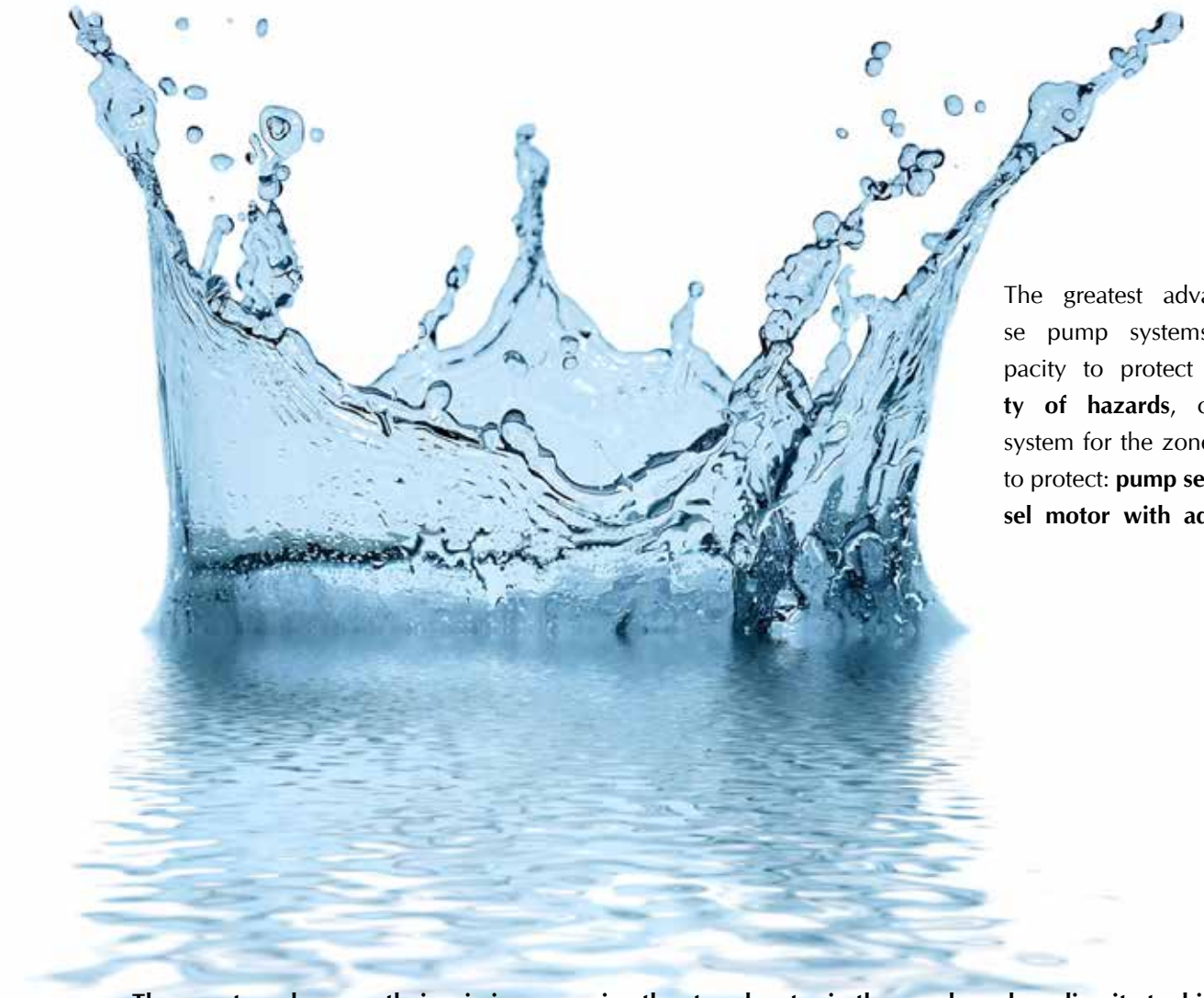
DIESEL
PUMP UNITS

WATER
MIST
SYSTEMS

RG SYSTEMS

Water mist systems driven by pumps and diesel motors are one of the most demanded configurations because of its constant, completely safe and reliable operation.

