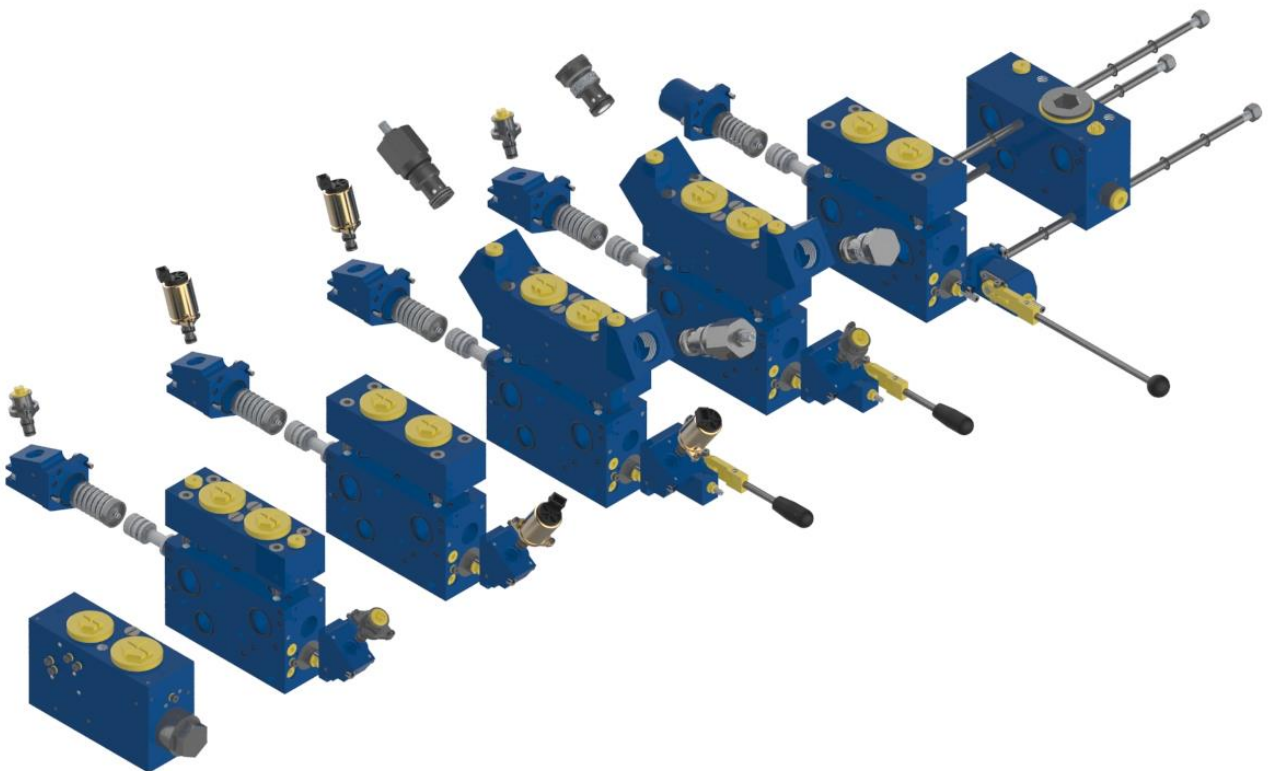


Build Program APV-22 BSP Thread



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Control section	Fout! Bladwijzer niet gedefinieerd.
Connection block.....	13
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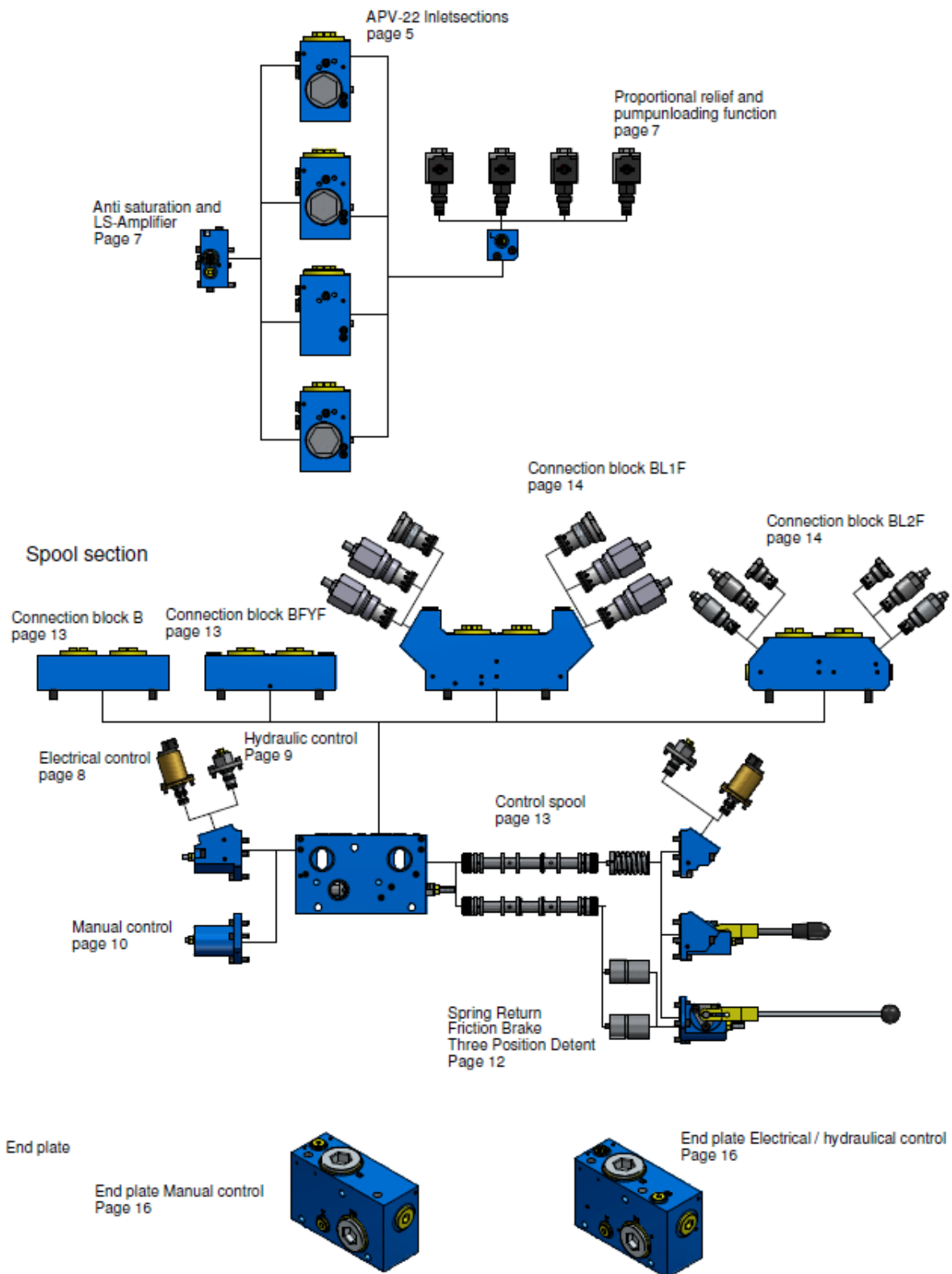
Main technical data

