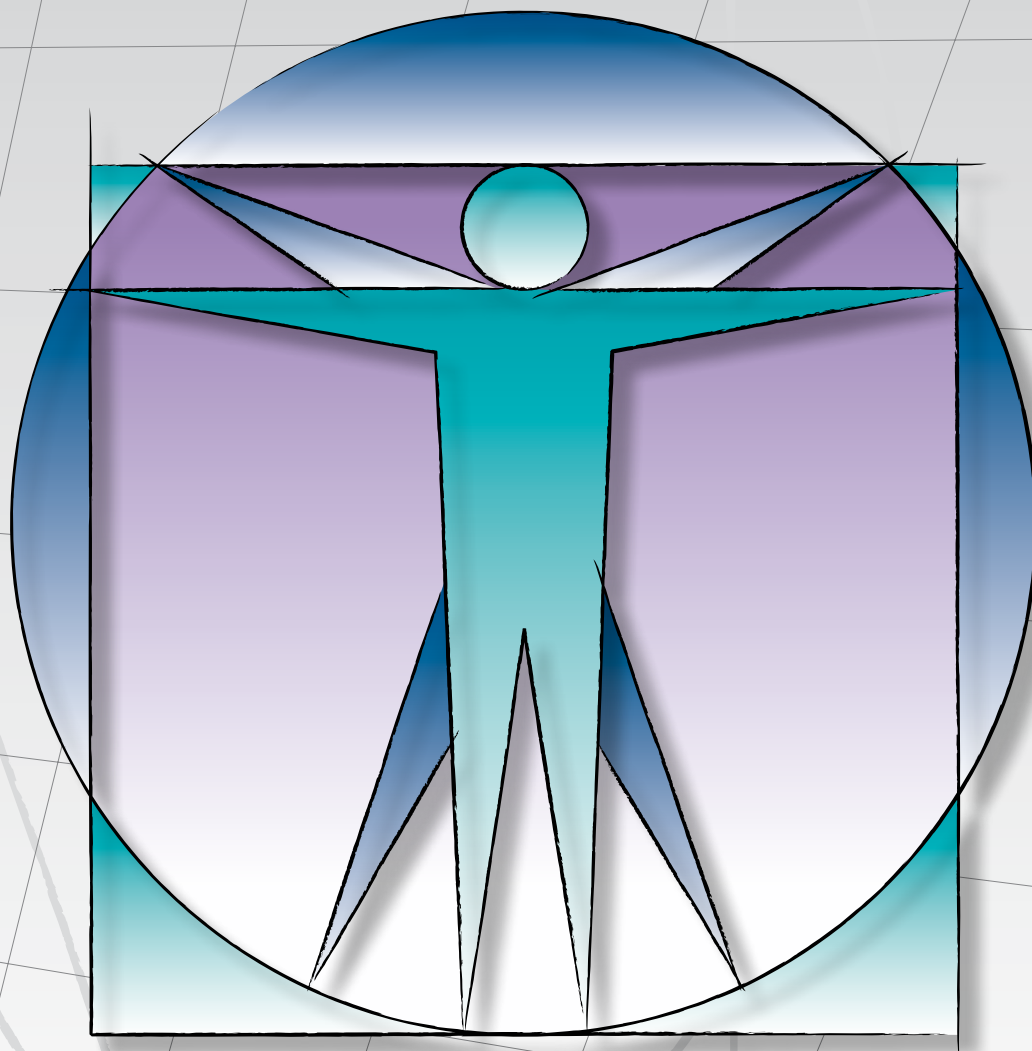


ARGAL

CHEMICAL PUMPS
production program



**CHEMICAL PUMPS
IN THERMOPLASTIC MATERIALS**

The company

Quality, Experience, Innovation.

Established as supplier of the galvanic industry from which it borrows its name, the company Argal has been designing and manufacturing pumps for chemicals made of thermoplastic polymers since 30 years.

