

RHINO

TMA G2

SELF-PRIMING CENTRIFUGAL PUMPS

MAG-DRIVEN

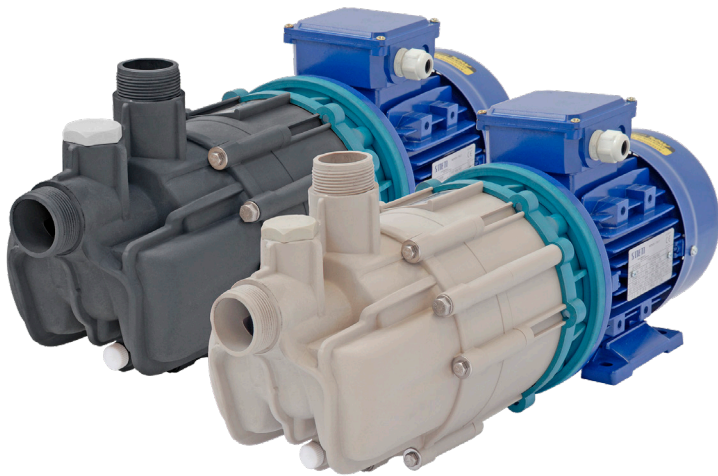
MADE OF PP · E-CTFE

ATEX



SINCE 1975

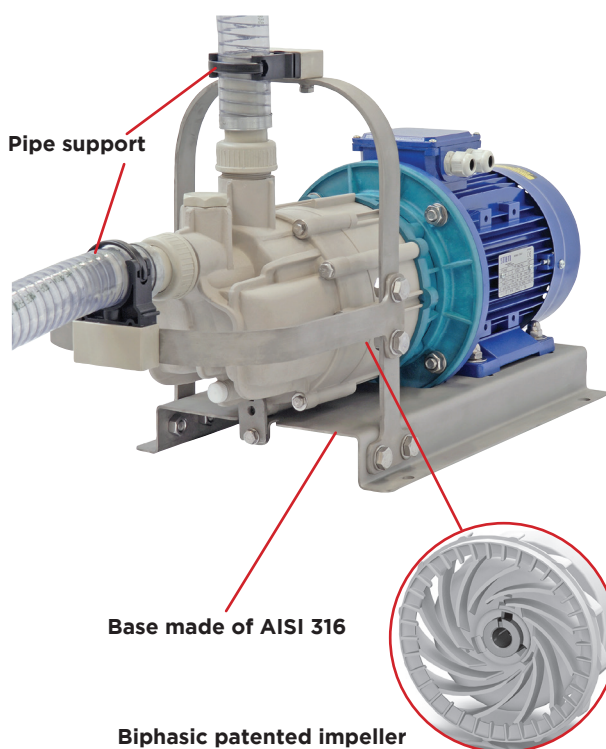
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RHINO pumps
in E-CTFE+carbon and PP+glass

BENEFITS

- Choice of material chemically resistant to all corrosive liquid
- Ability to prime from an empty suction
- Fast priming
- Magnetic core embedded in the biphasic impeller
- Max. lift = -6 m
- Max. allowed specific gravity up to 2 kg/dm³
- Minimum NPSHa = 3 m (abs)
- Standard motors IEC or NEMA.



Thanks to its construction, **RHINO** pumps develop a higher suction head and shorter priming time than the traditional self-priming centrifugal pumps; the biphasic impeller primes fluids with high density, viscosity and vapour such as sulphuric 98%, hydrochloric 33%, nitric, phosphoric acids, sodium hypochlorite, caustic soda, ferric chlorite provided the negative suction head is up to 4 metres.

The high torque magnetic joint and the option to adopt electric motors of increasing rated power allows this device to pump a broad range of chemical liquids of variable specific weight without compromising its typical hydraulic performances.

PERFORMANCE

Strong magnetic coupling made up of rare-earth materials (Neodimium Iron Boron) and “**N**” (standard), “**P**” (powered) or “**S**” (strong-powered) versions allow to pump, also at maximum flow, liquids with 1.05 - 1.35 - 1.8 specific gravity respectively.

R-N-X: three internal configuration of constructive materials for many applications: from clean water to waste and slightly abrasive liquids, strong alkali or salts such as sodium hypochlorite, and acids such as chromic, nitric, sulphuric, etc..

ACCESSORIES

- Base in stainless steel
- Base prepared with pipe support (in stainless steel)
- Trolley in stainless steel (without electric device)
- Trolley in stainless steel (with electric device)

BIPHASIC IMPELLER

RHINO are “turbo” pumps as they can prime from an empty suction pipe thanks to a biphasic operation: the impeller rotates within a free stator casing.

