

# FIRE PROTECTION SYSTEMS – FULL RANGE EXPERTISE

Vertical Turbine Fire Pumps  
– UL and FM approved

# GRUNDFOS FIRE PUMPS SUPPLY HIGH-CLASS SAFETY TO CLIENTS AROUND THE WORLD. OUR EXPERTISE SPANS THE GLOBE AND COVERS ALL UL-FM APPROVED FIRE SYSTEMS

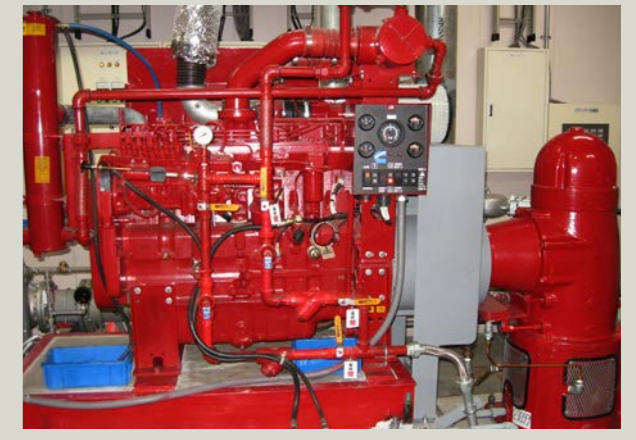


With Grundfos as your fire system supplier, you can rest assured that your system lives up to the highest international standards of quality. We have products that comply with your every need and the following approvals:

- » PSB
- » VNIPO
- » CCCF
- » APSAD
- » CEPREVEN
- » VdS
- » UNI
- » LPCB
- » EN 12845
- » CNBOP
- » FM
- » UL
- » NFPA 20
- » OKF
- » PAVUS

## YOUR STRONG PARTNER IN FIRE PROTECTION

Grundfos is a proud company with a renowned history of pump manufacturing and innovation. We have extensive experience with fire pumps of all leading standards – including the commonly used NFPA 20 standard and FM-UL approved systems. Our values include a commitment of superior quality products, strong customer focus, and an in-depth understanding of the dimensions of fire protection. As an example, our Regional Competence Centers assemble UL FM firepump sets and are of course also FM approved facility.



*Diesel driven VTF*

### Global presence

Grundfos secures efficient and direct deliveries to the construction sites of all our European customers, and with a sales and service centre in every market, Grundfos is never far away. Our competence centre in Wahlstedt, Germany, is at the heart of fire competence in Europe. Here we manufacture and test FM and VdS approved systems. Comprehensive on-site design, testing and a full range of customer training facilities are also provided.



**SERVICE AND EXPERTISE**  
We cover the world

✕ Local assembly sites & competence centres  
53 sales companies

# RELIABILITY ACROSS THE FULL RANGE

## Full-line supplier

Grundfos produces fire pump systems for:

