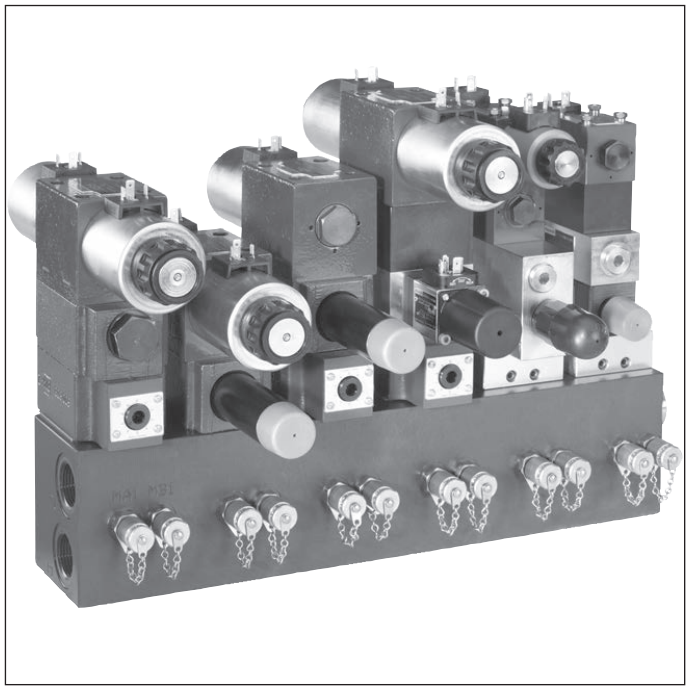
Manifolds

Type HSR 10

RE 48110
Edition: 2015-03
Replaces: 05.13



- Size 10
- Component series 15 and 35
- Maximum operating pressure 315 bar
- 1 to 8 stations

Features

- Base element for ready-for-connection controls in vertical stacking design
- Compact hydraulic controls
- Common pump line
- Common tank line
- Separate actuator ports of the stations
- Optional measuring ports in the actuator lines
- Mounting of size 10 sandwich plates and valves
- Mounting of size 6 sandwich plates and valves possible by means of an additional adapter plate

Contents

Ordering code

	01	02	03		04		05	06		07		08
Manifold		**HSR**	**10**	**–**		**/**	**01**					

Number of ready-for-connection controls in vertical stacking design

01	1 control	**1**
	2 controls	**2**
	3 controls	**3**
	4 controls	**4**
	5 controls	**5**
	6 controls	**6**
	7 controls	**7**
	8 controls	**8**

02	Manifold	**HSR**

03	Size 10	**10**

Component series

04	Port size: A, B = G1/2"; P, T = G3/4"	**15**
	With enlarged connection thread: Port size: A, B = G3/4"; P, T = G1"	**35**

Connection thread

05	Pipe thread according to ISO 228 Part 1	**01**

Position of actuator ports

06	Lateral	**C**
	Bottom	**D**

Versions

07	Standard	**no code**
	With measuring ports in A and B	**SO8** [1]

Coating

08	Phosphated DIN EN 12476	**PHOSPHATED** [2]
	Galvanic coating DIN 50979	**FE//ZN8//CN/T0**

[1] Not possible with series 15 with lateral actuator ports

[2] Standard version (manganese or zinc phosphating)

Description

- Manifolds are the base element for ready-for-connection controls in vertical stacking design
- Manifolds of size 10 are available with 1 to 8 stations
- On each station, highly compact hydraulic controls can be built using vertically stackable sandwich plate valves in conjunction with shift valves or proportional servo valves of size 10 or size 6 (adapter plate required)
- All stations have a common pump port and a common tank port
- The pump line “P” and the tank line “T” are lead through the two front sides of the manifold
- Every station is equipped with separate actuator ports “A” and “B”
- Actuator ports are either located at the bottom or laterally
- Another option are measuring ports in the actuator channels “A” and “B”

Standard program including preferred types: HSR10

Measuring port	Number of stations	Port size A, B	Porting pattern A, B	Port size P, T	Type key Manifold...	Material number	Weight in kg	MKZ[1)]
without	1	G1/2"	lateral	G3/4"	1HSR10-15/01C PHOSPHATED	R900815073	6.4	A3
	2	G1/2"	lateral	G3/4"	2HSR10-15/01C PHOSPHATED	R900154881	8.2	A2
			bottom		2HSR10-15/01D PHOSPHATED	R900158686	9.4	A2
		G3/4"	lateral	G1"	2HSR10-35/01C PHOSPHATED	R900170962	12.5	A2
			bottom		2HSR10-35/01D PHOSPHATED	R900170967	11.4	A3
	3	G1/2"	lateral	G3/4"	3HSR10-15/01C PHOSPHATED	R900154882	12.5	A3
			bottom		3HSR10-15/01D PHOSPHATED	R900158687	12.4	A2
		G3/4"	lateral	G1"	3HSR10-35/01C PHOSPHATED	R900170963	15.7	A2
			bottom		3HSR10-35/01D PHOSPHATED	R900170968	14.4	A3
	4	G1/2"	lateral	G3/4"	4HSR10-15/01C PHOSPHATED	R900154883	16.8	A3
			bottom		4HSR10-15/01D PHOSPHATED	R900158688	19.2	A2
		G3/4"	lateral	G1"	4HSR10-35/01C PHOSPHATED	R900170964	21.1	A3
			bottom		4HSR10-35/01D PHOSPHATED	R900170969	23.3	A3
	5	G1/2"	lateral	G3/4"	5HSR10-15/01C PHOSPHATED	R900154884	24.8	A3
			bottom		5HSR10-15/01D PHOSPHATED	R900158689	20.6	A3
		G3/4"	lateral	G1"	5HSR10-35/01C PHOSPHATED	R900170965	32	A3
			bottom		5HSR10-35/01D PHOSPHATED	R900170970	29.2	A2
	6	G1/2"	lateral	G3/4"	6HSR10-15/01C PHOSPHATED	R900154885	29.9	A3
			bottom		6HSR10-15/01D PHOSPHATED	R900158690	29	A3
		G3/4"	lateral	G1"	6HSR10-35/01C PHOSPHATED	R900170966	38.4	A3
			bottom		6HSR10-35/01D PHOSPHATED	R901406308	29.4	A3
	7	G1/2"	lateral	G3/4"	7HSR10-15/01C PHOSPHATED	R901406300	30	A3
			bottom		7HSR10-15/01D PHOSPHATED	R901406303	29	A3
		G3/4"	lateral	G1"	7HSR10-35/01C PHOSPHATED	R900809787	37.9	A3
			bottom		7HSR10-35/01D PHOSPHATED	R900809788	34.2	A3
	8	G1/2"	lateral	G3/4"	8HSR10-15/01C PHOSPHATED	R901406301	34.1	A3
			bottom		8HSR10-15/01D PHOSPHATED	R901406304	40	A3
		G3/4"	lateral	G1"	8HSR10-35/01C PHOSPHATED	R901406305	44	A3
			bottom		8HSR10-35/01D PHOSPHATED	R901406309	47	A3

1) Material mark; A2 = preferred; A3 = standard;

Order example for a manifold with galvanic coating:
Manifold 6HSR10-35/01D FE//ZN8//CN/T0