The primary purpose of the invention of the biphasic impeller is to provide a self-priming pump able to prime both high-density fluid and high vapour pressure fluids.

MOTORS SPECIFICATIONS

Model		Power (kW)	IEC frame	Phase	Voltage	Hz	Protection
10.14	P	2.2	90L	3 - 1	400 ± 5% 220 ± 5%	50	IP 55
	S	3	100	3 - 1			
11.18	P	3	100	3 - 3	460 ± 5% 230 ± 5%	60	IP 55
	S	4	112	3			

CONNECTIONS

Model	DN	DeA	DeM	ISO		ANSI	
				k	d x z	k	d x z
10.14	40	1 1/2"	1 1/2"	110	18 x 4	98	16 x 4
11.18	40	1 1/2"	1 1/2"	110	18 x 4	98	16 x 4

MATERIALS

VERSION	WR		WRX*		GF			GX*	
	R1	X1	N1	R2	X2	N2	R2	N2	
Volute casing	GFR-PP				CFF-E-CTFE				
Rear casing	GFR-PP				CFF-E-CTFE				
impeller	GFR-PP				CFF-E-CTFE				
Guide bushing	CARB. HD	SiC	GFR-PTFE	CARB. HD	SiC	GFR-PTFE	CARB. HD	GFR-PTFE	
Shaft	CER				SiC				
Thrust bush	CER				SiC				
OR gasket	FPM (1)				FPM (1) (2)				
Screws	Stainless steel								

Upon request:(1)EPDM and (2) FFKM - * Compliant to ATEX 94/9/EC regulations

TEMPERATURES

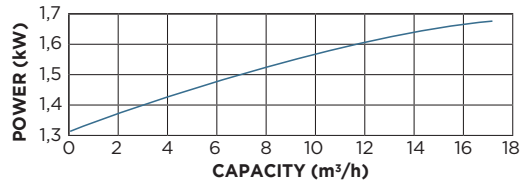
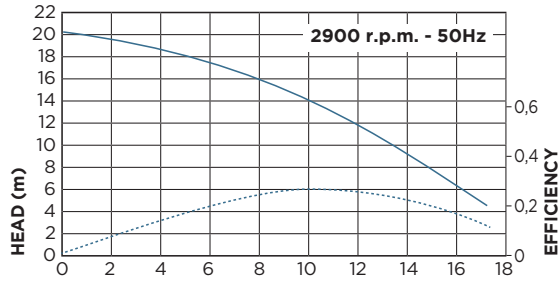
VERSION	MIN. TEMP.	MAX TEMP.	ENVIRONMENT TEMP.
WR	-5°C (23°F)	80°C (176°F)	0 / 40°C (14 / 104°F)
GF	-20°C (-4°F)	100°C (212°F)	-20 / 40°C (-4 / 104°F)
WRX*	-20°C (-4°F)	100°C (212°F)	-20 / 40°C (-4 / 104°F)
GX*			

Note: Maximum inlet pressure: 1,5 bar
(*) Compliant to ATEX 94/9/EC regulations

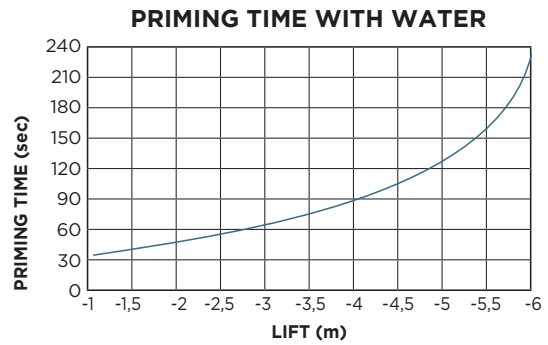
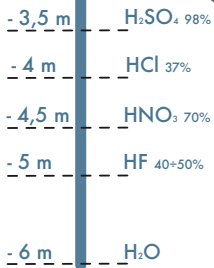
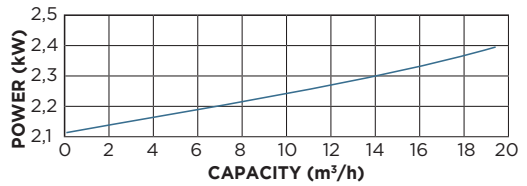
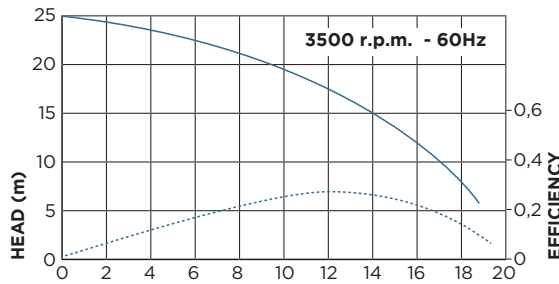
ATEX

RHINO pumps, with specific execution GX (E-CTFE added with conductive carbon fibres and motor E-exd), are approved to operate in explosive atmospheres, classified as per ATEX directive, **Cat. 2 Zone 1 (Series II 2GD IIB at 135 °C)**. Inside of pump should be placed safety device.

