

Control modules for clamping and drive modules UPE2

RE 51144/05.13
Replaces: 09.11

1/92

Type IH15A

Component series 1X
Maximum operating pressure 500 bar
Maximum flow 14 l/min



upe2_1x_d

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Features

- Compact design
- No piping of the control
- Few joints
- Variable set-up
- Can be combined individually
- Direct attachment to the clamping and drive module, external attachment possible, as well
- Direct mounting on drive unit tank cover
- Ready for connection

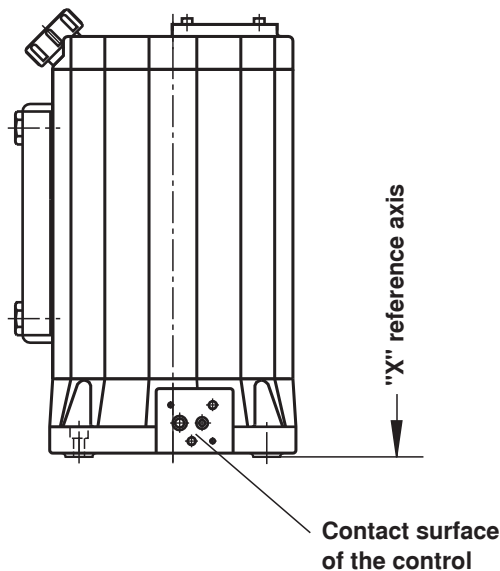
Description, general

The IH15A control modules for the UPE5 clamping and drive module (51142) serve the realization of complete hydraulic controls. They can be fitted and mounted individually. The directional valve modules and seat valve modules can be combined. The control modules allow for direct attachment to the UPE2 clamping and drive module. Using the modules for external attachment, the hydraulic controls can, however, also be installed arbitrarily into every system. The reducing module

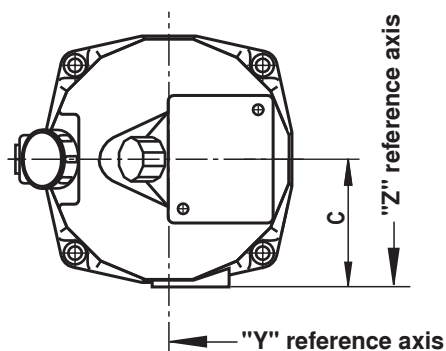
type RBAIH15A allows for direct attachment of the IH15A modules to the tank cover of a conventional drive unit. Using the reducing module type RIH15AR, the hydraulic control can be attached to one control of the IH15B control module family.

The modules have preferably been designed for hydraulic controls for low-flow actuators up to a flow of 14 l/min. They are connected by means of two tie rods.

Dimensions (dimensions in mm)



Type	Size	C
UPE2	3	85
	4	85
	5	98
	7	98



X, Y and Z are **reference axes** for determining the installation dimensions for attachment of the control blocks.

For calculating the installation height, the height dimension X on pages 16 to 21 and 23 to 71 must be added up according to the control blocks used.

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

hydraulic

Installation position	Any ¹⁾
Hydraulic fluid	Mineral oil (HL, HLP) according to DIN 51524 part 2 other hydraulic fluids upon request
Hydraulic fluid temperature range	°C –20 to +80 (with FKM seals) (observe the admissible viscosity range of the pump and the valves!)
Ambient temperature range	°C –30 to +50
Viscosity range	mm ² /s 2.8 to 500 ¹⁾
Maximum admissible degree of contamination of the hydraulic fluid, cleanliness class according to ISO 4406 (c)	Class 20 / 18 / 15 ¹⁾ Class 18 / 16 / 13 applies to SPDB and SPDR
Valve pressure rating	Refer to the related data sheet
Maximum flow of the directional seat valves type: KSDR1... q_v l/min	20 (2/2 directional seat valve) 12 (3/2 directional seat valve)

electric

Voltage type	Direct voltage
Available voltage ²⁾ U V	24
Voltage tolerance (nominal voltage)	% ±10
Power consumption P W	19 and/or 30 ¹⁾
Switching time according to ISO 6403 ON T ms	25 to ≤ 80
OFF T ms	10 to 25
Switching frequency cy/h	Up to 15,000
Protection class according to DIN 40050 ³⁾	IP 65
Coil temperature ⁴⁾ °C	150

¹⁾ Observe the valve details

²⁾ Special voltage on request

³⁾ With mating connector mounted and locked

⁴⁾ Due to the temperatures occurring at the surfaces of the solenoid coils, the European standards EN563 and EN982 need to be adhered to!

Project planning information

When designing the control with accumulator you have to make sure that the accumulator is protected against inadmissible overpressure by means of a type examination-tested pressure relief valve. The type-examination tested pressure relief valve must not accept any control tasks.

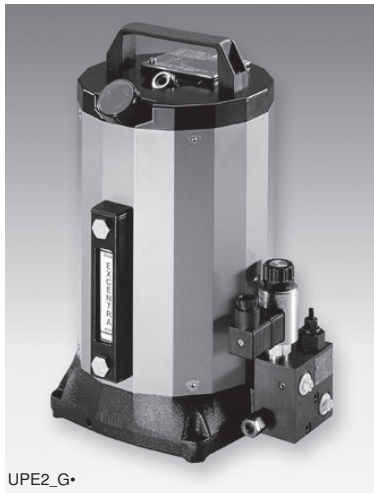
The set pressure of the type-examination tested pressure relief valve must be less than or equal to the maximum admissible operating pressure of the accumulator.

In order to achieve the best utilization of the accumulator volume possible as well as long service life, compliance with the following nitrogen filling pressure value is recommended:

$$p_o = 0.9 \times p_{(\text{minimum operating pressure})}$$

When using the SPDB and SPDR modules, a filter with a filter rating of 6 µm is to be used.

Overview of the modules

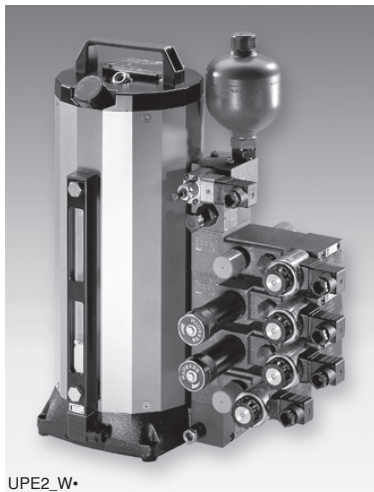


UPE2_G•

Basic module "G"

Basic module "G"

- Basic module with integrated pressure relief valve for simple lifting/lowering or pressure holding functions
- If the "G" basic modules are used, no further stacking is possible
- For more information see page 8

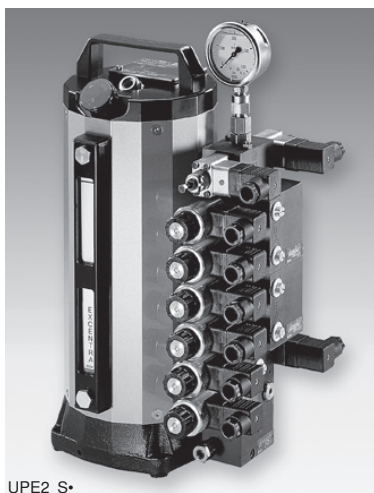


UPE2_W•

Directional valve module "W"

Directional valve module "W"

- Allows the design of controls using valves with porting pattern according to DIN 24340 form A
- The number of directional valve modules depends on the working volume and the delivery volume of the pump
- Directional valve modules and seat valve modules can be combined
- For more information see page 15



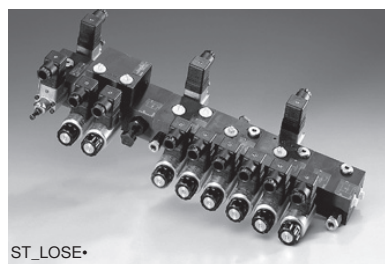
UPE2_S•

Seat valve modules "S"

Seat valve modules "S"

- Seat valve modules basically consist of:
 - A pressure relief module
 - One or several control blocks
 - One end block
- The control is designed depending on the relevant application
- The number of seat valve modules depends on the working volume and the delivery volume of the pump
- Seat valve modules and directional valve modules can be combined
- For more information see page 22

Overview of the modules



Modules for external attachment

Module for external attachment

- Allows for the attachment of the directional seat valve modules to any hydraulic system or any machine
- For more information see page 73

Overview of the modules

Short designation	Basic module, type "G"	Page
GA	Connection module	9
GD45	Distance module	9
GD45R	Distance module with check valve	10
GDB	Pressure relief module	11
GDH	Pressure holding module	13
GHS	Lifting/lowering module	12

Short designation	Directional valve module, type "W"	Page
WAE	Connection module with electrical unloading	16
WDB	Pressure relief module with one valve station	17
WSK	Cooler module	18
WZ	Sandwich module	19
WZ3	Sandwich module with 3 valve stations	20
WZ4	Sandwich module with 4 valve stations	21
WZP1	Sandwich module with P1 channel	19

Short designation	Seat valve module, type "S"	Page
DF40DB6	Pressure filter module with pressure relief valve size 6 (P line $p_{\max} = 250$ bar)	27
F06	Filter module (flow $q_{v\max} = 6$ l/min)	23
F06DB	Filter module with pressure relief valve (flow $q_{v\max} = 6$ l/min)	24
F30DB	Filter module with pressure relief valve (T line $p_{\max} = 7$ bar)	25
F30DBU	Filter module with pressure relief valve and circulation valve (T line $p_{\max} = 7$ bar)	26
SAB4	Module SAB4	53
SAB4P1	Module SAB4 with P1 channel	54
SAT2	Module SAT2	40
SBAT2DB	Module SBAT2 with pressure relief valve	44
SD	Module with pressure switch	58
SDB	Pressure relief module	28
SDB6	Pressure relief module size 6	29
SDBU	Pressure relief module with circulation valve	30
SDP1	Module with pressure switch and P1 channel	58

Overview of the modules

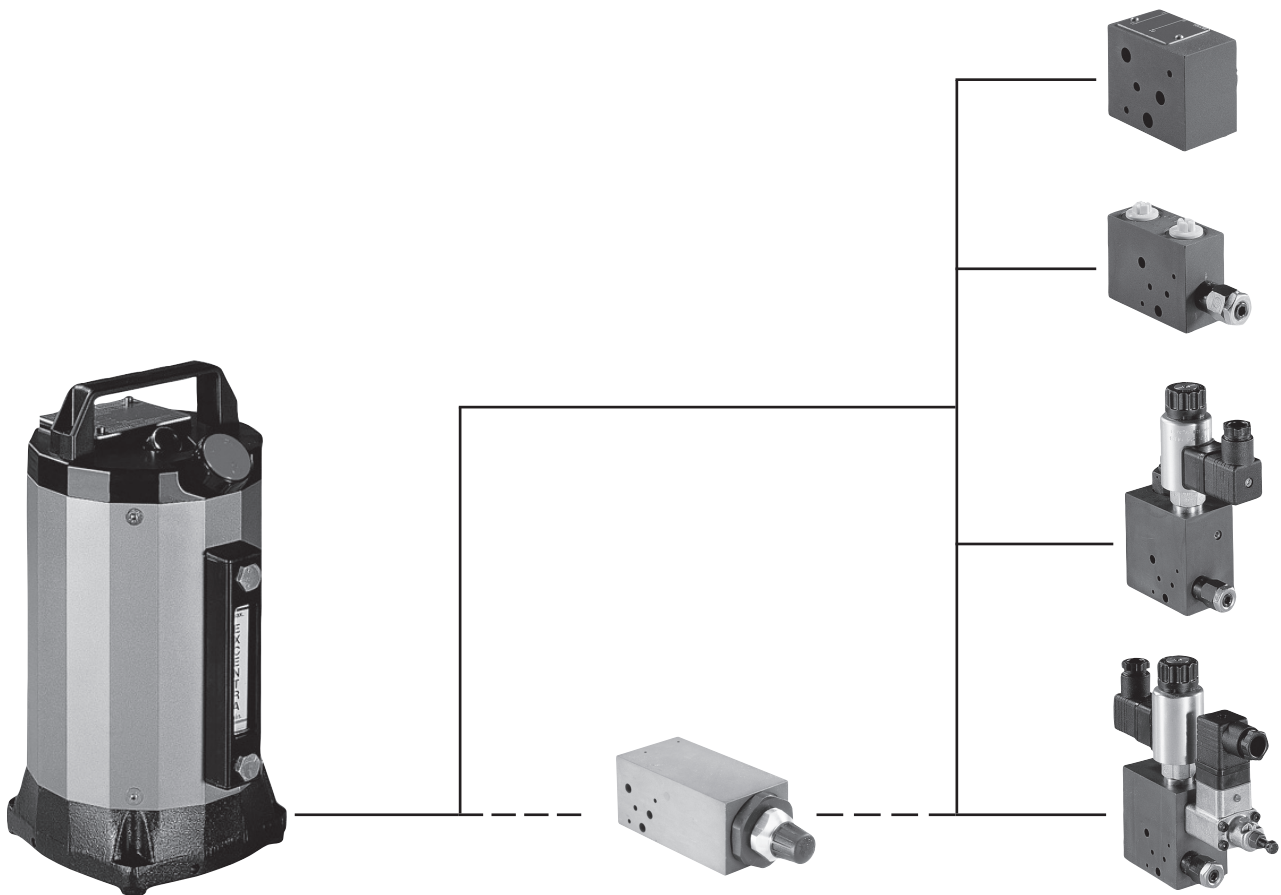
Short designation	Seat valve module, type "S"	Page
SDR	Pressure reducing module	33
SDRP1	Pressure reducing module with P1 channel	33
SESA	End module with accumulator and drain cock	68
SESAP1	End module with accumulator, drain cock and P1 channel	69
SP	Module SP	36
SPA2	Module SPA2	38
SPA3	Module SPA3	48
SPA3P1	Module SPA3 with P1 channel	49
SPAT2	Module SPAT2	41
SPAT2DB	Module SPAT2 with pressure relief valve	43
SPAT3DB	Module SPAT3 with pressure relief valve	51
SPBAT2DB	Module SPBAT2 with pressure relief valve	46
SPDB	Module with proportional pressure relief valve	31
SPDR	Module with proportional pressure reducing valve	32
SPDV	Module SP with throttle valve	37
SPDVP1	Module SP with throttle valve and P1 channel	37
SPP1	Module P with P1 channel	36
SR	Module with check valve	56
SSB	Accumulator shut-off module	71
SSBP1	Accumulator shut-off module with P1 channel	71
SU	Circulation module	35
SUA	Circulation module with stop valve	34
SUAP1	Circulation module with stop valve and P1 channel	34
SUP1	Circulation module with P1 channel	35
SZP1	Sandwich module with P1 channel interruption	60
WSE	Directional seat valve module	61
WSED	End module with pressure switch	62
WSEDA	End module with pressure switch and stop valve	65
WSEDAP1	End module with pressure switch, stop valve and P1 channel	66
WSEDP1	End module with pressure switch and P1 channel	63
WSEP1	End module with P1 channel	61

Short designation	Module for external attachment	Page
A	Connection module	74
ADB	Connection module with pressure relief valve	75
BA	Tank connection module	80
E	End module	78
EP1	End module with P1 channel	78
Z	Sandwich module	76
ZDB	Sandwich module with pressure relief valve	77
ZP1	Sandwich module with P1 channel	76

Short designation	Reducing module, type "R"	Page
RBAIH15A	Tank connection module with reduction to IH15A	79
RIH15AR	Reducing module IH15B to IH15A (right)	79

Short designation	Module with threaded connection for pipeline installation	Page
SDRG	Pressure reducing module with threaded connection	81
SPA2G	Module SPA2 with threaded connection	82
SPA3G	Module SPA3 with threaded connection	83

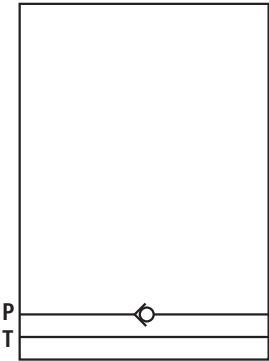
Basic module, type "G": Attachment



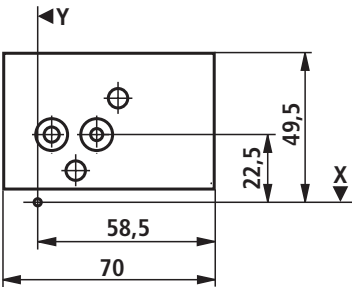
Basic module, type "G" (dimensions in mm)

Distance module with check valve, type "GD45R"

Symbol



Dimensions



Dimension Z = 45 mm

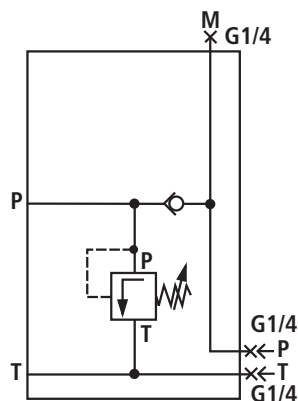
Material no.	Device designation	Type designation
	Distance module with check valve	IH15MA-1X/GD45R- ²⁶
R901256485		IH15MA-1X/GD45R- V

²⁶ Seal	Seal material	FKM	= V
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Basic module, type "G" (dimensions in mm)

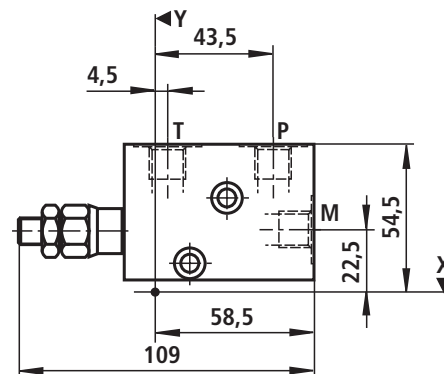
Pressure relief module, type "GDB"

Symbol



Dimensions

Dimension Z = 30 mm



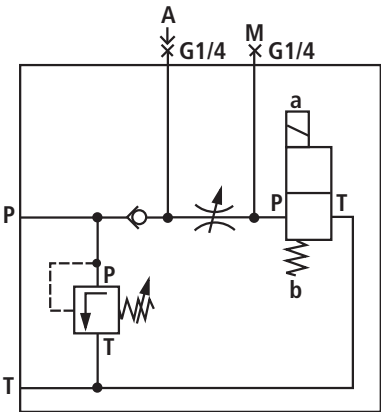
Material no.	Device designation	Type designation
	Pressure relief module	IH15EA-1X/GDB- / /
R900249996		IH15EA-1X/GDB-S350/D/V
R900333690		IH15EA-1X/GDB-S350/M/V
R900992206		IH15EA-1X/GDB-S350/O/V

	1	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob		= S = H
	2	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 200 bar 350 bar 500 bar	= 50 = 100 = 200 = 350 = 500
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!					
			Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar 250 bar 400 bar 500 bar	= 210E = 250E = 400E = 500E
Characteristic curve for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC					See page 85
	14	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring		= D = M = O
	26	Seal	Seal material	FKM	= V

Basic module, type "G" (dimensions in mm)

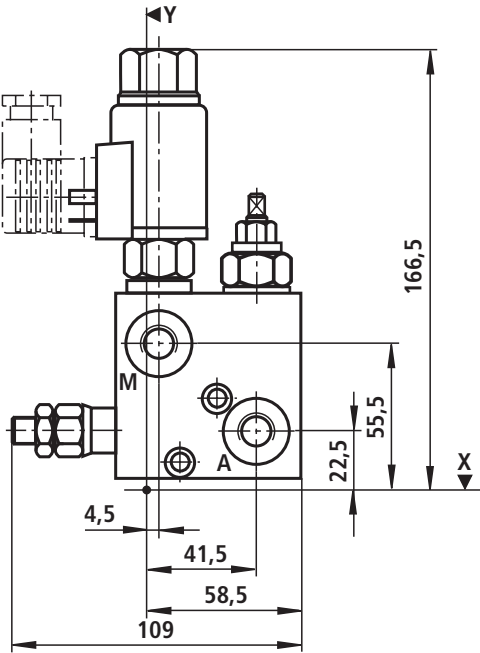
Lifting/lowering module, type "GHS"

Symbol



Dimensions

Dimension Z = 45 mm



Material no.	Device designation	Type designation
	Lifting/lowering module	IH15EA-1X/GHS- / /
R900712062		IH15EA-1X/GHS-S350/DPG/V
R904100577		IH15EA-1X/GHS-S350/MPG/V
R901099456		IH15EA-1X/GHS-S350/OPG/V

	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob	= S = H
	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 200 bar 350 bar 500 bar = 50 = 100 = 200 = 350 = 500

Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive)
More pressure ratings on request!

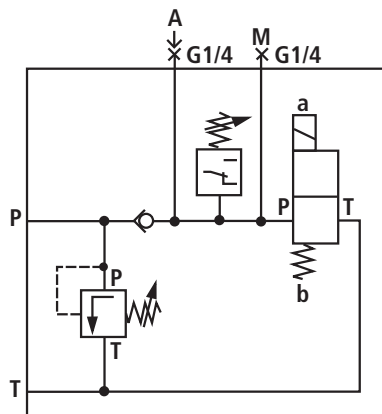
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar 250 bar 400 bar 500 bar = 210E = 250E = 400E = 500E
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Characteristic curve for type-examination tested pressure relief valves type: DBD 4../..E
Type testing according to Pressure Equipment Directive 97/23/EC

	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
	Solenoid voltage of the seat valves	Volt	24 V DC = G24
	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
	Seal	Seal material	FKM = V

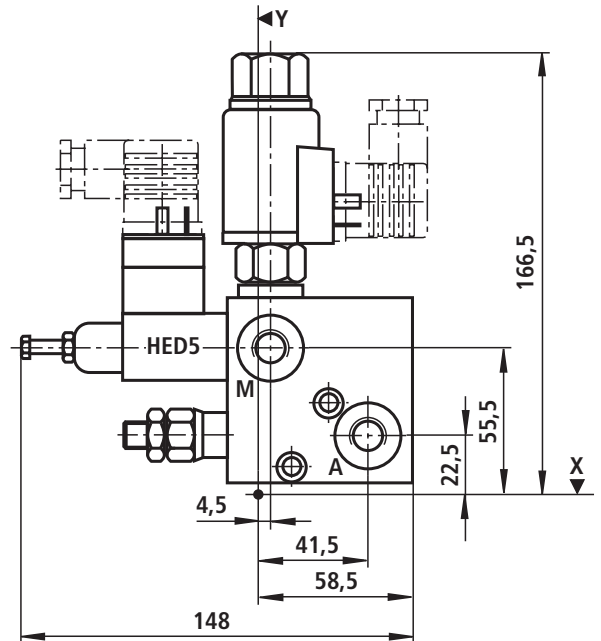
Basic module, type "G" (dimensions in mm)

Pressure holding module, type "GDH"

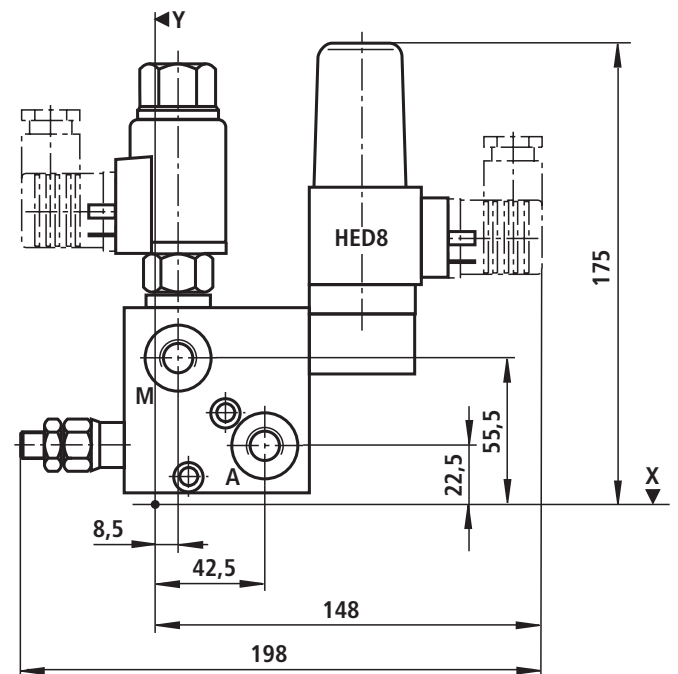
Symbol

Dimensions

Dimension Z = 45 mm



Dimension Z = 45 mm



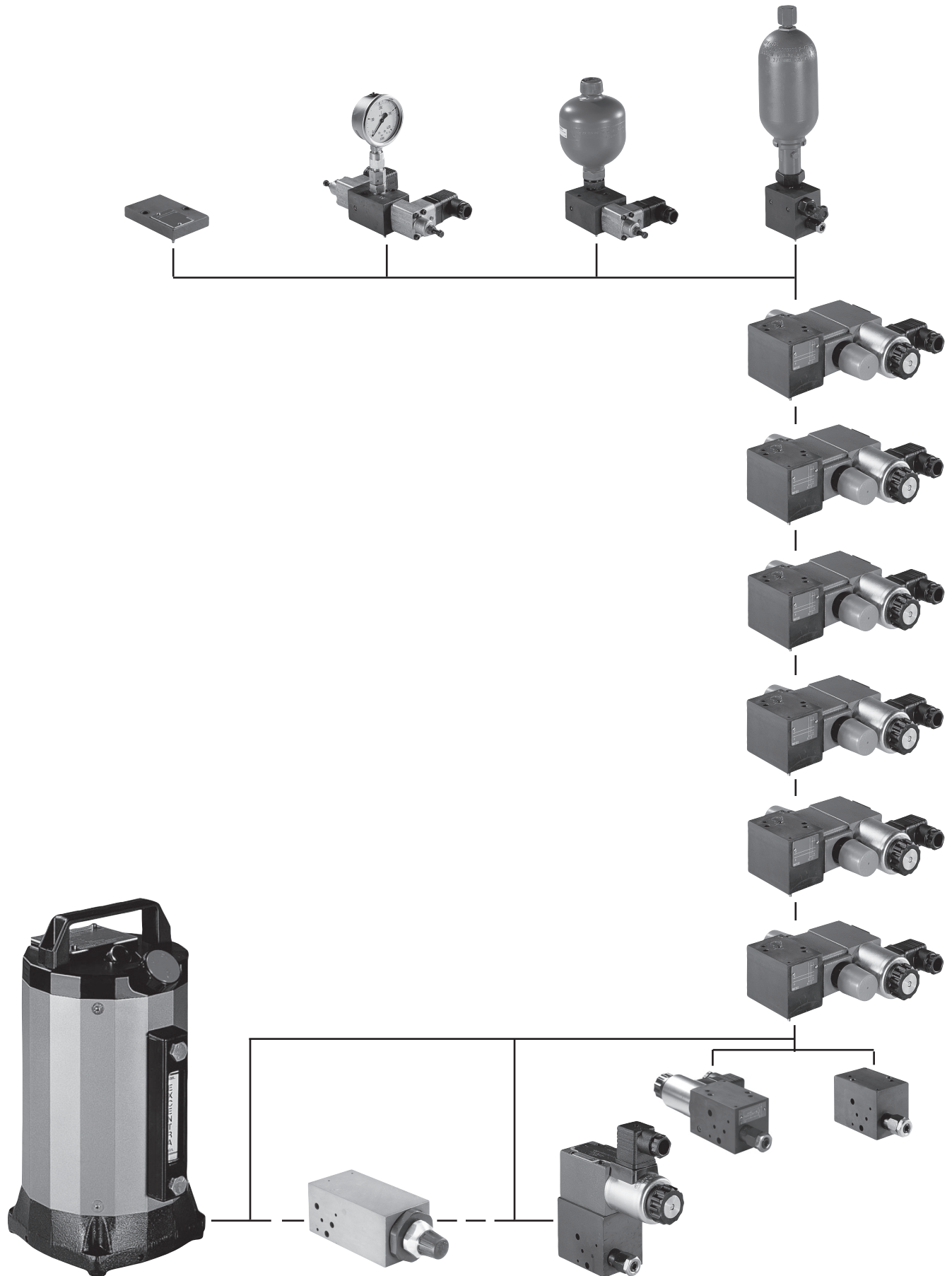
Basic module, type "G" (dimensions in mm)

