SATURN evo

EU product
Made in Italy

2017

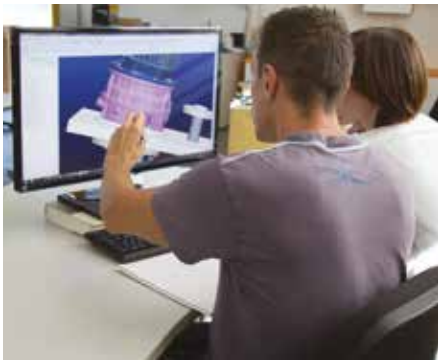
CENTRIFUGAL PUMPS
COMPLIANT TO ANSI/ASME B73.1
IN FIBERGLASS (FRP)
MATERIAL

FIRST IN EUROPE

ARGAL ITALY PUMPS

SINCE 1975

EN



QUALITY EXPERIENCE INNOVATION SINCE 1975

ARGAL® boasts forty years of activity in the **invention and production of pumps** made of thermoplastic material, **compounds and corrosion-resistant metal alloys**. During the past decade significant efforts were directed to research and development on the entire production and such an effort resulted in pump ranges completely new or renovated both regarding mechanical and hydraulic systems.

The mission of **ARGAL®** is continuous and constant technological improvement, along the path of innovation instead of emulation.
Our aim is to offer the best technical performance and engineering obtaining the leadership in performance while providing appropriate responses to the needs of market dynamics by realizing a "State-of-the-art quality.

Today the company has a wide range of pumps in various constructions for industrial applications requiring temperatures ranging from -40° C to +130°C, with load capacities up to 1700 m^3/h-head over the 100 m. **ARGAL®** also offers the most complete italian range of AODD pumps (from ¼" to 4") with metallic or plastic solutions to satisfy the most various market demand.

All are **certified ISO 9001:2008 according to Vision ISO 9001:2008 rule**. We strongly want to offer a wide production program with high quality pumps ranges and really competitive prices.

FRP

The evolved **SATURN EVO** range is made of horizontal centrifugal single-stage pumps compliant with ANSI/ASME B73.1 standards. With pump casings made of FRP (fiberglass reinforced polyester), these pumps do not require protective careening either external metallic armour.
Thanks to particular conceptions and precise constructive rules, **SATURN EVO** pumps are offering an outstanding mechanical strength closely similar to metal alloys.

... mechanical strength and chemical resistance

The different formulations of the resin used (epoxy-vinyl-ester) are giving a greater chemical resistance making **SATURN EVO** ideal and resistant to a broad range of corrosive chemical agents and moderately abrasive liquids.

These pumps are a valuable alternative to metal pumps as they are a perfect combination of chemical resistance, mechanical strength and competitive price; especially if operating in seawater applications (water and wastewater treatments, purification, desalination) or aquarium, marine parks, industrial and public water depuration, even in scrubbers and general processes.

... design

The pumps SATURN are available in two versions: • **ZGS**, normalised, with bearings housing and **flexible spacer coupling;**
• **ZMS**, close coupled that is more compact and economical.

Long coupled ZGS pump
6x4x10 - bare shaft

ZMS Pump 4x3x10

Why choosing a SATURN EVO pump?

... the evolution

Summable into 3 significant details:

- the volute casing is made of only one piece guaranteeing a total robustness, shock-resistance and regular thickness.
- the blade shape of the impellers with augmented-energetical-efficiency three-dimensional development and less NPSH required. Blades are internally reinforced with carbon fiber.
- a new external system for even better performance of the pump: it is now possible to adjust the impeller position closer to the volute casing by relocating the shaft only.

SATURN EVO pumps are realised with the pure Ashland Inc. DERAKANE epoxy-vinyl-ester resin mixed with dosed inerts to improve the material rigidity, stability without altering its chemical resistance.

... 5 constructive versions

V1G: the ideal solution for the major part of corrosive agents containing acids, alkalies, detergents, sea water, brine, etc.
V1A: for liquids with a low concentration of abrasion: fossil shell flour, ashes, titanium dioxide.
V1C: Perfect for resisting to bleach corrosive liquids such as sodium hypochlorite (NaOCl) or hydroxide peroxide (H_2O_2);
V1F: a specific solution made up with a synthetic veil to ensure resistance to fluoride acid (HF) and other liquids with fluorine.
V1X: a specific solution to operate into ATEX areas with conductive resin liner.

FIBERGLASS RESIN	APPLICATIONS
V1G standard vinyl ester resin compound	General purpose
V1A vinyl ester resin compound	Abrasive liquids
V1C vinyl ester resin compound	Bleaches applications
V1F vinyl ester resin compound	Fluoridric applications
V1X vinyl ester with conductive resine liner	For Atex areas

ZGS 10x8x15 for Atex areas

SECTORS	APPLICATIONS
Aquariums/Zoos	Saltwater
Chemical Process	Acids Chemical waste Waste Water
Desalination	Filtration Seawater Intake Chemical Transfer Concentrated Brine
Electric Utilities	Coal pile run-off
Electronics	Acids Chemical waste
Metal Finishing	Chromic acids Pickling acids Plating solutions
Petrochemical	Acids Chemical waste
Pharmaceutical	Organic Solvents
Pulp and Paper	Bleach
Mining	Abrasives and Corrosives
Scrubbers/Odor Control	Acids and Caustics

PRODUCTIVE PROCESS

The Saturn pumps are produced completely by Argal in its plant located in Italy by RTM injection moulding technology. By this process, parts are moulded with reinforced layers of fiberglass before injecting the resin.

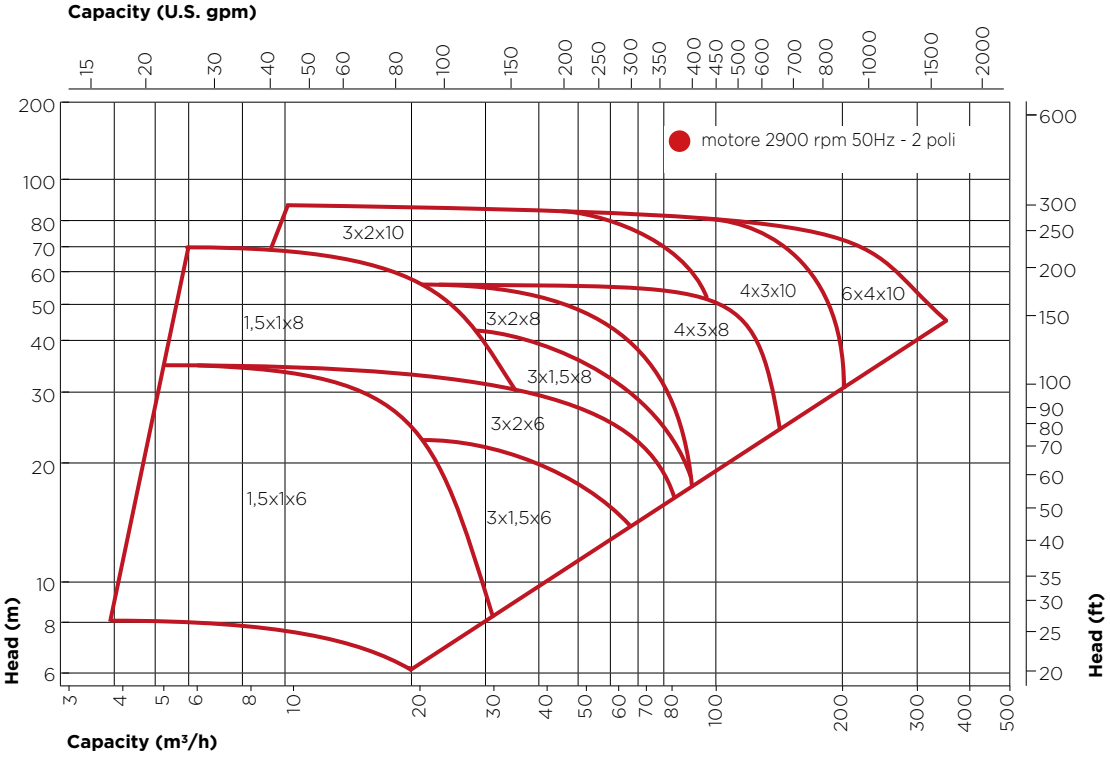
The use of fiberglass made of a layer of tissue and different weight allows to reinforce the structure in the areas of most mechanical stress and at the same time offers an excellent chemical resistance.
The thermoset resins, differently from thermoplastics materials, can not be re-processed once catalysed which is a warranty for better mechanical properties, thermal and dimensional
stability and longer life.

