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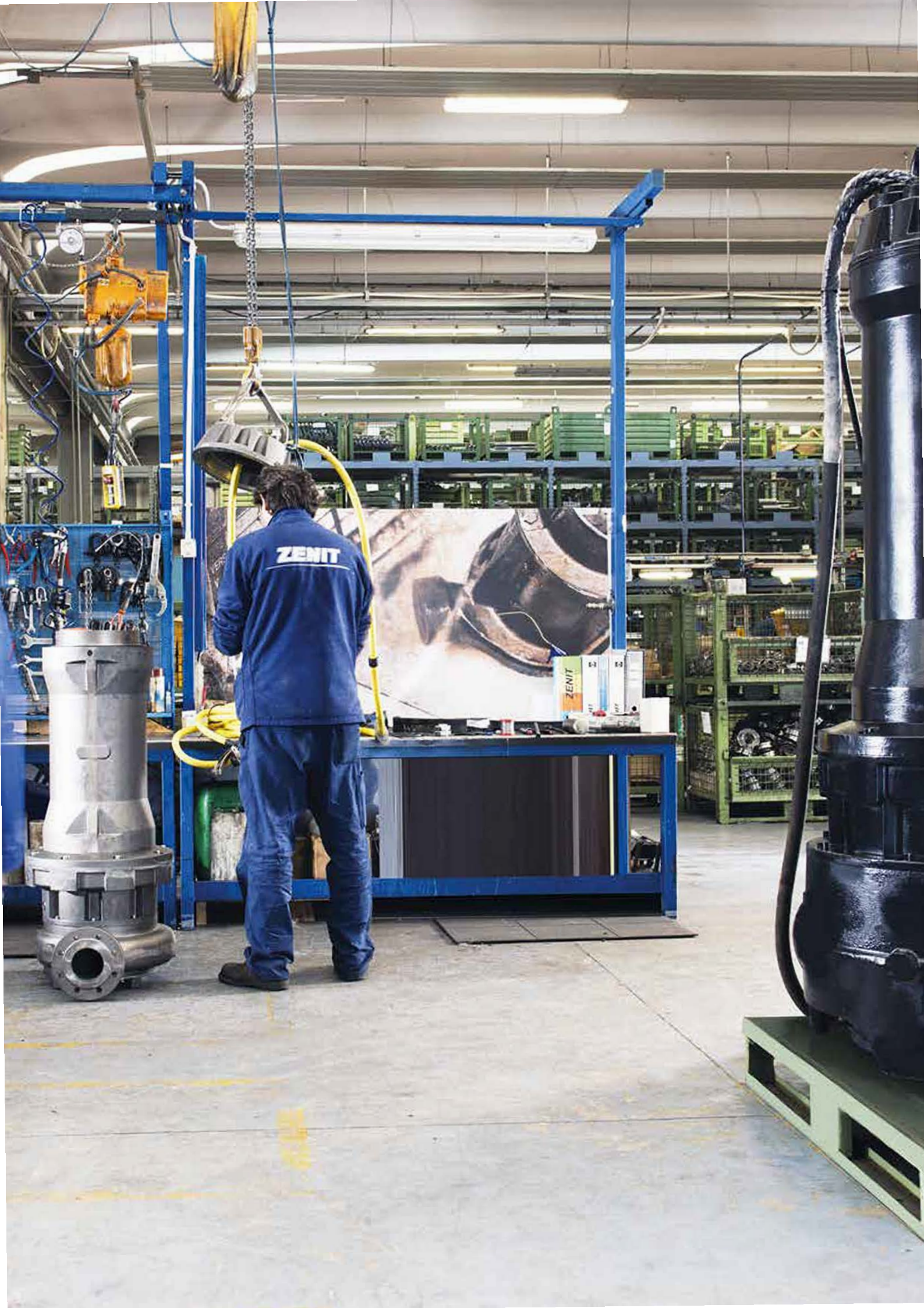
HIGH EFFICIENCY
SUBMERSIBLE
ELECTRIC PUMPS

UNIQA


ZENIT
ZENIT

UNIQA

Innovation.

Reliability.

Efficiency.

Why UNIQA?

The **UNIQA** range is designed to meet the real needs of civil and industrial wastewater pumping applications.

Its design centres on **3 key concepts**, which guided the Zenit engineers in the creation of a genuinely hi-tech product.

Innovation

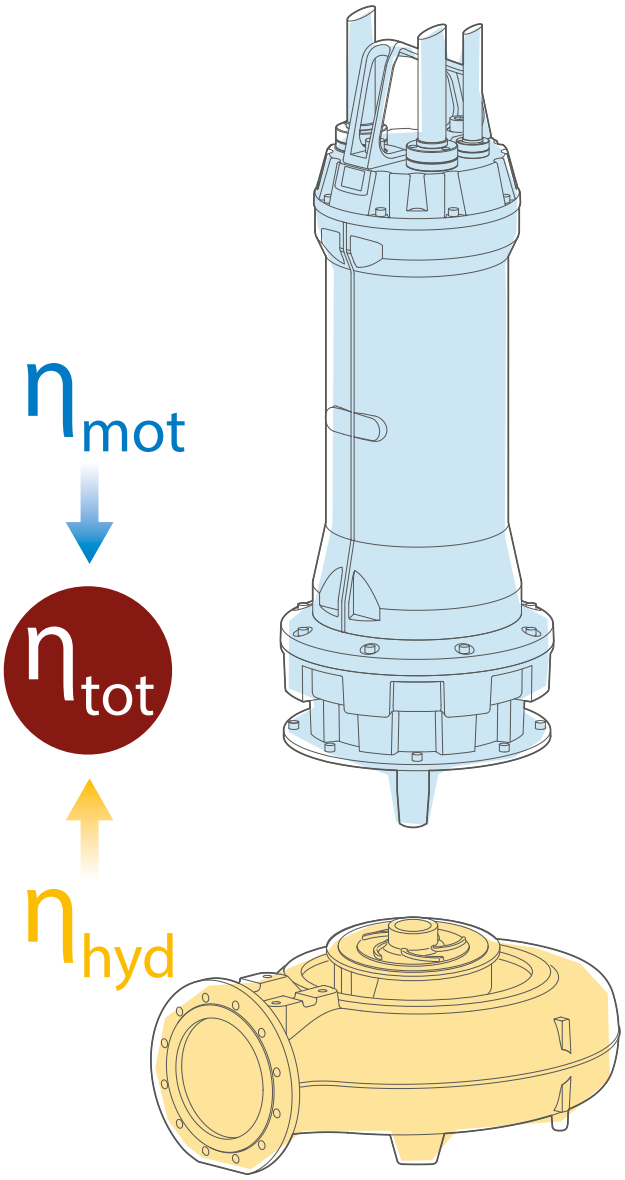
Innovating means improving, starting with yourself.
We have responded with enthusiasm to a fast-changing market and worked passionately to deliver a high-quality product, the shining gem of today's Zenit range.
UNIQA is innovative in performance and technology.

