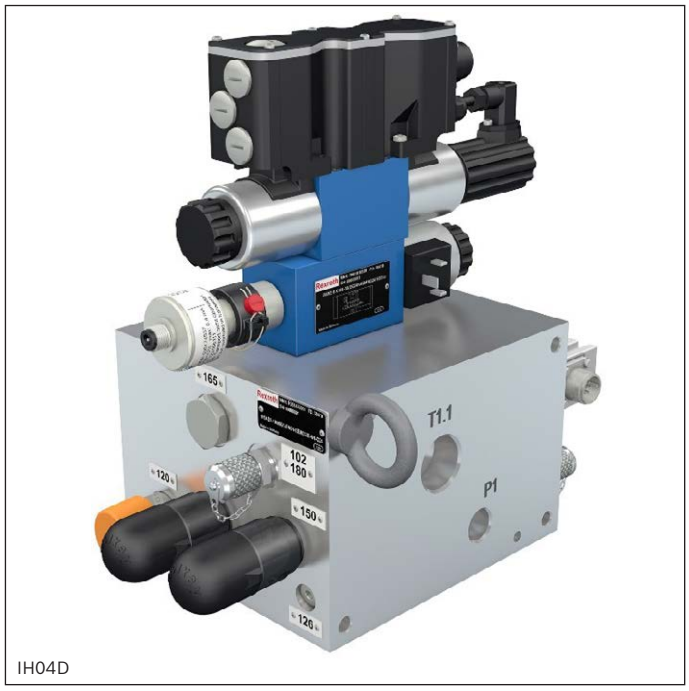
RE 63125
Edition: 2021-06
Replaces: 2021-05

rexroth
A Bosch Company

Press module for hydraulic presses

Type IH04D



IH04D

- Size 6, 10
- Component series 1X
- Maximum operating pressure 315 bar
- Maximum flow 80 l/min
- Hydraulic control for downstroke piston

Features

- Hydraulic control for machine types according to EN ISO 16092-3 and EN 289
- The basic modules 100 comprises all safety-related functions according to category 4 of EN ISO 13849-1.
- The extension modules 200 include all common circuits for hydraulic presses.
- Suitable for
  - pressure/position controls
  - open circuit
- Modular design
- Supply connections on the side
- Thick film passivated (free from chromium(VI))

Contents

Ordering code

	01	02		03		04	05	06		07	08	09	10		11		12		13		14
IH04	**D**		**–**	**1X**	**/**				**–**					**–**		**–**		**–**		**–**	

Machine function

01	Downstroke piston	**D**

Safety category

02	According to EN ISO 13849, category 4	**S**
	According to EN ISO 13849, category 1	**N**

Component series

03	Component series 10 ... 19 (unchanged installation and connection dimensions)	**1X**

Size

04	06	**06**
	10	**10**

Operating pressure

05	315 bar	**G**

Number of mounted modules (version-dependent)

06	Basic module 100	**1**
	Basic module 100 with one extension module 105/200	**2**
	Basic module 100 with two extension modules 105/200	**3**
	Basic module 100 with three extension modules 105/200	**4**

Pump pressure limitation – Item 120

07	With manual pressure adjustment [1]	**B**
	With proportional pressure adjustment	**E**
	With proportional pressure remote control at pump [2]	**G**
	With manual pressure adjustment and depressurized circulation for muting operating mode [3]	**M**
	With manual pressure adjustment and depressurized circulation	**W**

Press capacity adjustment in the piston chamber – Item 130

08	Without	**N**
	With manual pressure adjustment	**B**
	With proportional pressure adjustment	**E**
	With manual pressure adjustment and depressurized circulation	**W**
	With proportional pressure control	**D**

Weight compensation – Item 160

09	With manual pressure adjustment	**0**
	With manual pressure adjustment and switchable rapid traverse by own weight via prefill valve	**1**

Decompression – item 135/136

10	Without	**N**
	With check valve and without decompression	**R**
	With check valve and with decompression	**S**

[1] With load-sensing or with external pump pressure limitation

[2] The maximum line length between the pump control and the DBETE pressure valve should not exceed 2 meters

[2] Muting cannot be mapped due to the safe movement direction with item 290 (extension module Rx).

Ordering code

01	02	03	04	05	06	07	08	09	10	11	12	13	14
IH04	**D**	**-**	**1X**	**/**				**-**			**-**	**-**	**-**		

Directional valve – Item 110

11	4WE6E6X/EG24K4QR0G24S	IH04D-1X/06	**WE-000E**
	4WREEM6E32-2X/G24K34/B6V		**EEM032E**
	4WREE6V32-2X/G24K31/A1V		**REE032V**
	5-4WE10E5X/EG24K4QS0G24W/M	IH04D-1X/10	**WE-000E**
	4WREEM10E75-2X/G24K34/B6V		**EEM075E**
	4WREE10V75-2X/G24K31/A1V		**REE075V**
	Other valves upon request		

Extension modules – Item 200

12	None	**NN**
	With rapid traverse cylinder	**EN**
	With rapid traverse cylinder and load-sensing	**EL**
	With rapid traverse cylinder and high-response valve with zero overlap	**ER**
	With rapid traverse cylinder and pressure holding on the piston chamber side	**EX**
	With regenerative circuit	**DN**
	With regenerative circuit and with high-pressure and low-pressure pumps	**DH**
	With regenerative circuit and pressure holding on the piston chamber side	**DX**
	With high-pressure and low-pressure pumps	**HN**
	With high-pressure and low-pressure pumps and pressure holding on the piston chamber side	**HX**
	With load-sensing	**LN**
	With load-sensing and pressure holding on the piston chamber side	**LX**
	With high-response valve with zero overlap	**RN**
	With high-response valve with zero overlap and pressure holding on the piston chamber side	**RX**
	With pressure holding on the piston chamber side	**XN**
	With slide cushion function	**ZN**

Voltage

13	DC voltage 24V	**G24**

Additional version

14	Directional valve item 110 with asymmetric piston P→A: qv; P→B: qv/2	**001**

Function

The press module type D is a hydraulic control for the installation in hydraulic presses according to EN ISO 16092-3 or plastic and rubber machines according to EN 289 and is - according to EN ISO 13849-1 - regarded as a "safety-related part of control systems". The industrial area of application is extended to all machine types which require the safety requirements of the above-specified standards.

The press module type D allows the user to design, construct, and/or modify their downstroke piston functions such as press slide, blank pressure pad and slide cushion according to the general safety requirements. In connection with a suitable electric control, category 4, PLe according to EN ISO 13849-1 can be reached for the following safety measures:

Safety measures for the hazard type	Extract from standard	Performance level (PL)	Safety category
Prevention of unintended lowering due to own weight	EN ISO 16092-3 Section 5.3.7.2	e	4
Avoiding the unintended start-up from the rest position	EN ISO 16092-1 Sec. 5.4.1.1.4 a)	e	4
Stopping of the dangerous closing movement	EN ISO 16092-1 Sec. 5.4.1.1.4 c)	e	4

Additionally to EN ISO 16092-3, section 5.3.7.2, with option M, unintended lowering under own weight during the return stroke is safely prevented by the hydraulic restraint device item 145/146.
Any occurring error can be detected in good time.

Basic module 100

A complete press module type D consists at least of the basic module item 100 and the directional valve item 110. The safety-related functions (cat. 1 or 4) are part of the basic design and do not influence the attachment of the additional extension modules item 200[1)].
The pump and tank connections are arranged on the side and allow for perfect installation into the press.

Safety-related hydraulic control according to category 4 of ISO 13849	Directional valve with position monitoring (channel 1) [2)]	Pos. 110
	Pump pressure limitation	Items 120 ... 122
	On/off valve with position monitoring (channel 2)	Item 140
	Pressure limitation on the annulus area side against pressure intensification	Item 150
Basic functions	Load holding	Item 160
Additional function	Rapid traverse due to own weight via prefill valve	Item 166
	Press force adjustment with extension module item 105	Item 130

Extension module 200

With the extension modules item 200, further common variants are available for selection. The extension modules item 200 are flanged to the basic module item 100.

When the extension modules item 200 are used, the safety of the hydraulic control is maintained. All actuator ports are arranged on the side.

Variants	Rapid traverse due to rapid traverse cylinder	Items 210 ... 212
	Operation with high-pressure and low-pressure pumps	Items 220 ... 225
	Rapid traverse with regenerative circuit	Item 230
	Slide cushion	Item 250
	Load-sensing	Items 270 ... 275
	Pressure holding on the piston chamber side	Item 280
	High-response valve with zero overlap without detection of direction – Energy separation on the piston chamber side (channel 1) – Upholding restraint device on the annulus area side (channel 1)	Item 290

Installation

The pipelines must permanently withstand the maximum operating pressures and comply with the safety requirements according to EN ISO 16092-1 and -3 sections 5.2.1 and 5.2.3. Additionally it must be ensured that the pipeline between the press module type D (port X2) and the annulus area is designed for the max. set pressure of the pressure relief valves (items 150). The pipeline design should be as short as possible.

[1)] With exception: High-response valves with zero overlap RN, differential circuit DN and slide cushion ZN

[2)] High-response valves with zero overlap requiring the version of item 290 are excluded.

Technical data

(For applications outside these values, please consult us!)

General			
Installation position			Horizontal with directional valve item 110 on top
Safety-relevant on/off valves			Without manual override
Coating			Galvanic coating DIN EN ISO 19598 – Fe/Zn8//Cn/T0
Labelling	▶ Technical items		Aluminum, riveted
	▶ Outputs		Engraved
Ambient temperature range		°C	–20 ... +50
Storage temperature range		°C	+10 ... +40
Storage time more than 6 months			Specify in plain text when ordering

Hydraulic			
Maximum operating pressure	▶ Ports [1] P1, X1, X11, ND, LS1, X	bar	Cast iron version 280
	▶ Port X2	bar	315
Maximum return flow pressure	▶ Port[1] T1.1, T1.2	bar	16
	▶ Connection Y	bar	Separately to the tank at zero pressure
Recommended load pressure		bar	20 ... 115
Measuring ports			Including measuring couplings
Operating medium [2]			Mineral oil (HL, HLP) according to DIN 51524, other hydraulic fluids upon request
Temperature range of the hydraulic fluid		°C	-20 ... +80, preferably +40 ... +50
Viscosity range of the hydraulic fluid		mm^2/s	10 ... 500, preferably 30 ... 46
Maximum admissible degree of contamination of the hydraulic fluid			Cleanliness class 18/16/13 according to ISO 4406 (c) [3]
Seal material			NBR, others upon request

Sizes			**06**	**10**
Rated flow [4]	▶ P1	l/min	45	80
	▶ HD	l/min	25	50
	▶ X1→T1	l/min	90	200
	▶ X2→T1 [5]	l/min	45	80
Recommended pump equipment [6]		cm^3	28	45, 71

1) Order connection flanges separately, see page 29.

2) The ignition temperature of the operating medium used must be higher than the maximum coil temperature of the valves. See data sheets of the components used.

3) Effective filtration is to be provided separately. This prevents faults and simultaneously increases the service life of the components. See data sheets of the components used.

4) The directional valve item 110 determines the maximum flow and maximum hydraulic performance of press module. Also refer to the data sheets of the components used

5) Design the rapid traverse due to own weight with prefill valve with at least 25 bar load holding pressure. Below 25 bar upon request.

6) For recommended pump versions, see pages 30 and 31.

☞ **Notice:**
The mechanical settings of the pressure relief valves (such as items 121, 131 and 165) are completely screwed out in the as-delivered state.

Technical data
(For applications outside these values, please consult us!)

Electrical		
Voltage type		Direct voltage
Duty cycle	%	100
Protection class according to DIN EN 60529		IP65 with mating connector mounted and locked[1)]
Maximum surface temperature of the coil [2)]	°C	150
Voltage	V	24 +/- 10%

☞ **Notice:**
With the electrical connection "K4", the protective grounding conductor (PE) must be connected properly.

High-response valves[3)]		
Voltage	V	24 +/- 10%
Command value input	V	+/- 10%
Control electronics		On Board Electronic (OBE)

1) Mating connectors are not included in the scope of delivery and must be ordered separately. See data sheet 08006.
2) Due to the temperatures occurring at the surfaces of the solenoid coils, the standards EN ISO 13732-1 and EN ISO 4413 must be observed.
3) For function, technical data, integrated control electronics, performance limits, characteristic curves and general information refer to the data sheet of the component used.

☞ **Notice:**
For the environment simulation testing for EMC (electro-magnetic compatibility), climate and mechanical load, see data sheet of the component used.

