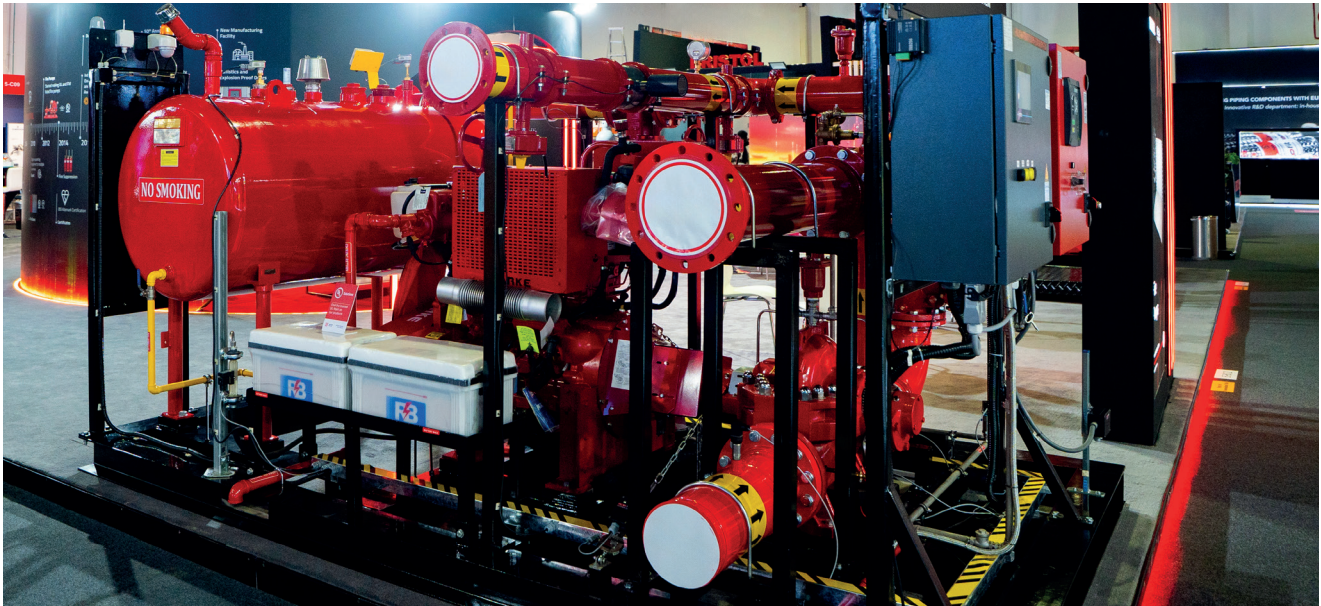




FACTS

Fully Automatic Churn Testing System - Automated system for testing and monitoring fire pumps



With FACTS (Fully Automatic Churn Test System), you get an automated solution for testing your fire pump units in accordance with standards. FACTS is the world's first system of its kind approved by FM Approvals according to Standard 1330.

FACTS fully automates the required tests – weekly for diesel-powered fire pump units and monthly for electric motor-powered fire pump units – in accordance with NFPA 25 and FM 2-81.

All test data is securely recorded and available via USB or Modbus TCP/IP. This ensures maximum transparency, complete traceability, and reliable insurance documentation.



made
in
Germany

ADVANTAGES

- » Reduced liability risks
- » Minimized service effort
- » Cost- and time-saving
- » Integrable in new and existing systems
- » According to FM and NFPA standards



