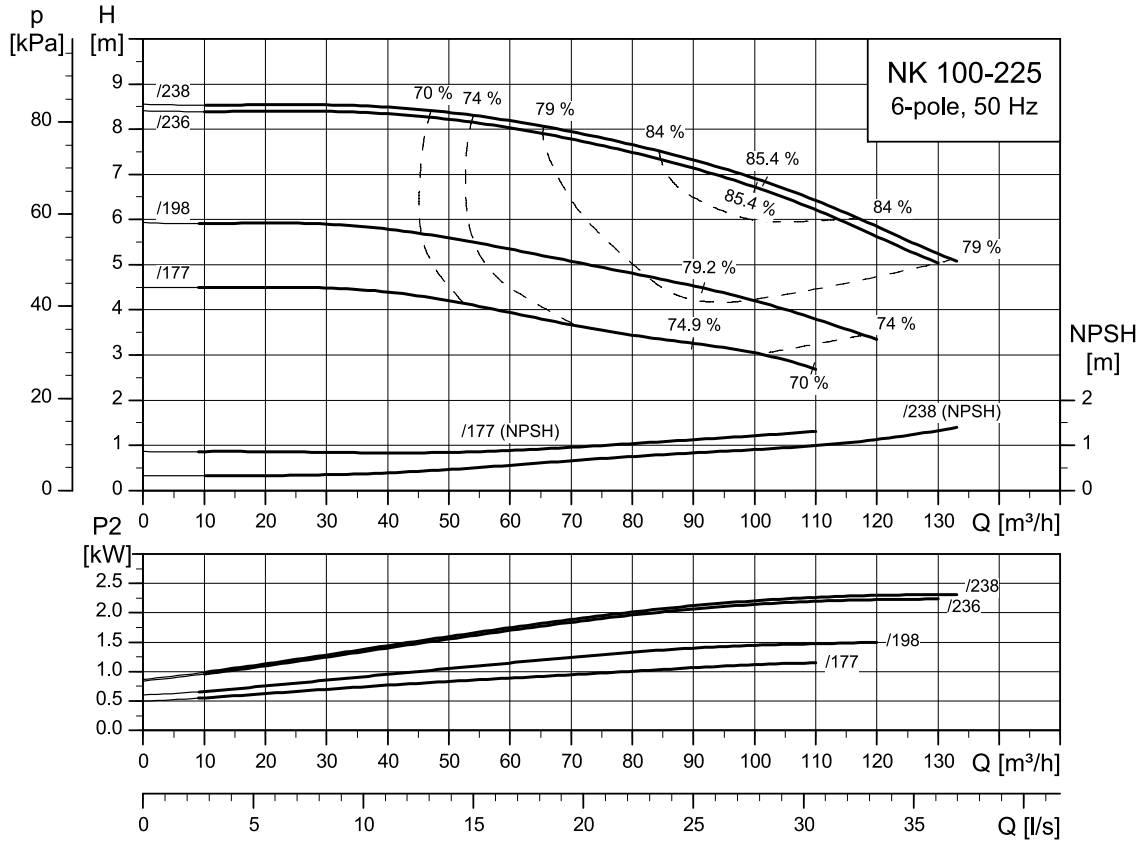
TM1040287

100-180



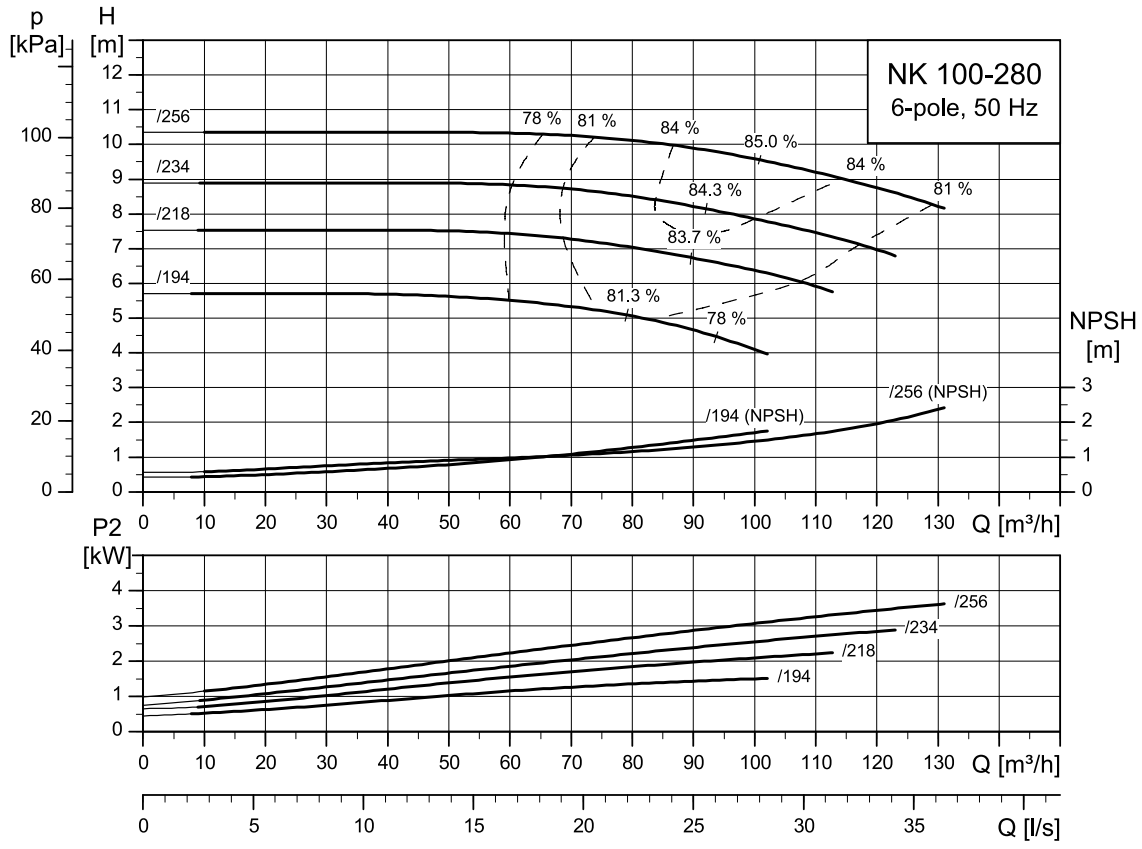
TM1040288

100-225



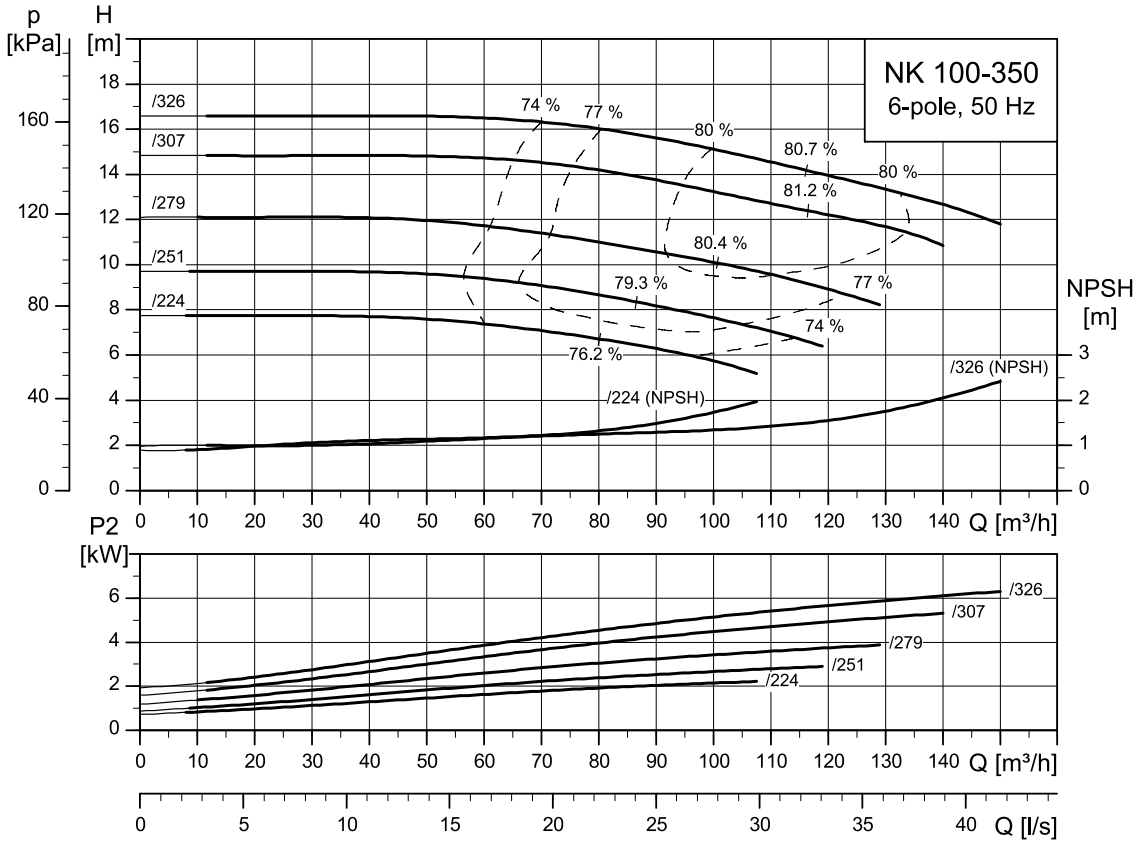
TM1040289

100-280



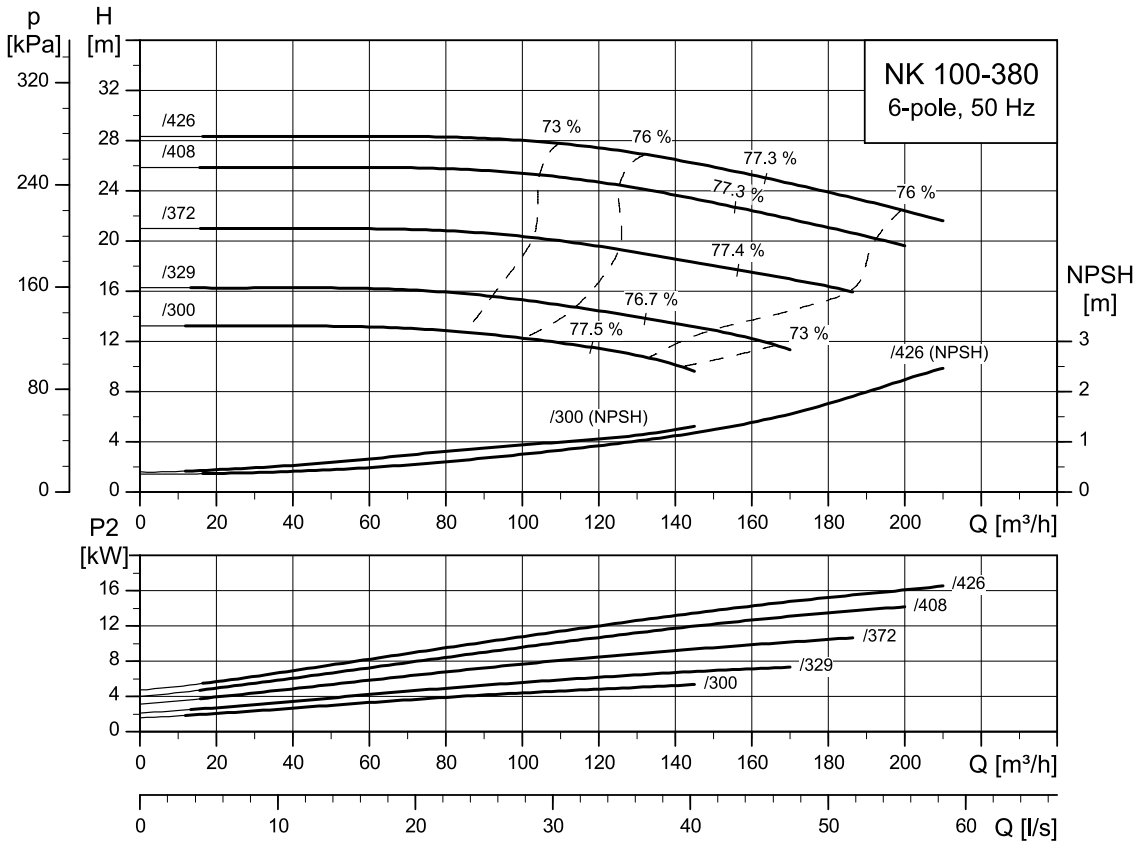
TM1040290

100-350



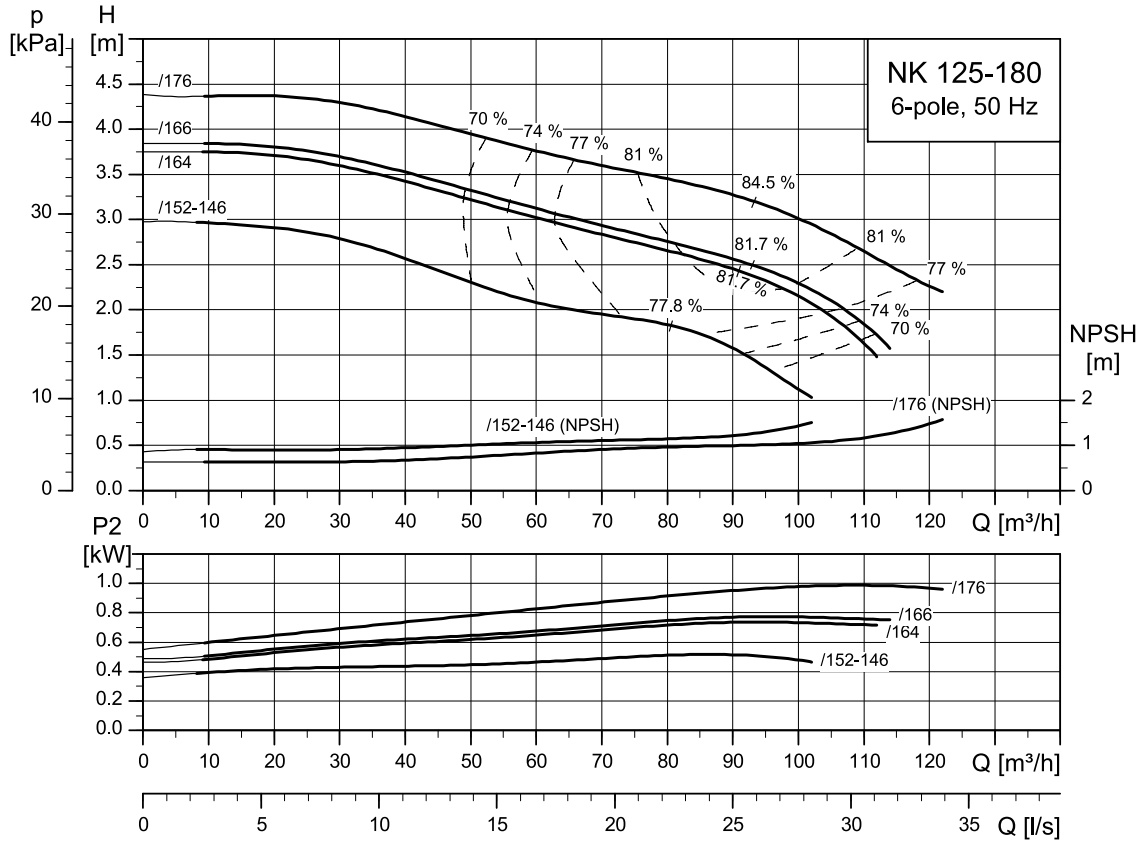
TM1040291

100-380



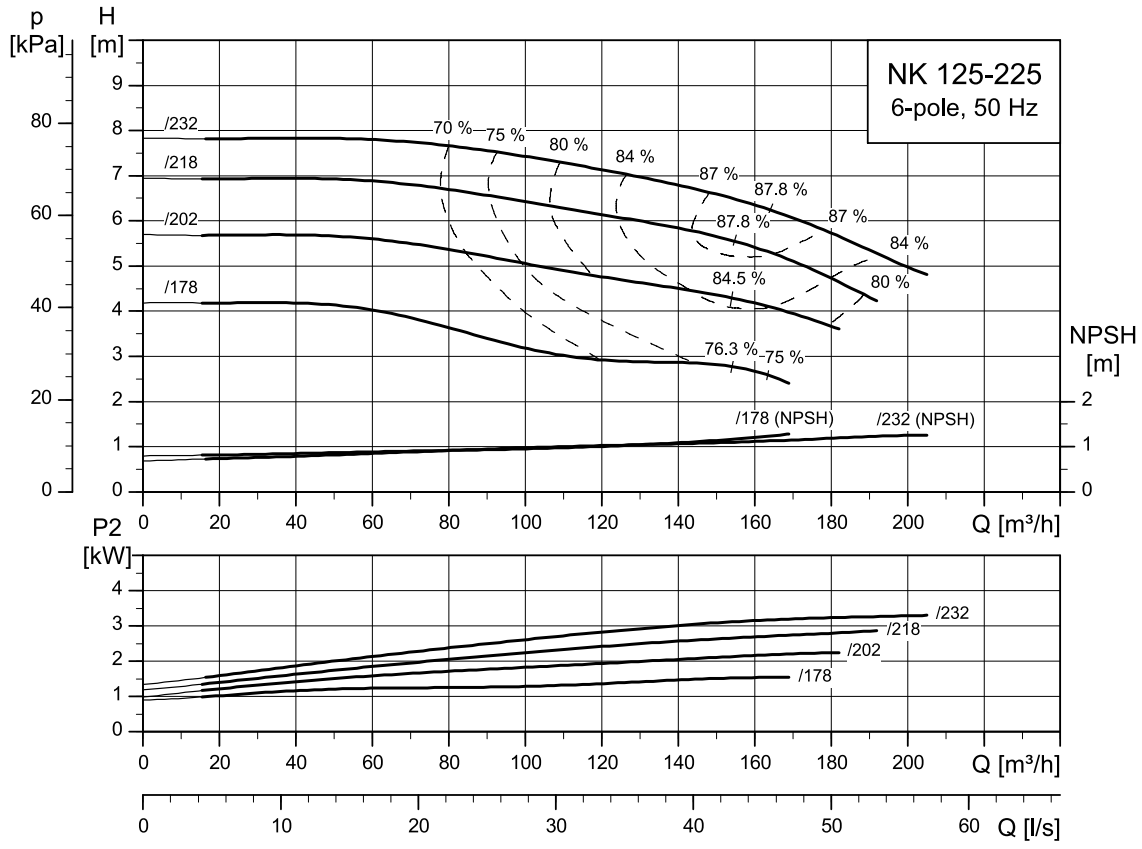
TM1040292

125-180



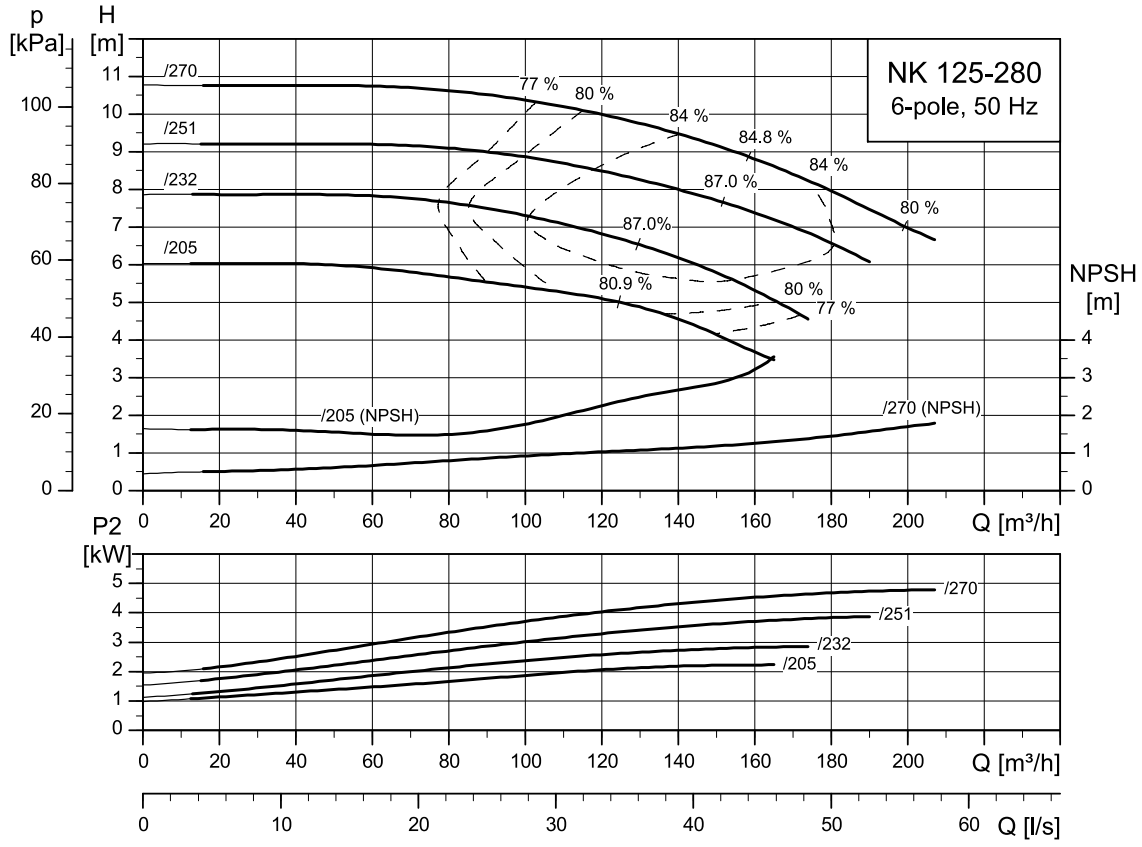
TM1040297

125-225



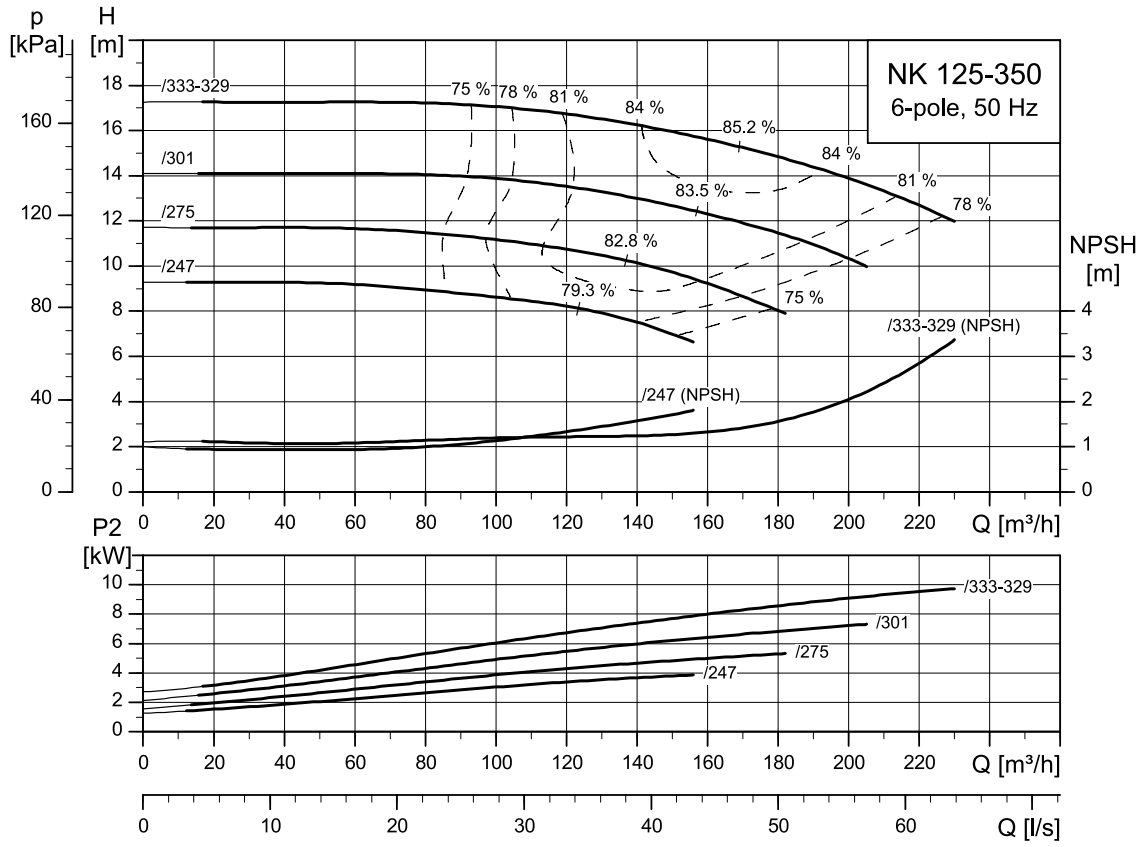
TM1040293

125-280



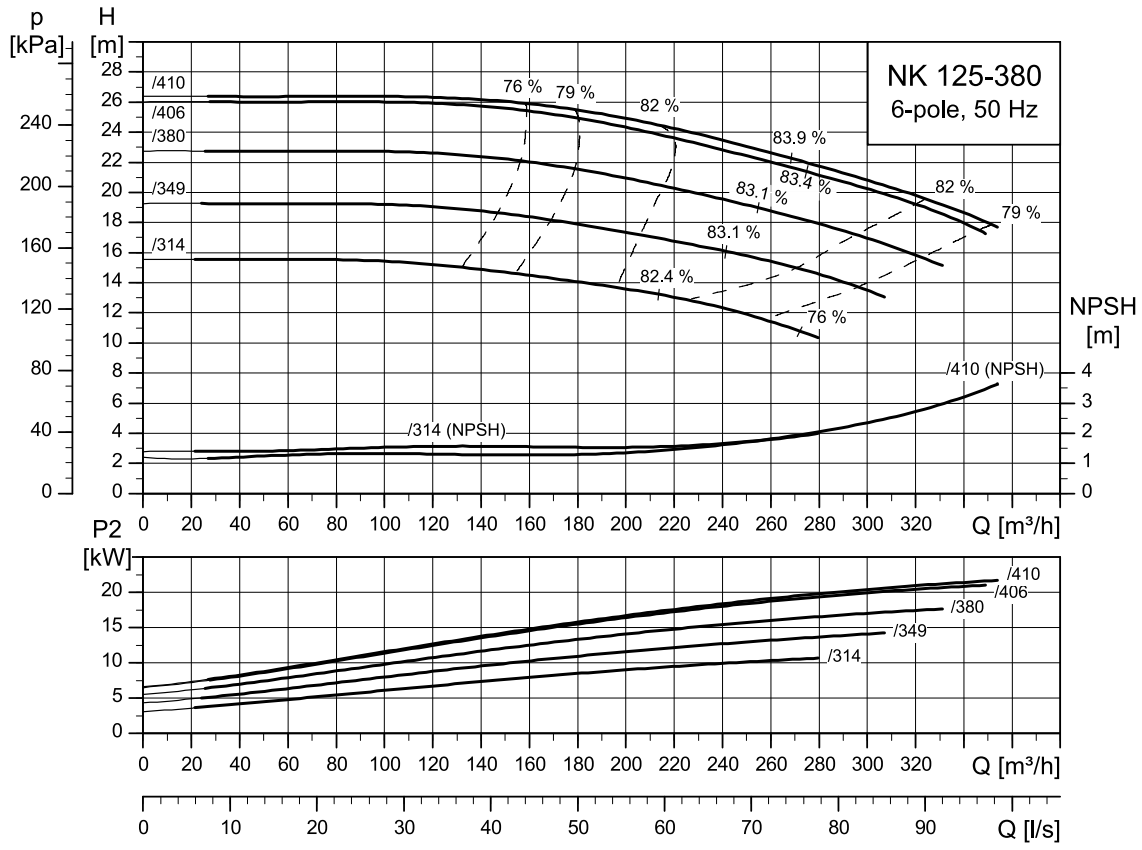
TM1040294

125-350



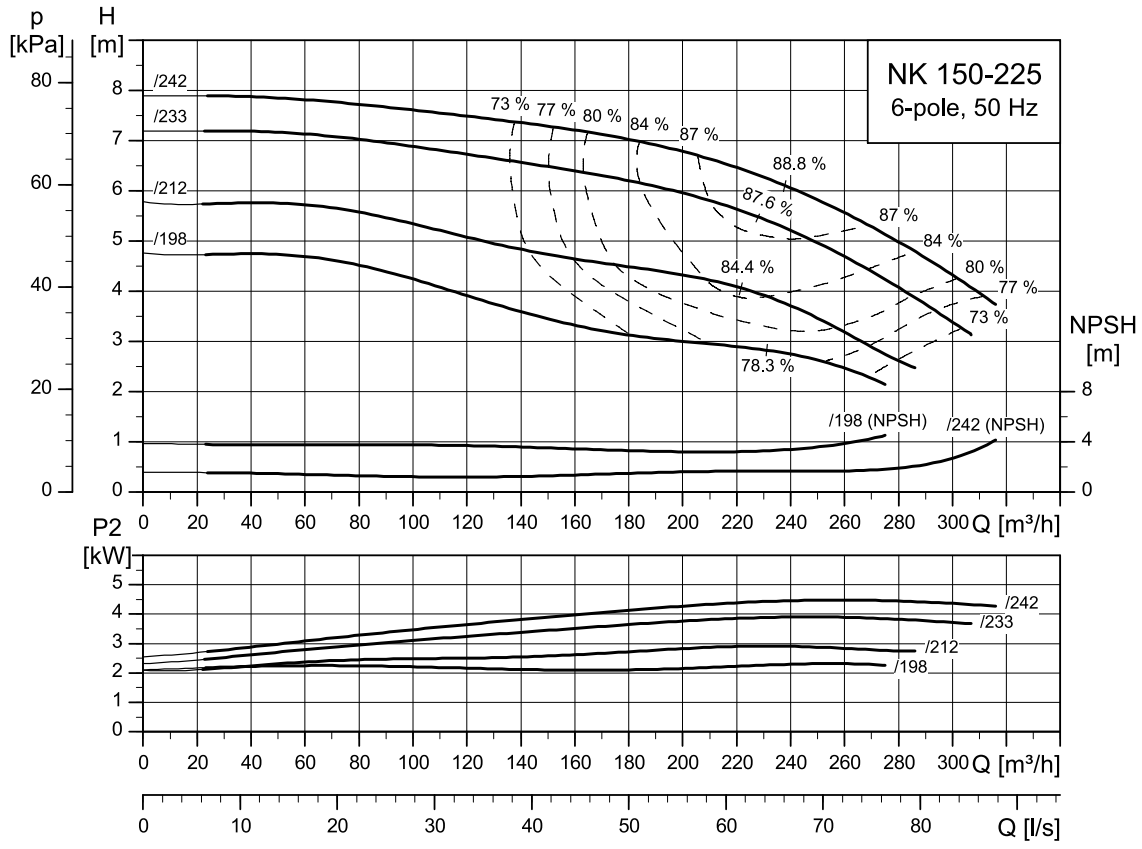
TM1040295

125-380



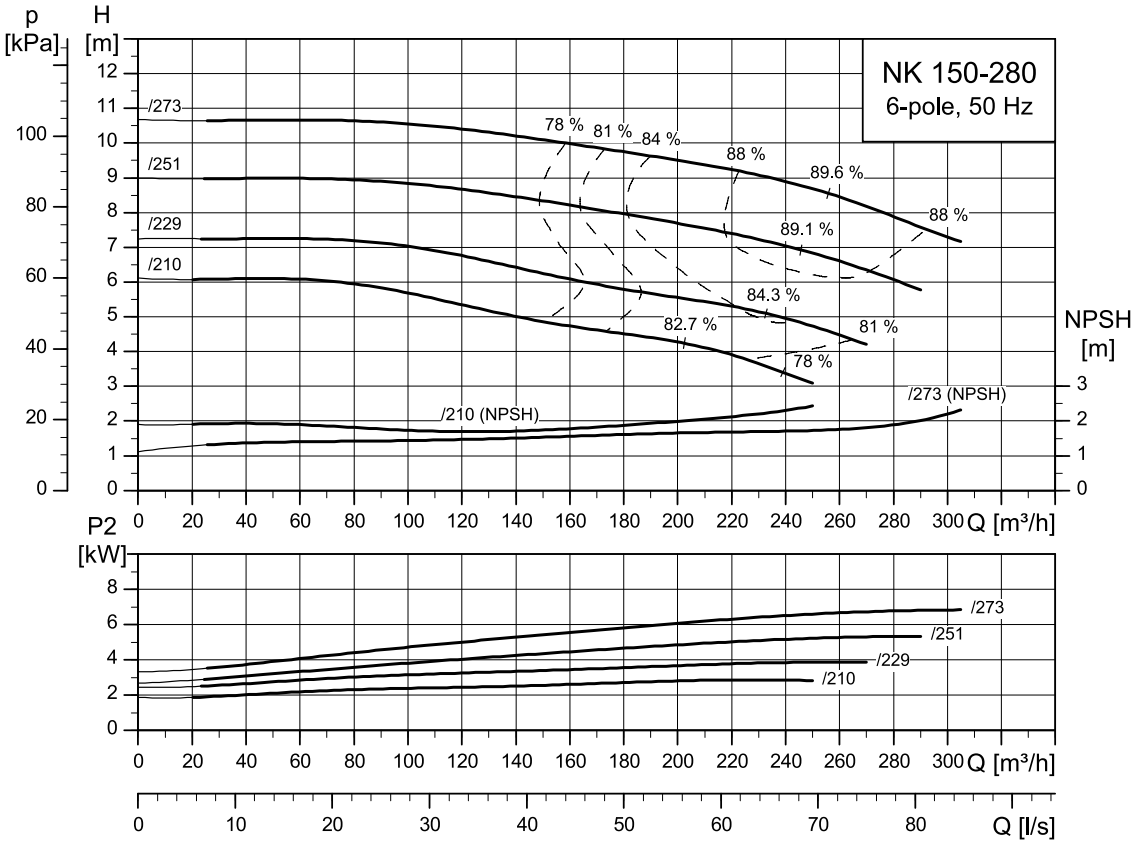
TM1040296

150-225



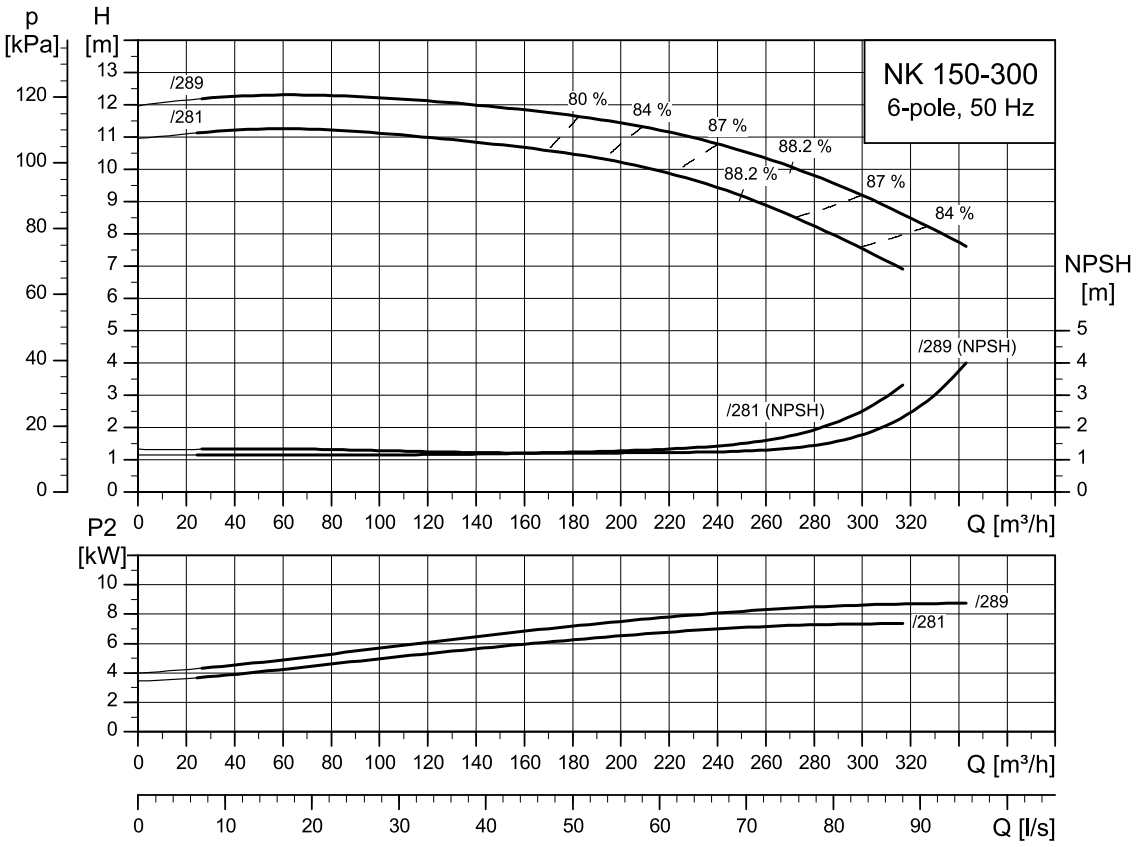
