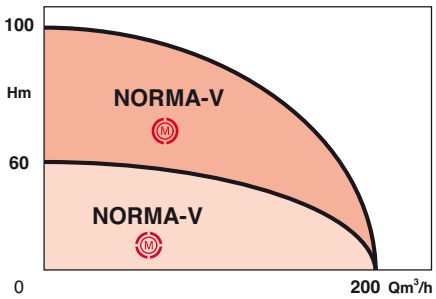
OPERATING LIMITS

Max. flow rates up to:	**200 m³/h**
Head up to:	**100 mCL**
Max. operating pressure:	**16 bar**
Temperature range:	**-20°C to +120°C**
DN hydraulics:	**DNS: 50 to 125**
	DND: 32 to 100
Max. viscosity:	**150 cSt**

NORMA V

LINESHAFT CENTRIFUGAL PUMPS (NFE 44-111), ENGJL 250 CAST IRON

Clear or slightly charged fluids



APPLICATIONS

Pumping of clear or slightly polluted liquids in the petrochemical and effluent treatment sectors.

Fixed stripping units for miscellaneous products in tanks, reservoirs, cisterns, supply of distribution loops, equipment for automatic cycle machines, paint booths, tanks…

ADVANTAGES

- **Reduced maintenance**
- **No mechanical seal**
- **No priming problem**
- **Interchangeable standard motor.**
- **Semi-elastic coupling for the VTM version**

IE2

NORMA V

DESIGN

• Hydraulic part

- Centrifugal
- Single-stage, lineshaft discharge
- Axial suction with piping on specification :
  - Piping option above or below the mating plate;
  - Flange option PN 10/16 according to ANSI 150 (PN 20);
  - Custom mounting layout;
  - Optional explosion-proof float switch;
  - Optional external lubrication of bearings (grease) or lubrication by pumped fluid.

•Line-shaft construction

VCS : adjustable base and rigid coupling
VEM : fixed base and rigid coupling
VTM : fixed base and bearing assembly (semi-elastic coupling)

• Standard motor

Form :	B 14 / V1
Speed :	1450 rpm
	2900 rpm
Voltage :	230 - 400 V
Frequency :	50Hz - (Option 60Hz)
Insulating class :	155 (F)
Protection index :	IP 55
Option :	Explosion-proof (EEx dIIBT4)

STANDARD CONSTRUCTION

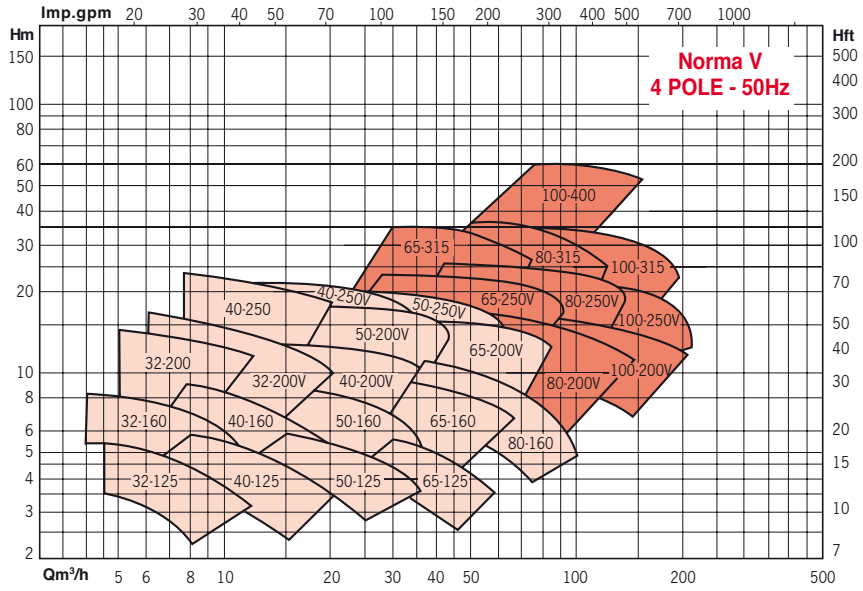
Main parts	Material
Pump casing	ENGJL 250
Impeller	ENGJL 250
Pump shaft	Z20C13
Spacer column(s)	Fabricated steel
Bearings	Bronze
	SiC
Lantern	ENGJL 250

IDENTIFICATION

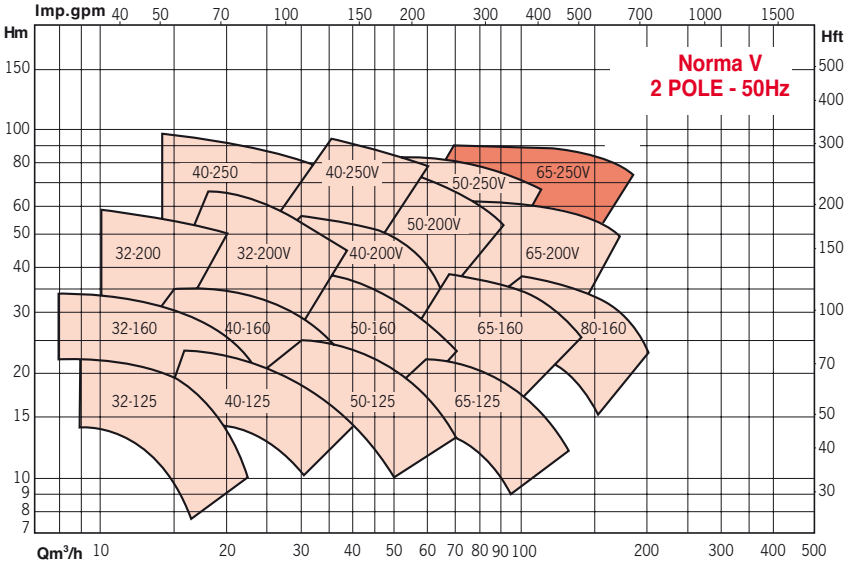
NORMA V-65-50-200 VEM 15/2T2/4

- DNS
- DND
- Impeller diameter
- Construction
- Motor power
- Number of poles
- Motor voltage

HYDRAULIC PRESELECTION GUIDE, 4-POLE - 1,450 RPM



HYDRAULIC PRESELECTION GUIDE, 2-POLE - 2,900 RPM

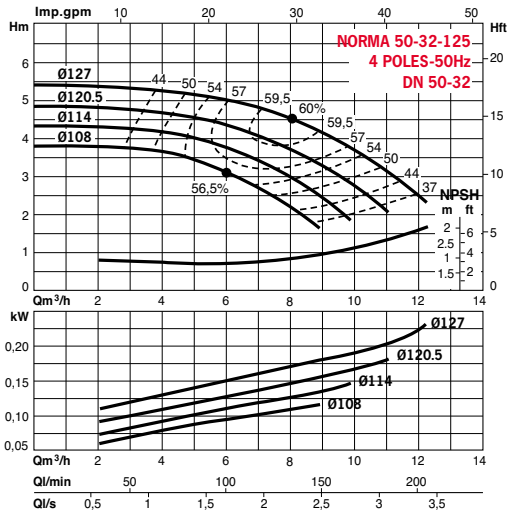


RECOMMENDED ACCESSORIES

- Motor protection circuit breaker
- Shut-off valves
- Pressure gauge
- Strainer (available as option)

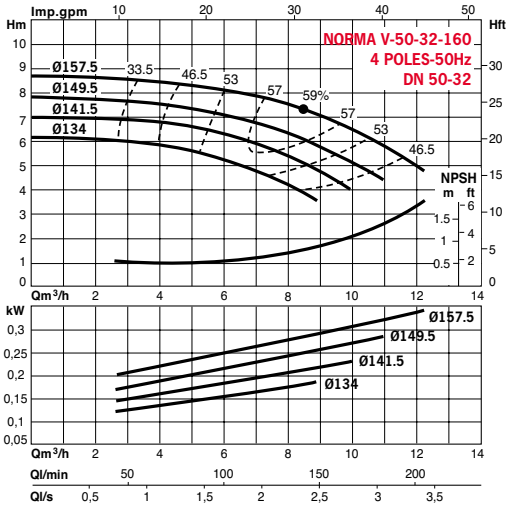
NORMA V

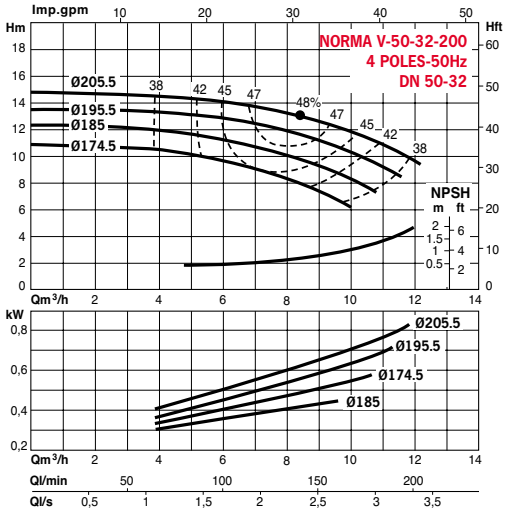
HYDRAULIC PERFORMANCE NORMA V - 4-POLE - 1,450 RPM

