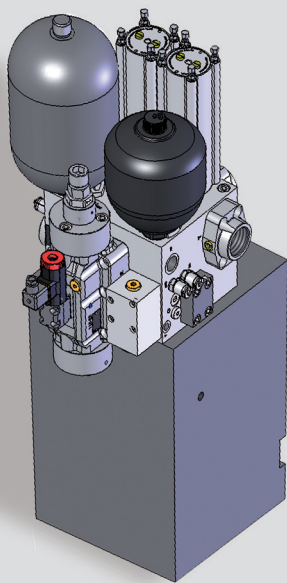


## Hydraulic Ram Control Unit HSE NG 25/GT



The new product line HSE/GT ram control units are performance optimized systems based on the reliable HSE punching systems. A needs-based stepped standard range with punch forces from 650 kN up to 2000 kN are available.

The inevitable power loss by conventional systems is reduced at a minimum, HSE/GT drives via a two pressure supply system as well a load dependent switching in the full load mode. Installed electric motor power will be reduced significant compared to conventional solutions.

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.

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.

VTHL stroke control units are high dynamic modular designed ram drives with robust valve elements and simple electronic control structure.

## Features

- highly dynamic punching 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 (HSP)
- simple functions with robust valve technique
- monitored processes with low control complexity

## Options

- ram control unit NG 10 HSE/GT for lower force range
- ram control unit HSP for programmable stroke positions
- complete punching systems including power pack technique
- additional cylinder stroke lengths

## Performance Diagram

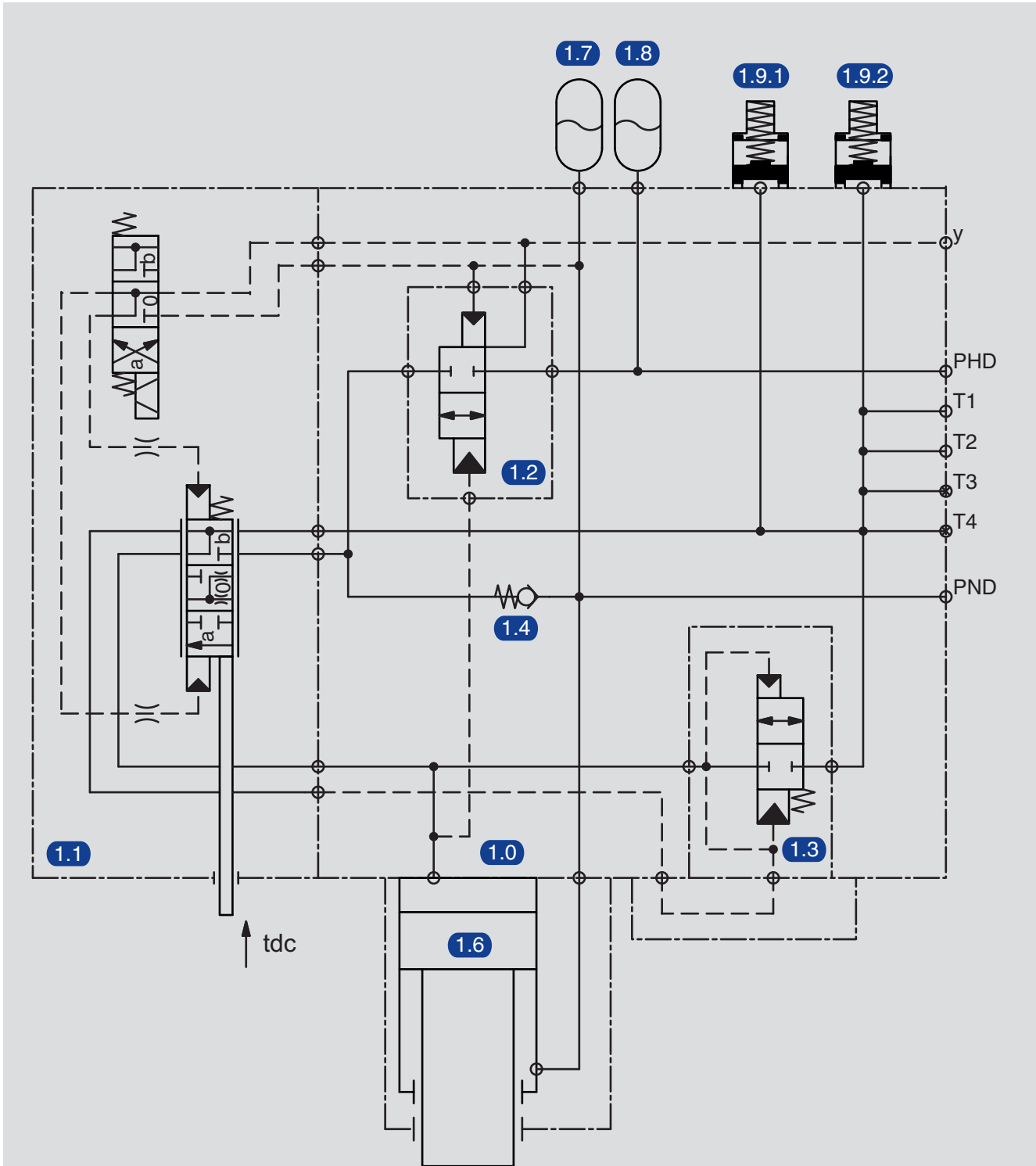
HSE Type	Punching Force nominal	Punching Force partial load operation	Return Force	Cylinder		Punching Cycle Time at 25 mm stroke
				Ø Piston	Ø Rod	
	[kN]	[kN]	[kN]	[mm]	[mm]	[ms]
HSE 65	650	92	119	200	145	200
HSE 80	800	112	143	220	160	230
HSE 100	1000	141	189	250	180	250
HSE 120	1200	178	207	270	200	290
HSE 140	1400	193	251	290	210	320
HSE 170	1700	229	311	320	230	390
HSE 200	2000	285	361	350	255	470