Max. flow:	Port P or P1	320 L/min.
	Port P + P1	660 L/min.
	Port A / B	330 L/min.
Max. pressure:	Port P / A / B	420 Bar
	Port T	35 Bar
Pressure setting range		13-420 Bar Manual operating 20-420 Bar Electrical operating
Pressure drop over 2-way compensator (A,B)		7 Bar
Internal pilot pressure supply		28 Bar
Pilot pressure for electric and hydraulic control		6-22 Bar
Spool stroke		7 mm
Spool overlap (dead band)		1,45 mm (21% of spool stroke)
Fluid		Mineral oil according to DIN 51524/51525
Fluid temperature range		-30°C...+80°C
Viscosity range		10...500cSt, optimal 30cSt
Contamination level max.		According to NAS 1638 Class 8 or ISO 4406: 18/16/13
Port connections		
Port P		G 1 ¼" BSP
Port T		G 1 ½" BSP
Port A,B		G 1 ¼" BSP
Port Ls		G ¼" BSP
Port L		G ¼" BSP
Port YA,YB		G ¼" BSP
Electric connection		AMP Junior Power Timer / Deutsch
Nominal voltage		12 VDC or 24 VDC
Nominal current		12 VDC (1500 mA) 24 VDC (750 mA)
Coil resistance		12 VDC (4,72 ± 5% Ω) 24 VDC (20,8 ± 5% Ω)
Recommended dither frequency		100 Hz
Type of protection		IP 65
Duty cycle		100%
Hysteresis		3%



Modularity

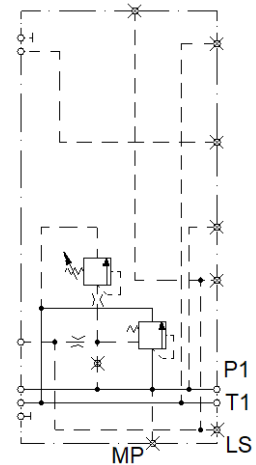
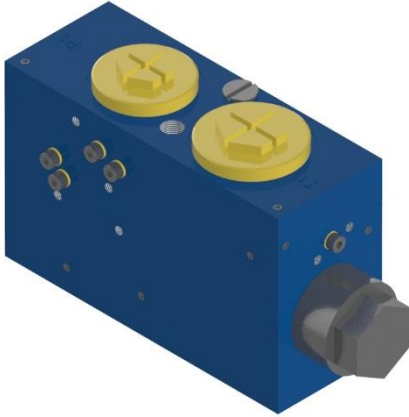
Inlet



Inlet

Fixed displacement pump,

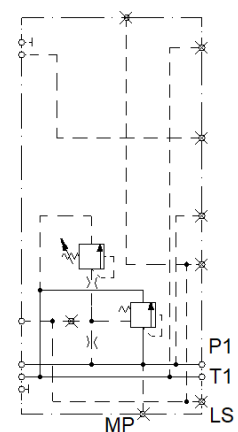
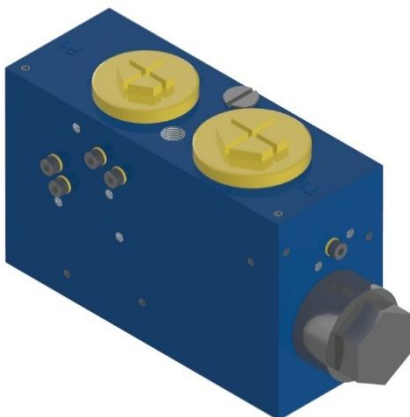
For fixed displacement pumps the “537U” is used. The inlet section is equipped a three-way compensator that also acts as a main relief in the pump line. The 537U can easily be converted to the 537S.



Part number	Description
AP-2210-537U	INLET 22K U 420B

Load sense pump

For load sense pumps the “537S” can be used. The inlet section is equipped with a pilot operated relief valve in the pump line. The 537S can easily be converted to the 591U

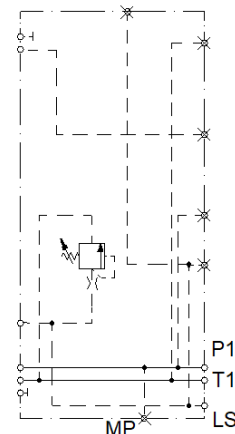
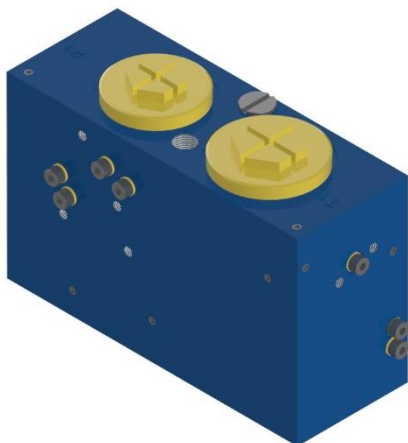


Part number	Description
AP-2210-537S	INLET 22K S 420B



Load sense pump

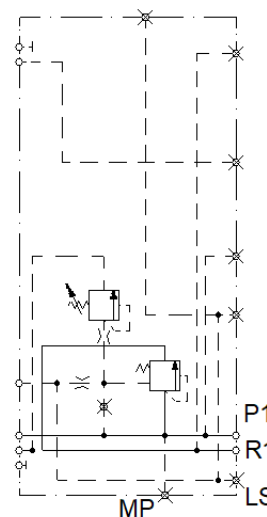
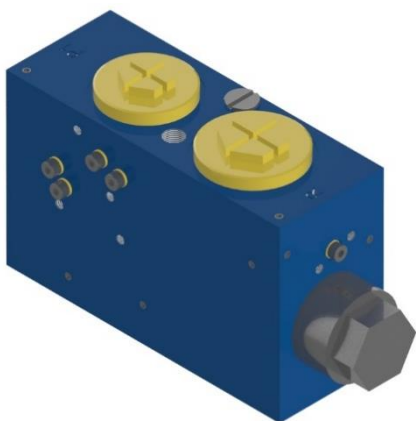
For load sense pumps the 537N can be used, the inlet plate has the function as inlet block for P, T, LS (load sense line). The load signal from the valve block can be limited up to 350 Bar with the relief valve.



