

FAGGIOLATI PUMPS[®] S.p.A.

Company Presentation



Summary

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Introduction: OVERVIEW

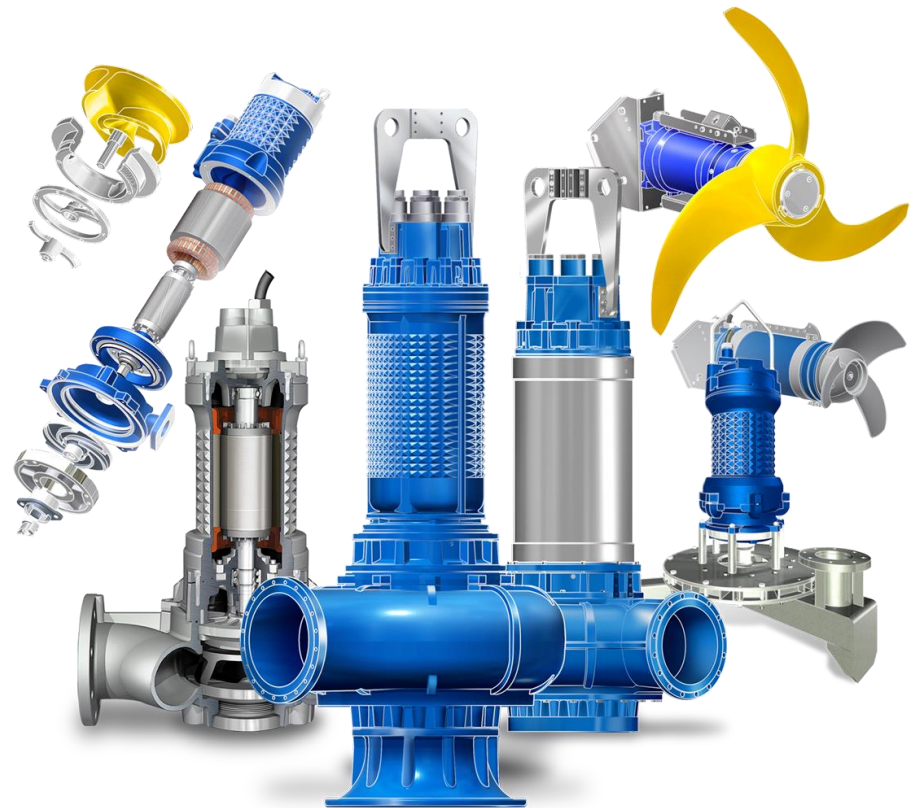


Faggiolati Pumps S.p.A., a certified company under ISO 9001 and ISO 14001, is highly specialized in the **designing and construction of submersible pumps, mixers and aeration systems.**

Our **casting is rigorously certified and Italian based**; ranging from various cast-iron alloys to authentic AISI 316 fusion stainless steel, Duplex, Hastelloy and several types of bronze alloys.

The available **pumps types** are: Drainage, Grinder, Single-channel, Multi-channel, high-performing Vortex and High Efficiency (H series). Motors up to 50 kW are certified under the current **ATEX** explosion-proof law.

We also deliver **special pumps tailored to our clients' requests**, including electric and electronic equipment and remote control systems.



Introduction: HISTORICAL BACKGROUND



- 1979 Faggiolati Giovanni Co. is founded** (service company and representative agency)
- 1985** The **first Faggiolati's catalogue/price list** is released including pumps from 0.50 HP to 7.5. HP.
- 1988 First manufacturing plant:** our range of submersible Pumps up to 30 kW is completed
- 1992** Our **first mixer** (type 408T8/7-3) is launched
- 1997 ISO 9000 quality certification**
- 1998** New XM40-XM60 mixer ranges
- 1999** Our **"second generation" of Pumps** is created (interchangeability plan)
- 2000** Our **first range of OJ Series aerators** is launched
- 2002** Enlargement of **our new production plant**
- 2003 ATEX** certification
- 2006** New aeration system called **Ossi-Mix**
- 2007 ISO 14000 environmental certification**
- 2009** Next generation **AJ Serie** aerator systems
- 2013** Plans for **new production plant** begin
- 2014 "Third generation"** machines based on the **"Solve&Save"** concept
- 2015** Completion of submersible **grinder pumps range up to 25Kw** with efficient cutting system.
- 2016** New **J-series submersible pumps "KUT ALL" with special cutting system**
- 2019** New Mixer **GR12 series 1,200mm propeller** with low power consumption
- 2020** Completion of **"BIG PUMPS DN 350 - DN400"** range.
- 2022** Completion of **AISI316 - DUPLEX - SUPER DUPLEX up to 40kW ATEX** certified range.
- 2023** Completion of **GR12 Mixer series** range.



Introduction: MAIN SECTORS OF INTEREST

- **Civil applications**

- Equipment for civil wastewater treatment
- Sewage and rain waters lifting
- Waste-to-energy incinerators
- Landfill leachate

- **Industrial applications**

- Power plants
- Chemical & Petrochemical sector
- Textile & Leather sector
- Oil & Gas sector
- Food sector
- Mining sector
- Desalination systems
- Civil and naval shipbuilding
- Paper Industry



Products: SUBMERSIBLE PUMPS

To address the ever growing environmental concerns coming from both the civil and the industrial sector, Faggiolati introduces its **“third generation” of submersible pumps**.

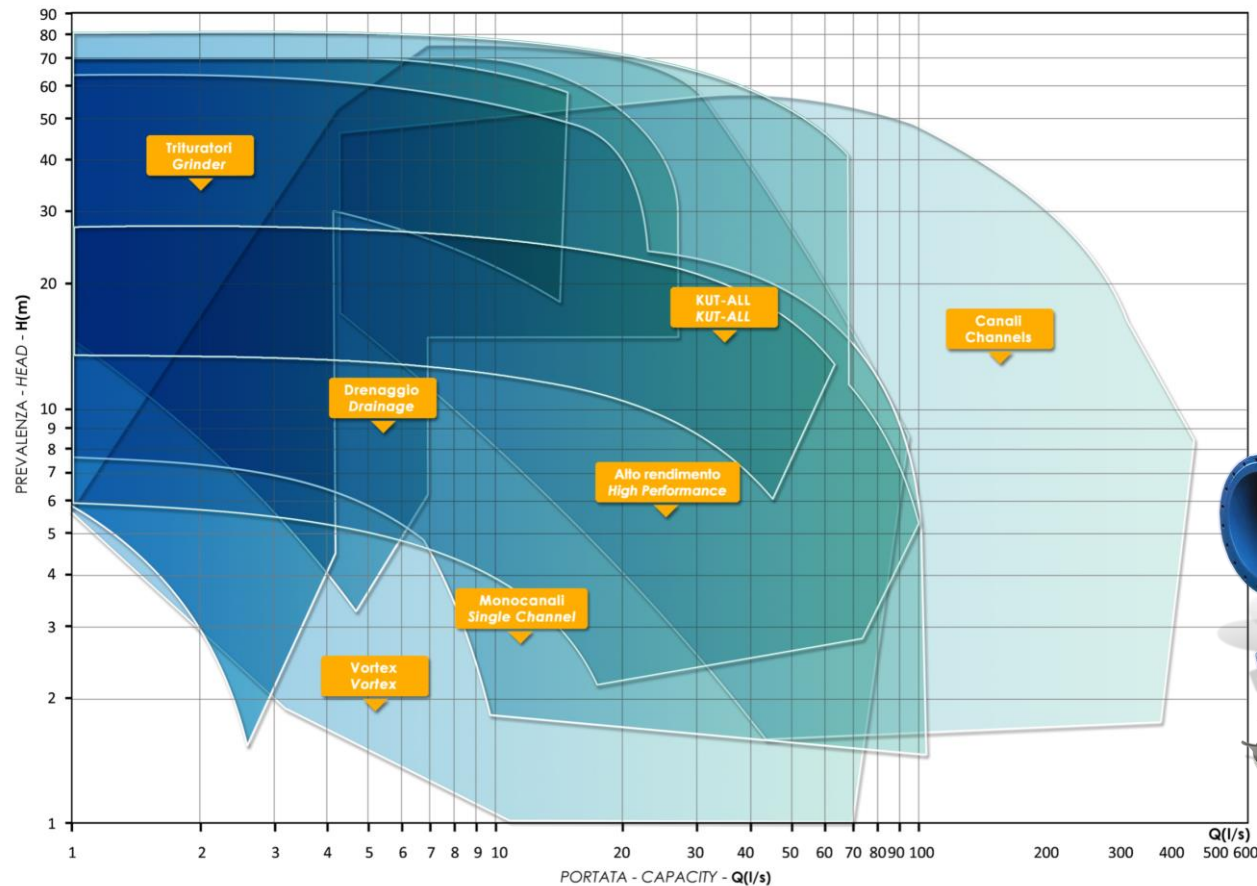


Highly efficient motors, well-suited to be managed through an inverter, and **anti-clogging hydraulics** designed and optimized for a variety of situations.

Products: SUBMERSIBLE PUMPS



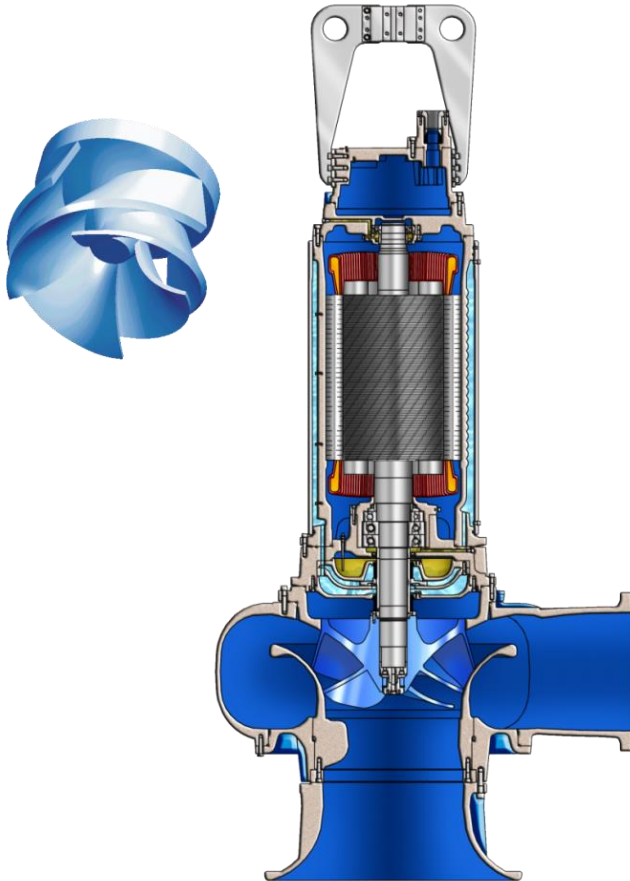
The range of production includes **several types of Submersible Pumps**, available in a number of **different versions** (from 0.5 kW to 350kW) in 2/4/6/8/10/12 poles 50-60 Hz.



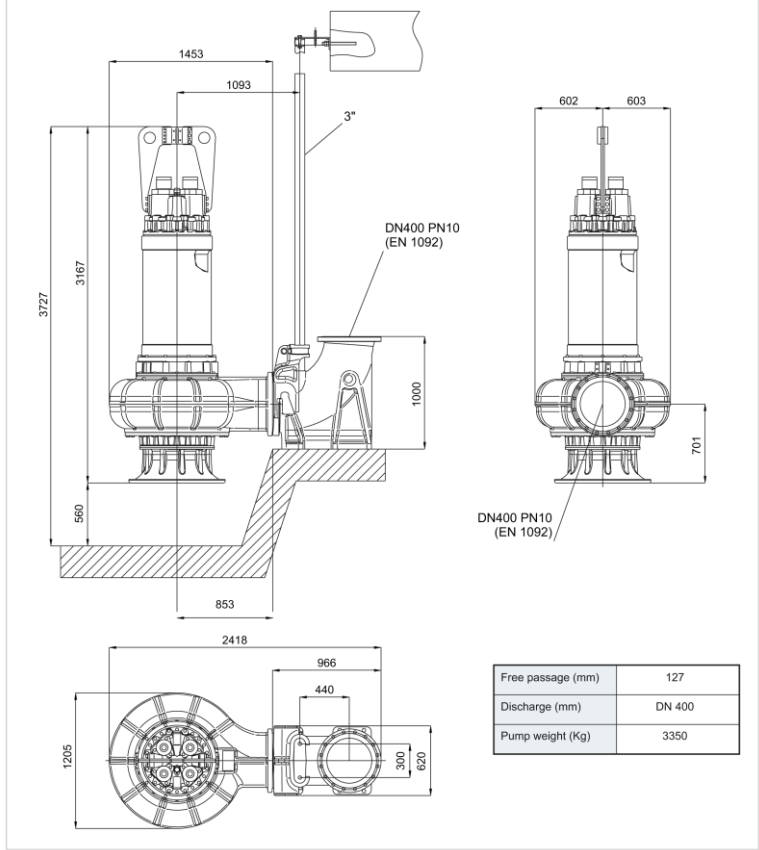
Submersible Pumps: DN400 - DN500



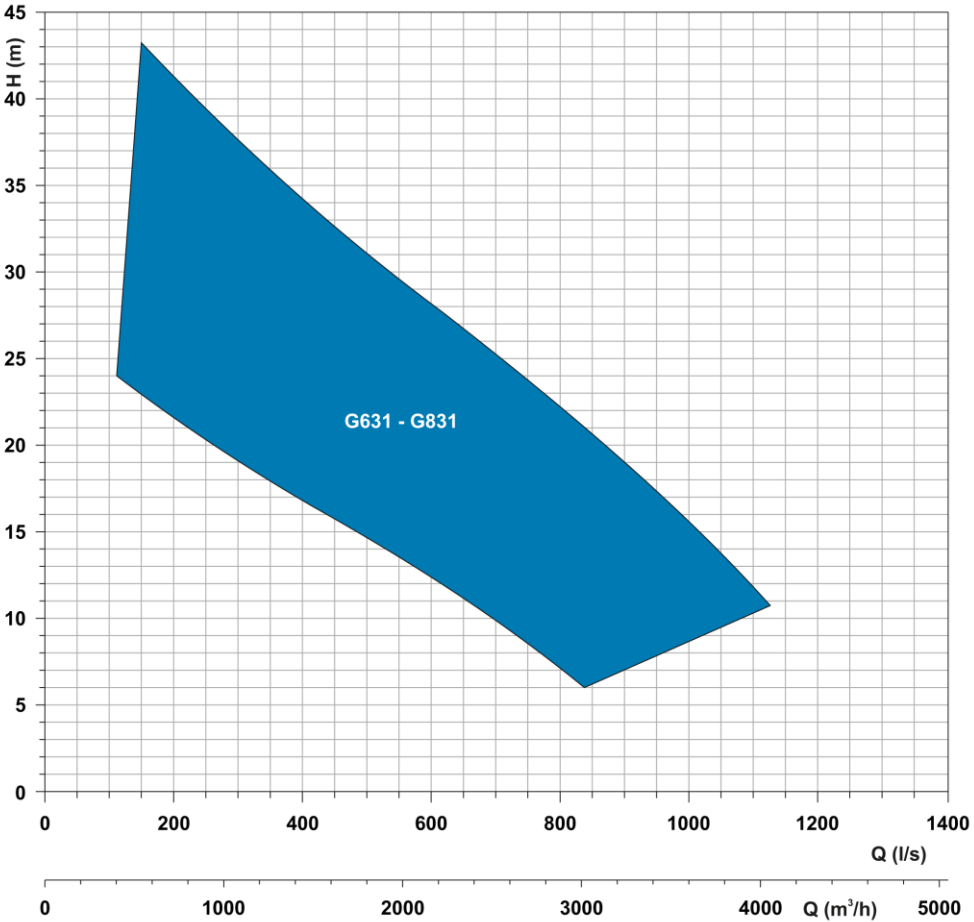
Suitable for civil and industrial applications, where **a considerable capacity is required**, up to 1.550 l/s; the submersible pump line is available in **8/10/12 poles**, machines DN400 - DN500 up to **350 kW**.



