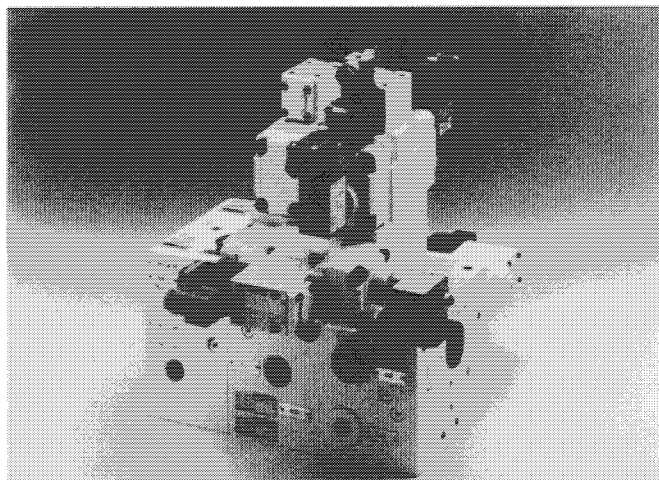


**MANNESMANN
REXROTH****Press Modules, Type M****RE
63 141/01.94**

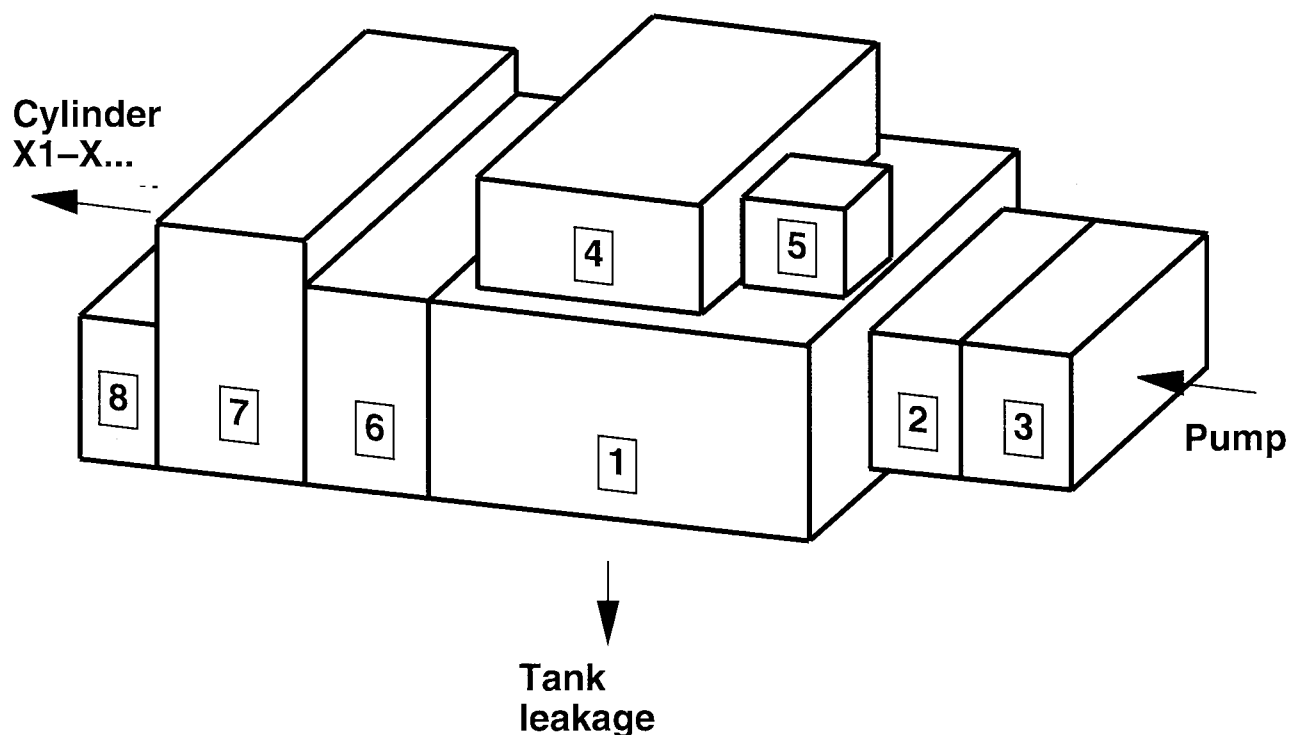
Replaces: 05.91

Up to 400 L/min**Up to 315 bar****Characterisitics**

- The controls which comply with the safety regulations at present applicable in Germany are described on pages 3 to 134.
- Controls **without** safety regulations are described on pages 150 to 167.
- Individual control modules are bolted directly together without any intermediate piping.
- Piping is only required to the actuators, pumps and tanks.
- Control design is easy to understand.
- The valves built on to and into the control manifolds are easily accessible.
- Controls are carefully tested as standard.



H/A 2468

System illustration

A press control can consist of a maximum of control modules 1 to 8.
A complete control always contains modules 1 and 7.

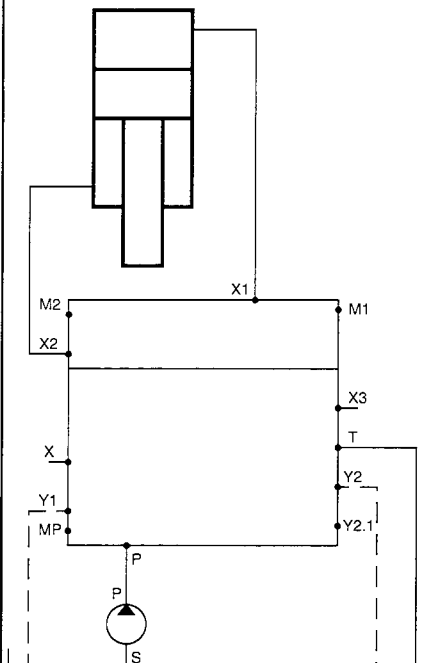
Table of Contents

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General Safety regulations, description, installation, commissioning	4 and 5					
Technical data	6 and 7					
Ordering code	8 and 9					
Resistance to flow	10 and 11					
Typical examples	12 to 47					
Typical examples – do not comply with U.V.V. ¹⁾	150 to 153					
Press modules: schematic diagrams, ordering codes	48 to 167					
Function	Size 6	Size 10	Size 12	Size 16	Size 20	Size 25
Module 1	48 and 49	57 to 60	72 to 75	86 to 89	100 to 103	115 to 122
Module 1 – does not comply with U.V.V. ¹⁾	154	156 and 157	159	161 and 162	164	166
Module 2	On enquiry					
Module 3	50	61 and 62	76	90 and 91	104	123
Module 4	51	63	77	92	105	124
Module 5	64 and 65					
Module 6	52			93		125 and 126
Module 6 – does not comply with U.V.V. ¹⁾	155	158	160	163	165	167
Module 7	53 to 56	66 to 71	78 to 85	94 to 99	106 to 114	127 to 134
Module 8	On enquiry					

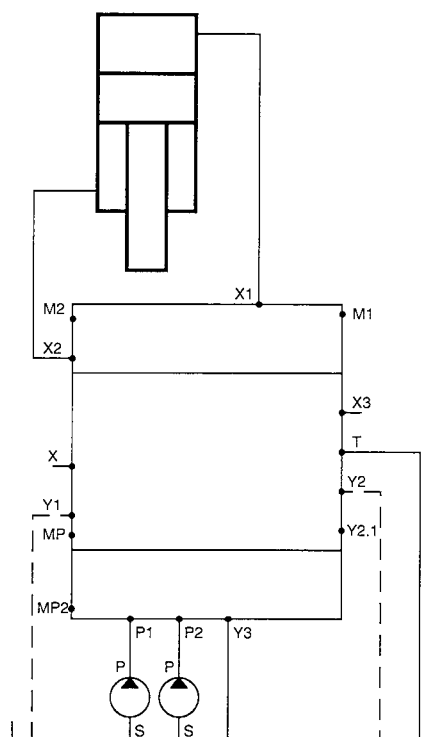
¹⁾ U.V.V = German accident prevention regulations (see page 4 – safety regulations)

Pre-selection

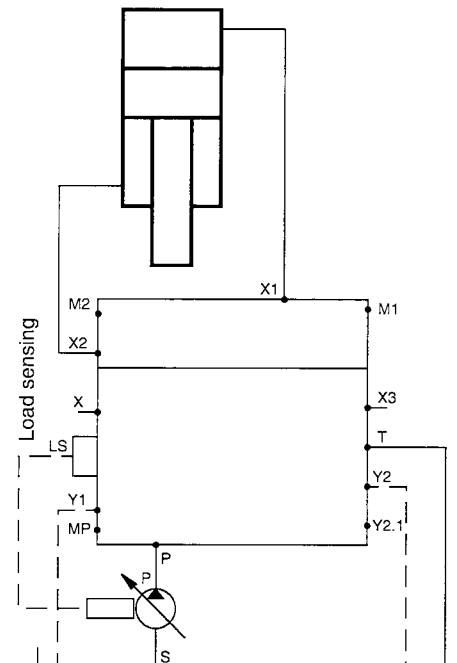
For typical examples see pages 12 to 15
For differential circuits see pages 22 to 25



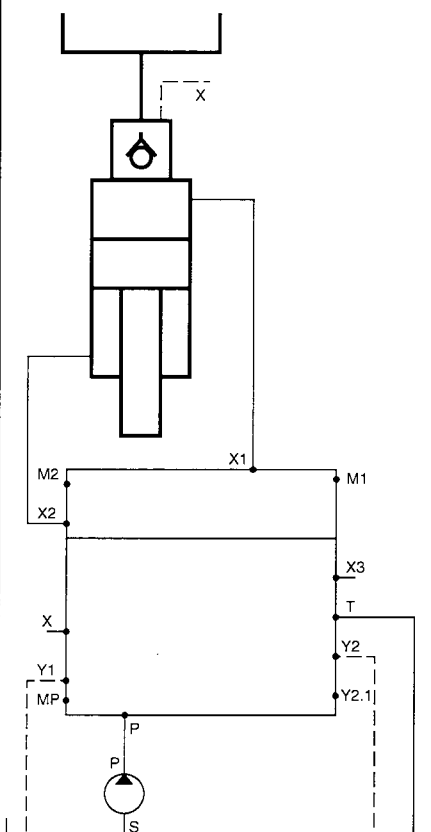
For typical examples see pages 36 and 37



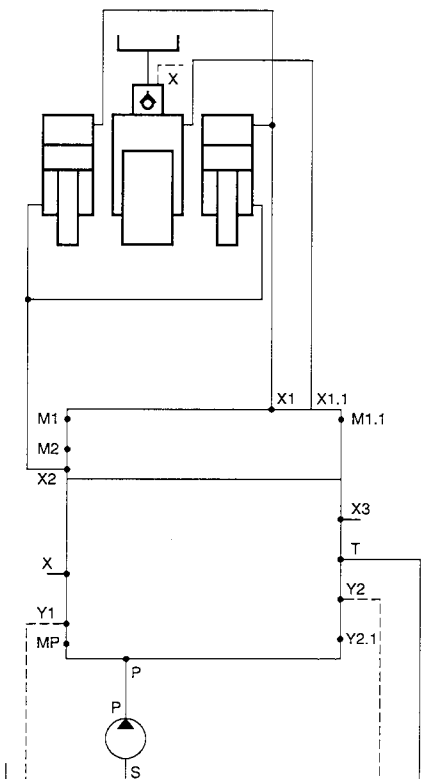
For typical examples see pages 40 and 41



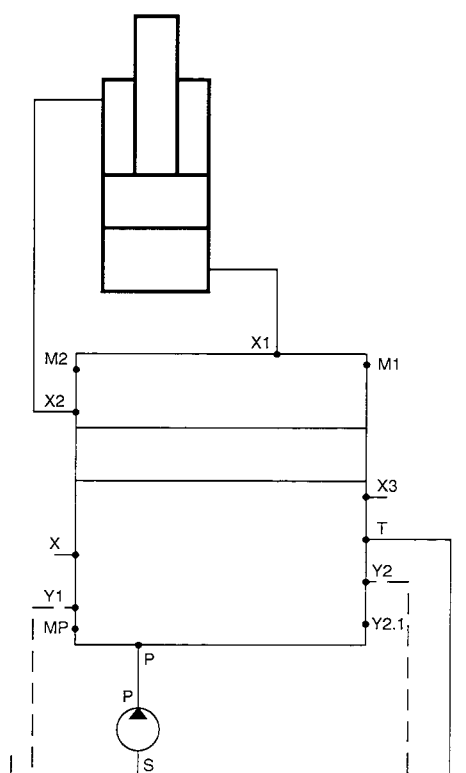
For typical examples see pages 28 and 29



For typical examples see pages 30 and 31



For typical examples see pages 44 to 47



General

Safety regulations

As a minimum, press controls must conform to the safety regulations of the country in which they are to be used, and often also to the country of origin. Most of these press controls comply with the safety regulations at present in force in Germany, as applied by the Central Office for Accident Prevention and Industrial Medicine of the Main Union of Insurance Societies.

These regulations are contained in:

- a) The safety regulations for the control of powered presses for metal working.
Edition 2.1978 (ZH 1/457)
- b) Safety regulations for two handed controls on power operated presses for metal working.
Edition 2.1978 (ZH 1/456)
- c) Accident prevention regulations (UVV) for hydraulic presses 11.064 (VBG 7n 5.2).
Edition 1.10.1987.

These regulations state that should a fault occur, continuation of the press cycle or the starting of a further press cycle must be prevented.

The failure of a component (valve) may not cause a new closing cycle to be started.

The press controls presented here fulfill these requirements.

A pre-requisite for a safety control is the provision of an electrical control which complies with the above safety regulations a) to c) and also the following:

- d) The safety regulations covering contact free safety guards on power operated presses for metal working (ZH 1/281).
- e) VDE 0100
The specification of high power installations for supply voltages up to 1000 V.
- f) DIN 51113 (VDE 0113)
The specifications for electrical equipment on working and processing machinery up to a supply voltage of 1000 V.
- g) VDI 3228
Technical Guidelines for machine tools and other production devices.
M-mechanical equipment
- h) VDI 3230
Technical Guidelines for machine tools and other production devices.
H-hydraulic equipment.
- i) A separate cable laying towards the directional valve, item .110, and the safety valve, item .10, is to be recommended.

Description

The safety circuit is completely assembled on to a control module. All devices are easily accessible and are marked with the relevant item number.

In order to introduce a working cycle, two valves must always be operated together. Should one of these valves not operate, or should it remain in the operated condition, no further working stroke may be started.

In the de-energised condition, two valves installed in series must always prevent an unwanted closure of the press.

For a description of the safety circuit, see control module 1.

Installation

The press module should be installed as near as possible to the press cylinder. The installation position is optional. The preferred orientation is with the spools of the directional valves and proportional valves horizontal.

The pipe between the press module and the press cylinder must be designed to accept the maximum set pressure at the pressure relief valve and also comply with the safety regulations ZH 1/457, section 5.2.

All connection point details are stamped into the press module and are to be connected to the pump, cylinder etc. as outlined in the circuits on pages 12 to 47.

Other plugs on the press modules must not be removed.

General

Commissioning

The maximum operating pressure is set at pressure relief valve, item .130.

In order to remotely control the pressing force, an additional pressure relief valve may be connected to port X3.

Pressure relief valve, item .730 is used to protect the system against pressure intensification. This valve is set at approximately 10% above the maximum operating pressure and then locked with a lead seal.

The holding pressure (counterbalance pressure) incl. safety margin for the plate weight compensation is set at pressure relief valve, item .710. The counterbalance pressure may be checked by a pressure gauge connected to port M2. The orifice which is to be firmly installed in this line, must be sized in order that the permissible closing speed is not exceeded.

The decompression time is set by means of orifice, item .142 (in sizes 6 and 10) or via throttle valve, item .142 (in sizes 12 to 25).

Directional valves, items .110, .120 and – in regenerative circuits responsible for setting up – item .410, are equipped with inductive limit switches. These monitor the safe position of the valves. The signals from these switches must be evaluated by the electrical safety circuit. This check is to be made between consecutive press cycles and after each cylinder shut-down. Should one of the directional valves not reach its safety position, a false start press cycle may not be initiated and a further dangerous movement is not possible. Before the directional valve, item .110 has reached its safe position, no lifting movement is possible either.

At the start of the pressing and return strokes, solenoids, items Y11a or Y11b and Y12 must be energised first – followed some milliseconds later by solenoid, item Y13. With this valve control an optimum press cycle sequence is achieved.

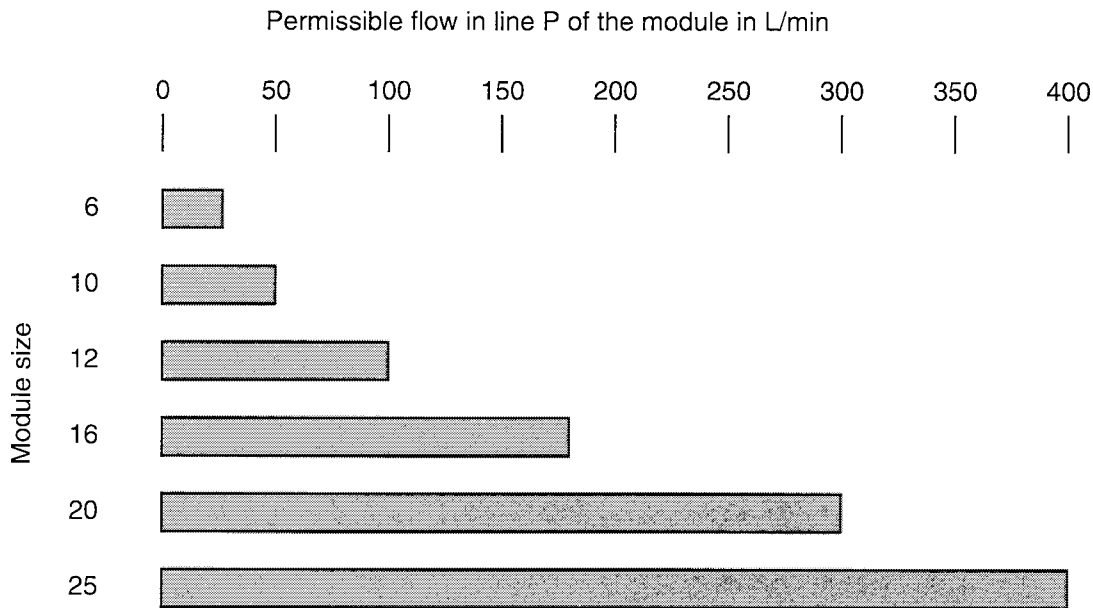
In modules, sizes 12 to 25, only external pilot oil supply is possible.

When commissioning, please also observe the following:

- RE 07 080
Commissioning, operation and maintenance of hydraulic pumps and motors.
- RE 07 100
Commissioning and maintenance of hydraulic cylinders.
- RE 07 300
Commissioning and maintenance of oil hydraulic open and closed loop control devices.
- RE 07 900
Commissioning and maintenance of oil hydraulic installations.

Technical data: general and hydraulic (For operation outside these parameters, please consult us!)								
Installation		Optional, preferably horizontal						
Ambient temperature range		°C	−20 to 50					
Fluid		Mineral oil (HL, HLP) to DIN 51 524, other fluids on enquiry						
Fluid temperature range		°C	−20 to +80					
Viscosity range		mm²/s	2,8 to 500					
Fluid cleanliness		Maximum permissible degree of contamination of fluid to NAS 1638 Class 9. We therefore recommend a filter with a minimum retention rate of $\beta_{10} \geq 75$.						
Operating pressure		bar	Up to 315 Up to 16 At zero pressure to tank 13 to 100					
Ports:		P, X1, X1.1, X2						
		T						
		Y						
		X external						
Module size			6	10	12	16	20	25
Flow in pump line		L/min	25	50	100	180	300	400
Note		From size 12 upwards, a separate pilot oil pump is recommended. Where pilot oil is drawn from the pump circuit and $p > 100$ bar, refer to typical circuits on pages 16 to 18.						
Directional valve, item .110		Only spool types E, L or T are permissible in model “BS”.						

Determining module size based on permissible flow in line P



Check selected module sizes against actual flows, e.g. during fast forward, pressing, return stroke, etc.

The permissible flow for individual modules is given on pages 44 to 167.

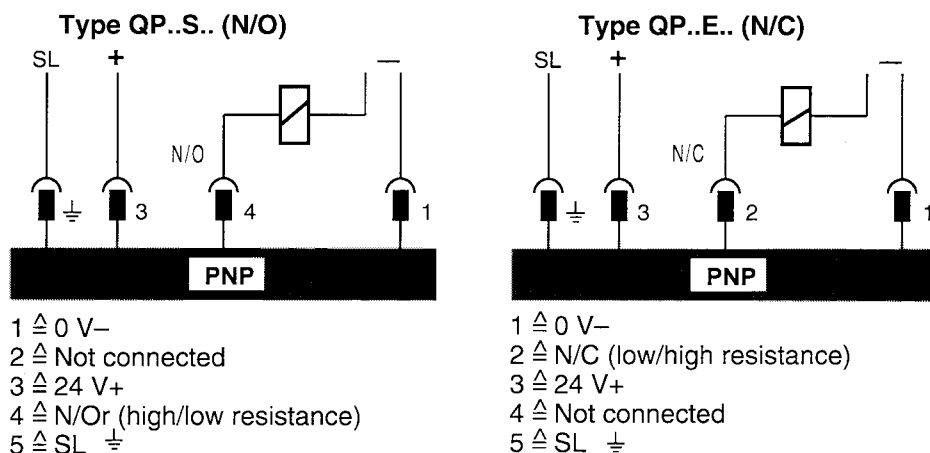
Electrical data for inductive limit switches

Positions 0, a and b monitored by solid state proximity switches		
Supply voltage	V DC	24 +20% -10%
Current	mA	Max. 12
Permissible ripple	%	≤ 10
Terminal connections	See below	
Outputs	24 V PNP switched in relation to "+"	
Temperature range	°C	-10 to +80
Connection type	Plug-in connector	
Function of limit switch	Normally open	Normally closed
Designation	S11a, S11b, S13, S41	S12

Terminal connections for inductive limit switch:

.WE6...5X/...QP...G24S
.WE6...5X/...QP...G24E
For further details see RE 24 830

.WE10...3X/C...QP...G24S
.WE10...3X/C...QP...G24E
For further details see RE 24 830

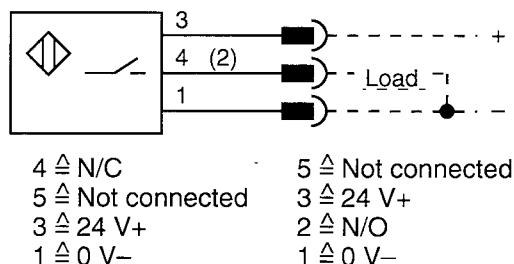


Permissible load: 130 mA

Terminal connections for inductive limit switch:

.WRA10...1X/.../-402
For further details see ERV 1392

.WRE10...1X/.../-402
For further details see ERV 1392



Permissible load: 130 mA

Terminal connections for inductive limit switch:

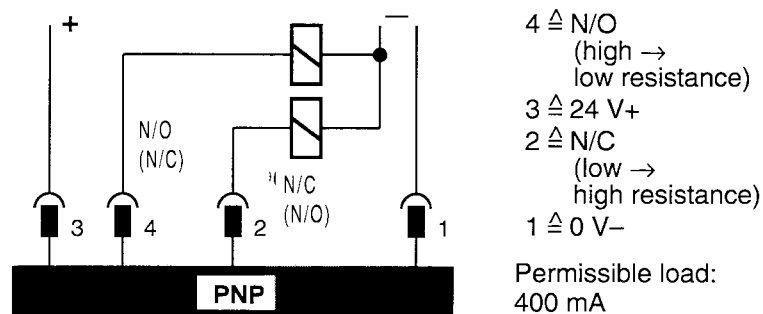
.WE6...5X/...QBG24
.WE10...3X/C...QBG24

10
22
25
.WEH 16.../.../Q...G24

For further details see RE 24 830

.LFA...E...6X/...Q0G24

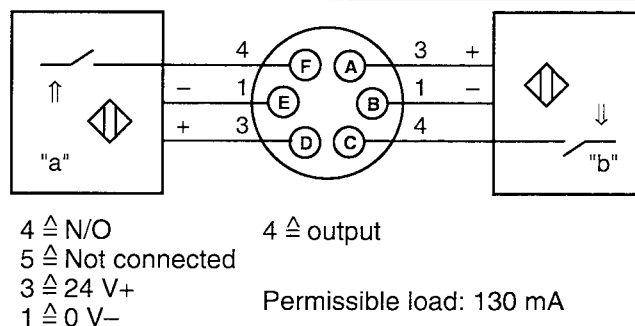
For further details see RE 81 010



Terminal connections for inductive limit switch:

10
25
.WRZ 16E...5X/...-402

For further details see ERV 1392



Ordering code

Module 1	IH04M		M	1		3X/					*
Module 2	IH04M		M	2		3X/					*
Module 3	IH04M		M	3		3X/					*
Module 4	IH04M		M	4		3X/					*
Module 5	IH04M		M	5		3X/					*
Module 6	IH04M		M	6		3X/					*
Module 7	IH04M		M	7		3X/					*
Module 8	IH04M		M	8		3X/					*

Module = M

Size 06 = 06
 Size 10 = 10
 Size 12 = 12
 Size 16 = 16
 Size 20 = 20
 Size 25 = 25

Circuit type = M

Module 1 = 1
 Module 2 = 2
 Module 3 = 3
 Module 4 = 4
 Module 5 = 5
 Module 6 = 6
 Module 7 = 7
 Module 8 = 8

Each module must be listed separately.

Module variations

The different module types are described on pages 48 to 167.

Series 30 to 39 = 3X
 (30 to 39, externally interchangeable)

Solenoids

Wet pin standard solenoid (module sizes 12 to 25) = A
 High performance solenoid (module size 06) = B
 Solenoid with removable coil (module size 10) = C

Solenoid voltage

24 V DC = G 24
 220 V AC, 50 Hz = W 220-50
 110 V AC, 50 Hz (standard solenoids "A") = W 110-50

Without emergency operation – in controls to UVV specification = No Code
 With protected emergency operation – not permitted in controls to UVV specification = N9

Electrical connection

Plug-in connector to DIN 43 650 = Z4
 Large plug-in connector = Z5
 Large plug-in connector with light = Z5L
 Large plug-in connector with LED and varistor = Z5L1
 Large plug-in connector with LED and protection diode = Z5L2
 Large plug-in connector with LED display = Z5L3
 Without plug-in connector = K4

Further details in clear text

Notes on ordering code

Use a copy of page 8 opposite when ordering type M modules.

Fill in the details of each module required on a separate line.

To avoid possible confusion, those lines not required should be crossed out.

Should you require control variations not listed, please contact us.

For further electrical connections, voltages and frequencies, see data sheets RE 23 177 and RE 23 316.

Connection flanges must be ordered separately.

Ordering code for the module (complete control system)

The ordering code for the complete control system (module) is determined for incoming orders according to the required components and the number of modules assembled.

Controls to the specifications of the Industrial Accident Insurance Societies, Specialist Committee Iron and Metal III, are identified by the letters **BS** in the ordering code.

Controls not corresponding to these specifications, are identified by the letter **B** in the ordering code.

IH04			M			-3X/					*
------	--	--	---	--	--	------	--	--	--	--	---

Module according to UVV = **BS**
Module **not** according to UVV = **B**

Size 06 = **06**
Size 10 = **10**
Size 12 = **12**
Size 16 = **16**
Size 20 = **20**
Size 25 = **25**

Circuit type = **M**

Number of mounted modules

Module variations

are determined upon order receipt according to the required components and number of modules assembled.

Series 30 to 39

(30 to 39, externally interchangeable)

= **3X**

Solenoids

Wet pin standard solenoid (module size 12 to 25)

= **A**

High performance solenoid (module size 06)

= **B**

Solenoid with removable coil (module size 10)

= **C**

Solenoid voltage

24 V DC

= **G 24**

220 V AC, 50 Hz

= **W 220-50**

110 V AC, 50 Hz (standard solenoids "A")

= **W 110-50**

Without emergency operation – in controls to UVV specification

= **No Code**

With protected emergency operation – not permitted in controls to UVV specification

= **N9**

Electrical connection

Plug-in connector to DIN 43 650

= **Z4**

Large plug-in connector

= **Z5**

Large plug-in connector with light

= **Z5L**

Large plug-in connector with LED and varistor

= **Z5L1**

Large plug-in connector with LED and protection diode

= **Z5L2**

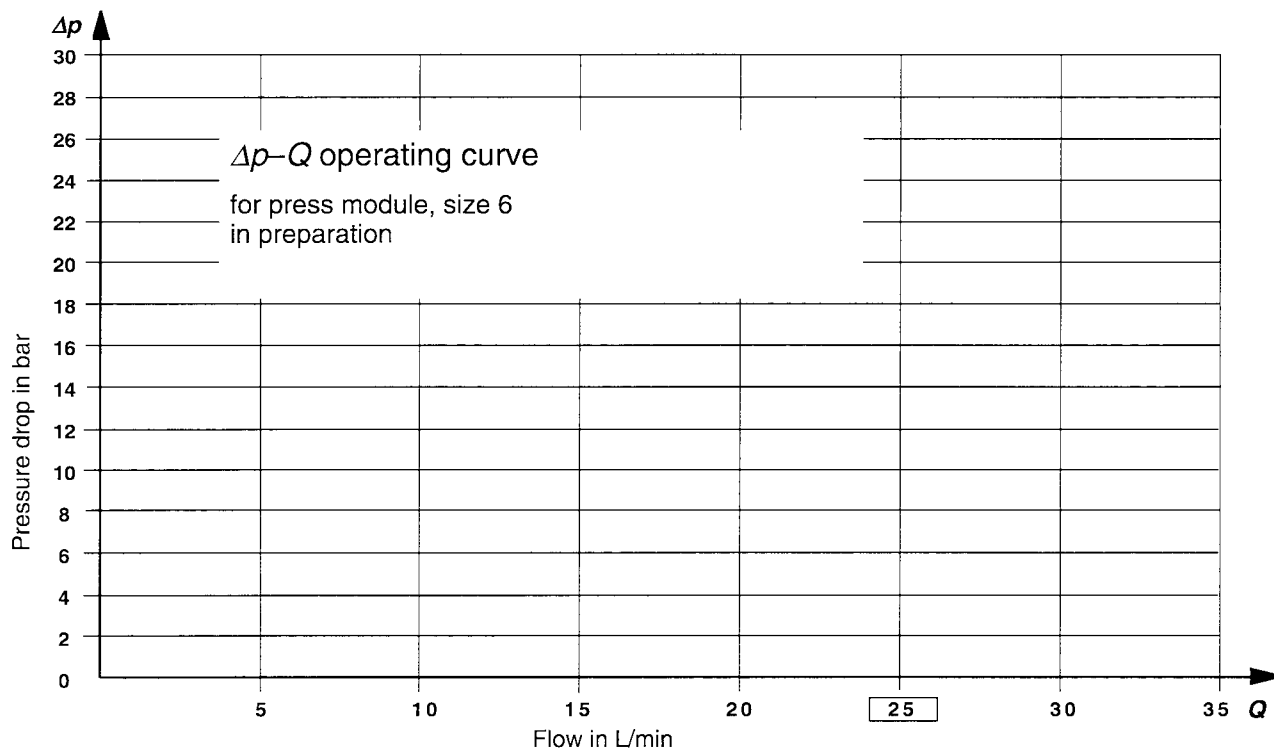
Large plug-in connector with LED display

= **Z5L3**

Further details in clear text

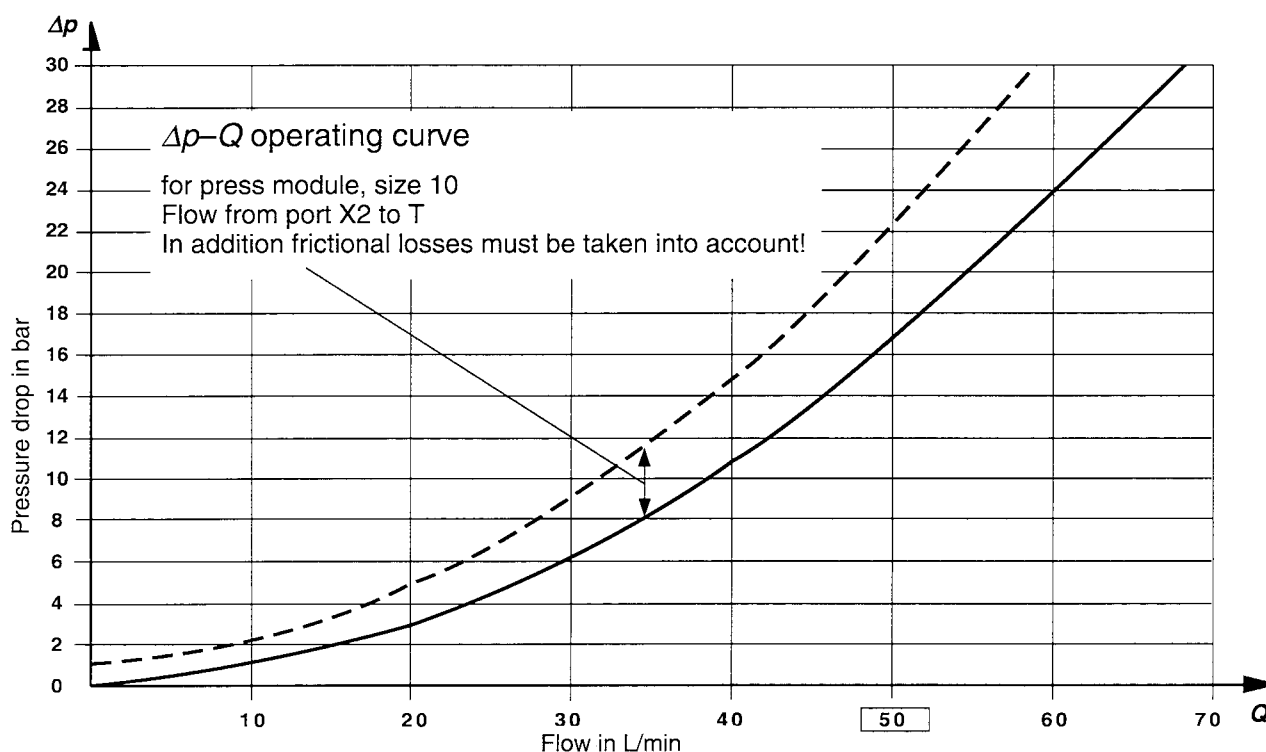
Resistance to flow in press module
Free-fall downstroke under own weight
For typical examples see page 11b

Press module, size 6
Circuit type M
IH04M06 M1A1001-3X/...
IH04M06 M7B4001-3X/...



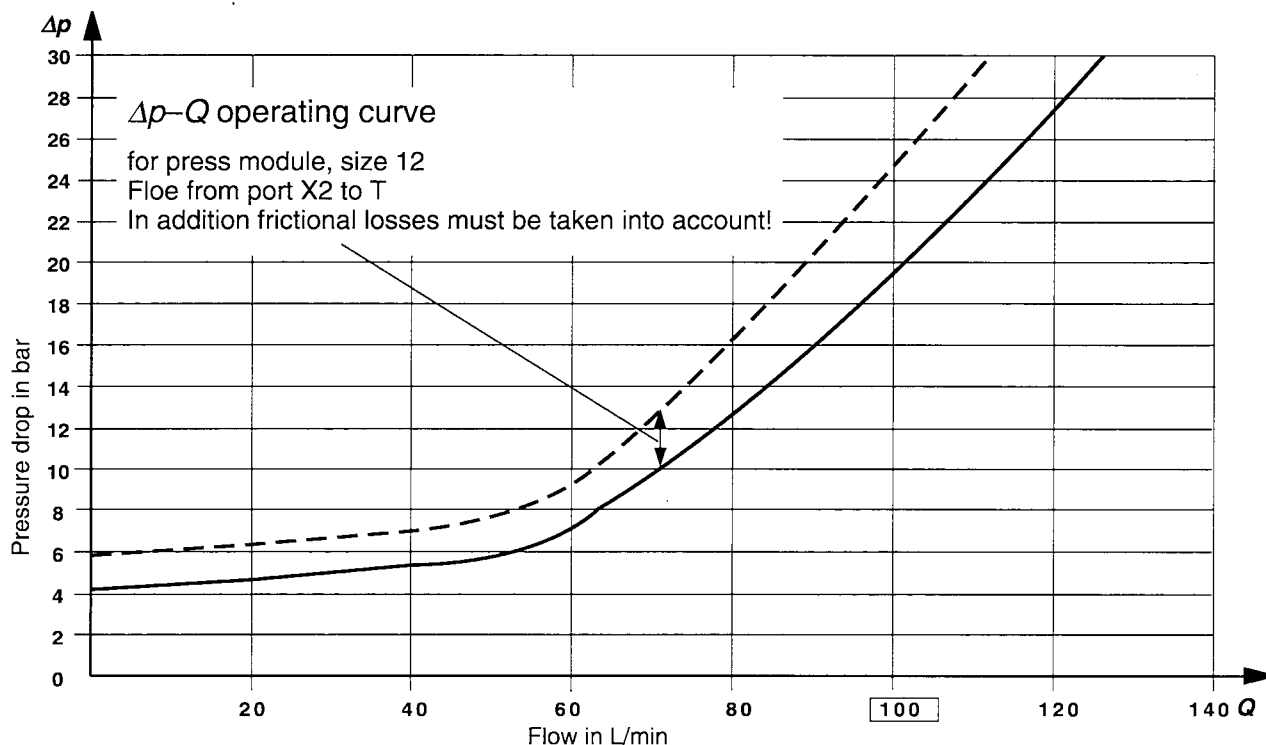
Resistance to flow in press module
Free-fall downstroke under own weight
For typical examples see page 11b

Press module, size 10
Circuit type M
IH04M10 M1A1001-3X/...
IH04M10 M7B4001-3X/...



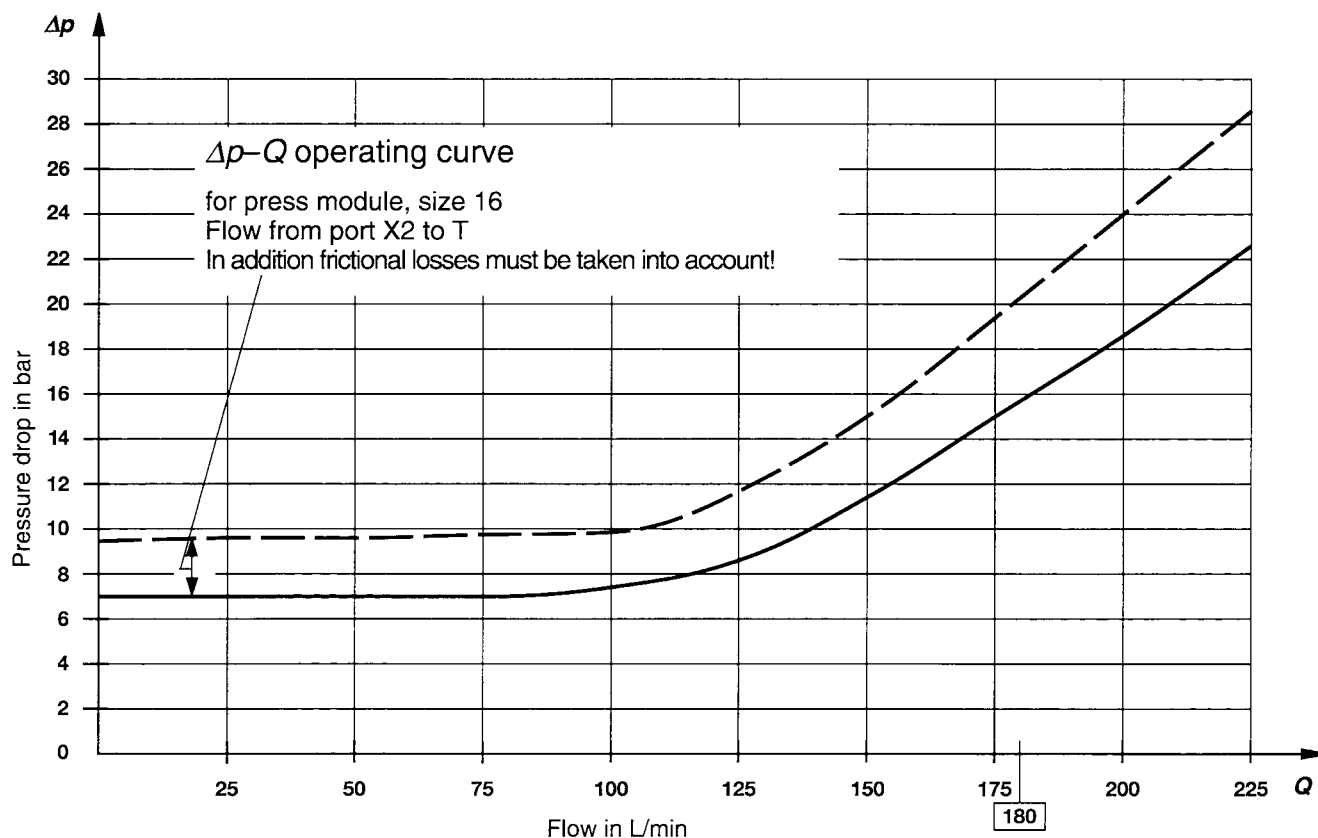
Resistance to flow in press module
Free-fall downstroke under own weight
For typical examples see page 11b

Press module, size 12
Circuit type M
IH04M12 M1A1001-3X/...
IH04M12 M7A3001-3X/...



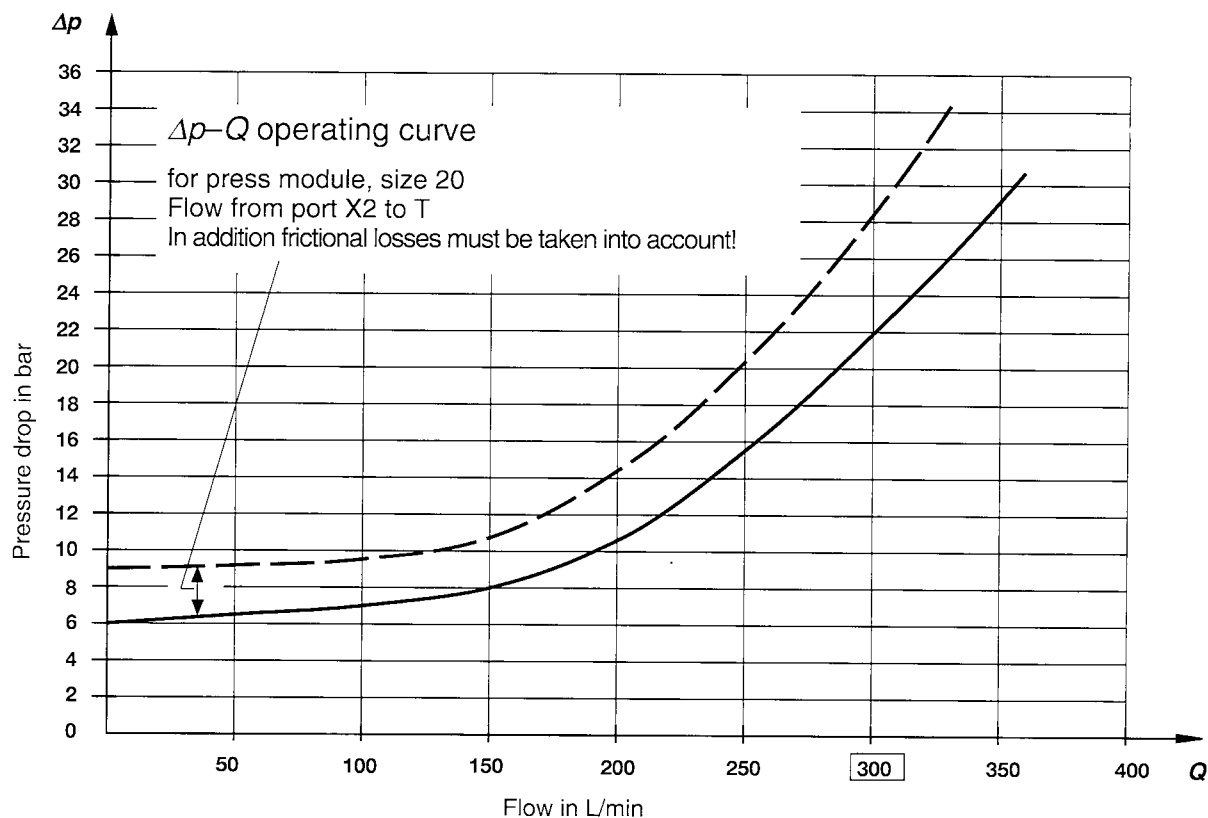
Flow to resistance in press module
Free-fall downstroke under own weight
For typical examples see page 11b

Press module, size 16
Circuit type M
IH04M16 M1A1001-3X/...
IH04M16 M7A3001-3X/...



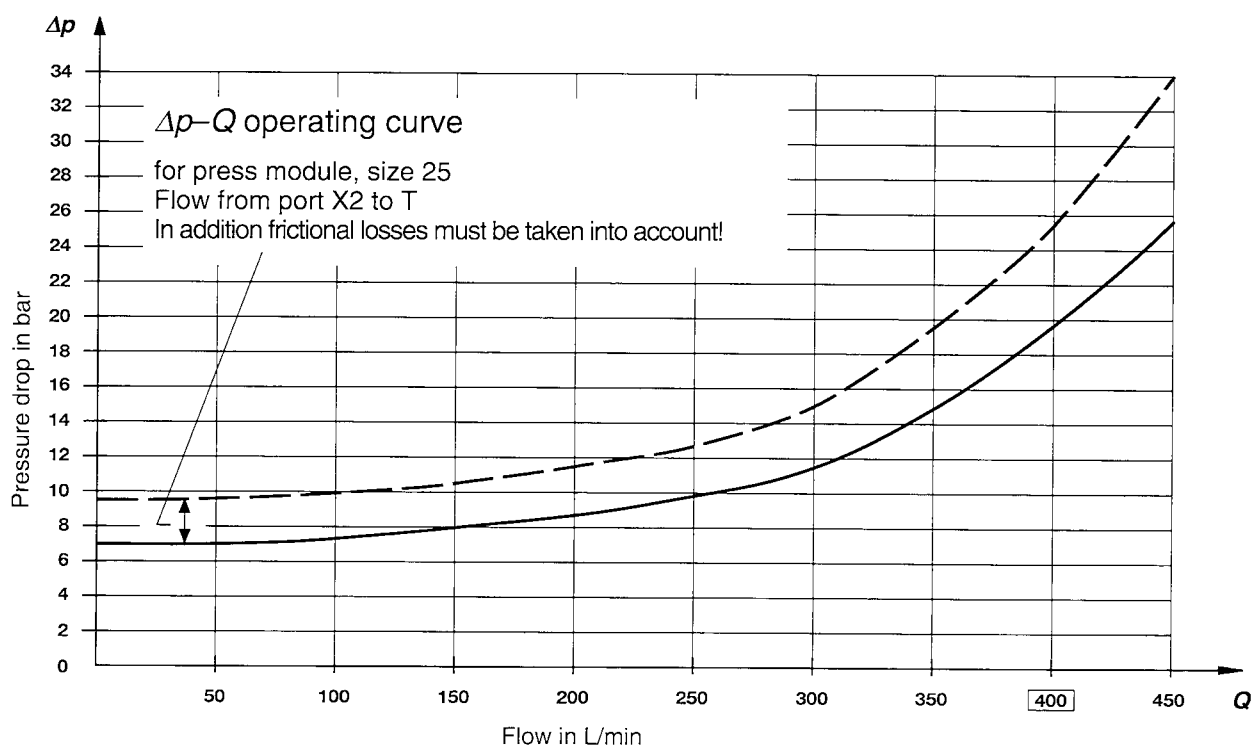
Resistance to flow in press module
Free-fall downstroke under own weight
For typical examples see page 11b

Press module, size 20
Circuit type M
IH04M20 M1A1 001-3X/...
IH04M20 M7A3 001-3X/...



Resistance to flow in press module
Free-fall downstroke under own weight
For typical examples see page 11b

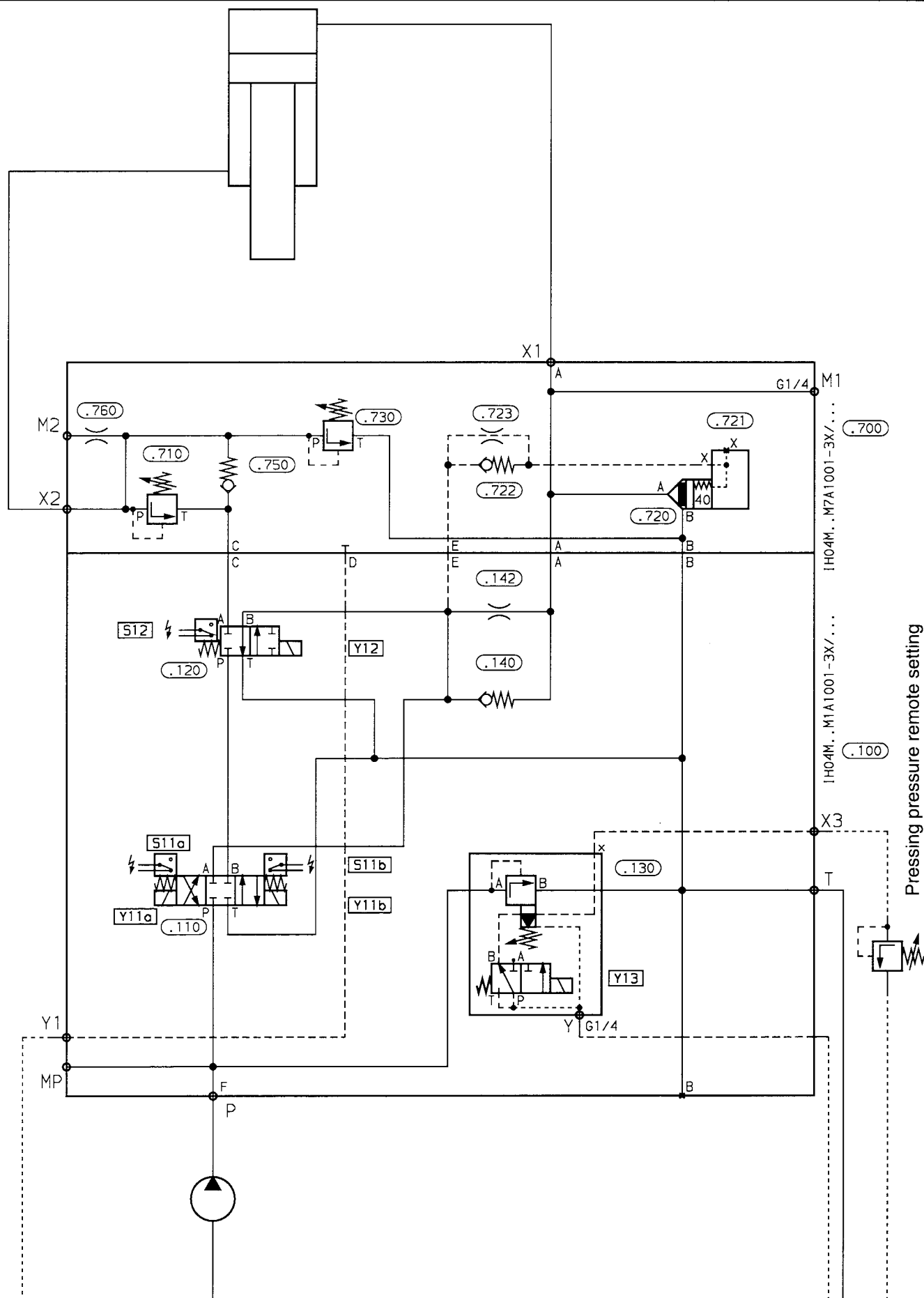
Press module, size 25
Circuit type M
IH04M25 M1A1 001-3X/...
IH04M25 M7A3 001-3X/...

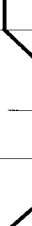
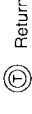
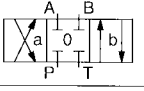
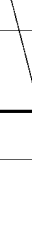
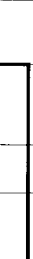
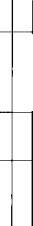
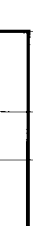
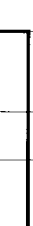
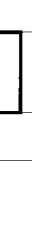




Typical circuit for sizes 6 to 10

Press module Circuit type M


$$G_{\dots} = \text{BSP}$$

Functional diagram: Normaler press cycle Type ...1A1001-3X/... ...7A1001-3X/...						
Description	Ident.	Item	Position	Stationary	Pressing	Decom- pression
Two-hand control start			UD LD			
Directional valve	Solenoid Y 11a	.110				
	Y 11b	.110				
	Y 12	.120				
	Y 13	.130				
Safety valve						
Pressure relief valve						
Directional valve	Limit switch S 11a	.110	*1 0			
Directional valve	S 11b	.110	*1 0			
Safety valve	S 12	.120	*1 0			
* Output signal at limit switch						

For controls complying with UVV (Accident Prevention Regulations) specification, automatic monitoring of the components within the machine cycle is necessary!
Required for return stroke: signal change at limit switch S11a.
○ Time delay if required.

Module 1 Type IH04M...M1A1001-3X/...
Module 7 Type IH04M...M7A1001-3X/...

Application conditions

- Fast free-fall downstroke under own weight **not** possible.
- Fast forward and pressing speed determined by pump.

Module 1, type 1A1001-3X/

Pressure relief valve, item .130 serves to protect the hydraulic pump. The maximum operating pressure is set at pressure relief valve, item .130. With the directional valve in neutral position, the pressure relief valve is switched to low pressure bypass.
When solenoid Y13 is energised, the pressure set at the pressure relief valve becomes effective.

The direction of travel of the cylinder is determined by directional valve, item .110. Limit switches S11a and S11b monitor the return to the "safe" 0-position after each press cycle.
When using spool type "T" bypass at zero pressure is possible as an additional configuration, but is not possible with spool types "E" or "L". Alternative spool types are not permissible.

Directional valve, item .120 serves as a safety valve to meet UVV requirements (Accident Prevention Regulations). Using limit switch S12, the return to the "safe" 0-position after each press cycle is monitored.

The decompression time is set at orifice, item .142.

Remote pressure setting via port X3

The pressing force may be remotely set by means of a pressure control valve which is connected to port X3. Attention must be paid here, that the set press pressure exceeds the required return (break-out) pressure.

Module 7, type 7A1001-3X/

The holding pressure (counterbalance pressure) incl. safety margin for the platen weight compensation is set at pressure relief valve, item .710. When the machine is stationary, the cylinder is also held stationary without leakage.

Flow through pressure relief valve, item .710 is possible from P to T only. For the return stroke pressure relief valve, item .710 is bypassed by means of check valve, item .750.

Logic element, item .720 is held closed by the pressing pressure. During the decompression phase, orifice, item .723 allows the logic element to open with a time delay factor to decrease pressure. During return travel oil flows from the piston side of the cylinder via the open logic element to tank.

Pressure relief valve, item .730 serves as a safety valve to prevent pressure intensification. The valve pressure is set to 10% above the maximum operating pressure and the setting is then lead sealed.

G... = BSP

Module 1
Module 7

Type IH04M...M1A1003-3X/...
Type IH04M...M7A1001-3X/...

Application conditions

- Fast free-fall downstroke under own weight not possible.
- Fast forward and pressing speed determined by pump.
- Pilot oil pump required from size 12 upwards.

Module 1, type 1A1003-3X/

Pressure relief valve, items .130 to .133 serves to protect the hydraulic pump. The maximum operating pressure is set at pressure relief valve, item .132. With the directional valve, item .133 in neutral position, the pressure relief valve, item .132 is switched to low pressure bypass.

When solenoid Y13 is energised, the pressure set at the pressure relief valve, item .132 becomes effective.

The direction of travel of the cylinder is determined by directional valve, item .110. Limit switches S11a and S11b monitor the return to the "safe" 0-position after each press cycle.

When using spool type "T" bypass at zero pressure is possible as an additional configuration, but is not possible with spool types "E" or "L". Alternative spool types are not permissible.

Directional valve, item .120 serves as a safety valve to meet UVV requirements (Accident Prevention Regulations). Using limit switch S12, the return to the "safe" 0-position after each press cycle is monitored.

The decompression time is set at throttle valve, item .142.

Remote pressure setting via port X3

The pressing force may be remotely set by means of a pressure control valve which is connected to port X3. Attention must be paid here, that the set press pressure exceeds the required return (break-out) pressure.

Module 7, type 7A1001-3X/

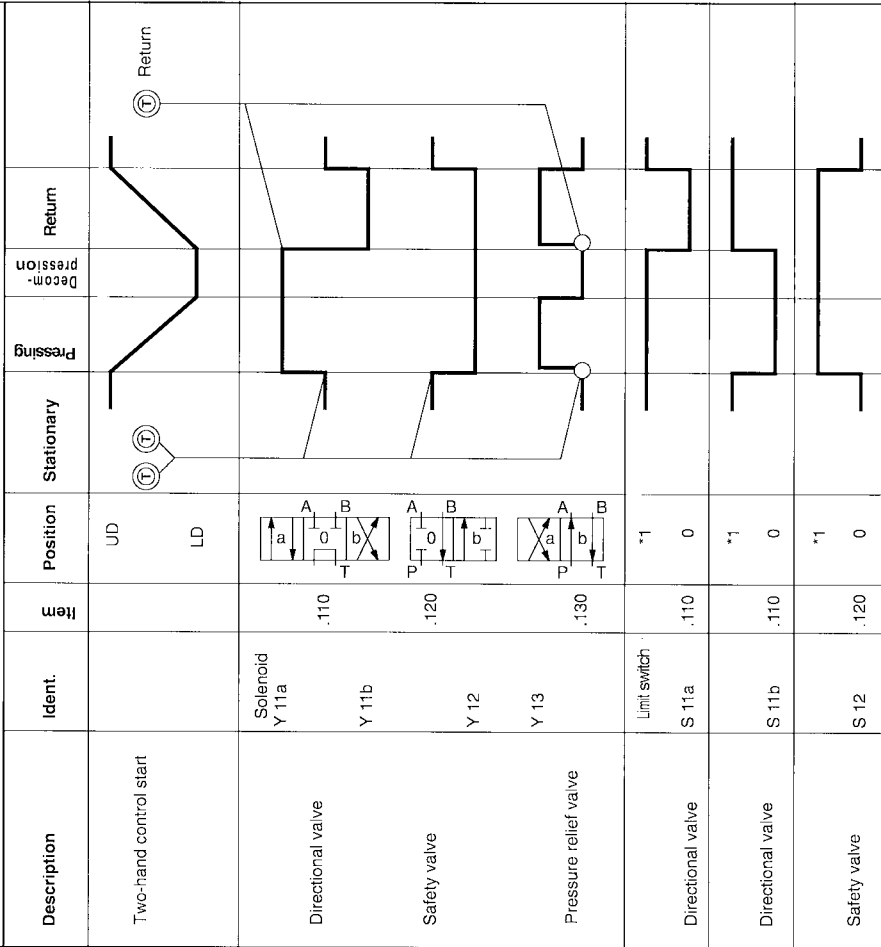
The holding pressure (counterbalance pressure) incl. safety margin for the platen weight compensation is set at pressure relief valve, item .710. When the machine is stationary, the cylinder is also held stationary without leakage.

Flow through pressure relief valve, item .710 is possible from P to T only. For the return stroke pressure relief valve, item .710 is bypassed by means of check valve, item .750.

Logic element, item .720 is held closed by the pressing pressure. During the decompression phase, orifice, item .723 allows the logic element to open with a time delay factor to decrease pressure. During return travel oil flows from the piston side of the cylinder via the open logic element to tank.

Pressure relief valve, item .730 serves as a safety valve to prevent pressure intensification. The valve pressure is set to 10% above the maximum operating pressure and the setting is then lead sealed.

Functional diagram: Normal press cycle Type ...1A1003-3X/...
...7A1001-3X/...



