

Servi sub-plate system size 3 and 5 for Hawe proportional directional spool valve type PSVF and SLF according to Hawe pamphlet D 7700-F

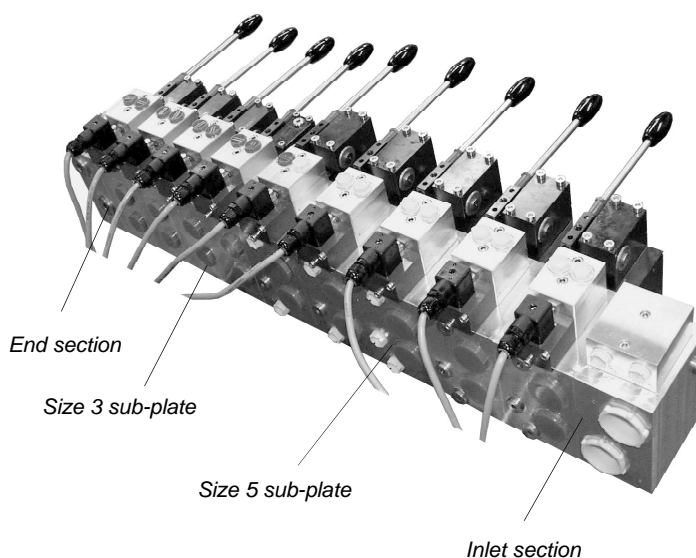
1. General Information

This pamphlet describes special sub-plates developed by Servi Motion Control AS to combine Hawe PSVF/SLF proportional directional spool valves as manifold mounted valve banks with special functions beyond standard range combinations as delivered by Hawe. For complete technical description, this pamphlet must be read together with Hawe pamphlet D 7700-F.

This sub-plate system development results in a modular, maintenance friendly and very flexible solution of high quality, enabling several possibilities for remote control of the valve in addition to manual lever operation.

The subplates are made from the material Certal[®], which is a seawater resistant aluminum alloy with strength properties comparable to St52 (ST 355 J2 G3) carbon steel.

The sub-plate mounted valve sections type PSVF in sizes 3 and 5, may be combined in any layout order, best suited for each practical application, as the interfacing layouts are identical.



P and R side of valve block, complete with inlet section, both 3 and 5 size valve section sub-plates and end section.

Inlet section:

- Ports P and R are fitted with 1 ¼" BSP.
- LS port is ¼" BSP without a pressure relief valve.
- The inlet section is fitted with two mounting holes M10 x 35.
- The inlet section is fitted with a flange mounted pressure reducing valve for the supply of pilot flow to the valve sections. It is also possible to connect an external pilot valve for pilot pressure control.
- A common drain port for the valve sections and the pilot pressure control valve, is 3/8" BSP.

Valve section:

- Size 3 modules are fitted with ¾" BSP ports for A and B.
- Size 5 modules are fitted with 1" BSP ports for A and B.
- Ports X, U and W are ¼" BSP for both sizes.
- The proportional electrical pilot valve originally fitted on the HAWE supplied valve section, is moved to the sub-plate and combined with a change-over valve to a separate valve unit for external connection of hydraulic remote control. In this way, the electric proportional control and the hydraulic proportional control will be able to be operated with the same level of priority and with identical response time. The original fitted check valves and nozzles are removed.
- Sandwich mounted manifolds are available for interlocking functions of pilot lines.