TM1040298

150-280



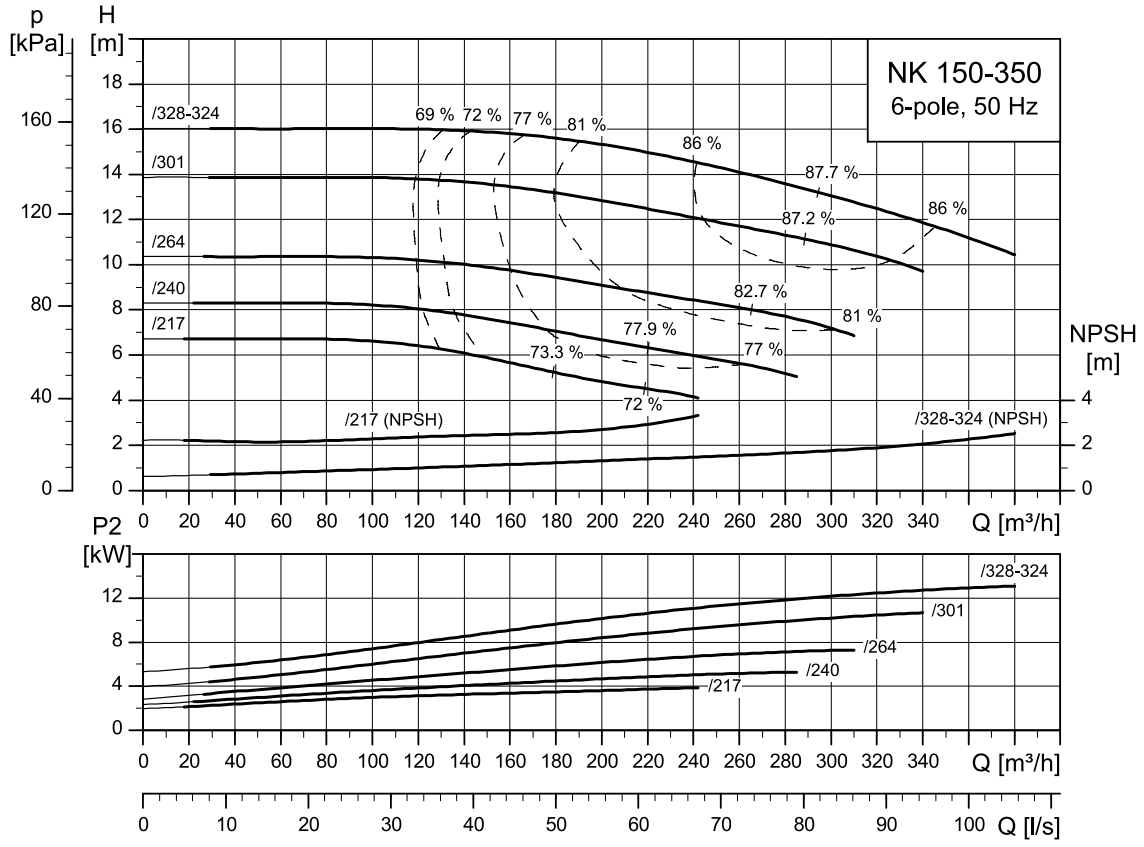
TM1040299

150-300

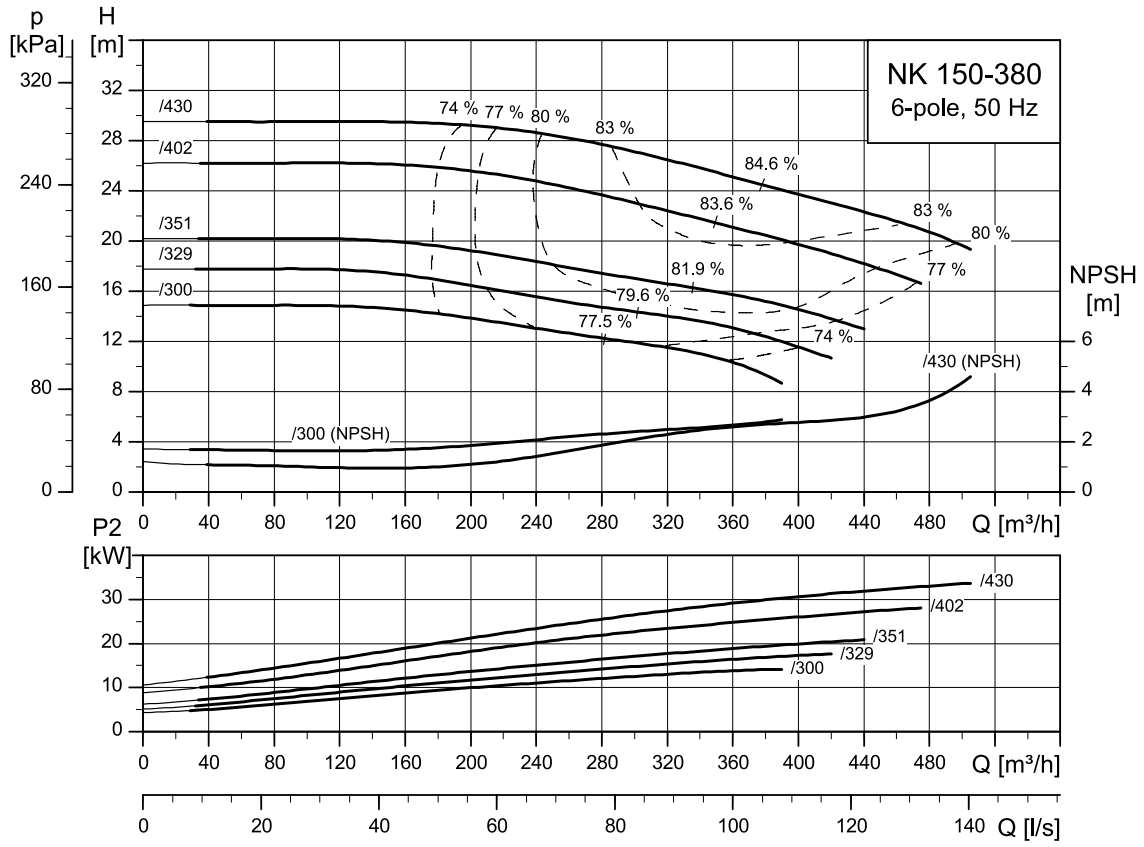


TM084998

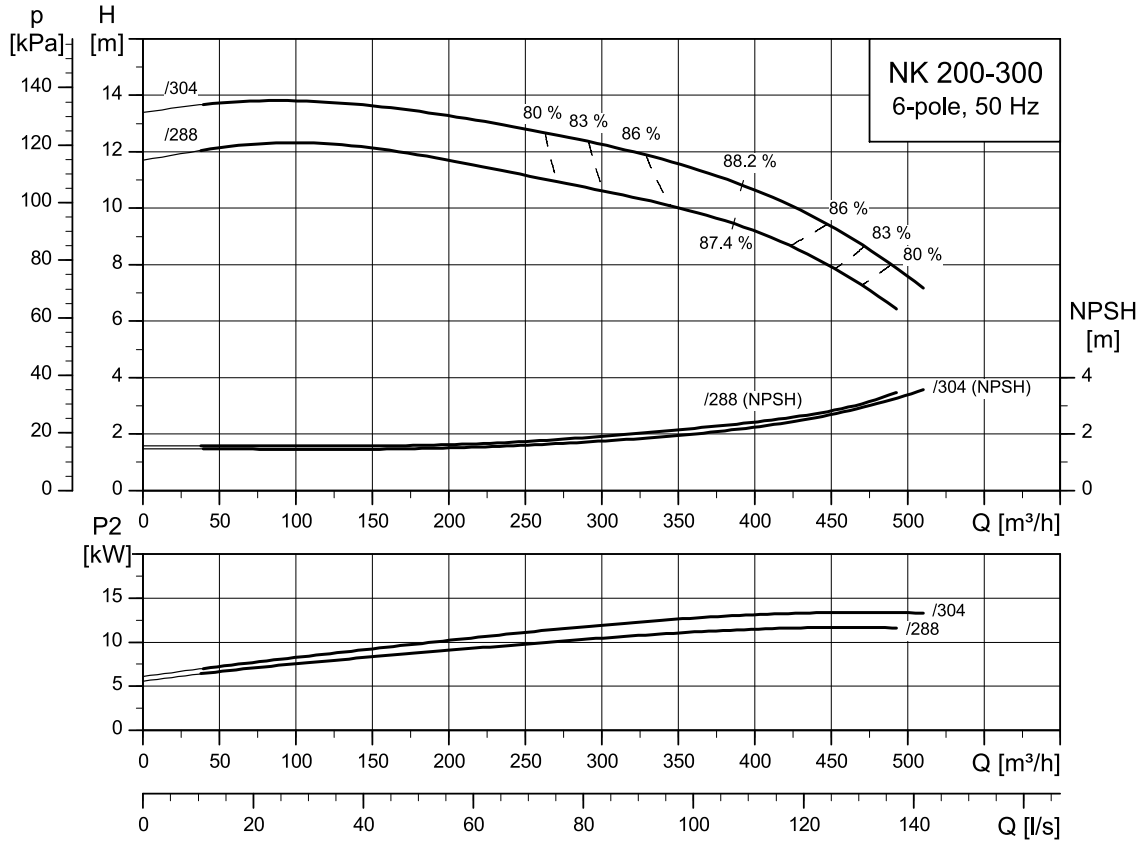
150-350



150-380

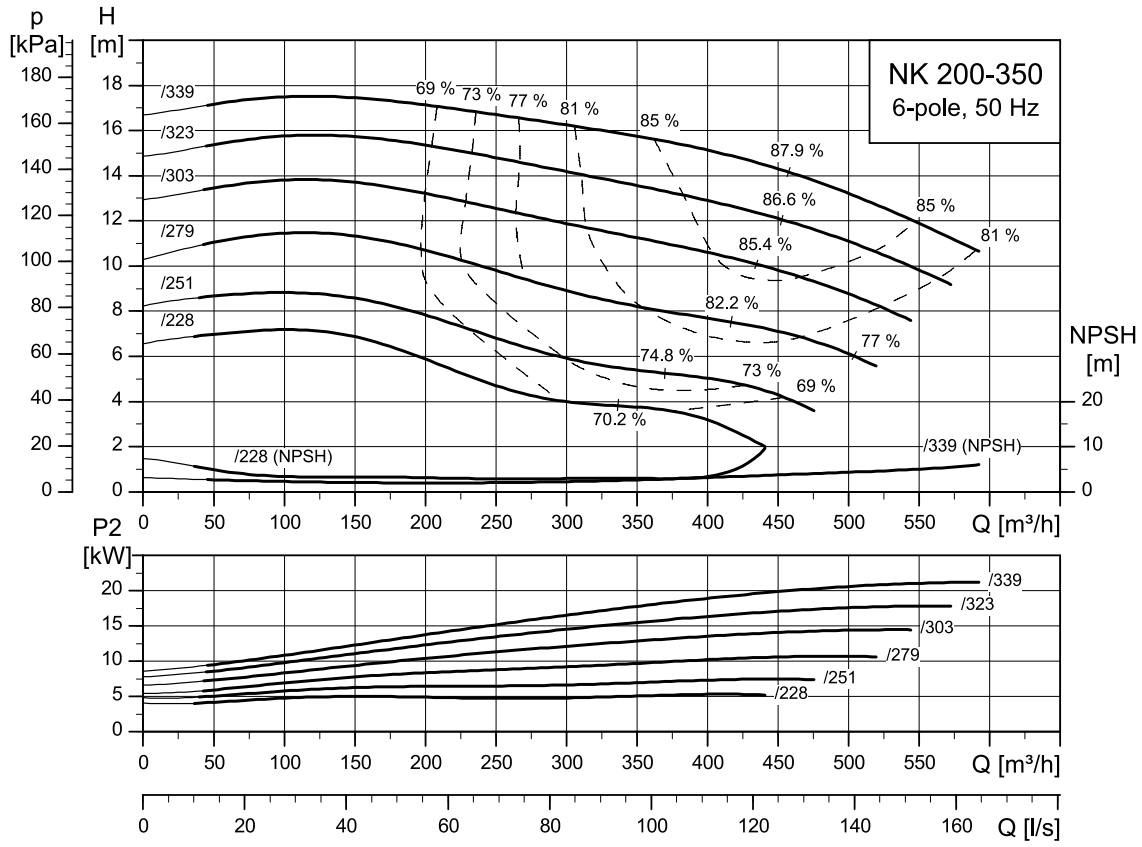


200-300



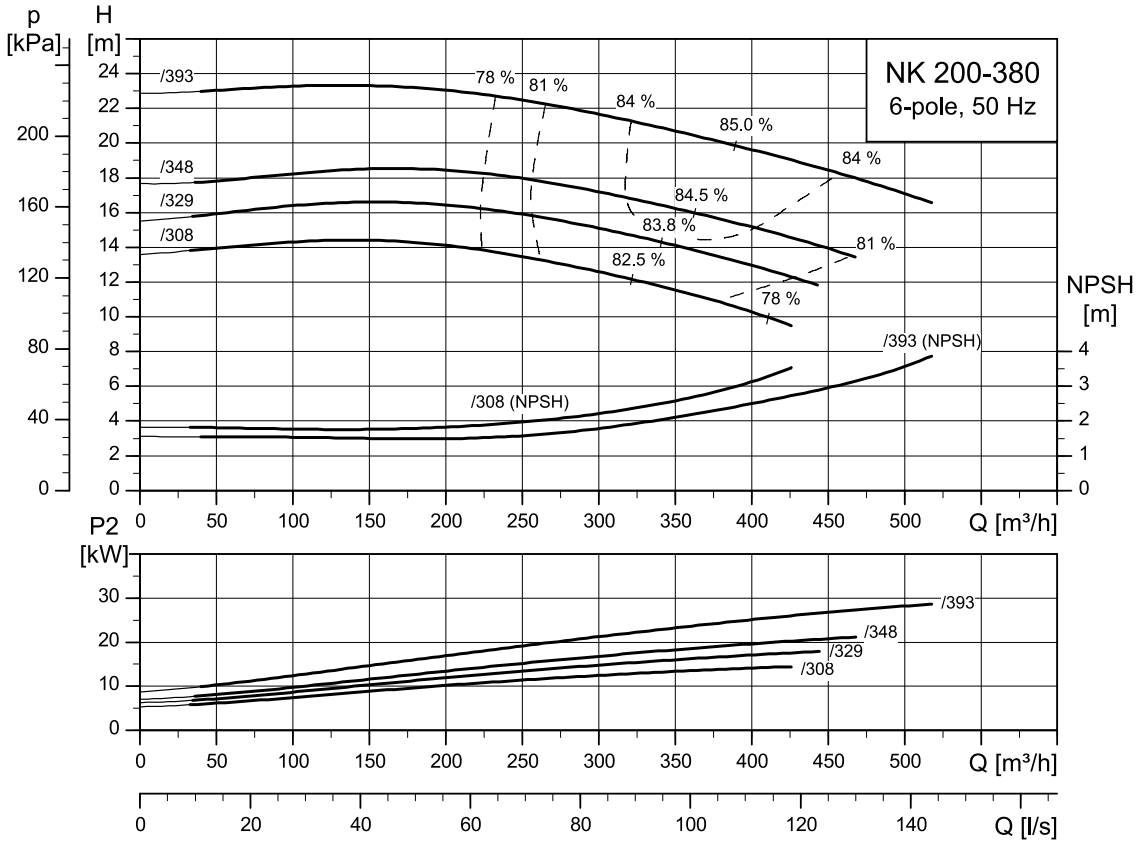
TM085002

200-350



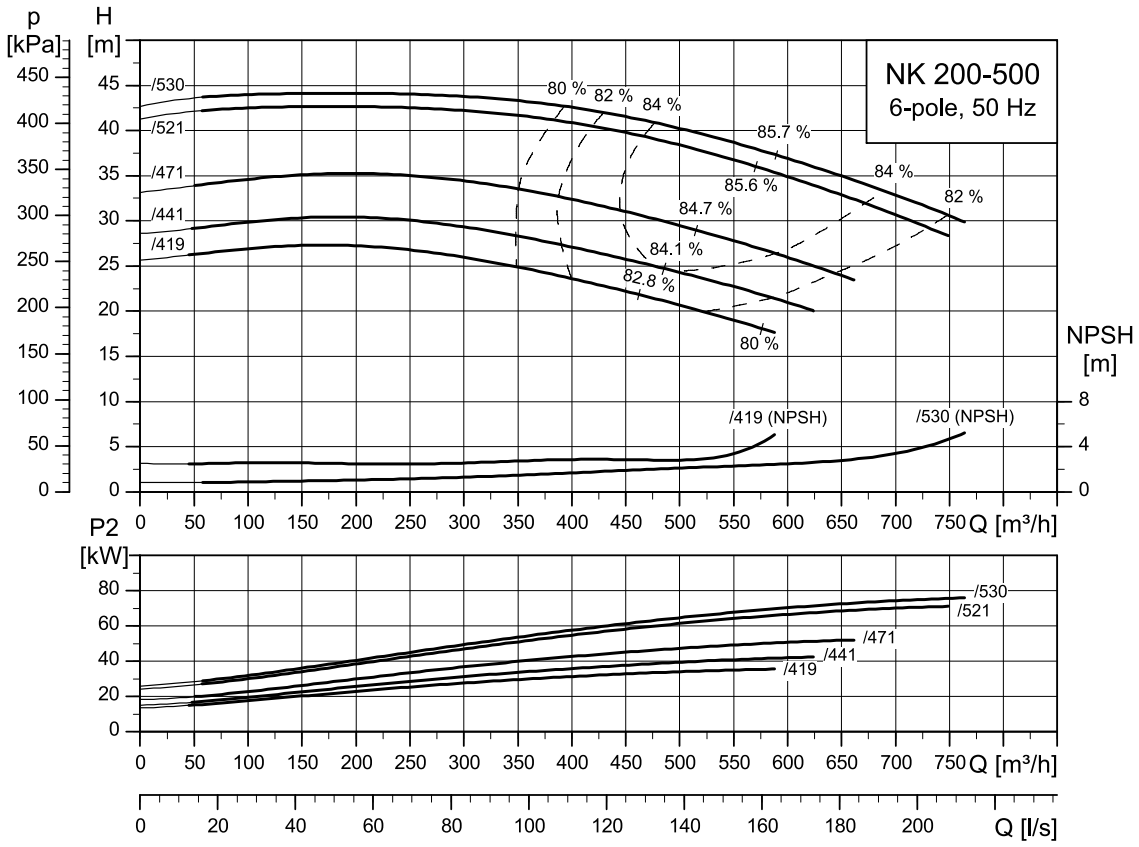
TM085021

200-380



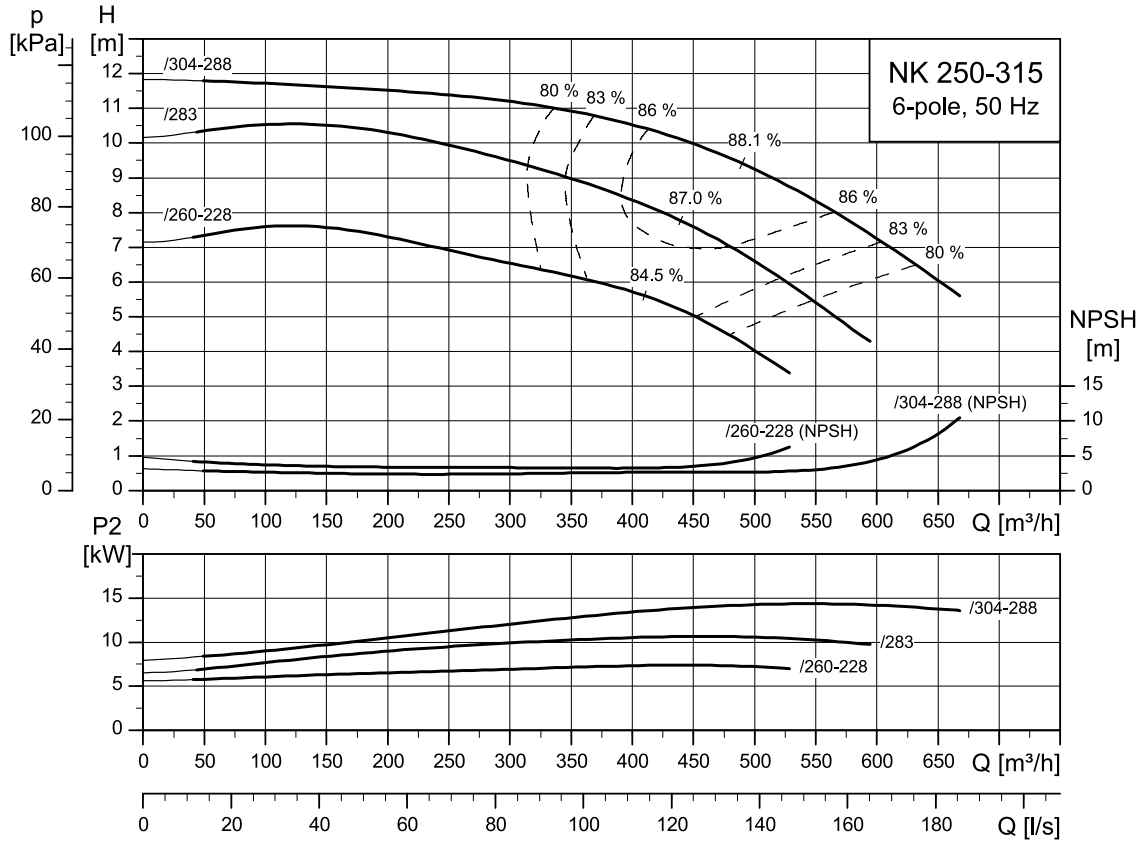
TM084986

200-500



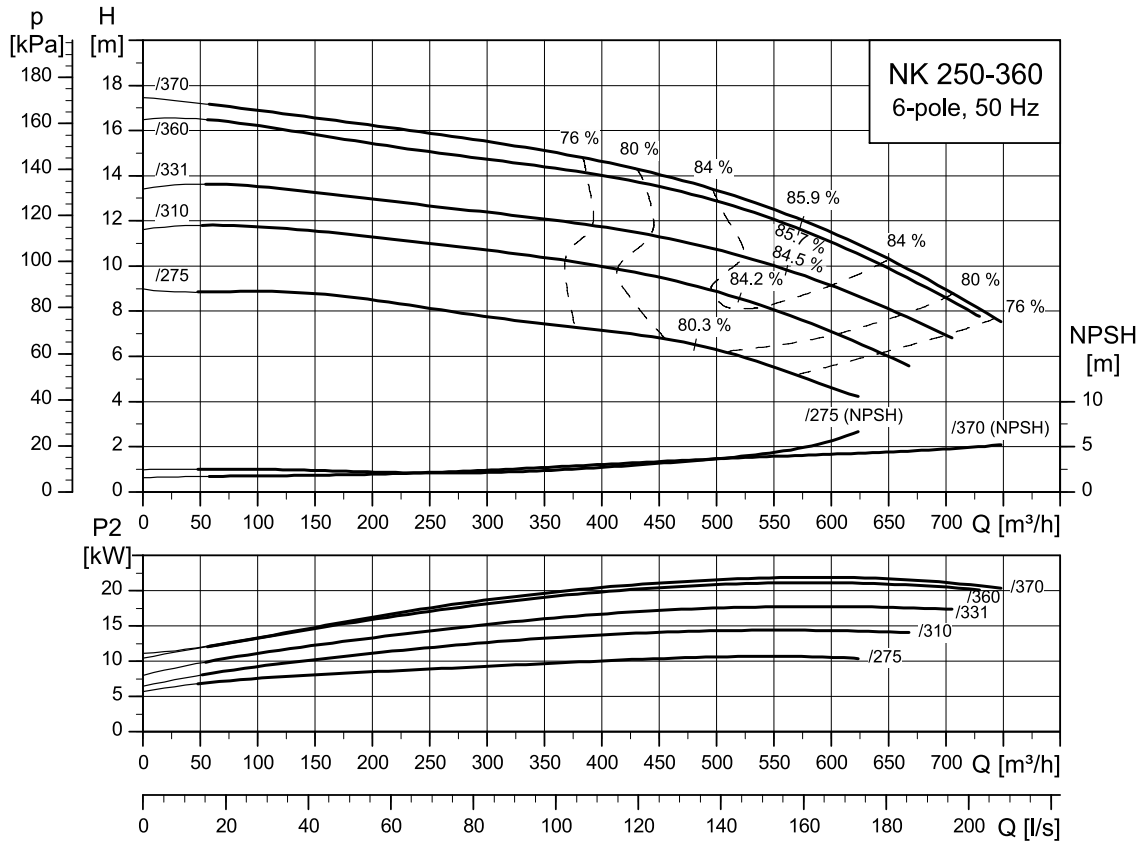
TM085006

250-315



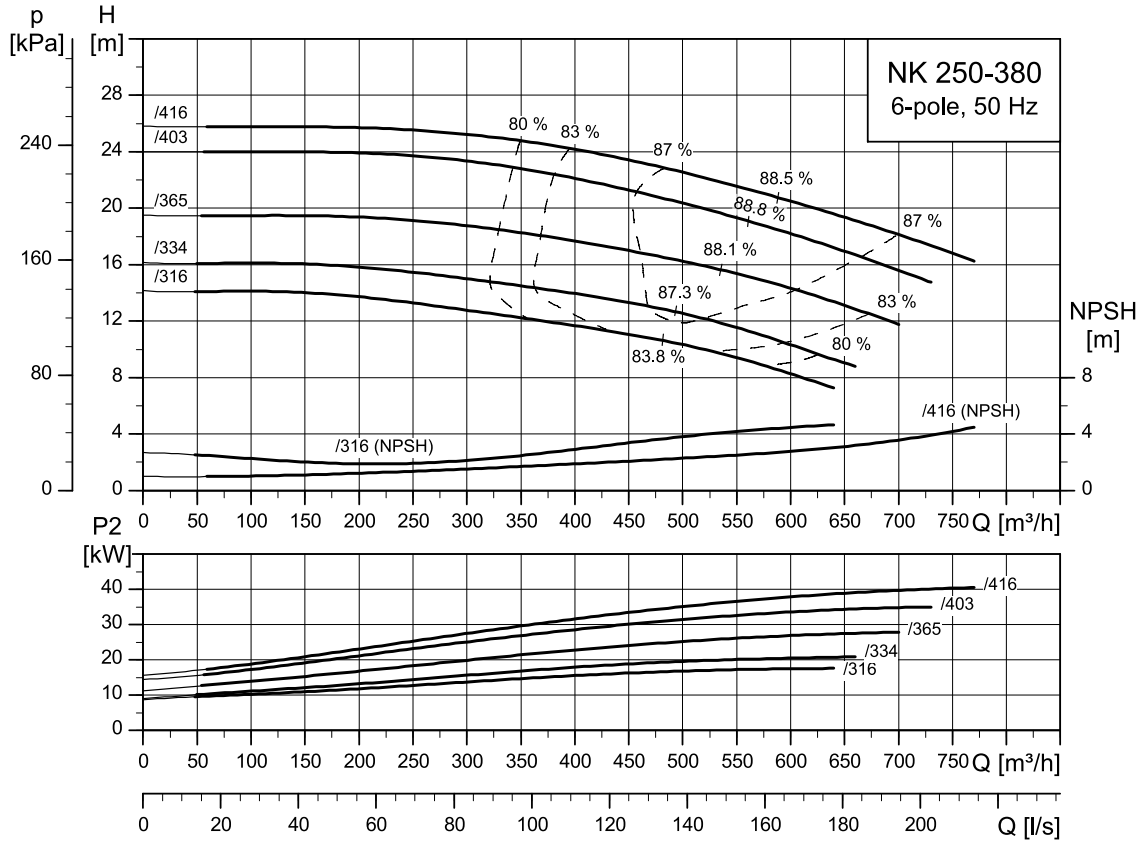
TM085017

250-360



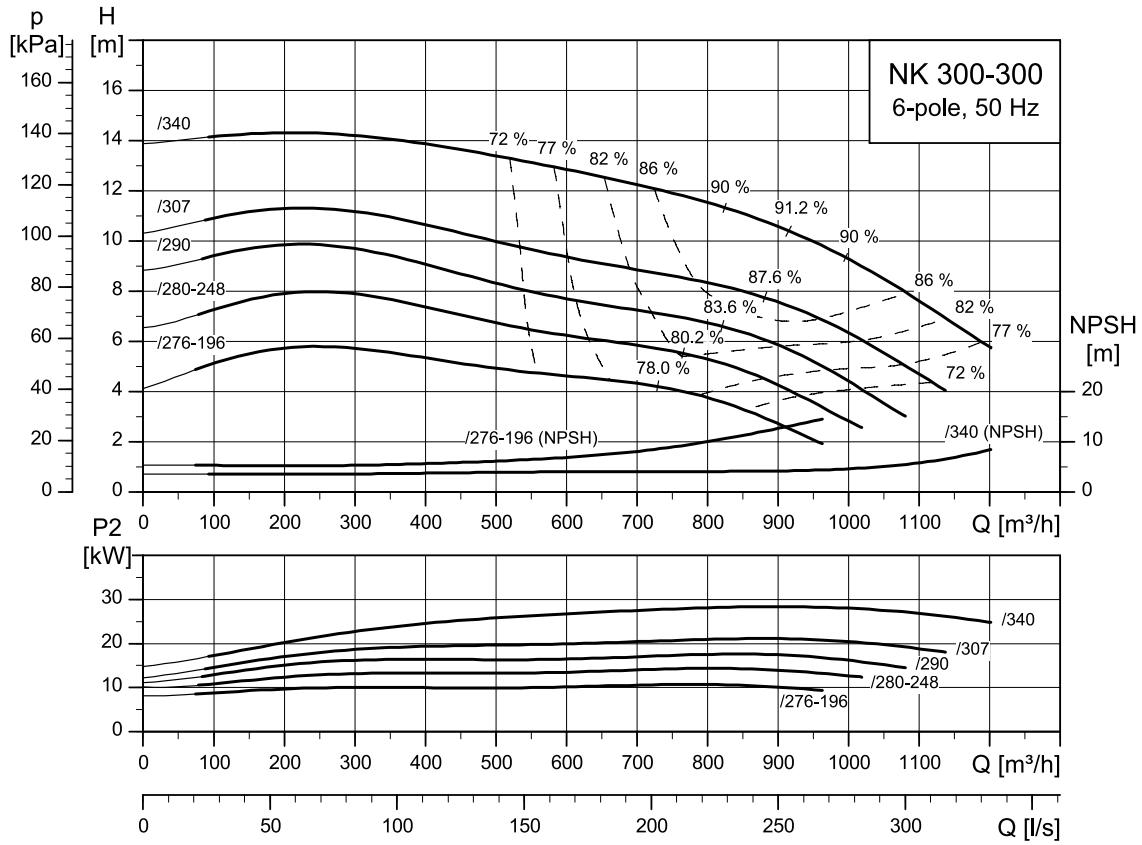
TM084982

250-380



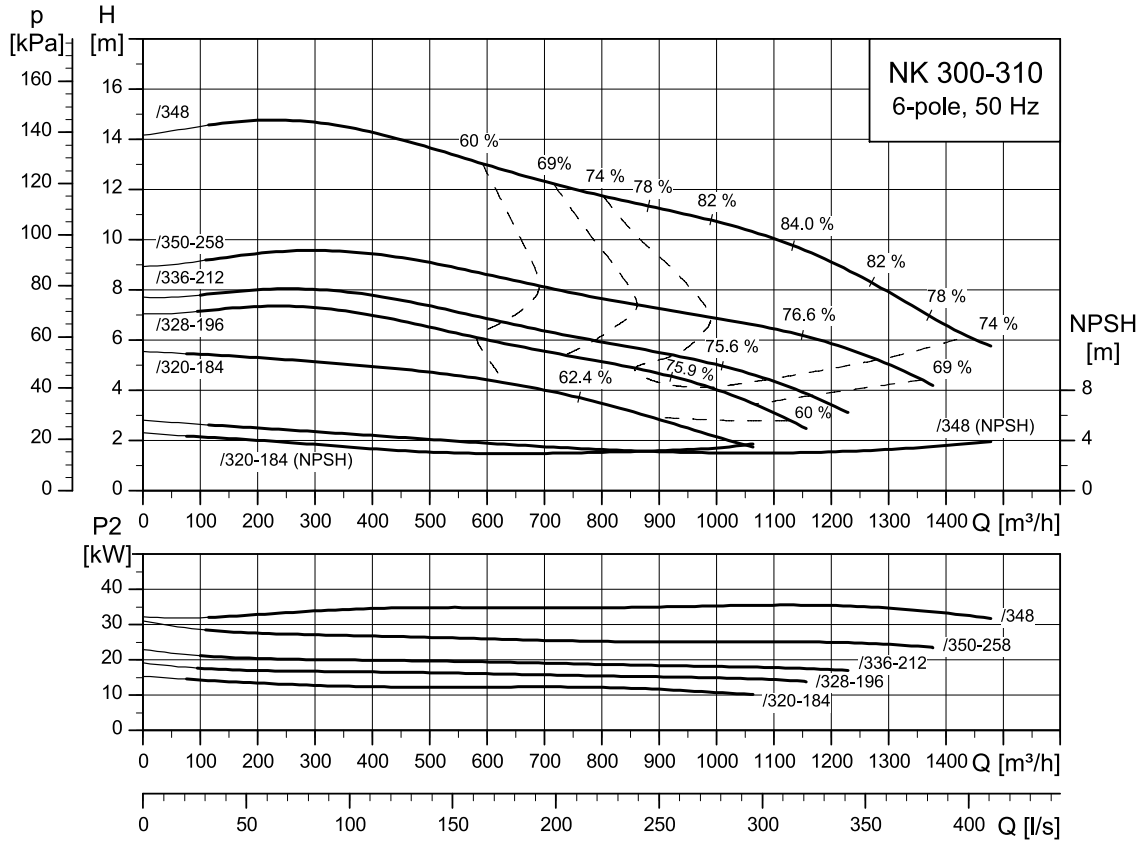
TM1040302

300-300



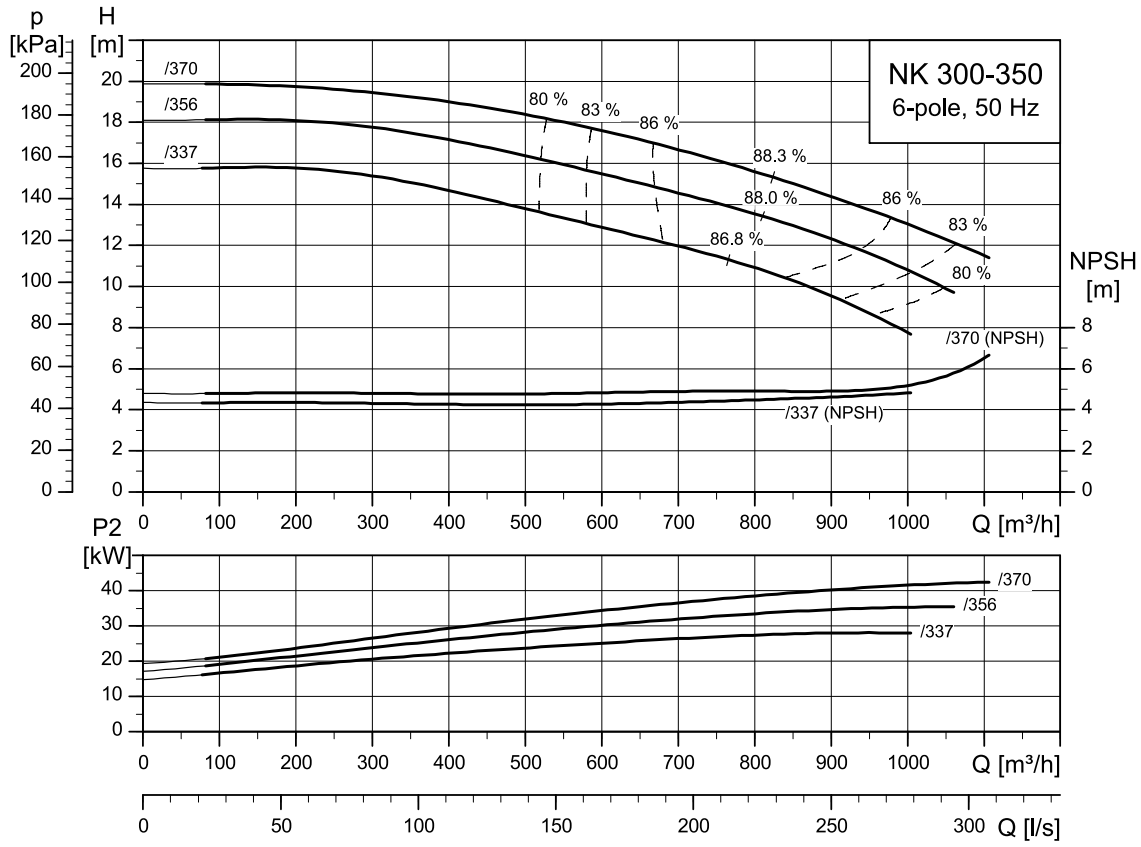
