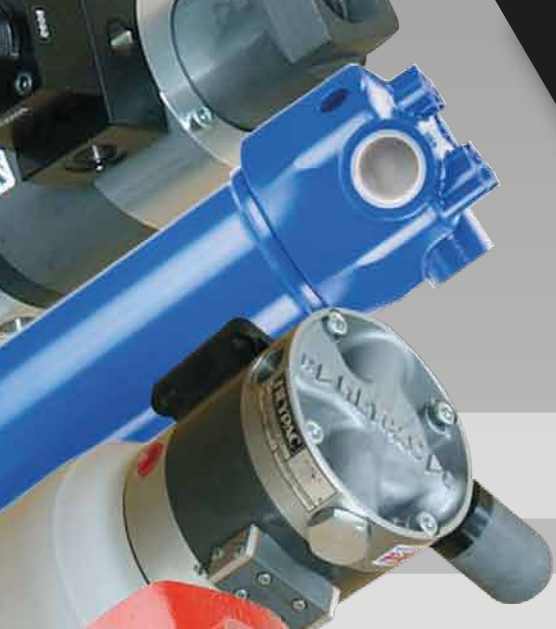




Allison Hydraulics



● Valves

● Pumps

● Motors

● Cylinders

● Heat Exchangers

● Power Units

● Accessories

● Filters

● Hose & Fittings



**Hydraulic component
supply and services**

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Industrial Valves



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Mobile Directional Valves



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Mobile Remote Controls



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Line Mounted Valves



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Manifolds



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Pumps



Page 81

Hand Pumps



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Motors



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Cylinders



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Heat Exchangers



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Power Units



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Filtration



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Hose and Fittings



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Industrial Valves



atos® 

Allison Hydraulics



Index

Industrial Valves

Solenoid and Safety Valves

Page 5



- CETOP 3 to CETOP 10 (ISO 6 to 32 mm)
- Max. nominal flow: 60 to 1000 l/min
- Max. pressure up to 350 bar

Proportional Valves

Page 8



Subplate type:

- CETOP 3 to CETOP 8 (ISO 6 to 25 mm)
- Max. nominal flow: 30 to 1450 l/min
- Max. pressure up to 350 bar

Cartridge type:

- ISO 16 to 100 mm
- Max. flows: 600 to 16000 l/min
- Max. pressure up to 350 bar

Explosion proof Valves

Page 20



Subplate type:

- CETOP 3 to CETOP 8 (ISO 6 to 25 mm)
- Max. nominal flow: 12 to 650 l/min
- Max. pressure up to 350 bar

Cartridge type:

- ISO 16 to 80 mm
- Max. flows: 160 to 3600 l/min
- Max. pressure up to 350 bar

Modular Valves

Page 21



- CETOP 3 to CETOP 8 (ISO 6 to 25 mm)
- Max. nominal flow: 50 to 300 l/min
- Max. pressure up to 350 bar

- Relief valves
- Flow control valves
- Check valves
- Reducer valves

Conventional Valves

Page 22



- Pressure controls: relief, sequence, unloading, reducing
- Flow valves: pressure compensated
- Check valves: pilot operated
- Directional valves: hand lever, cam, hydraulic pilot, pneumatic pilot

ISO Cartridge Valves

Page 24



- ISO Cartridge Valves
- ISO 16 to 100
- Max. flow 180 to 8500 l/min
- Max. pressure up to 350 bar

solenoid valves



54

We are a **leading manufacturer of solenoid valves**:
many millions of valves operate today worldwide

Atos valves features: shell-moulding castings machined by transfer lines and then cleaned by thermal deburring - large internal cores for low pressure drops - interchangeable precision spools - wet solenoids with manual override

Direct operated solenoid valves

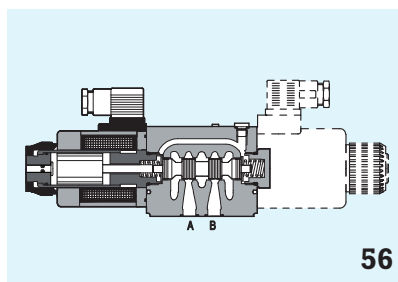
details on tables E010, E012, E025

model	flange solenoids			screw solenoids		
	DHI	DHU	DHO	DHE	DKE	DKER
size	06	06	06	06	10	10
nominal flow - l/min	60	60	80	80	120	120
Pmax - bar	P, A, B port	350	350	350	315	315
	T port	120	210	210	120(AC), 210(DC)	160(AC), 210(DC)
electrical power DC - w	33 W	(15W) 33 W	(8W) 32 W	30 W	36 W	39 W
DC voltages	12, 14, 24, 28, 110, 220	•	•	•	•	•
	special 6, 9, 18, 48, 125	•	•			
	with electronic rectifier 110RC 230RC	•	•			
electrical power AC - VA	60 VA			65 VA	85 VA	105 VA
AC voltages	110/50/60, 230/50/60	•		•	•	•
	24/50/60, 48/50/60, 120/60, 230/60	•			•	•

- **DHI** are solenoid valves for light duty, they may be used for DC or AC supply just changing coils but solenoid remains the same
- **DHU** are DC valves with improved performance, also available with low power consumption (16W) for reduced operating limits
- **DHO** are DC valves with high performance, the solenoid is the basic one used on special purpose valves: ex-proof, stainless steel, etc... also available with low power consumption (8W) for reduced operating limits
- **DHE, DKE, DKER** valves have screw-in solenoids different for DC or AC supply
- **interchangeable spools** available in a wide variety of configurations, also for damped switching and low leakage
- **L devices** for controlling switching times are available for all DC valves but DHI
- **/WP devices** for manual operation by prolonged push-pin are available for all the valves
- **/MV or /MO** hand lever execution, page 29
- **operating limits** of solenoid valves see tech. tables



55



56



57

55 DKE valves, single solenoid AC, double solenoid DC

56 Section of DKER valve with UL certified solenoid(s)

57 Range of connectors of DHI valve: standard, AMP JT, Deutsch, lead-wire

Coil options

electric connectors
to be ordered separately:

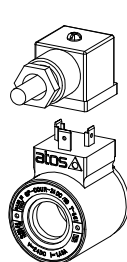
X SP-666 = standard
SP-669 = built-in rectifier for AC supply on RC coils

J SP-J = AMP JT connector

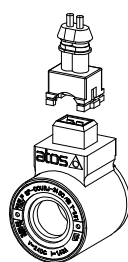
K SP-K = Deutsch DT connector

S SP-S = lead-wire connection

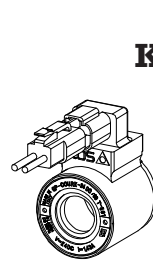
for other electric or electronic connectors: *details on table K500*



DIN 43650
connector
IP 65



AMP Junior Timer
connector
IP 67



Deutsch DT
connector
IP 67



lead-wire
connection

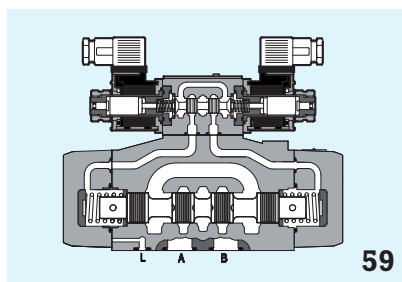
Pilot operated solenoid valves *details on table E080*

model		DPH*-1	DPH*-2	DPH*-3	DPH*-6
size		10	16	25	32
nominal flow - l/min		160	300	650	1000
Pmax - bar	P, A, B X port	350	350	350	350
	T port	250	250	250	250
electrical power DC or AC	see pilot valve DHI/DHU				

options: /H adjustable switching times /S spool stroke limiter /R check valve in P port for low pressure systems



58



59

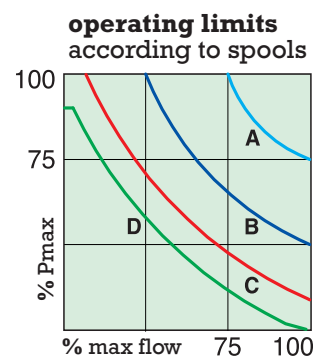


60

58 DHE, DKE, DPHE-2 valves
59 Sectional drawing of DPHI-2 valve
60 DPHE-2, DPHE-3 pilot operated solenoid valves

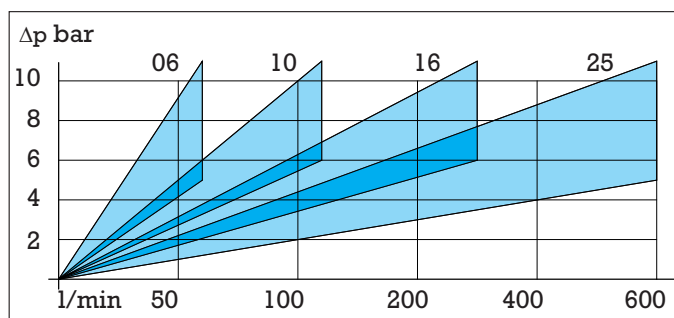
Basic spools - models

Symbol	Code	DHI	DHU DHE	DKE DKER	Code	Symbol
	- 631/2	B	A	A	-751/2	
	- 610	B	A	A	-710	
	- 611	B	A	A	-711	
	- 613	C	B	B	-713	
	-632/2	D	D	C	-714	

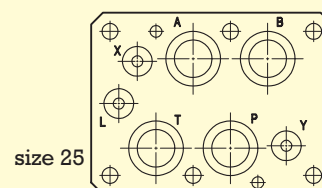
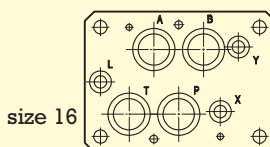
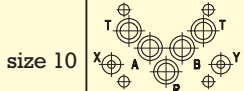


flow/ Δp for solenoid valves various sizes

check right curves on specific technical tables
pressure drops Δp are depending ex spool type



Subplate mounting surface ISO 4401



safety valves

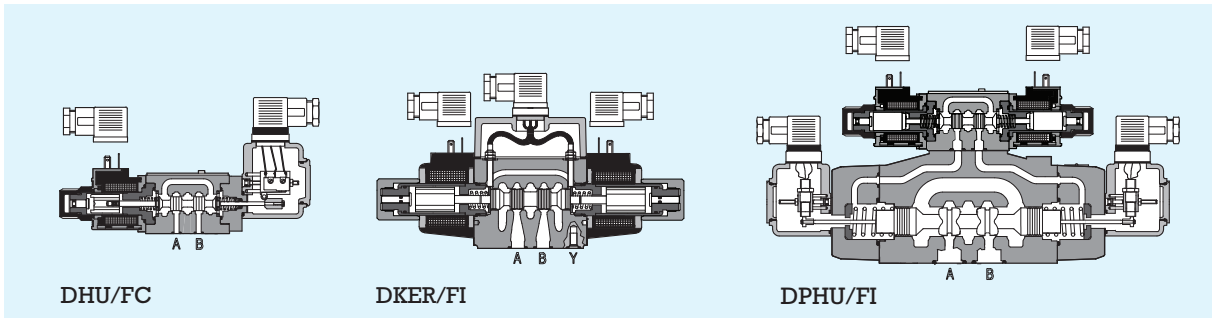


61

To ensure safety and avoid uncontrolled movement of actuators Atos range is TÜV certified to Machine Directive 2006/42/CE and includes specific optional **devices for monitoring spool position** and the relevant hydraulic status, the output signal means "intercepted line" or "not intercepted line".