RTM moulding technique vs. Compression moulding technique

RTM process main advantage stands in the possibility to add reinforcement elements precisely into high mechanical stresses zones (feet and flanges for example) to obtain excellent physical-mechanical characteristics of the components as well as very high chemical resistance.

Compression moulding technique on the other side uses crumbled pieces of fiberglass casually spread out during the injection phase - which provides lower resistance than RTM technique.
The compression moulding physical and exothermic properties require to include a larger quantity of inerts which reduces the corrosion resistance of the basic resin.

GENERAL PERFORMANCE CURVES 50 HZ 2900 rpm

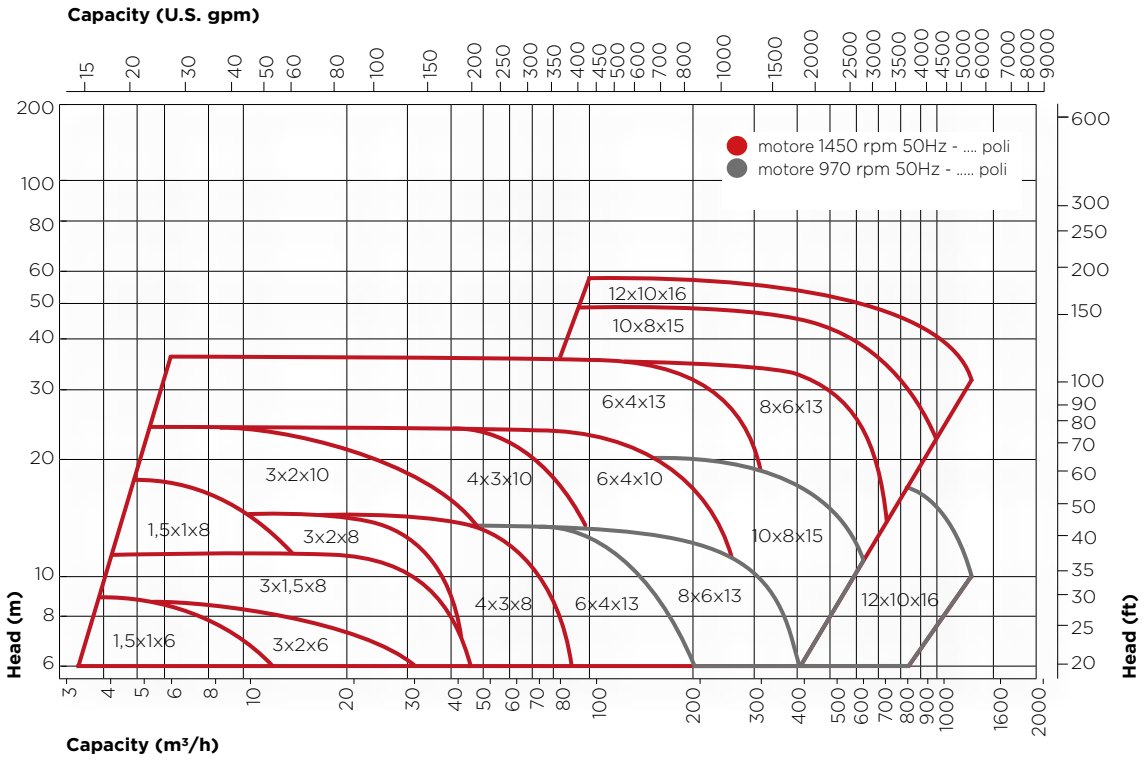


MOTOR POWER INSTALLED 2900 rpm (50 Hz)

Group	Model	kW																
		1,5	2,2	3	4	5,5	7,5	11	15	19	22	30	37	45	55	75	90	110	132
G1	1,5x1x6	●				●													
	1,5x1x8	●						●											
	3x1,5x6	●				●													
	3x1,5x8	●						●											
G2	3x2x6	●							●										
	3x2x8			●								●							
	3x2x10				●										●				
	4x3x8				●									●					
	4x3x10						●										●		
	6x4x10									●									●

ZMS Pump 3x2x6 Close-coupled

GENERAL PERFORMANCE CURVES 50 HZ 1450 - 900 rpm

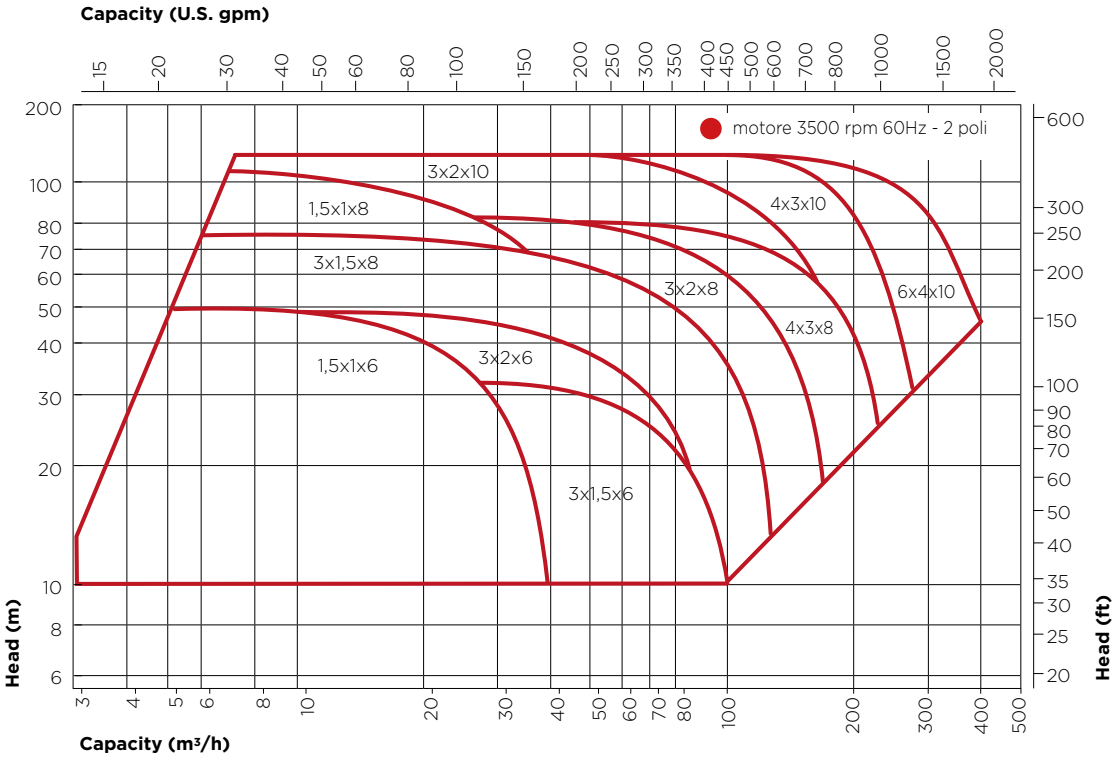


MOTOR POWER INSTALLED 1450 - 970 rpm (50 Hz)

