



water solutions



Electrical submersible pumps

- E - S Series
- O Series
- F Series
- Special Alloy Series
- Grey Series
- **UNIQA** Series



Lifting stations

- *blueBOX*
- *sphereBOX*
- *vertiBOX*
- *BOX PRO*



Aeration and mixing



Hydraulic and electrical accessories



EN
50 Hz



Find your Zenit solution for the industrial market

All Zenit products are designed with the same mission in mind: to satisfy our customers' needs.

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water solutions

WE STRIVE TO PARTNER WITH YOU IN
YOUR SEARCH FOR WATER TREATMENT
SOLUTION AND RELATED SERVICE

Welcome to ZENIT

We strive to partner with you in your search for water treatment solutions and related services.

With our extensive experience and cutting edge technology, we believe we are the ideal partner in this journey towards achieving the most suitable and competitive water solution.

Indeed, our motto 'water solutions' defines what we do.

Our technological know-how in water treatment processes has constantly improved with time because we are adaptable and capable of further growth and transformation.

Innovation is the backbone of our business.

This is why we can proudly say that historical authenticity and dynamism are our most distinctive features: they reflect our origins and set our future goals.

In Zenit, we promote and support a creative and gratifying work environment that generates ideas and solutions capable of meeting any request coming from the market as well as our partners.

Through sustainable production processes and company strategies, we offer reliable products to simplify and improve the work of the final user.

Trust and integrity are the cornerstone of our relationships with suppliers, customers and employees.

Our company is founded on the simple principle of maximizing human resources for innovation, design and technology.

Zenit Board of Directors



Left to right:
Lorenzo Bottan
Massimiliano Volta
Davide Bottan

(Zenit BOD)





Zenit's headquarters

Zenit Group's main production plant is in Italy. It is also the centre of research and innovation.





About us

Zenit's history began more than 60 years ago in a small engineering workshop in Modena.

Today, it has grown into a company with strong international presence, supported by hundreds of loyal employees, partners and associates all over the world.

We have grown organically thanks to talented and dedicated individuals who are veritable experts in their respective fields in the design and manufacture of wastewater treatment technology.

Our origin as a family business has contributed to our continual emphasis on incisive and quick decision-making.

This philosophy continues today in our large investment in human resources which remains an important priority for us.

Our dedicated stakeholders ensure that we remain at the top of our abilities and we offer our customers nothing short of product and service excellence.

Our respectable growth in recent years has seen the establishment of a greater international presence with the setting up of subsidiaries and offices abroad.

This international expansion is driven by our desire to serve our customers better with closer proximity.

We are different from our competitors because we put our customers' needs before all else and our strategies for growth are shaped according to their needs, first and foremost.

ZENIT IS AWARE OF
THE IMPORTANCE
OF CUSTOMER
SATISFACTION



What we do

Our core business is the design, manufacture and distribution of electric submersible pumps for residential and industrial use.

Through constant acquisition of new technological know-how and skills our product range is constantly being improved, refined and broadened.

We offer a wide range of lifting stations, aeration, mixing products, control and monitoring devices.

We also provide complete packages of water treatment solutions with their respective complementary services.

We are capable of taking on the most demanding challenges.

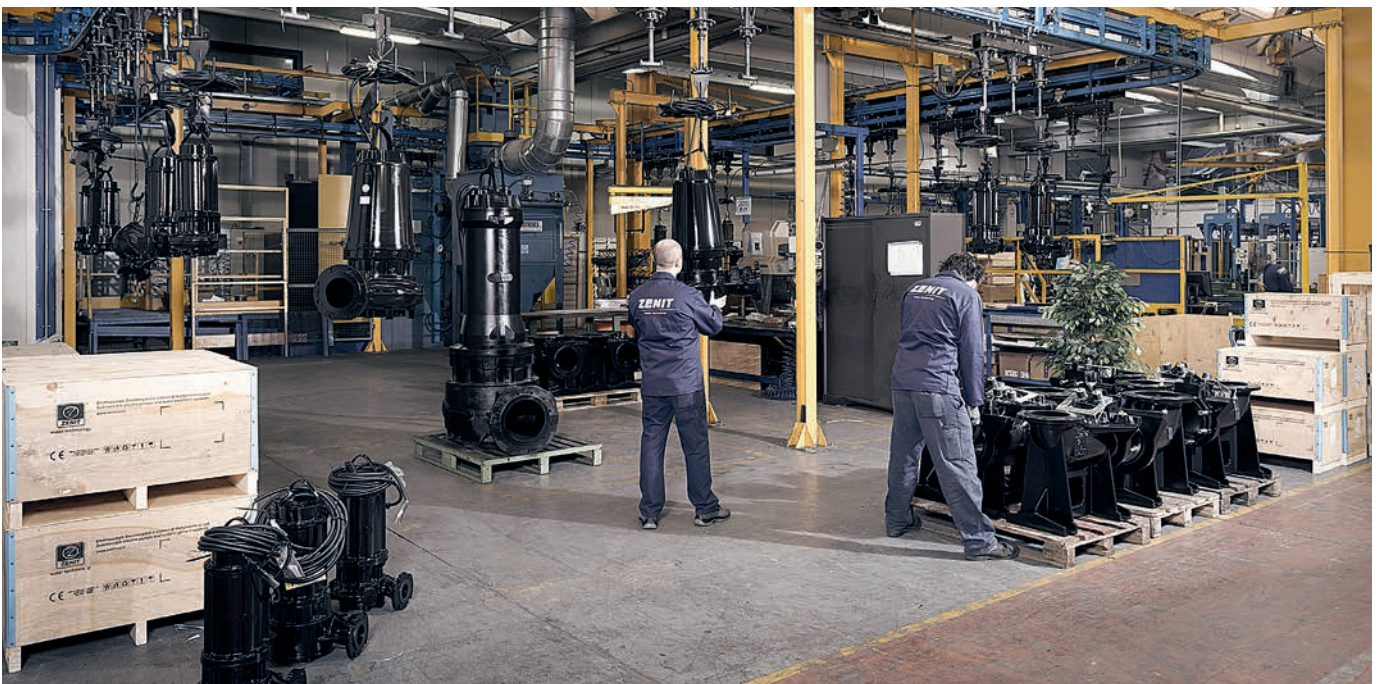
How we operate

A customer-oriented approach, a penchant for innovation and specialisation are the salient qualities that have led us to constant growth.

We believe in being there for our customers when they need us.

We support and work alongside you in all phases of your projects, from the initial consultation to product/plant design and then to implementation with intensive supervision and finally to a complete and comprehensive after-sales service.

To us, our customers are our topmost priority.





Modena
Italy



Bascharage
Luxembourg



Suzhou
China



Singapore
Singapore

Our Organisation

Zenit is a company with international presence. We manage our customers' needs directly thanks to our territorial access to the world.

The current structure of Zenit Group is the result of entrepreneurial strategies and insights that have enabled its internationalisation.

Zenit Group is composed of different units, which manufacture and distribute wastewater treatment products across the globe, each of them with its own organisation but all operating in pursuit of a shared goal.

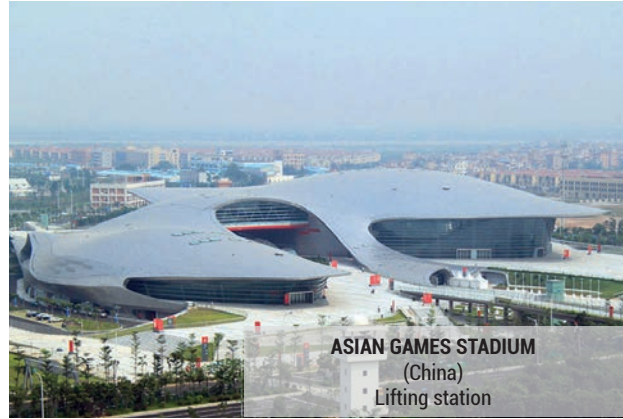
ZENIT GROUP IS THE RESULT OF A SUCCESSFUL COMBINATION OF ENTREPRENEURIAL STRATEGIES AND INSIGHTS

References

We deliver wastewater treatment solutions worldwide.



WATER TREATMENT
(Italy)
Lifting sewage



ASIAN GAMES STADIUM
(China)
Lifting station



MARINA BAY F1 CIRCUIT
(Singapore)
Rainwater drainage



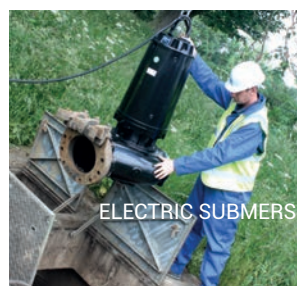
KIA MOTORS
(Slovakia)
Washing and recirculation industrial processes



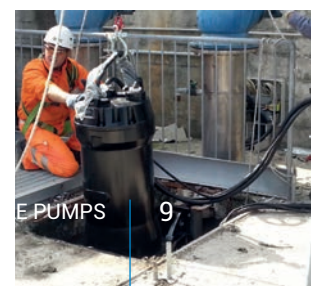
VICTORIA STATION
(United Kingdom)
Drainage lifting



MINISTRY OF PETROLEUM
(Iraq)
Drainage of water with oil traces



ELECTRIC SUBMERSIBLE PUMPS



ELECTRIC SUBMERSIBLE PUMPS



The solution for you

OUR CUSTOMERS ARE
LOYAL TO US BECAUSE
EVERYTHING WE DO IS
FOR THEM

Zenit offers:

- A wide range of customised solutions for industrial, domestic and civil plants.
- Products that adapt to challenging conditions minimizing implementation as well as running costs, yet maintaining efficiency.
- Standardised components and spare parts for faster and lower after sales-service cost.
- Complete pre and after-sales service to enhance your experience with us, as we thrive on the relationship with our customers, built on trust and integrity.

PRODUCT VALUES



PARTNERSHIP AND EXPERIENCE

Expertise in all areas of pre and after-sales support for our customers



EFFICIENCY AND QUALITY

Test and simulations on products to guarantee superior quality



PLANNING AND LOGISTICS

Production planning to guarantee delivery commitment



Fields of application

In these present times, responsible water management has become a fundamental objective for organizations and municipalities embracing the philosophy of environmental consciousness or to comply with regulations and legal requirements.

Every project we take on requires specific solutions tailored to the tasks entrusted to us.

Our solutions have these goals:

- To optimize efficiency in the installation system
- To reduce energy consumption
- To cut down installation time without compromising on standards and quality.
- To minimize unnecessary costs
- To minimize disruption and inconvenience to our customers

We have therefore drawn on our experience in wastewater treatment to develop across the board expertise to support customers in the choice, installation and use of submersible pumps and water treatment systems, establishing a partnership that goes far beyond the conventional customer-supplier relationship.

Every product is conceived in accordance with the same production philosophy: meticulous design of details, processing

EVERY FIELD OF APPLICATION REQUIRES SPECIFIC SOLUTIONS, TO OPTIMISE EFFICIENCY AND PERFORMANCE

on latest-generation CNC machine tools, and uncompromising end-of-line testing.

Due to our high-efficiency motors, modular hydraulics optimized for the duty point, and innovative materials which are precisely selected for the intended type of liquid, our products are highly adaptable and capable of use in different circumstances.

All this means that our customers can always find the ideal solution, selecting the products, components and materials best suited to their needs in any type of water lifting, distribution, collection and treatment plant.

CIVIL applications

A range of solutions both to meet stringent criteria and the requirements of design engineers and installers for the transfer of municipal wastewater.

INDUSTRIAL applications

Advice on the sizing of equipments and assistance with installation to guarantee optimum results in the industrial processes.

TREATMENT plants

Wastewater treatment solutions and components for a complete treatment process.



Manufacturing industry



Public transport



Biogas plant



Food processing



Shipping



Electrical power plant

OUR HIGHLY FLEXIBLE COMPANY PROCESSES ALLOW THE PRODUCTION OF CUSTOMISED PRODUCTS AND SOLUTIONS SUITED TO A WIDE VARIETY OF USES



Civil buildings



Agriculture



Quarries and mines



Treatment plant



Chemical/petrochemical industry



Shopping centre

CIVIL applications

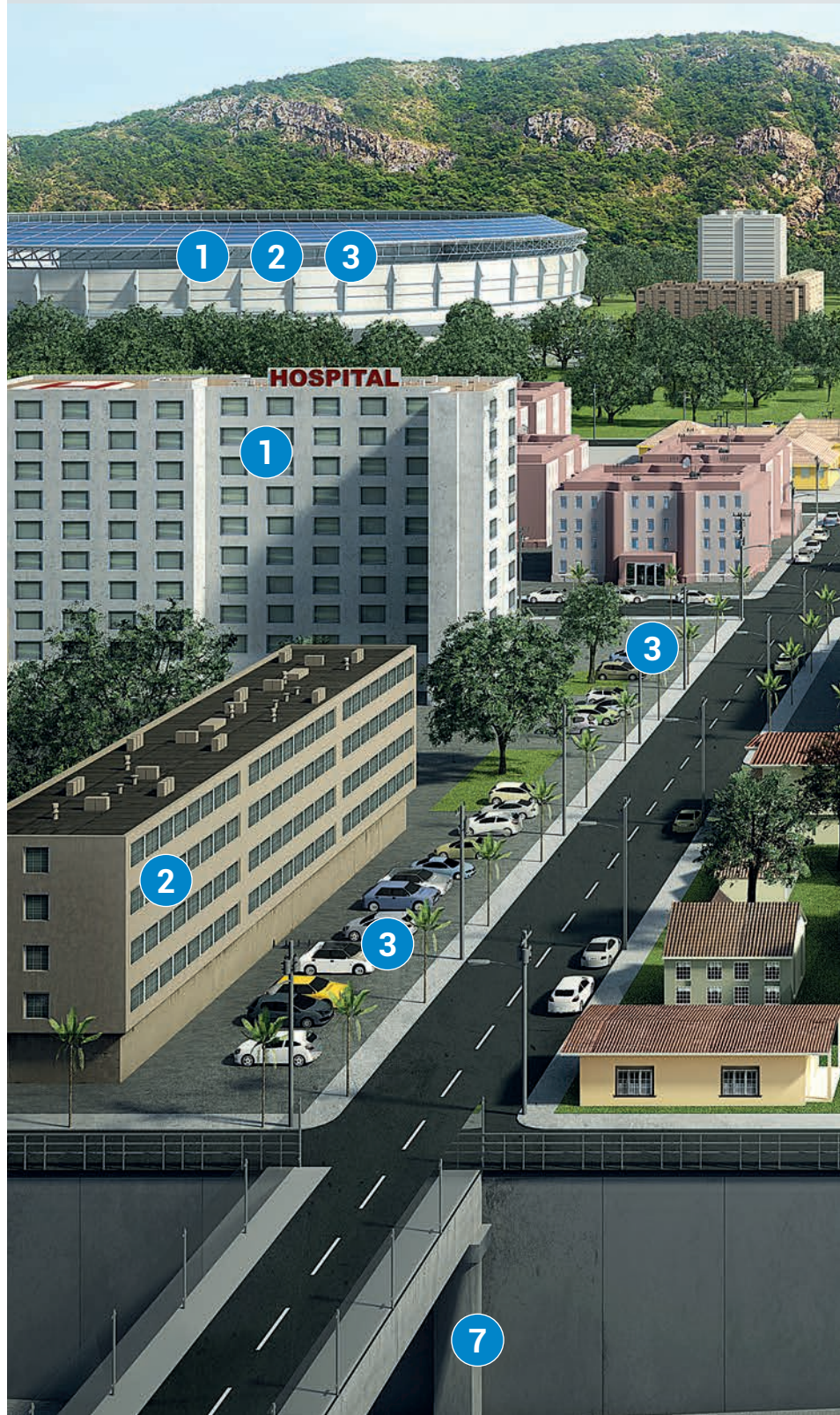
The collection and disposal of urban wastewater are of primary importance, not only to ensure the proper use of water resources but also to safeguard fundamental environmental health requirements. Civil applications include hospitals, hotels, shopping centres, airports, sports facilities, offices and schools. They are all buildings which require plants designed to deal with a large number of users, often in complex, heavy-duty situations.

Such large-scale projects have been complicated in recent years by serious climate change which has seen the quick alternation of severe drought and heavy rain which sometimes causes floods.

Rainwater and groundwater need to be removed quickly and efficiently to prevent damage to the community and public and private property. This has increased the demand for reliable, high-performance solutions capable of transferring rainwater and wastewater containing not only solid and fibrous materials but also chemicals and abrasive substances.

By combining specific expertise in the design of civil plants with rugged, top quality products, we have developed a range of solutions able to meet tight reliability criteria, the requirements of design engineers and installers, as well as the most stringent governmental laws and regulations.

- 1) Pumping stations for handling the sewage from toilets in public locations - heavy duty (hospitals, sports grounds, airports): **DGG, DRG, GRG, ZUG V**
- 2) Pumping stations for handling the sewage from toilets in public locations - normal duty (shopping centres, offices, schools): **GR bluePRO, DGG**
- 3) Lifting from first rainfall tanks of parks, leisure areas and car-parks (hospitals, sports grounds, shopping centres, schools): **DRG, ZUG OC**



- 4) Lifting residential and other civil sewage: **DGO, DRG, GR bluePRO, blueBOX**
- 5) Collection and lifting of wastewater from the toilets and kitchens of Ho.Re.Ca. businesses (hotels, camp-sites, restaurants/bars): **GRG, ZUG V, DRG, DGG, blueBOX**
- 6) High-pressure pumping of clean water for street furniture (water features): **APE, APS, AP bluePRO, APG**
- 7) Drainage of rainwater and groundwater (underpasses, tunnels, stations, airports): **ZUG V, ZUG OC, DRG, DGG**
- 8) Disposal of water containing detergents and hydrocarbons: (car washes, service stations): **DRF, DRG**
- 9) Water drainage from fuel storage areas (airports, service stations): **DRF, DRG**



INDUSTRIAL applications

The key challenge in industrial waste treatment is to prevent costly disruption to the plant operations. Reliable and efficient pumping systems are essential to prevent plant outage.

Highly-performing treatment systems ensure minimum disruption and timely waste removal.

Treatment of industrial wastewater is highly dependent of the type of industry in which the solution is sought.

Industrial discharges range from corrosive and abrasive chemicals, fibrous and bulky materials, to highly-reactive brine waters and even explosive liquids, with high heads and temperatures.

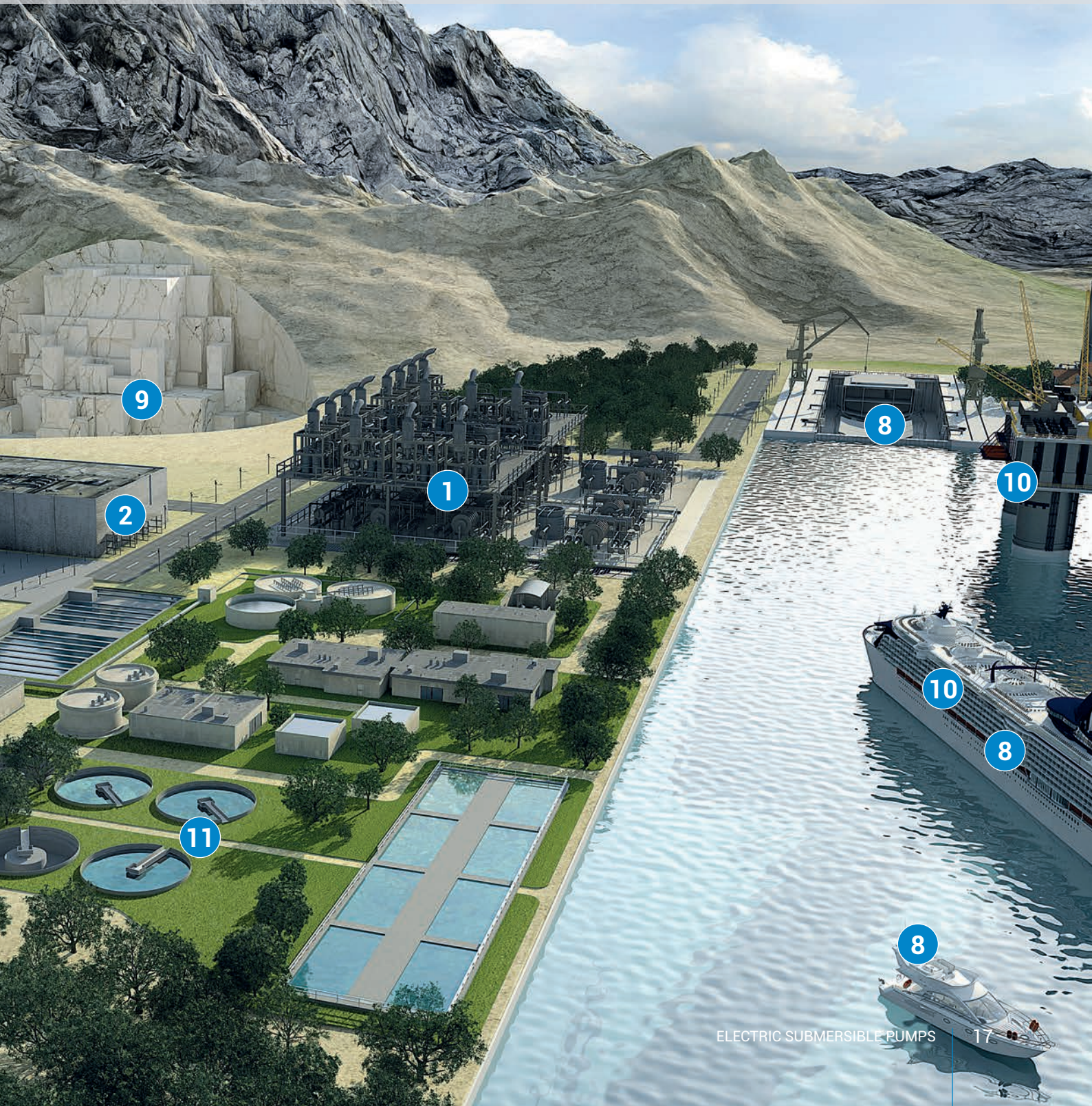
The product must be selected with care to ensure perfect dovetailing with the system's characteristics and must be impeccably installed to guarantee the best duty conditions and long component lifetime.

We therefore supply advice on the choice of equipment size and assistance in installation and maintenance, with parts and accessories always available, to ensure that the plant provides uninterrupted service to the required standards.