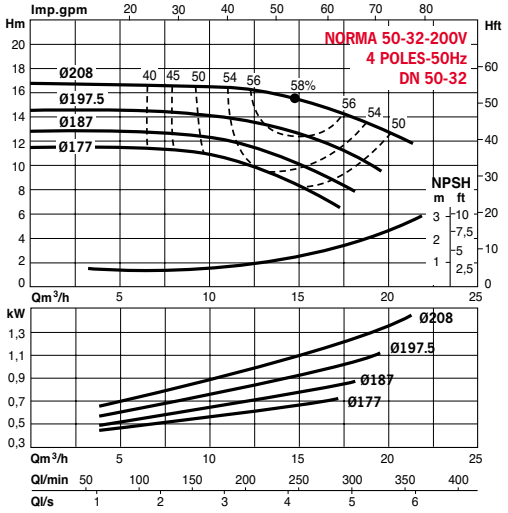


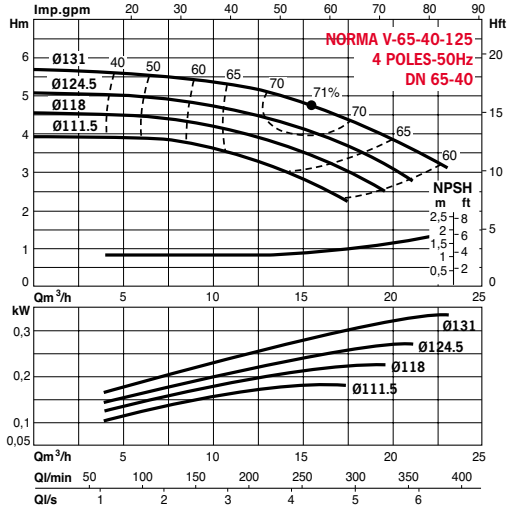
TEST CONDITIONS

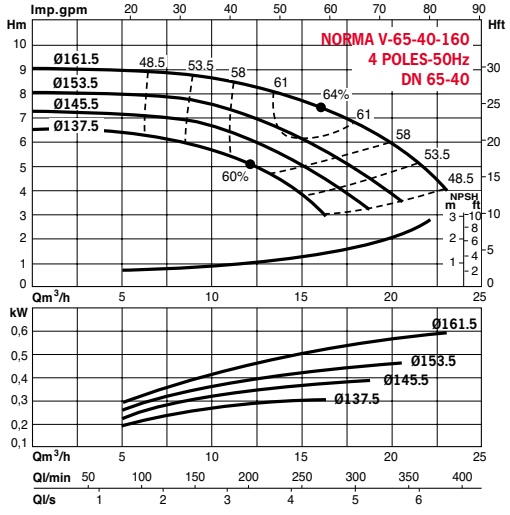
- Motor : 4-pole
- Frequency : 50 Hz
- Fluid used : Water
- Fluid density : 1
- Fluid viscosity: 1 mm²/s
- Fluid temperature : 20°C





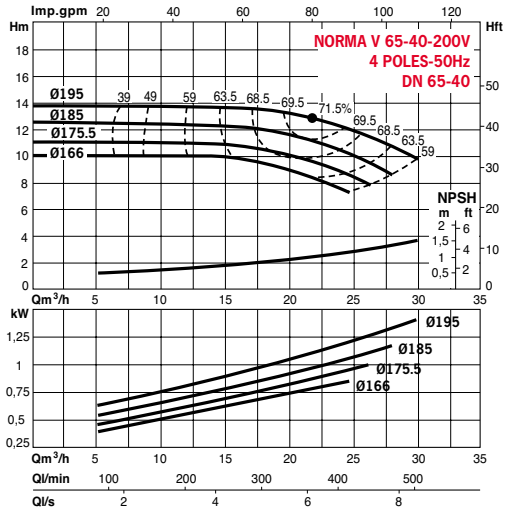






NORMA V

HYDRAULIC PERFORMANCE NORMA V - 4-POLE - 1,450 RPM



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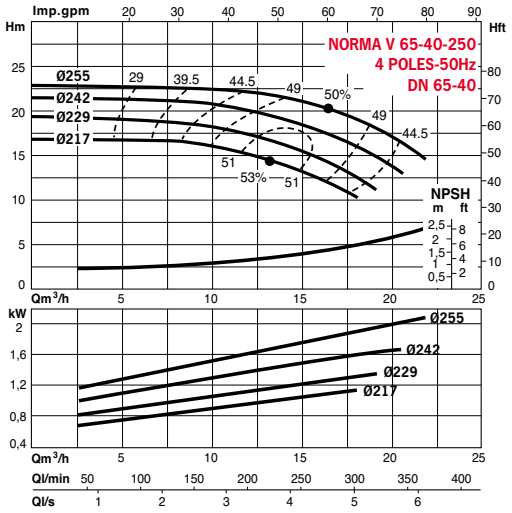
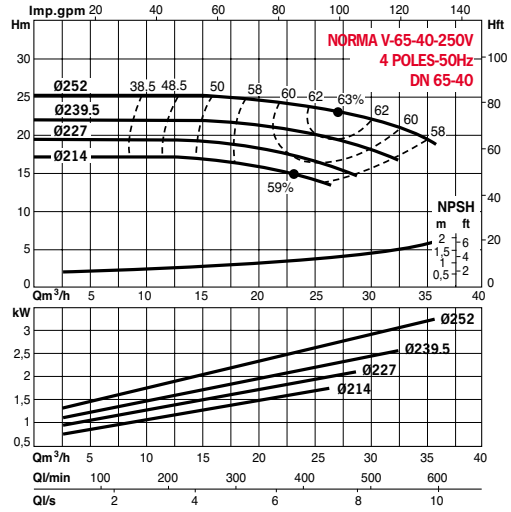
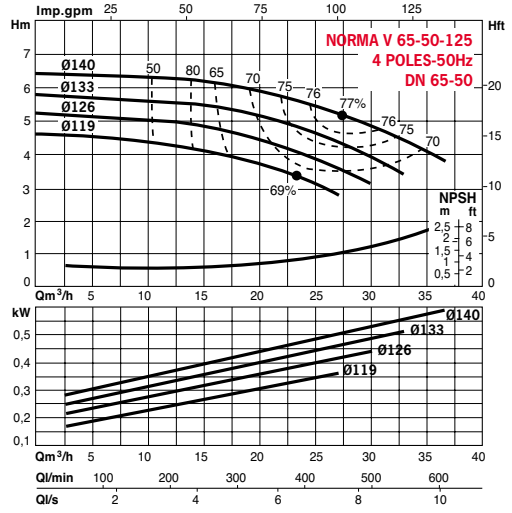
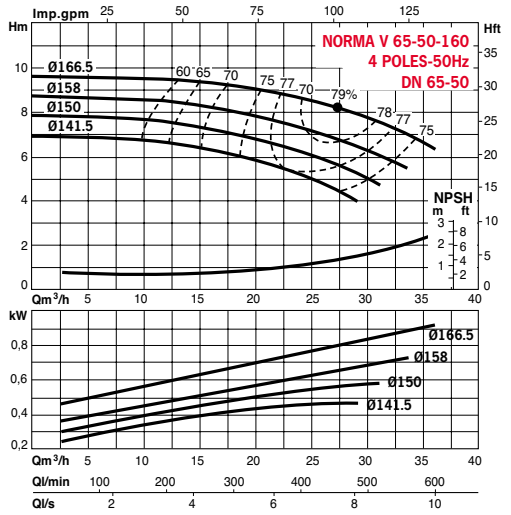
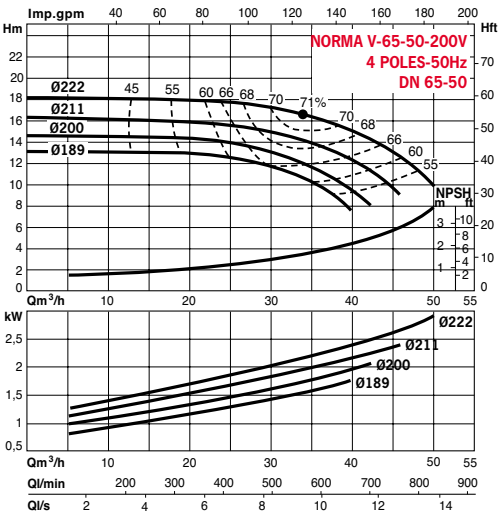




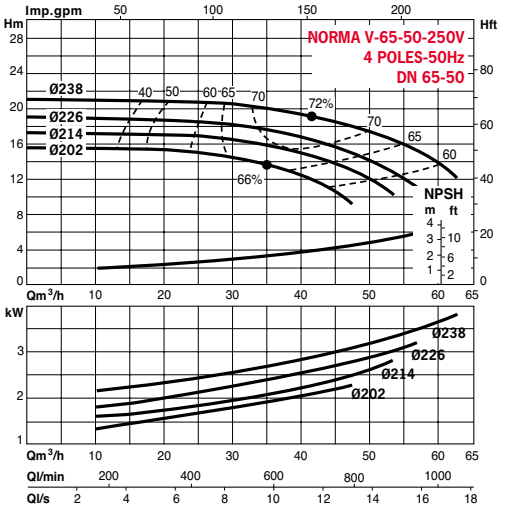






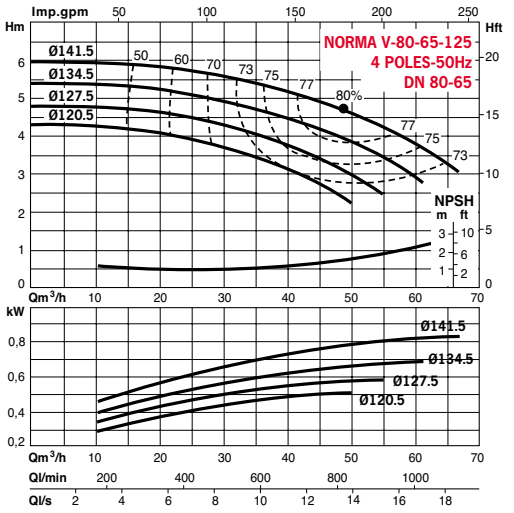
NORMA V

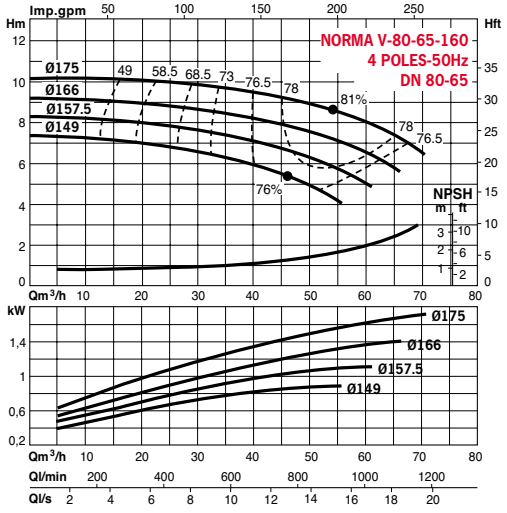
HYDRAULIC PERFORMANCE NORMA V - 4-POLE - 1,450 RPM

