DANITECH

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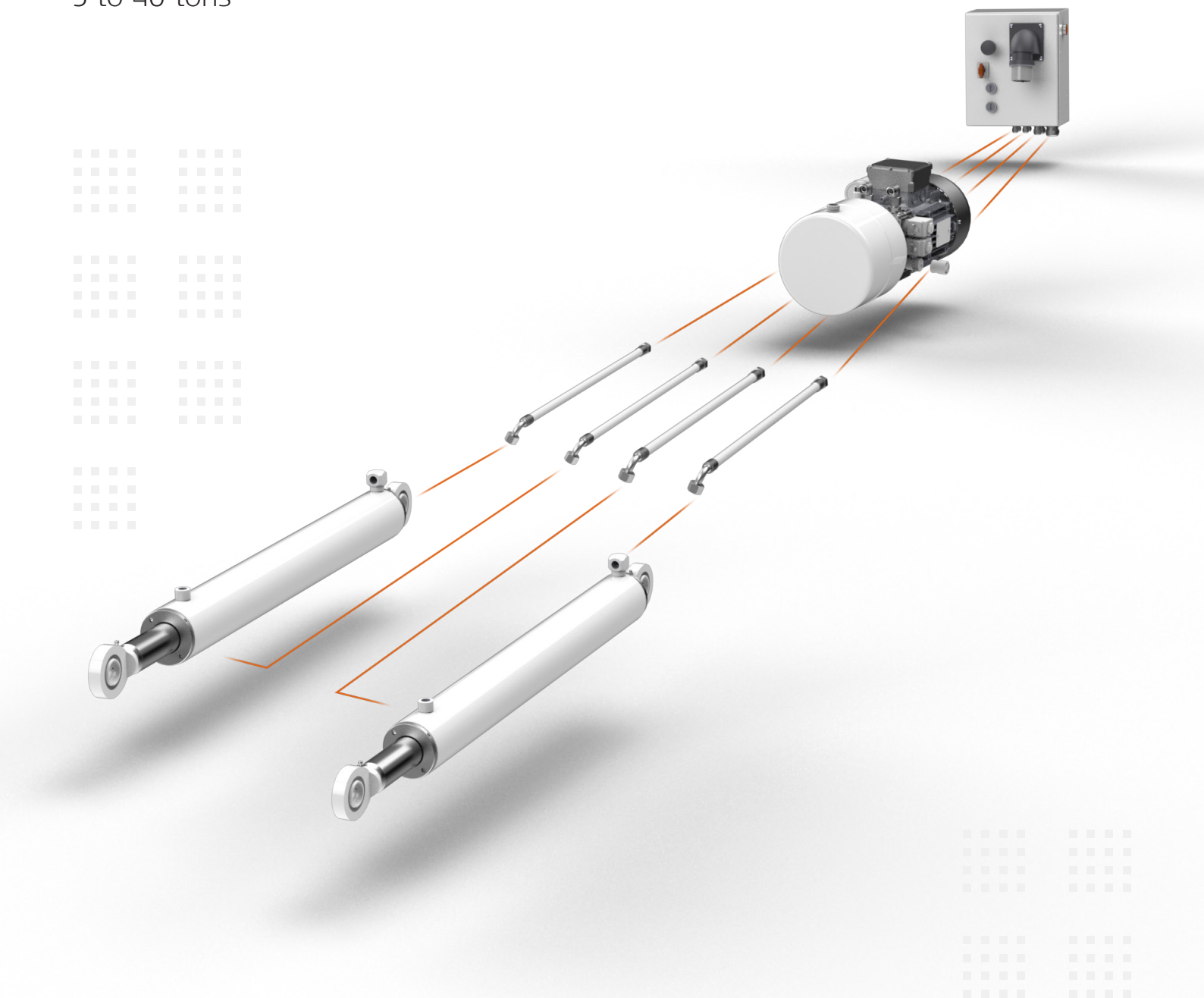
Hydraulic actuator system