- 1) Drainage of rainwater with traces of hydrocarbons and chemicals (chemical and petrochemical industry): **DRF, DGF, MAF, DRG, DGG, ZUG OC**
- 2) Lifting of corrosive, acidic and abrasive liquids (manufacturing): **DRX, DGX, DRY, ZUG V** with special coating
- 3) Drainage of rainwater and groundwater in cogeneration systems and power plants: **DRF, DRG**
- 4) Drainage of rainwater and groundwater (underpasses, tunnels): **ZUG V, DGG**



- 5) Environmental remediation: **ZUG OC**
- 6) Industrial washing processes (food industry): **DRX, DRY**
- 7) Lifting of water with processing waste (abattoirs, tanneries): **DRG, DGG, ZUG V, ZUG CP**
- 8) Lifting and minor pump-out operations involving brine (boatyards, on board vessels): **DRB, DGB**
- 9) Industrial washing and recycling processes (mining and quarrying): **ZUG V** (special impeller treatment)
- 10) Lifting and treatment of brine (ships and offshore platforms): **DRG, ZUG V, ZUG OC**
- 11) Treatment plant: **ZMD, ZMR** (denitrification); **ZUG OC** (primary lifting); **ZUG OC, DRG** (circulation); **ZMD, ZMR** (mixing); **OXYPLATE; ZUG OC** (transfer to surface).



TREATMENT plants

A treatment plant is a complex system. Its design requires high-degree expertise, consolidated experience and reliable and suitable products.

Every stage of the treatment process requires clearly defined and monitored conditions to allow the prolific multiplication of the bacteria, which carries out biological treatment of the wastewater.

We are the ideal partner for the supply of wastewater treatment components, thanks to our wide range of highly efficient and reliable products, specific for any phase of the process, from initial lifting to surface transfer.

For wastewater pumping, the use of UNIQA pumps assures high hydraulic performances thanks to impellers optimised for the duty point, with energy-saving guaranteed by the highefficiency class IE3 motors.

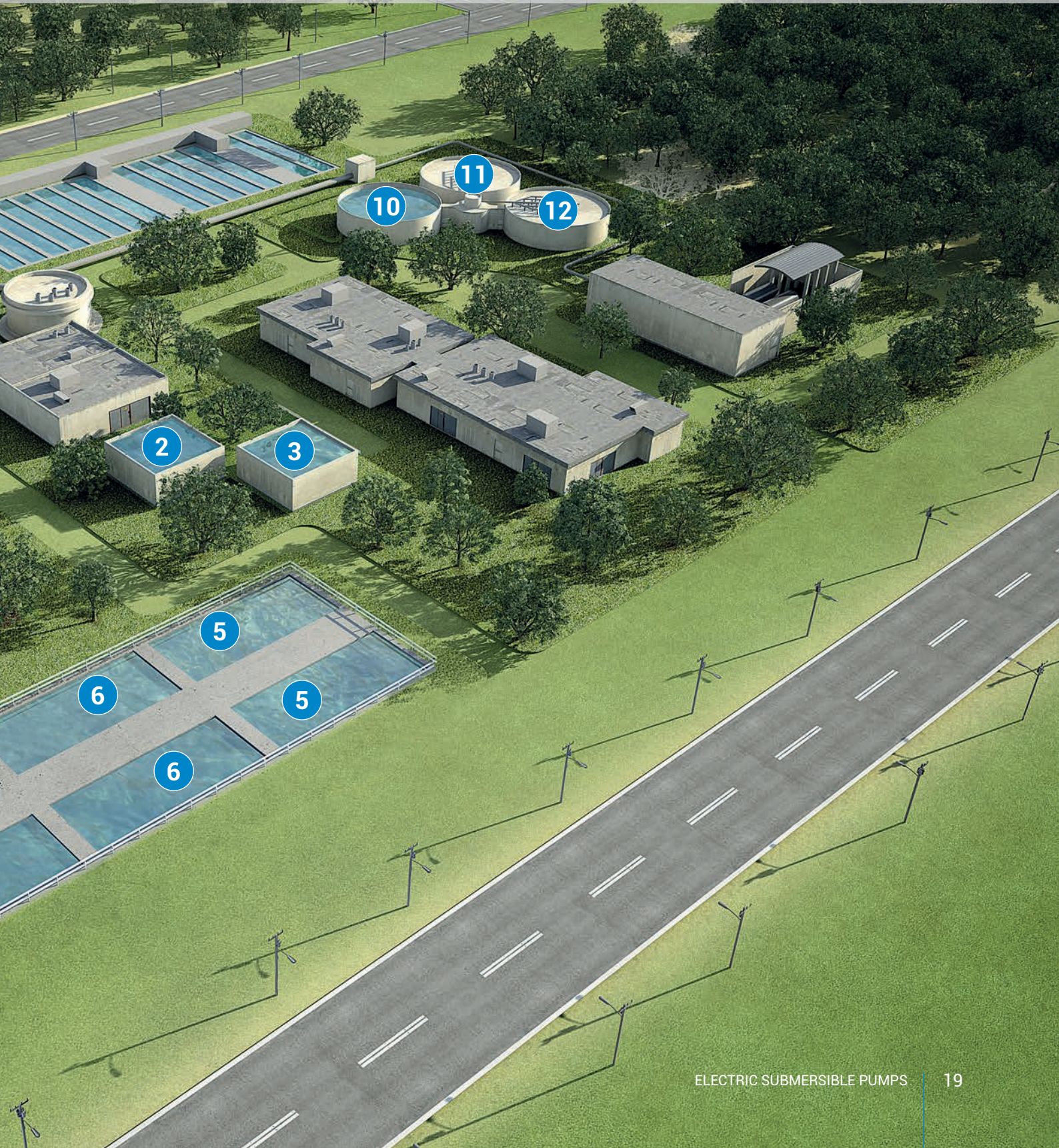
Fine bubble membrane diffusers, delivering high oxygen transfer with low power consumption, can be used for the aeration stage. A special stainless steel large-bubble diffuser is available for sand separation processes.

For sludge pumping during equalisation, homogenisation and denitrification processes, Zenit is able to supply reliable, easily installed, low-maintenance mixers and flow makers.

- 1) Initial lifting: **ZUG V**
- 2) Equalisation, homogenisation, holding: **ZMD, ZMR**
- 3) Sand/oil separation: **ZUG V, DGG, OXYINOX**
- 4) Intermediate transfer: **ZUG OC, DRG**
- 5) Denitrification: **ZMD, ZMR**
- 6) Oxidation/nitrification: **OXYPLATE, OXYTUBE, JETOXY, ZUG OC**



- 7) Flow divider: **ZUG OC, DRG**
- 8) Secondary sedimentation: **ZUG OC, DRG**
- 9) Final transfer: **ZUG OC, DRG**
- 10) Sludge accumulation: **ZMR**
- 11) Anaerobic sludge digestion: **ZMR, DRG**
- 12) Aerobic sludge digestion: **JETOXY**



ZENIT

PRODUCT RANGE

- › **Electrical submersible pumps**
- › Lifting stations
- › Aeration and mixing
- › Hydraulic accessories
- › Electrical accessories

Electrical submersible pumps

E - S Series • O Series • F Series

Special Alloy Series • GREY Series • UNIQA Series



Series

E - S

O



	Motor	dry	oil bath
	Power	0.37 ÷ 1.7 kW	0.37 ÷ 1.5 kW
	Pump material		
	Cast iron	•	•
	Steel		
	Bronze	-	-
	Impeller material		
	Cast iron	•	•
	Steel	-	-
	Bronze / Aluminum	-	-
	Intended Use		
	Clear/slightly soiled wastewaters	-	DR
	Heavily soiled wastewaters with solids	-	DG
	Wastewaters containing filaments	GR	-
	High pressure	AP	-
	Brine and aggressive liquids	-	-
	Glazes and corrosive liquids	-	-
	Discharge		
	Vertical discharge	-	•
	Horizontal discharge	•	•
	Phases		
	Single-phase	•	•
	Three-phase	•	•
	Installation		
	Submerged	•	•
	Dry	-	-
	Specific certifications		
	ATEX / SASO	SASO	SASO

F

Special Alloy

GREY

UNIQA®



dry	oil bath	dry	dry
0.55 ÷ 1.5 kW	0.37 ÷ 15 kW	0.37 ÷ 18.5 kW	1.8 ÷ 355 kW
•	-	•	•
-	•	-	•
-	•	-	-
•	-	•	•
-	•	-	•
-	•	-	•
DR	-	DR	OC
DG	-	DR / DG	V / OC / CP
GR	-	GR	GR
AP	-	AP	HP
-	DR / DG	-	-
-	-	-	-
•	•	•	-
•	•	•	•
•	•	•	-
•	•	•	•
•	•	•	•
• (*)	-	-	•
ATEX	-	-	ATEX

(*) Only S3 Duty

E - S Series

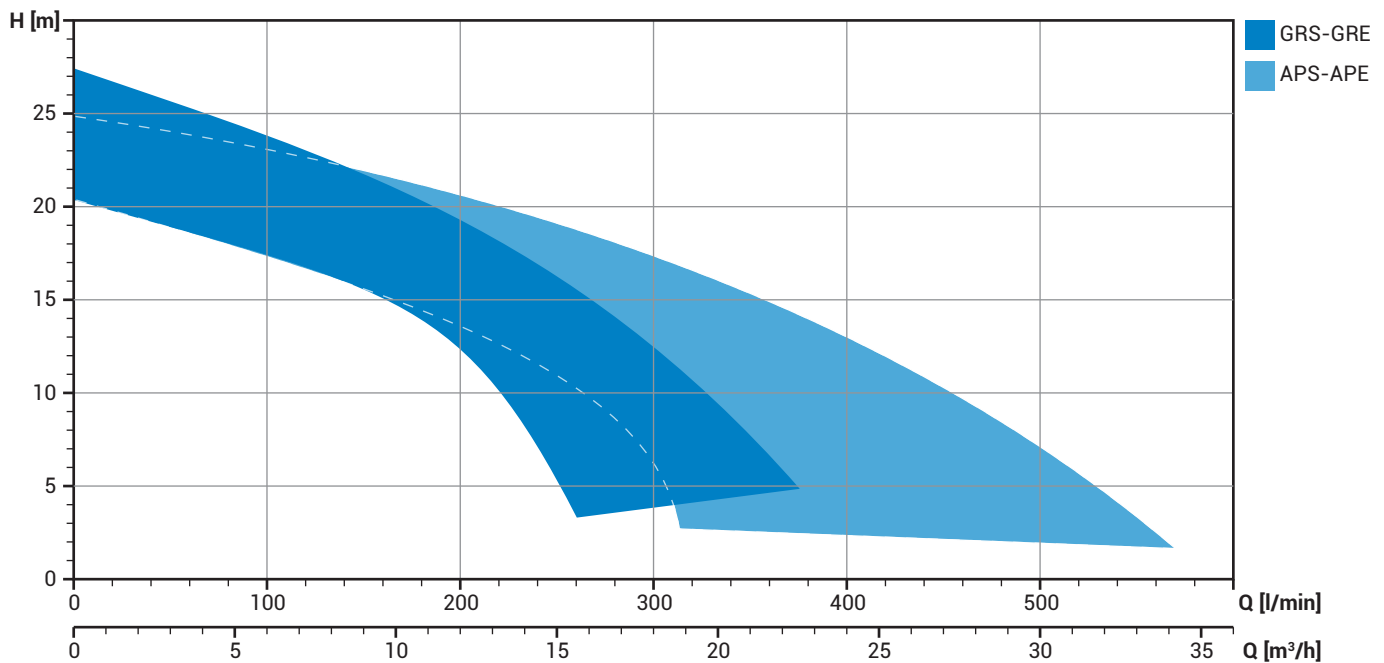
E series and **S series** are ideal for installations in small lifting stations where compact size and excellent reliability are required.

Outstanding installation flexibility is ensured by the option of threaded or flanged discharge. These series are available with grinding system (**GRE • GRS**), which is recommended for soiled liquids containing fibers and filaments. The high heads (**APE • APS**), are suitable for use in mainly clean liquids when high pressure level is required.

The **GRE** and **GRS** models have an external box with circuit-breaker and current overload protection. This guarantees a reliable operation with soiled liquids (even after idling for a lengthy period), when a high startup torque is required.

Each model undergoes pressurised test to ensure that the motor compartment is airtight and the mechanical seals are fitted correctly, to guarantee excellent reliability.

Operating ranges



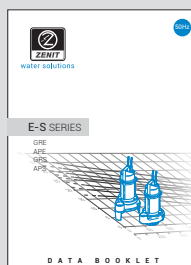
Construction materials

Motor casing	Cast iron EN-GJL-250
Impeller	Cast iron EN-GJL-250
Nuts and bolts	Stainless steel - Class A2-70
Standard gaskets	NBR rubber
Drive shaft	AISI 431 stainless steel
Cutting knife	Chromium steel
Painting	Bicomponent epoxy paint with high resistance to corrosion

The data provided are not binding. Zenit reserves the right to modify the product without advance notification.

Operating specifications

Max operating temperature	40°C
pH of treated liquid	6 ÷ 14
Viscosity of treated liquid	1 mm²/s
Max immersion depth	20 m
Density of treated liquid	1 Kg/dm³
Max acoustic pressure	<70 dB
Max starts per hour	30



ZENIT
NAVIGATOR SUITE

The Technical Data Booklet complete with duty curves is available for download in the download area of zenit.com. To select the pump best suited to your needs we advise you to use the **Zeno Pump Selector** configuration tool on the zenit.com website.



GRE



GR [GRINDER]

- Cast iron multi-channel open impeller
- Grinding system with rotary knife

- Soiled waters containing fibres and filaments
- Domestic and other civil wastewater

Range characteristics

Power supply	220/240V ~1 - 380/400V ~3
Frequency	50 Hz
Power	1.7 kW
Poles	2
Discharge vertical	-
horizontal	G 2" - DN32
Free passage	-
Max flow rate	6.3 l/s
Max head	27.3 m



APE



AP [Alta Prevalenza]

- Cast iron multi-channel open impeller
- Suction strainer

- Lifting clear and slightly sandy water
- Irrigation and fish farming

Power supply	220/240V ~1 - 380/400V ~3
Frequency	50 Hz
Power	1.7 kW
Poles	2
Discharge vertical	-
horizontal	G 2" - DN32
Free passage	max 7 mm
Max flow rate	9.5 l/s
Max head	24.9 m



GRS



GR [GRINDER]

- Cast iron multi-channel open impeller
- Grinding system with rotary knife

- Soiled waters containing fibres and filaments
- Domestic wastewater

Power supply	220/240V ~1 - 380/400V ~3
Frequency	50 Hz
Power	0.9 kW
Poles	2
Discharge vertical	-
horizontal	G 1½" - DN32
Free passage	-
Max flow rate	4.3 l/s
Max head	20.4 m



APS



AP [Alta Prevalenza]

- Cast iron multi-channel open impeller
- High manometric head

- Lifting clear and slightly sandy water
- Irrigation and fish farming

Power supply	220/240V ~1 - 380/400V ~3
Frequency	50 Hz
Power	0.9 kW
Poles	2
Discharge vertical	-
horizontal	G 1½" - DN32
Free passage	max 7 mm
Max flow rate	5.2 l/s
Max head	20.3 m

E - S Series



HANDLE

Stainless steel lifting and carrying handle



CASE

Robust cast iron construction



DISCHARGE

GAS threaded and flanged DN32 discharge for flexible installation.



STRAINER [APE · APS]

Stainless steel suction strainer.

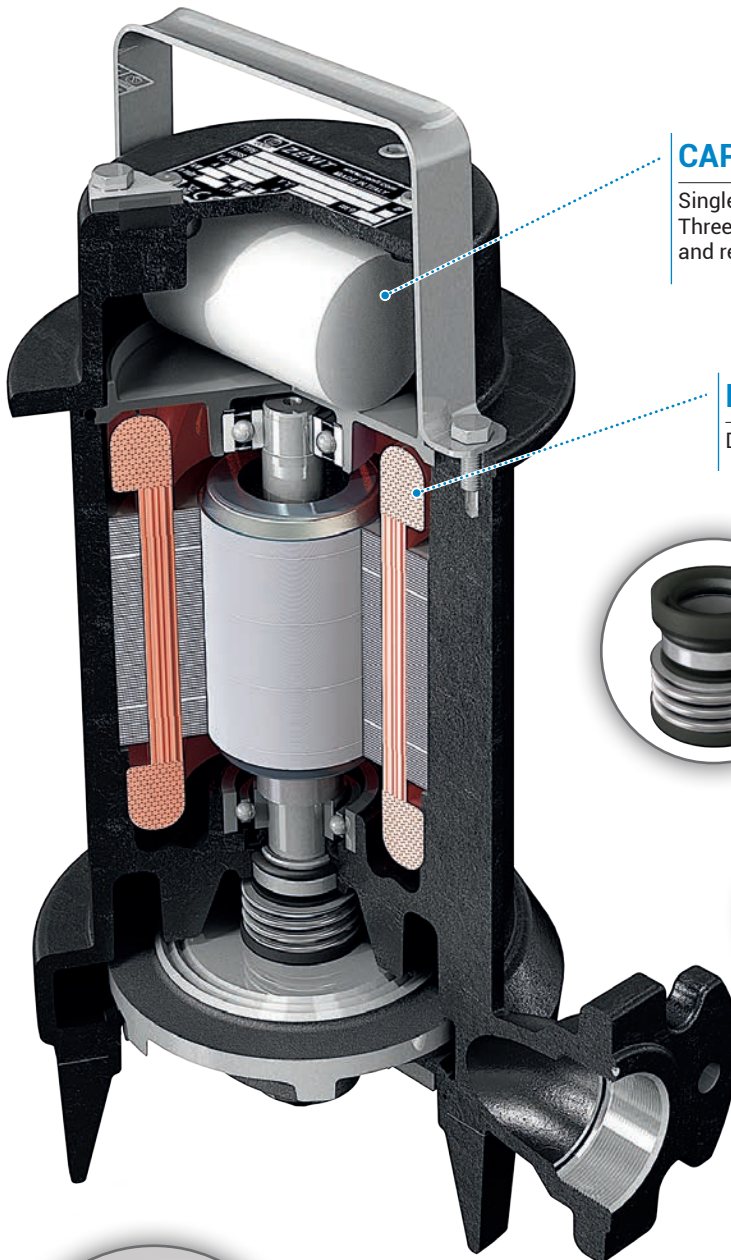
Highlight



SIMPLE AND COMPACT

Simple and compact, ideal for installation in small pits, emergency use to empty tank and irrigation. The option of models with integral float switch makes this range easy and convenient to install.

E - S Series



CAPACITOR/RELAY

Single-phase models have internal capacitor. Three-phase models are equipped with thermal protection and relay to safeguard the motor (optional).

MOTOR

Dry motor protection with thermal overload.

MECHANICAL SEALS

One mechanical seal in silicon carbide (SiC) and one lip seal.

IMPELLER

Special spiral ribs on the rear of the impeller helps to tear and eject filaments thus prevent over loading of motor.

CIRCUIT BREAKER [GRE · GRS]

Single-phase models complete with control box circuit breaker capacitor and overload protection.

CUTTING KNIFE [GRE · GRS]

Grinding system comprises a three-bladed rotating knife and a sharpened edge plate with hole. It cut the fibers and filaments to prevent fouling of impeller.

O Series

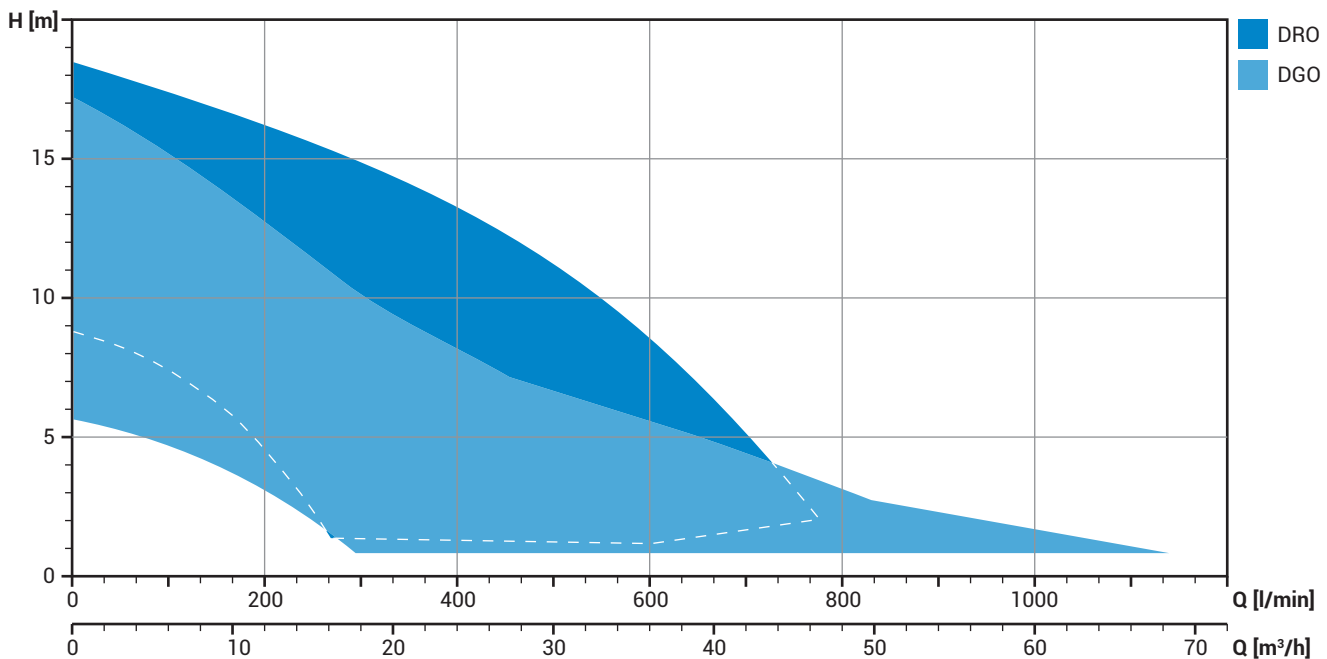
The main feature of the **O series** is the oil bath motor. Together with its robust cast iron structure, it makes this model particularly reliable even in very tough operating conditions.

Simple and rational construction allows easy access for maintenance. As a result, even after its market launch in 1977, the **O series** continues to meet the requirements of the most demanding customers.

This serie includes models with vortex impeller (**DGO**) which is recommended for use in soiled liquids and with multi-channel impeller (**DRO**) for lifting clean or slightly soiled water.

