

LS, LSV

Long-coupled split-case pump

50 Hz



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1. Product introduction

Grundfos long-coupled, split-case, double inlet pumps are non-self priming, centrifugal volute pumps. It is available in two main designs: single-stage and double-stage, horizontal installation type LS and vertical installation type LSV. The pumps are energy-efficient. Hydraulic parts are designed using computational fluid dynamics (CFD). The compensated double-volute design virtually eliminates radial forces on the shaft and ensures smooth performance throughout the entire operating range. LS, LSV pumps are easy to install owing to the in-line design, meaning that inlet and outlet ports are in a straight line. The split-case construction enables removal and dismantling of the internal pump parts, such as bearings, wear rings, impeller and shaft seal, without disturbing the motor or pipework. Flanges are in accordance with DIN standards.



Fig. 1 Grundfos LS pump

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Fig. 2 Grundfos LS double stage pump

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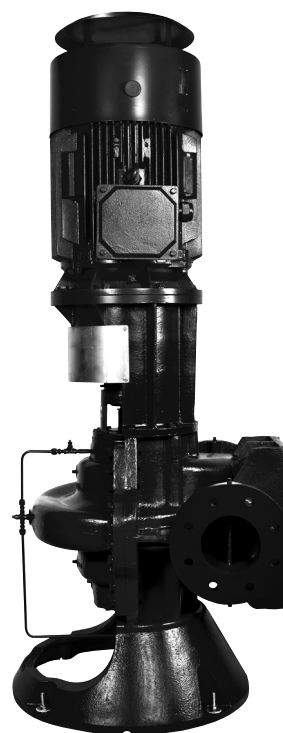


Fig. 3 Grundfos LSV pump

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2. Applications

LS, LSV pumps are used in these main fields of application:

Commercial systems

- Air conditioning, primary and secondary chilled water systems
- water condensing systems and cooling towers
- high-rise buildings
- district heating plants and heating systems
- swimming pools
- fountains.



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Fig. 4 LS pump in a commercial building application

Industrial systems

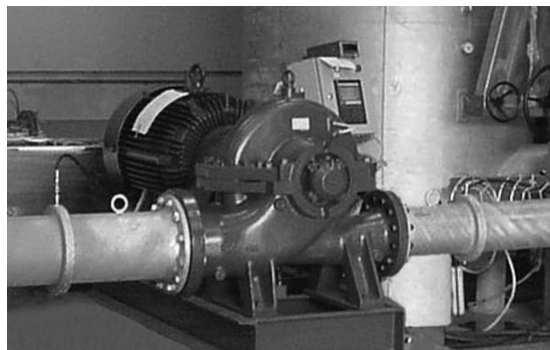
- Process cooling and chilled water systems
- water condensing systems and cooling towers
- industrial heating systems
- wash down and cleaning systems
- industrial processing systems (water, light chemicals, oils, etc.).

Water distribution

- Public waterworks
- non-potable water systems
- irrigation and aquaculture.

Irrigation covers these applications

- Field irrigation (flooding)
- sprinkler irrigation and drip-feed irrigation
- aquafarming.



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Fig. 5 LS pump in a waterworks



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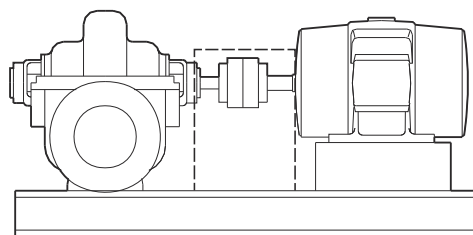
Fig. 6 LS, LSV pump in sprinkler irrigation

3. Features and benefits

LS, LSV pumps offer the following features and benefits:

- The pumps are non-self-priming, centrifugal volute pumps with radial inlet and radial outlet ports. All pumps are designed according to ISO 5199. Impellers are dynamically balanced according to ISO1940 class G 6.3.
- Inlet and outlet flanges are in accordance with DIN standards.
- CFD is used to design and verify the hydraulic model of impeller and pump casing in order to improve the efficiency of the pumps. LS pumps can keep high hydraulic efficiency even if the flow rate deviates up to 20 % from the design duty point.
- The compensated double-volute design virtually eliminates radial forces acting on the shaft, thus extending seal and bearing life. The result of this combination of balanced radial forces and axially balanced hydraulics is quiet, smooth performance throughout the entire operating range.
- Grundfos offers both mechanical shaft seals and stuffing boxes to seal the shaft.
- Grundfos offers both elastic pin couplings and diaphragm couplings.
- The standard material of the pump casing is cast iron. We can supply customised solutions with ductile cast iron or stainless steel pump casing.
- The standard material of the impeller is stainless steel. We can supply customised solutions with aluminium bronze or duplex stainless steel impeller.
- The bearings are brands of world renown with low failure rate and long life.
- LS pumps have the following flange dimensions:
Inlet port diameter: 65-12000 mm
Outlet port diameter: 50-800 mm.
- LS pumps cover the following performance range:
Maximum flow rate: 12000 m³/h
Maximum head: 165 m.

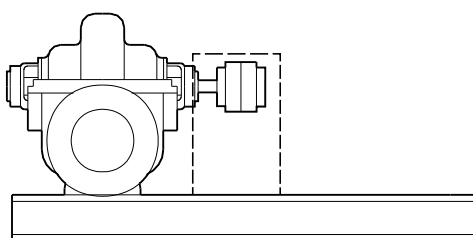
- LS pumps are available in five different variants:
 - Pump with motor and common base frame. See fig. 7.



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Fig. 7 Pump with motor and common base frame

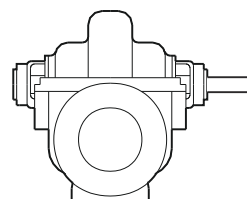
- Bare shaft pump, i.e. pump without motor, with common base frame. See fig. 8.



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Fig. 8 Bare shaft pump with common base frame

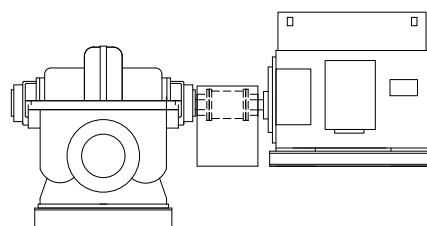
- Bare shaft pump without base frame. See fig. 9.



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Fig. 9 Bare shaft pump

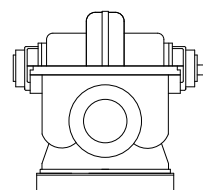
- Pump with motor and separate base frames. See fig. 10.



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Fig. 10 Pump with motor and separate base frames

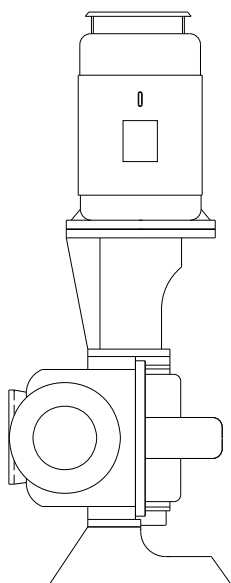
- Bare shaft pump with base frame. See fig. 11.



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Fig. 11 Bare shaft pump with base frame

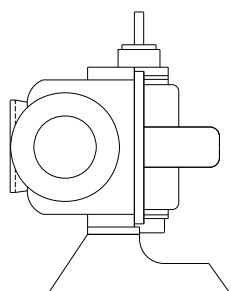
- LSV pumps are available in three different variants:
 - Pump with motor and base frame. See fig. 12.



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Fig. 12 Pump with motor and base frame

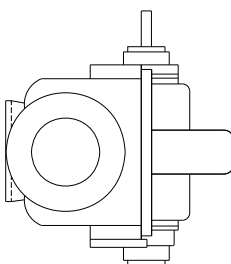
- Bare shaft pump with base frame. See fig. 13.



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Fig. 13 Bare shaft pump with base frame

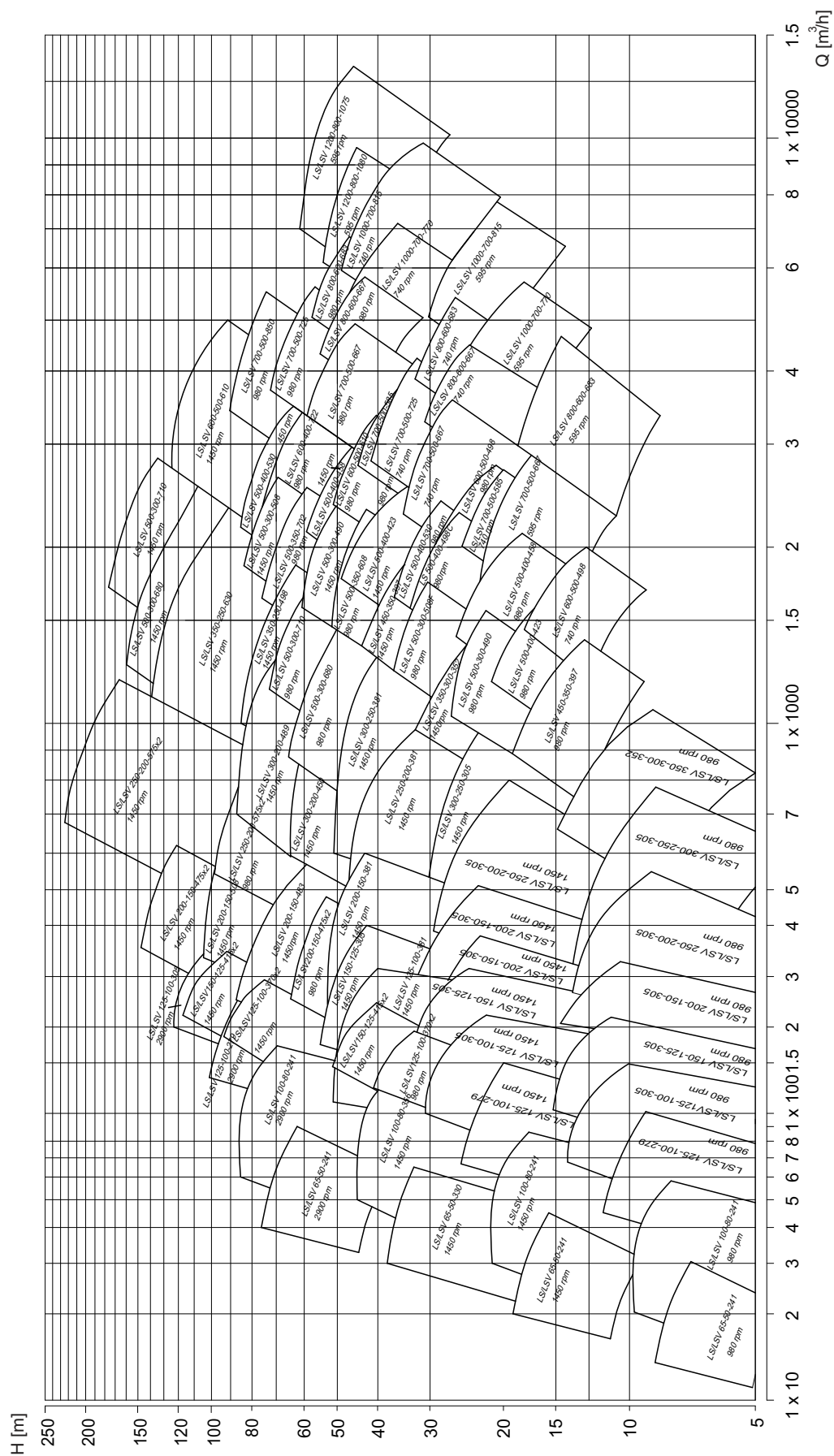
- Bare shaft pump without base frame. See fig. 14.



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Fig. 14 Bare shaft pump

4. Performance range



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5. Product range

Pump configurations

	Standard configuration	Optional configuration
Pump casing	Cast iron	Ductile cast iron Stainless steel
Impeller	Stainless steel	Bronze Duplex stainless steel
Shaft	Stainless steel	
Sleeve	N/A	Stainless steel Duplex stainless steel
Wear ring	Brass	Cast iron Stainless steel Bronze
Shaft seal	Mechanical shaft seal	Stuffing box
Low voltage motor efficiency class (up to 375 kW)	IE3	IE2
High voltage motor	6 kV, 10 kV	-
Pump direction of rotation	Clockwise (CW) (seen from shaft end)	Counterclockwise (CCW) (seen from shaft end)

To a great extent, the pumps can be adapted to the requirements of the individual customer. For customized solutions, contact your local Grundfos company.

Pump range

The table below gives an overview of the LS, LSV pump range. The table shows the complete pump range and construction types.

LS pumps are available with 2-, 4-, 6-, 8- and 10-pole motors;

Other pole numbers are available on request.

LS single-stage pumps are available in three different standard construction types: type 1, type 2 and type 5.

LS double-stage pumps are available in two different standard construction types: type 14 and type 15.

LS single-stage pumps are available in four different optional construction types: type 10, type 11, type 12 and type 13.

LSV single-stage pumps are available in four different standard construction types: type 6, type 7, type 8 and type 9.

LSV double-stage pumps are available in two different standard construction types: type 16 and type 17.

All pump types have a mechanical shaft seal. For further details, please see the construction drawings.

Pump type	Number of poles					Design	LS standard construction type ¹⁾					LSV standard construction type ¹⁾						LS optional construction type ¹⁾			
	2	4	6	8	10		1	2	5	14	15	6	7	8	9	16	17	10	11	12	13
LS, LSV 65-50-241	•	•				Single-stage	•					•						•			
LS, LSV 65-50-330		•				Single-stage	•					•						•			
LS, LSV 100-80-241	•	•				Single-stage	•					•						•			
LS, LSV 100-80-356		•				Single-stage	•					•						•			
LS, LSV 125-100-279	•	•				Single-stage	•					•						•			
LS, LSV 125-100-305	•	•				Single-stage	•					•						•			
LS, LSV 125-100-381		•				Single-stage	•					•						•			
LS, LSV 150-125-305		•				Single-stage	•					•						•			
LS, LSV 150-125-381		•	•			Single-stage	•					•						•			
LS, LSV 200-150-305		•	•			Single-stage	•					•						•			
LS, LSV 200-150-381		•	•			Single-stage	•					•						•			
LS, LSV 200-150-483 ²⁾		•	•			Single-stage	•	•				•						•	•		
LS, LSV 200-150-508		•	•			Single-stage		•				•	•	•					•		
LS, LSV 250-200-305		•	•			Single-stage	•					•						•			
LS, LSV 250-200-381		•	•			Single-stage	•					•						•			
LS, LSV 300-200-450		•	•			Single-stage	•					•	•	•	•			•			
LS, LSV 300-200-489		•	•			Single-stage		•				•	•	•	•				•		
LS, LSV 300-250-305		•	•			Single-stage	•					•						•			
LS, LSV 300-250-381		•	•			Single-stage	•					•	•					•			
LS, LSV 350-250-498		•	•			Single-stage		•				•	•	•	•				•		
LS, LSV 350-250-630		•	•			Single-stage		•				•	•	•	•				•		
LS, LSV 350-300-508		•	•			Single-stage		•				•	•	•	•				•		
LS, LSV 350-300-352		•	•			Single-stage		•				•							•		
LS, LSV 500-300-490		•	•			Single-stage			•											•	
LS, LSV 500-300-508		•	•			Single-stage			•											•	
LS, LSV 500-300-710		•	•			Single-stage			•											•	
LS, LSV 500-300-680		•	•			Single-stage			•											•	
LS, LSV 450-350-397		•	•			Single-stage			•			•	•	•							•
LS, LSV 500-350-608			•			Single-stage			•											•	
LS, LSV 500-350-702			•			Single-stage			•											•	
LS, LSV 500-400-423		•	•			Single-stage			•			•	•	•	•					•	
LS, LSV 500-400-458		•	•	•		Single-stage			•			•	•	•	•					•	
LS, LSV 500-400-530		•	•	•		Single-stage			•											•	
LS, LSV 500-400-498			•			Single-stage			•											•	
LS, LSV 600-400-722			•			Single-stage			•											•	
LS, LSV 600-500-498		•	•	•		Single-stage			•			•	•	•	•						•
LS, LSV 600-500-610		•	•	•		Single-stage			•											•	
LS, LSV 700-500-667			•	•	•	Single-stage			•											•	
LS, LSV 700-500-725			•	•	•	Single-stage			•											•	
LS, LSV 700-500-585			•	•		Single-stage			•											•	
LS, LSV 800-600-683			•	•	•	Single-stage			•											•	
LS, LSV 800-600-667			•	•	•	Single-stage			•											•	
LS, LSV 1000-700-815				•	•	Single-stage			•											•	
LS, LSV 1000-700-770				•	•	Single-stage			•											•	
LS, LSV 1200-800-1075				•		Single-stage			•											•	
LS, LSV 1200-800-1080				•		Single-stage			•											•	
LS, LSV 125-100-370 x2		•	•			Double-stage				•						•					
LS, LSV 150-125-415 x2		•	•			Double-stage				•						•					
LS, LSV 200-150-475 x2		•	•			Double-stage				•						•					
LS, LSV 250-200-575 x2		•	•			Double-stage					•					•					

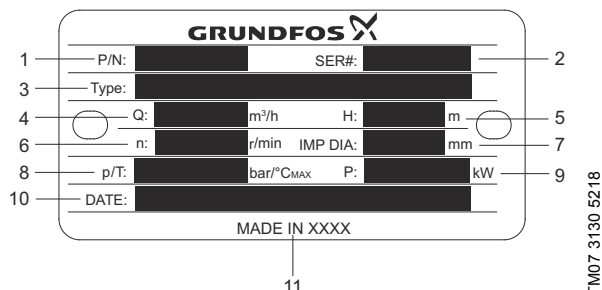
¹⁾ For further information on the construction types, see section 7. *Construction*.

²⁾ This model is available in two different construction types due to the different motor power range.

6. Identification

Nameplate

The nameplate on the pump gives the details of the pump.



Pos.	Description
1	Product number
2	Serial number
3	Type designation (see <i>Type key</i> on page 10)
4	Rated flow rate [m³/h]
5	Pump head at rated flow rate [m]
6	Speed of rotation [rpm]
7	Impeller diameter [mm]
8	Pressure rating and maximum temperature
9	Rated motor power [kW]
10	Production date, year-month-date
11	Country of production

Fig. 15 Nameplate of LS pump

Type key

Example	LS(V)	125	-100	-305x	/273.1	,(W)	1	F1	D	S	BAQE	1
Type range												
LS: Horizontal version												
LSV: Vertical version												
Nominal diameter of inlet port (DN)												
Nominal diameter of outlet port (DN)												
Maximum impeller diameter [mm]												
If suffix "x" is used, the impeller or construction design is different, e.g. A, B, C,...Z												
If suffix "x2" is used, the impeller is a double-stage impeller.												
Actual impeller diameter [mm]												
Drink water code (optional)												
ACS or WARS certified pump												
Pump variant												
1: Basic version, grease-lubrication, pump with motor and common base frame, standard coupling												
2: Grease-lubrication, bare shaft pump with common base frame, standard coupling												
3: Grease-lubrication, bare shaft pump												
4: Grease-lubrication, pump with motor and separate base frames, spacer coupling												
5: Grease-lubrication, bare shaft pump with separate base frame, spacer coupling												
6: Oil-lubrication, pump with motor and common base frame, standard coupling												
7: Oil-lubrication, bare shaft pump with common base frame, standard coupling												
8: Oil-lubrication, bare shaft pump												
9: Oil-lubrication, pump with motor and separate base frames, spacer coupling												
A: Oil-lubrication, bare shaft pump with separate base frame, spacer coupling												
X: Special variant												
Pipe connection												
F1: 10 bar, DIN PN 10												
G1: 10 bar, ANSI 125LB/150LB												
F2: 16 bar, DIN PN 16												
G2: 16 bar, ANSI 250LB/300LB												
F3: 25 bar, DIN PN 25												
G3: 25 bar, ANSI 250LB/300LB												
XX: Special flange												
Materials, shaft and sleeve (optional)												
D: SS420 and no sleeve												
B: SS420 and bronze												
E: SS304 and no sleeve												
A: SS420 and SS304												
J: SS316 and no sleeve												
C: SS420 and SS316												
L: Duplex stainless steel and no sleeve												
K: Duplex stainless steel and duplex stainless steel												
X: Special												

Example	LS(V)	125	-100	-305x	/273.1	,(W)	1	F1	D	S	BAQE	1
Materials, pump casing and impeller												
B: Cast iron and bronze	A: Ductile iron and bronze											
S: Cast iron and SS304	Q: Ductile iron and SS304											
C: Cast iron and SS316	G: Ductile iron and SS316											
D: Cast iron and duplex stainless steel	H: Ductile iron and duplex stainless steel											
U: SS304 and SS304	J: SS316 and SS316											
K: Duplex stainless steel and duplex stainless steel												
X: Special												
Mechanical shaft seals or stuffing box												
BAQE: Rubber bellows unbalance seal, carbon*, SiC, EPDM						BAQV: Rubber bellows unbalance seal, carbon*, SiC, FKM						
AAQE: O-ring unbalance seal, carbon*, SiC, EPDM						AAQV: O-ring unbalance seal, carbon*, SiC, FKM						
DAQE: O-ring balance seal, carbon*, SiC, EPDM						DAQV: O-ring balance seal, carbon*, SiC, FKM						
SAQE: Rubber bellows balance seal, carbon*, SiC, EPDM						SAQV: Rubber bellows balance seal, carbon*, SiC, FKM						
BBQE: Rubber bellows unbalance seal, carbon, SiC, EPDM						BBQV: Rubber bellows unbalance seal, carbon, SiC, FKM						
ABQE: O-ring unbalance seal, carbon, SiC, EPDM						ABQV: O-ring unbalance seal, carbon, SiC, FKM						
DBQE: O-ring balance seal, carbon, SiC, EPDM						DBQV: O-ring balance seal, carbon, SiC, FKM						
SBQE: Rubber bellows balance seal, carbon, SiC, EPDM						SBQV: Rubber bellows balance seal, carbon, SiC, FKM						
BQQE: Rubber bellows unbalance seal, SiC, SiC, EPDM						BQQV: Rubber bellows unbalance seal, SiC, SiC, FKM						
AQQE: O-ring unbalance seal, SiC, SiC, EPDM						AQQV: O-ring unbalance seal, SiC, SiC, FKM						
DQQE: O-ring balance seal, SiC, SiC, EPDM						DQQV: O-ring balance seal, SiC, SiC, FKM						
SQQE: Rubber bellows balance seal, SiC, SiC, EPDM						SQQV: Rubber bellows balance seal, SiC, SiC, FKM						
BBVP: Rubber bellows seal, carbon, aluminium oxide, nitrile rubber												
SNEK: Stuffing box with synthetic polymer packing rings, uncooled, with internal barrier fluid												
Direction of rotation												
(Pump direction of rotation as seen from motor end)												
1	Clockwise											
2	Counterclockwise											

Note:

1. Carbon*: antimony, not approved for potable water.
2. Carbon: resin-impregnated, approved for potable water.

The example shows an LS 125-100-305/273.1 pump with the following features:

- standard type with standard coupling
- DIN PN 10 flange
- cast iron pump casing with SS304 impeller
- BAQE mechanical shaft seal
- clockwise direction of rotation.

Shaft seal

Codes for mechanical shaft seal

Positions (1) - (4) cover four pieces of information about the mechanical shaft seal:

Example	(1)	(2)	(3)	(4)
Grundfos type designation				
Material, rotating seal face				
Material, stationary seat				
Material, secondary seal and other composite and rubber parts				

The following table explains positions (1), (2), (3) and (4).

Pos.	Type	Short description of seal
(1)	A	O-ring seal, unbalanced
	B	Rubber bellows seal, unbalanced
	D	Balanced O-ring seal (with the spring on the atmospheric side (protected from media) and with the spring in the media)
	S	Rubber bellows seal, balanced
	H	Cartridge seal, balanced
Pos.	Type	Material
(2) and (3)	A	Carbon, metal-impregnated (antimony, not approved for potable water)
	B	Carbon, resin-impregnated (approved for potable water)
	Q	Silicon carbide
	U	Tungsten carbide
	V	Aluminium oxide
(4)	E	EPDM
	P	Nitrile rubber (NBR)
	V	FKM (Viton®)

Grundfos can offer other types of mechanical shaft seal, please contact Grundfos.

Codes for stuffing box

LS pumps are available with the stuffing box type SNEK. The positions (1) - (4) cover information about the stuffing box:

Pos.	Code	Short description of stuffing box
(1)	S	Stuffing box with packing rings
Pos.	Code	Cooling method
(2)	N	Uncooled stuffing box
Pos.	Code	Barrier liquid
(3)	E	With internal barrier liquid
(4)	K	PTFE Polytetrafluoroethylene packing rings, NBR O-ring in the pump.

7. Construction

LS pump, standard construction type 1

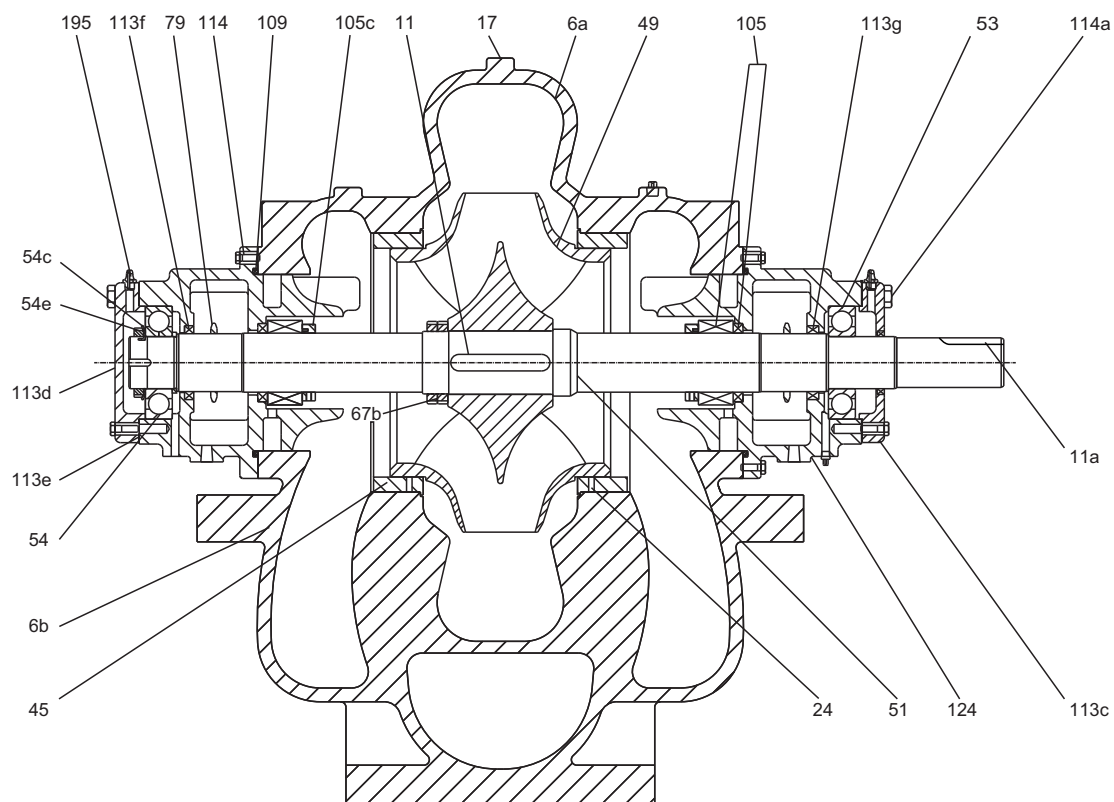


Fig. 16 Sectional drawing, standard construction type 1

LS pump, standard construction type 2

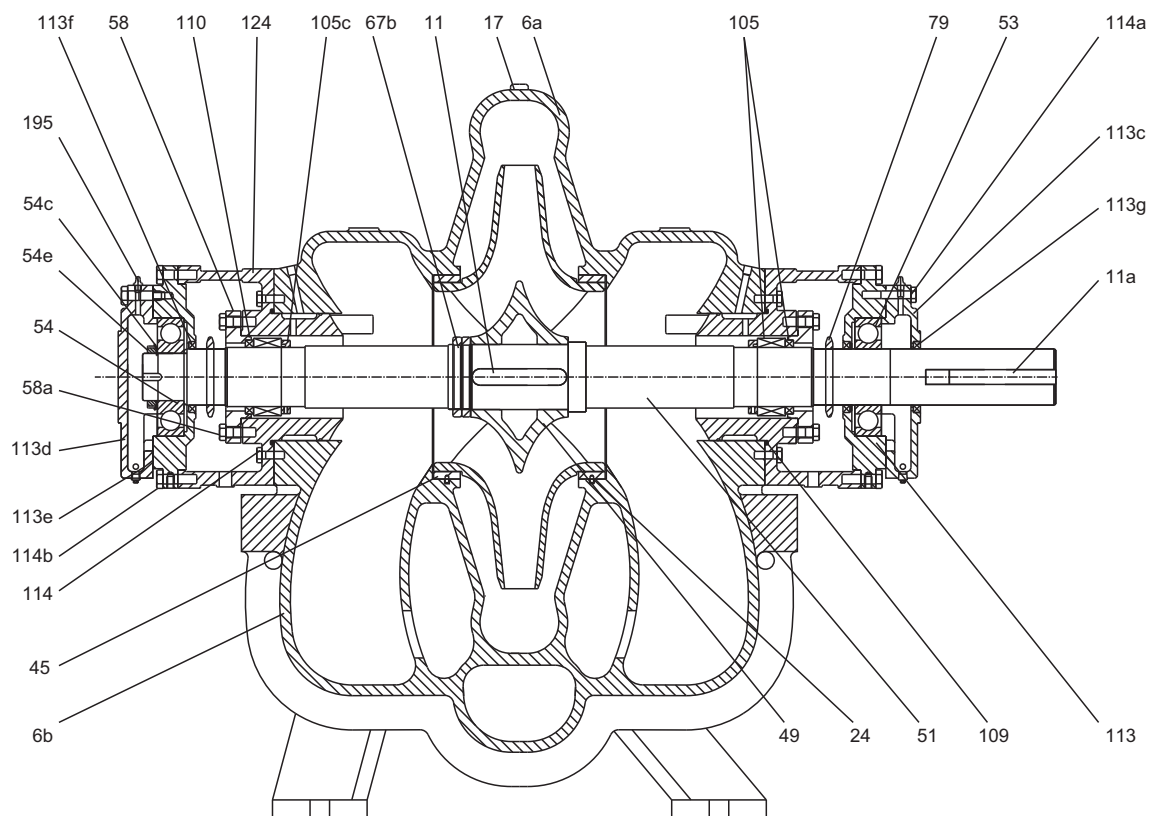


Fig. 17 Sectional drawing, standard construction type 2

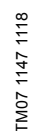


Fig. 18 Sectional drawing, standard construction type 5

LS pump, standard construction type 14

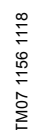
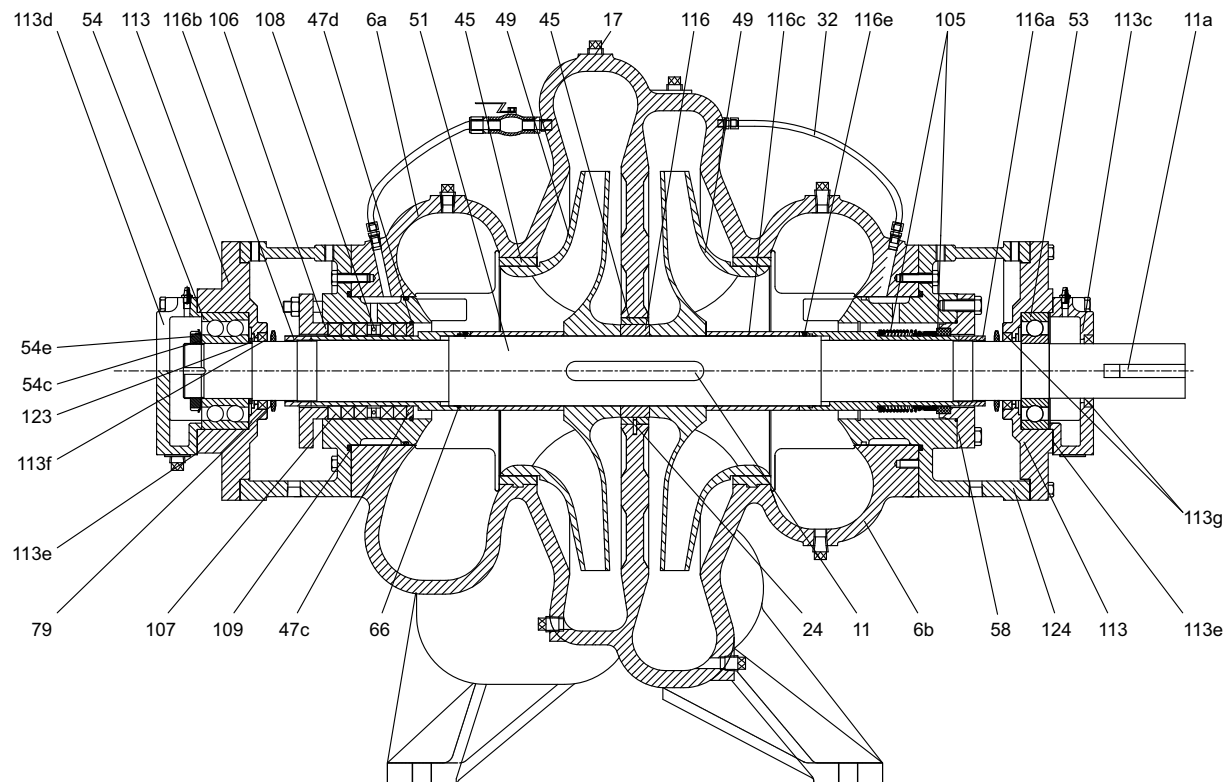


Fig. 19 Sectional drawing, standard construction type 14

LS pump, standard construction type 15



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Fig. 20 Sectional drawing, standard construction type 15

LSV pump, standard construction type 6

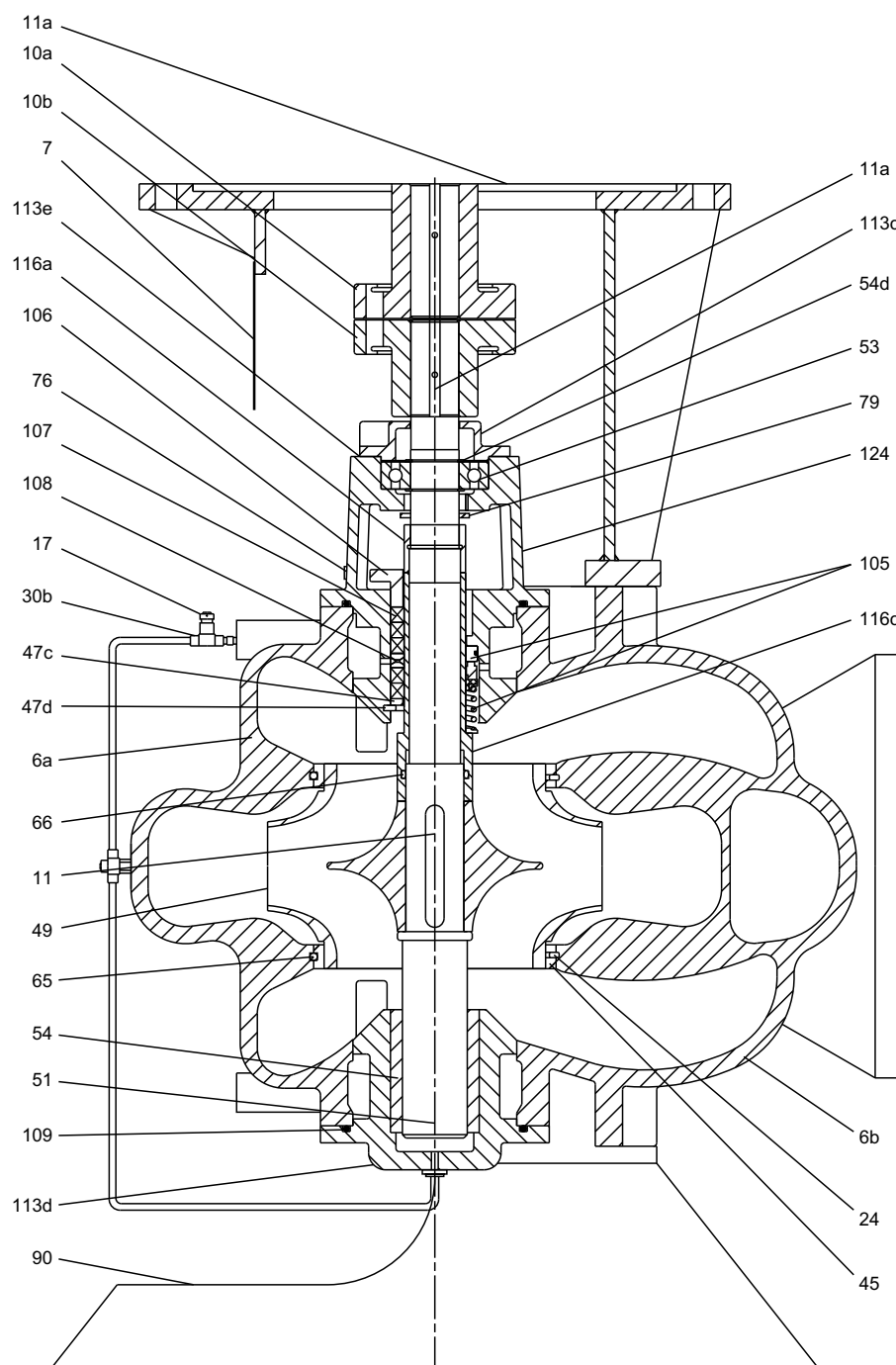
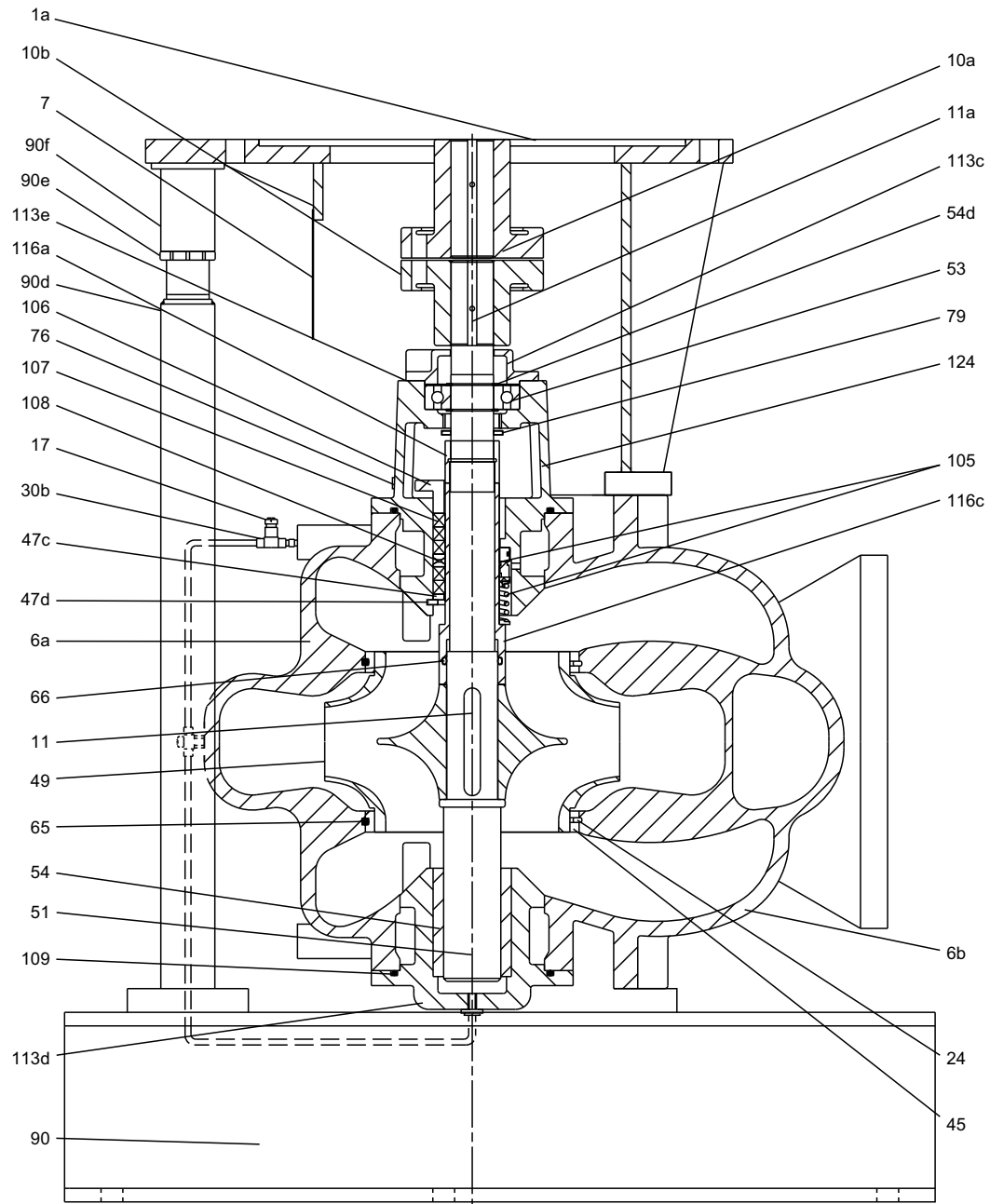


Fig. 21 Sectional drawing, standard construction type 6, motor frame size is up to 250

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LSV pump, standard construction type 7



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Fig. 22 Sectional drawing, standard construction type 7, motor frame size from 280 to 315

LSV pump, standard construction type 8

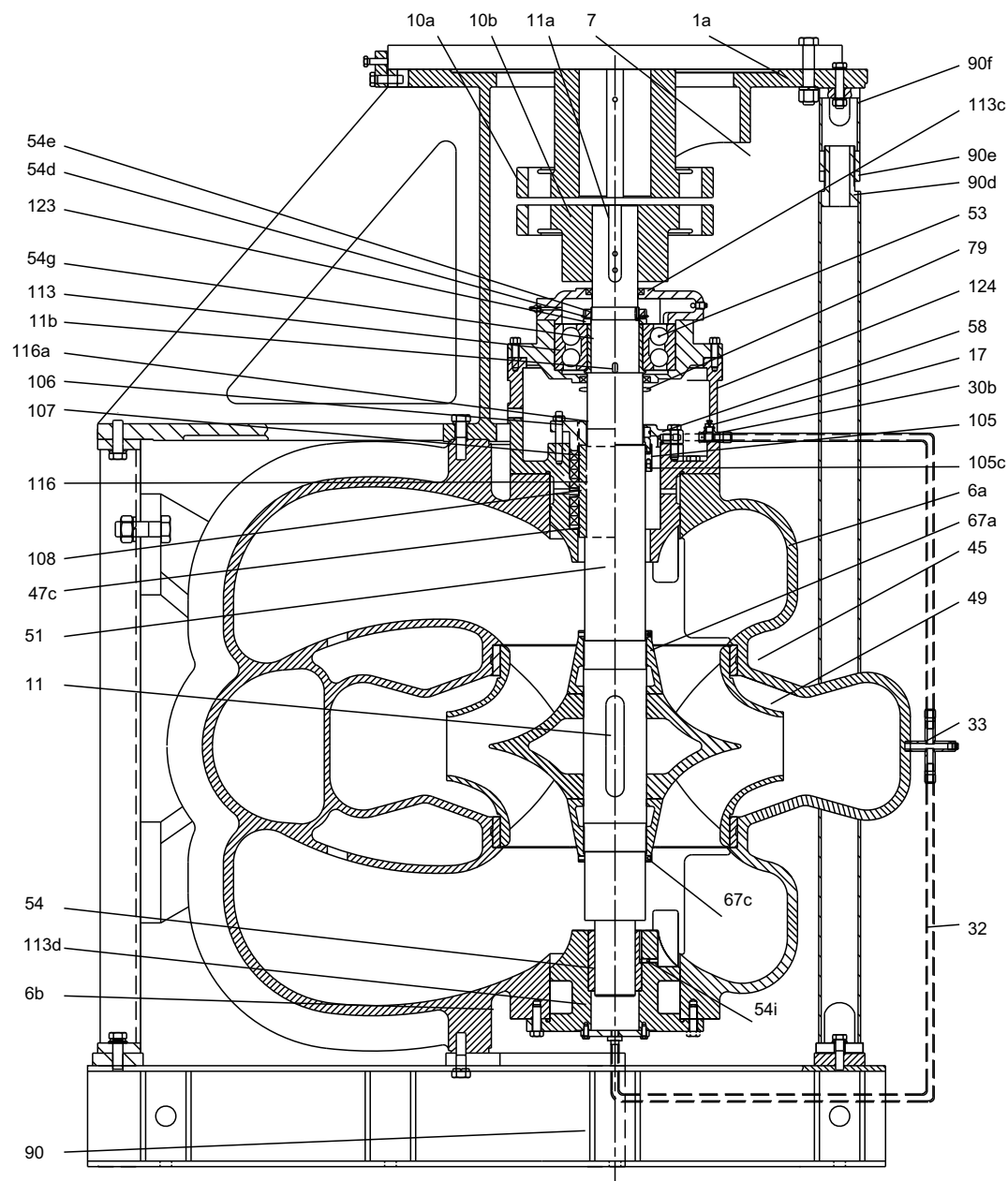
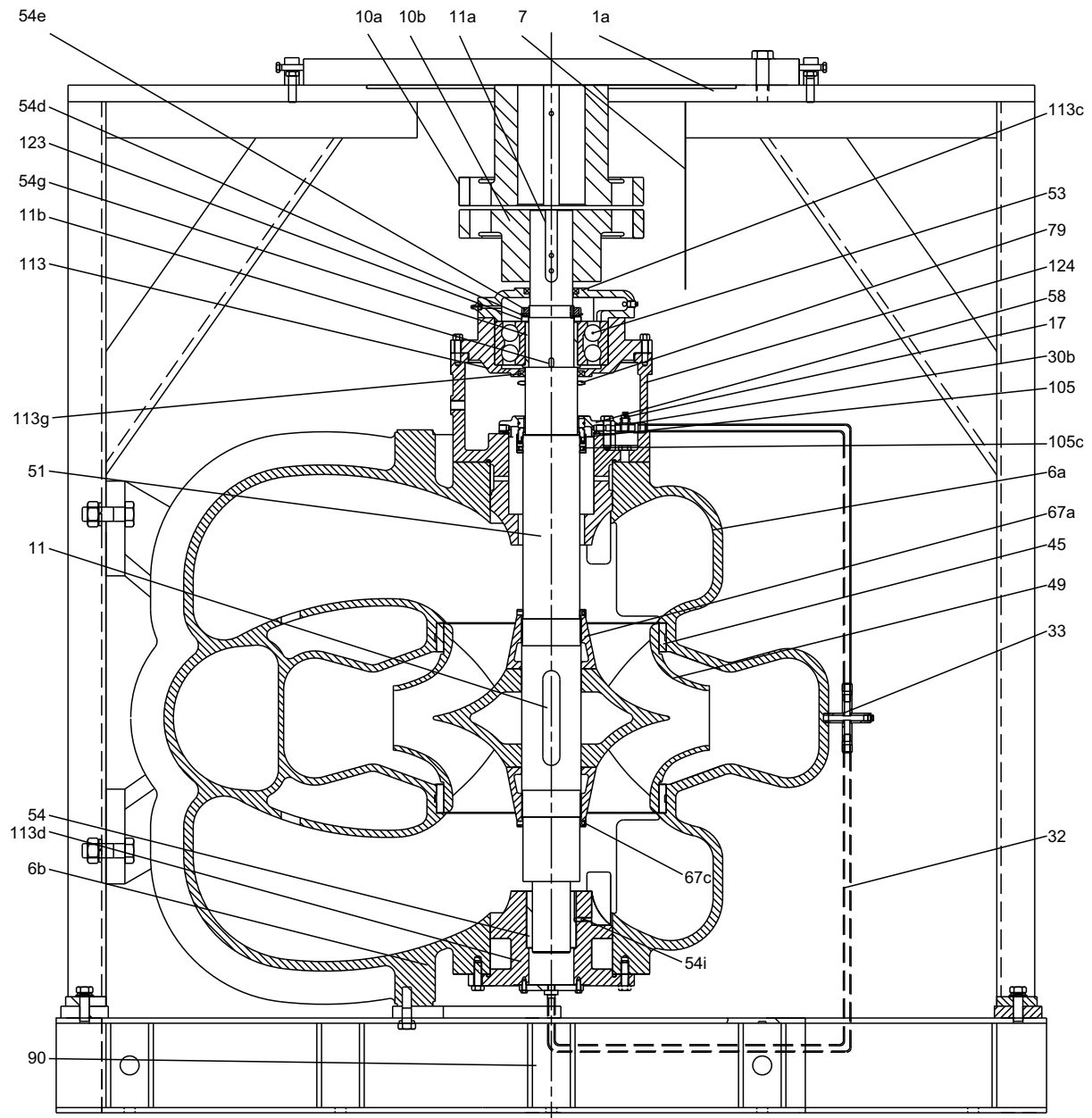


Fig. 23 Sectional drawing, standard construction type 8, motor frame size from 355 to 400

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LSV pump, standard construction type 9



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Fig. 24 Sectional drawing, standard construction type 9, motor frame size above 400

LSV pump, standard construction type 16

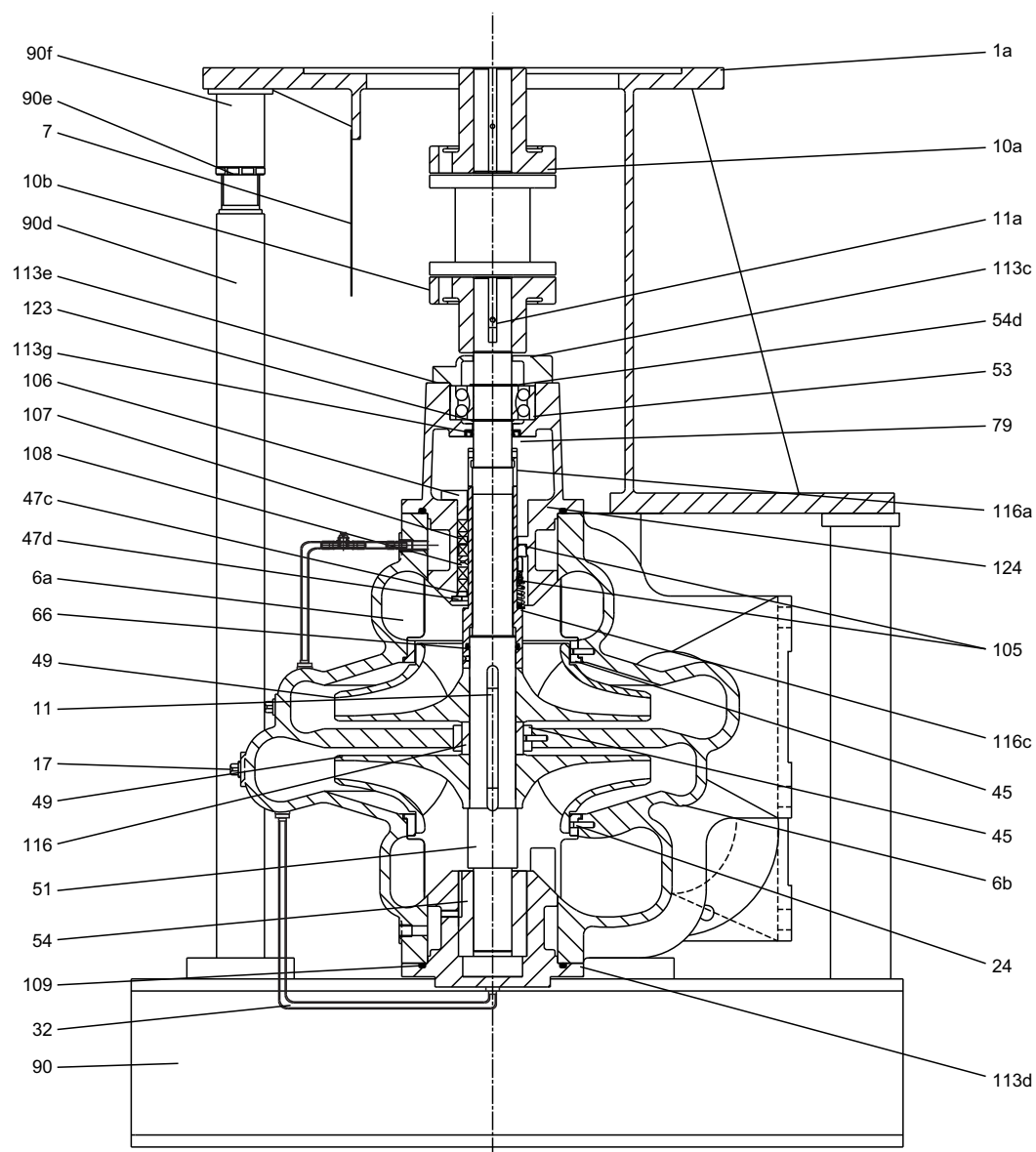


Fig. 25 Sectional drawing, standard construction type 16

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LSV pump, standard construction type 17

