Feed units and accessories

- 2 Way series with or without unloader valve (AVN020)
- Range from 1 to 4 stages with and without accumulator
- Diverter valve for pilot hydraulic control system

AVN020 working conditions

This catalogue shows technical specifications and diagrams measured with mineral oil of 46mm²/s - *46 cSt* viscosity at 40°C - *104°F* temperature.

Max. pressure on inlet	on inlet, P port	350 bar - *5075 psi*
Nominal secondary pressure		30 bar - *435 psi*
Flow rating range		from 5 to 20 l/min - *from 1.32 to 5.28 USgpm*
Max. backpressure	to outlet, T port	3 bar - *43.5 psi*
Fluid		mineral oil
Fluid temperature	with NBR (BUNA-N) seals	from -20°C to 80°C - *from -4°F to 176°F*
Viscosity	operating range	from 15 to 75 mm²/s - *from 15 to 75 cSt*
	min.	12 mm²/s - *12 cSt*
	max.	400 mm²/s - *400 cSt*
Max. contamination level		-/19/16 - ISO 4406 - *NAS1638 class 10*
Ambient temperature	without electric devices	from -40°C to 60°C - *from 40°F to 140°F*
	with electric devices	from -20°C to 50°C - *from -4°F to 122°F*

NOTE - for different conditions please contact Sales Dpt

FU series working conditions

This catalogue shows technical specifications and diagrams measured with mineral oil of 46mm²/s - *46 cSt* viscosity at 40°C - *104°F* temperature.

		FU/1	FU/2	FU/3	FU/4
Max. pressure on inlet	on inlet P port	350 bar - *5075 psi*	210 bar - *3045 psi*	350 bar - *5075 psi*	350 bar - *5075 psi*
Flow rating range		60 l/min - *15.85 USgpm*	12 l/min - *3.17 USgpm*	10 l/min - *2.64 USgpm*	8 l/min - *2.11 USgpm*
Fluid		mineral oil			
Fluid temperature	with NBR (BUNA-N) seals	from -20°C to 90°C - *from -4°F to 194°F*			
Viscosity	operating range	from 15 to 75 mm²/s - *from 15 to 75 cSt*			
	min.	20 mm²/s - *20 cSt*			
	max.	200 mm²/s - *200 cSt*			
Max. contamination level		18/16/13 - ISO 4406 - *NAS1638 class 6*			
Ambient temperature	without electric devices	from -40°C to 60°C - *from 40°F to 140°F*			
	with electric devices	from -20°C to 50°C - *from -4°F to 122°F*			

NOTE - for different conditions, please contact our Sales Dpt

DHV080 working conditions

This catalogue shows technical specifications and diagrams measured with mineral oil of 46mm²/s - *46 cSt* viscosity at 40°C - *104°F* temperature.

Nominal flow rating	10 l/min - *2.64 Usgpm*
Nominal pressure	100 bar - *1450 psi*
Internal leakage *(100 bar - 1450 psi)*	10 cm³/min - *0.61 in3/min*
Fluid	mineral oil
Viscosity (operating range)	from 12 to 400 mm²/s - *from 12 to 400 cSt*
Max. contamination range	-/19/16 - ISO 4406 - *NAS1638 class 10*
Fluid temperature	from -20° C to 80°C - *from -4° F to 176°F*
Ambient temperature	from -40° C to 60°C - *from 40° F to 140°F*
Salt spray (fog) testing	(ISO9227) 70 h

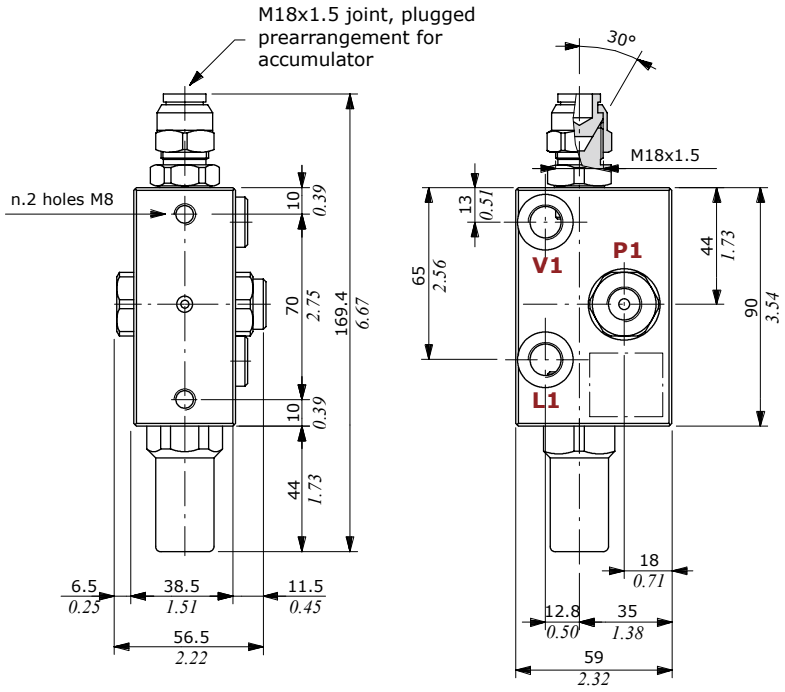
NOTE - for different conditions please contact Sales Dpt

REFERENCE STANDARD

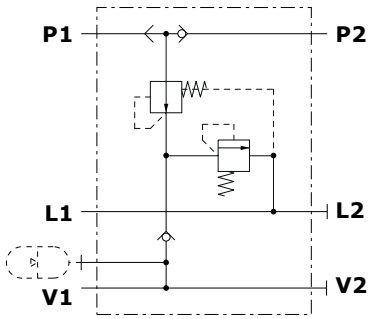
		BSP	UN-UNF
THREAD ACCORDING TO		ISO 228/1	ISO 263
		BS 2779	ANSI B1.1 unified
CAVITY DIMENSION ACCORDING TO	ISO	1179	11926
	SAE		J11926
	DIN	3852-2 X or Y shape	