Each model undergoes pressurised test to ensure that the motor compartment is airtight and the mechanical seals are fitted correctly, to guarantee excellent reliability.

Operating ranges



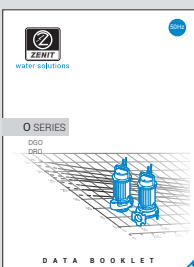
Construction materials

Motor casing	Cast iron EN-GJL-250
Impeller	Cast iron EN-GJL-250
Nuts and bolts	Stainless steel - Class A2-70
Standard gaskets	NBR rubber
Drive shaft	AISI 431 stainless steel
Painting	Bicomponent epoxy paint with high resistance to corrosion

Operating specifications

Max operating temperature	40°C
pH of treated liquid	6 ÷ 14
Viscosity of treated liquid	1 mm²/s
Max immersion depth	20 m
Density of treated liquid	1 Kg/dm³
Max acoustic pressure	<70 dB
Max starts per hour	30

The data provided are not binding. Zenit reserves the right to modify the product without advance notification.



ZENIT
NAVIGATOR SUITE

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DGO



DG [DRAGA]



- Cast iron vortex impeller
- Full free passage

- Sewage
- Soiled wastewaters with solids
- Lifting stations in small civil and residential plants

DRO



DR [DRENO]



- Cast iron multi-channel open impeller
- Stainless steel suction strainer

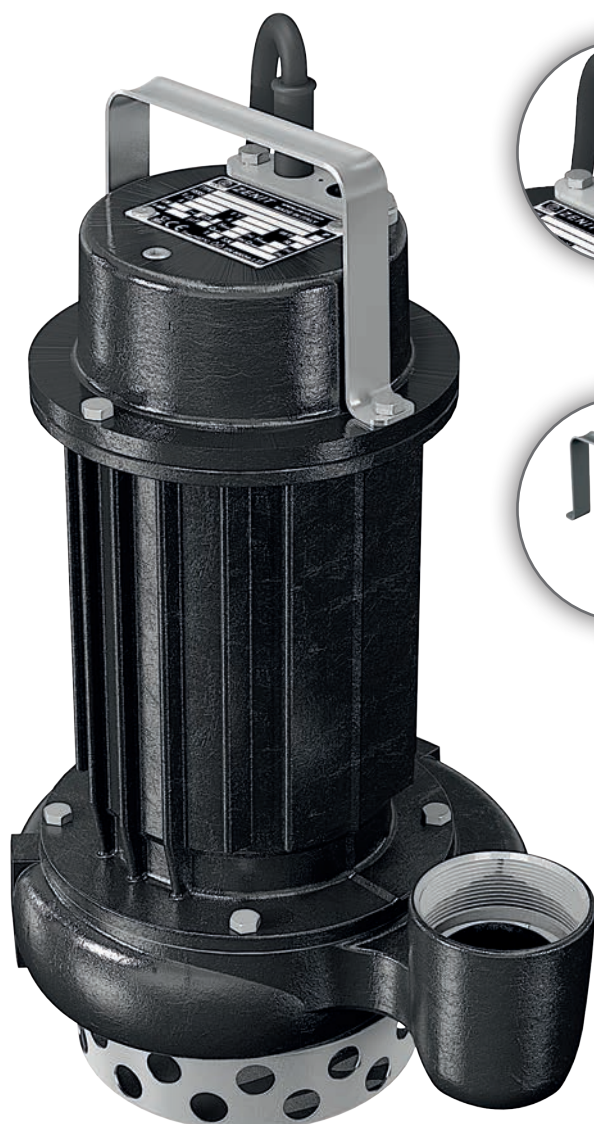
- Clear or slightly soiled wastewaters
- Strained, seepage and underground pump-out waters
- Irrigation and pumping from wells and reservoirs

Range characteristics

Power supply	220/240V ~1 - 380/400V ~3
Frequency	50 Hz
Power	0.37 ÷ 1.5 kW
Poles	2 / 4
Discharge	vertical G 1½" - G 2" - G 2½"
	horizontal G 2" - DN50 - DN65 - DN80
Free passage	max 80 mm
Max flow rate	19.0 l/s
Max head	17.3 m

Power supply	220/240V ~1 - 380/400V ~3
Frequency	50 Hz
Power	0.37 ÷ 1.5 kW
Poles	2
Discharge	vertical G 1¼" - G 2"
	horizontal G 2" - DN50
Free passage	max 15 mm
Max flow rate	13.0 l/s
Max head	18.4 m

O Series



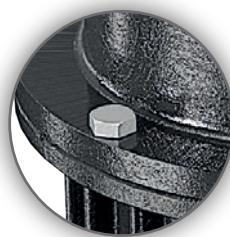
CABLE GLAND

Stainless steel cable gland system which guarantees airtight seal and allows easy replacement of cable or float switch.



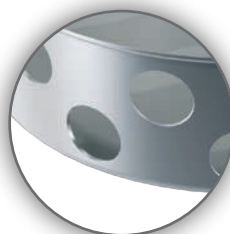
HANDLE

Stainless steel lifting and carrying handle.



CASE

Robust cast iron construction.



STRAINER [DRO]

Stainless steel suction strainer.

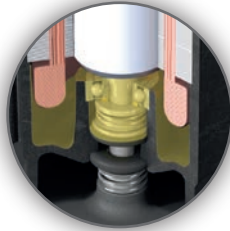
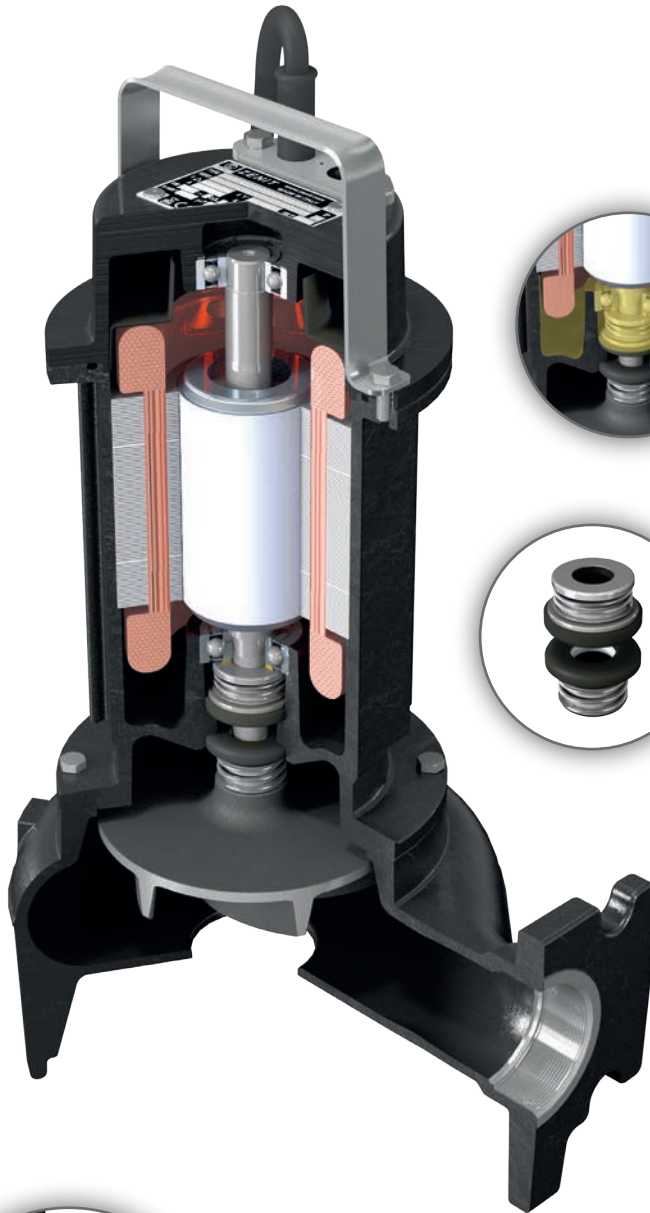
Highlight



DUAL PROTECTION

The motor is protected by a bimetallic thermal protection in the stator and a current overload device (manual reset) installed in an external box. It cuts off the power supply in the event of current overload due to fouled impeller.

O Series



MOTOR

Oil bath motor with cooling effect allowing heavy work loads.



MECHANICAL SEALS

One mechanical seal in silicon carbide (SiC) and one in alumina graphite (AL), cooled by motor oil.



FREE PASSAGE [DGO]

Ample free passage allowing the removal of solids and preventing fouling of the impeller.

ANTI-CLOGGING SYSTEM [DRO]

Hydraulics with Anti Clogging System (ACS) which ensures the removal of small suspended solids and prevents fouling of the impeller.



F Series

The main feature of the **F series** models is ATEX certification, which allows them to be used where a standard submersible electric pump would be unacceptable due to the explosive nature of the liquids or environment.

Every detail, from the cable to the metal fasteners, meets extremely high safety requirements to eliminate the risks inherent in use in potentially explosive atmospheres.

The range includes models with vortex impeller (**DGF**) with ample free passage, recommended for use with soiled liquids, multi-channel open impeller (**DRF**), intended mainly for lifting clean or lightly soiled liquids, with grinder (**GRF**), suitable for wastewaters

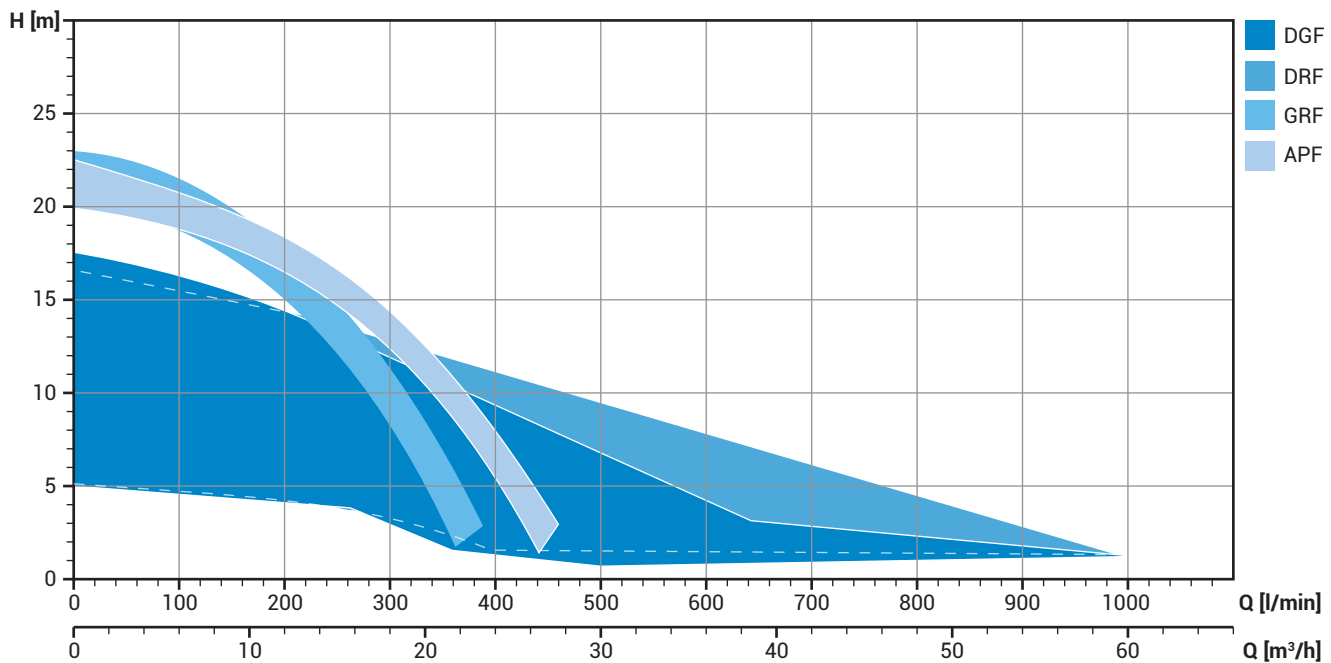
with fibres and filaments and with high head (**APF**), for use with waters containing suspended sand and abrasive substances.

The mechanical seals are housed in a large, inspectable oil sump to guarantee a long working life.

The oil sump can be fitted with an optional sensor connected to a special electrical panel to alert the user to any water seepage due to wear of the outermost mechanical seal in good time to allow it to be changed, preventing damage to the motor.

Each model undergoes dual pressurised testing at the end of the line to ensure that the motor compartment is airtight and the mechanical seals have been correctly fitted, to guarantee excellent reliability.

Operating ranges



Construction materials

Motor casing	Cast iron EN-GJL-250
Impeller	Cast iron EN-GJL-250
Nuts and bolts	Stainless steel - Class A2-70
Standard gaskets	VITON
Drive shaft	AISI 431 stainless steel
Cutting knife	Chromium steel [GR only]
Painting	Bicomponent epoxy paint with high resistance to corrosion

The data provided are not binding. Zenit reserves the right to modify the product without advance notification.

Operating specifications

Max operating temperature	40°C
pH of treated liquid	6 ÷ 14
Viscosity of treated liquid	1 mm²/s
Max immersion depth	20 m
Density of treated liquid	1 Kg/dm³
Max acoustic pressure	<70 dB
Max starts per hour	30



ZENO
NAVIGATOR SUITE

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DGF

DG [DRAGA]

- Cast iron vortex impeller
- Full free passage

- Sewage
- Soiled wastewaters with solids
- Lifting stations in civil and residential plants



Range characteristics

Power supply	220/240 V ~1 - 380/400 V ~3
Frequency	50 Hz
Power	0.55 ÷ 1.5 kW
Poles	2 / 4
Discharge vertical	G 1½" - G 2" - G 2½"
horizontal	G 1½" - G 2" - DN32
	DN50 - DN65 - DN80
Free passage	max 80 mm
Max flow rate	16.7 l/s
Max head	17.5 m



DRF

DR [DRENO]

- Cast iron multi-channel open impeller
- Suction strainer

- Clear or slightly soiled wastewaters
- Strained, seepage and underground pump-out waters
- Irrigation and installations requiring high hydraulic performances



Power supply	220/240 V ~1 - 380/400 V ~3
Frequency	50 Hz
Power	0.55 ÷ 1.5 kW
Poles	2 / 4
Discharge vertical	G 1½" - G 2"
horizontal	G ½" - G 2" - DN32
	DN50 - DN65 - DN100
Free passage	max 50 mm
Max flow rate	17.6 l/s
Max head	16.5 m



GRF

GR [GRINDER]

- Cast iron multi-channel open impeller
- Grinding system with rotary knife

- Soiled waters containing fibres and filaments
- Unstrained civil wastewaters
- Lifting stations in civil and residential plants



Power supply	220/240 V ~1 - 380/400 V ~3
Frequency	50 Hz
Power	1.1 ÷ 1.5 kW
Poles	2
Discharge vertical	-
horizontal	G 1½" - DN32
Free passage	-
Max flow rate	6.4 l/s
Max head	23.0 m



APF

AP [Alta Prevalenza]

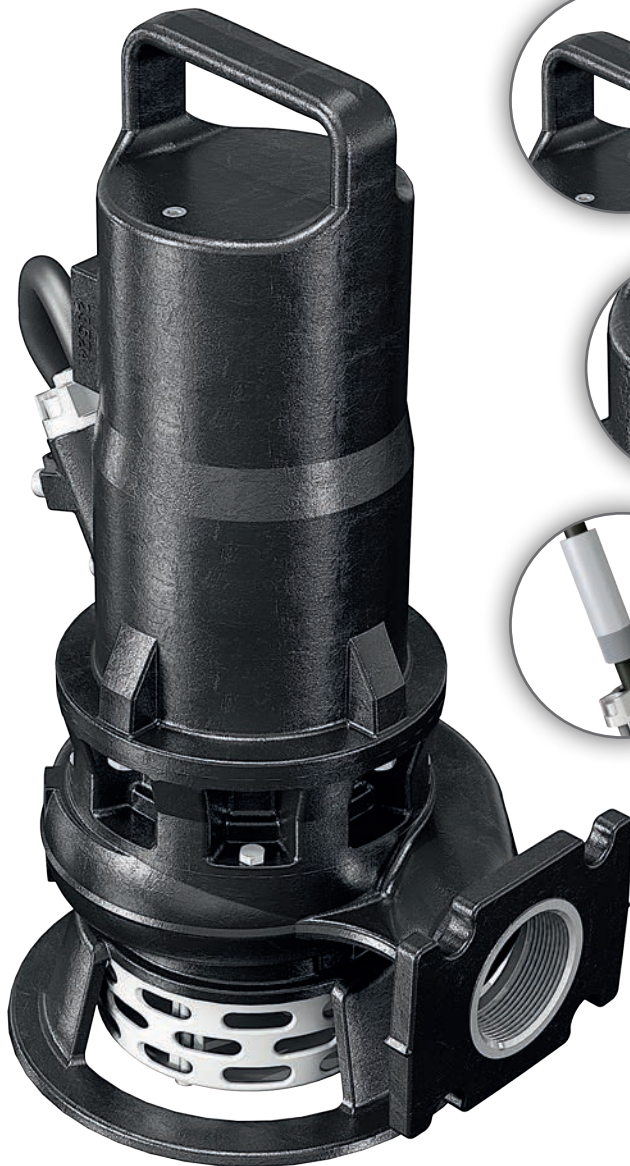
- Cast iron multi-channel open impeller
- High manometric head

- Mainly clean liquids, or liquids with small solids or sand
- Slightly sandy seepage waters
- Ideal for construction of fountains and water features



Power supply	220/240 V ~1 - 380/400 V ~3
Frequency	50 Hz
Power	1.1 ÷ 1.5 kW
Poles	2
Discharge vertical	-
horizontal	G 1½" - DN32
Free passage	max 7 mm
Max flow rate	7.6 l/s
Max head	22.6 m

F Series



HANDLE

Cast iron lifting and carrying handle.



PRESSURISED TESTING

Stud bolt for closing the motor compartment for the pressurised testing every model undergoes.



CABLE GLAND

The universal thread ring-nut can be removed to fix a rigid or flexible duct to the cable gland to protect the power supply cable.



STRAINER [DRF]

Polypropylene suction strainer with spheroidal cast iron base.

Highlight

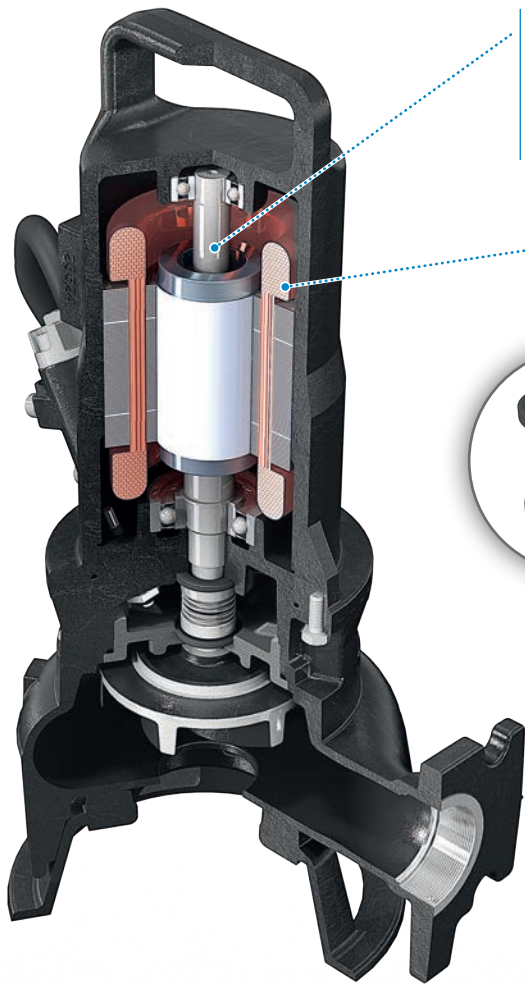


ATEX RANGE

The use of reliable materials and innovative technical features makes the F Series the most compact range of ATEX certified electrical submersible pumps on the market.

The threaded and flanged discharge allows top installation flexibility. The option of models with sensor to alert the user to water seepage in the mechanical seal oil sump makes this range even more versatile and complete.

F Series



DRIVE SHAFT [DGF • DRF]

Drive shaft in AISI 431 stainless steel. Connection to impeller via tapered coupling.

MOTOR

Ecological dry motor with thermal overloads.

MECHANICAL SEALS

Two silicon carbide (SiC) mechanical seals in oil sump.

PROBE

Water sensor available on request.

STRAINER [APF]

Stainless steel suction strainer.

OIL SUMP

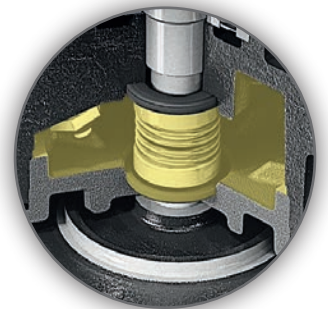
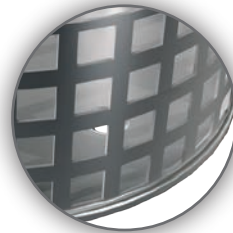
Large, inspectable oil sump to guarantee longer mechanical seal lifetime.

FREE PASSAGE [DGF]

Ample free passage allowing the expulsion of solids and preventing fouling of the impeller.

CUTTING KNIFE [GRF]

Grinding system comprising a three-bladed rotary knife and a plate with holes with sharpened edges that fine-chops filaments, preventing fouling of the impeller.



SPECIAL ALLOY Series

The **DRX**, **DRY** and **DGX** models are constructed in CF8_M (AISI 316) stainless steel and have multi-channel open impeller suitable for strained liquids (**DRX**), wastewater (**DRY**) and vortex impeller for soiled wastewater (**DGX**).

The oil-bath motor and dual mechanical seal cooled by the motor oil guarantee continuous service even in heavy-duty conditions.

