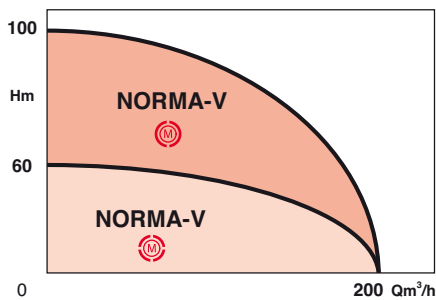


## OPERATING LIMITS

Max. flow rates up to:	200 m <sup>3</sup> /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



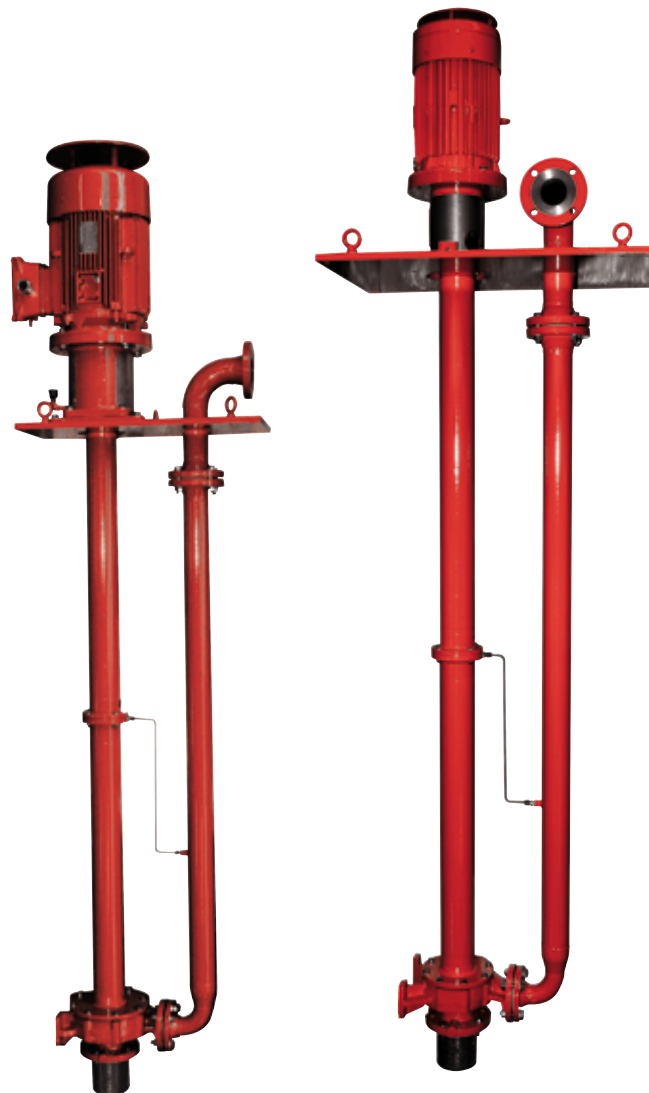
## APPLICATIONS

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



# 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)

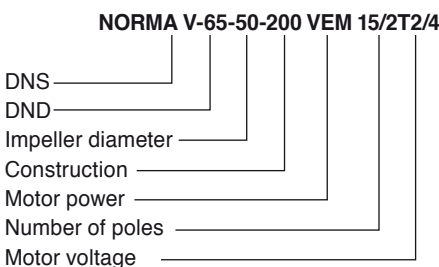
### • Standard motor

- 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 (Ex dII BT4)