THEY PROTECT THE MOST DELICATE HAZARDS BY SHUTTING OFF BEFORE LARGE WATER DEMANDS



The greatest advantage of these pump systems is their capacity to protect a **great variety of hazards**, configuring the system for the zone characteristics to protect: **pump selection and diesel motor with adequate power.**

These systems have, as their mission, pumping the stored water in the supply and sending it at a high pressure to the distribution network. In this way, and due to its pressurisation, the water, once it reaches the nozzles, is atomized into a series of micro-drops that produce a mist that has the goal of fire extinguishing, suppression and control.

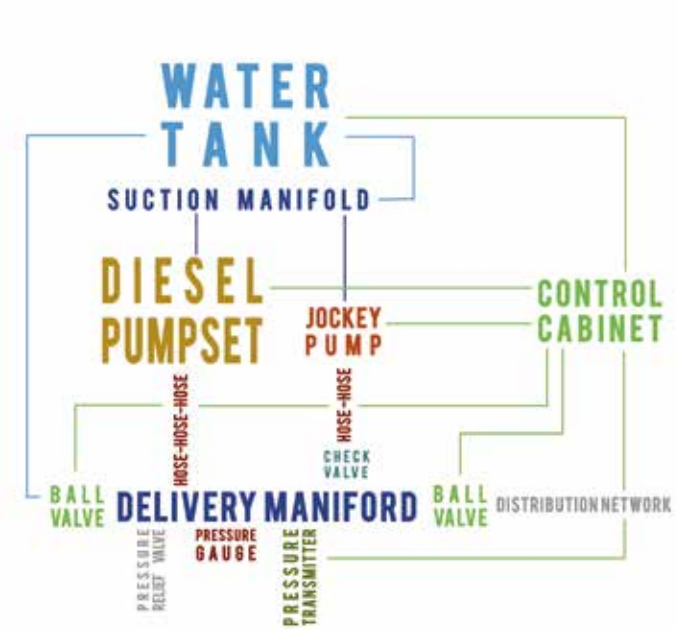
This type of pump-motor unit, with or without a pump jockey, is used in wet piping and preaction systems where closed nozzles are installed that allow the water to be kept at a certain pressure on the inside of the discharge network (wet piping systems) or in the branch considered within the pump unit and directional valves (preaction systems).

These are composed of main pumps that provide an adequate water flow to the specific hazard that is intended to protect and with a pressure that is sufficiently high for the water nozzles to operate properly.

They are formed by a diesel motor with power based on the positive displacement pump to which they are connected.

Also, they may or may not have a pump jockey that keeps the supply network filled with water to a certain pressure, always because of a drop in the discharge pressure between 11 an 15 bar (UAPJ type 1) or between 25 and 30 bar (UAPJ type 2).

Both the pump jockey and the main pump(s) are driven by a control cabinet that has an automaton to regulate its operation.



This coupling also has a drive accumulator in which the following elements are installed: one or many overpressure safety valves, which allows the passage of a certain amount of water for the relief from pressure peaks.

One pressure transmitter, which continuously measures the pressure and sends an electrical signal to the automaton from the control panel, used to command the operation of the main pump(s) and the jockey pump.

A manometer, which provides continuous measurement of the pressure in the drive accumulator.

Two ball valves, on both ends of the accumulator: one of them used to isolate this accumulator from the piping distribution network and which normally is closed, and the other used to perform operational testing and is normally open. To this accumulator, the discharge hoses for the main and jockey pumps are also connected, as well as the anti-return valves.

Finally, the system has a suction accumulator, which is linked directly to the water supply system and connects to the drive pumps.

RG W-FOG UAPD (water mist pump units) are activated both automatically and manually.

These pump units have safety valves that prevent excessive peaks, protecting from damages both to the pump unit as well as the system. In this way, an increase in working pressure from any of the components that come into contact with water is avoided. The safety valve allows water flow pressure to maintain constant pressure from the pump system, allowing the system to maintain working pressure. The flow of water that passes through the safety valve should not be directed toward the pump's suction line with the goal of avoiding heating up the water, and therefore the flow is returned to the upper part of the tank.

The pump units are equipped with a test valve that allows the water flow and resulting pressure to be tested by performing tests on the system as indicated in CEN/ TS14972:2011 in sections 8.9.8.1 and 8.9.2.6.

All of the pump system valves that could affect the proper operation of the system send a signal of their position (open/closed) to the control panel.

The discharge accumulator for the pump unit has a pressure gauge that continuously measures pressure at this point. Also, there is a pressure transductor in this same accumulator, which measures and sends the measurement of pressure in this point to the pump unit control panel.