They are recommended for applications with corrosive and aggressive liquids, and can therefore be used for industrial plants in the chemical and

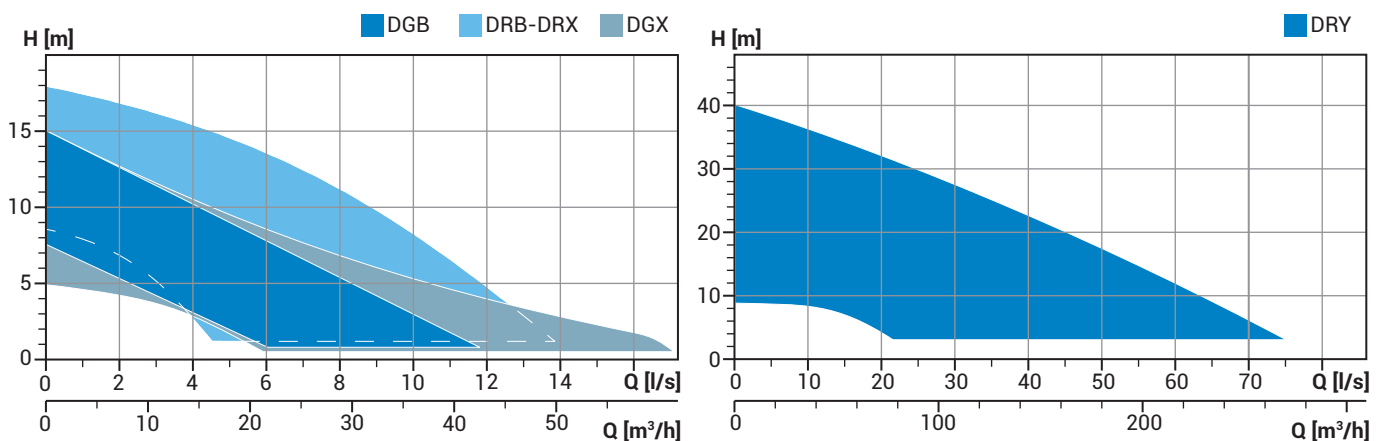
pharmaceutical sector, or with seawater.

DRB and **DGB** electric pumps are constructed in aluminum-bronze and have multi-channel open impeller suitable for strained wastewater (**DRB**) and vortex impeller for soiled wastewater (**DGX**).

The oil-bath motor and dual mechanical seal cooled by the motor oil guarantee continuous service even in heavy-duty conditions.

They are recommended for applications with seawater or brine, in the fish processing and livestock farming sectors.

Operating ranges



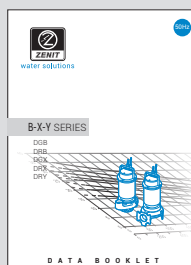
Construction materials

Motor casing	CF-8M - AISI 316 stainless steel
	Aluminum-bronze
Impeller	CF-8M - AISI 316 stainless steel
	Aluminum-bronze
Nuts and bolts	Class A4-70 stainless steel
Standard gaskets	VITON [DGX • DRX • DRY]
	NBR [DGB • DRB]
Drive shaft	AISI 316 stainless steel

The data provided are not binding.
Zenit reserves the right to modify the product without advance notification.

Operating specifications

Max operating temperature	40°C
pH of treated liquid	3 ÷ 14
Viscosity of treated liquid	1 mm ² /s
Max immersion depth	20 m
Density of treated liquid	1 Kg/dm ³
Max acoustic pressure	<70 dB
Max starts per hour	30



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NAVIGATOR SUITE

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DGB

DG [DRAGA]

- Vortex impeller in aluminum-bronze
- Large free passage



- Soiled brines and aggressive liquids
- Chemical, fish processing and shipping industries



DRB

DR [DRENO]

- Multichannel open impeller in aluminum-bronze
- Stainless steel suction strainer



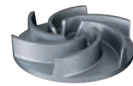
- Strained brines and aggressive liquids
- Chemical, fish processing and shipping industries



DGX

DG [DRAGA]

- Stainless steel vortex impeller
- Large free passage



- Strongly corrosive or aggressive soiled liquids
- Chemical, shipping and pharmaceutical industries



DRX

DR [DRENO]

- Stainless steel multi-channel open impeller
- Stainless steel suction strainer



- Strongly corrosive or aggressive strained liquids
- Chemical, shipping and pharmaceutical industries



DRY

DR [DRENO]

- Stainless steel multi-channel open impeller
- Large free passage



- Strongly corrosive or aggressive soiled liquids
- Heavy-duty applications in chemical and industrial plants

Range characteristics

Power supply	220/240V ~1 - 380/400V ~3
Frequency	50 Hz
Power	0.37 ÷ 1.5 kW
Poles	2
Discharge vertical	G 2"
horizontal	-
Free passage	max 38 mm
Max flow rate	10.6 l/s
Max head	15.0 m

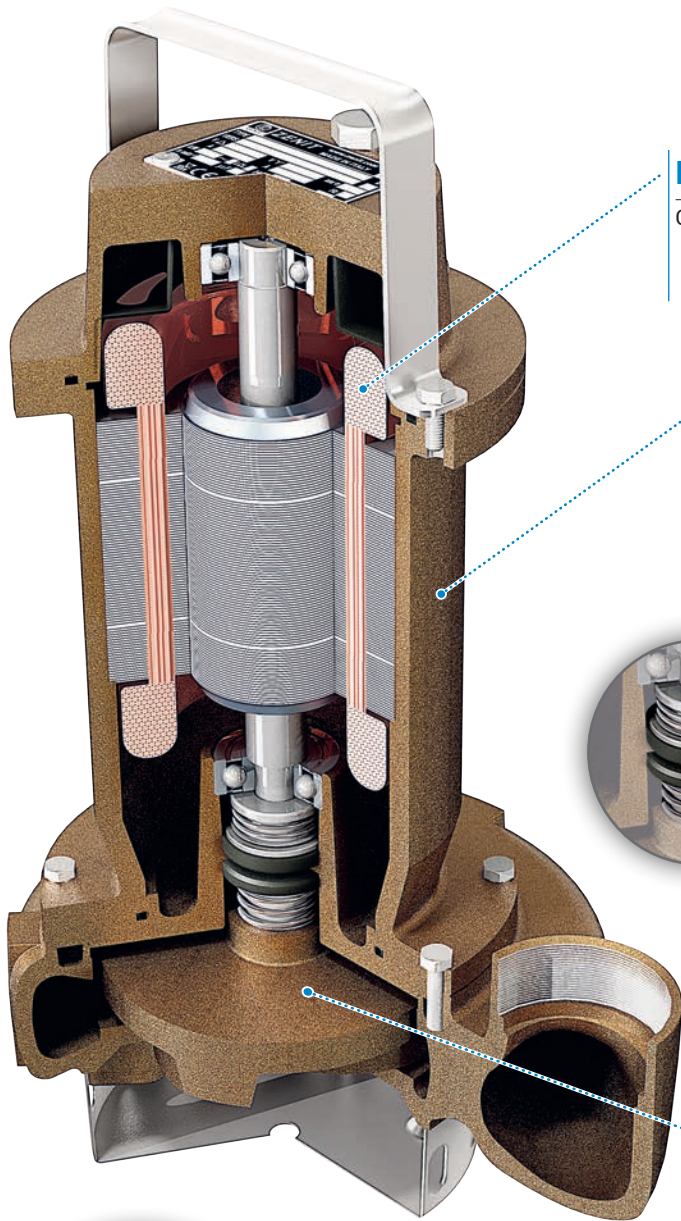
Power supply	220/240V ~1 - 380/400V ~3
Frequency	50 Hz
Power	0.37 ÷ 1.5 kW
Poles	2
Discharge vertical	G 1¼" - G 2"
horizontal	-
Free passage	max 15 mm
Max flow rate	12.5 l/s
Max head	18.0 m

Power supply	220/240V ~1 - 380/400V ~3
Frequency	50 Hz
Power	0.37 ÷ 1.5 kW
Poles	2 / 4
Discharge vertical	G 2"
horizontal	DN65 - DN80
Free passage	max 60 mm
Max flow rate	18.4 l/s
Max head	14.9 m

Power supply	220/240V ~1 - 380/400V ~3
Frequency	50 Hz
Power	0.37 ÷ 1.5 kW
Poles	2
Discharge vertical	G 1¼" - G 2"
horizontal	-
Free passage	max 15 mm
Max flow rate	12.5 l/s
Max head	17.8 m

Power supply	380/400V ~3
Frequency	50 Hz
Power	2.4 ÷ 15.0 kW
Poles	2 / 4
Discharge vertical	-
horizontal	DN65 - DN80 - DN100
Free passage	max 80 mm
Max flow rate	72.8 l/s
Max head	40.2 m

SPECIAL ALLOY [BRONZE] Series



MOTOR

Oil-bath motor with thermal overloads.

CASE

Aluminum-bronze construction which makes the pump suitable for use with chemically aggressive liquids.

MECHANICAL SEALS

Two mechanical seals in silicon carbide (2SiC).

IMPELLER

Multi-channel open (DR) or vortex (DG) impeller in aluminum bronze.

STRAINER [DRB]

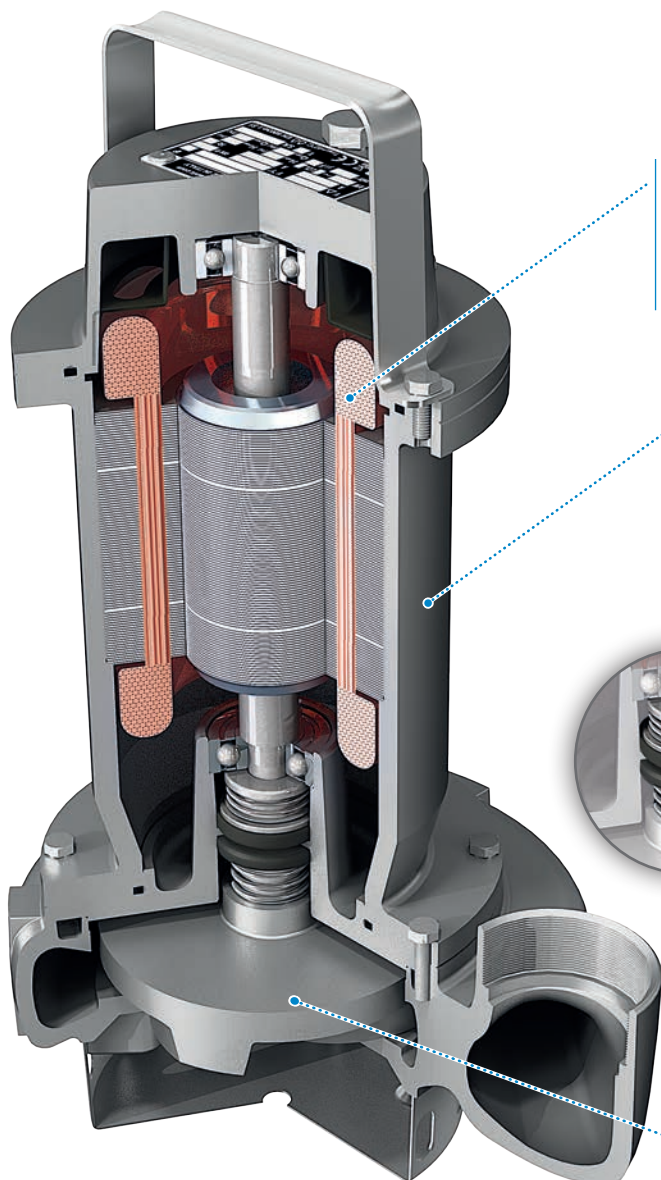
Stainless steel suction strainer.

FREE PASSAGE [DGB]

Ample free passage allowing the expulsion of solids and preventing fouling of the impeller.



SPECIAL ALLOY [STAINLESS STEEL] Series



MOTOR

Oil-bath motor with thermal overload protection devices.

CASE

CF-8M (AISI 316) steel construction which makes the pump suitable for use in saline environments

MECHANICAL SEALS

Two mechanical seals in silicon carbide (2SiC).



IMPELLER

Multi-channel open (DR) or vortex (DG) impeller in CF-8M (AISI 316) stainless steel.

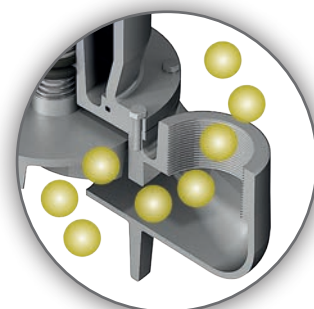
STRAINER [DRX]

Stainless steel suction strainer.



FREE PASSAGE [DGX • DGY]

Ample free passage allowing the expulsion of solids and preventing fouling of the impeller.



GREY Series

The Grey series streamlines and updates our range with efficient, reliable products.

The Grey series features completely redesigned hydraulics and motors, to guarantee high performance, low power consumption and outstanding versatility.

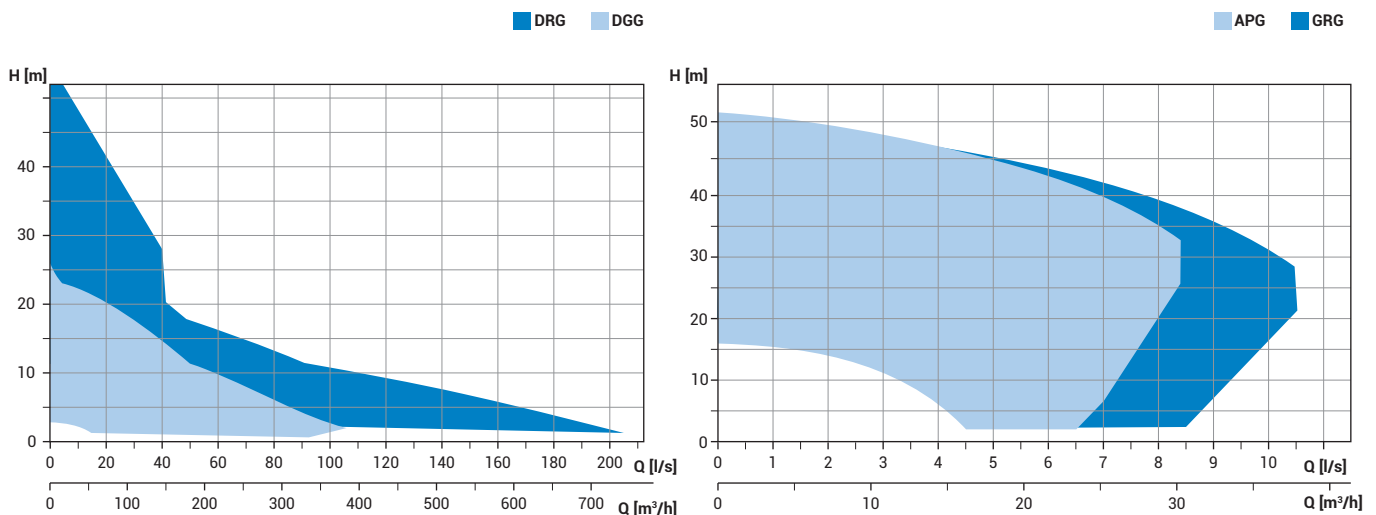
The range incorporates models with 50 and 60 Hz single-phase and three-phase motors ranging from 1.5 to 18.5 kW.

The double mechanical seal in oil chamber guarantees a high level of reliability even when used with heavily soiled wastewater over an extended period.

Models are available with channel (**DRG**), grinding (**GRG**), high head (**APG**) and vortex impeller (**DGG**) to satisfy a wide variety of application requirements, from small domestic lifting stations to civil and industrial treatment plants.

[*] 0.37 ÷ 1.5 In development

Operating ranges



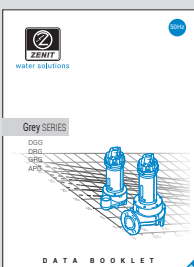
Construction materials

Motor casing	Ghisa EN-GJL-250
Impeller	Ghisa EN-GJL-250
Nuts and bolts	Stainless steel - Class A2-70
Standard gaskets	NBR rubber
Drive shaft	AISI 431 stainless steel
Cutting knife	Chromium steel [GR only]
Painting	Bicomponent epoxy paint with high resistance to corrosion

The data provided are not binding. Zenit reserves the right to modify the product without advance notification.

Operating specifications

Max operating temperature	40°C
pH of treated liquid	6 ÷ 14
Viscosity of treated liquid	1 mm²/s
Max immersion depth	20 m
Density of treated liquid	1 Kg/dm³
Max acoustic pressure	<70 dB
Max starts per hour	20 [<10 kW] , 15 [>10 kW]



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DGG

DG [DRAGA]

- Vortex impeller
- Full free passage



- Biological liquids and wastewater
- Civil and industrial lifting
- Wastewater treatment plants and livestock farms

Range characteristics

Power supply	220/240 V ~1 - 380/400 V ~3
Frequency	50 Hz
Power	0.37 ÷ 15 kW
Poles	2 / 4 / 6
Discharge vertical	G 1½" - G 2½"
horizontal	DN65 ÷ DN150
Free passage	max 125 mm
Max flow rate	106 l/s
Max head	24.5 m



DRG

DR [DRENO]

- Channel impeller
- Large free passage



- Recirculation of industrial and process waters
- Civil lifting
- Drainage and lifting of water from first rainfall tanks

Power supply	220/240 V ~1 - 380/400 V ~3
Frequency	50 Hz
Power	0.37 ÷ 18.5 kW
Poles	2 / 4 / 6
Discharge vertical	G 1¼" - G 2"
horizontal	DN65 ÷ DN250
Free passage	max 110 mm
Max flow rate	205 l/s
Max head	50.0 m



GRG

GR [GRINDER]

- Multi-channel open impeller
- Grinding system with rotary knife



- Lifting of liquids containing fibres and filaments
- Professional and industrial applications
- Livestock farms

Power supply	220/240 V ~1 - 380/400 V ~3
Frequency	50 Hz
Power	0.75 ÷ 9 kW
Poles	2 / 4
Discharge vertical	-
horizontal	G 1½" - G 2"
	DN40 ÷ DN100
Free passage	-
Max flow rate	8.4 l/s
Max head	53.5 m



APG

AP [Alta Prevalenza]

- Multi-channel open impeller
- High manometric head



- Industrial applications and car-washes
- Clean water in fountains and water features
- Irrigation and fish farming

Power supply	220/240 V ~1 - 380/400 V ~3
Frequency	50 Hz
Power	0.75 ÷ 9 kW
Poles	2
Discharge vertical	-
horizontal	G 1½" - G 2"
	DN40 ÷ DN50
Free passage	max 10 mm
Max flow rate	10.5 l/s
Max head	52.0 m

GREY Series



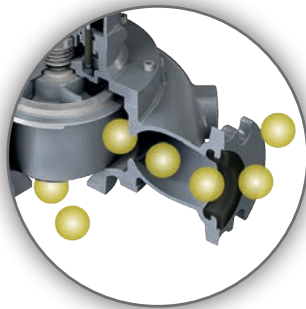
HANDLE

Rugged stainless steel lifting and carrying handle



PRESSURISED TESTING

Every model undergoes pressurised testing to guarantee perfect assembly and operation of the gaskets, cable gland and mechanical seals.



FREE PASSAGE [DGG]

Ample free passage allowing the expulsion of solids and preventing fouling of the impeller.

Highlight

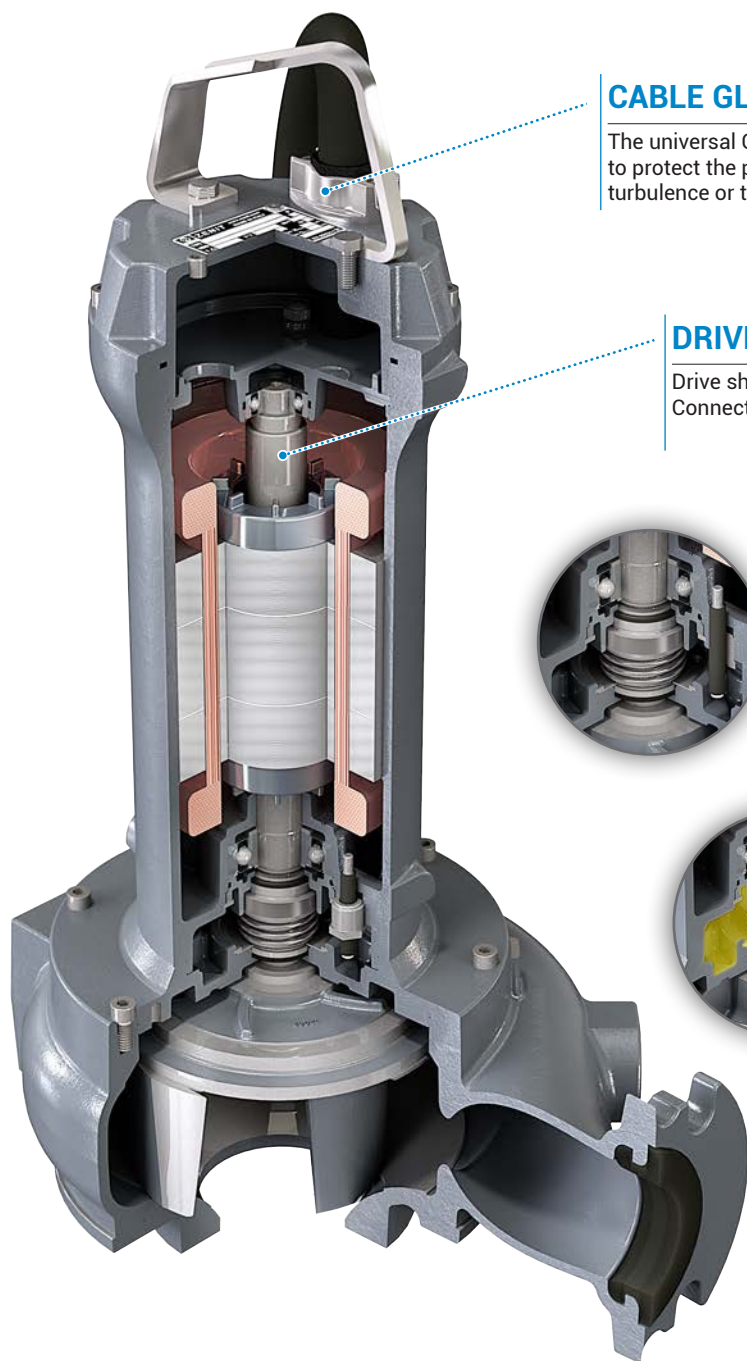


EFFICIENT AND RELIABLE

The Grey series offers reduced purchasing, installation and maintenance times and costs thanks to a wide choice of models and the use of immediately available standard components. Exceptionally reliable, the Grey series needs far fewer repairs, meaning reduced costs.

Running costs will be lower and there will be fewer system stoppages, allowing more effective maintenance scheduling.

GREY Series



CABLE GLAND

The universal GAS thread of the cable gland is able to take a sheathing pipe to protect the power cable from mechanical or chemical damage due to turbulence or the aggressive nature of the liquid.

DRIVE SHAFT

Drive shaft in AISI 431 stainless steel.
Connection to impeller via tapered coupling.