End section:

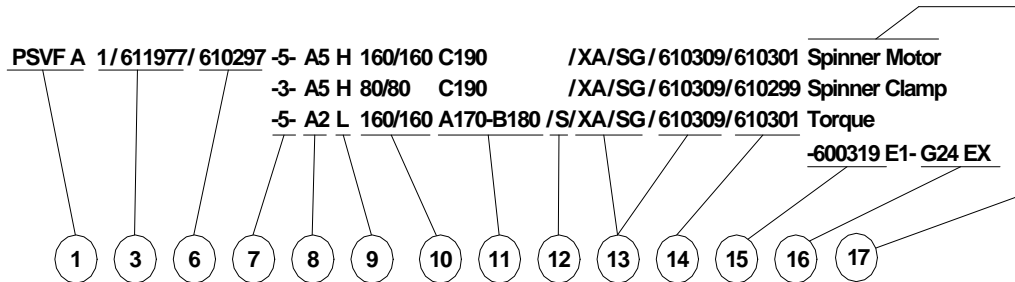
- Ports P and R are fitted with ¾" BSP.
- LS signal may be remotely connected by installing internal plug. Remote LS port is ¼" BSP.
- The end section is fitted with two mounting holes M10 x 35.

2. Type coding, overview

This pamphlet must be read in combination with the Hawe pamphlet D 7700-F, as the type coding refers to both. You will find references to tables and descriptions in Hawe D 7700-F for all code sections, but in cases where Servi Sub-plate system replaces functions in Hawe parts, references are made to tables in this pamphlet. All code key numbers and common table numbers corresponds

with Hawe numbers. Tables unique to Servi Sub-plate system starts table number with "S". The following two pages contains the preferred variety of combinations for both. The Hawe pamphlet D 7700-F contains, for some codesections, a wider range of variety, which in most cases will be redundant with use of Servi Sub-plate System.

Order example, Hawe valve bank with Servi Sub-plate System



- | | | |
|------------------|---|---|
| ① | PSVF A
SLF | Supply with pressurised oil by means of variable displacement pump (closed center) with a delivery flow controller, or as a second, separate unit if both valve banks are connected to a constant pressure system
Individual valve |
| <hr/> | | |
| ③ | Control oil | (see section 3.1.1) |
| 1 | 1 | With integrated pressure reducing valve for the internal supply of control oil (control pressure approx. 20 bar) |
| 2 | 2 | With integrated pressure reducing valve for the internal supply of control oil (control pressure approx. 40 bar) |
| No coding | No coding | Without pressure reducing valve in case of an external control oil supply (min. 20 bar up to max. 40 bar) |
| / 611977 | / 611977 | Pressure reducing valve block. With pressure-reducing valve 1, 2 or No coding |
| <hr/> | | |
| ⑥ | Inlet section (see sect. 3.1.1.)
610297 | Size 3, and 5 standard (tapped ports for P and R G 11/4" DIN 180 22811 (BSPP)) |
| <hr/> | | |
| ⑦ | Size (see D7700-F, table 1, 5 and 11, sect. 3.1.1, 3.1.2 and 3.2.1)
3 or 5 | Valve size. |
| <hr/> | | |
| ⑧ | Valve section - Basic function (see D7700-F table 12, section 3.2.1)
A2 (standard)
A1
A5
AX | Spool valve with inflow controller for each consumer
Spool valve without inflow controller, suitable for consumers, which are actuated individually and successively but not simultaneously (no additional functions possible)
Inflow controller with enforced spring for higher flow
Blanking plate (only size 3) |
| <hr/> | | |
| ⑨ | Coding for the flow pattern. For specifications, see D7700-F table 13, section 3.2.1 | |
| <hr/> | | |
| ⑩ | Flow coding for port A and B (see D7700-F, table 14, sect. 3.2.1)
.../... | Coding for port A or B (independently selectable)
3, 6, 10, 16, 25, 40, 63, 80 (size 3)
16, 25, 40, 63, 80, 120, 160 (size 5) |

- ⑪ Secondary pressure limitation (deviating from the main pressure setting, lower pressure for the connected consumer) no shock valves (see D7700-F, table 15 and 17, section 3.2.1)
(doesn't apply to spool valve types without inflow controller, coding A1 8 or table 12)

(no coding)	No secondary pressure limitation
A...	Only for consumer port A
B...	Only for consumer port B
A...B...	For consumer ports A and B
C...	Joint for consumer port A and B (not in conjunction with coding F. or S 12)

