bombas IDEAL

Submersible Sewage Pumps

Series ARS

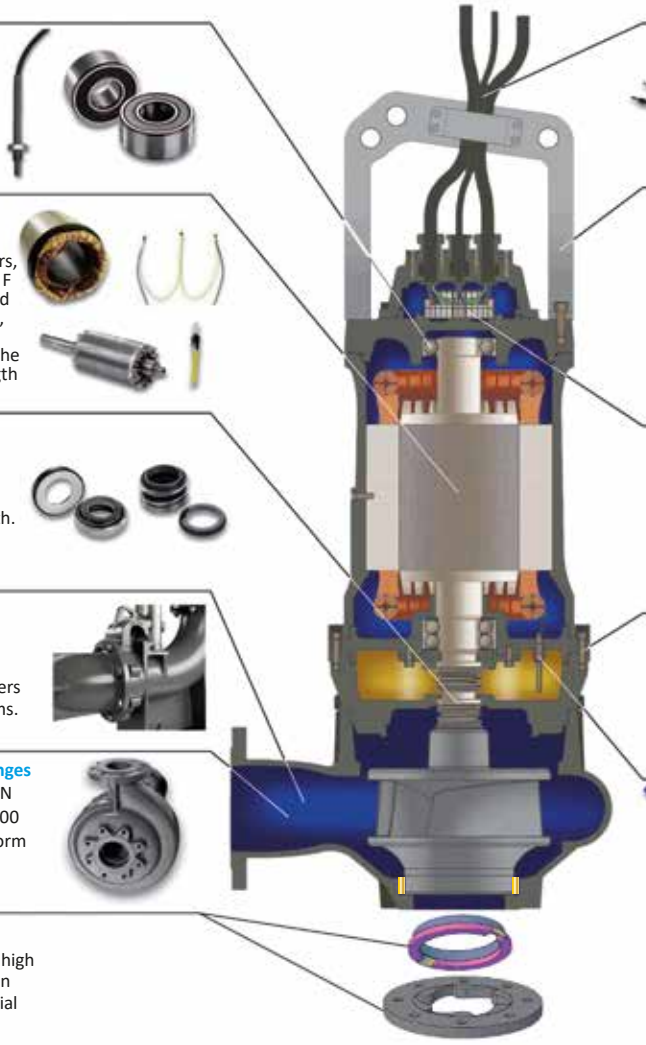
División Medio ambiente Environment

UNE 166.002 BUREAU VERITAS Certification

ISO 14001 BUREAU VERITAS Certification

ISO 9001 BUREAU VERITAS Certification

ARS 2019



Ball bearings
Permanently lubricated maintenance free bearings are fitted as standard.
High strength bearing, oversized to increase the durability.

Motor
All models have squirrel cage type high efficiency three phase electric motors, IP-68 protection and class F And H insulation, equipped with thermal sensor (PTC), depending on version, temperature rise class B ,the shaft made of high strength stainless steel.

Mechanical seal Silicon carbideviton
Hardened double mechanical seals in oil bath.
Mechanical seal standard.

Automatic coupling system
100% compatible with Other leading manufacturers Automatic coupling systems.

Suction and discharge flanges
According to EN 10922 (DIN 28605) from DN40 to DN500 and drilled according to norm DIN 2501-PN10.

Cutter mechanism
Can be added to ensure a high degree of reliability even in presence of fibrous material (Option)

Wire ending
Cable finished with wire caps and letterings, protected with a Thermoshrinkable cap.

Handle
Pumps equipped with high robustness. The handlebus Designed to keep the pump with the suitable angle during the lifting/descent process and to assemble with the coupling system. Cable protection pull proof, Depending on version.

Electrical connections
Din track mounted connections are clearly marked and isolate Connections, reducing the risk of accidents and easing maintenance.

Screws
High strength stainless steel.

Water probe
Sensor detects presence of water in the oil bath, (Option)
Intrinsic safety barrier (depending on version).

Identification of the series

ARS 80 – 22 M / 14 EX

Series
ARS
Submerged pump

ϕ Discharge
DN
32
40
50
65
80
100
150
200
250
300
400
500

ϕ Impeller

Power(HP)

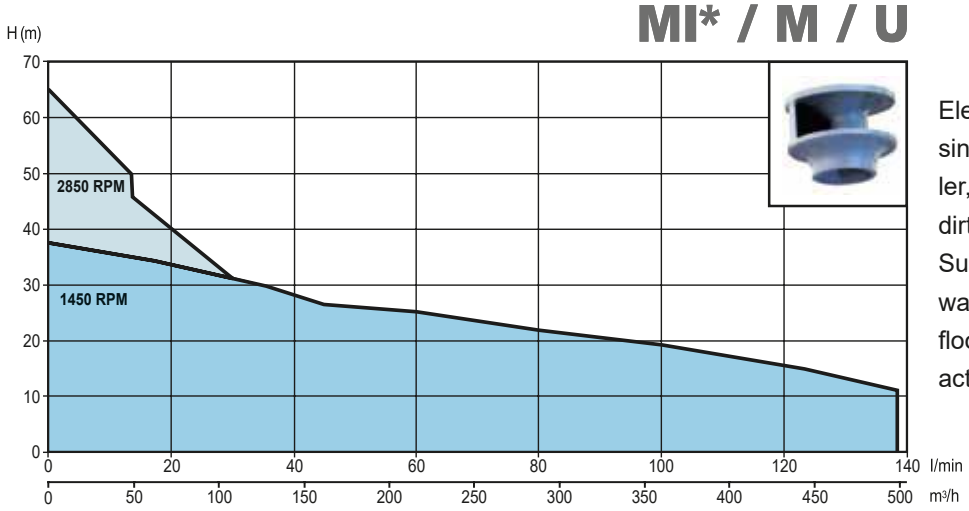
EX	Dir. 94/9/CE ATEX Ⓔx II 2 G Exd IIB T4
CR	Cooling Jacket
X	Inox AISI 316L
D	Super duplex

Impeller version

V	Vortex
M U	Single-channel
MI	Open single-channel
C CI	Multi-channel
2U	Double-channel
DI	Drainage
RI	Grinder

Single Channel

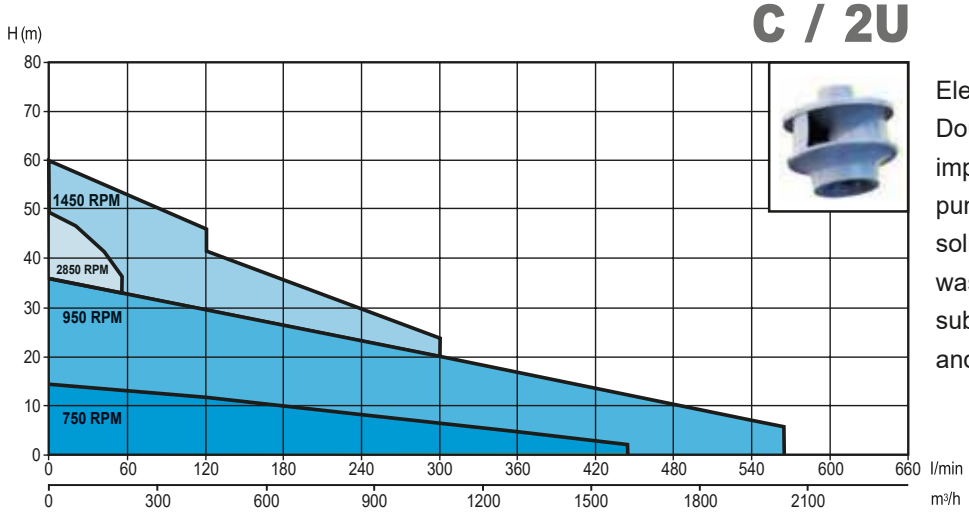
MI* / M / U



Electric submersible pump with single Channel non-Clogged impeller, especially designed for pumping dirty water with suspended solids. Suited for pumping screened waste water, drainage in areas subject to flooding and pumping crude and activated sludge.

With Channels

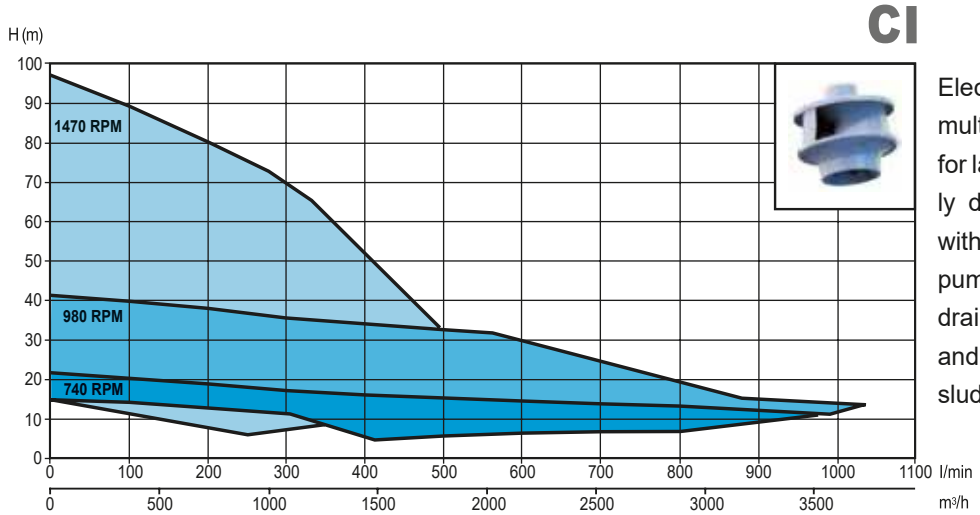
C / 2U



Electric submersible pump with Double or multi-Channel non-Clogged impeller, especially designed for pumping dirty water with suspended solids. Suited for pumping screened waste water, drainage in areas subject to flooding and pumping crude and activated sludge.

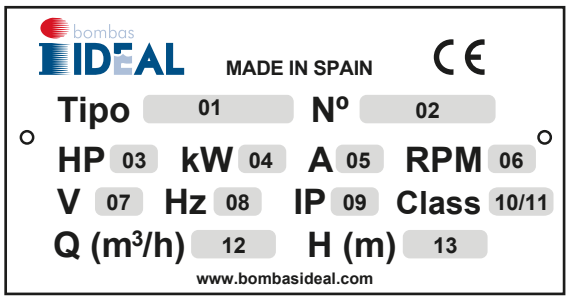
Multi-channel for large flows

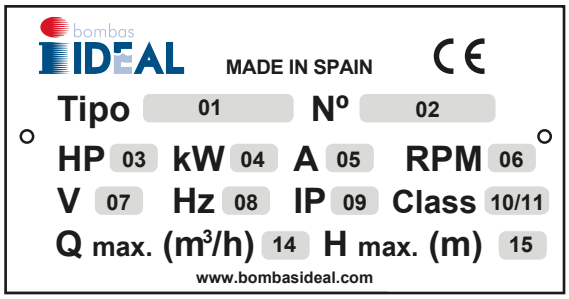
CI



Electric submersible pump with multi-Channel non-Clogged impeller for large flows and free pass, especially designed for pumping dirty water with suspended solids. Suited for pumping screened waste water, drainage in areas subject to flooding and pumping crude and activated sludge.

Name Plate

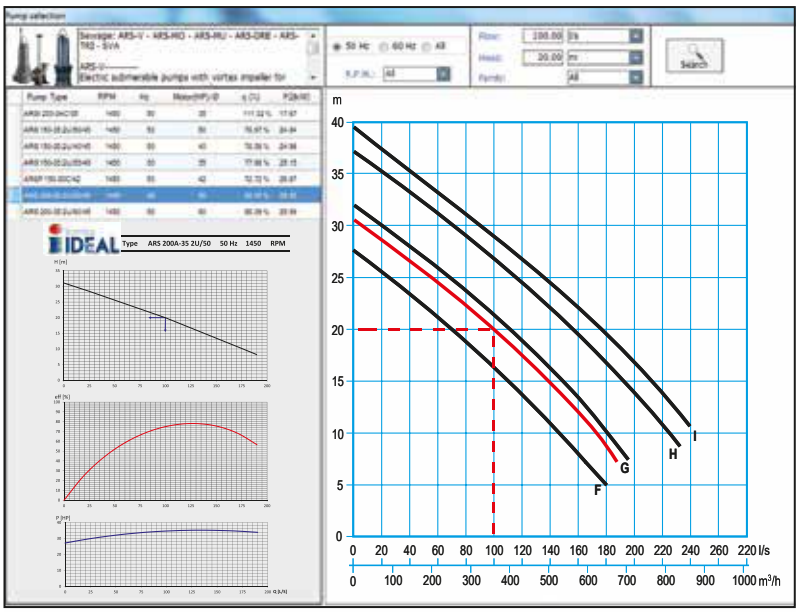




Cod.	Name
01	Pump type
02	Serial number
03	Shaft power (HP)
04	Shaft power (kW)
05	Current (A)
06	Rotation speed (rpm)
07	Voltage (V)
08	Frequency (Hz)
09	Protection Degree (IP)
10	Insulation Class
11	Temp. Rise Class
12	Flow (m³/h)
13	Head (m.w.c.)
14	Flow max./min. (m³/h)
15	Head max./min. (m.w.c.)

Performance curve ARS

The impeller can be trimmed to any diameter between max and min to optimise performance at the duty point. The most suitable motor size will then be chosen.



1. Service point

Once the type of impeller and the characteristics of the pump have been determined,will proceed to adjust the hydraulics of the same to the point of operation, with thepurpose of obtaining the best service and optimal performance.

1.1 Determination of the operating flow:

The flow rate of each pump must be equal to or greater than 125% of the flow rate ofcontribution, all pumps being equal.

1.2 Monomeric height:

The pump's gauge height must be obtained as a result of adding thegeometric height between the highest point at which the pump must raise the watersand the minimum level of them in the well, and the loss of pressure produced aslength of the pipe, calculated by the usual methods, from the minimum submergencefrom the pump to the highest point. From the point of connection with the collectorhorizontal, or from the point of elevation, the pipe must be sized correctly,taking into account that the velocity of the fluid through it is maintained byabove 0.6 ¸ 1 m / s. Lower speeds can cause obvious dangerof formation of deposit of solid matter in the pipes that will hinder the normalfunctioning. Nor is the work of the pump interested in areas of maximumflow, by the appearance of cavitation phenomena, with wear, noise and gearirregular.