Gruppo	Modello	kW																			
		1,5	2,2	3	4	5,5	7,5	11	15	19	22	30	37	45	55	75	90	110	132	160	200
G1	1,5x1x6																				
	1,5x1x8																				
	3x1,5x6																				
	3x1,5x8																				
G2	3x2x6																				
	3x2x8																				
	3x2x10																				
	4x3x8																				
	4x3x10																				
	6x4x10																				
	6x4x13																				
G3	8x6x13																				
	10x8x15																				
	12x10x16																				

1450 rpm
970 rpm

GENERAL PERFORMANCE CURVES 60 HZ 3500 rpm

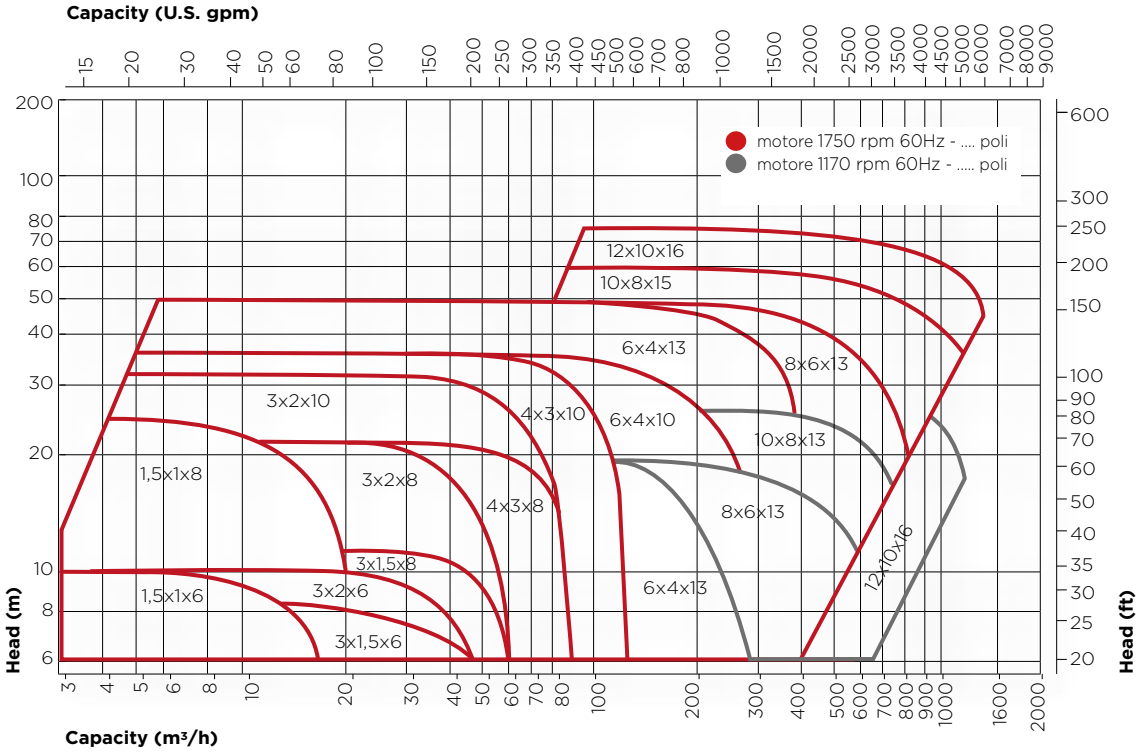


MOTOR POWER INSTALLED 3500 rpm (60 Hz)

Gruppo	Modello	kW																
		1,5	2,2	3	4	5,5	7,5	11	15	19	22	30	37	45	55	75	90	110	132
G1	1,5x1x6	●						●											
	1,5x1x8	●									●								
	3x1,5x6	●									●								
	3x1,5x8				●									●					
G2	3x2x6		●								●								
	3x2x8				●									●					
	3x2x10							●									●		
	4x3x8					●										●			
	4x3x10						●												●
	6x4x10											●							●

ZMS 3x2x10 close couple pump

GENERAL PERFORMANCE CURVES 60 HZ 1750 - 1170 rpm

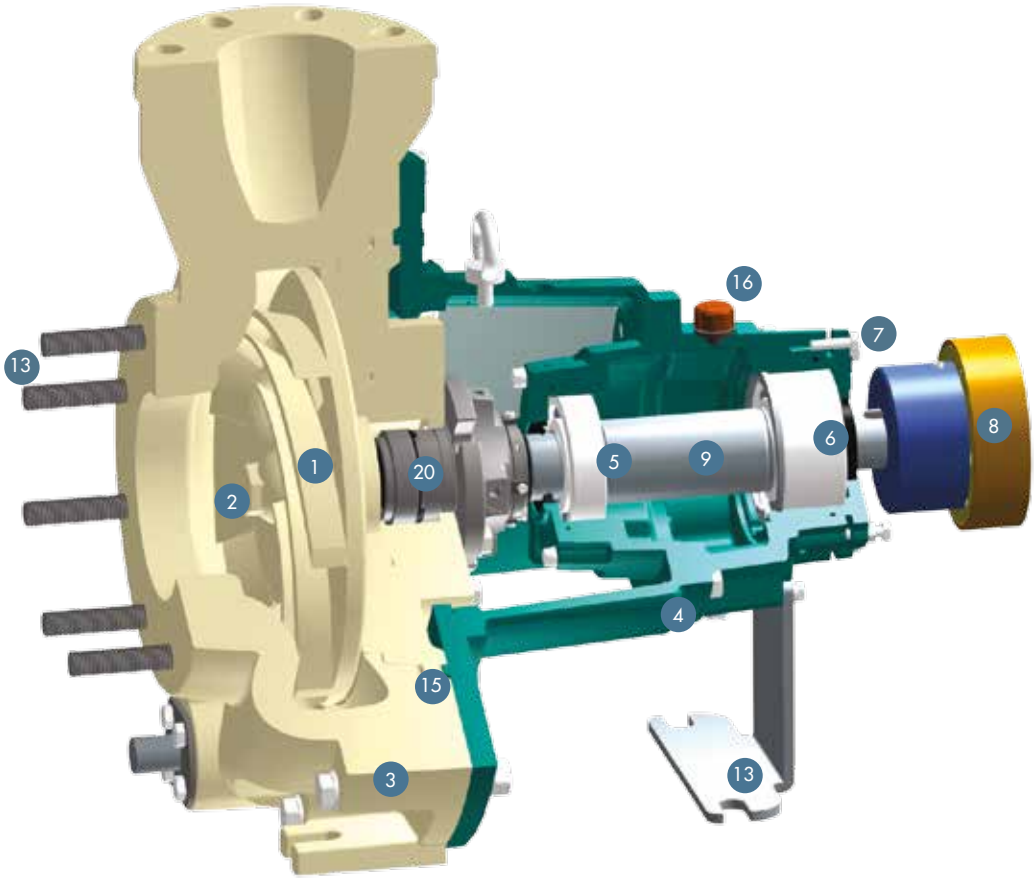


MOTOR POWER INSTALLED 1750 - 1170 rpm (60 Hz)

Gruppo	Modello	kW																		
		1,5	2,2	3	4	5,5	7,5	11	15	19	22	30	37	45	55	75	90	110	132	160	200
G1	1,5x1x6	●				●															
	1,5x1x8	●				●															
	3x1,5x6	●				●															
	3x1,5x8	●					●														
G2	3x2x6	●		●																	
	3x2x8	●						●													
	3x2x10	●							●												
	4x3x8	●						●													
	4x3x10		●							●											
	6x4x10				●								●								
	6x4x13			●			●							●							
G3	8x6x13				●				●						●						
	10x8x15								●				●						●		
	12x10x16										●				●				●		

● 1750 rpm
● 1170 rpm

SATURN ZGS LONG COUPLED PUMP



1

Impeller

Semi-open centrifugal with high-efficiency three-dimensional blade to improve the pump performances.
Minor use of NPSH. Minor energetical consumption. Realised with RTM technique into one piece with stainless steel insert.