Reliability

A product's quality lies first and foremost in its **reliability**, meaning trouble-free operation with low maintenance.
UNIQA is the outcome of painstaking design, machining on state-of-the-art machining centres, and meticulous assembly where the worker's experience plays a vital role.

Efficiency

Since operating costs usually account for a higher proportion of expenditure than other cost factors (purchase, installation and maintenance), design engineers aim to maximise efficiency to reduce running costs.



The **UNIQA** range is designed to be **modular**:
the breadth of range allows an energy-saving **motor** in Premium IE3 class to be combined with high-efficiency **hydraulics** optimised for the duty point.
The result? High total efficiency and sharply lower costs and environmental impact.

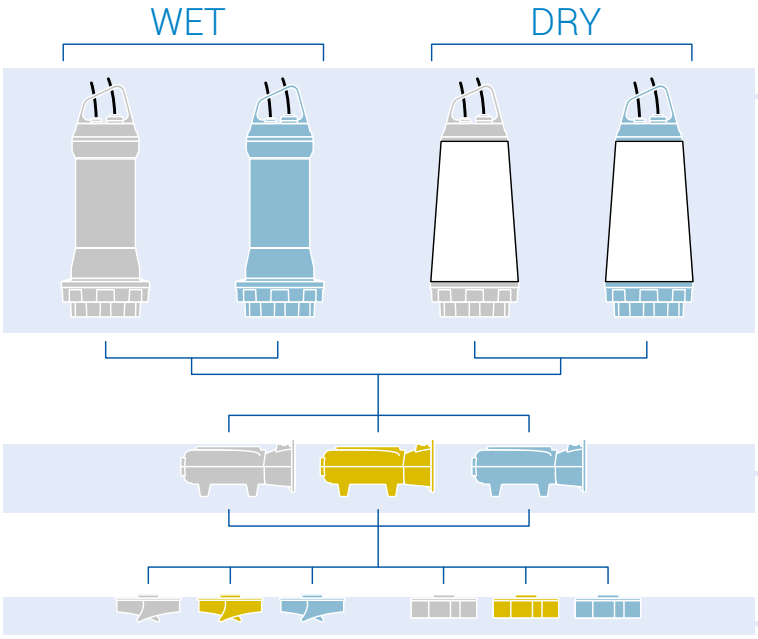
Tailor-made solutions

Every **UNIQA** model is developed to give the best performance for the duty point, with energy saving assured by efficiency class IE3 motors and high-performance hydraulics.

Combining a multinational mentality with flexibility, Zenit guarantees effective solutions and products and systems that are genuinely "made to measure".

A modular range

The **UNIQA** series is designed with **modularity** in mind.
This approach gives the customer access to a large number of motor-hydraulics-material combinations, so every model is optimised for its intended use.
In practice, hydraulics of a given diameter and material can be fitted with motors with different powers and rpm for peak efficiency, and different types, dimensions and builds of impeller can be chosen depending on the specific criticalities of the application.



Motor in efficiency class IE3

- from 1.1 kW to 355 kW
- from 2 to 12 poles
- WET and DRY version

High-performance hydraulics

- from DN50 to DN500

Impeller

- vortex (ZUG V)
- channel (ZUG OC)
- chopper (ZUG CP)
- with grinding system (ZUG GR)
- with high head (ZUG HP)

More materials, more reliability

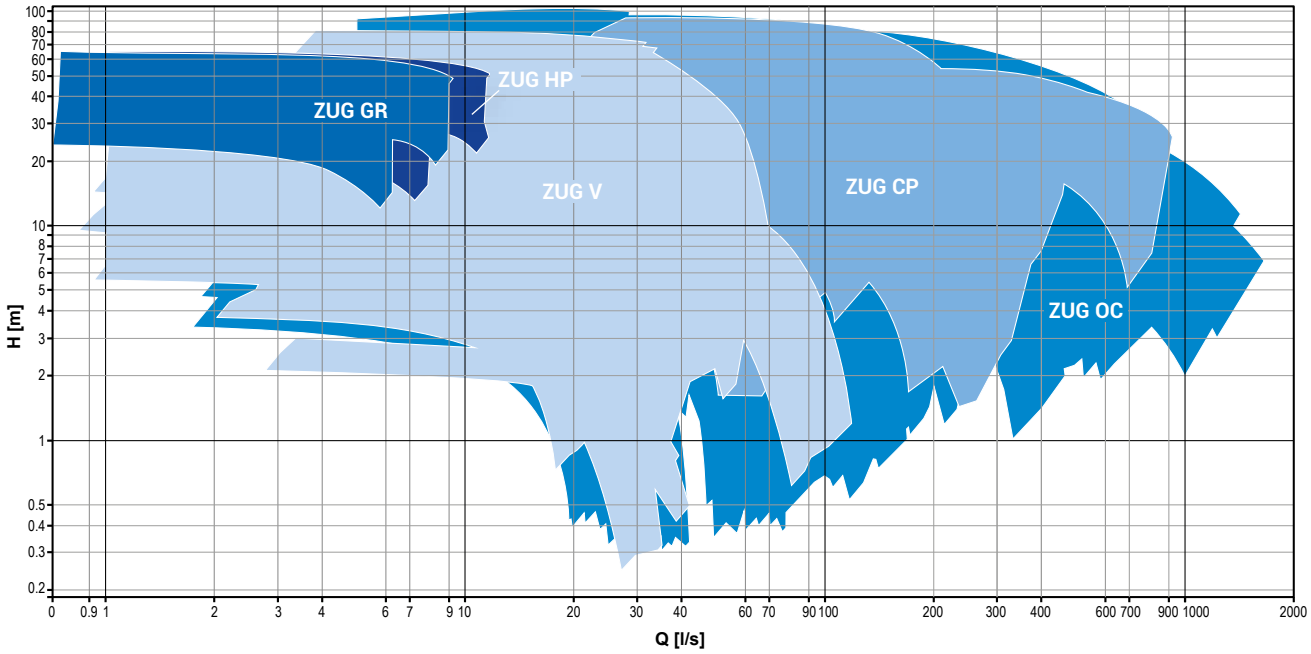
To deal with special and specific applications, the standard iron hydraulics can be replaced with an alternative solution in bronze, stainless steel or *Molib-tech™*, an **innovative material** that guarantees constant performance even with very abrasive liquids, and significantly longer lifetime than conventional ceramic coating systems.

