

## Hydraulic Ram Control Unit HSE NG 10



### Design and Function

Common features of VTHL ram control units:

- modular design
- robust valve elements
- high dynamics
- simple control structure

The integration of all necessary valve components into a manifold mounted directly on the block cylinder results in a compact design and best power density. Together with additional mechanical feedback, the hydraulically piloted main valve forms the basis for the stroke control.

Tdc (top dead center) control is always with mechanical closed loop feedback. Bdc (bottom dead center) control may be with electrical feedback or with mechanical feedback control, depending on the application.

The hydromechanical design of the stroke control unit offers an accurate and drift-free tdc. Due to the fast steering process, the bdc has a good repeatability as well.

## Technical Data

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### General

Ram force	20 to 630 kN (standard design)
Ram return force	approx. 50% ram force
Operating force tdc	400 N at 80 bar control pressure
Operating force bdc	150 N (at mechanical bdc reversal)
Ambient temperature	-5 to +50 °C
Mounting position	mountable in any position

### Hydraulic

Operating pressure	max. 250 bar
Control pressure	40 to 80 bar; max. 250 bar
Hydraulic oil temperature	-10 to +70 °C
Viscosity range	10 to 300 mm <sup>2</sup> /s

### Electric

Valve control	Voith stroke control HS2 (data sheet: 911)
Valve voltage (±10%)	24 V DC
Switching time „Start“	8 ms (HS2)
Valve switching time from „bdc“	7 ms (HS2)
Power consumption P20	20 W
System of protection DIN 40050	IP65 with valve plug connected

Further specific performance data according to computation minutes.

## Electronic Control

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The ram control units HSE are delivered with an electronic control, the link between hydraulics and machine control. This control is adapted to the application. Please refer to the technical data from the data sheet of the electronic control.

Electronic control HS2 - data sheet 911 or  
HS3 - data sheet 912.

## Examples of Applications

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Application	Specific Performance
Punching and Nibbling Machine	<ul style="list-style-type: none"> <li>• Punching force: 200 kN</li> <li>• Total cycle time at 6 mm stroke: 40 ms</li> </ul>
Section Shearing Machine	<ul style="list-style-type: none"> <li>• Shearing force: 150 kN</li> <li>• Total cycle time at 10 mm stroke: 60 ms</li> </ul>
Pipe Cutting Machine	<ul style="list-style-type: none"> <li>• Shearing force: 100 kN</li> <li>• Total cycle time at 14 mm stroke: 40 ms</li> </ul>

## Features

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- highly dynamic punching and shearing drive for shortest cycle time
- smooth stroke operation via hydraulically damped cylinder ram
- stable tdc position without drift
- exact bdc reversing for process safe stroke operation
- manually adjustable stroke positions; optionally electrical
- simple functions with robust valve technique monitored processes with low control complexity