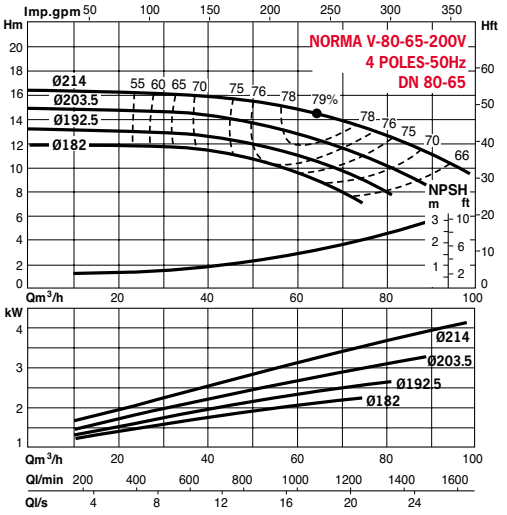


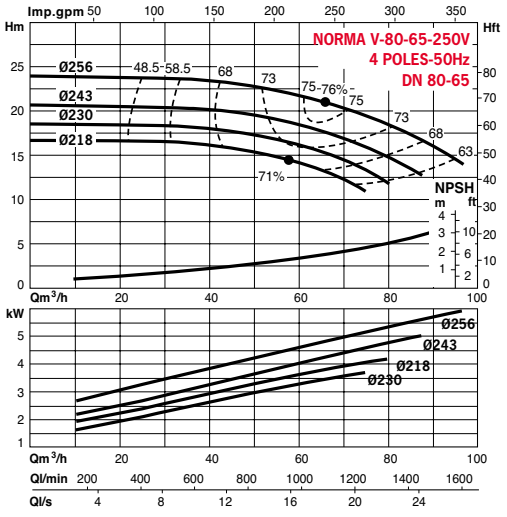
TEST CONDITIONS

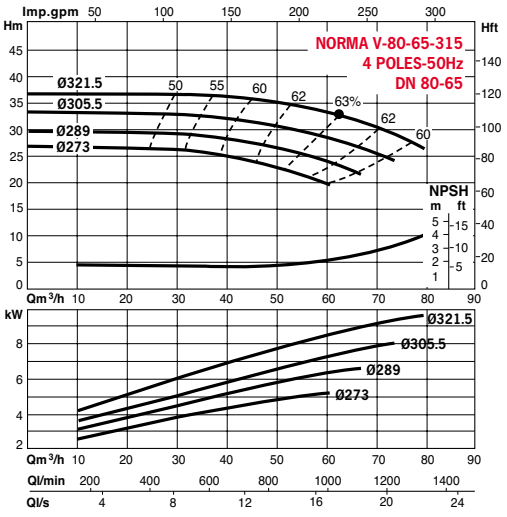
• Motor :	4-pole
• Frequency :	50 Hz
• Fluid used :	Water
• Fluid density :	1
• Fluid viscosity :	1 mm²/s
• Fluid temperature :	20°C





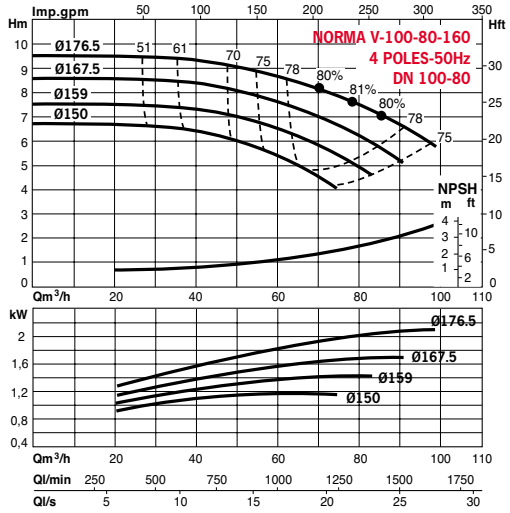






NORMA V

HYDRAULIC PERFORMANCE NORMA V - 4-POLE - 1,450 RPM



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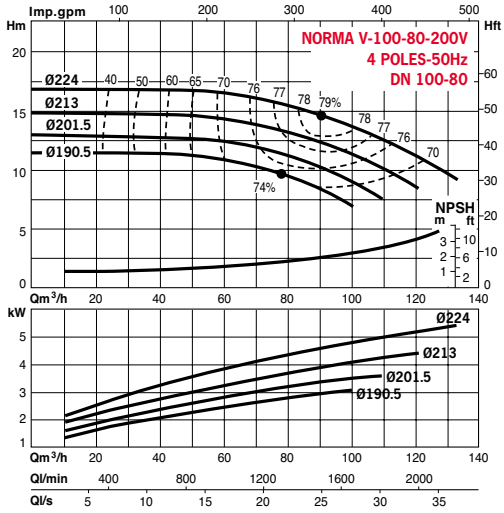

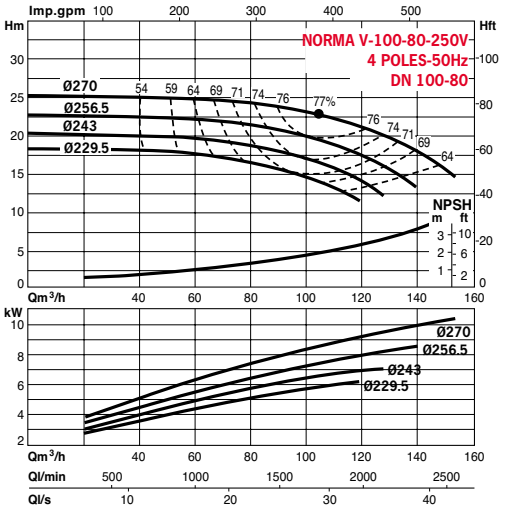

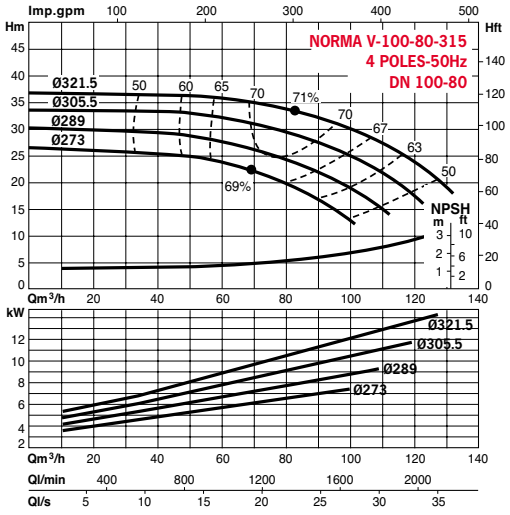

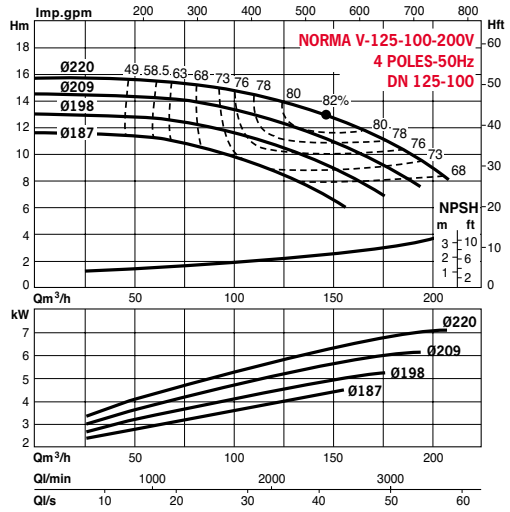

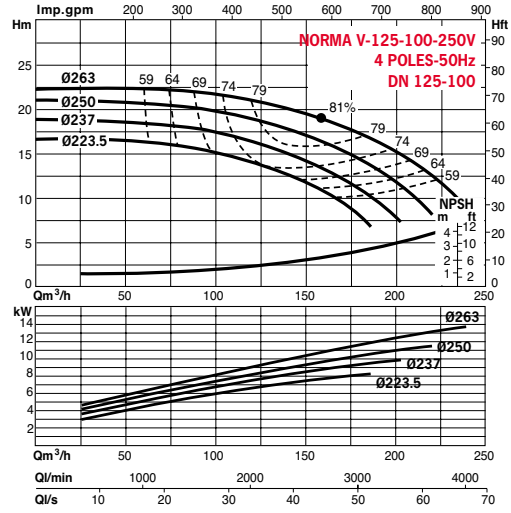

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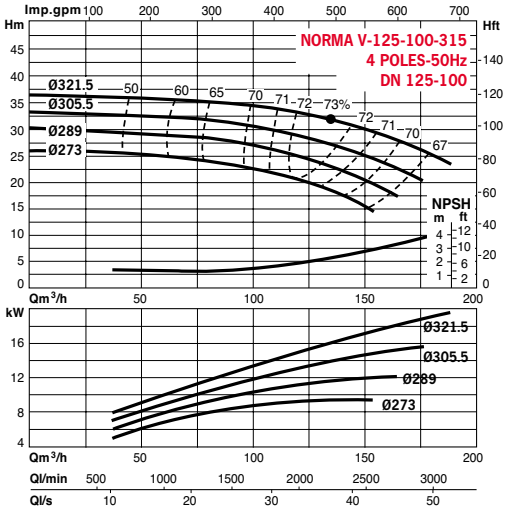