Part number	Description
AP-2210-537N	INLET 22K N 420B

Constant pump and serial connection

To feed a secondary circuit the inlet plate "537R" is available, to be used with a fixed displacement pump.



Part number	Description
AP-2210-537R	INLET 22K R 420B



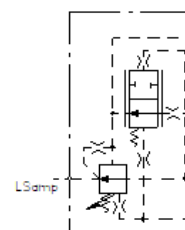
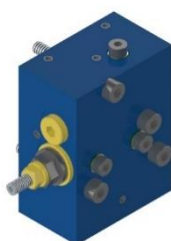
Inlet options

Anti-saturation and LS amplifier block

This block contains both functions.

The anti-saturation function can reduce the pilot pressure if the pump supplies less flow than the operated sections require. This results in a general speed decrease of all operated sections. So the user is still able to operate all functions at the same time.

The LS amplifier can add a maximum of 7 bars to the LS signal going to the pump. this is done by feeding a small amount of pressure from the P line into the LS line

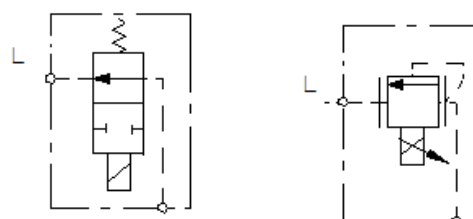
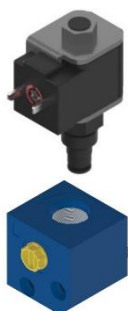


Part number	Description
AP-1610-305AL	FUNCTION AL. 16/22

Pump unloading and Proportional pressure control: D/E function

For the pump unloading function the load pressure signal from the control sections can be dumped directly to tank. The electrical control is available in 12 VDC and 24 VDC with 2/2-way cartridge in Normally open or normally closed configuration.

For remote proportional control of the maximum pressure of the valve block the electrical proportional pressure relief is available in 12 VDC and 24 VDC.



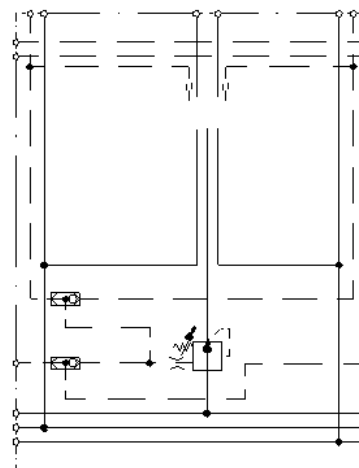
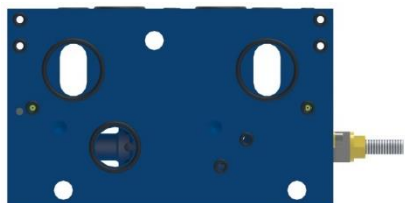
Part number	Description
AP-1610-330	D/E BLOCK
AP-1610-364D1	DUMPVALVE N.O. 12VDC-OA
AP-1610-364D2	DUMPVALVE N.C. 12VDC-CA
AP-1610-364D3	DUMPVALVE N.O. 24VDC-OB
AP-1610-364D4	DUMPVALVE N.C. 24VDC-CB
AP-1610-364E1	EL.PROP 12 VDC-EA
AP-1610-364E2	EL.PROP 24 VDC-EB



Spool section

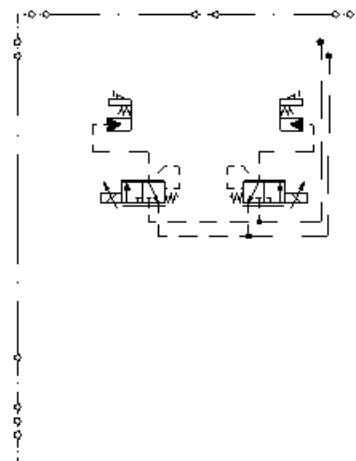
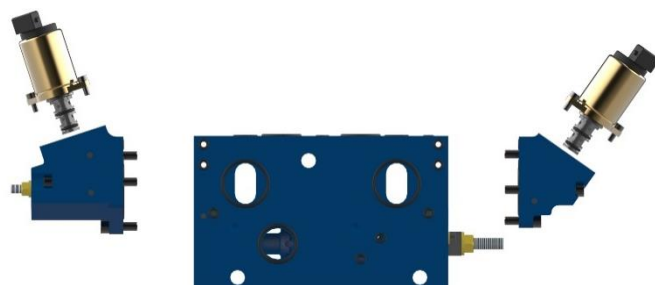
Basic spool section "344F"

The spool section is the base of the APV-22 control section, it contains the 2-way compensator with delta P adjustment, so the flow can be adjusted without using the stroke limitation. By mounting end- and spring caps the control method is configured



Part number	Description
AP-2220-344F	SPOOL SECTION 22KF-SS

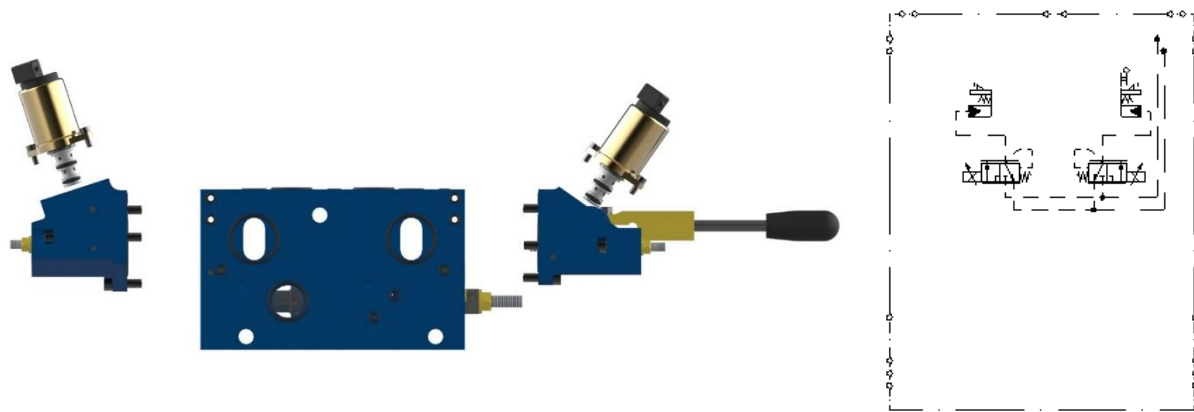
Electric control



Part number	Description
AP-2220-343	SPRING CAP 22 E/O--M
AP-2220-342	END CAP 22 E/O
AP-1620-356A	SOLENOID 12VDC AMP - 20BAR
AP-1620-356AD	SOLENOID 12V DEUTSCH - 20BAR
AP-1620-356B	SOLENOID 24 VDC AMP - 20BAR
AP-1620-356BD	SOLENOID 24VDC DEUTSCH - 20BAR
AP-1620-356E	SOLENOID 12VDC+HN - 20bar
AP-1620-356F	SOLENOID 24VDC+HN - 20bar
AP-1620-356H	SOLENOID 24VDC II 2G Ex mb II

