

**SUBMERSIBLE SEWAGE PUMPS**

**DAR**

**SPECIFICATION**

50Hz

Rev. 0

PUMP		
Liquid Handled	Type of liquid	Dirty water, sewage water
	Max temperature [°C]	35
	Max solids size [mm]	50 spherical (DAR) 65 spherical (DAR-F)
Maximum immersion	[m]	7
Construction	Impeller	Bicanal Vortex
	Shaft seal type	Single mechanical seal
	Bearing	Sealed ball bearing
Pipe Connection	Suction-Flange [mm]	50 Open (DAR) 65 Open (DAR-F)
	Discharge-Flange	DAR50 - G 2 UNI ISO 228 DAR65 - Flange DN 65
Material	Casing	Cast Iron
	Impeller	AISI 304
	Casing cover	AISI 304
	Shaft seal	Graphite/Alumina/NBR (DAR) SiC/Alumina/NBR (DAR-F)
	Seal cover	AISI 304
	Shaft	AISI 316 (wet extension)
	Lubricating liquid	White mineral oil: Vabriol atoxoil
Applicable standard of test	ISO 9906 - Annex A	

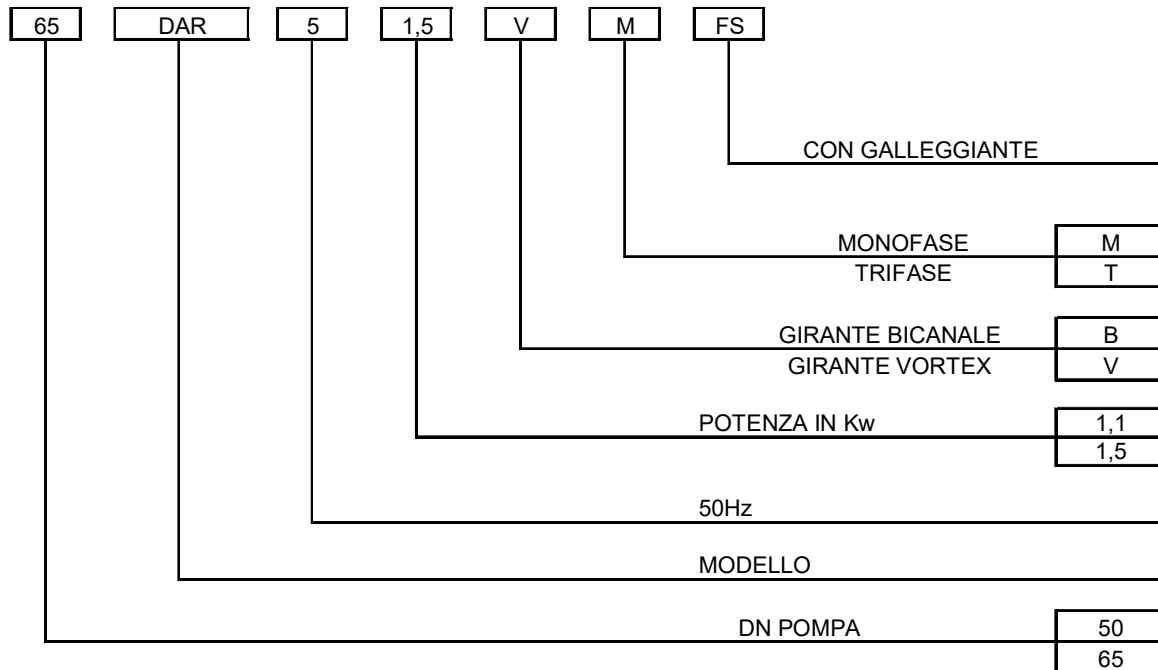
MOTOR			
Type	Submersible oil bath motor		
	Single Phase		Three Phase
No. of Poles	2		
Rotation speed [min <sup>-1</sup> ]	≈2800		
Insulation Class	F		
Protection degree	IP X8		
Power rating	[kW]	1.1 ÷ 1.5	1.1 ÷ 1.5
	[HP]	1.5 ÷ 2	1.5 ÷ 2
Frequency [Hz]	50		
Voltage [V]	230 ±10%		400 ±10%
Capacitor	Built in		-
Over load protection	Built in		Provided by the user
Float switch	Optional		-
Float switch cable	material	H07RN-F	
	size	3G1	
Power cable	length [m]	10	
	material	H07RN-F	
	size	3G1.5	
		4G1 (DAR) 4G1.5 (DAR-F)	
Dimensions of cable	Cable Gland		

## PERFORMANCE CURVE

50Hz

Rev. 0

### TYPE KEY:



### PERFORMANCE CURVE SPECIFICATIONS

The specifications below qualify the curves shown on the following pages.