## Technical Data

General		
Operating force tdc	N	> 800
Cylinder stroke standard	mm	180
Ambient temperature	°C	-5 to +70
Mounting position		mountable in any position
Hydraulic		
System pressure, low pressure circuit	bar	80
System pressure, high pressure circuit	bar	260
Hydraulic oil pressure, operating range	°C	-10 to +70
Hydraulic oil pressure, performance range	°C	+10 to +60
Viscosity range	mm <sup>2</sup> /s	10 to 300
Electric		
Valve control		VTHL stroke control HS2 (data sheet: 9.1.1)
System of protection DIN 40050		IP65 with valve plug connected

Further specific performance data according to computation minutes.

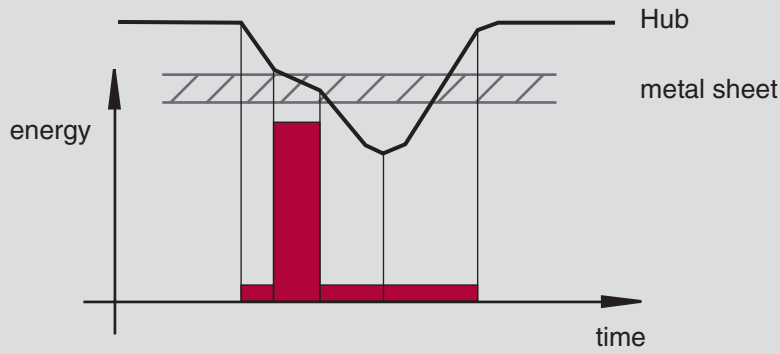
# Functional Diagram HSE NG 25/GT



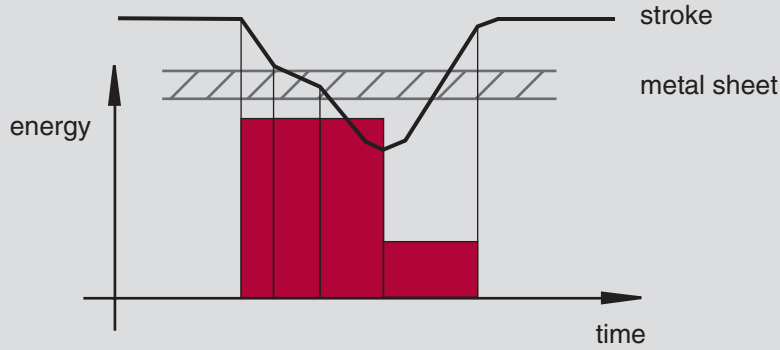
- |                                 |                                |
|---------------------------------|--------------------------------|
| <b>1.0</b> HSE main block       | <b>1.4</b> Check valve         |
| <b>1.1</b> Stroke control valve | <b>1.6</b> Block cylinder      |
| <b>1.2</b> HD - switch valve    | <b>1.7 1.8</b> Accumulator     |
| <b>1.3</b> Bypass valve         | <b>1.9.1 1.9.2</b> Tank damper |