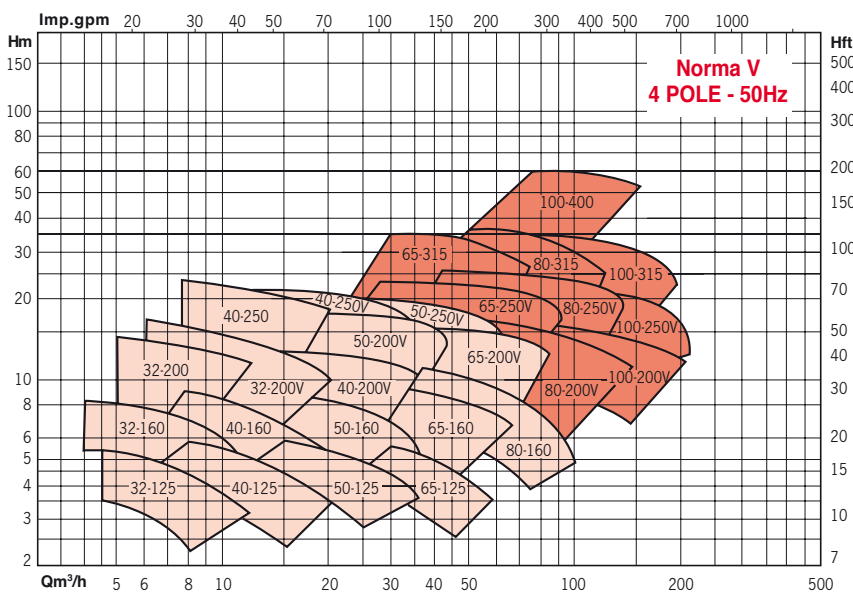
## STANDARD CONSTRUCTION

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

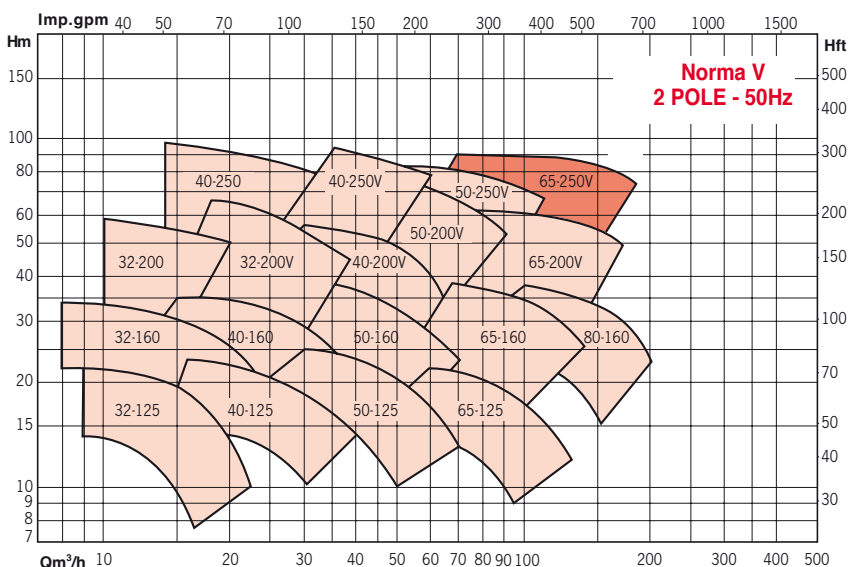
## IDENTIFICATION



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



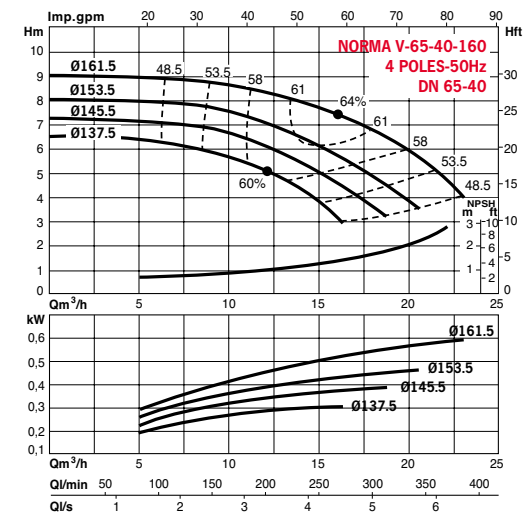
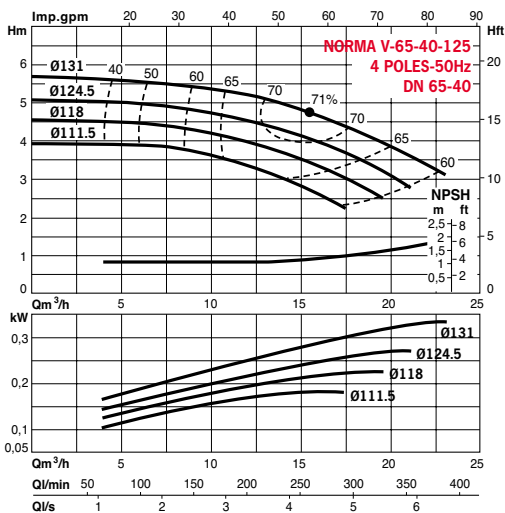
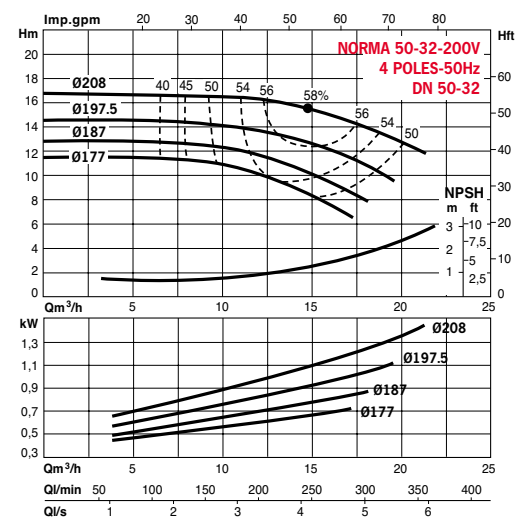
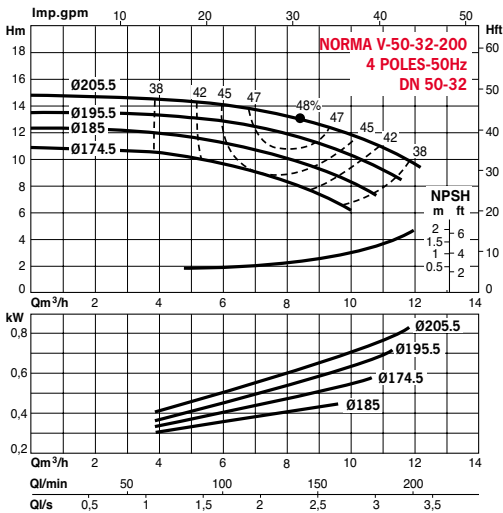
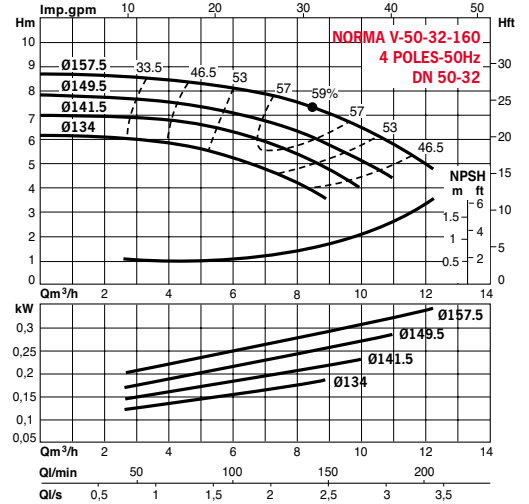
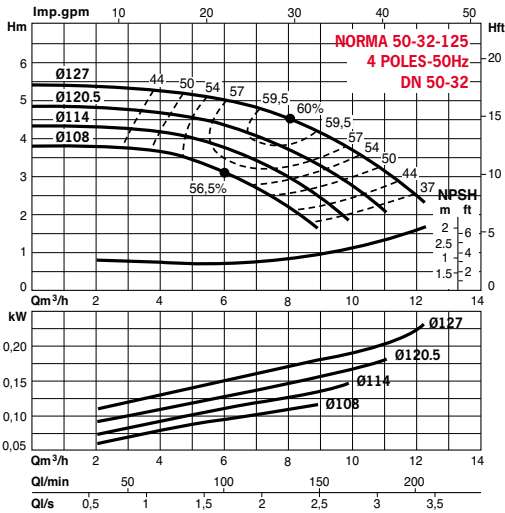
## HYDRAULIC PRESELECTION GUIDE, 2-POLE - 2,900 RPM



## RECOMMENDED ACCESSORIES

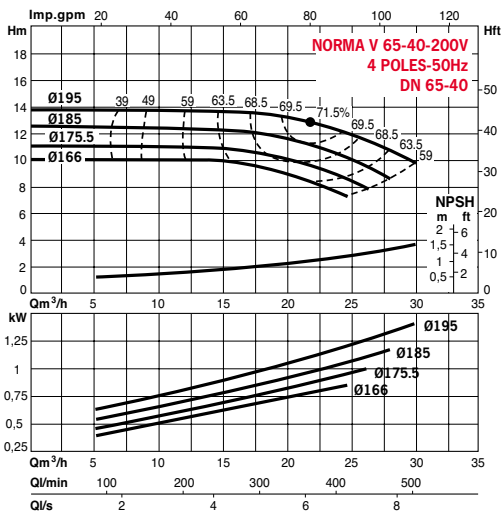
- Motor protection circuit breaker
- Shut-off valves
- Pressure gauge
- Strainer (available as option)

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



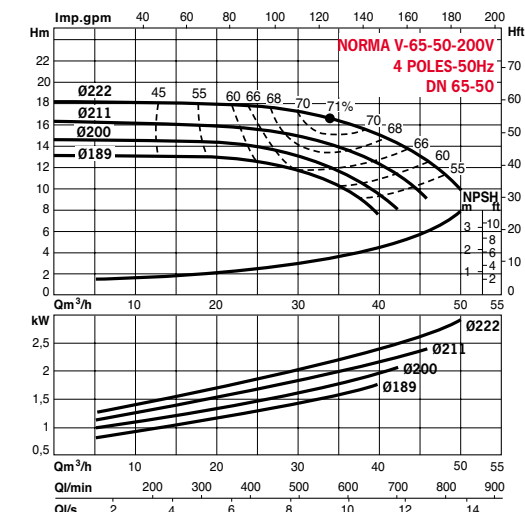
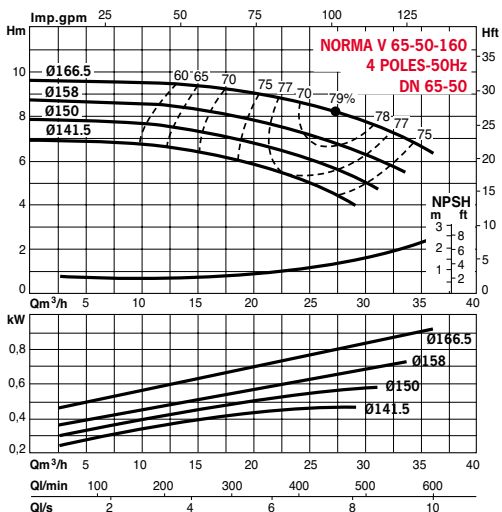
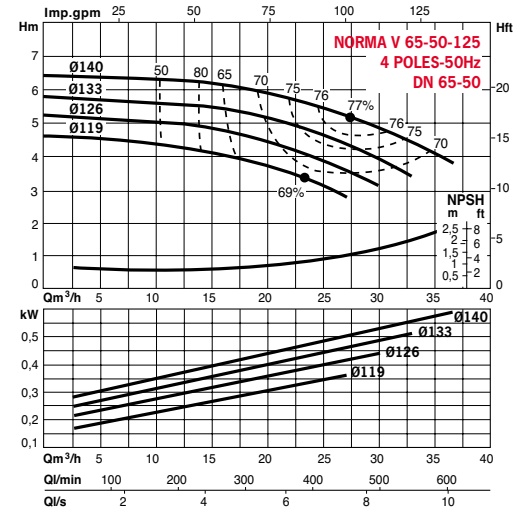
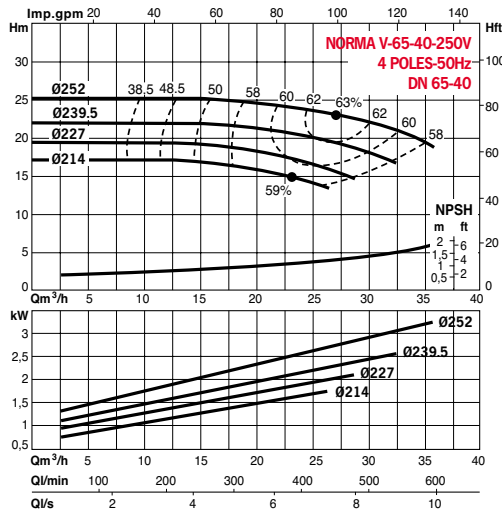
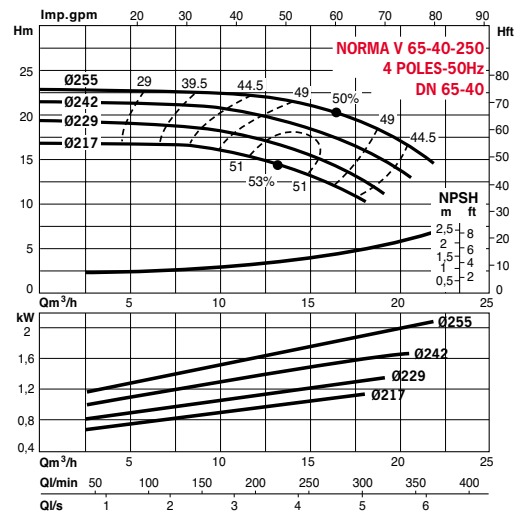
# NORMA V