TM084990

300-310



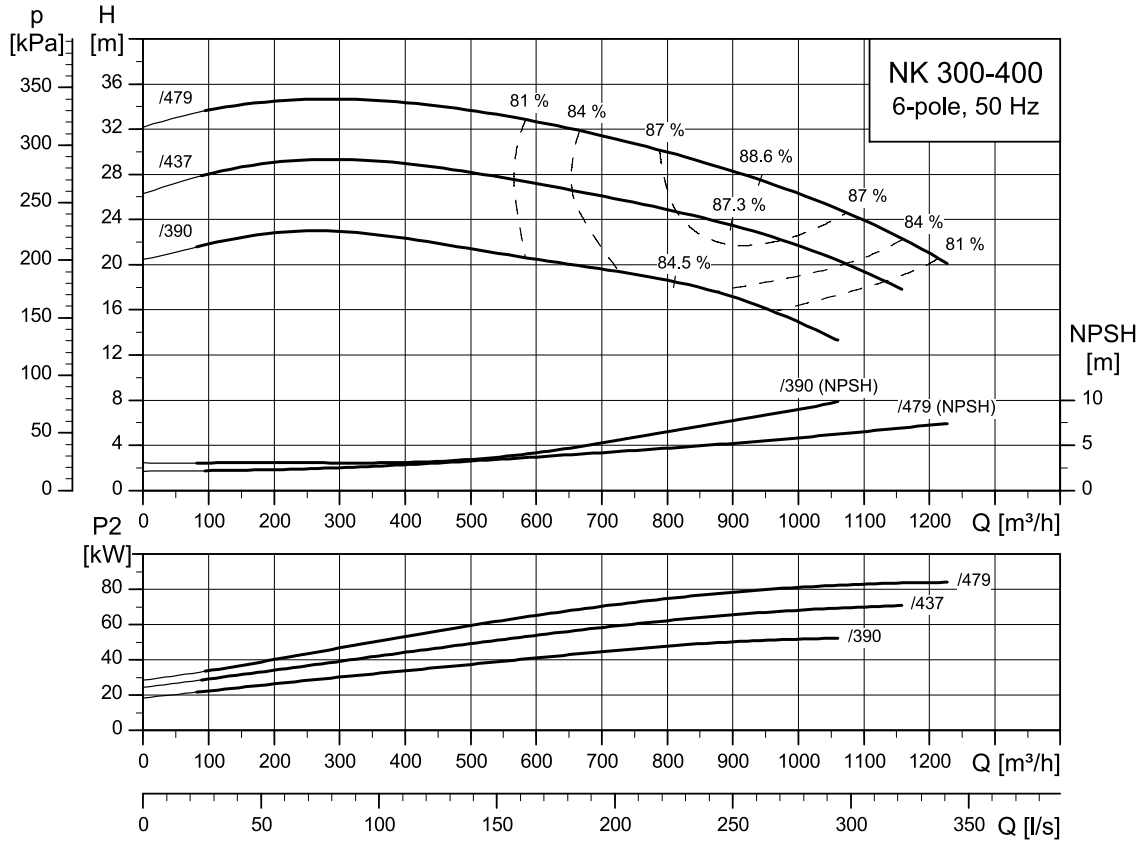
TM085019

300-350



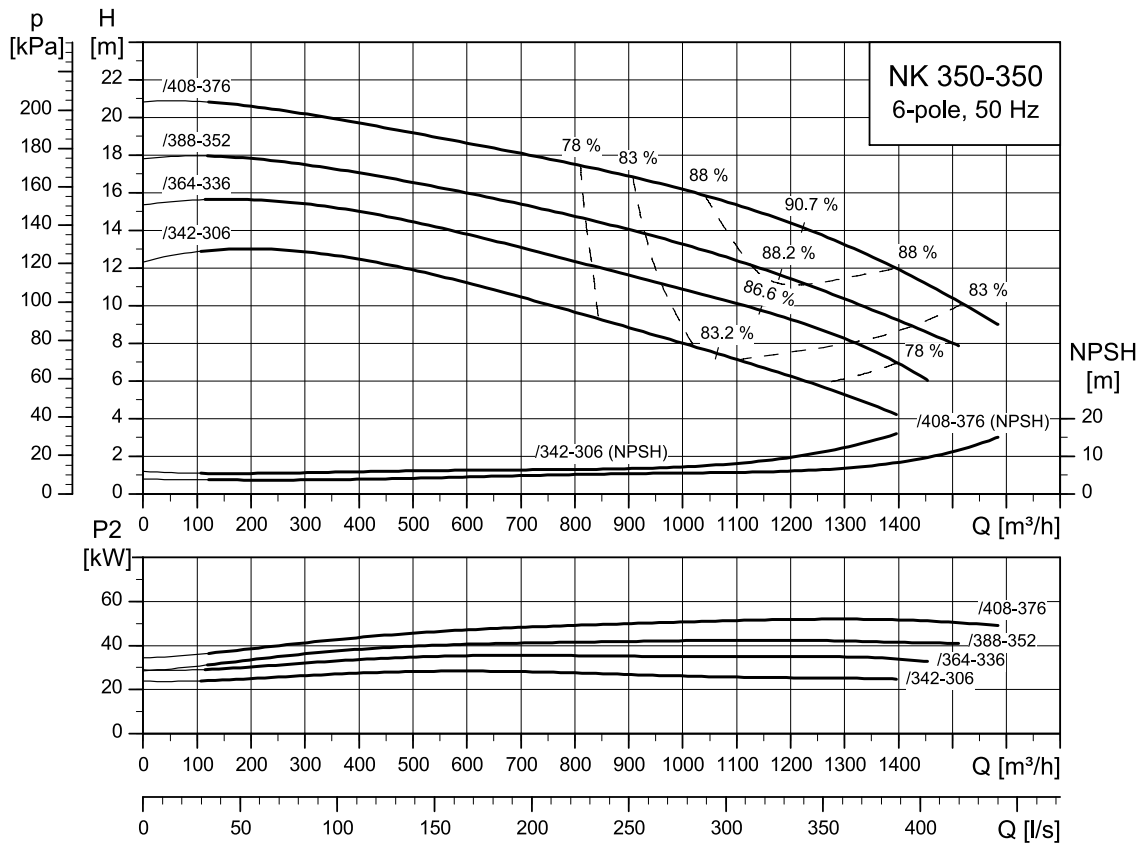
TM085013

300-400



TM085010

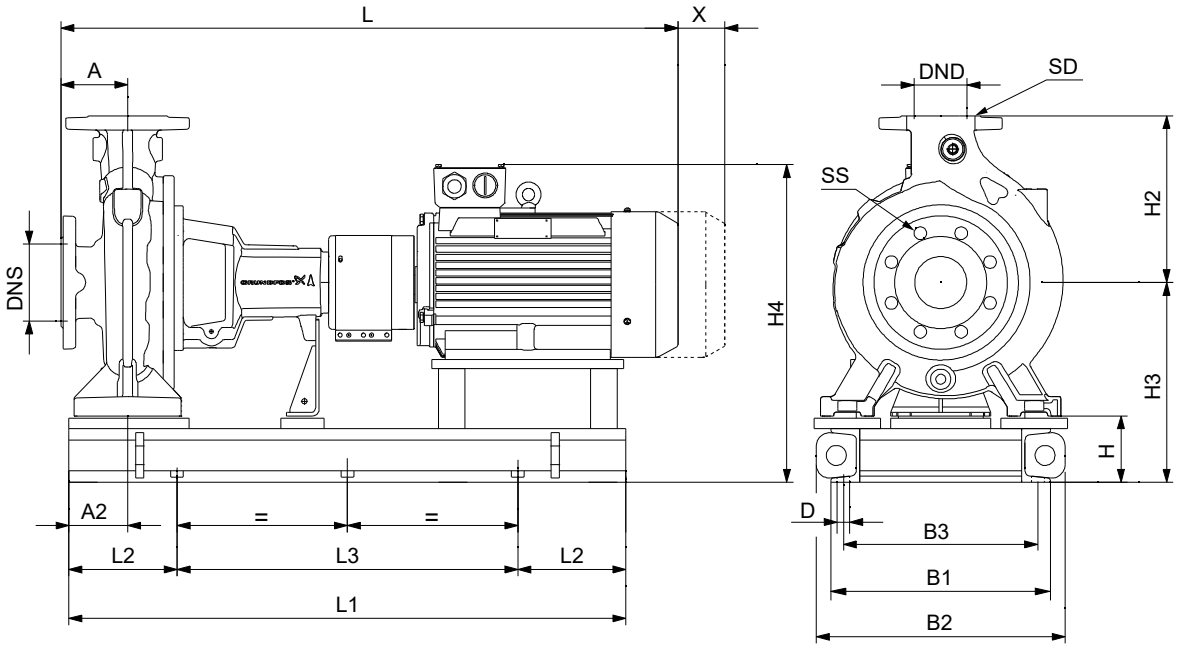
350-350



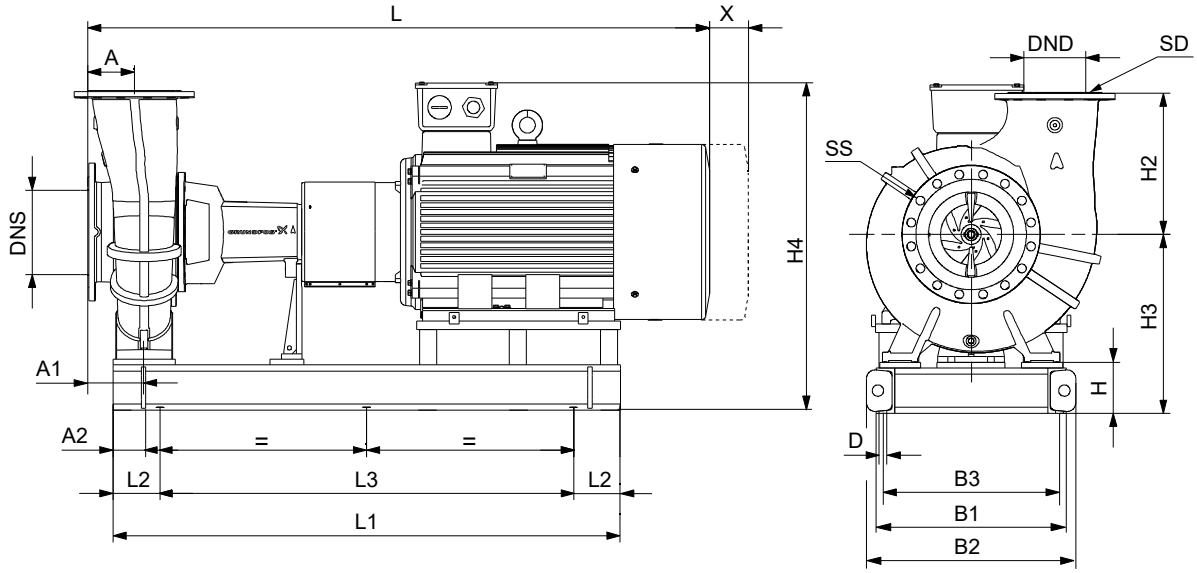
TM084994

17. Dimensional drawings and dimensions

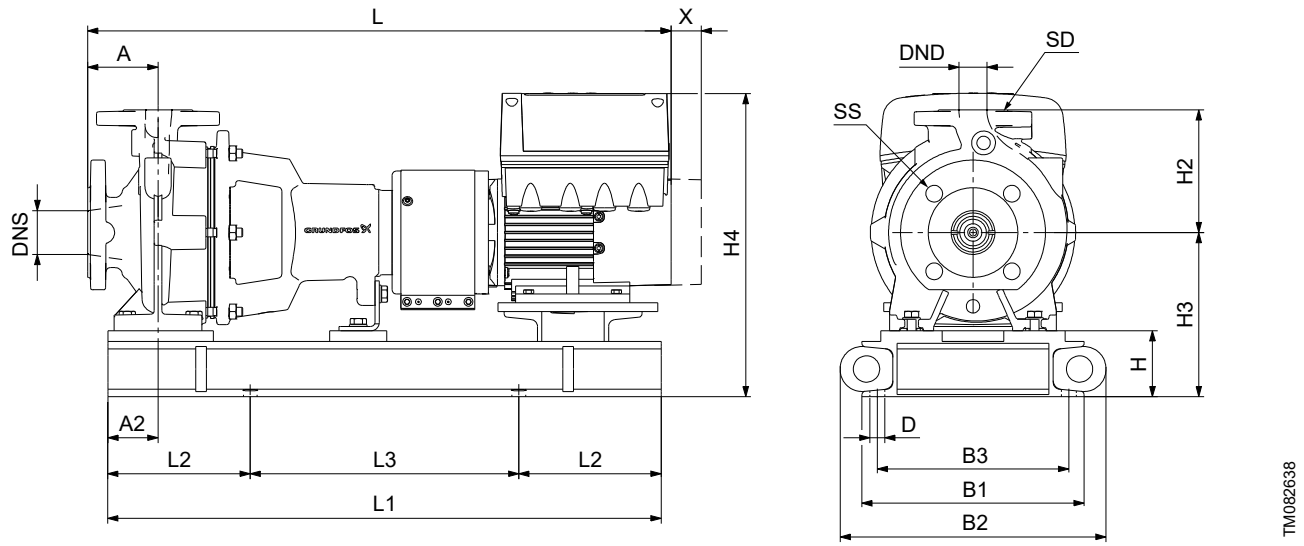
Dimensional drawings, NK/E



NK, C-channel base frame, center outlet



NK, C-channel base frame, tangential outlet



NKE, C-channel base frame, center outlet

Dimensions NK

Standard motors in this table are IE3 motors:
E-motors in this table:

- 2-pole: P2 less than or equal to 22 kW, pump with MGE motor.
- 4-pole: P2 less than or equal to 7.5 kW, pump with MGE motor.

