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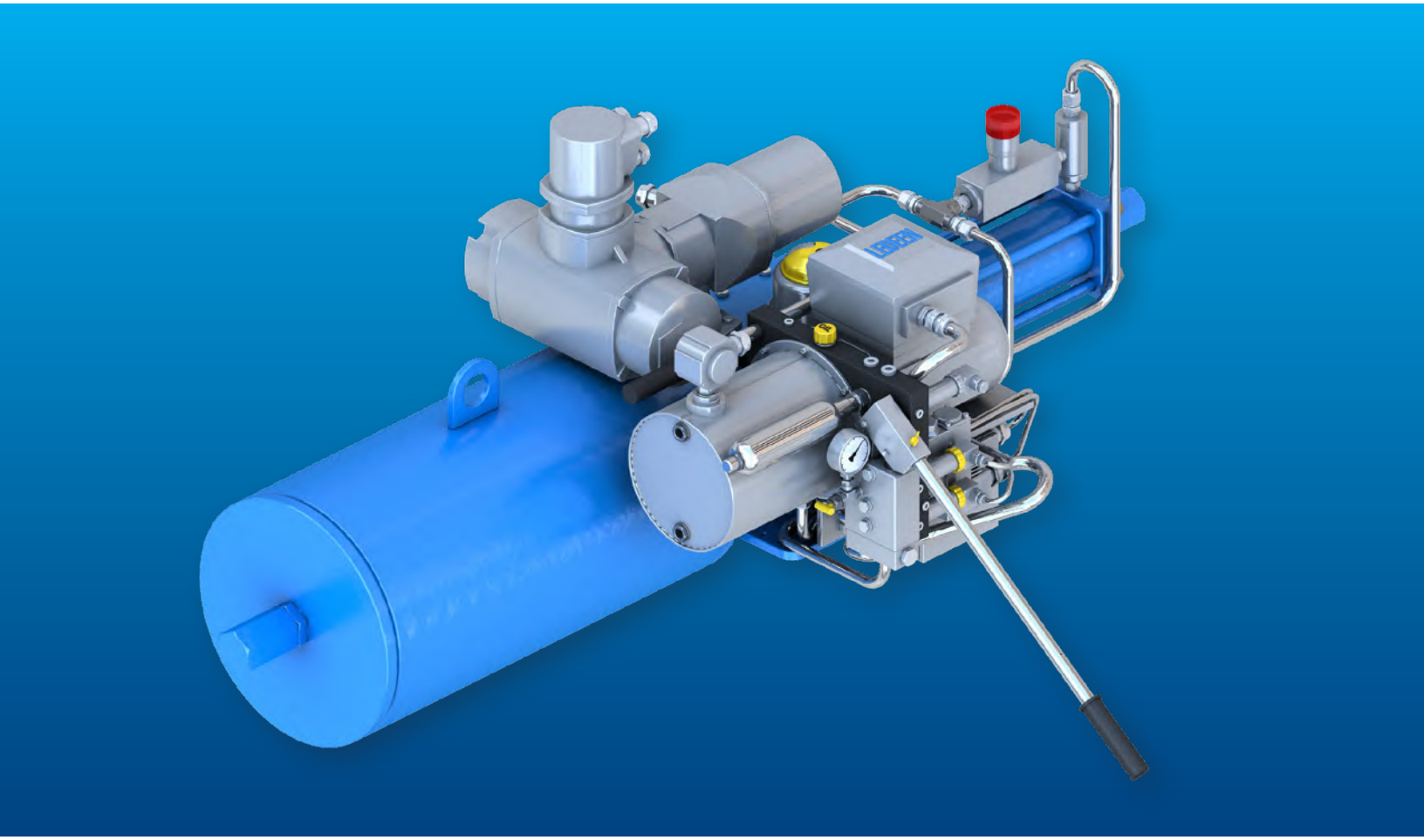

LEDEEN SEF

Smart electric fail-safe actuator and control systems

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The Cameron portfolio of LEDEEN* actuators includes a new compact, modular, onboard hydraulic power unit (HPU). This new technology is operated by an advanced controller module combined with a reliable hydraulic actuator to fulfill all valve control requirements and increase performance.

