

Simms
SINCE 1919

**Fiberglass
Reinforced
Pumps (FRP)**



Corrosion Resistant Pumps

FIBERGLASS REINFORCED POLYESTER PUMPS

These corrosion resistant, fiberglass reinforced composite pumps are centrifugal, single stage pumps which are compliant to ANSI/ASME B73.1. These pumps are manufactured in fiberglass reinforced polyester (FRP) and vinyl ester resin systems, which lends to their superior corrosion resistance.

THE MANUFACTURING PROCESS

Sims FRP Pumps are produced by molding technology. The fiberglass composite pumps and pump parts are manufactured in molds where reinforcing layers of glass fiber mat are arranged prior to the infusion of the resin. The use of continuously interwoven glass fibers in layers of different weights and thickness allows Sims to reinforce the composite structure in the areas subject to the most mechanical stress and at the same time offers excellent chemical resistance. The thermoset resin systems used are different from thermoplastic resin systems because they do not breakdown under pressure or temperature and they cannot be re-processed once catalyzed. This superior process results in much better mechanical properties, thermal and dimensional stability, and longer life.

DESIGN

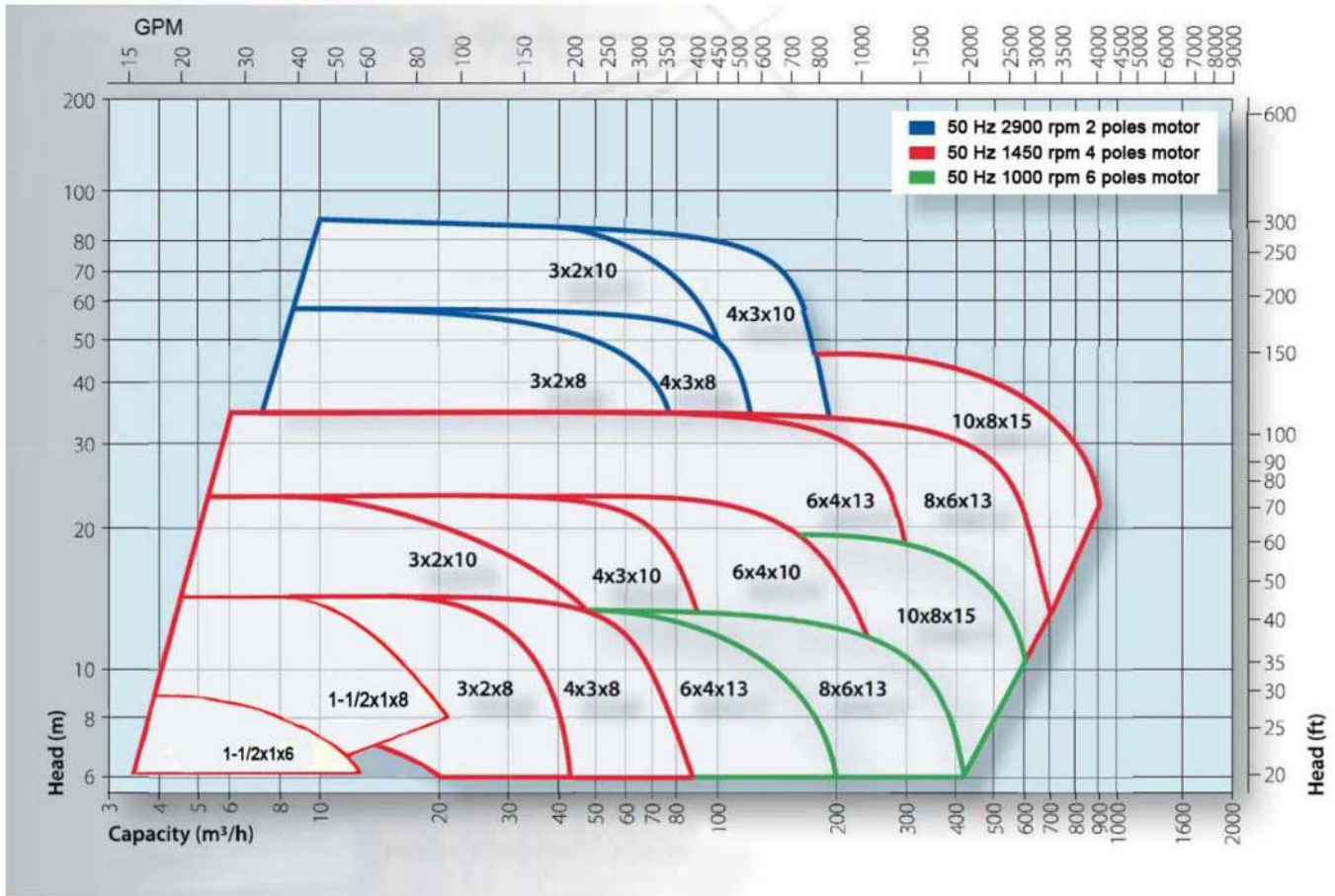
The FRP Pumps are available in two versions:
Coupled with a power frame (bearings housing) and flexible spacer coupling
 OR
Close coupled, which is more compact and economical