## Options

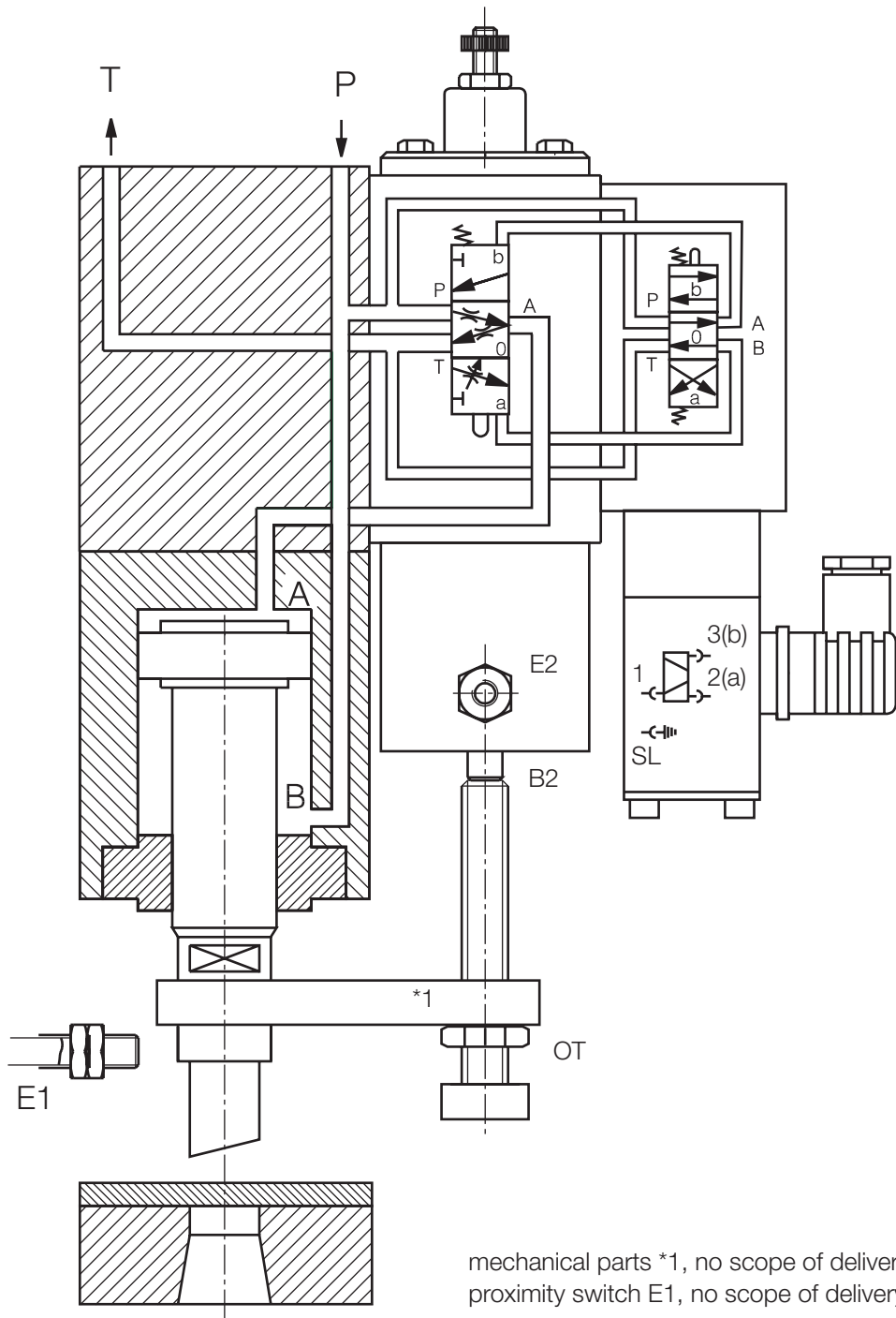
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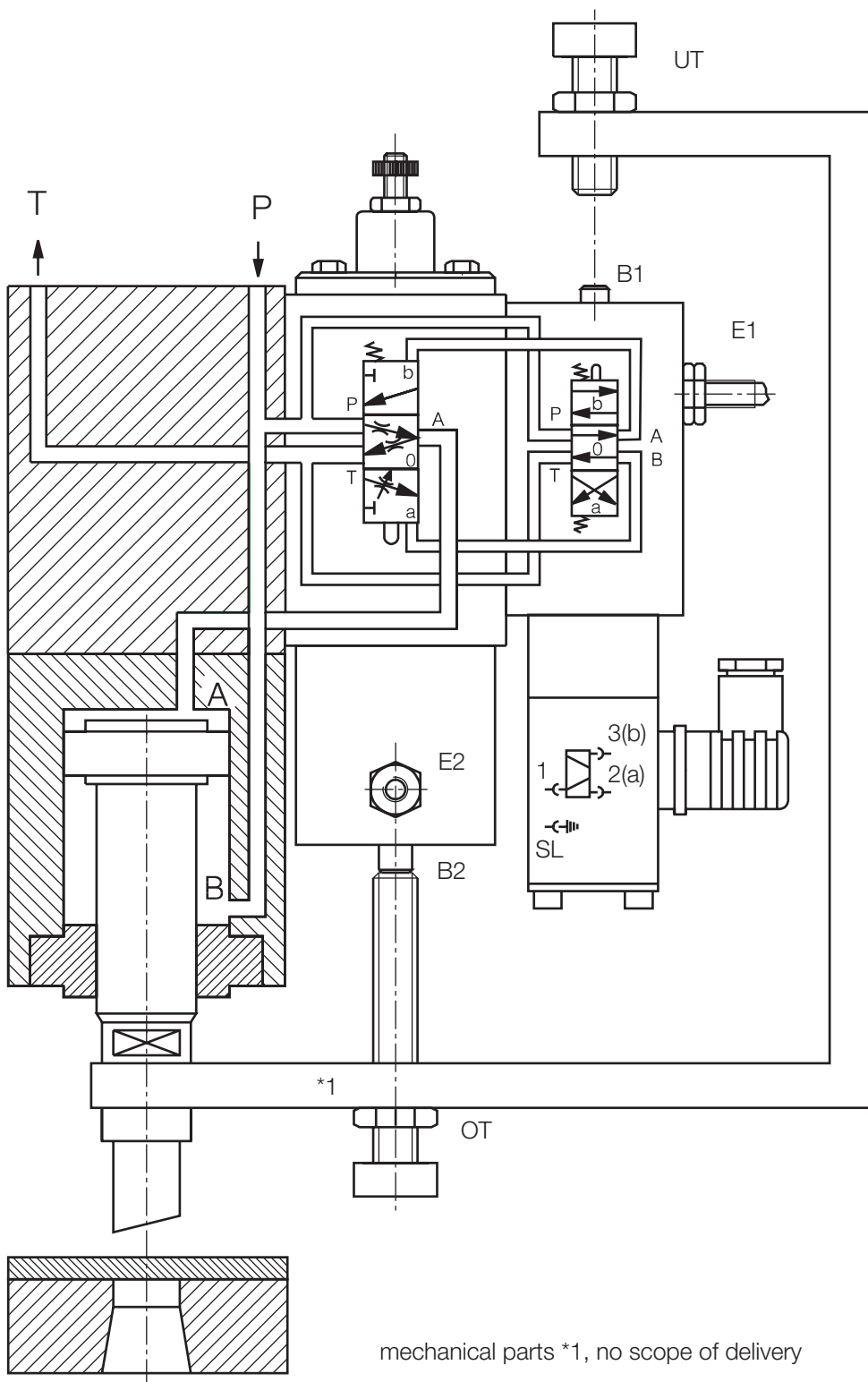
- stroke control units NG 6 and NG 25 for lower or higher force range
- stroke control unit HSP for programmable stroke positions
- complete punching systems