# Energy Spend

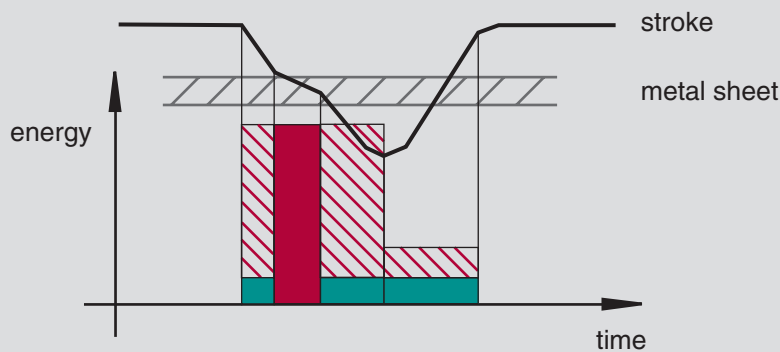
Theoretical energy demand during punch operation




One pressure system energy demand during punch operation

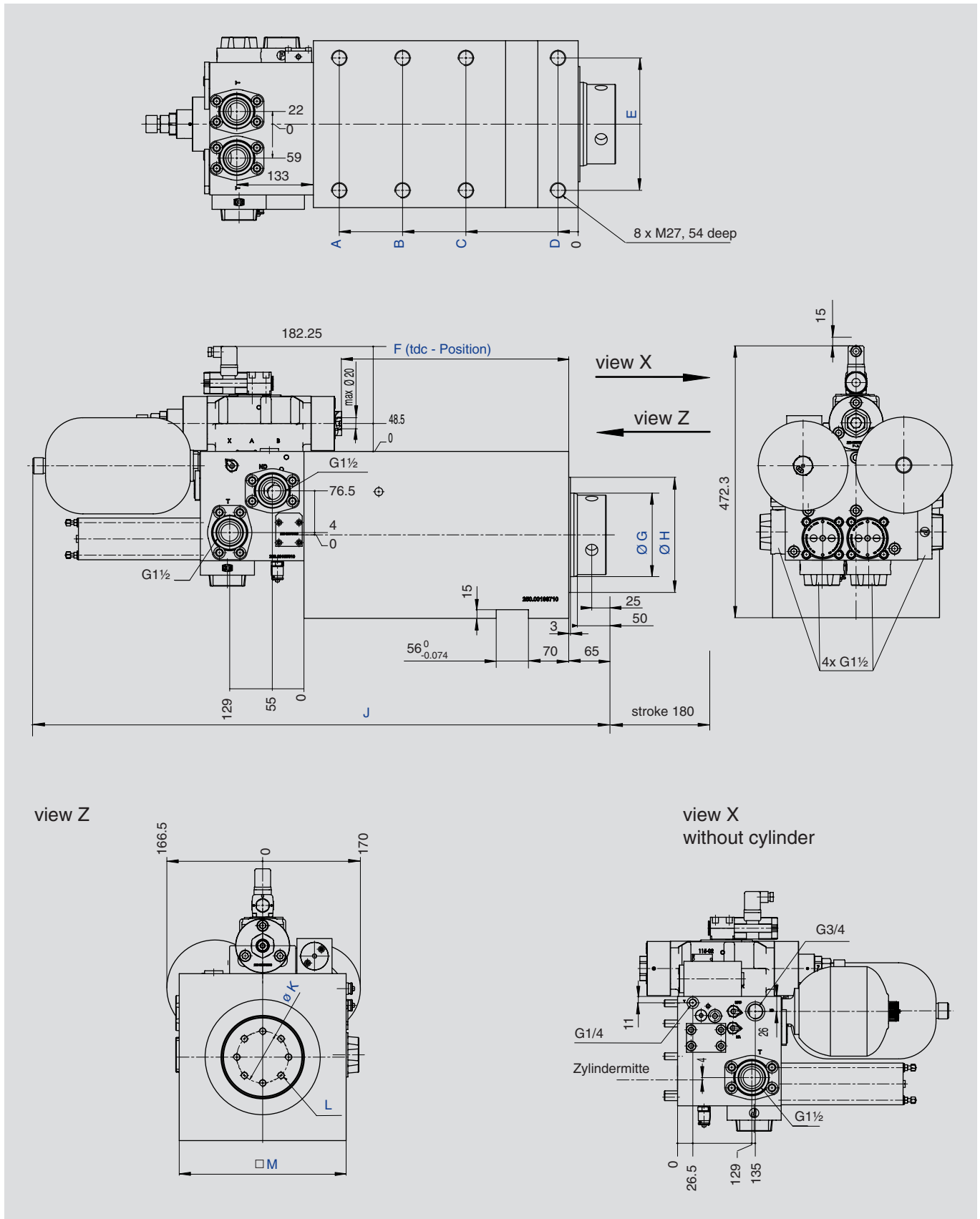


Two pressure system energy demand during punch operation



 economized energy

# Dimensioned Drawing Basic Design



**Dimension diagram standard cylinders**

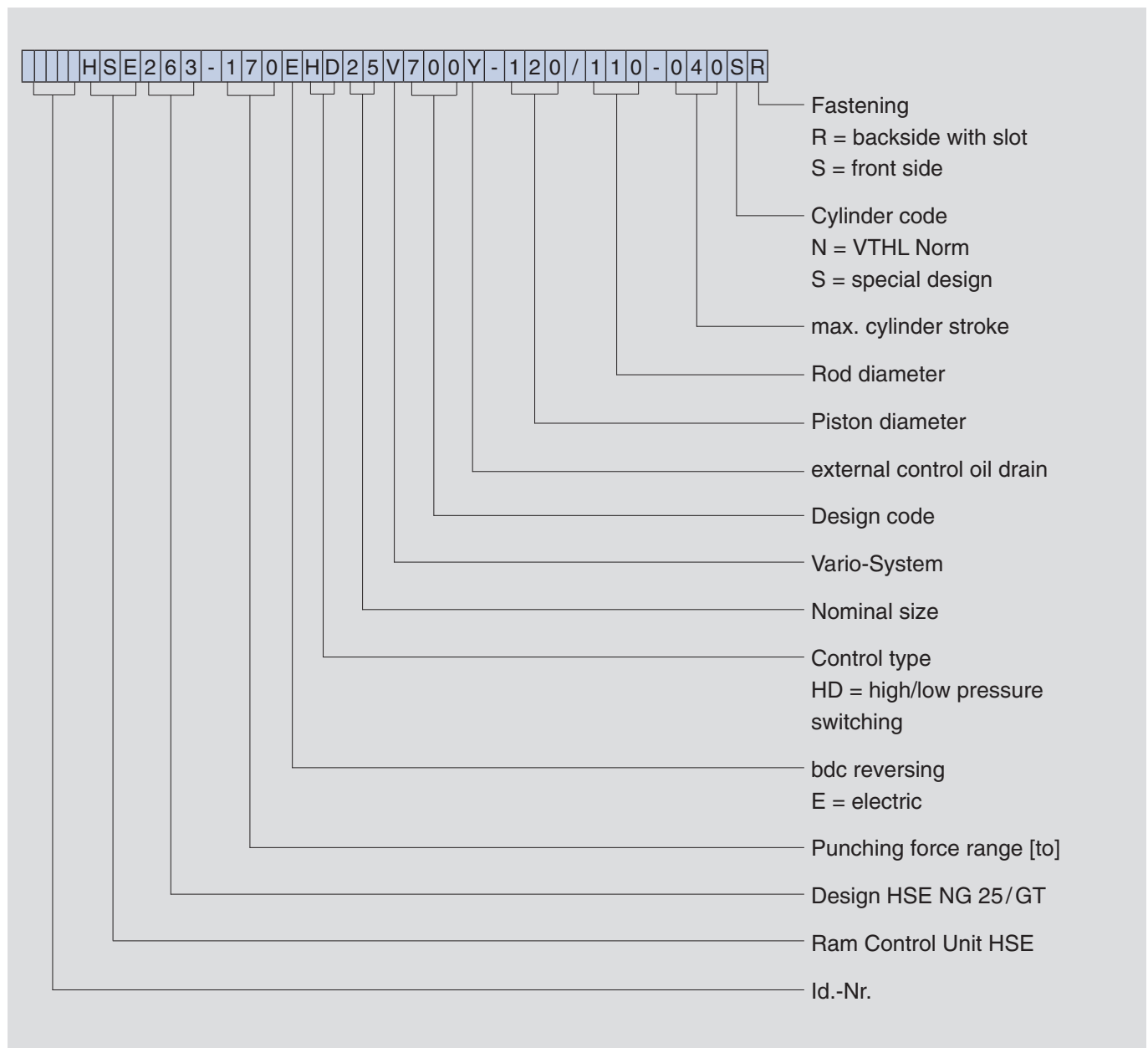
HSE Type	A	B	C	D	E	F	G	H	J	K	L	M
HSE 65	415	305	195	35	230	394,8	145	200 f7	996	90	M12	290
HSE 80	430	290	150	35	260	434,8	160	220 f7	1036	110	M16	320
HSE 100	480	320	160	40	290	494,8	180	250 f7	1096	130	M16	370
HSE 120	518	362	206	50	310	534,8	200	270 f7	1136	130	M16	390
HSE 140	545	375	205	55	350	564,8	210	290 f7	1166	150	M20	430
HSE 170	551	381	211	55	360	594,8	230	320 f7	1196	160	M20	460
HSE 200	605	405	205	55	390	634,8	255	350 f7	1236	180	M20	510