2. Selection of the work point:

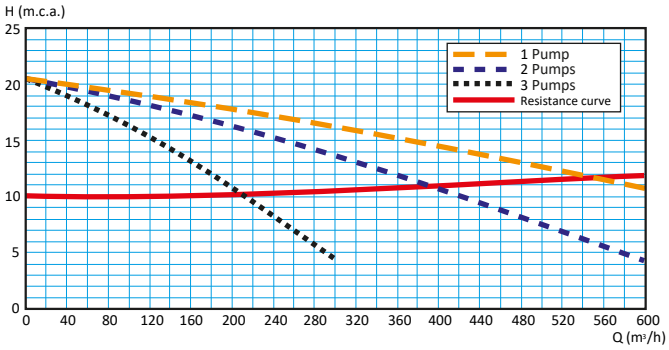
There are two types of design configuration that directly affect the calculation of
Load losses and pump selection:

•Two pumps with configuration for operation in service / standby (1 + 1).The pumps only have one work point (without considering the changes in the levelof aspiration of the liquid).

• More than two pumps and all pumps have separate drive linesregardless of its configuration. Normally produced in facilitieswith short distances between the pumping well and the receiving point and the point of work is calculated as in the previous case.

• Several pumps in service with common impulse pipe. The pumps haveseveral work points according to the number of pumps in operation. This isselects for the situation in which all pumps in service operate at same time.

Selection of the work point: Once the two previous values are knownwe look for the point of work in the curves



Regarding the adequate power for the engine, it will be necessary to distinguish: if the work is carried out in a single point, between two points on the Q-H curve or in the whole of it.

3. Working in a single point

As the absorbed power remains constant, the power of the motor will be immediately higher than that absorbed by the pump.

4. Work between two points

When the consumption is varied, the maximum between the two points will be taken as the motor power.

5. Work at any point

The maximum power consumed along the Q-H curve will be taken as the nominal power of the motor.
Keep in mind that the powers of the engines will always be chosen with 10 or 15% higher, as a reserve, considering that the wastewater carries solids and other materials in suspension that cause losses.

In special cases where the water has a high percentage of solids, high viscosity or specific weight greater than one, it is necessary to increase the power, depending on these parameters.
Once the pumps have been selected, electrical data must be taken into account for the

design of the control panel, such as voltage, rated current, starting current, power absorbed from the grid, power to the axis, power factor, etc.

Other data to take into account is the existence of temperature probes in the winding of the motor or bearings, humidity probes or if it is going to be used with frequency variators to control the pumps.

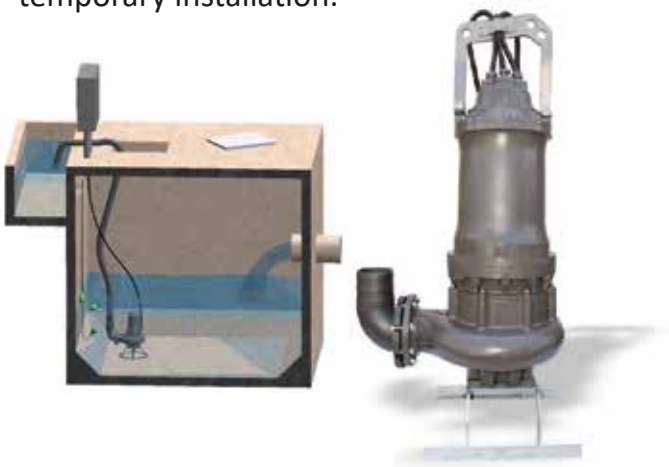
In the last place, it will be necessary to select the appropriate type of installation, searching among the different solutions that the market presents the most suitable. The most frequent provisions are

1A Fixed installation, submersible pump with coupling system kit.

Is the most common type of installation, in which the pump is submergedof compact construction. The pump, to which a slide guide is attached, is mounts on a coupling system fixed to the floor by screws, providedof an elbow in the impulsion and some guide tubes on which it slides vertically the pump.This type of assembly allows a quick placement of the pump or its removal in case of failure, without the need to clamp it with screws, although the well have water. The impulse pipe is connected to a rigid collector.

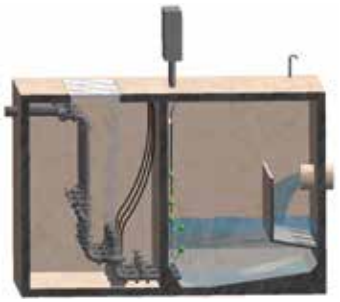
2B Free installation, submersible pump with support food and discharge elbow with connection for rigid or flexible pipe

Submersible construction type pumps are also used in this type of installation compact In this type of installation there is no coupling system proper, since the pump is mounted on a metal support for distance the aspiration of the ground and that is not fixed to the ground, which allows to move to the pump at various points. The discharge pipe is a flexible hose coupled to the pump by means of a discharge elbow. It is a type of temporary installation.



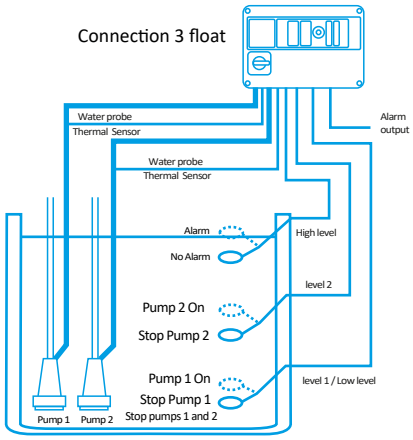
3C Fixed and dry pit installation, on suction elbow. Pump equipped with cooling jacket.

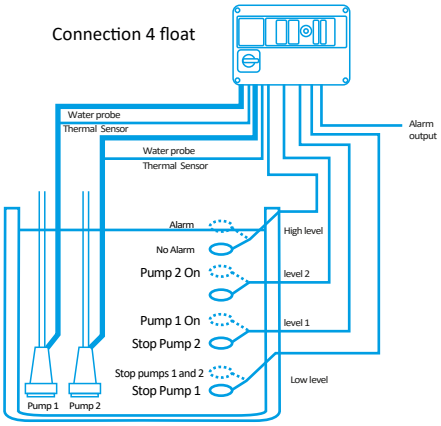
In this type of installation, it is not necessary for the pump to be submerged,since it is mounted outside the pumping well, although it is usual to mount a pumpsubmerged equipped with a cooling jacket in open circuit (take thewater pumped for cooling) or in a closed circuit (uses a refrigerant fluid,normally oil, which is self-cooling with the pumped water but without enteringin contact with her). The hydraulic part of the pump is also commonly usedsubmerged residual, but powered by a standard electric motor (not submersible)coupled to the pump by means of a coupling reel that ensures the tightness. Of the same. In any case, the pump is mounted on a screwed support elbowin the suction of the pump, while the discharge pipe connected to thepump through an elbow is connected to a rigid manifold.



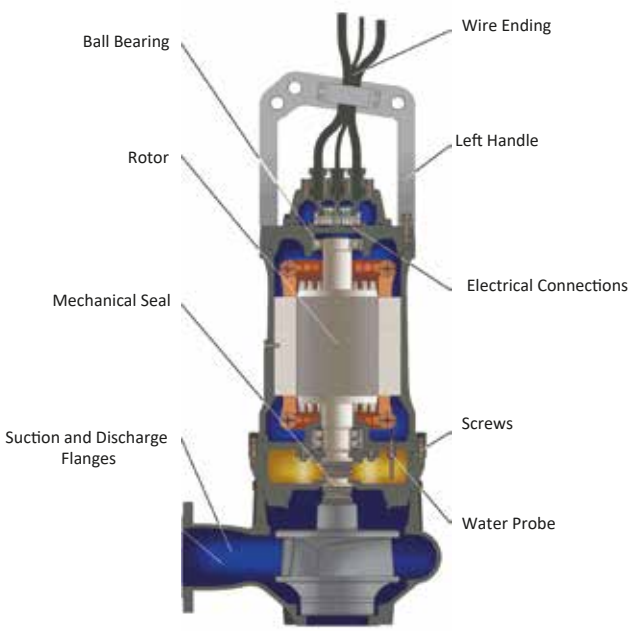
Pumping station

Regarding the pumping well, this can be concrete, civil works and design as shown in the previous figures, or prefabricated fiberglass reinforced plastic material (GRP), capacity in m^3 already defined, that allows to shorten the execution time of the work and reduce costs. As it is observed in the previous figures, the control of the operation is usually done by buoys, although transducers can also be used of pressure or laser level detectors. In the case of buoys, the number of buoys to be installed is equal to the number of pumps plus 1 or more 2, depending on the control mode chosen. The following figure shows a connection for two pumps with both control modalities:



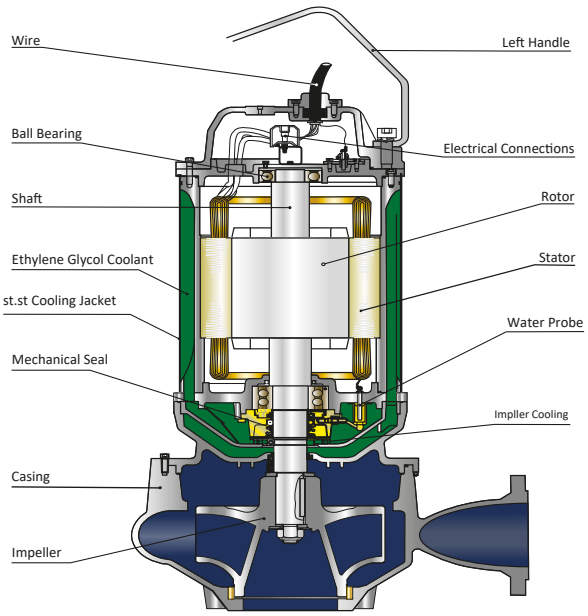


Direct cooling



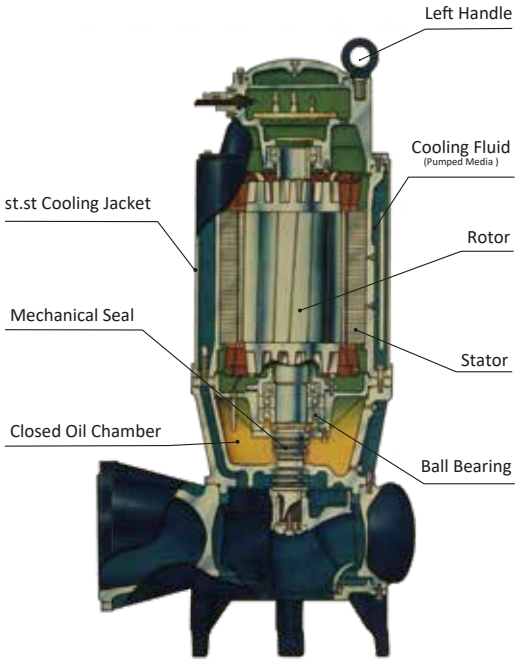
The pump is cooled by the surrounding media, the pump need to be totally submerged while in operation.

Closed - loop cooling system



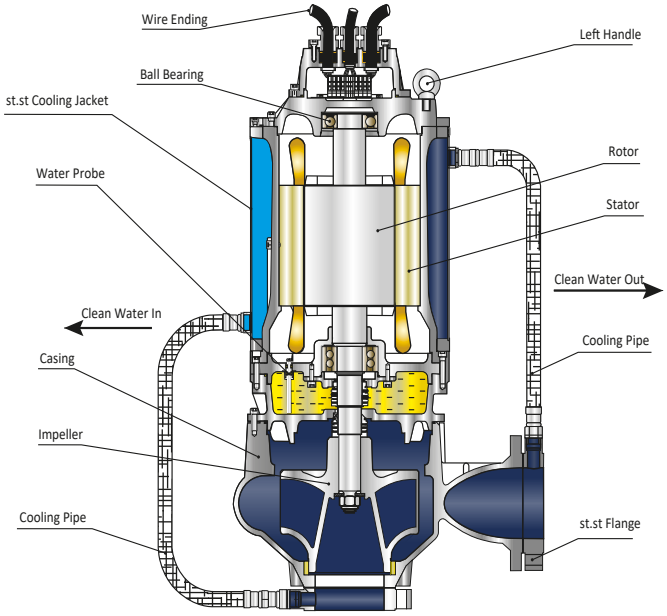
The pumped liquid doesn't enter the cooling circuit, cooling liquid Ethylene Glycol coolant circulated by small impeller located on the rotors shaft.

Internal cooling



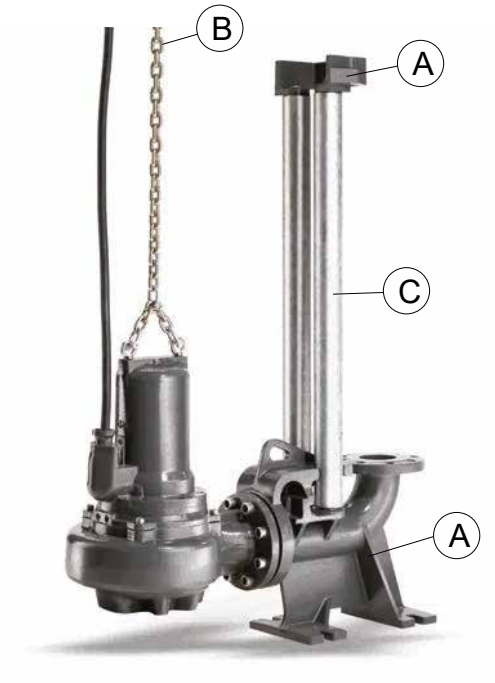
Cooling liquid from pumped media pumped between the cooling jacket and stators housing then the cooling fluid circulated to the pump discharge.

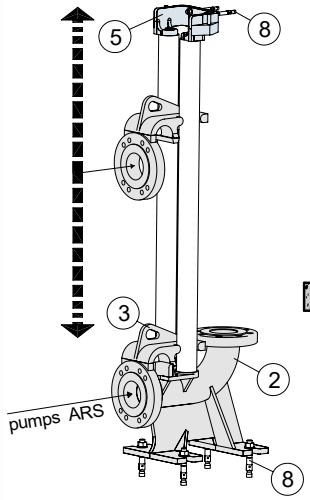
External cooling

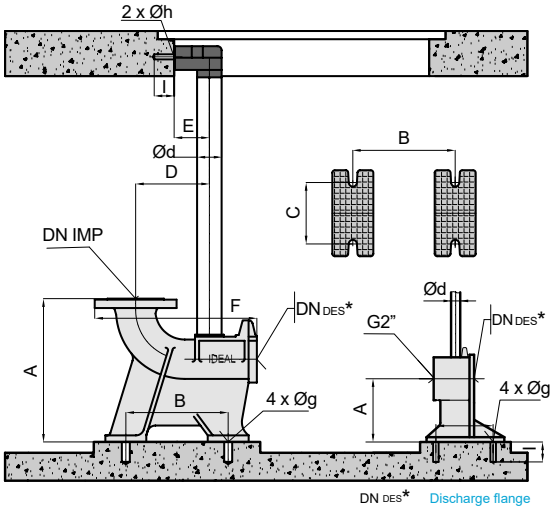


The pumped media is circulated between the cooling jacket and stator in applications with low temperature fluid. For high temperature fluid or pumps that need extra cooling the cooling fluid supplied from an external source.

