

INDUSTRY  
PUMPING  
SOLUTIONS



A Tsurumi Pump Company

# OIL & GAS



The background image shows an industrial wastewater treatment facility. In the foreground, a circular diffuser is visible, with several white corrugated hoses connected to it. The diffuser is submerged in a blue tank of water. In the background, there are metal grates, blue pipes, and other industrial equipment. A white text box is overlaid on the center of the image, containing the main text.

We design and produce specialised, integrated, modular and innovative **solutions to optimise industrial wastewater** treatment processes.

# **A competent partner** who can recommend the **best solutions** to ensure **efficient** and **reliable work.**

**Zenit Group** works alongside many industrial enterprises around the world, providing solutions for wastewater treatment.

By relying on the knowledge and experience of our long-standing Group - established in 1960 - we provide a range of personalised **industrial wastewater treatment** solutions, through engineering consulting and expertise.

**We design and produce** modern technologies with an innovative approach, to meet the unique needs of the oil and gas industry.

## **Submersible pumps, valves, support.**

Our systems improve productivity, reduce plant downtime, and contribute to significant savings in total energy and maintenance costs.



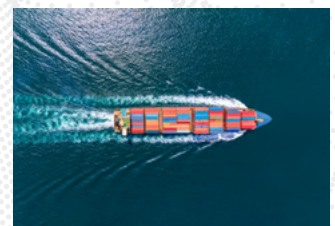
GAS AND OIL REFINERIES



GAS AND HYDROCARBON DEPOTS



GAS AND OIL EXTRACTION



GAS AND OIL TRANSPORT

# Uniqa Series, the pumping **solution** for **specific** industrial oil and gas applications.

In the oil and gas industry, every application requires specific features, according to the different properties and uses of the fluids processed. Zenit Group pumping solutions are employed in **oil and gas extraction, handling and production processes**.

Correlated refining applications demand **specific machines**, with different materials, construction and performance characteristics to ensure a safe and efficient treatment, and handle wastewater and process water properly.

**UNIQA Series** submersible pumps can handle **process water** from different gas and hydrocarbon processing stages, even those containing solid bodies or aggressive and acidic substances.

**ZUG V**, with an integral free-passing vortex impeller, and **ZUG OC**, with a channel impeller, can lift even high-flow-rate wastewater in **production and transport processes**, in **drainage systems of production and storage plants**, where wastewater can contain debris and sediments.

While **ZUG HP**, with its open multi-channel impeller, is a valid solution for vehicle and processing plant **washing processes** in **cooling circuits** that demand high pressure gauges, as they achieve the hydraulic performance required.

**Flexible and customized solutions based on process specifications**

# UNIQA<sup>®</sup>

Premium IE3 efficiency class submersible electric pumps.

## GENERAL FEATURES

- EN-GJL 250 grey cast iron enclosure
- EN-GJL 250 grey cast iron impeller
- AISI 431 crankshaft
- Two oil-chamber SiC mechanical seals
- DN50 - DN500 outlet
- Class H insulation (180°C)
- IP68 protection



## ZUGOC

## ZUGHP

## ZUGV

Power	1.1 - 250 kW	4 - 15 kW	1.1 - 37 kW
Poles	2/4/6/8	2	2/4/6
Outlet	-	-	-
	DN65 - DN500 H	DN50 - 2" H	DN65 - DN150 H
Free Passage	max 160 x 110 mm	max 7.5 mm	max 150 mm
Max Flow Rate	1240.0 l/s	11.8 l/s	116.0 l/s
Head Max	100.0 m	64.9 m	79.5 m
Impeller	With channels with ACS	High head	Vortex

**PREMIUM  
IE3  
EFFICIENCY**

**HIGH EFFICIENCY**

Motors designed according to Standard IEC EN 60034-30 to achieve the **Premium efficiency class (IE3)**.

**1 EXCLUSIVE COOLING SYSTEM**

In DRY models, the motor is cooled by a water-glycol mixture circulating inside a special closed-loop circuit. The mixture recirculation inside the pump is driven by the axial impeller [3] fixed to the shaft, and by the special double steel liner, ensuring the heat exchange between the motor and the outside.