*further cylinder dimensions on request*

*all data in mm*

*tolerance indication according to dimensioned drawing*

# Type Code



## Electronic Control

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	Data Sheet
HS2	9.1.1
HS3	9.1.2

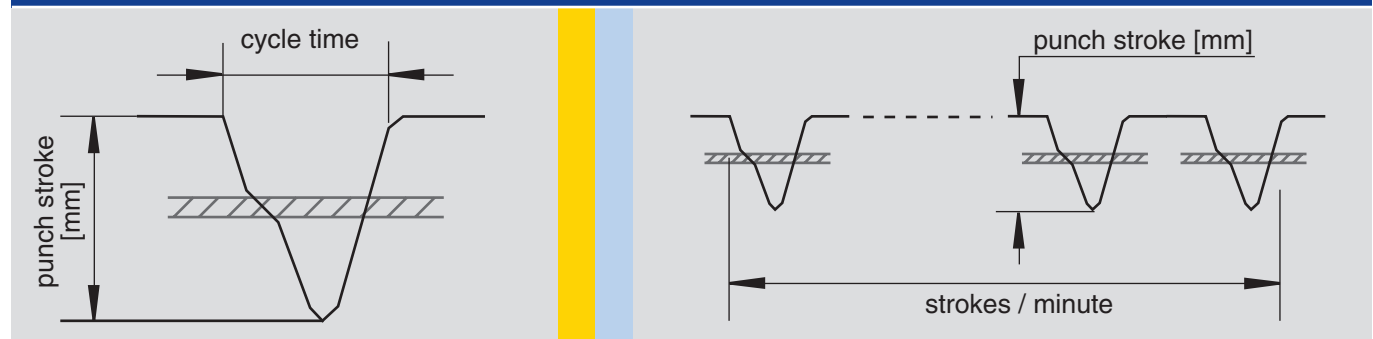


# Customer Questionnaire

## HSE System - number and kind of punch units working in one machine

Quantity	HSE Type <small>standard HSE punch unit (new generation)</small>	Maximum Punch Force [kN]	Cycle Time at 25 mm [ms] (infobox)	Punch Rate at 25 mm Punch Stroke [punches / min] (infobox)	Remarks
	HSE 65	650	200		
	HSE 80	800	230		
	HSE 100	1000	250		
	HSE 120	1200	290		
	HSE 140	1400	320		
	HSE 170	1700	400		
	HSE 200	2000	470		

### Infobox



**Important!** If use more then one HSE stroke control units on one shared power pack, than please specify

which stroke control units will perform a punch stroke on the same time.

### Specification, mechanical

Total stroke length cylinder	mm	standard 180 mm
Complete mass conected to the main cylinder rod	kg	
Stripper force (mechanical or hydraulical stripper)	N	
Required cooling system (oil/air or oil/water)		

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