Tolerances according to ISO 9906 Annex A

The curves refer to effective speed of asynchronous motors at 50 Hz

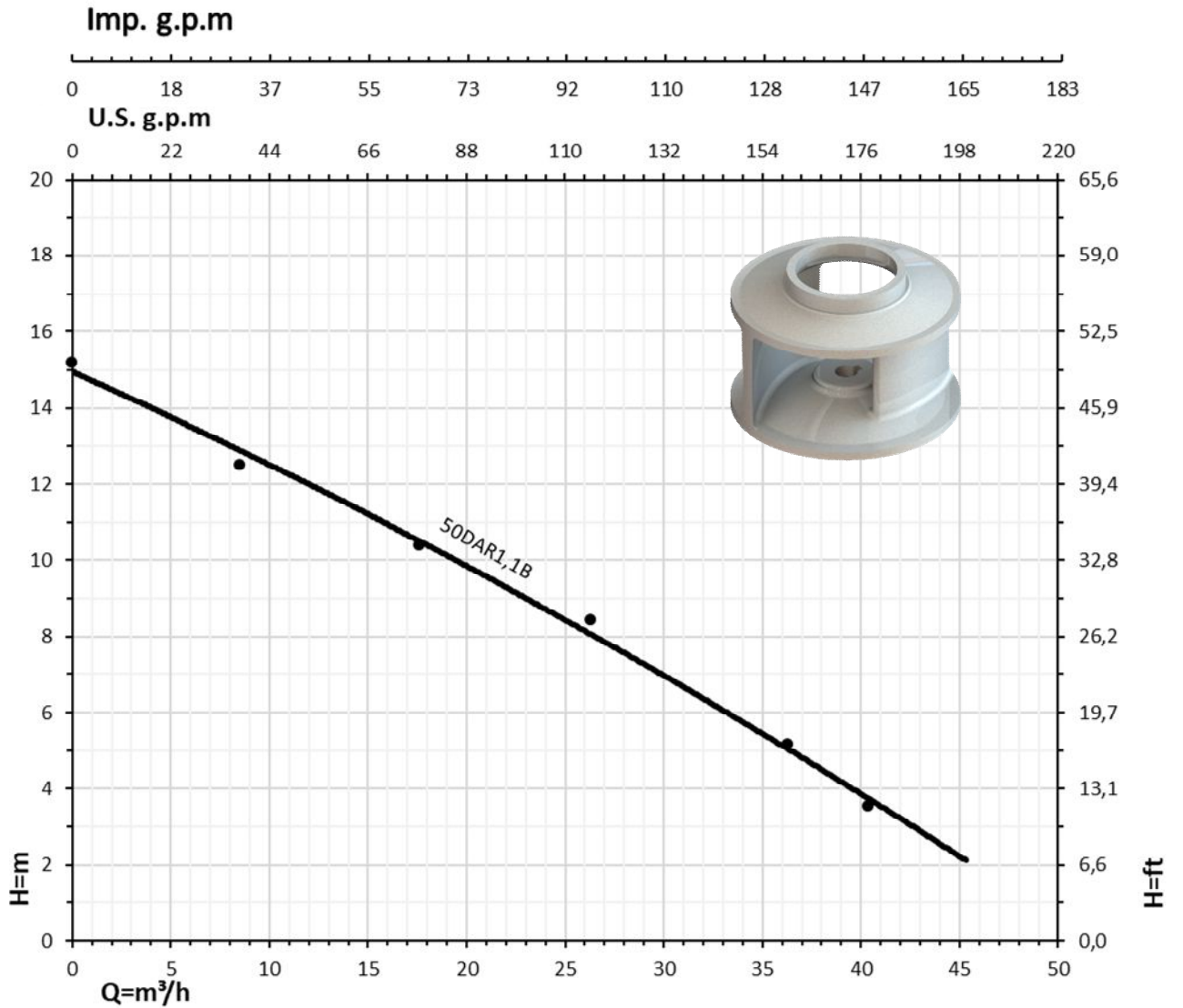
Measurements were carried out with clean water at 20°C of temperature and with a kinematic viscosity of  $\nu = 1 \text{ mm}^2/\text{s}$  (1 cSt)

In order to avoid the risk of over-heating, the pumps should not be used at a flow rate below 10% of best efficiency point.

