50 Hz

e-NSC Series
100, 125, 150, 200, 250, 300

HORIZONTAL CENTRIFUGAL ELECTRIC PUMPS
EQUIPPED WITH IE3 MOTORS

ErP 2009/125/EC

Cod. 191002951 Rev. A Ed.05/2014

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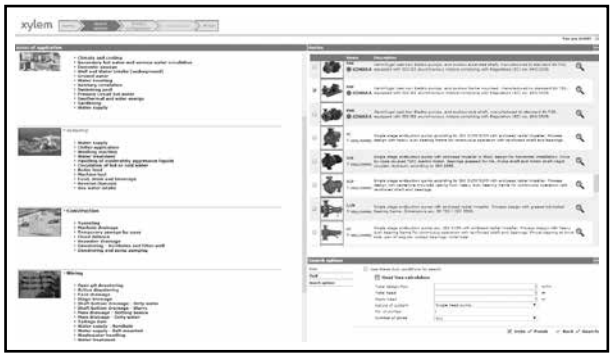
Xylect™

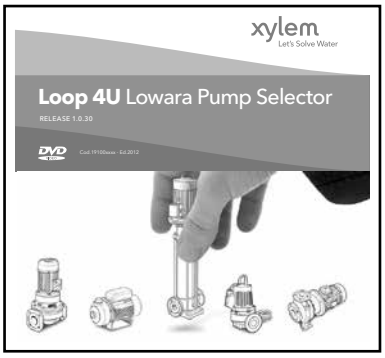
Xylect™ is a pump solution software with an extensive online database of product information across the entire range of pumps and related products, with multiple search options and helpful project management facilities. The system holds up-to-date product information on thousands of products and accessories.

Xylect™ can be available:

On the website – www.xylect.com



On DVD – Loop 4U



On Mobile Apps

For more information, please, see page 89-90.

Ecodesign Directive (ErP)

Over last decade the European Commission with the 'Energy Efficiency Plan' pushed the European Parliament and the Council to adopt specific measures to the purpose of reducing energy consumption and further negative environmental impacts.

Through the Directives 2005/32/EC, energy-using products (EuP), and 2009/125/EC, energy-related products (ErP) a framework for **ecodesign** requirements was established.

The Commission Regulations (EC) No 640/2009 and (EU) No 4/2014 have implemented two directives with regard to ecodesign requirements for **three-phase 50 Hz electric motors** placed on the market and put into service inside EU zone as self-alone units or integrated in other products.

This regulation states that motors must have **efficiency level IE3** (or IE2 + Variable Speed Drive) from **1 January 2015 for 7,5 to 375 kW** rated powers and from **1 January 2017 for 0,75 to 375 kW** ones.

The Commission Regulation (EU) No 547/2012 has implemented two directives with regard to ecodesign requirements for some types of **clean water pumps** placed on the market and put into service inside EU zone as self-alone units or integrated in other products.

This regulation states that water pumps shall have **index MEI 0.4** as minimum from **1 January 2015**.
That index comes from a dedicated formula which considers hydraulic efficiency values at 'best efficiency point' (BEP), 75 % of the flow at BEP (Part load – PL) and 110 % of the flow at BEP (Over load – OL).

The Lowara e-NSC series, for the models in the scope of the regulations above, is ErP compliant, having an index MEI equal or higher than 0,4 and IE3 motor efficiency.

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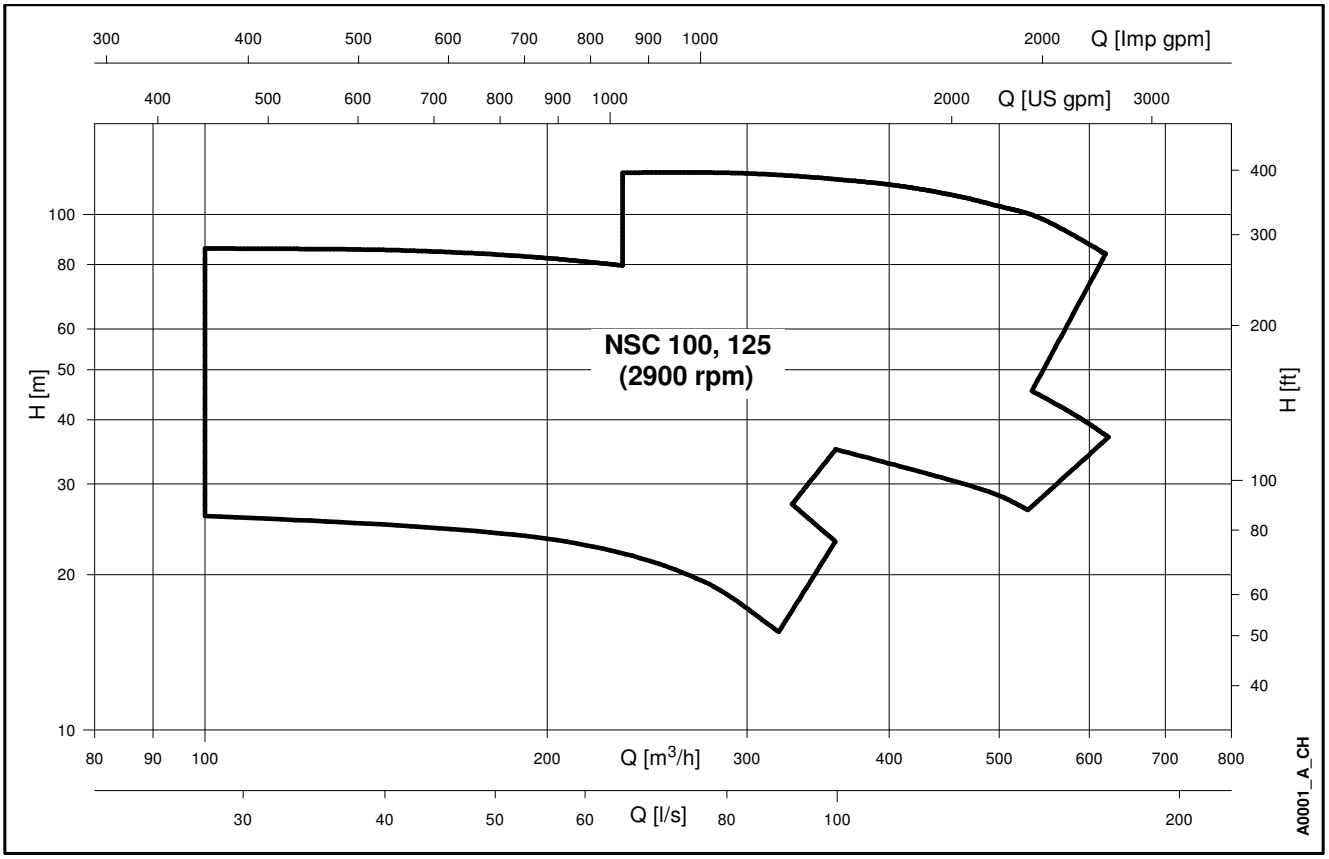
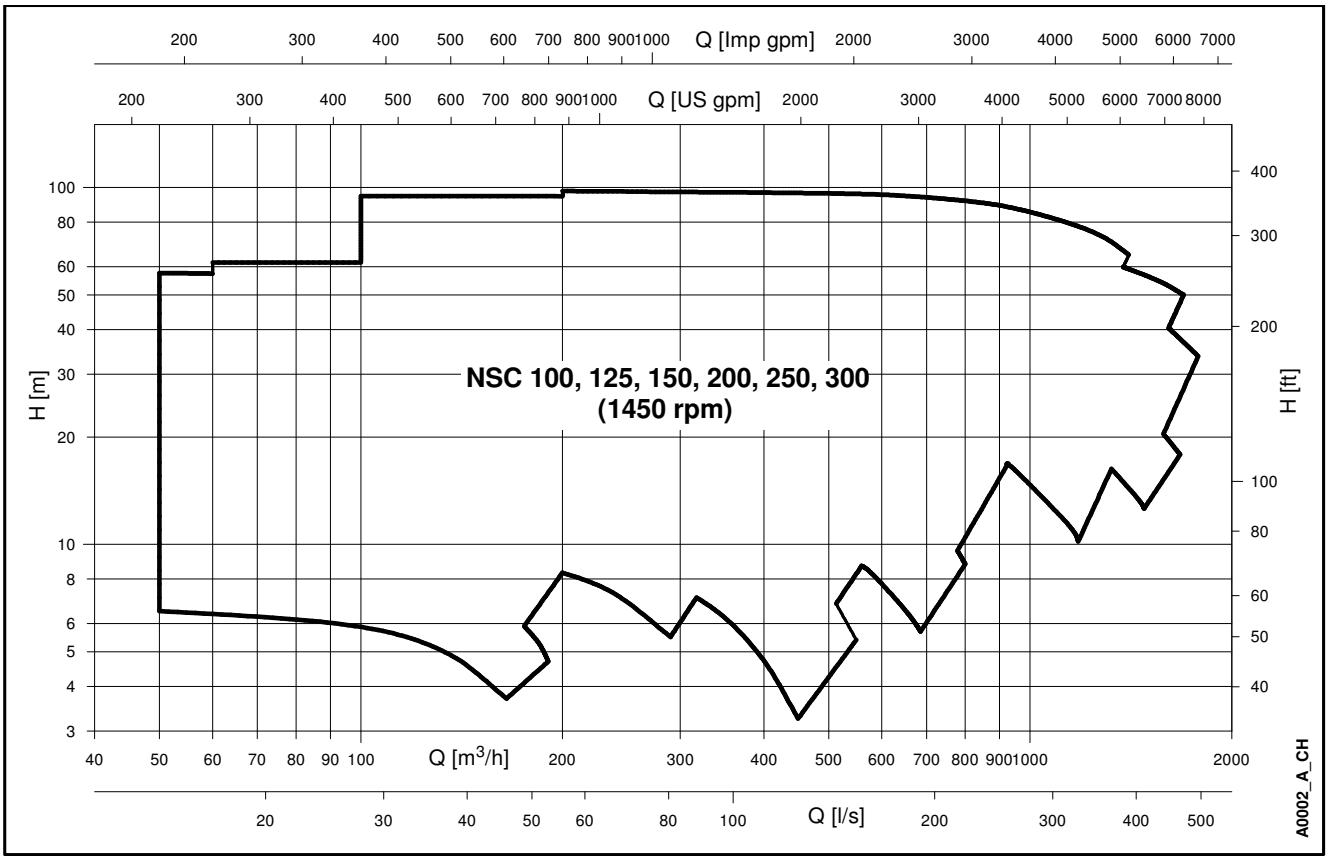
e-NSC SERIES
HYDRAULIC PERFORMANCE RANGE AT 50 Hz, 2 POLES



HYDRAULIC PERFORMANCE RANGE AT 50 Hz, 4 POLES



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e-NSC SERIES
GENERAL INTRODUCTION

The new **Lowara e-NSC Series** is the result of the close collaboration between our customers and us; the new range has been redesigned and improved to meet the Commercial Building Services (CBS) requirements, in terms of performances and energy saving.
In addition the new **Lowara e-NSC Series** can be customized to meet the needs of the Industry, keeping the quality in the production and the continuous reliability and robustness in the operation.

Pump design

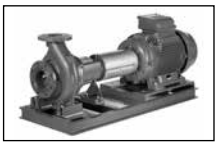
The new **Lowara e-NSC Series** is a centrifugal end-suction electro-pump, single stage, axial flanged suction port, radial flanged discharge and horizontal shaft.
The pumps have cast iron casing and impeller as standard but can be available on demand other materials like stainless steel or duplex.
The pumps are equipped with interchangeable mechanical seals, IE3 efficiency motors and a back pull-out design according to the following main construction:

Extended shaft
close-coupled by means of an adaptor bracket with an impeller keyed directly to the special motor shaft extension.

SOON AVAILABLE

Stub shaft
Rigid-coupled with a bracket, an adaptor and a rigid coupling keyed to the standard motor shaft extension.

Frame mounted
flexible-coupled with bracket, support, flexing coupling (special version with spacer on demand), aligning and anchoring base.



Bare shaft pump
version without driver suitable to be coupled with a standard electric motor.

Hydraulic specifications

- Maximum delivery: **640** m³/h for 2 poles range.
  1800 m³/h for 4 poles range.
- Maximum head: **115** m for 2 poles range.
  100 m for 4 poles range.
- Hydraulic performance compliant with ISO 9906:2012 – Grade 3B.
- Fluid temperature range:
  standard version (EPDM gasket) **-20 to +140 °C**
  version on request (FPM* gasket) **-10 to +140 °C**
- Maximum operating pressure:
  standard version (cast iron casing)
  16 bar @ 120 °C and 14,9 bar @ 140 °C
  version on request (cast ductile iron casing)
  16 bar @ 120 °C and 15,6 bar @ 140 °C
  version on request (cast stainless steel casing)
  16 bar @ 50 °C and 14,8 bar @ 140 °C
  version on request (cast duplex casing)
  16 bar @ 140 °C

* Fluoro-elastomer: FPM (old ISO), FKM (ASTM & new ISO).

Motor specifications

- Squirrel cage in short circuit enclosed construction with external ventilation (TEFC).
- 2-pole and 4-pole ranges.
- **IP55** protection degree as motor (EN 60034-5), IPX5 as electro-pump (EN 60529).
- Performances according to EN 60034-1.
- **IE3** efficiency level (three-phase 0,75 to 375 kW).
- **155 (F)** insulation class.
- Standard voltage:
  3 x 380-415/660-690 V, 50 Hz
- Maximum ambient temperature: 40 °C.

Note
- Anti-clockwise rotation when facing pump's suction port.
- Pump does not include counter-flanges.

List of the main Directives and technical norms:
- Machinery Directive MD 2006/42/EC, EN 809, EN 60204-1
- Electromagnetic Compatibility Directive EMCD 2004/108/EC, EN 61000-6-1, EN 61000-6-3
- Ecodesign requirements for energy-related products ErP 2009/125/EC
- Hydraulic efficiency compliant with Commission Regulation (EU) No 547/2012
- Motor efficiency compliant with Commission Regulation (EC) No 640/2009, Commission Regulation (EU) No 4/2014, EN 60034-30:2009, IEC 60034-30-1:2014
- Mechanical seals according to EN 12756
- Flanges according to EN 1092-2 (cast iron and cast ductile iron), EN 1092-1 (stainless steel and duplex)
- Connection dimensions according to EN 733 for models 100-200, 100-250, 100-315, 100-400, 125-250, 125-315, 125-400, 150-315, 150-400.

e-NSC SERIES
COMMERCIAL BUILDING SERVICES (CBS)
APPLICATIONS & BENEFITS

Applications

The **Lowara e-NSC** Series is suitable for many different applications demanding variable duty points, reliable and efficient products and cost saving operation.

The Lowara e-NSC Series can be used for the following CBS applications:

- **HVAC**
  - Liquid transfer in heating systems.
  - Liquid transfer in air-conditioning systems.
  - Liquid transfer in ventilation systems.

- **Water Supply**
  - Pressure boosting in commercial buildings.
  - Irrigation systems.
  - Water transfer for green houses.

- **Fire Fighting**

Benefits

The Lowara e-NSC Series permit to achieve the following benefits.

- **Performances**: the e-NSC pumps are ErP 2015 compliant, equipped with IE3 motors and with the right hydraulic coverage for CBS applications. The standard full cast iron version with PN16, 140 °C maximum fluid temperature and EPDM elastomer is exactly what the CBS Market needs.

- **Reliability**: the high quality in production, the robust construction and operation, the interchangeable mechanical seals and wear rings guarantee a continuous operation without faults and a shorter down time for maintenance.

- **Versatility**: beside the standard offer, the Lowara e-NSC series is available in many different configurations for casing, impeller and elastomer materials, motor configurations. That helps in addressing a wide range of applications.

- **Total cost ownership**: the best hydraulic and electric efficiency, the HYDROVAR-equipped versions, the easy and quick maintenance, permit to reduce the operation and maintenance cost and to save energy when the pump is working.

- **Pre-post sales support**: we are continuously working close to our customers to help them in selecting the right pump for the specific application. An user-friendly selection software improved with many selection tools is available on the website, on DVD or on Apps for mobile phones. Experienced engineers are fully dedicated to big projects for Municipality.

e-NSC SERIES
INDUSTRY
APPLICATIONS & BENEFITS

Applications

The e-NSC series and the different available configurations and standard options have been designed for a wide range of applications in industry from process cooling and heating, to washing and cleaning, thru heat recovery, water transport, water boosting and water treatment.

The e-NSC series can be installed in machines where compactness and high performances are a must or within industrial processes where the user looks for a robust and reliable design for the handling of many different liquids.

Benefits

- **Efficiency**: new designed high efficiency hydraulics, IE3 motors and the option with variable speed by the HYDROVAR drive set the basis for very low operation costs.
- **Reliability**: various mechanical seal materials and options are available to optimize the configuration. The e-NSC is also designed for easy maintenance and all service points are easy reachable to reduce down-time.
- **Know How**: the perfect configuration for an application can be made with the selection tool by all users or by consulting our industrial experienced employees.
- **A global platform**: the e-NSC series are assembled in different factories across the world to make the e-NSC always closer to our customer. Beyond our commitment to reduce the carbon footprint of e-NSC, this global platform secures the availability of the same design with the same quality processes everywhere.

Features

- Sizes DN100, 125, 150, 200, 250, 300.
- Wide performance range up to 115 m head and 1800 m³/h flow.
- Nominal pressure 16 bar.
- Wide range of temperatures for pumped liquids: -20°C to +140°C.
- Wide range of materials for many different kinds of pumped liquid.
- Wide range of voltages.
- High performance IE3 motors.
- Variable speed by optional HYDROVAR drive.

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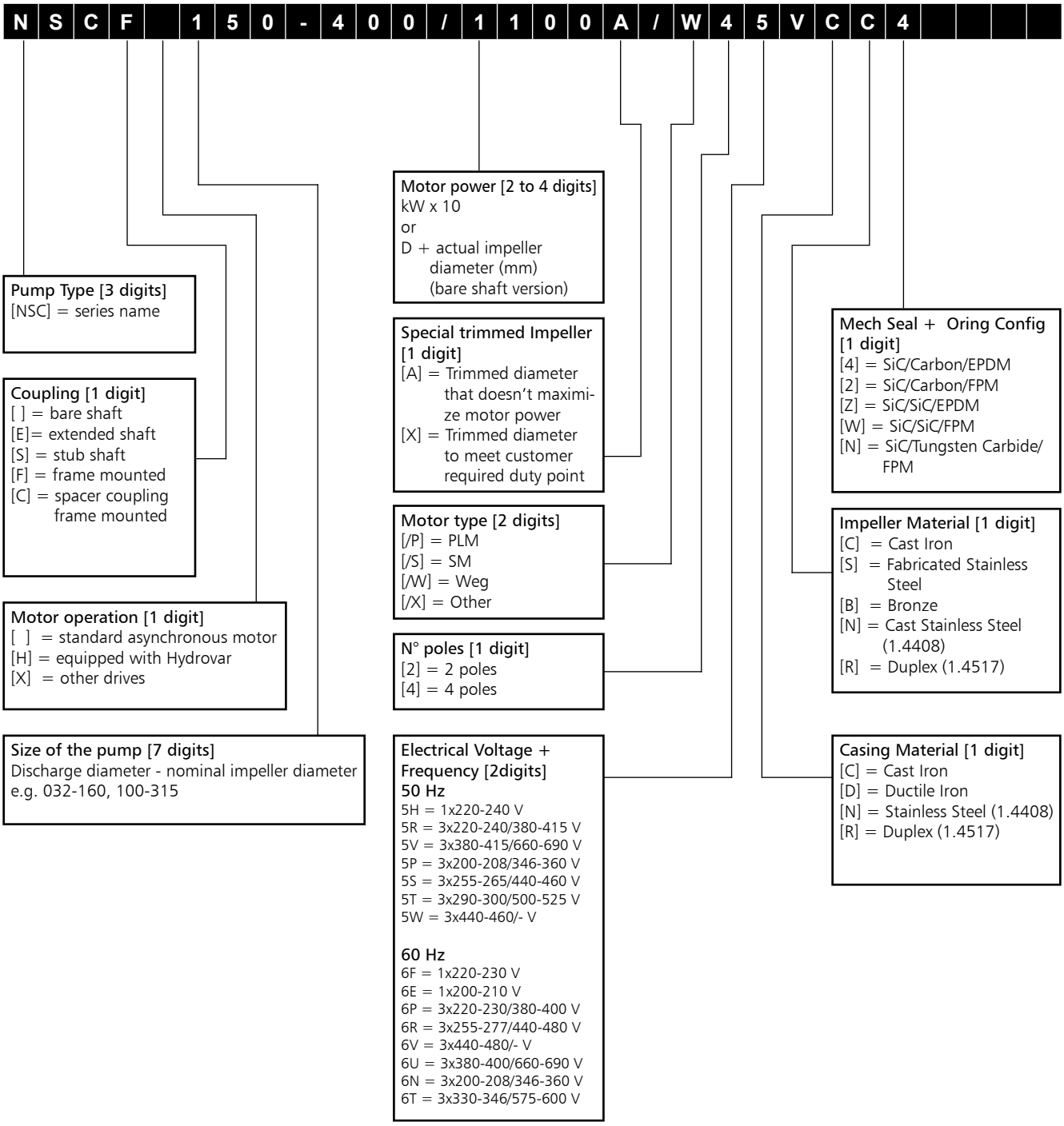
e-NSC SERIES
IDENTIFICATION CODE



EXAMPLES

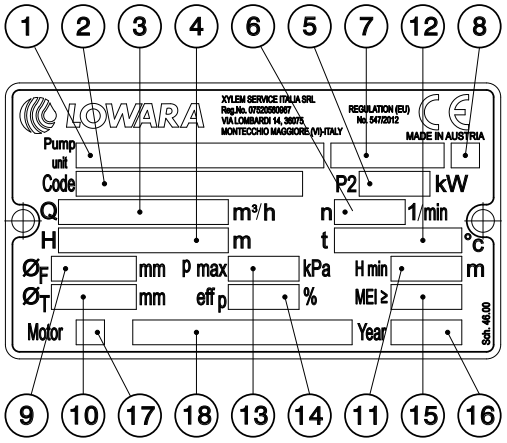
NSCS 100-250/900/W25RCC4
End-suction, electric pump with stub shaft coupling, DN 100 nominal discharge port, 250 mm nominal impeller diameter, 90 kW rated motor power,WEG IE3 model, 2-pole, 50 Hz 220-240/380-415 V, cast iron casing, cast iron impeller, Silicon carbide/Carbon/EPDM mechanical seal.

NSCF 150-400/1100A/W45VCC4
End-suction, electric pump with frame mounted coupling, DN 150 nominal discharge port, 400 mm nominal impeller diameter, 110 kW rated motor power, trimmed impeller, WEG IE3 model, 4-pole, 50 Hz 380-415/660-690 V, cast iron casing, cast iron impeller, Silicon carbide/Carbon/EPDM mechanical seal.

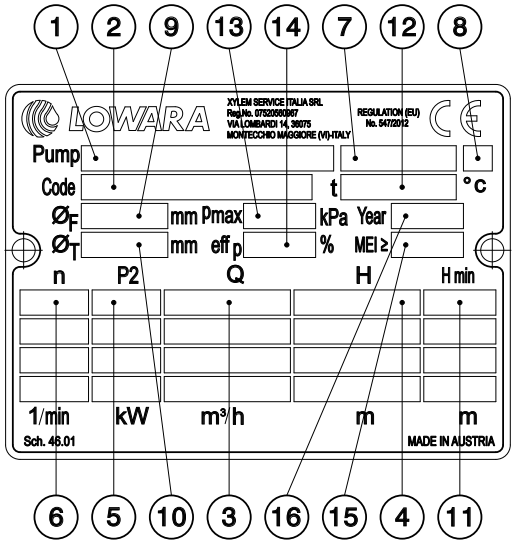
NSC 150-400/D423CCZ
End-suction, bare shaft pump, DN 150 nominal discharge port, 400 mm nominal impeller diameter, 423 mm actual impeller diameter, cast iron casing, cast iron impeller, Silicon carbide/ Silicon carbide/EPDM mechanical seal.

e-NSC SERIES
RATING PLATE

ELECTRIC PUMP



PUMP ONLY (NSC)



LEGEND

1 - Pump / electric pump unit type
2 - Pump code / electric pump unit code
3 - Flow range
4 - Head range
5 - Nominal or maximum pump power
6 - Speed
7 - Serial number or order number
8 - Order position number
9 - Full impeller diameter (only filled in for trimmed impellers)
10 - Trimmed impeller diameter (only filled in for trimmed impellers)
11 - Minimum head
12 - Maximum operating liquid temperature
13 - Maximum operating pressure
14 - Hydraulic efficiency in best efficiency point
15 - Minimum efficiency index MEI (Regulation (EU) No 547/2012)
16 - Year of production
17 - Motor single or three phase indication
18 - Motor type indication

Note for electric pump unit: refer to motor data plate for electrical data.

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e-NSC SERIES
LIST OF MODELS AT 50 Hz, 2 POLES

SIZE NSC	kW	VERSION			
		NSCE	NSCS	NSCF	NSCC
100-160/150	15	-	•	•	•
100-160/185	18,5	-	•	•	•
100-160/220	22	-	•	•	•
100-160/300	30	-	•	•	•
100-200/300	30	-	-	•	•
100-200/370	37	-	•	•	•
100-200/450	45	-	•	•	•
100-200/550	55	-	•	•	•
100-250/450	45	-	-	•	•
100-250/550	55	-	-	•	•
100-250/750	75	-	•	•	•
100-250/900	90	-	•	•	•
125-200/450	45	-	•	•	•
125-200/550	55	-	•	•	•
125-200/750	75	-	•	•	•
125-200/900	90	-	•	•	•
125-315/1100	110	-	-	•	•
125-315/1320	132	-	-	•	•
125-315/1600	160	-	-	•	•
125-315/2000	200	-	-	•	•

• = Available

Nsc_models-2p50-en_a_sc

LEGEND

NSCE : Extended shaft.
NSCS : Stub shaft.
NSCF : Frame mounted.
NSCC : Frame mounted with spacer coupling.

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e-NSC SERIES
LIST OF MODELS AT 50 Hz, 4 POLES

SIZE NSC	kW	VERSION			
		NSCE	NSCS	NSCF	NSCC
100-160/22A	2,2	-	•	•	•
100-160/22	2,2	-	•	•	•
100-160/30	3	-	•	•	•
100-160/40	4	-	•	•	•
100-200/40	4	-	-	•	•
100-200/55	5,5	-	•	•	•
100-200/75	7,5	-	•	•	•
100-250/55	5,5	-	-	•	•
100-250/75	7,5	-	•	•	•
100-250/110	11	-	•	•	•
100-315/110	11	-	•	•	•
100-315/150	15	-	•	•	•
100-315/185	18,5	-	•	•	•
100-315/220	22	-	•	•	•
100-315/300	30	-	•	•	•
100-400/300	30	-	•	•	•
100-400/370	37	-	•	•	•
100-400/450	45	-	•	•	•
125-200/55	5,5	-	•	•	•
125-200/75	7,5	-	•	•	•
125-200/110	11	-	•	•	•
125-250/75	7,5	-	-	•	•
125-250/110	11	-	•	•	•
125-250/150	15	-	•	•	•
125-315/185	18,5	-	•	•	•
125-315/220	22	-	•	•	•
125-315/300	30	-	•	•	•
125-315/370	37	-	•	•	•
125-400/370	37	-	•	•	•
125-400/450	45	-	•	•	•
125-400/550	55	-	•	•	•
125-400/750	75	-	•	•	•
150-200/110A	11	-	•	•	•
150-200/110	11	-	•	•	•
150-200/150A	15	-	•	•	•
150-200/150	15	-	•	•	•
150-250/150	15	-	•	•	•
150-250/185	18,5	-	•	•	•
150-250/220	22	-	•	•	•
150-250/300	30	-	•	•	•
150-315/300	30	-	•	•	•
150-315/370	37	-	•	•	•
150-315/450	45	-	•	•	•
150-400/450	45	-	-	•	•
150-400/550	55	-	•	•	•
150-400/750	75	-	•	•	•
150-400/900	90	-	•	•	•
150-400/1100	110	-	-	•	•
150-500/900	90	-	-	•	•
150-500/1100	110	-	-	•	•
150-500/1320	132	-	-	•	•
150-500/1600	160	-	-	•	•
150-500/2000	200	-	-	•	•

SIZE NSC	kW	VERSION			
		NSCE	NSCS	NSCF	NSCC
200-250/185	18,5	-	•	•	•
200-250/220	22	-	•	•	•
200-250/300A	30	-	•	•	•
200-250/300	30	-	•	•	•
200-315/300	30	-	-	•	•
200-315/370	37	-	•	•	•
200-315/450	45	-	•	•	•
200-315/550	55	-	•	•	•
200-315/750	75	-	-	•	•
200-400/750A	75	-	-	•	•
200-400/750	75	-	-	•	•
200-400/900	90	-	-	•	•
200-400/1100	110	-	-	•	•
200-400/1320	132	-	-	•	•
200-500/1320	132	-	-	•	•
200-500/1600	160	-	-	•	•
200-500/2000	200	-	-	•	•
200-500/2500	250	-	-	•	•
200-500/3150	315	-	-	•	•
250-315/370	37	-	•	•	•
250-315/450	45	-	•	•	•
250-315/550	55	-	•	•	•
250-315/750	75	-	•	•	•
250-400/750	75	-	-	•	•
250-400/900	90	-	-	•	•
250-400/1100	110	-	-	•	•
250-400/1320	132	-	-	•	•
250-400/1600	160	-	-	•	•
250-400/2000	200	-	-	•	•
250-500/1600	160	-	-	•	•
250-500/2000	200	-	-	•	•
250-500/2500	250	-	-	•	•
250-500/3150	315	-	-	•	•
250-500/3550	355	-	-	•	•
300-350/750A	75	-	-	•	•
300-350/750	75	-	-	•	•
300-350/900	90	-	-	•	•
300-350/1100	110	-	-	•	•
300-400/1100	110	-	-	•	•
300-400/1320	132	-	-	•	•
300-400/1600	160	-	-	•	•
300-400/2000	200	-	-	•	•
300-400/2500	250	-	-	•	•
300-450/1600	160	-	-	•	•
300-450/2000	200	-	-	•	•
300-450/2500	250	-	-	•	•
300-450/3150	315	-	-	•	•

• = Available

Nsc_models-4p50-en_a_sc

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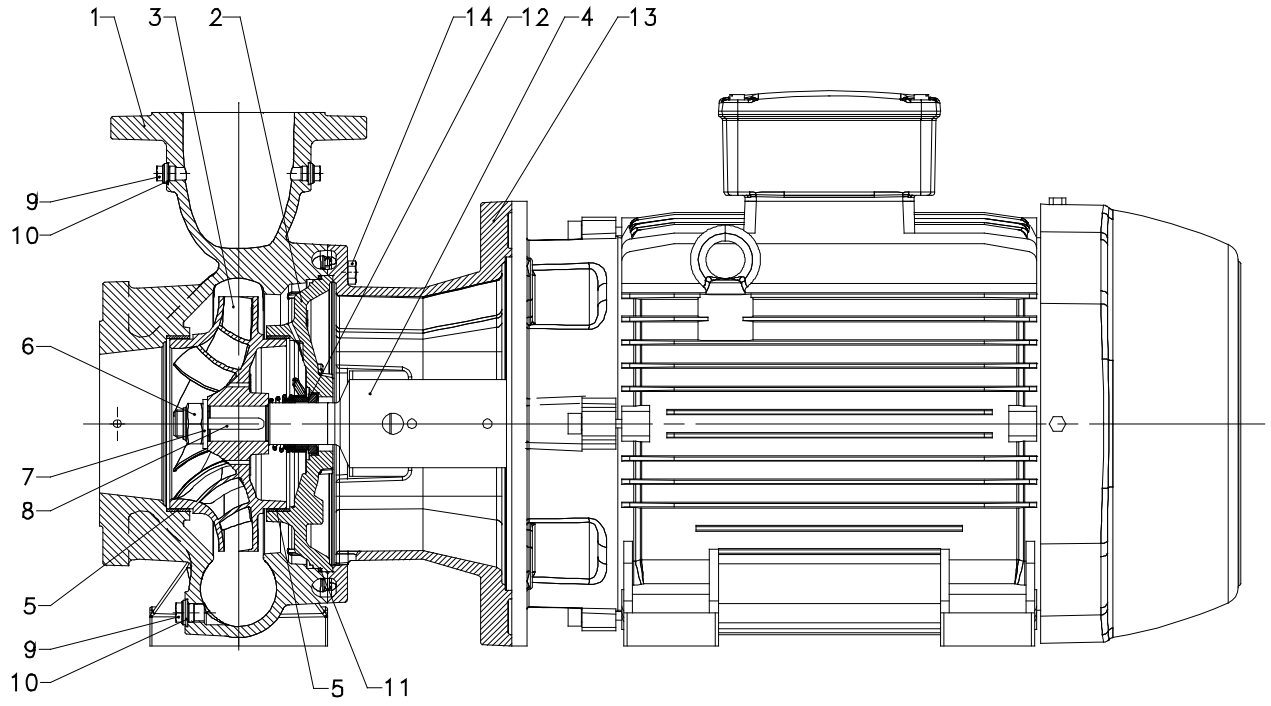
NSCS SERIES
ELECTRIC PUMP CROSS-SECTION AND MAIN COMPONENTS



REF. N.	PART	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Volute casing	Cast iron	EN 1561 - GJL-250 (JL1040)	ASTM Class 35
	Volute casing (200-250, 200-315, 250/315)	Cast ductile iron	EN 1563 - EN-GJS400-15 (EN-JS1030)	ASTM A536 40-60-18
2	Casing cover	Cast iron	EN 1561 - GJL-250 (JL1040)	ASTM Class 35
	Casing cover (200-250, 200-315, 250/315)	Cast ductile iron	EN 1563 - EN-GJS400-15 (EN-JS1030)	ASTM A536 40-60-18
3	Impeller	Cast iron	EN 1561 - GJL-200 (JL1030)	ASTM Class 30
	Impeller	Bronze	EN 1982 - CuSn10-C (CC480K)	UNS C90700
4	Stub shaft	Stainless steel	EN 10088 - X17CrNi16-2 (1.4057)	AISI 431
5	Wear ring	Stainless steel	EN 10088 - X5CrNi18-10 (1.4301)	AISI 304
6	Impeller nut	Stainless steel	A4 (~ 1.4401)	
7	Impeller washer	Stainless steel	A4 (~ 1.4401)	
8	Impeller key	Stainless steel	EN 10088 - X6CrNiMo17-12-2 (1.4571)	AISI 316Ti
9	Plug	Stainless steel	EN 10088 - X6CrNiMo17-12-2 (1.4571)	AISI 316Ti
10	Gasket	Asbestos-free synthetic fiber AFM 34		
11	O-Ring	EPDM (standard version)		
12	Mechanical seal	Carbon / Silicon carbide / EPDM (standard version)		
13	Motor adapter	Cast iron	EN 1561 - GJL-250 (JL1040)	ASTM Class 35
14	Volute - casing fastening screws	Carbon steel		

Nscs100-200-en_a_tm

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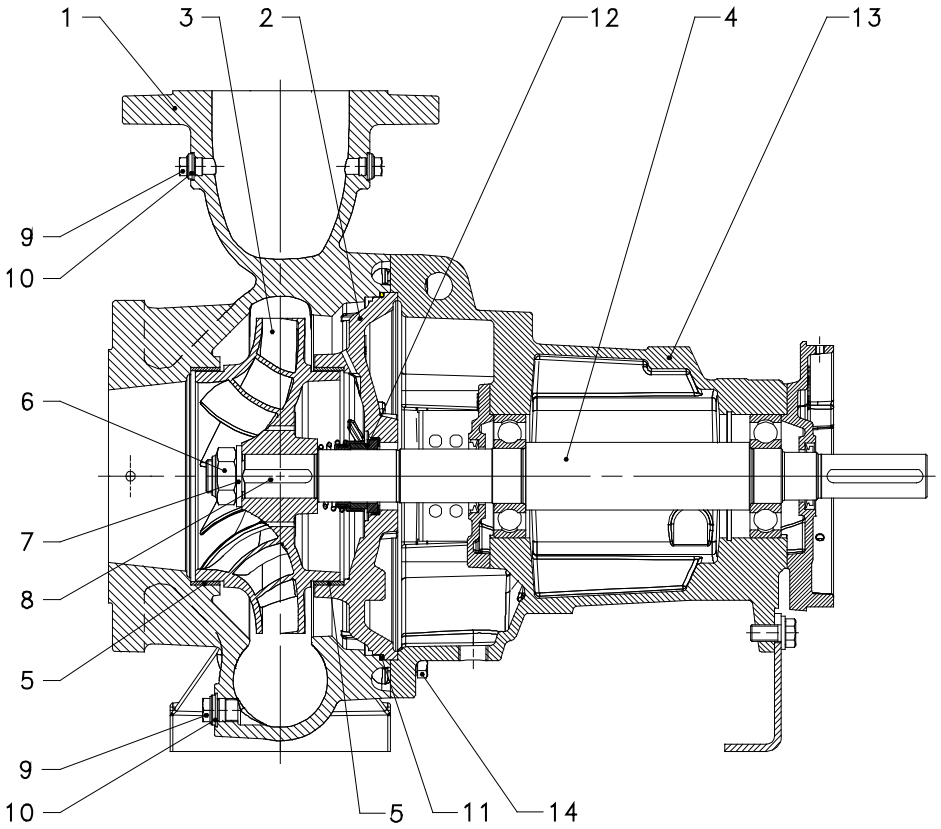
NSC, NSCF, NSCC SERIES
PUMP CROSS-SECTION AND MAIN COMPONENTS

PUMP SIZE
100-160
100-200
100-250
100-315
100-400
125-200
125-250
125-315
125-400
150-200
150-250
150-315
150-400
200-250
200-315
250-315



NSC100-200_A_DS

REF. N.	PART	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Volute casing	Cast iron	EN 1561 - GJL-250 (JL1040)	ASTM Class 35
	Volute casing (200-250, 200-315, 250/315)	Cast ductile iron	EN 1563 - EN-GJS400-15 (EN-JS1030)	ASTM A536 40-60-18
2	Casing cover	Cast iron	EN 1561 - GJL-250 (JL1040)	ASTM Class 35
	Casing cover (200-250, 200-315, 250/315)	Cast ductile iron	EN 1563 - EN-GJS400-15 (EN-JS1030)	ASTM A536 40-60-18
3	Impeller	Cast iron	EN 1561 - GJL-200 (JL1030)	ASTM Class 30
	Impeller	Bronze	EN 1982 - CuSn10-C (CC480K)	UNS C90700
4	Shaft	Stainless steel	EN 10088 - X17CrNi16-2 (1.4057)	AISI 431
5	Wear ring	Stainless steel	EN 10088 - X5CrNi18-10 (1.4301)	AISI 304
6	Impeller nut	Stainless steel	A4 (~ 1.4401)	
7	Impeller washer	Stainless steel	A4 (~ 1.4401)	
8	Impeller key	Stainless steel	EN 10088 - X6CrNiMo17-12-2 (1.4571)	AISI 316Ti
9	Plug	Stainless steel	EN 10088 - X6CrNiMo17-12-2 (1.4571)	AISI 316Ti
10	Gasket	Asbestos-free synthetic fiber AFM 34		
11	O-Ring	EPDM (standard version)		
12	Mechanical seal	Carbon / Silicon carbide / EPDM (standard version)		
13	Bearing bracket	Cast iron	EN 1561 - GJL-250 (JL1040)	ASTM Class 35
14	Volute - casing fastening screws	Carbon steel		

Nsc100-200-en_a_tm

LOWARA
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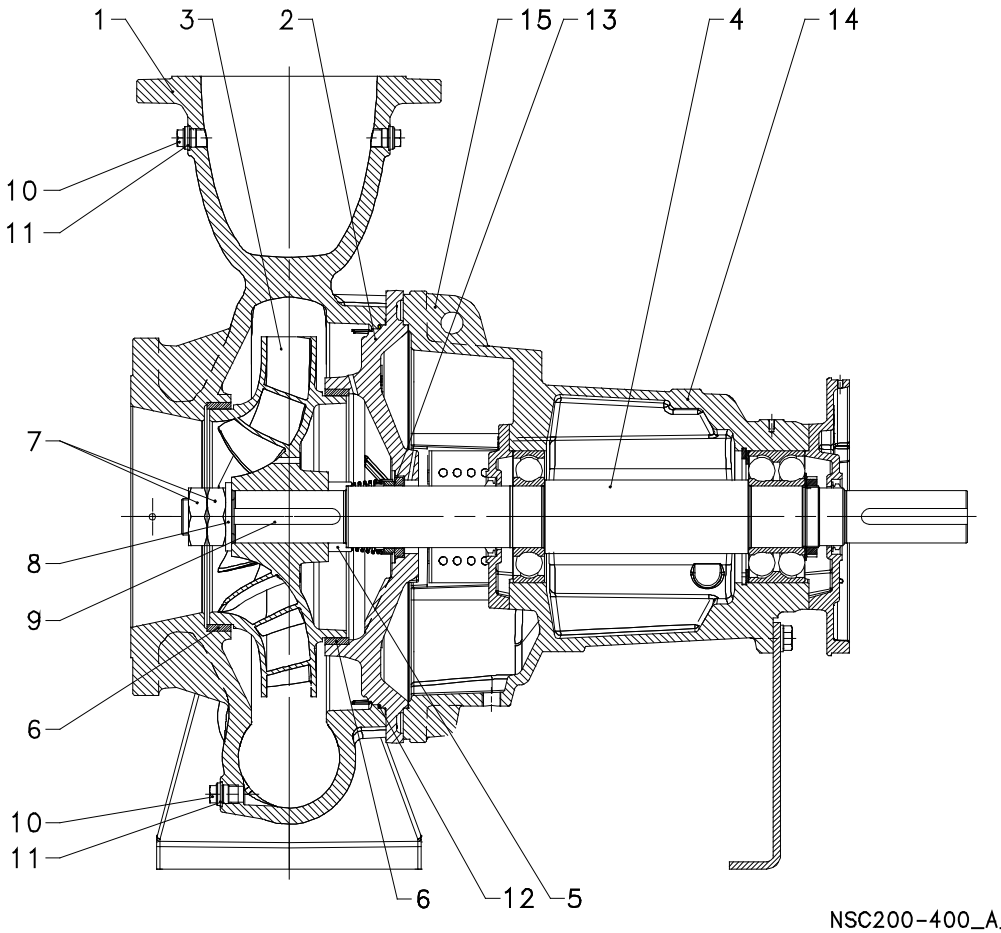
NSC, NSCF, NSCC SERIES
PUMP CROSS-SECTION AND MAIN COMPONENTS

PUMP SIZE
150-500
200-400
200-500
250-400
250-500
300-350
300-400
300-450



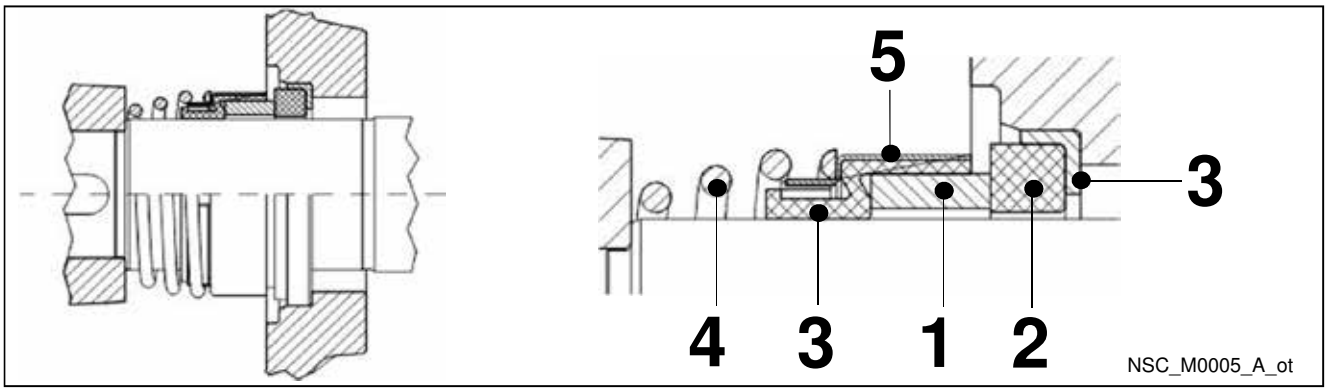
REF. N.	PART	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Volute casing	Cast ductile iron	EN 1563 - EN-GJS400-15 (EN-JS1030)	ASTM A536 40-60-18
2	Casing cover	Cast ductile iron	EN 1563 - EN-GJS400-15 (EN-JS1030)	ASTM A536 40-60-18
3	Impeller	Cast iron	EN 1561 - GJL-200 (JL1030)	ASTM Class 30
	Impeller	Bronze	EN 1982 - CuSn10-C (CC480K)	UNS C90700
4	Shaft	Stainless steel	EN 10088 - X17CrNi16-2 (1.4057)	AISI 431
5	Spacer ring	Stainless steel	EN 10088 - X17CrNi16-2 (1.4057)	AISI 431
6	Wear ring	Stainless steel	EN 10088 - X5CrNi18-10 (1.4301)	AISI 304
7	Impeller nut	Stainless steel	A4 (~ 1.4401)	
8	Impeller washer	Stainless steel	A4 (~ 1.4401)	
9	Impeller key	Stainless steel	EN 10088 - X6CrNiMo17-12-2 (1.4571)	AISI 316Ti
10	Plug	Stainless steel	EN 10088 - X6CrNiMo17-12-2 (1.4571)	AISI 316Ti
11	Gasket	Asbestos-free synthetic fiber AFM 34		
12	O-Ring	EPDM (standard version)		
13	Mechanical seal	Carbon / Silicon carbide / EPDM (standard version)		
14	Bearing bracket	Cast iron	EN 1561 - GJL-250 (JL1040)	ASTM Class 35
15	Volute - casing fastening screws	Carbon steel		

Nsc200-400-en_a_tm

LOWARA
a xylem brand

e-NSC SERIES
MECHANICAL SEALS

Mechanical seal with mounting dimensions according to EN 12756 and ISO 3069.