This means longer maintenance intervals, less inconvenience from system stoppages and lower incidence of running costs than with conventional pumping systems.

Characteristics

- Cast iron structure
- Class H electric motor from 1.1 kW to 355 kW in efficiency class IE3
- 50 Hz and 60 Hz versions
- Thermal protection devices incorporated in stator
- Long life bearings (100,000 hours)
- AISI 431 drive shaft (AISI 329 on request)
- Leakage detection system in seal chamber (standard) and motor (on request)
- Two silicon carbide mechanical seals in large oil chamber
- Discharge from DN50 to DN500
- Large free passage declared for every model
- Closed jacket cooling system with internal recirculation.
- Operating temperature up to 40°C (up to 60°C on request)
- ATEX certification

Overview of operating ranges



Construction materials

	Standard	Optional
Lifting handle	Stainless steel	-
Motor complex	EN-GJL 250	Stainless steel
Drive shaft	AISI 431	AISI 329
Cooling jacket	AISI 304	-
Gaskets	NBR	VITON
Nuts and bolts	A2-70 Stainless Steel	A4-80
Hydraulics	EN-GJL 250	AISI 316 / AISI 329 Duplex / Molib-tech™
Impeller	EN-GJL 250	AISI 316 / AISI 329 Duplex / Br-Al /Molib-tech™

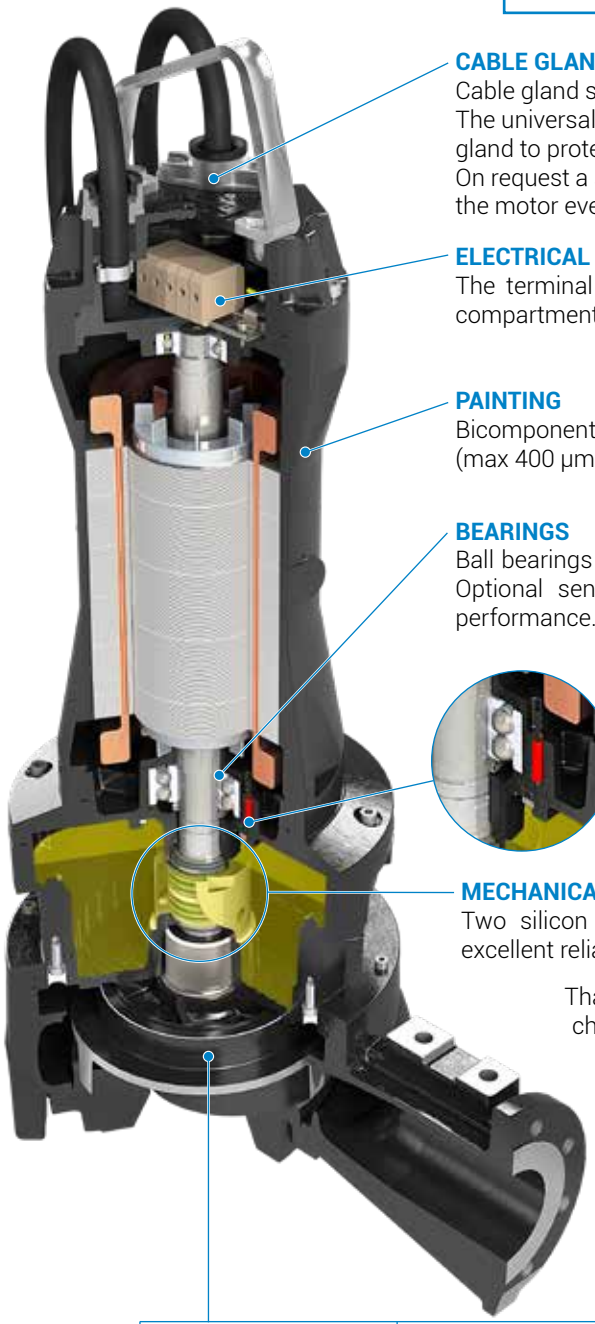
Standard equipment and options

		Standard	On request
Power supply voltage		400 V	230, 500, 230/400, 440, 500/866 V
Efficiency class		IE3 - Premium Efficiency	IE2 - High Efficiency
Power supply		3~ 50 Hz	VFD - 60Hz
Starting		Y Δ	Direct, Soft Start
Maximum ambient temperature		40°C	60°C or above
Type of cable		S1RN8-F or equivalent	EMC (VFD)
Cable length		10 m	20 - 30 - 40 - 50 m
Painting		Bicomponent epoxy - 200 µm	Bicomponent epoxy - 400 µm
Type of installation		Submersible	Dry
Monitoring	Motor	Bimetal thermal sensors (150 °C)	PTC/PT100 thermistors
		Single-signal double leakage detector	Single leakage detector
	Oil chamber	Single-signal double leakage detector	Single leakage detector
	Terminal board	-	Single leakage detector
	Bearings	-	Overheating (PTC/PT100 thermistors)
		-	Vibrations detector
Sacrificial anodes		NO	YES
ATEX certification		NO	YES

The data provided are not binding.
T-T reserves the right to modify any product without notice.