Symbols explanation:

- Q = volume flow rate
- H = total head

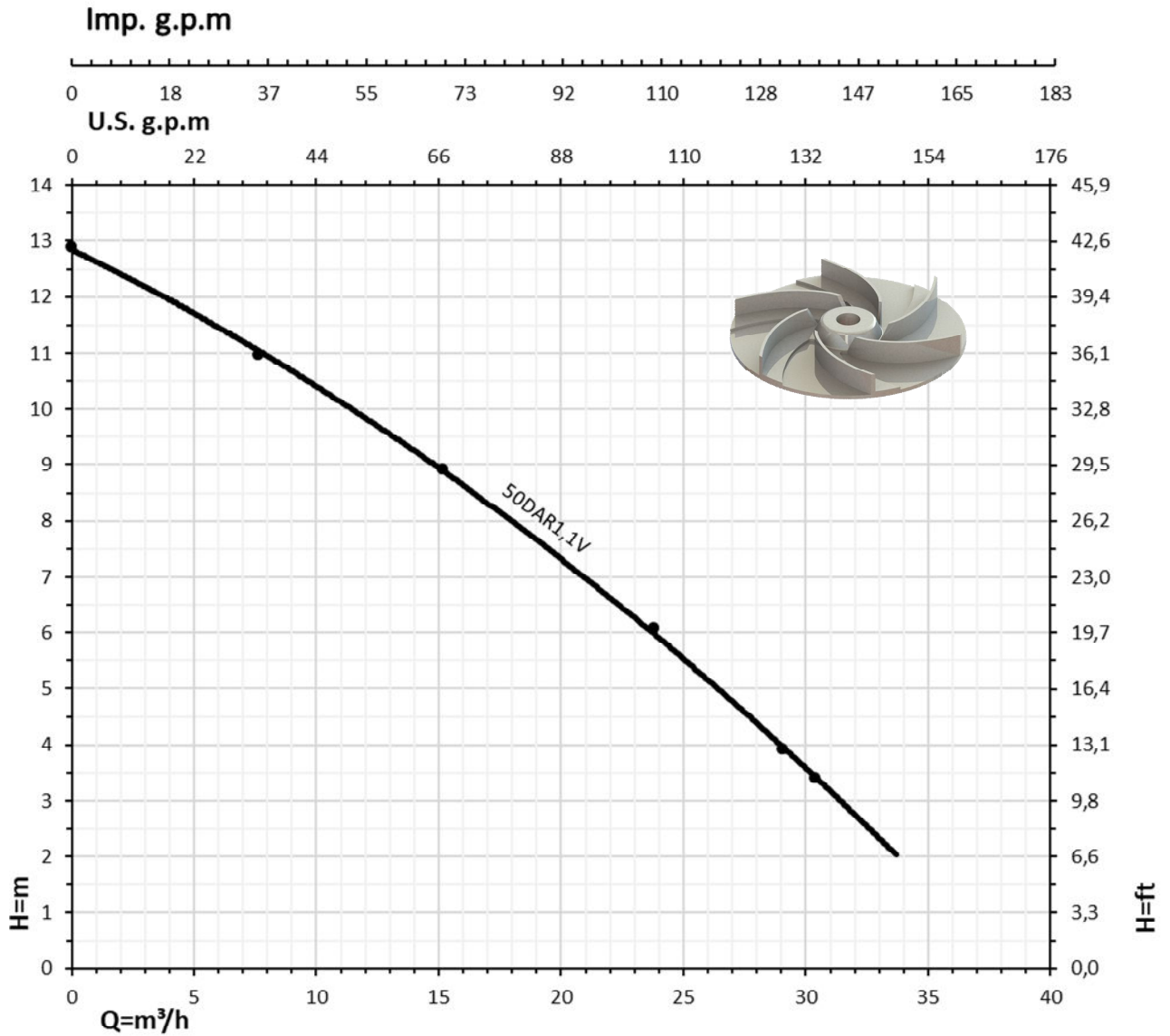
**50DAR51.1B - Impeller diameter = Ø108**



Pump Type	Q=Capacity									
	[l/min]	0	83,33	166,7	250	333,3	416,7	500	667	750
	[m³/h]	0	5	10	15	20	25	30	40	45
H=Total manometric head in meters										
50DAR51,1B		15,0	13,8	12,5	11,0	9,8	8,5	7,0	4,0	2,0