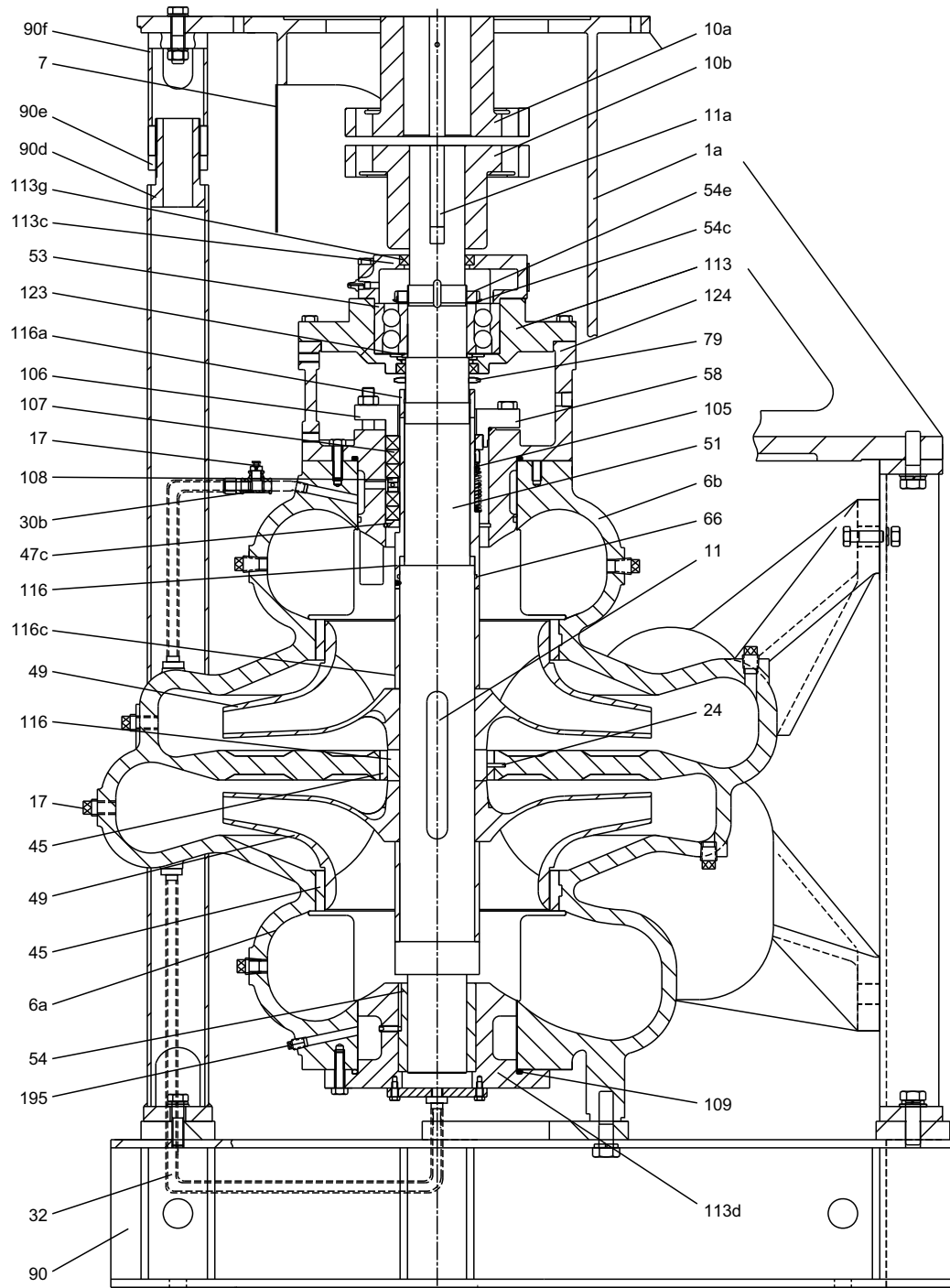


Fig. 26 Sectional drawing, standard construction type 17

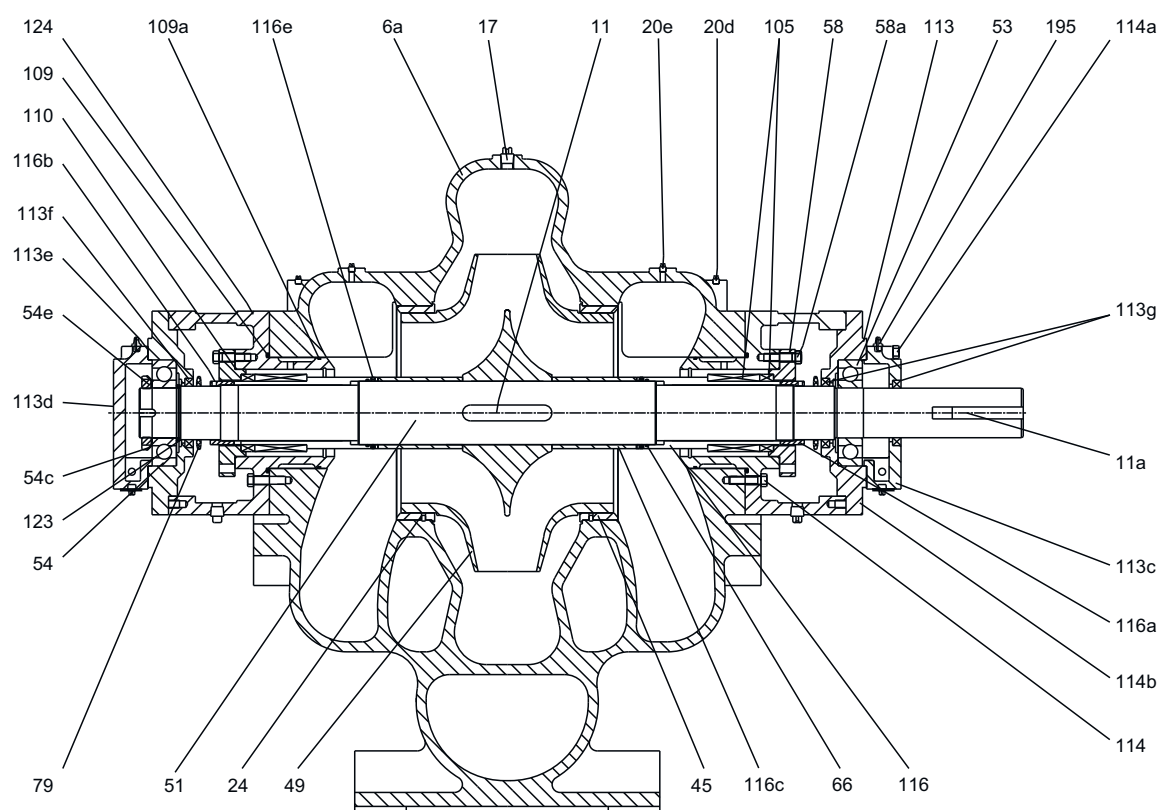
TM07 1159 1118

LS pump, optional construction type 10

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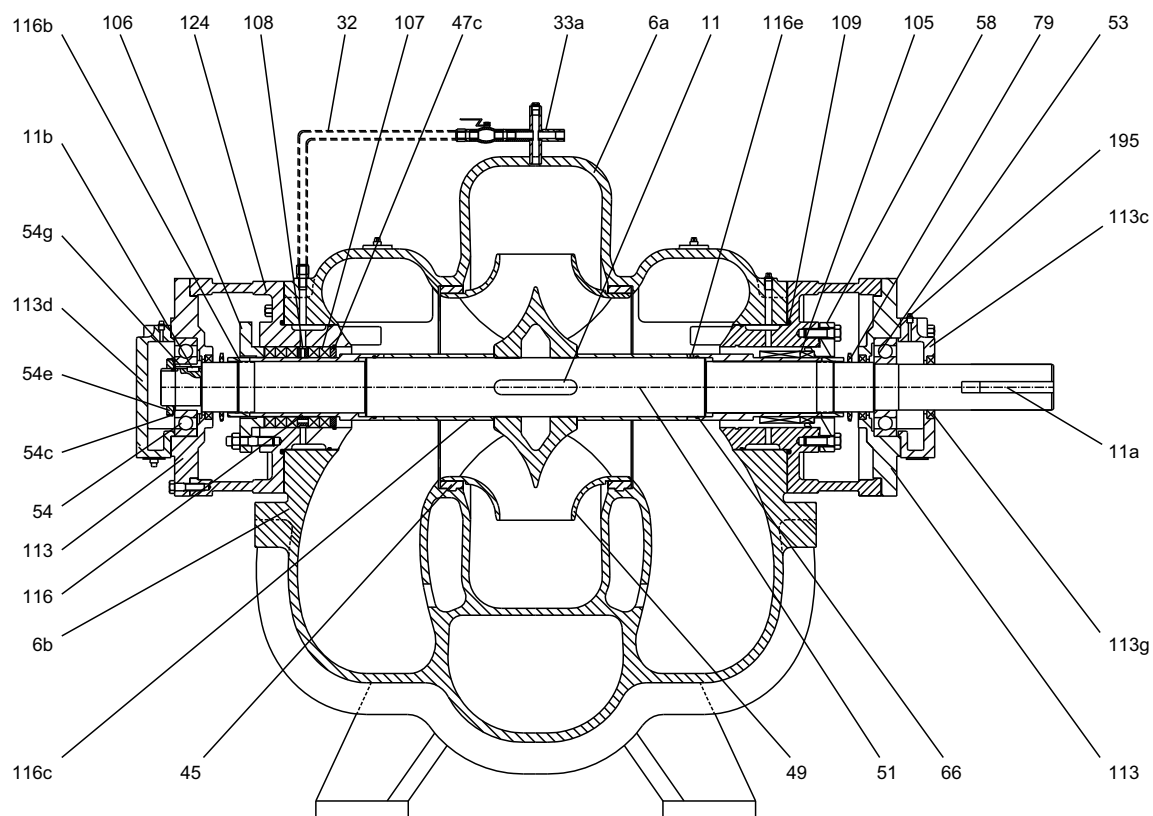
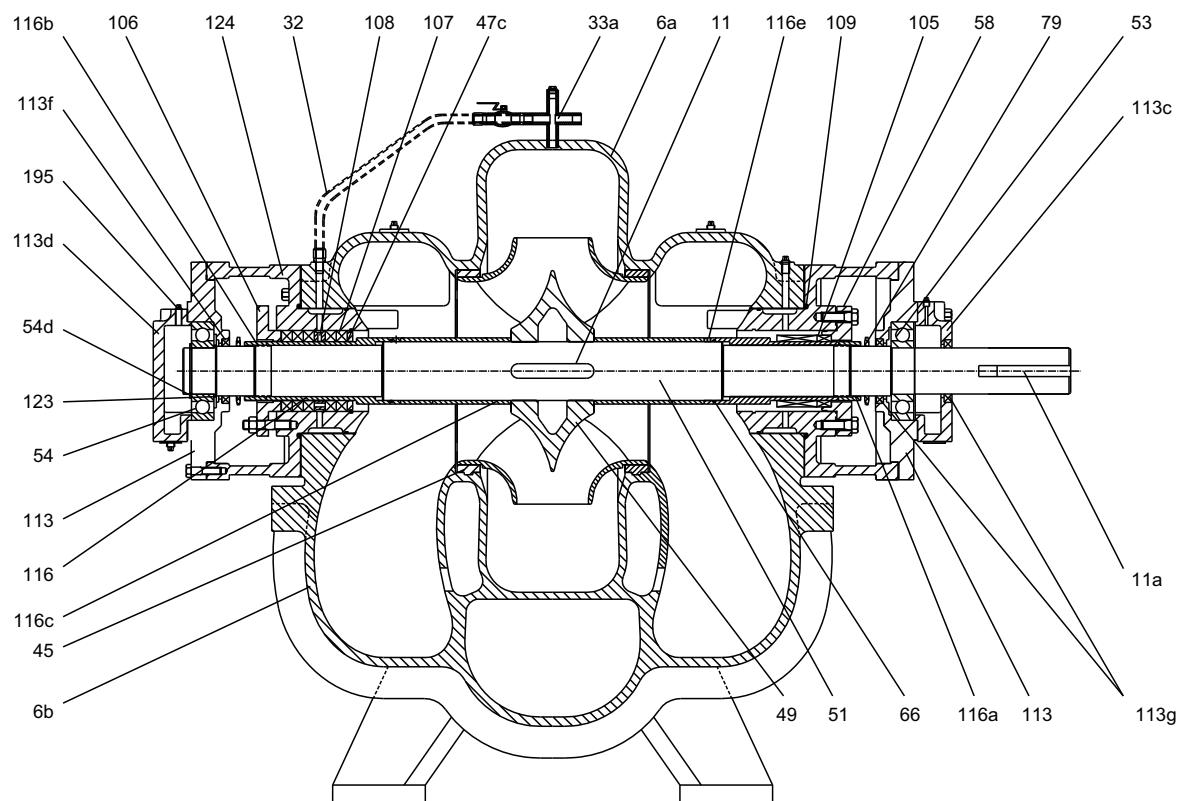
Fig. 27 Sectional drawing, optional construction type 10

LS pump, optional construction type 11



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Fig. 28 Sectional drawing, optional construction type 11

LS pump, optional construction type 12**Fig. 29** Sectional drawing, optional construction type 12**LS pump, optional construction type 13****Fig. 30** Sectional drawing, optional construction type 13

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LS pump, typical end view, non-drive end

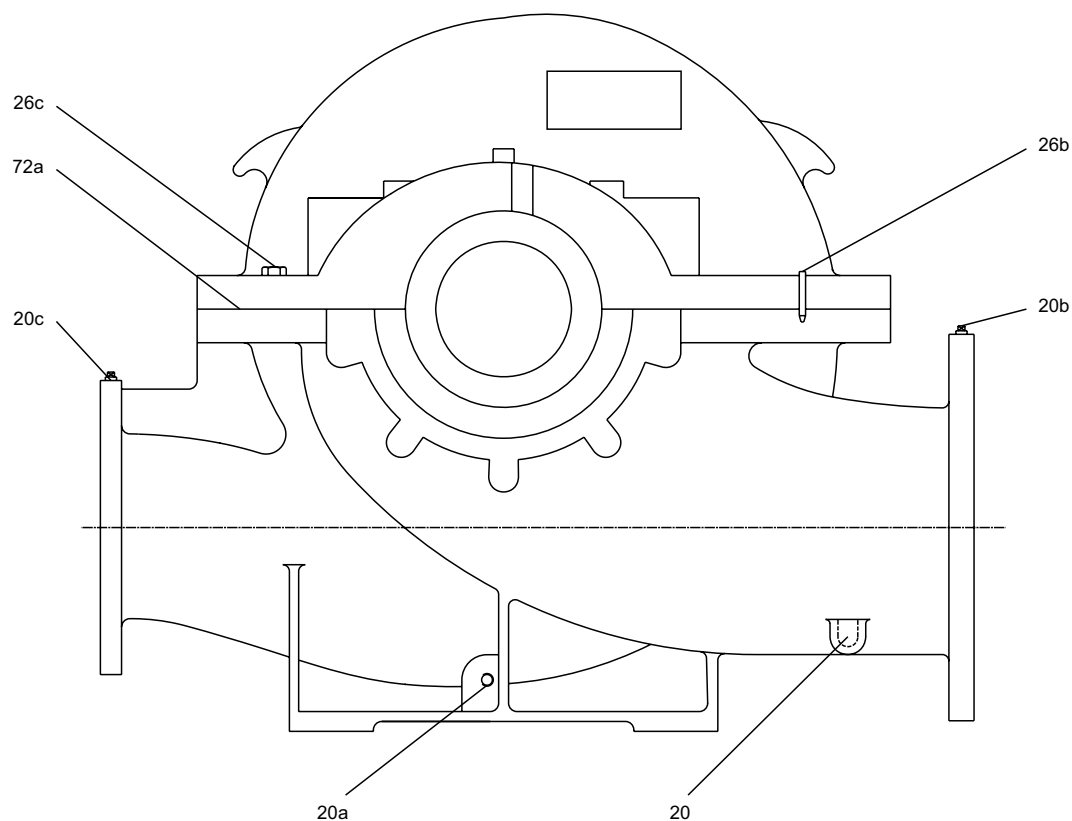


Fig. 31 Typical end view, non-drive end

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Material specification

Pos. no	Description	Material	Material standard
1a	Bracket	Steel	
6a	Pump casing, upper	Cast iron	ASTM A48 Class35
		Ductile iron	ASTM A536, 65-45-12
6b	Pump casing, lower	Cast iron	ASTM A48 Class35
		Ductile iron	ASTM A536, 65-45-12
7	Coupling cover	Stainless steel	AISI 304
10a	Coupling half, motor shaft	Cast iron	ASTM A48 Class35
10b	Coupling half, pump shaft	Cast iron	ASTM A48 Class35
11	Key, impeller	Steel	ASTM A216 WCB
11a	Key, coupling	Steel	ASTM A216 WCB
11b	Key, bearing sleeve	Steel	ASTM A216 WCB
17	Vent screw	Bronze	
20	Drain plug	Steel	
20a	Plug, drain outlet	Steel	
20b	Plug, inlet	Steel	
20c	Plug, outlet	Steel	
20d	Plug, shaft seal flushing	Steel	
20e	Plug, Inlet chamber	Steel	
24	Locking pin, wear ring	Steel	ANSI/ASME B18.8
26b	Roll pin	Steel	ANSI/ASME B18.8
26c	Screw for pump casing	Steel	
30b	Tee, joint	Stainless steel	AISI 304
32	Flushing pipe	Stainless steel	AISI 304
33a	Cross connection	Stainless steel	AISI 304
45	Wear ring	Bronze	ASTM B584, C90500
47c	Retainer for packing	Steel	ASTM A216 WCB
47d	Snap ring for packing	Carbon steel	
49	Impeller	Stainless steel	ASTM CF8
51	Shaft	Stainless steel	AISI 420
53	Bearing, drive end	Steel	
54	Bearing, non-drive end	Steel/Bronze	
54c	Lock washer	Steel	
54d	Circlip	Steel	ASTM A216 WCB
54g	Bearing sleeve	Cast iron	ASTM A48 Class35
54e	Round nut for bearing	Steel	ASTM A216 WCB
54i	Set screw for sliding bearing	Steel	
58	Seal cover	Cast iron	ASTM A48 Class35
58a	Screw	Steel	
65	Snap ring	Stainless steel	
66	O-ring for sleeve	NBR	
67a	Impeller nut	Stainless steel	
67b	Round nut for impeller	Stainless steel	
67c	Set screw for impeller nut	Stainless steel	AISI 304
72a	Gasket	Vegetable fiber	
76	Name plate	Stainless steel	AISI 304
79	Slinger	Neoprene	
90	Base-stand	Cast iron /Steel	
90d	Support lower	Steel	
90e	Round nut for support	Steel	
90f	Support upper	Steel	
105	Shaft seal	BBQV/GBQV	SiC/Carbon
105c	Seal retaining ring	Stainless steel	AISI 304
106	Packing gland	Cast iron	ASTM A48 Class35
107	Packing ring	PTFE	PTFE
108	Distribution ring	Steel	ASTM A216 WCB
109	O-ring	NBR	
109a	O-ring	NBR	
110	O-ring	NBR	
113	Bearing housing	Cast iron	ASTM A48 Class35
113c	Bearing cover, drive end	Cast iron	ASTM A48 Class35
113d	Bearing cover, non-drive end	Cast iron	ASTM A48 Class35
113e	Gasket	Vegetable fiber	

Pos. no	Description	Material	Material standard
113f	Lip seal, non-drive end	NBR	
113g	Lip seal, drive end	NBR	
114	Screw for seal housing	Steel	
114a	Screw for bearing cover	Steel	
114b	Screw for bearing housing	Steel	
116	Shaft sleeve	Stainless steel	AISI 304
116a	Locking sleeve, drive end	Stainless steel	AISI 304
116b	Locking sleeve, non-drive end	Stainless steel	AISI 304
116c	Shaft sleeve, inner	Stainless steel	AISI 304
116e	Screw for shaft sleeve	Steel	
123	Shoulder ring	Steel	
124	Seal housing	Cast iron	ASTM A48 Class35
		Ductile iron	ASTM A536, 65-45-12
195	Lubricating nipple	Bronze	

Mechanical construction

Position numbers in the following sections refer to the sectional drawings and material specification mentioned in section 7. *Construction*.

Pump casing

The pump casing has radial inlet port and radial outlet port.

The pumps are of the in-line design.

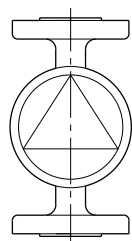


Fig. 32 Schematic drawing of an in-line LS pump

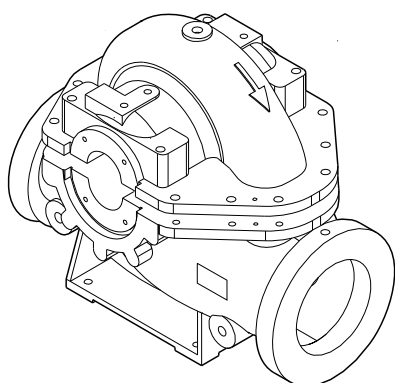


Fig. 33 Upper and lower pump casing of LS pump

Shaft

The shaft (pos. F1) is of the key and keyway type with one key for the impeller (pos. B2) and one key for the coupling (pos. F2).

The shaft is supported by bearings at both the drive end and the non-drive end of the pump.

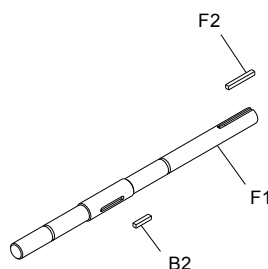


Fig. 34 LS pump shaft

Shaft seal

LS, LSV pumps are available with two types of shaft seal, stuffing box and single mechanical shaft seal.

Bearings

LS pumps are fitted with two deep-groove ball bearings. The bearings are of the open type, and the bearings are lubricated by Grundfos prior to delivery.

LSV pumps are fitted with one ball bearings at the drive end and one sleeve bearing at the non-drive end of the pump. The ball bearing is of the open type and lubricated by Grundfos prior to delivery.

Seal housings

LS, LSV pumps have two seal housings (pos. D2), one at the drive end and one at the non-drive end of the pump shaft.

The seal housing has the following functions:

- It supports the pump sealing system, whether it is a mechanical shaft seal or a stuffing box.
- It supports the bearing housing thus transmitting both radial and axial forces from bearing and shaft to the upper and lower pump casing.
- It has a connection for the flushing pipe.
The function of the flushing pipe is to ensure a flow of pumped liquid for cooling and lubricating the mechanical shaft seal or the stuffing box.

Impeller

The pump impeller is a closed double-inlet impeller. The impeller has inflow of liquid from both sides to ensure the balance of axial force.

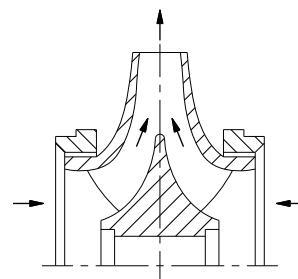


Fig. 35 Double-inlet impeller

All impellers are dynamically balanced in accordance with ISO 1940 Class G6.3 standard.

All impellers are trimmed to the duty point required by the customer and dynamically balanced together with the shaft.

Wear rings

LS, LSV pumps have wear rings (pos. B3) between impeller and pump casing.

As the name indicates, the wear rings protect the pump casing against wear. Besides, the wear rings have a sealing function between impeller and pump casing.

When the wear rings become worn, the efficiency of the pump will be reduced, and the wear rings should be replaced.

Coupling

As standard, LS, LSV pumps are fitted with an elastic pin coupling. See fig. 36.



Fig. 36 Elastic pin coupling

A customised solution with flexible, laminated coupling is available. See fig. 37 and fig. 38.

The coupling design assists in reducing vibrations and cushions shock loads. The design also extends the life of the coupling itself.



Fig. 37 Flexible, laminated coupling

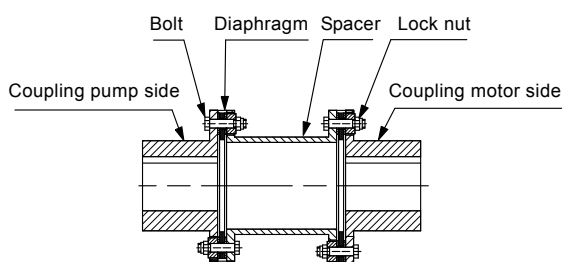


Fig. 38 Flexible, laminated coupling construction

In case of other special requirements for the coupling, please contact Grundfos.

A coupling guard is mounted between the pump and the motor and firmly attached to the base.

Mechanical shaft seal

LS, LSV pumps are available with two standard configurations for mechanical shaft seal:

- Rubber bellows unbalanced seals for working pressure less than or equal to 24 bar.
- O-ring balanced seals for working pressure larger than 24 bar.

In case of other special requirements for the mechanical shaft seal, please contact Grundfos.

Stuffing box

The stuffing box includes stuffing box gland (D33), packing rings (D31), washer (D32) and distribution ring (D30). See fig. 39.

The packing rings consist of braided material which is effective for ensuring long service life for packing rings while protecting the shaft (sleeve). When fitted, the packing rings are symmetrical, having parallel facings that prevent tilting.

In case of other special requirements for the stuffing box (such as soft packing), please contact Grundfos.

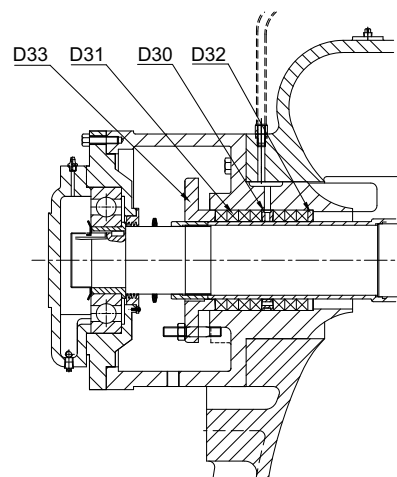


Fig. 39 Sectional view of stuffing box

Base frame

When the motor frame size is equal to or bigger than 400, pump and motor are mounted on separate base frames.

When the motor frame size is below 400, pump and motor are mounted on a common base frame.

When the pump outlet diameter is equal to or bigger than 500 (except for LS 600-500-498), pump and motor are always mounted on separate base frames.

Hydrostatic test

Prior to delivery to the customer, LS, LSV pumps are subjected to a hydraulic pressure test. The standard hydrostatic test pressure is according to ISO 5199 Technical specification for centrifugal pumps - Class II.

Motor

Motors for LS, LSV pumps are 50 Hz.

LS, LSV pumps are available with 2-, 4-, 6-, 8- and 10-pole motors.

LS, LSV pumps are available with IE3 motors as standard. IE2 motor is an option.

LS, LSV pumps are available with 6 kV or 10 kV high-voltage motors and low-voltage 380 V motors.

Variable frequency drive (VFD) motors are available as an option.

Siemens motors are available as a standard option. Local or regional motor brands are also available upon customers' requirements. Please contact Grundfos.

8. Operating conditions

Pumped liquids

LS pumps are suitable for pumping thin, clean, non-aggressive and non-explosive liquids, not containing solid particles or fibres. The maximum liquid temperature is 100 °C. In case you want to pump liquids with higher temperature or pump other liquids, please contact Grundfos.

Ambient temperature and altitude

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

The ambient temperature must not exceed 40 °C.

If the ambient temperature exceeds 40 °C or if the motor is installed more than 1000 m above sea level, the motor must not be fully loaded due to the low density and consequently low cooling effect of the air.

In such cases, it may be necessary to use a motor with a higher output.

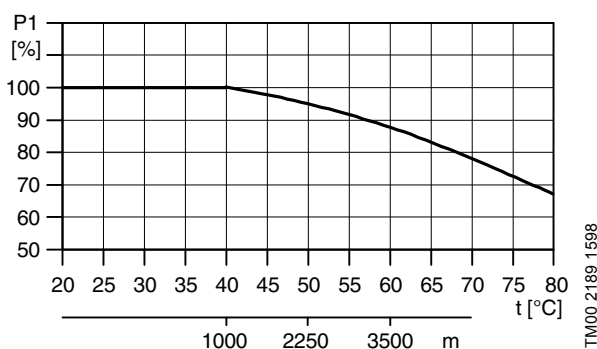


Fig. 40 Relationship between motor output (P2) and ambient temperature

Example

Figure 40 shows that the motor load must be reduced to 88 % when the pump is installed 3500 m above sea level.

At an ambient temperature of 70 °C, the motor load must be reduced to 78 % of the rated output.

Pressures

Maximum operating pressure

1.0 MPa (rated head ≤ 75 m)

1.6 MPa (rated head > 75 m).

Minimum inlet pressure

The minimum inlet pressure must correspond to the NPSH curve of the pump plus a safety margin of minimum 0.5 m head.

Flow rate

Minimum flow rate

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

Maximum flow rate

If the maximum flow rate is exceeded, cavitation and overload may occur.

Note: Please refer to Grundfos Pump Selector data or contact Grundfos if you have to operate an LS pump at conditions deviating from the rated duty point.

Sound pressure level

Data in this table apply to pump including motor.

Motor [kW]	Maximum sound pressure level [dB(A)] - ISO 3743		
	Three-phase motors		
	2-pole	4-pole	6-pole
0.25	56	41	-
0.37	56	45	-
0.55	57	42	40
0.75	56	42	43
1.1	59	50	43
1.5	58	50	47
2.2	60	52	52
3.0	67	58	63
4.0	69	58	63
5.5	68	64	63
7.5	68	64	67
11	70	65	67
15	70	65	57
18.5	70	57	57
22	67	57	57
30	67	57	57
37	67	57	57
45	67	57	58
55	71	57	58
75	73	65	59
90	73	65	59
110	73	65	60
132	73	65	60
160	76	65	63
200	76	65	67
250	78	73	68
315	82	74	71
355	77	75	71
400	-	75	-

Maximum particle size

Pump type	Maximum particle size (non-abrasive particles) [mm]
LS, LSV 65-50-241B	4.8
LS, LSV 65-50-330D	4.1
LS, LSV 100-80-241E	7.9
LS, LSV 100-80-356E	7.9
LS, LSV 125-100-279E	9.7
LS, LSV 125-100-305F	19.1
LS, LSV 125-100-381F	6.4
LS, LSV 150-125-305E	16.0
LS, LSV 150-125-381F	19.1
LS, LSV 200-150-305C	25.4
LS, LSV 200-150-381A	20.6
LS, LSV 200-150-483D	19.1
LS, LSV 200-150-508B	19.1
LS, LSV 250-200-305C	22.4
LS, LSV 250-200-381B	25.4
LS, LSV 300-200-450A	26.2
LS, LSV 300-200-489C	26.2
LS, LSV 300-250-305E	25.4
LS, LSV 300-250-381B	31.8
LS, LSV 350-250-498C	30.5
LS, LSV 350-250-630B	29.7
LS, LSV 350-300-352C	22.8
LS, LSV 350-300-508C	47.5
LS, LSV 350-300-508D	47.5
LS, LSV 450-350-397B	26.6
LS, LSV 500-300-490E	27.2
LS, LSV 500-300-508F	30.5
LS, LSV 500-300-680F	42.1
LS, LSV 500-300-710E	43.1
LS, LSV 500-350-608A	30.6
LS, LSV 500-350-702A	20.3
LS, LSV 500-400-423A	27.1
LS, LSV 500-400-458C	28.9
LS, LSV 500-400-498C	32.0
LS, LSV 500-400-530B	30.6
LS, LSV 600-400-722A	33.5
LS, LSV 600-500-498A	32.0
LS, LSV 600-500-610B	27.8
LS, LSV 700-500-585F	37.9
LS, LSV 700-500-667D	49.7
LS, LSV 700-500-725E	55.5
LS, LSV 800-600-667C	36.2
LS, LSV 800-600-683B	47.7
LS, LSV 1000-700-770H	47.3
LS, LSV 1000-700-815F	53.9
LS, LSV 1200-800-1075B	98.2
LS, LSV 1200-800-1080C	58.1
LS, LSV 125-100-370Ax2	14.2
LS, LSV 150-125-415Ax2	14.2
LS, LSV 200-150-475Ax2	17.3
LS, LSV 250-200-575Ax2	22.9

9. Introduction to curve charts and technical data

Selection of the product

Pump size

The selection of pump size should be based on these data:

- required flow rate and pressure
- pressure loss as a result of height differences (geometric lifting height)
- friction loss in the pipework (pipes, bends, valves, etc.)
- best efficiency at the estimated duty point.

Efficiency

If you expect the pump to always operate in the same duty point, select a pump which is operating in a duty point corresponding to the best efficiency of the pump. In case of varying consumption, select a pump whose best efficiency falls within the duty range covering the greater part of the duty time.

Material

The material variant must be selected on the basis of the liquid to be pumped.

Motor size

The selection of motor size must be based on these parameters:

- flow rate margin, the maximum required flow rate in your application
- motor safety margin.

A selection has to be made for both parameters.

Parameter 1 - flow rate margin in your application

Understanding the operating conditions under which your pump will run is important to ensure long life and trouble-free operation of both the pump and motor. The more specific these parameters are understood, the more refined and specific your motor selection can be. If you intend to run the pump in one specific duty point, the power absorbed in this point (P2) could in theory be your motor's rated power. However, because of the uncertainties in system calculations or the addition of duty conditions around the primary duty point, it is recommended to have a safety margin for P2 power.

To accomplish this, we recommend the following method for motor selection.

1. Select one of the following flow rate margins for your pump:
 - Duty point to the end of the actual curve (default in Grundfos Product Center).
 - Duty point +30 %.
 - Duty point +20 %.
 - Duty point +10 %.

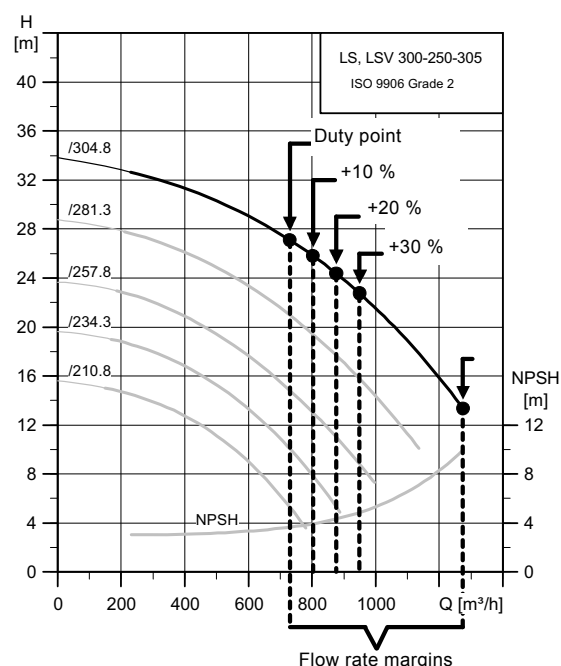


Fig. 41 Selection of a flow rate margin on basis of conditions around the primary duty point and uncertainties in system calculations

2. Establish P2 for the selected flow rate margin.

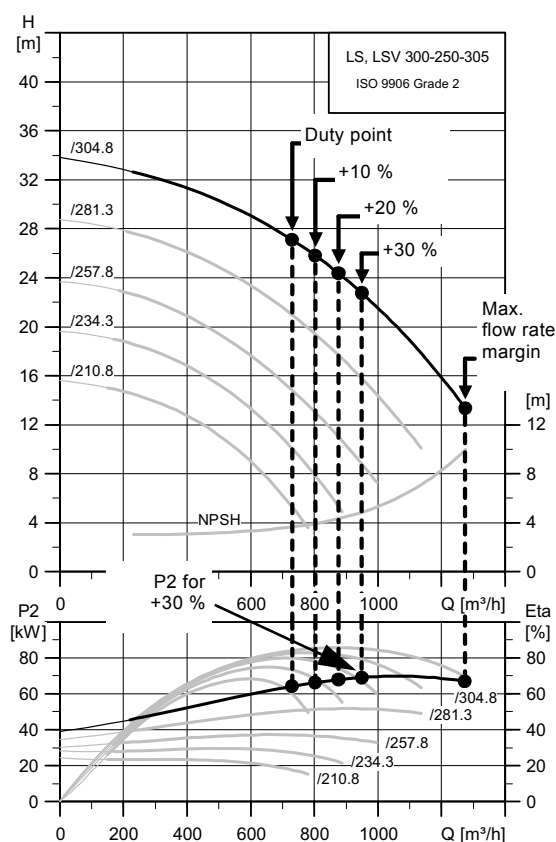


Fig. 42 Establishing P2 for a selected flow rate margin of 30 %

In some cases, however, the input power actually decreases as the flow rate increases. It will thus be found at some other point within this flow range. This is typically the case when the impeller is trimmed to the smallest diameter.

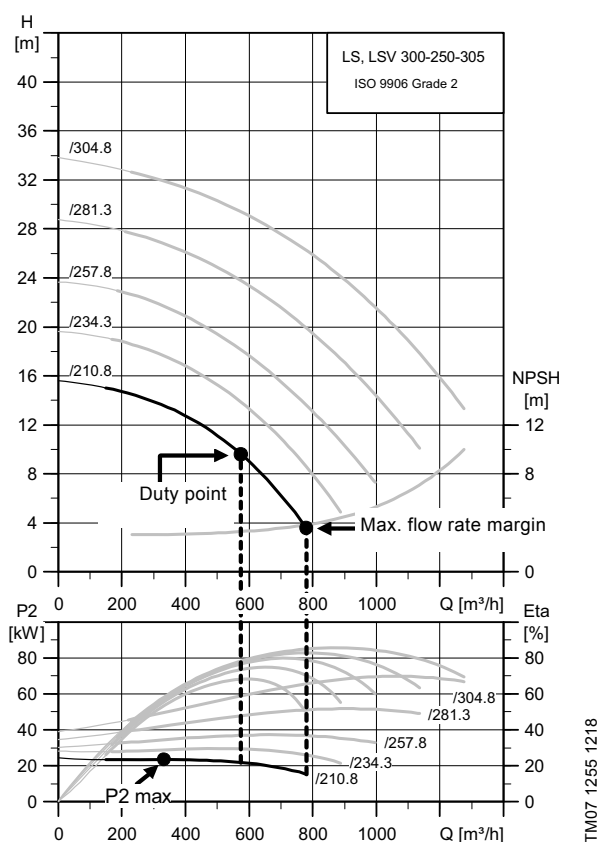


Fig. 43 Establishing the maximum P2 when P2 decreases as the flow rate increases.

Parameter 2 - motor safety margin

As with any system, uncertainties and tolerances exist, the motor safety margin takes the following into account:

- The actual head is at the high end of the tolerance described in ISO 9906. This will increase the required P2.
- Pump efficiency is at the low end of the tolerance described in ISO 9906. This will increase the required P2.
- Motor efficiency is at the low end.

To establish the motor safety margin, select method 1 or alternatively method 2:

Method 1

Add a safety margin as outlined in ISO 5199 to the maximum P2 found when determining parameter 1.

(Grundfos recommends the addition of a safety margin in accordance with this standard; default in Grundfos Product Center.)

Required pump power up to [kW]	Motor power P2 [kW]
540	600
473	525
405	450
360	400
338	375
320	355
302	335
284	315
225	250
180	200
144	160
119	132
99	110
81	90
68	75
49	55
40	45
32.5	37
26	30
19	22
15.9	18.5
12.8	15
9.1	11
6.1	7.5
4.3	5.5
3.2	4
2.3	3
1.7	2.2
1.1	1.5

Fig. 44 Safety margins according to ISO 5199

Method 2

Add a 5 % safety margin to the maximum P2 found when determining parameter 1.

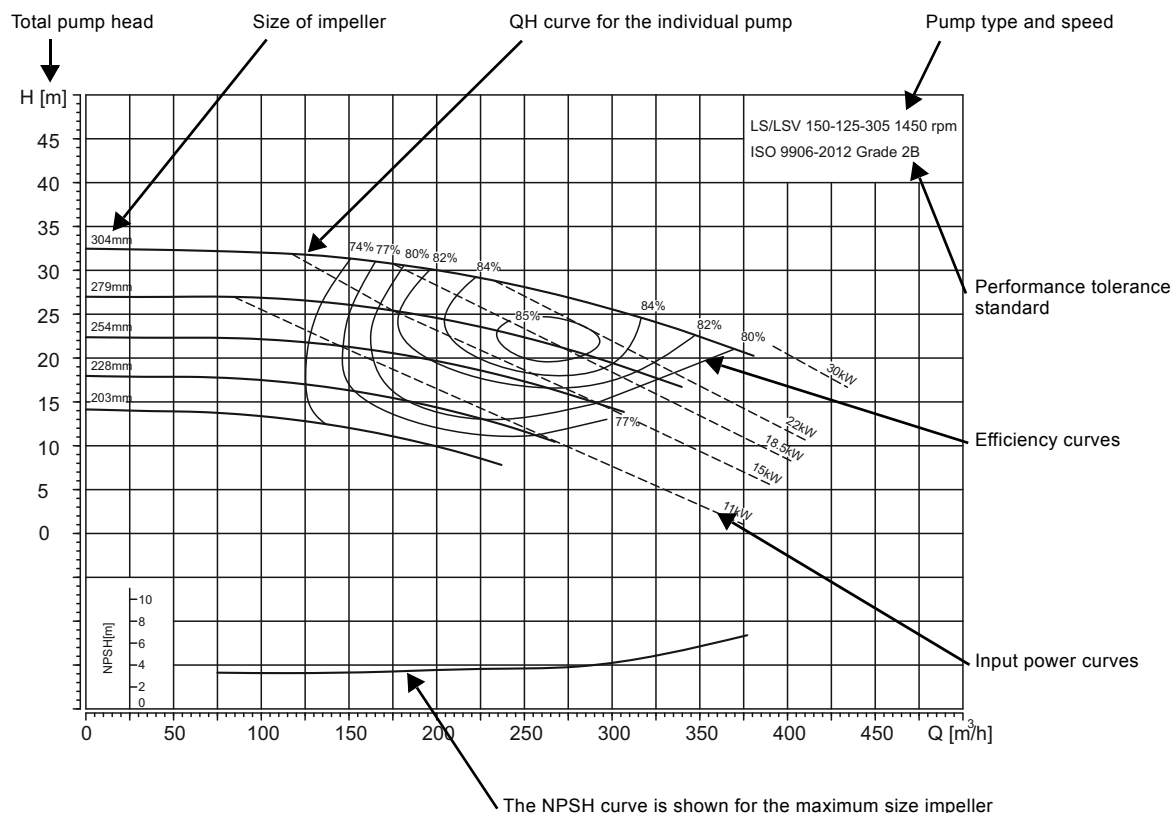
Note: If a safety margin of 5 % is selected, normal guarantees of the performance from Grundfos may not apply.

If not specified by the customer, the motor size will be determined in accordance with the Grundfos Product Center defaults listed above. This means a motor which covers the full performance range and with a motor safety margin according to ISO 5199.

Where to find the information

See performance curves from page 35 to page 95.

How to read the curve charts



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Curve conditions

The guidelines below apply to the curves shown in section 10. *Performance curves and technical data*.

- Tolerances are according to ISO 9906, Grade 2B.
- The curves show pump performance with different impeller diameters at rated speed.
- Do not operate the pumps below the minimum continuous safety flow (MCSF) stated on the performance data sheet because of the risk of overheating the pump.
- The curves apply to the pumping of airless water at a temperature of +20 °C and a kinematic viscosity of 1 mm²/s (1 cSt).
- ETA: The efficiency curves show equivalent values of the hydraulic efficiency of the pump for the different impeller diameters.
- NPSH: The curve shows values measured under the same conditions as the performance curves for the maximum size impeller.
- When sizing the pump, add a safety margin of at least 0.5 m.
- When pumping liquids with a density higher than 1000 kg/m³, motors with correspondingly higher outputs must be used.

Calculation of total head

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

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

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

Performance tests

The requested duty point for the pump is tested according to ISO 9906.

Witness test

The testing procedure is according to ISO 9906.

If the customer wants to witness the pump test, this request must be submitted with the order.

10. Performance curves and technical data

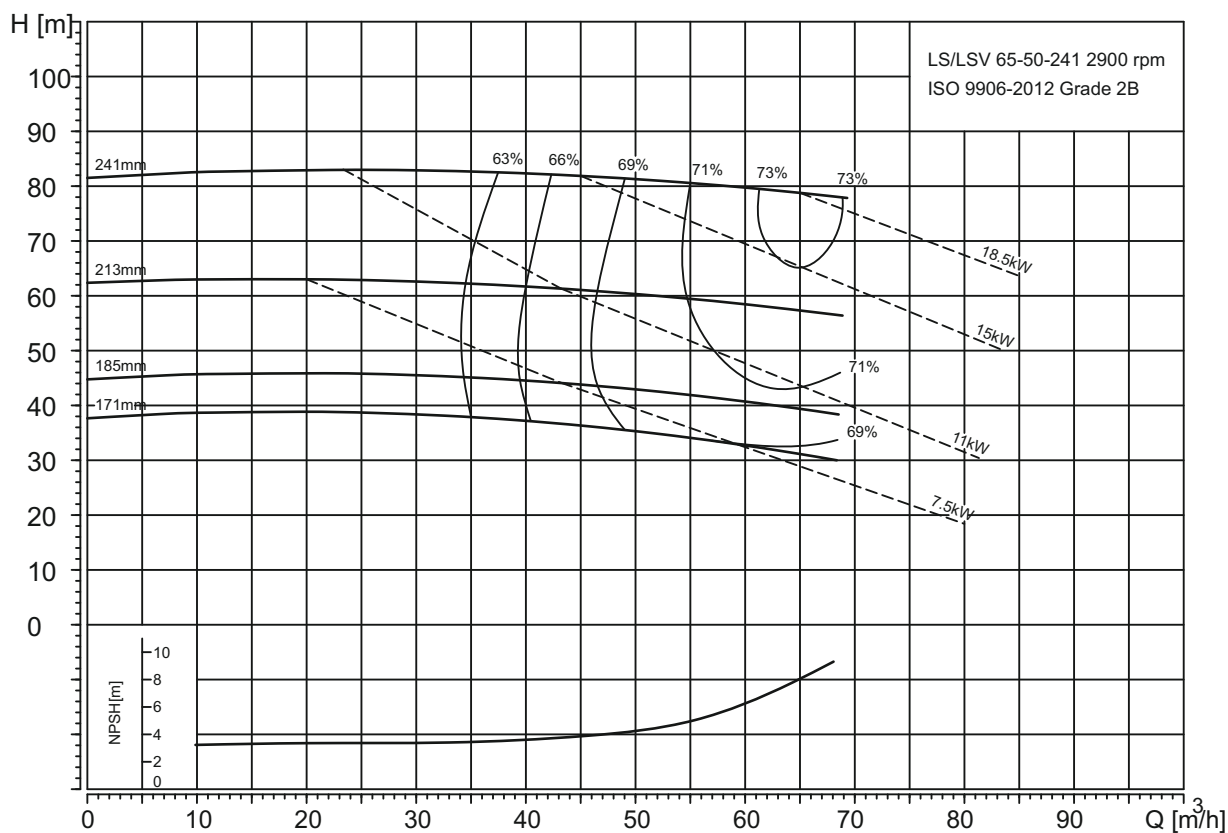
Overview

Pump type	Page
2-pole	
LS, LSV 65-50-241	35
LS, LSV 100-80-241	35
LS, LSV 125-100-279	36
LS, LSV 125-100-305	36
4-pole	
LS, LSV 65-50-241	37
LS, LSV 65-50-330	37
LS, LSV 100-80-241	38
LS, LSV 100-80-356	38
LS, LSV 125-100-279	39
LS, LSV 125-100-305	39
LS, LSV 125-100-381	40
LS, LSV 150-125-305	40
LS, LSV 150-125-381	41
LS, LSV 200-150-305	41
LS, LSV 200-150-381	42
LS, LSV 200-150-483	42
LS, LSV 200-150-508	43
LS, LSV 250-200-305	43
LS, LSV 250-200-381	44
LS, LSV 300-200-450	44
LS, LSV 300-200-489	45
LS, LSV 300-250-305	45
LS, LSV 300-250-381	46
LS, LSV 350-250-498	46
LS, LSV 350-250-630	47
LS, LSV 350-300-352	47
LS, LSV 350-300-508	48
LS, LSV 450-350-397	48
LS, LSV 500-300-490	49
LS, LSV 500-300-508	49
LS, LSV 500-300-680	50
LS, LSV 500-300-710	50
LS, LSV 500-400-423	51
LS, LSV 500-400-458	51
LS, LSV 500-400-530	52
LS, LSV 600-500-498	52
LS, LSV 600-500-610	53
LS, LSV 125-100-370 x 2	53
LS, LSV 150-125-415 x 2	54
LS, LSV 200-150-475 x 2	54
LS, LSV 250-200-575 x 2	55

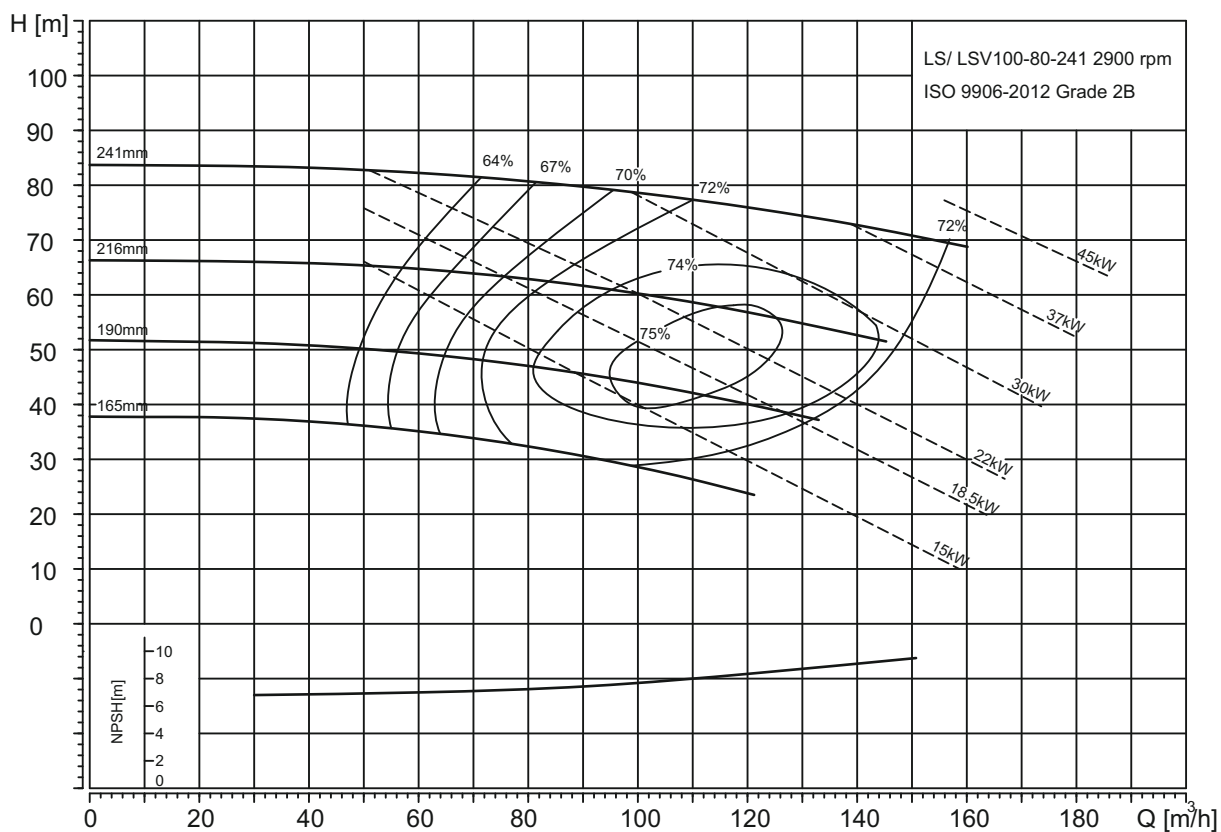
Pump type	Page
6-pole	
LS, LSV 150-125-381	56
LS, LSV 200-150-305	56
LS, LSV 200-150-381	57
LS, LSV 200-150-483	57
LS, LSV 200-150-508	58
LS, LSV 250-200-305	58
LS, LSV 250-200-381	59
LS, LSV 300-200-450	59
LS, LSV 300-200-489	60
LS, LSV 300-250-305	60
LS, LSV 300-250-381	61
LS, LSV 350-250-498	61
LS, LSV 350-250-630	62
LS, LSV 350-300-352	62
LS, LSV 350-300-508	63
LS, LSV 500-300-490	69
LS, LSV 500-300-508	64
LS, LSV 500-300-710	63
LS, LSV 500-300-680	70
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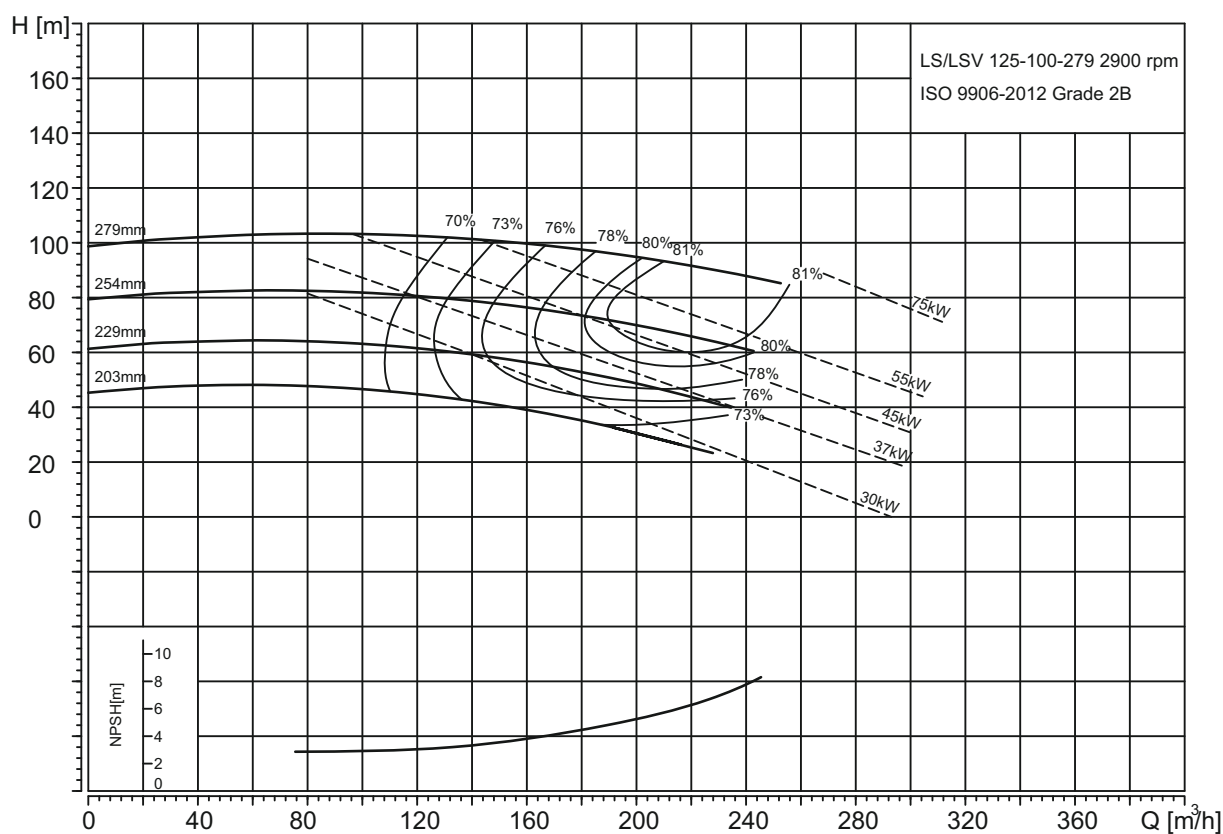
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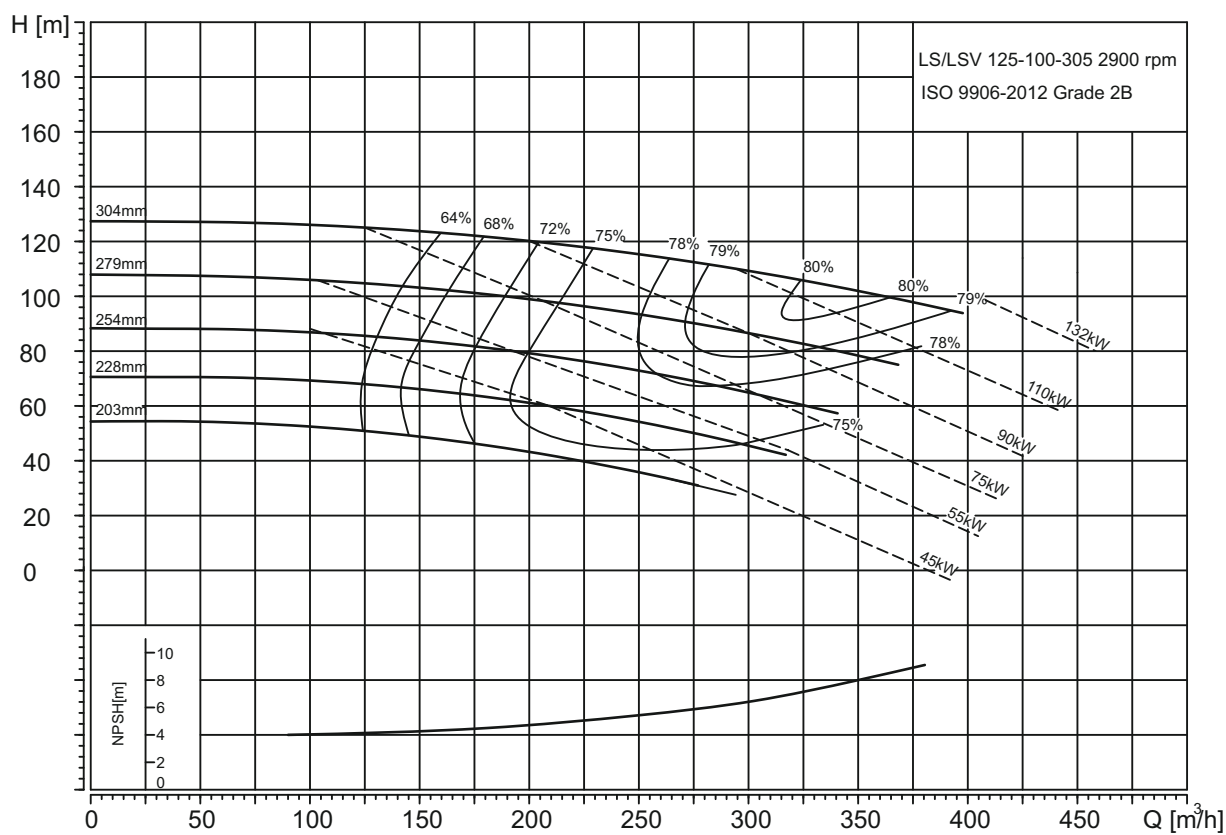
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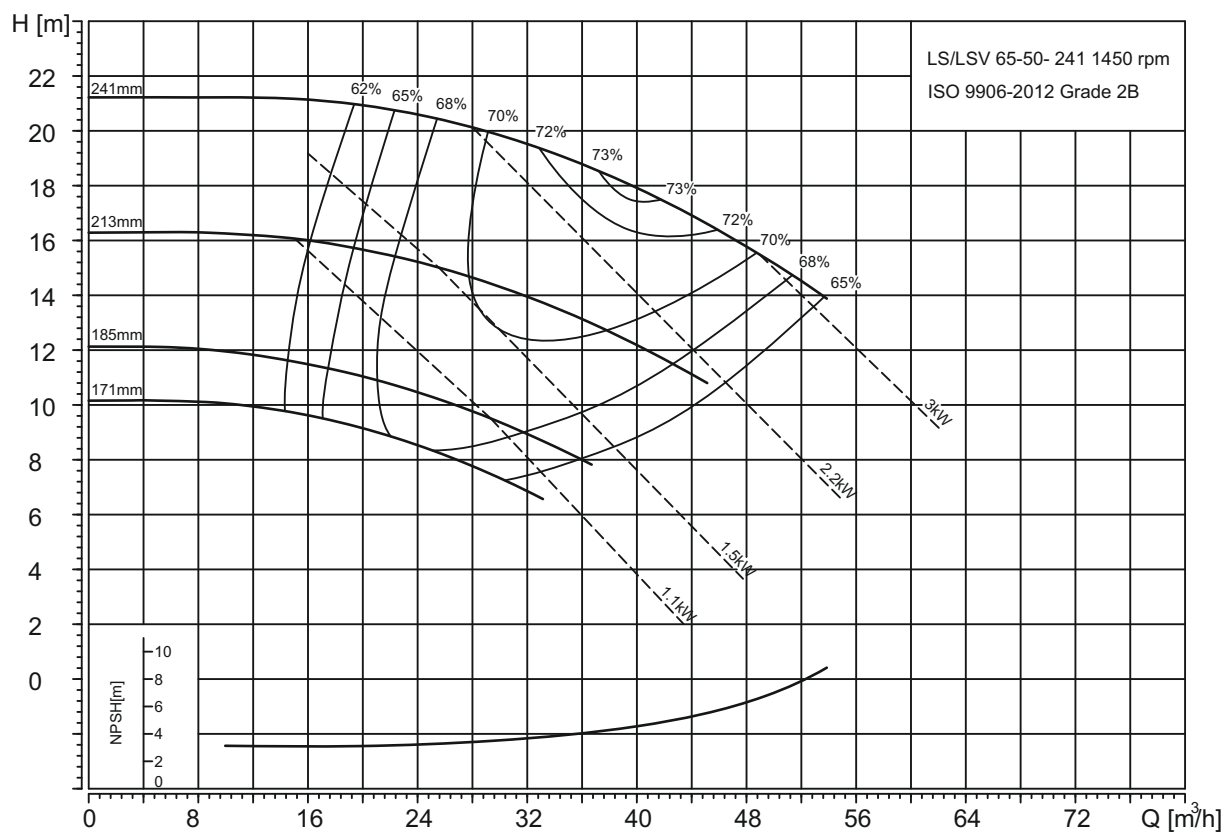