Standard program including preferred types: HSR10...SO8

Measuring port	Number of stations	Port size A, B	Porting pattern A, B	Port size P, T	Type key Manifold...	Material number	Weight in kg	MKZ[1)]
with	1	G1/2"	bottom	G3/4"	1HSR10-15/01D SO8 PHOSPHATED	R901406693	5	A3
		G3/4"	lateral	G1"	1HSR10-35/01C SO8 PHOSPHATED	R900815075	5.8	A2
			bottom		1HSR10-35/01D SO8 PHOSPHATED	R900815076	7.3	A3
	2	G1/2"	bottom	G3/4"	2HSR10-15/01D SO8 PHOSPHATED	R901406694	7.9	A3
		G3/4"	lateral	G1"	2HSR10-35/01C SO8 PHOSPHATED	R900689383	10.1	A2
			bottom		2HSR10-35/01D SO8 PHOSPHATED	R900196376	11.4	A3
	3	G1/2"	bottom	G3/4"	3HSR10-15/01D SO8 PHOSPHATED	R901406696	12.1	A3
		G3/4"	lateral	G1"	3HSR10-35/01C SO8 PHOSPHATED	R900689384	15.5	A3
			bottom		3HSR10-35/01D SO8 PHOSPHATED	R900196377	18.8	A3
	4	G1/2"	bottom	G3/4"	4HSR10-15/01D SO8 PHOSPHATED	R901406697	16.3	A3
		G3/4"	lateral	G1"	4HSR10-35/01C SO8 PHOSPHATED	R900689385	25.5	A3
			bottom		4HSR10-35/01D SO8 PHOSPHATED	R900196378	19.1	A2
	5	G1/2"	bottom	G3/4"	5HSR10-15/01D SO8 PHOSPHATED	R901406700	20.5	A3
		G3/4"	lateral	G1"	5HSR10-35/01C SO8 PHOSPHATED	R900689386	28	A3
			bottom		5HSR10-35/01D SO8 PHOSPHATED	R901406310	24.1	A3
	6	G1/2"	bottom	G3/4"	6HSR10-15/01D SO8 PHOSPHATED	R901406701	24.7	A3
		G3/4"	lateral	G1"	6HSR10-35/01C SO8 PHOSPHATED	R900689387	38.4	A3
			bottom		6HSR10-35/01D SO8 PHOSPHATED	R900196380	35.2	A3
	7	G1/2"	bottom	G3/4"	7HSR10-15/01D SO8 PHOSPHATED	R901406702	33.9	A3
		G3/4"	lateral	G1"	7HSR10-35/01C SO8 PHOSPHATED	R901406306	37.3	A3
			bottom		7HSR10-35/01D SO8 PHOSPHATED	R901406311	34	A3
	8	G1/2"	bottom	G3/4"	8HSR10-15/01D SO8 PHOSPHATED	R901406703	33	A3
		G3/4"	lateral	G1"	8HSR10-35/01C SO8 PHOSPHATED	R901406307	42.2	A3
			bottom		8HSR10-35/01D SO8 PHOSPHATED	R901406312	38.8	A3

1) Material mark; A2 = preferred; A3 = standard;

Order example for a manifold with galvanic coating:
Manifold 5HSR10-35/01D SO8 FE//ZN8//CN/T0

Technical data

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

General		
Size		10
Material		GGG40
Surface coating		Standard coating: Phosphated [1] according to DIN EN 12476 with finishing treatment (greases, oils, lubricants)
Maximum operating pressure [2]	bar	315

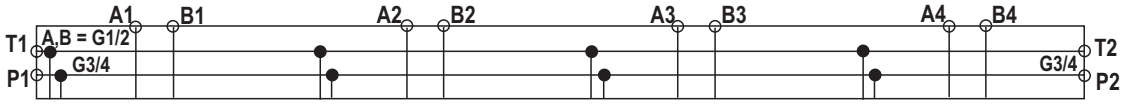
[1] Manganese or zinc phosphating

[2] Manifold without valve fitting!

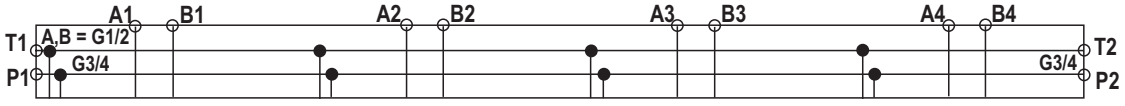
☞ **Note!**
For assembly, commissioning and maintenance of oil hydraulic systems please observe the data sheet 07900!