TEST CONDITIONS

• Motor :	4-pole
• Frequency :	50 Hz
• Fluid used :	Water
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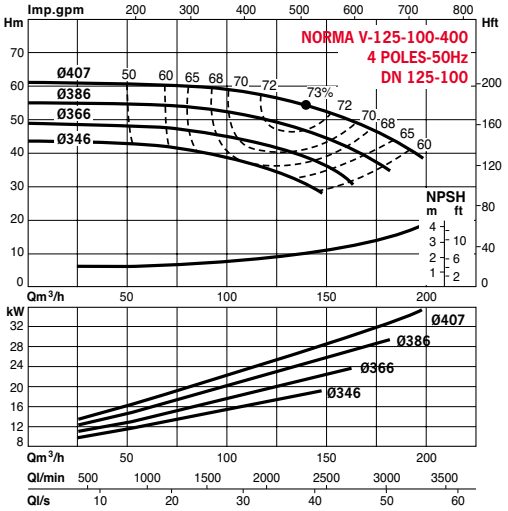
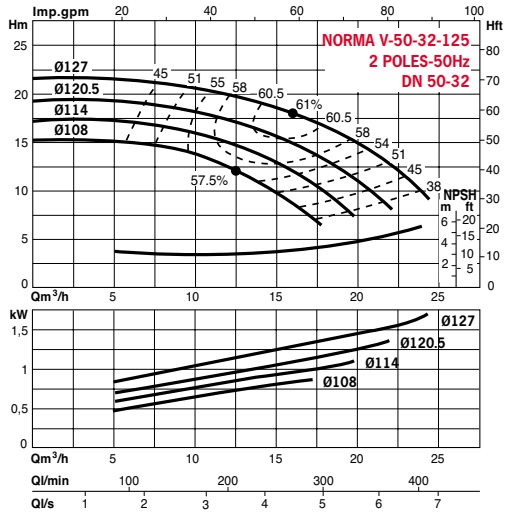


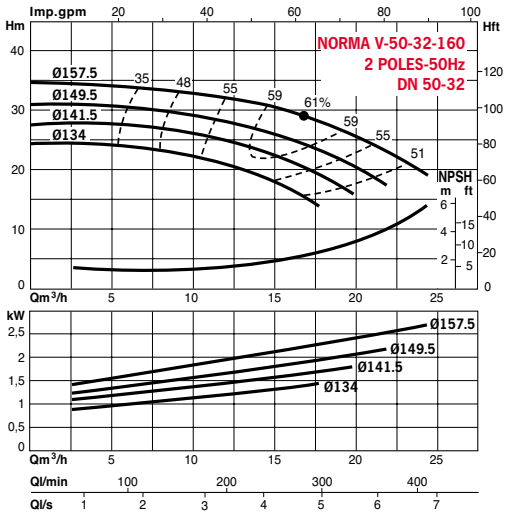
NORMA V

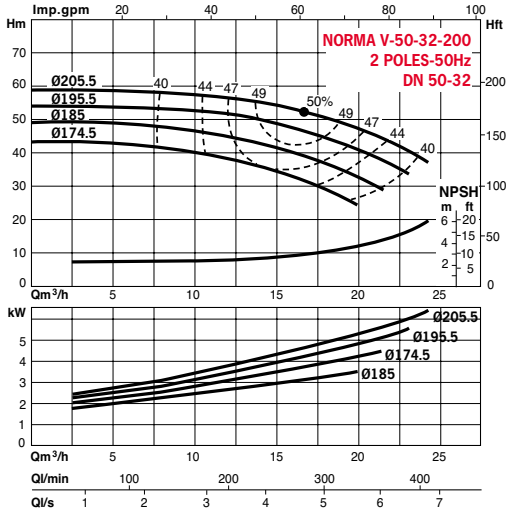
HYDRAULIC PERFORMANCE NORMA V - 2-POLE - 2,900 RPM

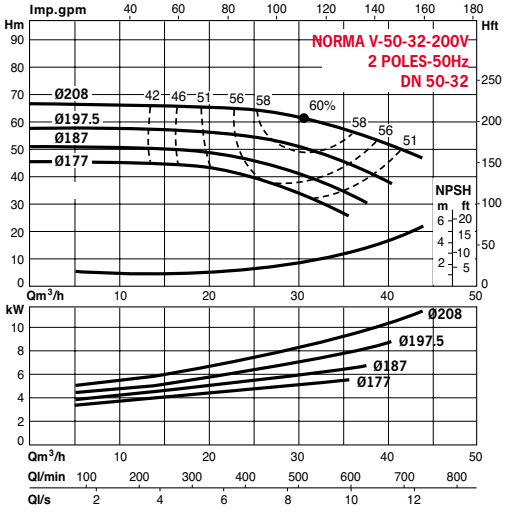


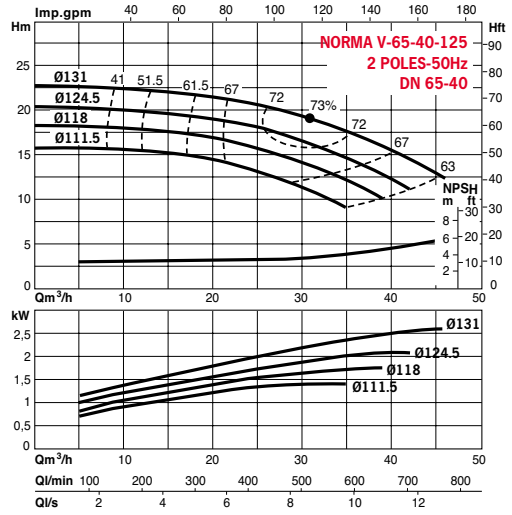
TEST CONDITIONS

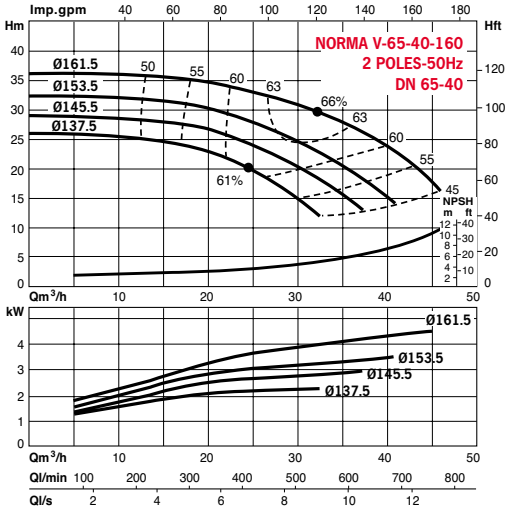
- Motor : 2-pole
- Frequency : 50 Hz
- Fluid used : Water
- Fluid density : 1
- Fluid viscosity : 1 mm²/s
- Fluid temperature : 20°C











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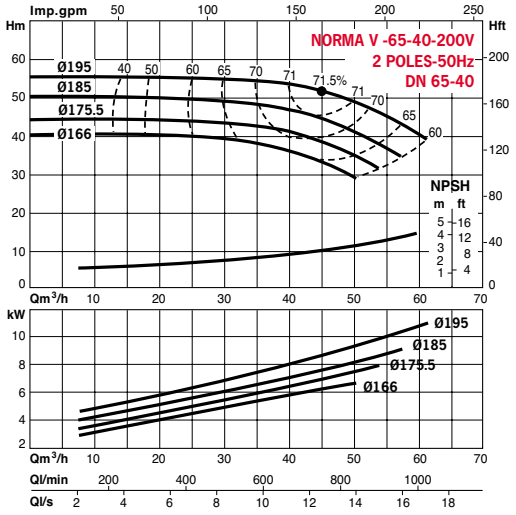
HYDRAULIC PERFORMANCE NORMA V - 2-POLE - 2,900 RPM



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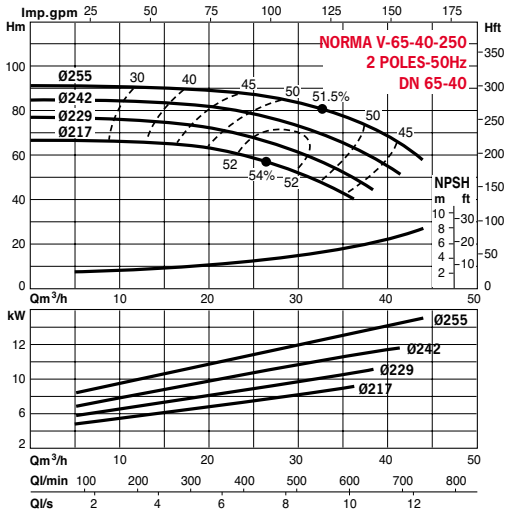