The products turned out to be an ideal solution for the broad resistance of the thermoplastic materials to aggressive chemical agents that offer at affordable price a true alternative to expensive special alloys.

The Company delivers a large choice of pumps in different construction to address industrial applications where temperature ranges from -40°C to 120°C , flow up to $1200\text{ m}^3/\text{h}$ and head up to 150 meter.

The ISO 9001:2000 compliance obtained in 2002 certifies sound organisational procedures, the adequacy of the operative instruments available as the parametric CAD and the FEM analysis adopted by our engineering department, the numerical control machinery, the fully equipped assembly department featuring modern test room, the constant support provided to a permanent staff of professionals constantly informed and trained.



ARGAL CHEMICAL PUMPS (DALIAN) Co. Ltd.

In the process of internationalization ARGAL has established, in march 2004, a subsidiary Commercial Company in Dalian, China.



THE STRATEGY

The nowadays man understands how the problems he is called to manage are complex and asks for more options, more possibilities, more proposals to be able tailor his solution to reach his goals with the less possible risk.

We, as a market oriented company translated these needs of more flexibility in all around quality products featuring innovative technical and engineering content such to "make the difference" and gain us and our customer a competitive edge.

THE PRODUCT

In the last 10 years significant research was devoted to improve and extend the range of the available products; the results were brand new models and pumps with renewed mechanic and hydraulic sections. The current production program feature different models of different design modelled on the applications.

THE SERVICES

New modern headquarters to host the manufacture plant over a covered surface of 4000 sq meter and 400 sq meter dedicated to the commercial and administrative offices gave a new impulse to the capability of the company.

Active web site to introduce the company , the products , the news and most commercial and technical information.

Section of the web site dedicated to download easily our PDF format.

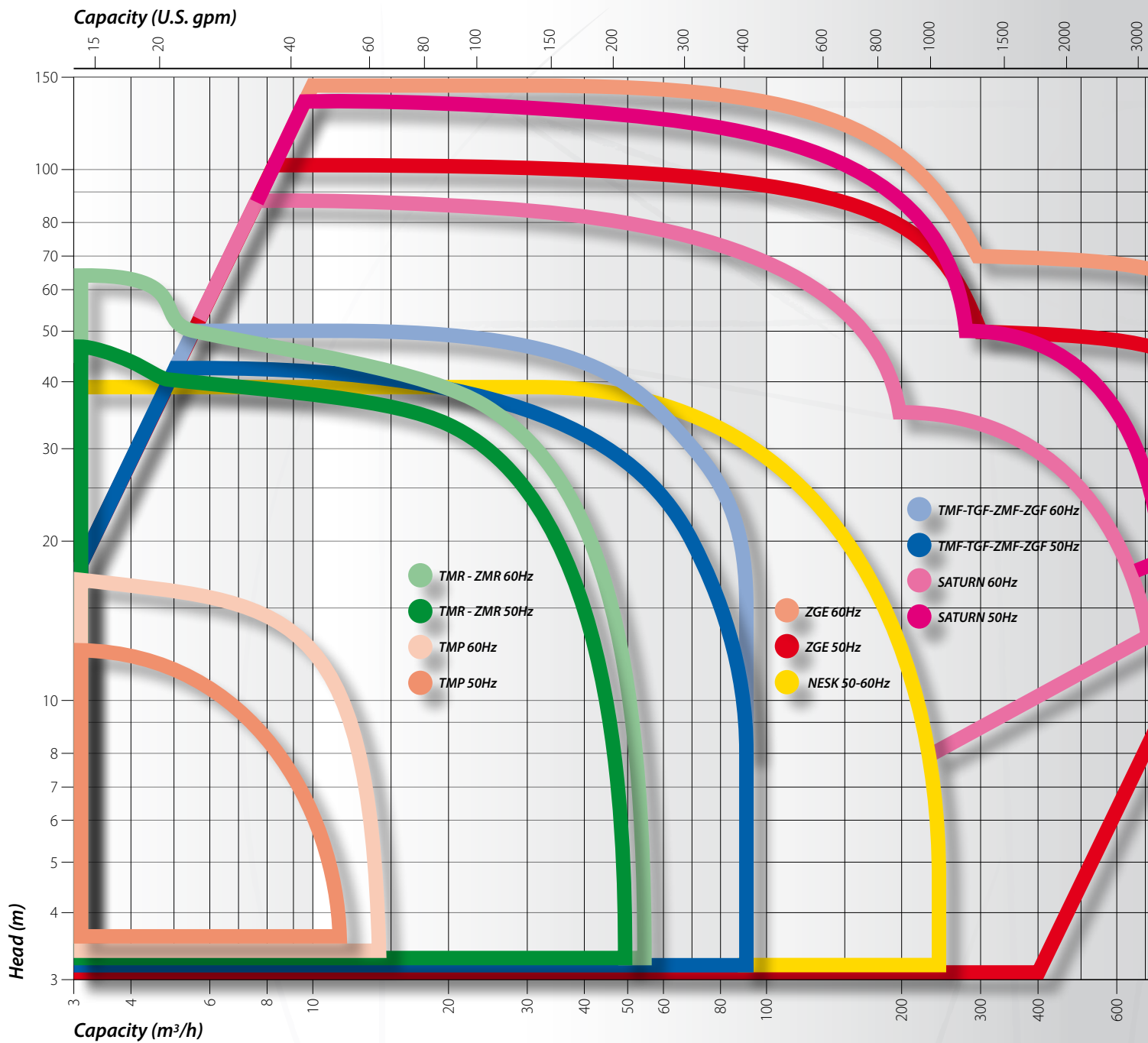
Public Interactive site area constantly upgraded.