They are available in **two basic executions**:

/FI inductive proximity - **/FC mechanical microswitch**

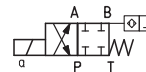


safety solenoid valves

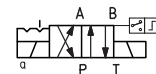
details on table E110

model	ISO 4401	sensor	DH*-0	DK*-1	DPH*-2	DPH*-3
size			6	10	16	25
solenoid type			I - U - O	E - ER	I - U	I - U
max pressure at T port		FI	5	5	250	250
		FC	20	20	250	250

DH-0611/FI



DKE-1751/FC

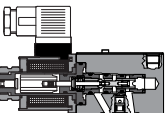
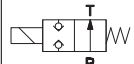
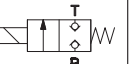
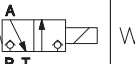
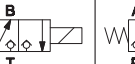


leak free solenoid valves & cartridges

in 2- or 3- way execution used to cut off the line of hydraulic power to an actuator or to grant the fixed position of vertical actuator's in case of maintenance, emergency, safety situations

Leak free valves ISO 4401 NG06 size

details on table E041

	DLOH-2A	DLOH-2C	DLOH-3A	DLOH-3C	DLOK-3A	DLOK-3C
						
nominal flow	12				30	
Pmax - bar	350				315	
	160				210	
internal leakages	less than 5 drops/min (<0,36 cm³/min) at max pressure					
electrical power DC - w	33				32	
DC voltages (1) 12, (14), 24, (28), 110, 220 - 110 RC, 230 RC (14, 28 v not available for DLOK-3*)						

leak free cartridges

threaded connection

details on table E115

JO-DL	-4-2/NC	-4-2/NO	-6-2/NC	-6-2/NO	-10-2/NC	-10-2/NO
symbols						
thread size UNF	3/4"		7/8"		1" 5/16	
max flow - l/min	40		75		150	
Pmax - bar	350					
internal leakage	less than 5 drops/min ($\leq 0,36 \text{ cm}^3/\text{min}$) at max pressure					

electrical power DC19 W - voltage 12, 24 DC option /FI with inductive sensor



62

proportional controls

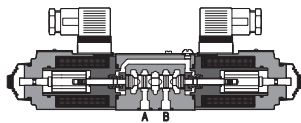
Electrohydraulic proportional controls modulate hydraulic parameters according to the electronic reference signals

They are the ideal interface between hydraulic and electronic systems to achieve faster, smoother and more accurate motions required by today's modern machines and plants

Atos proportionals allow similar or better performances in comparison with servovalves whilst maintaining the typical benefits of proportional hydraulics: less sensitivity, coarser filtration, intrinsic stability, easier servicing and lower cost

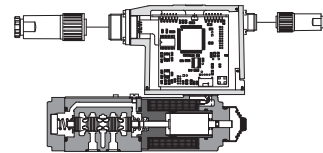
The wide range of Atos proportional valves is equipped by exclusive solenoids in the following versions:

ZO-A



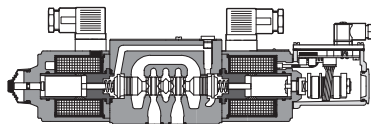
efficient open loop solenoids, 35 W, designed for direct-acting valves size 06 & 10

ZO-AE(S)



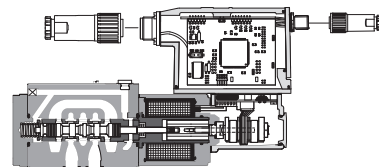
as ZO-A plus integral electronic driver, analog or digital **(S)**

ZO-T



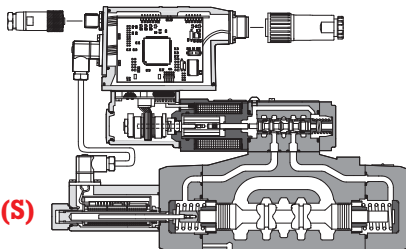
closed loop solenoids with integral electronic transducer to feedback the spool position

ZO-TE(S)



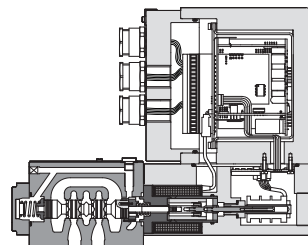
as ZO-T plus integral analog or digital **(S)** electronic driver, in closed loop, preset to ensure valve-to-valve interchangeability

ZO-LE(S)



two stage valve for high-performance, with analog or digital **(S)** electronic driver, preset in double closed loop

ZA-T(ES)



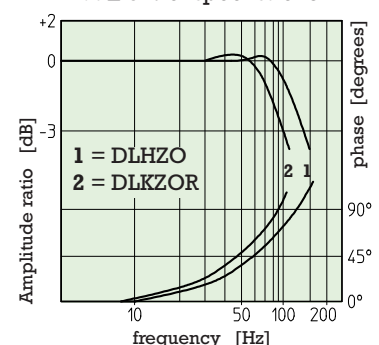
ex-proof solenoids, ATEX or UL standards, closed or open loop (ZA -T, -A), with or without digital electronic driver **(ES)**

Typical characteristics of Atos proportional 4-way valves

ISO size	Valve version	06	10	16	25
Hysteresis %	-A, -T, -L	≤ 5 ≤ 0,1%			
Response time msec stroke 0-100%	-A, -T, -L	20-30 8-15	25-40 10-20	50-70 20-35	60-80 25-45
Pressure gain *40, *60 versions	-T, -L	2 .. 5%	2 .. 5%	3 .. 6%	3 .. 6%
Frequency response ± 100% at -3dB, 90° phase lag ± 5%	-T, -L	≥ 50 Hz ≥ 130 Hz	≥ 40 Hz ≥ 100 Hz	≥ 30 Hz ≥ 80 Hz	≥ 25 Hz ≥ 70 Hz

Bode diagrams

at ± 5% of spool stroke



servoproportionals

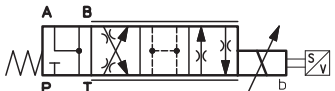
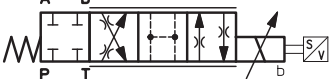
Spool-sleeve proportional valves,
 precise zero overlapping, closed-loop feedback
 fail-safe, high response with excellent reliability
 digital or analog electronics/factory preset
 excellent for flow/pressure/position axis controls
 software setting of functional parameters
 rugged option versus vibrations & shocks
 ex-proof & stainless steel executions
 Bode diagrams on page 6



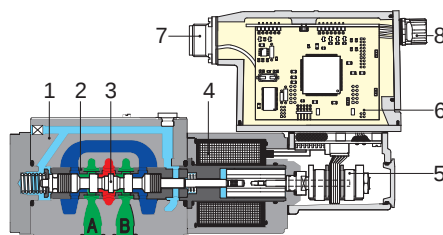
17 DLHZO & DLKZOR servoproportionals

details on table F180

Servoproportionals 4-way, direct ISO 4401 DLHZO size 06 DLKZOR size 10

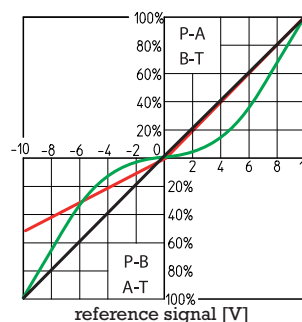
max pressure 350/315 bar - response time 8/15 ms - hysteresis $\leq 0,1\%$		size	spool (1)	max l/min
 DLHZO	06	06	L	10, 18, 32, 40, 50, 70
			D	
 DLKZOR	10	10	T	90, 160
			V	

(1) **L** linear; **T** knick for fine flow control; **D** differential for cylinders with area ratio 1:2; **V** progressive for P/Q control

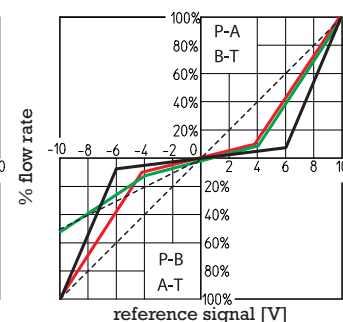


- 1 shell moulding body
- 2 hardened sleeve
- 3 interchangeable spools
- 4 exclusive proportional solenoid
- 5 LVDT transducer
- 6 integral electronic driver
- 7 main connection 7 or 12 pin
- 8 M12 fieldbus connection

regulation diagrams

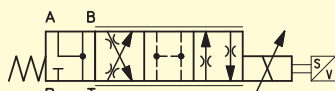
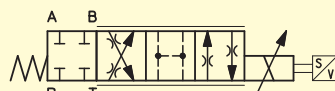
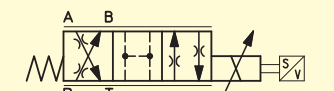


L = linear spool
D = L spool - differential
V = progressive spool



T5 = knick spool 60%
T7 = knick spool 40%
DT7 = knick spool 40% differential

Hydraulic data

																																									
fail safe type 3 (*40-L*3)														fail safe type 1 (*40-L*1)														no fail safe (*60-L*1)													
max l/min for spools		L0	L1	V1	L3	V3	L5	T5	L7	T7	V7	D7	DT7																												
DLHZO	at Δp = 30 bar	2,5	4,5	5	9	13	18			26		26÷13																													
	at Δp = 70 bar	4	7	8	14	20	28			40		40÷20																													
	max permissible	10	18	18	32	40	50			70		70÷35																													
DLKZOR	at Δp = 30 bar				40					60		60÷30																													
	at Δp = 70 bar				60					100		100÷50																													
	max permissible				90					160		160÷80																													

proportional 4-way valves

Atos proportionals are a full & modular line of valves to control flow, pressure, direction in association with proper electronic drivers and axis controllers, pages 12-17

Full set of interchangeable spools with progressive, linear, differential characteristics

Excellent performances for response time, hysteresis, repeatability

details on tables F160, F165

Proportional 4-way valves, direct ISO 4401 DHZO size 06 DKZOR size 10

*71 overlap +20%	*73 overlap -20%	*70 overlap 0%	*51 overlap +20%									
max l/min for spools (1)	DHZO						DKZOR					
	S3	S5	L1	L3	L5	D5	S3	S5	L3	L5	D5	
at p = 30 bar	30	50	8	30	50	50	80	130	80	130	130	
at p = 70 bar	45	75	12	45	75	75	120	170	120	170	170	
max permissible	60	85	18	60	85	85	150	180	150	180	180	

(1) spools: S = progressive L = linear D = differential 1:2

max pressure 350/315 bar

Note additional spools are available for specific application, i.e. injection or mould controls in plastic machinery



18



19



20



21



22

18 DHZO-A-07 and DKZO-A-15, basic execution

19 DHZO valves with special IP67 connector, E-MI-AS driver, -TES execution

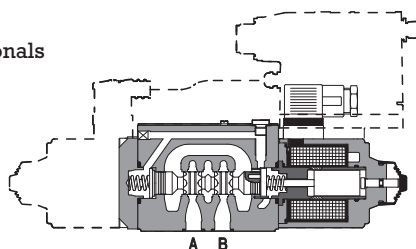
20 -AES valve in /W option, hydraulic power limitation

21 DHZO-AES-05 and DHZO-AES-07

22 DKZOR-TES-17 with integral digital driver and LVDT transducer

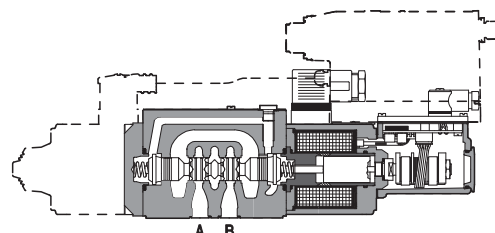
typical sections

direct 4-way proportionals with multiple modular executions



-A without spool position transducer, -1 or -2 solenoids, with optional separated electronic driver

-AE, -AES as -A plus analog (AE) or digital (AES) integral electronic driver



-T with integral spool position transducer, -1 or -2 solenoids, with separated electronic driver

-TE, -TES as -T plus analog (TE) or digital (TES) integral electronic driver

Proportional 4-way valves, two stage ISO 4401 DPZO-1 size 10 DPZO-2 size 16 DPZO-3 size 25

max l/min for spools (1)	DPZO-1 L5 S5 D5	DPZO-2 L3 S3 D3 L5 S5 D5	DPZO-3 L5 S5 D5
at •p = 10 bar	100	130	200
at •p = 30 bar	160	225	340
max permissible	180	550	760

(1) spools: S = progressive L = linear D = differential 1:2

max pressure 350 bar

Note • high flow /H execution is available for size 25 - oversized oil ports ø32

• DPZO-6 valves, size 32 available on request, also in /H execution - oversized oil ports ø50



23



24



25

23 DPZO-2 & 3 valves, sizes 16 & 25, in basic 2 solenoids execution without driver and transducer

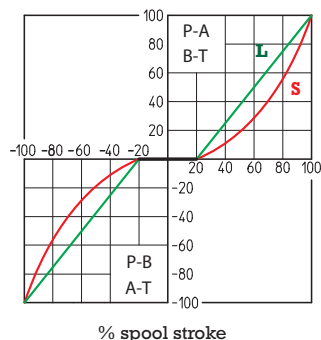
24 Pilot operated -LES servoproportionals, size 16 & 25, with integral driver and 2 LVDT transducers