Switching symbols for manifolds with 4 stations

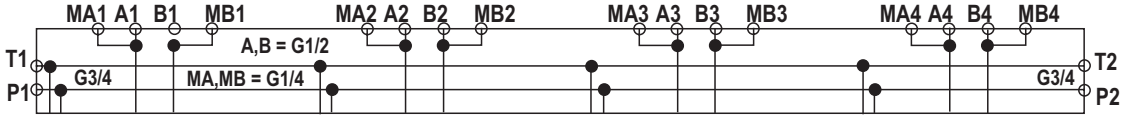
Manifold HSR10-15/01C



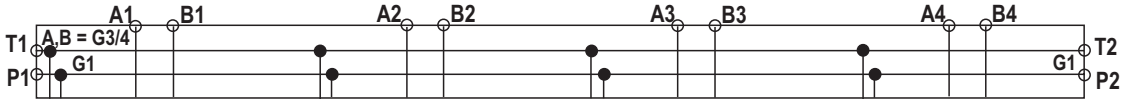
Manifold HSR10-15/01D



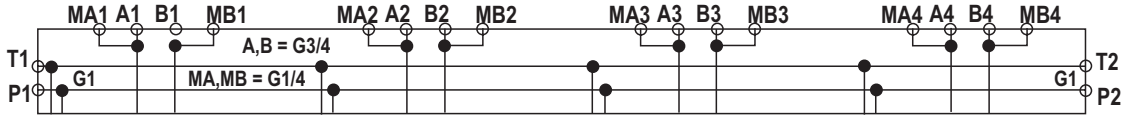
Manifold HSR10-15/01D SO8



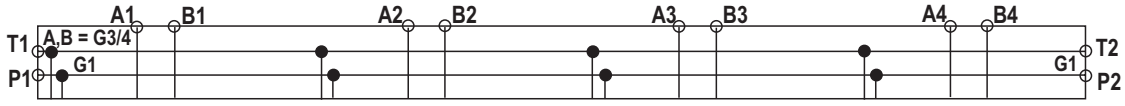
Manifold HSR10-35/01C



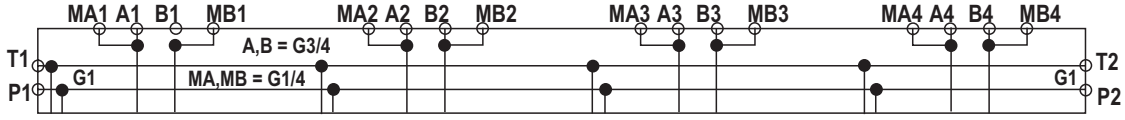
Manifold HSR10-35/01C SO8



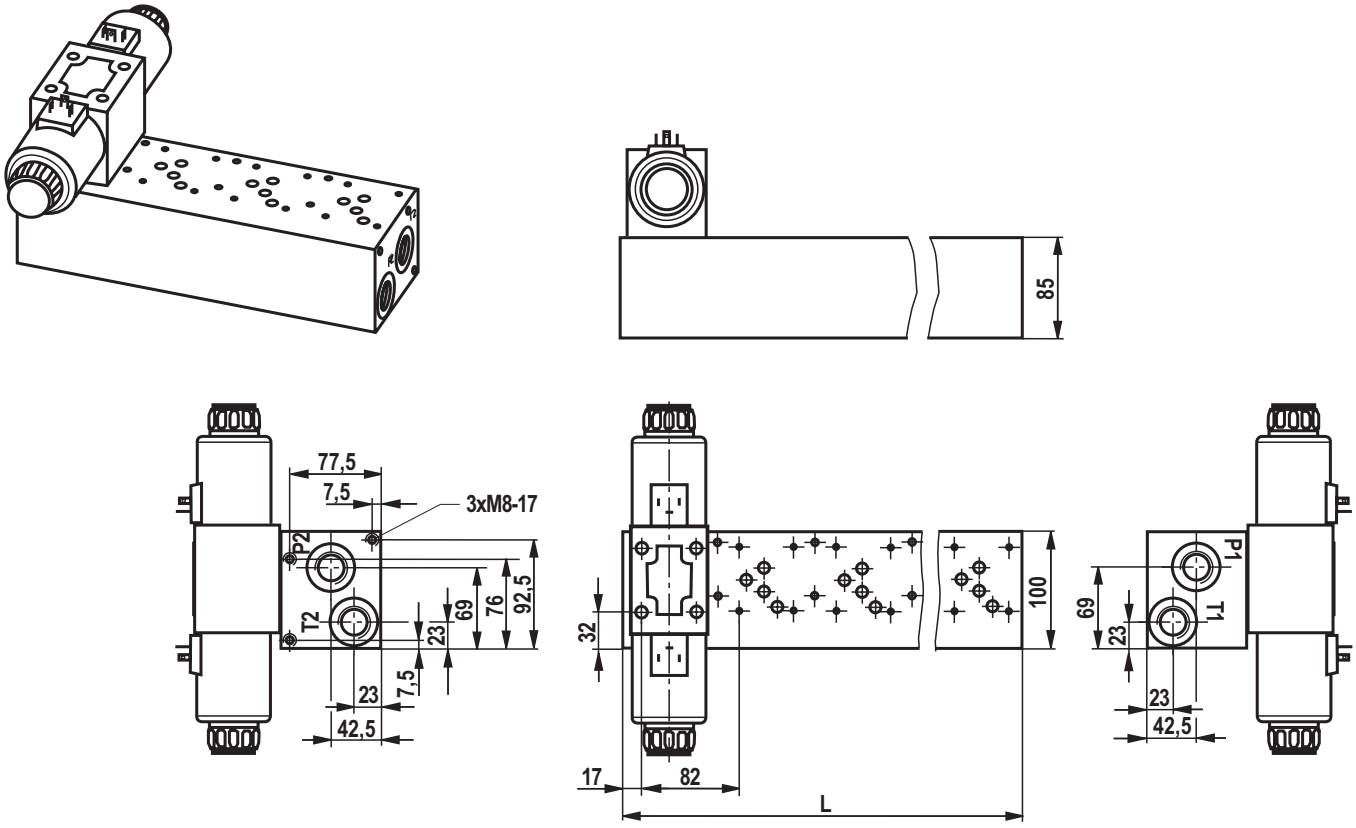
Manifold HSR10-35/01D

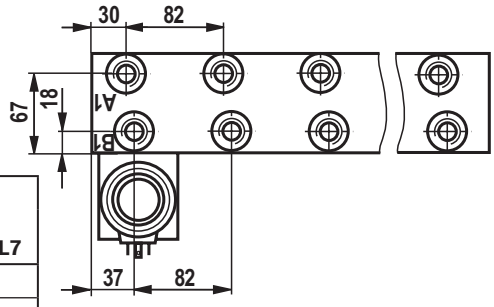


Manifold HSR10-35/01D SO8



Dimensions: **Manifold 2...8HSR10-15/01C**
(dimensions in mm)

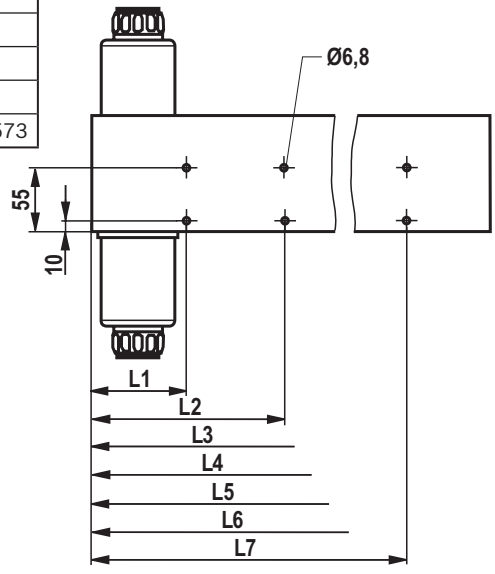




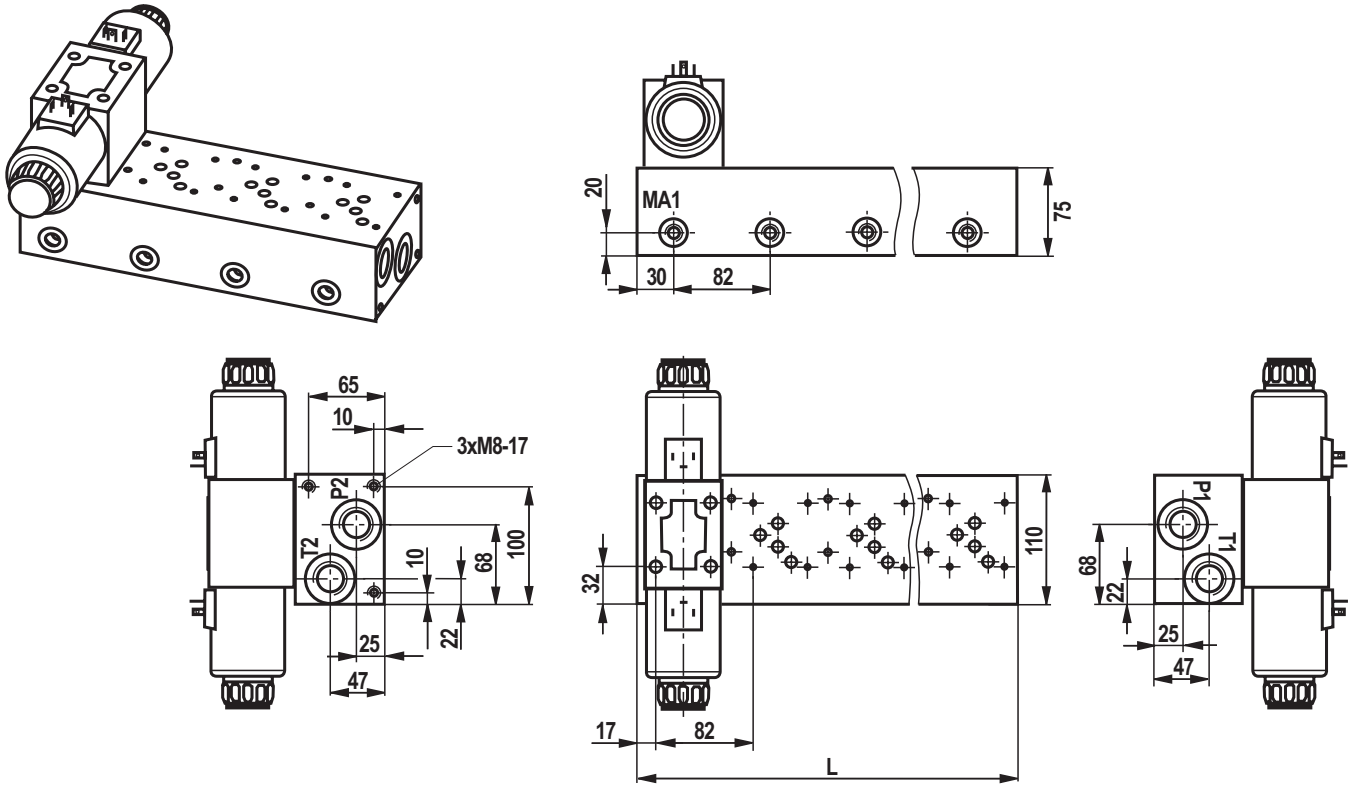
Dimensional table (all dimensions in mm)

Number of stations	Overall length L	Fixing holes						
		L1	L2	L3	L4	L5	L6	L7
2	157	81						
3	239	81	163					
4	321	81	163	245				
5	403	81	163	245	327			
6	485	81	163	245	327	409		
7	567	81	163	245	327	409	491	
8	649	81	163	245	327	409	491	573

Thread type	Pipe thread according to ISO 228 Part 1	
Port	A1 ... A8 B1 ... B8	P1; P2 T1; T2
Thread diameter	G1/2	G3/4
Thread depth	15	17
Counter bore diameter	34	42
Counter bore depth	0.2	0.2



Dimensions: **Manifold 2...8HSR10-15/01D** (without measuring ports MA, MB)
Manifold 2...8HSR10-15/01D SO8 (with measuring ports MA, MB)
(dimensions in mm)