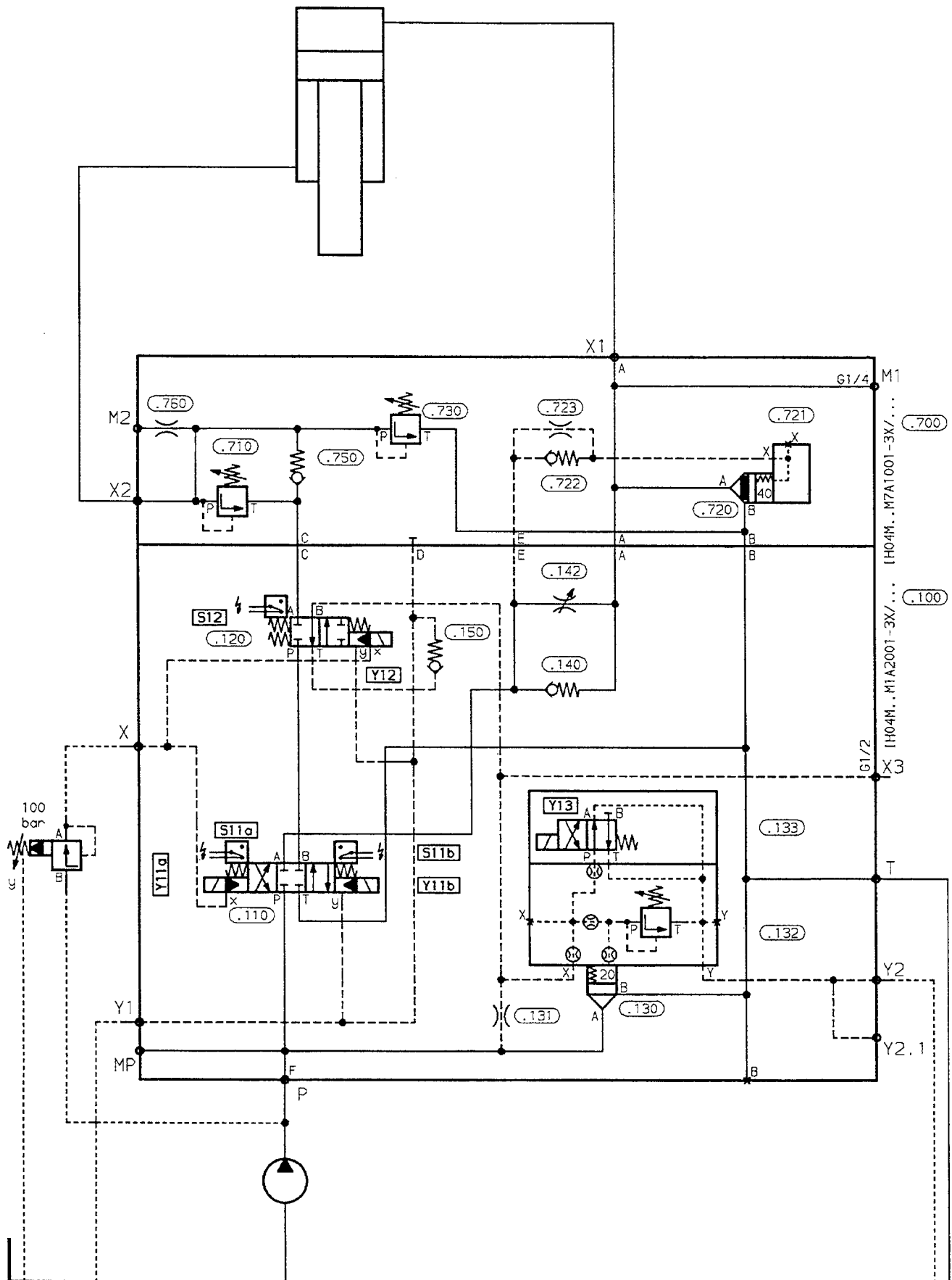
* Output signal at limit switch

For controls complying with the UVV (Accident Prevention Regulations) specification, automatic monitoring of the components within the machine cycle is necessary!

Required for return stroke: signal change at limit switch S11a.

O Time delay if required.

Typical circuit for sizes 12 to 25

Press module
Circuit type M

G... = BSP

Module 1
Module 7

Type IH04M...M1A2001-3X/...
Type IH04M...M7A1001-3X/...

Application conditions

- Fast free-fall downstroke under own weight not possible.
- Fast forward and pressing speed determined by pump.
- No pilot oil pump is included in the circuit.

Module 1, type 1A2001-3X/

Pressure relief valve, items .130 to .133 serves to protect the hydraulic pump. The maximum operating pressure is set at pressure relief valve, item .132. With the directional valve, item .133 in neutral position, the pressure relief valve, item .132 is switched to low pressure bypass.

When solenoid Y13 is energised, the pressure set at the pressure relief valve, item .132 becomes effective.

The direction of travel of the cylinder is determined by directional valve, item .110. Limit switches S11a and S11b monitor the return to the "safe" 0-position after each press cycle. Only spool types "E" and "L" are permissible.

Directional valve, item .120 serves as a safety valve to meet UVV requirements (Accident Prevention Regulations). Using limit switch S12, the return to the "safe" 0-position after each press cycle is monitored.

The decompression time is set at orifice, item .142.

To initiate a new press cycle, sufficient pilot pressure must be available at the start to operate directional valves, items .110 and .120. Via check valve, item .150 the pump bypass pressure is increased to approx. 8 to 10 bar on operation of Y13. If the operating pressure is higher than 100 bar, a pressure reducing valve must be fitted in the pilot line

Remote pressure setting via port X3

The pressing force may be remotely set by means of a pressure control valve which is connected to port X3. Attention must be paid here, that the set press pressure exceeds the required return (break-out) pressure.

Module 7, type 7A1001-3X/

The holding pressure (counterbalance pressure) incl. safety margin for the platen weight compensation is set at pressure relief valve, item .710. When the machine is stationary, the cylinder is also held stationary without leakage.

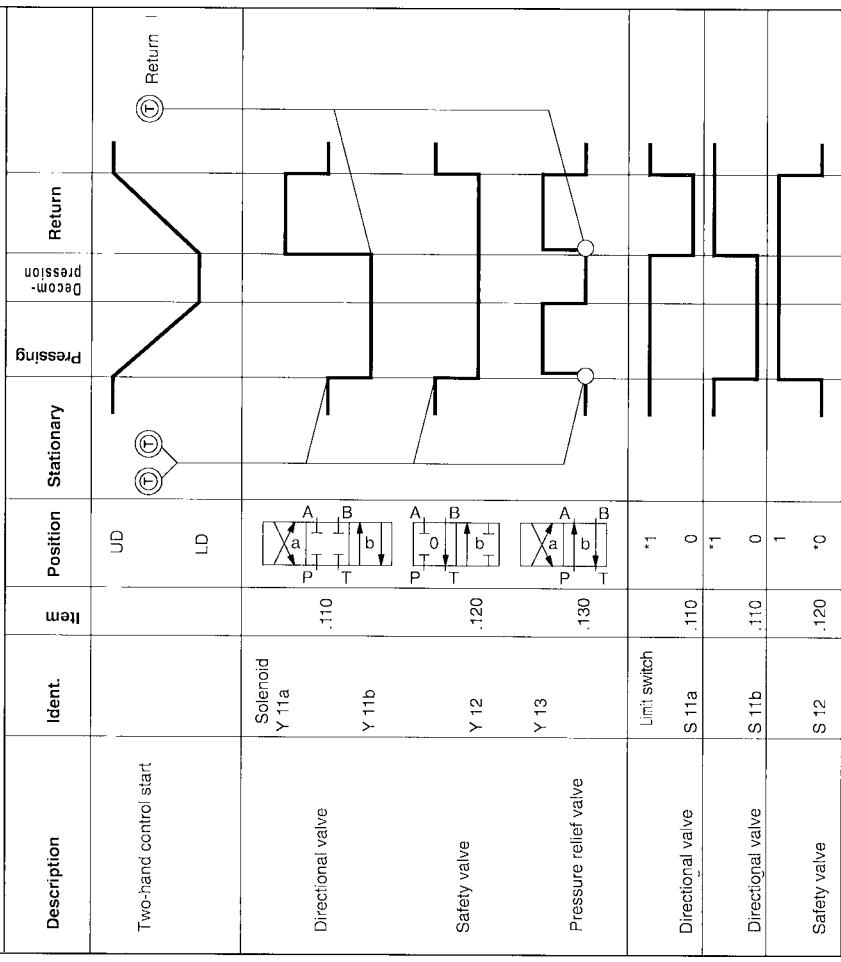
Flow through pressure relief valve, item .710 is possible from P to T only. For the return stroke pressure relief valve, item .710 is bypassed by means of check valve, item .750.

Logic element, item .720 is held closed by the pressing pressure. During the decompression phase, orifice, item .723 allows the logic element to open with a time delay factor to decrease pressure. During return travel oil flows from the piston side of the cylinder via the open logic element to tank.

Pressure relief valve, item .730 serves as a safety valve to prevent pressure intensification. The valve pressure is set to 10% above the maximum operating pressure and the setting is then lead sealed.

Functional diagram: Normal press cycle Type

...1A2001-3X/...
...7A1001-3X/...



* Output signal at limit switch

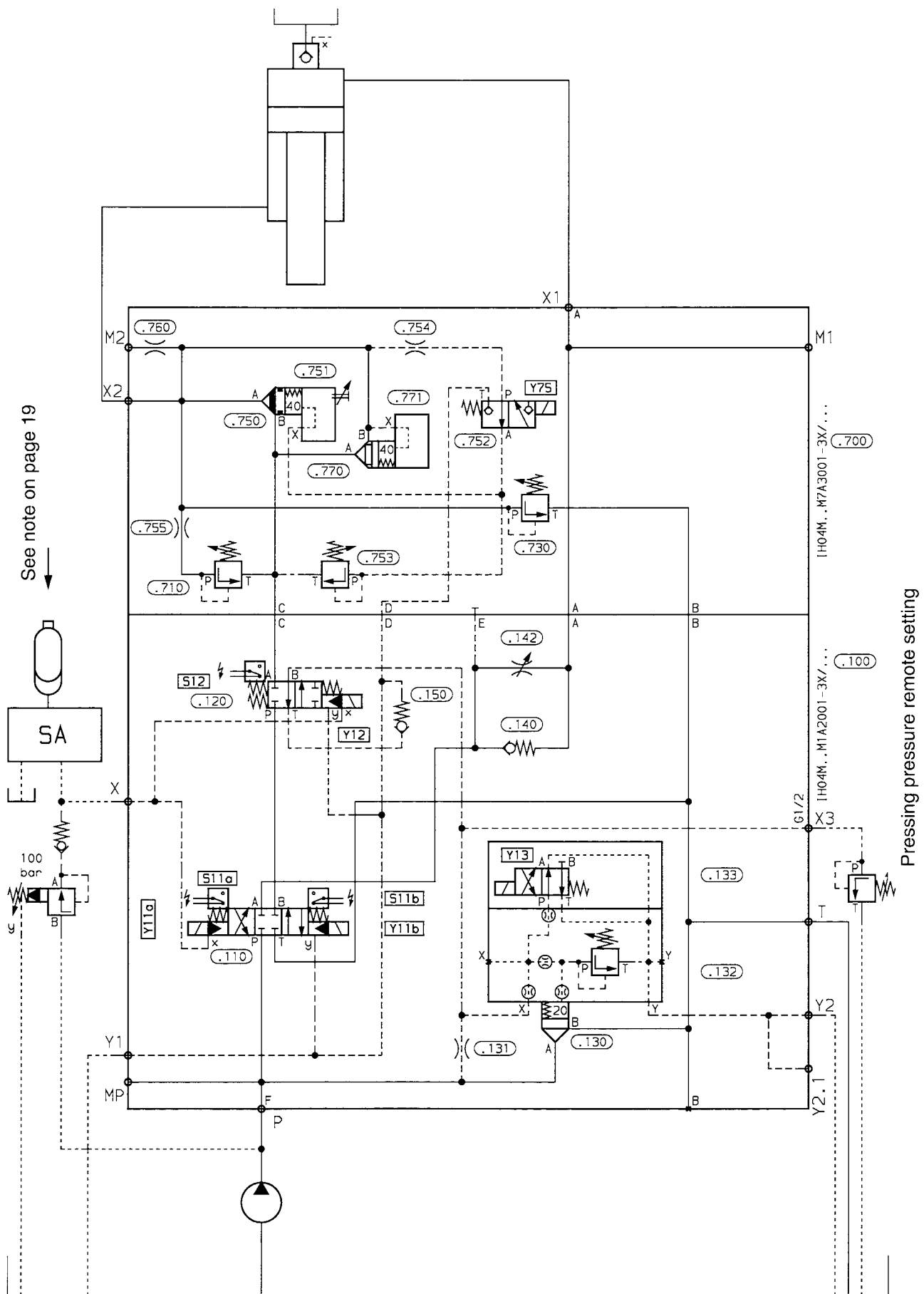
For controls complying with the UVV (Accident Prevention Regulations) specification, automatic monitoring of the components within the machine cycle is necessary!

Required for return stroke: signal change at limit switch S11b.

○ Time delay if required.

Typical circuit for sizes 12 to 25
Free-fall downstroke under own weight,
filling via prefill valve

Press module
Circuit type M



G... = BSP

Module 1
Module 7

Type IH04M...M1A2001-3X/...
Type IH04M...M7A3001-3X/...

Application conditions

- Fast free-fall downstroke under own weight.
- Min. holding pressure at max. permissible flow (see pages 10 and 11).
- Fast forward and pressing speed determined by pump.
- No pilot oil pump is included in the circuit.

Module 1, type 1A2001-3X/

Pressure relief valve, items .130 to .133 serves to protect the hydraulic pump. The maximum operating pressure is set at pressure relief valve, item .132. With the directional valve, item .133 in neutral position, the pressure relief valve, item .132 is switched to low pressure bypass.

When solenoid Y13 is energised, the pressure set at the pressure relief valve, item .132 becomes effective.

The direction of travel of the cylinder is determined by directional valve, item .110. Limit switches S11a and S11b monitor the return to the "safe" 0-position after each press cycle. Only spool types "E" and "L" are permissible.

Directional valve, item .120 serves as a safety valve to meet UVV requirements (Accident Prevention Regulations). Using limit switch S12, the return to the "safe" 0-position after each press cycle is monitored.

The decompression time is set at office, item .142.

To initiate a new press cycle, sufficient pilot pressure must be available at the start to operate directional valves, items .110 and .120. Via check valve, item .150 the pump bypass pressure is increased to approx. 8 to 10 bar on operation of Y13. If the operating pressure is higher than 100 bar, a pressure reducing valve must be fitted in the pilot line.

An accumulator must be mounted in line X. If this is not the case, during the function "lowering at zero pressure under own weight" the pilot pressure would collapse and directional valves items .110 and .120 would not remain in the switched position.

Remote pressure setting via port X3

The pressing force may be remotely set by means of a pressure control valve which is connected to port X3. Attention must be paid here, that the set press pressure exceeds the required return (break-out) pressure.

Module 7, type 7A3001-3X/

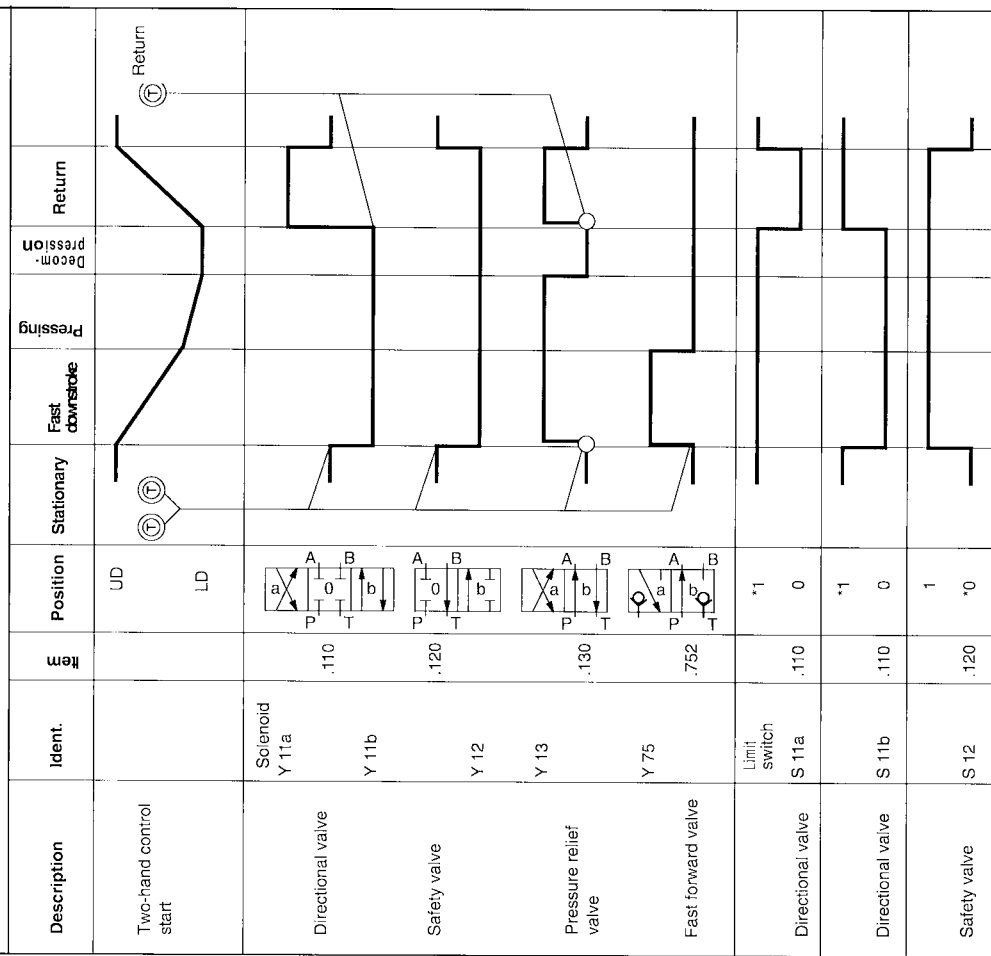
The holding pressure (counterbalance pressure) incl. safety margin for the platen weight compensation is set at pressure relief valve, item .710. When the machine is stationary, the cylinder is also held stationary without leakage, since in the starting position the logic element item .750 is also held closed without leakage.

Operation of directional poppet valve, item .752 opens the logic element, item .750. The cylinder now begins the fast downstroke, the fast forward speed being set with the stroke limiter on the logic element, item .750. At the end of the fast forward movement, the directional poppet valve, item .752 is de-energised. The required pressure to close valve, item .750 is set at pressure relief valve, item .753. The deceleration force may be smoothly varied, so that hard or gentle deceleration of the press ram from fast forward to pressing speed can be selected as required.

Oil can flow through logic element, item .750 from A to B only. During return travel item .750 is bypassed by means of logic element item .770 operating as a check valve.

Pressure relief valve, item .730 serves as a safety valve to prevent pressure intensification. The valve pressure is set to 10% above the maximum operating pressure and the setting is then lead sealed.

Functional diagram: Normal press cycle Type ...1A2001-3X/...
...7A3001-3X/...



* Output signal at limit switch

For controls complying with the UVV (Accident Prevention Regulations) specification, automatic monitoring of the components within the machine cycle is necessary!

Required for return stroke: signal change at limit switch S11b.

○ Time delay if required.

20/168 **MANNESMANN
REXROTH**

Module 1
Module 7

Type IH04M...M1A1021-3X/...
Type IH04M...M7A1001-3X/...

Application conditions

- Fast free-fall downstroke under own weight **not** possible
- Fast forward and pressing speed determined by pump.
- Pilot oil pump required from size 12 upwards.
- Accumulator operation not permitted.

Module 1, type 1A1021-3X/

Pressure relief valve, items .130 to .133 is not fitted in the control module. It is therefore necessary to mount a pressure relief valve on the pump.

The direction of travel of the cylinder is determined by directional valve, item .110. Limit switches S11a and S11b monitor the return to the "safe" 0-position after each press cycle.
When using spool type "T" bypass at zero pressure is possible as an additional configuration, but is not possible with spool types "E" or "L". Alternative spool types are not permissible.

Directional valve, item .120 serves as a safety valve to meet UVV requirements (Accident Prevention Regulations). Limit switch S12 monitors the return to the "safe" 0-position after each press cycle.

The decompression time is set at throttle valve, item .142.

Module 7, type 7A1001-3X/

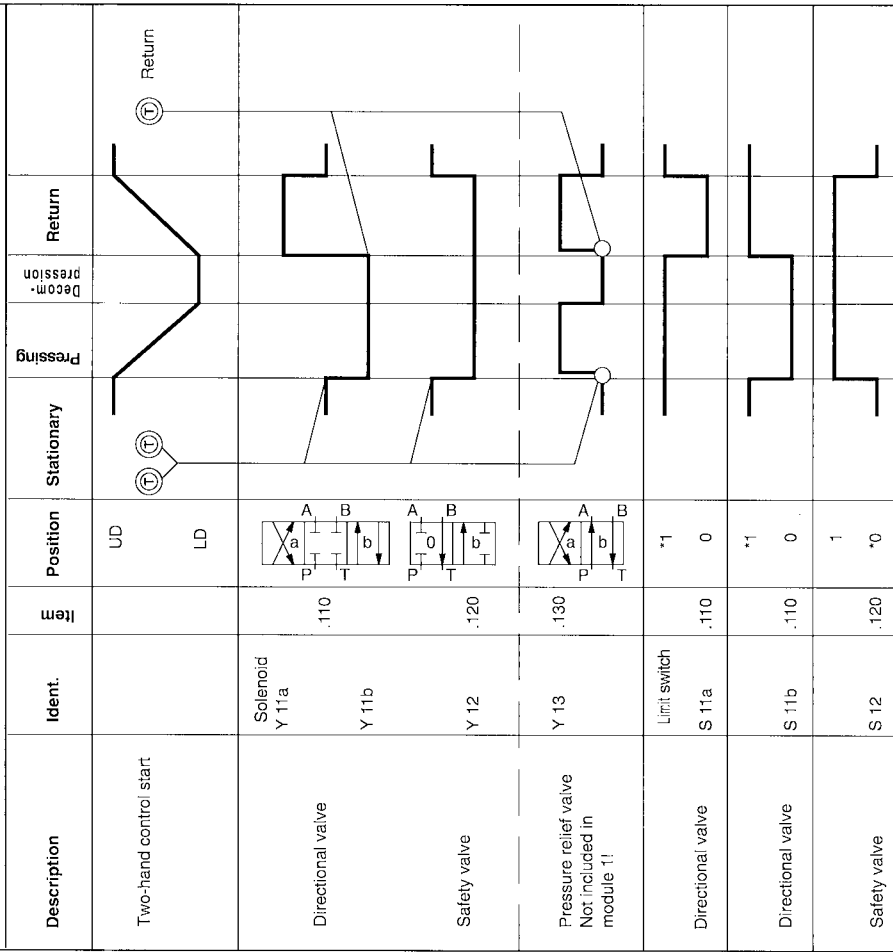
The holding pressure (counterbalance pressure) incl. safety margin for the platen weight compensation is set at pressure relief valve, item .710. When the machine is stationary, the cylinder is also held stationary without leakage.

Flow through pressure relief valve, item .710 is possible from P to T only. For the return stroke pressure relief valve, item .710 is bypassed by means of check valve, item .750.

Logic element, item .720 is held closed by the pressing pressure. During the decompression phase orifice, item .723 allows the logic element to open with a time delay factor to decrease pressure. During return travel oil flows from the piston side of the cylinder via the open logic element to tank.

Pressure relief valve, item .730 serves as a safety valve to prevent pressure intensification. The valve pressure is set 10% above the maximum operating pressure and the setting is then lead sealed.

Functional diagram: Normal press cycle Type ...1A1021-3X/...
...7A1001-3X/...



* Output signal at limit switch

For controls complying with the UVV (Accident Prevention Regulations) specification, automatic monitoring of the components within the machine cycle is necessary!

Required for return stroke: signal change at limit switch S11a.

O Time delay if required.

Module 1 Module 4 Module 7	Type IH04M...M1A1003-3X/... Type IH04M...M4A1001-3X/... Type IH04M...M7A5001-3X/...
Application conditions	
– Fast free-fall downstroke under own weight not possible. – Fast forward and pressing speed determined by pump. – Pilot oil pump required from size 12 upwards.	
Module1, type 1A1003-3X/	Module 7, type 7A5001-3X/ The holding pressure (counterbalance pressure) incl. safety margin for the platen weight compensation is set at pressure relief valve, item .710. When the machine is stationary, the cylinder is also held stationary without leakage. Flow through pressure relief valve, item .710 is possible from P to T only. For the return stroke pressure relief valve, item .710 is bypassed by means of check valve, item .750. Logic element, item .720 is held closed by the pressing pressure. During the decompression phase, orifice, item .723 allows the logic element to open with a time delay factor to decrease pressure. During return travel oil flows from the piston side of the cylinder via the open logic element to tank. Pressure relief valve, item .730 serves as a safety valve to prevent pressure intensification. The valve pressure is set to 10% above the maximum operating pressure and the setting is then lead sealed..
Remote pressure setting via port X3	
The pressing force may be remotely set by means of a pressure control valve which is connected to port X3. Attention must be paid here, that the set press pressure exceeds the required return (break-out) pressure.	

Functional diagram: Normal press cycle Type ...1A1003-3X/... ...4A1001-3X/... ...7A5001-3X/...									
Description	Ident.	Item	Position	Stationary	Fast downstroke	Pressing	Decompression	Return	
Two-hand control start			UD LD						Return
Directional valve	Solenoid Y 11a	.110							
Safety valve	Y 11b	.120							
Pressure relief valve	Y 12	.130							
Regenerative valve	Y 41	.410							
Directional valve	Limit switch S 11b	.110	*1 0						
Directional valve	S 11a	.110	*1 0						
Safety valve	S 12	.120	1 *0						
Regenerative valve	S 41	.410	*1 0						
* Output signal at limit switch									
For controls complying with the UVV (Accident Prevention Regulations) specification, automatic monitoring of the components within the machine cycle is necessary! Required for return stroke: signal change at limit switch S11a. ○ Time delay if required.									

Module 1 Type IH04M...M1A1003-3X/...
Module 4 Type IH04M...M4A1001-3X/...
Module 7 Type IH04M...M7A5001-3X/...

Application conditions

- Fast free-fall downstroke under own weight not possible.
- Fast forward and pressing speed determined by pump.
- Pilot oil pump required from size 12 upwards.

Module1, type 1A1003-3X/

Pressure relief valve, items .130 to .133 serves to protect the hydraulic pump. The maximum operating pressure is set at pressure relief valve, item .132. With the directional valve, item .133 in neutral position, the pressure relief valve, item .132 is switched to low pressure bypass.

When energising solenoid Y13, the pressure set at pressure relief valve, item .132 becomes effective.

The direction of travel of the cylinder is determined by directional valve, item .110. Limit switches S11a and S11b monitor the return to the "safe" 0-position after each press cycle.

When using spool type "T" bypass at zero pressure is possible as an additional configuration, but is not possible with spool types "E" or "L". Alternative spool types are not permissible.

Directional valve, item .120 serves as a safety valve to meet UVV requirements (Accident Prevention Regulations). Limit switch S12 monitors the return to the "safe" 0-position after each press cycle.

The decompression time is set at throttle valve, item .142.

Module 4, type 4A1001-3X/

During fast forward strokes oil flows from the cylinder annulus via directional valve, item .410 to the piston area. At the end of each machine cycle, limit switch S41 monitors the return to the "safe" 0-position after each fast forward sequence. This is monitored at the end of each cycle.

Remote pressure setting via port X3

The pressing force may be remotely set by means of a pressure control valve which is connected to port X3. Attention must be paid here, that the set press pressure exceeds the required return (break-out) pressure.

Module 7, type 7A5001-3X/

The holding pressure (counterbalance pressure) incl. safety margin for the platen weight compensation is set at pressure relief valve, item .710. When the machine is stationary, the cylinder is also held stationary without leakage, as logic element, item .750 also remains closed in its initial position without leakage.

During fast forward and press movements, logic element, item .710 opens and oil is allowed to flow from A to B, item .750 remains closed.

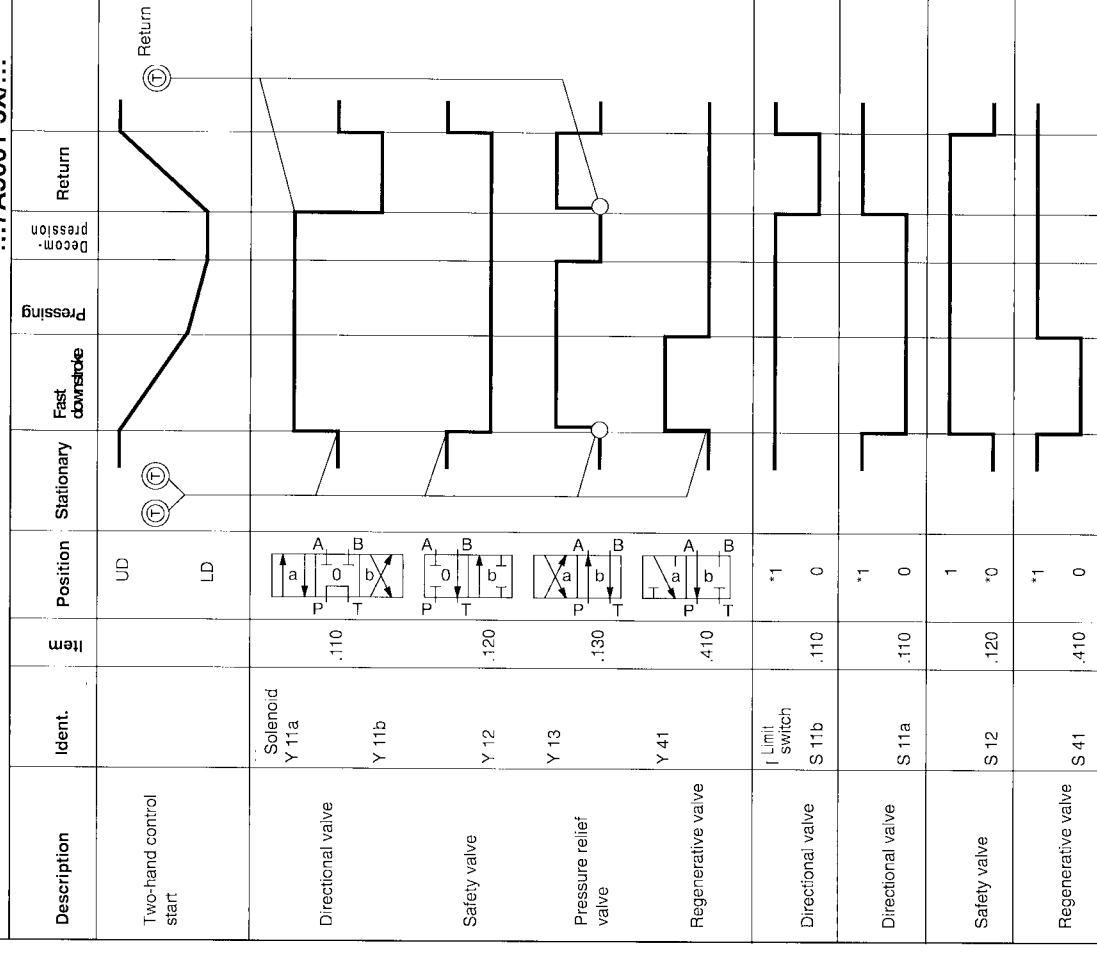
During return travel, item .710 is blocked by the return pressure and oil flow flows via the logic element, item .750 from A to B to the cylinder.

Logic element, item .720 is held closed by the fast forward or pressing pressure. During the decompression phase, orifice, item .723 allows the logic element to open with a time delay factor to decrease pressure. During return travel oil flows from the piston side of the cylinder via the open logic element to tank.

Pressure relief valve, item .730 serves as a safety valve to prevent pressure intensification. The valve pressure is set to 10% above the maximum operating pressure and the setting is then lead sealed.

Functional diagram: Normal press cycle Type

...1A1003-3X/...
 ...4A1001-3X/...
 ...7A5001-3X/...



* Output signal at limit switch

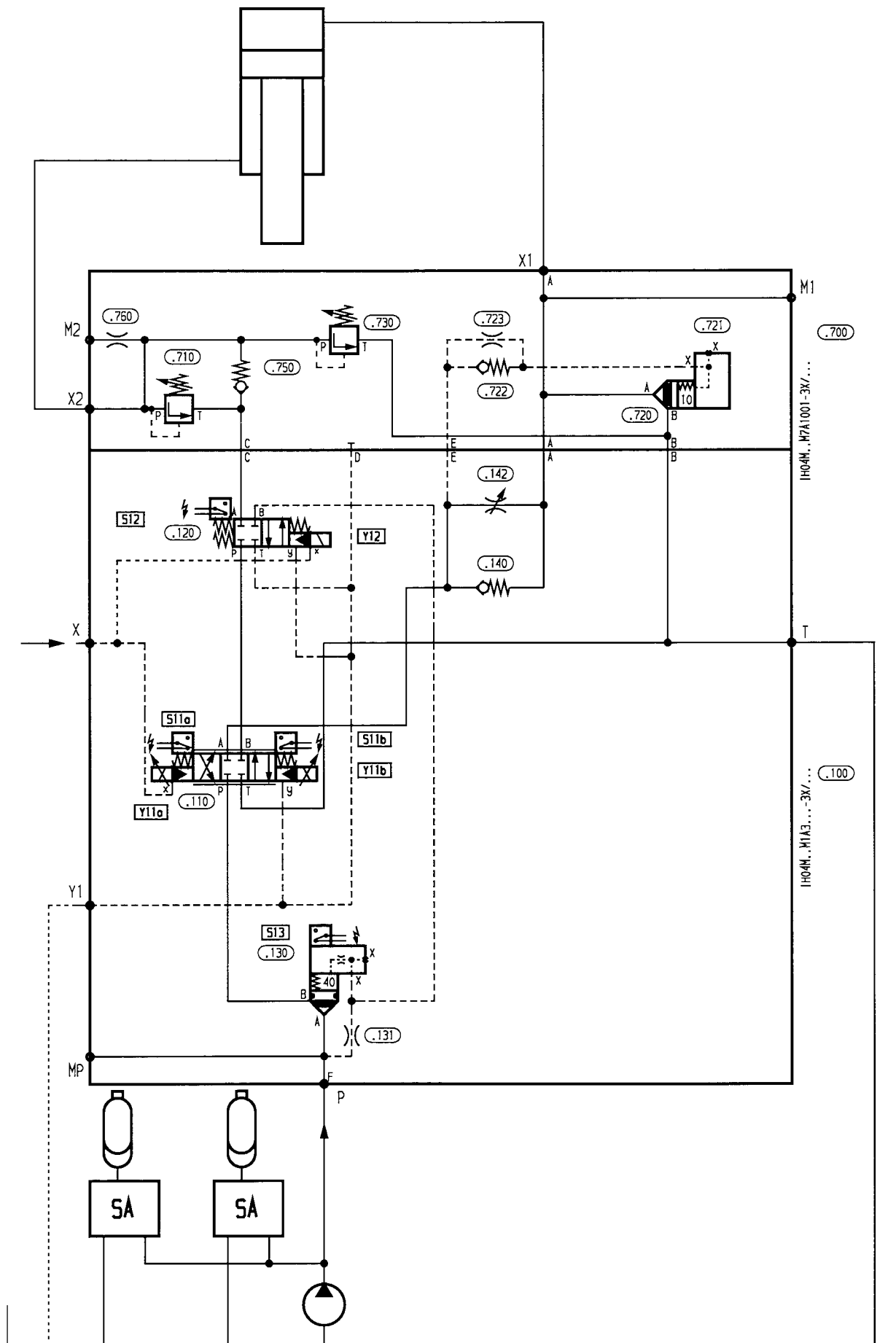
For controls complying with the UVV (Accident Prevention Regulations) specification, automatic monitoring of the components within the machine cycle is necessary!

Required for return stroke: signal change at limit switch S11a.

○ Time delay if required.

Typical circuit for sizes 10 to 25
Central oil supply – accumulator operation,
Pressure limiting at pump

Press module
Circuit type M



Module 1
Module 7

Type IH04M...M1A3...-3X/...
Type IH04M...M7A1001-3X/...

Application conditions

- Fast free-fall downstroke under own weight not possible.
- Fast forward and pressing speed determined by amount of flow taken from accumulator. Oil losses during pressing movement via orifice, item .131.
- Pilot oil pump required from size 12 upwards.

Module 1, type 1A3...-3X/

Directional valve, item .120 and logic element, item .130 serve as safety valves to meet UVV (Accident Prevention Regulations) requirements. To increase pressure it is necessary to operate two valves. Limit switches S12 and S13 monitor the return to the "safe" 0-position after each press cycle.

The direction of travel and operating speed of the cylinder are determined by proportional directional valve, item .110. Limit switches S11a and S11b monitor the return to the "safe" 0-position after each press cycle. Only spool type "E" is permissible.

The decompression time is set at throttle valve, item .142.
Decompression can also be controlled via proportional directional valve, item .110. In this case the throttle valve, item .142 must be fully open.

item .110
Press module, size 6 with control valve on enquiry.

Module 7, type 7A1001-3X/

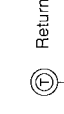
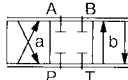
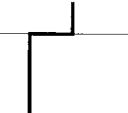
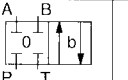
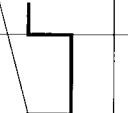
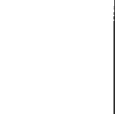
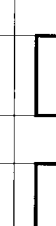
The holding pressure (counterbalance pressure) incl. safety margin for the platen weight compensation is set at pressure relief valve, item .710. When the machine is stationary, the cylinder is also held stationary without leakage.

Flow through pressure relief valve, item .710 is possible from P to T only. For the return stroke pressure relief valve, item .710 is bypassed by means of check valve, item .750.

Logic element, item .720 is held closed by the pressing pressure. During the decompression phase, orifice, item .723 allows the logic element to open with a time delay factor to decrease pressure. During return travel oil flows from the piston side of the cylinder via the open logic element to tank.

Pressure relief valve, item .730 serves as a safety valve to prevent pressure intensification. The valve pressure is set to 10% above the maximum operating pressure and the setting is then lead sealed.

Functional diagram: Normal press cycle Type ...1A3...-3X/...
...7A1001-3X/...

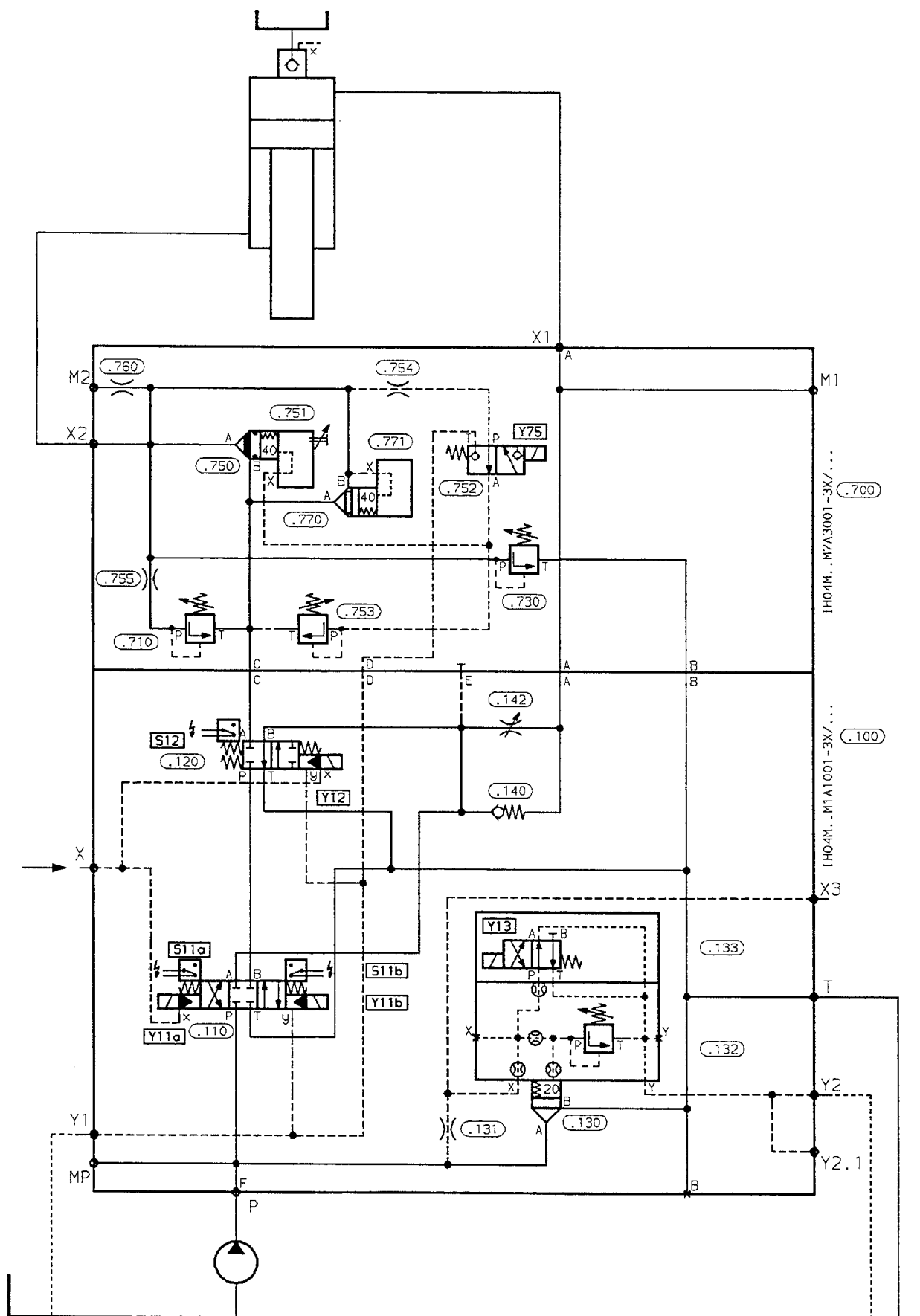
Description	Ident.	Item	Position	Stationary	Pressing	Decom- pression	Return
Two-Hand control start			UD LD				
Directional valve	Solenoid Y 11a Y 11b	.110 .120					
Safety valve	Y 12	.120					
Directional valve	Limit switch S 11a	.110	*1 0				
Directional valve	S 11b	.110	*1 0				
Safety valve	S 12	.120	1 *0				
Logic element	S 13	.120	*1 0				

* Output signal at limit switch

For controls complying with the UVV (Accident Prevention Regulations) specification, automatic monitoring of the components within the machine cycle is necessary!
Required for return stroke: signal change at limit switch S11b.

Typical circuit for sizes 6 to 25
Free-fall downstroke under own weight,
filling via prefill valve

Press module
Circuit type M



Module 1 Type IH04M...M1A1001-3X/...
Module 7 Type IH04M...M7A3001-3X/...

Application conditions

- Free-fall downstroke under own weight.
- Min. holding pressure at max. permissible flow (see pages 10 and 11).
- Fast forward and pressing speed determined by pump.
- Pilot pump required from size 12 upwards.

Module 1, type 1A1001-3X/

Pressure relief valve, items .130 to .133 serves to protect the hydraulic pump. The maximum operating pressure is set at pressure relief valve, item .132. With the directional valve, item .133 in neutral position, the pressure relief valve, item .132 is switched to low pressure bypass.

When solenoid Y13 is energised, the pressure set at the pressure relief valve, item .132 becomes effective.

The direction of travel of the cylinder is determined by directional valve, item .110. Limit switches S11a and S11b monitor the return to the "safe" 0-position after each press cycle.

When using spool type "T" bypass at zero pressure is possible as an additional configuration, but is not possible with spool types "E" or "L". Alternative spool types are not permissible.

Directional valve, item .120 serves as a safety valve to meet UVV requirements (Accident Prevention Regulations). Using limit switch S12, the return to the "safe" 0-position after each press cycle is monitored.

The decompression time is set at throttle valve, item .142.

Remote pressure setting via port X3

The pressing force may be remotely set by means of a pressure control valve which is connected to port X3. Attention must be paid here, that the set press pressure exceeds the required return (break-out) pressure.

Module 7, type 7A3001-3X/

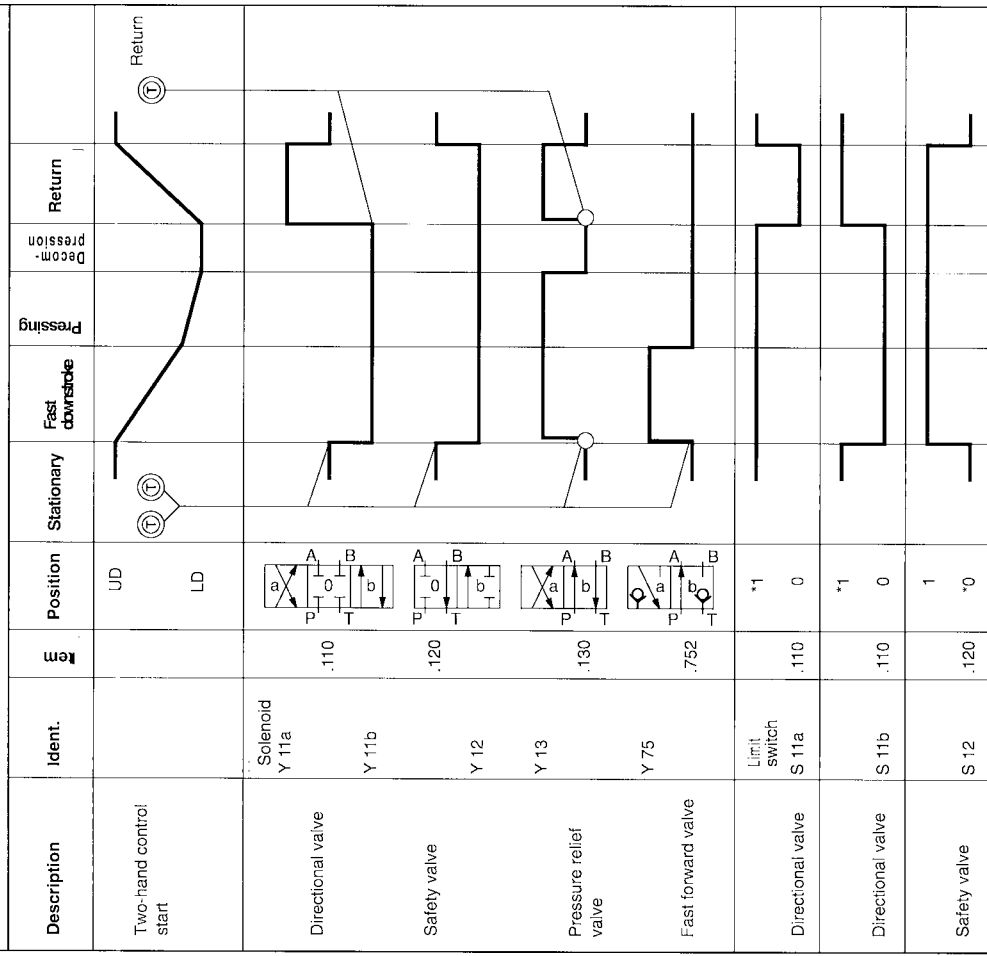
The holding pressure (counterbalance pressure) incl. safety margin for the platen weight compensation is set at pressure relief valve, item .710. When the machine is stationary, the cylinder is also held stationary without leakage, since in the starting position the logic element item .750 is also held closed without leakage.

Operation of directional poppet valve, item .752 opens the logic element, item .750. The cylinder now begins the fast downstroke, the fast forward speed being set with the stroke limiter on the logic element, item .750. At the end of the fast forward movement, the directional poppet valve, item .752 is de-energised. The required pressure to close valve, item .750 is set at pressure relief valve, item .753. The deceleration force may be smoothly varied, so that hard or gentle deceleration of the press ram from fast forward to pressing speed can be selected as required.

Oil can flow through logic element, item .750 from A to B only. During return travel item .750 is bypassed by means of logic element item .770 operating as a check valve.

Pressure relief valve, item .730 serves as a safety valve to prevent pressure intensification. The valve pressure is set to 10% above the maximum operating pressure and the setting is then lead sealed.

Functional diagram: Normal press cycle Type ...1A1001-3X/...
...7A3001-3X/...



* Output signal at limit switch

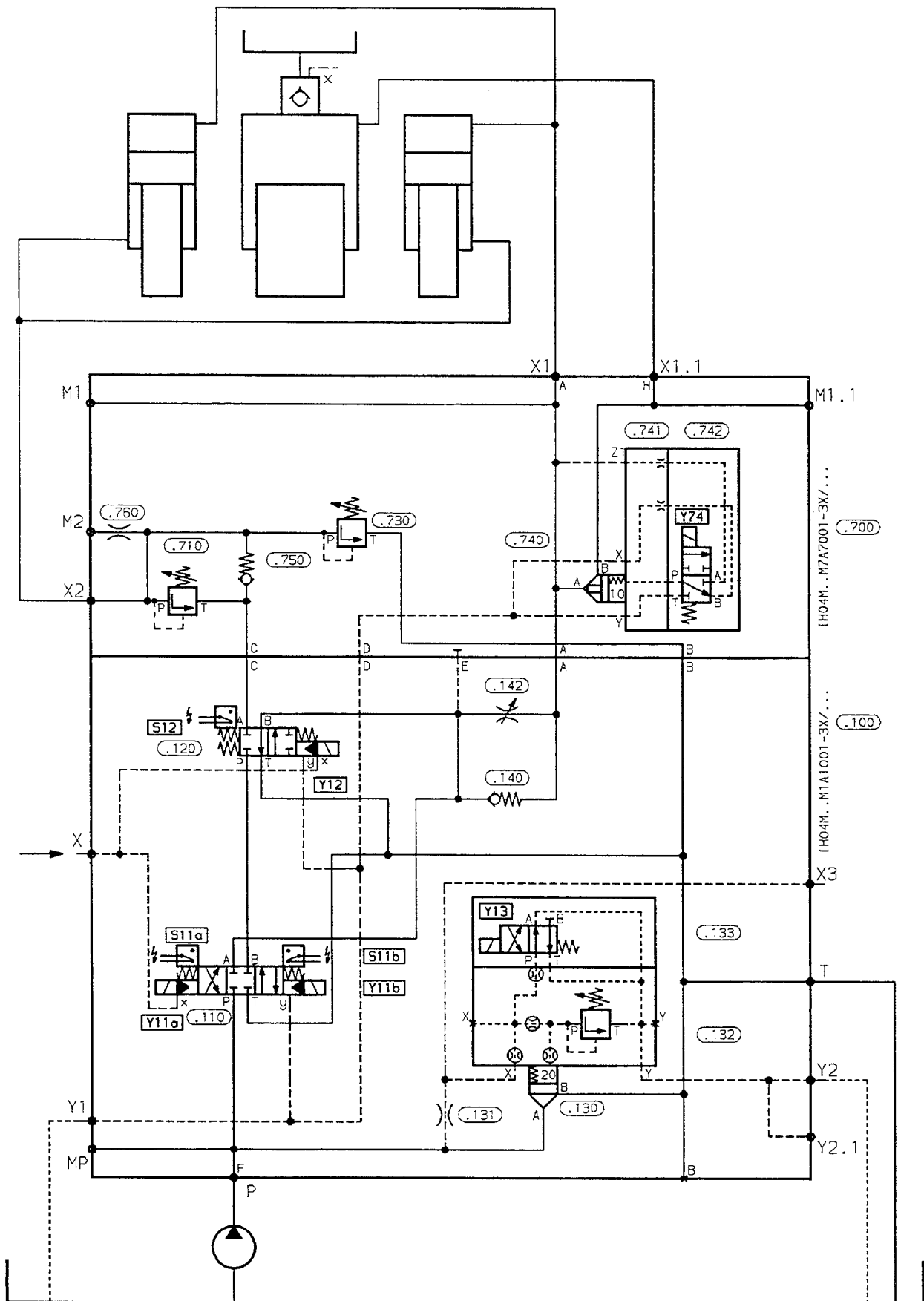
For controls complying with the UVV (Accident Prevention Regulations) specification, automatic monitoring of the components within the machine cycle is necessary!

Required for return stroke: signal change at limit switch S11b.

☐ Time delay if required.

Typical circuit for sizes 6 to 25
Fast forward downstroke using fast forward cylinder,
Filling of main cylinder via prefill valve

Press module
Circuit type M



Module 1 Module 7	Type IH04M...M1A1001-3X/... Type IH04M...M7A7001-3X/...
Application conditions – Fast free-fall downstroke under own weight not possible. – Fast down/up strokes via traverse cylinders. – Prefilling via built-on prefill valve. – Fast forward and pressing speed determined by pump. – <u>Without</u> regenerative circuit. – Pilot oil pump required from size 12 upwards.	
Module1, type 1A1001-3X/ Pressure relief valve, items .130 to .133 serves to protect the hydraulic pump. The maximum operating pressure is set at pressure relief valve, item .132. With the directional valve, item .133 in neutral position, the pressure relief valve, item .132 is switched to low pressure bypass. When solenoid Y13 is energised, the pressure set at the pressure relief valve, item .132 becomes effective. The direction of travel of the cylinder is determined by directional valve, item .110. Limit switches S11a and S11b monitor the return to the "safe" 0-position after each press cycle. When using spool type "T" bypass at zero pressure is possible as an additional configuration, but is not possible with spool types "E" or "L". Alternative spool types are not permissible. Directional valve, item .120 serves as a safety valve to meet UVV requirements (Accident Prevention Regulations). Using limit switch S12, the return to the "safe" 0-position after each press cycle is monitored. The decompression time is set at throttle valve, item .142.	
Module 7, type 7A7001-3X/ The holding pressure (counterbalance pressure) incl. safety margin for the platen weight compensation is set at pressure relief valve, item .710. When the machine is stationary, the cylinder is also held stationary without leakage. Flow through pressure relief valve, item .710 is possible from P to T only. For the return stroke pressure relief valve, item .710 is bypassed by means of check valve, item .750. Pressure relief valve, item .730 serves as a safety valve to prevent pressure intensification. The valve pressure is set to 10% above the maximum operating pressure and the setting is then lead sealed. Logic element, item .740 is closed by operating directional valve, item .742. Oil from the pump now flows via port X1 to the fast forward cylinders only. On completion of the fast forward movement, directional valve, item .742 is de-energised, causing the logic element to open, the opening speed being determined by the orifice in port B of item .741. The pressing force is generated via the three combined piston areas. At the end of the pressing sequence joint decompression is therefore possible. The decompression time is determined by the setting of throttle valve, item .142. On return travel oil flows from the piston areas of the fast forward cylinders via logic element, item .740 to the press cylinder and via the prefill valve to tank. If using a regenerative circuit, model IH04M...M7B1001-3X/... with holding pressure must be used.	

Functional diagram: Normal press cycle									Type	...1A1001-3X/... ...7A7001-3X/...	
Description	Ident.	Item	Position	Stationary	Fast downstroke	Pressing	Decom- pression	Return			
Two-hand control start			UD LD								
Directional valve	Solenoid Y 11a	.110									
Safety valve	Y 11b	.120									
Pressure relief valve	Y 12	.130									
Fast forward valve	Y 74	.742									
Directional valve	Limit switch S 11a	.110	*1 0								
Directional valve	S 11b	.110	*1 0								
Safety valve	S 12	.120	1 *0								
* Output signal at limit switch											

For controls complying with the UVV (Accident Prevention Regulations) specification, automatic monitoring of the components within the machine cycle is necessary!
Required for return stroke: signal change at limit switch S11b.
○ Time delay if required.

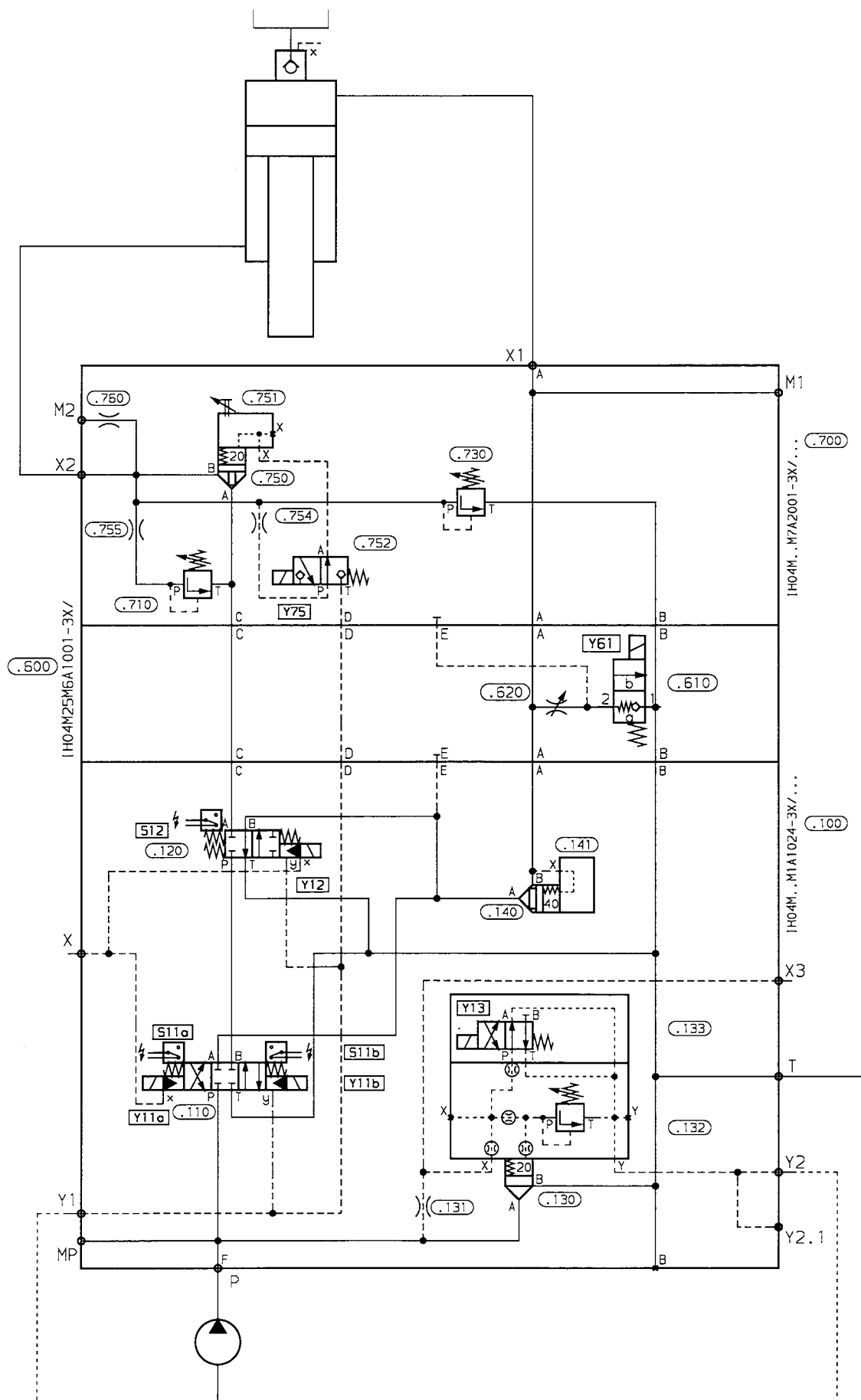
For controls complying with the UVV (Accident Prevention Regulations) specification, automatic monitoring of the components within the machine cycle is necessary!

Required for return stroke: signal change at limit switch S11b.

☐ Time delay if required.

Typical circuit for sizes 6 to 25
Free-fall downstroke under own weight, holding
pressure up to 40 bar,
Filling via prefill valve, pressure holding

Press module
Circuit type M



- Module 1
- Type IH04M...M1A1024-3X/...
- Module 6
- Type IH04M...M6A1001-3X/...
- Module 7
- Type IH04M...M7A2001-3X/...

Application conditions

- Fast free-fall downstroke under own weight.
- Min. holding pressure at max. permissible flow (see pages10 and 11).
- Pressing and return speed determined by pump.
- After pressing, holding pressure is maintained.
- Pilot oil pump required from size 12 upwards.

Module 1, type 1A1024-3X/

Pressure relief valve, items .130 to .133 serves to protect the hydraulic pump. The maximum operating pressure is set at pressure relief valve, item .132. With the directional valve, item .133 in neutral position, the pressure relief valve, item .132 is switched to low pressure bypass.
When solenoid Y13 is energised, the pressure set at the pressure relief valve, item .132 becomes effective.