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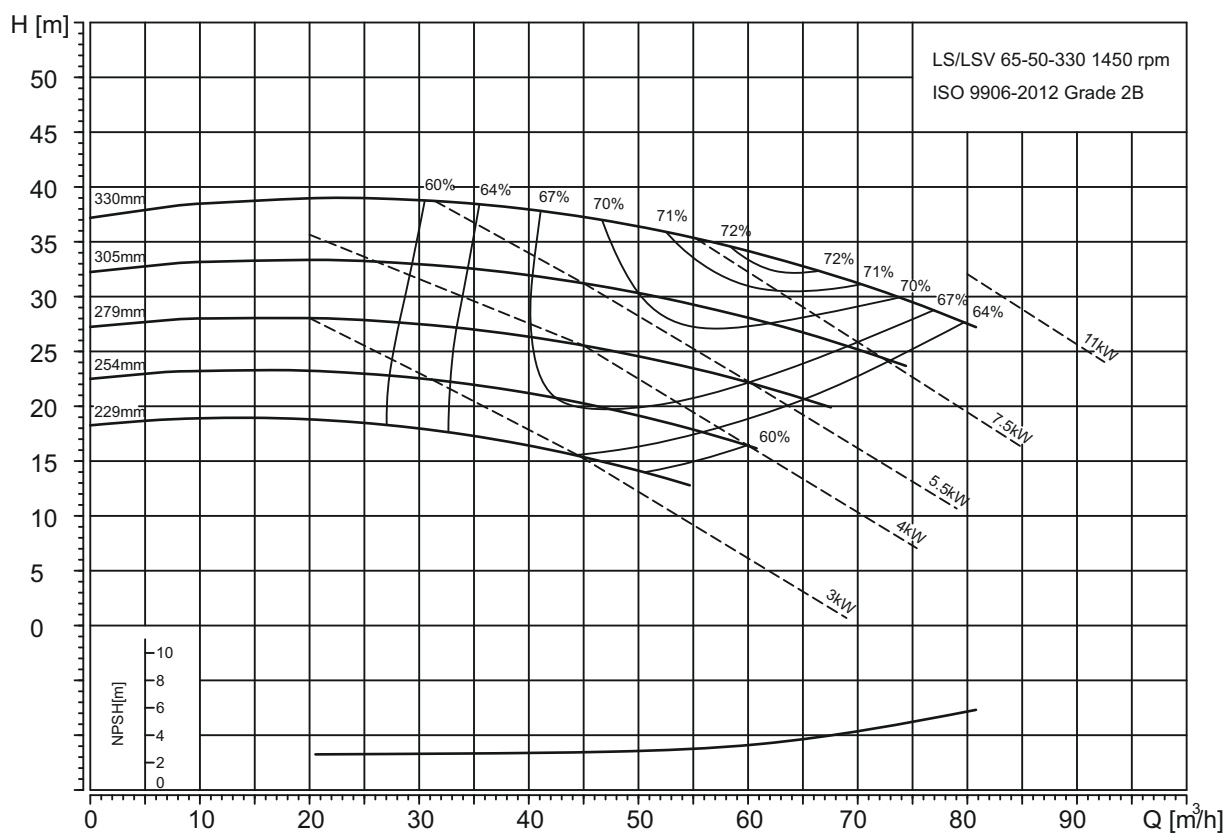


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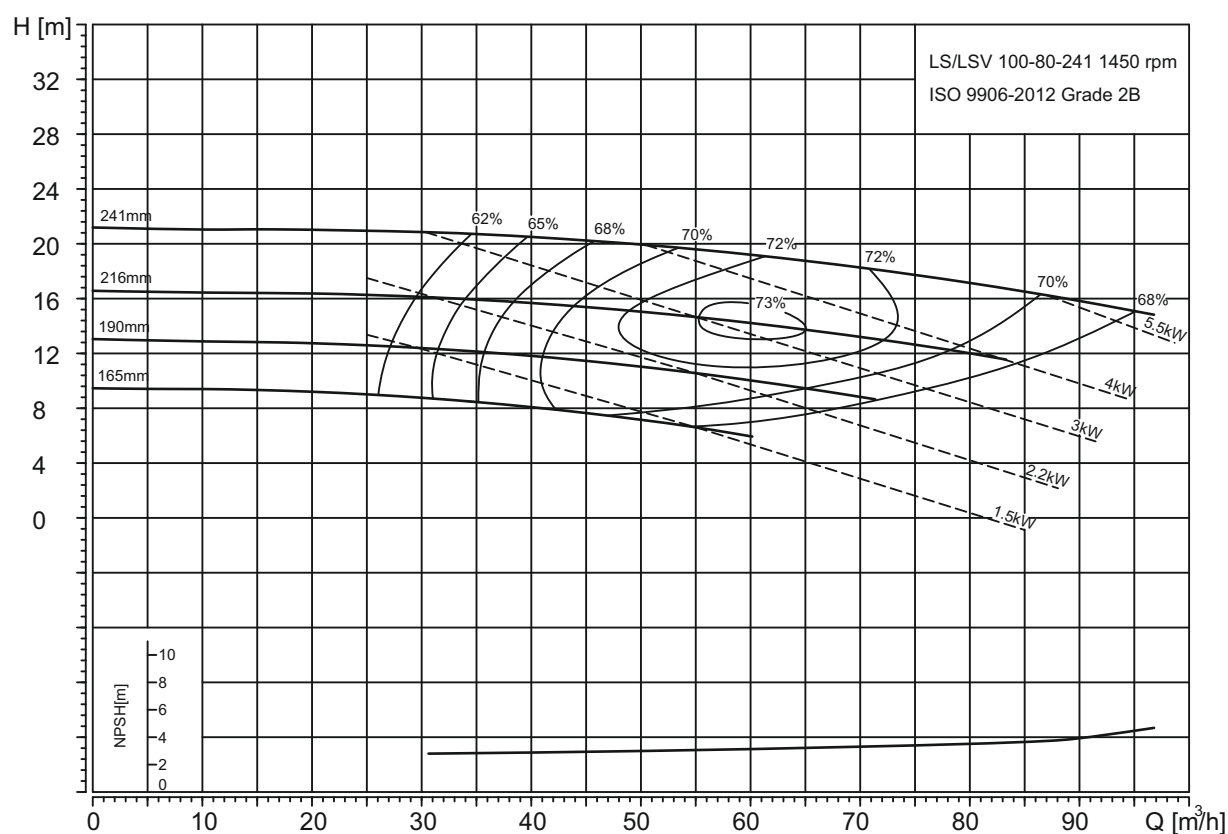
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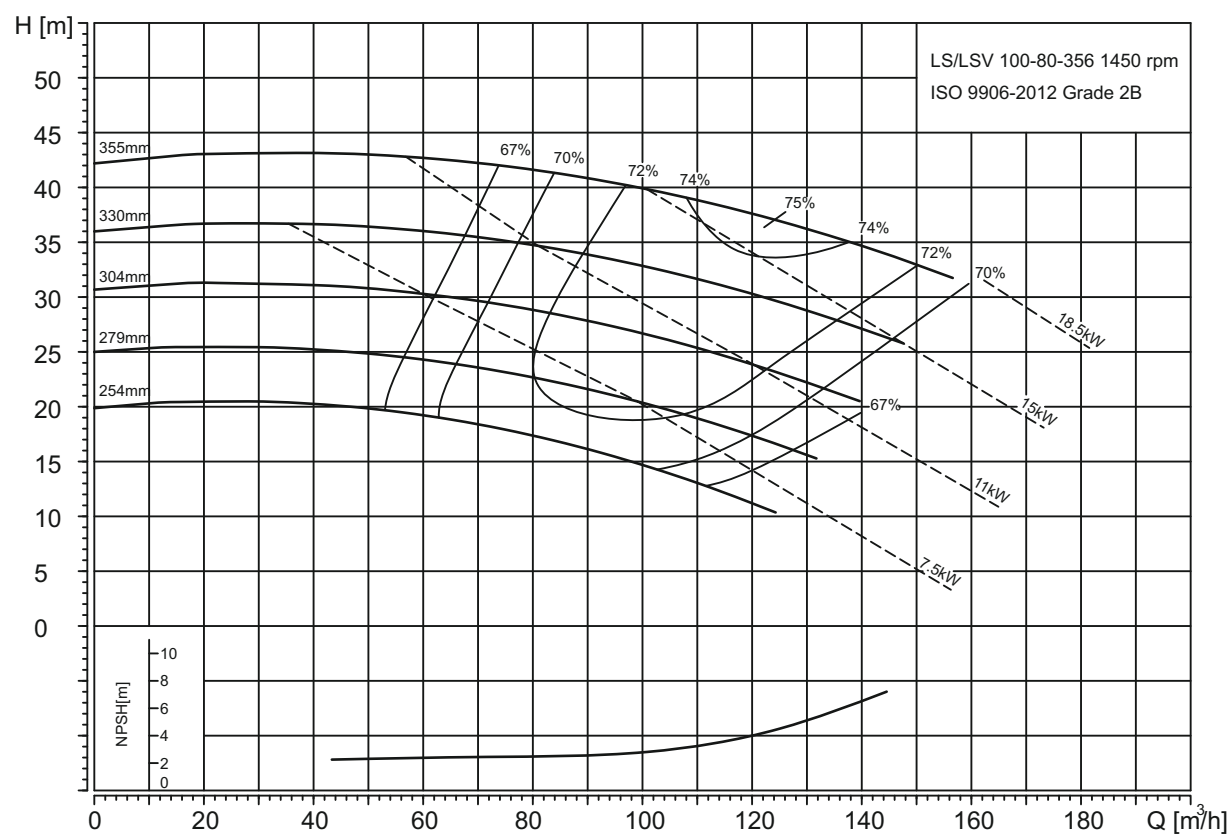
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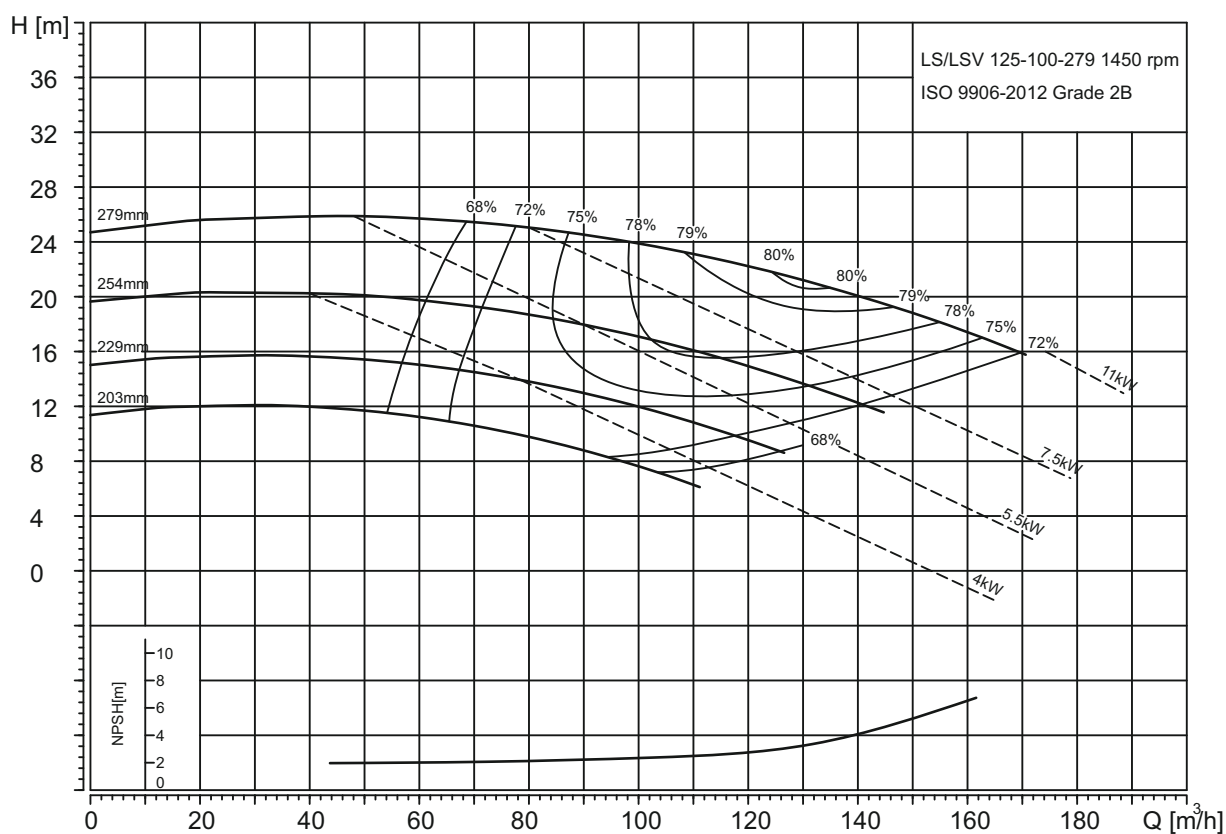
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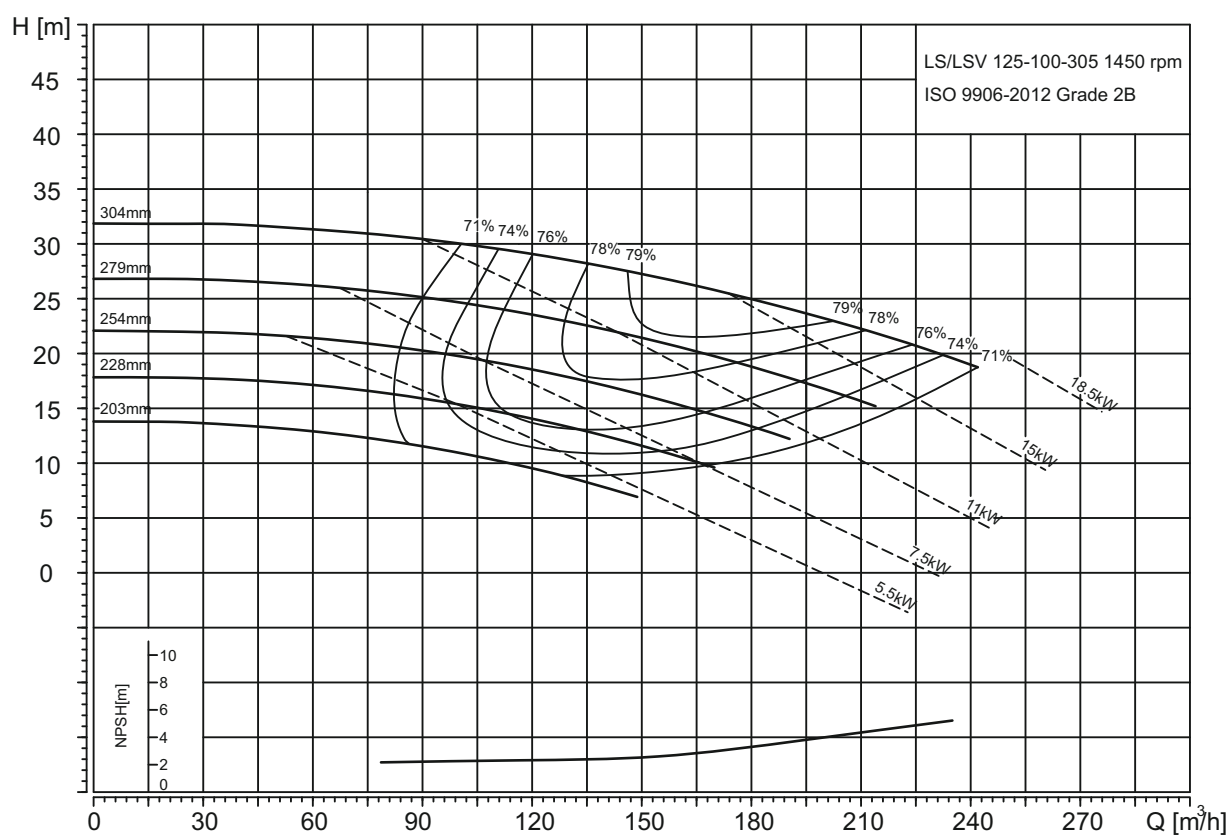
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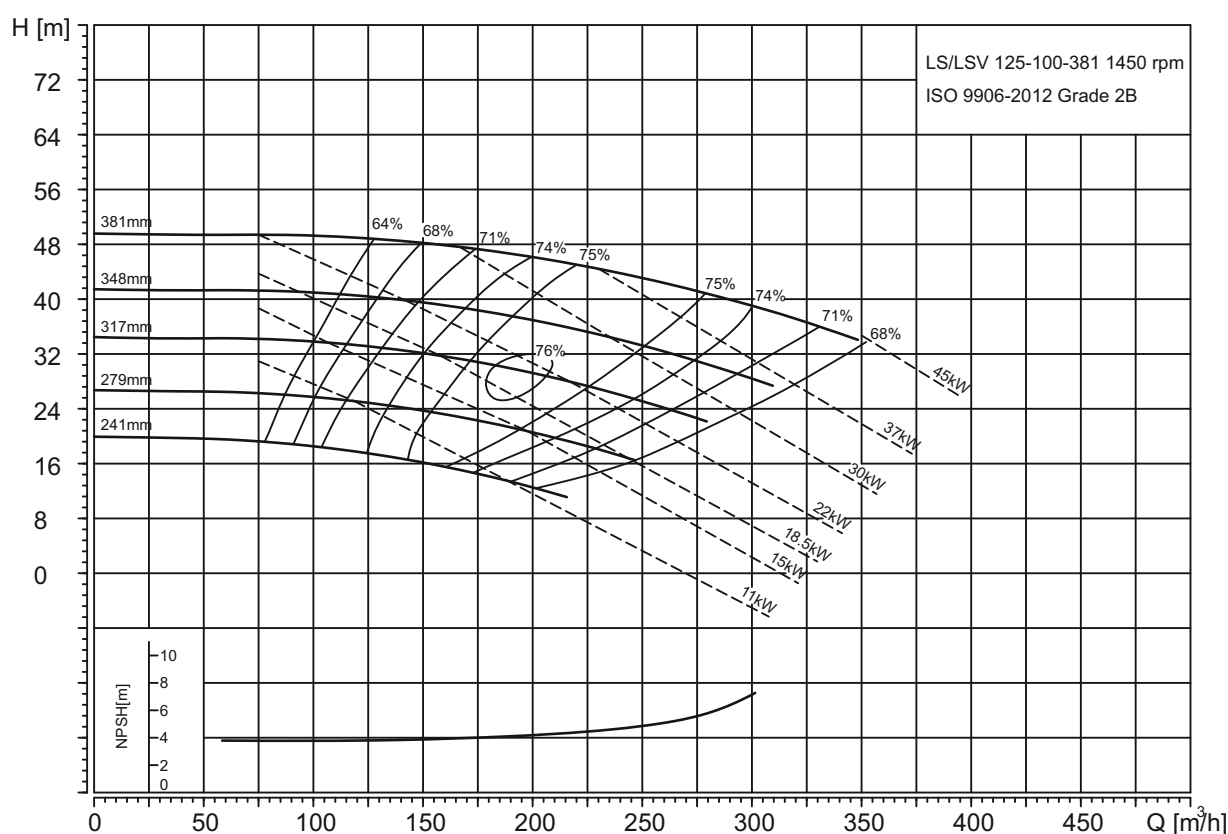
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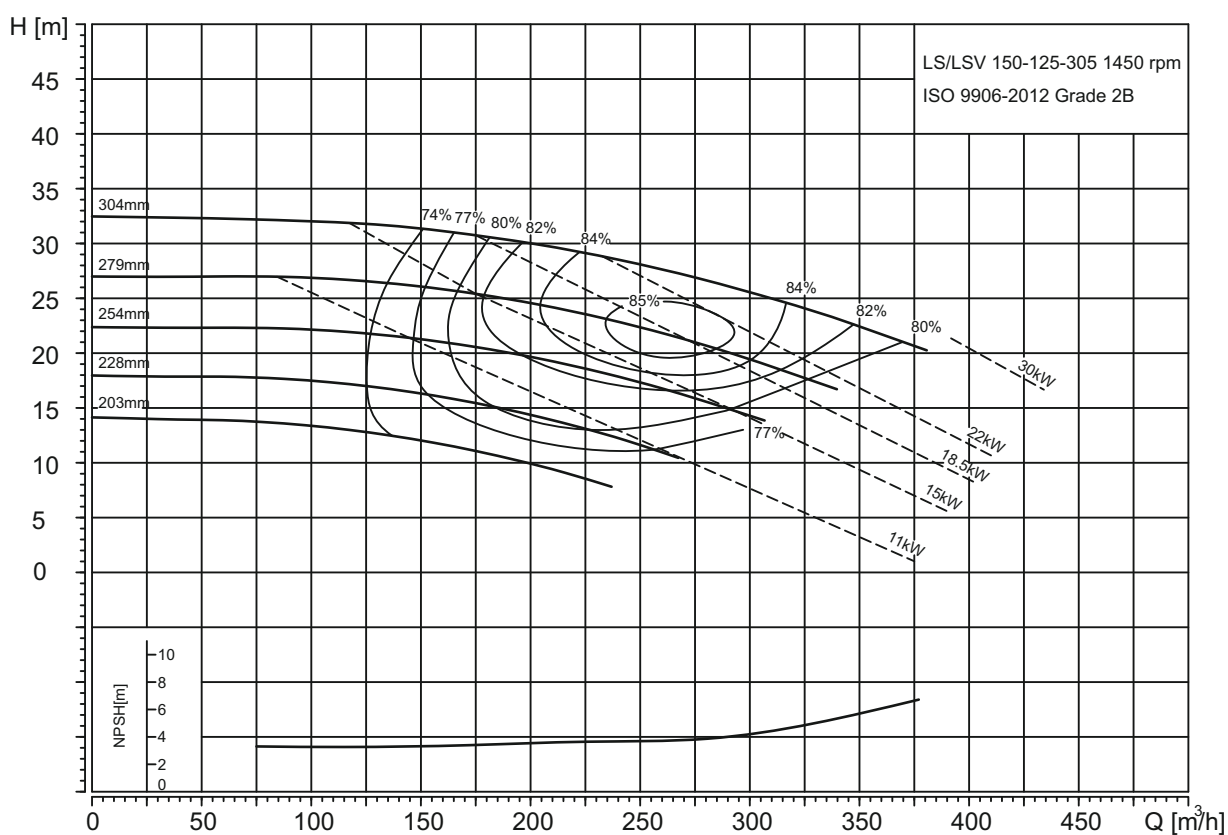
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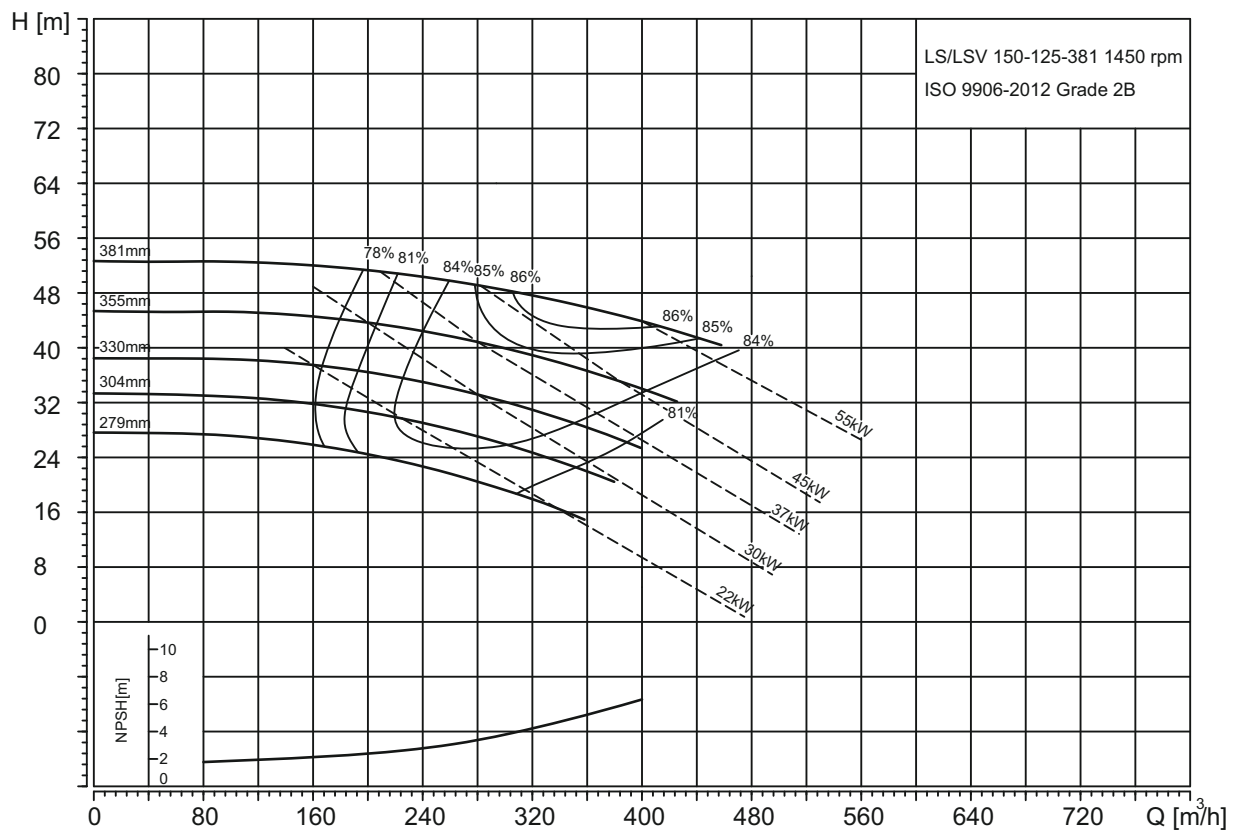
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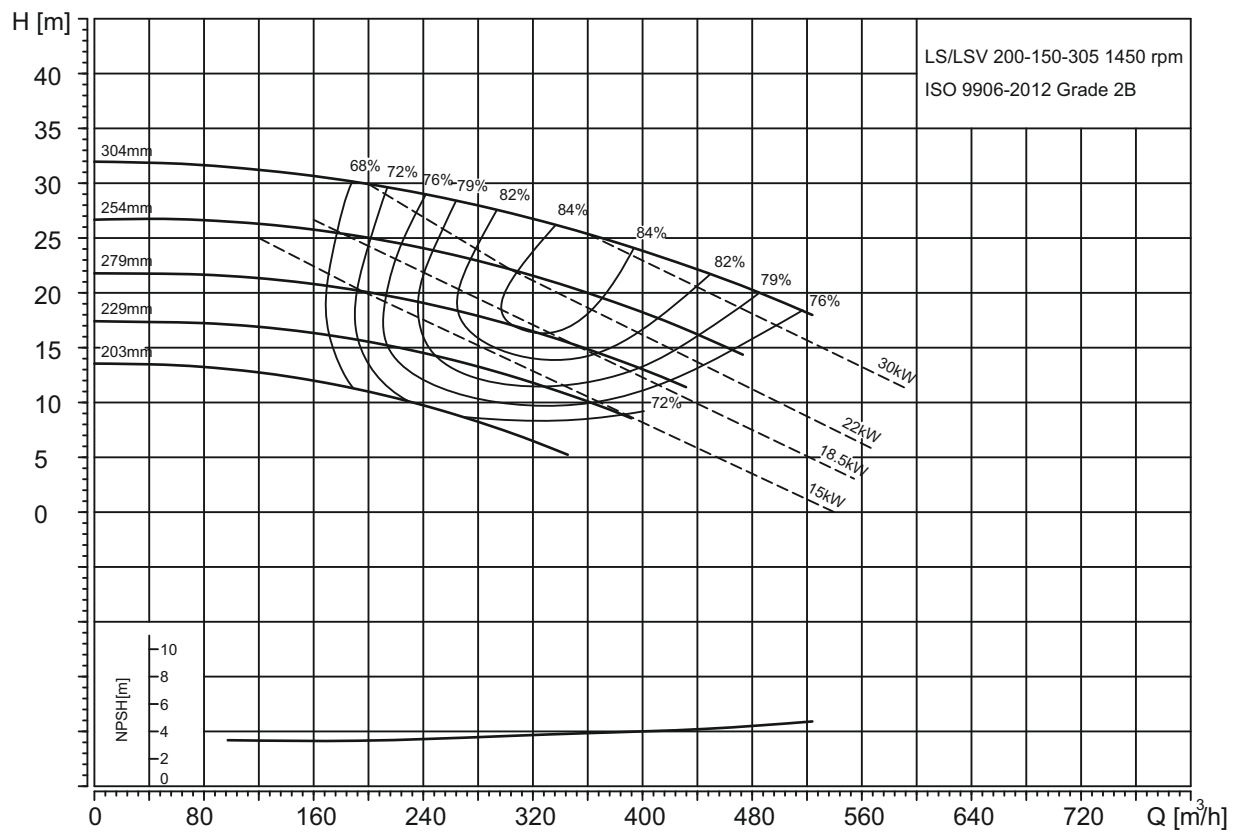
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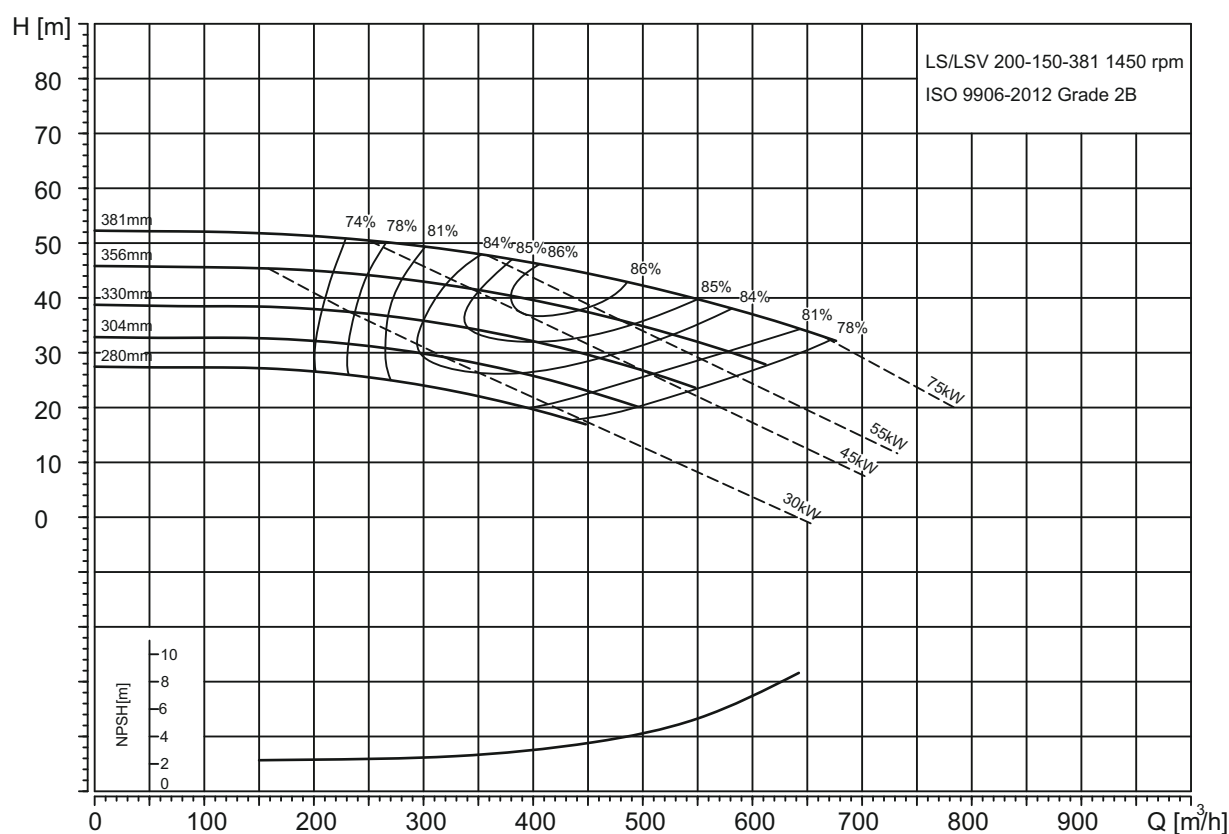
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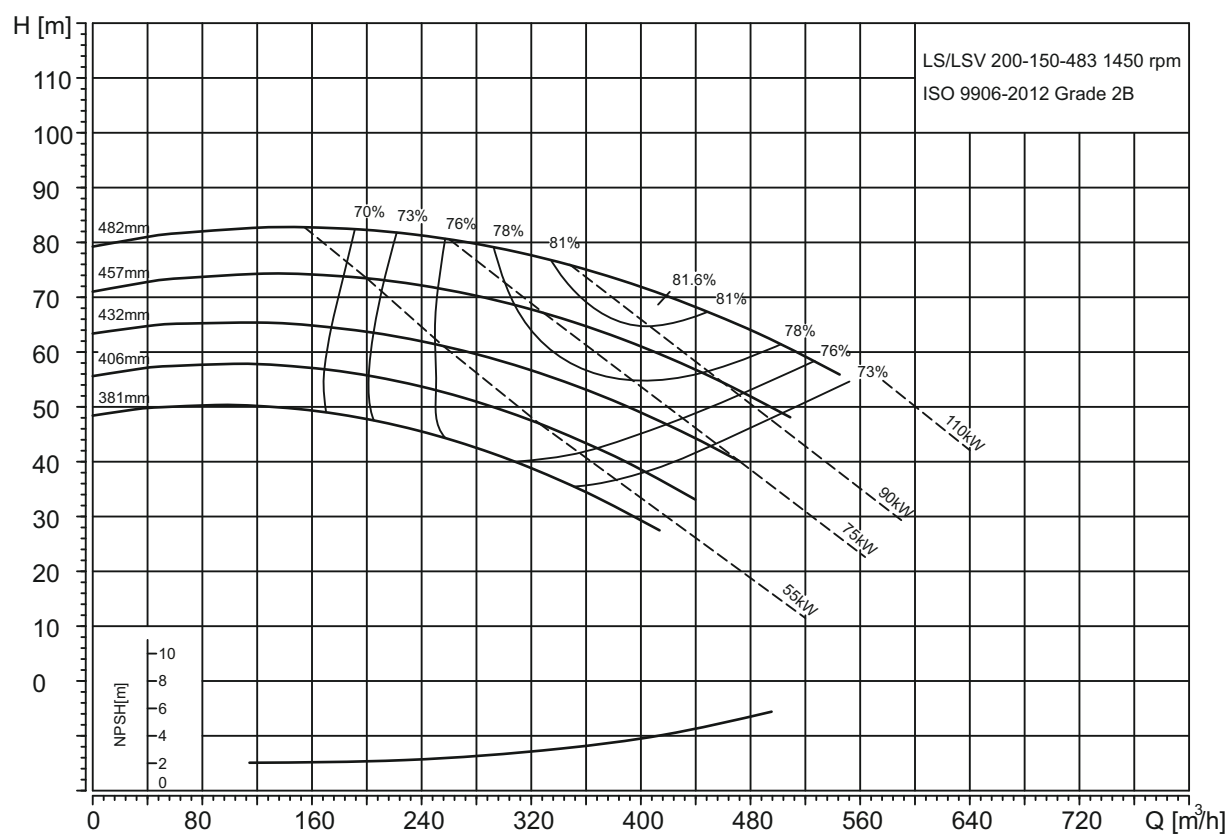
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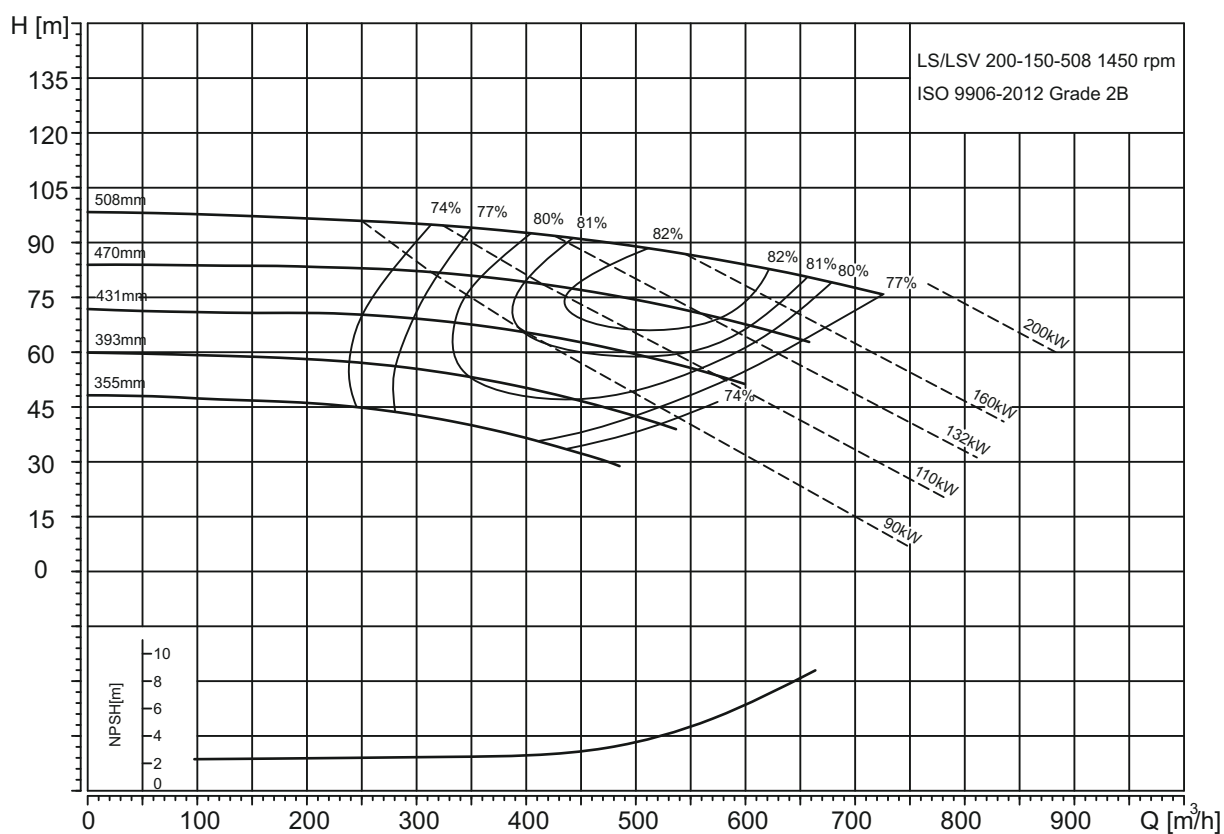
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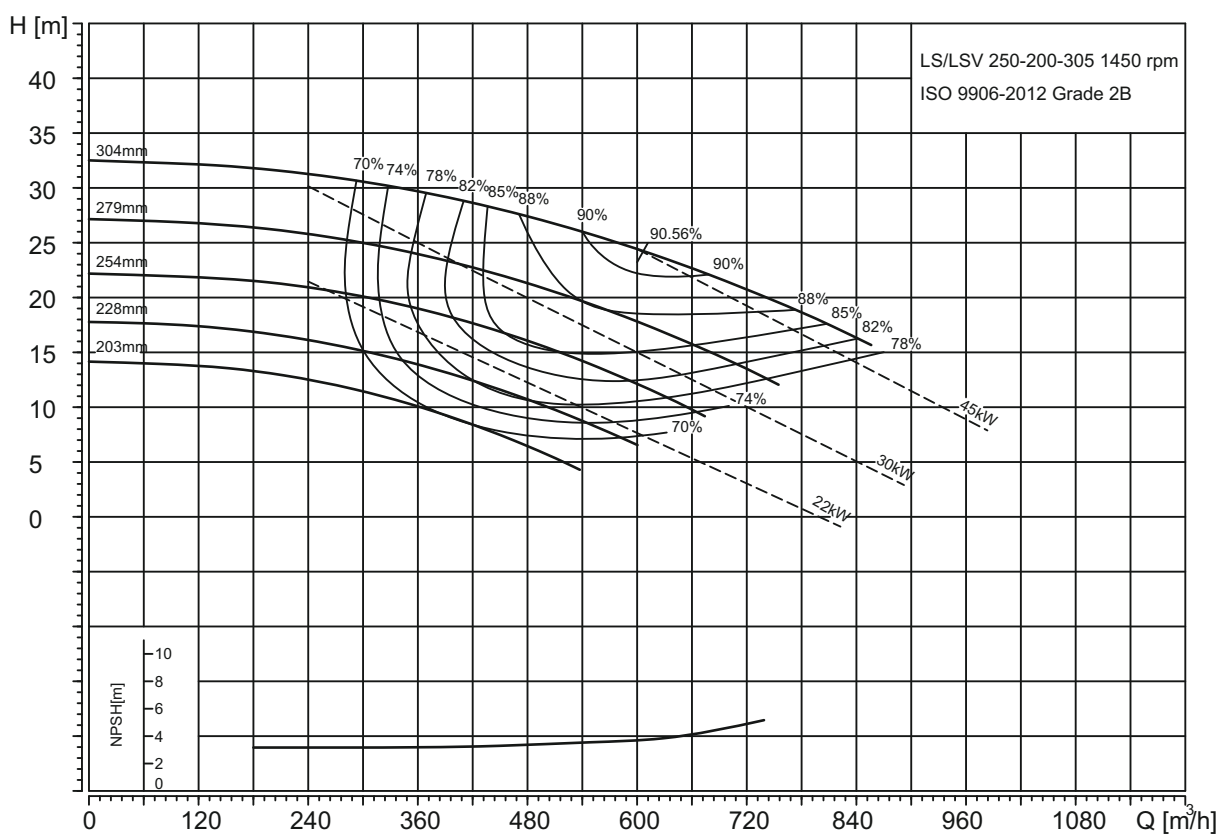
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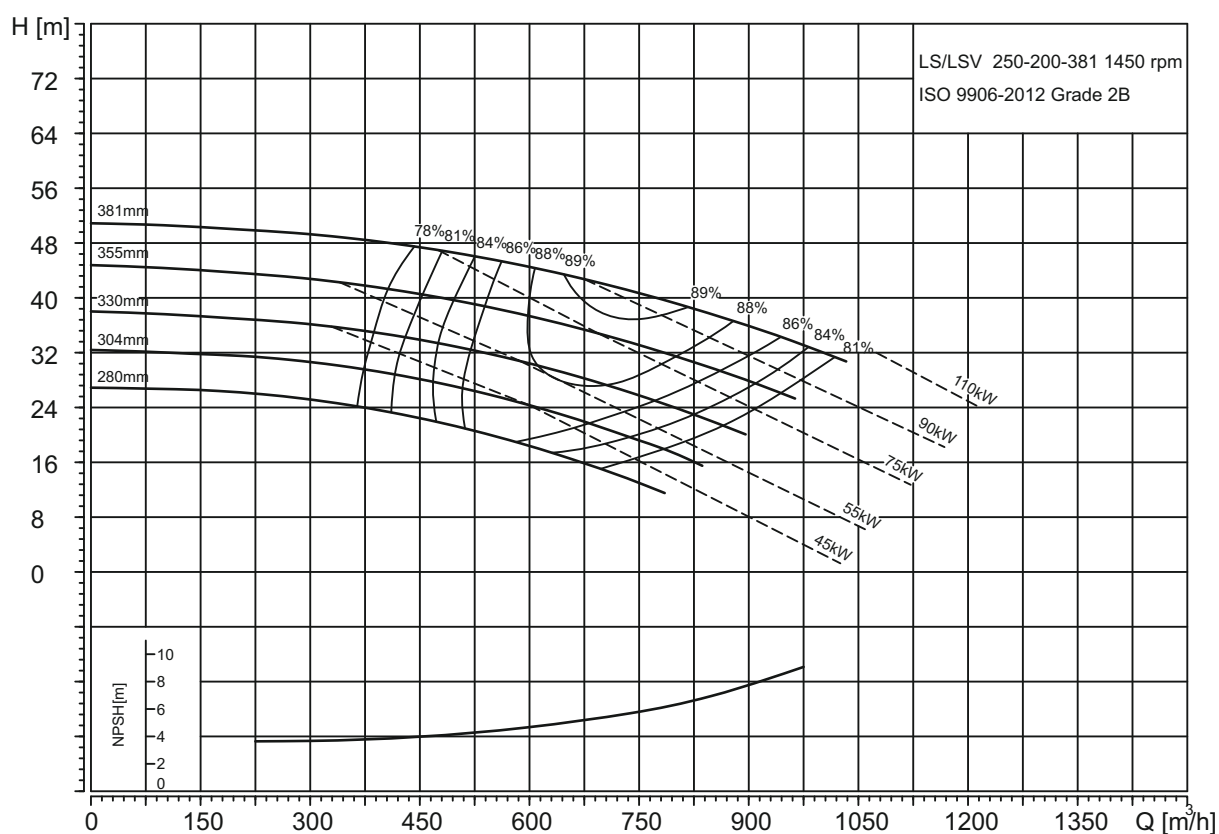
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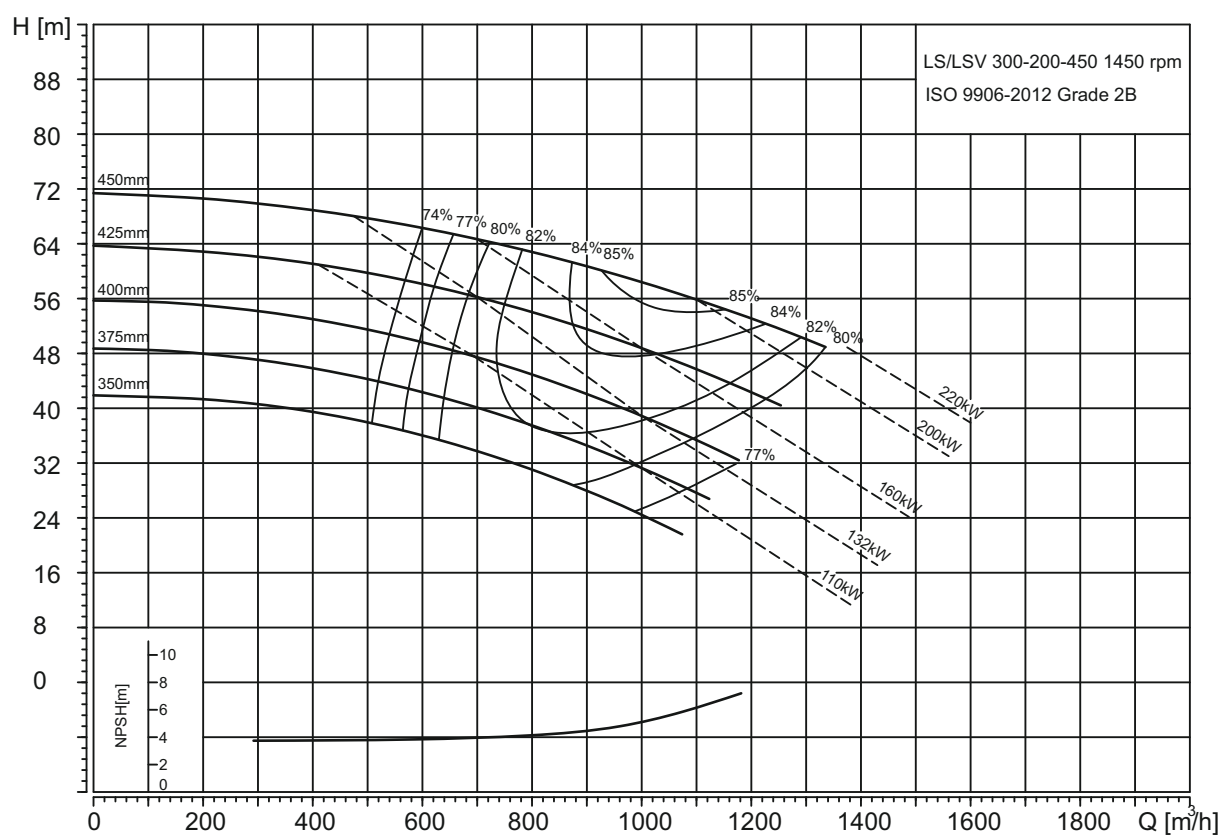
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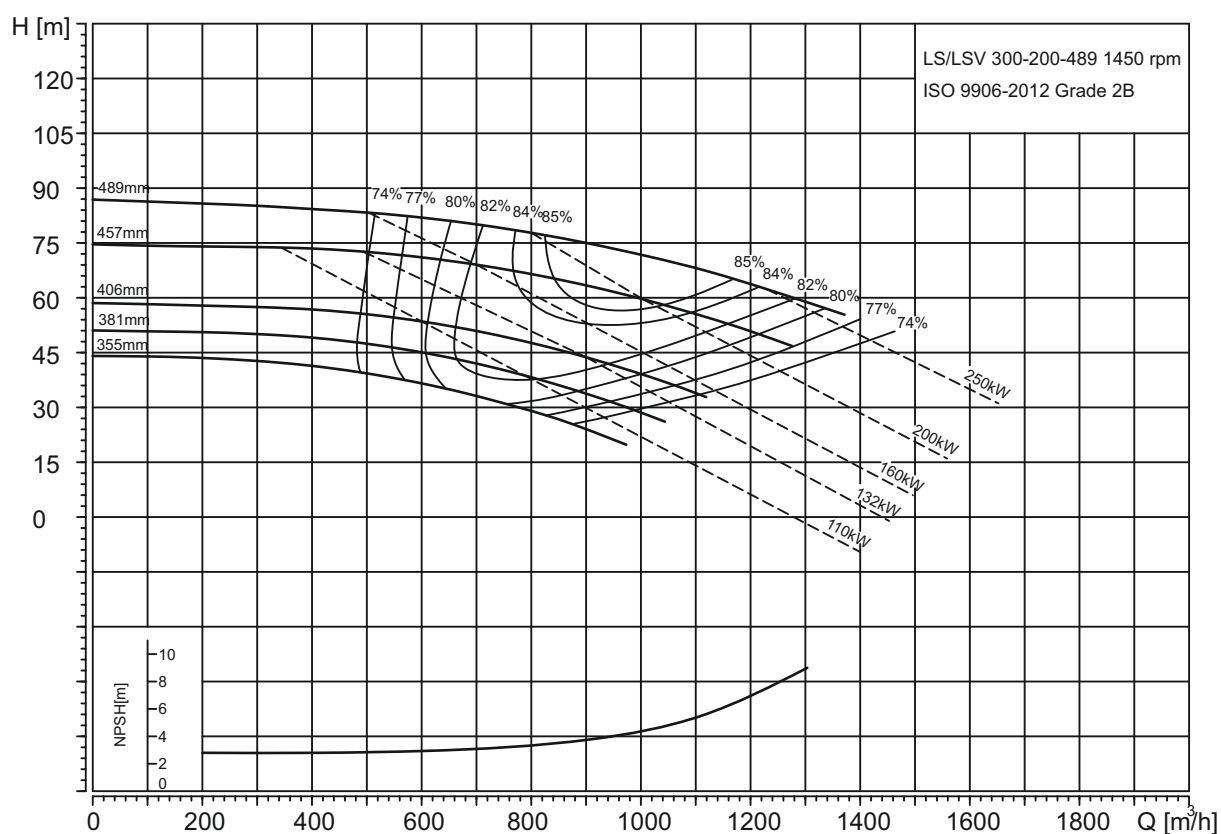
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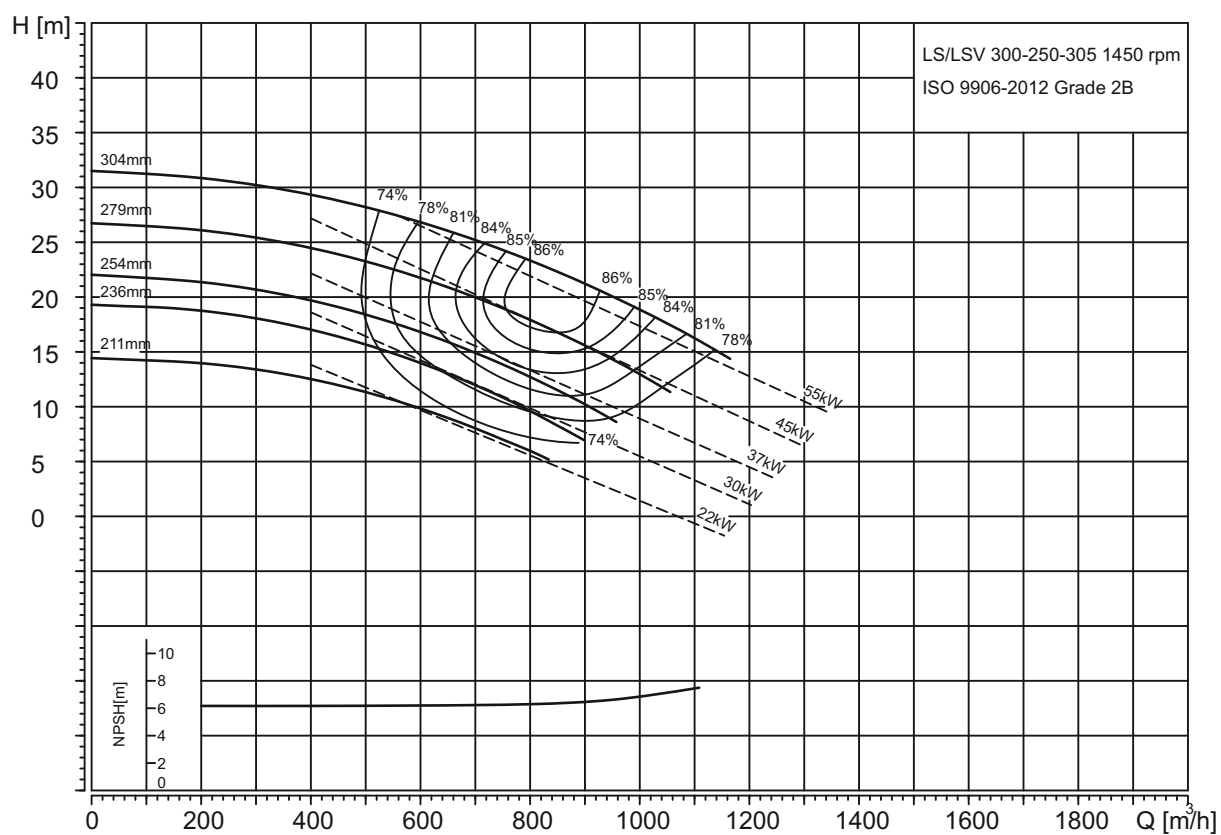
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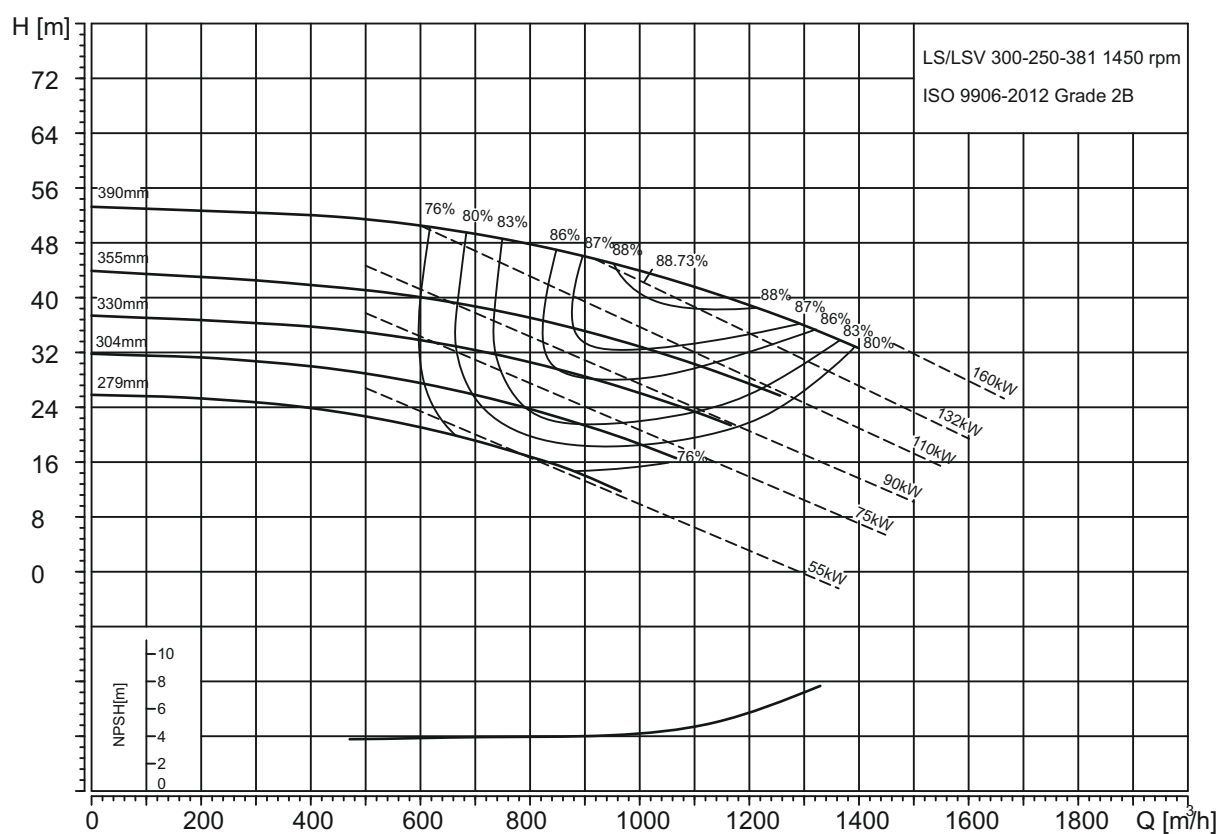
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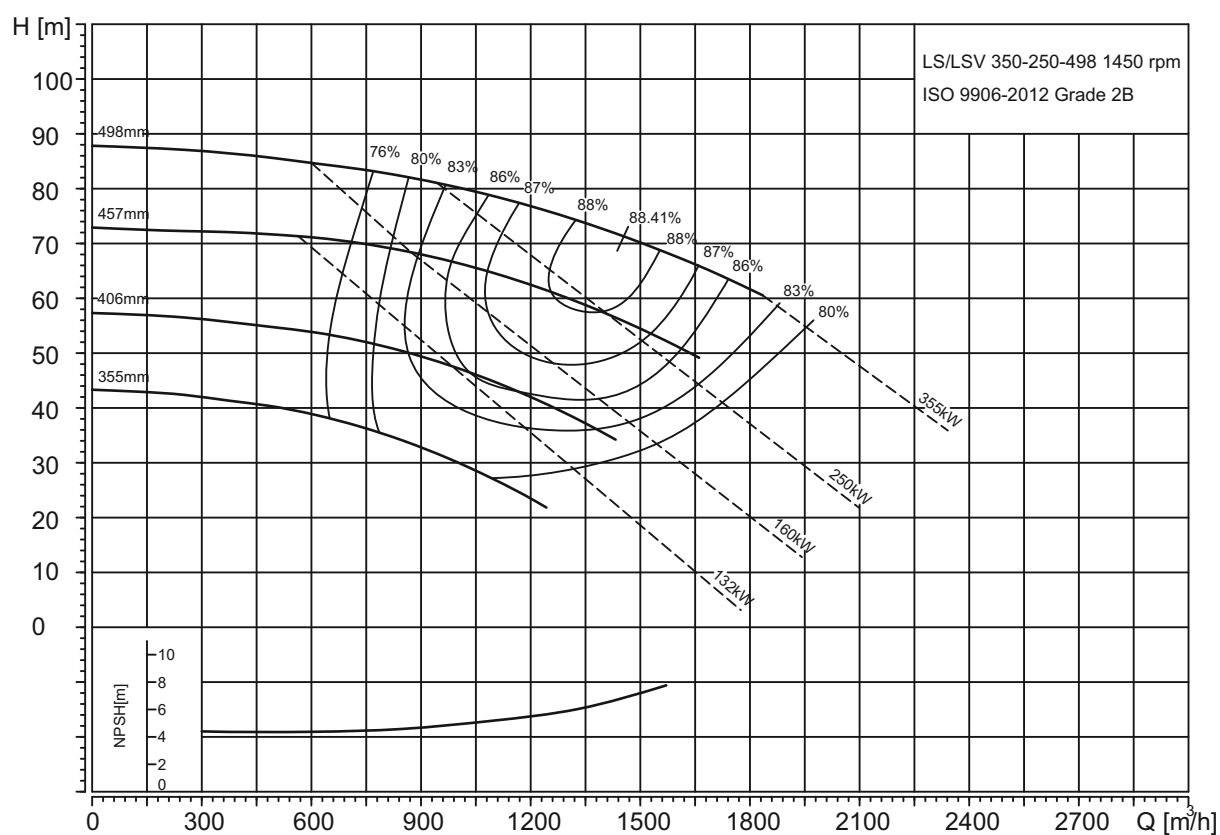
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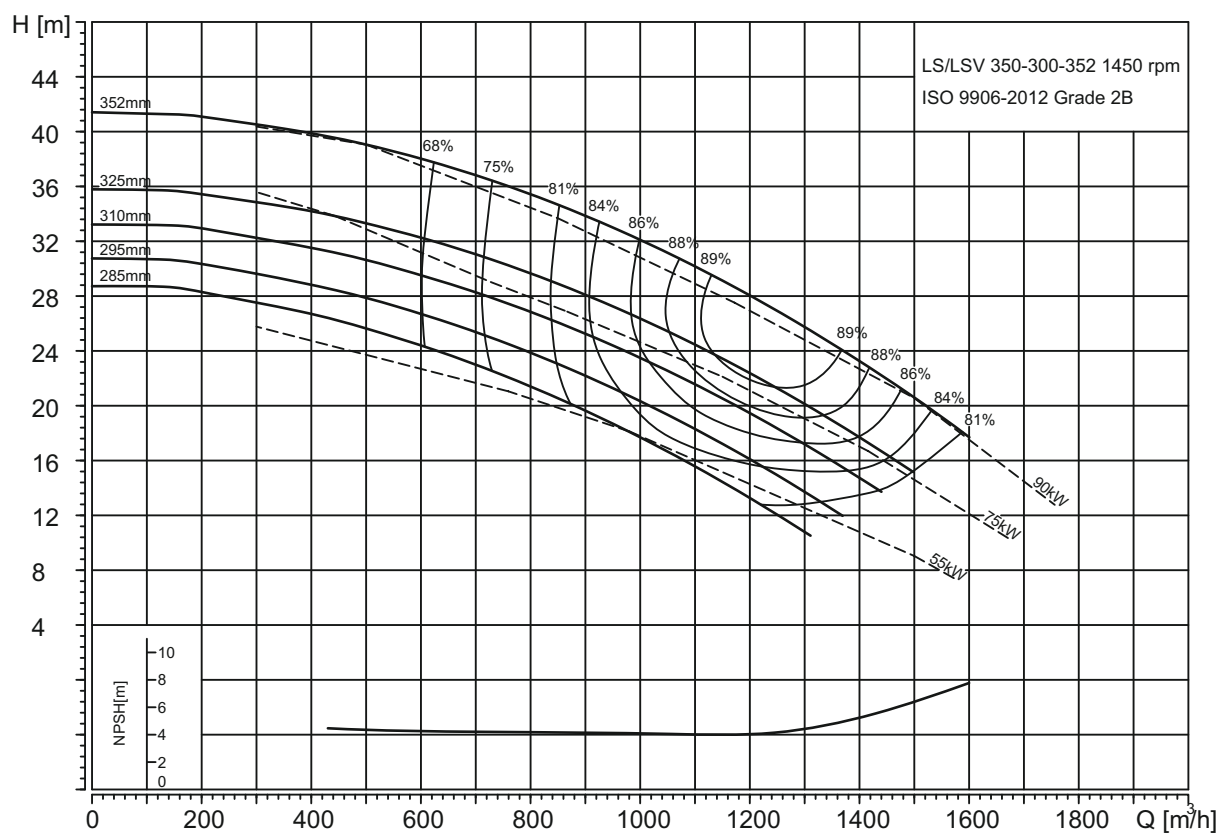
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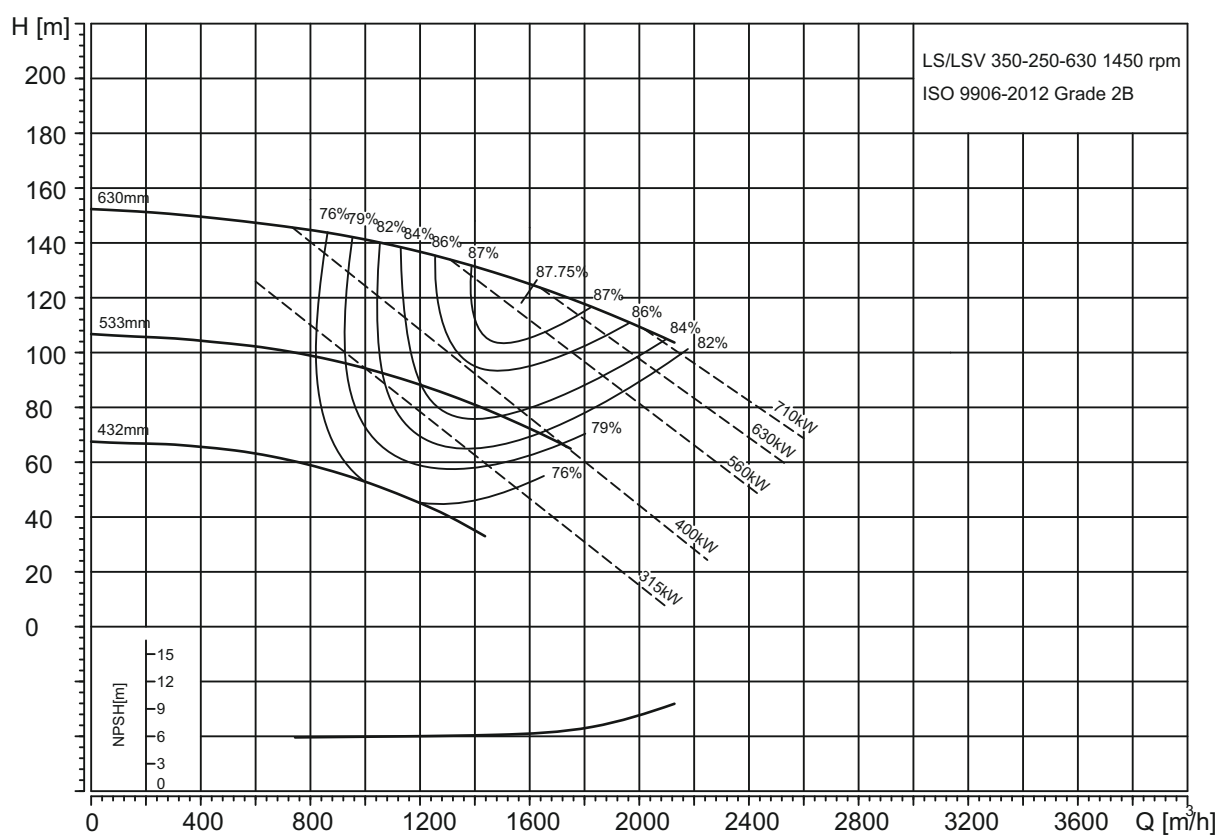
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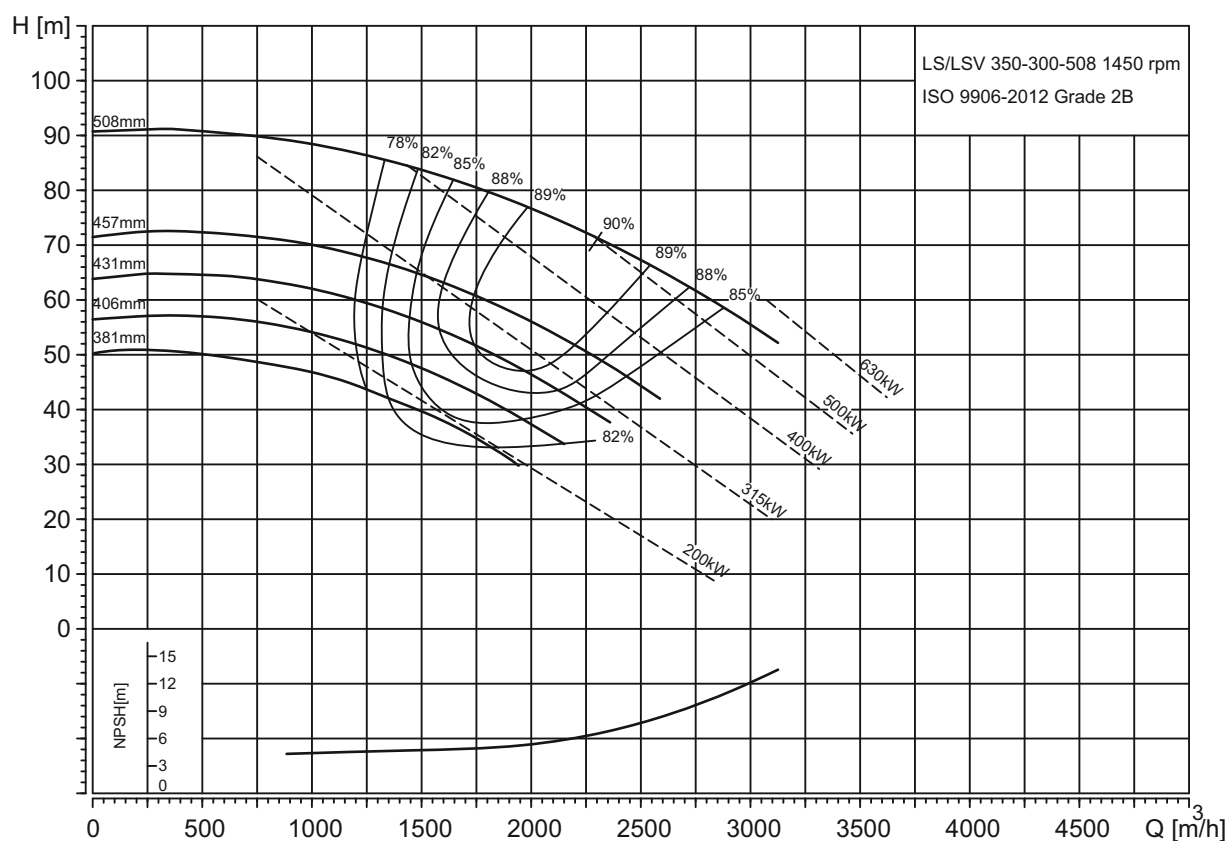
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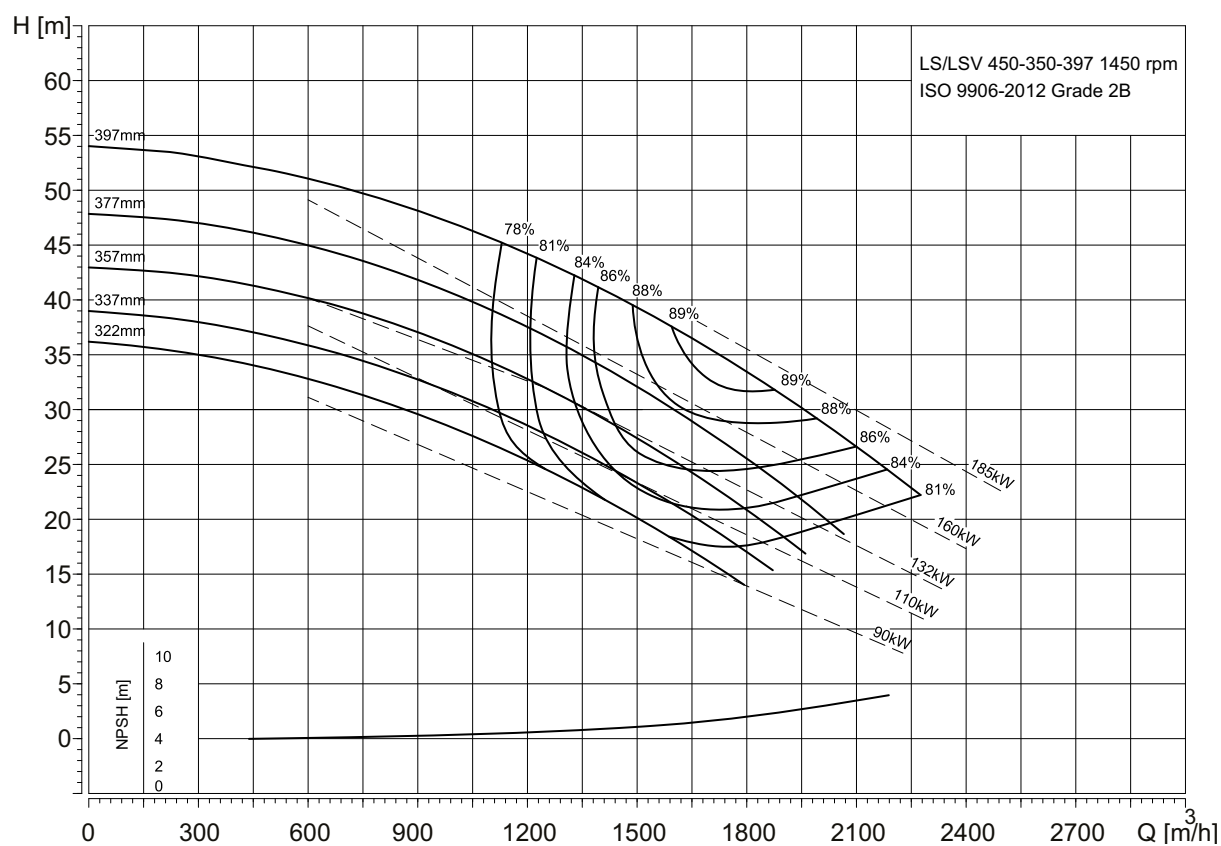
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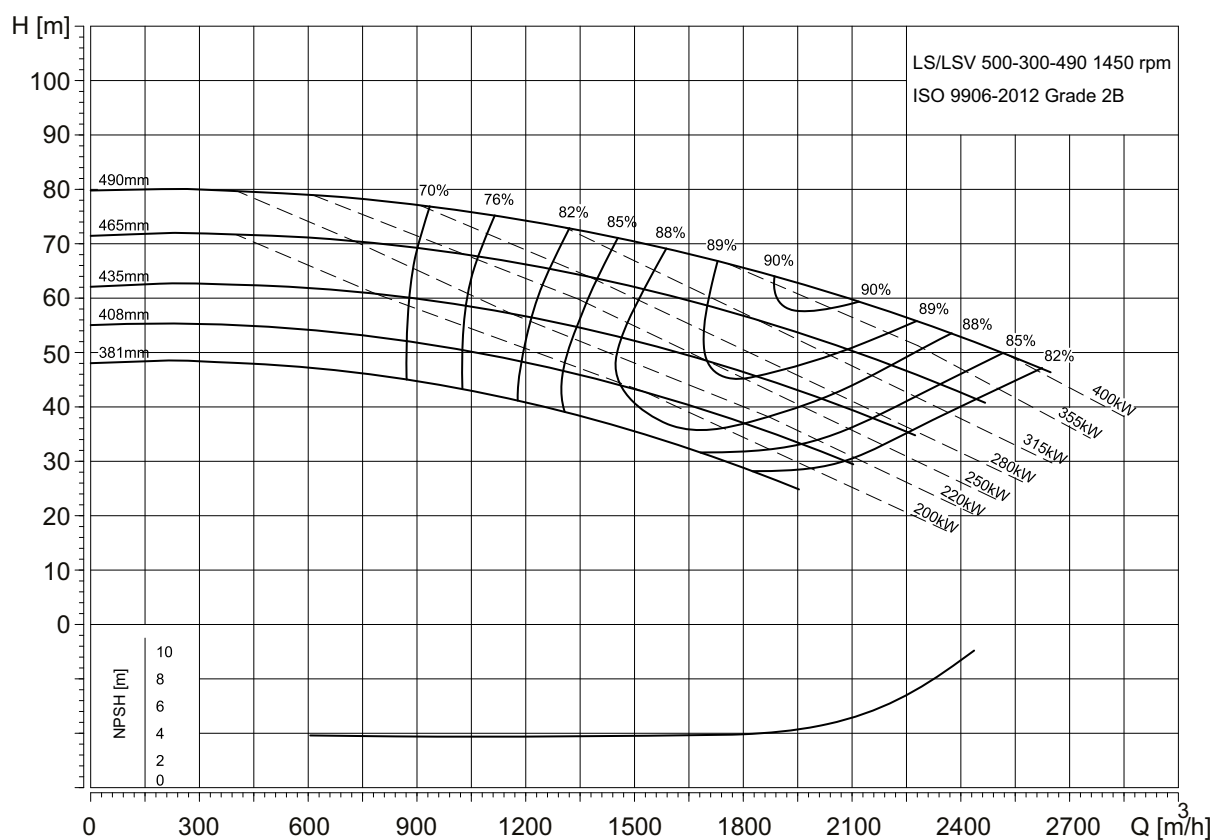
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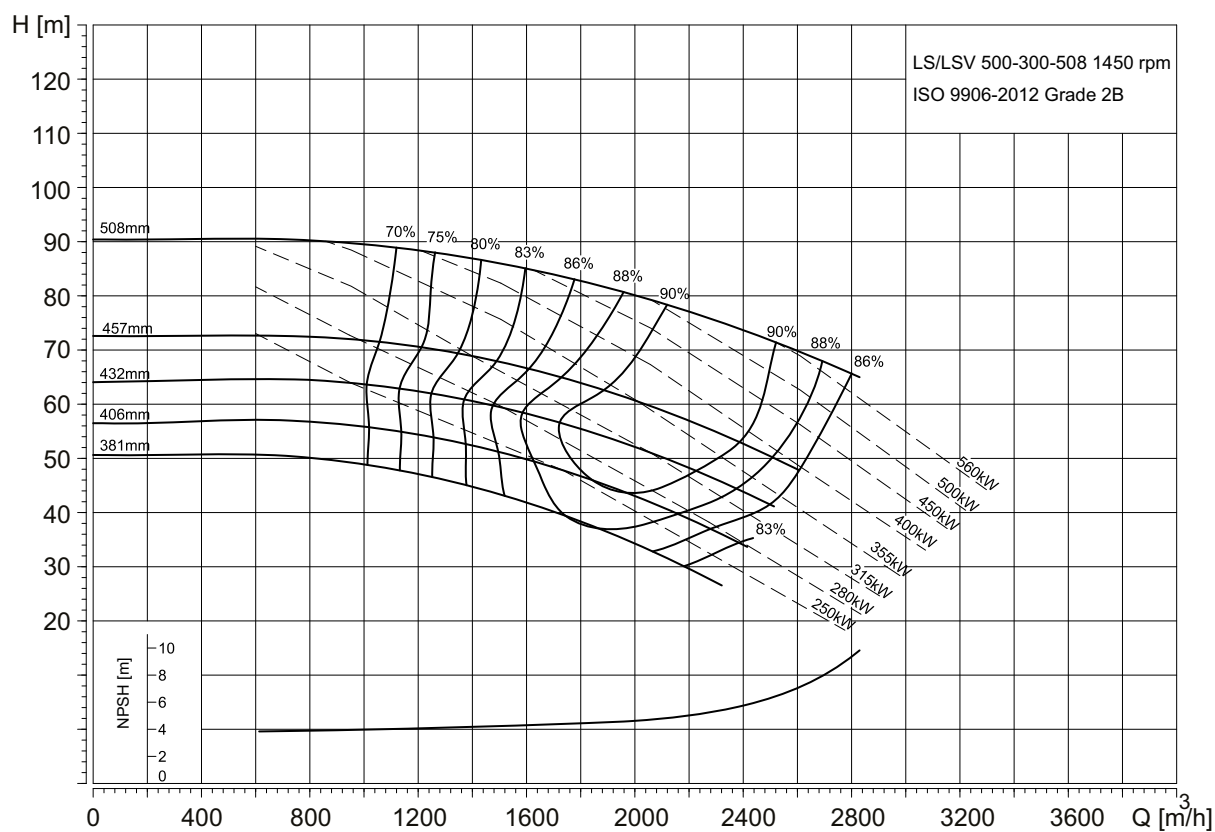
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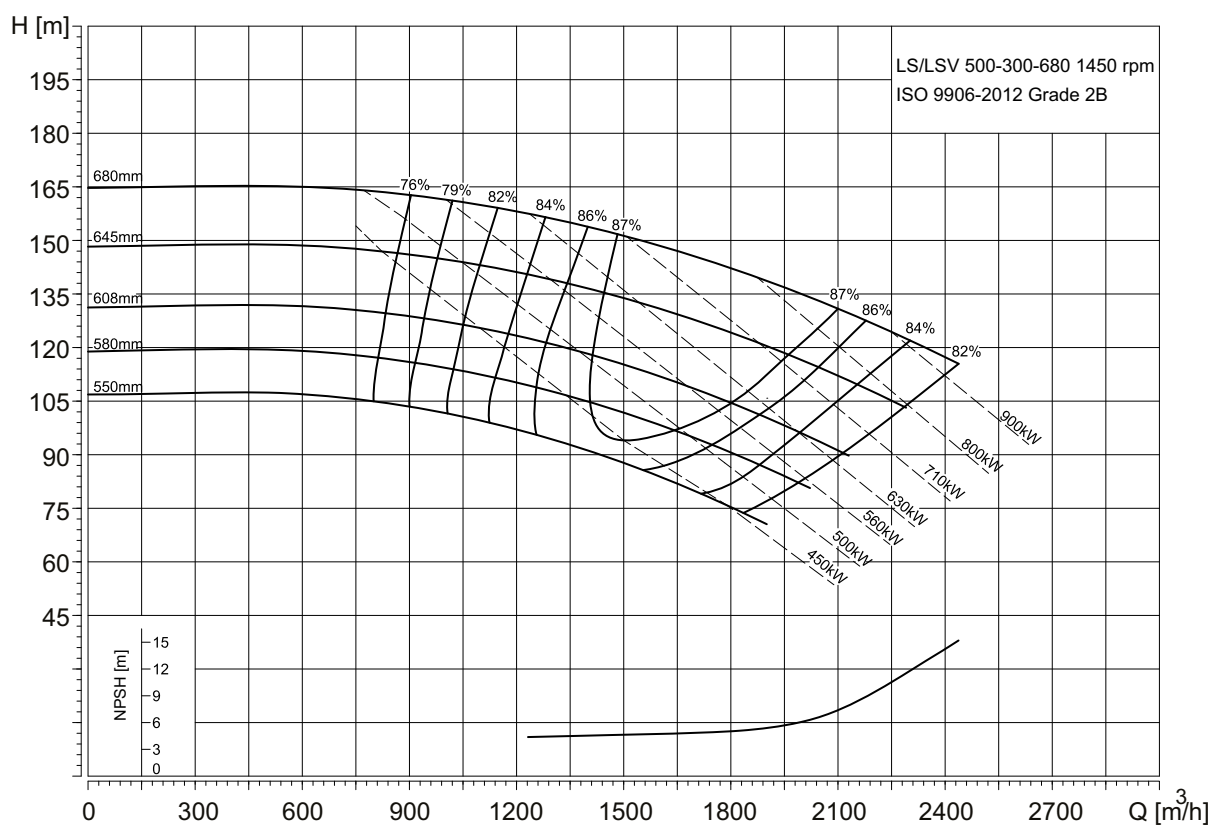
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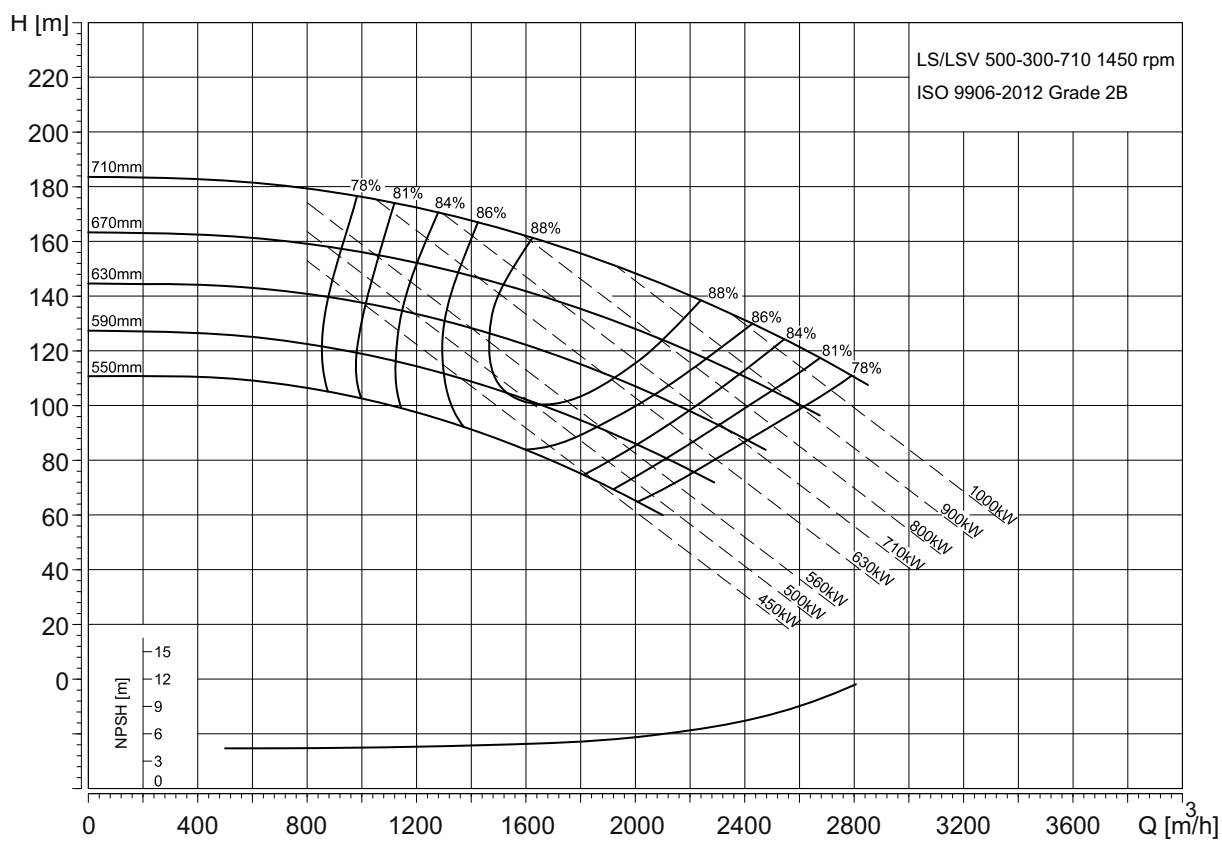
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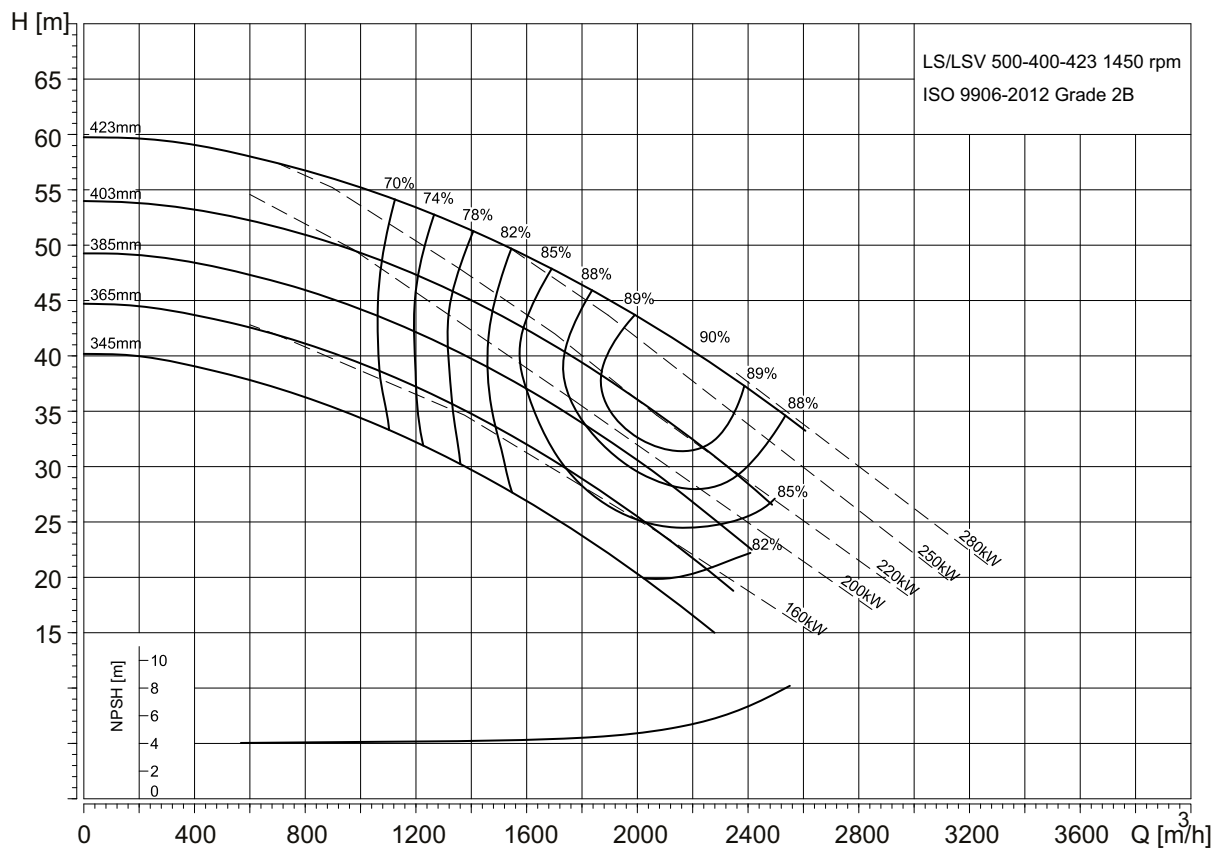
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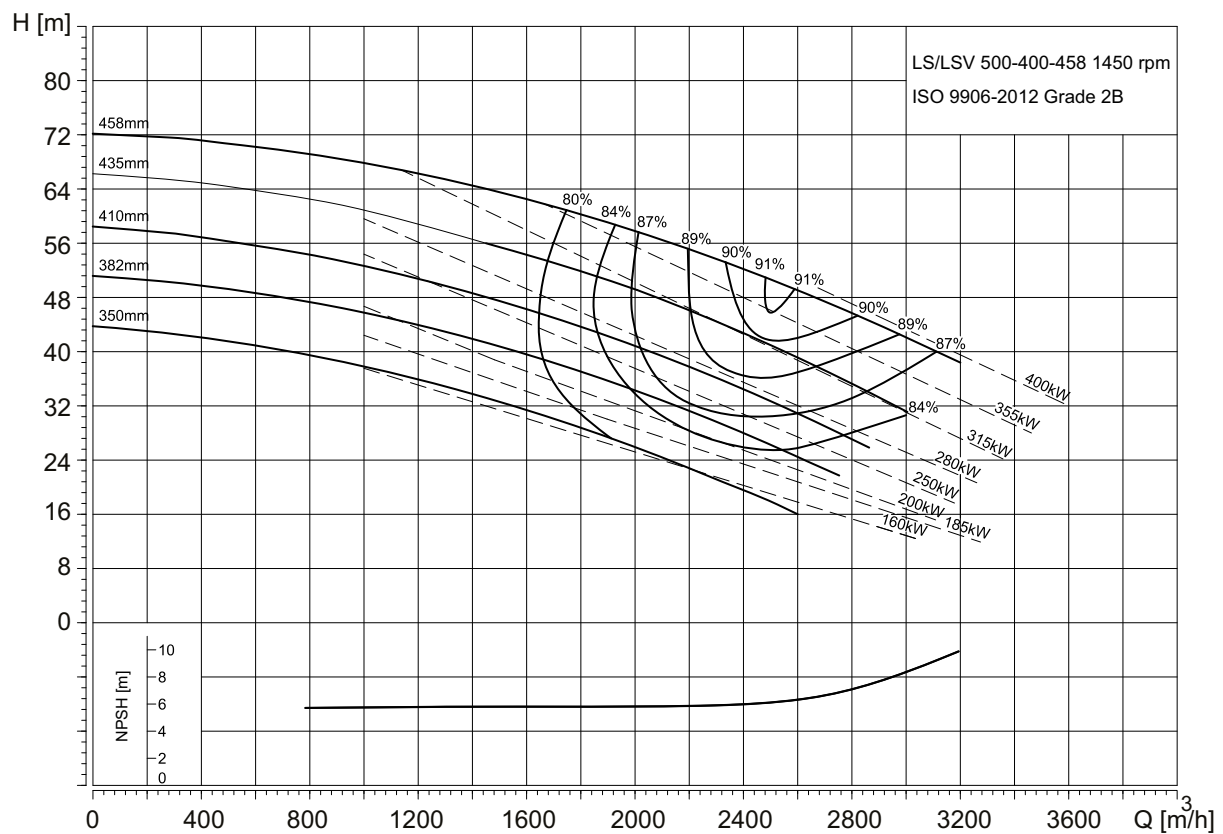
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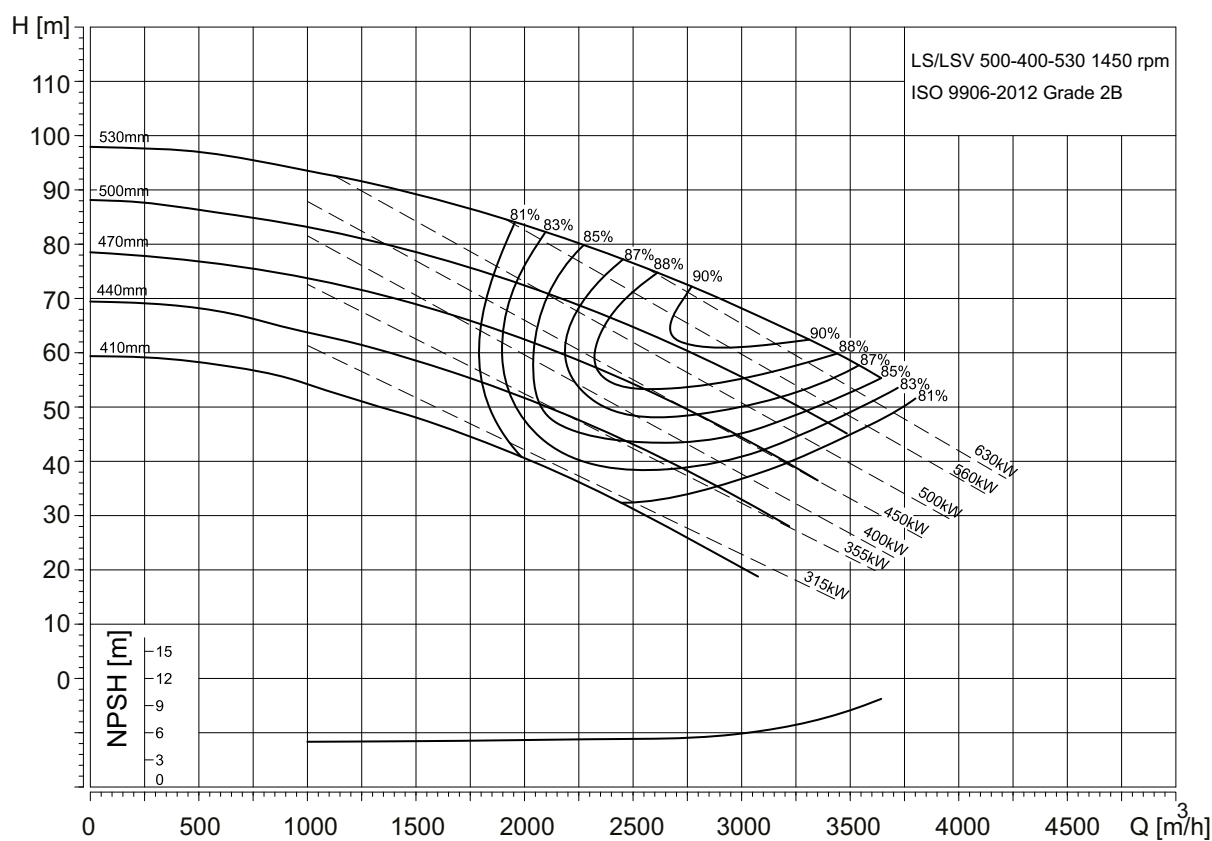
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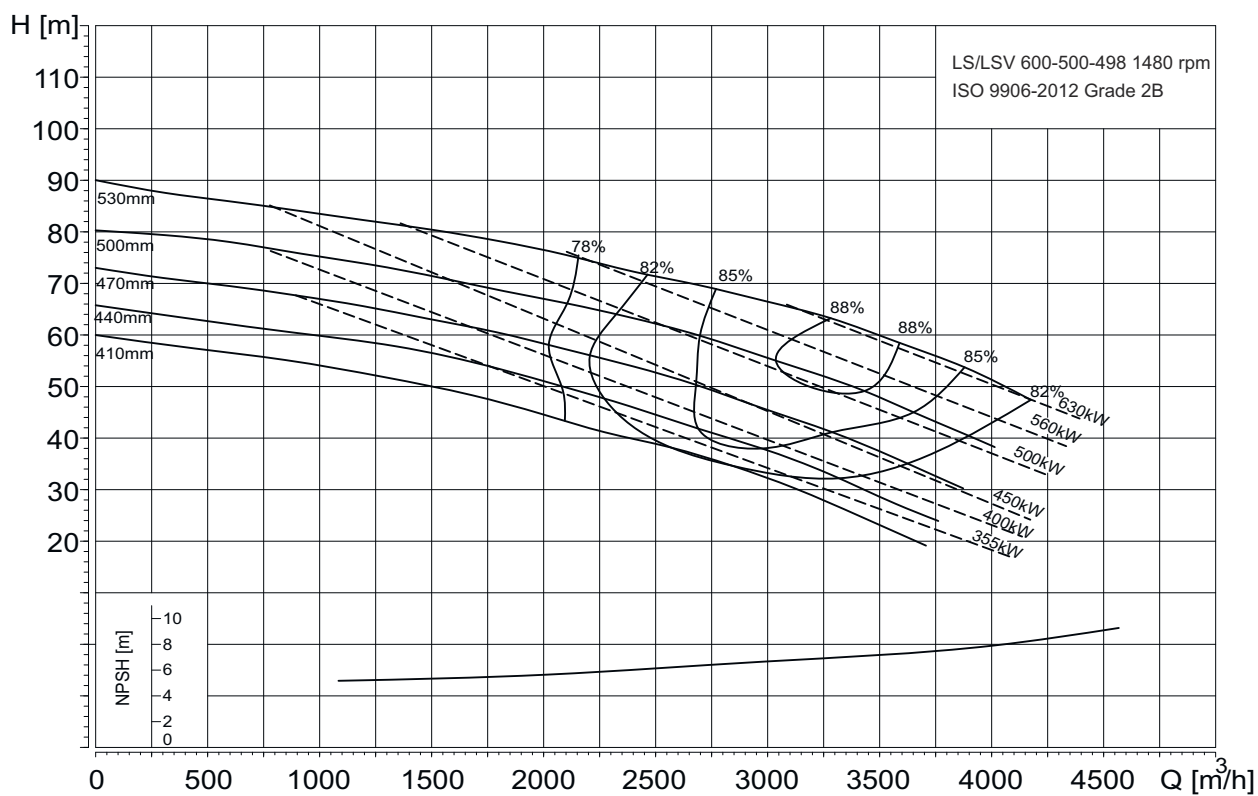
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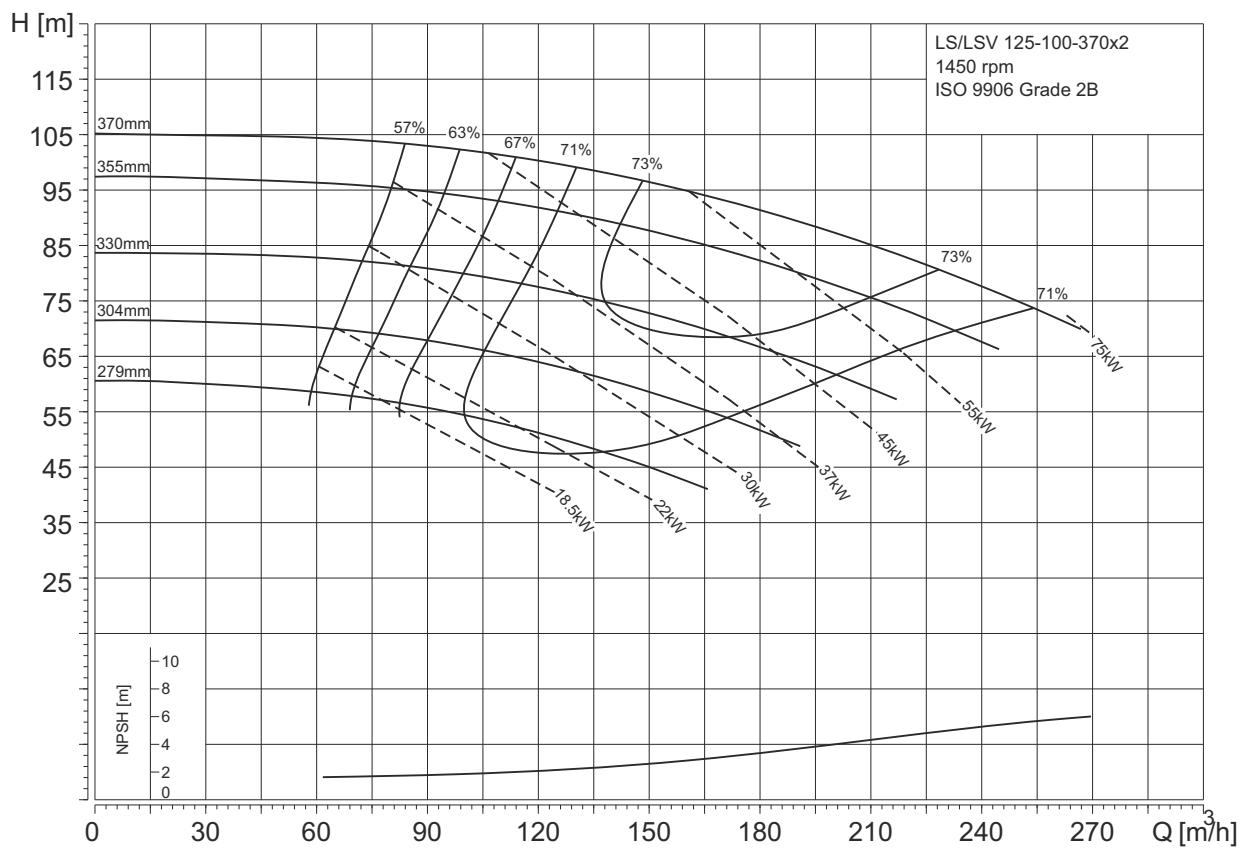
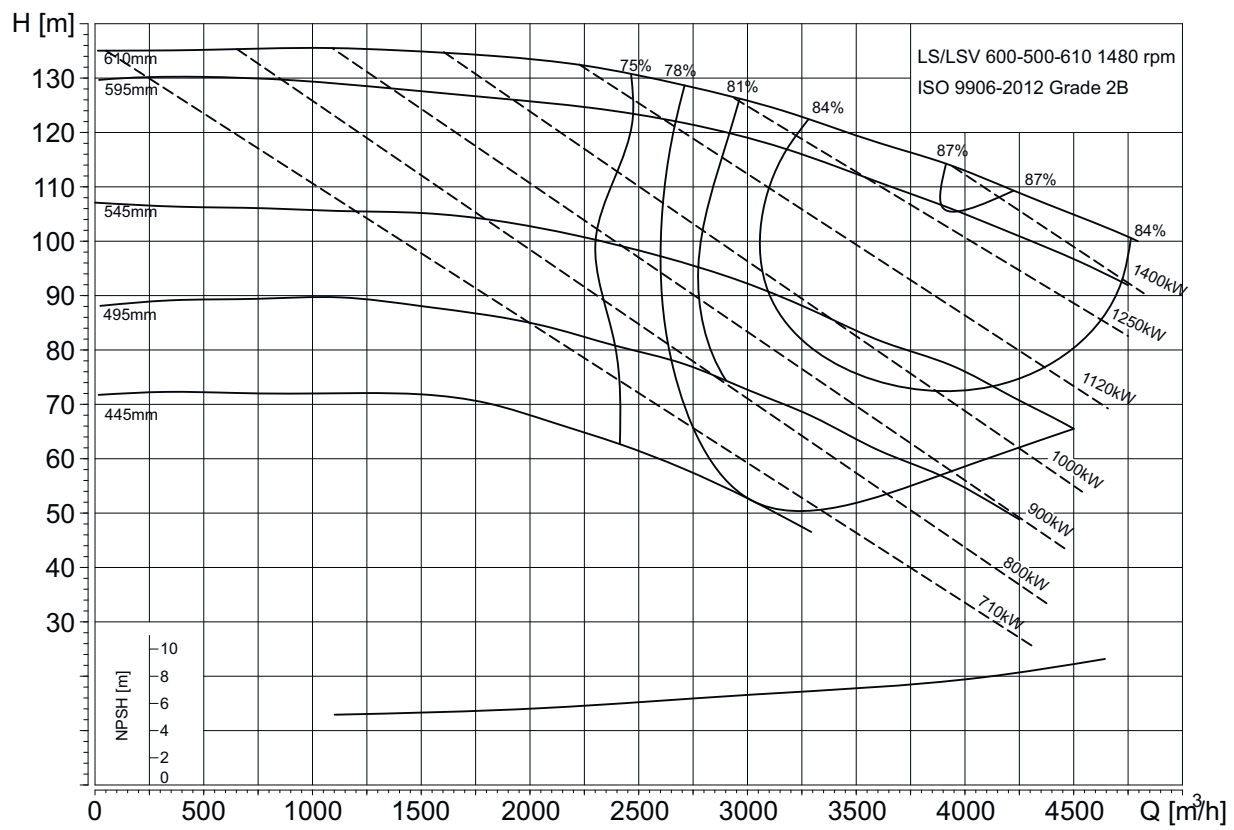
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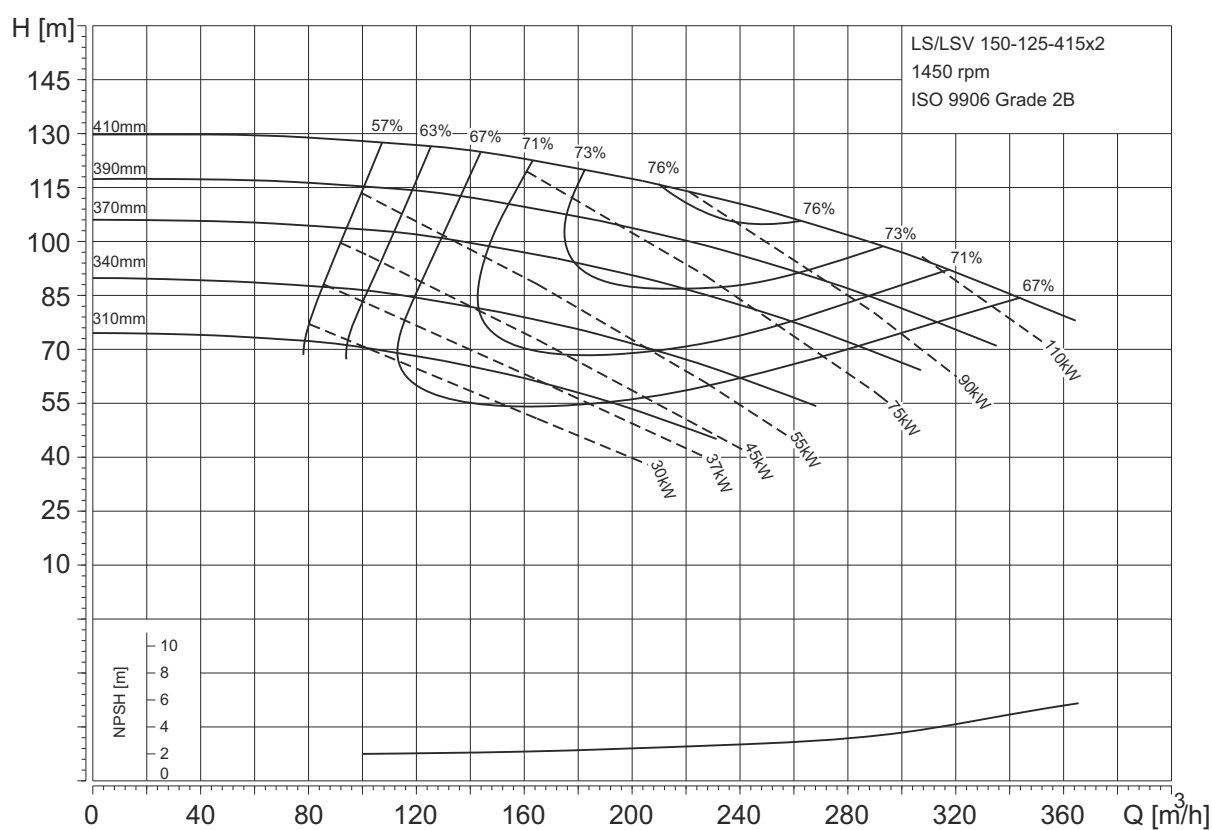