Wet chamber 1A



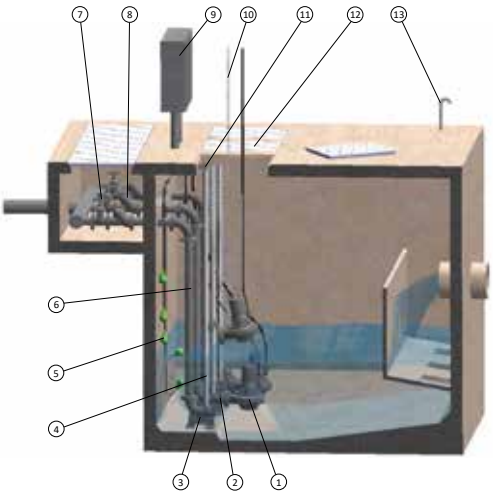




Ⓐ Coupling system kit

DN DES	DN IMP	Dimensions							Holes		
		Ød	A	B	C	D	E	F	Øg	Øh	I
DN 40-50	G 2"	G 3/4"	134	100	100	79	96	-	10	10	60
DN 65	DN 65	G 2"	250	200	120	180	85	410	16	10	80
DN 80	DN 80	G 2"	350	250	150	180	85	396	16	10	80
DN 100	DN 100	G 2"	380	250	150	190	85	416	16	10	80
DN 150	DN 150	G 2"	532	350	225	225	85	500	16	10	80
DN 200	DN 200	G 2"	700	400	250	337	85	683	20	10	110
DN 250	DN 300	G 3"	800	520	525	422	120	763	20	10	110
DN 300	DN 300	G 3"	800	520	525	422	120	763	20	10	110
DN 200 *	DN 200	2"	530	350	250	241	85	475	20	10	110
DN 250 *	DN 250	2" 1/2	680	470	500	400	155	783	20	10	110
DN 300 *	DN 300	3"	720	590	500	440	140	763	20	10	110
DN 400 *	DN 400	3"	855	810	640	700	155	800	20	10	110
DN 500 *	DN 500	3"	920	810	640	793	155	1000	20	10	110

N	Description
1	Pump ARS
2	Quick release
3	Coupling foot
4	Guide rail
5	Start level
6	Deliveri pipe
7	Gate valve
8	Check valve
9	Control panel
10	Chain
11	Rails support
12	Trap
13	Aeration pipe



* Coupling system kit only for pumps CI type

Ⓑ Chain Kit

Description	Material	Dimensions (mm) Ø Chain	Max. load (kg)
Chain	Steel	6	400
		8	800
		6	1160
	AISI 304 stainless steel	6	400
		8	800
		10	1160
	AISI 316 stainless steel	6	400
		8	800
		10	1160

Ⓒ Guide tubes kit

Description	Ød	Material	No. per kit
Guide tubes 2 tubes	G 3/4"	Steel	2
	G 2"		2
	G 3"		2
	G 3/4"	AISI 304 stainless steel	2
	G 2"		2
	G 3"		2
	G 3/4"	AISI 316 stainless steel	2
	G 2"		2
	G 3"		2

Cathodic Protection of Submersible Pump by Zinc Anodes

Even pumps made of supposedly rustproof materials like stainless steel are susceptible to corrosion when exposed to aggressive media on a daily basis like sea water or in desalination stations.

A solution for fighting corrosion in submersiblepump: retrofittable sacrificial anodes. They are solid place which are made of zinc or Magnesium.
The anodes with suitable size to the pump weight are attached to the casing with screws. This causes what calls a bimetal corrosion process. In a bimetal corrosion process, the less worthy metal is the one affect by the corrosion while the more hearty metal is not.
The end result is that the superficial anodes become rusty while the functional parts of the pump are almost totally unscathed by corrosion.

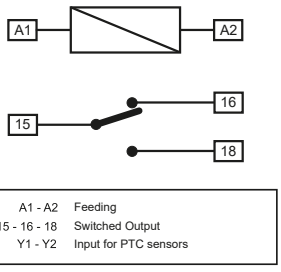
Code	For pumps up to
P0005262	150 kg
P0018309	350 kg
P0018310	800 kg
P0035815	1.200 kg

Control Box

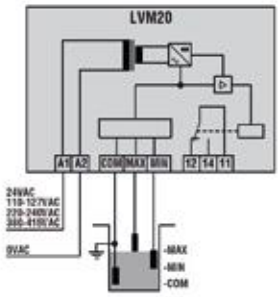
Pump Control and protection.
Protecting the pump and the pump motor are priorities because a pump failure can have serious consequences. We have many types of control panels to make sure the motor and pump don't overheat and the pump doesn't run dry. Design the pump control panel based on the application and customer requirements.
Optionally:

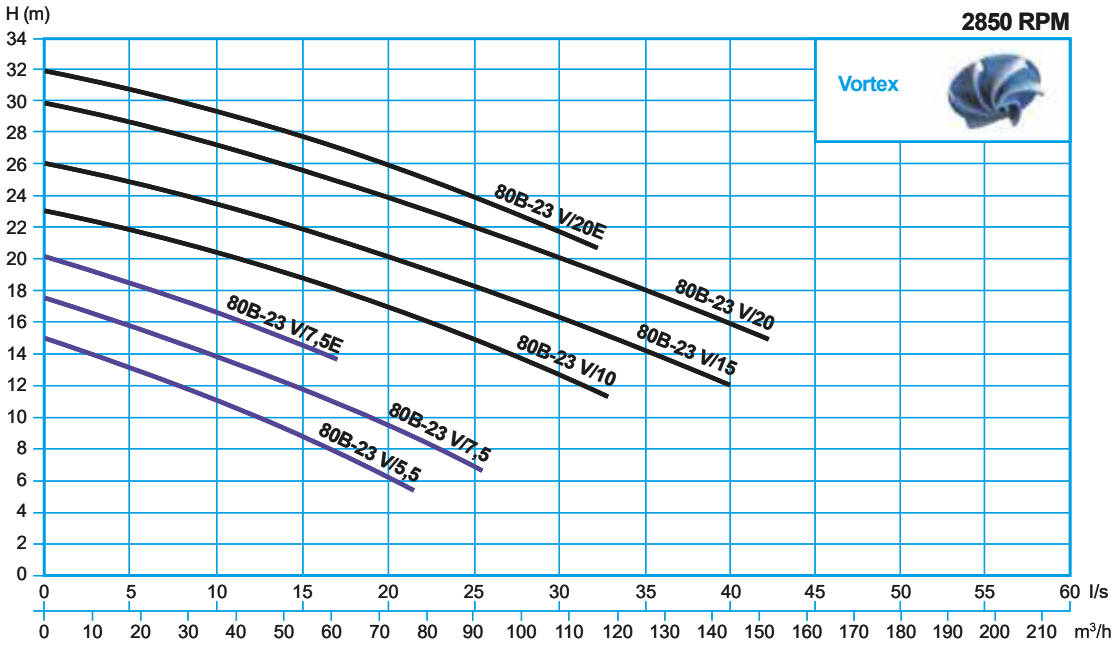
• Motor Overloads – Pump Protection for when the pump motor current is above its Full Load Amp rating.
• Motor Temperature Sensors – if motoris above the Temperature rating, Protection with PTC or thermal switch also can be monitored my PT100 sensor.
• Level Sensors – Pump control and protection to ensure the pump doesn't run dry also overflow protection.
• Humidity Sensors – Used for submersible pump motor protection from leakage.
• Bearing temperature monitoring by PT100.
A Pump Control Panel may be designed to control one pump or multiple pumps (Duty / Standby, Lead / Lag, etc.) as needed and generally operate as follows.
• Start and Stop pumps based on the following
o Level Sensors, or
o Pressure Sensors, or
o Flow Sensors
• Control pumps using the following
o Fixed Speed (Small) – Use an Across the Line Motor Starter
o Fixed Speed (Large) – Use a Solid State Soft Starter (Prevent Water Hammer)
o Variable Speed – Use a Variable Frequency Drive (Pressure or Flow control)

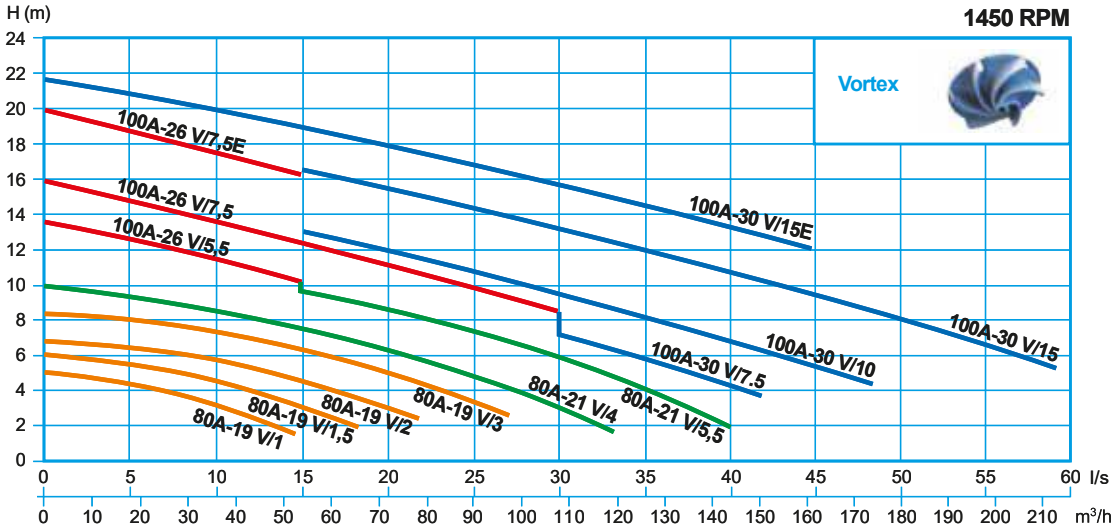
Thermal Relay

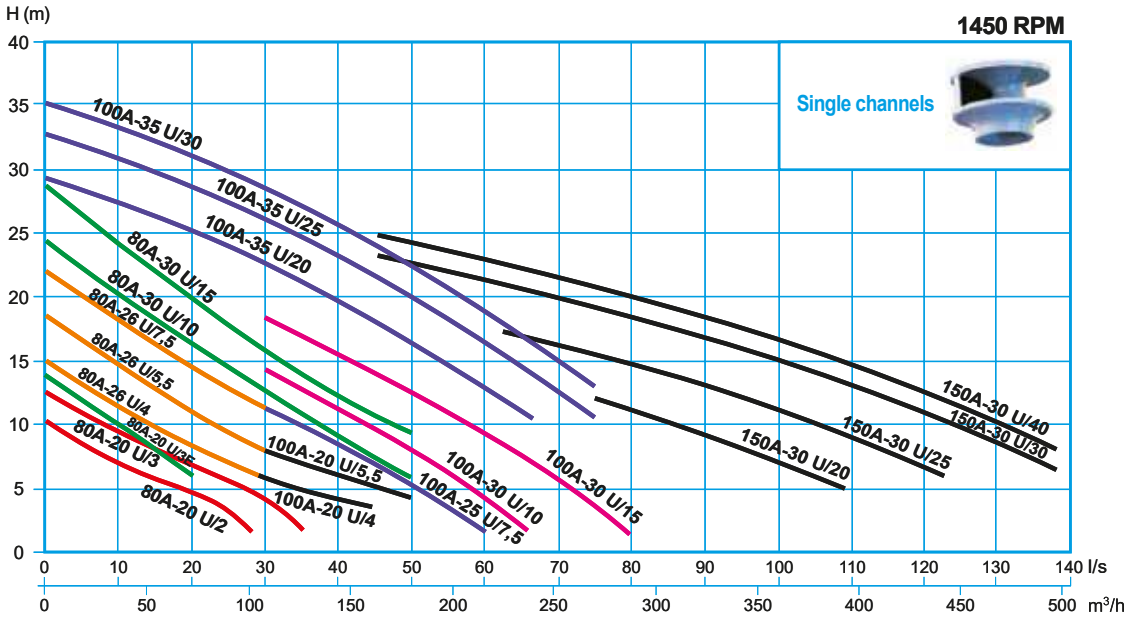


Water Probe Relay




H (m)
2850 RPM
Vortex
80B-23 V/20E
80B-23 V/20
80B-23 V/15
80B-23 V/10
80B-23 V/7,5E
80B-23 V/7,5
80B-23 V/5,5
l/s
m³/h


H (m)
1450 RPM
Vortex
100A-26 V/7,5E
100A-26 V/7,5
100A-26 V/5,5
100A-30 V/15E
100A-30 V/15
100A-30 V/10
100A-30 V/7,5
80A-21 V/4
80A-21 V/5,5
80A-19 V/3
80A-19 V/2
80A-19 V/1,5
80A-19 V/1
l/s
m³/h