APPLICATIONS

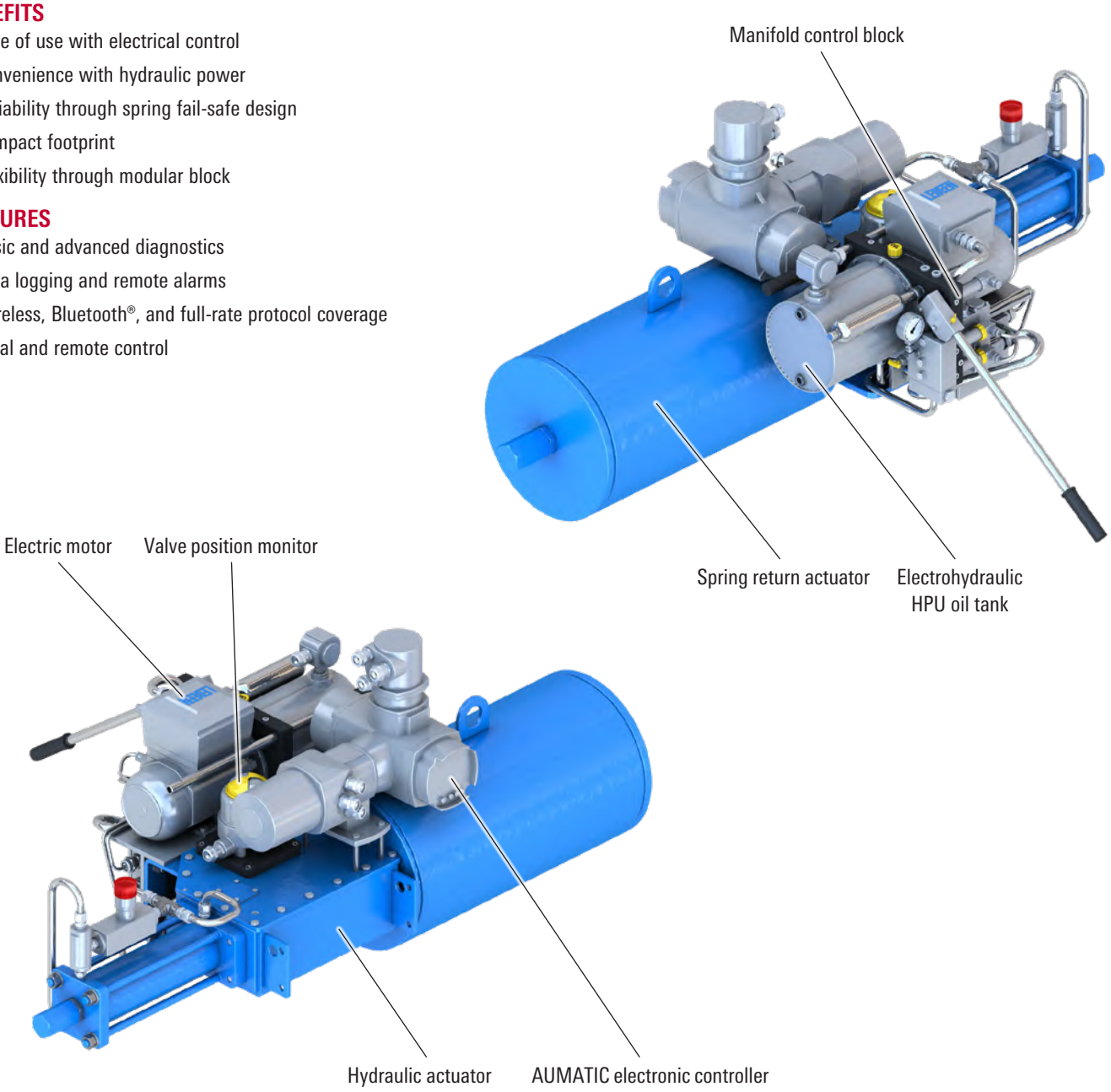
- Emergency shutdown
- Partial stroke testing

BENEFITS

- Ease of use with electrical control
- Convenience with hydraulic power
- Reliability through spring fail-safe design
- Compact footprint
- Flexibility through modular block

FEATURES

- Basic and advanced diagnostics
- Data logging and remote alarms
- Wireless, Bluetooth®, and full-rate protocol coverage
- Local and remote control