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



### TEST CONDITIONS

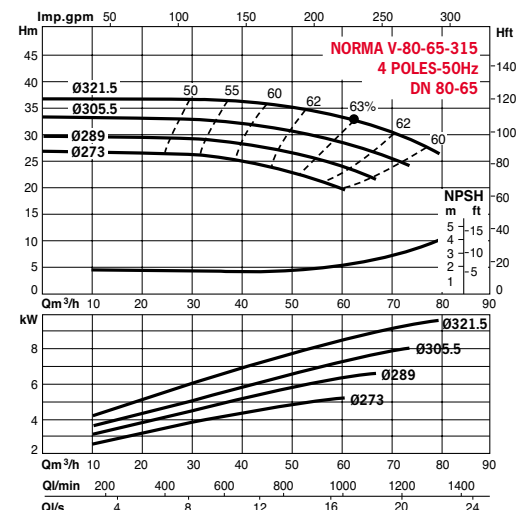
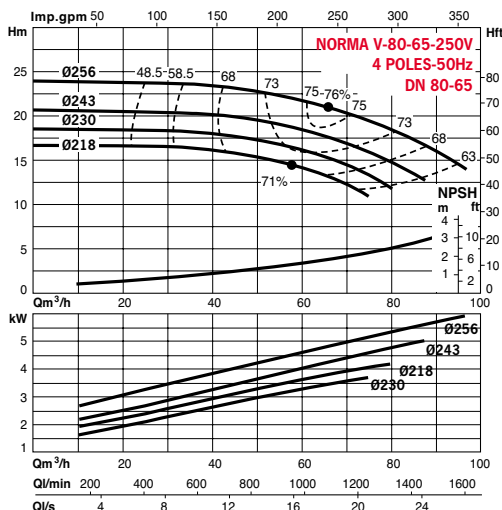
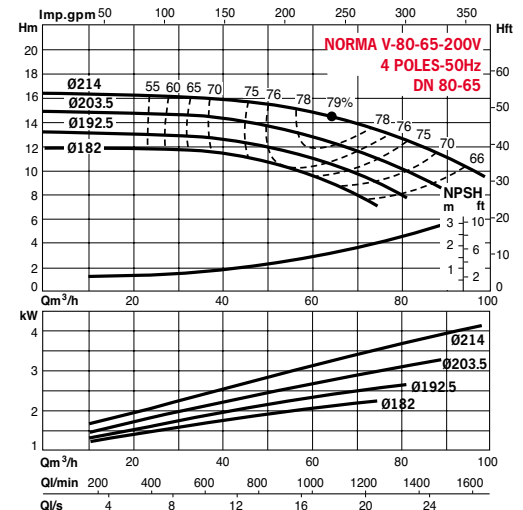
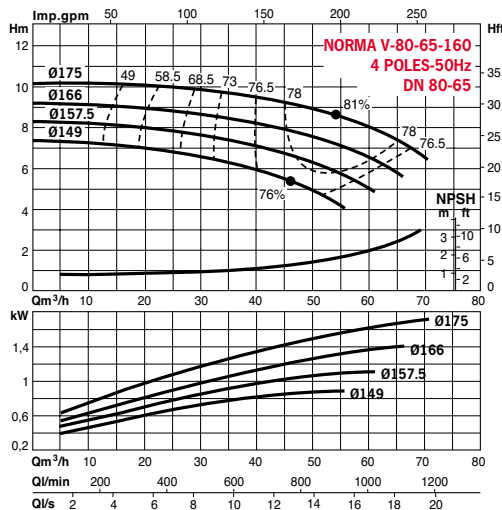
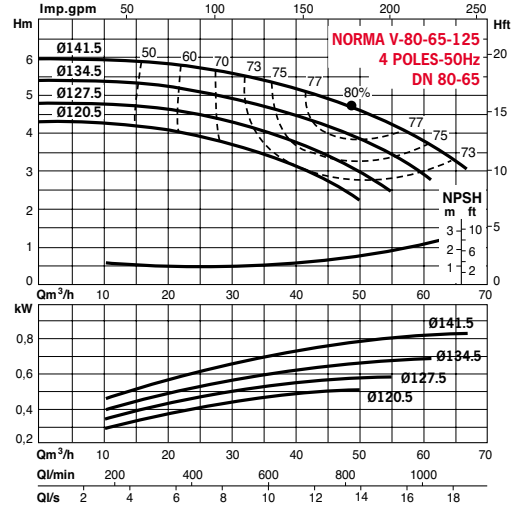
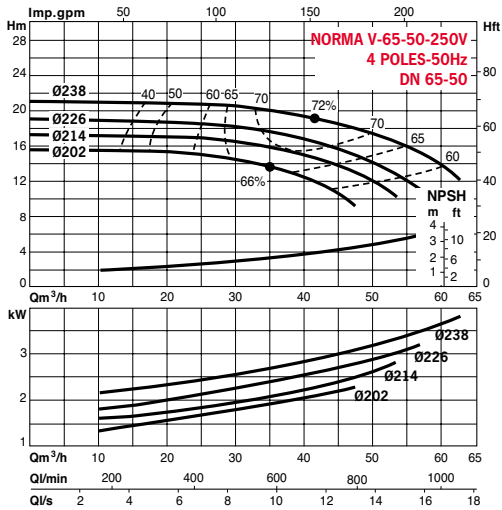
- Motor : 4-pole
- Frequency : 50 Hz
- Fluid used : Water
- Fluid density : 1
- Fluid viscosity : 1 mm²/s
- Fluid temperature : 20°C



## 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 mm<sup>2</sup>/s
- Fluid temperature: 20°C

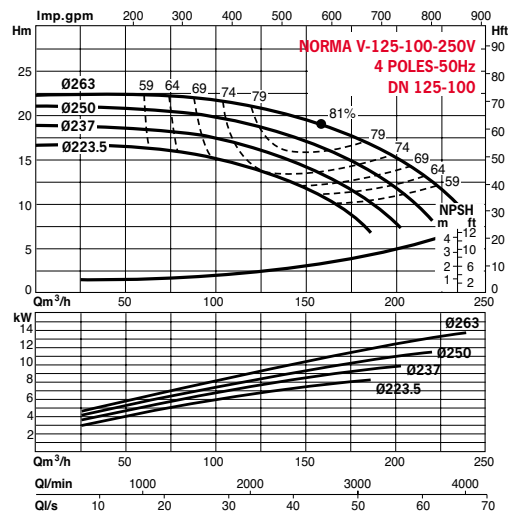
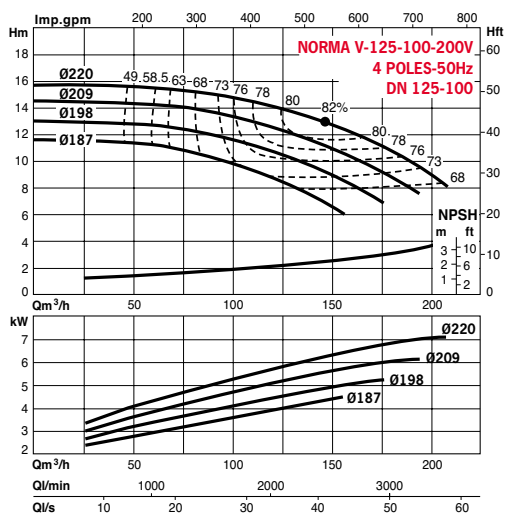
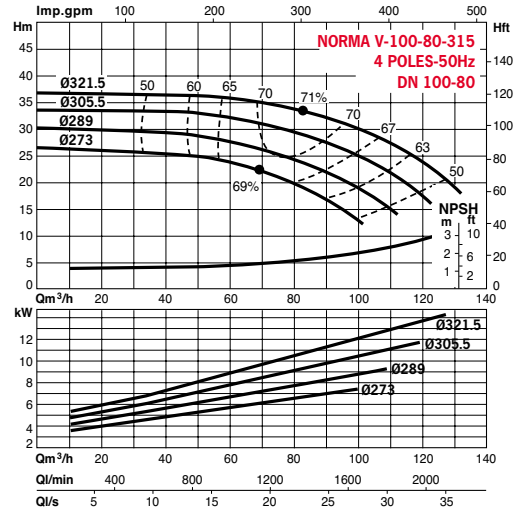
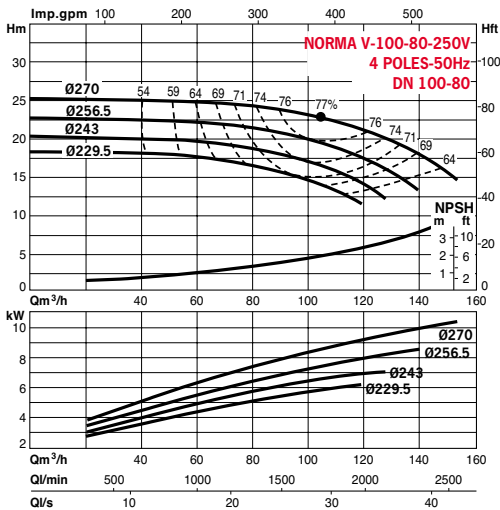
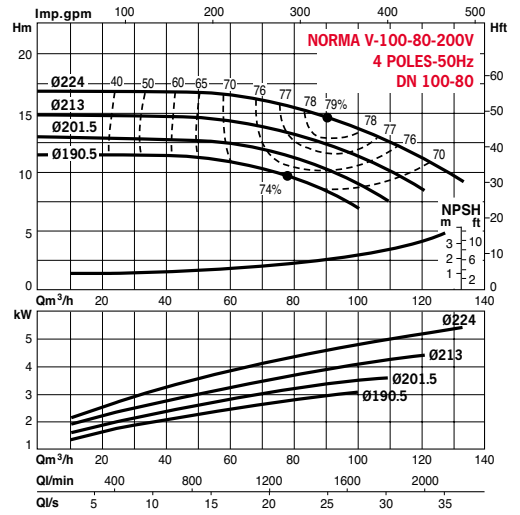
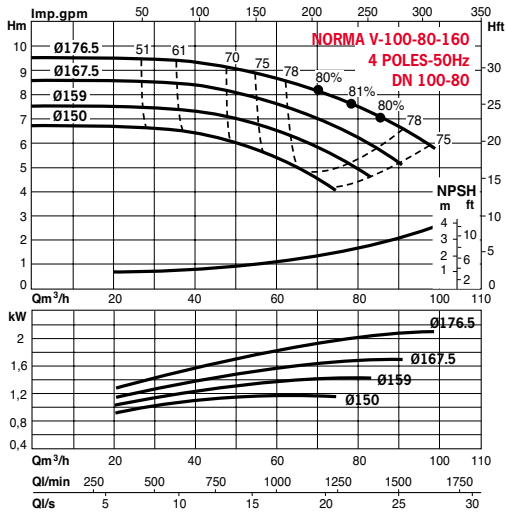


