

# CHEMICAL PROCESSES APPLICATIONS

technical catalogue

RD  
RG  
RB  
RE  
RC  
HD  
HG  
RS  
VERTICAL  
CANTILEVER  
RN  
TS  
RAM

**SR** SALVATORE  
ROBUSCHI  
PUMPS

# Pompe centrifughe per ogni esigenza Centrifugal pumps for any need

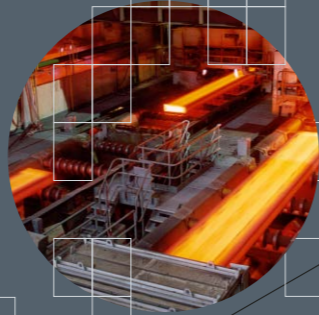
L'Azienda ha una grandissima esperienza nella produzione di pompe di processo ISO 5199-2858 per il settore chimico e petrolchimico. Le pompe Salvatore Robuschi grazie all'elevata efficienza ed una comprovata affidabilità, vengono utilizzate per il pompaggio di liquidi chimicamente aggressivi o per applicazioni particolarmente gravose. Per le applicazioni più impegnative sono disponibili diversi tipi di esecuzioni tenuta meccanica e di giranti per movimentare sia liquidi puliti che sporchi.

Per le nostre pompe di processo sono inoltre sempre pronte a magazzino sia parti in AISI 316 che in SAF 2507 (superduplex). Grazie alle giranti semi-aperte, i nostri prodotti trovano largo utilizzo nella produzione di fertilizzanti e nella concentrazione di sali. Forniamo inoltre pompe per i sistemi di decapaggio/zincatura dei metalli, scrubber, produzione di biodiesel, raffinazione degli oli vegetali, miniere, acciaierie, tintorie e lavorazione tessuti, raffinerie, trattamento reflui industriali, etc...

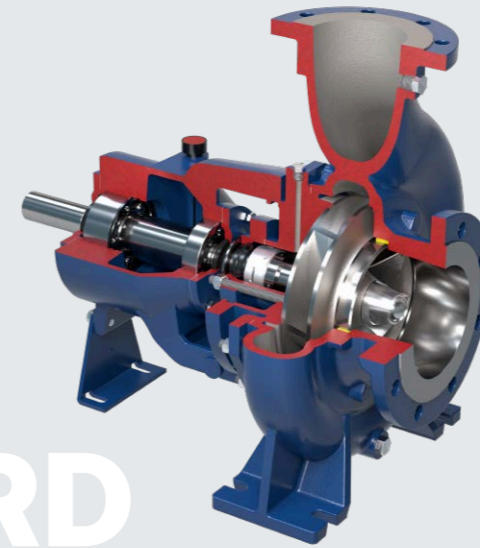
Salvatore Robuschi has a great experience in producing process pumps ISO 5199-2858 for chemical and petrochemical industry. The pumps can be used for aggressive medium or heavy applications due to high efficiency and proved reliability.

Salvatore Robuschi pumps are suitable to most challenging applications because/since they can be fitted with different seals and impellers types to handle clean or dirty medium.

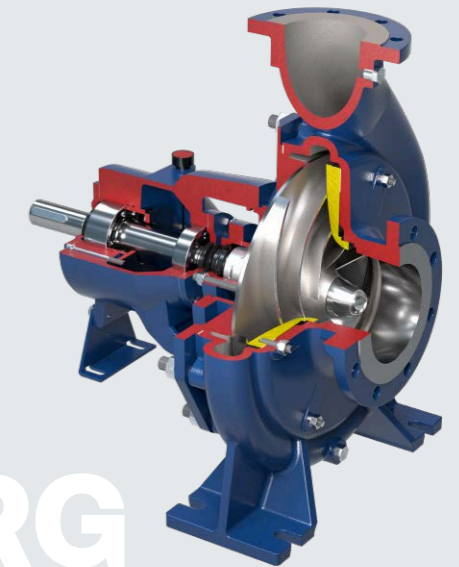
Thanks to the semi open impellers our pumps can be used in the fertiliser production and salt concentration industry. We keep an ever-ready stock of parts AISI 316 and SAF 2507 (Superduplex) parts for process pumps. We provide pumps for pickling system/electro galvanisation of metals, scrubber, biodiesel production, vegetable oil refinery, mines, steel mills, dyeing plants, refinery, wastewater treatment plants etc.