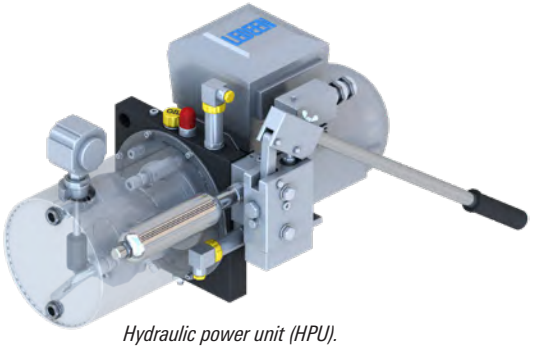


Design

Each component of the LEDEEN SEF* smart electric fail-safe actuator and control system features a detailed, optimized design.

HPU

- Hydraulic piston pump—reliability, high performance, and an extended temperature range while meeting all stroking time requirements
- Electric motor—S1 (heavy, continuous-duty) service, AC supply, low power consumption, and flameproof certification to Ingress Protection (IP) IP54 T4 as standard
- Oil tank— American Iron and Steel Institute (AISI) 316 steel with level switch as standard, and availability in several sizes to fit full actuator range



Hydraulic power unit (HPU).

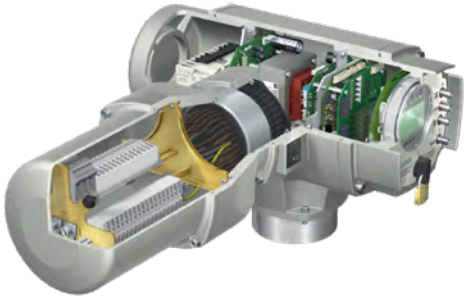
Manifold control block

- High-corrosion-resistance AISI 316 steel plate available; aluminum standard
- Multiple functions—speed adjustment, pressure relief, directional control, manual override, and pressure monitoring (switch and transmitter)
- Modular, flexible interface that can suit subbase, cartridge, and fitting connection valves

Manifold control block.

AUMATIC electronic controller

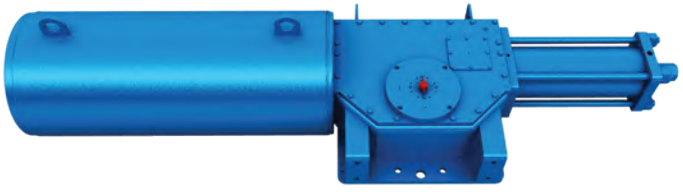
- Explosion-proof design to AUMA® ACExC 01.2
- Continuous monitoring and advanced diagnostics for all critical parameters to extend service life
- Self-adapting control functions, configurable interface, and extensive variables programming
- Multiple host integration options—GSD Software®, electronic device description (EDD), and device type manager (DTM)
- Seamless integration into master station network systems
- Full communication range—FOUNDATION™ fieldbus, highway addressable remote transducer (HART), PROFIBUS® decentralized peripheral (DP), and Modbus®
- User-friendly interface with large graphic display for perfoming menu-conotrolled programming; availability in more than 30 languages
- Wireless and Bluetooth connections
- Password protection and padlockable switch available to prevent unauthorized tampering



AUMATIC electronic controller.

Hydraulic actuator

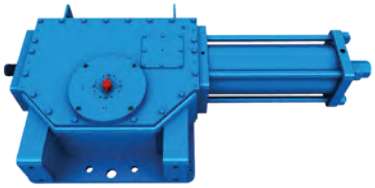
- Reliable and robust scotch yoke drive
- Fail-safe application
- Spring-return and double-acting options
- Torque outputs up to 472,000 ft.lbf [640,000 N.m]
- High fluid compatibility and extended temperature range



Spring-return actuator.