H (m)
1450 RPM
Single channels
100A-35 U/30
100A-35 U/25
100A-35 U/20
80A-30 U/15
80A-30 U/10
80A-26 U/7,5
80A-26 U/5,5
80A-26 U/4
80A-20 U/3
80A-20 U/2
100A-20 U/5,5
100A-20 U/4
100A-30 U/10
100A-30 U/15
100A-25 U/7,5
150A-30 U/40
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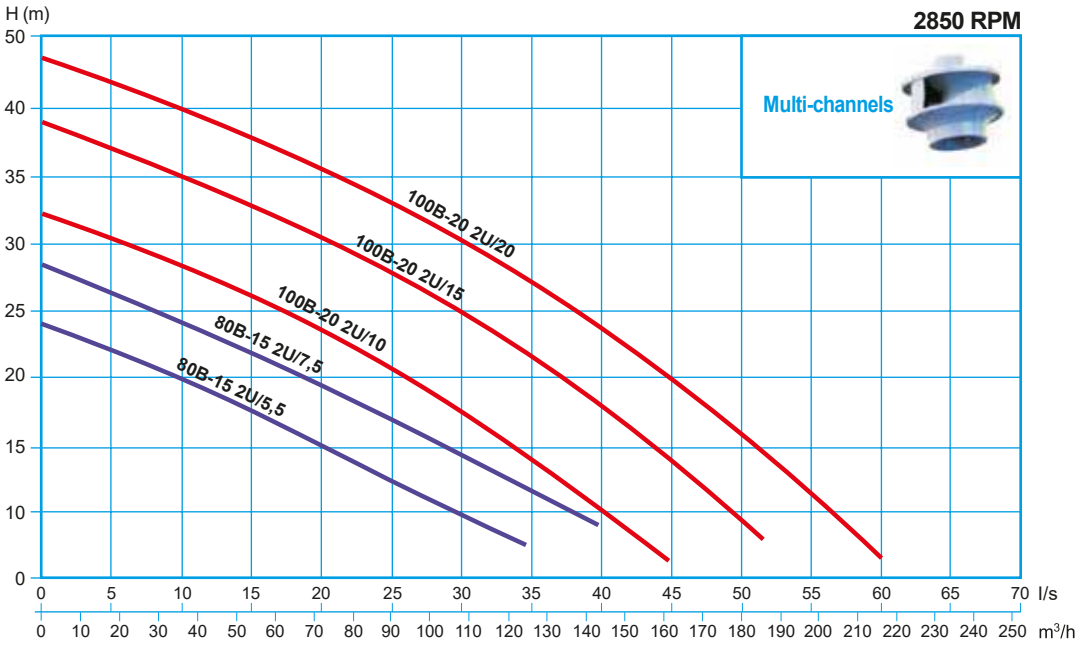
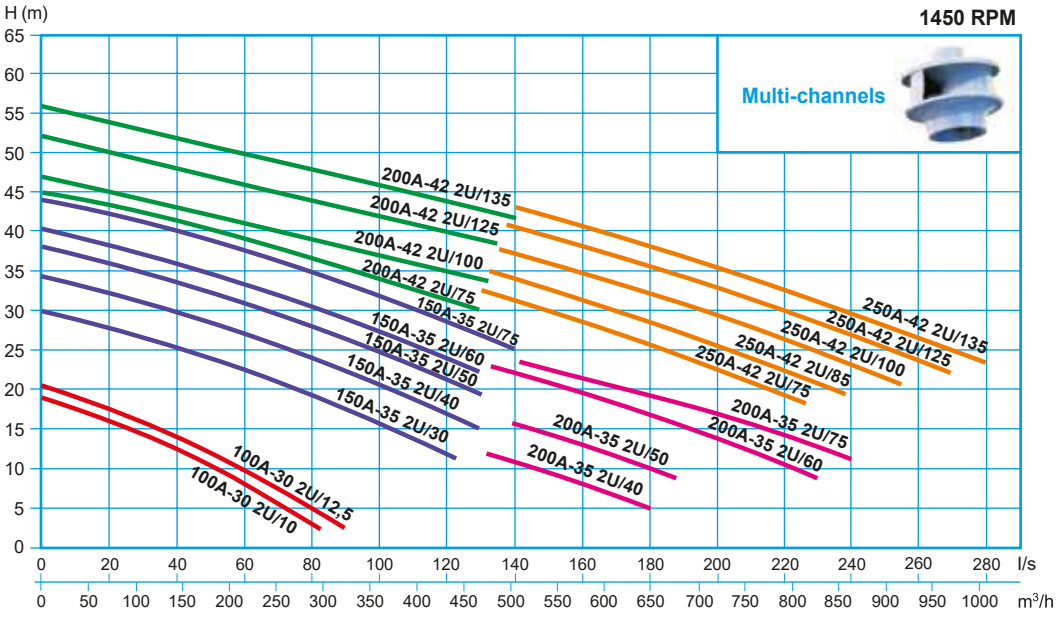
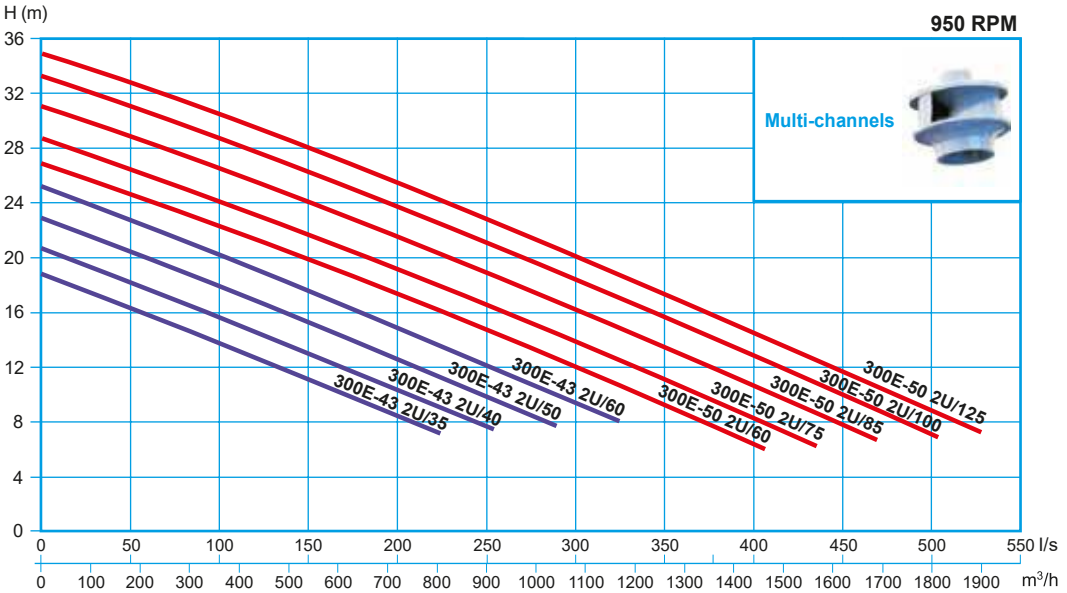
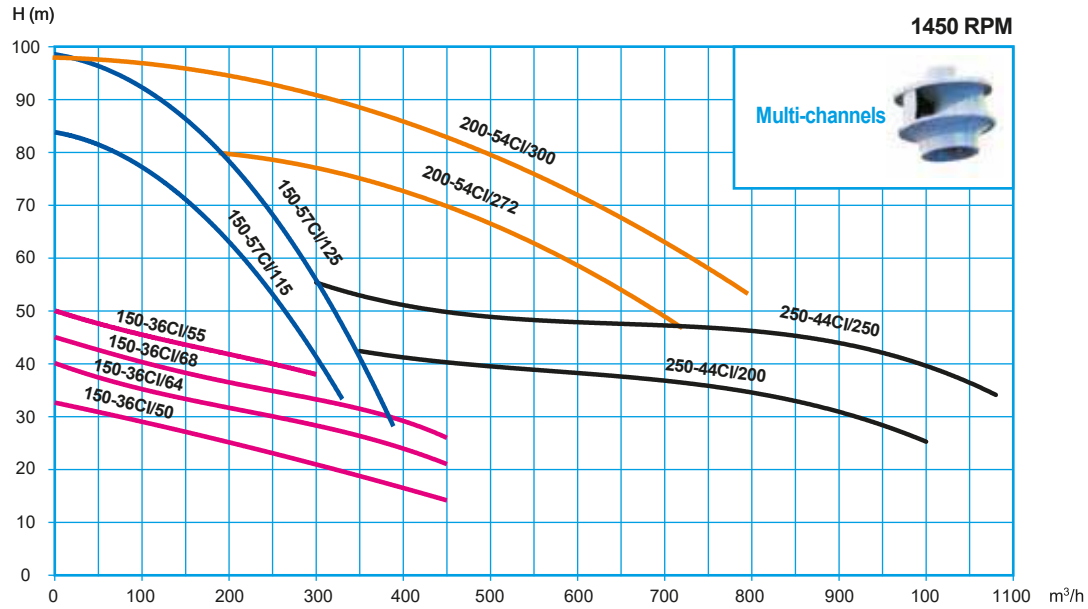
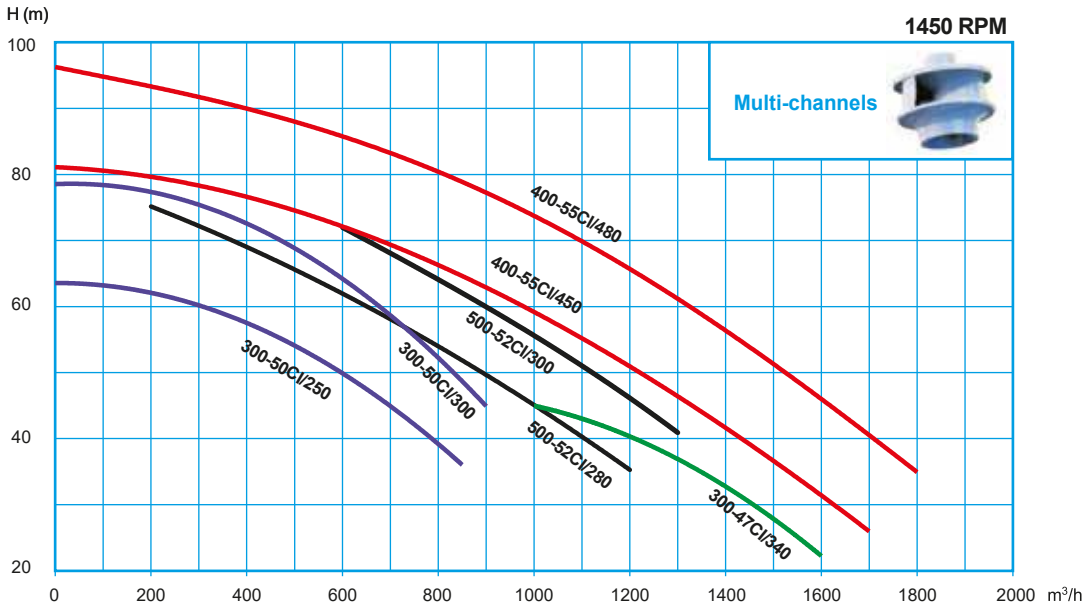
150A-30 U/25
150A-30 U/20
l/s
m³/h

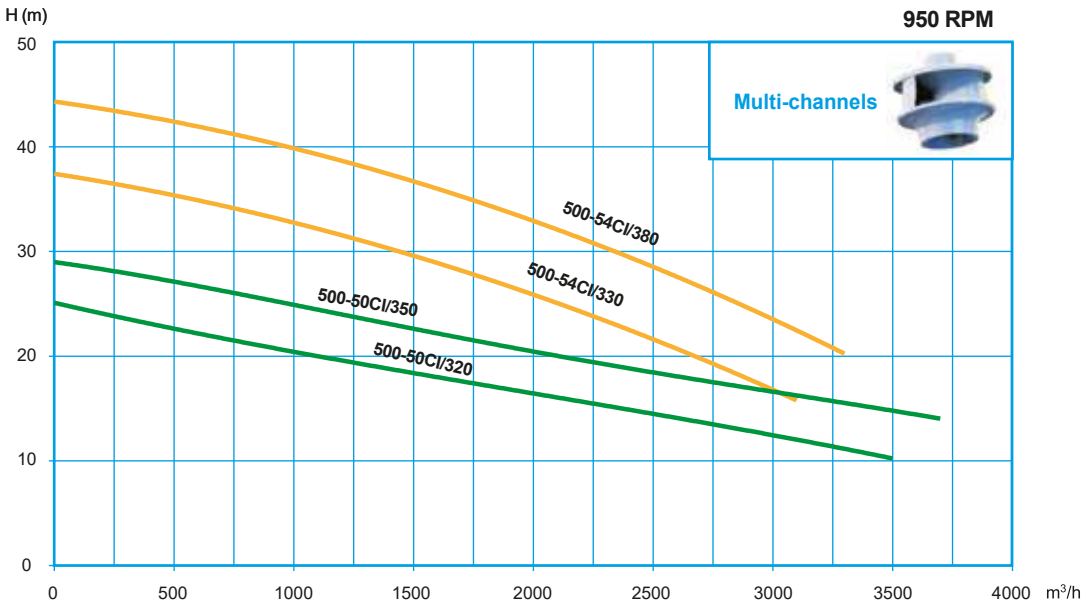

H (m)
2850 RPM
Multi-channels
100B-20 2U/20
100B-20 2U/15
100B-20 2U/10
80B-15 2U/7,5
80B-15 2U/5,5
l/s
m³/h


H (m)
1450 RPM
Multi-channels
200A-42 2U/135
200A-42 2U/125
200A-42 2U/100
200A-42 2U/75
150A-35 2U/75
150A-35 2U/60
150A-35 2U/50
150A-35 2U/40
150A-35 2U/30
100A-30 2U/12,5
100A-30 2U/10
250A-42 2U/135
250A-42 2U/125
250A-42 2U/100
250A-42 2U/85
250A-42 2U/75
200A-35 2U/75
200A-35 2U/60
200A-35 2U/50
200A-35 2U/40
l/s
m³/h

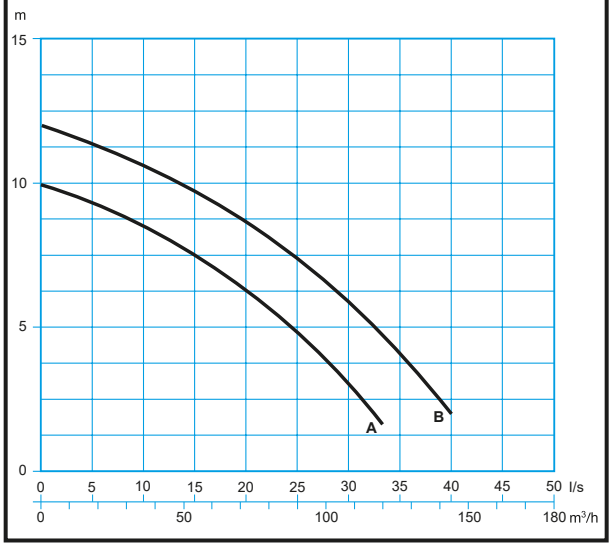

H (m)
950 RPM
Multi-channels
300E-43 2U/35
300E-43 2U/40
300E-43 2U/50
300E-43 2U/60
300E-50 2U/60
300E-50 2U/75
300E-50 2U/85
300E-50 2U/100
300E-50 2U/125
l/s
m³/h


H (m)
1450 RPM
Multi-channels
200-54Cl/300
200-54Cl/272
150-57Cl/125
150-57Cl/115
250-44Cl/250
250-44Cl/200
150-36Cl/55
150-36Cl/68
150-36Cl/64
150-36Cl/50
100
90
80
70
60
50
40
30
20
10
0
0
100
200
300
400
500
600
700
800
900
100
1100
m³/h