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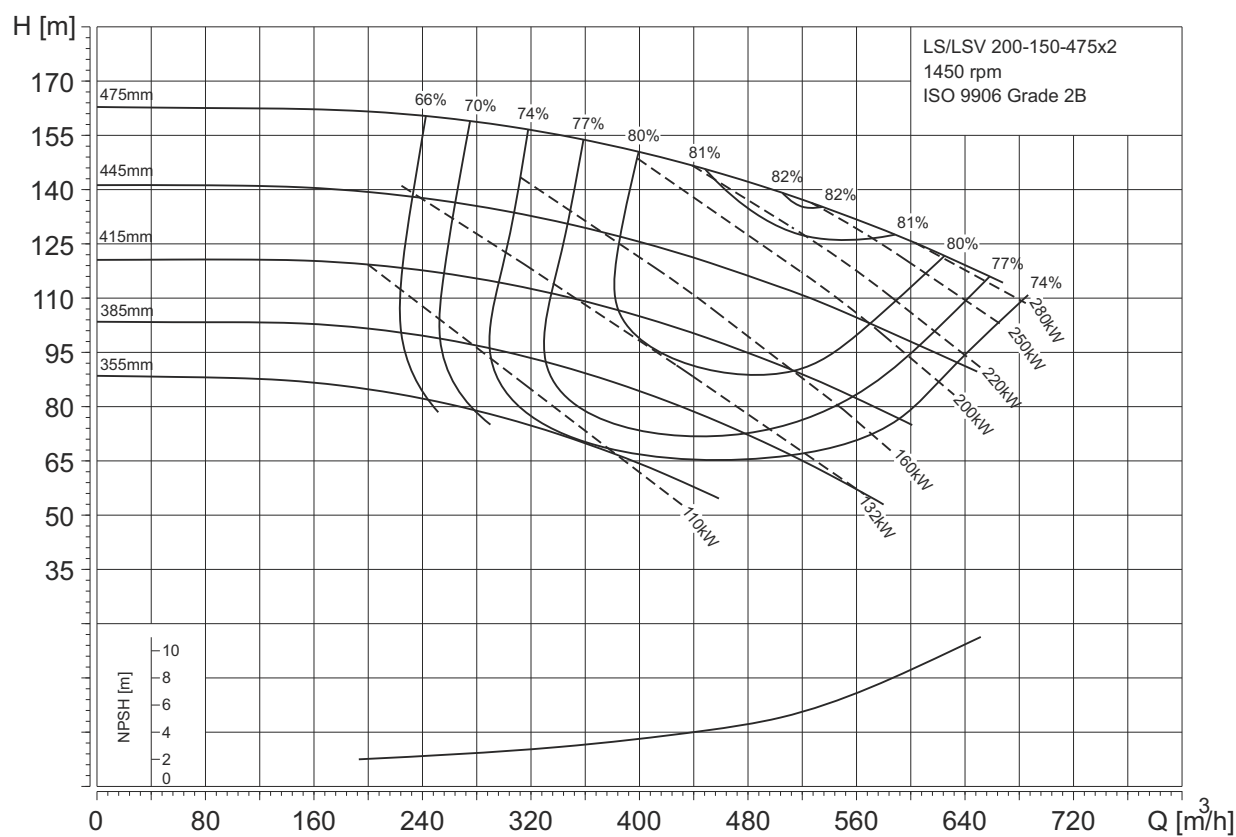


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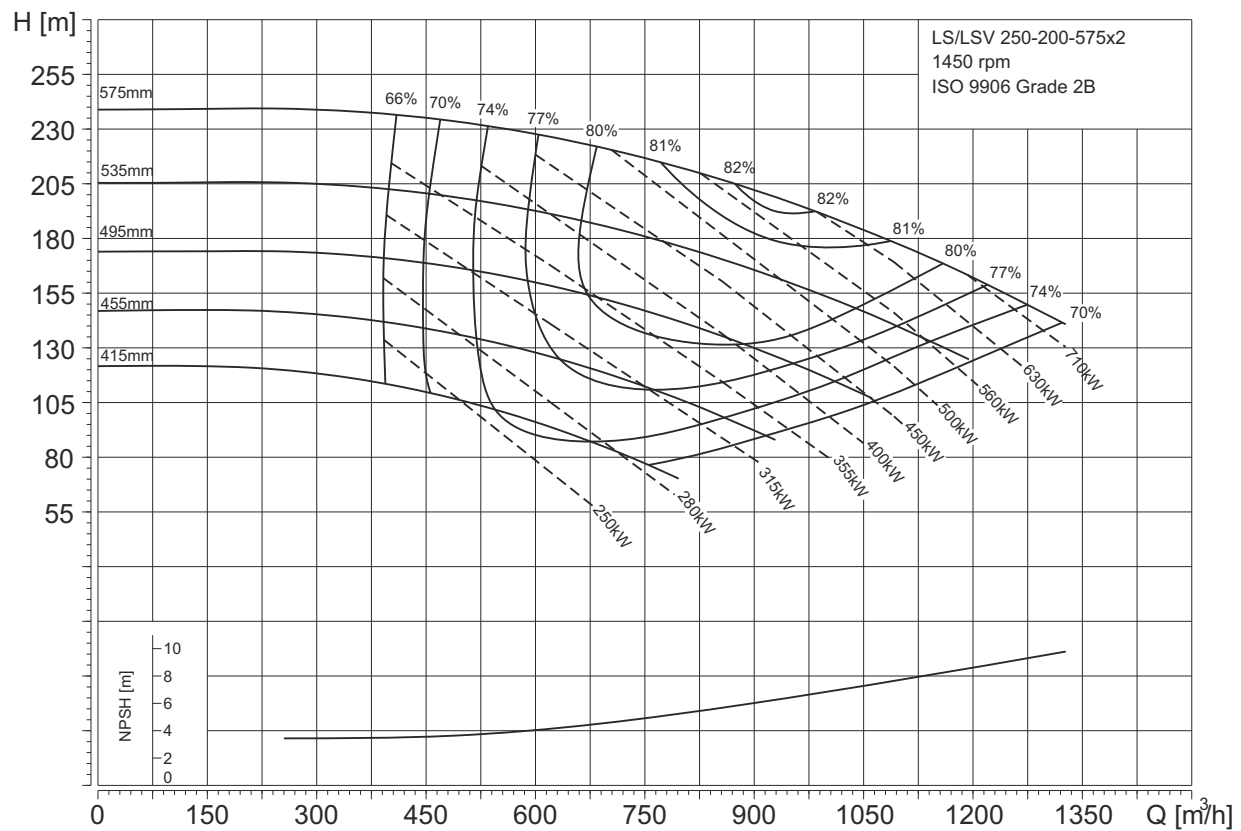