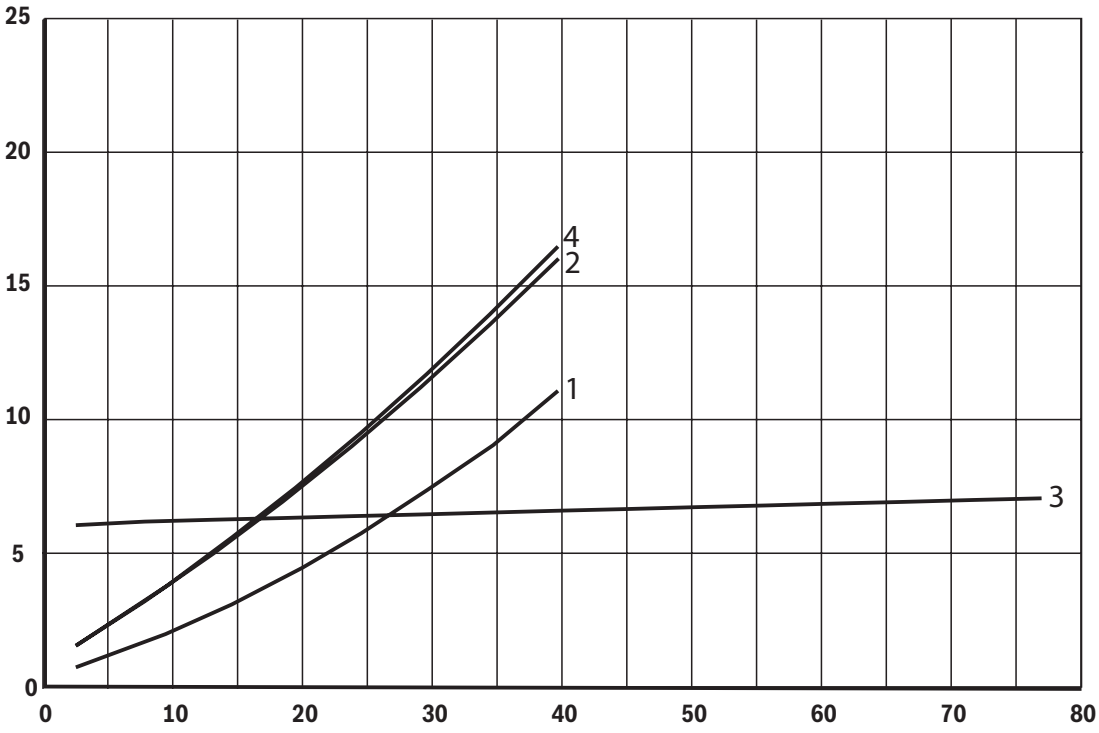
Safety-relevant components
Information on the electrical characteristics of the inductive position switches such as connection voltage, load capacity, admissible residual ripple, switching outputs and pin connections can be found in the data sheets listed in the following table:

Technical item	Type designation	IH04D-1X	Limit switch designation	Data sheet
Pos. 110	4WE6...QR0	NG06	S11a, S11b	23178
	5-4WE10...QS0	NG10		23352
	4WREEM	NG06-10		29064
Item 122	4WE6...QM0	NG06	S12	23178
Item 140	Z4WE...QMB	NG06	S14	23193
	Z4WE...QMB	NG10		24755
Item 146	OD1505176504OC	NG06	S14.1	18325-04
	OD1505216584OC	NG10		18325-05
Items 230, 250	WE6...QMB	NG06	S23, S25	23178
	WE10...QMB	NG10		23352
Item 290	Z4WE...QMA	NG06	S29	23193
	Z4WE...QMB	NG10		24755

Characteristic curves

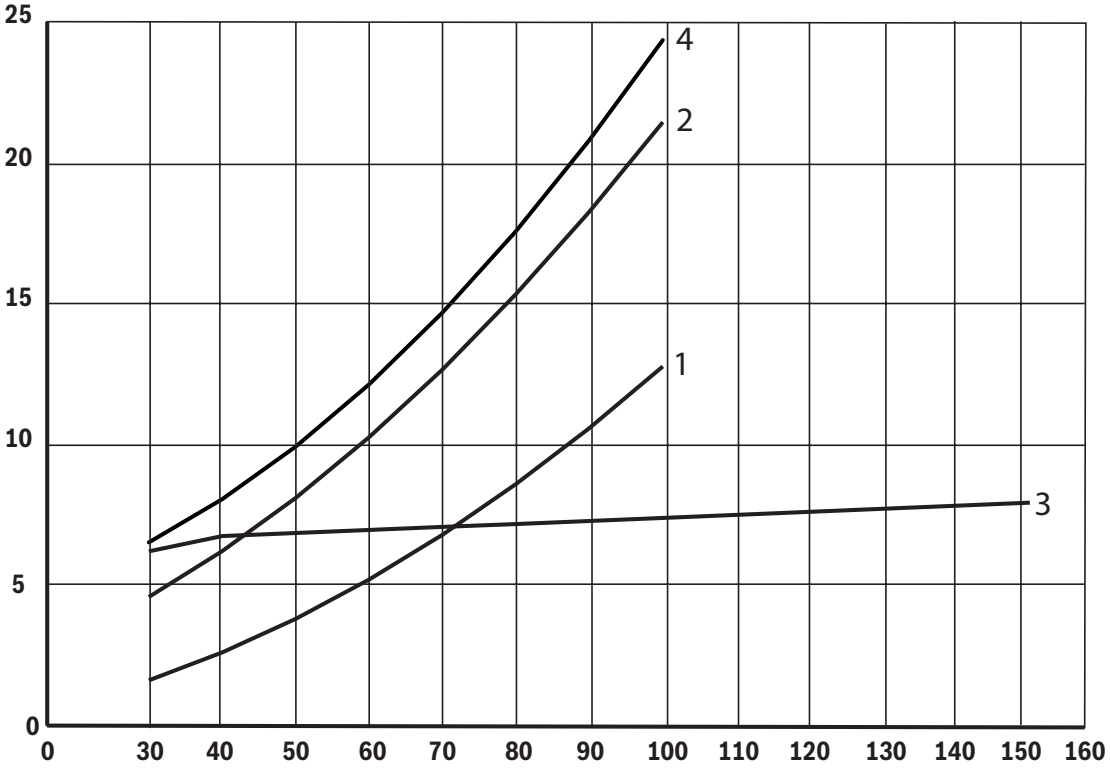
(measured with HLP46, ϑ_{oil} = 40 ±5 °C)

IH04DS-1X/06G2-WE0S-WE-000E-NN-G24



1 P1 → X1
2 P1 → X2
3 X1 → T1.1
4 X2 → T1.1

IH04DS-1X/10G2-WE0S-WE-000E-NN-G24



Basic functions according to safety category 4 (EN ISO 13849-PLe):

IH04DS-1X/...G2-WE0R-WE-000E-NN-G24

The following description is based on a cyclic control and position monitoring of the valves.

- Failure of any of the position-monitored valves must be detected by an external safety PLC and the start of the next dangerous movement after an error has to be prevented. Direction error immediate stop.
- The load holding pressure is the total of slide weight and weight of the top tool part acting on the effective annulus area.

Option W – Item 120

The pressure relief valve item 120 is used for the pressure limitation of the motor pump station (hydraulic energy supply). At the pressure relief valve item 120, the maximum operating pressure is set. The on/off valve item 122 provides pilot control of the pressure relief valve item 120. In its basic position, the pressure relief valve item 120 is switched to depressurized circulation. Energization of the solenoid Y12 causes the pressure set at the pressure relief valve item 120 to become effective.

Option WE-000E – item 110

The movement direction of the cylinder piston is determined by the directional valve item 110:

- The cylinder piston is extended with the control signal Y11b.
- The cylinder piston is retracted with the control signal Y11a.

By means of the position monitoring S11a and S11b, it is monitored whether

- the closed central position is reached in every pressing cycle.
- the movement direction is correct.

Option E – Item 130

The pressure relief valve item 130 serves for pressure limitation on the piston chamber side of the cylinder. At the pressure relief valve item 130, the maximum press pressure is set. The proportional pressure relief valve item 132 provides pilot control of the pressure relief valve item 130 and determines the press pressure by means of the control signal Y13 (e.g. press force, decompression, preload during retraction):

- When the set pressure is exceeded, the pressure relief valve item 130 will open to the tank.
- When the set pressure is no longer reached, the pressure relief valve item 130 will close.

Option R – item 135/136

The check valve item 135 is used to separate the piston chamber from the directional valve item 110 during retraction (e.g. function with spring tool).

Functional safety item 140

Safe energy separation against unwanted pressure build-up on the piston chamber side and safe energy blocking against pressure reduction on the annulus area side is realized by the directional valve item 140 in its basic position. By means of the electrical switch monitoring S14 it can be monitored whether the basic position is reached in every cycle.

Functional safety item 150

The pressure relief valve item 150 serves as protection against pressure intensification in the annulus area of the cylinder. According to EN ISO 16092-3 section 5.2.3.3, it must be set to at least 10% above the maximum operating pressure item 120 and sealed.

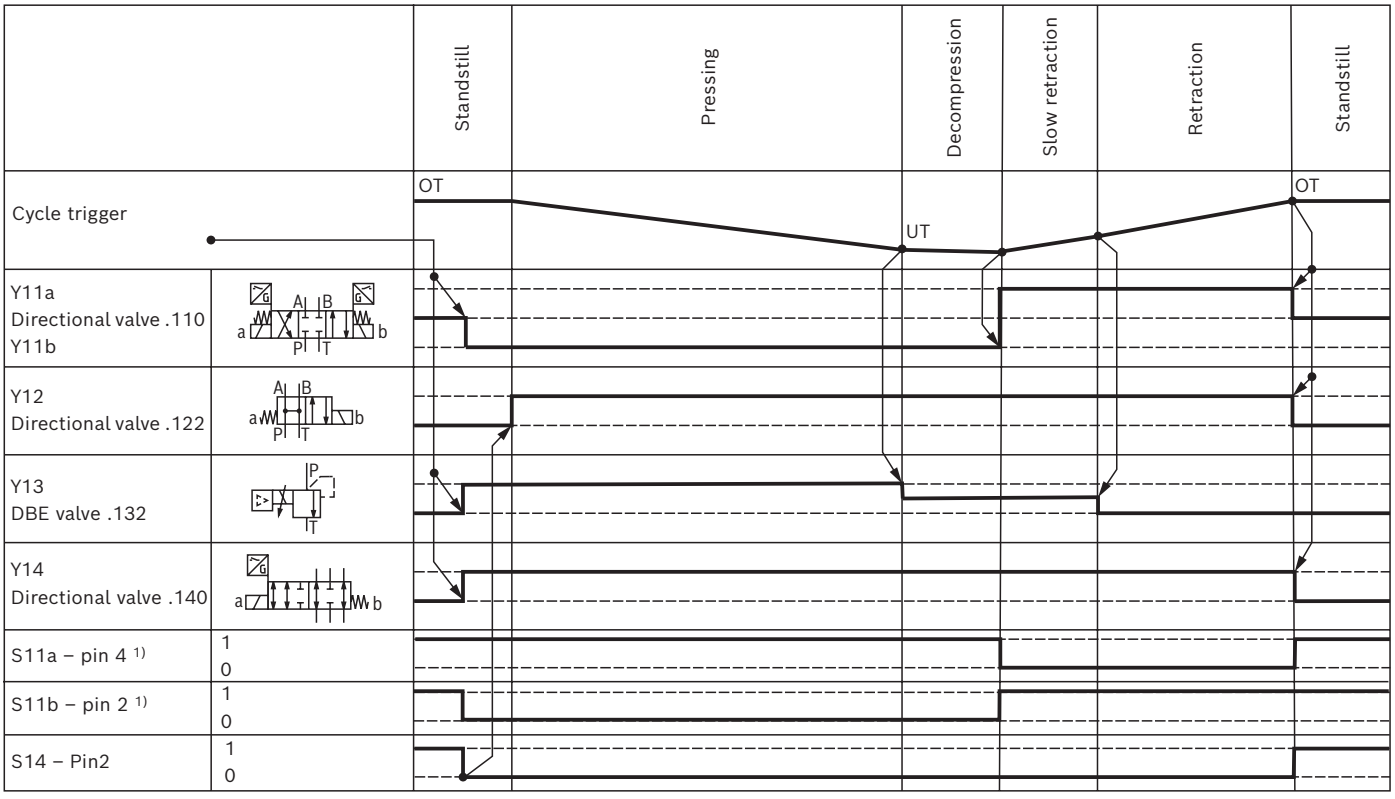
Option 0 – Item 160

During the pressing process, the pressure relief valve item 160 compensates the load holding pressure on the annulus area side. The pressure relief valve item 160 is to be set so that the cylinder piston does not drop during standstill:

- When the set pressure is exceeded, the pressure relief valve item 160 will open to the tank.
- When the set pressure is no longer reached, the pressure relief valve item 160 will close.

