

FRONTIERA

TMF • TGF • ZMF • ZGF

ISO 2858 CENTRIFUGAL PUMPS

FOR CORROSIVE LIQUIDS

MAG-DRIVEN or

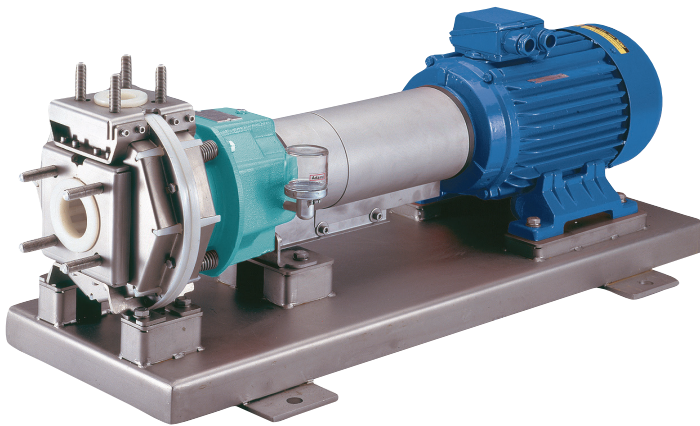
MECH-SEALED

PP • E-CTFE



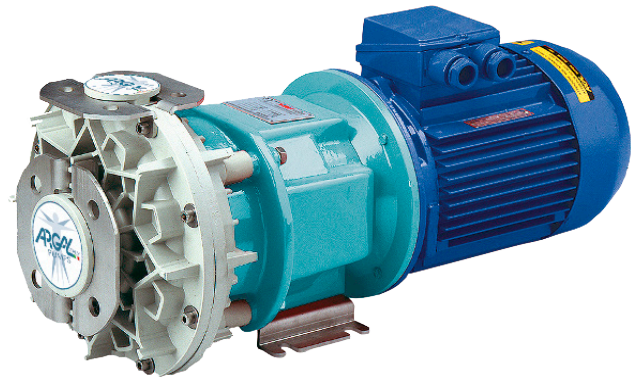
ISO 2858 CENTRIFUGAL PUMPS

FOR CORROSIVE FLUIDS, CLEAN AND WITH SOLIDS



FRONTIERA TGF

Magnetic-driven long-coupled pump, armoured version.



FRONTIERA ZMF

Mech-sealed close-coupled pump, integral version.

The **FRONTIERA** pumps are compliant with **ISO 2858** conformity, and are available in different constructions and materials to offer our clients the best solution. They can be constructed with the mag-driven or mech-sealed version, with long or close coupled, with integral or armoured structure.

MAIN APPLICATIONS

The **FRONTIERA** pumps are ideal for pumping chemicals, acids and solvents in the following sectors:

- Water & waste water treatments
- Chemical & Pharmaceutical processes
- Scrubbers
- Cooling towers
- Stripping processes
- Electroplating processes

And they can operate as:

- Transfer pumps
- Recirculation pumps
- Injection pumps
- Load/Unload pumps
- Filtration pumps
- Pipeline cleaning pumps

AN ORIGINAL TECHNICAL SOLUTION FOR CLOSE-COUPLED VERSION BY ARGAL

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.

MATERIALS

STANDARD VERSIONS	WW	PP	Static elastomers	V	FPM
	GF	E-CTFE		E	EPDM
	WF	PP / E-CTFE			
ATEX VERSIONS	WX	PP		K	FFPM
	GX	E-CTFE			

ATEX

The **FRONTIERA** centrifugal pumps made of pure PP or E-CTFE in the armoured version can operate in the ATEX zones. They are used in the **surface applications (Group II)** and are part of the category 3, level of protection 2. **FRONTIERA** pumps can operate in gaseous atmospheres (**Zone 1, Zone 2**).

CLOSE-COUPLED VERSION

The close-coupled version is also available. It enables IEC or NEMA standard motors to be directly flanged onto the pump unit.

ACCESSORIES

- Drain plug connection
- Dry run protector
- Temperature control
- Vibration control
- Support losses check control

MECHANICAL TRANSMISSION “Z”

In the sealed version, the impeller is mounted on the motor shaft and the liquid leakage on the motor is prevented by sliding flushings (mechanical seals) with the appropriate material. To compare with the magnetic driven version, the mechanical seal allows the pumping of uncleaned liquids, liquids ladened with solids and even viscous liquids.