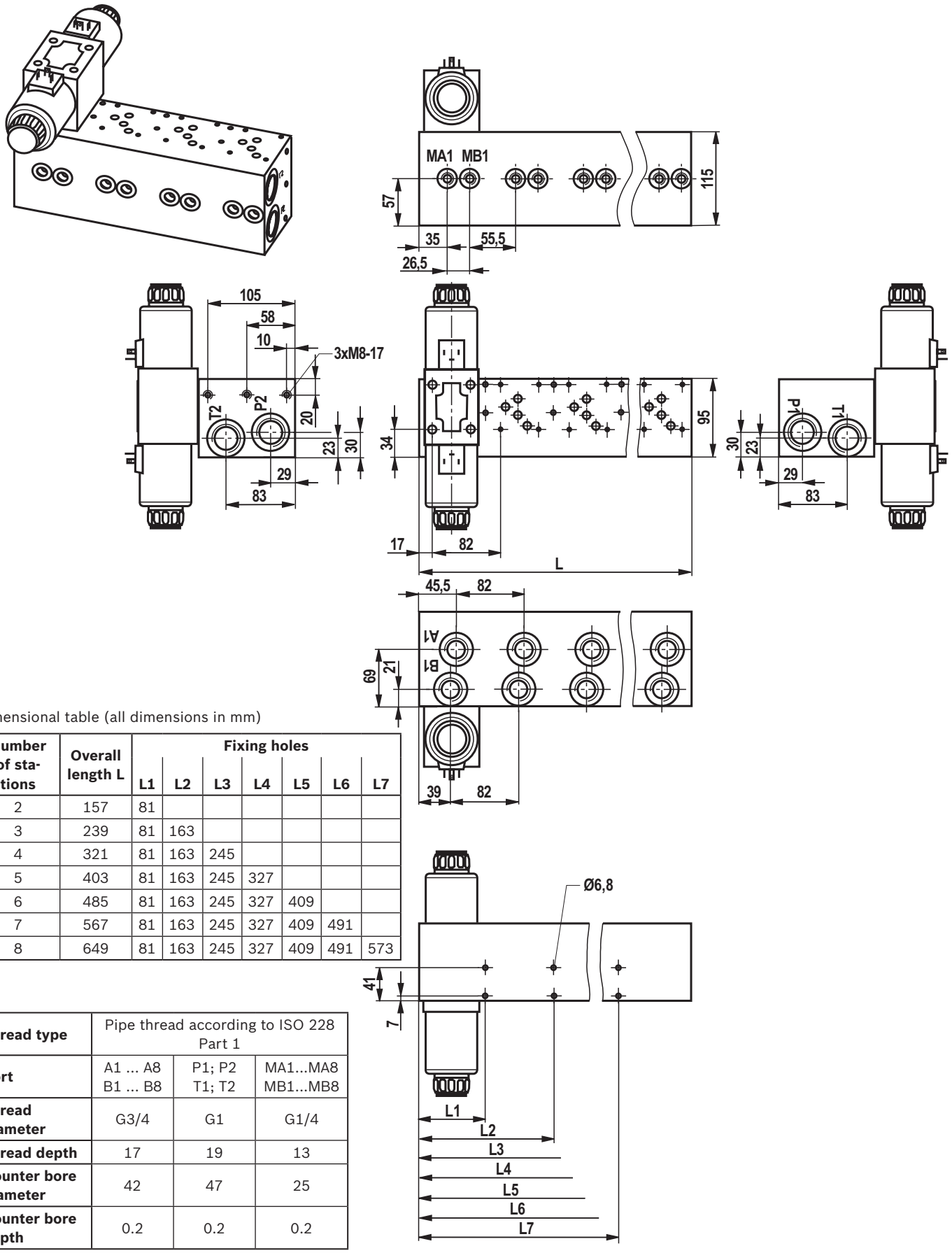


Dimensional table (all dimensions in mm)

Number of stations	Overall length L	Fixing holes						
		L1	L2	L3	L4	L5	L6	L7
2	157	81						
3	239	81	163					
4	321	81	163	245				
5	403	81	163	245	327			
6	485	81	163	245	327	409		
7	567	81	163	245	327	409	491	
8	649	81	163	245	327	409	491	573

Thread type	Pipe thread according to ISO 228 Part 1		
Port	A1 ... A8 B1 ... B8	P1; P2 T1; T2	MA1...MA8 MB1...MB8
Thread diameter	G1/2	G3/4	G1/4
Thread depth	15	17	13
Counter bore diameter	34	42	25
Counter bore depth	0.2	0.2	0.2

Dimensions: **Manifold 2...8HSR10-35/01C** (without measuring ports MA, MB)
Manifold 2...8HSR10-35/01C SO8 (with measuring ports MA, MB)
(dimensions in mm)

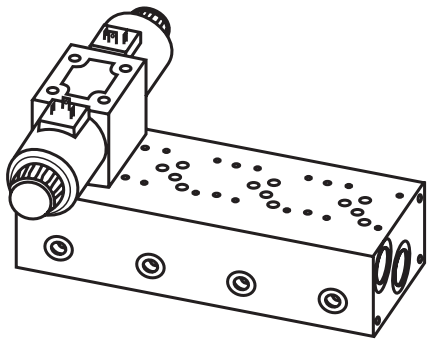


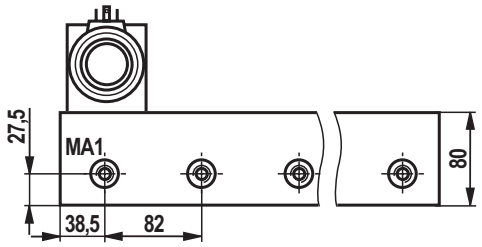
Dimensional table (all dimensions in mm)

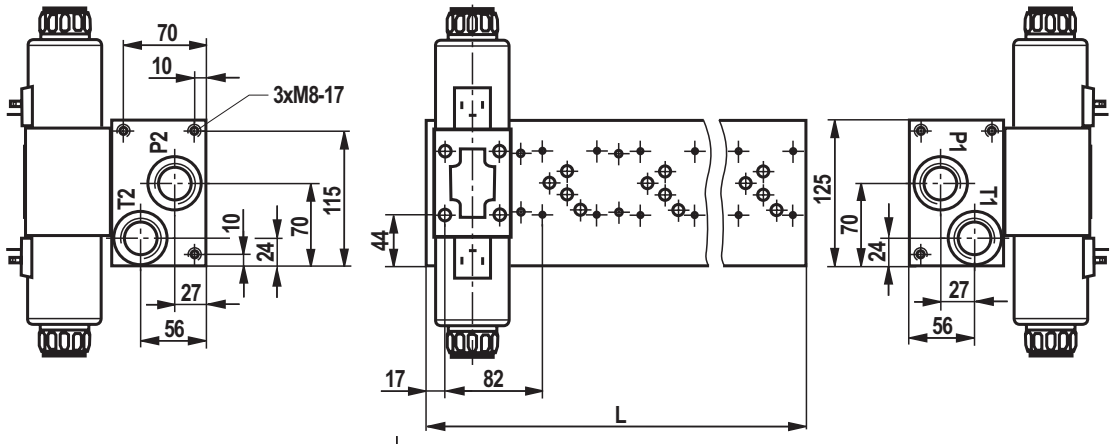
Number of stations	Overall length L	Fixing holes						
		L1	L2	L3	L4	L5	L6	L7
2	157	81						
3	239	81	163					
4	321	81	163	245				
5	403	81	163	245	327			
6	485	81	163	245	327	409		
7	567	81	163	245	327	409	491	
8	649	81	163	245	327	409	491	573

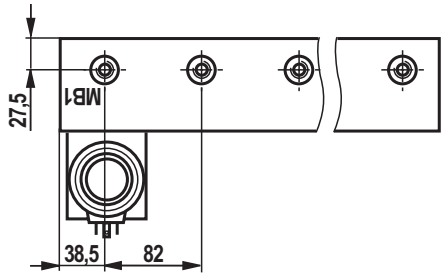
Thread type	Pipe thread according to ISO 228 Part 1		
Port	A1 ... A8 B1 ... B8	P1; P2 T1; T2	MA1...MA8 MB1...MB8
Thread diameter	G3/4	G1	G1/4
Thread depth	17	19	13
Counter bore diameter	42	47	25
Counter bore depth	0.2	0.2	0.2

Dimensions: **Manifold 2...8HSR10-35/01D** (without measuring ports MA, MB)
Manifold 2...8HSR10-35/01D SO8 (with measuring ports MA, MB)
(dimensions in mm)