2

Ogive

Part made of polyester with a stainless steel core embedded in the part when injected. It is designed to lock the impeller permanently in its home position. It has a hexagonal shape compatible with a standard wrench.

3

Volute casing and rear casing

Moulded by RTM Injection in a single piece without joints, they are extremely resistant.
The areas of the rear casing subjected to localised mechanical stress as flanges and supports are manufactured with peculiar design attentions.

4

Bearings housing and rear flange

Cast iron parts are produced by a mechanised process. The support hosts the bearings' housing and the lubricant oil. The lantern located in intermediate position connects the support to the rear casing flange.

5

Bearing pump side

Taper roller bearing to counter axial and radial loads.

6

Bearing motor side

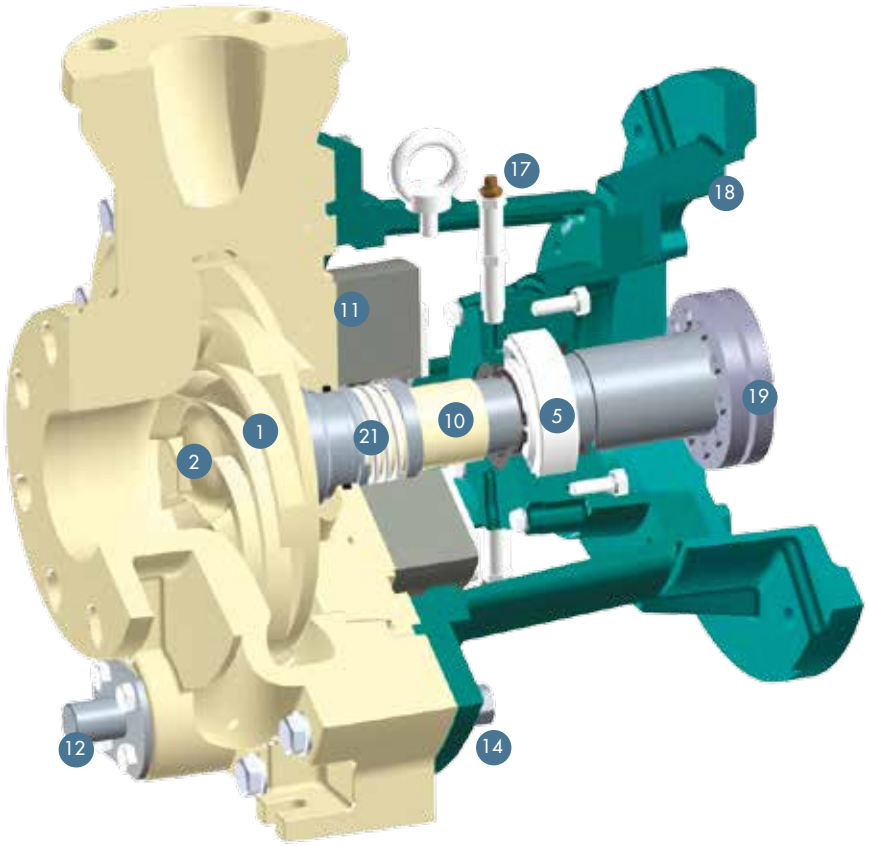
Double row ball bearing.

7

Impeller adjustment system

Possibility to adjust the impeller position closer to the pump casing by relocating the shaft only to guarantee constant hydraulic performances over time.

SATURN ZMS CLOSE COUPLED PUMP



8

Flexible spacer coupling
Made of cast steel and single piece with a crown in plastic polymers: it's complete with a removable spacer to allow pulling out the pump for disassembly purposes.

9

Shaft
Made of steel and designed to resist to hydraulic loads and correlated vibrations. It is totally protected by the shaft sleeve made of FRP.

10

Shaft Sleeve
Single piece without additional metallic parts.

11

Diaphragm
Manufactured in FRP, it is designed to support the stationary part of the mechanical seal and it is easily replaceable if it fails.

12

Drain port
Optional.

13

Support foot
On request for G2 pumps.

14

Locking bolts and tie rods
Made of stainless steel.

15

O-ring gaskets
FKM Standard

16

Oil fill plug

17

Grease nipple

18

Flanged adaptor

19

Shrink disc

20

Mechanical seal cartridge MC8

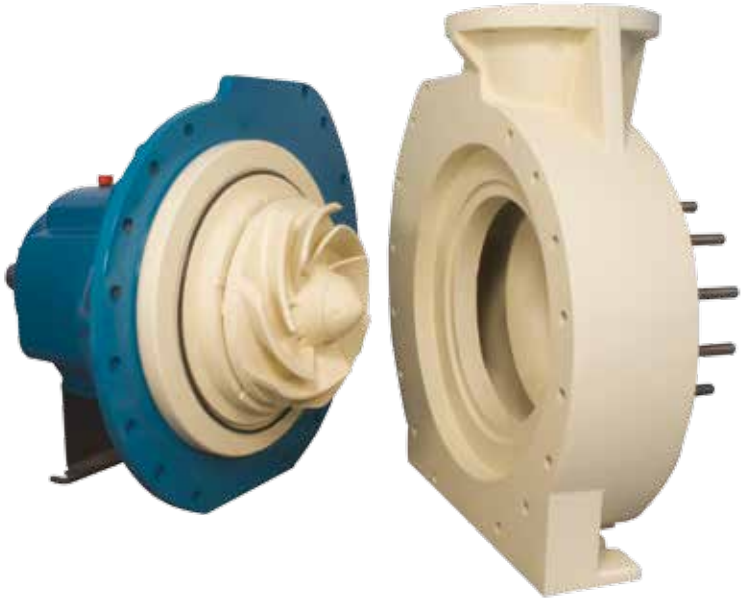
21

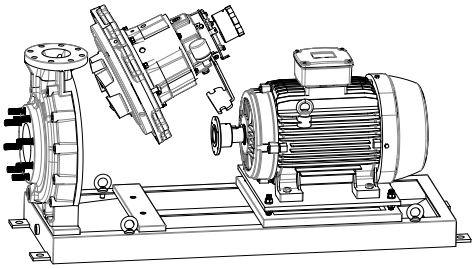
BF8 mechanical seal

ZGS. The coupling of the pump to the motor by a flexible joint deliver a longer operative life to the mechanical part of the pump and it is the preferred solution for heavy duty application and continuous use. The flexible joint coupling allows maintaining the pump or the motor mounted on a respective base plate, but independently. The back pull-out construction allows for dismantling the support of the pump and some hydraulic parts subjected to periodic inspection without disconnecting the casing from the piping of the plant or removing the electric motor from the base plate.

Long coupled pump ZGS Pump and electric motor are assembled on a common FRP base plate (optional) and coupled by a flexible joint. Guard plate is made of stainless steel and directly assembled onto the pump (it doesn't need to be anchored to the base plate.)

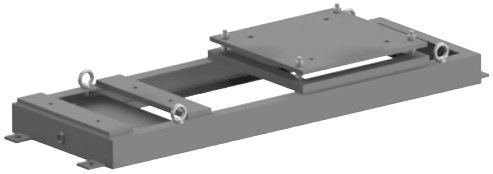
Detail of the volute casing
Integral volute pump casing made with undercut realisation for dragging regular flows, back-pull-out execution type of the back casing and high efficiency three-dimensional blade-shape impeller.