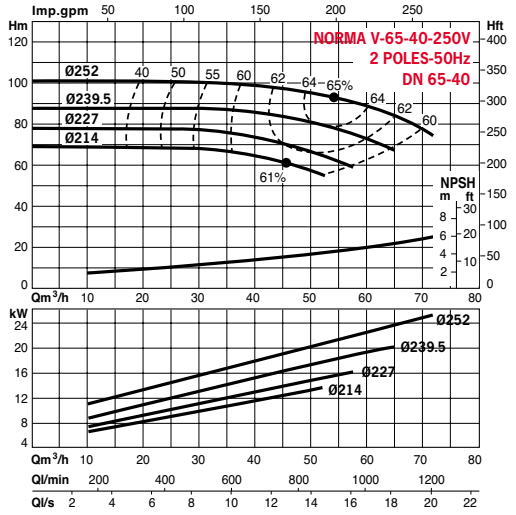

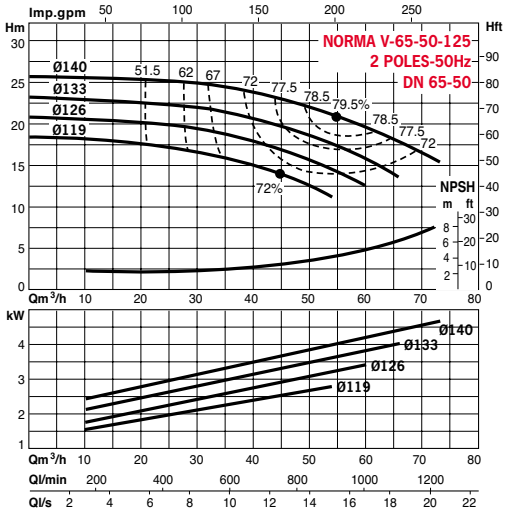

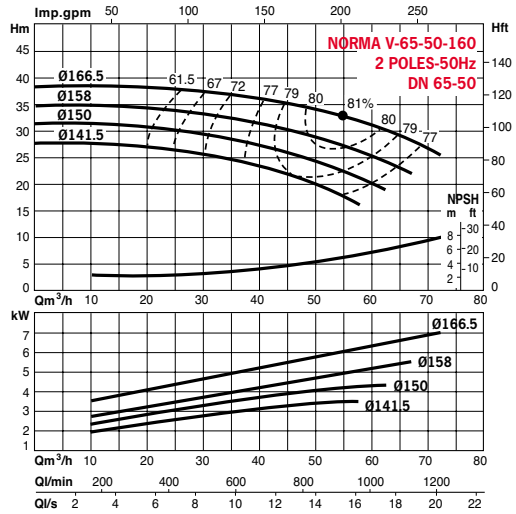

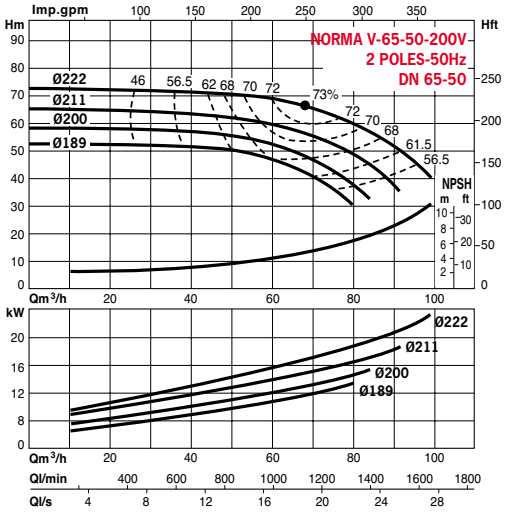

NORMA V

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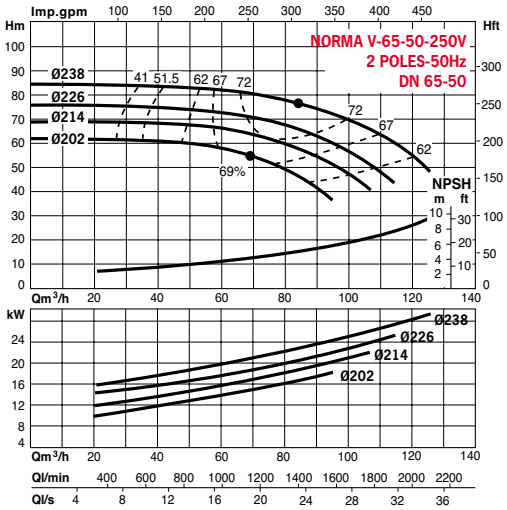

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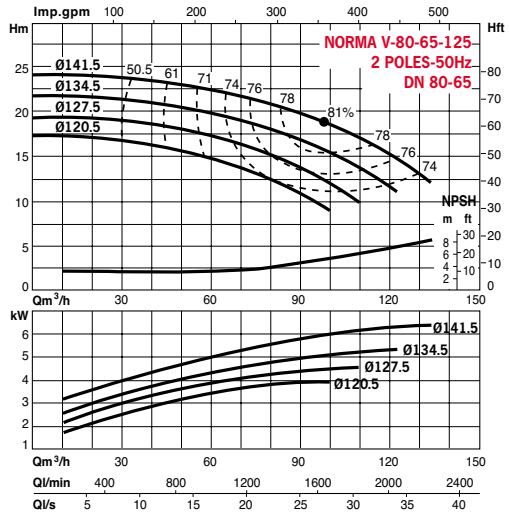
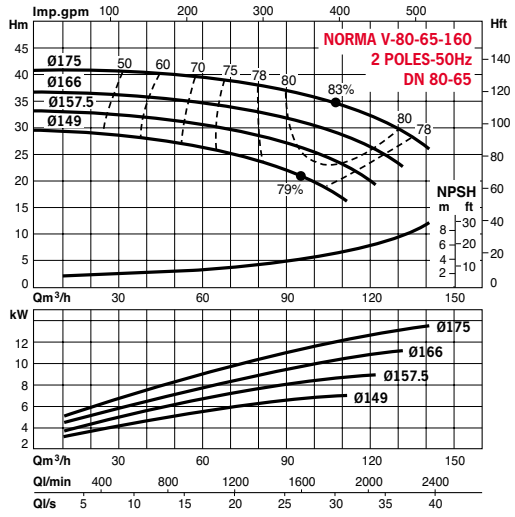
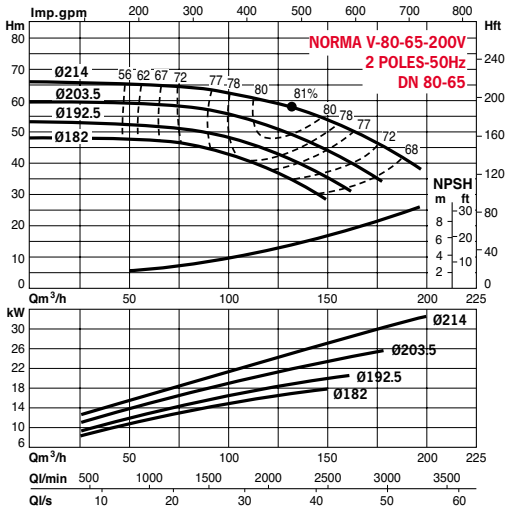
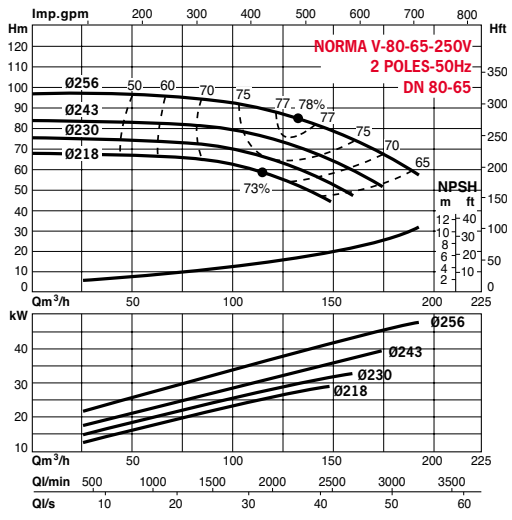
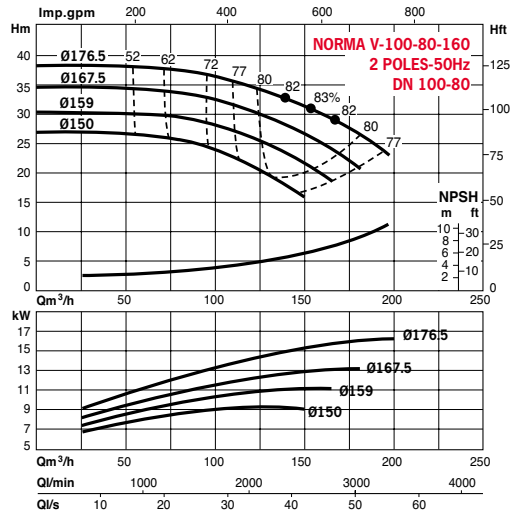