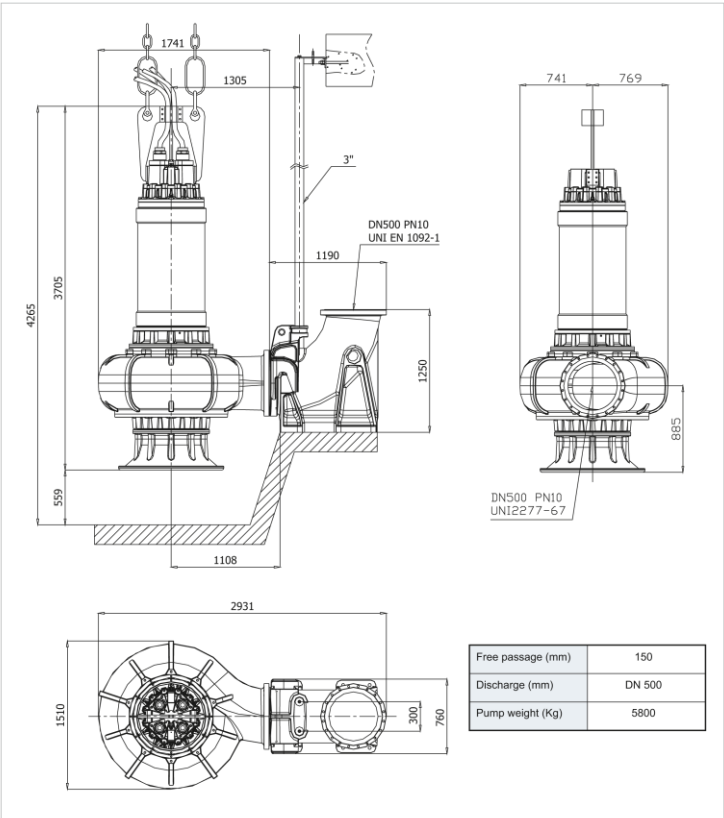
Submersible Pumps: DN400



Type	Power supply	Nr. of poles	Rotation speed R.P.M.	Rated power P2 (kW)	Rated current I (A)	Starting current Is (A)
G631	3ph 400/690V 50Hz	6	984	260	470	2632
G831	3ph 400/690V 50Hz	8	725	160	305	1098

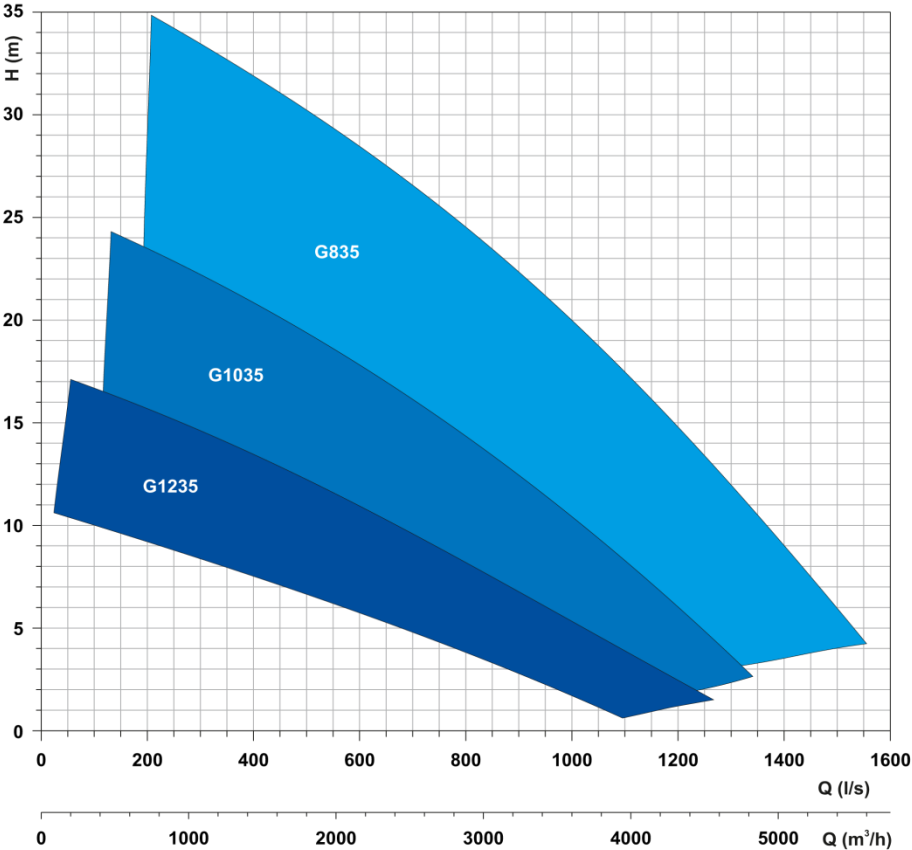


Submersible Pumps: DN500

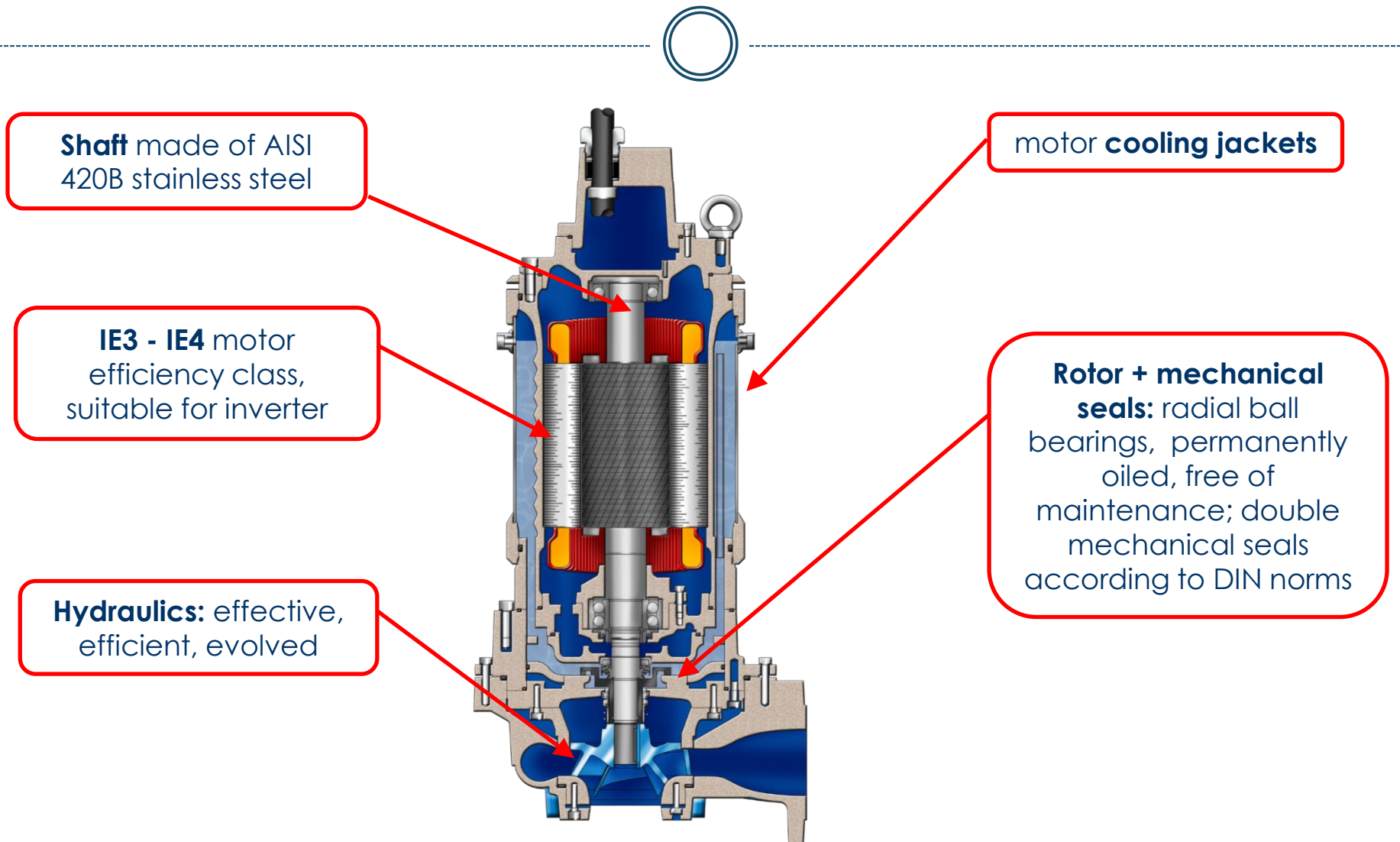


Free passage (mm)	150
Discharge (mm)	DN 500
Pump weight (Kg)	5800

Type	Power supply	Nr. of poles	Rotation speed R.P.M.	Rated power P2 (kW)	Rated current I (A)	Starting current Is (A)
G835	3ph 400/690V 50Hz	8	730	272	490	2695
G1035	3ph 400/690V 50Hz	10	585	143	291	1600
G1235	3ph 400/690V 50Hz	12	485	120	285	1681



Submersible Pumps: CONSTRUCTIONAL CHARACTERISTICS



Submersible Pumps: IMPELLERS



D



Drainage

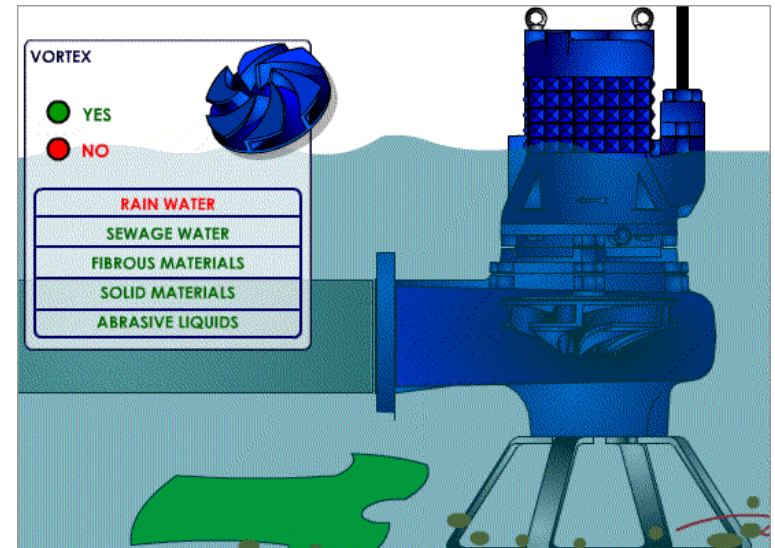
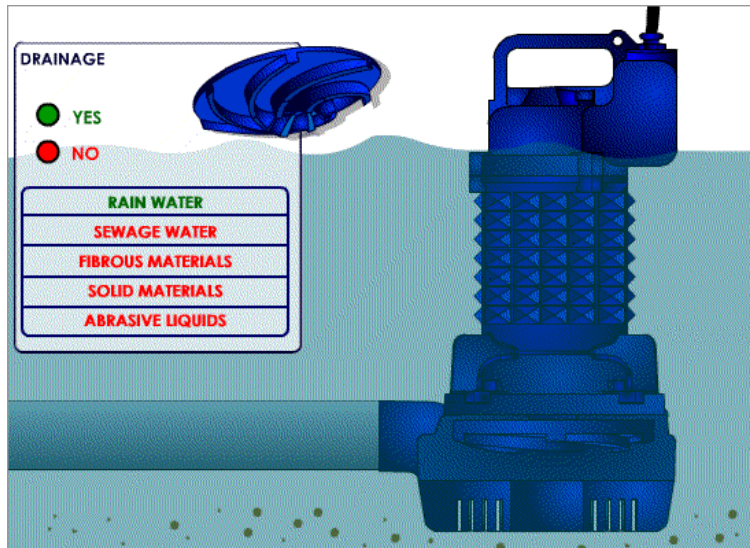
Multi-blade impeller for light water. Applications: rain water, surface irrigation.

V



Vortex

Vortex impeller suitable for pumping liquids containing large solids and/or fibrous materials. Applications: urban sewerage systems, animal breeding plants.