Basic functions according to safety category 4 (EN ISO 13849-PLe):

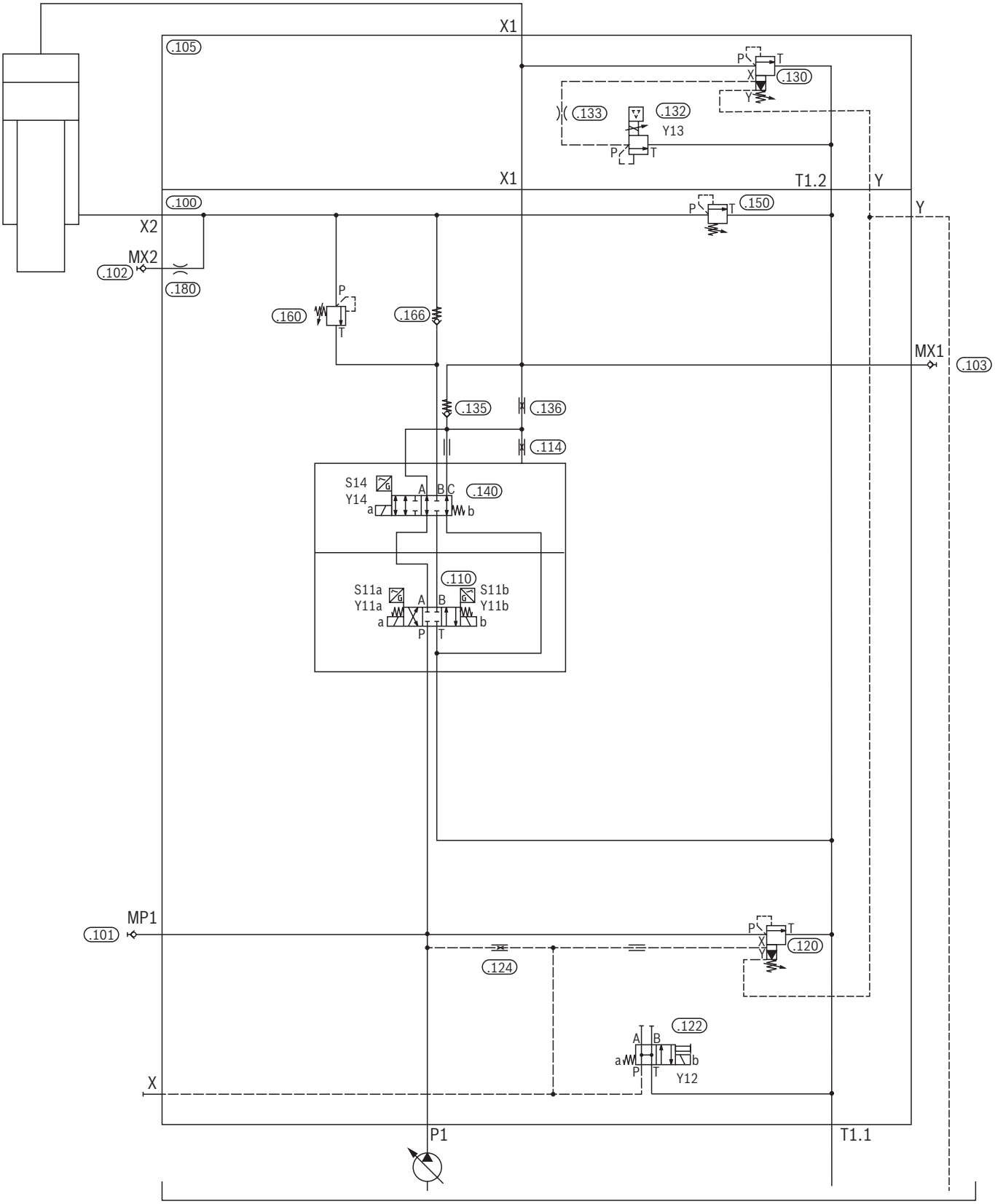
IH04DS-1X/...G2-WE0R-WE-000E-NN-G24



1) On the example NG6, 4WE6E6X/EG24K4QR0G24S

Basic functions according to safety category 4 (ISO 13849-PLe):

IH04DS-1X/...G2-WE0R-WE-000E-NN-G24



Rapid traverse due to own weight with prefill valve

IH04DS-1X/...G1-WN1N-EEM...E-NN-G24

Option EEM...E – item 110

The movement direction of the cylinder piston is determined by the proportional valve item 110:

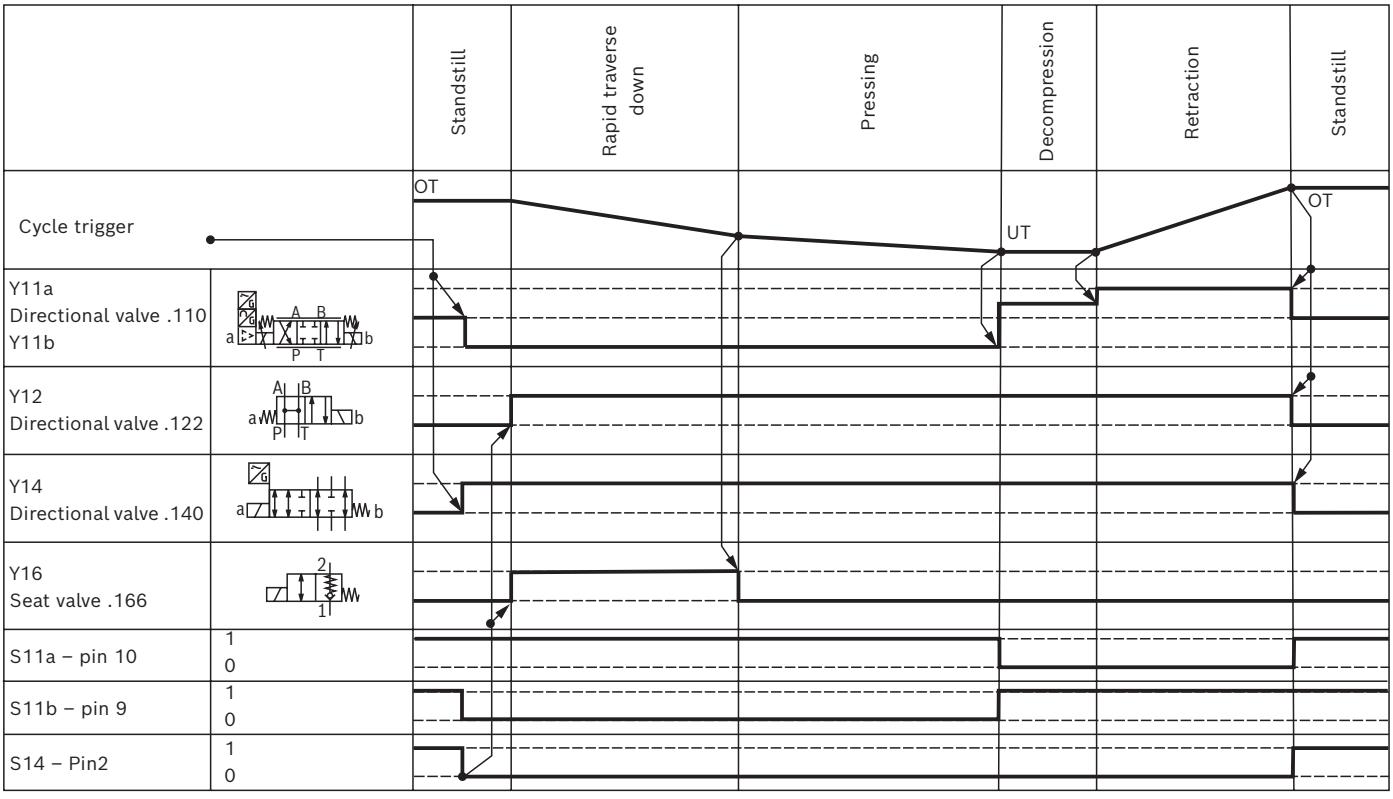
- The cylinder piston is extended with the control signal Y11b.
- The cylinder piston is retracted with the control signal Y11a.
  By means of the position monitoring S11a and S11b, it is monitored whether
- the closed central position is reached in every pressing cycle.
- the movement direction is correct.

The rapid traverse speed and the decompression are realized via the proportional valve item 110.

Option 1 – item 166

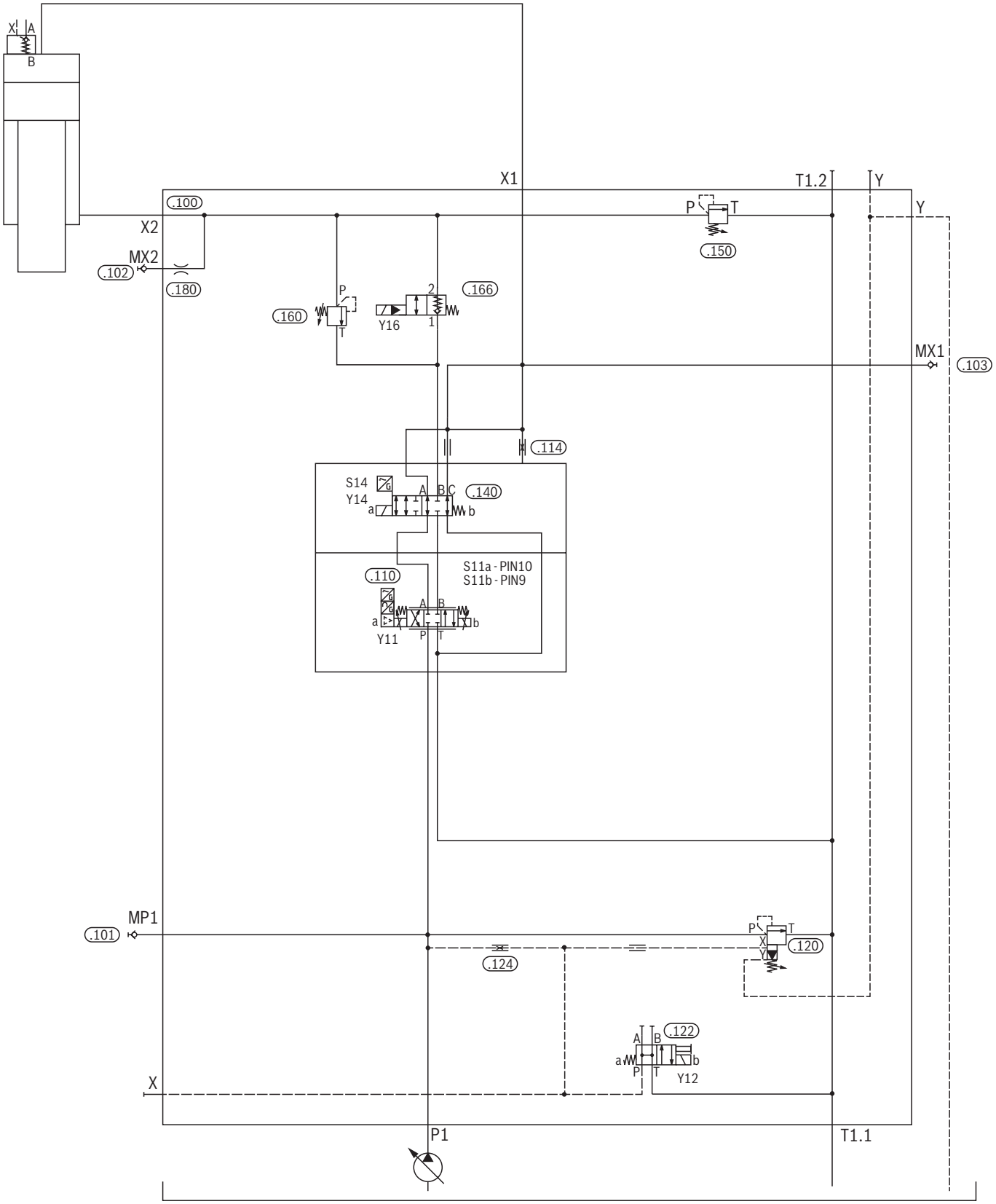
The valve item 166 provides pilot control for the rapid traverse phase and the load holding pressure compensation:

- In basic position, the load holding pressure takes effect
- The rapid traverse phase without load holding pressure takes effect via the Y16 control signal.



Rapid traverse due to own weight with prefill valve

IH04DS-1X/...G1-WN1N-EEM...E-NN-G24



Rapid traverse with rapid traverse cylinder

IH04DS-1X/...G2-MN0S-WE-000E-EN-G24

Option M – functional safety item 120/122 with item 145/146

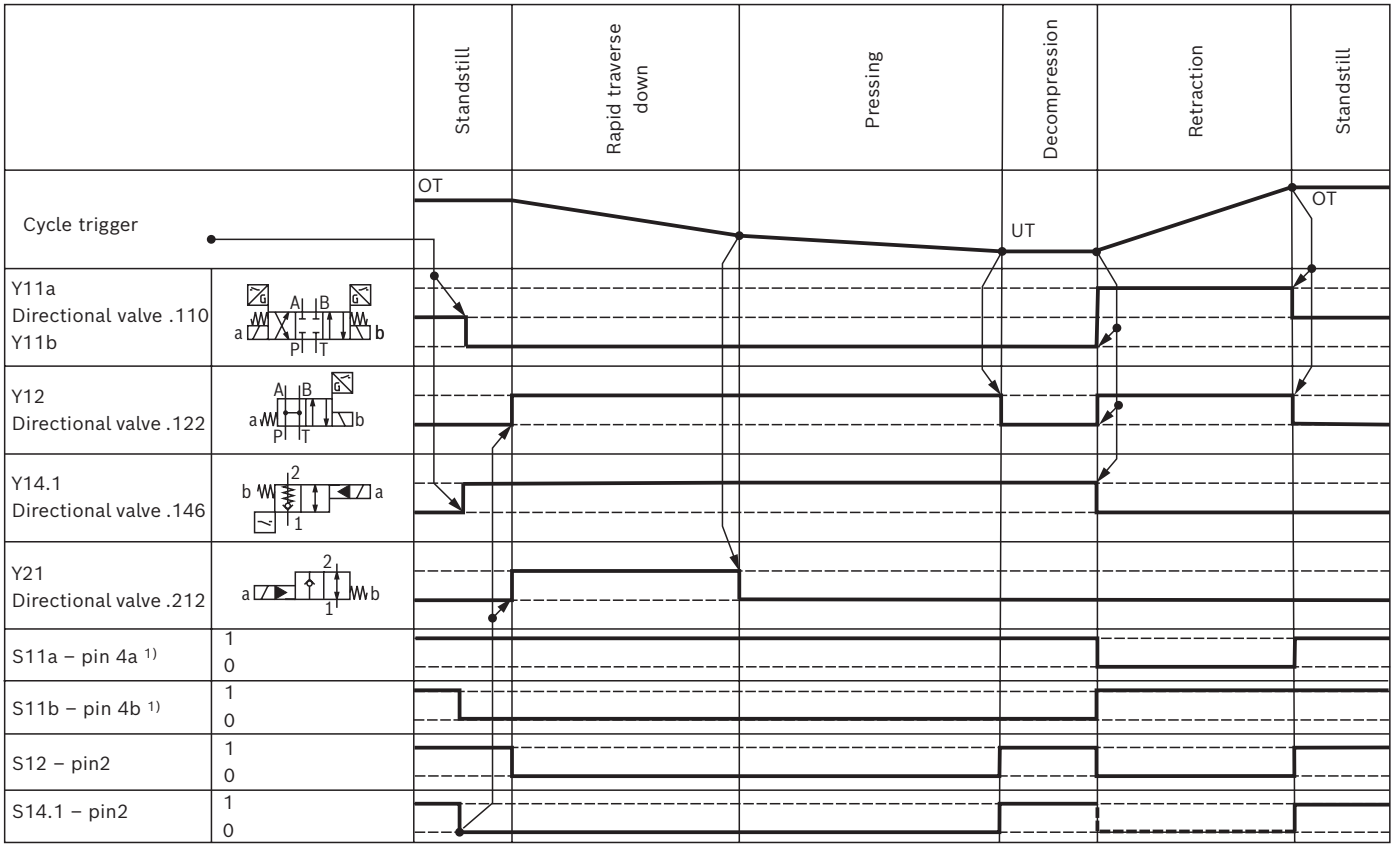
Safe energy separation against unwanted pressure build-up on the piston chamber side is carried out by the directional valve item 120/122 in its basic position.
The safe energy blocking against pressure reduction on the annulus area side is realized by the directional valve item 146 in the basic position.
By means of the electrical position monitoring S12 and S14.1 it can be monitored whether the basic position is reached in every pressing cycle. During muting (e.g. during retraction), solenoid Y14.1 (S14) must be switched off.