The pump-motor unit comprises a diesel motor and a positive displacement pump in which the flow supplied is a function of the number of revolutions input from the motor and its displacement and they are based on the start of the axial piston, in this way facilitating a compact design that makes these systems able to be installed in almost any area.

To reduce the number of movable pieces to a minimum, there is a motor coupled directly with each pump. Gears aren't used.

The pumps used in the RG-Systems water mist systems are positive displacement systems, and operate both automatically and manually and have the capacity that is sufficient to fulfil the supply system requirements determined by the design parameters of the nozzles used in the water mist system.

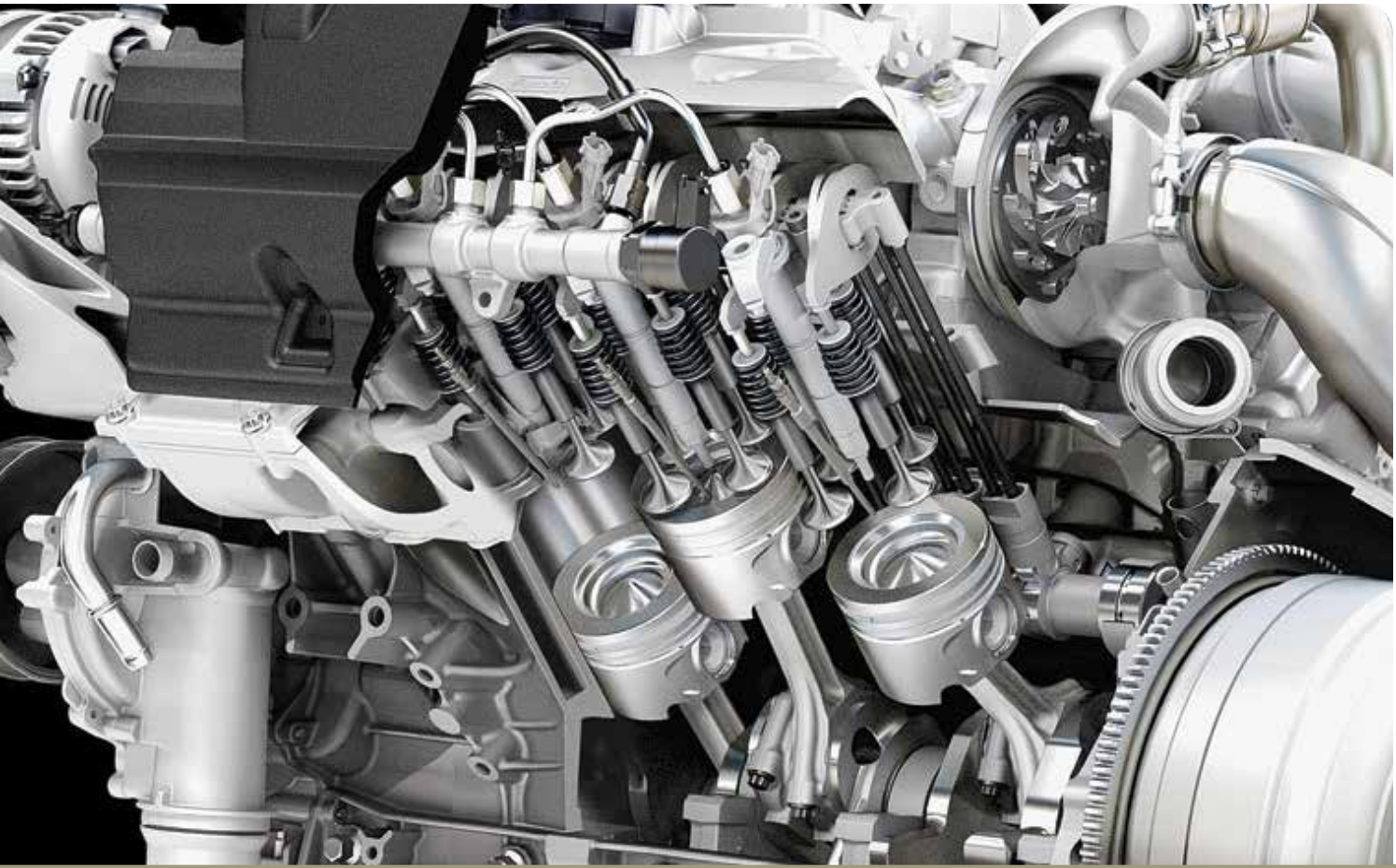
The positive displacement pumps are axial piston pumps, so the flow and pressure characteristics are very different than those used in centrifugal pumps. As opposed to centrifugal pumps, the flow from a positive displacement pump does not depend on the pressure of the upstream system since it is proportional to the pump speed.

