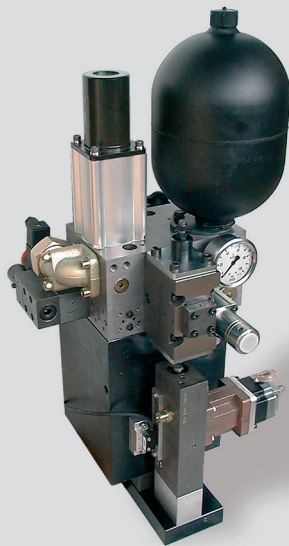


High Performance Punch System HRL



Design Concept and Operating Principle

HRL is an integrated stroke unit, specially optimized for applications in punching, nibbling and forming. HRL offers high-end performance for forming and premium performance for punching and nibbling.

All parameters like positions and speed may be programmed electronically. The cylinder is operating in a hydromechanically closed loop system. This system provides the expected performance figures for high speed punching and nibbling, as well as high precision forming and shaping.

PCU2L is the electronic link between HRL and machine control PLC/CNC. The machine control will communicate all parameters, like stroke positions, using the data interface. After cycle starting, all management and monitoring of hydraulic

actuators and sensors are done by PCU2L. A robust position feedback with digital signals interface is used to monitor the hydromechanical closed loop.

Highly efficient use of power is achieved using the load-controlled “two-pressure-system”. Accumulator charging for low pressure results in high speed cylinder operation for nibbling and high speed punching. For high pressure operation, the reduced cylinder speed results in a reduction of noise and machine stress. In a compact design, all valves are placed on a manifold directly on the cylinder. The benefits of this are good hydraulic response together with simple installation and maintenance.

Specifications

- highly dynamic punch drive with hydromechanic closed loop control
- predefined machine cycles with programmable stroke parameters
- high precision and robust valve technology
- process safety by feedback monitoring
- optimised power consumption with load-controlled active “two-pressure-system”

Scope of Delivery

- **Punch Drive HRL - NG 10**
 - optimised punch cylinder
 - manifold with valves and accumulator charging
 - various damping elements
- **Electronic Control PCU2L, data sheet 912**
 - intelligent drive control
 - data interface: RS-232, CAN Bus, Profibus, Ethernet (option)
- **Power Pack**
 - application optimised dimensioning
 - integrated cooling and filtering circuit

Options

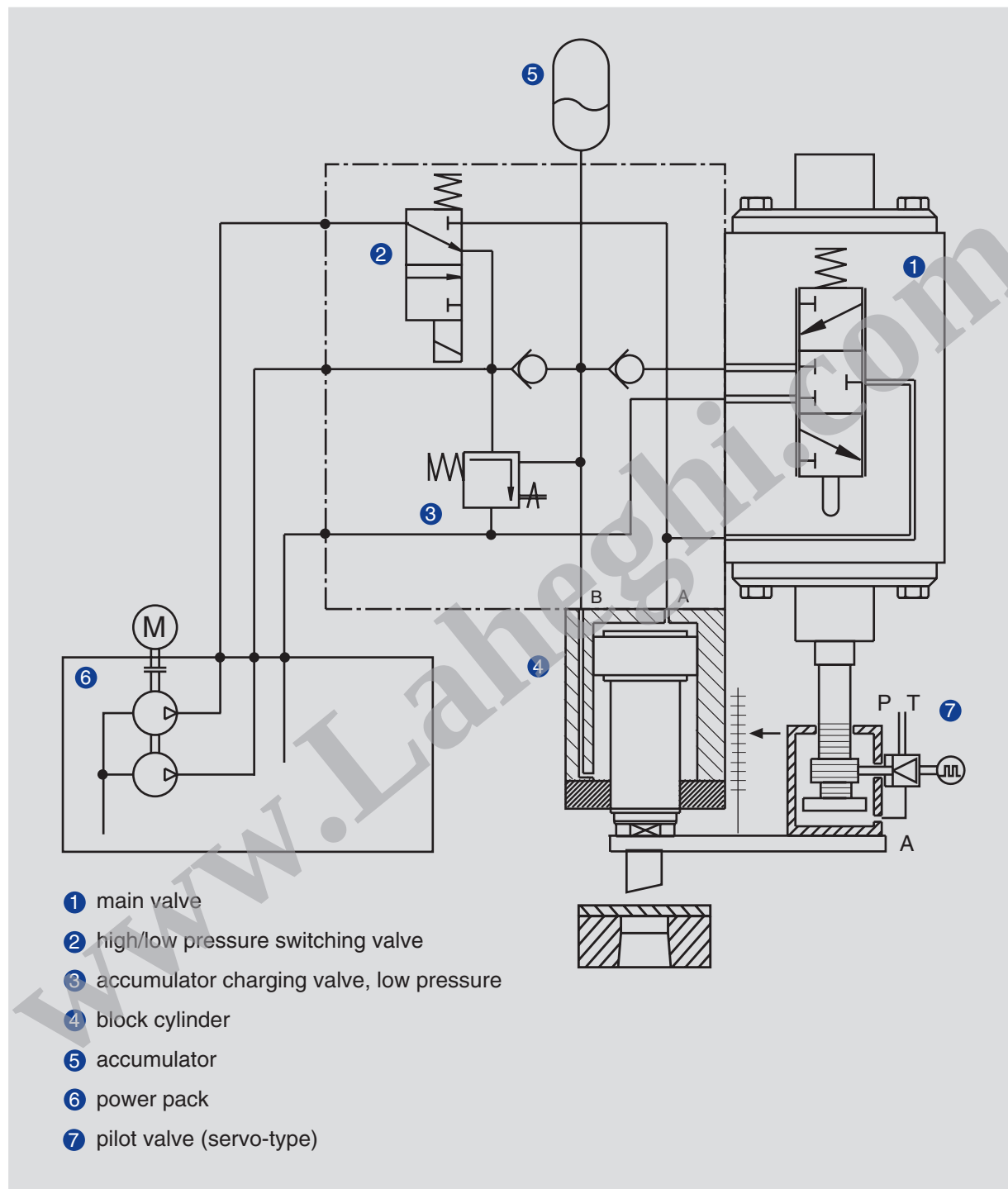
- additional sizes of max force
- cylinder with alternative fastening possibility
- power packs in conformity to customer's requirement
- data interface: Ethernet
- easy data interface with HL-BRIDGE