Option S – item 135/136

The throttle valve item 136 determines the decompression time.

Option EN – item 210

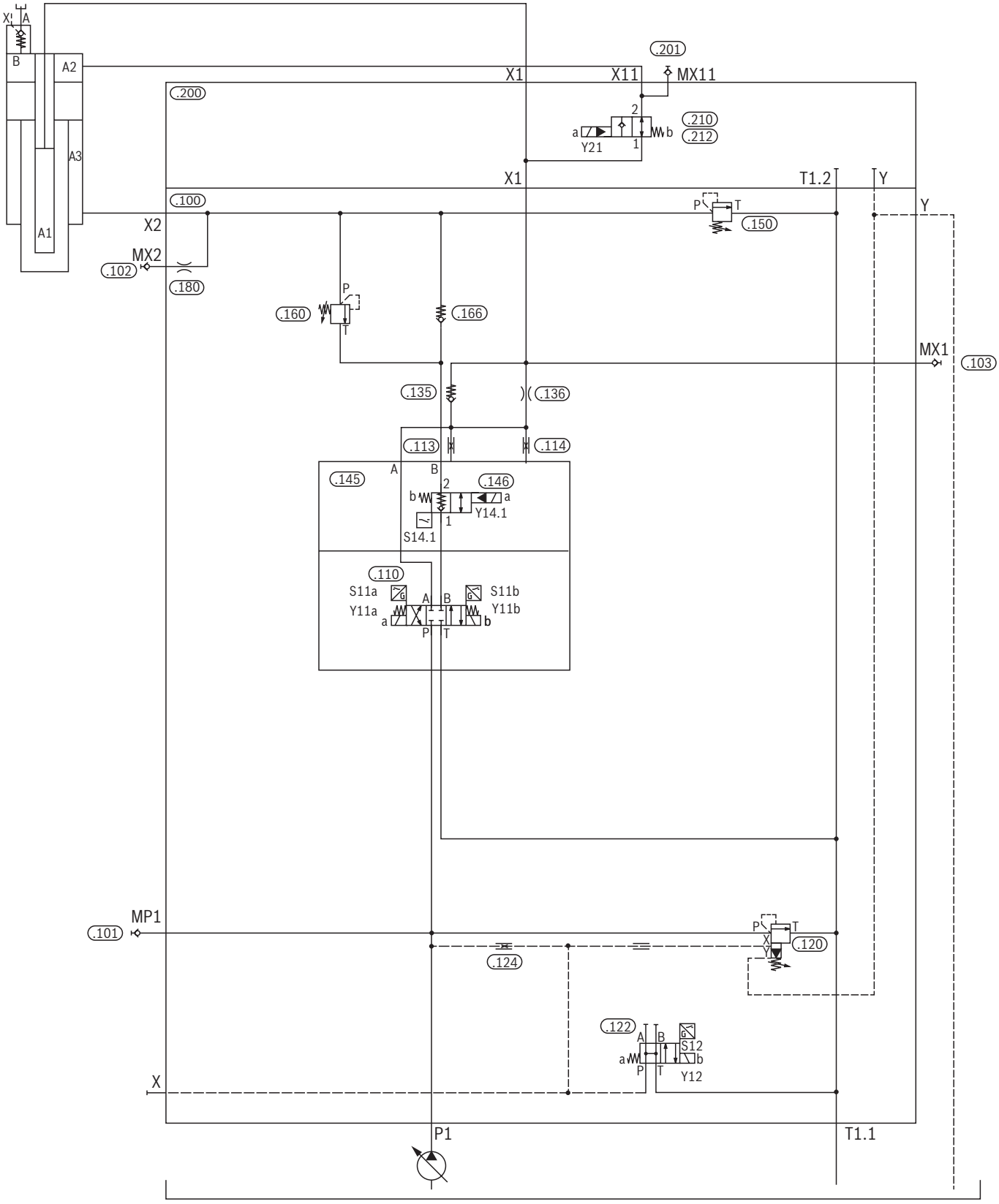
The valve item 210 separates the piston chamber for rapid traverse from the pressing piston chamber.
With energization of the solenoid (Y21 – ON), the valve item 210 closes. The rapid traverse phase takes effect.
After the end of rapid traverse, the seat valve item 210 is de-energized and opened. The press pressure is applied to both piston areas. The end of the pressing process is followed by joint decompression. During retraction, the oil volume flows from the piston chamber for rapid traverse via the valve item 210 to the pressing piston chamber and via the prefill valve to the tank.



1) On the example NG10, 5-4WE10E5X/EG24K4QS0G24W/M

Rapid traverse with rapid traverse cylinder

IH04DS-1X/...G2-MN0S-WE-000E-EN-G24



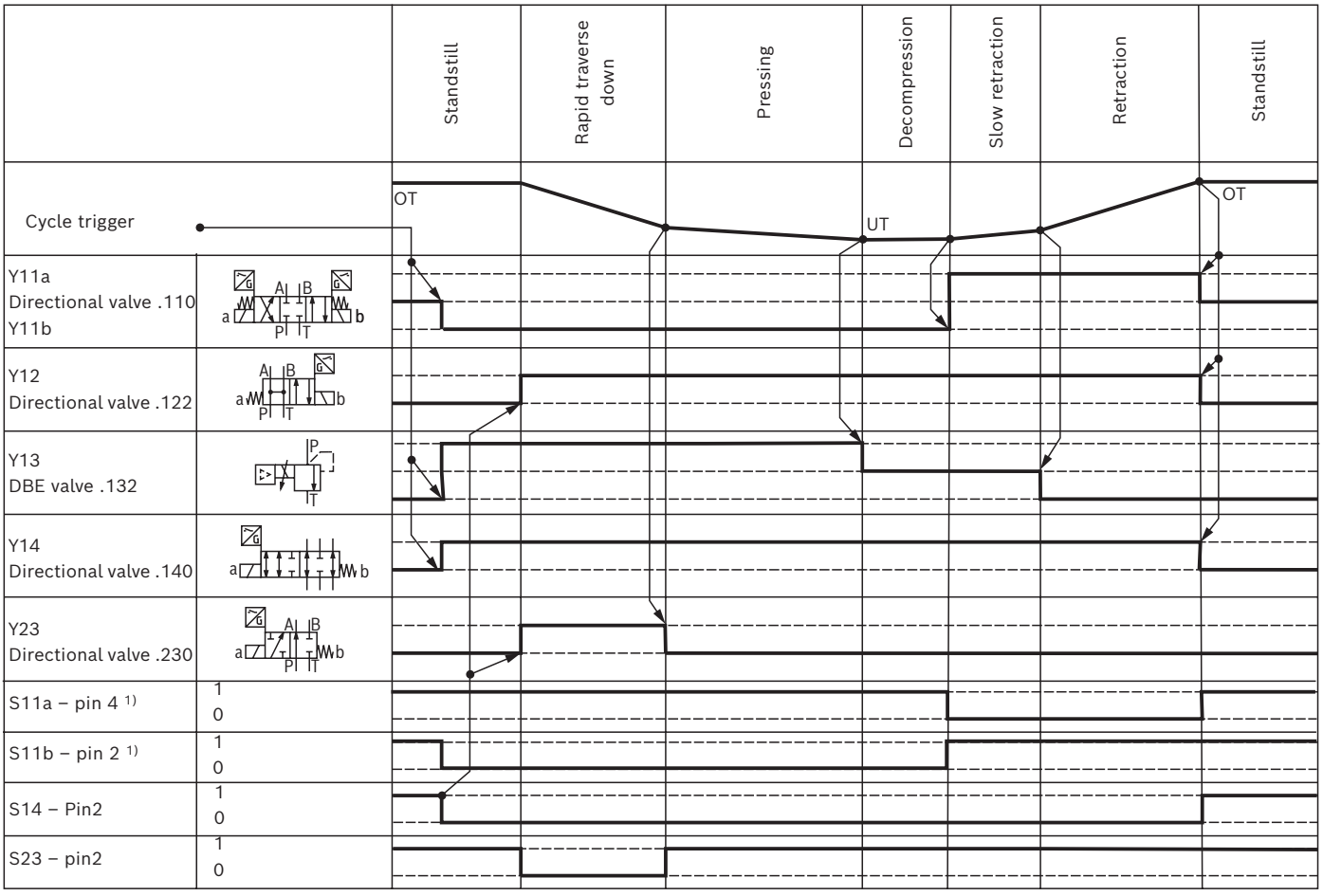
Rapid traverse with regenerative circuit

IH04DS-1X/...G3-WE0R-WE-000E-DN-G24

Option DN – Item 230

The valve item 230 controls for the rapid traverse and the pressing process:

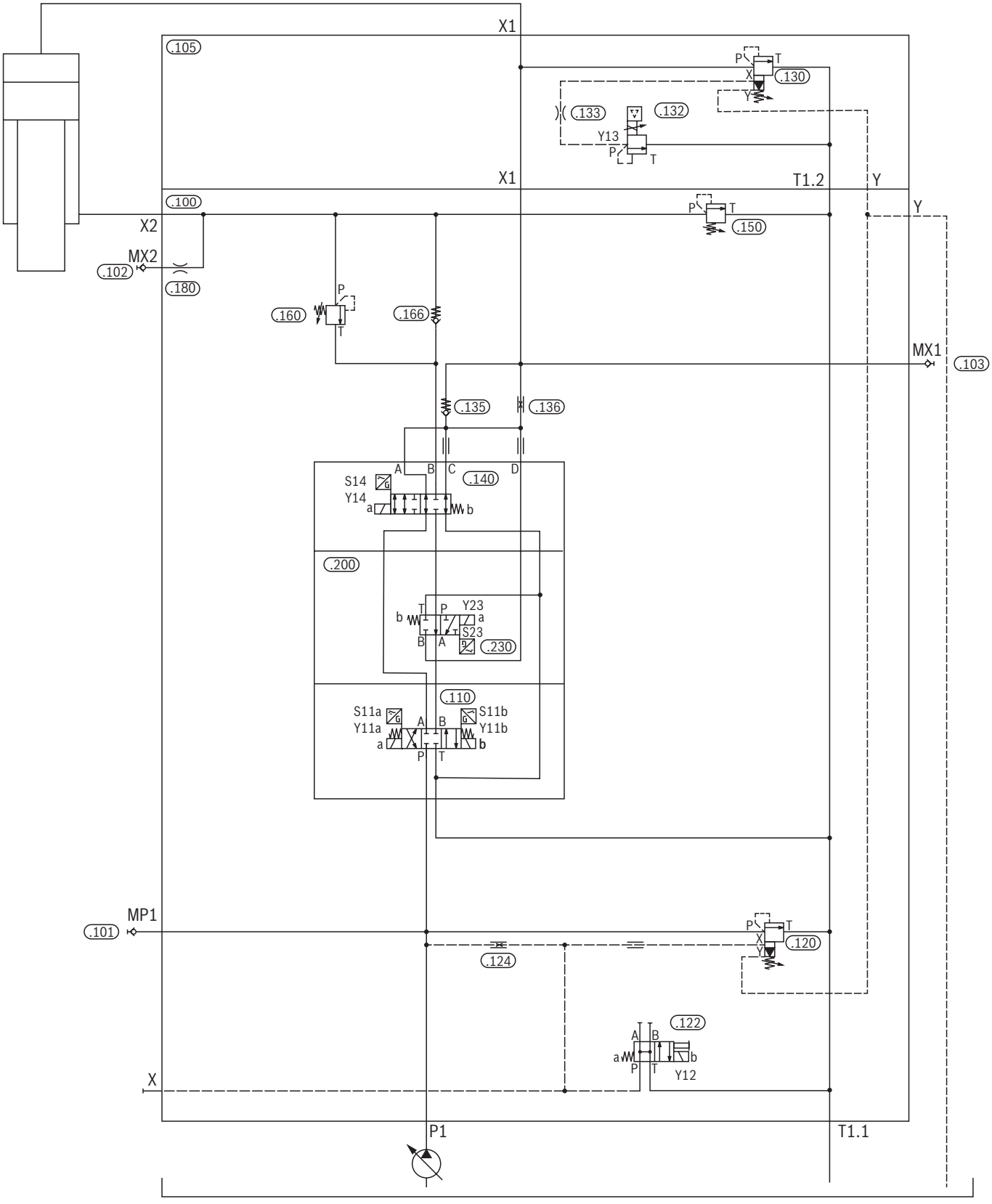
- due to energization of the solenoid (Y23 – ON), the load holding pressure takes effect during rapid traverse via the directional valve item 230 from the annulus area to the piston chamber.
- in basic position (Y23 – OFF), the load holding pressure takes effect during the pressing process via the directional valve item 230 from the annulus area to the tank.