Type DT for vertical and horizontal balers
5 to 40 tons



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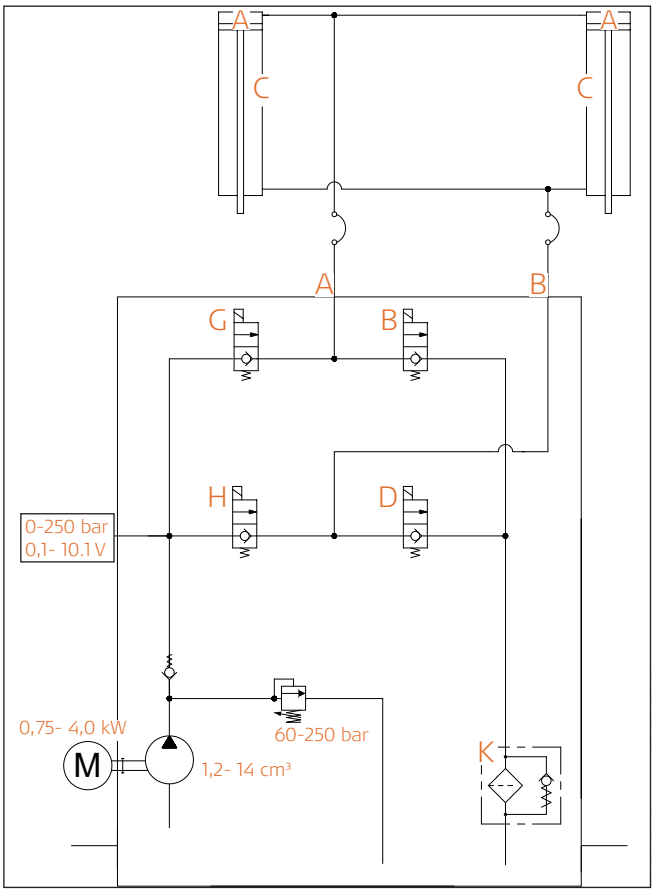
Features and benefits

- High-performance solution for operating two double-acting cylinders
- Leak-proof poppet valves for exceptional load holding on press plate
- Optimised internal channel design of manifold ensures limited pressure drops
- Regeneration function for optimised cycle times and power usage
- Soft shift function for reduced hydraulic shocks, pressure peaks and noise level
- Easy configurable CPU-based controller with highest safety level (PL-d)
- High-grade return filter for extended product life
- Optimised system design ensures efficiency and small environmental footprint
- Complies with the EN 16500 safety requirements
- High-quality components and materials ensure a long service life and reliability
- Manufactured and tested in Denmark according to ISO 9001:2015 and ISO 14001:2015 standards
- All from a single source lowers costs and guarantees system longevity
- Plug-and-Play solution for simple system assembly and installation

Advanced and individual solutions

- Future-proof manifold design allows for extra functions and configurations
- Extraordinary low noise level when configured with a helical gear pump or screw pump
- Tailor-made solutions to suit individual requirements
- Add new digital features to your compactor with Danitech's Digital Control Platform (IoT platform)

Circuit diagram



Description

The DT hydraulic actuator system is a compact hydraulic solution for actuating the double-acting cylinders on a vertical or horizontal baler.

Instead of traditional directional valves, the hydraulic power unit works with leak-proof poppet valves to avoid the need of external mounted counterbalance- or piloted check valves.
In this situation, the power unit will work exclusively with the oil pump's flow and deliver the maximum pressure to the cylinders' main piston.

To actuate the cylinders forward, power is given to valve G and valve D shortly before starting the motor/pump. Keep G and D open and the oil flows through valve G into chamber A on the cylinder. The oil from chamber C returns into the oil tank through valve D and the integrated return oil filter K.
Valve H and B remain closed and valve H will remain closed, as the pressure is higher on the inlet than on the outlet side.

To actuate the cylinders backward, power is given to valve H and valve B shortly before starting the motor/pump. Keep H and B open, and the oil flows through valve B and the integrated return oil filter K into the oil tank.
Valve G and D remain closed, and valve G will remain closed as the pressure is higher on the inlet than on the outlet side.

Increase speed of the baler

The press plate in most vertical and horizontal balers is positioned far away from the waste it must compact. This means, the press plate cylinders actuate with little resistance until the press plate reaches the waste. In this period, the electric motor is oversized and able to increase its performance.

The DT actuator system solves this problem by utilising the oil within chamber C of the cylinders. It forces the oil into the pump's pressure line when the hydraulic pressure is lower than what the electric motor can provide. A pressure sensor ensures this action.

This means, the system operates at a higher speed at low pressure until a certain pressure is reached and then at a lower speed and maximum pressure when necessary.

Top speed function

To actuate the cylinders forward at top speed, power is given to valve G shortly before starting the motor/pump. The oil flows through valve G into chamber A, and the oil from chamber C is pushed through valve H into the pump's pressure line without engaging valve H.