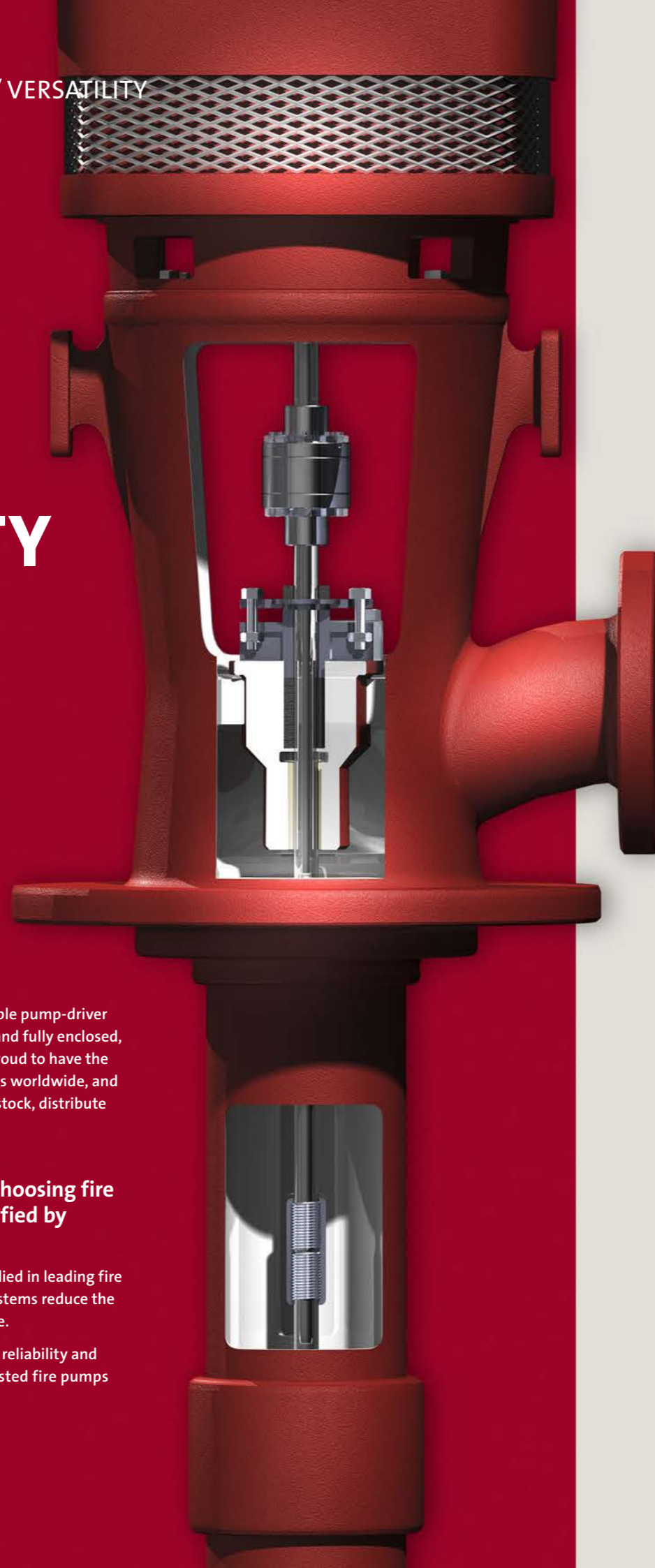
- » Fire hose reels
- » Fire hydrants
- » Fire sprinklers

We design and build systems ranging from simple pump-driver systems on a base frame to highly engineered and fully enclosed, packaged and containerised systems. We are proud to have the widest range of fire pump approvals and listings worldwide, and our expertise enables us to engineer, produce, stock, distribute and service our products all over the world.

## There are three main reasons for choosing fire pumpsthat are approved and certified by accredited third party authorities

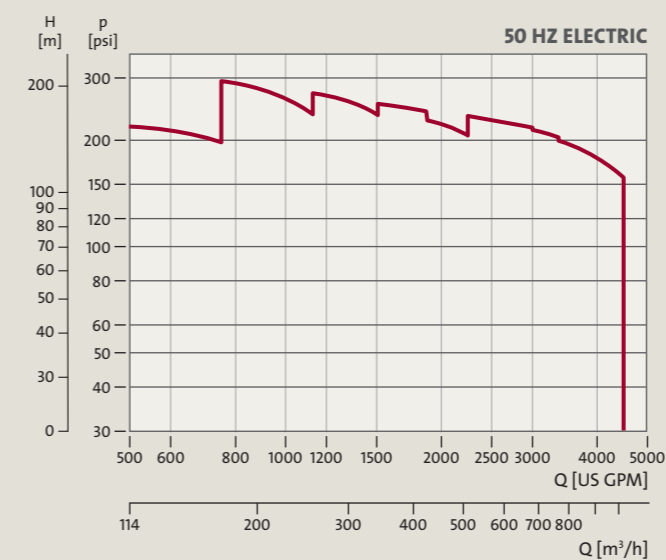
Firstly, based on the massive experience embodied in leading fire protection, regulations and codes, approved systems reduce the riskof damage to life and property in case of fire.

Secondly, approved systems provide maximum reliability and superior quality. Thirdly, using approved and listed fire pumps typically reduces insurance rates significantly.



# SUPREME PERFORMANCE – UL-LISTED AND FM-APPROVED

Grundfos provides top performance electric and diesel systems that are listed by UL (Underwriters Laboratories) and approved by FM (Factory Mutual). The systems can be supplied as either electric or diesel systems. Below, you can see the standard performance range of our electric and diesel pumps.