Valve position monitor

- Flexibility to suit the preferred microswitch housing vendor and model
- Full-type position feedback available—visual, digital, and analog
- Worldwide hazardous-area certifications

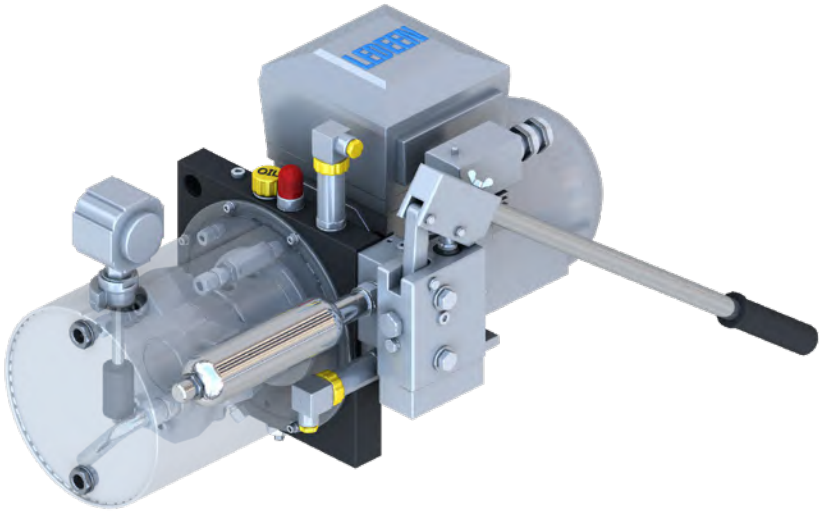


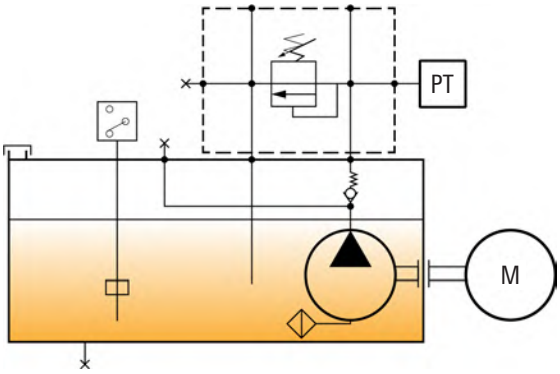
Double-acting actuator.

Configurations

Standard configuration

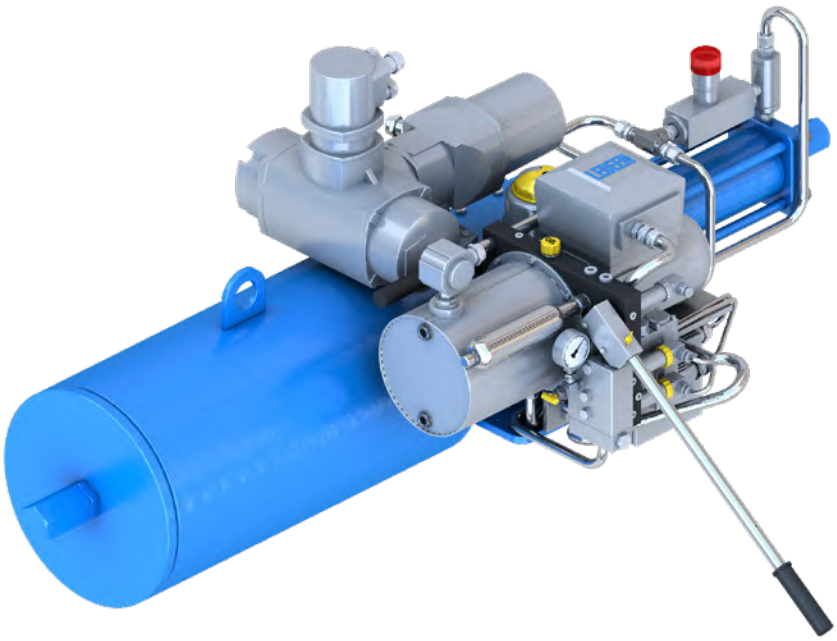
- Free-standing HPU—piston pump, electric motor, and oil tank
- Optional level switch, safety valve, and pressure sensor