Your guide to UNIQA

	(WET version)	(DRY version)
Range with ATEX certification:	**II 2G Ex db h IIB T4 Gb**	**II 2GD Ex db h IIB T4 Gb Ex h tb IIIC T135°C Db**



CABLE GLAND
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.
On request a special resin seal is applied to prevent all possibility of water leaking into the motor even if the outer sheath is torn.

ELECTRICAL CONNECTIONS
The terminal board, which simplifies electrical wiring procedures, is in an airtight compartment which can be fitted with a leakage detection sensor.

PAINTING
Bicomponent epoxy paint, standard thickness 200 µm
(max 400 µm on request)

BEARINGS
Ball bearings with lifetime lubrication designed to guarantee 100,000 working hours. Optional sensors can monitor temperature and vibration to guarantee optimal performance.

WATER SENSOR
Sensor fitted as standard to detect water or moisture in the mechanical seal oil chamber.
Also standard on ATEX version models.

MECHANICAL SEALS
Two silicon carbide mechanical seals in oil sump to ensure excellent reliability even in heavy-duty conditions.

Thanks to a special component *(oil lifter)* the upper mechanical seal remains lubricated at all times, with more effective protection against wear

SUCTION and DISCHARGE
The suction and discharge flanges can be ordered with holes of any standard type (UNI, ANSI, BS, etc.) to ensure perfect compatibility with the system and the accessories installed.

ZUG V
Vortex hydraulics

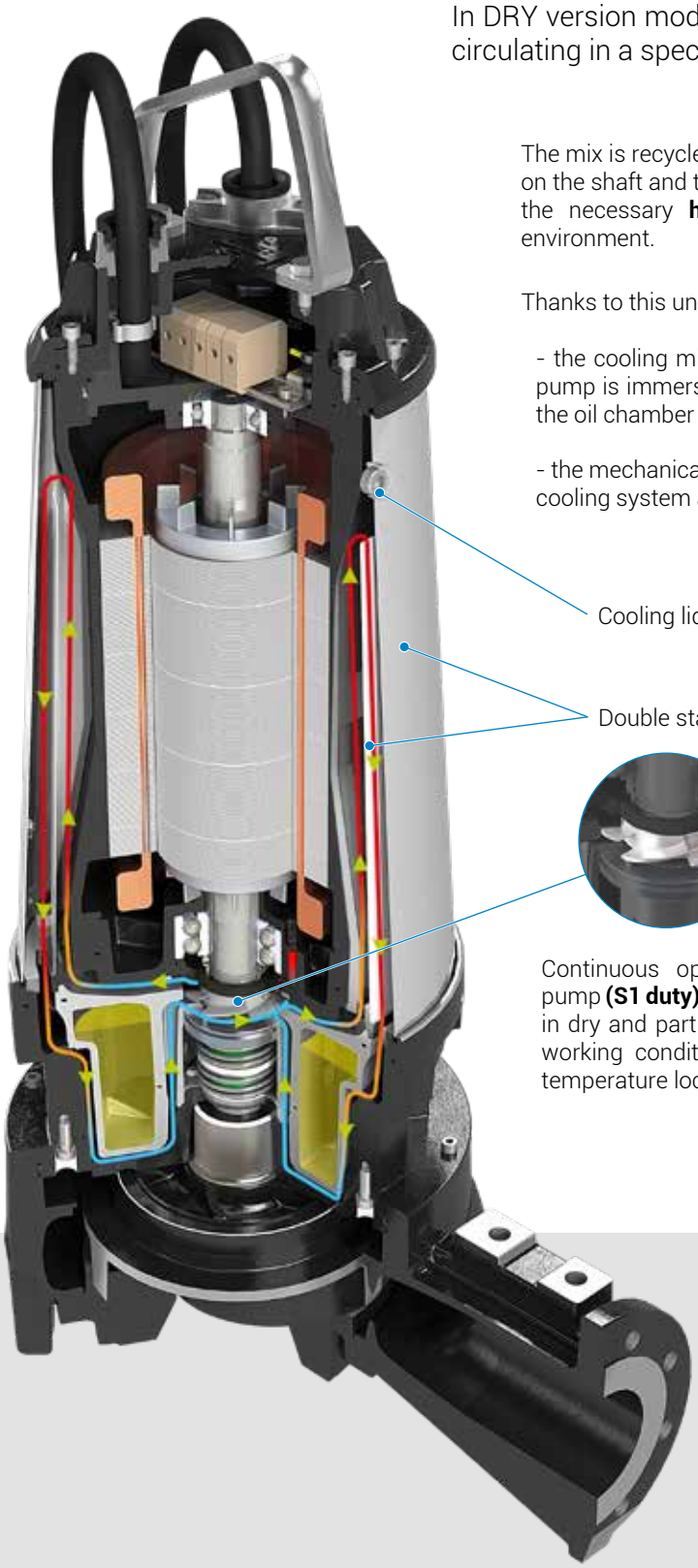
ZUG OC
Channel hydraulics

ZUG CP
Chopper hydraulics

ZUG GR
Grinder system hydraulics

ZUG HP
High head hydraulics

Exclusive cooling system



In DRY version models, the motor is cooled by a water-glycol mix circulating in a special closed circuit.

The mix is recycled through the pump by an **axial impeller** rigidly mounted on the shaft and the specially designed steel **double jacket** which provides the necessary **heat exchange** between the motor and the external environment.

Thanks to this unique system:

- the cooling mix is **always separate from the wastewater** in which the pump is immersed and cannot be contaminated even if water leaks into the oil chamber due to wear of the first mechanical seal

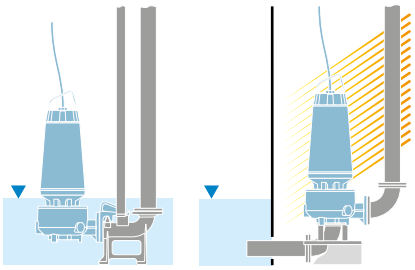
- the mechanical seals are installed in an **oil chamber separated** from the cooling system and can be changed without draining the circuit

Cooling liquid inspection and filler cap

Double stainless steel jacket

Axial recycling impeller

Continuous operation of the pump **(S1 duty)** is ensured even in dry and partially submerged working conditions or in high temperature locations.