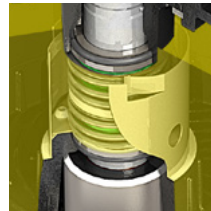
With this unique system:

- The cooling mixture is kept separate from the wastewater, removing any risk of contamination.
- The mechanical seals are installed in an oil chamber separate from the cooling system, and can be replaced without emptying the circuit.

The cooling circuit's insulation is provided by a **double lip ring in VITON® (FKM)** - a high-performance fluorinated synthetic rubber, resistant to chemicals, oils and high temperatures (200°C).

**2 STAINLESS STEEL DOUBLE LINER**

**3 RECIRCULATION AXIAL IMPELLER**



**4 MECHANICAL SEALS**

**Two oil-chamber silicon carbide mechanical seals** ensure **high reliability in heavy-duty conditions**.

If the external mechanical seal wears out, the **sensor** signals the water entering the oil chamber.

The **second mechanical seal** guarantees the pump's temporary operation for the time required to schedule the maintenance intervention, preventing the system's shutdown.

The **oil lifter system** keeps the upper mechanical seal constantly lubricated and more protected against wear.

**5 ANTI-CLOGGING SYSTEM [ACS]**

The helical groove engraved inside the diffuser prevents the impeller from locking, even in case of heavily loaded liquids, by tearing and fraying filamentous bodies.



**6 IMPELLERS**

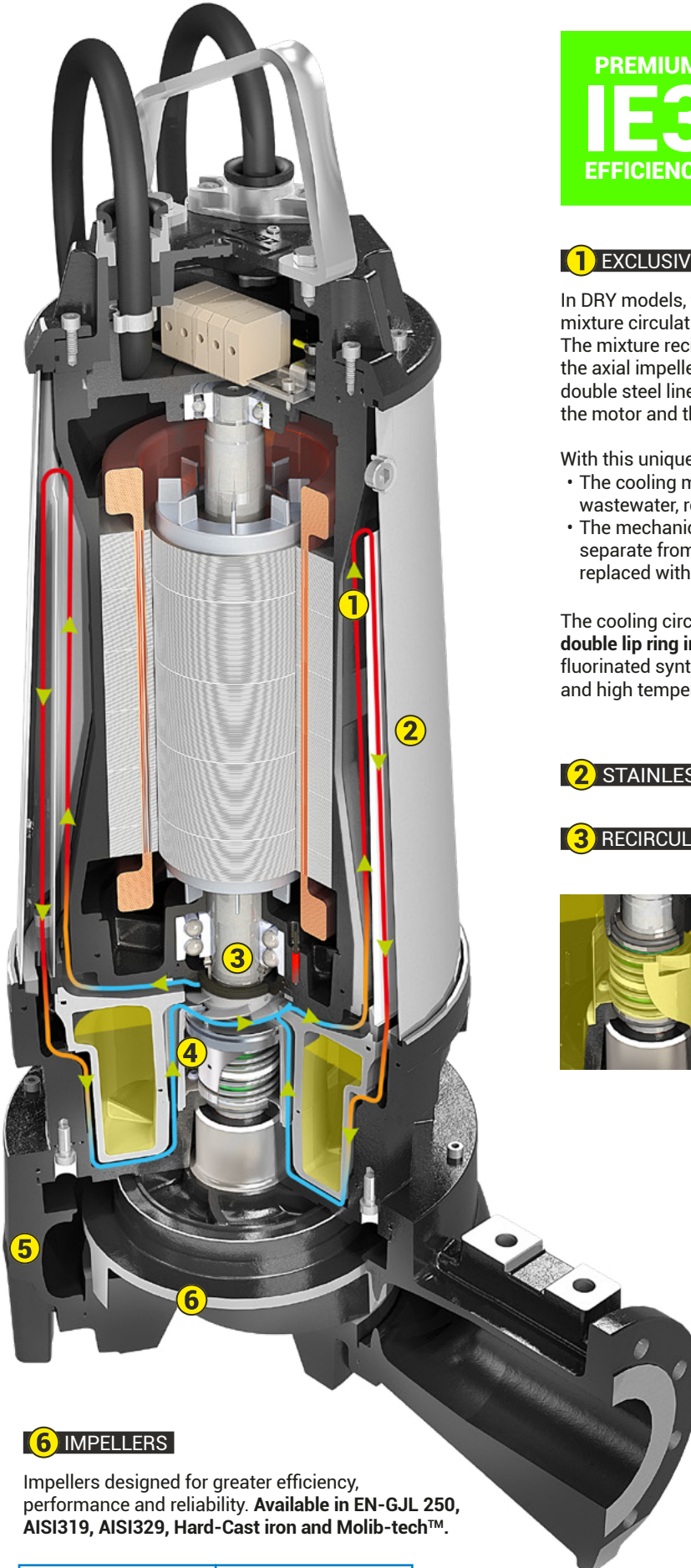
Impellers designed for greater efficiency, performance and reliability. Available in EN-GJL 250, AISI319, AISI329, Hard-Cast iron and Molib-tech™.