Pump size	Poles	P2 [kW]	Actual impeller size [32]	Flanges									NK dimensions [mm]						Base frame code [33]
				PN	DNS	DND	SS			SD			A	A2	H2	H3	H4 [32]	L [33]	
							PN10	PN16	PN25	PN10	PN16	PN25						NK	NKE	
32-130.1	2	0.75	100/-	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	187	327/-	709/805	-/-	201/201S
		1.1	114/142	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	187	327/345	709/805	723/819	201/201S
		1.5	124/142	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	187	352/345	759/855	733/829	202/202S
		2.2	140/142	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	187	352/345	789/885	733/830	203/203S
		3	144/142	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	204	374/405	839/935	803/899	204/204S
		4	-/142	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	204	-/405	-/-	803/899	205/205S
		5.5	-/144	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	224	-/425	-/-	854/950	206/206S
	4	0.25	135/-	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	187	311/-	665/755	-/-	200/200S
		0.37	144/-	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	187	311/-	665/755	-/-	200/200S
		0.75	-/144	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	187	-/345	-/-	723/819	201/201S
32-130	2	1.1	111/121	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	187	327/345	709/805	723/819	201/201S
		1.5	121/142	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	187	352/345	759/855	733/829	202/202S
		2.2	135/142	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	187	352/345	789/885	733/830	203/203S
		3	142/142	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	204	374/405	839/935	803/899	204/204S
		4	-/142	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	204	-/405	-/-	803/899	205/205S
		5.5	-/142	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	224	-/425	-/-	854/950	206/206S
		7.5	-/142	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	224	-/461	-/-	878/974	206/206S
	4	0.25	133/-	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	187	311/-	665/755	-/-	200/200S
		0.37	142/-	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	187	311/-	-/-	-/-	200/200S
		0.55	-/142	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	187	-/345	-/-	723/819	201/201S
		0.75	-/142	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	140	187	-/345	-/-	723/819	201/201S
32-165.1	2	1.5	141/177	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	160	207	372/365	794/890	768/864	210/210S
		2.2	156/177	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	160	207	372/365	824/920	768/865	211/211S
		3	168/177	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	160	224	394/425	874/970	838/934	212/212S
		4	177/177	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	160	224	412/425	839/935	838/934	213/213S
		5.5	-/177	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	160	224	-/425	-/-	889/985	214/214S
		7.5	-/177	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	160	224	-/461	-/-	913/1009	214/214S
		11	-/177	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	160	252	-/489	-/-	960/1056	236/236S
	4	0.25	151/-	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	160	207	331/-	665/755	-/-	207/207S
		0.37	167/-	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	160	207	331/-	665/755	-/-	207/207S
		0.55	177/177	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	160	207	347/365	709/805	723/819	208/208S
		0.75	177/177	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	160	207	-/365	-/-	723/819	208/208S
		1.1	-/177	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	160	207	207	-/-	733/829	209/209S
32-180	2	1.5	123/-	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	207	372/-	759/-	-/-	209/209S
		2.2	140/177	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	207	372/365	789/885	733/830	215/215S
		3	152/177	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	224	394/425	839/935	803/899	216/216S
		4	166/177	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	224	412/425	804/900	803/899	217/217S
		5.5	177/177	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	224	437/425	879/975	854/950	218/218S
	4	0.25	138/-	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	207	331/-	665/755	-/-	207/207S
		0.37	159/-	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	207	331/-	665/755	-/-	207/207S
		0.55	174/177	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	207	347/365	709/805	723/819	208/208S
		0.75	177/177	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	207	347/365	709/805	723/819	208/208S
		1.1	-/177	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	207	/323	-/-	733/829	209/209S

Pump size	Poles	P2 [kW]	Actual impeller size [32]	Flanges									NK dimensions [mm]						Base frame code [33]
				PN	DNS	DND	SS			SD			A	A2	H2	H3	H4 [32]	L [33]	
							PN10	PN16	PN25	PN10	PN16	PN25						NK	NKE	
32-205.1	2	3	176/162	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	252	422/453	874/970	838/934	223/223S
		4	189/205	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	252	440/453	839/935	838/934	224/224S
		5.5	205/205	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	252	465/453	914/1010	889/985	225/225S
		7.5	207/205	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	252	465/489	914/1010	913/1009	225/225S
		11	-/205	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	235	-/489	-/-	960/1056	219/219S
	4	0.37	174/-	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	235	359/-	665/755	-/-	219/219S
		0.55	192/204	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	235	375/393	709/805	723/819	220/220S
		0.75	207/207	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	235	375/393	709/805	723/819	220/220S
		1.1	-/207	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	235	-/393	-/-	733/829	221/221S
		1.5	-/207	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	235	-/393	-/-	733/830	222/222S
		2.2	-/207	10/16/25	50	32	4xø19	4xø19	4xø19	4xø19	4xø19	4xø19	80	60	180	235	-/436	-/-	803/899	580/580S
40-130	2	1.5	108/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	140	187	352/-	794/890	-/-	230/230S
		2.2	122/140	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	140	187	352/345	824/920	768/865	231/231S
		3	131/140	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	140	204	374/405	874/970	838/934	232/232S
		4	140/140	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	140	204	392/405	839/935	838/934	233/233S
		5.5	142/140	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	140	226	439/427	914/1010	889/985	234/234S
		7.5	-/140	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	140	226	-/463	-/-	913/1009	234/234S
		11	-/140	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	140	252	-/489	-/-	960/1056	235/235S
	4	0.25	122/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	140	187	311/-	665/755	-/-	227/227S
		0.37	135/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	140	187	311/-	665/755	-/-	227/227S
		0.55	142/130	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	140	187	327/345	709/805	723/819	228/228S
		0.75	-/130	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	140	187	-/345	-/-	723/819	228/228S
		1.1	-/130	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	140	187	-/345	-/-	733/829	229/229S
		1.5	-/142	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	140	187	-/345	-/-	733/829	581/581S
40-180	2	2.2	112/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	180	207	372/-	824/920	-/-	211/211S
		3	125/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	180	224	394/-	874/970	-/-	212/212S
		4	140/160	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	180	224	412/425	839/935	838/934	213/213S
		5.5	155/160	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	180	224	437/425	919/1010	889/985	214/214S
		7.5	173/160	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	180	224	437/425	919/1010	889/1009	214/214S
		11	176/160	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	180	252	512/489	1069/1160	960/1056	236/236S
	4	0.37	130/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	180	207	331/-	664/755	-/-	207/207S
		0.55	145/176	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	180	207	347/365	709/805	723/819	208/208S
		0.75	162/176	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	180	207	347/365	709/805	723/819	208/208S
		1.1	176/176	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	180	207	372/365	759/855	733/829	209/209S
		1.5	-/176	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	180	207	-/323	-/-	733/830	215/215S
		2.2	-/176	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	80	60	180	224	-/393	-/-	803/899	216/216S
40-220	2	5.5	172/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	180	485/-	959/1055	-/-	243/243S
		7.5	192/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	180	485/-	959/1055	-/-	243/243S
		11	212/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	180	532/-	1109/1205	-/-	244/244S
		15	244/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	180	532/-	1109/1205	-/-	244/244S
		18.5	250/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	180	532/-	1154/1250	-/-	245/245S
	4	0.55	167/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	255	395/-	764/860	-/-	237/237S
		0.75	179/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	255	395/-	764/860	-/-	237/237S
		1.1	200/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	255	420/-	814/910	-/-	238/238S
		1.5	218/250	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	255	420/413	844/940	788/884	239/239S
		2.2	250/250	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	442/473	894/990	858/954	240/240S
		3	-/250	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	-/393	-/-	858/954	240/240S
		4	-/250	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	-/405	-/-	858/954	241/241S

Pump size	Poles	P2 [kW]	Actual impeller size [32]	Flanges									NK dimensions [mm]						Base frame code [33]
				PN	DNS	DND	SS			SD			A	A2	H2	H3	H4 [32]	L [33]	
							PN10	PN16	PN25	PN10	PN16	PN25						NK	NKE	
40-225	2	5.5	158/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	180	485/-	959/1055	-/-	243/243S
		7.5	173/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	180	485/-	959/1055	-/-	243/243S
		11	192/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	180	532/-	1109/1205	-/-	244/244S
		15	210/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	180	532/-	1109/1205	-/-	244/244S
		18.5	230/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	180	532/-	1154/1250	-/-	245/245S
		22	246/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	180	592/-	1205/1295	-/-	246/246S
	4	0.75	162/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	255	395/-	764/860	-/-	237/237S
		1.1	182/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	255	420/-	814/910	-/-	238/238S
		1.5	199/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	255	420/-	844/940	-/-	239/239S
		2.2	226/-	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	442/-	894/990	-/-	240/240S
		3	250/250	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	442/473	894/990	858/954	240/240S
		4	-/250	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	-/405	-/-	858/954	241/241S
		5.5	-/250	10/16/25	65	40	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	-/425	-/-	909/1029	242/242S
50-130	2	3	113/135	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	60	160	224	394/425	894/990	858/954	212/212S
		4	124/142	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	60	160	224	412/425	859/955	858/954	213/213S
		5.5	135/142	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	60	160	224	437/425	934/1030	909/1005	214/214S
		7.5	142/142	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	60	160	224	437/461	934/1030	933/1029	214/214S
		11	-/142	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	60	160	252	-/489	-/-	980/1076	236/236S
		15	-/142	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	60	160	252	-/555	-/-	1056/1152	236/236S
	4	0.37	113/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	60	160	207	331/-	685/775	-/-	207/207S
		0.55	129/134	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	60	160	207	347/365	729/825	743/839	208/208S
		0.75	138/138	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	60	160	207	347/365	729/825	743/839	208/208S
		1.1	142/138	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	60	160	207	372/365	779/875	753/849	209/209S
		1.5	-/138	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	60	160	207	-/365	-/-	753/850	215/215S
		2.2	-/138	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	60	160	224	-/425	-/-	823/919	216/216S
50-225	2	5.5	139/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	485/-	974/1070	-/-	248/248S
		7.5	151/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	485/-	974/1070	-/-	248/248S
		11	172/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	532/-	1124/1220	-/-	249/249S
		15	193/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	532/-	1124/1220	-/-	249/249S
		18.5	208/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	532/-	1169/1265	-/-	250/250S
		22	225/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	312	592/-	1214/1310	-/-	251/251S
		30	240/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	336	641/-	1274/1370	-/-	252/252S
	4	0.75	144/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	255	395/-	764/860	-/-	237/237S
		1.1	160/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	255	420/-	814/910	-/-	238/238S
		1.5	181/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	255	420/-	844/940	-/-	239/239S
		2.2	207/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	442/-	894/990	-/-	240/240S
		3	237/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	442/473	894/990	858/954	240/240S
		4	240/240	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	460/473	929/1025	858/954	241/241S
		5.5	-/240	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	-/425	-/-	909/1029	242/242S
50-280	2	15	197/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	532/-	1124/1220	-/-	249/249S
		18.5	209/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	532/-	1169/1265	-/-	250/250S
		22	219/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	312	592/-	1214/1310	-/-	251/251S
		30	239/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	336	641/-	1274/1370	-/-	252/252S
		37	262/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	336	641/-	1274/1370	-/-	252/252S
	4	2.2	208/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	442/-	894/990	-/-	240/240S
		3	226/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	442/-	894/990	-/-	240/240S
		4	250/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	460/-	929/1025	-/-	241/241S
		5.5	262/-	10/16/25	65	50	4xø19	4xø19	8xø19	4xø19	4xø19	4xø19	100	72.5	225	272	485/-	934/1035	-/-	242/242S

Pump size	Poles	P2 [kW]	Actual impeller size [32]	Flanges									NK dimensions [mm]						Base frame code [33]
				PN	DNS	DND	SS			SD			A	A2	H2	H3	H4 [32]	L [33]	
							PN10	PN16	PN25	PN10	PN16	PN25						NK	NKE
50-350	4	3	236/-	10/16/25	80	50	8xø19	8xø19	8xø19	4xø19	4xø19	4xø19	125	72.5	280	317	487/-	1029/1165	-/-	258/258S
		4	256/-	10/16/25	80	50	8xø19	8xø19	8xø19	4xø19	4xø19	4xø19	125	72.5	280	317	505/-	1064/1200	-/-	259/259S
		5.5	278/-	10/16/25	80	50	8xø19	8xø19	8xø19	4xø19	4xø19	4xø19	125	72.5	280	317	530/-	1069/1205	-/-	260/260S
		7.5	304/-	10/16/25	80	50	8xø19	8xø19	8xø19	4xø19	4xø19	4xø19	125	72.5	280	317	530/-	1109/1245	-/-	261/261S
		11	340-336/-	10/16/25	80	50	8xø19	8xø19	8xø19	4xø19	4xø19	4xø19	125	72.5	280	317	577/-	1219/1355	-/-	262/262S
65-130	2	4	117-107/144	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	180	252	440/453	859/995	858/994	269/269S
		5.5	124/144	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	180	252	465/453	934/1070	909/1045	270/270S
		7.5	136/144	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	180	252	465/489	934/1070	933/1069	270/270S
		11	144/144	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	180	252	512/489	1084/1220	980/1116	271/271S
		15	-/144	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	180	252	-/555	-/-	1056/1192	271/271S
		18.5	-/144	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	180	252	-/555	-/-	1056/1192	272/272S
		22	-/144	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	180	312	-/615	-/-	1088/1218	275/275S
	4	0.55	119/131	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	180	235	375/393	729/865	743/879	265/265S
		0.75	128/133	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	180	235	375/393	729/865	743/879	265/265S
		1.1	141/141	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	180	235	400/393	779/915	753/889	266/266S
		1.5	-/141	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	180	235	-/393	-/-	753/889	267/267S
		2.2	-/141	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	180	252	-/453	-/-	823/959	268/268S
		3	-/141	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	180	252	-/453	-/-	823/959	268/268S
65-180	2	3	113/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	200	252	422/-	894/1030	-/-	274/274S
		4	124/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	200	252	440/-	859/995	-/-	269/269S
		5.5	139/144	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	200	252	465/453	934/1070	909/1045	270/270S
		7.5	154/144	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	200	252	465/453	934/1070	909/1069	270/270S
		11	169/144	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	200	252	512/489	1084/1220	980/1116	271/271S
		15	172/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	200	252	512/-	1084/1220	-/-	271/271S
	4	0.55	131/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	200	235	375/-	729/865	-/-	265/265S
		0.75	145/172	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	200	235	375/393	729/865	743/879	265/265S
		1.1	162/172	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	200	235	400/393	779/915	753/889	266/266S
		1.5	172/172	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	200	235	400/393	809/945	753/889	267/267S
		2.2	-/172	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	200	252	-/393	-/-	823/959	268/268S
		3	-/172	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	72.5	200	252	-/393	-/-	823/959	268/268S
65-225	2	11	150/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	90	250	296	556/-	1124/1331	-/-	284/284S
		15	167/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	90	250	296	556/-	1124/1331	-/-	284/284S
		18.5	184/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	90	250	296	556/-	1169/1376	-/-	285/285S
		22	200/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	90	250	336	616/-	1214/1421	-/-	286/286S
		30	232/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	90	250	336	641/-	1274/1481	-/-	287/287S
		37	242/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	90	250	336	641/-	1274/1481	-/-	287/287S
	4	1.1	144/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	90	250	279	444/-	814/910	-/-	277/277S
		1.5	158/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	90	250	279	444/-	844/940	-/-	278/278S
		2.2	183/242	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	90	250	296	466/497	894/990	858/954	279/279S
		3	211/242	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	90	250	296	466/497	894/990	858/954	279/279S
		4	242/242	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	90	250	296	484/497	929/1025	858/954	281/281S
		5.5	-/242	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	90	250	296	-/429	-/-	909/1029	279/279S
		7.5	-/242	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	90	250	296	-/465	-/-	933/1029	278/278S
	6	0.55	182/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	90	250	279	419/-	764/860	-/-	276/276S
		0.75	193/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	90	250	279	444/-	814/910	-/-	277/277S
		1.1	240/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	100	90	250	279	444/-	814/910	-/-	277/277S

Pump size	Poles	P2 [kW]	Actual impeller size [32]	Flanges									NK dimensions [mm]						Base frame code [33]
				PN	DNS	DND	SS			SD			A	A2	H2	H3	H4 [32]	L [33]	
							PN10	PN16	PN25	PN10	PN16	PN25						NK	NKE	
65-280	4	3	217/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	125	90	280	296	466/-	1029/1165	-/-	295/295S
		4	240/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	125	90	280	296	484/-	1064/1200	-/-	297/297S
		5.5	270/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	125	90	280	296	509/-	1069/1205	-/-	298/298S
		7.5	280/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	125	90	280	296	509/-	1109/1245	-/-	299/299S
	6	0.75	210/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	125	90	280	279	444/-	949/1085	-/-	293/293S
		1.1	237/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	125	90	280	279	444/-	979/1115	-/-	294/294S
		1.5	258/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	125	90	280	296	466/-	1029/1165	-/-	295/295S
		2.2	280/-	10/16/25	80	65	8xø19	8xø19	8xø19	4xø19	4xø19	8xø19	125	90	280	296	484/-	994/1130	-/-	296/296S
80-180	2	4	112/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	100	72.5	225	252	440/-	859/995	-/-	269/269S
		5.5	123/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	100	72.5	225	252	465/-	934/1070	-/-	270/270S
		7.5	137/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	100	72.5	225	252	465/-	934/1070	-/-	270/270S
		11	153/128	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	100	72.5	225	252	512/489	1084/1220	980/1116	271/271S
		15	172/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	100	72.5	225	252	512/-	1084/1220	-/-	271/271S
		18.5	174/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	100	72.5	225	252	512/-	1129/1265	-/-	272/272S
	4	0.75	128/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	100	72.5	225	235	375/-	729/865	-/-	265/265S
		1.1	145/174	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	100	72.5	225	235	400/393	779/915	753/889	266/266S
		1.5	165/174	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	100	72.5	225	235	400/393	809/945	75/889	267/267S
		2.2	174/174	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	100	72.5	225	252	422/453	859/995	823/959	268/268S
		3	-/174	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	100	72.5	225	252	-/393	-/-	823/959	268/268S
		4	-/174	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	100	72.5	225	252	-/405	-/-	823/959	273/273S
80-225	2	18.5	157/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	280	296	556/-	1214/1350	-/-	310/310S
		22	166/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	280	336	616/-	1259/1395	-/-	311/311S
		30	183/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	280	336	641/-	1319/1455	-/-	312/312S
		37	193/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	280	336	641/-	1319/1455	-/-	312/312S
		45	205/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	280	361	696/-	1359/1495	-/-	313/313S
		55	225/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	280	430	795/-	1469/1605	-/-	314/314S
	4	1.5	139/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	280	279	444/-	889/1025	-/-	303/303S
		2.2	156/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	280	296	466/-	939/1075	-/-	304/304S
		3	171/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	280	296	466/-	939/1075	-/-	304/304S
		4	190/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	280	296	484/-	974/1110	-/-	306/306S
		5.5	205/191	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	280	296	509/497	979/1115	954/1114	307/307S
		7.5	225/191	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	280	296	509/533	1019/1155	978/1114	308/308S
	6	0.75	165/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	280	279	444/-	859/995	-/-	302/302S
		1.1	187/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	280	279	444/-	889/1025	-/-	303/303S
		1.5	202/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	280	279	444/-	889/1025	-/-	303/303S
		2.2	225/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	280	296	466/-	939/1075	-/-	304/304S
80-280	4	4	214-206/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	315	296	484/-	1064/1200	-/-	320/320S
		5.5	231-223/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	315	296	509/-	1069/1205	-/-	321/321S
		7.5	257-249/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	315	296	509/-	1109/1245	-/-	322/322S
		11	278-270/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	315	296	556/-	1219/1355	-/-	323/323S
	6	1.1	207-199/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	315	279	444/-	979/1115	-/-	317/317S
		1.5	226-218/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	315	296	466/-	1029/1165	-/-	318/318S
		2.2	267-259/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	315	296	484/-	994/1130	-/-	319/319S
		3	278-270/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	315	296	509/-	1069/1205	-/-	321/321S

Pump size	Poles	P2 [kW]	Actual impeller size [32]	Flanges									NK dimensions [mm]						Base frame code [33]
				PN	DNS	DND	SS			SD			A	A2	H2	H3	H4 [32]	L [33]	
							PN10	PN16	PN25	PN10	PN16	PN25						NK	NKE	
80-350	4	5.5	219/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	315	346	559/-	1069/1205	-/-	326/326S
		7.5	243/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	315	346	559/-	1109/1245	-/-	327/327S
		11	271/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	315	346	606/-	1219/1355	-/-	328/328S
		15	299/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	315	346	606/-	1264/1400	-/-	329/329S
		18.5	328/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	315	386	666/-	1309/1445	-/-	330/330S
	6	2.2	240/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	315	346	534/-	994/1130	-/-	325/325S
		3	264/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	315	346	559/-	1069/1205	-/-	326/326S
		4	293/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	315	346	559/-	1109/1245	-/-	327/327S
		5.5	328/-	10/16/25	100	80	8xø19	8xø19	8xø23	8xø19	8xø19	8xø19	125	90	315	346	559/-	1069/1205	-/-	326/326S
100-180	2	7.5	126/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	125	72.5	250	276	489/-	959/1120	-/-	338/338S
		11	141/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	125	72.5	250	276	536/-	1109/1270	-/-	339/339S
		15	153/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	125	72.5	250	276	536/-	1109/1270	-/-	339/339S
		18.5	167/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	125	72.5	250	276	536/-	1154/1315	-/-	340/340S
		22	172/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	125	72.5	250	316	596/-	1205/1360	-/-	341/341S
	4	1.1	138-130/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	125	72.5	250	259	424/-	839/975	-/-	334/334S
		1.5	146/174	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	125	72.5	250	259	424/417	869/1005	813/949	335/335S
		2.2	161/174	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	125	72.5	250	276	446/477	919/1055	883/1019	336/336S
		3	174/174	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	125	72.5	250	276	446/477	919/1055	883/1019	336/336S
		4	-/174	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	125	72.5	250	276	/409	-/-	883/1019	337/337S
		5.5	-/174	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	125	72.5	250	276	/429	-/-	934/1094	338/338S
	6	0.37	140/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	125	72.5	250	259	399/-	789/925	-/-	333/333S
		0.55	159/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	125	72.5	250	259	399/-	789/925	-/-	333/333S
		0.75	173/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	125	72.5	250	259	424/-	839/975	-/-	334/334S
		1.1	174/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	125	72.5	250	259	424/-	839/975	/-	334/334S
100-225	2	22	156/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	280	361	641/-	1274/1410	-/-	354/354S
		30	172/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	280	361	666/-	1334/1470	-/-	355/355S
		37	185/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	280	361	666/-	1334/1470	-/-	355/355S
		45	197/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	280	361	696/-	1374/1510	-/-	356/356S
		55	215/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	280	430	795/-	1484/1620	-/-	357/357S
		75	238/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	280	460	860/-	1534/1670	-/-	358/358S
	4	3	162/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	280	321	491/-	954/1090	-/-	347/347S
		4	181/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	280	321	509/-	989/1125	-/-	349/349S
		5.5	204/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	280	321	534/-	994/1130	-/-	350/350S
		7.5	235/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	280	321	534/-	1034/1170	-/-	351/351S
	6	1.1	177/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	280	304	469/-	904/1040	-/-	346/346S
		1.5	198/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	280	321	491/-	954/1090	-/-	347/347S
		2.2	236/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	280	321	509/-	919/1055	-/-	348/348S
		3	238/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	280	321	491/-	954/1090	-/-	347/347S
100-280	4	5.5	196/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	315	321	534/-	1084/1220	-/-	362/362S
		7.5	215/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	315	321	534/-	1124/1260	-/-	363/363S
		11	240/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	315	321	581/-	1234/1370	-/-	364/364S
		15	256/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	315	321	581/-	1279/1415	-/-	365/365S
	6	1.5	194/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	315	321	491/-	1044/1180	-/-	360/360S
		2.2	218/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	315	321	509/-	1009/1145	-/-	361/361S
		3	234/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	315	321	534/-	1084/1220	-/-	362/362S
		4	256/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	315	321	534/-	1124/1260	-/-	363/363S

Pump size	Poles	P2 [kW]	Actual impeller size [32]	Flanges									NK dimensions [mm]						Base frame code [33]
				PN	DNS	DND	SS			SD			A	A2	H2	H3	H4 [32]	L [33]	
							PN10	PN16	PN25	PN10	PN16	PN25						NK	NKE	
100-350	4	7.5	224/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	315	346	559/-	1124/1260	-/-	327/327S
		11	261/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	315	346	606/-	1234/1370	-/-	328/328S
		15	290/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	315	346	606/-	1279/1415	-/-	329/329S
		18.5	308/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	315	386	666/-	1324/1460	-/-	330/330S
		22	326/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	315	386	666/-	1359/1495	-/-	331/331S
	6	2.2	224/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	315	346	534/-	1009/1145	-/-	325/325S
		3	251/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	315	346	559/-	1084/1220	-/-	326/326S
		4	279/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	315	346	559/-	1124/1260	-/-	327/327S
		5.5	307/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	315	346	559/-	1124/1260	-/-	327/327S
		7.5	326/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	90	315	346	559/-	1124/1260	-/-	327/327S
100-380	4	22	313/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	110	355	420	700/-	1419/1595	-/-	372/372S
		30	341/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	110	355	420	725/-	1444/1620	-/-	373/373S
		37	367/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	110	355	420	755/-	1489/1665	-/-	374/374S
		45	390/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	110	355	420	755/-	1514/1690	-/-	375/375S
		55	415/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	110	355	460	825/-	1594/1770	-/-	376/376S
		75	426/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	110	355	458	858/-	1644/1820	-/-	377/377S
	6	5.5	300/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	110	355	380	593/-	1184/1360	-/-	369/369S
		7.5	329/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	110	355	380	640/-	1294/1470	-/-	370/370S
		11	372/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	110	355	380	640/-	1339/1515	-/-	371/371S
		15	408/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	110	355	420	700/-	1419/1595	-/-	372/372S
		18.5	426/-	10/16/25	125	100	8xø19	8xø19	8xø28	8xø19	8xø19	8xø23	140	110	355	420	725/-	1444/1620	-/-	373/373S
125-180	2	11	144-116/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	125	90	280	296	556/-	1109/1255	-/-	380/380S
		15	152-148/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	125	90	280	296	556/-	1109/1255	-/-	380/380S
		18.5	160/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	125	90	280	296	556/-	1154/1300	-/-	381/381S
		22	166/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	125	90	280	336	616/-	1205/1345	-/-	382/382S
		30	176/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	125	90	280	336	641/-	1272/1405	-/-	383/383S
	4	1.5	152-136/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	125	90	280	279	444/-	869/1015	-/-	278/278S
		2.2	158/176	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	125	90	280	296	466/497	919/1065	883/1029	279/279S
		3	171/176	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	125	90	280	296	466/497	919/1065	883/1029	279/279S
		4	176/176	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	125	90	280	296	484/497	954/1100	883/1029	281/281S
		5.5	-/176	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	125	90	280	296	-/429	-/-	934/1104	282/282S
		7.5	-/176	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	125	90	280	296	-/465	-/-	958/1104	283/283S
	6	0.37	152-146/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	125	90	280	279	419/-	869/935	-/-	276/276S
		0.55	164/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	125	90	280	279	419/-	789/935	-/-	276/276S
		0.75	166/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	125	90	280	279	444/-	789/985	-/-	277/277S
		1.1	176/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	125	90	280	279	444/-	839/1015	-/-	278/278S
125-225	4	5.5	179/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	90	355	346	559/-	1034/1170	-/-	388/388S
		7.5	197/164	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	90	355	346	559/583	1074/1210	1033/1169	389/389S
		11	223/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	90	355	346	606/-	1184/1320	-/-	390/390S
		15	232/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	90	355	346	606/-	1229/1365	-/-	391/391S
	6	1.5	178/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	90	355	346	516/-	994/1130	-/-	386/386S
		2.2	202/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	90	355	346	534/-	959/1095	-/-	387/387S
		3	218/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	90	355	346	559/-	1034/1170	-/-	388/388S
		4	232/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	90	355	346	559/-	1074/1210	-/-	389/389S
125-280	4	7.5	204/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	90	355	346	559/-	1124/1300	-/-	327/327S
		11	232/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	90	355	346	606/-	1234/1410	-/-	328/328S
		15	256/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	90	355	346	606/-	1279/1455	-/-	329/329S
		18.5	270/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	90	355	386	666/-	1324/1500	-/-	330/330S
	6	2.2	205/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	90	355	346	534/-	1009/1185	-/-	325/325S
		3	232/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	90	355	346	559/-	1084/1260	-/-	326/326S
		4	251/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	90	355	346	559/-	1124/1300	-/-	327/327S
		5.5	270/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	90	355	346	559/-	1124/1300	-/-	327/327S

Pump size	Poles	P2 [kW]	Actual impeller size [32]	Flanges									NK dimensions [mm]						Base frame code [33]
				PN	DNS	DND	SS			SD			A	A2	H2	H3	H4 [32]	L [33]	
							PN10	PN16	PN25	PN10	PN16	PN25						NK	NKE
125-350	4	11	228/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	355	380	640/-	1294/1470	-/-	370/370S
		15	253/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	355	380	640/-	1339/1515	-/-	371/371S
		18.5	276/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	355	420	700/-	1384/1560	-/-	394/394S
		22	289/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	355	420	700/-	1419/1595	-/-	372/372S
		30	324/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	355	420	725/-	1444/1620	-/-	373/373S
		37	333-329/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	355	420	755/-	1489/1665	-/-	374/374S
	6	4	247/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	355	380	593/-	1184/1360	-/-	369/369S
		5.5	275/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	355	380	593/-	1184/1360	-/-	369/369S
		7.5	301/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	355	380	640/-	1294/1470	-/-	370/370S
		11	333-329/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	355	380	640/-	1294/1470	-/-	370/370S
125-380	4	30	283/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	400	455	760/-	1444/1620	-/-	397/397S
		37	307/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	400	455	790/-	1489/1665	-/-	398/398S
		45	333/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	400	455	790/-	1514/1690	-/-	399/399S
		55	360/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	400	495	860/-	1594/1770	-/-	400/400S
		75	405/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	400	495	895/-	1644/1820	-/-	401/401S
		90	410/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	400	495	895/-	1694/1870	-/-	402/402S
	6	11	314/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	400	415	675/-	1339/1515	-/-	395/395S
		15	349/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	400	455	735/-	1419/1595	-/-	396/396S
		18.5	380/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	400	455	760/-	1444/1620	-/-	397/397S
		22	406/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	400	455	760/-	1444/1620	-/-	397/397S
		30	410/-	10/16/25	150	125	8xø23	8xø23	8xø28	8xø19	8xø19	8xø28	140	110	400	455	760/-	1444/1620	-/-	397/397S
150-225	4	5.5	180/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	375	380	593/-	1054/1230	-/-	405/405S
		7.5	196/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	375	380	593/-	1094/1270	-/-	406/406S
		11	216/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	375	380	640/-	1204/1380	-/-	407/407S
		15	238/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	375	380	640/-	1249/1425	-/-	408/408S
		18.5	242/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	375	420	700/-	1294/1470	-/-	409/409S
	6	2.2	198/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	375	380	568/-	979/1155	-/-	404/404S
		3	212/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	375	380	593/-	1054/1230	-/-	405/405S
		4	233/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	375	380	593/-	1094/1270	-/-	406/406S
		5.5	242/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	375	380	593/-	1054/1230	-/-	405/405S
150-280	4	11	214/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	375	380	640/-	1314/1490	-/-	370/370S
		15	232/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	375	380	640/-	1359/1535	-/-	371/371S
		18.5	247/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	375	420	700/-	1404/1580	-/-	394/394S
		22	260/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	375	420	700/-	1439/1615	-/-	372/372S
		30	273/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	375	420	725/-	1464/1640	-/-	373/373S
	6	3	210/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	375	380	593/-	1164/1340	-/-	412/412S
		4	229/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	375	380	593/-	1204/1380	-/-	369/369S
		5.5	251/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	375	380	593/-	1204/1380	-/-	369 /369S
		7.5	273/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	375	380	640/-	1314/1490	-/-	370/370S
150-300	4	22	269/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	400	420	700/-	1449/1625	-/-	452/452S
		30	289/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	400	420	725/-	1474/1650	-/-	453/453S
	6	7.5	281/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	400	380	640/-	1324/1500	-/-	450/450S
		11	289/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	400	380	640/-	1369/1545	-/-	451/451S