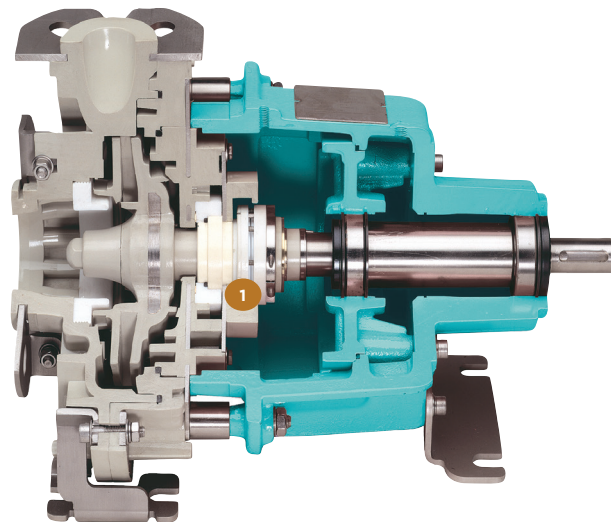
SECTION OF MECH-SEALED PUMP “Z”

The sealed pumps can be made of mechanical seals with different combinations of materials that suit all types of liquid:

- external seals flushed by the pumped liquid **1**
- internal seals (also flushed externally)
- double seals flushed externally

MECHANICAL SEALS

WORKING CONDITIONS	MODEL	TYPE
Standard	SF1	external single, bellow made of PTFE
Standard	TS 5	external single, elastomeric bellow
Extreme	BF 3	external single, with OR
Critical	M. SF A	double flushed, bellow made of PTFE
Critical	M. TS C	double flushed, elastomeric bellow
Very critical	M. TS D	double flushed, elastomeric bellow



EXECUTIONS	SF1	TS5	BF3	M.SF A	M.TS C	M.TS D
Rotating part	PTFE+V	CARB	SiC	PTFE+V	CARB	SiC
Fixed ring	CER	CER	SiC	CER	CER	CER
Bellows or OR*	PTFE	FPM	FPM	PTFE	FPM	FPM
2° rotating part	-	-	-	CARB	CARB	CARB
2° fixed ring	-	-	-	CER	CER	CER

MAGNETIC DRIVE “T”

The motor shaft connects the external magnet with the internal one which is linked to the impeller. This allows the moving of the liquid and it also prevents from liquid leakage. This construction is chosen for pumping cleaned liquids (**R2**), slightly abrasive (**P2**) and moderately abrasive liquids (**X2**). The magnetic driven version is not ideal for pumping liquids ladened with solids.

SECTION OF MAG-DRIVE PUMP “T”

Argal took a special care of the pump's internal parts. For the mag-driven versions:

- impeller's hydrodynamic balancing **2**
- magnets housing and protection
- double rear chamber for the volute casing: one for the chemical resistance and the other to increase the mechanical strength **3**
- the use of springs is precious to gradually weaken the attraction of the magnet pairs to prevent danger **4**