- ⑫ Functional cut-off (see D7700-F, table 16 and 17, sect. 3.2.1)
(doesn't apply to spool valve types without inflow controller, coding A1 8 or table 12)

S	External hydraulic load signal pick-up from the control signal port U (consumer port A), W (consumer port B) and X (only size 5, ports at flange)
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- ⑬ Types of actuation (see sect. 3.2.1 table 18/19+S1+S2 and **D7700-F** table 18 and 19, sect. 3.2.1)

/A (1,2)	Manual actuation (suffix 1 = without hand lever, 2 = short lever)
X	Hydraulic actuation
/ ... Suffix	S Seaworthy version (maritime climate) Coding affects all parts in valve block! G Reinforced version (only size 5)

610309 Valve bloc for pilot oil, with two cartridge shuttle valves **WVC 1** for electric-proportional actuation and hydraulic- proportional actuation (size 3 and 5.)

612029 Valve bloc for pilot oil hydraulic - proportional actuation (size 3 and 5.)
For connection of remote control pressure. (hydraulic joystick)

612030 Blanking plate.

- ⑭ Sub-plate for the individual valve section (see sect 3.3.1 table S3, S4 and S5)

610301	size 5.
610299	size 3.

- ⑮ End plates (see sect, 3.1.4 table S6)

610319 (E1)	Standard
612092 (E2)	Configured for LS control connection (y) from a subsequent PSVF control bank. (Plug inserted to isolate LS duct from reflow gallery.)

- ⑯ Nom. solenoid voltage (see **D 7700-F** table 4, sect. 3.1.1)

G 12 12V DC	
G 24 24V DC	
G 24ex 24V DC,	explosion-proof version, conforming to E Ex m II T 4 (120°C)

- ⑰ Application description (for information only).

3. Available versions, main data

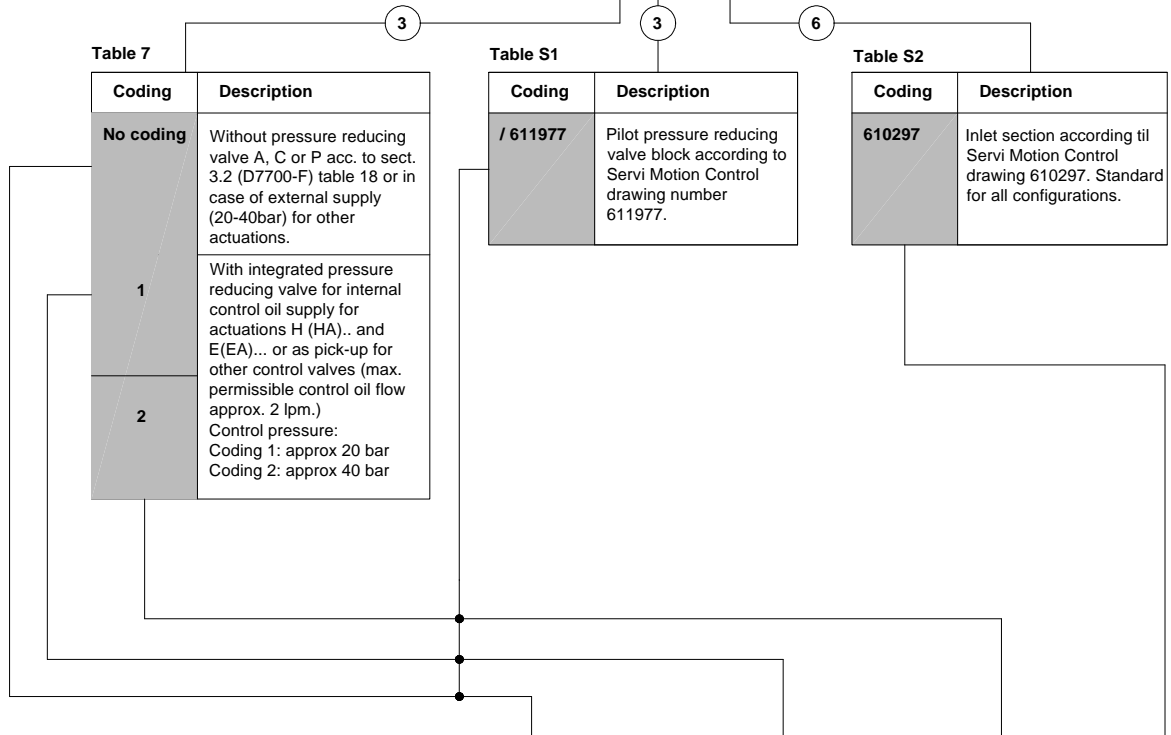
3.1 Inlet section, (Control section)