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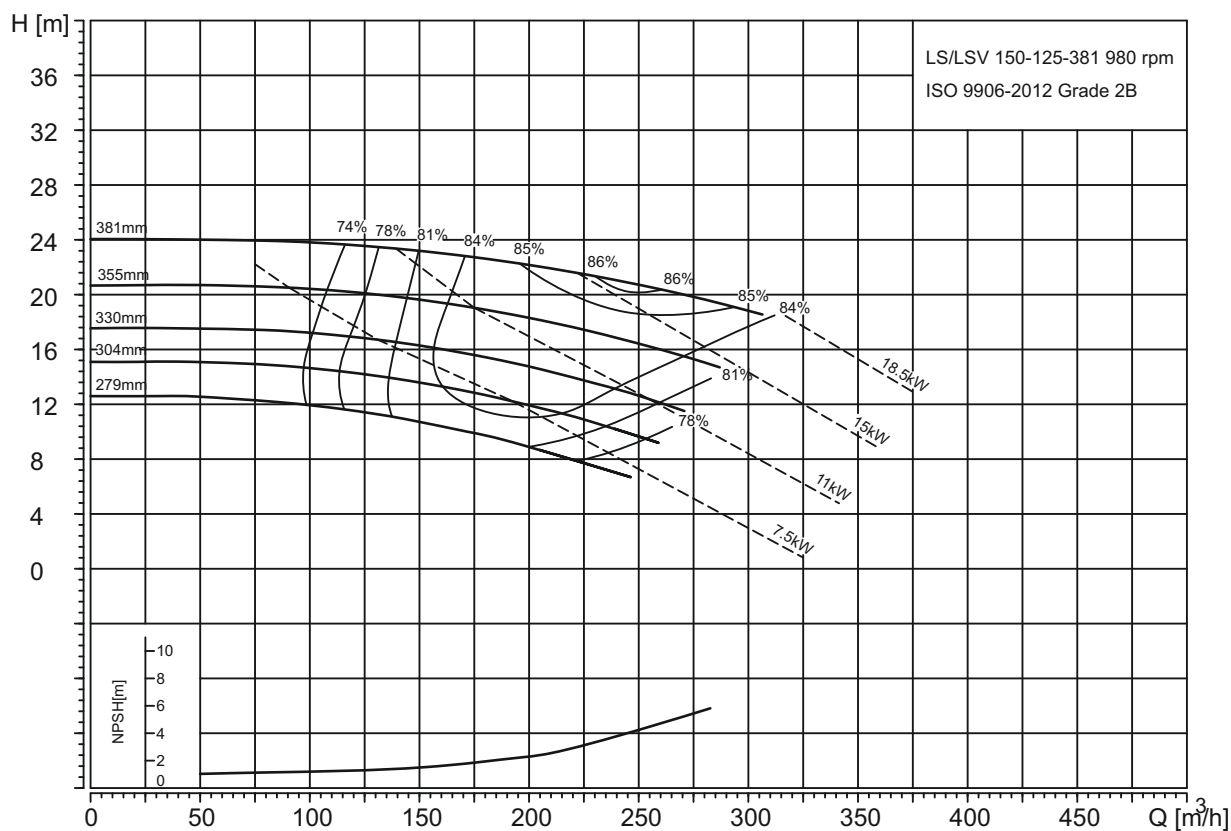


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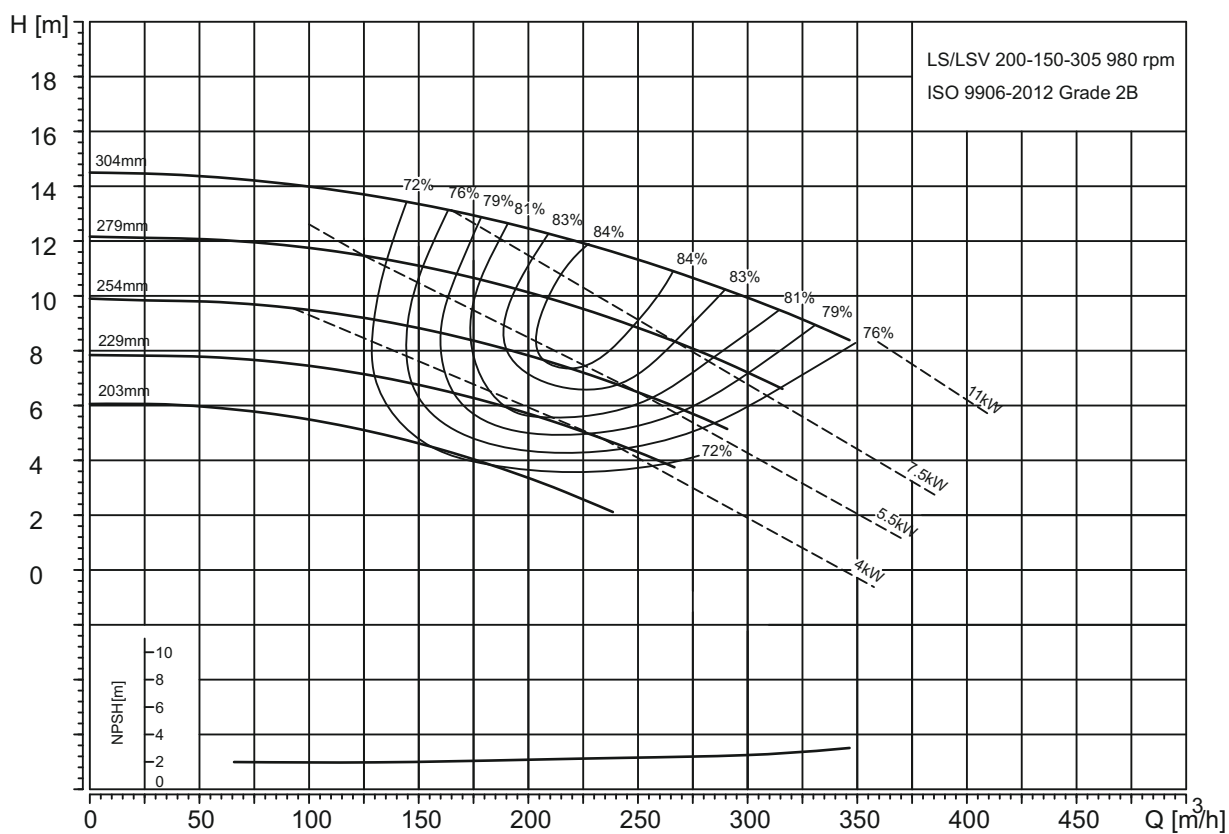


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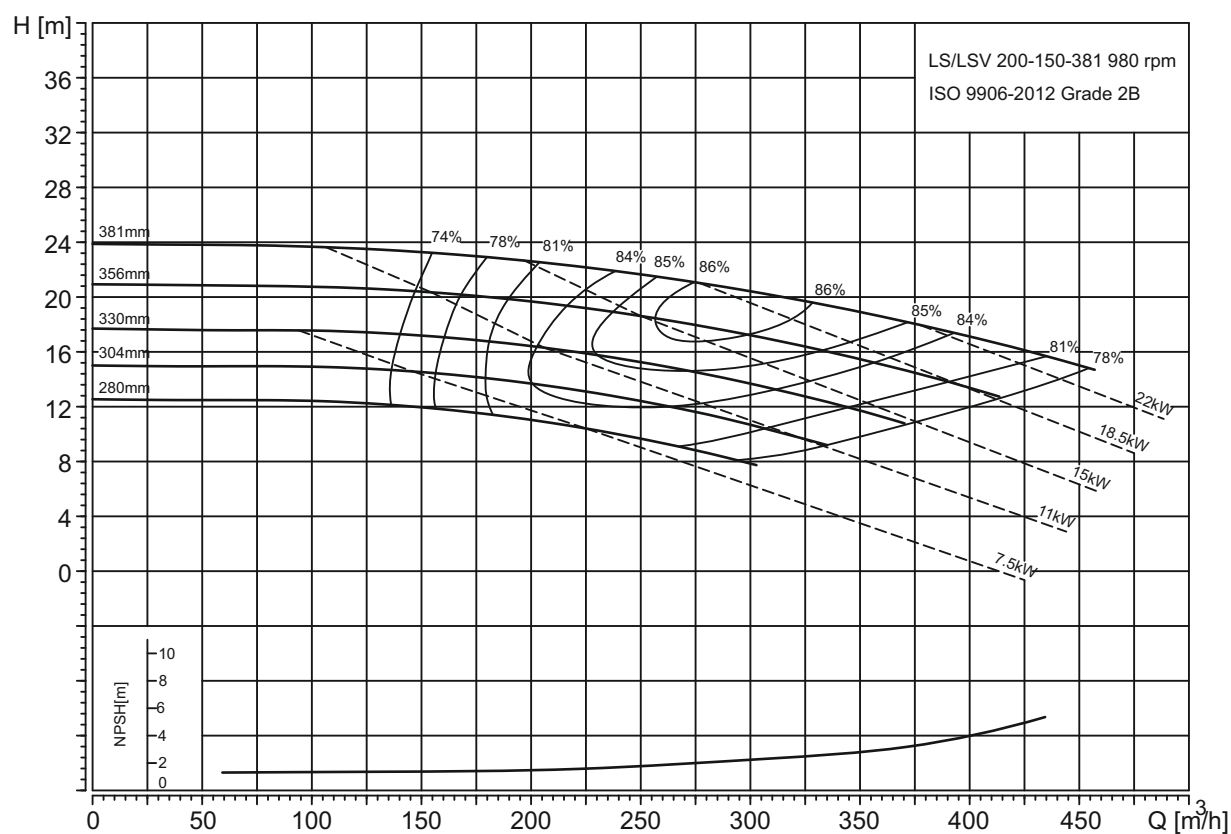
6-pole



