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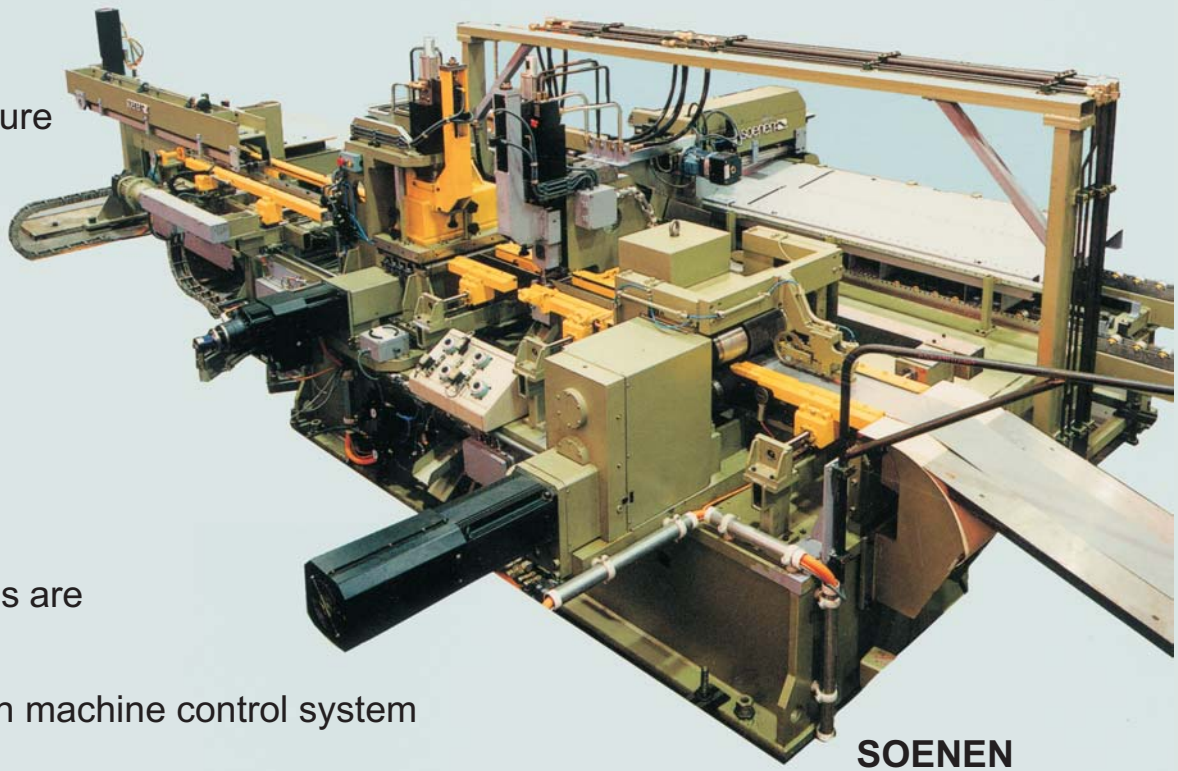
H+L Punching Units For Rapid Punching And Forming
A Robust System Ready For Use
Punching Forces Between 20kN And 2000kN

- High dynamics for maximum parts output
- Functionality according to application;modular structure with clear function
- Simple start up and service, high availability
- Precise position-controlled U.D.C.-position
- Length and position of stroke adjustable
- Soft reversing behaviour, smooth running, longevity
- Power saving reduces operating expenses; resources are handled carefully
- Save process by monitoring and communication with machine control system



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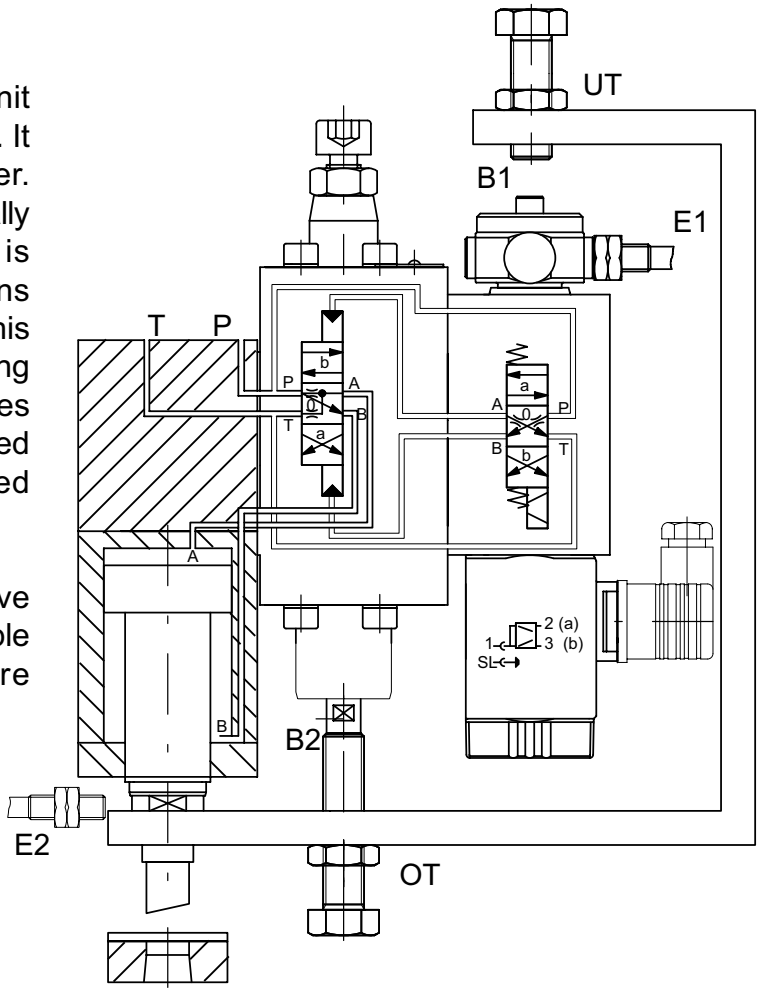
Hydraulic Ram Control Unit NG6

Design and Function:

The H+L Ram Control Unit is a modular unit individually configured to suit the application. It is mounted directly on a H+L block cylinder. The ram control valve is based on a hydraulically piloted directional control valve, which is additionally controlled by two actuating pins B1(bottom position) and B2 (top position). This hydromechanical design allows precise setting of the top position of the ram. It also ensures good repeatability because the ram is reversed virtually without delay when it has reached bottom position.

The H+L Ram Control is based on this drive principle. It is a highly dynamic unit with reliable valve technology, and does not require complicated electronic controls.