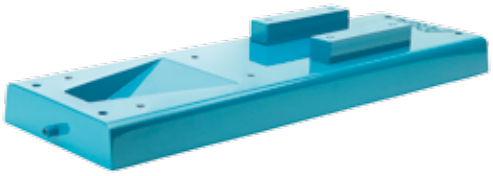
Back pull-out execution

All the SATURN pumps with elastic coupling are equipped with the back pull-out system that allows the dismantling of the internal and mechanic parts of the pump without disconnecting the casing from the fittings and without moving the motor.



Base plate

Made of carbon steel profiles, painted with anti-corrosion enamel and provided with a system to adjust the position of the motor to ease its alignment with the pump.



Fiberglass baseplate

Alternative to the steel plates. This fiberglass baseplate offers high chemical resistance with no need for protective coats.

Realised by moulding vinyl-ester resin, it offers strong robustness and lighter weight.

PUMP IDENTIFICATION LABEL

ZGS	4x3x8	V1G	V	BF8	R	E		0	A
SATURN	4" Inlet 3" Outlet 8" Ø impeller	Vinyl ester resin for general purpose	V = FPM E = EPDM F = FEP K = FFPM	BF8 int. single SiC-SiC	Integral	E = IEC	U = NEMA	0 = without joint 1 = with joint	Flange A = ANSI I = ISO
SERIE	MODEL	VERSION	GASKET MATERIAL	MECHANICAL SEAL	EXTERNAL STRUCTURE	STANDARD MOTOR	STANDARD MOTOR	ELASTIC COUPLING	CONNECTIONS
ZGS	1,5x1x6	V1G	V	TR5_	R	E 90 24	U 182T 29	0	A
	1,5x1x8	V1A	E	TR8_		...	...	1	I
	3x1,5x6	V1C	F	BF8_		E 355 100	U 504T 92		
	3x1,5x8	V1F	K	CS8_					
	3x2x6			MTR5_					
	3x2x8			MTR8_					
	3x2x10			MC8_					
	4x3x8								
	4x3x10								
	6x4x13								
	8x6x13								
	10x8x15								
	12x10x16								

ZMS Pump 3x2x6

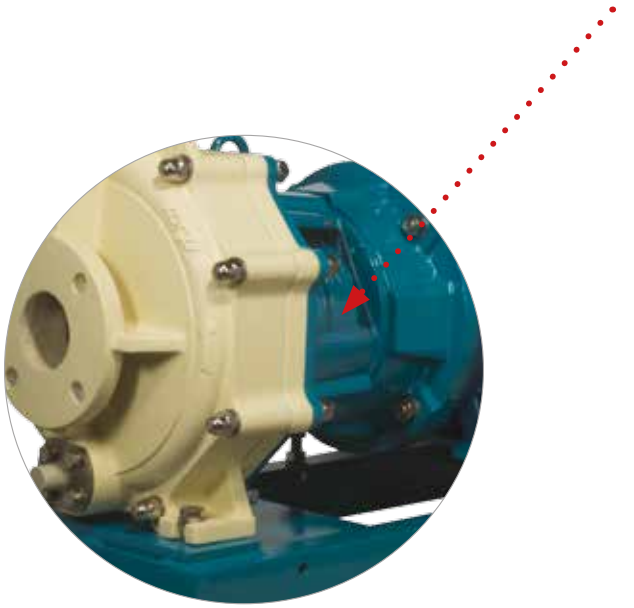
ZMS. The close-coupled construction, proposed for installed power up to 37 kW also has significant functional advantages. The shaft of the pump is supported by a bearing located in the lantern: this bearing counters all the radial load of the shaft, and by reducing its overhung section, it reduces the loads on the bearings of the electric motor contributing to extending their life.
This solution is characterised by reduced overall dimensions and allows installing these pumps also in plants dimensioned for different devices.

Baseplate (optional) Realised with steel section bars coated with anti-corrosion varnish. Fiberglass version is also available.

ZMS 3x2x10

ZMS model's unique PLUS

The rolling bearing is intentionally located in the lantern junction to the electric motor for supporting the radial charges. It also reduces the cantilever extremity of the shaft and thus the charge carried by the motor bearings: a longer life cycle is ensured.



Close coupled pump ZMS Pump and electric motor are assembled directly.

PUMP IDENTIFICATION LABEL

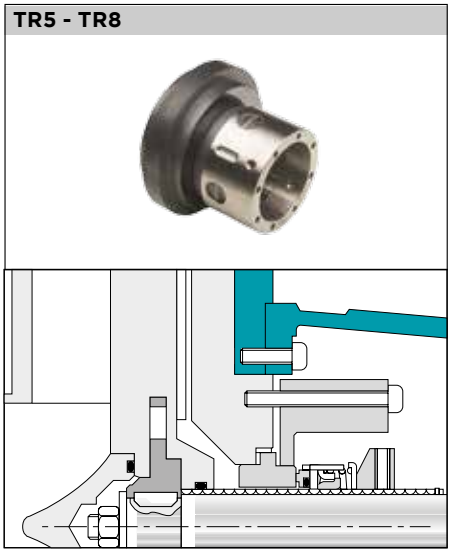
ZMS	4x3x8	V1G	V	TR8	R	E	T	A
SATURN	4" Inlet 3" Outlet 8" Ø impeller	Vinyl ester resin for general purpose	V = FPM E = EPDM F = FEP K = FFPM	TR8 ext. single SiC-SiC	Integral	E = IEC	U = NEMA	Shrink disc	Flange A = ANSI I = ISO
SERIE	MODEL	VERSION	GASKET MATERIAL	MECHANICAL SEAL	EXTERNAL STRUCTURE	STANDARD MOTOR	STANDARD MOTOR	COUPLING	CONNECTIONS
ZMS	1,5x1x6	V1G	V	TR5_	R	E 90 24	U 182T 29	T	A
	1,5x1x8	V1A	E	TR8_		...	...		I
	3x1,5x6	V1C	F	BF8_		E 200 55	U 326 TS 48		
	3x1,5x8	V1F	K	CS8_					
	3x2x6			MTR5_					
	3x2x8			MTR8_					
	3x2x10			MC8_					
	4x3x8								
	4x3x10								
	6x4x13								

SATURN pumps can be installed with various types of mechanical seals, one produced by ARGAL and others produced by leading Manufacturers. These can be classified by type of installation (single internal or external, double flushing) and by the materials used for the sliding parts and the packing. The metal parts are never in contact with the pumped fluid.

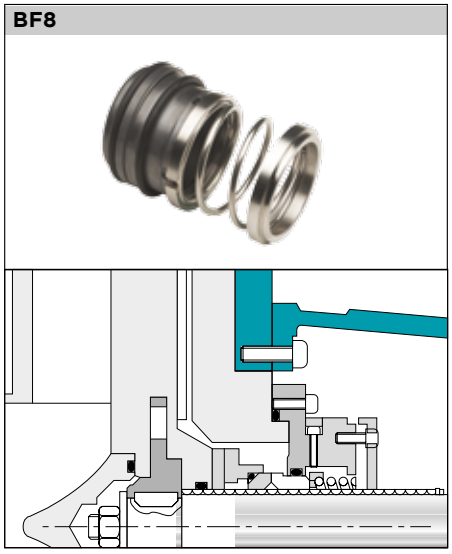
SEAL FLUSHING ARRANGEMENTS

All mechanical seals require flushing to lubricate the seal faces and maintain normal operating temperatures. Seals are usually flushed by the pumped liquid or by an external clean liquid if necessary.