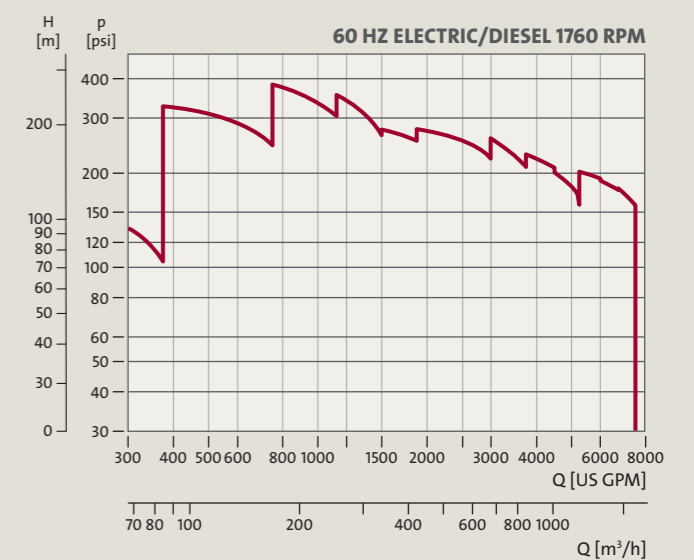
Performance range of electric fire pumps 50 Hz

## Grundfos Vertical Turbine Fire pump

This highly efficient pump is adaptable to a variety of configurations, and can easily be staged to meet the desired pressure requirement.

### Features

- » High Efficiency
- » No priming necessary
- » A minimum floor space requirement
- » Operation in low NPSH application
- » Ideal for installatioins on piers, platforms...



Performance range of 60 Hz electric / diesel 1760 rpm

Complete diesel fire pump unit including fire pump, diesel engine, fuel tank, batteries and control panel.

### Range of sizes

- » Flow rate from 500 to 5000 GPM (114 m³/h - 1136 m³/h)
- » Pressure rating up to 350 PSI (24.1 Bar)
- » Driven by engine or electric motor

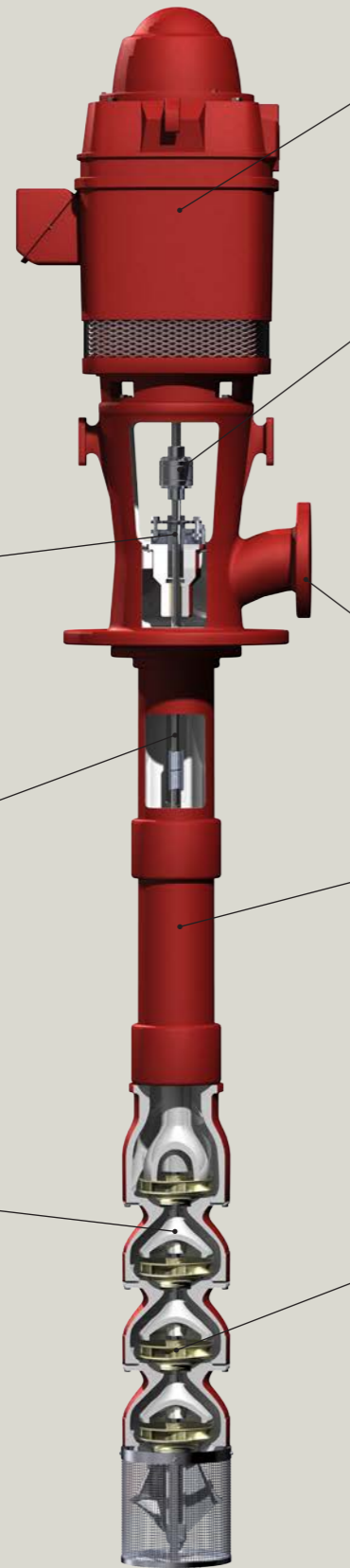
# ELECTRIC VERTICAL TURBINE FIRE PUMP – UL & FM APPROVED

## Electric fire pump controller

- » UL-FM approved controllers as standard, designed to comply with NFPA 70
- » Microprocessor based logic and pressure /event recorder as standard