Submersible Pumps: IMPELLERS



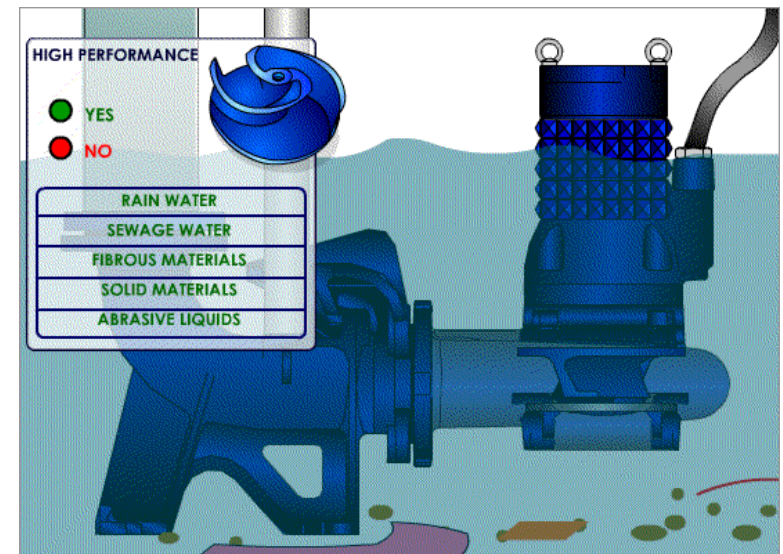
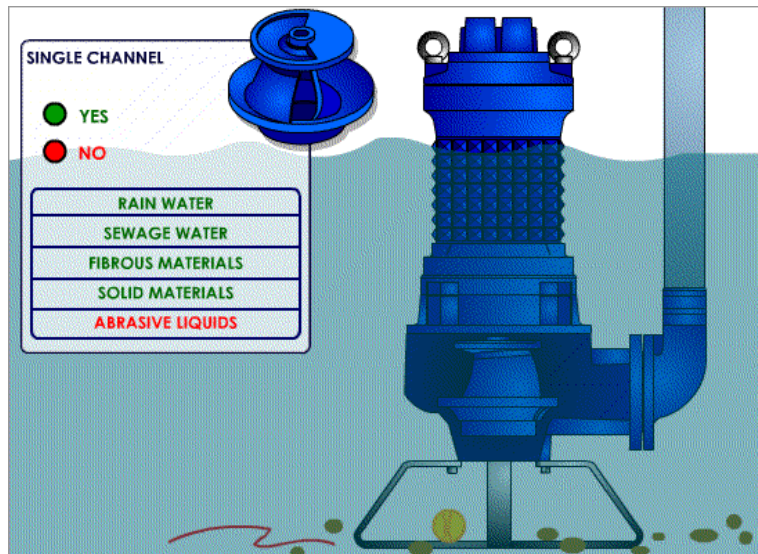
SINGLE CHANNEL

Single channel impeller, for liquids containing fibrous materials and/or suspended solids. Applications: purification plants, tanneries, animal breeding plants.



HIGH EFFICIENCY

Multi-channel open rotor with high hydraulic efficiency, with self-cleaning blade profile which, through a special adjustable suction flange with grooves, allows the expulsion of solids and also fibrous.



Submersible Pumps: IMPELLERS



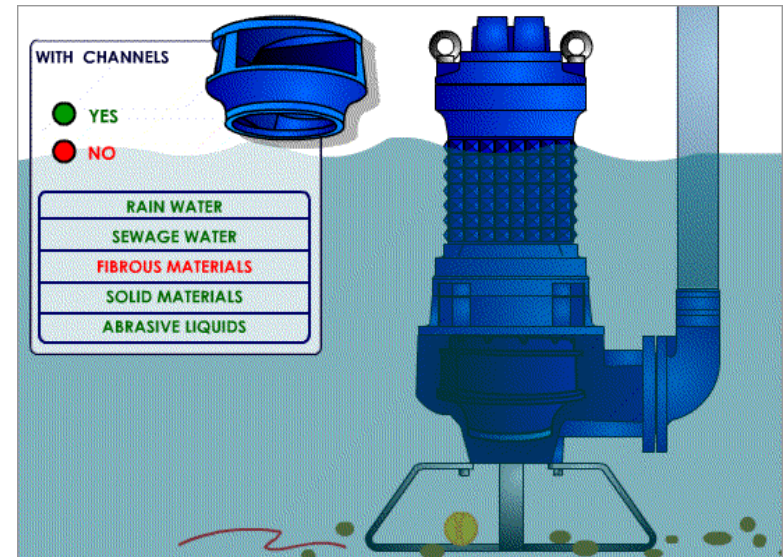
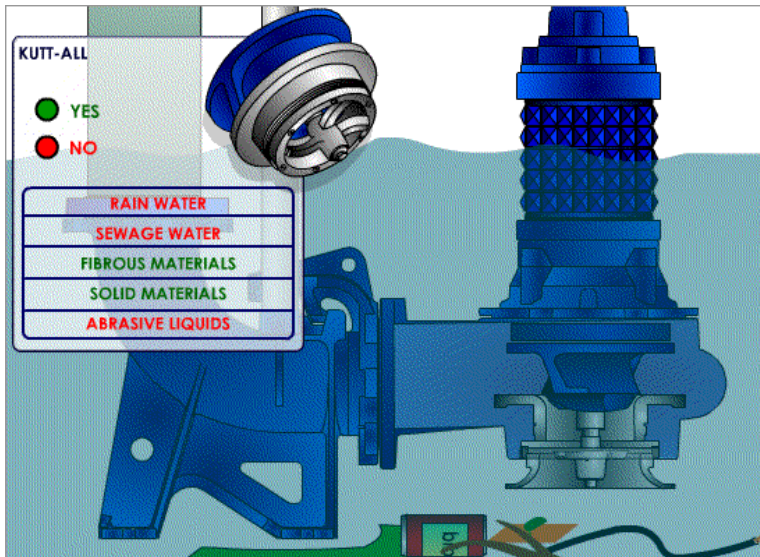
KUT-ALL

Impeller with a special “KUT-ALL” system, designed to create a cutting unit for solid and fibrous bodies in the pumped liquid.



WITH CHANNELS

Closed multi-channel impeller, for clean liquids pumping or slightly laden liquids in handling absence of filamentous materials. Applications: large drainage systems, purification plants.



Submersible Pumps: IMPELLERS



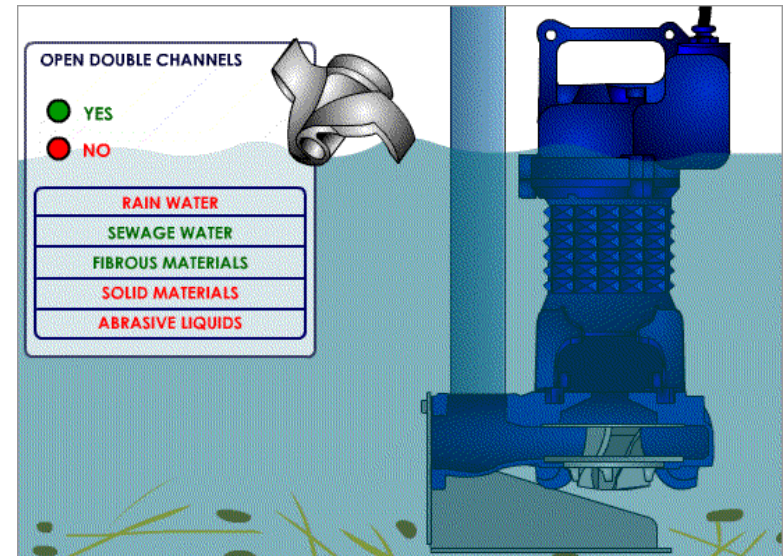
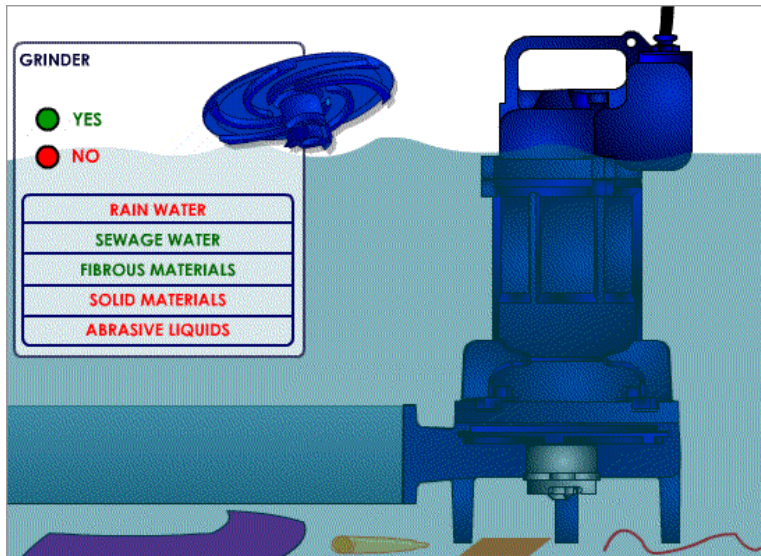
GRINDER

Multi-blade suction impeller with grinding group in stainless steel AISI 440, particularly suitable as a grinder for paper or textile materials. Applications: clearance of waste waters originating from service stations, residential communities, camping sites, etc.

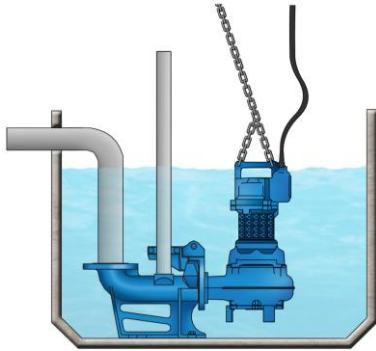


Open-double channels

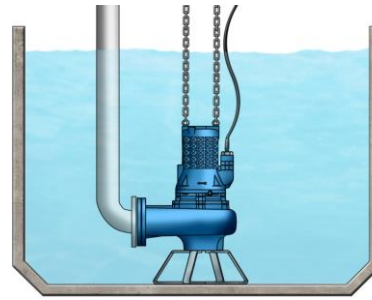
Impellers are equipped of a special grinder system and are projected for waters and mud coming from agricultural drainages.



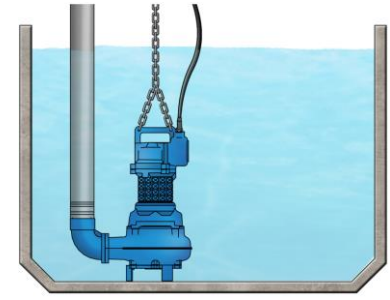
Installations

**R**

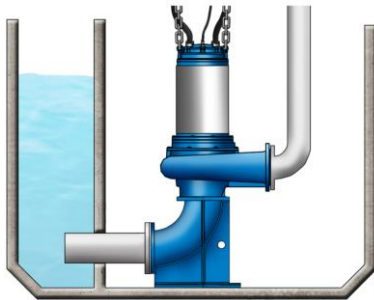
Fixed installation by immersion, with automatic coupling system with guide rails.

P

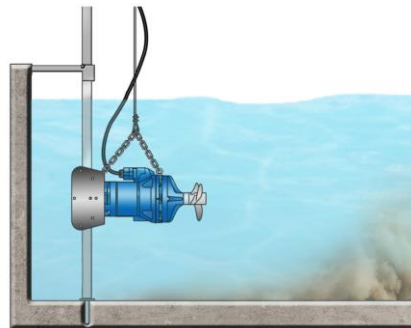
Portable installation, by immersion of a support foot and attachment of rigid or flexible delivery tube.

S

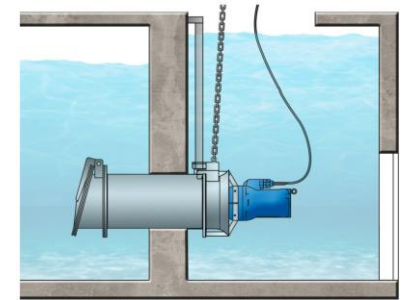
Free immersion installation with support feet and threaded rigid delivery pipe connection.

E

Fix installation in dry chamber, with cooling jacket, on suction elbow, direct connection with suction / discharge piping.

T

Fixed installation for mixers, with adjustable guide tubes.

N

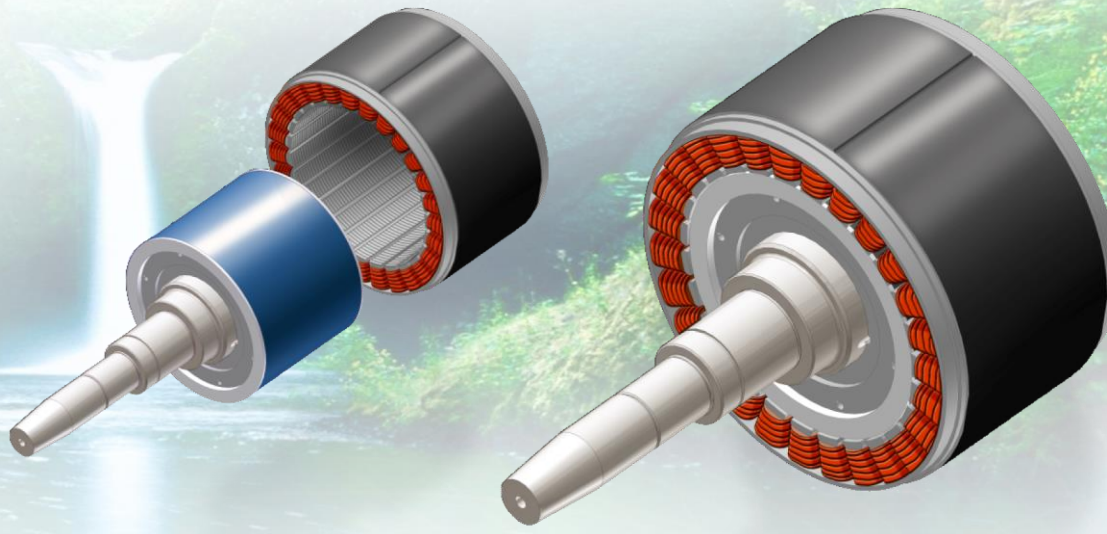
Fixed installation for recirculation propeller pumps with automatic coupling system and guide rail.

OUR COMMITMENT TO ENERGY SAVINGS



Since 2010, we have been redesigning the hydraulics of our machines to increase their performance. Between 2011 and 2012, we began working to get all of our machines into higher efficiency classes, implementing permanent magnet synchronous motor technology, where possible.