AVN020 dimensions and hydraulic circuit

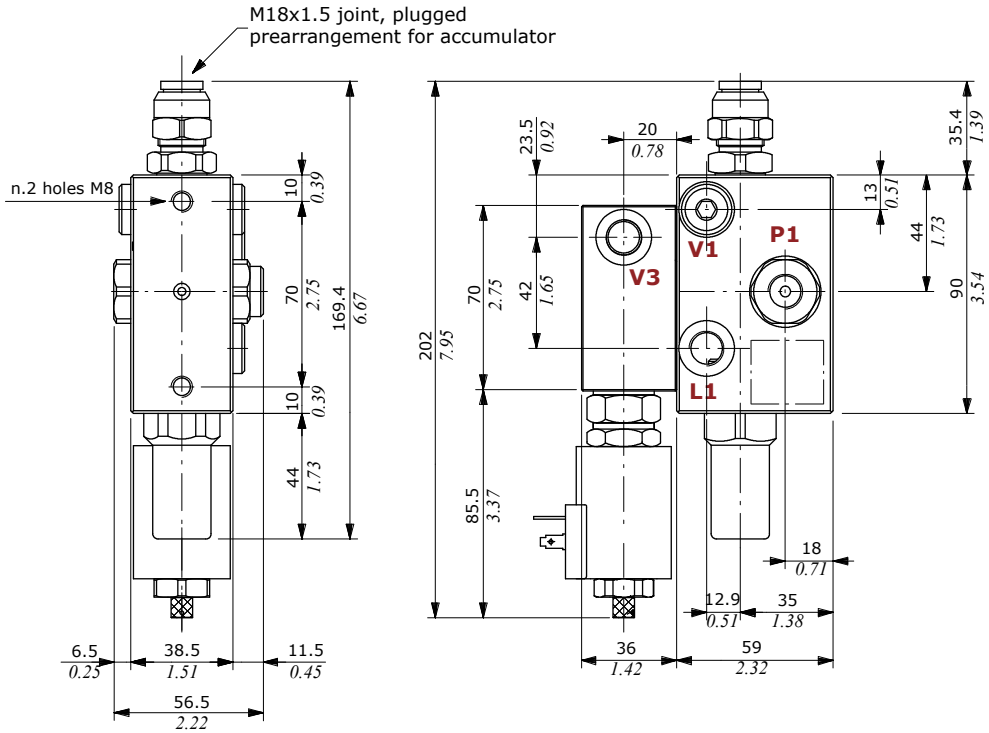
Configuration without unloader valve



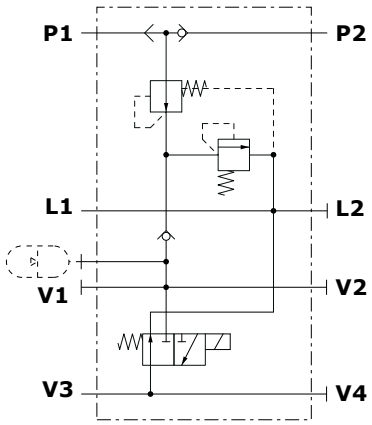
Hydraulic circuit



Configuration with unloader valve



Hydraulic circuit



THREAD AND FITTING TIGHTENING TORQUES

Ports	Threads		Fitting tightening torque	
	BSP	UN-UNF	Nm	*lbft*
P1 inlet	G 1/4	9/16-18 (SAE 6)	30	*22.13*
L1, L2, V1, V2, V3, V4 Ports	G 1/4	9/16-18 (SAE 6)	30	*22.13*

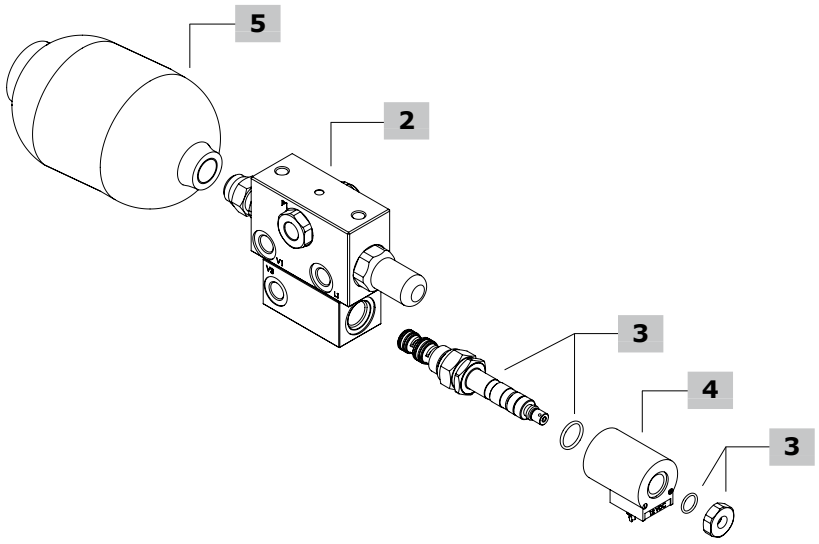
AVN020 ordering codes

30 output pressure 30 bar - *435 psi*
40 output pressure 40 bar - *580 psi*
50 output pressure 50 bar - *725 psi*

AVN 020-B / 30 . 20 T . 12 + HV035

2 3 4 5

1



1 Complete unit *

Without unloader valve

TYPE: **AVN020-B/30.00** CODE: 180010001
DESCRIPTION: with 2 pressure ports, outlet pressure 30 bar - *435 psi*
TYPE: **AVN020-B/40.00** CODE: 180010002
DESCRIPTION: with 2 pressure ports, outlet pressure 40 bar - *580 psi*
TYPE: **AVN020-B/50.00** CODE: 180010003
DESCRIPTION: with 2 pressure ports, outlet pressure 50 bar - *725 psi*
TYPE: **AVN020-B/30.20T.12** CODE: 180010011
DESCRIPTION: with 2 pressure ports, outlet pressure 30 bar- *435 psi,* with unloader valve