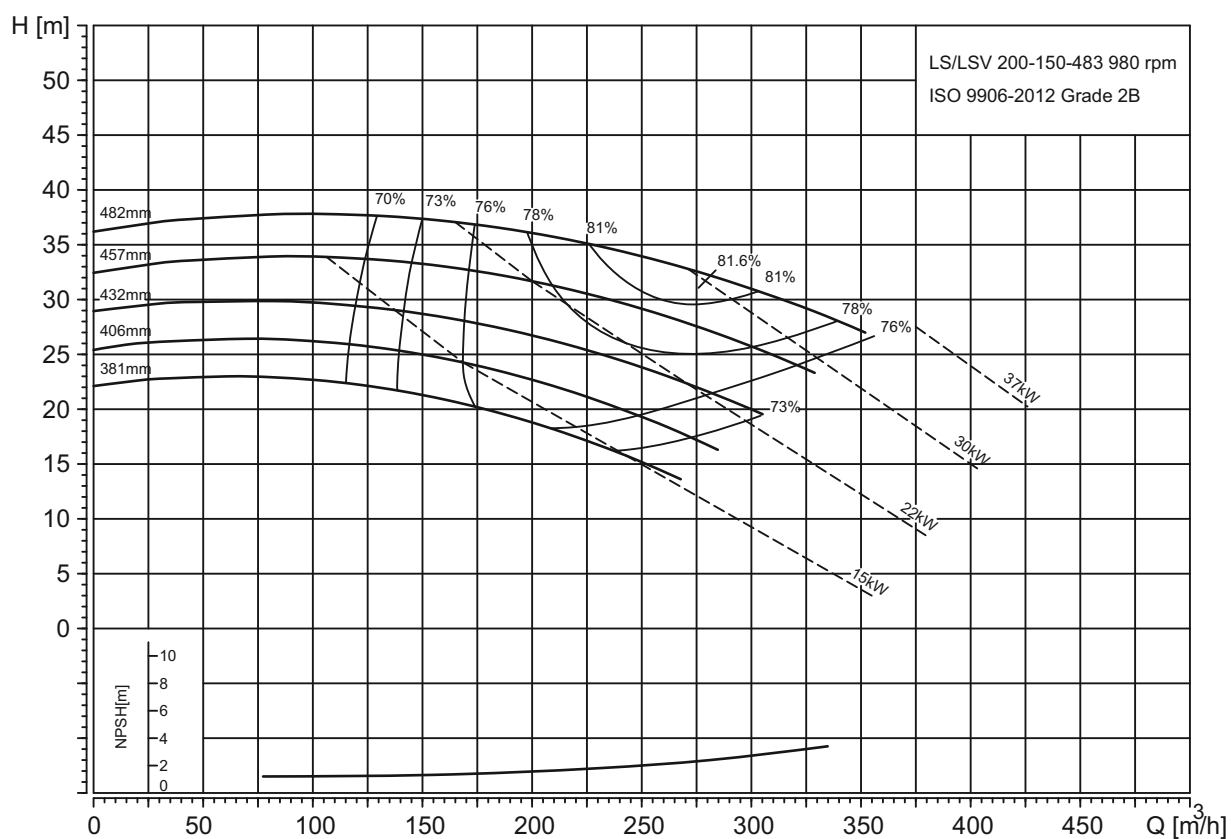
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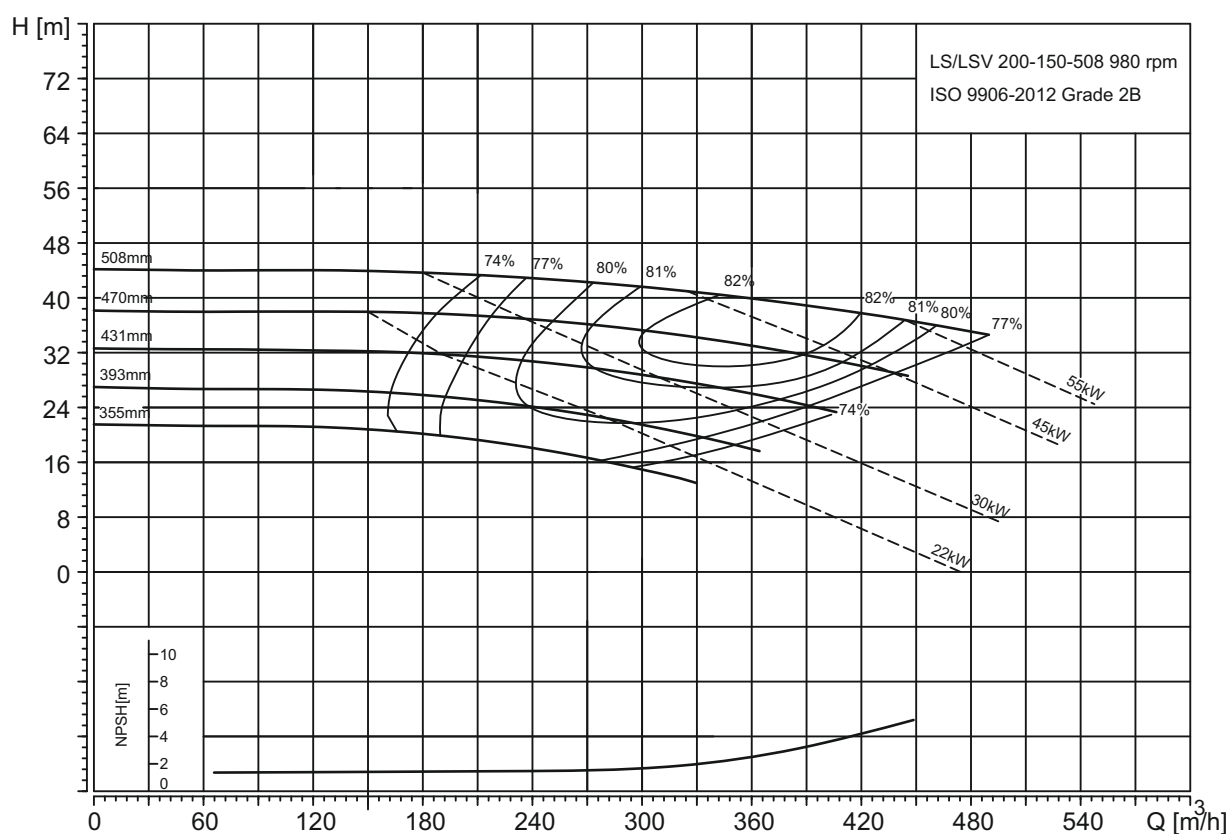
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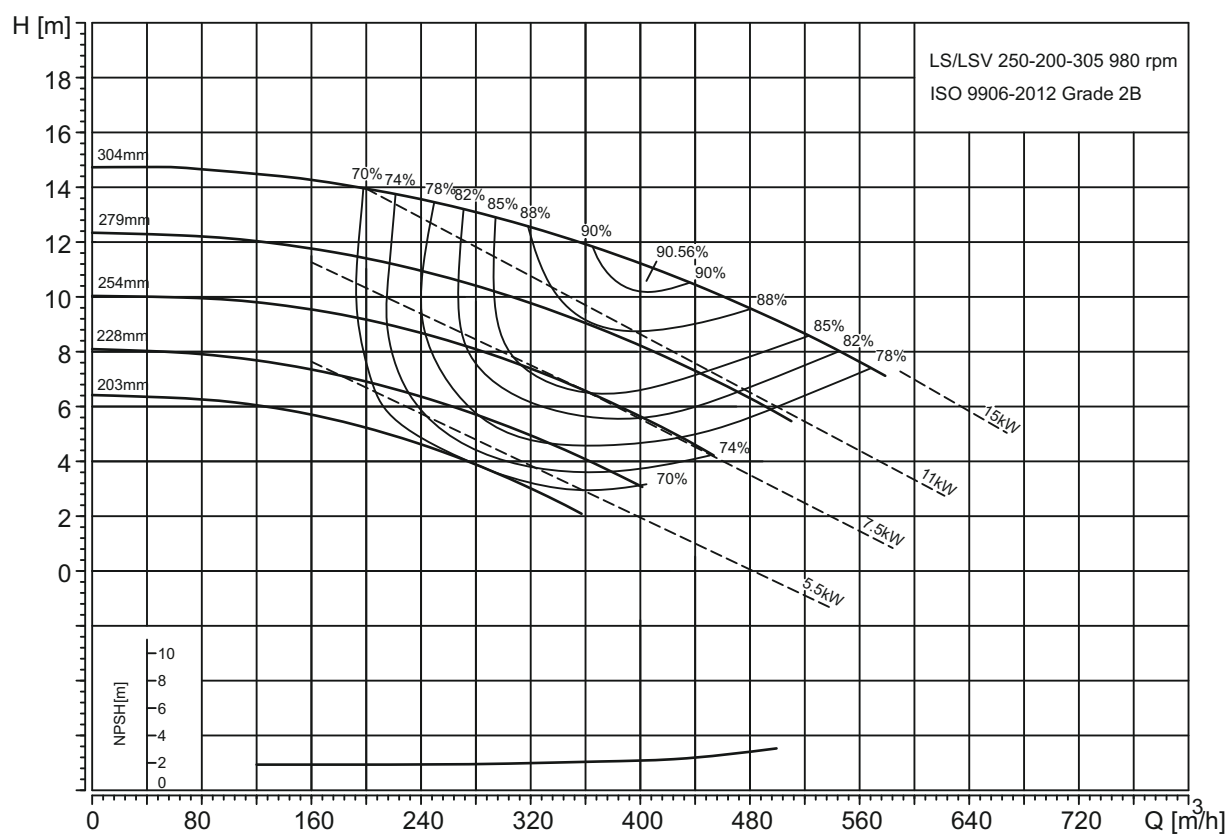
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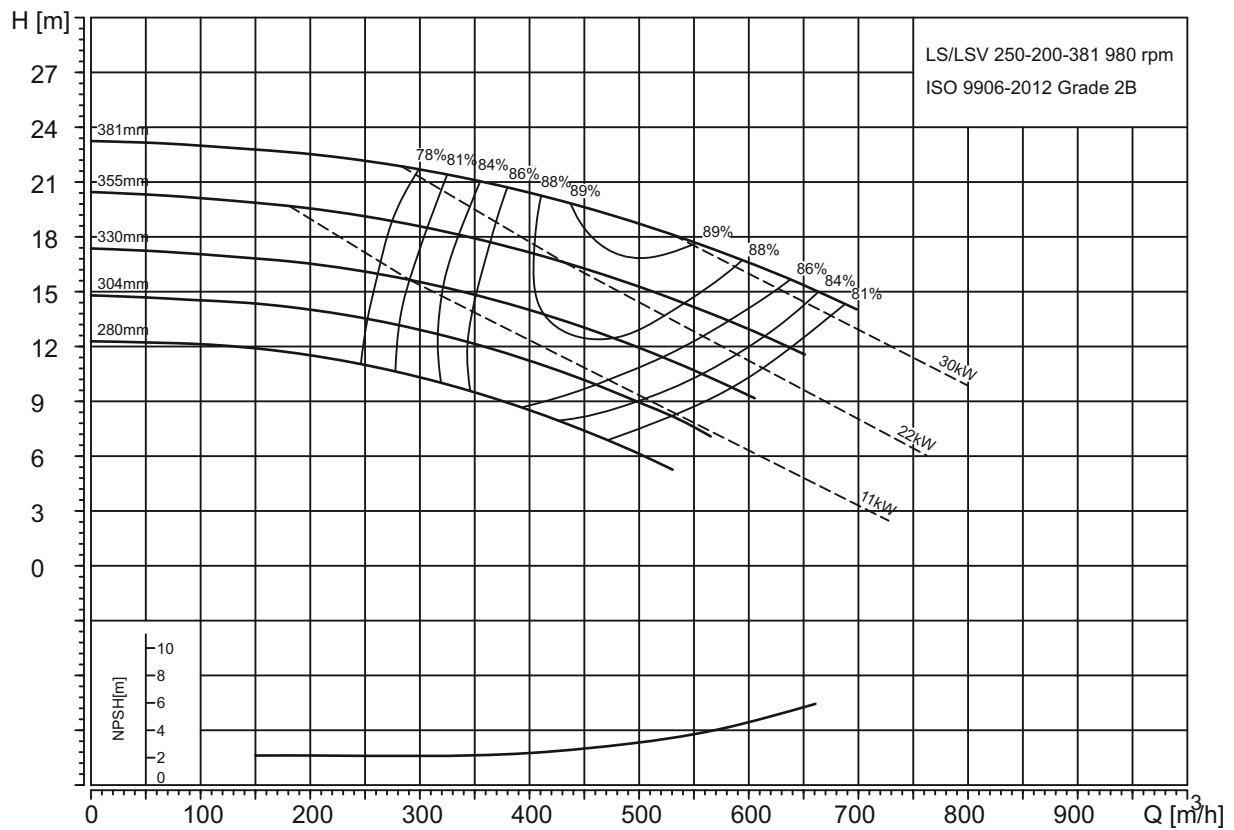
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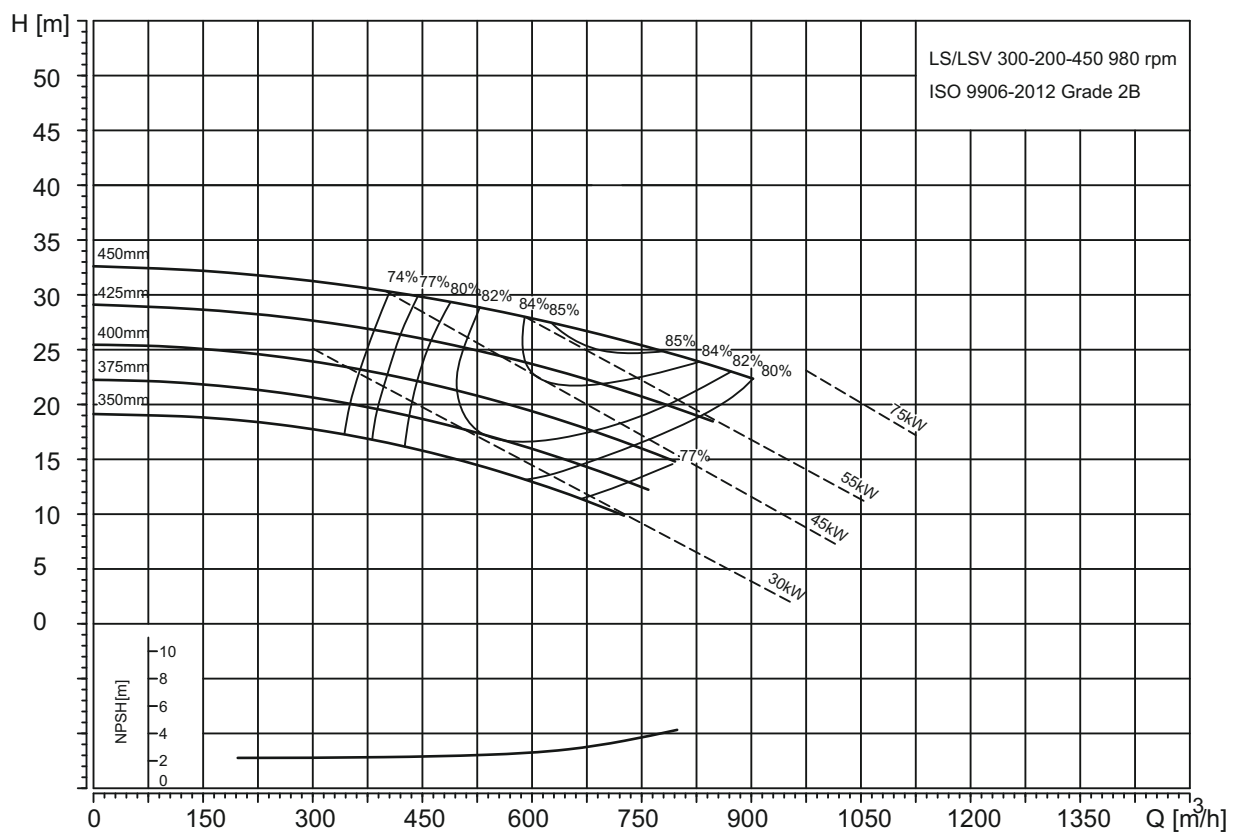
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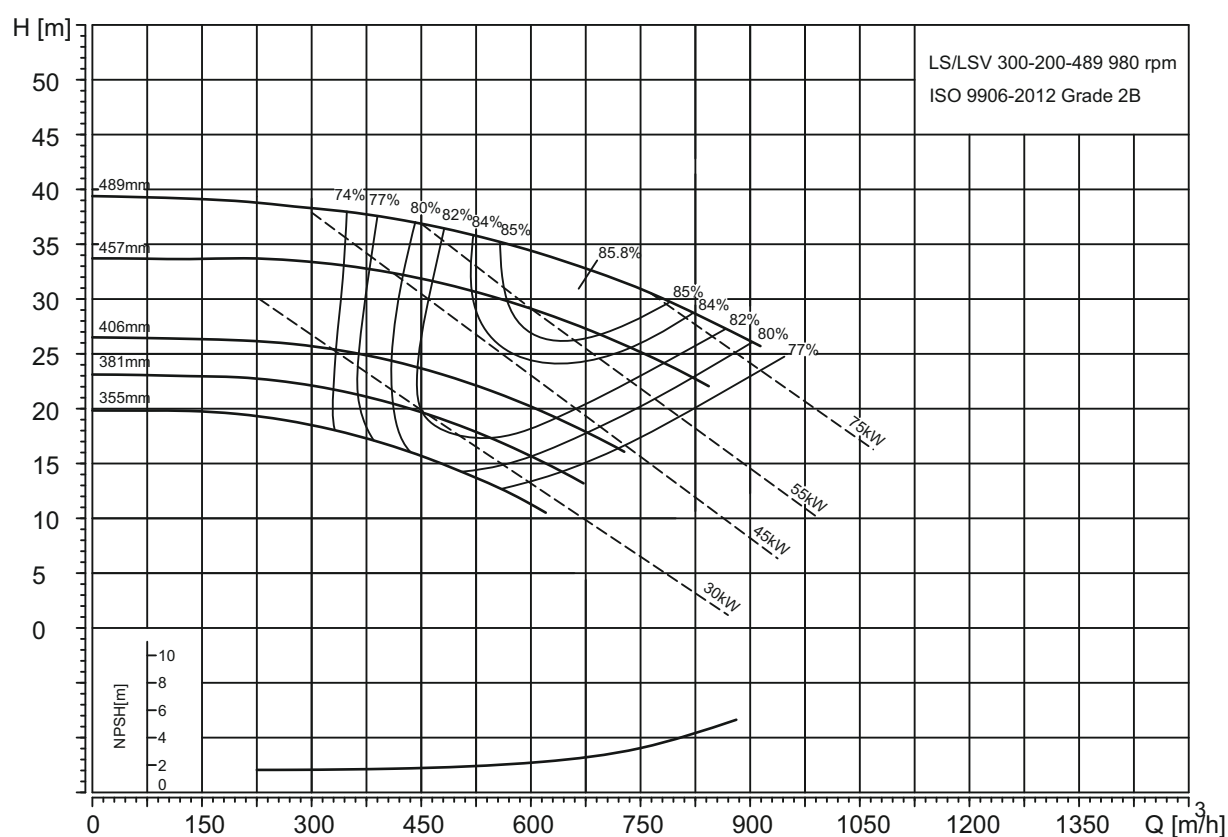
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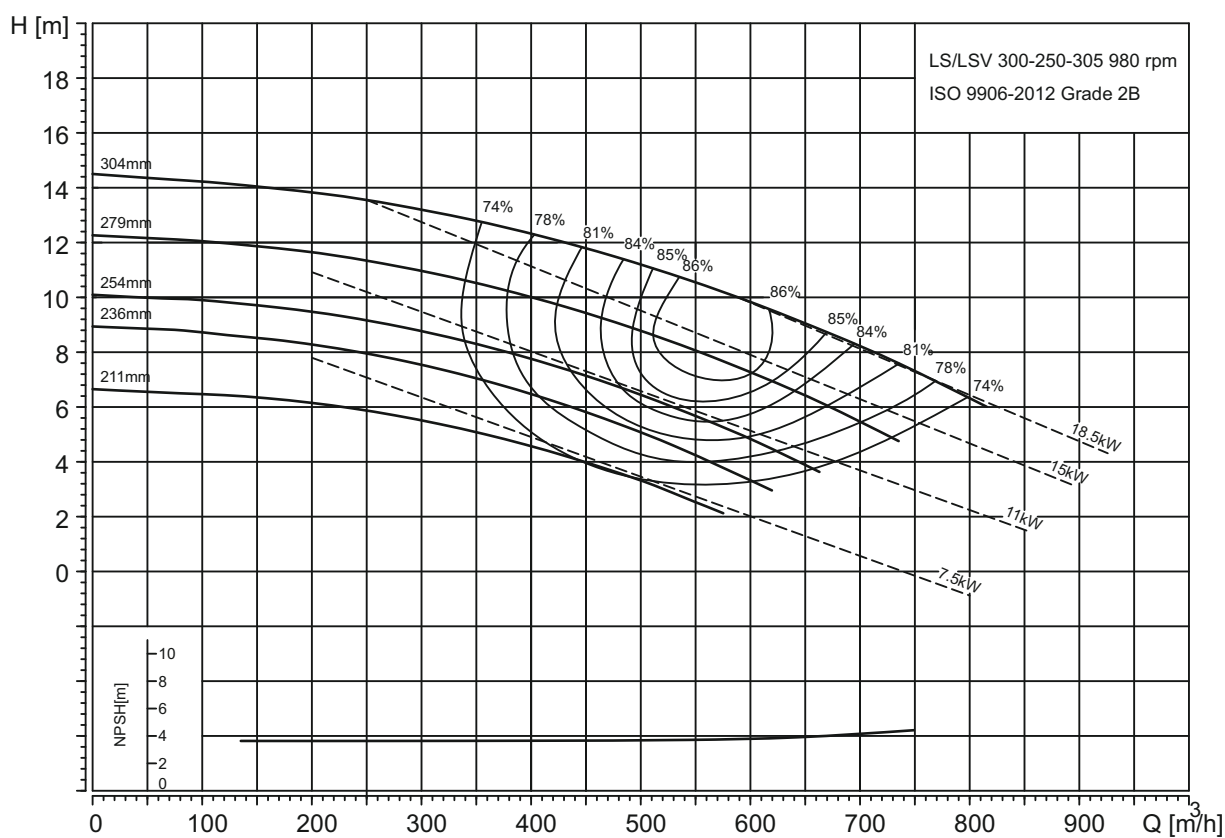
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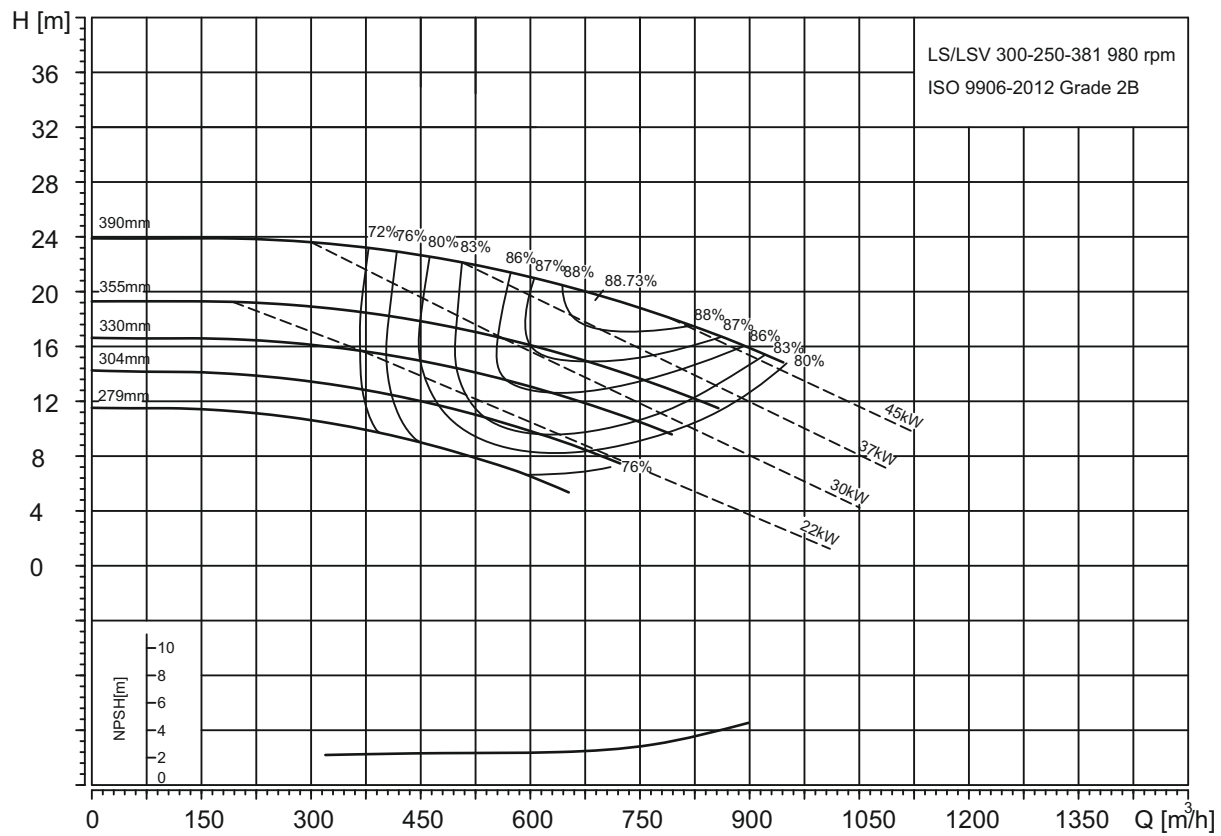
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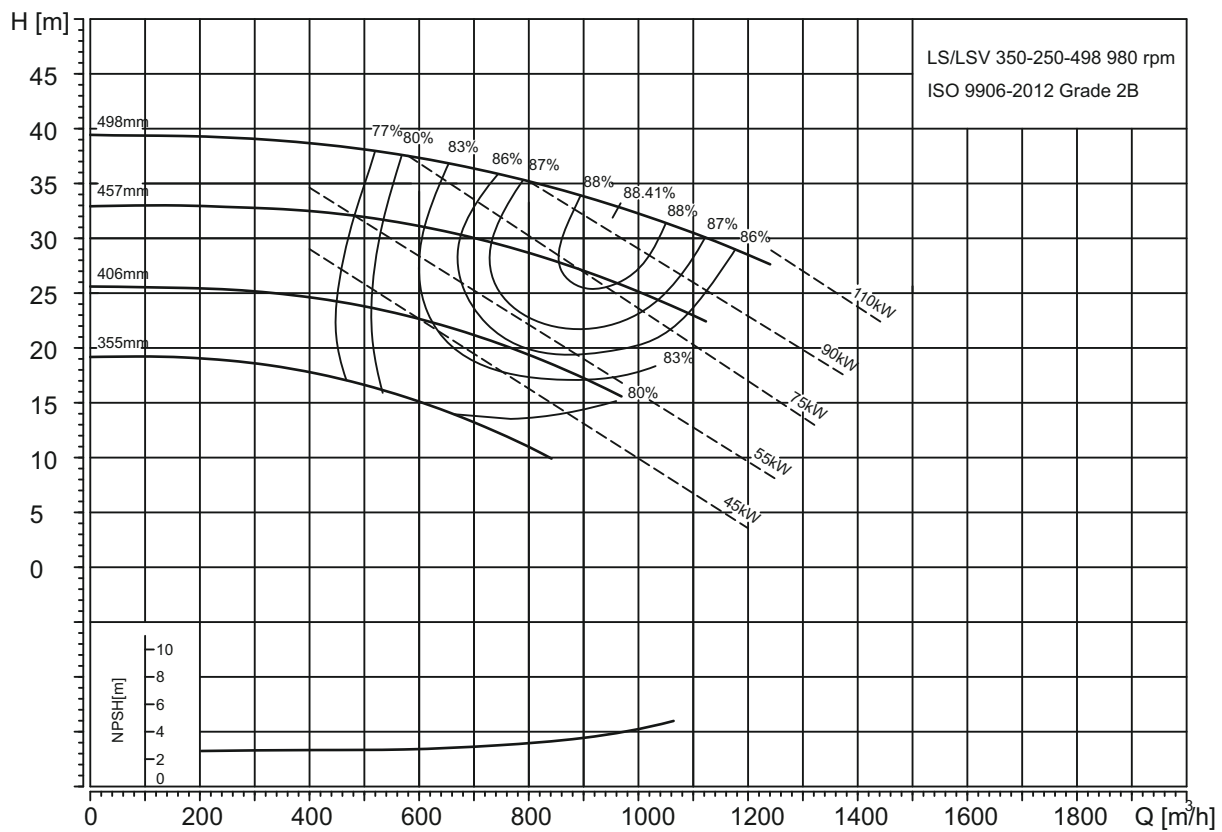
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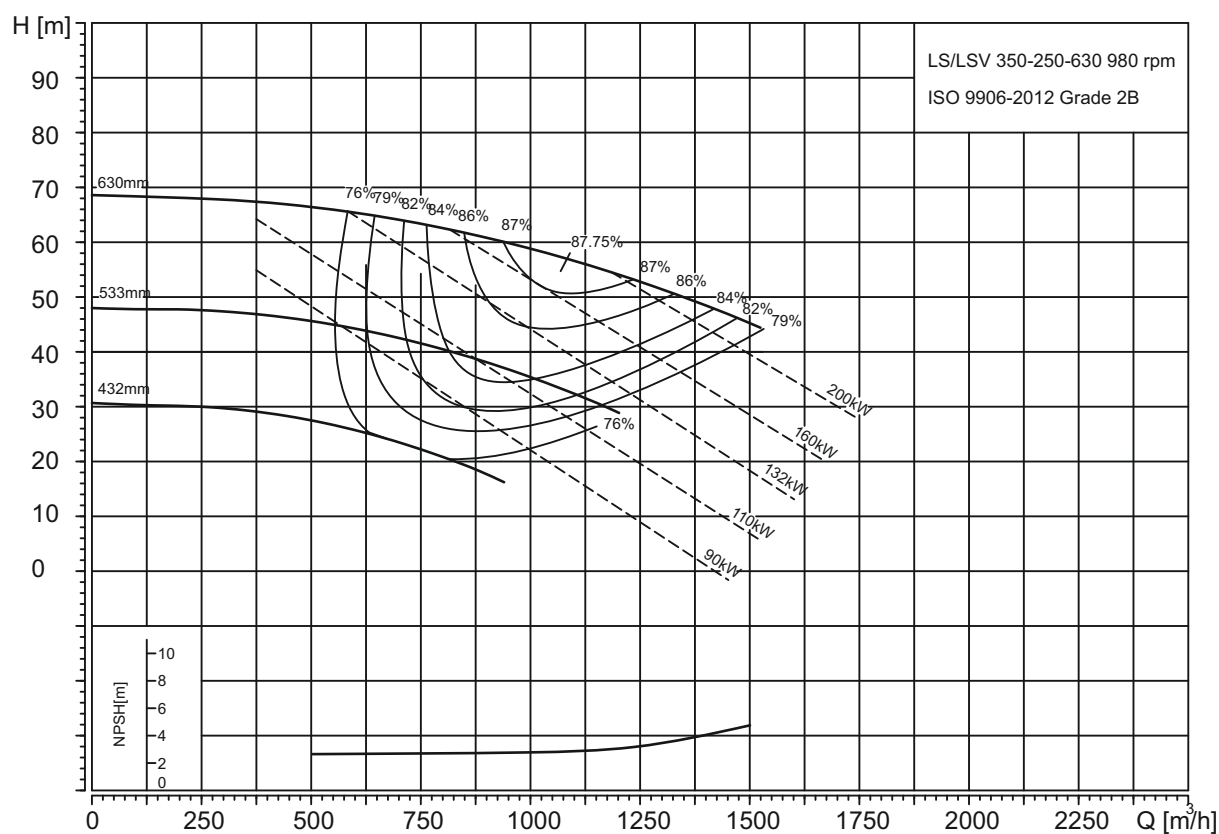
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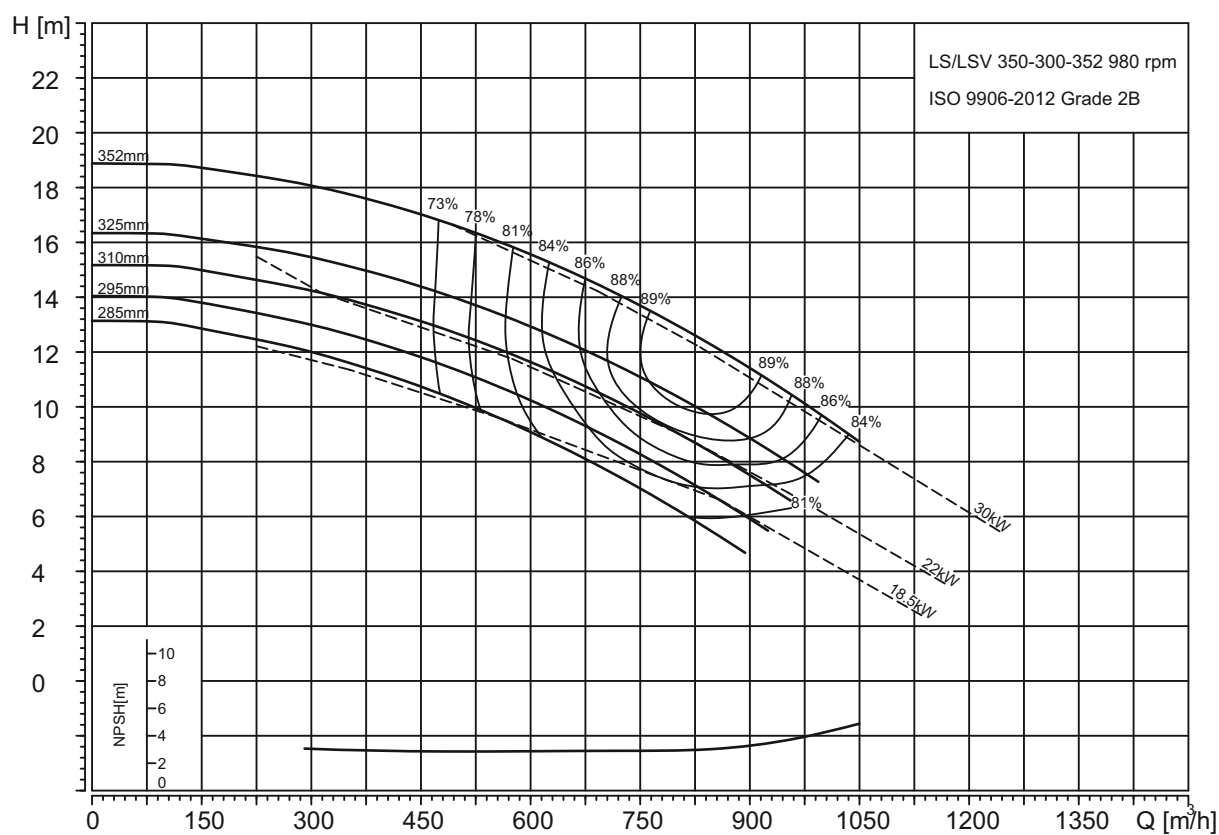
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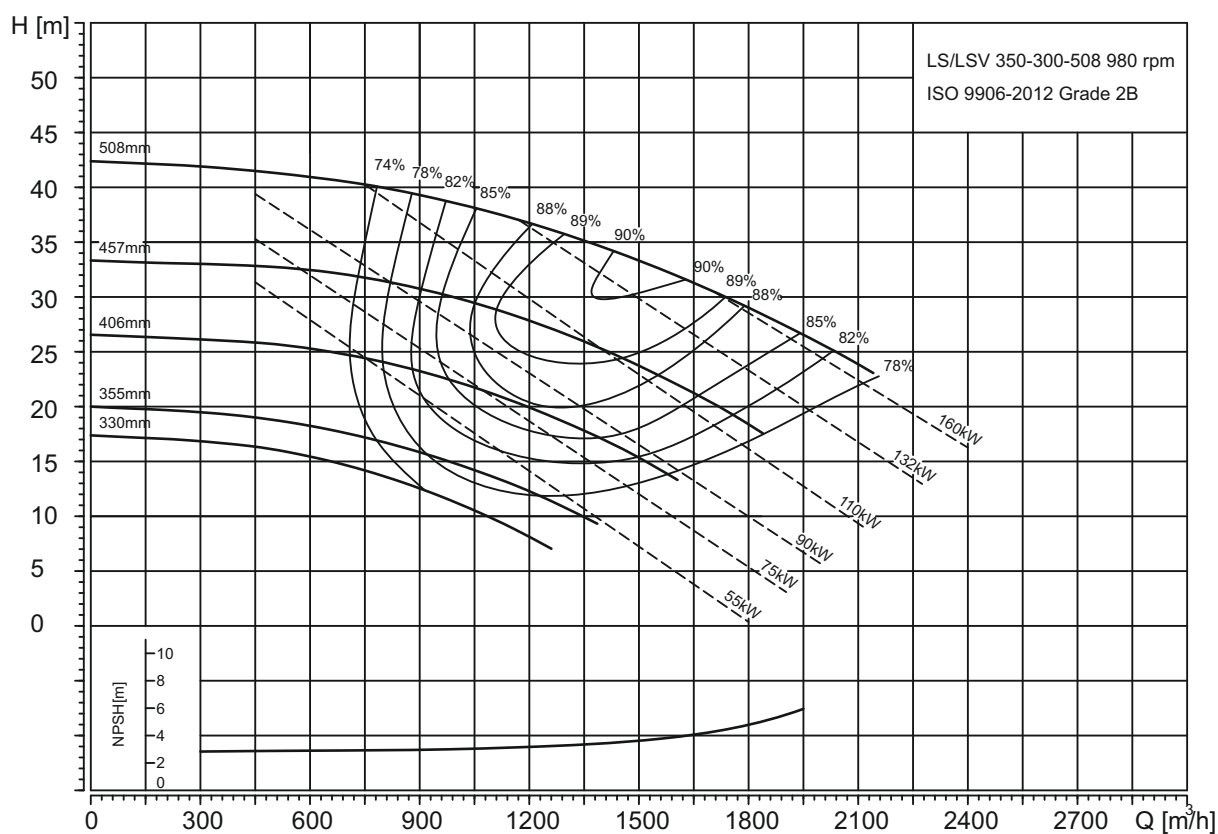
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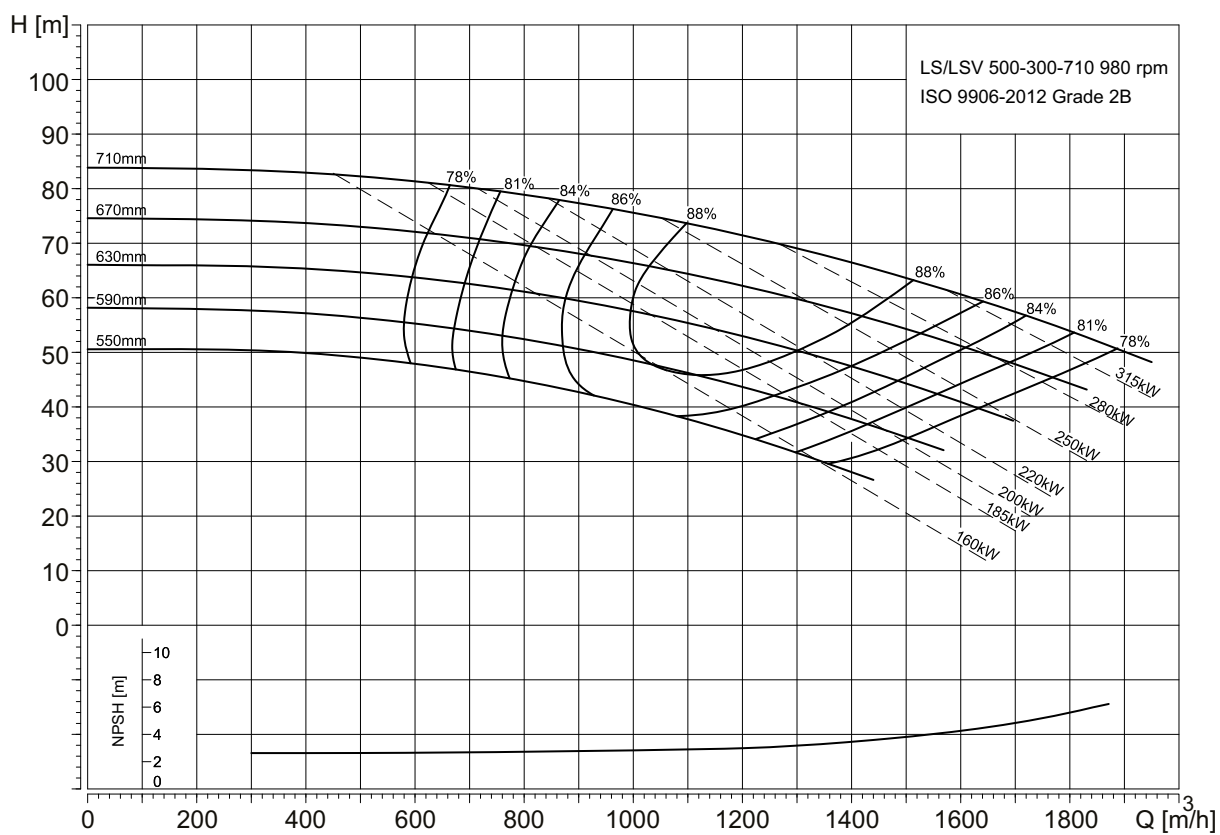
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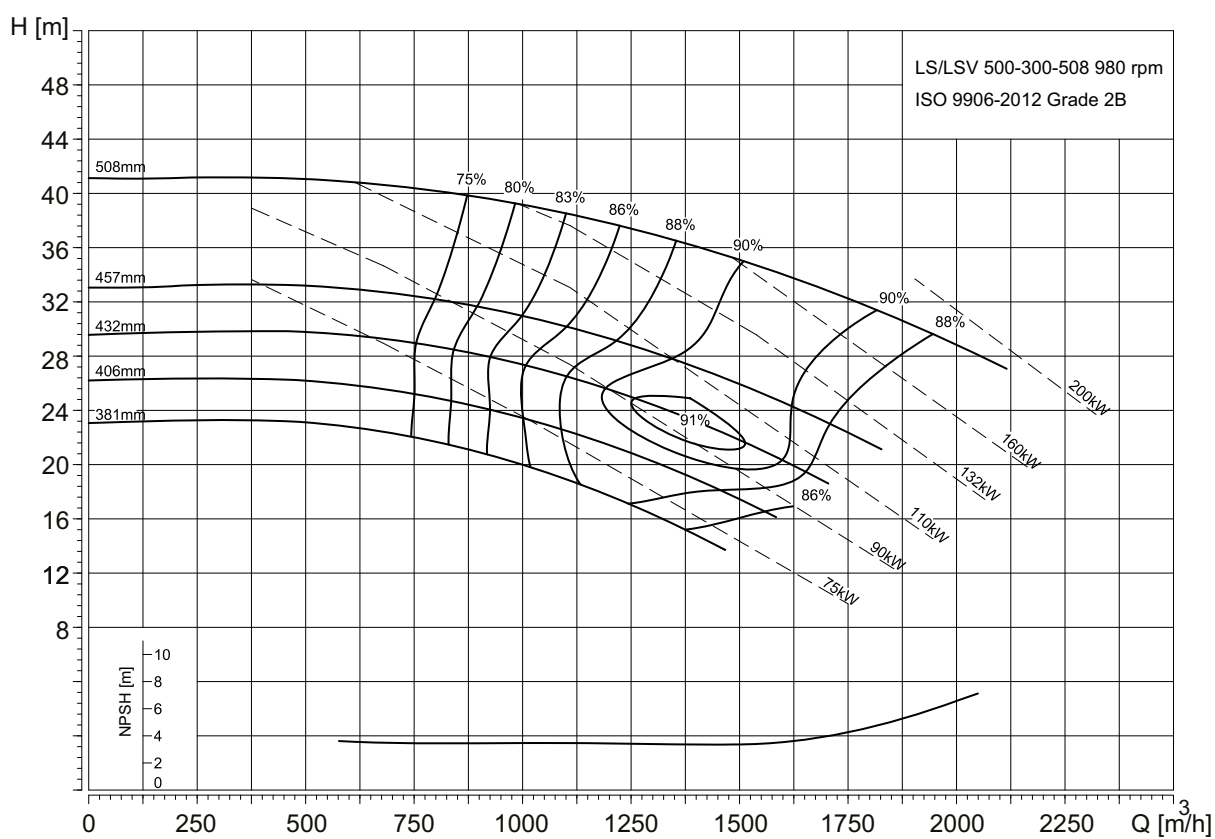
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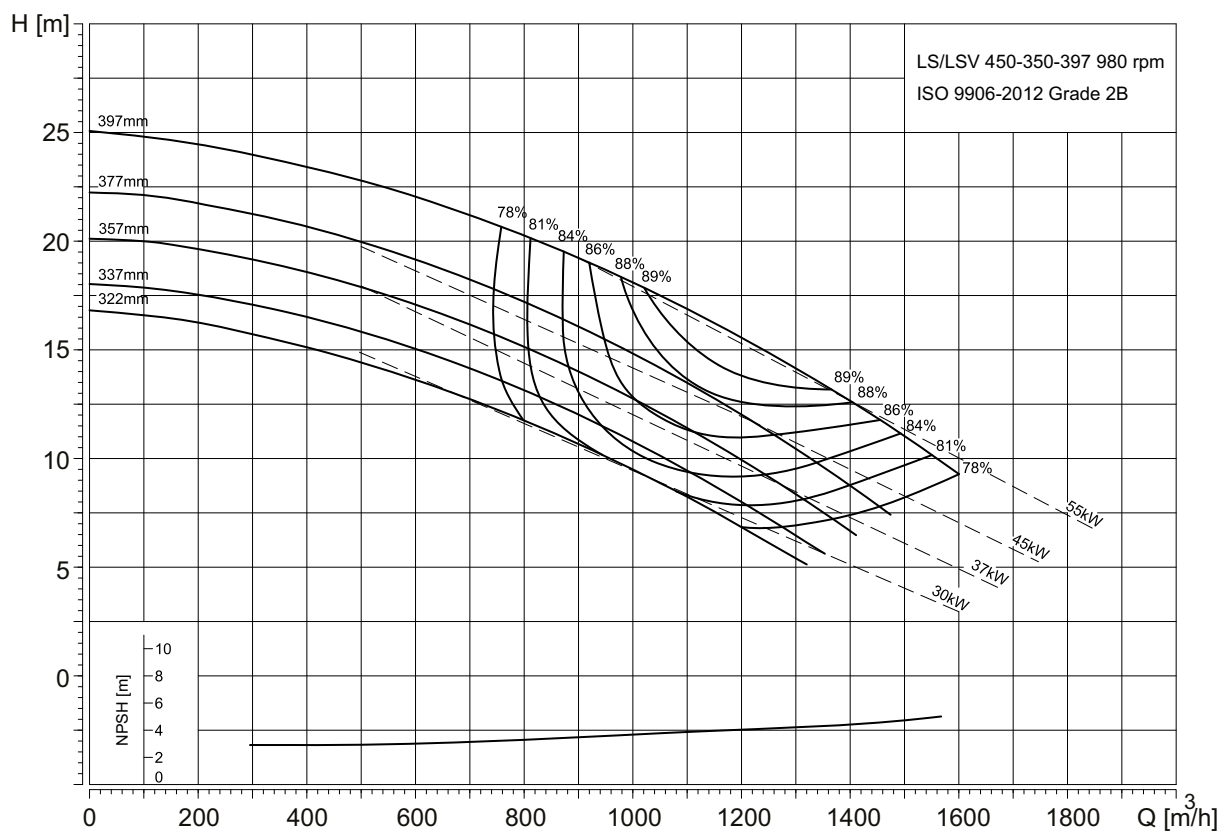
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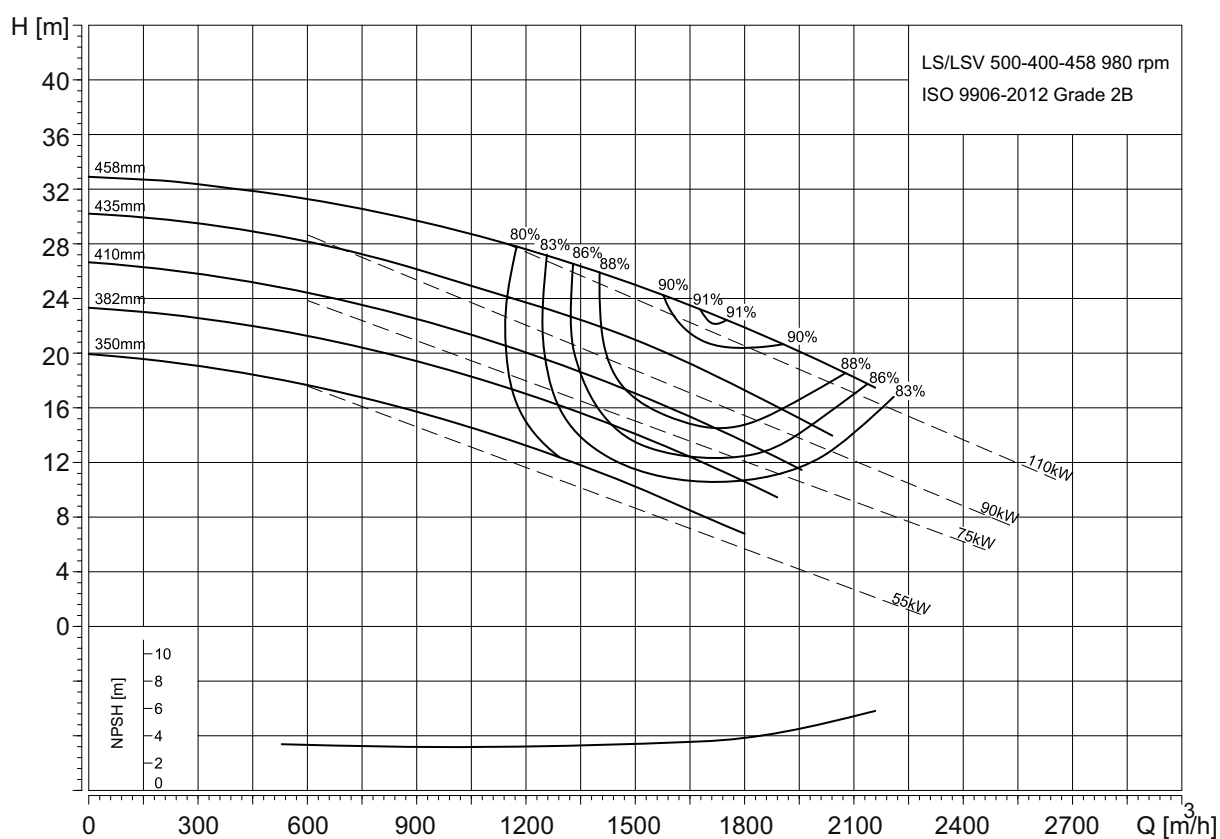
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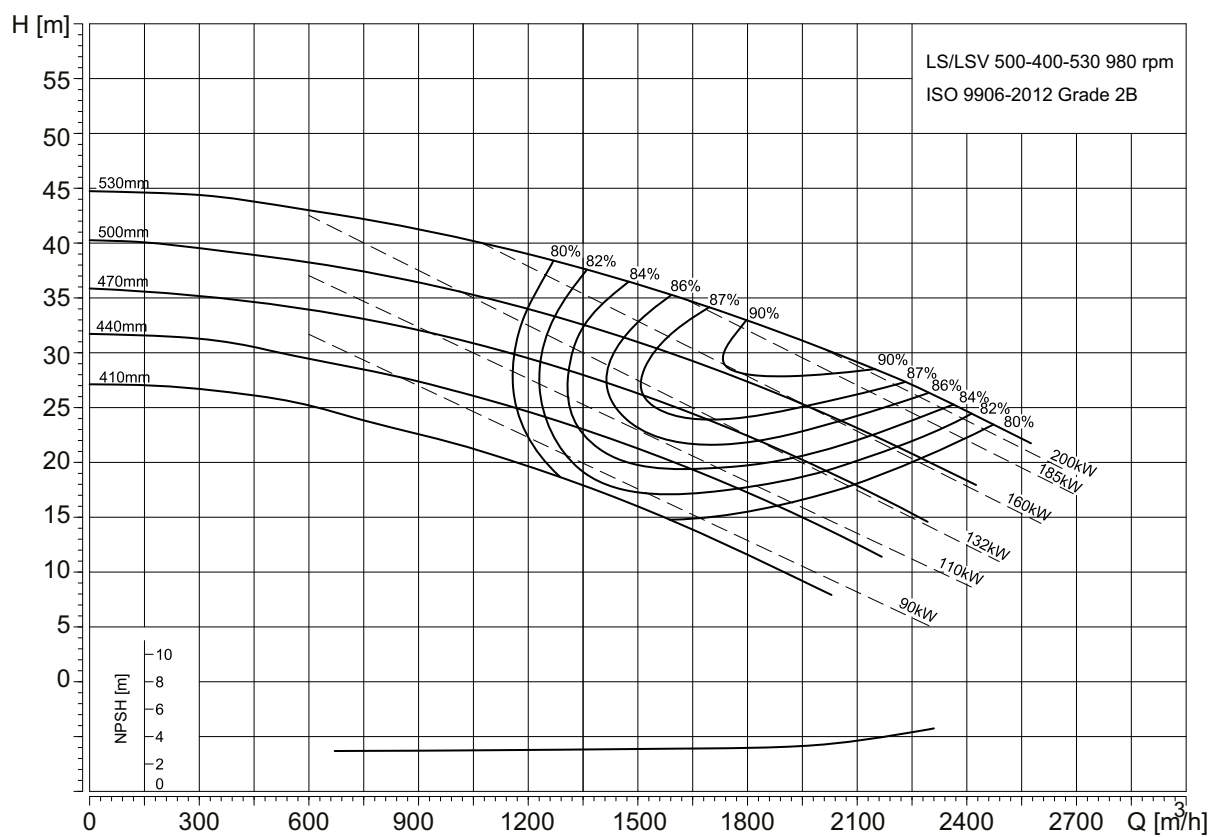
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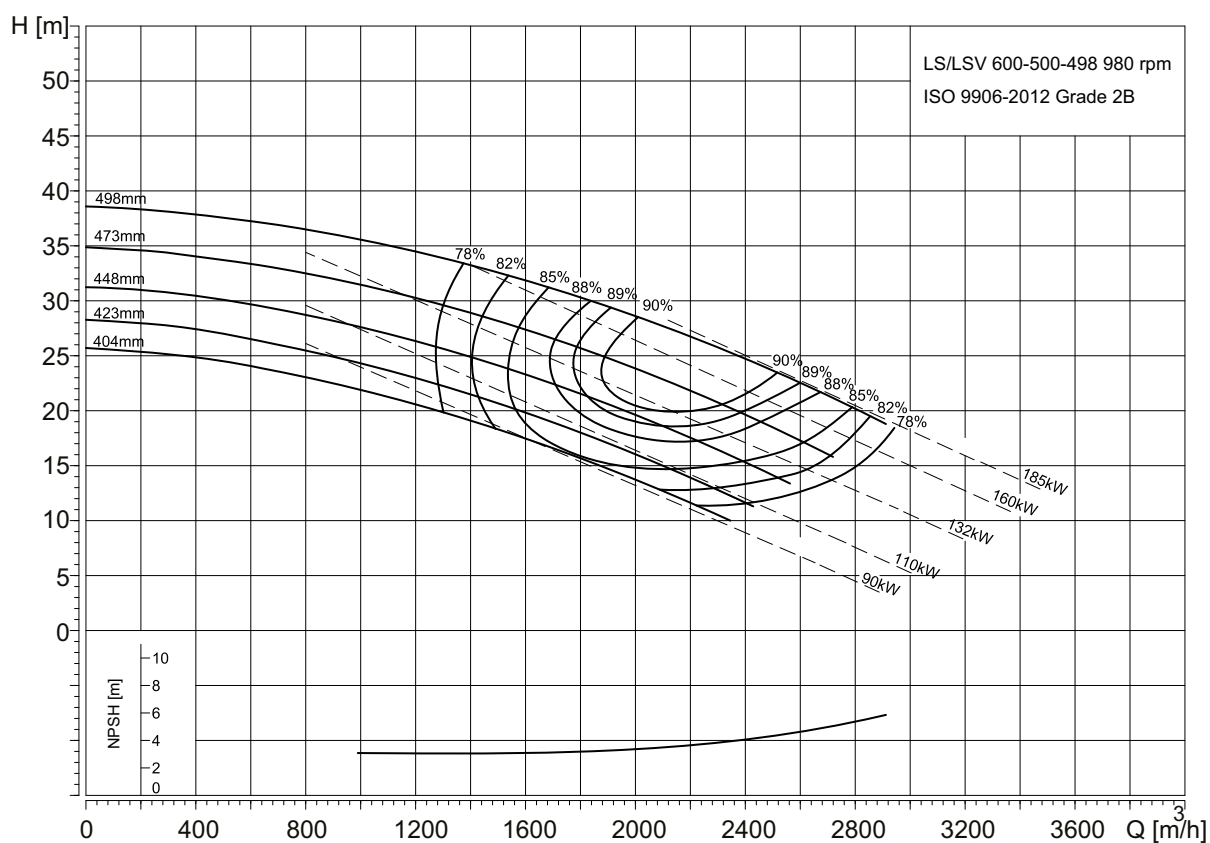
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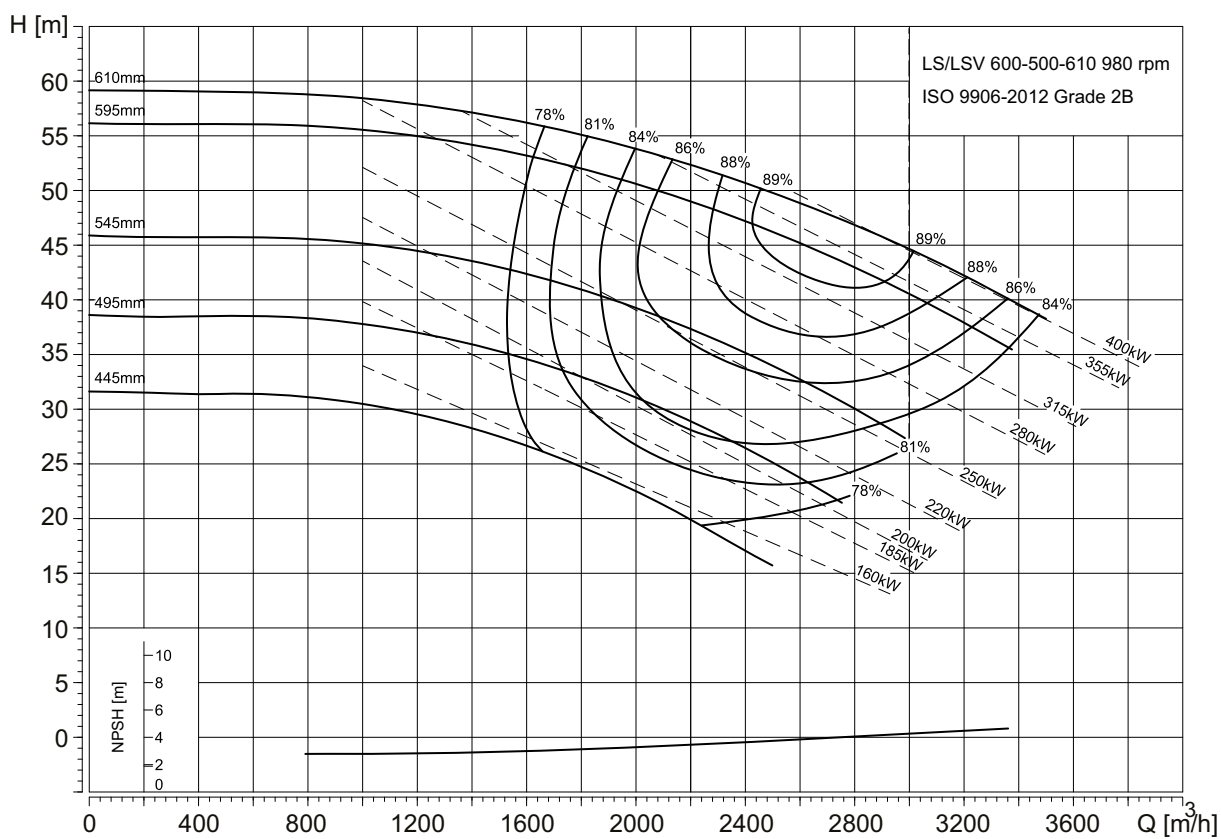
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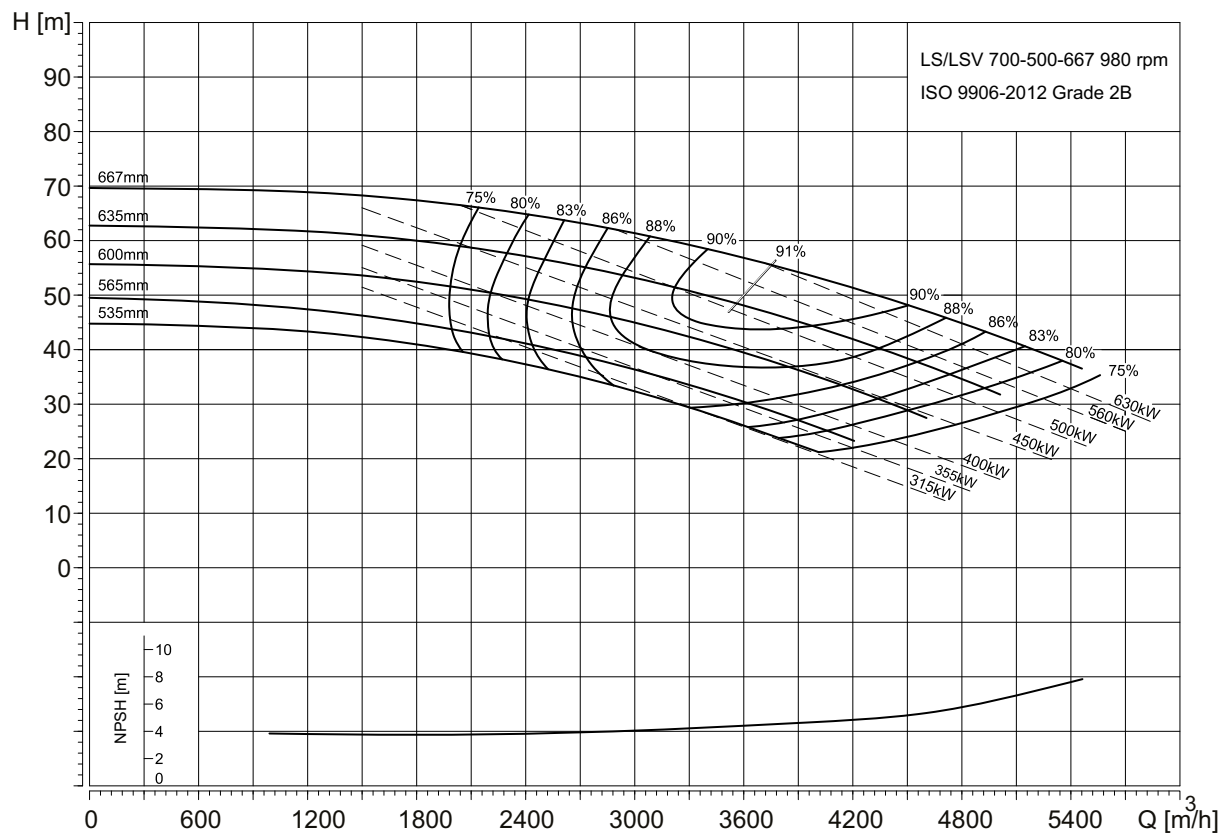
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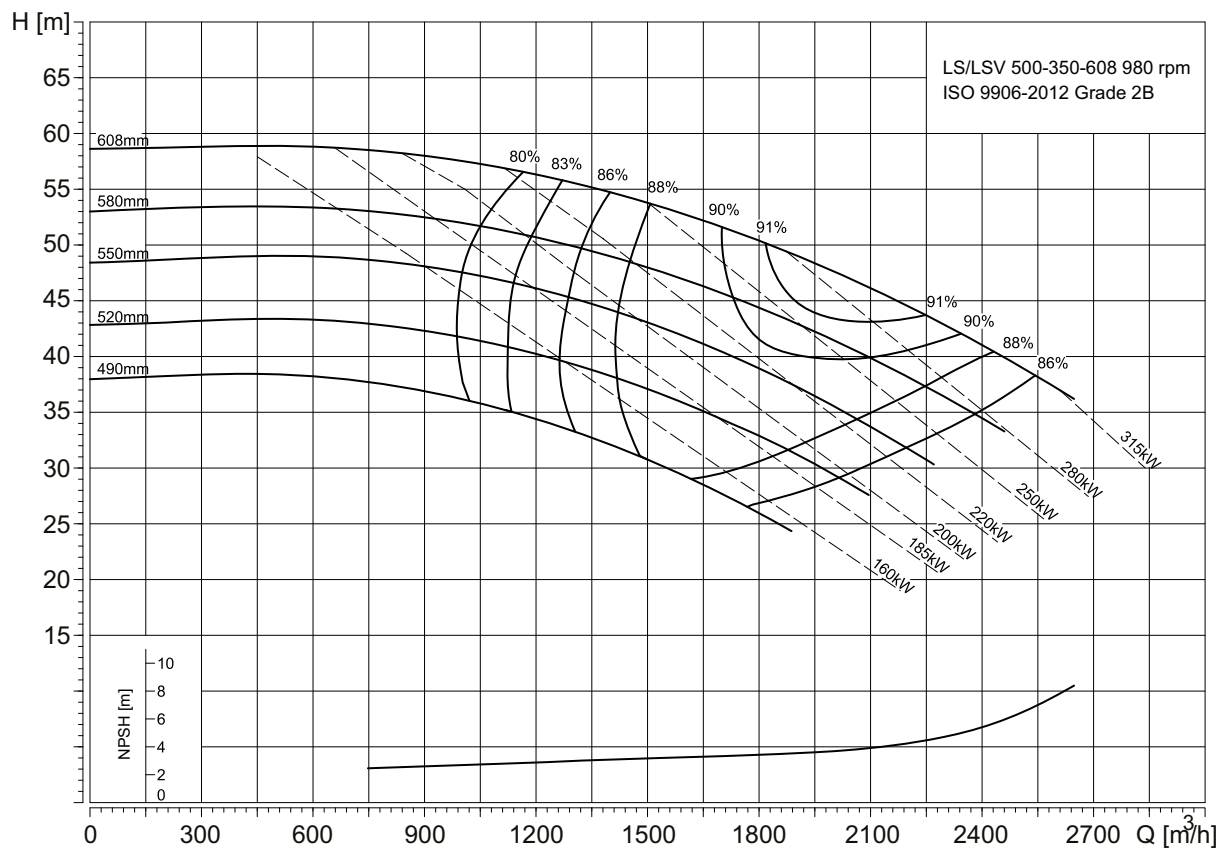
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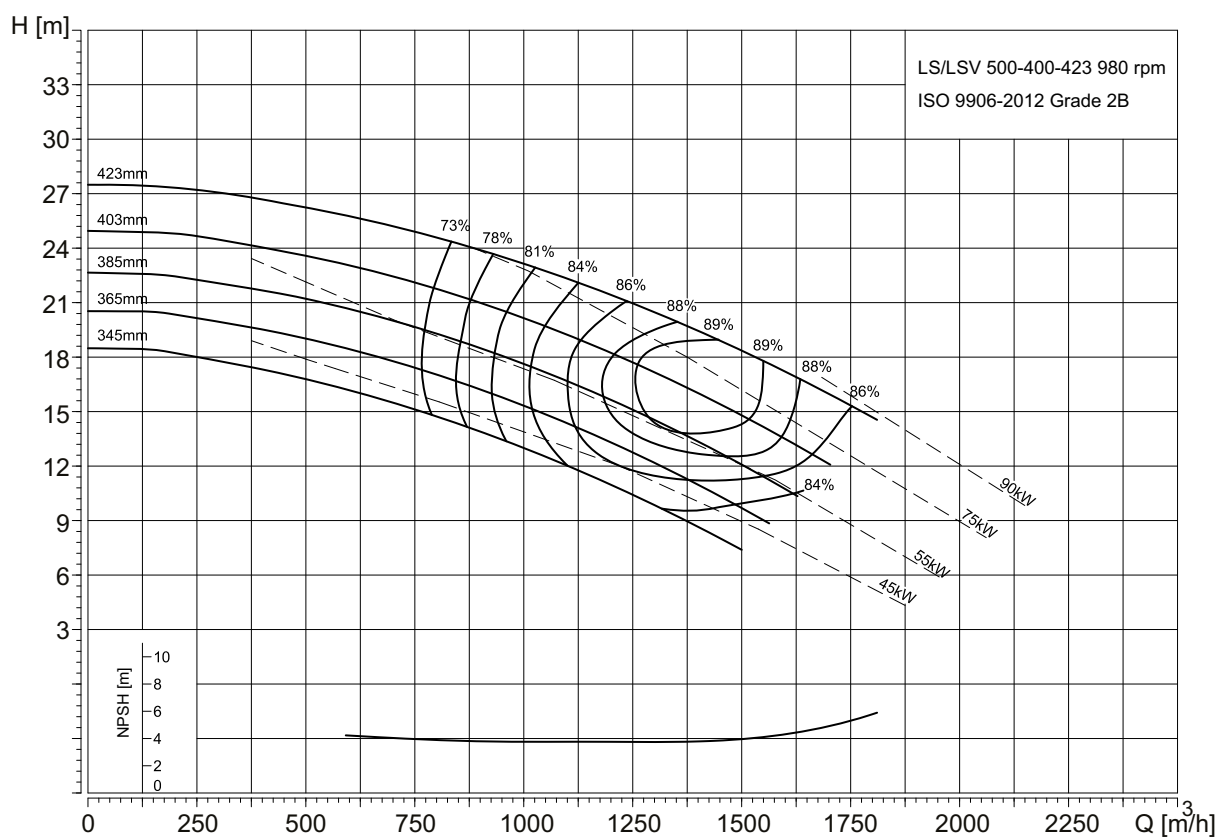
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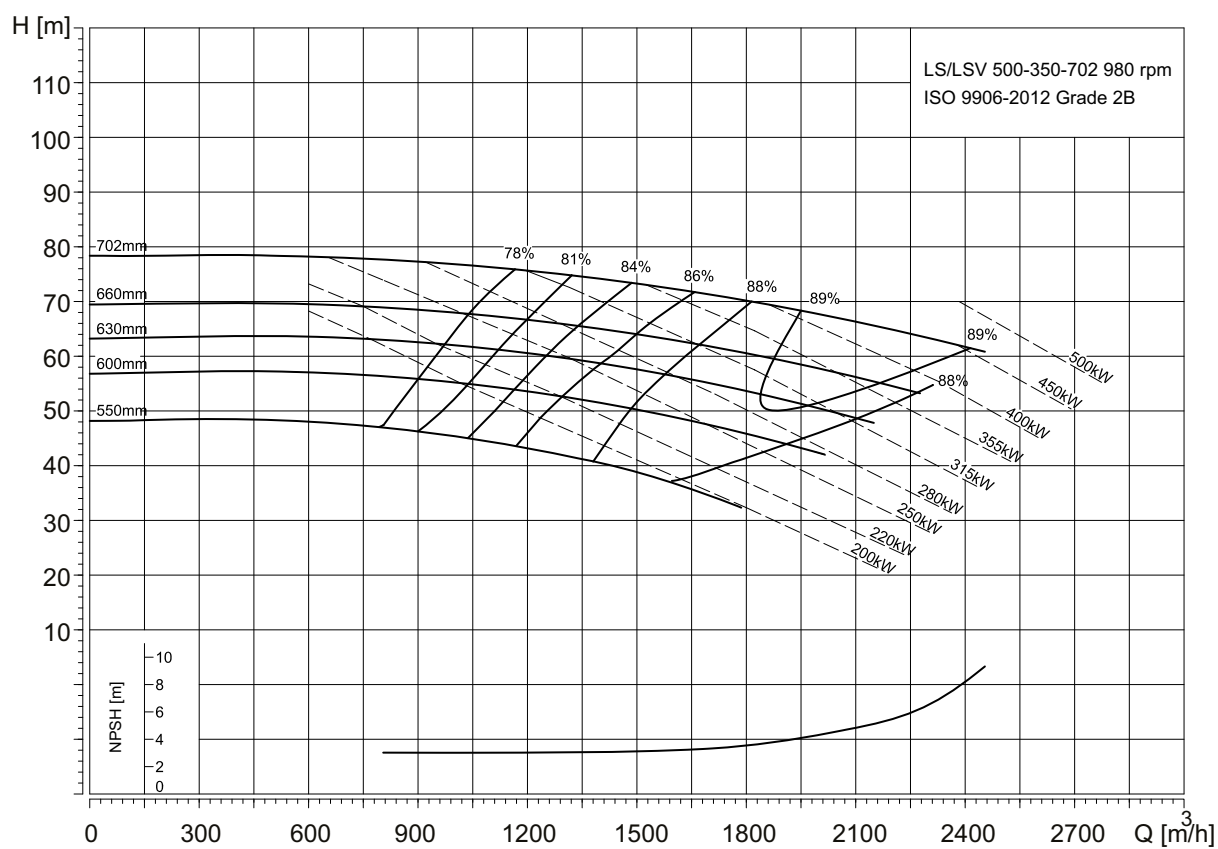
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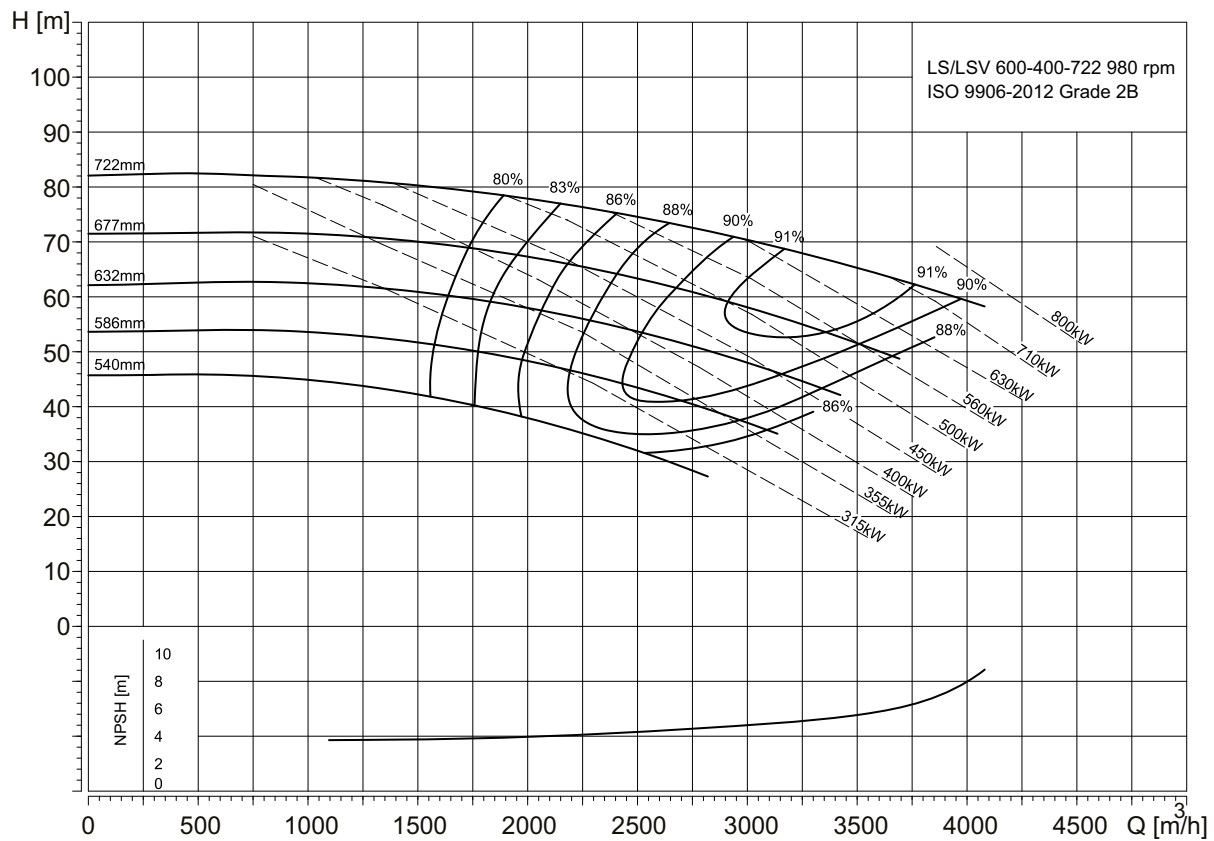
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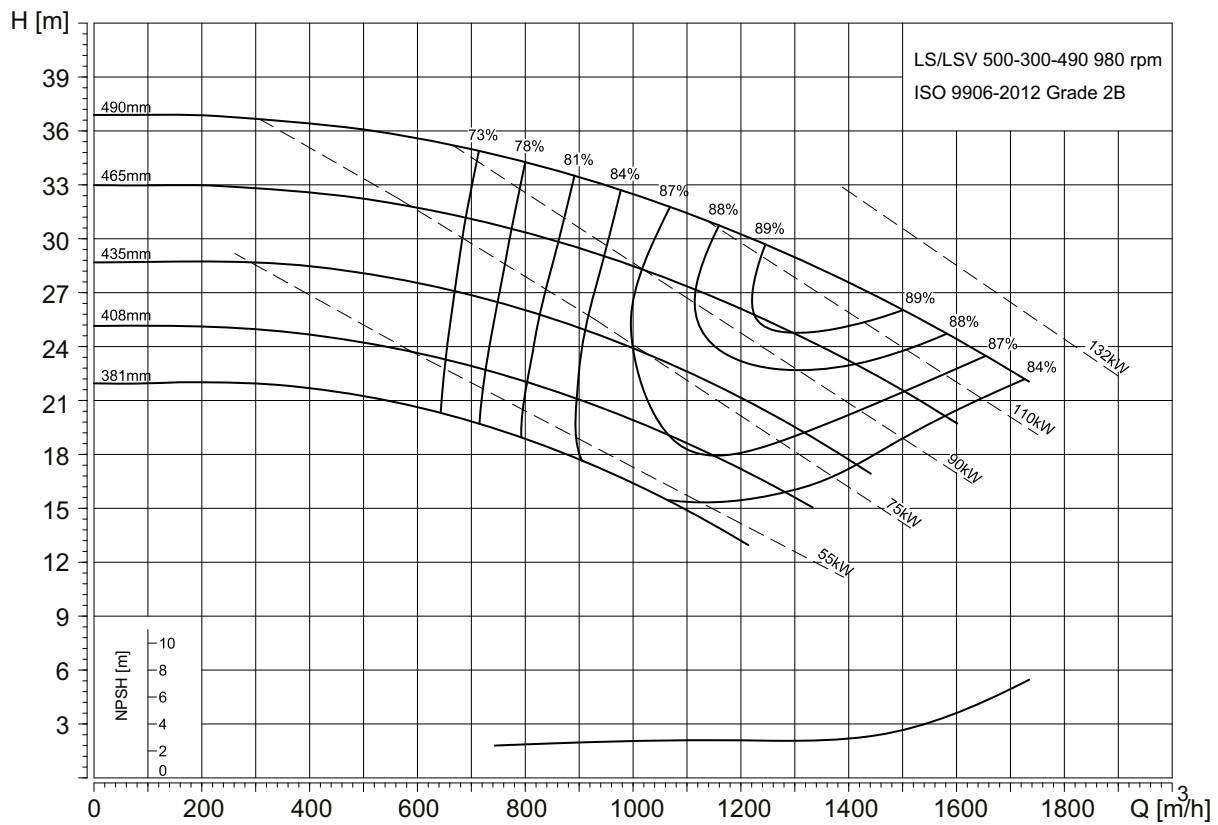
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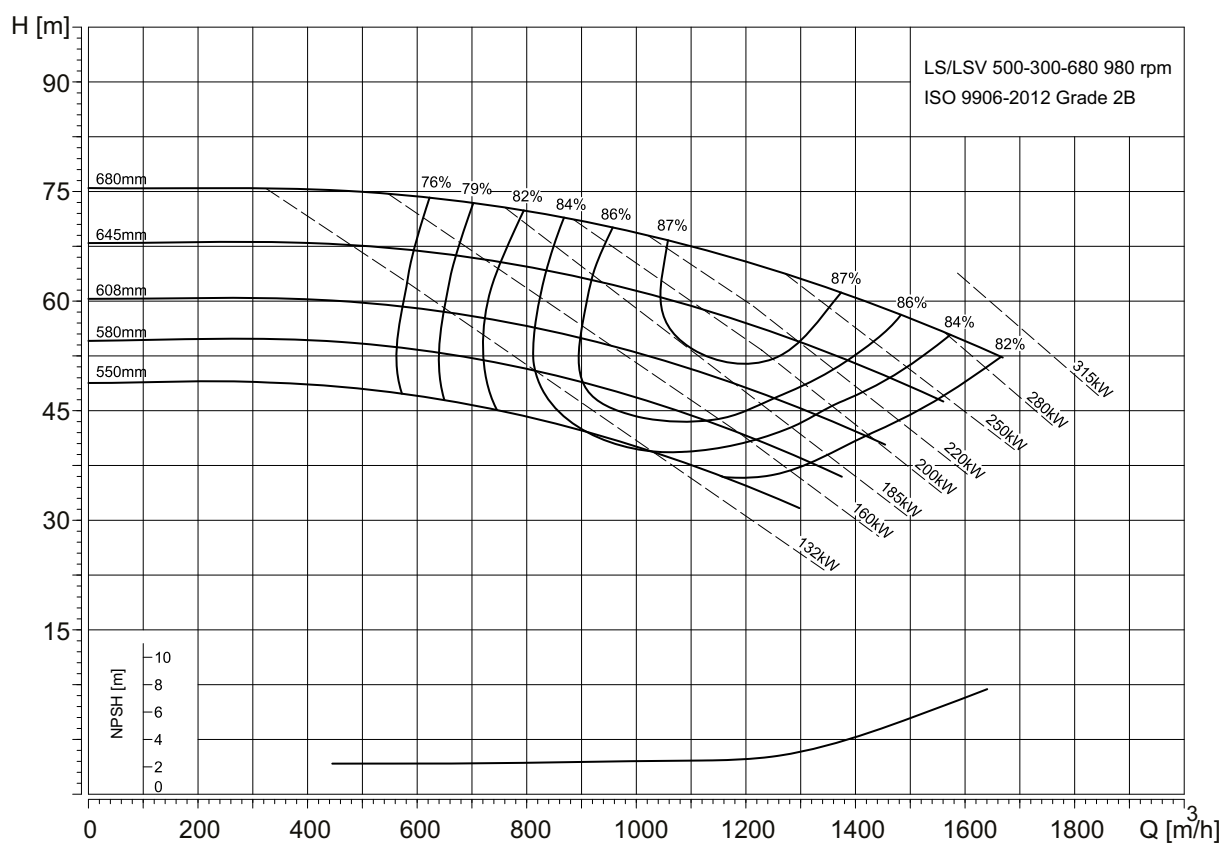
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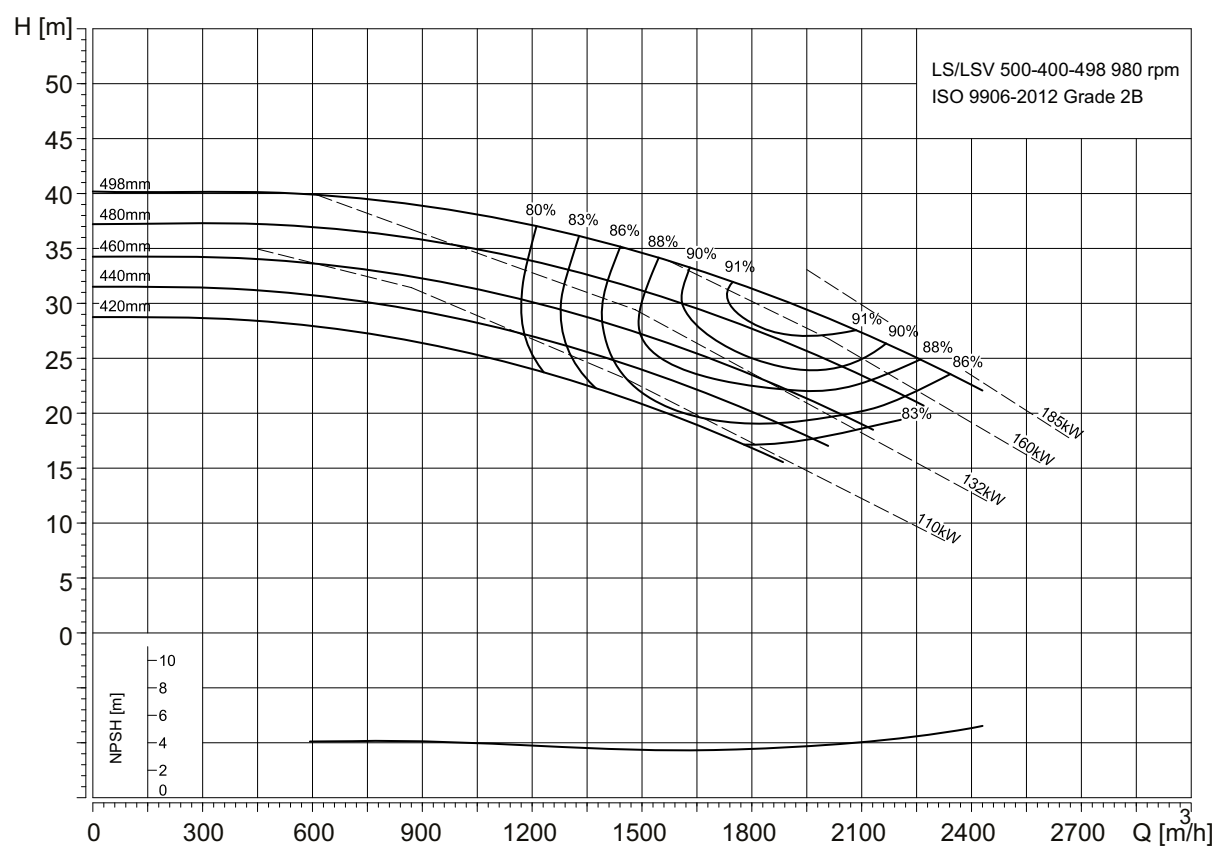
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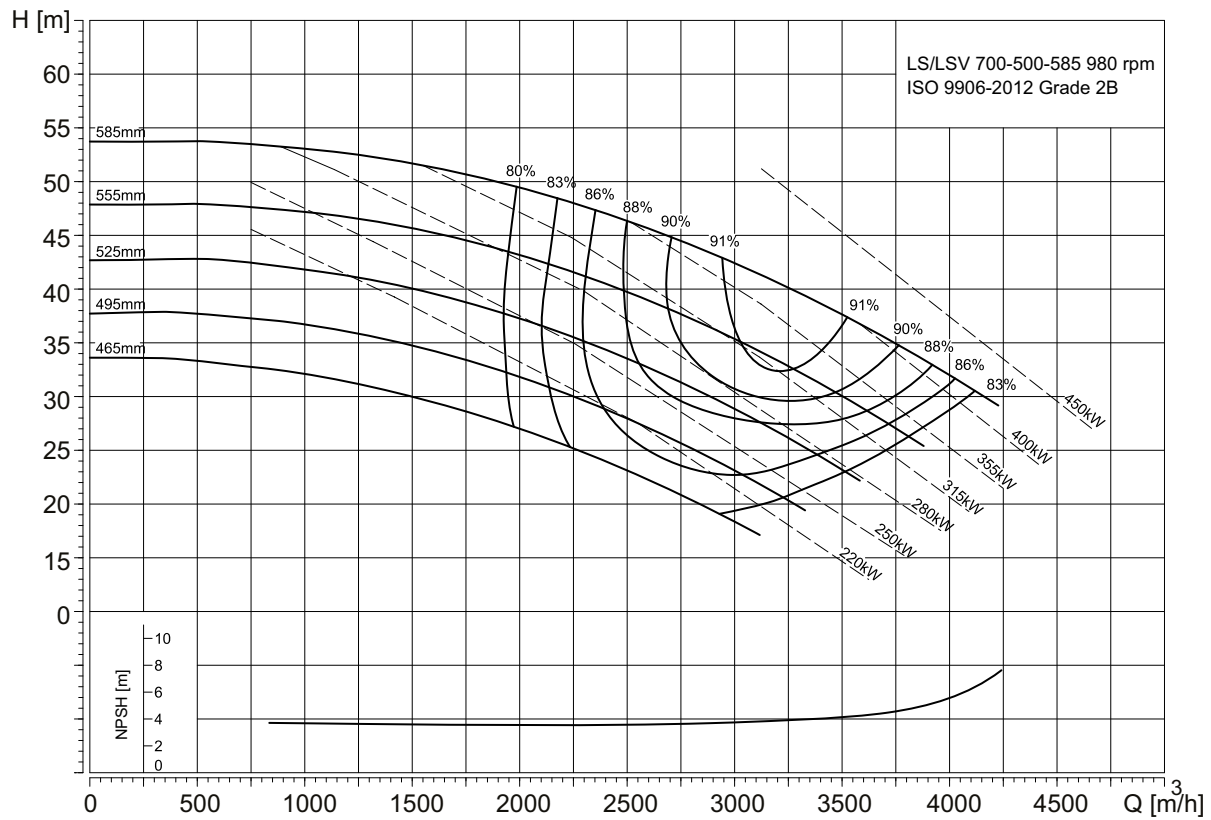
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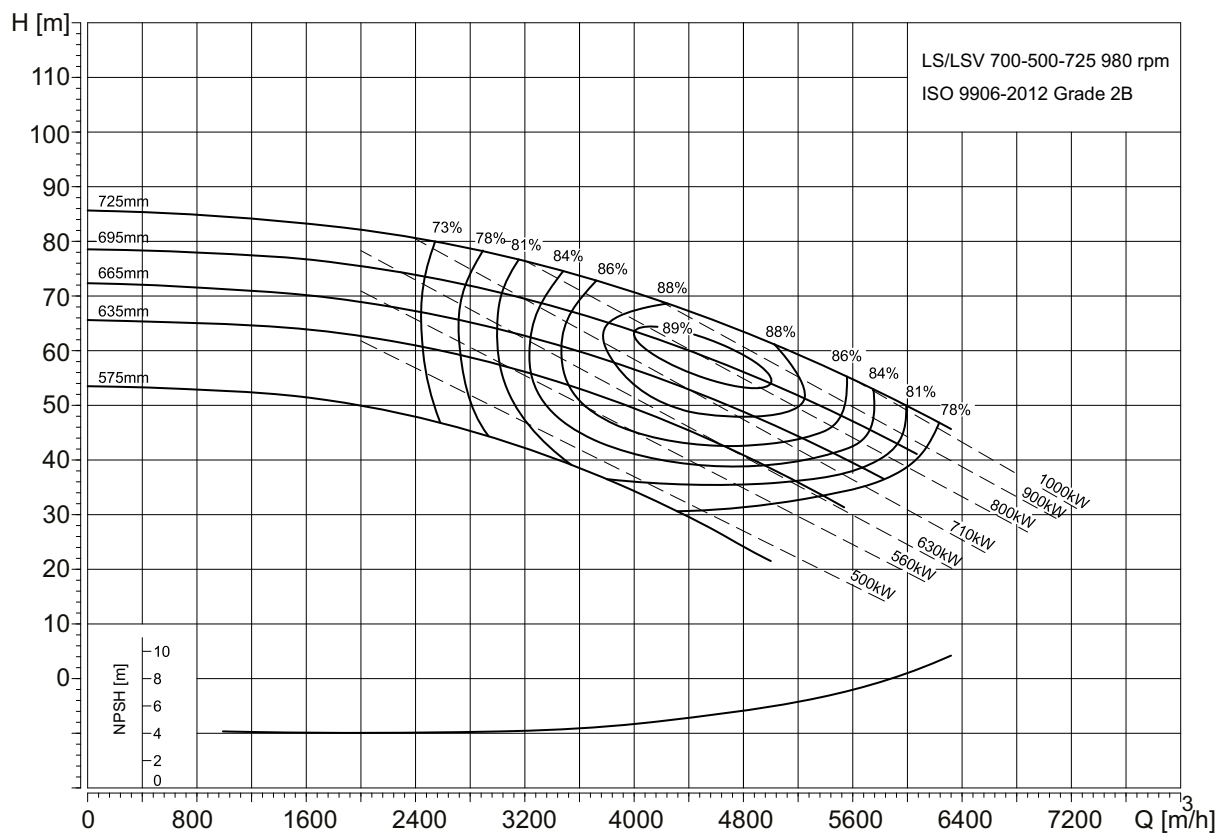
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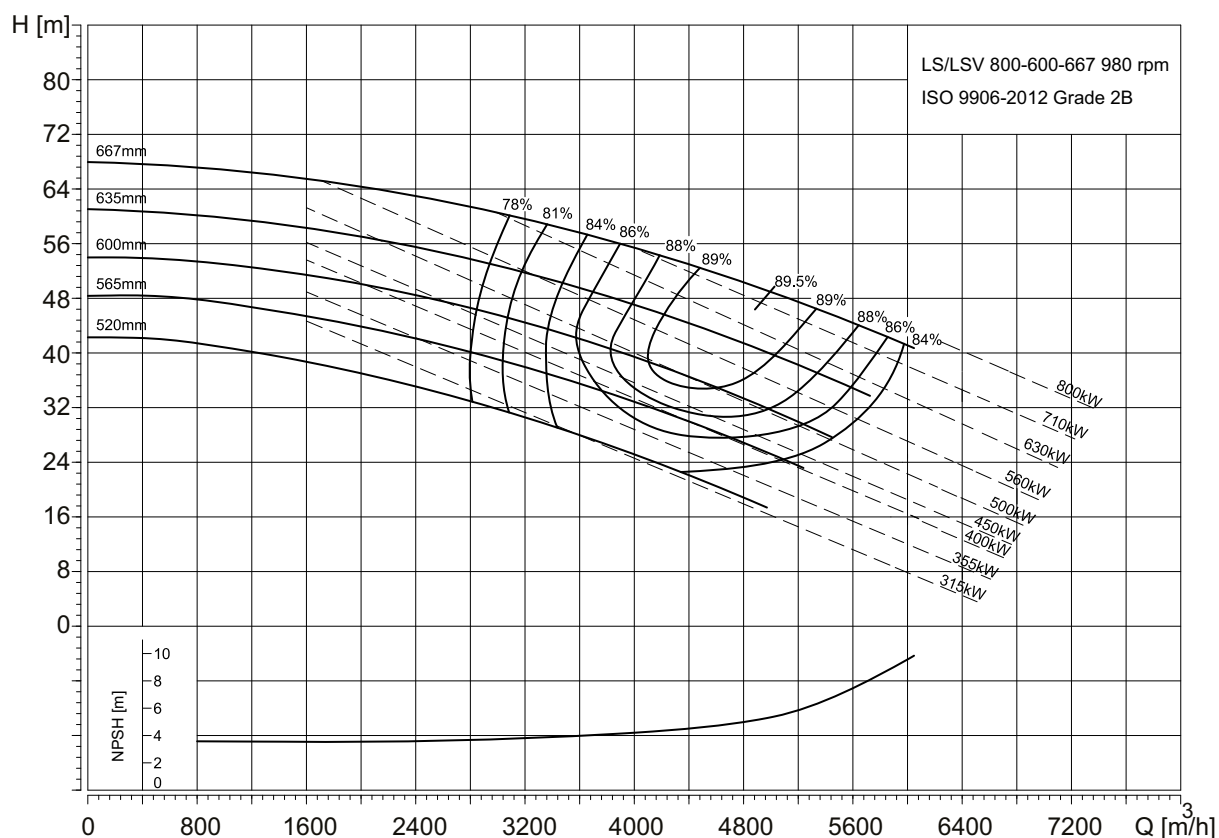
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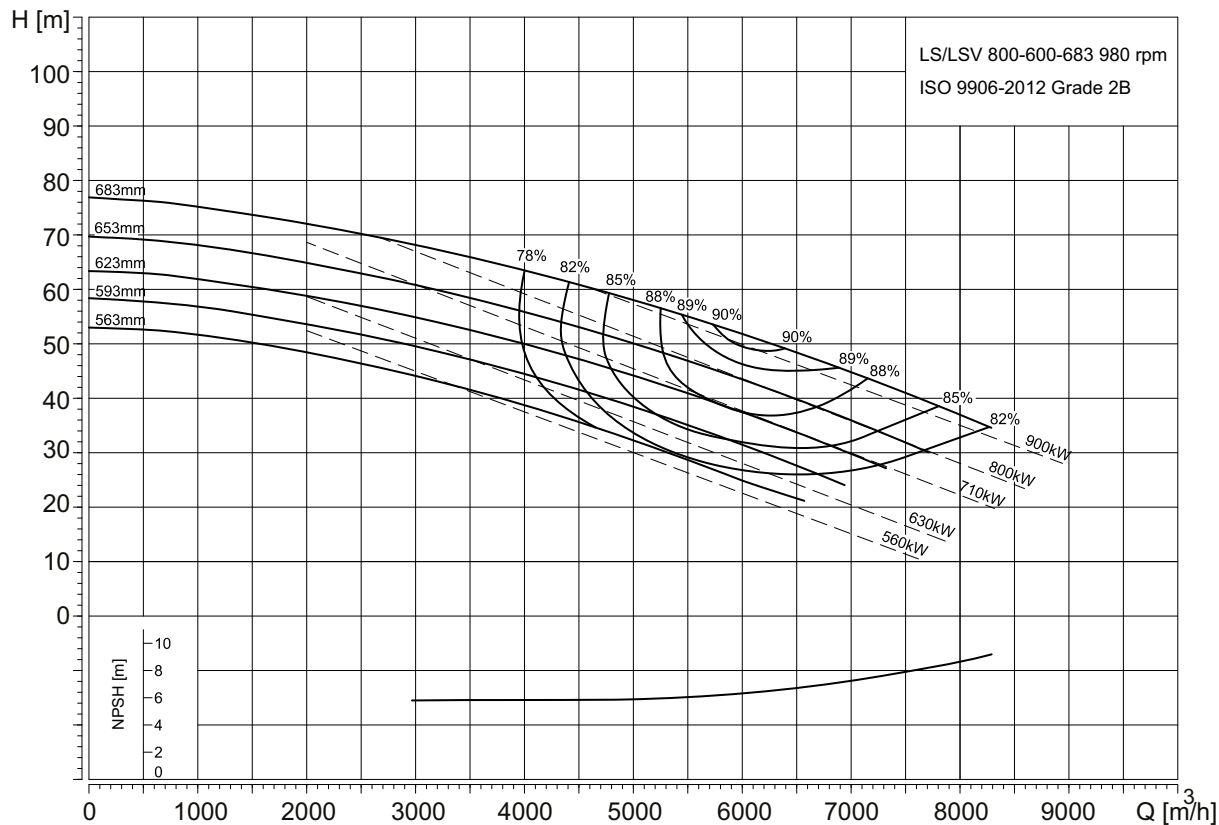
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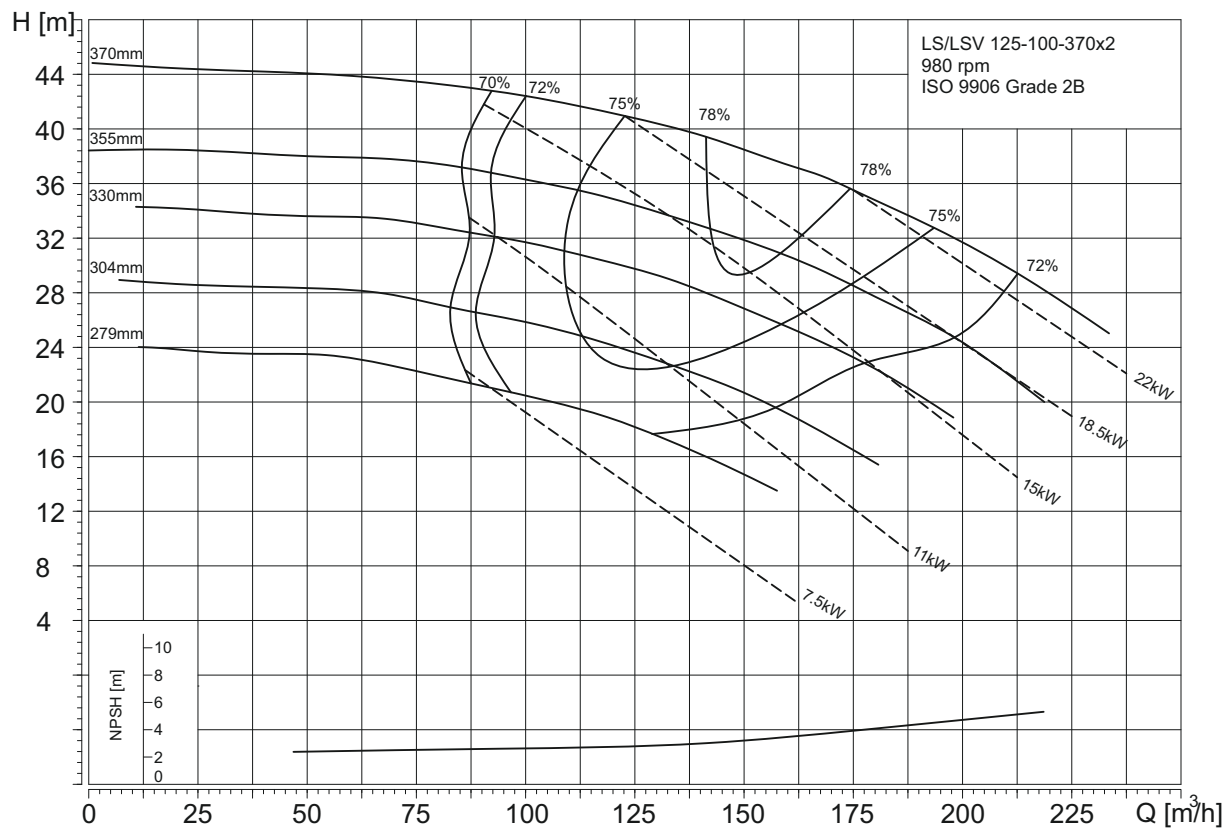
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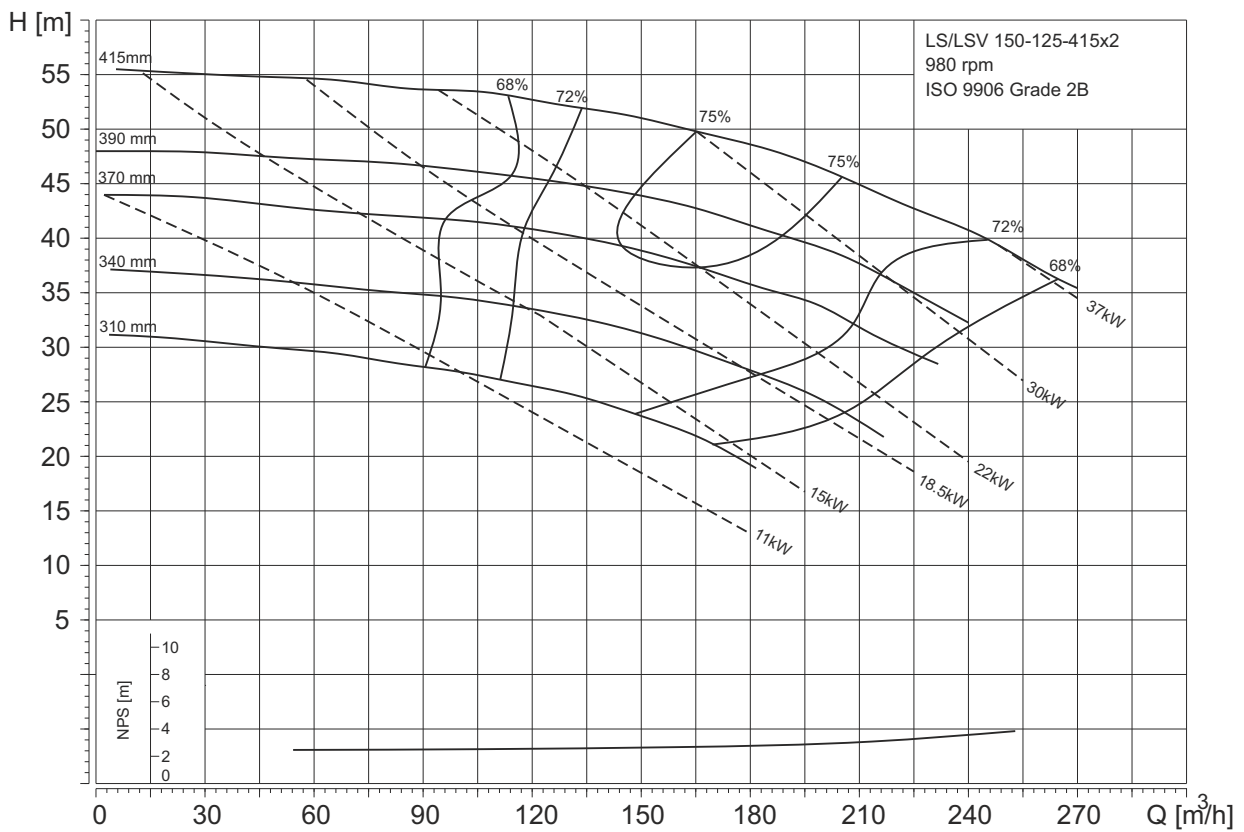
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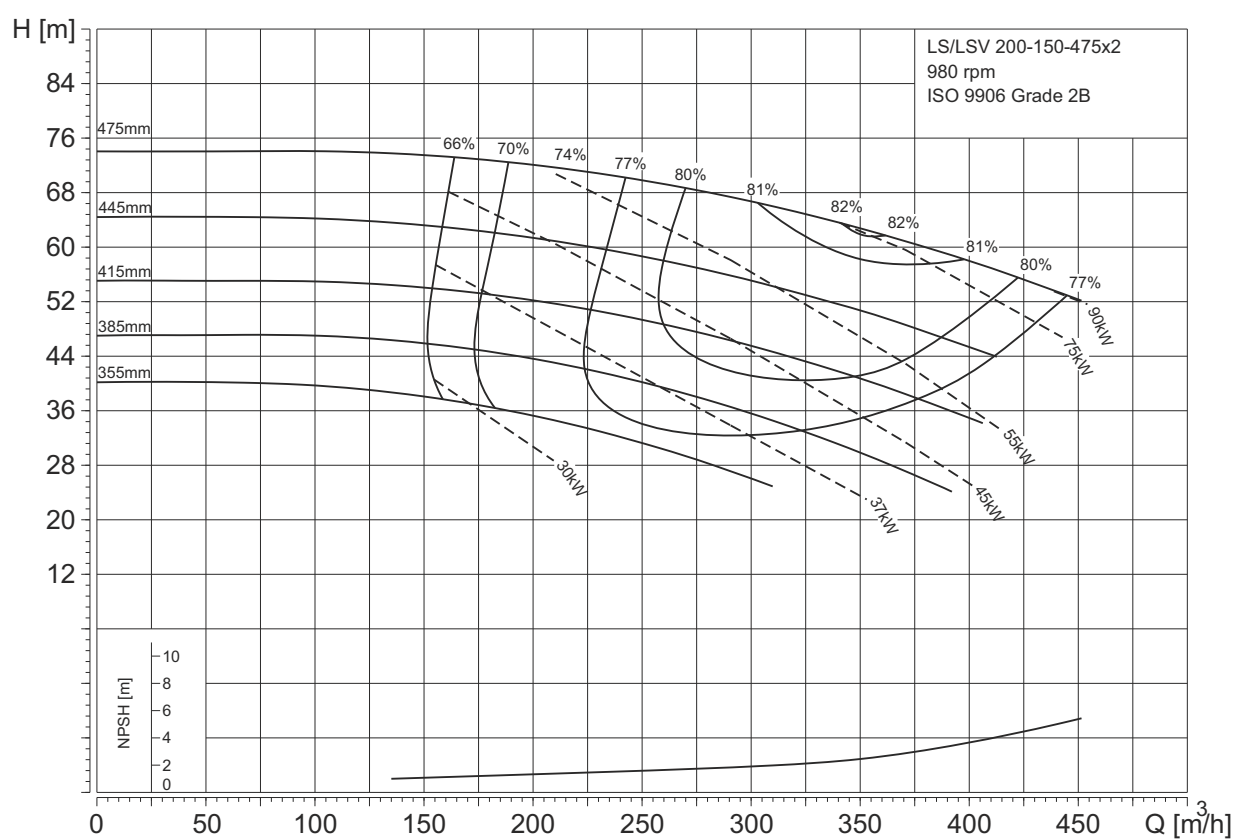
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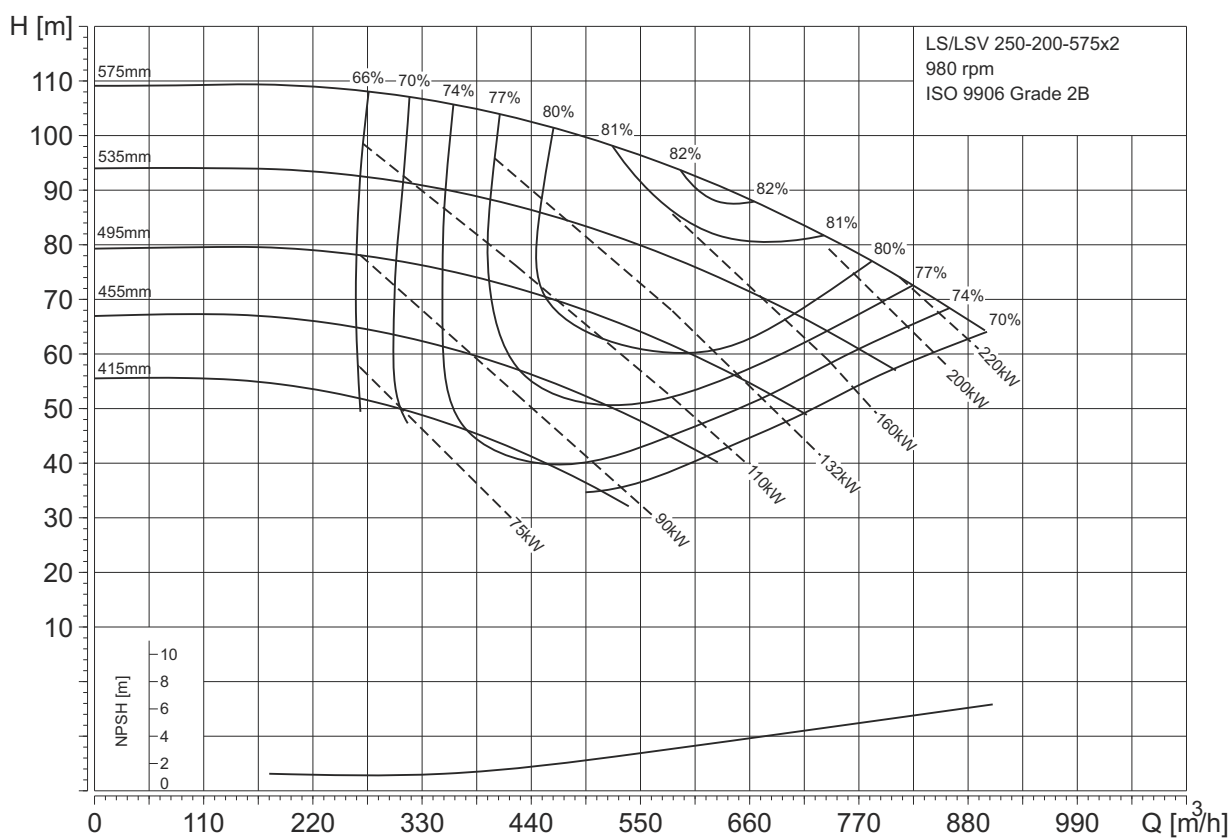
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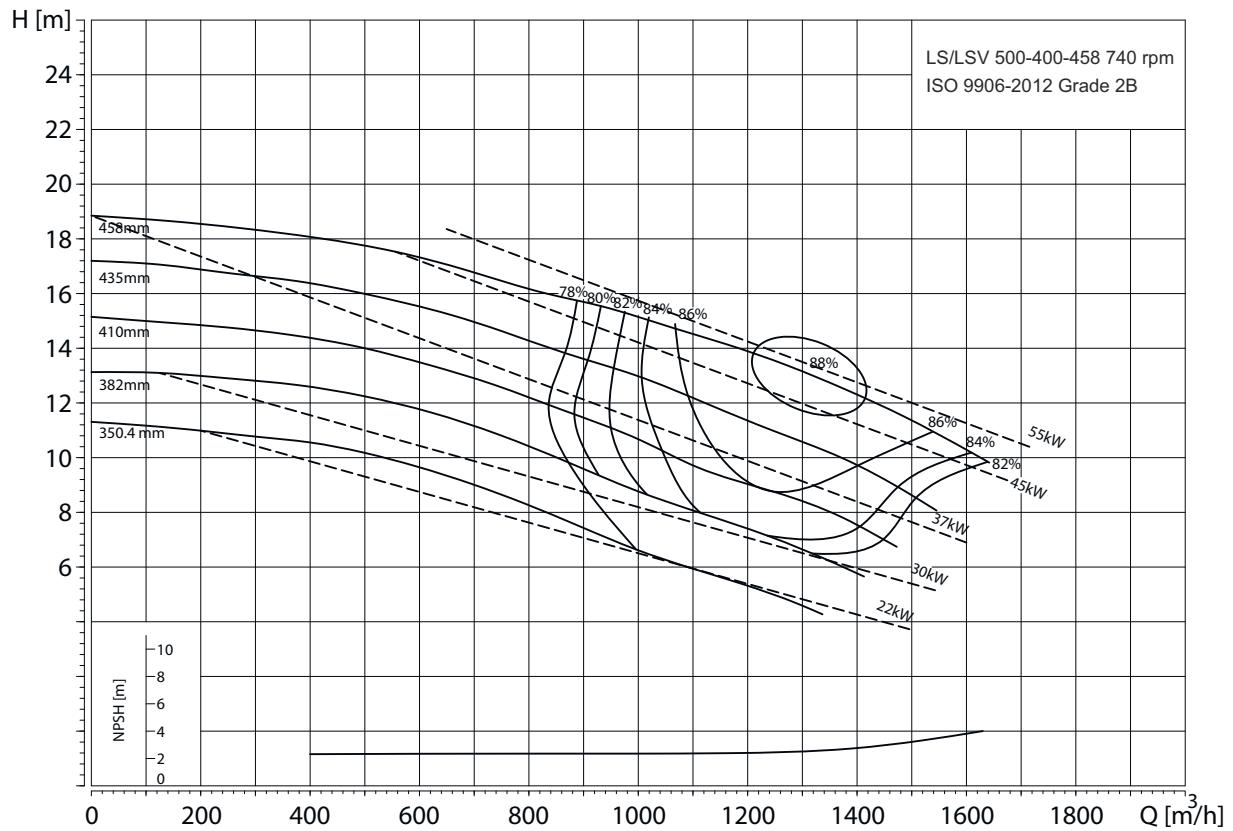