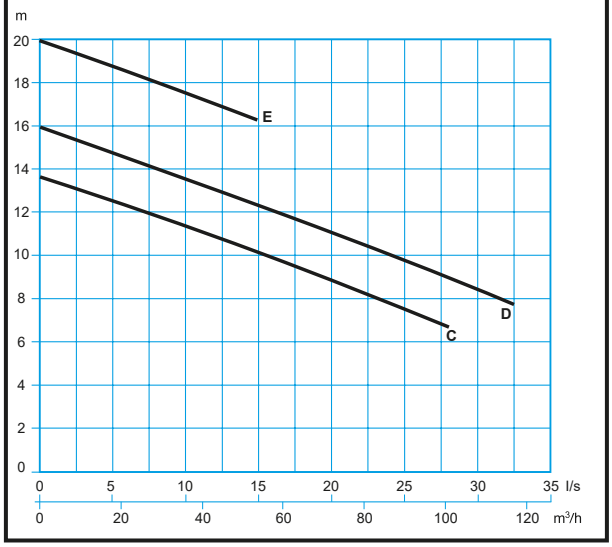

H (m)
1450 RPM
Multi-channels
400-55Cl/480
400-55Cl/450
500-52Cl/300
500-52Cl/280
300-50Cl/250
300-50Cl/300
300-47Cl/340
100
80
60
40
20
0
200
400
600
800
1000
1200
1400
1600
1800
2000
m³/h


H (m)
950 RPM
Multi-channels
500-54Cl/380
500-54Cl/330
500-50Cl/350
500-50Cl/320
50
40
30
20
10
0
0
500
1000
1500
2000
2500
3000
3500
4000
m³/h

ARS 80A- 21 V — 1450 RPM

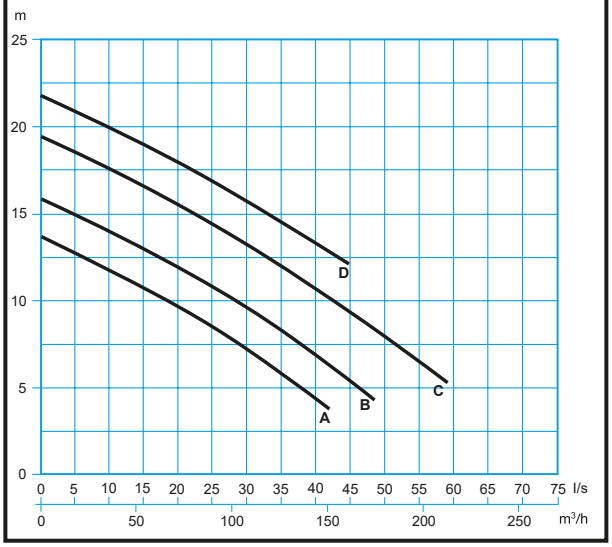


ARS 100A- 26 V — 1450 RPM

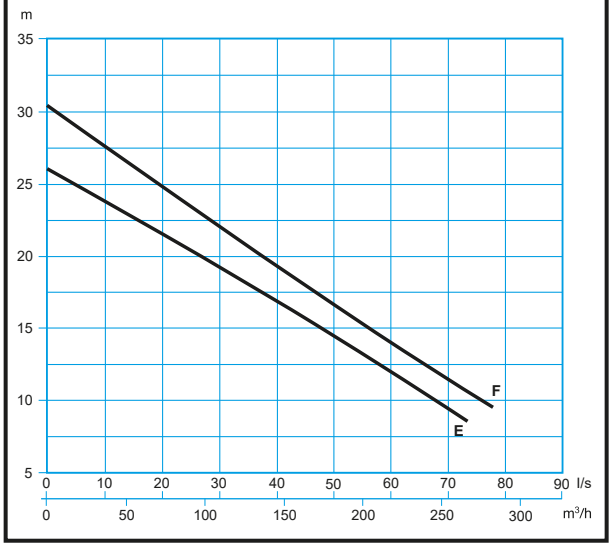


	Type	RPM	Voltage	P2 (HP)	DN Discharge	DN Suction	Passage (mm)	Insulation	Protection	Cable	CR	Ex	Cable Length m	Thermal Protection	Humidity probe	Start	Starts Hours	Weight Kg
A	ARS 80A-21V/ 4	1450	400	4	80	80	75	Class F	IP68	4G 2.5	○	○	10	●	○	Y△	20	97
B	ARS 80A-21V/ 5.5	1450	400	5.5	80	80	75	Class F	IP68	4G 2.5	○	○	10	●	○	Y△	20	97
C	ARS 100A-26V/ 5.5	1450	400	5.5	100	100	100	Class F	IP68	10G 2.5	○	○	10	●	●	Y△	15	135
D	ARS 100A-26V/ 7.5	1450	400	7.5	100	100	100	Class F	IP68	10G 2.5	○	○	10	●	●	Y△	15	135
E	ARS 100A-26V/ 7.5E	1450	400	7.5	100	100	100	Class F	IP68	10G 2.5	○	○	10	●	●	Y△	15	135

ARS 100A- 30 V — 1450 RPM

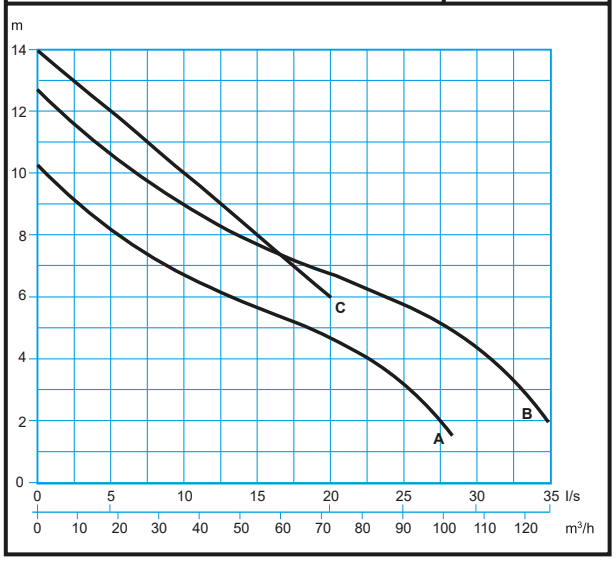


ARS 150A- 36 V — 1450 RPM

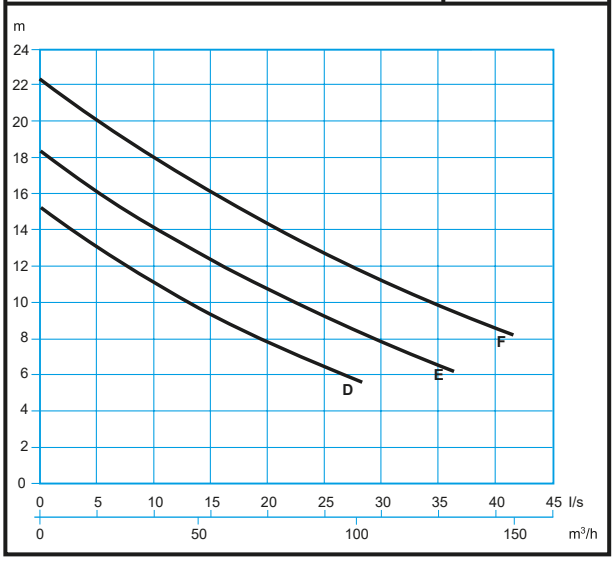


	Type	RPM	Voltage	P2 (HP)	DN Discharge	DN Suction	Passage (mm)	Insulation	Protection	Cable	CR	Ex	Cable Length m	Thermal Protection	Humidity probe	Start	Starts Hours	Weight Kg
A	ARS 100A-30V/ 7.5	1450	400	7.5	100	100	100	Class F	IP68	10G 2.5	○	○	10	●	●	Y△	15	197
B	ARS 100A-30V/ 10	1450	400	10	100	100	100	Class F	IP68	10G 2.5	○	○	10	●	●	Y△	15	197
C	ARS 100A-30V/ 15	1450	400	15	100	100	100	Class F	IP68	10G 2.5	○	○	10	●	●	Y△	15	213
D	ARS 100A-30V/ 15E	1450	400	15	100	100	100	Class F	IP68	10G 2.5	○	○	10	●	●	Y△	15	213
E	ARS 150A-36V/ 30	1450	400	30	150	150	100	Class F	IP68	10G 4	○	○	10	●	●	Y△	15	361
F	ARS 150A-36V/ 35	1450	400	35	150	150	100	Class F	IP68	10G 4	○	○	10	●	●	Y△	15	361

ARS 80A-20U — 1450 RPM

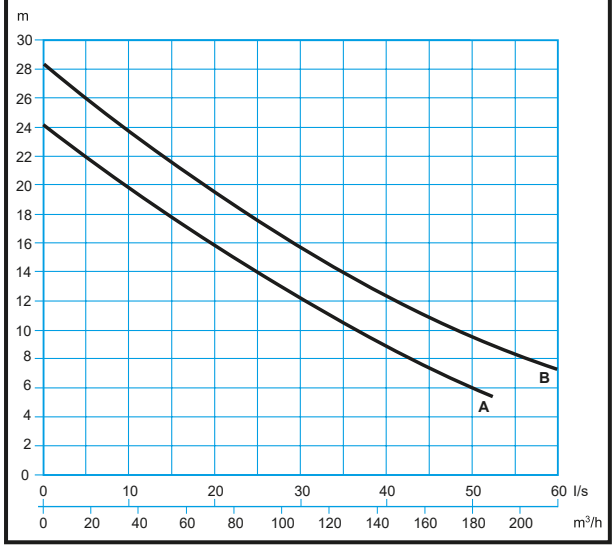


ARS 80A-26U — 1450 RPM

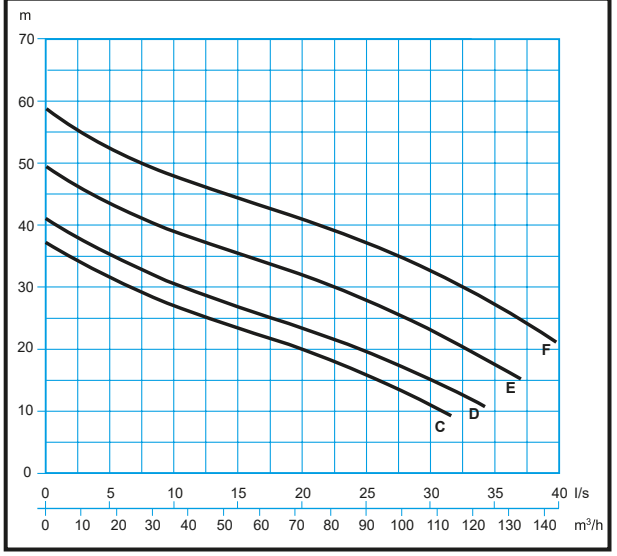


	Type	RPM	Voltage	P2 (HP)	DN Discharge	DN Suction	Passage (mm)	Insulation	Protection	Cable	CR	Ex	Cable Length m	Thermal Protection	Humidity probe	Start	Starts Hours	Weight Kg
A	ARS 80A-20U/ 2	1450	400	2	80	100	76	Class F	IP68	4G 2.5	O	O	10	–	O	DOL	20	67
B	ARS 80A-20U/ 3	1450	400	3	80	100	76	Class F	IP68	4G 2.5	O	O	10	–	O	DOL	20	67
C	ARS 80A-20U/ 3E	1450	400	3	80	100	75	Class F	IP68	4G 2.5	O	O	10	–	O	DOL	20	67
D	ARS 80A-26U/ 4	1450	400	4	80	100	76	Class F	IP68	4G 2.5	O	O	10	●	O	DOL	20	96
E	ARS 80A-26U/ 5.5	1450	400	5.5	80	100	76	Class F	IP68	4G 2.5	O	O	10	●	O	DOL	20	96
F	ARS 80A-26U/ 7.5	1450	400	7.5	80	100	76	Class F	IP68	10G 2.5	O	O	10	●	●	Y△	20	137

ARS 80A-30U — 1450 RPM

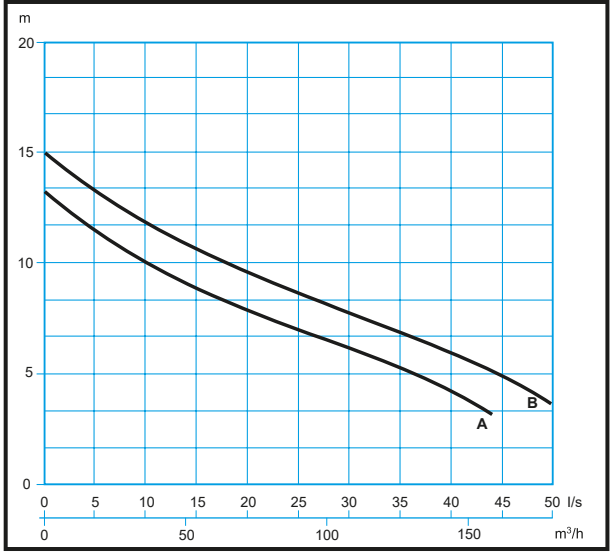


ARS 80B-22U — 2850 RPM

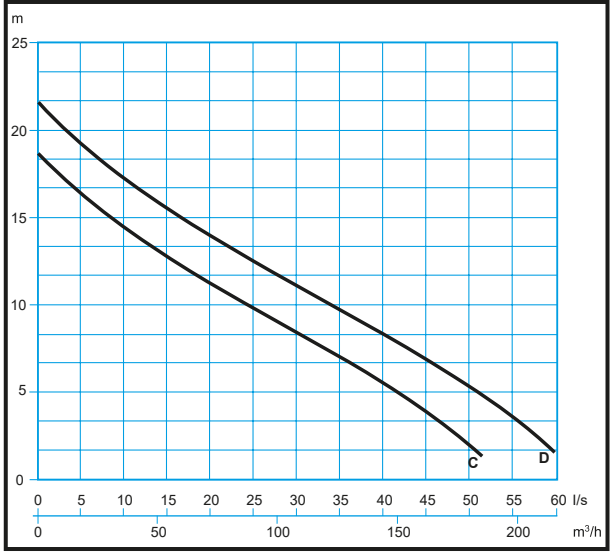


	Type	RPM	Voltage	P2 (HP)	DN Discharge	DN Suction	Passage (mm)	Insulation	Protection	Cable	CR	Ex	Cable Length m	Thermal Protection	Humidity probe	Start	Starts Hours	Weight Kg
A	ARS 80A-30U/ 10	1450	400	10	80	100	76	Class F	IP68	10G 2.5	O	O	10	●	●	Y△	15	195
B	ARS 80A-30U/ 15	1450	400	15	80	100	76	Class F	IP68	10G 2.5	O	O	10	●	●	Y△	15	208
C	ARS 80B-22U/ 10	2850	400	10	80	80	55	Class F	IP68	10G2.5	O	O	10	●	●	Y△	10	174
D	ARS 80B-22U/ 12.5	2850	400	12.5	80	80	55	Class F	IP68	10G2.5	O	O	10	●	●	Y△	10	174
E	ARS 80B-22U/ 15	2850	400	15	80	80	55	Class F	IP68	10G2.5	O	O	10	●	●	Y△	10	174
F	ARS 80B-22U/ 20	2850	400	20	80	80	55	Class F	IP68	10G2.5	O	O	10	●	●	Y△	10	174