# NORMA V

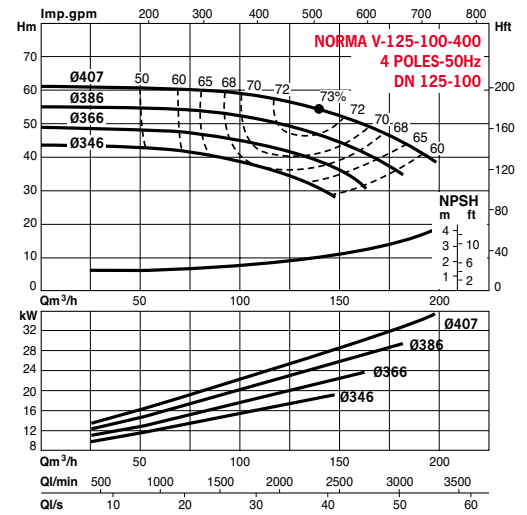
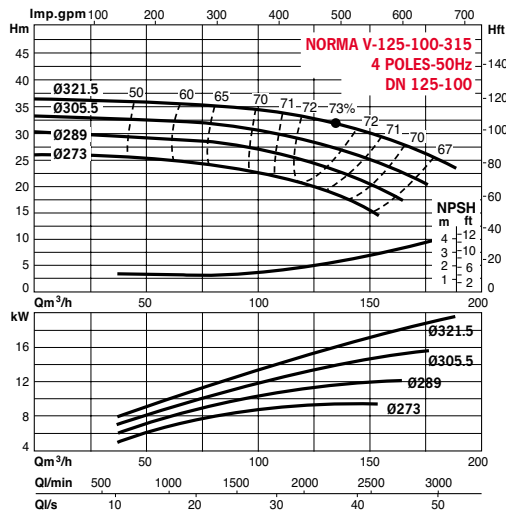
## HYDRAULIC PERFORMANCE NORMA V - 4-POLE - 1,450 RPM

### TEST CONDITIONS

- Motor : 4-pole
- Frequency : 50 Hz
- Fluid used : Water
- Fluid density : 1
- Fluid viscosity : 1 mm<sup>2</sup>/s
- Fluid temperature : 20°C



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

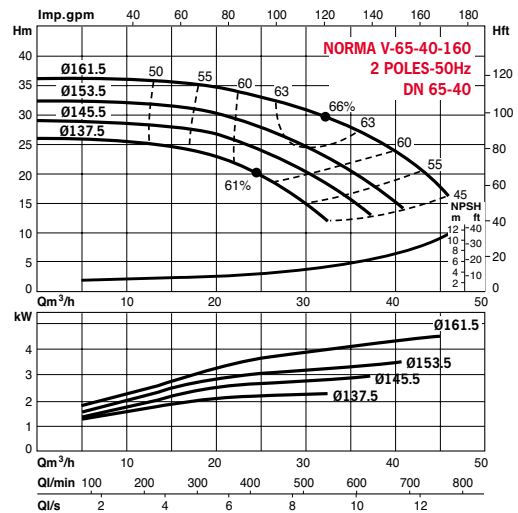
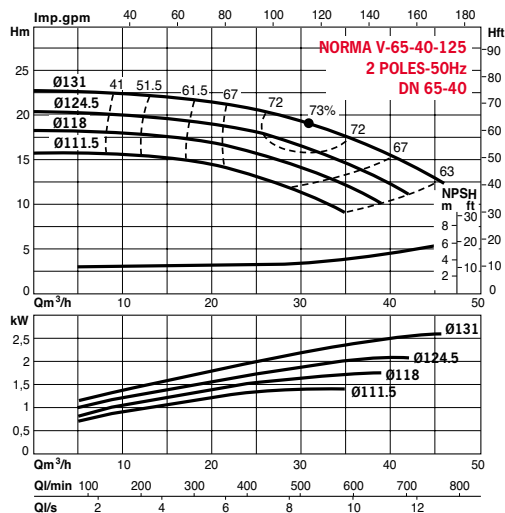
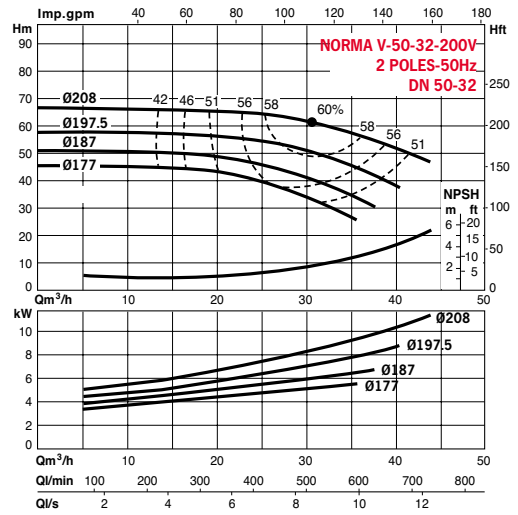
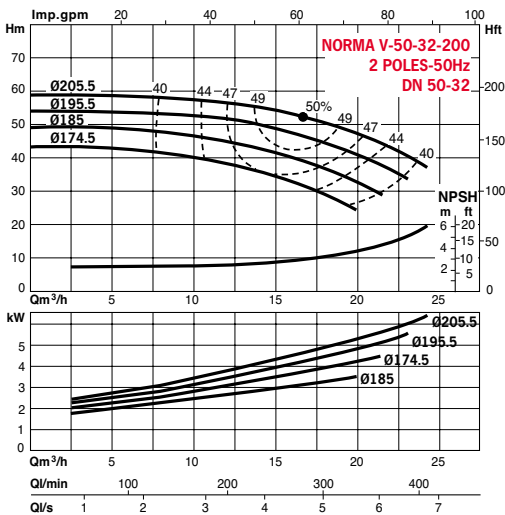
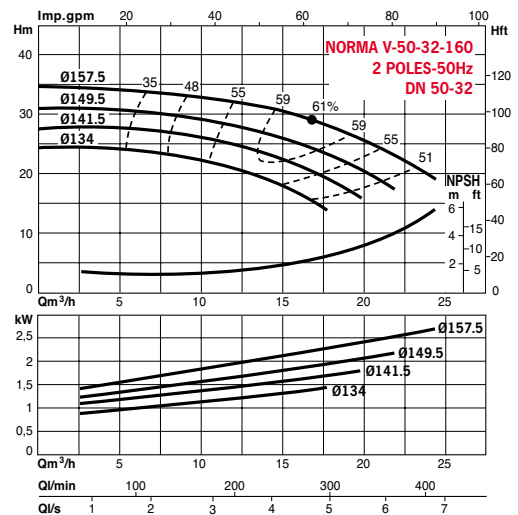
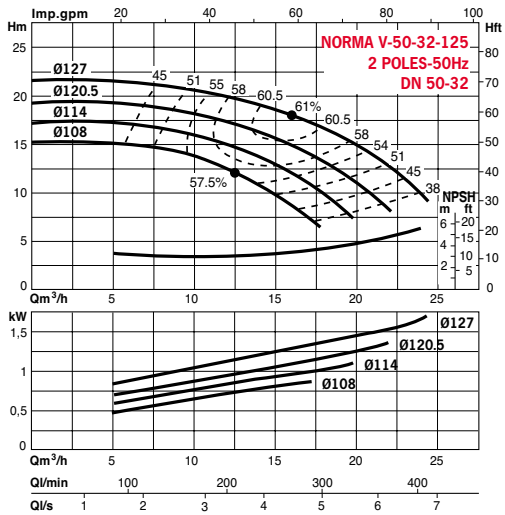