2 Body kit *

TYPE	CODE	DESCRIPTION
020-B/00.20	5CO2902201	with 2 pressure ports

NOTE: outlet pressure 30, 40 and 50 bar - *435, 580, 725 psi*

3 Unloader valve

TYPE	CODE	DESCRIPTION
T	0EJ08002043	With screw type emergency

4 Coil

TYPE	CODE	DESCRIPTION
12	4SL3000120	12VDC, ISO4400 connector
24	4SL3000240	As previous one 24VDC
12(JPT)	4SL3000122	12VDC, AMP/JPT connector
24(JPT)	4SL3000248	As previous one, 24VDC
12(JPT+DIODO)	4SL3001200	12VDC, AMP/JPT connector with diode
12(DT04)	4SL3000130	12VDC, DEUTSCH/DT04 connector
24(DT04)	4SL3000249	As previous one, 24VDC
12(DT04+DIODO)	4SL3000132	12VDC, DEUTSCH/DT04 connector, with diode
24(DT04+DIODO)	4SL3000247	As previous one, 24VDC

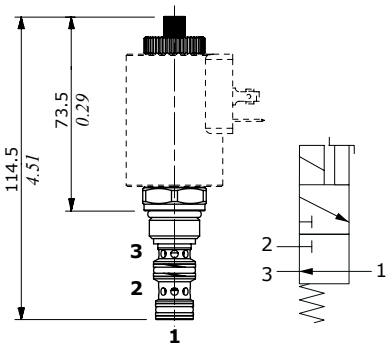
5 Optional accumulator

TYPE	CODE	DESCRIPTION
HV035	2X280020340S	Capacity 350 cm^3 - *21.36 in^3*
HV050	2X280020500S	Capacity 500 cm^3 - *30.51 in^3*
HV075	4AC7742000	Capacity 750 cm^3 - *45.77 in^3*
HV090	2X280020700S	Capacity 900 cm^3 - *54.92 in^3*
HV150	2X280021400S	Capacity 1500 cm^3 - *91.53 in^3*

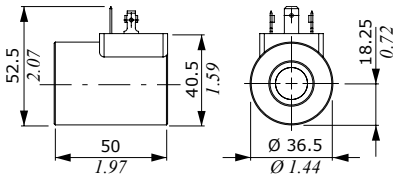
NOTE (*) – Codes are referred to **BSP** thread.

AVN020 Configuration options

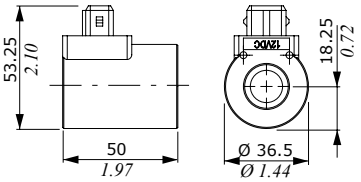
Solenoid unloader valve



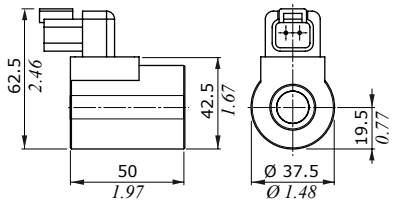
ISO4400 connector
needs 4CN1009995 connector



AMP JPT connector
needs 5CON003 connector



DEUTSCH DT04 connector
needs 5CON1410031 connector



Features

SOLENOID VALVE

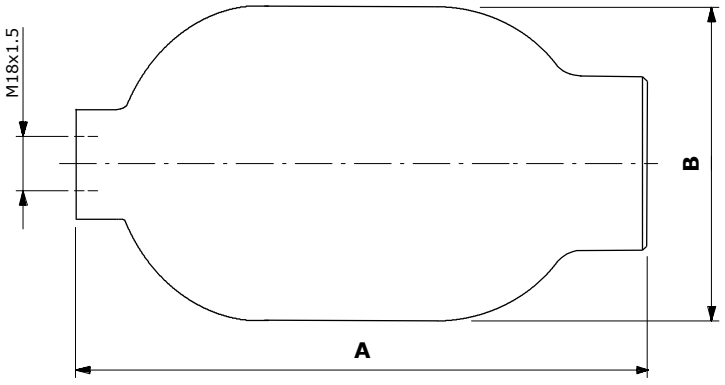
Nominal flow . . . . . : 12 l/min - *3.17 US gpm*
Max. pressure . . . . . : 50 bar - *725 psi*
internal leakage: . . . . . : 4 cm³/min - *0.24 in³/min*

COIL

Nominal voltage tolerance : ±10%
Power rating . . . . . : 21 W
Max. operating current . . . . . : 1.77 A - 12 VDC
: 0.89 A - 24VDC
Coil insulance . . . . . : Class F (155°C - *311°F*)
Weather protection . . . . . : IP65 - ISO4400
: IP69K - Deutsch DT
: IP65 - AMP JPT
Insertion. . . . . : 100%

Optional accumulators

With synthetic rubber membrane and steel body; Nitrogen accumulator precharged at 13 bar - *188 psi*



Type	Volume		A		B		Mass	
	cm³	*in³*	mm	*in*	mm	*in*	kg	*lb*
035	350	*21.35*	153	*6.02*	99	*3.90*	3.7	*8.16*
050	500	*30.51*	199	*7.83*	118	*4.64*	4.35	*9.59*
075	750	*45.77*	199	*7.83*	118	*4.64*	4.8	*10.58*
090	900	*54.92*	215	*8.46*	118	*4.64*	4.8	*10.58*
150	1500	*91.54*	297	*11.69*	118	*4.64*	6.8	*14.99*

Installation

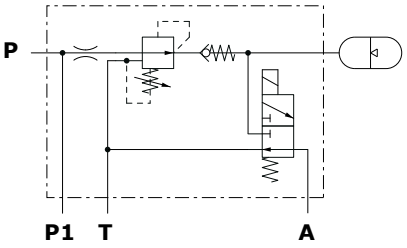
In order to ensure the correct working pressure at 10 bar - *145 psi,* is required minimum pressure when starting.
The feed unit can be assembled in any position; keep it away from heat sources when accumulator is working.