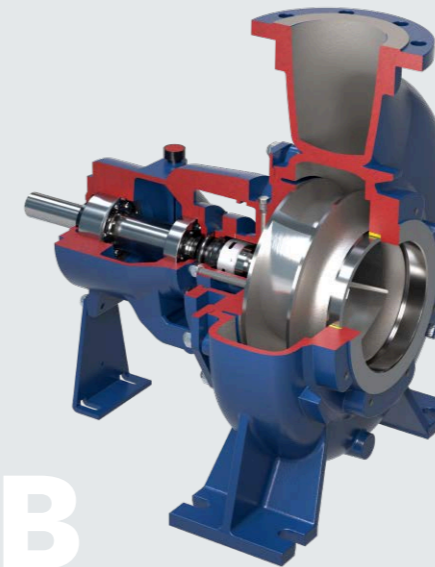
## PROCESS



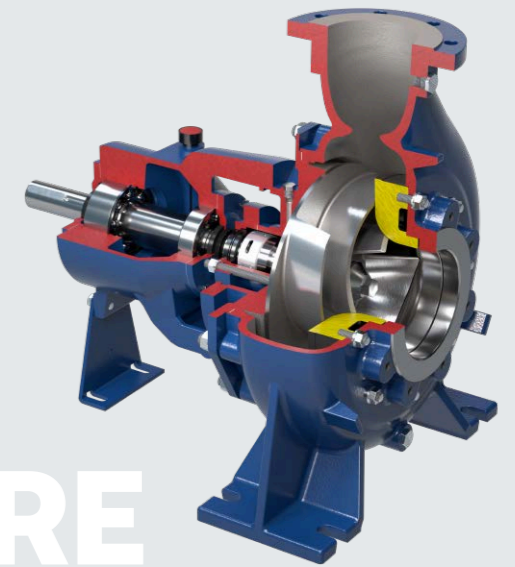
**RD**  
Closed impeller ISO 2858



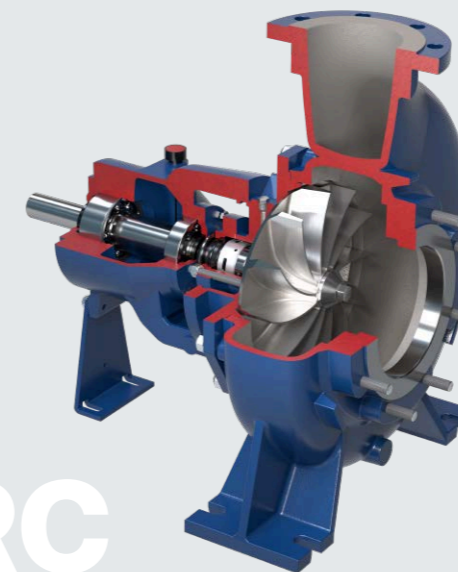
**RG**  
Open impeller ISO 2858



**RB**  
Channel impeller



**RE**  
Open channel impeller



**RC**  
Vortex impeller



**VERTICAL**

Closed, Open, Channel and Vortex impeller

**VERTICAL**

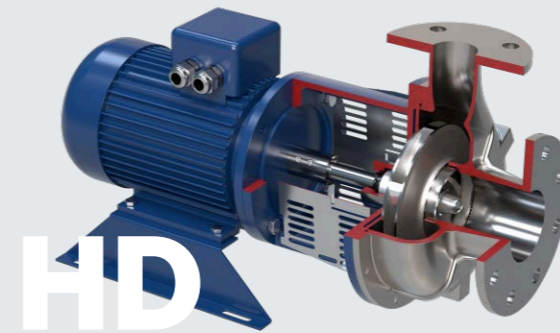


Vortex, Channel and Closed impeller

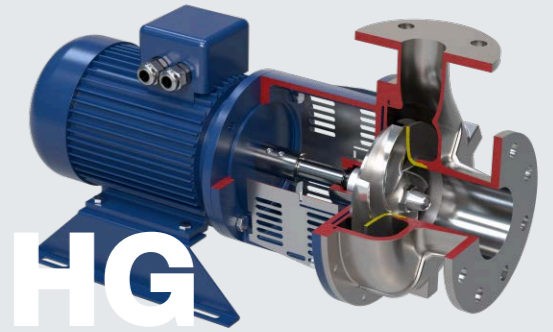
**CANTILEVER**



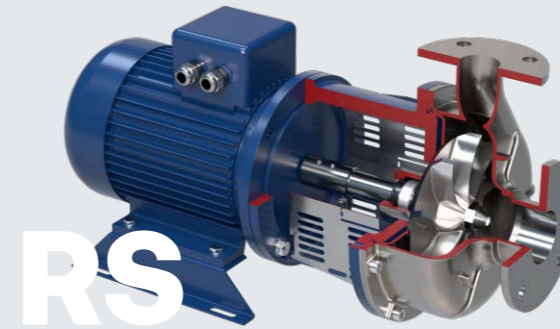
**CLOSE COUPLED**



**HD**  
Closed impeller

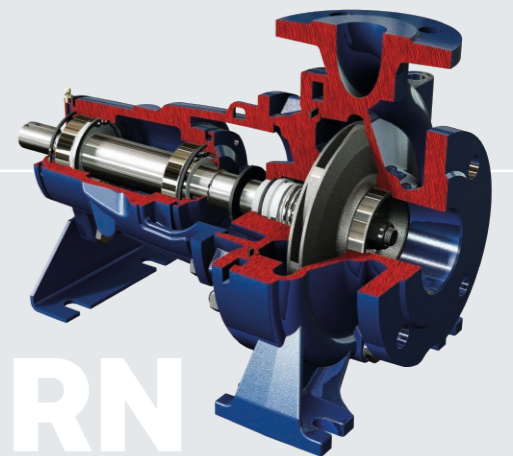


**HG**  
Open impeller

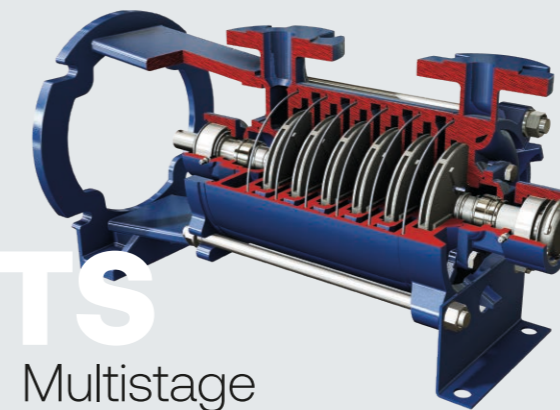


**RS**  
Vortex impeller

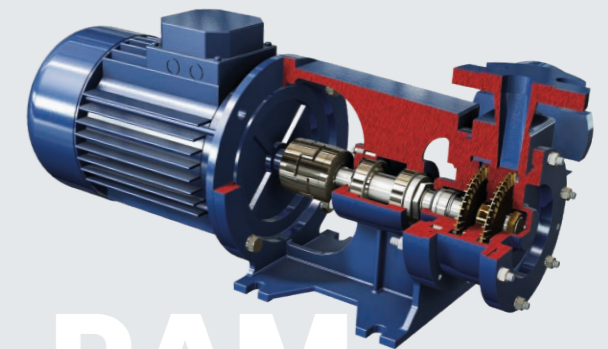
**WATER**



**RN**  
Closed impeller EN 733



**TS**  
Multistage



**RAM**  
Peripheral impeller



## CHEMICAL TRANSFER PUMPS

The pump is used for the transfer of a 71% urea solution to a storage tank. The required head is about 110 m. The application is very critical due not only to the high pressure, but also the high temperature of 120° C which makes the liquid chemically very aggressive.

The RD - RG series are designed in accordance with ISO 5199 and ISO 2858, making it ideal for worldwide chemical or industrial process application. Pump is equipped to heavy duty bearing bracket and cartridge seal. RD can work in heavy conditions in terms of **NPSHa, density and viscosity up to 500 cP.**



## CHEMICAL TRANSFER PUMPS

The pump is used for the transfer of 1,2 - dichloroethane commonly known as ethylene dichloride (EDC) for production of vinyl chloride. The required head is about 110 m. The application is very critical due to high flammability of compound.

The RD - RG series are designed in accordance with ISO 5199 and ISO 2858, making it ideal for worldwide chemical or industrial process application.

Pumps are equipped with double cartridge seal **PLAN 53A with pressurized barrier fluid** recirculating through a reservoir. Pumps are made in **corrosion resistant material AISI 904L** due to high corrosive pumped liquid.



## CHEMICAL TRANSFER PUMPS

Pump is used for the transfer nitric acid or 98% of sulfuric acid with suspended particles (max s.g. 1,8).

Liquid contains up to 10% small particles that could clog closed impeller. Due to high density of pumped liquid, standard pumps can't be used because heavy duty ball bearings are required.