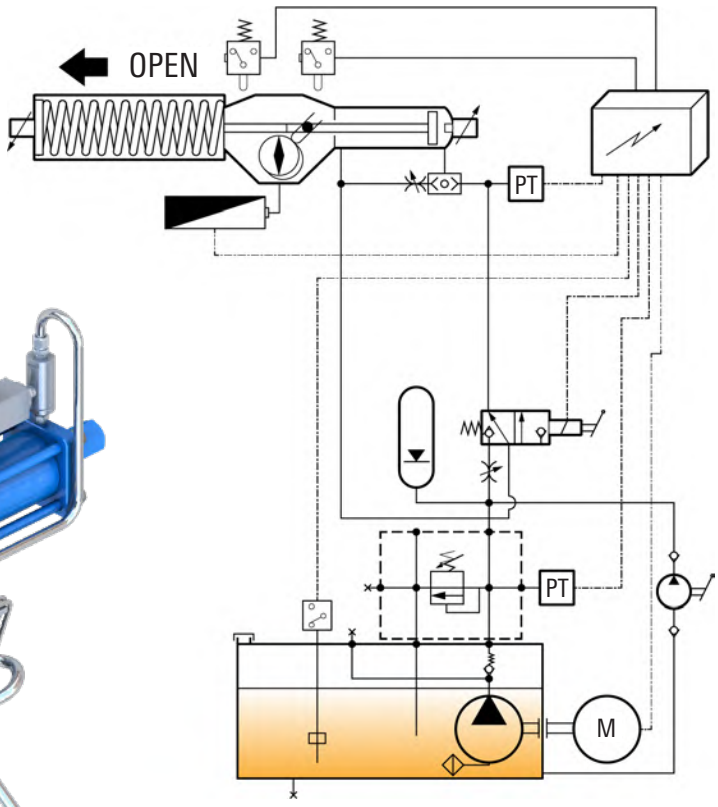




Fail-safe configuration

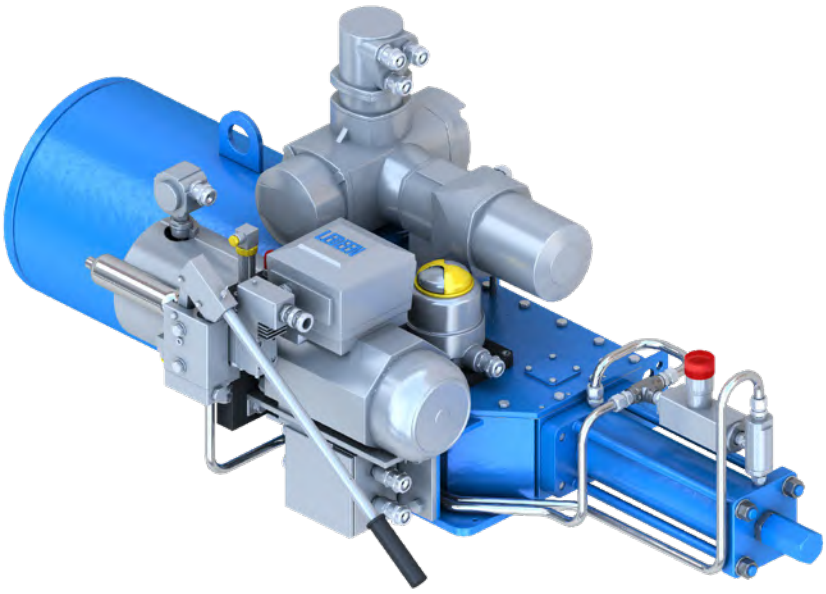
- Onboard HPU—piston pump, electric motor, oil tank with level switch, safety valve, and pressure sensor
- AUMATIC electronic controller connected to a solenoid valve for remote operation
- Design that is completed with manual pump, speed adjustment, and optional valve monitoring