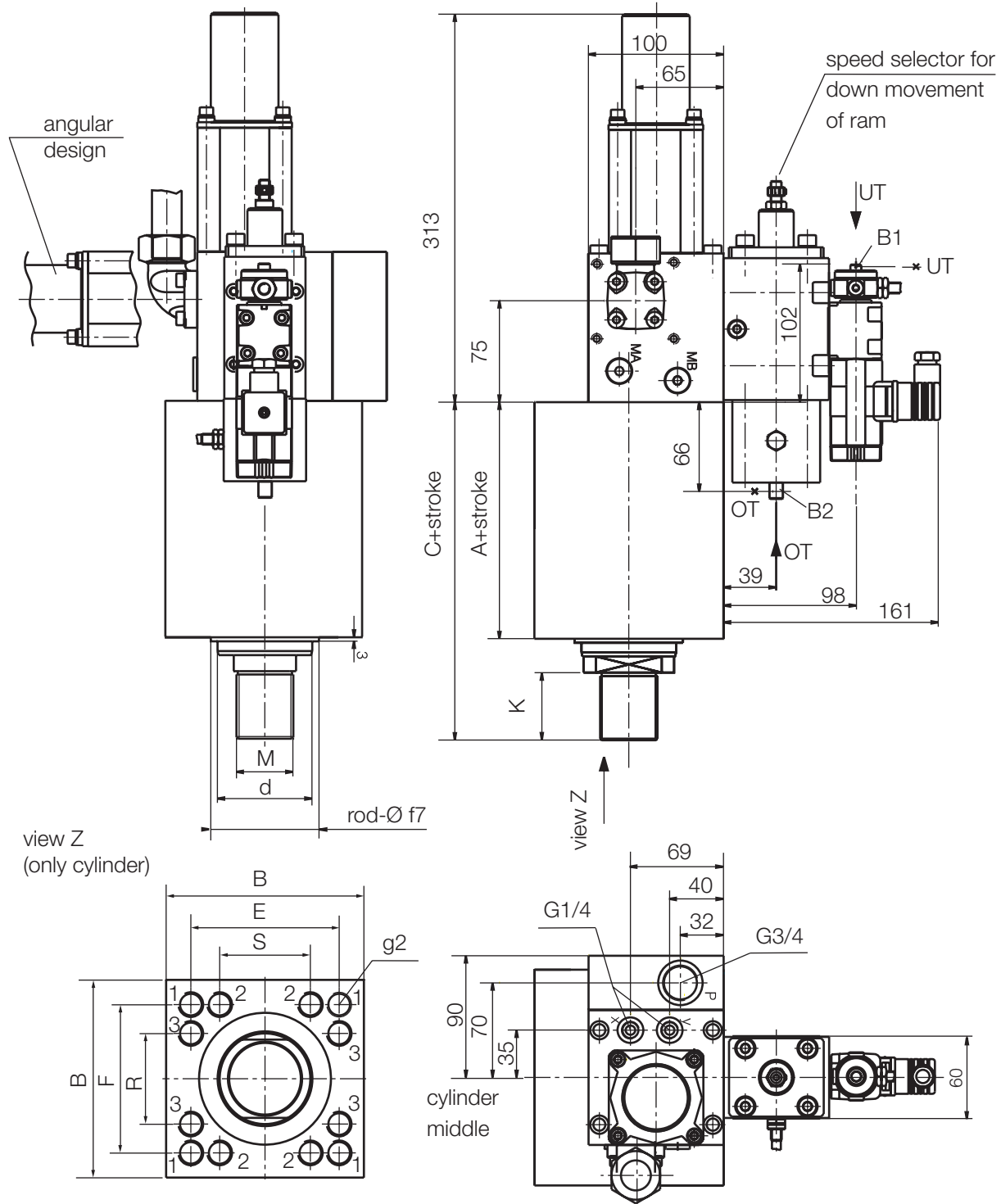
## Applications

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- punching/nibbling
- shearing/cutting
- stamping