1) On the example NG6, 4WE6E6X/EG24K4QR0G24S

Rapid traverse with regenerative circuit

IH04DS-1X/...G3-WE0R-WE-000E-DN-G24



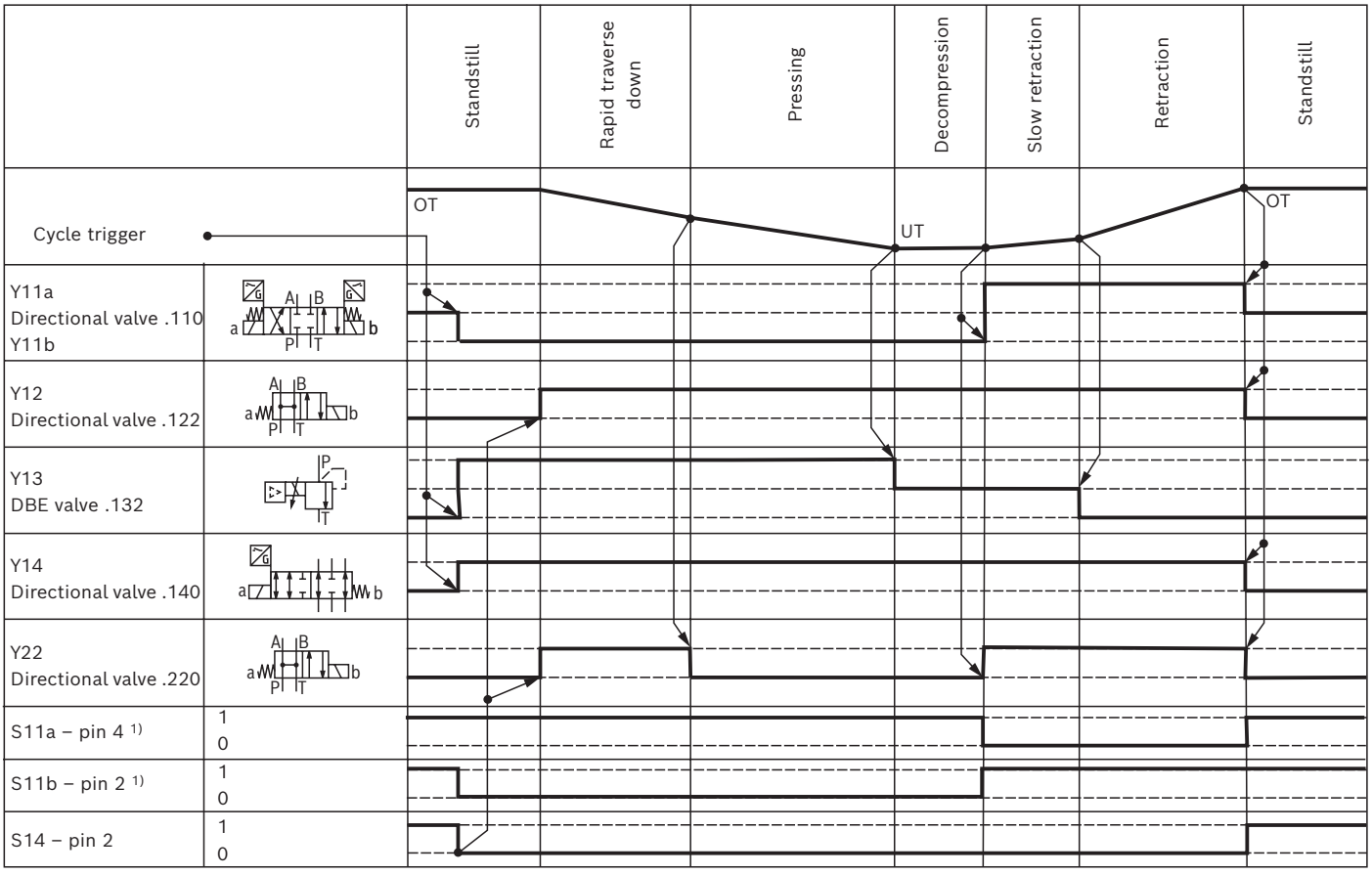
Operation with high- and low-pressure pumps

IH04DS-1X/...G3-WE0R-WE-000E-HN-G24

Option HN – Item 220

The pressure relief valve item 220 limits the pressure of the low-pressure motor pump station (hydraulic energy supply). The low pressure is set at the pressure relief valve item 220. The on/off valve item 222 provides pilot control of the pressure relief valve item 220.

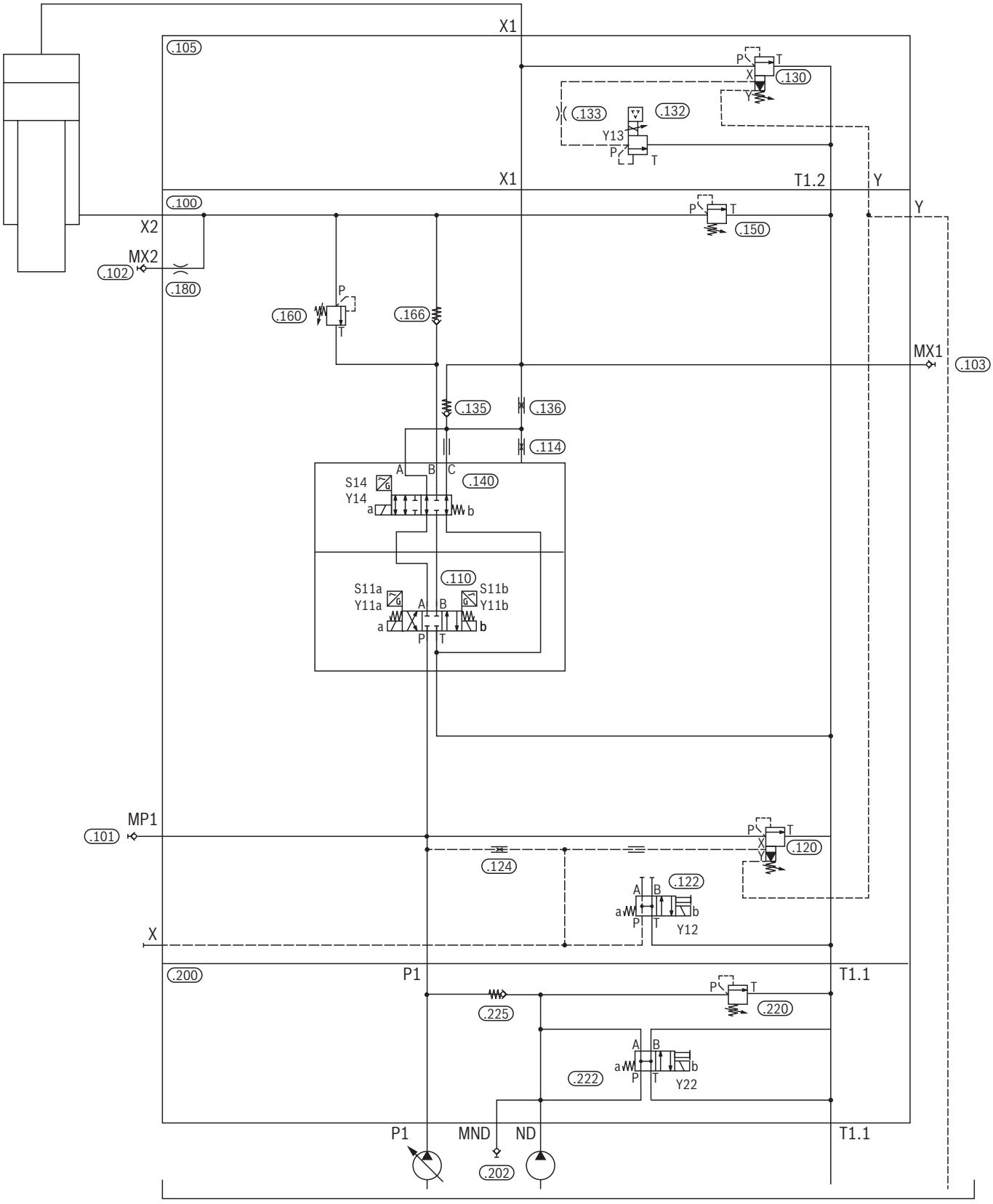
In its basic position, the pressure relief valve item 220 is switched to depressurized circulation.
Energization of the solenoid Y22 causes the pressure set at the pressure relief valve item 220 to become effective.
The check valve item 225 separates the high-pressure and low-pressure circuits.



1) On the example NG6, 4WE6E6X/EG24K4QR0G24S

Operation with high- and low-pressure pumps

IH04DS-1X/...G3-WE0R-WE-000E-HN-G24



Load-sensing

IH04DS-1X/...G3-BE0R-EEM...E-LN-G24

Option B – Item 120

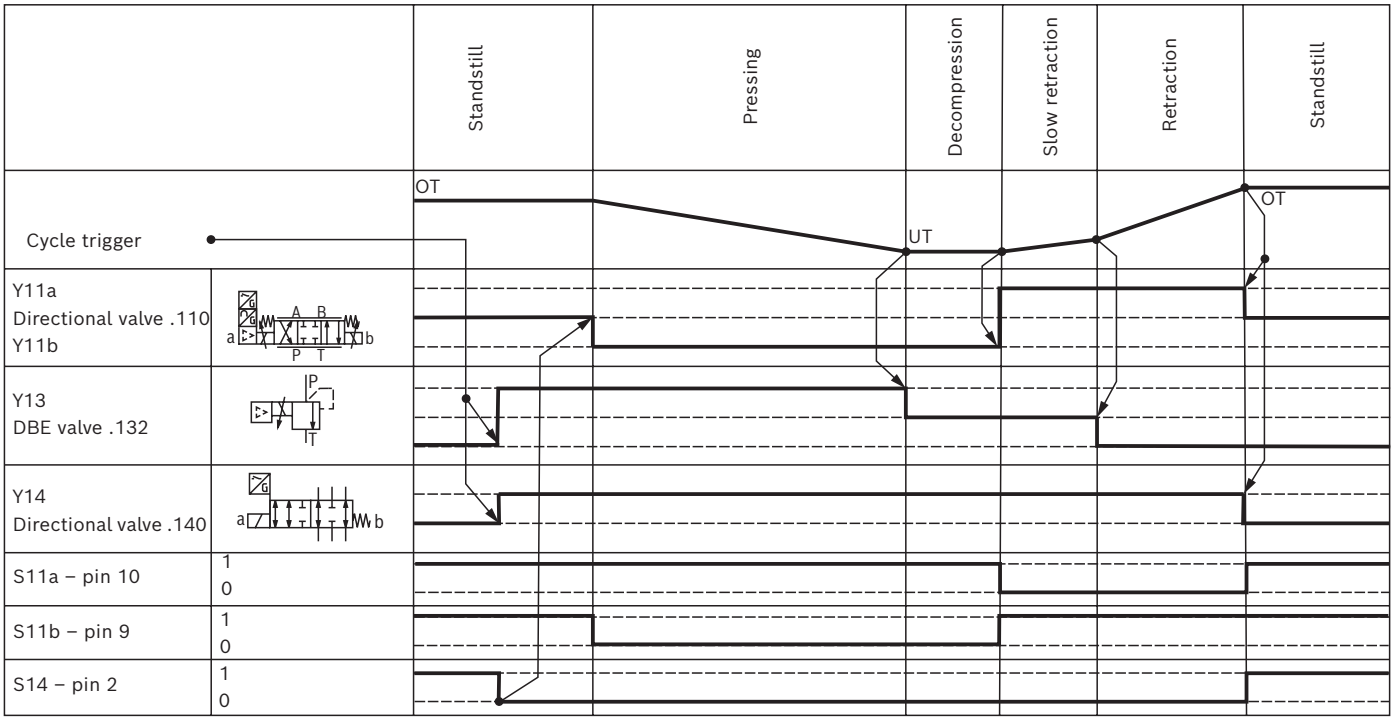
The pressure relief valve item 120 is used for the pressure limitation of the motor pump station (hydraulic energy supply). At the pressure relief valve in item 121, the maximum operating pressure is set.

Option EEM...E – item 110

The stepless flow adjustment of the pump and the movement direction of the cylinder piston are determined by the proportional valve item 110.