Pump size	Poles	P2 [kW]	Actual impeller size [32]	Flanges									NK dimensions [mm]						Base frame code [33]
				PN	DNS	DND	SS			SD			A	A2	H2	H3	H4 [32]	L [33]	
							PN10	PN16	PN25	PN10	PN16	PN25						NK	NKE
150-350	4	18.5	238/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	400	420	700/-	1404/1580	-/-	416/416S
		22	254/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	400	420	700/-	1439/1615	-/-	417/417S
		30	273/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	400	420	725/-	1464/1640	-/-	418/418S
		37	294/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	400	420	755/-	1509/1685	-/-	419/419S
		45	318-314/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	400	420	755/-	1534/1710	-/-	420/420S
		55	328-324/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	400	460	825/-	1614/1790	-/-	421/421S
	6	4	217/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	400	380	593/-	1204/1380	-/-	413/413S
		5.5	240/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	400	380	593/-	1204/1380	-/-	413/413S
		7.5	264/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	400	380	640/-	1314/1490	-/-	414/414S
		11	301/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	400	380	640/-	1359/1535	-/-	415/415S
		15	328-324/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	400	420	700/-	1439/1615	-/-	417/417S
150-380	4	55	308/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	450	495	860/-	1754/1930	-/-	427/427S
		75	350/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	450	495	895/-	1804/1980	-/-	428/428S
		90	380/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	450	495	895/-	1854/2030	-/-	429/429S
		110	409/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	450	503	1033/-	2054/2230	-/-	430/430S
		132	430/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	450	503	1033/-	2164/2340	-/-	431/431S
	6	15	300/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	450	455	735/-	1579/1755	-/-	424/424S
		18.5	329/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	450	455	760/-	1604/1780	-/-	425/425S
		22	351/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	450	455	760/-	1604/1780	-/-	425/425S
		30	402/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	450	455	790/-	1674/1850	-/-	426/426S
		37	430/-	10/16/25	200	150	8xø23	12xø23	12xø28	8xø23	8xø23	8xø28	160	110	450	495	860/-	1754/1930	-/-	427/427S
200-300	4	30	273/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	160	110	400	490	795/-	1489/1705	-/-	459/459S
		37	288/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	160	110	400	490	825/-	1534/1750	-/-	460/460S
		45	304/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	160	110	400	490	825/-	1559/1775	-/-	461/461S
	6	11	288/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	160	110	400	490	750/-	1384/1600	-/-	457/457S
		15	304/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	160	110	400	490	770/-	1464/1680	-/-	458/458S
200-350	4	22	239/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	160	110	450	490	770/-	1439/1645	-/-	467/467S
		30	260/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	160	110	450	490	795/-	1464/1670	-/-	468/468S
		37	276/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	160	110	450	490	825/-	1509/1715	-/-	469/469S
		45	291/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	160	110	450	490	825/-	1534/1740	-/-	470/470S
		55	307/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	160	110	450	530	895/-	1614/1820	-/-	471/471S
		75	337/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	160	110	450	530	930/-	1664/1870	-/-	472/472S
		90	341/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	160	110	450	530	930/-	1714/1920	-/-	473/473S
	6	5.5	228/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	160	110	450	490	703/-	1204/1410	-/-	464/464S
		7.5	251/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	160	110	450	490	750/-	1314/1520	-/-	465/465S
		11	279/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	160	110	450	490	750/-	1359/1565	-/-	466/466S
		15	303/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	160	110	450	490	770/-	1439/1645	-/-	467/467S
		18.5	323/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	160	110	450	490	795/-	1464/1670	-/-	468/468S
		22	339/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	160	110	450	490	770/-	1439/1645	-/-	467/467S
200-380	4	55	314/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	185	110	500	580	945/-	1779/1975	-/-	491/491S
		75	346/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	185	110	500	580	980/-	1829/2025	-/-	492/492S
		90	368/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	185	110	500	580	980/-	1879/2075	-/-	493/493S
		110	400/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	185	110	500	580	1110/-	2079/2275	-/-	494/494S
		132	404/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	185	110	500	580	1110/-	2189/2385	-/-	495/495S
	6	15	308/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	185	110	500	540	820/-	1604/1800	-/-	488/488S
		18.5	329/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	185	110	500	540	845/-	1629/1825	-/-	489/489S
		22	348/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	185	110	500	540	845/-	1629/1825	-/-	489/489S
		30	393/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	185	110	500	540	875/-	1699/1895	-/-	490/490S

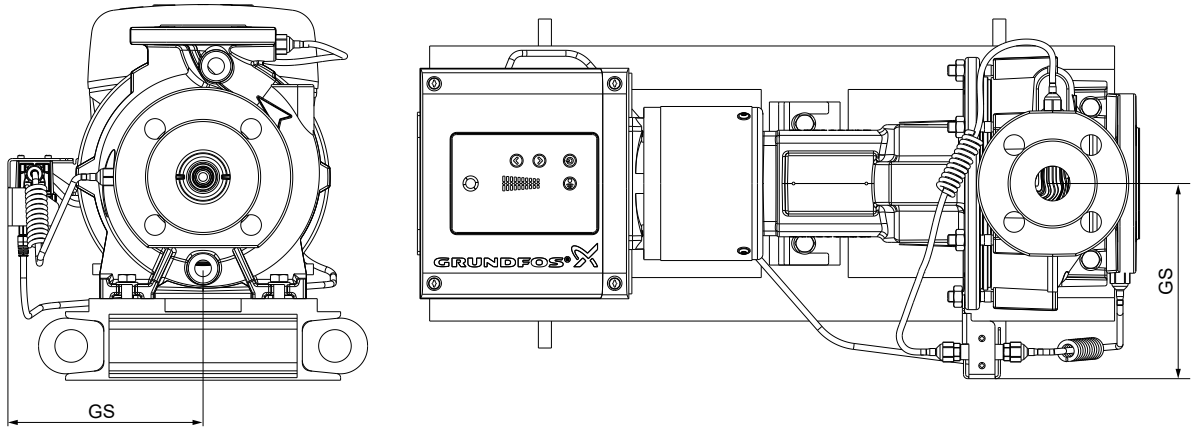
Pump size	Poles	P2 [kW]	Actual impeller size [32]	Flanges									NK dimensions [mm]						Base frame code [33]
				PN	DNS	DND	SS			SD			A	A2	H2	H3	H4 [32]	L [33]	
							PN10	PN16	PN25	PN10	PN16	PN25						NK	NKE
200-500	4	132	422/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	200	110	605	580	1110/-	2204/2450	-/-	500/500S
		160	449/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	200	110	605	580	1110/-	2204/2450	-/-	500/500S
		185	468/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	200	110	605	580	1110/-	2204/2450	-/-	500/500S
		200	477/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	200	110	605	580	1110/-	2204/2450	-/-	500/500S
		220	497/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	200	110	605	580	1235/-	2404/2650	-/-	501/501S
		250	516/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	200	110	605	580	1235/-	2404/2650	-/-	501/501S
		280	530/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	200	110	605	580	1235/-	2404/2650	-/-	501/501S
	6	37	419/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	200	110	605	580	945/-	1794/2040	-/-	496/496S
		45	441/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	200	110	605	580	980/-	1844/2090	-/-	497/497S
		55	471/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	200	110	605	580	980/-	1894/2140	-/-	498/498S
		75	521/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	200	110	605	580	1110/-	2094/2340	-/-	499/499S
		90	530/-	10/16/25	250	200	12xø23	12xø28	12xø31	8xø23	12xø23	12xø28	200	110	605	580	1110/-	2204/2450	-/-	500/500S
250-315	4	22	258-210/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	185	110	400	540	820/-	1669/1943	-/-	505/505S
		30	264/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	185	110	400	540	845/-	1694/1968	-/-	506/506S
		37	280/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	185	110	400	540	875/-	1739/2013	-/-	507/507S
		45	300-288/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	185	110	400	540	875/-	1764/2038	-/-	508/508S
		55	304-288/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	185	110	400	580	945/-	1844/2118	-/-	509/509S
	6	7.5	260-228/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	185	110	400	540	800/-	1544/1818	-/-	503/503S
		11	283/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	185	110	400	540	800/-	1589/1863	-/-	504/504S
		15	304-288/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	185	110	400	540	820/-	1669/1968	-/-	505/505S
250-360	4	37	273/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	175	110	400	590	925/-	1733/2017	-/-	515/515S
		45	291/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	175	110	400	590	925/-	1758/2042	-/-	516/516S
		55	315/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	175	110	400	630	995/-	1838/2122	-/-	517/517S
		75	359/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	175	110	400	630	1030/-	1888/2172	-/-	518/518S
		90	370/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	175	110	400	630	1030/-	1938/2222	-/-	519/519S
	6	11	275/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	175	110	400	590	850/-	1583/1867	-/-	512/512S
		15	310/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	175	110	400	590	870/-	1663/1947	-/-	513/513S
		18.5	331/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	175	110	400	590	895/-	1688/1972	-/-	514/514S
		22	360/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	175	110	400	590	895/-	1688/1972	-/-	514/514S
		30	370/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	175	110	400	590	925/-	1758/2042	-/-	516/516S
250-380	4	55	302/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	165	110	500	630	995/-	1768/2047	-/-	434/434S
		75	333/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	165	110	500	630	1030/-	1818/2097	-/-	435/435S
		90	353/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	165	110	500	630	1030/-	1868/2147	-/-	436/436S
		110	375/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	165	110	500	630	1160/-	2068/2347	-/-	437/437S
		132	404/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	165	110	500	630	1160/-	2178/2457	-/-	438/438S
		160	416/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	165	110	500	630	1160/-	2178/2457	-/-	438/438S
	6	18.5	316/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	165	110	500	590	895/-	1618/1897	-/-	432/432S
		22	334/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	165	110	500	590	895/-	1618/1897	-/-	432/432S
		30	365/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	165	110	500	590	925/-	1688/1967	-/-	433/433S
		37	403/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	165	110	500	630	995/-	1768/2047	-/-	434/434S
		45	416/-	10/16/25	300	250	12xø23	12xø28	16xø31	12xø23	12xø28	12xø31	165	110	500	630	1030/-	1818/2097	-/-	435/435S
300-300	4	45	280-224/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	200	125	400	650	985/-	1824/2113	-/-	525/525S
		55	280-272/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	200	125	400	690	1055/-	1904/2193	-/-	526/526S
		75	305/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	200	125	400	690	1090/-	1954/2243	-/-	527/527S
		90	326/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	200	125	400	690	1090/-	2004/2293	-/-	528/528S
		110	346-340/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	200	125	400	690	1220/-	2204/2493	-/-	529/529S
	6	11	276-196/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	200	125	400	650	910/-	1649/1938	-/-	522/522S
		15	280-248/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	200	125	400	650	930/-	1729/2018	-/-	523/523S
		18.5	290/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	200	125	400	650	955/-	1754/2043	-/-	524/524S
		22	307/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	200	125	400	650	955/-	1754/2043	-/-	524/524S
		30	340/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	200	125	400	650	985/-	1824/2113	-/-	525/525S

Pump size	Poles	P2 [kW]	Actual impeller size [32]	Flanges									NK dimensions [mm]						Base frame code [33]
				PN	DNS	DND	SS			SD			A	A2	H2	H3	H4 [32]	L [33]	
							PN10	PN16	PN25	PN10	PN16	PN25						NK	NKE
300-310	4	55	320-190/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	220	125	400	690	1055/-	1924/2243	-/-	534/534S
		75	332-212/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	220	125	400	690	1090/-	1974/2293	-/-	535/535S
		90	348-240/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	220	125	400	690	1090/-	2024/2343	-/-	536/536S
		110	328/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	220	125	400	690	1220/-	2224/2543	-/-	537/537S
		132	350/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	220	125	400	690	1220/-	2334/2653	-/-	538/538S
	6	15	320-184/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	220	125	400	650	930/-	1749/2068	-/-	531/531S
		18.5	328-196/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	220	125	400	650	955/-	1774/2093	-/-	532/532S
		22	336-212/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	220	125	400	650	955/-	1774/2093	-/-	532/532S
		30	350-258/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	220	125	400	650	985/-	1844/2163	-/-	533/533S
		37	348/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	220	125	400	690	1055/-	1924/2243	-/-	534/534S
300-350	4	90	327/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	190	125	400	630	1030/-	1949/2248	-/-	549/549S
		110	343/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	190	125	400	630	1160/-	2149/2448	-/-	550/550S
		132	358/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	190	125	400	630	1160/-	2259/2558	-/-	551/551S
		160	370/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	190	125	400	630	1160/-	2259/2558	-/-	551/551S
	6	30	337/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	190	125	400	590	925/-	1769/2068	-/-	546/546S
		37	356/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	190	125	400	630	995/-	1849/2148	-/-	547/547S
		45	370/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	190	125	400	630	1030/-	1899/2198	-/-	548/548S
300-400	4	200	395/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	190	110	400	630	1160/-	2251/2550	-/-	559/559S
		220	409/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	190	110	400	630	1285/-	2451/2750	-/-	560/560S
		250	434/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	190	110	400	630	1285/-	2451/2750	-/-	560/560S
		280	455/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	190	110	400	630	1285/-	2451/2750	-/-	560/560S
		315	480/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	190	110	400	630	1285/-	2451/2750	-/-	560/560S
	6	55	390/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	190	110	400	630	1030/-	1941/2240	-/-	557/557S
		75	437/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	190	110	400	630	1160/-	2141/2440	-/-	558/558S
		90	479/-	10/16/25	350	300	16xø23	16xø28	16xø34	12xø23	12xø28	16xø31	190	110	400	630	1160/-	2251/2550	-/-	559/559S
350-350	4	110	348-316/-	10/16/25	400	350	16xø28	16xø31	16xø37	16xø23	16xø28	16xø34	275	125	500	740	1270/-	2209/2508	-/-	568/568S
		132	372-336/-	10/16/25	400	350	16xø28	16xø31	16xø37	16xø23	16xø28	16xø34	275	125	500	740	1270/-	2319/2618	-/-	569/569S
		160	388-356/-	10/16/25	400	350	16xø28	16xø31	16xø37	16xø23	16xø28	16xø34	275	125	500	740	1270/-	2319/2618	-/-	569/569S
		185	408-374/-	10/16/25	400	350	16xø28	16xø31	16xø37	16xø23	16xø28	16xø34	275	125	500	740	1270/-	2319/2618	-/-	569/569S
		200	416-382/-	10/16/25	400	350	16xø28	16xø31	16xø37	16xø23	16xø28	16xø34	275	125	500	740	1270/-	2319/2618	-/-	569/569S
	6	30	342-306/-	10/16/25	400	350	16xø28	16xø31	16xø37	16xø23	16xø28	16xø34	275	125	500	700	1035/-	1829/2128	-/-	564/564S
		37	364-336/-	10/16/25	400	350	16xø28	16xø31	16xø37	16xø23	16xø28	16xø34	275	125	500	740	1105/-	1909/2208	-/-	565/565S
		45	388-352/-	10/16/25	400	350	16xø28	16xø31	16xø37	16xø23	16xø28	16xø34	275	125	500	740	1140/-	1959/2258	-/-	566/566S
		55	408-376/-	10/16/25	400	350	16xø28	16xø31	16xø37	16xø23	16xø28	16xø34	275	125	500	740	1140/-	2009/2308	-/-	567/567S

32) Pump with standard motor/pump with E-motor.

33) Pump with standard coupling/pump with spacer coupling.

Dimensional drawing, NKE Series 2000



Dimensions NKE Series 2000

Pump size	GS [mm]
NK 032-130.1	179
NK 032-130	179
NK 032-165.1	179
NK 032-180	179
NK 032-180	179
NK 040-130	179
NK 040-180	179
NK 040-220	179
NK 040-225	179
NK 050-130	179
NK 050-225	179
NK 050-280	179
NK 065-130	179
NK 065-180	179
NK 065-225	179
NK 080-180	179
NK 080-225	179
NK 100-180	179
NK 125-180	179
NK 125-225	179

18. Minimum efficiency index

Minimum efficiency index (MEI) means the dimensionless scale unit for hydraulic pump efficiency at best efficiency point (BEP), part load (PL) and overload (OL). The Commission Regulation (EU) sets efficiency requirements to MEI greater than or equal to 0.10 as from 1 January 2013 and MEI greater than or equal to 0.40 as from 1 January 2015. An indicative benchmark for best-performing water pump available on the market as from 1 January 2013 is determined in the Regulation.

- The benchmark for most efficient water pumps is MEI greater than or equal to 0.70.
- The efficiency of a pump with a trimmed impeller is usually lower than that of a pump with the full impeller diameter. The trimming of the impeller will adapt the pump to a fixed duty point, leading to reduced energy consumption. The minimum efficiency index (MEI) is based on the full impeller diameter.
- The operation of this water pump with variable duty points may be more efficient and economic when controlled, for example by using a variable-speed drive that matches the pump duty to the system.

Information on benchmark efficiency is available at http://europump.eu/efficiencycharts.

2-pole	
Pump size	NK MEI
32-130/142	0.70
32-130.1/144	0.70
32-165.1/177	0.70
32-180/177	0.70
32-205.1/207	0.60
40-130/142	0.70
40-180/176	0.70
40-220/250	0.70
40-225/246	0.70
50-130/142	0.70
50-225/240	0.70
50-280/262	0.70
65-130/144	0.70
65-180/172	0.70
65-225/242	0.70
80-180/174	0.70
80-225/225	0.70
100-180/172	0.70
100-225/238	0.70
125-180/176	0.70

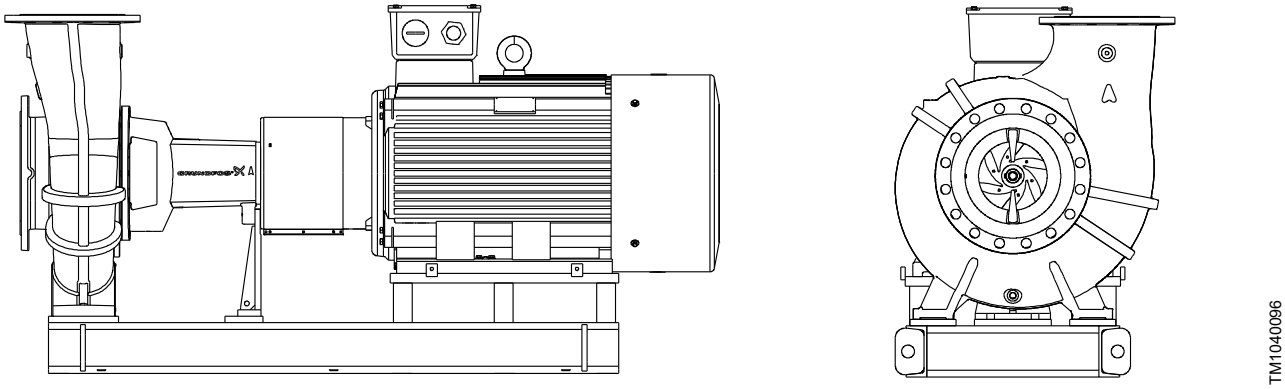
4-pole	
Pump size	NK MEI
32-130/142	0.70
32-130.1/144	0.70
32-165.1/177	0.70
32-180/177	0.70
32-205.1/207	0.70
40-130/142	0.70
40-180/176	0.70
40-220/250	0.70
40-225/250	0.70
50-130/142	0.70
50-225/240	0.70
50-280/262	0.70
50-350/340-336	0.70
65-180/172	0.70
65-225/242	0.70
65-280/280	0.70
80-180/174	0.70
80-225/225	0.70
80-280/278-270	0.70
80-350/328	0.70
100-180/174	0.70
100-225/238	0.70
100-280/256	0.70
100-350/326	0.70
125-225/232	0.70
125-280/270	0.70
125-350/333-329	0.70
150-225/242	0.70
150-280/273	0.70
150-300/289	0.70
150-350/328-324	0.70
150-380/430	0.60
250-380/416	-
100-380/426	0.605
125-180/176	0.70
125-380/410	0.603
200-300/304	0.70
200-350/341	0.70
200-380/404	0.52
250-315/304-288	0.70
250-360/370	0.56
300-300/346-340	0.70
300-310/350	0.70

6-pole	
Pump size	NK MEI
65-225/240	0.70
65-280/280	0.70
80-225/225	0.70
80-280/278-270	0.70
80-350/328	0.70
100-180/174	0.70
100-225/238	0.70
100-280/256	0.70
100-350/326	0.70
125-225/232	0.70
125-280/270	0.70
125-350/333-329	0.70
150-225/242	0.70
150-280/273	0.70
150-350/328-324	0.70
150-380/430	0.60
250-380/416	0.70
100-380/426	0.605
125-180/176	0.70
125-380/410	0.63
200-300/304	0.70
200-500/530	0.70
250-315/304-288	0.70
250-360/370	0.53
300-350/370	0.70
300-400/479	0.70

19. Base frames

NK base frame

The C-channel base frame code is stated for each pump mentioned in section NK with C-channel base frames, dimensional sketches.

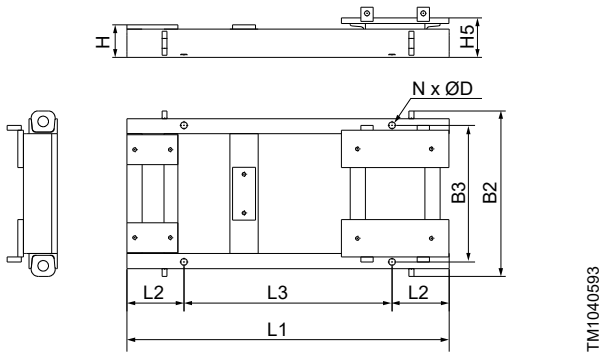


TM1040096

NK pump with C-channel base frame

NK with C-channel base frames, dimensional sketches

C-channel base frame with 4 mounting holes



C-channel base frame with 4 mounting holes

Base frame code	Dimensions [mm]								
	L1	L2	L3	B2	B3	H	H5	N	D
200	595	162	271	302	217	75	116	4	17
201	630	162	306	303	218	75	107	4	17
202	675	162	351	318	233	75	97	4	17
203	705	162	381	318	233	75	97	4	17
204	750	162	426	340	258	92	104	4	19
205	700	162	376	350	268	92	92	4	19
206	745	162	421	376	294	112	92	4	19
207	595	137	321	286	201	75	136	4	17
208	630	137	356	286	201	75	127	4	17
209	675	162	351	352	267	75	117	4	17
210	710	162	386	352	267	75	117	4	17
211	740	162	416	352	267	75	117	4	17
212	785	162	461	352	270	92	124	4	19
213	735	162	411	370	288	92	112	4	19
214	780	162	456	376	294	92	92	4	19
215	705	162	381	352	267	75	117	4	17
216	750	162	426	352	270	92	124	4	19
217	700	162	376	370	288	92	112	4	19
218	745	162	421	376	294	92	92	4	19
219	595	137	321	286	201	75	164	4	17
220	630	137	356	286	201	75	155	4	17
221	675	137	401	286	201	75	145	4	17
222	705	137	431	286	201	75	145	4	17
223	785	137	511	283	201	92	152	4	19
224	735	162	411	370	288	92	140	4	19
225	780	162	456	400	318	92	120	4	19
226	905	162	581	416	334	92	92	4	19
227	595	162	271	322	237	75	116	4	17
228	630	162	306	322	237	75	107	4	17
229	675	162	351	322	237	75	97	4	17
230	710	162	386	322	237	75	97	4	17
231	740	162	416	322	237	75	97	4	17
232	785	162	461	340	258	92	104	4	19
233	735	162	411	350	268	92	92	4	19
234	780	162	456	376	294	114	94	4	19
236	905	162	581	416	334	120	92	4	19
237	675	162	351	346	261	75	175	4	17
238	725	162	401	346	261	75	165	4	17
239	755	162	431	346	261	75	165	4	17
240	795	162	471	343	261	92	172	4	19
241	815	162	491	343	261	92	160	4	19
242	795	162	471	412	330	92	140	4	19
243	820	162	496	412	330	92	140	4	19
244	940	162	616	450	368	92	112	4	19
245	980	162	656	450	368	92	112	4	19
248	835	162	511	412	330	92	140	4	19
249	955	162	631	450	368	92	112	4	19
250	995	162	671	450	368	92	112	4	19
254	830	162	506	412	330	92	140	4	19
255	915	162	591	450	368	92	112	4	19
258	905	162	581	373	291	92	217	4	19
259	925	162	601	373	291	92	205	4	19
260	905	162	581	373	291	92	185	4	19
261	940	162	616	373	291	92	185	4	19
265	640	162	316	308	223	75	155	4	17
266	690	162	366	308	223	75	145	4	17
267	720	162	396	308	223	75	145	4	17
268	760	162	436	305	223	92	152	4	19
269	750	162	426	374	292	92	140	4	19
270	795	162	471	400	318	92	120	4	19
271	915	162	591	416	334	92	92	4	19
272	955	162	631	416	334	92	92	4	19
273	780	162	456	374	292	92	140	4	19
274	795	162	471	305	223	92	152	4	19
275	980	164	652	462	370	152	132	4	24
276	695	162	371	380	291	79	199	4	17
277	740	162	416	380	291	79	189	4	17
278	770	162	446	380	291	79	189	4	17
279	815	162	491	380	291	96	196	4	19
280	765	162	441	380	291	96	184	4	19
281	835	162	511	380	291	96	184	4	19
282	810	162	486	380	291	96	164	4	19
283	845	162	521	380	291	96	164	4	19
284	975	162	651	450	368	96	136	4	19
285	1015	162	691	450	368	96	136	6	19
293	850	162	526	380	291	79	189	4	17
294	880	162	556	380	291	79	189	4	17
295	925	162	601	380	291	96	196	4	19
296	875	162	551	380	291	96	184	4	19
297	945	162	621	380	291	96	184	4	19
298	920	162	596	380	291	96	164	4	19
299	955	162	631	380	291	96	164	4	19
302	760	162	436	415	326	79	189	4	17
303	790	162	466	415	326	79	189	4	17
304	835	162	511	415	326	96	196	4	19
305	785	162	461	415	326	96	184	4	19
306	855	162	531	415	326	96	184	4	19
307	830	162	506	415	326	96	164	4	19
308	865	162	541	415	326	96	164	4	19
309	955	162	631	481	399	96	136	4	19

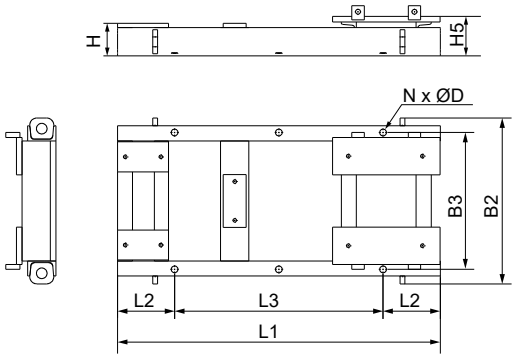
Base frame code	Dimensions [mm]								
	L1	L2	L3	B2	B3	H	H5	N	D
317	880	162	556	415	326	79	189	4	17
318	925	162	601	415	326	96	196	4	19
319	875	162	551	415	326	96	184	4	19
320	945	162	621	415	326	96	184	4	19
321	920	162	596	415	326	96	164	4	19
322	955	162	631	415	326	96	164	4	19
325	875	162	551	415	326	96	234	4	19
326	920	162	596	415	326	96	214	4	19
327	955	162	631	415	326	96	214	4	19
333	675	162	351	376	291	79	179	4	17
334	725	162	401	376	291	79	169	4	17
335	755	162	431	376	291	79	169	4	17
336	795	162	471	373	291	96	176	4	19
337	815	162	491	373	291	96	164	4	19
338	795	162	471	446	364	96	144	4	19
339	915	162	591	450	368	96	116	4	19
340	955	162	631	450	368	96	116	4	19
341	980	164	652	462	370	136	136	4	24
342	940	162	616	450	368	96	116	4	19
343	980	162	656	450	368	96	116	4	19
344	1005	164	677	462	370	136	136	4	24
346	790	162	466	415	326	79	214	4	17
347	835	162	511	415	326	96	221	4	19
348	785	162	461	415	326	96	209	4	19
349	855	162	531	415	326	96	209	4	19
350	830	162	506	415	326	96	189	4	19
351	865	162	541	415	326	96	189	4	19
352	955	162	631	415	326	96	161	4	19
353	995	162	671	415	326	96	161	4	19
360	925	162	601	415	326	96	221	4	19
361	875	162	551	415	326	96	209	4	19
362	920	162	596	415	326	96	189	4	19
363	955	162	631	415	326	96	189	4	19
380	935	162	611	450	368	96	136	4	19
381	975	162	651	450	368	96	136	4	19
382	1000	164	672	500	408	136	156	4	24
386	875	162	551	415	326	96	246	4	19
387	825	162	501	415	326	96	234	4	19
388	870	162	546	415	326	96	214	4	19
389	905	162	581	415	326	96	214	4	19
390	995	162	671	415	326	96	186	4	19
404	845	162	521	520	411	100	268	4	19
405	890	162	566	520	411	100	248	4	19
406	925	162	601	520	411	100	248	4	19
412	1000	162	676	520	411	100	248	4	19
439	870	162	546	416	334	120	92	4	19
580	750	137	476	283	201	92	152	4	19
581	705	162	381	322	237	75	97	4	17
200S	710	162	386	302	217	75	116	4	17
201S	740	162	416	303	218	75	107	4	17
202S	780	162	456	318	233	75	97	4	17
203S	810	162	486	318	233	75	97	4	17
204S	845	162	521	340	258	92	104	4	19
205S	795	162	471	350	268	92	92	4	19