The direction of travel of the cylinder is determined by directional valve, item .110. Limit switches S11a and S11b monitor the return to the "safe" 0-position after each press cycle.
When using spool type "T" bypass at zero pressure is possible as an additional configuration, but is not possible with spool types "E" or "L". Alternative spool types are not permissible.

Directional valve, item .120 serves as a safety valve to meet UVV requirements (Accident Prevention Regulations). Using limit switch S12, the return to the "safe" 0-position after each press cycle is monitored.

A plug is mounted in the place of item .142.

Remote pressure setting via port X3

The pressing force may be remotely set by means of a pressure control valve which is connected to port X3. Attention must be paid here, that the set press pressure exceeds the required return (break-out) pressure.

Module 6, type 6A1001-3X/

Pressure is held with item .610 in its normal position. Decompression is initiated by operation of directional poppet valve, item .610. The decompression time is set at throttle valve, item .620.

Module 7, module 7A2001-3X/

The holding pressure (counterbalance pressure) incl. safety margin for the platen weight compensation is set at pressure relief valve, item .710. When the machine is stationary, the cylinder is also held stationary without leakage, since initially the logic element, item .750 is also held closed without leakage.

Logic element, item .750 is closed by operating directional poppet valve, item .752. The cylinder now begins the fast downstroke, the fast forward speed being set with the stroke limiter on the logic element, item .750. At the end of the fast forward movement, the directional poppet valve, item .752 is de-energised. The logic element, item .750 closes without time delay. Deceleration from fast forward to pressing speed is effected via orifice, item .755.
Adjustment of deceleration time is not possible!
On return travel, the logic element operates as a check valve, so that the return speed cannot exceed the fast forward speed.

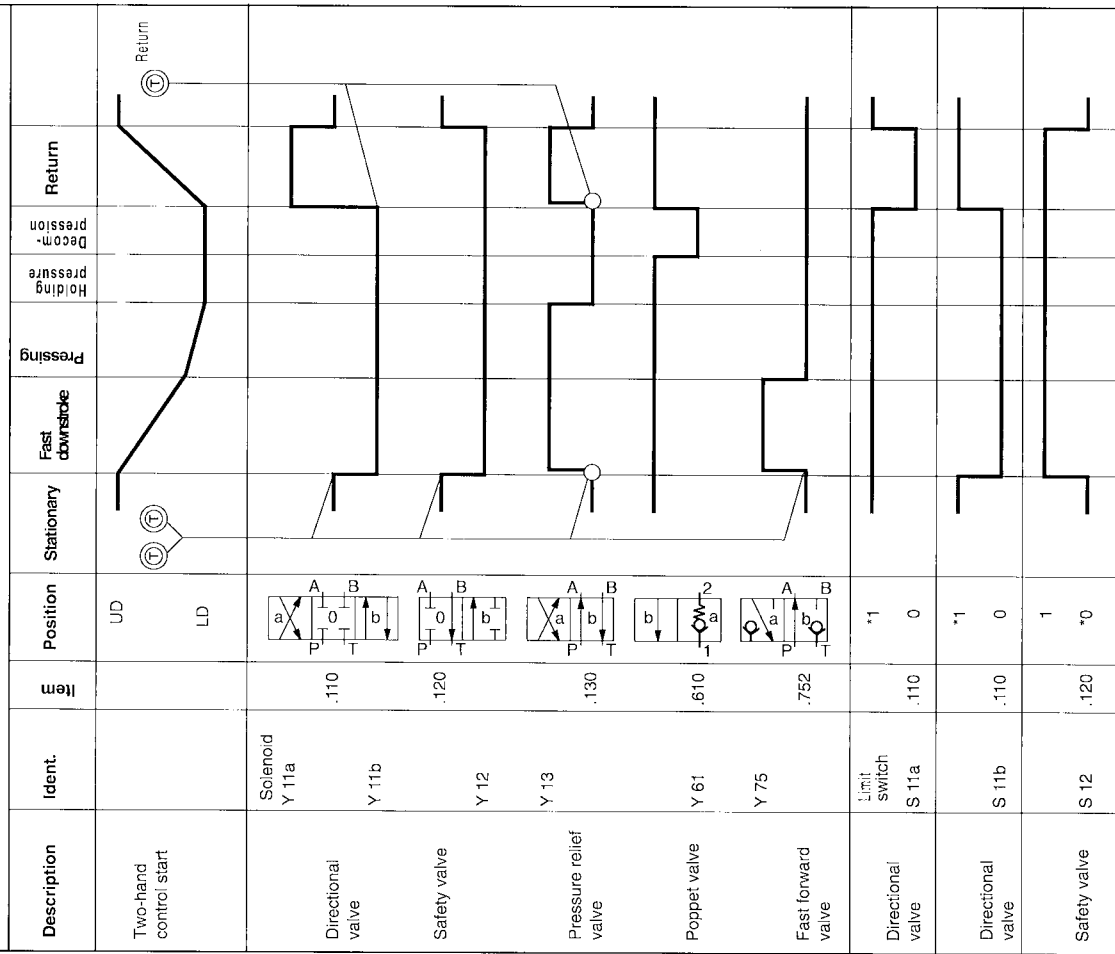
Pressure relief valve, item .730 serves as a safety valve to prevent pressure intensification. The valve pressure is set 10% above the maximum operating pressure and the setting is then lead sealed.

Note

If the desired function requires a counterbalancing function utilising logic element, item .720, it is necessary to fit a seal to the logic element (see module 7A1002-3X/).

Functional diagram: Normal press cycle Type

- ...1A1024-3X/...
- ...6A1001-3X/...
- ...7A2001-3X/...



* Output signal at limit switch

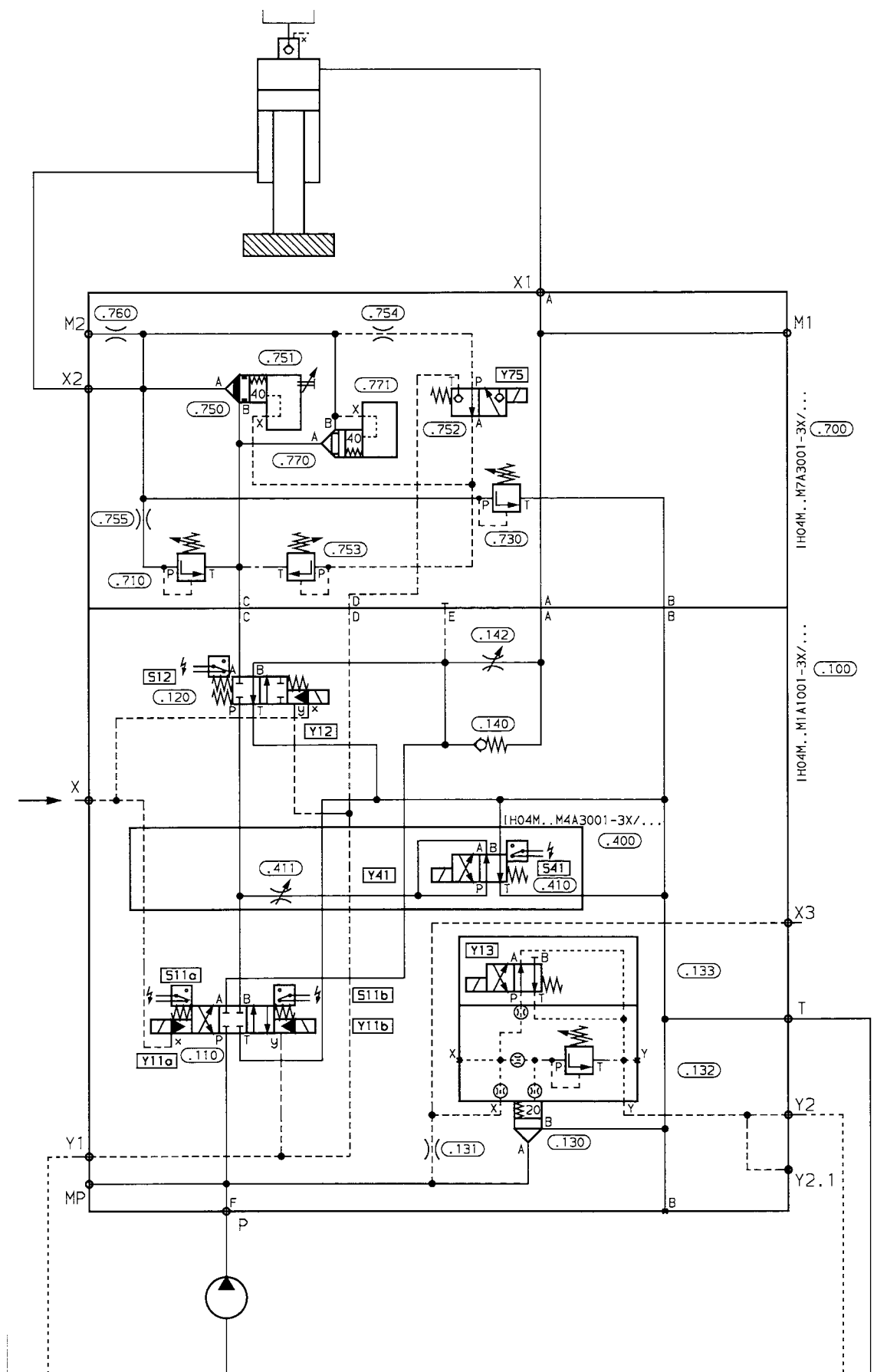
For controls complying with the UVV (Accident Prevention Regulations) specification, automatic monitoring of the components within the machine cycle is necessary!

Required for return stroke: signal change at limit switch S11b.

○ Time delay if required.

Typical circuit for sizes 6 to 25 Free-fall setting up under own weight

Press module Typical circuit M

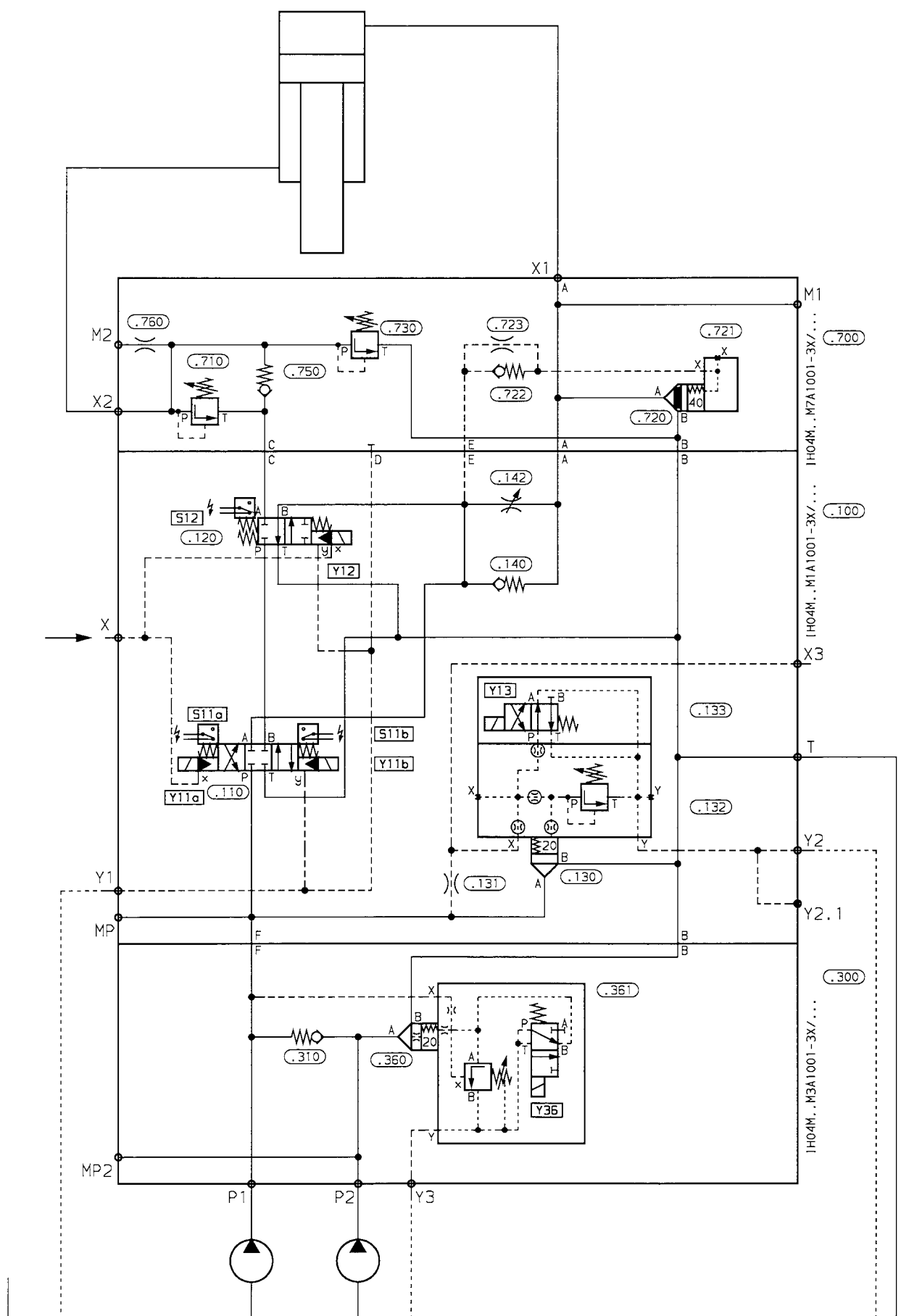


Module 1 Module 4 Module 7	Type IH04M...M1A1001-3X/... Type IH04M...M4A3001-3X/... Type IH04M...M7A3001-3X/...
Application conditions – Fast free-fall downstroke under own weight. – Min. holding pressure up to max. permissible flow (see pages 10 and 11). – Pilot oil pump required from size 12 upwards.	
Module 4, type 4A3001-3X/ Setting speed is set at throttle valve, item .411. Setting up is initiated by operating directional valve, item .410. Using switch S41, the return to the "safe" 0-position is monitored. Note The Accident Prevention Regulations (UVV) 11.064 Hydraulic Presses § 3 – paragraph 5 must be taken into account.	

Functional diagram: Setting up under own weight – zero pressure Return via pump					Type	
Description	Ident.	Item	Position	Stationary	Setting up under own weight	Return
Two-hand control start			UD LD			
Directional valve	Solenoid Y 11a	.110				
Safety valve	Y 11b	.120				
Pressure relief valve	Y 13	.130				
Fast forward valve	Y 41	.410				
Setting up valve	Y 75	.752				
Directional valve	Limit switch S 11a	.110	*1 0			
Directional valve	S 11b	.110	*1 0			
Safety valve	S 12	.120	1 *0			
Setting up valve	S 41	.410	*1 0			
* Output signal at limit switch For controls complying with the UVV (Accident Prevention Regulations) specification, automatic monitoring of the components within the machine cycle is necessary! ○ Time delay if required.						

Typical circuit for sizes 6 to 25 with module for second pump

Press module Circuit type M



Module 1 Type IH04M...M1A1001-3X/...
Module 3 Type IH04M...M3A1001-3X/...
Module 7 Type IH04M...M7A1001-3X/...

Application conditions

- Fast free-fall downstroke under own weight not possible.
- Fast forward and pressing speed determined by pump.
- Pilot oil pump required from size 12 upwards.

Module 1, type 1A1001-3X/

Pressure relief valve, items .130 to .133 serves to protect the hydraulic pump. The maximum operating pressure is set at pressure relief valve, item .132. With the directional valve, item .133 in neutral position, the pressure relief valve, item .132 is switched to low pressure bypass.
When solenoid Y13 is energised, the pressure set at the pressure relief valve, item .132 becomes effective.

The direction of travel of the cylinder is determined by directional valve, item .110. Limit switches S11a and S11b monitor the return to the "safe" 0-position after each press cycle.

When using spool type "T" bypass at zero pressure is possible as an additional configuration, but is not possible with spool types "E" or "L". Alternative spool types are not permissible.

Directional valve, item .120 serves as a safety valve to meet UVV requirements (Accident Prevention Regulations). Using limit switch S12, the return to the "safe" 0-position after each press cycle is monitored.

The decompression time is set at throttle valve, item .142.

Remote pressure setting via port X3

The pressing force may be remotely set by means of a pressure control valve which is connected to port X3. Attention must be paid here, that the set press pressure exceeds the required return (break-out) pressure.

Module 3, type 3A1001-3X/

The second pump may be unloaded as a function of stroke or pressure. Pressure relief valve, item .361 is used to set the pressure at which the pump P2 is switched to bypass at zero pressure dependent on pressure. Operation of directional valve, item .362 causes the pump P2 to be cut in or switched to bypass at zero pressure dependent on press stroke position. The two circuits are separated by means of a non return valve, item .310.

Module 7, type 7A1001-3X/

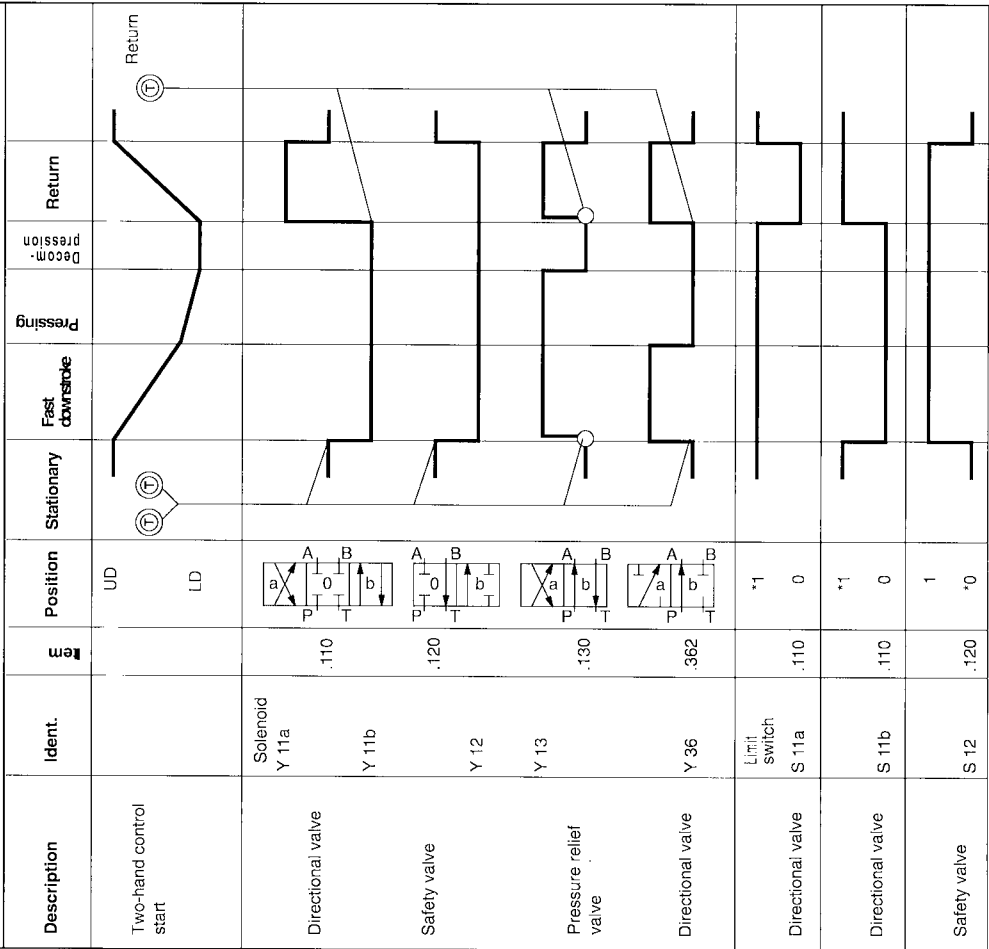
The holding pressure (counterbalance pressure) incl. safety margin for the platen weight compensation is set at pressure relief valve, item .710. When the machine is stationary, the cylinder is also held stationary without leakage.

Flow through pressure relief valve, item .710 is possible from P to T only. For the return stroke pressure relief valve, item .710 is bypassed by means of check valve, item .750.

Logic element, item .720 is held closed by the pressing pressure. During the decompression phase, orifice, item .723 allows the logic element to open with a time delay factor to decrease pressure. During return travel oil flows from the piston side of the cylinder via the open logic element to tank.
Pressure relief valve, item .730 serves as a safety valve to prevent pressure intensification. The valve pressure is set to 10% above the maximum operating pressure and the setting is then lead sealed.

Functional diagram: Normal press cycle Type

...1A1001-3X/...
...3A1001-3X/...
...7A1001-3X/...



* Output signal at limit switch

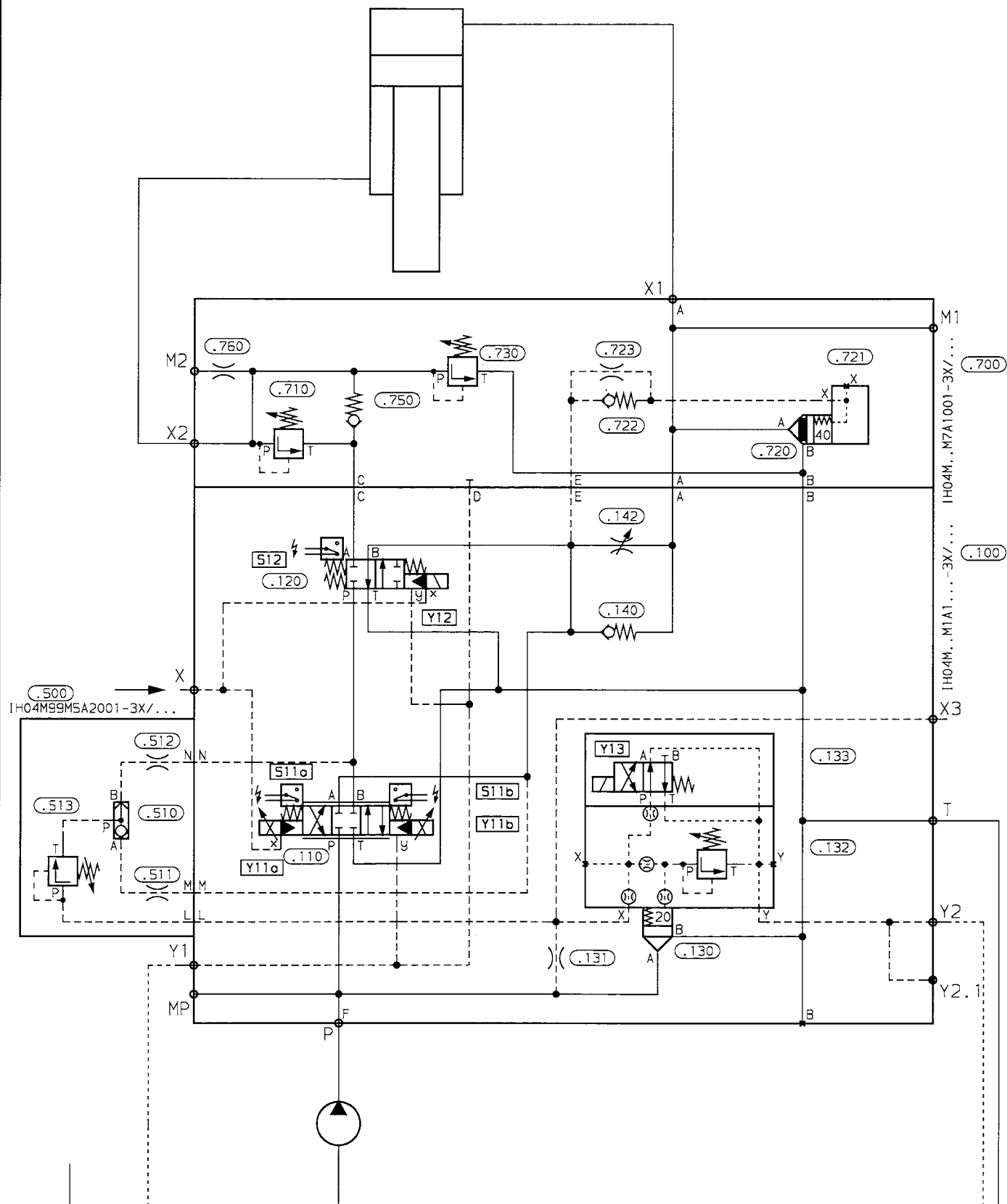
For controls complying with the UVV (Accident Prevention Regulations) specification, automatic monitoring of the components within the machine cycle is necessary!

Required for return stroke: signal change at limit switch S11b.

○ Time delay if required.

Typical circuit for sizes 6 to 25 with pressure compensator

Press module Circuit type M



Module 1 Module 5 Module 7	Type IH04M...M1A1...-3X/... Type IH04M...M5A2001-3X/... Type IH04M...M7A1001-3X/...
Application conditions - Fast free-fall downstroke under own weight not possible. - Fast forward and pressing speed determined by pump. - Pilot oil pump required from size 12 upwards. - Directional valve, item .110 must be a proportional control valve.	
Module 1, type 1A1...-3X/ Pressure relief valve, items .130 to .133 serves to protect the hydraulic pump. The maximum operating pressure is set at pressure relief valve, item .132. With the directional valve, item .133 in its neutral position, the pressure relief valve, item .132 is switched to low pressure bypass. When solenoid Y13 is energised, the pressure set at pressure relief valve, item .132 becomes effective. Directional valve, item .120 serves as a safety valve to meet UVV requirements (Accident Prevention Regulations). Limit switch S12 monitors the return to the "safe" 0-position after each press cycle. The direction of travel and operating speed of the cylinder are determined by proportional directional valve, item .110. Limit switches S11a and S11b monitor the return to the "safe" 0-position after each press cycle. Only spool type "E" is permissible. The decompression time is set at throttle valve, item .142. Decompression can also be controlled via proportional directional valve, item .110. In this case, directional valve, item .120 remains energised and throttle valve, item .142 fully open. item .110 Press module, size 6 with proportional control valve on enquiry.	
Module 5, type 5A2001-3X/ Pressure relief valve, item .513 is used to set the pressure drop between port P and port A or B of the proportional directional valve, item .110. Pressure acting on port A or B plus the pressure drop acts on logic element, item .130. The pressure drop set remains constant for each travel speed of the cylinder and enables a smooth operation. The pressure compensator ensures that, when the cylinder is operated, only the pressure required for the pressing function or return operation is available. The power loss therefore will be kept to a minimum. The pressure compensator should be used only in conjunction with a fixed displacement pump.	
Module 7, type 7A1001-3X/ The holding pressure (counterbalance pressure) incl. safety margin for the platen weight compensation is set at pressure relief valve, item .710. When the machine is stationary, the cylinder is also held stationary without leakage. Flow through pressure relief valve, item .710 is possible from P to T only. For the return stroke, pressure relief valve, item .710 is bypassed by means of a check valve, item .750. Logic element, item .720 is held closed by the pressing pressure. During the decompression phase orifice, item .723 allows the logic element to open with a time delay factor to decrease pressure. During return travel, oil flows from the piston side of the cylinder via the open logic element to tank. Pressure relief valve, item .730 serves as a safety valve to prevent pressure intensification. The valve pressure is set 10% above the maximum operating pressure and the setting then lead sealed.	
Remote pressure setting via port X3 The pressing force may be remotely set by means of a pressure control valve which is connected to port X3. Attention must be paid here, that the set press pressure exceeds the required return (break-out) pressure.	

Functional diagram: Normal press cycle Type ...1A1...-3X/... ...5A2001-3X/... ...7A1001-3X/...						
Description	Ident.	Item	Position	Stationary	Pressing	Decom- pression
Two-hand control start			UD			
Directional valve	Solenoid Y 11a		LD			
Safety valve	Y 11b	.110				
Pressure relief valve	Y 12	.120				
	Y 13	.130				
Directional valve	Limit switch S 11a	.110	*1			
Directional valve	S 11b	.110	*1			
Safety valve	S 12	.120	1			
* Output signal at limit switch						

For controls complying with the UVV (Accident Prevention Regulations) specification, automatic monitoring of the components within the machine cycle is necessary!

Required for return stroke: signal change at limit switch S11b.

☐ Time delay if required.

Module 1 Module 5 Module 7	Type IH04M...M1A1...-3X/... Type IH04M...M5A1001-3X/... Type IH04M...M7A1001-3X/...
Application conditions – Fast free-fall downstroke under own weight not possible. – Fast forward and pressing speed determined by pump. – Pilot oil pump required from size 12 upwards. – Directional valve, item .110 must be a proportional control valve.	
Module 1, type 1A1...-3X/ Pressure relief valve, items .130 to .133 serves to protect the hydraulic pump. The maximum operating pressure is set at pressure relief valve, item .132. Operating pressure is smoothly variable via proportional pressure relief valve, item .133. Bypass at zero pressure is also possible. The direction of travel and operating speed of the cylinder are determined by proportional directional valve, item .110. Limit switches S11a and S11b monitor the return to the "safe" 0-position after each press cycle. Only spool type "E" is permissible. Directional valve, item .120 serves as a safety valve to meet UUV requirements (Accident Prevention Regulations). Limit switch S12 monitors the return to the "safe" 0-position after each press cycle. The decompression time is set at throttle valve, item .142. Decompression can also be controlled via proportional directional valve, item .110. In this case, directional valve, item .120 remains energised and throttle valve, item .142 fully open. item .110 Press module, size 6 with proportional control valve on enquiry.	
Module 5, type 5A1001-3X/ According to the direction of travel of the cylinder, pressure acting on port A or B of the proportional directional valve, item .110 is directed via shuttle valve, item .510 to the flow regulator (port X) of the pump.	
Module 7, type 7A1001-3X/ The holding pressure (counterbalance pressure) incl. safety margin for the platen weight compensation is set at pressure relief valve, item .710. When the machine is stationary, the cylinder is also held stationary without leakage. Flow through pressure relief valve, item .710 is possible from P to T only. For the return stroke, pressure relief valve, item .710 is bypassed by means of a check valve, item .750. Logic element, item .720 is held closed by the pressing pressure. During the decompression phase orifice, item .723 allows the logic element to open with a time delay factor to decrease pressure. During return travel, oil flows from the piston side of the cylinder via the open logic element to tank. Pressure relief valve, item .730 serves as a safety valve to prevent pressure intensification. The valve pressure is set 10% above the maximum operating pressure and the setting then lead sealed.	

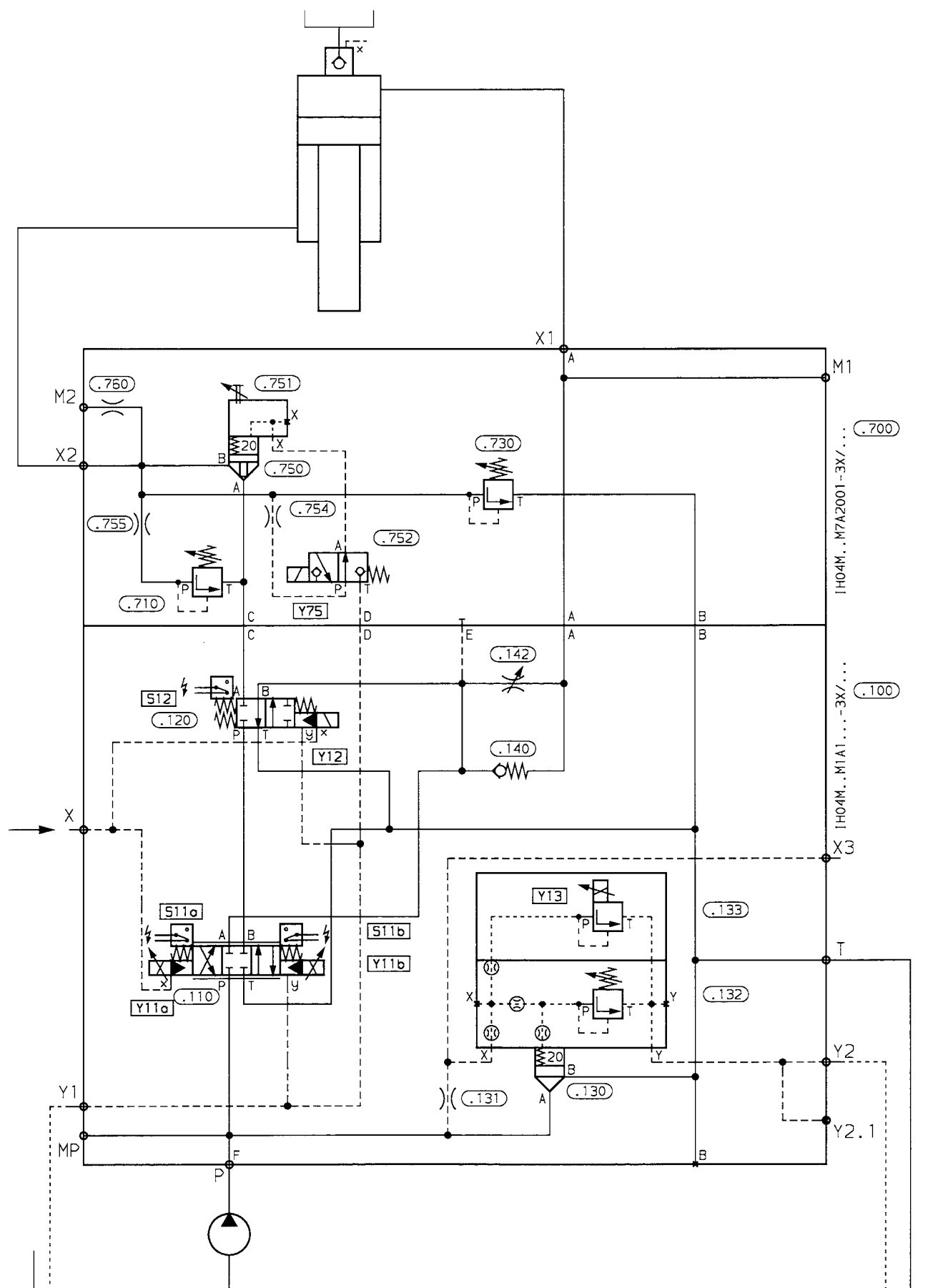
Functional diagram: Normal press cycle Type ...1A1...-3X/... ...5A1001-3X/... ...7A1001-3X/...						
Description	Ident.	Item	Position	Stationary	Pressing	Decom- pression
Two-hand control start			UD			
			LD			
Directional valve	Solenoid Y 11a	.110				
Safety valve	Y 11b	.120				
Pressure relief valve	Y 12 Y 13	.130				
Directional valve	Limit switch S 11a	.110	*1			
Directional valve	S 11b	.110	0			
Safety valve	S 12	.120	1 *0			
* Output signal at limit switch						
For controls complying with the UUV (Accident Prevention Regulations) specification, automatic monitoring of the components within the machine cycle is necessary! Required for return stroke: signal change at limit switch S11b. ○ Time delay if required.						

Typical circuit for sizes 6 to 25

Holding pressure max. 40 bar

Press module

Circuit type M



Module 1
Module 7

Type IH04M....M1A1...-3X/...
Type IH04M....M7A2001-3X/...

Application conditions

- Fast free-fall downstroke under own weight.
- Min. holding pressure at max. permissible flow (see pages 10 and 11).
- The operating pressure is set at the proportional pressure relief valve.
- Pressing and return speeds are determined by the pump in conjunction with the control valve.
- Pilot oil pump is required from size 12 upwards.

Module 1, type 1A1...-3X/

Pressure relief valve, items .130 to .133 serves to protect the hydraulic pump. The maximum operating pressure is set at pressure relief valve, item .132. Operating pressure is smoothly variable via proportional pressure relief valve, item .133. Bypass at zero pressure is also possible.

The direction of travel and operating speed of the cylinder are determined by proportional directional valve, item .110. Limit switches S11a and S11b monitor the return to the "safe" 0-position after each press cycle. Only spool type "E" is permissible.

Directional valve, item .120 serves as a safety valve to meet UVV requirements (Accident Prevention Regulations). Limit switch S12 monitors the return to the "safe" 0-position after each press cycle.

The decompression time is set at throttle valve, item .142.

Decompression can also be controlled via proportional directional valve, item .110. In this case, directional valve, item .120 remains energised and throttle valve, item .142 fully open.

Item .110
Press module, size 6 with proportional control valve on enquiry.

Module 7, module 7A2001-3X/

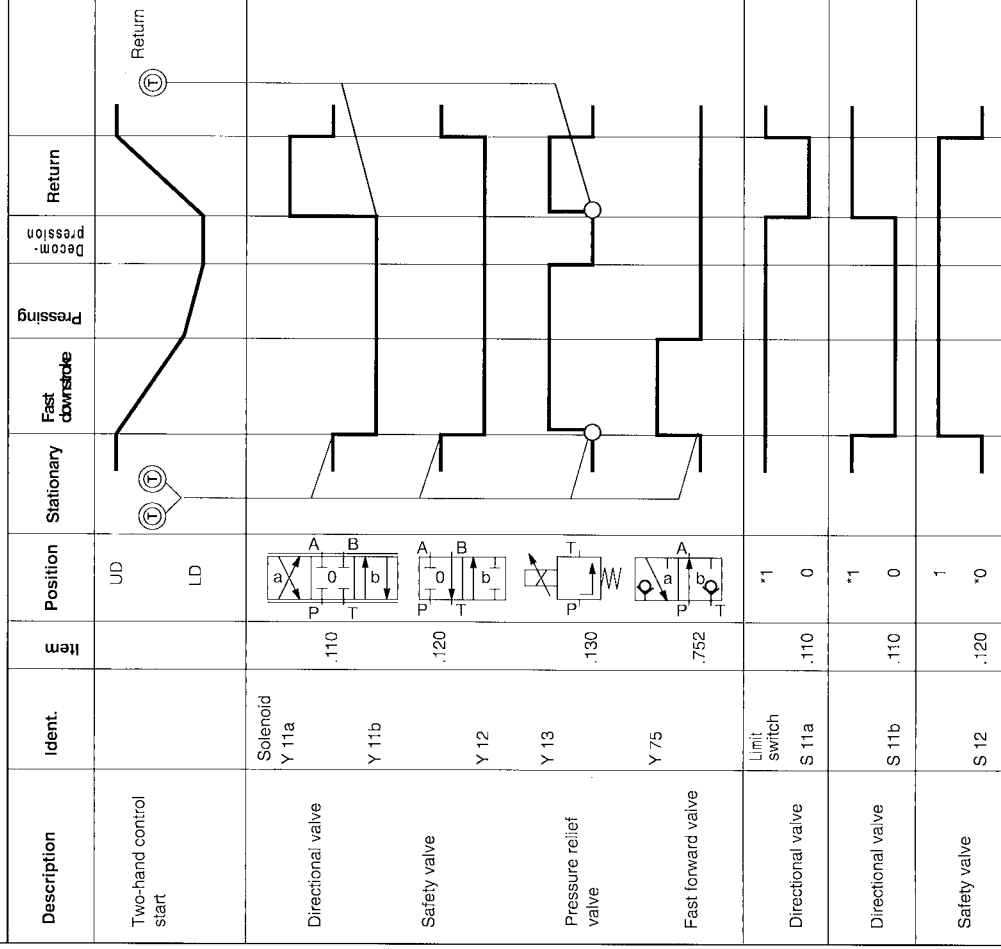
The holding pressure (counterbalance pressure) incl. safety margin for the platen weight compensation is set at pressure relief valve, item .710. When the machine is stationary, the cylinder is also held stationary without leakage, since initially the logic element, item .750 is also held closed without leakage.

Logic element, item .750 is closed by operating directional poppet valve, item .752. The cylinder now begins the fast downstroke, the fast forward speed being set with the stroke limiter on the logic element, item .750. At the end of the fast forward movement, the directional poppet valve, item .752 is de-energised. The logic element, item .750 closes without time delay. Deceleration from fast forward to pressing speed is effected via orifice, item .755.

Adjustment of deceleration time is not possible!
On return travel, the logic element operates as a check valve, so that the return speed cannot exceed the fast forward speed.

Pressure relief valve, item .730 serves as a safety valve to prevent pressure intensification. The valve pressure is set 10% above the maximum operating pressure and the setting is then lead sealed.

Functional diagram: Normal press cycle Type ...1A1...-3X/...
...7A2001-3X/...



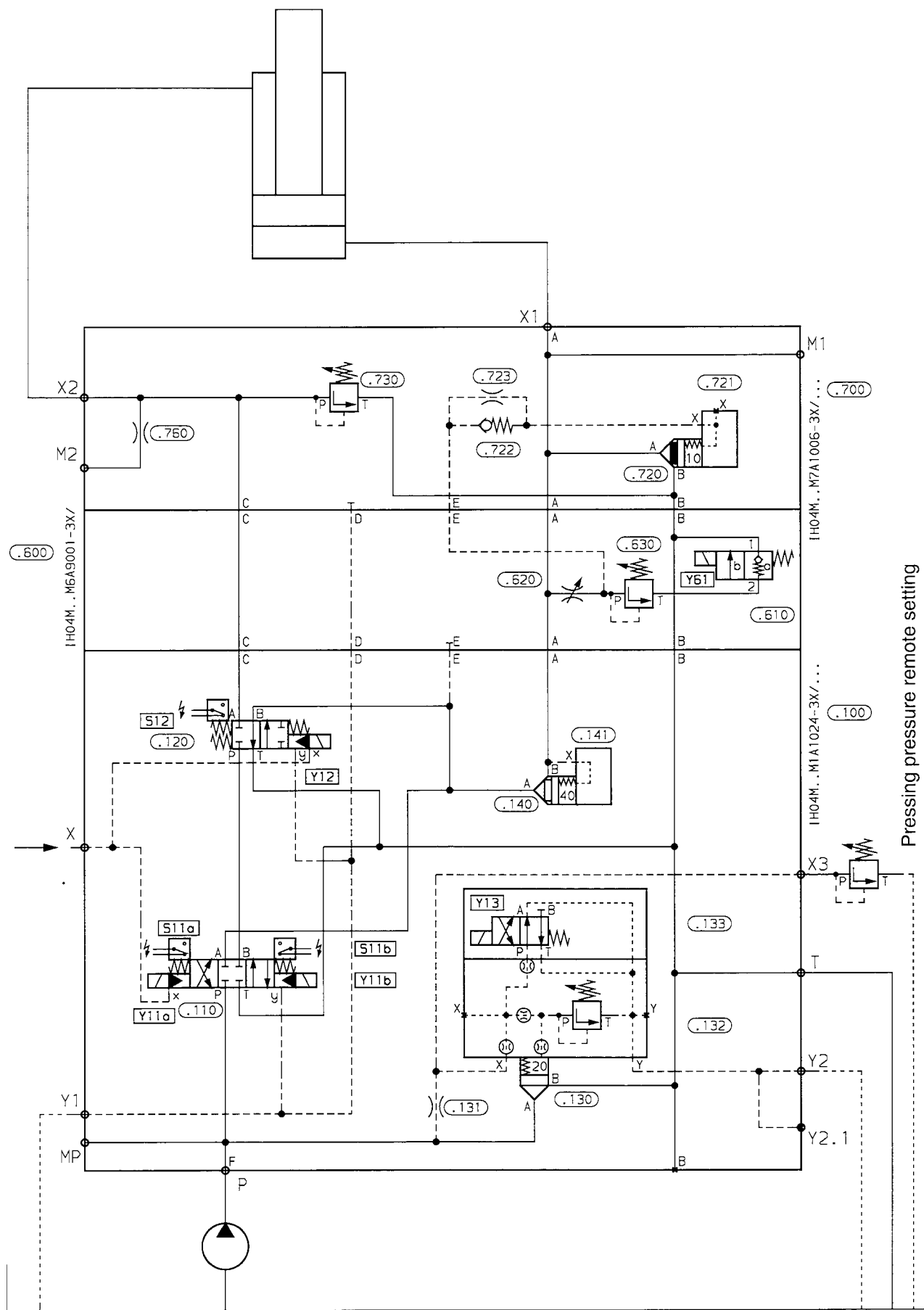
* Output signal at limit switch

For controls complying with the UVV (Accident Prevention Regulations) specification, automatic monitoring of the components within the machine cycle is necessary!
Required for return stroke: signal change at limit switch S11b.

☐ Time delay if required.

Typical circuit for sizes 12 to 25

Press module
Circuit type M



- Module 1
Module 6
Module 7
- Type IH04M...M1A1024-3X/...
Type IH04M...M6A9001-3X/...
Type IH04M...M7A1006-3X/...

Application conditions

- Fast forward and pressing speed determined by pump.
- Pilot oil pump required from size 12 upwards.

Module 1, type 1A1024-3X/

Pressure relief valve, items .130 to .133 serves to protect the hydraulic pump. The maximum operating pressure is set at pressure relief valve, item .132. With the directional valve, item .133 in neutral position, the pressure relief valve, item .132 is switched to low pressure bypass.
When solenoid Y13 is energised, the pressure set at the pressure relief valve, item .132 becomes effective.

The direction of travel of the cylinder is determined by directional valve, item .110. Limit switches S11a and S11b monitor the return to the "safe" 0-position after each press cycle.

When using spool type "T" bypass at zero pressure is possible as an additional configuration, but is not possible with spool types "E" or "L". Alternative spool types are not permissible.

Directional valve, item .120 serves as a safety valve to meet UVV requirements (Accident Prevention Regulations). Using limit switch S12, the return to the "safe" 0-position after each press cycle is monitored.

Module 6, type 6A9001-3X/

The holding pressure (counterbalance pressure) incl. safety margin for the platen weight compensation is set at pressure control valve, item 630.

Decompression is initiated by operating directional poppet valve, item .610. Pressure is reduced down to the holding pressure. The decompression time is set at throttle, item .620.

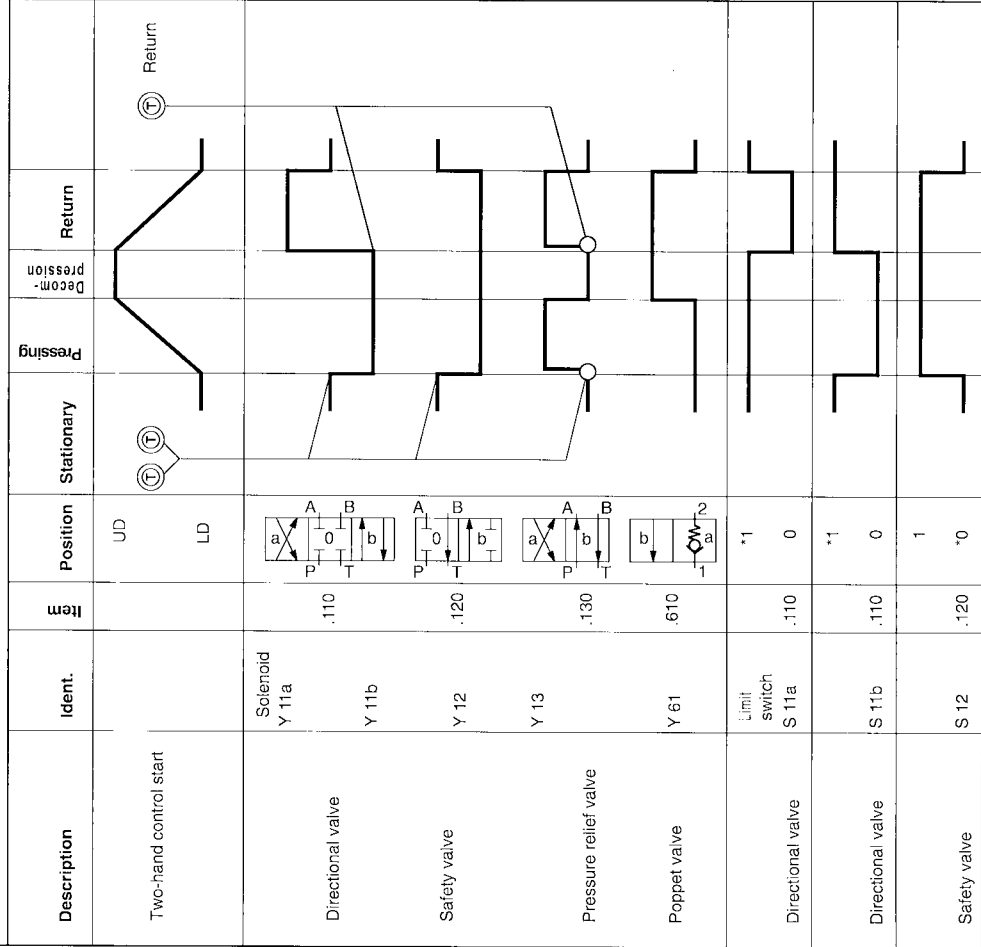
Module 7, type 7A1006-3X/

Logic element, item .720 is held closed by the pressing pressure. During the decompression phase orifice, item .723 allows the logic element to open with a time delay factor to decrease pressure. During return travel, oil flows from the piston side of the cylinder via the open logic element to tank.

Pressure relief valve, item .730 serves as a safety valve to prevent pressure intensification. The valve pressure is set 10% above the maximum operating pressure and the setting is then lead sealed.

Functional diagram: Normal press cycle

- Type
- ...1A1024-3X/...
...6A9001-3X/...
...7A1006-3X/...



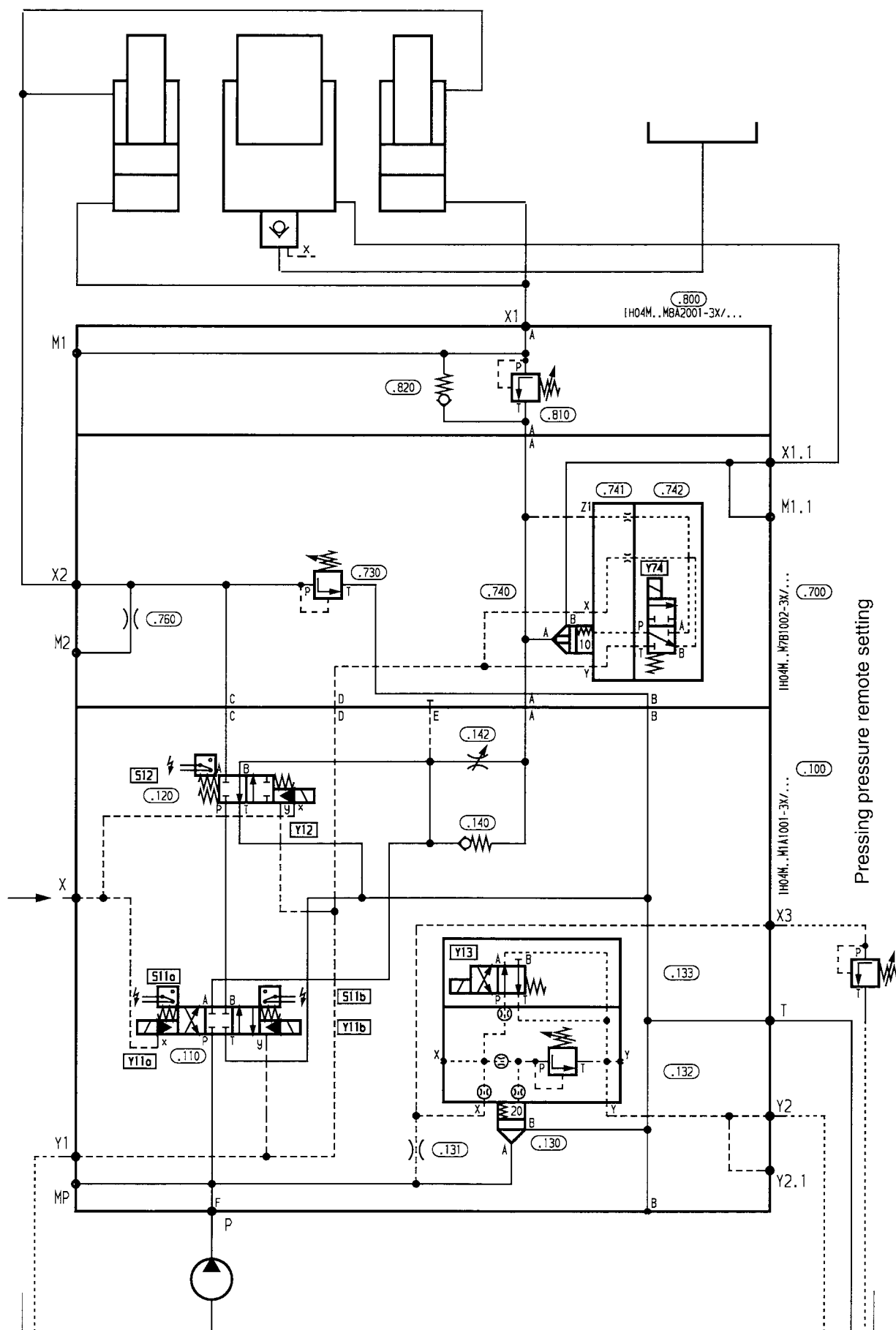
* Output signal at limit switch

For controls complying with the UVV (Accident Prevention Regulations) specification, automatic monitoring of the components within the machine cycle is necessary!

○ Time delay if required.

Typical circuit for sizes 12 to 25
Fast forward with fast forward cylinders
Filling of main cylinder via prefill valve

Press module
Circuit type M



- Module 1
Module 7
Module 8
- Type IH04M...M1A1001-3X/...
Type IH04M...M7B1002-3X/...
Type IH04M...M8A2001-3X/...

Application conditions

- Fast forward up and downstrokes by means of fast forward cylinders.
- Filling via mounted prefill valve.
- Fast forward and pressing speed determined by pump.
- Pilot oil pump is required from size 12 upwards.

Module 1, type 1A1001-3X/

Pressure relief valve, items .130 to .133 serves to protect the hydraulic pump. The maximum operating pressure is set at pressure relief valve, item .132. With the directional valve, item .133 in neutral position, the pressure relief valve, item .132 is switched to low pressure bypass.

When solenoid Y13 is energised, the pressure set at pressure relief valve, item .132 becomes effective.

The direction of travel of the cylinder is determined by directional valve, item .110. Limit switches S11a and S11b monitor the return to the "safe" 0-position after each press cycle.

When using spool type "T" bypass at zero pressure is possible as an additional configuration, but is not possible with spool types "E" or "L". Alternative spool types are not permissible.

Directional valve, item .120 serves as a safety valve to meet UVV requirements (Accident Prevention Regulations). Using limit switch S12, the return to the "safe" 0-position after each press cycle is monitored.

The decompression time is set at throttle valve, item .142. Pressure is reduced in fast forward cylinders down to the holding pressure.

Module 7, type 7B1002-3X/

Pressure relief valve, item .730 serves as a safety valve to prevent pressure intensification. The valve pressure is set to 10% above the maximum operating pressure and the setting is then lead sealed.

Logic element, item .740 is closed by operating directional valve, item .742. Oil from the pump, now flows via port X1 to the fast forward cylinders only. On completion of the fast forward movement, directional valve, item .742 is de-energised, causing the logic element to open, the opening speed being determined by the orifice in port B of item .741. The pressing force is generated via the three combined piston areas. At the end of the pressing sequence joint decompression is therefore possible. The decompression time is determined by the setting of throttle valve, item .142. On return travel oil flows from the piston areas of the fast forward cylinders via logic element, item .740 to the press cylinder and via the prefill valve to tank.

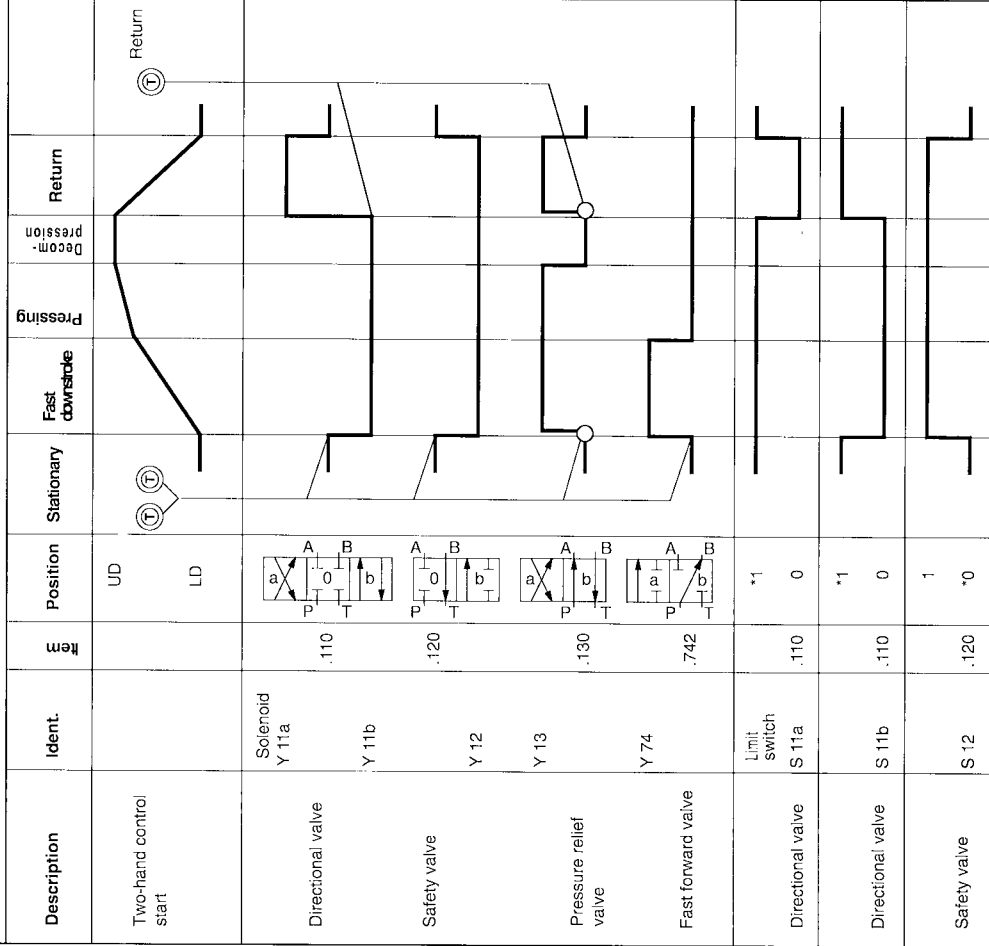
Module 8, type 8A2001-3X/

The holding pressure (counterbalance pressure) incl. safety margin for the platen weight compensation is set at pressure control valve, item .810. Hence the cylinders remain stationary without any leakages.

Flow through pressure relief valve, item .810 is possible from P to T only. For the return stroke pressure relief valve, item .810 is bypassed by means of check valve, item .820.

Functional diagram: Normal press cycle Type

- ...1A1001-3X/...
...7B1002-3X/...
...8A2001-3X/...



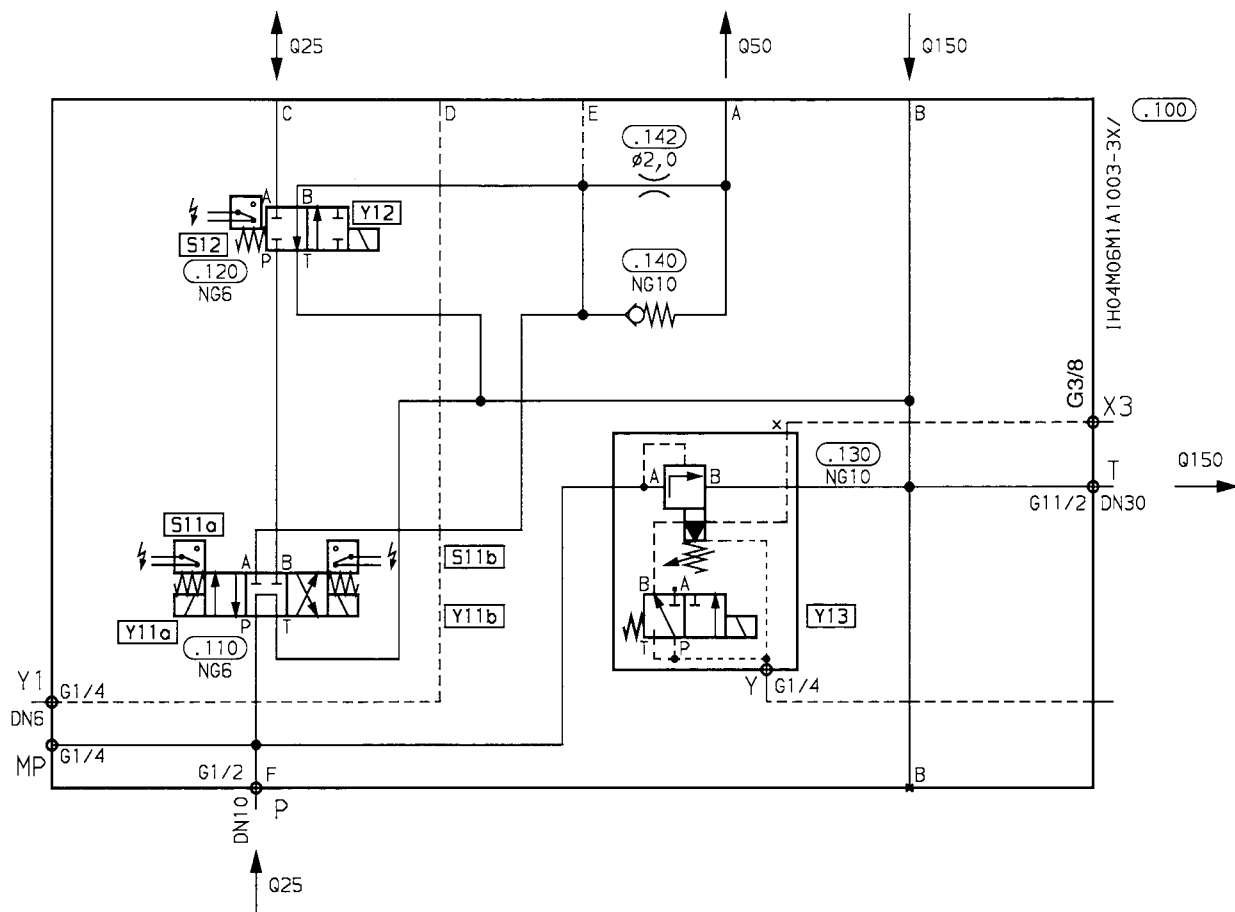
* Output signal at limit switch

For controls complying with the UVV (Accident Prevention Regulations) specification, automatic monitoring of the components within the machine cycle is necessary!