No unpleasant surprises

If the outer mechanical seal wears, the **sensor** warns that water is leaking into the oil chamber.

The second mechanical seal allows the pump to continue operating temporarily, allowing **scheduling of the maintenance job** with no need for unplanned system stoppages.

High efficiency motor

The heart of the **UNIQA** range lies in its high-efficiency electric motors, designed to deliver high performances and withstand continuous duty cycles.

- **PREMIUM IE3** efficiency
- **NEMA Class A**
- **Class H** insulation for all models in the range.

S1 duty mode operation even in water at a temperature of 60°C or above.

Clogging-proof hydraulics

All hydraulic components are designed using latest-generation software for the highest efficiency and the **best performance** while still ensuring ample free passages.

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 heavily soiled liquids, allows stringy items to be pulled out or unwound and renders the hydraulics clogging-proof.

More reliability with new materials

The need for components with ever-superior mechanical properties has driven the development of **new materials** that enable the production of highly resistant components, suitable for use with very heavily soiled and abrasive liquids.

MOLIB-TECH

This material, called *Molib-tech™*, is an alternative to the conventional ceramic coating process and **applies a layer of high-strength material to the iron**, to improve the product's **mechanical and performance characteristics.**
Unlike a conventional ceramic coating, the **uniform layer** of material does not cause any change in clearance or loss of performance.

HARD CAST IRON

Due to its complex chemical composition, Hard Cast Iron is stronger than commonly used grey cast iron and has a **hardness value between 450 and 500 HB.**
This conveys unique characteristics of **strength and toughness** to the Hard Cast Iron, making it the perfect material for making parts subjected to strong stresses.

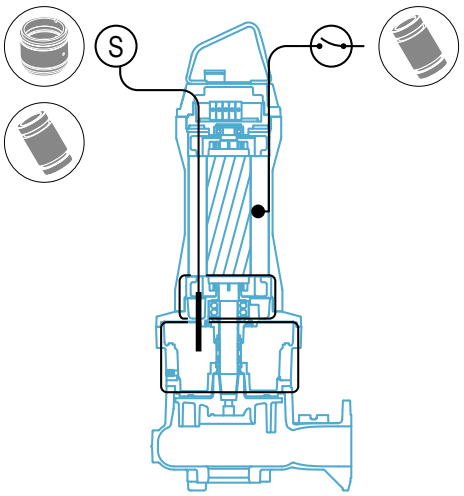

ZENIT

Monitoring

Every **UNIQA** model can be fitted with sensors for swift signalling of any anomaly, allowing quick action to protect the pump from potential damage.
The monitoring system also acquires data on the operation of the machines installed and helps in the targeted **planning of maintenance** to avoid sudden system shutdowns.

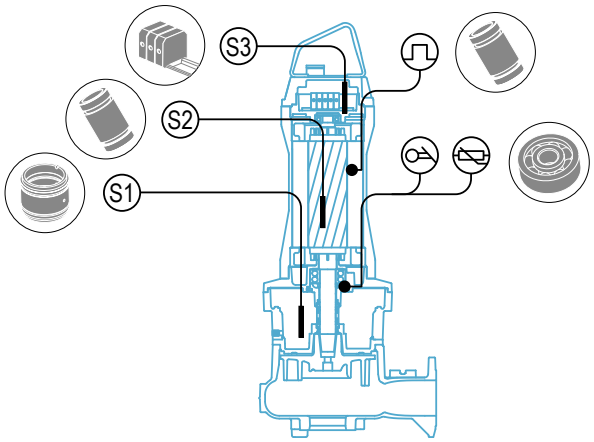
STANDARD

- Bimetal thermal **sensors** (motor)
- Single-signal **double leakage detector (S)** to detect the infiltration into the oil chamber of the mechanical seals and/or into the motor.



ON REQUEST

- PTC/PT100 **thermistors** (motor)
- **Single probes** for the detection of water or humidity inside:
  - **S1** oil chamber of the mechanical seals
  - **S2** motor
  - **S3** terminal board compartment
- **PT100 sensor** that signals bearings overheating
- **Vibration sensor** warning of any impeller imbalance due to damage or cavitation



Maintenance

The **UNIQA** range has been carefully, rationally designed to ensure **easy maintenance** and **quick replacement** of parts subject to wear and tear.

- **CABLE**
  All electrical connections are easily acceptable inside the top cover. A terminal board simplifies disconnection of the cable in the event of replacement.
- **MECHANICAL SEALS**
  Once the impeller has been removed, the oil chamber containing the mechanical seals is accessed by just removing the ring-nut that holds them in place.
- **OIL**
  The oil in the mechanical seal chamber can easily be replaced thanks to caps accessible from the outside regardless of whether the pump is installed horizontal or vertical.
- **BEARINGS**
  They have standard characteristics, for low-cost maintenance and trouble-free sourcing of replacement parts.
- **Cooling liquid**
  The water-glycol mix that cools the motor is in a closed circuit and does not need changing even in case of prolonged use.

There's a solution

WE DELIVER
WASTEWATER
TREATMENT
SOLUTIONS
WORLDWIDE

for every application UNIQA

EVERY **UNIQA** MODEL
IS OPTIMISED
FOR ITS
INTENDED USE

Applications

Civil lifting

Application

The collection and disposal of **urban wastewater** are of primary importance to safeguard health requirements.
These applications require plants designed to serve a large number of users, often in complex, heavy-duty situations.

Characteristics

Soiled wastewaters with solids

Solution

ZUG V, ZUG OC

Lifting sewage

Application

Lifting sewage is a complex problem that demands reliable products, due to the solids present and the high number of starts per hour generally required.