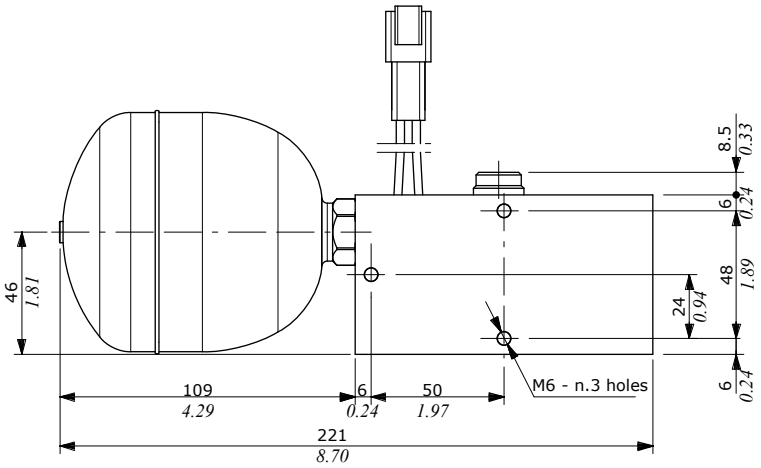
FU series configuration examples

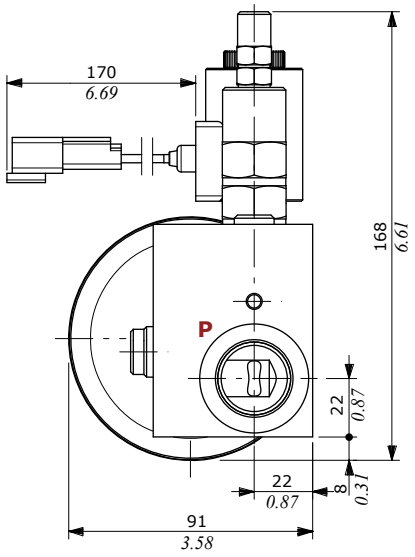
Type FU/1 - one stage

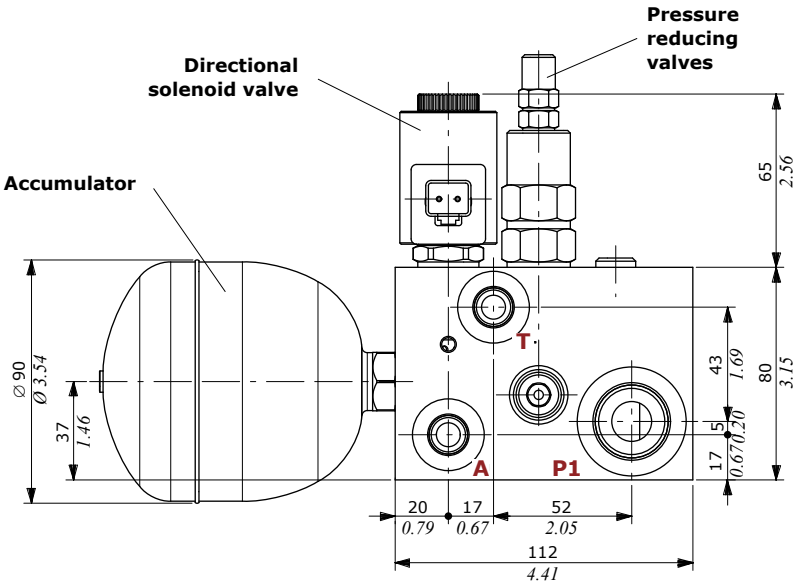
CODE: 1992752200
TYPE: FU-AC(SAE6-11)-RB08A(35)-F-NV/1EJ08F4(L=170)/NPM-SAE6(AT)12(PP1)-12VDC
DESCRIPTION: one stage, with pressure reducing valve on inlet, 0.35 l accumulator and 1 directional solenoid valve for the supply and control of the pressure line.

Hydraulic circuit









PORTS THREADING AND FITTINGS TIGHTENING TORQUE

PORTS	Threads (different threads on request)	Fitting tightening torque Nm	*lbft*
P, P1 inlet	1 1/16-12 UN (SAE 12)	65	*48*
A port	9/16-18 UNF (SAE 6)	30	*22*
T outlet	9/16-18 UNF (SAE 6)	30	*22*
Accumulator connection	9/16-18 UNF (SAE 6)	30	*22*

NOTE – These torques are recommended. Assembly tightening torque depends on many factors, including lubrification, coating and surface finishing. The fittings manufacturer has to be consulted.