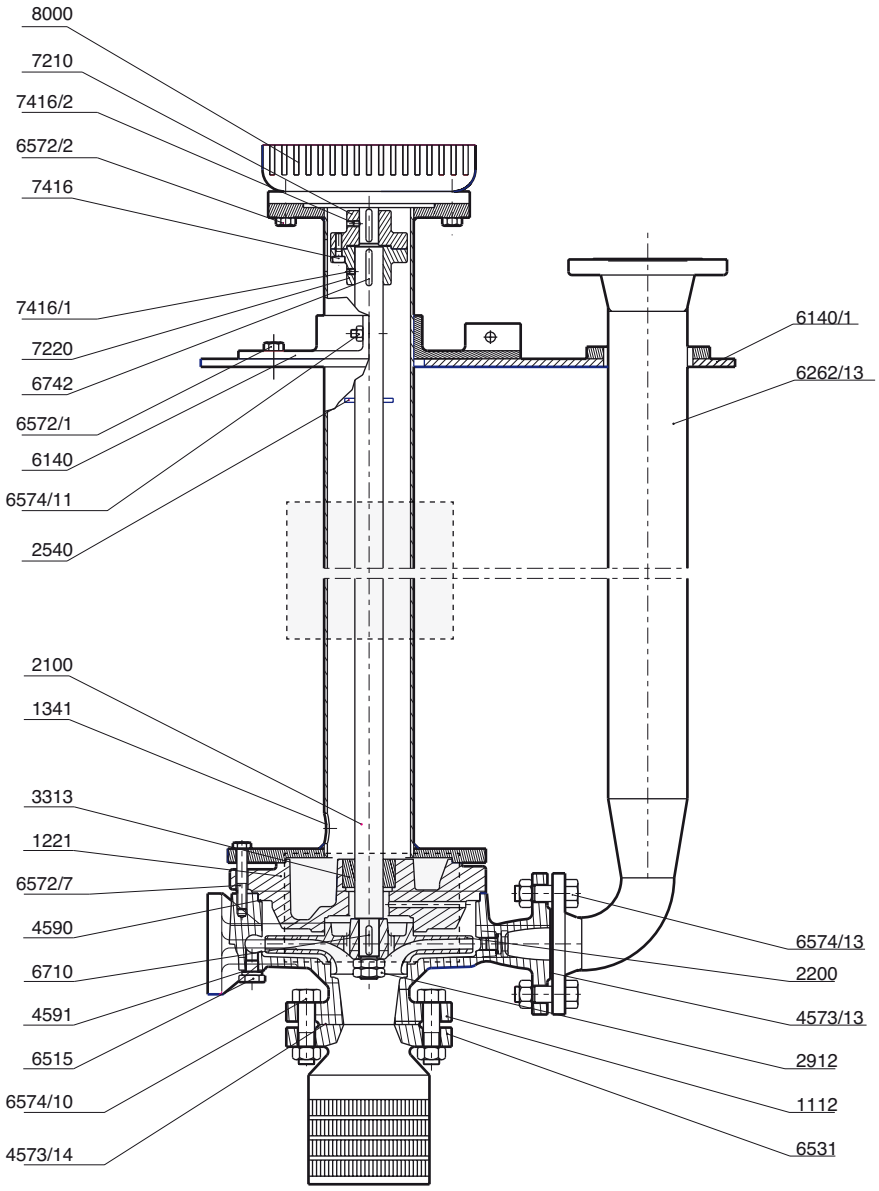






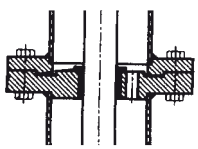
NORMA V

DETAIL SECTIONAL DRAWING - NORMA VCS

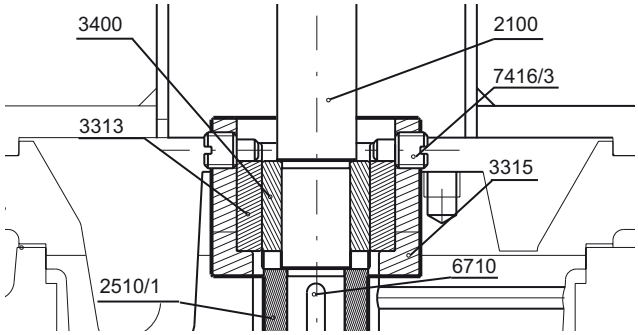


8000	Motor
7416/3	Stop screw
7416/2	Hexagonal socket screw, motor side
7416/1	Hexagonal socket screw, pump side
7416	Coupling fastening screw
7220	Coupling half-sleeve, pump side
7210	Coupling half-sleeve, motor side
6742	Coupling key, pump side
6710	Impeller key
6574/13	Bolt
6574/11	Support half-plate assembly bolt
6574/10	Strainer fastening bolt
6572/7	Casing cover screw
6572/2	Motor assembly screw
6572/1	Support/ base plate half-plate assembly screw
6531	Strainer
6515	Drain plug
6262/13	Discharge line
6140/1	Base plate
6140	Half-clamp
4591	Drain plug gasket
4590	Casing gasket
4573/14	Strainer gasket
4573/13	Discharge line gasket
3400	Shaft sleeve SIC 100
3315	Bushing housing
3313	Bushing SIC100
2912	Impeller nut and check nut
2540	Deflector
2510/1	Sleeve lock bushing
2200	Impeller
2100	Shaft
1341	Spacer column, pump side
1221	Casing cover
1112	Casing

Intermediate bearing option

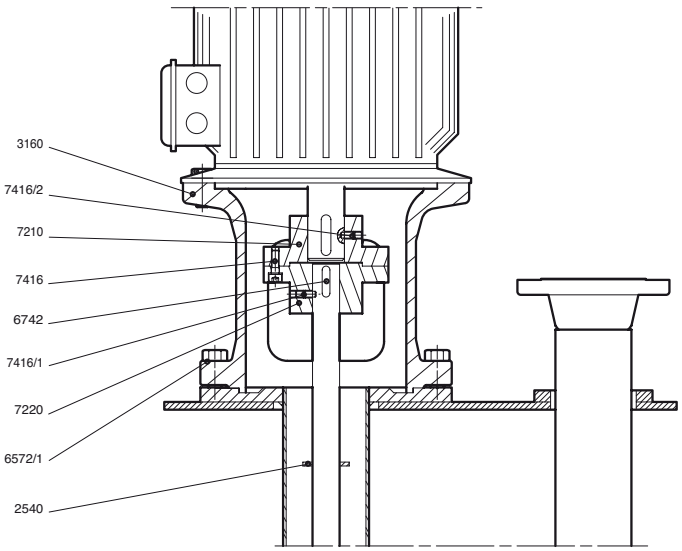


Silicium carbide bearing option



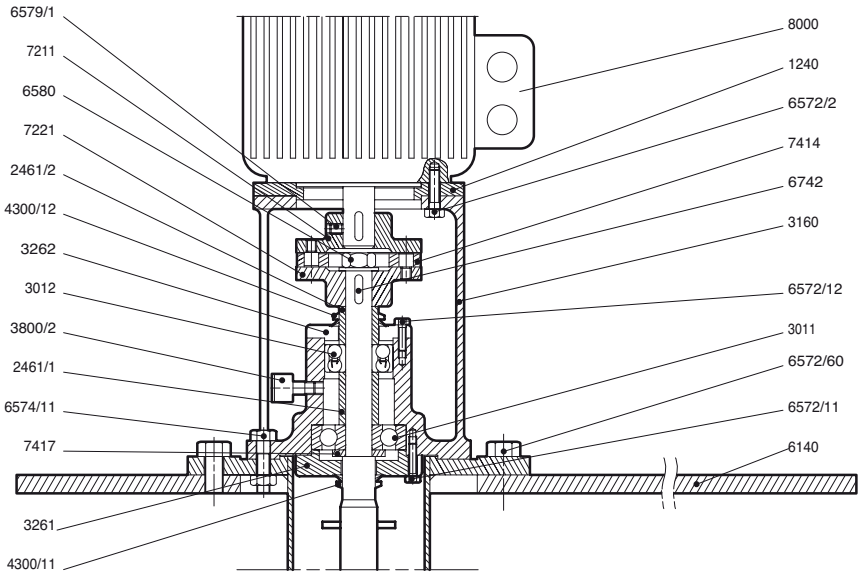
NORMA V

DETAIL SECTIONAL DRAWING - NORMA VEM



7416	Coupling assembly screw
7416/2	Hexagonal socket screw, motor side
7416/1	Hexagonal socket screw, pump side
7220	Coupling half-sleeve, pump side
7210	Coupling half-sleeve, motor side
6742	Coupling key, pump side
6572/1	Lantern/spacer column assembly bolt
3160	Lantern

DETAIL SECTIONAL DRAWING - NORMA VTM

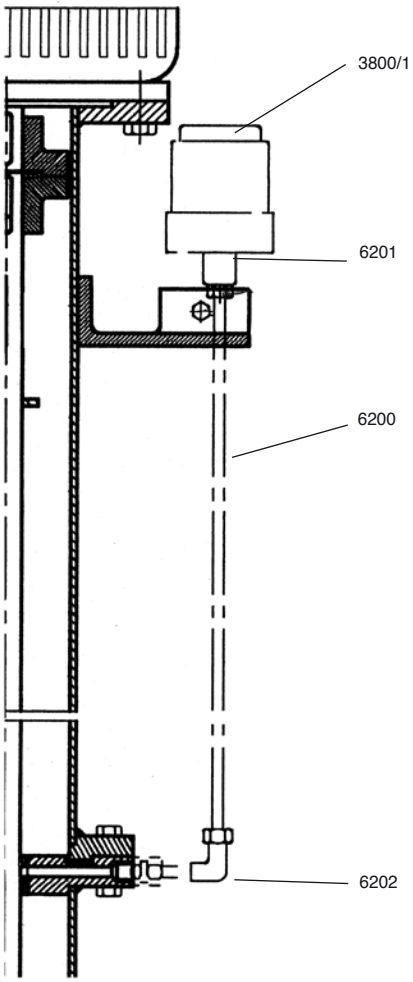


8000	Motor
7417	Thrust washer of lower bearing
7414	Coupling flector
7221	Coupling half-sleeve, pump side
7211	Coupling half-sleeve, motor side
6742	Coupling key, pump side
6580	Coupling lock nut, pump side
6579/1	Teat retaining screw, motor side
6574/11	Base plate assembly bolt
6572/12	Upper bearing cover assembly screw
6572/11	Lower bearing cover assembly screw
6572/2	Motor assembly screw
6140	Sole plate
4300/12	Upper cover gasket
4300/11	Lower cover gasket
3800/2	Ball bearing lubricator
3262	Bearing upper cover
3261	Bearing lower cover
3160	Lantern
3012	Upper bearing
3011	Lower bearing
2540	Deflector
2461/2	Spacer
2461/1	Bearing spacer
2100	Shaft
1240	Spacer flange for motor adaptation