MECHANICAL SEALS + V-RING

Two mechanical seals in silicon carbide (SiC-SiC) enclosed in an inspectable oil chamber. This prevents all contact between the mechanical seals and any solids or filaments in the wastewater.



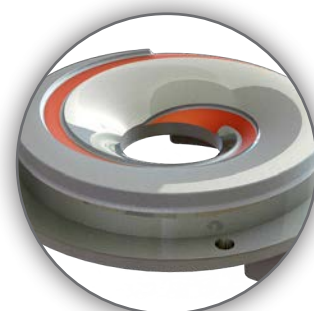
OIL CHAMBER

Large, inspectable oil chamber to guarantee longer mechanical seal lifetime.
Leakage detection sensor.



ANTI-CLOGGING SYSTEM [DRG · GRG]

The special conformation of the hydraulic part ensures the expulsion of solids and prevents fouling of the impeller.



UNIQA® Series

UNIQA series pumps, designed for heavy-duty professional applications, are used in industrial and other wastewater treatment plants and for lifting sewage and pumping wastewater which contains solids.

Motors are designed with the aim of achieving the Premium (IE3) efficiency class according to the EN 60034-30 standard and guarantee high performance with low energy use.

There are various types of hydraulics, to adapt perfectly to any type of application.

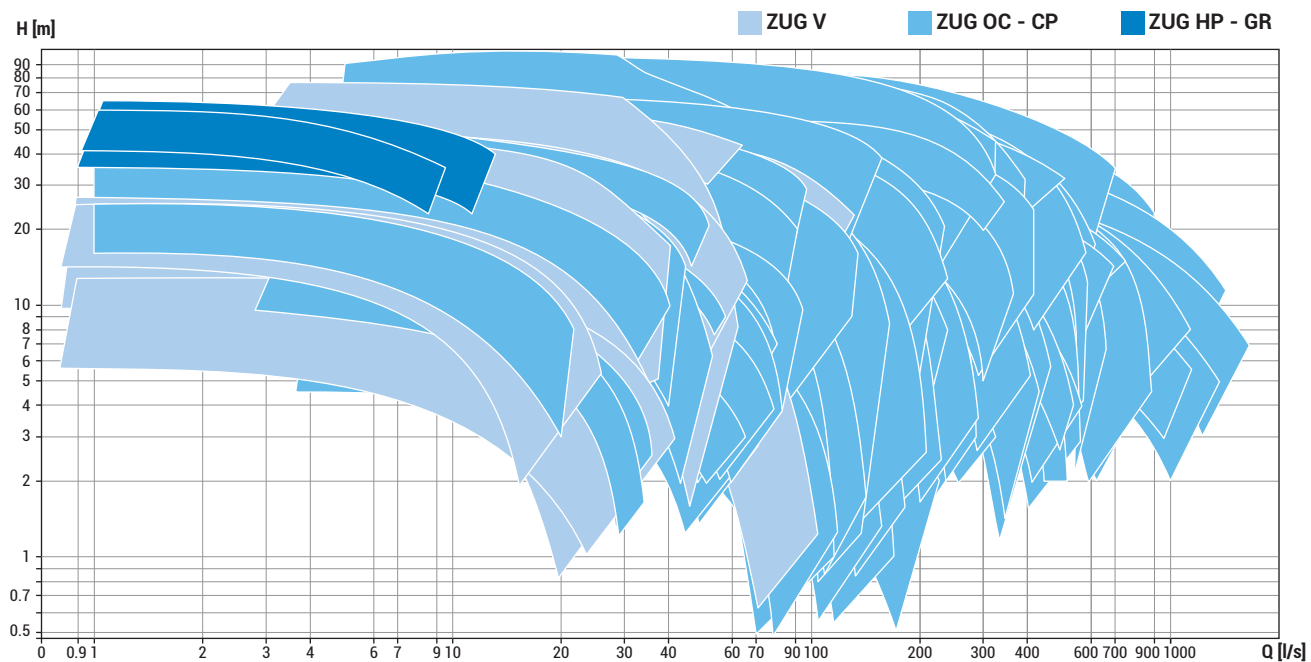
The range includes models with vortex impeller (**ZUG V**) with full free passage, with channel impeller (**ZUG OC**) with anti-clogging and anti-fouling systems, chopper (**ZUG CP**) equipped with cutting system able

to grind particles of any shape or proportion, with high head (**ZUG HP**), capable of delivering high hydraulic performances, and with grinding system (**ZUG GR**) for use with soiled liquids and where filaments are present.

Depending on the service required, each model comprises a motor-hydraulics combination chosen to provide optimal performance at the duty point, low energy use, and high reliability, thanks to the use of the materials best suited to the type of application.

The entire range is available in the DRY version, which requires no external liquid inputs and allows the electric pump to operate continually (S1 duty) even if partially submerged or installed in a dry chamber.

Operating ranges



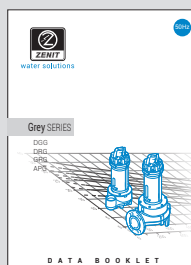
Construction materials

Motor casing	Cast iron EN-GJL-250
Impeller	Cast iron EN-GJL-250
Nuts and bolts	Stainless steel - Class A2-70
Standard gaskets	NBR rubber
Drive shaft	AISI 431 stainless steel
Cutting knife	Chromium steel [ZUG GR only]
Painting	Bicomponent epoxy paint with high resistance to corrosion

The data provided are not binding. Zenit reserves the right to modify the product without advance notification.

Operating specifications

Max operating temperature	40°C
pH of treated liquid	6 ÷ 14
Viscosity of treated liquid	1 mm ² /s
Max immersion depth	20 m
Density of treated liquid	max 1.1 Kg/dm ³
Max acoustic pressure	<70 dB
Max starts per hour	20 [0 ÷ 10 kW], 15 [10 ÷ 160 kW], 10 [≥ 160 kW]



The Technical Data Booklet complete with duty curves is available for download in the download area of zenit.com

To select the pump best suited to your needs we advise you to use the **Zeno Pump Selector** configuration tool on the zenit.com website



ZUG V

VORTEX



- Cast iron vortex impeller
 - Full free passage
-
- Biological liquids and wastewater
 - Suitable for civil pumping stations and lifting wastewaters in livestock farms and industrial plants



ZUG OC

OPEN CHANNEL



- Channel impeller in cast iron
 - Large free passage
-
- Liquids containing suspended solids
 - Suitable for sewage and drainage systems and first rainfall tanks



ZUG CP

CHOPPER



- Multi-Channel Impeller in cast-iron with special Molib-Tech™ treatment
 - Chopper system able to cut particles of any shape of proportion
-
- Liquids containing solid parts and fibres
 - Suitable for sewage, lifting of not strained black water



ZUG GR

GRINDER



- Cast iron multi-channel open impeller
 - Grinding system with rotary knife
-
- Soiled liquids containing fibres and filaments
 - Suitable for professional and heavy-duty applications



ZUG HP

ALTA PREVALENZA



- Cast iron multi-channel open impeller
 - High manometric head
-
- Clean, rain and seepage water
 - Suitable for applications in agriculture, irrigation and fish farming

Range characteristics

Power supply	380/400 V ~3
Frequency	50 Hz
Power	3 ÷ 45 kW
Poles	2 / 4
Discharge vertical	-
horizontal	DN65 ÷ DN150
Free passage	max 125 mm
Max flow rate	110.0 l/s
Max head	75.0 m

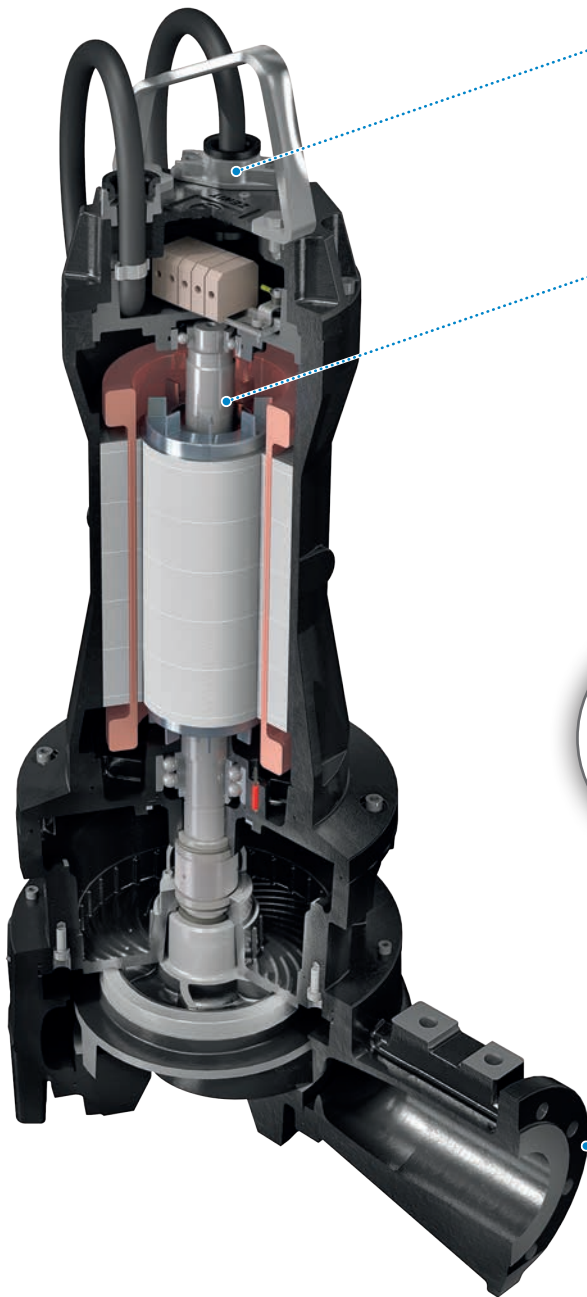
Power supply	380/400 V ~3
Frequency	50 Hz
Power	1.8 ÷ 355 kW
Poles	2 / 4 / 6 / 8 / 10 / 12
Discharge vertical	-
horizontal	DN80 ÷ DN600
Free passage	max 220 x 110 mm
Max flow rate	1600.0 l/s
Max head	100.0 m

Power supply	380/400 V ~3
Frequency	50 Hz
Power	3 ÷ 355 kW
Poles	2 / 4 / 6 / 8 / 10 / 12
Discharge vertical	-
horizontal	DN80 ÷ DN600
Free passage	max 220 x 110 mm
Max flow rate	1600.0 l/s
Max head	100.0 m

Power supply	380/400 V ~3
Frequency	50 Hz
Power	4 ÷ 11 kW
Poles	2
Discharge vertical	-
horizontal	DN50 ÷ G 2"
Free passage	-
Max flow rate	8.0 l/s
Max head	57.0 m

Power supply	380/400 V ~3
Frequency	50 Hz
Power	4 ÷ 11 kW
Poles	2
Discharge vertical	-
horizontal	DN50 ÷ G 2"
Free passage	max 10 mm
Max flow rate	11.0 l/s
Max head	61.0 m

UNIQA® Series

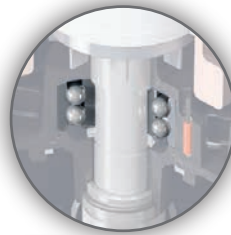


CABLE GLAND

On request the cable entry point can be sealed with resin, preventing all possibility of water seeping inside the motor cover even if the cable's outer sheath is torn.

DRIVE SHAFT

Drive shaft in AISI 431 stainless steel.
DUPLEX steel shaft available as optional.



BEARINGS

Oversized bearings to guarantee 100000 working hours.



MECHANICAL SEALS

Two silicon carbide mechanical seals in the oil sump and V-rings. The oil can be checked and changed even with the pump vertical, using plugs on the outside of the mount.



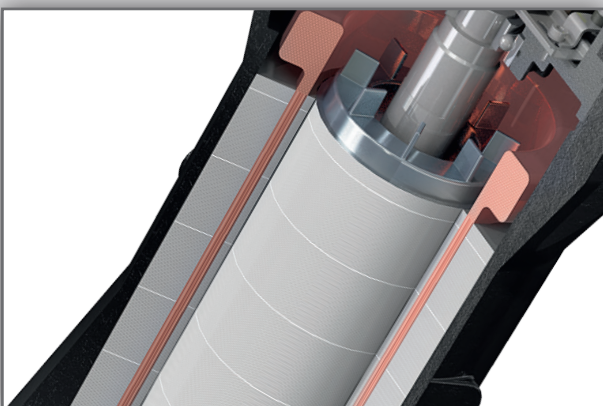
PROBE

Possibility to equip the pump with many different optional probes to detect any anomaly.
Humidity probe to detect water in the mechanical-seal oil-chamber standard also for ATEX version.

FLANGES

Various flange drilling are available, including ANSI and BS.

Highlight



HIGH EFFICIENCY MOTOR

Motor designed with the aim of achieving the PREMIUM (IE3) efficiency class according to EN 6034-30. Operation guaranteed in S1 mode even in water at a temperature of 60° C or above.

Generally, since energy costs are higher than other expenses, continuous duty provides higher savings compared to a conventional system and the initial investment in a high efficiency systems is soon recouped, without considering the considerable advantages in terms of environmental footprint.

UNIQA® Series

CLOGGING-PROOF HYDRAULICS

All hydraulic components are designed for the highest efficiency and the best performance while still ensuring ample free passages. Impellers are available in cast-iron, Stainless steel, bronze/aluminium and Molib-tech™, this last is an innovative treatment that assures a much longer life compared to traditional ceramic paint.

All models with channel hydraulics feature an axial adjustment system allowing the impeller clearance to be restored, to maintain performance even further to normal wear and tear.

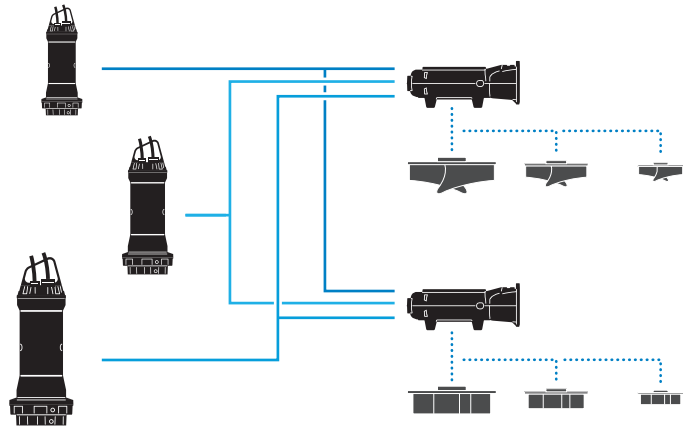
The ACS (Anti-Clogging System) consists of a spiral groove of suitable depth cut into the diffuser plate.

This prevents clogging of the impeller even with highly fouled liquids, allows stringy items to be pulled out or unwound and renders the hydraulics clogging-proof.



MODULARITY

The UNIQA series features a modular design in which the motor and hydraulics are perfectly coupled to each other. This characteristic allows the creation of particularly reliable units, thanks to the use of materials specific for the intended type of liquid and achievement of top performances, since every component is optimised for the duty point and of suitable size to guarantee minimal energy use.



PATENTED COOLING SYSTEM

The motor is cooled by means of a patented internal "closed circuit" system. This ensures that there is no adulteration of the fluid used even if contaminated liquid accidentally enters the oil sump due to wear of the first mechanical seal. Continuous duty is ensured even in dry and partially submerged working conditions.



ATEX

On request available ATEX version of the pump suitable for installation in potentially explosive atmosphere. Humidity probe to detect water in the mechanical-seal oil-chamber is standard also for ATEX version.

II 2G Ex db k IIB T4 / II 2D Ex tb IIIC T135°C

ZENIT

PRODUCT RANGE

- › Electrical submersible pumps
- › **Lifting stations**
- › Aeration and mixing
- › Hydraulic accessories
- › Electrical accessories

Lifting stations

blueBOXe • *sphereBOX* • *vertiBOX* • BOX PRO



Lifting stations

Our PE lifting stations are an effective solution for collecting and pumping wastewater and drainage water to the sewer system, when a gravity feed is not available or distances are too great.

They are mainly used in rural or hilly areas with low population density, without an extensive municipal sewer system; or else following rezoning when connecting an area to the mains water network.

Given their many advantages, lifting stations are today the best choice for a low cost, safe and eco-compatible solution.

blue **BOX400_e**



Suitable for collecting and lifting clear, rain and wastewater from washing machines, sinks and WCs in systems installed at a lower level than the sewer, in locations such as garages or basements.

sphere **BOX**



Can be used for collecting and disposing of heavily soiled wastewater of civil origin, sewage and industrial wastewater.

verti **BOX**



They are ideally suited for collecting and lifting clear wastewater and grey water in residential environments, rainwater from car parks or courtyards, and in small civil plant situations for transferring drainage water and seepage water.

BOX^{PRO}



Rugged polyethylene lifting stations for use in large capacity residential and civil applications.



blue **BOX400_e**

blueBOX 400e is a high quality polyethylene tank, versatile and easy to install.

It is suitable for collecting clear, rain and wastewater from storm drains, washing machines, sinks and WCs in systems installed at a lower level than the sewer.

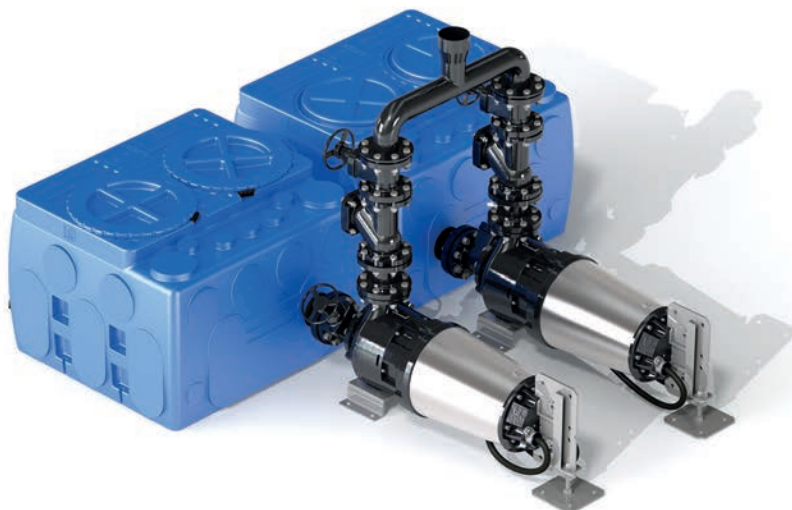
Its large capacity of 400 litres makes it ideal for use in residential and industrial installations.

A large number of technical features allow streamlined installation procedures and excellent service with low maintenance.

blueBOX 400e can be equipped with up to 2 pumps for systems requiring high flow rates or alternating duty cycles to avoid over-frequent start-ups.

Pumps can be installed either inside or outside the tank to suit systems of all kinds.

blueBOX'S RUGGED
CONSTRUCTION
AND RELIABILITY
MAKE THESE LIFTING
STATIONS THE IDEAL
SOLUTION FOR
RESIDENTIAL AND
INDUSTRIAL SYSTEMS



Range characteristics

Capacity from 400 litres

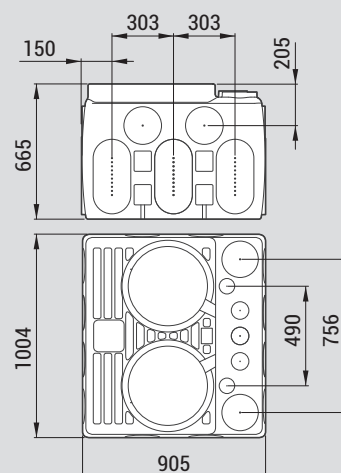
Double cover with screw fastening, with safety lock and O-ring for maximum tightness.

Slots at sides for floor-mounting

Intake and discharge pipeline ports provided on all sides

Float switches can be installed for start/stop level control

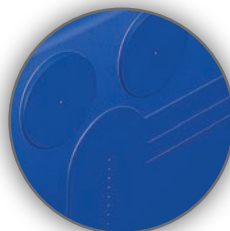
Compatible with *bluePRO* and *UNIQA* range





COVER

Rugged walk-over cover with screw fastening, safety lock and twin O-rings.



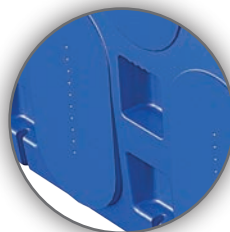
INTAKES

Wastewater intake and discharge pipeline ports also provided on sides.



FIXING

Slots for floor mounting.



HANDLES

Integral handles for lifting and transport, for easy transfer by hand.



DRAINAGE

Emergency drainage fitting located low down in the unit. Threaded union for fitting during installation included.



GASKETS

Airtight seal between pipelines and *blueBOX* assured by NBR rubber gaskets. No additional sealants are required.

sphereBOX

The **sphereBOX** lifting station incorporates various modular components allowing a custom composition which adapts to the needs of users.

As well as the different tank capacities, it is also possible to choose the type of internal installation, the most suitable riser and the type of cover (walk-over or drive-over version).

Use with *bluePRO* or Grey pumps with 2" discharge recommended.

Can be used for collecting and disposing of heavily soiled wastewater of civil origin, sewage and industrial wastewater.

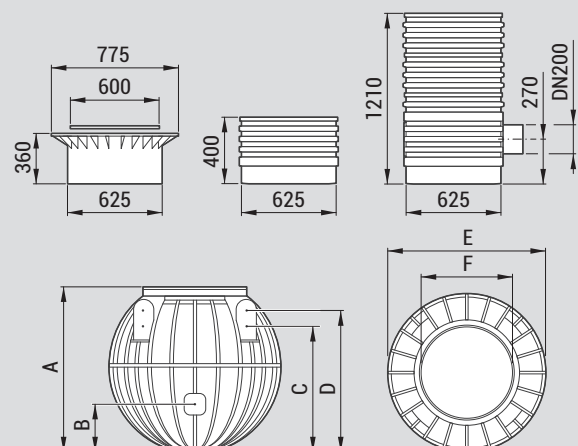
TOUGH AND VERSATILE THANKS TO THE NUMEROUS ACCESSORIES AND DIFFERENT CONFIGURATIONS POSSIBLE, *sphereBOX* IS THE IDEAL SOLUTION FOR CIVIL AND INDUSTRIAL CONFIGURATIONS

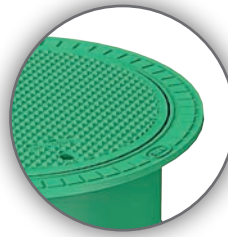


Range characteristics

Range includes 600, 900 and 1200 litre models
PE structure
Suitable for underground installation
1 1/4" - 2" Discharge

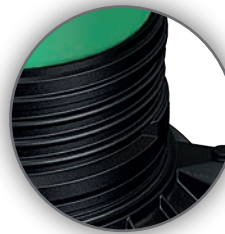
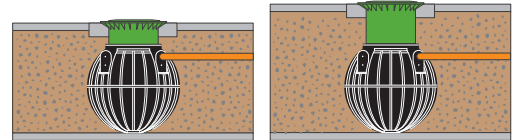
	A	B	C	D	E	F	kg
sphereBOX 600	1045	-	790	890	1125	645	27
sphereBOX 900	1345	545	1005	1105	1155	645	47
sphereBOX 1200	1670	545	1330	1430	1155	645	58





COVER

Tough cover, hermetically sealed with a gasket, with safety closure and inspection window.