Features:

- No unwanted movements when the ram is in top position
- Hydro-mechanical reversal of ram movement in bottom position without switching delay ensures high repeating accuracy
- Adjustable ram positions, monitored by proximity switch
- Dual-pressure technology (dynamic equilibrium) ensures smooth movement of the ram
- Straightforward operation, rugged valve design, simple connection pattern
- Ram speed adjustable on downward Movement

Applications:

- Punching
- Shearing
- Cutting

Options:

- electronical reverse in bottom point position

The specifications given herein are subject to alteration

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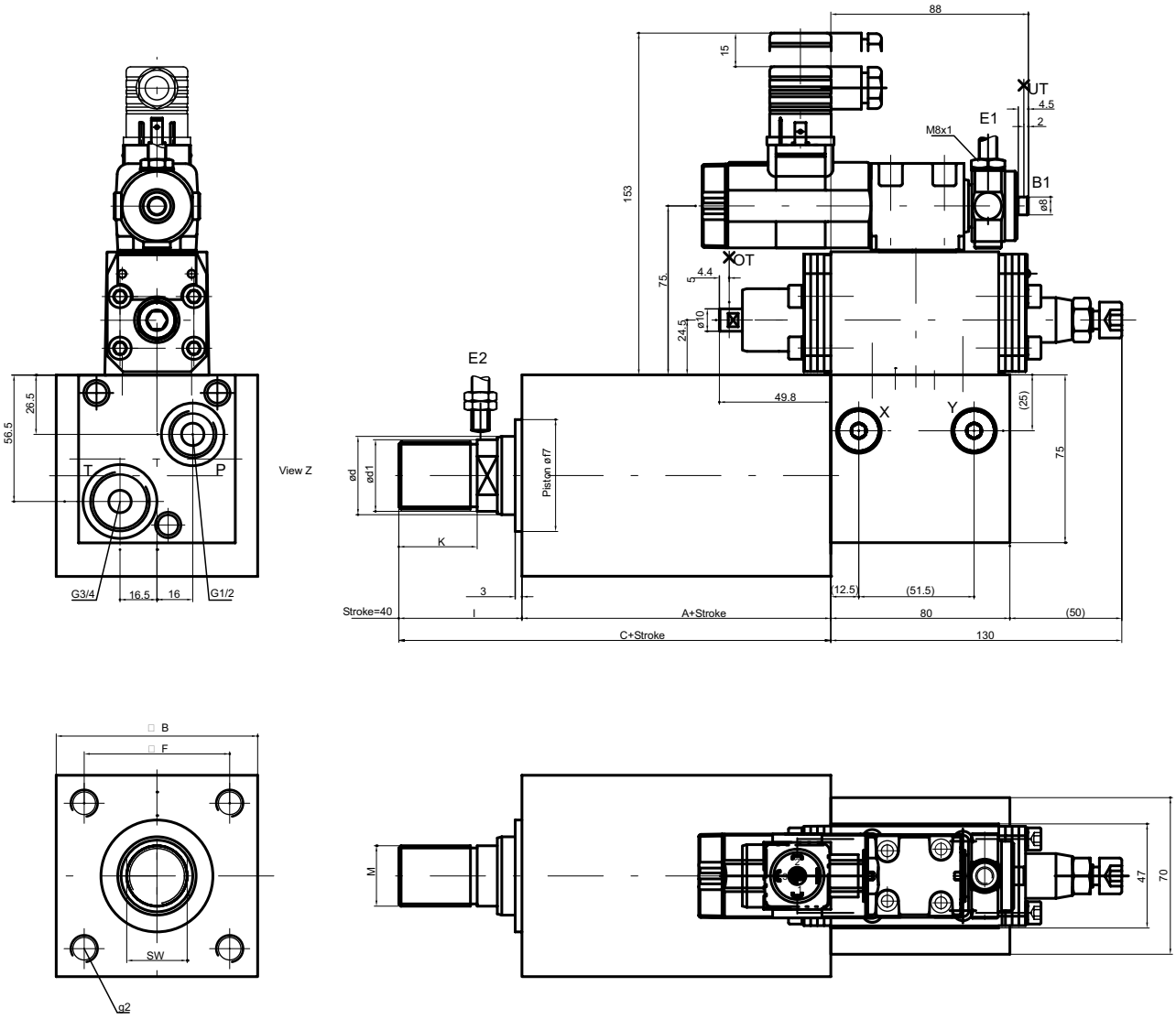
Basic Dimension Drawing



Dimension Table for Standard Cylinders

Ø Piston	Ø Rod	A	B	C	F	I	K	Ød1	M	SW	g2
40	28	90	75	134	55	44	30	25	M20x1,5	22	M10
50	35	98	90	153	65	55	35	32	M27x2	27	M12
63	45	120	105	182	70	62	42	42	M30x2	36	M16
80	56	135	125	210	90	75	50	53	M42x2	46	M16
100	70	190	150	280	110	90	60	67	M48x2	60	M20

other dimensions on request

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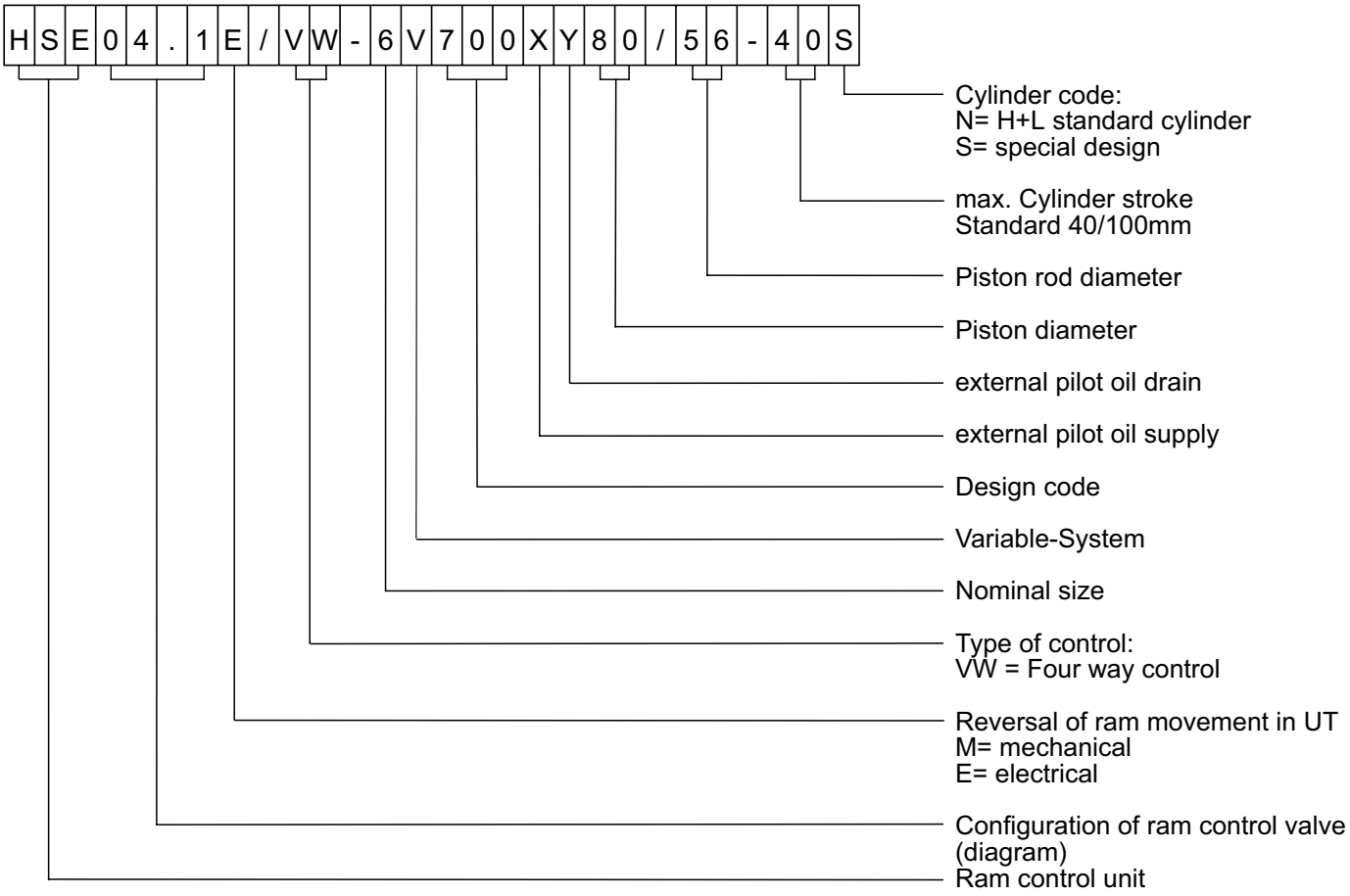
Type Code



Operation Specifications:

• Operation pressure:	max 250 bar
• Pilot pressure x:	80 bar, max. 160 bar
• Operating force:	OT: 250 N at pilot pressure 80 bar; UT: 150 N
• Control voltage:	24 V DC
• Pilot control of valve:	H+L ram control HS1
• Response time (electrical):	17 ms (Option: 8 ms, quick-energising)
• Ram force (working stroke):	Standard design: 100 kN up to 200 kN
• Ram return force:	Standard design approx. 50%

Example of Applications:

• Punching machine:	Ram force 70 kN, cycle time 40 ms for 10 mm stroke
• Wire cutting machine:	Ram force 20 kN, cycle time 35 ms for 12mm stroke

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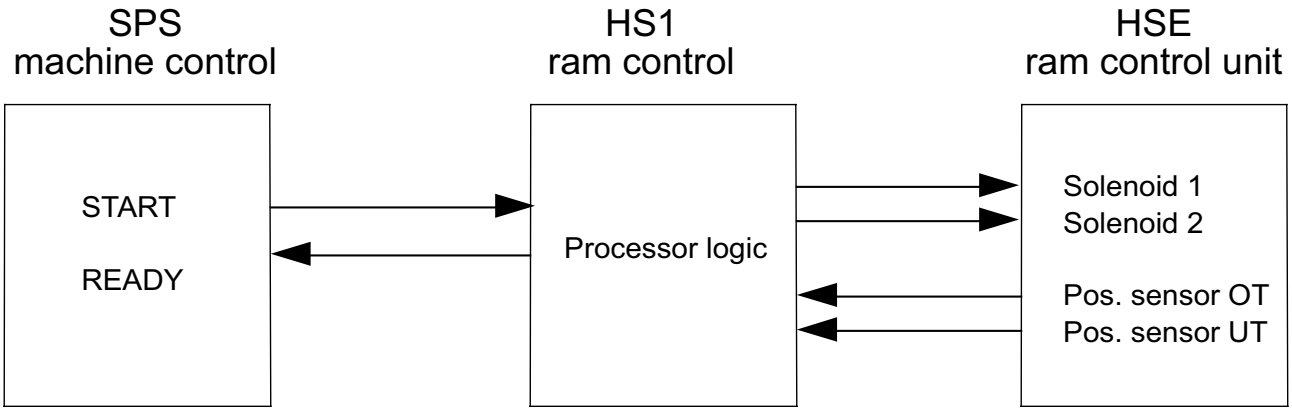
Ram Control HS1 for Ram Control Unit



Function:

The ram control HS1 is the link between the SPS machine control unit and the hydraulic ram control unit.The machine control starts a cycle by transmitting the START signal. All further functions are controlled and monitored by the ram control.

When the ram has completed the cycle, the HS1 generates a READY signal, wich triggers subsequent machine functions, e.g. material feed. The status of the ram control is displayed by LEDs on the front panel of the HS1.

Technical Specification:

- Operation voltage: 24V DC (20...30V)
- Power consumption: max. 80 W
- Input ports: 8 binary inputs (24V DC,10mA)
- Output ports: 2 binary outputs (24V DC, 1,5A)
  4 binäre outputs (24V DC, 0,1A)

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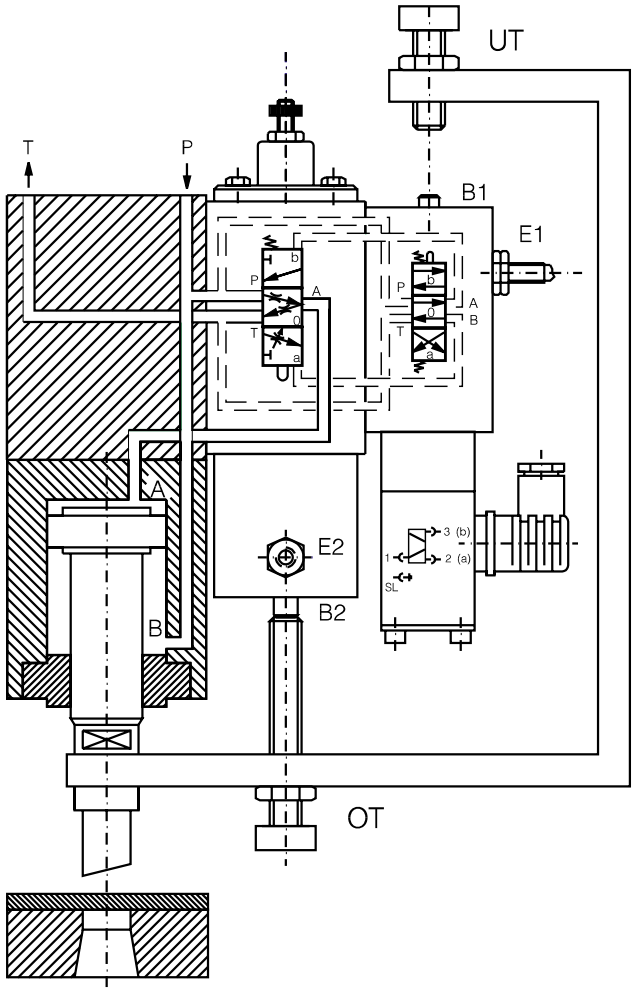
Hydraulic Ram Control Unit NG10

Design and Function:

The H+L Ram Control Unit is a modular unit individually configured to suit the individual application. It is mounted directly on a H+L block cylinder. The ram control valve is based on a hydraulically piloted directional control valve, which is additionally controlled by two actuating pins B1(bottom position) and B2 (top position). This hydromechanical design allows precise setting of the top position of the ram. It also ensures good repeatability because the ram is reversed virtually without delay when it has reached bottom position.

The H+L Ram Control is based on this drive principle. It is a highly dynamic unit with reliable valve technology, and does not require complicated electronic controls.



Features:

- No unwanted movements when the ram is in top position
- Hydro-mechanical reversal of ram movement in bottom position without switching delay ensures high repeating accuracy
- Adjustable ram positions, monitored by proximity switch
- Dual-pressure technology (dynamic equilibrium) ensures smooth movement of the ram
- Straightforward operation, rugged valve design, simple connection pattern

Applications:

- Punching
- Nibbling
- Shearing
- Shaping and slotting
- Blanking/cutting
- Stamping

Options:

- Load-dependent control, optimised power
- electronical reverse in bottom point position