# NORMA V

## 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 mm<sup>2</sup>/s
- Fluid temperature : 20°C

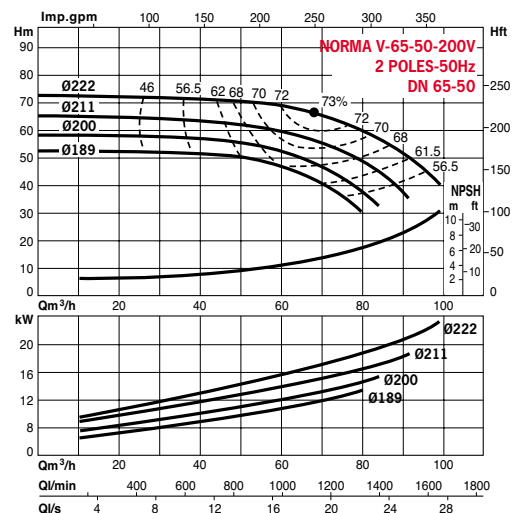
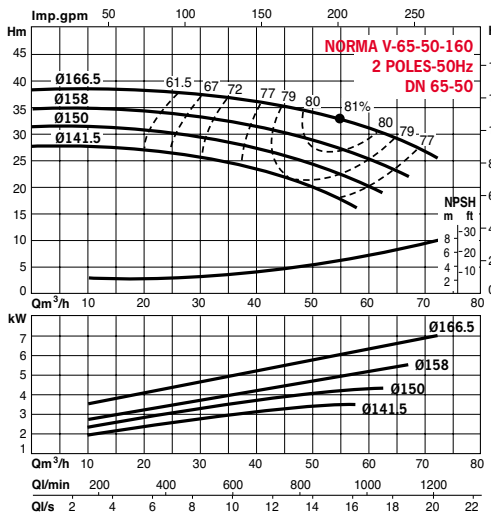
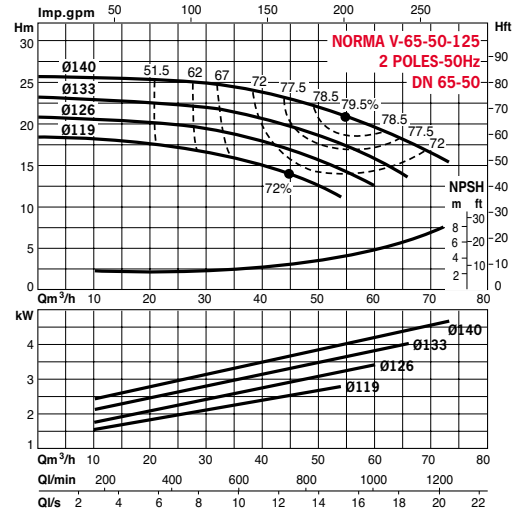
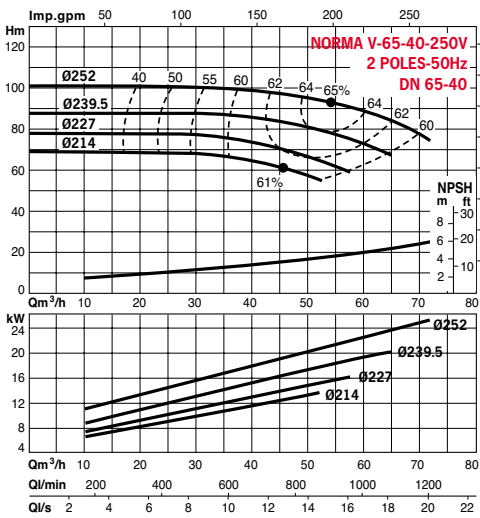
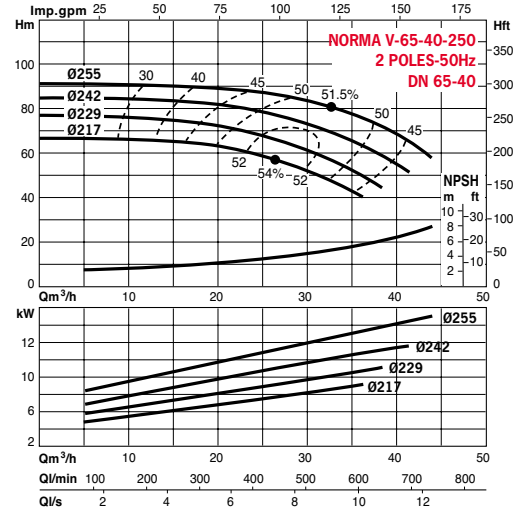
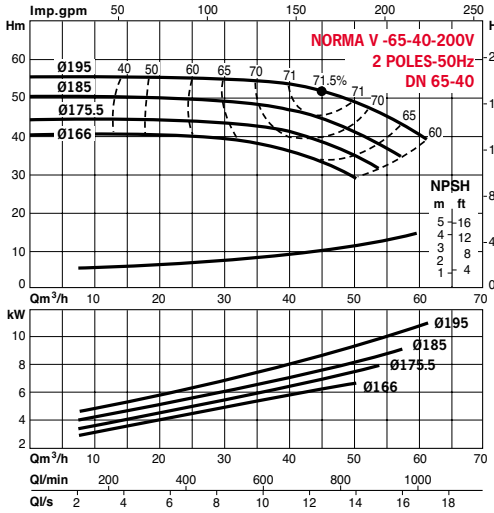




## HYDRAULIC PERFORMANCE NORMA V - 2-POLE - 2,900 RPM

### TEST CONDITIONS

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

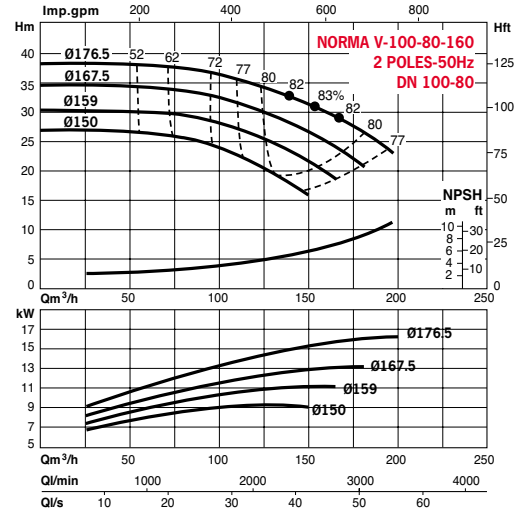
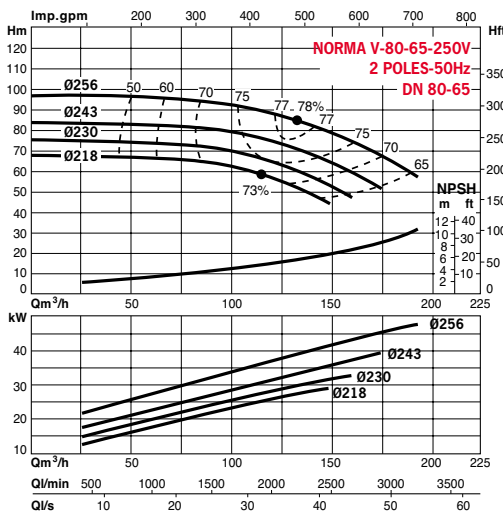
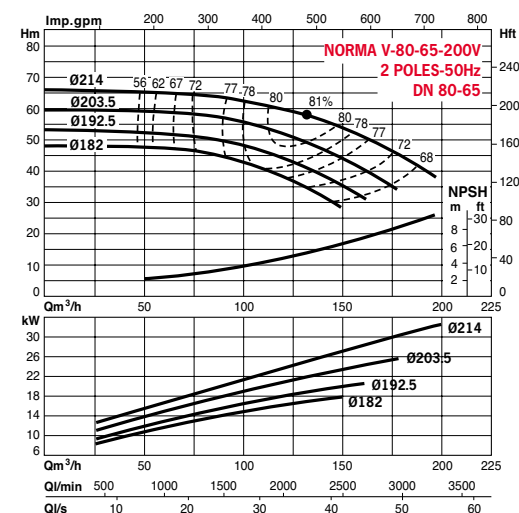
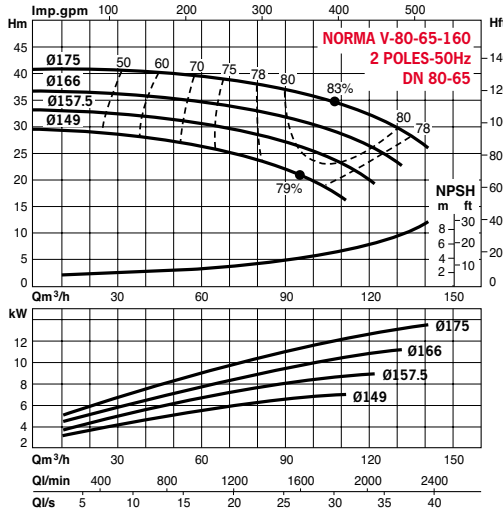
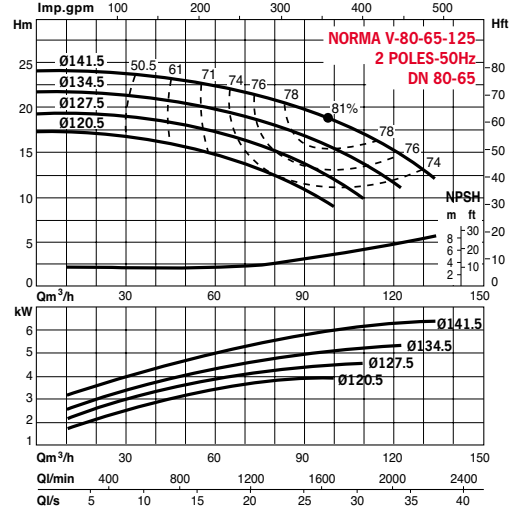
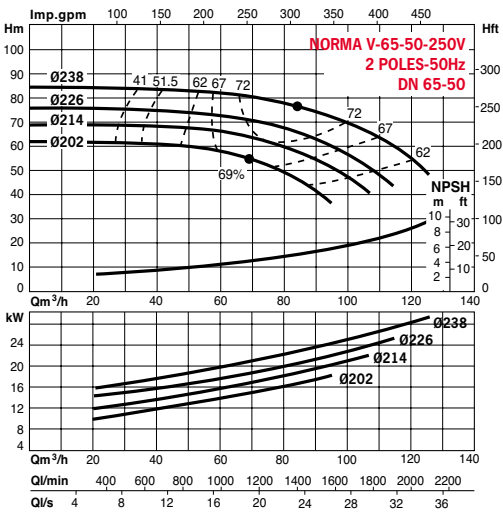