25 DPZA-2 & 3, ex-proof execution with ATEX certified solenoids, page 22

regulation diagrams

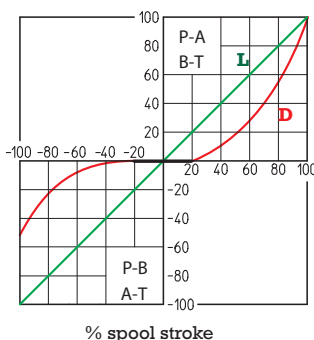
L = linear spool

S = progressive spool

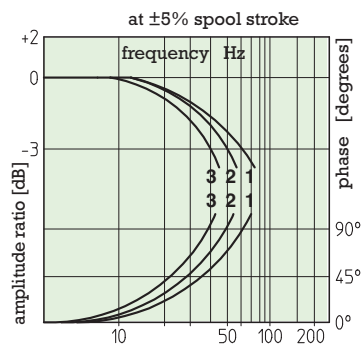


L = linear spool - 0% overlap

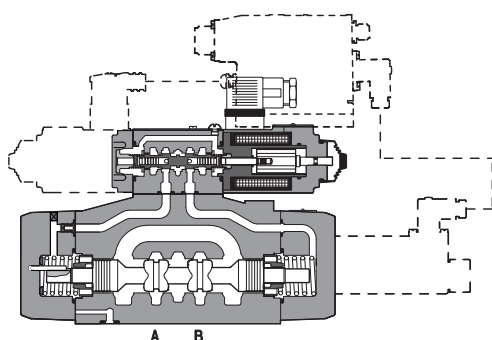
D = S spool - differential



Bode diagrams for -LES valves



1 = DPZO-1 2 = DPZO-2 3 = DPZO-3

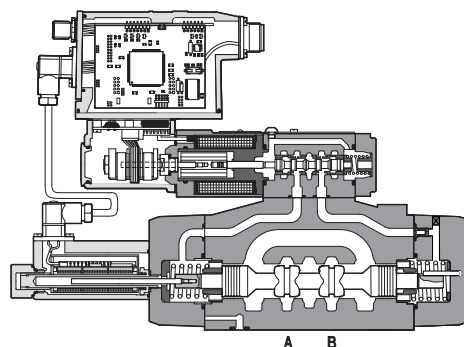


-**A**, without spool position transducers

-**AE**, -**AES** as -A plus analog (AE) or digital (AES) integral driver

-**T**, with integral spool position transducer on main stage

-**TE**, -**TES** as -T plus analog (TE) or digital (TES) integral driver



-**L**, with two position transducers on main spool and pilot valve

-**LE**, -**LES** as -L plus analog (LE) or digital (LES) integral driver; -LES are high performance valves specifically designed for high dynamics, closed-loop controls

proportional cartridges

LIQZO-LES are 2-way or 3-way proportional cartridges with integral digital electronics providing flow control with high dynamics, according to reference signals
Factory preset electronics ensure fine functionality plus valve-to-valve interchangeability

details on tables F330, F340

Proportional throttle cartridges ISO 7368 LIQZO-LES sizes 16 to 100

	- 2 way		- 3 way						
max l/min	for size	16	25	32	40	50	63	80	100
LIQZO 2 way at • p = 10 bar max permissible		350 600	700 1200	1100 1800	1700 2500	2800 4000	4250 6000	6350 10000	10200 16000
LIQZO 3 way at • p = 10 bar max permissible			260 500	470 850	590 1050	1100 2000	1750 3100	3000 5000	

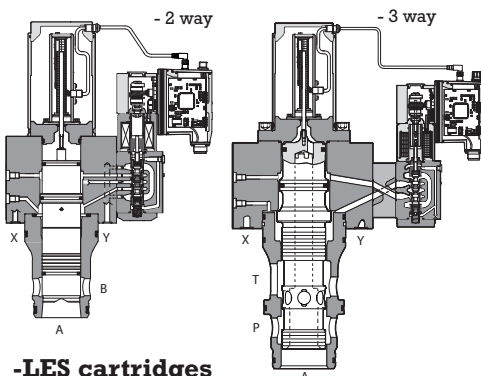
hysteresis $\leq 0,1\%$ repeatability $\pm 0,1\%$ (% of the max flow)

max pressure 350 bar

LIQZO-TES 2-way throttle cartridge, 16 to 63 sizes, are also available for standard performance *table F320*



typical sections



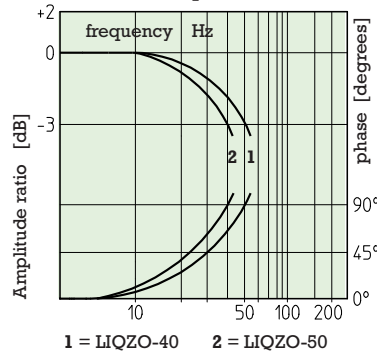
-LES cartridges

Double closed-loop control by two position transducers on main spool and pilot valve to grant fast response times, high dynamics and regulation accuracy

LES proportional cartridges are in "rugged" execution to withstand high vibrations and mechanical stresses, page 28

Bode diagrams

at $\pm 5\%$ spool stroke

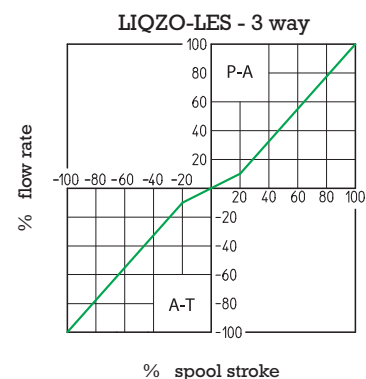
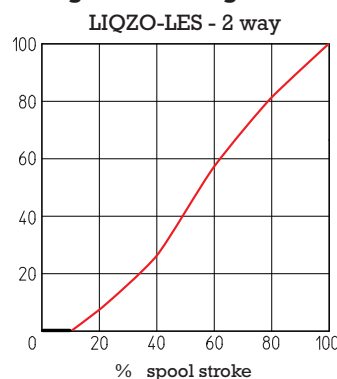


26 3-way LIQZO-LES in rugged execution, page 28, with integral digital electronics

27 LIQZO-TES, 2- & 3-way cartridges, size 16 to 63

28 2- & 3-way cartridges in ex-proof servoproportional execution

regulation diagrams



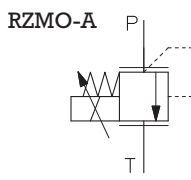
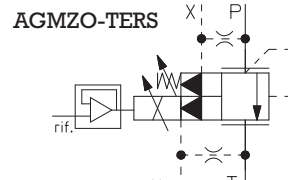
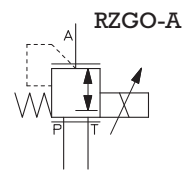
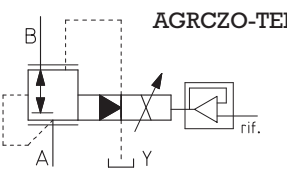
pressure flow valves

Main models of proportional valves for pressure and flow control are resumed in this page
Remember that pressure & flow may be also regulated in high dynamics by the 4-way or cartridge proportionals, described in pages 8, 9, 10

details on tables F007 to F075

Proportional pressure valves direct & two-stage

max pressure 315 bar

				
model	RZMO relief direct	AGMZO relief two-stage	RZGO reducing direct	AGRCZO reducing two-stage
ISO subplate	4401	6264	4401	5781
sizes	06	10 20 32	06	10 20
max l/min	4 40	200 400 600	12 40	160 300



29



30



31



32



33



34

29 RZMO relief valves, direct & pilot operated

30 AGRCZO-A reducing proportionals, basic execution

31 TERS pressure valves with integral pressure transducer

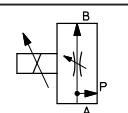
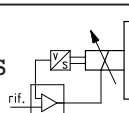
32 QVKZOR-A proportional flow valve

33 AGMZO with ex-proof solenoid, driver & transducer, page 22

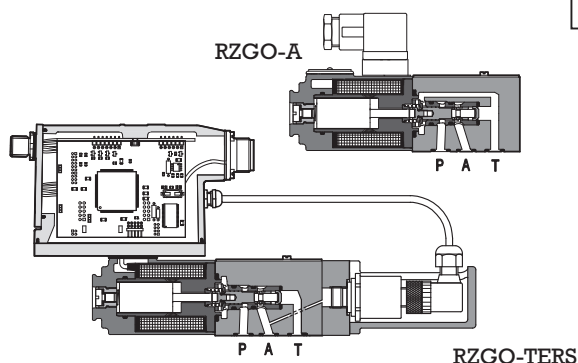
34 PC assisted test benches for proportionals

details on tables F410, F412

Proportional flow valves pressure compensated

		
	QVHZO-A QVKZOR-A	QVHZO-TES QVKZOR-TES
model	QVHZO	QVKZOR
ISO 4401 sizes	06	10
max l/min	45	90

max pressure 210 bar



-A without pressure transducer

-AE -AES as -A with integral analog (AE) or digital electronic driver (AES)

-TERS with integral pressure transducer & digital driver in factory preset closed-loop for precise pressure control

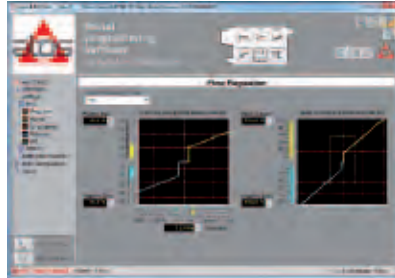
digital electronics

Modern world is driven by digital electronics ...thanks to its typical benefits in comparison with analog electronics: fast and powerful data processing, easy programmability, high immunity to electromagnetic noise, process parameters and data storage

Atos new digital electronics are equipped with a standard RS232 port to be interfaced with the user-friendly PC software E-SW-PS allowing the programming of all functional parameters



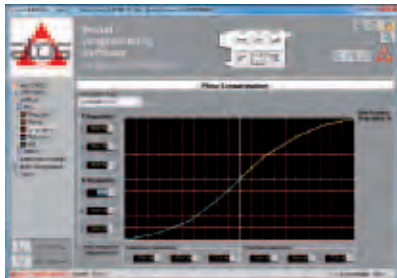
software setting of proportional



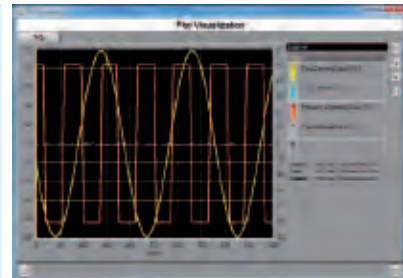
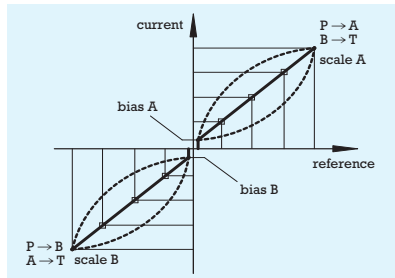
scale, bias & threshold



ramps



linearization



diagnostic

E-SW programming software allows to set the driver's functional parameters. It is supplied in dvd format and can be easily installed on a desktop or a notebook computer

Atos unique PC software for digital drivers, provide better performances, easy software setting with unsurpassed consistency & inherent diagnostics, interface options RS232, CANopen, PROFIBUS, etc.

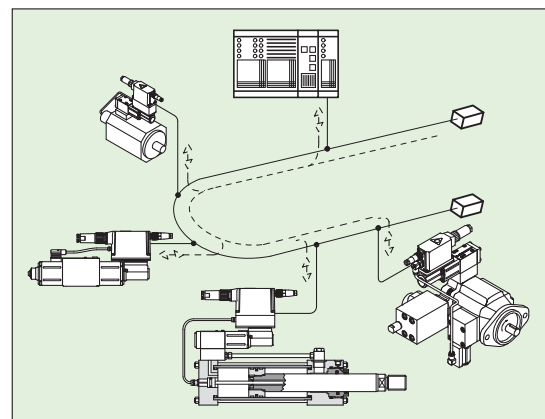
The software graphic interface is organized in pages and levels related to different specific functional groups and allows to:

- simply access all the functional parameters of Atos digital valves and drivers
- numerically adapt the factory preset parameters to the application requirements
- verify the actual working conditions
- identify and quickly solve fault conditions
- store the customized setting into the driver or into the PC database

Fieldbus network

Electrohydraulic systems may be integrated in fieldbus communication network: CANopen, PROFIBUS DP, Ethernet, etc.