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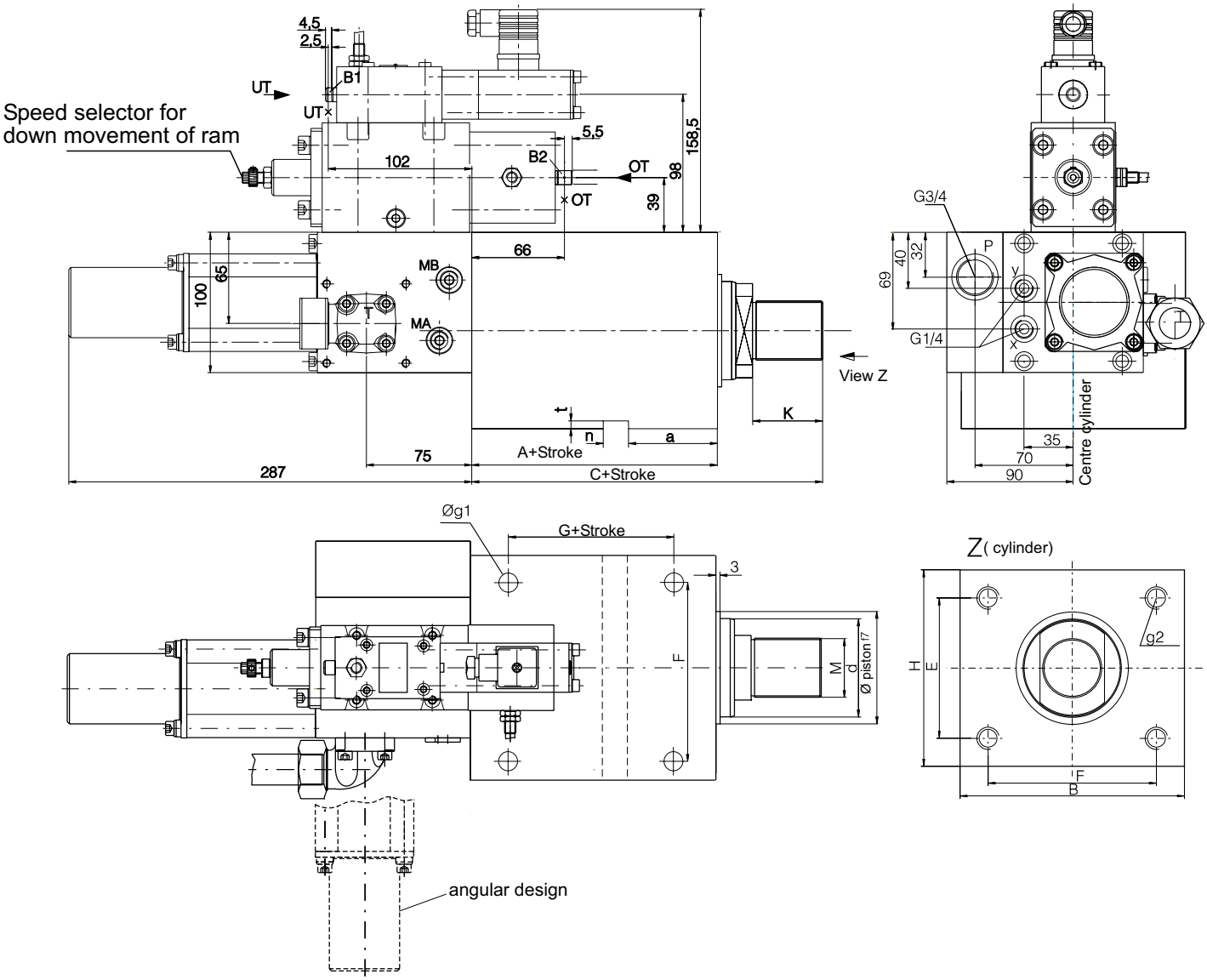
Dimension Drawing



Dimension Table for Standard Cylinders

Ø piston	Ø rod	A	B	H	C	E	F	G	K	M	a	n	t	Øg1	g2	D
50	35 / 45	98	100	100	153	75	75	66	35	M 27x2	24	12	3	12,5	M 12	20
63	45 / 56	120	140	110	182	80	110	80	42	M 30x2	40	12	3	17	M 16	20
80	56 / 70	135	160	140	210	100	120	70	50	M 42x2	37	16	4	17	M 16	45
100	70 / 90	190	200	160	280	110	160	150	60	M 48x2	52	16	4	22	M 20	20
120	85 /110	215	220	180	325	130	175	155	80	M 64x3	70	20	5	26	M 24	30
140	100 /130	220	210	210	350				90	M 80x3	on request				M 24	
160	115 /145	240	240	240	390				100	M100x3	on request				M 30	
180	125 /160	260	280	280	410				100	M100x3	on request				M 24	

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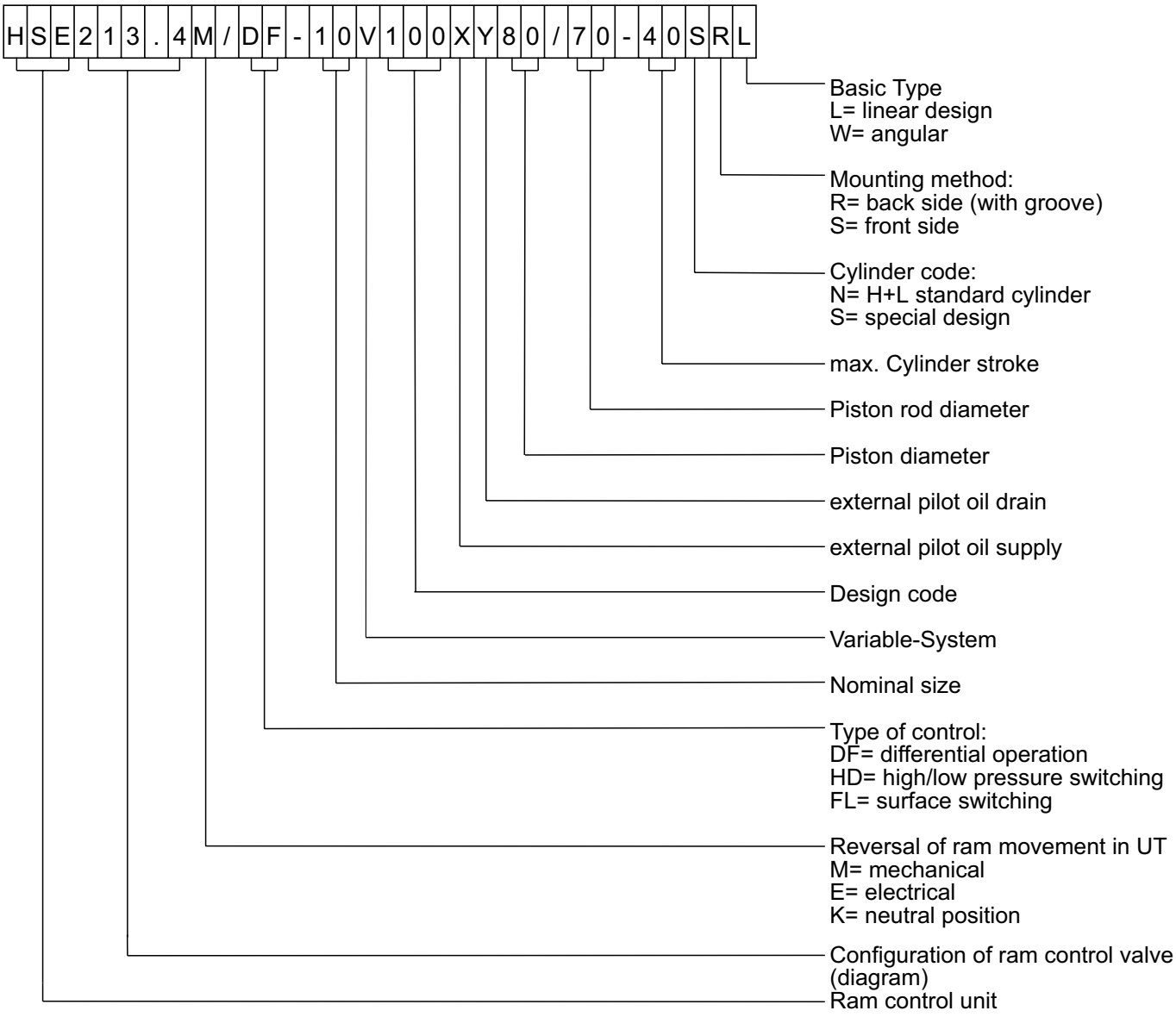
Type Code



Technical Specifications:

• Operation pressure:	max 250 bar
• Pilot pressure x:	40-80 bar, max. 250 bar
• Operating force:	OT: 400 N pilot pressure 80 bar; UT: 150 N
• Control voltage:	24 V=
• Pilot control of valve:	H+L ram control HS1
• Response time (electrical):	20ms (Option: 10ms, quick-energising)
• Ram force (working stroke):	Standard design NG10 up to 400kN (NG25 up to 2500kN)
• Ram return force:	Standard design: approx. 20%