Key performance figures HRL

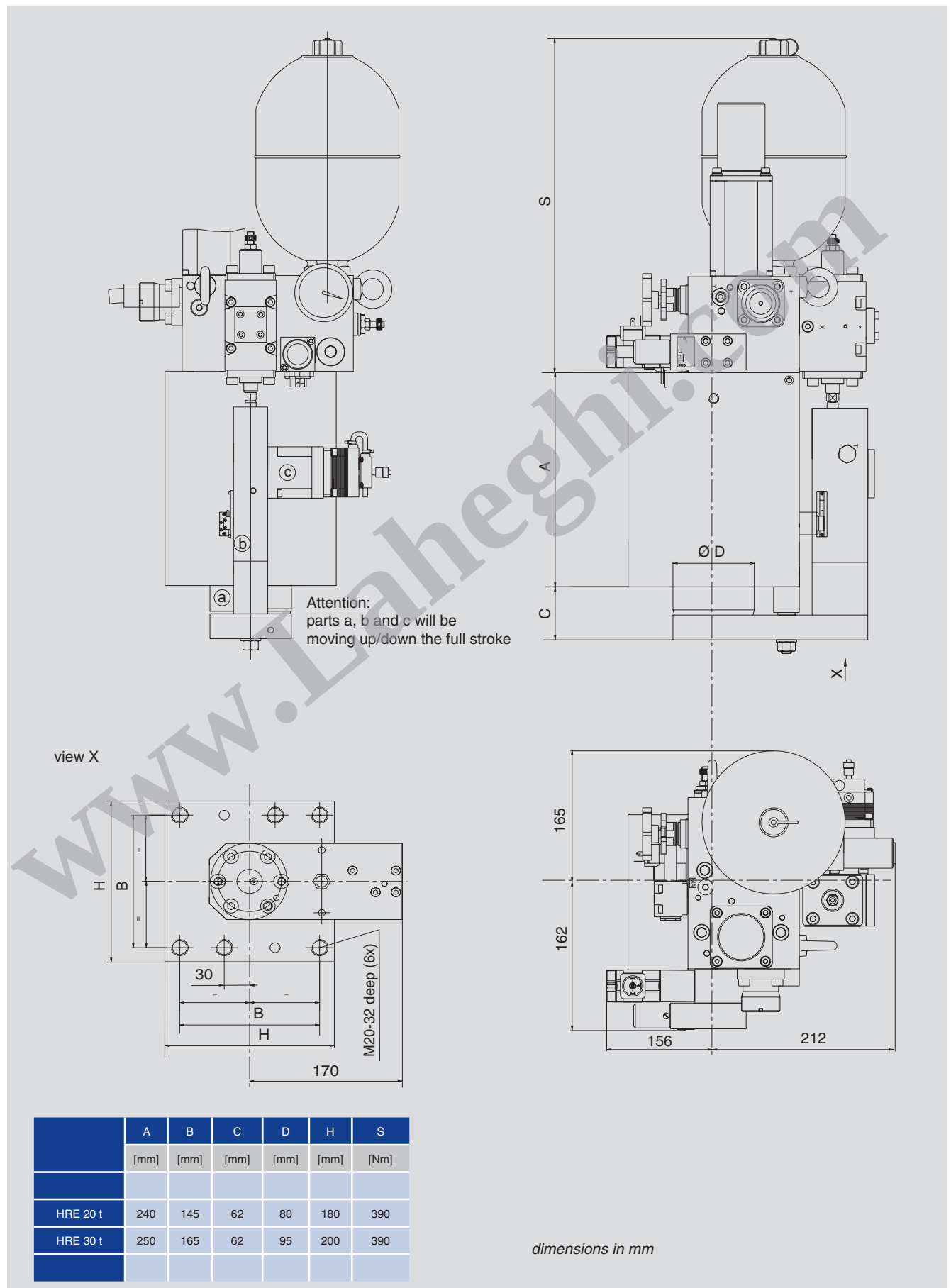
		HRL Type (tonnage)	
		20 t	30 t
operating pressure ND/HD	[bar]	70/285	80/285
max. effective force	[kN]	220	330
max. return traverse power	[kN]	25	50
effective power, partial load (ND)	[kN]	35	57
cylinder stroke (standard)	[mm]	40	40
installed electric motor power	[kW]	7.5	11
cycle time punch stroke 4 mm	[ms]	30	40
cycle time punch stroke 6 mm	[ms]	40	50
cycle time punch stroke 10 mm	[ms]	60	80