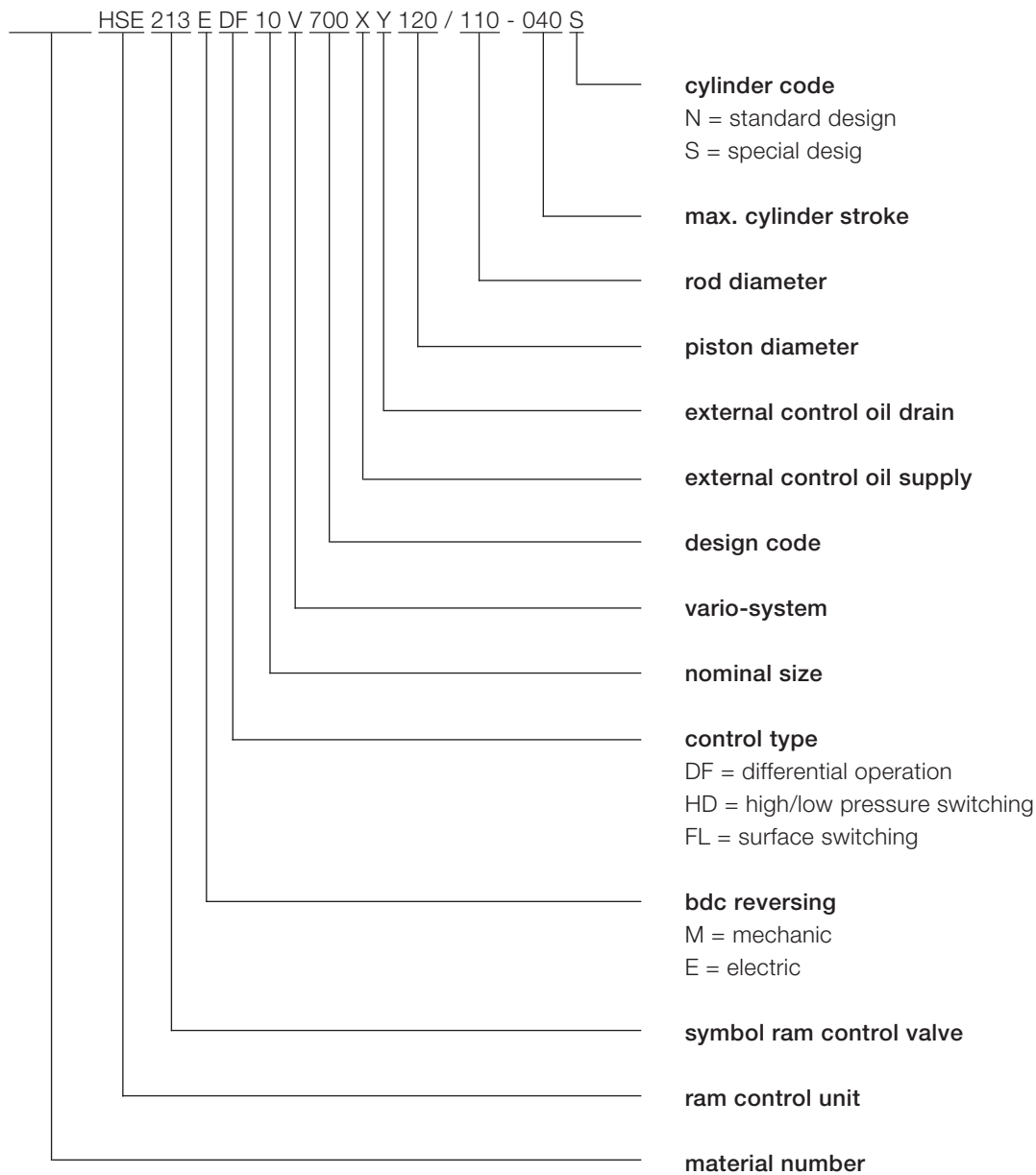
all dimensions in mm

## Dimension Table Standard Cylinders

<b>Ø piston</b>	<b>Ø d</b>	<b>A</b>	<b>C</b>	<b>K</b>	<b>M</b>	<b>g2 (position)</b>	<b>B</b>	<b>E</b>	<b>F</b>	<b>R</b>	<b>S</b>
50	35/45	98	153	35	M27 x 2	4 x M12 (1)	100	75	75	-	-
63	45/56	120	182	42	M30 x 2	4 x M16 (1)	110	80	80	-	-
80	56/70	135	210	50	M42 x 2	4 x M16 (1)	140	100	100	-	-
100	70/90	190	280	60	M48 x 2	4 x M20 (1)	160	110	110	-	-
120	85/110	215	325	80	M64 x 3	4 x M24 (1)	180	130	130	-	-
140	100/130	220	350	90	M80 x 3	4 x M30 (1)	210	160	160	-	-
160	115/145	240	390	100	M90 x 3	4 x M30 (1)	240	180	180	-	-
180	125/160	260	410	100	M100 x 3	8 x M27 (2/3)	280	230	230	120	120

further cylinder dimensions on request  
all data in mm

## Type Code



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