FIBERGLASS RESIN	APPLICATIONS
V1G Standard Vinyl Ester Resin Compound	General purpose
V1C Vinyl Ester Resin Compound	Bleach applications
V1F Vinyl Ester Resin Compound	Fluoride applications

MARKET	APPLICATIONS
Aquariums/Zoos	Saltwater
Chemical Process	Acids Chemical Waste Wastewater
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
Pharmaceuticals	Organic Solvents
Pulp and Paper	Bleach
Mining	Abrasives Corrosives
Scrubbers/Odor Control	Acids Caustics



General Performance Curves 50 Hz



MOTOR POWER INSTALLED (50 Hz)

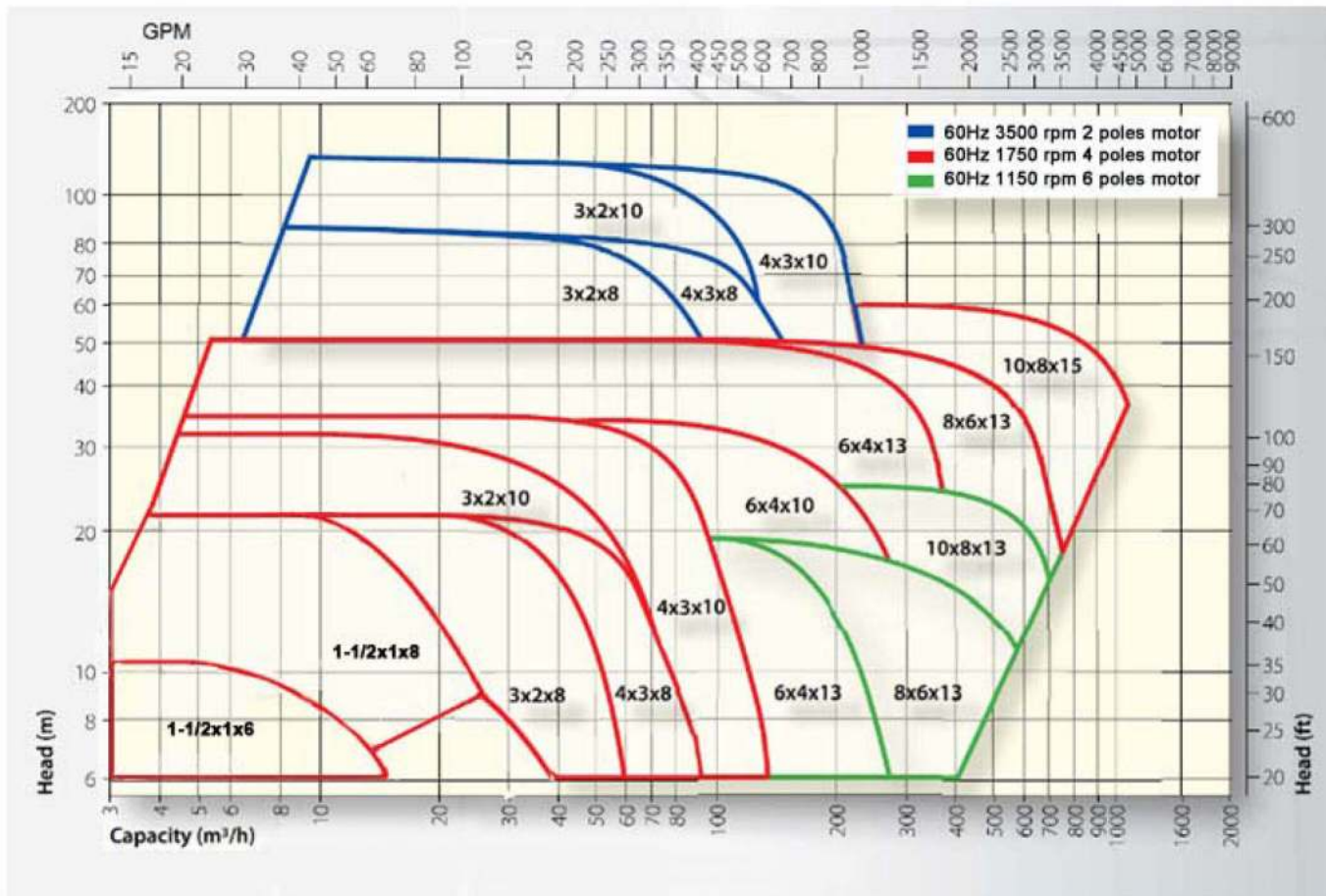
Model	KW																		
	1,5	2,2	3	4	5,5	7,5	11	15	18,5	22	30	37	45	55	75	90	110	132	
3x2x8																			
3x2x10																			
4x3x8																			
4x3x10																			
6x4x10																			
6x4x13																			
8x6x13																			
10x8x15																			