Rotation speed ≈ 2800 min<sup>-1</sup>  
 Test standard: ISO 9906 – Annex A

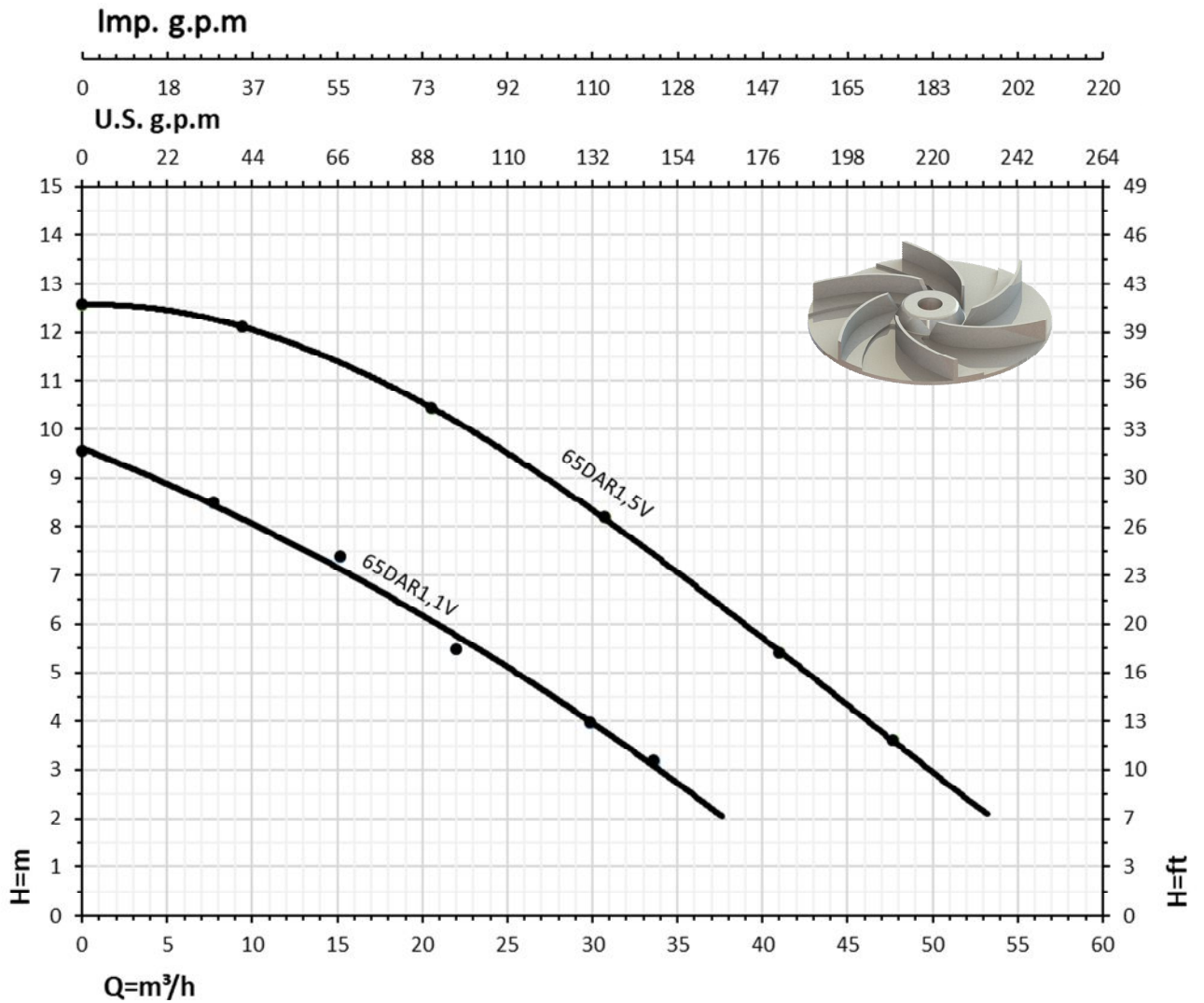
50DAR51.1V - Impeller diameter = Ø115



Pump Type	Q=Capacity								
	[l/min]	83,33	166,7	250	333,3	416,7	500	567	
	[m³/h]	0	5	10	15	20	25	30	34
H=Total manometric head in meters									
50DAR51,1V		13,0	11,7	10,5	9,0	7,7	5,5	3,7	2,0

Rotation speed  $\approx 2800 \text{ min}^{-1}$   
 Test standard: ISO 9906 – Annex A

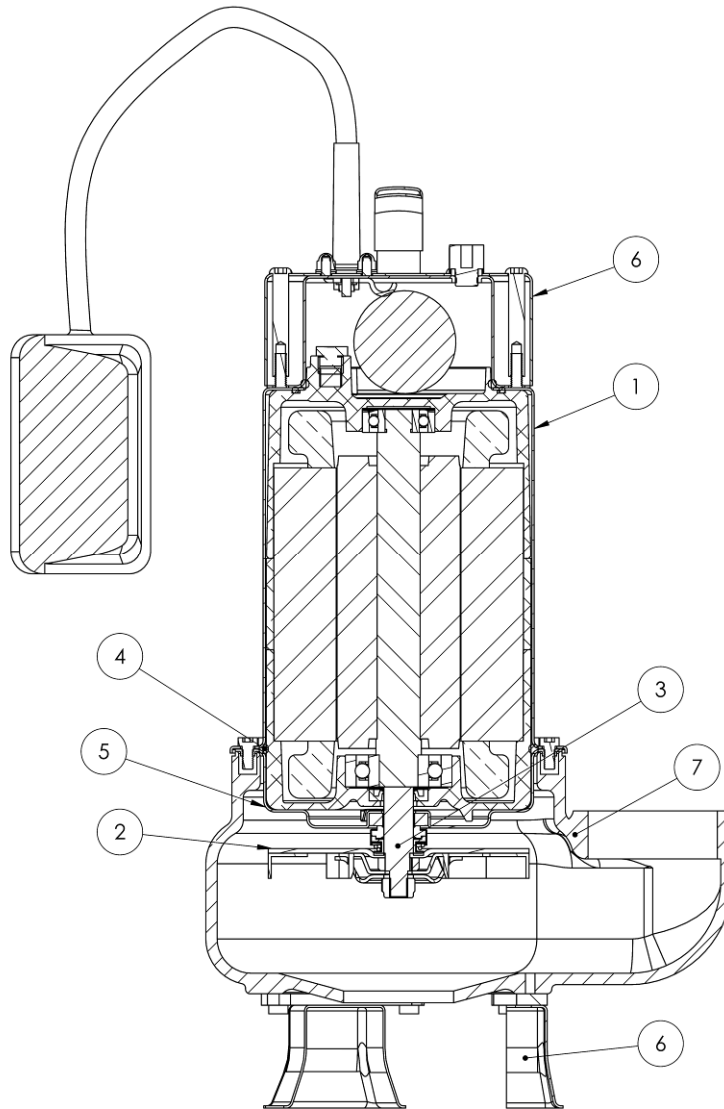
65DAR51.1V - Impeller diameter = Ø115  
 65DAR51.5V - Impeller diameter = Ø115