LIST OF MATERIALS

POSITION 1 - 2	POSITION 3	POSITION 4 - 5
B : Resin impregnated carbon	E : EPDM	G : AISI 316
Q_1 : Silicon carbide	V : FKM*	

* Fluoro-elastomer: FPM (old ISO), FKM (ASTM & new ISO)

Nsc_ten-mec-en_a_tm

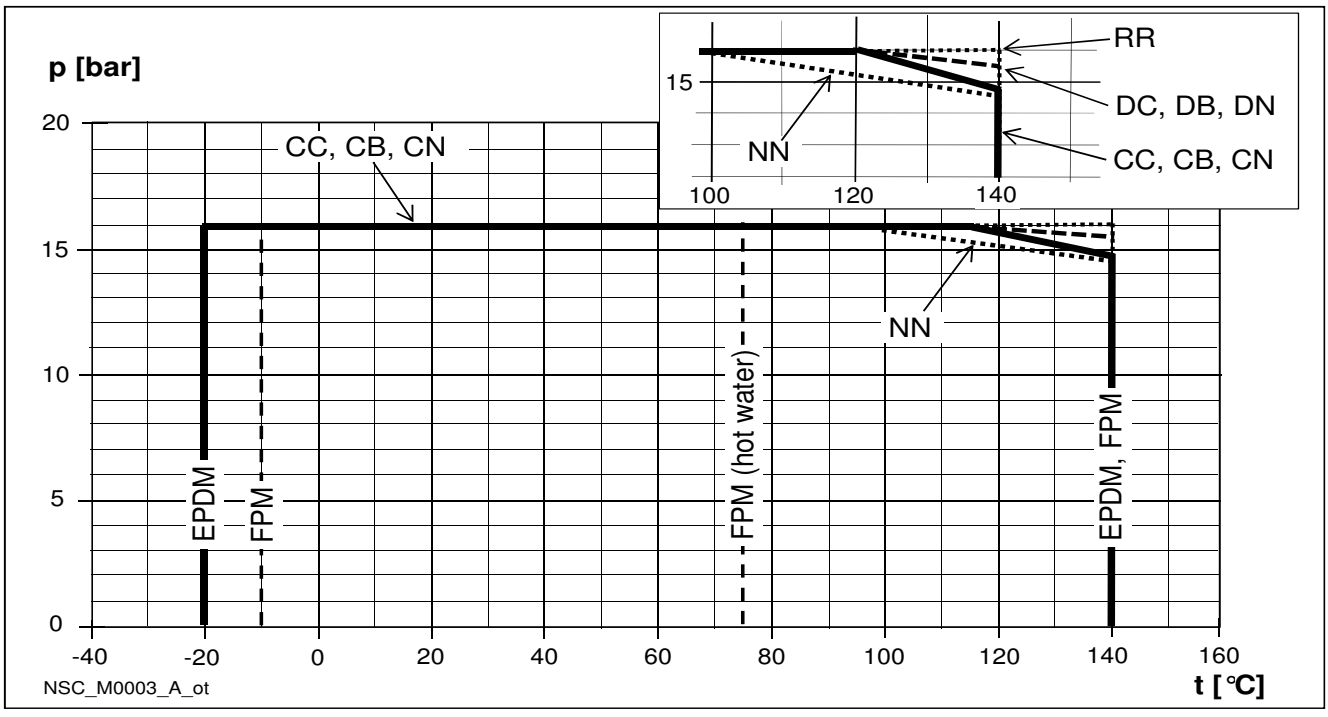
TYPE OF SEAL

TYPE	POSITION 1	2	3	4	5	TEMPERATURE °C
	ROTATING ASSEMBLY	FIXED ASSEMBLY	ELASTOMERS	SPRINGS	OTHER COMPONENTS	
STANDARD MECHANICAL SEAL						
B Q_1 E G G	B	Q_1	E	G	G	-20 … +140
OTHER TYPES OF MECHANICAL SEAL						
B Q_1 V G G	B	Q_1	V	G	G	-10 … +140 *)
Q_1 Q_1 V G G	Q_1	Q_1	V	G	G	-10 … +140 *)
Q_1 Q_1 E G G	Q_1	Q_1	E	G	G	-20 … +140

*) for hot water: +75 °C

Nsc_tipi-ten-mec-en_a_tc

PRESSURE/TEMPERATURE APPLICATION LIMITS FOR COMPLETE PUMP



ErP 2009/125/EC

LOWARA
a xylem brand

e-NSC SERIES MOTORS

Over last decade the European Commission with the 'Energy Efficiency Plan' pushed the European Parliament and the Council to adopt specific measures to the purpose of reducing energy consumption and further negative environmental impacts.

Through the Directives 2005/32/EC, energy-using products (EuP), and 2009/125/EC, energy-related products (ErP) a framework for ecodesign requirements was established.

The Commission Regulations (EC) No 640/2009 and (EU) No 4/2014 have implemented two directives with regard to ecodesign requirements for electric motors placed on the market and put into service inside EU zone as self-alone units or integrated in other products.
The various types considered include **three-phase 50 Hz surface motors** with power outputs ranging **from 0,75 to 375 kW included**.

Regulations also establish the following deadlines.

from	kW	minimum level of efficiency (IE)
16 June 2011	0,75 ÷ 375	IE2
27 July 2014	0,75 ÷ 375	new exclusion criteria
1 January 2015	< 7,5	IE2
	7,5 ÷ 375	IE3
		IE2 fitted with variable speed drive
1 January 2017	0,75 ÷ 375	IE3
		IE2 fitted with variable speed drive

- Squirrel cage in short circuit enclosed construction with external ventilation (TEFC).
- Rated power 15 to 200 kW for 2-pole range and 2,2 to 355 kW for 4-pole range.
- Standard voltage: 3 x 380-415/660-690 V, 50 Hz
- **IP55** protection degree.
- **155 (F)** insulation class.
- **Standard** three-phase surface motors ≥ 0,75 kW supplied as **IE3**.
- IE efficiency level according to EN 60034-30:2009 and IEC 60034-30-1:2014 (≥ 0,75 kW).
- Electrical performances according to EN 60034-1.
- Cable gland with metric according to EN 50262.
- **PTC included** (one per phase, 155°C).
- Overload protection to be provided by the user.
- Maximum ambient temperature: 40 °C.

LOWARA
a xylem brand

NSCS SERIES
THREE-PHASE MOTORS AT 50 Hz, 2 POLES

P_N	Efficiency η_N %									IE	Year of manufacture
	Δ 380 V Y 660 V			Δ 400 V Y 690 V			Δ 415 V				
kW	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4		
15	92,6	92,5	91,8	92,9	92,5	91,5	93,0	92,4	91,2	3	from 06/2011
18,5	93,0	92,9	92,4	93,2	92,9	92,0	93,3	92,8	91,6		
22	93,4	93,2	92,7	93,7	93,3	92,5	93,8	93,3	92,3		
30	94,0	94,0	93,1	94,1	94,0	92,8	94,2	93,9	92,6		
37	94,4	94,0	93,5	94,6	94,0	93,3	94,7	93,9	93,1		
45	94,8	94,9	94,6	95,1	95,1	94,6	95,3	95,2	94,5		
55	95,1	95,0	94,9	95,4	95,3	94,9	95,5	95,3	94,8		
75	95,4	95,2	94,6	95,6	95,3	94,5	95,7	95,3	94,4		
90	95,6	95,5	94,9	95,8	95,6	94,8	95,9	95,6	94,7		

P_N	Manufacturer WEG Equipamentos Eletricos S.A. Reg. No. 07.175.725/0010-50 Jaragua do Sul - SC (Brazil)	IEC SIZE	Construction Design	N. of Poles	f_N	Data for 400 V / 50 Hz Voltage				
kW	Model				Hz	cosφ	Is / I_N	T_N Nm	Ts/T_N	Tm/Tn
15	W22 160M2-B35 15kW	160	B35	2	50	0,86	8,00	48,60	2,60	3,30
18,5	W22 160L2-B35 18,5kW	160				0,86	8,40	59,90	2,80	3,60
22	W22 180M2-B35 22kW	180				0,87	8,00	71,10	2,50	3,30
30	W22 200L2-B35 30kW	200				0,86	7,30	96,60	2,60	2,90
37	W22 200L2-B35 37kW	200				0,86	7,30	119,2	2,60	2,90
45	W22 225S/M2-B35 45kW	225				0,88	8,00	144,7	2,70	3,20
55	W22 250S/M2-B35 55kW	250				0,89	7,90	177,1	2,80	2,90
75	W22280S/M2-B35 75kW	280				0,90	7,60	240,3	2,30	2,90
90	W22 280S/M2-B35 90kW	280				0,90	7,40	288,4	2,20	2,80

P_N	Voltage U_N V					n_N	See note.	Operating conditions **		
	Δ			Y				Altitude Above Sea Level (m)	T. amb min/max °C	ATEX
	380 V	400 V	415 V	660 V	690 V					
kW	I_N (A)					min^{-1}				
15	28,00	27,10	26,70	16,10	15,70	2945 ÷ 2955				
18,5	34,30	33,30	32,80	19,70	19,30	2945 ÷ 2955				
22	40,70	39,00	37,90	23,40	22,60	2950 ÷ 2960				
30	55,10	53,50	52,70	31,70	31,00	2960 ÷ 2970				
37	67,70	65,60	64,70	39,00	38,00	2960 ÷ 2970		≤ 1000	-15 / 40	No
45	80,10	77,60	74,60	46,10	45,00	2965 ÷ 2970				
55	97,60	93,50	91,00	56,20	54,20	2960 ÷ 2965				
75	131,0	126,0	121,0	75,40	73,00	2975 ÷ 2980				
90	159,0	151,0	145,0	91,50	87,50	2975 ÷ 2980				

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

Nscs-mott90-2p50-en_a_te

Note: Observe the regulations and codes locally in force regarding sorted waste disposal.

LOWARA
a xylem brand

NSCF-NSCC SERIES
THREE-PHASE MOTORS AT 50 Hz, 2 POLES

P_N	Efficiency η_N %									IE	Year of manufacture
	Δ 380 V Y 660 V			Δ 400 V Y 690 V			Δ 415 V				
kW	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4		
15	92,6	92,5	91,8	92,9	92,5	91,5	93,0	92,4	91,2	3	from 06/2011
18,5	93,0	92,9	92,4	93,2	92,9	92,0	93,3	92,8	91,6		
22	93,4	93,2	92,7	93,7	93,3	92,5	93,8	93,3	92,3		
30	94,0	94,0	93,1	94,1	94,0	92,8	94,2	93,9	92,6		
37	94,4	94,0	93,5	94,6	94,0	93,3	94,7	93,9	93,1		
45	94,8	94,9	94,6	95,1	95,1	94,6	95,3	95,2	94,5		
55	95,1	95,0	94,9	95,4	95,3	94,9	95,5	95,3	94,8		
75	95,4	95,2	94,6	95,6	95,3	94,5	95,7	95,3	94,4		
90	95,6	95,5	94,9	95,8	95,6	94,8	95,9	95,6	94,7		
110	96,0	95,7	94,8	96,1	95,7	94,7	96,1	95,7	94,6		
132	96,1	95,8	95,3	96,3	95,9	95,2	96,4	95,9	95,1		
160	96,4	96,1	95,7	96,6	96,2	95,6	96,7	96,2	95,5		
200	96,5	96,4	96,0	96,7	96,5	96,0	96,8	96,5	95,9		

P_N	Manufacturer WEG Equipamentos Eletricos S.A. Reg. No. 07.175.725/0010-50 Jaragua do Sul - SC (Brazil) Model	IEC SIZE	Construction Design	N. of Poles	f_N Hz	Data for 400 V / 50 Hz Voltage				
kW						cosφ	Is / I_N	T_N Nm	Ts/T_N	Tm/Tn
15	W22 160M2-B3 15kW	160	B3	2	50	0,86	8,00	48,60	2,60	3,30
18,5	W22 160L2-B3 18,5kW	160				0,86	8,40	59,90	2,80	3,60
22	W22 180M2-B3 22kW	180				0,87	8,00	71,10	2,50	3,30
30	W22 200L2-B3 30kW	200				0,86	7,30	96,60	2,60	2,90
37	W22 200L2-B3 37kW	200				0,86	7,30	119,2	2,60	2,90
45	W22 225S/M2-B3 45kW	225				0,88	8,00	144,7	2,70	3,20
55	W22 250S/M2-B3 55kW	250				0,89	7,90	177,1	2,80	2,90
75	W22 280S/M2-B3 75kW	280				0,90	7,60	240,3	2,30	2,90
90	W22 280S/M2-B3 90kW	280				0,90	7,40	288,4	2,20	2,80
110	W22 315S/M2-B3 110kW	315				0,89	7,60	352,5	2,50	3,00
132	W22 315S/M2-B3 132kW	315				0,90	7,50	423,0	2,10	2,80
160	W22 315S/M2-B3 160kW	315				0,91	7,90	512,7	2,30	2,80
200	W22 315L2-B3 200kW	315				0,90	8,20	640,9	2,60	2,80

P_N	Voltage U_N V					n_N min^{-1}	See note.	Operating conditions **		
	Δ			Y				Altitude Above Sea Level (m)	T. amb min/max °C	ATEX
	380 V	400 V	415 V	660 V	690 V					
kW	I_N (A)									
15	28,00	27,10	26,70	16,10	15,70	2945 ÷ 2955				
18,5	34,30	33,30	32,80	19,70	19,30	2945 ÷ 2955				
22	40,70	39,00	37,90	23,40	22,60	2950 ÷ 2960				
30	55,10	53,50	52,70	31,70	31,00	2960 ÷ 2970				
37	67,70	65,60	64,70	39,00	38,00	2960 ÷ 2970				
45	80,10	77,60	74,60	46,10	45,00	2965 ÷ 2970				
55	97,60	93,50	91,00	56,20	54,20	2960 ÷ 2965		≤ 1000	-15 /+ 40	No
75	131,0	126,0	121,0	75,40	73,00	2975 ÷ 2980				
90	159,0	151,0	145,0	91,50	87,50	2975 ÷ 2980				
110	193,0	186,0	181,0	111,0	108,0	2975 ÷ 2980				
132	232,0	220,0	212,0	134,0	128,0	2975 ÷ 2980				
160	274,0	263,0	253,0	158,0	152,0	2975 ÷ 2980				
200	346,0	332,0	319,0	199,0	192,0	2975 ÷ 2980				

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

Nscf-mott200-2p50-en_a_te

Note: Observe the regulations and codes locally in force regarding sorted waste disposal.

LOWARA
a xylem brand

NSCS SERIES
THREE-PHASE MOTORS AT 50 Hz, 4 POLES

P_N	Efficiency η_N %									IE	Year of manufacture
	Δ 380 V Y 660 V			Δ 400 V Y 690 V			Δ 415 V				
kW	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4		
2,2	86,7	78,1	87,2	87,0	87,0	86,5	87,2	86,8	85,7	3	from 06/2011
3	87,7	88,0	87,7	88,0	88,0	87,0	88,1	87,7	86,3		
4	88,6	89,0	89,3	89,1	89,1	88,7	89,3	88,9	88,2		
5,5	90,3	90,7	90,4	90,7	90,7	90,0	90,8	90,7	89,6		
7,5	91,2	91,5	91,4	91,5	91,5	91,0	91,7	91,4	90,5		
11	91,7	91,7	91,3	92,2	91,8	91,0	92,3	91,7	90,7		
15	93,0	92,5	92,2	93,0	92,5	91,8	93,0	92,4	91,4		
18,5	93,1	92,9	92,5	93,3	92,9	92,2	93,4	92,8	91,8		
22	93,4	93,1	92,8	93,6	93,0	92,4	93,6	92,8	91,9		
30	94,1	94,1	93,5	94,2	94,0	93,0	94,2	93,9	92,5		
37	94,3	94,5	94,1	94,6	94,6	94,0	94,7	94,6	93,8		
45	94,7	94,7	94,3	94,8	94,8	94,2	94,8	94,8	94,0		
55	95,1	94,9	94,7	95,3	95,0	94,6	95,4	94,9	94,4		
75	95,4	95,2	94,8	95,6	95,2	94,7	95,7	95,2	94,6		
90	95,6	95,4	95,1	95,8	95,5	95,0	95,9	95,5	94,9		

P_N	Manufacturer WEG Equipamentos Eletricos S.A. Reg. No. 07.175.725/0010-50 Jaragua do Sul - SC (Brazil) Model	IEC SIZE	Construction Design	N. of Poles	f_N	Data for 400 V / 50 Hz Voltage				
kW					Hz	cosφ	Is / I_N	T_N Nm	Ts/T_N	Tm/Tn
2,2	W22 100L4-B5 2,2kW	100	B5	4	50	0,80	7,40	14,60	3,20	3,50
3	W22 100L4-B5 3kW	100				0,80	7,80	19,90	3,50	3,70
4	W22 112M4-B5 4kW	112				0,79	7,00	26,30	2,30	3,10
5,5	W22 132S4-B5 5,5kW	132				0,85	8,50	35,85	2,40	3,40
7,5	W22 132M4-B5 7,5kW	132				0,84	8,50	48,90	2,50	3,40
11	W22 160M4-B35 11kW	160	B35			0,83	7,00	71,45	2,50	3,00
15	W22 160L4-B35 15kW	160				0,82	7,30	97,40	2,70	3,20
18,5	W22 180M4-B35 18.5kW	180				0,82	7,30	120,20	2,70	3,00
22	W22 180L4-B35 22kW	180				0,83	7,30	142,90	2,80	3,30
30	W22 200L4-B35 30kW	200				0,82	7,30	193,60	2,50	3,00
37	W22 225S/M4-B35 37kW	225				0,86	7,80	238,70	2,70	3,00
45	W22 225S/M4-B35 45kW	225				0,85	7,90	290,40	2,80	3,20
55	W22 250S/M4-B35 55kW	250				0,86	7,90	354,90	2,80	3,30
75	W22 280S/M4-B35 75kW	280				0,87	7,60	482,30	2,30	2,80
90	W22 280S/M4-B35 90kW	280				0,86	7,40	578,80	2,30	2,80

P_N	Voltage U_N V					n_N	See note.	Operating conditions **		
	Δ			Y				Altitude Above Sea Level (m)	T. amb min/max °C	ATEX
	380 V	400 V	415 V	660 V	690 V					
kW	I_N (A)					min^{-1}				
2,2	4,66	4,56	4,50	2,68	2,64	1435				
3	6,26	6,15	6,07	3,60	3,57	1440				
4	8,00	8,00	8,00	4,61	4,64	1450				
5,5	10,60	10,30	10,20	6,10	5,97	1465				
7,5	14,40	13,90	13,50	8,29	8,06	1465				
11	21,10	20,70	20,50	12,10	12,00	1470				
15	29,20	28,40	28,00	16,80	16,50	1470				
18,5	35,90	34,90	34,40	20,70	20,20	1470		≤ 1000	-15 / +40	No
22	42,10	40,90	40,40	24,20	23,70	1470				
30	57,70	56,10	55,40	33,20	32,50	1480				
37	68,50	65,60	63,90	39,40	38,00	1480				
45	83,90	79,40	78,60	48,30	46,00	1480				
55	100,0	96,90	94,40	57,60	56,20	1480				
75	136,0	130,0	127,0	78,30	75,40	1485				
90	164,0	158,0	154,0	94,40	91,60	1485				

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

Nscs-mott90-4p50-en_a_te

Note: Observe the regulations and codes locally in force regarding sorted waste disposal.

LOWARA
a xylem brand

NSCF-NSCC SERIES
THREE-PHASE MOTORS AT 50 Hz, 4 POLES

P_N	Efficiency η_N %									IE	Year of manufacture
	Δ 380 V Y 660 V			Δ 400 V Y 690 V			Δ 415 V				
kW	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4		
2,2	86,7	78,1	87,2	87,0	87,0	86,5	87,2	86,8	85,7	3	from 06/2011
3	87,7	88,0	87,7	88,0	88,0	87,0	88,1	87,7	86,3		
4	88,6	89,0	89,3	89,1	89,1	88,7	89,3	88,9	88,2		
5,5	90,3	90,7	90,4	90,7	90,7	90,0	90,8	90,7	89,6		
7,5	91,2	91,5	91,4	91,5	91,5	91,0	91,7	91,4	90,5		
11	91,7	91,7	91,3	92,2	91,8	91,0	92,3	91,7	90,7		
15	93,0	92,5	92,2	93,0	92,5	91,8	93,0	92,4	91,4		
18,5	93,1	92,9	92,5	93,3	92,9	92,2	93,4	92,8	91,8		
22	93,4	93,1	92,8	93,6	93,0	92,4	93,6	92,8	91,9		
30	94,1	94,1	93,5	94,2	94,0	93,0	94,2	93,9	92,5		
37	94,3	94,5	94,1	94,6	94,6	94,0	94,7	94,6	93,8		
45	94,7	94,7	94,3	94,8	94,8	94,2	94,8	94,8	94,0		
55	95,1	94,9	94,7	95,3	95,0	94,6	95,4	94,9	94,4		
75	95,4	95,2	94,8	95,6	95,2	94,7	95,7	95,2	94,6		
90	95,6	95,4	95,1	95,8	95,5	95,0	95,9	95,5	94,9		
110	96,2	95,9	95,5	96,3	95,9	95,4	96,3	95,8	95,2		
132	96,3	96,0	95,6	96,4	96,0	95,5	96,4	95,9	95,3		
160	96,3	96,2	95,8	96,5	96,2	95,7	96,6	96,2	95,5		
200	96,5	96,5	96,2	96,7	96,5	96,1	96,7	96,5	95,9		
250	96,8	96,6	96,4	96,9	96,6	96,2	96,9	96,5	96,0		
280	96,8	96,7	96,4	96,9	96,7	96,3	97,0	96,7	96,2		
315	96,8	96,7	96,5	96,9	96,7	96,4	97,0	96,7	96,3		
355	96,8	96,8	96,6	96,9	96,8	96,5	97,0	96,8	96,4		

P_N	Manufacturer: WEG Equipamentos Eletricos S.A. Reg. No. 07.175.725/0010-50 Jaragua do Sul - SC (Brazil)	IEC SIZE	Construction Design	N. of Poles	f_N	Data for 400 V / 50 Hz Voltage				
kW	Model				Hz	cosφ	Is / I_N	T_N Nm	Ts/T_N	Tm/Tn
2,2	W22 100L4-B3 2,2kW	100	B3	4	50	0,80	7,40	14,60	3,20	3,50
3	W22 100L4-B3 3kW	100				0,80	7,80	19,90	3,50	3,70
4	W22 112M4-B3 4kW	112				0,79	7,00	26,30	2,30	3,10
5,5	W22 132S4-B3 5,5kW	132				0,85	8,50	35,85	2,40	3,40
7,5	W22 132M4-B3 7,5kW	132				0,84	8,50	48,90	2,50	3,40
11	W22 160M4-B3 11kW	160				0,83	7,00	71,45	2,50	3,00
15	W22 160L4-B3 15kW	160				0,82	7,30	97,40	2,70	3,20
18,5	W22 180M4-B3 18.5kW	180				0,82	7,30	120,2	2,70	3,00
22	W22 180L4-B3 22kW	180				0,83	7,30	142,9	2,80	3,30
30	W22 200L4-B3 30kW	200				0,82	7,30	193,6	2,50	3,00
37	W22 225S/M4-B3 37kW	225				0,86	7,80	238,7	2,70	3,00
45	W22 225S/M4-B3 45kW	225				0,85	7,90	290,4	2,80	3,20
55	W22 250S/M4-B3 55kW	250				0,86	7,90	354,9	2,80	3,30
75	W22 280S/M4-B3 75kW	280				0,87	7,60	482,3	2,30	2,80
90	W22 280S/M4-B3 90kW	280				0,86	7,40	578,8	2,30	2,80
110	W22 315S/M4-B3 110kW	315				0,86	7,50	705,0	2,60	2,70
132	W22 315S/M4-B3 132kW	315				0,86	7,60	846,0	2,90	3,00
160	W22 315S/M4-B3 160kW	315				0,87	7,60	1025	2,60	2,60
200	W22 315L4-B3 200kW	315				0,87	7,60	1282	2,50	2,50
250	W22 315L4-B3 250kW	315				0,86	8,00	1602	2,70	2,60
280	W22 355M/L4-B3 280kW	355				0,86	7,30	1795	2,30	2,40
315	W22 355M/L4-B3 315kW	355				0,86	7,30	2019	2,30	2,40
355	W22 355M/L4-B3 355kW	355				0,86	7,20	2275	2,40	2,50

P_N	Voltage U_N V					n_N	See note	Operating conditions **		
	Δ			Y				Altitude Above Sea Level (m)	T. amb min/max °C	ATEX
	380 V	400 V	415 V	660 V	690 V					
kW	I_N (A)					min^{-1}				
2,2	4,66	4,56	4,50	2,68	2,64	1435	See note	≤ 1000	-20 / +40	No
3	6,26	6,15	6,07	3,60	3,57	1440				
4	8,00	8,00	8,00	4,61	4,64	1450				
5,5	10,60	10,30	10,20	6,10	5,97	1465				
7,5	14,40	13,90	13,50	8,29	8,06	1465				
11	21,10	20,70	20,50	12,10	12,00	1470				
15	29,20	28,40	28,00	16,80	16,50	1470				
18,5	35,90	34,90	34,40	20,70	20,20	1470				
22	42,10	40,90	40,40	24,20	23,70	1470				
30	57,70	56,10	55,40	33,20	32,50	1480				
37	68,50	65,60	63,90	39,40	38,00	1480				
45	83,90	79,40	78,60	48,30	46,00	1480				
55	100,0	96,90	94,40	57,60	56,20	1480				
75	136,0	130,0	127,0	78,30	75,40	1485				
90	164,0	158,0	154,0	94,40	91,60	1485				
110	200,0	192,0	187,0	115,0	111,0	1490				
132	239,0	230,0	224,0	138,0	133,0	1490				
160	287,0	275,0	268,0	165,0	159,0	1490				
200	358,0	343,0	335,0	206,0	199,0	1490				
250	451,0	433,0	422,0	260,0	251,0	1490				
280	505,0	485,0	472,0	291,0	281,0	1490				
315	575,0	552,0	538,0	331,0	320,0	1490				
355	640,0	615,0	599,0	368,0	357,0	1490				

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

Nscf-mott355-4p50-en_a_te

Note: Observe the regulations and codes locally in force regarding sorted waste disposal.

MOTOR NOISE

The tables below show the mean sound pressure levels (Lp) measured at 1 meter's distance in a free field according to the A curve (ISO 1680 standard).
The noise values are measured with idling 50 Hz motor with a tolerance of 3 dB (A).

NSCS MOTORS 2 POLES 50 Hz

POWER kW	MOTOR TYPE IEC SIZE	NOISE LpA dB
15	160	67
18,5	160	67
22	180	67
30	200	69
37	200	69
45	225	74
55	250	74
75	280	77
90	280	77

NSCF-NSCC MOTORS 2 POLES 50 Hz

POWER kW	MOTOR TYPE IEC SIZE	NOISE LpA dB
15	160	67
18,5	160	67
22	180	67
30	200	69
37	200	69
45	225	74
55	250	74
75	280	77
90	280	77
110	315	77
132	315	77
160	315	77
200	315	80

NSCS MOTORS 4 POLES 50 Hz

POWER kW	MOTOR TYPE IEC SIZE	NOISE LpA dB
2,2	100	53
3	100	53
4	112	56
5,5	132	56
7,5	132	56
11	160	61
15	160	61
18,5	180	61
22	180	61
30	200	63
37	225	63
45	225	63
55	250	64
75	280	69
90	280	69

NSCF-NSCC MOTORS 4 POLES 50 Hz

POWER kW	MOTOR TYPE IEC SIZE	NOISE LpA dB
2,2	100	53
3	100	53
4	112	56
5,5	132	56
7,5	132	56
11	160	61
15	160	61
18,5	180	61
22	180	61
30	200	63
37	225	63
45	225	63
55	250	64
75	280	69
90	280	69
110	315	71
132	315	71
160	315	71
200	315	73
250	315	73
280	355	74
315	355	74
355	355	74

ErP 2009/125/EC

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e-NSC SERIES PUMPS

Over last decade the European Commission with the 'Energy Efficiency Plan' pushed the European Parliament and the Council to adopt specific measures to the purpose of reducing energy consumption and further negative environmental impacts. Through the Directives 2005/32/EC, energy-using products (EuP), and 2009/125/EC, energy-related products (ErP) a framework for ecodesign requirements was established.

The **Commission Regulation (EU) No 547/2012** has implemented two directives with regard to ecodesign requirements for **some types of clean water pumps** placed on the market and put into service inside EU zone as self-alone units or integrated in other products.

For end-suction close-coupled pumps (ESCC for the Regulation) and end-suction own-bearing pumps (ESOB for the Regulation) the efficiency assessment refers to:
- just the pump and not the pump and motor assembly (electric or combustion);
- pumps with just one impeller;
- pumps with a nominal pressure PN not higher than 16 bar (1600 kPa);
- pumps with a minimum nominal flow not less than 6 m^3/h;
- pumps with a maximum nominal power at the shaft not higher than 150 kW;
- pumps designed to operate at a speed of 2900 min^{-1} (for electric pumps this means 50 Hz 2-pole electric motors) and with a head not greater than 140 metres;
- pumps designed to operate at a speed of 1450 min^{-1} (for electric pumps this means 50 Hz 4-pole electric motors) and with a head not greater than 90 metres;
- use with clean water at a temperature ranging from -10°C to 120°C (the test is performed with cold water at a temperature not higher than 40°C).

According to the definitions established in the Regulation NSCE and NSCS versions correspond to the "end-suction close-coupled pump" while NSC, NSCF and NSCC versions correspond to the "end-suction own bearing pump". This regulation states that water pumps shall have a minimum index MEI coming from a dedicated formula which considers hydraulic efficiency values at 'best efficiency point' (BEP), 75 % of the flow at BEP (Part load – PL) and 110 % of the flow at BEP (Over load – OL).

The Regulation also establishes the following deadlines.

from	minimum efficiency index (MEI)
1st January 2013	MEI ≥ 0,1
1st January 2015	MEI ≥ 0,4

Regulation (EU) n. 547/2012 – Annex II – point 2 (Product information requirements)

1) Minimum efficiency index: see MEI values in specific tables on following page.
2) "The benchmark for most efficient water pumps is MEI ≥ 0,70".
3) Year of manufacture: from May 2014.
4) Manufacturer: Xylem Service Italia Srl - Reg. No 07520560967 - Montecchio Maggiore, Vicenza, Italy.
5) Product type: see the PUMP TYPE column in the tables in the *Hydraulic performance* section.
6) Hydraulic pump efficiency with trimmed impeller: see ηp and ØT columns in the tables in the *Hydraulic performance* section.
7) Pump performance curves, including the performance curve: see the *Operating Characteristics* graphs in the following pages.
8) "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".
9) "The operation of this water pump with variable duty points may be more efficient and economic when controlled, for example, by the use of a variable speed drive that matches the pump duty to the system".
10) Information relevant for disassembly, recycling or disposal at end-of-life: observe the current laws and by-laws governing sorted waste disposal. Consult the product operating manual.
11) "Designed for use below – 10 °C only": note not applicable to these products.
12) "Designed for use above 120 °C only": note not applicable to these products.
13) Specific instructions for pumps as per points 11 and 12: not applicable to these products.
14) "Information on benchmark efficiency is available at": www.europump.org (Ecodesign section).
15) The benchmark efficiency graphs with MEI = 0.7 and MEI = 0.4 are available at www.europump.org/efficiencycharts (refer to "ESCC 1450 rpm", "ESCC 2900 rpm", "ESOB 1450 rpm", "ESOB 2900 rpm").

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e-NSC SERIES
MINIMUM EFFICIENCY INDEX (MEI)

2-POLE		
PUMP SIZE	NSC, NSCE NSCF, NSCC	NSCS
100-160/187	>0,70	>0,70
100-200/227	0,69	>0,70
100-250/259	>0,70	>0,70
125-200/225	>0,70	>0,70
125-315/290	---	---

4-POLE		
PUMP SIZE	NSC, NSCE NSCF, NSCC	NSCS
100-160/190	>0,70	>0,70
100-200/227	0,64	0,69
100-250/259	>0,70	>0,70
100-315/334	0,64	0,69
100-400/420	0,50	0,55
125-200/225	0,66	>0,70
125-250/259	>0,70	>0,70
125-315/334	>0,70	>0,70
125-400/422	0,66	>0,70
150-200/237	0,69	>0,70
150-250/282	0,64	0,68
150-315/330	0,53	0,58
150-400/423	>0,70	>0,70
150-500/516	---	---
200-250/271	0,65	0,70
200-315/333	0,51	0,56
200-400/409	0,50	---
200-500/523	---	---
250-315/316	0,62	0,66
250-400/425	---	---
250-500/523	---	---
300-350/354	>0,70	---
300-400/425	---	---
300-450/470	---	---

Nsc-MEI-en_a_sc

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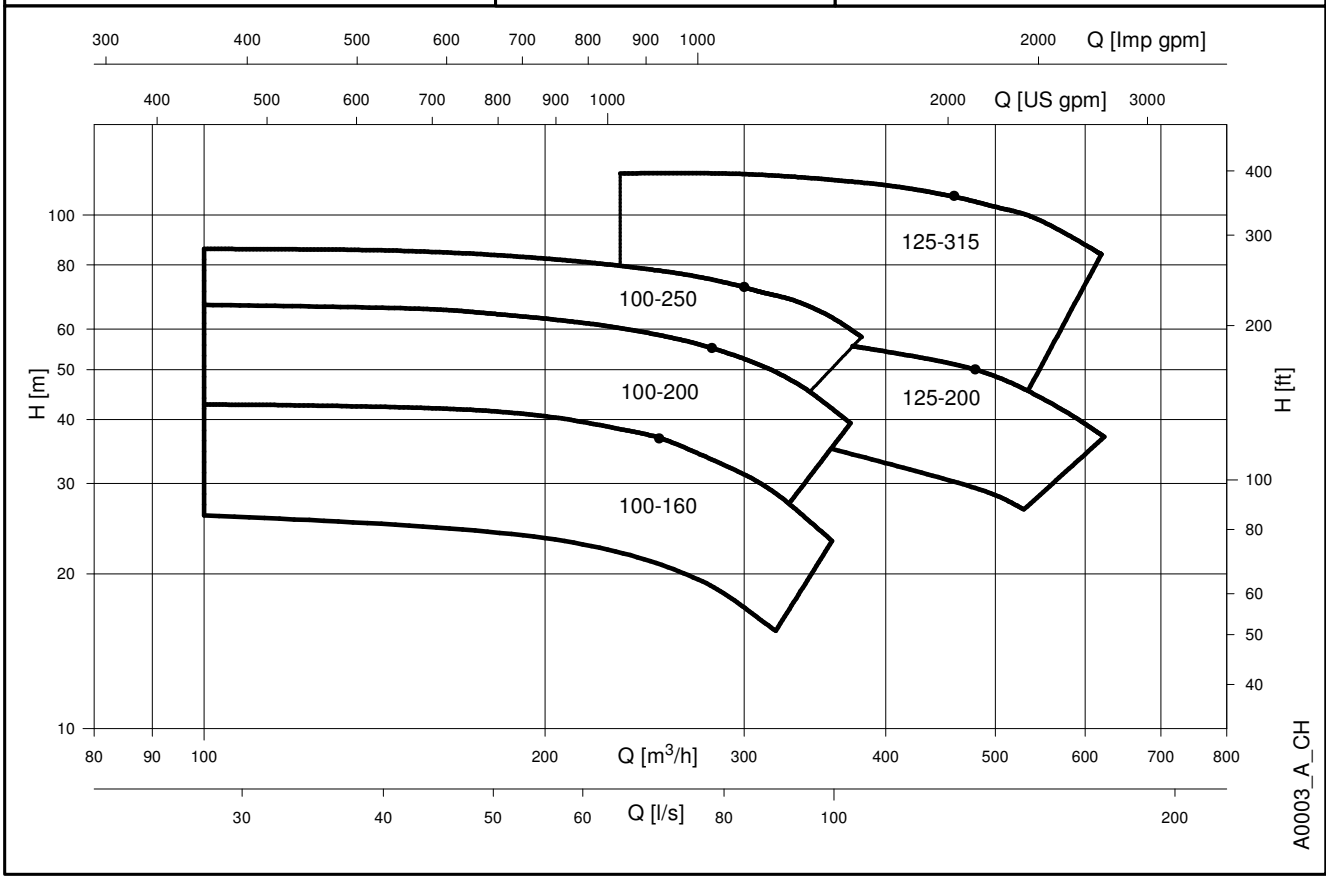
e-NSC SERIES
HYDRAULIC PERFORMANCE RANGE AT 50 Hz, 2 POLES

NSC	~ 2900 [rpm]	ISO 9906:2012 - Grade 3B



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e-NSC SERIES
HYDRAULIC PERFORMANCE TABLE AT 50 Hz, 2 POLES

PUMP TYPE	P_N kW	ØF (1)	ηp % (2)	ØT (3)	Q = DELIVERY l/min 0	673	1264	1854	2444	3035	3625	4215	4805	5396	5986	6576	7167
					m^3/h 0	40	76	111	147	182	217	253	288	324	359	395	430
					H = TOTAL HEAD METRES COLUMN OF WATER												
100-160/150	15		76,7	144	24,7	24,8	24,7	24,1	22,9	21,2	18,8	15,8	12,1				
100-160/185	18,5		79,7	156	29,1		28,7	28,4	27,5	25,9	23,5	20,4	16,6				
100-160/220	22		80,5	167	34,1		33,4	33,0	32,1	30,5	28,2	25,0	21,2	16,8			
100-160/300	30	187	83,8		44,1		42,8	42,1	41,2	39,8	37,8	35,1	31,6	27,2	21,8		
100-200/300	30		79,7	188	46,5		45,8	45,2	43,7	41,2	37,5	32,9	27,4	21,2			
100-200/370	37		82,0	202	53,9		53,4	53,0	52,0	49,9	46,8	42,6	37,3	31,1			
100-200/450	45		83,4	213	60,4		59,8	59,7	58,9	57,2	54,5	50,6	45,7	39,9	33,1		
100-200/550	55	227	84,6		69,2		68,9	68,5	67,5	65,9	63,6	60,3	56,1	50,7	44,3	36,6	
100-250/450	45		80,4	213	58,7		59,3	59,0	58,0	56,1	53,1	49,2	44,3	38,6	32,4		
100-250/550	55		83,1	227	67,3		67,9	67,8	67,0	65,5	63,0	59,5	55,1	49,7	43,5		
100-250/750	75		84,3	249	82,4		83,2	83,1	82,4	81,1	78,9	75,9	71,9	67,1	61,3	54,6	
100-250/900	90	259	85,0		89,9		90,6	90,4	89,6	88,2	86,1	83,1	79,2	74,4	68,7	62,0	54,3

PUMP TYPE	P_N kW	ØF (1)	ηp % (2)	ØT (3)	Q = DELIVERY l/min 0	1412	2253	3094	3936	4777	5618	6460	7301	8143	8984	9825	10667
					m^3/h 0	85	135	186	236	287	337	388	438	489	539	590	640
					H = TOTAL HEAD METRES COLUMN OF WATER												
125-200/450	45		80,4	179	35,0	34,4	34,1	34,1	34,2	34,3	33,7	32,2	29,6	26,1	22,2		
125-200/550	55		83,1	195	43,2		43,0	43,1	42,9	42,3	41,0	39,0	36,2	32,6	28,4		
125-200/750	75		84,4	215	55,1		54,9	55,0	54,9	54,4	53,3	51,6	49,2	46,0	42,0	37,2	
125-200/900	90	225	85,7		61,8		61,5	61,6	61,5	60,9	59,9	58,3	55,9	52,9	49,1	44,6	39,4
125-315/1100	110		81,1	250	84,8		84,4	84,4	83,6	81,7	78,4	73,3	66,3	57,1			
125-315/1320	132		82,4	266	96,2		96,1	96,2	95,7	94,2	91,3	86,9	80,6	72,2			
125-315/1600	160		82,6	280	106,3		107,1	106,9	106,5	105,5	103,6	100,3	95,1	87,8	78,2		
125-315/2000	200	290	83,1		114,9		115,7	115,8	115,6	114,7	113,0	109,9	105,3	98,9	90,5	80,0	

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A)

Nsc-100-125_2p50-en_a_th

(1) External diameter of full impeller (2) Hydraulic efficiency of pump (3) External diameter of trimmed impeller