2 poles IEC Motors (blue)
 4 poles IEC Motors (red)
 6 poles IEC Motors (green)



Long Coupled FRP Pump 4x3x10 – Bare Shaft

General Performance Curves 60 Hz



MOTOR POWER INSTALLED (60 Hz)

Model	KW																			
	1,5	2,2	3	4	5,5	7,5	11	15	18,5	22	30	37	45	55	75	90	110	132	160	
3x2x8																				
3x2x10																				
4x3x8																				
4x3x10																				
6x4x10																				
6x4x13																				
8x6x13																				
10x8x15																				

2 poles IEC Motors ●—●
 4 poles IEC Motors ●—●
 6 poles IEC Motors ●—●



Short Coupled FRP Pump 6x4x13 – Bare Shaft

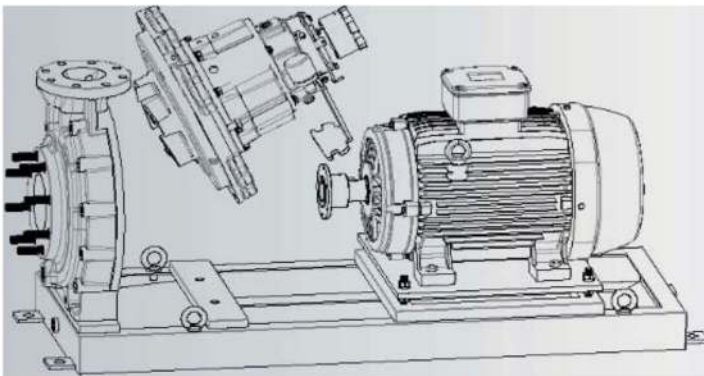
Sims FRP Pumps contain a flexible coupling that provides a longer operational life and is the preferred solution for heavy duty applications and continuous use. The flexible joint coupling allows for easy maintenance of the pump and the motor, which are mounted independently on a mutual base plate. The back pull-out design allows the customer to dismantle the support of the pump without disconnecting the casing from the piping of the plant or removing the electric motor from the base plate.



With a Long Coupled Pump the pump and electric motor are assembled on a common base plate (optional) with a flexible coupling. The guard plate is made of stainless steel and attached directly to the pump – it does not need to be anchored to the base plate.



Depending on the model, the volute casing can be manufactured with a simple volute or a double volute. In the latter case, the final section of the volute is divided into two independent sections that reduce the radial loads onto the shaft and the bearings.



All of the pumps with flexible couplings are equipped with a back pull-out system that allows for dismantling of the internal and mechanic parts of the pump without disconnecting the casing from the fittings or moving the motor.



The base plates can be manufactured from (1) SIMSITE® Structural Composite which NEVER CORRODES in seawater or waste water applications, or fiberglass, or steel, painted with anticorrosion enamel, and provided with a system to adjust the position of the motor and ease its alignment with the pump.