Characteristics

Unstrained wastewater with large solids

Solution

ZUG CP, ZUG GR

Draining

Application

Rainwater and **groundwater** needs to be removed quickly to prevent damage to the community and public and private property.
This has increased the demand for efficient solutions capable of transferring wastewater and rainwater containing not only solids but also pollutants and abrasive substances.

Characteristics

Wastewater with solids and dirt from first rainfall and yard sluicing tanks.

Solution

ZUG V, ZUG OC with large free passage

Industry

Application

Industrial processes require reliable, efficient pumping systems and equipment to guarantee high performance and prevent unplanned stoppages.
Systems of this kind may involve high heads, explosive liquids or environments contaminated with chemicals and corrosive substances, brine or process waters and high temperatures.

Characteristics

Sewage and process water

Solution

ZUG OC with Molib-tech™, stainless steel or bronze impeller with ATEX certification if required

Agriculture

Application

Agricultural wastewater lifting is one of the toughest challenges, due to the complexity of the operating contexts.
The liquids for transfer are often heavily soiled and dense, containing filaments which require chopping before discharge into the main drain leading to the sewer.

Characteristics

Soiled wastewater with solids and fibres

Solution

ZUG CP, ZUG V

Water features and irrigation

Application

Irrigation and **theme park water pumping** can also pose serious difficulties, due to the high pressure required and the potential presence of sand and suspended particles.
Motors operating at high rpm with long duty cycles and particularly hard-wearing materials are needed.

Characteristics

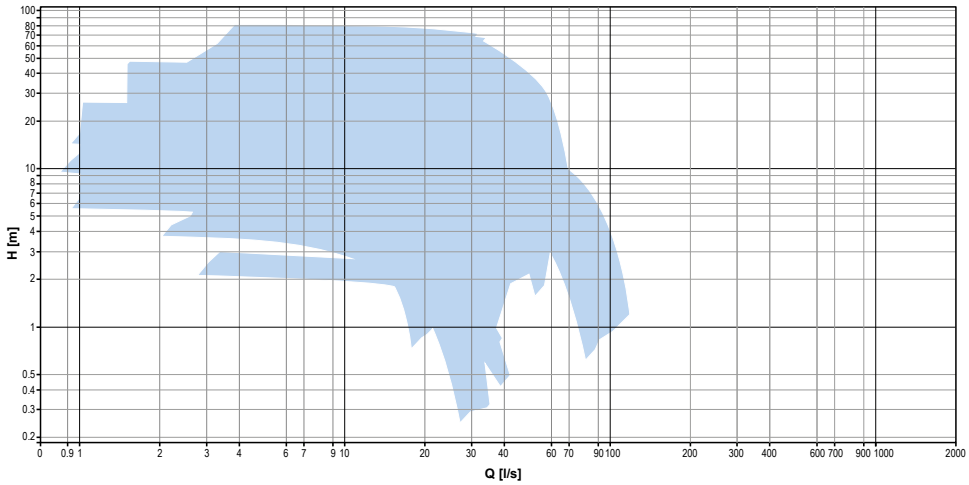
Clear or slightly soiled wastewaters

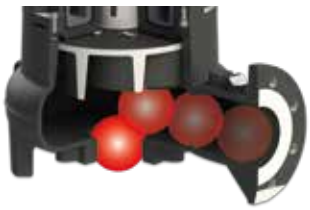
Solution

ZUG HP

ZUG **V**

Operating ranges





Range characteristics

Power	3 ÷ 45 kW
Poles	2 / 4
Discharge	DN65 ÷ 150
Free passage	max 125 mm
Max flow rate	110 l/s
Max head	75 m

Hydraulics
- Cast iron vortex impeller
- Full free passage

Suitable for
- Biological liquids and wastewater
- Suitable for civil pumping stations and lifting wastewaters in livestock farms and industrial plants

Need

- Lifting of water from first rainfall tanks

Criticalities

- Wastewater containing dirt, solids and pollutants.
- Long periods out of use alternating with frequent work cycles

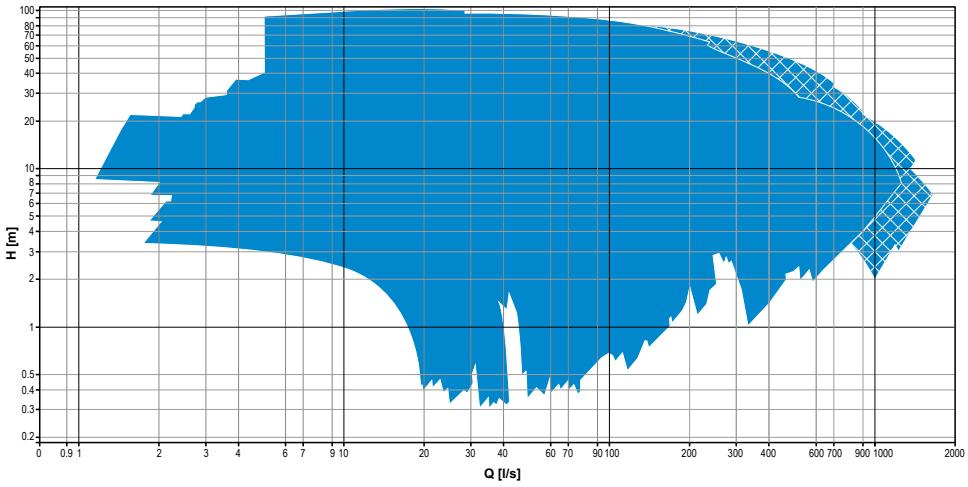
Solution

UNIQA with vortex impeller **(ZUG V)**:
- full free passage preventing fouling of the impeller, ensuring trouble-free operation
- high-efficiency class IE3 motors ensuring low power drawdown to keep operating costs down even with prolonged operations.

Lifting station pumping rainwater from collection tanks (Italy)
Four ZUG V 100B 5.5/4 AW pumps

ZUG **OC**

Operating ranges



Models not present on *Zeno Pump Selector*. Contact Zenit for selection.