FU series configuration examples

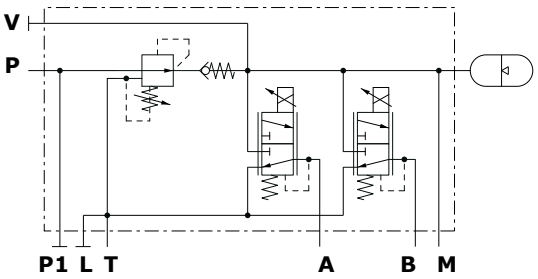
Type FU/2 - two stages

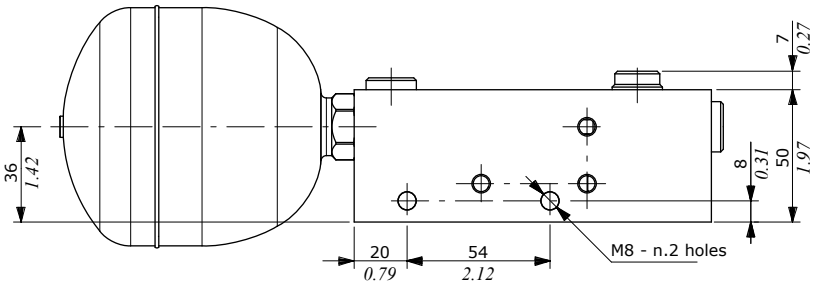
CODE: 1992820001

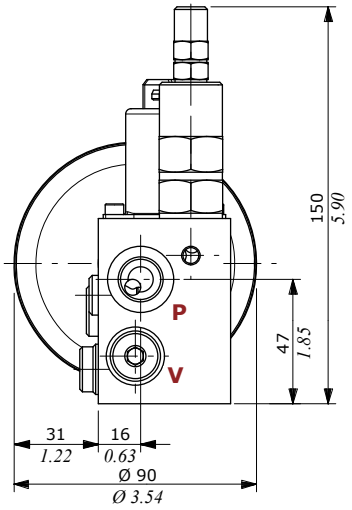
TYPE: FU-AC(SAE6-11)-RB08A(35)-F-NV/2RPT2/PMA-P1-L-V-BSP-24VDC-<TAP(P1LV)>

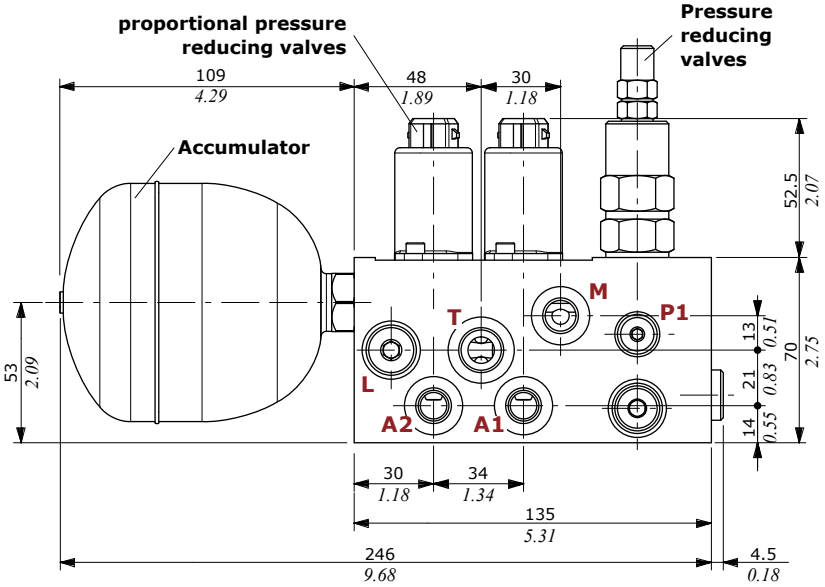
DESCRIPTION:two stages, with pressure reducing valve on inlet, 0.35 l accumulator and 2 proportional pressure reducing valves for the supply and control of the pressure lines.

Hydraulic circuit









PORTS THREADING AND FITTINGS TIGHTENING TORQUE			
PORTS	**Threads**	**Fitting tightening torque**	
	(different threads on request)	Nm	*lbft*
P Inlet	BSP G 3/8	42	*31*
P1 Inlet	BSP G 1/8	24	*17.7*
A, B, M, L, V Ports	BSP G 1/4	30	*22*
Outlet **T**	BSP G 3/8	42	*31*
Accumulator connection	9/16-18 UNF (SAE 6)	30	*22*

NOTE – These torques are recommended. Assembly tightening torque depends on many factors, including lubrification, coating and surface finishing. The fittings manufacturer has to be consulted.