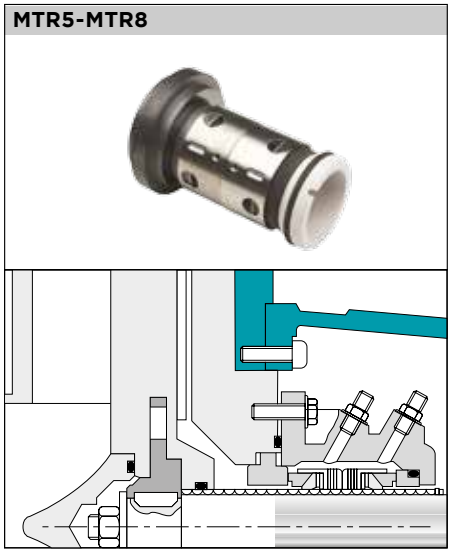
TR5 - TR8



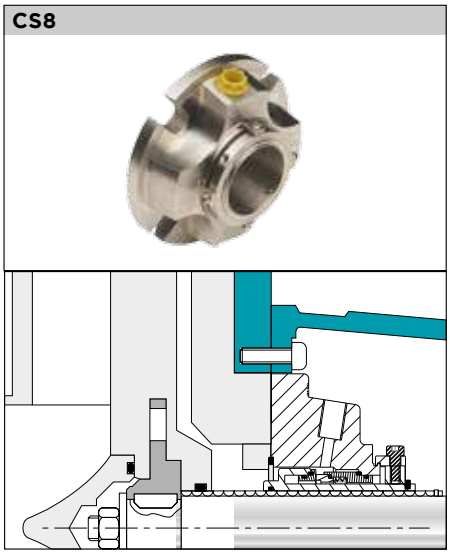
BF8



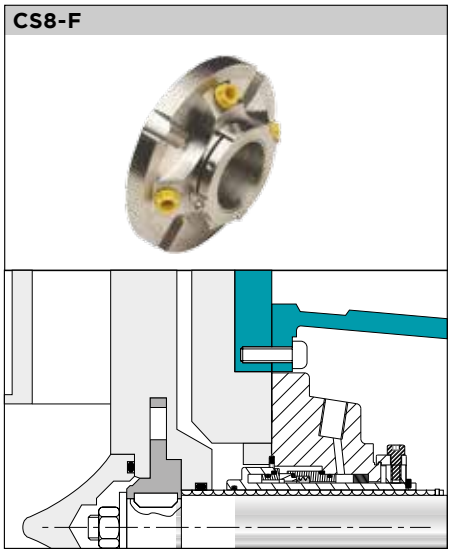
MTR5-MTR8



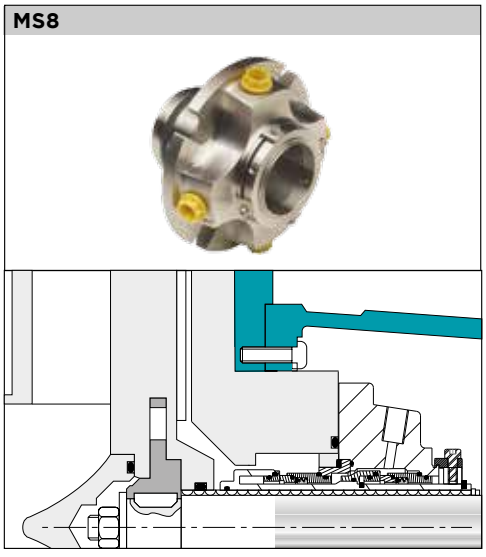
CS8



CS8-F



MS8



MATERIALS

MOD.	External single		Internal single			Double flushed		
	TR5-1	TR8-1	BF8-1*	CS8-1**	CS8/F-1***	MTR5-1	MTR8-1	MC8-1
Primary stamp	Crane 8-1T		Flowserve Allpac 481	Crane 5610		Crane 8-1T back to back		Crane 5610
API plan	02		03			54		
Fixed materials°	SiC		SiC			SiC	SiC	SiC
Rotating materials°	graphite	SiC	SiC			graphite	SiC	SiC
Back seal	graphite/ Al_2O_3					graphite/ Al_2O_3		

APPLICATIONS

MOD.	TR5-1	TR8-1	BF8-1*	CS8-1**	CS8/F-1***	MTR5-1	MTR8-1	MC8-1
Acid mixtures Mixtures concentrated with fluorine. Strong and hot concentrated alkalies			x	x	x			
Clean chemical liquids; hot/cold; concentrated/ diluted	x	x						
Liquids with gas formation				x	x	x	x	x
abrasive liquids		x	x	x	x		x	x
precipitation risk solutions				x	x	x	x	x
Liquids with solids			x	x	x		x	x
Exam of suspended solids (to correlate):								
• max. Quantity in weight (%)	3	3	6	10	10	3	3	6
• max dimensions (mm)	0,5	0,5	3	5	5	0,5	0,5	3
• max hardness index (Mohs)	3	6	6	6	6	3	3	6

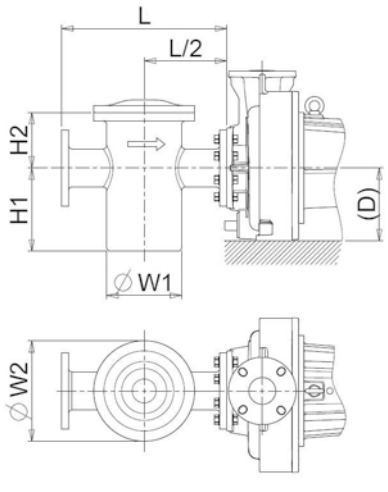
* external flushing similar to API plan 11 - ** external flushing similar to API plan 11
*** external flushing - ° in contact with the pumped liquid - must be compatible

ACCESSORIES

Pre-filter

Located in front of the pump and directly linked to inlet pipe flange, the pre-filter holds the liquid's rough impurities to avoid the pump to be damaged. Equipped with large basket and easy-to-clean. An obstruction detector with alarm signal can be added.

MODELS	PRE-FILTER DIMENSIONS					
	L	ø W1	ø W2	H1	H2	(D)
3x1,5x6	475	215	290	230	150	133
3x1,5x8						
3x2x6						
3x2x8						210
3x2x10						
4x3x8	475	215	290	220	160	
4x3x10						
6x4x10	545	245	320	275	190	254
6x4x13						
8x6x13	620	300	370	360	220	368
10x8x15	710	350	430	430	240	



NOTE #1 Filter INLET flange available with interaxis acc. to ISO/DIN PN10 or ASME B16.5 class150
NOTE #2 The weight of the filter must not weigh on the pump's suction flange

Service machines for mechanical seals (Quench)

Flushing systems are used along with single or double mechanical seals. They operate as fluid service stock for protecting and stabilising the mechanical seals.

The fluid is exchanged by convection thanks to the radiator effect or a forced circulation (from an auxiliary pump). An exchanger line is available.

The stainless steel container is equipped with a glass to visually control the minimum level of the liquid as well as with specific fixing elements.

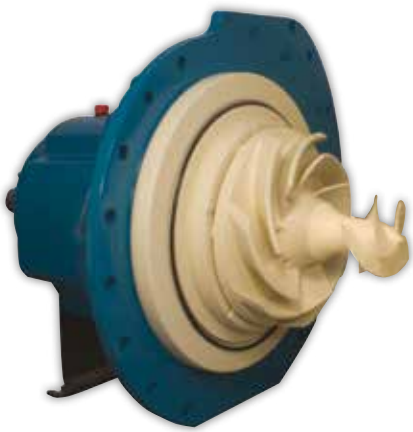
An extensive range of accessories can be added: level switcher, recirculation pump, loading pump, manual loading pump, thermometer, manometer, etc...