Range characteristics

Power	1.1 ÷ 355 kW
Poles	2 / 4 / 6 / 8 / 10 / 12
Discharge	DN65 ÷ 500
Free passage	max 220 x 110 mm
Max flow rate	1600 l/s
Max head	100 m

Hydraulics
- Channel impeller in cast iron
- Large free passage

Suitable for
- Liquids containing suspended solids
- Suitable for sewage and drainage systems and first rainfall tanks

Need
- Lifting of soiled wastewater with high flows

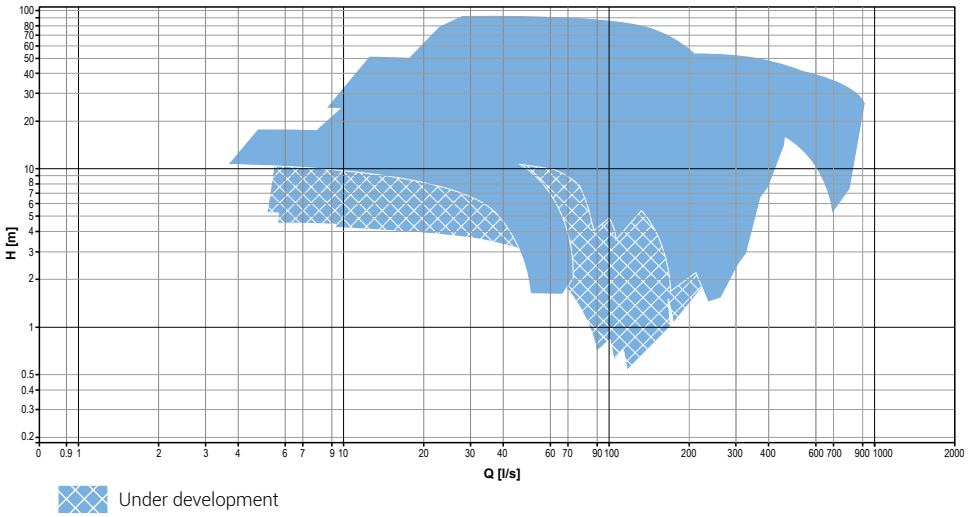
Criticalities
- Soiled, dense liquids with traces of potentially explosive substances

Solution
UNIQA with channel impeller **(ZUG OC)**
- high hydraulic efficiency
- version with cooling jacket to use with S1 duty mode in dry chamber
- use with flushing valve to keep the wastewater in motion and reduce collection tank cleaning requirements

Sewage pumping system (Thailand)
Twelve ZUG OC 300G 315/4 AD pumps

ZUG **CP**

Operating ranges



Range characteristics

Power	3 ÷ 45 kW
Poles	2 / 4 / 6
Discharge	DN80 ÷ 250
Free passage	-
Max flow rate	244 l/s
Max head	75 m

Hydraulics
- Chopper impeller in *hard cast iron* as standard
- Chopper sistem able to cut particles of any shape of proportion

> ***Efficiency of hydraulics only 3/5% less than that of a normal channel impeller***

Suitable for
- Liquids containing solid parts and fibres
- Suitable for sewage, lifting of not strained black water

Need
- Lifting of unstrained sewage sludge

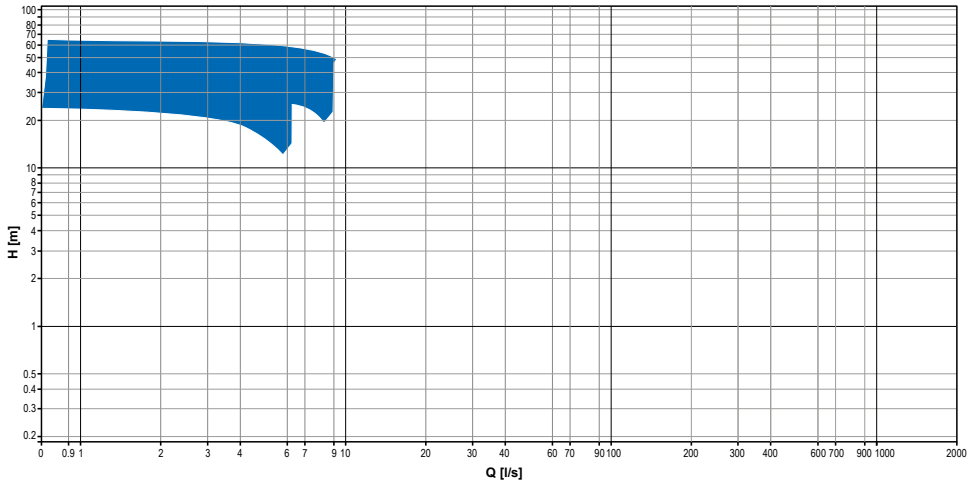
Criticalities
- Presence of solids of various types and sizes

Solution
UNIQA with chopper impeller **(ZUG CP)**:
- impeller with chopper system
- high flow to ensure rapid emptying and prevent sedimentation

Pumping station for heavily soiled sewage (Italy)
Four ZUG CP 250B 45/6 AW pumps

ZUG **GR**

Operating ranges



Range characteristics

Power	4 ÷ 11 kW
Poles	2
Discharge	DN50-G2"
Free passage	-
Max flow rate	8.0 l/s
Max head	57 m

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

Suitable for
- Soiled liquids containing fibres and filaments
- Suitable for professional and heavy-duty applications

Need
- Pumping of soiled wastewater containing solids which can be broken down

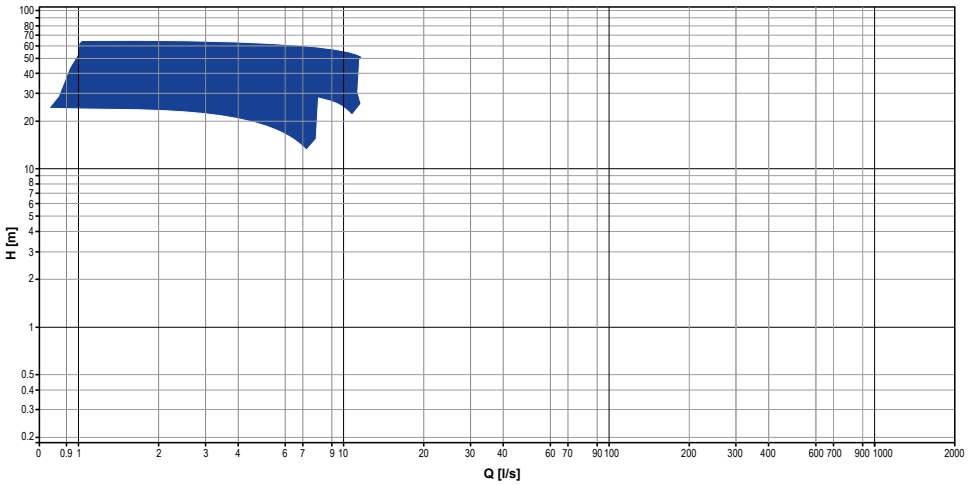
Criticalities
- Presence of organic waste and processing residues