The fieldbus offers remarkable advantages: immunity from electromagnetic disturbances, standardization of communication protocols, reduced wiring costs, full diagnostics and remote assistance.



digital electrohydraulics

New digital electrohydraulics with on board electronics enables new functionalities within the conventional control architectures, integrates several logic and control functions - distributed intelligence - and it makes feasible and inexpensive its introduction in the hydraulic system of modern fieldbus communication networks

features

- **better performances:** hysteresis, response time, linearity and stability
- **easy & repetitive numerical software setting** of hydraulic parameters: scale, bias, ramps
- **new functions and settings**, like compensation of valve's non-linearities, of dynamic performances and of fail safe configuration
- **diagnostics** (alarms, fault, monitor) and PC assisted maintenance of machines and systems
- **direct interfacing to field-bus networks**
- optional **combined pressure/flow or force/flow control** for valves and pumps



36 Full range of digital proportional valves with integral driver & transducer

37 Servoproportional 4-way valves, sizes 06, 10, 16

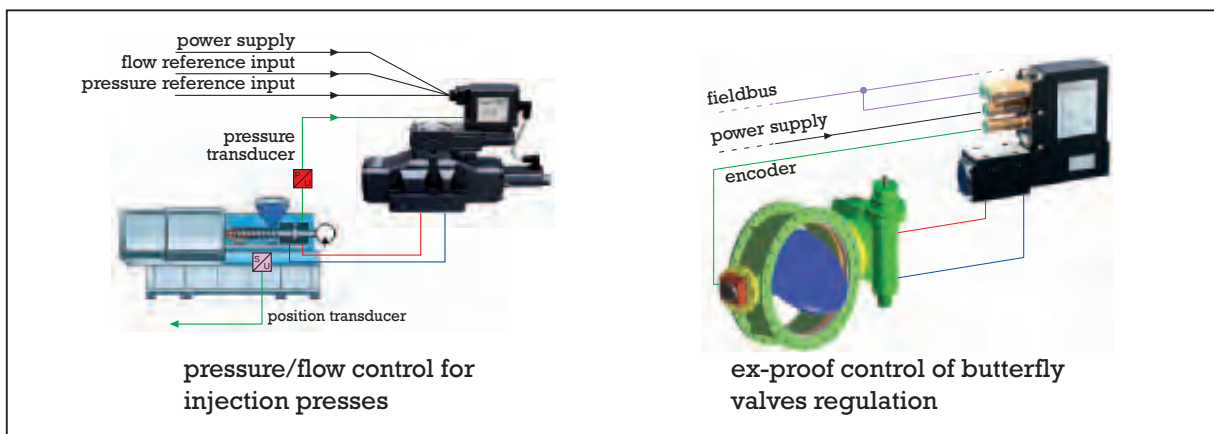
38 Atos range of digital drivers and controllers, page 14

39 DKZOR-TES & LIQZO-LES valves in rugged execution

40 PVPC axial piston pump with PERS digital P/Q control

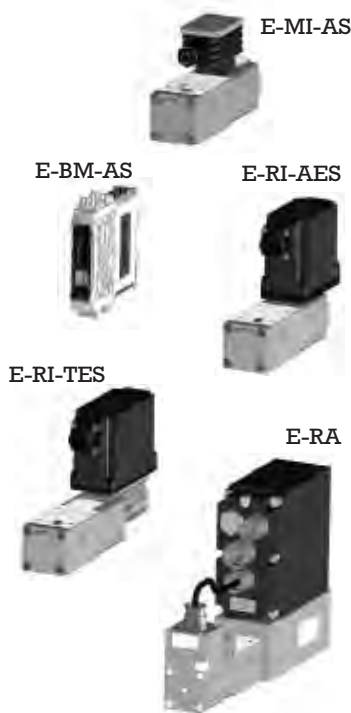
41 Electrohydraulic servoactuators including: servocylinder with integral rod position transducer & servoproportional valves with integral controller

Examples of digital electrohydraulic applications



electronic drivers

Atos digital electronic drivers supply proportional valves with a proper PWM current to align the valve regulation to the reference signal
the table below shows main standard digital drivers



details on tables G020, G030, G115, G205, G210, G212, G215

Electronic drivers

driver	valve model	format	(1)
E-MI-AS	without integral transducer	DIN 43650 plug-in	O
E-BM-AS		DIN-rail panel	
E-RI-AES		integral-to-valve	
E-RI-TES	with integral transducer 4-way & cartridges	integral-to-valve	C
E-RI-LES			D
E-RI-TERS	pressure control		C
E-RI-AERS			
E-RI-PES	PV variable pumps	integral-to-valve	D
E-RA-*	ex-proof execution	integral-to-valve	O/C/D

(1) control loop: **O** open; **C** closed; **D** double closed

(2) analog versions of the above drivers are available both in integral or separate execution



42



43



44

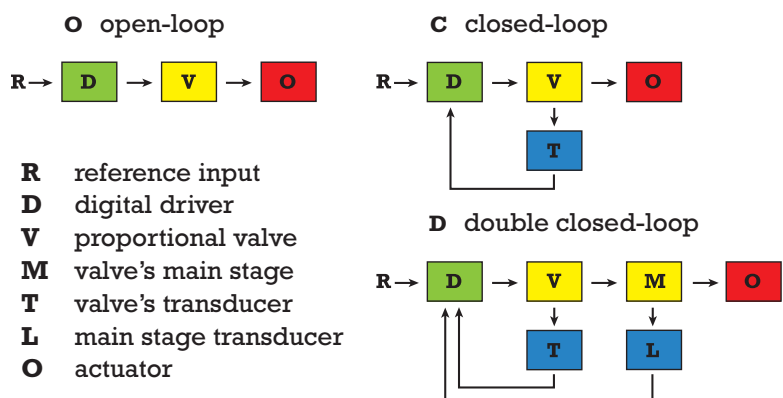
42 Plug-in E-MI-AS driver mounted on proportional open loop solenoid

43 E-RI-AES drivers, standard and /W option, hydraulic power limitation

44 E-RI-TES closed loop integral drivers



Atos electronics has a CE marking qualifying the conformity to the EMC European Directive
Electromagnetic Compatibility



Atos is active since many years in R&D activities on digital electrohydraulics, including: research and testing of new DSP microcontrollers, simulation models of valves and systems, development of advanced softwares, extensive testing of components and new solutions



45



46

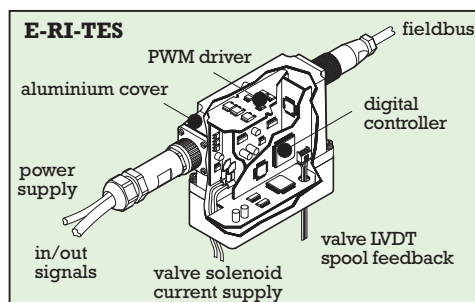


47

45-46-47 Full range of Atos digital electrohydraulics: proportional valves, drivers & axis controllers

Integral electronics, factory preset, ensures fine functionality plus valve-to-valve interchangeability and simplifies installation wiring and system set-up.

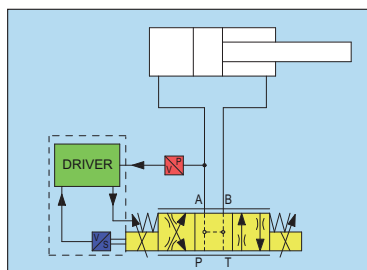
E-RI on board drivers are available for valves with & without transducer, direct and pilot operated, as well as for variable displacement pumps, also in ex-proof execution, page 22



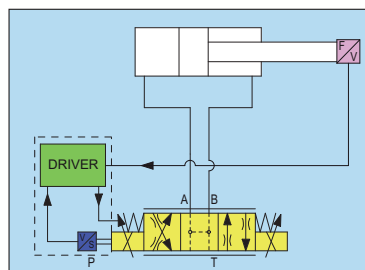
Pressure-force/flow combined controls

/SP, /SL, /SF options in E-RI digital drivers add a force closed-loop to the spool position control of 4-way proportionals.

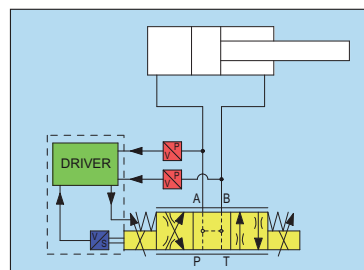
A single proportional valve with /S* option manages complex machine operations requiring high combined regulations: i.e. typical applications are injection or mould controls in plastic machinery



4-way proportional valve
/SP - flow/pressure



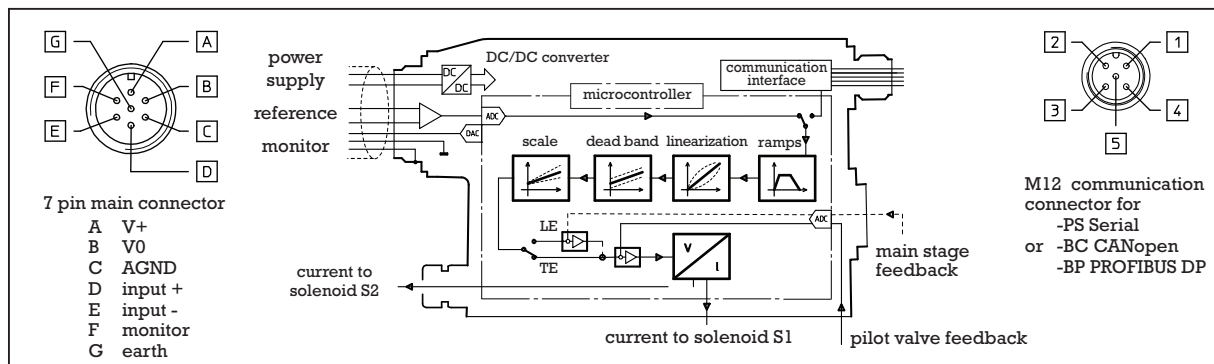
4-way proportional valve
/SL - flow/force by load cell



4-way proportional valve
/SF - flow/force by -PA-PB

■ electronic driver ■ valve position transducer ■ pressure transducer ■ load cell

Functional block diagram for E-RI-TES E-RI-LES integral drivers



motion controllers

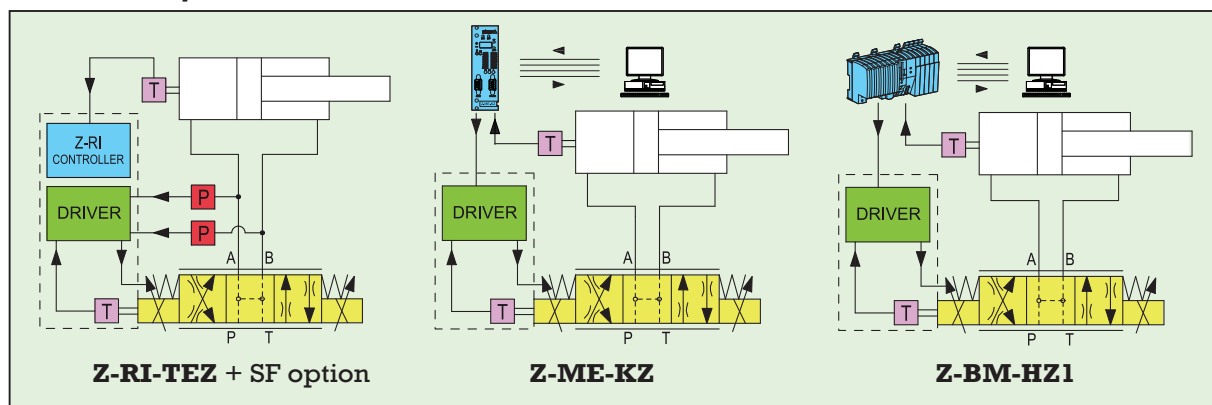
Atos digital axis motion controllers are the **up-to-date solution for the motion control** in modern machines and systems: they can be easily configured and PC programmed **to best manage position, speed or force of any electrohydraulic axis**, in closed-loop by a digital proportional. They improve motion performance, simplify the automation architecture and may be interfaced by fieldbus to the machine control unit

details on tables G330, G340

Digital controllers

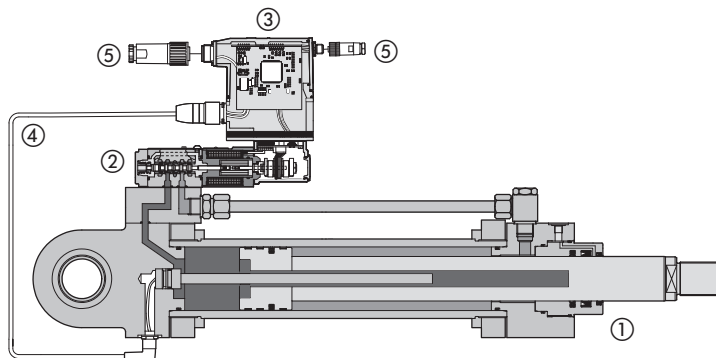
controller type	Z-RI-TEZ	Z-ME-KZ	Z-BM-HZ1 (HZ2)
			
	integral axis controller including integral driver for closed-loop control of any linear/rotative actuator	Eurocard axis controller for flexible-general purpose motion control	multiple axis controller modular DIN-rail assembly with high performance computation capabilities
valve driver function	●		
nr. of controlled axis	1	1	1 (2)
internal programmable cycles	simple	complete	extended
graphic programming software	●	●	●
synchronism			(●)
position transducer interface analog - SSI - encoder	1	1	1 (2)
pressure-force/position control	● option /SP, /SL, /SF, page 15		
pressure transducer interface	1/2	2	1/2 (2/4)
valve parameters setting	● factory preset	●	●
communication interface Serial-CANopen-PROFIBUS DP	●	●	●
Ethernet interface			●
digital input/output	up to 2	9 (input) / 8 (output)	12 (24) + modules
auxiliary analog input/output	up to 2	6 (input) / 3 (output)	1 + modules