ARS 100A-20U — 1450 RPM

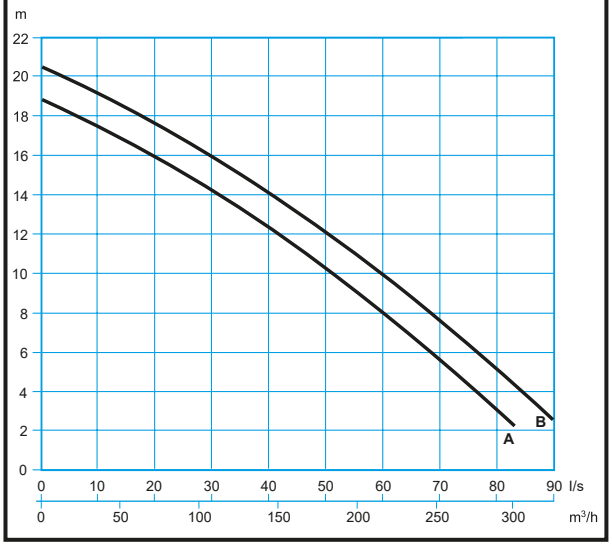


ARS 100A-25U — 1450 RPM

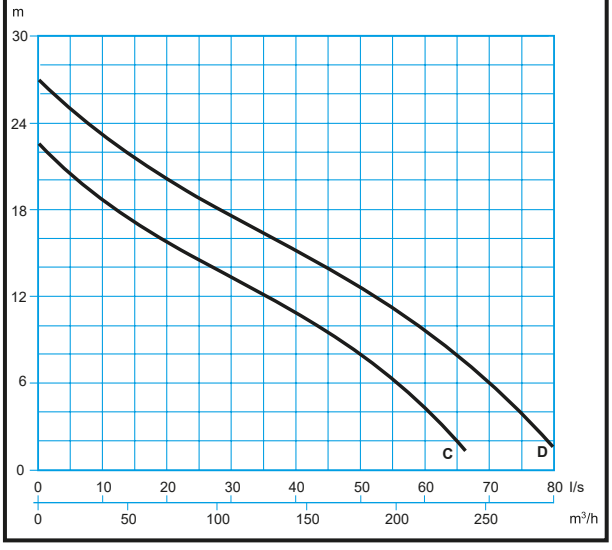


	Type	RPM	Voltage	P2 (HP)	DN Discharge	DN Suction	Passage (mm)	Insulation	Protection	Cable	CR	Ex	Cable Length m	Thermal Protection	Humidity probe	Start	Starts Hours	Weight Kg
A	ARS 100A-20U/ 4	1450	400	4	100	125	100	Class F	IP68	4G 2.5	○	○	10	●	○	DOL	20	98
B	ARS 100A-20U/ 5.5	1450	400	5.5	100	125	100	Class F	IP68	4G 2.5	○	○	10	●	○	DOL	20	98
C	ARS 100A-25U/ 5.5	1450	400	5.5	100	125	80	Class F	IP68	4G 2.5	○	○	10	●	○	DOL	20	104
D	ARS 100A-25U/ 7.5	1450	400	7.5	100	125	80	Class F	IP68	10G 2.5	○	○	10	●	●	Y△	20	139

ARS 100A-30 2U — 1450 RPM

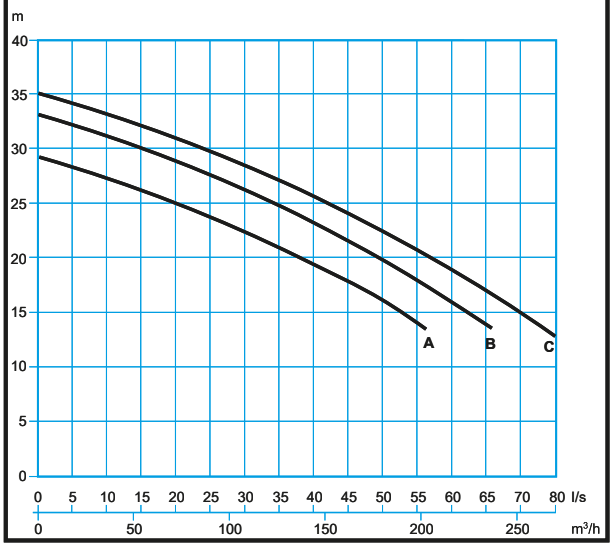


ARS 100A-30U — 1450 RPM

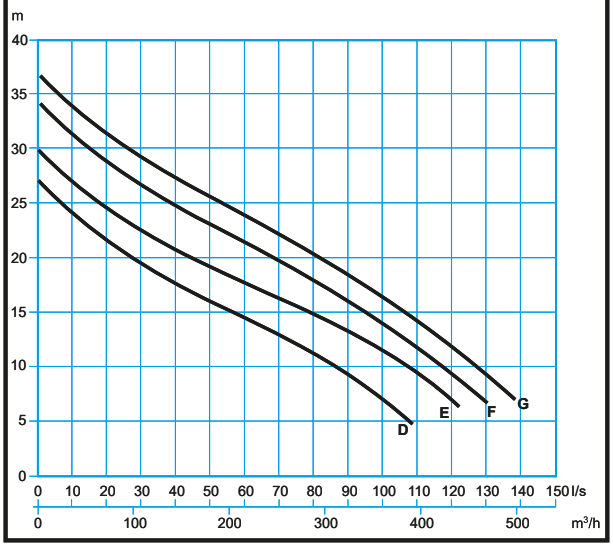


	Type	RPM	Voltage	P2 (HP)	DN Discharge	DN Suction	Passage (mm)	Insulation	Protection	Cable	CR	Ex	Cable Length m	Thermal Protection	Humidity probe	Start	Starts Hours	Weight Kg
A	ARS 100A-30 2U/ 10	1450	400	10	100	100	80	Class F	IP68	10G 2.5	○	○	10	●	●	Y△	15	215
B	ARS 100A-30 2U/12.5	1450	400	12.5	100	100	80	Class F	IP68	10G 2.5	○	○	10	●	●	Y△	15	215
C	ARS 100A-30U/ 10	1450	400	10	100	125	90	Class F	IP68	10G 2.5	○	○	10	●	●	Y△	15	216
D	ARS 100A-30U/ 15	1450	400	15	100	125	90	Class F	IP68	10G 2.5	○	○	10	●	●	Y△	15	216

ARS 100A-35U — 1450 RPM

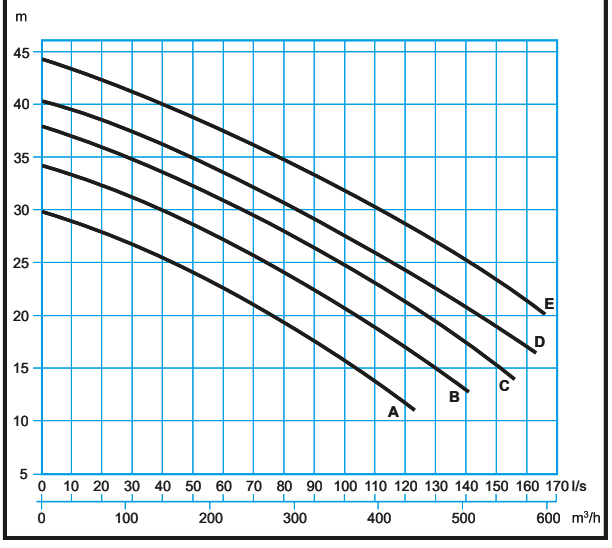


ARS 150A-30U — 1450 RPM

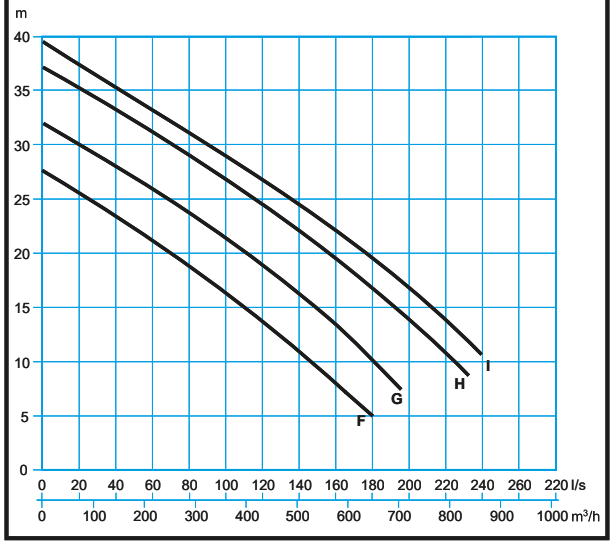


	Type	RPM	Voltage	P2 (HP)	DN Discharge	DN Suction	Passage (mm)	Insulation	Protection	Cable	CR	Ex	Cable Length m	Thermal Protection	Humidity probe	Start	Starts Hours	Weight Kg
A	ARS 100A-35U/ 20	1450	400	20	100	125	80	Class F	IP68	2×(4G6)+4G2.5	○	○	10	●	●	YΔ	10	250
B	ARS 100A-35U/ 25	1450	400	25	100	125	80	Class F	IP68	2×(4G6)+4G2.5	○	○	10	●	●	YΔ	10	250
C	ARS 100A-35U/ 30	1450	400	30	100	125	80	Class F	IP68	2×(4G6)+4G2.5	○	○	10	●	●	YΔ	10	250
D	ARS 150A-30U/ 20	1450	400	20	150	150	100	Class F	IP68	2×(4G6)+4G2.5	○	○	10	●	●	YΔ	10	250
E	ARS 150A-30U/ 25	1450	400	25	150	150	100	Class F	IP68	2×(4G6)+4G2.5	○	○	10	●	●	YΔ	10	250
F	ARS 150A-30U/ 30	1450	400	30	150	150	100	Class F	IP68	2×(4G6)+4G2.5	○	○	10	●	●	YΔ	10	250
G	ARS 150A-30U/ 40	1450	400	40	150	150	100	Class F	IP68	2×(4G6)+4G2.5	○	○	10	●	●	YΔ	10	250

ARS 150A-35 2U — 1450 RPM

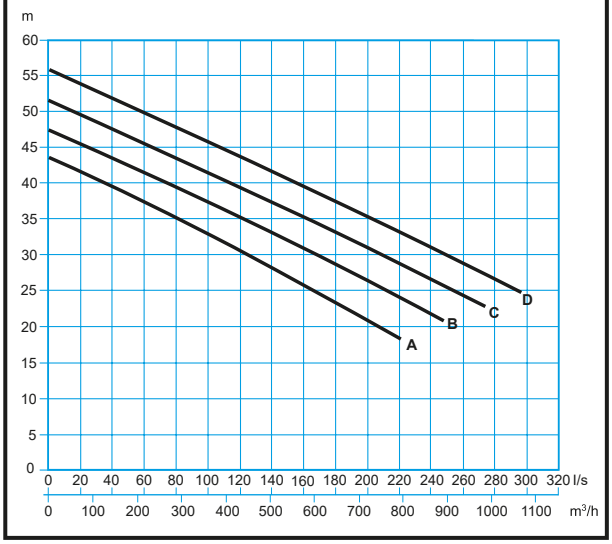


ARS 200A-35 2U — 1450 RPM

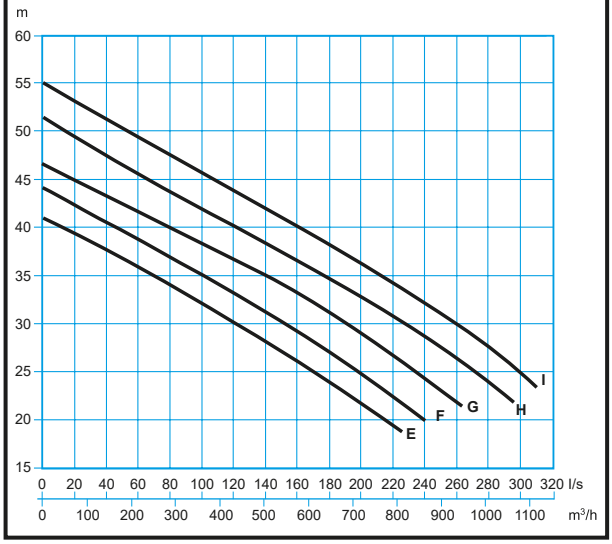


	Type	RPM	Voltage	P2 (HP)	DN Discharge	DN Suction	Passage (mm)	Insulation	Protection	Cable	CR	Ex	Cable Length m	Thermal Protection	Humidity probe	Start	Starts Hours	Weight Kg
A	ARS 150A-35 2U/ 30	1450	400	30	150	150	100	Class F	IP68	2×(4G6)+4G2.5	○	○	10	●	●	YΔ	11	512
B	ARS 150A-35 2U/ 40	1450	400	40	150	150	100	Class F	IP68	2×(4G6)+4G2.5	○	○	10	●	●	YΔ	11	512
C	ARS 150A-35 2U/ 50	1450	400	50	150	150	100	Class F	IP68	2×(4G6)+4G2.5	○	○	10	●	●	YΔ	11	512
D	ARS 150A-35 2U/ 60	1450	400	60	150	150	100	Class F	IP68	2×(4G10)+4G2.5	○	○	10	●	●	YΔ	11	512
E	ARS 150A-35 2U/ 75	1450	400	75	150	150	100	Class F	IP68	2×(4G10)+4G2.5	○	○	10	●	●	YΔ	11	512
F	ARS 200A-35 2U/ 40	1450	400	40	200	200	100	Class F	IP68	2×(4G10)+4G2.5	○	○	10	●	●	YΔ	10	545
G	ARS 200A-35 2U/ 50	1450	400	50	200	200	100	Class F	IP68	2×(4G10)+4G2.5	○	○	10	●	●	YΔ	10	545
H	ARS 200A-35 2U/ 60	1450	400	60	200	200	100	Class F	IP68	2×(4G10)+4G2.5	○	○	10	●	●	YΔ	10	545
I	ARS 200A-35 2U/ 75	1450	400	75	200	200	100	Class F	IP68	2×(4G10)+4G2.5	○	○	10	●	●	YΔ	10	545