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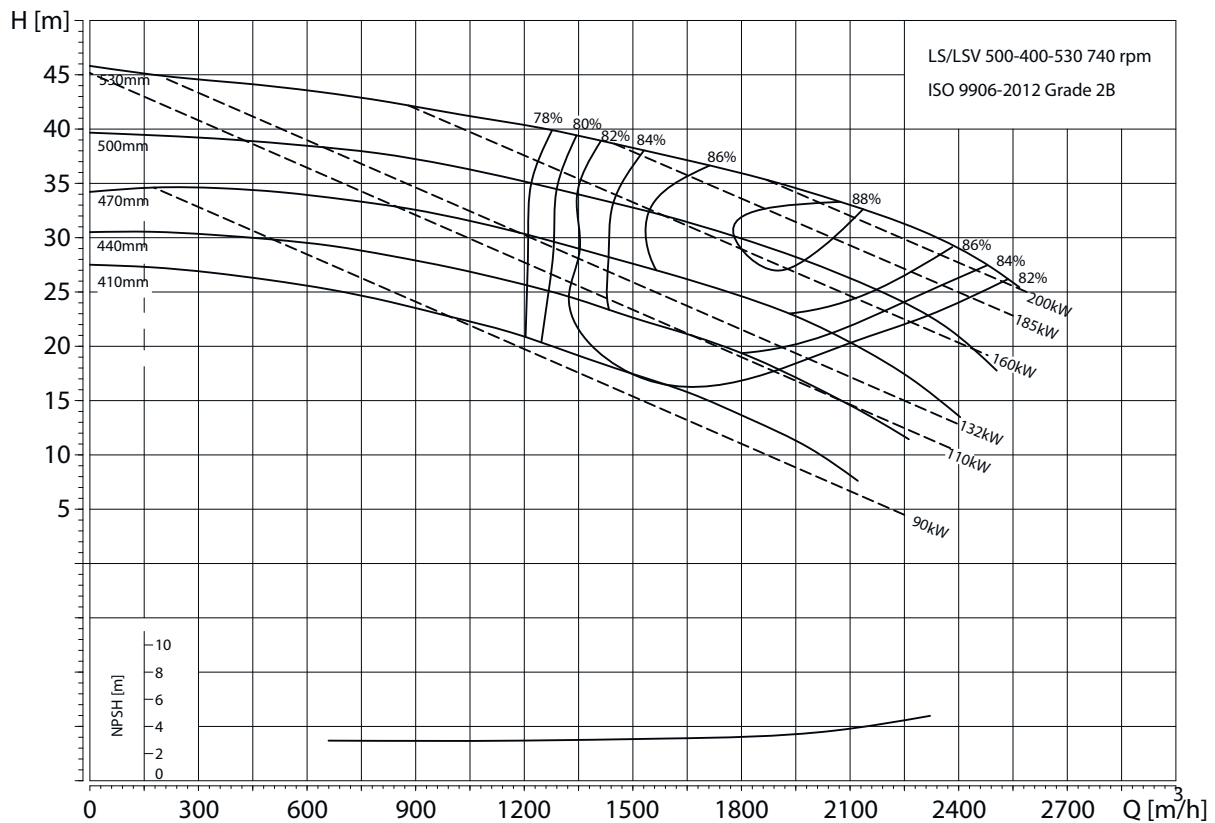


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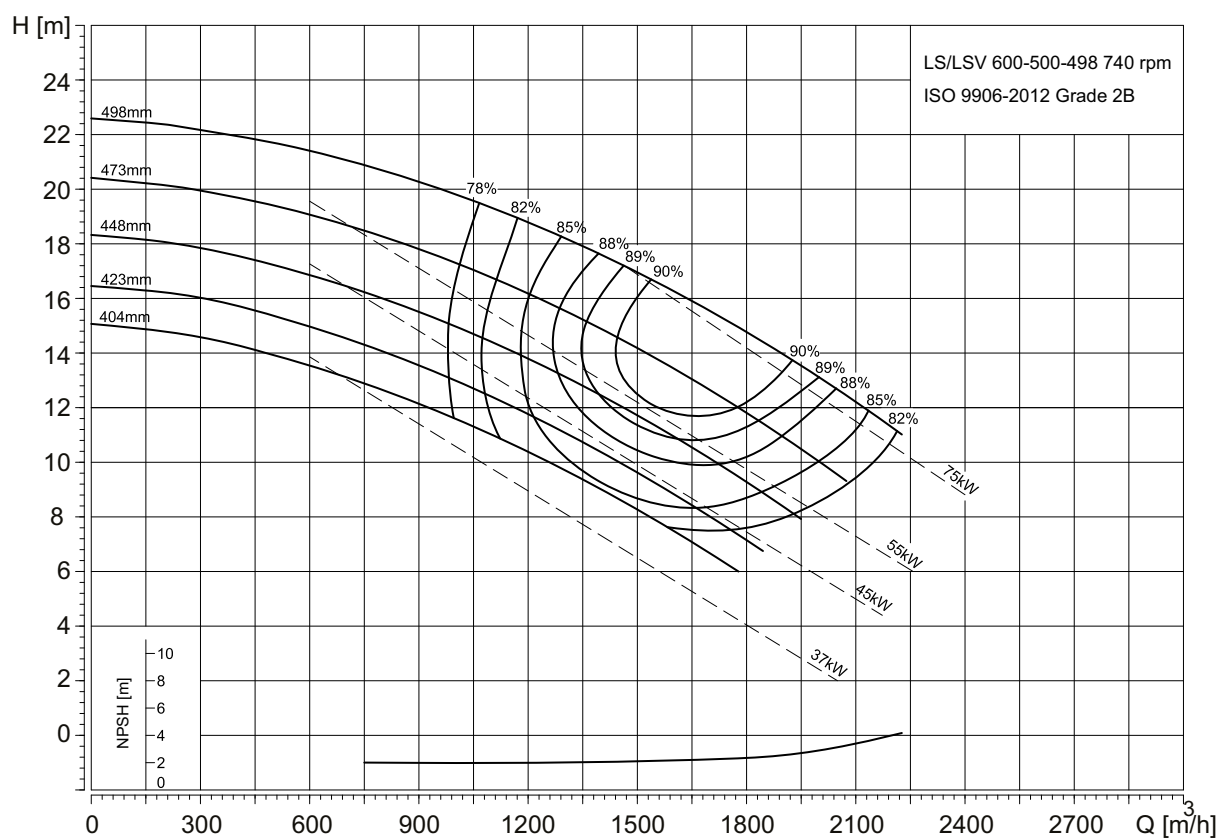
8-pole



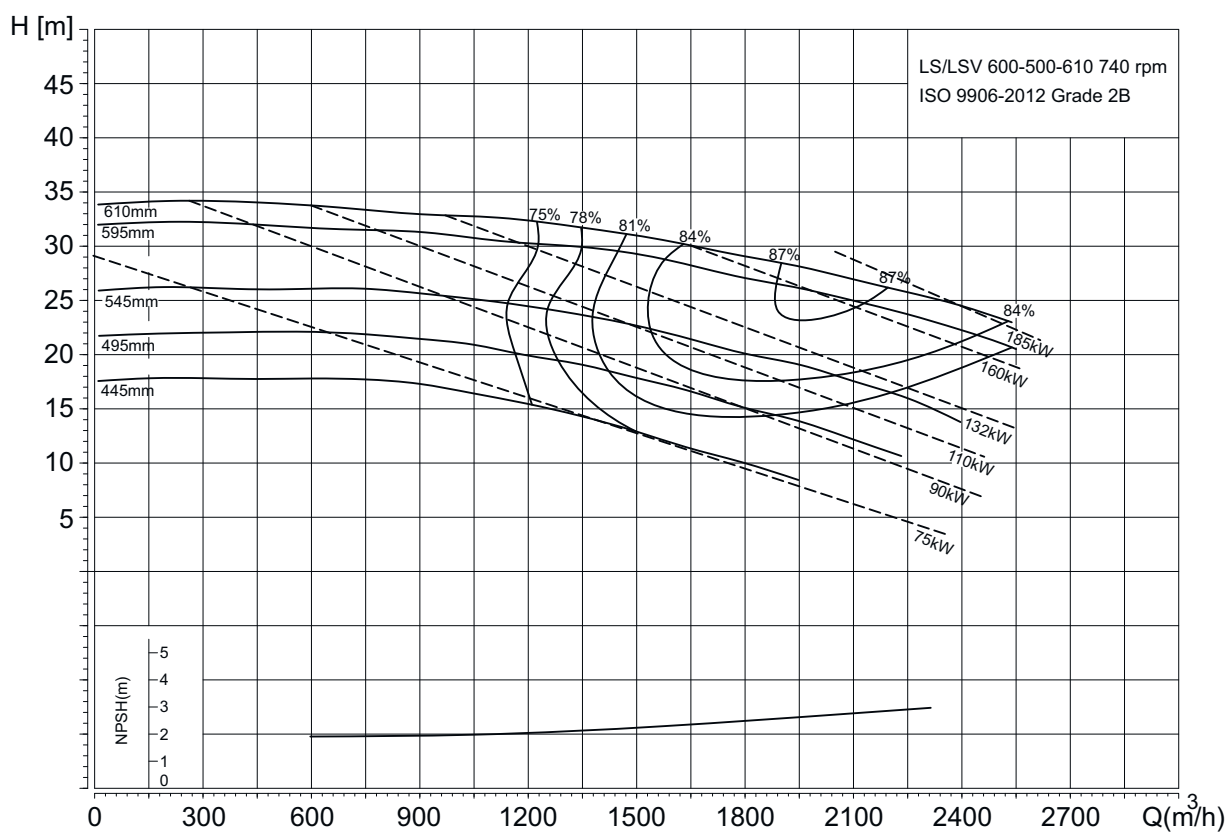
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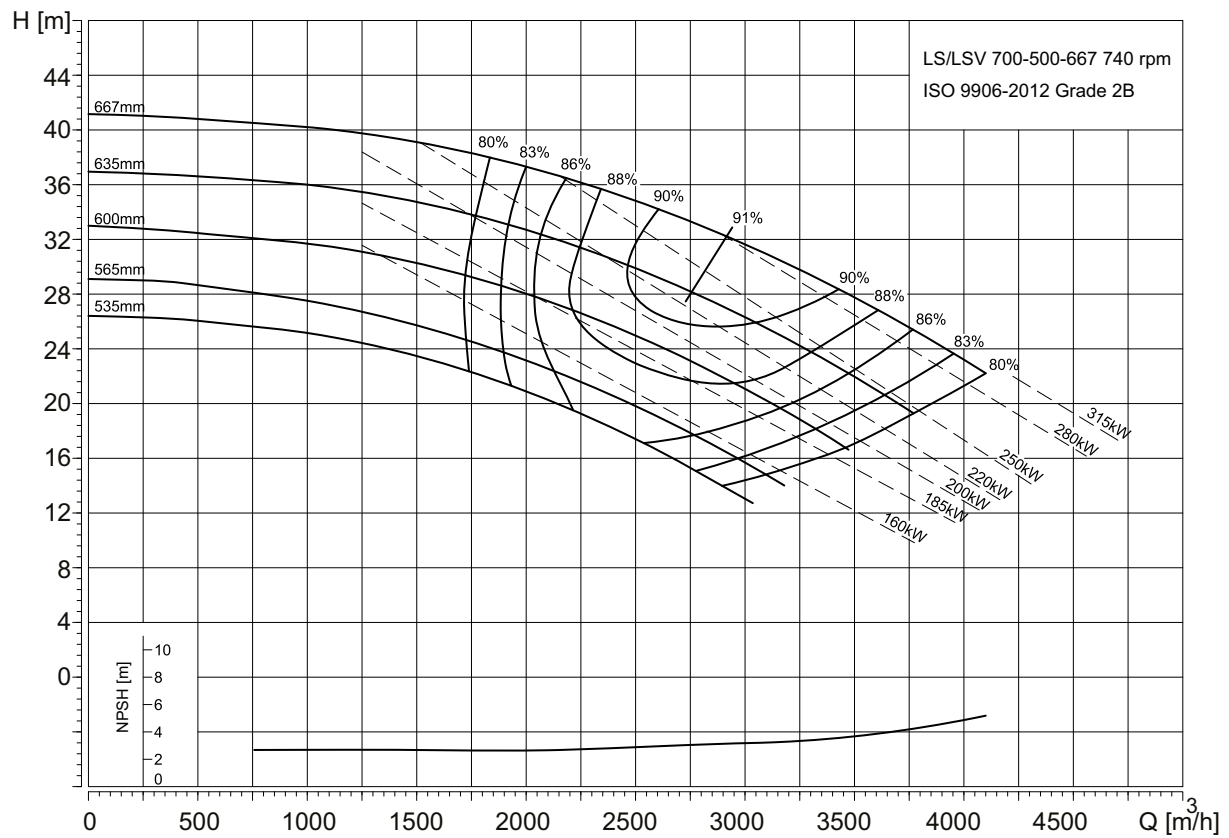
TM07 1259 1218



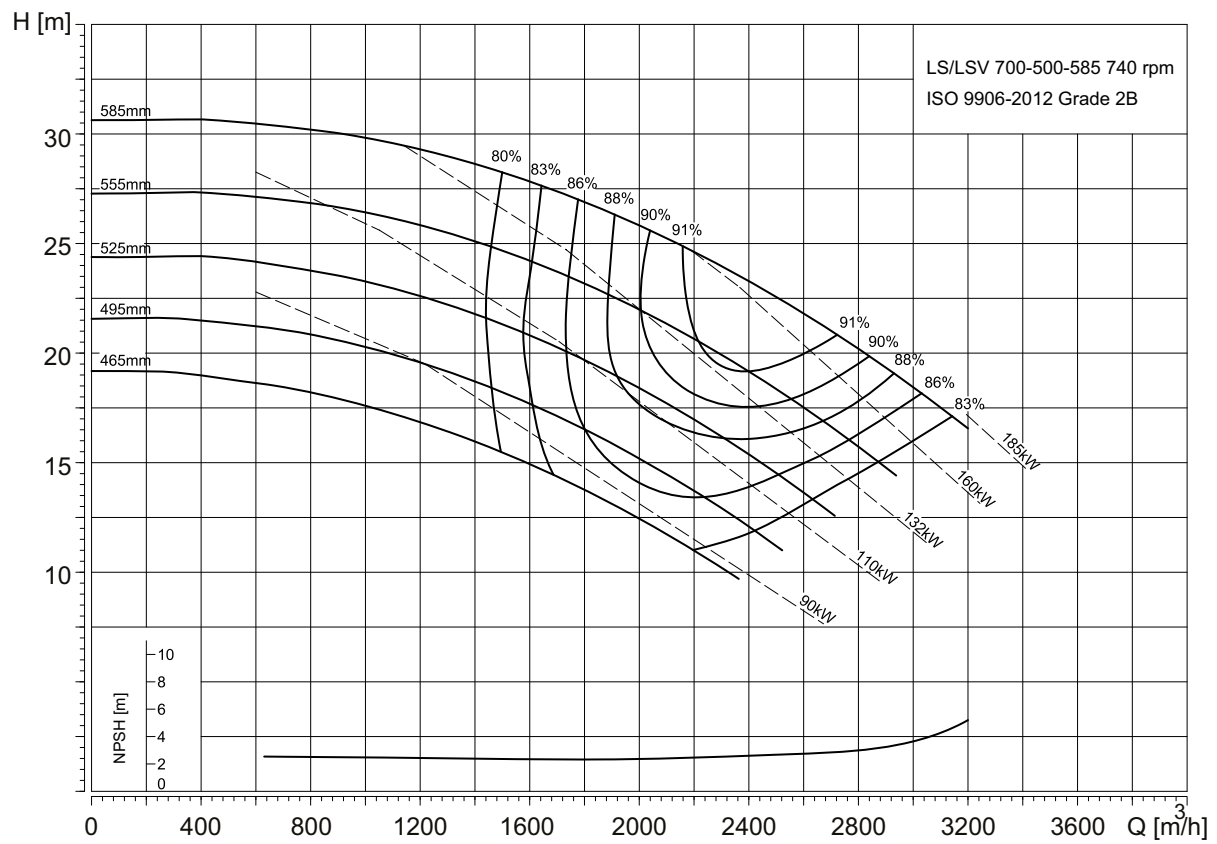
TM07 1083 1018



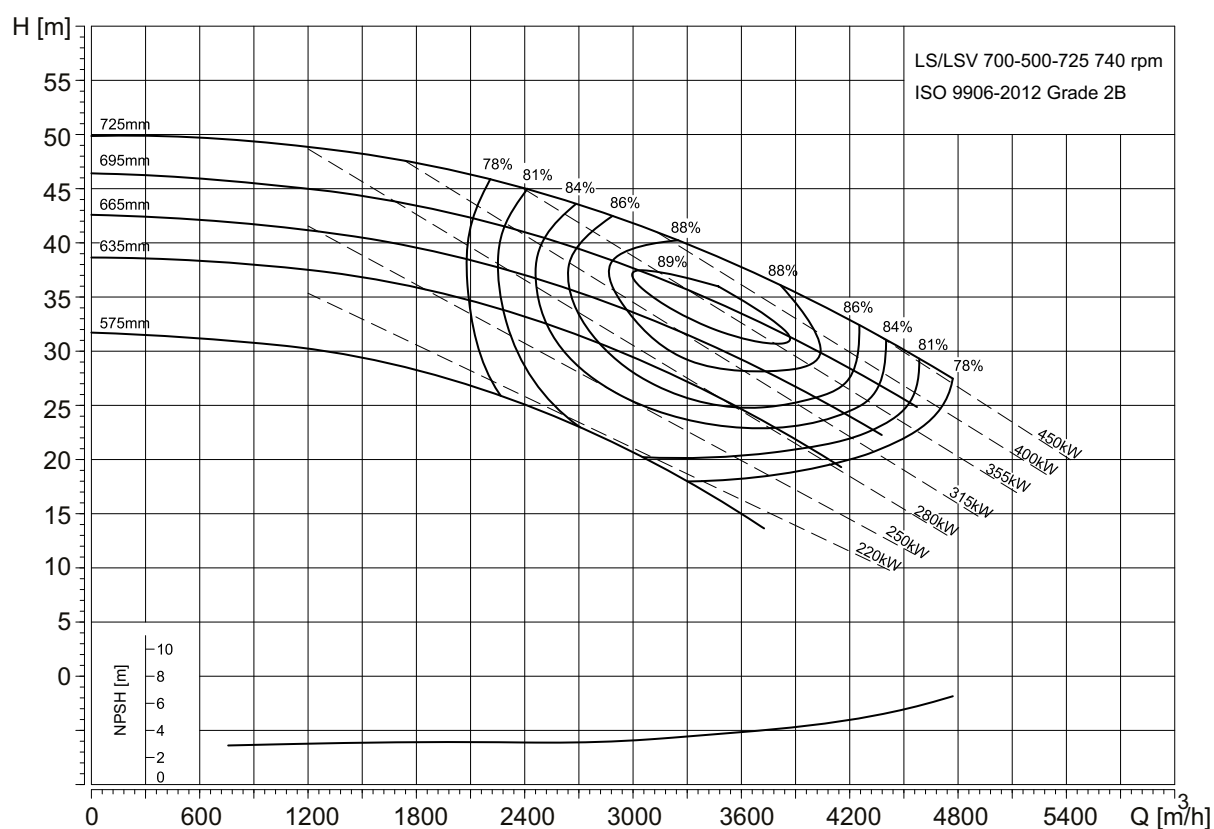
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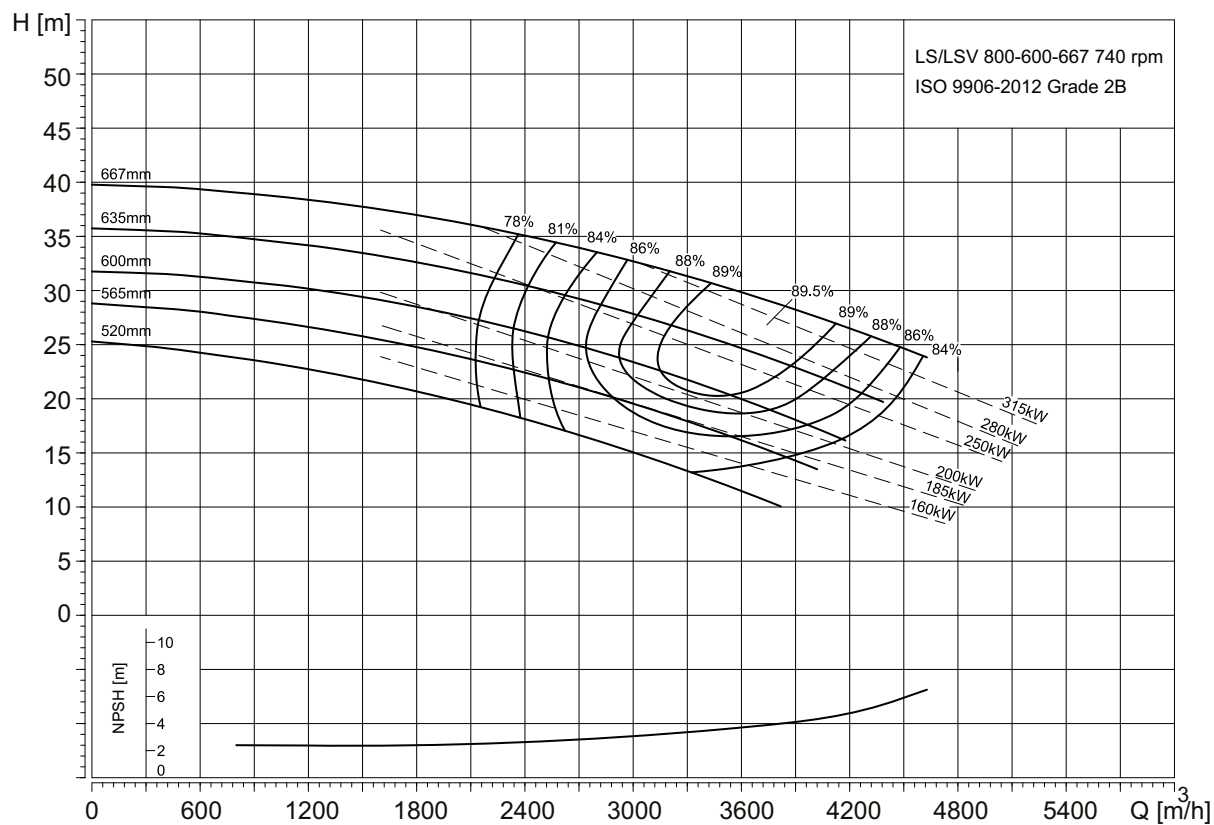
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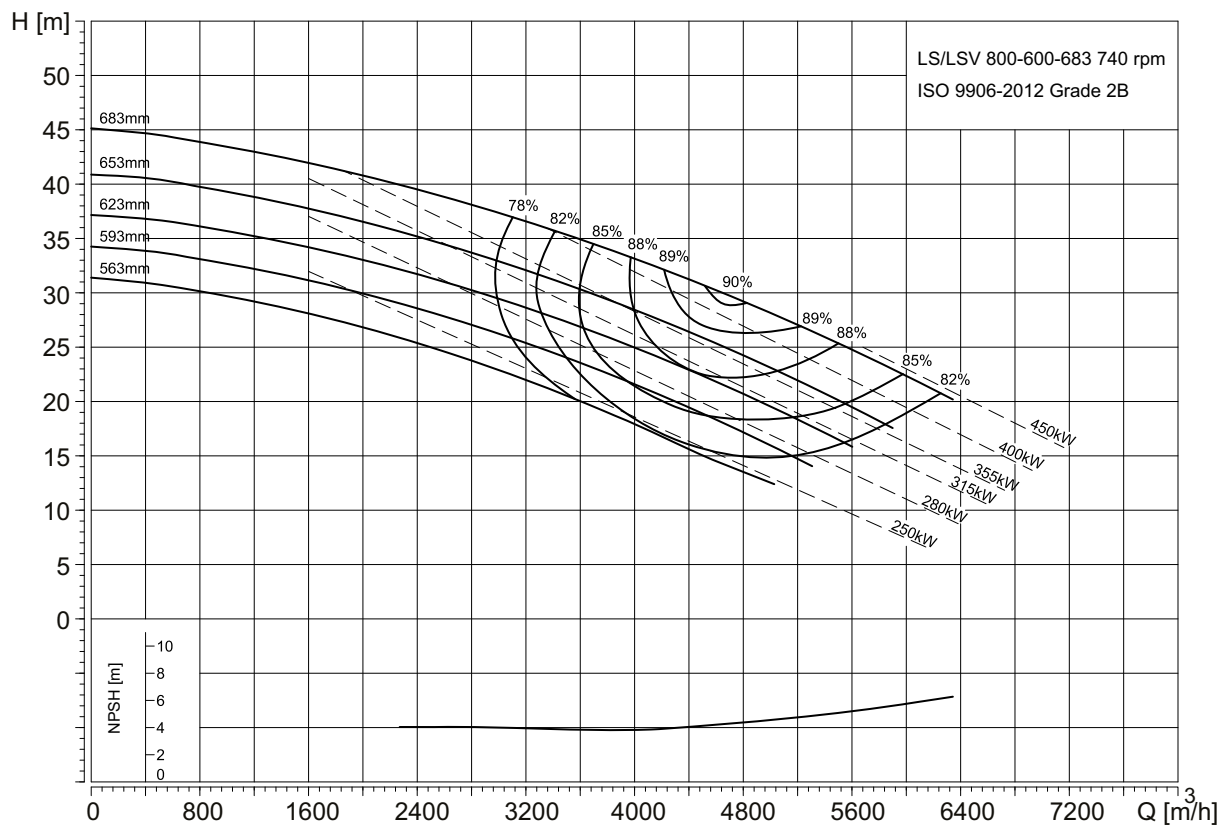
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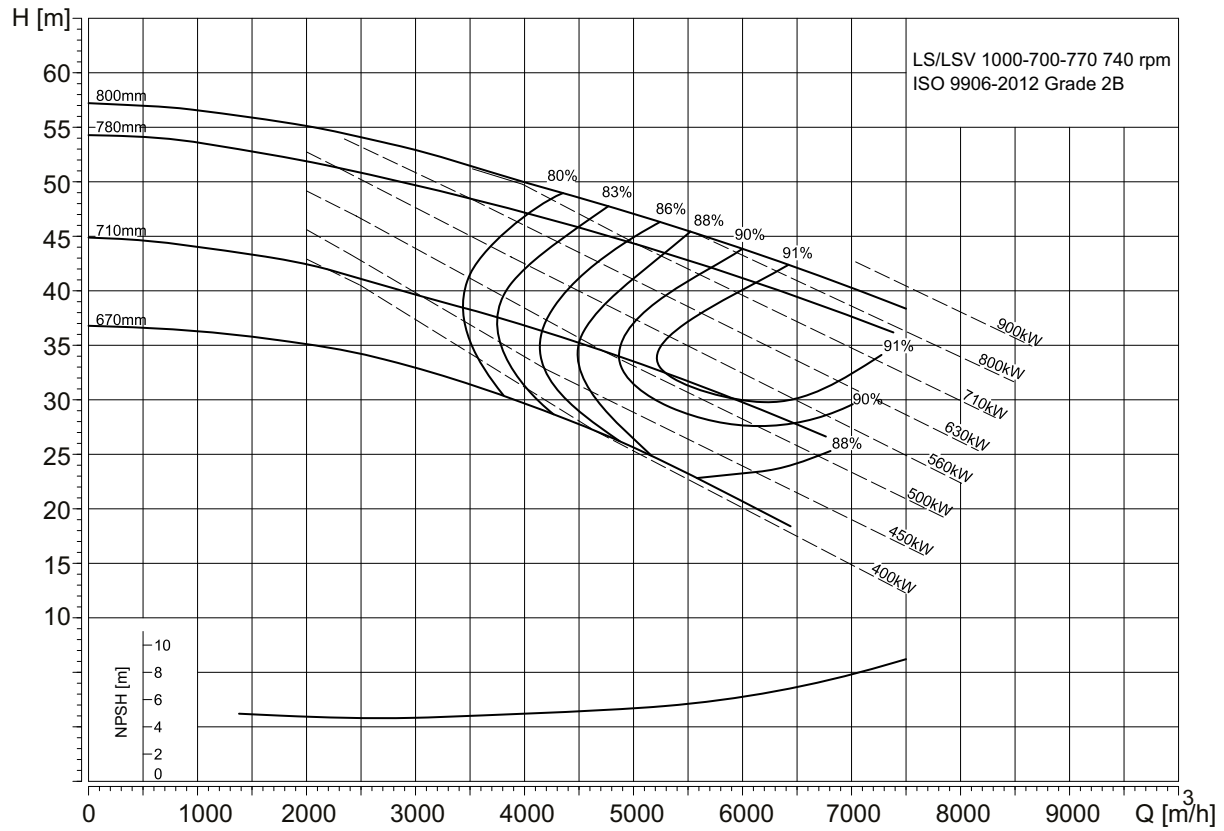
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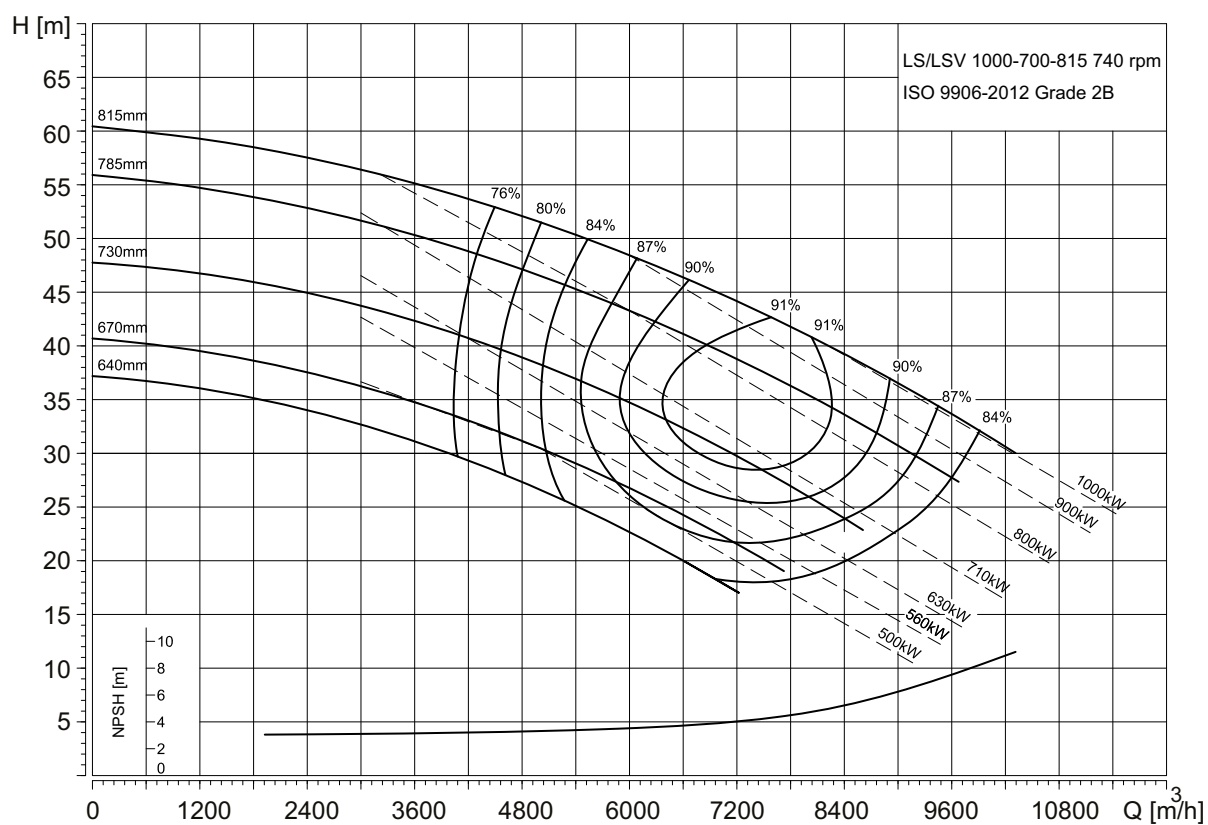
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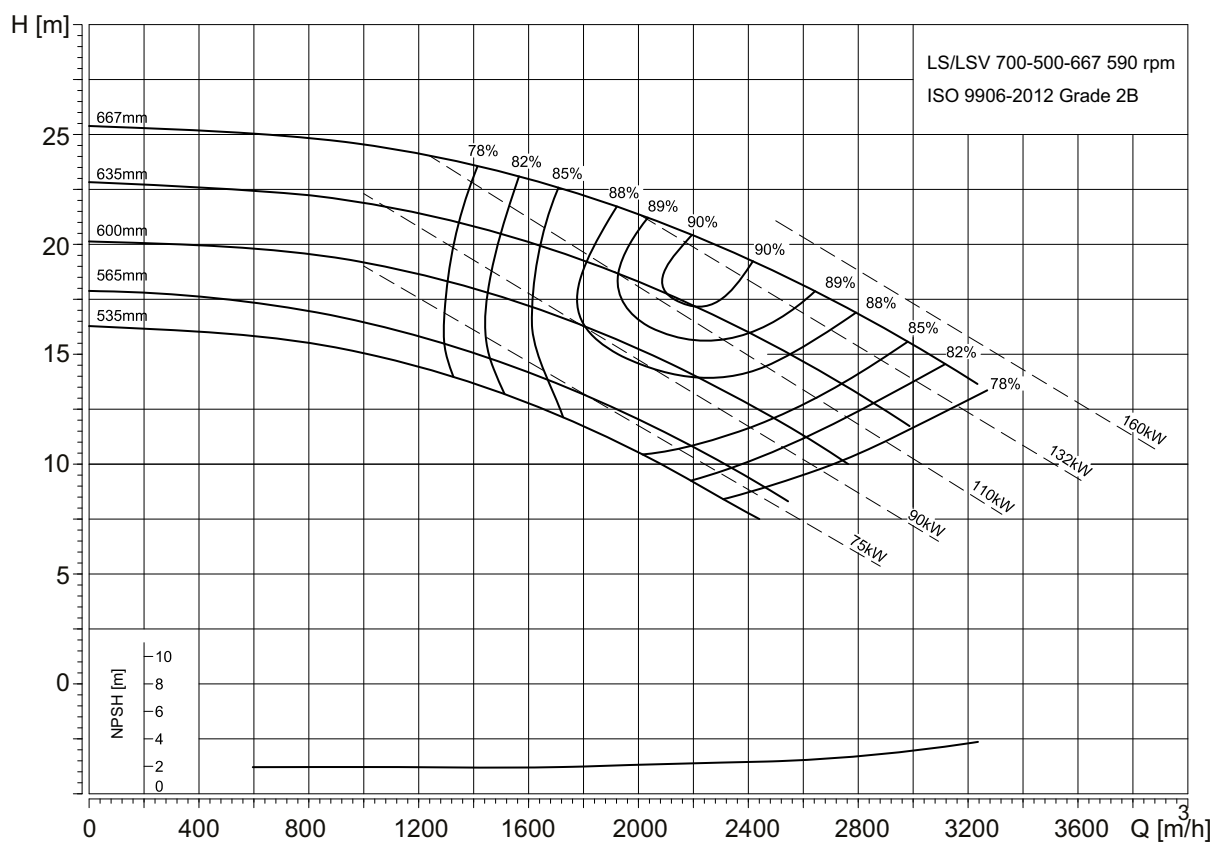


TM07 1090 1018

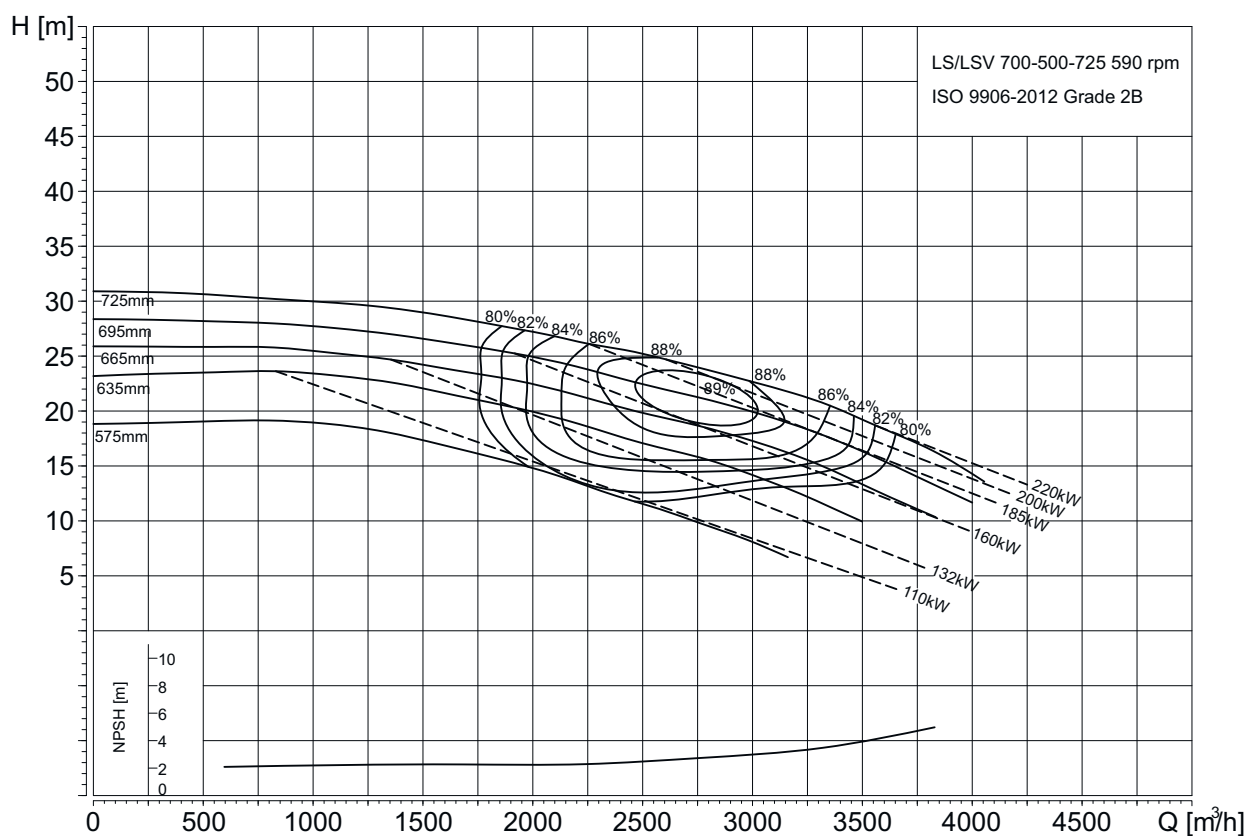


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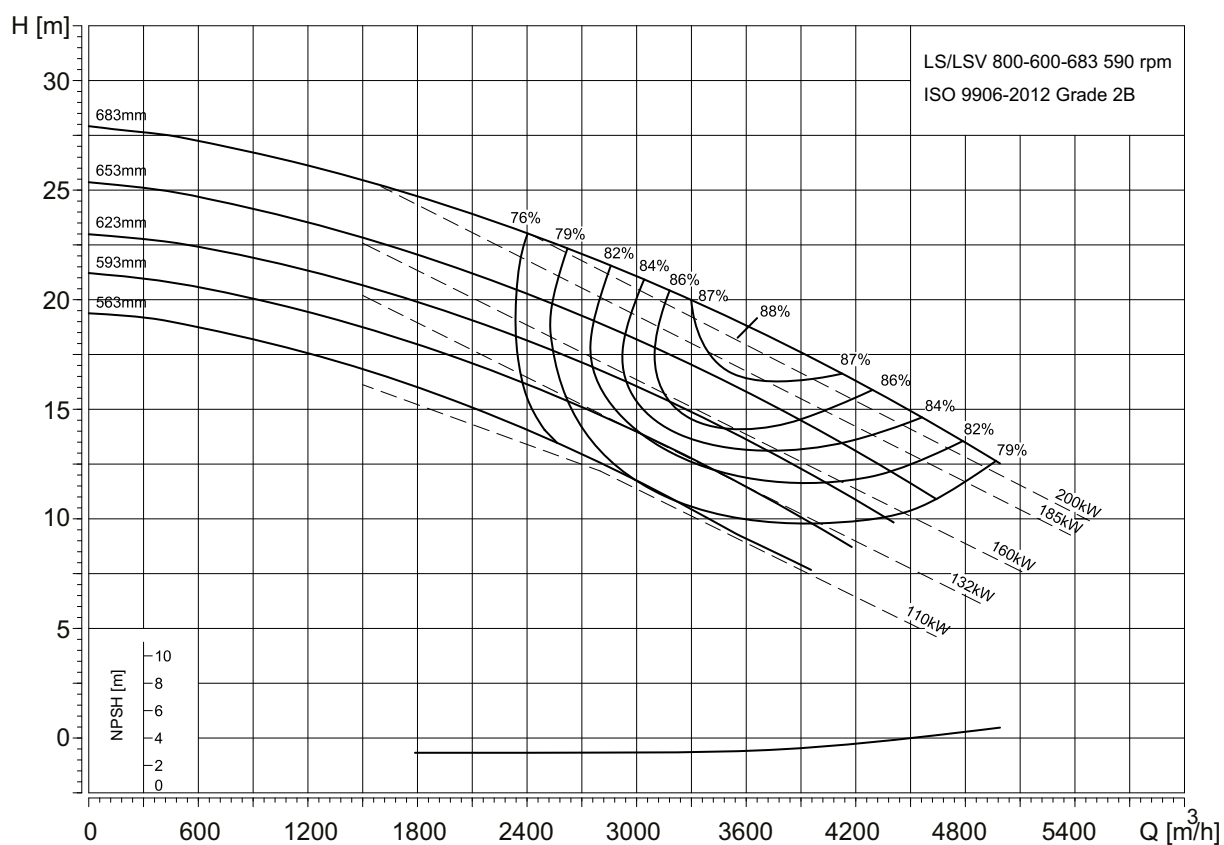
10-pole



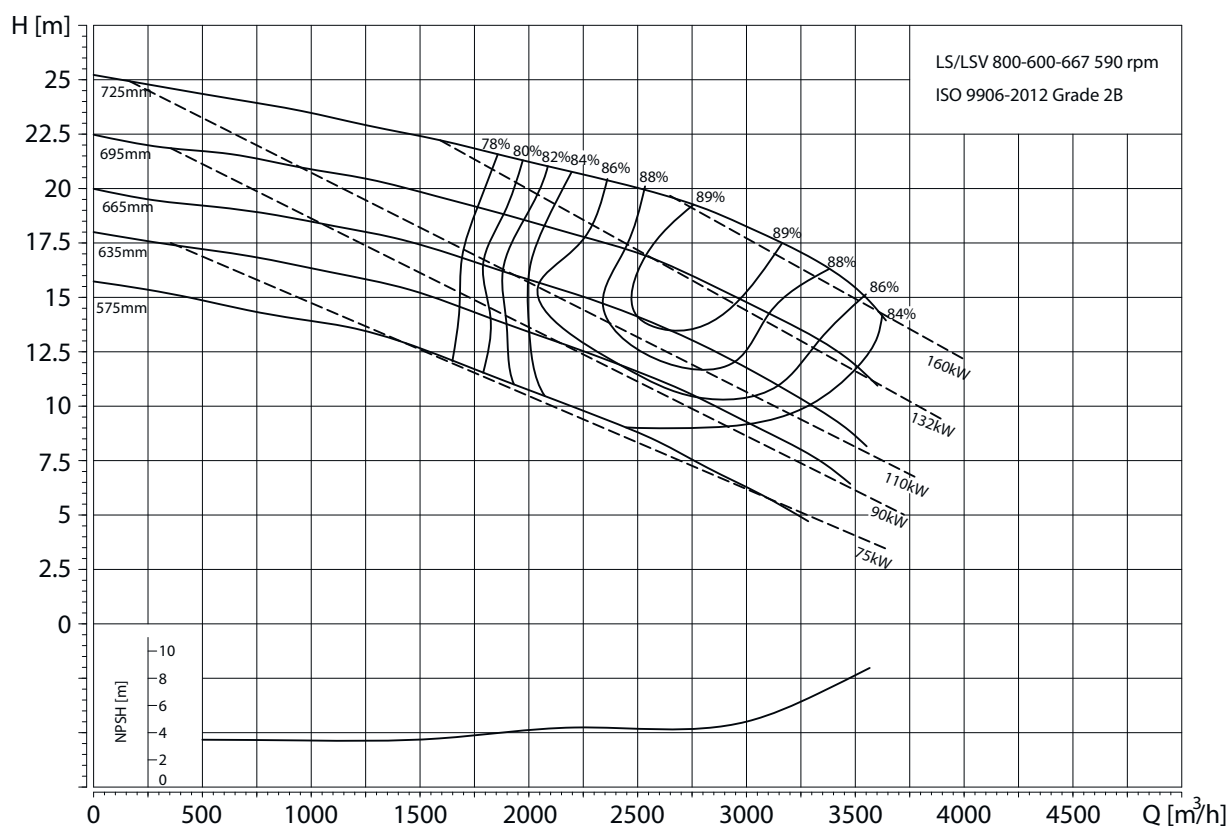
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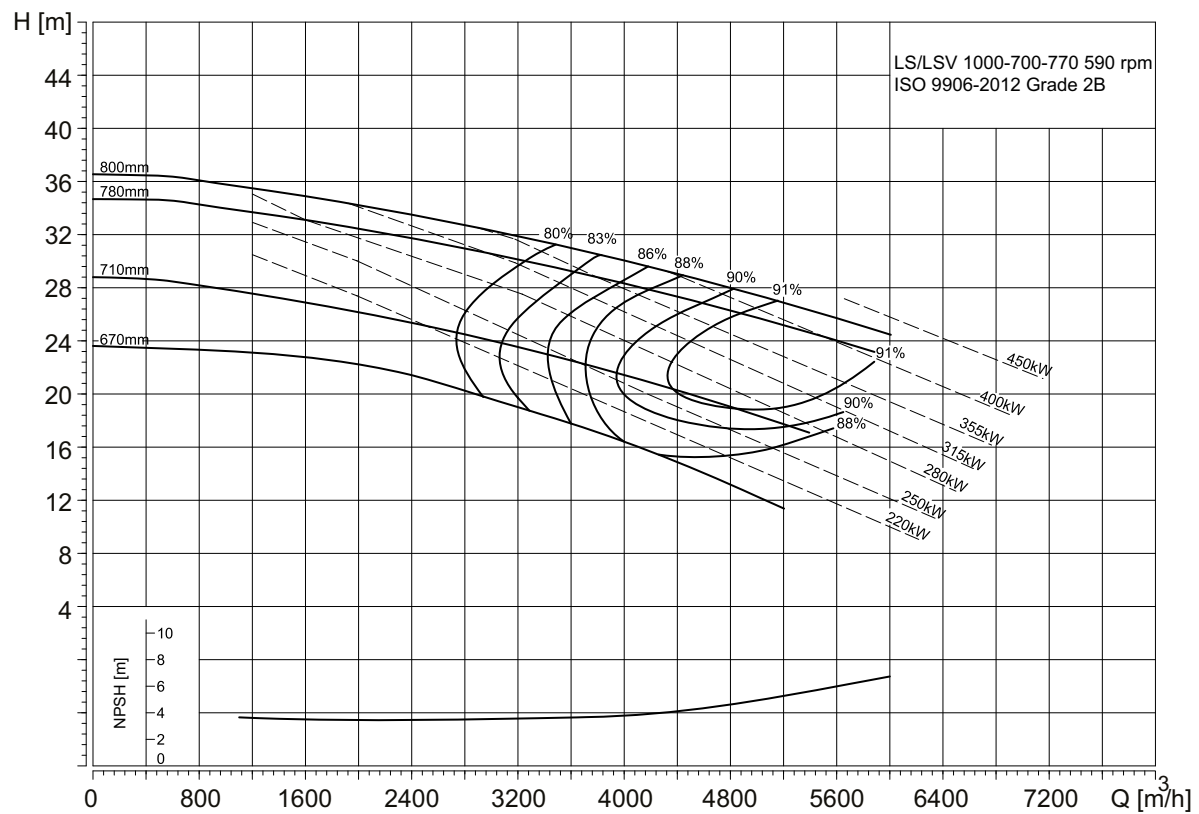
TM07 1262 1218