NORMA V

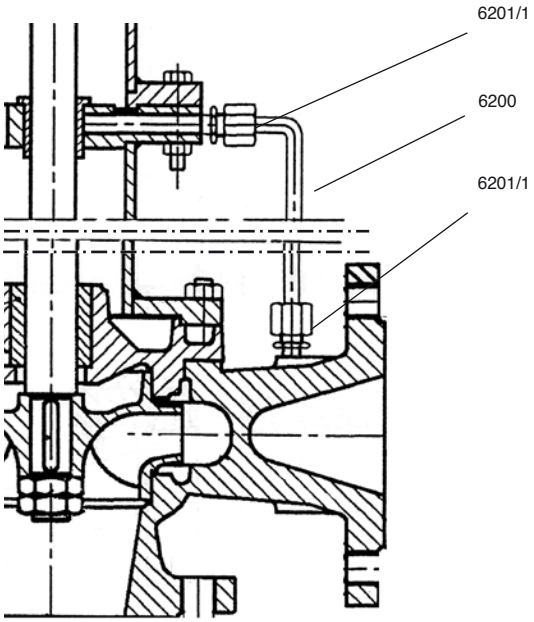
LUBRICATION OPTION

• By external fluid



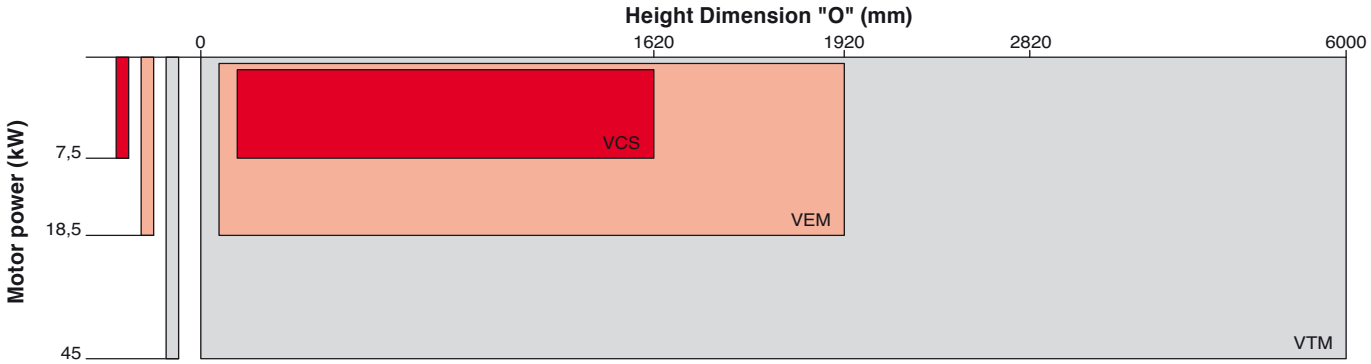
6202	Elbow fitting
6201	Female lubrication connector
6201/1	Male fitting
3800/1	LUBESITE oiler

• By pumped fluid



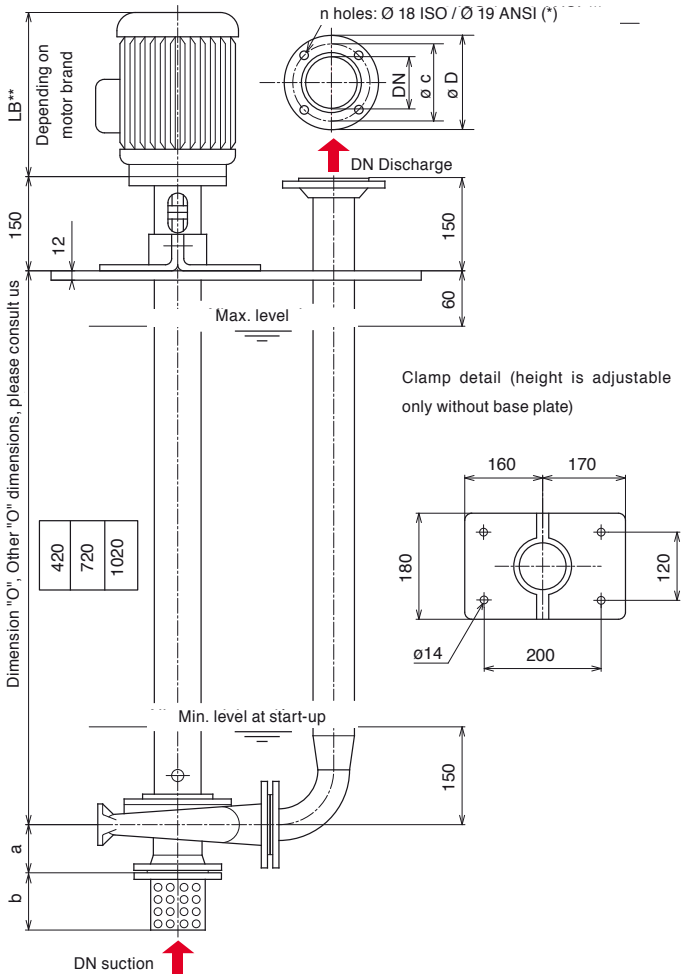
VCS - VEM - VTM CONSTRUCTION SELECTION DIAGRAM

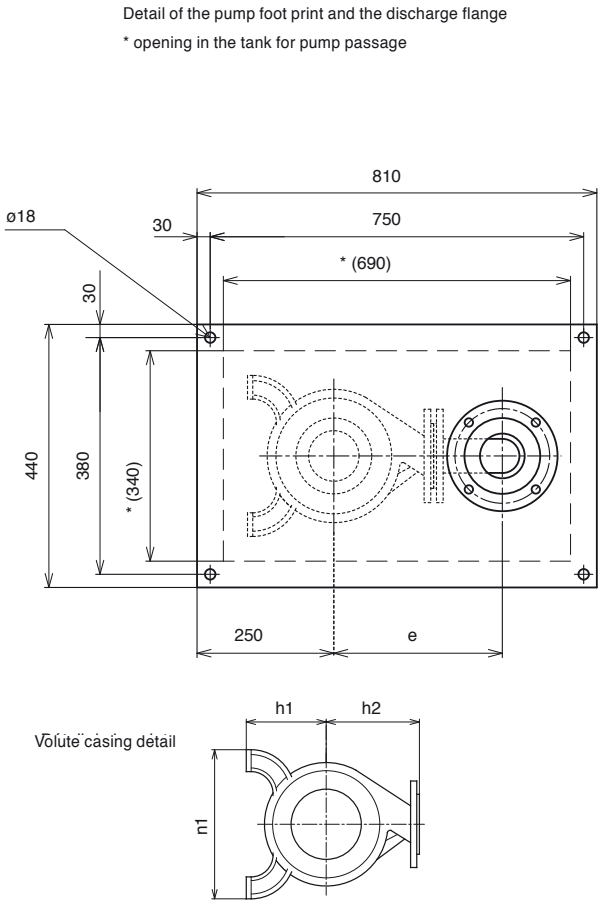
Select VCS - VEM or VTM construction based on the height below the mounting plane (dimension "O" on installation drawings) and motor power (according to curves).



NORMA VCS

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS - NORMA VCS





Pump type	Rotation speed		Discharge line					
	1450	2900	a	h1	h2	n1	DN	e
NORMA V 50-32-125	•	•	80	112	140	190	50	230
NORMA V 50-32-160	•	•	80	132	160	240	50	250
NORMA V 50-32-200	•	•	80	160	180	240	50	270
NORMA V 50-32-200V	•	•	80	160	180	240	50	270
NORMA V 65-40-125	•	•	80	112	140	210	65	242
NORMA V 65-40-160	•	•	80	132	160	240	65	262
NORMA V 65-40-200V	•	•	100	160	180	265	65	282
NORMA V 65-40-250	•	—	100	180	225	320	65	327
NORMA V 65-40-250V	•	—	100	180	225	320	65	327
NORMA V 65-50-125	•	•	100	132	160	240	80	284
NORMA V 65-50-160	•	•	100	160	180	265	80	304
NORMA V 65-50-200V	•	—	100	160	200	265	80	324
NORMA V 65-50-250V	•	—	100	180	225	320	80	349
NORMA V 80-65-125	•	•	100	160	180	280	100	323
NORMA V 80-65-200V	•	—	100	180	225	320	100	368
NORMA V 100-80-160	•	—	125	180	225	320	125	393

Motor power	(*) LB	
	1,450 rpm	2,900 rpm
0,75 kW	215	215
1,1 kW	238	238
1,5 kW	265	265
2,2 kW	290	265
3 kW	290	290
4 kW	290	290
5,5 kW	—	350
7,5 kW	—	350
9 kW	—	387

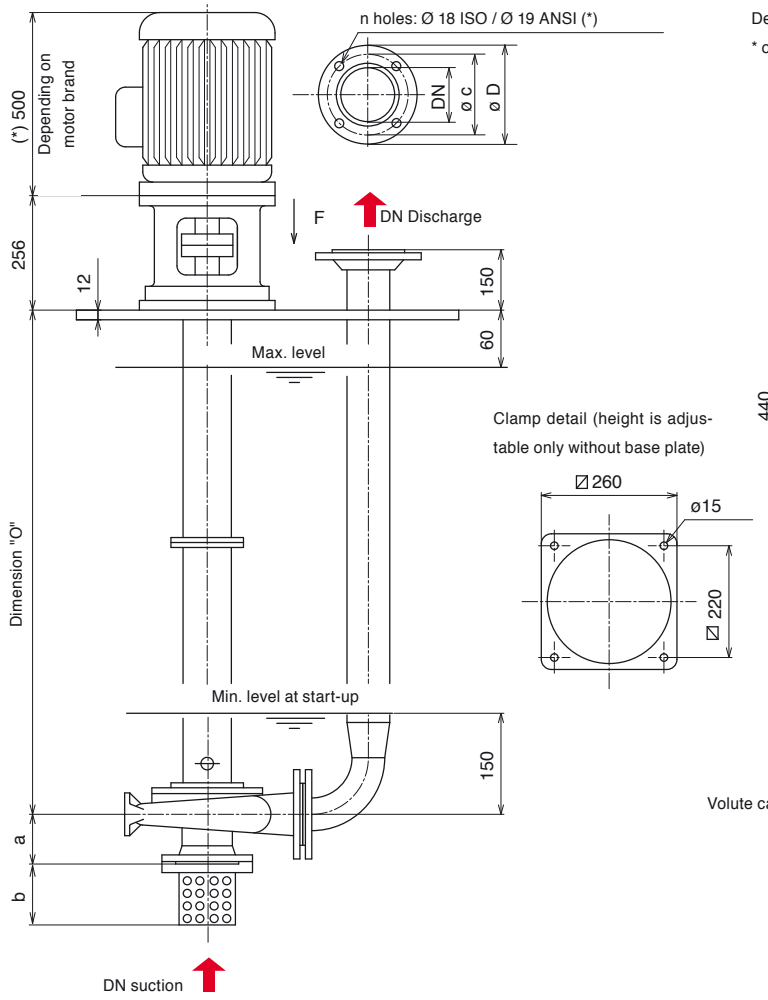
Strainer	
DN	b
50	127
65	149
80	179
100	215