The RD - RG series are designed in accordance with ISO 5199 and ISO 2858, making it ideal for worldwide chemical or industrial process application.

RG chemical pumps with semi-open impeller can pump liquid with small suspended particles or crystals (up to 10%) without clogging problems. Back-to back seal arrangement allows the seals to work always in contact with clean liquids.



## CHEMICAL TRANSFER PUMPS

Pumped liquid MEYCO SA160 is an high performance, alkali-free set accelerator to be use in both wet and dry mix spraying processes. Liquid contains up to 30% small fibers. The application is critical not only for the presence of suspended solids but also for the viscosity of the pumped liquid (200 cP).

RC vortex impeller can pump liquid with a suspension of small solid particles without clogging problems. Back-to back seal arrangement allows the seals to work always in contact with clean liquids.



## CHEMICAL TRANSFER PUMPS

The pump is used for the transfer of mother liquor in a pharmaceutical plant for active pharmaceutical ingredients production. Mother liquor is a mixture of solvents (METHANOL, ETHANOL, ACETIC ACID, NAOH, ETIL ACETATE) without soolids. S. The application is very critical due to high flammability of compound.

The RD - RG series are designed in accordance with ISO 5199 and ISO 2858, making it ideal for worldwide chemical or industrial process application.

Pumps are equipped with double cartridge seal **PLAN 53A with pressurized barrier fluid** recirculating through a reservoir.



## CHEMICAL TRANSFER PUMPS

Pumps are usually installed inside sumps that are used to collect liquid overflow or chemical waste from industrial processes. The feature of these sumps is the variability of the liquid level contained in it: this level depends on the process and must be run by level probes that stop the pumps when the level is too low and put them in motion when the level is high.

These numerous starts-stops can cause damages to the motors and pumps.

RCC cantilever pumps are able to work dry and do not need to be stopped when the level is too low. They can work continuously without having to be run by level probes. A key feature of cantilever pump is that there no bearings or bushings submerged therefore the pump can handle liquid with solids and operate dry.



RD - RG

AVIATION FUEL LOADING SYSTEM

Pump is mounted on a heavy duty and fully galvanised steel skid. Jet fuel A-1, is a flammable and dangerous liquid. Any fueling operation can be very dangerous, and aviation operations have characteristics which must be accommodated. As an aircraft flies through the air, it can accumulate static electricity. If this is not dissipated before fueling, an electric arc could occur and ignite fuel vapors.

The RD - RG series are designed in accordance with ISO 5199 and ISO 2858, making it ideal for worldwide chemical or industrial process application.

RD process pump, in closed-coupled arrangement, is able to satisfy the high standard required for ATEX ZONE 1 classified area with a small footprint.



RD - RG

DOSING STATION

This is the dosing station for chemical mixtures at Antipinsk Refinery. Generally this unit is mixing, storing and dosing chemicals solution that prevent lime scale in high pressure steam injectors. The steam injectors are heating some devices in technological line of high-octane gasoline production. The pump itself is used for recirculation of solution inside the dosing unit.

The RD - RG series are designed in accordance with ISO 5199 and ISO 2858, making it ideal for worldwide chemical or industrial process application.

RD process pump, in closed-coupled arrangement, is able to satisfy the high standard required for ATEX ZONE 1 classified area with a small footprint.



RCC

CRUDE OIL EFFLUENT TANK

Crude oil is made up of a mixture of hydrocarbons, and the distillation process aims to separate this crude oil from broad categories of its component hydrocarbons, or "fractions."

Refineries use complex processes to distil crude oil into fuels, such as gasoline, diesel, jet fuel and bunker oil, or raw materials for making plastics, solvents or detergents. Crude oil has viscosity up to 250 cSt.

RCC cantilever pumps are able to work dry and do not need to be stopped when the level is too low. They can work continuously without having to be run by level probes.

A key feature of cantilever pump is that there no bearings or bushings submerged therefore the pump can handle liquid with solids and operate dry.



RC

RAW SUGARCANE

Sugarcane ethanol is an alcohol-based fuel produced by the fermentation of sugarcane juice and molasses. Canes are cut and milled with water; this produces a juice with 10-15% solids from which the sucrose is extracted.

Sugarcane contains the following: water (73-76%), soluble solids (10-16%), and dry fibers or bagasse (11-16%).

Our RC pumps, thanks to the vortex impeller, can move without clogging problems hot fluid grease with large quantity of dry fibers.