# NORMA V

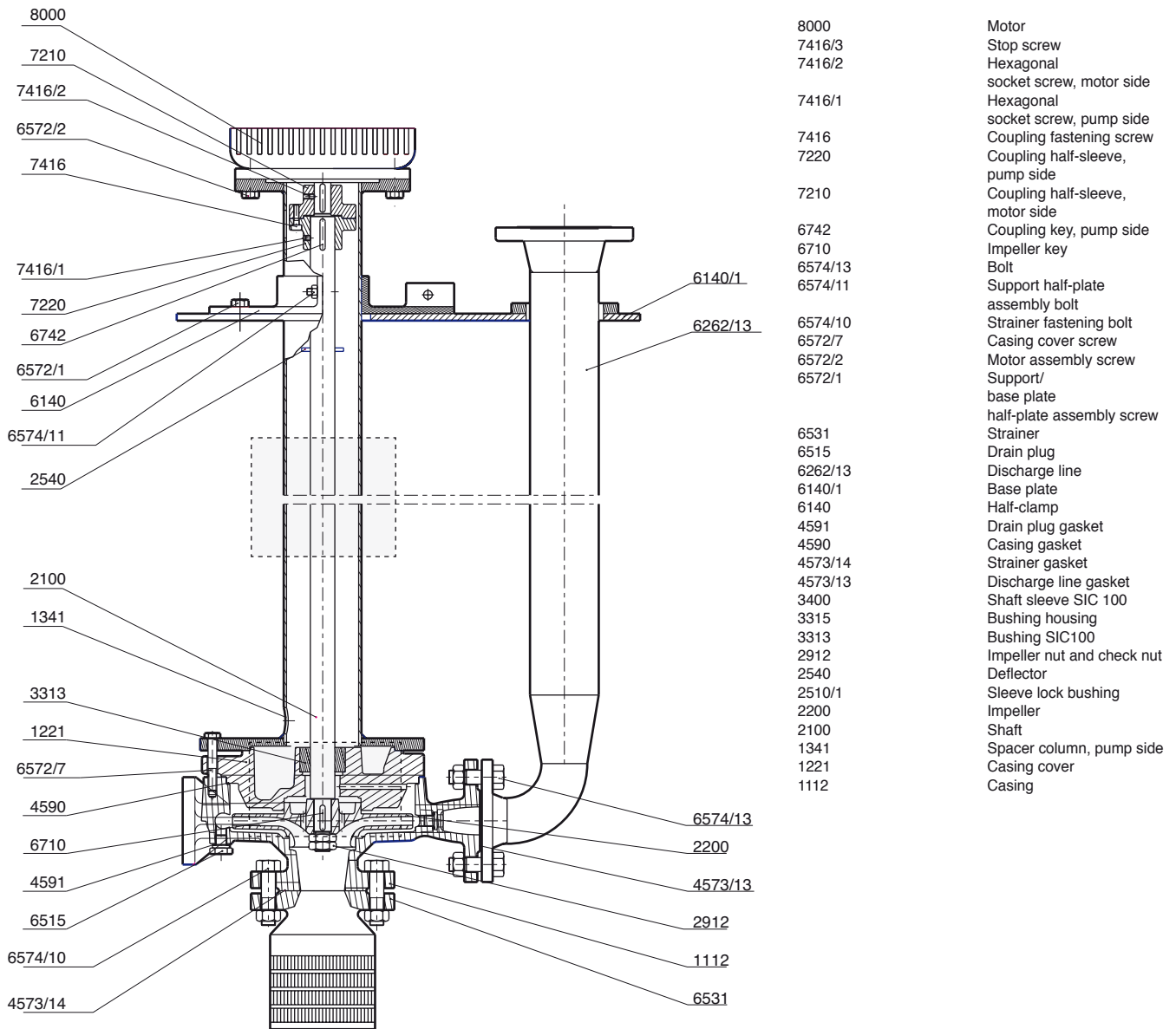
## HYDRAULIC PERFORMANCE NORMA V - 2-POLE - 2,900 RPM

### TEST CONDITIONS

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

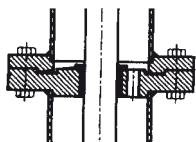


## DETAIL SECTIONAL DRAWING - NORMA VCS

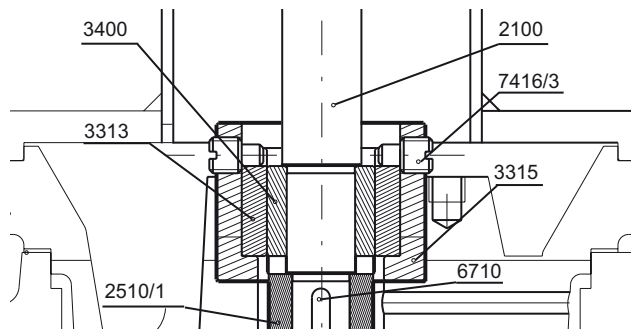


- 8000 Motor
- 7416/3 Stop screw
- 7416/2 Hexagonal socket screw, motor side
- 7416/1 Hexagonal socket screw, pump side
- 7416 Coupling fastening screw
- 7220 Coupling half-sleeve, pump side
- 7210 Coupling half-sleeve, motor side
- 6742 Coupling key, pump side
- 6710 Impeller key
- 6574/13 Bolt
- 6574/11 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**

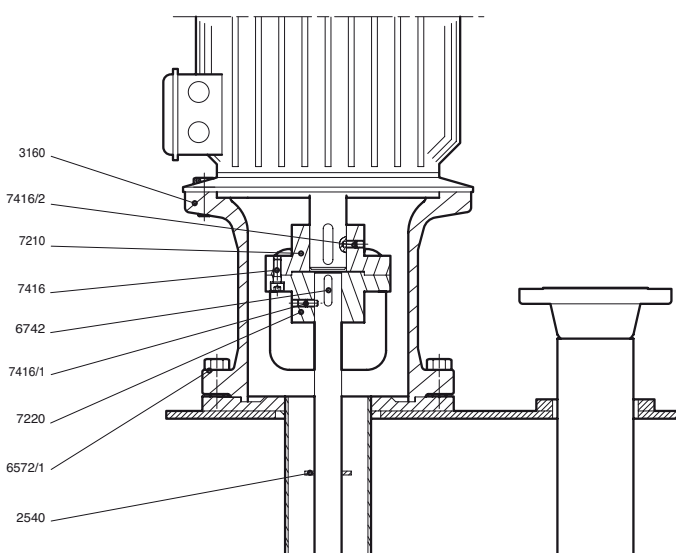


**Silicium carbide bearing option**



# NORMA V

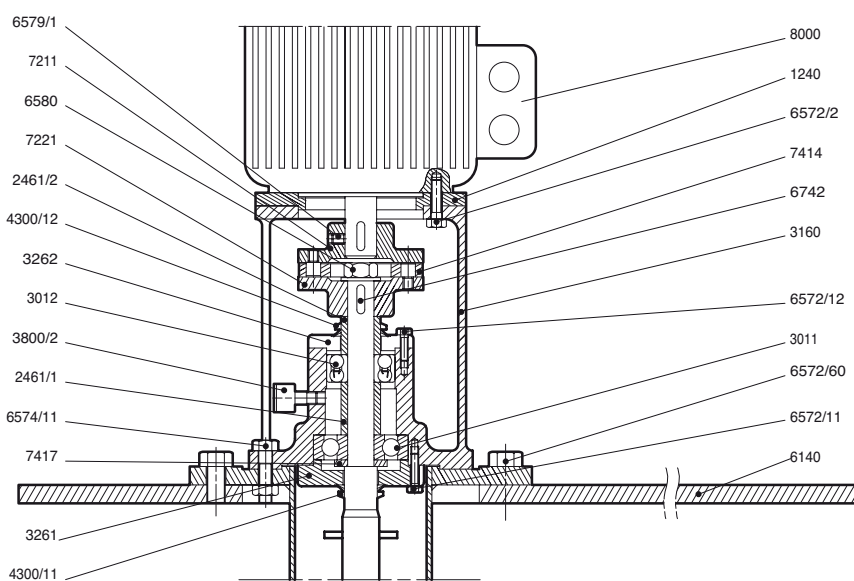
## DETAIL SECTIONAL DRAWING - NORMA VEM



7416  
7416/2  
7416/1  
7220  
7210  
6742  
6572/1  
3160

Coupling assembly screw  
Hexagonal socket screw, motor side  
Hexagonal socket screw, pump side  
Coupling half-sleeve, pump side  
Coupling half-sleeve, motor side  
Coupling key, pump side  
Lantern/spacer column assembly bolt  
Lantern