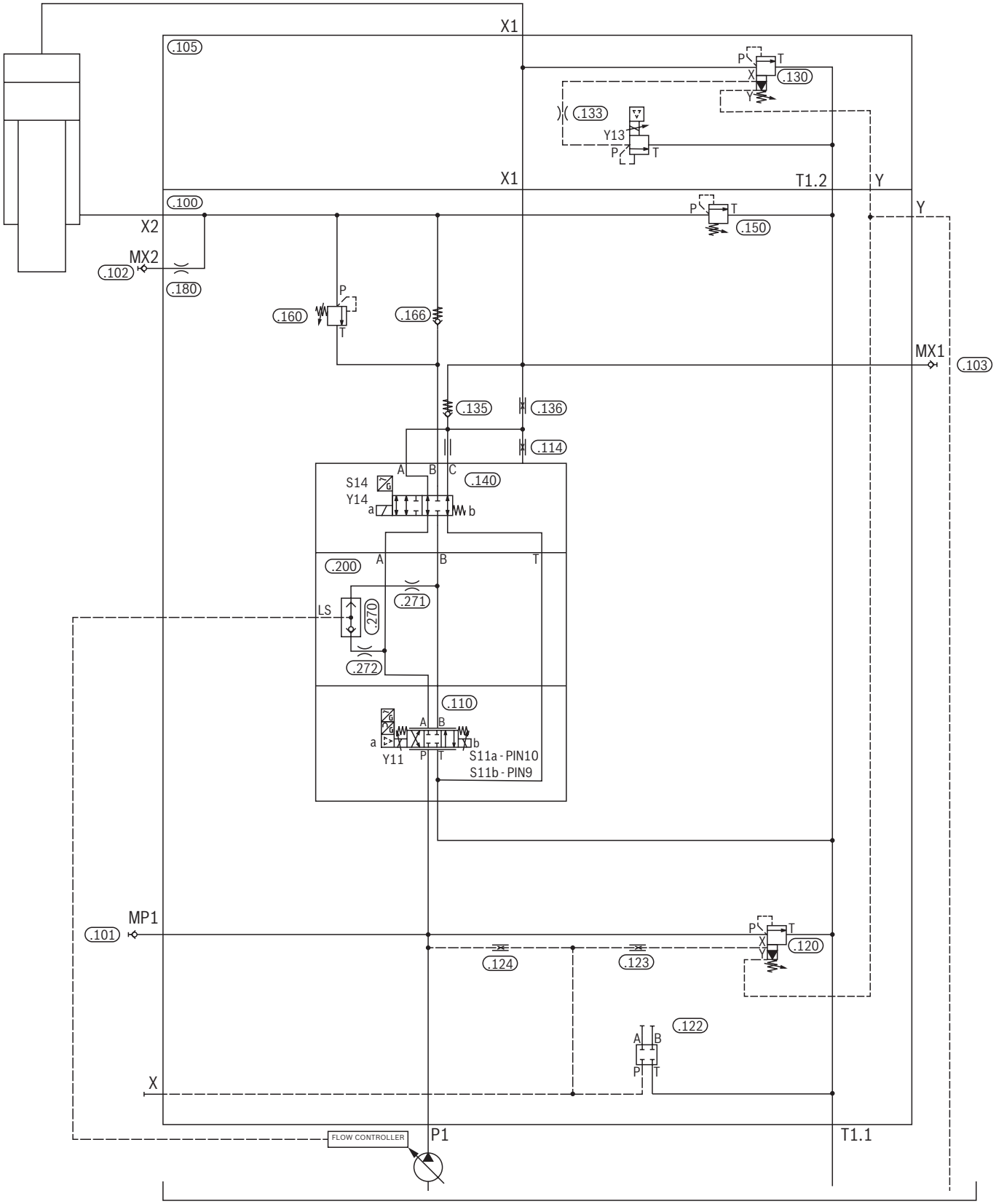
Option LN – Item 270

The highest pressure effective at port A or B of the proportional valve item 110 is connected via the shuttle valve item 270 to the flow controller of the pump.



Load-sensing

IH04DS-1X/...G3-BE0R-EEM...E-LN-G24



High-response valve with zero overlap

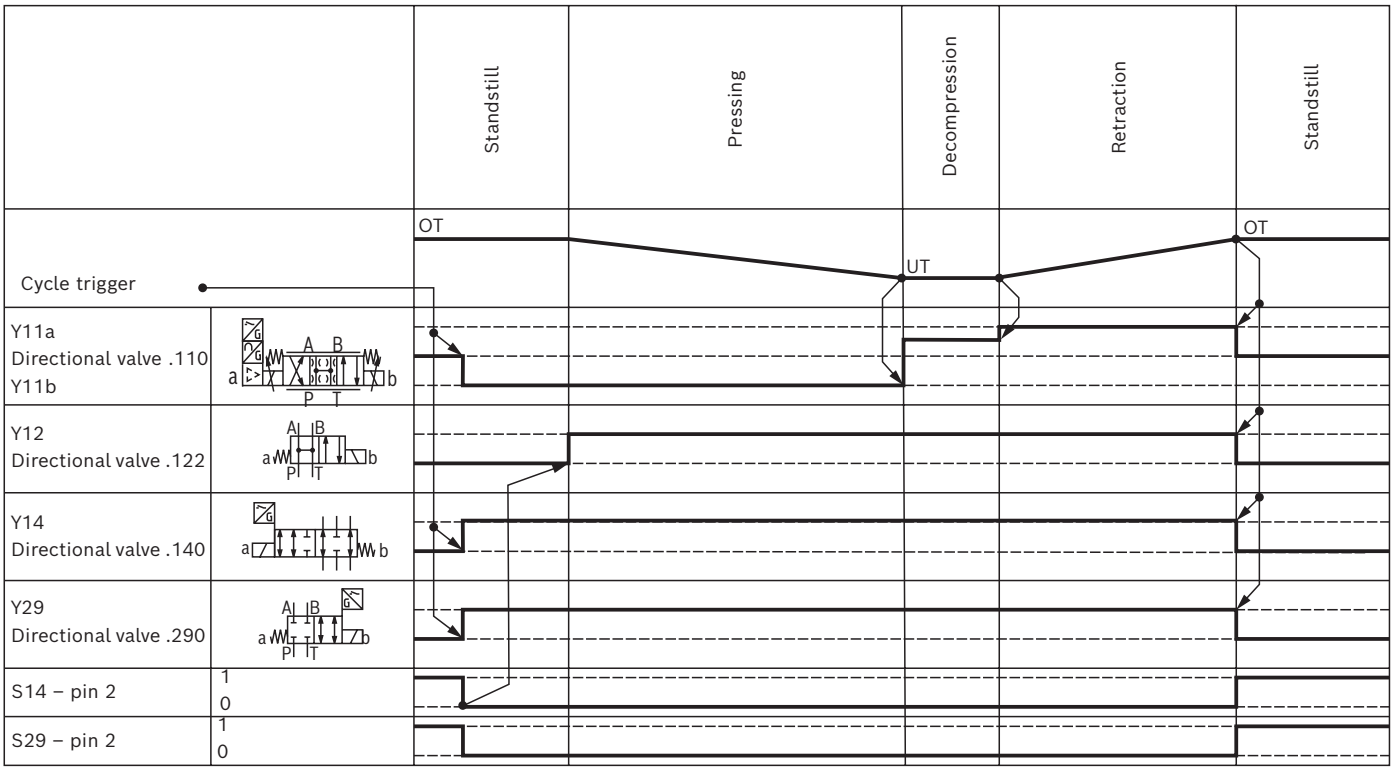
IH04DS-1X/...G2-WN0N-REE...V-RN-G24

Option REE...V – item 110

The stepless flow adjustment and the movement direction of the cylinder piston are determined by the high-response valve item 110. The high-response valve item 110 is recommended for alternating pressure, force, position and velocity controls and has a control spool with zero overlap.

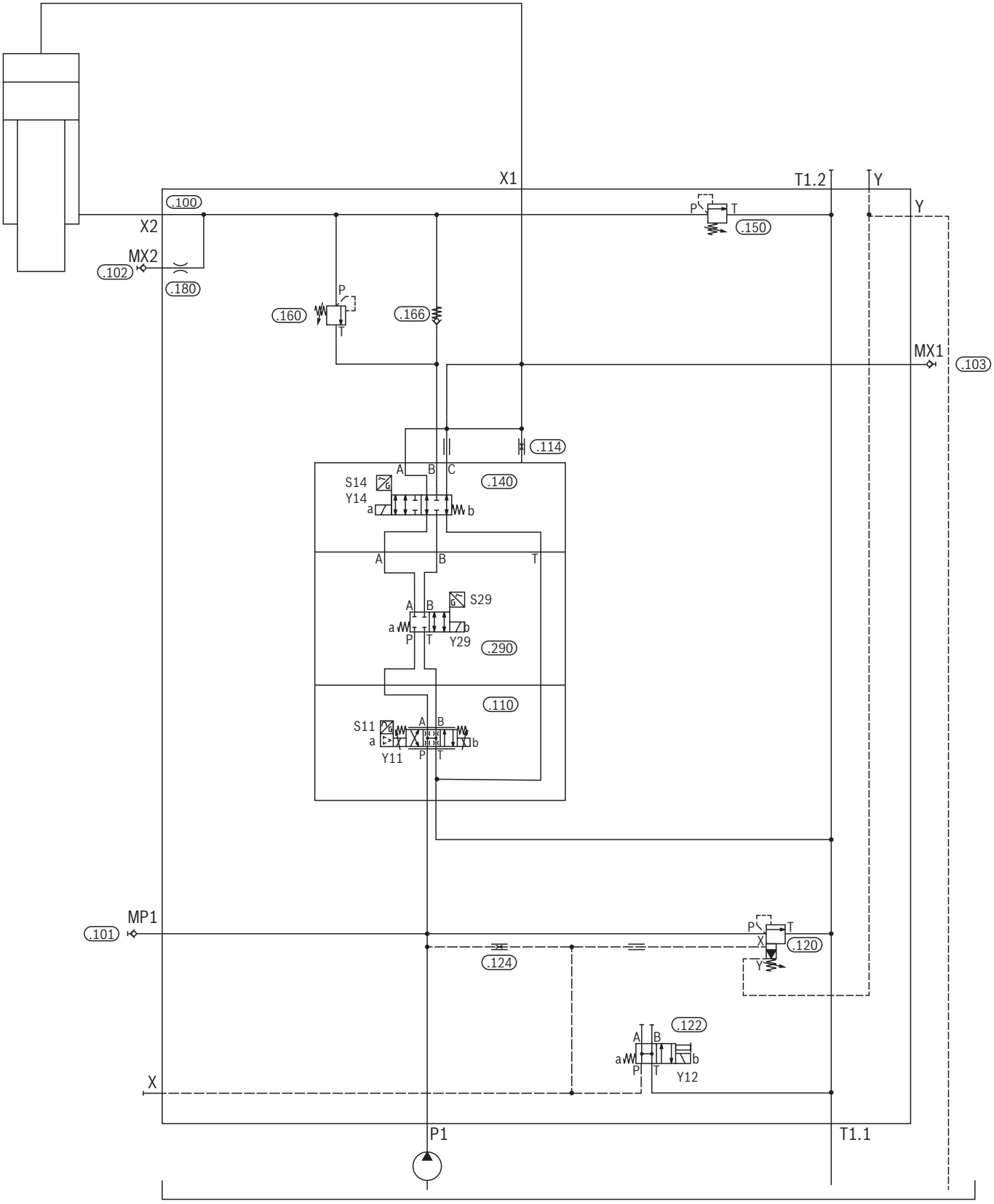
Option RN – Item 290

Safe energy separation against unwanted pressure build-up on the piston chamber side and safe energy blocking against pressure reduction on the annulus area side are realized by the directional valve item 290.
By means of the electrical position monitoring S29 it can be monitored whether the basic position is reached in every pressing cycle. There is no detection of direction.



High-response valve with zero overlap

IH04DS-1X/...G2-WN0N-REE...V-RN-G24



Pressure holding on the piston chamber side

IH04DS-1X/...G3-WD0S-WE-000E-XN-G24

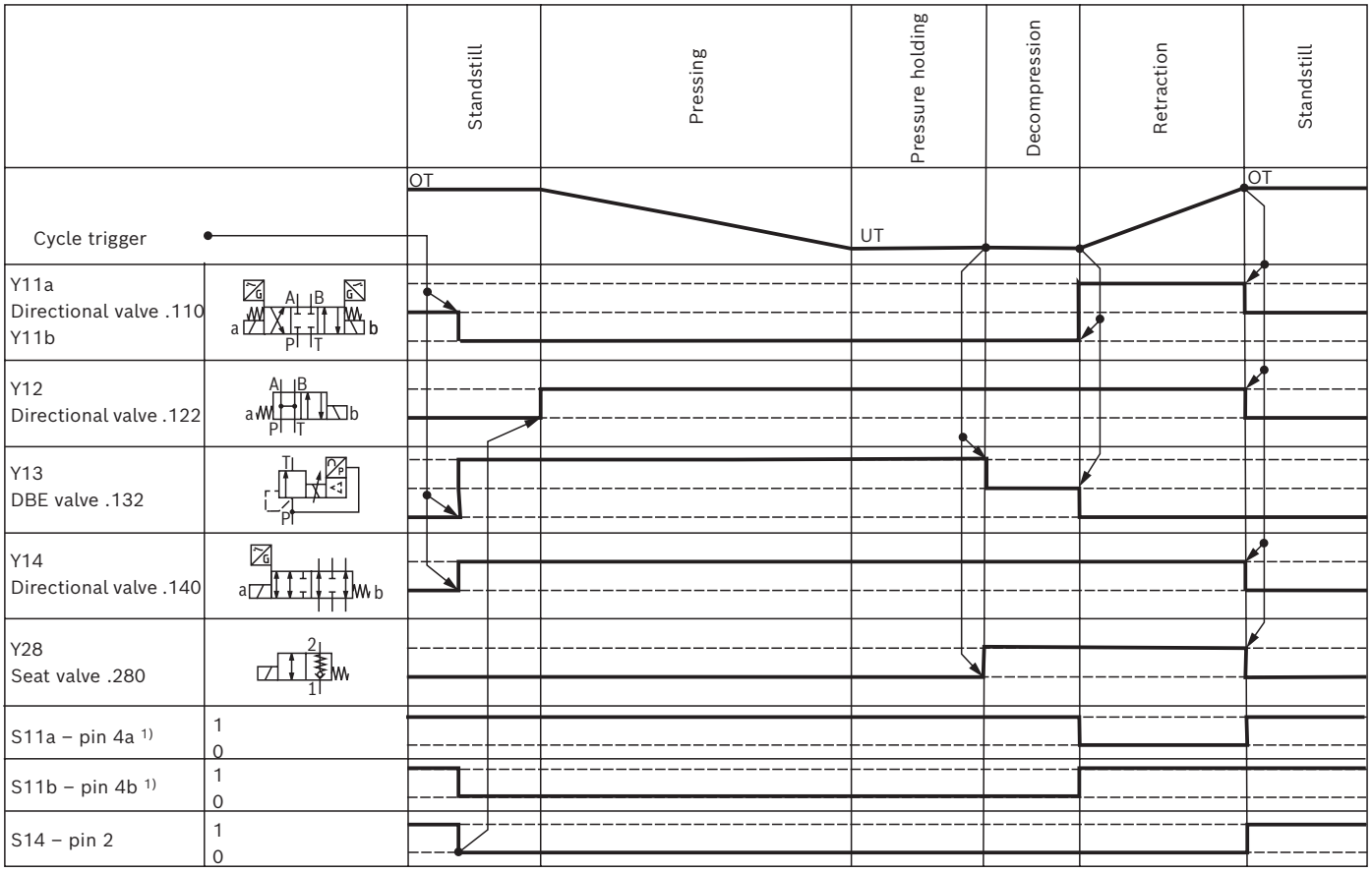
Option D – item 130

The closed-loop controlled proportional pressure relief valve item 132 provides pilot control of the pressure relief valve item 130 and determines the press pressure by means of the control signal Y13 (e.g. press force, decompression, preload during retraction):

- Upon exceedance of the set pressure, the pressure relief valve item 130 will open to the tank.
- When the set pressure is no longer reached, the pressure relief valve item 130 will close.