Protected interactive site areas accessible to our official commercial and technical partners.

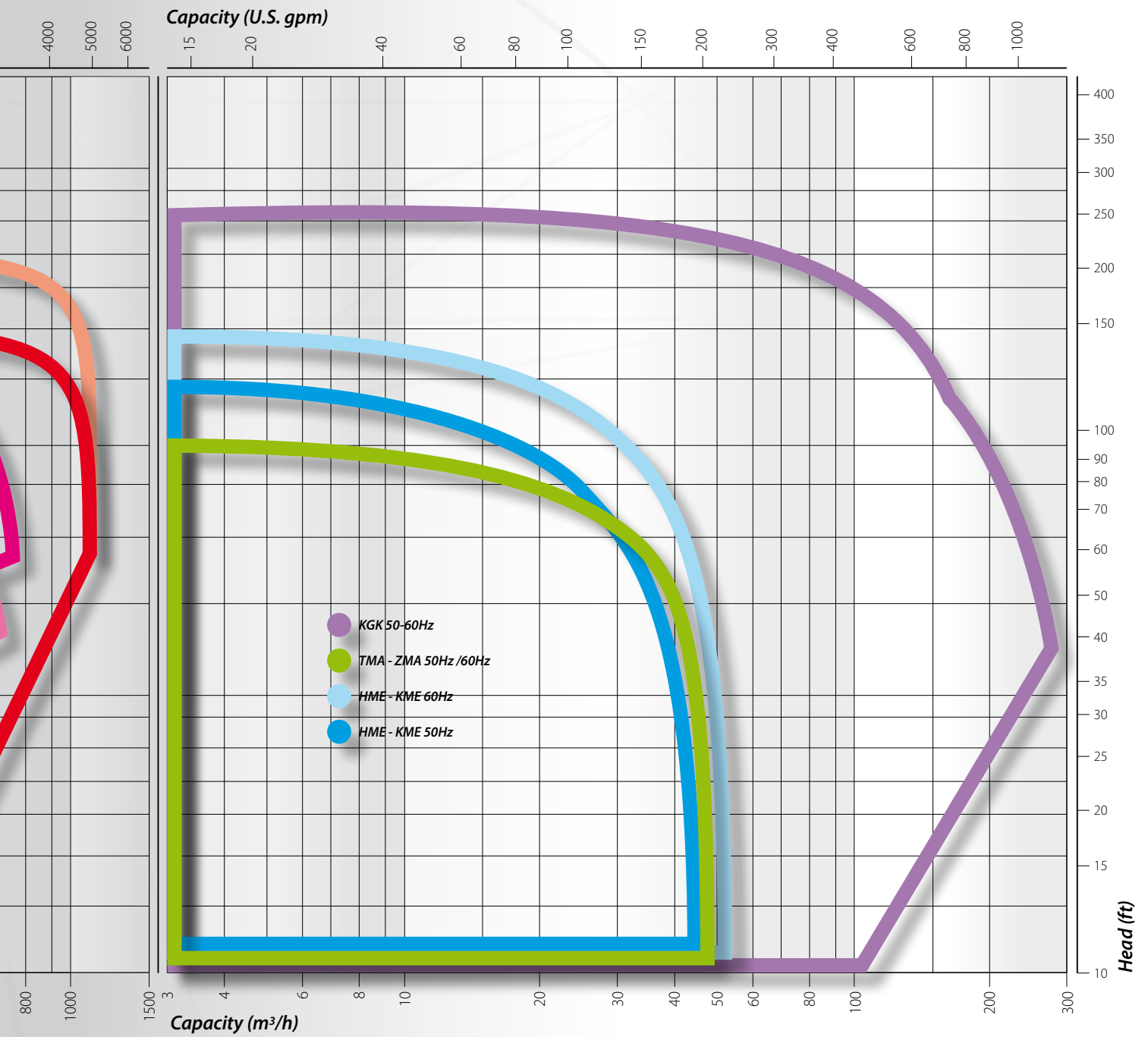
INTRASET Web software to support the activity of our domestic and international sales network.