Material no.	Device designation	Type designation
	Pressure holding module	IH15EA-1X/GDH- ¹ ² / ¹⁴ ⁴ ¹¹ ⁸ / ²⁶
R900714698		IH15EA-1X/GDH-S350/DPHED8G24/V
R901099353		IH15EA-1X/GDH-S350/MPHED8G24/V
R900266488		IH15EA-1X/GDH-S350/OPHED8G24/V

☐ ¹	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob		= S = H
☐ ²	Pressure rating of the pressure relief valve	Setting pressure up to max.	50 bar	= 50
		Setting pressure up to max.	100 bar	= 100
		Setting pressure up to max.	200 bar	= 200
		Setting pressure up to max.	350 bar	= 350
		Setting pressure up to max.	500 bar	= 500 ¹⁾
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!				
		Setting pressure up to max.	210 bar	= 210E
		Setting pressure up to max.	250 bar	= 250E
		Setting pressure up to max.	400 bar	= 400E ¹⁾
		Setting pressure up to max.	500 bar	= 500E ¹⁾
Characteristic curve for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC				See page 85
☐ ⁴	Designation of the 2/2 seat valve	Normally closed Normally open		= N = P
☐ ⁸	Solenoid voltage of the seat valves	Volt	24 V DC	= G24
☐ ¹¹	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HED 8 OP-2X/...K14 HEDE 10 A1-2X/...K41...2		= no code = HED 5 = HED 8 = HEDE 10
☐ ¹⁴	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring		= D = M = O
☐ ²⁶	Seal	Seal material	FKM	= V

¹⁾ Not possible with HED 5

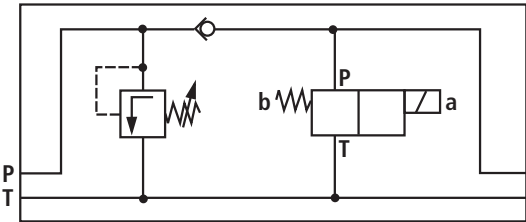
Directional valve module, type "W": Attachment



Directional valve module, type "W" (dimensions in mm)

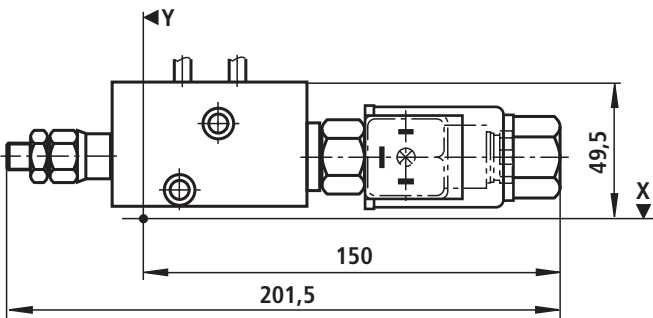
Connection module with electrical unloading, type "WAE"

Symbol



Dimensions

Dimension Z = 45 mm



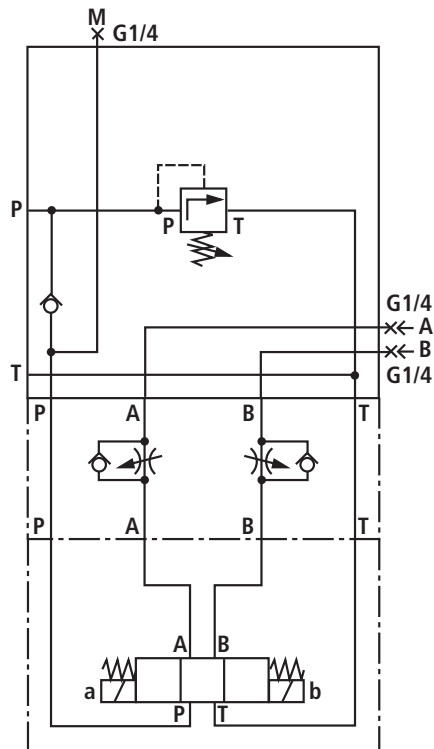
Material no.	Device designation	Type designation
	Connection module with electrical unloading	IH15EA-1X/WAE- 1 2 / 4 8 / 26
R904100245		IH15EA-1X/WAE-S350/NG24/V
R900992207		IH15EA-1X/WAE-S350/PG24/V

1	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob		= S = H
2	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 200 bar 350 bar 500 bar	= 50 = 100 = 200 = 350 = 500
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!				
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar 250 bar 400 bar 500 bar	= 210E = 250E = 400E = 500E
Characteristic curve for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC				See page 85
4	Designation of the 2/2 seat valve	Normally closed Normally open		= N = P
8	Solenoid voltage of the seat valves	Volt	24 V DC	= G24
26	Seal	Seal material	FKM	= V

Directional valve module, type "W" (dimensions in mm)

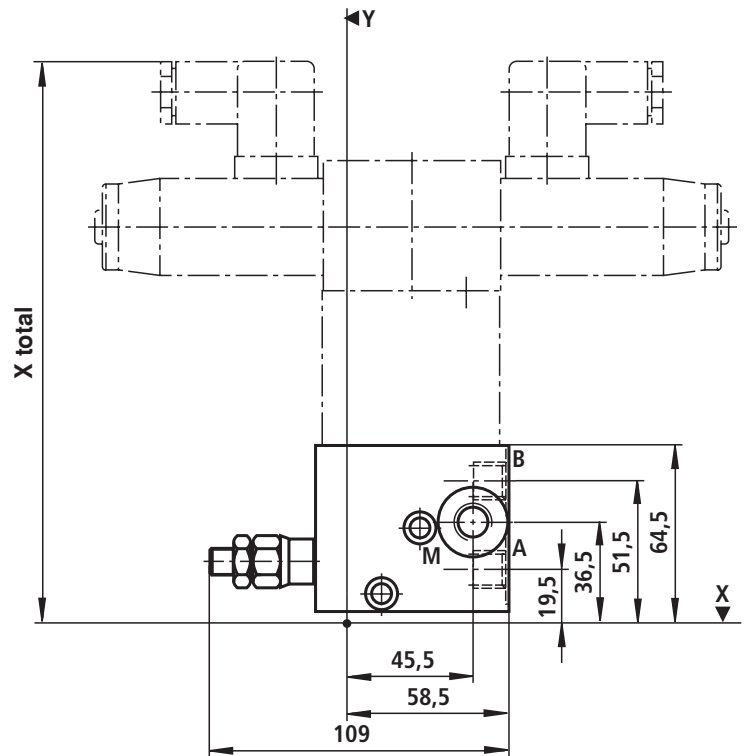
Pressure relief module with one valve station, type "WDB"

Symbol



Dimensions

Dimension Z = 50 mm



Material no.	Device designation	Type designation
	Pressure relief module with one valve station	IH15EA-1X/WDB- / /
R904101462		IH15EA-1X/WDB-S350/D/V
R904101434		IH15EA-1X/WDB-S350/M/V
R901099354		IH15EA-1X/WDB-S350/O/V

	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob	= S = H
	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 200 bar 350 bar 500 bar = 50 = 100 = 200 = 350 = 500

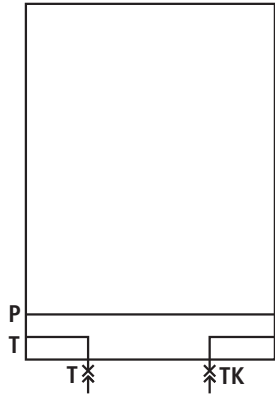
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive)

More pressure ratings on request!

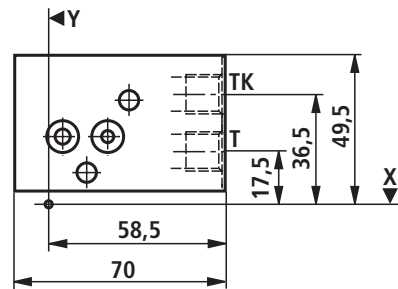
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar 250 bar 400 bar 500 bar	= 210E = 250E = 400E = 500E
Characteristic curve for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC				See page 85
	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring		= D = M = O
	Seal	Seal material	FKM	= V

Directional valve module, type "W" (dimensions in mm)

Cooler module, type "WSK"

Symbol

Dimensions



Dimension Z = 45 mm

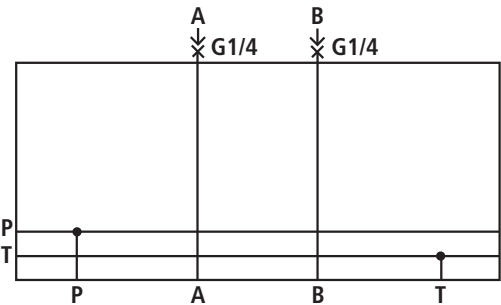
Material no.	Device designation	Type designation
	Cooler module	IH15MA-1X/WSK- ²⁶
R904100535		IH15MA-1X/WSK-V

26	Seal	Seal material	FKM	= V
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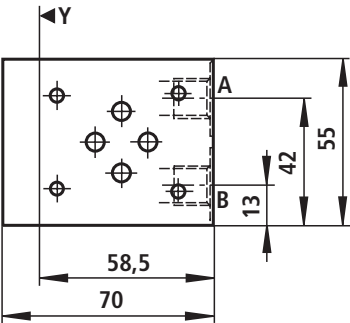
Directional valve module, type "W" (dimensions in mm)

Sandwich module, type "WZ"

Symbol



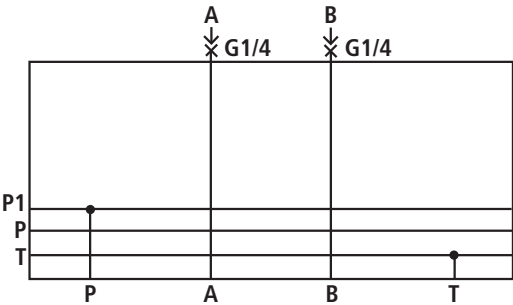
Dimensions



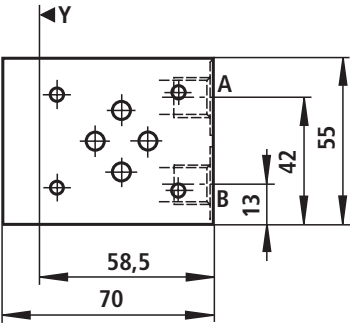
Dimension Z = 45 mm

Sandwich module with P1 channel, type "WZP1"

Symbol



Dimensions



Dimension Z = 45 mm

Material no.	Device designation	Type designation
	Sandwich module	IH15MA-1X/WZ- ²⁶
R900991532		IH15MA-1X/WZ-V

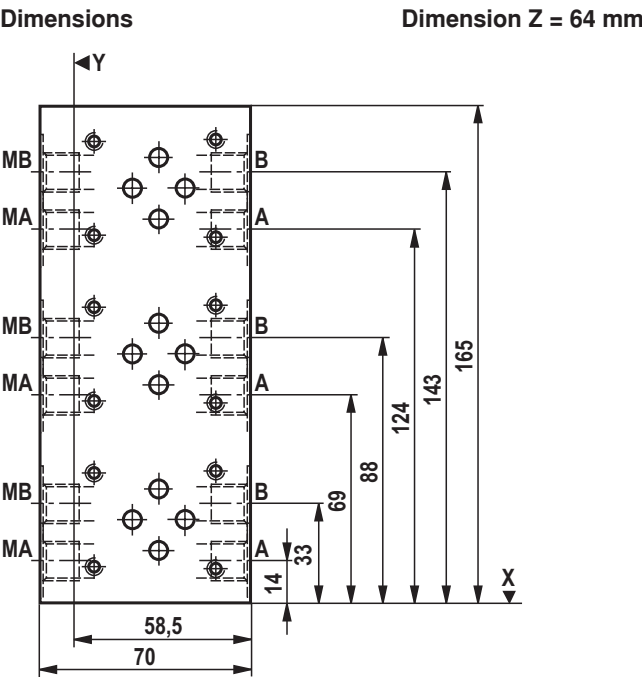
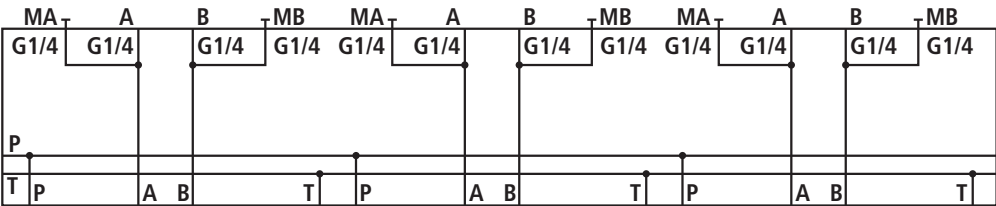
Material no.	Device designation	Type designation
	Sandwich module with P1 channel	IH15MA-1X/WZP1- ²⁶
R904100110		IH15MA-1X/WZP1-V

²⁶ Seal	Seal material	FKM	= V
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Directional seat valve module, type "W" (dimensions in mm)

Sandwich module with 3 valve stations, type "WZ3"

Symbol

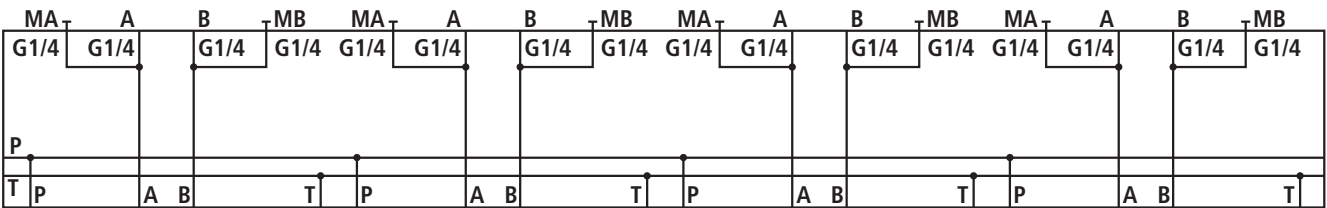


Material no.	Device designation	Type designation		
		IH15MA-1X/WZ3- 14 / 26		
R901176548	Sandwich module with 3 valve stations	IH15MA-1X/WZ3-M/V		
R901176546		IH15MA-1X/WZ3-O/V		
14 Pressure monitoring		With pressure gauge size 63 With measuring port Without pressure monitoring		= D = M = O
26 Seal		Seal material	FKM	= V

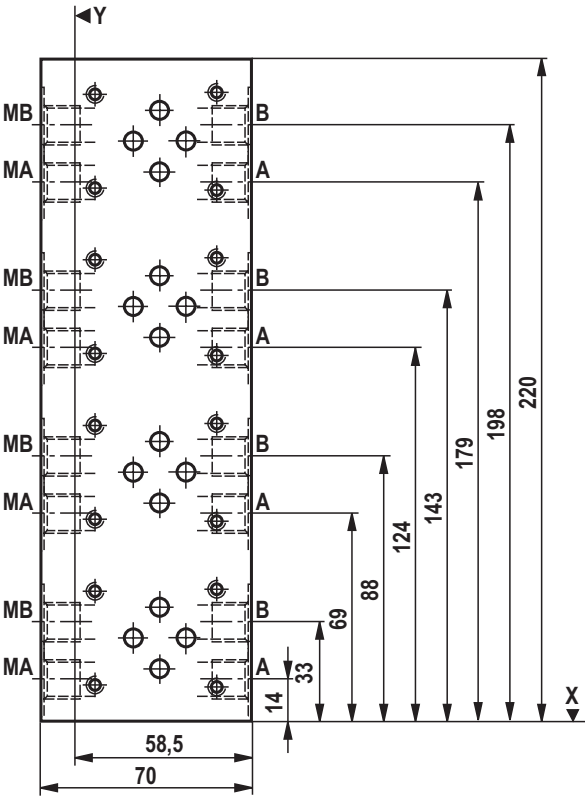
Directional seat valve module, type "W" (dimensions in mm)

Sandwich module with 4 valve stations, type "WZ4"

Symbol



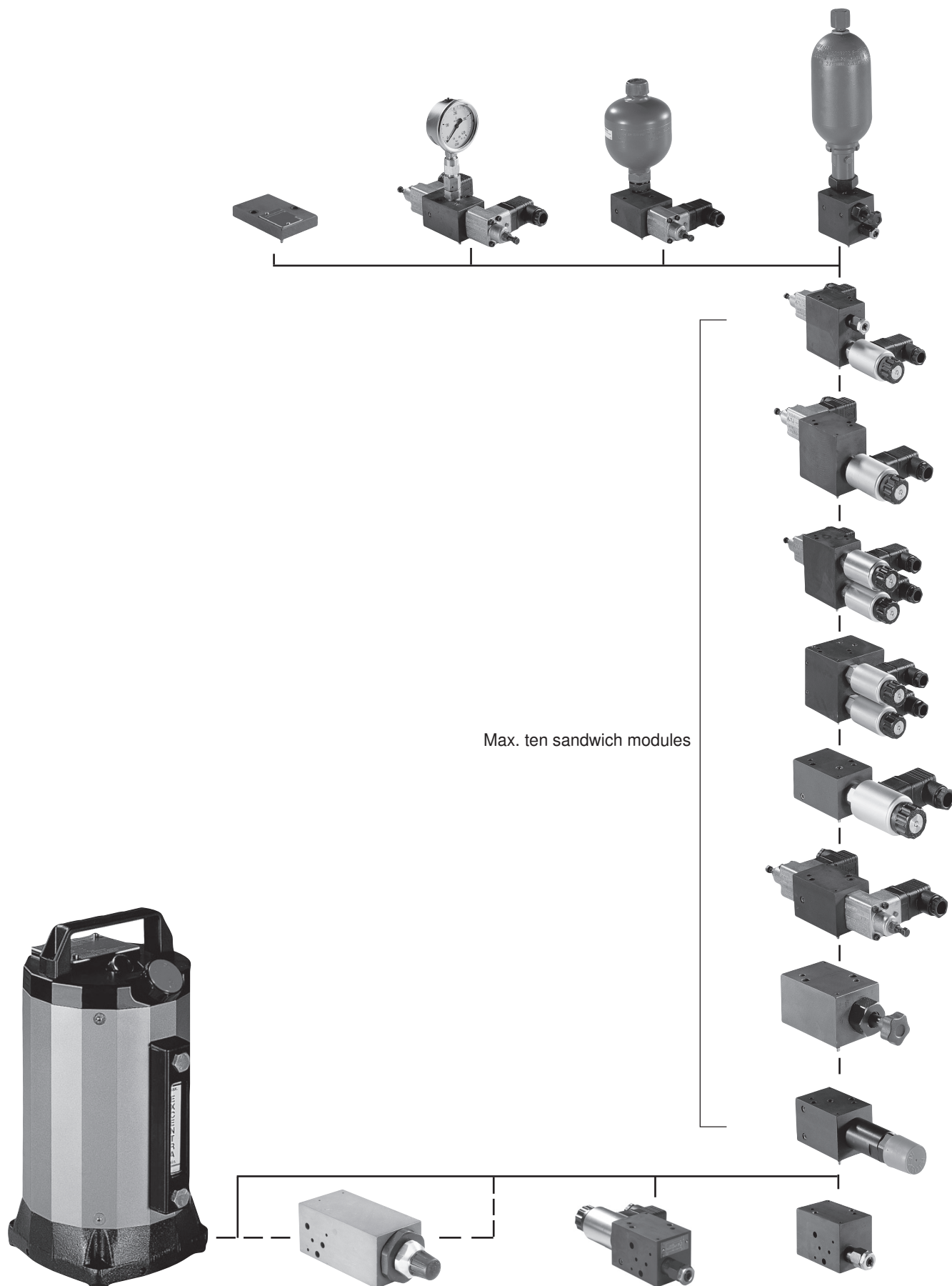
Dimensions Dimension Z = 64 mm



Material no.	Device designation	Type designation
		IH15MA-1X/WZ4- 14 / 26
R901176552	Sandwich module with 4 valve stations	IH15MA-1X/WZ4-M/V
R901176550		IH15MA-1X/WZ4-O/V

14 Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
26 Seal	Seal material	FKM = V

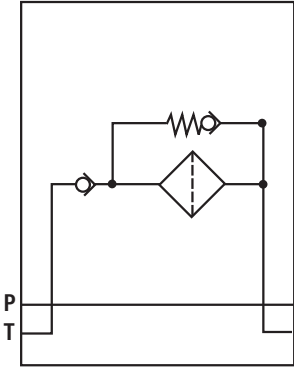
Seat valve module, type "S": Attachment



Seat valve module, type "S" (dimensions in mm)

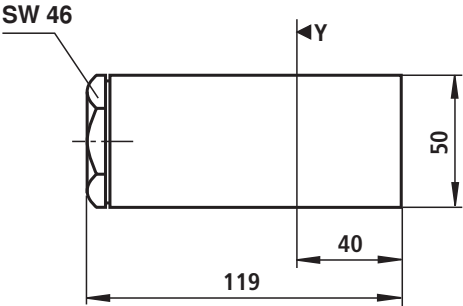
Filter module, type "F06"
(max. flow q_{vmax} = 6 l/min)

Symbol



Dimensions

Dimension Z = 55 mm



Spare part: Filter element see page 91

Material no.	Device designation	Type designation
	Filter module	IH15EA-1X/F06- 19 / 20 / 26
R900260940		IH15EA-1X/F06-10/A/V
R900242844		IH15EA-1X/F06-10/E/V
R900992204		IH15EA-1X/F06-10/O/V

19 Filter rating		06 µm 10 µm	= 06 ¹⁾ = 10 ²⁾
20 Clogging indicator	Without clogging indicator Visual clogging indicator Electric clogging indicator		= A = O = E
26 Seal	Seal material	FKM	= V

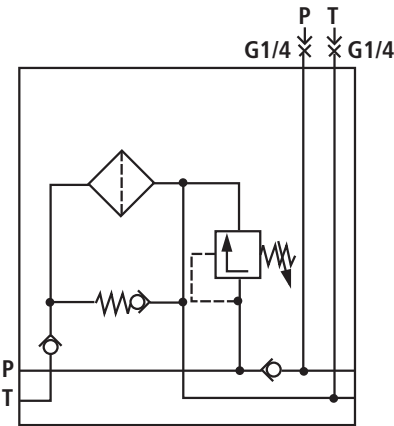
¹⁾ For degree of contamination class 18 / 16 / 13

²⁾ For degree of contamination class 20 / 18 / 15

Seat valve module, type "S" (dimensions in mm)

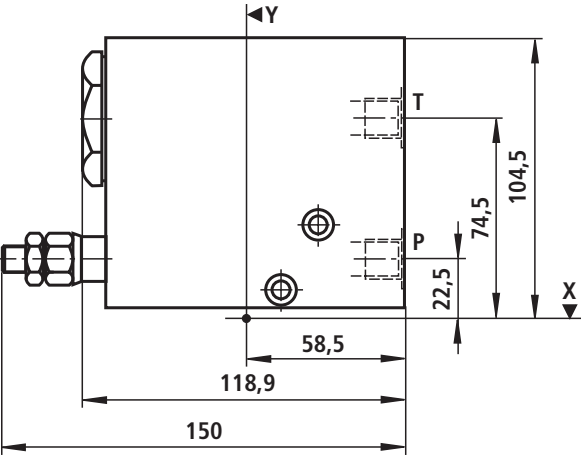
Filter module with pressure relief valve, type "F06DB"
(max. flow q_{vmax} = 6 l/min)

Symbol



Dimensions

Dimension Z = 55 mm



Spare part: Filter element see page 91

Material no.	Device designation	Type designation
	Filter module with pressure relief valve	IH15EA-1X/F06DB- / /
R900993488		IH15EA-1X/F06DB-S350/10/A/V
R900702053		IH15EA-1X/F06DB-S350/10/E/V
R904100676		IH15EA-1X/F06DB-S350/10/O/V

	1	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob	= S = H
	2	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 200 bar 350 bar 500 bar = 50 = 100 = 200 = 350 = 500
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!				
			Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar 250 bar 400 bar 500 bar = 210E = 250E = 400E = 500E
Characteristic curve for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC				See page 85
	19	Filter rating	06 µm 10 µm	= 06 ¹⁾ = 10 ²⁾
	20	Clogging indicator	Without clogging indicator Visual clogging indicator Electric clogging indicator	= A = O = E
	26	Seal	Seal material	FKM = V

¹⁾ For degree of contamination class 18 / 16 / 13

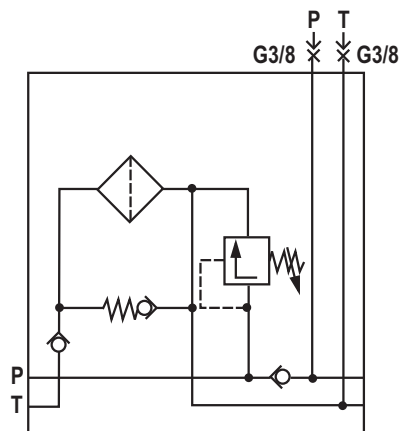
²⁾ For degree of contamination class 20 / 18 / 15

Seat valve module, type "S" (dimensions in mm)

Filter module with pressure relief valve, type "F30DB"

(max. flow $q_{vmax} = 30 \text{ l/min}$, $p_{vmax} = 7 \text{ bar}$)

Symbol

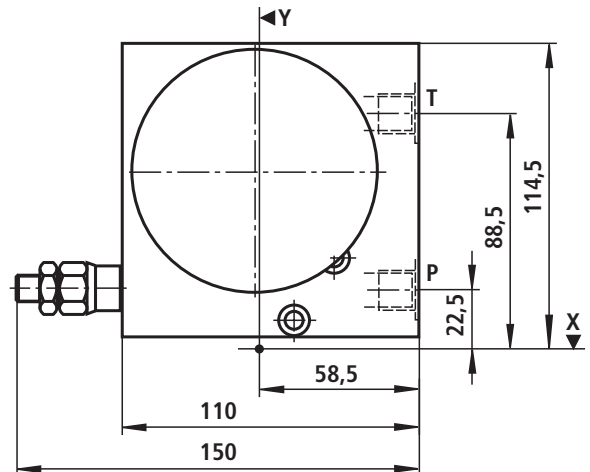


Installation information:

Wind the filter cartridge as tight as possible on the block.
Then, wind the filter cartridge by further 1/3 of a rotation.