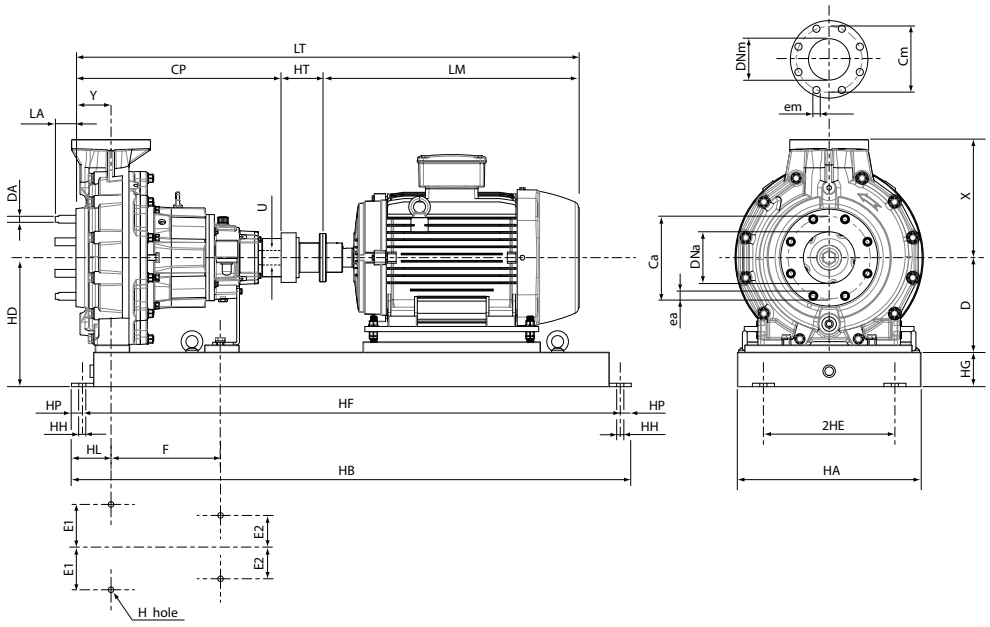
The service machine is used for:

- absorbing liquid losses
- lubricating and cooling the back-to-back disposition mechanical seal
- avoiding the seals to be frozen and dry-run
- stabilising the lubricated film on the seal surface
- prevent reactions when the pumped fluid is in contact with oxygen.

Inducer

Extra component to facilitate the hydrodynamic of the aspiring zone: it lowers the NPSH value, it reduces the fluid losses significantly. It can be installed if during the aspiring phase the pump meets unexcepted fluid turbulence and excessive vibrations.





ANSI/ASME B73.1 PUMPS - (dimensions in mm.)

MODEL	CP	Y	D	X	F	E1	E2	H	U	LA	DA	(kg)
1,5x1x6	445	102	133	165	184	76	n.a.	16	22,2	n.a.	n.a.	28
1,5x1x8	445	102	133	165	184	76	n.a.	16	22,2	n.a.	n.a.	29
3x1,5x6	445	102	133	165	184	76	n.a.	16	22,2	n.a.	n.a.	28
3x1,5x8	445	102	133	165	184	76	n.a.	16	22,2	n.a.	n.a.	29
3x2x6	445	102	133	165	184	76	n.a.	16	22,2	n.a.	n.a.	26
3x2x8	597	102	210	242	318	124	92	16	41,3	n.a.	n.a.	95
3x2x10	597	102	210	242	318	124	92	16	41,3	n.a.	n.a.	95
4x3x8	597	102	210	280	318	124	92	16	41,3	n.a.	n.a.	100
4x3x10	597	102	210	280	318	124	92	16	41,3	n.a.	n.a.	100
6x4x10	597	102	254	343	318	124	92	16	41,3	60	20	120
6x4x13	597	102	254	343	318	124	92	16	41,3	60	20	120
8x6x13	860	152	368	406	476	203	114,5	22	60,3	60	20	240
10x8x15	860	152	368	483	476	203	114,5	22	60,3	60	20	280
12x10x16	892	178	457	660	541	280	178	25	60,3	100	25	425

CONNECTIONS - ANSI/ASME B16.5 class 150 - (dimensions in mm.)

MODEL	INLET					OUTLET				
	DNa	Ca	ea	n°	type	DNm	Cm	em	n°	type
1,5x1x6	40	98	16	4	hole	25	79	16	4	hole
1,5x1x8	40	98	16	4	hole	25	79	16	4	hole
3x1,5x6	80	152	19	4	hole	40	98	16	4	hole
3x1,5x8	80	152	19	4	hole	40	98	16	4	hole
3x2x6	80	152	19	4	hole	50	121	19	4	hole
3x2x8	80	152	19	4	hole	50	121	19	4	hole
3x2x10	80	152	19	4	hole	50	121	19	4	hole
4x3x8	100	191	19	8	hole	80	152	19	4	hole
4x3x10	100	191	19	8	hole	80	152	19	4	hole
6x4x10	150	241	20	8	tie rod	100	191	19	8	hole
6x4x13	150	241	20	8	tie rod	100	191	19	8	hole
8x6x13	200	298	20	8	tie rod	150	241	22	8	hole
10x8x15	250	362	20	12	tie rod	200	298	22	8	hole
12x10x16	300	432	25	12	tie rod	250	362	25	12	hole

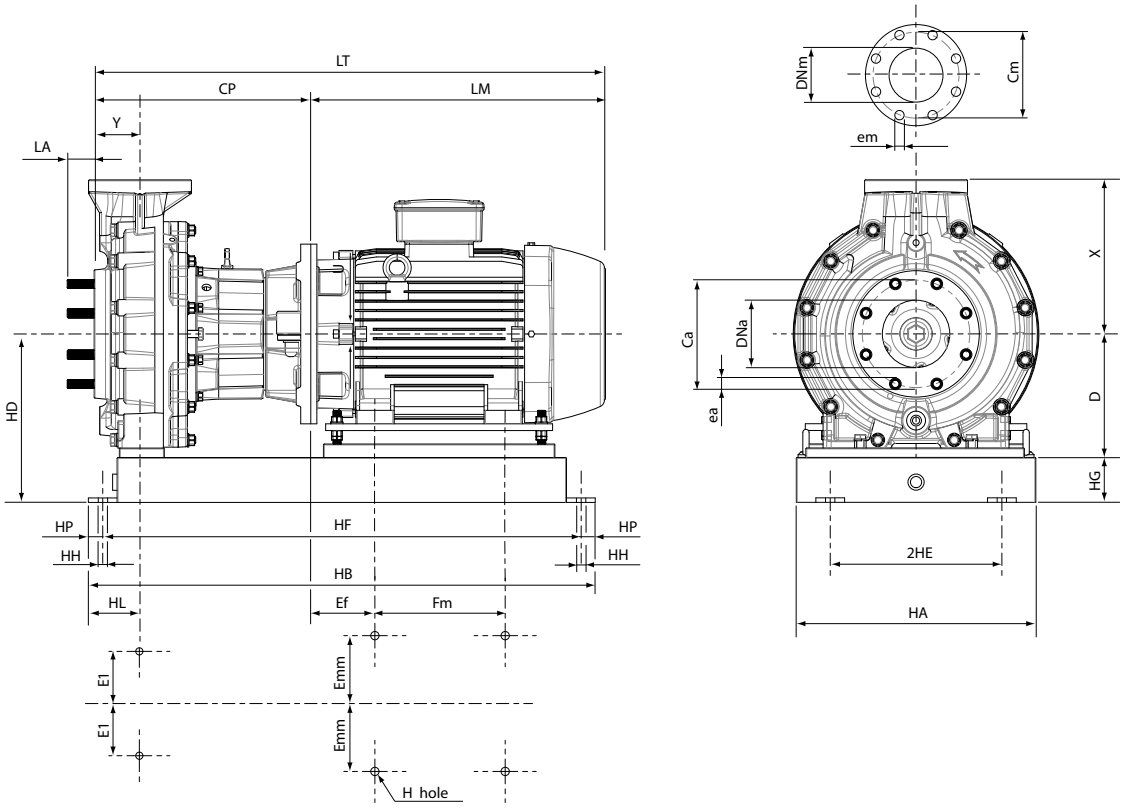
BASE PLATE - (dimensions in mm.)