Base frame code	Dimensions [mm]								
	L1	L2	L3	B2	B3	H	H5	N	D
206S	845	162	521	376	294	112	92	4	19
207S	710	137	436	286	201	75	136	4	17
208S	740	137	466	286	201	75	127	4	17
209S	780	162	456	352	267	75	117	4	17
210S	815	162	491	352	267	75	117	4	17
211S	845	162	521	352	267	75	117	4	17
212S	880	162	556	352	270	92	124	4	19
213S	830	162	506	370	288	92	112	4	19
214S	880	162	556	376	294	92	92	4	19
215S	810	162	486	352	267	75	117	4	17
216S	845	162	521	352	270	92	124	4	19
217S	795	162	471	370	288	92	112	4	19
218S	845	162	521	376	294	92	92	4	19
219S	710	137	436	286	201	75	164	4	17
220S	740	137	466	286	201	75	155	4	17
221S	780	137	506	286	201	75	145	4	17
222S	810	137	536	286	201	75	145	4	17
223S	880	137	606	283	201	92	152	4	19
224S	830	162	506	370	288	92	140	4	19
225S	880	162	556	400	318	92	120	4	19
226S	1000	162	676	416	334	92	92	4	19
227S	710	162	386	322	237	75	116	4	17
228S	740	162	416	322	237	75	107	4	17
229S	780	162	456	322	237	75	97	4	17
230S	815	162	491	322	237	75	97	4	17
231S	845	162	521	322	237	75	97	4	17
232S	880	162	556	340	258	92	104	4	19
233S	830	162	506	350	268	92	92	4	19
234S	880	162	556	376	294	114	94	4	19
236S	1000	162	676	416	334	120	92	4	19
237S	785	162	461	346	261	75	175	4	17
238S	825	162	501	346	261	75	165	4	17
239S	855	162	531	346	261	75	165	4	17
240S	895	162	571	343	261	92	172	4	19
241S	915	162	591	343	261	92	160	4	19
242S	890	162	566	412	330	92	140	4	19
243S	915	162	591	412	330	92	140	4	19
244S	1040	162	716	450	368	92	112	4	19
245S	1080	162	756	450	368	92	112	4	19
248S	930	162	606	412	330	92	140	4	19
249S	1055	162	731	450	368	92	112	4	19
250S	1095	162	771	450	368	92	112	4	19
254S	925	162	601	412	330	92	140	4	19
255S	1025	162	701	450	368	92	112	4	19
258S	1045	162	721	373	291	92	217	4	19
259S	1065	162	741	373	291	92	205	4	19
260S	1040	162	716	373	291	92	185	4	19
261S	1075	162	751	373	291	92	185	4	19
265S	790	162	466	308	223	75	155	4	17
266S	830	162	506	308	223	75	145	4	17
267S	860	162	536	308	223	75	145	4	17
268S	900	162	576	305	223	92	152	4	19
269S	885	162	561	374	292	92	140	4	19
270S	930	162	606	400	318	92	120	4	19

Base frame code	Dimensions [mm]								
	L1	L2	L3	B2	B3	H	H5	N	D
271S	1055	162	731	416	334	92	92	4	19
272S	1095	162	771	416	334	92	92	4	19
273S	920	162	596	374	292	92	140	4	19
274S	935	162	611	305	223	92	152	4	19
275S	1120	164	792	462	370	152	132	4	24
276S	805	162	481	380	291	79	199	4	17
277S	845	162	521	380	291	79	189	4	17
278S	875	162	551	380	291	79	189	4	17
279S	910	162	586	380	291	96	196	4	19
280S	860	162	536	380	291	96	184	4	19
281S	930	162	606	380	291	96	184	4	19
282S	910	162	586	380	291	96	164	4	19
283S	945	162	621	380	291	96	164	4	19
284S	1070	162	746	450	368	96	136	4	19
293S	995	162	671	380	291	79	189	4	17
294S	1025	162	701	380	291	79	189	4	17
295S	1060	162	736	380	291	96	196	4	19
296S	1010	162	686	380	291	96	184	4	19
297S	1080	162	756	380	291	96	184	4	19
298S	1060	162	736	380	291	96	164	4	19
299S	1095	162	771	380	291	96	164	4	19
302S	905	162	581	415	326	79	189	4	17
303S	935	162	611	415	326	79	189	4	17
304S	970	162	646	415	326	96	196	4	19
305S	920	162	596	415	326	96	184	4	19
306S	990	162	666	415	326	96	184	4	19
307S	970	162	646	415	326	96	164	4	19
308S	1005	162	681	415	326	96	164	4	19
309S	1100	162	776	481	399	96	136	4	19
317S	1025	162	701	415	326	79	189	4	17
318S	1060	162	736	415	326	96	196	4	19
319S	1010	162	686	415	326	96	184	4	19
320S	1080	162	756	415	326	96	184	4	19
321S	1060	162	736	415	326	96	164	4	19
322S	1095	162	771	415	326	96	164	4	19
325S	1010	162	686	415	326	96	234	4	19
326S	1060	162	736	415	326	96	214	4	19
327S	1095	162	771	415	326	96	214	4	19
333S	825	162	501	376	291	79	179	4	17
334S	865	162	541	376	291	79	169	4	17
335S	895	162	571	376	291	79	169	4	17
336S	935	162	611	373	291	96	176	4	19
337S	955	162	631	373	291	96	164	4	19
338S	930	162	606	446	364	96	144	4	19
339S	1055	162	731	450	368	96	116	4	19
340S	1095	162	771	450	368	96	116	4	19
341S	1120	164	792	462	370	136	136	4	24
342S	1080	162	756	450	368	96	116	4	19
343S	1120	162	796	450	368	96	116	4	19
344S	1145	164	817	462	370	136	136	4	24
346S	935	162	611	415	326	79	214	4	17
347S	970	162	646	415	326	96	221	4	19
348S	920	162	596	415	326	96	209	4	19
349S	990	162	666	415	326	96	209	4	19

Base frame code	Dimensions [mm]								
	L1	L2	L3	B2	B3	H	H5	N	D
350S	970	162	646	415	326	96	189	4	19
351S	1005	162	681	415	326	96	189	4	19
352S	1100	162	776	415	326	96	161	4	19
353S	1140	162	816	415	326	96	161	4	19
360S	1060	162	736	415	326	96	221	4	19
361S	1010	162	686	415	326	96	209	4	19
362S	1060	162	736	415	326	96	189	4	19
363S	1095	162	771	415	326	96	189	4	19
380S	1070	162	746	450	368	96	136	4	19
381S	1110	162	786	450	368	96	136	4	19
382S	1140	164	812	500	408	136	156	4	24
386S	1010	162	686	415	326	96	246	4	19
387S	960	162	636	415	326	96	234	4	19
388S	1010	162	686	415	326	96	214	4	19
389S	1045	162	721	415	326	96	214	4	19
390S	1130	162	806	415	326	96	186	4	19
404S	1020	162	696	520	411	100	268	4	19
405S	1070	162	746	520	411	100	248	4	19
406S	1105	162	781	520	411	100	248	4	19
412S	1180	162	856	520	411	100	248	4	19
439S	965	162	641	416	334	120	92	4	19
580S	845	137	239	283	201	92	152	4	19
581S	810	162	272	322	237	75	97	4	17

C-channel base frame with 6 mounting holes



C-channel base frame with 6 mounting holes

With standard coupling

Base frame code	Dimensions [mm]								
	L1	L2	L3	B2	B3	H	H5	N	D
246	1005	164	677	462	370	132	132	6	24
247	1080	164	752	505	413	156	136	6	24
251	1015	164	687	462	370	132	132	6	24
252	1080	164	752	505	413	156	136	6	24
253	1110	164	782	543	451	181	136	6	24
256	1195	166	863	544	420	250	180	6	28
257	1245	166	913	622	471	280	180	6	28
262	1025	162	701	442	360	92	157	6	19
263	1065	162	741	442	360	92	157	6	19
264	1085	164	757	500	408	132	177	6	24
286	1035	164	707	500	408	136	156	6	24
287	1100	164	772	505	413	136	136	6	24

Base frame code	Dimensions [mm]								
	L1	L2	L3	B2	B3	H	H5	N	D
288	1125	162	801	450	368	96	136	6	19
289	1145	164	817	500	408	136	156	6	24
290	1210	164	882	505	413	136	136	6	24
291	1235	164	907	546	454	161	136	6	24
292	1325	166	993	643	519	230	180	6	28
300	1045	162	721	450	368	96	136	6	19
301	1055	164	727	505	413	176	136	6	24
310	1035	162	711	481	399	96	136	6	19
311	1055	164	727	502	410	136	156	6	24
312	1120	164	792	505	413	136	136	6	24
313	1145	164	817	546	454	161	136	6	24
314	1235	166	903	643	519	230	180	6	28
315	1285	166	953	622	471	260	180	6	28
316	1335	166	1003	622	471	260	180	6	28
323	1045	162	721	481	399	96	136	6	19
324	1085	162	761	481	399	96	136	6	19
328	1045	162	721	415	326	96	186	6	19
329	1085	162	761	415	326	96	186	6	19
330	1105	164	777	502	410	136	206	6	24
331	1140	164	812	502	410	136	206	6	24
332	1170	164	842	546	454	136	186	6	24
345	1080	164	752	505	413	156	136	6	24
354	1055	164	727	502	410	136	181	6	24
355	1120	164	792	546	454	136	161	6	24
356	1145	164	817	543	451	136	136	6	24
357	1235	166	903	643	519	205	180	6	28
358	1285	166	953	622	471	235	180	6	28
359	1335	166	1003	622	471	235	180	6	28
364	1045	162	721	415	326	96	161	6	19
365	1085	162	761	415	326	96	161	6	19
366	1105	164	777	502	410	136	181	6	24
367	1140	164	812	502	410	136	181	6	24
368	1200	164	872	586	494	136	161	6	24
369	1035	162	711	520	411	100	248	6	19
370	1125	162	801	520	411	100	220	6	19
371	1165	162	841	520	411	100	220	6	19
372	1220	164	892	520	412	140	240	6	24
373	1250	164	922	520	412	140	220	6	24
374	1280	164	952	591	499	140	195	6	24
375	1305	164	977	591	499	140	195	6	24
376	1365	166	1033	687	563	180	210	6	28
377	1415	166	1083	694	570	178	178	6	28
378	1465	166	1133	694	570	178	178	6	28
379	1540	166	1208	749	625	225	190	6	28
383	1070	164	742	505	413	136	136	6	24
384	1100	164	772	543	451	161	136	6	24
385	1195	166	863	643	519	228	178	6	28
391	1035	162	711	415	326	96	186	6	19
392	1055	164	727	502	410	136	206	6	24
393	1090	164	762	502	410	136	206	6	24
394	1185	164	857	520	412	140	240	6	24
395	1165	162	841	520	411	100	255	6	19
396	1220	164	892	520	412	140	275	6	24
397	1250	164	922	520	412	140	255	6	24

Base frame code	Dimensions [mm]								
	L1	L2	L3	B2	B3	H	H5	N	D
398	1280	164	952	591	499	140	230	6	24
399	1305	164	977	591	499	140	230	6	24
400	1365	166	1033	637	513	180	245	6	28
401	1415	166	1083	747	623	180	215	6	28
402	1465	166	1133	747	623	180	215	6	28
403	1540	166	1208	749	625	188	188	6	28
407	1015	162	691	520	411	100	220	6	19
408	1055	162	731	520	411	100	220	6	19
409	1075	164	747	520	412	140	240	6	24
410	1110	164	782	520	412	140	240	6	24
411	1140	164	812	520	412	140	220	6	24
413	1035	162	711	570	461	100	248	6	19
414	1125	162	801	570	461	100	220	6	19
415	1165	162	841	570	461	100	220	6	19
416	1185	164	857	570	462	140	240	6	24
417	1220	164	892	570	462	140	240	6	24
418	1250	164	922	570	462	140	220	6	24
419	1280	164	952	570	462	140	195	6	24
420	1305	164	977	570	462	140	195	6	24
421	1365	166	1033	687	563	180	210	6	28
422	1415	166	1083	694	570	178	178	6	28
423	1465	166	1133	694	570	178	178	6	28
424	1360	164	1032	570	462	140	275	6	24
425	1390	164	1062	570	462	140	255	6	24
426	1445	164	1117	570	462	140	230	6	24
427	1505	166	1173	588	464	180	245	6	28
428	1555	166	1223	747	623	180	215	6	28
429	1605	166	1273	747	623	180	215	6	28
430	1680	166	1348	749	625	188	188	6	28
431	1790	166	1458	749	625	188	188	6	28
432	1395	164	1067	645	512	140	390	6	24
433	1455	164	1127	645	512	140	365	6	24
434	1515	166	1183	645	514	180	380	6	28
435	1560	166	1228	645	514	180	350	6	28
436	1610	166	1278	645	514	180	350	6	28
437	1685	166	1353	737	613	180	315	6	28
438	1795	166	1463	737	613	180	315	6	28
450	1135	162	811	570	461	100	220	6	19
451	1175	162	851	570	461	100	220	6	19
452	1230	164	902	570	462	140	240	6	24
453	1260	164	932	570	462	140	220	6	24
454	1290	164	962	570	462	140	195	6	24
455	1315	164	987	570	462	140	195	6	24
456	1375	166	1043	687	563	180	210	6	28
457	1190	164	862	700	608	140	330	6	24
458	1245	164	917	700	608	140	310	6	24
459	1275	164	947	700	608	140	290	6	24
460	1305	164	977	700	608	140	265	6	24
461	1330	164	1002	700	608	140	265	6	24
462	1390	166	1058	737	613	180	280	6	28
463	1440	166	1108	737	613	180	250	6	28
464	1035	164	707	700	608	140	358	6	24
465	1125	164	797	700	608	140	330	6	24
466	1165	164	837	700	608	140	330	6	24

Base frame code	Dimensions [mm]								
	L1	L2	L3	B2	B3	H	H5	N	D
467	1220	164	892	700	608	140	310	6	24
468	1250	164	922	700	608	140	290	6	24
469	1280	164	952	700	608	140	265	6	24
470	1305	164	977	700	608	140	265	6	24
471	1365	166	1033	737	613	180	280	6	28
472	1415	166	1083	737	613	180	250	6	28
473	1465	166	1133	737	613	180	250	6	28
474	1540	166	1208	832	708	180	215	6	28
475	1650	166	1318	832	708	180	215	6	28
476	1045	164	717	700	608	140	358	6	24
477	1135	164	807	700	608	140	330	6	24
478	1175	164	847	700	608	140	330	6	24
479	1230	164	902	700	608	140	310	6	24
480	1260	164	932	700	608	140	290	6	24
481	1290	164	962	700	608	140	265	6	24
482	1315	164	987	700	608	140	265	6	24
483	1375	166	1043	737	613	180	280	6	28
484	1425	166	1093	737	613	180	250	6	28
485	1475	166	1143	737	613	180	250	6	28
486	1550	166	1218	832	708	180	215	6	28
487	1660	166	1328	832	708	180	215	6	28
488	1360	164	1032	700	608	140	360	6	24
489	1390	164	1062	700	608	140	340	6	24
490	1445	164	1117	700	608	140	315	6	24
491	1505	166	1173	737	613	180	330	6	28
492	1555	166	1223	737	613	180	300	6	28
493	1605	166	1273	737	613	180	300	6	28
494	1680	166	1348	737	613	180	265	6	28
495	1790	166	1458	737	613	180	265	6	28
496	1505	166	1173	737	613	180	330	6	28
497	1555	166	1223	737	613	180	300	6	28
498	1605	166	1273	737	613	180	300	6	28
499	1680	166	1348	737	613	180	265	6	28
500	1790	166	1458	737	613	180	265	6	28
503	1300	164	972	700	608	140	380	6	24
504	1340	164	1012	700	608	140	380	6	24
505	1395	164	1067	700	608	140	360	6	24
506	1425	164	1097	700	608	140	340	6	24
507	1455	164	1127	700	608	140	315	6	24
508	1480	164	1152	700	608	140	315	6	24
509	1540	166	1208	737	613	180	330	6	28
510	1590	166	1258	737	613	180	300	6	28
511	1640	166	1308	737	613	180	300	6	28
512	1365	164	1037	700	608	140	430	6	24
513	1420	164	1092	700	608	140	410	6	24
514	1445	164	1117	700	608	140	390	6	24
515	1480	164	1152	700	608	140	365	6	24
516	1505	164	1177	700	608	140	365	6	24
517	1565	166	1233	737	613	180	380	6	28
518	1610	166	1278	737	613	180	350	6	28
519	1660	166	1328	737	613	180	350	6	28
520	1735	166	1403	737	613	180	315	6	28
521	1845	166	1513	737	613	180	315	6	28
522	1350	164	1022	775	683	140	490	6	24

Base frame code	Dimensions [mm]								
	L1	L2	L3	B2	B3	H	H5	N	D
523	1405	164	1077	775	683	140	470	6	24
524	1435	164	1107	775	683	140	450	6	24
525	1490	164	1162	775	683	140	425	6	24
526	1550	166	1218	797	673	180	440	6	28
527	1600	166	1268	797	673	180	410	6	28
528	1650	166	1318	797	673	180	410	6	28
529	1725	166	1393	777	653	180	375	6	28
530	1835	166	1503	777	653	180	375	6	28
531	1435	164	1107	775	683	140	470	6	24
532	1460	164	1132	775	683	140	450	6	24
533	1520	164	1192	775	683	140	425	6	24
534	1575	166	1243	797	673	180	440	6	28
535	1625	166	1293	797	673	180	410	6	28
536	1675	166	1343	797	673	180	410	6	28
537	1750	166	1418	777	653	180	375	6	28
538	1860	166	1528	777	653	180	375	6	28
546	1485	164	1157	715	623	140	365	6	24
547	1545	166	1213	737	613	180	380	6	28
548	1595	166	1263	737	613	180	350	6	28
549	1645	166	1313	737	613	180	350	6	28
550	1720	166	1388	737	613	180	315	6	28
551	1830	166	1498	737	613	180	315	6	28
557	1645	166	1313	837	713	180	350	6	28
558	1720	166	1388	837	713	180	315	6	28
559	1830	166	1498	837	713	180	315	6	28
564	1500	164	1172	815	723	140	475	6	24
565	1560	166	1228	837	713	180	490	6	28
566	1610	166	1278	837	713	180	460	6	28
567	1660	166	1328	837	713	180	460	6	28
568	1735	166	1403	837	713	180	425	6	28
569	1845	166	1513	837	713	180	425	6	28
246S	1105	164	777	462	370	132	132	6	24
247S	1170	164	842	505	413	156	136	6	24
251S	1110	164	782	462	370	132	132	6	24
252S	1175	164	847	505	413	156	136	6	24
253S	1205	164	877	543	451	181	136	6	24
256S	1295	166	963	544	420	250	180	6	28
257S	1340	166	1008	622	471	280	180	6	28
262S	1165	162	841	442	360	92	157	6	19
263S	1205	162	881	442	360	92	157	6	19
264S	1220	164	892	500	408	132	177	6	24
285S	1110	162	786	450	368	96	136	6	19
286S	1130	164	802	500	408	136	156	6	24
287S	1195	164	867	505	413	136	136	6	24
288S	1220	162	896	450	368	96	136	6	19
289S	1240	164	912	500	408	136	156	6	24
290S	1305	164	977	505	413	136	136	6	24
291S	1330	164	1002	546	454	161	136	6	24
292S	1420	166	1088	643	519	230	180	6	28
300S	1180	162	856	450	368	96	136	6	19
301S	1185	164	857	505	413	176	136	6	24
310S	1170	162	846	481	399	96	136	6	19
311S	1190	164	862	502	410	136	156	6	24
312S	1255	164	927	505	413	136	136	6	24

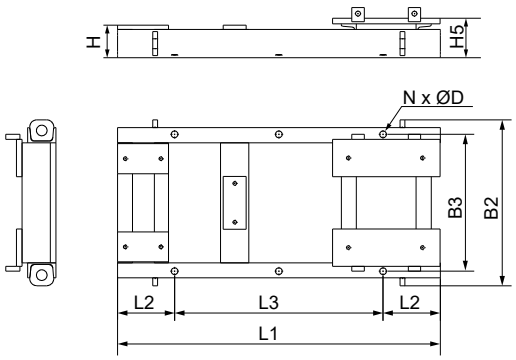
Base frame code	Dimensions [mm]								
	L1	L2	L3	B2	B3	H	H5	N	D
313S	1280	164	952	546	454	161	136	6	24
314S	1370	166	1038	643	519	230	180	6	28
315S	1420	166	1088	622	471	260	180	6	28
316S	1470	166	1138	622	471	260	180	6	28
323S	1180	162	856	481	399	96	136	6	19
324S	1220	162	896	481	399	96	136	6	19
328S	1180	162	856	415	326	96	186	6	19
329S	1220	162	896	415	326	96	186	6	19
330S	1240	164	912	502	410	136	206	6	24
331S	1275	164	947	502	410	136	206	6	24
332S	1305	164	977	546	454	136	186	6	24
345S	1210	164	882	505	413	156	136	6	24
354S	1190	164	862	502	410	136	181	6	24
355S	1255	164	927	546	454	136	161	6	24
356S	1280	164	952	543	451	136	136	6	24
357S	1370	166	1038	643	519	205	180	6	28
358S	1420	166	1088	622	471	235	180	6	28
359S	1470	166	1138	622	471	235	180	6	28
364S	1180	162	856	415	326	96	161	6	19
365S	1220	162	896	415	326	96	161	6	19
366S	1240	164	912	502	410	136	181	6	24
367S	1275	164	947	502	410	136	181	6	24
368S	1335	164	1007	586	494	136	161	6	24
369S	1215	162	891	520	411	100	248	6	19
370S	1300	162	976	520	411	100	220	6	19
371S	1340	162	1016	520	411	100	220	6	19
372S	1395	164	1067	520	412	140	240	6	24
373S	1425	164	1097	520	412	140	220	6	24
374S	1455	164	1127	591	499	140	195	6	24
375S	1480	164	1152	591	499	140	195	6	24
376S	1540	166	1208	687	563	180	210	6	28
377S	1590	166	1258	694	570	178	178	6	28
378S	1640	166	1308	694	570	178	178	6	28
379S	1715	166	1383	749	625	225	190	6	28
383S	1205	164	877	505	413	136	136	6	24
384S	1230	164	902	543	451	161	136	6	24
385S	1335	166	1003	643	519	228	178	6	28
391S	1170	162	846	415	326	96	186	6	19
392S	1190	164	862	502	410	136	206	6	24
393S	1225	164	897	502	410	136	206	6	24
394S	1360	164	1032	520	412	140	240	6	24
395S	1340	162	1016	520	411	100	255	6	19
396S	1395	164	1067	520	412	140	275	6	24
397S	1425	164	1097	520	412	140	255	6	24
398S	1455	164	1127	591	499	140	230	6	24
399S	1480	164	1152	591	499	140	230	6	24
400S	1540	166	1208	637	513	180	245	6	28
401S	1590	166	1258	747	623	180	215	6	28
402S	1640	166	1308	747	623	180	215	6	28
403S	1715	166	1383	749	625	188	188	6	28
407S	1190	162	866	520	411	100	220	6	19
408S	1230	162	906	520	411	100	220	6	19
409S	1250	164	922	520	412	140	240	6	24
410S	1285	164	957	520	412	140	240	6	24

Base frame code	Dimensions [mm]								
	L1	L2	L3	B2	B3	H	H5	N	D
411S	1315	164	987	520	412	140	220	6	24
413S	1215	162	891	570	461	100	248	6	19
414S	1300	162	976	570	461	100	220	6	19
415S	1340	162	1016	570	461	100	220	6	19
416S	1360	164	1032	570	462	140	240	6	24
417S	1395	164	1067	570	462	140	240	6	24
418S	1425	164	1097	570	462	140	220	6	24
419S	1455	164	1127	570	462	140	195	6	24
420S	1480	164	1152	570	462	140	195	6	24
421S	1540	166	1208	687	563	180	210	6	28
422S	1590	166	1258	694	570	178	178	6	28
423S	1640	166	1308	694	570	178	178	6	28
424S	1535	164	1207	570	462	140	275	6	24
425S	1565	164	1237	570	462	140	255	6	24
426S	1620	164	1292	570	462	140	230	6	24
427S	1680	166	1348	588	464	180	245	6	28
428S	1730	166	1398	747	623	180	215	6	28
429S	1780	166	1448	747	623	180	215	6	28
430S	1855	166	1523	749	625	188	188	6	28
431S	1965	166	1633	749	625	188	188	6	28
432S	1595	164	1267	645	512	140	390	6	24
433S	1650	164	1322	645	512	140	365	6	24
434S	1710	166	1378	645	514	180	380	6	28
435S	1760	166	1428	645	514	180	350	6	28
436S	1810	166	1478	645	514	180	350	6	28
437S	1885	166	1553	737	613	180	315	6	28
438S	1995	166	1663	737	613	180	315	6	28
450S	1310	162	986	570	461	100	220	6	19
451S	1350	162	1026	570	461	100	220	6	19
452S	1405	164	1077	570	462	140	240	6	24
453S	1435	164	1107	570	462	140	220	6	24
454S	1465	164	1137	570	462	140	195	6	24
455S	1490	164	1162	570	462	140	195	6	24
456S	1550	166	1218	687	563	180	210	6	28
457S	1385	164	1057	700	608	140	330	6	24
458S	1440	164	1112	700	608	140	310	6	24
459S	1470	164	1142	700	608	140	290	6	24
460S	1500	164	1172	700	608	140	265	6	24
461S	1525	164	1197	700	608	140	265	6	24
462S	1585	166	1253	737	613	180	280	6	28
463S	1635	166	1303	737	613	180	250	6	28
464S	1215	164	887	700	608	140	358	6	24
465S	1300	164	972	700	608	140	330	6	24
466S	1340	164	1012	700	608	140	330	6	24
467S	1395	164	1067	700	608	140	310	6	24
468S	1425	164	1097	700	608	140	290	6	24
469S	1455	164	1127	700	608	140	265	6	24
470S	1480	164	1152	700	608	140	265	6	24
471S	1540	166	1208	737	613	180	280	6	28
472S	1590	166	1258	737	613	180	250	6	28
473S	1640	166	1308	737	613	180	250	6	28
474S	1715	166	1383	832	708	180	215	6	28
475S	1825	166	1493	832	708	180	215	6	28
476S	1225	164	897	700	608	140	358	6	24

Base frame code	Dimensions [mm]								
	L1	L2	L3	B2	B3	H	H5	N	D
477S	1310	164	982	700	608	140	330	6	24
478S	1350	164	1022	700	608	140	330	6	24
479S	1405	164	1077	700	608	140	310	6	24
480S	1435	164	1107	700	608	140	290	6	24
481S	1465	164	1137	700	608	140	265	6	24
482S	1490	164	1162	700	608	140	265	6	24
483S	1550	166	1218	737	613	180	280	6	28
484S	1600	166	1268	737	613	180	250	6	28
485S	1650	166	1318	737	613	180	250	6	28
486S	1725	166	1393	832	708	180	215	6	28
487S	1835	166	1503	832	708	180	215	6	28
488S	1555	164	1227	700	608	140	360	6	24
489S	1585	164	1257	700	608	140	340	6	24
490S	1640	164	1312	700	608	140	315	6	24
491S	1700	166	1368	737	613	180	330	6	28
492S	1750	166	1418	737	613	180	300	6	28
493S	1800	166	1468	737	613	180	300	6	28
494S	1875	166	1543	737	613	180	265	6	28
495S	1985	166	1653	737	613	180	265	6	28
496S	1750	166	1418	737	613	180	330	6	28
497S	1800	166	1468	737	613	180	300	6	28
498S	1850	166	1518	737	613	180	300	6	28
499S	1925	166	1593	737	613	180	265	6	28
503S	1545	164	1217	700	608	140	380	6	24
504S	1585	164	1257	700	608	140	380	6	24
505S	1640	164	1312	700	608	140	360	6	24
506S	1670	164	1342	700	608	140	340	6	24
507S	1700	164	1372	700	608	140	315	6	24
508S	1725	164	1397	700	608	140	315	6	24
509S	1785	166	1453	737	613	180	330	6	28
510S	1835	166	1503	737	613	180	300	6	28
511S	1885	166	1553	737	613	180	300	6	28
512S	1610	164	1282	700	608	140	430	6	24
513S	1665	164	1337	700	608	140	410	6	24
514S	1695	164	1367	700	608	140	390	6	24
515S	1725	164	1397	700	608	140	365	6	24
516S	1750	164	1422	700	608	140	365	6	24
517S	1810	166	1478	737	613	180	380	6	28
518S	1860	166	1528	737	613	180	350	6	28
519S	1910	166	1578	737	613	180	350	6	28
520S	1985	166	1653	737	613	180	315	6	28
521S	2095	166	1763	737	613	180	315	8	28
522S	1595	164	1267	775	683	140	490	6	24
523S	1655	164	1327	775	683	140	470	6	24
524S	1680	164	1352	775	683	140	450	6	24
525S	1735	164	1407	775	683	140	425	6	24
526S	1795	166	1463	797	673	180	440	6	28
527S	1845	166	1513	797	673	180	410	6	28
528S	1895	166	1563	797	673	180	410	6	28
529S	1970	166	1638	777	653	180	375	6	28
531S	1730	164	1402	775	683	140	470	6	24
532S	1755	164	1427	775	683	140	450	6	24
533S	1815	164	1487	775	683	140	425	6	24
534S	1875	166	1543	797	673	180	440	6	28

Base frame code	Dimensions [mm]								
	L1	L2	L3	B2	B3	H	H5	N	D
535S	1920	166	1588	797	673	180	410	6	28
536S	1970	166	1638	797	673	180	410	6	28
546S	1730	164	1402	715	623	140	365	6	24
547S	1790	166	1458	737	613	180	380	6	28
548S	1840	166	1508	737	613	180	350	6	28
549S	1890	166	1558	737	613	180	350	6	28
550S	1965	166	1633	737	613	180	315	6	28
557S	1890	166	1558	837	713	180	350	6	28
558S	1965	166	1633	837	713	180	315	6	28
564S	1795	164	1467	815	723	140	475	6	24
565S	1855	166	1523	837	713	180	490	6	28
566S	1905	166	1573	837	713	180	460	6	28
567S	1955	166	1623	837	713	180	460	6	28

C-channel base frame with 8 mounting holes



C-channel base frame with 8 mounting holes

Base frame code	Dimensions [mm]								
	L1	L2	L3	B2	B3	H	H5	N	D
501	2050	166	1718	927	803	180	225	8	28
502	2290	166	1958	957	833	180	225	8	28
560	2095	166	1763	837	713	180	275	8	28
556	2090	166	1758	827	703	180	275	8	28
560	2095	166	1763	837	713	180	275	8	28
563	2330	166	1998	847	723	180	275	8	28
500S	2035	166	1703	737	613	180	265	8	28
501S	2300	166	1968	927	803	180	225	8	28
502S	2535	166	2203	957	833	180	225	8	28
530S	2080	166	1748	777	653	180	375	8	28
537S	2045	166	1713	777	653	180	375	8	28
538S	2155	166	1823	777	653	180	375	8	28
551S	2075	166	1743	737	613	180	315	8	28
556S	2340	166	2008	827	703	180	275	8	28
559S	2075	166	1743	837	713	180	315	8	28
560S	2340	166	2008	837	713	180	275	8	28
563S	2575	166	2243	847	723	180	275	8	28
568S	2030	166	1698	837	713	180	425	8	28
569S	2140	166	1808	837	713	180	425	8	28

20. Motor data

Standard motor ranges

The table shows the range of standard motors currently used for NK pumps. The motors stated in section Dimensional drawings and dimensions are MMG-W motors.