Pump Type	Q=Capacity								
	[l/min]	0	166,7	333,3	500	583,3	666,7	750	900
	[m³/h]	0	10	20	30	35	40	45	54
H=Total manometric head in meters									
65DAR51,1V		9,5	8,0	6,2	4,0	2,7	-	-	-
65DAR51,5V		12,5	11,8	10,5	8,5	7,2	5,8	4,3	2,0

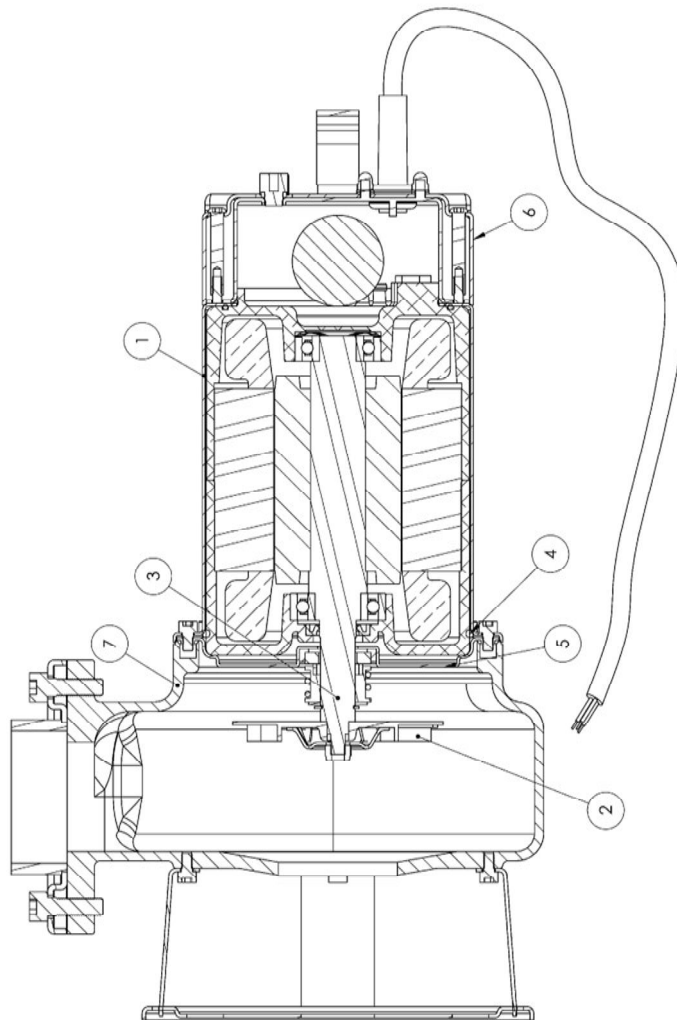
Rotation speed ≈ 2800 min<sup>-1</sup>  
 Test standard: ISO 9906 – Annex A

**SECTIONAL VIEW DAR**



N°	PART NAME	MATERIAL	Q.TY
1	External housing	AISI 304	1
2	Impeller	AISI 304	1
3	Shaft pump side	AISI316	1
4	O-ring	NBR	1
5	Porta motore	AISI304	1
6	Coperchio	AISI304	1
7	Pump body	G20	1

