CONTROVAL

TECHNICAL DATA SHEET

POWER AND UTILITIES

Hydraulic power units

Stored hydraulic energy to actuate valves, with solar or battery power and remote control as options.

ACCUMULATORS · SOLAR OR BATTERY · REMOTE CONTROL · FAIL-SAFE



Hydraulic power unit: accumulator racks in the workshop

AT A GLANCE

Stored hydraulic energy to move your valves.

01
Energy stored in accumulators

02
Solar or battery option

03
Remote control available

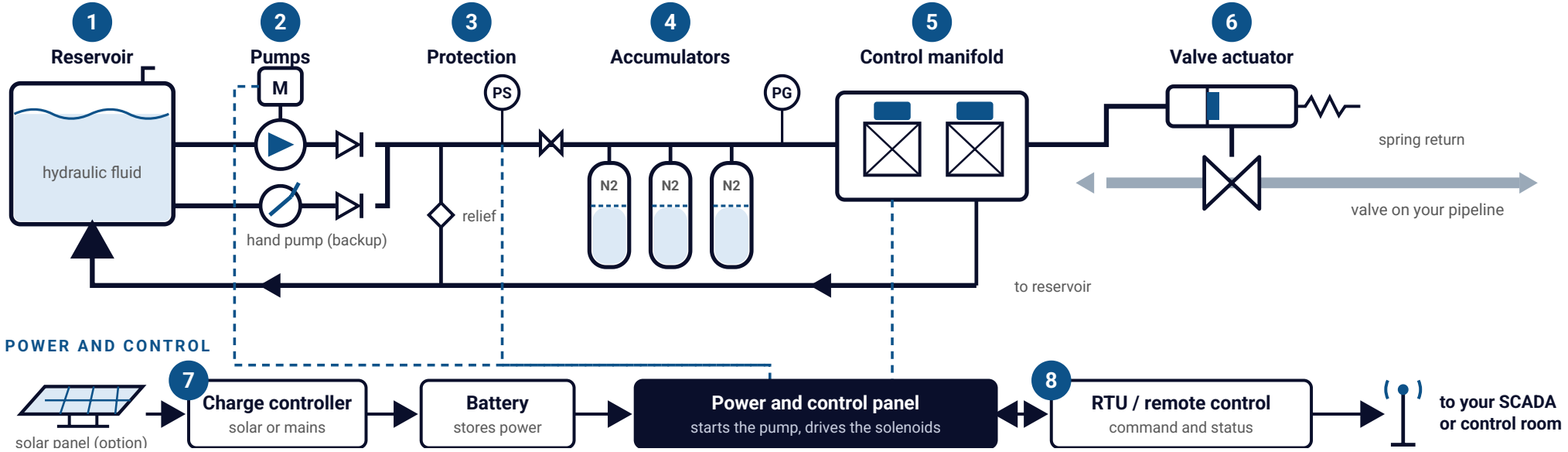
04
Built in our workshops

How it works

A hydraulic power unit stores energy in accumulators and releases it to actuate valves, even when the main supply is not available.

Solar or battery options and remote control are available for remote locations.

These are custom-built units that convert electrical or pneumatic energy into hydraulic energy to operate actuators. Autonomy is a key design factor: the energy is stored in accumulators and used to actuate valves in remote locations.



Typical schematic configuration, shown for reference only. The final design, equipment, instrumentation and applicable codes depend on the client's process conditions, specification and project requirements, and are defined during engineering.

Step by step

In the order the fluid passes through it.

1 Reservoir
Holds the hydraulic fluid, with breather and level indication. Sized for the volume the system and the actuators need.

2 Pumps
An electric motor-driven pump charges the system. A hand pump gives a backup way to build pressure with no power.

3 Protection
Check valves hold the pressure. A relief valve protects the circuit. A pressure switch starts and stops the pump.

4 Accumulators
Accumulators store the hydraulic energy, charged with nitrogen. They deliver fluid fast, even with the pump off.

5 Control manifold
Solenoid valves direct the stored fluid to the actuator on command, locally or from the control room.

6 Valve actuator
A hydraulic cylinder moves the valve. A spring-return actuator can drive the valve to its safe position, as configured.

7 Solar, battery or mains
A solar panel charges the battery through a charge controller. Mains supply is also possible where available.

8 Remote control
An RTU gives local or remote open/close commands and reports pressure and valve status to your SCADA.

LOSS OF SUPPLY

When the supply is lost
The accumulators still hold energy for valve strokes, so the valve can be operated without main power.



Accumulator racks in the workshop
Accumulator racks that store the hydraulic energy used to stroke the valves.

Typical configurations and options

Valves served	One or several valves from one unit; ball, gate, plug or other types
Actuator type	Single-acting spring return, or double-acting; part-turn or linear
Stored energy	Cylinders sized for the number of strokes required without power
Accumulator type	Bladder or piston, with nitrogen pre-charge
Pump and drive	Electric motor-driven pump; hand pump as backup
Hydraulic fluid	Mineral or fire-resistant fluid; selected for the ambient temperature range
Power option	Mains supply, solar panel with battery, or battery only
Control	Local push buttons, solenoid valves and pressure switch; optional PLC or RTU
Remote control	Open/close commands and status over radio, cellular or satellite to your SCADA
Safety function	Emergency shutdown input; fail-safe position on loss of signal, as configured
Instrumentation	Pressure gauges and transmitters, level indication, position feedback
Enclosure and area	Weatherproof cabinet; components selected for the classified area
Materials and tubing	Carbon or stainless steel; stainless tubing for corrosive or marine sites
Brands	We integrate valves and actuators from our represented brands, or your preference



Electro-hydraulic power unit with control cabinet
Reservoir, motor-driven pump, manifold and control cabinet on a compact frame.

Standards and documentation

Designed to ASTM, ASME, ISO and API standards. The applicable codes are agreed per project.

TYPICAL REFERENCES

ISO 4413	Hydraulic fluid power: safety rules for systems
ISO 4406	Coding of fluid cleanliness (particle counts)
ASME VIII Div. 1	Pressure vessels, such as accumulators and cylinders
ASME B31.3	Process piping and tubing
ISO 5211	Mounting flanges for part-turn valve actuators
IEC 61511	Functional safety, where a safety function applies

TYPICAL DOCUMENTATION PACKAGE

- ✓ P&ID and hydraulic schematic
- ✓ Equipment and instrument datasheets
- ✓ Electrical schematics and power budget
- ✓ Fluid cleanliness record
- ✓ General arrangement
- ✓ Accumulator and stroke calculations
- ✓ FAT procedure and report
- ✓ Operation and maintenance manual

> Factory acceptance test (FAT) in our workshops and site acceptance test (SAT) at the installation site.

Our work

Hydraulic power units in our workshop



Accumulator bank and hydraulic cylinders

Nitrogen-charged accumulators on a structural frame, with hydraulic actuator cylinders ready for assembly.

Real projects, photographed in our workshops and at site. Ask us for references in your application.

Need one built for your process?

Send us fluid, flow, pressure and temperature, or just your idea. An engineer returns a proposed configuration.

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