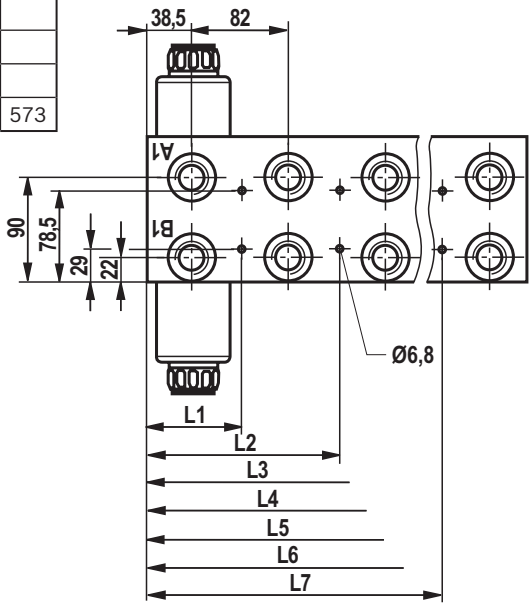




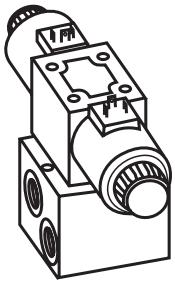
Dimensional table (all dimensions in mm)

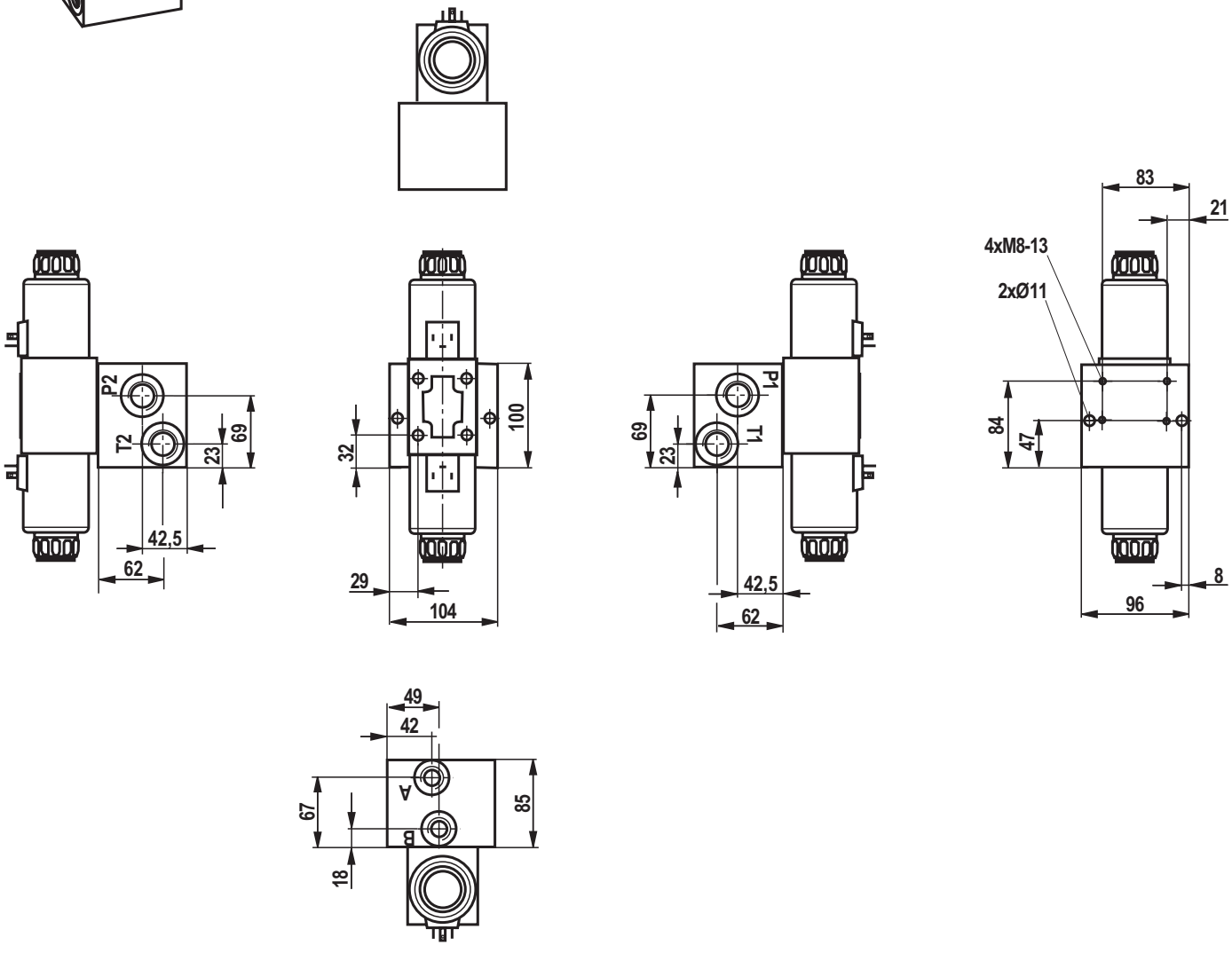
Number of stations	Overall length L	Fixing holes						
		L1	L2	L3	L4	L5	L6	L7
2	157	81						
3	239	81	163					
4	321	81	163	245				
5	403	81	163	245	327			
6	485	81	163	245	327	409		
7	567	81	163	245	327	409	491	
8	649	81	163	245	327	409	491	573

Thread type	Pipe thread according to ISO 228 Part 1		
Port	A1 ... A8 B1 ... B8	P1; P2 T1; T2	MA1...MA8 MB1...MB8
Thread diameter	G3/4	G1	G1/4
Thread depth	17	19	13
Counter bore diameter	42	47	25
Counter bore depth	0.2	0.2	0.2



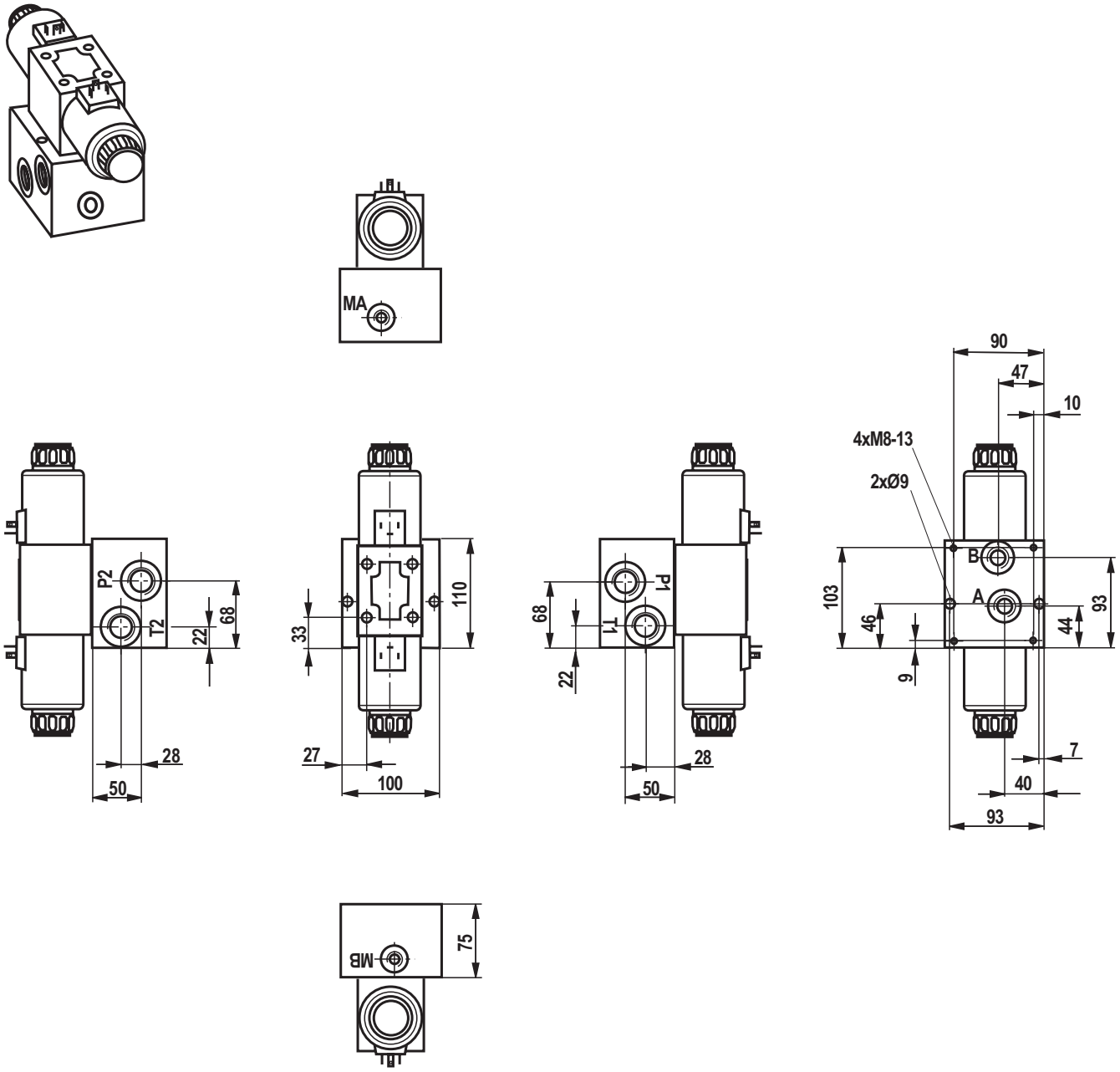
Dimensions: **Manifold 1HSR10-15/01C**
(dimensions in mm)