**SECTIONAL VIEW DAR**

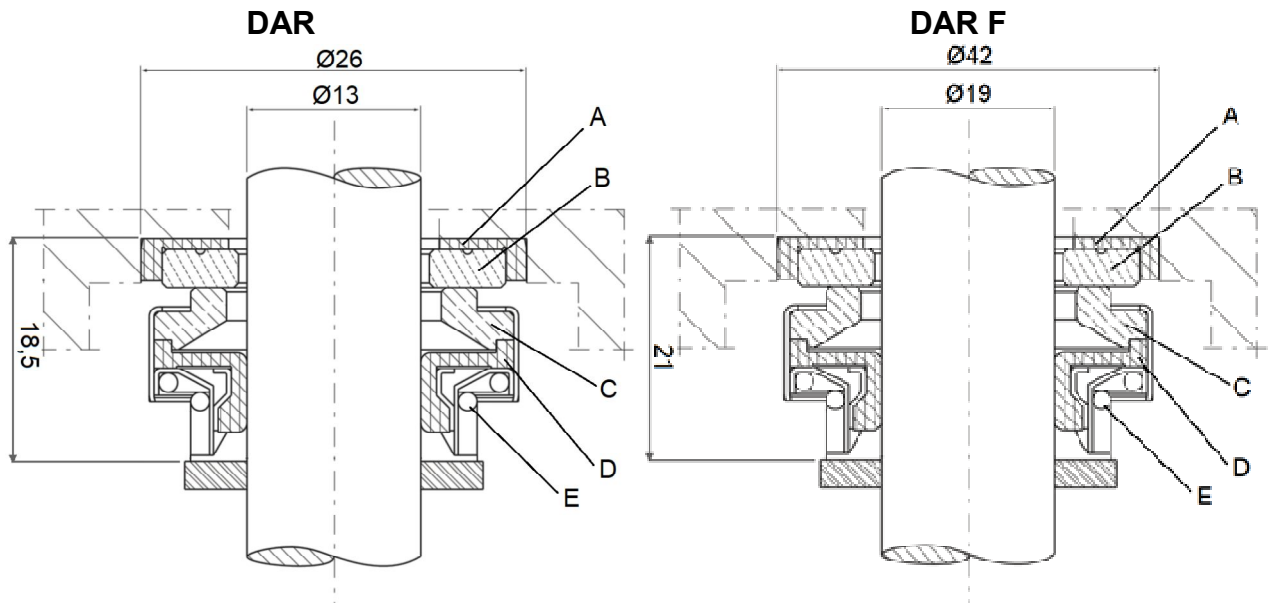


N°	PART NAME	MATERIAL	Q.TY
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3	Shaft pump side	AISI316	1
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7	Pump body	G20	1

**BEARINGS**

Pump Type		Ball Bearing	
Single Phase	Three Phase	Pump side	Cover side
50DAR51,1VMFS	50DAR51,1VT	6303 ZZ	6201 ZZ
50DAR51,1BMFS	50DAR51,1BT	6303 ZZ	6201 ZZ
65DAR51,1VMFS	65DAR51,1VT	6205 ZZ	6204 ZZ
65DAR51,5VM	65DAR51,5VT	6205 ZZ	6204 ZZ