This software tool is designed to ease the production of commercial offers; it needs an internet connection and it guides the user through the selection of pump model and choice of recommended material for the targeted application. The program sources the information directly from the data bases of the company, in real time and all operations are guided step by step by "help" functions.





<p>BASIS TMB</p>  <ul style="list-style-type: none"> • Seal-less magnetic drive • Max head 70 l/1' 	<p>PRIMA TMP</p>  <ul style="list-style-type: none"> • Seal-less magnetic drive 	<p>ROUTE TMR - ZMR</p>  <ul style="list-style-type: none"> • Seal-less magnetic drive • Mechanical sealed 	<p>FRONTIERA TMF - TGF - ZMF - ZGF</p>  <ul style="list-style-type: none"> • Mechanical sealed 	<p>SATURN ZMS - ZGS</p>  <ul style="list-style-type: none"> • Mechanical sealed 	<p>NESK QGN</p>  <ul style="list-style-type: none"> • Mechanical sealed
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TMB

The pumps "TMB" belong to Argal's BASIS range and feature, single stage, centrifugal impeller and magnetic drive. The range of TMB pumps includes five models to deliver flows from 15 to 70 l/min. It is made entirely of thermoplastics with outstanding chemical and mechanical resistance namely glassfibre reinforced polypropylene (GFR/PP).

Compact dimension, low noise, absence of seal device make these pumps ideal for application in any place or plant and can be incorporated into sophisticated equipment or "clean" environment.

Available motor powers: W 15÷100

Material version: GFR/PP

**TMP**

The pumps of the TMP series, magnetically driven, were developed on the experience made on the magnetic drive traction of previous AM series. These pumps are centrifugal, horizontal axis, close-coupled types; the bodies are entirely built with reinforced thermoplastic polymers, and the internal components are in ceramic. It means that any contact of metallic parts with the pumped fluid is avoided. This combination of materials was chosen to obtain the best performances on the smallest scale chemical pump possible. Special solutions and materials allow occasional dry running operation (starting from 15 min. up to many hours in function of working conditions).

Dry running capability requires R inner execution.