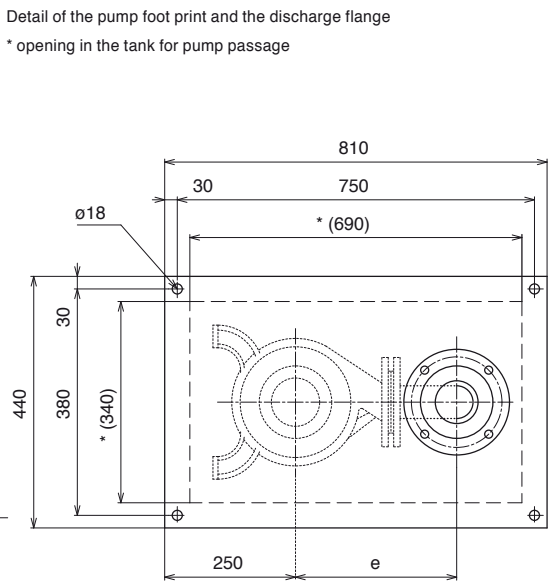
Discharge flange ANSI 150			
DN	Øc	ØD	n
50	120,6	152	4
65	139,7	178	4
80	152,5	190	8
100	190,5	229	8
125	215,9	254	8

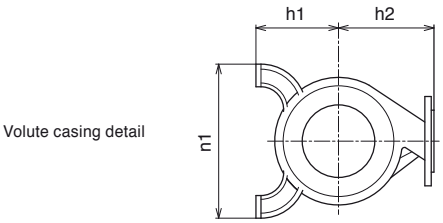
Discharge flange ISO PN 16			
DN	Øc	ØD	n
32	100	140	4
40	110	150	4
50	125	165	4
65	145	185	4
80	160	200	8
100	180	220	8

NORMA VEM

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS - NORMA VEM







Pump type	Rotation speed	Discharge line					
	2,900 rpm	a	h1	h2	n1	DN	e
NORMA V 50-32-200V	•	80	160	180	240	50	270
NORMA V 65-40-200V	•	100	160	180	265	65	262
NORMA V 65-40-250	•	100	180	225	320	65	327
NORMA V 65-40-250V	•	100	180	225	320	65	327
NORMA V 65-50-200V	•	100	160	200	265	80	324
NORMA V 65-50-250V	•	100	180	225	320	80	349
NORMA V 80-65-160	•	100	160	200	280	100	343
NORMA V 80-65-200V	•	100	180	225	320	100	368
NORMA V 100-80-160	•	125	180	225	320	125	393

DN of the line adaptable according to the flow rate

Discharge flange ISO PN 16			
DN	Øc	ØD	n
32	100	140	4
40	110	150	4
50	125	165	4
65	145	185	4
80	160	200	8
100	180	220	8

Discharge flange ANSI 150			
DN	Øc	ØD	n
50	120,6	152	4
65	139,7	178	4
80	152,4	190	4
100	190,5	229	8
125	215,9	254	8

(*) seul DN 125 ANSI 150 trous Ø22,2

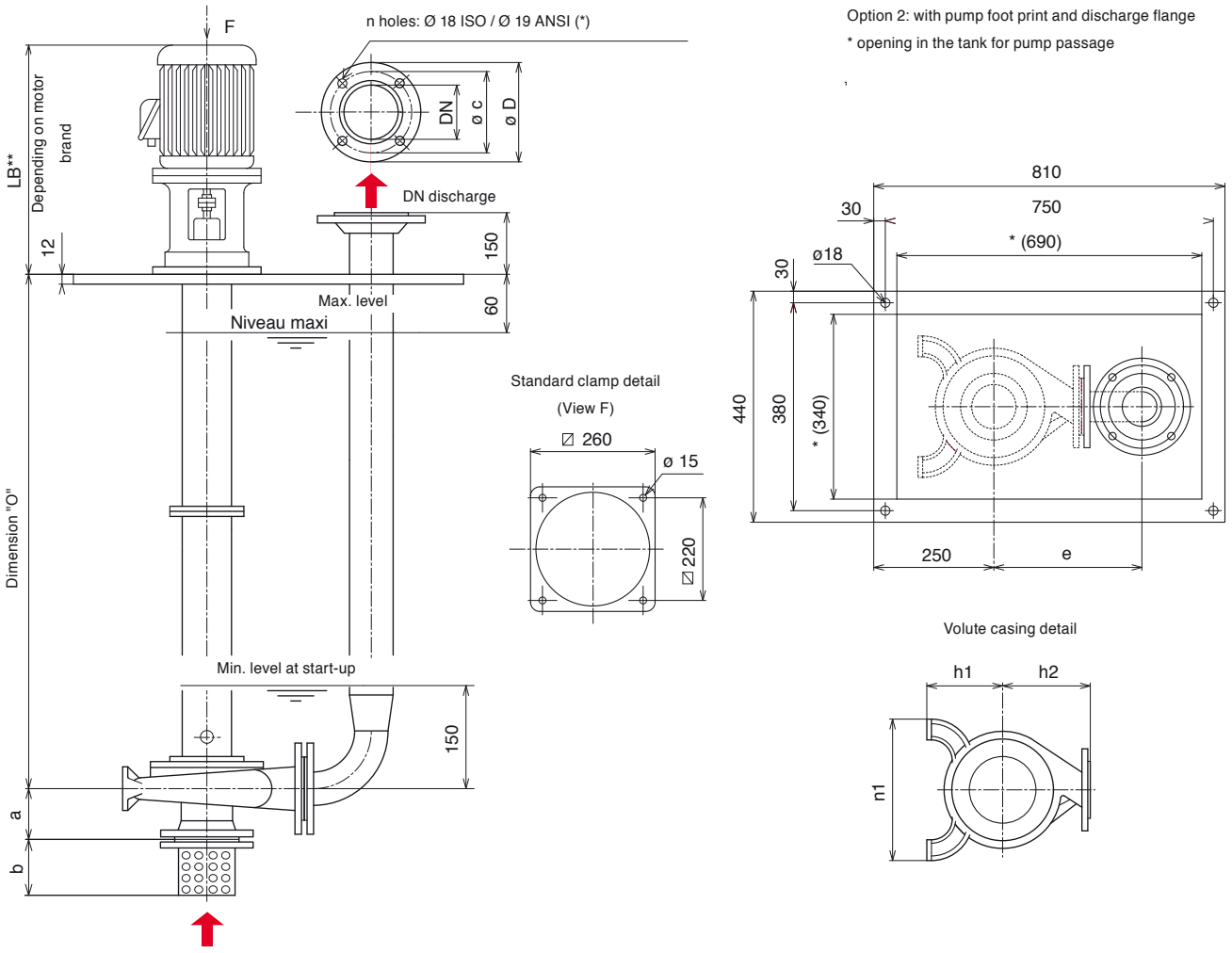
Dimension "O"	420	720	1020	1620	1920
Nbr of intermediate bearings	0	0	0	1	1

Other "O" dimension, please consult us

Motor power
11 kW
15 kW
18,5 kW

NORMA VTM

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS - NORMA VTM



Pump type	Rotation speed		Discharge line					
	1,450 rpm	2,900 rpm	a	h1	h2	n1	DN	e
NORMA V 50-32-125	•	•	80	112	140	190	50	230
NORMA V 50-32-160	•	•	80	132	160	240	50	250
NORMA V 50-32-200	•	•	80	160	180	240	50	270
NORMA V 50-32-200V	•	•	80	160	180	240	50	270
NORMA V 65-40-125	•	•	80	112	140	210	65	242
NORMA V 65-40-160	•	•	80	132	160	240	65	262
NORMA V 65-40-200V	•	•	100	160	180	265	65	282
NORMA V 65-40-250	•	—	100	180	225	320	65	327
NORMA V 65-40-250V	•	—	100	180	225	320	65	327
NORMA V 65-50-125	•	•	100	132	160	240	80	284
NORMA V 65-50-160	•	•	100	160	180	265	80	304
NORMA V 65-50-200V	•	—	100	160	200	265	80	324
NORMA V 65-50-250V	•	—	100	180	225	320	80	349
NORMA V 80-65-125	•	•	100	160	180	280	100	323
NORMA V 80-65-160	•	•	100	180	200	280	100	343
NORMA V 80-65-200V	•	—	100	180	225	320	100	368
NORMA V100-80-160	•		125	180	225	320	125	393

DN of the discharge line adaptable according to the flow rate

Motor power	(*) LB	
	1,450 rpm	2,900 rpm
1,1 kW	438	—
1,5 kW	495	—
2,2 kW	490	465
3 kW	490	490
4 kW	490	490
5,5 kW	—	550
7,5 kW	—	550

DN	b
50	127
65	149
80	179
100	215

Discharge flange ISO PN 16

DN	Øc	ØD	n
50	125	165	4
65	145	185	4
80	160	200	8
100	180	220	8
125	210	250	8

Discharge flange ANSI 150

DN	Øc	ØD	n
50	120,6	152	4
65	139,7	178	4
80	152,4	190	4
100	190,5	229	8
125	215,9	254	8

(*) only DN 125 ANSI 150 Ø 22.2 holes

Dimensions “O”	1920	2220	2520	2820
Nbr of intermediate bearings	1	1	2	2

Other "O" dimension, please consult us