HG

ETHANOL DISTILLATION

Distillation in simple terms, is basically the process of separating a liquid or vapor mixture into its component parts, through vaporization and condensation. Since alcohol boils at a lower temperature than water, it will turn to steam before the water does, and rise up in the still. Collect and chill the vapors of alcohol and collect the alcohol from the still.

Our HG pumps, thanks to the semi-open impeller, can easily recirculate mixture of wort (juice) and alcohol without clogging problem. Furthermore they must ensure the movement of product in heavy conditions.



RB

STILLAGE

Stillage, also called distillery wastewater or vinasse, is the aqueous byproduct from the distillation of alcohol.

Vinasse is used as feedstock in biofuel production and as an agricultural fertilizer and soil conditioner.

Our RB pumps, thanks to the channel impeller, can move without clogging problems and with high efficiency large quantity of vinasse. Furthermore they must ensure the movement of product in heavy conditions in terms of vacuum.



## COOLING TOWERS

For cooling using a cooling tower, the water is drawn once from a river, lake or the sea depending on the power station's location, and fed into a collecting tank underneath the cooling tower. The water is drawn from there with pumps and transported through heat exchangers, then returned to the collecting tank via the cooling tower.

Our vertical sump pump RCV has the pump body immersed into the liquid, and the motor is mounted above the plate, keeping it away from the liquid. The discharge pipe is separated from the column pipe and the lubrication of the line bearings is normally obtained by means of the same pumped fluid.



## BLAST FURNACE SCRUBBER

After primary separation in a cyclone, the blast furnace top gas is scrubbed with water in the annular gap scrubber to obtain the desired residual clean gas particulate concentration.

The quantity of water required for scrubbing is relatively low and thus the gas cooling requirements normally determine the total water flow rate.

Our RB pumps are used for water circulation in wet scrubbing system of a blast furnace.

The pump is able to guarantee, thanks to the use of the channel impellers, high efficiencies even with dirty liquids.



## PRETREATMENT FOR PAINTING

A high-quality conversion coating is essential for the durability of painted metal goods. The process of applying an inorganic conversion coating to a metallic surface involves removing any surface contaminants, then chemically converting the clean surface into a non-conductive, inorganic conversion coating.

Our RBC cantilever pump works with aggressive cleaning and phosphating solution with fine suspended particles. RBC can to work dry and do not need to be stopped when the level is too low. It can work continuously without having to be run by level probes.

Channel impeller is installed to increase the efficiency.

A key feature of cantilever pump is that there no bearings or bushings submerged therefore the pump can handle liquid with solids and operate dry.



## ULTRAFILTRATION

Ultra-filtration (or UF in short) is one of the pressure-driven membrane processes. The ultra-filtration process uses a membrane – a simple permeable material – which, in the case of ultra-filtration, only allows particles smaller than 20 nm to pass through it.

Our RB channel impeller pump are recirculating chemical waste in a UF system to recover caustic soda in a textile industry.

The pump is able to guarantee, thanks to the use of the channel impellers, high efficiencies even with dirty liquids.



## FINAL EFFLUENT FROM TANNERY

Tanning is the process of treating skins and hides of animals to produce leather, which is more durable and less susceptible to decomposition.

The heart of the process is the tanning operation itself in where organic or inorganic materials become chemically bound to the protein structure of the hide and preserve it from deterioration.

Our RB Pump with channel impeller in super duplex SAF 2507 is able to work with very aggressive liquid. The effluent contains not only strong acid, but also small particles coming from the leather treatment.



## FABRICS WASHING UNIT

The core of textile manufacture is fabric production. Fabrics can be created in many different ways, the most common being weaving, knitting or through production of non-woven fabrics.

During dyeing and printing both hazardous chemicals and dye stuffs are used.

Several RS pumps are installed in modular washing unit to rinse and neutralize fabrics after chemical processes. Heavy duty close coupled pumps are working with aggressive chemicals, as acetic acid or caustic soda solutions.

The hydraulic system is just as a continuous washing range with water flowing against the stream, independent water temperature controls in each kier, chemical dosing and possible vats separation to enable different chemical applications in the same cycle.



La nostra storia ha inizio nel 1935 in una piccola officina nel centro di Parma dove Salvatore Robuschi, il fondatore dell'azienda, costruiva e riparava piccole pompe.