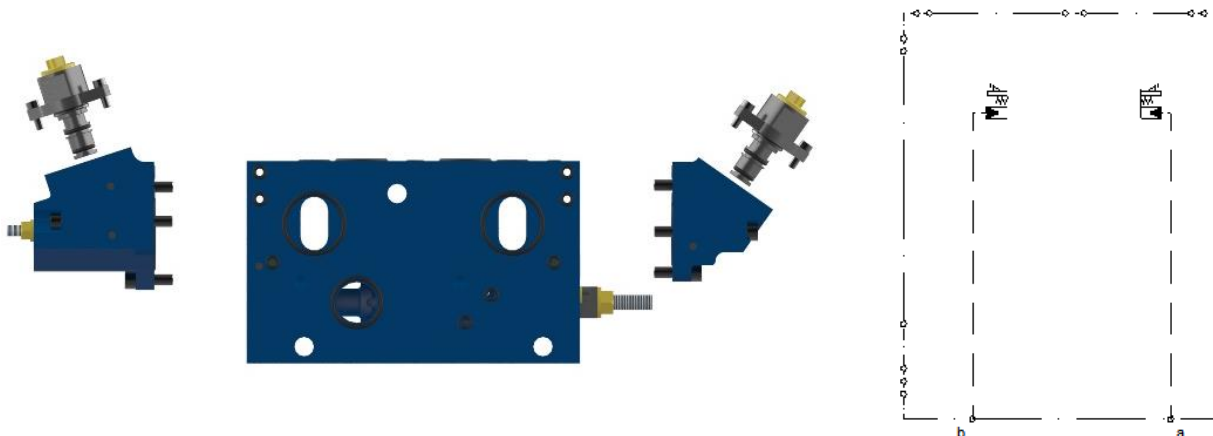


Electric with emergency lever



Part number	Description
AP-2220-343	SPRING CAP 22 E/O--M
AP-2220-350	END CAP 22 E/O--M
AP-1620-356A	SOLENOID 12VDC AMP - 20BAR
AP-1620-356AD	SOLENOID 12V DEUTSCH - 20BAR
AP-1620-356B	SOLENOID 24 VDC AMP - 20BAR
AP-1620-356BD	SOLENOID 24VDC DEUTSCH - 20BAR
AP-1620-356E	SOLENOID 12VDC+HN - 20bar
AP-1620-356F	SOLENOID 24VDC+HN - 20bar
AP-1620-356H	SOLENOID 24VDC II 2G Ex mb II

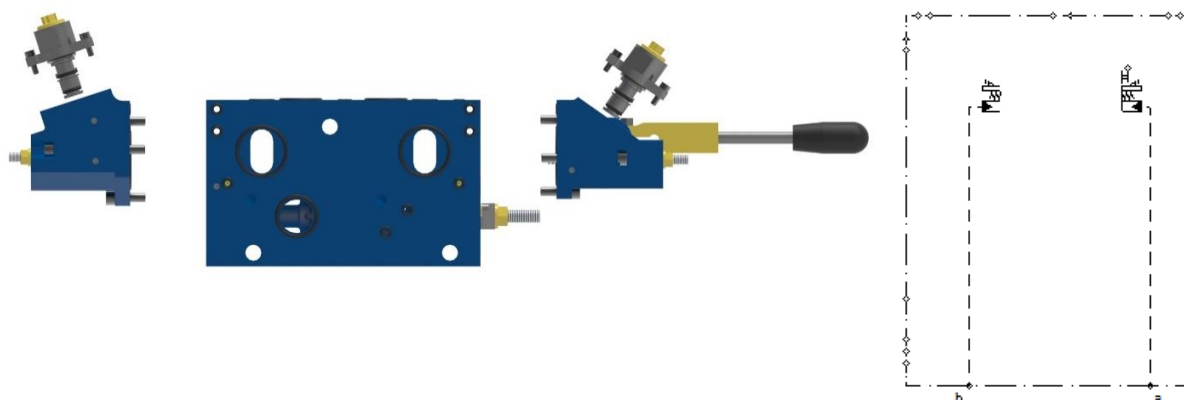
Hydraulic control



Part number	Description
AP-2220-343	SPRING CAP 22 E/O--M
AP-2220-342	END CAP 22 E/O
AP-1620-321	CARTRIDGE 16/22 O

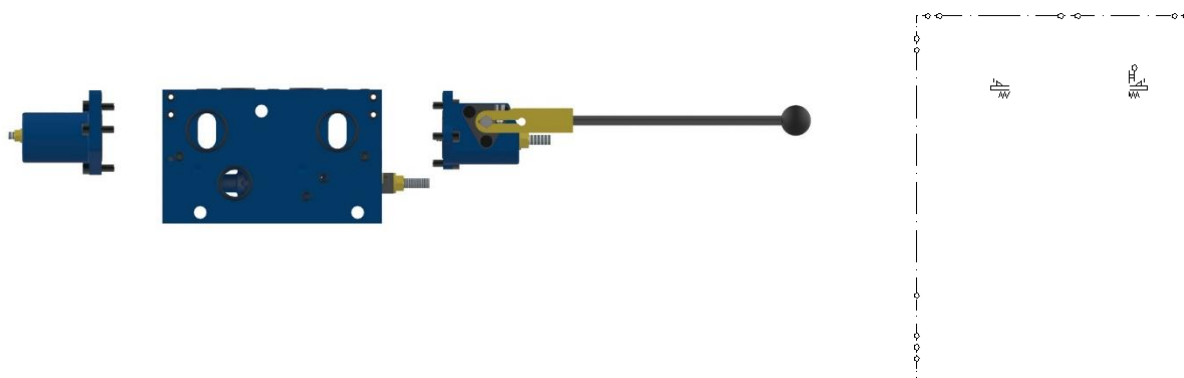


Hydraulic control with emergency lever



Part number	Description
AP-2220-343	SPRING CAP 22E/O--M
AP-2220-350	END CAP 22 E/O--M
AP-1620-321	CARTRIDGE 16/22 O