ARS 200A- 42 2U — 1450 RPM

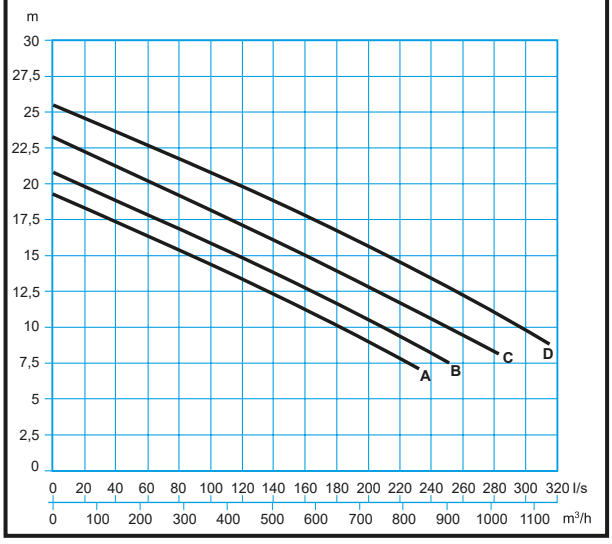


ARS 250A- 42 2U — 1450 RPM

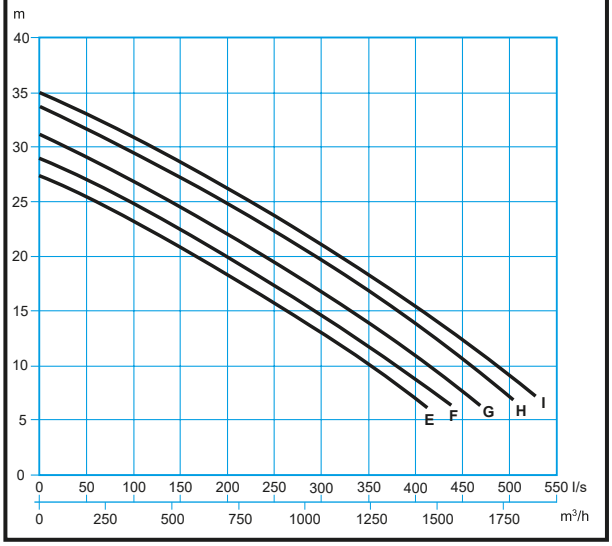


	Type	RPM	Voltage	P2 (HP)	DN Discharge	DN Suction	Passage (mm)	Insulation	Protection	Cable	CR	Ex	Cable Length m	Thermal Protection	Humidity probe	Start	Starts Hours	Weight Kg
A	ARS 200A-42 2U/ 75	1450	400	75	200	200	100	Class F	IP68	2×(4G25)+12G2.5	○	○	10	●	●	Y△	10	975
B	ARS 200A-42 2U/ 100	1450	400	100	200	200	100	Class F	IP68	2×(4G25)+12G2.5	○	○	10	●	●	Y△	10	975
C	ARS 200A-42 2U/ 125	1450	400	125	200	200	100	Class F	IP68	2×(4G25)+12G2.5	○	○	10	●	●	Y△	10	1125
D	ARS 200A-42 2U/ 135	1450	400	135	200	200	100	Class F	IP68	2×(4G25)+12G2.5	○	○	10	●	●	Y△	10	1125
E	ARS 250A-42 2U/ 75	1450	400	75	250	250	100	Class F	IP68	2×(4G25)+12G2.5	○	○	10	●	●	Y△	10	1050
F	ARS 250A-42 2U/ 85	1450	400	85	250	250	100	Class F	IP68	2×(4G25)+12G2.5	○	○	10	●	●	Y△	10	1050
G	ARS 250A-42 2U/ 100	1450	400	100	250	250	100	Class F	IP68	2×(4G25)+12G2.5	○	○	10	●	●	Y△	10	1050
H	ARS 250A-42 2U/ 125	1450	400	125	250	250	100	Class F	IP68	2×(4G25)+12G2.5	○	○	10	●	●	Y△	10	1200
I	ARS 250A-42 2U/ 135	1450	400	135	250	250	100	Class F	IP68	2×(4G25)+12G2.5	○	○	10	●	●	Y△	10	1200

ARS 300E- 43 2U — 950 RPM

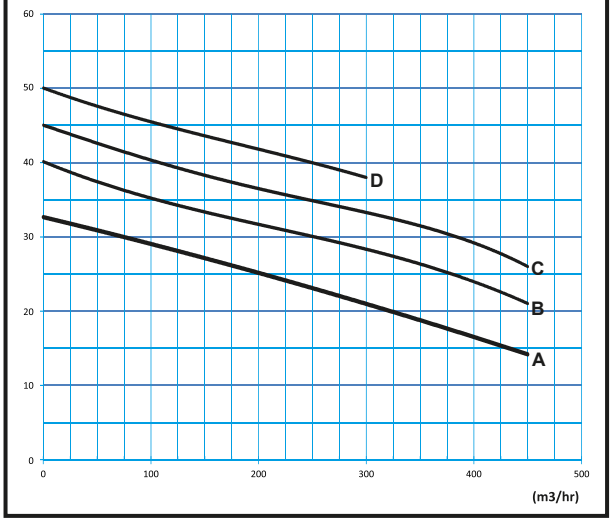


ARS 300E- 50 2U — 950 RPM

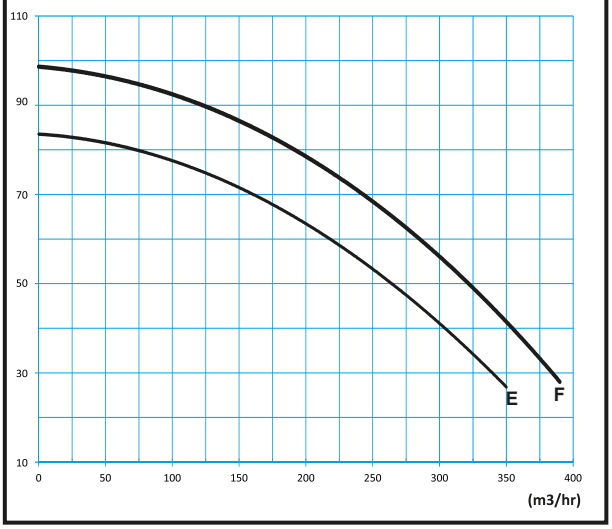


	Type	RPM	Voltage	P2 (HP)	DN Discharge	DN Suction	Passage (mm)	Insulation	Protection	Cable	CR	Ex	Cable Length m	Thermal Protection	Humidity probe	Start	Starts Hours	Weight Kg
A	ARS 300E-43 2U/ 35	950	400	35	300	300	140	Class F	IP68	2×(4G10)+4G2.5	○	○	10	●	●	Y△	10	710
B	ARS 300E-43 2U/ 40	950	400	40	300	300	140	Class F	IP68	2×(4G10)+4G2.5	○	○	10	●	●	Y△	10	710
C	ARS 300E-43 2U/ 50	950	400	50	300	300	140	Class F	IP68	2×(4G10)+4G2.5	○	○	10	●	●	Y△	10	720
D	ARS 300E-43 2U/ 60	950	400	60	300	300	140	Class F	IP68	2×(4G10)+4G2.5	○	○	10	●	●	Y△	10	720
E	ARS 300E-50 2U/ 65	950	400	65	300	300	140	Class F	IP68	2×(4G25)+12G2.5	○	○	10	●	●	Y△	10	1250
F	ARS 300E-50 2U/ 75	950	400	75	300	300	140	Class F	IP68	2×(4G25)+12G2.5	○	○	10	●	●	Y△	10	1250
G	ARS 300E-50 2U/ 85	950	400	85	300	300	140	Class F	IP68	2×(4G25)+12G2.5	○	○	10	●	●	Y△	10	1400
H	ARS 300E-50 2U/ 100	950	400	100	300	300	140	Class F	IP68	2×(4G25)+12G2.5	○	○	10	●	●	Y△	10	1400
I	ARS 300E-50 2U/ 125	950	400	125	300	300	140	Class F	IP68	2×(4G25)+12G2.5	○	○	10	●	●	Y△	10	1400

ARS 150-36CI — 1450 RPM

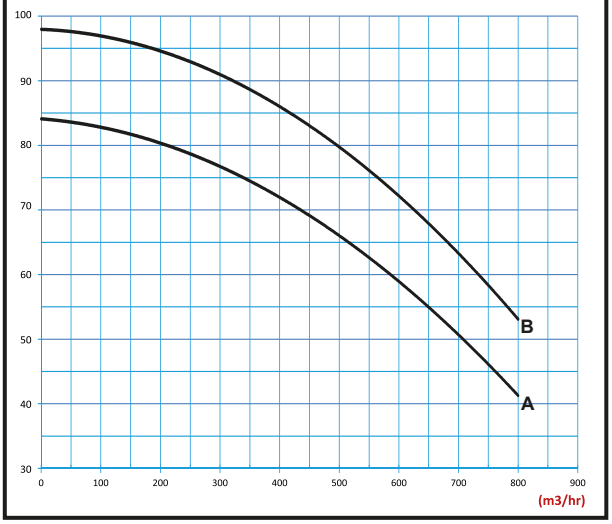


ARS 150-57CI — 1450 RPM

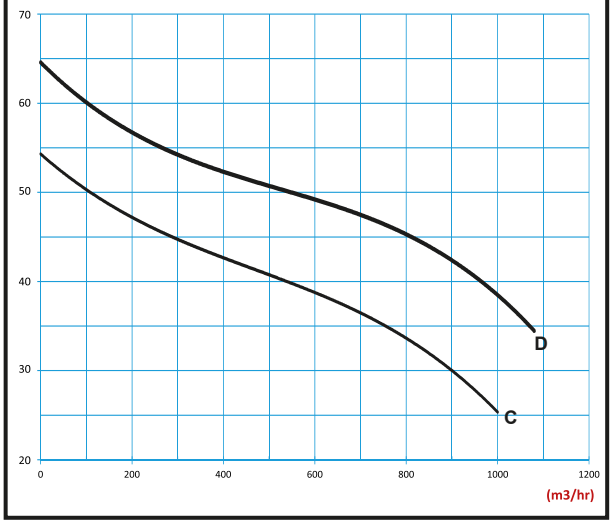


	Type	RPM	Voltage	P2 (HP)	DN Discharge	DN Suction	Passage (mm)	Insulation	Protection	Cable	CR	Ex	Cable Length m	Thermal Protection	Humidity probe	Start	Starts Hours	Weight Kg
A	ARS 150-36CI/50	1450	400	50	150	150	75	Class F	IP68	2×(4G10)+4G2.5	O	O	10	●	●	YΔ	10	560
B	ARS 150-36CI/64	1450	400	64	150	150	75	Class F	IP68	2×(4G10)+4G2.5	O	O	10	●	●	YΔ	10	560
C	ARS 150-36CI/68	1450	400	68	150	150	75	Class F	IP68	2×(4G10)+4G2.5	O	O	10	●	●	YΔ	10	560
D	ARS 150-36CI/55	1450	400	55	150	150	75	Class F	IP68	2×(4G10)+4G2.5	O	O	10	●	●	YΔ	10	560
E	ARS 150-57CI/115	1450	400	115	150	150	80	Class F	IP68	2×(4G35)+4G2.5	O	O	10	●	●	YΔ	10	1600
F	ARS 150-57CI/125	1450	400	125	150	150	80	Class F	IP68	2×(4G35)+4G2.5	O	O	10	●	●	YΔ	10	1600

ARS 200-54CI — 1450 RPM

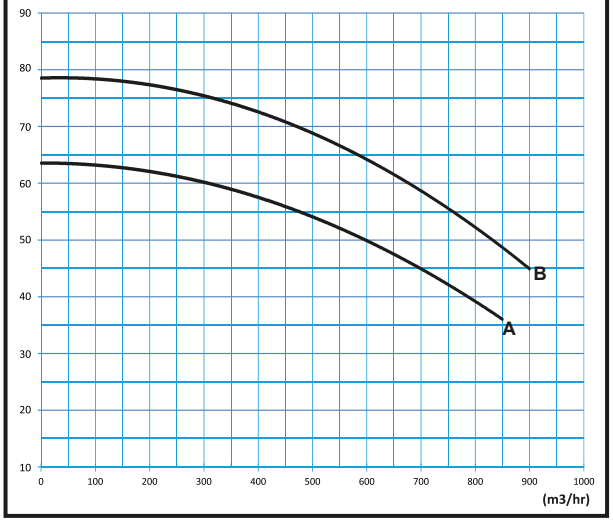


ARS 250-44CI — 1450 RPM

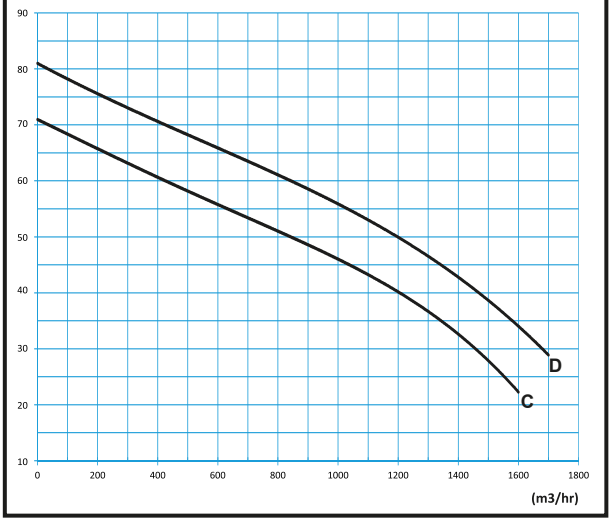


	Type	RPM	Voltage	P2 (HP)	DN Discharge	DN Suction	Passage (mm)	Insulation	Protection	Cable	CR	Ex	Cable Length m	Thermal Protection	Humidity probe	Start	Starts Hours	Weight Kg
A	ARS 200-54CI/272	1450	400	272	200	200	75	Class F	IP68	2×(4G70)+4G2.5	O	O	10	●	●	YΔ	10	1850
B	ARS 200-54CI/300	1450	400	300	200	200	75	Class F	IP68	2×(4G70)+4G2.5	O	O	10	●	●	YΔ	10	1850
C	ARS 250-44CI/200	1450	400	200	250	250	100	Class F	IP68	2×(4G70)+4G2.5	O	O	10	●	●	YΔ	10	2100
D	ARS 250-44CI/250	1450	400	250	250	250	100	Class F	IP68	2×(4G70)+4G2.5	O	O	10	●	●	YΔ	10	2100