Nel corso degli anni l'assistenza si è trasformata in produzione e oggi, quasi 90 anni dopo, la Salvatore Robuschi è uno dei principali produttori di pompe di processo in Italia e ricopre un ruolo strategico anche a livello mondiale.

La gamma odierna comprende pompe centrifughe orizzontali e verticali con girante chiusa, aperta, a canali ed arretrata utilizzate in settori quali trattamento acque, chimico, alimentare e molto altro.

Ciò che contraddistingue la Salvatore Robuschi dalla concorrenza è il supporto tecnico: grazie alla continua crescita degli ultimi decenni è stato possibile creare uno staff tecnico-commerciale altamente qualificato che, con competenza e rapidità, è in grado di sviluppare soluzioni personalizzate per ogni esigenza del cliente.

L'ampia gamma, l'affidabilità, la totale modularità dei prodotti, i brevi tempi di consegna ed il supporto puntuale sono i motivi principali per cui la Salvatore Robuschi continua ad accrescere la propria quota di mercato anno dopo anno, senza però tralasciare l'attenzione per l'ambiente ed il benessere dei dipendenti.

#### La struttura organizzativa

L'ufficio tecnico commerciale è in grado di affiancare il cliente nella scelta del prodotto, intesa come vera e propria guida nell'identificazione della corretta macchina da destinare all'uso specifico.

#### Direttiva ATEX

L'azienda è anche in grado di fornire pompe certificate secondo le norme ATEX, categorie 2 e 3, per l'utilizzo in atmosfera esplosiva.

#### Attenzione per l'ambiente

L'attenzione che la Salvatore Robuschi riserva all'ambiente ha portato l'azienda a sviluppare una politica ecosostenibile investendo nella posa di un impianto fotovoltaico composto da 1.000 m<sup>2</sup> di pannelli di ultima generazione con capacità produttiva media annuale di 1 MW.

Our history starts back in 1935 in a small workshop in Parma where Salvatore Robuschi, the company founder, built and repaired small pumps.

Over the years service has turned into production and today, almost 90 years later, Salvatore Robuschi is one of the largest manufacturers of process pumps in Italy and plays a strategic role worldwide too.

Today's range includes horizontal and vertical centrifugal pumps with closed, open, channel and vortex impeller used in applications such as water treatment, chemicals, food and much more.

The main difference between Salvatore Robuschi and other competitors is the technical support: thanks to the continuous growth in the last decades it has been possible to create a highly qualified technical-sales staff that, with competence and rapidity, is able to develop tailor-made solutions for every customer need.

The wide range, the reliability, the total modularity of its products, the short delivery times and the punctual support are the main features that allow Salvatore Robuschi to keep on increasing its market year after year, always keeping in mind the attention to the environment and the employees' welfare.

#### Organisational structure

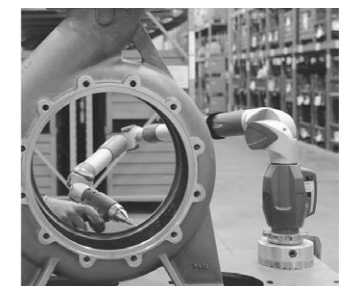
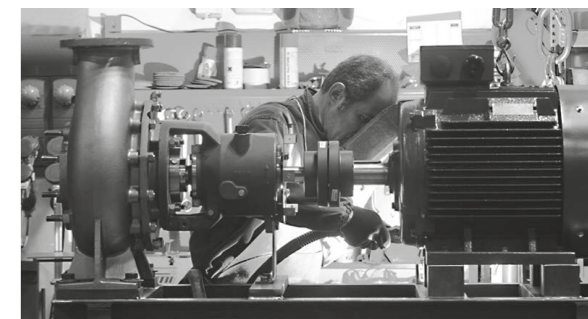
The sales-technical department is well-qualified to assist the customer in choosing the most suitable machine and meet customers specific needs.

#### Atex directive

Salvatore Robuschi is able to supply pumps according to the ATEX rule, category 2 & 3, suitable to be installed in hazardous area.

#### Environment

Salvatore Robuschi concern with the environment led to an eco-friendly policy investing in a photovoltaic system that has an average capacity per year of 1 MW thanks to its 1,000 m<sup>2</sup> panels.





Procter&Gamble





**Salvatore Robuschi & C. srl**  
via Emilio Gino Segrè 11/a  
43122 Parma | Italy

t +39 (0)521 606285  
f +39 (0)521 606278

salvatorerobuschi.com  
srpumps.com

sr@salvatorerobuschi.com