N°	HA	HB	HE	HF	HG	HH	HL	HP	(kg)
133	381	734	114	670	95	19	114	32	25
139	381	991	114	927	95	19	114	32	40
144	381	991	114	927	95	19	114	32	35
148	457	1219	152	1156	105	19	114	32	55
153	533	1346	191	1283	121	19	114	32	80
233	381	838	114	774	95	19	114	32	30
244	381	1143	114	1080	95	19	114	32	40
245	381	1143	114	1080	95	19	114	32	50
252	457	1321	152	1257	105	19	114	32	65
258	533	1473	191	1410	121	25	114	32	85
264	533	1626	191	1562	121	25	114	32	95
268	660	1727	241	1664	121	-	114	32	110
280	660	2032	241	1969	121	25	114	32	125
368	660	1727	241	1664	121	25	165	32	140
380	660	2032	241	1969	121	25	165	32	150
398	660	2489	241	2426	121	25	165	32	190

IP55 MOTORS - (dimensions in mm.) (1) It can change for various manufacturers

kW	poles	Frame	LM(1)	kg (1)	HT G3	HT G4
1,5	2	90S	310	13	100	
	4	90L	337	15		
2,2	2	90L	337	16	100	
	4			22		
3	2	100L	368	23	100	
	4			27		
4	2	112	395	27	100	
	4			32		
5,5	2	132S	437	42	100	
	4			43		
7,5	2	132S	437	46	100	
	4	132M	475	53		
	6	160M	655	103		
11	2	160M	655	122	100	120
	4			134		
	6	160L	675	121		
15	2	160M	655	133	100	120
	4	160L	675	169		
	6	180L	768	173		
18,5	2	160L	675	163	100	120
	4	180M	720	196		
	6	200LA	760	221	120	140
22	2	180M	720	190	100	120
	4	180L	768	242		
	6	200LB	760	236	120	140

kW	poles	Frame	LM(1)	kg (1)	HT G3	HT G4
30	2	200L	760	252	120	140
	4			275		
	6	225M	850	301		
37	2	200L	760	275	100	140
	4	225S	825	328	120	
	6	250M	925	370		
45	2	225M	820	315	120	140
	4		850	355		
	6	280S	975	478		
55	2	250M	925	417	120	140
	4			402		
	6	280M	1015	615		
75	2	280S	960	512	120	140
	4		975	540		
	6	315S	1190	790	140	180
90	4	280M	1015	615	120	140
	6	315M	1300	880	140	180
110	4	315S	1190	870	140	180
	6	315LA	1300	997		
132	4	315M	1300	990	140	180
	6	315LM		1103		
160	4	315LA	1270	1053	140	180
	6	355MA	1570	1400		



ANSI/ASME B73.1 PUMPS - (dimensions in mm.)

MODEL	CP	Y	D	X	E1	H	LA	Weight (kg)
1,5x1x6	445	102	133	165	184	76	n.a.	28
1,5x1x8	445	102	133	165	184	76	n.a.	29
3x1,5x6	445	102	133	165	184	76	n.a.	28
3x1,5x8	388	102	210	242	124	16	n.a.	95
3x2x6	388	102	210	242	124	16	n.a.	95
3x2x8	597	102	210	242	124	16	n.a.	95
3x2x10	597	102	210	242	124	16	n.a.	95
4x3x8	597	102	210	280	124	16	n.a.	100
4x3x10	597	102	210	280	124	16	n.a.	100
6x4x10	597	102	254	343	124	16	60	120
6x4x13	597	102	254	343	124	16	60	120

CONNECTIONS - ANSI/ASME B16.5 class 150 - (dimensions in mm.)

MODEL	INLET					OUTLET				
	DNa	Ca	ea	n°	type	DNm	Cm	em	n°	type
1,5x1x6	40	98	16	4	hole	25	79	16	4	hole
1,5x1x8	40	98	16	4	hole	25	79	16	4	hole
3x1,5x6	80	152	19	4	hole	40	98	16	4	hole
3x1,5x8	80	152	19	4	hole	40	98	16	4	hole
3x2x6	80	152	19	4	hole	50	121	19	4	hole
3x2x8	80	152	19	4	hole	50	121	19	4	hole
3x2x10	80	152	19	4	hole	50	121	19	4	hole
4x3x8	100	191	19	8	hole	80	152	19	4	hole
4x3x10	100	191	19	8	hole	80	152	19	4	hole
6x4x10	150	241	22	8	tie rod	100	191	19	8	hole
6x4x13	150	241	22	8	tie rod	100	191	19	8	hole

BASE PLATE - (dimensions in mm.)

N°	HA	HB	HE	HF	HG	HH	HL	HP	Weight (kg)
133	381	734	114	774	95	19	114	32	25
139	381	838	114	774	95	19	114	32	40
233	381	838	114	774	95	19	114	32	35
244	381	1143	114	1080	95	19	114	32	40

IP55 MOTORS - (dimensions in mm.)

kW	1,5		2,2		3		4		5,5		7,5			11			15			18,5			22			30		37
Poles	2	4	2	4	2	4	2	4	2	4	2	4	6	2	4	4	2	4	6	2	4	6	2	4	6	2	4	2
FRAME	90S	90L	90L		100L		112		132S		132S	132M	160M	160M		160L	160M	160L	180L	160L	180M	200LA	180M	180L	220LA	200LB	200L	200LB
LM (1)	260	285	285		326		335		356		356	396	500	500		545	500	545	610	545	570	650	570	610	650	650		650
Weight kg(1)	12	15	16	22	23	27	27	32	42	43	46	53	103	122	134	121	133	169	173	163	196	221	190	242	236	226	240	245

(1) It can change for various manufacturers

SATURN INSTALLATIONS

CHINA, Aquatic Park - Supplying tank with sea water

USA, Chemical plant -
Caustic soda transfer

KUWAIT, Desalination plant
Intake Pump. The very first Saturn

CHINA, Aquatic Park - Supplying tank with sea water

ITALY, Desalination plant

THAILAND, Electrochlorination plant
Hypochlorite and seawater dosing pumps

Find **ARGAL** in Apple **APPSTORE** and Google **PLAYSTORE** to get precious features:

CATALOGS all catalogues continually updated;
CONVERTER of the principal measure units;
SETTINGS to set up your pump through your smartphone or tablet

ARGAL ITALY PUMPS

Google play

App Store

DO YOU NEED HELP?
Just take a **PICTURE** of the pump to repair or to change. You'll get in touch with our custom care or sales office to have a quick answer.

asterisko.org

MAG-DRIVE & MECH-SEALED CENTRIFUGAL PUMPS

ARGAL AIR

AIR-METERING & AODD PUMPS PULSATION DAMPENERS

VERTICAL SUMP PUMPS

ARGAL ITALY PUMPS

SUBMERSIBLE PUMPS

SELF-PRIMING PUMPS

ARGAL srl
Via Labirinto, 159 - 25125 BRESCIA - (Italy)
Phone +39 030 3507011 - fax +39 030 3507077
info@argal.it - **www.argalpumps.com**

cod. 01-17 · EN