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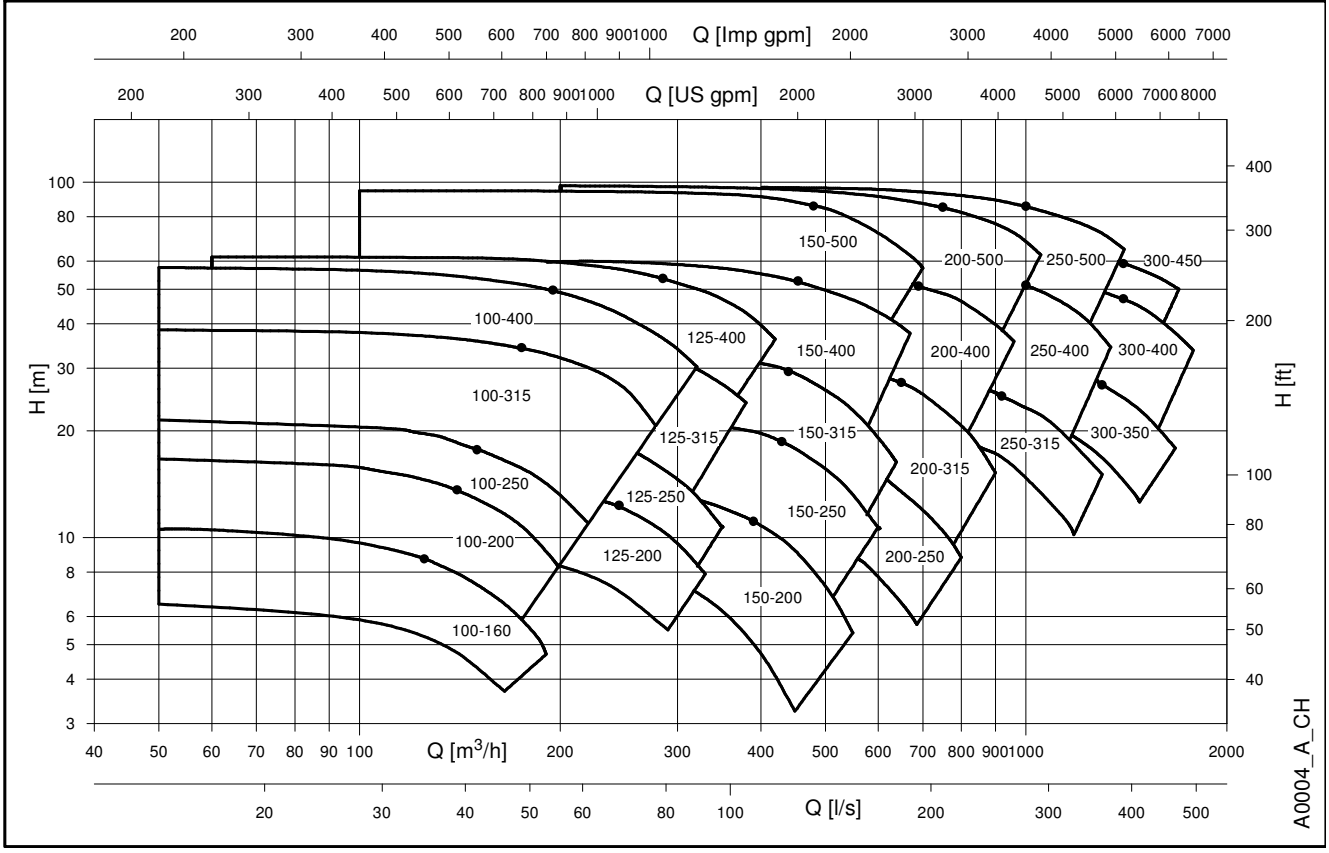
e-NSC SERIES
HYDRAULIC PERFORMANCE RANGE AT 50 Hz, 4 POLES

NSC	~ 1450 [rpm]	ISO 9906:2012 - Grade 3B



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e-NSC 100-125-150 SERIES
HYDRAULIC PERFORMANCE TABLE AT 50 Hz, 4 POLES

PUMP TYPE	P_N kW	ØF (1)	ηp % (2)	ØT (3)	Q = DELIVERY l/min 0	333	757,6	1182	1606	2030	2455	2879	3303	3727	4152	4575,8	5000
					m^3/h 0	20	45	71	96	122	147	173	198	224	249	275	300
					H = TOTAL HEAD METRES COLUMN OF WATER												
100-160/22A	2,2		75,9	144	5,9		5,9	5,6	4,9	3,7							
100-160/22	2,2		77,4	156	6,9		6,9	6,6	6,0	4,8	3,5						
100-160/30	3		81,5	176	9,1		9,0	8,8	8,1	7,0	5,6	4,0					
100-160/40	4	190	83,6		10,8		10,6	10,4	9,8	8,9	7,6	6,0					
100-200/40	4,0		82,6	197	12,2		12,1	11,8	11,0	9,6	7,5	5,1					
100-200/55	5,5		83,8	213	14,8		14,6	14,5	13,8	12,6	10,7	8,4					
100-200/75	7,5	227	84,3		16,9		16,7	16,5	15,9	14,8	13,1	11,0	8,4				
100-250/55	5,5		80,6	213	14,1		14,1	13,8	13,1	11,9	10,1	8,0					
100-250/75	7,5		83,1	237	17,8		17,9	17,7	17,2	16,2	14,6	12,5	10,1				
100-250/110	11	259	84,1		21,9		21,9	21,7	21,1	20,0	18,4	16,3	13,8				
100-315/110	11		78,9	260	23,5	23,5	23,4	23,1	22,4	21,1	19,2	16,5	12,6				
100-315/150	15		79,5	284	28,0		28,0	27,8	27,2	26,0	24,4	22,4	19,5				
100-315/185	18,5		79,9	298	31,1		31,0	30,9	30,3	29,3	27,8	26,1	23,8	20,4			
100-315/220	22		80,6	312	34,3		34,2	34,1	33,7	32,8	31,4	29,6	27,6	25,0			
100-315/300	30	334	80,8		40,2		40,1	40,1	39,7	38,8	37,6	36,0	34,0	31,5	28,2		
100-400/300	30		76,8	375	47,4		46,5	45,8	44,9	43,7	42,1	40,0	37,4	34,3	30,6		
100-400/370	37		77,1	397	54,4		53,3	52,5	51,6	50,4	48,9	47,1	44,8	42,0	38,6	34,7	
100-400/450	45	420	76,9		61,3		60,0	59,4	58,6	57,3	55,7	53,8	51,6	49,0	45,8	42,0	37,3

PUMP TYPE	P_N kW	ØF (1)	ηp % (2)	ØT (3)	Q = DELIVERY l/min 0	713	1285	1856	2428	2999	3571	4142	4714	5285	5857	6428,5	7000
					m^3/h 0	43	77	111	146	180	214	249	283	317	351	386	420
					H = TOTAL HEAD METRES COLUMN OF WATER												
125-200/55	5,5		80,9	179	8,6		8,4	8,4	8,3	8,0	7,2	6,0					
125-200/75	7,5		83,5	204	11,9		11,8	11,8	11,6	11,2	10,3	9,0	7,5				
125-200/110	11	225	85,4		15,0		14,9	14,9	14,8	14,4	13,7	12,6	11,1	9,3			
125-250/75	7,5		84,5	210	13,6	13,5	13,4	13,3	12,9	12,1	10,6	8,6	6,3				
125-250/110	11		86,3	235	17,5		17,4	17,4	17,2	16,6	15,3	13,5	11,3	9,2			
125-250/150	15	259	88,3		22,0		21,7	21,7	21,5	21,0	20,0	18,5	16,5	14,1	11,6		
125-315/185	18,5		83,7	277	25,6		25,7	25,6	25,3	24,4	22,8	20,1	16,4	11,9	7,3		
125-315/220	22		84,3	290	28,3		28,6	28,5	28,2	27,5	26,1	23,8	20,7	16,6			
125-315/300	30		85,4	315	34,8		35,1	35,0	34,8	34,1	33,0	31,4	29,1	26,0	22,1		
125-315/370	37	334	86,4		39,6		39,8	39,9	39,7	39,2	38,2	36,8	34,8	32,1	28,7	24,6	
125-400/370	37		78,0	353	43,4		43,9	43,8	43,2	41,9	39,9	37,0	33,0	28,0			
125-400/450	45		78,8	374	48,7		49,4	49,6	49,3	48,3	46,4	43,7	40,0	35,4	30,0		
125-400/550	55		79,1	394	54,4		55,6	55,8	55,5	54,6	53,0	50,7	47,6	43,6	38,7		
125-400/750	75	422	79,9		63,4		64,8	64,7	64,2	63,3	61,8	59,8	57,1	53,8	49,8	45,0	39,3

PUMP TYPE	P_N kW	ØF (1)	ηp % (2)	ØT (3)	Q = DELIVERY l/min 0	1000	2030	3061	4091	5121	6152	7182	8212	9242	10273	11303	12333
					m^3/h 0	60	122	184	245	307	369	431	493	555	616	678	740
					H = TOTAL HEAD METRES COLUMN OF WATER												
150-200/110A	11		78,8	200	11,8		11,3	10,5	9,4	8,3	7,0	5,4					
150-200/110	11		80,7	217	14,0		13,4	12,5	11,4	10,1	8,7	7,0	4,9				
150-200/150A	15		82,0	227	15,2		14,5	13,8	12,9	11,7	10,2	8,4	6,4				
150-200/150	15	237	83,9		16,3		15,6	15,1	14,4	13,4	12,0	10,3	8,2				
150-250/150	15		80,3	238	17,2	17,0	16,7	16,1	15,1	13,7	11,6	9,1					
150-250/185	18,5		82,7	253	19,8		19,1	18,7	17,9	16,6	14,8	12,4	9,5				
150-250/220	22		84,6	265	22,1		21,4	21,0	20,4	19,3	17,6	15,4	12,6				
150-250/300	30	282	86,2		26,4		25,3	24,7	23,9	22,9	21,5	19,6	17,3	14,4			
150-315/300	30		84,2	291	27,7		27,7	27,6	27,0	25,7	23,5	20,4	16,5				
150-315/370	37		85,1	310	31,9		31,8	31,6	31,1	30,0	28,1	25,3	21,5	17,1			
150-315/450	45	330	86,3		36,6		36,2	36,1	35,7	34,7	32,9	30,4	27,2	23,2			
150-400/450	45		81,8	327	36,7		36,9	36,6	35,6	34,0	31,7	28,6	24,6				
150-400/550	55		84,4	346	41,2		41,6	41,5	40,9	39,5	37,5	34,6	30,9	26,3			
150-400/750	75		84,9	377	50,3		50,8	50,9	50,4	49,1	47,0	44,4	41,3	37,7	33,3		
150-400/900	90		85,3	398	56,5		56,9	57,0	56,5	55,5	53,7	51,4	48,5	45,1	41,0		
150-400/1100	110	423	85,5		63,9		64,4	64,3	63,9	63,0	61,5	59,4	56,6	53,2	49,1	44,4	
150-500/900	90		75,1	420	60,9		61,6	61,8	61,1	59,0	55,2	49,6	42,6	34,5			
150-500/1100	110		75,4	443	68,5		68,9	69,3	69,0	67,5	64,4	59,5	52,7	44,6	36,1		
150-500/1320	132		76,5	467	76,9		77,6	78,1	78,0	76,9	74,3	70,1	64,0	56,3	47,3		
150-500/1600	160		77,9	495	87,0		87,9	88,4	88,5	87,8	86,0	82,7	77,6	70,7	62,1	52,6	
150-500/2000	200	516	78,6		95,1		95,9	96,5	96,7	96,1	94,4	91,4	86,7	80,4	72,6	63,5	53,7

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A)

Nsc-100-150_4p50-en_a_th

(1) External diameter of full impeller (2) Hydraulic efficiency of pump (3) External diameter of trimmed impeller

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e-NSC 200-250-300 SERIES
HYDRAULIC PERFORMANCE TABLE AT 50 Hz, 4 POLES

PUMP TYPE	P_N kW	ØF (1)	ηp % (2)	ØT (3)	Q = DELIVERY l/min 0	2283	3742	5201,5	6660,6	8119,7	9578,8	11038	12497	13956	15415	16874	18333
					m^3/h 0	137	225	312	400	487	575	662	750	837	925	1012	1100
					H = TOTAL HEAD METRES COLUMN OF WATER												
200-250/185	18,5		78,6	228	15,7	15,3	14,8	13,7	12,2	10,6	8,9	6,8					
200-250/220	22		81,6	245	18,5		17,2	16,2	14,8	13,1	11,1	8,7					
200-250/300A	30		83,9	260	21,2		19,7	18,7	17,4	15,8	13,7	11,2	8,4				
200-250/300	30	271	85,0		23,1		21,5	20,5	19,4	17,9	16,0	13,6	10,8				
200-315/300	30		80,7	268	22,1	21,7	21,3	20,7	19,6	17,7	14,9	11,3					
200-315/450	37		82,9	287	25,3		24,6	24,2	23,3	21,7	19,3	15,9	11,8				
200-315/370	45		84,8	306	29,0		28,3	28,1	27,4	26,1	23,9	20,8	16,8	12,3			
200-315/550	55		86,1	328	34,1		33,2	32,8	32,1	30,9	28,8	26,0	22,2	17,8			
200-315/750	75	333	86,3	329	35,1		34,3	34,0	33,3	32,0	29,9	27,1	23,4	19,1			
200-400/750A	75		83,4	328	37,2		37,0	36,7	35,7	33,8	31,0	27,0	22,0				
200-400/750	75		83,5	342	41,0		40,6	40,3	39,4	37,7	35,0	31,3	26,5				
200-400/900	90		84,2	362	46,5		46,0	45,7	44,9	43,4	41,1	37,7	33,3	27,9			
200-400/1100	110		85,4	383	52,4		52,2	51,9	51,2	50,0	48,0	45,1	41,2	36,2			
200-400/1320	132	409	85,5		60,1		59,8	59,6	59,0	57,9	56,1	53,5	50,0	45,4	39,6		
200-500/1320	132		80,5	425	64,3		64,4	63,7	62,5	60,2	56,4	50,8	43,3	34,2			
200-500/1600	160		81,2	450	72,8		72,7	72,2	71,0	69,0	65,8	61,2	55,0	46,9			
200-500/2000	200		82,6	480	83,8		83,6	83,1	82,1	80,3	77,7	74,0	69,1	62,5	53,8		
200-500/2500	250		83,0	508	94,3		93,8	93,3	92,3	90,7	88,3	85,1	81,0	75,8	69,2	60,7	
200-500/3150	315	523	83,3		100,3		99,6	99,1	98,1	96,4	94,1	91,0	87,2	82,5	76,6	69,1	59,6

PUMP TYPE	P_N kW	ØF (1)	ηp % (2)	ØT (3)	Q = DELIVERY l/min 0	3717	5652	7586,4	9521,2	11456	13391	15326	17261	19195	21130	23065	25000
					m^3/h 0	223	339	455	571	687	803	920	1036	1152	1268	1384	1500
					H = TOTAL HEAD METRES COLUMN OF WATER												
250-315/370	37		81,1	255	19,4	19,2	18,5	17,7	16,7	15,3	13,3	10,4					
250-315/450	45		83,1	273	22,7		21,8	21,0	20,1	18,9	16,9	13,8	10,0				
250-315/550	55		84,5	290	26,1		24,8	24,3	23,6	22,6	20,7	18,0	14,5				
250-315/750	75	316	85,7		31,5		29,9	29,5	29,1	28,4	27,1	25,0	22,1	18,6			
250-400/750	75		82,0	325	35,4		35,2	34,3	32,5	29,9	26,3	21,8	16,4				
250-400/900	90		82,9	344	39,8		39,8	39,2	37,9	35,6	32,3	27,9	22,5				
250-400/1100	110		84,0	365	45,1		45,0	44,8	43,8	42,0	39,1	35,1	30,0	23,9			
250-400/1320	132		85,1	386	50,8		50,6	50,4	49,7	48,1	45,6	42,0	37,3	31,5			
250-400/1600	160		85,8	407	56,9		56,4	56,2	55,6	54,2	52,0	48,9	44,7	39,4	33,0		
250-400/2000	200	425	86,5		62,7		62,0	61,6	60,9	59,6	57,6	54,9	51,2	46,5	40,6		
250-500/1600	160		82,3	420	61,1		61,6	60,8	59,2	56,4	52,2	46,3	38,1				
250-500/2000	200		84,5	448	70,3		71,0	70,7	69,6	67,6	64,1	59,0	51,8	42,3			
250-500/2500	250		84,6	477	80,5		81,0	80,6	79,7	78,2	75,6	71,8	66,3	58,8	48,9		
250-500/3150	315		84,9	508	92,6		93,3	92,7	91,6	90,0	87,6	84,5	80,3	74,8	67,8	58,9	
250-500/3550	355	523	85,0		98,3		99,0	98,4	97,3	95,7	93,6	90,6	86,8	81,9	75,7	68,0	58,5

PUMP TYPE	P_N kW	ØF (1)	ηp % (2)	ØT (3)	Q = DELIVERY l/min 0	5567	7939	10312	12685	15058	17430	19803	22176	24548	26921	29294	31667
					m^3/h 0	334	476	619	761	903	1046	1188	1331	1473	1615	1758	1900
					H = TOTAL HEAD METRES COLUMN OF WATER												
300-350/750A	75		79,0	285	24,4		22,4	21,4	20,0	18,3	16,3	13,9	11,3	8,2			
300-350/750	75		82,2	315	30,5		28,1	26,8	25,3	23,4	21,2	18,7	15,9	12,7	9,1		
300-350/900	90		83,2	332	34,7		32,0	30,7	29,1	27,3	25,2	22,7	19,9	16,8	13,3		
300-350/1100	110	354	85,8		39,7		37,1	36,0	34,6	32,9	30,9	28,5	25,8	22,7	19,2	15,4	
300-400/1100	110		88,2	346	36,2		36,3	35,9	34,9	33,2	30,8	27,6	23,7	19,1			
300-400/1320	132		87,5	367	41,9		41,4	41,0	40,2	38,8	36,6	33,6	29,7	25,0	19,7		
300-400/1600	160		86,0	390	48,0		47,2	46,9	46,3	45,3	43,6	41,0	37,4	32,8	27,4	21,5	
300-400/2000	200		84,2	416	56,2		55,0	54,7	54,2	53,2	51,7	49,5	46,5	42,6	37,8	32,1	
300-400/2500	250	425	82,9		59,3		57,9	57,5	56,9	56,0	54,5	52,5	49,7	46,1	41,6	36,0	29,4
300-450/1600	160		86,6	404	52,5	53,1	52,5	51,4	49,8	47,6	44,8	41,5	37,5	32,9			
300-450/2000	200		88,0	430	60,7		60,2	59,4	58,1	56,3	53,8	50,7	46,9	42,3	36,9		
300-450/2500	250		88,1	456	69,1		69,0	68,0	66,7	65,0	62,9	60,3	57,0	53,1	48,1		
300-450/3150	315	470	89,0		74,9		73,5	72,8	71,6	70,0	67,9	65,4	62,4	58,8	54,5	49,3	

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A)

Nsc-200-300_4p50-en_a_th

(1) External diameter of full impeller (2) Hydraulic efficiency of pump (3) External diameter of trimmed impeller

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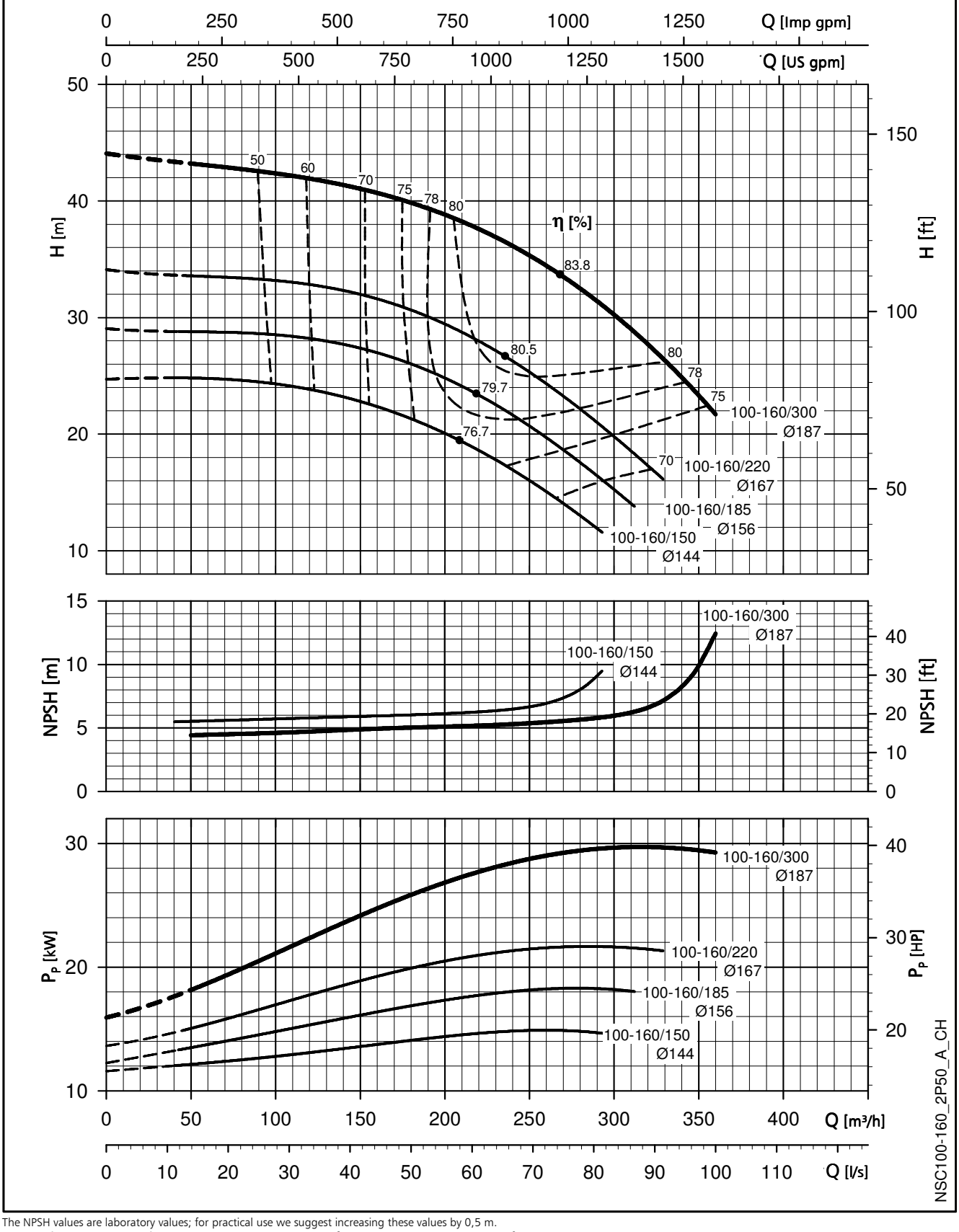
e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

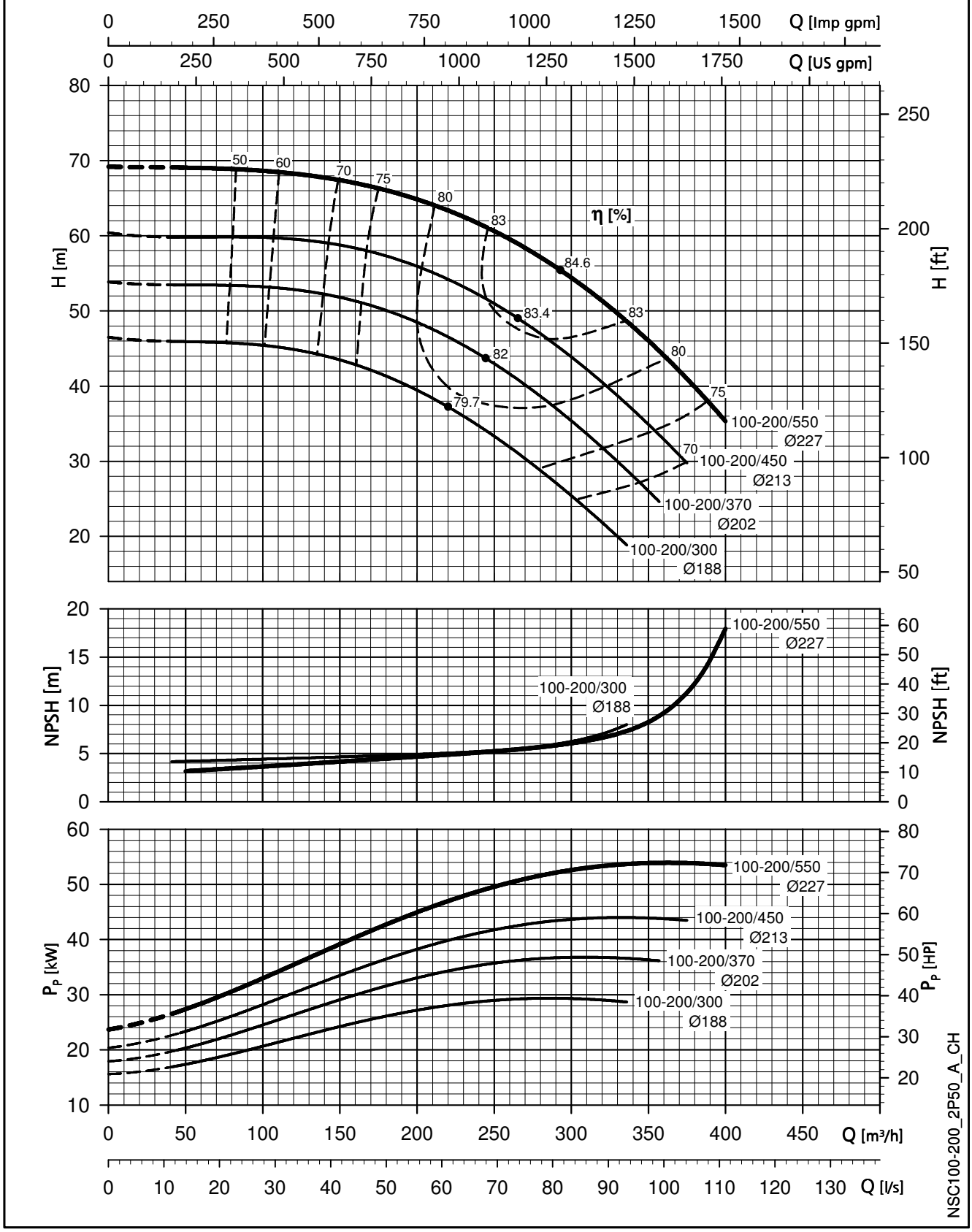
NSC 100-160	~ 2950 [rpm]	ISO 9906:2012 - Grade 3B



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

e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

NSC 100-200	~ 2950 [rpm]	ISO 9906:2012 - Grade 3B



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

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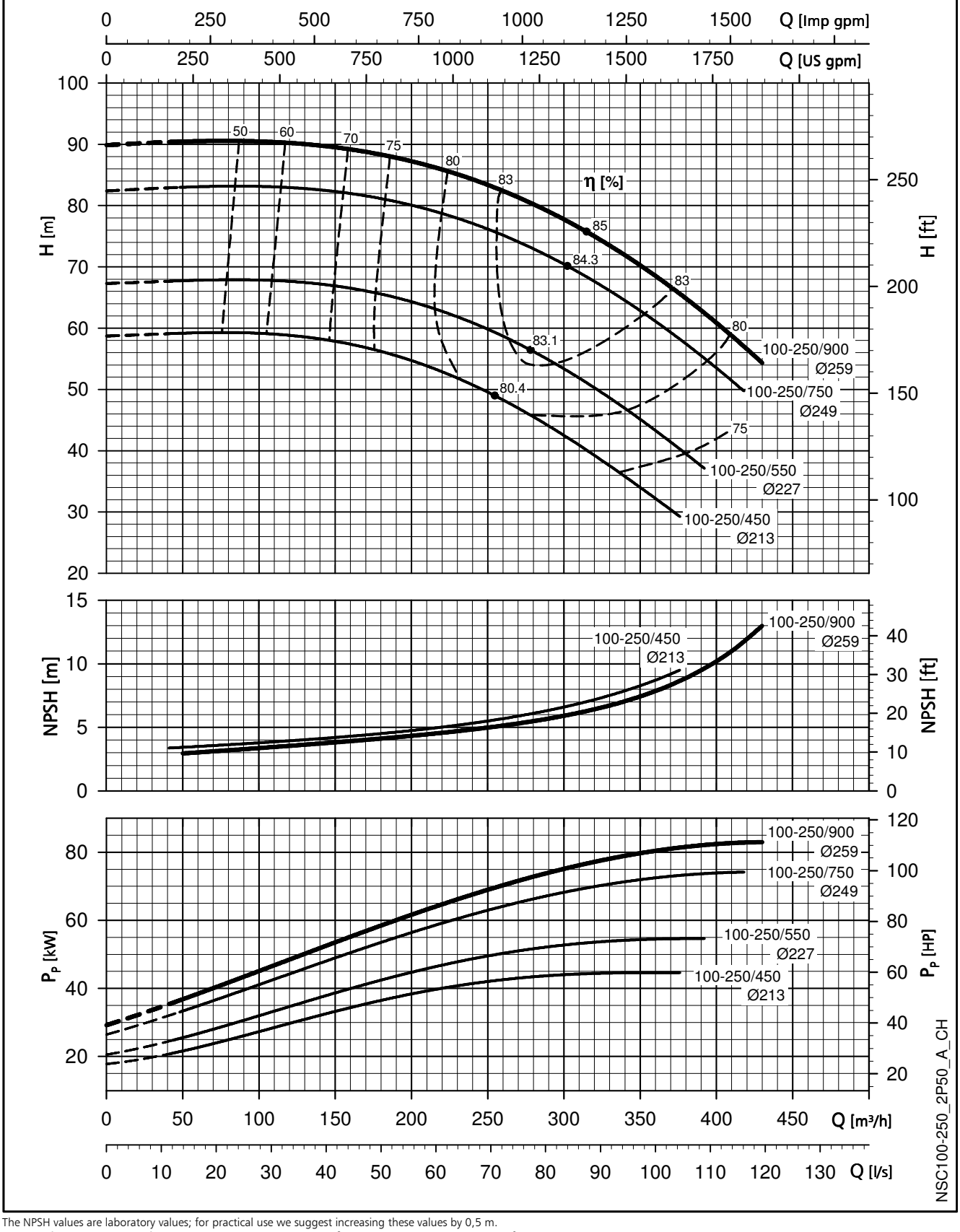
e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

NSC 100-250	~ 2950 [rpm]	ISO 9906:2012 - Grade 3B



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

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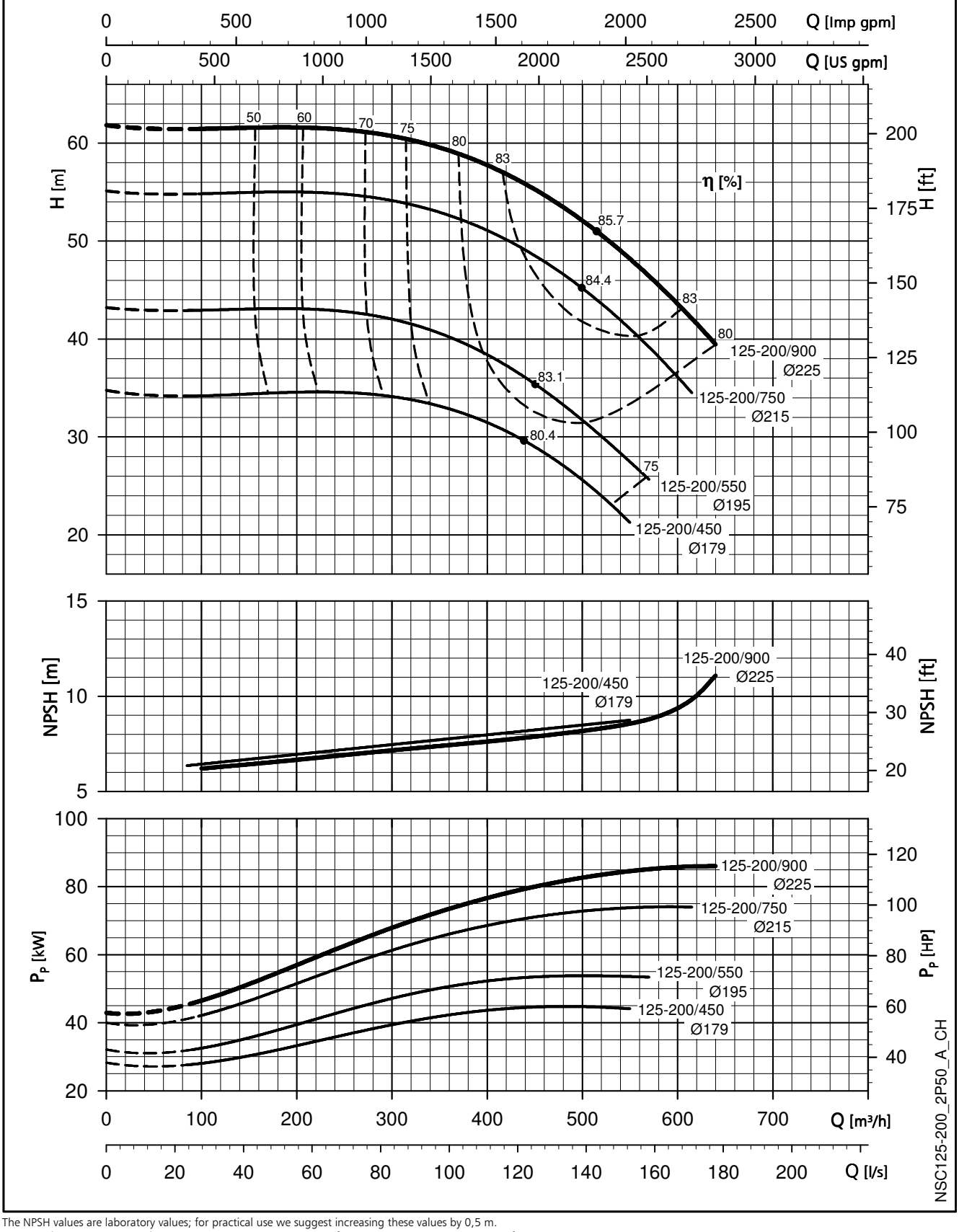
e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

NSC 125-200	~ 2950 [rpm]	ISO 9906:2012 - Grade 3B



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

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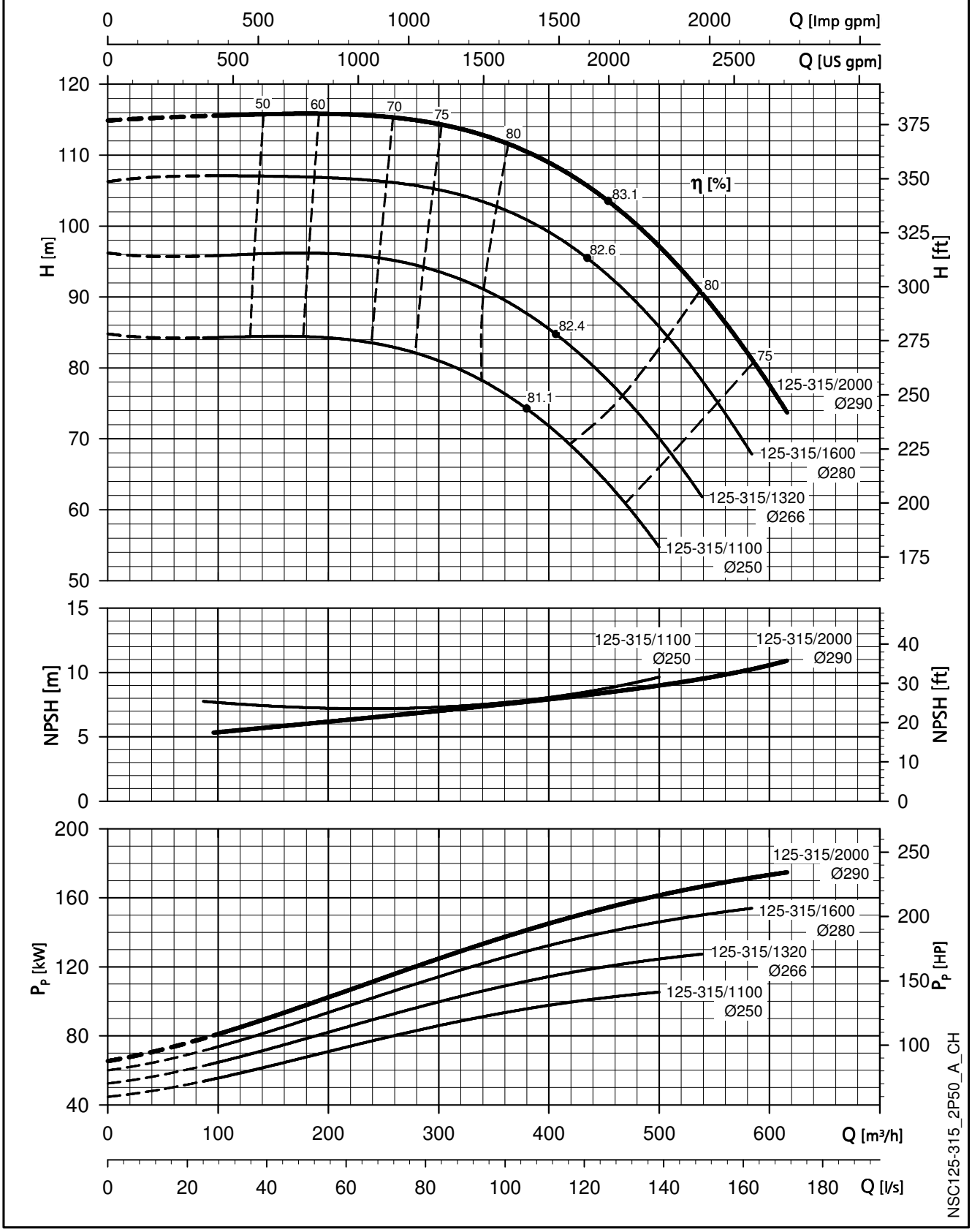
e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

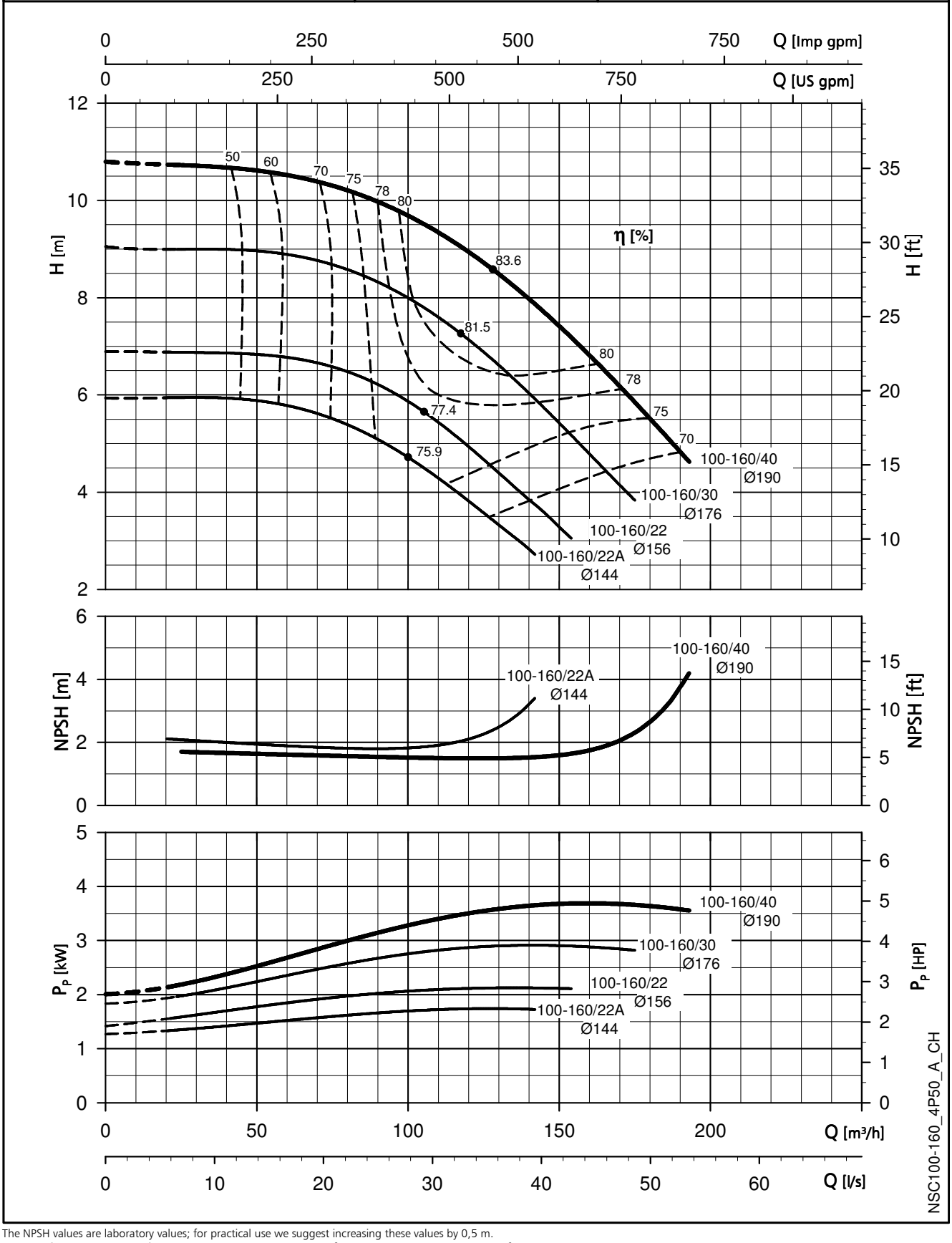
NSC 125-315	~ 2950 [rpm]	ISO 9906:2012 - Grade 3B



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

e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

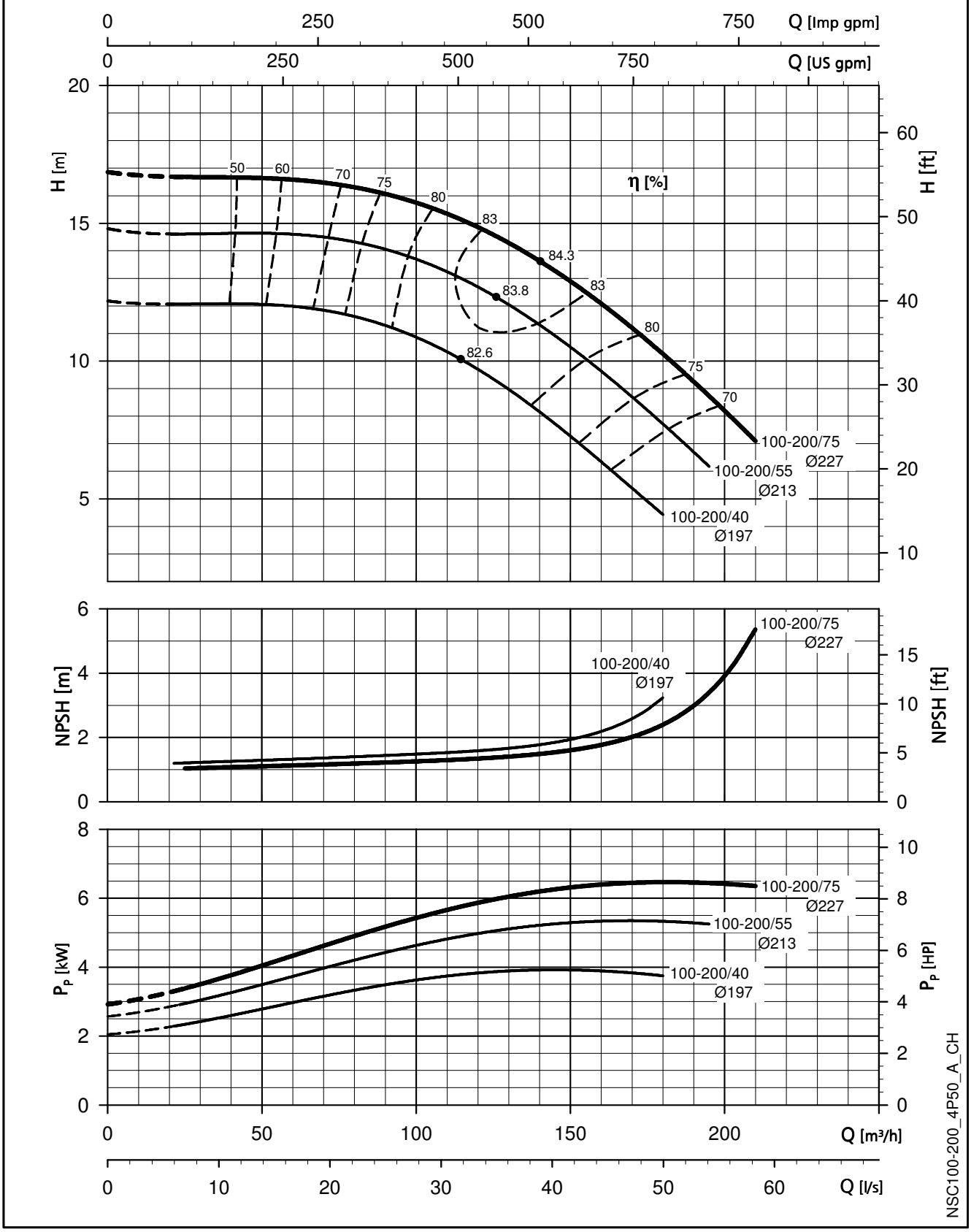
NSC 100-160	~ 1450 [rpm]	ISO 9906:2012 - Grade 3B