## DETAIL SECTIONAL DRAWING - NORMA VTM

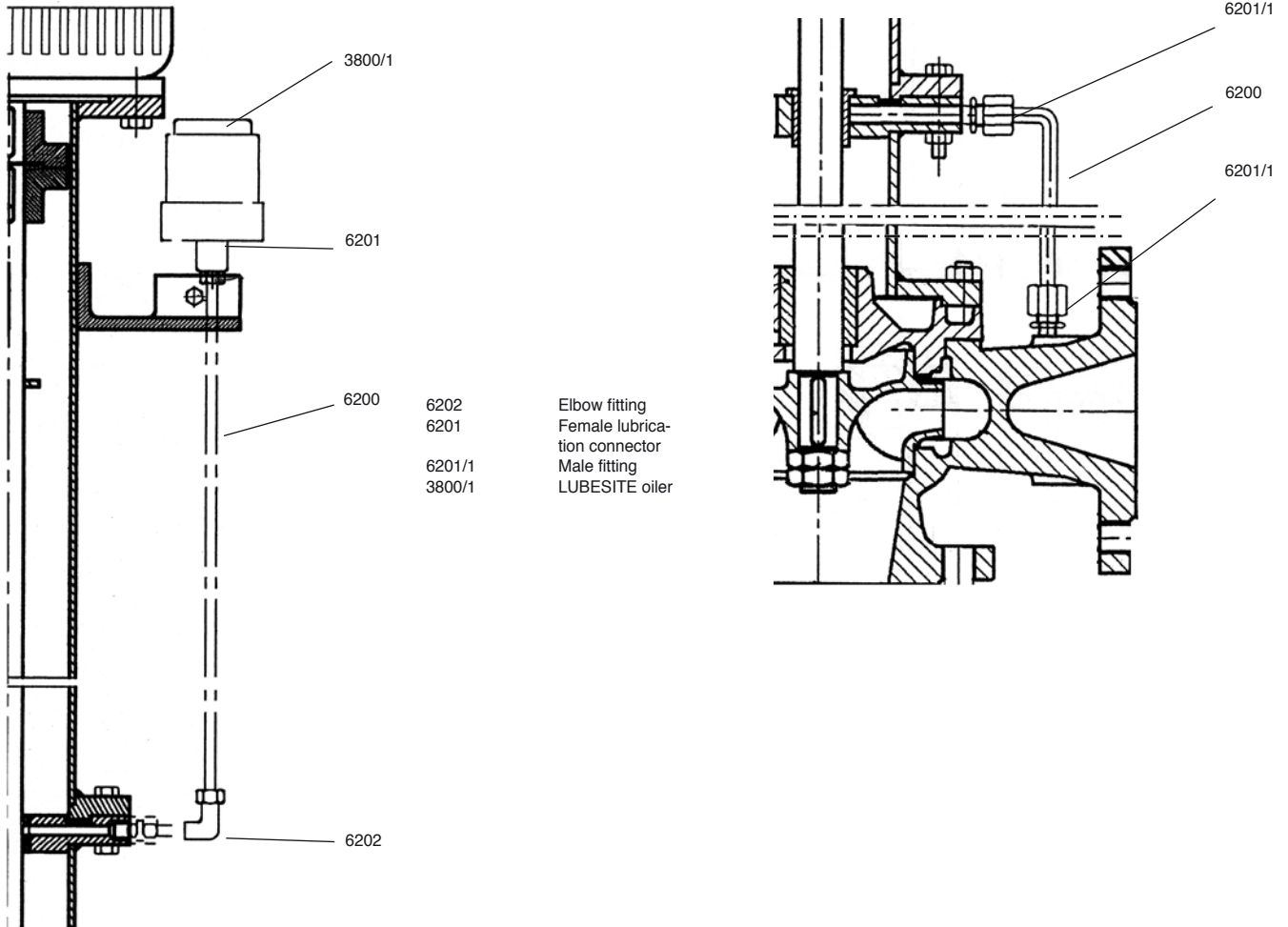


6579/1	8000	8000	Motor
7211	1240	7417	Thrust washer of lower bearing
6580	6572/2	7414	Coupling flector
7221	7414	7221	Coupling half-sleeve, pump side
2461/2	6742	7211	Coupling half-sleeve, motor side
4300/12	6572/1	6742	Coupling key, pump side
3262	3160	6580	Coupling lock nut, pump side
3012	6579/1	6579/1	Teat retaining screw, motor side
3800/2	6574/11	6574/11	Base plate assembly bolt
2461/1	6572/12	6572/12	Upper bearing cover assembly screw
6574/11	3011	6572/11	Lower bearing cover assembly screw
7417	6572/60	6572/2	Motor assembly screw
3261	6572/11	6140	Sole plate
4300/11	6140	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

## LUBRICATION OPTION

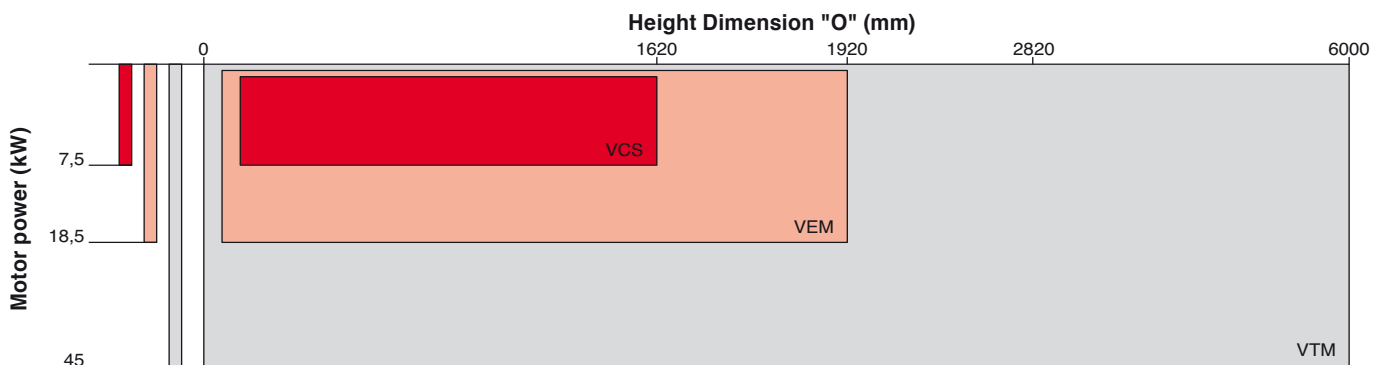
• By external fluid

• By pumped fluid



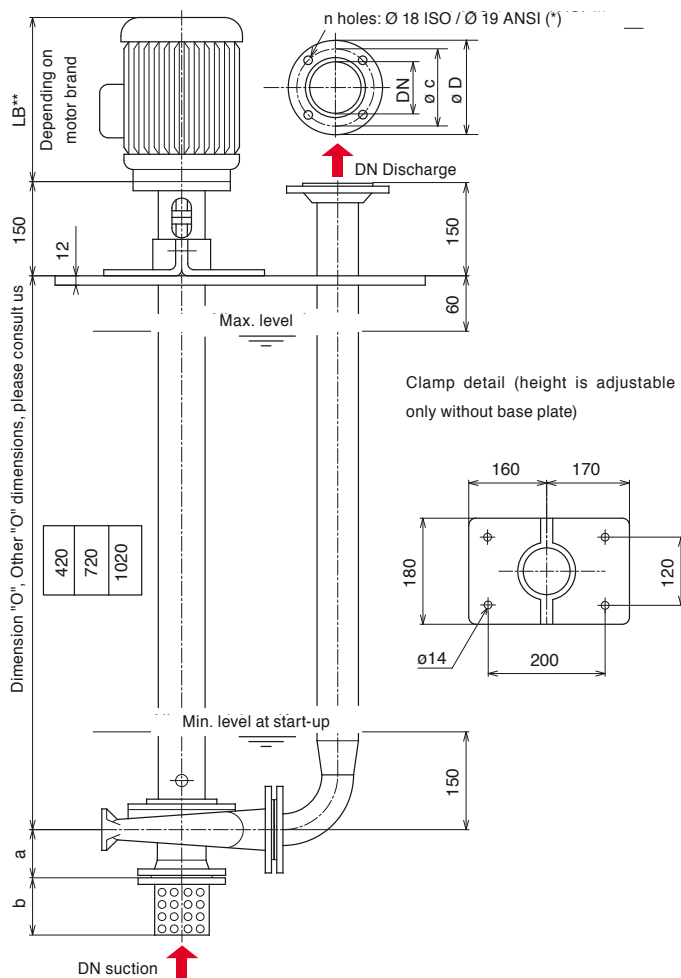
## VCS - VEM - VTM CONSTRUCTION SELECTION DIAGRAM

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).