RISERS

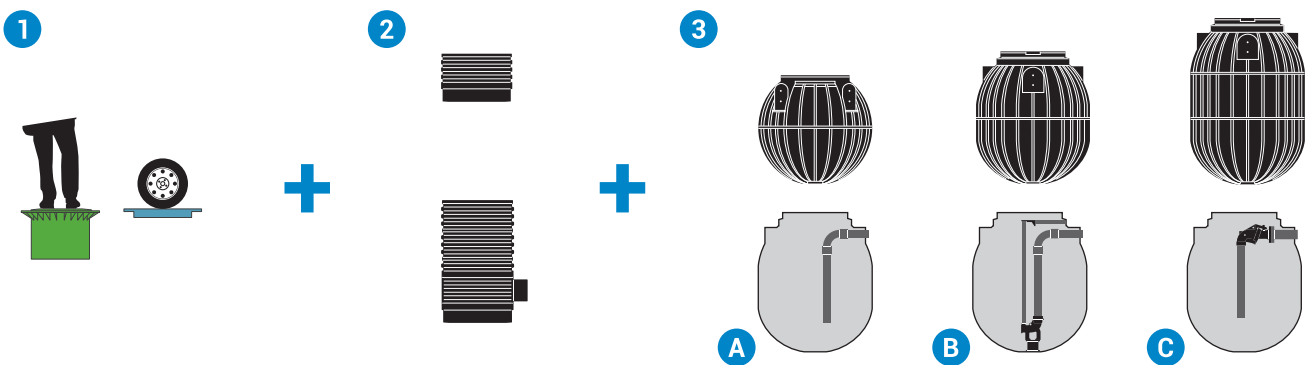
Two different riser types can be used, simplifying installation even in existing systems.



STRUCTURE

Tough PE construction with reinforcement ribs guaranteeing durability and effective anchoring to the ground.

A modular solution



1 Cover

Walk-over or drive-over cover, Ø 600 mm, compatible with all **sphereBOX** and **vertiBOX** models. Adjustable height.

2 Optional riser [optional]

Ø 600 mm - height 400-1210 mm

3 Tank 600 / 900 / 1200 litre can be installed in the following ways:

(A) Fixed with ball valve [VAP], gate valve [SRP], and 1 ¼" PVC connecting pipe for 1 pump

(B) with vertical discharge bottom coupler [DAC-V], ball valve [VAP] and 2" PVC connecting pipe for 1 pump

(C) with external coupler [DAC-E], ball valve [VAP] and 2" PVC connecting pipe for 1 pump (2 pumps only for **sphereBOX** 1200 model)

vertiBOX lifting stations can be used in a wide range of situations thanks to their modular structure, which allows the installation to be optimised for the specific usage.

They are equipped to house a DR steel/ 37 stainless-steel pump with channel impeller.

They are ideally suited for collecting and lifting clear wastewater and grey water in residential environments, rainwater from car parks or courtyards, and in small civil plant situations for transferring drainage water and seepage water.

THE POSSIBILITY TO
CONSTRUCT THE
LIFTING STATION
TO REQUIREMENTS
USING MODULAR
COMPONENTS ALLOWS
THE INSTALLATION TO
BE OPTIMISED



Caratteristiche della gamma

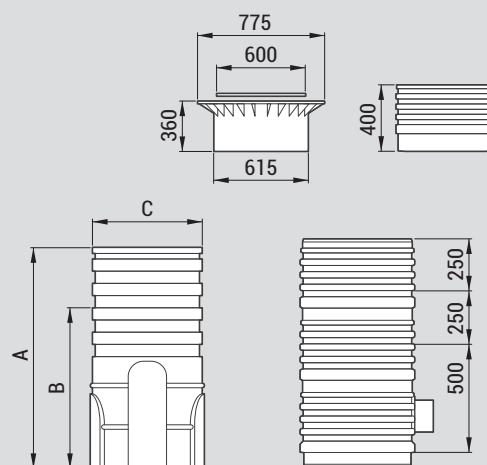
Capacity from 300 [850 mm height] to 420 litres [1200 mm height]

PE structure

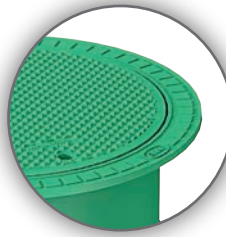
Suitable for underground and surface installation

G1¼" Discharge

	A	B	C	kg
vertiBOX 85-120	1200	850	670	18

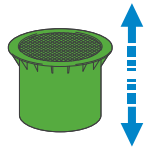


vertiBOX



COVER

Rugged walk-over cover or drive-over cover hermetically sealed with a gasket, with safety closure and inspection window. A telescopic system allows its height to be adjusted to suit any type of installation.



STRUCTURE

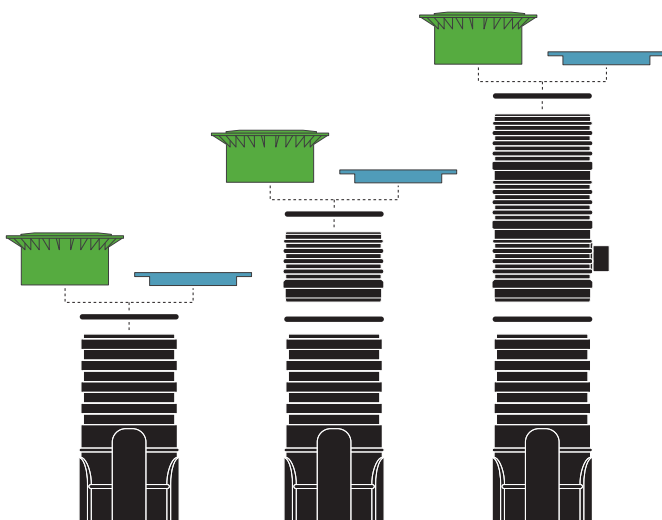
Tough PE construction with reinforcement ribs guaranteeing durability and effective anchoring to the ground.



INLETS

Provision for intake pipes from DN50 to DN200 NBR gaskets to seal off liquids and odours. Holes can be cut on site using a normal holesaw of appropriate diameter.

A modular solution



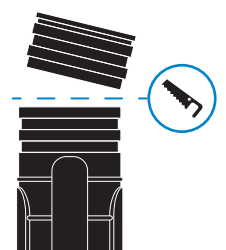
vertiBOX can incorporate:

- BASE module
- 400 mm RISER
- 1210 mm RISER
- WALK-OVER or DRIVE-OVER cover

All component joints are watertight thanks to the use of tough lip seals.

The perfect compatibility of the components means it is possible to create made-to-measure solutions which meet requirements for collecting and lifting water in the best possible manner; this makes them ideal for a wide range of applications, from domestic and residential through to civil plant and industrial.

All BASE modules can be cut to a height of 850 mm if required, reducing their capacity to 300 litres while maintaining complete compatibility with all the other components in the range.



BOX PRO

The **BOX PRO** range comprises tough PE lifting stations with capacities ranging from 1,000 to 18,000 litres.

These stations are specially shaped to resist the pressure to which they are subject once installed. Their smooth inner walls prevent the formation of encrustations which can lead to a reduction in volume and be a cause of bad odours, as well as ensuring optimal performance.

BOX PRO can be equipped with one or two pumps installed with a bottom coupling system. Zenit recommends the use of float switches connected to an electrical control panel for managing start, stop and alarm levels.

They are designed mainly for collection and lifting of wastewater with solids and sewage of civil and industrial origin, including systems of significant size.

THE SHORT
INSTALLATION TIMES
AND PIPELINES
PREASSEMBLED INSIDE
THE TANK MEAN THAT
BOX PRO UNITS ARE
READY FOR IMMEDIATE
INSTALLATION
UNDERGROUND, WITH
IMPRESSIVE COST
SAVINGS



Range characteristics

Capacity from 1000 to 18000 litres

Able to take 1 or 2 pumps, installed by means of bottom coupler

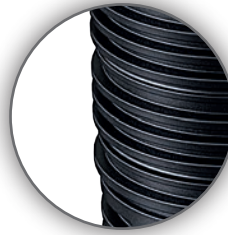
Option of automatic pump control by float-switches

Anti-overflow alarm



COVER [OPTIONAL]

The large opening Ø 800 mm ensures optimal access for maintenance and a full view during routine inspections. Rugged polypropylene walk-over cover as standard.



EXTENSION

A rugged extension, 1 m high and compatible with standard cover, is available.



STRUCTURE

In thick polyethylene with better resistance to low temperatures. Totally recyclable.



GROUND

All metal parts inside the lifting stations are connected to an electrical grounding circuit.



WIRING

Available in version with single cable glands or one or more output cable ducts Ø 63 mm.



INTAKE PIPE

Designed for connection of intake pipe Ø110 or Ø160 mm in the bottom of the lifting station to reduce turbulence. Joint with gasket to prevent leaks or escaping odours.



CHECK VALVES

Ball check valves always included in standard supply package.



INSTALLATION

Electric pump installed on foot fixed to the bottom by means of screws, with airtight gasket and steel stiffener bars. Start/stop system and anti-overflow alarm by means of float switches.

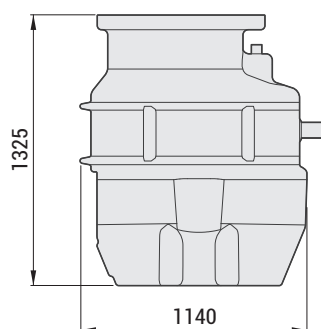



DISCHARGE

DN50 - DN65 - DN80 discharge pipe in PVC

Type M

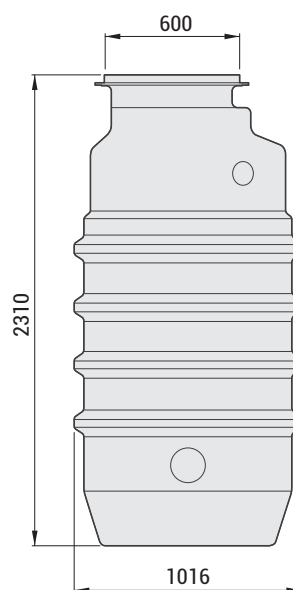
The ideal solution for small capacities from a single residence and where the available excavation depth is limited




BOX PRO M	
Capacity [l]	1000
Number of pumps	1 / 2
Max liquid temperature	40°C [up to 90° for short periods]
Intakes [Ø max]	3xØ160 - 2xØ110 [Cables]
Discharge	1/2 x DN50 ÷ DN150
 BOX PRO only	85

Type V

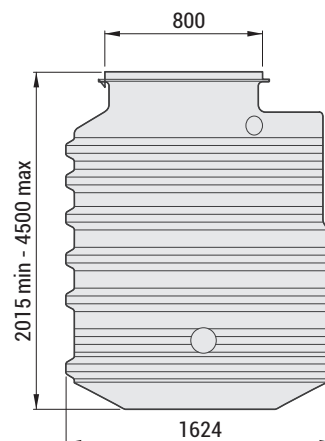
This is the most widely used system for single residences, bathrooms or small offices with up to 10 occupants




BOX PRO V	
Capacity [l]	2000
Number of pumps	1 / 2
Max liquid temperature	40°C [up to 90° for short periods]
Intakes [Ø max]	3xØ160 - 2xØ110 [Cables]
Discharge	1/2 x DN50 ÷ DN150
 BOX PRO only	134

Type S

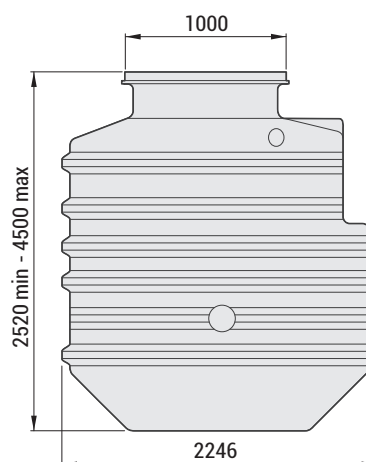
Ideal for small industrial/commercial facilities, restaurants, small hotels, retirement homes, camp sites




BOX PRO S	
Capacity [l]	4000 ÷ 9500
Number of pumps	1 / 2
Max liquid temperature	40°C [up to 90° for short periods]
Intakes [Ø max]	3xØ160 - 2xØ110 [Cables]
Discharge	1/2 x DN50 ÷ DN150
 BOX PRO only	242 ÷ 839

Type J

Recommended for use in large capacity applications such as hotels, hospitals and wastewater treatment plants



BOX PRO J	
Capacity [l]	10000 ÷ 18000
Number of pumps	1 / 2
Max liquid temperature	40°C [up to 90° for short periods]
Intakes [Ø max]	3xØ160 - 2xØ110 [Cables]
Discharge	1/2 x DN50 ÷ DN150
 BOX PRO only	422 ÷ 1508

ZENIT

PRODUCT RANGE

- › Electrical submersible pumps
- › Lifting stations
- › **Aeration and mixing**
- › Hydraulic accessories
- › Electrical accessories

Aeration and mixing

OXYPLATE 9"-12" • OXYTUBE 2 • OXYINOX
JETOXY 50 • JETOXY 80÷300
MIXER ZMD • MIXER ZMR



Aeration and mixing system

Zenit offers a line of aeration and mixing products for the highly specialised civil and industrial wastewater treatment sector.



9" and 12" disc-shaped and 2" tubular **air diffusers** with elastomer membranes providing high oxygen transfer efficiency



Venturi-type **submerged aerators**, which ensure an efficient combined mixing and aeration action and are especially suitable for homogenization and first rainfall storage tanks



Mixers with self-cleaning propellers with direct transmission and reduction gears

WE PLACE OUR
SPECIFIC EXPERTISE
AT THE SERVICE OF
PLANT ENGINEERS
AND INSTALLERS WHO
WORK IN THE WATER
TREATMENT SECTOR
EVERY DAY

As well as supplying products of outstanding quality, Zenit provides its customers with assistance including:

- **support for product selection** to guarantee the best fit with the plant's characteristics and achievement of the engineer's specified performances
- **plant design** tailored to specific needs, using components optimised for service at the duty point, with impressive savings on energy and purchase costs;
- **supervision during installation** to ensure the use and correct installation of genuine components, to guarantee a top quality system and optimal performance

AIR DIFFUSERS



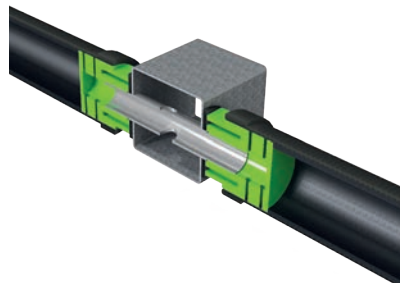
The Zenit range includes disc-shaped and tubular membrane air diffusers. Both models are fitted with high-quality membranes with perforation ensuring high oxygen transfer with low pressure drop, minimising the relative energy consumption. Disc-shaped diffusers can be fitted with integral ball check valves.

Zenit is able to design the most efficient solution for the customer's specifications, and supply the complete aeration system, including detailed assembly plans.

Operating mode

During operation, the membrane inflates to open the tiny holes and allow the air to flow out in the form of fine bubbles.

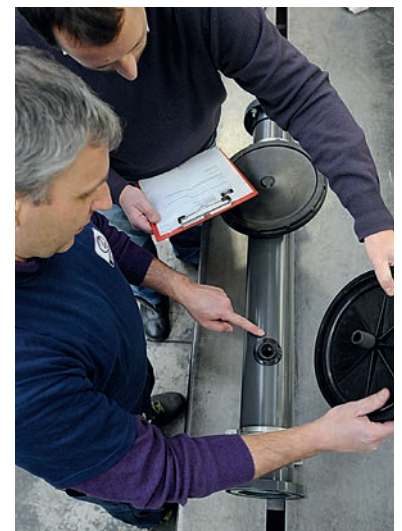
When the blower stops, the membrane deflates and the tiny holes close to prevent all risk of liquid inflow. What's more, the central part, free from holes and specially shaped, acts as a check valve.



Application

Membrane air diffusers are generally used in water treatment and purification processes where slurries have to be aerated to activate biological organic matter oxidation and nitrification processes.

They are also used in pre-aeration and aeration processes in oxidation tanks and aerobic digestion plants for industrial and civil sludges.



OXYPLATE 9"-12"

Disc-shaped air diffusers

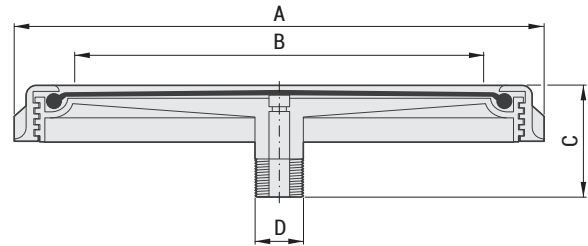
Disc-shaped diffusers having elastomer membrane with tiny holes for application in water treatment processes in reactors with continuous or intermittent aeration, especially recommended for high-efficiency permanent installations.

The quality, design and membrane hole size ensure unbeatable efficiency in terms of the ideal oxygen transfer-pressure drop balance.



Technical characteristics

	OXYPLATE 9"	OXYPLATE 12"
Outside diameter [mm]	270	340
Min. operating flow rate (Nm ³ /h)	2	2
Max. operating flow rate (Nm ³ /h)	6	10
Limit flow rate * [Nm ³ /h]	10	15
Active surface area (m ²)	0.038	0.06
Membrane thickness (mm)	2 ± 0.15	2 ± 0.15



Construction materials

Diffuser body	PP GF 30
Ring-nut	PP GF 30
Membrane	EPDM LP / SILICONE

	Overall dimensions (mm)					kg
	A	B	C	D	E	
OXYPLATE 9"	270	200	76	3/4" NPT	32	0.7
OXYPLATE 12"	340	310	76	3/4" NPT	32	1.2

Data with fine-bubble EPDM LP membrane. * No more than 10 min/day for membrane cleaning, tests, etc.

Accessories and components



ZENIT is able to design and build complete aeration systems comprising disc-shaped diffusers and preassembled PVC air distribution networks.

The high degree of standardisation and the use of special components manufactured by ZENIT itself allow the construction of simple, reliable, quick-to-install systems which are surprisingly inexpensive in spite of the use of top-quality materials such as PVC PN10 pipelines and stainless steel mounts.

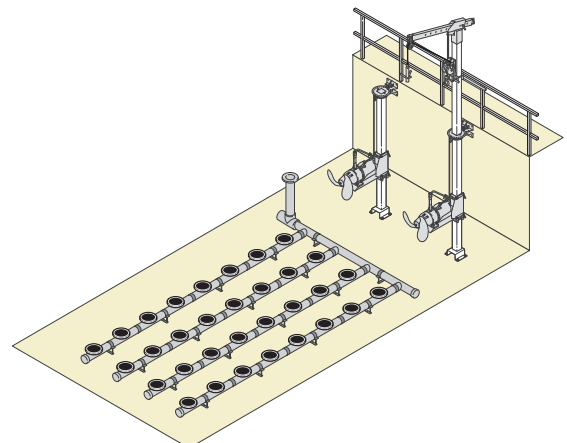
To facilitate the installation and servicing of its diffuser systems, Zenit has produced a series of tools that make every procedure quick and effective.

Installations

Preassembled systems are designed for quick, easy installation even by relatively unskilled staff, following the detailed instructions provided.

All connections are made by means of special self-aligning flanges with integral gasket.

The mounts are easily height-adjustable (up to 20 cm) to allow levelling even with uneven or slightly sloping tank bottoms.



OXYTUBE 2

Tubular air diffusers

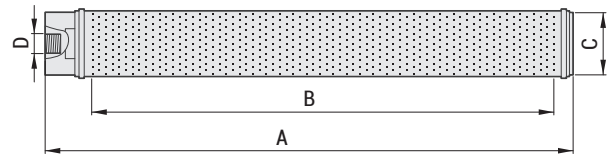
They are especially recommended for the construction of removable aeration systems and in all cases where a large output surface area is required with only a small number of air distribution pipelines.

Diffusers basically consist of a head with threaded connection, a rigid polypropylene mount and a tubular membrane in elastomer with tiny holes, secured with stainless steel band clamps.



Technical characteristics

	OXYTUBE 2 500	OXYTUBE 2 750	OXYTUBE 2 1000
Outside diameter [mm]	63	63	63
Length of perforated section [mm]	500	750	1000
Min. operating flow rate (Nm ³ /h)	1	2	3
Max. operating flow rate (Nm ³ /h)	6	9	12
Limit flow rate * [Nm ³ /h]	10	15	20
Active surface area [m ²]	0.09	0.135	0.18
Membrane thickness [mm]	1.7 ± 0.2	1.7 ± 0.2	1.7 ± 0.2



Construction materials

Membrane / Gasket	EPDM / SILICONE
Mount	PP GF 30
Band clamps	V2A [AISI 304]

	Overall dimensions (mm)				
	A	B	C	D	kg
OXYTUBE 2 500	560	500	63	¾" WR f	0.8
OXYTUBE 2 750	810	750	63	¾" WR f	1.1
OXYTUBE 2 1000	1060	1000	63	¾" WR f	1.3

Data with fine-bubble EPDM LP membrane. * No more than 10 min/day for membrane cleaning, tests, etc.

Accessories and components



Membranes made of different materials are available for different applications:

- EPDM LP with low plasticiser content (<15%) for civil wastewater with some industrial input and industrial wastewater with low fat, oil and hydrocarbon content. Maximum operating temperature 80 °C;
- SILICONE for industrial wastewater with high fat and hydrocarbon content. Maximum operating temperature 100°C;
- Stainless steel connectors for installation of diffusers in pairs facing each other on square manifold of 80x80 mm or 100x100 mm.
- Adaptors for manifolds with ready-made holes.