Dimensions

Dimension Z = 140 mm



Spare part: Filter cartridge see page 91

Assembly tool: Strap wrench Material no. R904001048

Material no.	Device designation	Type designation
	Filter module with pressure relief valve	IH15EA-1X/F30DB- 1 2 / 19 20 26
R901099541		IH15EA-1X/F30DB-S350/10/A/V
R901099029		IH15EA-1X/F30DB-S350/10/E/V
R904100109		IH15EA-1X/F30DB-S350/10/O/V

1	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob	= S = H
2	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 200 bar 350 bar 500 bar = 50 = 100 = 200 = 350 = 500

Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive)

More pressure ratings on request!

	Setting pressure up to max.	210 bar	= 210E
	Setting pressure up to max.	250 bar	= 250E
	Setting pressure up to max.	400 bar	= 400E
	Setting pressure up to max.	500 bar	= 500E

Characteristic curve for type-examination tested pressure relief valves type: DBD 4../..E
Type testing according to Pressure Equipment Directive 97/23/EC

See page 85

19	Filter rating	06 µm 10 µm	= 06 ¹⁾ = 10 ²⁾
20	Clogging indicator	Without clogging indicator Visual clogging indicator Electric clogging indicator	= A = O = E
26	Seal	Seal material	FKM = V

¹⁾ For degree of contamination class 18 / 16 / 13

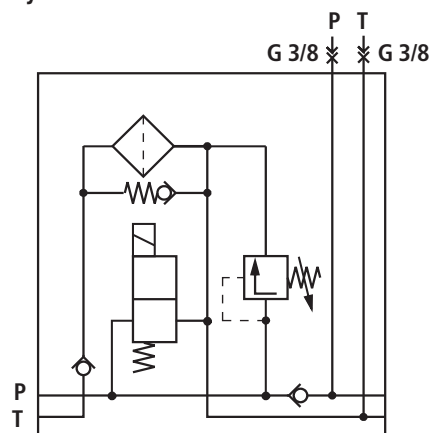
²⁾ For degree of contamination class 20 / 18 / 15

Seat valve module, type "S" (dimensions in mm)

Filter module with pressure relief valve and circulation valve, type "F30DBU"

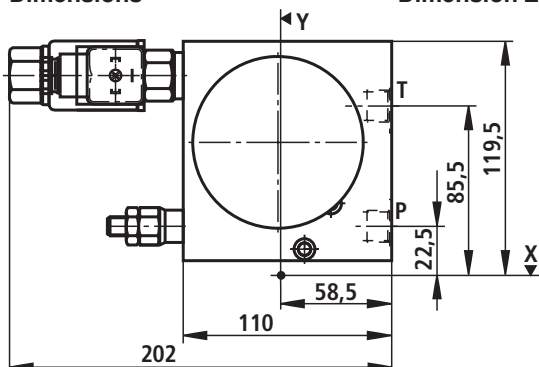
(max. flow $q_{vmax} = 30 \text{ l/min}$, $p_{vmax} = 7 \text{ bar}$)

Symbol



Dimensions

Dimension Z = 140 mm



Installation information:

Wind the filter cartridge as tight as possible on the block. Then, wind the filter cartridge by further 1/3 of a rotation.

Spare part: Filter cartridge see page 91

Assembly tool: Strap wrench Material no. **R904001048**

Material no.	Device designation	Type designation
	Filter module with pressure relief valve and circulation valve	IH15EA-1X/F30DBU- 1 2 4 8 19 20 26
R901099530		IH15EA-1X/F30DBU-S200/PG24/10/A/V
R904102272		IH15EA-1X/F30DBU-S200/PG24/10/E/V
R901095317		IH15EA-1X/F30DBU-S200/PG24/10/O/V
1	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob
2	Pressure rating of the pressure relief valve	Setting pressure up to max. 50 bar = 50 Setting pressure up to max. 100 bar = 100 Setting pressure up to max. 200 bar = 200 Setting pressure up to max. 350 bar = 350 Setting pressure up to max. 500 bar = 500
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive). More pressure ratings on request!		
	Setting pressure up to max. 210 bar = 210E Setting pressure up to max. 250 bar = 250E Setting pressure up to max. 400 bar = 400E Setting pressure up to max. 500 bar = 500E	
Characteristic curve for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC		See page 85
4	Designation of the 2/2 seat valve	Normally closed = N Normally open = P
8	Solenoid voltage of the seat valves	Volt 24 V DC = G24
19	Filter rating	06 µm = 06 ¹⁾ 10 µm = 10 ²⁾
20	Clogging indicator	Without clogging indicator = A Visual clogging indicator = O Electric clogging indicator = E
26	Seal	Seal material FKM = V

¹⁾ For degree of contamination class 18 / 16 / 13

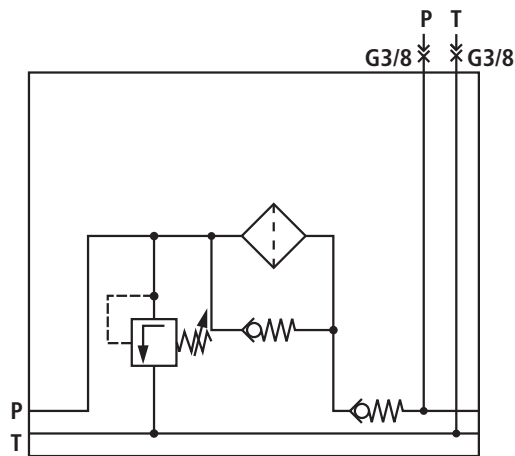
²⁾ For degree of contamination class 20 / 18 / 15

Seat valve module, type "S" (dimensions in mm)

Pressure filter module with pressure relief valve size 6, type "DF40DB6"

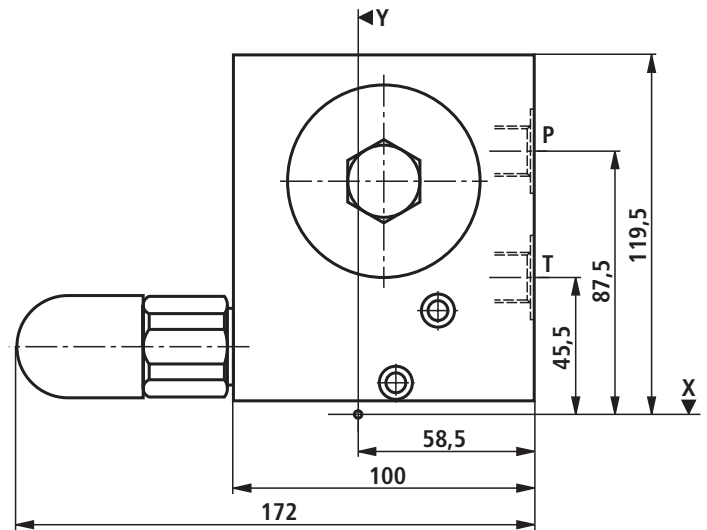
(max. flow $q_{vmax} = 40 \text{ l/min}$, $p_{vmax} = 250 \text{ bar}$)

Symbol



Dimensions

Dimension Z = 195 mm



Installation information:

Wind the filter cartridge as tight as possible on the block. Then, wind it back by 1/8 to 1/4 of a rotation.

Spare part: Filter cartridge see page 91

Assembly tool: Strap wrench Material no. R904001048

Material no.	Device designation	Type designation
	Pressure filter module with pressure relief valve size 6	IH15EA-1X/DF40DB6- / / /
R901278258		IH15EA-1X/DF40DB6-S200/10/A/V
R901278259		IH15EA-1X/DF40DB6-S200/10/E/V
R901278260		IH15EA-1X/DF40DB6-S200/10/O/V
	Adjustment element at the pressure relief valve	Setscrew with internal hexagon and protective cap Rotary knob Lockable rotary knob
	Pressure rating of the pressure relief valve (size 6)	Setting pressure up to max. 50 bar = 50 Setting pressure up to max. 100 bar = 100 Setting pressure up to max. 200 bar = 200 Setting pressure up to max. 315 bar = 315
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!		
		Setting pressure up to max. 50 bar = 50E Setting pressure up to max. 100 bar = 100E Setting pressure up to max. 140 bar = 140E Setting pressure up to max. 210 bar = 210E
Characteristic curve for type-examination tested pressure relief valves type: DBD 6../..E Type testing according to Pressure Equipment Directive 97/23/EC		See page 86
	Filter rating	06 μm = 06 ¹⁾ 10 μm = 10 ²⁾
	Clogging indicator	Without clogging indicator = A Visual clogging indicator = O Electric clogging indicator = E
	Seal	Seal material FKM = V

¹⁾ For degree of contamination class 18 / 16 / 13

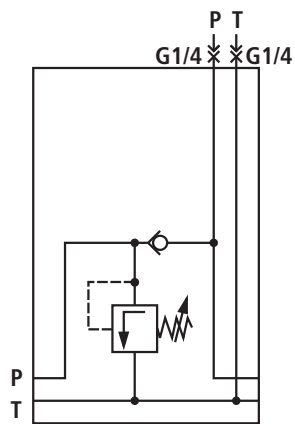
²⁾ For degree of contamination class 20 / 18 / 15

26	Seal	Seal material	FKM	= V
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Seat valve module, type "S" (dimensions in mm)

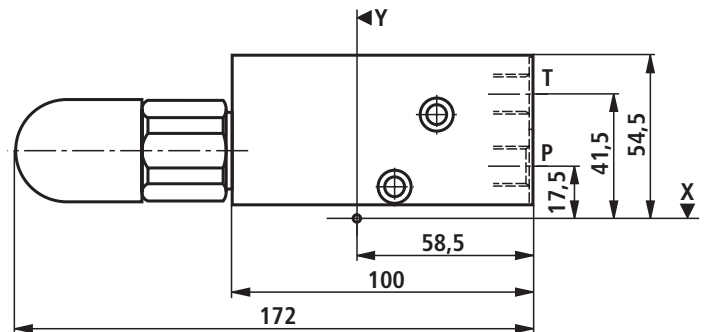
Pressure relief module, size 6, type "SDB6"

Symbol



Dimensions

Dimension Z = 45 mm



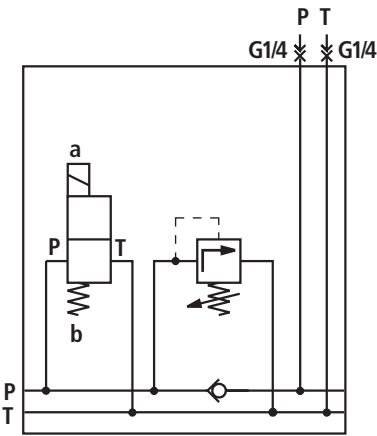
Material no.	Device designation	Type designation
	Pressure relief module size 6	IH15EA-1X/SDB6 - /
R904101817		IH15EA-1X/SDB6-S50/V
R901099611		IH15EA-1X/SDB6-S100/V
R901099613		IH15EA-1X/SDB6-S200/V
R901099614		IH15EA-1X/SDB6-S315/V

	1 Adjustment element at the pressure relief valve	Setscrew with internal hexagon and protective cap Rotary knob Lockable rotary knob	= S = H = A
	2 Pressure rating of the pressure relief valve (size 6)	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 200 bar 315 bar = 50 = 100 = 200 = 315
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!			
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 140 bar 210 bar 330 bar = 50E = 100E = 140E = 210E = 330E
Characteristic curve for type-examination tested pressure relief valves type: DBD 6.../..E Type testing according to Pressure Equipment Directive 97/23/EC			See page 86
	26 Seal	Seal material	FKM = V

Seat valve module, type "S" (dimensions in mm)

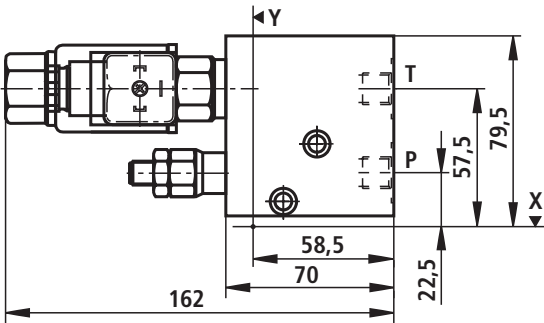
Pressure relief module with circulation valve, type "SDBU"

Symbol



Dimensions

Dimension Z = 45 mm



Material no.	Device designation	Type designation
	Pressure relief module with circulation valve	IH15EA-1X/SDBU- 1 2 4 8 26
R901099615		IH15EA-1X/SDBU-S350/NG24/V
R904101274		IH15EA-1X/SDBU-S350/PG24/V

1	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob		= S = H
2	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 200 bar 350 bar 500 bar	= 50 = 100 = 200 = 350 = 500
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equip- ment Directive) More pressure ratings on request!				
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar 250 bar 400 bar 500 bar	= 210E = 250E = 400E = 500E
Characteristic curve for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC				See page 85
4	Designation of the 2/2 seat valve	Normally closed Normally open		= N = P
8	Solenoid voltage of the seat valves	Volt	24 V DC	= G24
26	Seal	Seal material	FKM	= V

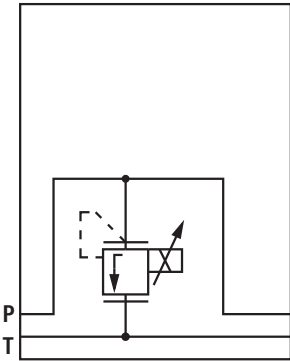
Seat valve module, type "S" (dimensions in mm)

Project planning information

When using the SPDB module, a filter with a filter rating of 6 µm is to be used.

Proportional pressure relief module, type "SPDB"

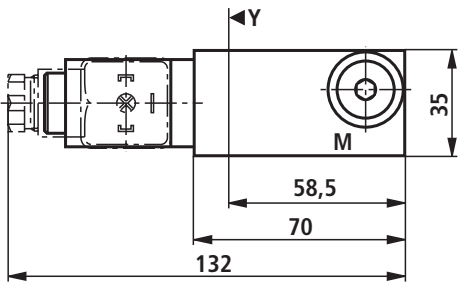
Symbol



Area of application pressure rating:
 $p = 20 \text{ bar}$ $q_{\text{max}} = 8 \text{ l/min}$
 $p = 100 \text{ bar}$ $q_{\text{max}} = 8 \text{ l/min}$
 $p = 200 \text{ bar}$ $q_{\text{max}} = 6 \text{ l/min}$
 $p = 315 \text{ bar}$ $q_{\text{max}} = 3 \text{ l/min}$

Dimensions

Dimension Z = 45 mm



Material no.	Device designation	Type designation
	Proportional pressure relief module	IH15EA-1X/SPDB- 24 8 / 26
R904101391		IH15EA-1X/SPDB-100G24/V
R900993538		IH15EA-1X/SPDB-315G24/V

8	Solenoid voltage of the seat valves	Volt	24 V DC	= G24
26	Seal	Seal material	FKM	= V
35	Pressure rating of the proportional valve	Setting pressure up to max.	20 bar	= 20
		Setting pressure up to max.	100 bar	= 100
		Setting pressure up to max.	200 bar	= 200
		Setting pressure up to max.	315 bar	= 315

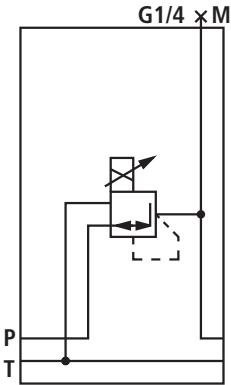
Seat valve module, type "S" (dimensions in mm)

Project planning information

When using the SPDR module, a filter with a filter rating of 6 µm is to be used.

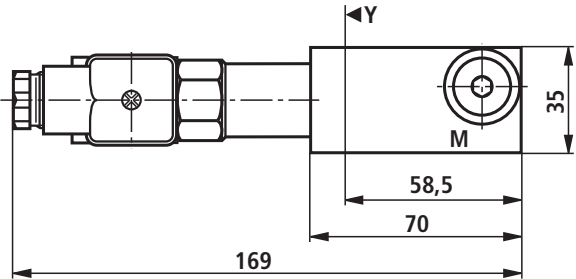
Proportional pressure reducing valve, type "SPDR"

Symbol



Dimensions

Dimension Z = 45 mm



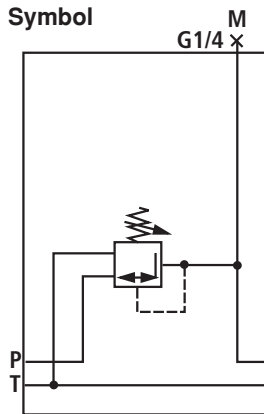
Material no.	Device designation	Type designation
	Proportional pressure reducing valve	IH15EA-1X/SPDR- 24 / 14 8 / 26
R904101209		IH15EA-1X/SPDR-315/DG24/V

8	Solenoid voltage of the seat valves	Volt	24 V DC	= G24
14	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring		= D = M = O
26	Seal	Seal material	FKM	= V
35	Pressure rating of the proportional valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	20 bar 100 bar 200 bar 315 bar	= 20 = 100 = 200 = 315

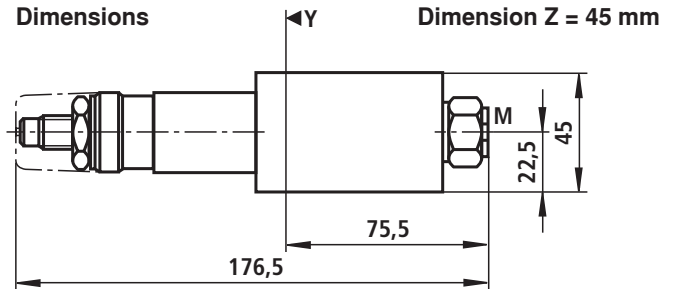
Seat valve module, type "S" (dimensions in mm)

Pressure reducing module, type "SDR" (min. secondary pressure which can be set $p_{\max} = 15$ bar)

Symbol

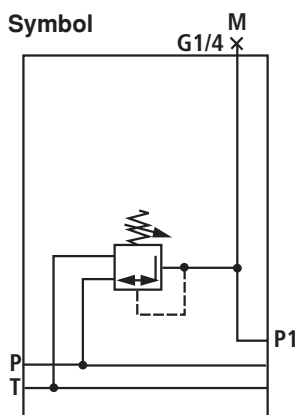


Dimensions



Pressure reducing module with P1 channel, type "SDRP1"

Symbol



Material no.	Device designation	Type designation
	Pressure reducing module	IH15EA-1X/SDR- 16 / 17 / 14 / 26
R904101712		IH15EA-1X/SDR-2/210/D/V
R904100719		IH15EA-1X/SDR-2/210/M/V
R904102202		IH15EA-1X/SDR-2/210/O/V

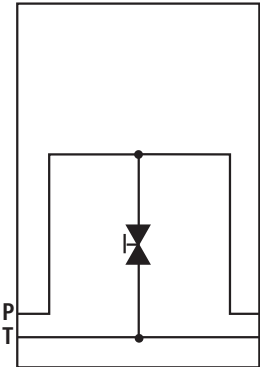
Material no.	Device designation	Type designation
	Pressure reducing module with P1 channel	IH15EA-1X/SDRP1- 16 / 17 / 14 / 26
R904100561		IH15EA-1X/SDRP1-2/210/D/V
R904100659		IH15EA-1X/SDRP1-2/210/M/V
R901099714		IH15EA-1X/SDRP1-2/210/O/V

☐ 14	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
☐ 16	Adjustment element	Setscrew with internal hexagon and protective cap	= 2
☐ 17	Secondary pressure	Max. secondary pressure Max. secondary pressure Max. secondary pressure Max. secondary pressure	25 bar 75 bar 150 bar 210 bar
☐ 26	Seal	Seal material	FKM = V

Seat valve module, type "S" (dimensions in mm)

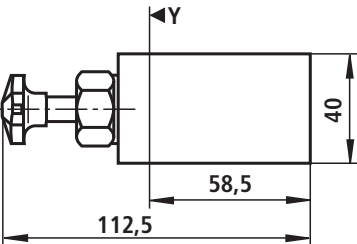
Circulation module with stop valve, type "SUA"

Symbol



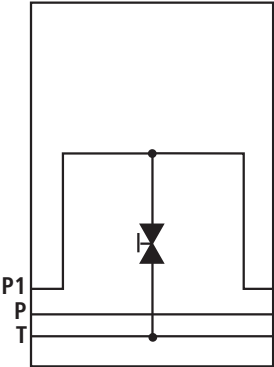
Dimensions

Dimension Z = 45 mm



Circulation module with stop valve and P1 channel, type "SUAP1"

Symbol



Material no.	Device designation	Type designation
	Circulation module with stop valve	IH15EA-1X/SUA- ²⁶
R900992137		IH15EA-1X/SUA-V

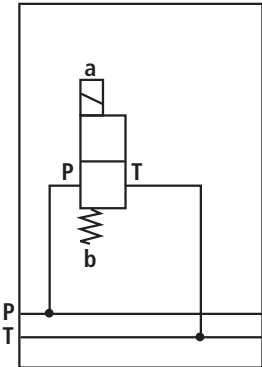
Material no.	Device designation	Type designation
	Circulation module with stop valve and P1 channel	IH15EA-1X/SUAP1- ²⁶
R901099721		IH15EA-1X/SUAP1-V

²⁶ Seal	Seal material	FKM	= V
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Seat valve module, type "S" (dimensions in mm)

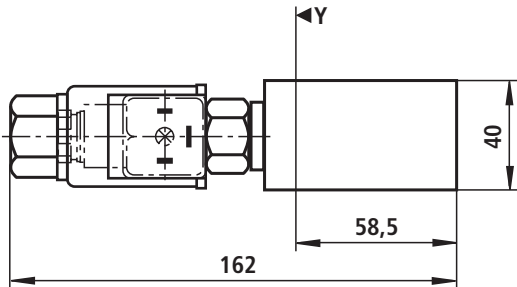
Circulation module, type "SU"

Symbol



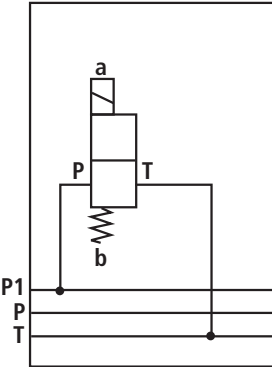
Dimensions

Dimension Z = 45 mm



Circulation module with P1 channel, type "SUP1"

Symbol



Material no.	Device designation	Type designation
	Circulation module	IH15EA-1X/SU- 4 8 / 7 / 26
R900337092		IH15EA-1X/SU-NG24/350/V
R900992143		IH15EA-1X/SU-PG24/350/V

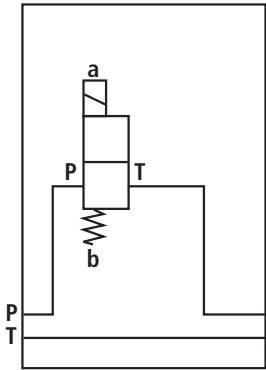
Material no.	Device designation	Type designation
	Circulation module with P1 channel	IH15EA-1X/SUP1- 4 8 / 7 / 26
R901099723		IH15EA-1X/SUP1-PG24/350/V

4	Designation of the 2/2 seat valve	Normally closed Normally open		= N = P
7	Pressure rating of the seat valve	$p_{\max}$ $p_{\max}$	= 350 bar = 500 bar	= 350 = 500
8	Solenoid voltage of the seat valves	Volt	24 V DC	= G24
26	Seal	Seal material	FKM	= V

Seat valve module, type "S" (dimensions in mm)

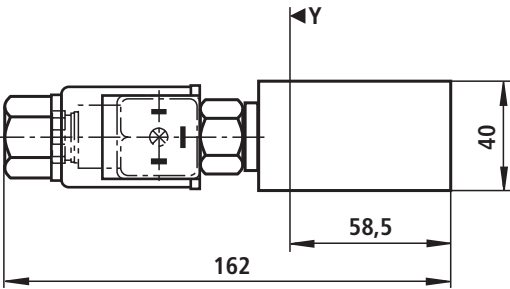
Module P, type "SP"