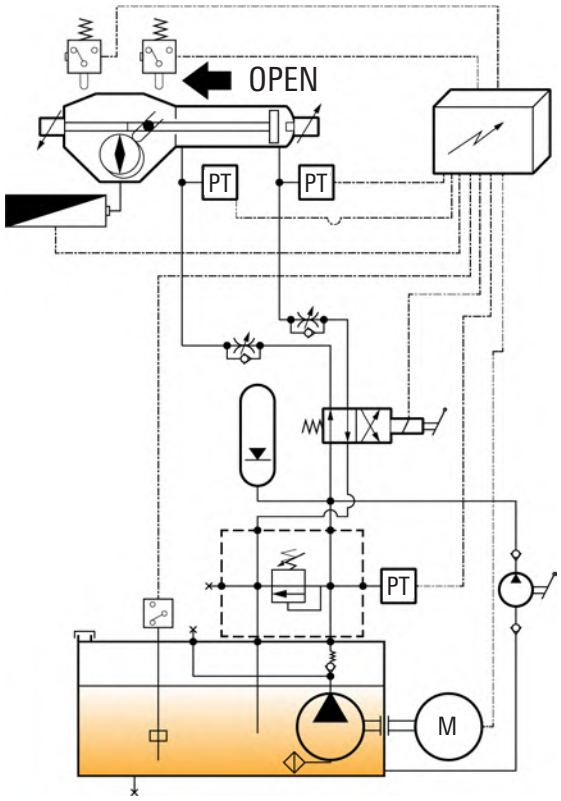




Double-acting fail-last configuration

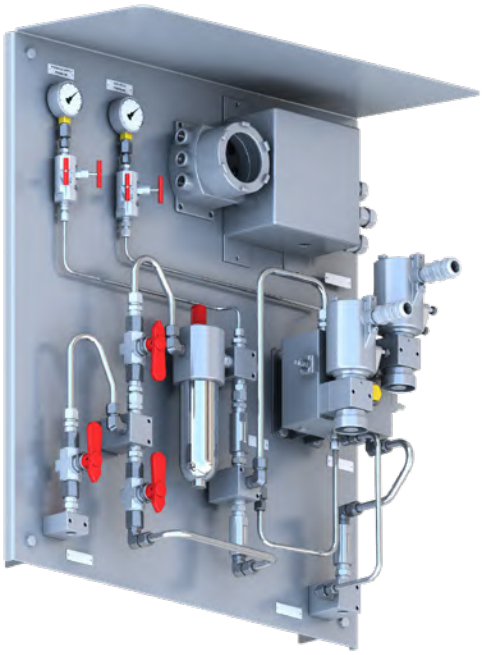
- Onboard HPU—piston pump, electric motor, oil tank with level switch, safety valve, and pressure sensor
- AUMATIC electronic controller connected to a solenoid valve for remote operation
- Design that is completed with manual pump, speed adjustment, and optional valve monitoring