KEY FEATURES AND FUNCTIONALITIES

| | | | |
|--|--|---|---|
| <p>System</p> <p>Automated testing procedures</p> | <ul style="list-style-type: none"> » Fully automated churn tests for predefined cycles » Recording and analysis of key parameters such as vibration, suction and discharge pressures and ambient temperature, in real time » Automatic termination of tests in case of faults or issues to prevent damage » Recording of alarms and notifications » Immediate termination of the test in the event of fire or power failure | <p>Cybersecurity and reliability</p> <hr/> <p>Certificates</p> <hr/> <p>Protocols</p> <hr/> <p>Construction</p> | <ul style="list-style-type: none"> » Minimized cyber risks through separate CPU and HMI functionalities » Secure operation via protected communication protocols and strict access controls <hr/> <p>FM PR472074</p> <hr/> <p>Via USB port:</p> <ul style="list-style-type: none"> » TXT » CSV » PDF <p>Via TCP/IP:</p> <ul style="list-style-type: none"> » Modbus <hr/> <p>FACTS control cabinet with the following connection options (some optional):</p> <ul style="list-style-type: none"> » Motion sensor for occupational safety » Pressure sensor (suction / discharge side of pump / system pressure) » Visual occupational safety indicators » Audible occupational safety indicator » Flow switch for circulation relief valve (CRV) » Oil level sensor » Sensor for machine vibrations » Sensor for coupling protection monitoring » Room temperature sensor » Packing gland sensor » Liquid level switch (leak detection) » Position sensor (shaft or unit alignment) |
| <p>Enhanced safety measures</p> | <ul style="list-style-type: none"> » Prevention of risks to personnel in the pump room through motion sensors and warnings (audible and visual) » Protection against damage to the pump and fire suppression system during tests » Continuous operational readiness of the water-based extinguishing system, supported by redundant safety features (even in the event of simultaneous fire and automatic testing) | | |
| <p>Efficient monitoring</p> | <ul style="list-style-type: none"> » Sensors for engine oil level, water flow (pressure line), pressure (suction and discharge side), ambient temperature, machine vibrations, and valve position » Automatic alarm in case of deviations, such as pump room flooding or insufficient cooling water flow (primary circuit) | | |



TECHNICAL DATA

FACTS Control cabinet

Approved for use with sensors and actuators.
Redundant safety feature to prevent shutdown of the pump unit in case of fire while simultaneous faults occur.

| | |
|--|--|
| Mounting | Wall-mounted |
| Display | 7" WVGA operator display, touch screen |
| Modules | I/O and PLC (Programmable Logic Controller) |
| Alarm | Audible alarm (buzzer) and visual indicator (indicating light) |
| Nominal power supply | Power buffer module 230 V, 50 Hz, or 110 V, 60 Hz, 285 VA |
| Operating temperature | 4 °C ... 50 °C (39 °F ... 122 °F) |
| Protection class | IP66 |
| Electromagnetic compatibility (Test report No: EMC01 48467-309P24) | Complies with EN 55011:2016-04, EN 55011/A1:2017-04, EN 55011/A11:2020-03, EN 55011/A2:2021-04 |

Motion sensor for occupational safety

Note: Supply power of 24V DC is common for the components.

| | |
|-----------------------|-----------------------------------|
| Mounting | Wall-mounted |
| Operating temperature | 4 °C ... 50 °C (39 °F ... 122 °F) |
| Protection class | IP54 |

Pressure sensors (suction / discharge side)

Different pressure ranges for connection to sprinkler water tanks or public water supplies.

| | |
|----------------------|---|
| Mounting | T-piece at the suction or discharge pressure gauge |
| Connection | ¼" external thread |
| Pressure limits | Suction side sprinkler water tank: -1 ... 1.5 bar (-14.5 ... 22 psi) Suction side public water supply: 0 ... 16 bar (0 ... 232 psi) Discharge side: 0 ... 25 bar (0 ... 363 psi) |
| Measurement accuracy | ±5% of full scale over a temperature range of 10 °C ... 40 °C (50 °F ... 104 °F). Note: Accuracy may vary outside this temperature range. |
| Signal output | 4 ... 20 mA |
| Cable connector | Included |
| Protection class | IP65 |

Room temperature sensor

| | |
|------------------|--------------|
| Mounting | Wall-mounted |
| Connection | 2-wire |
| Protection class | IP54 |

Sensor for machine vibrations

RMS Vibration acceleration measurement

| | |
|------------------|---------------------------------------|
| Mounting | M8 x 5.5 at the frame or engine block |
| Connection | M12 cable connector |
| Material | Stainless steel |
| Signal output | 4 ... 20 mA, 2-wire |
| Protection class | IP68 |



Visual occupational safety indicators

Two yellow flashing lights for warnings inside and outside the pump control room.

| | |
|-----------------------|--------------------------------------|
| Mounting | Wall-mounted |
| Nominal power supply | 24 V DC |
| Operating temperature | 4 °C ... 50 °C (39 °F ... 122 °F) |
| Protection class | IP54 |

Audible occupational safety indicator

Buzzer for additional internal warning.

| | |
|-----------------------|--------------------------------------|
| Mounting | Wall-mounted |
| Nominal power supply | 24 V DC |
| Operating temperature | 4 °C ... 50 °C (39 °F ... 122 °F) |
| Protection class | IP54 |

Circulation relief valve (CRV)

FACTS monitors circulation relief valve operation. Permissible flow switch for water flow (alarm flow switch).

| | |
|------------|---|
| Mounting | Switch to be connected to the bypass pipe with circulation relief valve (1" or ¾"). |
| Connection | Potential-free contact (2 changeover contacts) |