Basic block systems

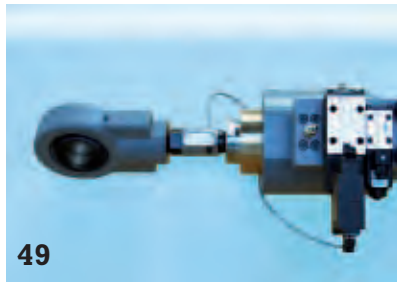
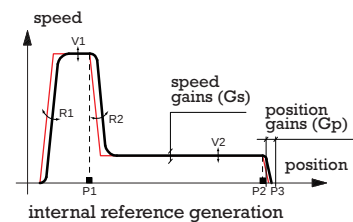
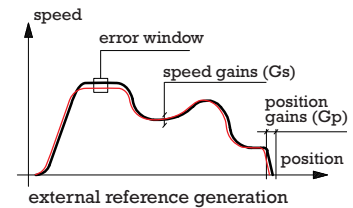


servoactuators

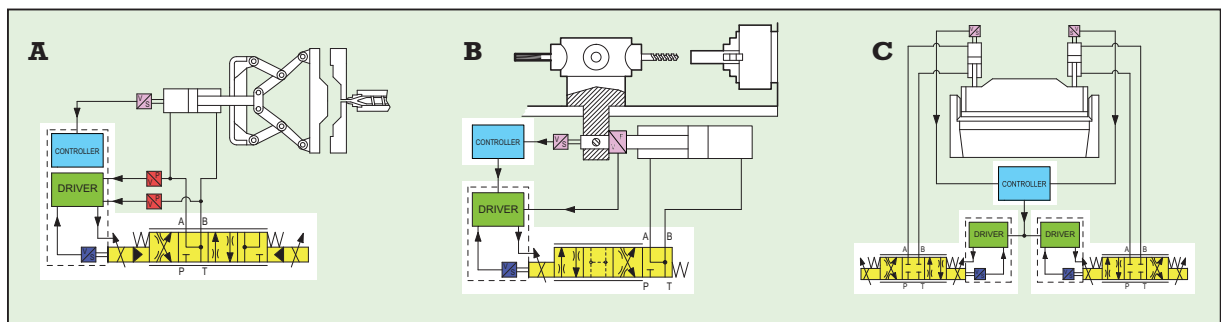
Atos digital servoactuators perform the axis motion cycle with position closed-loop plus optional speed/pressure/force control
They are smart machines' elements ready to use after piping to the hydraulic source and wiring to the electronic system



① servocylinder with position transducer, ② servoproportional valve DLHZO with ③ integral digital controller Z-RI-TEZ, ④ position feedback signal, ⑤ connections to electric power, electronic signals and fieldbus



48 DLHZO-TEZ servoproportional valve with integral driver & axis controller
49-50 Electrohydraulic servoactuators with /SL option for flow/force control by load cell
51 Parison servoactuators with digital controllers & fieldbus communication interface
52 Atos unique software for full parameters setting of the axis motion & relevant diagnostics
53 Punching servoactuator for high working frequency with /SF option for flow/force control by 2 pressure transducers



application examples: A - clamp position control with force limitation in plastic machinery - B position-speed control with force limitation for machine tools - C synchronized control system for bending presses

explosion proof

A full range of ISO electrohydraulics for potential explosive environments with presence of flammable gas or dust.

Atos ex-proof valves conform to international safety directives and are largely applied in thousands of systems worldwide, offering high reliability and withstanding extreme temperatures, corrosive fluids and aggressive conditions.



65



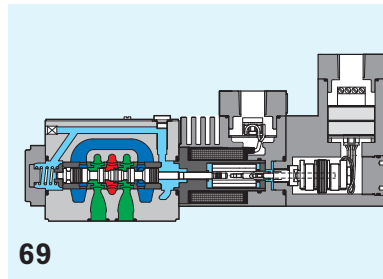
66



67



68



69



70

65 DLHZA-T and DPZA-A ex-proof proportional valves

66 Ex-proof solenoid valves, single & double

67 3-way LIQZA-LES proportional cartridge in full explosion proof execution

68-69 Servoproportional digital valves with ex-proof integral driver & transducer, ATEX certified

70 DPZA-L ex-proof proportional 4-way valve with 2 integral LVDT transducers

Ex-proof solenoids valves have original ex-proof solenoids, integral and consistent to valves, designed to contain the explosion inside the enclosure, and to limit their external temperature, according to the certified class, in order to avoid self ignition of the explosive mixture in the environment.

Ex-proof on-off valves

details on tables E120, E125, F600

control function	ISO sizes	(1)	type code	P max bar	Q max l/min
directional, 4 way spool type	6	D	DHA	350	70
	10, 16, 25	P	DPHA-1,2,3		160, 300, 650
directional, 2- & 3-way poppet type, leak free	6	D	DLOH-AO	250	12
	6	D	DLOK-AO		30
2-way cartridges with ex-proof, pilot valve	16÷63	P	LIDEW-AO	350	160÷3600
pressure valves with ex-proof venting valve	10÷32	P	AGAM-AO		200÷600
	20, 32	P	ARAM-AO		350, 500

Ex-proof proportional valves

The whole range of Atos proportional valves - see pages 6 to 11 is available in open (ZA-A) or closed loop (ZA-T) execution and also with integral digital external drivers (ZA-TES) or controllers (ZA-TEZ)

Available certifications:

- **ATEX** 94/9/EC standard protection mode:
 - for Gas & Dust environments - Atos code **A** or **AO**
 - for Mining plants - Atos code **A/M**
- **IECEX** international certification system - Atos code **A/IE**
- **UL 1002** american standards - Atos code **A/UL**
- **ROST** Russian Rostechnadzor - Atos code **A/RU**



ATEX 94/9/EC ex-proof certifications are currently available for other several components, like:

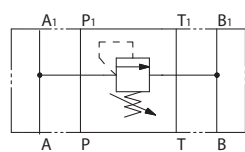
- hydraulic pumps
- hydraulic cylinders
- hydraulic units
- auxiliary components

modular valves

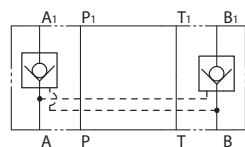
Full line of ISO 4401 modular valves, engineered design to be stacked below ISO solenoid valves

solenoid valve sizes 06, 10, 16, 25

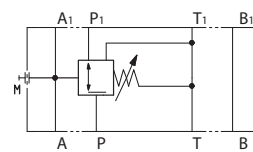
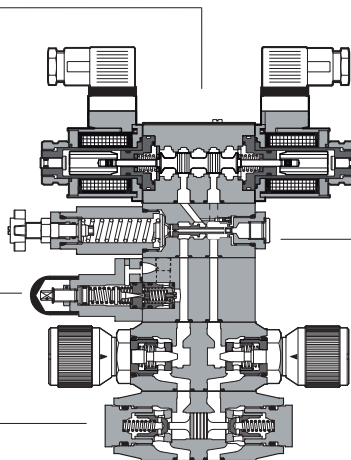
details on tables D120, D140, D160, D180



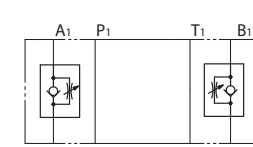
relief valve
direct or pilot operated



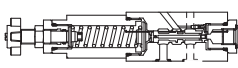
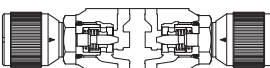
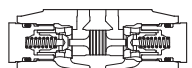
check valve



pressure reducing
direct or pilot operated



flow control

operation and symbols	size 06		size 10		size 16	size 25
pressure reducing 	3-way		3-way		2-way	
		direct	piloted	direct	piloted	piloted
	Qmax-l/min	50		100		250 300
	P reg.-bar	210		210		210 210
	on port P	HG -031			KG -031	JPG -211
	A	-033			-033	JPG -311
	B	-034			-034	
relief 		direct	piloted	direct	piloted	
	Qmax-l/min	35	60	120		
	Pmax-bar	350		350		
	on port P	HMP -011	HM -011		KM -011	
	A, B	-012	-012		-012	
	A	-013	-013		-013	
	B	-014	-014		-014	
	A, B cross	-015	-015		-015	
flow control 		meter-out	meter-in	meter-out	meter-in	meter-out
	Qmax-l/min	80		160		200 300
	Pmax-bar	350		315		350 350
	port A, B	HQ -012	HQ -022	KQ -012	KQ -022	JPQ -212
	A	-013	-023	-013	-023	-213
	B	-014	-024	-014	-024	-214
check-valve 		direct	piloted	direct	piloted	piloted
	Qmax-l/min	60		120		200 300
	Pmax-bar	350		315		350 350
	on port P	HR -011		KR -011		
	T	-016		-016		
	A, B		HR -012		KR -012	JPR -212
	A		-013		-013	-213
	B		-014		-014	-214

81-82 JP, K, H modular valves



conventional values



Full line of conventional hydraulic valves for **pressure, flow, directional control**

Conceited in up-to-date modular cartridges design, for threaded or subplate mounting

Pressure controls: relief, sequence, unloading, reducing

Flow control: pressure compensated, check valves

Directional controls: hand, cam, hydraulic, pneumatic

76

pressure values

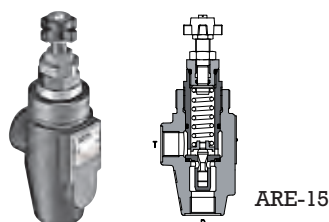
details on tables
C020, C045, C066, C070

threated connections

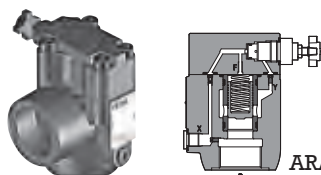
relief	option with venting	size	Qmax l/min	Pmax bar
ARE-06	only for ARAM	G 1/4"	40	500
ARE-15		G 1/2"	75	250
ARAM-20		G 3/4"	350	350
ARAM-32		G 1 1/4"	500	

subplate models

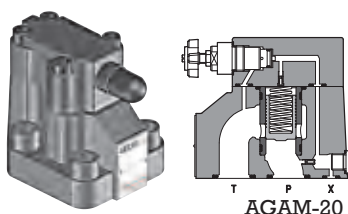
relief ISO 6264	option with venting			
AGAM-10		10	200	350
AGAM-20		20	400	
AGAM-32		32	600	
unloading ISO 5781	option with venting			
AGIU-10		10	100	
AGIU-20		20	200	
AGIU-32		32	300	
sequence ISO 5781	option with check valve			
AGIS-10		10	200	
AGIS-20		20	400	
AGIS-32		32	600	
reducing ISO 5781	option with check valve			
AGIR-10		10	160	
AGIR-20		20	300	
AGIR-32		32	400	



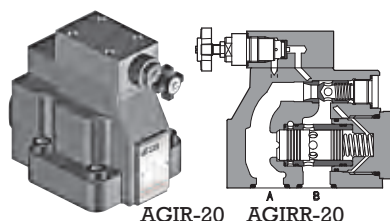
ARE-15



ARAM-32



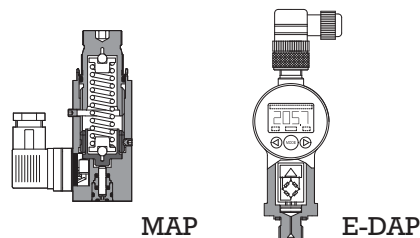
AGAM-20



AGIR-20 AGIRR-20

pressure switches

model	MAP	E-DAP
type	mechanical	electrical
size		G 1/4"
pressure range - bar	/40 /80 /160 /320 /630	/100 /250 /400
differential	fixed	adjustable
output characteristics	microswitch NO/NC	PNP transistor NO/NC
connector	4 pin DIN 43650	4 pin M12

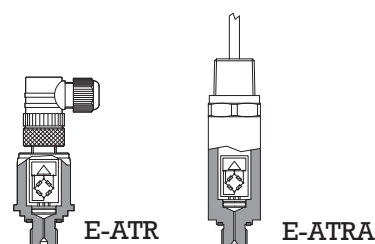


MAP

E-DAP

pressure transducers

model	E-ATR	E-ATRA
type	standard	Ex-proof
size	G 1/4"	
pressure range - bar	/60 /100 (only E-ATR) /160 /250 /400	
output characteristics	0÷10VDC or 4÷20 mA	4÷20 mA
max protection degree	IP67	
connector	4 pin M12	5 mt cable

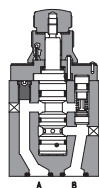


E-ATR

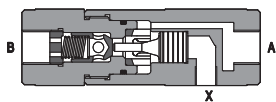
E-ATRA

flow valves

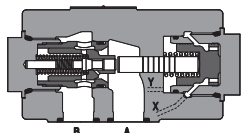
details on table C210



QV-06



ADRL-20



AGRL-20

pressure compensated		ISO 4401	Pmax 250 bar	
2-way models	ISO (1)	size	Qmax l/min	Pmax bar
QV-06		06	24	250
QV-10/2		10	65	250
QV-20/2		20	160	250

check valves pilot operated details on table C450

in line model		Pmax 350 bar	
check valve	ISO 5781	size	Qmax l/min
ADRL-10		G 3/8"	30
ADRL-20		G 1/2"	60
ADRL-30		G 3/4"	100
ADRL-32		G 1 1/4"	300

subplate model		Pmax 315 bar		
check valve	ISO 5781	external drain (E)	size	Qmax l/min
AGRL(E)-10			10	160
AGRL(E)-20			20	300
AGRL(E)-30			32	500