1- Impeller

Centrifugal, semi-open type with high efficiency vanes. Also available in an enclosed version. The impellers are available in Sims FRP or upgraded with Simsite® Structural Composite.

2 - Impeller Nut

The impeller nut is a polyester part with a stainless steel core embedded in it when it is molded. The impeller nut is designed to lock the impeller permanently into position. It has a hexagonal shape compatible with a standard wrench.

3 - Volute Casing and Back Plate

The volute casing is resin transfer molded into a single piece without joints and it is extremely resistant to chemical attack. The casing and back plate are designed to withstand high mechanical stress and are built for longevitv.

4 - Bearings Housing and Rear Flange

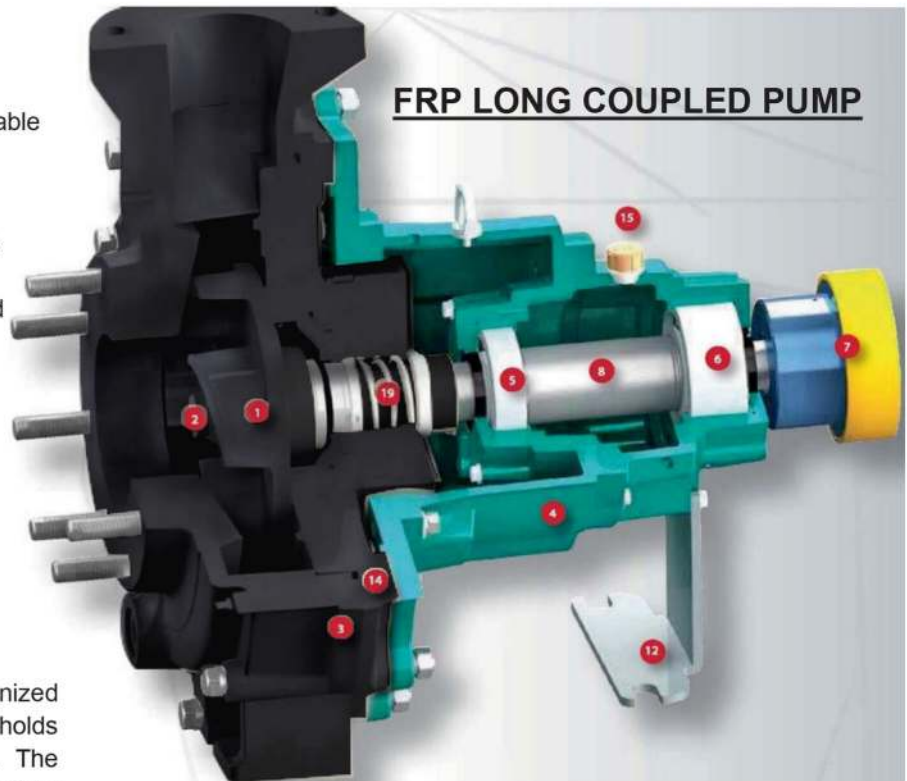
Cast iron parts produced by a mechanized process and epoxy coated. The support holds the bearing housing and the lubricant oil. The lantern ring, located in the intermediate position, connects the support to the rear casing flange.

5 - Bearing: Pump Side

The bearing on the pump side has taper roller bearings to counter axial and radial thrusts and loads.