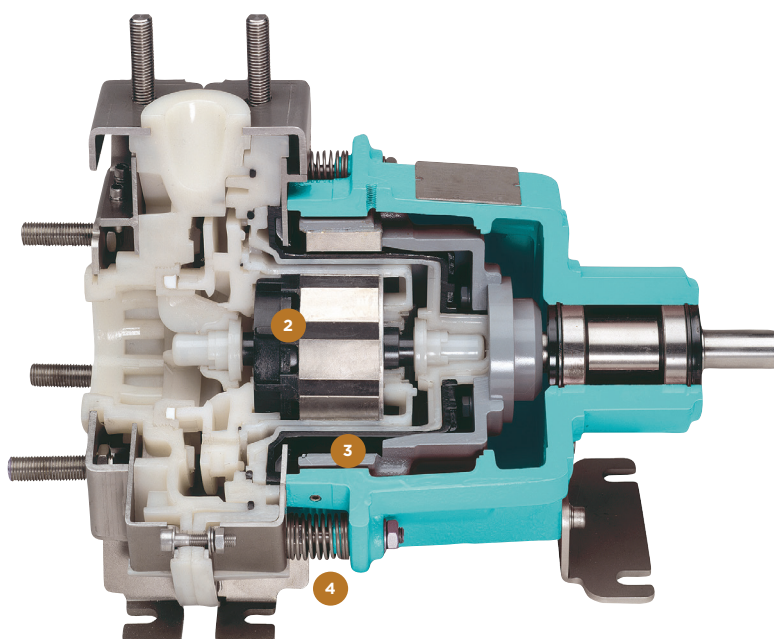
GUIDING SYSTEMS

	R2	P2	X2
SHAFT	SiC	SiC	SiC
ROTATING BEARINGS	CARB.	PEEK	SiC

R2 - standard conditions

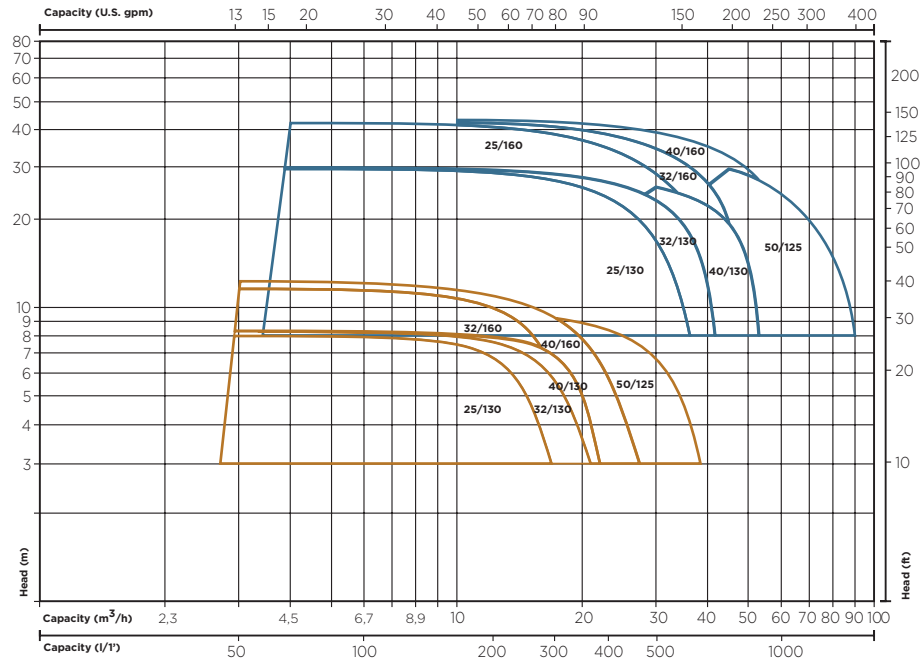
P2 - critical conditions

X2 - extreme conditions



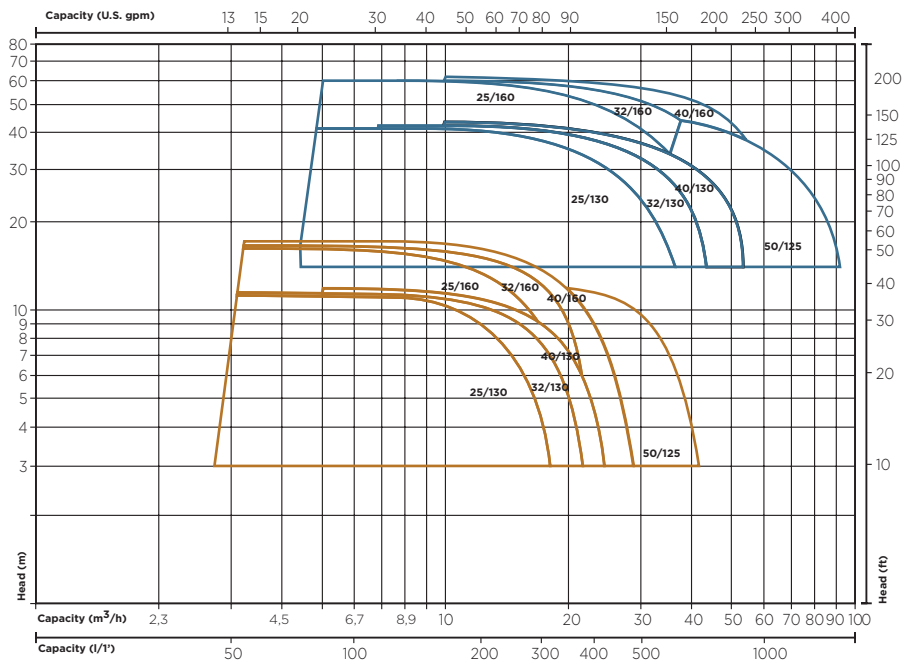
CURVES 50Hz

- 1450 rpm
- 2900 rpm



CURVES 60Hz

- 1740 rpm
- 3480 rpm



MOTOR POWER 50Hz

- 1450 rpm
- 2900 rpm

Model	kW									
	1,1	2,2	3	4	5,5	7,5	11	15	18,5	22
25/130	●	●	●	●	●	●	●	●	●	●
25/160	●	●	●	●	●	●	●	●	●	●
32/130	●	●	●	●	●	●	●	●	●	●
32/160	●	●	●	●	●	●	●	●	●	●
40/130	●	●	●	●	●	●	●	●	●	●
40/160	●	●	●	●	●	●	●	●	●	●
50/125	●	●	●	●	●	●	●	●	●	●