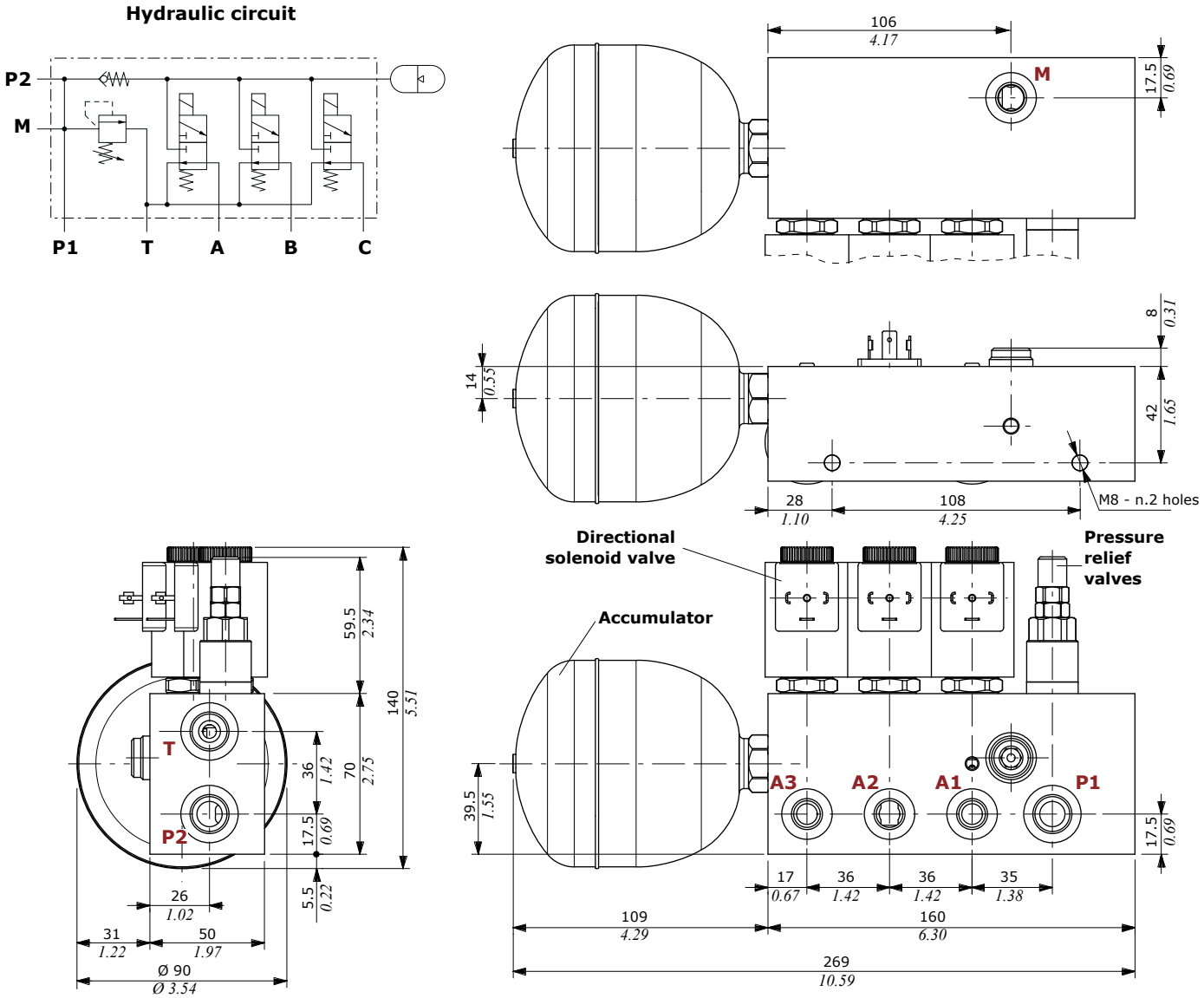
FU series configuration examples

Type FU/3 - three stages

CODE: 1992830000

TYPE: FU-AC(SAE6-11)-NR-A-VMP5JN(TB.S-35)/3-EJ08F/PMI-P2-BSP-12VDC

DESCRIPTION: three stages, with pressure relief valve on inlet, 0.35 l accumulator and 3 directional solenoid valves for the supply and control of the pressure lines.



PORTS THREADING AND FITTINGS TIGHTENING TORQUE

PORTS	Threads	Fitting tightening torque	
	(different threads on request)	Nm	*lbft*
P inlet	BSP G 3/8	42	*31*
P1 inlet	BSP G 3/8	42	*31*
A, B, M, L, V ports	BSP G 1/4	30	*22*
T outlet	BSP G 3/8	42	*31*
Accumulator connection	9/16-18 UNF (SAE 6)	30	*22*

NOTE – These torques are recommended. Assembly tightening torque depends on many factors, including lubrification, coating and surface finishing. The fittings manufacturer has to be consulted.

FU series configuration examples

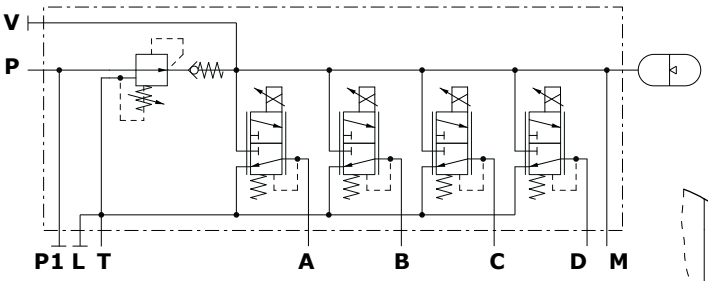
Type FU/4 - four stages

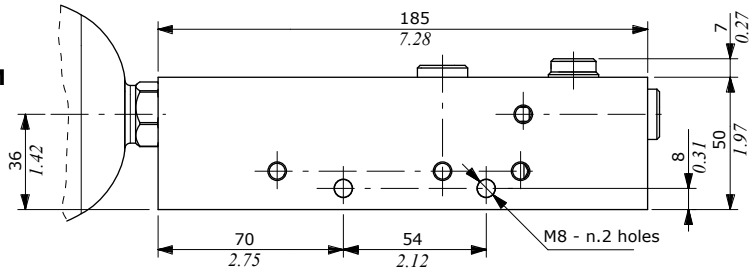
CODE: 1992840000

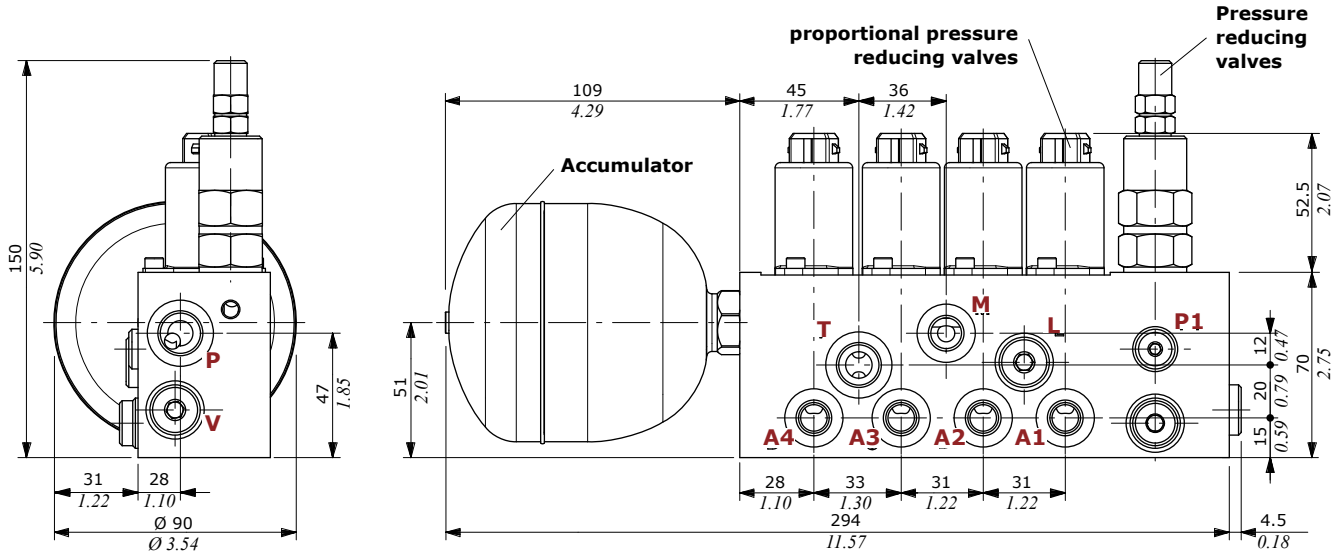
TYPE: FU-AC(SAE6-11)-RB08A(35)-F-NV/4RPT2/PMA-P1-L-V-BSP-24VDC-<TAP(P1LV)>