6 - Bearing: Motor Side

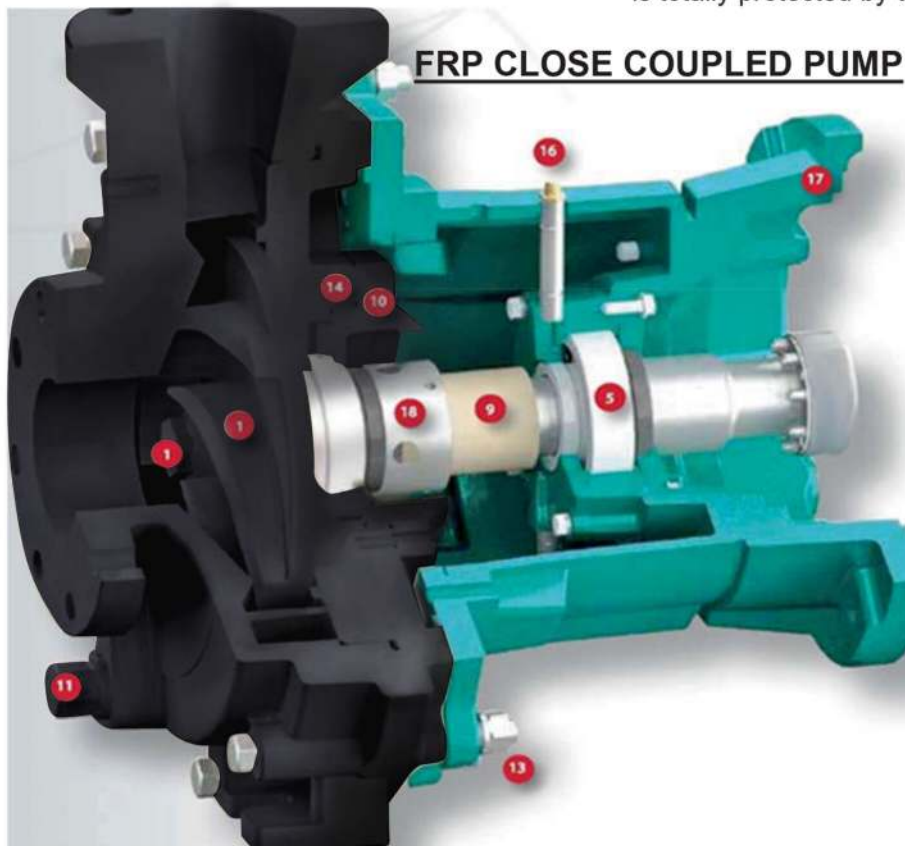
The motor side bearing is a double row ball bearing to counter radial loads.

**FRP LONG COUPLED PUMP****7 - Flexible Spacer Coupling**

Made of cast steel, it is a single piece with crown in a polymer complete with a removable spacer to allow the pump to be pulled out for disassembly purposes.

8 - Shaft

Machined from a solid bar, they are designed to resist Hydraulic loading and corresponding vibrations. The shaft is totally protected by the composite shaft sleeve.

**FRP CLOSE COUPLED PUMP****9 - Shaft Sleeve**

Single composite piece without additional metallic parts.

10 - Diaphragm

Manufactured in FRP, it is designed to support the stationary part of the mechanical seal.

11 - Drain Port

Optional.

12 - Support Foot

Made of stainless steel plate.