We have always been sensitive to energy issues: our "third generation" submersible pumps reach previously set efficiency goals. Furthermore, all the motors fit for variable speed operation via inverter, which allows to better manage the performance of the entire machine and to minimizing operating costs.



MOTORS IN EFFICIENCY CLASS IE3 – IE4



Although machine-integrated motors (i.e. pumps, ventilators and compressors) are excluded from EuP Directive 2005/32 EC, Faggiolati Pumps S.p.A. has updated its catalogue product range with a "third generation" of submersible pumps built entirely with IE3 – IE4 high-efficiency electric motors, class H/B insulation and suitable for inverters.

Quality of the materials used

- Low magnetic loss sheet metal
- High percentage of copper purity
- Cables in silicone (180°C) and connections with thermal crimping/brazing welding

Advantages:

- High output
- Less motor heating (ΔT min 45°C max 80°C) and optimal shaft temperature for good long-term continuous operation.
- Longer bearing duration
- Fit for applications with inverters
- Greater capacity to withstand voltage variations



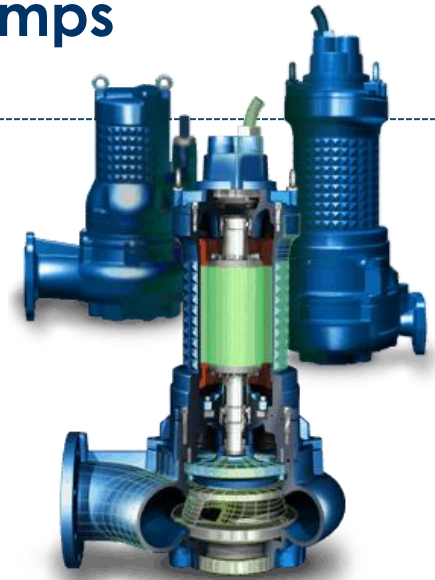
Solve & Save New Generation Pumps



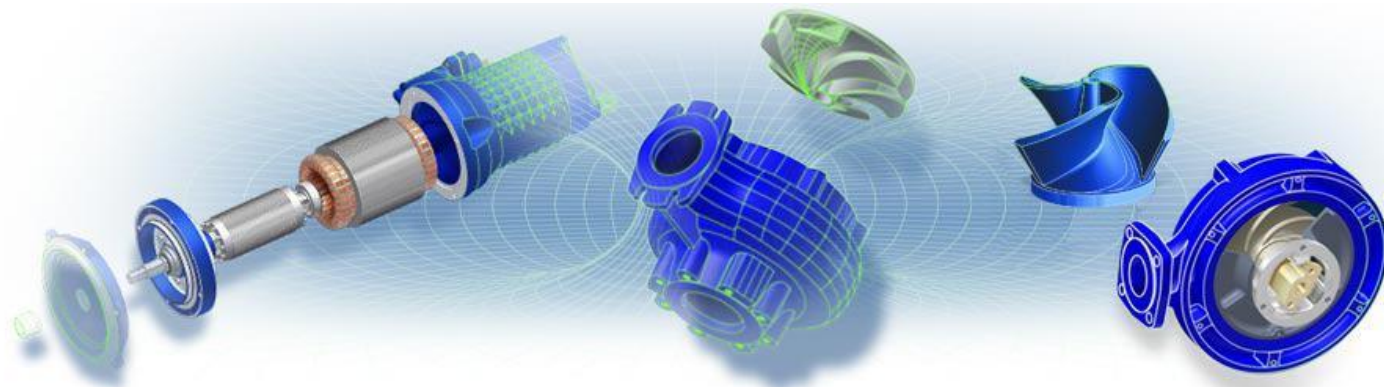
SOLVE & SAVE: A DOUBLE BENEFIT FOR ANY APPLICATION!

Faggiolati presents its “new generation” submersible pumps:

- **High-efficiency motors suitable for VFD-drive**
- **Hydraulics optimized for the widest range of applications**
- **Materials and several designs suitable for any type of wastewater**
- **Reliability and long life components**



Thanks to the hydraulic latest evolution and to a wide range of available materials, the Faggiolati submersible pumps meet the needs of “resolution” of the most various application problems with a “savings” on operating/management costs.



Solve & Save New Generation Pumps

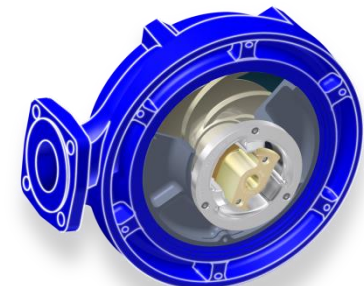
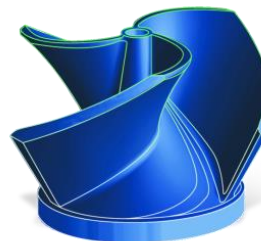
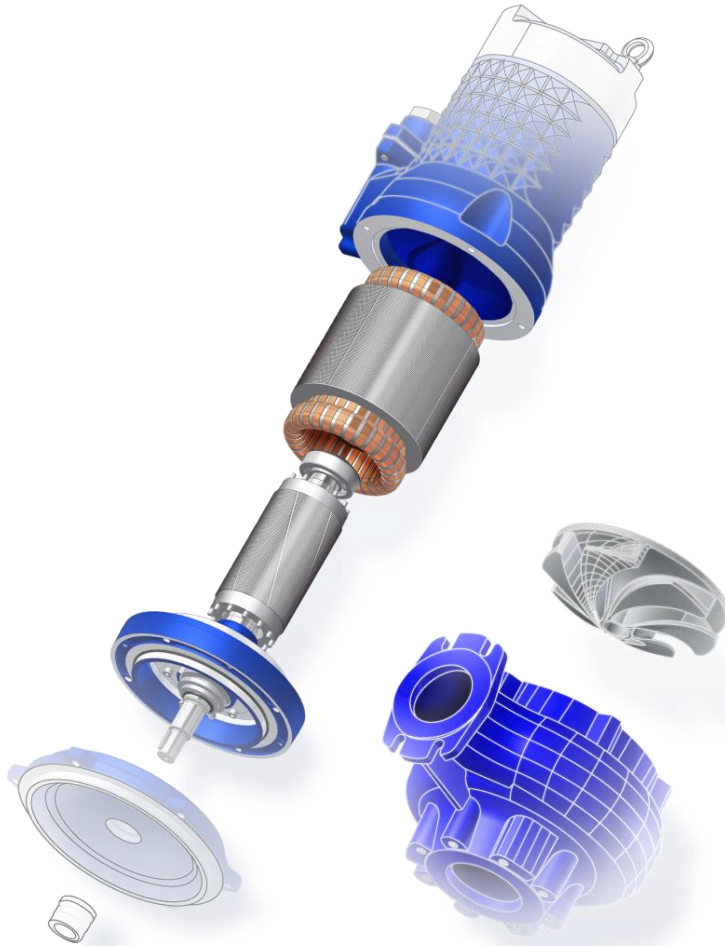


SOLVE

The hydraulics employed in the submersible pumps greatly differ from those used in pumps for pure liquids. The often unsolvable problem is moving a liquid that, by definition, carries solids of nature with concentration and size the most disparate and uncontrollable.

There is not a unique solution and the probability of clogging can be made, case by case, more or less low but never completely voided.

With the “**new generation**” Faggiolati has only **selected hydraulic that ensure the ultimate in terms of reliability and performance.**



WHY CHOOSE THE NEW "SOLVE & SAVE" GENERATION

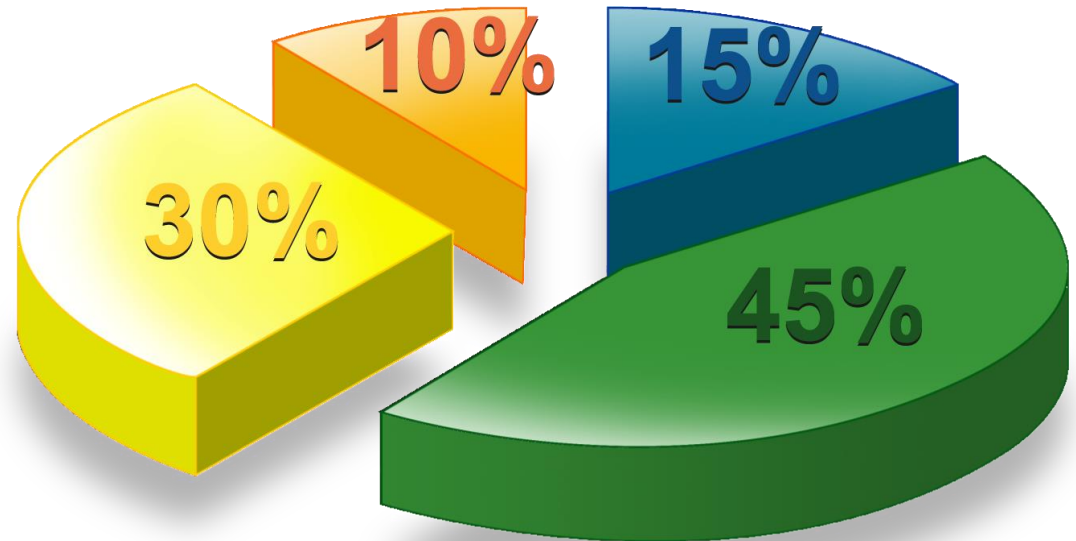


SAVINGS

With the latest in hydraulics and the vast choice of available materials, Faggiolati submersible pumps respond to the need to "resolve" the most diverse application problems. Thanks to IE3 – IE4 motors, suitable for management via inverter, in addition to machine efficiency and reliability, Faggiolati allows you to "save" on management costs.

Factors affecting management costs

- Rotation speed management
- Machine structure and choice of the most suitable materials
- Clog and abrasion resistance
- Total output (motor+hydraulics)



WHY CHOOSE THE NEW "SOLVE & SAVE" GENERATION



SAVINGS

The contributing factors to decrease the management cost of a submersible pump are various and must be optimized simultaneously:

- **Overall Efficiency** (motor efficiency and hydraulic efficiency)
- **The possibility to operate at variable speed with "active control"** through an inverter
- Low clogging risk hydraulic in order to **minimize the chances of downtime.**
- **Materials and construction** forms suitable for each wastewater to be treated.
- Reliability and **long life components.**

Third generation of Faggiolati submersible pumps includes the construction and functional characteristics that allow to make the optimal combination of such factors for any application.

WHY CHOOSE THE NEW "SOLVE & SAVE" GENERATION



The reason why the new generation "Solve & Save" is to chose

Thanks to the latest **hydraulic evolution and to a wide range** of available materials, the **Faggiolati** submersible pumps meet the needs of "resolution" for the most various application problems. **Thanks to the IE3 – IE4 motors**, suitable to control via inverter, in addition to the effectiveness and reliability of the machines, **Faggiolati** allows the "savings" on operating/management costs.

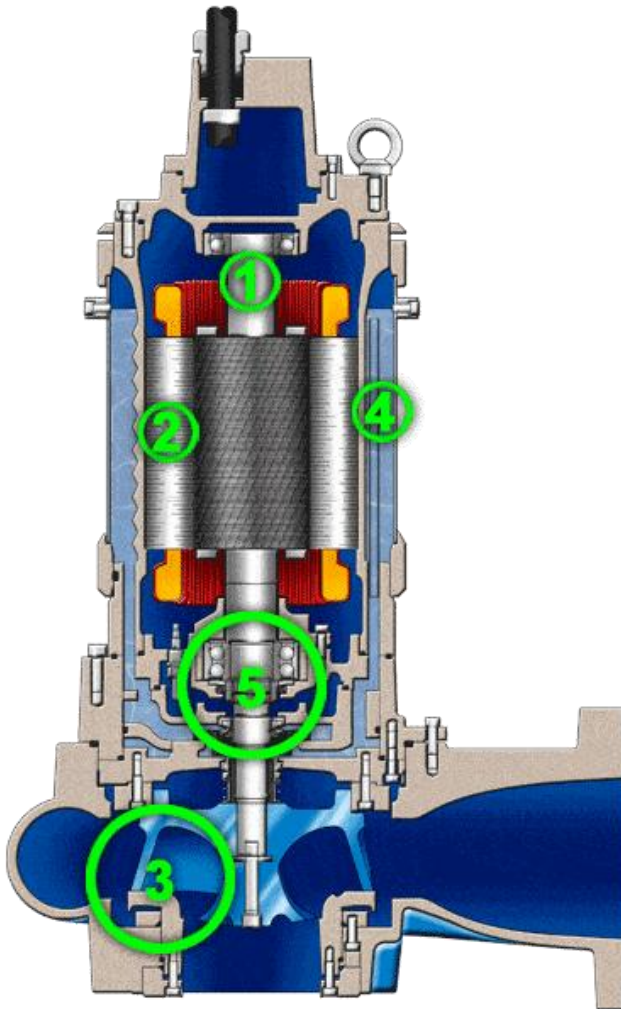
1) Shafts made of stainless steel AISI 431B, grided down in ball bearings and mechanical seals seats, oversized compared to the standard parameters of use, dynamically balanced.

2) High-efficiency motor at efficiency class IE3 – IE4, designed to operate at variable speed through inverter.

3) Hydraulic multi-channel open impeller with high hydraulic efficiency, with self-cleaning blade profile equipped with a special adjustable suction flange, that allows fine clearance adjustment.

4) Motor cooling jacket through forced circulation of the coolant in closed circuit.

5) Rotor + seals is the core containing the most stressed components of the submersible pump; radial ball bearings, life-long lubricated, maintenance-free; double mechanical seals according to DIN.