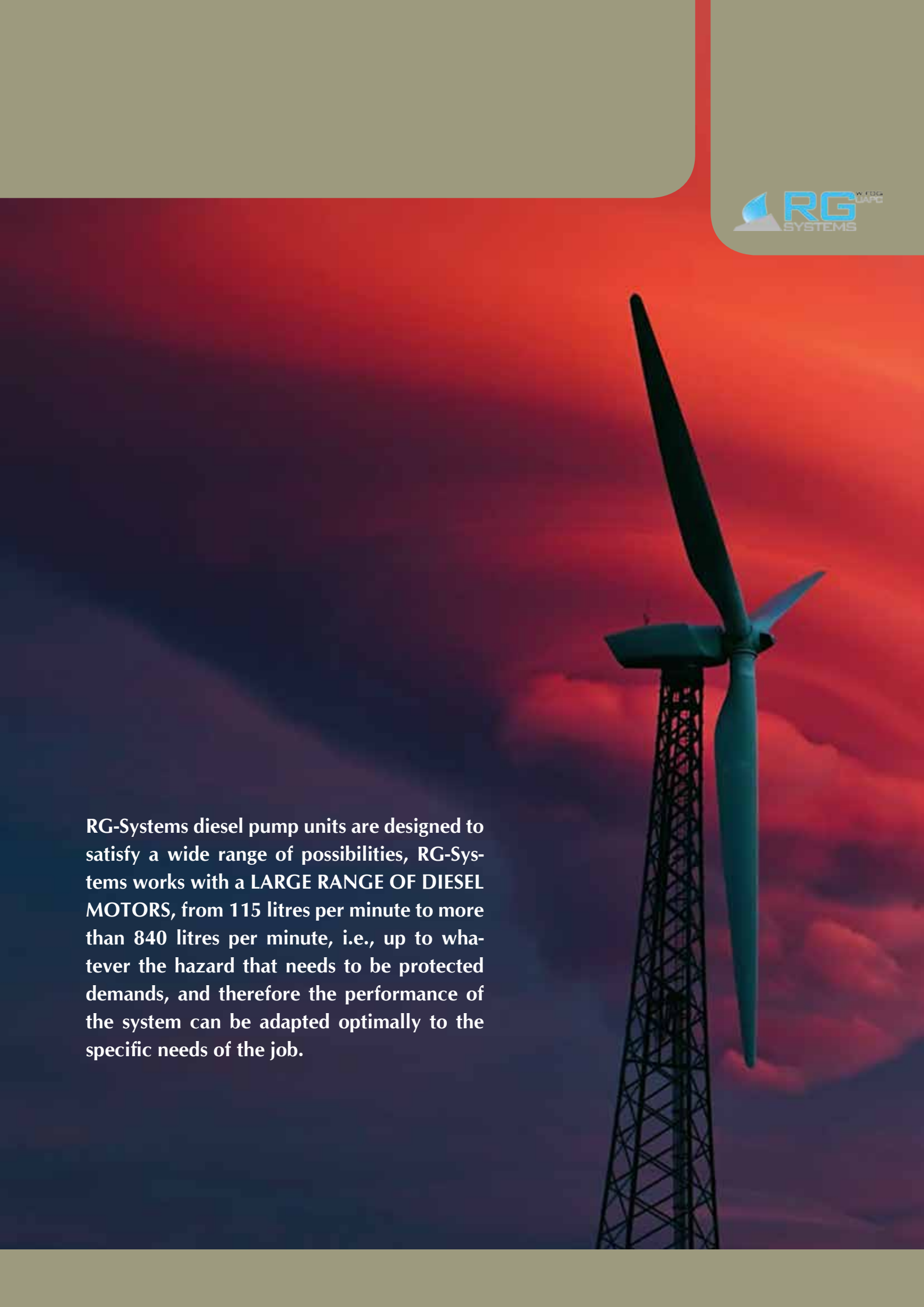
The diesel motor for the fittings provides a necessary rotation force to fulfil the pump's pressure and flow needs, and in this way, it achieves adequate flow conditions for the operation of the nozzles.