IE class	Motor	Poles	P2 [kW]																											
			0.25	0.37	0.55	0.75	1.1	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200	250	315	355
IE3	MMG-W	2	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-
		4	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-
		6	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-
	MMG-G	2	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-
		4	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-
		6	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-
IE4	MMG-H	2	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-
		4	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-
		6	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-
	MMG-W	2	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-
		4	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-
		6	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-

Note: Not all motor makes are available worldwide. For specific information about the motor makes available in your region, contact your Grundfos Customer Service Unit (CSU).

Related information

Dimensional drawings, NK/E

E-solution range

	IE class	P2 [kW]												
		0.55	0.75	1.1	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22
Medium speed	IE5	-	-	•	•	•	•	•	•	•	•	•	•	•
Low speed	IE5	•	•	•	•	•	•	•	•	•	-	-	-	-

Electrical data, MGE motors

Electrical data for motors with built-in frequency converter.

Medium speed, 4000 RPM

Motor	Frame size	Voltage	P2 [kW]	$I_{1/1}$ [A]
MGE	80B-IA	3 × 380-480 V	1.1	2.2 - 1.9
MGE	90SC-IA		1.5	2.9 - 2.4
MGE	90LD-IA		2.2	4.15 - 3.4
MGE	100LA-JA		3	5.8 - 4.8
MGE	112MC-JA		4	7.6 - 6.2
MGE	132SE-JA		5.5	10.3 - 8.2
MGE	132SF-JA		7.5	14.1 - 11.2
MGE	160MH-JA		11	20.3 - 16.0
MGE	160MA-K		15	26.7-22.0
MGE	160LB-K		18.5	33.0-27.8
MGE	180MC-K		22	39.2-31.5

Low speed, 2000 / 2200 RPM

Motor	Frame size	Voltage	P2 [kW]	$I_{1/1}$ [A]
MGE	80B-IA	3 × 380-480 V	0.55	1.2 - 1.1
MGE	80C-IA		0.75	1.55 - 1.4
MGE	90SD-IA		1.1	2.2 - 1.9
MGE	90LD-IA		1.5	2.9 - 2.5
MGE	100LB-JA		2.2	4.3 - 3.6
MGE	100LD-JA		3	5.8 - 4.6
MGE	112ME-JA		4	7.7 - 6.0
MGE	132SG-JA		5.5	10.5 - 8.40
MGE	132MH-JA		7.5	14.1 - 11.1

Pump dimensions with other motors

The tables below show changes of pump dimensions when using other motors than the standard motors (MMG-W IE3) listed in section Dimensional drawings and dimensions.

L, H and H4 are pump dimension. Others are motor dimensions.

IE class	Motor
IE3	MMG-G
IE4	MMG-W MMG-H

Example

If a 2-pole, 0.75 kW MMG-H, class IE4, is selected, the LL dimension will be 10 mm bigger.

MMG-W IE3 to MMG-W IE4

2-pole

P2 [kW]	Motors on data pages		Other motors		L	H	H4	AG	LL	P	A	B	C	K	Weight [kg]
50 Hz	Motor	Frame size	Motor	Frame size					[mm]						
0.75	MMG-W	80M	MMG-W	80M	20.00	0.0	1	-4	-10	0.0	0.0	0.0	0.0	0.0	-3
1.1	MMG-W	80M	MMG-W	80M	20.00	0.0	1	-4	-10	0.0	0.0	0.0	0.0	0.0	-3
1.5	MMG-W	90S	MMG-W	90S	-5.00	0.0	-6	5	-3	0.0	0.0	0.0	0.0	0.0	-1
2.2	MMG-W	90L	MMG-W	90L	-10	0.0	-6	5	-3	0.0	0.0	0.0	0.0	0.0	1
3	MMG-W	100L	MMG-W	100L	-10	0.0	-4	5	-3	0.0	0.0	0.0	0.0	0.0	-2
4	MMG-W	112M	MMG-W	112M	70	0.0	3	21	21	0.0	0.0	0.0	0.0	0.0	-7
5.5	MMG-W	132S	MMG-W	132S	-20	0.0	3	21	21	0.0	0.0	0.0	0.0	0.0	-12
7.5	MMG-W	132S	MMG-W	132S	-20	0.0	3	21	21	0.0	0.0	0.0	0.0	0.0	-10
11	MMG-W	160M	MMG-W	160M	0	0.0	7	11	11	0.0	0.0	0.0	0.0	0.0	-16
15	MMG-W	160M	MMG-W	160M	0	0.0	7	11	11	0.0	0.0	0.0	0.0	0.0	-11
18.5	MMG-W	160L	MMG-W	160L	0	0.0	7	11	11	0.0	0.0	0.0	0.0	0.0	-5
22	MMG-W	180M	MMG-W	180M	25	0.0	3	11	11	0.0	0.0	0.0	0.0	0.0	-12
30	MMG-W	200L	MMG-W	200L	75	0.0	21	10	20	0.0	0.0	0.0	0.0	0.0	14
37	MMG-W	200L	MMG-W	200L	75	0.0	21	10	20	0.0	0.0	0.0	0.0	0.0	-1
45	MMG-W	225M	MMG-W	225M	90	0.0	10	10	20	0.0	0.0	0.0	0.0	0.0	2
55	MMG-W	250M	MMG-W	250M	30	0.0	51	15	35	0.0	0.0	0.0	0.0	0.0	40
75	MMG-W	280S	MMG-W	280S	37	0.0	39	13	53	0.0	0.0	0.0	0.0	0.0	30

4-pole

P2 [kW]	Motors on data pages		Other motors		L	H	H4	AG	LL	P	A	B	C	K	Weight [kg]
50 Hz	Motor	Frame size	Motor	Frame size					[mm]						
0.75	MMG-W	80M	MMG-W	80M	20	0.0	1	-4	-10	0.0	0.0	0.0	0.0	0.0	-3
1.1	MMG-W	90S	MMG-W	90S	-5	0.0	-6	5	-3	0.0	0.0	0.0	0.0	0.0	-1
1.5	MMG-W	90L	MMG-W	90L	-10	0.0	-6	5	-3	0.0	0.0	0.0	0.0	0.0	-3
2.2	MMG-W	100L	MMG-W	100L	-10	0.0	-4	5	-3	0.0	0.0	0.0	0.0	0.0	2
3	MMG-W	100L	MMG-W	100L	-10	0.0	-4	5	-3	0.0	0.0	0.0	0.0	0.0	0
4	MMG-W	112M	MMG-W	112M	0	0.0	3	21	21	0.0	0.0	0.0	0.0	0.0	1
5.5	MMG-W	132S	MMG-W	132S	-20	0.0	3	21	21	0.0	0.0	0.0	0.0	0.0	-8
7.5	MMG-W	132M	MMG-W	132M	-20	0.0	3	21	21	0.0	0.0	0.0	0.0	0.0	-11
11	MMG-W	160M	MMG-W	160M	0	0.0	7	11	11	0.0	0.0	0.0	0.0	0.0	-8
15	MMG-W	160L	MMG-W	160L	0	0.0	7	11	11	0.0	0.0	0.0	0.0	0.0	2
18.5	MMG-W	180M	MMG-W	180M	25	0.0	3	11	11	0.0	0.0	0.0	0.0	0.0	3
22	MMG-W	180L	MMG-W	180L	25	0.0	3	11	11	0.0	0.0	0.0	0.0	0.0	3
30	MMG-W	200L	MMG-W	200L	75	0.0	21	10	20	0.0	0.0	0.0	0.0	0.0	16
37	MMG-W	225S	MMG-W	225S	85	0.0	10	10	20	0.0	0.0	0.0	0.0	0.0	30
45	MMG-W	225M	MMG-W	225M	85	0.0	10	10	20	0.0	0.0	0.0	0.0	0.0	40
55	MMG-W	250M	MMG-W	250M	30	0.0	51	15	35	0.0	0.0	0.0	0.0	0.0	80
75	MMG-W	280S	MMG-W	280S	37	0.0	39	13	53	0.0	0.0	0.0	0.0	0.0	20
90	MMG-W	280M	MMG-W	280M	35	0.0	39	13	53	0.0	0.0	0.0	0.0	0.0	65
110	MMG-W	315S	MMG-W	315S	0	0.0	-23	-19	38	0.0	0.0	0.0	0.0	0.0	-45
132	MMG-W	315M	MMG-W	315M	-10	0.0	-23	-19	38	0.0	0.0	0.0	0.0	0.0	-50
160	MMG-W	315L	MMG-W	315L	-10	0.0	-23	-19	38	0.0	0.0	0.0	0.0	0.0	-30
185	MMG-W	315L	MMG-W	315L	-10	0.0	-23	-19	38	0.0	0.0	0.0	0.0	0.0	25
200	MMG-W	315L	MMG-W	315L	-10	0.0	-23	-19	38	0.0	0.0	0.0	0.0	0.0	-35
220	MMG-W	355M	MMG-W	355M	-68	0.0	-11	-13	57	0.0	0.0	0.0	0.0	0.0	-60
250	MMG-W	355M	MMG-W	355M	-68	0.0	-11	-13	57	0.0	0.0	0.0	0.0	0.0	-120
280	MMG-W	355L	MMG-W	355L	102	0.0	-11	-13	57	0.0	0.0	0.0	0.0	0.0	20
315	MMG-W	355L	MMG-W	355L	102	0.0	-11	-13	57	0.0	0.0	0.0	0.0	0.0	-50

6-pole

P2 [kW]	Motors on data pages		Other motors		L	H	H4	AG	LL	P	A	B	C	K	Weight [kg]
50 Hz	Motor	Frame size	Motor	Frame size					[mm]						
0.75	MMG-W	80M	MMG-W	80M	20	0.0	1	-4	-10	0.0	0.0	0.0	0.0	0.0	-3
1.1	MMG-W	90S	MMG-W	90S	-5	0.0	-6	5	-3	0.0	0.0	0.0	0.0	0.0	-1
1.5	MMG-W	90L	MMG-W	90L	-10	0.0	-6	5	-3	0.0	0.0	0.0	0.0	0.0	-3
2.2	MMG-W	100L	MMG-W	100L	-10	0.0	-4	5	-3	0.0	0.0	0.0	0.0	0.0	2
3	MMG-W	100L	MMG-W	100L	-10	0.0	-4	5	-3	0.0	0.0	0.0	0.0	0.0	0
4	MMG-W	112M	MMG-W	112M	0	0.0	3	21	21	0.0	0.0	0.0	0.0	0.0	1
5.5	MMG-W	132S	MMG-W	132S	-20	0.0	3	21	21	0.0	0.0	0.0	0.0	0.0	-8
7.5	MMG-W	132M	MMG-W	132M	-20	0.0	3	21	21	0.0	0.0	0.0	0.0	0.0	-11
11	MMG-W	160M	MMG-W	160M	0	0.0	7	11	11	0.0	0.0	0.0	0.0	0.0	-8
15	MMG-W	160L	MMG-W	160L	0	0.0	7	11	11	0.0	0.0	0.0	0.0	0.0	2
18.5	MMG-W	180M	MMG-W	180M	25	0.0	3	11	11	0.0	0.0	0.0	0.0	0.0	3
22	MMG-W	180L	MMG-W	180L	25	0.0	3	11	11	0.0	0.0	0.0	0.0	0.0	3
30	MMG-W	200L	MMG-W	200L	75	0.0	21	10	20	0.0	0.0	0.0	0.0	0.0	16
37	MMG-W	225S	MMG-W	225S	85	0.0	10	10	20	0.0	0.0	0.0	0.0	0.0	30
45	MMG-W	225M	MMG-W	225M	85	0.0	10	10	20	0.0	0.0	0.0	0.0	0.0	40
55	MMG-W	250M	MMG-W	250M	30	0.0	51	15	35	0.0	0.0	0.0	0.0	0.0	80
75	MMG-W	280S	MMG-W	280S	37	0.0	39	13	53	0.0	0.0	0.0	0.0	0.0	20
90	MMG-W	280M	MMG-W	280M	35	0.0	39	13	53	0.0	0.0	0.0	0.0	0.0	65

MMG-W IE3 to MMG-H IE4

2-pole

P2 [kW]	Motors on data pages		Other motors		L	H	H4	AG	LL	P	A	B	C	K	Weight [kg]
50 Hz	Motor	Frame size	Motor	Frame size					[mm]						
0.75	MMG-W	80M	MMG-H	80M	31.0	0.0	-17.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	-6.0
1.1	MMG-W	80M	MMG-H	80M	31.0	0.0	-17.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	-5.5
1.5	MMG-W	90S	MMG-H	90S	-26.0	0.0	-14.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	-8.5
2.2	MMG-W	90L	MMG-H	90L	-31.0	0.0	-14.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	-6.0
3	MMG-W	100L	MMG-H	100L	-12.0	0.0	-13.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	-6.0
4	MMG-W	112M	MMG-H	112M	-14.0	0.0	-21.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	-20.0
5.5	MMG-W	132S	MMG-H	132S	5.0	0.0	-18.0	13.0	23.0	0.0	0.0	0.0	0.0	0.0	-26.0
7.5	MMG-W	132S	MMG-H	132S	5.0	0.0	-18.0	13.0	23.0	0.0	0.0	0.0	0.0	0.0	-25.0
11	MMG-W	160M	MMG-H	160M	-8.0	0.0	-17.0	11.0	21.0	0.0	0.0	0.0	0.0	0.5	-30.0
15	MMG-W	160M	MMG-H	160M	-8.0	0.0	-17.0	11.0	21.0	0.0	0.0	0.0	0.0	0.5	-27.0
18.5	MMG-W	160L	MMG-H	160L	-9.0	0.0	-17.0	11.0	21.0	0.0	0.0	0.0	0.0	0.5	-21.0
22	MMG-W	180M	MMG-H	180M	-25.0	0.0	-24.0	11.0	21.0	0.0	0.0	0.0	0.0	0.5	-40.0
30	MMG-W	200L	MMG-H	200L	4.0	0.0	-9.0	-20.0	50.0	0.0	0.0	0.0	0.0	0.5	42.0
37	MMG-W	200L	MMG-H	200L	4.0	0.0	-9.0	-20.0	50.0	0.0	0.0	0.0	0.0	0.5	42.0
45	MMG-W	225M	MMG-H	225M	6.0	0.0	-16.0	-20.0	50.0	0.0	0.0	0.0	0.0	0.5	44.0
55	MMG-W	250M	MMG-H	250M	-9.0	0.0	0.0	-54.0	-25.0	0.0	0.0	-38.0	0.0	0.0	40.0
75	MMG-W	280S	MMG-H	280S	-5.0	0.0	-10.0	-46.0	-17.0	0.0	0.0	0.0	0.0	0.0	-6.0

4-pole

P2 [kW]	Motors on data pages		Other motors		L	H	H4	AG	LL	P	A	B	C	K	Weight [kg]
50 Hz	Motor	Frame size	Motor	Frame size					[mm]						
0.25	MMG-W	71M	MMG-H	71M	-2.0	0.0	-15.0	3	-100.0	0.0	0.0	0.0	0.0	0.0	-6.8
0.37	MMG-W	71M	MMG-H	71M	-2.0	0.0	-15.0	3	-100.0	0.0	0.0	0.0	0.0	0.0	-6.0
0.55	MMG-W	80M	MMG-H	80M	31	0.0	-17.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	-4.0
0.75	MMG-W	80M	MMG-H	80M	31.0	0.0	-17.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	-2.0
1.1	MMG-W	90S	MMG-H	90S	-26.0	0.0	-14.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	-5.0
1.5	MMG-W	90L	MMG-H	90L	-31.0	0.0	-14.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	-8.0
2.2	MMG-W	100L	MMG-H	100L	-12.0	0.0	-13.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	-3.0
3	MMG-W	100L	MMG-H	100L	-12.0	0.0	-13.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	-5.0
4	MMG-W	112M	MMG-H	112M	-84.0	0.0	-21.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	-14.0
5.5	MMG-W	132S	MMG-H	132S	5.0	0.0	-18.0	13.0	23.0	0.0	0.0	0.0	0.0	0.0	-16.0
7.5	MMG-W	132M	MMG-H	132M	3.0	0.0	-18.0	13.0	23.0	0.0	0.0	0.0	0.0	0.0	-8.0
11	MMG-W	160M	MMG-H	160M	-8.0	0.0	-17.0	11.0	21.0	0.0	0.0	0.0	0.0	0.5	-26.0
15	MMG-W	160L	MMG-H	160L	-9.0	0.0	-17.0	11.0	21.0	0.0	0.0	0.0	0.0	0.5	-23.0
18.5	MMG-W	180M	MMG-H	180M	-25.0	0.0	-24.0	11.0	21.0	0.0	0.0	0.0	183.0	0.5	-18.0
22	MMG-W	180L	MMG-H	180L	-22.0	0.0	-24.0	11.0	21.0	0.0	0.0	0.0	0.0	0.5	-14.0
30	MMG-W	200L	MMG-H	200L	4.0	0.0	-9.0	-20.0	50.0	0.0	0.0	0.0	0.0	0.5	36.0
37	MMG-W	225S	MMG-H	225S	6.0	0.0	-16.0	-20.0	50.0	0.0	0.0	0.0	0.0	0.5	44.0
45	MMG-W	225M	MMG-H	225M	6.0	0.0	-16.0	-20.0	50.0	0.0	0.0	0.0	0.0	0.5	68.0
55	MMG-W	250M	MMG-H	250M	-9.0	0.0	0.0	-54.0	-25.0	0.0	0.0	-38.0	0.0	0.0	62.0
75	MMG-W	280S	MMG-H	280S	-5.0	0.0	-10.0	-46.0	-17.0	0.0	0.0	0.0	0.0	0.0	14.0
90	MMG-W	280M	MMG-H	280M	-4.0	0.0	-10.0	-46.0	-17.0	0.0	0.0	0.0	0.0	0.0	48.0
110	MMG-W	315S	MMG-H	315S	11.0	0.0	-28.0	-73.0	9.0	0.0	0.0	0.0	0.0	0.0	-15.0
132	MMG-W	315M	MMG-H	315M	11.0	0.0	-28.0	-73.0	9.0	0.0	0.0	0.0	0.0	0.0	-42.0
160	MMG-W	315L	MMG-H	315L	11.0	0.0	-28.0	-73.0	9.0	0.0	0.0	-51.0	0.0	0.0	-54.0
185	MMG-W	315L	MMG-H	315L	11.0	0.0	-28.0	-73.0	9.0	0.0	0.0	-51.0	38.0	0.0	-33.0
200	MMG-W	315L	MMG-H	315L	11.0	0.0	-28.0	-73.0	9.0	0.0	0.0	-51.0	0.0	0.0	-22.0
220	MMG-W	355M	MMG-H	355M	1.0	0.0	-40.0	-45.0	43.0	0.0	0.0	0.0	0.0	0.0	37.0
250	MMG-W	355M	MMG-H	355M	1.0	0.0	-40.0	-45.0	43.0	0.0	0.0	0.0	0.0	0.0	175.0
280	MMG-W	355L	MMG-H	355L	1.0	0.0	-40.0	-45.0	43.0	0.0	0.0	-70.0	0.0	0.0	313.0
315	MMG-W	355L	MMG-H	355L	-29.0	0.0	-40.0	-45.0	43.0	0.0	0.0	-70.0	0.0	0.0	440.0

6-pole

P2 [kW]	Motors on data pages		Other motors		L	H	H4	AG	LL	P	A	B	C	K	Weight [kg]
50 Hz	Motor	Frame size	Motor	Frame size					[mm]						
0.37	MMG-W	80M	MMG-H	80M	-4.0	0.0	-17.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	-5.0
0.55	MMG-W	80M	MMG-H	80M	31	0.0	-17.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	-7.0
0.75	MMG-W	90S	MMG-H	90S	-26.0	0.0	-14.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	-9.5
1.1	MMG-W	90L	MMG-H	90L	-31.0	0.0	-14.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	-13.0
1.5	MMG-W	100L	MMG-H	100L	-12.0	0.0	-13.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	-14.0
2.2	MMG-W	112M	MMG-H	112M	-14.0	0.0	-21.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	-17.0
3	MMG-W	132S	MMG-H	132S	5.0	0.0	-18.0	13.0	23.0	0.0	0.0	0.0	0.0	0.0	-17.0
4	MMG-W	132M	MMG-H	132M	3.0	0.0	-18.0	13.0	23.0	0.0	0.0	0.0	0.0	0.0	-15.0
5.5	MMG-W	132M	MMG-H	132M	3.0	0.0	-18.0	13.0	23.0	0.0	0.0	0.0	0.0	0.0	-14.0
7.5	MMG-W	160M	MMG-H	160M	-8.0	0.0	-17.0	11.0	21.0	0.0	0.0	0.0	0.0	0.5	3.0
11	MMG-W	160L	MMG-H	160L	-9.0	0.0	-17.0	11.0	21.0	0.0	0.0	0.0	0.0	0.5	6.0
15	MMG-W	180L	MMG-H	180L	-22.0	0.0	-24.0	11.0	21.0	0.0	0.0	0.0	0.0	0.5	34.0
18.5	MMG-W	200L	MMG-H	200L	4.0	0.0	-9.0	-20.0	50.0	0.0	0.0	0.0	0.0	0.5	59.0
22	MMG-W	200L	MMG-H	200L	4.0	0.0	-9.0	-20.0	50.0	0.0	0.0	0.0	0.0	0.5	63.0
30	MMG-W	225M	MMG-H	225M	6.0	0.0	-16.0	-20.0	50.0	0.0	0.0	0.0	0.0	0.5	72.0
37	MMG-W	250M	MMG-H	250M	-9.0	0.0	0.0	-54.0	-25.0	0.0	0.0	-38.0	0.0	0.0	66.0
45	MMG-W	280S	MMG-H	280S	-5.0	0.0	-10.0	-46.0	-17.0	0.0	0.0	0.0	0.0	0.0	62.0
55	MMG-W	280M	MMG-H	280M	-4.0	0.0	-10.0	-46.0	-17.0	0.0	0.0	0.0	0.0	0.0	-6.0
75	MMG-W	315S	MMG-H	315S	11.0	0.0	-28.0	-73.0	-11.0	0.0	0.0	0.0	0.0	0.0	-125.0
90	MMG-W	315M	MMG-H	315M	11.0	0.0	-28.0	-73.0	-291.0	0.0	0.0	0.0	0.0	0.0	-78.0

MMG-W IE3 to MMG-G IE3

2-pole

P2 [kW]	Motors on data pages		Other motors		L	H	H4	AG	LL	P	A	B	C	K	Weight [kg]
50 Hz	Motor	Frame size	Motor	Frame size					[mm]						
0.75	MMG-W	80M	MMG-G	80M	-8.0	0.0	12.0	9.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0
1.1	MMG-W	80M	MMG-G	80M	-8.0	0.0	12.0	9.0	9.0	0.0	0.0	0.0	0.0	0.0	0.5
1.5	MMG-W	90S	MMG-G	90S	-6.0	0.0	2.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0
2.2	MMG-W	90L	MMG-G	90L	-26.0	0.0	2.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.5
3	MMG-W	100L	MMG-G	100L	-39.0	0.0	7.0	20.0	20.0	0.0	0.0	0.0	0.0	0.0	0.9
4	MMG-W	112M	MMG-G	112M	17.5	0.0	1.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	-3.0
5.5	MMG-W	132S	MMG-G	132S	-14.0	0.0	-1.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	-5.5
7.5	MMG-W	132S	MMG-G	132S	-14.0	0.0	-1.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	-10.5
11	MMG-W	160M	MMG-G	160M	-12.0	0.0	-18.0	-4.0	-2.0	350.0	0.0	0.0	0.0	0.0	-12.0
15	MMG-W	160M	MMG-G	160M	-12.0	0.0	-18.0	-4.0	-2.0	350.0	0.0	0.0	0.0	0.0	-16.0
18.5	MMG-W	160L	MMG-G	160L	-13.0	0.0	-18.0	-4.0	-2.0	350.0	0.0	0.0	0.0	0.0	-23.0
22	MMG-W	180M	MMG-G	180M	-38.0	0.0	-16.0	-4.0	-2.0	350.0	0.0	0.0	0.0	0.0	-24.0
30	MMG-W	200L	MMG-G	200L	0.0	0.0	24.0	11.0	31.0	400.0	0.0	0.0	0.0	0.0	21.0
37	MMG-W	200L	MMG-G	200L	0.0	0.0	24.0	11.0	31.0	400.0	0.0	0.0	0.0	0.0	32.0
45	MMG-W	225M	MMG-G	225M	1.0	0.0	20.0	11.0	31.0	450.0	0.0	0.0	0.0	0.0	-14.0
55	MMG-W	250M	MMG-G	250M	1.0	0.0	27.0	-10.0	20.0	550.0	0.0	0.0	0.0	0.0	2.0
75	MMG-W	280S	MMG-G	280S	67.5	0.0	23.0	-2.0	28.0	550.0	0.0	0.0	0.0	0.0	-54.0

4-pole

P2 [kW]	Motors on data pages		Other motors		L	H	H4	AG	LL	P	A	B	C	K	Weight [kg]
50 Hz	Motor	Frame size	Motor	Frame size	[mm]										
0.37	MMG-W	71M	MMG-G	71M	0.5	0.0	9.0	-17.0	-12.0	0.0	0.0	0.0	0.0	0.0	-3.5
0.55	MMG-W	80M	MMG-G	80M	-8.0	0.0	12.0	9.0	9.0	0.0	0.0	0.0	0.0	0.0	-1.5
0.75	MMG-W	80M	MMG-G	80M	-8.0	0.0	12.0	9.0	9.0	0.0	0.0	0.0	0.0	0.0	-2.0
1.1	MMG-W	90S	MMG-G	90S	-6.0	0.0	2.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	1.0
1.5	MMG-W	90L	MMG-G	90L	-26.0	0.0	2.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	-2.5
2.2	MMG-W	100L	MMG-G	100L	-39.0	0.0	7.0	20.0	20.0	0.0	0.0	0.0	0.0	0.0	5.0
3	MMG-W	100L	MMG-G	100L	-39.0	0.0	7.0	20.0	20.0	0.0	0.0	0.0	0.0	0.0	2.0
4	MMG-W	112M	MMG-G	112M	-52.5	0.0	1.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	1.0
5.5	MMG-W	132S	MMG-G	132S	-14.0	0.0	-1.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	-8.5
7.5	MMG-W	132M	MMG-G	132M	-16.0	0.0	-1.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	-2.5
11	MMG-W	160M	MMG-G	160M	-12.0	0.0	-18.0	-4.0	-2.0	0.0	0.0	0.0	0.0	0.0	-13.0
15	MMG-W	160L	MMG-G	160L	-13.0	0.0	-18.0	-4.0	-2.0	0.0	0.0	0.0	0.0	0.0	-8.0
18.5	MMG-W	180M	MMG-G	180M	-38.0	0.0	-16.0	-4.0	-2.0	0.0	0.0	0.0	0.0	0.0	1.0
22	MMG-W	180L	MMG-G	180L	-35.0	0.0	-16.0	-4.0	-2.0	0.0	0.0	0.0	0.0	0.0	-10.0
30	MMG-W	200L	MMG-G	200L	0.0	0.0	24.0	11.0	31.0	0.0	0.0	0.0	0.0	0.0	23.0
37	MMG-W	225S	MMG-G	225S	1.0	0.0	20.0	11.0	31.0	0.0	0.0	0.0	0.0	0.0	12.0
45	MMG-W	225M	MMG-G	225M	1.0	0.0	20.0	11.0	31.0	0.0	0.0	0.0	0.0	0.0	6.0
55	MMG-W	250M	MMG-G	250M	1.0	0.0	27.0	-10.0	20.0	0.0	0.0	0.0	0.0	0.0	19.0
75	MMG-W	280S	MMG-G	280S	67.5	0.0	23.0	-2.0	28.0	0.0	0.0	0.0	0.0	0.0	-36.0
90	MMG-W	280M	MMG-G	280M	67.5	0.0	23.0	-2.0	28.0	0.0	0.0	0.0	0.0	0.0	-1.0
110	MMG-W	315S	MMG-G	315S	-28.0	0.0	-40.0	5.0	31.0	0.0	0.0	0.0	0.0	0.0	-165.0
132	MMG-W	315M	MMG-G	315M	-57.0	0.0	-15.0	5.0	31.0	0.0	0.0	0.0	0.0	0.0	-248.0
160	MMG-W	315L	MMG-G	315L	46.0	0.0	-15.0	5.0	31.0	0.0	0.0	0.0	0.0	0.0	-254.0
185	MMG-W	315L	MMG-G	315L	46.0	0.0	-15.0	5.0	31.0	0.0	0.0	0.0	-1.0	0.0	-55.0
200	MMG-W	315L	MMG-G	315L	46.0	0.0	-15.0	5.0	31.0	0.0	0.0	0.0	0.0	0.0	-174.0
220	MMG-W	355M	MMG-G	355M	227.0	0.0	-70.0	17.0	27.0	0.0	0.0	0.0	0.0	0.0	-345.0
250	MMG-W	355M	MMG-G	355M	227.0	0.0	-70.0	17.0	27.0	0.0	0.0	-560.0	0.0	0.0	-153.0
280	MMG-W	355L	MMG-G	355L	227.0	0.0	-70.0	17.0	27.0	0.0	0.0	0.0	0.0	0.0	-90.0
315	MMG-W	355L	MMG-G	355L	227.0	0.0	-70.0	17.0	27.0	0.0	0.0	0.0	0.0	0.0	-235.0