Servi sub-plate system inlet section replaces the inlet section from Hawe. The inlet section is divided into two sections, where the main section (610297) is standard for all configurations, and the secondary section is flange-mounted on the main section. 611977 is a pilot pressure reducing valve block, which can be configured as described in table

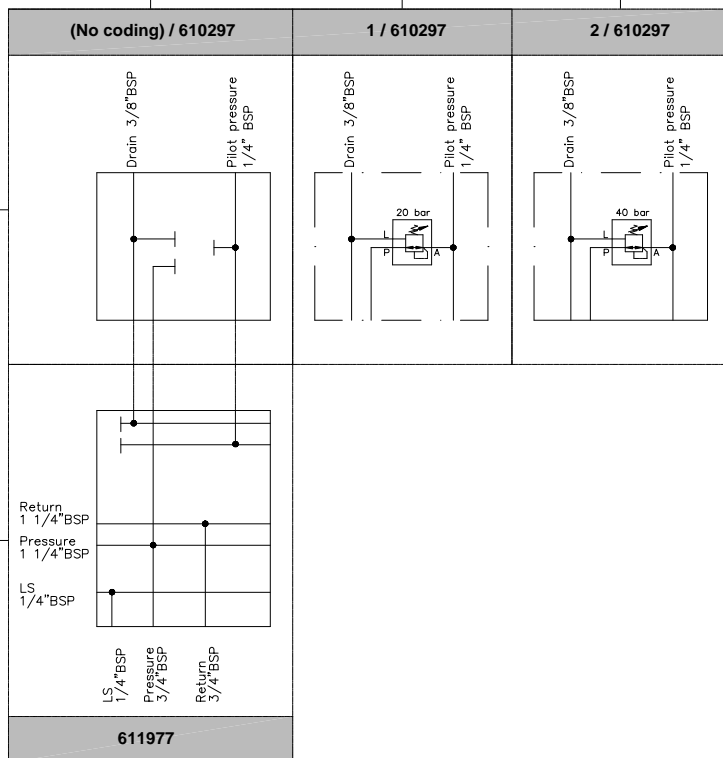
7, sect. 3.1.3, and in code key under ③. As an extra feature, for integration with other valve blocks, the inlet section is fitted with 3/4" outlet ports for P and R. **NOTE!** Both sections must be specified!

Order example:

PSVF A 1/611977/610297 - 5 - A5.....



Symbols:



3.2.2 Servi Sub-plates

Servi sub-plates replace all Howe sub-plates. Both 3 and 5 size sub-plates are divided into two sections, where the main section is standard for all configurations, and the secondary section is customisable for different system demands; the proportional electrical pilot valve originally fitted on the Howe supplied valve section, is moved to the secondary valve section sub-plate and combined with a change-over valve to a separate valve unit for external connection of hydraulic