Installations

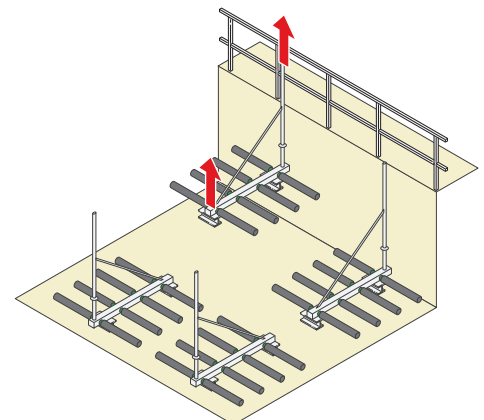
Especially recommended for small/medium sized systems, or in general in all cases where it is not possible to empty the tank for maintenance. These systems are built with stainless steel supply assemblies comprising basically a square manifold on which the diffusers are installed in facing pairs, a down-pipe, one or more stiffener tie-rods and a draining system.

The individual assemblies are simply placed on the bottom of the tank and connected to the main air pipeline with a flange.

Stability is ensured by counterweights that also act as feet.

No runner or anchor systems are required.

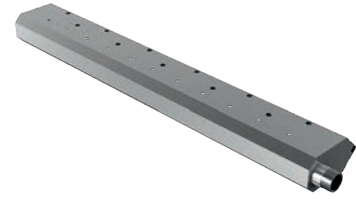
The individual assemblies are therefore easy to remove and install with the tank full and in operation.



OXYINOX

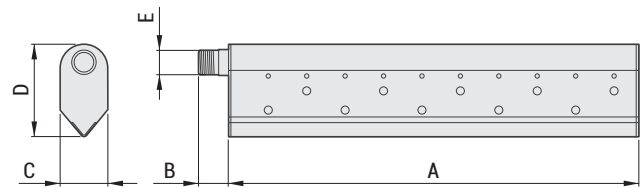
Large bubble tubular diffusers

Constructed in AISI 316 throughout, the type of diffuser is used where the liquid has to be both mixed and oxygenated. Its ideal applications are aerated sand separators, aerobic digestion tanks, pre-aeration tanks and in general any installation where the use of steel is necessary due to the nature of the liquid for treatment.



Technical characteristics

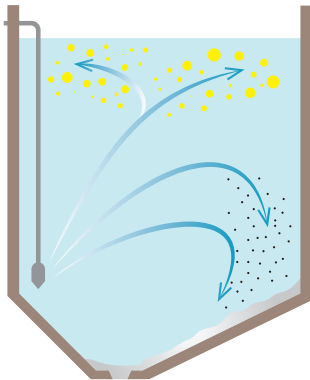
	L305	L610
Bubble dimensions	large	large
Body material	AISI 316	AISI 316
Top hole diameter [mm]	4	4
Bottom hole diameter [mm]	8	8
Total length [mm]	305	610
Thread connection	3/4" NPT	3/4" NPT



Performance

Nominal flow rate [Nm ³ /h]	20.0	40.0
Minimum operating flow rate (Nm ³ /h)	3.5	7.0
Maximum operating flow rate (Nm ³ /h)	40.0	80.0
Pressure drops at nominal flow rate [cm] (depth 4 m)	~ 9.5	~ 9.5

	Overall dimensions (mm)					kg
	A	B	C	D	E	
L305	305	28	50	100	3/4" NPT	1.5
L610	610	28	50	100	3/4" NPT	3.0



The air emitted by the diffuser in the form of large bubbles combines with the flow of wastewater to trigger a spiral motion which encourages sedimentation of the sand and flotation of the oils and fats.



SUBMERGED AERATORS

Venturi-type submerged aerators ensure an efficient combined mixing and aeration action and they are especially suitable for homogenization and first rainfall storage tanks.

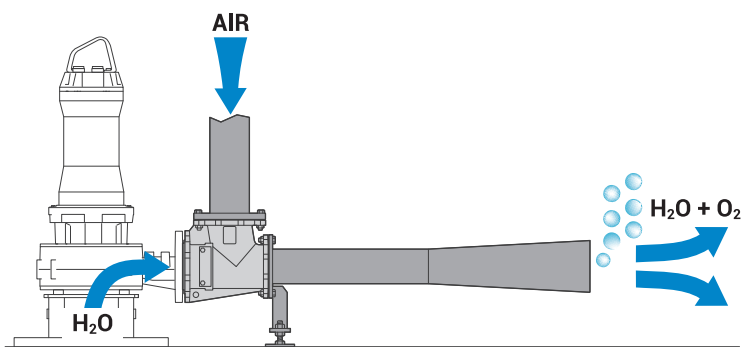
They consist of submersible pumps with power levels up to 30 kW and channel impellers with large free passage combined with "OXY" series ejectors.

OXY 80 and 150 units have a polyurethane (Vulkollan) diaphragm, easily replaceable without dismantling the pump from the ejector thanks to a patented system. The OXY80 device has a flange suitable for connection to electric pumps having DN80 and DN100 discharges.



Operating mode

In OXY devices, the liquid conveyed is mixed with the air by the "Venturi" effect, creating a mixture containing medium-fine air bubbles that increase the contact surface area and provide highly efficient oxygen exchange.



Application

OXY submerged oxygenation systems are used in industrial and other wastewater and sludge treatment plants, or whenever combined oxygenation and mixing are required.

These systems can be installed without emptying the tank.



JETOXY 50

Submerged aeration systems

JETOXY 50 units comprise a Venturi-type ejector coupled to a submersible electric pump rated from 0.37 to 1.5 kW with open multi-channel or vortex impeller.

JETOXY models can be selected on the basis of the performance curve best suited to requirements, optimising consumption.

Application

- Fish farms, small water treatment tanks, holding pits.

Characteristics

- Cast iron body (GJL-250);
- Suitable for use with DRO and DGO pumps;
- Can be permanently coupled to the pump or mounted on the bottom of the tank using the automatic coupler (DAC type)

Composition

- OXY body (cone + integral diaphragm);
- Sliding flange with gasket and stainless steel screws;
- Pipe guide.

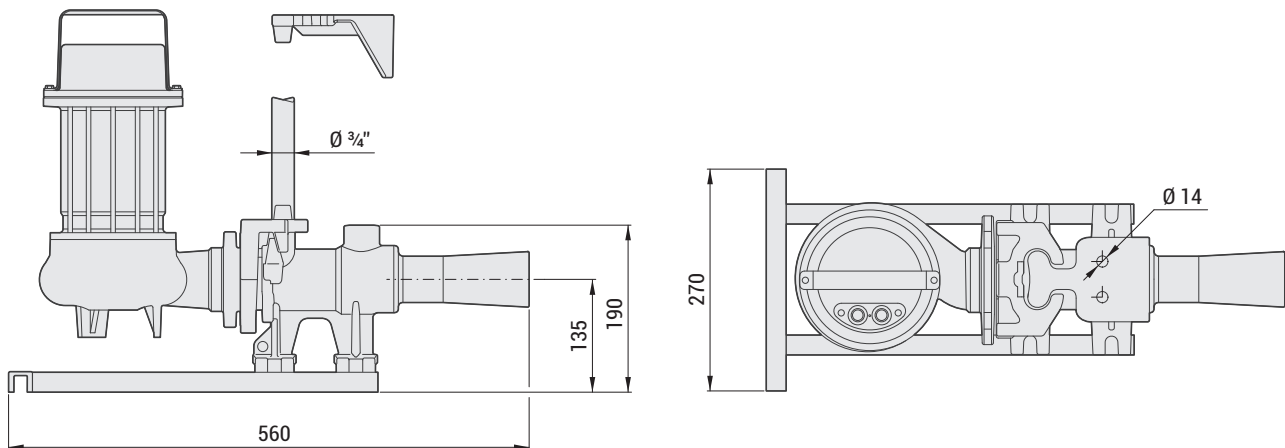
Materials

Body	Cast iron GJL-250
Diffuser cone	Cast iron GJL-250
Nuts and bolts	Stainless steel
Painting	Epoxy-vinyl



A special technical detail on the OXY body allows mechanical fixing (using screws) between the ejector and the sliding flange connected to the pump, creating a rigid system even suitable for mobile installation.

Overall dimensions



JETOXY 80÷300

Submerged aeration systems

JETOXY 80÷300 units comprise a Venturi-type ejector with replaceable diaphragm coupled to a submersible electric pump rated from 2.2 to 30 kW . Open multi-channel, open single-channel, and closed single or dual-channel impellers may be used depending on the type of liquid to be processed.

Application

- Holding, homogenisation and stabilisation tanks, first rainfall collection tanks, oxidation tanks,

Characteristics

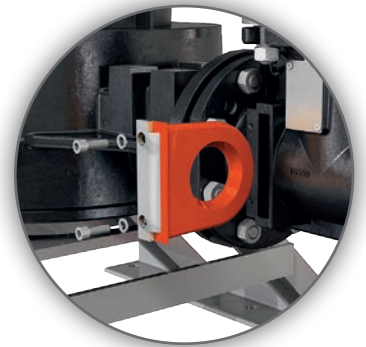
- Cast iron structure;
- Stainless steel diffuser cone;
- Diaphragm is interchangeable for flow rate adjustment or for easier replacement in the event of wear (PATENTED SYSTEM).

Composition

- OXY body;
- Interchangeable diaphragm;
- Stainless steel diffuser cone;
- Stainless steel screws;
- Air intake pipe with flue filter and galvanised steel lifting hook;
- Connecting tie-rod between pump and intake pipeline;
- Galvanised steel/spheroidal cast iron base.

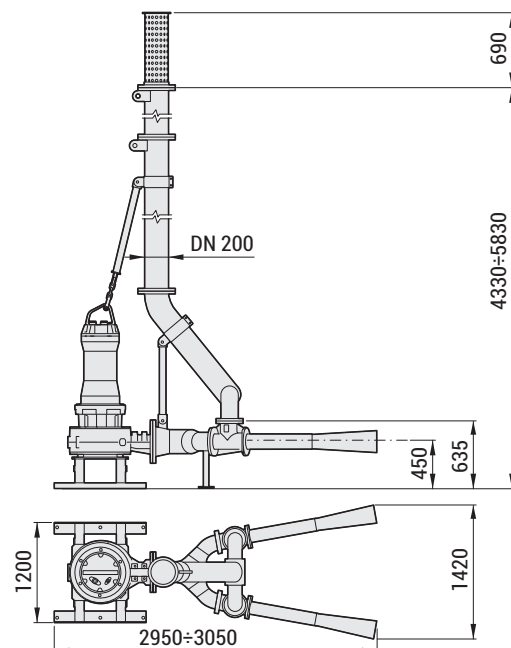
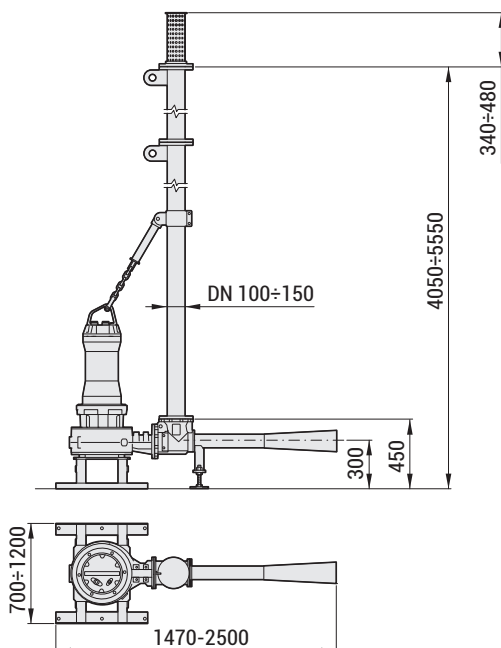
Materials

Body	Cast iron GJL-250
Diffuser cone	Stainless steel - AISI 304
Diaphragm	Vulkollan
Nuts and bolts	Stainless steel
Painting	Environment-friendly epoxy-vinyl



Units in the OXY 80-150 range have a polyurethane (Vulkollan) diaphragm, easily replaceable without dismantling the pump from the ejector thanks to a patented system.

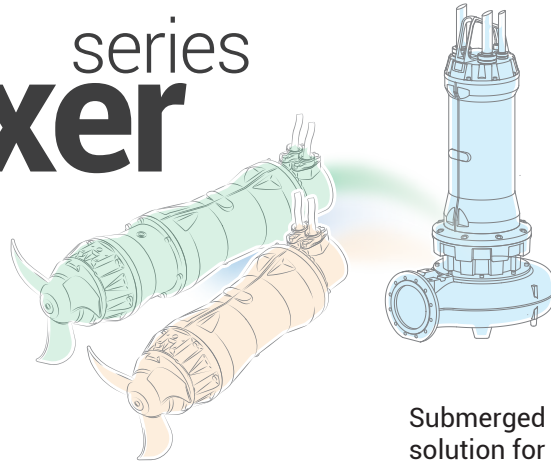
Overall dimensions



MIXERS

Essential components of water treatment and purification plants, the new Zenit mixers share the stylish looks, reliability and new-concept high-efficiency motors of the UNIQA range.

Mixer series



THE LOW PROPELLER RPM, NECESSARY IN APPLICATIONS WITH SLUDGES CONTAINING HIGH SOLID CONCENTRATIONS, IS ACHIEVED BY MEANS OF A RUGGED PLANETARY REDUCTION GEARBOX RATHER THAN MOTORS WITH A HIGH NUMBER OF POLES, FOR GREATER MECHANICAL RELIABILITY.

Submerged mixers are the most practical, efficient solution for mixing liquids in water treatment and purification plants.

Suitably installed in tanks, these devices apply a force varying depending on the propeller diameter, shape and rotation speed to the liquid in which they are immersed, and keep the mass of fluid in motion to boost homogenisation and prevent sediment formation.

They can be adopted in single or multiple installations, or in combination with bottom aeration systems, depending on the process in which they are used.

Their efficiency class IE3 motors, already applied on the **Zenit UNIQA** range of submersible pumps, keep running costs down, with low energy use and limited maintenance.

Their complete compatibility and vast assortment of accessories allow them to be installed in any point of the tank, both for optimal mixing and for use as replacements for obsolete devices in existing systems.



0.75 ÷ 4 kW

Propeller Ø (mm)
200 - 300 - 400



4 - 6 - 8 poles
DIRECT TRANSMISSION



4 ÷ 18.5 kW

Propeller Ø (mm)
650 - 900



4 poles
REDUCTION GEARS

ZMD • ZMR

Zenit **ZMD** and **ZMR** series mixers can be used in equalisation, denitrification and homogenisation processes in industrial and civil plants.

Their construction characteristics make them rugged and versatile, ideal for any application.

Modular
The ZMD and ZMR range of mixers is built on a **modular criterion** in which high-efficiency motors evolved from the UNIQA units are coupled with propellers with different shapes, sizes and materials. This means greater flexibility when selecting the product, which can be configured specifically for the application, and for liquids with different densities and concentrations.

Innovative
Zenit mixers are built with innovative materials and include **state-of-the-art engineering solutions** developed in a modern department which also conducts performance and endurance tests on the parts most subject to wear. This guarantees lower energy consumption and exceptional versatility, making them suitable for any type of installation.

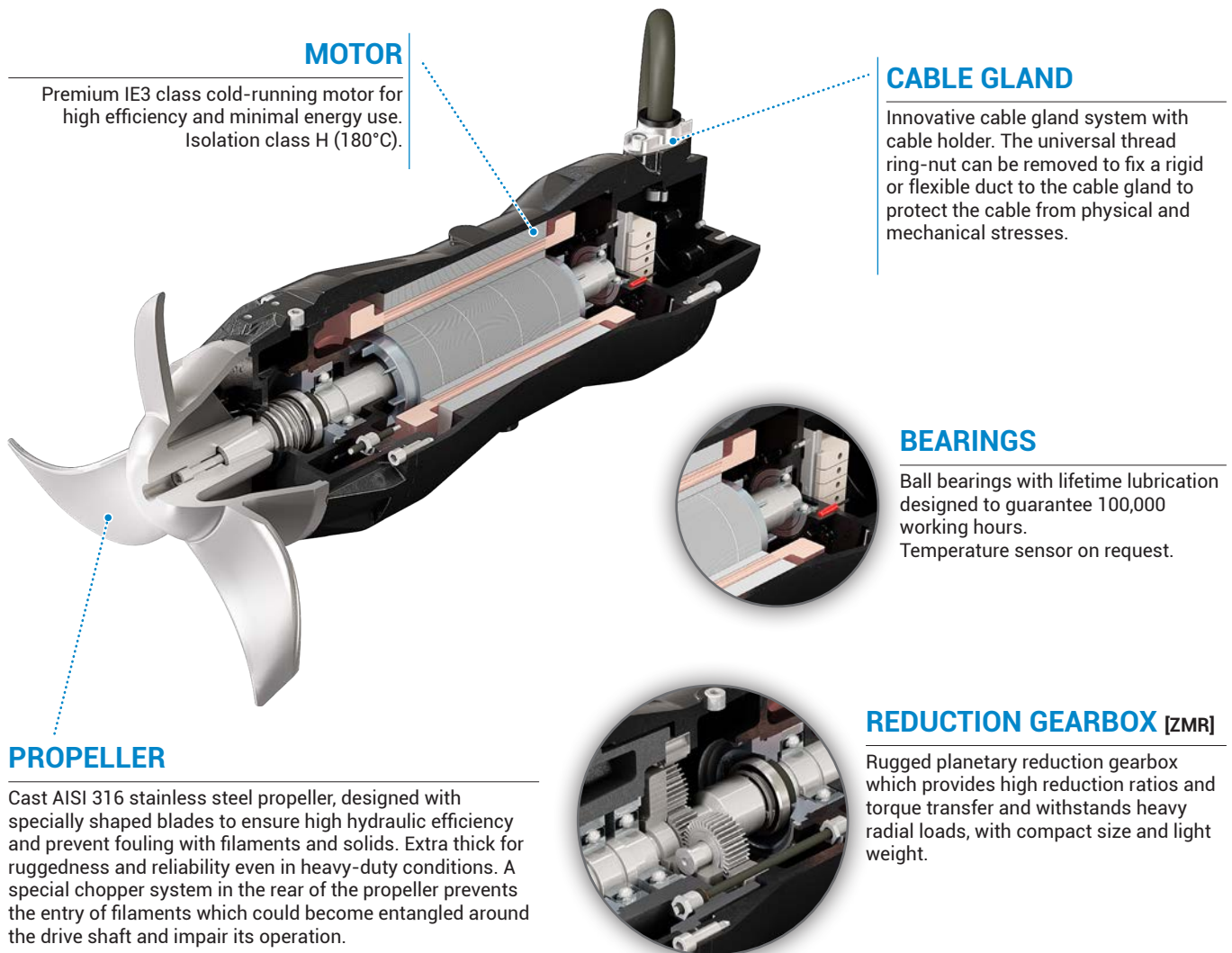
Reliable
Meticulous design, machining on latest-generation machining centres and high quality components make Zenit mixers highly reliable. This ensures **a long working life** even with liquids containing high solid concentrations, and low maintenance, guaranteeing trouble-free, continuous system operation.

Construction materials

Motor complex	EN-GJL 250 grey cast iron
Propeller	AISI 316 stainless steel
Shaft	AISI 431 stainless steel
Mechanical seals	2 silicon carbide (SiC) in oil chamber
Nuts and bolts	A2-70 Stainless Steel
Gaskets	NBR
Hook	AISI 304 stainless steel
Runner	AISI 304 stainless steel
Paintwork	Bicomponent epoxy paint 200 µm

Operating limits

Max. ambient temperature	40°C
Max. immersion depth	20 m
pH of treated liquid	6-12
Max. starts/hour	15 (evenly distributed)
Max. acoustic pressure	70 dB
Duty	S1 – continuous operation
Density of treated liquid	1060 Kg/m ³
Max. dynamic viscosity	500 mPas



MOTOR

Premium IE3 class cold-running motor for high efficiency and minimal energy use. Isolation class H (180°C).

CABLE GLAND

Innovative cable gland system with cable holder. The universal thread ring-nut can be removed to fix a rigid or flexible duct to the cable gland to protect the cable from physical and mechanical stresses.

BEARINGS

Ball bearings with lifetime lubrication designed to guarantee 100,000 working hours. Temperature sensor on request.

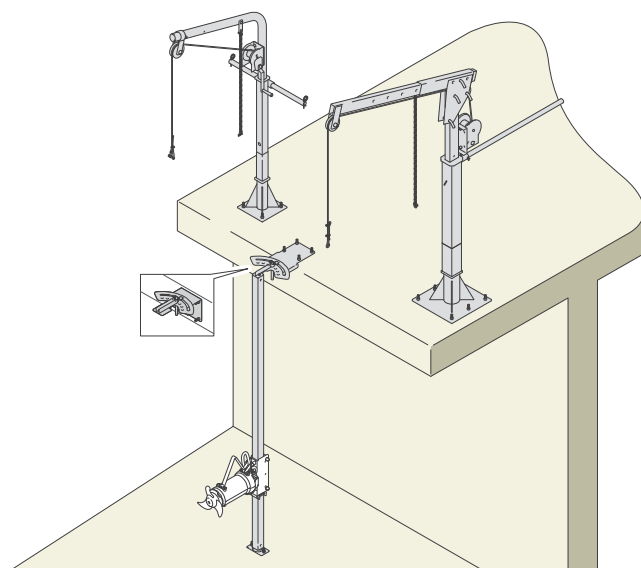
PROPELLER

Cast AISI 316 stainless steel propeller, designed with specially shaped blades to ensure high hydraulic efficiency and prevent fouling with filaments and solids. Extra thick for ruggedness and reliability even in heavy-duty conditions. A special chopper system in the rear of the propeller prevents the entry of filaments which could become entangled around the drive shaft and impair its operation.

REDUCTION GEARBOX [ZMR]

Rugged planetary reduction gearbox which provides high reduction ratios and torque transfer and withstands heavy radial loads, with compact size and light weight.

Installations



Guide post installation

The most widely used installation mode, suitable for mixers of any shape and size.

The mixer, fitted with a runner which is also compatible with existing installations, slides along a square post and can be removed with no need to drain the tank, thanks to rugged lifting jib cranes.

The mixer can be horizontally adjusted for the best possible position, while vertical adjustment is possible with the aid of special optional runners.