☐ Time delay if required.

Module 1

Press module, size 6
Circuit type M
IH04M06M1A1003-3X/...

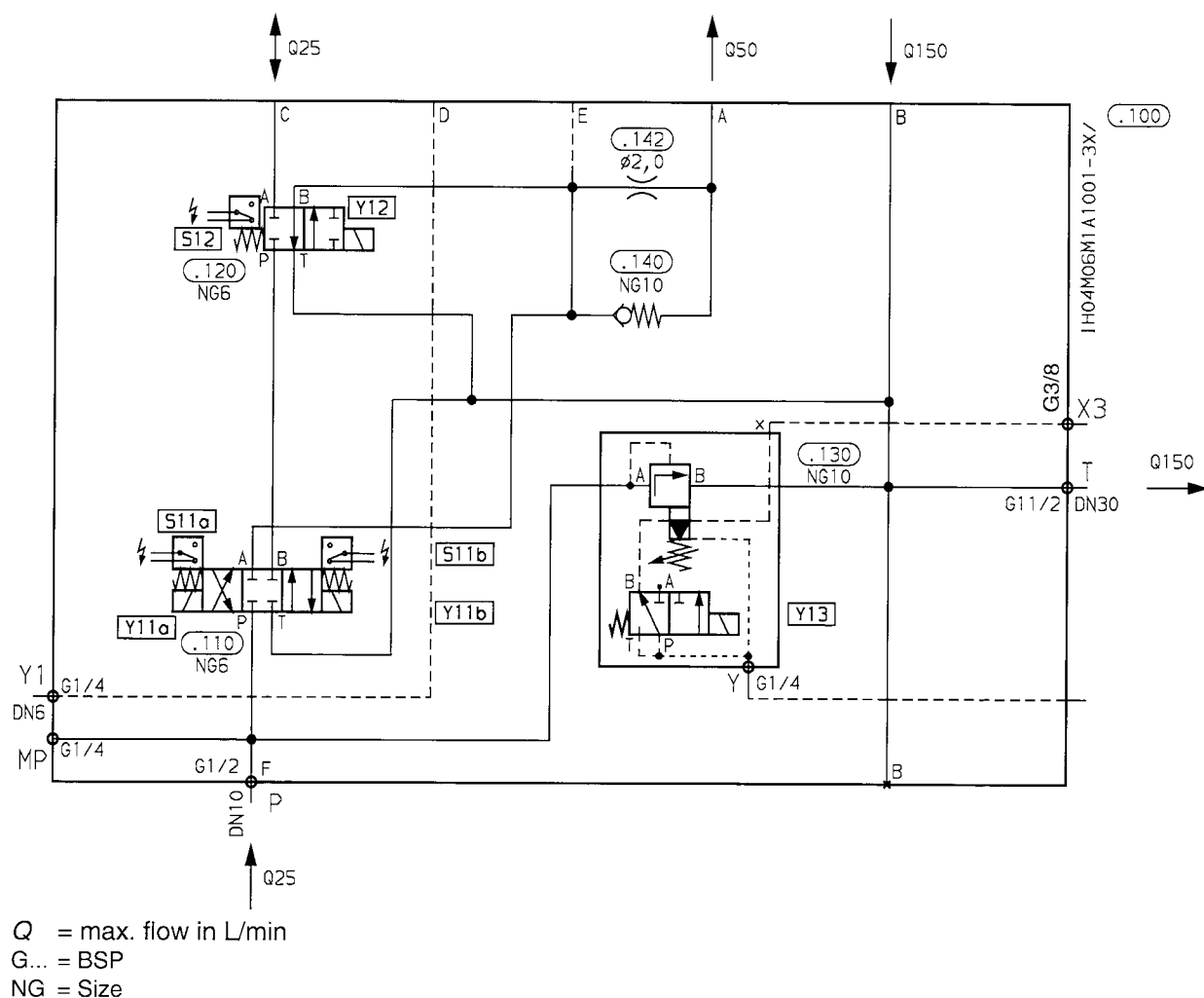


Q = max. flow in L/min

G... = BSP

NG = Size

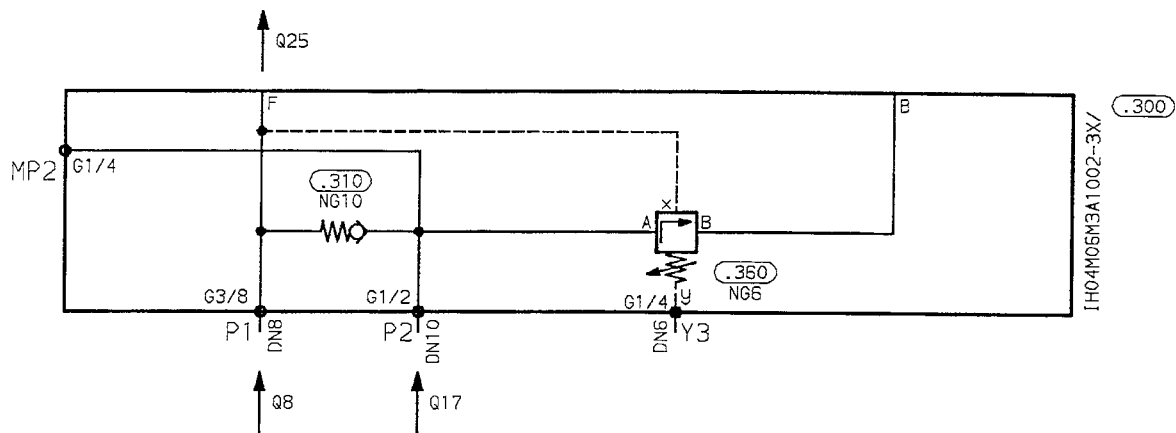
Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 6	4WE6T5X/B ... QP0G24S	RE 23 177
.120	1	Directional valve, size 6	4WE6U10B5X/B ... QP0G24E	RE 23 177
.130	1	Pressure relief valve, size 10	DBW10B2-5X/315XY ...	RE 25 802
.140	1	Check valve, size 10	M-SR10KE05-1X	RE 20 380
.142	1	Orifice	DUESE 2,0 G1/4 DIN 906	RN115.06

Module 1**Press module, size 6**
Circuit type M
IH04M06M1A1001-3X/...

Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 6	4WE6E5X/B ... QP0G24S	RE 23 177
.120	1	Directional valve, size 6	4WE6U10B5X/B ... QP0G24E	RE 23 177
.130	1	Pressure relief valve, size 10	DBW10B2-5X/315XY ...	RE 25 802
.140	1	Check valve, size 10	M-SR10KE05-1X	RE 20 380
.142	1	Orifice	DUESE 2,0 G1/4 DIN 906	RN115.06

Module 3
Block for second pump,
second pump may be shut off as a function of pressure,
shut-off pressure max. 210 bar

Press module, size 6
Circuit type M
IH04M06M3A1002-3X/...

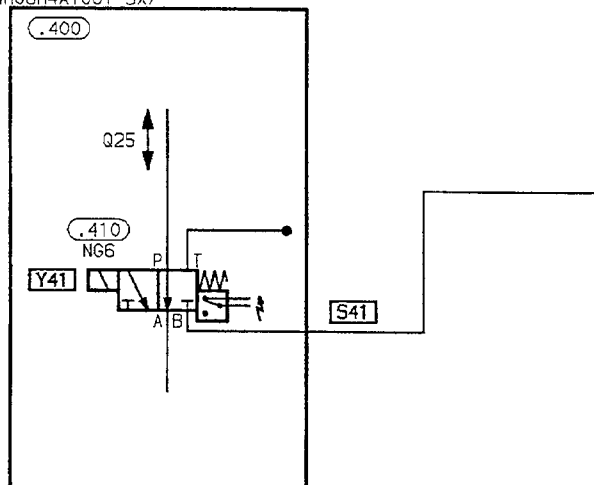


Q = max. flow in L/min
G... = BSP
NG = Size

Item	Qty	Description	Type	Further information
.310	1	Check valve, size 10	M-SR10KE30-1X	RE 20 380
.360	1	Pressure sequence valve, size 6	DZ6DP2-5X/210XYM	RE 26 076

Module 4
Regenerative circuit
Press module, size 6
Circuit type M
IH04M06M4A1001-3X/...

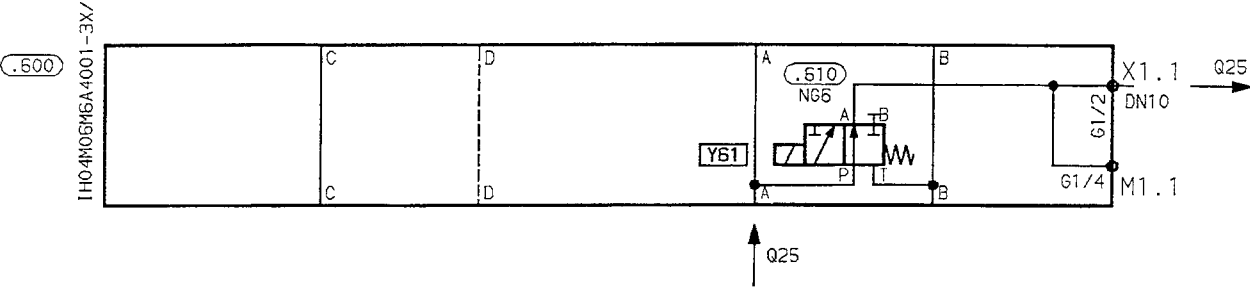
IH04M06M4A1001-3X/



Q = max. flow in L/min
 G... = BSP
 NG = Size

Item	Qty	Description	Type	Further information
.410	1	Directional valve, size 6	3WE6A7-5X/B...QPBG24S	RE 23 177

Module 6 Position dependent sequencing for fast forward cylinder	Press module, size 6 Circuit type M IH04M06M6A4001-3X/...
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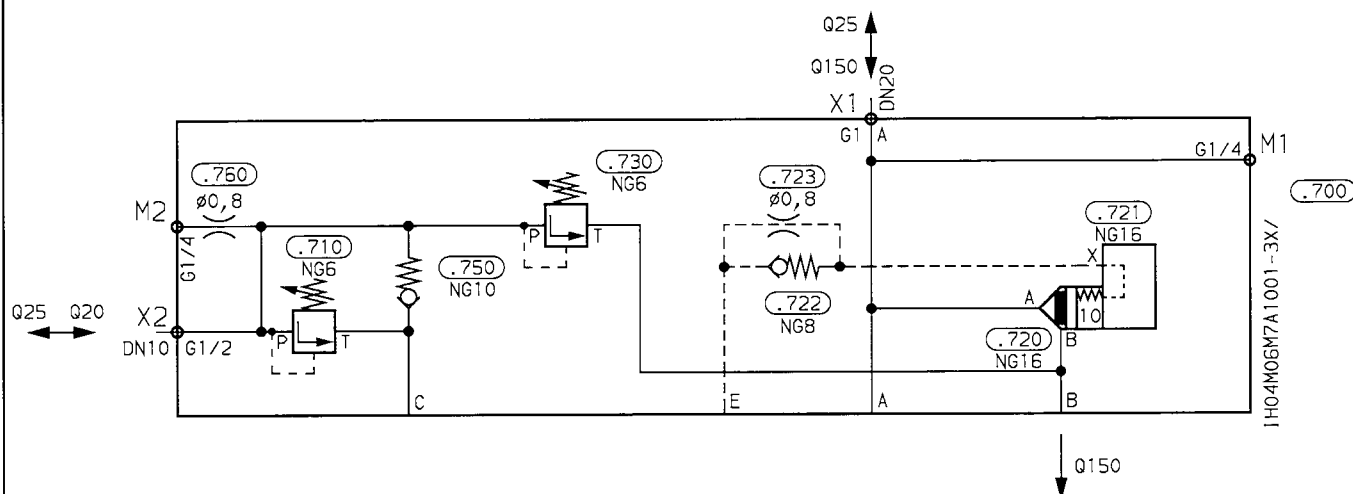


Q = max. flow in L/min
G... = BSP
NG = Size

Item	Qty	Description	Type	Further information
.610	1	Directional valve, size 6	3WE6A5X/B...	RE 23 177

Module 7 Counterbalance

Press module, size 6
Circuit type M
IH04M06M7A1001-3X/...



Q = max. flow in L/min

G... = BSP

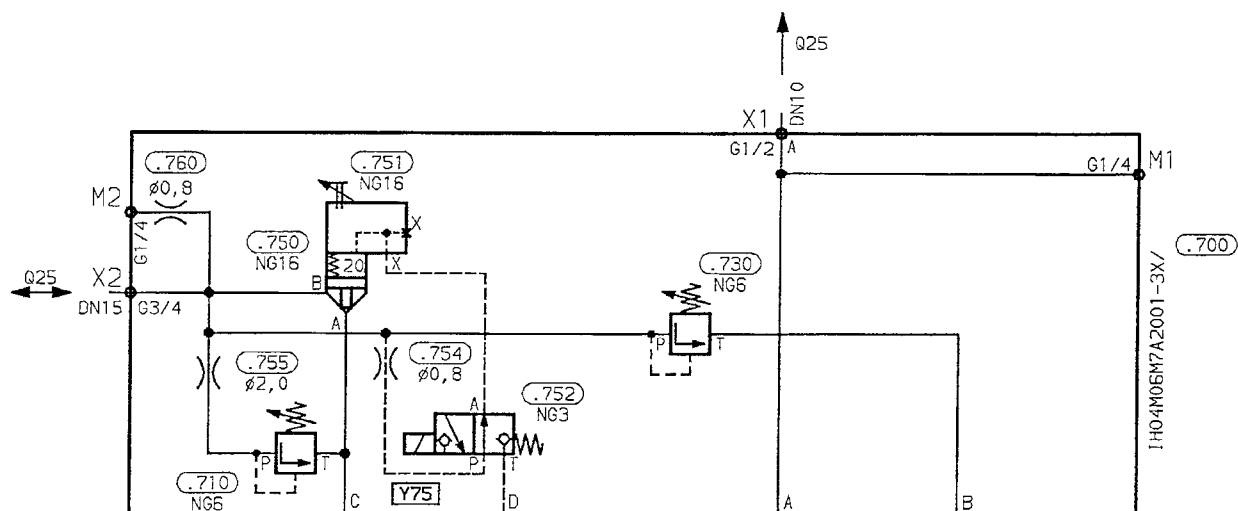
NG = Size

Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 6	DBDS6K1X/100	RE 25 402
.720	1	Logic element, size 16	LC16B10D6X	RE 81 010
.721	1	Control cover, size 16	LFA16D6X	RE 81 010
.722	1	Check valve, size 8	M-SR8KE05-1X	RE 20 380
.723	1	Orifice	DUESE 0,8 R1/8 DIN 906	RN115.06
.730	1	Pressure relief valve, size 6	DBDS6K1X/315	RE 25 402
.750	1	Check valve, size 10	M-SR10KE05-1X	RE 20 380
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH	AEH.DIN 906

Module 7

Counterbalance, pilot operated

Press module, size 6
Circuit type M
IH04M06M7A2001-3X/...

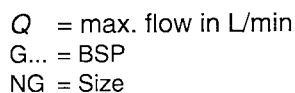


Q = max. flow in L/min

G... = BSP

NG = Size

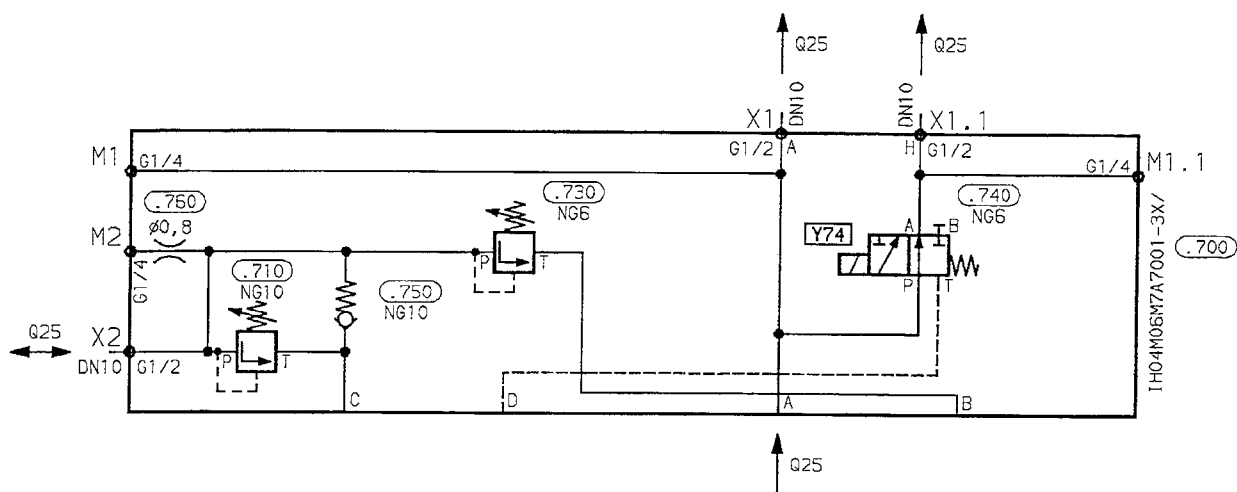
Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 6	DBDS6K1X/100	RE 25 402
.730	1	Pressure relief valve, size 6	DBDS6K1X/315	RE 25 402
.750	1	Logic element, size 16	LC16A20E6X	RE 81 010
.751	1	Control cover, size 16	LFA16H2-6X/F	RE 81 010
.752	1	Directional poppet valve, size 3	FL-WSE3E0D.0/ ...	
.754	1	Orifice	DUESE 0,8 R1/8 DIN 906	RN115.06
.755	1	Orifice	DUESE 2,0 G1/4 DIN 906	RN115.06
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH	AEH.DIN 906



MANNESMANN REXROTH 55/168

Module 7
Counterbalance with pressure sequence valve,
position dependent, for fast forward cylinder

Press module, size 6
Circuit type M
IH04M06M7A7001-3X/...

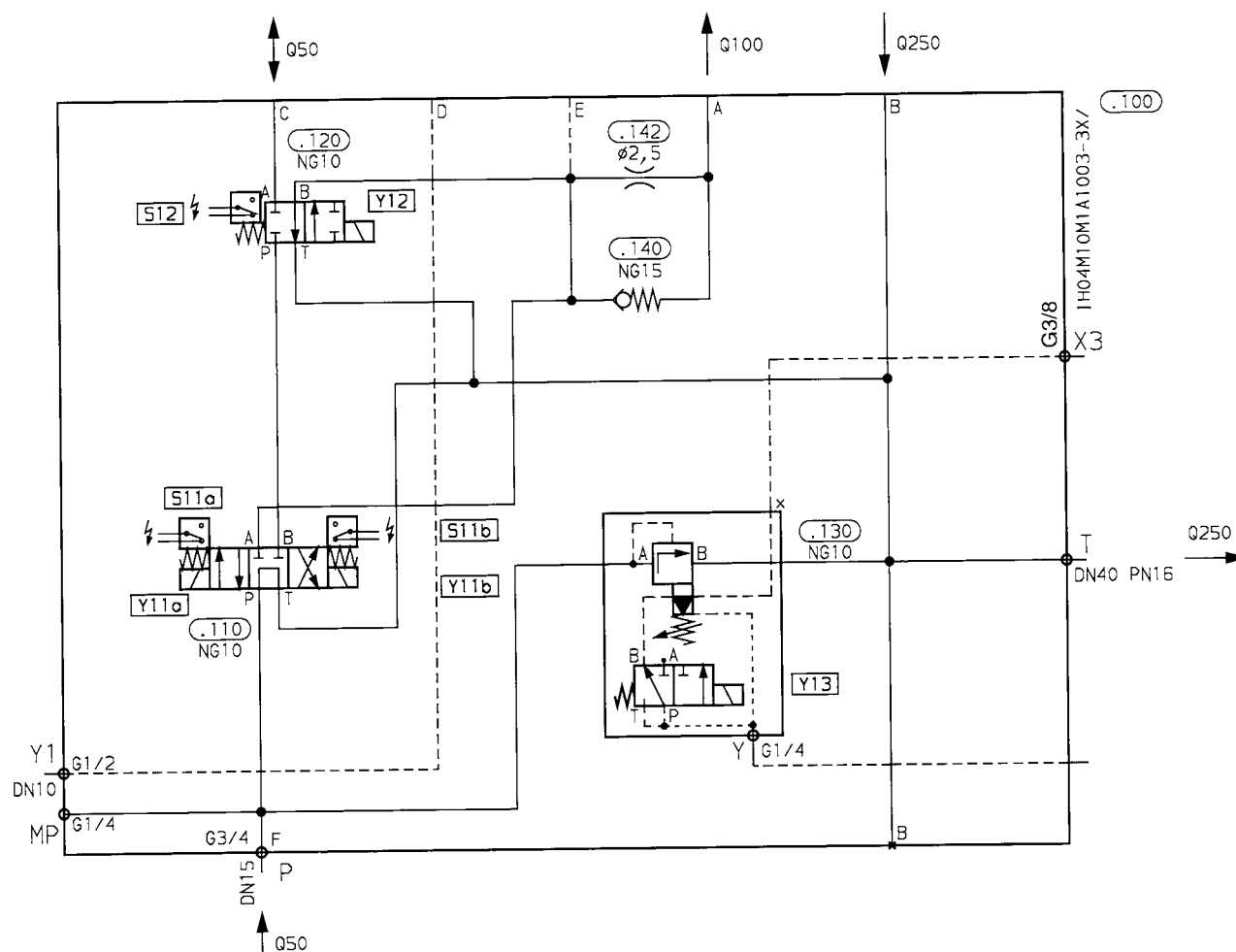


Q = max. flow in L/min
 G... = BSP
 NG = Size

Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 10	DBDS10K1X/100	RE 25 402
.730	1	Pressure relief valve, size 6	DBDS6K1X/315	RE 25 402
.740	1	Directional valve, size 6	3WE6A5X/B ...	RE 23 177
.750	1	Check valve, size 10	M-SR10KE05-1X	RE 20 380
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH AEH.DIN 906	

Module 1

Press module, size 10
Circuit type M
IH04M10M1A1003-3X/...



Q = max. flow in L/min

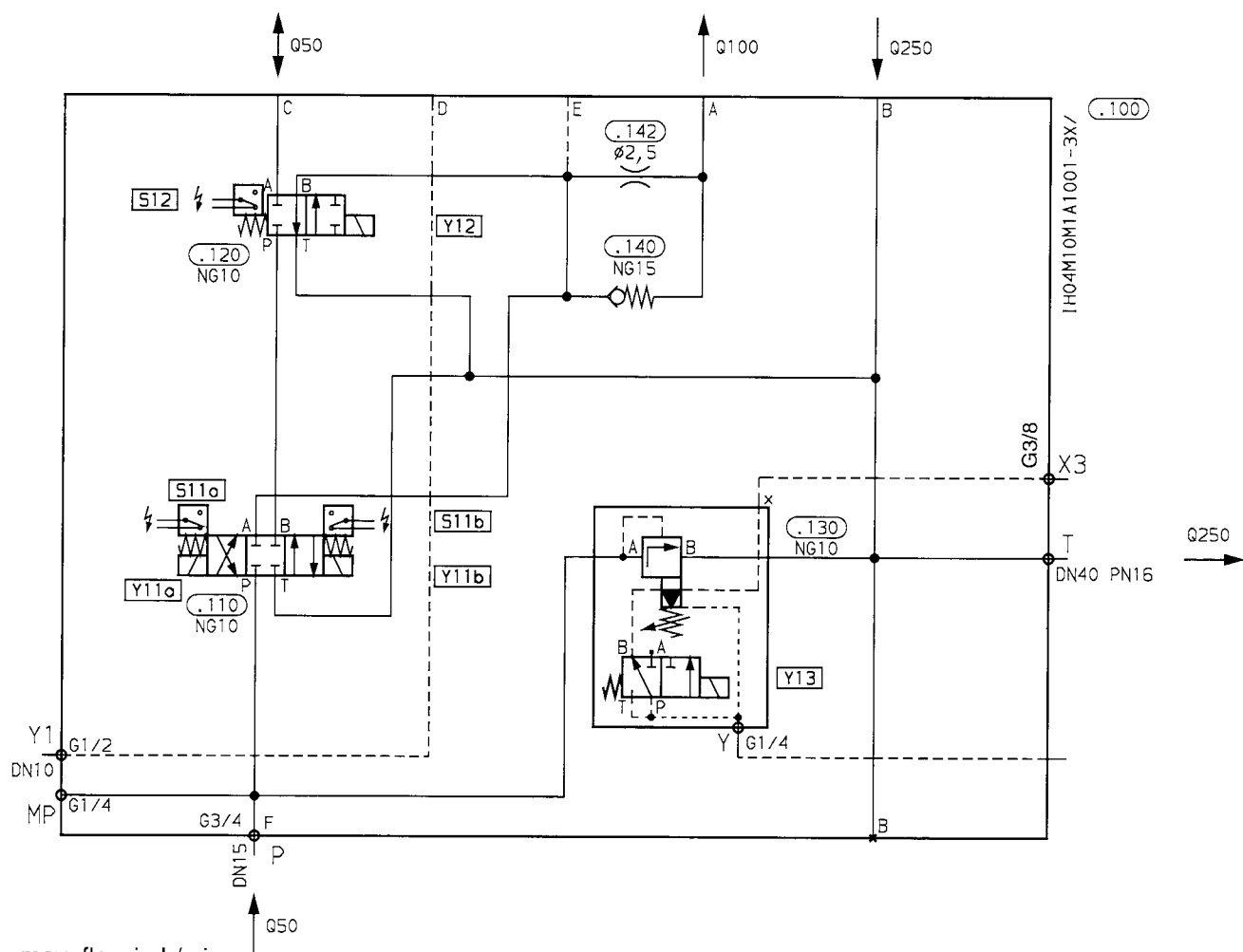
G... = BSP

NG = Size

Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 10	4WE10T3X/C ... QP0G24S	RE 23 316
.120	1	Directional valve, size 10	4WE10U10B3X/C ... QP0G24E	RE 23 316
.130	1	Pressure relief valve, size 10	DBW10B2-5X/315XY ...	RE 25 802
.140	1	Check valve, size 15	M-SR15KE05-1X	RE 20 380
.142	1	Orifice	DUESE 2,5 R1/4 DIN 906	RN115.06
T	1	Flange (Not included in supply; please order separately!)	DN40 PN16	TN 012 938 AB 22-15

Module 1

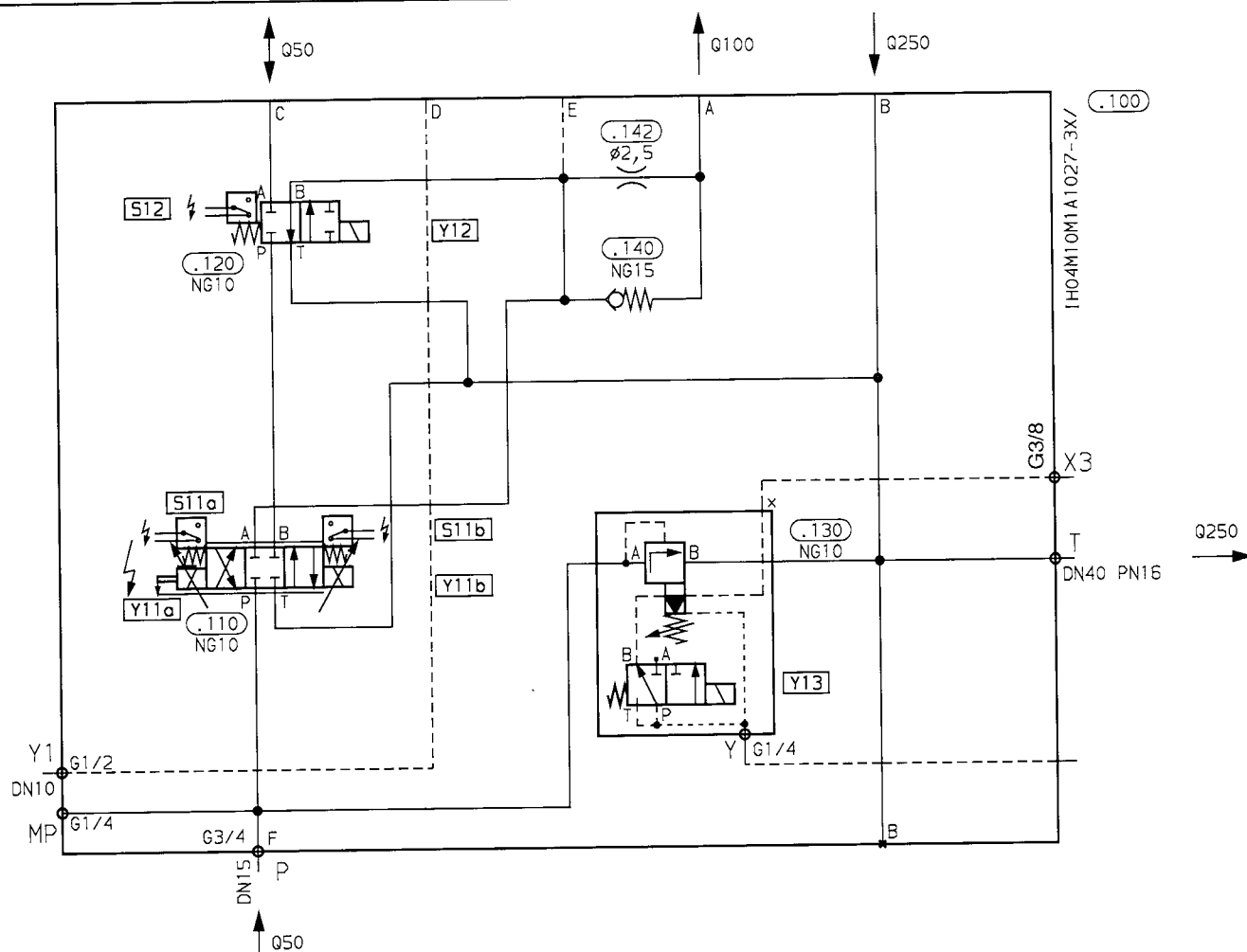
Press module, size 10
Circuit type M
IHO4M10M1A1001-3X/...



Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 10	4WE10E3X/C ... QP0G24S	RE 23 316
.120	1	Directional valve, size 10	4WE10U10B3X/C ... QP0G24E	RE 23 316
.130	1	Pressure relief valve, size 10	DBW10B2-5X/315XY ...	RE 25 802
.140	1	Check valve, size 15	M-SR15KE05-1X	RE 20 380
.142	1	Orifice	DUESE 2,5 R1/4 DIN 906	RN115.06
T	1	Flange (Not included in supply; please order separately!)	DN40 PN16	TN 012 938 AB 22-15

Module 1

Press module, size 10
Circuit type M
IH04M10M1A1027-3X/...



Q = max. flow in L/min

G... = BSP

NG = Size

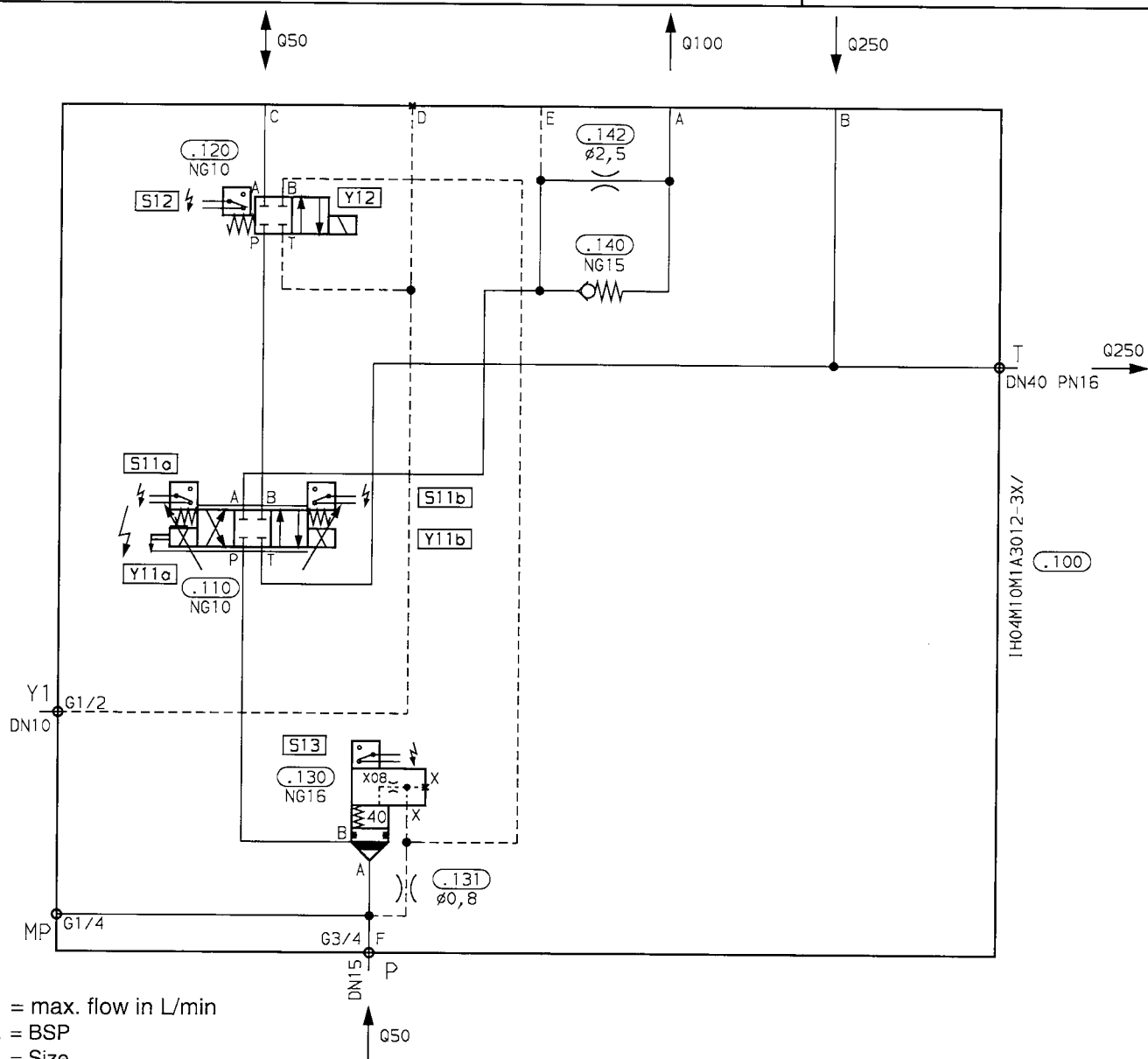
Item	Qty	Description	Type	Further information
.110	1	Proportional directional valve, size 10	4WRE10E16-1X/...-402	RE 29 060
.120	1	Directional valve, size 10	4WE10U10B3X/C...QP0G24E	RE 23 316
.130	1	Pressure relief valve, size 10	DBW10B2-5X/315XY	RE 25 802
.140	1	Check valve, size 15	M-SR15KE05-1X	RE 20 380
.142	1	Orifice	DUESE 2,5 R1/4 DIN 906	RN115.06
T	1	Flange (Not included in supply; please order separately!)	DN40PN16	TN 012 938 AB 22-15

Module 1

Central oil supply without pressure control

– accumulator operation

Press module, size 10
Circuit type M
IH04M10M1A3012-3X/...

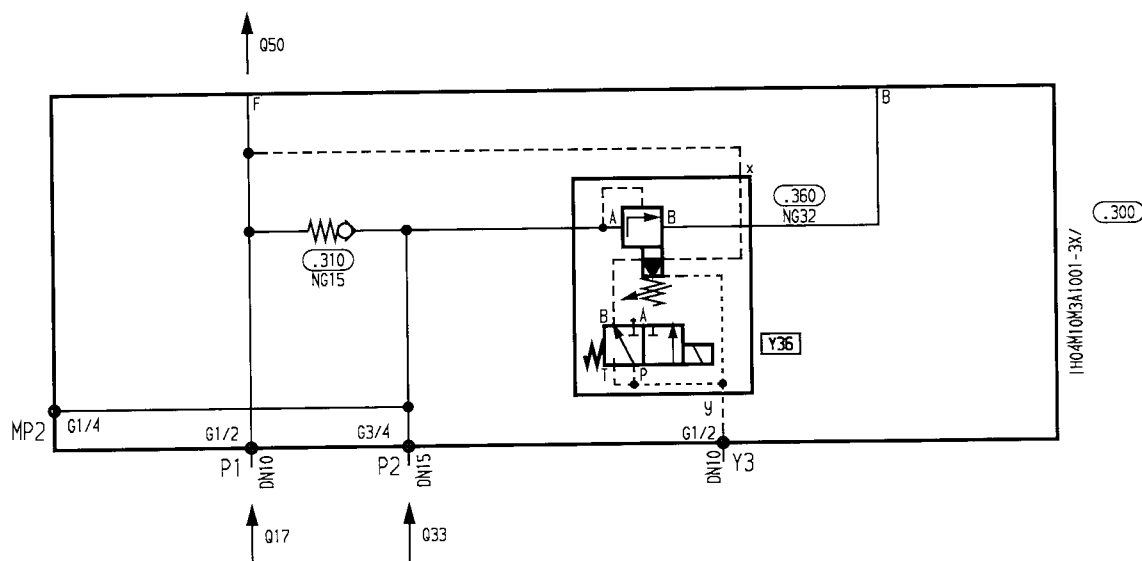


Item	Qty	Description	Type	Further information
.110	1	Proportional directional valve, size 10	4WRE10E32-1X/ ... -402	RE 29 060
.120	1	Directional valve, size 10	4WE10EB3X/C ... QP0G24E	RE 23 316
.130	1	Logic element, size 16	LFA16E15-6X/CD40DQ0G24FX08	RE 81 010
.131	1	Orifice	DUESE 0,8 M10x25-45H	DIN 913
.140	1	Check valve, size 15	M-SR15KE05-1X	RE 20 380
.142	1	Orifice	DUESE 2,5 R1/4 DIN 906	RN115.06
T	1	Flange (Not included in supply; please order separately!)	DN40PN16	TN 012 938

Module 3

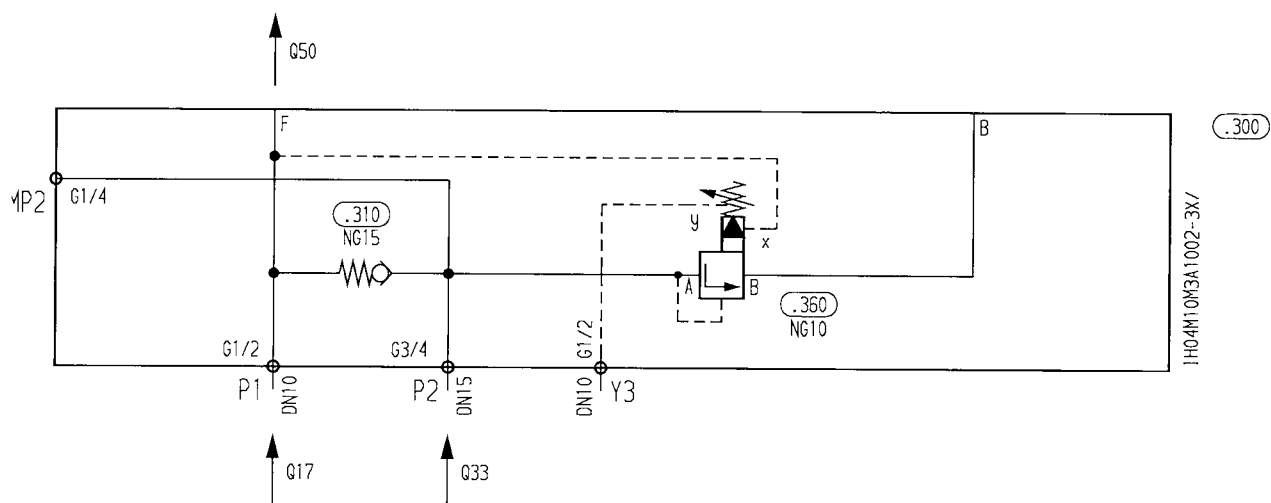
Block for second pump, 2nd pump may be shut off dependent on position or pressure, shut off pressure up to 200 bar

Press module, size 10
Circuit type M
IH04M10M3A1001-3X/...



Q = max. flow in L/min
 G... = BSP
 NG = Size

Item	Qty	Description	Type	Further information
.310	1	Check valve, size 15	M-SR15KE30-1X	RE 20 380
.360	1	Pressure sequence valve	DZWC30B2-5X/200XY/6A ...	RE 26 391

Module 3**Block for second pump,****2nd pump may be shut off dependent on pressure,
shut off pressure up to 200 bar****Press module, size 10****Circuit type M****IH04M10M3A1002-3X/...**

Q = max. flow in L/min

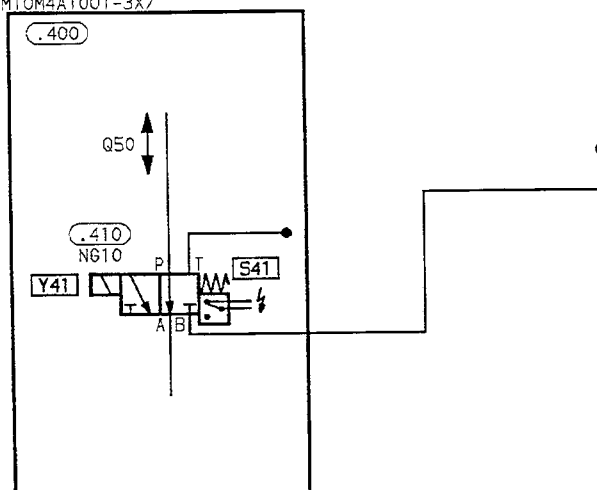
G... = BSP

NG = Size

Item	Qty	Description	Type	Further information
.310	1	Check valve, size 15	M-SR15KE30-1X	RE 20 380
.360	1	Pressure sequence valve	DZC30-2-5X/200XY	RE 26 391

Module 4
Regenerative circuit
Press module, size 10
Circuit type M
IHO4M10M4A1001-3X/...

IHO4M10M4A1001-3X/



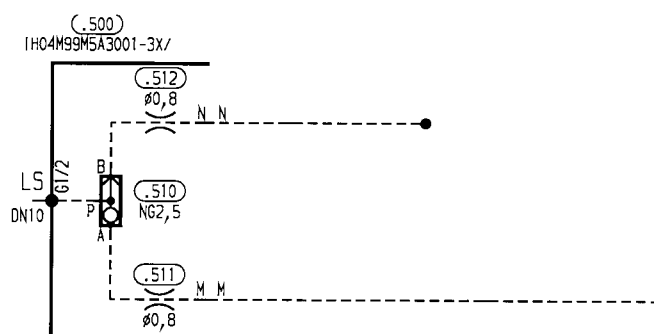
Q = max. flow in L/min
 G... = BSP
 NG = Size

Item	Qty	Description	Type	Further information
.410	1	Directional valve, size 10	3WE10A7-3X/C ... QPBG24S	RE 23 316

Module 5

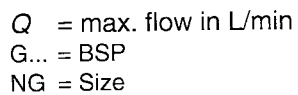
Load sensing

Press module
Circuit type M
IH04M99M5A3001-3X/...



Q = max. flow in L/min
G... = BSP
NG = Size

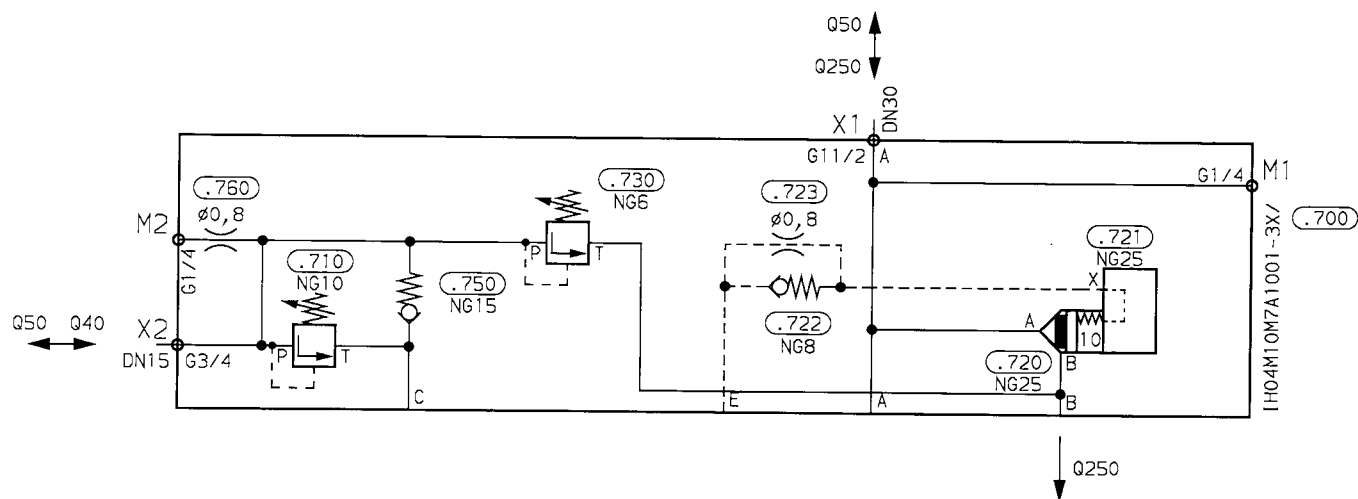
Item	Qty	Description	Type	Further information
.510	1	Shuttle valve, size 2,5	FL-WVE R1/8-0	
.511	1	Orifice	DUESE 0,8 M6 DIN 906	RN115.06
.512	1	Orifice	DUESE 0,8 M6 DIN 906	RN115.06



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REXROTH** 65/168

Module 7 Counterbalance

Press module, size 10
Circuit type M
IH04M10M7A1001-3X/...



Q = max. flow in L/min

G... = BSP

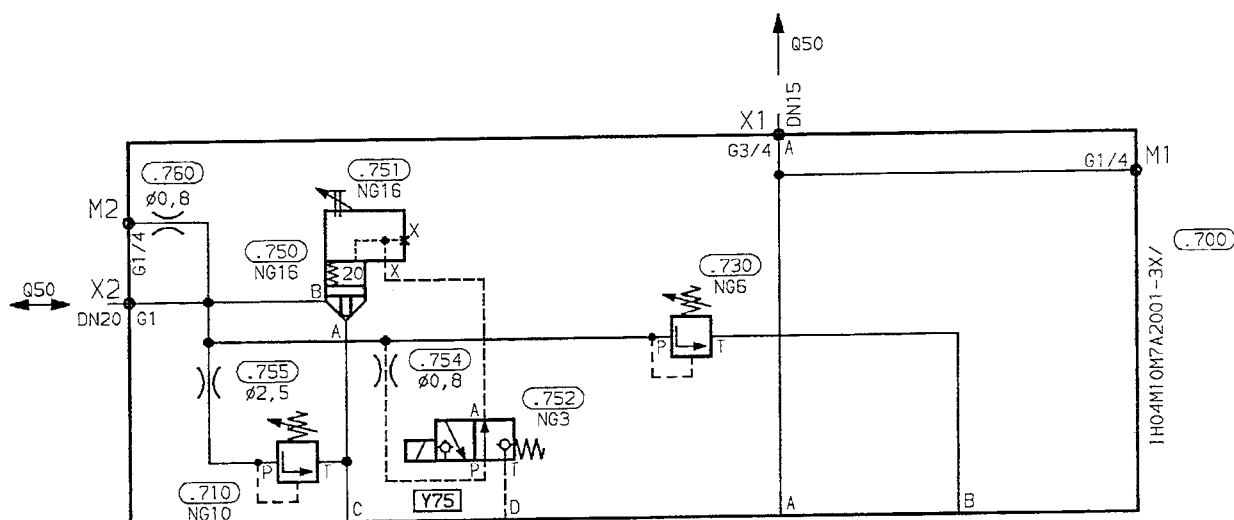
NG = Size

Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 10	DBDS10K1X/100	RE 25 402
.720	1	Logic element, size 25	LC25B10D6X	RE 81 010
.721	1	Control cover, size 25	LFA25D6X	RE 81 010
.722	1	Check valve, size 8	M-SR8KE05-1X	RE 20 380
.723	1	Orifice	DUESE 0,8 R1/8 DIN 906	RN115.06
.730	1	Pressure relief valve, size 6	DBDS6K1X/315	RE 25 402
.750	1	Check valve, size 15	M-SR15KE05-1X	RE 20 380
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH	AEH.DIN 906

Module 7

Counterbalance, pilot operated

Press module, size 10
Circuit type M
IH04M10M7A2001-3X/...



Q = max. flow in L/min

G... = BSP

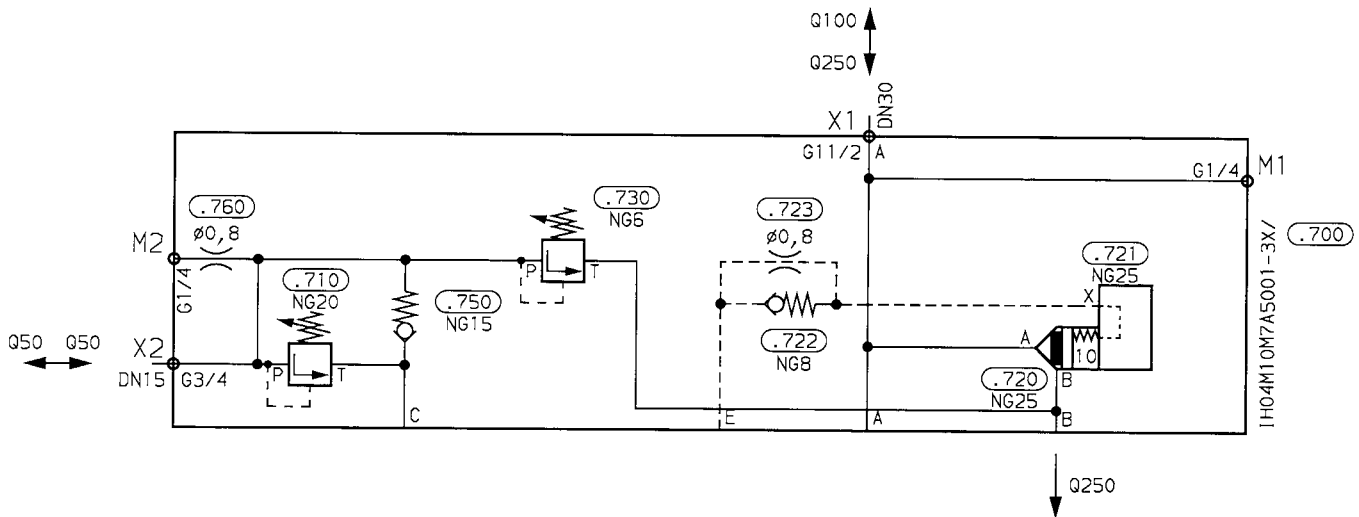
NG = Size

Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 10	DBDS10K1X/100	RE 25 402
.730	1	Pressure relief valve, size 6	DBDS6K1X/315	RE 25 402
.750	1	Logic element, size 16	LC16A20E6X	RE 81 010
.751	1	Control cover, size 16	LFA16H2-6X/F	RE 81 010
.752	1	Directional poppet valve, size 3	FL-WSE3E0D.0/ ...	
.754	1	Orifice	DUESE 0,8 R1/8 DIN 906	RN115.06
.755	1	Orifice	DUESE 2,5 R1/4 DIN 906	RN115.06
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH	AEH.DIN 906

Module 7

Counterbalance for regenerative circuit

Press module, size 10
Circuit type M
IH04M10M7A5001-3X/...



Q = max. flow in L/min

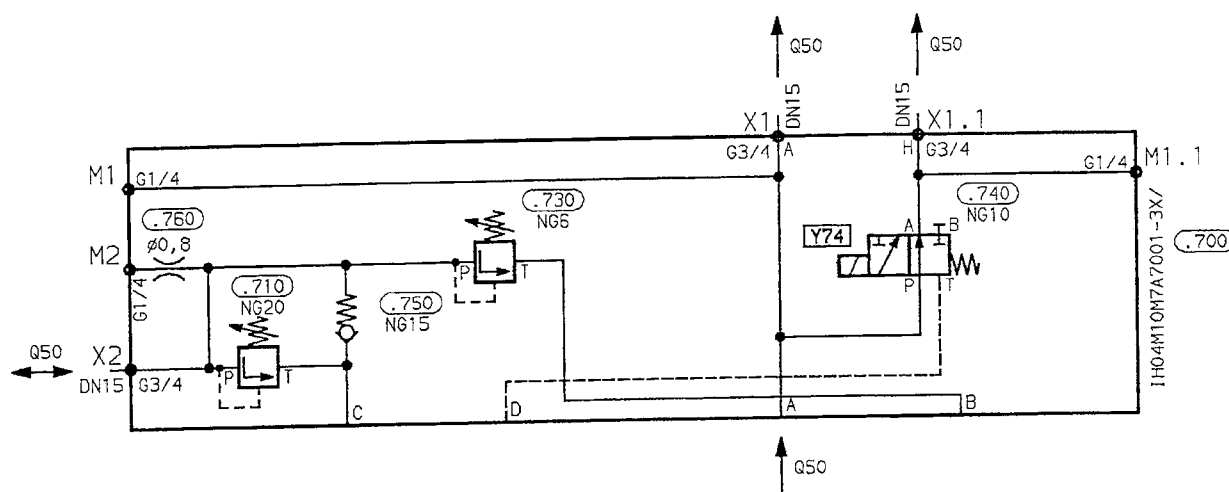
G... = BSP

NG = Size

Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 20	DBDS20K1X/100	RE 25 402
.720	1	Logic element, size 25	LC25B10D6X	RE 81 010
.721	1	Control cover size 25	LFA25D6X	RE 81 010
.722	1	Check valve, size 8	M-SR8KE05-1X	RE 20 380
.723	1	Orifice	DUESE 0,8 R1/8 DIN 906	RN115.06
.730	1	Pressure relief valve, size 6	DBDS6K1X/315	RE 25 402
.750	1	Check valve, size 15	M-SR15KE05-1X	RE 20 380
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH	AEH.DIN 906

Module 7
Counterbalance, with pressure sequence valve,
dependent on position, for fast forward cylinder

Press module, size 10
Circuit type M
IH04M10M7A7001-3X/...



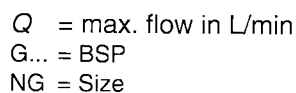
Q = max. flow in L/min

G... = BSP

NG = Size

Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 20	DBDS20K1X/100	RE 25 402
.730	1	Pressure relief valve, size 6	DBDS6K1X/315	RE 25 402
.740	1	Directional valve, size 10	3WE10A3X/C ...	RE 23 316
.750	1	Check valve, size 15	M-SR15KE05-1X	RE 20 380
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH AEH.DIN 906	

Press module, size 10
Circuit type M
IH04M10M7B4001-3X/...