### Optional:

- » CE-Mark as option
- » Star delta, part winding, soft start, auto transformer, variable frequency drive



## Electric motor

- » Power Safety factor and high reliability
- » UL listed hollow shaft NEMA motors
- » NEMA design – Thrust bearing in the motor

## Shaft coupling

### Standard:

- » Shaft extension to match a hollow shaft drive

### Optional:

- » Flanged spacer couplings

## Discharge head

- » UL-FM approved robust cast iron construction
- » ANSI discharge flange
- » Hydrostatically tested
- » Outer surface painted

## Column

- » UL-FM approved
- » Variable length depending on suction level
- » Steel – Outside paint red and threaded pipe on unassembled pumps are primed

## Impellers

- » UL-FM approved and compliant to NFPA 20 Standard
- » Aluminium Bronze – optional in other materials

## Seal

- » Packed stuffing box

## Shaft

- » 416 Stainless Steel precision ground shafting

## Bowls

- » UL-FM approved to NFPA 20 standard
- » Coated and painted red
- » Factory performance and hydrostatically tested

# DIESEL VERTICAL TURBINE FIRE PUMP – UL & FM APPROVED

## Diesel fire pump controller

- » UL-FM approved controllers as standard, designed to comply with NFPA 70
- » Simple start-up and maintenance procedures
- » CE-Mark as option

## Diesel engine

- » UL listed and FM approved engine with industrial silencer and flexible exhaust
- » Residential and semi-residential are often used
- » Power safety factor as per NFPA 20
- » Engine cooling by heat exchanger to ensure proper operation

## Fuel tank

- » Designed and sized according to NFPA 20
- » Single wall as standard (Optional – double wall and UL listing)

## Battery set

- » Two battery sets (lead acid) provide redundant power supply and ensure full reliability.
- » Sized according to NFPA 20

## Engine Baseframe

- » Welded frame with a rigid design
- » Lifting points for easy transportation
- » Painted in red

## Column

- » variable length depending on suction level
- » Standard pipe steel
- » Epoxy coated and painted red, and threaded pipe on unassembled pumps are primed

## Bowls

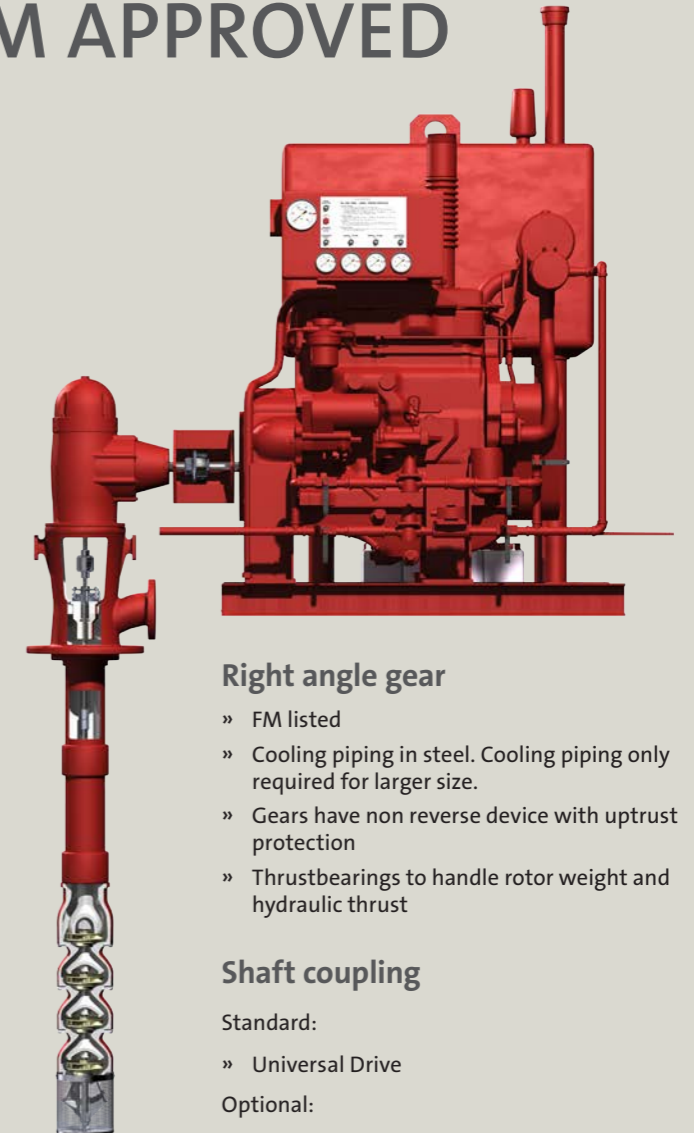
- » UL-FM approved to NFPA 20 standard
- » Factory performance and hydrostatically tested
- » Coated and painted red