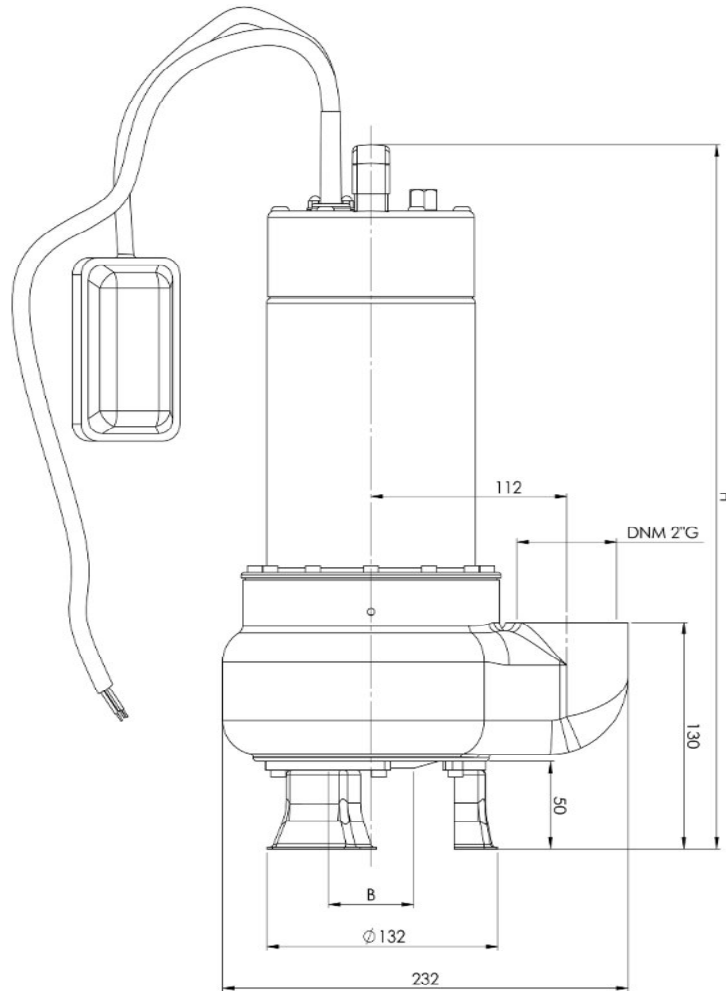
**MECHANICAL SEAL**



DAR			DAR F		
REF	PART NAME	MATERIAL	REF	PART NAME	MATERIAL
A	Rubber cup	NBR	A	Rubber cup	NBR
B	Seat	Alumina	B	Seat	Alumina
C	Seal face	Graphite	C	Seal face	SiC
D	Bellow	NBR	D	Bellow	NBR
E	Spring	AISI 304	E	Spring	AISI 304