Manual control



Part number	Description
AP-2220-397	SPRING CAP 22 H
AP-2220-398	END CAP 22 H



Spring return electric, hydraulic control



Part number	Description
AP-2220S000E	SPRING ASSEMBLY 22 E

Spring return manual control



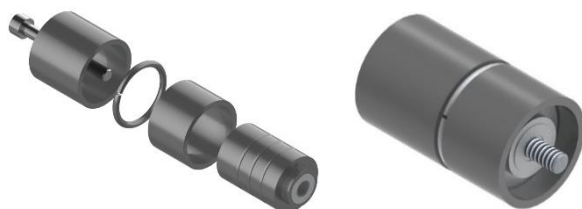
Part number	Description
AP-2220S000H	SPRING ASSEMBLY 22 H

Friction brake



Part number	Description
AP-2220S000HB	FRICION BRAKE 22 HB

Three position detent



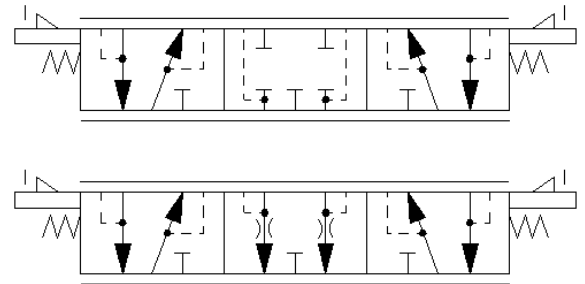
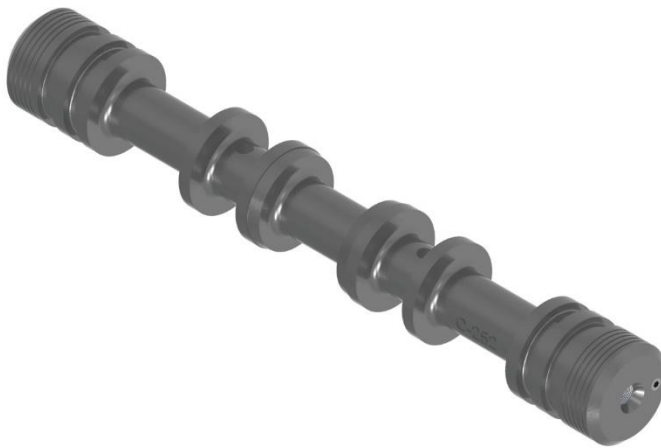
Part number	Description
AP-2220S000HR	DETENT 22 HR



Control Spool

There are 2 basic control spools available, the A spool with all ports closed in neutral position and the C spool with P closed and A en B to T in neutral position, with 20% of nominal opening to T.

These 2 basic spools have several flow ranges, dependable of the system used, and with 2-way compensator spring.



A spool 0-330 l/min: AP-2220S102

A spool 0-80 l/min: AP-2220S202

C spool 0-330 l/min: AP-2220S152

C spool 0-80 l/min: AP-2220S252

Part number	Description
AP-2220S102	SPOOL 22 A 102 330/330
AP-2220S152	SPOOL 22 C 152 330/330
AP-2220S202	SPOOL 22 A 202 80/80
AP-2220S252	SPOOL 22 C 252 80/80
AP-2220S302	SPOOL 22 A 302 30/30
AP-2220S552	SPOOL 22 C 552 300/165

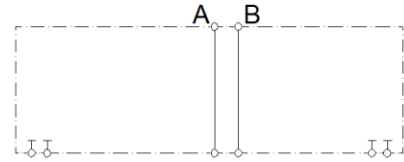
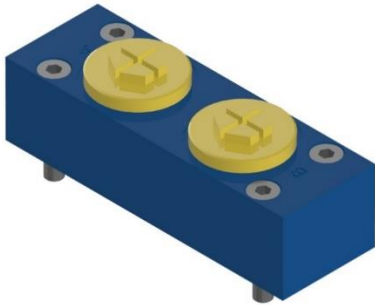


Connection block

The connection block is the most flexible part of the APV range.

Basic connection block 'B'

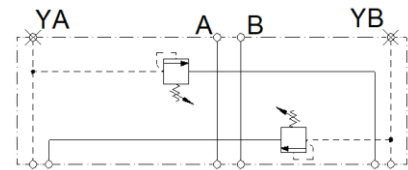
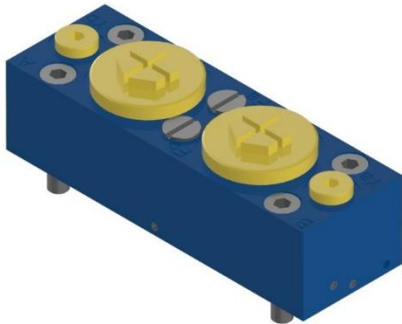
The basic version with only A and B ports in 1 ¼" BSP



Part number	Description
AP-2230-574	CON.BLOCK 22 B

Connection block 'BFY'

Available with port connections in 1 ¼" BSP, includes Lsa and Lsb adjustments and 'Y' ports on both LS signals 1/8" BSP.

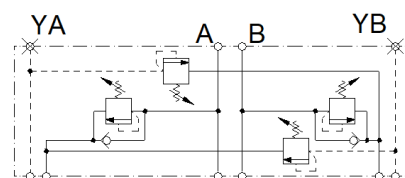
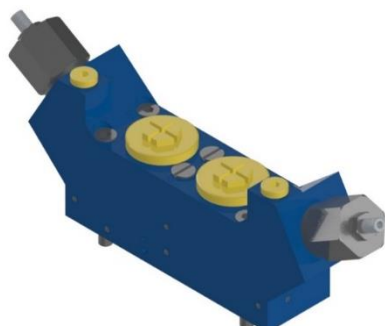


Part number	Description
AP-2230-545	CON.BLOCK 22 BFYF



Connection block 'BL1F'

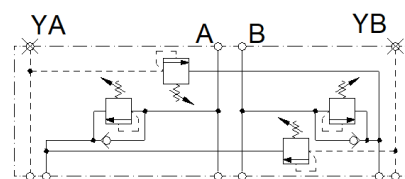
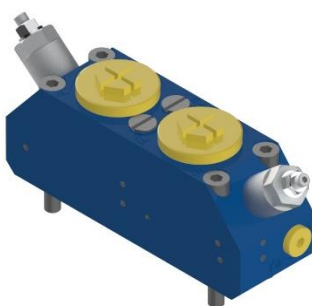
Available with port connections in 1/2" BSP, includes Lsa and Lsb adjustments and 'Y' ports on both LS signals 1/8" BSP. Additional this connection block holds shock and / or suction valves. With the following setting range: AP-2230-710LP: 10-420 Bar, AP-2230-710LZ: 10-420 Bar