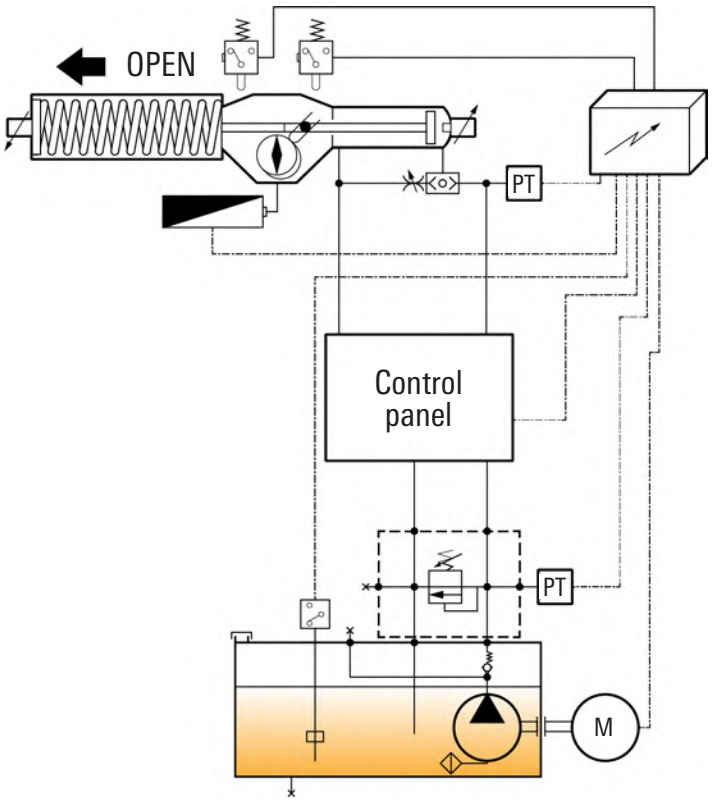




Customized control panel configuration

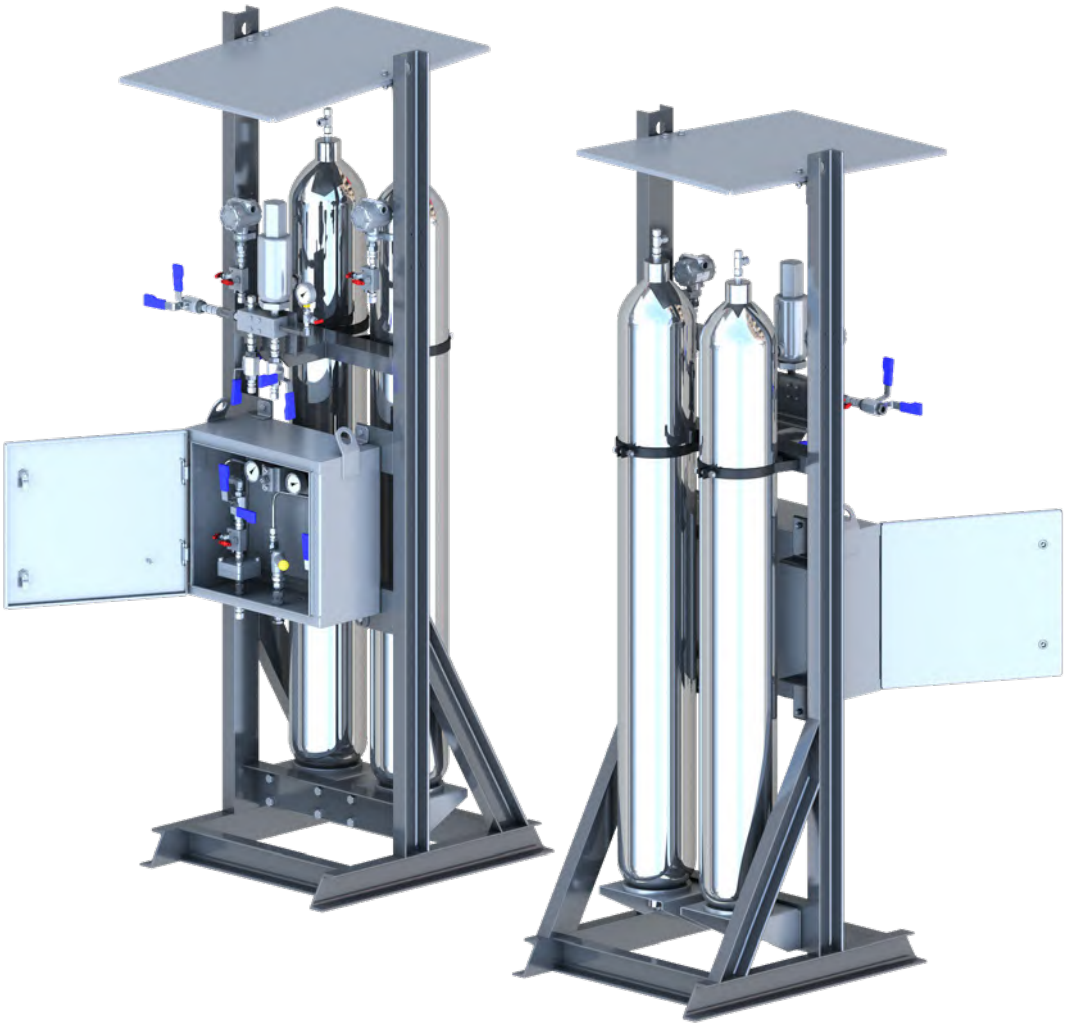
- Onboard HPU—piston pump, electric motor, oil tank with level switch, safety valve, and pressure sensor
- AUMATIC electronic controller connected to a customized control panel
- Maximum flexibility of grantable functionalities and performances