Available motor powers: kW 0,18÷1,1

Material versions: GFR/PP - CFF/E-CTFE

**Range ROUTE**

It is a range of chemical pumps for different applications available either in magnetically driven version (TMR series) or mechanically sealed (ZMR series).

**TMR**

The magnetic driven pumps have the patented "two axial directions self-alignment" system that allows the dry running as standard work conditions for "R" internal configuration.

The combination of adequate materials of guide system of the impeller to one specific magnetic field eliminates completely all the axial frictions that are the cause of breakages due to dry running.

It is possible to install the motor without disassembling the pump.

Available motor powers: kW 0,55÷7,5

Material versions: GFR/PP - CFF/E-CTFE

ZMR

Centrifugal horizontal close coupled pumps in thermoplastic materials, strongly built by injection moulding process.

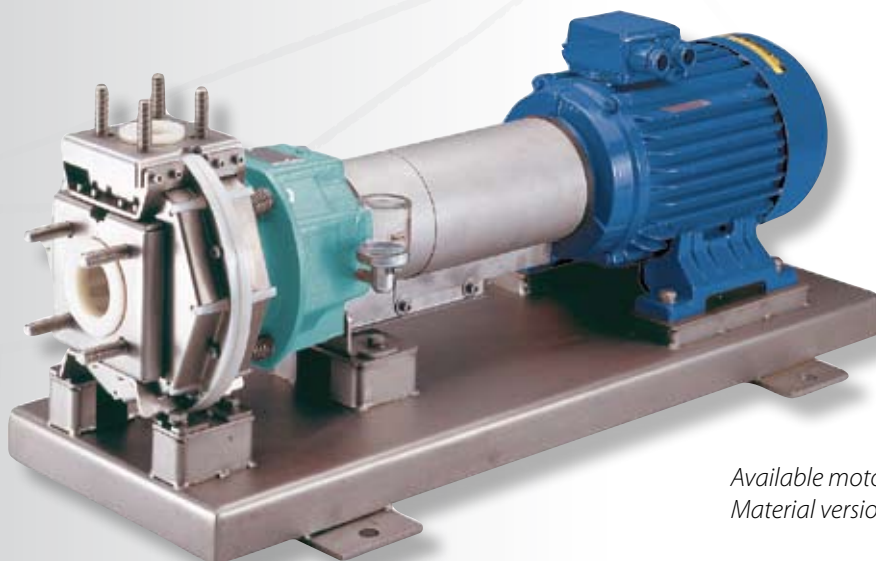
The structure is reinforced by fillings of glass or carbon fibre. Mechanical seal executions can be either single or double.

Available motor powers: kW 0,55÷15

Material versions: GFR/PP - CFF/E-CTFE

FRONTIERA

Centrifugal chemical pumps moulded in pure thermoplastic material with many executions to offer different applications for pumping chemicals in the most efficient way. Innovation thanks to stainless steel use in the pump body as reinforcement. The stainless steel is also used for the coupling guard and the base plate all according to the ISO regulations. The employed material and external structures are identical for the whole project Frontiera. The inside solutions and type of motor connection are different. These pumps can be sealless or sealed; close coupled or long coupled executions.



Available motor power: kW 0,55÷15
Material version: PP - E-CTFE

TGF sealless centrifugal magnetical driven pumps according to ISO 2858 with the possibility to choose between different internal structures in order to offer many applications for pumping the chemicals in the most efficient way. One execution allows the accidental dry running.



ZGF Sealed pumps produced according to ISO 2858 regulations with own mechanical support, back pull out execution. As "process" pumps they are designed to accept commercially standardized mechanical seals. The bearings are oil lubricated.

TMF Hydraulic parts of the precedent range but in close coupled execution with the normalised electric motors installable without dismantling the pump.

ZMF sealed pumps, close-coupled execution, ready to fit normalized motors with additional bearing to withstand hydraulic loads.

Available motor powers: kW 0,55÷15
Material versions: PP - E-CTFE

TMA - ZMA

Horizontal axle, self-priming pumps for chemicals, can be supplied with trolley, do not need any bottom valve. Magnetic drive or single or doubled flushed mechanical seal design. Maximum negative suction head of 6 m depending on the nature of the chemicals (specific gravity, vapour tension).