Option XN – Item 280

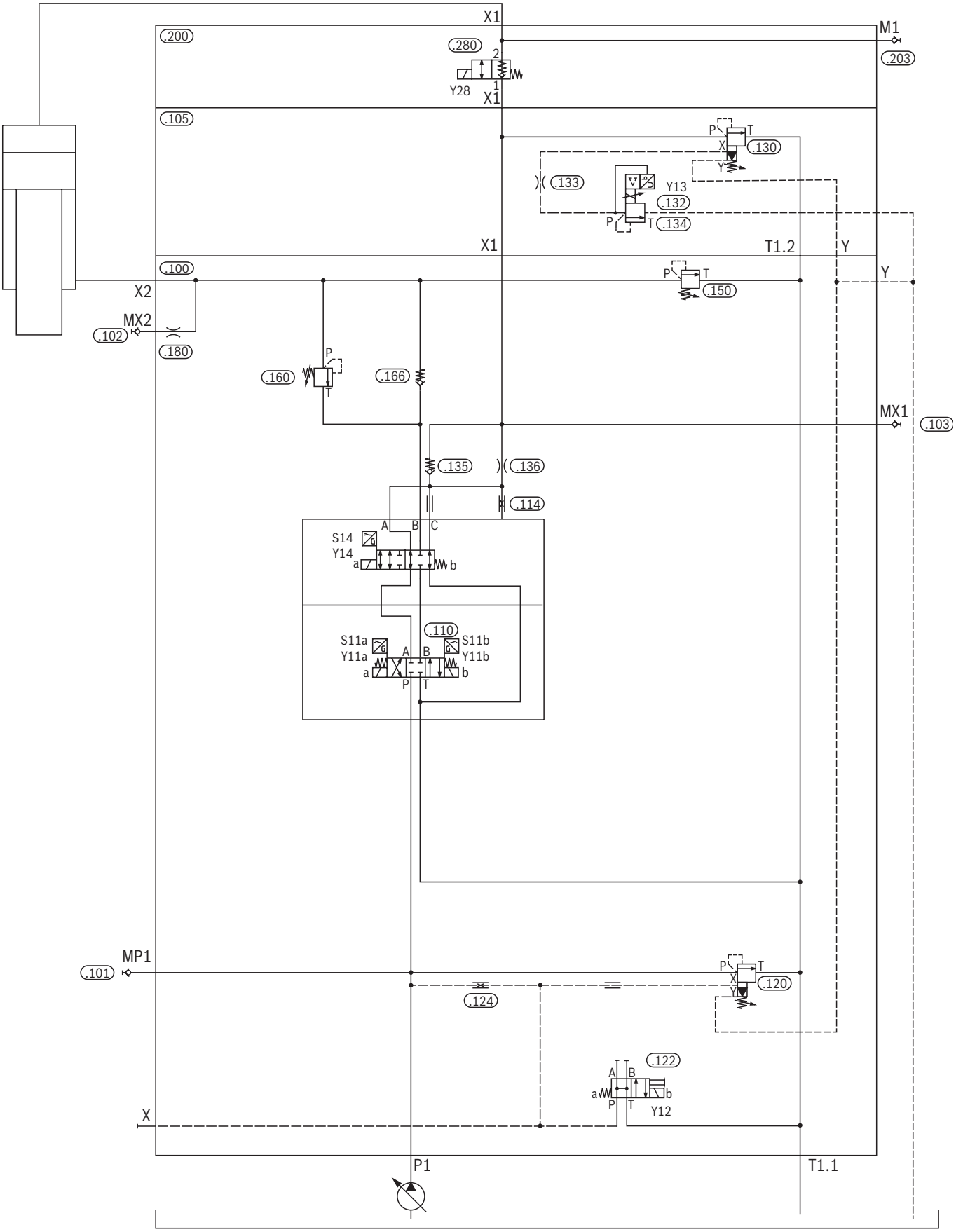
In its basic position, the seat valve item 280 acts as a check valve. The pressure is built up on the piston chamber side of the cylinder up to the system pressure and then maintained in a leakage-free manner. Energization of the solenoid (Y28-ON) opens the seat valve item 280 and the decompression is initiated.



1) On the example NG10, 5-4WE10E5X/EG24K4QS0G24W/M

Pressure holding on the piston chamber side

IH04DS-1X/...G3-WD0S-WE-000E-XN-G24



Slide cushion function

IH04DS-1X/...G3-GE0N-EEM...E-ZN-G24

Option G – item 120

The pressure relief valve item 120 is used for the pressure limitation of the motor pump station (hydraulic energy supply). At the pressure relief valve item 120, the maximum operating pressure is set. The proportional pressure relief valve item 122 remotely controls the pressure at the pump. Energization of the solenoid Y12 causes the operating pressure to take effect and the pump swivels in when the operating pressure is reached.

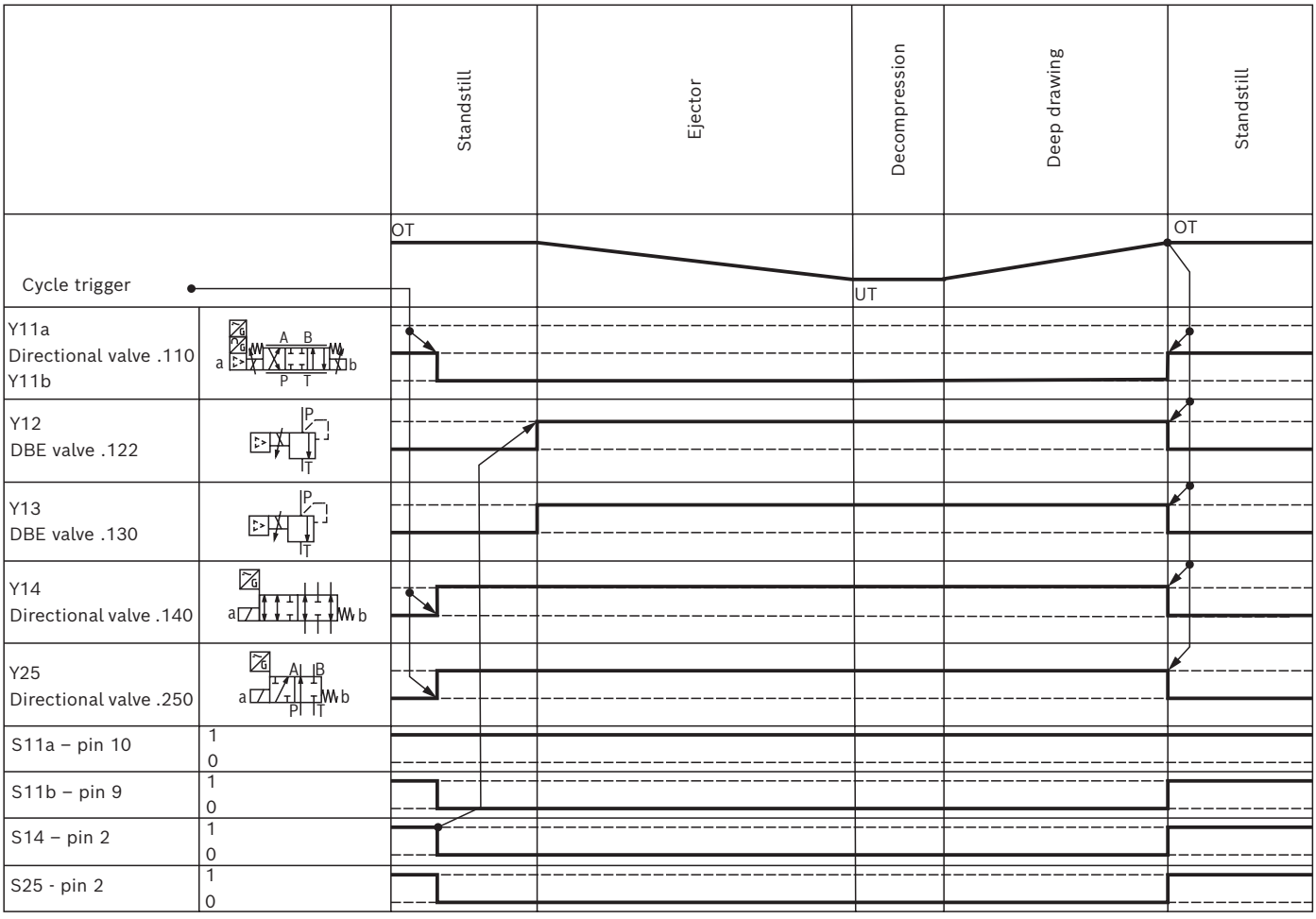
Option ZN – Item 250

The slide cushion function is always performed when the directional valve item 110 is switched in the parallel position.

The on/off valve item 250 (Y25 ON) controls the connection between pump and annulus chamber continuously during the drawing process and refills the annulus chamber.

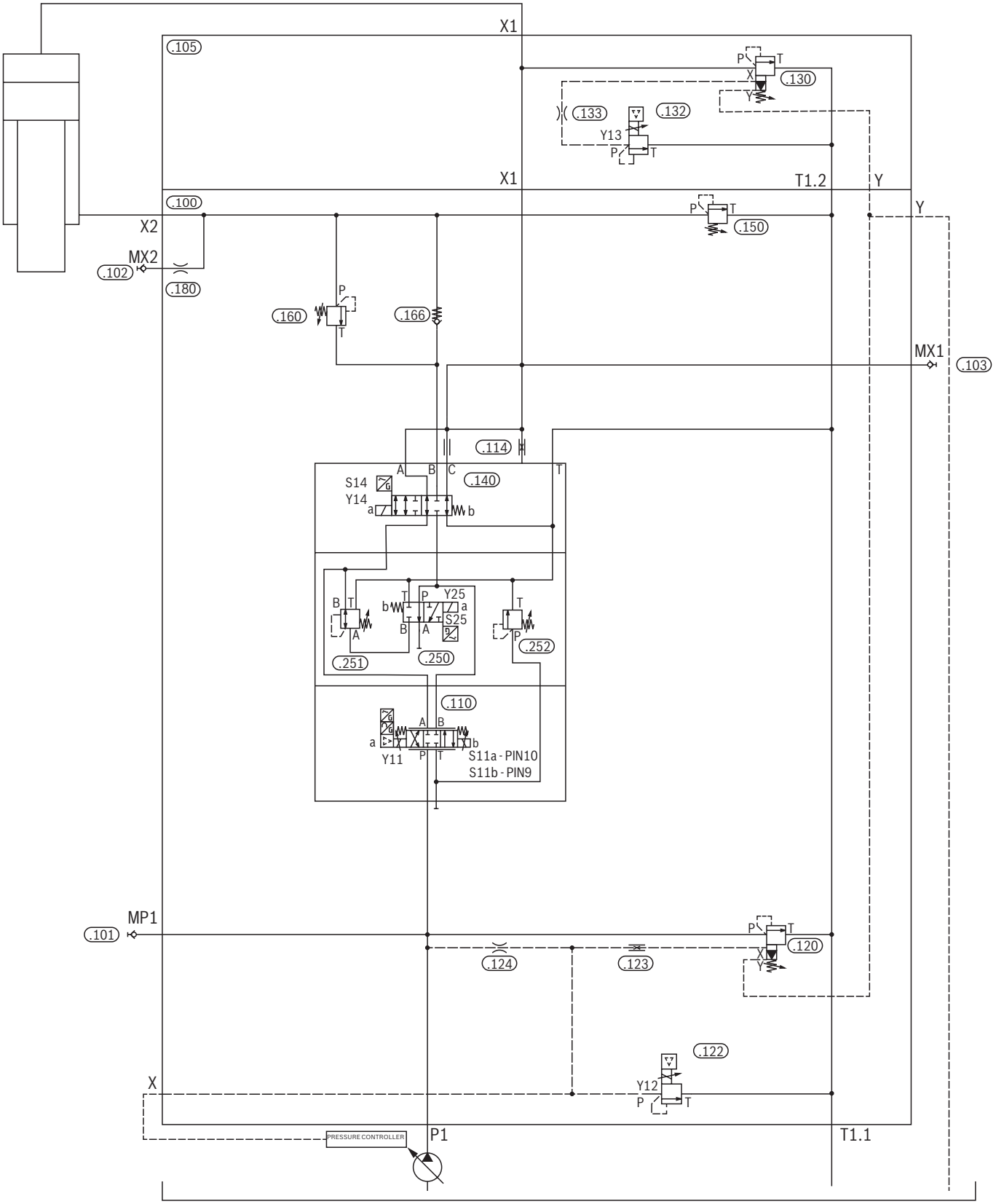
In this way, cavitation of the annulus chamber is actively prevented. The pressure reducing valve item 251 serves as maximum pressure adjustment for refilling of the annulus chamber (e.g. 10 bar). The pressure relief valve item 252 prevents unexpected pressure reduction to the tank.