CHANNEL

HIGH HEAD

VORTEX



# High-quality materials for heavy-duty conditions.

As an alternative to standard EN-GJL 250 grey cast iron, the UNIQA Series hydraulics and impellers for extended and heavy usage in the oil and gas industry employ **alloys made of materials particularly resistant to corrosion and the harshest environments.**



**AISI 316 or X5CrNiMo17-12-2, stainless steel** alloy suitable for corrosive environments. Molybdenum optimises the **resistance to chloride and acid corrosion.**

**AISI 329 duplex STAINLESS STEEL**, chrome nickel iron alloy with molybdenum, copper and other elements. Excellent **resistance to organic acid and chloride corrosion**, and stress corrosion in particular.

**Molib-tech™**, applied in layers on cast iron, **improves performance and mechanical strength.** Unlike the ceramic treatment, it does not require any clearance changes nor causes any performance losses.

**Hard Cast Iron**, stronger than grey cast iron, with a hardness value between 450 and 500 HB. Its unique **strength and toughness** characteristics make it suitable for high-stress applications.

## Reliable components for intensive use.



### HARDWARE

**STAINLESS-A4 steel** external screws, with high organic acid and chloride corrosion resistance.



### CYLINDRICAL ROLLER BEARINGS

Designed to support heavy radial and axial loads, and ideal for harsh use and medium-high speeds.



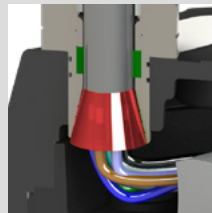
### MODULAR LOGIC

The UNIQA series is conceived according to a modular logic. Each model **combines IE3 class motors and optimised hydraulics to reach the required working point.** This **reduces energy consumption and increases the reliability** of the motor and parts subjected to mechanical stress.

**400µm**

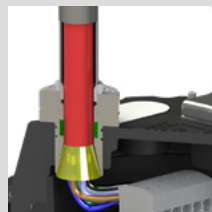
### 400µm TWO-COMPONENT EPOXY PAINT

**Long-term protection** against galvanic corrosion and catalysis in brackish waters and aggressive environments such as offshore platforms.



### CABLE RESIN COATING

Special **cable resin coating** to prevent possible infiltration into the motor compartment, even if the outer sheath tears up.



### TEAR-PROOF CABLE GLAND

For heavy-duty applications in the Oil & Gas industry, a **rigid or rubber hose can be attached to the cable gland** to protect the cable against excessive physical and mechanical stresses.



### SACRIFICIAL ANODES

Made of zinc to attract **galvanic currents**, and prevent brackish and acidic water corrosion effects.