Symbol



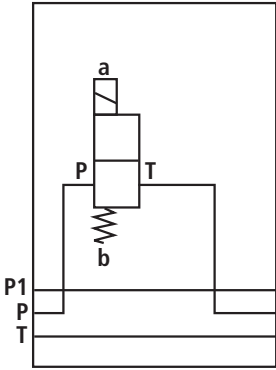
Dimensions

Dimension Z = 45 mm



Module P with P1 channel, type "SPP1"

Symbol



Material no.	Device designation	Type designation
	Module SP	IH15EA-1X/SP- ⁴ ⁸ / ⁷ / ²⁶
R900993536		IH15EA-1X/SP-NG24/350/V
R904101690		IH15EA-1X/SP-NG24/500/V
R904100795		IH15EA-1X/SP-PG24/350/V
R904101683		IH15EA-1X/SP-PG24/500/V

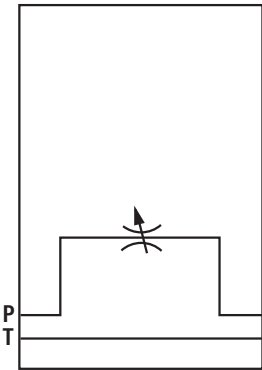
Material no.	Device designation	Type designation
	Module SP with P1 channel	IH15EA-1X/SPP1- ⁴ ⁸ / ⁷ / ²⁶
R904102280		IH15EA-1X/SPP1-PG24/350/V

⁴	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
⁷	Pressure rating of the seat valve	$p_{\max}$ $p_{\max}$	= 350 bar = 500 bar = 350 = 500
⁸	Solenoid voltage of the seat valves	Volt	24 V DC = G24
²⁶	Seal	Seal material	FKM = V

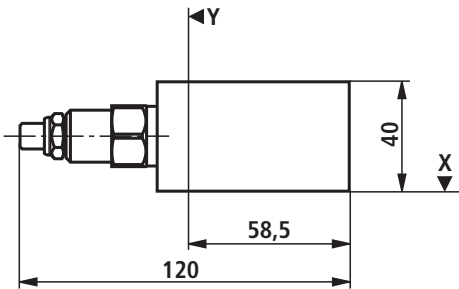
Seat valve module, type "S" (dimensions in mm)

Module P with throttle valve, type "SPDV"
($p_{\max}$ = 350 bar)

Symbol

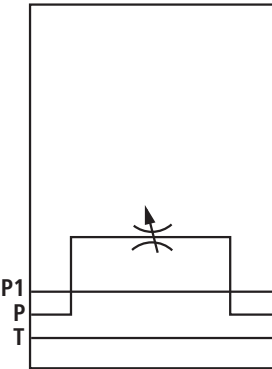


Dimensions Dimension Z = 45 mm



Module P with throttle valve and P1 channel, type "SPDVP1"
($p_{\max}$ = 350 bar)

Symbol



Material no.	Device designation	Type designation
	Module SPDV	IH15EA-1X/SPDV- ²⁶
R901189446		IH15EA-1X/SPDV-V

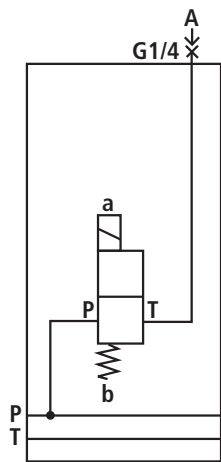
Material no.	Device designation	Type designation
	Module SPDV with P1 channel	IH15EA-1X/SPDVP1- ²⁶
R901266878		IH15EA-1X/SPDVP1- V

²⁶ Seal	Seal material	FKM	= V
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Seat valve module, type "S" (dimensions in mm)

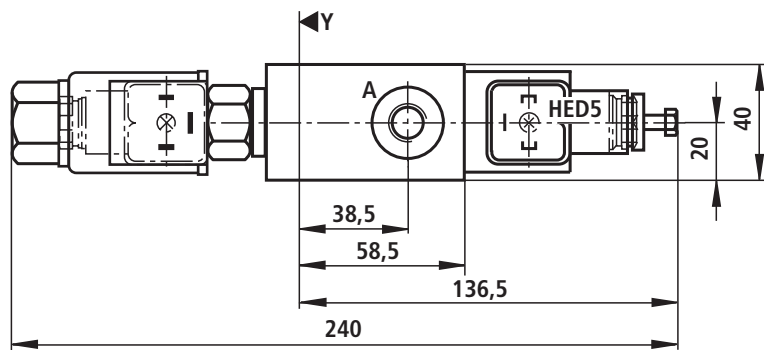
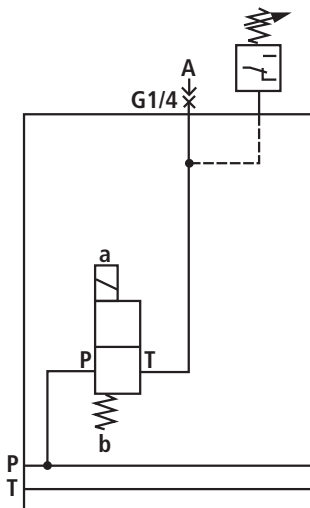
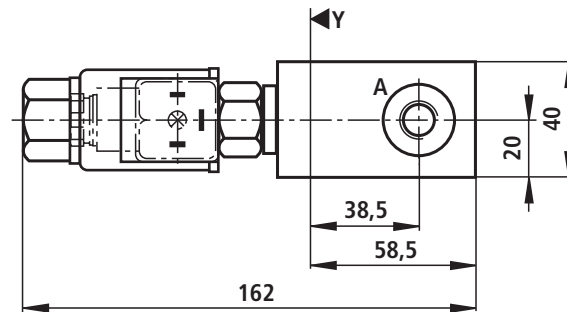
Module SPA2, type "SPA2"

Symbol



Dimensions

Dimension Z = 45 mm



Seat valve module, type "S" (dimensions in mm)

Material no.	Device designation	Type designation
	Module SPA2	IH15EA-1X/SPA2- ⁴ ¹⁰ / ¹² ⁸ / ⁷ / ²⁶
R904101492		IH15EA-1X/SPA2-N/G24/350/V
R900242502		IH15EA-1X/SPA2-N/G24/500/V
R904101491		IH15EA-1X/SPA2-NHED5/100G24/V
R900992210		IH15EA-1X/SPA2-P/G24/350/V
R901063412		IH15EA-1X/SPA2-P/G24/500/V
R901231102		IH15EA-1X/SPA2-PHED5/200G24/V

⁴ 	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
⁷ 	Pressure rating of the seat valve	$p_{\max}$ $p_{\max}$	= 350 bar = 500 bar = 350 ¹⁾ = 500 ^{1, 2)}
⁸ 	Solenoid voltage of the seat valves	Volt	24 V DC = G24
¹⁰ 	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HEDE 10 A1-2X/...K41...2	= no code = HED 5 = HEDE 10
¹² 	Pressure rating of the pressure switch	Without pressure switch Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure	50 bar 100 bar 200 bar 350 bar 630 bar = no code = 50 = 100 = 200 = 350 = 630 ²⁾
²⁶ 	Seal	Seal material	FKM = V

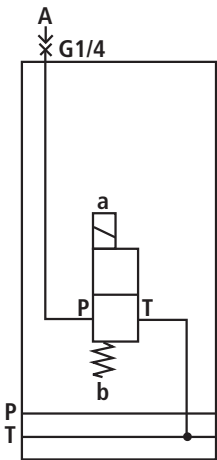
¹⁾ Indication is only necessary if the module is not equipped with a pressure switch.

²⁾ Not possible with HED 5

Seat valve module, type "S" (dimensions in mm)

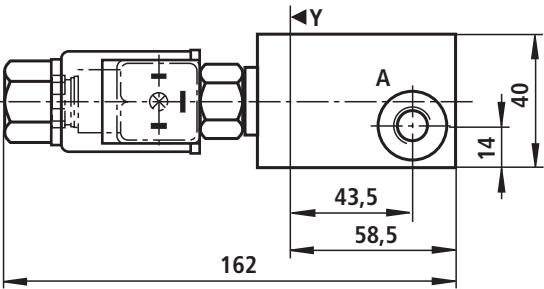
Module A – T, type "SAT2"

Symbol



Dimensions

Dimension Z = 45 mm



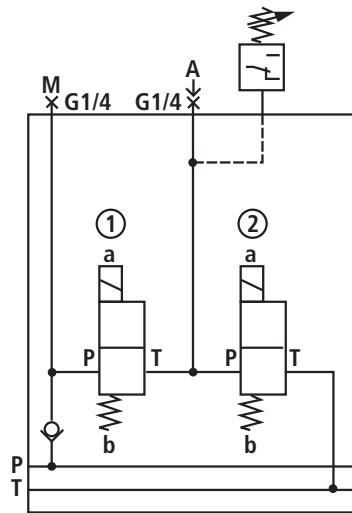
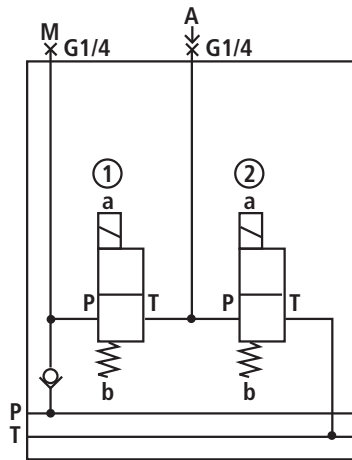
Material no.	Device designation	Type designation
	Module SAT2	IH15EA-1X/SAT2- 4 8 / 7 / 26
R904100867		IH15EA-1X/SAT2-NG24/350/V
R901063391		IH15EA-1X/SAT2-NG24/500/V
R901065613		IH15EA-1X/SAT2-PG24/350/V
R901063388		IH15EA-1X/SAT2-PG24/500/V

4	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
7	Pressure rating of the seat valve	$p_{\max}$ $p_{\max}$	= 350 bar = 500 bar = 350 = 500
8	Solenoid voltage of the seat valves	Volt	24 V DC = G24
26	Seal	Seal material	FKM = V

Seat valve module, type "S" (dimensions in mm)

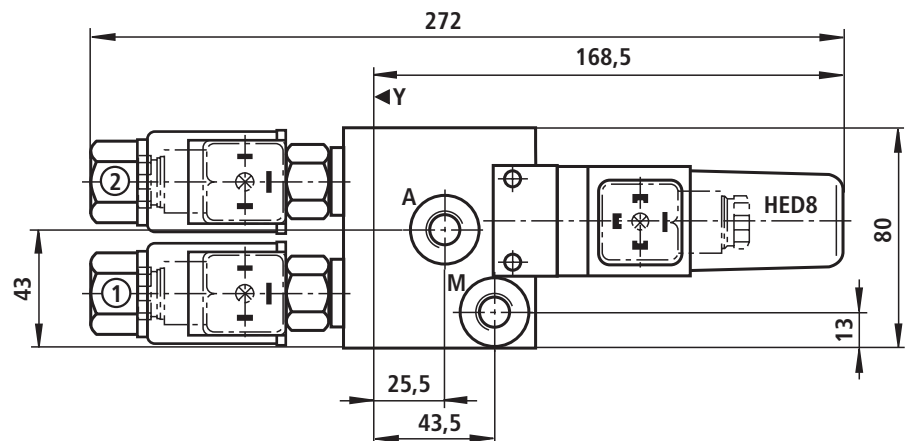
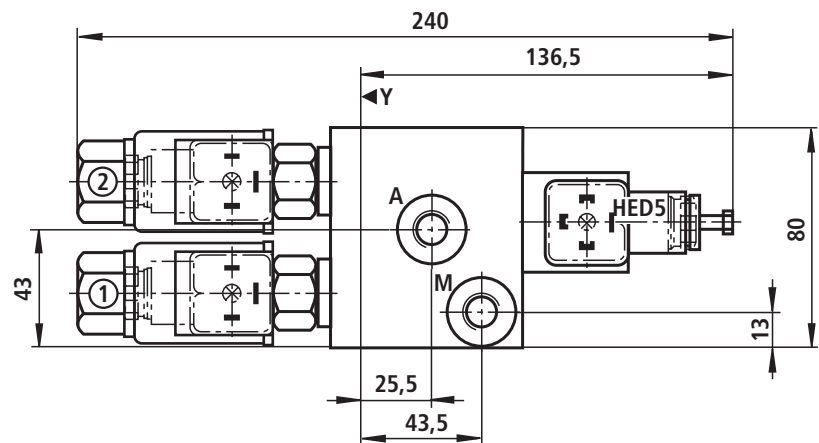
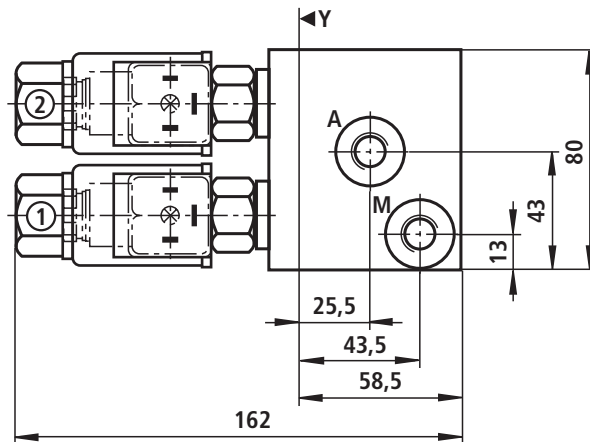
Module P – A – T, type "SPAT2"

Symbol



Dimensions

Dimension Z = 45 mm



Seat valve module, type "S" (dimensions in mm)

Material no.	Device designation	Type designation
	Module SPAT2	IH15EA-1X/SPAT2- 4 11 12 14 8 7 26
R900334895		IH15EA-1X/SPAT2-N/OG24/350/V
R900242500		IH15EA-1X/SPAT2-N/OG24/500/V
R901231122		IH15EA-1X/SPAT2-NHED5/200/MG24/V
R901231121		IH15EA-1X/SPAT2-NHED5/200/OG24/V
R901231125		IH15EA-1X/SPAT2-PHED5/200/OG24/V

4	Designation of the 2/2 seat valve	Normally closed		= N
☐		Normally open		= P
7	Pressure rating of the seat valve	$p_{\max}$	= 350 bar	= 350 ¹⁾
☐		$p_{\max}$	= 500 bar	= 500 ^{1, 2)}
8	Solenoid voltage of the seat valves	Volt	24 V DC	= G24
☐				
11	Pressure switch	Without pressure switch		= no code
☐		HED 5 OH-3X/...K14		= HED5
		HED 8 OP-2X/...K14		= HED8
		HEDE 10 A1-2X/...K41...2		= HEDE 10
12	Pressure rating of the pressure switch	Without pressure switch		= no code
☐		Max. setting pressure	50 bar	= 50
		Max. setting pressure	100 bar	= 100
		Max. setting pressure	200 bar	= 200
		Max. setting pressure	350 bar	= 350
		Max. setting pressure	630 bar	= 630 ²⁾
14	Pressure monitoring	With pressure gauge size 63		= D
☐		With measuring port		= M
		Without pressure monitoring		= O
26	Seal	Seal material	FKM	= V
☐				

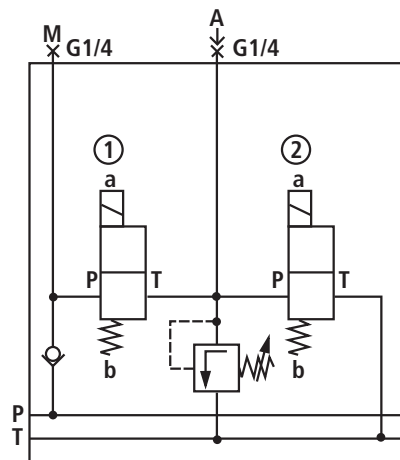
¹⁾ Indication is only necessary if the module is not equipped with a pressure switch.

²⁾ Not possible with HED 5

Seat valve module, type "S" (dimensions in mm)

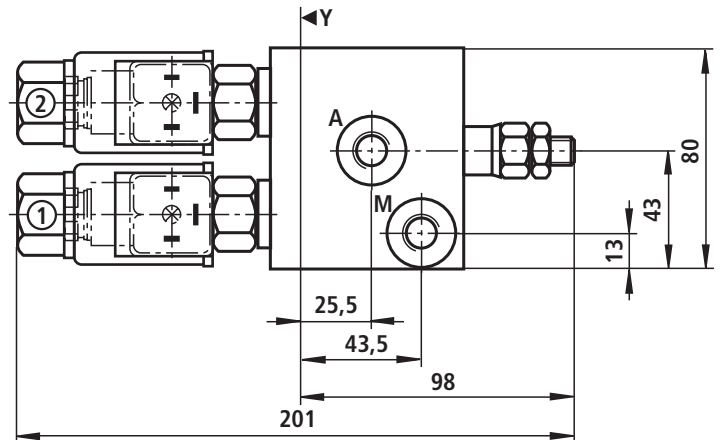
Module P – A – T with pressure relief valve, type "SPAT2DB"

Symbol



Dimensions

Dimension Z = 45 mm



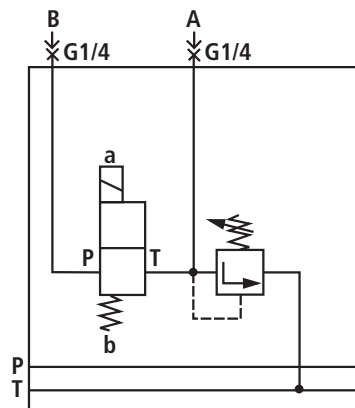
Material no.	Device designation	Type designation
	Module SPAT2DB	IH15EA-1X/SPAT2DB- / /
R900608552		IH15EA-1X/SPAT2DB-S 50/MPG24/V
R904100980		IH15EA-1X/SPAT2DB-S100/MNG24/V
R900992144		IH15EA-1X/SPAT2DB-S200/OPG24/V

	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob	= S = H
	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 200 bar 350 bar 500 bar = 50 = 100 = 200 = 350 = 500
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!			
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar 250 bar 400 bar 500 bar = 210E = 250E = 400E = 500E
Characteristic curve for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC			See page 85
	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
	Solenoid voltage of the seat valves	Volt	24 V DC = G24
	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
	Seal	Seal material	FKM = V

Seat valve module, type "S" (dimensions in mm)

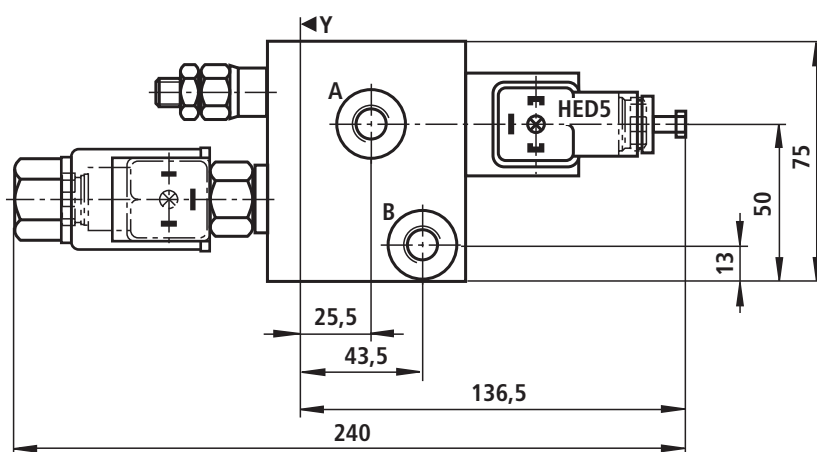
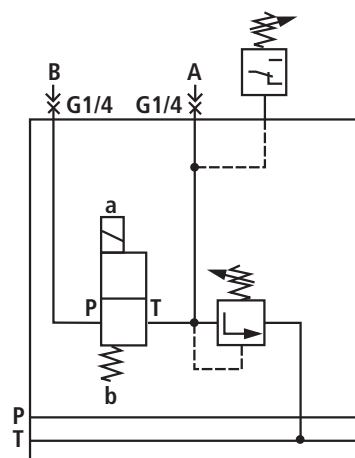
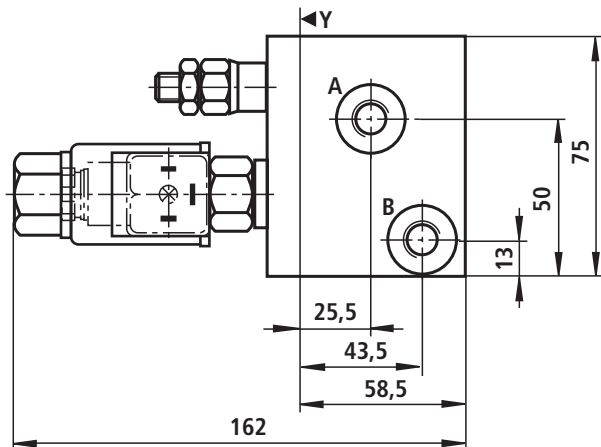
Module B – A – T with pressure relief valve, type "SBAT2DB"

Symbol



Dimensions

Dimension Z = 45 mm



Seat valve module, type "S"

Material no.	Device designation	Type designation
	Module SBAT2DB	IH15EA-1X/SBAT2DB- ¹ ² / ⁴ / ¹⁰ ⁸ / ²⁶
R900717193		IH15EA-1X/SBAT2DB-S100/N/G24/V
R900992145		IH15EA-1X/SBAT2DB-S200/P/HED5G24/V

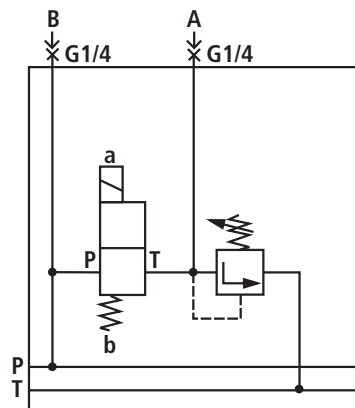
¹	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob		= S = H
²	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 200 bar 350 bar 500 bar	= 50 = 100 = 200 = 350 = 500 ¹⁾
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!				
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar 250 bar 400 bar 500 bar	= 210E = 250E = 400E ¹⁾ = 500E ¹⁾
Characteristic curve for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC				See page 85
⁴	Designation of the 2/2 seat valve	Normally closed Normally open		= N = P
⁸	Solenoid voltage of the seat valves	Volt	24 V DC	= G24
¹⁰	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HEDE 10 A1-2X/...K41...2		= no code = HED 5 = HEDE 10
²⁶	Seal	Seal material	FKM	= V

¹⁾ Not possible with HED 5

Seat valve module, type "S" (dimensions in mm)

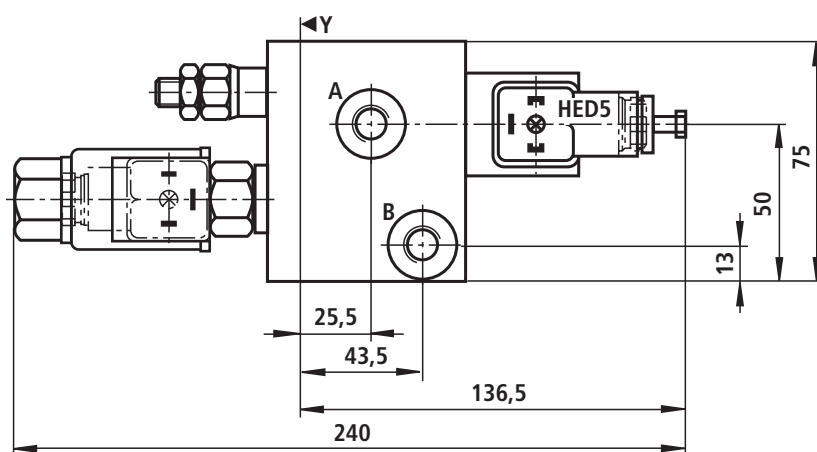
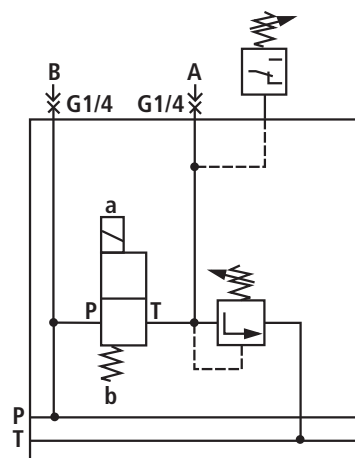
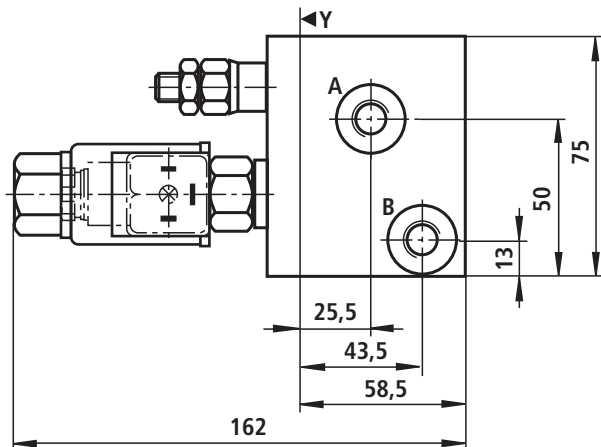
Module P – B – A – T with pressure relief valve, type "SPBAT2DB"

Symbol



Dimensions

Dimension Z = 45 mm



Seat valve module, type "S"

Material no.	Device designation	Type designation
	Module SPBAT2DB	IH15EA-1X/SPBAT2DB- ¹ ² / ⁴ / ¹⁰ ⁸ / ²⁶
R904100985		IH15EA-1X/SPBAT2DB-S100/N/G24/V
R901072232		IH15EA-1X/SPBAT2DB-S200/N/G24/V
R901072233		IH15EA-1X/SPBAT2DB-S350/N/G24/V
R904100172		IH15EA-1X/SPBAT2DB-S 50/N/HED5/G24/V

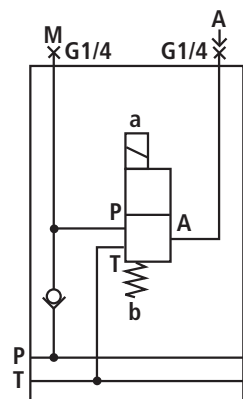
¹ 	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob		= S = H
² 	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 200 bar 350 bar 500 bar	= 50 = 100 = 200 = 350 = 500 ¹⁾
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!				
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar 250 bar 400 bar 500 bar	= 210E = 250E = 400E ¹⁾ = 500E ¹⁾
Characteristic curve for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC				See page 85
⁴ 	Designation of the 2/2 seat valve	Normally closed Normally open		= N = P
⁸ 	Solenoid voltage of the seat valves	Volt	24 V DC	= G24
¹⁰ 	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HEDE 10 A1-2X/...K41...2		= no code = HED 5 = HEDE 10
²⁶ 	Seal	Seal material	FKM	= V