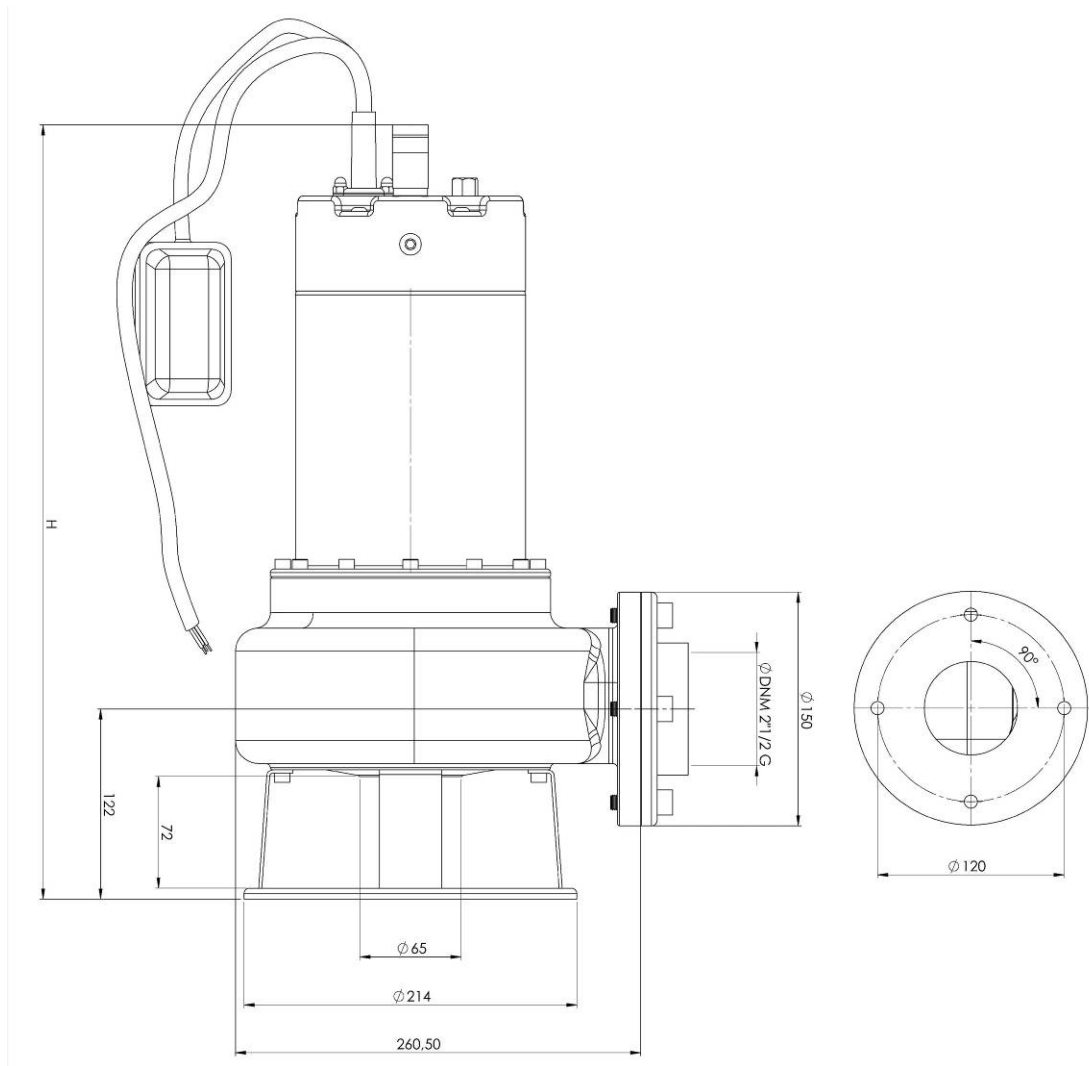


**DAR**



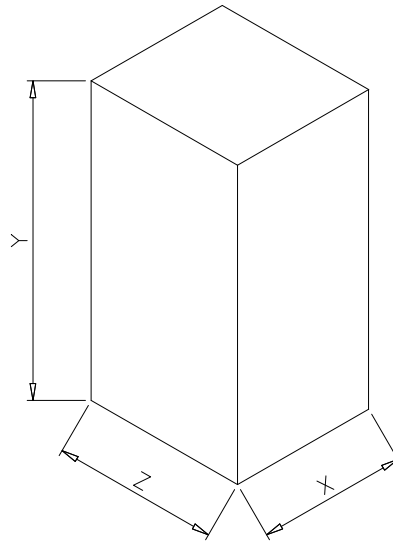
Pump type	H [mm]		B [mm]	Weight [kgf]	
	1~	3~		1~ Automatic (With float switch)	3~
50DAR51,1V	403,5	403,5	Ø50	16,5	16,5
50DAR51,1B	407,5	407,5	Ø50	17,5	17,5

**DAR F**



Pump type	H [mm]		Weight [kgf]	
	1~	3~	1~ Automatic (With float switch)	3~
65DAR51,1V	498	498	28	25
65DAR51,5V	498	498	28	27,5

**PACKING**



Pump type		1~			Weight [kgf] Automatic (With float switch)	3~			Weight [kgf]
		Packing [mm]				Packing [mm]			
		Z	X	Y		Z	X	Y	
DAR	1,1V	225	180	480	18	225	180	480	18
	1,1B				19				19
DAR F	1,1V	245	295	530	29,7	245	295	530	26,7
	1,5V				29,7				29,2

### MOTOR DATA

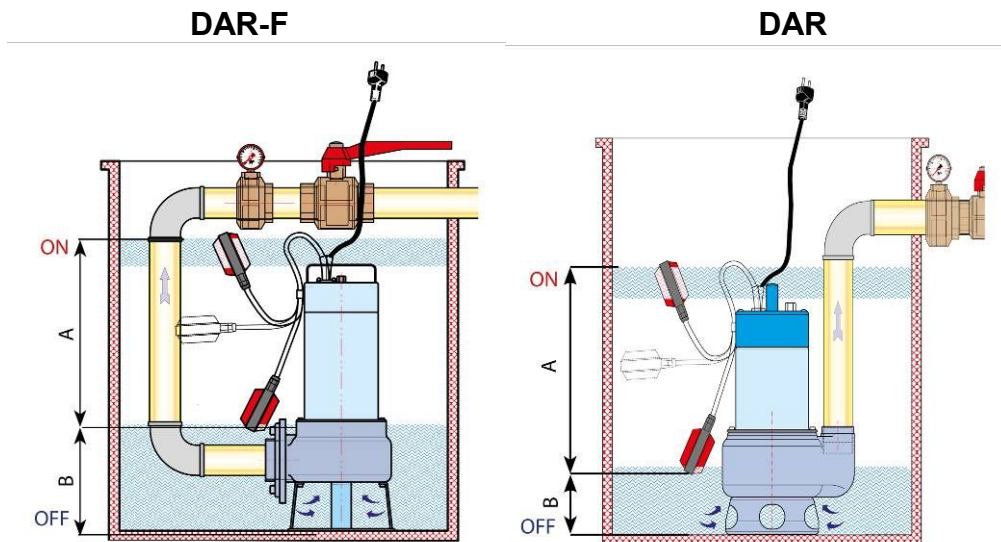
#### DAR

Pump Type		Power				Capacitor Single Phase		Input Power [kW]		Full load current [A]	
Single Phase	Three Phase	Single Phase		Three Phase		[μF]	Vc [V]	Single Phase	Three Phase	Single Phase	Three Phase
		[kW]	[HP]	[kW]	[HP]						
50DAR51,1VMFS	50DAR51,1VT	1,1	1,5	1,1	1,5	30	450	1,8	2,20	12,0	3,8
50DAR51,1BMFS	50DAR51,1BT	1,1	1,5	1,1	1,5	30	450	2,60	2,30	12,0	4,0

#### DAR F

Pump Type		Power				Capacitor Single Phase		Input Power [kW]		Full load current [A]	
Single Phase	Three Phase	Single Phase		Three Phase		[μF]	Vc [V]	Single Phase	Three Phase	Single Phase	Three Phase
		[kW]	[HP]	[kW]	[HP]						
65DAR51,1VMFS	65DAR51,1VT	1,1	1,5	1,1	1,5	50	450	2,2	2,10	11,0	4,2
65DAR51,5VM	65DAR51,5VT	1,5	2	1,5	2	50	450	3,20	3,00	14,5	6,0

**INSTALLATION**



Pump	A (ON)	B (OFF)
	[mm]	
DAR	280	160
DAR F 1,1	300	160
DAR F 1,5	350	160