MOTOR POWER 60Hz

- 1740 rpm
- 3480 rpm

only long-coupled

Model	kW											
	1,5	2,2	3	4	5,5	7,5	11	15	18,5	22	30	37
25/130	●	●	●	●	●	●	●	●	●	●	●	●
25/160	●	●	●	●	●	●	●	●	●	●	●	●
32/130	●	●	●	●	●	●	●	●	●	●	●	●
32/160	●	●	●	●	●	●	●	●	●	●	●	●
40/130	●	●	●	●	●	●	●	●	●	●	●	●
40/160	●	●	●	●	●	●	●	●	●	●	●	●
50/125	●	●	●	●	●	●	●	●	●	●	●	●

AND OUR DOUBLE ALTERNATIVES

INNOVATIVE EXTERNAL STRUCTURE

"N" INTEGRAL SERIES

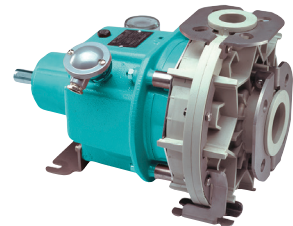
The external structure of "N" series is realised of stainless steel and replaces the traditional plastic flanges. The special design of the fastening fittings minimises the mechanical load pressure on the volute casing.

"R" ARMoured SERIES

In the "R" series, the stainless steel sheeting replaces the cast iron armour that is often damage quickly. The new armour supports both the loads on the inlet/outlet fittings and protects the volute casing from internal liquid hammers or accidental external blows.



TGF "R" armoured
made of PP



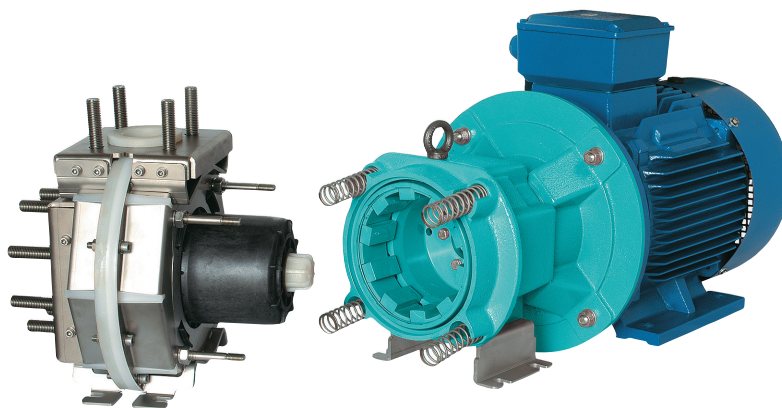
ZGF "N" integral
made of PP

WET-END

The complete casing (or wet-end) of any mag-driven **FRONTIERA** pump can be easily detached from the other parts, without opening it. This is a remarkable technical alternative for spare parts.

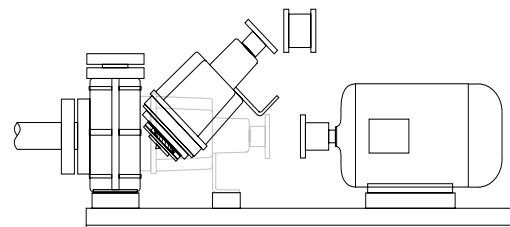
STAINLESS STEEL ARMOUR

The stainless steel armour embeds while the pump casing the rear casing - made of PP or E-CTFE - is strengthened with an additional chamber made of polyamide.



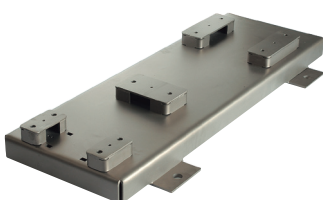
BACK PULL-OUT SYSTEM

The long-coupled version of **FRONTIERA** series are equipped with the back pull-out system that allows to take the internal and mechanical parts off without dismantling the body and motor from the baseplate.



TECHNICAL BASEPLATE

The base plate is the outcome of advance techniques offering complete modularity obtained thanks to smart reinforcements, robustness and stability.



MECH-SEALED
& MAG-DRIVEN
CENTRIFUGAL
PUMPS

AIR-METERING
& AODD PUMPS
PULSATION
DAMPENERS

SELF-PRIMING
PUMPS



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