10.14



11.18



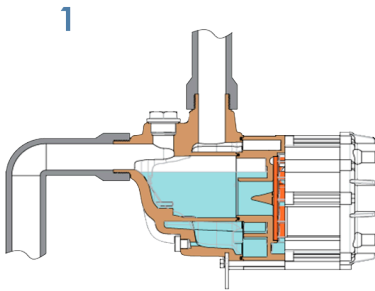
ASSETS OF MAXIMUM LIFT

Medium	P _v (¹)(²)	p.s.(¹)(²)
HF - 50 - 40%	0,4	1,15
HCl - 37%	2	1,17
NaOCl	0,2	1,26
HNO ₃ - 70%	• 0,65	• 1,41
NaOH - 50%	0,02	1,52
H ₂ SO ₄ - 98%	1x10 ⁻⁴	1,8

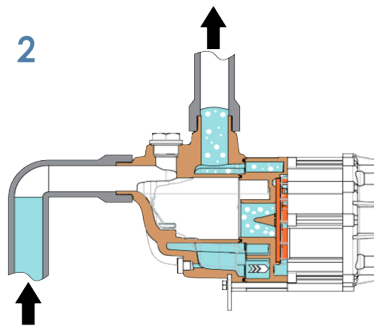
1 [m_{H2O}] = 9806 [Pa]
 (1) ref. to 20°C (68°F)
 (2) In table 3 select the P_v and p.s. value ≥ respect to the pumped fluid

Vapour	P _v [m _{H2O}]	0,25	0,75	1,25	2	2,5	3	4	5
Lift	H _s [m _{H2O}]	2	2	2	2	2	2	2	2
	-1	2	2	2	2	2	2	2	1,6
	-1,5	2	2	2	2	2	2	1,6	1,2
	-2	2	2	2	2	1,8	1,6	1,2	
	-2,5	2	2	2	2	1,5	1,3	1	
	-3	2	2	2	1,7	1,2	1,1		
	-3,5	1,9	1,8	1,6	1,4	1,1			
	-4	1,7	1,5	1,4	1,2				
	-4,5	1,4	1,3	1,2	1				
	-5	1,3	1,2	1,1					
	-5,5	1,1	1,1	1					
	-6	1							

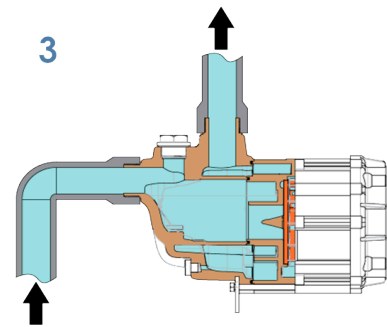
WORKING PRINCIPLE



Stopping phase: a small quantity of liquid is trapped into the pump to enable the next starting.



Priming phase: the impeller gives a specific circulation of air-liquid mixture moving air from the suction pipe to the discharge side in the atmosphere.



Pumping phase: after the air is totally removed from the suction side, the pipe is flooded by the liquid and the pumping phase can start.

APPLICATIONS

RHINO pumps are ideal for negative suction aspiration operations from a basement tank to truck or surface tank, for unloading and transferring waste collecting wells and many other to pump heavy liquids used in the following sectors of application:

- Chemical industry
- Mining industry
- Power Plants
- Food and Beverages industry
- Pulp & paper

RHINO SELF-PRIMING PUMPS FOR WASTE WATER TREATMENTS

RHINO self-priming pump made of PP+glass installed in the waste water treatments of an Italian jewelry industry for the circulation of waste water with minerals and metal residues.

RHINO self-priming pump made of PP+glass working efficiently in a garage to collect washing water solution laden with detergents, residues and oils - used during car washings - with capacities up to 17m³/h and negative head up to 6m.



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MECH-SEALED
CENTRIFUGAL
PUMPS

PNEUMATIC
AODD &
METERING
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DAMPENERS

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