## Drive shaft

- » UL listed PTO shaft
- » Allows movements in axial radial and angular directions

## Strainer

- » Brass basket strainer



## Right angle gear

- » FM listed
- » Cooling piping in steel. Cooling piping only required for larger size.
- » Gears have non reverse device with uptrust protection
- » Thrustbearings to handle rotor weight and hydraulic thrust

## Shaft coupling

### Standard:

- » Universal Drive

### Optional:

- » Flex Coupling

## Discharge head

- » Robust cast iron construction
- » ANSI discharge flange
- » Hydrostatically tested
- » Epoxy coated and painted red, and threaded pipe on unassembled pumps are primed

## Seal

- » Packed stuffing box

## Shaft

- » 416 Stainless Steel precision ground shafting

## Impellers

- » UL-FM approved and compliant to NFPA 20 Standard
- » Aluminium Bronze – optional in other materials

# BEYOND STANDARD PRODUCTS

At Grundfos, we have always considered a complex project a great challenge. That is why we offer completely customised solutions that match the requirements of even the most complicated tasks.

## Made-to-order programme

Our made-to-order programme contains more than the electrically or diesel-driven Vertical Turbine pumps. We also supply:

- » In-Line fire pumps
- » End Suction and Horizontal Split Case pumps

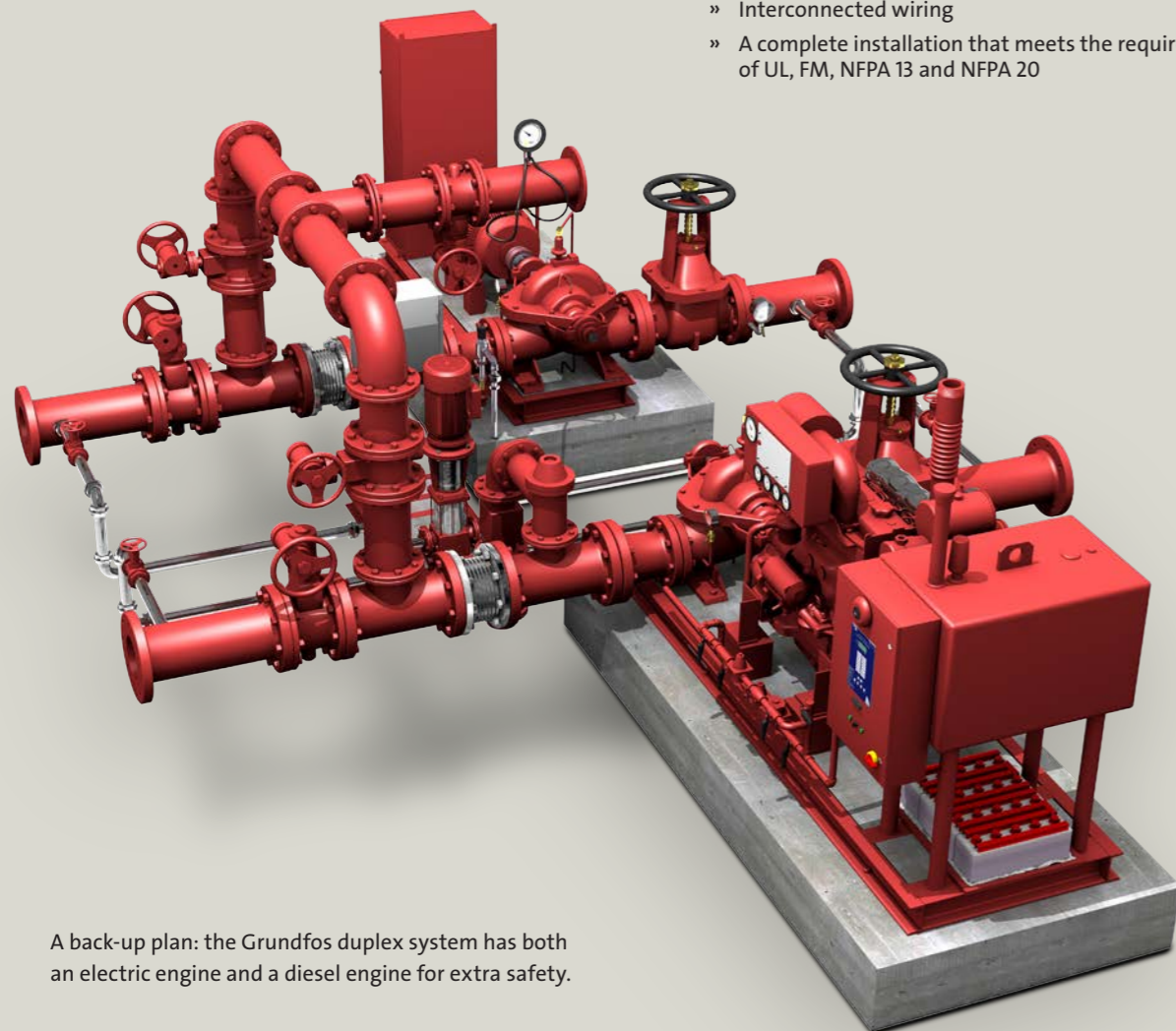
## Modularised systems

Grundfos designs and builds customised systems that meet your specific needs. We mount the fire pump, driver, controller and piping with complete interconnected wiring on a common base or a modularised base frame for final assembly on location.

## Packaged/containerised systems

With Grundfos' enclosed systems, your installation to operation time is minimal. Our enclosed systems are typically built as an integrated pump and control centre with:

- » Diesel engine