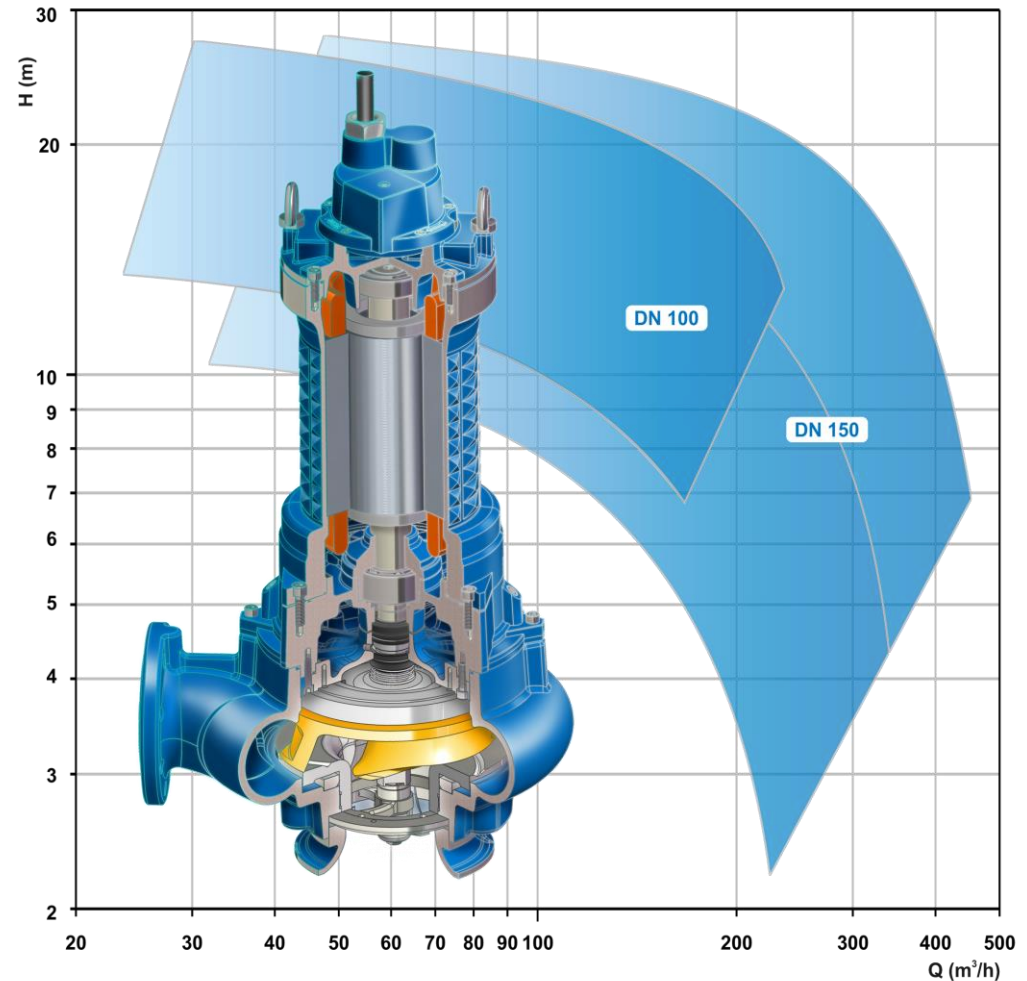


KUT-ALL Special Cutting System



Submersible pumps with special "KUT-ALL" system

composed of a stationary ring and a rotating ring designed as a cutting unit for solid fibrous bodies in pumped liquid.



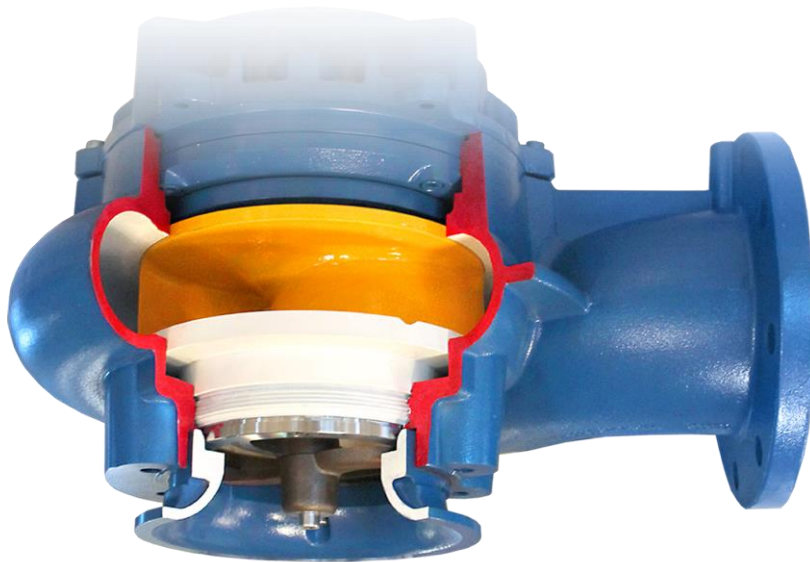
KUT-ALL Special Cutting System



USE

High-efficiency multichannel hydraulics cover almost all ranges of applications; designed to withstand extreme usage cycles (liquids with ropes, electrical cables, cans, plastic bottles, pieces of wood, etc.), the exclusive “KUT-ALL” system trims solid bodies thanks to specially shaped surfaces, sharp edges and the use of heat treated stainless steel.

The product range has Different Models from 7.0 kW to 30 kW RPM 1450



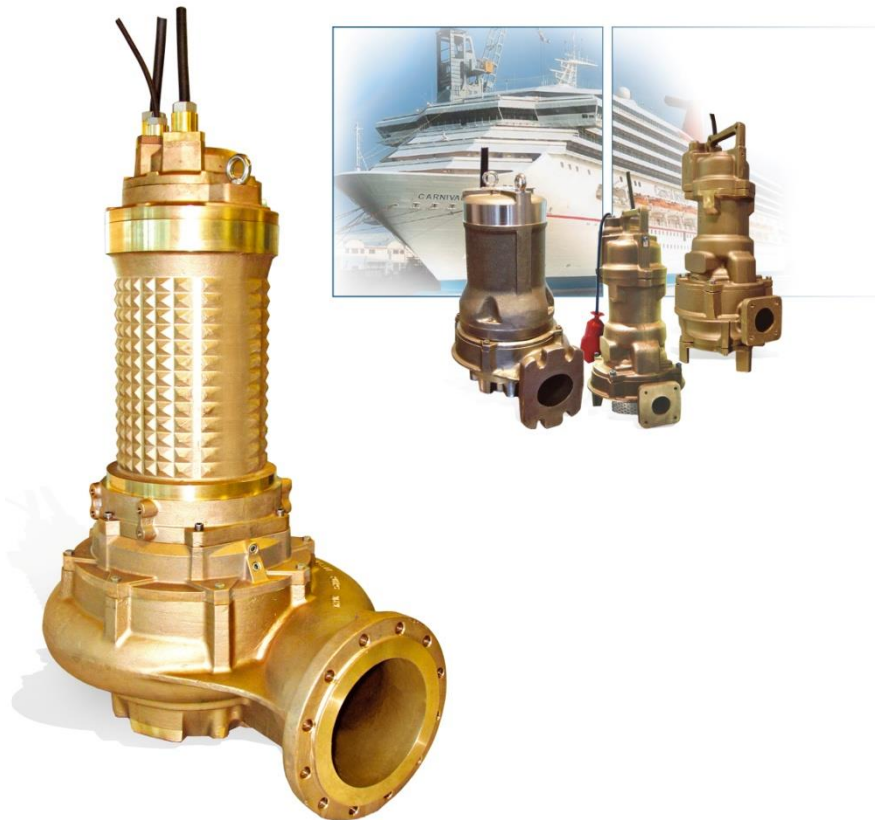
MATERIALS

- Motor housing Cast Iron EN-GJL-250
- Impeller Nodular cast iron GS400 UNI-EN1563 with tungsten treatment
- Kut-system Stainless Steel AISI 420 with thermal treatment
- Shaft Stainless Steel AISI 431
- Mechanical seal Silicon Carbide/ Silicon Carbide

SPECIAL MATERIALS



The **standard bronze line** ranges from 0.5 kW to 6.0 kW with customizable alloy options (bronze/aluminium).



The **standard AISI 316 line** ranges from 0.8 kW up to 50 kW with customizable alloy options (**duplex, superduplex, hastelloy, ...**).

Products: MIXERS



The product line also includes **submersible mixers** (0.6 kW to 10 kW) with electrical multi-polar motors (4-6-8-10-12 poles) for mixing suspensions, slurries and liquids from waste water treatment, paint systems and livestock applications.



Serie	Propeller Ø mm	R.P.M. min ⁻¹	Pn kW	Thrust N
GM17-XM17	176	1450	0,7	120
GM18-XM18	191	1450	1,4	220
GM19-XM19	197	1450	2,3	275
GM30-XM30	300	950	2,3-3,2	300-320
GM37-XM37	370	750	2	385
GM40-XM40	400	750	2,5-5,2	420-780
GM60-XM60	600	500-600	7,5-12	1040-2275
GR12B410	1200	120	2,7	1350
GR12B411R2	1200	162	4,9	2350
GR12B411R1	1200	191	8,2	3060

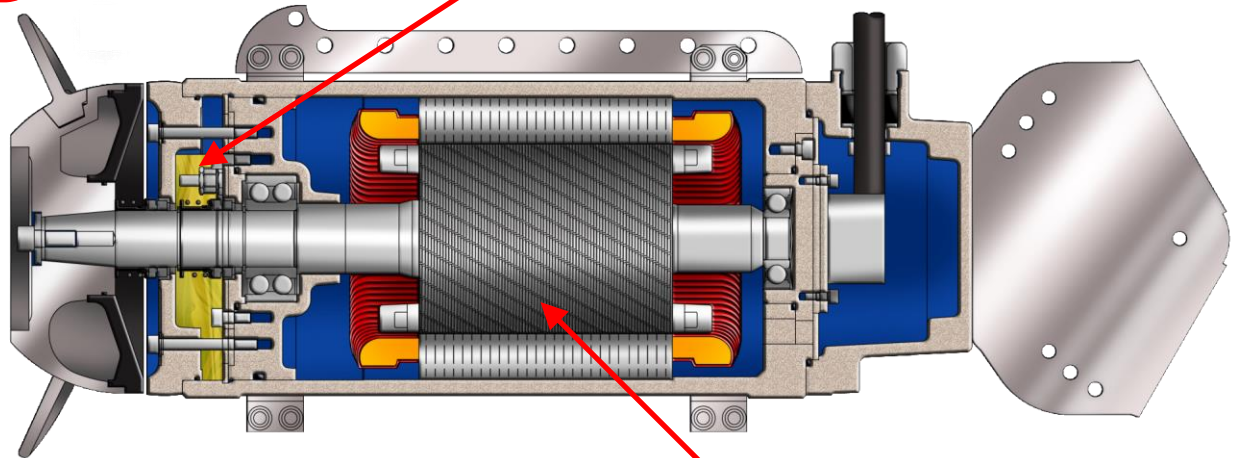
Mixers: STRUCTURE



Propeller with 2/3 blades fully casted in AISI 316 with highly efficient auto cleaning hydraulic profile



Oversized AISI 316L shaft directly coupled with the propeller (no gearbox)



H Class Motor suitable for inverter (VFD)

The **mixer line** is split into the following sub-lines:

GM Series: EN-GJL-250 cast-iron main casting; AISI 316 stainless steel shaft and propeller;

XM Series: AISI 316 stainless steel main casting; AISI 316 stainless steel shaft and propeller.

Mixers: GR12

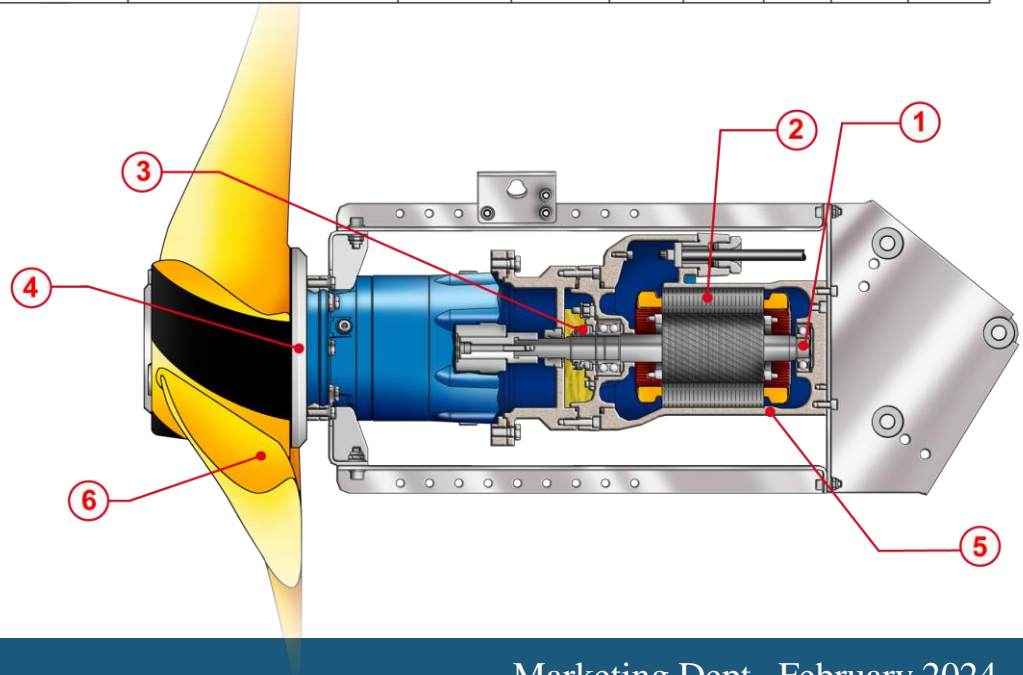


New range of mixers with three-blade propeller and reducer: used for mixing liquids and slurries containing fibers and solids in applications where high thrust is required in relation to energy consumption.



120 rpm

Code	Type	Absorbed power P1 kW	Propeller diameter mm	Thrust N	Weight Kg	Motor Rated		
						RPM	Power kW	Current A
6001805	GR12B410R3-4T1AA2	2,7	1200	1350	115	1392	3,5	6,8



- 1) Shafts realized in stainless steel AISI 431.
- 2) Motor asynchronous threephase 4 poles, insulation class H(180°C).
- 3) Upper seal: ceramic/graphite.
- 4) Lower seal: silicon carbide/silicon carbide.
- 5) Housing: Cast Iron EN-GJL-250
- 6) Propeller: Polyurethane high efficiency.