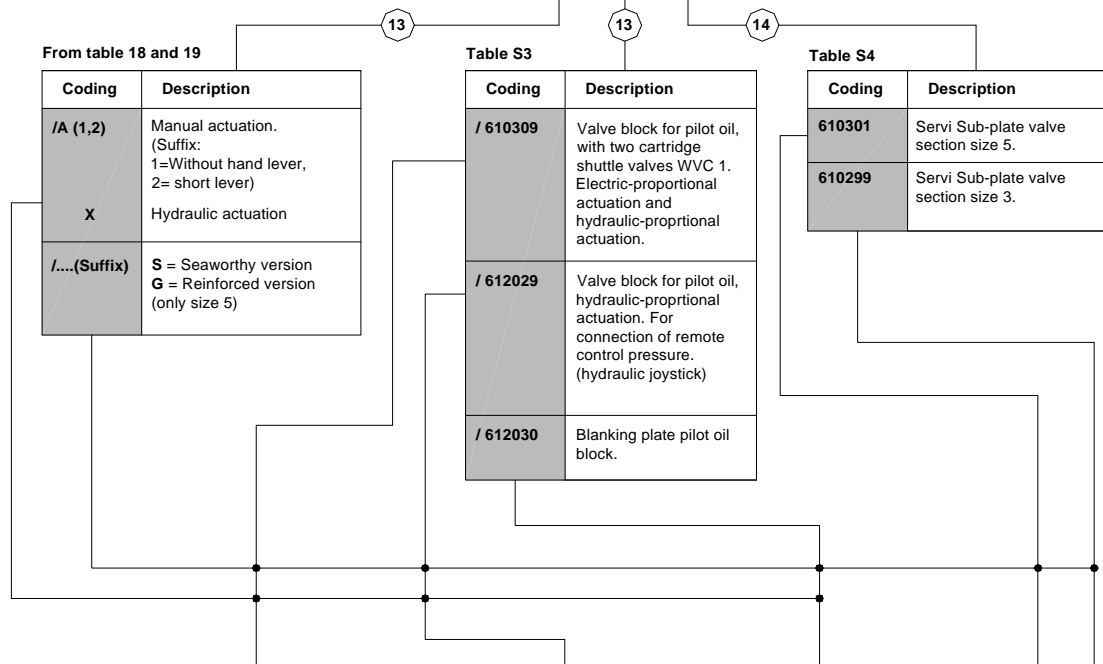
remote control. In this way, the electric proportional control and the hydraulic proportional control will be able to be operated with the same level of priority and with identical response time. The originally fitted check valves and nozzles are removed.

Sandwich mounted manifolds are available for interlocking functions of pilot lines.

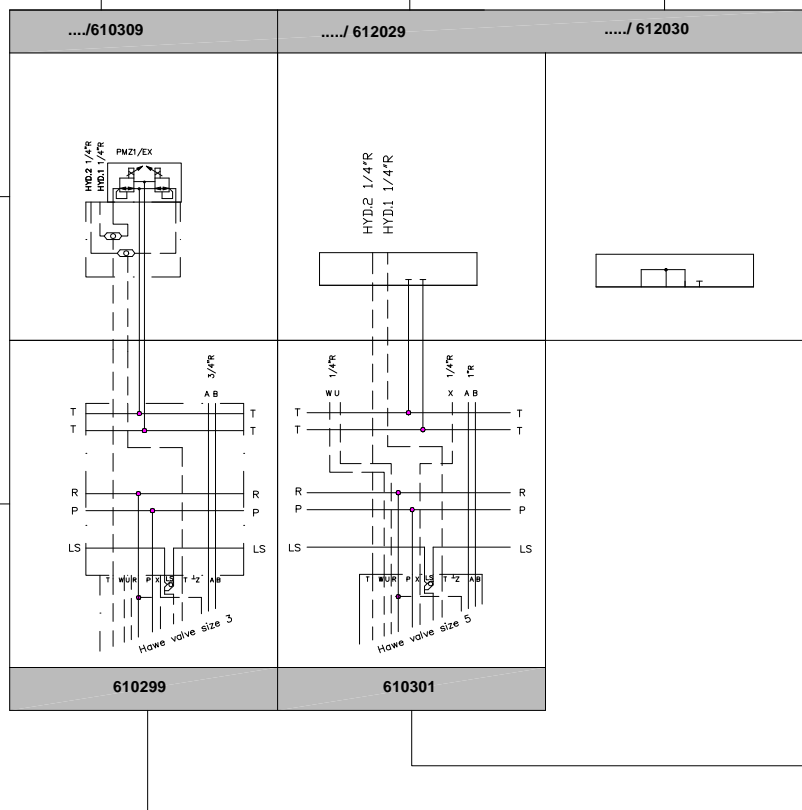
OBS! Both sections must be specified!