Part number	Description
AP-2230-354	CON.BLOCK 22 BL1
AP-2230-710LN	SUCTION 22 N1
AP-2230-710LP	SHOCK 22 P1
AP-2230-710LZ	SHOCK SUCTION 22 Z1
AP-2230-381	CAV.PLUG 22 XX Z/P/N

Connection block 'BL2F'

Available with port connections in 1 1/4" BSP, includes Lsa and Lsb adjustments and 'Y' ports on both LS signals 1/8" BSP. Additional this connection block holds shock and / or suction valves. Different pressure setting ranges are available AP-1630-302B: 35-140 Bar, AP-1630-302G: 140-420 Bar and AP-1630-302V: 70-250 Bar, AP-1630-303: 70-250 Bar.



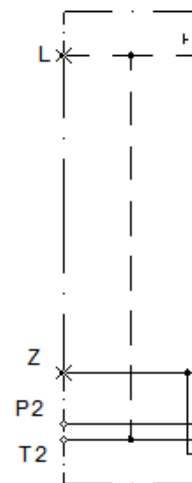
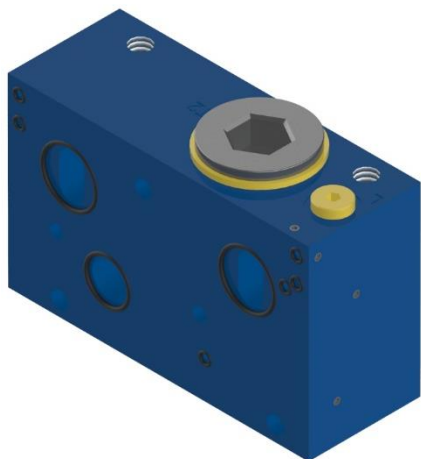
Part number	Description
AP-2230-353	CON.BLOCK 22 BL2F
AP-1630-302B	SHOCK 16 P1
AP-1630-302V	SHOCK 16 P2
AP-1630-302G	SHOCK 16 P3
AP-1630-303	SHOCK SUCTION 16 Z1
AP-1630-304	SUCTION 16 N1
AP-1630-349	CAV.PLUG 16 XX Z/P/N



End plates

Basic end plate

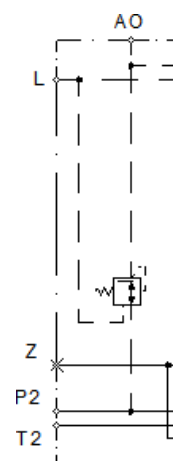
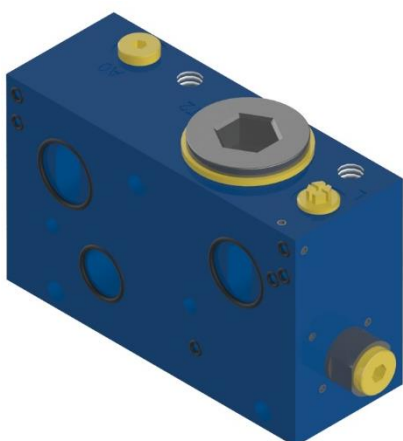
End plate for manual or hydraulic operated valves



Part Number	Description
AP-2240-546PH	END PLATE 22 KPH-B

End plate with pressure reducing valve.

End plate with built-in pressure reducing valve for internal pilot pressure supply of 28 Bar to the electric pilot valves of each electric proportional control valve. Or to supply external pilot pressure to hydraulic joysticks.



Part Number	Description
AP-2220-546PJ	ENDPLATE 22 KPJ-B



Tie rod kits

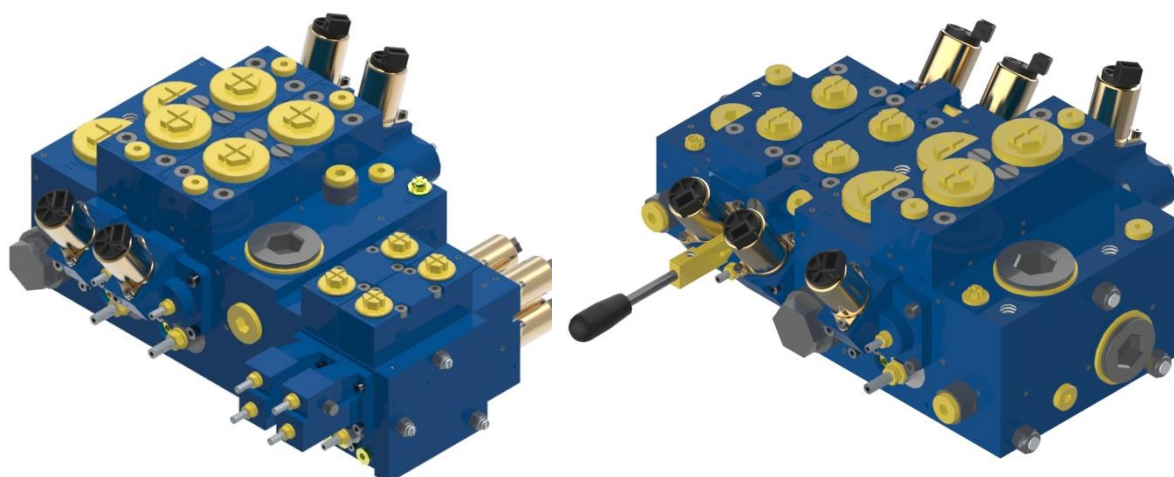
Tie rod kits are available to assemble a valve up to 10 sections.