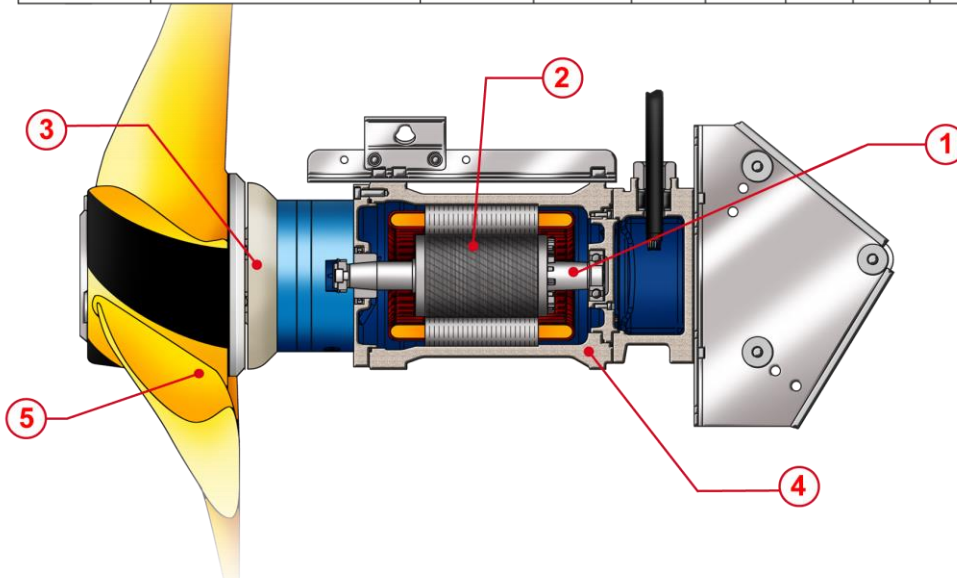
Mixers: GR12



NEW RANGE OF MIXERS, MAXIMUM EFFICIENCY, MAXIMUM RELIABILITY

Low speed GR12 mixers: innovative propeller design with very high efficiency and very low energy consumption. Compared with a compact direct-drive mixer, the energy saving can be up to 50%.

Code	Type	Absorbed power P1 kW	Propeller diameter mm	Thrust N	Weight Kg	Motor Rated		
						RPM	Power kW	Current A
6004167	GR12B411R2-4T1AA2	4,9	1200	2350	120	1436	7,1	13,5
6008414	GR12B411R1-4T1AA2	8,2	1200	3060	120	1436	7,5	14,3



162 rpm
191 rpm

- 1) Shafts realized in stainless steel AISI 431.
- 2) Motor asynchronous threephase 4 poles, insulation class H(180°C).
- 3) Seal: silicon carbide/silicon carbide.
- 4) Housing: Cast Iron EN-GJL-250
- 5) Propeller: Polyurethane high efficiency.

Mixers: GR12



SIMPLE AND LOW-COST

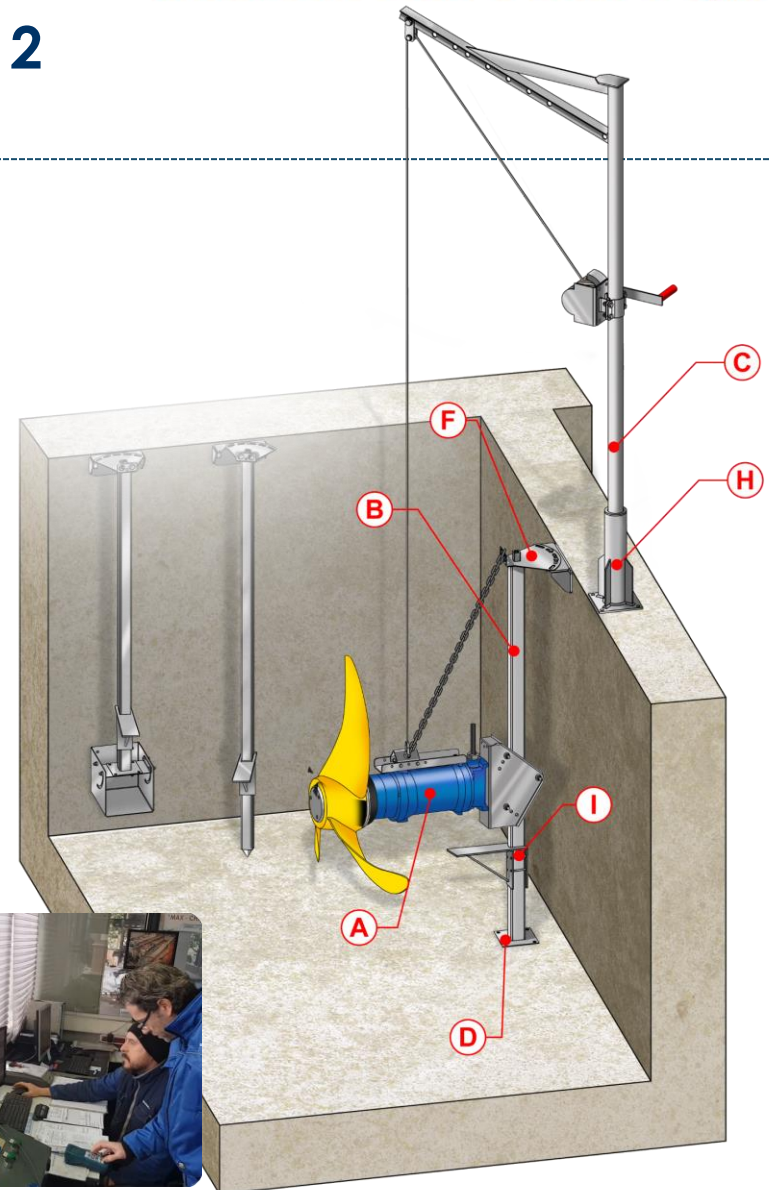
The new GR12 mixers allow the easy replacement of an existing mixer, as it can be easily installed on the existing 100x100 (mm) guide bar.

Description

- A** Submersible mixer
- B** Orientable guide bar
- C** Lifting crane
- D** Bottom plate to floor
- F** Wall upper orientable support
- H** Fixing base
- I** Bottom plate to floor

Material

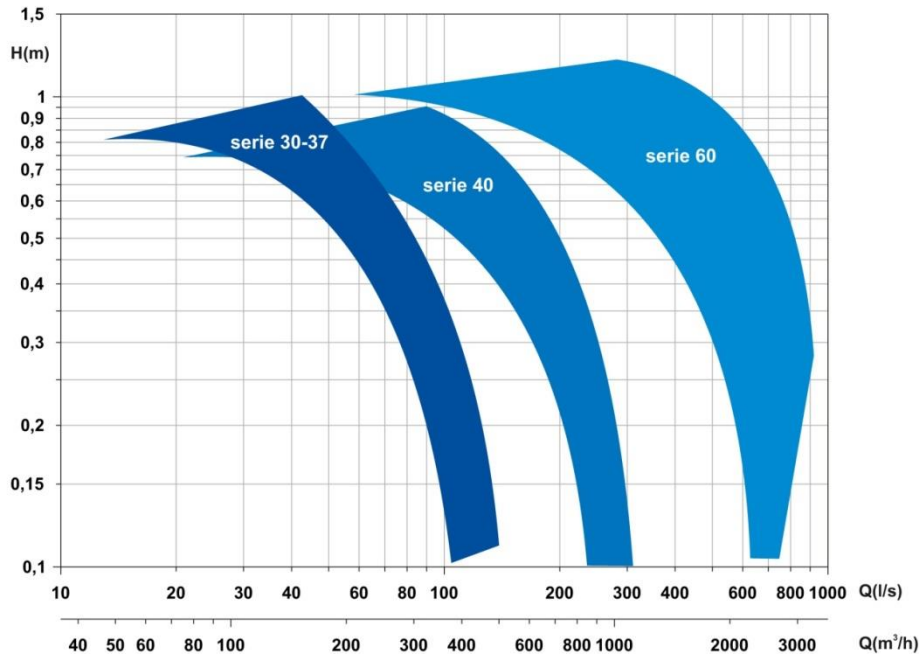
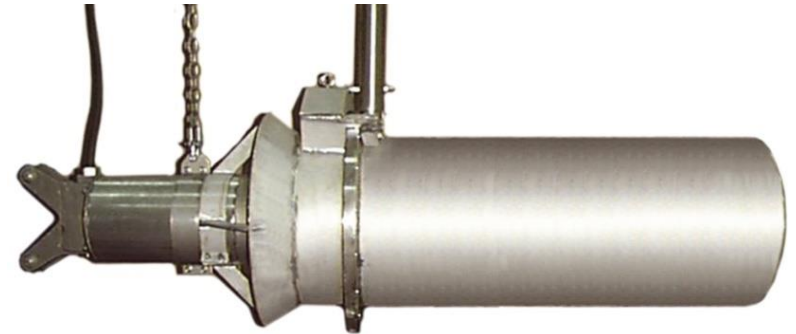
- Cast iron EN-GJL-250
- S.Steel AISI304
- Galvanized Steel
- S.Steel AISI304
- S.Steel AISI304
- Galvanized Steel
- S.Steel AISI304



Products: RECIRCULATION Pumps



Submersible mixer propeller pump (with low-head considerable flow rate) for active muds inside wastewater treatment plants and nitrification/denitrification applications.



Products: AERATORS



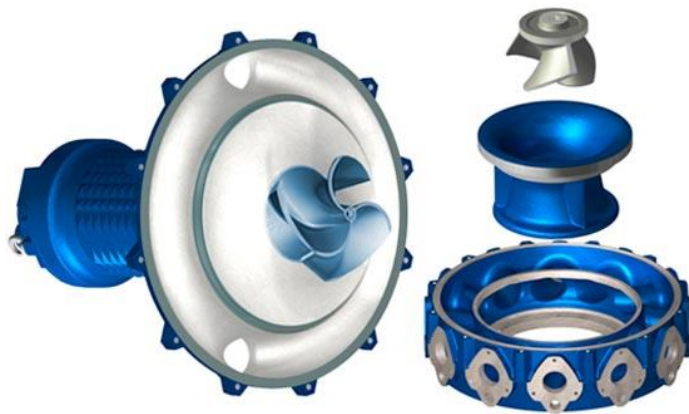
Faggiolati's range of production also includes aeration systems (**Ossi-Mix, Arial-Jet and Ossi-Jet**) for various types of muds and tank sizes.



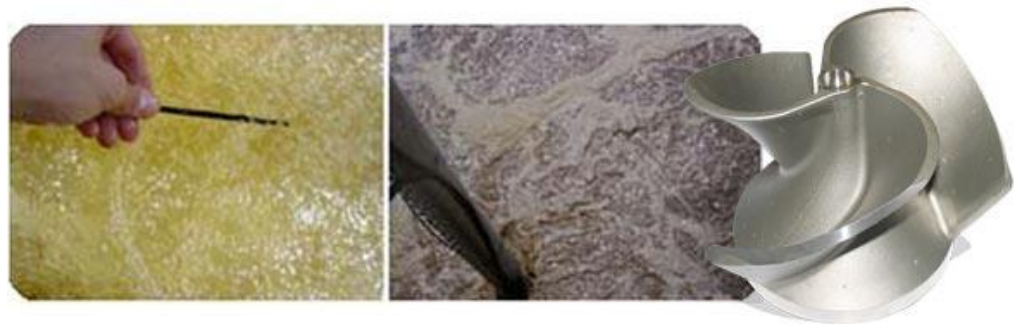
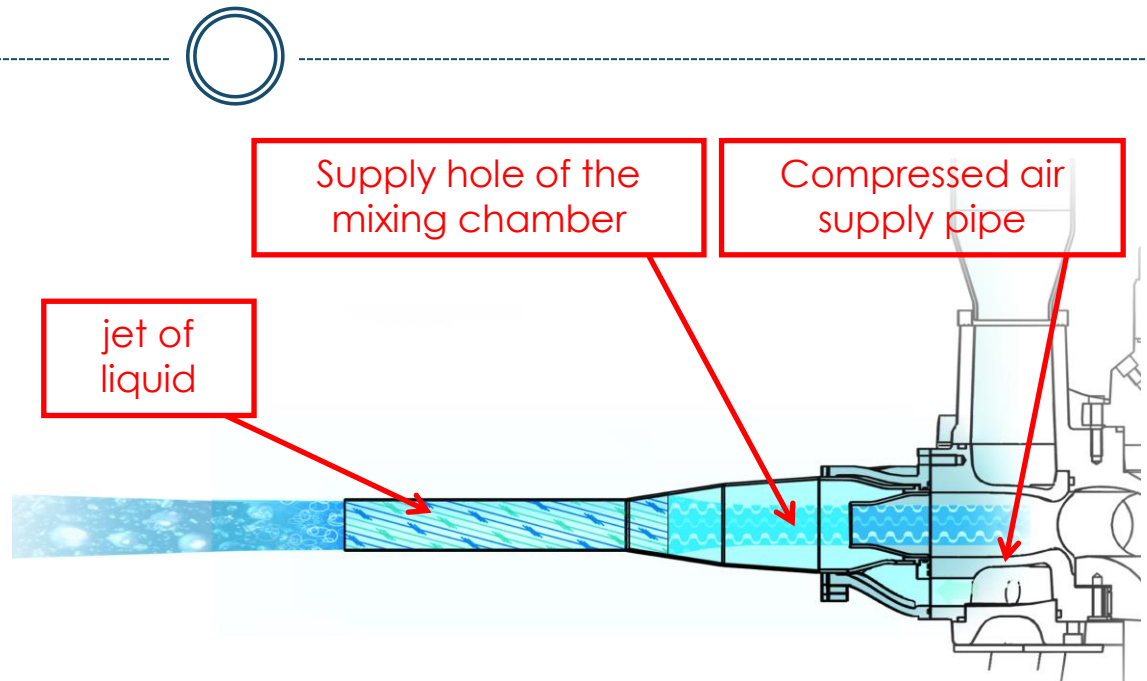
Aeration systems: OSSI-MIX

OSSI-MIX:

the submerged, free-standing and
supercharged aeration system...
...the alternative aeration!