Order example:

A170-B180 /S/XA/SG /612104/610301 Torque



Symbols:



3.2.3 End section

The end section from Servi replace the end plate from Hawe. The end section from Servi is standard for all system configurations on the valve block it is mounted on. It is, however, possible to connect a LS pickup line to the

end section, for use of same LS signal in another valve block with shared pump system. This requires plugging of the LS return duct in the end section.

Order example:

/ 610309/610301 Torque

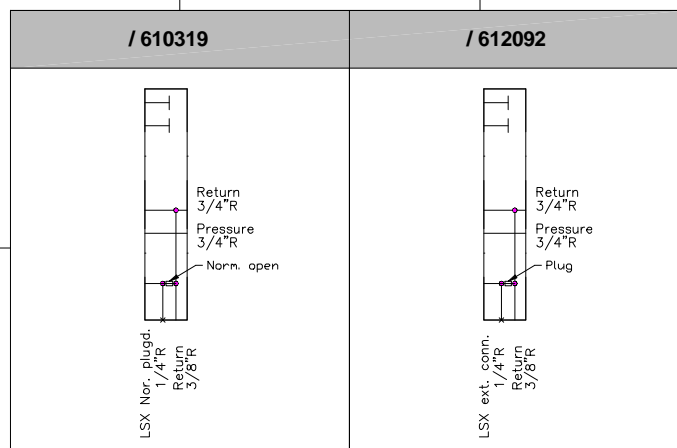
-600319 E1- G24 EX

15

Table S6

Coding	Description
/ 610319	End section with open LS duct to reflow gallery.
/ 612092	End section with plugged LS-duct to reflow gallery for external connection.

Symbols:



5. Unit dimensions and fittings

5.1 Inlet section, (Control section)

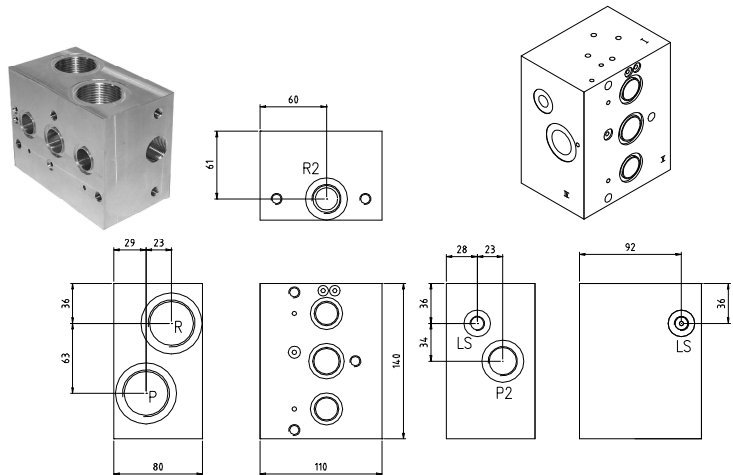
Servi Sub-plate system inlet section replaces the inlet section from Hawe. The inlet section is divided into two sections, where the main section (610297) is standard for all configurations, and the secondary section (611977) is flange-mounted on the main section. 611977 is a pilot pressure reducing valve block, which can be configured as described

in D7700-F, table 7, sect. 3.1.3, and in code key under ③. As an extra feature, for integration with other valve blocks, the inlet section is fitted with 3/4" outlet ports for P and R.

NOTE! Both sections must be specified!