77 AGAM-20 & -32 relief valves



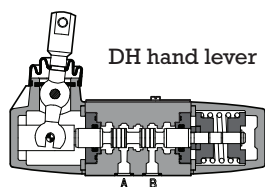
78 QV06, AGRLE-10, MAP, E-DAP



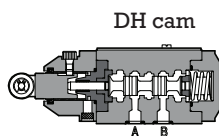
79 Hand lever DH valve

directional valves

hand lever, cam, pneumatic/hydraulic operated

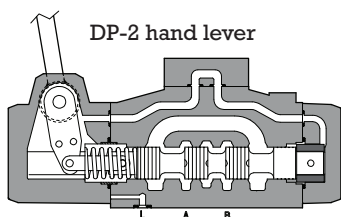
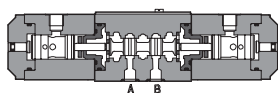


DH hand lever



DH cam

DH pneumatic/hydraulic



DP-2 hand lever

model description	size 06	size 10	size 16	size 25	symbols
2 positions 2 position + detent hand lever	DH-013 DH-015	DK-113 DK-115	DP-213 DP-215	DP-313 DP-315	
3 positions 3 position + detent	DH-011 DH-014	DK-111 DK-114	DP-211 DP-214	DP-311 DP-315	
cam 2 positions	DH-02	DK-12	-	-	
hydraulic 2 positions 3 positions 2 position + detent	DH-04 DK-051 DK-055	DK-14 DK-151 DK-155	DP-24 DP-251 -	DP-34 DP-351 -	
pneumatic 2 positions 3 positions 2 position + detent	DH-08 DH-091 DH-095	DK-18 DK-191 DK-195	DP-28 DP-291 DP-295	DP-38 DP-391 DP-395	

note: for hydraulic characteristics, see pages 18 and 19

80 Hydraulic operated DH, pneumatic operated DK valves



80

cartridge valves

Cartridge valves are designed to fit ISO standard cavities in hydraulic blocks or casting bodies with proper hydraulic connections, examples on page 24.

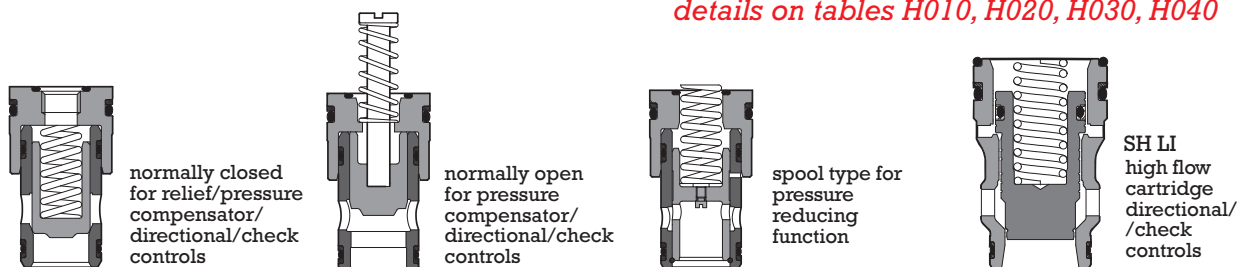
They consist of a **cartridge valve**, poppet or spool type, and a **functional cover**, that retains the cartridge and provides proper hydraulic connections, according to specific functional configuration.



cartridges ISO 7368 SC LI flow characteristics

Qmax l/min	size	16	25	32	40	50	63	80	100
pressure control		200	400	600	1200	2000	3500	5400	
flow control		180	430	670	1400	2200	3500	5600	
directional control		180	430	670	1400	2200	3500	5600	8500
check control		180	430	670	1400	2200	3500	5600	8500

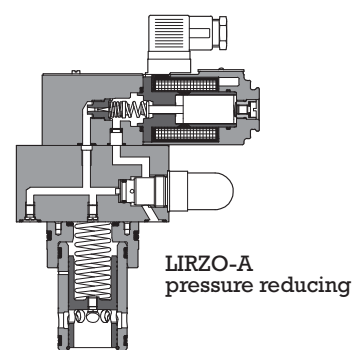
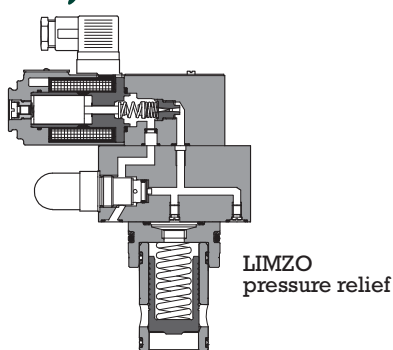
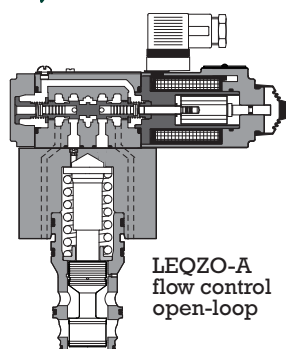
details on tables H010, H020, H030, H040



functionals covers ISO 7368 function / hydraulic symbols

LIMM pressure relief LIRA pressure reducing LIC pressure compensator LIMH A as LIMM plus venting: unloading when solenoid is de-energized (A) LIMH C or energized (C)	 LIMM	 LIMH*
LIDD flow control with stroke limiter LIDA check valve normally closed LIDO check valve normally open LIDR check valve pilot operated LIDB check valve with shuttle valve for pilot selection	 LIDD	 LIDR
LIDBH*A directional control with solenoid and shuttle valve for pilot selection. LIDBH*C open (A) or closed (C) when solenoid is de-energized LIDEW directional control with solenoid valve for pilot selection with 6 configuration	 LIDBH1*	 LIDEW

proportional cartridge valves



Mobile Directional Valves



Allison Hydraulics



Index

Mobile Directional Valves

M45 Monoblock Valve

Page 27



- Rated flow up to 45 l/min
- Rated pressure up to 350 bar
- Spool pitch: 35 mm
- Spool stroke: 5+5 mm

D10 Monoblock Valve

Page 29



- Rated flow up to 55 l/min
- Rated pressure up to 350 bar
- Spool pitch: 35 mm
- Spool stroke: 5+5 mm

D3M Sectional Valve

Page 31



- Rated flow up to 55 l/min
- Rated pressure up to 350 bar
- Spool pitch: 38 mm
- Spool stroke: 5+5 mm

D6 Sectional Valve

Page 33



- Rated flow up to 100 l/min
- Rated pressure up to 350 bar
- Spool pitch: 46 mm
- Spool stroke: 7+7 mm

SVM Selector Valve

Page 35



- Manual and hydraulic actuation availability
- 3 or 6 way
- Rated flow up to 350 l/min

SVE Selector Valve

Page 37



- 3 or 6 way
- Rated flow up to 100 l/min
- Drain connection available for high pressure applications

Features:

- HC-M45 belongs to the wide range of Hydrocontrol S.p.A. monoblock valves and is capable of working with a maximum flow of 45 litres/min. at an operating pressure of 350 bar.
- Numerous integrated valve features in addition to countless configuration options make HC-M45 highly flexible and easily adaptable to the widest applications range.
- The possibility to utilize wide variety of interchangeable spools circuit and different combinations between them, give an answer to every requirement.



HC-M45 has available:

- Special versions with left inlet. • Direct electric control push-push type.
- Special circuits for stabilisers applications. • Fork lift truck set up with potentiometer and microswitches.



Applications:

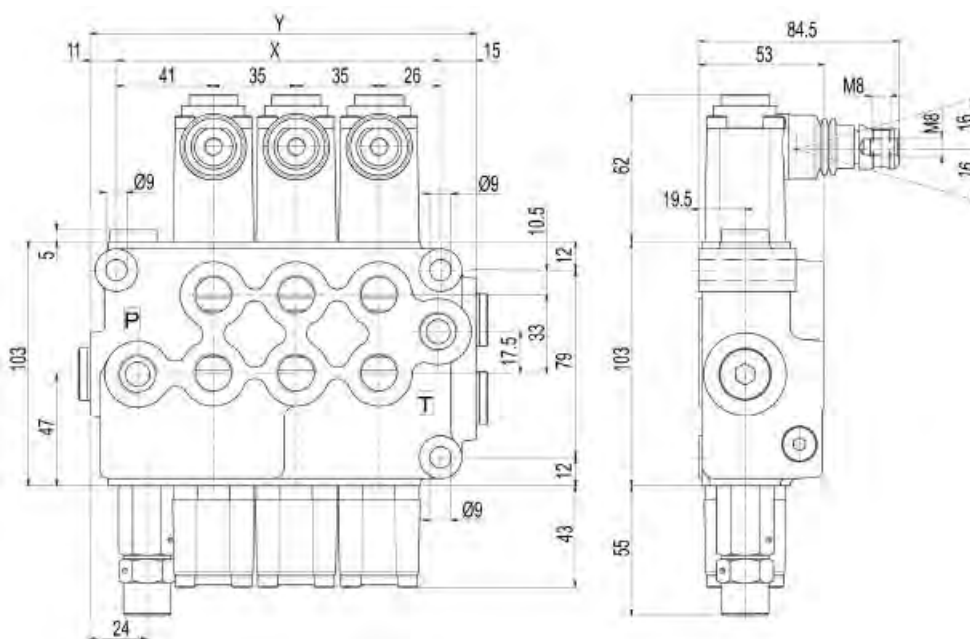
- Cranes and aerial platforms, agricultural machines, mini skid loaders, mini dumpers and forklifts.

Technical specifications:

Working section No.	Rated flow	Rated pressure	Spool stroke	Spool pitch	Circuit type
1 - 6	45 l/min	350 bar	5+5 mm	35 mm	Parallel

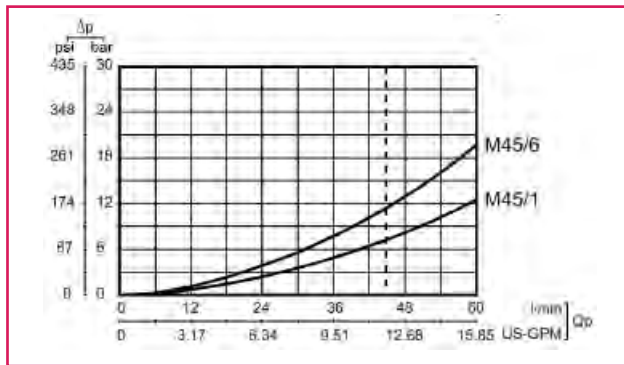
Dimensions:

Type	M45/1	M45/2	M45/3	M45/4	M45/5	M45/6
X (mm)	67	102	137	172	207	242
Y (mm)	93	128	163	198	233	268
Weights (Kg)	2.70	4.10	5.50	6.90	8.30	9.70
Ports	Inlet (P)		Ports (A-B)		Outlet (T)	
BSP Thread (ISO 1179-1)	G 3/8		G 3/8		G 3/8	

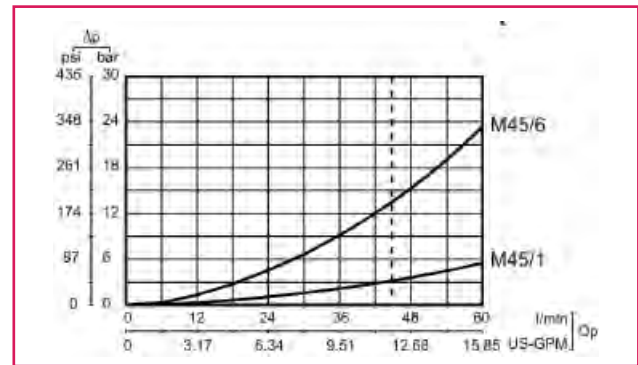


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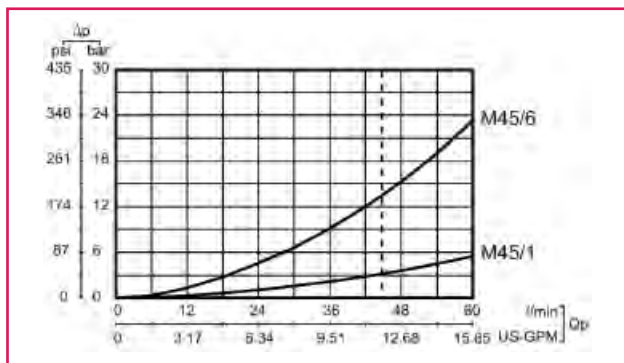
Typical curves:



Pressure drop (P - A/B)



Pressure drop (A/B - T)



Pressure drop (P - T)

Model code

HC-M45/1	IR 301 (***)	W001A	H001	F001A	MJA	G03
Monoblock valve type: M45 = product type /1 - /6 = number of sections Inlet arrangement: IR 301 = inlet side and valve type 150 = setting (bar) IR 303 = inlet side, no relief valve Work section arrangement: W001A = double-acting spool W002A = double-acting spool (open centre) W005A = single-acting spool					Outlet arrangement: MJA = outlet type (as standard) MMT = plus high pressure carry over F001A = spring centred F002A = double-acting detent (Other options available on request)	G03 = outlet and thread position
						H001 = spool actuation (lever operated)



Allison Hydraulics

Features:

- HC-D10 belongs to the wide range of Hydrocontrol S.p.A. monoblock valves and is capable of working with a maximum flow of 55 litres/min. at an operating pressure of 350 bar.
- Numerous integrated valve features in addition to countless configuration options make HC-D10 highly flexible and easily adaptable to the widest applications range.
- The possibility to utilise a wide variety of interchangeable spools circuit and different combinations between them, gives an answer to every requirement.