Available motor powers: kW 0,25÷11
Material versions: PP - E-CTFE - PVDF - PVC



ZGE

Wide, complete range of centrifugal chemical process pumps realized in thermoplastic pure materials and designed to accept commercially standardized mechanical seals. These long-coupled pumps, built in compliance with ISO 2858 (all normalized), are available either bare shaft or complete with base, for back pull out execution.

Available motor powers: kW 0,55÷300

Material versions: PP - PVDF - PVC - PE HMW

**SATURN**

ARGAL single stage centrifugal pump conforming to ANSI/ASME B73.1 regulations. The pump casing is made of FRP (thermosetting resins reinforced with fiberglass) which provide the casing with a considerable mechanical resistance comparable to metal alloy. The resin basic formula (epoxy vinyl ester) gives to the pump casing a resistance to all corrosive and abrasive acids. The combination of Chemical & Mechanical Resistance added to a manufacturing low cost leads SATURN range to be an important reference in different application fields as sea water (sanitization treatments, desalination, ...), domestic & industrial waste-water treatments, fume scrubbers, and all industrial plants handling chemical liquids. SATURN series comes in two versions: ZGS normalized (long-coupled) - ZMS close-coupled

Available motor powers: kW 3÷75

Material versions: FRP (Epoxy-vinylester Resins)

QGN

The NESK range are vertical external centrifugal pumps, mechanical sealed, to transfer or circulate of large volumes of corrosive fluids with the innovative semi-axial hydraulic flow.

The advantages of this design are:

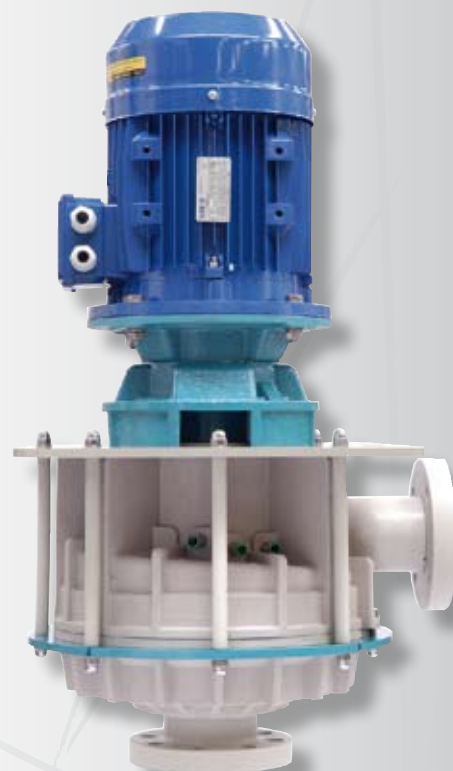
- low noise operation
- high efficiency
- reduced wear on the inner parts.

The advantages of the vertical structure are:

- reduced overall dimensions
- easy maintenance on the normalized IEC motors
- air drain system.

Available motor powers: kW 4÷55

Material versions: GFR/PP - PVDF





KGK

Centrifugal long coupled sump pumps with column and pump body submerged in the pumped liquid; suction depth up to 4000 mm.

For length above 2000 mm one intermediate guide is added to the one existent in the casing. Bearing are manufactured with ceramic oxides and Silicium carbide.

In case of liquid is laden with mildly abrasive solids the guide bearings can be optionally flushed with external clean liquid.

External different vapour seals systems to protect the upper mechanical parts form corrosion are optionally. Available as well as column and delivery pipe made of Epoxi Vinyl Ester resin (FRP).

Available motor powers: kW 0,55÷45

Material versions: GFR/PP - PVDF

KME

Close-coupled sump pumps with column and pump body submerged in the chemical.

Lengths from 600 to 1500mm. and bearings made in ceramic or silicium carbide.