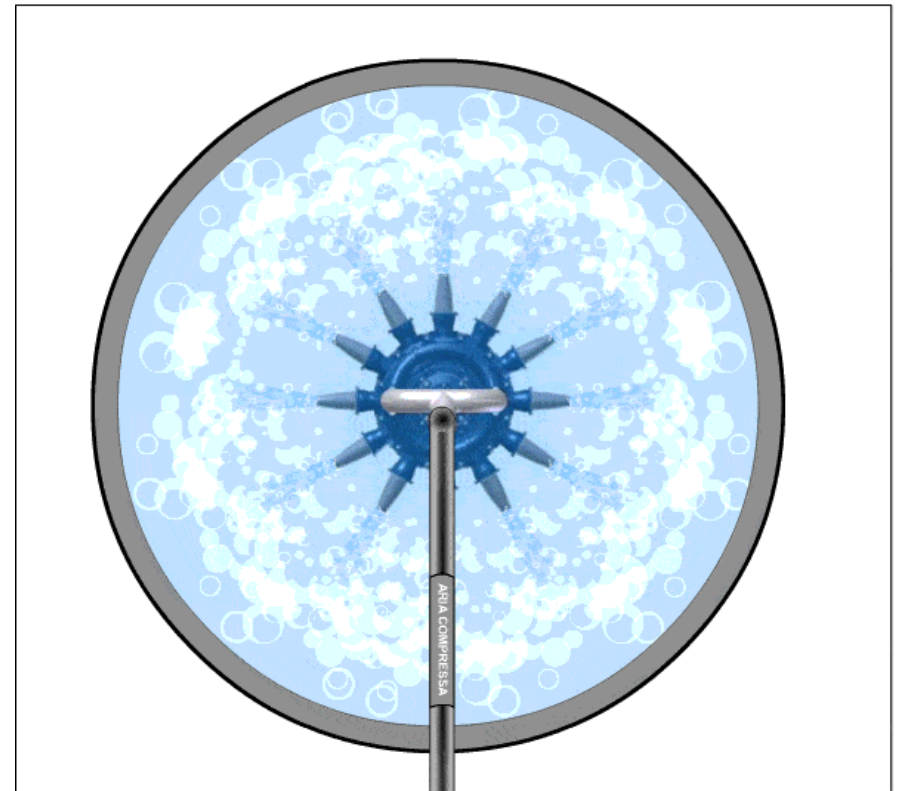
The product line ranges from
4 kW to 14 kW for the
standard and liquid oxygen
versions.



Aeration systems: OSSI-MIX



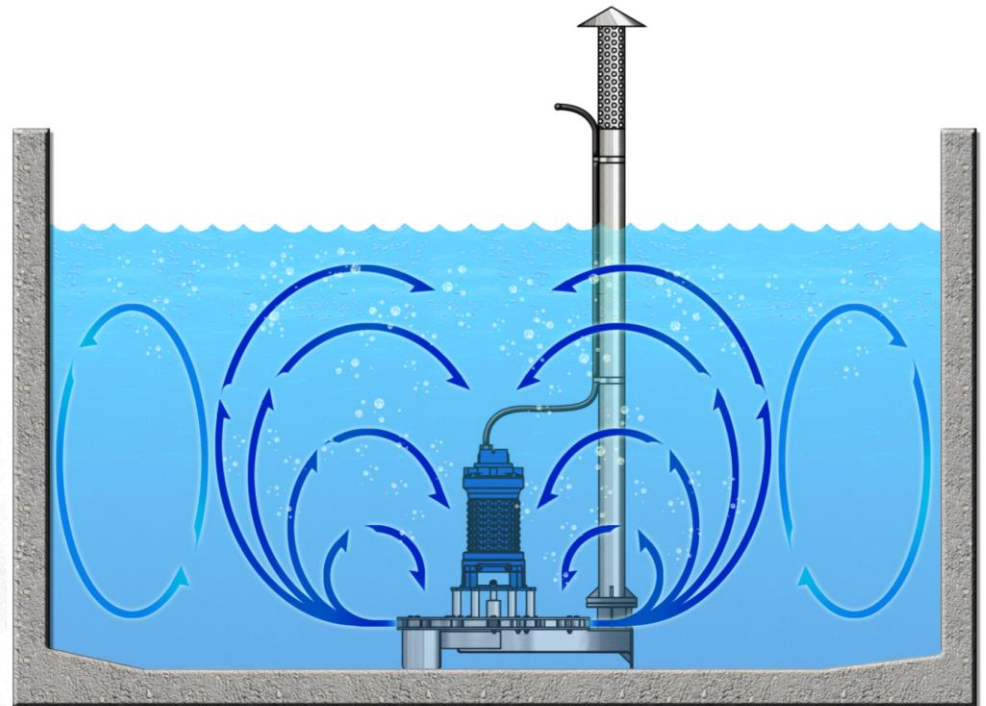
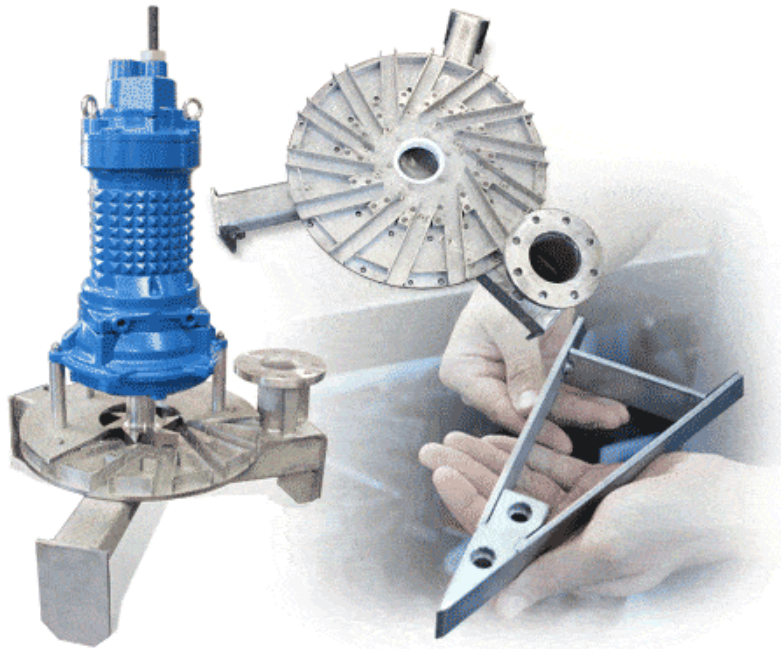
The OSSI-MIX (OM) system is a new development in the sludge aeration machines sector. The constructive architecture of the machine is one of the main innovations of the new OM system and is Patent protected.



Aeration systems: ARIAL-JET



The **radial AJ self-priming aerators** are commonly used in the water treatment systems and particularly for the homogenization, equalization, stages of biological oxidation as well as contemporary nitrification and mud stabilization.

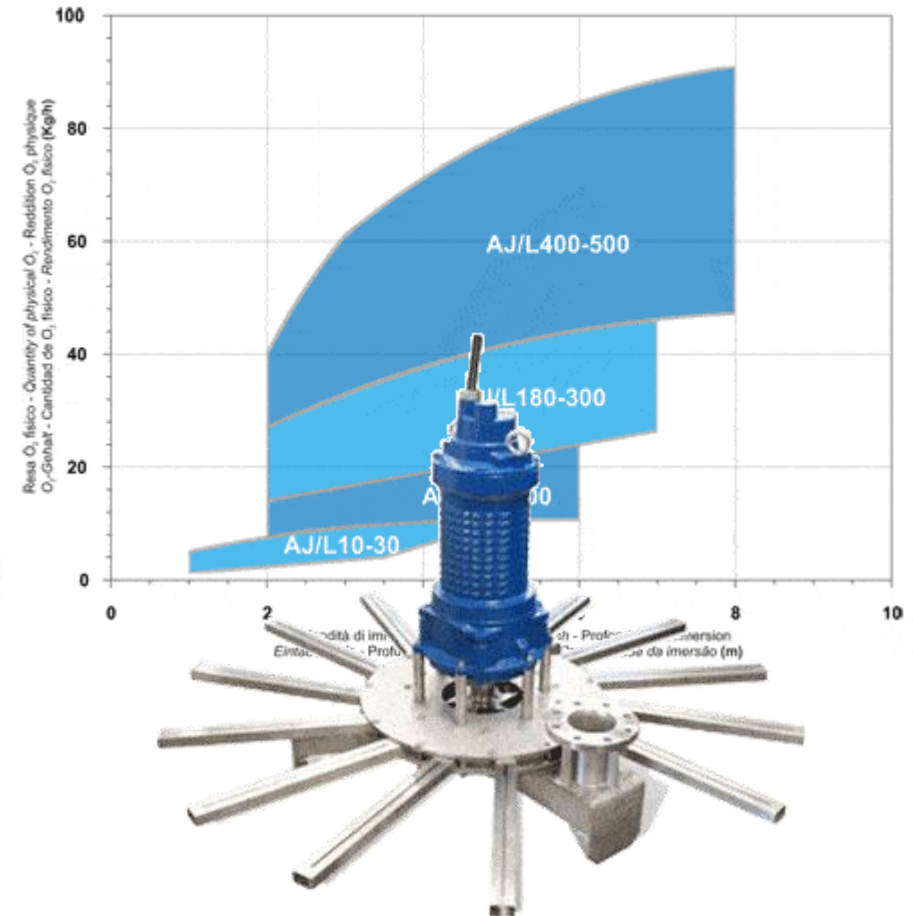
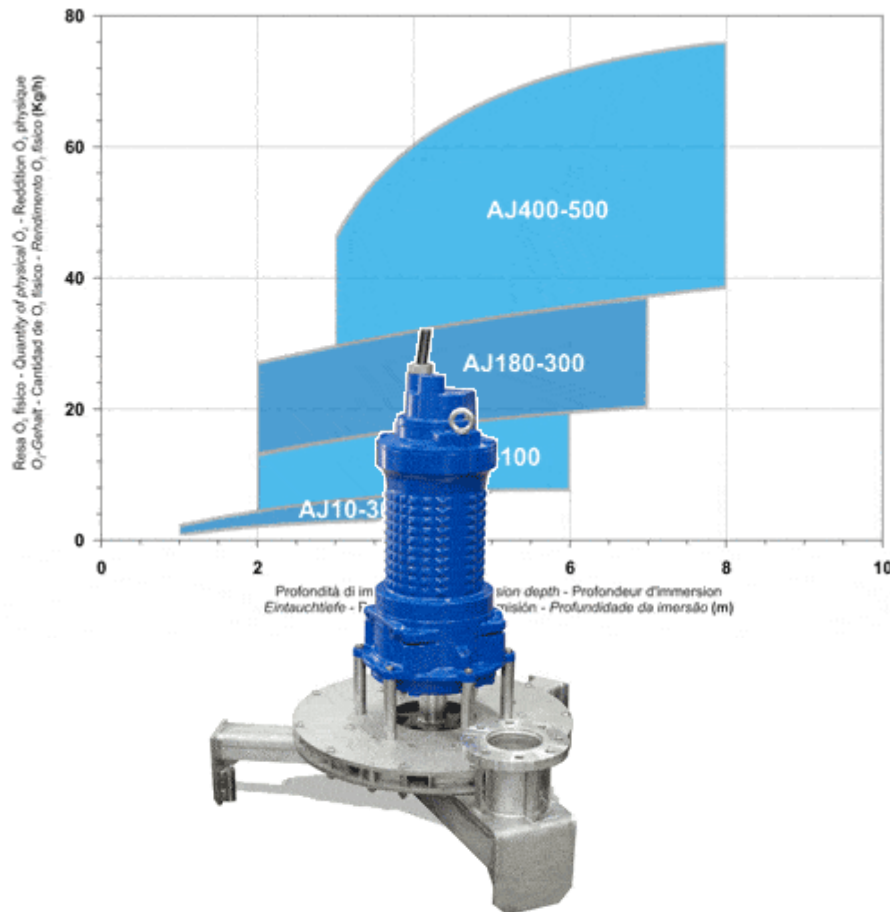


The product line ranges from 2.5 kW to 55 kW
in the standard and extended channels versions.

Aeration systems: ARIAL-JET



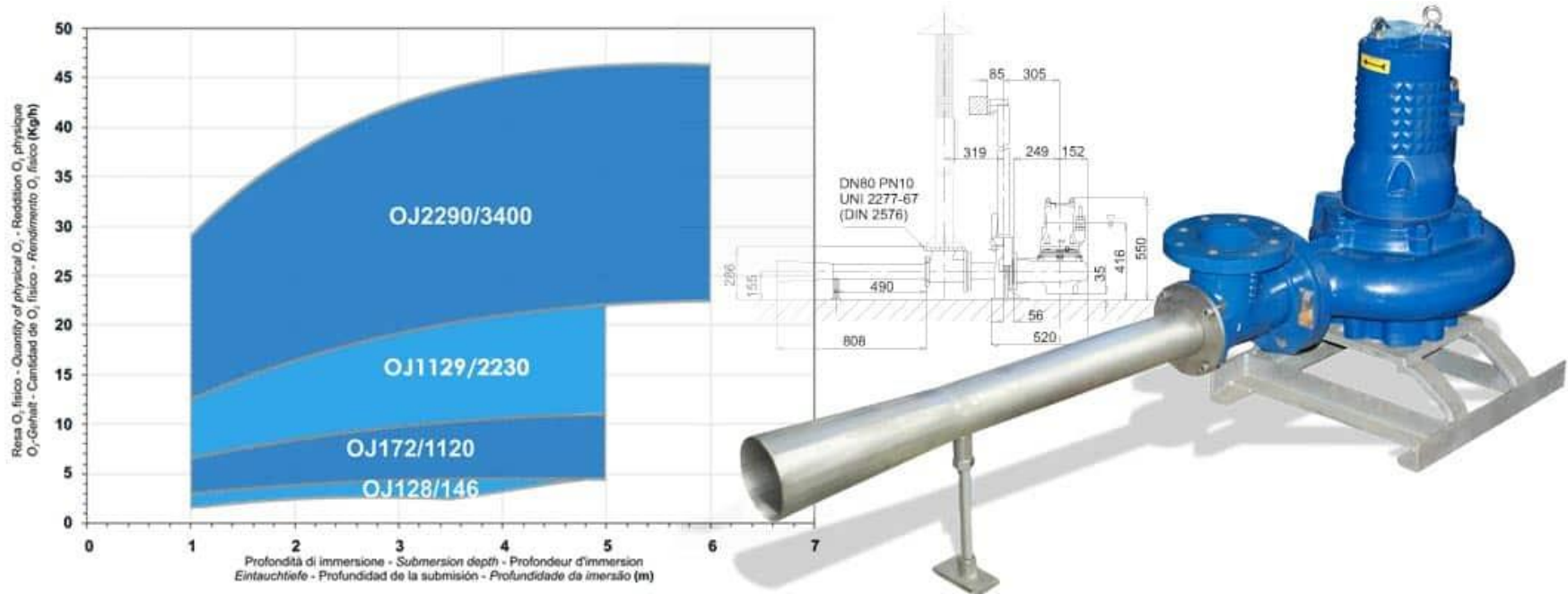
AJ submerged aerators are an extremely flexible and versatile airing system for the treatment of waste-water and in every case air/water mixina is required.