- » All the required controllers
- » In-house piping
- » Fittings
- » Interconnected wiring
- » A complete installation that meets the requirements of UL, FM, NFPA 13 and NFPA 20



A back-up plan: the Grundfos duplex system has both an electric engine and a diesel engine for extra safety.

# CASE REFERENCES

## Projects with UL-FM Fire Vertical Turbine Pump Systems

PROJECT NAME	LOCATION	COUNTRY	APPLICATION	VERTICAL FIREPUMPS
National Guard project	Riyad	KSA	Government Bldg.	6 Duplex
Techmart – City Diamond	Dubai	United Arab Emirates	Warehouse	1 Duplex
Abudhabi Islamic Bank	Abu Dhabi	United Arab Emirates	Bank	2 Electric
Iraq Project	Kurdistan Region	Iraq	Commercial Bldg.	1 Duplex
La Farge	Beocin	Serbia	Production Facility	1 Diesel
Cummins Factory	Huddersfield	England	Production Facility	2 Diesel
Newell Rubbermaid	Malissard	France	Production Facility	1 Diesel
Centrale électrique à cycle combiné gaz naturel Montoir de Bretagne	Montoir de Bretagne	France	Power Plant	1 Electric

## Maritsa East Power Station, Bulgaria

Maritsa East Power Station is enormous and covers 9% of Bulgaria's installed power capacity. The plant is proposed to have an installed capacity of 750 megawatts – starting at 420 megawatts and reaching 600 megawatts by the end of this year. This huge power station trusted Grundfos to protect their plant with Grundfos UL-FM Fire Fighting pumps. The project includes Vertical Turbine pumps and Horizontal Split Case pumps as shown below.

### Vertical Turbine pumps

- » 16" MCF electrical pump with 200 HP electric motor
- » 14" MDF diesel pump with Clarke JW6H-UF48 diesel engine (w/all accessories, including fuel tank, batteries, etc.)
- » 10 LB Vertical Jockey pump

### Split Case pumps

- » 4 pcs HSEF 6-16 electric split case pumps with 75 HP electric motors
- » 2 pcs CR Grundfos Jockey pumps