ZENIT

PRODUCT RANGE

- › Electric submersible pumps
- › Lifting stations
- › Aeration and mixing
- › **Hydraulic accessories**
- › Electrical accessories

Hydraulic accessories

DAC-R • DAC-V • DAC-E • DAC-H • DAC-X

KBS • KBC • KBS-H

FLX

VAP • VAC • SRP

KCR

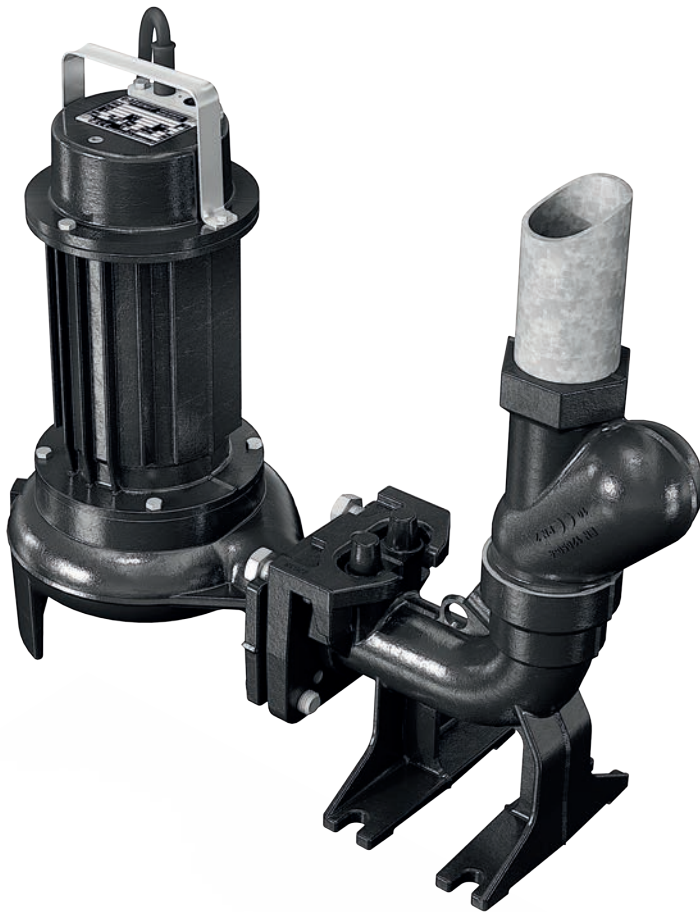
KFL • KAT



Couplers

This system allows the pump to be extracted and then quickly returned to the tank with no need to drain it, often an expensive operation involving lengthy plant stoppages. Perfect mating between flange and coupler is ensured on all units in the Zenit range by a rubber gasket.

ESSENTIAL ACCESSORIES FOR MAKING A REVERSIBLE HYDRAULIC CONNECTION BETWEEN THE PUMP AND THE DISCHARGE PIPE



Innovation

Zenit bottom couplers can have horizontal or vertical discharge in order to better adapt to the customer's needs. All couplers are designed to receive 2 guide pipes which can accompany the pump into its working position, preventing troublesome rotation. What's more, a PATENTED system simplifies pump release and reduces the mechanical stresses on the guide pipes, even after an extended period of time immersed in the wastewater.

Reliability

For plants with large pipelines, Zenit has developed a range of reinforced couplers capable of supporting the weight of particularly heavy pumps.

They come complete with rugged mounting brackets of suitable size and an anchor system consisting of a cast iron hook fixed to a special provided on the pump body, instead of the usual sliding flange connected to the discharge port.

[DAC-R]

Bottom coupling devices with vertical discharge in reinforced version for use with electric pumps weighing more than 1300 kg. Fixing by means of sliding flange **[KAF]** (for models up to discharge DN250) or hook **[KGP]** with double guide pipe.

A PATENTED guide pipe connection system that reduces mechanical stresses and simplifies pump release

To ensure sufficient intake and prevent cavitation, on some pump models with high-power motor it may be necessary to increase the distance between the intake port and the bottom of the tank.

For technical advice, contact the Zenit Customer Service.

- Flanged models from DN100 to DN600
- Cast iron body
- Sliding flange **[KAF]** in EN-GJL-250 cast iron (models with discharge max DN250)
- Cast iron hook **[KGP]** (models with discharge > DN250)
- Two guide pipes of Ø2" or Ø3"
- Stainless steel metal fasteners
- Epoxy-vinyl paint
- Full free passage



[DAC-V]

Bottom coupling devices with vertical discharge for use with pumps up to 1300 kg.

Fixing by means of sliding flange or hook **[KGP]** (discharge DN350) with double guide pipe.

A PATENTED guide pipe connection system that reduces mechanical stresses and simplifies pump release

To ensure sufficient intake and prevent cavitation, on some pump models with high-power motor it may be necessary to increase the distance between the intake port and the bottom of the tank.

For technical advice, contact the Zenit Customer Service.

- Threaded models from GAS 1 ½" to GAS 2"
- Flanged models from DN65 to DN350 with or without expansion
- Cast iron body
- Cast iron sliding flange
- Cast iron hook (for models with discharge DN350 only)
- Two guide pipes of Ø2" (Ø3" for model with discharge DN350)
- Stainless steel metal fasteners
- Epoxy-vinyl paint
- Full free passage



[DAC-E]

External coupler [DAC-E] consisting of two parts: a fixed part for connection to the plant and a movable part connected to the pump by means of an optional threaded connecting pipe.

The two parts can be connected and disconnected without the aid of tools by means of hook operating on the lever principle. Since this system remains above water level, it can be installed without draining the tank, often a complex, expensive process.

- GAS 2" thread discharge connection
- Fixed body in cast iron, movable body in spheroidal cast iron
- NBR rubber gaskets
- Epoxy-vinyl paint
- Fixing to tank wall by means of DN50 PN10 flange or 2" GAS thread
- Full free passage



[DAC-H]

Bottom couplers with horizontal discharge, particularly compact and suitable for installations in tight spaces. They have 2 guide pipes which can accompany the pump into its working position, preventing troublesome rotation.

A patented system simplifies pump release and reduces the mechanical stresses on the guide pipes. If the discharge direction has to be modified, the device can be connected to an ordinary threaded or flanged 90° bend.

- Flanged-threaded model DN32-50 - GAS 2"
- Flanged models from DN65 to DN250
- Cast iron body
- NBR rubber gasket
- Stainless steel metal fasteners
- Epoxy-vinyl paint
- Full free passage

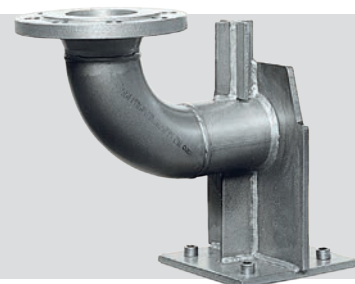


[DAC-X]

Stainless steel bottom couplers particularly suitable for use with DRY pumps.

They allow installation of a completely stainless steel system for resistance to chemically aggressive liquids.

- Flanged models from DN65 to DN100
- Body and flange in AISI 316 stainless steel
- Gasket in NBR rubber
- Full free passage
- Recommended for installations with corrosive or saline liquids



Base plates

[KBS]

Base plates **[KBS]** for FREE installation allow the pump to be positioned in the tank quickly and ensure a high level of stability thanks to the large contact surface.

- Made of spheroidal cast iron or galvanised steel
- Complete with stainless steel fasteners

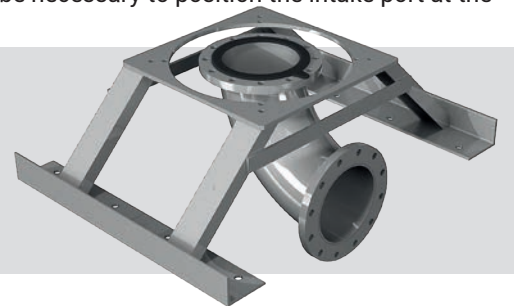


[KBC]

Intake bend unions **[KBC]** for the hydraulic connection of pumps in dry chamber installations, with the necessary stability assured.

Depending on the models, additional masonry or structural metal support may be necessary to position the intake port at the correct height.

- Galvanised steel construction
- NBR rubber gasket
- Complete with stainless steel fasteners



[KBS-H]

Metal structural base plates for submerged or dry chamber horizontal installation.

- Galvanised steel construction
- Complete with stainless steel fasteners



Flushing valve

Sediments often form in lifting stations which collect the wastewater from drain systems. Over time, the solids are compacted and reduce the available volume to the tank, often leading to the pump fouling.

A specific procedure involving lengthy, expensive system shutdown, is therefore necessary to remove them.

The flushing valve **[FLX]** is a hydraulic accessory that automatically generates an adjustable-direction jet of water inside the pit whenever the pump is restarted thus preventing sediment from collecting on the bottom of the tank.

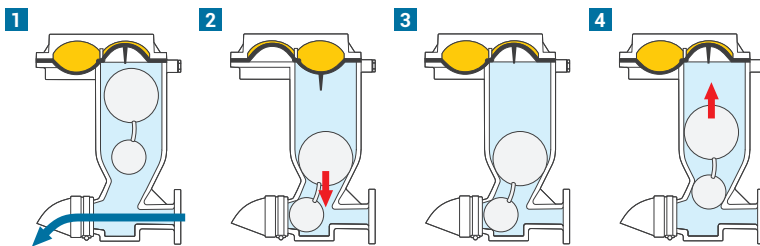
[FLX]

Flushing valve **[FLX]** constructed in cast iron, to be installed directly on the pump casing by means of a threaded coupling.

This type of valve operates on the "Venturi" principle and does not require an electricity supply.

A regulator allows the valve closure time to be set between 10 and 400 seconds, depending on pit size, pump power or the amount of sediment to be shifted.

- Cast iron body
- Hard-wearing, low-noise rubber balls
- Connection to system by means of a diamond-shaped flange compatible with competitor models, or with a 1½" GAS threaded connection
- Closure time setting from 10 to 400 seconds
- Adjustable-direction jet



Operating requirements

Total head [m]	5÷20
Delivery rate [l/min]	100÷17000
Liquid temperature [°C]	0÷40
Pump maximum flow rate [l/min]	750÷17000
Pump minimum weight [Kg]	70

The heart of the Zenit flushing valve is an innovative PATENTED system comprising 2 rubber balls joined together by a flexible diaphragm.

When the pump starts up, the valve is open and the liquid in the pit is drawn into the pump and circulated through the pit, to place all the solid sediments in suspension (phase 1).

After a time set by the user by means of a regulator, the vacuum created in the valve body recalls a rubber diaphragm, which pushes the two balls downward to shut off the flow (phase 2) and allow the water to be conveyed to the discharge before the solids are deposited on the bottom again.

When the pump stops, the vacuum inside the valve raises the diaphragm (phase 3) and the balls (phase 4), which open the valve ready for the next cycle.

How it works

The formation of a solid deposit in the tank (left) has made it necessary to install flushing valves to generate turbulence inside the tank and help to keep the solids in suspension (right).



Check valves and gate valves

Zenit check valves, certified EN 12050-4 annex ZA standard EN 12050-4, are designed for use even with soiled liquids and provide full guarantees of operation even under heavy-duty working conditions.

The sinking ball system ensures a full free passage since at maximum opening the valve has a completely free main line, greatly reducing pressure drops.

The capability for installation in a horizontal or vertical position provides greater versatility and optimal assembly.

Clapet valves can be used for non-abrasive clear wastewaters. Zenit models have body and disc in GJL-250 cast iron and brass and EPDM rubber seat. The lever which operates the mechanism is in GJS 400 cast iron for maximum reliability. Compliance with international design regulations simplifies installation and ensures compatibility with any standard flange.



The knife gate valves, with handwheel control, have various functions and are used as cut-off devices to regulate the flow in a pipeline or to temporarily isolate a section of the plant.

The gate valves have GJL-250 cast iron body containing the mechanisms used to partially or totally block the flow.

This product is designed to allow fitting of a servomotor for remote partial or total opening/closing (no manual operation required).

Zenit gate valves are in GJL-250 cast iron with the gate travelling in a brass seat to ensure smooth operation over time, even after long periods without use.

Flanges meet the UNI standards for perfect interchangeability.

They are mainly used in distribution and treatment plants for civil and industrial wastewater in general.



[VAP]

Ball check valves **[VAP]**, with EN 12050-4 certification, are designed for use even with soiled liquids to provide full guarantees of operation in heavy-duty working conditions.

Full free passage with lower pressure drops

Can be installed in a horizontal or vertical position for optimal installation in all conditions.

- Threaded models from GAS 1¼" to GAS 2"
- Flanged models from DN65
- Body in cast iron with rubber gaskets included
- Sinking ball in NBR rubber
- Sealing ensured by rubber on rubber contact
- Stainless steel metal fasteners
- Epoxy paint resistant to aggressive liquids
- Full free passage
- Easily removable cover for plant inspection



[VAC]

Clapet valve **[VAC]** suitable for non-abrasive clear water. With body and disc in cast iron and brass and EPDM rubber seat.

Lever mechanism GJS 400 cast iron for maximum reliability.

Compliance with international design regulations simplifies installation and ensures compatibility with any standard flange.

- Flanged models from DN100
- Cast iron body and head
- Gaskets in EPDM rubber
- Bronze seats
- Epoxy paint resistant to aggressive liquids
- Can be installed horizontal or vertical
- The valve can be partially opened by hand with the aid of a screw: this option is particularly useful for draining the pipeline upstream of the valve during any maintenance interventions



[SRP]

Knife gate valves **[SRP]** in EN-GJL-250 cast iron with bronze blade seat for perfectly smooth travel even after long periods out of use.

Flanges meet the UNI standards for perfect interchangeability with the pipelines of existing systems.

- Flanged models from DN50
- Cast iron body
- Stainless steel shaft with O-ring seal
- Bronze seats
- Epoxy paint
- Can be installed horizontal or vertical
- Full free passage when completely open



Bend unions

Discharge unions **[KRC]** are designed to be coupled to the pump's discharge port or inside plants, in both cases allowing a tight-radius 90° change in direction.

They may be flange-flange or flange-thread type, with full free passage.

Another advantage is the tight radius of curvature, giving more compact size than any other accessories on the market.

Depending on models, they can be made of EN-GJL-250 cast iron, galvanized steel or stainless steel.



[KCR]

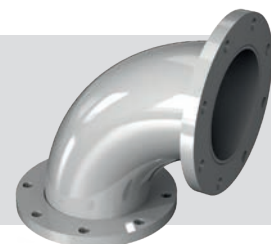
- 2" GAS thread
- Stainless steel body
- Full free passage



- UNI flange - GAS thread
- Cast iron body
- Epoxy paint;
- Gasket in NBR rubber
- Full free passage



- UNI flange
- Cast iron or galvanised steel body
- Epoxy paint;
- Gasket in NBR rubber
- Full free passage



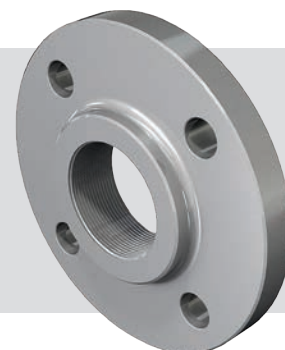
Flanges [KFL]

Complete range of threaded and welded flanges with holes in EN 1092-1 standard positions for maximum compatibility

- Flange in cast iron painted with epoxy coating



- Flange in cast iron painted with epoxy coating



Chains [KAT]

Stainless steel chains for handling pumps and accessories.

- Stainless steel chains
- Suitable for lifting pumps from tanks and wells





ZENIT

- › Electrical submersible pumps
- › Lifting stations
- › Aeration and mixing
- › Hydraulic accessories
- › **Electrical accessories**

Electrical accessories

CONTROL PANELS • ALARMS
FLOAT SWITCHES



CONTROL PANELS

Standard electromechanical control panels

ZENIT electromechanical control panels, designed to control 1, 2 or 3 single-phase, direct starting three-phase or Y/Delta starting three-phase pumps, are made using the best components available, to guarantee excellent reliability and easy procurement of replacement parts. The wealth of accessories available makes them very versatile, with high capabilities for customisation to the system's specific needs.

- Ambient temperature -5/40°C
- Relative humidity 50% at 40°C (non-condensing)
- IP55 protection rating
- Main disconnect switch with door lock
- Motor AUTO-OFF-MANUAL switch
- Transformer for auxiliary circuits
- Motor and auxiliary circuit protection fuses
- Thermal relays for overload protection with internally adjustable and resettable function
- "Power ON", "Motor running" and "Thermal cut-out trip" LED indicator lights
- Customisable



Full service electromechanical control panels

For professional applications, as well as its standard electromechanical control panels, ZENIT also recommends special electromechanical control panels, including gradual machine start and stop with integrated soft-start devices, or variable speed motor operation with inverters, which allow regulation of the pump's duty point, optimising the system's energy performance in relation to actual requirements.

- Gradual start
- Torque control
- Reduced mechanical stress on moving motor components
- Low water hammer effect
- Calibration, display of parameters and protection via internal multifunction display
- Motor operation with variable speed control (inverter version)



Full service electronic

ZENIT offers its customers a state-of-the-art management and control tool, for their pumping systems in addition to standard electronic control panel functions: a multilingual menu allows the users to select the operating mode best suited to requirements, optimising running and maintenance costs.

With the aid of an optional APP, users can monitor all system operation aspects at all times, receiving alarms of any kind and/or modifying operating modes remotely using their smartphone or tablet.

- Display with operating data display and operating mode setting
- Four default operating modes
- Self-learning of motor data

with the APP you can also

- Manage the system on your smartphone or tablet
- Start-up/shut down the pumps remotely
- Receive all types of alarms and fault warnings
- Modify the operating mode
- Modify safety device trip thresholds
- Simultaneously manage numerous different systems



ALARMS

Self-powered alarm panel

The alarm devices provide acoustic and/or acoustic/visual signalling of plant malfunctions such as power blackouts, allowing swift corrective action. The internal buffer battery ensures lengthy autonomy.

- Power supply 1~ 50/60Hz 230V +/- 10%;
- Very low voltage input for alarm command from N.O. and N.C. clean contacts;
- Green "Power On" LED;
- Red "level alarm" LED;
- Red "alarm siren off" LED;
- Alarm siren 90 dB at 1 mt.;
- Red electronic flashing light (only on model SLA1);
- Acoustic alarm ON/OFF buttons;
- Alarm reset button;
- Battery charger and buffer battery for 24 hour power supply;
- Internal "continuous/self-resetting alarm" selector switch;
- Internal siren timer on/off switch;
- Alarm siren timer setting device, 1-180";
- ABS housing;
- Output with cable holder;
- IP55 protection rating.



FLOAT SWITCHES

For controlling electric pumps

Zenit float switches are specifically for use with submersible pumps and can easily be fitted with counterweights for precise calibration of switching levels. LEVEL float switches are recommended for installation in large tanks in view of their long strokes, and are suitable for use with soiled liquids. They are multicontact type, and can therefore be connected in "normally closed" or "normally open" configuration, for both filling and emptying functions.

MAC3 float switches are recommended for installation with clear or slightly soiled wastewaters and can be used for emptying only, since they are designed for operation solely in ON/OFF mode.



ZENO

NAVIGATOR SUITE

One-click access to the right solution for you

Zeno Navigator Suite is a platform of services offered by Zenit. A very effective on line and mobile tool for managing the entire pre- and after-sales process.

Designed to meet the needs of sector professionals, whether you are an engineering firm, a plant operator or just an installer, the ZENO portal is an extremely effective tool for managing your business.

The ZENO Pump Selector application provides useful assistance throughout the electric pump selection and configuration process, and the product that meets the search parameters can be swiftly identified through selection by duty point or type of hydraulics.

ZENO Navigator Suite

Web: zenonavigator.zenit.com

Mobile, ZenoApp on smartphone and tablet, available for iPhone and Android

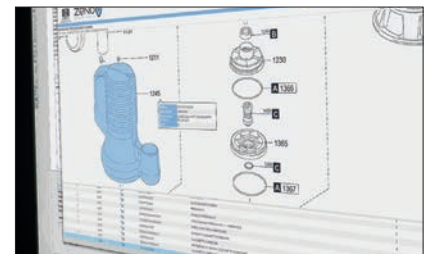


Offline, on digital medium



Pump Selector

The application that provides invaluable assistance for the entire Zenit electric pump selection and configuration process, right through to generation of the final quotation.



Spare Parts

It is a quick, user-friendly tool enabling you to easily select the spare part you require, add it to your cart and automatically send us the order, with just a few clicks.



zenonavigator.zenit.com



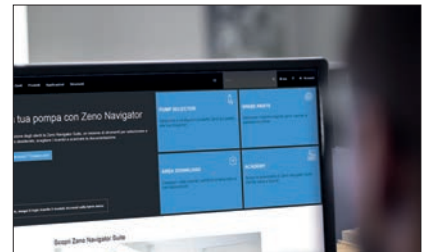
Academy

The Academy selection offers you all information required for knowledge of and training in Zenit products and services.



After-Sales Service

Zenit has made meticulous design and construction its calling-card. If problems of any kind arise, Zenit provides effective service through its dealers worldwide.



Download

You have access to a library of Zenit and industry technical and commercial documentation.

ZENIT

PRODUCT OVERVIEW

» Water solutions



Electric Pumps - Domestic

A wide range of electrical submersible pumps, with with channel or Vortex impellers or with grinding system, for use in the domestic sector.



sphereBOX

Lifting station for wastewater of civil and industrial origin, available in 600, 900 and 1200 litre versions.



Aeration and mixing systems

A line of aeration and mixing products for the civil and industrial wastewater treatment sector.



Electric Pumps - Professional

A wide range of electrical submersible pumps that covers all requirements in the industrial and professional sector.



Uniqa - High efficiency

The **UNIQA** range is the ideal solution for any kind of civil and industrial installation thanks to the wide choice of high-efficiency motors up to 355 kW.



blueBOX

The **blueBOX** series consists of high quality rotary moulded polyethylene tanks for collecting grey and black wastewater.



BOX PRO

The **BOX PRO** series comprises rugged polyethylene lifting stations for use in large capacity civil and residential applications.



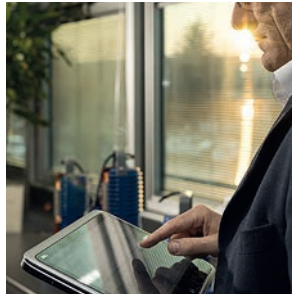
Hydraulic accessories

Our accessories range includes base plates, couplers, check valves, gate valves and flushing valves.



Electrical accessories

A wide selection of electrical and electronic control panels and alarm devices for convenient, efficient control of your system.



water solutions

The data provided are not binding.
Zenit reserves the right to modify the product without advance notification.

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