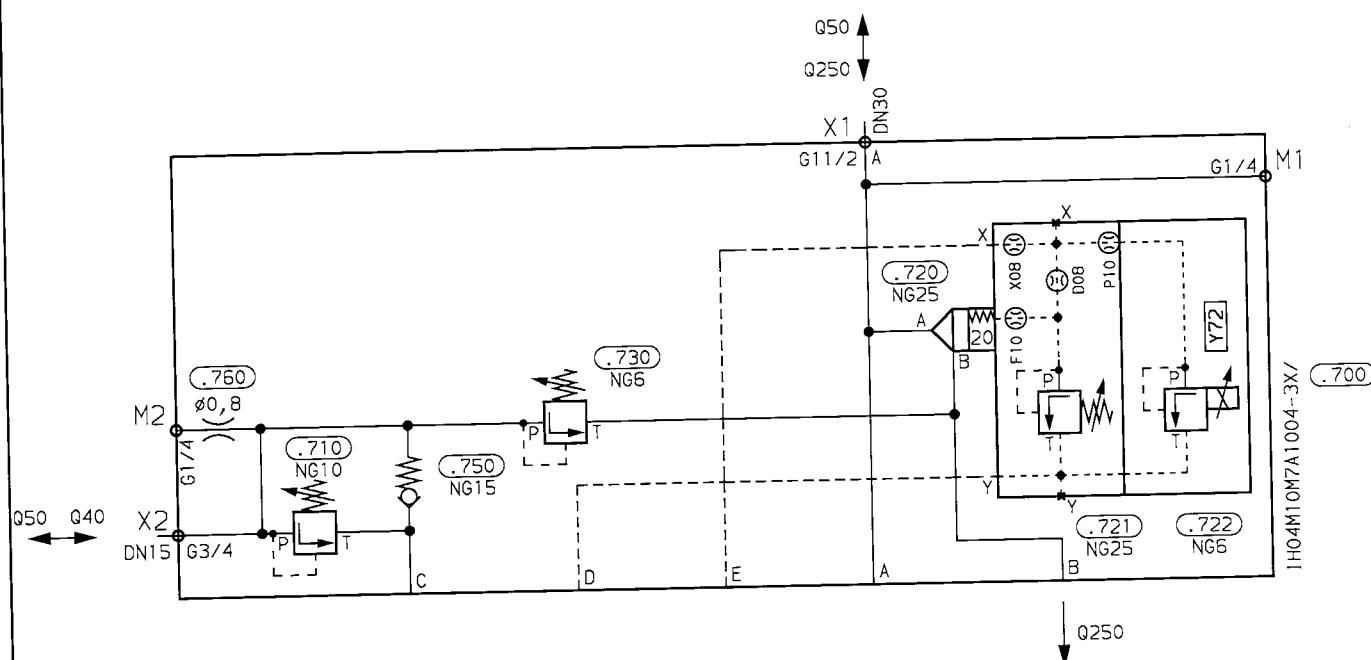


Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 10	DBDS10K1X/100	RE 25 402
.730	1	Pressure relief valve, size 4	DBDS4K1X/315	RE 25 710
.750	1	Directional poppet valve, size 10	FL-WSEZ10 120-04X/...	
.751	1	Throttle valve, size 12	FL-DVE-12-1.1/P	
.753	1	Pressure relief valve, size 10	DBDS10K1X/315	RE 25 402
.755	1	Orifice	DUESE 2,5 R1/4 DIN 906 RN115.06	
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH AEH.DIN 906	
.770	1	Check valve, size 15	M-SR15KE05-1X/	RE 20 380

Module 7

**Counterbalance, logic element, item .720 with
mounted proportional pressure relief valve**

**Press module, size 10
Circuit type M
IH04M10M7A1004-3X/...**



Q = max. flow in L/min

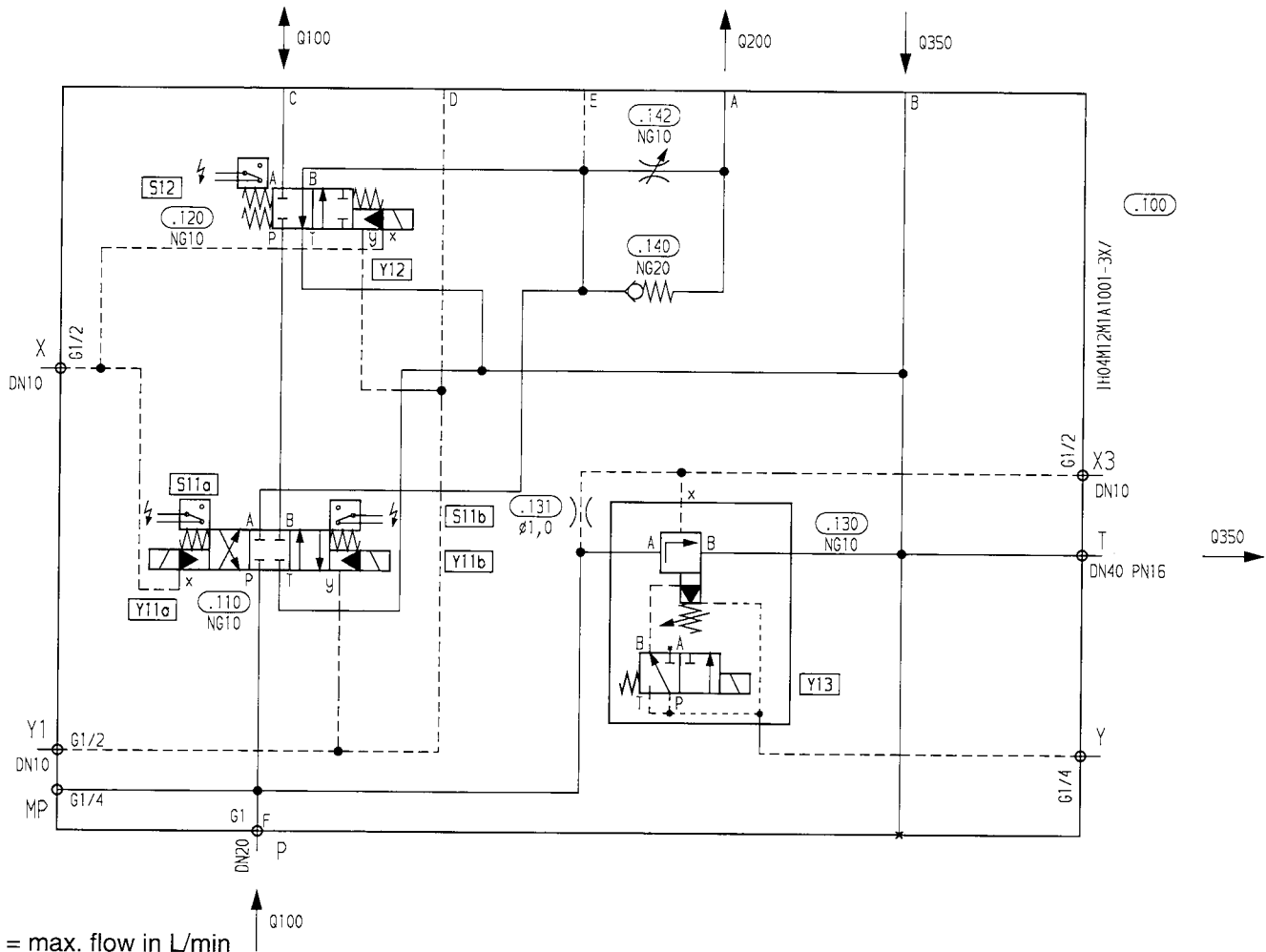
G... = BSP

NG = Size

Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 10	DBDS10K1X/100	RE 25 402
.720	1	Logic element, size 16	LC25DB20E6X	RE 81 078
.721	1	Control cover, size 16	LFA25DBEM-6X/315	RE 81 078
.722	1	Pressure relief valve	DBET-5X/315G24-01	RE 29 166
.730	1	Pressure relief valve, size 6	DBDS6K1X/315	RE 25 402
.750	1	Check valve, size 15	M-SR15KE05-1X	RE 20 380
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH AEH.DIN 906	

Module 1

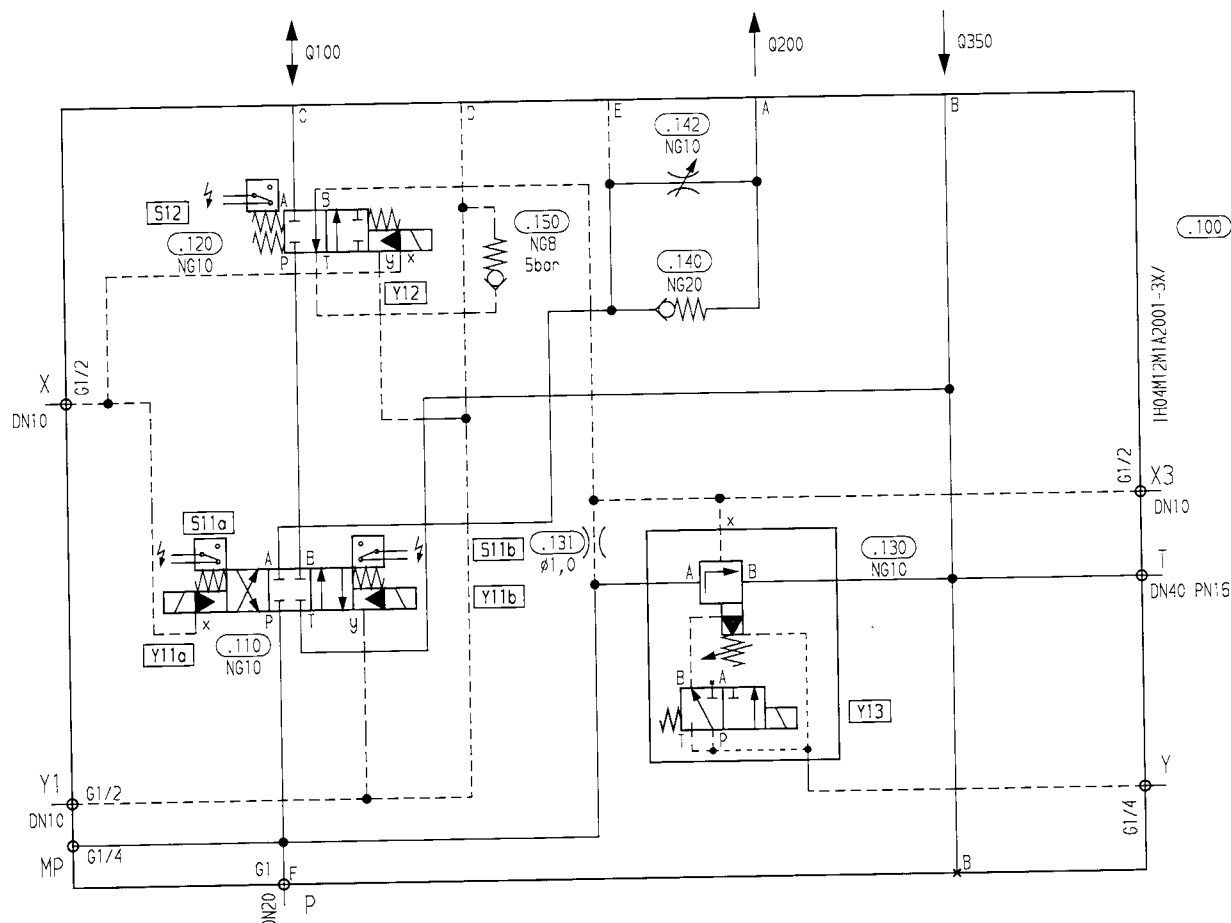
Press module, size 12
Circuit type M
IH04M12M1A1001-3X/...



Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 10	H-4WEH10E4X/6A ... Q0G24	RE 24 751
.120	1	Directional valve, size10	H-4WEH10U10B4X/6A ... Q0G24	RE 24 751
.130	1	Pressure relief valve, size 10	DBWC10B2-5X/315...	RE 25 802
.131	1	Orifice	DUESE 1,0 R1/8 DIN 906	RN115.06
.140	1	Check valve, size 20	M-SR20KE05-1X	RE 20 380
.142	1	Throttle valve, size 10	FL-DVE-10-1.1/P	
T	1	Flange (Not included in supply; please order separately!)	DN40PN16	TN 012 938

Module 1

Press module, size 12
Circuit type M
IH04M12M1A2001-3X/...



Q = max. flow in L/min

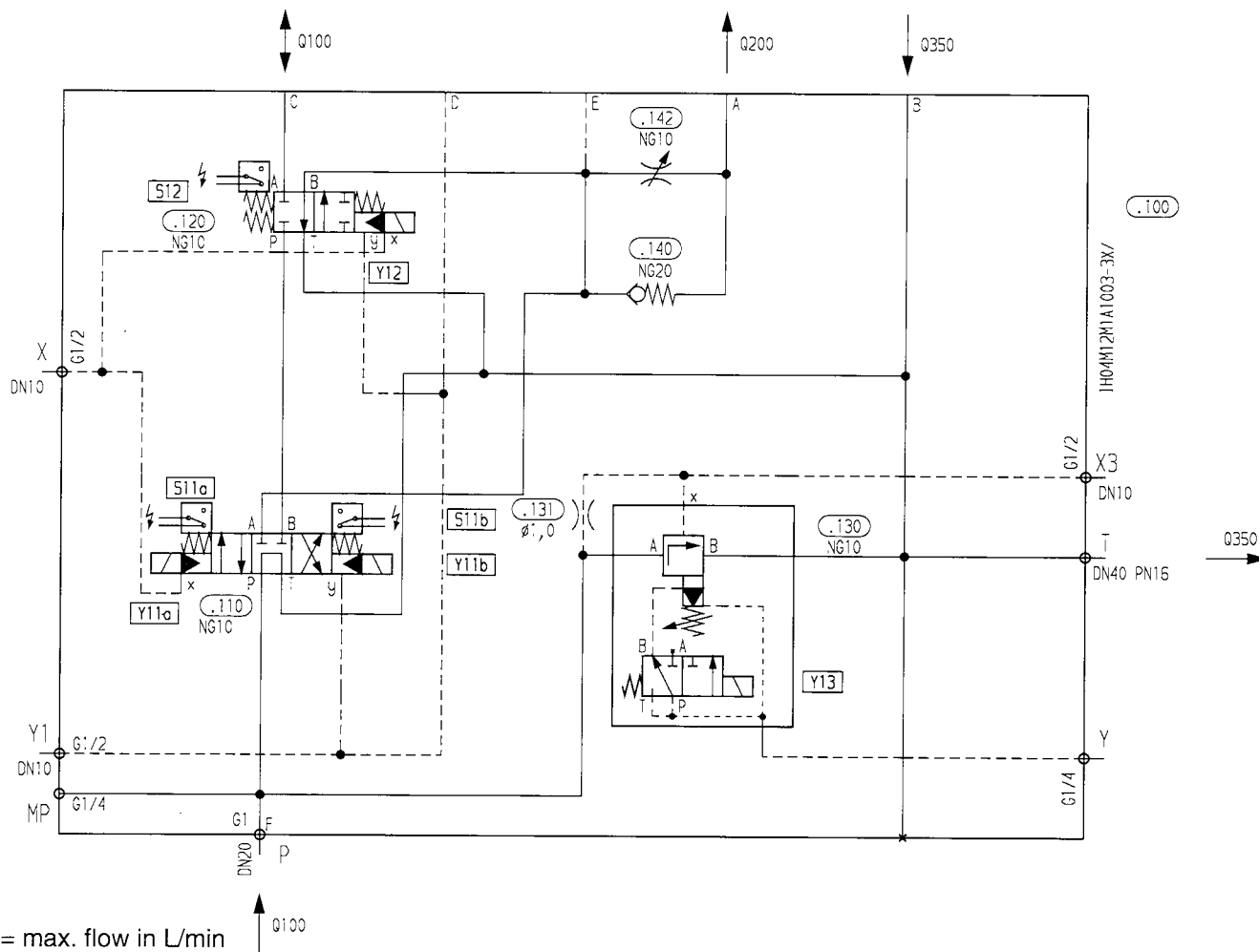
G... = BSP

NG = Size

Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 10	H-4WEH10E4X/6A ... Q0G24	RE 24 751
.120	1	Directional valve, size 10	H-4WEH10U10B4X/6A ... Q0G24	RE 24 751
.130	1	Pressure relief valve, size 10	DBWC10B2-5X/315...	RE 25 802
.131	1	Orifice	DUESE 1,0 R1/8 DIN 906	RN115.06
.140	1	Check valve, size 20	M-SR20KE05-1X	RE 20 380
.142	1	Throttle valve, size 10	FL-DVE-10-1.1/P	RE 20 380
.150	1	Check valve, size 8	M-SR08KE50-1X	RE 20 380
T	1	Flange (Not included in supply; please order separately!)	DN40PN16	TN 012 938

Module 1

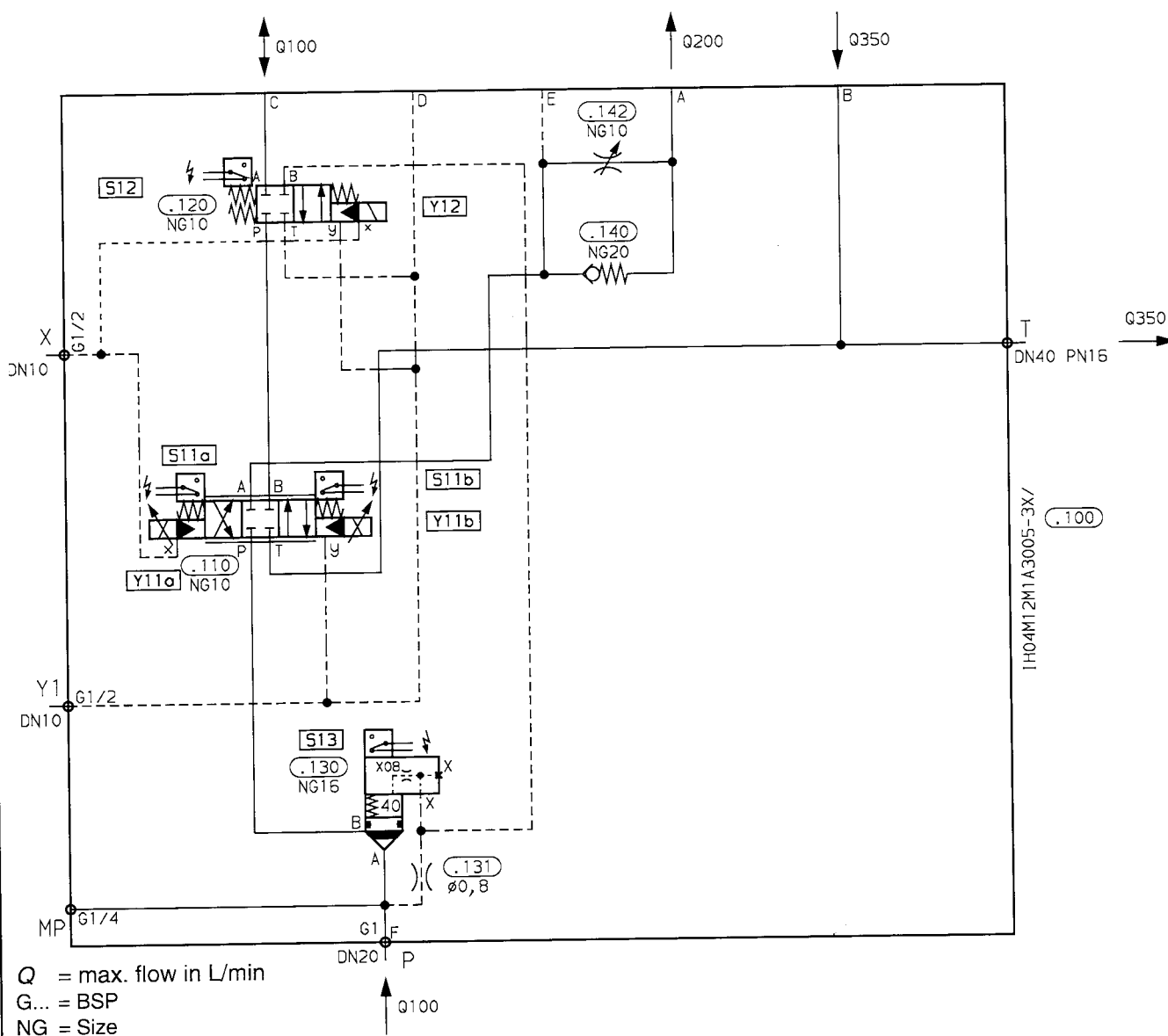
Press module, size 12
Circuit type M
IH04M12M1A1003-3X/...



Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 10	H-4WEH10T4X/6A ... Q0G24	RE 24 751
.120	1	Directional valve, size 10	H-4WEH10U10B4X/6A ... Q0G24	RE 24 751
.130	1	Pressure relief valve, size 10	DBWC10B2-5X/315...	RE 25 802
.131	1	Orifice	DUESE 1,0 R1/8 DIN 906	RN115.06
.140	1	Check valve, size 20	M-SR20KE05-1X	RE 20 380
.142	1	Throttle valve, size 10	FL-DVE-10-1.1/P	
T	1	Flange (Not included in supply; please order separately!)	DN40PN16	TN 012 938

Module 1
Central oil supply without pressure control
Accumulator operation

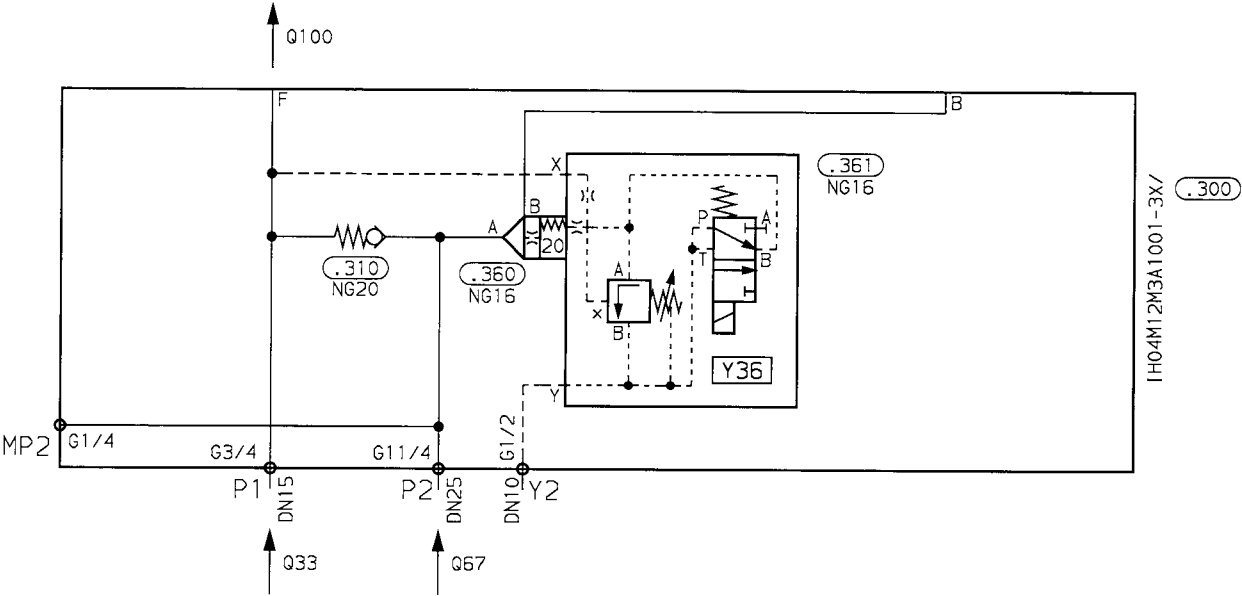
Press module, size 12
Circuit type M
IH04M12M1A3005-3X/...



Item	Qty	Description	Type	Further information
.110	1	Proportional directional valve, size 10	4WRZ10E50-5X/6A ... -402	RE 29 111
.120	1	Directional valve, size 10	H-4WEH10EB4X/6A ... Q0G24	RE 24 751
.130	1	Control cover, size 16	LFA16E15-6X/CD40DQ0G24FX08	RE 81 078
.131	1	Orifice	DUESE 0,8 M10x25-45H DIN 913	RE 20 380
.140	1	Check valve, size 20	M-SR20KE05-1X	
.142	1	Throttle valve, size 10	FL-DVE-10-1.1/P	
T	1	Flange (Not included in supply; please order separately!)	DN40PN16	TN 012 938

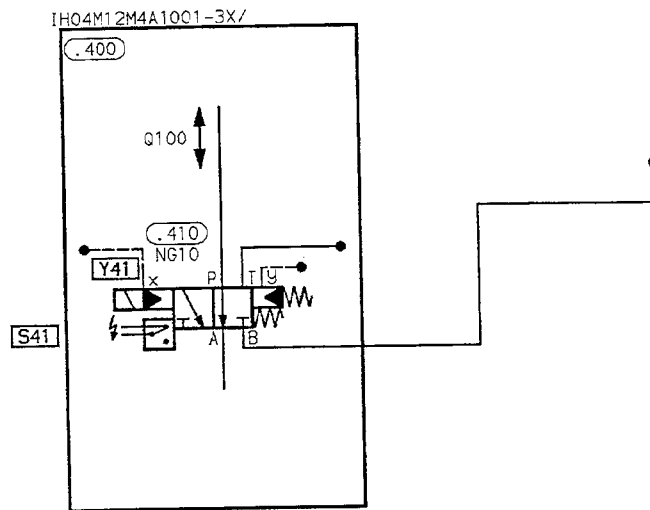
Module 3
Block for second pump,
2nd pump may be unloaded dependent
on position or pressure

Press module, size 12
Circuit type M
IH04M12M3A1001-3X/...



Q = max. flow in L/min
G... = BSP
NG = Size

Item	Qty	Description	Type	Further information
.310	1	Check valve, size 20	M-SR20KE30-1X	RE 20 380
.360	1	Logic element, size 16	LC16DB20A6X	RE 81 078
.361	1	Pressure sequence valve	DZWCB2-5X/200XY...	RE 26 391

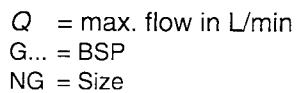
**Module 4,
Regenerative circuit**
Press module, size 12
Circuit type M
IH04M12M4A1001-3X/...

 Q = max. flow in L/min

 $G...$ = BSP

 NG = Size

Item	Qty	Description	Type	Further information
.410	1	Directional valve, size 10	H-3WEH10A7-4X/6A ... QBG24	RE 24 751

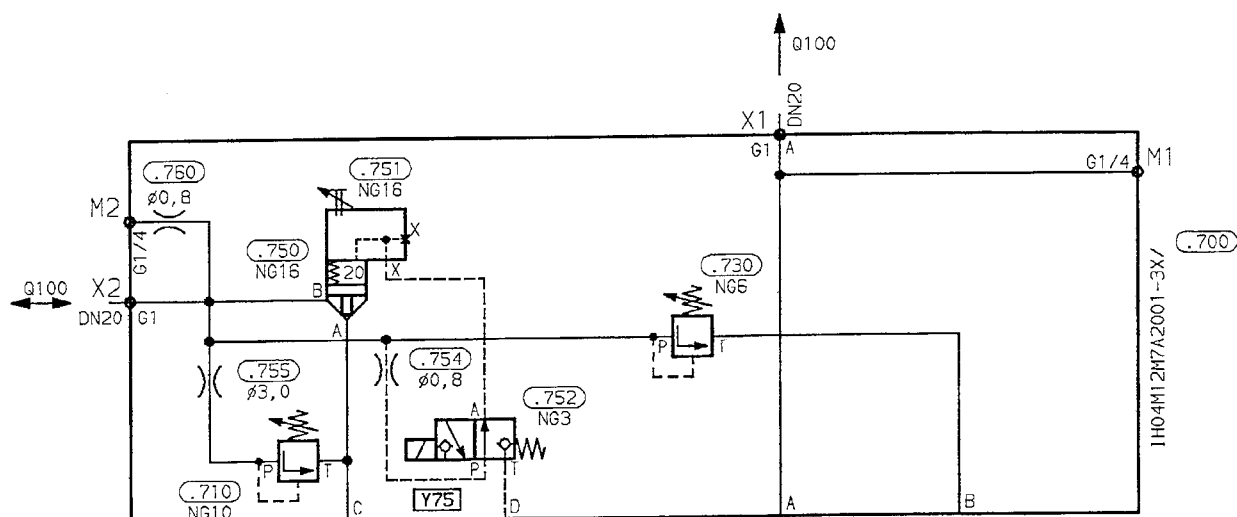
Press module, size 12
Circuit type M
IH04M12M7A1001-3X/...



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REXROTH**

Module 7
Counterbalance, pilot operated,
Holding pressure up to 40 bar

Press module, size 12
Circuit type M
IH04M12M7A2001-3X/...



Q = max. flow in L/min

G... = BSP

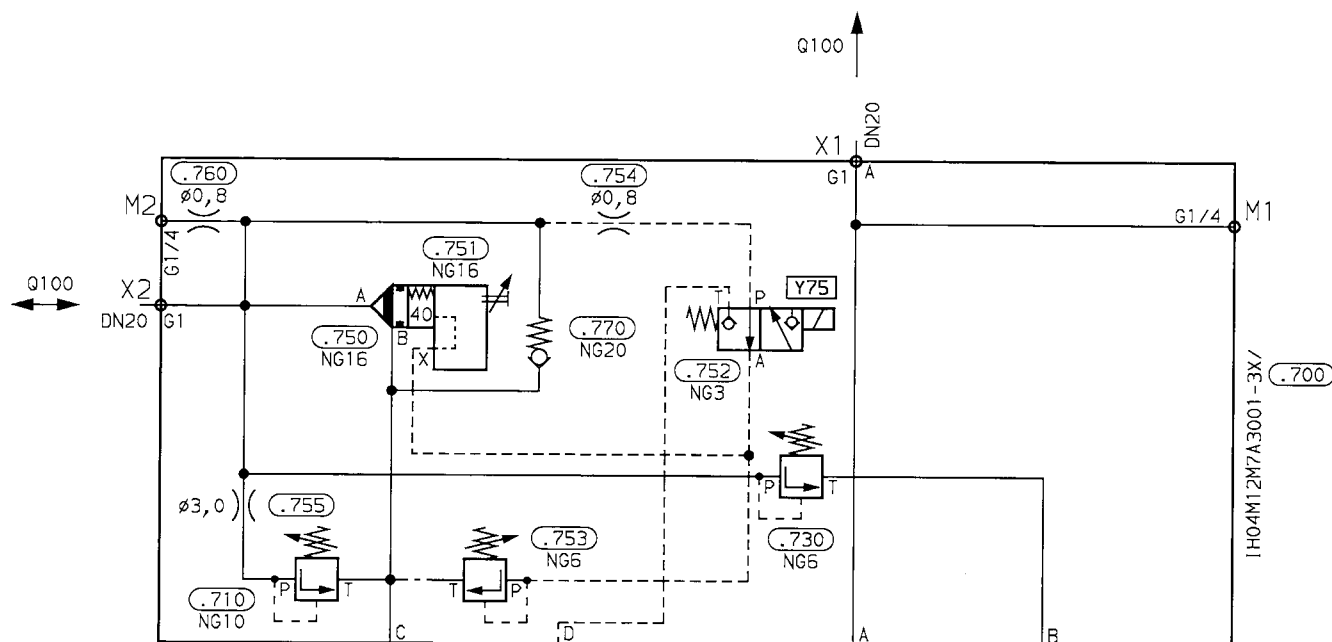
NG = Size

Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 10	DBDS10K1X/100	RE 25 402
.730	1	Pressure relief valve, size 6	DBDS6K1X/315	RE 25 402
.750	1	Logic element, size 16	LC16A20E6X	RE 81 010
.751	1	Control cover, size 16	LFA16H2-6X/F	RE 81 010
.752	1	Directional poppet valve, size 3	FL-WSE3E0D.0/ ...	
.754	1	Orifice	DUESE 0,8 R1/8 DIN 906	RN115.06
.755	1	Orifice	DUESE 3,0 R1/4 DIN 906	RN115.06
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH	AEH.DIN 906

Module 7

Counterbalance, pilot operated, with check valve to bypass item .750 on return stroke, fast forward under own weight and deceleration via item .753

Press module, size 12
Circuit type M
IH04M12M7A3001-3X/...

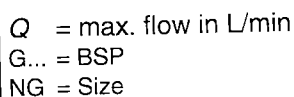


Q = max. flow in L/min

G... = BSP

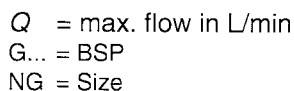
NG = Size

Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 10	DBDS10K1X/100	RE 25 402
.730	1	Pressure relief valve, size 6	DBDS6K1X/315	RE 25 402
.750	1	Logic element, size 16	LC16DB40D6X/-004	RE 81 078
.751	1	Control cover, size 16	LFA16H2-6X/F	RE 81 078
.752	1	Directional poppet valve, size 3	FL-WSE3E0D.0/ ...	
.753	1	Pressure relief valve, size 6	DBDS6K1X/315	RE 25 402
.754	1	Orifice	DUESE 0,8 R1/8 DIN 906	RN115.06
.755	1	Orifice	DUESE 3,0 R1/4 DIN 906	RN115.06
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH	AEH.DIN 906
.770	1	Check valve, size 20	M-SR20KE05-1X	RE 20 380



**MANNESMANN
REXROTH** 81/168

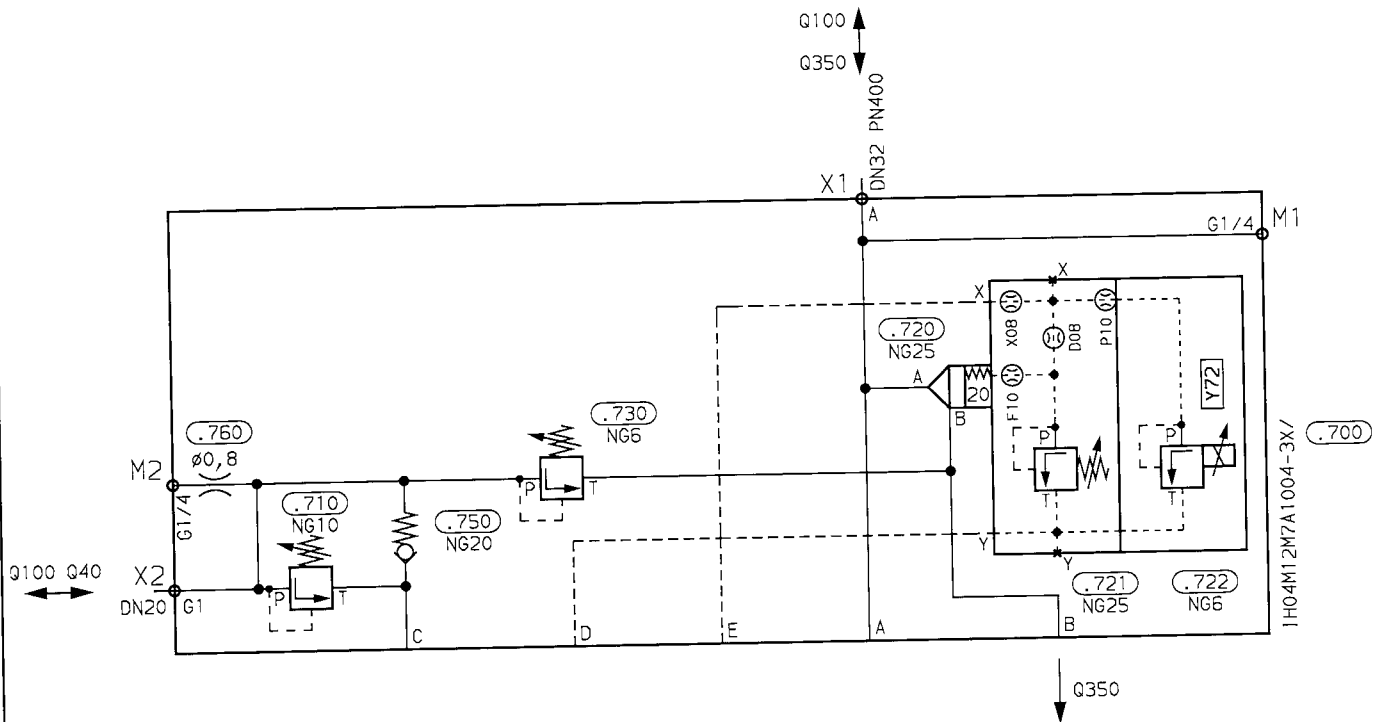
Press module, size 12
Circuit type M
IH04M12M7A7001-3X/...



Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 20	DBDS20K1X/100	RE 25 402
.730	1	Pressure relief valve, size 6	DBDS6K1X/315	RE 25 402
.740	1	Logic element, size 16	LC16A10E6X	RE 81 010
.741	1	Control cover, size 16	LFA16WEA9-6X/A10 B08	RE 81 010
.742	1	Directional valve, size 6	3WE6B9-5X/ ...	RE 23 177
.750	1	Check valve, size 20	M-SR20KE05-1X	RE 20 380
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH AEH.DIN 906	

Module 7
Counterbalance, logic element, item 720 with
mounted proportional pressure relief valve

Press module, size 12
Circuit type M
IH04M12M7A1004-3X/...



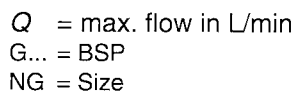
Q = max. flow in L/min

G... = BSP

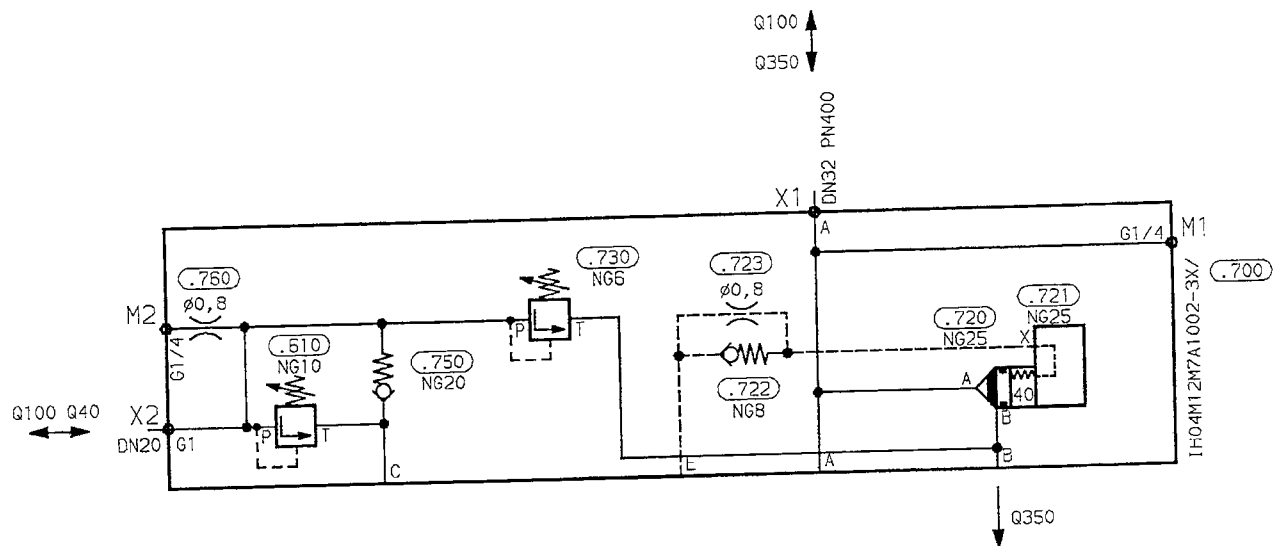
NG = Size

Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 10	DBDS10K1X/100	RE 25 402
.720	1	Logic element, size 25	LC25DB20E6X	RE 81 078
.721	1	Control cover, size 25	LFA25DBEM-6X/315	RE 81 078
.722	1	Proportional pressure relief valve	DBET-5X/315G24-1	RE 29 166
.730	1	Pressure relief valve, size 6	DBDS6K1X/315	RE 25 402
.750	1	Check valve, size 20	M-SR20KE05-1X	RE 20 380
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH AEH.DIN 906	
X1	1	Flange (Not included in supply; please order separately!)	DN32PN400 TN 013 772	

Press module, size 12
Circuit type M
IH04M12M7A1003-3X/...



**84/168 MANNESMANN
REXROTH**

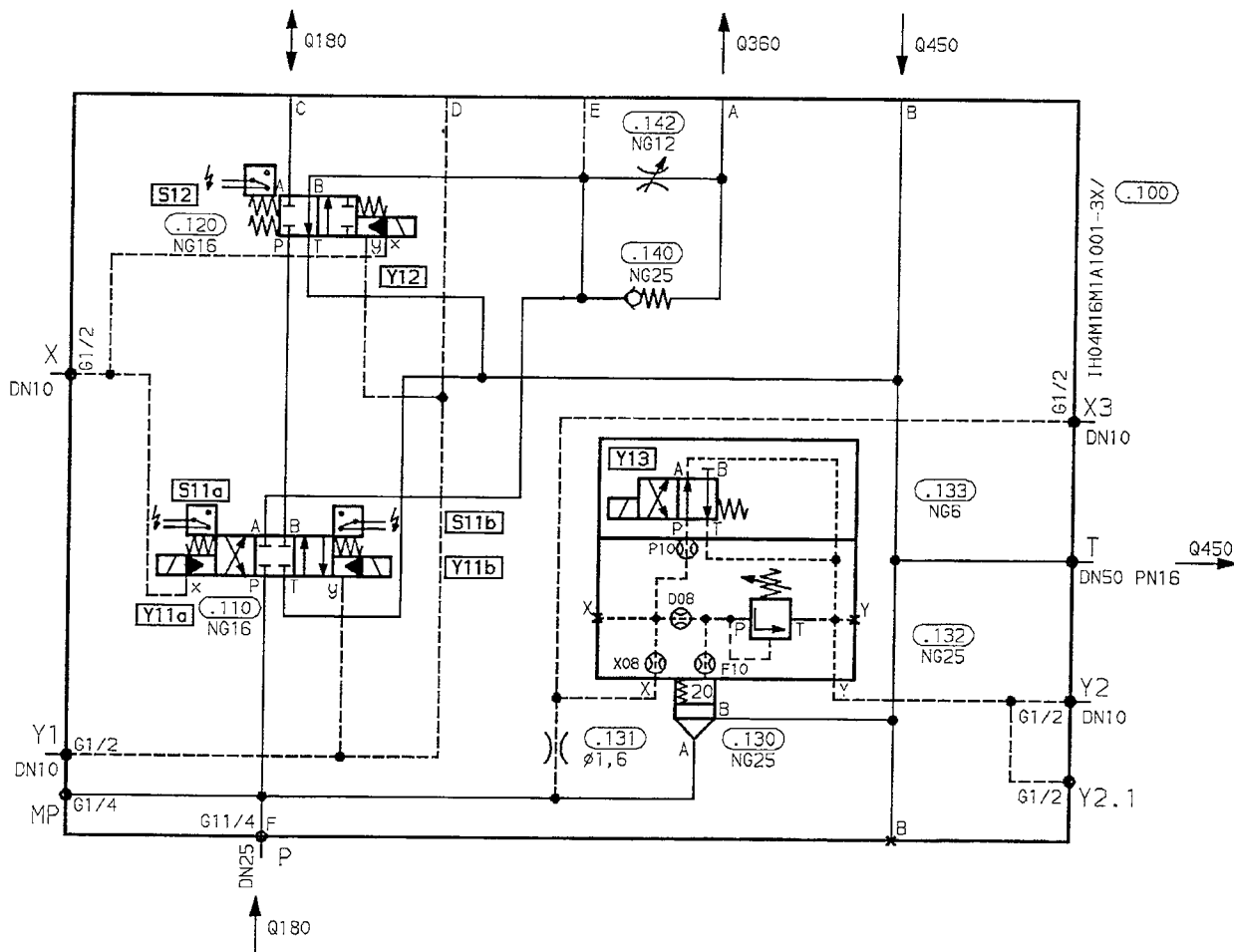


Q = max. flow in L/min
G... = BSP
NG = Size

Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 10	DBDS10K1X/100	RE 25 402
.720	1	Logic element, size 25	LC25DB40D6X/-004	RE 81 078
.721	1	Control cover, size 25	LFA25D6X	RE 81 078
.722	1	Check valve, size 8	M-SR8KE05-1X	RE 20 380
.723	1	Orifice	DUESE 0,8 R1/8 DIN 906	RN115.06
.730	1	Pressure relief valve, size 6	DBDS6K1X/315	RE 25 402
.750	1	Check valve, size 20	M-SR20KE05-1X	RE 20 380
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH	AEH.DIN 906
X1	1	Flange (Not included in supply; please order separately!)	DN32PN400	TN 013 772

Module 1

Press module, size 16
Circuit type M
IH04M16M1A1001-3X/...



Q = max. flow in L/min

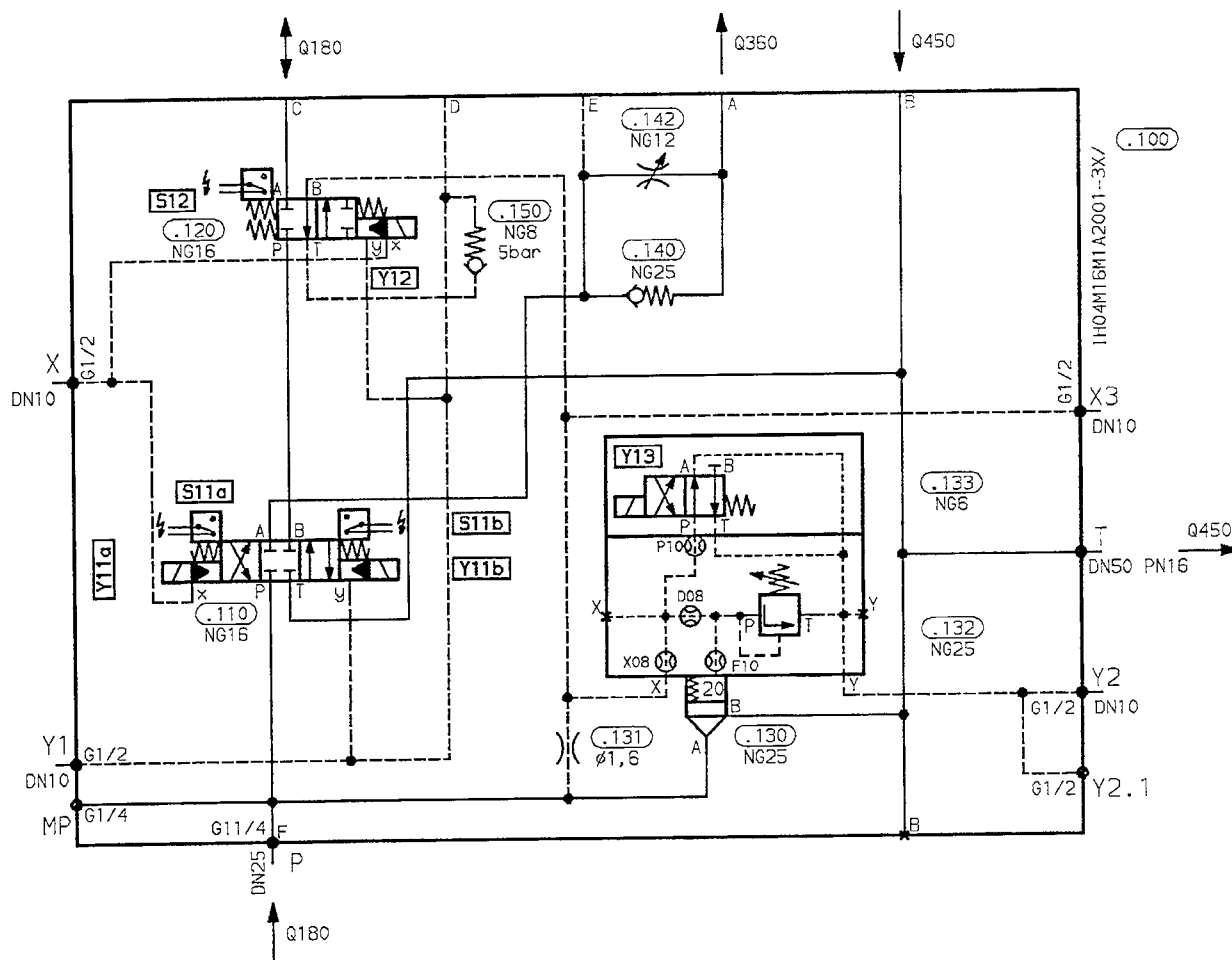
G... = BSP

NG = Size

Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 16	H-4WEH16E6X/6A ... Q0G24	RE 24 751
.120	1	Directional valve, size 16	H-4WEH16U10B6X/6A ... Q0G24	RE 24 751
.130	1	Logic element, size 25	LC25DB20E6X	RE 81 078
.131	1	Orifice	DUESE 1,6 M10x25-45H	DIN 913
.132	1	Control cover, size 25	LFA25DBW2-6X/315	RE 81 078
.133	1	Directional valve, size 6	4WE6D5X/A ...	RE 23 177
.140	1	Check valve, size 25	M-SR25KE05-1X	RE 20 380
.142	1	Throttle valve, size 12	FL-DVE-12-1.1/P	
T	1	Flange (Not included in supply; please order separately!)	DN50PN16	TN 012 939 AB 22-15

Module 1

Press module, size 16
Circuit type M
IH04M16M1A2001-3X/...



Q = max. flow in L/min

G... = BSP

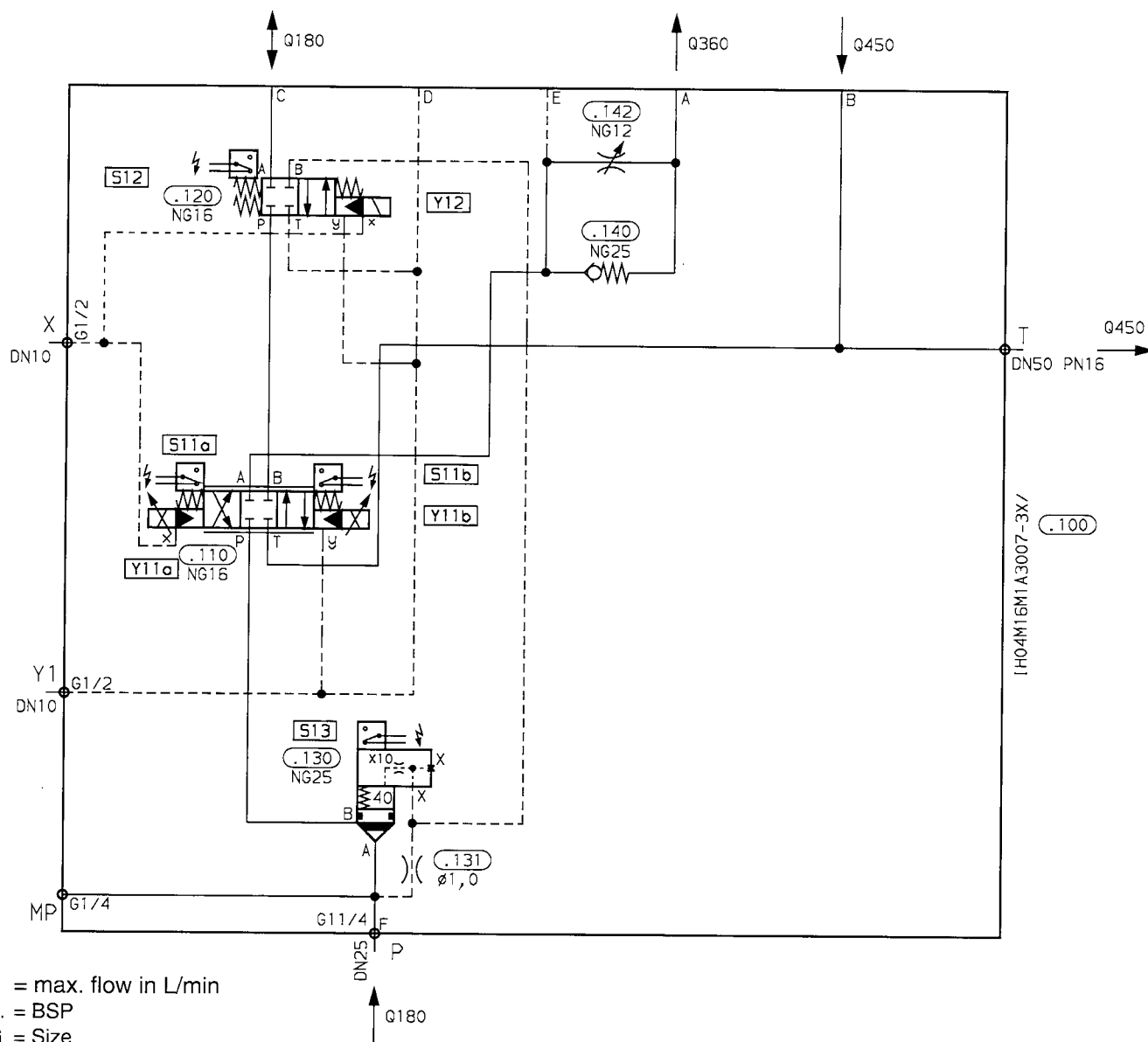
NG = Size

Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 16	H-4WEH16E6X/6A ... Q0G24	RE 24 751
.120	1	Directional valve, size 16	H-4WEH16U10B6X/6A ... Q0G24	RE 24 751
.130	1	Logic element, size 25	LC25DB20E6X	RE 81 078
.131	1	Orifice	DUESE 1,6 M10x25-45H	DIN 913
.132	1	Control cover, size 25	LFA25DBW2-6X/315	RE 81 078
.133	1	Directional valve, size 6	4WE6D5X/A ...	RE 23 177
.140	1	Check valve, size 25	M-SR25KE05-1X	RE 20 380
.142	1	Throttle valve, size 12	FL-DVE-12-1.1/P	RE 20 380
.150	1	Check valve, size 8	M-SR08KE50-1X	RE 20 380
T	1	Flange (Not included in supply; please order separately!)	DN50PN16	TN 012 939 AB 22-15

Module 1

Central oil supply without pressure control

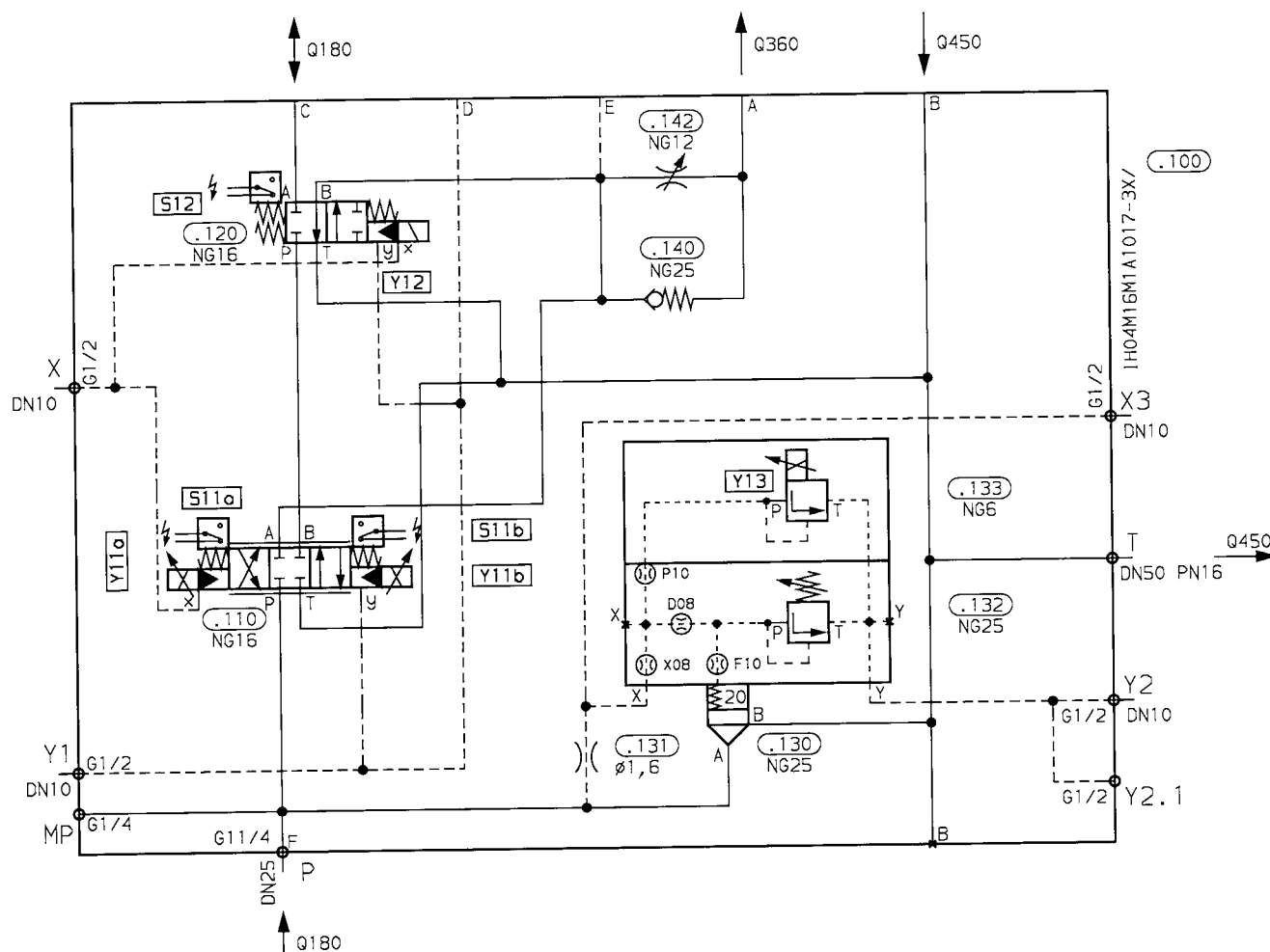
Press module, size 16
Circuit type M
IH04M16M1A3007-3X/...



Item	Qty	Description	Type	Further information
.110	1	Proportional directional valve, size 16	4WRZ16E100-5X/6A ... -402	RE 29 111
.120	1	Directional valve, size 16	H-4WEH16EB6X/6A ... Q0G24	RE 24 751
.130	1	Logic element, size 25	LFA25E15-6X/CD40DQ0G24FX10	RE 81 010
.131	1	Orifice	DUESE 1,0 M10x25-45H DIN 913	
.140	1	Check valve, size 25	M-SR25KE05-1X	RE 20 380
.142	1	Throttle valve, size 12	FL-DVE-12-1.1/P	
T	1	Flange (Not included in supply; please order separately!)	DN50PN16 TN 012 939	AB 22-15

Module 1

Press module, size 16
Circuit type M
IH04M16M1A1017-3X/...



Q = max. flow in L/min

G... = BSP

NG = Size

Item	Qty	Description	Type	Further information
.110	1	Proportional directional valve, size 16	4WRZ16E100-5X/6A ... -402	RE 29 111
.120	1	Directional valve, size 16	H-4WEH16U10B6X/6A ... Q0G24	RE 24 751
.130	1	Logic element, size 25	LC25DB20E6X	RE 81 078
.131	1	Orifice	DUESE 1,6 M10x25-45H	DIN 913
.132	1	Control cover, size 25	LFA25DBEM6X/315	RE 81 078
.133	1	Proportional pressure relief valve	DBET-5X/315G24-1	RE 29 166
.140	1	Check valve, size 25	M-SR25KE05-1X	RE 20 380
.142	1	Throttle valve, size 12	FL-DVE-12-1.1/P	
T	1	Flange (Not included in supply; please order separately!)	DN50PN16	TN 012 939 AB 22-15

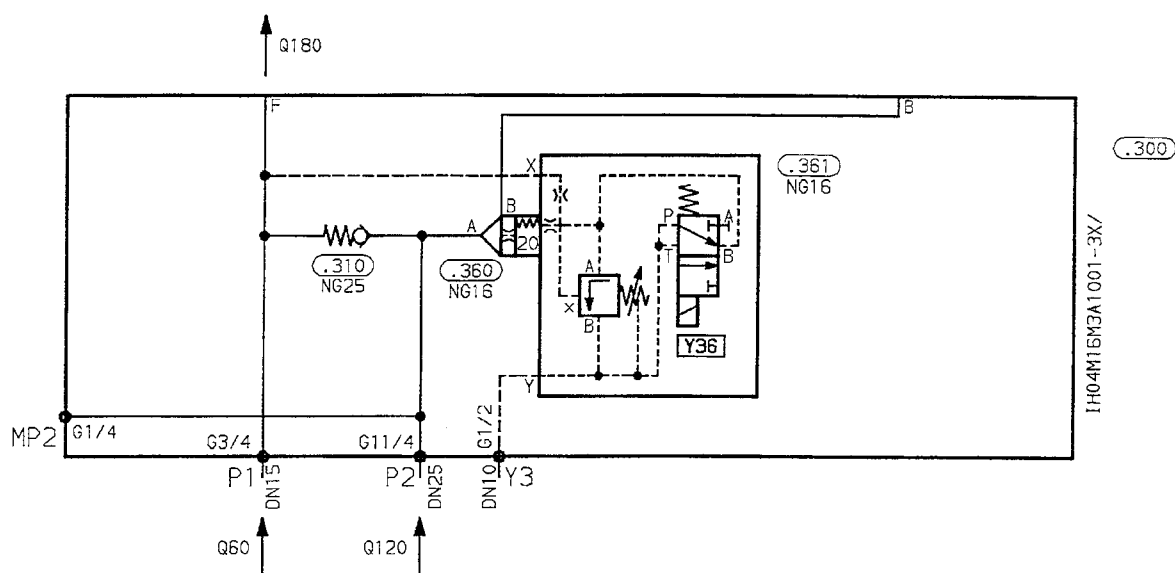
Module 3

Block for second pump, 2nd pump may be shut off dependent on position or pressure, shut off pressure up to 200 bar

Press module, size 16

Circuit type M

IH04M16M3A1001-3X/...



Q = max. flow in L/min

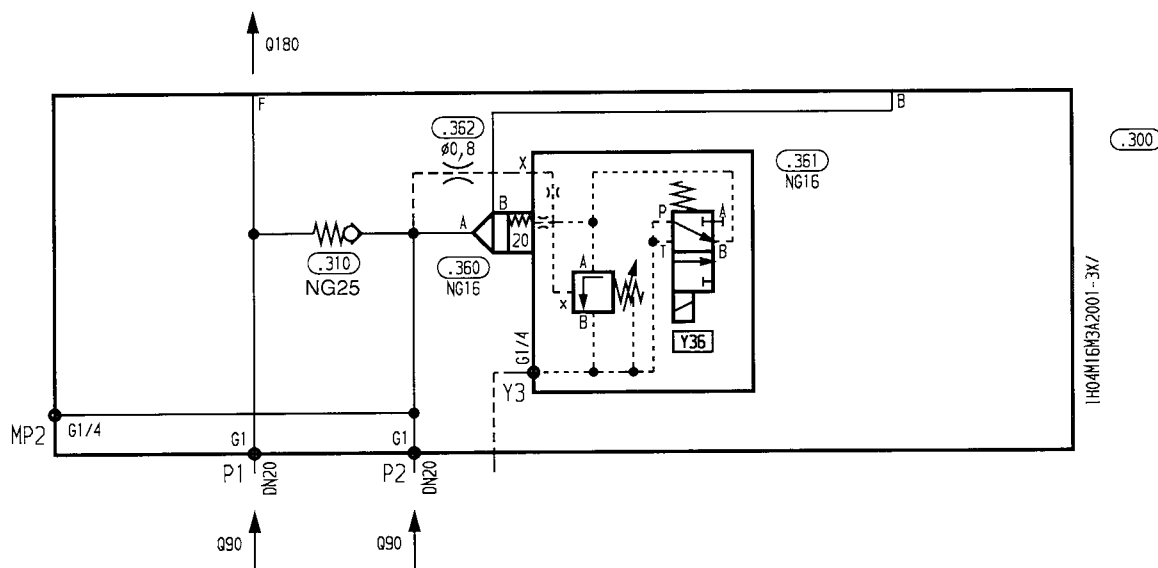
G... = BSP

NG = Size

Item	Qty	Description	Type	Further information
.310	1	Check valve, size 25	M-SR25KE30-1X	RE 20 380
.360	1	Logic element, size 16	LC16DB20A6X	RE 81 078
.361	1	Pressure sequence valve	DZWCB2-5X/200XY	RE 26 391

Module 3
Block for second pump,
Pressure control and low pressure bypass,
item .360

Press module, size 16
Circuit type M
IH04M16M3A2001-3X/...