To return to normal speed and maximum force, the pressure sensor will signal that valve D has to be opened.

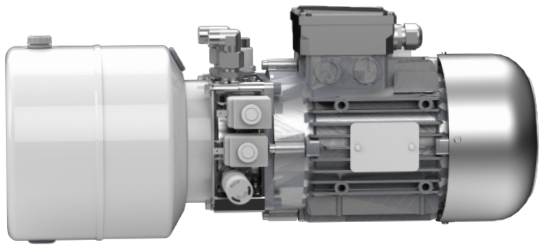
Tailored solutions

Tailor the solution to your requirements. The spectrum ranges from powerful individual components to harmonised complete systems – everything perfectly matched to your application.

DT hydraulic power unit

Drive power	Up to 4 kW*
Supply voltage	3 x 230/400 V, 50 Hz / 3 x 245/460 V, 60 Hz 1 x 230 V, 50 Hz
Pump types	Standard gear pumps, low-noise helical gear- and screw pumps*
Pump size	1,2 - 14 cm³, application-specific
Capacity	Up to 25 l*
Operating pressure	Up to 250 bar*
Noise level	From 56 dBA
Flow rate	Application-specific
Oil tank	Steel, stainless steel and plastic designs
Filters	ß 10.0©>1000 return filter in accordance with ISO 16889
Monitoring elements	Pressure sensors, temperature sensors, level sensors
Corrosion protection	Standard painting, powder coated tank (inside/ outside), application-specific
Hydraulic fluids	Common standard oil types*
Electrical	Wiring, control cabinet, control systems, frequency converter option

*Further variations on request



Hydraulic cylinders

Type	Differential cylinder, single- and double-acting cylinders
Operating pressure	Max. 250 bar*
Stroke lengths	Up to 3,000 mm*
Piston diameter / Tube inner diameter	25 – 250 mm*
Piston rod diameter	16 – 150 mm*
Mounting types	Pin diameter 10 – 120 mm*, application-specific
Media connection	¼" – 1½"*
Hydraulic fluids	Hydraulic oils acc. to ISO 4406: 18/16/13
Coating	Chrome coating with 25 µm (±5 µm); double chrome coating AASS with 200 h Rating 9 – ISO 4540
Corrosion protection	Standard painting, application-specific, OEM colours
Operating temperature	-30°C to +95°C
Piston speed	Up to 1 m/s
Type of use	Dynamic, static
Options	End of stroke cushioning (piston and/or rod side), position transducer, pressure sensor

*Further variations on request

Hydraulic hoses

Hose layers	Up to 6 layers
Hose diameter	Up to 2" / 5,08 cm
Operating pressure	Max. 690 bar
Operating temperature	-40°C to +100°C
Hose type	Application-specific
Hose length	Application-specific, tailor-made
Hose fitting type	Two-piece, Banjo, female, male, swivel
Thread type	BSP, MM, NPSM, BSPT, NPTF, ORFS, JIC, SAE, JIS-T
Fitting angle	0°C, 45°C, 90°C
Fitting material	Steel, stainless steel, zinc-nickel-plated
Cleanliness	Projectile-cleaned, capsule-sealed
Options	Protection sleeve, protection spring

*Further variations on request

Control cabinet and control system

Supply voltage	3 x 230/400 V, 50 Hz / 3 x 245/460 V, 60 Hz 1 x 230 V, 50 Hz
Power range	Up to 4 kW
Operating temperature	-20°C to +80°C
Interface	Application-specific, tailor-made
Protection class	IP54
Housing/Enclosure	Stainless steel, aluminium, polycarbonate
Corrosion protection	Standard painting*
Installation	Cabinet and wall mounting
Wiring	Application-specific, tailor-made
Options	OEM branding, Digital Control Platform**, Multi-band LTE, UMTS/HSPA+ and GSM/GPRS/ EDGE coverage GNSS: GPS/GLONASS/BeiDou/Galileo/QZSS

*Further variations on request

** The Digital Control Platform is full of features that help you increase sales, improve products and track performance:

- **Manage service and spare parts:** *Increase your service business with the machine-linked customer platform*
- **Control and update:** *Access machine controls and increase your functionality with software updates and new sensors*
- **Track assets and progress:** *Track your valuable machinery and keep track of their tasks*
- **Insights and reports:** *Collect valuable machine metrics and measure your performance*
- **Automations and integrations:** *Automate mundane tasks and integrate the platform with your business systems*

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