DESCRIPTION: four stages, with pressure reducing valve on inlet, 0.35 l accumulator and 4 proportional pressure reducing valves for the supply and control of the pressure lines.

Hydraulic circuit







PORTS THREADINGS AND FITTING TIGHTENING TORQUE

PORTS	Threads	Fitting tightening torque	
	(different threads on request)	Nm	*lbft*
P inlet	BSP G 3/8	42	*31*
P1 inlet	BSP G 1/8	24	*17.7*
A, B, C, D, M, L, V ports	BSP G 1/4	30	*22*
T outlet	BSP G 3/8	42	*31*
Accumulator connection	9/16-18 UNF (SAE 6)	30	*22*

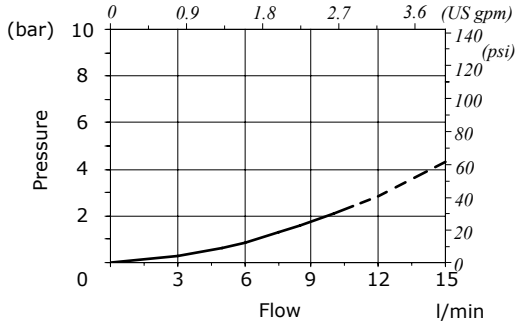
NOTE – These torques are recommended. Assembly tightening torque depends on many factors, including lubrification, coating and surface finishing. The fittings manufacturer has to be consulted.

DHV080 diverter valve

Pressure drop

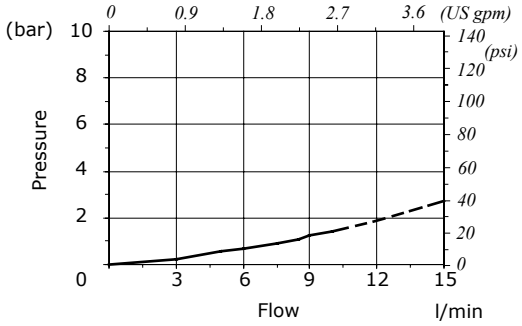
Position 1

D → G / H → C / B → E / F → A



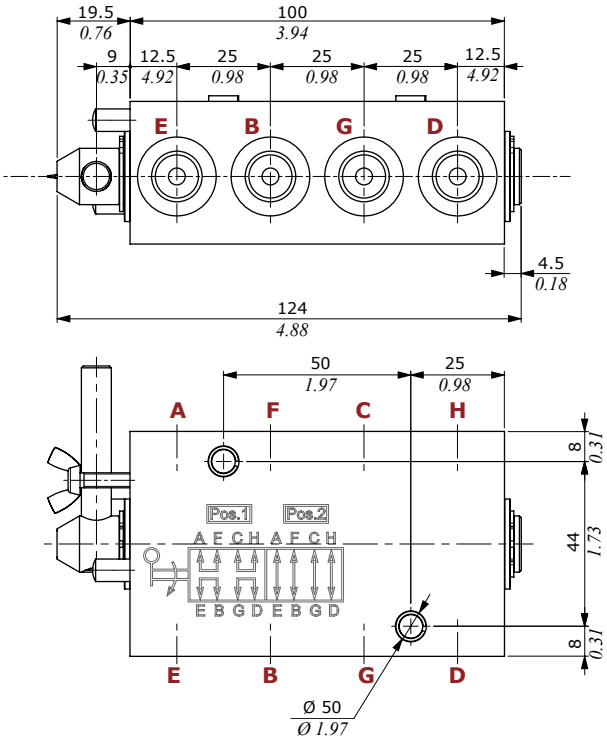
Position 2

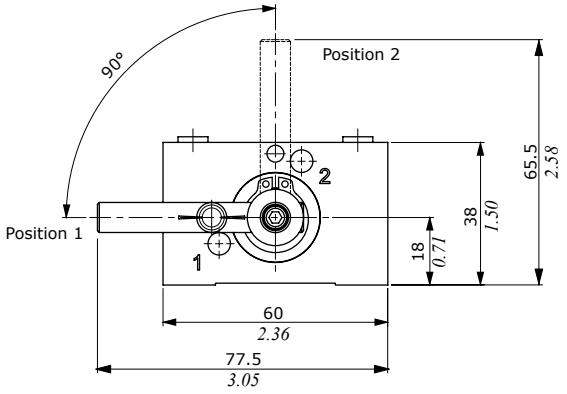
D → H / G → C / F → B / A → E



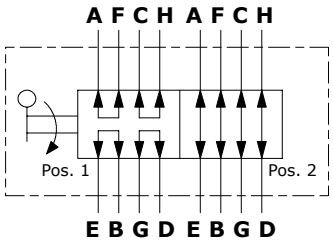
Dimensions and hydraulic circuit

The diverter valve is available in this configuration: **DHV080/8LN-BSP-<CVN>** code **140080000**
Supplied as standard, with one coat of primer black antirust.