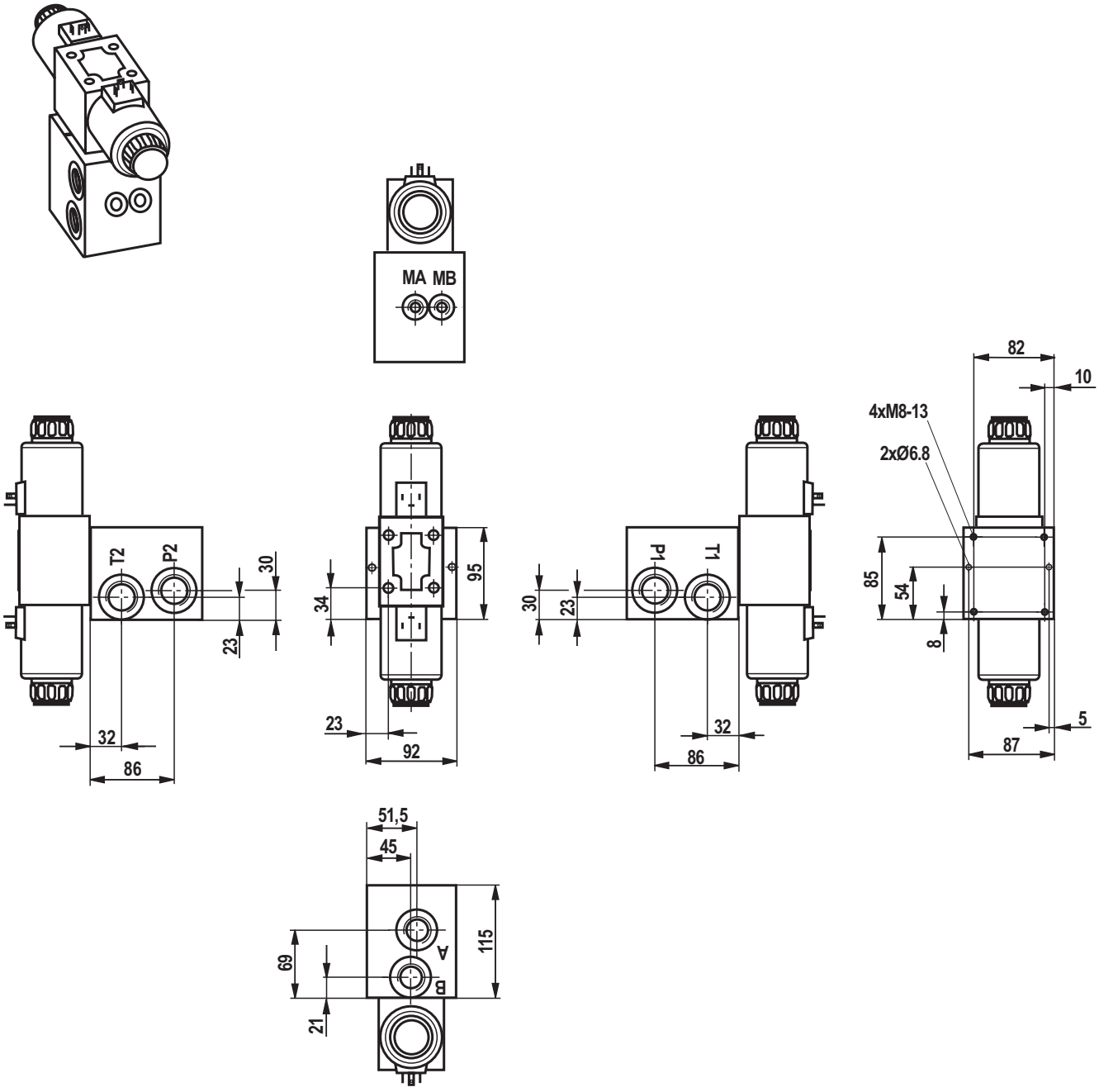
Thread type	Pipe thread according to ISO 228 Part 1	
Port	A; B	P1; P2; T1; T2
Thread diameter	G1/2	G3/4
Thread depth	15	17
Counter bore diameter	34	42
Counter bore depth	0.2	0.2

Dimensions: **Manifold 1HSR10-15/01D SO8**
(dimensions in mm)



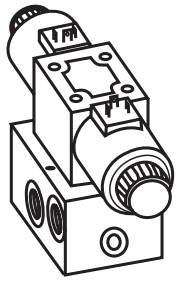
Thread type	Pipe thread according to ISO 228 Part 1		
Port	A; B	P1; P2; T1; T2	MA; MB
Thread diameter	G1/2	G3/4	G1/4
Thread depth	15	17	13
Counter bore diameter	34	42	25
Counter bore depth	0.2	0.2	0.2

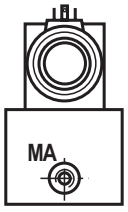
Dimensions: **Manifold 1HSR10-35/01C SO8**
(dimensions in mm)

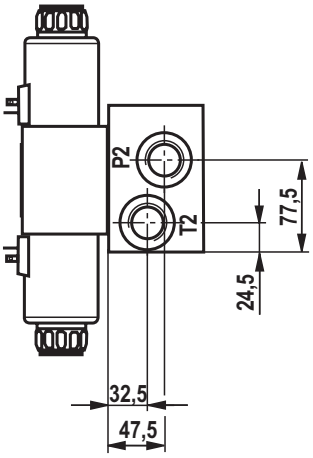


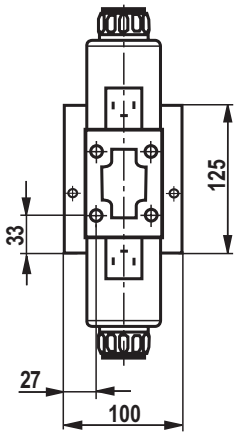
Thread type	Pipe thread according to ISO 228 Part 1		
Port	A; B	P1; P2; T1; T2	MA; MB
Thread diameter	G3/4	G1	G1/4
Thread depth	17	19	13
Counter bore diameter	42	47	25
Counter bore depth	0.2	0.2	0.2

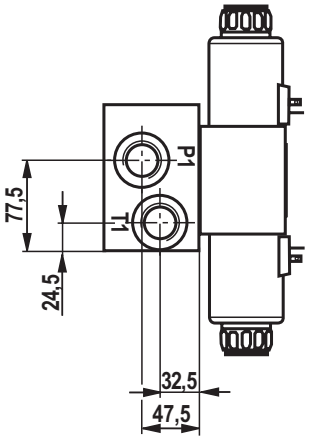
Dimensions: **Manifold 1HSR10-35/01D SO8**
(dimensions in mm)