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

e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

NSC 100-200	~ 1450 [rpm]	ISO 9906:2012 - Grade 3B



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

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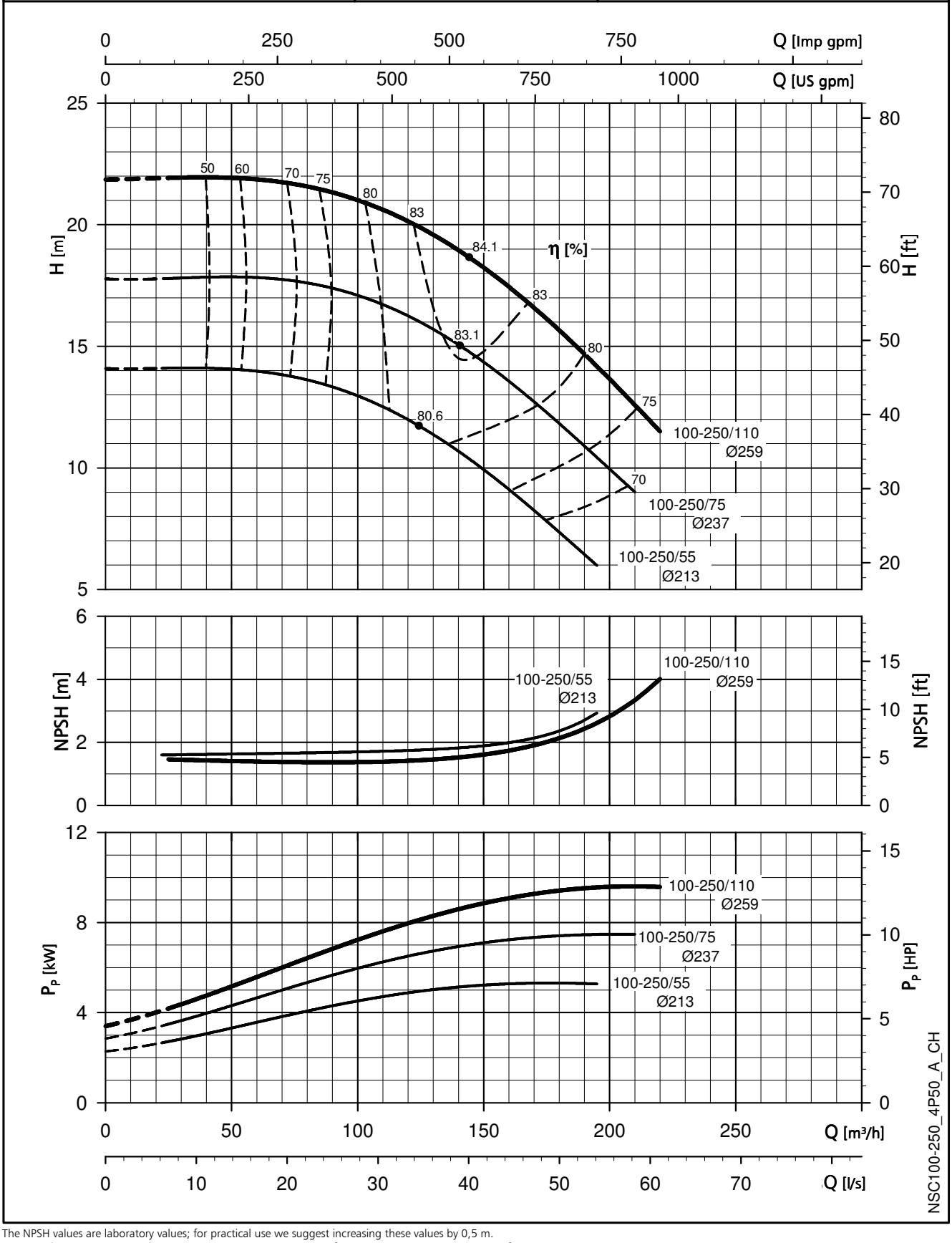
e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

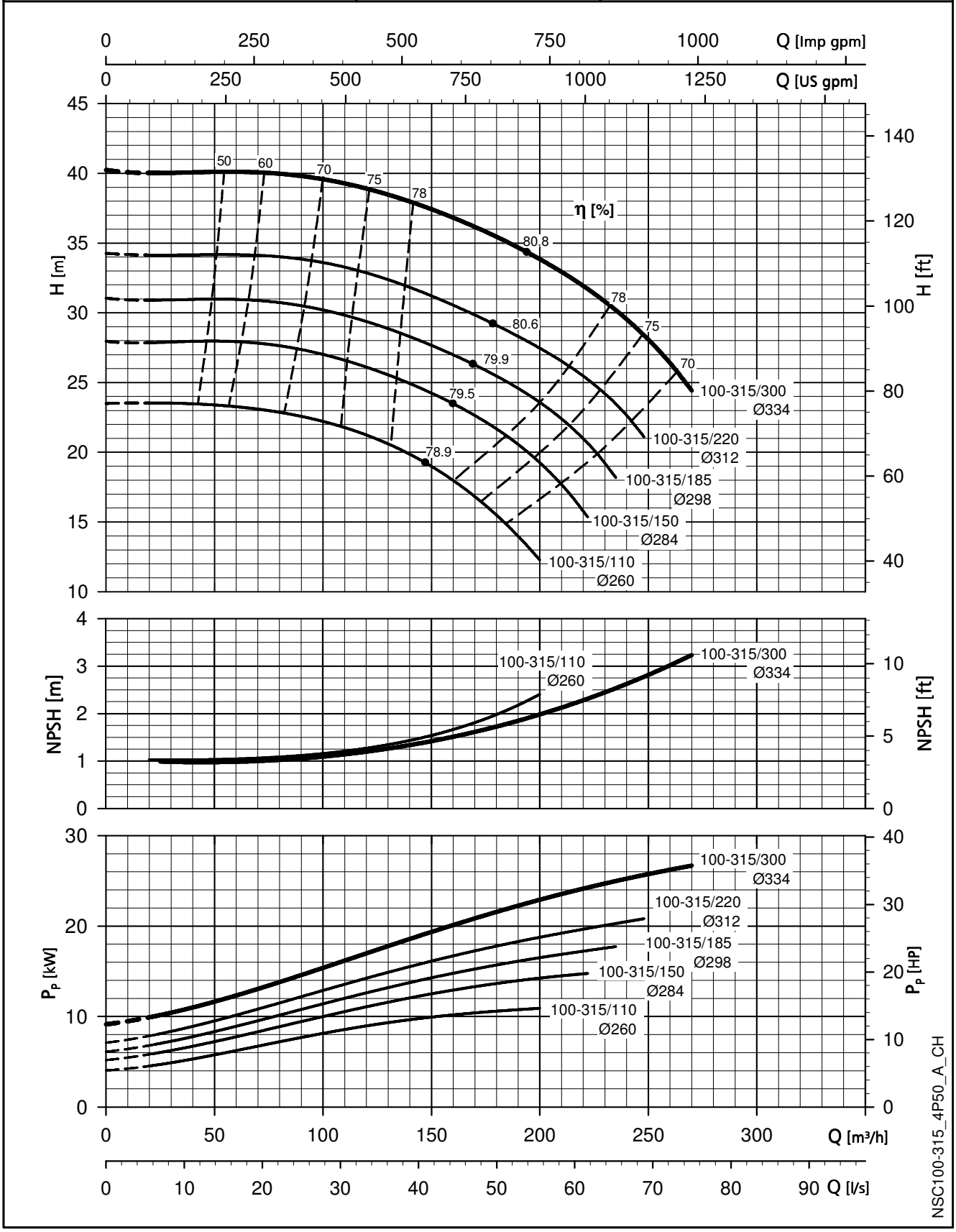
NSC 100-250	~ 1450 [rpm]	ISO 9906:2012 - Grade 3B



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

e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

NSC 100-315	~ 1450 [rpm]	ISO 9906:2012 - Grade 3B



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

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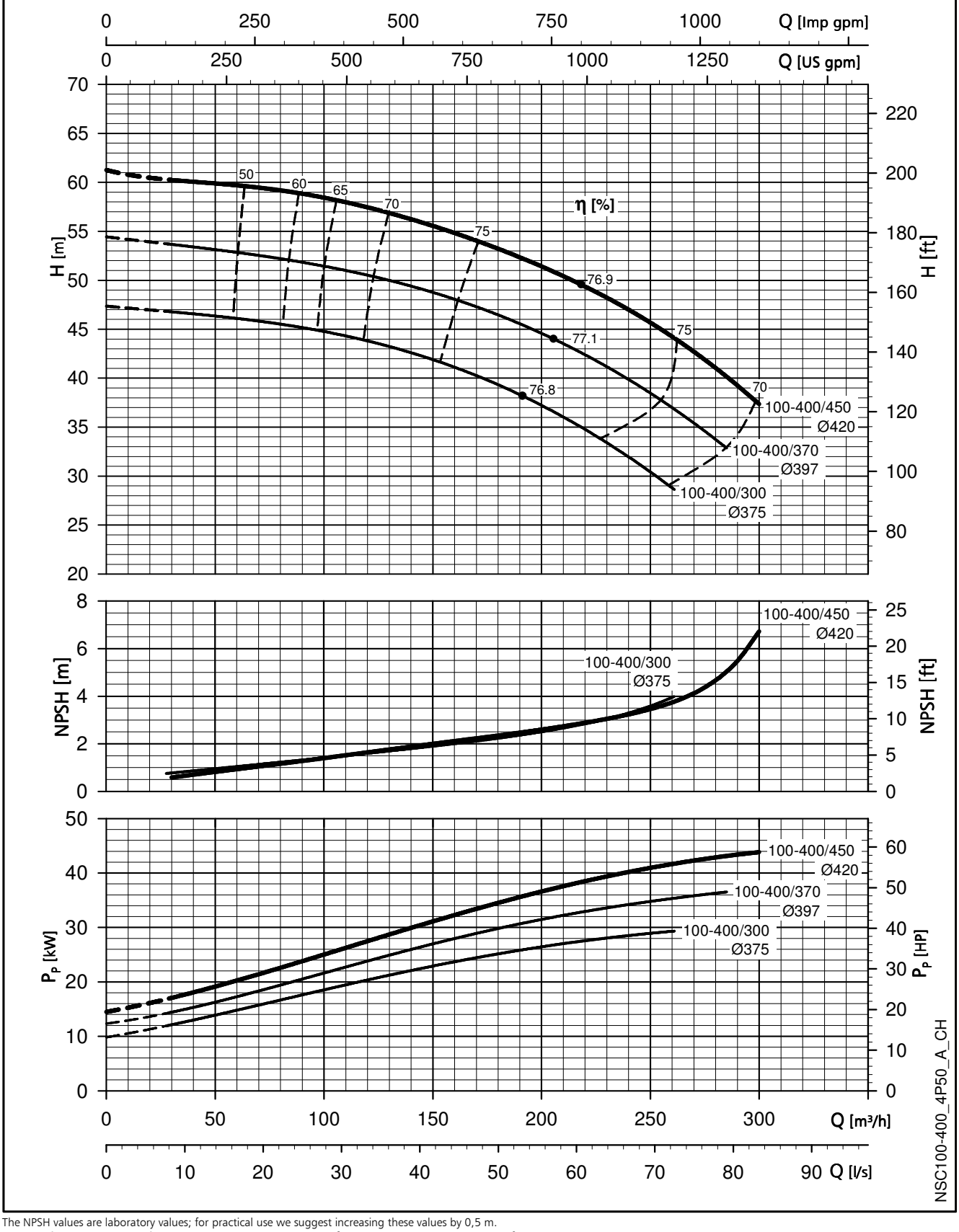
e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

NSC 100-400	~ 1450 [rpm]	ISO 9906:2012 - Grade 3B



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

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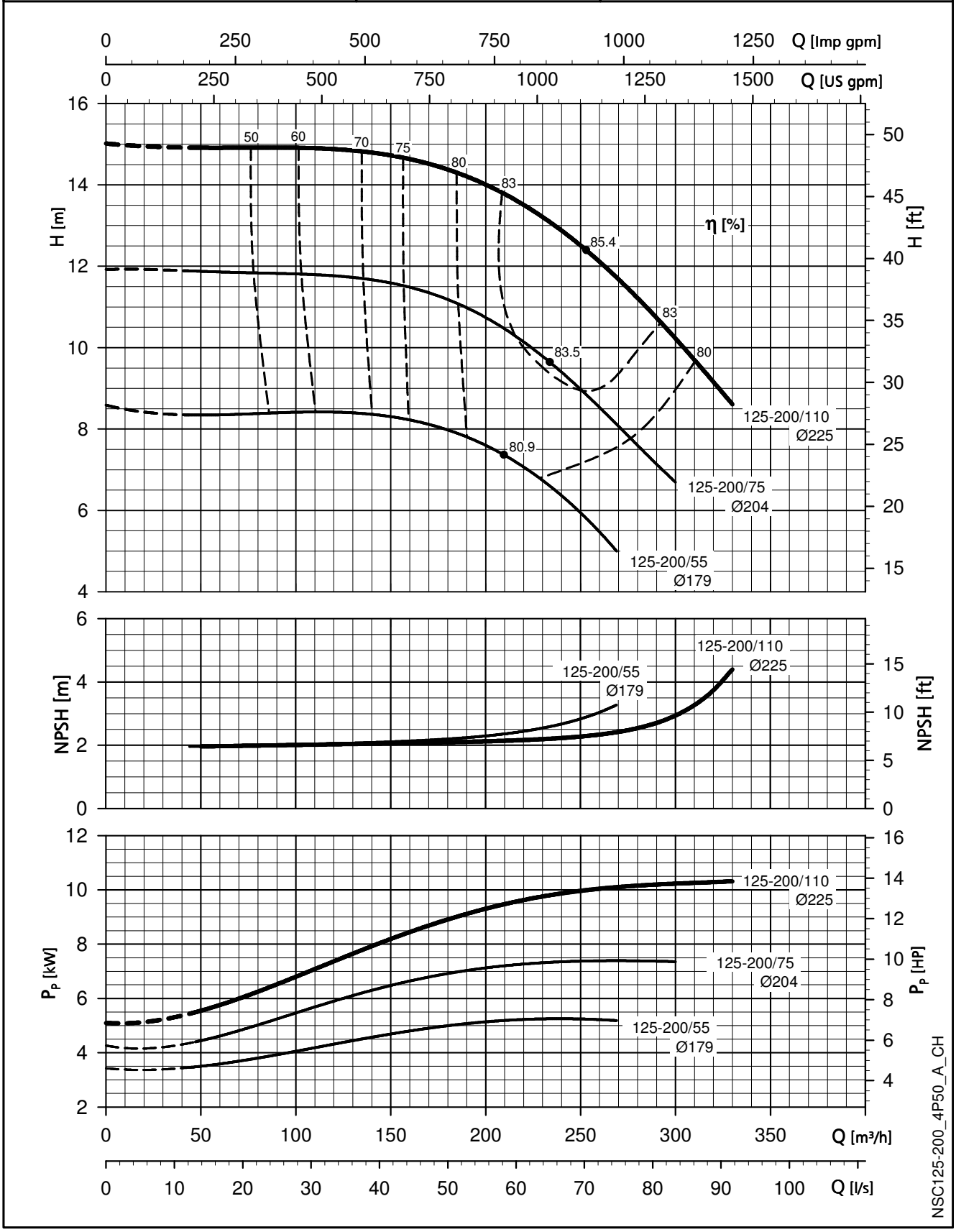
e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

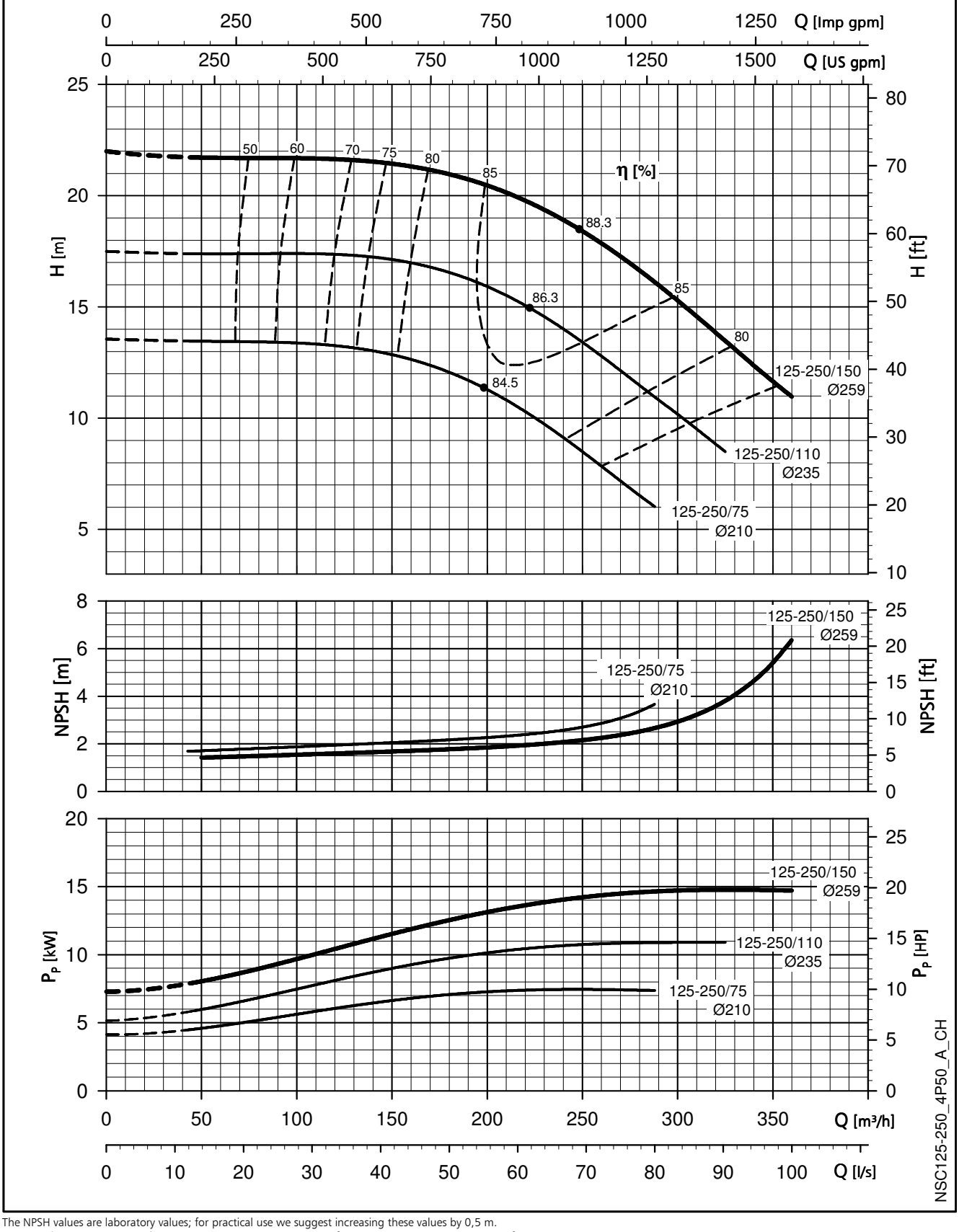
NSC 125-200	~ 1450 [rpm]	ISO 9906:2012 - Grade 3B



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

e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

NSC 125-250	~ 1450 [rpm]	ISO 9906:2012 - Grade 3B



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

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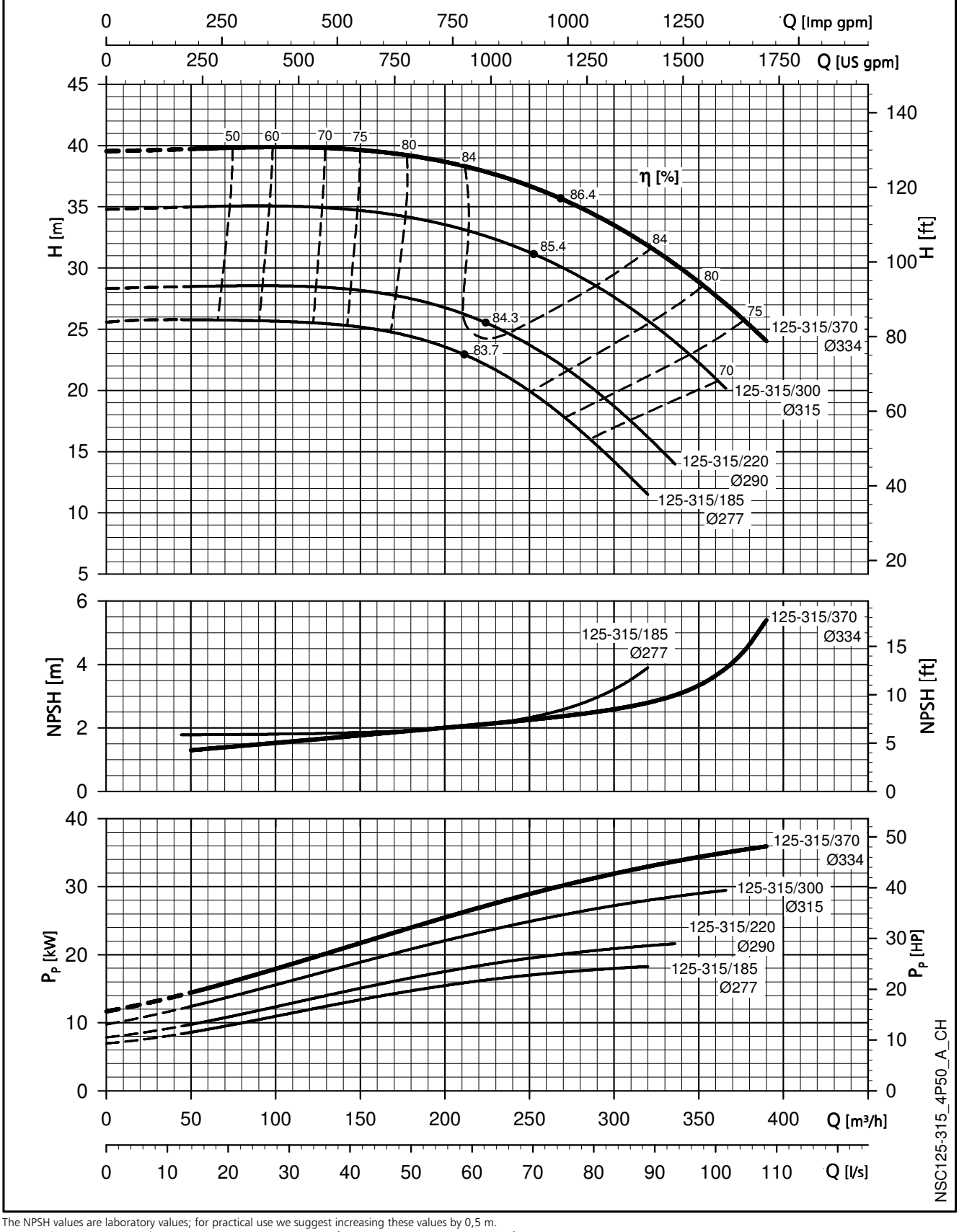
e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

NSC 125-315	~ 1450 [rpm]	ISO 9906:2012 - Grade 3B



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

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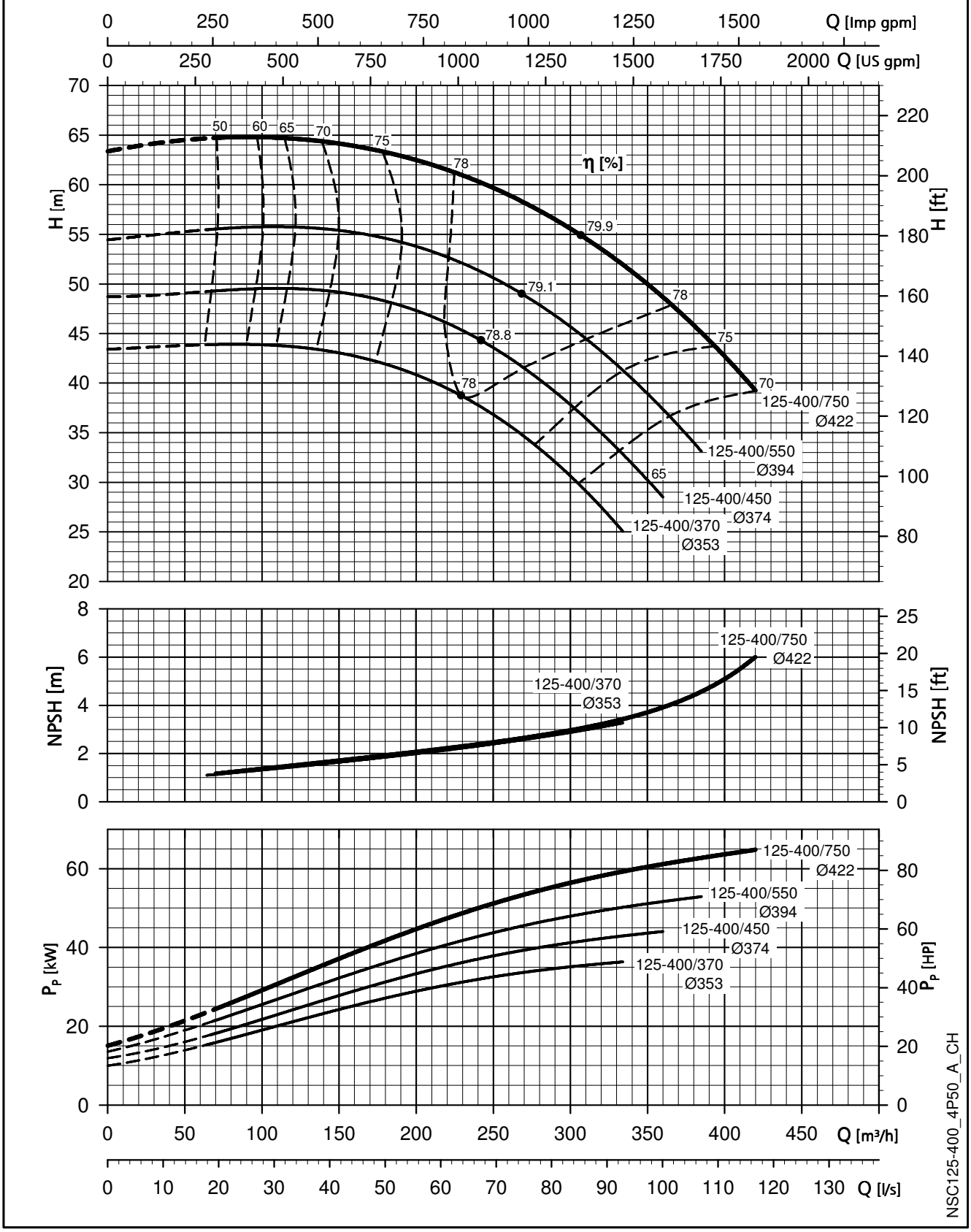
e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

NSC 125-400	~ 1450 [rpm]	ISO 9906:2012 - Grade 3B



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

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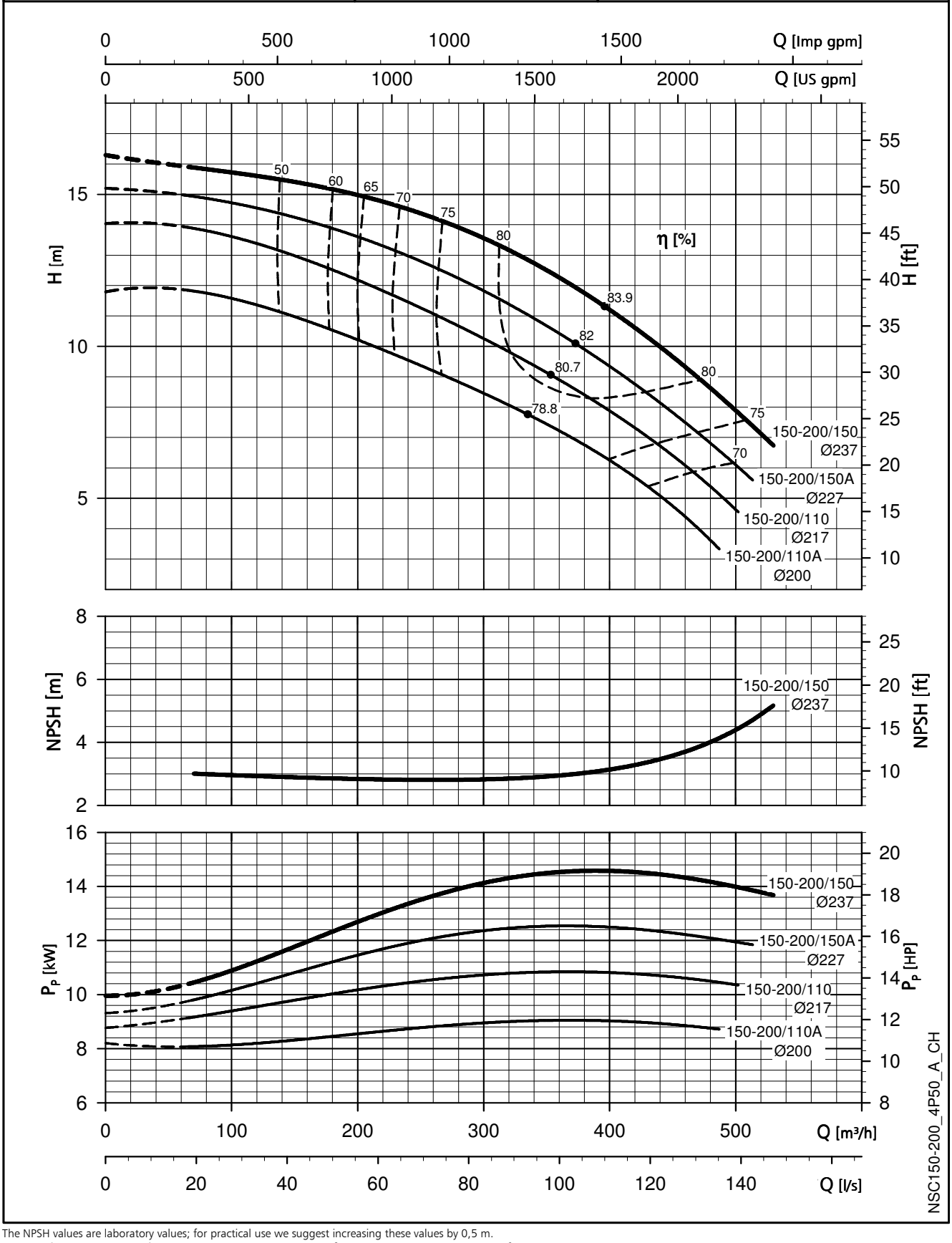
e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

NSC 150-200	~ 1450 [rpm]	ISO 9906:2012 - Grade 3B



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

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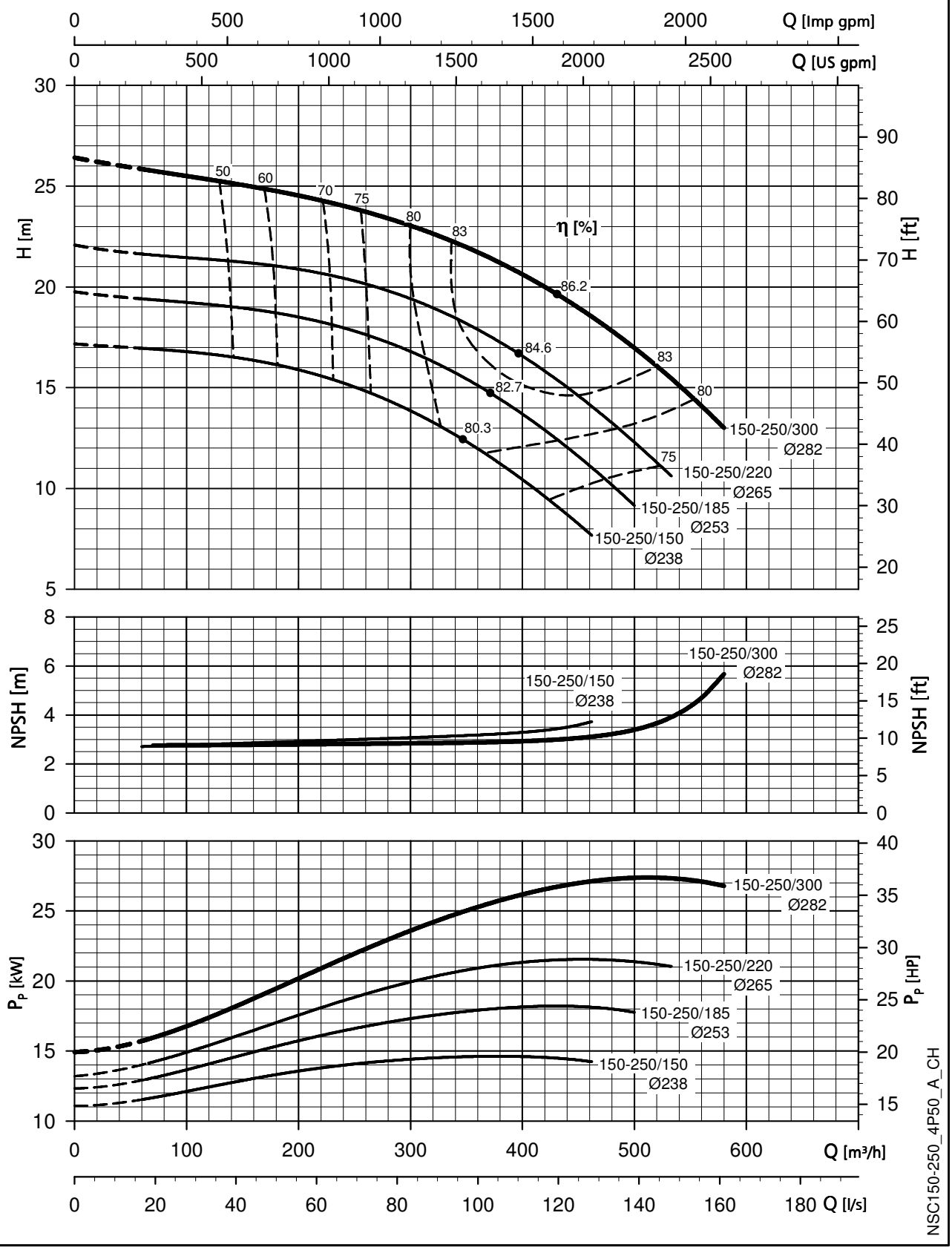
e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

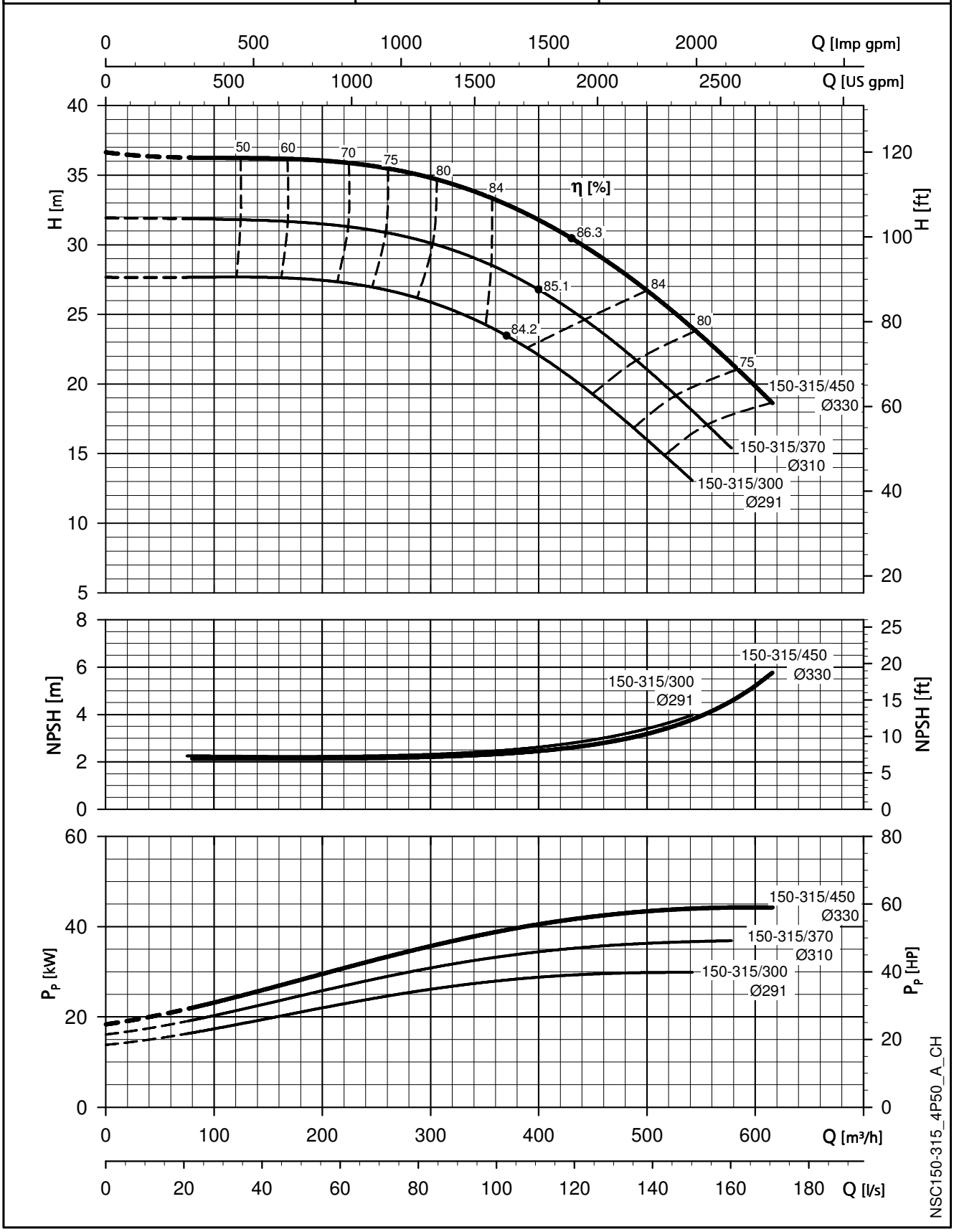
NSC 150-250	~ 1450 [rpm]	ISO 9906:2012 - Grade 3B



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

e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

NSC 150-315	~ 1450 [rpm]	ISO 9906:2012 - Grade 3B



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

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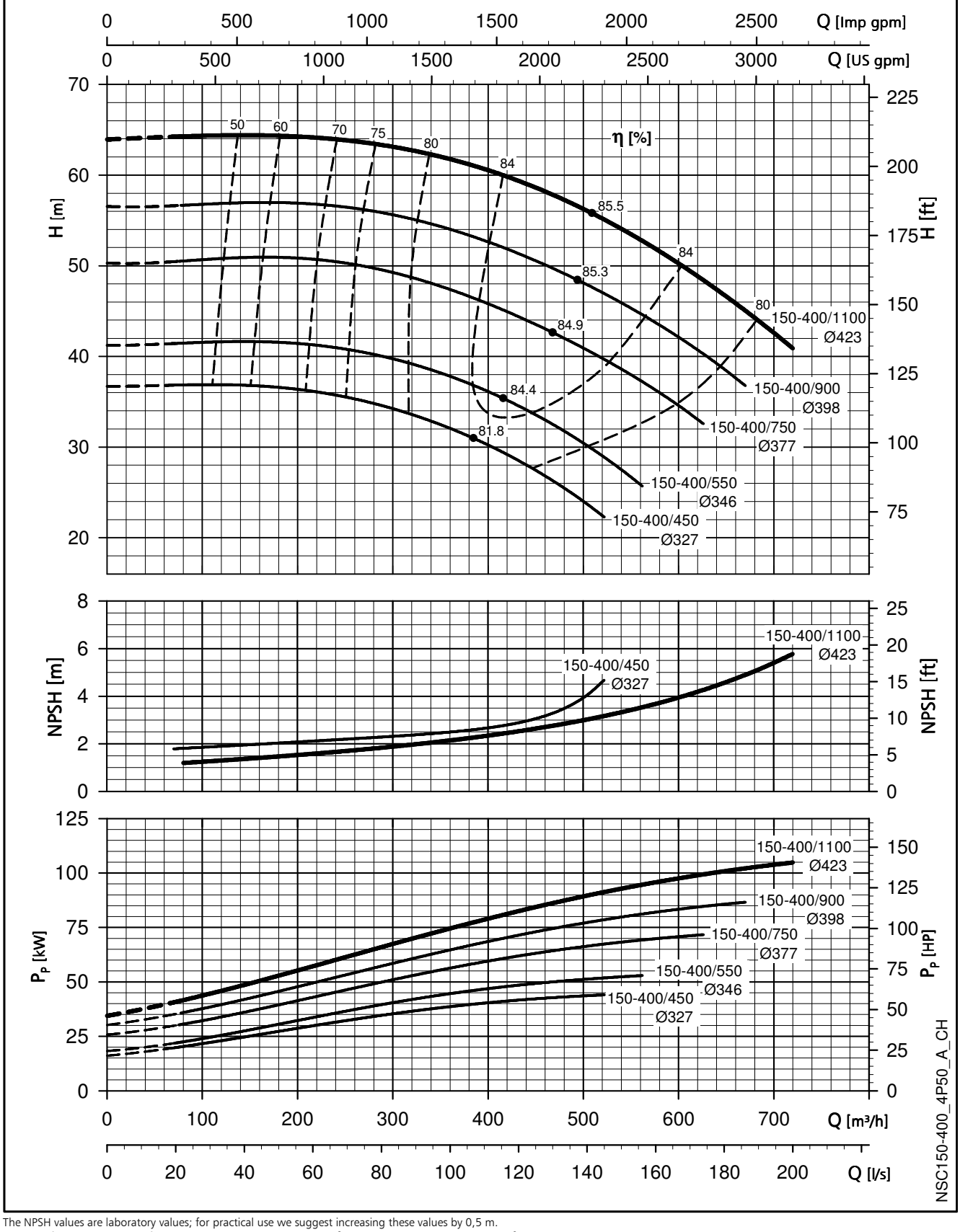
e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