6-pole

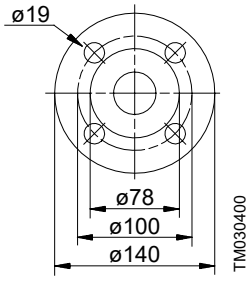
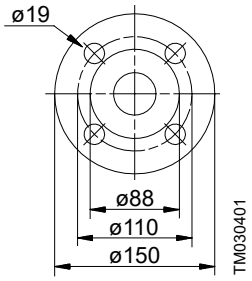
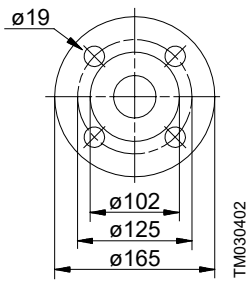
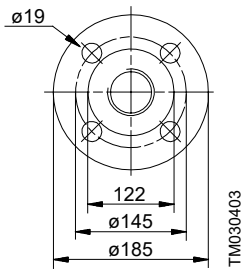
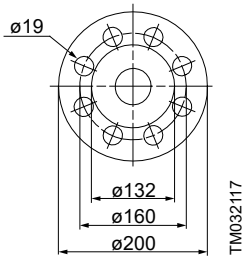
P2 [kW]	Motors on data pages		Other motors		L	H	H4	AG	LL	P	A	B	C	K	Weight [kg]
50 Hz	Motor	Frame size	Motor	Frame size	[mm]										
0.37	MMG-W	80M	MMG-G	71M	-8.0	0.0	12.0	9.0	9.0	0.0	0.0	0.0	0.0	0.0	-2.0
0.55	MMG-W	80M	MMG-G	80M	-8.0	0.0	12.0	9.0	9.0	0.0	0.0	0.0	0.0	0.0	-3.5
0.75	MMG-W	90S	MMG-G	90S	-6.0	0.0	2.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	-2.0
1.1	MMG-W	90L	MMG-G	90L	-26.0	0.0	2.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	-4.5
1.5	MMG-W	100L	MMG-G	100L	-39.0	0.0	7.0	20.0	20.0	0.0	0.0	0.0	0.0	0.0	-1.0
2.2	MMG-W	112M	MMG-G	112M	17.5	0.0	1.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	-1.0
3	MMG-W	132S	MMG-G	132S	-14.0	0.0	-1.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.5
4	MMG-W	132M	MMG-G	132M	-16.0	0.0	-1.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	5.0
5.5	MMG-W	132M	MMG-G	132M	-16.0	0.0	-1.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	-1.0
7.5	MMG-W	160M	MMG-G	160M	-12.0	0.0	-18.0	-4.0	-2.0	0.0	0.0	0.0	0.0	0.0	-11.0
11	MMG-W	160L	MMG-G	160L	-13.0	0.0	-18.0	-4.0	-2.0	0.0	0.0	0.0	0.0	0.0	-18.0
15	MMG-W	180L	MMG-G	180L	-35.0	0.0	-16.0	-4.0	-2.0	0.0	0.0	0.0	0.0	0.0	-15.0
18.5	MMG-W	200L	MMG-G	200L	0.0	0.0	24.0	11.0	31.0	0.0	0.0	0.0	0.0	0.0	39.0
22	MMG-W	200L	MMG-G	200L	0.0	0.0	24.0	11.0	31.0	0.0	0.0	0.0	0.0	0.0	39.0
30	MMG-W	225M	MMG-G	225M	1.0	0.0	20.0	11.0	31.0	0.0	0.0	0.0	0.0	0.0	55.0
37	MMG-W	250M	MMG-G	250M	1.0	0.0	27.0	-10.0	20.0	0.0	0.0	0.0	0.0	0.0	1.0
45	MMG-W	280S	MMG-G	280S	67.5	0.0	23.0	-2.0	28.0	0.0	0.0	0.0	0.0	0.0	-6.0
55	MMG-W	280M	MMG-G	280M	67.5	0.0	23.0	-2.0	28.0	0.0	0.0	0.0	0.0	0.0	-82.0
75	MMG-W	315S	MMG-G	315S	-28.0	0.0	-40.0	5.0	31.0	0.0	0.0	0.0	0.0	0.0	-264.0
90	MMG-W	315M	MMG-G	315M	-57.0	0.0	-15.0	5.0	31.0	0.0	0.0	0.0	0.0	0.0	-248.0

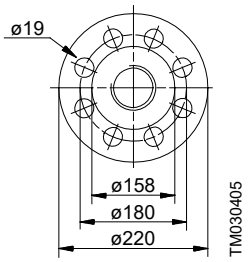
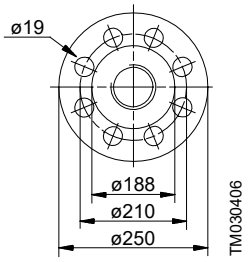
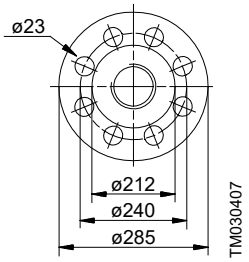
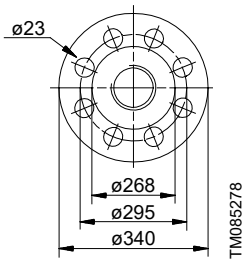
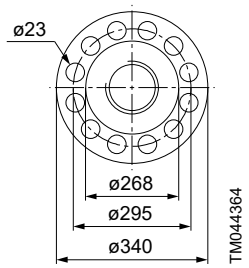
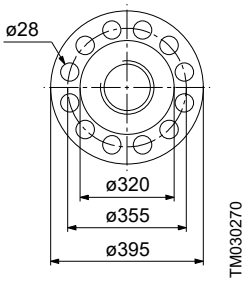
21. Accessories

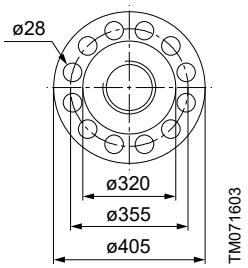
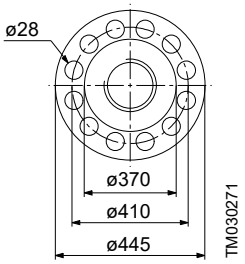
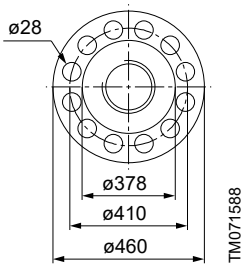
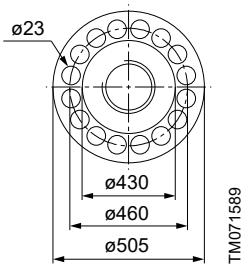
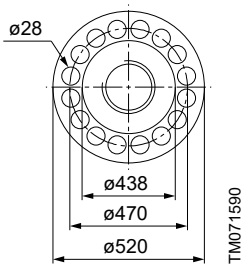
Counter-flange

Cast iron pumps

Counter-flanges for cast iron NK, NKE pumps are made of steel.
A set consists of one counter-flange, one gasket of asbestos-free material and the requisite number of bolts and nuts.

Counter-flange	Flange size	Description	Rated pressure [bar] EN 1092-2	Pipe connection	Product number
	DN 32	Threaded	10/16	Rp 1 1/4	419901
		For welding	10/16	32 mm	419902
	DN 40	Threaded	10/16	Rp 1 1/2	429902
		For welding	10/16	40 mm	429901
	DN 50	Threaded	10/16	Rp 2	339903
		For welding	10/16	50 mm	339901
	DN 65	Threaded	10/16	Rp 2 1/2	349902
		For welding	10/16	65 mm	349904
	DN 80	Threaded	10/16	Rp 3	350540
		For welding	10/16	80 mm	350541

Counter-flange	Flange size	Description	Rated pressure [bar] EN 1092-2	Pipe connection	Product number
		Threaded	10/16	Rp 4	369901
	DN 100	For welding	10/16	100 mm	369902
	DN 125	For welding	10/16	125 mm	96414677
	DN 150	For welding	10/16	150 mm	96414676
	DN 200	For welding	10	200 mm	96413358
	DN 200	For welding	16	200 mm	96691093
	DN 250	For welding	10	250 mm	99457575

Counter-flange	Flange size	Description	Rated pressure [bar] EN 1092-2	Pipe connection	Product number
	DN 250	For welding	16	250 mm	96890361
	DN 300	For welding	10	300 mm	99457580
	DN 300	For welding	16	300 mm	96890401
	DN 350	For welding	10	350 mm	99457581
	DN 350	For welding	16	350 mm	99457633

Sensors

Grundfos vortex flow sensor, VFI [34]	Type	Flow range [m^3/h]	Pipe connection	O-ring		Connection type		Product number
				EPDM	FKM	Cast iron flange	Stainless steel flange	
	VFI 1.3-25 DN32 020 E	1.3 - 25	DN 32	•		•		97686141
	VFI 1.3-25 DN32 020 F				•	•		97686142
	VFI 1.3-25 DN32 020 E			•			•	97688297
	VFI 1.3-25 DN32 020 F				•		•	97688298
	VFI 2-40 DN40 020 E	2-40	DN 40	•		•		97686143
	VFI 2-40 DN40 020 F				•	•		97686144
	VFI 2-40 DN40 020 E			•			•	97688299
	VFI 2-40 DN40 020 F				•		•	97688300
	VFI 3.2-64 DN50 020 E	2-64	DN 50	•		•		97686145
	VFI 3.2-64 DN50 020 F				•	•		97686146
	VFI 3.2-64 DN50 020 E			•			•	97688301
	VFI 3.2-64 DN50 020 F				•		•	97688302
	VFI 5.2-104 DN65 020 E	5.2 - 104	DN 65	•		•		97686147
	VFI 5.2-104 DN65 020 F				•	•		97686148
	VFI 5.2-104 DN65 020 E			•			•	97688303
	VFI 5.2-104 DN65 020 F				•		•	97688304
	VFI 8-160 DN80 020 E	8-160	DN 80	•		•		97686149
	VFI 8-160 DN80 020 F				•	•		97686150
	VFI 8-160 DN80 020 E			•			•	97688305
	VFI 8-160 DN80 020 F				•		•	97688306
	VFI 12-240 DN100 020 E	12-240	DN 100	•		•		97686151
	VFI 12-240 DN100 020 F				•	•		97686152
	VFI 12-240 DN100 020 E			•			•	97688308
	VFI 12-240 DN100 020 F				•		•	97688309

- Sensor tube with sensor
  Sensor tube of 1.4408 and sensor of 1.4404
- 2 flanges
- 5 m cable with M12 connection in one end
- Quick guide

34) For more information about the VFI sensor, see the "Grundfos direct sensors" data booklet, publication number 97790189.

Grundfos differential pressure sensor, DPI	Content of sensor kit	Data sheet product number [35]	Pressure range [bar]	Product number
	1 sensor (7/16" connections), including 0.9 m screened cable 1 original DPI bracket, for wall mounting 1 Grundfos bracket, for mounting on motor screws for mounting of sensor on bracket and motor 3 capillary tubes, short or long 2 fittings (1/4" - 7/16") 5 cable clips, black installation and operating instructions service kit instruction	96985439	0 - 0.6	96611522
		96985440	0 - 1.0	96611523
		96985441	0 - 1.6	96611524
		96985463	0 - 2.5	96611525
		96985464	0 - 4.0	96611526
		96985465	0 - 6.0	96611527
		96985466	0-10	96611550

35) Enter the product number of the data sheet into Grundfos Product Center to view data for the sensor.

Note: Select the differential pressure sensor so that the maximum pressure of the sensor is higher than the maximum differential pressure of the pump.

External Grundfos sensors

Sensor	Type	Supplier	Measuring range [bar]	Transmitter output [mA]	Power supply [VDC]	Process connection	Product number
Pressure transmitter	RPI	Grundfos	0 - 0.6	4-20	12-30	G 1/2	97748907
			0 - 1.0				97748908
			0 - 1.6				97748909
			0 - 2.5				97748910
			0 - 4.0				97748921
			0 - 6.0				97748922
			0-12				97748923
			0-16				97748924

Sensor interface, SI 001 PSU [36]	Description	Product number
 TM044194	Grundfos Direct Sensors™, type SI 001 PSU, is an external power supply for the VFI, DPI and other transmitters with 24 VDC supply voltage. It is used when the cable between transmitter and controller is more than 30 metres long.	96915820

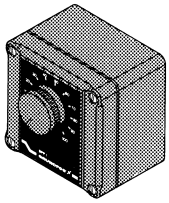
36) For more information about the PSU sensor interface, see the Installation and operating instructions "SI 001 PSU - sensor interface", publication number 96944355, or Quick guide, publication number 96944356.

Danfoss pressure sensor kit	Pressure range [bar]	Product number
• Connection: G 1/2 A (DIN 16288 - B6kt) • Electrical connection: Plug (DIN 43650)	0 - 2.5	96478188
	0-4	91072075
	0-6	91072076
	0-10	91072077
	0-16	91072078
• Pressure sensor, type MBS 3000, with 2 m screened cable • Connection: G 1/4 A (DIN 16288 - B6kt) • 5 cable clips, black • Fitting instructions PT (00400212)	0 - 2.5	405159
	0-4	405160
	0-6	405161
	0-10	405162
	0-16	405163

	Type	Supplier	Measuring range	Product number
Flowmeter	SITRANS F M MAGFLO MAG 5100 W	Siemens	1-5 m^3/h (DN 25)	ID8285
Flowmeter	SITRANS F M MAGFLO MAG 5100 W	Siemens	3-10 m^3/h (DN 40)	ID8286
Flowmeter	SITRANS F M MAGFLO MAG 5100 W	Siemens	6-30 m^3/h (DN 65)	ID8287
Flowmeter	SITRANS F M MAGFLO MAG 5100 W	Siemens	20-75 m^3/h (DN 100)	ID8288
Temperature sensor	TTA (0) 25	Carlo Gavazzi	0-25 °C	96432591
Temperature sensor	TTA (-25) 25	Carlo Gavazzi	-25 to +25 °C	96430194
Temperature sensor	TTA (50) 100	Carlo Gavazzi	50-100 °C	96432592
Temperature sensor	TTA (0) 150	Carlo Gavazzi	0-150 °C	96430195
Accessory for temperature sensor. All with 1/2 RG connection.	Protecting tube ∅9 x 50 mm	Carlo Gavazzi		96430201
	Protecting tube ∅9 x 100 mm	Carlo Gavazzi		96430202
	Cutting ring bush	Carlo Gavazzi		96430203
Temperature sensor, ambient temperature	WR 52	tmg (DK: Plesner)	-50 to +50 °C	ID8295
Differential temperature sensor	ETSD	Honsberg	0-20 °C	96409362
Differential temperature sensor	ETSD	Honsberg	0-50 °C	96409363

Note: All sensors have 4-20 mA output signal.

Potentiometer



TM021630

Potentiometer for setpoint setting and start/stop of the pump.

Product	Product number
External potentiometer with cabinet for wall mounting	625468

Grundfos GO

Grundfos GO is used for wireless infrared or radio communication with the pumps.

MI 301

MI 301 is a module with built-in infrared and radio communication. Use MI 301 in conjunction with an Android or iOS-based smart devices with a Bluetooth connection. MI 301 has a rechargeable Li-ion battery and you must charge it separately.



TM053890

MI 301

Supplied with the product:

- Grundfos MI 301
- sleeve
- battery charger
- quick guide.

Product numbers

Grundfos GO variant	Product number
Grundfos MI 301	98046408

Supported units

Make	Model	Operating system	MI 301
Apple	iPod touch 4G	iOS 5.0 or later	•
	iPhone 4, 4S		•
	iPod touch 5G	iOS 6.0 or later	•
	iPhone 5		•
HTC	Desire S	Android 2.3.3 or later	•
	Sensation	Android 2.3.4 or later	•
Samsung	Galaxy S II		•
	Galaxy Nexus	Android 4.0 or later	•
LG	Google Nexus 4	Android 4.2 or later	•

Note: Similar Android and iOS-based devices may work as well, but are not supported by Grundfos.

CIU communication interface units



TM1040612

Grundfos CIU communication interface unit

The CIU units enable communication of operating data, such as measured values and setpoints, between E-pumps and a building management system. The CIU unit incorporates a 24-240 VAC/VDC power supply module and a CIM module. It can either be mounted on a DIN rail or on a wall.

We offer the following CIU units:

Description	Fieldbus protocol	Product number
CIU 100	LONWorks for pumps	96753735
CIU 150	PROFIBUS DP	96753081
CIU 200	Modbus RTU	96753082
CIU 250 [37)]	GSM	96787106
CIU 270 [37)]	GRM	96898819
CIU 300	BACnet MS/TP	96893769
CIU 500	Ethernet, BACnet IP	96753894
CIU 500	Ethernet, Modbus TCP	
CIU 500	Ethernet, PROFINET IO	
CIU 500	Ethernet, GRM IP	
CIU 500	Ethernet, EtherNet/IP	
CIU 900	CIU box without CIM	99448387
CIU 901	CIU box with IO 270 only	99448389

[37)] Antenna not included. See section Antennas and battery.

For further information about data communication via CIU units and fieldbus protocols, see the CIU documentation available in Grundfos Product Center.

Related information

Antennas and battery

CIM communication interface modules



TM1040613

Grundfos CIM communication interface module

The CIM modules enable communication of operating data, such as measured values and setpoints, between E-pumps of up to 22 kW and a building management system. The CIM modules are add-on communication modules which are installed in the MGE terminal box.

Note: CIM modules must be installed by authorised personnel.

We offer the following CIM modules:

Product	Description	Product number
CIM 100	LONWorks for pumps	96824797
CIM 110	LONWorks for multipump	96824798
CIM 150	PROFIBUS DP	96824793
CIM 200	Modbus RTU	96824796
CIM 250 [38)]	GSM	96824795
CIM 260-EU [38)]	3G/4G cellular	99439302
CIM 260-US [38)]	3G/4G cellular	99439306
CIM 270 [38)]	GRM	96898815
CIM 280-EU [38)]	GiC/GRM 3G/4G	99439724
CIM 280-US [38)]	GiC/GRM 3G/4G	99439725
CIM 300	BACnet MS/TP	96893770
CIM 500	Ethernet, BACnet IP	98301408
CIM 500	Ethernet, Modbus TCP	
CIM 500	Ethernet, PROFINET IO	
CIM 500	Ethernet, GRM IP	
CIM 500	Ethernet, EtherNet/IP	

[38)] Antenna not included. See section Antennas and battery.

For further information about data communication via CIM modules and fieldbus protocols, see the CIM documentation available in Grundfos Product Center.

Related information

Antennas and battery

Antennas and battery

Description	Product number
Antenna for roof for CIM/CIU 250/270	97631956
Antenna for desk for CIM/CIU 250/270	97631957
Antenna (rod) 3G/4G for CIM 260/280	99043061
Antenna (puc) 3G/4G for CIM 260/280	99518079
CIM 250 battery	99499908

EMC filter

EMC (electromagnetic compatibility to EN 61800-3)

Motor [kW]		Emission/immunity
2-pole	4-pole	
0.37	0.37	Emission Motors may be installed in residential areas (first environment), unrestricted distribution, corresponding to CISPR11, group 1, class B. Immunity Motors fulfil the requirements for both the first and second environment.
0.55	0.55	
0.75	0.75	
1.1	1.1	
1.5	1.5	
2.2	2.2	
3.0	3.0	
4.0	4.0	
5.5	-	
7.5	-	
-	5.5	Emission The motors are category C3, corresponding to CISPR11, group 2, class A, and may be installed in industrial areas (second environment). If equipped with an external Grundfos EMC filter, the motors are category C2, corresponding to CISPR11, group 1, class A, and may be installed in residential areas (first environment).
-	7.5	
11	11	
15	15	
18.5	18.5	
22	-	



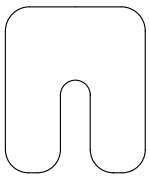
TM029198

EMC filter

The EMC filter for residential areas is available as a complete kit ready for installation.

Product	Product number
EMC filter (5.5 kW and 7.5 kW, 4-pole)	96041047
EMC filter (11-22 kW)	96478309

Shims



TM043264

Shim

Shims to adjust motor height when aligning pump and motor.

Product	Product number
Small case (180 pcs)	96659156
Large case (360 pcs)	96659157

Each case contains three types of shims:

Type 1: 55 x 50 mm (2.17 x 1.97 in), 15 mm (0.59 in) slot.

Type 2: 75 x 70 mm (2.95 x 2.76 in), 23 mm (0.91 in) slot.

Type 3: 90 x 80 mm (3.54 x 3.15 in), 32 mm (1.26 in) slot.

Each type has ten of each of three sizes: 0.02; 0.028; 0.039 inch (0.5; 0.7; 1 mm).

A large case contains 20 of each of the above-mentioned shims. Refills can be found via service.

22. Service

Some pump parts will become worn over time and need to be replaced. These parts can be ordered as service kits.

Service recommendations

To avoid unnecessary downtime, we recommend that you stock certain service parts. These service parts should be ordered together with the pump.

Information about service kits and recommended service parts can be found in the service kit catalogue.

In Grundfos Product Center, you can also search for the "Service offerings" data booklet, which gives relevant information about service issues.

23. Grundfos Product Center

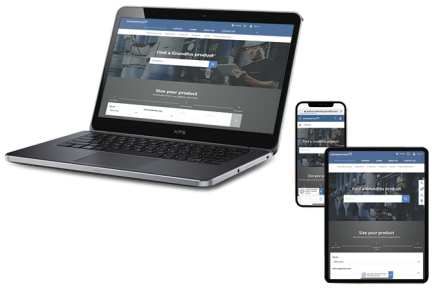
Online search and sizing tool to help you make the right choice.
From the international view, you can select your specific country to view the product range available to you.
International view: *http://product-selection.grundfos.com*

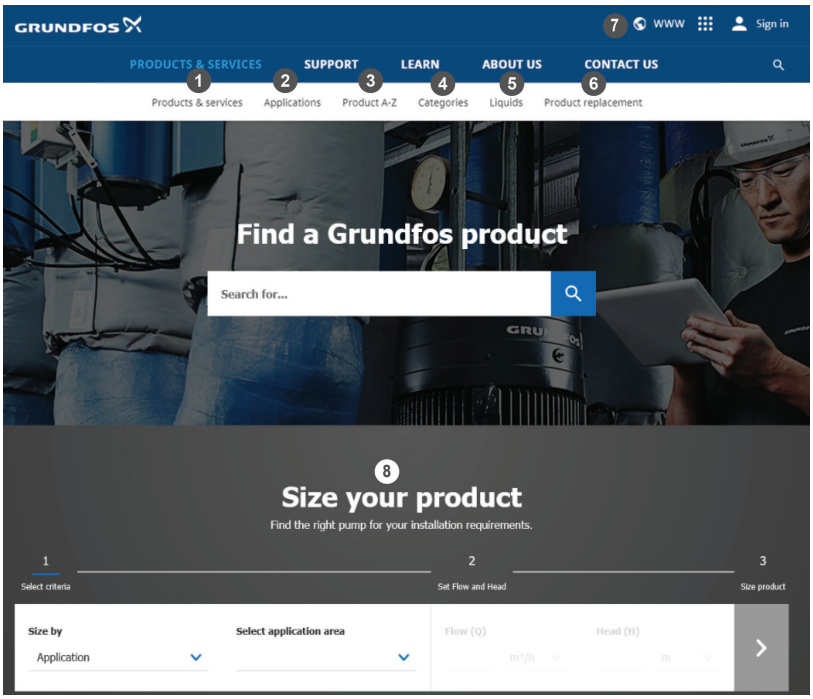
All the information you need in one place

Performance curves, technical specifications, pictures, dimensional drawings, motor curves, wiring diagrams, spare parts, service kits, 3D drawings, documents, system parts. The Product Center displays any recent and saved items - including complete projects - right on the main page.

Downloads

On the product pages, you can download installation and operating instructions, data booklets, service instructions, etc., in PDF format.





When you select your country, you will see the menus below. Note that some menus may not be available depending on the country.
Example: *https://product-selection.grundfos.com/uk*

Pos.	Description
1	**Products & services** enables you to find products and documents by typing a product number or name into the search field.
2	**Applications** enables you to choose an application to see how Grundfos can help you design and optimise your system.
3	**Products A-Z** enables you to look through a list of all the Grundfos products.
4	**Categories** enables you to look for a product category.
5	**Liquids** enables you to find pumps designed for aggressive, flammable or other special liquids.
6	**Product replacement** enables you to find a suitable replacement.
7	**WWW** enables you to select the country, which changes the language, the available product range and the structure of the website.
8	**Sizing** enables you to size a product based on your application and operating conditions.

24. Document quality feedback

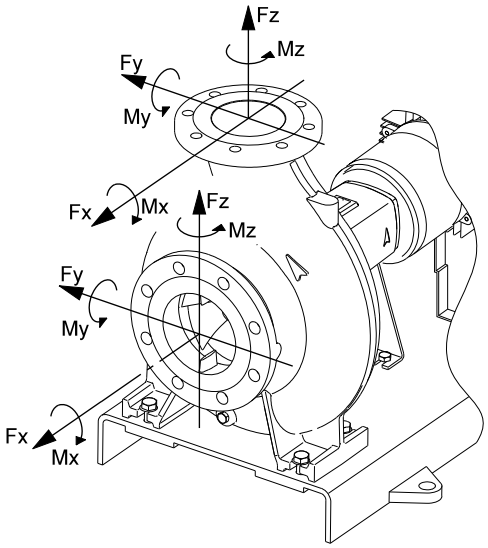
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A.1. Flange forces and torques



TM045621

Flange forces and torques

Cast iron flanges	Diameter DN	Force [N]				Torque [N-m]			
		Fy	Fz	Fx	ΣF [1)]	My	Mz	Mx	ΣM [1)]
Horizontal pump, x-axis, inlet port	25	245	298	263	455	210	245	315	455
	32	298	368	315	578	263	298	385	560
	40	350	438	385	683	315	368	455	665
	50	473	578	525	910	350	403	490	718
	65	595	735	648	1155	385	420	525	770
	80	718	875	788	1383	403	455	560	823
	100	945	1173	1050	1838	438	508	613	910
	125	1120	1383	1243	2170	525	665	735	1068
	150	1418	1750	1575	2643	613	718	875	1278
	200	1890	2345	2100	3658	805	928	1138	1680
	250	2700	3460	2980	5220	1260	1460	1780	2620
	300	3220	4000	3580	6260	1720	1980	2420	3560
	350	3760	4660	4180	7300	2200	2540	3100	4560
	400	4300	5320	4780	8340	2760	3180	3880	5720
	450	4840	5980	5380	9380	3400	3920	4780	7040
	500	5380	6640	5980	10420	4100	4720	5780	8520
Horizontal pump, x-axis, outlet port	32	315	298	368	578	263	298	385	560
	40	385	350	438	683	315	368	455	665
	50	525	473	578	910	350	403	490	718
	65	648	595	735	1155	385	420	525	770
	80	788	718	875	1383	403	455	560	823
	100	1050	945	1173	1838	438	508	613	910
	125	1243	1120	1383	2170	525	665	735	1068
	150	1575	1418	1750	2748	613	718	875	1278
	200	2100	1890	2345	3658	805	928	1138	1680
	250	2980	2700	3340	5220	1260	1460	1780	2620
	300	3580	3220	4000	6260	1720	1980	2420	3920
	350	4180	3760	4660	7300	2200	2540	3100	4560

Cast iron flanges	Diameter DN	Force [N]				Torque [N-m]			
		Fy	Fz	Fx	ΣF [1)]	My	Mz	Mx	ΣM [1)]
	400	4780	4300	5320	8340	2760	3180	3880	5720
	450	5380	5080	5980	9380	3400	3920	4780	7040
	500	5980	5380	6640	10420	4100	4720	5780	8520

1) ΣF and ΣM are vector sums of the forces and torques

Stainless steel flanges	Diameter DN	Force [N]				Torque [N-m]			
		Fy	Fz	Fx	ΣF [2)]	My	Mz	Mx	ΣM [2)]
Horizontal pump, x-axis, inlet port	25	490	595	525	910	420	490	630	910
	32	595	735	630	1155	525	595	770	1120
	40	700	875	770	1365	630	735	910	1330
	50	945	1155	1050	1820	700	805	980	1435
	65	1190	1470	1295	2310	770	840	1050	1540
	80	1435	1750	1575	2765	805	910	1120	1645
	100	1890	2345	2100	3675	875	1015	1225	1820
	125	2240	2765	2485	4340	1050	1330	1470	2135
	150	2835	3500	3150	5285	1225	1435	1750	2555
	200	3780	4690	4200	7315	1610	1855	2275	3360
	250	4725	6055	5215	9135	2205	2555	3115	4585
	300	5635	7000	6265	10955	3010	3465	4235	6230
	350	6580	8155	7315	12775	3850	4445	5425	7980
	400	7525	9310	8365	14595	4830	5565	6790	10010
	450	8470	10465	9415	16415	5950	6860	8365	12320
	500	9415	11620	10465	18235	7175	8260	10115	14910
Horizontal pump, x-axis, outlet port	32	630	595	735	1155	525	595	770	1120
	40	770	700	875	1365	630	735	910	1330
	50	1050	945	1155	1820	700	805	980	1435
	65	1295	1190	1470	2310	770	840	1050	1540
	80	1575	1435	1750	2765	805	910	1120	1645
	100	2100	1890	2345	3675	875	1015	1225	1820
	125	2485	2240	2765	4340	1050	1330	1470	2135
	150	3150	2835	3500	5495	1225	1435	1750	2555
	200	4200	3780	4690	7315	1610	1855	2275	3360
	250	5215	4725	5845	9135	2205	2555	3115	4585
	300	6265	5635	7000	10955	3010	3465	4235	6860
	350	7315	6580	8155	12775	3850	4445	5425	7980
	400	8365	7525	9310	14595	4830	5565	6790	10010
	450	9415	8890	10465	16415	5950	6860	8365	12320
	500	10465	9415	11620	18235	7175	8260	10115	14910

2) ΣF and ΣM are vector sums of the forces and torques

If not all loads reach the maximum permissible value, one of the values is allowed to exceed the normal limit.
Contact Grundfos for further information.

92848114 **08.2023**
ECM: 1374486

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