The pressure of item 252 is to be set higher than item 251.



Slide cushion function

IH04DS-1X/...G3-GE0N-EEM...E-ZN-G24



Basic functions according to safety category 1

IH04DN-1X/...G2-EW0S-WE-000E-NN-G24

Option E – Item 120

The pressure relief valve item 120 is used for the pressure limitation of the motor pump station (hydraulic energy supply). At the pressure relief valve item 120, the maximum operating pressure is set. The proportional pressure relief valve item 122 provides pilot control of the pressure relief valve item 120 and determines the system pressure (e.g. press force, decompression):

- When the set pressure is exceeded, the pressure relief valve item 120/121 will open to the tank.
- When the set pressure is no longer reached, the pressure relief valve item 120/121 will close.
  With a control signal (Y12) of 0V at the proportional pressure relief valve item 122, the pressure relief valve item 120 will switch to depressurized circulation.

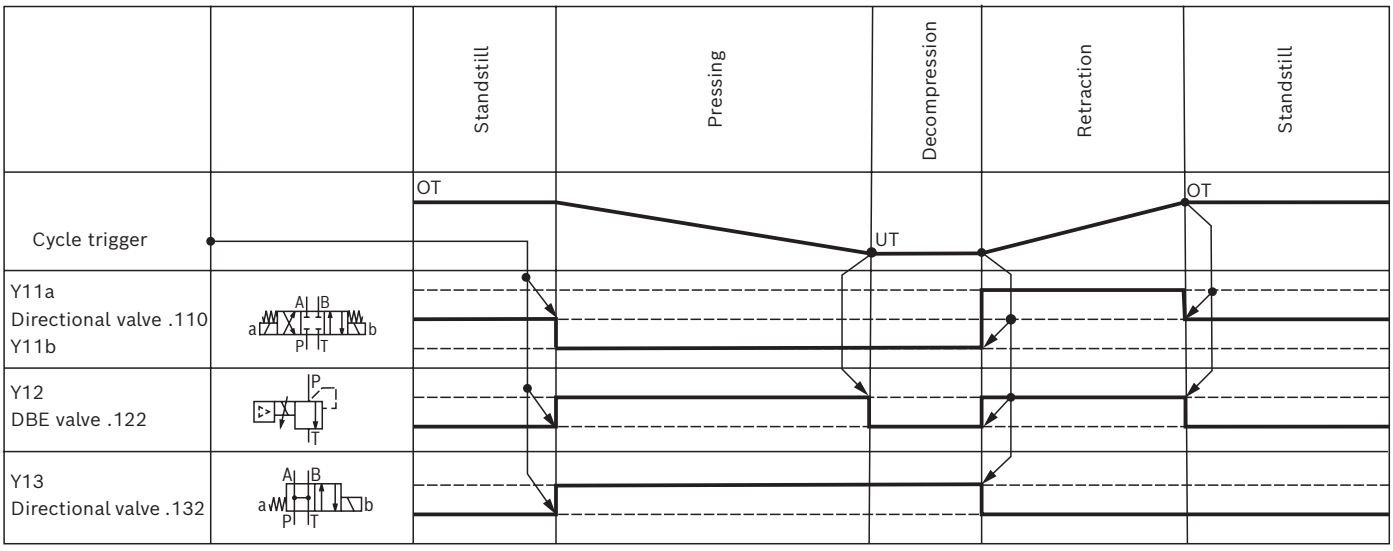
Option WE-000E – item 110

The movement direction of the cylinder piston is determined by the directional valve item 110:

- The cylinder piston extends via the control signal Y11b.
- The cylinder piston retracts via the control signal Y11a.

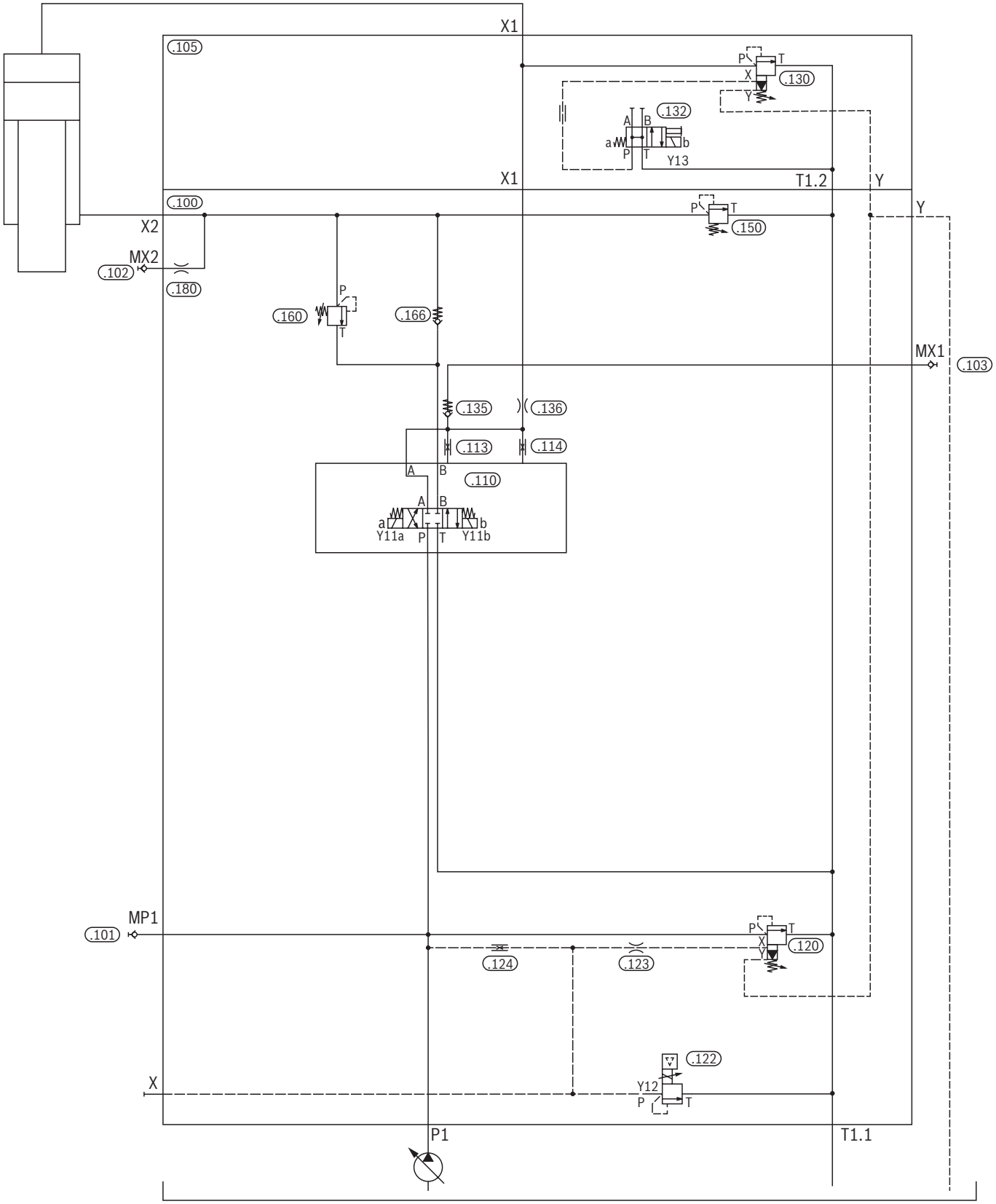
Option W – item 130

The pressure relief valve item 130 serves for pressure limitation on the piston chamber side of the cylinder.
At the pressure relief valve item 130, the maximum press pressure is set.
The on/off valve item 132 provides pilot control of the pressure relief valve item 130. In its basic position, the pressure relief valve item 130 is unloaded and depressurized to the tank. The press pressure set at the pressure relief valve item 130 is effective via the control signal Y13.



Basic functions according to safety category 1

IH04DN-1X/...G2-EW0S-WE-000E-NN-G24



General information

Port sizes

Port	IH04D-1X/06	IH04D-1X/10
P1	G½	G¾
T1.1, T1.2	G1	G1½
X1	G¾	G1¼
Plate 210 - X1, X11	G½	G¾
X2	G½	G¾
X, LS1	G¼	G¼
Y	G¼	G½
ND	G½	G¾

Recommended pump versions

IH04DS-1X/...-NN, EN, DN, HN, RN, XN und ZN

Pump version	Data sheet	Features
A4VSO...LR2	92050	With mechanical power limitation
A4VSO...LR2G	92064	With mechanical power limitation and remote-controlled pressure cut off [1]
A4VSO...LR2D		With mechanical power limitation and manual pressure cut off
A4VSO...LR2N	40 ccm	With mechanical power limitation and hydraulic stroke adjustment [2]
A4VSO...LR2NT		With mechanical power limitation and hydraulic stroke adjustment with integrated proportional valve [3]
A4VSO...HS5(n)(P) [4]	92050	Power, pressure and flow control and speed variability [6]
A4VSO...HS5(P)V [5]	92076	Power, pressure and flow control with servo valve and with internal set pressure supply
A4VSO...HS5(P)M	40 ccm	Power, pressure and flow control with servo valve and for use under fluid
A4VSO...HS5E(P) [4]		Power, pressure and flow control with servo valve and digital on-board electronics
A4VSO...HS5E(P)V [5]		Power, pressure and flow control with servo valve, digital on-board electronics and internal set pressure supply
A10VSO...DFR1/31	92711	With pressure cut off [1]
A10VSO...DFLR1/31	45 ccm	With mechanical power limitation and manual pressure cut off [1]
A10VSO...DRS/32	92714	With mechanical power limitation and remote-controlled pressure cut off [1]
A10VSO...LA...D/32	45 ccm	With mechanical power limitation
A10VSO...LA...DS/32		With mechanical power limitation and remote-controlled pressure cut off [1]
SY(H)DFEF [5]	30030 30630	Power, pressure and flow control with field bus interface and speed variability [6]
SY(H)DFED(n) [5]	30035 40/45 ccm	Power, pressure and flow control with field bus interface
PGH	10227	Fixed displacement with speed variability [6] Up to 63 ccm

1) DBETE (data sheet 29162). Installation in the press module type D available under option G – item 120
2) Separate order 3DREPE6A-2X/45...A1
3) Only suitable for motor design B35
4) External pilot oil supply required
5) Internal pilot oil supply for pressure control above 20 bar, with preload block below 20 bar
6) Asynchronous motor MOT-FC - DCCS10601-2 and frequency converter EFC5610 - DCCS-41044-11

Recommended pump versions

Pump versions for pressure holding on the piston chamber side without extension module XN item 200

Pump version	Data sheet	Features
A4VSO...DFR1	92050	40 ccm
A10VSO...DFR1/31	92711	45 ccm
A10VSO...DFR1/31	92714	

For the pressure remote control, separate order DBETE (data sheet 29162).

Pump versions for IH04DS-1X/...EEM...E-LN

Pump version	Data sheet	Features
A4VSO...LRS2	92064	40 ccm
A10VSO...DFLR/31 [1)]	92711	45 ccm
A10VSO...LA...DS32 [1)]	92714	

The pumps are equipped with mechanical power limitation, load-sensing and remote-controlled pressure cut off.

[1)] With DFLR and LADS controllers, remove the orifice in the X adapter at the pump (flow controller).

☞ **Notice:**
These pump versions can be used for pressure holding on the piston chamber side without extension module **XN**.

Further information

▶ Mating connectors and cable sets for valves and sensors	Data sheet 08006
▶ On/off valves with spool position monitoring	Data sheet 24830
▶ 4/3 proportional directional valves, direct operated, with integrated control electronics, electrical position feedback and spool position monitoring, type 4WREEM	Data sheet 29064
▶ Pressure-controlled proportional pressure relief valve DBETA	Data sheet 29262
▶ Proportional pressure relief valve DBETR	Data sheet 29166
▶ Pressure relief valves, direct operated DBD	Data sheet 25402
▶ Power regulators LR2, LR3 and LR2N for variable displacement pump A4VSO	Data sheet 92064
▶ Axial piston variable displacement pumps A15VSO, A15VLO, series 10	Data sheet 92800
▶ Axial piston variable displacement pump A10VO, series 52 and 53	Data sheet 92703
▶ Axial piston variable displacement pump A10VSO	Data sheet 92714
▶ Control and adjustment systems HM, HS, HS5 and EO	Data sheet 92076
▶ Digital control electronics for axial piston pumps	Data sheet 30237
▶ Controllers DR, DP, FR and DFR	Data sheet 92060

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