NSC 150-400	~ 1450 [rpm]	ISO 9906:2012 - Grade 3B



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

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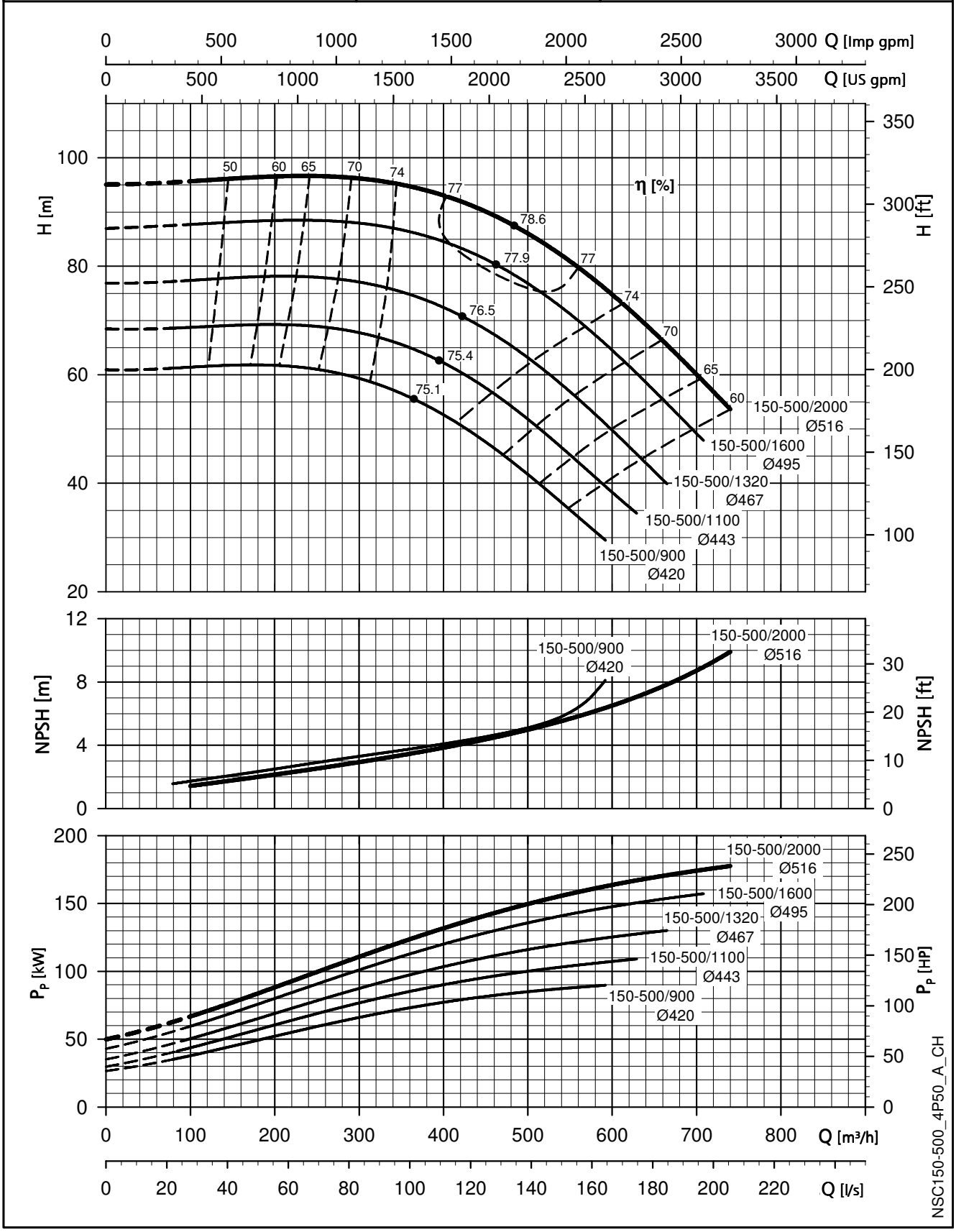
e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

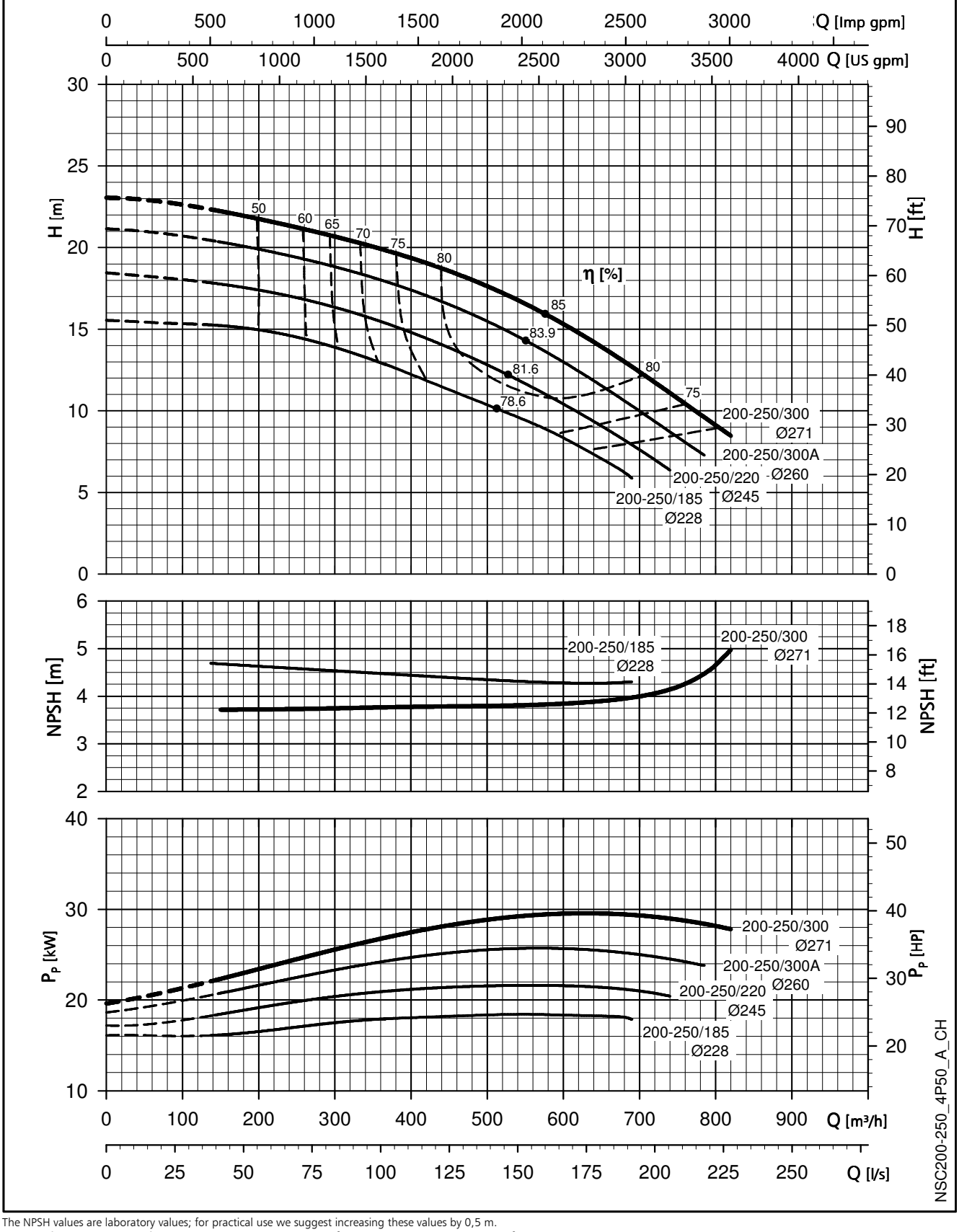
NSC 150-500	~ 1450 [rpm]	ISO 9906:2012 - Grade 3B



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

e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

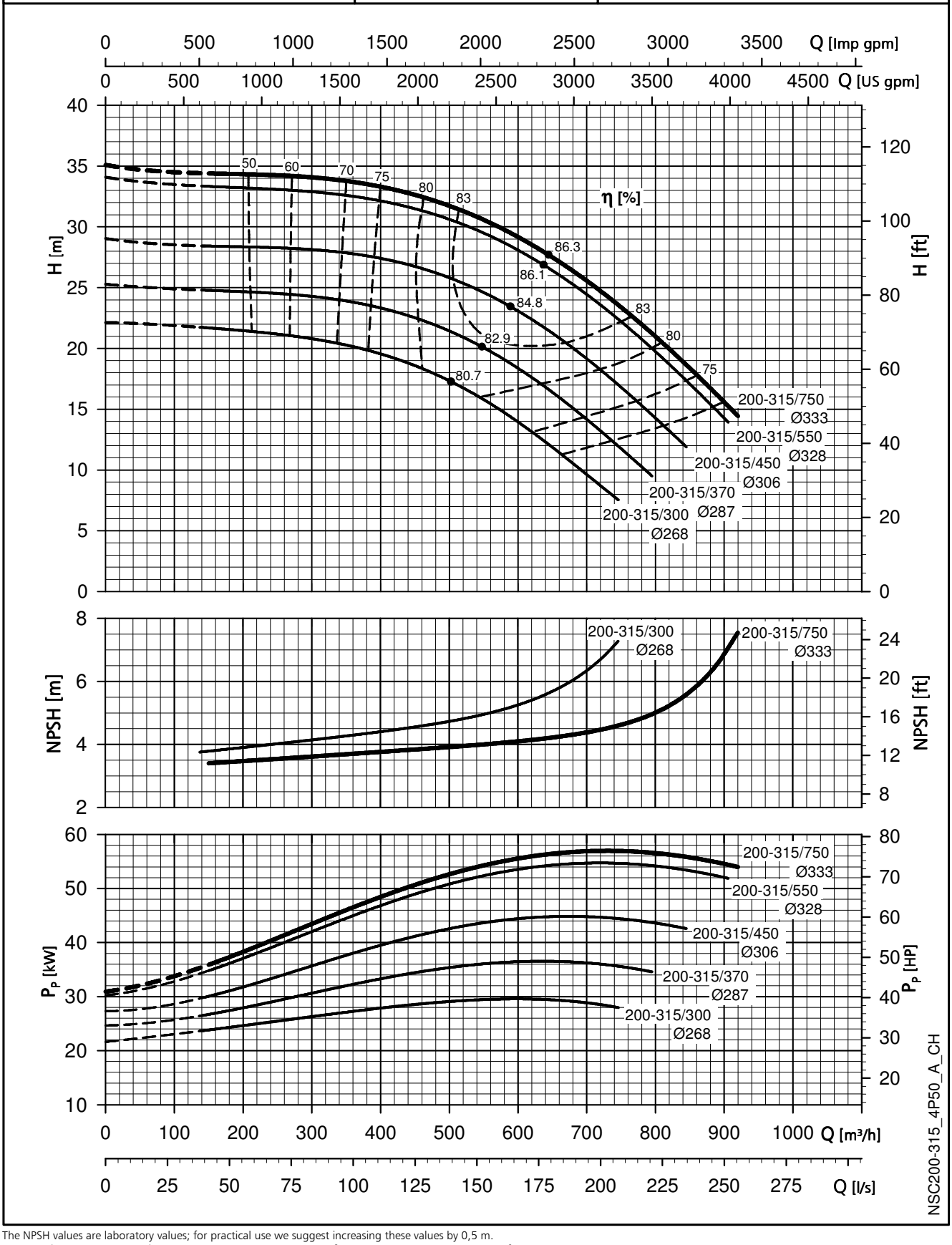
NSC 200-250	~ 1475 [rpm]	ISO 9906:2012 - Grade 3B



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

e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

NSC 200-315	~ 1475 [rpm]	ISO 9906:2012 - Grade 3B



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

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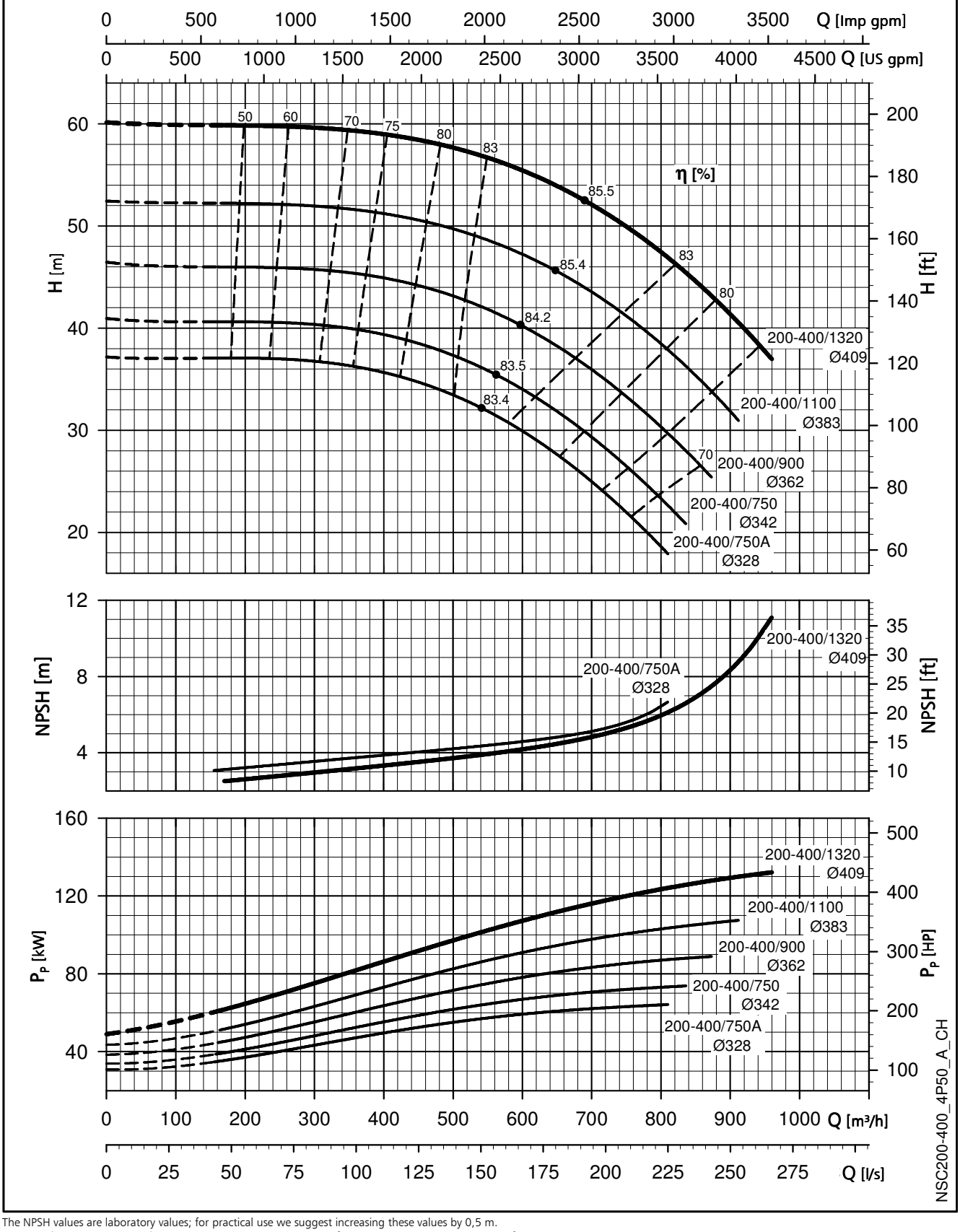
e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

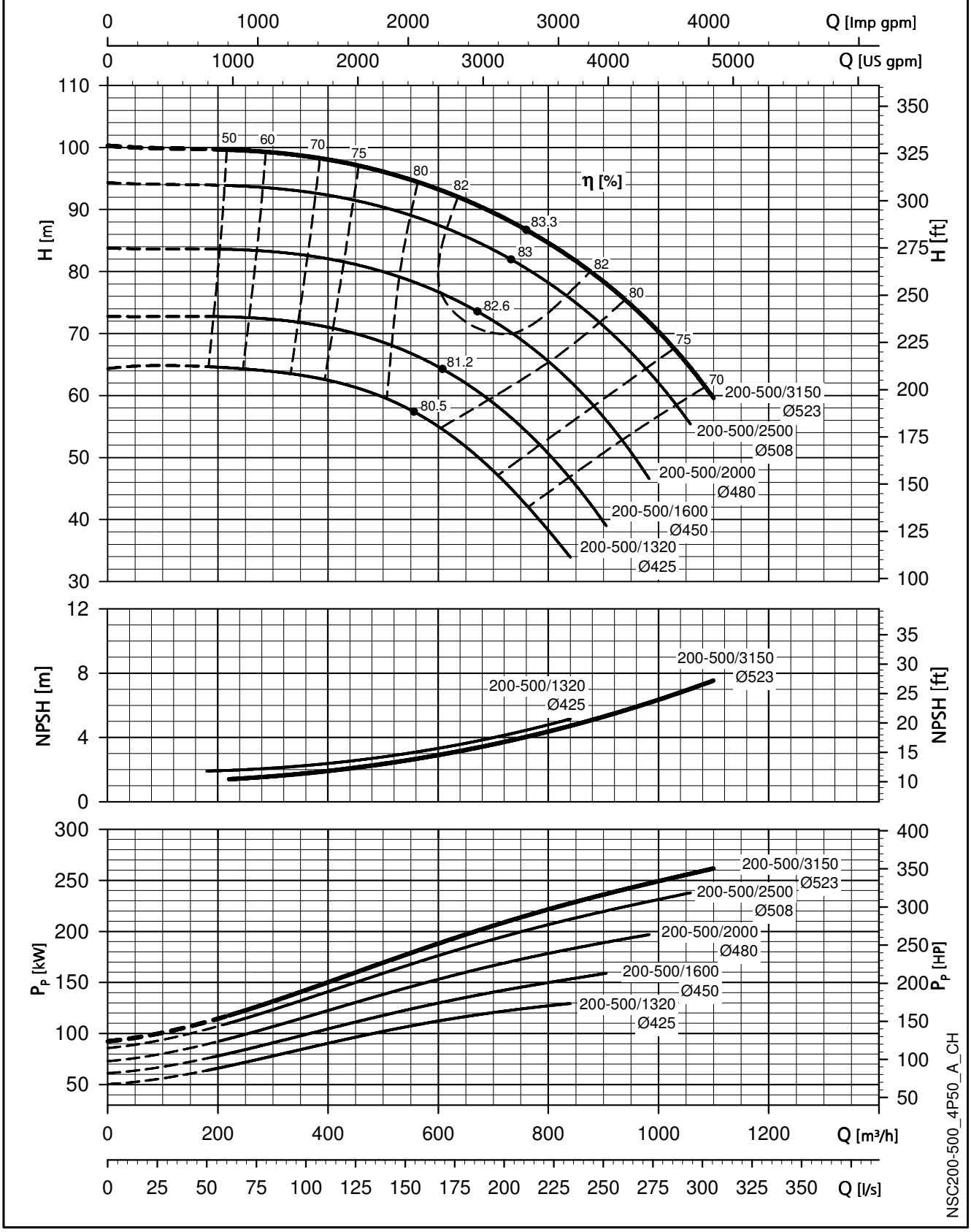
NSC 200-400	~ 1475 [rpm]	ISO 9906:2012 - Grade 3B



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

e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

NSC 200-500	~ 1475 [rpm]	ISO 9906:2012 - Grade 3B



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

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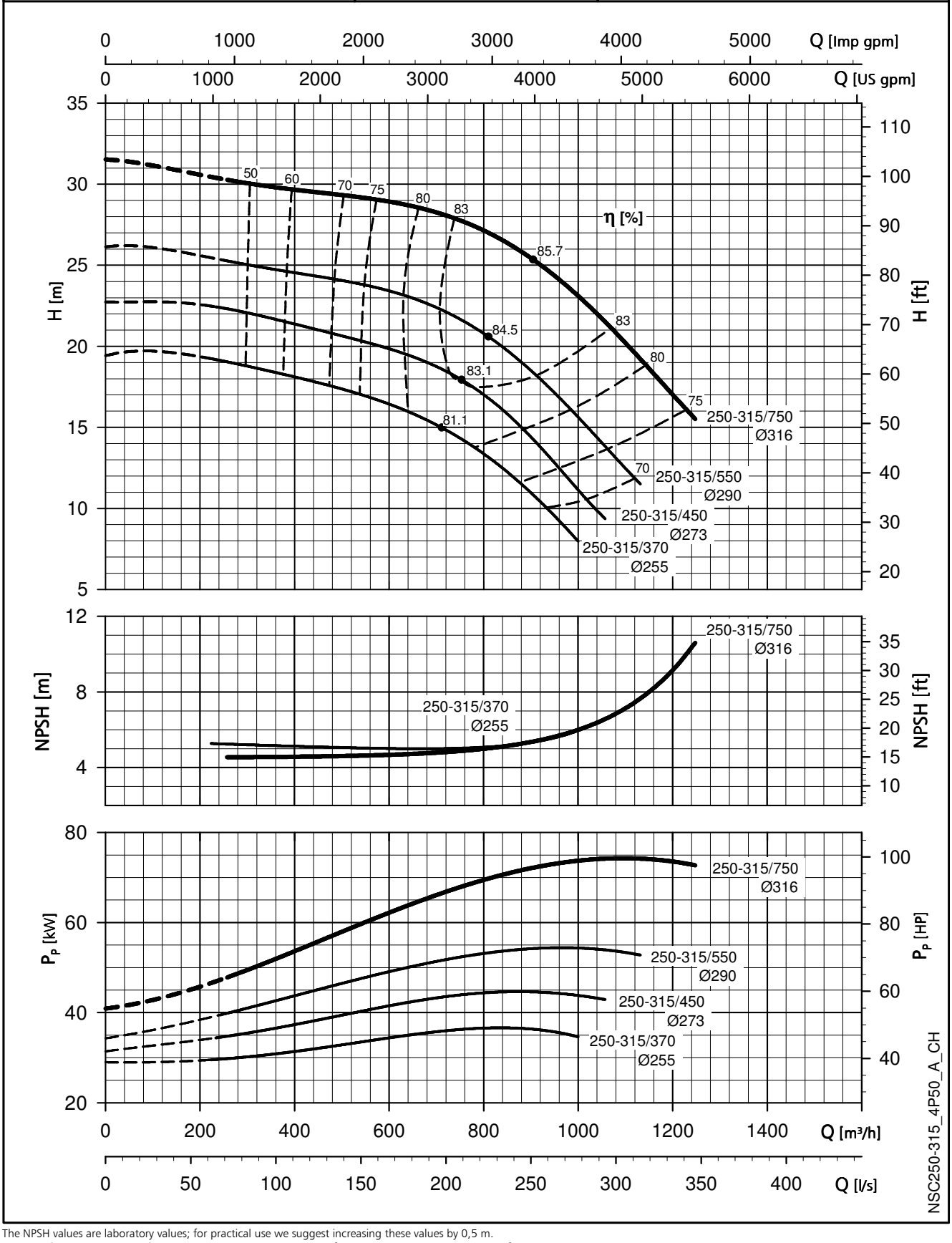
e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

NSC 250-315	~ 1475 [rpm]	ISO 9906:2012 - Grade 3B



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

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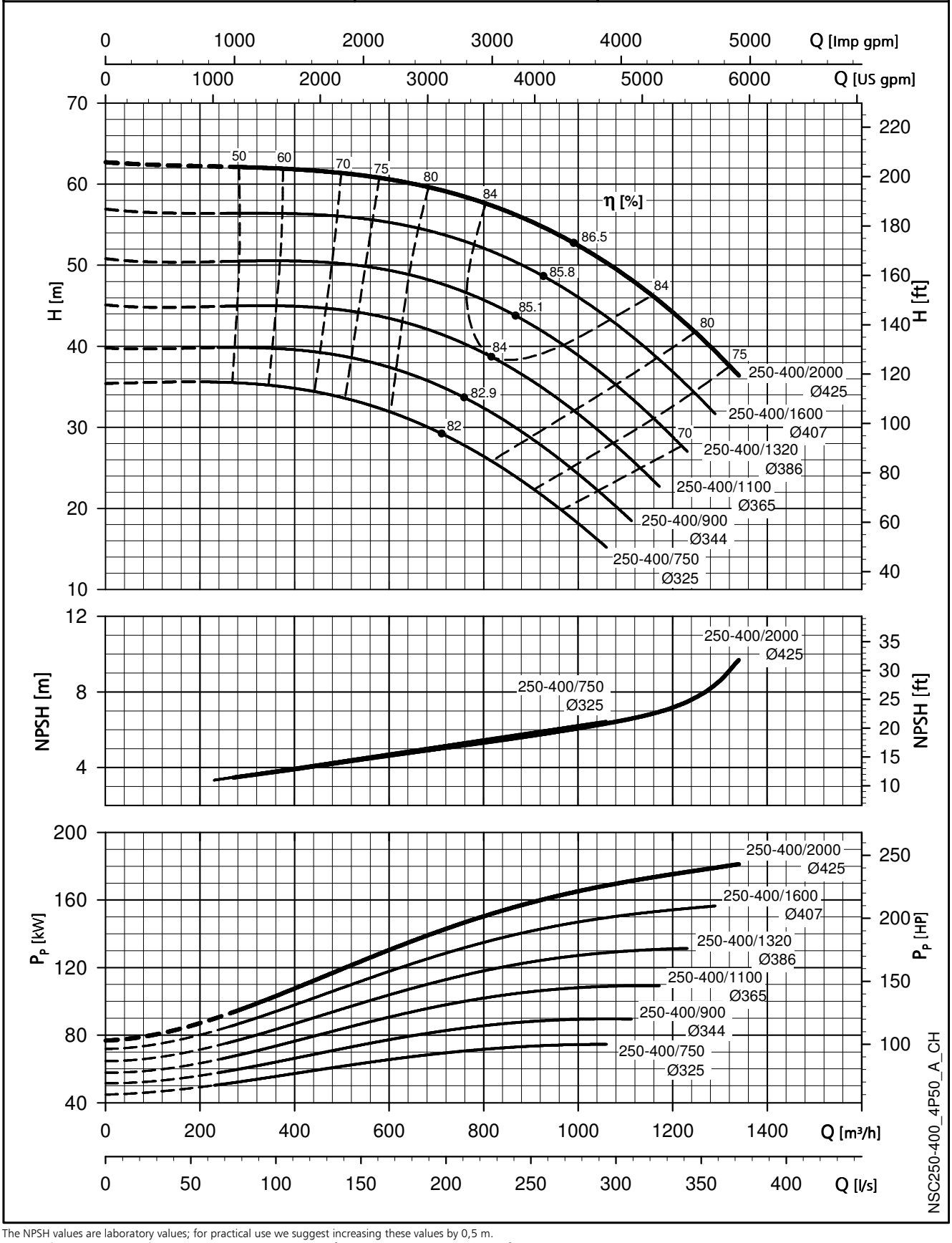
e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

NSC 250-400	~ 1475 [rpm]	ISO 9906:2012 - Grade 3B



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

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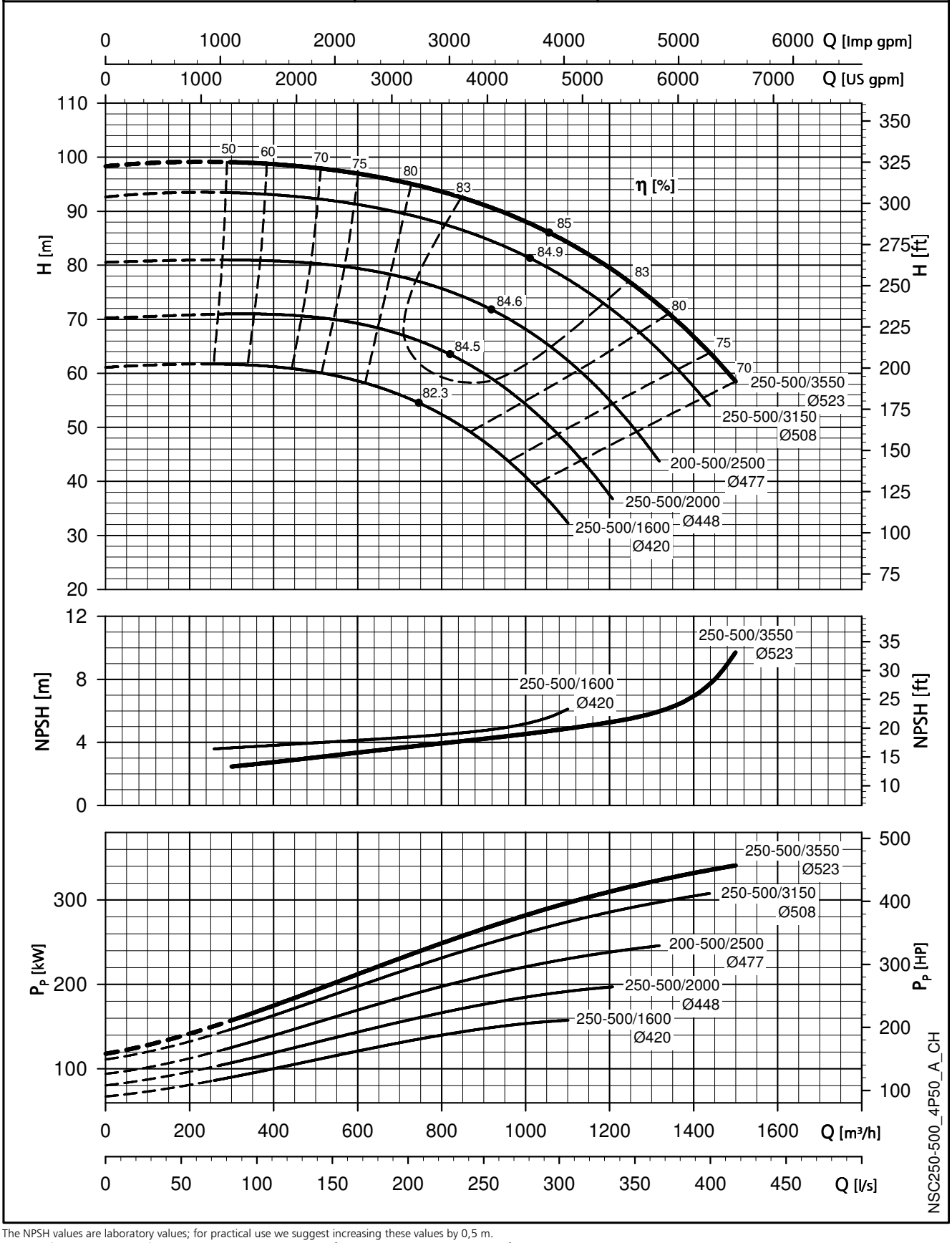
a xylem brand

e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

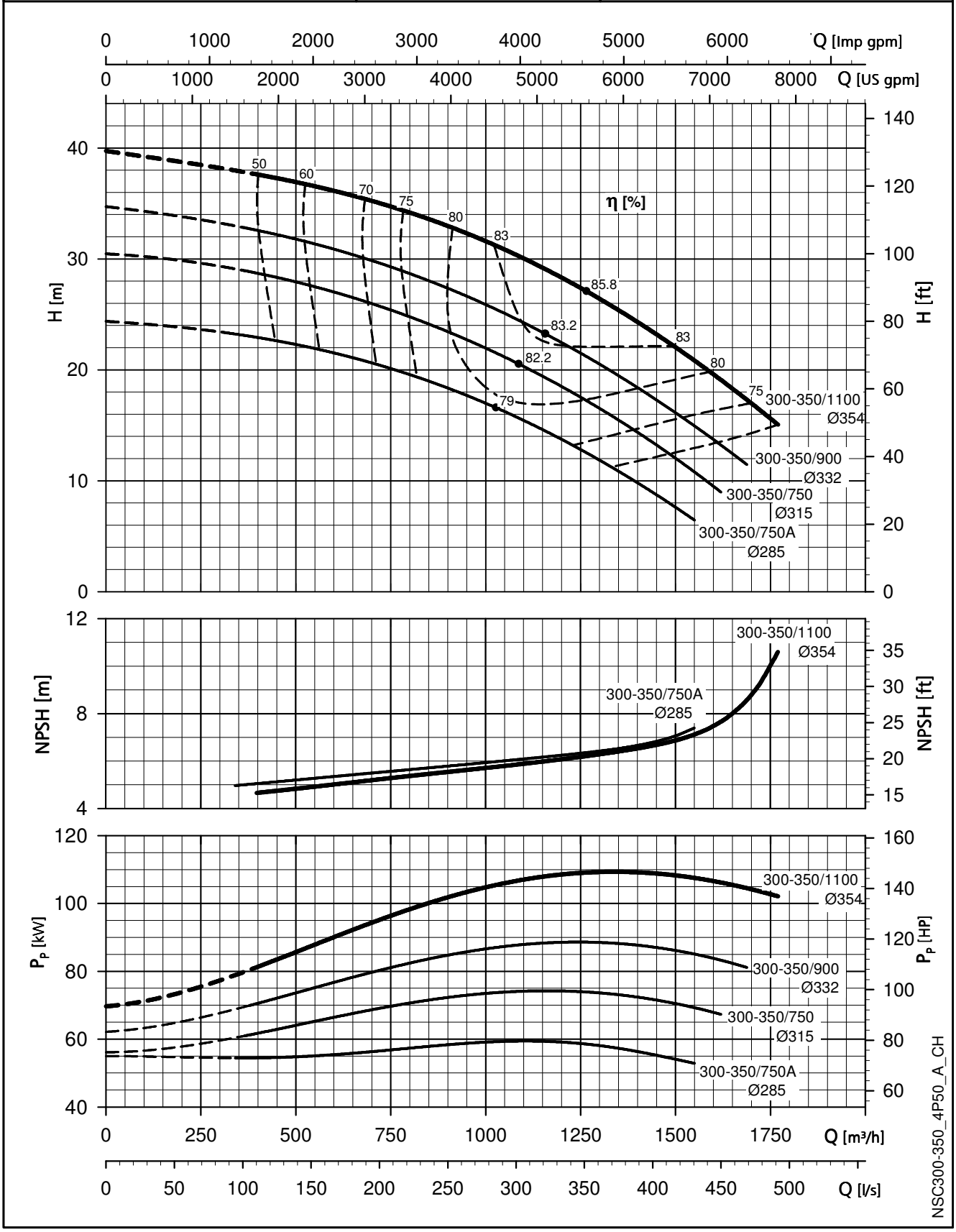
NSC 250-500	~ 1475 [rpm]	ISO 9906:2012 - Grade 3B



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

e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

NSC 300-350	~ 1475 [rpm]	ISO 9906:2012 - Grade 3B



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

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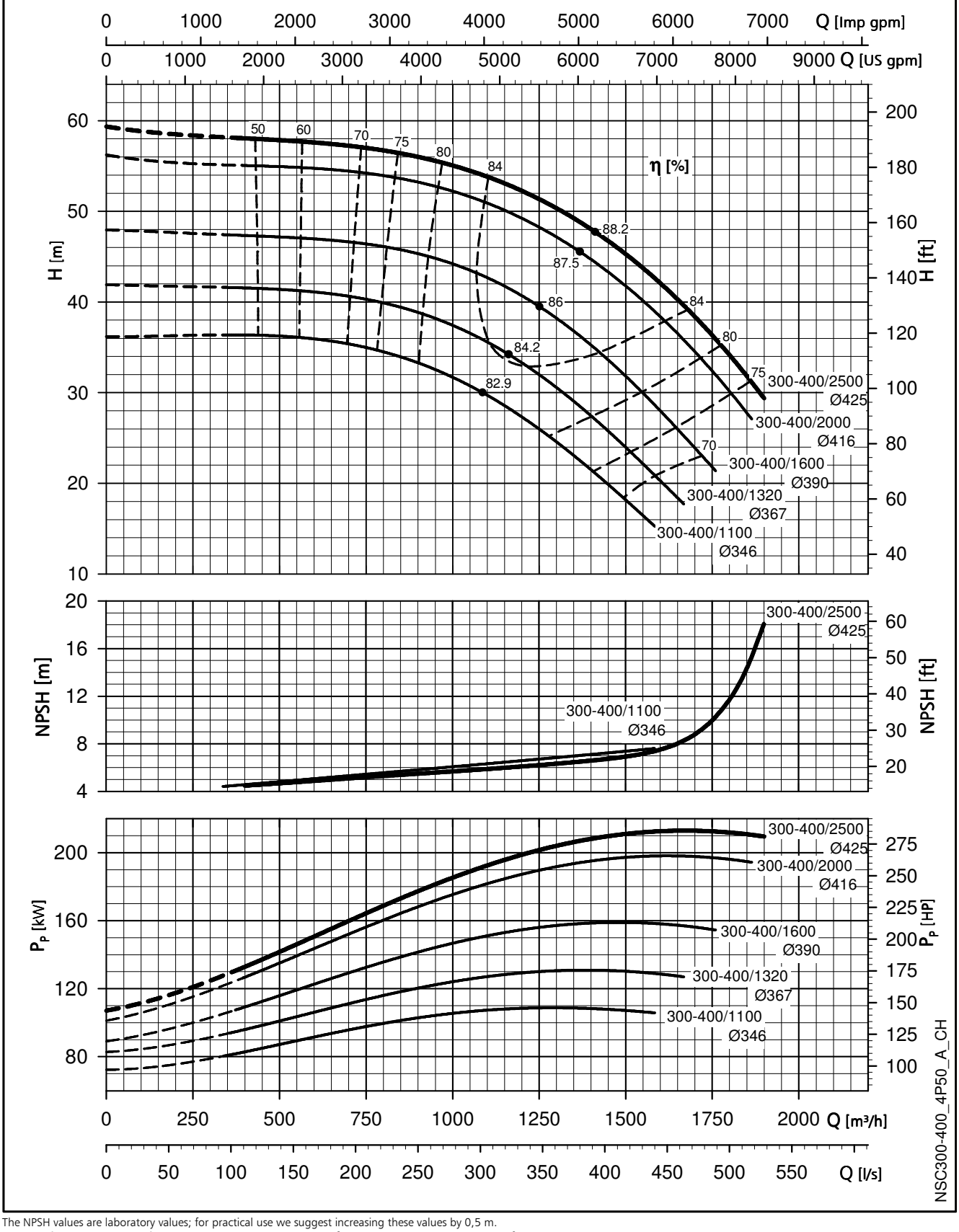
e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

NSC 300-400	~ 1475 [rpm]	ISO 9906:2012 - Grade 3B



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

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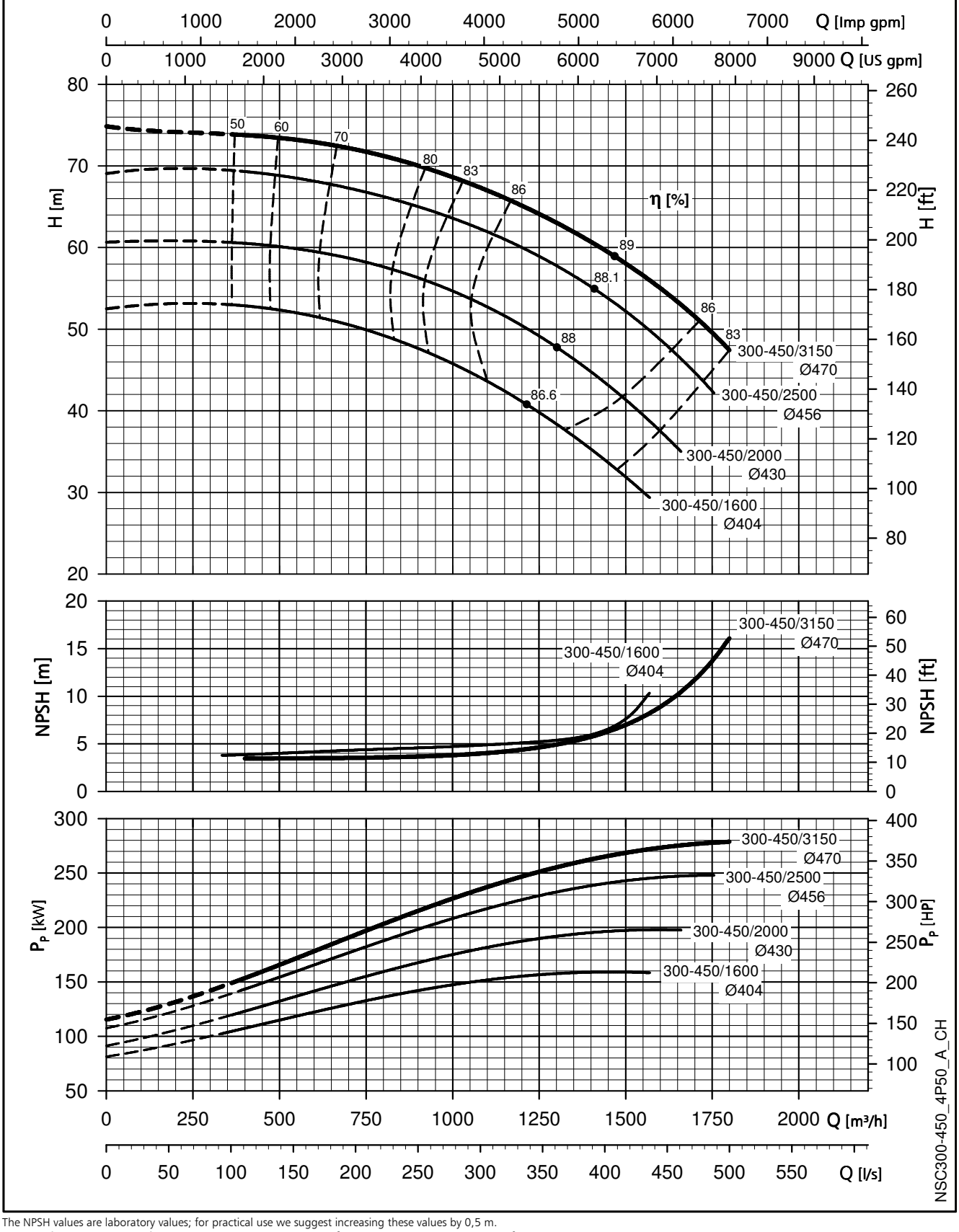
e-NSC SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

NSC 300-450	~ 1475 [rpm]	ISO 9906:2012 - Grade 3B



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

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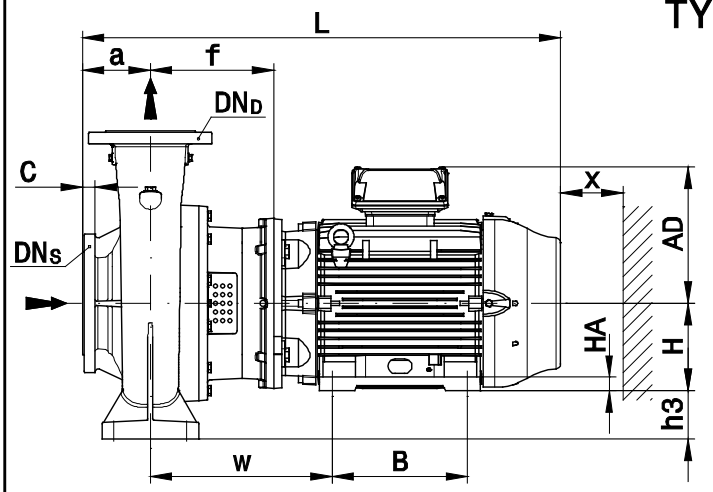
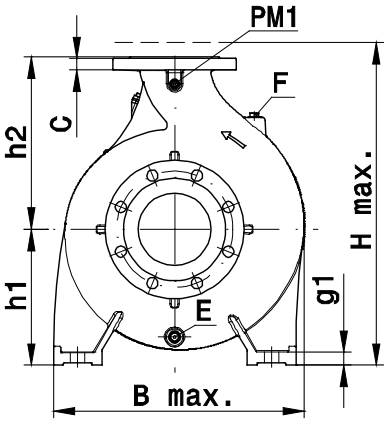
DIMENSIONS AND WEIGHTS

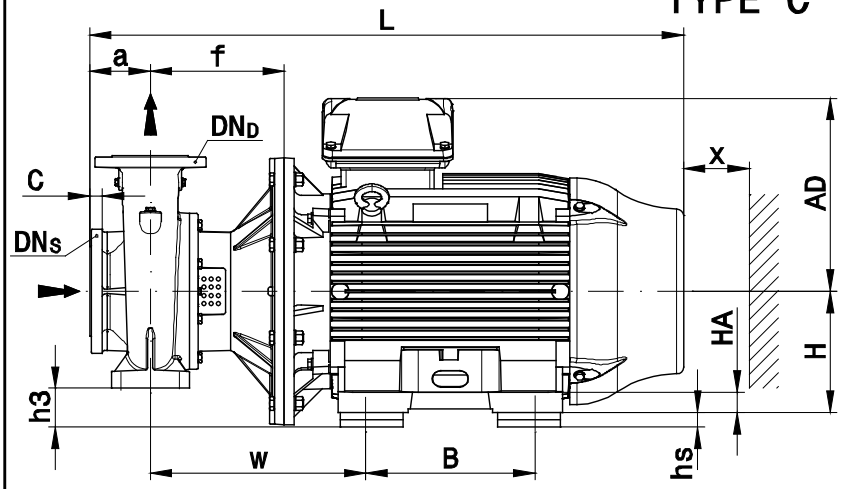
NSCS SERIES
DIMENSIONS AND WEIGHTS AT 50 Hz, 2 POLES