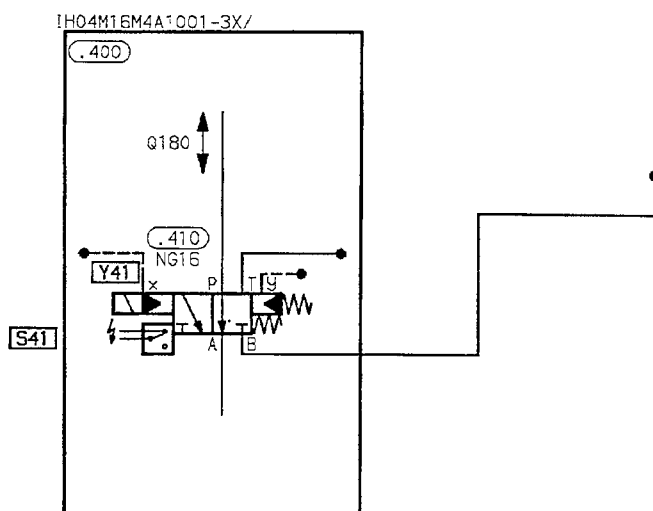
Q = max. flow in L/min

G... = BSP

NG = Size

Item	Qty	Description	Type	Further information
.310	1	Check valve, size 25	M-SR25KE30-1X	RE 20 380
.360	1	Logic element, size 16	LC16DB20E6X	RE 81 078
.361	1	Pressure relief valve	DBWCB2-5X/315 ...	RE 25 802
.362	1	Orifice	DUESE 0,8 R1/8 DIN 906	RN115.06

Press module, size 16
Circuit type M
IH04M16M4A1001-3X/...

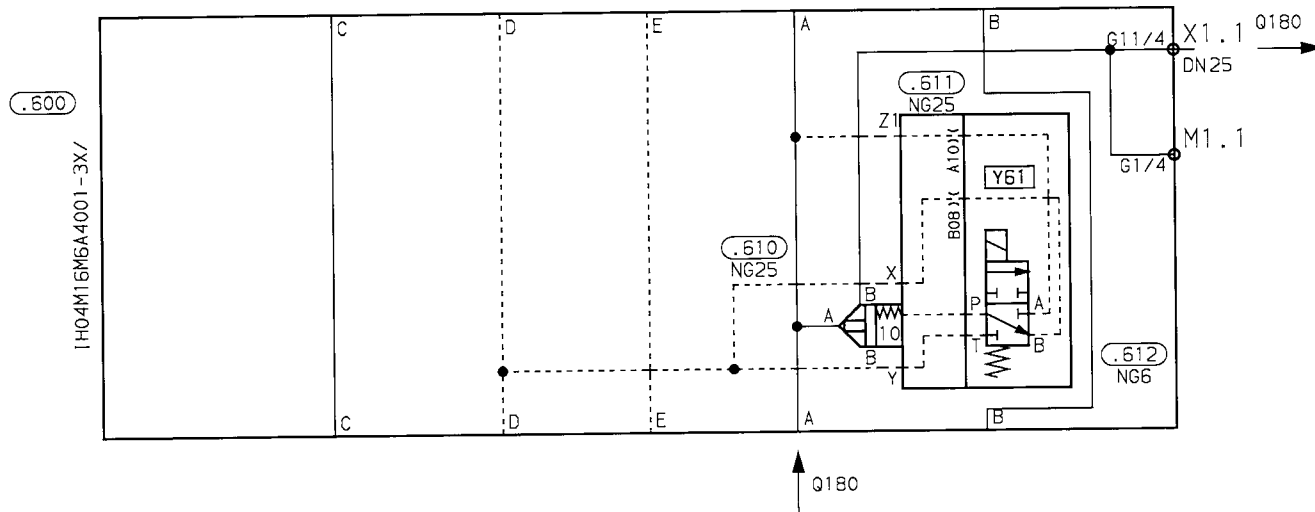


Q = max. flow in L/min
G... = BSP
NG = Size

Item	Qty	Description	Type	Further information
.410	1	Directional valve, size 16	H-4WEH16A7-6X/6A ... QBG24	RE 24 751

Module 6
Position dependent pressure sequencing
for fast forward cylinder

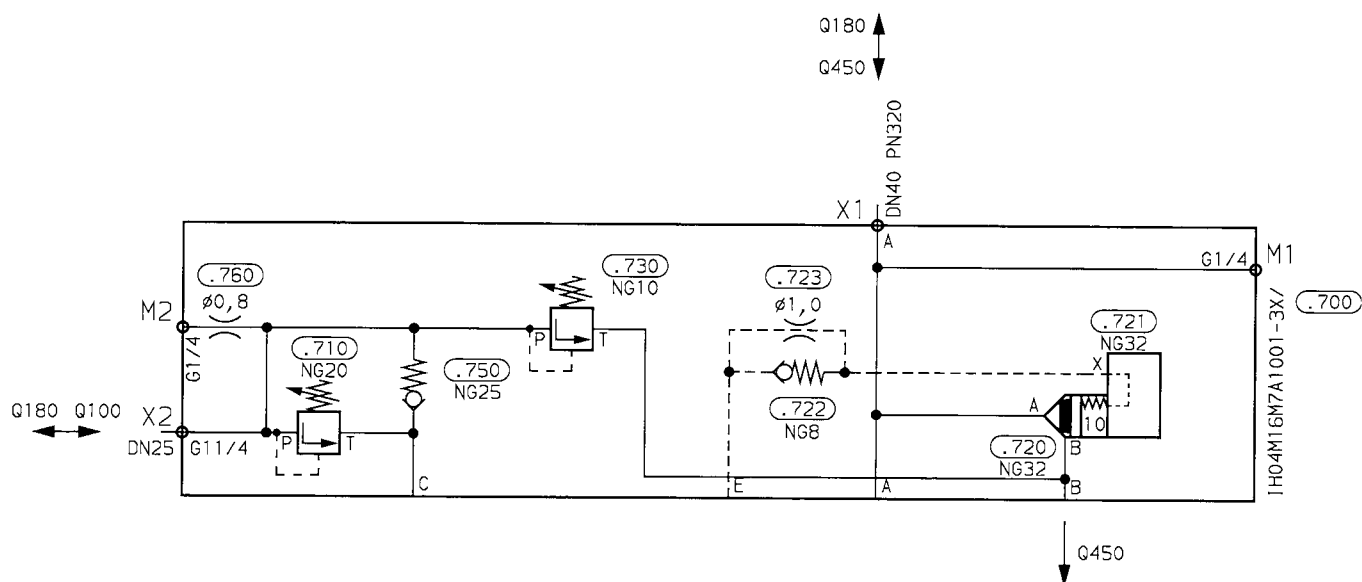
Press module, size 16
Circuit type M
IH04M16M6A4001-3X/...



Q = max. flow in L/min
 G... = BSP
 NG = Size

Item	Qty	Description	Type	Further information
.610	1	Logic element, size 25	LC25A10E6X	RE 81 010
.611	1	Control cover, size 25	LFA25WEA9-6X/A10B08	RE 81 010
.612	1	Directional valve, size 6	3WE6B9-5X/A ...	RE 23 177

Press module, size 16
Circuit type M
IH04M16M7A1001-3X/...

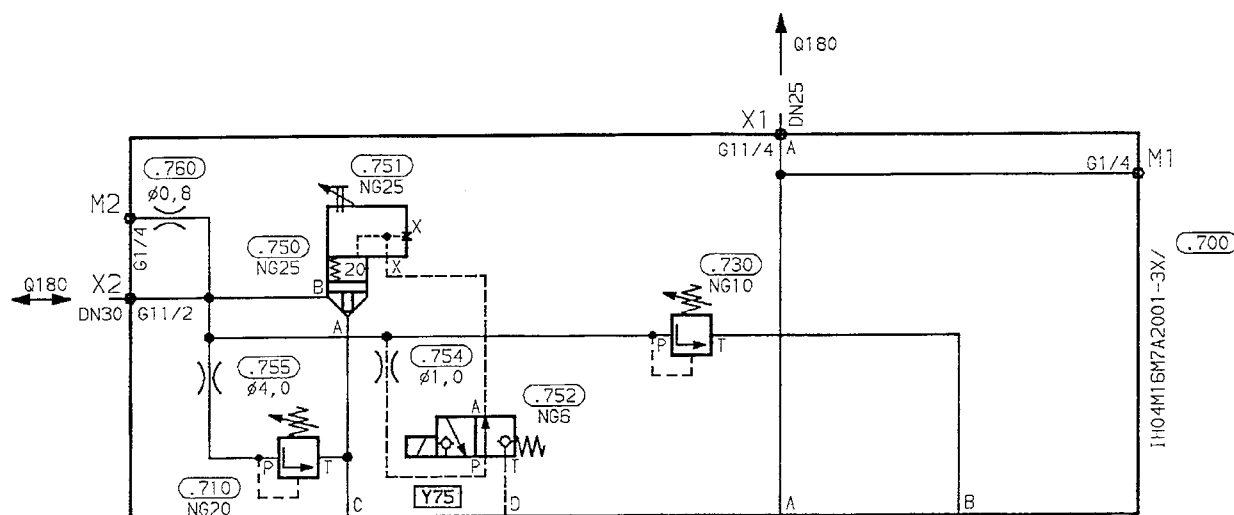


NG = Size

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REXROTH**

Module 7
Counterbalance, pilot operated,
Holding pressure up to 40 bar

Press module, size 16
Circuit type M
IH04M16M7A2001-3X/...

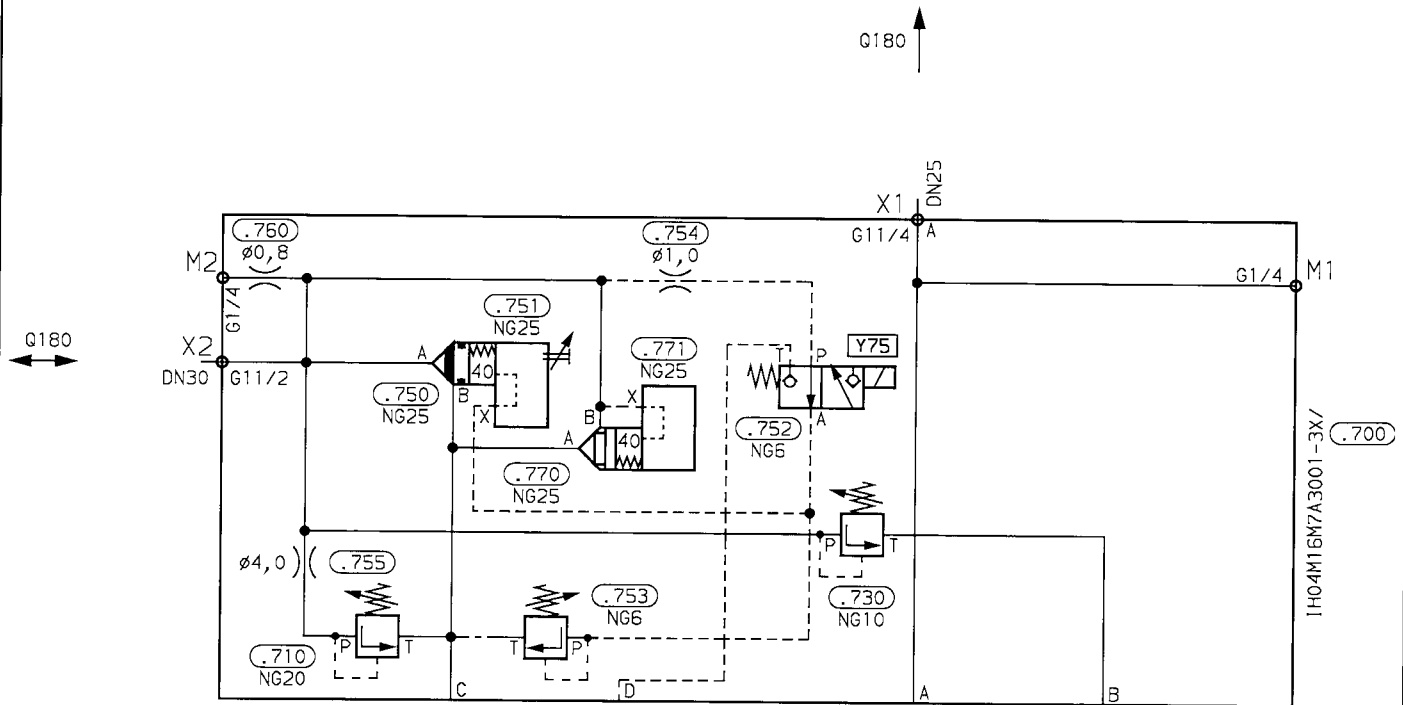


Q = max. flow in L/min

G... = BSP

NG = Size

Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 20	DBDS20K1X/100	RE 25 402
.730	1	Pressure relief valve, size 10	DBDS10K1X/315	RE 25 402
.750	1	Logic element, size 25	LC25A20E6X	RE 81 010
.751	1	Control cover, size 25	LFA25H2-6X/F	RE 81 010
.752	1	Directional poppet valve, size 6	M-3SEW6U2X/420L...	RE 22 057
.754	1	Orifice	DUESE 1,0 R1/8 DIN 906	RN115.06
.755	1	Orifice	DUESE 4,0 R1/2 DIN 906	RN115.06
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH	AEH.DIN 906

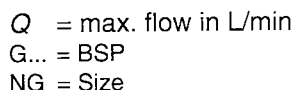
Module 7**Counterbalance, pilot operated****Check valve to bypass item .750 during return stroke,****Fast forward under own weight, deceleration via item .753****Press module, size 16****Circuit type M****IH04M16M7A3001-3X/...**

Q = max. flow in L/min

G... = BSP

NG = Size

Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 20	DBDS20K1X/100	RE 25 402
.730	1	Pressure relief valve, size 10	DBDS10K1X/315	RE 25 402
.750	1	Logic element, size 25	LC25DB40D6X/-004	RE 81 078
.751	1	Control cover, size 25	LFA25H2-6X/FDR	RE 81 078
.752	1	Directional poppet valve, size 6	M-3SEW6U2X/-420L...	RE 22 057
.753	1	Pressure relief valve, size 6	DBDS6K1X/315	RE 25 402
.754	1	Orifice	DUESE 1,0 R1/8 DIN 906	RN115.06
.755	1	Orifice	DUESE 4,0 R1/2 DIN 906	RN115.06
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH	AEH.DIN 906
.770	1	Logic element, size 25	LC25B40E6X	RE 81 010
.771	1	Control cover, size 25	LFA25D6X	RE 81 010

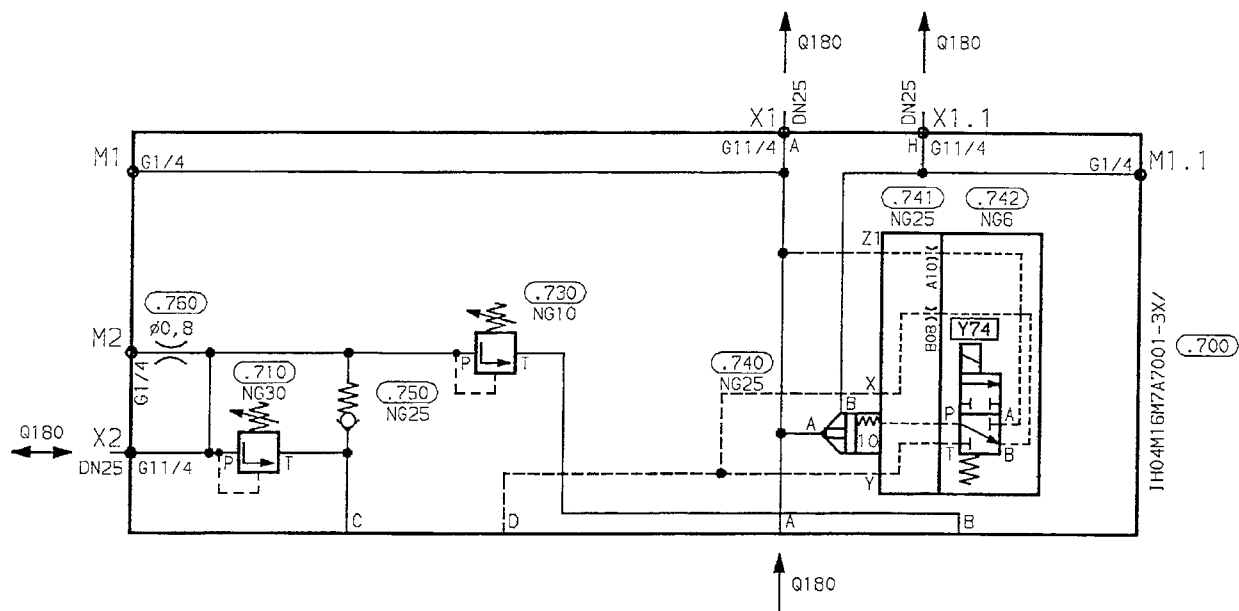


MANNESMANN 97/168
REXROTH

Module 7

Counterbalance with pressure sequence valve, position dependent, for fast forward cylinder

Press module, size 16
Circuit type M
IH04M16M7A7001-3X/...

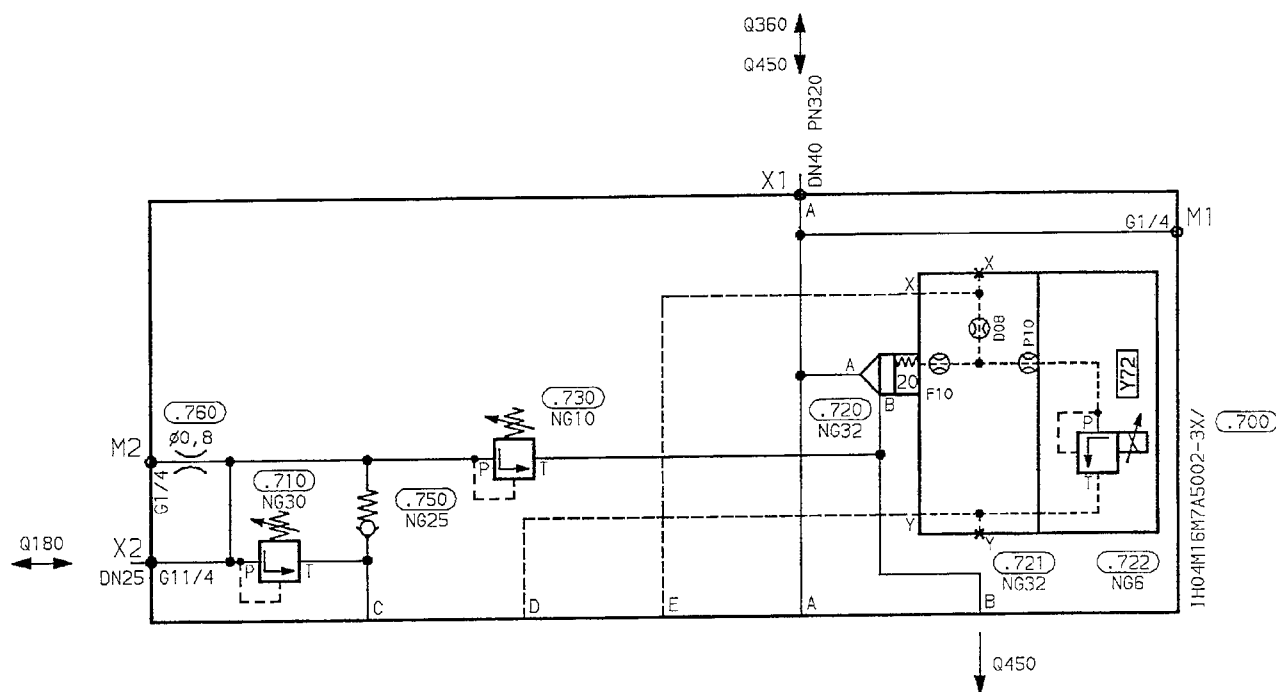


Q = max. flow in L/min
G... = BSP
NG = Size

Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 30	DBDS30K1X/100	RE 25 402
.730	1	Pressure relief valve, size 10	DBDS10K1X/315	RE 25 402
.740	1	Logic element, size 25	LC25A10E6X	RE 81 010
.741	1	Control cover, size 25	LFA25WEA9-6X/A10B08	RE 81 010
.742	1	Directional valve, size 6	3WE6B9-5X/A ...	RE 23 177
.750	1	Check valve, size 25	M-SR25KE05-1X	RE 20 380
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH AEH.DIN 906	

Module 7
Counterbalance for regenerative circuit,
Logic element, item 720 with
mounted proportional pressure relief valve

Press module, size 16
Circuit type M
IH04M16M7A5002-3X/...



Q = max. flow in L/min

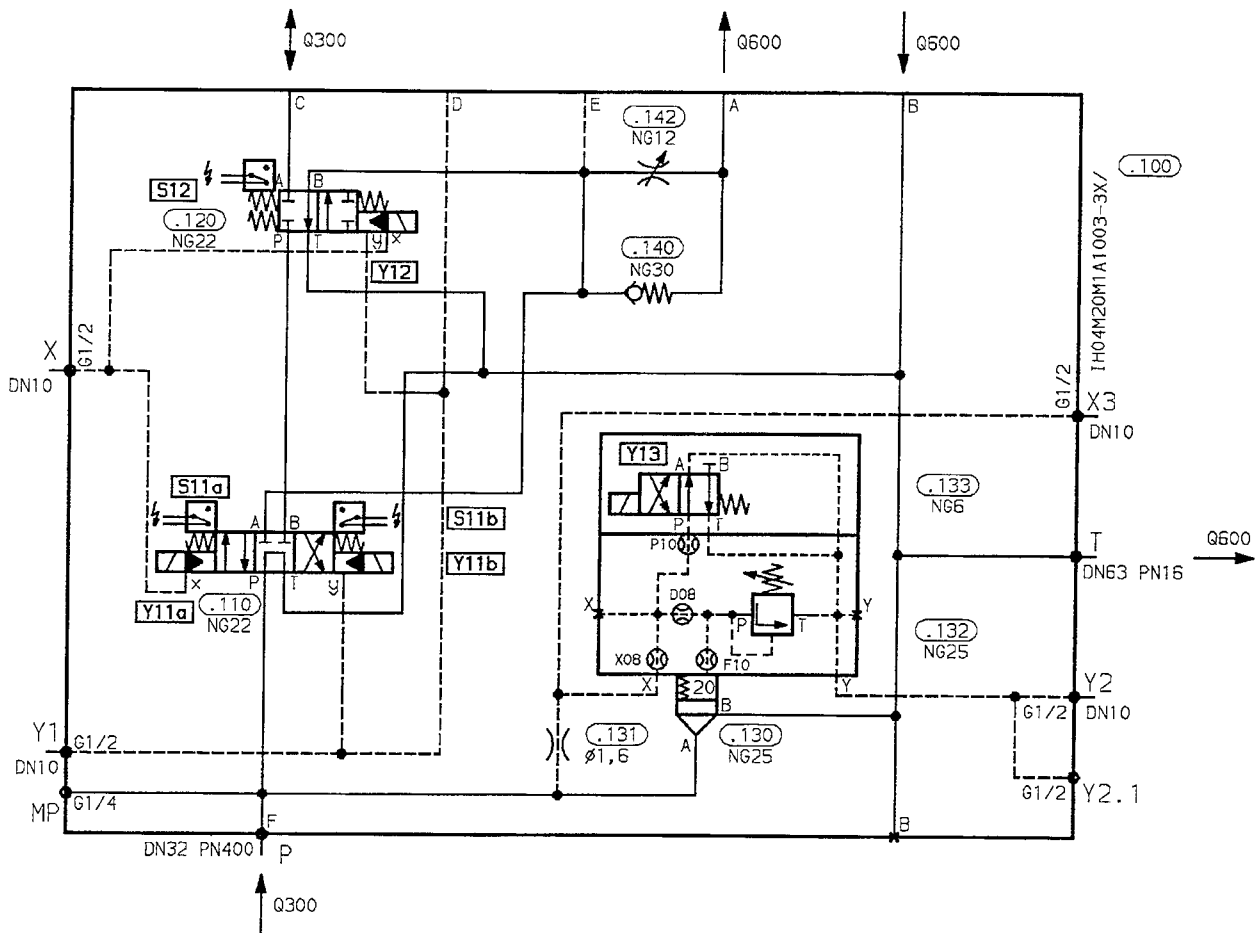
G... = BSP

NG = Size

Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 30	DBDS30K1X/100	RE 25 402
.720	1	Logic element, size 32	LC32DB20E6X	RE 81 078
.721	1	Control cover, size 32	LFA32DBE6X	RE 81 078
.722	1	Proportional pressure relief valve	DBET-5X/315G24-1	RE 29 166
.730	1	Pressure relief valve, size 10	DBDS10K1X/315	RE 25 402
.750	1	Check valve, size 25	M-SR25KE05-1X	RE 20 380
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH AEH.DIN 906	
x	1	Flange (Not included in supply; please order separately!)	DN40PN320 TN 303 921	RE 45 501

Module 1

Press module, size 20
Circuit type M
IH04M20M1A1003-3X/...

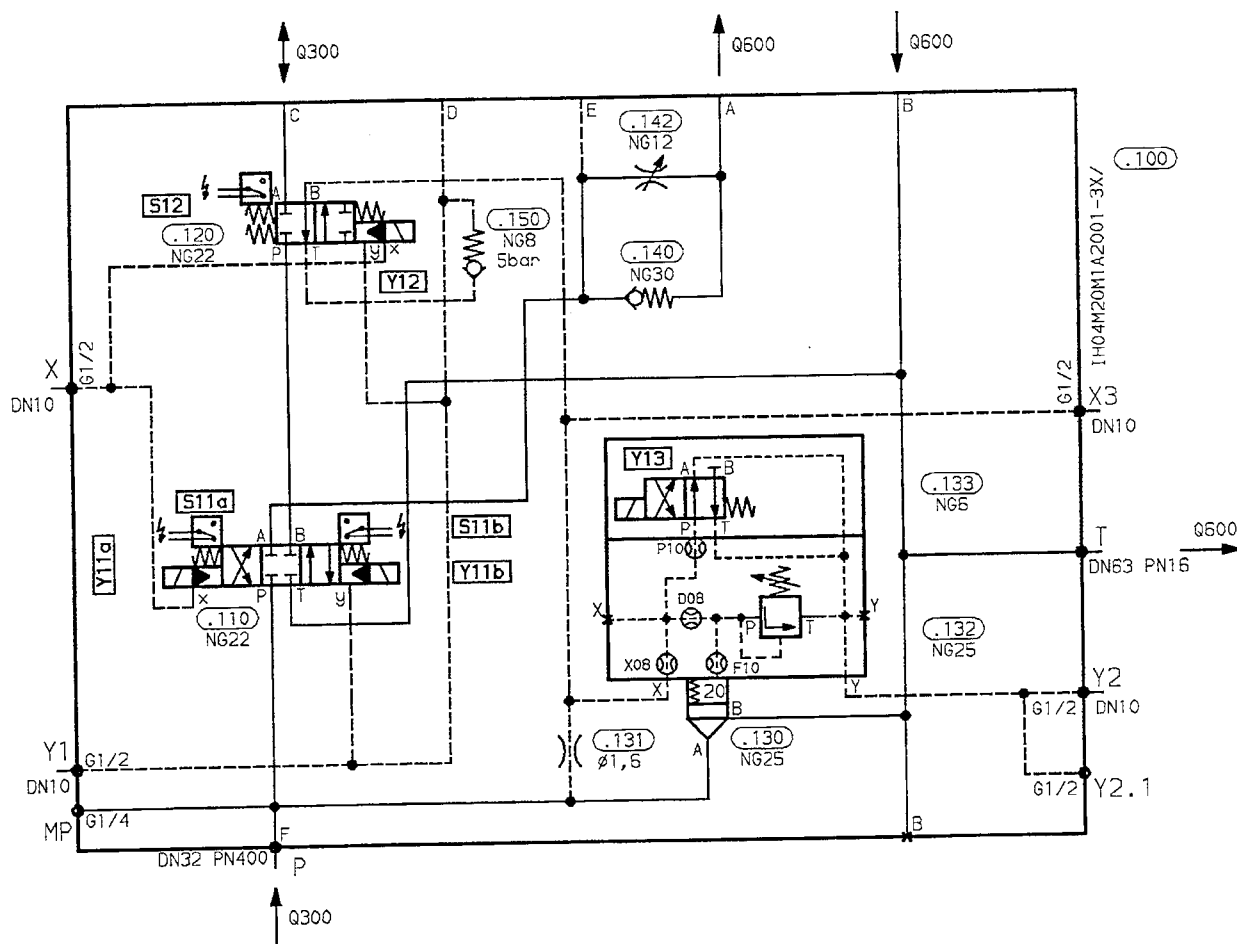


Q = max. flow in L/min
 G... = BSP
 NG = Size

Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 25	H-4WEH22T7X/6A ... Q0G24	RE 24 751
.120	1	Directional valve, size 25	H-4WEH22U10B7X/6A ... Q0G24	RE 24 751
.130	1	Logic element, size 25	LC25DB20E6X	RE 81 078
.131	1	Orifice	DUESE 1,6 M10x25-45H	DIN 916
.132	1	Control cover, size 25	LFA25DBW2-6X/315	RE 81 078
.133	1	Directional valve, size 6	4WE6D5X/A ...	RE 23 177
.140	1	Check valve, size 30	M-SR30KE05-1X	RE 20 380
.142	1	Throttle valve, size 12	FL-DVE-12-1.1/P	
P	1	Flange	DN32PN400	TN 013 772
T	1	Flange	DN63PN16	TN 012 336
(Not included in supply; please order separately!)				

Module 1

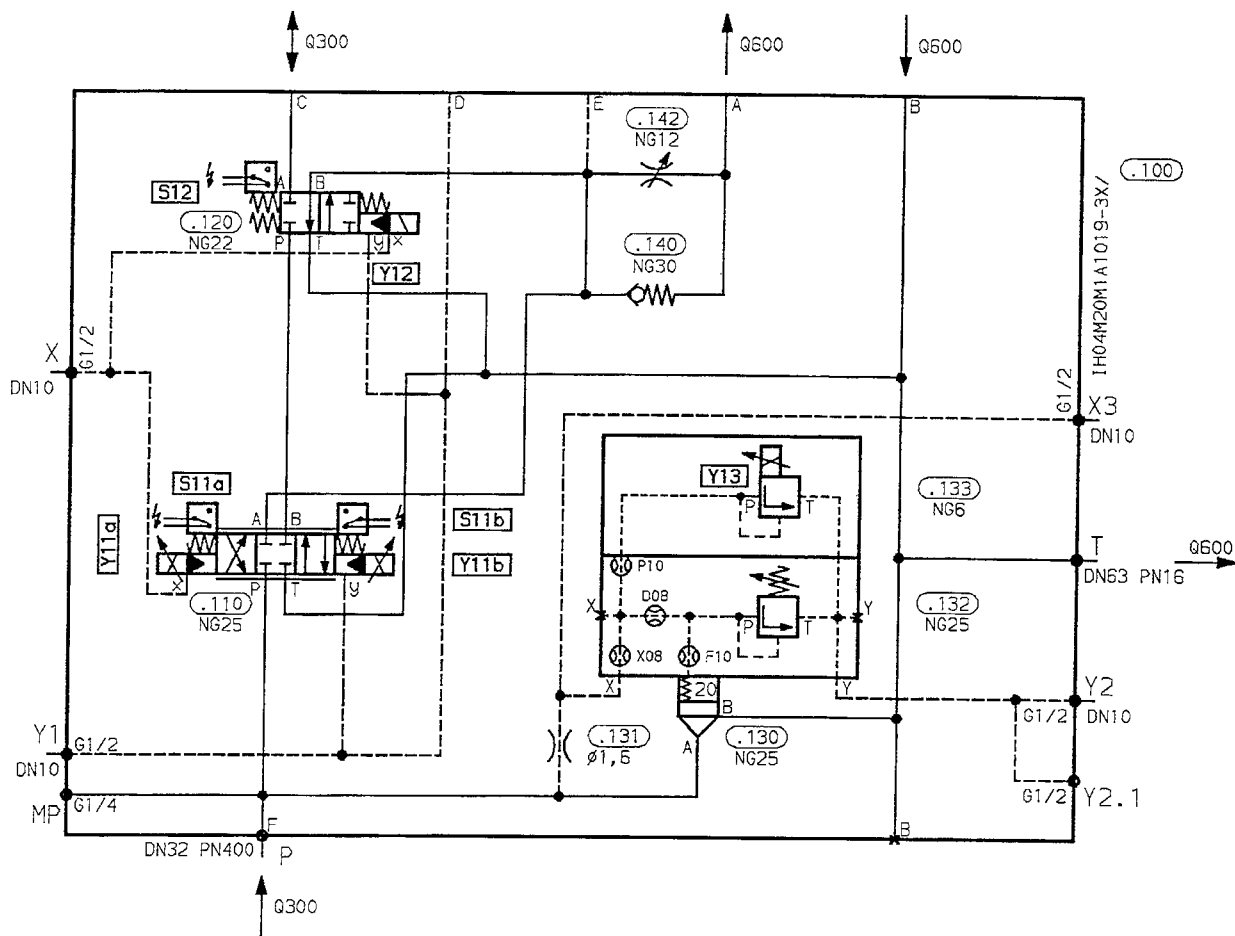
Press module, size 20
Circuit type M
IHO4M20M1A2001-3X/...



Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 25	H-4WEH22E7X/6A ... Q0G24	RE 24 751
.120	1	Directional valve, size 25	H-4WEH22U10B7X/6A ... Q0G24	RE 24 751
.130	1	Logic element, size 25	LC25DB20-6X	RE 81 078
.131	1	Orifice	DUESE 1,6 M10x25-45H	DIN 916
.132	1	Control cover, size 25	LFA25DBW2-6X/315	RE 81 078
.133	1	Directional valve, size 6	4WE6D5X/A ...	RE 23 177
.140	1	Check valve, size 30	M-SR30KE05-1X	RE 20 380
.142	1	Throttle valve, size 12	FL-DVE-12-1.1/P	RE 20 380
.150	1	Check valve, size 8	M-SR08KE50-1X	RE 20 380
P	1	Flange	DN32PN400	TN 013 772
T	1	Flange	DN63PN16	TN 012 336
(Not included in supply; please order separately!)				AB 22-15

Module 1

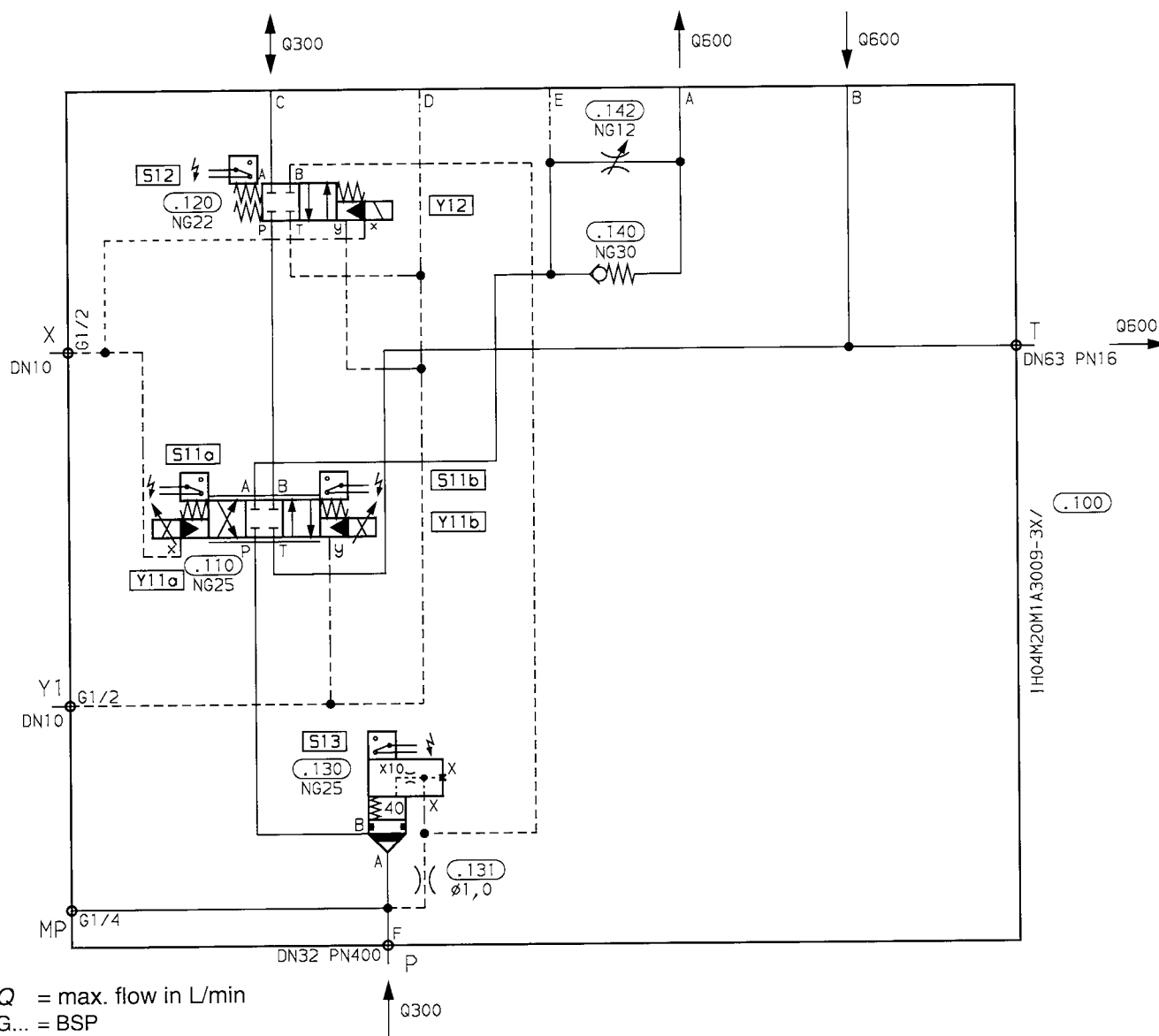
Press module, size 20
Circuit type M
IH04M20M1A1019-3X/...



Item	Qty	Description	Type	Further information
.110	1	Proportional directional valve, size 25	4WRZ25E220-5X/6A ... -402	RE 29 111
.120	1	Directional valve, size 25	H-4WEH22U10B7X/6A ... Q0G24	RE 24 751
.130	1	Logic element, size 25	LC25DB20E6X	RE 81 078
.131	1	Orifice	DUESE 1,6 M10x25-45H	DIN 916
.132	1	Control cover, size 25	LFA25DBEM6X/315	RE 81 078
.133	1	Proportional pressure relief valve	DBET -5X/315G24-1	RE 29 166
.140	1	Check valve, size 30	M-SR30KE05-1X	RE 20 380
.142	1	Throttle valve, size 12	FL-DVE-12-1.1/P	
P	1	Flange	DN32PN400	TN 013 772
T	1	Flange	DN63PN16	TN 012 336
(Not included in supply; please order separately!)				AB 22-15

Module 1
Central oil supply without pressure control
Accumulator operation

Press module, size 20
Circuit type M
IH04M20M1A3009-3X/...

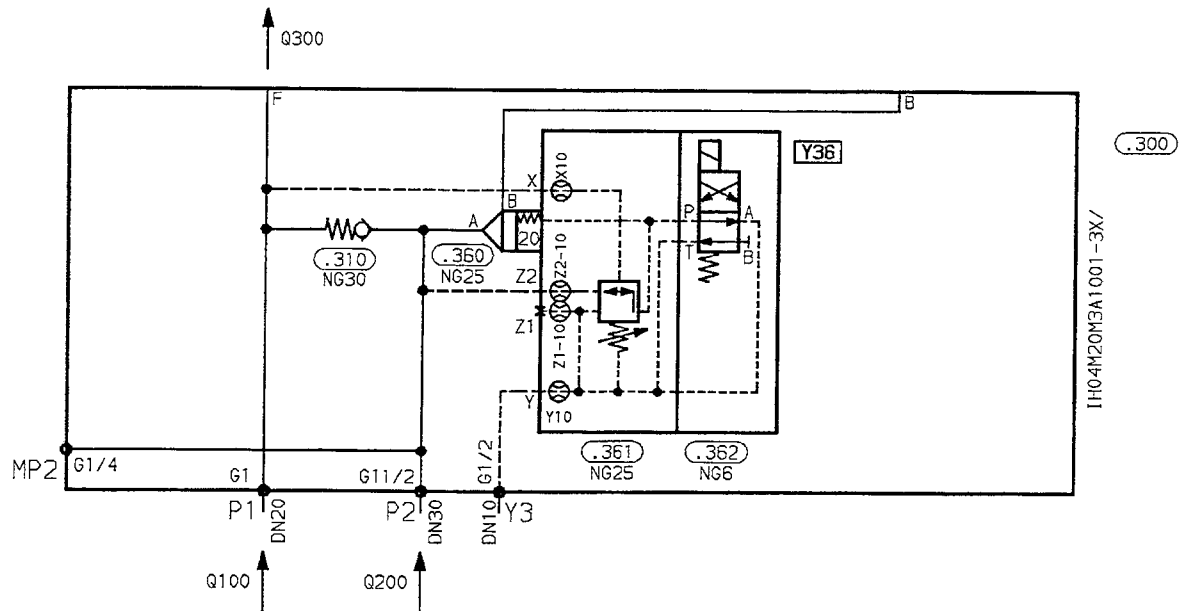


Item	Qty	Description	Type	Further information
.110	1	Proportional directional valve, size 25	4WRZ25E220-5X/6A ... -402	RE 29 111
.120	1	Directional valve, size 25	H-4WEH22EB6X/6A ... Q0G24	RE 24 751
.130	1	Logic element, size 25	LFA25E15-6X/CD40DQ0G24FX10	RE 81 078
.131	1	Orifice	DUESE 1,0 M10x25-45H DIN 913	
.140	1	Check valve, size 30	M-SR30KE05-1X	RE 20 380
.142	1	Throttle valve, size 12	FL-DVE12-1.0/P	
P	1	Flange	DN32PN400	TN 013 772
T	1	Flange	DN63PN16	TN 012 336
(Not included in supply; please order separately!)				

Module 3

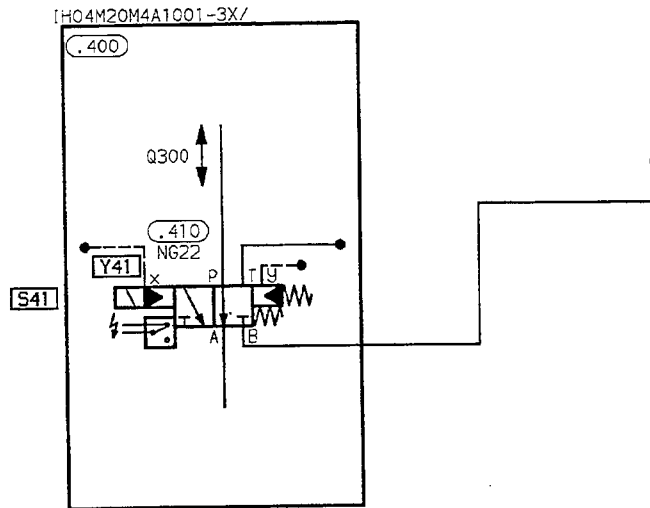
Block for second pump, 2nd pump may be shut off dependent on position or pressure, Shut-off pressure max. 210 bar

Press module, size 20
Circuit type M
IH04M20M3A1001-3X/...



Q = max. flow in L/min
G... = BSP
NG = Size

Item	Qty	Description	Type	Further information
.310	1	Check valve, size 30	M-SR30KE30-1X	RE 20 380
.360	1	Logic element, size 25	LC25DB20E6X	RE 81 078
.361	1	Control cover, size 25	LFA25DZWB2-6X/210X	RE 81 078
.362	1	Directional valve, size 6	4WE6D5X/A ...	RE 23 177

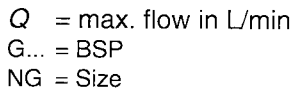
Module 4
Regenerative circuit
Press module, size 20
Circuit type M
IH04M20M4A1001-3X/...


Q = max. flow in L/min

G... = BSP

NG = Size

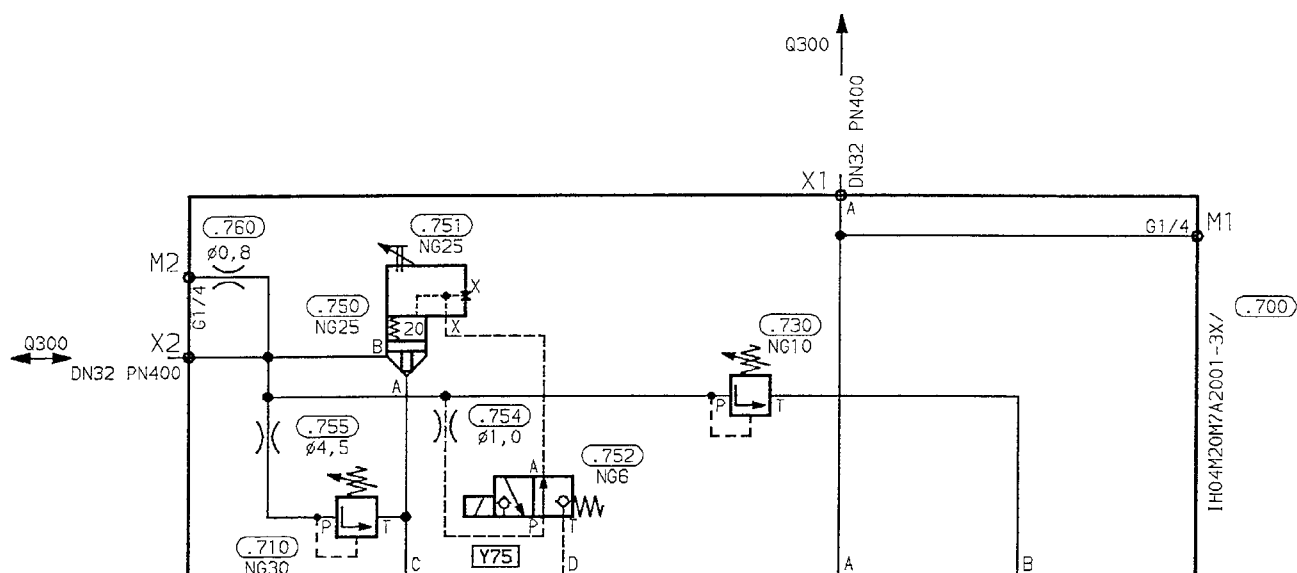
Item	Qty	Description	Type	Further information
.410	1	Directional valve, size 25	H-3WEH22A7-7X/6A ... QBG24	RE 24 751



**106/168 MANNESMANN
REXROTH**

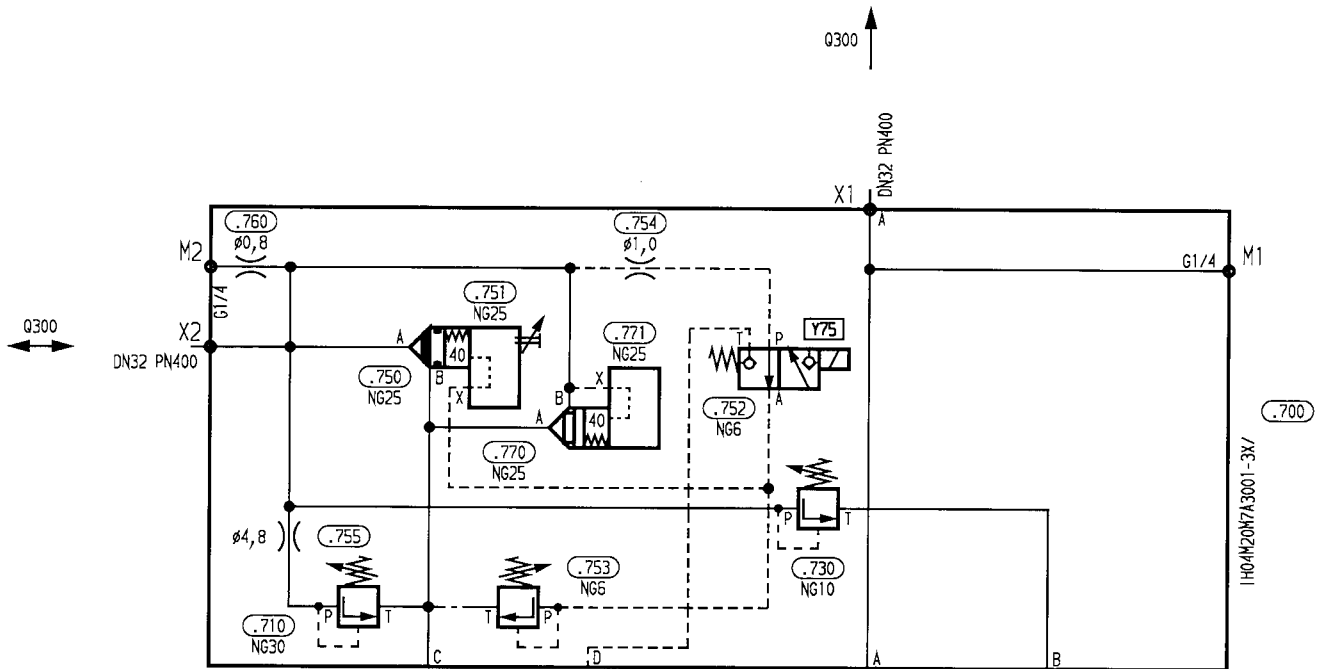
Module 7
Counterbalance, pilot operated,
Holding pressure up to 40 bar

Press module, size 20
Circuit type M
IH04M20M7A2001-3X/...



Q = max. flow in L/min
 G... = BSP
 NG = Size

Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 30	DBDS30K1X/100	RE 25 402
.730	1	Pressure relief valve, size 10	DBDS10K1X/315	RE 25 402
.750	1	Logic element, size 25	LC25A20E6X	RE 81 010
.751	1	Control cover, size 25	LFA25H2-6X/F	RE 81 010
.752	1	Directional poppet valve, size 6	M-3SEW6U2X/420L...	RE 22 057
.754	1	Orifice	DUESE 1,0 R1/8 DIN 906	RN115.06
.755	1	Orifice	DUESE 4,5 G1/2 K	
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH	AEH.DIN 906
X1, X2	2	Flange (Not included in supply; please order separately!)	DN32PN400	TN 013 772

Module 7**Counterbalance, pilot operated****Check valve to bypass item .750 during return stroke,****Fast forward under own weight, deceleration via item .753****Press module, size 20****Circuit type M****IH04M20M7A3001-3X/...**

Q = max. flow in L/min

G... = BSP

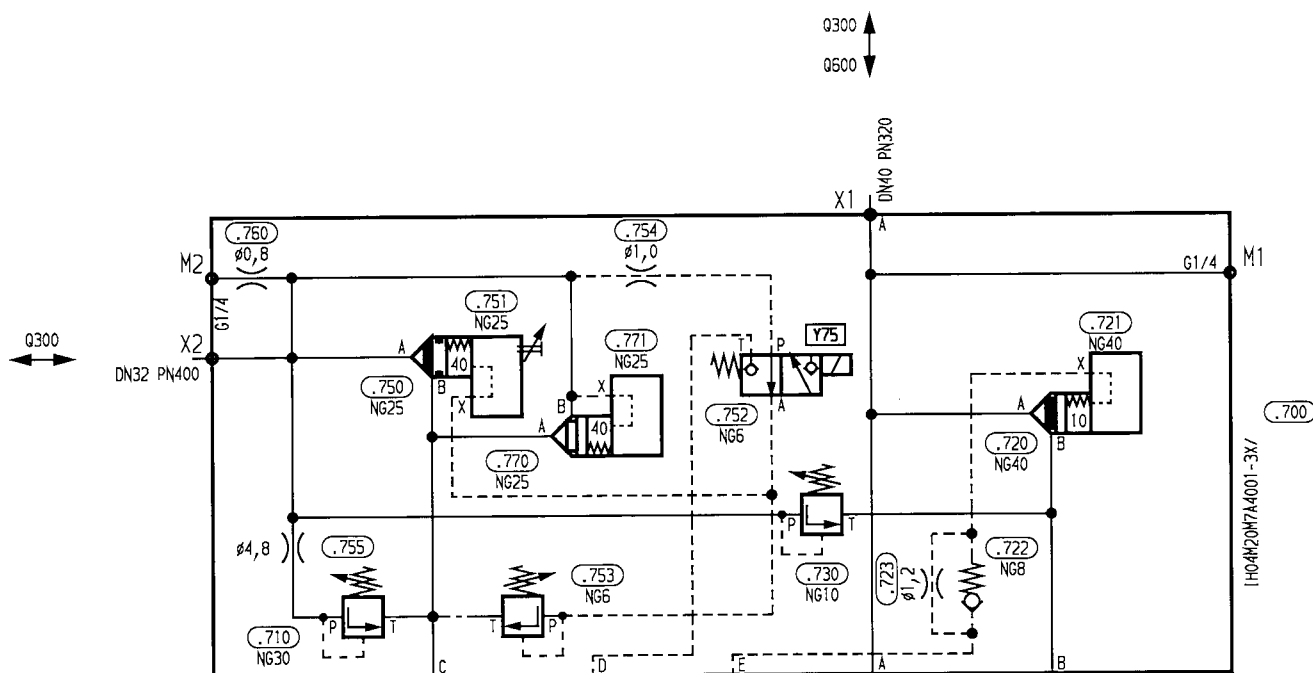
NG = Size

Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 30	DBDS30K1X/100	RE 25 402
.730	1	Pressure relief valve, size 10	DBDS10K1X/315	RE 25 402
.750	1	Logic element, size 25	LC25DB40D6X/-004	RE 81 078
.751	1	Control cover, size 25	LFA25H2-6X/FDR	RE 81 078
.752	1	Directional poppet valve	M-3SEW6U2X/420L...	RE 22 057
.753	1	Pressure relief valve, size 6	DBDS6K1X/315	RE 25 402
.754	1	Orifice	DUESE 1,0 R1/8 DIN 906	RN115.06
.755	1	Orifice	DUESE 4,8 R3/4 DIN 906	RN 115.06
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH	AEH.DIN 906
.770	1	Logic element, size 25	LC25B40E6X	RE 81 010
.771	1	Control cover, size 25	LFA25D6X	RE 81 010
X1, X2	2	Flange (Not included in supply; please order separately!)	DN32PN400	TN 013 772

Module 7

Counterbalance, pilot operated,
with check valve to bypass item .750 during return stroke
Fast forward under own weight, deceleration via item .753 & item .720

Press module, size 20
Circuit type M
IH04M20M7A4001-3X/...

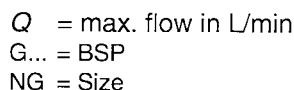


Q = max. flow in L/min

G... = BSP

NG = Size

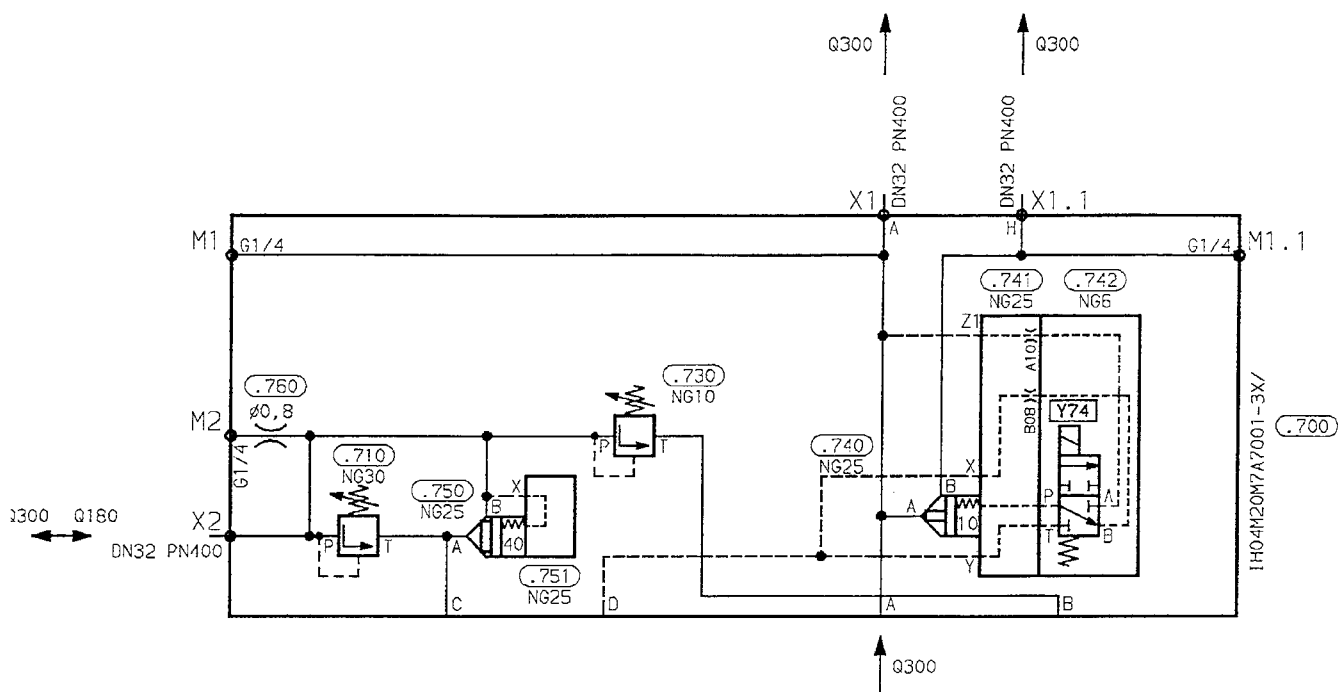
Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 30	DBDS30K1X/100	RE 25 402
.720	1	Logic element, size 40	LC40B10D6X	RE 81 078
.721	1	Control cover, size 40	LFA40D6X/F	RE 81 078
.722	1	Check valve, size 8	M-SR8KE05-1X	RE 20 380
.723	1	Orifice	DUESE 1,2 R1/8 DIN 906	RN115.06
.730	1	Pressure relief valve, size 10	DBDS10K1X/315	RE 25 402
.750	1	Logic element, size 25	LC25DB40D6X/-004	RE 81 078
.751	1	Control cover, size 25	LFA25H2-6X/FDR	RE 81 078
.752	1	Directional poppet valve, size 6	M-3SEW6U2X/420L...	RE 22 057
.753	1	Pressure relief valve, size 6	DBDS6K1X/315	RE 25 402
.754	1	Orifice	DUESE 1,0 R1/8 DIN 906	RN115.06
.755	1	Orifice	DUESE 4,8 R3/4 DIN 906	RN 115.06
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH	AEH.DIN 906
.770	1	Logic element, size 25	LC25B40E6X	RE 81 010
.771	1	Control cover, size 25	LFA25D6X	RE 81 010
X1	1	Flange*	DN40PN320	TN 303 921
X2	1	Flange*	DN32PN400	TN 013 772
*(Not included in supply; please order separately!)				



**110/168 MANNESMANN
REXROTH**

Module 7
Counterbalance,
with pressure sequence valve, position dependent,
for fast forward cylinders

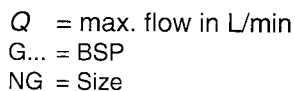
Press module, size 20
Circuit type M
IH04M20M7A7001-3X/...



Q = max. flow in L/min
 G... = BSP
 NG = Size

Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 30	DBDS30K1X/100	RE 25 402
.730	1	Pressure relief valve, size 10	DBDS10K1X/315	RE 25 402
.740	1	Logic element, size 25	LC25A10E6X	RE 81 010
.741	1	Control cover, size 25	LFA25WEA9-6X/A10 B08	RE 81 010
.742	1	Directional valve, size 6	3WE6B9-5X/ ...	RE 23 177
.750	1	Logic element, size 25	LC25B40E6X	RE 81 010
.751	1	Control cover, size 25	LFA25D6X	RE 81 010
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH AEH.DIN 906	
X1, X2	2	Flange*	DN32PN400	TN 013 772
X1.1	1	Flange*	DN32PN400	TN 013 772
*(Not included in supply; please order separately!)				