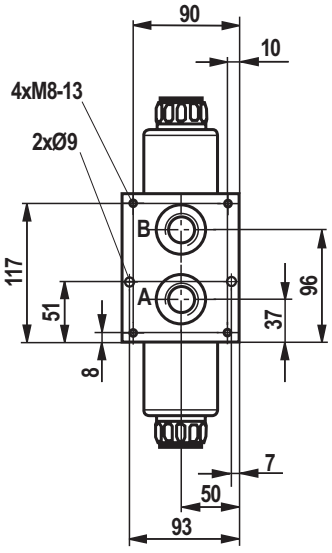


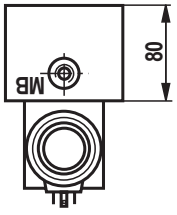










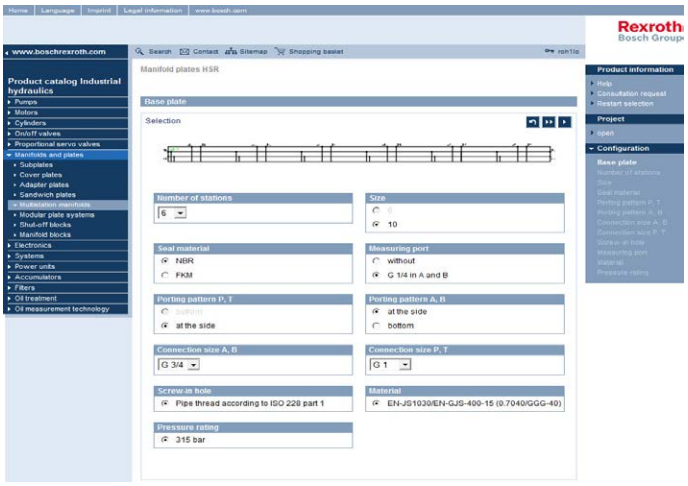


Thread type	Pipe thread according to ISO 228 Part 1		
Port	A; B	P1; P2; T1; T2	MA; MB
Thread diameter	G3/4	G1	G1/4
Thread depth	17	19	13
Counter bore diameter	42	47	25
Counter bore depth	0.2	0.2	0.2

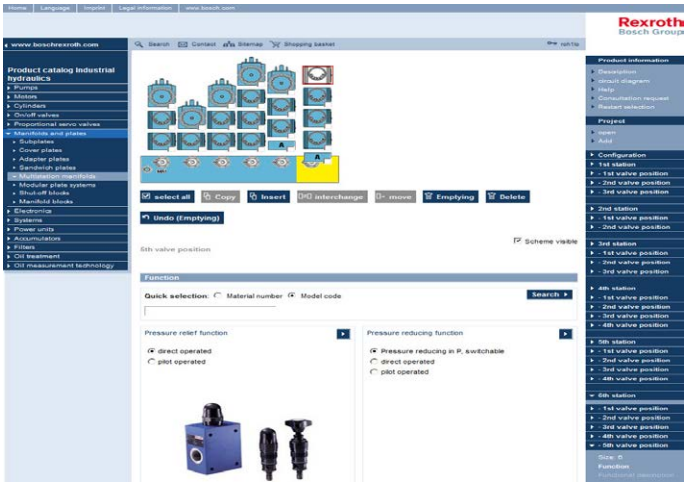
The manifold configurator on www.boschrexroth.com/ics/hsr

The configurator for HSR manifolds helps you configure your individual manifold or HSH vertical stacking in a simple and convenient way.
You can do this online by selecting relevant features of the base element (e.g. size, number of stations and port size) and the mounted product components (e.g. size, pressure settings, type of actuation).

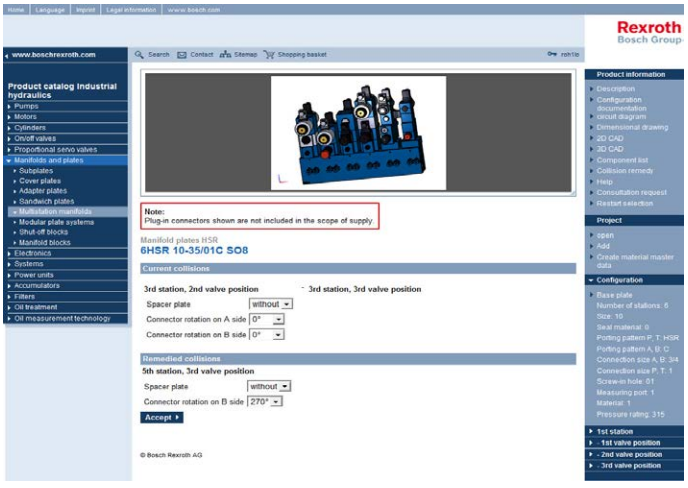
Note:
- You cannot use it for unfitted plates!



Thanks to the intuitive menu navigation, you are guided safely through the required configuration steps.
Related features are clearly arranged on one page.
By connecting components from various product areas, you can choose from a range of approx. 1000 different functions.



The individual components are selected either by type key or by material number using a configuration based on the circuit diagram or a “step by step” selection of the individual functional properties of the valve or the sandwich plate.



When the configuration is complete, a collision check offers various possibilities of fixing existing collisions. When the configuration is finished, you can have the complete configuration documentation sent to you via email including material list, circuit diagram, 2D drawing and 3D model (STEP). This is done by way of an automatic request to your local distributor who will promptly contact you and send you an offer.

Mounting screws depending on valve fitting

Screw selection table for vertical stacking in combination with size 10 directional valves

Number of sandwich plates	Clamping lengths of sandwich plates	Hexagon socket head cap screws according to ISO 4762; stud screws according to DIN 939		Stability	Material no.
1	1 x 50 mm	M6 x 90	ISO 4762	10.9	R913000259
2	2 x 50 mm	M6 x 140	ISO 4762	10.9	R913000443
3	3 x 50 mm	M6 x 190	DIN 939	10.9	R900014968
4	4 x 50 mm	M6 x 240	DIN 939	10.9	R900024864
5	5 x 50 mm	M6 x 295	DIN 939	10.9	R900012024
For the torques of the screws, please refer to the corresponding data sheets of the valves					

☞ **Note!**

- The clamping lengths of the mounted sandwich plates and valves must be checked for each individual case.

Example for mountable sandwich plates with a clamping length of 50 mm:
Pressure reducing valve ZDR 10 D...-5X/..., pressure relief valve ZDB 10 V...-4X/..., double check valve Z2S 10...-3X/..., check valve Z1S10...-.../, double throttle check valve Z2FS 10...-3X/V, pressure switch with sandwich plate HED 8 OH2X/...

Directional valve	Hexagon socket head cap screws according to ISO 4762;		Stability	Material no.
direct operated directional valve WE 10	M6 x 40	ISO 4762	10.9	R913000058
pilot operated directional valve WEH 10	M6 x 45	ISO 4762	10.9	R913000258
direct operated proportional valve WRA 10, WRE 10	M6 x 40	ISO 4762	10.9	R913000058
pilot operated proportional valve WRK 10, WRZ 10	M6 x 45	ISO 4762	10.9	R913000258
For the torques of the screws, please refer to the corresponding data sheets of the valves				

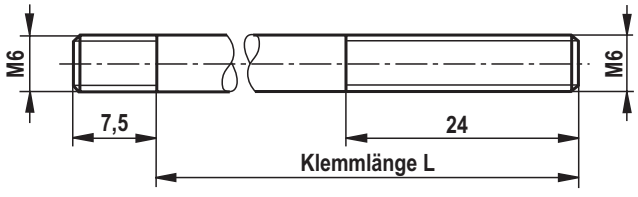
☞ **Note!**

- The screw selection table does not apply to directional valves in their seawater-protected version due to differences in the clamping lengths on the directional valve (dimensions see data sheets – seawater-protected directional valves).