¹⁾ Not possible with HED 5

Seat valve module, type "S" (dimensions in mm)

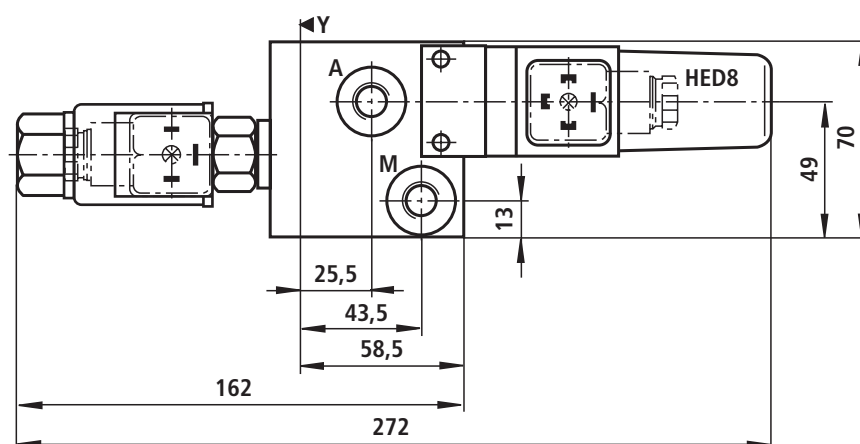
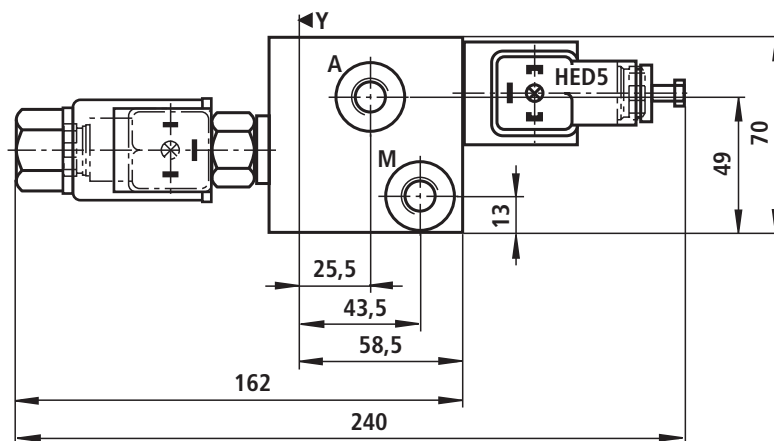
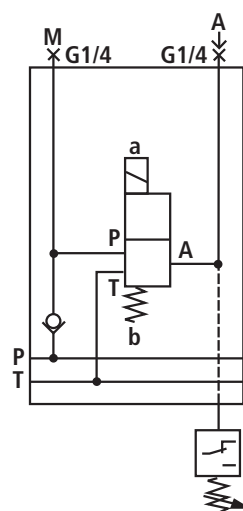
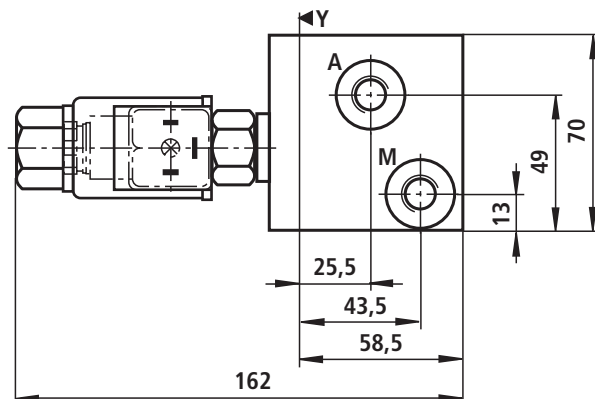
Module P – A, type "SPA3"

Symbol



Dimensions

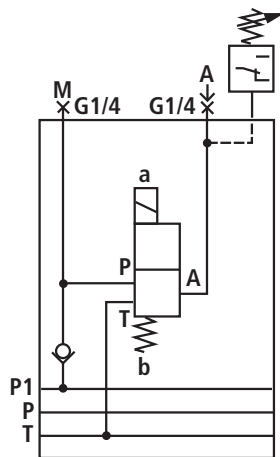
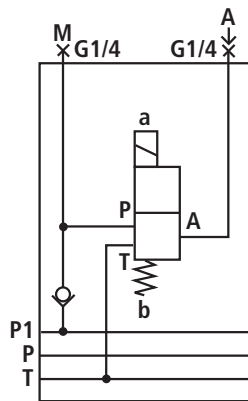
Dimension Z = 45 mm



Seat valve module, type "S"

Module P – A with P1 channel, type "SPA3P1"

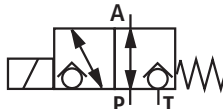
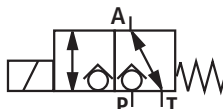
Symbol



Seat valve module, type "S"

Material no.	Device designation	Type designation
	Module SPA3	IH15EA-1X/SPA3- 5 11 12 14 8 7 26
R900993540		IH15EA-1X/SPA3-C/MG24/350/V
R904100943		IH15EA-1X/SPA3-CHED5/350/MG24/V
R900993541		IH15EA-1X/SPA3-U/MG24/350/V
R900719081		IH15EA-1X/SPA3-UHED5/350/MG24/V

Material no.	Device designation	Type designation
	Module SPA3P1	IH15EA-1X/SPA3P1- 5 11 12 14 8 7 26
R904101002		IH15EA-1X/SPA3P1-C/MG24/350/V
R904100789		IH15EA-1X/SPA3P1-CHED5/100/OG24/V
R901100035		IH15EA-1X/SPA3P1-U/MG24/350/V
R904100879		IH15EA-1X/SPA3P1-UHED5/100/OG24/V

5	Designation of the 3/2 seat valve			= U
				= C
7	Pressure rating of the seat valve	$p_{\max}$ $p_{\max}$	= 350 bar = 500 bar	= 350 ¹⁾ = 500 ^{1, 2)}
8	Solenoid voltage of the seat valves	Volt	24 V DC	= G24
11	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HED 8 OP-2X/...K14 HEDE 10 A1-2X/...K41...2		= no code = HED 5 = HED 8 = HEDE 10
12	Pressure rating of the pressure switch	Without pressure switch Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure	50 bar 100 bar 200 bar 350 bar 630 bar	= no code = 50 = 100 = 200 = 350 = 630 ²⁾
14	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring		= D = M = O
26	Seal	Seal material	FKM	= V

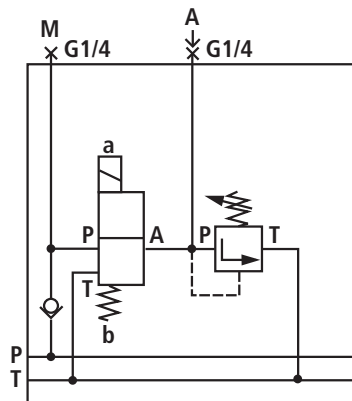
¹⁾ Indication is only necessary if the module is not equipped with a pressure switch.

²⁾ Not possible with HED 5

Seat valve module, type "S" (dimensions in mm)

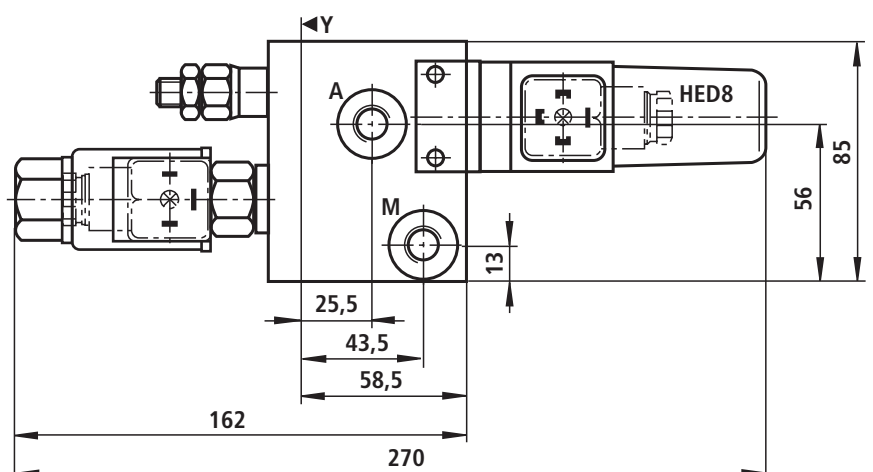
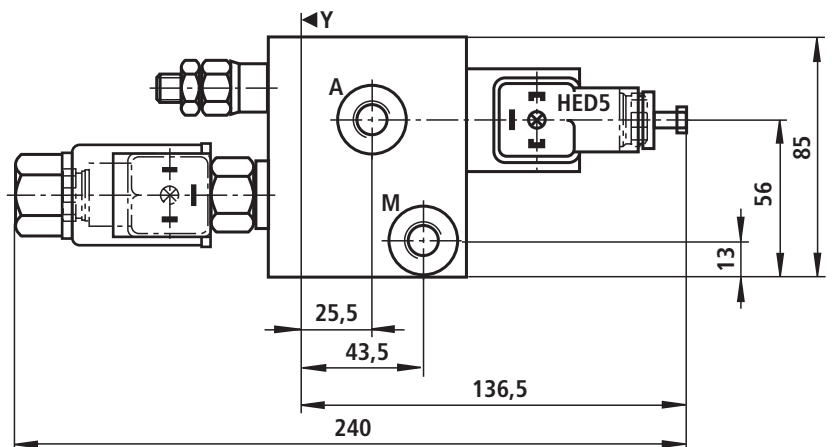
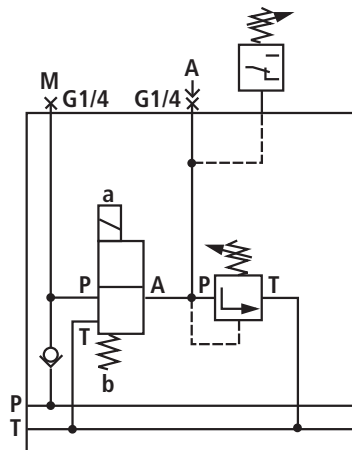
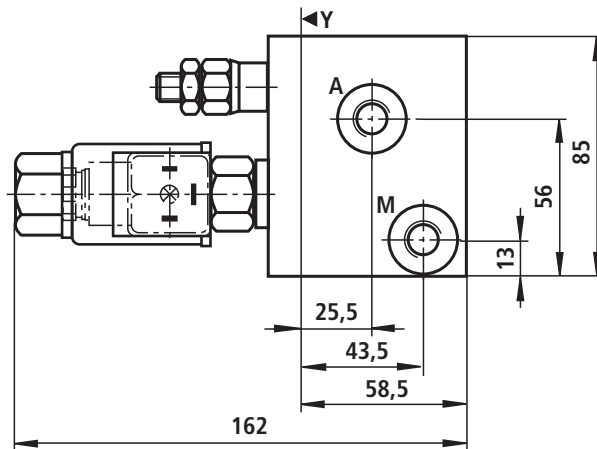
Module P – A – T with pressure relief valve, type "SPAT3DB"

Symbol



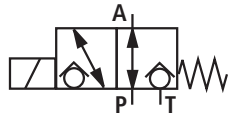
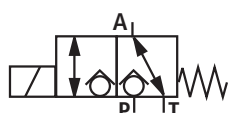
Dimensions

Dimension Z = 45 mm



Seat valve module, type "S"

Material no.	Device designation	Type designation
	Module SPAT3DB	IH15EA-1X/SPAT3DB- 1 2 5 11 14 8 26
R904101659		IH15EA-1X/SPAT3DB-S200CHED5/DG24/V
R901063501		IH15EA-1X/SPAT3DB-S200CHED5/MG24/V
R901100755		IH15EA-1X/SPAT3DB-S200CHED5/OG24/V

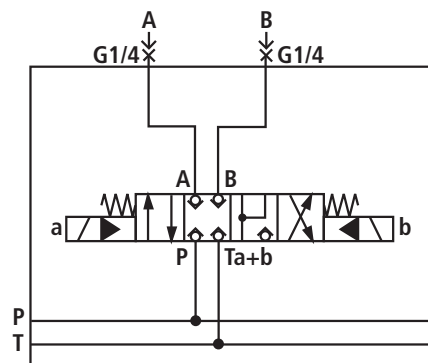
1	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob		= S = H
2	Pressure rating of the pressure relief valve	Setting pressure up to max.	50 bar	= 50
		Setting pressure up to max.	100 bar	= 100
		Setting pressure up to max.	200 bar	= 200
		Setting pressure up to max.	350 bar	= 350
		Setting pressure up to max.	500 bar	= 500 ¹⁾
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!				
		Setting pressure up to max.	210 bar	= 210E
		Setting pressure up to max.	250 bar	= 250E
		Setting pressure up to max.	400 bar	= 400E ¹⁾
		Setting pressure up to max.	500 bar	= 500E ¹⁾
Characteristic curve for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC				See page 85
5	Designation of the 3/2 seat valve			= U
				= C
8	Solenoid voltage of the seat valves	Volt	24 V DC	= G24
11	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HED 8 OP-2X/...K14 HEDE 10 A1-2X/...K41...2		= no code = HED 5 = HED 8 = HEDE 10
14	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring		= D = M = O
26	Seal	Seal material	FKM	= V

¹⁾ Not possible with HED 5

Seat valve module, type "S" (dimensions in mm)

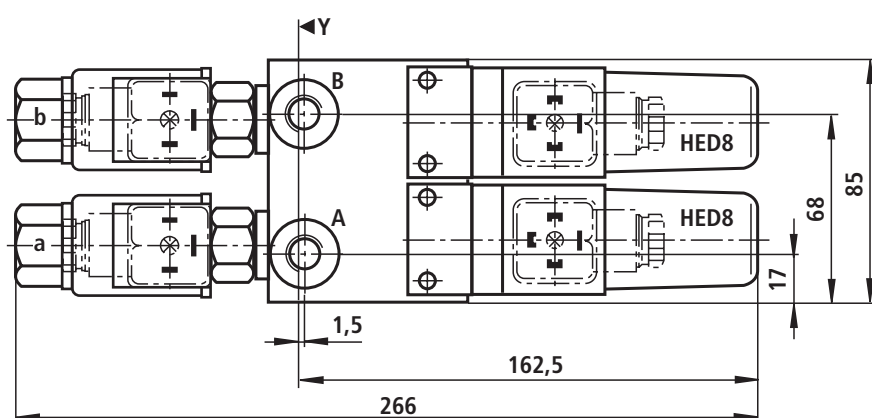
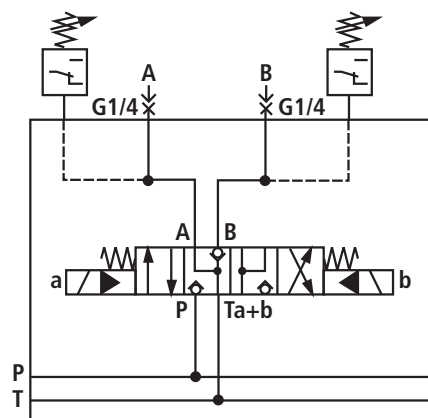
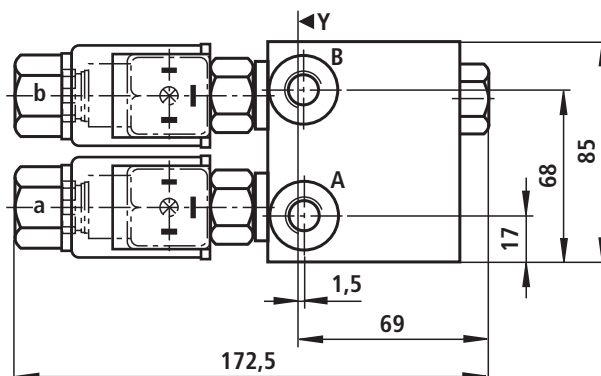
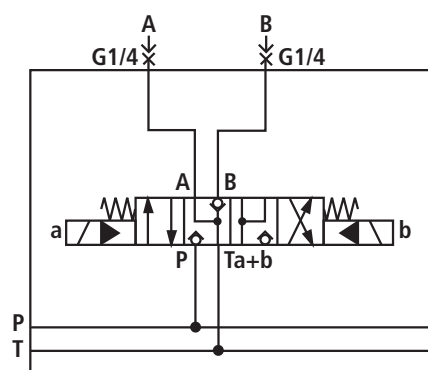
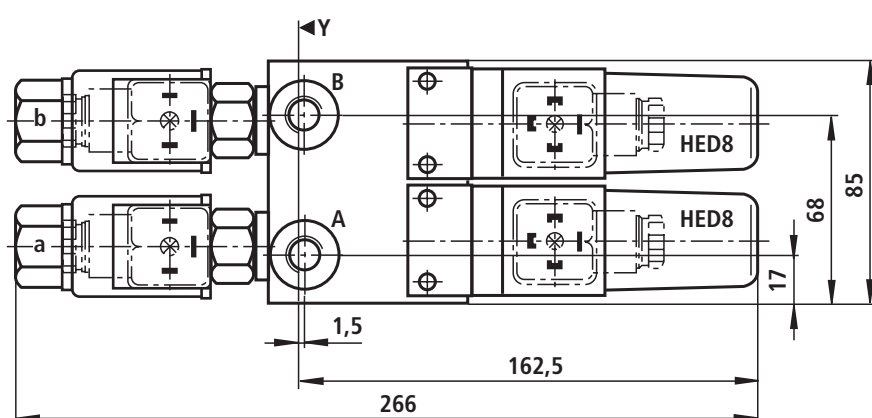
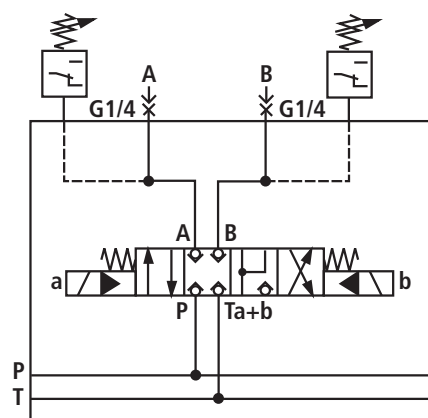
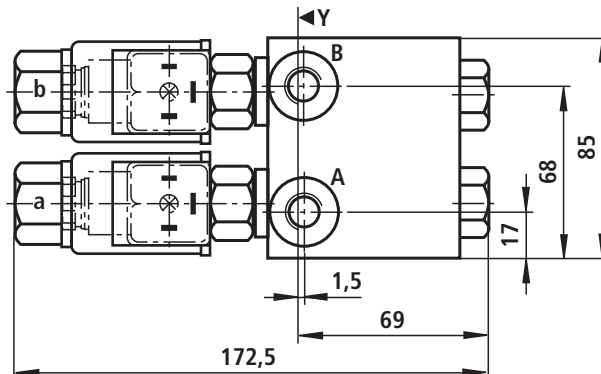
Module AB, type "SAB4"

Symbol



Dimensions

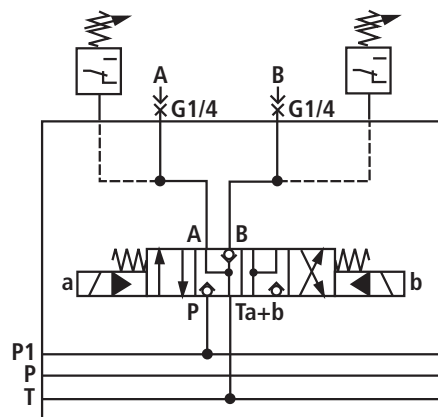
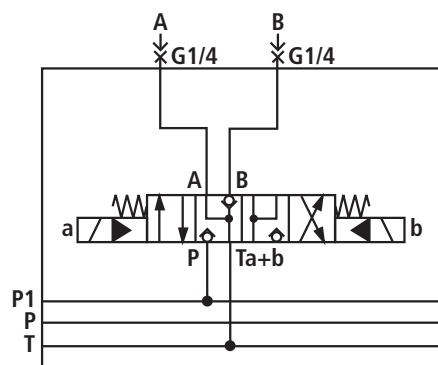
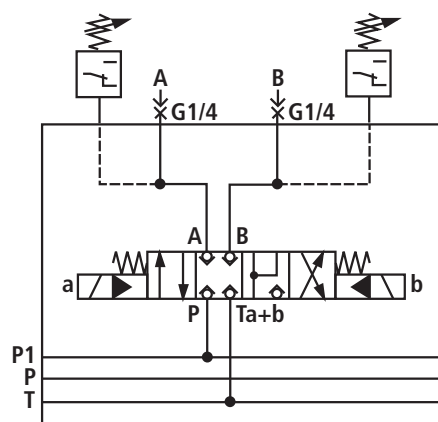
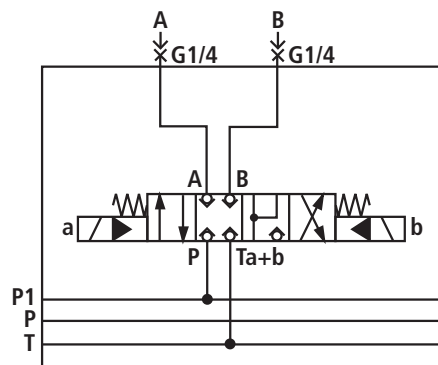
Dimension Z = 70 mm



Seat valve module, type "S"

Module AB with P1 channel, type "SAB4P1"

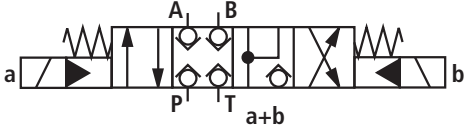
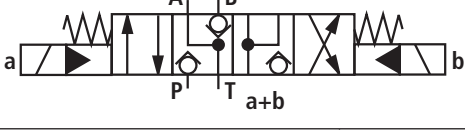
Symbol



Seat valve module, type "S"

Material no.	Device designation	Type designation
	Module SAB4	IH15EA-1X/SAB4- ⁶ ¹³ / ¹² / ⁸ / ⁷ / ²⁶
R900717196		IH15EA-1X/SAB4-KA/350/G24/V
R904100708		IH15EA-1X/SAB4-KAB/200/G24/V
R904101412		IH15EA-1X/SAB4-LG24/500/V
R901102715		IH15EA-1X/SAB4-LAB/200/G24/V

Material no.	Device designation	Type designation
	Module SAB4 with P1 channel	IH15EA-1X/SAB4P1- ⁶ ¹³ / ¹² / ⁸ / ⁷ / ²⁶
R900718647		IH15EA-1X/SAB4P1-KG24/350/V
R901102732		IH15EA-1X/SAB4P1-KAB/200/G24/V
R901102733		IH15EA-1X/SAB4P1-LG24/500/V
R901102734		IH15EA-1X/SAB4P1-LAB/200/G24/V

⁶ Designation of the 4/4 seat valve			= K
			= L
⁷ Pressure rating of the seat valve	$p_{\max}$ $p_{\max}$	= 350 bar = 500 bar	= 350 ¹⁾ = 500 ^{1, 2)}
⁸ Solenoid voltage of the seat valves	Volt	24 V DC	= G24
¹² Pressure rating of the pressure switch	Without pressure switch Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure	50 bar 100 bar 200 bar 350 bar 630 bar	= no code = 50 = 100 = 200 = 350 = 630 ²⁾
¹³ Pressure switch in the channel	Without pressure switch A B A and B		= no code = A = B = AB
²⁶ Seal	Seal material	FKM	= V

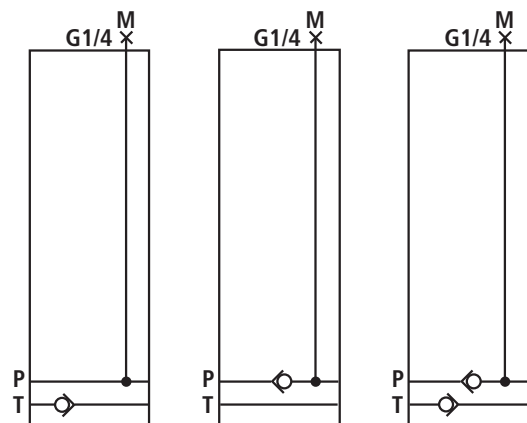
¹⁾ Indication is only necessary if the module is not equipped with a pressure switch.