Press module, size 20
Circuit type M
IH04M20M7A1003-3X/...

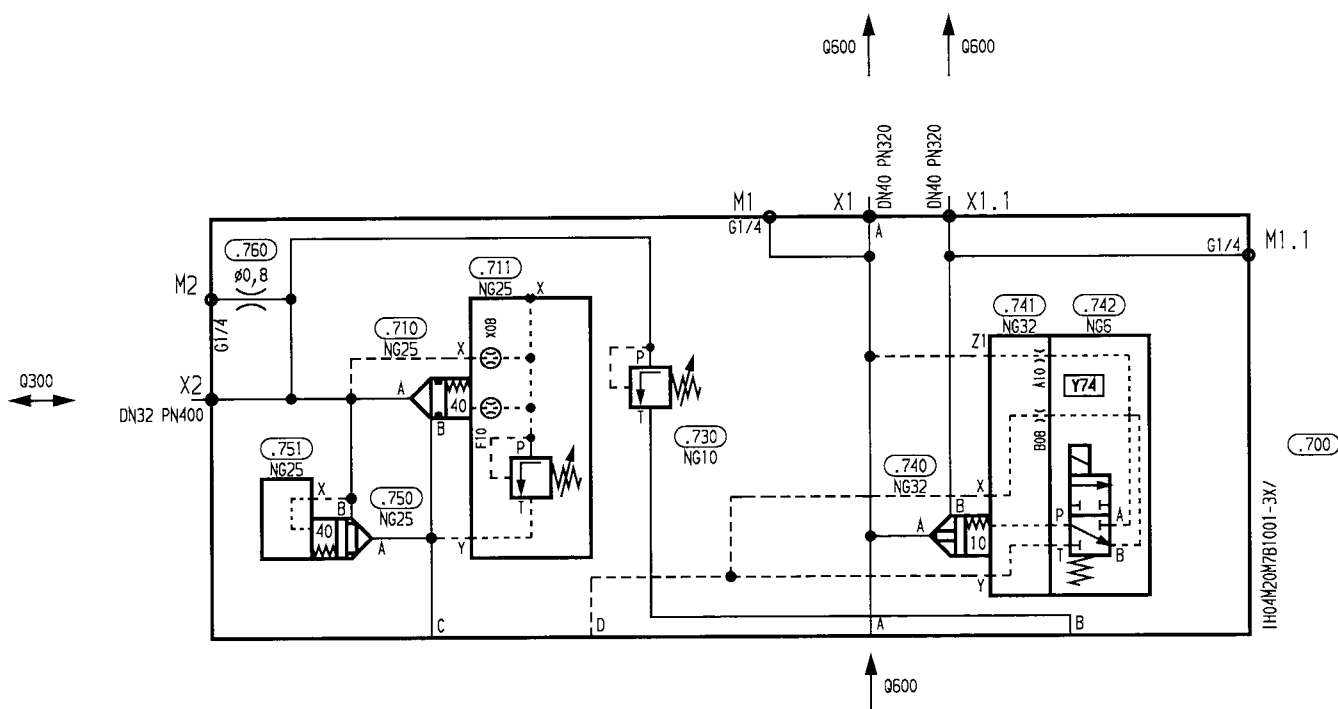


**112/168 MANNESMANN
REXROTH**

Module 7**Counterbalance,**

Position dependent pressure sequencing for fast forward cylinders
and regenerative circuit with holding pressure

Press module, size 20
Circuit type M
IH04M20M7B1001-3X/...

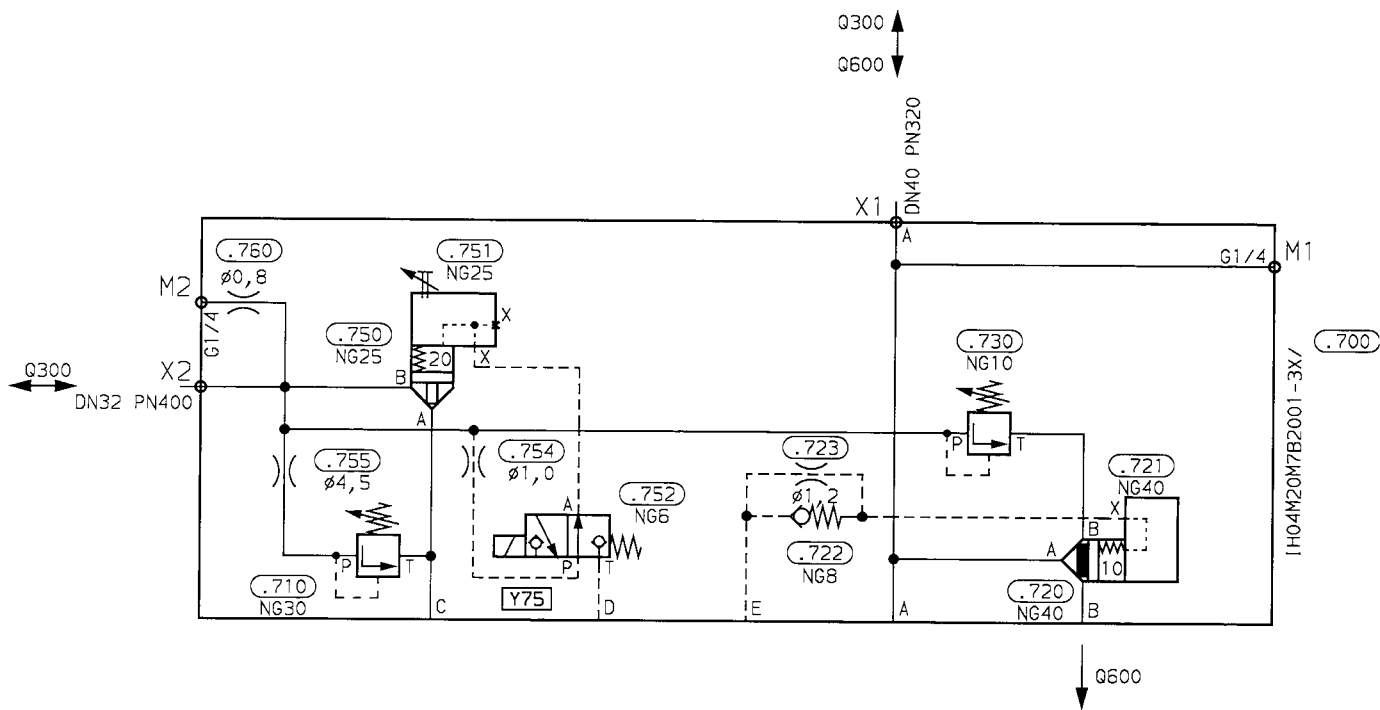


Q = max. flow in L/min
G... = BSP
NG = Size

Item	Qty	Description	Type	Further information
.710	1	Logic element, size 25	LC25DB40E6X-004	RE 81 078
.711	1	Control cover, size 25	LFA25DB2-6X/100	RE 81 078
.730	1	Pressure relief valve, size 10	DBDS10K1X/315	RE 25 402
.740	1	Logic element, size 32	LC32A10E6X	RE 81 010
.741	1	Control cover, size 32	LFA32WEA9-6X/A10B08	RE 81 010
.742	1	Directional valve, size 6	3WE6B9-5X/A ...	RE 23 177
.750	1	Logic element, size 25	LC25B40E6X	RE 81 010
.751	1	Control cover, size 25	LFA25D6X	RE 81 010
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH AEH.DIN 906	RE 25 402
X1, X1.1	2	Flange*	DN40PN320	TN 303 921
X2	1	Flange*	DN32PN400	TN 013 772
*(Not included in supply; please order separately!)				

Module 7 **Counterbalance, pilot operated,** **with logic element (item .720)**

Press module, size 20
Circuit type M
IH04M20M7B2001-3X/...

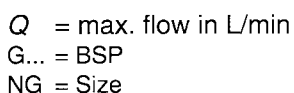


Q = max. flow in L/min

G... = BSP

NG = Size

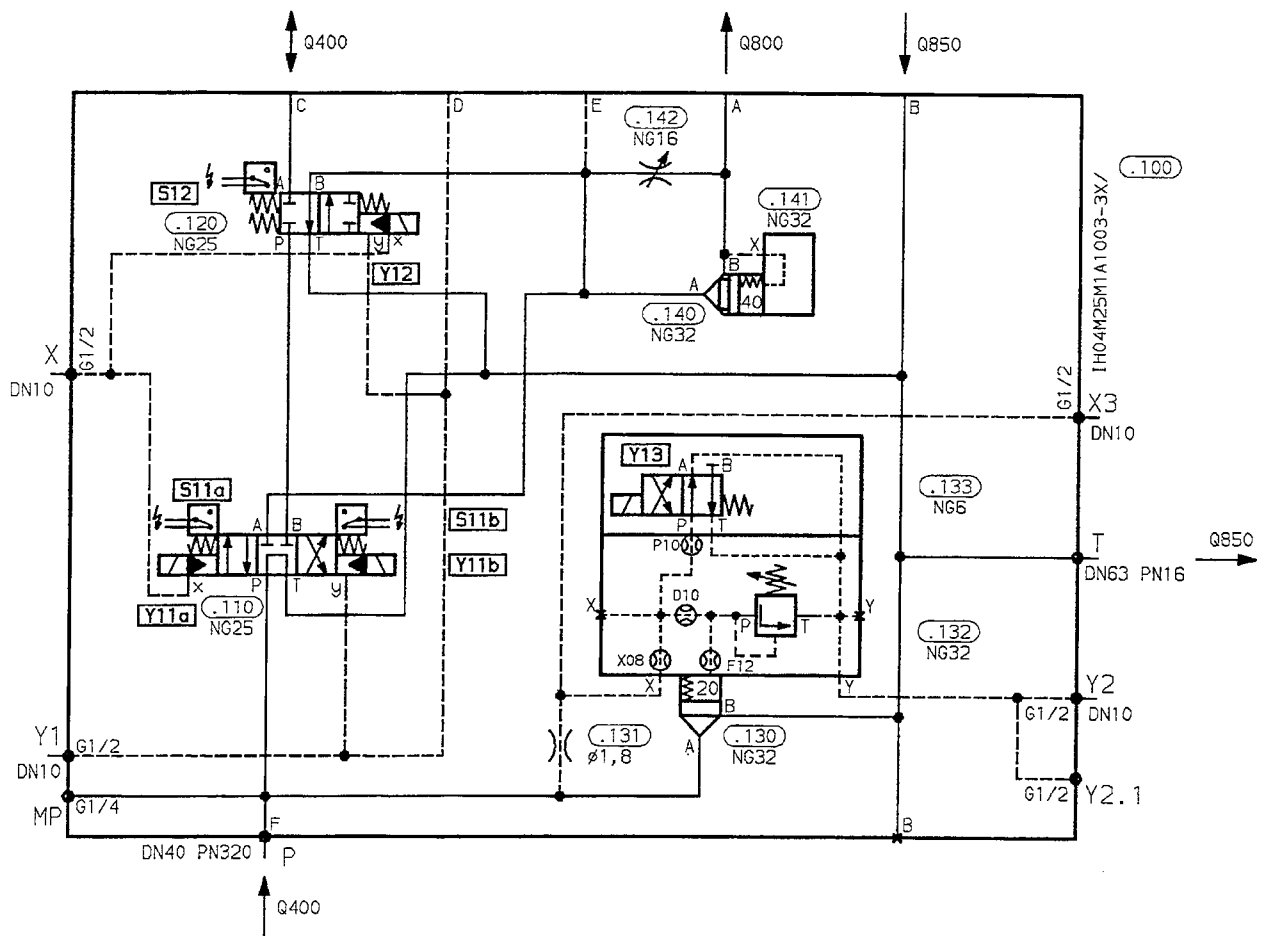
Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 30	DBDS30K1X/100	RE 25 402
.720	1	Logic element, size 40	LC40B10D6X	RE 81 010
.721	1	Control cover, size 40	LFA40D6X/F	RE 81 010
.722	1	Check valve, size 8	M-SR8KE05-1X	RE 20 380
.723	1	Orifice	DUESE 1,2 R1/8 DIN 906	RN115.06
.730	1	Pressure relief valve, size 10	DBDS10K1X/315	RE 25 402
.750	1	Logic element, size 25	LC25A20E6X	RE 81 010
.751	1	Control cover, size 25	LFA25H2-6X/F	RE 81 010
.752	1	Directional poppet valve, size 6	M-3SEW6U2X/420L...	RE 22 057
.754	1	Orifice	DUESE 1,0 R1/8 DIN 906	RN115.06
.755	1	Orifice	DUESE 4,5 G1/2 K	
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH	AEH.DIN 906
X1	1	Flange*	DN40PN320	TN 303 921
X2	1	Flange*	DN32PN400	TN 013 772
*(Not included in supply; please order separately!)				



MANNESMANN 115/168
REXBOTH

Module 1

Press module, size 25
Circuit type M
IH04M25M1A1003-3X/...



Q = max. flow in L/min

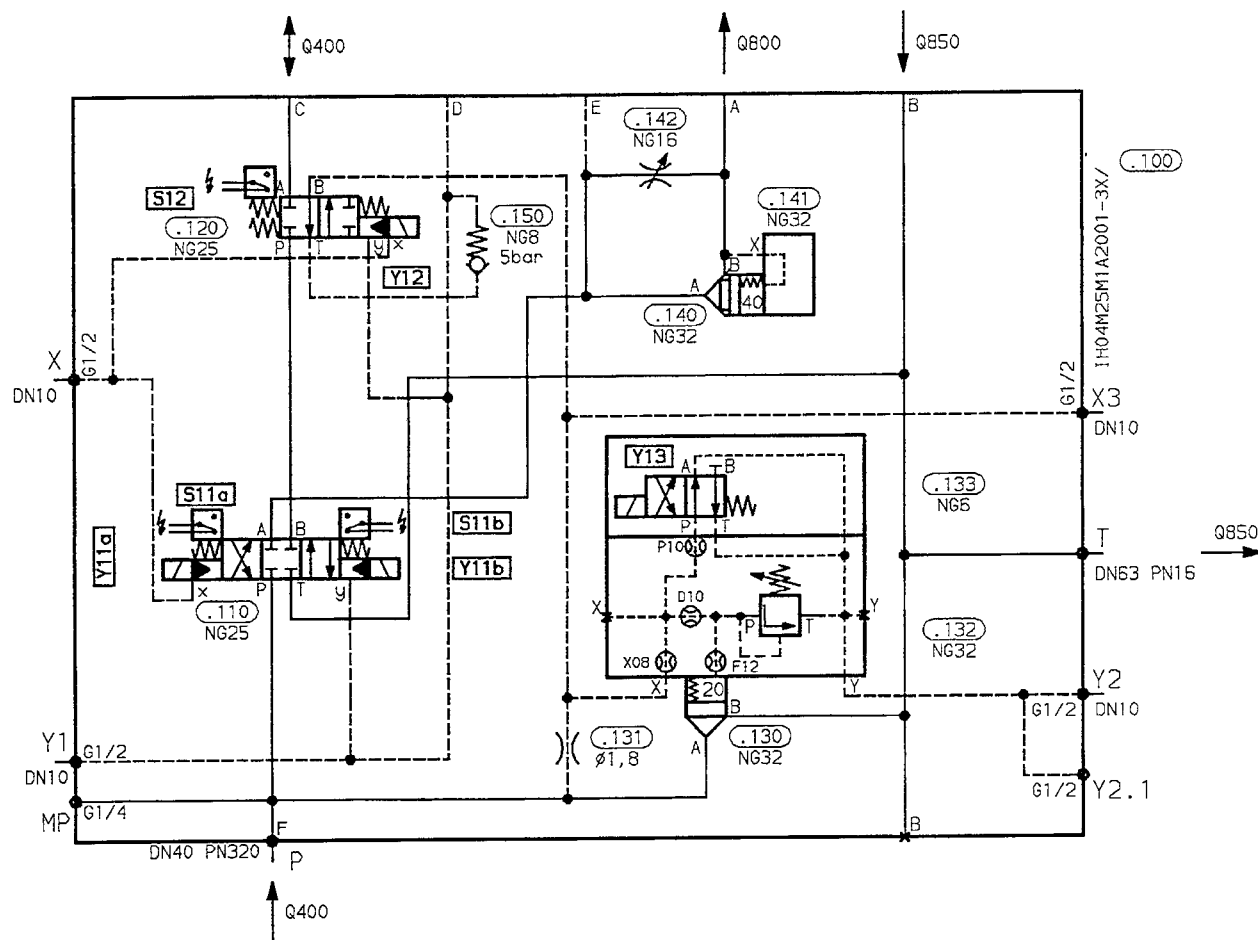
G... = BSP

NG = Size

Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 25	H-4WEH25T6X/6A ... Q0G24	RE 24 751
.120	1	Directional valve, size 25	H-4WEH25U10B6X/6A ... Q0G24	RE 24 751
.130	1	Logic element, size 32	LC32DB20E6X	RE 81 078
.131	1	Orifice	DUESE 1,8 M10x25-45H	DIN 913
.132	1	Control cover, size 32	LFA32DBW2-6X/315	RE 81 078
.133	1	Directional valve, size 6	4WE6D5X/A ...	RE 23 177
.140	1	Logic element, size 32	LC32B40E6X	RE 81 010
.141	1	Control cover, size 32	LFA32D6X	RE 81 010
.142	1	Throttle valve, size 16	FL-DVE-16-1.1/P	
P	1	Flange*	DN40PN320	TN 303 921
T	1	Flange*	DN63PN16	TN 012 336
*(Not included in supply; please order separately!)				

Module 1

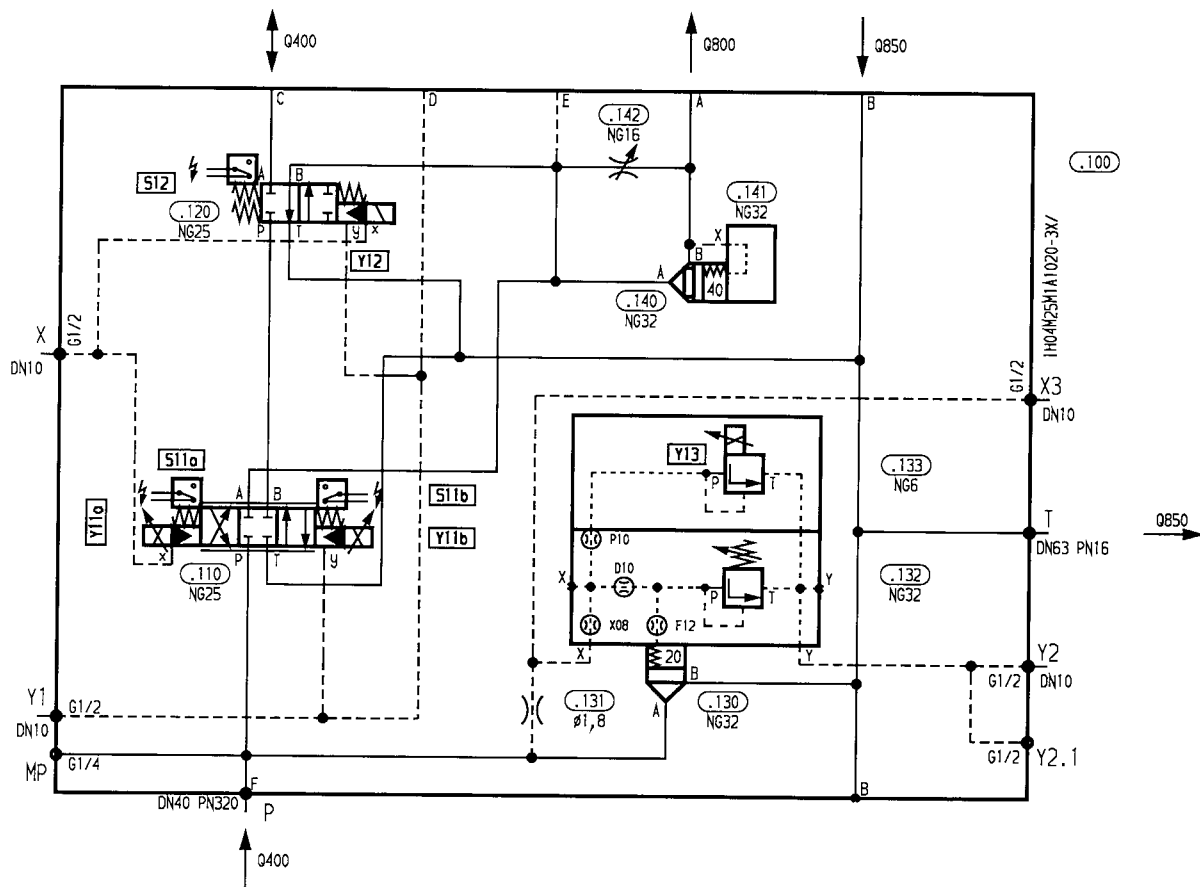
Press module, size 25
Circuit type M
IH04M25M1A2001-3X/...



Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 25	H-4WEH25E6X/6A ... Q0G24	RE 24 751
.120	1	Directional valve, size 25	H-4WEH25U10B6X/6A ... Q0G24	RE 24 751
.130	1	Logic element, size 32	LC32DB20E6X	RE 81 078
.131	1	Orifice	DUESE 1,8 M10x25-45H	DIN 913
.132	1	Control cover, size 32	LFA32DBW2-6X/315	RE 81 078
.133	1	Directional valve, size 6	4WE6D5X/A ...	RE 23 177
.140	1	Logic element, size 32	LC32B40E6X	RE 81 010
.141	1	Control cover, size 32	LFA32D6X	RE 81 010
.142	1	Throttle valve, size 16	FL-DVE-16-1.1/P	
.150	1	Check valve, size 8	M-SR08KE50-1X	RE 20 380
P	1	Flange*	DN40PN320	TN 303 921
T	1	Flange*	DN63PN16	TN 012 336
*(Not included in supply; please order separately!)				

Module 1

Press module, size 25
Circuit type M
IH04M25M1A1020-3X/...



Q = max. flow in L/min

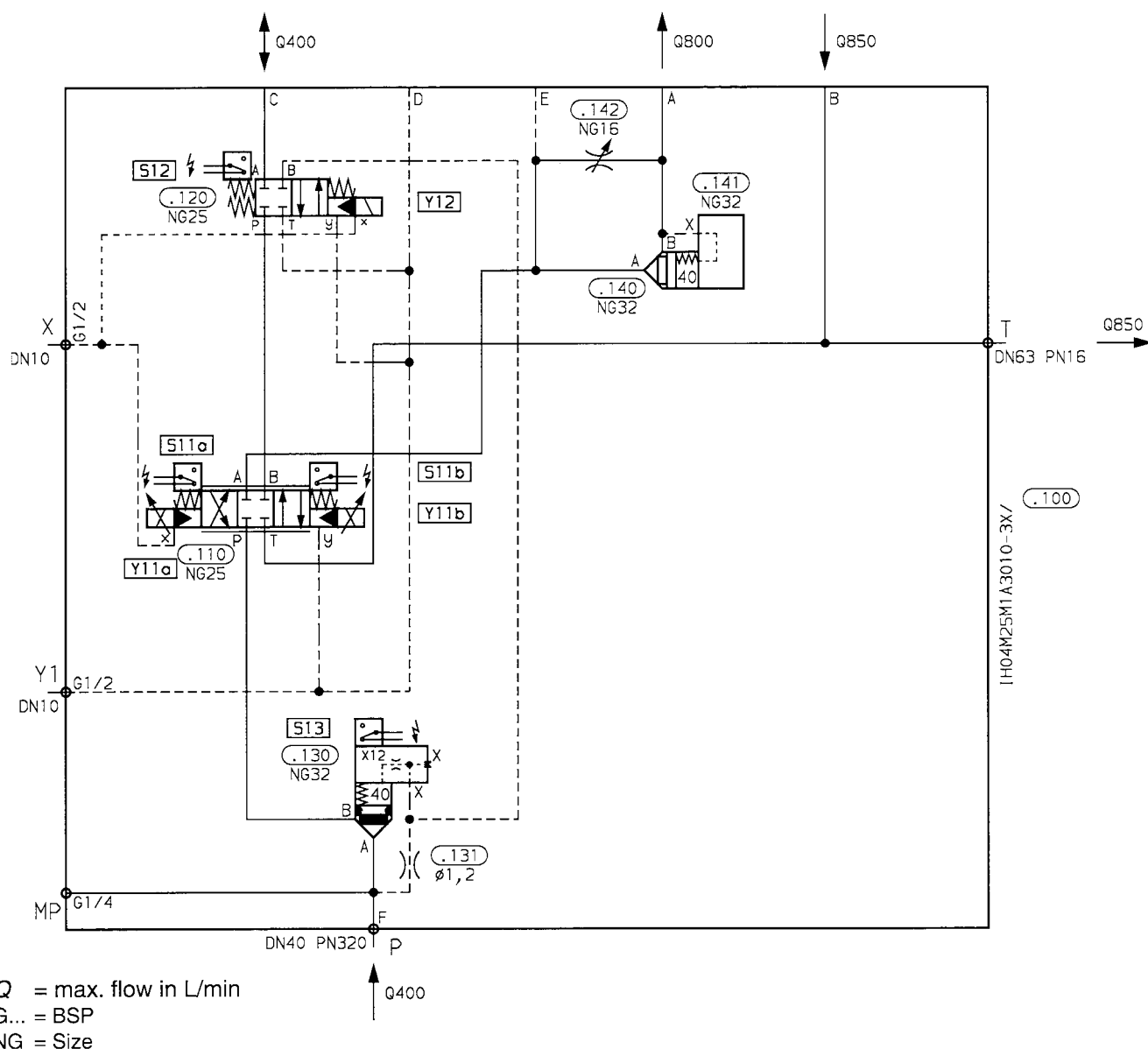
G... = BSP

NG = Size

Item	Qty	Description	Type	Further information
.110	1	Proportional directional valve, size 25	4WRZ25E325-5X/6A ... -402	RE 29 111
.120	1	Directional valve, size 25	H-4WEH25U10B6X/6A ... Q0G24	RE 24 751
.130	1	Logic element, size 32	LC32DB20E6X	RE 81 078
.131	1	Orifice	DUESE 1,8 M10x25-45H	DIN 913
.132	1	Control cover, size 32	LFA32DBEM6X/315	RE 81 078
.133	1	Proportional pressure relief valve	DBET -5X/315G24-1	RE 29 166
.140	1	Logic element, size 32	LC32B40E6X	RE 81 010
.141	1	Control cover, size 32	LFA32D6X	RE 81 010
.142	1	Throttle valve, size 16	FL-DVE-16-1.1/P	
P	1	Flange*	DN40PN320	TN 303 921
T	1	Flange*	DN63PN16	TN 012 336
*(Not included in supply; please order separately!)				

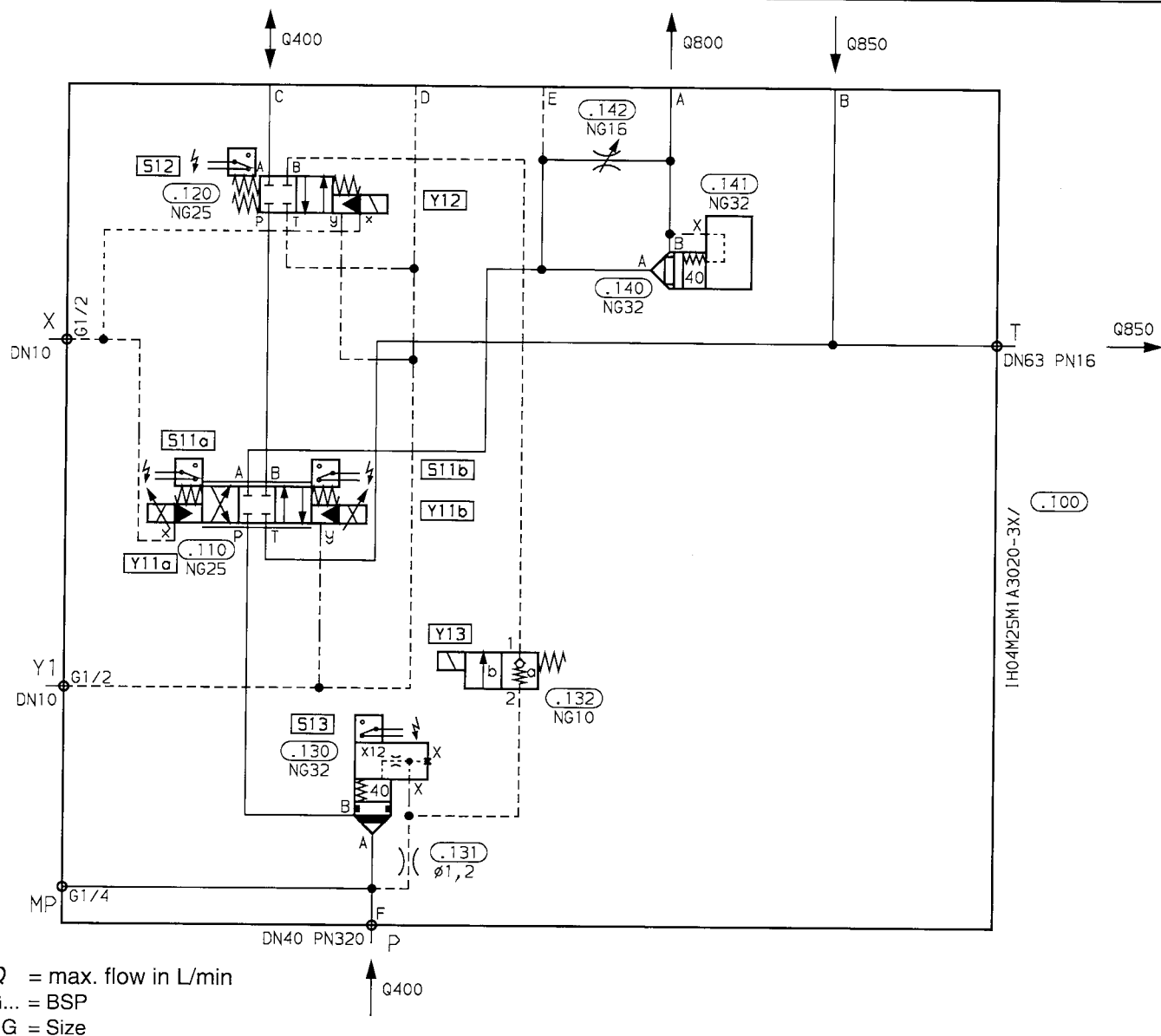
Module 1
Central oil supply without pressure control
Accumulator operation

Press module, size 25
Circuit type M
IH04M25M1A3010-3X/...

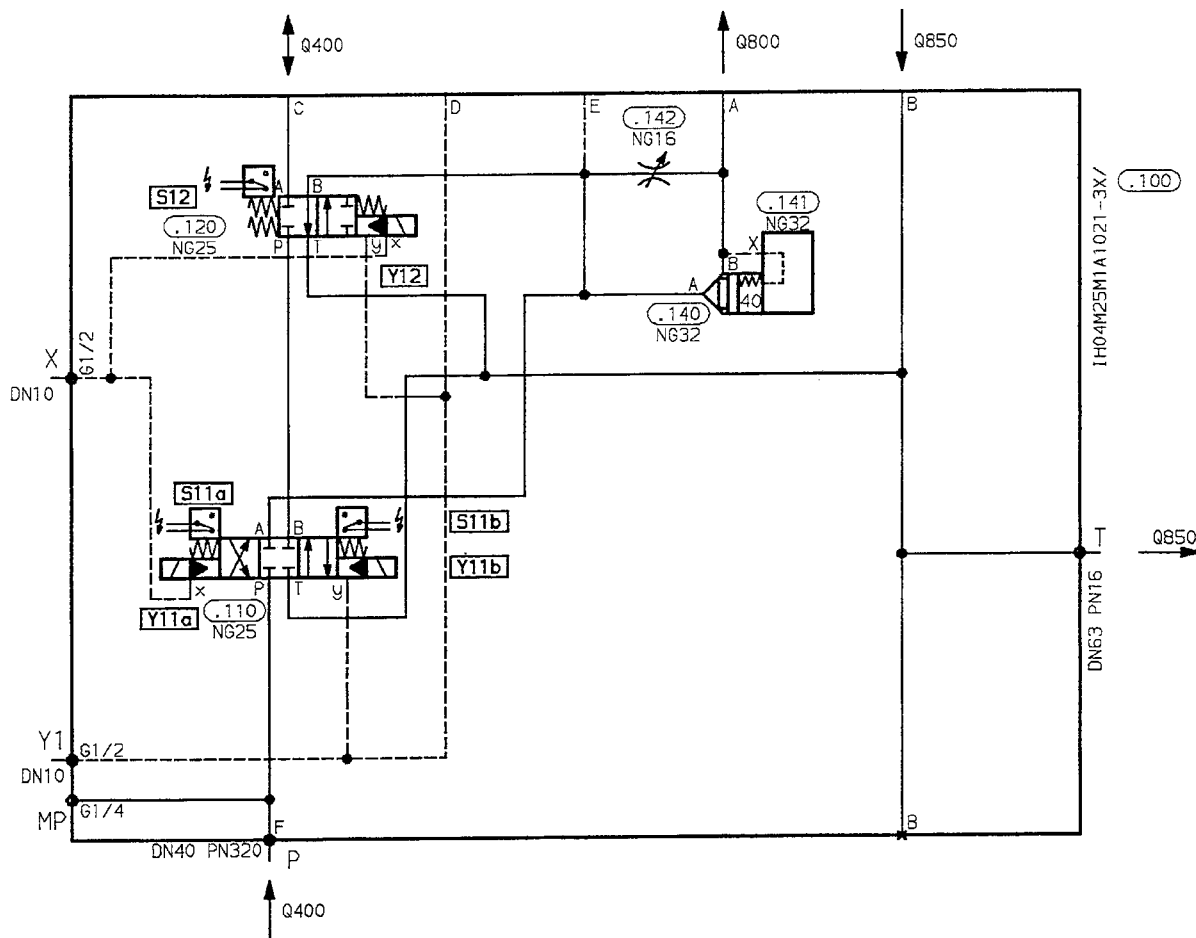


Item	Qty	Description	Type	Further information
.110	1	Proportional directional valve, size 25	4WRZ25E325-5X/6A ... -402	RE 29 111
.120	1	Directional valve, size 25	H-4WEH25EB6X/6A ... Q0G24	RE 24 751
.130	1	Logic element, size 32	LFA32E15-6X/CD40DQ0G24FX12	RE 81 078
.131	1	Orifice	DUESE 1,2 M10x25-45H	DIN 913
.140	1	Logic element, size 32	LC32B40E6X	RE 81 010
.141	1	Control cover, size 32	LFA32D6X	RE 81 010
.142	1	Throttle valve, size 16	FL-DVE-16-1.1/P	
P	1	Flange*	DN40PN320	TN 303 921
T	1	Flange*	DN63PN16	TN 012 336
*(Not included in supply; please order separately!)				

Press module, size 25
Circuit type M
IH04M25M1A3020-3X/...



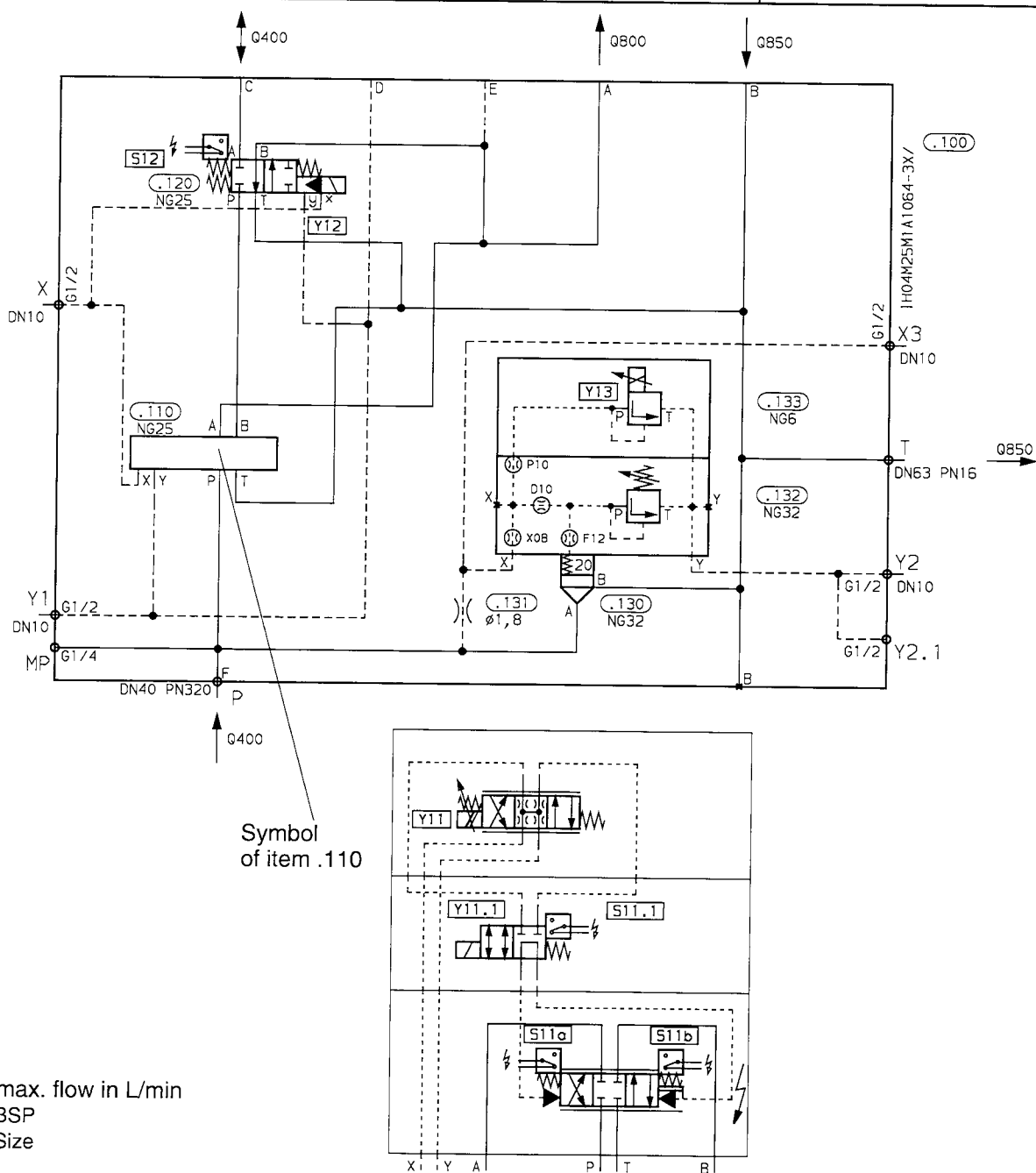
Item	Qty	Description	Type	Further information
.110	1	Proportional directional valve, size 25	4WRZ25E325-5X/6A ... -402	RE 29 111
.120	1	Directional valve, size 25	H-4WEH25EB6X/6A ... Q0G24	RE 24 751
.130	1	Logic element, size 32	LFA32E15-6X/CD40DQ0G24FX12	RE 81 078
.131	1	Orifice	DUESE 1,2 M10x25 DIN 913	
.132	1	Poppet valve	FL-WSEZ10 120-04X/...	
.140	1	Logic element, size 32	LC32B40E6X	RE 81 010
.141	1	Control cover, size 32	LFA32D6X	RE 81 010
.142	1	Throttle valve, size 16	FL-DVE-16-1.1/P	
P	1	Flange*	DN40PN320 TN 303 921	RE 45 501
T	1	Flange*	DN63PN16 TN 012 336	AB 22-15
*(Not included in supply; please order separately!)				

Module 1
Without pump control
Press module, size 25
Circuit type M
IH04M25M1A1021-3X/...


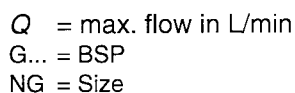
Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 25	H-4WEH25E6X/6A ... Q0G24	RE 24 751
.120	1	Directional valve, size 25	H-4WEH25U10B6X/6A ... Q0G24	RE 24 751
.140	1	Logic element, size 32	LC32B40E6X	RE 81 010
.141	1	Control cover, size 32	LFA32D6X	RE 81 010
.142	1	Throttle valve, size 16	FL-DVE-16-1.1/P	
P	1	Flange*	DN40PN320	TN 303 921
T	1	Flange*	DN63PN16	TN 012 336
*(Not included in supply; please order separately!)				

Module 1

Press module, size 25
Circuit type M
IH04M25M1A1064-3X/...



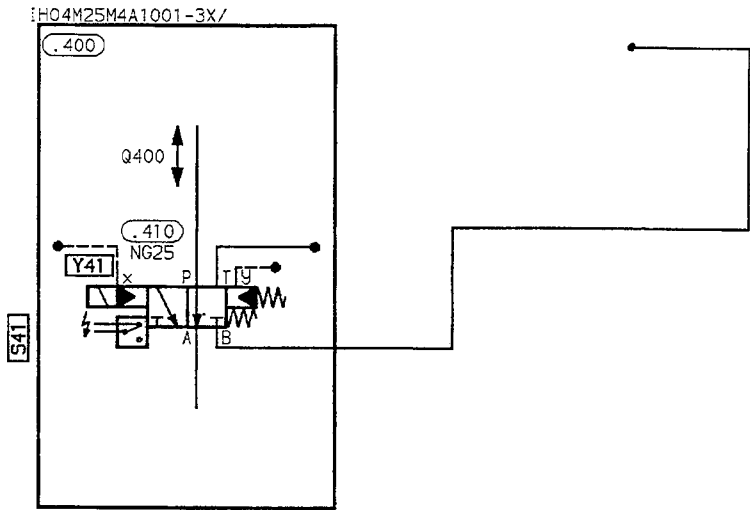
Item	Qty	Description	Type	Further information
.110	1	Proportional directional valve, size 25	4WRD25E270-3X/10L2Z8/WG08...M-402	RE 29 091
.120	1	Directional valve, size 25	H-4WEH25U10B6X/6A ... Q0G24	RE 24 751
.130	1	Logic element, size 32	LC32DB20E6X	RE 81 078
.131	1	Orifice	DUESE 1,8 M10x25-45H	DIN 913
.132	1	Control cover, size 32	LFA32DBEM6X/315	RE 81 078
.133	1	Proportional pressure relief valve	DBET-5X/315G24-1	RE 29 166
P	1	Flange*	DN40PN320	TN 303 921
T	1	Flange*	DN63PN16	TN 012 336
*(Not included in supply; please order separately!)				RE 45 501 AB 22-15



**MANNESMANN
REXROTH** 123/168

Module 4
Regenerative circuit

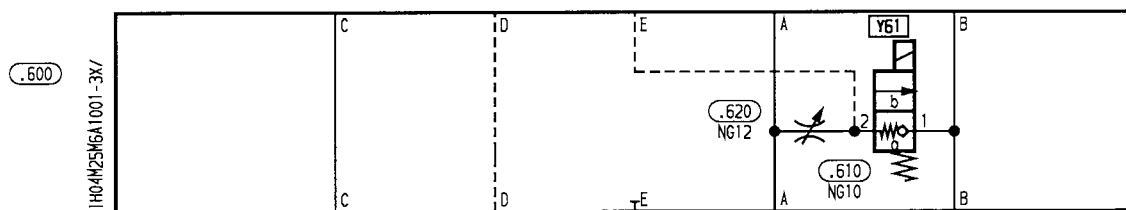
Press module, size 25
Circuit type M
IH04M25M4A1001-3X/...



Q = max. flow in L/min
G... = BSP
NG = Size

Item	Qty	Description	Type	Further information
.410	1	Directional valve, size 25	H-3WEH25A7-6X/6A ... QBG24	RE 24 751

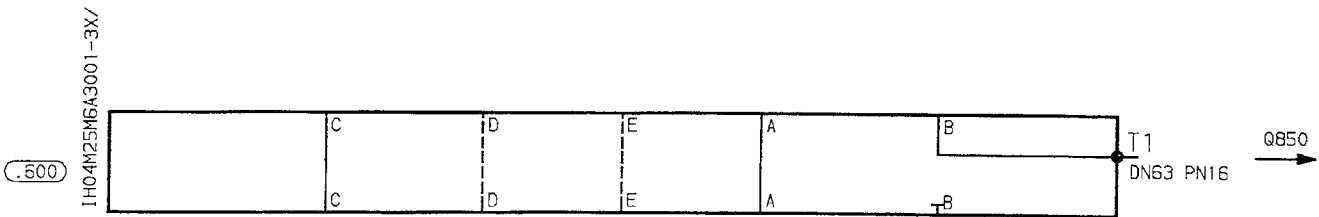
Module 6 Holding pressure, without leakage	Press module, size 25 Circuit type M IH04M25M6A1001-3X/...
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Q = max. flow in L/min
 G... = BSP
 NG = Size

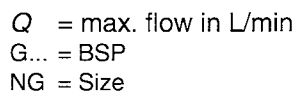
Item	Qty	Description	Type	Further information
.610	1	Poppet valve, size 10	FL-WSEZ10 120-04X/...	
.620	1	Throttle valve, size 12	FL-DVE-12-1.1/P	

Module 6 Separate tank line, T1 for return stroke flow	Press module, size 25 Circuit type M IH04M25M6A3001-3X/...
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Q = max. flow in L/min

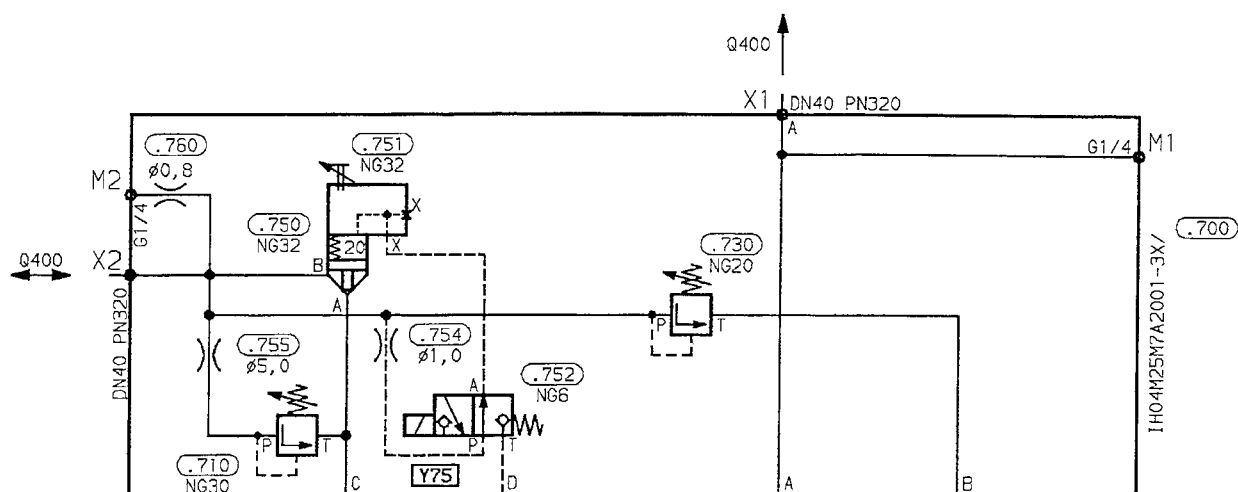
Item	Qty	Description	Type	Further information
T1	1	Flange (Not included in supply; please order separately!)	DN63PN16 TN 012 336	AB 22-15



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REXBOTH

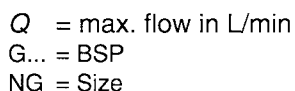
Module 7
Counterbalance, pilot operated
Holding pressure up to 40 bar

Press module, size 25
Circuit type M
IH04M25M7A2001-3X/...



Q = max. flow in L/min
 G... = BSP
 NG = Size

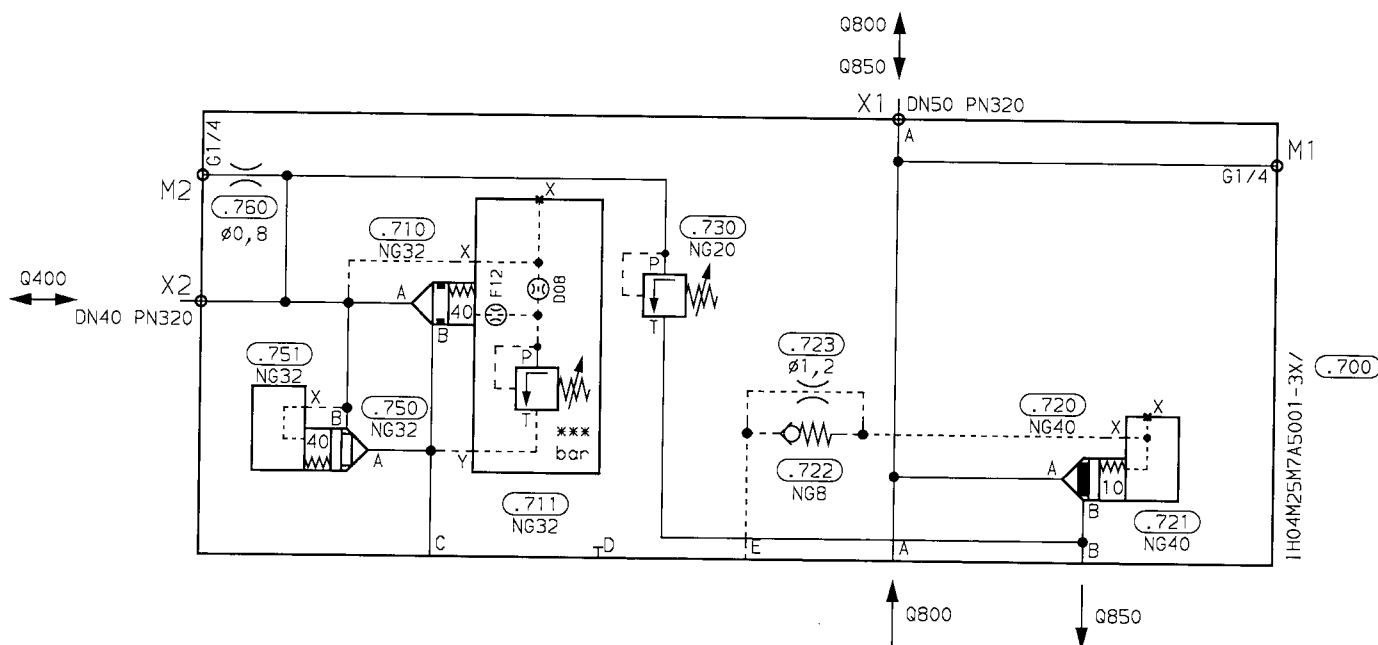
Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 30	DBDS30K1X/100	RE 25 402
.730	1	Pressure relief valve, size 20	DBDS20K1X/315	RE 25 402
.750	1	Logic element, size 32	LC32A20E6X	RE 81 010
.751	1	Control cover, size 32	LFA32H2-6X/F	RE 81 010
.752	1	Directional poppet valve, size 6	M-3SEW6U2X/420L...	RE 22 057
.754	1	Orifice	DUESE 1,0 R1/8 DIN 906	RN115.06
.755	1	Orifice	DUESE 5,0 G1 FORM 7	RN115.06
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH	AEH.DIN 906
X1, X2	2	Flange (Not included in supply; please order separately!)	DN40PN320	TN 303 921 RE 45 501



MANNESMANN REXROTH 129/168

Module 7 Counterbalance, for regenerative circuit with holding pressure

Press module, size 25
Circuit type M
IH04M25M7A5001-3X/...



Q = max. flow in L/min

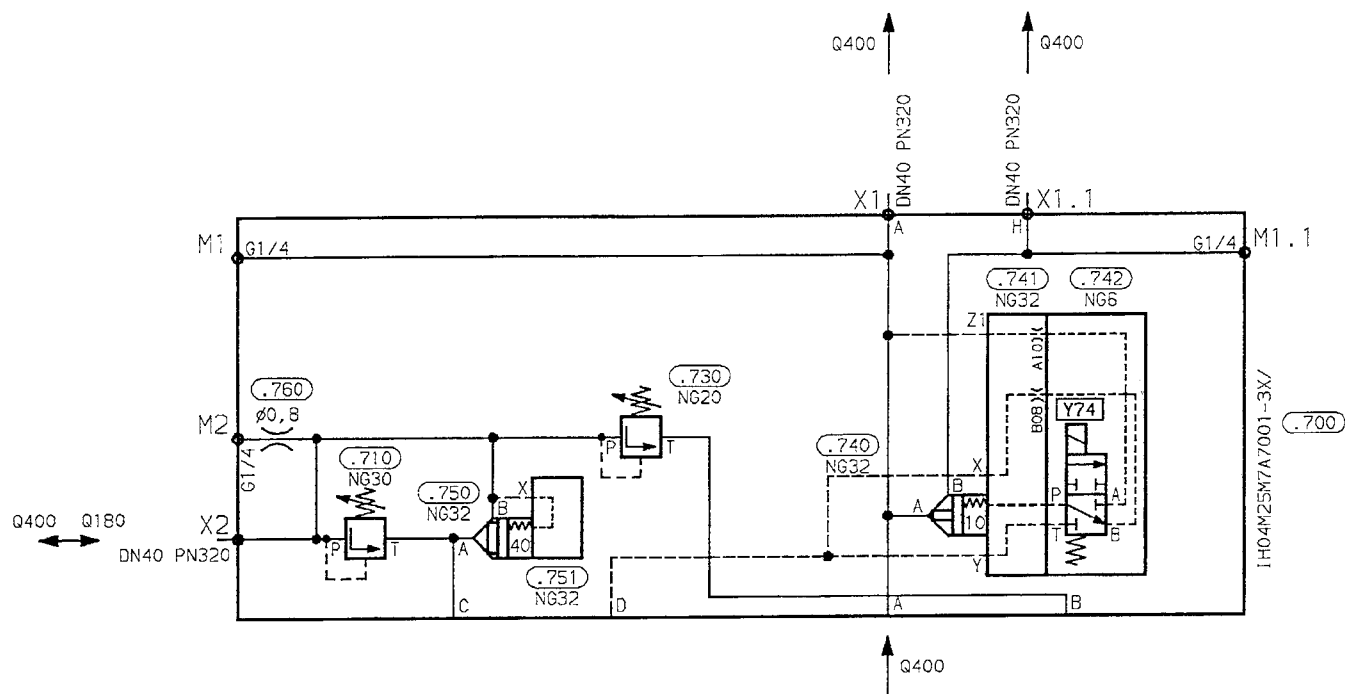
G... = BSP

NG = Size

Item	Qty	Description	Type	Further information
.710	1	Logic element, size 32	LC32DB40E6X/-004	RE 81 078
.711	1	Control cover, size 32	LFA32DB2-6X/100	RE 81 078
.720	1	Logic element, size 40	LC40B10D6X	RE 81 010
.721	1	Control cover, size 40	LFA40D6X/F	RE 81 010
.722	1	Check valve, size 8	M-SR8KE05-1X	RE 20 380
.723	1	Orifice	DUESE 1,2 R1/8 DIN 906	RN115.06
.730	1	Pressure relief valve, size 20	DBDS20K1X/315	RE 25 402
.750	1	Logic element, size 32	LC32A40E6X	RE 81 010
.751	1	Control cover, size 32	LFA32D6X	RE 81 010
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH	AEH.DIN 906
X1	1	Flange*	DN50PN320	TN 303 923
X2	1	Flange*	DN40PN320	TN 303 921
*(Not included in supply; please order separately!)				

Module 7
Counterbalance,
with pressure sequence valve, dependent on pressure,
for fast forward cylinders

Press module, size 25
Circuit type M
IH04M25M7A7001-3X/...

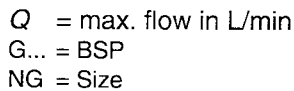


Q = max. flow in L/min

G... = BSP

NG = Size

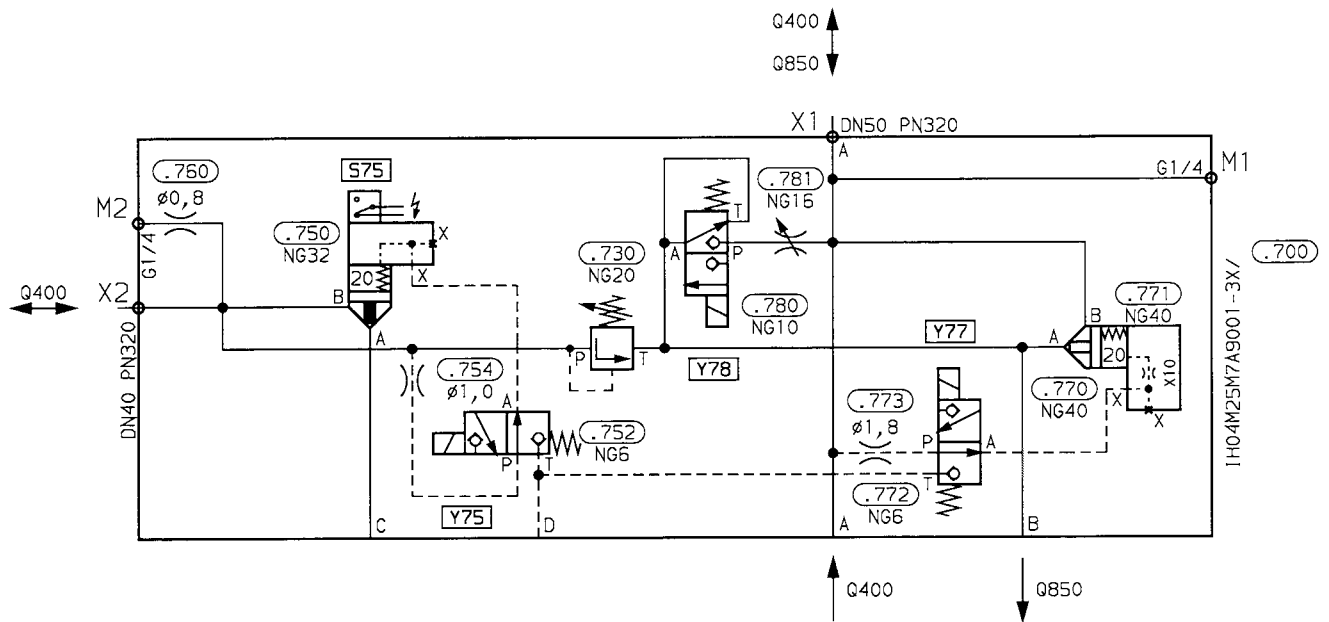
Item	Qty	Description	Type	Further information
.710	1	Pressure relief valve, size 30	DBDS30K1X/100	RE 25 402
.730	1	Pressure relief valve, size 20	DBDS20K1X/315	RE 25 402
.740	1	Logic element, size 32	LC32A10E6X	RE 81 010
.741	1	Control cover, size 25	LFA32WEA9-6X/A10 B08	RE 81 010
.742	1	Directional valve, size 6	3WE6B9-5X/ ...	RE 23 177
.750	1	Logic element, size 25	LC32B40E6X	RE 81 010
.751	1	Control cover, size 25	LFA32D6X	RE 81 010
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH AEH.DIN 906	
X1, X2	2	Flange*	DN40PN320	TN 303 921
X1.1	1	Flange*	DN40PN320	TN 303 921
*(Not included in supply; please order separately!)				