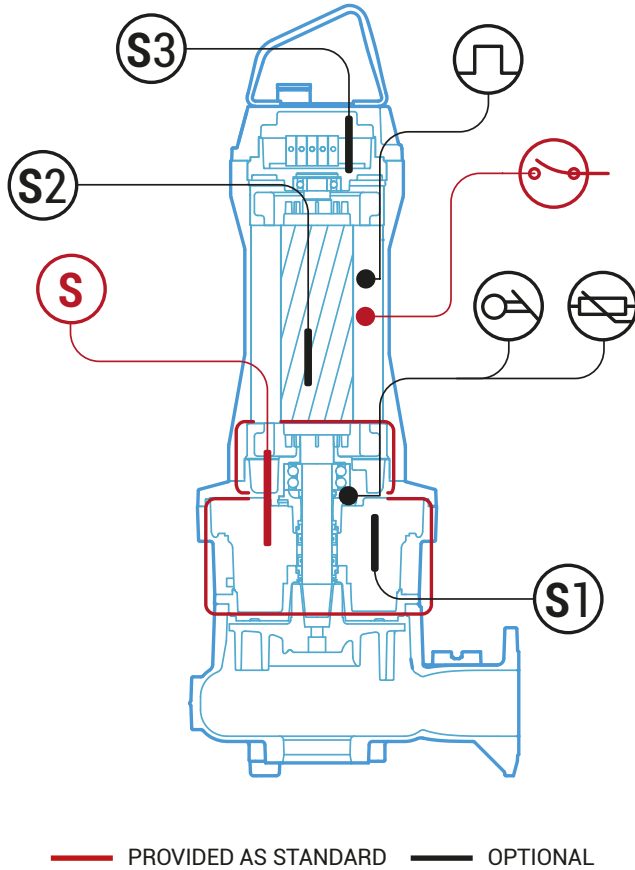
UNIQA IS ATEX / IECEx / FM CERTIFIED, IN ACCORDANCE WITH THE REGULATIONS FOR EXPLOSIVE ATMOSPHERE INSTALLATIONS.

<b>WET</b>		Ex db h IIB T4 Gb		Class I, Division 1, Groups C and D, T3C
<b>DRY</b>		Ex db h IIB T4 Gb Ex h tb IIIC T135°C Db		Class I, Division 1, Groups C and D, T3C Class II, Division 1, Groups E, F and G, T3C

# Monitoring for critical environments.

In the oil and gas industry, heavy-duty applications can expose the pumps to malfunctions and breaks. All of our **UNIQA model** can be equipped with special probes that detect and promptly report any anomaly, for immediate intervention and to protect the pump from any damage.

This system **monitors the operating parameters** of the installed machines in real time - a very useful feature to plan maintenance in a targeted manner, and prevent any system shutdowns.



## TERMINAL BOARD COMPARTMENT

- Ⓢ3 Water/humidity infiltration detection probe in the **terminal board compartment**.

## MOTOR COMPARTMENT

- Ⓢ Bimetal thermal sensors built into the stator [one for each phase, connected in series]. On DRY -Ex models, an additional sensor is installed inside the lower bearing support to signal the motor overheating in the event of cooling system failures.

- Ⓢ PTC/PT100 thermal probe.

- Ⓢ2 Water/humidity infiltration detection probe in the **motor compartment**.

## OIL AND CUSHION CHAMBER

- Ⓢ A single-signal **dual probe** detects the presence of water or moisture in the oil chamber of the mechanical seals and in the motor.

- Ⓢ1 Water/humidity infiltration detection probe in the **mechanical seals oil chamber**.

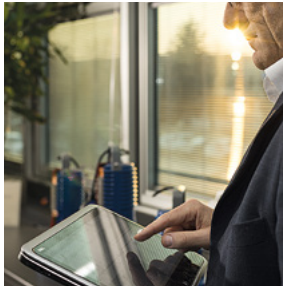
- Ⓢ Vibration probe on **lower bearings** to indicate a possible imbalance of the impeller due to damage or cavitation.

- Ⓢ PT100 thermal probe to signal lower bearings overheating.

## Types of installation

Continuous running operation **[S1 duty]** of the pump is guaranteed even in dry installations, partially submerged conditions or high temperature environments.

Type P		Type S		Type T		Type Z	
Installation with vertical [DAC V] or horizontal [DAC H] delivery coupling device		FREE installation with base (KBS)		VERTICAL installation in dry chamber with curved base [KBC]		HORIZONTAL installation in dry chamber with base [KBS-H]	



A  Tsurumi Pump Company

    For more information, visit [www.zenit.com](http://www.zenit.com)

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