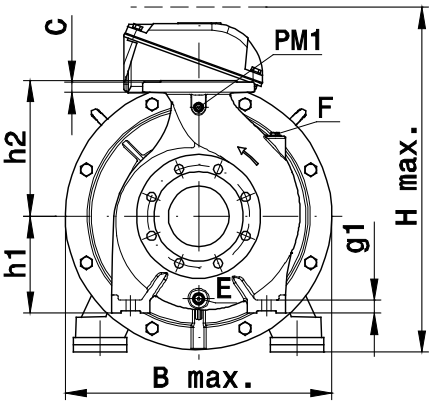
TYPE B

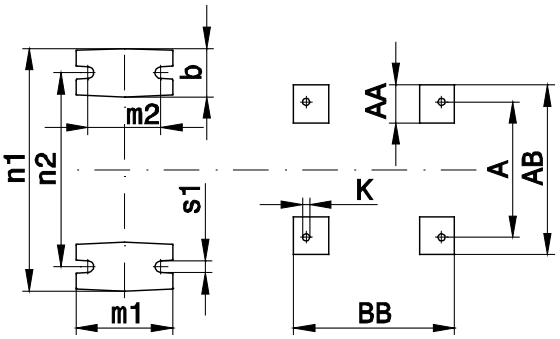




TYPE C



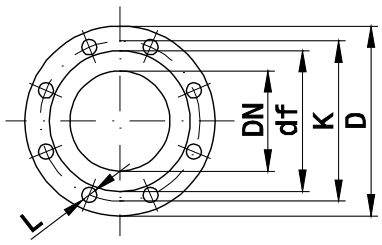




PM1..Pressure gauge connector
E....Drain
F....Filling
*)...Value C and D may vary from standard

Connections		
	$DN_D \leq 150$	$DN_D \geq 200$
PM1	1/4"	1/2"
E	3/8"	1/2"
F	3/8"	-

Flange



EN1092-2, PN 16 *)						ASME B16.5, Class 150 RF *)					
DN	D	K	C	df	L	DN	D	K	C	df	L
50	165	125	20	99	4x19	2	165	120,5	20	92	4x18
65	185	145	20	118	4x19	2 1/2	185	139,5	20	105	4x18
80	200	160	22	132	8x19	3	200	152,5	22	127	4x18
100	230	180	24	157	8x19	4	230	190,5	24	157	8x18
125	255	210	26	184	8x19	5	255	216	26	186	8x22
150	285	240	26	211	8x23	6	285	241,5	26	216	8x22

NSCS_2p-EN_a_DD

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NSCS SERIES
DIMENSIONS AND WEIGHTS AT 50 Hz, 2 POLES

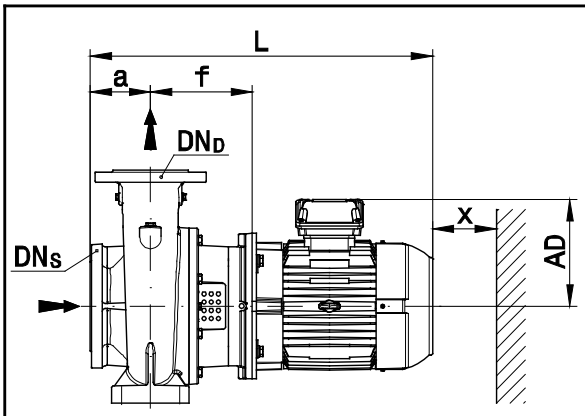
PUMP TYPE NSCS	TYPE	DIMENSIONS (mm)																														WEIGHT (kg)
		Pump																	Motor														
		DNS	DND	a	f	x	w	h1	h2	g1	h3	hs	n1	n2	m1	m2	s1	b	A	AA	AB	AD	B	BB	H	HA	K	B max	H max	L	G
100-160/150/W	B	125	100	125	240	140	348	200	280	26	40	-	360	280	160	120	19	80	254	64	308	264	210	254	160	22	15	388	480	853	195
100-160/185/W	B	125	100	125	240	140	348	200	280	26	40	-	360	280	160	120	19	80	254	64	308	264	254	298	160	22	15	388	480	897	199
100-160/220/W	B	125	100	125	240	140	361	200	280	26	20	-	360	280	160	120	19	80	279	78	350	279	241	294	180	28	15	388	480	919	256
100-160/300/W	B	125	100	125	246	140	379	200	280	26	0	-	360	280	160	120	19	80	318	82	385	317	305	370	200	30	19	400	517	1028	329
100-200/370/W	B	125	100	125	246	140	379	200	280	26	0	-	360	280	160	120	19	80	318	82	385	317	305	370	200	30	19	400	517	1028	348
100-200/450/W	C	125	100	125	246	140	395	200	280	26	25	-	360	280	160	120	19	80	356	80	436	408	311	412	225	34	19	450	633	1117	504
100-200/550/W	C	125	100	125	276	140	444	200	280	26	80	30	360	280	160	120	19	80	406	100	506	408	349	467	250	43	24	550	688	1226	586
100-250/750/W	C	125	100	140	276	140	466	225	280	26	55	-	400	315	160	120	19	80	457	100	557	442	368	517	280	42	24	550	722	1347	839
100-250/900/W	C	125	100	140	276	140	466	225	280	26	55	-	400	315	160	120	19	80	457	100	557	442	419	517	280	42	24	550	722	1347	874
125-200/450/W	B	150	125	140	246	140	395	250	315	26	25	-	400	315	160	120	19	80	356	80	436	408	311	412	225	34	19	468	658	1132	531
125-200/550/W	C	150	125	140	276	140	444	250	315	26	30	30	400	315	160	120	19	80	406	100	506	408	349	467	250	43	24	550	688	1241	612
125-200/750/W	C	150	125	140	276	140	466	250	315	26	30	-	400	315	160	120	19	80	457	100	557	442	368	517	280	42	24	550	722	1347	855
125-200/900/W	C	150	125	140	276	140	466	250	315	26	30	-	400	315	160	120	19	80	457	100	557	442	419	517	280	42	24	550	722	1347	890

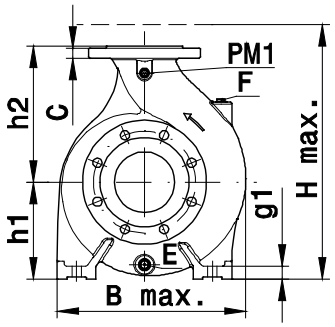
NOTE: Pumps with flanges according to EN 1092-2 as standard; available ASME B16.5 version on request.

Nscs-2p50-en_a_td

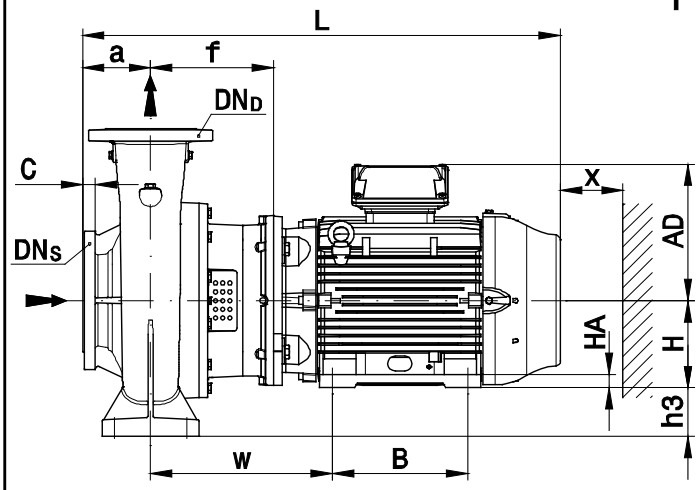
NSCS SERIES
DIMENSIONS AND WEIGHTS AT 50 Hz, 4 POLES

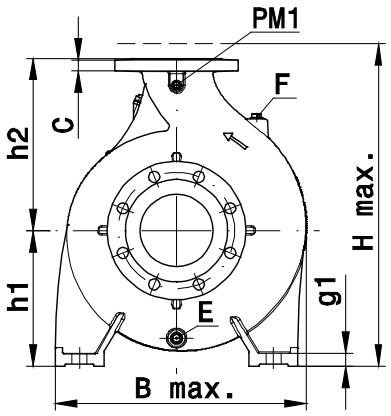
TYPE A





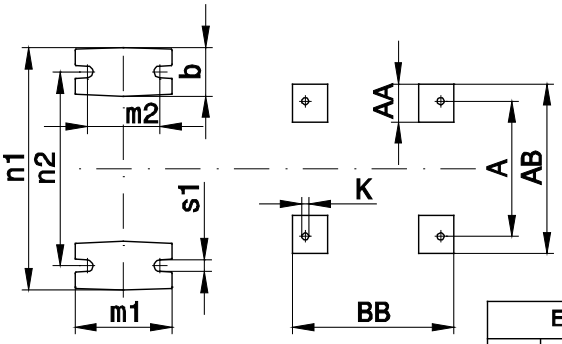
TYPE B



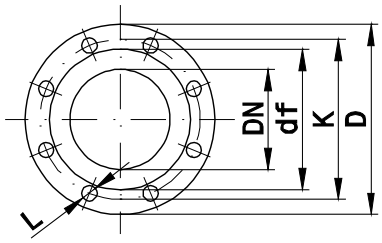


PM1..Pressure gauge connector
E....Drain
F....Filling
*)...Value C and D may vary from standard

Connections		
	$DN_D \leq 150$	$DN_D \geq 200$
PM1	1/4"	1/2"
E	3/8"	1/2"
F	3/8"	-



Flange



EN1092-2, PN 16 *)						ASME B16.5, Class 150 RF *)					
DN	D	K	C	df	L	DN	D	K	C	df	L
50	165	125	20	99	4x19	2	165	120,5	20	92	4x18
65	185	145	20	118	4x19	2 1/2	185	139,5	20	105	4x18
80	200	160	22	132	8x19	3	200	152,5	22	127	4x18
100	230	180	24	157	8x19	4	230	190,5	24	157	8x18
125	255	210	26	184	8x19	5	255	216	26	186	8x22
150	285	240	26	211	8x23	6	285	241,5	26	216	8x22
200	345	295	30	266	12x23	8	345	298,5	30	270	8x22
250	405	355	32	319	12x28	10	405	362	32	324	12x26
300	485	410	32	370	12x28	12	485	432	32	381	12x26

NSCS_4p-EN_a_DD

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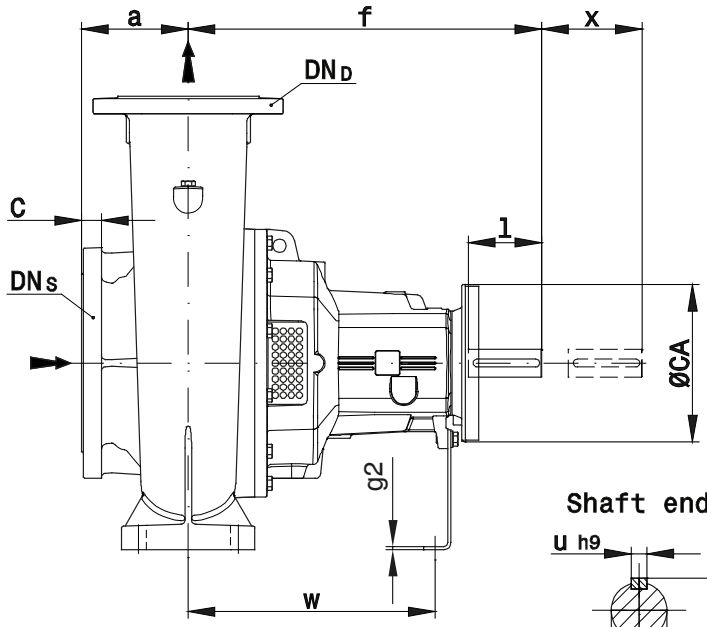
NSCS SERIES
DIMENSIONS AND WEIGHTS AT 50 Hz, 4 POLES

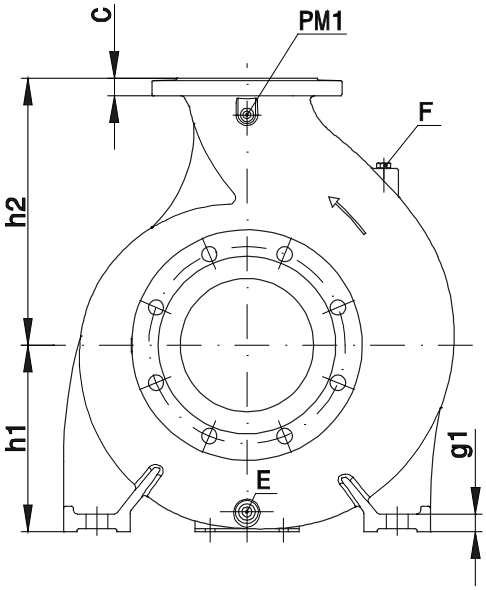
PUMP TYPE NSCS..4	TYPE	DIMENSIONS (mm)																												WEIGHT
		Pump																Motor									B	H		(kg)
		DNS	DND	a	f	x	w	h1	h2	g1	h3	n1	n2	m1	m2	s1	b	A	AA	AB	AD	B	BB	H	HA	K	max	max	L	G
100-160/22A/W	A	125	100	125	183	140	246	200	280	26	-	360	280	160	120	19	80	-	-	-	167	-	-	-	-	-	388	480	624	107
100-160/22/W	A	125	100	125	183	140	246	200	280	26	-	360	280	160	120	19	80	-	-	-	167	-	-	-	-	-	388	480	624	107
100-160/30/W	A	125	100	125	183	140	246	200	280	26	-	360	280	160	120	19	80	-	-	-	167	-	-	-	-	-	388	480	668	113
100-160/40/W	A	125	100	125	183	140	253	200	280	26	-	360	280	160	120	19	80	-	-	-	192	-	-	-	-	-	388	480	641	119
100-200/55/W	A	125	100	125	210	140	299	200	280	26	-	360	280	160	120	19	80	-	-	-	218	-	-	-	-	-	390	480	707	145
100-200/75/W	A	125	100	125	210	140	299	200	280	26	-	360	280	160	120	19	80	-	-	-	218	-	-	-	-	-	390	480	745	154
100-250/75/W	A	125	100	140	210	140	299	225	280	26	-	400	315	160	120	19	80	-	-	-	218	-	-	-	-	-	431	505	760	165
100-250/110/W	B	125	100	140	240	140	348	225	280	26	65	400	315	160	120	19	80	254	64	308	264	210	254	160	22	15	431	505	868	213
100-315/110/W	B	125	100	140	240	140	348	250	315	26	90	400	315	160	120	19	80	254	64	308	264	210	254	160	22	15	481	565	868	234
100-315/150/W	B	125	100	140	240	140	348	250	315	26	90	400	315	160	120	19	80	254	64	308	264	254	298	160	22	15	481	565	912	256
100-315/185/W	B	125	100	140	240	140	361	250	315	26	70	400	315	160	120	19	80	279	78	350	279	241	294	180	28	15	481	565	934	291
100-315/220/W	B	125	100	140	240	140	361	250	315	26	70	400	315	160	120	19	80	279	78	350	279	279	332	180	28	15	481	565	972	309
100-315/300/W	B	125	100	140	246	140	379	250	315	26	50	400	315	160	120	19	80	318	82	385	317	305	370	200	30	15	481	567	1043	358
100-400/300/W	B	125	100	140	254	140	387	280	355	26	80	500	400	200	150	23	100	318	82	385	317	305	370	200	30	19	569	635	1051	409
100-400/370/W	B	125	100	140	284	140	433	280	355	26	55	500	400	200	150	23	100	356	80	436	408	286	412	225	34	19	569	688	1170	567
100-400/450/W	B	125	100	140	284	140	433	280	355	26	55	500	400	200	150	23	100	356	80	436	408	311	412	225	34	19	569	688	1170	595
125-200/55/W	A	150	125	140	210	140	299	250	315	26	-	400	315	160	120	19	80	-	-	-	218	-	-	-	-	-	468	565	722	172
125-200/75/W	A	150	125	140	210	140	299	250	315	26	-	400	315	160	120	19	80	-	-	-	218	-	-	-	-	-	468	565	760	181
125-200/110/W	B	150	125	140	240	140	348	250	315	26	90	400	315	160	120	19	80	254	64	308	264	210	254	160	22	15	468	565	868	228
125-250/110/W	B	150	125	140	240	140	348	250	355	26	90	400	315	160	120	19	80	254	64	308	264	210	254	160	22	15	470	605	868	231
125-250/150/W	B	150	125	140	240	140	348	250	355	26	90	400	315	160	120	19	80	254	64	308	264	254	298	160	22	15	470	605	912	253
125-315/185/W	B	150	125	140	254	140	375	280	355	26	100	500	400	200	150	23	100	279	78	350	279	241	294	180	28	15	518	635	948	315
125-315/220/W	B	150	125	140	254	140	375	280	355	26	100	500	400	200	150	23	100	279	78	350	279	279	332	180	28	15	518	635	986	333
125-315/300/W	B	150	125	140	254	140	387	280	355	26	80	500	400	200	150	23	100	318	82	385	371	305	370	200	30	19	518	635	1051	379
125-315/370/W	B	150	125	140	284	140	433	280	355	26	55	500	400	200	150	23	100	356	80	436	408	286	412	225	34	19	518	688	1170	537
125-400/370/W	B	150	125	140	284	140	433	315	400	26	90	500	400	200	150	23	100	356	80	436	408	286	412	225	34	19	607	723	1170	585
125-400/450/W	B	150	125	140	284	140	433	315	400	26	90	500	400	200	150	23	100	356	80	436	408	311	412	225	34	19	607	723	1170	613
125-400/550/W	B	150	125	140	284	140	452	315	400	26	65	500	400	200	150	23	100	406	100	506	408	349	467	250	43	24	607	723	1249	709
125-400/750/W	B	150	125	140	284	140	474	315	400	26	35	500	400	200	150	23	100	457	100	557	442	368	517	280	42	24	607	757	1355	933
150-200/110A/W	B	200	150	160	240	140	348	280	400	26	120	550	450	200	150	23	100	254	64	308	264	210	254	160	22	15	602	680	888	283
150-200/110/W	B	200	150	160	240	140	348	280	400	26	120	550	450	200	150	23	100	254	64	308	264	210	254	160	22	15	602	680	888	283
150-200/150A/W	B	200	150	160	240	140	348	280	400	26	120	550	450	200	150	23	100	254	64	308	264	254	298	160	22	15	602	680	932	305
150-200/150/W	B	200	150	160	240	140	348	280	400	26	120	550	450	200	150	23	100	254	64	308	264	254	298	160	22	15	602	680	932	305
150-250/150/W	B	200	150	160	254	140	362	280	400	26	120	500	400	200	150	23	100	254	64	308	264	254	298	160	22	15	567	680	946	309
150-250/185/W	B	200	150	160	254	140	375	280	400	26	100	500	400	200	150	23	100	279	75	350	279	241	294	180	28	15	567	680	968	345
150-250/220/W	B	200	150	160	254	140	375	280	400	26	100	500	400	200	150	23	100	279	75	350	279	279	332	180	28	15	567	680	1006	363
150-250/300/W	B	200	150	160	254	140	387	280	400	26	80	500	400	200	150	23	100	318	82	385	317	305	370	200	30	19	567	680	1071	409
150-315/300/W	B	200	150	160	254	140	387	280	400	26	80	550	450	200	150	23	100	318	82	385	317	305	370	200	30	19	586	680	1017	406
150-315/370/W	B	200	150	160	284	140	433	280	400	26	55	550	450	200	150	23	100	356	80	436	408	286	412	225	34	19	586	688	1190	564
150-315/450/W	B	200	150	160	284	140	433	280	400	26	55	550	450	200	150	23	100	356	80	436	408	311	412	225	34	19	586	688	1190	592
150-400/550/W	B	200	150	160	284	140	452	315	450	26	65	550	450	200	150	23	100	406	100	506	408	349	467	250	43	24	622	765	1269	738
150-400/750/W	B	200	150	160	284	140	474	315	450	26	35	550	450	200	150	23	100	457	100	557	442	368	517	280	42	24	622	765	1375	961
150-400/900/W	B	200	150	160	284	140	474	315	450	26	35	550	450	200	150	23	100	457	100	557	442	419	517	280	42	24	622	765	1375	1009
200-250/185/W	B	250	200	180	254	200	375	355	475	26	175	550	450	200	150	23	100	279	78	350	279	241	294	180	28	15	655	830	988	385
200-250/220/W	B	250	200	180	254	200	375	355	475	26	175	550	450	200	150	23	100	279	78	350	279	279	332	180	28	15	655	830	1026	403
200-250/300A/W	B	250	200	180	254	200	387	355	475	26	155	550	450	200	150	23	100	318	82	385	317	305	370	200	30	19	655	830	1091	449
200-250/300/W	B	250	200	180	254	200	387	355	475	26	155	550	450	200	150	23	100	318	82	385	317	305	370	200	30	19	655	830	1091	449
200-315/370/W	B	250	200	180	284	200	433	355	450	26	130	550	450	200	150	23	100	356	80	436	408	286	412	225	34	19	645	805	1210	607
200-315/450/W	B	250	200	180	284	200	433	355	450	26	130	550	450	200	150	23	100	356	80	436	408	311	412	225	34	19	645	805	1210	635
200-315/550/W	B	250	200	180	284	200	452	355	450	26	105	550	450	200	150	23	100	406	100	506	408	349	467	250	43	24	645	805	1289	731
250-315/370/W	B	300	250	250	284	200	433	400	500	35	175	710	600	300	250	28	110	356	80	436	408	286	412	225	34	19	767	900	1280	701
250-315/450/W	B	300	250	250	284	200	433	400	500	35	175	710	600	300	250	28	110	356	80	436	408	311	412	225	34	19	767	900	1280	729
250-315/550/W	B	300	250	250	284	200	452	400	500	35	150	710	600	300	250	28	110	406	100	506	408	349	467	250	43	24	767	900	1359	826
250-315/750/W	B	300	250	250	284	200	474	400	500	35	120	710	600	300	250	28	110	457	100	557	442	368	517	280	42	24	767	900	1465	1050

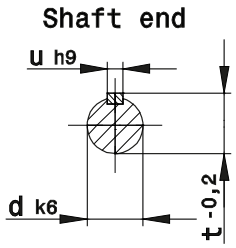
NOTE: Pumps with flanges according to EN 1092-2 as standard; available ASME B16.5 version on request.

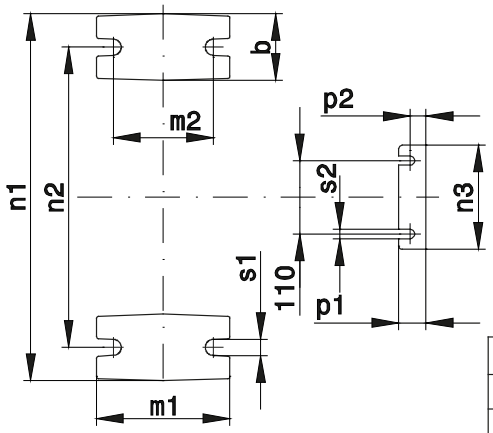
Nscs-4p50-en_a_td

NSC SERIES (BARE SHAFT)
DIMENSIONS AND WEIGHTS

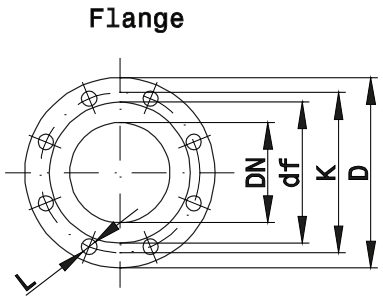








PM1..Pressure gauge connector
E....Drain
F....Filling
*)...Value C and D may vary
from standard



Connections		
	$DN_D \leq 150$	$DN_D \geq 200$
PM1	1/4"	1/2"
E	3/8"	1/2"
F	3/8"	-

EN1092-2, PN 16 *)						ASME B16.5, Class 150 RF *)					
DN	D	K	C	df	L	DN	D	K	C	df	L
50	165	125	20	99	4x19	2	165	120,5	20	92	4x18
65	185	145	20	118	4x19	2 1/2	185	139,5	20	105	4x18
80	200	160	22	132	8x19	3	200	152,5	22	127	4x18
100	230	180	24	157	8x19	4	230	190,5	24	157	8x18
125	255	210	26	184	8x19	5	255	216	26	186	8x22
150	285	240	26	211	8x23	6	285	241,5	26	216	8x22
200	345	295	30	266	12x23	8	345	298,5	30	270	8x22
250	405	355	32	319	12x28	10	405	362	32	324	12x26
300	485	410	32	370	12x28	12	485	432	32	381	12x26
350	535	470	36	429	12x28	14	535	476	36	413	12x29

NSC-EN_A_DD

LOWARA
a xylem brand

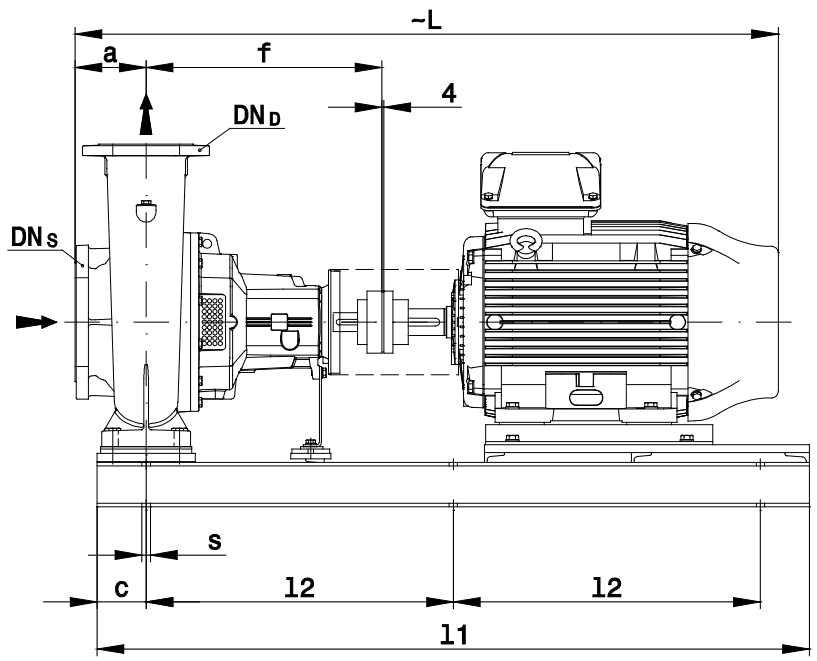
NSC SERIES (BARE SHAFT)
DIMENSIONS AND WEIGHTS

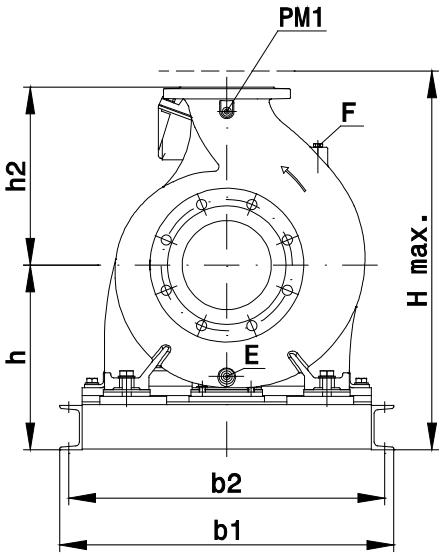
PUMP TYPE NSC	PUMP DIMENSIONS (mm)																									WEIGHT (kg)
	PUMP																					SHAFT				
(BARE SHAFT)	DNS	DND	a	f	w	h1	h2	x	m1	m2	n1	n2	n3	p1	p2	g1	g2	s1	s2	b	ØCA	d	l	t	u	G
100-160	125	100	125	470	340	200	280	140	160	120	360	280	156	41	24	26	5	19	14	80	190	32	80	35	10	82
100-200	125	100	125	470	340	200	280	140	160	120	360	280	156	41	24	26	5	19	14	80	190	32	80	35	10	90
100-250	125	100	140	470	340	225	280	140	160	120	400	315	156	41	24	26	5	19	14	80	190	32	80	35	10	100
100-315	125	100	140	470	340	250	315	140	160	120	400	315	156	41	24	26	5	19	14	80	190	32	80	35	10	116
100-400	125	100	140	530	370	280	355	140	200	150	500	400	156	41	24	26	5	23	14	100	230	42	110	45	12	178
125-200	150	125	140	470	340	250	315	140	160	120	400	315	156	41	24	26	5	19	14	80	190	32	80	35	10	112
125-250	150	125	140	470	340	250	355	140	160	120	400	315	156	41	24	26	5	19	14	80	190	32	80	35	10	112
125-315	150	125	140	530	370	280	355	140	200	150	500	400	156	41	24	26	5	23	14	100	230	42	110	45	12	152
125-400	150	125	140	530	370	315	400	140	200	150	500	400	156	41	24	26	5	23	14	100	230	42	110	45	12	200
150-200	200	150	160	470	340	280	400	140	200	150	550	450	156	41	24	26	5	23	14	100	190	32	80	35	10	166
150-250	200	150	160	530	370	280	400	140	200	150	500	400	156	41	24	26	5	23	14	100	230	42	110	45	12	180
150-315	200	150	160	530	370	280	400	140	200	150	550	450	156	41	24	26	5	23	14	100	230	42	110	45	12	186
150-400	200	150	160	530	370	315	450	140	200	150	550	450	156	41	24	26	5	23	14	100	230	42	110	45	12	228
150-500	200	150	180	770	525	400	500	250	300	250	710	600	170	58	33	35	8	28	18	110	310	60	140	64	18	408
200-250	250	200	180	530	370	355	475	200	200	150	550	450	156	41	24	26	5	23	14	100	230	42	110	45	12	230
200-315	250	200	180	530	370	355	450	200	200	150	550	450	156	41	24	26	5	23	14	100	230	42	110	45	12	234
200-400	250	200	180	770	525	400	500	250	300	250	710	600	170	58	33	35	8	28	18	110	310	60	140	64	18	363
200-500	250	200	200	770	525	450	560	250	300	250	710	600	170	58	33	35	8	28	18	110	310	60	140	64	18	400
250-315	300	250	250	530	370	400	500	200	300	250	710	600	156	41	24	35	5	28	14	110	230	42	110	45	12	316
250-400	300	250	200	770	525	400	500	250	300	250	710	600	170	58	33	35	8	28	18	110	310	60	140	64	18	400
250-500	300	250	200	770	525	450	670	250	300	250	710	600	170	58	33	35	8	28	18	110	310	60	140	64	18	451
300-350	350	300	250	800	555	450	600	300	350	290	800	670	170	58	33	41	8	32	18	130	310	60	140	64	18	544
300-400	350	300	250	800	555	450	600	300	350	290	800	670	170	58	33	41	8	32	18	130	310	60	140	64	18	548
300-450	350	300	250	800	555	475	630	300	350	290	800	670	170	58	33	41	8	32	18	130	310	60	140	64	18	578

NOTE: Pumps with flanges according to EN 1092-2 as standard; available ASME B16.5 version on request.

Nsc100-300bs-en_a_td

NSCF SERIES (MOUNTED ON BASE)
DIMENSIONS AND WEIGHTS AT 50 Hz, 2 POLES





PM1..Pressure gauge connector
E....Drain
F....Filling

Connections		
	$DN_D \leq 150$	$DN_D \geq 200$
PM1	1/4"	1/2"
E	3/8"	1/2"
F	3/8"	-

NSCF-EN_A_DD

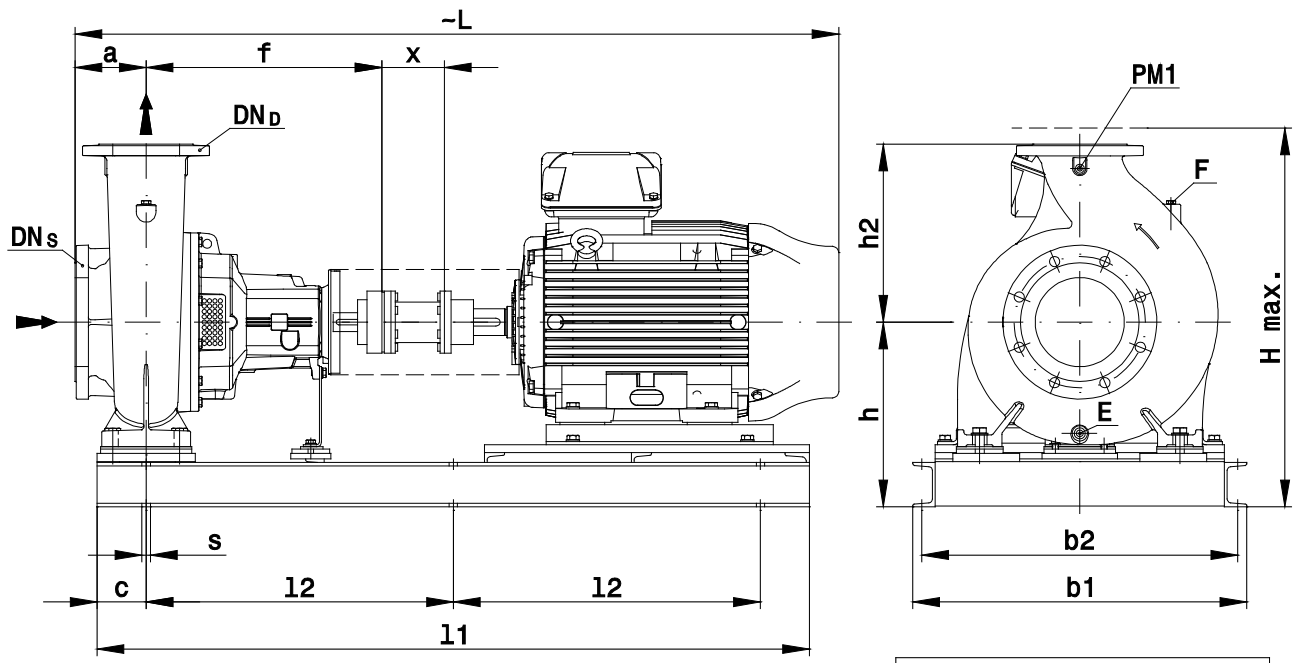
PUMP TYPE NSCF	DIMENSIONS (mm)														WEIGHT (kg)	IEC MOTOR FRAME	COUPLING TYPE
	DNS	DND	a	f	b1	b2	l1	l2	c	L	h	h2	Hmax	s	G		
100-160/150/W	125	100	125	470	670	630	1330	555	110	1197	365	280	645	6xØ19 (M16)	321	160M	B95E
100-160/185/W	125	100	125	470	670	630	1330	555	110	1241	365	280	645	6xØ19 (M16)	338	160L	B95E
100-160/220/W	125	100	125	470	670	630	1330	555	110	1263	385	280	665	6xØ19 (M16)	385	180M	B110B
100-160/300/W	125	100	125	470	560	520	1350	565	110	1366	330	280	647	6xØ19 (M16)	422	200L	B125A
100-200/300/W	125	100	125	470	560	520	1350	565	110	1366	330	280	647	6xØ19 (M16)	430	200L	B125A
100-200/370/W	125	100	125	470	560	520	1350	565	110	1366	330	280	647	6xØ19 (M16)	451	200L	B125A
100-200/450/W	125	100	125	470	560	520	1350	565	110	1455	355	280	763	6xØ19 (M16)	610	225S/M	B125B
100-200/550/W	125	100	125	470	750	710	1550	665	110	1455	405	280	813	6xØ19 (M16)	735	250S/M	B140A
100-250/450/W	125	100	140	470	560	520	1350	565	110	1470	355	280	763	6xØ19 (M16)	612	225S/M	B125B
100-250/550/W	125	100	140	470	750	710	1550	665	110	1579	405	280	813	6xØ19 (M16)	738	250S/M	B140A
100-250/750/W	125	100	140	470	750	710	1550	665	110	1685	390	280	832	6xØ19 (M16)	956	280S/M	B160A
100-250/900/W	125	100	140	470	750	710	1550	665	110	1685	390	280	832	6xØ19 (M16)	991	280S/M	B160A
125-200/450/W	150	125	140	470	560	520	1350	565	110	1470	355	315	763	6xØ19 (M16)	617	225S/M	B125B
125-200/550/W	150	125	140	470	750	710	1550	665	110	1579	405	315	813	6xØ19 (M16)	743	250S/M	B140A
125-200/750/W	150	125	140	470	750	710	1550	665	110	1685	405	315	847	6xØ19 (M16)	970	280S/M	B160A
125-200/900/W	150	125	140	470	750	710	1550	665	110	1685	405	315	847	6xØ19 (M16)	1005	280S/M	B160A
125-315/1100/W	150	125	140	530	860	810	1850	815	110	1918	505	355	1030	6xØ26 (M20)	1342	315S/M	B160B
125-315/1320/W	150	125	140	530	860	810	1850	815	110	1918	505	355	1030	6xØ26 (M20)	1428	315S/M	B160B
125-315/1600/W	150	125	140	530	860	810	1850	815	110	1918	505	355	1030	6xØ26 (M20)	1509	315S/M	B160B
125-315/2000/W	150	125	140	530	860	810	1850	815	110	2027	505	355	1094	6xØ26 (M20)	1690	315L	B180A

NOTE: Pumps with flanges according to EN 1092-2 as standard; available ASME B16.5 version on request. For flanges dimensions see drawing on page 64.

Nscf-2p50-en_a_td

LOWARA
a xylem brand

NSCC SERIES (SPACER COUPLING)
DIMENSIONS AND WEIGHTS AT 50 Hz, 2 POLES



PM1..Pressure gauge connector
E....Drain
F....Filling

Connections		
	$DN_D \leq 150$	$DN_D \geq 200$
PM1	1/4"	1/2"
E	3/8"	1/2"
F	3/8"	-

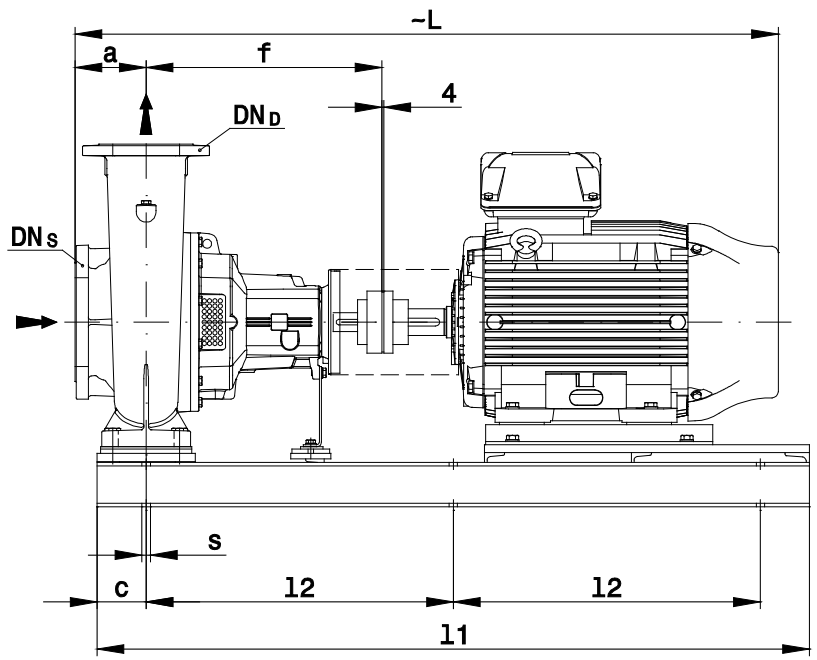
NSCC-EN_A_DD

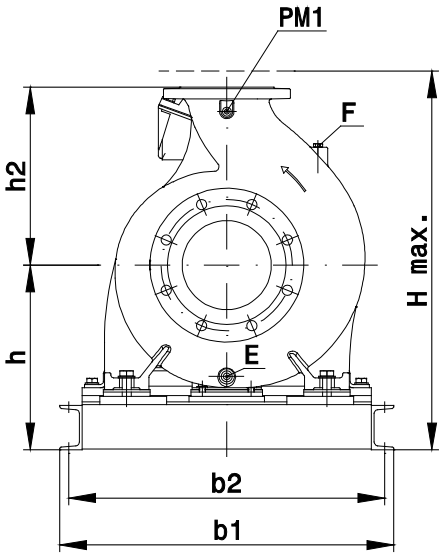
PUMP TYPE NSCC	DIMENSIONS (mm)															WEIGHT (kg)	IEC MOTOR FRAME	COUPLING TYPE
	DNS	DND	a	f	x	b1	b2	l1	l2	c	L	h	h2	Hmax	s	G		
100-160/150/W	125	100	125	470	140	670	630	1330	555	110	1333	365	280	645	6xØ19 (M16)	323	160M	H95E
100-160/185/W	125	100	125	470	140	670	630	1330	555	110	1377	365	280	645	6xØ19 (M16)	340	160L	H95E
100-160/220/W	125	100	125	470	140	670	630	1330	555	110	1399	385	280	665	6xØ19 (M16)	388	180M	H110B
100-160/300/W	125	100	125	470	140	560	520	1350	565	110	1502	330	280	647	6xØ19 (M16)	426	200L	H125B
100-200/300/W	125	100	125	470	140	560	520	1350	565	110	1502	330	280	647	6xØ19 (M16)	434	200L	H125B
100-200/370/W	125	100	125	470	140	560	520	1350	565	110	1502	330	280	647	6xØ19 (M16)	455	200L	H125B
100-200/450/W	125	100	125	470	140	560	520	1350	565	110	1591	355	280	763	6xØ19 (M16)	613	225S/M	H125C
100-200/550/W	125	100	125	470	140	750	710	1550	665	110	1700	405	280	813	6xØ19 (M16)	741	250S/M	H140A
100-250/450/W	125	100	140	470	140	560	520	1350	565	110	1606	355	280	763	6xØ19 (M16)	616	225S/M	H125C
100-250/550/W	125	100	140	470	140	750	710	1550	665	110	1715	405	280	813	6xØ19 (M16)	744	250S/M	H140A
100-250/750/W	125	100	140	470	140	750	710	1550	665	110	1821	390	280	832	6xØ19 (M16)	962	280S/M	H160A
100-250/900/W	125	100	140	470	140	750	710	1550	665	110	1821	390	280	832	6xØ19 (M16)	997	280S/M	H160A
125-200/450/W	150	125	140	470	140	560	520	1350	565	110	1606	355	315	763	6xØ19 (M16)	621	225S/M	H125C
125-200/550/W	150	125	140	470	140	750	710	1550	665	110	1715	405	315	813	6xØ19 (M16)	748	250S/M	H140A
125-200/750/W	150	125	140	470	140	750	710	1550	665	110	1821	405	315	847	6xØ19 (M16)	977	280S/M	H160A
125-200/900/W	150	125	140	470	140	750	710	1550	665	110	1821	405	315	847	6xØ19 (M16)	1012	280S/M	H160A
125-315/1100/W	150	125	140	530	140	860	810	1850	815	110	2054	505	355	1030	6xØ26 (M20)	1349	315S/M	H160B
125-315/1320/W	150	125	140	530	140	860	810	1850	815	110	2054	505	355	1030	6xØ26 (M20)	1435	315S/M	H160B
125-315/1600/W	150	125	140	530	140	860	810	1850	815	110	2054	505	355	1030	6xØ26 (M20)	1516	315S/M	H160B
125-315/2000/W	150	125	140	530	140	860	810	1850	815	110	2163	505	355	1094	6xØ26 (M20)	1698	315L	H180A

NOTE: Pumps with flanges according to EN 1092-2 as standard; available ASME B16.5 version on request. For flanges dimensions see drawing on page 64.