Examples of Applications:

- Punching and nibbling machine:: Ram force 200kN, cycle time 60ms for 6mm stroke
- Section shearing machine: Ram force 150kN, cycle time 60ms for 10mm stroke

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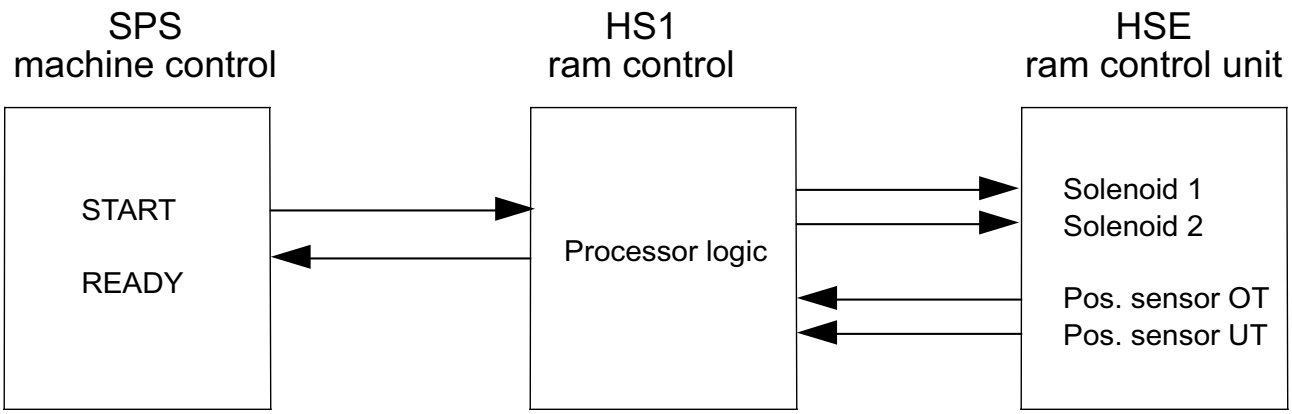
Ram Control HS1 for Ram Control Unit



Function:

The ram control HS1 is the link between the SPS machine control unit and the hydraulic ram control unit.The machine control starts a cycle by transmitting the START signal. All further functions are controlled and monitored by the ram control.

When the ram has completed the cycle, the HS1 generates a READY signal, wich triggers subsequent machine functions, e.g. material feed. The status of the ram control is displayed by LEDs on the front panel of the HS1.

Technical Specification:

- Operation voltage: 24V DC (20...30V)
- Power consumption: max. 80 W
- Input ports: 8 binary inputs (24V DC,10mA)
- Output ports: 2 binary outputs (24V DC, 1,5A)
  4 binäre outputs (24V DC, 0,1A)

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Hydraulic Ram Control Unit NG 25

Design and Function:

The H+L Ram Control Unit is a modular unit individually configured to suit the individual application. It is mounted directly on a H+L block cylinder. The ram control valve is based on a hydraulically piloted directional control valve, which is additionally controlled by two actuating pins B1(bottom position) and B2 (top position). This hydromechanical design allows precise setting of the top position of the ram. It also ensures good repeatability because the ram is reversed virtually without delay when it has reached bottom position.

The H+L Ram Control is based on this drive principle. It is a highly dynamic unit with reliable valve technology, and does not require complicated electronic controls.

Features:

- No unwanted movements when the ram is in top position
- Hydro-mechanical reversal of ram movement in bottom position without switching delay ensures high repeating accuracy
- Adjustable ram positions, monitored by proximity switch
- Dual-pressure technology (dynamic equilibrium) ensures smooth movement of the ram
- Straightforward operation, rugged valve design, simple connection pattern

Applications:

- Punching
- Nibbling
- Shearing
- Shaping and slotting
- Blanking/cutting
- Stamping

Options:

- Load-dependent control, optimised power
- electronical reverse in bottom point position

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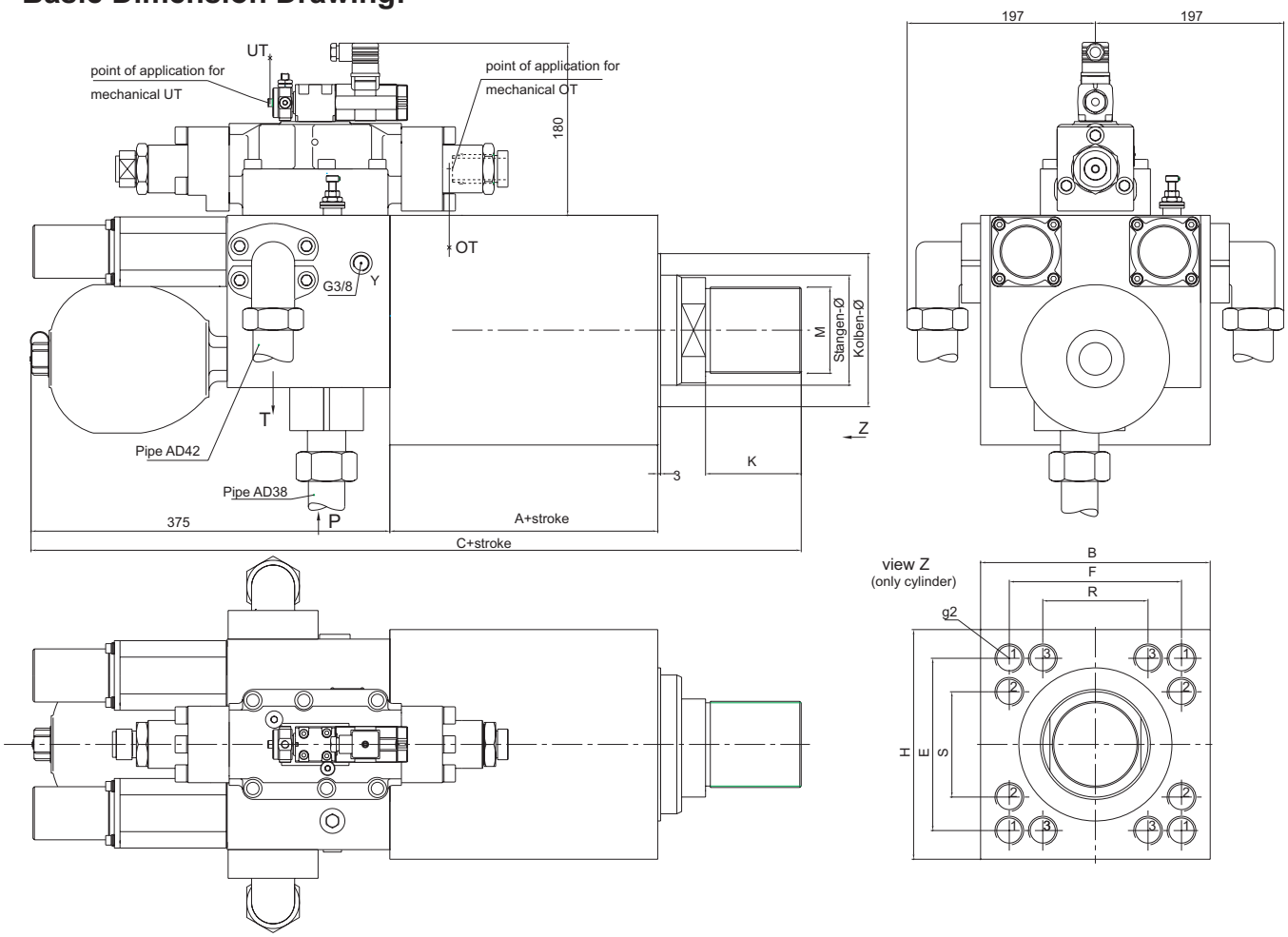
Hydraulic Ram Control Unit NG 25