Module 7

**Counterbalance, pilot operated with limit switch,
Logic element with mounted directional poppet valve,
Holding pressure without leakage**

**Press module, size 25
Circuit type M
IH04M25M7A9001-3X/...**



Q = max. flow in L/min

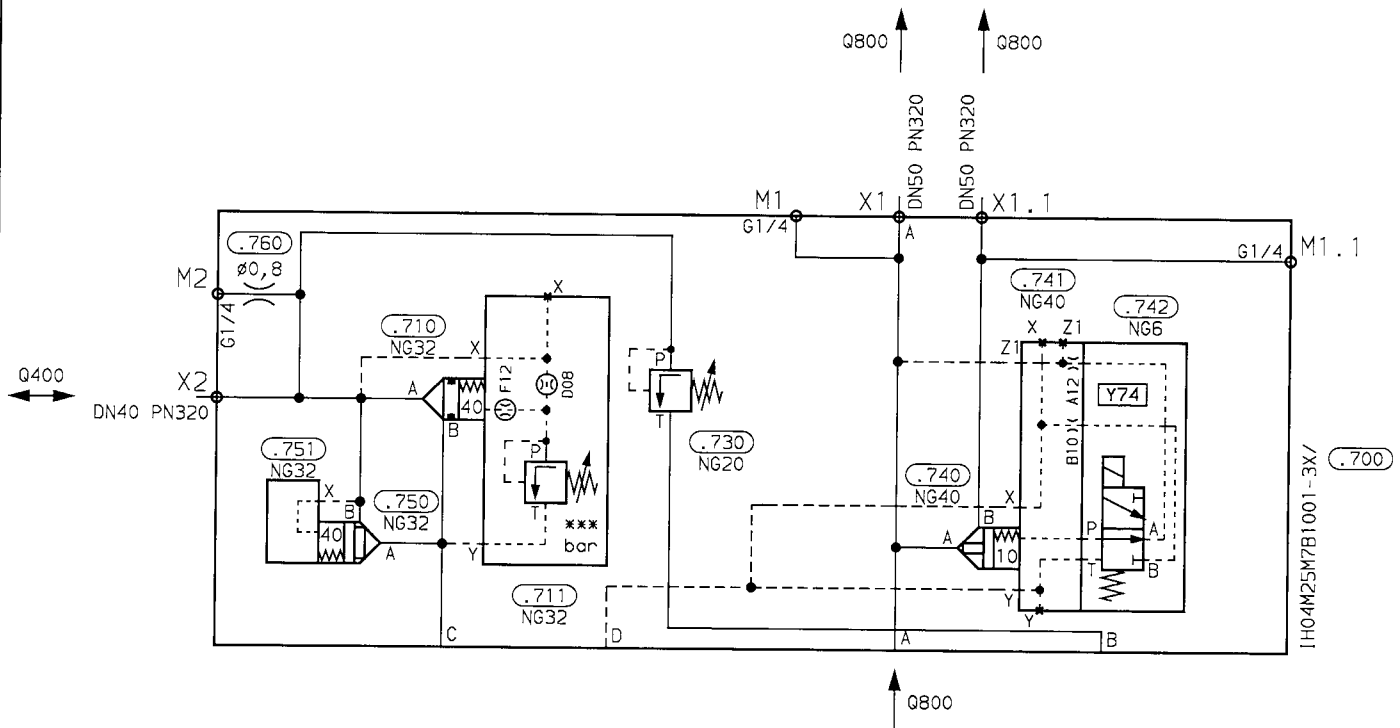
G... = BSP

NG = Size

Item	Qty	Description	Type	Further information
.730	1	Pressure relief valve, size 20	DBDS20K1X/315	RE 25 402
.750	1	Control cover, size 32	LFA32E6X/CA20DQ0G24F	RE 81 078
.752	1	Directional poppet valve, size 6	M-3SEW6U2X/420L...	RE 22 057
.754	1	Orifice	DUESE 1,0 R1/8 DIN 906	RN115.06
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH	AEH.DIN 906
.770	1	Logic element, size 40	LC40A20E6X	RE 81 010
.771	1	Control cover, size 40	LFA40D6X/F10	RE 81 010
.772	1	Directional poppet valve, size 6	M-3SEW6U2X/420L...	RE 22 057
.773	1	Orifice	DUESE 1,8 R1/4 DIN 906	RN115.06
.780	1	Directional poppet valve, size 10	M-3SE10C2X/315...	RE 22 054
.781	1	Throttle valve, size 16	FL-DVE-16-1.1/P	
X1	1	Flange*	DN50PN320	TN 303 923
X2	1	Flange*	DN40PN320	TN 303 921
*(Not included in supply; please order separately!)				

Module 7
Counterbalance,
Position dependent sequencing for fast forward cylinders
and regenerative circuit with holding pressure

Press module, size 25
Circuit type M
IH04M25M7B1001-3X/...



Q = max. flow in L/min
 G... = BSP
 NG = Size

Item	Qty	Description	Type	Further information
.710	1	Logic element, size 32	LC32DB40E6X/-004	RE 81 078
.711	1	Control cover, size 32	LFA32DB2-6X/100	RE 81 078
.730	1	Pressure relief valve, size 20	DBDS20K1X/315	RE 25 402
.740	1	Logic element, size 40	LC40A10E6X	RE 81 010
.741	1	Control cover, size 40	LFA40WEA9-6X/A12B10	RE 81 010
.742	1	Directional valve, size 6	3WE6B9-5X/A ...	RE 23 177
.750	1	Logic element, size 32	LC32B40E6X	RE 81 010
.751	1	Control cover, size 32	LFA32D6X	RE 81 010
.760	1	Orifice	DUESE 0,8 R1/4-ZYLINDRISCH AEH.DIN 906	RE 25 402
X1,X1.1	2	Flange*	DN50PN320	TN 303 923 RE 45 501
X2	1	Flange*	DN40PN320	TN 303 921 RE 45 501
*(Not included in supply; please order separately!)				

Notes

Hydraulic schematic diagram of a remote pressure setting system. The diagram shows a pump connected to a main line with pressure points X1, X2, X4, Y1, and MP. A pressure setting valve (Y13) is connected to the main line at point X3 and a remote pressure source (Y11a, Y11b) at point F. The system includes various valves, solenoids, and pressure points labeled with numbers in circles (e.g., .760, .710, .750, .730, .723, .722, .721, .720, .142, .140, .130, .131, .110, .100, .700). A note on the right indicates "Pressing pressure remote setting".

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REXROTH**

Module 1
Module 7
Type IH04M...M1A4001-3X/...
Type IH04M...M7A1001-3X/...
Application conditions

- Fast forward and pressing speed determined by pump.
- Fast free-fall downstroke under own weight **not** possible.

Module 1, type 1A4001-3X/

Pressure relief valve, item .130 serves to protect the hydraulic pump. The maximum operating pressure is set at pressure relief valve, item .130. With the directional valve in neutral position, the pressure relief valve is switched to low pressure bypass.

When solenoid Y13 is energised, the pressure set at the pressure relief valve becomes effective.

The direction of travel of the cylinder is determined by directional valve, item .110.

The decompression time is set at orifice, item .142.

Port X4 is normally plugged.

If the return pressure is allowed to be greater than the pressing pressure set at the remote control valve, then and only then, the tank line from the remote control valve is connected to port X4.

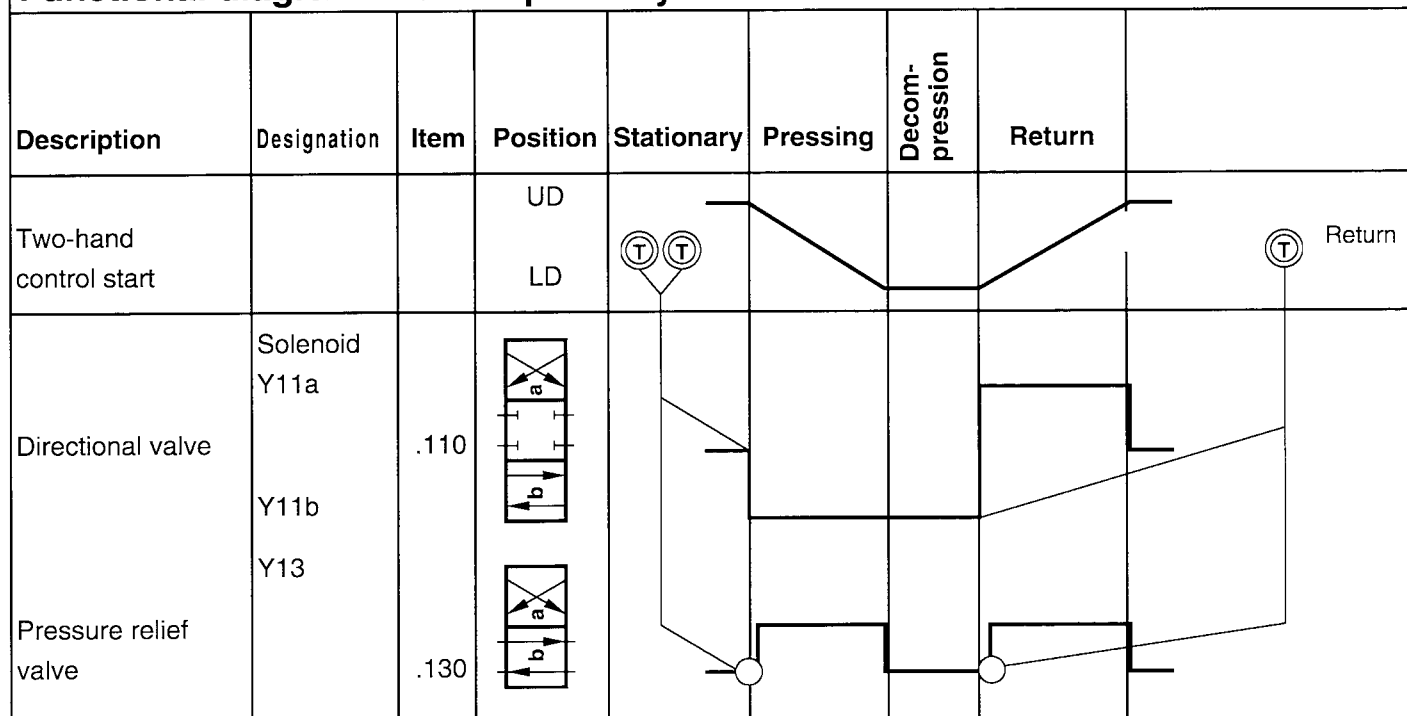
Module 7, type 7A1001-3X/

The holding pressure (counterbalance pressure) incl. safety margin for the platen compensation is set at pressure relief valve, item .710. When the machine is stationary, the cylinder is also held stationary without leakage.

Flow through pressure relief valve, item .710 is possible from P to T only. For the return stroke pressure relief valve, item .710 is bypassed by means of check valve, item .750.

Logic element, item .720 is held closed by the pressing pressure. During the decompression phase, orifice, item .723 allows the logic element to open with a time delay factor to decrease pressure. During return travel oil flows from the piston side of the cylinder via the open logic element to tank.

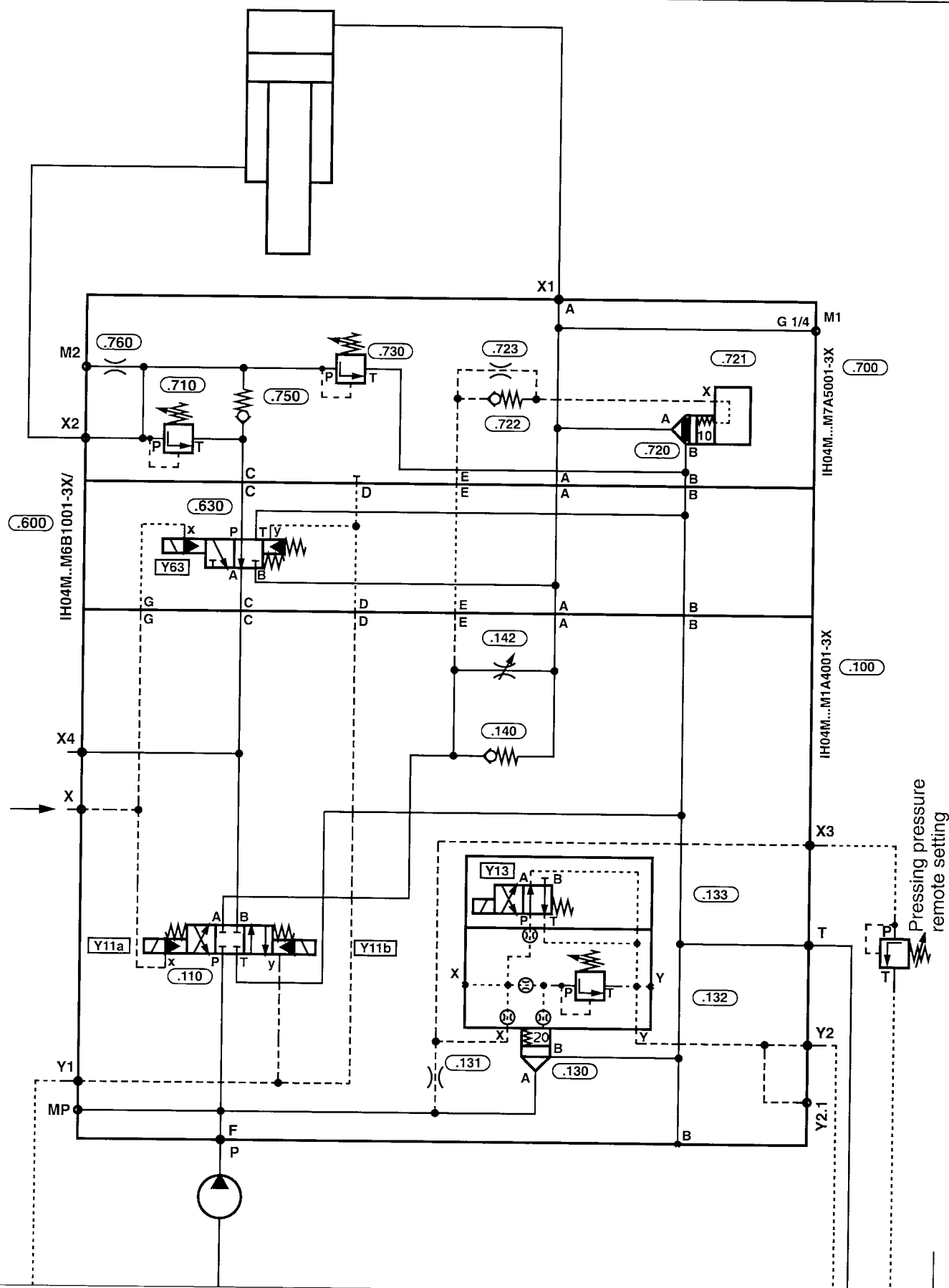
Pressure relief valve, item .730 serves as a safety valve to prevent pressure intensification. The valve pressure is set to 10% above the maximum operating pressure and the setting is then lead sealed.

Functional diagram: Normal press cycle


○ Time delay if required

Typical circuit for sizes 12 to 25 Fast forward in regenerative circuit

Press module
Circuit type M
Does not comply
with U.V.V.



G... = BSP
NG = Size

Module 1
Module 6
Module 7

Type IH04M...M1A4003-3X/...
Type IH04M...M6B1001-3X/...
Type IH04M...M7A5001-3X/...

Application conditions

- Fast forward and pressing speed determined by pump.
- Pilot oil pump required from size 12 upwards.
- Fast free-fall downstroke under own weight **not** possible.

Module 1, type 1A4001-3X/

Pressure relief valve, items .130 to .133 serves to protect the hydraulic pump. The maximum operating pressure is set at pressure relief valve, item .132. With the directional valve, item .133 in neutral position, the pressure relief valve, item .132 is switched to low pressure bypass.

When solenoid Y13 is energised, the pressure set at the pressure relief valve, item .132 becomes effective. The direction of travel of the cylinder is determined by directional valve, item .110.

The decompression time is set at throttle valve, item .142.

Module 6, type 6B1001-3X/

During the fast forward movement, oil flows from the annulus chamber of the cylinder via the directional valve, item .630 into the piston chamber.

Port X4 is normally plugged.

If the return pressure can be greater than the pressing pressure set at the remote control valve, then and only then, the tank line from the remote control valve is connected to port X4.

Module 7, type 7A1001-3X/

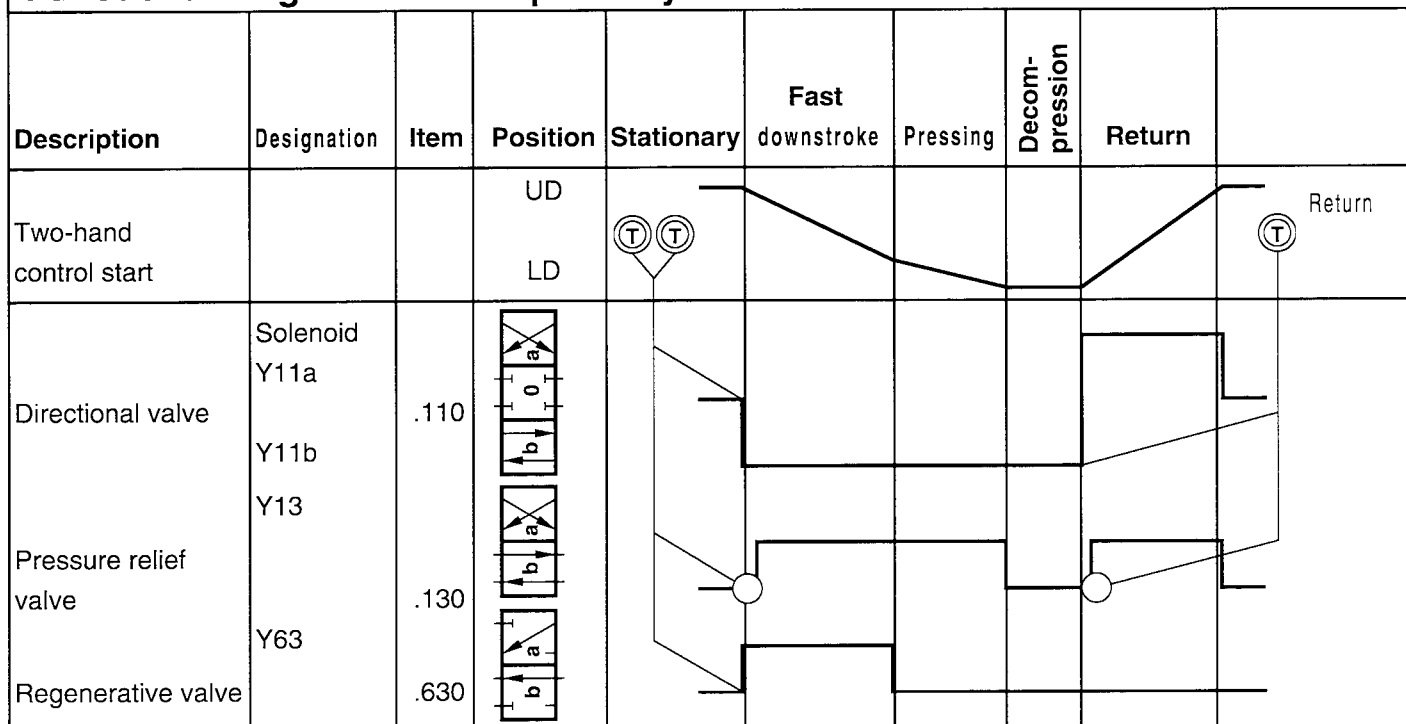
The holding pressure (counterbalance pressure) incl. safety margin for the platen compensation is set at pressure relief valve, item .710. When the machine is stationary, the cylinder is also held stationary without leakage.

Flow through pressure relief valve, item .710 is possible from P to T only. For the return stroke pressure relief valve, item .710 is bypassed by means of check valve, item .750.

Logic element, item .720 is held closed by the pressing pressure. During the decompression phase, orifice, item .723 allows the logic element to open with a time delay factor to decrease pressure. During return travel oil flows from the piston side of the cylinder via the open logic element to tank.

Pressure relief valve, item .730 serves as a safety valve to prevent pressure intensification. The valve pressure is set to 10% above the maximum operating pressure and the setting is then lead sealed.

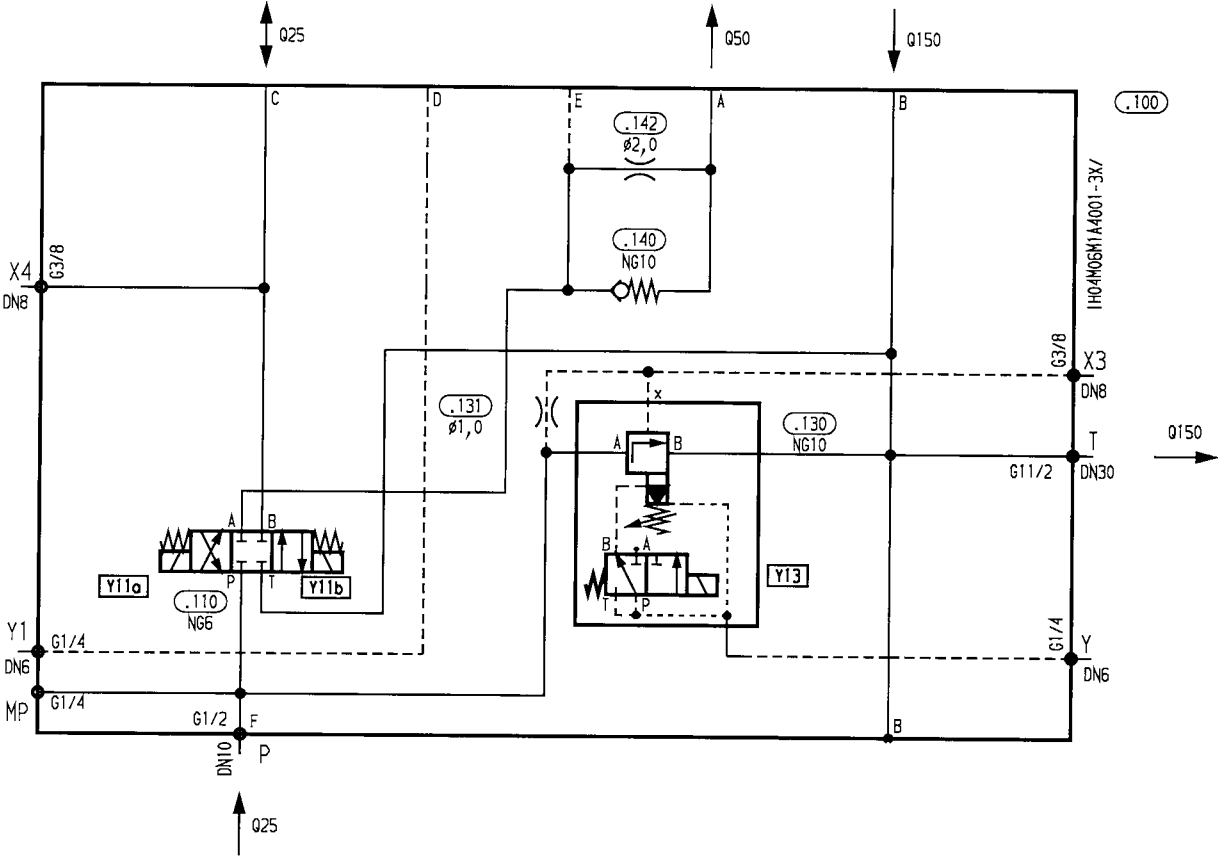
Functional diagram: Normal press cycle



○ Time delay if required

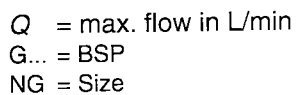
Module 1

Press module, size 6
Circuit type M
IH04M06M1A4001-3X/...
Does not comply with U.V.V.



Q = max. flow in L/min
G... = BSP
NG = Size

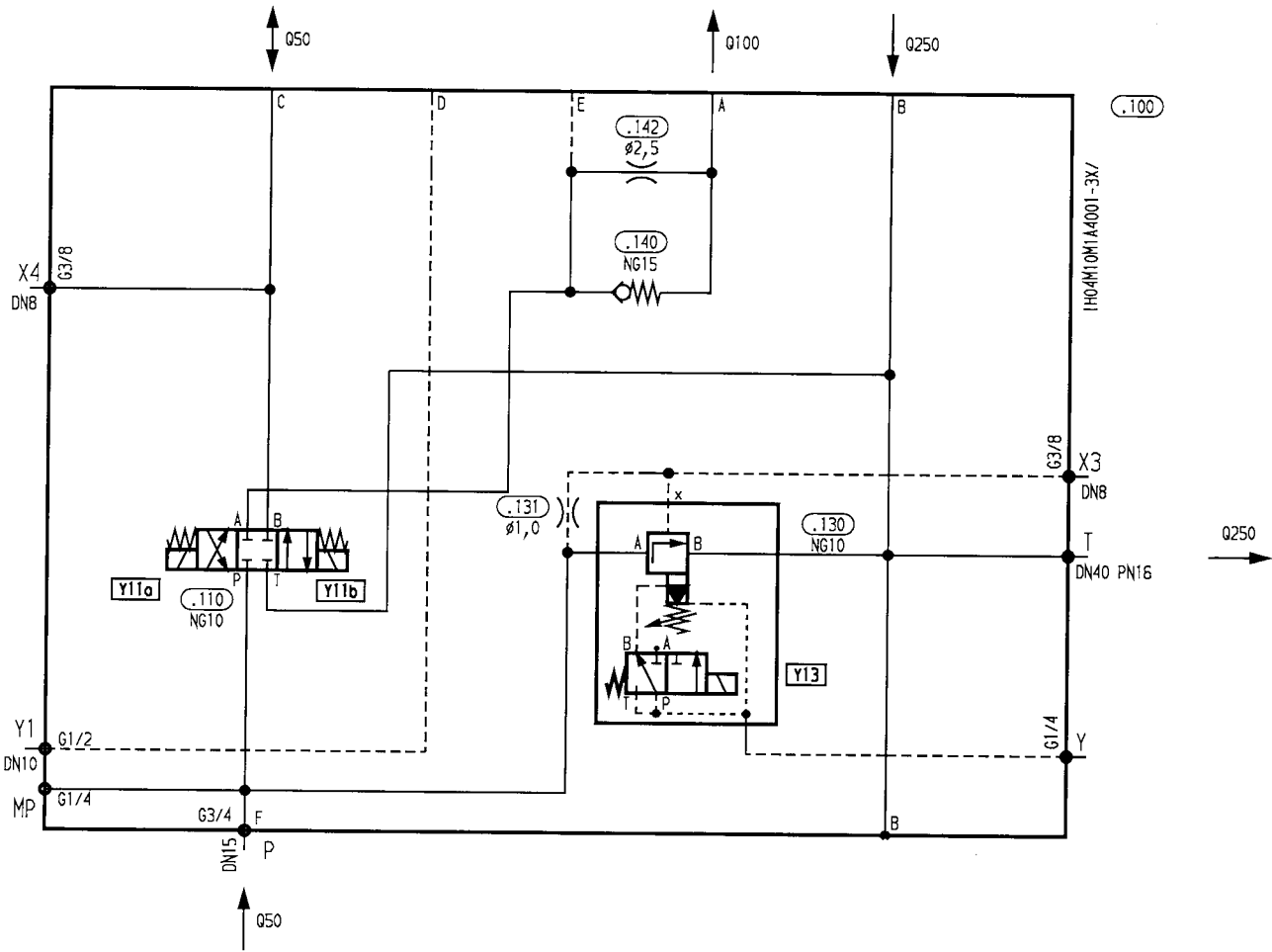
Item	Qty	Description	Type		Further information
.110	1	Directional valve, size 6	4WE6E5X/..		RE 23 177
.130	1	Pressure relief valve, size 10	DBWC10B2-5X/315...		RE 25 802
.131	1	Orifice	DUESE 1,0 R1/8 DIN 906	RN115.06	RE 20 380
.140	1	Check valve, size 10	M-SR10KE05-1X		
.142	1	Orifice	DUESE 2,0 G1/4 DIN 906	RN115.06	



Item	Qty	Description	Type	Further information
.630	1	Directional valve, size 6	3WE6A7-5X/...	RE 23 177

Module 1

Press module, size 10
Circuit type M
IH04M10M1A4001-3X/...
Does not comply with U.V.V.



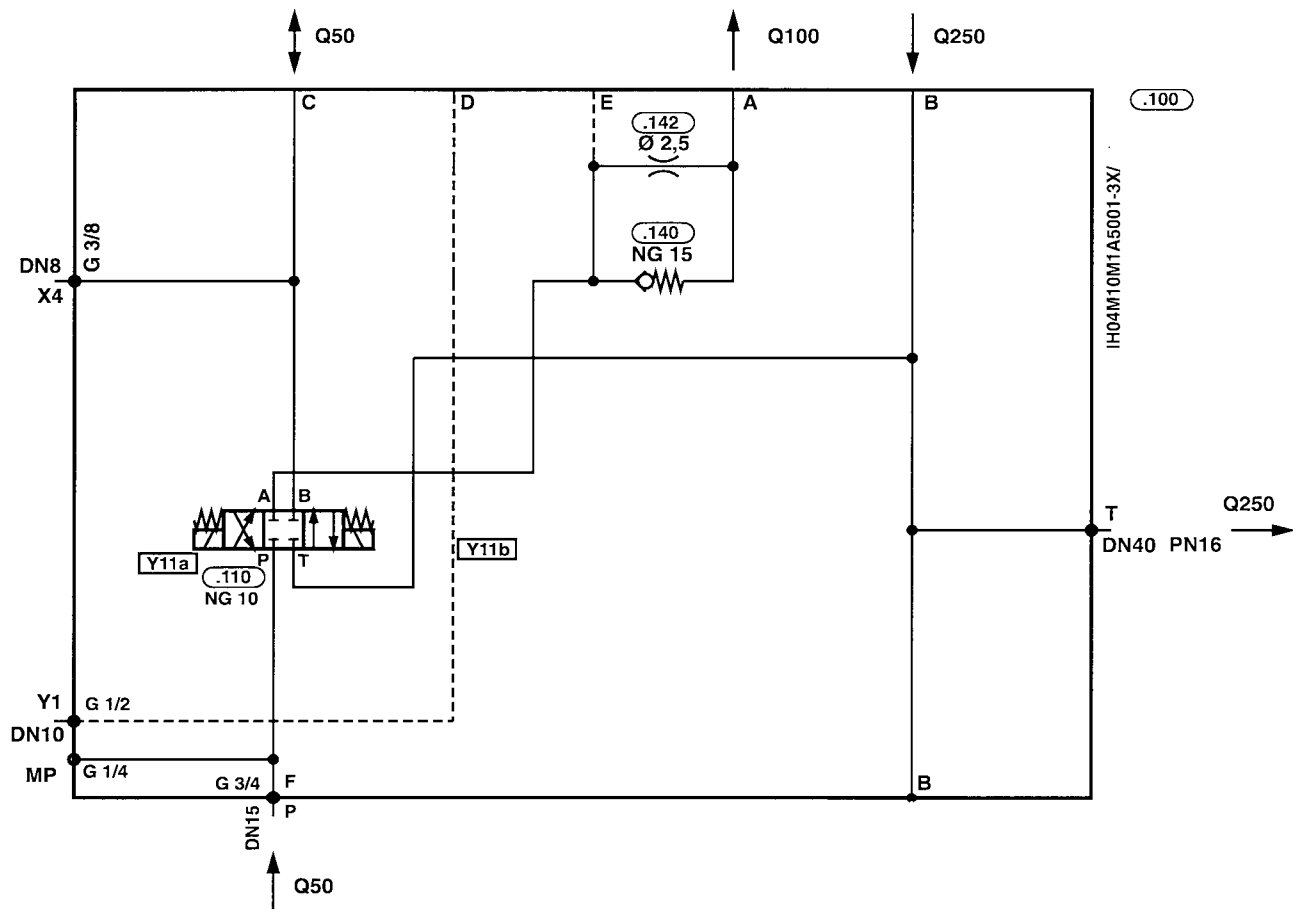
Q = max. flow in L/min
G... = BSP
NG = Size

Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 10	4WE10E3X/C...	RE 23 316
.130	1	Pressure relief valve, size 10	DBWC10B2-5X/315...	RE 25 802
.131	1	Orifice	DUESE 1,0 R1/8 DIN 906	RN115.06
.140	1	Check valve, size 15	M-SR15KE05-1X	RE 20 380
.142	1	Orifice	DUESE 2,5 R1/4 DIN 906	RN115.06
T	1	Flange (Not included in supply; please order separately!)	DN40 PN16	TN 012 938 AB 22-15

Module 1

Without pump control

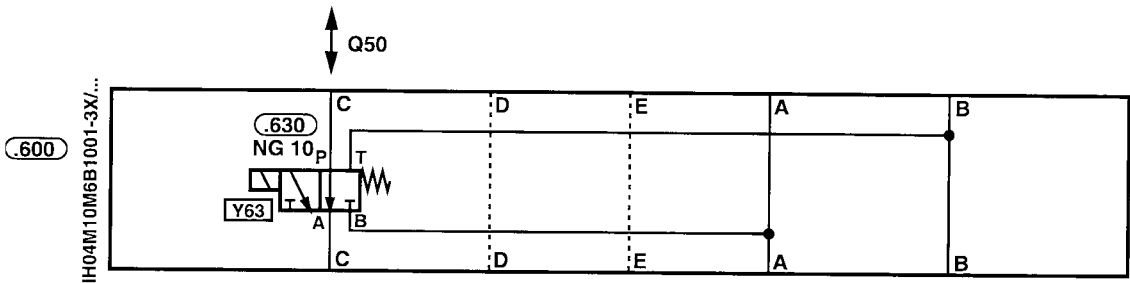
Press module, size 10
Circuit type M
IH04M10M1A5001-3X/...
Does not comply with U.V.V.



Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 10	4WE10E3X/C...	RE 23 316
.140	1	Check valve, size 15	M-SR15KE05-1X	RE 20 380
.142	1	Orifice	DUESE 2,5 R1/4 DIN 906	RN115.06
T	1	Flange (Not included in supply; please order separately!)	DN40PN16	TN 012 938 AB 22-15

Module 6
Regenerative circuit

Press module, size 10
Circuit type M
IH04M10M6B1001-3X/...
Does not comply with U.V.V.

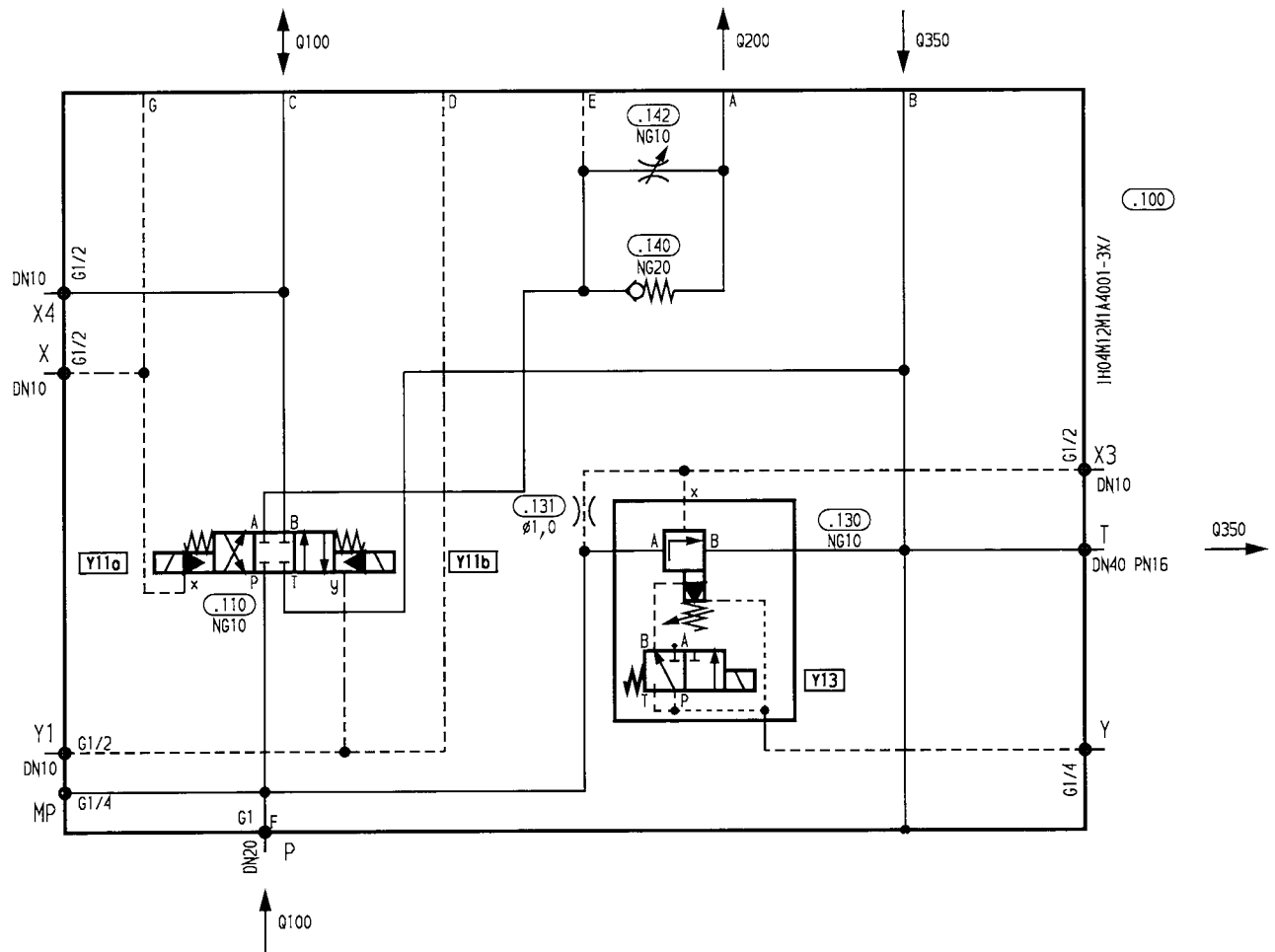


Q = max. flow in L/min
G... = BSP
NG = Size

Item	Qty	Description	Type	Further information
.630	1	Directional valve, size 10	3WE10A7-3X/C...	RE 23 316

Module 1

Press module, size 12
Circuit type M
IH04M12M1A4001-3X/...
Does not comply with U.V.V.

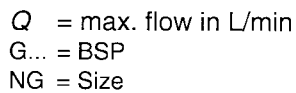


Q = max. flow in L/min

G... = BSP

NG = Size

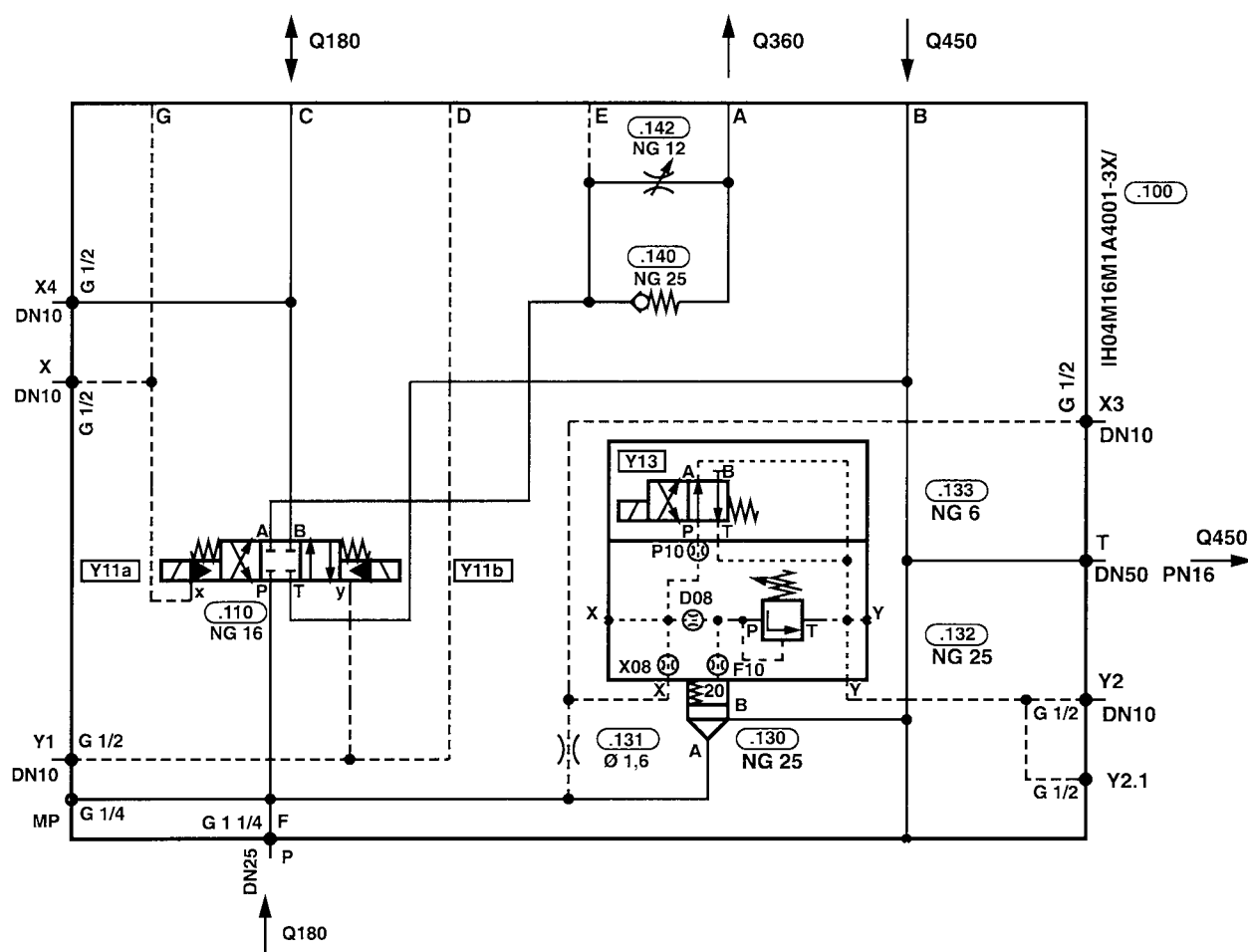
Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 10	H-4WEH10E4X/6A...	RE 24 751
.130	1	Pressure relief valve, size 10	DBWC10B2-5X/315...	RE 25 802
.131	1	Orifice	DUESE 1,0 R1/8 DIN 906	RE 20 380
.140	1	Check valve, size 20	M-SR20KE05-1X	
.142	1	Throttle valve, size 10	FL-DVE-10-1.1/P	
T	1	Flange (Not included in supply; please order separately!)	DN40PN16	TN 012 938



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REXROTH**

Module 1

Press module, size 16
Circuit type M
IH04M16M1A4001-3X/...
Does not comply with U.V.V.



Q = max. flow in L/min

G... = BSP

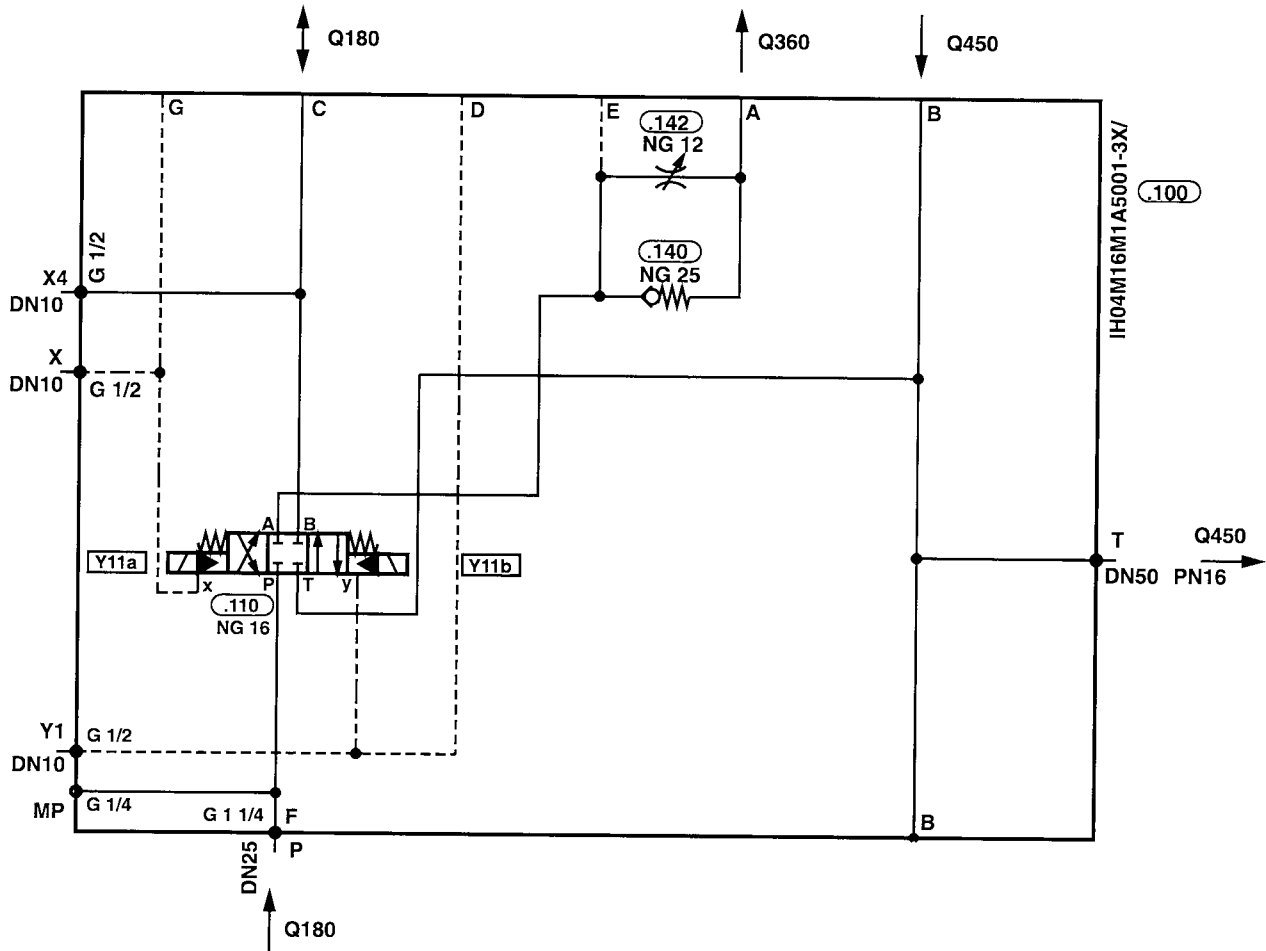
NG = Size

Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 16	H-4WEH16E6X/6A...	RE 24 751
.130	1	Logic element, size 25	LC25DB20E6X	RE 81 078
.131	1	Orifice	DUESE 1,6 M10x25-45H	DIN 913
.132	1	Control cover, size 25	LFA25DBW2-6X/315	RE 81 078
.133	1	Directional valve, size 6	4WE6D5X/A...	RE 23 177
.140	1	Check valve, size 25	M-SR25KE05-1X	RE 20 380
.142	1	Throttle valve, size 12	FL-DVE-12-1.1/P	
T	1	Flange (Not included in supply; please order separately!)	DN50PN16	TN 012 939 AB 22-15

Module 1

Without pump control

Press module, size 16
Circuit type M
IH04M16M1A5001-3X/...
Does not comply with U.V.V.



Q = max. flow in L/min

G... = BSP

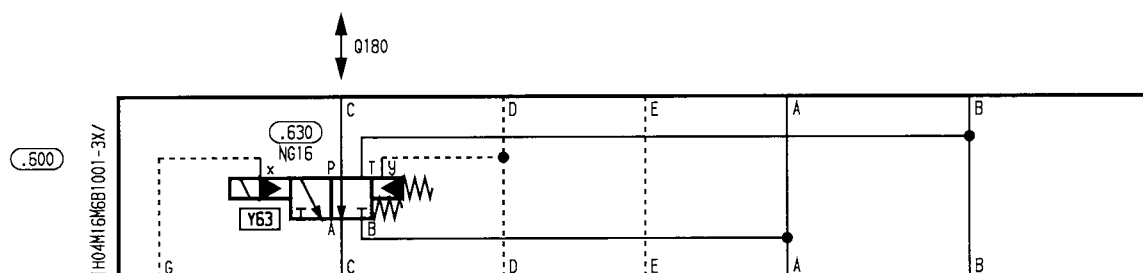
NG = Size

Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 16	H-4WEH16E6X/6A...	RE 24 751 RE 20 380
.140	1	Check valve, size 25	M-SR25KE05-1X	
.142	1	Throttle valve, size 12	FL-DVE-12-1.1/P	
T	1	Flange (Not included in supply; please order separately!)	DN50PN16 TN 012 939	AB 22-15

Module 6

Regenerative circuit

Press module, size 16
Circuit type M
IH04M16M6B1001-3X/...
Does not comply with U.V.V.

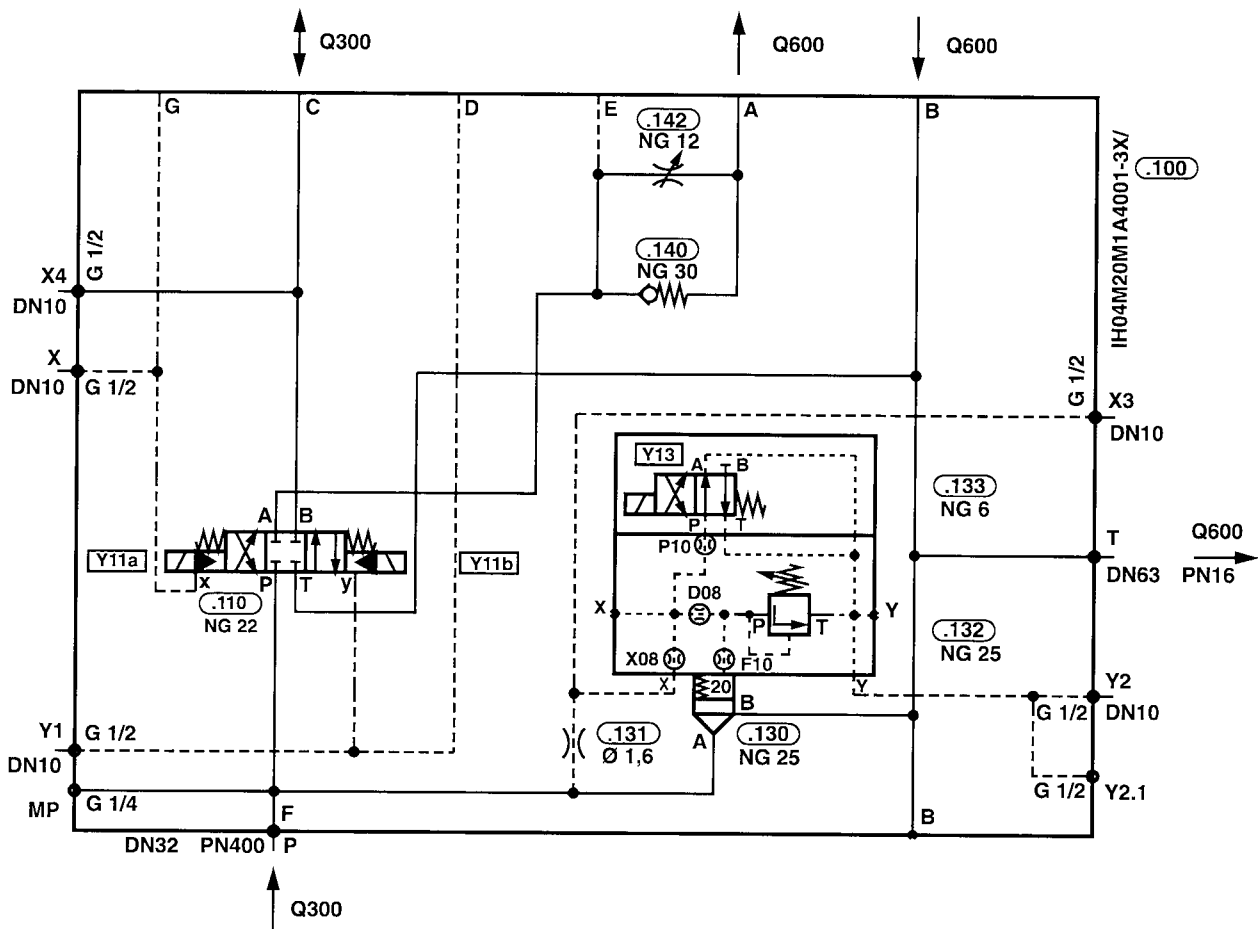


Q = max. flow in L/min
G... = BSP
NG = Size

Item	Qty	Description	Type	Further information
.630	1	Directional valve, size 16	H-4WEH16A7-6X/6A...	RE 24 751

Module 1

Press module, size 20
Circuit type M
IH04M20M1A4001-3X/...
Does not comply with U.V.V.



Q = max. flow in L/min

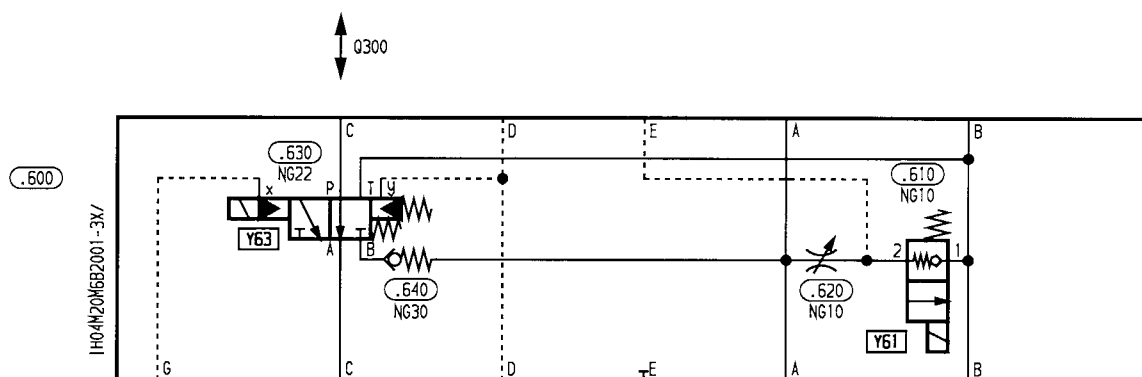
G... = BSP

NG = Size

Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 25	H-4WEH22E7X/6A...	RE 24 751
.130	1	Logic element, size 25	LC25DB20-6X	RE 81 078
.131	1	Orifice	DUESE 1,6 M10x25-45H	DIN 913
.132	1	Control cover, size 25	LFA25DBW2-6X/315	RE 81 078
.133	1	Directional valve, size 6	4WE6D5X/A...	RE 23 177
.140	1	Check valve, size 30	M-SR30KE05-1X	RE 20 380
.142	1	Throttle valve, size 12	FL-DVE-12-1.1/P	
P	1	Flange	DN32PN400	TN 013 772
T	1	Flange	DN63PN16	TN 012 336
		(Not included in supply; please order separately!)		AB 22-15

Module 6
Regenerative circuit with
pressure holding and without leakage

Press module, size 20
Circuit type M
IH04M20M6B2001-3X/...
Does not comply with U.V.V.



Q = max. flow in L/min

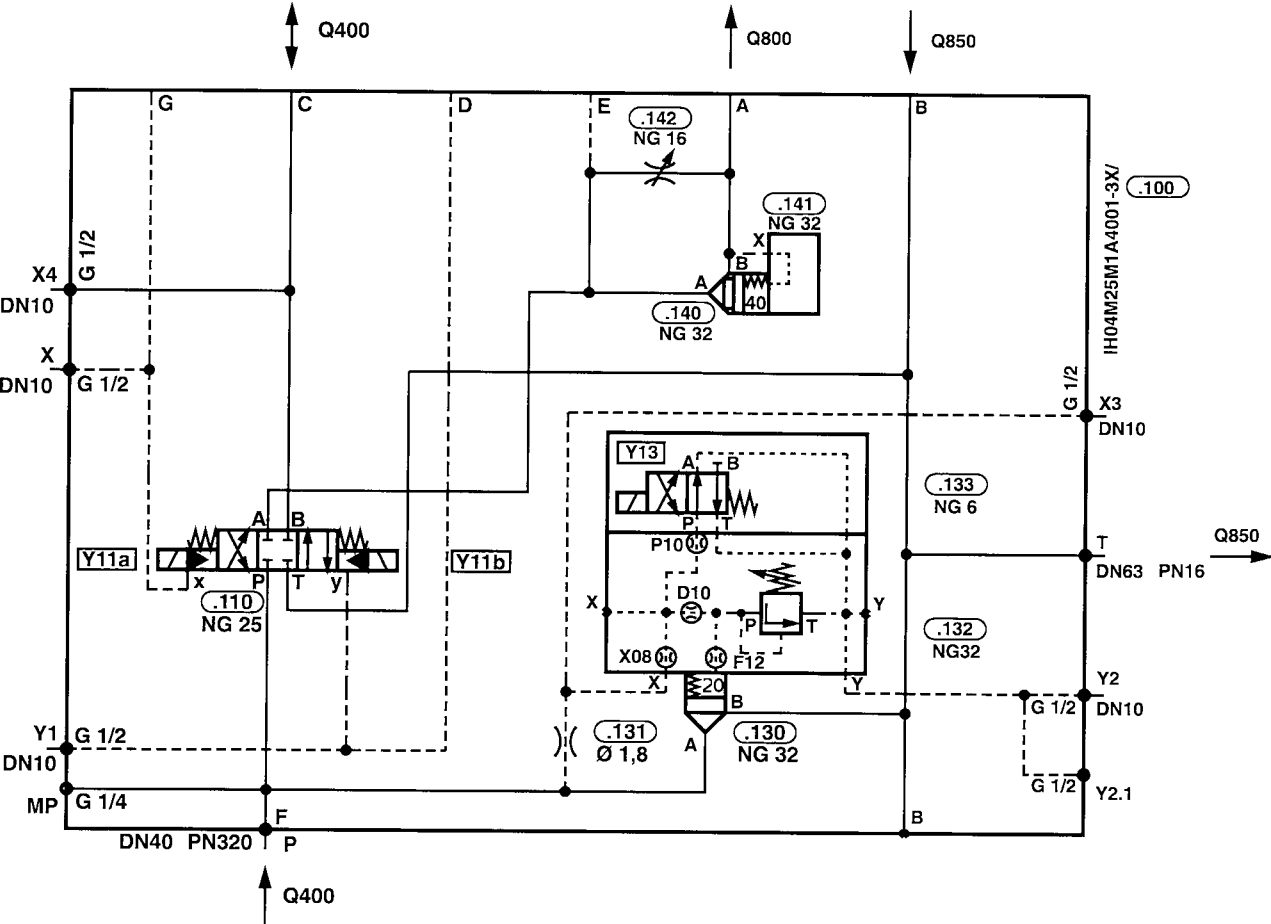
G... = BSP

NG = Size

Item	Qty	Description	Type	Further information
.610	1	Poppet valve, size 10	FL-WSEZ10 120-01X/...	RE 24 751 RE 20 380
.620	1	Throttle valve, size 10	FL-DVE-10-1.1/P	
.630	1	Directional valve, size 25	H-3WEH22A7-7X/6A...	
.640	1	Check valve, size 30	M-SR30KE15-1X/	

Module 1

Press module, size 25
Circuit type M
IH04M25M1A4001-3X/...
Does not comply with U.V.V.

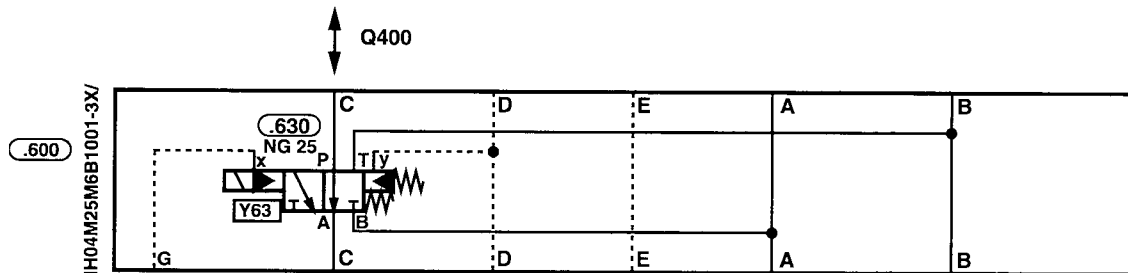


Q = max. flow in L/min
G... = BSP
NG = Size

Item	Qty	Description	Type	Further information
.110	1	Directional valve, size 25	H-4WEH25E6X/6A...	RE 24 751
.130	1	Logic element, size 32	LC32DB20E6X	RE 81 078
.131	1	Orifice	DUESE 1,8 M10x25-45H	DIN 913
.132	1	Control cover, size 32	LFA32DBW2-6X/315	RE 81 078
.133	1	Directional valve, size 6	4WE6D5X/A...	RE 23 177
.140	1	Logic element, size 32	LC32B40E6X	RE 81 010
.141	1	Control cover, size 32	LFA32D6X	RE 81 010
.142	1	Throttle valve, size 16	FL-DVE-16-1.1/P	
P	1	Flange*	DN40PN320	TN 303 921
T	1	Flange*	DN63PN16	TN 012 336
*(Not included in supply; please order separately!)				

Module 6 Regenerative circuit

Press module, size 25
Circuit type M
IH04M25M6B1001-3X/...
Does not comply with
U.V.V.



Q = max. flow in L/min
G... = BSP
NG = Size

Item	Qty	Description	Type	Further information
.630	1	Directional valve, size 25	H-3WEH25A7-6X/6A...	RE 24 751

Notes



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