Part Number	Description
AP-2220-375K1	TIE ROD 1V
AP-2220-375K2	TIE ROD 2V
AP-2220-375K3	TIE ROD 3V
AP-2220-375K4	TIE ROD 4V
AP-2220-375K5	TIE ROD 5V
AP-2220-375K6	TIE ROD 6V
AP-2220-375K7	TIE ROD 7V
AP-2220-375K8	TIE ROD 8V
AP-2220-375K9	TIE ROD 9V
AP-2220-375K10	TIE ROD 10V



Combinations

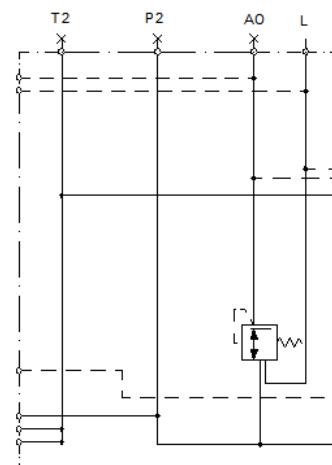
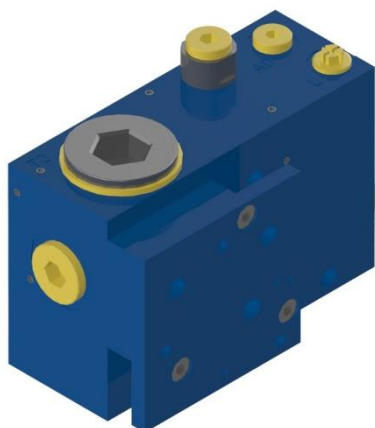


APV-22 with APV-10

It is possible to combine the APV-22 with the apv-10. In this case the apv-10 is mounted behind the APV-22, a combination plate is then used, which functions as the end plate for the apv-22 and connect the apv-10 porting to the apv-22 porting.

To configure such a valve standard apv-22 inlet plates can be used and the standard apv-10 endplates.

In this case the max pressure is 350 bar for the valve.



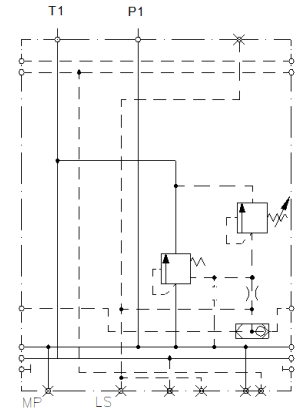
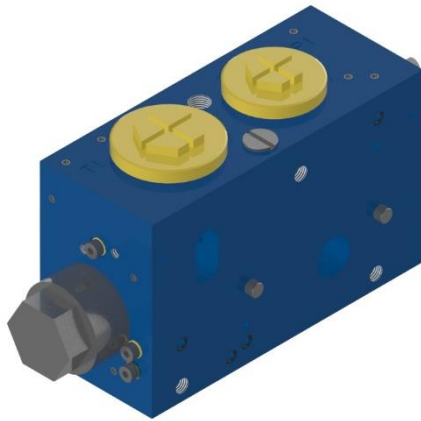
Part number	Description
AP-2240-555PJ	COMBI END PLATE 22/10KC PJ B



APV-22 with APV-16

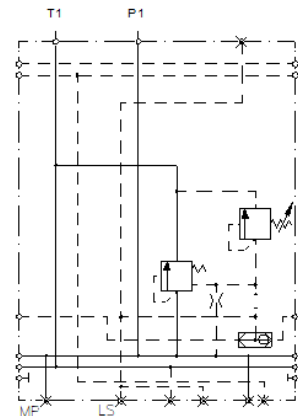
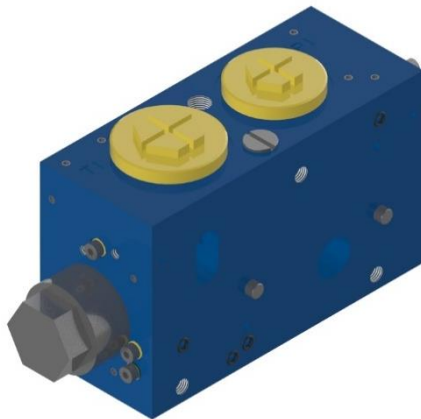
The APV-22 can also be combined with an APV-16, in this case a combination inlet section is needed. On one side of the section can the APV-22 be mounted, and on the opposite side the APV-16. The standard end plates for the APV-16 and APV-22 are needed. For this configuration are several inlet plates available.

Fixed displacement pump



Part number	Description
AP-2210-555U	COMBI INLET 22/16KCU 420 B

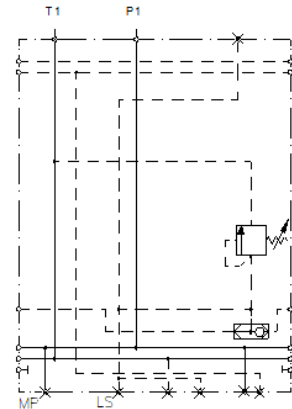
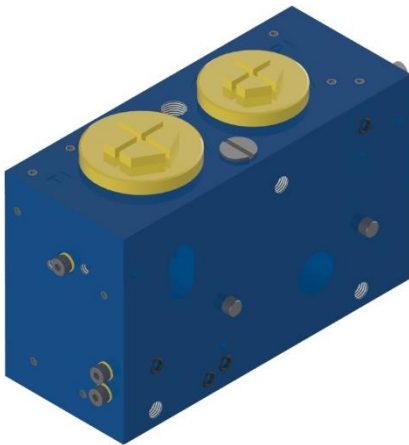
Load sense pump



Part number	Description
AP-2210-555S	COMBI INLET 22/16KCS 420B

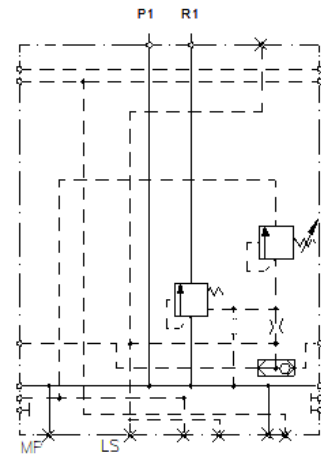
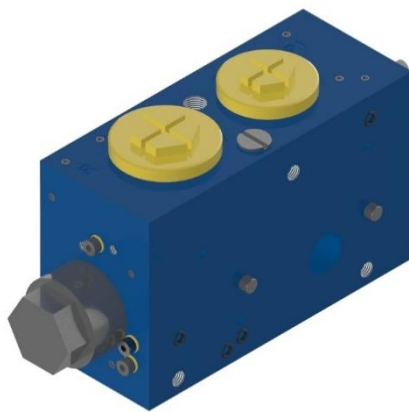


Load sense pump or pressure compensated systems



Part number	Description
AP-2210-555N	COMBI INLET 22/16KCN 420B

Constant pump and serial connection/high pressure carry over



Part number	Description
AP-2210-555R	COMBI INLET 22/16KCR 420B



Combi inlet options

Anti-saturation and LS amplifier block

This block contains both functions.

The anti-saturation function can reduce the pilot pressure if the pump supplies less flow than the operated sections require. This results in a general speed decrease of all operated sections. So the user is still able to operate all functions at the same time.