Basic Dimension Drawing:



Dimension Table for Standard Cylinders:

piston-Ø	rod-Ø	A	B	H	C	K	M	g2 (position)	E	F	R	S
120	110	215	220	180	325	80	M 64x3	4xM24(1)	130	130	-	-
140	130	220	220	210	350	90	M 80x3	4xM30(1)	160	160	-	-
160	145	240	240	240	390	100	M 90x3	4xM30(1)	180	180	-	-
180	165	260	280	280	410	100	M100x3	8xM24(2/3)	210	210	120	120
200	180	280	320	320	430	100	M120x3	8xM30(2/3)	260	260	140	140
220	200	300	340	340	450	100	M140x3	8xM30(2/3)	270	270	150	150
240	220	320	360	360	490	120	M150x3	8xM36(2/3)	280	280	160	160
260	240	380	400	400	540	140	M160x3	8xM36(2/3)	310	310	180	180
280	255	420	440	440	610	140	M170x3	8xM36(2/3)	340	340	200	200
300	270	460	450	450	680	150	M180x3	12xM36(1/2/3)	350	350	200	200
320	290	460	500	500	710	180	M220x3	12xM36(1/2/3)	400	400	225	225
340	310	500	530	530	760	180	M240x3	12xM36(1/2/3)	430	430	255	255

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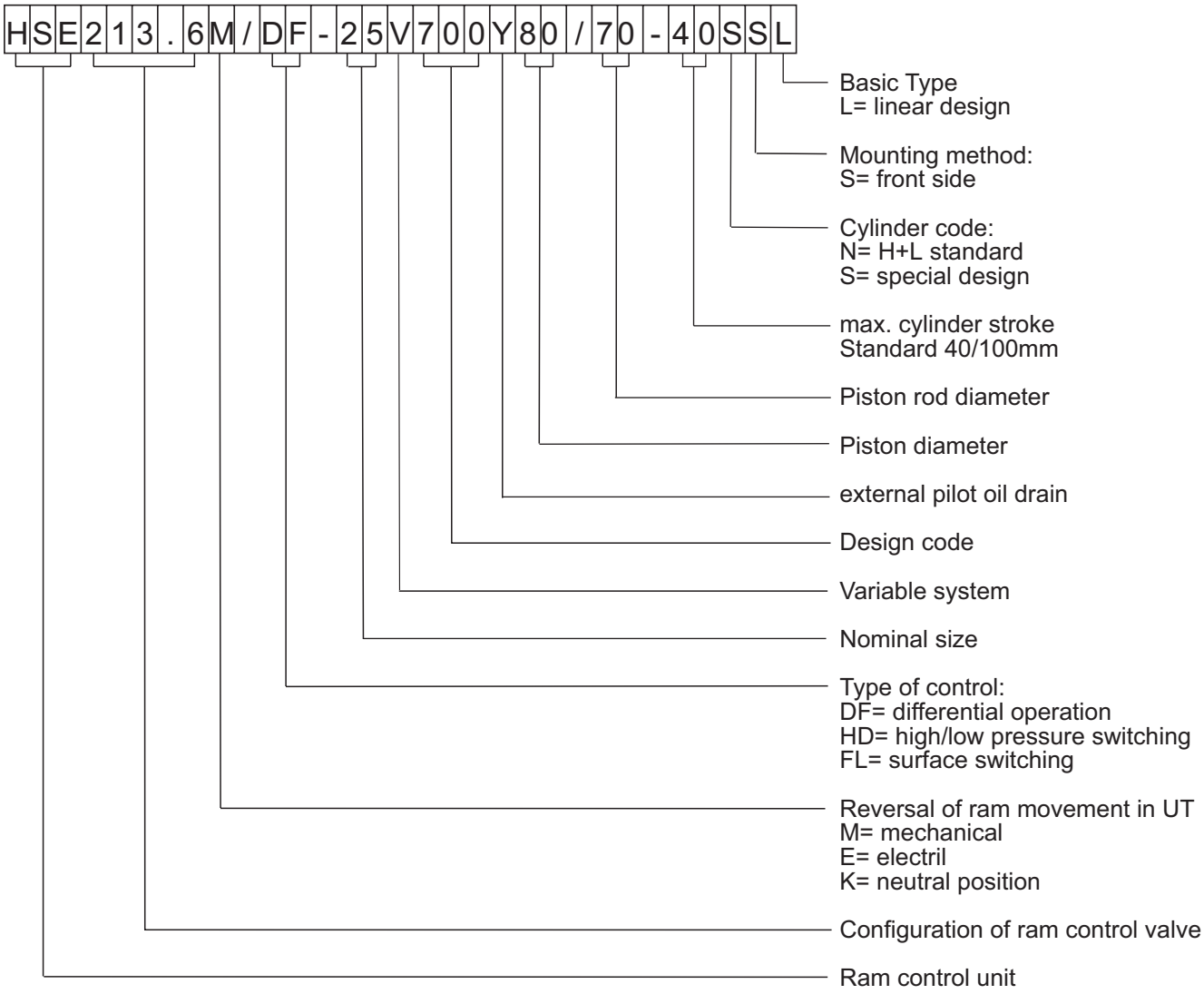
Hydraulic Ram Control Unit NG 25

Type Code:



Technical Specifications:

• Operation pressure:	max 250 bar
• Pilot pressure x:	intern 80 bar
• Operating force:	OT: 450 N; UT: 50 N
• Control voltage:	24 V=
• Pilot control of valve:	H+L ram control HS1
• Response time (electrical):	20ms (Option: 10ms, quick-energising)
• Ram force (working stroke):	Standard design NG25 up to 2000 kN
• Ram return force:	Standard design: approx. 20%

Examples of Applications:

- Linear punching installation: Ram force 1600kN, cycle time 125 ms for 6 mm stroke
- Section shearing machine: Ram force 150kN, cycle time 860 ms for 100 mm stroke

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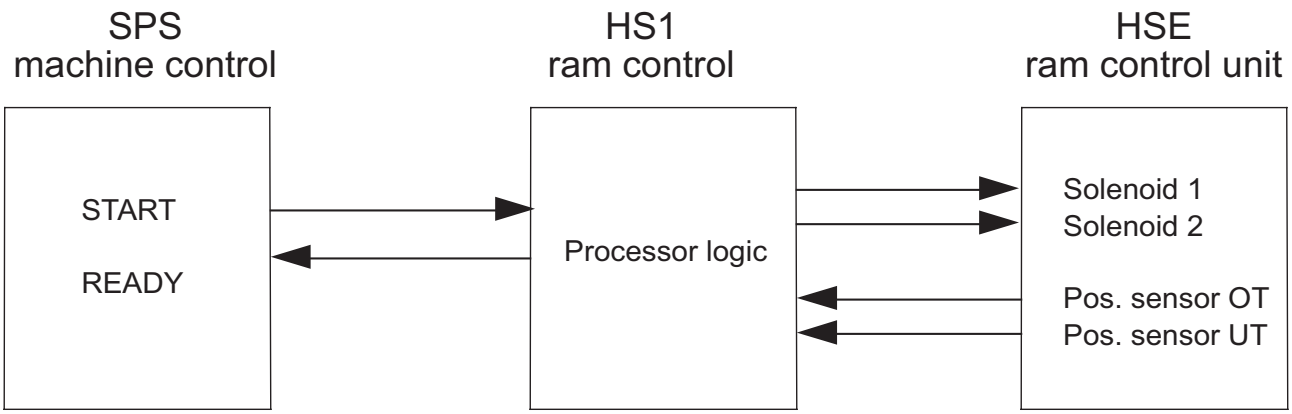
Ram Control HS1 for Ram Control Unit



Function:

The ram control HS1 is the link between the SPS machine control unit and the hydraulic ram control unit.The machine control starts a cycle by transmitting the START signal. All further functions are controlled and monitored by the ram control.