An efficient dry vapour seal system has been designed to prevent the mechanical parts from corrosion.

This pump model is our solution to users that want pumps of limited flow and head but to be fitted easily with IEC normalised motor readily available almost worldwide.

Available motor powers: kW 0,55÷11

Material versions: GFR/PP - PVDF



HME

Centrifugal close-coupled sump pumps, self-priming in tank. Sealless without bearings, no bushings, wearing parts, with cantilevered shaft and strainer to prevent the accumulation of corrosive vapours.

They can be mounted in-tank or out-of-tank.

Standard lenghts: 275 mm and 450 mm.

Special motor powers for higher specific medium gravity are available.

Available motor powers: 0,25÷7,5 kW

Material versions: GFR/PP - PVDF

LAGOON Filtration system

Lagoon filtration system provides the removal of foreign solids or organic impurities from chemical solutions or from baths of special treatments.

The group is constituted by the filtration chamber with lid, injection-moulded fittings which contain the filtration system, positioned on the base. In the same base, well protected, is situated the mag drive pump, the pipeline equipped with valves and switch.

Many chambers can be assembled together either in parallel or in series connected to a bathtub in order to filter using the carbon purification process.

Thanks to the spacious basement all the parts can be easily inspected.

Many different versions of filtration units are available: paper, meraklon cartridges, washable pleated cartridges. Filtrating grade: between 1 and 100 micrometers having 10 micrometers as standard.

Range: from 500 to 40.000 l/h
Filter materials: PP - PVDF
Pump materials: GFR/PP - CFF/E-CTFE



ASTRA

Air driven double diaphragm pumps, volumetric type, are self-priming and insensitive to dry running. They are suitable to transfer abrasive, viscous, with solids in suspensions liquids and available from 1/4" to 3".

The flow of the liquid delivered can be adjusted by simply adjusting the flow of the feeding air. These pumps are mainly adapt in dangerous areas and are almost maintenance free.

Capacity: up to 950 l/min.
Materials: PP - PVDF - Aluminium - Stainless Steel

SONDA

Drum pumps to transfer common and aggressive liquids from drum to other containers.