The LS amplifier can add a maximum of 7 bars to the LS signal going to the pump. this is done by feeding a small amount of pressure from the P line into the LS line

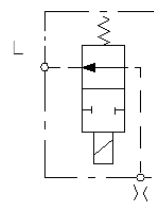
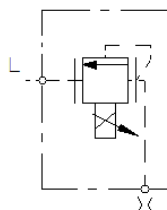
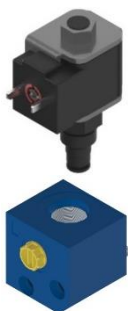


Part number	Description
AP-2210-358AL	COMBI FUNCTION 16/22 AL

Pump unloading and Proportional pressure control: D/E function

For the pump unloading function the load pressure signal from the control sections can be dumped directly to tank. The electrical control is available in 12 VDC and 24 VDC with 2/2-way cartridge in Normally open or normally closed configuration.

For remote proportional control of the maximum pressure of the valve block the electrical proportional pressure relief is available in 12 VDC and 24 VDC.



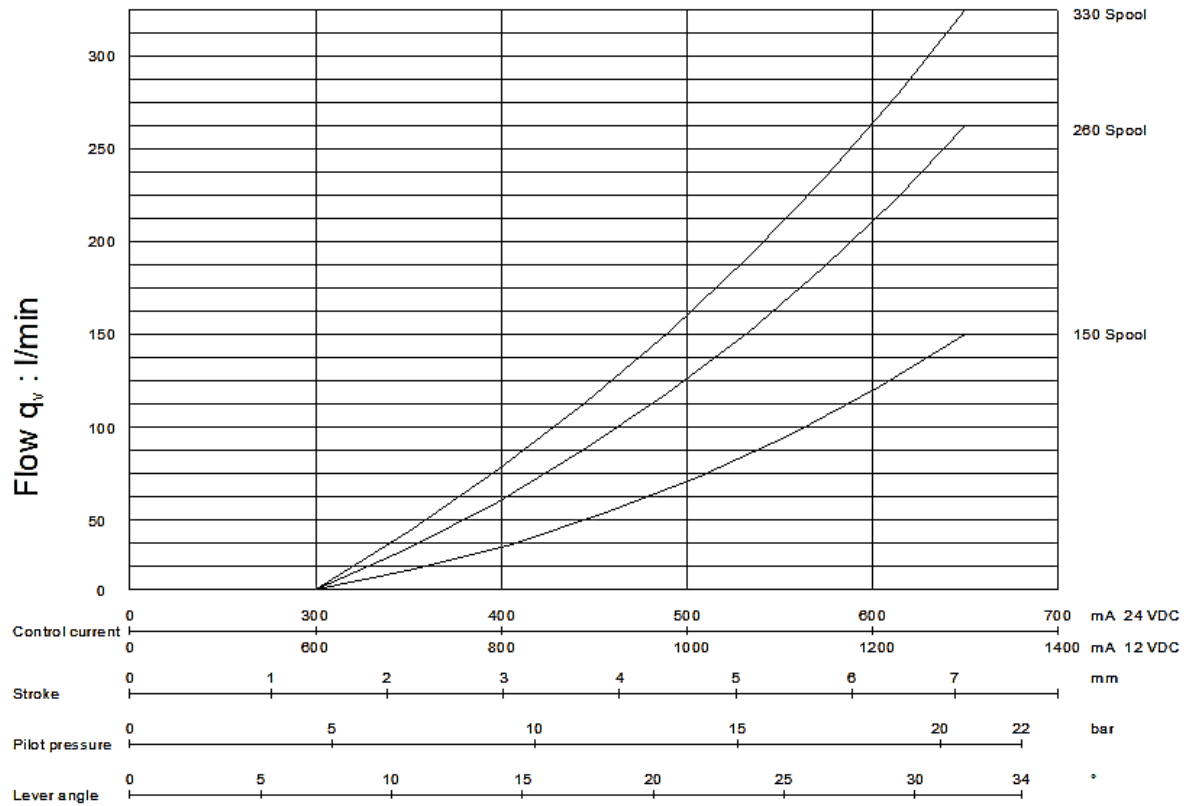
Part number	Description
AP-1610-330	D/E BLOCK
AP-1610-364D1	DUMPVALVE N.O. 12VDC-OA
AP-1610-364D2	DUMPVALVE N.C. 12VDC-CA
AP-1610-364D3	DUMPVALVE N.O. 24VDC-OB
AP-1610-364D4	DUMPVALVE N.C. 24VDC-CB
AP-1610-364E1	EL.PROP 12 VDC-EA
AP-1610-364E2	EL.PROP 24 VDC-EB



Performance

Curves

Flow P → A/B



Flow-lists

Inlet	AP-2210-537U								AP-2210-537U+AP-2210-001-017			
DP ADJUSTMENT:	HR-2121-040				AP-1620-001-020				AP-2220-001-016			
	MIN DP: 0,7 Bar		MAX dp: 4 Bar		MIN DP: 4 Bar		MAX dp: 10,5 Bar		MIN DP: 13,5 Bar		MAX dp: 15 Bar	
	A-PORT	B-PORT	A-PORT	B-PORT	A-PORT	B-PORT	A-PORT	B-PORT	A-PORT	B-PORT	A-PORT	B-PORT
AP-2220S102	50	50	150	150	150	150	250	250	250	250	300	300
AP-2220S152	50	50	150	150	150	150	250	250	250	250	300	300
AP-2220S202	35	35	80	80	75	75	135	135	153	153	161	161
AP-2220S302	12	12	30	30	30	30	49	49	55	55	58	58
AP-2220S552	32	64	77	155	77	155	125	250	142	285	150	300

Inlet	AP-2210-537S											
DP ADJUSTMENT:	HR-2121-040				AP-1620-001-020				AP-2220-001-016			
	MIN DP: 0,7 Bar		MAX dp: 4 Bar		MIN DP: 4 Bar		MAX dp: 10,5 Bar		MIN DP: 13,5 Bar		MAX dp: 15 Bar	
	A-PORT	B-PORT	A-PORT	B-PORT	A-PORT	B-PORT	A-PORT	B-PORT	A-PORT	B-PORT	A-PORT	B-PORT
AP-2220S102	50	50	150	150	150	150	250	250	250	250	330	330
AP-2220S152	50	50	150	150	150	150	250	250	250	250	330	330
AP-2220S202	35	35	80	80	75	75	135	135	153	153	161	161
AP-2220S302	12	12	30	30	30	30	49	49	55	55	58	58
AP-2220S552	32	64	77	155	77	155	125	250	142	285	150	300