Nscc-2p50-en_a_td

NSCF SERIES (MOUNTED ON BASE)
DIMENSIONS AND WEIGHTS AT 50 Hz, 4 POLES





PM1..Pressure gauge connector
E....Drain
F....Filling

Connections		
	$DN_D \leq 150$	$DN_D \geq 200$
PM1	1/4"	1/2"
E	3/8"	1/2"
F	3/8"	-

NSCF-EN_A_DD

PUMP TYPE NSCF..4	DIMENSIONS (mm)														WEIGHT (kg)	IEC MOTOR FRAME	COUPLING TYPE
	DNS	DND	a	f	b1	b2	l1	l2	c	L	h	h2	Hmax	s	G		
100-160/22A/W	125	100	125	470	670	630	1100	440	110	975	355	280	635	6xØ19 (M16)	218	100L	B95C
100-160/22/W	125	100	125	470	670	630	1100	440	110	975	355	280	635	6xØ19 (M16)	218	100L	B95C
100-160/30/W	125	100	125	470	670	630	1100	440	110	1019	355	280	635	6xØ19 (M16)	218	L100L	B95C
100-160/40/W	125	100	125	470	670	630	1100	440	110	992	365	280	645	6xØ19 (M16)	228	112M	B95C
100-200/40/W	125	100	125	470	670	630	1100	440	110	992	365	280	645	6xØ19 (M16)	236	112M	B95C
100-200/55/W	125	100	125	470	670	630	1100	440	110	1051	385	280	665	6xØ19 (M16)	267	132S	B95D
100-200/75/W	125	100	125	470	670	630	1100	440	110	1089	385	280	665	6xØ19 (M16)	276	132M	B95D
100-250/55/W	125	100	140	470	670	630	1100	440	110	1066	385	280	665	6xØ19 (M16)	269	132S	B95D
100-250/75/W	125	100	140	470	670	630	1100	440	110	1104	385	280	665	6xØ19 (M16)	278	132M	B95D
100-250/110/W	125	100	140	470	670	630	1330	555	110	1212	365	280	645	6xØ19 (M16)	336	160M	B95E
100-315/110/W	125	100	140	470	670	630	1330	555	110	1212	365	315	680	6xØ19 (M16)	345	160M	B95E
100-315/150/W	125	100	140	470	670	630	1330	555	110	1256	365	315	680	6xØ19 (M16)	367	160L	B95E
100-315/185/W	125	100	140	470	670	630	1330	555	110	1278	385	315	700	6xØ19 (M16)	408	180M	B110B
100-315/220/W	125	100	140	470	670	630	1330	555	110	1316	385	315	700	6xØ19 (M16)	426	180L	B110B
100-315/300/W	125	100	140	470	560	520	1350	565	110	1381	355	315	672	6xØ19 (M16)	454	200L	B125B
100-400/300/W	125	100	140	530	670	630	1430	605	110	1441	420	355	775	6xØ19 (M16)	543	200L	B125C
100-400/370/W	125	100	140	530	750	710	1600	690	110	1560	415	355	823	6xØ19 (M16)	727	225S	B140B
100-400/450/W	125	100	140	530	750	710	1600	690	110	1560	415	355	823	6xØ19 (M16)	755	225M	B140B
125-200/55/W	150	125	140	470	670	630	1100	440	110	1066	385	315	700	6xØ19 (M16)	274	132S	B95D
125-200/75/W	150	125	140	470	670	630	1100	440	110	1104	385	315	700	6xØ19 (M16)	283	132M	B95D
125-200/110/W	150	125	140	470	670	630	1330	555	110	1212	365	315	680	6xØ19 (M16)	341	160M	B95E
125-250/75/W	150	125	140	470	670	630	1100	440	110	1104	385	355	740	6xØ19 (M16)	283	132M	B95D
125-250/110/W	150	125	140	470	670	630	1330	555	110	1212	365	355	720	6xØ19 (M16)	341	160M	B95E
125-250/150/W	150	125	140	470	670	630	1330	555	110	1256	365	355	720	6xØ19 (M16)	363	160L	B95E
125-315/185/W	150	125	140	530	670	630	1430	605	110	1338	400	355	755	6xØ19 (M16)	444	180M	B110D
125-315/220/W	150	125	140	530	670	630	1430	605	110	1376	400	355	755	6xØ19 (M16)	462	180L	B110D
125-315/300/W	150	125	140	530	670	630	1430	605	110	1441	420	355	775	6xØ19 (M16)	517	200L	B125C
125-315/370/W	150	125	140	530	750	710	1600	690	110	1560	415	355	823	6xØ19 (M16)	701	225S	B140B
125-400/370/W	150	125	140	530	750	710	1600	690	110	1560	440	400	848	6xØ19 (M16)	751	225S	B140B
125-400/450/W	150	125	140	530	750	710	1600	690	110	1560	440	400	848	6xØ19 (M16)	779	225M	B140B
125-400/550/W	150	125	140	530	750	710	1600	690	110	1639	440	400	848	6xØ19 (M16)	864	250M	B160B
125-400/750/W	150	125	140	530	750	710	1600	690	110	1745	440	400	882	6xØ19 (M16)	1074	280S	B180B

NOTE: Pumps with flanges according to EN 1092-2 as standard; available ASME B16.5 version on request. For flanges dimensions see drawing on page 64.

Nscf1-4p50-en_a_td

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NSCF SERIES (MOUNTED ON BASE)
DIMENSIONS AND WEIGHTS AT 50 Hz, 4 POLES

PUMP TYPE NSCF..4	DIMENSIONS (mm)														WEIGHT (kg)	IEC MOTOR	COUPLING TYPE
	DNS	DND	a	f	b1	b2	l1	l2	c	L	h	h2	Hmax	s	G	FRAME	
150-200/110A/W	200	150	160	470	670	630	1330	555	110	1232	385	400	785	6xØ19 (M16)	397	160M	B95E
150-200/110/W	200	150	160	470	670	630	1330	555	110	1232	385	400	785	6xØ19 (M16)	397	160M	B95E
150-200/150A/W	200	150	160	470	670	630	1330	555	110	1276	385	400	785	6xØ19 (M16)	419	160L	B95E
150-200/150/W	200	150	160	470	670	630	1330	555	110	1276	385	400	785	6xØ19 (M16)	419	160L	B95E
150-250/150/W	200	150	160	530	670	630	1430	605	110	1336	385	400	785	6xØ19 (M16)	430	160L	B95F
150-250/185/W	200	150	160	530	670	630	1430	605	110	1358	400	400	800	6xØ19 (M16)	472	180M	B110D
150-250/220/W	200	150	160	530	670	630	1430	605	110	1396	400	400	800	6xØ19 (M16)	490	180L	B110D
150-250/300/W	200	150	160	530	670	630	1430	605	110	1461	420	400	820	6xØ19 (M16)	545	200L	B125C
150-315/300/W	200	150	160	530	670	630	1430	605	110	1461	420	400	820	6xØ19 (M16)	551	200L	B125C
150-315/370/W	200	150	160	530	750	710	1600	690	110	1580	415	400	823	6xØ19 (M16)	735	225S	B140B
150-315/450/W	200	150	160	530	750	710	1600	690	110	1580	415	400	823	6xØ19 (M16)	763	225M	B140B
150-400/450/W	200	150	160	530	750	710	1600	690	110	1580	440	450	890	6xØ19 (M16)	807	225M	B140B
150-400/550/W	200	150	160	530	750	710	1600	690	110	1659	440	450	890	6xØ19 (M16)	892	250M	B160B
150-400/750/W	200	150	160	530	750	710	1600	690	110	1765	440	450	890	6xØ19 (M16)	1102	280S	B180B
150-400/900/W	200	150	160	530	750	710	1600	690	110	1765	440	450	890	6xØ19 (M16)	1150	280M	B180B
150-400/1100/W	200	150	160	530	750	710	1600	690	110	1765	440	450	890	6xØ19 (M16)	1257	280M	B180B
150-500/900/W	200	150	180	770	860	810	1750	710	165	2025	565	500	1065	6xØ26 (M20)	1384	280M	B180C
150-500/1100/W	200	150	180	770	860	810	2000	835	165	2228	585	500	1110	6xØ26 (M20)	1678	315S	B200A
150-500/1320/W	200	150	180	770	860	810	2000	835	165	2228	585	500	1110	6xØ26 (M20)	1763	315M	B200A
150-500/1600/W	200	150	180	770	860	810	2000	835	165	2228	585	500	1110	6xØ26 (M20)	1820	315M	B200A
150-500/2000/W	200	150	180	770	860	810	2000	835	165	2337	585	500	1174	6xØ26 (M20)	2005	315L	B225A
200-250/185/W	250	200	180	530	670	630	1450	615	110	1378	460	475	935	6xØ19 (M16)	527	180M	B110D
200-250/220/W	250	200	180	530	670	630	1450	615	110	1416	460	475	935	6xØ19 (M16)	545	180L	B110D
200-250/300A/W	250	200	180	530	670	630	1450	615	110	1481	460	475	935	6xØ19 (M16)	588	200L	B125C
200-250/300/W	250	200	180	530	670	630	1450	615	110	1481	460	475	935	6xØ19 (M16)	588	200L	B125C
200-315/300/W	250	200	180	530	670	630	1450	615	110	1481	460	450	910	6xØ19 (M16)	592	200L	B125C
200-315/370/W	250	200	180	530	750	710	1660	720	110	1600	480	450	930	6xØ19 (M16)	791	225S	B140B
200-315/450/W	250	200	180	530	750	710	1660	720	110	1600	480	450	930	6xØ19 (M16)	819	225M	B140B
200-315/550/W	250	200	180	530	750	710	1660	720	110	1679	480	450	930	6xØ19 (M16)	904	250M	B160B
200-315/750/W	250	200	180	530	750	710	1660	720	110	1785	480	450	930	6xØ19 (M16)	1113	280S	B180B
200-400/750A/W	250	200	180	770	860	810	1750	710	165	2025	565	500	1065	6xØ26 (M20)	1291	280S	B180C
200-400/750/W	250	200	180	770	860	810	1750	710	165	2025	565	500	1065	6xØ26 (M20)	1291	280S	B180C
200-400/900/W	250	200	180	770	860	810	1750	710	165	2025	565	500	1065	6xØ26 (M20)	1339	280M	B180C
200-400/1100/W	250	200	180	770	860	810	2000	835	165	2228	585	500	1110	6xØ26 (M20)	1633	315S	B200A
200-400/1320/W	250	200	180	770	860	810	2000	835	165	2228	585	500	1110	6xØ26 (M20)	1718	315M	B200A
200-500/1320/W	250	200	200	770	860	810	2000	835	165	2248	635	560	1195	6xØ26 (M20)	1778	315M	B200A
200-500/1600/W	250	200	200	770	860	810	2000	835	165	2248	635	560	1195	6xØ26 (M20)	1835	315M	B200A
200-500/2000/W	250	200	200	770	860	810	2000	835	165	2357	635	560	1224	6xØ26 (M20)	2019	315L	B225A
200-500/2500/W	250	200	200	770	860	810	2000	835	165	2357	635	560	1224	6xØ26 (M20)	2214	315L	B225A
200-500/3150/W	250	200	200	770	1000	930	2200	935	165	2456	675	560	1284	6xØ29 (M24)	2553	355ML	B250A
250-315/370/W	300	250	250	530	850	810	1700	685	165	1670	525	500	1025	6xØ19 (M16)	904	225S	B140B
250-315/450/W	300	250	250	530	850	810	1700	685	165	1670	525	500	1025	6xØ19 (M16)	932	225M	B140B
250-315/550/W	300	250	250	530	850	810	1700	685	165	1749	525	500	1025	6xØ19 (M16)	1016	250M	B160B
250-315/750/W	300	250	250	530	850	810	1700	685	165	1855	525	500	1025	6xØ19 (M16)	1226	280S	B180B
250-400/750/W	300	250	200	770	860	810	1750	710	165	2045	565	500	1065	6xØ26 (M20)	1328	280S	B180C
250-400/900/W	300	250	200	770	860	810	1750	710	165	2045	565	500	1065	6xØ26 (M20)	1376	280M	B180C
250-400/1100/W	300	250	200	770	860	810	2000	835	165	2248	585	500	1110	6xØ26 (M20)	1670	315S	B200A
250-400/1320/W	300	250	200	770	860	810	2000	835	165	2248	585	500	1110	6xØ26 (M20)	1755	315M	B200A
250-400/1600/W	300	250	200	770	860	810	2000	835	165	2248	585	500	1110	6xØ26 (M20)	1812	315M	B200A
250-400/2000/W	300	250	200	770	860	810	2000	835	165	2357	585	500	1174	6xØ26 (M20)	1997	315L	B225A
250-500/1600/W	300	250	200	770	860	810	2000	835	165	2248	635	670	1305	6xØ26 (M20)	1886	315M	B200A
250-500/2000/W	300	250	200	770	860	810	2000	835	165	2357	635	670	1305	6xØ26 (M20)	2070	315L	B225A
250-500/2500/W	300	250	200	770	860	810	2000	835	165	2357	635	670	1305	6xØ26 (M20)	2265	315L	B225A
250-500/3150/W	300	250	200	770	1000	930	2200	935	165	2456	675	670	1345	6xØ29 (M24)	2604	355ML	B250A
250-500/3550/W	300	250	200	770	1000	930	2200	935	165	2456	675	670	1345	6xØ29 (M24)	2710	355ML	B250A
300-350/750A/W	350	300	250	800	960	910	1850	725	200	2125	620	600	1220	6xØ26 (M20)	1514	280S	B180C
300-350/750/W	350	300	250	800	960	910	1850	725	200	2125	620	600	1220	6xØ26 (M20)	1514	280S	B180C
300-350/900/W	350	300	250	800	960	910	1850	725	200	2125	620	600	1220	6xØ26 (M20)	1562	280M	B180C
300-350/1100/W	350	300	250	800	960	910	2100	850	200	2328	640	600	1240	6xØ26 (M20)	1871	315S	B200A
300-400/1100/W	350	300	250	800	960	910	2100	850	200	2328	640	600	1240	6xØ26 (M20)	1875	315S	B200A
300-400/1320/W	350	300	250	800	960	910	2100	850	200	2328	640	600	1240	6xØ26 (M20)	1960	315M	B200A
300-400/1600/W	350	300	250	800	960	910	2100	850	200	2328	640	600	1240	6xØ26 (M20)	2017	315M	B200A
300-400/2000/W	350	300	250	800	960	910	2100	850	200	2437	640	600	1240	6xØ26 (M20)	2201	315L	B225A
300-400/2500/W	350	300	250	800	960	910	2100	850	200	2437	640	600	1240	6xØ26 (M20)	2396	315L	B225A
300-450/1600/W	350	300	250	800	960	910	2100	850	200	2328	665	630	1295	6xØ26 (M20)	2058	315M	B200A
300-450/2000/W	350	300	250	800	960	910	2100	850	200	2437	665	630	1295	6xØ26 (M20)	2243	315L	B225A
300-450/2500/W	350	300	250	800	960	910	2100	850	200	2437	665	630	1295	6xØ26 (M20)	2438	315L	B225A
300-450/3150/W	350	300	250	800	1000	930	2250	925	200	2536	705	630	1335	6xØ29 (M24)	2754	355ML	B250A

NOTE: Pumps with flanges according to EN 1092-2 as standard; available ASME B16.5 version on request. For flanges dimensions see drawing on page 64.

LOWARA
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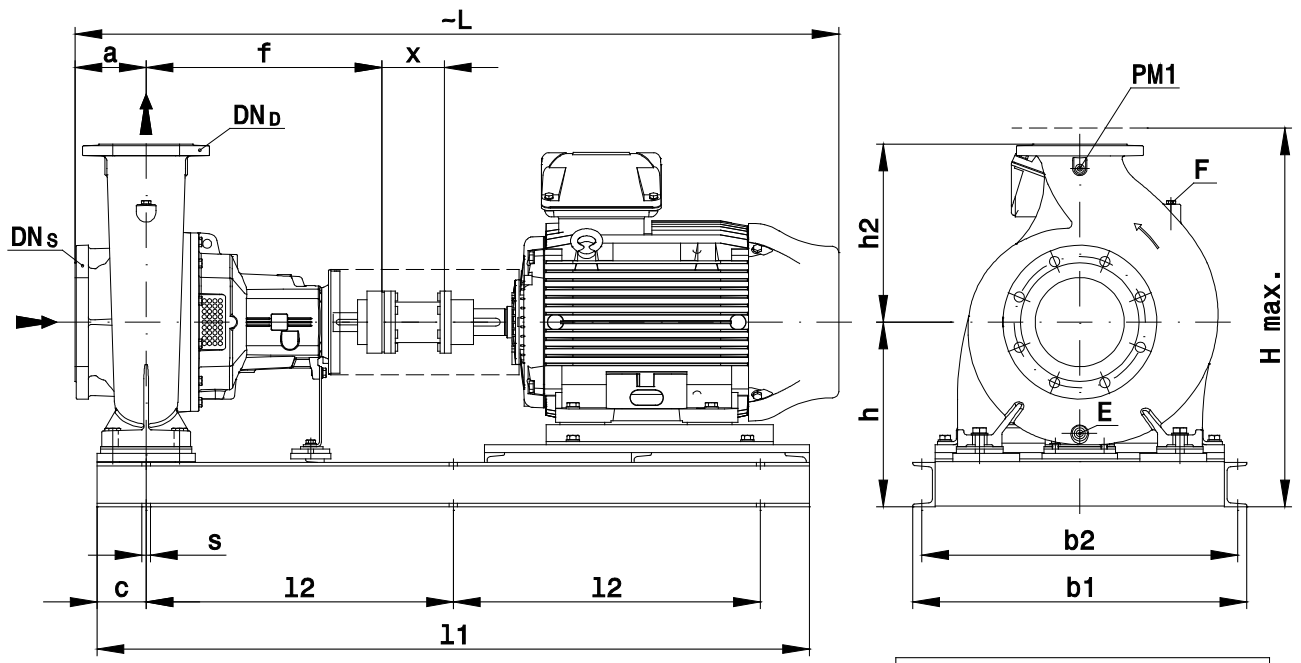
NSCC SERIES (SPACER COUPLING)
DIMENSIONS AND WEIGHTS AT 50 Hz, 4 POLES



PM1..Pressure gauge connector
E....Drain
F....Filling

Connections		
	$DN_D \leq 150$	$DN_D \geq 200$
PM1	1/4"	1/2"
E	3/8"	1/2"
F	3/8"	-

NSCC-EN_A_DD

PUMP TYPE NSCC..4	DIMENSIONS (mm)															WEIGHT (kg)	IEC MOTOR	COUPLING TYPE
	DNS	DND	a	f	x	b1	b2	l1	l2	c	L	h	h2	Hmax	s	G	FRAME	
100-160/22A/W	125	100	125	470	140	670	630	1100	440	110	1111	355	280	635	6xØ19 (M16)	221	100L	H95C
100-160/22/W	125	100	125	470	140	670	630	1100	440	110	1111	355	280	635	6xØ19 (M16)	221	100L	H95C
100-160/30/W	125	100	125	470	140	670	630	1100	440	110	1155	355	280	635	6xØ19 (M16)	221	L100L	H95C
100-160/40/W	125	100	125	470	140	670	630	1100	440	110	1128	365	280	645	6xØ19 (M16)	230	112M	H95C
100-200/40/W	125	100	125	470	140	670	630	1100	440	110	1128	365	280	645	6xØ19 (M16)	238	112M	H95C
100-200/55/W	125	100	125	470	140	670	630	1100	440	110	1187	385	280	665	6xØ19 (M16)	269	132S	H95D
100-200/75/W	125	100	125	470	140	670	630	1100	440	110	1225	385	280	665	6xØ19 (M16)	278	132M	H95D
100-250/55/W	125	100	140	470	140	670	630	1100	440	110	1202	385	280	665	6xØ19 (M16)	272	132S	H95D
100-250/75/W	125	100	140	470	140	670	630	1100	440	110	1240	385	280	665	6xØ19 (M16)	281	132M	H95D
100-250/110/W	125	100	140	470	140	670	630	1330	555	110	1348	365	280	645	6xØ19 (M16)	338	160M	H95E
100-315/110/W	125	100	140	470	140	670	630	1330	555	110	1348	365	315	680	6xØ19 (M16)	347	160M	H95E
100-315/150/W	125	100	140	470	140	670	630	1330	555	110	1392	365	315	680	6xØ19 (M16)	369	160L	H95E
100-315/185/W	125	100	140	470	140	670	630	1330	555	110	1414	385	315	700	6xØ19 (M16)	411	180M	H110B
100-315/220/W	125	100	140	470	140	670	630	1330	555	110	1452	385	315	700	6xØ19 (M16)	429	180L	H110B
100-315/300/W	125	100	140	470	140	560	520	1350	565	110	1517	355	315	672	6xØ19 (M16)	458	200L	H125C
100-400/300/W	125	100	140	530	140	670	630	1430	605	110	1577	420	355	775	6xØ19 (M16)	547	200L	H125D
100-400/370/W	125	100	140	530	140	750	710	1600	690	110	1696	415	355	823	6xØ19 (M16)	733	225S	H140B
100-400/450/W	125	100	140	530	140	750	710	1600	690	110	1696	415	355	823	6xØ19 (M16)	761	225M	H140B
125-200/55/W	150	125	140	470	140	670	630	1100	440	110	1202	385	315	700	6xØ19 (M16)	277	132S	H95D
125-200/75/W	150	125	140	470	140	670	630	1100	440	110	1240	385	315	700	6xØ19 (M16)	286	132M	H95D
125-200/110/W	150	125	140	470	140	670	630	1330	555	110	1348	365	315	680	6xØ19 (M16)	343	160M	H95E
125-250/75/W	150	125	140	470	140	670	630	1100	440	110	1240	385	355	740	6xØ19 (M16)	286	132M	H95D
125-250/110/W	150	125	140	470	140	670	630	1330	555	110	1348	365	355	720	6xØ19 (M16)	343	160M	H95E
125-250/150/W	150	125	140	470	140	670	630	1330	555	110	1392	365	355	720	6xØ19 (M16)	365	160L	H95E
125-315/185/W	150	125	140	530	140	670	630	1430	605	110	1474	400	355	755	6xØ19 (M16)	447	180M	H110C
125-315/220/W	150	125	140	530	140	670	630	1430	605	110	1512	400	355	755	6xØ19 (M16)	465	180L	H110C
125-315/300/W	150	125	140	530	140	670	630	1430	605	110	1577	420	355	775	6xØ19 (M16)	521	200L	H125D
125-315/370/W	150	125	140	530	140	750	710	1600	690	110	1696	415	355	823	6xØ19 (M16)	707	225S	H140B
125-400/370/W	150	125	140	530	140	750	710	1600	690	110	1696	440	400	848	6xØ19 (M16)	757	225S	H140B
125-400/450/W	150	125	140	530	140	750	710	1600	690	110	1696	440	400	848	6xØ19 (M16)	785	225M	H140B
125-400/550/W	150	125	140	530	140	750	710	1600	690	110	1775	440	400	848	6xØ19 (M16)	871	250M	H160B
125-400/750/W	150	125	140	530	140	750	710	1600	690	110	1881	440	400	882	6xØ19 (M16)	1081	280S	H180B

NOTE: Pumps with flanges according to EN 1092-2 as standard; available ASME B16.5 version on request. For flanges dimensions see drawing on page 64.

Nscc1-4p50-en_a_td

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NSCC SERIES (SPACER COUPLING)
DIMENSIONS AND WEIGHTS AT 50 Hz, 4 POLES

PUMP TYPE NSCC..4	DIMENSIONS (mm)															WEIGHT (kg)	IEC MOTOR	COUPLING TYPE
	DNS	DND	a	f	x	b1	b2	l1	l2	c	L	h	h2	Hmax	s	G	FRAME	
150-200/110A/W	200	150	160	470	140	670	630	1330	555	110	1368	385	400	785	6xØ19 (M16)	400	160M	H95E
150-200/110/W	200	150	160	470	140	670	630	1330	555	110	1368	385	400	785	6xØ19 (M16)	400	160M	H95E
150-200/150A/W	200	150	160	470	140	670	630	1330	555	110	1412	385	400	785	6xØ19 (M16)	422	160L	H95E
150-200/150/W	200	150	160	470	140	670	630	1330	555	110	1412	385	400	785	6xØ19 (M16)	422	160L	H95E
150-250/150/W	200	150	160	530	140	670	630	1430	605	110	1472	385	400	785	6xØ19 (M16)	433	160L	H95F
150-250/185/W	200	150	160	530	140	670	630	1430	605	110	1494	400	400	800	6xØ19 (M16)	475	180M	H110C
150-250/220/W	200	150	160	530	140	670	630	1430	605	110	1532	400	400	800	6xØ19 (M16)	493	180L	H110C
150-250/300/W	200	150	160	530	140	670	630	1430	605	110	1597	420	400	820	6xØ19 (M16)	549	200L	H125D
150-315/300/W	200	150	160	530	140	670	630	1430	605	110	1597	420	400	820	6xØ19 (M16)	555	200L	H125D
150-315/370/W	200	150	160	530	140	750	710	1600	690	110	1716	415	400	823	6xØ19 (M16)	741	225S	H140B
150-315/450/W	200	150	160	530	140	750	710	1600	690	110	1716	415	400	823	6xØ19 (M16)	769	225M	H140B
150-400/450/W	200	150	160	530	140	750	710	1600	690	110	1716	440	450	890	6xØ19 (M16)	813	225M	H140B
150-400/550/W	200	150	160	530	140	750	710	1600	690	110	1795	440	450	890	6xØ19 (M16)	899	250M	H160B
150-400/750/W	200	150	160	530	140	750	710	1600	690	110	1901	440	450	890	6xØ19 (M16)	1109	280S	H180B
150-400/900/W	200	150	160	530	140	750	710	1600	690	110	1901	440	450	890	6xØ19 (M16)	1157	280M	H180B
150-400/1100/W	200	150	160	530	140	750	710	1600	690	110	1901	440	450	890	6xØ19 (M16)	1264	280M	H180B
150-500/900/W	200	150	180	770	250	860	810	2000	835	165	2321	565	500	1065	6xØ26 (M20)	1403	280M	H180D
150-500/1100/W	200	150	180	770	250	860	810	2250	960	165	2524	585	500	1110	6xØ26 (M20)	1702	315S	H200A
150-500/1320/W	200	150	180	770	250	860	810	2250	960	165	2524	585	500	1110	6xØ26 (M20)	1787	315M	H200A
150-500/1600/W	200	150	180	770	250	860	810	2250	960	165	2524	585	500	1110	6xØ26 (M20)	1844	315M	H200A
150-500/2000/W	200	150	180	770	250	860	810	2250	960	165	2633	585	500	1174	6xØ26 (M20)	2033	315L	H225A
200-250/185/W	250	200	180	530	200	670	630	1450	615	110	1574	460	475	935	6xØ19 (M16)	531	180M	H110C
200-250/220/W	250	200	180	530	200	670	630	1450	615	110	1612	460	475	935	6xØ19 (M16)	549	180L	H110C
200-250/300A/W	250	200	180	530	200	670	630	1450	615	110	1677	460	475	935	6xØ19 (M16)	592	200L	H125D
200-250/300/W	250	200	180	530	200	670	630	1450	615	110	1677	460	475	935	6xØ19 (M16)	592	200L	H125D
200-315/300/W	250	200	180	530	200	670	630	1450	615	110	1677	460	450	910	6xØ19 (M16)	596	200L	H125F
200-315/370/W	250	200	180	530	200	750	710	1660	720	110	1796	480	450	930	6xØ19 (M16)	798	225S	H140C
200-315/450/W	250	200	180	530	200	750	710	1660	720	110	1796	480	450	930	6xØ19 (M16)	826	225M	H140C
200-315/550/W	250	200	180	530	200	750	710	1660	720	110	1875	480	450	930	6xØ19 (M16)	912	250M	H160C
200-315/750/W	250	200	180	530	200	750	710	1660	720	110	1981	480	450	930	6xØ19 (M16)	1123	280S	H180C
200-400/750A/W	250	200	180	770	250	860	810	2000	835	165	2321	565	500	1065	6xØ26 (M20)	1310	280S	H180D
200-400/750/W	250	200	180	770	250	860	810	2000	835	165	2321	565	500	1065	6xØ26 (M20)	1310	280S	H180D
200-400/900/W	250	200	180	770	250	860	810	2000	835	165	2321	565	500	1065	6xØ26 (M20)	1358	280M	H180D
200-400/1100/W	250	200	180	770	250	860	810	2250	960	165	2524	585	500	1110	6xØ26 (M20)	1657	315S	H200A
200-400/1320/W	250	200	180	770	250	860	810	2250	960	165	2524	585	500	1110	6xØ26 (M20)	1742	315M	H200A
200-500/1320/W	250	200	200	770	250	860	810	2250	960	165	2544	635	560	1195	6xØ26 (M20)	1802	315M	H200A
200-500/1600/W	250	200	200	770	250	860	810	2250	960	165	2544	635	560	1195	6xØ26 (M20)	1859	315M	H200A
200-500/2000/W	250	200	200	770	250	860	810	2250	960	165	2653	635	560	1224	6xØ26 (M20)	2048	315L	H225A
200-500/2500/W	250	200	200	770	250	860	810	2250	960	165	2653	635	560	1224	6xØ26 (M20)	2243	315L	H225A
200-500/3150/W	250	200	200	770	250	1000	930	2450	1060	165	2752	675	560	1284	6xØ29 (M24)	2590	355ML	H250A
250-315/370/W	300	250	250	530	200	850	810	1700	685	165	1866	525	500	1025	6xØ19 (M16)	911	225S	H140C
250-315/450/W	300	250	250	530	200	850	810	1700	685	165	1866	525	500	1025	6xØ19 (M16)	939	225M	H140C
250-315/550/W	300	250	250	530	200	850	810	1700	685	165	1945	525	500	1025	6xØ19 (M16)	1025	250M	H160C
250-315/750/W	300	250	250	530	200	850	810	1700	685	165	2051	525	500	1025	6xØ19 (M16)	1236	280S	H180C
250-400/750/W	300	250	200	770	250	860	810	2000	835	165	2341	565	500	1065	6xØ26 (M20)	1347	280M	H180D
250-400/900/W	300	250	200	770	250	860	810	2000	835	165	2341	565	500	1065	6xØ26 (M20)	1395	280M	H180D
250-400/1100/W	300	250	200	770	250	860	810	2250	960	165	2544	585	500	1110	6xØ26 (M20)	1694	315S	H200A
250-400/1320/W	300	250	200	770	250	860	810	2250	960	165	2544	585	500	1110	6xØ26 (M20)	1779	315M	H200A
250-400/1600/W	300	250	200	770	250	860	810	2250	960	165	2544	585	500	1110	6xØ26 (M20)	1836	315M	H200A
250-400/2000/W	300	250	200	770	250	860	810	2250	960	165	2653	585	500	1174	6xØ26 (M20)	2025	315L	H225A
250-500/1600/W	300	250	200	770	250	860	810	2250	960	165	2544	635	670	1305	6xØ26 (M20)	1910	315M	H200A
250-500/2000/W	300	250	200	770	250	860	810	2250	960	165	2653	635	670	1305	6xØ26 (M20)	2099	315L	H225A
250-500/2500/W	300	250	200	770	250	860	810	2250	960	165	2653	635	670	1305	6xØ26 (M20)	2294	315L	H225A
250-500/3150/W	300	250	200	770	250	1000	930	2450	1060	165	2752	675	670	1345	6xØ29 (M24)	2641	355ML	H250A
250-500/3550/W	300	250	200	770	250	1000	930	2450	1060	165	2752	675	670	1345	6xØ29 (M24)	2747	355ML	H250A
300-350/750A/W	350	300	250	800	300	960	910	2150	875	200	2421	620	600	1220	6xØ26 (M20)	1524	280S	N150A
300-350/750/W	350	300	250	800	300	960	910	2150	875	200	2421	620	600	1220	6xØ26 (M20)	1524	280S	N150A
300-350/900/W	350	300	250	800	300	960	910	2150	875	200	2421	620	600	1220	6xØ26 (M20)	1572	280M	N150A
300-350/1100/W	350	300	250	800	300	960	910	2400	1000	200	2624	640	600	1240	6xØ26 (M20)	1877	315S	N176A
300-400/1100/W	350	300	250	800	300	960	910	2400	1000	200	2624	640	600	1240	6xØ26 (M20)	1881	315S	N176A
300-400/1320/W	350	300	250	800	300	960	910	2400	1000	200	2624	640	600	1240	6xØ26 (M20)	1966	315M	N176A
300-400/1600/W	350	300	250	800	300	960	910	2400	1000	200	2624	640	600	1240	6xØ26 (M20)	2023	315M	N176A
300-400/2000/W	350	300	250	800	300	960	910	2400	1000	200	2733	640	600	1240	6xØ26 (M20)	2206	315L	N185A
300-400/2500/W	350	300	250	800	300	960	910	2400	1000	200	2733	640	600	1240	6xØ26 (M20)	2401	315L	N185A
300-450/1600/W	350	300	250	800	300	960	910	2400	1000	200	2624	665	630	1295	6xØ26 (M20)	2065	315M	N176A
300-450/2000/W	350	300	250	800	300	960	910	2400	1000	200	2733	665	630	1295	6xØ26 (M20)	2247	315L	N185A
300-450/2500/W	350	300	250	800	300	960	910	2400	1000	200	2733	665	630	1295	6xØ26 (M20)	2442	315L	N185A
300-450/3150/W	350	300	250	800	300	1000	930	2550	1075	200	2832	705	630	1335	6xØ29 (M24)	2757	355ML	N212A

NOTE: Pumps with flanges according to EN 1092-2 as standard; available ASME B16.5 version on request. For flanges dimensions see drawing on page 64.

Nscc2-4p50-en_a_td

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NSC..H
(e-NSC WITH HYDROVAR)

NSC..H SERIES
(e-NSC WITH HYDROVAR)

Background and context

In all areas of application, such as building services, industry, agriculture and air-handling, the demand for intelligent pumping systems is constantly growing. There are many advantages: reduced cost for pump life cycle, lower environmental impact, longer lifetime of pipes and unions. That's why Lowara has developed the NSC..H: an intelligent pumping system which assures high level performance with energy consumption tailored to demand.

Benefits of NSC with HYDROVAR

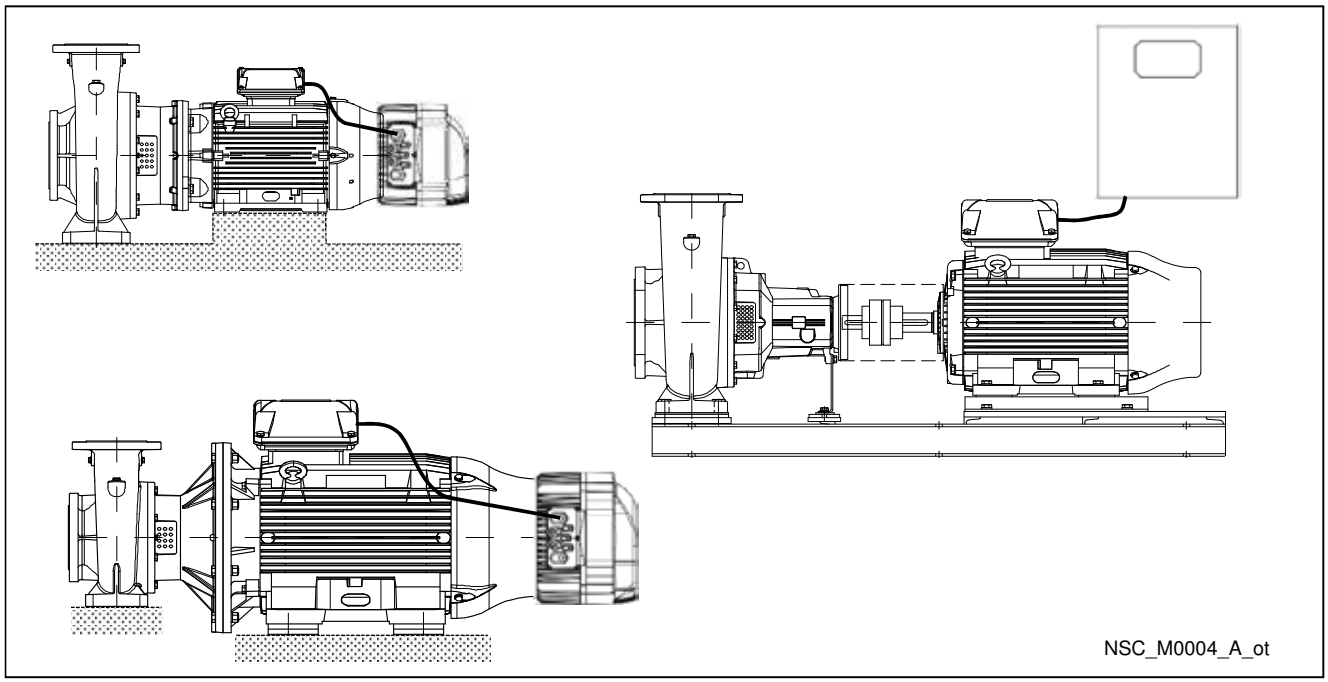
Saving: NSC..H transforms NSC pumps into variable speed intelligent pumping systems. Thanks to the HYDROVAR system, the speed of each pump varies so as to maintain a constant flow or pressure or differential pressure. The pump only receives the energy required, thus allowing considerable savings, especially for those systems in which demands varies during the day.

Easy installation and space-saving: NSC..H saves time and space during installation. Installed directly on the motor (up to 22 kW), which cools it down, and does not require a further control panel. , only fuses on the supply line (will depend upon any local electrical installation regulations). The wall-mounted HYDROVAR version is available for higher power outputs (up to 45 kW).

Standard motors: NSC..H models are fitted with three-phase standard TEFC motors with insulation class 155 (F).

Special features / benefits

- **There is no need for additional pressure sensors**: NSC..H are fitted with a pressure transmitter or differential pressure transmitters, depending on the application.
- **There is no need for special pumps or motors**.
- **There is no need for bypass or safety systems**: with HYDROVAR the pump immediately switches off when demand drops to zero or when it exceeds maximum pump capacity. This makes it unnecessary to install additional safety devices.
- **Anti-condensation device**: all units are fitted with anti-condensation devices which switch on when the pump is in standby in order to prevent condensation forming in the unit.



NSC..H SERIES
(e-NSC WITH HYDROVAR)

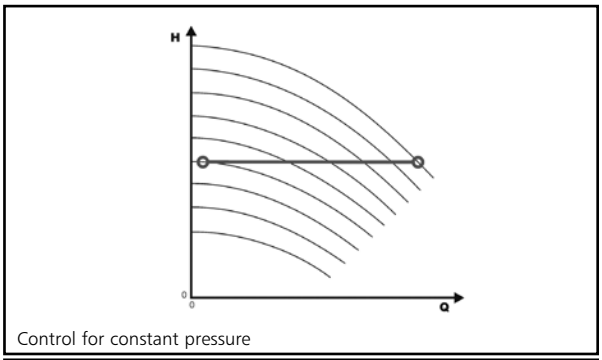
The basic function of the HYDROVAR device is to control the pump to meet the system demands.

HYDROVAR performs these functions by:

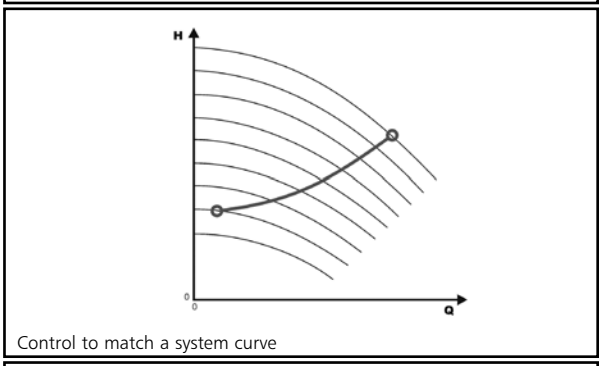
1) Measuring the system pressure or flow via a transmitter mounted on the pump's delivery side.
2) Calculating the motor speed to maintain the correct flow or pressure.
3) Sending out a signal to the pump to start the motor, increase speed, decrease speed or stop.
4) In the case of multiple pump installations, HYDROVAR will automatically provide for the cyclic changeover of the pumps' starting sequence.

In addition to these basic functions, HYDROVAR can do things only by the most advanced computerised control systems, such as:

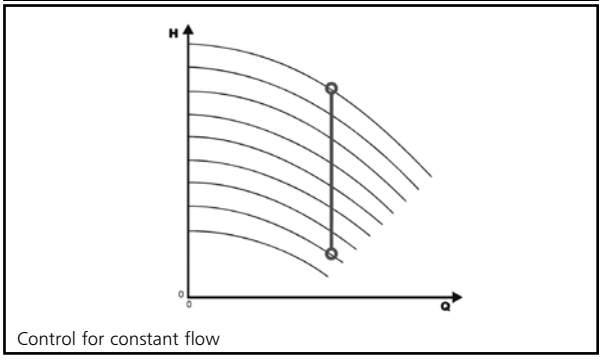
- Stop the pump(s) at zero demand.
- Stop the pump(s) in case of water failure on the suction side (protection against dry running).
- Stop the pump if the required delivery exceeds the pump's capacity (protection against cavitation caused by excessive demand), or automatically switch on the next pump in a multiple series.
- Protect the pump and motor from overvoltage, undervoltage, overload and earth fault.
- Vary the pump speed acceleration and deceleration time.
- Compensate for increased flow resistance at high flow rates.
- Conduct automatic test starts at set intervals.
- Monitor the converter and motor operating hours.
- Display all functions on an LCD in different languages (Italian, English, French, German, Spanish, Portuguese, Dutch).
- Send a signal to a remote control system which is proportional to the pressure and frequency.
- Communicate with another HYDROVAR or control system via an RS 485 interface.