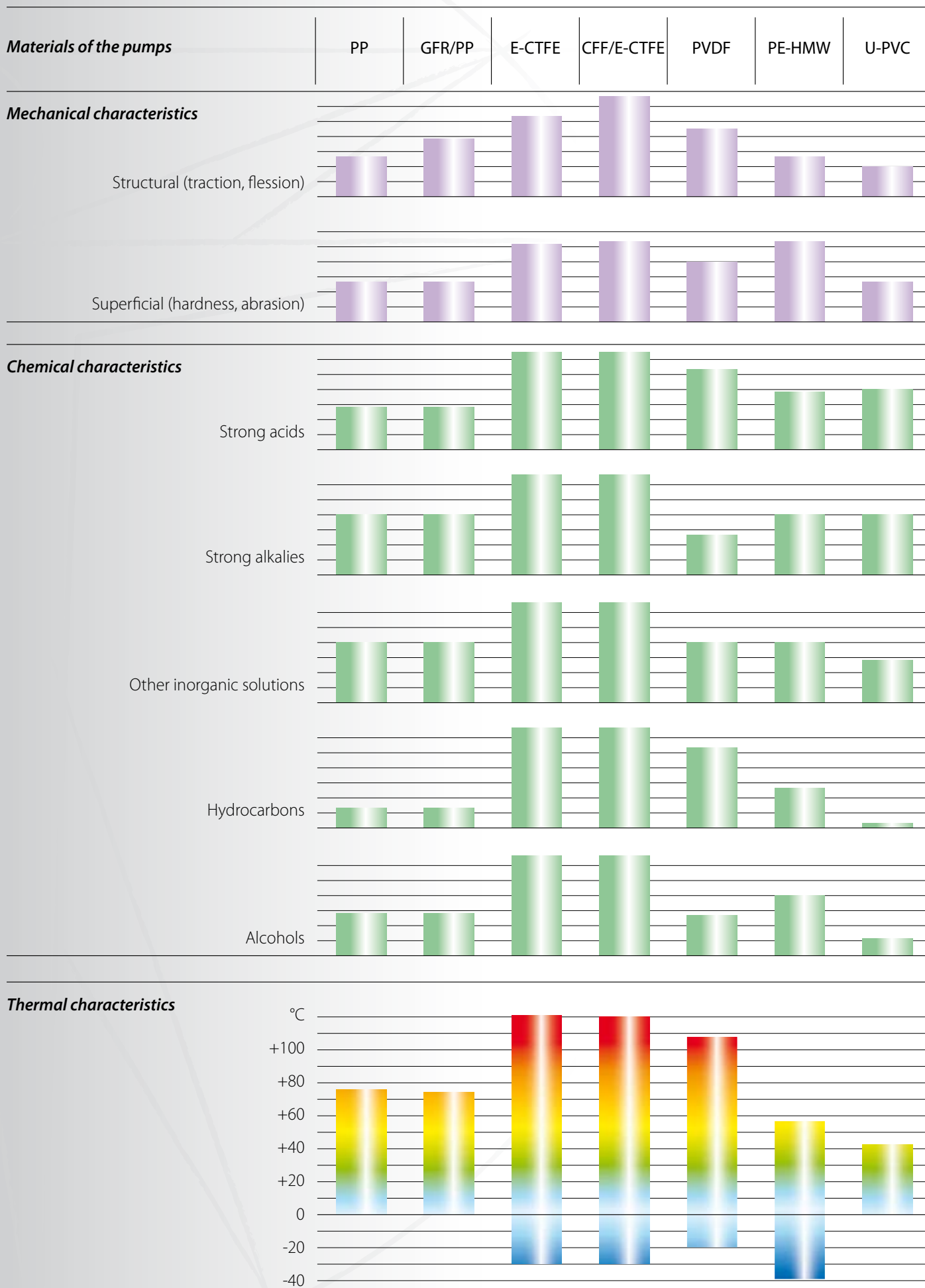
These pumps can be fitted with 230 Volt electrical motor or with pneumatic motor.

Optional versions compliant to Atex 100 regulation available.

Max. Flow: Up to 250 l/min
Max. Head: up to 25 mwc
Max. Viscosity: from 500 to 1200 mPas
Material of the tube: PP, PVDF, ALU, SS Stainless Steel
Length of tube: 700 - 1000 - 1200 mm
Max, operational temperature: 40°C (PP) - 60°C (PVDF - ALU - SS)



Comparison diagrams of employed thermoplastics



MAIN INDUSTRIAL SECTORS

CHEMICAL
PHARMACEUTICAL
SURFACE TREATMENTS
POLLUTION CONTROL
TEXTILE
ALIMENTARY

Main fields of industrial applications

Surface Treatments (Wire, Coils, Pipes
and Profile iron)
Pickling-Metal
Electroplating
Anodizing
Hot dip galvanizing
PCB - LCD Mfrg
Electropolishing
Cleaners-aqueous acidic, alkaline

Others

Aquariums
Sea and thermal water
Fish farm
Chemical distributors
Boats air conditioner

Agriculture

Liquid fertilizers
and pesticides
Preservatives
and additives

Environmental treatments

Water treatments
Saline water treatment
Fume scrubbers

Etching
(cupric or ferric chloride, ammoniacal)
Metal refinery
Recovery chemicals, gold and silver
Optical lens grinding
Battery Mfrg
Printing equipments
Evaporators
Concentrators
Plants of demineralized and
deionized water, ozonizing
Stripping processes
Plastic recycling plants

Chemical and pharmaceutical
Bottling, bottle washing
Electro-medical machinery
Cosmetics manufacturing
Organic colors
Chemicals storage
Leather tanning
Industrial laundry and dye-works
Cleaners aqueous, semi aqueous
acid and alkaline
Descaling
Water sterilization



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