Hydraulic circuit



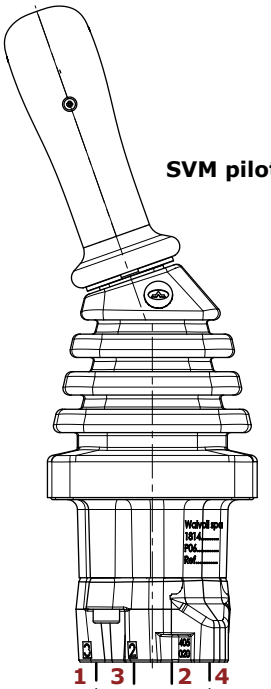
PORT THREADING AND FITTING TIGHTENING TORQUE

PORTS	Threads		Fitting tightening torque	
	BSP	UN-UNF	Nm	*lbft*
A, B, C, D, E, F, G, H ports	G 1/4	7/16-20 UNF-2B (SAE4)	30	*22*

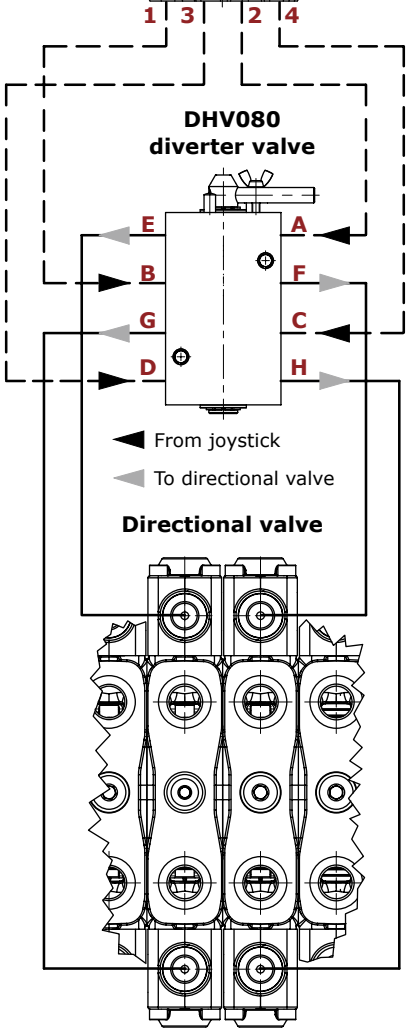
NOTE – These torque are recommended. Assembly tightening torque depends on many factors, including lubrication, coating and surface finish. The manufacturer shall be consulted.

DHV080 diverter valve

Typical application

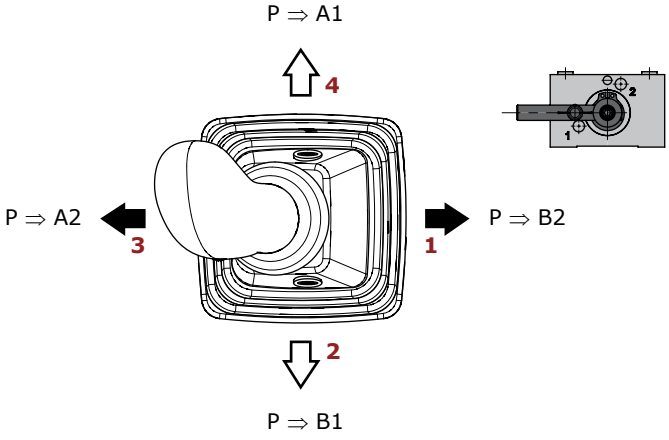
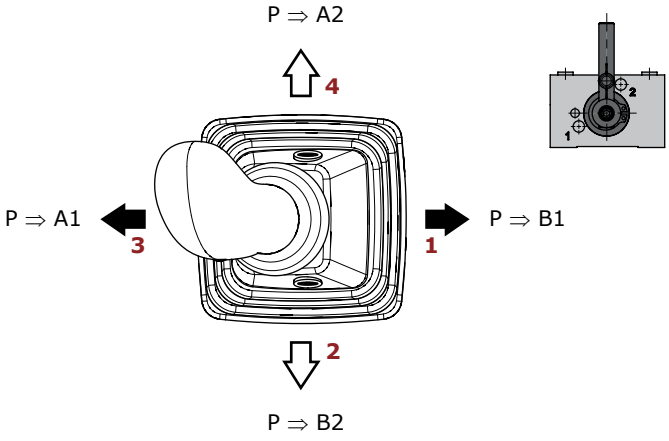
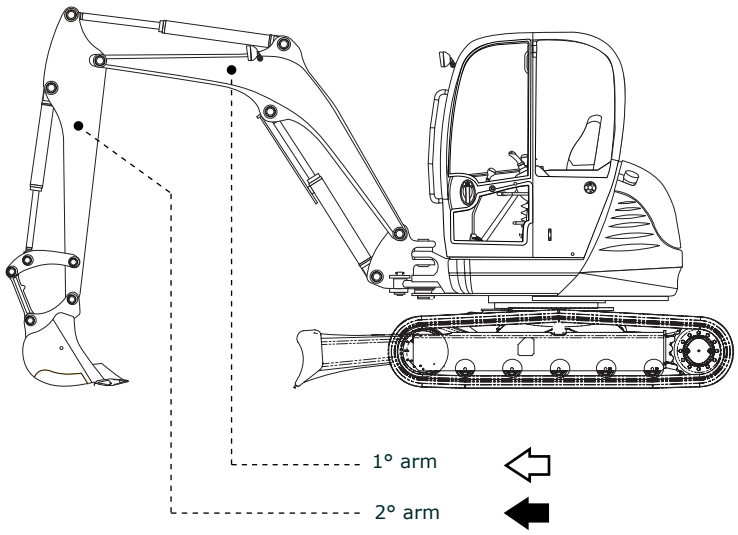


SVM pilot control valve



Joystick movement

Diverter valve in position 1
Backhoe configuration



Diverter valve in position 2
Mini-excavator configuration