The diesel motor has the function of providing the necessary rotation force so that, using the pump-motor unit transmission system, the movement of the pump's pistons is produced, making way for a high-pressure water flow that is adequate for the specific application the system is used for.

This is a diesel fuel motor with four direct injectors, four inline cylinders and natural suction.

Both the pump and the motor are made of stainless steel so that they are very appropriate for working with water mist systems. All of the other elements of the pump group: suction and drive accumulators, ball, anti-return and overpressure valves, etc., are made of stainless steel.





RG-Systems diesel pump units are designed to satisfy a wide range of possibilities, RG-Systems works with a LARGE RANGE OF DIESEL MOTORS, from 115 litres per minute to more than 840 litres per minute, i.e., up to whatever the hazard that needs to be protected demands, and therefore the performance of the system can be adapted optimally to the specific needs of the job.

The electric control cabinets for the diesel pump systems are all IP54. The control and manoeuvre panel is formed of a programmable automaton and pressure measurement instruments, which allows for the progressive start-up of the pumps, adjusting the demand for each hazard, thus avoiding unnecessary water and energy consumption. This PLC control equipment is cutting-edge technology and can be easily connected to any fire alarm and detection system.

The start-up of the pump jockey is made using a wye starter and the main pumps with diesel motors have a start-up using batteries that activate it alternately, meaning in the case of the failure of one battery group, another group of batteries would start up and this would start the system. The diesel motor can start with battery units of 12V or 24V, depending on the system.

THE DIESEL PUMP SYSTEMS HAVE BEEN DESIGNED AS AN ALTERNATIVE TO ELECTRICAL PUMP SYSTEMS, WHEN, DUE TO THE INSTALLATION CIRCUMSTANCES, AN ELECTRICAL SUPPLY IS NOT GUARANTEED.

The equipment is totally autonomous because in the event of a failure in the electrical supply it can run off of its own batteries.

The diesel pump units are great for use in an installation with little electricity, as its electrical consumption is low.

The diesel pump units can be used in systems of the following models:

UAP115D	**UAP280D**	**UAP115JD**	**UAP280JD**
UAP135D	**UAP340D**	**UAP135JD**	**UAP340JD**
UAP140D	**UAP405D**	**UAP140JD**	**UAP405JD**
UAP170D	**UAP505D**	**UAP170JD**	**UAP505JD**
UAP230D	**UAP672D**	**UAP230JD**	**UAP672JD**
UAP270D	**UAP840D**	**UAP270JD**	**UAP840JD**

Summary of the benefits of diesel pump units:

They can protect against a variety of hazards.

The pump is made of stainless steel.

The equipment is totally autonomous because, in the event of a failure in the electrical supply it can run off of its own batteries.

Positive displacement pumps.

This is a straight-four, 4-stroke diesel fuel motor with four direct injectors and natural aspiration.

These are designed to satisfy flow rates from 115 litres per minute to 840 litres per minute.

The diesel pump systems have been designed as an alternative to the electrical pump systems, when, due to the circumstances, the installation does not allow for the use of electricity.

The diesel pump units are great for use in an installation with little electricity, as its electrical consumption is low.

The electrical cabinets are all IP54. The control and manoeuvre panel is formed of a programmable and automaton and pressure measurement instruments, which allows for the progressive start-up of the pumps, adjusting the demand for each hazard, thus avoiding unnecessary water and energy consumption.

C. Alfoz de Bricia, 4 P.I. Villalonquéjar
09001 BURGOS (SPAIN)

Tlfno. +34 947 28 11 30
Fax. +34 947 28 11 12

www.rg-systems.com

RG SYSTEMS

ENGINEERING SERVICES SPECIALISING IN THE TECHNICAL CONSULTING SECTOR

WIDE RANGE OF EXPERIENCE AND TRACK RECORD WITH LARGE JOBS

INNOVATION AND DEVELOPMENT OF ALL PRODUCTS, ENSURING THE TECHNICAL FEATURES OFFERED

GUARANTEE FOR ALL PRODUCTS OF SPEED AND EFFICACY DURING WORKING PERFORMANCE

VERY COMPETITIVE PRICES ON THE MARKET