ARS 300-50CI — 1450 RPM

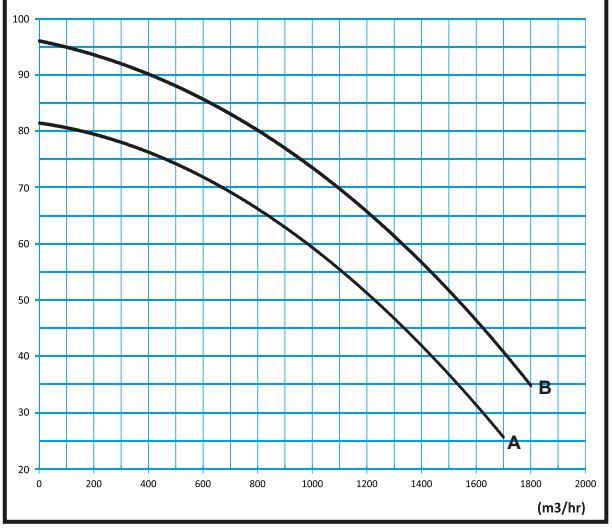


ARS 300-47CI — 1450 RPM

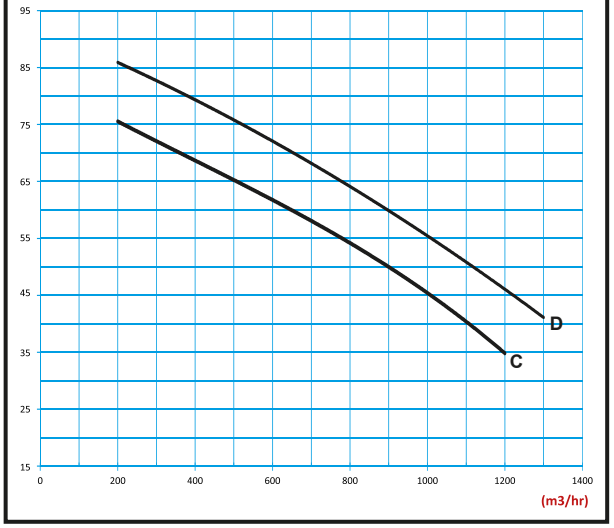


	Type	RPM	Voltage	P2 (HP)	DN Discharge	DN Suction	Passage (mm)	Insulation	Protection	Cable	CR	Ex	Cable Length m	Thermal Protection	Humidity probe	Start	Starts Hours	Weight Kg
A	ARS 300-50CI/250	1450	400	250	300	300	125	Class F	IP68	2×(4G70)+4G2.5	O	O	10	●	●	YΔ	10	2500
B	ARS 300-50CI/300	1450	400	300	300	300	125	Class F	IP68	2×(4G70)+4G2.5	O	O	10	●	●	YΔ	10	2500
C	ARS 300-47CI/340	1450	400	340	300	300	125	Class F	IP68	2×(4G70)+4G2.5	O	O	10	●	●	YΔ	10	3000
D	ARS 300-47CI/380	1450	400	380	300	300	125	Class F	IP68	2×(4G70)+4G2.5	O	O	10	●	●	YΔ	10	3000

ARS 400-55CI — 1450 RPM

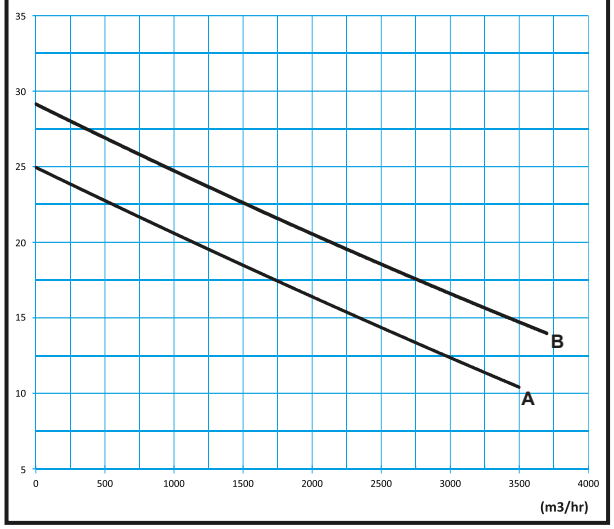


ARS 500-52CI — 1450 RPM

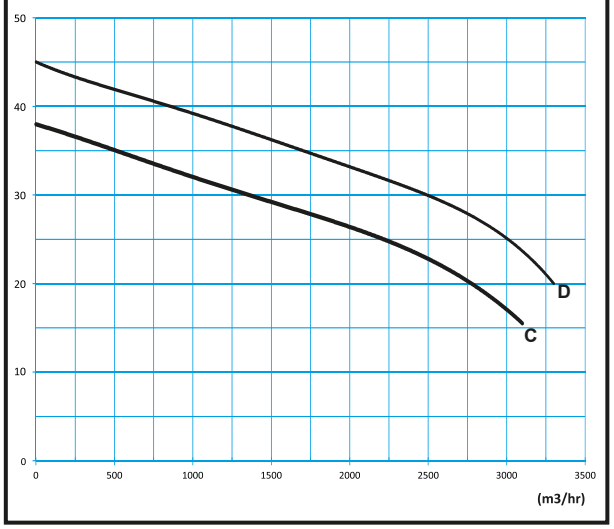


	Type	RPM	Voltage	P2 (HP)	DN Discharge	DN Suction	Passage (mm)	Insulation	Protection	Cable	CR	Ex	Cable Length m	Thermal Protection	Humidity probe	Start	Starts Hours	Weight Kg
A	ARS 400-55CI/450	1450	400	450	400	400	150	Class F	IP68	2×(4G70)+4G2.5	O	O	10	●	●	YΔ	10	5000
B	ARS 400-55CI/480	1450	400	480	400	400	150	Class F	IP68	2×(4G70)+4G2.5	O	O	10	●	●	YΔ	10	5000
C	ARS 500-52CI/280	1450	400	280	500	500	125	Class F	IP68	2×(4G70)+4G2.5	O	O	10	●	●	YΔ	10	4320
D	ARS 500-52CI/300	1450	400	300	500	500	125	Class F	IP68	2×(4G70)+4G2.5	O	O	10	●	●	YΔ	10	4320

ARS 500-50CI — 950 RPM



ARS 500-54CI — 950 RPM



	Type	RPM	Voltage	P2 (HP)	DN Discharge	DN Suction	Passage (mm)	Insulation	Protection	Cable	CR	Ex	Cable Length m	Thermal Protection	Humidity probe	Start	Starts Hours	Weight Kg
A	ARS 500-50CI/320	950	400	320	500	500	150	Class F	IP68	2×(4G70)+4G2.5	O	O	10	●	●	YΔ	10	4320
B	ARS 500-50CI/350	950	400	350	500	500	150	Class F	IP68	2×(4G70)+4G2.5	O	O	10	●	●	YΔ	10	4320
C	ARS 500-54CI/330	950	400	330	500	500	150	Class F	IP68	2×(4G70)+4G2.5	O	O	10	●	●	YΔ	10	4500
D	ARS 500-54CI/380	950	400	380	500	500	150	Class F	IP68	2×(4G70)+4G2.5	O	O	10	●	●	YΔ	10	4500

The Electric Motor of The Submersible Pumps (IE2)

P2 (HP)	P1 (HP)	RPM	COS Φ	Eff. (%)	In (A)	Ia (A)	N/h	Starts
2	2.35	1450	0.83	85.1	3.01	21.02	20	DOL
3	3.53	1450	0.84	85.1	4.45	31.15	20	DOL
4	4.68	1450	0.83	85.4	5.99	41.88	20	DOL
5.5	6.45	1450	0.84	85.3	8.15	56.97	20	DOL
7.5	8.80	1450	0.84	85.2	11.12	77.78	20	YΔ
10	11.71	1450	0.85	85.4	14.62	102.2	15	YΔ
10	11.71	2850	0.83	85.4	14.97	104.7	10	YΔ
12.5	14.35	1450	0.85	87.1	17.92	125.3	15	YΔ
12.5	14.35	2850	0.83	87.1	18.35	128.3	10	YΔ
15	16.65	1450	0.85	90.1	20.3	145.4	15	YΔ
15	16.65	2850	0.86	90.1	20.55	143.7	10	YΔ
20	22.17	1450	0.86	90.2	27.36	191.4	10	YΔ
20	22.17	2850	0.85	90.2	27.69	193.6	10	YΔ
25	27.62	1450	0.86	90.5	34.09	238.4	10	YΔ
30	33.19	1450	0.86	90.4	40.96	286.4	10	YΔ
35	39.9	950	0.85	90	49.2	364	10	YΔ
40	44.35	1450	0.85	90.2	54.4	387.2	10	YΔ
40	43.57	950	0.85	91.8	53.49	413	10	YΔ
50	55.37	1450	0.85	90.3	69.14	483.5	10	YΔ
50	55.6	950	0.85	90	69.92	511	10	YΔ
55	61.04	1450	0.86	90.1	75.33	526.8	10	YΔ
60	66.52	1450	0.86	90.2	82.09	574.1	10	YΔ
60	66.7	950	0.85	90	83.24	595	10	YΔ
64	68.08	1470	0.86	94	84.02	620.33	10	YΔ
65	69.1	950	0.85	94.1	83.3	585	10	YΔ
68	75.55	1470	0.89	90	90.09	518	10	YΔ
75	83.24	1450	0.87	90.1	101.55	710.1	10	YΔ
75	78.9	950	0.85	95	98.6	657	10	YΔ
85	90.4	1450	0.88	94	109.89	770	10	YΔ
85	90.4	950	0.85	94	112.87	741	10	YΔ
100	105.5	1450	0.88	94.8	127.94	875	10	YΔ
100	105.5	950	0.88	94.8	127.94	852	10	YΔ
115	127.77	1450	0.87	90	155.8	941	10	YΔ
125	133.3	1450	0.88	93.8	160.76	1130	10	YΔ
125	133.3	950	0.86	93.8	164.5	1073	10	YΔ
135	143.16	1450	0.9	94.3	168.8	1190	10	YΔ
200	222.22	1470	0.9	90	262	1504	7	YΔ
250	270.27	1450	0.89	92.5	322.29	1171	10	YΔ
272	302.22	1470	0.87	90	368.67	2161	7	YΔ
280	311.11	1470	0.9	90	366.87	2161	10	YΔ
300	312.5	1470	0.9	96	368.5	2610	7	YΔ
320	355.55	980	0.94	90	401.43	2563	10	YΔ
330	366.66	980	0.95	90	409.62	2822	10	YΔ
340	357.51	1470	0.9	95.1	421.59	2865	7	YΔ
350	388.88	980	0.92	90	448.61	2622	10	YΔ
380	404.25	980	0.89	94	482.06	2730	10	YΔ
380	400	1450	0.9	95	471.69	2651	10	YΔ
450	500	1470	0.93	90	570.79	3706	10	YΔ
480	502.61	1470	0.9	95.5	592.7	3852	7	YΔ

The Electric Motor of The Submersible Pumps (IE3)

P2 (HP)	P1 (HP)	RPM	COS ϕ	Eff. (%)	In (A)	Ia (A)	N/h	Starts
3	3.44	1440	0.85	87.1	4.58	34.35	25	DOL
3	3.49	2910	0.85	85.9	4.51	36.53	25	DOL
4	4.55	1450	0.85	88	6.33	51.27	25	DOL
4	4.59	2910	0.89	87.1	7.28	59.89	25	DOL
5.5	6.19	1450	0.85	88.8	7.85	65.53	25	DOL
5.5	6.24	2920	0.91	88.1	7.2	65.6	20	DOL
7.5	8.37	1450	0.86	89.6	10.5	84.5	25	YΔ
7.5	8.41	2930	0.91	89.2	9.78	87.8	20	YΔ
10	11	1460	0.86	90.9	14.3	107.3	20	YΔ
10	11.1	2930	0.90	90.1	13.4	109.5	15	YΔ
12.5	13.7	1460	0.86	91.3	17.8	128	20	YΔ
12.5	13.7	2940	0.91	91.2	16.1	116.8	15	YΔ
15	16.4	1460	0.86	91.4	20.4	146.2	20	YΔ
15	16.4	2940	0.92	91.5	18.9	153.1	15	YΔ
20	21.57	1475	0.87	92.7	27.3	200.9	15	YΔ
20	21.8	2955	0.89	91.9	26.5	204.7	15	YΔ
25	27	1470	0.87	92.7	33.5	244.7	15	YΔ
30	32.2	1475	0.87	93.3	39.7	220.5	15	YΔ
35	37.9	985	0.86	92.4	42.5	344.3	15	YΔ
40	42.7	1475	0.88	93.6	53.8	392.7	15	YΔ
40	43	985	0.86	93.1	56.2	407.1	15	YΔ
50	53.2	1480	0.88	94	66.1	489.1	15	YΔ
50	53.6	985	0.87	93.3	68.1	517.6	15	YΔ
55	58.4	1480	0.88	94.1	75.3	534.8	15	YΔ
60	63.6	1480	0.89	94.3	80.2	583.5	15	YΔ
60	64	985	0.87	93.7	81.6	600.3	15	YΔ
64	68.8	1470	0.86	94	85.24	594.68	15	YΔ
65	69.1	985	0.87	94	83.4	603.8	15	YΔ
75	79.3	1480	0.89	94.6	97.6	712.2	15	YΔ
75	79.7	990	0.88	94.1	98.1	704.8	15	YΔ
85	89.5	1480	0.90	95	109.9	800.2	15	YΔ
85	89.6	990	0.89	94.9	161	1135	15	YΔ
100	105	1485	0.90	95.1	129.5	936.8	15	YΔ
100	105	990	0.90	95.2	136.2	969.4	15	YΔ
125	131	1485	0.90	95.2	155.1	1120	15	YΔ
125	131	990	0.90	95.6	161	1139	15	YΔ
135	141	1485	0.91	96	169	1206	15	YΔ

P1 : Absorbed power
P2 : Shaft power
In :Nominal current
Ia : Starting current
COS ϕ : Power factor
T : Thermal protection (PTC)
N/h :Maximum starts per hour

Power supply : 50 HZ , 3 Ph, 400 V
Protection : IP 68
Insulation : Class F , Class H
Temperature Rise : Class B
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Depending on Version Motors
can work with VFD & Soft Starters

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