Oil level sensor

Adjustable. Not required if the diesel engine is fitted with an oil level alarm switch.

| | |
|---------------------------------|---|
| Mounting | Floor mounting kit included (excluding dowels and screws) |
| Reed contact switching capacity | 5 W |
| Tube | Flexible, 1 m length, ½" diameter, without connection to the oil drain plug |
| Protection class | IP65 |

Packing gland sensor

Alarm threshold typically set to 3 drops per second ... 250 ml per minute (measurement time approx. 30 s). For longer intervals, 1 ... 2 drops per second is possible.

| | |
|-----------------------|--------------------------------------|
| Mounting | Drip pan below the stuffing box |
| Connection | ½" external thread |
| Nominal power supply | 24 V DC |
| Operating temperature | 4 °C ... 50 °C (39 °F ... 122 °F) |
| Protection class | IP54 |

Coupling guard switch

The attachment of the coupling guard switch is important to minimize occupational hazards and to prevent damage to the pump shaft and/or pump coupling. Pumps without a coupling guard (e.g., vertical shaft turbine with close-coupled electric motor, vertical in-line pump) do not require a sensor.

| | |
|-----------------------|--|
| Scope of delivery | Safety switch, rope including fixings, floor mounting kit (special versions available) |
| Mounting | Floor mounting kit included (excluding dowels and screws) |
| Nominal power supply | 24 V DC |
| Operating temperature | 4 °C ... 50 °C (39 °F ... 122 °F) |
| Protection class | IP67 |

Liquid level switch (leak detection)

| | |
|-----------------------|--|
| Mounting | Wall-mounted above the floor (optional for drip trays available) |
| Contact rating | Max. 50 VA |
| Nominal power supply | 24 V DC |
| Accuracy | 6 mm |
| Operating temperature | 4 °C ... 50 °C (39 °F ... 122 °F) |
| Protection class | Housing: IP54 Switch: IP68 |



Stop function

Failsafe. Designed redundantly. Prepared for reset and monitoring of redundancy.

| | |
|-----------------------|--|
| Mounting | Mounting kit for stand installation included (excluding dowels and screws) |
| Nominal power supply | 24 V DC |
| Operating temperature | 4 °C ... 50 °C (39 °F ... 122 °F) |
| Protection class | IP66 |

Position sensor (shaft or unit alignment)

The optional FM approved position sensor detects misalignment of the pump, drive, or pump unit, indicating a non-de-energized connection and/or loose mounting.

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|---|--|
| Mounting | Floor mounting kit included (excluding dowels and screws) (special versions available) |
| Nominal power supply | 24 V DC |
| Operating temperature | 4 °C ... 50 °C (39 °F ... 122 °F) |
| Measurement of possible movement between driver, pump, or floor | ±0.5 mm |
| Protection class | IP66 |



PRODUCT AND ACCESSORIES

| Product | Order code |
|--|------------------|
| FACTS - Fully Automatic Churn Testing System Diesel engine driven fire pump set | FACTS0-DB0 |
| FACTS - Fully Automatic Churn Testing System Diesel engine driven fire pump set with oil level sensor | FACTS0-DB1 |
| FACTS - Fully Automatic Churn Testing System Diesel engine driven fire pump set with additional monitoring circulation relief valve CRV | FACTS0-DC0 |
| FACTS - Fully Automatic Churn Testing System Diesel engine driven fire pump set with additional monitoring circulation relief valve CRV and oil level sensor | FACTS0-DC1 |
| FACTS - Fully Automatic Churn Testing System Electric motor driven fire pump set with circulation relief valve CRV | FACTS0-EC0 |
| FACTS - Position sensor (shaft alignment) | FACTS0-AA0000AA1 |
| FACTS - Stop function for installation in existing systems (Retrofit) | FACTS0-AA0000AR |
| FACTS - Suction side pressure sensor public water supply | FACTS0-AA0000P |
| FACTS - Suction side pressure sensor sprinkler water tank | FACTS0-AA0000T |
| FACTS - Liquid level switch | FACTS0-AA0001 |
| FACTS - Liquid level switch 2 pieces | FACTS0-AA0002 |
| FACTS - Coupling guard switch | FACTS0-AA001 |
| FACTS - Packing gland sensor 1 piece for End-suction pumps (ES), vertical turbine pump (VTP) | FACTS0-AA01 |
| FACTS - Packing gland sensor 2 pieces for Horizontal split case pumps (HSC) | FACTS0-AA02 |
| FACTS - Oil level sensor for motor oil level | FACTS0-DA1 |