²⁾ Not possible with HED 5

Seat valve module, type "S" (dimensions in mm)

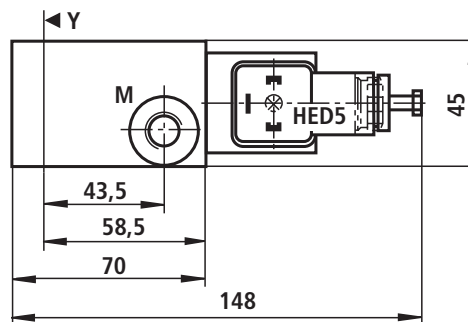
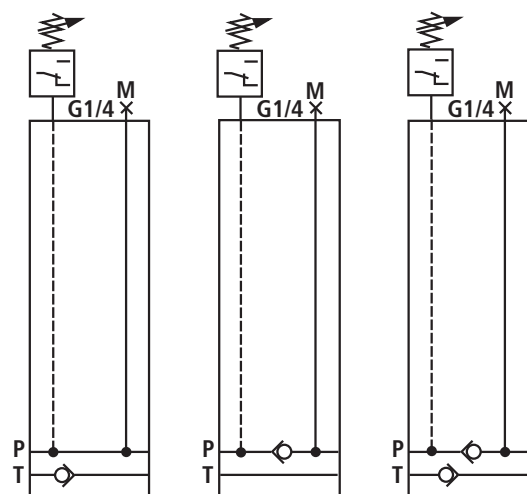
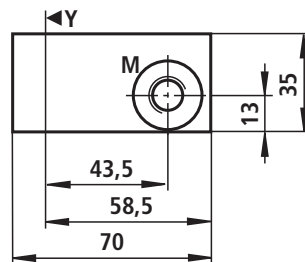
Module with check valve, type "SR"

Symbol



Dimensions

Dimension Z = 45 mm



Seat valve module, type "S"

Material no.	Device designation	Type designation
	Module with check valve	IH15EA-1X/SR- ²¹ ☐ / ¹¹ ☐ / ¹² ☐ / ¹⁴ ☐ / ¹⁵ ☐ / ²⁶ ☐
R904100056		IH15EA-1X/SR-PT/O/V
R901102735		IH15EA-1X/SR-PT/M/V
R901093516		IH15EA-1X/SR-P/M/V
R901231134		IH15EA-1X/SR-P/HED5/200/O/V
R900618480		IH15EA-1X/SR-P/O/V
R901091505		IH15EA-1X/SR-T/HED5/630/O/V
R904101786		IH15EA-1X/SR-T/M/V
R904100046		IH15EA-1X/SR-T/O/V

¹¹ ☐	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HED 8 OP-2X/...K14 HEDE 10 A1-2X/...K41...2	= no code = HED 5 = HED 8 = HEDE 10
¹² ☐	Pressure rating of the pressure switch	Without pressure switch Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure	= no code = 50 = 100 = 200 = 350 = 630 ²⁾
¹⁴ ☐	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
¹⁵ ☐	Max. pressure range of the pressure gauge	Without pressure monitoring Display range Display range Display range Display range Display range	= no code = 60 ¹⁾ = 100 ¹⁾ = 250 ¹⁾ = 400 ^{1, 2)} = 600 ^{1, 2)}
²¹ ☐	Check valve	In channel P In channel T In channel P and T	= P = T = PT
²⁶ ☐	Seal	Seal material	FKM = V

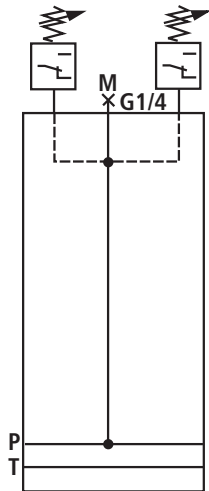
¹⁾ Indication is only necessary if the module is not equipped with a pressure switch.

²⁾ Not possible with HED 5

Seat valve module, type "S" (dimensions in mm)

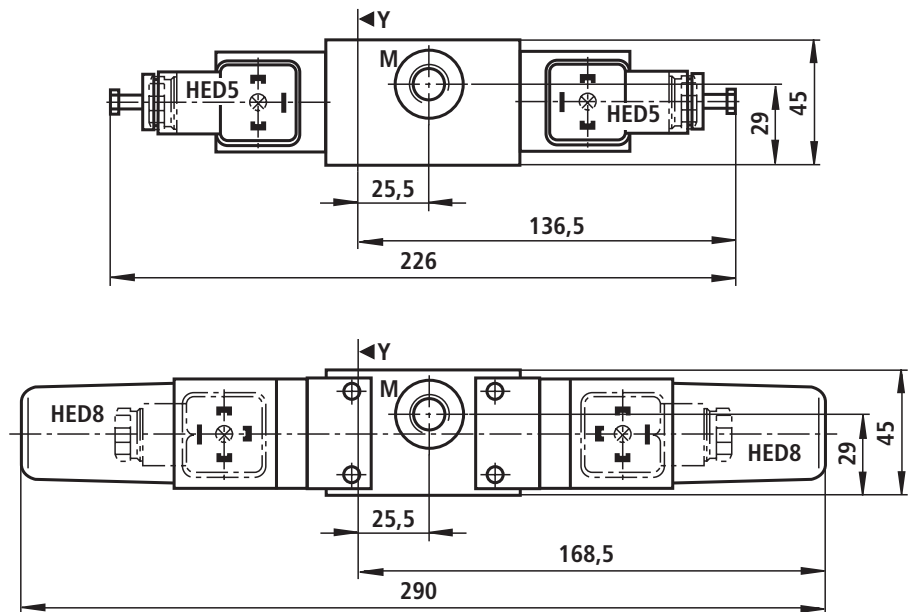
Module with pressure switch, type "SD"

Symbol



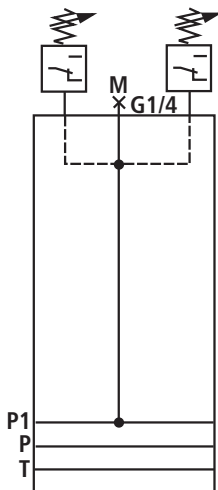
Dimensions

Dimension Z = 45 mm



Module with pressure switch, type "SDP1"

Symbol



Seat valve module, type "S"

Material no.	Device designation	Type designation
	Module with pressure switch	IH15MA-1X/SD- ⁹ ¹¹ / ¹² / ¹⁴ / ¹⁵ / ²⁶
R900335708		IH15MA-1X/SD-0/D100/V
R904100532		IH15MA-1X/SD-1HED5/100/D/V
R901231137		IH15MA-1X/SD-1HED5/200/D/V
R901231136		IH15MA-1X/SD-1HED5/200/M/V
R901231135		IH15MA-1X/SD-1HED5/200/O/V
R904100082		IH15MA-1X/SD-1HED8/200/D/V
R901231143		IH15MA-1X/SD-2HED5/200/D/V
R901231142		IH15MA-1X/SD-2HED5/200/O/V
R904100536		IH15MA-1X/SD-2HED8/200/O/V

Material no.	Device designation	Type designation
	Module with pressure switch	IH15MA-1X/SDP1- ⁹ ¹¹ / ¹² / ¹⁴ / ¹⁵ / ²⁶
R901103711		IH15MA-1X/SDP1-1HED5/100/D/V

9 	Number of pressure switches	Without pressure switch One pressure switch Two pressure switches		= 0 = 1 = 2
11 	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HED 8 OP-2X/...K14 HEDE 10 A1-2X/...K41...2		= no code = HED 5 = HED 8 = HEDE 10
12 	Pressure rating of the pressure switch	Without pressure switch Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure	50 bar 100 bar 200 bar 350 bar 630 bar	= no code = 50 = 100 = 200 = 350 = 630 ²⁾
14 	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring		= D = M = O
15 	Max. pressure range of the pressure gauge	Without pressure monitoring Display range Display range Display range Display range Display range	60 bar 100 bar 250 bar 400 bar 600 bar	= no code = 60 ¹⁾ = 100 ¹⁾ = 250 ¹⁾ = 400 ^{1, 2)} = 600 ^{1, 2)}
26 	Seal	Seal material	FKM	= V

¹⁾ Indication is only necessary if the module is not equipped with a pressure switch.

²⁾ Not possible with HED 5

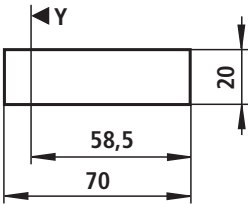
Seat valve module, type "S" (dimensions in mm)

Sandwich module with P1 channel, type "SZP1"

Symbol



Dimensions



Dimension Z = 45 mm

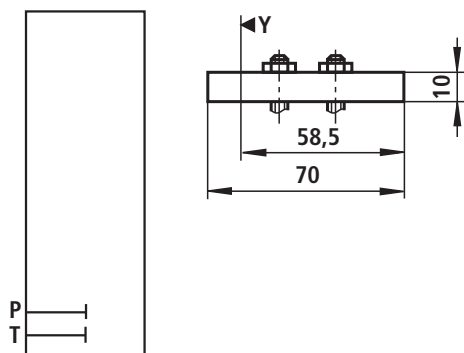
Material no.	Device designation	Type designation
	Sandwich module with P1 channel interruption	IH15MA-1X/SZP1- ²⁶
R901103710		IH15MA-1X/SZP1-V

²⁶ Seal	Seal material	FKM	= V
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Seat valve module, type "S" (dimensions in mm)

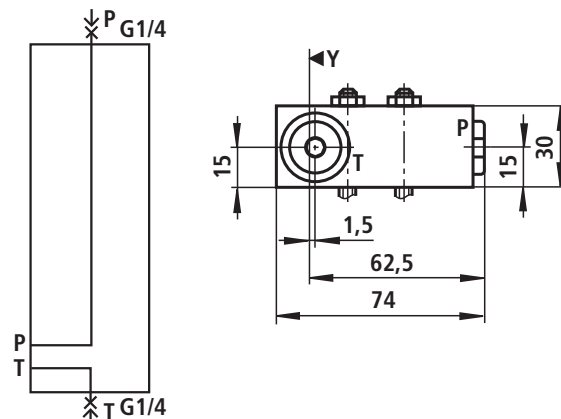
End module, type "WSE"

Symbol Dimensions Dimension Z = 45 mm



with port P and T, laterally

Symbol Dimensions Dimension Z = 45 mm



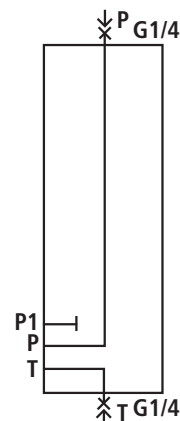
End module with P1 channel, type "WSEP1"

Symbol



with port P and T, laterally

Symbol



Material no.	Device designation	Type designation
	End module	IH15MA-1X/WSE- 22 / 26
R900334850		IH15MA-1X/WSE-PT/V
R900992158		IH15MA-1X/WSE-V

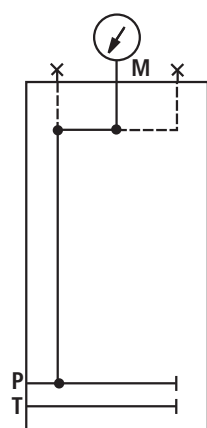
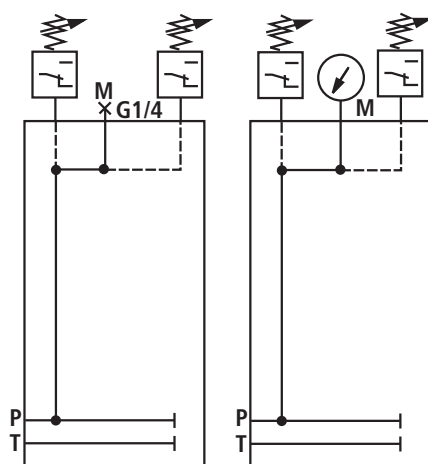
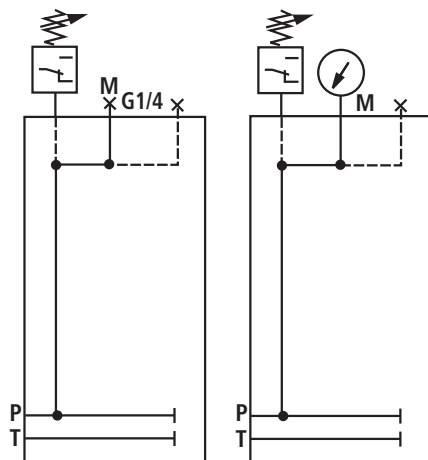
Material no.	Device designation	Type designation
	End module with P1 channel	IH15MA-1X/WSEP1- 22 / 26
R904101255		IH15MA-1X/WSEP1-V

22 Ports	Without ports P and T	G 1/4	= no code = PT
26 Seal	Seal material	FKM	= V

Seat valve module, type "S" (dimensions in mm)

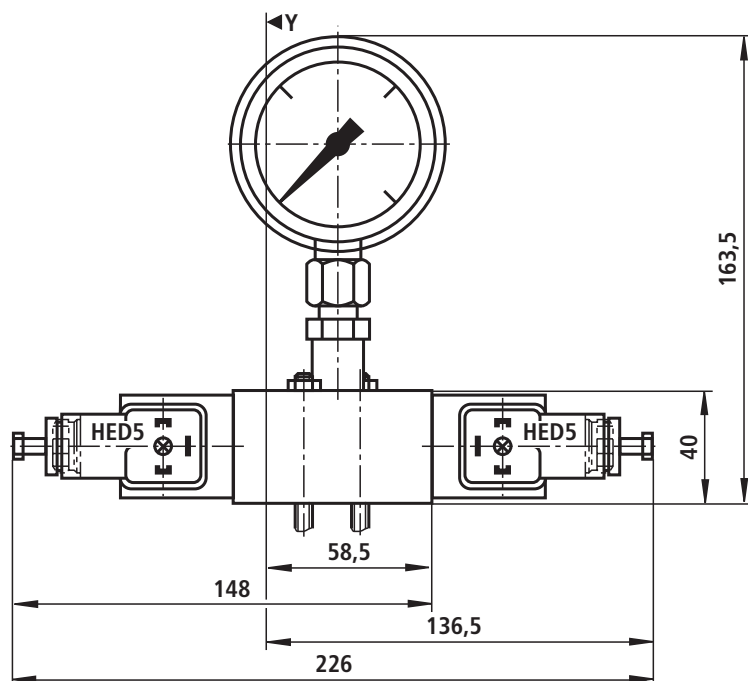
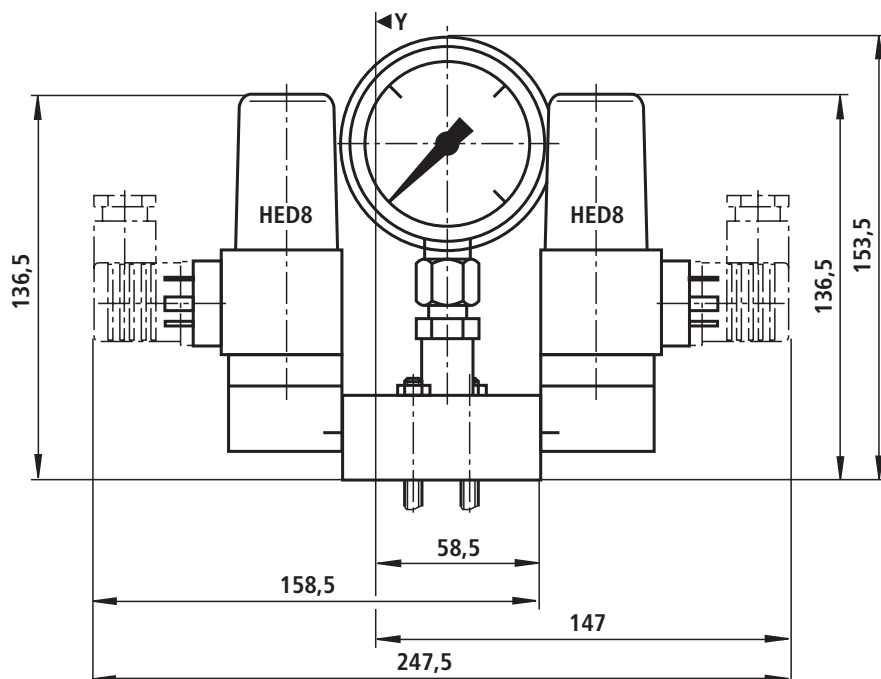
End module with pressure switch, type "WSED"

Symbol



Dimensions

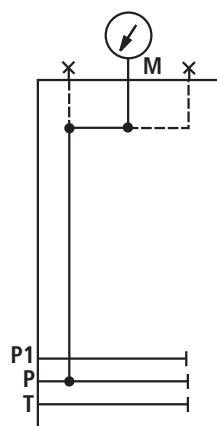
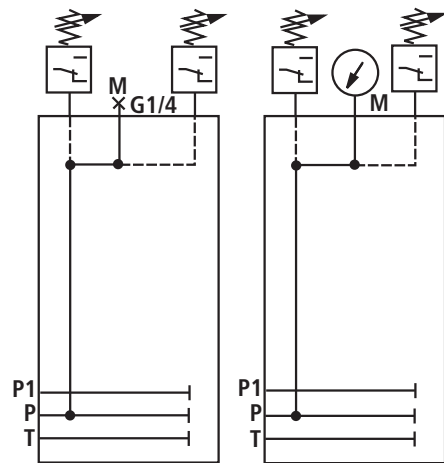
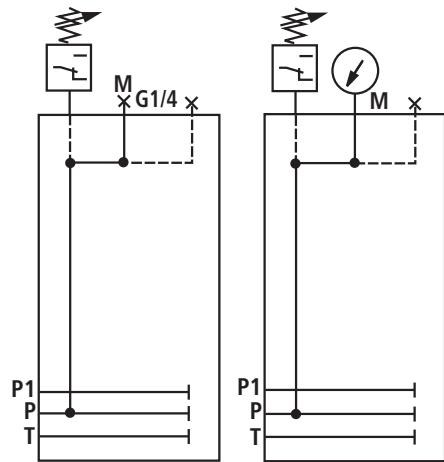
Dimension Z = 45 mm



Seat valve module, type "S"

End module with pressure switch and P1 channel, type "WSEDP1"

Symbol



Seat valve module, type "S"

Material no.	Device designation	Type designation
	End module with pressure switch	IH15MA-1X/WSED- ⁹ ¹¹ / ¹² / ¹⁴ / ¹⁵ / ²⁶
R900260936		IH15MA-1X/WSED-0/D100/V
R900991530		IH15MA-1X/WSED-0/D250/V
R900260993		IH15MA-1X/WSED-0/D400/V
R904100142		IH15MA-1X/WSED-0/D600/V
R900334886		IH15MA-1X/WSED-1HED5/350/D/V
R904100035		IH15MA-1X/WSED-1HED5/350/O/V
R900701320		IH15MA-1X/WSED-1HED8/350/D/V
R900703207		IH15MA-1X/WSED-1HED8/350/O/V
R900706818		IH15MA-1X/WSED-2HED5/350/D/V
R900702052		IH15MA-1X/WSED-2HED8/350/D/V

Material no.	Device designation	Type designation
	End module with pressure switch and P1 channel	IH15MA-1X/WSEDP1- ⁹ ¹¹ / ¹² / ¹⁴ / ¹⁵ / ²⁶
R904100559		IH15MA-1X/WSEDP1-0/D/400/V
R904100786		IH15MA-1X/WSEDP1-2HED5/210/D/V

9 	Number of pressure switches	Without pressure switch One pressure switch Two pressure switches		= 0 = 1 = 2
11 	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HED 8 OP-2X/...K14 HEDE 10 A1-2X/...K41...2		= no code = HED 5 = HED 8 = HEDE 10
12 	Pressure rating of the pressure switch	Without pressure switch Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure	50 bar 100 bar 200 bar 350 bar 630 bar	= no code = 50 = 100 = 200 = 350 = 630 ²⁾
14 	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring		= D = M = O
15 	Max. pressure range of the pressure gauge	Without pressure monitoring Display range Display range Display range Display range Display range	60 bar 100 bar 250 bar 400 bar 600 bar	= no code = 60 ¹⁾ = 100 ¹⁾ = 250 ¹⁾ = 400 ^{1, 2)} = 600 ^{1, 2)}
26 	Seal	Seal material	FKM	= V

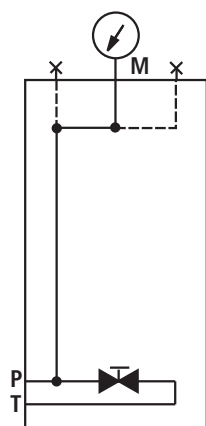
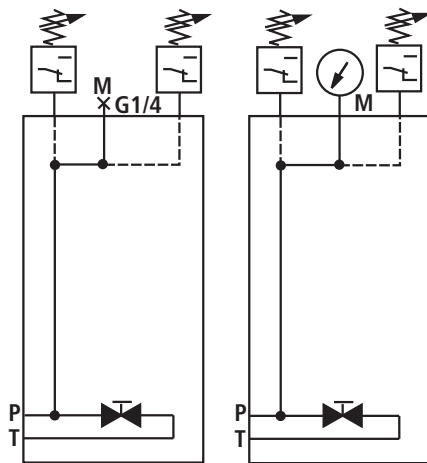
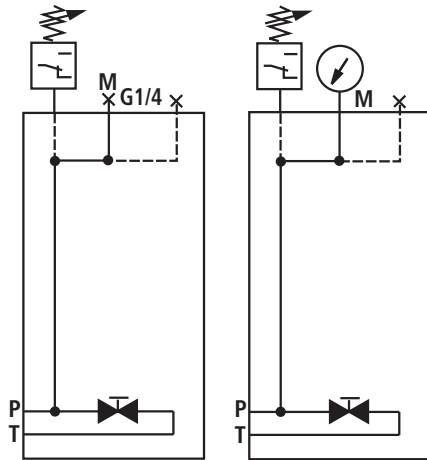
¹⁾ Indication is only necessary if the module is not equipped with a pressure switch.

²⁾ Not possible with HED 5

Seat valve module, type "S" (dimensions in mm)

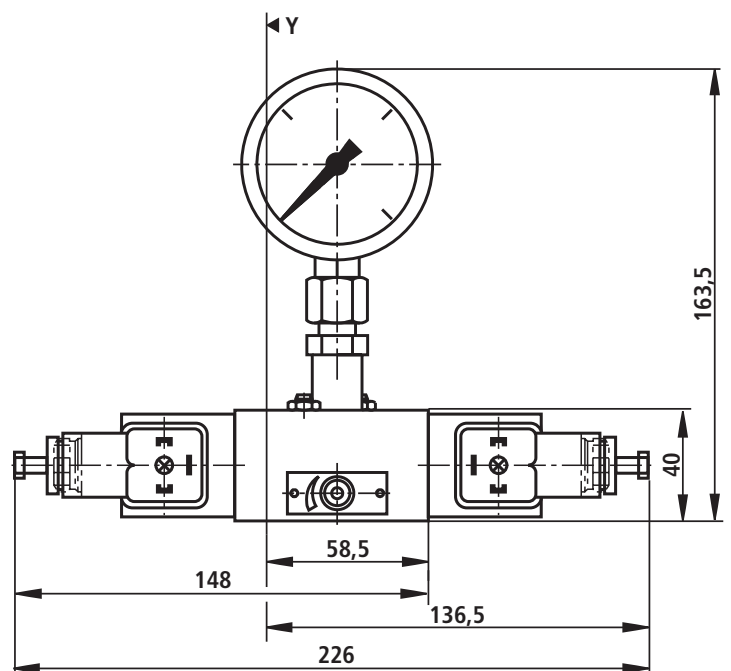
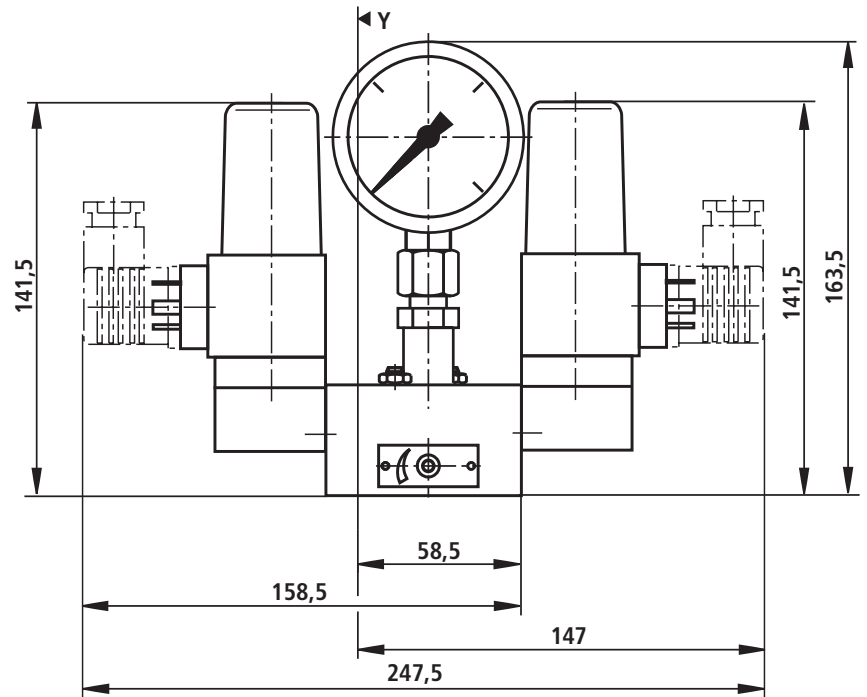
End module with pressure switch and stop valve, type "WSEDA"

Symbol



Dimensions

Dimension Z = 55 mm

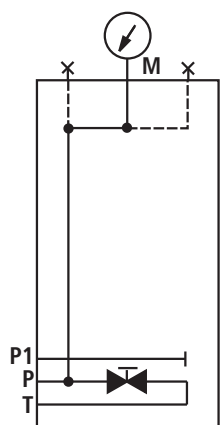
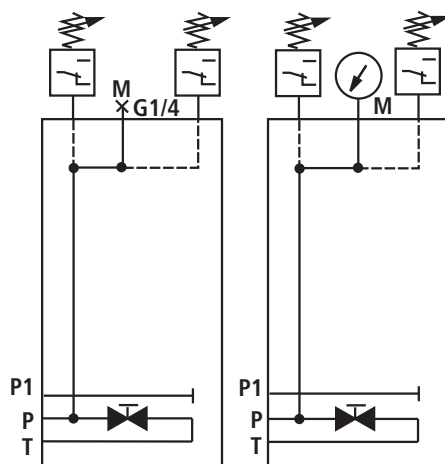
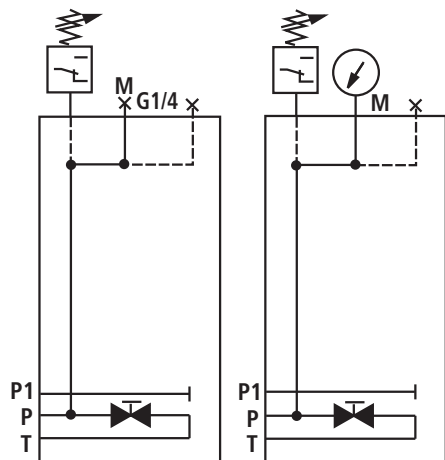


Operating information: Manual unloading must be closed in the operating condition.

Seat valve module, type "S"

End module with pressure switch, stop valve and P1 channel, type "WSEDAP1"

Symbol



Operating information: Manual unloading must be closed in the operating condition.