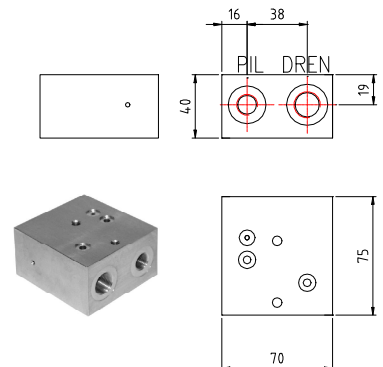
⑥ 610297, standard inlet section: Weight, dimensions and connections

Table 1	
Weight and size	
Weight	3,8 kg
Size	140x110x80mm
Table 2	
Main connections	
P	1 1/4" BSP
R	1 1/4" BSP
LS x 2	1/4" BSP
Table 3	
Extra connections	
P	3/4" BSP
R	3/4" BSP



③ /611977, Pressure reducing valve block: Weight, dimensions and connections

Table 4		
Weight and size		
Weight	0,4 kg	
Size	75x70x40mm	
Table 5		
Main connections		
Drain	3/8" BSP	
Pilot	1/4" BSP	
Table 6		
Coding	Description	Valve type
1	Control P = 20 bar	
2	Control P = 40 bar	
No coding	External supply	Internal plug



5.2 Sub-plates for valve sections

Servi sub-plates replace all Hawe sub-plates. Both 3 and 5 size sub-plates are divided into two sections, where the main section is standard for all configurations, and the secondary section can be individually configured for different system demands; the proportional electrical pilot valve originally fitted on the HAWE supplied valve section, is moved to the secondary valve section sub-plate and combined with a change-over valve to a separate valve unit for external con-

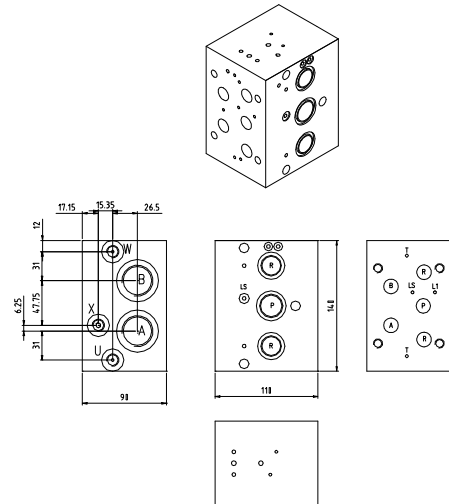
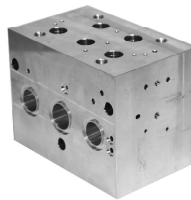
nection of hydraulic remote control. In this way, the electric proportional control and the hydraulic proportional control will be able to be operated with the same level of priority and with identical response time. The originally fitted check valves and nozzles are removed.

Sandwich mounted manifolds are available for interlocking functions of pilot lines.

NOTE Both sections must be specified!

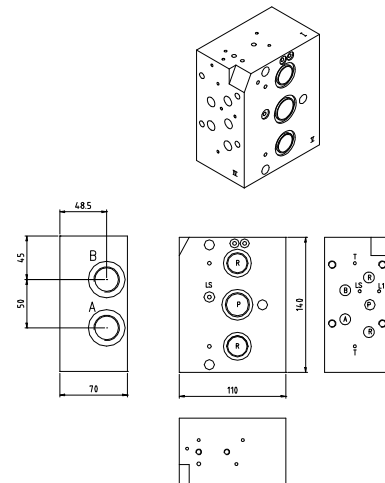
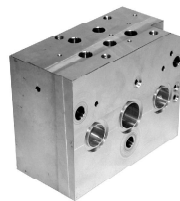
14 610301, Servi sub-plate size 5: Weight, dimensions and connections.