☞ **Note!**

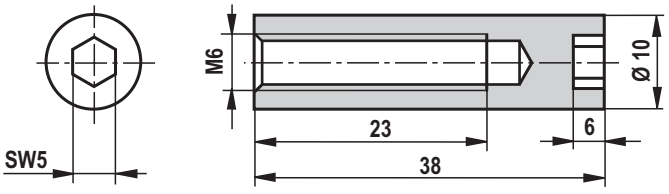
- Directional valves with central ports “D”, “DL”, “DZ” and “DZL” can only be used with hexagon socket head cap screws or stud screws and round nut according to ZN 10035, material no. R913020310.

Stud screw M6 DIN 939, property class 10.9



L see screw selection table

Round nut ZN10035-M6-ST, material no. R913020310



Project planning information

Pressure reducing valve in conjunction with double check valve
The pressure reducing valve ZDR..DA (pressure reduction in channel A) **must** always be installed between the directional valve and the double check valve Z2S... This ensures that the double check valve can block in a leak-free manner.

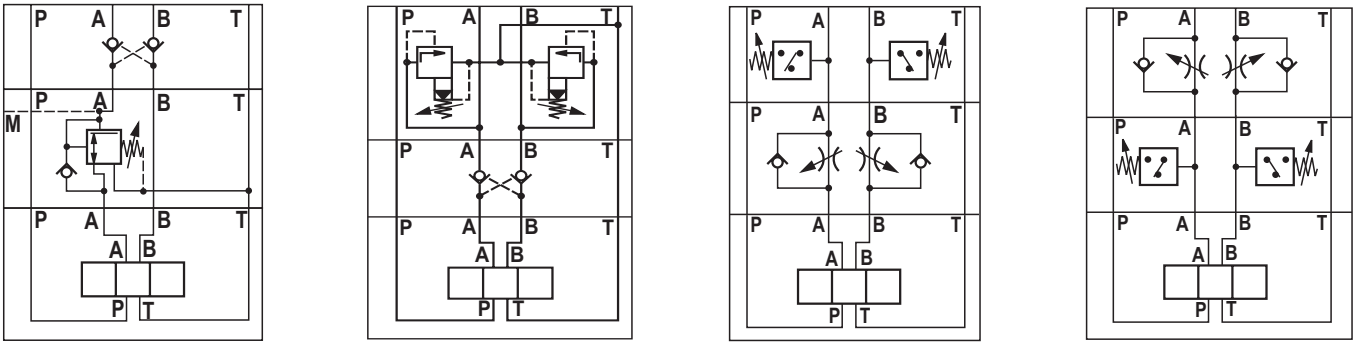
Pressure relief valve in connection with double check valve
Leak-free blocking of the actuator is **not** possible if a pressure relief valve ZDB../Z2DB.. is effective in channel A and/or B and a double check valve is installed.

☞ **Note!**
The installation of sandwich plates with two pressure switches on manifolds with lateral ports “C” is **not possible.**

Pressure switches in connection with twin throttle check valve

Supply control
The pressure switch HED 8 OH, effective in channel A and/or B, is installed between the subplate and the twin throttle check valve Z2FS.

Discharge control
The pressure switch HED 8 OH, effective in channel A and/or B, is installed between the directional valve and the twin throttle check valve Z2FS.

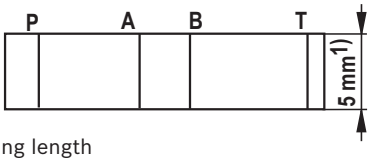


The illustrated sections of circuit diagrams are examples. The project planning information must also be observed for valves with a similar function.

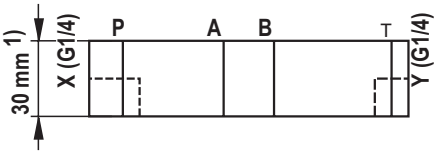
Sandwich plate (with or without separate port X, Y) **for use with pilot operated valve**

☞ **Note!**
To seal channels X and Y on manifold version “C” (lateral actuator ports), you need the sandwich plate with material no. **R900320784** (NBR) or **R900321346** (FKM)!

☞ **Note!**
For all designs, the external pilot oil supply is only possible with the sandwich plate with material no. **R900320785** (NBR) or **R900321347** (FKM)!



1) Plate clamping length



Selection of available subplate-mounted valves

Sandwich plates size 10	Data sheet
Sandwich plates HSZ	48052
Pressure reducing valve ZDR	26585
Pressure relief valve ZDB	25761
Double check valve Z2S	21553
Check valve Z1S	21537
Twin throttle check valve Z2FS	27518
Pressure switch HED8	50061

Adapter plate size 10	Data sheet
HSE	48045

Cover plate size 10	Data sheet
HSA	48042

If adapter plates are used, valves of other sizes can also be mounted.

Directional valves size 10	Data sheet
WE (electrically operated)	23327
WM, WP, WHD and WN (mechanically, manually, fluidically operated)	22331
WEH (pilot operated)	24751 [1]

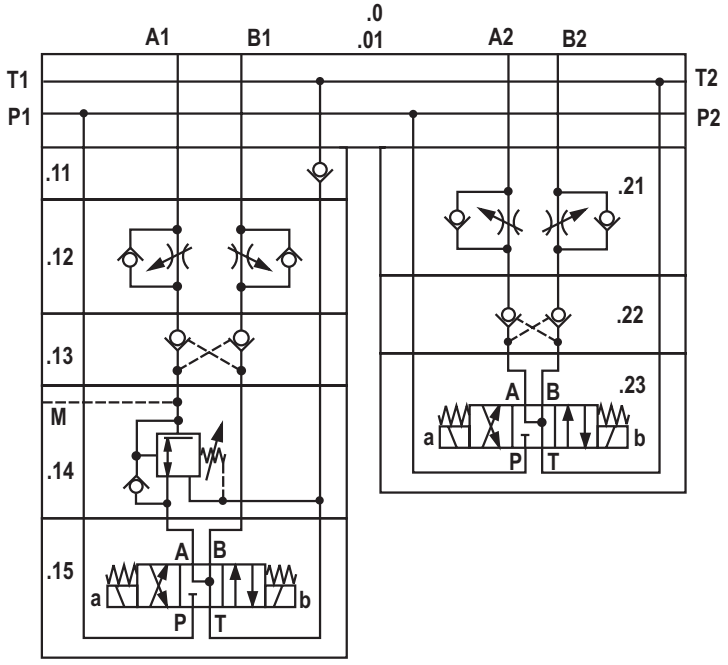
Proportional valves size 10	Data sheet
WRA (direct operated, without feedback)	29055
WRE (direct operated, with el. feedback)	29061
WRZ/WRH (pilot operated without feedback)	29115 [1]

[1] Observe the notes on page 16

NG = size

Required ordering code of a completely mounted manifold

Example:
2-fold manifold



Item	Quantity	Device designation	Type designation	Material no.
.0	1	Manifold	2HSR 10 C1X/... [1]	[1]
.01	1	Manifold	2HSR 10-35/01C SO8 PHOSPHATED	R900689383
.11	1	Check valve	Z1S 10 TA05-2TB9-4X/F	R901274760
.12	1	Twin throttle check valve	Z2FS 10-5-3X/V	R900517812
.13	1	Twin check valve	Z2S 10-2-3X/	R900421985
.14	1	Pressure reducing valve	ZDR 10 DA2-5X/150Y	R900406178
.15	1	Directional valve	4WE10 J5X/EG24N9K4/M	R901278744
	4	Stud screw	M6 x 240-10.9 DIN 939	R900024864
	4	Round nut	Round nut ZN10035-M6-ST	R913020310
.21	1	Twin throttle check valve	Z2FS 10-5-3X/V	R900517812
.22	1	Twin check valve	Z2S 10-2-3X/	R900421985
.23	1	Directional valve	4WE10 J5X/EG24N9K4/M	R901278744
	4	Hexagon socket head cap screw	M6 x 140-10.9 DIN 912	R913000443

[1] The material number and type designation are determined by the plant or the manifold configurator!

Notes

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Bosch Rexroth AG, RE 48110, edition: 2015-03

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