13 - Locking Bolts and Tie Rods

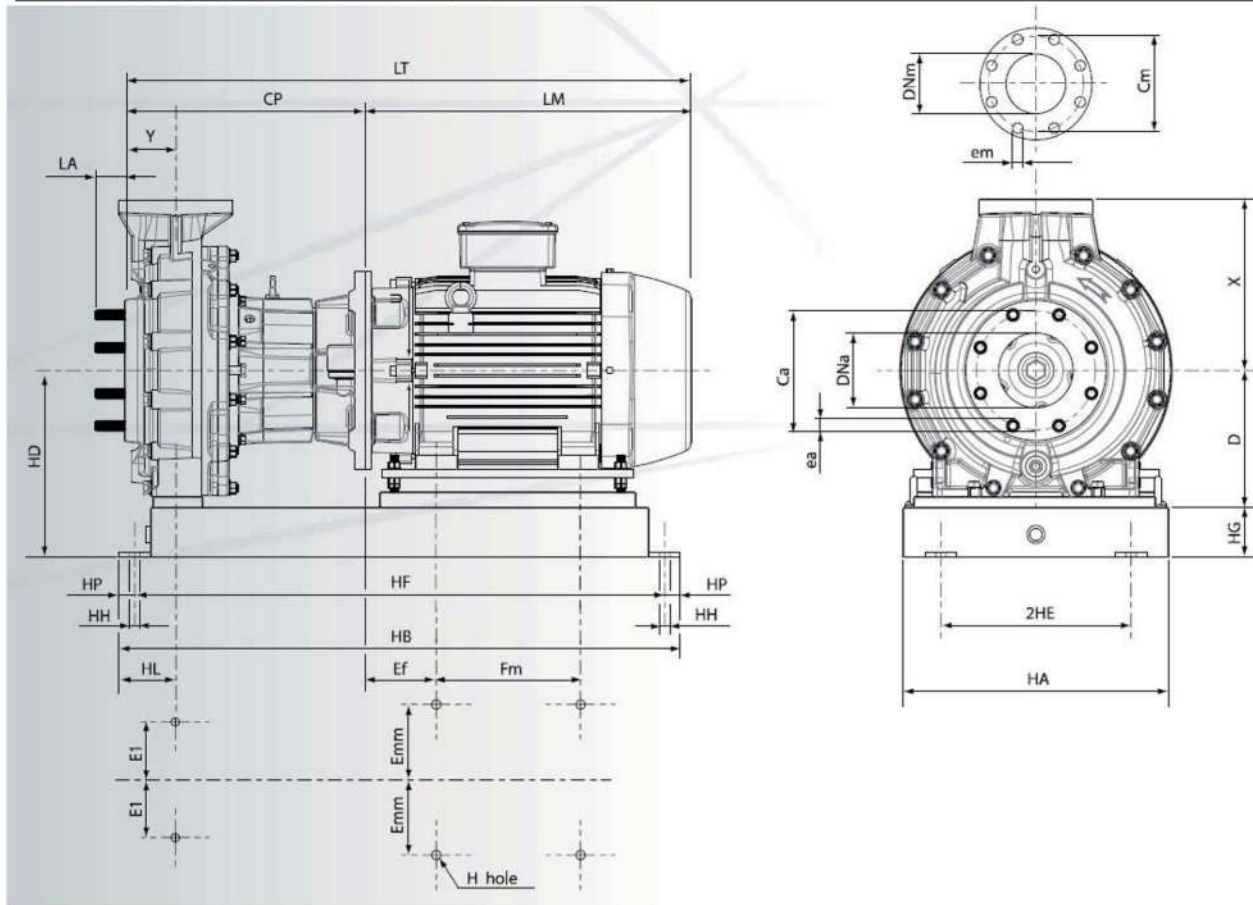
Made of stainless steel.

14 - O-Ring Gaskets

FRP Standard.

15 - Oil Fill Plug**16 - Grease Nipple****17 - Flanged Adaptor****18 - Mechanical Seal****19 - Mechanical Seal**

FRP CLOSE COUPLED PUMP



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

MODEL	CP	Y	D	X	E1	H	U	LA	Weight (kg)
3x2x8	597	102	210	242	124	16	41,3	NA	95
3x2x10	597	102	210	242	124	16	41,3	NA	95
4x3x8	597	102	210	280	124	16	41,3	NA	100
4x3x10	597	102	210	280	124	16	41,3	NA	100
6x4x10	597	102	254	343	124	16	41,3	60	120
6x4x13	597	102	254	343	124	16	41,3	60	120

CONNECTIONS – ANSI/ASME B16.5CLASS 150 – (dimensions in mm.)

Model	INLET					OUTLET				
	Dna	Ca	ea	n*	type	DNm	Cm	em	n*	type
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	10	191	19	8	hole

BASE PLATE – (dimensions in mm.)

N°	HA	HB	HE	HF	HG	HH	HL	HP	Weight (kg)
233	381	838	114	774	95	19	114	32	30
244	381	1143	114	1080	95	19	114	32	40

IPS 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	2	4	2	4	2	4	2	4	2	4	2					
FRAME	90s	90L	90L	100L	112	132S	132S	132M	160M	160M	160L	160L	180L	160L	180M	200LA	180M	180L	220LA	200LB	200L	200LB						
LM(°)	260	285	285	326	335	356	356	396	500	500	245	500	545	610	545	570	650	570	610	650	650	650	650					
weight kg (°)	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

WHEN ONLY THE BEST WILL DO

SIMSITE® Structural Composite Products

- Longer Life
- Corrsion Resistant
- Lightweight
- High Strength
- No Electrolysis
- Always Balanced
- Higher Efficiency



SIMSITE® Impellers for ALL Centrifugal Pumps



SIMSITE® Vertical Pumps



SIMSITE® Vertical Turbine Pump



SIMSITE® Horizontal Pumps



SIMSITE® Impellers and Casing Rings



SIMSITE® Heat Exchanger Doors

Simms

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SIMSITE® Composite Bearings



IMPERVIOUS TO SALT WATER CORROSION