Table 8	
Weight and size	
Weight	3,8 kg
Size	140x110x90mm
Table 9	
Main connections	
A	1" BSP
B	1" BSP
Table 10	
Extra Connections	
X	1/4" BSP
U	1/4" BSP
W	1/4" BSP



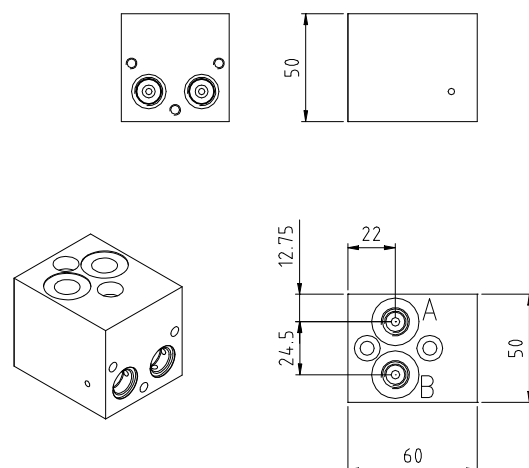
14 610299, Servi sub-plate size 3: Weight, dimensions and connections

Table 8	
Weight and size	
Weight	3,8 kg
Size	140x110x70mm
Table 9	
Main connections	
A	3/4" BSP
B	3/4" BSP



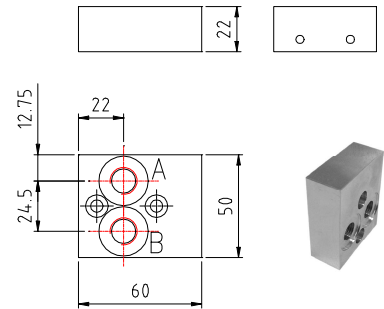
14 610309, Servi valve bloc for pilot oil with two cartridge shuttle valves, size 3 and 5: Weight, dimensions and connections

Table 8	
Weight and size	
Weight	0,85 kg
Size	60x50x50mm
Table 9	
Main connections	
A	1/4" BSP
B	1/4" BSP



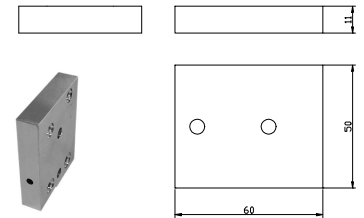
- 13) **612029, Servi valve bloc for pilot oil hydraulic - proportional actuation size 3 and 5. For connection of externally remote control pressure. Weight, dimensions and connections:**

Table 8	
Weight and size	
Weight	0,16 kg
Size	60X50X22mm
Table 9	
Main connections	
A	¼" BSP
B	¼" BSP



- 13) **612030, Servi blanking plate. size 3 and 5. Weight, dimensions and connections:**

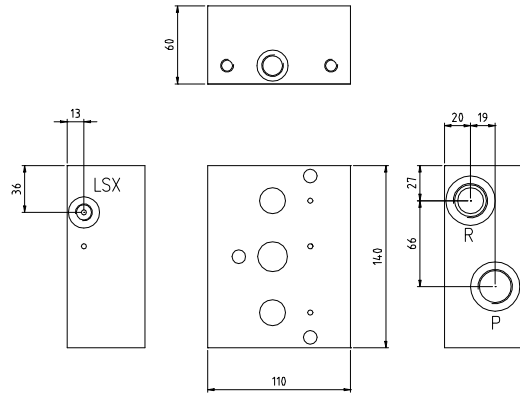
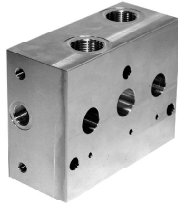
Table 8	
Weight and size	
Weight	0,10 kg
Size	60x50x11mm



5.3 End Section

- ⑮ Servi sub-plates replace all Hawe sub-plates.
612092 and
610319

Table 8	
Weight and size	
Weight	3,8 kg
Size	140x110x60mm
Table 9	
Main connections	
P	3/4" BSP
R	3/4" BSP
LSX	1/4" BSP



6. Example circuit

Flow pattern symbol
acc. to
order example in chapter 2