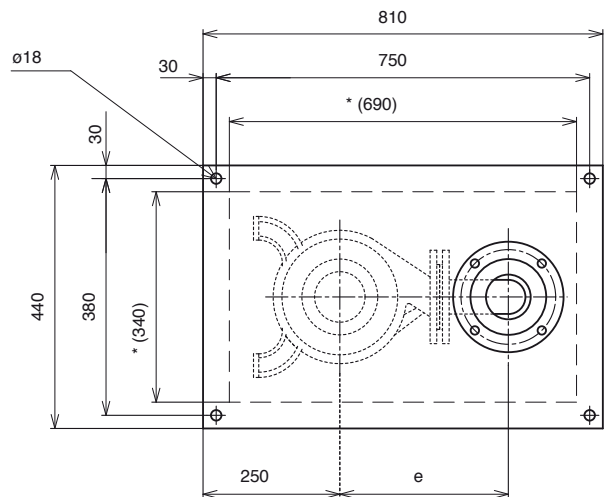
# NORMA VCS

## ELECTRICAL AND DIMENSIONAL CHARACTERISTICS - NORMA VCS

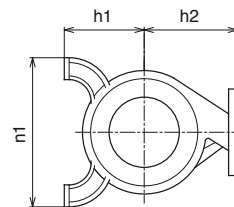


Detail of the pump foot print and the discharge flange

\* opening in the tank for pump passage



Volute casing detail



Pump type	Rotation speed		Discharge line					DN	e
	1450	2900	a	h1	h2	n1			
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

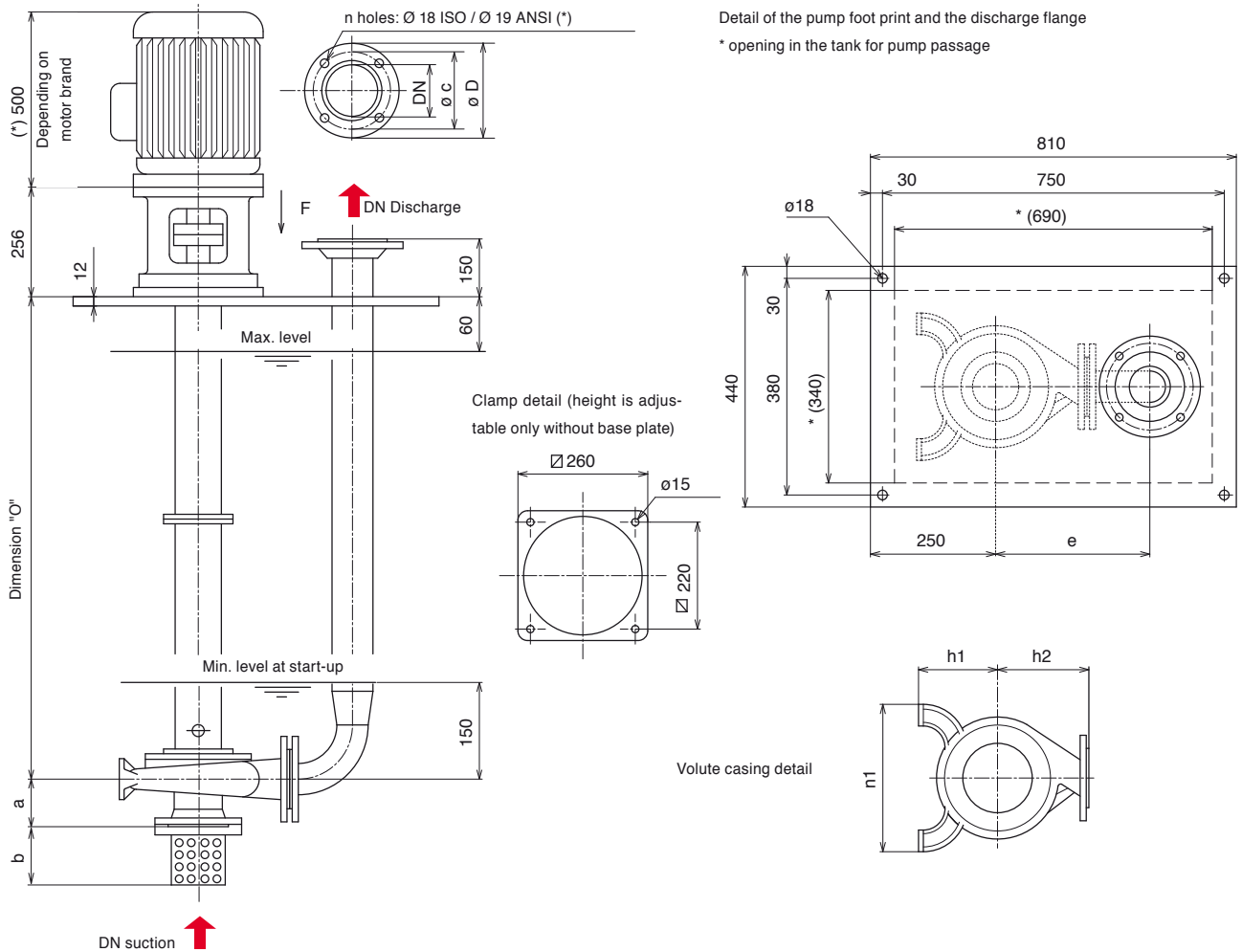
  

Strainer DN	b
50	127
65	149
80	179
100	215

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

## ELECTRICAL AND DIMENSIONAL CHARACTERISTICS - NORMA VEM



Pump type	Rotation speed	Discharge line					
		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				Discharge flange ANSI 150			
DN	Øc	ØD	n	DN	Øc	ØD	n
32	100	140	4	50	120,6	152	4
40	110	150	4	65	139,7	178	4
50	125	165	4	80	152,4	190	4
65	145	185	4	100	190,5	229	8
80	160	200	8	125	215,9	254	8
100	180	220	8	(*) seul DN 125 ANSI 150 trous Ø22,2			

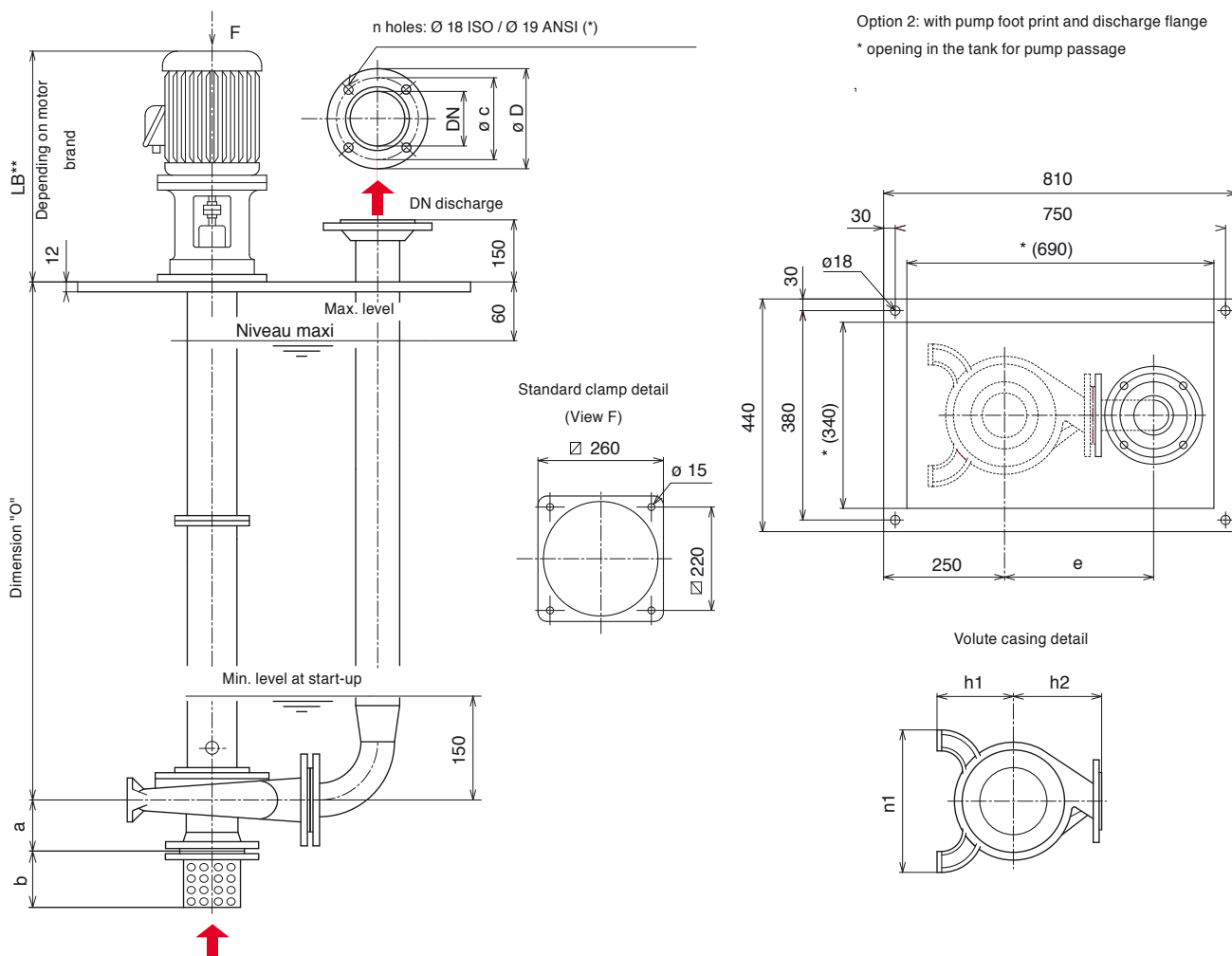
Dimension "O"	420	720	1020	1620	1920
Nbr of intermediate bearings	0	0	0	1	1
Other "O" dimension, please consult us					

### 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