When the ram has completed the cycle, the HS1 generates a READY signal, wich triggers subsequent machine functions, e.g. material feed. The status of the ram control is displayed by LEDs on the front panel of the HS1.

Technical Specification:

- Operation voltage: 24V DC (20...30V)
- Power consumption: max. 80 W
- Input ports: 8 binary inputs (24V DC,10mA)
- Output ports: 2 binary outputs (24V DC, 1,5A)
  4 binäre outputs (24V DC, 0,1A)
- Design: European standard-size board, 3HE, 8TE

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Electrohydraulic Power Rod

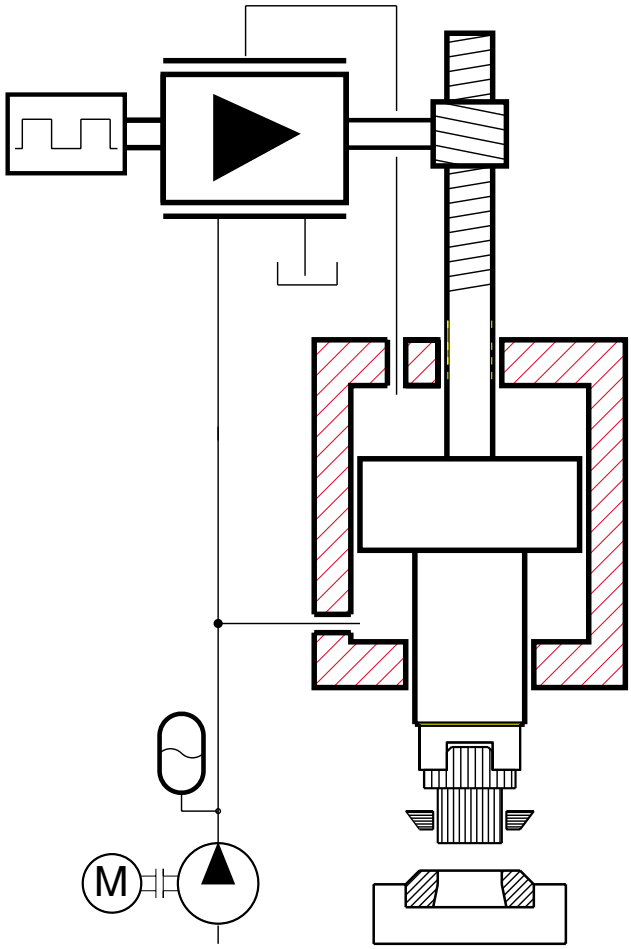
Design and Function:

The H+L Electrohydraulic Power Rod is an optimised linear drive for cutting, punching and forming processes which require enhanced tool feed drive capabilities.

The electronic control circuit converts the input parameters like speed, position and tool movement profile into signals wich drive a low-power stepper motor. This movement is amplified highly dynamically by the hydromecanical closed loop of hydraulic amplifier.

The hydromechanical closed loop operates without measuring systems or additional electronic control devices. This straightforward design concept ensures the ruggedness and reliability typical of our compact units.

Cylinder design, surface dimensions and mounting characteristics have been adapted specially to suit the area of application.



Advantages:

- Programmable speed, positions and tool feed profiles
- Hydromechanical closed loop, highly dynamic drive characteristics
- Direction-sensing overload display
- Smooth rod movement; size II drives include integrated damping elements
- No measuring systems are required

Areas of Application:

- Bending
- Cutting
- Stamping
- Shearing
- Blanking

Options:

- Integrated stepper motor driver
- Top/bottom position unit to reduce cycle times
- Electronic control of stepper motor for improved performance

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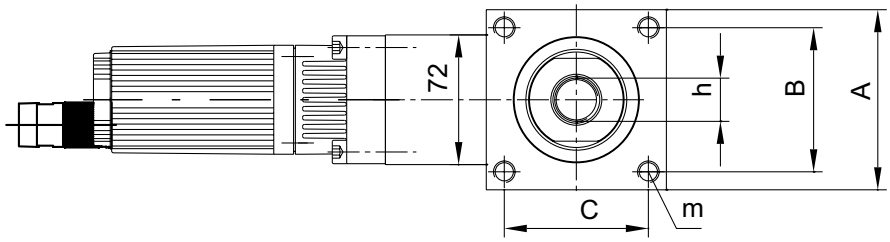
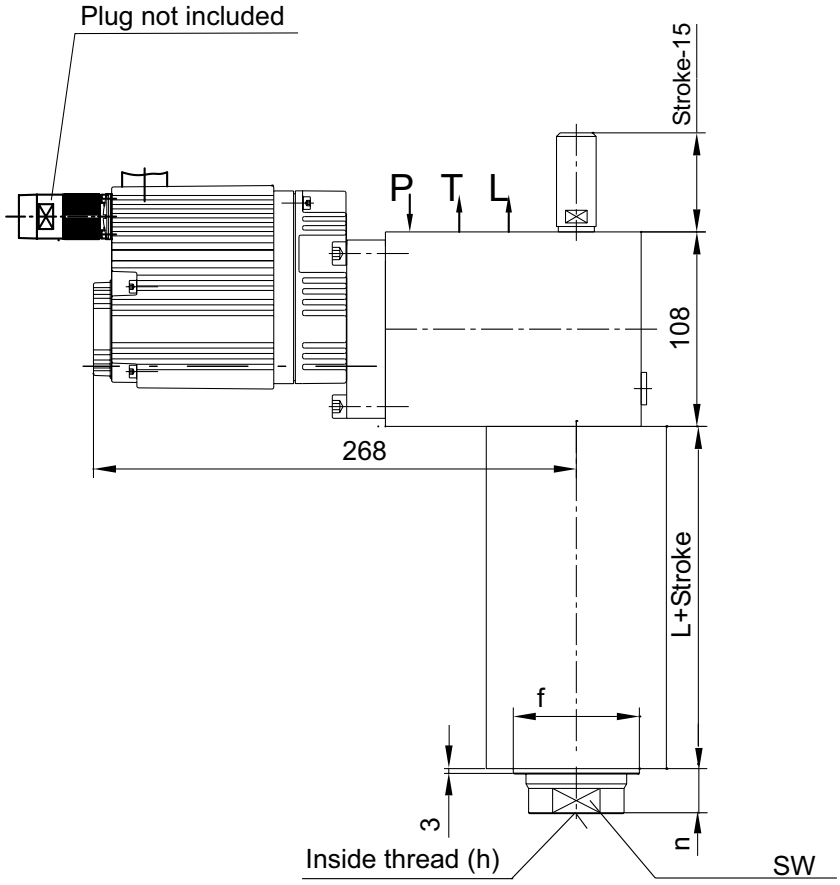
Basic Dimension Drawing
Power Rod, Size I





Ø Piston	Ø Rod	L+Stroke	A	B/C	Øf	h	m	n
40	28 / 36	107	76	56	50	M16x1,5	M10	18
50	36 / 45	107	76	56	65	M20x1,5	M12	20
63	45 / 56	120	100	80	70	M24x1,5	M12	25
80	56 / 70	125	130	100	90	M30x1,5	M16	25
100	79 / 90	140	160	120	110	M42x1,5	M20	30
110	80 /100	140	170	130	120	M42x1,5	M20	35
120	85 /105	145	180	140	140	M48x1,5	M24	35
140	100 /125	165	200	140	140	M48x1,5	M24	40
160	120 /140	170	240	190	170	M64x1,5	M30	40