Vertical Turbine Fire Pump optionals

BOWL ASSEMBLY	UL LISTED	FM APPROVED
Impellers	Ni-Resist Type 2, 316L SS, C952 Aluminum Bronze, C955 Nickel Aluminum Bronze, C958 Nickel Aluminum Bronze, Duplex SS Grades 1A, 4A, or 5A	316L SS, C952 Aluminum Bronze, C958 Nickel Aluminum Bronze
Bowls	Ni-Resist Type 2, 316L SS, C952 Aluminum Bronze, C955 Bronze, C958 Nickel Aluminum Bronze, Duplex SS Grades 1A, 4A, or 5A	—
Impeller Shaft	K500 Monel, Nitronic 5	K500 Monel, Nitronic 50, 17-4PH SS
FLANGED COLUMN	UL LISTED	FM APPROVED
Column Pipe	Epoxy Coated Steel, Ni-Resist Type 2, 316L SS, C952 Aluminum Bronze, C958 Nickel Aluminum Bronze, Duplex SS Grade 5A	Epoxy Coated Steel, 316L SS, C952 Aluminum Bronze, C958 Nickel Aluminum-Bronze, Duplex SS Grade 5A
Bearing Spiders	Ni-Resist Type 2, 316L SS, C952 Aluminum Bronze, C958 Nickel Aluminum Bronze, Duplex SS Grade 5A	316L SS, C952 Aluminum Bronze, C958 Nickel-Aluminum-Bronze
Line Shaft	K500 Monel, Nitronic 50	K500 Monel, Nitronic 50, 17-4PH SS
Line Shaft Couplings	K500 Monel, 400 Monel, Nitronic 60	K500 Monel, 400 Monel, Nitronic 60
DISCHARGE HEAD	UL LISTED	FM APPROVED
Discharge Head	Epoxy Coated Cast Iron, Ni-Resist Type 2, 316L SS, C952 Aluminum Bronze, C958 Nickel Aluminum Bronze, Duplex SS Grades 1A, 4A, 5A	Epoxy Coated Cast Iron
Packing Box Assembly	Ni-Resist Type 2, 316L SS, C952 Aluminum Bronze, C958 Nickel Aluminum Bronze, Duplex SS Grades 1A, 4A, 5A	316L SS, C952 Aluminum Bronze, C958 Nickel Aluminum Bronze
Top Shaft	K500 Monel, Nitronic 50	K500 Monel, Nitronic 50, 17-4PH SS
STRAINER	UL LISTED	FM APPROVED
Basket Strainer	316L SS	316L SS, C952 Aluminum Bronze, C958 Nickel Aluminum Bronze
FIRE PUMP FITTINGS	UL LISTED	FM APPROVED
Air Vent, Relief Valve, Gauges, Headers, Hose Valves & Overflow Cones	Standard construction (same as fresh water)	Standard construction (same as fresh water)
ENGINE	UL LISTED	FM APPROVED
Heat Exchanger	Standard heat exchanger is suitable for fresh or sea water service	Standard heat exchanger is suitable for fresh or sea water service
Cooling Water Piping	316 stainless steel piping; bronze strainer and regulator with Monel internal parts	316 stainless steel piping; bronze strainer and regulator with Monel internal parts
Solenoid Valve	Solenoid valve will not be furnished	Solenoid valve will not be furnished
RIGHT ANGLE GEAR	UL LISTED	FM APPROVED
Cooling Coil	Gear manufacturer's standard for marine service	Gear manufacturer's standard for marine service
Cooling Piping	316 stainless steel	316 stainless steel
ENGINE CONTROLLER	UL LISTED	FM APPROVED
Wetted Parts	316 stainless steel	316 stainless steel



# EXPERTISE AT GRUNDFOS FIRE COMPETENCE CENTRES

## Grundfos Competence Centres

» The Grundfos Fire Competence Centres are spread around the world, and set the scene for a collection of activities that all promote the technology, production and knowledge behind great fire protection systems.

- » Customer support: system design, technical- and sales backup and shipping
- » Product- and application training for Grundfos staff and customers.
- » Skilled service technicians that support start-up and system maintenance on site
- » All Competence centres assembling UL-FM Fire Pump Sets are FM approved.

## Global presence – local support

- » Production, assembly, and test facilities approved by FM and VdS
- » Quality accreditations such as ISO 9001, 14001, 18001, and EMAS
- » Witness tests where customers can supervise the testing of their products

be think innovate

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