Solution
UNIQA grinder **(ZUG GR)**
- rotary triangular steel knife able to grind up solids and fibres
- motors in efficiency class IE3 with low consumption, suitable for prolonged operation and frequent starting

Lifting in industrial wastewater treatment plant (China)
Three ZUG GR 050A 7.5/2 AW pumps

ZUG **HP**

Operating ranges



Range characteristics

Power	4 ÷ 11 kW
Poles	2
Discharge	DN50-G2"
Free passage	max 10 mm
Max flow rate	11.0 l/s
Max head	61 m

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

Suitable for
- Clean, rain and seepage water
- Suitable for applications in agriculture, irrigation and fish farming

Need
- Irrigation

Criticalities
- High pressures

Solution
UNIQA with high head impeller **(ZUG HP)**
- high hydraulic performances
- low energy consumption

Pumping system for treated water for use in irrigation (Ireland)
Two ZUG HP 050A 9/2 AW pumps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UNIQA

The UNIQA World

UNIQA is much more than a range of submersible electric pumps **UNIQA** is a corporate philosophy.
It is a world where efficiency and reliability, style and performance meet.

So **Zenit** has also applied the core principles of the **UNIQA** project to complementary products, with the same efficiency and reliability.

Mixers

New range of cast iron **mixers** with self-cleaning propellers from 200 to 650 mm in diameter.

High efficiency motor

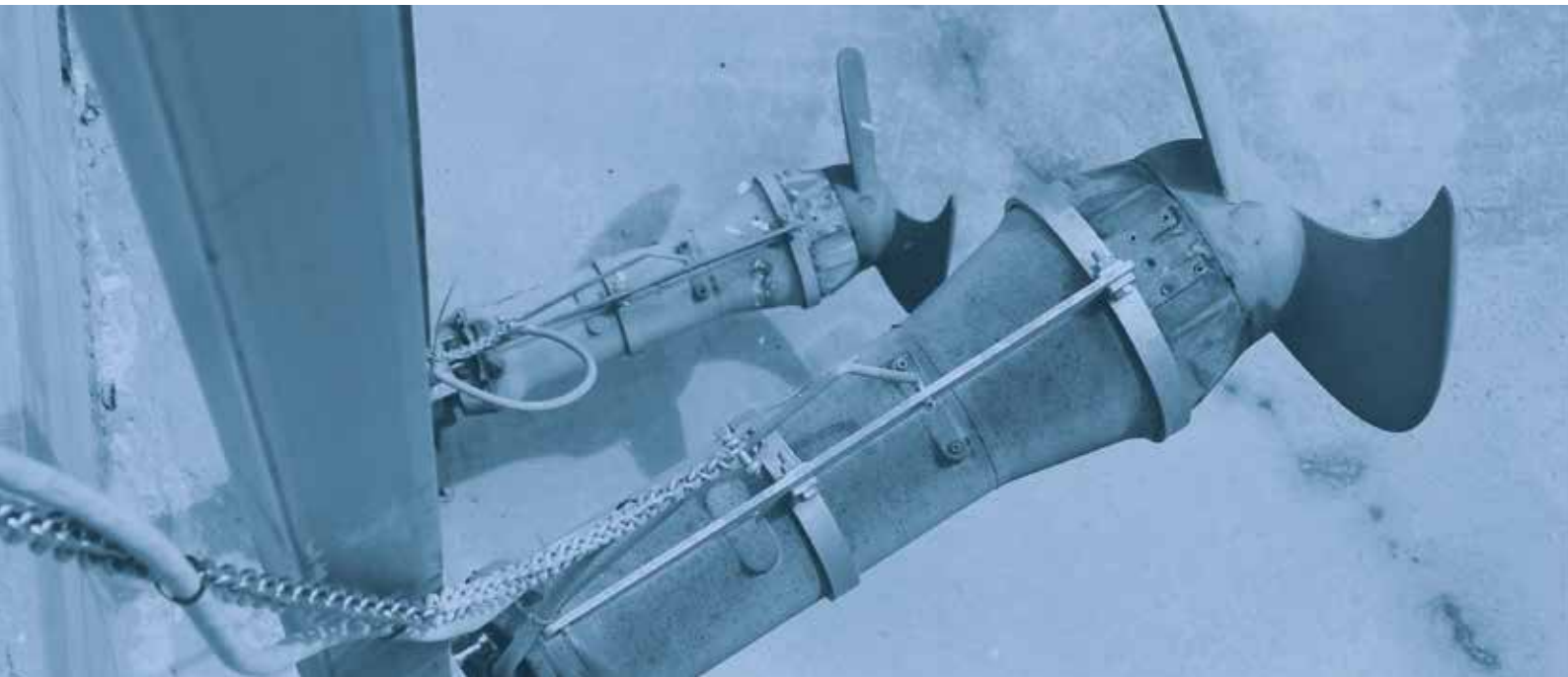
- with direct transmission from 0.75 to 4.5 kW with 4, 6 or 8 poles
- with reduction gearbox from 4.0 to 7.5 kW, with 4 poles

JetOXY aerators

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

They are made by connecting UNIQA submersible pumps with power levels up to 30 kW to channel-type hydraulic units with large free passage combined with OXY series ejector devices.

OXY 80 and 150 units have a polyurethane (Vulkollan) diaphragm, easily replaceable without dismantling the pump from the ejector.



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