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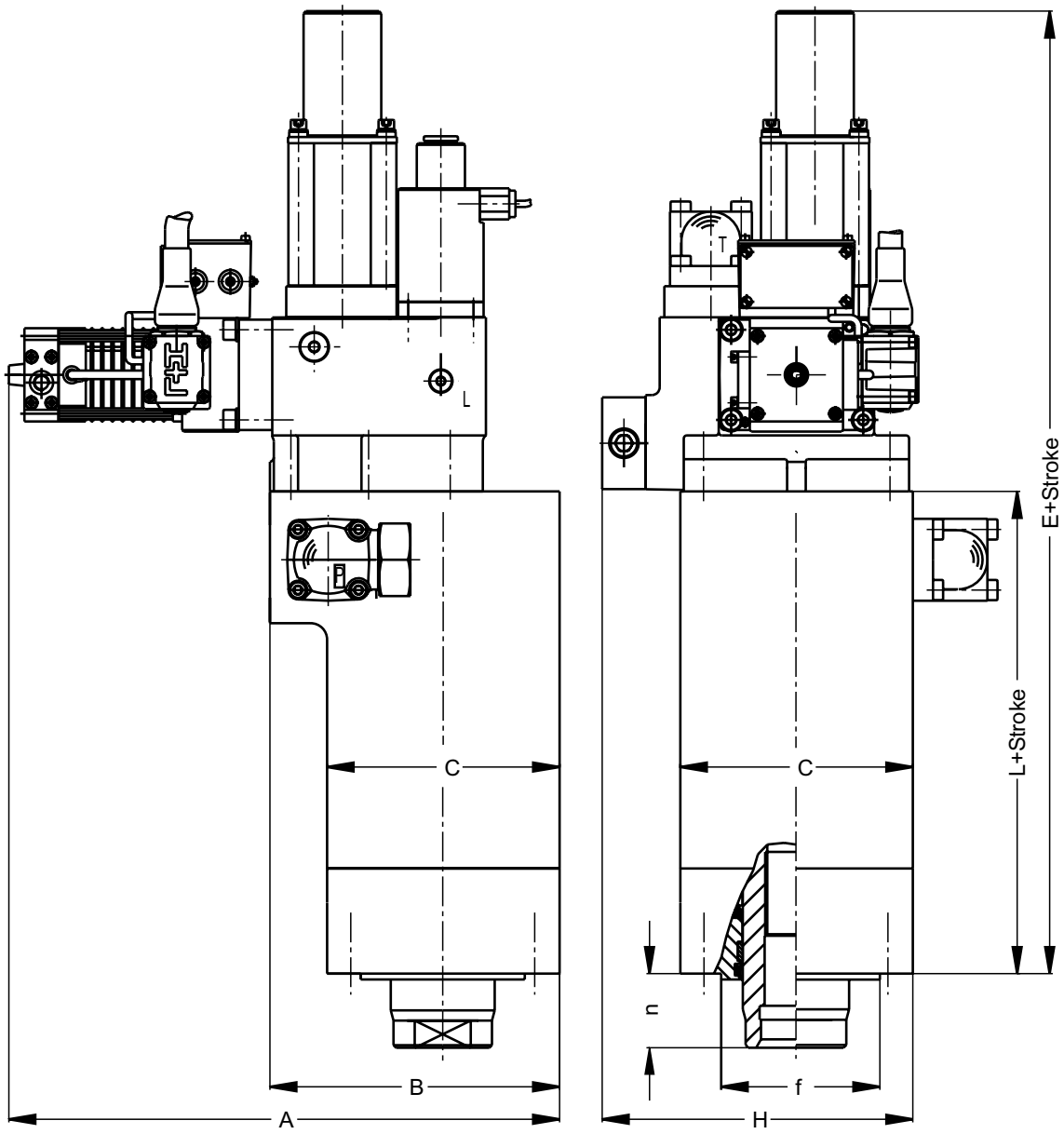
Basic Dimension Drawing
Power Rod, Size II



Ø Piston	Ø Rod	A	B	C	L	E	n	f	H	P	T	L
90 mm	85 mm	355	185	150	350	665	31,5	115f8	200	BFW25	BFW35	3/8"
100 mm	95 mm	355	185	150	350	665	31,5	115f8	200	BFW25	BFW35	3/8"
127 mm	120 mm	405	235	200	400	715	40	150f8	325	BFW30	BFW35	3/8"

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Electrohydraulic Power Rod

General information

H+L Electrohydraulic Power Rods are built in two sizes, wich can be combined with different cylinder dimensions. Both sizes are available as "light" and "heavy" types. This variety of designs allows optimised sytem configurations for all requirements up to ram forces of 310 kN.

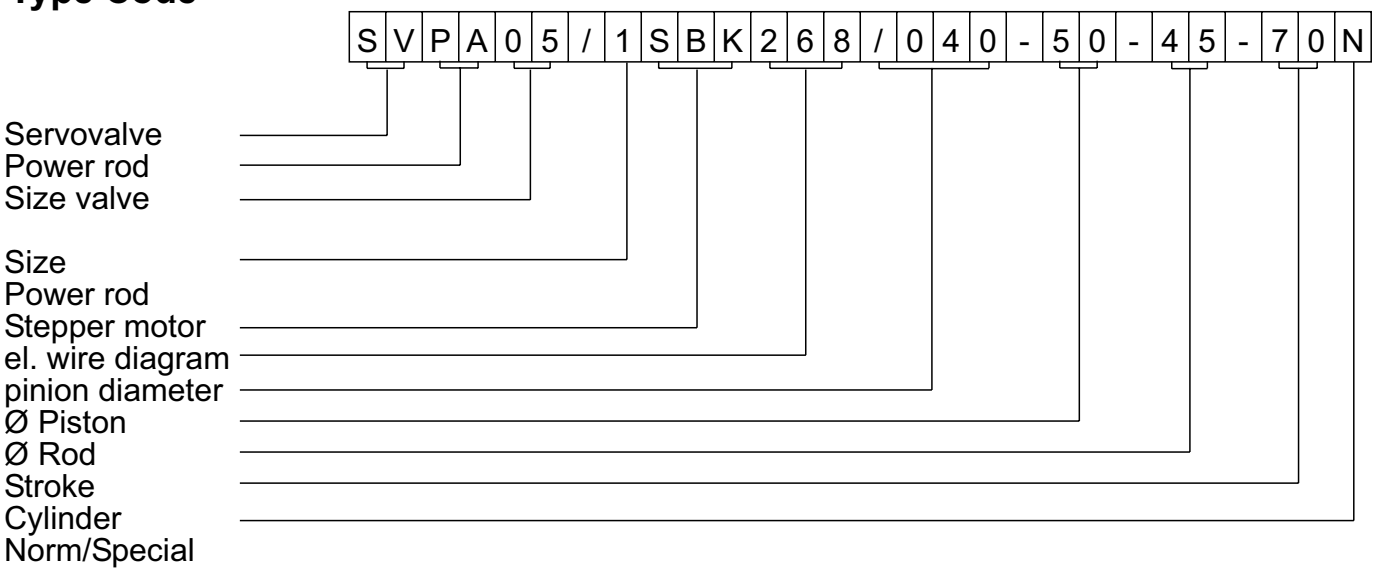
The technical specifications are standard values and may vary with different configurations.

As special service, we analyse your application situation and provide you with an informative calculation protocol based on your specific application data.

General Technical Specifications

Max. operating pressure (light type)	250 bar
Ram return force (standard value)	10% - 20%
Travel of the piston (standard values)	70 mm / 150 mm
Programmable step size (half-step mode)	0,1 - 0,004 mm
Max. ram speed	500 mm/s
Control	2-phase stepper motor driver

Type Code



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