additional data according to dimensioning protocol

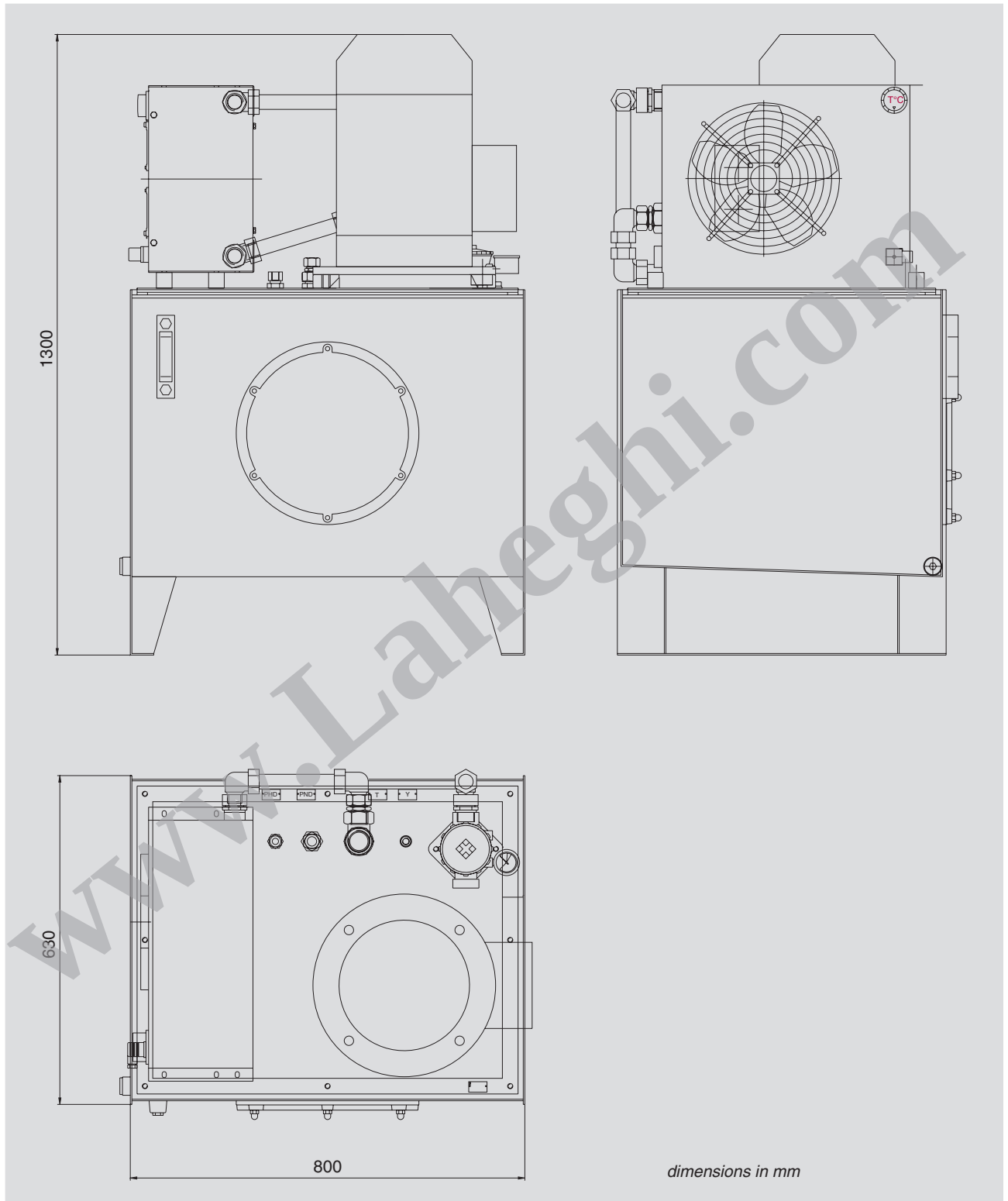
Functional principle



Basic dimensional drawing HRL 20 t/30 t:



Dimensional drawing power pack 20 t/30 t:



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