Seat valve module, type "S"

Material no.	Device designation	Type designation
	End module with pressure switch and stop valve	IH15EA-1X/WSEDA- ⁹ ¹¹ / ¹² / ¹⁴ / ¹⁵ / ²⁶
R904100815		IH15EA-1X/WSEDA-0/D/100/V
R901094566		IH15EA-1X/WSEDA-0/D/400/V
R904100208		IH15EA-1X/WSEDA-1HED5/100/D/V
R901231132		IH15EA-1X/WSEDA-1HED5/200/D/V
R904100040		IH15EA-1X/WSEDA-1HED5/200/O/V
R904100071		IH15EA-1X/WSEDA-1HED8/200/O/V
R904100675		IH15EA-1X/WSEDA-1HED8/350/D/V
R901231130		IH15EA-1X/WSEDA-2HED5/200/D/V
R901071162		IH15EA-1X/WSEDA-2HED8/200/D/V

Material no.	Device designation	Type designation
	End module with pressure switch, stop valve and P1 channel	IH15EA-1X/WSEDAP1- ⁹ ¹¹ / ¹² / ¹⁴ / ¹⁵ / ²⁶
R901102912		IH15EA-1X/WSEDAP1-0/D/400/V
R901102913		IH15EA-1X/WSEDAP1-2HED5/210/D/V

⁹ 	Number of pressure switches	Without pressure switch One pressure switch Two pressure switches	= 0 = 1 = 2
¹¹ 	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HED 8 OP-2X/...K14 HEDE 10 A1-2X/...K41...2	= no code = HED 5 = HED 8 = HEDE 10
¹² 	Pressure rating of the pressure switch	Without pressure switch Max. setting pressure 50 bar Max. setting pressure 100 bar Max. setting pressure 200 bar Max. setting pressure 350 bar Max. setting pressure 630 bar	= no code = 50 = 100 = 200 = 350 = 630 ²⁾
¹⁴ 	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
¹⁵ 	Max. pressure range of the pressure gauge	Without pressure monitoring Display range 60 bar Display range 100 bar Display range 250 bar Display range 400 bar Display range 600 bar	= no code = 60 ¹⁾ = 100 ¹⁾ = 250 ¹⁾ = 400 ^{1, 2)} = 600 ^{1, 2)}
²⁶ 	Seal	Seal material	FKM = V

¹⁾ Indication is only necessary if the module is not equipped with a pressure switch.

²⁾ Not possible with HED 5

Seat valve module, type "S" (dimensions in mm)

Project planning information

When designing the control with accumulator you have to make sure that the accumulator is protected against inadmissible overpressure by means of a type examination-tested pressure relief valve. The type-examination tested pressure relief valve must not accept any control tasks. The set pressure of the type-examination tested pressure relief valve must be less than or equal to the maximum admissible operating pressure of the accumulator.

In order to achieve the best utilization of the accumulator volume possible as well as long service life, compliance with the following nitrogen filling pressure value is recommended:

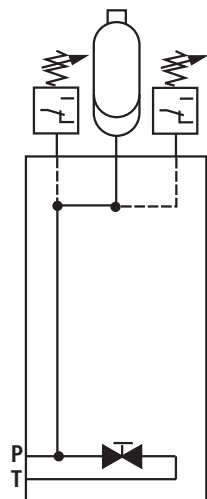
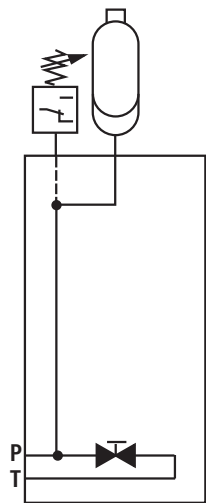
$$p_o = 0.9 \times p_{(\text{minimum operating pressure})}$$

Operating information

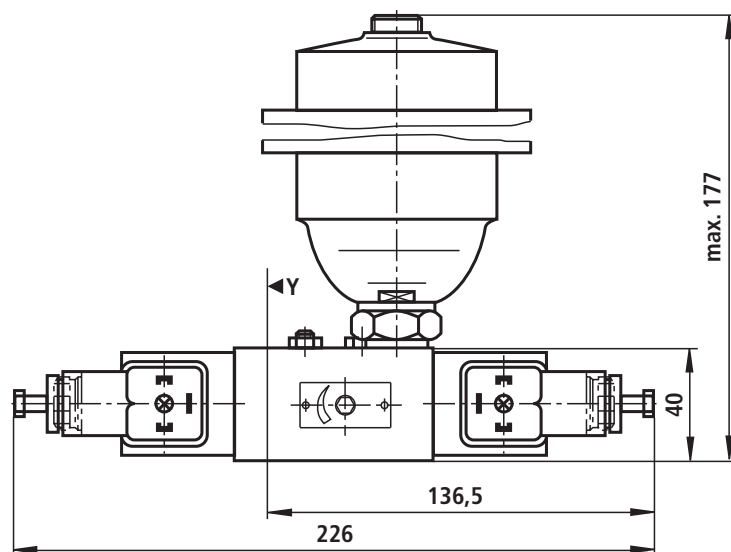
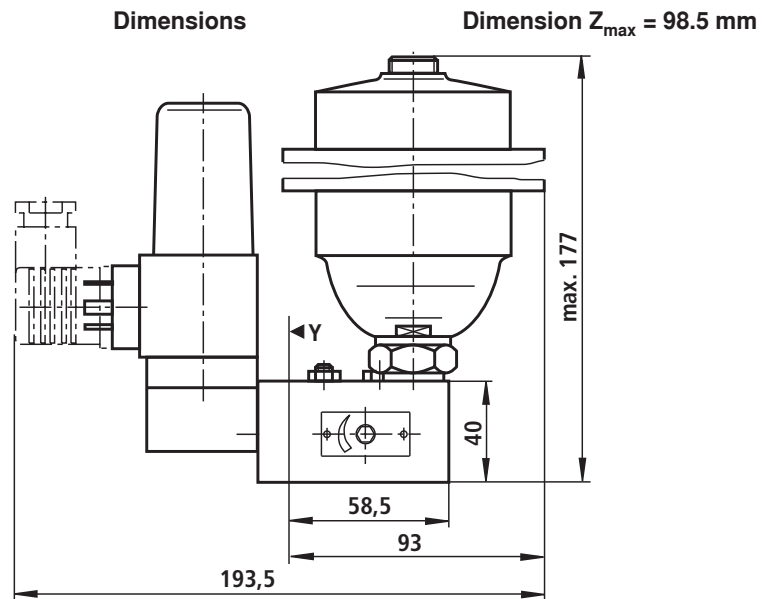
Manual unloading must be closed in the operating condition.

End module with accumulator and stop valve, type "SESA"

Symbol

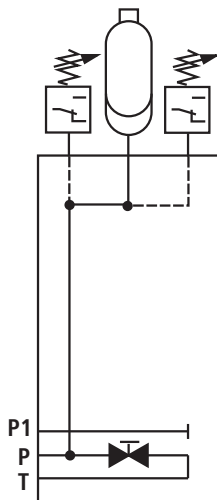
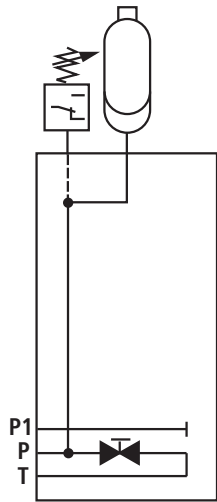


Dimensions



Seat valve module, type "S"

End module with accumulator, stop valve and P1 channel, type "SESAP1"

Symbol

Seat valve module, type "S"

Material no.	Device designation	Type designation
	End module with accumulator and stop valve	IH15EA-1X/SESA- ⁹ ¹¹ / ¹² / ¹⁸ / ²⁶
R904100869		IH15EA-1X/SESA-0/0,32/V
R901230854		IH15EA-1X/SESA-1HED5/200/0,32/V
R901231018		IH15EA-1X/SESA-2HED5/200/0,32/V

Material no.	Device designation	Type designation
	End module with accumulator, stop valve and P1 channel	IH15EA-1X/SESAP1- ⁹ ¹¹ / ¹² / ¹⁸ / ²⁶
R901098223		IH15EA-1X/SESAP1-1HED5/100/0,32/V
R904101711		IH15EA-1X/SESAP1-2HED5/350/0,50/V

9 ☐	Number of pressure switches	Without pressure switch One pressure switch Two pressure switches		= 0 = 1 = 2
11 ☐	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HED 8 OP-2X/...K14 HEDE 10 A1-2X/...K41...2		= no code = HED 5 = HED 8 = HEDE 10
12 ☐	Pressure rating of the pressure switch	Without pressure switch Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure	50 bar 100 bar 200 bar 350 bar 630 bar	= no code = 50 = 100 = 200 = 350 = 630 ²⁾
18 ☐	Diaphragm-type accumulator	Nominal volume in l Without accumulator 0.075 0.10 0.16 0.32 0.50	Max. pressure in bar 250 500 250 210 400	= no code = 0.075 = 0.10 = 0.16 = 0.32 = 0.50
	Bladder-type accumulator			
26 ☐	Seal	Seal material	FKM	= V

²⁾ Not possible with HED 5

Seat valve module, type "S" (dimensions in mm)

Project planning information

When designing the control with accumulator you have to make sure that the accumulator is protected against inadmissible overpressure by means of a type examination-tested pressure relief valve. The type-examination tested pressure relief valve must not accept any control tasks. The set pressure of the type-examination tested pressure relief valve must

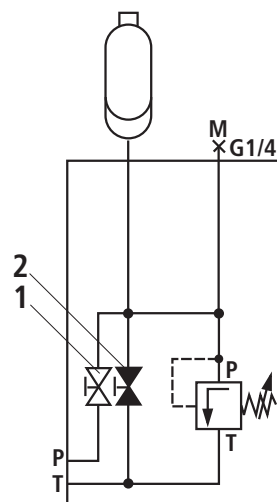
be less than or equal to the maximum admissible operating pressure of the accumulator.

In order to achieve the best utilization of the accumulator volume possible as well as long service life, compliance with the following nitrogen filling pressure value is recommended:

$$p_o = 0.9 \times p_{(\text{minimum operating pressure})}$$

Accumulator safety block, type "SSB"

Symbol

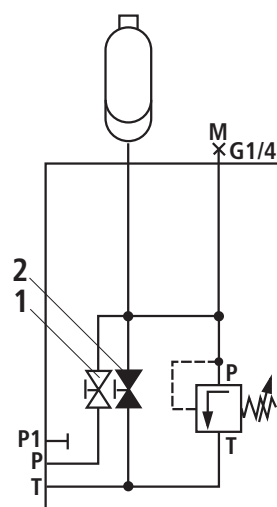


Operating information:

- 1 System stop valve must be open in the operating condition
- 2 Manual unloading must be closed in the operating condition

Accumulator safety block with P1 channel, type "SSBP1"

Symbol

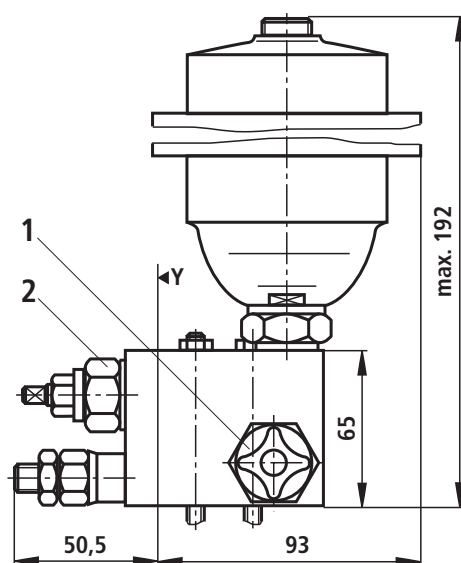


Operating information:

- 1 System stop valve must be open in the operating condition
- 2 Manual unloading must be closed in the operating condition

Dimensions

Dimension $Z_{\text{max}} = 88.5 \text{ mm}$



Seat valve module, type "S"

Material no.	Device designation	Type designation
	Accumulator safety block	IH15EA-1X/SSB- ¹ ³ / ¹⁴ / ¹⁸ / ²⁶
R904100486		IH15EA-1X/SSB-S210E/M/0,32/V
R900618898		IH15EA-1X/SSB-S210E/O/0,32/V
R900335037		IH15EA-1X/SSB-S210E/D/0,32/V

Material no.	Device designation	Type designation
	Accumulator safety block with P1 channel	IH15EA-1X/SSBP1- ¹ ³ / ¹⁴ / ¹⁸ / ²⁶
R904101907		IH15EA-1X/SSBP1-S210E/O/0,32/V

¹	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob	= S = H
³	Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!		
		Setting pressure up to max.	210 bar = 210E
		Setting pressure up to max.	250 bar = 250E
		Setting pressure up to max.	400 bar = 400E
		Setting pressure up to max.	500 bar = 500E
Characteristic curve for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC			See page 85
¹⁴	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
¹⁸	Diaphragm-type accumulator	Nominal volume in l Without accumulator	= no code = 0.075 = 0.10 = 0.16 = 0.35 = 0.50
		0.075	
		0.10	
		0.16	
		0.35	
		0.50	
	Bladder-type accumulator		
²⁶	Seal	Seal material	FKM = V

Module for external attachment: Attachment with application examples

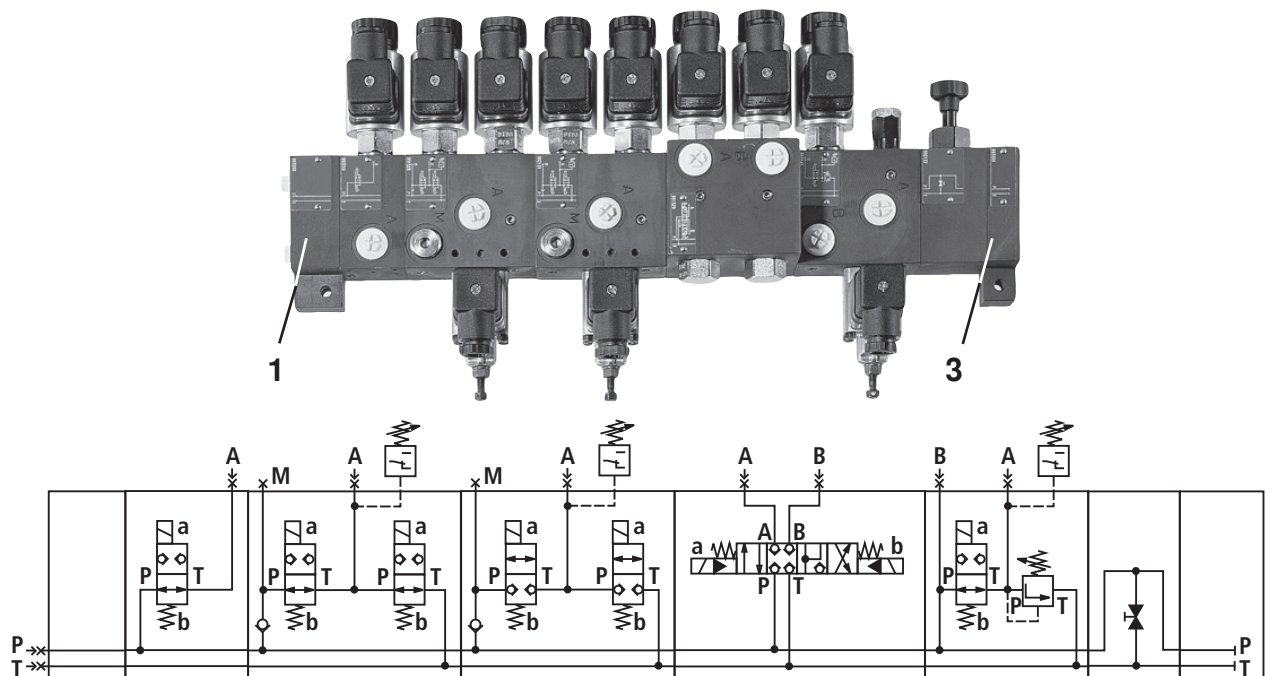
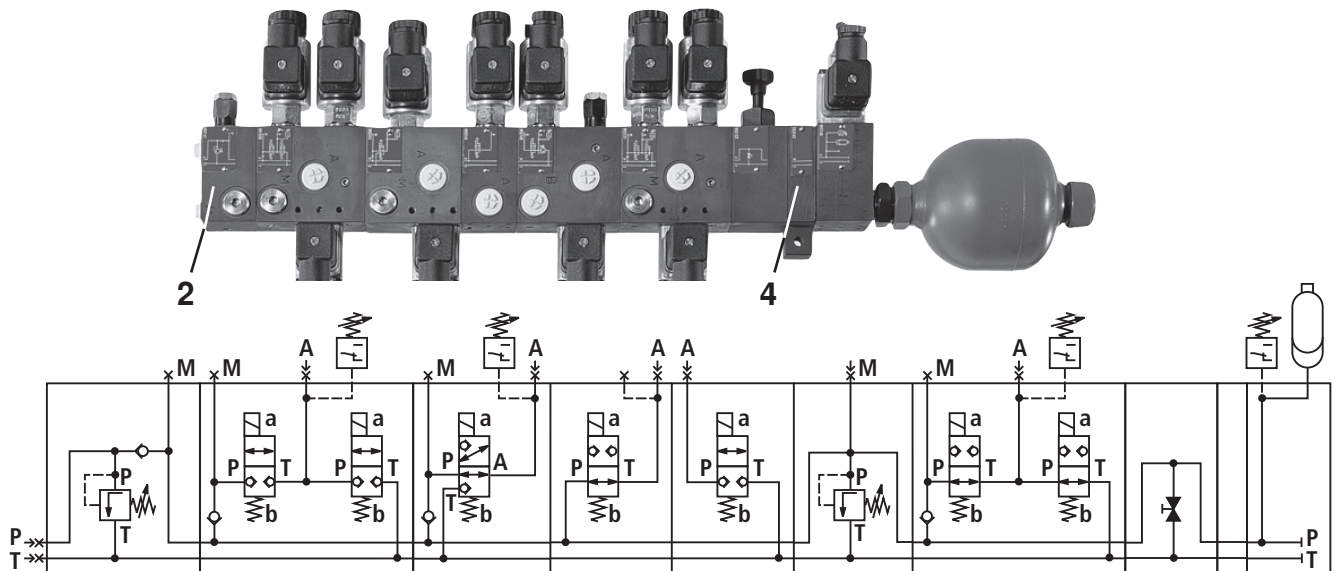
Project planning information

When designing the control with accumulator you have to make sure that the accumulator is protected against inadmissible overpressure by means of a type examination-tested pressure relief valve. The type-examination tested pressure relief valve must not accept any control tasks. The set pressure of the type-examination tested pressure relief valve must

be less than or equal to the maximum admissible operating pressure of the accumulator.

In order to achieve the best utilization of the accumulator volume possible as well as long service life, compliance with the following nitrogen filling pressure value is recommended:

$$p_o = 0.9 \times p_{(\text{minimum operating pressure})}$$



- 1 Connection module type A (see page 74)
- 2 Connection module with pressure relief valve type ADB (see page 75)
- 3 End module type E (see page 78)

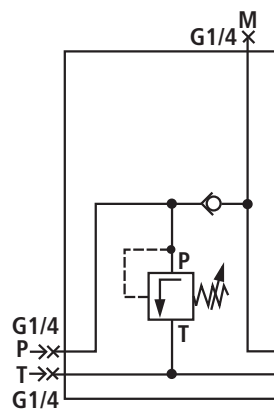
- 4 Sandwich module type Z (see page 76)
The sandwich module can also be combined with the connection module item 1 or with the end module item 3.

The length dimensions are calculated by adding dimension "X" of the directional valve module (see page 19 to 21) and the seat valve module (see page 31 to 72).

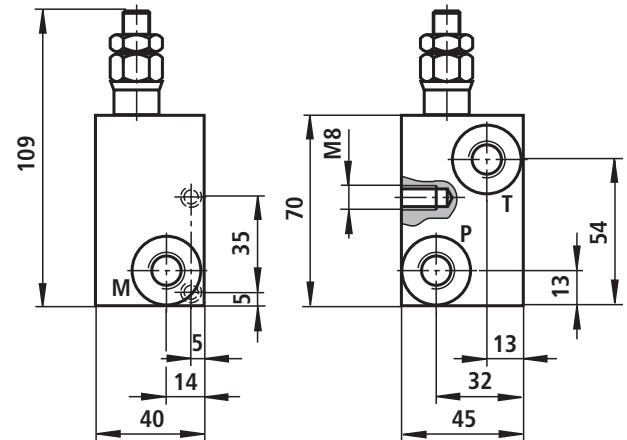
Modules for external attachment (dimensions in mm)

Connection module with pressure relief valve, type "ADB"

Symbol



Dimensions



Material no.	Device designation	Type designation
	Pressure relief module	IH15EA-1X/ADB- / /
R900703591		IH15EA-1X/ADB-S350/D/V
R901103341		IH15EA-1X/ADB-S350/M/V
R904100621		IH15EA-1X/ADB-S350/O/V

	1 Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob		= S = H
	2 Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 200 bar 350 bar 500 bar	= 50 = 100 = 200 = 350 = 500
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!				
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar 250 bar 400 bar 500 bar	= 210E = 250E = 400E = 500E
Characteristic curve for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC				See page 85
	14 Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring		= D = M = O
	26 Seal	Seal material	FKM	= V

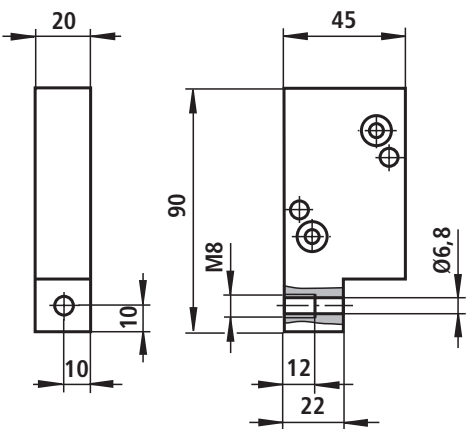
Modules for external attachment (dimensions in mm)

Sandwich module, type "Z"

Symbol



Dimensions



Sandwich module with P1 channel, type "ZP1"

Symbol



Material no.	Device designation	Type designation
	Sandwich module	IH15MA-1X/Z- ²⁶
R900992147		IH15MA-1X/Z-V

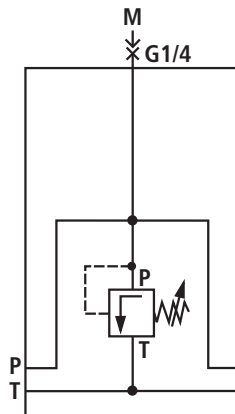
Material no.	Device designation	Type designation
	Sandwich module with P1 channel	IH15MA-1X/ZP1- ²⁶
R904100358		IH15MA-1X/ZP1-V

²⁶ Seal	Seal material	FKM	= V
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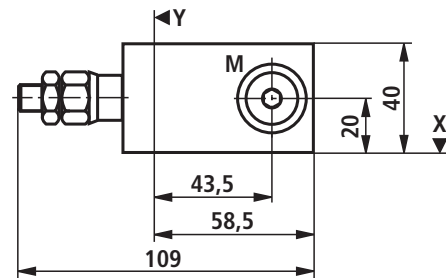
Modules for external attachment (dimensions in mm)

Sandwich module with pressure relief valve, type "ZDB"

Symbol



Dimensions



Material no.	Device designation	Type designation
	Sandwich module with pressure relief valve	IH15EA-1X/ZDB- /
R901166973		IH15EA-1X/ZDB-S100/D/V
R901166946		IH15EA-1X/ZDB-S100/M/V
R901166972		IH15EA-1X/ZDB-S100/O/V

	1 Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob		= S = H
	2 Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 200 bar 350 bar 500 bar	= 50 = 100 = 200 = 350 = 500
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!				
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar 250 bar 400 bar 500 bar	= 210E = 250E = 400E = 500E
Characteristic curve for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC				See page 85
	14 Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring		= D = M = O
	26 Seal	Seal material	FKM	= V

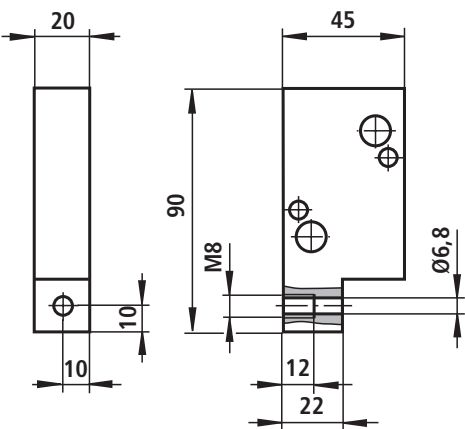
Modules for external attachment (dimensions in mm)

End module, type "E"

Symbol



Dimensions



End module with P1 channel, type "EP1"

Symbol



Material no.	Device designation	Type designation
	End module	IH15MA-1X/E- ²⁶
R900993201		IH15MA-1X/E-V

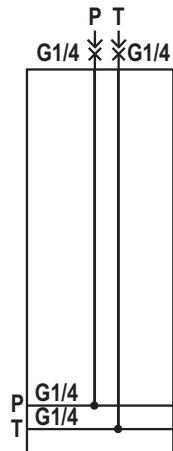
Material no.	Device designation	Type designation
	End module with P1 channel	IH15MA-1X/EP1- ²⁶
R900262117		IH15MA-1X/EP1-V

²⁶ Seal	Seal material	FKM	= V
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Reducing module, type R (dimensions in mm)

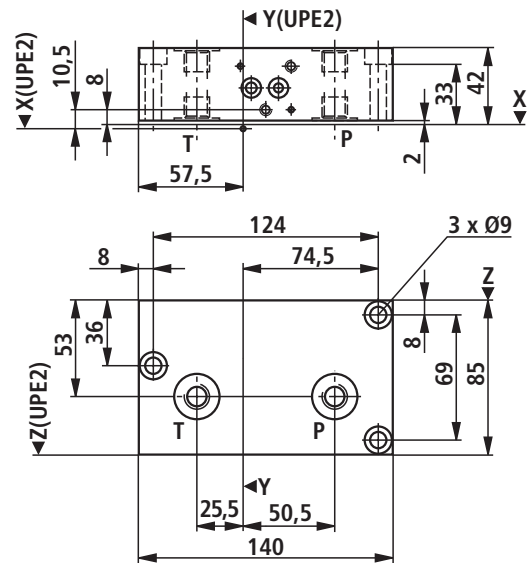
Tank connection module with reduction to IH15A, type "RBAIH15A"