Freestanding configuration

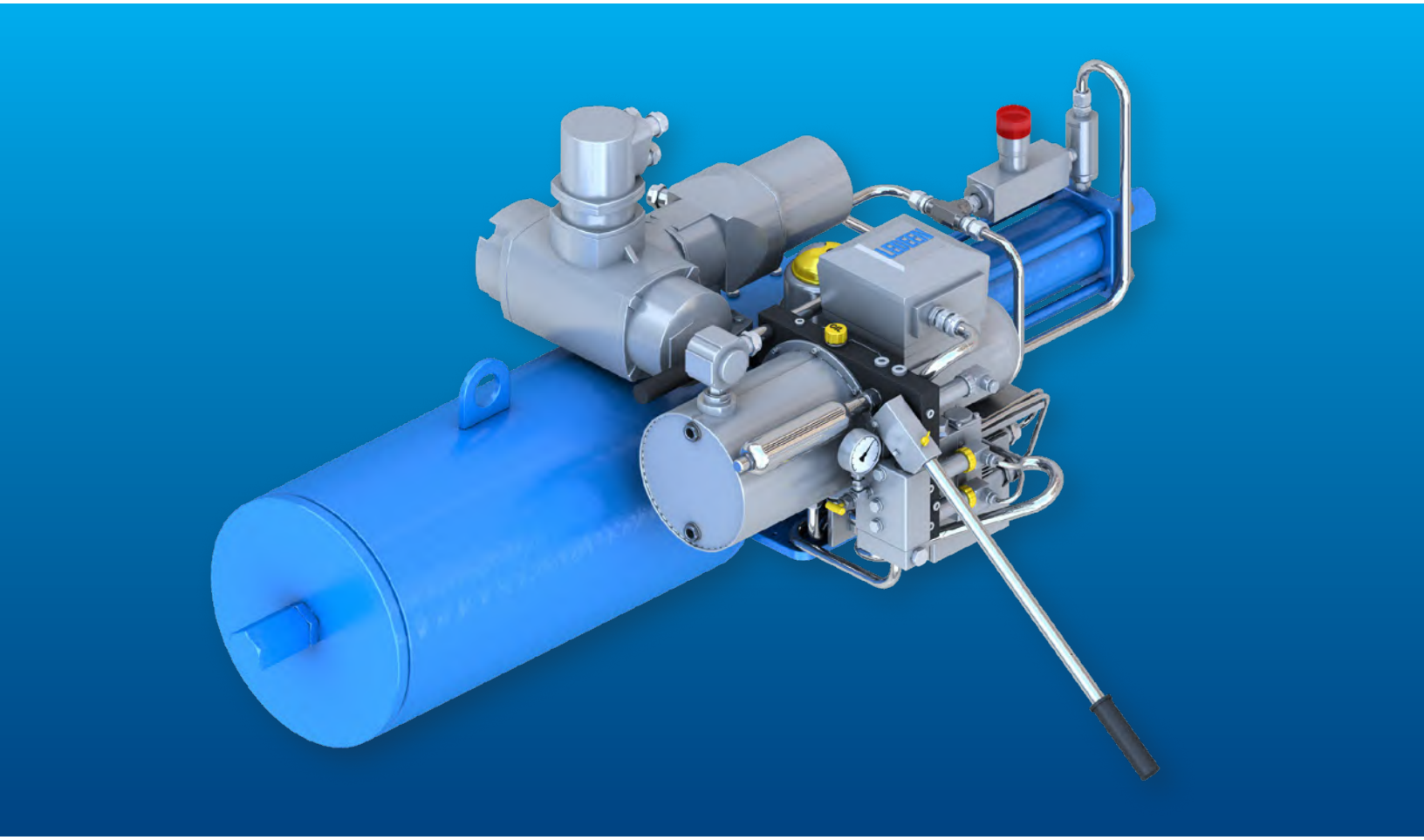
- Inclusion of freestanding HPU, AUMATIC electronic controller, and control manifold
- Combinability with accumulator rack sized to meet demanding torques and speeds



Specifications	
Temperature range, degF [degC]	
Standard	–22 to 140 [–30 to 60]
With internal heating system for control unit	–76 to 140 [–60 to 60]
Maximum operating pressure, psi [bar]	3,000 [207]
Maximum torque, ft.lbf [N.m]	472,000 [640,000]
Input power	Multiple AC three-phase 380 V to 550 V AC available
Maximum power consumption, kW	1.5 (low power consumption available for applications powered by solar panels)
Flow rate, galUS/min [L/min]	0.92 [3.5]
Hazardous area certification	Flameproof; explosion proof; nonincendive; intrinsically safe
Certifications	International Electrotechnical Commission System for Certification to Standards Relating to Equipment for Use in Explosive Atmospheres (IECEx)
	ATEX
	FM Approvals®
	Underwriters Laboratories (UL)
	Canadian Standards Association (CSA) International
	EurAsian Conformity (EAC)
	National Institute of Metrology, Standardization, and Industrial Quality (INMETRO)
	Korea Occupational Safety and Health Agency (KOSHA)
	National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation (NEPSI)
Functional safety	Safety integrity level (SIL) 3 in accordance with IEC 61508
IP rating	IP54–IP68
Mounting	Vertical and horizontal layouts

Notes

LEDEEN SEF



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