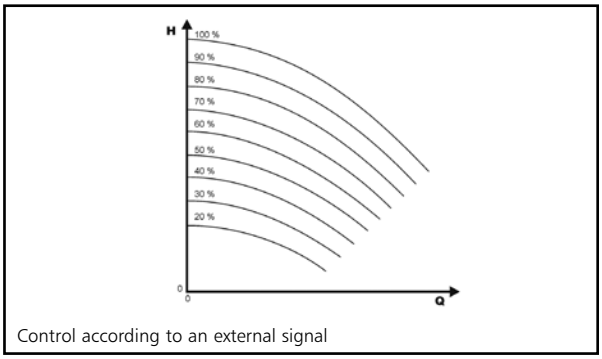
Control for constant pressure



Control to match a system curve



Control for constant flow



Control according to an external signal

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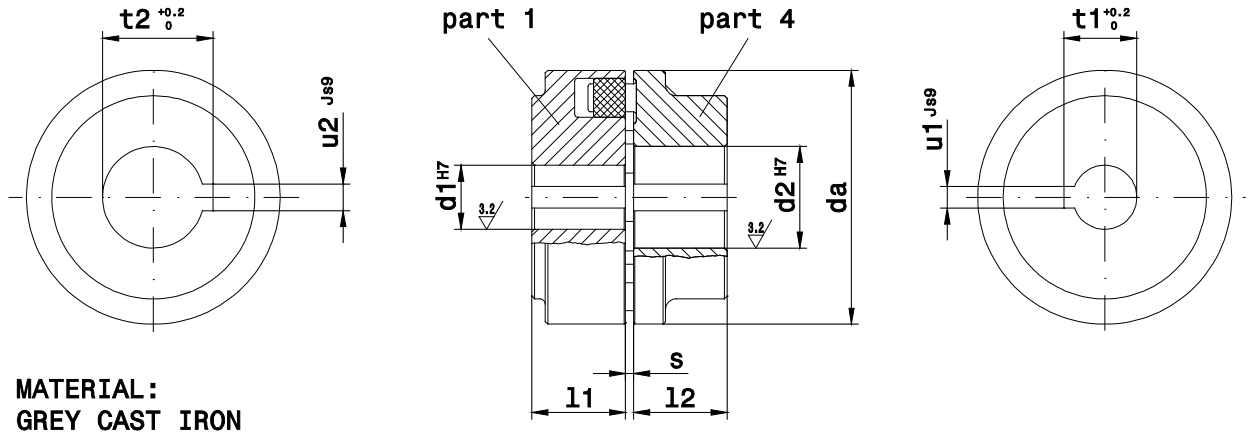
ACCESSORIES

FLEXIBLE COUPLING DIMENSIONS



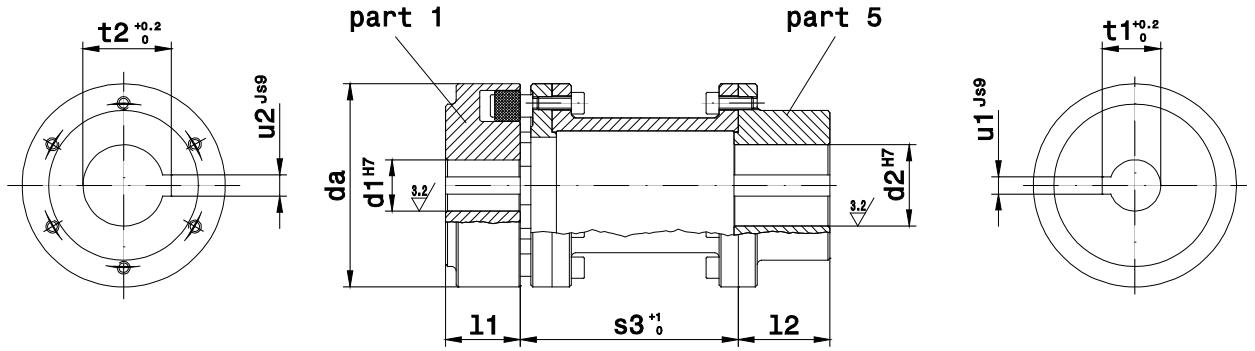
MATERIAL:
GREY CAST IRON
WITH FLEXIBLE ELEMENTS MADE
OF SYNTHETIC RUBBER 80 ShA

COUP-B_EN_A_DD

REF.	DENOMINATION	DIMENSIONS (mm)									
			PART 1 PUMP-SIDE HALF COUPLING				PART 4 MOTOR-SIDE HALF COUPLING				
	SIZE x d_1 x d_2	d_a	d_1^{H7}	l_1	u_1^{js9}	$t_1{}_0^{+0.2}$	s	d_2^{H7}	l_2	u_2^{js9}	$t_2{}_0^{+0.2}$
B68A	B 68 x 24 x 14	68	24	20	8	27,3	2÷4	14	20	5	16,3
B68B	B 68 x 24 x 19	68	24	20	8	27,3	2÷4	19	20	6	21,8
B68C	B 68 x 24 x 24	68	24	20	8	27,3	2÷4	24	20	8	27,3
B80A	B 80 x 24 x 28	80	24	30	8	27,3	2÷4	28	30	8	31,3
B95A	B 95 x 24 x 38	95	24	35	8	27,3	2÷4	38	35	10	41,3
B95B	B 95 x 24 x 42	95	24	35	8	27,3	2÷4	42	35	12	45,3
B95C	B 95 x 32 x 28	95	32	35	10	35,3	2÷4	28	35	8	31,3
B95D	B 95 x 32 x 38	9	32	35	10	35,3	2÷4	38	35	10	41,3
B95E	B 95 x 32 x 42	95	32	35	10	35,3	2÷4	42	35	12	45,3
B95F	B 95 x 42 x 42	95	42	35	12	45,3	2÷4	42	35	12	45,3
B110A	B 110 x 24 x 48	110	24	40	8	27,3	2÷4	48	40	14	51,8
B110B	B 110 x 32 x 48	110	32	40	10	35,3	2÷4	48	40	14	51,8
B110C	B 110 x 42 x 42	110	42	40	12	45,3	2÷4	42	40	12	45,3
B110D	B 110 x 42 x 48	110	42	40	12	45,3	2÷4	48	40	14	51,8
B125A	B 125 x 32 x 48	125	32	50	10	35,3	2÷4	48	50	14	51,8
B125B	B 125 x 32 x 55	125	32	50	10	35,3	2÷4	55	50	16	59,3
B125C	B 125 x 42 x 55	125	42	50	12	45,3	2÷4	55	50	16	59,3
B140A	B 140 x 32 x 60	140	32	55	10	35,3	2÷4	60	55	18	64,4
B140B	B 140 x 42 x 60	140	42	55	12	45,3	2÷4	60	55	18	64,4
B160A	B 160 x 32 x 65	160	32	60	10	35,3	2÷6	65	60	18	69,4
B160B	B 160 x 42 x 65	160	42	60	12	45,3	2÷6	65	60	18	69,4
B160C	B 160 x 60 x 65	160	60	60	18	64,4	2÷6	65	60	18	69,4
B180A	B 180 x 42 x 65	180	42	70	12	45,3	2÷6	65	60	18	69,4
B180B	B 180 x 42 x 75	180	42	70	12	45,3	2÷6	75	70	20	79,9
B180C	B 180 x 60 x 75	180	60	70	18	64,4	2÷6	75	70	20	79,9
B200A	B 200 x 60 x 80	200	60	80	18	64,4	2÷6	80	80	22	85,4
B225A	B 225 x 60 x 80	225	60	90	18	64,4	2÷6	80	90	22	85,4
B250A	B 250 x 60 x 100	250	60	100	18	64,4	3÷8	100	100	28	106,4

Coup-b_en_a_td

SPACER COUPLING DIMENSIONS



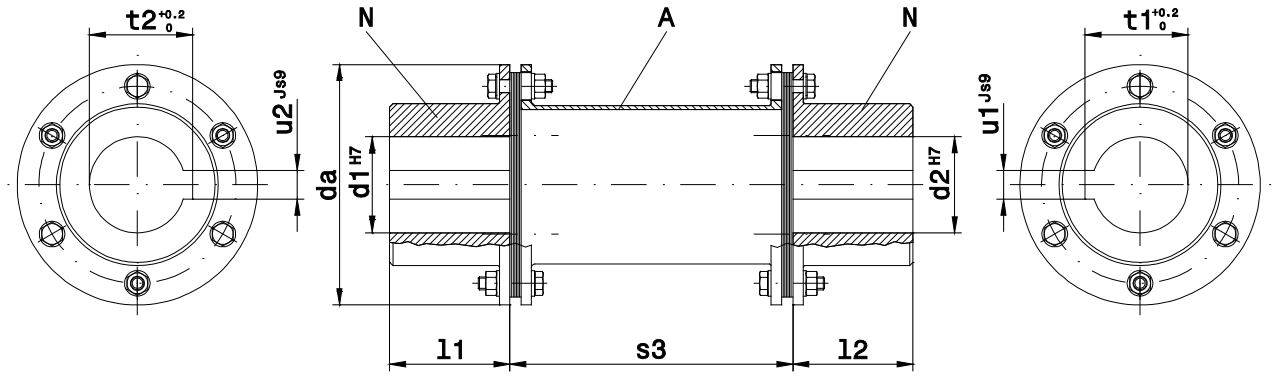
MATERIAL:
GREY CAST IRON
WITH FLEXIBLE ELEMENTS MADE
OF SYNTHETIC RUBBER 80 ShA

COUP-H_EN_A_DD

REF.	DENOMINATION	DIMENSIONS (mm)									
				PART 1				PART 5			
				PUMP-SIDE HALF COUPLING				MOTOR-SIDE HALF COUPLING			
	SIZE x l x d_1 x d_2	da	s_3 0 +1	d_1 H7	l_1	u_1 js9	t_1 0 +0.2	d_2 H7	l_2	u_2 js9	t_2 0 +0.2
H80A	H 80-100 x 24 x 19	80	100	24	30	8	27,3	19	45	6	21,8
H80B	H 80-100 x 24 x 24	80	100	24	30	8	27,3	24	45	8	27,3
H80C	H 80-100 x 24 x 28	80	100	24	30	8	27,3	28	45	8	31,3
H95A	H 95-100 x 24 x 38	95	100	24	35	8	27,3	38	45	10	41,3
H95B	H 95-100 x 24 x 42	95	100	24	35	8	27,3	42	45	12	45,3
H95C	H 95-140 x 32 x 28	95	140	32	35	10	35,3	28	45	8	31,3
H95D	H 95-140 x 32 x 38	95	140	32	35	10	35,3	38	45	10	41,3
H95E	H 95-140 x 32 x 42	95	140	32	35	10	35,3	42	45	12	45,3
H95F	H 95-140 x 42 x 42	95	140	42	35	12	45,3	42	45	12	45,3
H110A	H 110-100 x 24 x 48	110	100	24	40	8	27,3	48	50	14	51,8
H110B	H 110-140 x 32 x 48	110	140	32	40	10	35,3	48	50	14	51,8
H110C	H 110-140 x 42 x 48	110	140	42	40	12	45,3	48	50	14	51,8
H125A	H 125-100 x 24 x 55	125	100	24	50	8	27,3	55	50	16	59,3
H125B	H 125-140 x 32 x 48	125	140	32	50	10	35,3	48	50	14	51,8
H125C	H 125-140 x 32 x 55	125	140	32	50	10	35,3	55	50	16	59,3
H125D	H 125-140 x 42 x 55	125	140	42	50	12	45,3	55	50	16	59,3
H125E	H 125-200 x 42 x 48	125	200	42	50	12	45,3	48	70	14	51,8
H125F	H 125-200 x 42 x 55	125	200	42	50	12	45,3	55	70	16	59,3
H140A	H 140-140 x 32 x 60	140	140	32	55	10	35,3	60	65	18	64,4
H140B	H 140-140 x 42 x 60	140	140	42	55	12	45,3	60	65	18	64,4
H140C	H 140-200 x 42 x 60	140	200	42	55	12	45,3	60	65	18	64,4
H160A	H 160-140 x 32 x 65	160	140	32	60	10	35,3	65	70	18	69,4
H160B	H 160-140 x 42 x 65	160	140	42	60	12	45,3	65	70	18	69,4
H160C	H 160-200 x 42 x 65	160	200	42	60	12	45,3	65	70	18	69,4
H160D	H 160-250 x 60 x 65	160	250	60	60	18	64,4	65	80	18	69,4
H180A	H 180-140 x 42 x 65	180	140	42	70	12	45,3	65	80	18	69,4
H180B	H 180-140 x 42 x 75	180	140	42	70	12	45,3	75	80	20	79,9
H180C	H 180-200 x 42 x 75	180	200	42	70	12	45,3	75	80	20	79,9
H180D	H 180-250 x 60 x 75	180	250	60	70	18	64,4	75	80	20	79,9
H200A	H 200-250 x 60 x 80	200	250	60	80	18	64,4	80	90	22	85,4
H225A	H 225-250 x 60 x 80	225	250	60	90	18	64,4	80	100	22	85,4
H250A	H 250-250 x 60 x 100	250	250	60	100	18	64,4	100	110	28	106,4

Coup-h_en_a_td

SPACER COUPLING DIMENSIONS



MATERIAL:
HUB AND SPACER: CARBON STEEL (1.0570)
PLATE PACK: CrNi SPRING STEEL
BOLTS AND NUTS: 10.9 / 10.

COUP-NAN_EN_A_DD

REF.	DENOMINATION	DIMENSIONS (mm)									
				N				N			
				PUMP-SIDE HALF COUPLING				MOTOR-SIDE HALF COUPLING			
	SIZE x l x d_1 x d_2	da	s_3	d_1^{H7}	l_1	u_1^{js9}	$t_1{}_0^{+0.2}$	d_2^{H7}	l_2	u_2^{js9}	$t_2{}_0^{+0.2}$
N150A	NAN 150-6 x 300 x 60 x 75	150	300	60	75	18	64,4	75	75	20	79,9
N176A	NAN 176-6 x 300 x 60 x 80	176	300	60	85	18	64,4	80	85	22	85,4
N185A	NAN 185-6 x 300 x 60 x 80	185	300	60	90	18	64,4	80	90	22	85,4
N212A	NAN 212-6 x 300 x 60 x 100	212	300	60	100	18	64,4	100	100	28	106,4

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NOTE: other accessories soon available.

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REPORTS AND DECLARATIONS

REPORTS AND DECLARATIONS

i) Test reports

a) **Factory Test Report** (Lowara identity code: 1A)
(not available for all pump types; contact Customer Service in advance)
- Test report compiled at the end of the assembly line, including flow-head performance test (ISO 9906:2012 – Grade 3B) and tightness test.

b) **Audit Test Report** (Lowara identity code: 1B)
- Test report for electric pumps compiled in the test room, comprising flow-head-pump input-pump efficiency performance test (ISO 9906:2012 – Grade 3B)

c) **NPSH Test Report** (Lowara identity code: 1A / CTF-NP)
(unavailable for submerged or submergible pumps)
- Test report for electric pumps compiled in the test room, comprising flow-NPSH performance test (ISO 9906:2012 – Grade 3B)

d) **Noise Test Report** (Lowara identity code: 1A / CTF-RM)
(unavailable for submerged pumps)
- Report indicating sound pressure and power measurements (EN ISO 20361, EN ISO 11203, EN ISO 4871) using the
  - intensimetric (EN ISO 9614-1, EN ISO 9614-2), or
  - phonometric method.

e) **Vibration Test Report**
(unavailable for submerged or submergible pumps)
- Report indicating vibration measurements (ISO 10816-1)

ii) Declaration of product conformity with the technical requirements indicated in the order

a) **EN 10204:2004 - type 2.1** (Lowara identity code: CTF-21)
- does not include test results on supplied or similar products.

b) **EN 10204:2004 - type 2.2** (Lowara identity code: CTF-22)
- includes test results (materials certificates) on similar products.

c) **EN 10204:2004 - type 3.1** (Lowara identity code: 1A / CTF-31 or 1B / CTF-31)
- includes test report (*Factory Test Report* or *Audit Test Report*), list of materials, EC Declaration of Conformity (in addition to the one accompanying the product), certificates / declarations concerning materials in contact with water.

iii) Issue of a further EC Declaration of Conformity,

- in addition to the one accompanying the product, it comprises references to European law and the main technical standards (e.g.: MD 2006/42/EC, EMCD 2004/108/EC, ErP 2009/125/EC).

N.B.: if the request is made after receipt of the product, communicate the code (name) and serial number (date + progressive number).

iv) Manufacturer's declaration of conformity

- relative to one of more types of products without indicating specific codes and serial numbers.

v) Other certificates and/or documentation on request

- subject to availability or feasibility.

vi) Duplication of certificates and/or documentation on request

- subject to availability or feasibility.

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TECHNICAL APPENDIX

NPSH

The minimum operating values that can be reached at the pump suction end are limited by the onset of cavitation.

Cavitation is the formation of vapour-filled cavities within liquids where the pressure is locally reduced to a critical value, or where the local pressure is equal to, or just below the vapour pressure of the liquid.

The vapour-filled cavities flow with the current and when they reach a higher pressure area the vapour contained in the cavities condenses. The cavities collide, generating pressure waves that are transmitted to the walls. These, being subjected to stress cycles, gradually become deformed and yield due to fatigue. This phenomenon, characterized by a metallic noise produced by the hammering on the pipe walls, is called incipient cavitation.

The damage caused by cavitation may be magnified by electrochemical corrosion and a local rise in temperature due to the plastic deformation of the walls. The materials that offer the highest resistance to heat and corrosion are alloy steels, especially austenitic steel. The conditions that trigger cavitation may be assessed by calculating the total net suction head, referred to in technical literature with the acronym NPSH (Net Positive Suction Head).

The NPSH represents the total energy (expressed in m.) of the liquid measured at suction under conditions of incipient cavitation, excluding the vapour pressure (expressed in m.) that the liquid has at the pump inlet.

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

hp + hz $\geq$ **(NPSHr + 0.5) + hf + hpv** ①

where:

hp is the absolute pressure applied to the free liquid surface in the suction tank, expressed in m. of liquid; hp is the quotient between the barometric pressure and the specific weight of the liquid.

hz is the suction lift between the pump axis and the free liquid surface in the suction tank, expressed in m.; hz is negative when the liquid level is lower than the pump axis.

hf is the flow resistance in the suction line and its accessories, such as: fittings, foot valve, gate valve, elbows, etc.

hpv is the vapour pressure of the liquid at the operating temperature, expressed in m. of liquid. hpv is the quotient between the Pv vapour pressure and the liquid's specific weight.

0,5 is the safety factor.

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

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

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

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

Friction loss is shown in the tables at pages 86-87 of this catalogue. To reduce it to a minimum, especially in cases of high suction head (over 4-5 m.) or within the operating limits with high flow rates, we recommend using a suction line having a larger diameter than that of the pump's suction port.
It is always a good idea to position the pump as close as possible to the liquid to be pumped.

Make the following calculation:

Liquid: water at ~15°C $\gamma = 1$ kg/dm^3
Flow rate required: 25 m^3/h
Head for required delivery: 70 m.
Suction lift: 3,5 m.
The selection is an 33SV3G075T pump whose NPSH required value is, at 25 m^3/h, of 2 m.

For water at 15 °C

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

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

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

from which we have: $6,8 > 3,9$

The relation is therefore verified.

VAPOUR PRESSURE
VAPOUR PRESSURE ps AND ρ DENSITY OF WATER TABLE

t	T	ps	ρ
°C	K	bar	kg/dm³
0	273,15	0,00611	0,9998
1	274,15	0,00657	0,9999
2	275,15	0,00706	0,9999
3	276,15	0,00758	0,9999
4	277,15	0,00813	1,0000
5	278,15	0,00872	1,0000
6	279,15	0,00935	1,0000
7	280,15	0,01001	0,9999
8	281,15	0,01072	0,9999
9	282,15	0,01147	0,9998
10	283,15	0,01227	0,9997
11	284,15	0,01312	0,9997
12	285,15	0,01401	0,9996
13	286,15	0,01497	0,9994
14	287,15	0,01597	0,9993
15	288,15	0,01704	0,9992
16	289,15	0,01817	0,9990
17	290,15	0,01936	0,9988
18	291,15	0,02062	0,9987
19	292,15	0,02196	0,9985
20	293,15	0,02337	0,9983
21	294,15	0,24850	0,9981
22	295,15	0,02642	0,9978
23	296,15	0,02808	0,9976
24	297,15	0,02982	0,9974
25	298,15	0,03166	0,9971
26	299,15	0,03360	0,9968
27	300,15	0,03564	0,9966
28	301,15	0,03778	0,9963
29	302,15	0,04004	0,9960
30	303,15	0,04241	0,9957
31	304,15	0,04491	0,9954
32	305,15	0,04753	0,9951
33	306,15	0,05029	0,9947
34	307,15	0,05318	0,9944
35	308,15	0,05622	0,9940
36	309,15	0,05940	0,9937
37	310,15	0,06274	0,9933
38	311,15	0,06624	0,9930
39	312,15	0,06991	0,9927
40	313,15	0,07375	0,9923
41	314,15	0,07777	0,9919
42	315,15	0,08198	0,9915
43	316,15	0,09639	0,9911
44	317,15	0,09100	0,9907
45	318,15	0,09582	0,9902
46	319,15	0,10086	0,9898
47	320,15	0,10612	0,9894
48	321,15	0,11162	0,9889
49	322,15	0,11736	0,9884
50	323,15	0,12335	0,9880
51	324,15	0,12961	0,9876
52	325,15	0,13613	0,9871
53	326,15	0,14293	0,9862
54	327,15	0,15002	0,9862

t	T	ps	ρ
°C	K	bar	kg/dm³
55	328,15	0,15741	0,9857
56	329,15	0,16511	0,9852
57	330,15	0,17313	0,9846
58	331,15	0,18147	0,9842
59	332,15	0,19016	0,9837
60	333,15	0,1992	0,9832
61	334,15	0,2086	0,9826
62	335,15	0,2184	0,9821
63	336,15	0,2286	0,9816
64	337,15	0,2391	0,9811
65	338,15	0,2501	0,9805
66	339,15	0,2615	0,9799
67	340,15	0,2733	0,9793
68	341,15	0,2856	0,9788
69	342,15	0,2984	0,9782
70	343,15	0,3116	0,9777
71	344,15	0,3253	0,9770
72	345,15	0,3396	0,9765
73	346,15	0,3543	0,9760
74	347,15	0,3696	0,9753
75	348,15	0,3855	0,9748
76	349,15	0,4019	0,9741
77	350,15	0,4189	0,9735
78	351,15	0,4365	0,9729
79	352,15	0,4547	0,9723
80	353,15	0,4736	0,9716
81	354,15	0,4931	0,9710
82	355,15	0,5133	0,9704
83	356,15	0,5342	0,9697
84	357,15	0,5557	0,9691
85	358,15	0,5780	0,9684
86	359,15	0,6011	0,9678
87	360,15	0,6249	0,9671
88	361,15	0,6495	0,9665
89	362,15	0,6749	0,9658
90	363,15	0,7011	0,9652
91	364,15	0,7281	0,9644
92	365,15	0,7561	0,9638
93	366,15	0,7849	0,9630
94	367,15	0,8146	0,9624
95	368,15	0,8453	0,9616
96	369,15	0,8769	0,9610
97	370,15	0,9094	0,9602
98	371,15	0,9430	0,9596
99	372,15	0,9776	0,9586
100	373,15	1,0133	0,9581
102	375,15	1,0878	0,9567
104	377,15	1,1668	0,9552
106	379,15	1,2504	0,9537
108	381,15	1,3390	0,9522
110	383,15	1,4327	0,9507
112	385,15	1,5316	0,9491
114	387,15	1,6362	0,9476
116	389,15	1,7465	0,9460
118	391,15	1,8628	0,9445

t	T	ps	ρ
°C	K	bar	kg/dm³
120	393,15	1,9854	0,9429
122	395,15	2,1145	0,9412
124	397,15	2,2504	0,9396
126	399,15	2,3933	0,9379
128	401,15	2,5435	0,9362
130	403,15	2,7013	0,9346
132	405,15	2,867	0,9328
134	407,15	3,041	0,9311
136	409,15	3,223	0,9294
138	411,15	3,414	0,9276
140	413,15	3,614	0,9258
145	418,15	4,155	0,9214
155	428,15	5,433	0,9121
160	433,15	6,181	0,9073
165	438,15	7,008	0,9024
170	433,15	7,920	0,8973
175	448,15	8,924	0,8921
180	453,15	10,027	0,8869
185	458,15	11,233	0,8815
190	463,15	12,551	0,8760
195	468,15	13,987	0,8704
200	473,15	15,550	0,8647
205	478,15	17,243	0,8588
210	483,15	19,077	0,8528
215	488,15	21,060	0,8467
220	493,15	23,198	0,8403
225	498,15	25,501	0,8339
230	503,15	27,976	0,8273
235	508,15	30,632	0,8205
240	513,15	33,478	0,8136
245	518,15	36,523	0,8065
250	523,15	39,776	0,7992
255	528,15	43,246	0,7916
260	533,15	46,943	0,7839
265	538,15	50,877	0,7759
270	543,15	55,058	0,7678
275	548,15	59,496	0,7593
280	553,15	64,202	0,7505
285	558,15	69,186	0,7415
290	563,15	74,461	0,7321
295	568,15	80,037	0,7223
300	573,15	85,927	0,7122
305	578,15	92,144	0,7017
310	583,15	98,70	0,6906
315	588,15	105,61	0,6791
320	593,15	112,89	0,6669
325	598,15	120,56	0,6541
330	603,15	128,63	0,6404
340	613,15	146,05	0,6102
350	623,15	165,35	0,5743
360	633,15	186,75	0,5275
370	643,15	210,54	0,4518
374,15	647,30	221,20	0,3154

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

FLOW RATE			NOMINAL DIAMETER in mm and inches																
m^3/h	l/min		15	20	25	32	40	50	65	80	100	125	150	175	200	250	300	350	400
			1/2"	3/4"	1"	1 1/4"	1 1/2"	2	2 1/2"	3"	4"	5"	6"	7"	8"	10"	12"	14"	16"
0,6	10	v	0,94	0,53	0,34	0,21	0,13												
		hr	16	3,94	1,33	0,40	0,13												
0,9	15	v	1,42	0,80	0,51	0,31	0,20												
		hr	33,9	8,35	2,82	0,85	0,29												
1,2	20	v	1,89	1,06	0,68	0,41	0,27	0,17											
		hr	57,7	14,21	4,79	1,44	0,49	0,16											
1,5	25	v	2,36	1,33	0,85	0,52	0,33	0,21											
		hr	87,2	21,5	7,24	2,18	0,73	0,25											
1,8	30	v	2,83	1,59	1,02	0,62	0,40	0,25											
		hr	122	30,1	10,1	3,05	1,03	0,35											
2,1	35	v	3,30	1,86	1,19	0,73	0,46	0,30											
		hr	162	40,0	13,5	4,06	1,37	0,46											
2,4	40	v		2,12	1,36	0,83	0,53	0,34	0,20										
		hr		51,2	17,3	5,19	1,75	0,59	0,16										
3	50	v		2,65	1,70	1,04	0,66	0,42	0,25										
		hr		77,4	26,1	7,85	2,65	0,89	0,25										
3,6	60	v		3,18	2,04	1,24	0,80	0,51	0,30										
		hr		108	36,6	11,0	3,71	1,25	0,35										
4,2	70	v		3,72	2,38	1,45	0,93	0,59	0,35										
		hr		144	48,7	14,6	4,93	1,66	0,46										
4,8	80	v		4,25	2,72	1,66	1,06	0,68	0,40										
		hr		185	62,3	18,7	6,32	2,13	0,59										
5,4	90	v			3,06	1,87	1,19	0,76	0,45	0,30									
		hr			77,5	23,3	7,85	2,65	0,74	0,27									
6	100	v			3,40	2,07	1,33	0,85	0,50	0,33									
		hr			94,1	28,3	9,54	3,22	0,90	0,33									
7,5	125	v			4,25	2,59	1,66	1,06	0,63	0,41									
		hr			142	42,8	14,4	4,86	1,36	0,49									
9	150	v				3,11	1,99	1,27	0,75	0,50	0,32								
		hr				59,9	20,2	6,82	1,90	0,69	0,23								
10,5	175	v				3,63	2,32	1,49	0,88	0,58	0,37								
		hr				79,7	26,9	9,07	2,53	0,92	0,31								
12	200	v				4,15	2,65	1,70	1,01	0,66	0,42								
		hr				102	34,4	11,6	3,23	1,18	0,40								
15	250	v				5,18	3,32	2,12	1,26	0,83	0,53	0,34							
		hr				154	52,0	17,5	4,89	1,78	0,60	0,20							
18	300	v					3,98	2,55	1,51	1,00	0,64	0,41							
		hr					72,8	24,6	6,85	2,49	0,84	0,28							
24	400	v					5,31	3,40	2,01	1,33	0,85	0,54	0,38						
		hr					124	41,8	11,66	4,24	1,43	0,48	0,20						
30	500	v					6,63	4,25	2,51	1,66	1,06	0,68	0,47						
		hr					187	63,2	17,6	6,41	2,16	0,73	0,30						
36	600	v						5,10	3,02	1,99	1,27	0,82	0,57	0,42					
		hr						88,6	24,7	8,98	3,03	1,02	0,42	0,20					
42	700	v						5,94	3,52	2,32	1,49	0,95	0,66	0,49					
		hr						118	32,8	11,9	4,03	1,36	0,56	0,26					
48	800	v						6,79	4,02	2,65	1,70	1,09	0,75	0,55					
		hr						151	42,0	15,3	5,16	1,74	0,72	0,34					
54	900	v						7,64	4,52	2,99	1,91	1,22	0,85	0,62					
		hr						188	52,3	19,0	6,41	2,16	0,89	0,42					
60	1000	v							5,03	3,32	2,12	1,36	0,94	0,69	0,53				
		hr							63,5	23,1	7,79	2,63	1,08	0,51	0,27				
75	1250	v							6,28	4,15	2,65	1,70	1,18	0,87	0,66				
		hr							96,0	34,9	11,8	3,97	1,63	0,77	0,40				
90	1500	v							7,54	4,98	3,18	2,04	1,42	1,04	0,80				
		hr							134	48,9	16,5	5,57	2,29	1,08	0,56				
105	1750	v							8,79	5,81	3,72	2,38	1,65	1,21	0,93				
		hr							179	65,1	21,9	7,40	3,05	1,44	0,75				
120	2000	v								6,63	4,25	2,72	1,89	1,39	1,06	0,68			
		hr								83,3	28,1	9,48	3,90	1,84	0,96	0,32			
150	2500	v								8,29	5,31	3,40	2,36	1,73	1,33	0,85			
		hr								126	42,5	14,3	5,89	2,78	1,45	0,49			
180	3000	v									6,37	4,08	2,83	2,08	1,59	1,02	0,71		
		hr									59,5	20,1	8,26	3,90	2,03	0,69	0,28		
210	3500	v									7,43	4,76	3,30	2,43	1,86	1,19	0,83		
		hr									79,1	26,7	11,0	5,18	2,71	0,91	0,38		
240	4000	v									8,49	5,44	3,77	2,77	2,12	1,36	0,94		
		hr									101	34,2	14,1	6,64	3,46	1,17	0,48		
300	5000	v										6,79	4,72	3,47	2,65	1,70	1,18		
		hr										51,6	21,2	10,0	5,23	1,77	0,73		
360	6000	v										8,15	5,66	4,16	3,18	2,04	1,42		
		hr										72,3	29,8	14,1	7,33	2,47	1,02		
420	7000	v											6,61	4,85	3,72	2,38	1,65	1,21	
		hr											39,6	18,7	9,75	3,29	1,35	0,64	
480	8000	v											7,55	5,55	4,25	2,72	1,89	1,39	
		hr											50,7	23,9	12,49	4,21	1,73	0,82	
540	9000	v											8,49	6,24	4,78	3,06	2,12	1,56	1,19
		hr											63,0	29,8	15,5	5,24	2,16	1,02	0,53
600	10000	v												6,93	5,31	3,40	2,36	1,73	1,33
		hr												36,2	18,9	6,36	2,62	1,24	0,65

Hr values must be multiplied by:
0,71 for galvanized or painted steel pipes
0,54 for stainless steel or copper pipes
0,47 for PVC or PE pipes

G-at-pct-en_a_th

hr = flow resistance for 100 m of straight pipeline (m)
V = water speed (m/s)

FLOW RESISTANCE
TABLE OF FLOW RESISTANCE IN BENDS, VALVES AND GATES

The flow resistance is calculated using the equivalent pipeline length method according to the table below:

ACCESSORY TYPE	DN											
	25	32	40	50	65	80	100	125	150	200	250	300
	Equivalent pipeline length (m)											
45° bend	0,2	0,2	0,4	0,4	0,6	0,6	0,9	1,1	1,5	1,9	2,4	2,8
90° bend	0,4	0,6	0,9	1,1	1,3	1,5	2,1	2,6	3,0	3,9	4,7	5,8
90° smooth bend	0,4	0,4	0,4	0,6	0,9	1,1	1,3	1,7	1,9	2,8	3,4	3,9
Union tee or cross	1,1	1,3	1,7	2,1	2,6	3,2	4,3	5,3	6,4	7,5	10,7	12,8
Gate	-	-	-	0,2	0,2	0,2	0,4	0,4	0,6	0,9	1,1	1,3
Non return valve	1,1	1,5	1,9	2,4	3,0	3,4	4,7	5,9	7,4	9,6	11,8	13,9

G-a-pcv-en_a_th

The table is valid for the Hazen Williams coefficient C=100 (cast iron pipework);
for steel pipework, multiply the values by 1,41;
for stainless steel, copper and coated cast iron pipework, multiply the values by 1,85;
When the **equivalent pipeline length** has been determined, the flow resistance is obtained from the table of flow resistance.
The values given are guideline values which are bound to vary slightly according to the model, especially for gate valves and non-return valves, for which it is a good idea to check the values supplied by manufacturers.

VOLUMETRIC CAPACITY

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

PRESSURE AND HEAD

Newton per square metre N/m^2	kilo Pascal kPa	bar bar	Pound force per square inch psi	Metre of water m H_2O	Millimetre of mercury mm Hg
1,0000	0,0010	1×10^{-5}	$1,45 \times 10^{-4}$	$1,02 \times 10^{-4}$	0,0075
1 000,0000	**1,0000**	0,0100	0,1450	0,1020	7,5006
1×10^5	100,0000	**1,0000**	14,5038	10,1972	750,0638
6 894,7570	6,8948	0,0689	**1,0000**	0,7031	51,7151
9 806,6500	9,8067	0,0981	1,4223	**1,0000**	73,5561
133,3220	0,1333	0,0013	0,0193	0,0136	**1,0000**

LENGTH

Millimetre mm	Centimetre cm	Metre m	Inch in	Foot ft	Yard yd
1,0000	0,1000	0,0010	0,0394	0,0033	0,0011
10,0000	**1,0000**	0,0100	0,3937	0,0328	0,0109
1 000,0000	100,0000	**1,0000**	39,3701	3,2808	1,0936
25,4000	2,5400	0,0254	**1,0000**	0,0833	0,0278
304,8000	30,4800	0,3048	12,0000	**1,0000**	0,3333
914,4000	91,4400	0,9144	36,0000	3,0000	**1,0000**

VOLUME

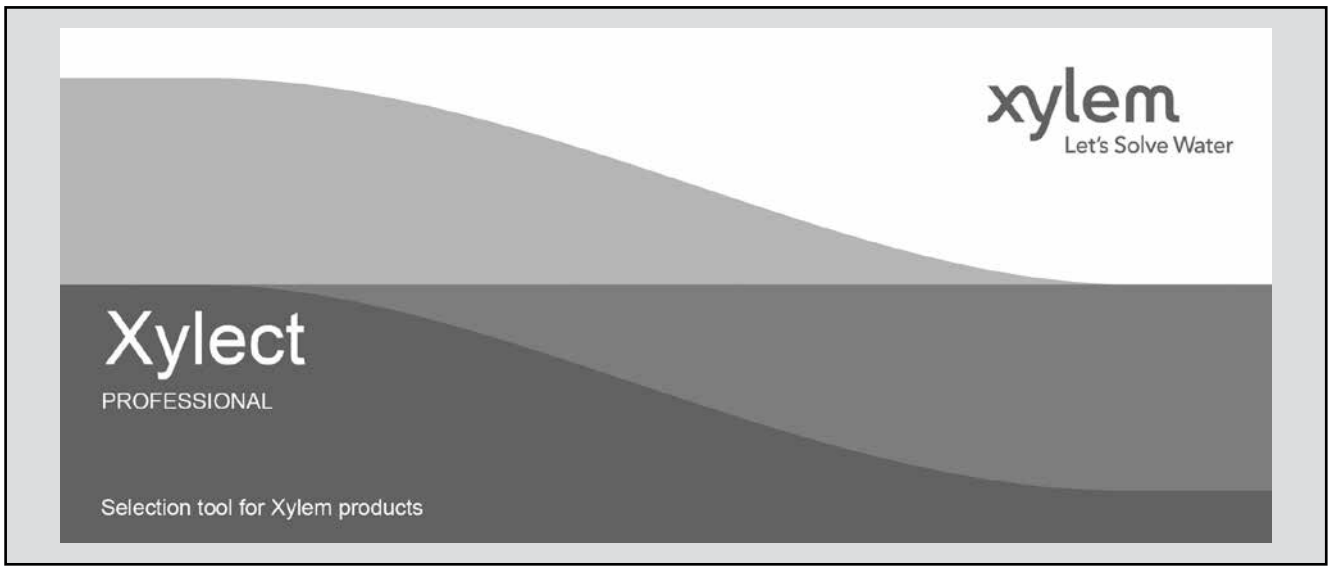
Cubic metre m^3	Litre L	Millilitre ml	Imperial gallon imp. gal.	U.S. gallon US gal.	Cubic foot ft^3
1,0000	1 000,0000	1×10^6	219,9694	264,1720	35,3147
0,0010	**1,0000**	1 000,0000	0,2200	0,2642	0,0353
1×10^{-6}	0,0010	**1,0000**	$2,2 \times 10^{-4}$	$2,642 \times 10^{-4}$	$3,53 \times 10^{-5}$
0,0045	4,5461	4 546,0870	**1,0000**	1,2009	0,1605
0,0038	3,7854	3 785,4120	0,8327	**1,0000**	0,1337
0,0283	28,3168	28 316,8466	6,2288	7,4805	**1,0000**

TEMPERATURE

Water	Kelvin K	Celsius °C	Fahrenheit °F	$°F = °C \times \frac{9}{5} + 32$ $°C = (°F - 32) \times \frac{5}{9}$
icing	273,1500	0,0000	32,0000	
boiling	373,1500	100,0000	212,0000	

G-at_pp-en_b_sc

FURTHER PRODUCT SELECTION AND DOCUMENTATION
Xylect™



Xylect™ is pump solution selection software with an extensive online database of product information across the entire Lowara, and Vogel range of pumps and related products, with multiple search options and helpful project management facilities. The system holds up-to-date product information on thousands of products and accessories.

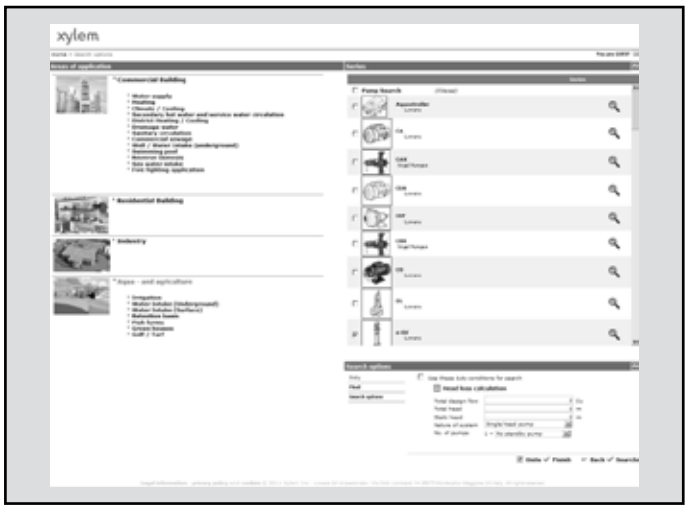
The possibility to search by applications and the detailed information output given makes it easy to make the optimal selection without having detailed knowledge about the Lowara and Vogel products.

The search can be made by:

- Application
- Product type
- Duty point

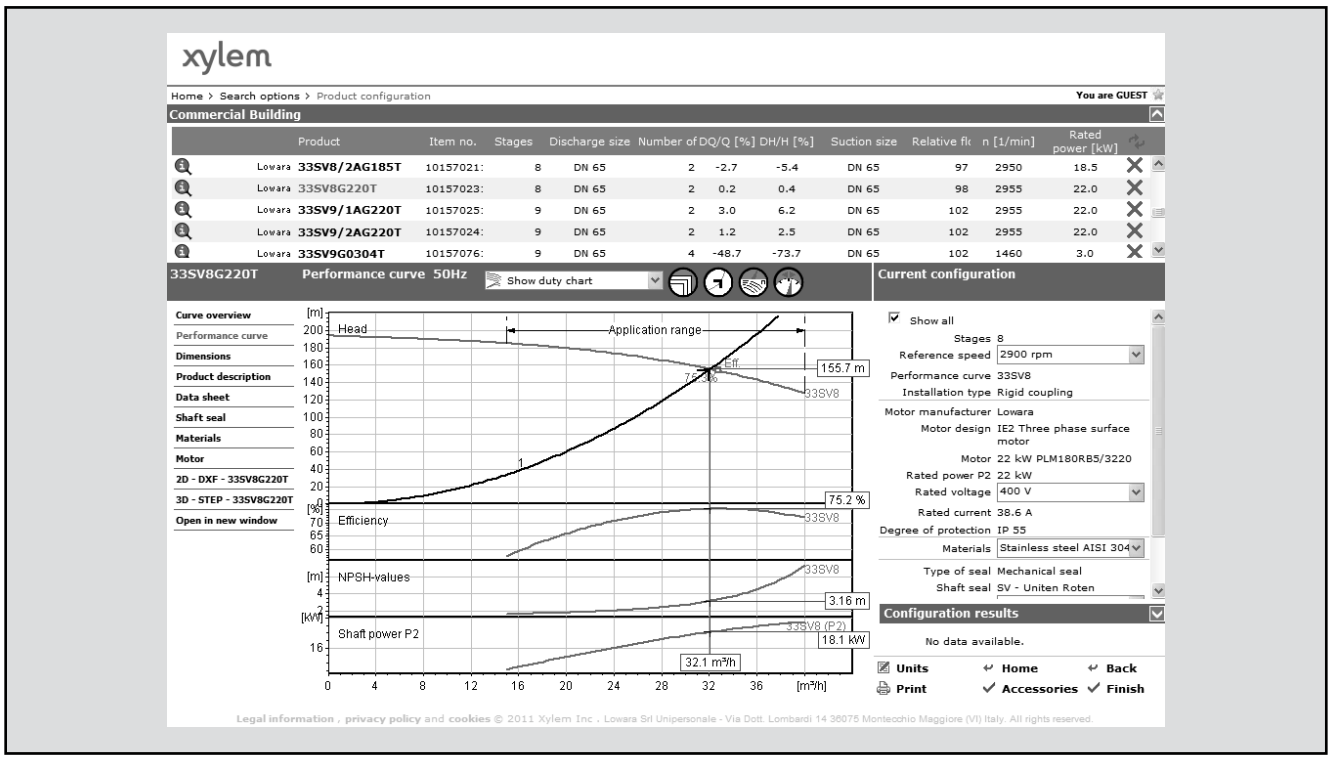
Xylect™ gives a detailed output:

- List with search results
- Performance curves (flow, head, power, efficiency, NPSH)
- Motor data
- Dimensional drawings
- Options
- Data sheet printouts
- Document downloads incl dxf files



The search by application guides users not familiar with the product range to the right choice.

FURTHER PRODUCT SELECTION AND DOCUMENTATION
Xylect™



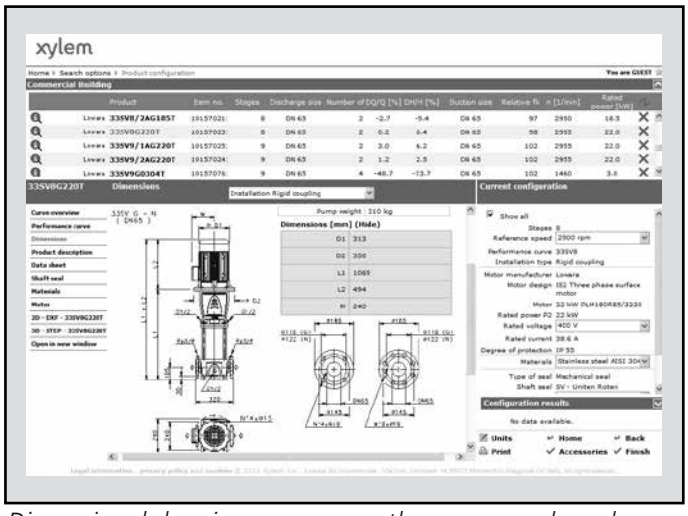
The detailed output makes it easy to select the optimal pump from the given alternatives.

The best way to work with Xylect™ is to create a personal account. This makes it possible to:

- Set own standard units
- Create and save projects
- Share projects with other Xylect™ users

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

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



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

Xylem |'zīləm|

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

We're approximately 12,900 people unified in a common purpose: creating innovative solutions to meet our world's water needs. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. We move, treat, analyze, and return water to the environment, and we help people use water efficiently, in their homes, buildings, factories and farms. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise, backed by a legacy of innovation.

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