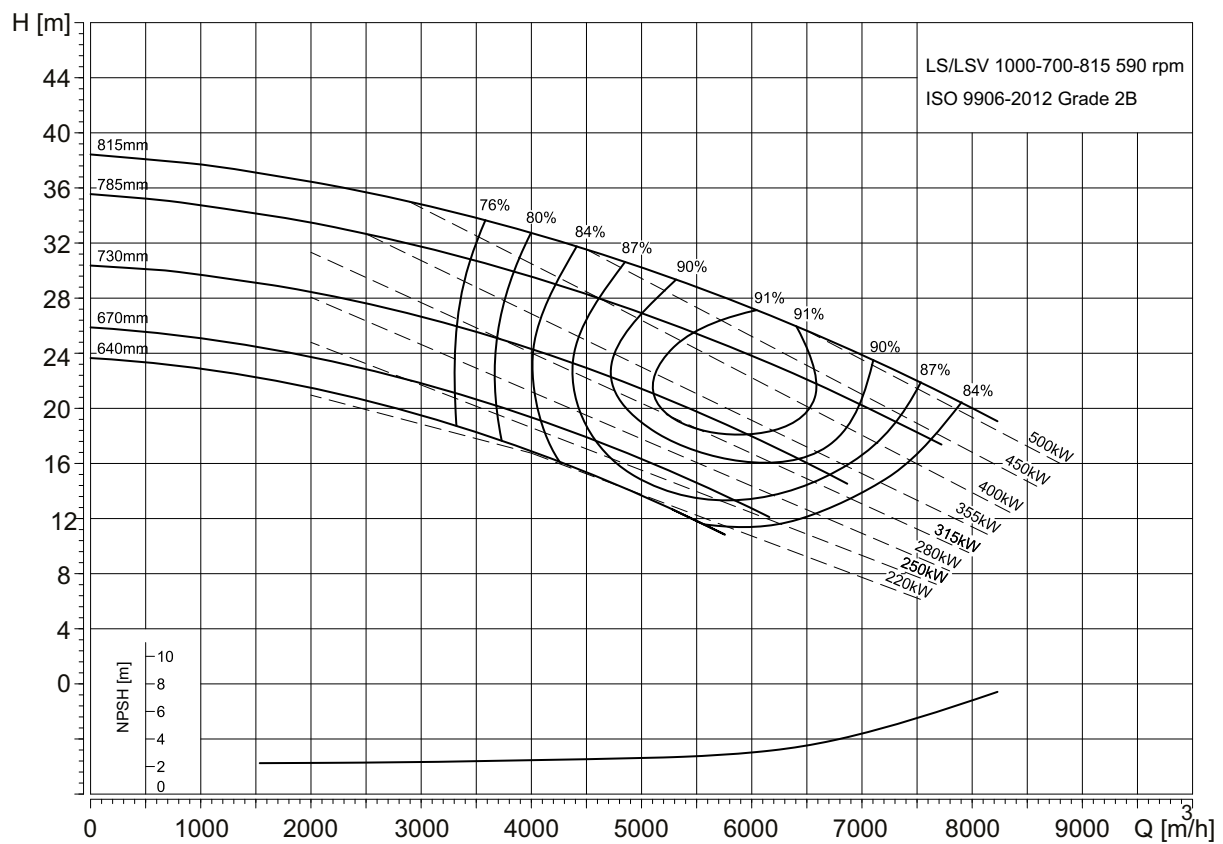
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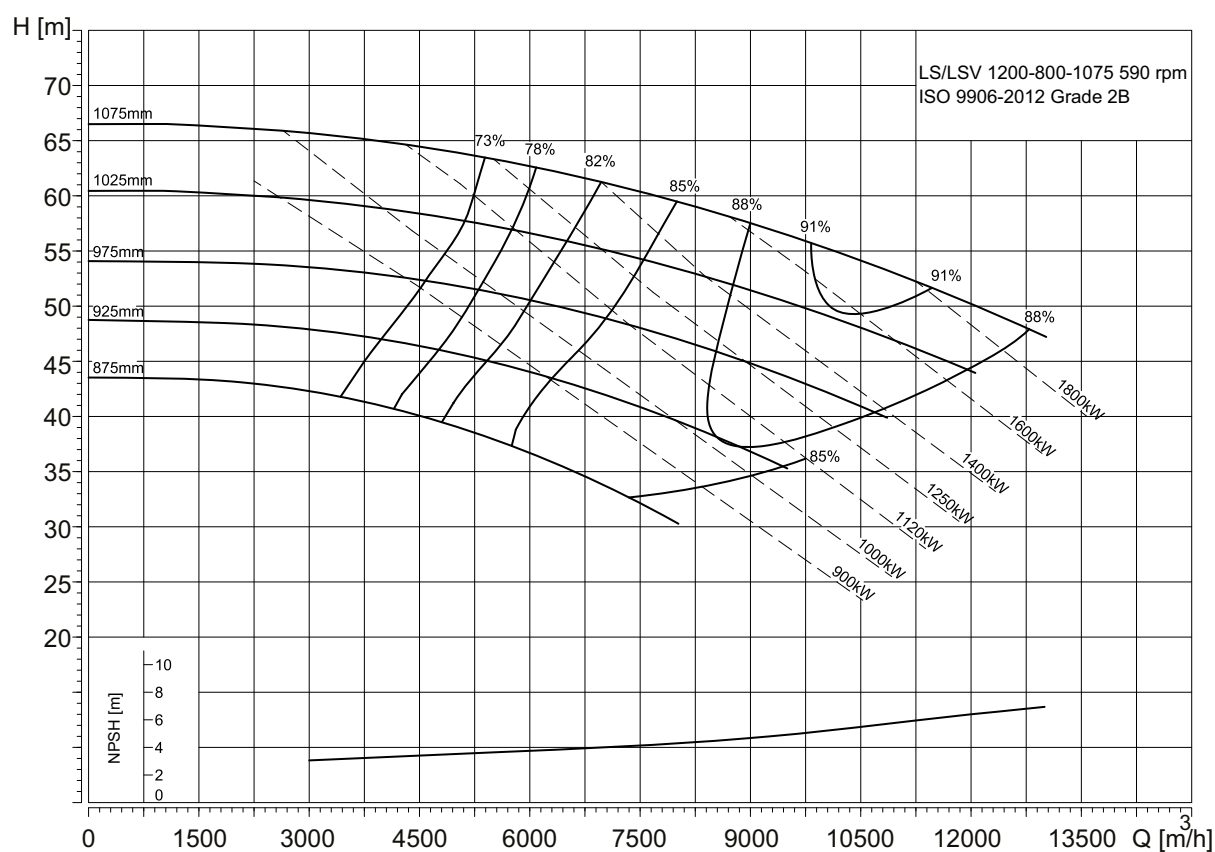
TM07 1263 1218



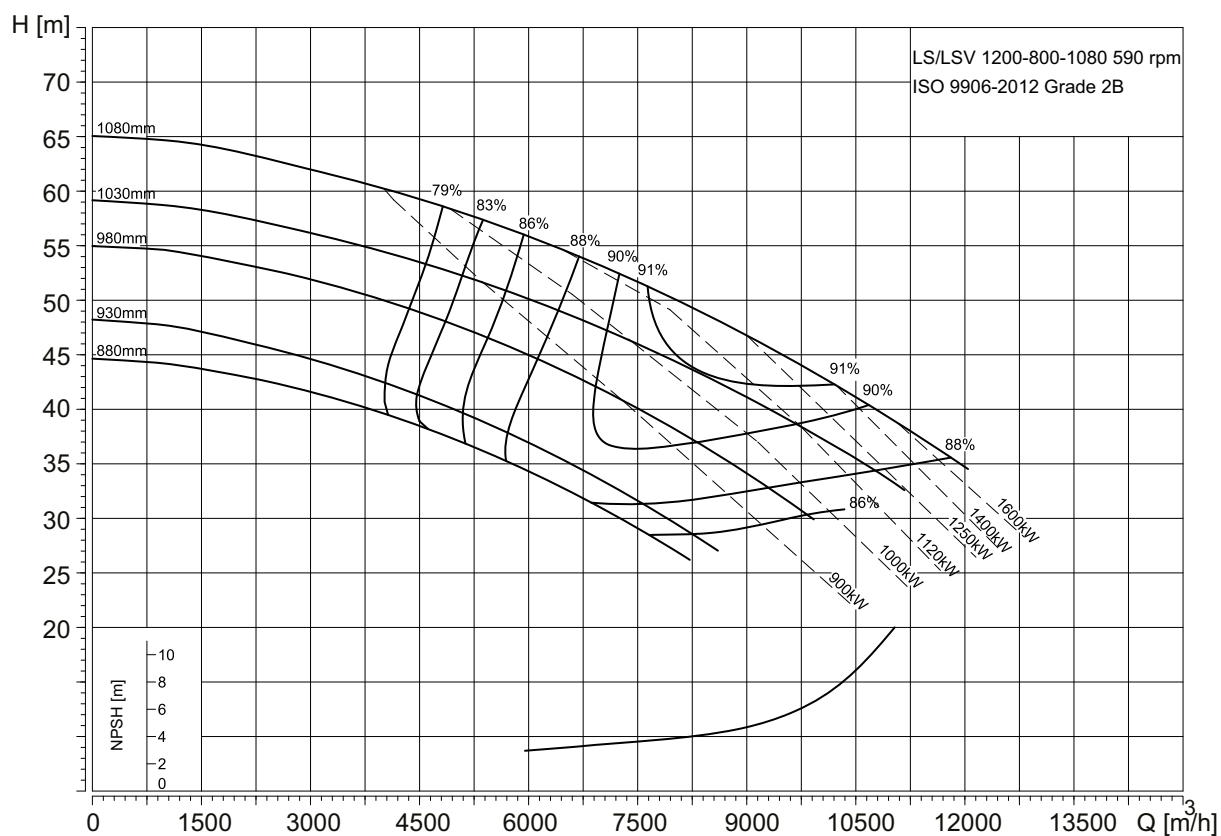
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TM07 1093 1018



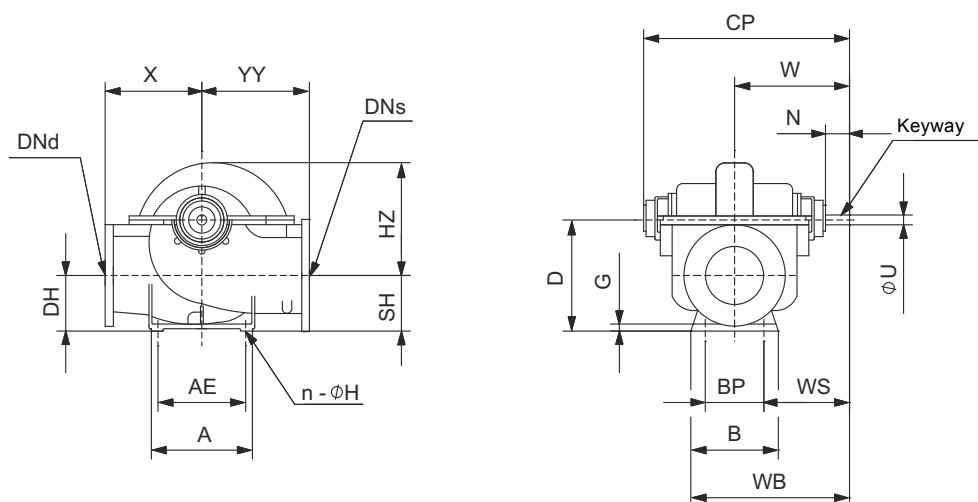
TM07 1094 1018



TM07 1096 1018

Dimensional sketches and dimensions

LS dimensional sketch A, clockwise



TM06 2631 0615

Dimensions and weights

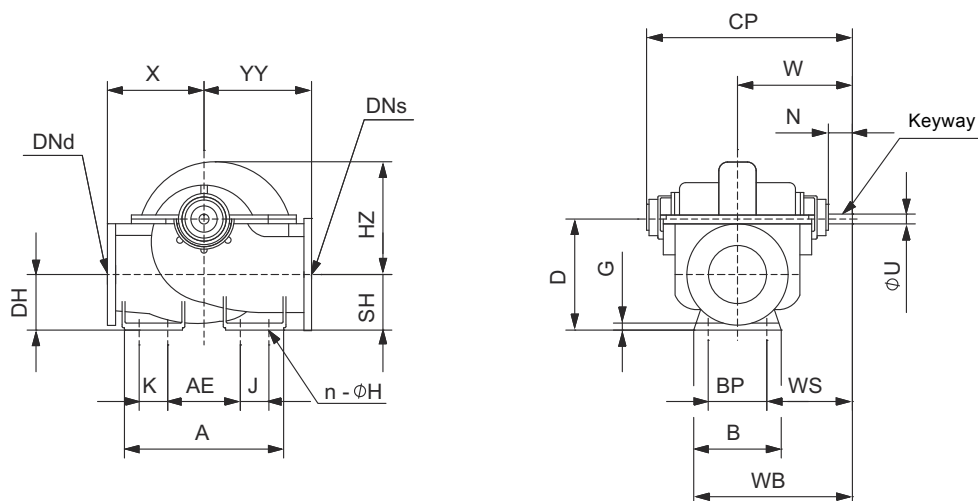
Pump size	Dimensions [mm]											
	DNs ¹⁾	DNd ²⁾	YY	X	HZ	SH	DH	AE	A	CP	W	N
LS 65-50-241	65	50	216	216	311	89	89	260	305	502	305	60
LS 65-50-330	65	50	254	254	397	89	89	260	305	502	305	60
LS 100-80-241	100	80	279	279	330	102	102	260	305	502	305	60
LS 100-80-356	100	80	305	305	422	127	127	260	305	622	368	60
LS 125-100-279	125	100	305	305	410	124	124	260	305	622	368	60
LS 125-100-305	125	100	305	305	410	124	124	260	305	622	368	60
LS 125-100-381	125	100	357	357	508	159	156	260	305	622	368	60
LS 150-125-305	150	125	330	330	448	165	165	260	305	768	419	60
LS 150-125-381	150	125	381	356	527	165	165	260	305	794	432	60
LS 200-150-305	200	150	406	356	502	165	165	260	305	794	432	60
LS 200-150-381	200	150	406	381	578	184	184	260	311	922	508	90
LS 200-150-483DF	200	150	432	432	603	171	171	260	305	868	489	90
LS 200-150-483DG	200	150	432	432	603	171	171	260	305	902	489	76
LS 200-150-508	200	150	483	432	651	171	171	260	318	994	546	95
LS 250-200-305	250	200	432	406	549	171	171	260	305	922	508	90
LS 250-200-381	250	200	483	483	629	178	178	260	324	941	518	90
LS 300-200-450	300	200	550	500	635	230	230	560	700	956	556	102
LS 300-200-489	300	200	559	414	732	198	198	502	648	1298	723	105
LS 300-250-305	300	250	495	495	619	203	203	260	324	967	530	90
LS 300-250-381	300	250	584	432	629	254	254	381	457	1045	600	102
LS 350-250-498	350	250	660	508	772	246	246	502	648	1389	797	165
LS 350-250-630	350	250	711	610	806	305	305	502	648	1354	798	160
LS 350-300-508	350	300	711	584	783	313	313	502	648	1391	749	105
LS 350-300-352	350	300	560	500	652	260	260	520	680	1361	754	105
LS 450-350-397	450	350	625	545	730	285	285	610	790	1400	773	105
LS 500-300-490	500	300	715	605	870	315	315	680	860	1565	885	165
LS 500-300-508	500	300	715	605	870	315	315	680	860	1565	885	165
LS 500-300-710	500	300	780	670	860	385	385	725	905	1585	907	200
LS 500-300-680	500	300	780	670	860	385	385	725	905	1585	907	200
LS 500-350-608	500	350	750	630	925	315	315	680	860	1542	860	170
LS 500-350-702	500	350	785	750	1105	310	310	680	860	1660	920	170
LS 500-400-423	500	400	700	600	890	325	325	680	860	1585	895	165
LS 500-400-458	500	400	700	600	830	330	330	680	860	1585	895	165
LS 500-400-530	500	400	715	605	880	315	315	680	860	1565	885	165
LS 500-400-498	500	400	715	605	880	315	315	680	860	1565	885	165
LS 600-500-498	600	500	850	750	1065	425	425	700	900	1717	957	165
LS 600-400-722	600	400	920	750	1168	365	365	780	960	1841.5	1010	170

Pump size	Dimensions [mm]								Weights [kg]	
	D	G	U	BP	WS	B	WB	H		n
LS 65-50-241	178	16	24	178	216	222	416	19	4	73
LS 65-50-330	216	16	24	178	216	222	416	19	4	91
LS 100-80-241	203	19	24	178	216	222	416	19	4	97
LS 100-80-356	254	22	34	235	251	279	508	19	4	172
LS 125-100-279	257	22	34	235	251	283	510	19	4	185
LS 125-100-305	257	22	34	235	251	283	510	19	4	185
LS 125-100-381	330	25	34	305	216	349	543	19	4	267
LS 150-125-305	368	25	34	260	289	305	572	19	4	306
LS 150-125-381	410	25	34	260	302	305	585	19	4	363
LS 200-150-305	406	25	34	260	302	305	585	19	4	373
LS 200-150-381	464	29	44	419	298	457	736	19	4	500
LS 200-150-483DF	432	25	44	305	337	356	668	19	4	533
LS 200-150-483DG	432	25	51	305	337	356	668	19	4	533
LS 200-150-508	451	25	54	305	394	356	725	19	4	640
LS 250-200-305	438	35	44	356	330	394	705	19	4	502
LS 250-200-381	483	29	44	445	295	495	765	19	4	602
LS 300-200-450	530	40	57	460	326	545	829	24	4	732
LS 300-200-489	528	35	64	406	520	489	968	28	4	908
LS 300-250-305	503	29	44	445	308	495	778	19	4	697
LS 300-250-381	508	29	57	305	448	356	779	22	4	900
LS 350-250-498	586	35	79	406	595	489	1043	29	4	1350
LS 350-250-630	635	35	79	406	59	489	1042	29	4	1900
LS 350-300-508	643	35	64	406	546	489	994	29	4	1450
LS 350-300-352	585	33	64	460	524	600	1055	23	4	900
LS 450-350-397	650	35	63.5	575	486	655	1101	33	4	1310
LS 500-300-490	740	35	79.4	650	560	760	1265	33	4	1650
LS 500-300-508	740	35	79.4	650	560	760	1265	33	4	1650
LS 500-300-710	750	35	94	675	570	835	1325	33	4	2300
LS 500-300-680	750	35	94	675	570	835	1325	33	4	2300
LS 500-350-608	740	35	80	650	535	760	1240	33	4	1835
LS 500-350-702	790	35	80	650	595	760	1300	33	4	2110
LS 500-400-423	725	35	79.4	650	570	760	1275	33	4	1637
LS 500-400-458	750	35	79.4	600	595	760	1275	33	4	1830
LS 500-400-530	740	34	79.4	650	560	760	1265	33	4	1725
LS 500-400-498	740	35	79.4	650	560	760	1265	33	4	1725
LS 600-500-498	900	35	79.4	670	622	770	1342	33	4	2970
LS 600-400-722	860	35	95	800	610	920	1470	39	4	3200

1) DN: Nominal diameter of inlet port.

2) DND: Nominal diameter of outlet port.

LS dimensional sketch B, clockwise



TM06 2632 4414

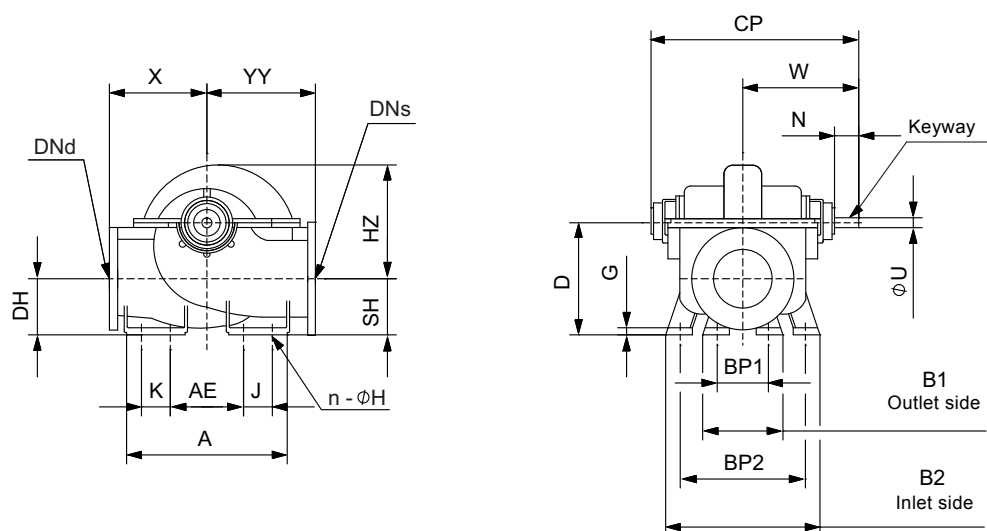
Dimensions and weights

Pump size	Dimensions [mm]											
	DNs ¹⁾	DNd ²⁾	YY	X	HZ	SH	DH	AE	A	CP	W	N
LS 600-500-610	600	500	850	800	1179	420	420	720	1135	1795	1010	200
LS 800-600-683	800	600	1135	900	1340	465	465	850	1393	2095	1160	200
LS 800-600-667	800	600	1135	900	1340	465	465	850	1393	2095	1160	200
LS 1000-700-770	1000	700	1300	1070	1565	585	585	1020	1600	2491	1398	250
LS 1000-700-815	1000	700	1300	1070	1565	585	585	1020	1600	2491	1398	250
LS 1200-800-1075	1200	800	1600	1320	1895	640	640	1220	1840	2564	1400	225
LS 1200-800-1080	1200	800	1600	1320	1895	640	640	1220	1840	2564	1400	225

Pump size	Dimensions [mm]											Weights [kg]
	D	G	U	BP	WS	B	WB	H	K	J	n	
LS 600-500-610	920	50	100	760	630	886	1453	33	110	110	8	3300
LS 800-600-683	1100	40	100	850	735	1060	1690	33	175	175	8	5000
LS 800-600-667	1100	40	100	850	735	1050	1685	33	175	175	8	4900
LS 1000-700-770	1335	50	129	1000	898	1200	1998	33	180	180	8	6800
LS 1000-700-815	1335	50	129	1000	898	1200	1998	33	180	180	8	6800
LS 1200-800-1075	1565	50	145	1460	670	1660	2230	40	200	200	8	10550
LS 1200-800-1080	1565	50	145	1460	670	1660	2230	40	200	200	8	10550

¹⁾ DN: nominal diameter of inlet port.²⁾ DNd: nominal diameter of outlet port.

LS dimensional sketch C, clockwise



TM06 2633 4414

Dimensions and weights

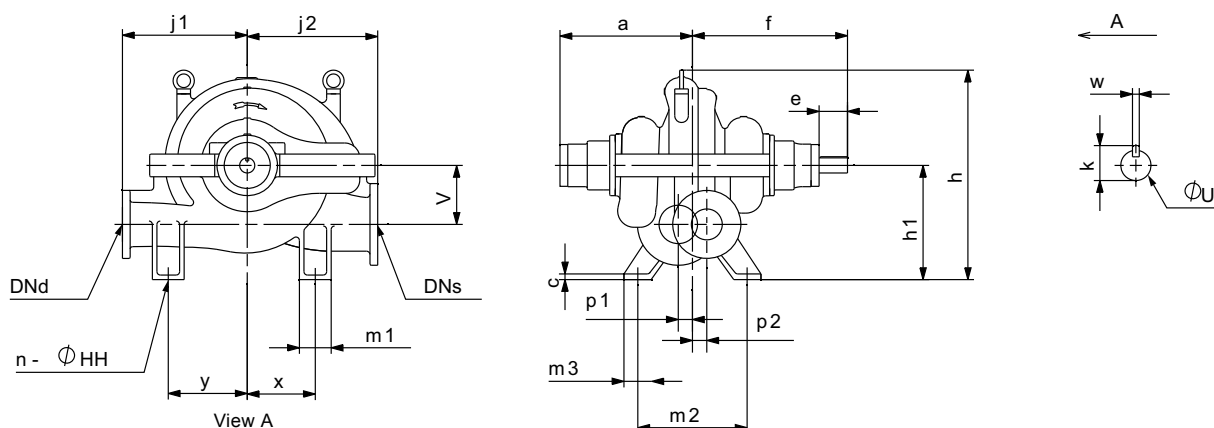
Pump size	Dimensions [mm]											
	DNs ¹⁾	DNd ²⁾	YY	X	HZ	SH	DH	AE	A	CP	W	N
LS 700-500-585	700	500	950	800	1255	380	380	750	1200	1955	1090	200
LS 700-500-667	700	500	950	800	1255	380	380	750	1200	1955	1090	200
LS 700-500-725	700	500	950	800	1255	380	380	750	1200	1955	1090	200

Pump size	Dimensions [mm]											Weights [kg]
	D	G	U	BP1	BP2	B1	B2	H	K	J	n	
LS 700-500-585	940	40	100	560	860	700	1000	33	150	150	8	3500
LS 700-500-667	940	40	100	560	860	700	1000	33	150	150	8	3500
LS 700-500-725	940	40	100	560	860	700	1000	33	150	150	8	3500

¹⁾ DN_s: nominal diameter of inlet port.

²⁾ DN_d: nominal diameter of outlet port.

LSx2 dimensional sketch A, clockwise



TM07 1233 1218

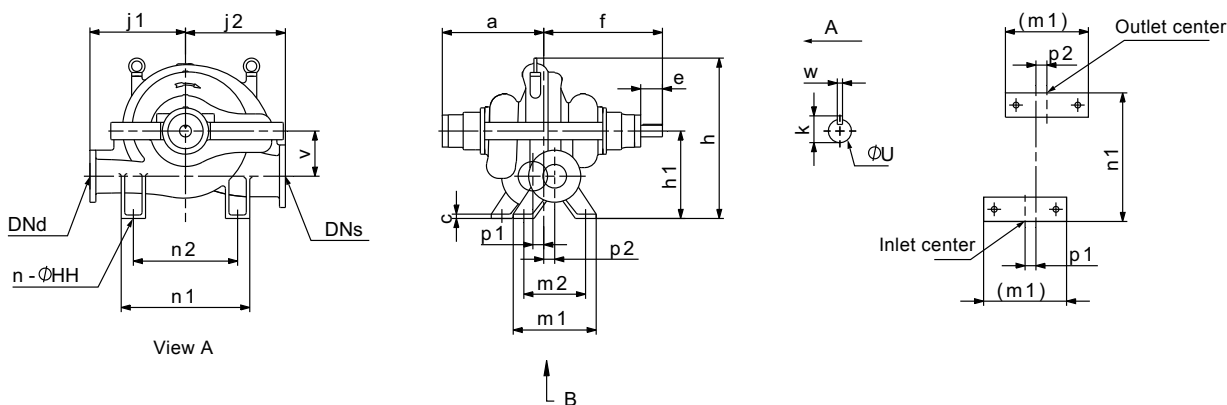
Dimensions and weights

Pump size	Dimensions [mm]											
	DN ¹⁾	DNd ²⁾	j1	j2	V	x	y	m1	a	f	e	h1
LS 200-150-475 x 2	200	150	550	575	260	300	300	140	527	615	102	500
LS 250-200-575 x 2	250	200	600	750	310	500	350	160	696	800	133	600

Pump size	Dimensions [mm]											Weights [kg]
	h	w	k	U	c	p1	p2	m2	m3	n	HH	
LS 200-150-475 x 2	925	12.7	62.8	57.15	25	65	65	460	120	4	28	980
LS 250-200-575 x 2	1140	19.05	87.7	79.38	30	75	75	620	100	4	28	1600

¹⁾ DN^s: nominal diameter of inlet port.²⁾ DNd: nominal diameter of outlet port.

LSx2 dimensional sketch B, clockwise



TM07 1234 1218

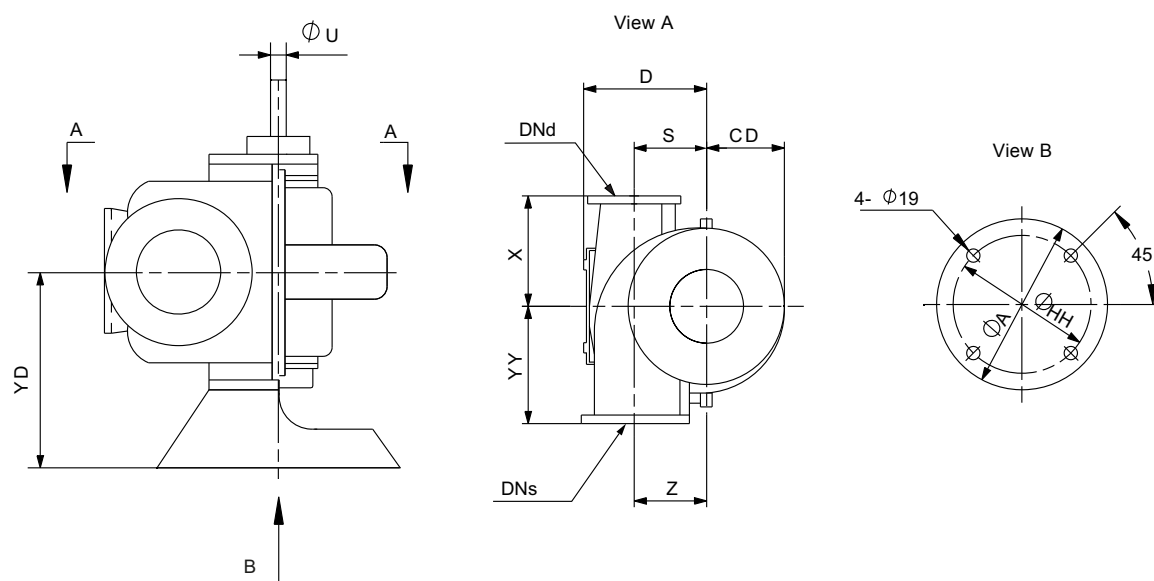
Dimensions and weights

Pump size	Dimensions [mm]											
	DNs ¹⁾	DNd ²⁾	j1	j2	V	n1	n2	a	f	e	h1	h
LS 125-100-370 x 2	125	100	340	350	210	520	400	458	540	95	350	705
LS 150-125-415 x 2	150	125	365	375	250	520	400	484	575	105	400	782

Pump size	Dimensions [mm]										Weights [kg]
	w	k	U	c	p1	p2	m1	m2	n	HH	
LS 125-100-370 x 2	9.58	48.6	44.45	20	108	36.5	260	210	4	24	430
LS 150-125-415 x 2	9.85	48.6	44.45	20	100	40	360	300	4	24	478

¹⁾ DN^s: nominal diameter of inlet port.²⁾ DNd: nominal diameter of outlet port.

LSV dimensional sketch 1, clockwise

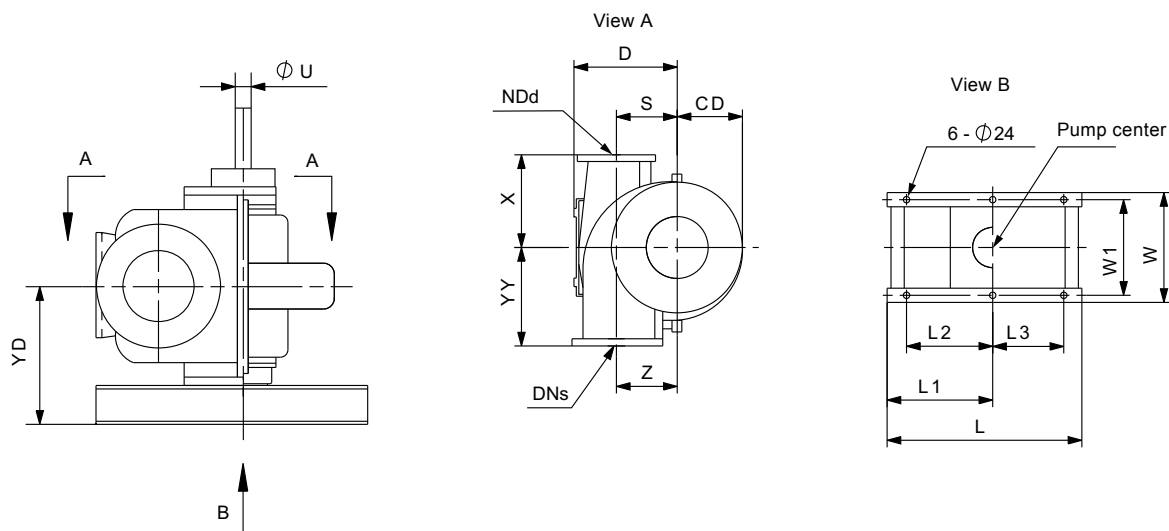


TM07 1231 1218

Dimensions

Pump size	Dimensions [mm]											
	DNs ¹⁾	DNd ²⁾	YY	X	S	Z	D	YD	CD	A	HH	U
LSV 65-50-241	65	50	216	216	89	89	178	298	322	508	457	25.35
LSV 65-50-330	65	50	254	254	127	127	216	298	370	508	457	25.35
LSV 100-80-241	100	80	279	279	102	102	203	302	329	508	457	25.35
LSV 100-80-356	100	80	305	305	127	127	254	333	395	508	457	34.92
LSV 125-100-279	125	100	305	305	133	133	257	333	376	508	457	34.92
LSV 125-100-305	125	100	305	305	133	133	257	333	306	508	457	34.92
LSV 125-100-381	125	100	357	357	171	171	330	333	437	508	457	34.92
LSV 150-125-305	150	125	330	330	203	203	368	384	344	508	457	34.92
LSV 150-125-381	150	125	381	356	244	244	410	397	383	508	457	34.92
LSV 200-150-305	200	150	406	356	241	241	406	397	360	508	457	34.92
LSV 200-150-381	200	150	406	381	279	279	464	514	398	711	660	44.44
LSV 200-150-483DF	200	150	432	432	260	260	432	481	443	711	660	47.62
LSV 200-150-483DG	200	150	432	432	260	260	432	481	443	711	660	47.62
LSV 200-150-508	200	150	483	432	279	279	451	447	471	508	457	53.97
LSV 250-200-305	250	200	432	406	267	267	438	514	386	711	660	44.44
LSV 250-200-381	250	200	483	483	305	305	483	524	424	711	660	44.44
LSV 300-200-450	300	200	550	500	300	300	530	527	435	711	660	57.14
LSV 300-200-489	300	200	559	414	330	330	529	648	485	813	711	57.14
LSV 300-250-305	300	250	495	495	300	300	503	537	421	711	660	44.44
LSV 300-250-381	300	250	584	432	254	254	508	603	475	711	660	57.14

LSV dimensional sketch 2, clockwise



TM07 1232 1218

Dimensions

Pump size	Dimensions [mm]															
	DNs ¹⁾	DNd ²⁾	YY	X	S	Z	D	YD	CD	W	W1	L	L1	L2	L3	U
LSV 350-250-498	350	250	660	508	340	340	586	595	515	800/ 927	725/ 860	1150/ 1220	610/ 700	510/ 590	440/ 410	79.37
LSV 350-250-630	350	250	710	610	330	330	635	584	577	880	810	1240	730	650	440	74.98
LSV 350-300-508	350	300	711	584	330	330	693	634	552	927	860	1235	700	590	410	57.14
LSV 350-300-352	350	300	560	500	325	325	585	617.7	327	800	725	1150	610	510	440	63.49
LSV 450-350-397	450	350	625	545	365	365	650	660	450	935	865	1170	685	610	410	57.13
LSV 500-400-423	500	400	700	600	400	400	725	710	390	1100	1030	1400	835	650	445	79.37
LSV 500-400-458	500	400	700	600	420	420	750	710	510	1100	1030	1425	860	675	445	79.37
LSV 600-500-498	600	500	850	750	475	475	900	785	506	1230	1160	1690	1055	970	550	74.98

Counterflange dimensions

Dimensional sketches

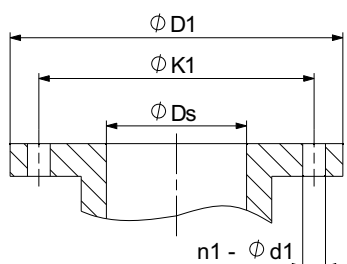


Fig. 45 Inlet flange

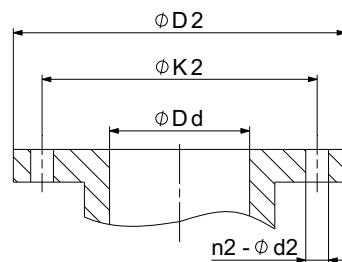


Fig. 46 Outlet flange

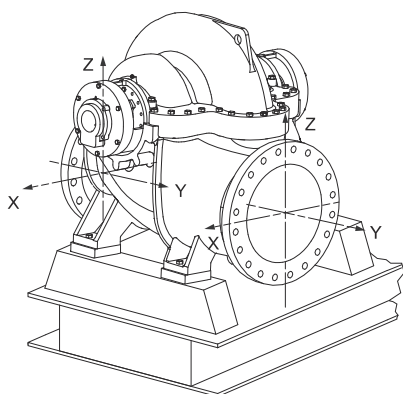
Dimensions

Pump size	Flange stage	Dimensions [mm]									
		Ds	Dd	n1	n2	d1	d2	K1	K2	D1	D2
LS, LSV 65-50-330D	PN10	65	50	4	4	19	19	145	125	190.5	165.1
LS, LSV 65-50-241B	PN10	65	50	4	4	19	19	145	125	190.5	165.1
LS, LSV 100-80-356E	PN10	100	80	8	8	19	19	180	160	254	209.6
LS, LSV 100-80-241E	PN10	100	80	8	8	19	19	180	160	254	209.6
LS, LSV 125-100-279E	PN10	125	100	8	8	19	19	210	180	279.4	254
LS, LSV 125-100-305F	PN10	125	100	8	8	19	19	210	180	279.4	254
LS, LSV 125-100-381F	PN10	125	100	8	8	19	19	210	180	279.4	254
LS, LSV 150-125-305E	PN10	150	125	8	8	23	19	240	210	317.5	279
LS, LSV 150-125-381F	PN10	150	125	8	8	23	19	240	210	317.5	279
LS, LSV 200-150-305C	PN10	200	150	8	8	23	23	295	240	381	317.5
LS, LSV 200-150-381A	PN10	200	150	8	8	23	23	295	240	381	317.5
LS, LSV 200-150-483D	PN10	200	150	8	8	23	23	295	240	381	317.5
LS, LSV 200-150-483DF	PN10	200	150	8	8	23	23	295	240	381	317.5
LS, LSV 200-150-483DG	PN10	200	150	8	8	23	23	295	240	381	317.5
LS, LSV 200-150-508B	PN10	200	150	8	8	23	23	295	240	381	317.5
LS, LSV 250-200-305C	PN10	250	200	12	8	23	23	350	295	444.5	381
LS, LSV 250-200-381B	PN10	250	200	12	8	23	23	350	295	406.4	342.9
LS, LSV 300-250-305E	PN10	300	250	12	12	23	23	400	350	520.7	444.5
LS, LSV 300-250-381B	PN10	300	250	12	12	23	23	400	350	520.7	444.5
LS, LSV 300-200-450A	PN10	300	200	12	8	23	23	400	295	520.1	381
LS, LSV 300-200-489C	PN10	300	200	12	8	23	23	400	295	520.7	381
LS, LSV 350-250-498C	PN10	350	250	16	12	23	23	460	350	584.2	444.5
LS, LSV 350-250-630B	PN10	350	250	16	12	23	23	460	350	584.2	444.5
LS, LSV 350-300-352C	PN10	350	300	16	12	23	23	460	400	533	483
LS, LSV 350-300-508C	PN10	350	300	16	12	23	23	460	400	584.2	520.7
LS, LSV 350-300-508D	PN10	350	300	16	12	23	23	460	400	584.2	520.7
LS, LSV 450-350-397B	PN10	450	350	20	16	28	23	565	460	640	535
LS, LSV 500-300-490E	PN10	500	300	20	12	28	23	620	400	670	445
LS, LSV 500-300-508F	PN10	500	300	20	12	28	23	620	400	670	445
LS, LSV 500-300-710E	PN10	500	300	20	12	28	23	620	400	715	460
LS, LSV 500-300-680F	PN10	500	300	20	12	28	23	620	400	715	460
LS, LSV 500-350-608A	PN10	500	350	20	16	28	23	620	460	670	505
LS, LSV 500-350-702A	PN10	500	350	20	16	28	23	620	460	670	505
LS, LSV 500-400-423A	PN10	500	400	20	16	28	28	620	515	715	580
LS, LSV 500-400-458C	PN10	500	400	20	16	28	28	620	515	715	580
LS, LSV 500-400-530B	PN10	500	400	20	16	28	28	620	515	715	597
LS, LSV 500-400-498C	PN10	500	400	20	16	28	28	620	515	715	597
LS, LSV 600-400-722A	PN10	600	400	20	16	31	28	725	515	780	565
LS, LSV 600-500-498A	PN10	600	500	20	20	31	28	725	620	840	715
LS, LSV 600-500-610B	PN10	600	500	20	20	31	28	725	620	840	715
LS, LSV 700-500-725E	PN10	700	500	24	20	31	28	840	620	920	715
LS, LSV 700-500-667D	PN10	700	500	24	20	31	28	840	620	920	715
LS, LSV 700-500-585F	PN10	700	500	24	20	31	28	840	620	920	715
LS, LSV 800-600-683B	PN10	800	600	24	20	34	31	950	725	1025	840
LS, LSV 800-600-667C	PN10	800	600	24	20	34	31	950	725	1025	840
LS, LSV 1000-700-770H	PN10	1000	700	28	24	37	31	1160	840	1255	910

Pump size	Flange stage	Dimensions [mm]									
		Ds	Dd	n1	n2	d1	d2	K1	K2	D1	D2
LS, LSV 1000-700-815F	PN10	1000	700	28	24	37	31	1160	840	1255	910
LS, LSV 1200-800-1075B	PN10	1200	800	32	24	40	34	1380	950	1455	1015
LS, LSV 1200-800-1080C	PN10	1200	800	32	24	40	34	1380	950	1455	1015
LS, LSV 65-50-330D	PN16	65	50	4	4	19	19	145	125	190.5	165.1
LS, LSV 65-50-241B	PN16	65	50	4	4	19	19	145	125	190.5	165.1
LS, LSV 100-80-356E	PN16	100	80	8	8	19	19	180	160	254	209.6
LS, LSV 100-80-241E	PN16	100	80	8	8	19	19	180	160	254	209.6
LS, LSV 125-100-279E	PN16	125	100	8	8	19	19	210	180	279.4	254
LS, LSV 125-100-305F	PN16	125	100	8	8	19	19	210	180	279.4	254
LS, LSV 125-100-381F	PN16	125	100	8	8	19	19	210	180	279.4	254
LS, LSV 125-100-370Ax2	PN16	125	100	8	8	19	19	210	180	250	220
LS, LSV 150-125-305E	PN16	150	125	8	8	23	19	240	210	317.5	279
LS, LSV 150-125-381F	PN16	150	125	8	8	23	19	240	210	317.5	279
LS, LSV 150-125-415Ax2	PN16	150	125	8	8	23	19	240	210	285	250
LS, LSV 200-150-305C	PN16	200	150	12	8	23	23	295	240	381	317.5
LS, LSV 200-150-381A	PN16	200	150	12	8	23	23	295	240	381	317.5
LS, LSV 200-150-483D	PN16	200	150	12	8	23	23	295	240	381	317.5
LS, LSV 200-150-483DF	PN16	200	150	12	8	23	23	295	240	381	317.5
LS, LSV 200-150-483DG	PN16	200	150	12	8	23	23	295	240	381	317.5
LS, LSV 200-150-508B	PN16	200	150	12	8	23	23	295	240	381	317.5
LS, LSV 200-150-475Ax2	PN16	200	150	12	8	23	23	295	240	360	300
LS, LSV 250-200-305C	PN16	250	200	12	12	28	23	355	295	444.5	381
LS, LSV 250-200-381B	PN16	250	200	12	12	28	23	355	295	406.4	342.9
LS, LSV 250-200-575Ax2	PN16	250	200	12	12	28	23	355	295	425	360
LS, LSV 300-250-305E	PN16	300	250	12	12	28	28	410	355	520.7	444.5
LS, LSV 300-250-381B	PN16	300	250	12	12	28	28	410	355	520.7	444.5
LS, LSV 300-200-450A	PN16	300	200	12	12	28	23	410	295	520.1	381
LS, LSV 300-200-489C	PN16	300	200	12	12	28	23	410	295	520.7	381
LS, LSV 350-250-498C	PN16	350	250	16	12	28	28	470	355	584.2	444.5
LS, LSV 350-250-630B	PN16	350	250	16	12	28	28	470	355	584.2	444.5
LS, LSV 350-300-352C	PN16	350	300	16	12	28	28	470	410	533	483
LS, LSV 350-300-508C	PN16	350	300	16	12	28	28	470	410	584.2	520.7
LS, LSV 350-300-508D	PN16	350	300	16	12	28	28	470	410	584.2	520.7
LS, LSV 450-350-397B	PN16	450	350	20	16	31	28	585	470	640	535
LS, LSV 500-300-490E	PN16	500	300	20	12	34	28	650	410	715	460
LS, LSV 500-300-508F	PN16	500	300	20	12	34	28	650	410	715	460
LS, LSV 500-300-710E	PN16	500	300	20	12	34	28	650	410	715	460
LS, LSV 500-300-680F	PN16	500	300	20	12	34	28	650	410	715	460
LS, LSV 500-350-608A	PN16	500	350	20	16	34	28	650	470	715	520
LS, LSV 500-350-702A	PN16	500	350	20	16	34	28	650	470	715	520
LS, LSV 500-400-423A	PN16	500	400	20	16	34	31	650	525	715	580
LS, LSV 500-400-458C	PN16	500	400	20	16	34	31	650	525	715	580
LS, LSV 500-400-530B	PN16	500	400	20	16	34	31	650	525	715	597
LS, LSV 500-400-498C	PN16	500	400	20	16	34	31	650	525	715	597
LS, LSV 600-400-722A	PN16	600	400	20	16	37	31	770	525	840	580
LS, LSV 600-500-498A	PN16	600	500	20	20	37	34	770	650	840	715
LS, LSV 600-500-610B	PN16	600	500	20	20	37	34	770	650	840	715
LS, LSV 700-500-725E	PN16	700	500	24	20	37	34	840	650	920	715
LS, LSV 700-500-667D	PN16	700	500	24	20	37	34	840	650	920	715
LS, LSV 700-500-585F	PN16	700	500	24	20	37	34	840	650	920	715
LS, LSV 800-600-683B	PN16	800	600	24	20	40	37	950	770	1060	840
LS, LSV 800-600-667C	PN16	800	600	24	20	40	37	950	770	1060	840
LS, LSV 1000-700-770H	PN16	1000	700	28	24	43	37	1170	840	1255	910
LS, LSV 1000-700-815F	PN16	1000	700	28	24	43	37	1170	840	1255	910
LS, LSV 1200-800-1075B	PN16	1200	800	32	24	49	40	1390	950	1485	1025
LS, LSV 1200-800-1080C	PN16	1200	800	32	24	49	40	1390	950	1485	1025
LS, LSV 65-50-330D	PN25	65	50	8	4	19	19	145	125	190.5	165.1
LS, LSV 100-80-356E	PN25	100	80	8	8	23	19	190	160	254	209.6
LS, LSV 100-80-241E	PN25	100	80	8	8	23	19	190	160	254	209.6
LS, LSV 125-100-279E	PN25	125	100	8	8	28	23	220	190	279.4	254
LS, LSV 125-100-305F	PN25	125	100	8	8	28	23	220	190	279.4	254
LS, LSV 125-100-381F	PN25	125	100	8	8	28	23	220	190	279.4	254
LS, LSV 125-100-370Ax2	PN25	125	100	8	8	28	23	220	190	250	220
LS, LSV 150-125-305E	PN25	150	125	8	8	28	28	250	220	317.5	279
LS, LSV 150-125-381F	PN25	150	125	8	8	28	28	250	220	317.5	279
LS, LSV 150-125-415Ax2	PN25	150	125	8	8	28	28	250	220	300	270

Pump size	Flange stage	Dimensions [mm]									
		Ds	Dd	n1	n2	d1	d2	K1	K2	D1	D2
LS, LSV 200-150-305C	PN25	200	150	12	8	28	28	310	250	381	317.5
LS, LSV 200-150-381A	PN25	200	150	12	8	28	28	310	250	381	317.5
LS, LSV 200-150-483D	PN25	200	150	12	8	28	28	310	250	381	317.5
LS, LSV 200-150-483DF	PN25	200	150	12	8	28	28	310	250	381	317.5
LS, LSV 200-150-483DG	PN25	200	150	12	8	28	28	310	250	381	317.5
LS, LSV 200-150-508B	PN25	200	150	12	8	28	28	310	250	381	317.5
LS, LSV 200-150-475Ax2	PN25	200	150	12	8	28	28	310	250	360	300
LS, LSV 250-200-305C	PN25	250	200	12	12	31	28	370	310	444.5	381
LS, LSV 250-200-381B	PN25	250	200	12	12	31	28	370	310	444.5	381
LS, LSV 250-200-575Ax2	PN25	250	200	12	12	31	28	370	310	425	360
LS, LSV 300-250-305E	PN25	300	250	16	12	31	31	430	370	520.7	444.5
LS, LSV 300-250-381B	PN25	300	250	16	12	31	31	430	370	520.7	444.5
LS, LSV 300-200-450A	PN25	300	200	16	12	31	28	430	310	520.1	381
LS, LSV 300-200-489C	PN25	300	200	16	12	31	28	430	310	520.7	381
LS, LSV 350-250-498C	PN25	350	250	16	12	34	31	490	370	584.2	444.5
LS, LSV 350-250-630B	PN25	350	250	16	12	34	31	490	370	584.2	444.5
LS, LSV 350-300-352C	PN25	350	300	16	16	34	31	490	430	584	520
LS, LSV 350-300-508C	PN25	350	300	16	16	34	31	490	430	584.2	520.7
LS, LSV 350-300-508D	PN25	350	300	16	16	34	31	490	430	584.2	520.7
LS, LSV 450-350-397B	PN25	450	350	20	16	37	34	600	490	710	585
LS, LSV 500-300-710E	PN25	500	300	20	16	37	31	660	430	730	485
LS, LSV 500-300-680F	PN25	500	300	20	16	37	31	660	430	730	485
LS, LSV 500-400-423A	PN25	500	400	20	16	37	37	660	550	730	620
LS, LSV 500-400-530B	PN25	500	400	20	16	37	37	660	550	775	648
LS, LSV 500-400-498C	PN25	500	400	20	16	37	37	660	550	775	648
LS, LSV 600-500-498A	PN25	600	500	20	20	40	37	770	660	915	775
LS, LSV 600-500-610B	PN25	600	500	20	20	40	37	770	660	845	730
LS, LSV 700-500-725E	PN25	700	500	24	20	43	37	875	660	960	730
LS, LSV 700-500-667D	PN25	700	500	24	20	43	37	875	660	960	730
LS, LSV 700-500-585F	PN25	700	500	24	20	43	37	875	660	960	730

Flange forces and torques



TM06 6281 1016

Fig. 47 Horizontal/vertical pump, side branch, y-axis

Casting material	Diameter DN	Force [N]				Torque [Nm]			
		F _y	F _z	F _x	ΣF	M _y	M _z	M _x	ΣM
Cast iron	50	647	530	589	1020	294	338	412	603
Cast iron	65	840	676	747	1312	406	469	573	843
Cast iron	80	981	804	883	1550	338	383	471	692
Cast iron	100	1315	1059	1177	2060	368	427	515	765
Cast iron	125	1623	1311	1453	2542	430	497	609	892
Cast iron	150	1962	1589	1766	3080	515	603	736	1074
Cast iron	200	2629	2119	2354	4101	677	780	956	1413
Cast iron	250	3277	2649	2923	5121	927	1074	1310	1928
Cast iron	300	3924	3159	3512	6141	1265	1457	1781	2619
Cast iron	350	4571	3689	4101	7161	1619	1869	2281	3355
Cast iron	400	5219	4218	4689	8182	2031	2340	2855	4208
Cast iron	450	5866	4748	5278	9202	2502	2884	3517	5180
Cast iron	500	6514	5278	5866	10222	3017	3473	4253	6269
Cast iron	550	7161	5808	6455	11242	3590	4135	5033	7446
Cast iron	600	7809	6337	7044	12263	4238	4885	5945	8800
Cast iron	700	9131	7396	8222	14327	5673	6533	7952	11775
Cast iron	800	10437	8455	9400	16376	7331	8441	10270	15220
Cast iron	900	11743	9513	10577	18426	9211	10603	12896	19124
Cast iron	1000	13048	10571	11754	20475	11312	13019	15830	23489
Cast iron	1200	15660	12688	14109	24574	16177	18616	22623	33597
Cast steel	50	1619	1324	1472	2551	981	1128	1373	2011
Cast steel	65	2100	1690	1867	3280	1015	1173	1432	2108
Cast steel	80	2453	2011	2207	3875	1128	1275	1570	2305
Cast steel	100	3286	2649	2943	5150	1226	1422	1717	2551
Cast steel	125	4058	3278	3633	6355	1433	1657	2029	2973
Cast steel	150	4905	3973	4415	7701	1717	2011	2453	3581
Cast steel	200	6573	5297	5886	10251	2256	2600	3188	4709
Cast steel	250	8191	6622	7308	12802	3090	3581	4365	6426
Cast steel	300	9810	7897	8780	15353	4218	4856	5935	8731
Cast steel	350	11429	9221	10251	17903	5396	6229	7603	11183
Cast steel	400	13047	10546	11723	20454	6769	7799	9516	14028
Cast steel	450	14666	11870	13194	23004	8339	9614	11723	17266
Cast steel	500	16285	13194	14666	25555	10055	11576	14175	20895
Cast steel	550	17903	14519	16137	28106	11968	13783	16775	24819
Cast steel	600	19522	15843	17609	30656	14126	16285	19816	29332
Cast steel	700	22828	18491	20556	35816	18909	21776	26508	39250
Cast steel	800	26092	21137	23499	40940	24437	28135	34233	50733
Cast steel	900	29356	23782	26442	46064	30702	35343	42986	63748
Cast steel	1000	32621	26428	29385	51188	37705	43398	52766	78296
Cast steel	1200	39149	31720	35272	61435	53923	62052	75409	111991

11. Accessories

Cyclone separator



TM06 3346 5214

Fig. 48 Cyclone separator

General information

Cyclone separators are used to clean mainly aqueous liquids containing dirt and solids. The best possible filtration efficiency is achieved when the specific gravity of the solids is much higher than that of the carrier liquid, and when the differential pressure is as large as possible within the permissible pressure range (minimum 1.7 bar). The viscosity of the pumped liquid is also a factor that needs to be taken into account.

Note: The cyclone separator can separate particles, but not suspended solids.

12. Further product information

Grundfos pump selector

Grundfos Pump Selector offers a sizing program to select the most suitable pump for your application. It is available in a disk version. The software is divided into two sections:

All select

The section contains the following:

- technical data
- curves (duty point curve, multi-speed curve, parallel pump curve and system curve, etc.).

Outline

- Complete pump drawing
- bare-shaft pump drawing.

For more information about Grundfos pump selector, please contact your local Grundfos company.

13. Service parts

Some of the components in LS pumps are quick-wear parts, and you can purchase these parts for pump maintenance.

1 x impeller

2 x mechanical shaft seal

2 x bearing

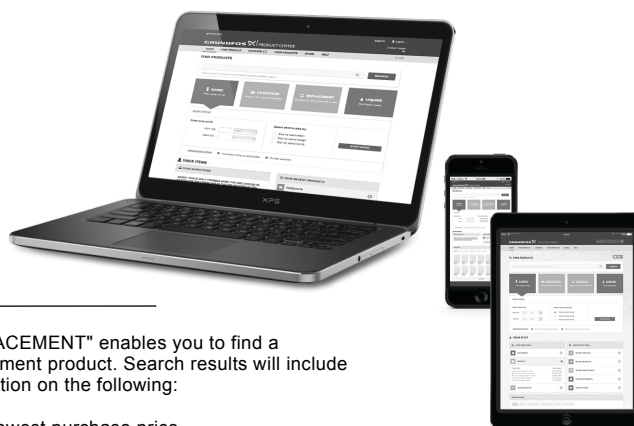
2 x wear ring.

If you want to purchase spare parts for pump maintenance, please contact your local Grundfos company.

14. Grundfos Product Center

Online search and sizing tool to help you make the right choice.

<http://product-selection.grundfos.com>



"SIZING" enables you to size a pump based on entered data and selection choices.

"REPLACEMENT" enables you to find a replacement product. Search results will include information on the following:

- the lowest purchase price
- the lowest energy consumption
- the lowest total life cycle cost.

The screenshot shows the Grundfos Product Center website. At the top, there's a navigation bar with 'GRUNDFOS' and 'PRODUCT CENTER' logos, and links for 'Services' and 'Sign in'. Below this is a secondary navigation bar with 'HOME', 'FIND PRODUCT', 'COMPARE', 'YOUR PROJECTS', 'SAVED ITEMS', 'TOOLS', and 'HELP'. The main section is titled 'Find products and solutions' and features a search bar with a dropdown menu for 'Products' and 'Literature'. Below the search bar are four main categories: 'Sizing' (Enter pump sizing), 'Catalogue' (Products and services), 'Replacement' (Replace an old pump with a new), and 'Liquids' (Find pump by liquid). The 'Sizing' section is expanded, showing 'Quick sizing' and 'Advanced sizing by application' tabs. The 'Quick sizing' tab has input fields for 'Flow (Q)*' (m³/h) and 'Head (H)*' (m), and a 'Select what to size by' section with radio buttons for 'Size by application', 'Size by pump design', and 'Size by pump family'. A 'START SIZING' button is visible. Callouts point to these features: 'SIZING' (describing the tool), 'REPLACEMENT' (listing benefits like lowest price, energy consumption, and life cycle cost), 'CATALOGUE' (describing access to the product catalogue), and 'LIQUIDS' (describing the ability to find pumps for specific liquids).

All the information you need in one place

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

Downloads

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

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ECM: 1266658

GRUNDFOS A/S
DK-8850 Bjerringbro . Denmark
Telephone: +45 87 50 14 00
www.grundfos.com

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