Aeration systems: OSSI-JET



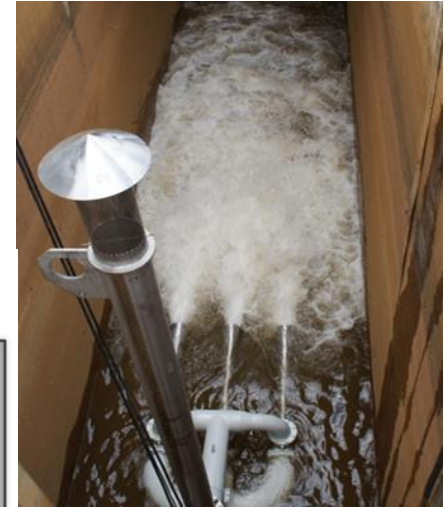
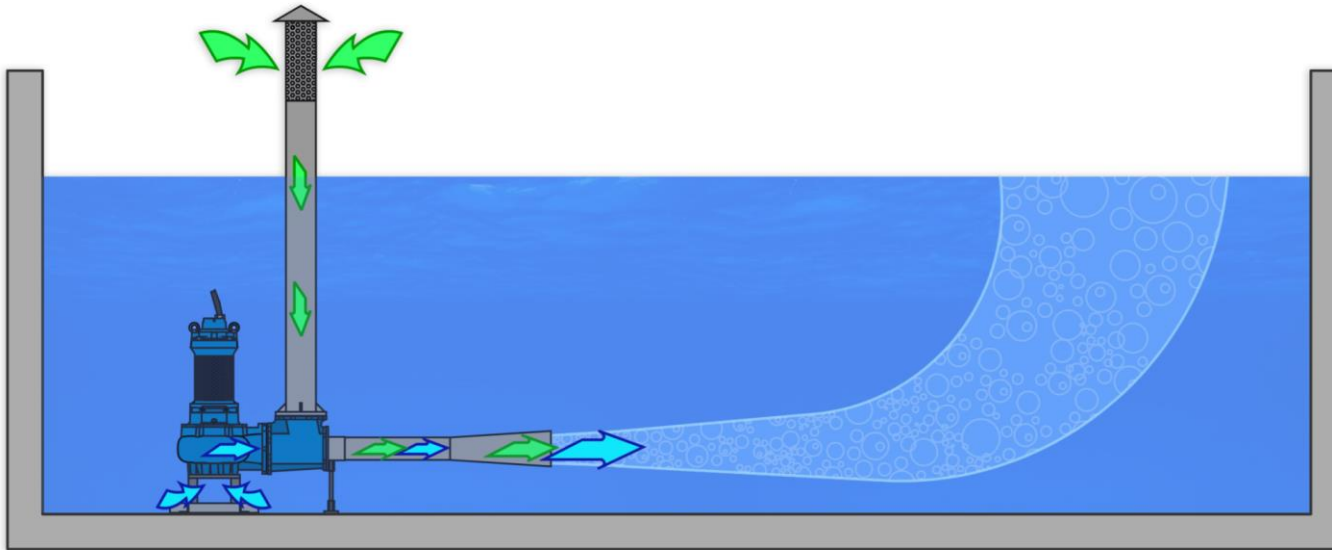
The **self-priming OJ Venturi oxygenators** are primarily used for the oxygenation process, the neutralization of CO₂, mud recycling, ozonation and the abatement of foams.



Aeration systems: OSSI-JET



The **product line ranges from 2.8 kW to 40 kW** including versions with one to four jet ejectors.



Products: SPECIAL EXECUTIONS



One of the company's main features is its extreme production flexibility, which enables the production of special equipment for non-standard applications, designed and manufactured according to customer requirements.



Products: SPECIAL EXECUTIONS



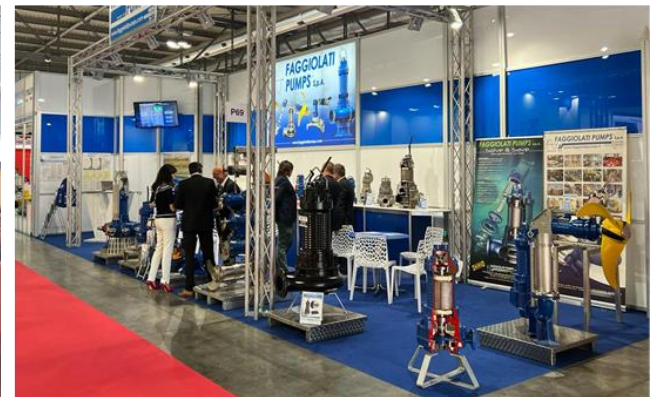
Apart from standard production, Faggiolati Pumps also produces **special products** with customized components, materials and accessories.



Organization System: HEADQUARTER



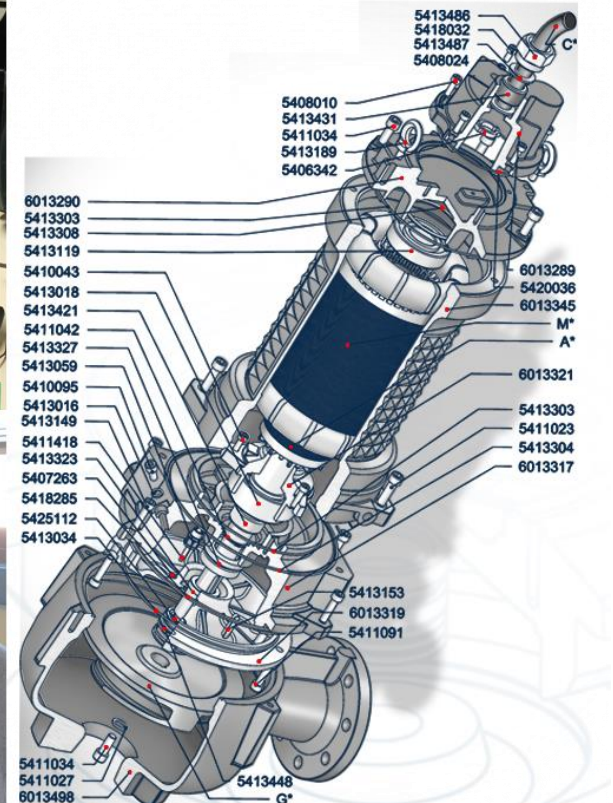
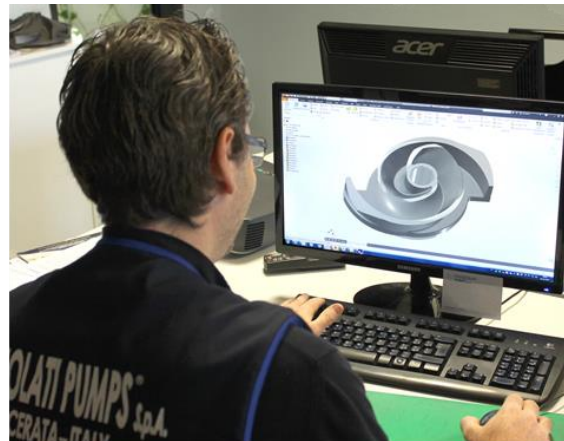
The headquarters, are located in Macerata, Italy, where the main Sales Office, the Technical R&D dept. and the Factory of our 100% of Faggiolati products, are.



Organization System: RESEARCH & DEVELOPMENT



The technical office operates by using the most sophisticated IT systems and partners with Italian and foreign Universities.



Organization System: PRODUCTION AREA



Components are assembled after being submitted to mechanical and electrical tests and following the related measures. Production includes four assembly lines, divided upon the size of the machines.



Organization System: INTERNAL MECHANICAL PRODUCTION



It is composed of two completely automatic machines equipped with a robot and three numerically controlled lathes.



Organization System: TESTS & INSPECTIONS

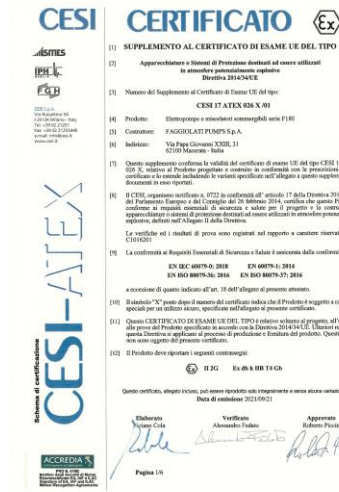


Indoor and outdoor testing tanks, equipped with the most advanced instruments, are devised to test machines up to 400 kW DN 500.



Documentation: QUALITY & CERTIFICATIONS

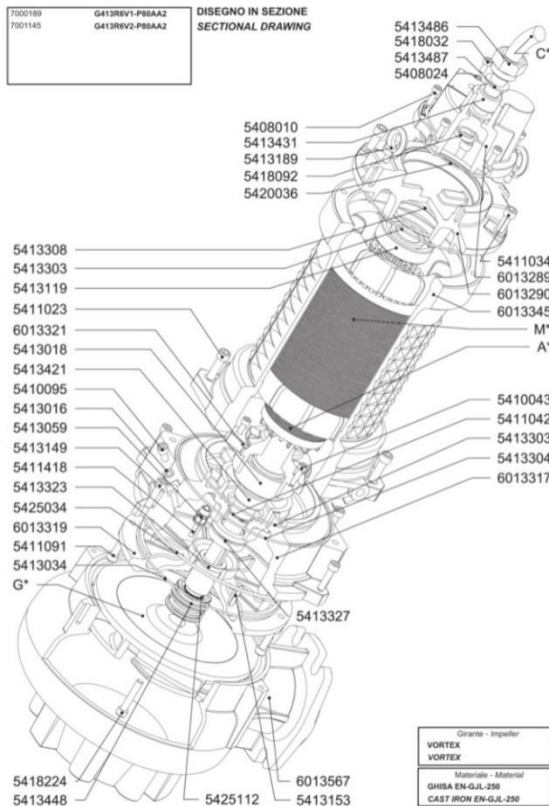
The company operates under ISO 9001 standard since 1997; a well-thought quality plan ensures outstanding production standards.



Customer Care: AFTER SALES SERVICE



Faggiolati Pumps guarantees an operational continuity and the safeguard of our systems through a customer care service aimed at supplying **all the original replacement parts** in a timely manner.



Internal workshop: each machine under reparation is sandblasted and analyzed in order to establish what caused the breakdown.











REFERENCES



Photo	Project, Plant, Contractor	Country	Date
	Granulated Urea Plant for the Volgafert Urea Project in Russia	 Russia	2020
	ADL project (Hanwha Total Petrochemical Co, Korea)	 Korea	2020
	Waste paper Recycling and De-inking Plant, LENZING Papier GmbH	 Austria	2019
	Power Plant Project Egitto – Burullus	 Egypt	2019
	Monza National Racetrack Paddock - Stormwater tanks	 Italy	2018

REFERENCES



Photo	Project, Plant, Contractor	Country	Date
	SABIYA Combined Cycle Power & Desalination Plant, Upgrade Stage 3 (935 MW), MEW Ministry of Electricity and Water of Kuwait ALGHANIM International	 Kuwait	2018
	TUCUMÁN Thermal Power Plant (270 MW) GE Energy Financial Services / YPF Energía Eléctrica	 Argentina	2018
	Umm Al Houl Power IWPP (QATAR) - Purifying plant	 Qatar	2018
	İSKEN - SUGÖZÜ Coal-fired Power Plant (1210 MW), STEAG Ensida Energy Services Turkey (SEES)	 Turkey	2018
	"PEMBROKE CCCT combined-Cycle Power Plant (2.160 MW), RWE Npower plc" Wales (UK)"	 United Kingdom	2018

REFERENCES



Photo	Project, Plant, Contractor	Country	Date
	Submersible Pumps in superduplex for seawater / cooling water to three different locations: the University of Bergen, a research center for fish and a multimedia center	 Norway	2017
	Le Grand Paris (Subway) Francia	 France	2017
	12 SPP (Small Power Plants) project, Gulf MT Corporation, TOYO Engineering Corp.	 Thailand	2017
	TMTD Dyeing Industrial Park project, WasteWater Treatment and Water Supply facilities, TMTD Industrial Zone (DYETEC Institution), HUVIS Water Corp. (Vietnam)	 Vietnam	2017
	AL SAAD Lot 4 Desalination Plant, Brackish Water & Reverse Osmosis (BWRO) plant, VA Tech WABAG, DNGO Saudi Contracting Co.	 Saudi Arabia	2016

REFERENCES



Photo	Project, Plant, Contractor	Country	Date
	RAPID (Refinery And Petrochemical Integrated Development) project, Demineralized Water Plant & Condensate Polisher, PETRONAS, ENVIPURE	 Malaysia	2016
	ZUBAIR Oil Field Development project, Hammar Mishrif New Degassing Station (DGS)	 Iraq	2016
	MUSCAT Municipality, Storm Water Pumping Station	 Oman	2016
	Waste water treatment plant - Project Touatgaz (Algeria) Supply of submersible pumps in special cast iron GS400 spheroidal	 Algeria	2015
	Alcantarillado Sanitario Waste Water Pumping Stations, Consorcio Cambyreta Ciudad de Encarnación, Paraguay Record Electric Saeca	 Paraguay	2015

Conclusion: COME AND VISIT US!



www.faggiolatipumps.com



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*Thank you for the
attention*