Symbol



Dimensions

Dimension Z = 85 mm

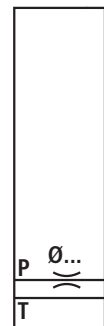


Material no.	Device designation	Type designation
	Tank connection module with reduction to IH15A	IH15MB-1X/RBAIH15A- 26
R904101835		IH15MB-1X/RBAIH15A-V

26 Seal	Seal material	FKM	= V
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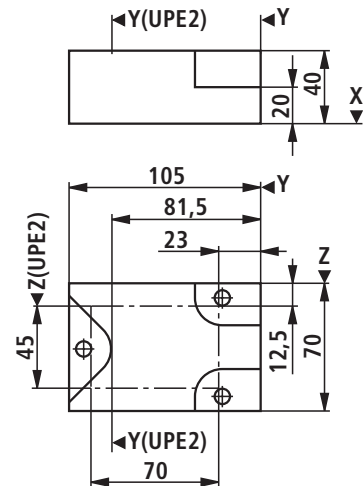
Reducing module IH15B to IH15A (right), type "RIH15AR"

Symbol



Dimensions

Dimension Z = 70 mm



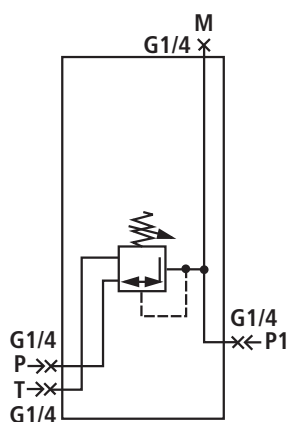
Material no.	Device designation	Type designation
	Reducing module IH15B to IH15A	IH15MA-1X/RIH15AR- 27 / 26
R904101836		IH15MA-1X/RIH15AR-V

26 Seal	Seal material	FKM	= V
27 Throttle	Without throttle Throttle diameter	Ø 1.0 mm Ø 2.5 mm	= no code = B10 = B25

Module with threaded connection for pipeline installation (dimensions in mm)

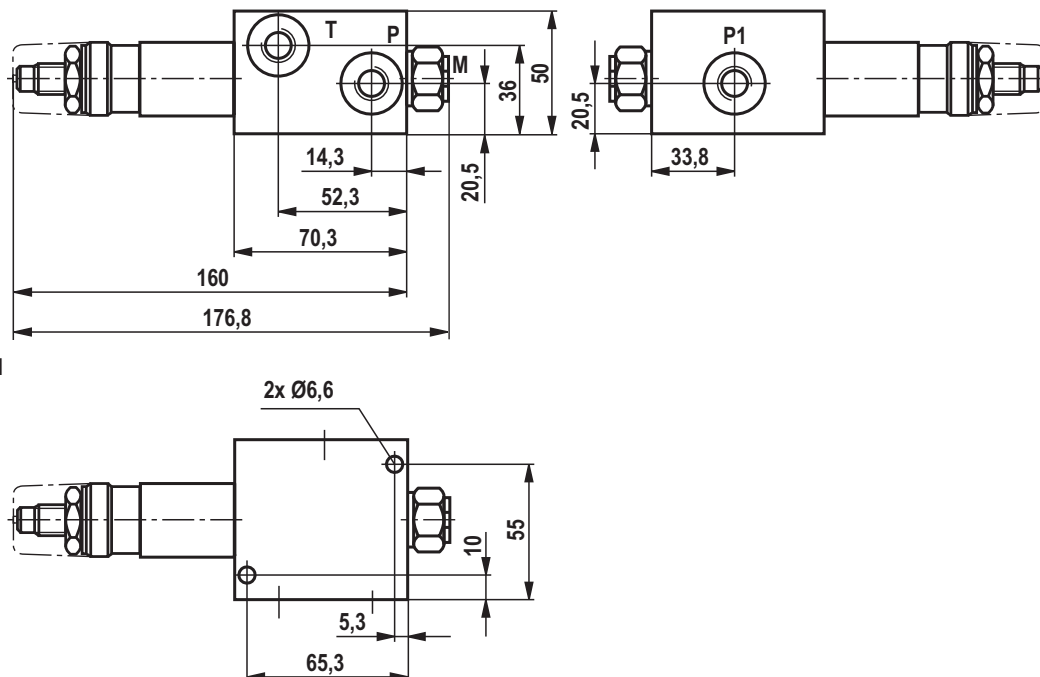
Pressure reducing module with threaded connection, type "SDRG"

Symbol



Dimensions

Dimension Z = 65 mm



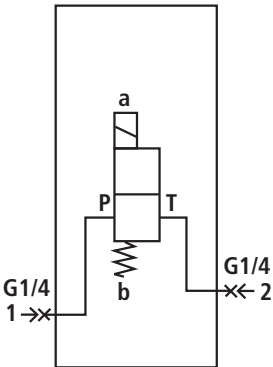
Material no.	Device designation	Type designation
	Pressure reducing module	IH15EA-1X/SDRG- 16 / 17 / 14 / 26
R901105958		IH15EA-1X/SDRG-2/210/D/V
R901105959		IH15EA-1X/SDRG-2/210/M/V
R901105960		IH15EA-1X/SDRG-2/210/O/V

☐ 14	Pressure monitoring	Pressure monitoring with pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
☐ 16	Adjustment element	Setscrew with internal hexagon and protective cap	= 2
☐ 17	Secondary pressure	Max. secondary pressure 25 bar Max. secondary pressure 75 bar Max. secondary pressure 150 bar Max. secondary pressure 210 bar	= 25 = 75 = 150 = 210
☐ 26	Seal	Seal material	FKM = V

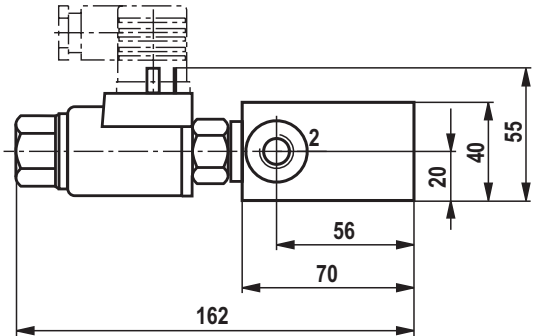
Modules with threaded connection for pipeline installation (dimensions in mm)

Module SPA2 with threaded connection, type "SPA2G"

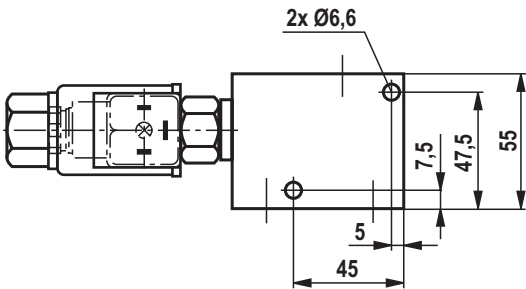
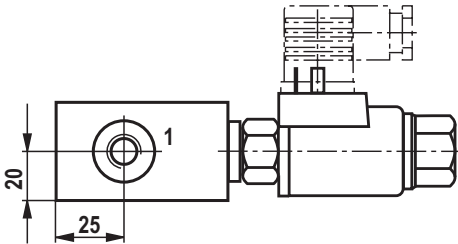
Symbol



Dimensions



Dimension Z = 55 mm

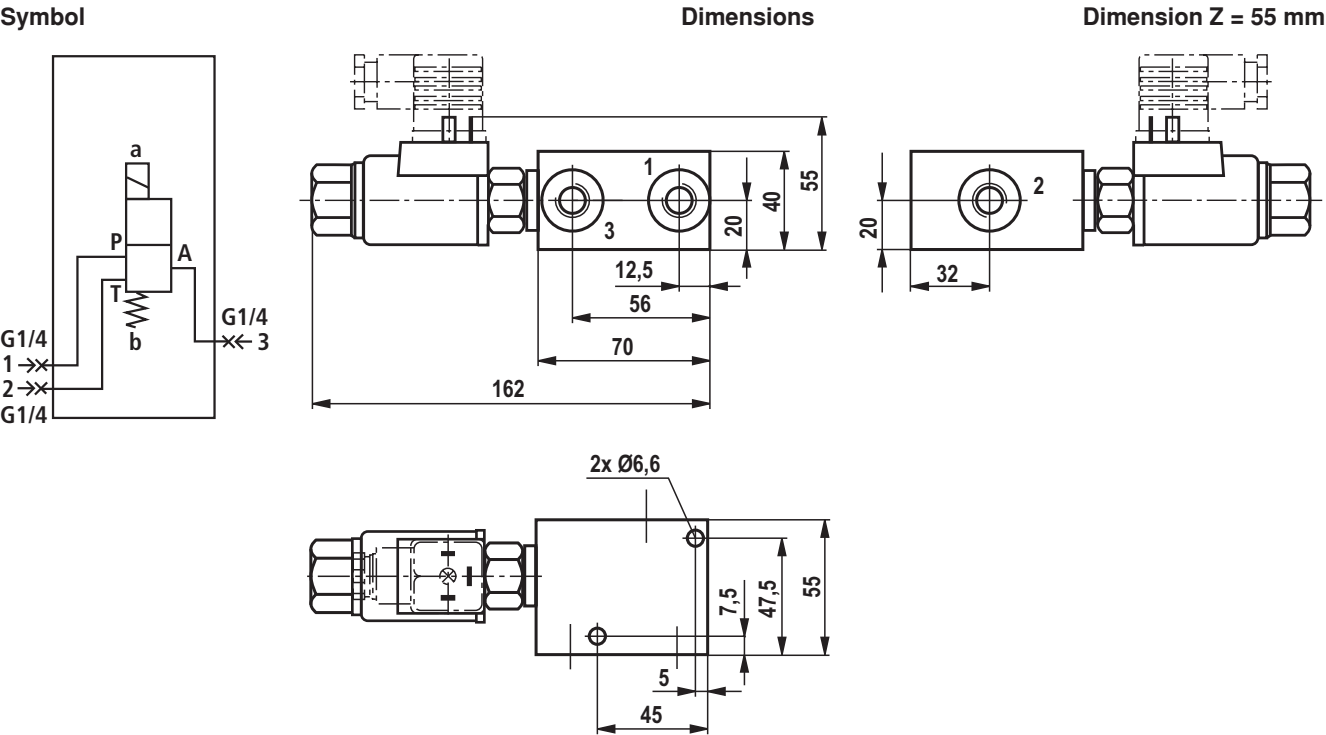


Material no.	Device designation	Type designation
	Module SPA2G	IH15EA-1X/SPA2G- 4 8 / 7 26
R904101293		IH15EA-1X/SPA2G-NG24/350/V

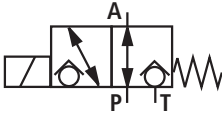
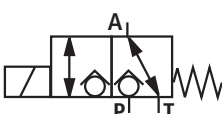
4	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
7	Pressure rating of the seat valve	$p_{\max}$ $p_{\max}$	= 350 bar = 500 bar
8	Solenoid voltage of the seat valves	Volt	24 V DC = G24
26	Seal	Seal material	FKM = V

Modules with threaded connection for pipeline installation (dimensions in mm)

Module P – A with threaded connection, type "SPA3G"



Material no.	Device designation	Type designation
	Module SPA3G	IH15EA-1X/SPA3G- 5 8 / 7 / 26
R901103342		IH15EA-1X/SPA3G-CG24/350/V

5 Designation of the 3/2 seat valve			= U
			= C
7 Pressure rating of the seat valve	$p_{\max}$ $p_{\max}$	= 350 bar = 500 bar	= 350 = 500
8 Solenoid voltage of the seat valves	Volt	24 V DC	= G24
26 Seal	Seal material	FKM	= V

Information on the type key (dimensions in mm)

1 Adjustment element at the pressure relief valve size 4	Setscrew with internal hexagon		= S
	Rotary knob		= H
Adjustment element at the pressure relief valve size 6	Setscrew with hexagon and protective cap		= S
	Rotary knob		= H
	Lockable rotary knob		= A
2 Pressure rating of the pressure relief valve size 4	Setting pressure up to max.	50 bar	= 50
	Setting pressure up to max.	100 bar	= 100
	Setting pressure up to max.	200 bar	= 200
	Setting pressure up to max.	350 bar	= 350
	Setting pressure up to max.	500 bar	= 500
Pressure rating of the type-examination tested pressure relief valve size 4, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!			
		Setting pressure up to max.	140 bar
		Setting pressure up to max.	210 bar
		Setting pressure up to max.	250 bar
		Setting pressure up to max.	330 bar
		Setting pressure up to max.	400 bar
		Setting pressure up to max.	500 bar
Characteristic curve for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC			See page 85

Information on the type key

2	Pressure rating of the pressure relief valve size 6	Setting pressure up to max.	25 bar	= 25
		Setting pressure up to max.	50 bar	= 50
		Setting pressure up to max.	100 bar	= 100
		Setting pressure up to max.	200 bar	= 200
		Setting pressure up to max.	315 bar	= 315
		Setting pressure up to max.	400 bar	= 400

Pressure rating of the type-examination tested pressure relief valve size 6, according to Directive 97/23/EC (Pressure Equipment Directive)
More pressure ratings on request!

	Setting pressure up to max.	50 bar	= 50E
	Setting pressure up to max.	100 bar	= 100E
	Setting pressure up to max.	140 bar	= 140E
	Setting pressure up to max.	210 bar	= 210E
	Setting pressure up to max.	330 bar	= 330E

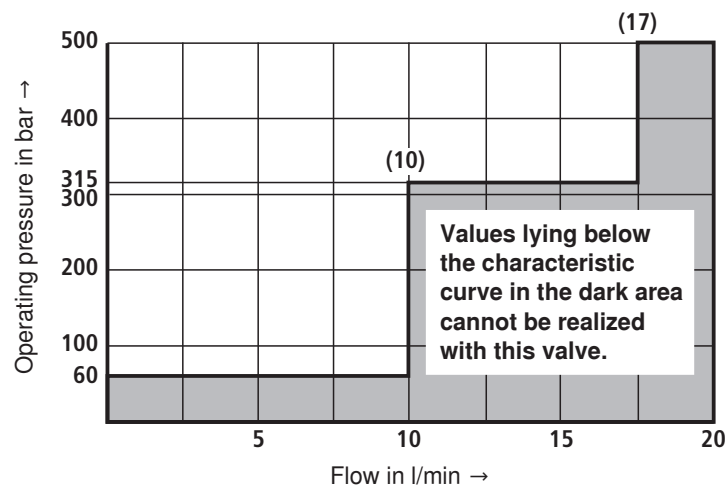
Characteristic curve for type-examination tested pressure relief valves type: DBD 6../..E
Type testing according to Pressure Equipment Directive 97/23/EC

See page 86

3	Pressure rating of the type-examination tested pressure relief valve size 4, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!	Setting pressure up to max.	140 bar	= 140E
		Setting pressure up to max.	210 bar	= 210E
		Setting pressure up to max.	250 bar	= 250E
		Setting pressure up to max.	330 bar	= 330E
		Setting pressure up to max.	400 bar	= 400E
		Setting pressure up to max.	500 bar	= 500E

Characteristic curve for type-examination tested pressure relief valves type: DBD 4../..E
Type testing according to Pressure Equipment Directive 97/23/EC

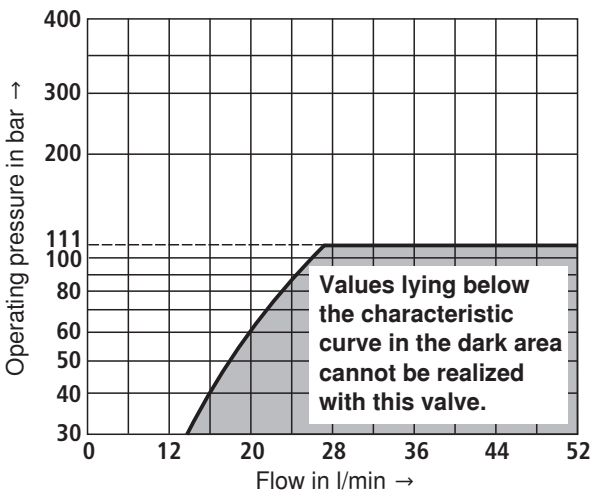
Size 4



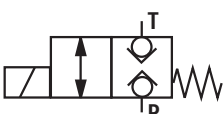
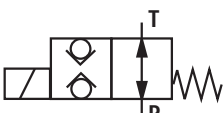
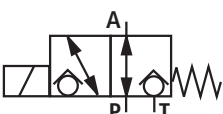
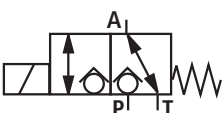
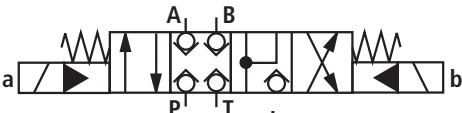
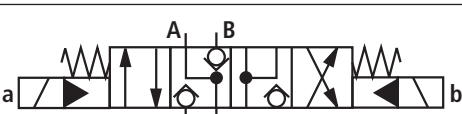
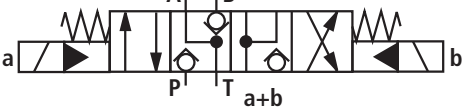
Information on the type key

3	Pressure rating of the type-examination tested pressure relief valve size 6, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!															
	<table><tr><td>Setting pressure up to max.</td><td>50 bar</td><td>= 50E</td></tr><tr><td>Setting pressure up to max.</td><td>100 bar</td><td>= 100E</td></tr><tr><td>Setting pressure up to max.</td><td>140 bar</td><td>= 140E</td></tr><tr><td>Setting pressure up to max.</td><td>210 bar</td><td>= 210E</td></tr><tr><td>Setting pressure up to max.</td><td>330 bar</td><td>= 330E</td></tr></table>	Setting pressure up to max.	50 bar	= 50E	Setting pressure up to max.	100 bar	= 100E	Setting pressure up to max.	140 bar	= 140E	Setting pressure up to max.	210 bar	= 210E	Setting pressure up to max.	330 bar	= 330E
Setting pressure up to max.	50 bar	= 50E														
Setting pressure up to max.	100 bar	= 100E														
Setting pressure up to max.	140 bar	= 140E														
Setting pressure up to max.	210 bar	= 210E														
Setting pressure up to max.	330 bar	= 330E														
Characteristic curve for type-examination tested pressure relief valves type: DBD 6../..E Type testing according to Pressure Equipment Directive 97/23/EC																

Size 6



Information on the type key

4 ☐	Designation of the 2/2 seat valve	Normally closed 	= N	
5 ☐	Designation of the 3/2 seat valve	Normally open 	= P	
			= U	
6 ☐	Designation of the 4/4 seat valve		= C	
			= K	
7 ☐	Pressure rating of the seat valve		= L	
				
8 ☐	Solenoid voltage of the seat valves	Volt	24 V DC	= G24
9 ☐	Number of pressure switches	Without pressure switch One pressure switch Two pressure switches		= 0 = 1 = 2
10 ☐	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HEDE 10 A1-2X/...K41...2		= no code = HED 5 = HEDE 10
11 ☐	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HED 8 OP-2X/...K14 HEDE 10 A1-2X/...K41...2		= no code = HED 5 = HED 8 = HEDE 10

¹⁾ Indication is only necessary if the module is not equipped with a pressure switch.

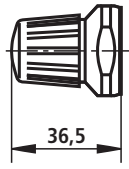
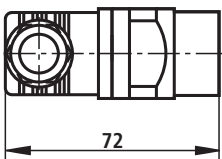
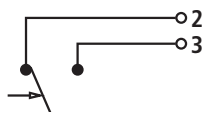
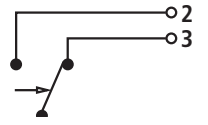
Information on the type key

12 ☐	Pressure rating of the pressure switch	Without pressure switch Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure	50 bar 100 bar 200 bar 350 bar 630 bar	= no code = 50 = 100 = 200 = 350 = 630 ²⁾
13 ☐	Pressure switch in the channel	Without pressure switch A B A and B		= no code = A = B = AB
14 ☐	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring		= D = M = O
15 ☐	Max. pressure range of the pressure gauge	Without pressure monitoring Display range Display range Display range Display range Display range	60 bar 100 bar 250 bar 400 bar 600 bar	= no code = 60 ¹⁾ = 100 ¹⁾ = 250 ¹⁾ = 400 ^{1, 2)} = 600 ^{1, 2)}
16 ☐	Adjustment element	Rotary knob Setscrew with hexagon and protective cap Lockable rotary knob with scale Rotary knob with scale		= 1 = 2 = 3 = 7
17 ☐	Secondary pressure	Max. secondary pressure Max. secondary pressure Max. secondary pressure Max. secondary pressure Max. secondary pressure	25 bar 75 bar 150 bar 210 bar 315 bar	= 25 = 75 = 150 = 210 = 315
18 ☐	Diaphragm-type accumulator	Nominal volume in l Without accumulator 0.075 0.10 0.16 0.35 0.50	Max. pressure in bar 250 500 250 210 400	= no code = 0.075 = 0.10 = 0.16 = 0.35 = 0.50
	Bladder-type accumulator			

¹⁾ Indication is only necessary if the module is not equipped with a pressure switch.

²⁾ Not possible with HED 5

Information on the type key (dimensions in mm)

19 Filter rating		06 µm 10 µm	= 06 ¹⁾ = 10 ²⁾
20 Clogging indicator	Without clogging indicator		= A
	Visual clogging indicator		= O
	Electric clogging indicator		= E
	Technical data of the electric clogging indicator		
	Maximum voltage	V	42
	Switching power	VA	100
	Protection class with protective cap		IP 65
	Contacts		Normally closed contact
	Terminal assignment		
			
	Filter element clean	Filter element contaminated	
21 Check valve	In channel P In channel T In channel P and T		= P = T = PT
22 Ports	Without ports P and T		= no code = PT
26 Seal	Seal material	FKM	= V
27 Throttle	Without throttle Throttle diameter Throttle diameter	Ø 1.0 mm Ø 2.5 mm	= no code = B10 = B25
35 Pressure rating of the proportional valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	20 bar 100 bar 200 bar 315 bar	= 20 = 100 = 200 = 315

¹⁾ For degree of contamination class 18 / 16 / 13

²⁾ For degree of contamination class 20 / 18 / 15

Type keys for modules with vertical stacking

Type: ABCOC / ABBOC

AB COC – IH15A – EXAMPLE – PROTECTIVE GRID – 06 – AA 07									
Power units / blocks								Serial number e.g. 07 = Number 7	
Customer-oriented controls = COC								Variant code Shows different device fittings	
Branch-oriented controls = BOC								Valve size	
Device type IH15A								Functional designation (according to customer designation or branch designation) e.g. Camping Hatch small Revolver Protective grid	
Name of customer or branch of trade e.g. Company Example or presses									

Type key for complete control system

Type: IH15BA

IH 15 B A 006 – 1X / 07 024 AA / W220 N9 K4 M 01												
Industrial hydraulics												Type of connection 01 = Pipe thread according to ISO 228 part 1
Module series 15												Seal material M = NBR seals V = FKM seals
Assembly From module series												Electrical type of connection Attachment devices
Size Size A q_v up to 30 l/min												Version Manual override Attachment devices
Size of the largest valve Size 6												Valve voltage e.g. G24 = 24 V direct voltage W220 = 220 V alternating voltage
Component series 10 to 19 10 to 19 unchanged installation and connection dimensions												Variant code Shows different device fittings
Number of modules e.g. 7 modules												Serial number e.g. 024 = Number 24

Example:

IH15BA006-1X/07024AA/W220N9K4M01

Assembly IH15B of size A up to 14 l/min with valves of size 6, 7 modules, serial number 24, variant AA, 220 V alternating voltage, N9 manual override, K4 type of connection, seal material Perbunan, type of connection with pipe thread according to ISO 228 part 1

Accessories

Filter element

Material no.	Module	Denomination	Size	Material	Filter rating
R928037974	F06	99.05929 H6XL-000-6-M	06	FKM	06 µm
R928037972	F06	99.05929 H10XL-000-6-M	06	FKM	10 µm
R928039389	F30	80.30/22 H6XL-S00-5-V	30	FKM	06 µm
R928039388	F30	80.30/22 H10XL-S00-5-V	30	FKM	10 µm
R928006080	DF30	2.0004 H10XL-A00-0-V	30	FKM	10 µm
R928006682	DF40	2.0040 H6XL-B00-0-V	40	FKM	06 µm
R928006683	DF40	2.0040 H10XL-B00-0-V	40	FKM	10 µm

Assembly tool for filter cartridge

- Strap wrench Material no.: R904001048

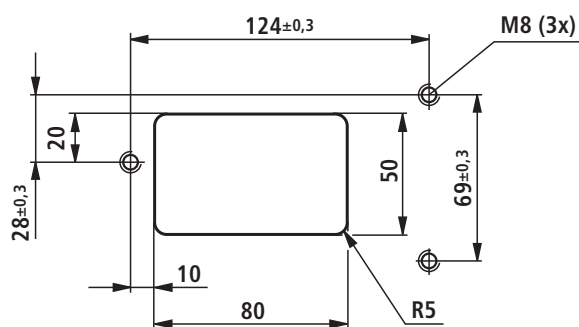
Installation information for F30:

- Wind the filter cartridge as tight as possible on the block.
Then, wind the filter cartridge further by further 1/3 of a rotation.

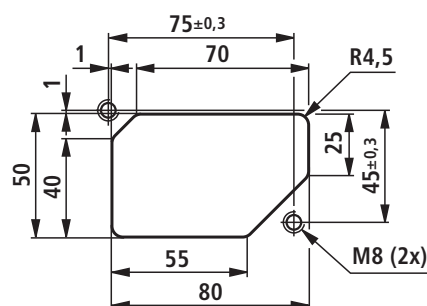
Installation information for DF30 and DF40:

- Wind the filter cartridge as tight as possible on the block.
Then, wind it back by 1/8 to 1/4 of a rotation.

Dimensions: Tank break-through for module RBAIH15A (dimensions in mm)



Dimensions: Tank break-through for module IH15BA (dimensions in mm)



Notes