Applications:

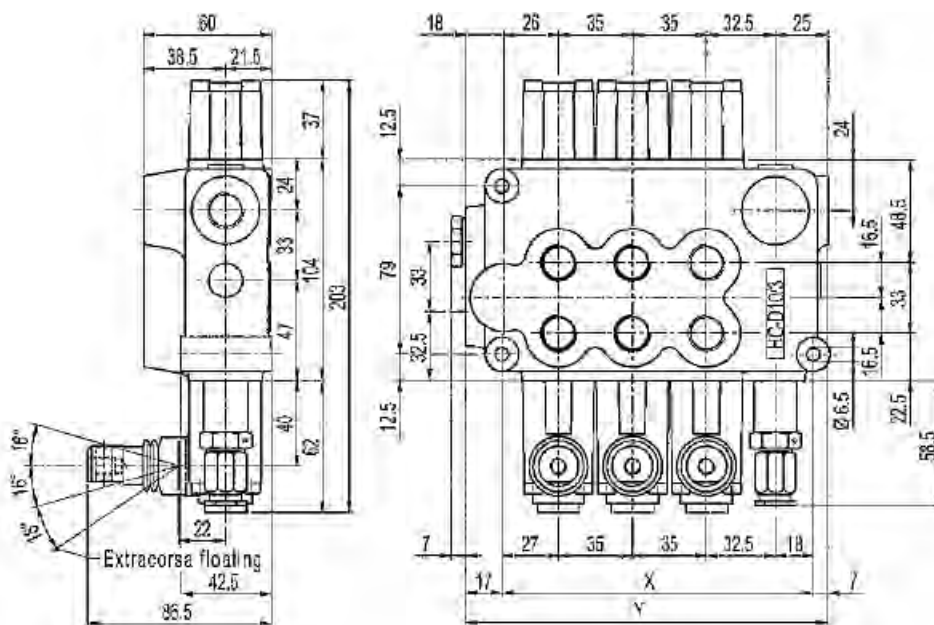
- Cranes and aerial platforms and agricultural machines.

Technical specifications:

Working section No.	Rated flow	Rated pressure	Spool stroke	Spool pitch	Circuit type
1 - 6	55 l/min	350 bar	5+5 mm	35 mm	Parallel

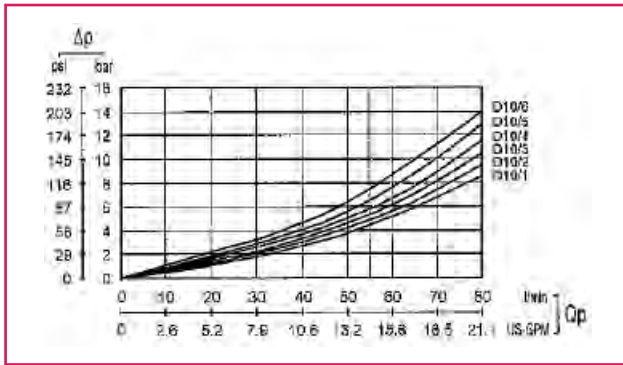
Dimensions:

Type	D10/1	D10/2	D10/3	D10/4	D10/5	D10/6
X (mm)	77.5	112.5	147.5	182.5	217.5	252.5
Y (mm)	101.5	136.5	171.5	206.5	241.5	276.5
Weights (Kg)	2.90	4.30	5.50	6.70	7.90	9.10
Ports	Inlet (P)		Ports (A-B)		Outlet (T)	
BSP Thread (ISO 1179-1)	G 3/8 - G 1/2		G 3/8 - G 1/2		G 3/8 - G 1/2	
UN-UNF Thread (ISO 11926-1)	3/4"-16 UNF		3/4"-16 UNF		3/4"-16 UNF	

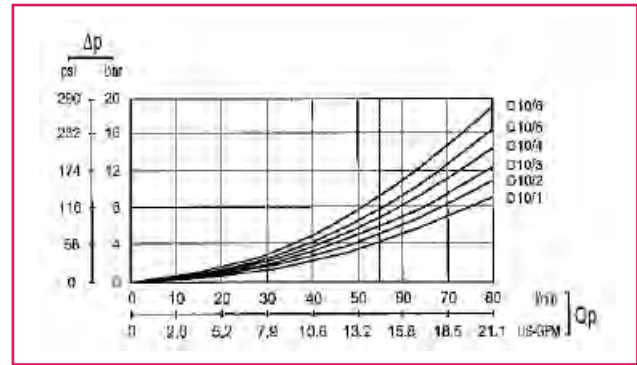


Allison Hydraulics

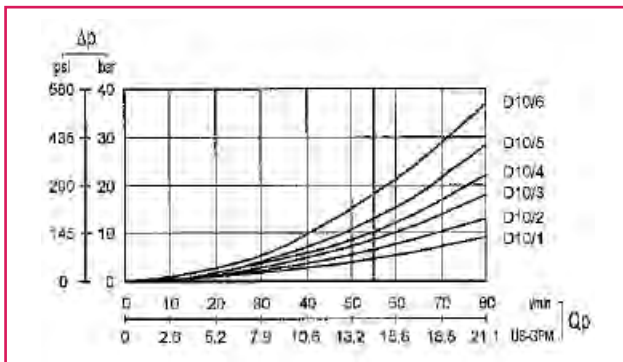
Typical curves:



Pressure drop (P - A/B)



Pressure drop (A/B - T)



Pressure drop (P - T)

Model code

HC-D10/1	IR 201 (***)	W001A	H001	F001A	MJA	G03
Monoblock valve type: D10 = product type /1 - /6 = number of sections Inlet arrangement: IR 201 = inlet side and valve type 150 = setting (bar) IR 303 = inlet side, no relief valve Work section arrangement: W001A = double-acting spool W002A = double-acting spool W005A = single-acting spool					Outlet arrangement: MJA = outlet type (as standard) MMT = plus high pressure carry over F001A = spring centred F002A = double-acting detent (Other options available on request)	G03 = outlet and thread position
						H001 = spool actuation



Allison Hydraulics

Features:

- The valve is available with manual, direct electric, hydraulic remote, pneumatic, electrohydraulic and electropneumatic controls.
- Numerous configurations and solutions are possible.
- Working sections have auxiliary valves and a broad range of interchangeable spools.

HC-D3M has available:

- Direct electric control push push type and push pull type.
- Special inlet section for parallel valves connection (suitable for forest applications)
- Potentiometer and microswitch kits and overcentrespool (fork lift trucks)

**Applications:**

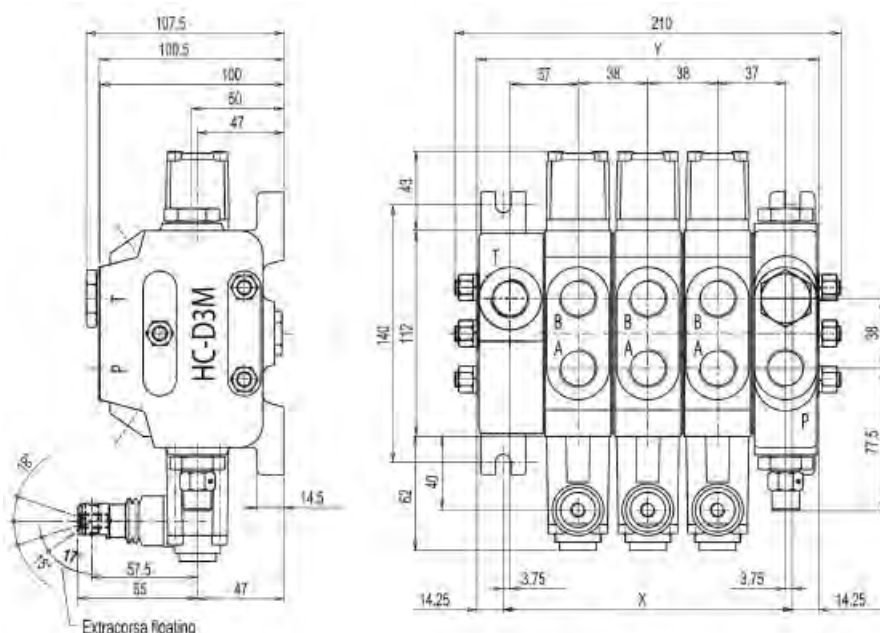
- Mini-excavators (max 3.5t), forestry machines, cranes and aerial platforms, backhoe loaders, wheel loaders, backhoes, drilling machines, compactor, hook and skip loaders, forklifts.

Technical specifications:

Working section No.	Rated flow	Rated pressure	Spool stroke	Spool pitch	Circuit type
1 - 12	55 l/min	350 bar	5+5mm	38mm	Parallel, series, tandem

Dimensions:

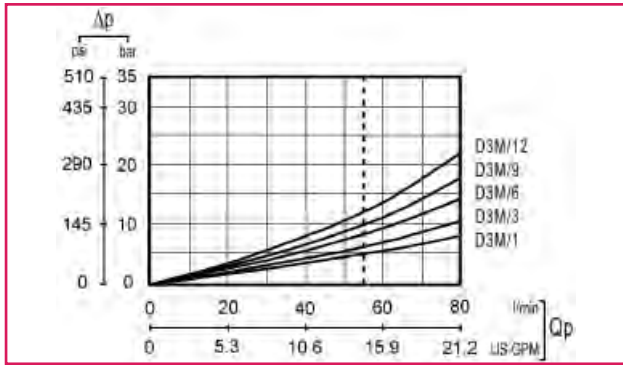
Type	/1	/2	/3	/4	/5	/6	/7	/8	/9	/10	/11	/12
X (mm)	81.5	119.5	157.5	195.5	233.5	271.5	309.5	347.5	385.5	423.5	461.5	499.5
Y (mm)	110	148	186	224	262	300	338	376	414	452	490	528
Weights (Kg)	6.3	8.8	11.2	13.7	16.2	18.6	21	23.5	26	28.5	31	33.3
Ports	Inlet (P)			Ports (A-B)			Outlet (T)			Outlet (HPCO)		
BSP Thread (ISO 1179-1)	G 1/2			G 1/2			G 1/2			G 1/2		
UN-UNF Thread (ISO 11926-1)	3/4"-16 UNF			3/4"-16 UNF			3/4"-16 UNF			3/4"-16 UNF		



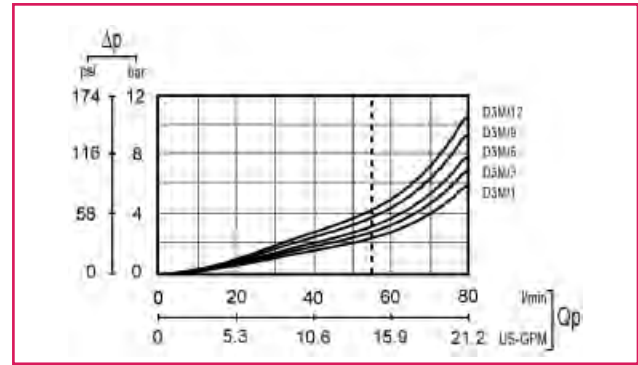
Allison Hydraulics



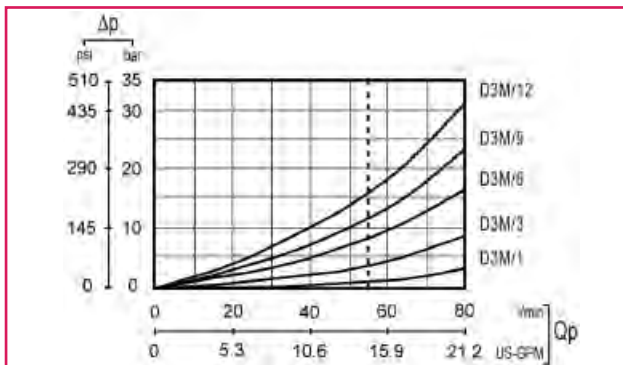
Typical curves:



Pressure drop (P - A/B)



Pressure drop (A/B - T)



Pressure drop (P - T)

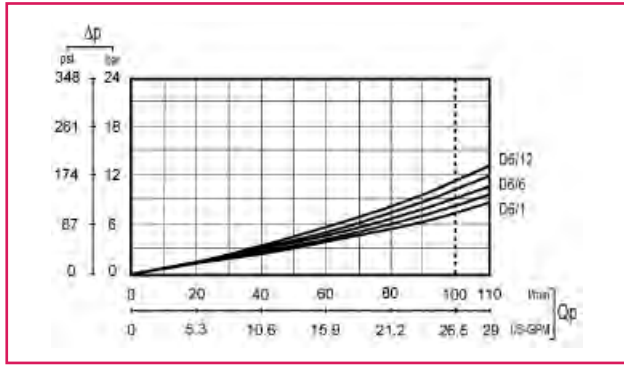
Model code

HC-D3M/1	IR001	W001A	H001	F001	01PA(150)	01PB(150)	TJ G04
Sectional control valve type: D3M = product type /1 = number of sections (Max. 12) Inlet arrangement: IR 001 = inlet side and valve type 150 = setting (bar) A G04 = inlet position and available thread type Work section arrangement: W001A = double-acting spool W002A = double-acting open centre spool W005A = single-acting spool Work section arrangement: H001 = lever operated H005 = hydraulic pilot operated							Outlet arrangement: TJ = outlet type (Std) A G04 = outlet position and available thread type TM = with high pressure carry over Work section arrangement: (Relief valve setting) 01PA(150) = auxiliary valve (port A) 01PB(150) = auxiliary valve (port B) 02PA = anticavitation valve (port A) 02PB = anticavitation valve (port B) 05PA = valve unplugged (port A) 05PB = valve unplugged (port B) F001A = spring centred F002A = double-acting detent (Other options available on request)

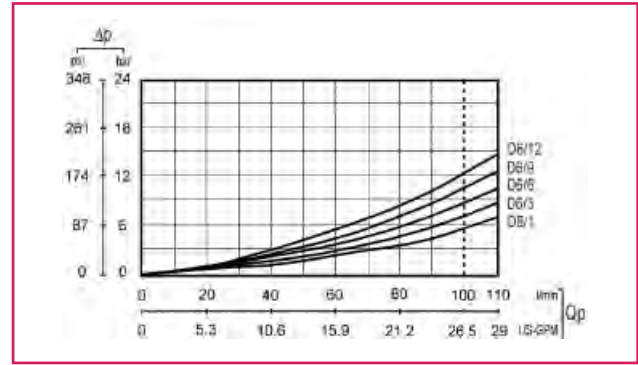


Allison Hydraulics

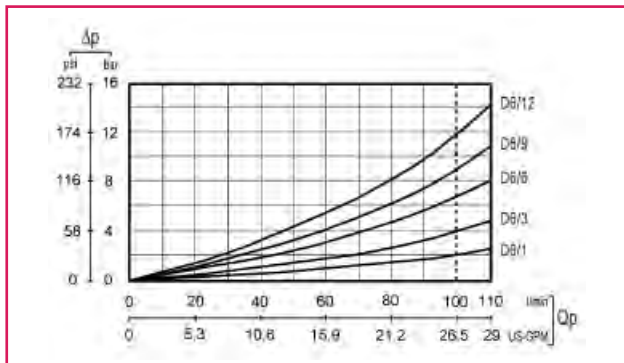
Typical curves:



Pressure drop (P - A/B)



Pressure drop (A/B - T)



Pressure drop (P - T)

Model code

HC-D6/1	IR009	W001A	H001	F001	01PA(120)	05PB	TJ A G05
Sectional control valve type: D6 = product type /1 = number of sections Inlet arrangement: IR 009 = inlet side and valve type 150 = setting (bar) A G04 = inlet position and available thread type Work section arrangement: W001A = double-acting spool W002A = double-acting open centre spool W005A = single-acting spool						Outlet arrangement: TJ = outlet type (Std) A G05 = outlet position and available thread type Work section arrangement: (Relief valve setting) 01PA(120) = auxiliary valve (port A) 01PB(120) = auxiliary valve (port B) 02PA = anticavitation valve (port A) 02PB = anticavitation valve (port B) 05PA = valve unplugged (port A) 05PB = valve unplugged (port B)	
Work section arrangement: H001 = lever operated H005 = hydraulic pilot operated						F001A = spring centred F002A = double-acting detent (Other options available on request)	



Allison Hydraulics

Features:

- 3-6 way selector valves type HC-SVM have been developed to meet the always higher requirements, with the use of high quality materials and with a special care to gaskets which made possible the development of a reliable product.

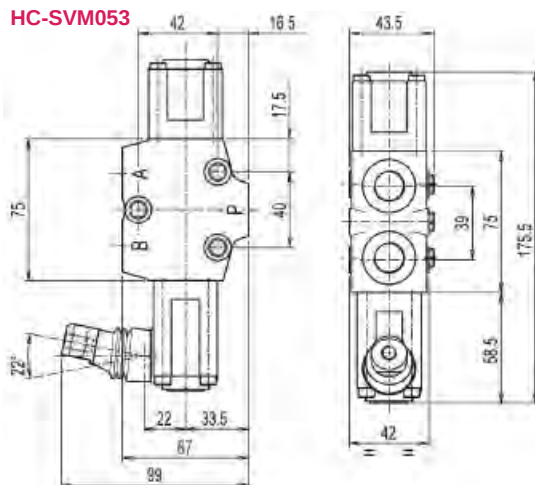
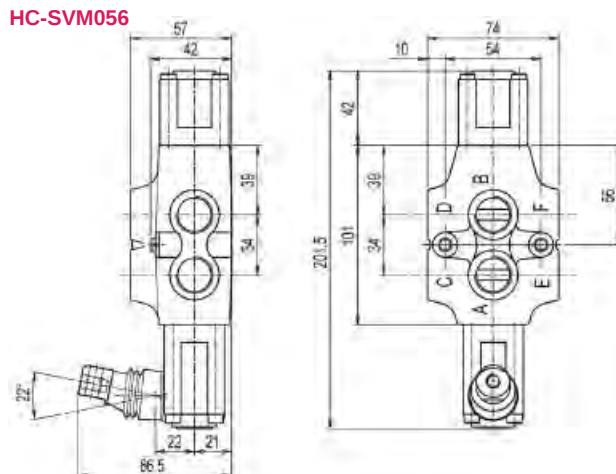
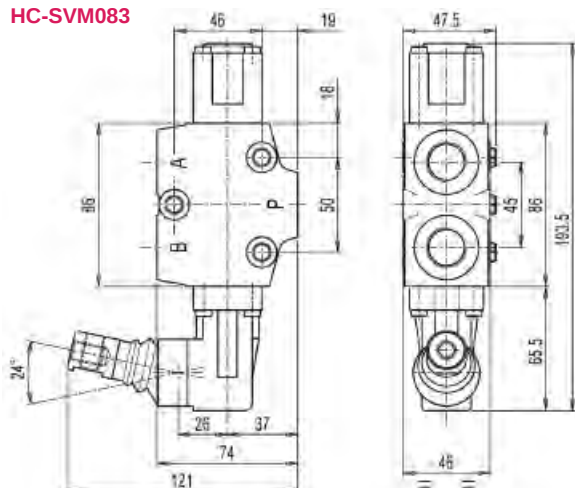
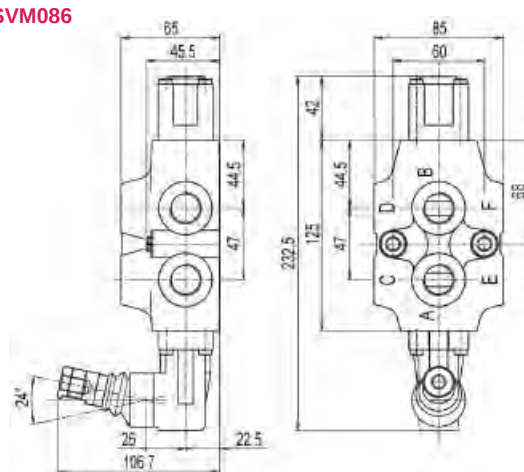
Technical specifications:

SVM series options	Features	Oil capacity
Manual & hydraulic actuation	3 or 6 way	50 - 350 l/min (other options available)

**Main characteristics:**

Type	053	056	083	086	123	126	206*	306*
Number of ways	3	6	6	6	3	6	6	6
Selector valves stroke (mm)	7	7	10	10	14	14	10	13
Max. recommended flow rate (l/min)	50	50	80	80	20	120	250	350
Max. operating pressure (bar)	350	350	350	350	350	350	350	350
Min. required pilot pressure for hydraulic operated (bar)	15		18		16		24	24

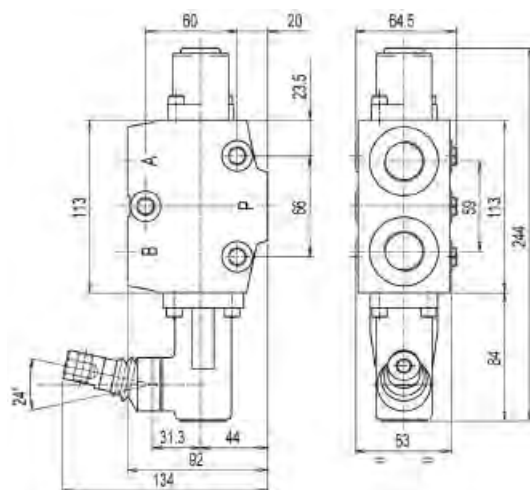
* Only hydraulic operated

Dimensions:**HC-SVM053****HC-SVM056****HC-SVM083****HC-SVM086**

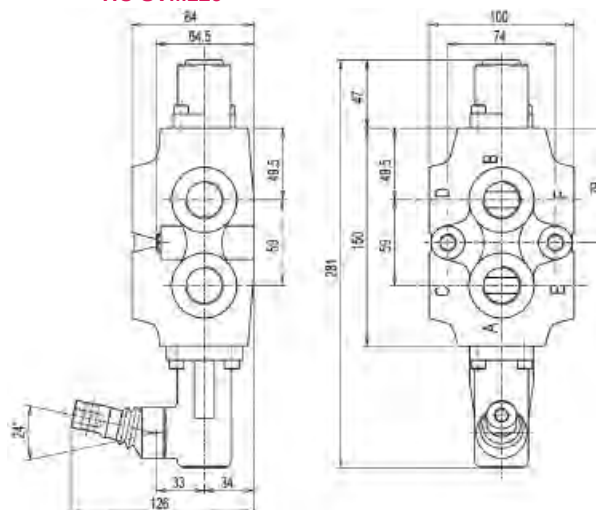
Allison Hydraulics



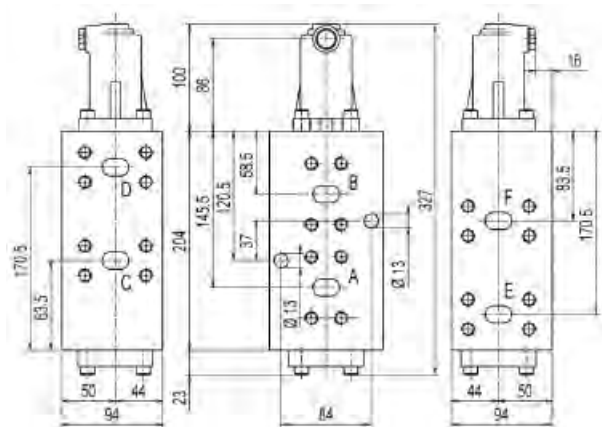
HC-SVM123



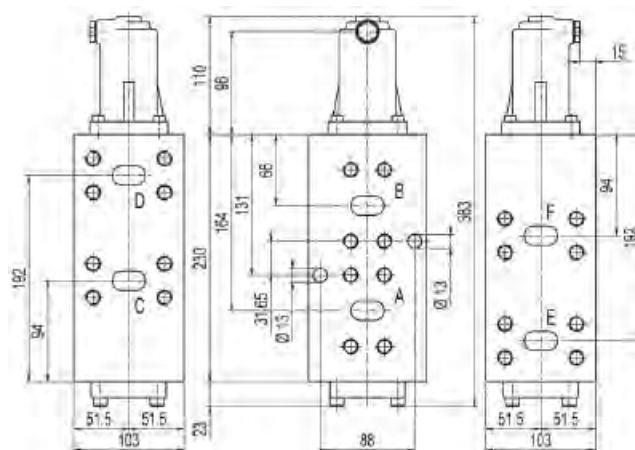
HC-SVM126



HC-SVM206



HC-SVM306



Model code

HC-SVM	086	W025A	H001	F0400	DB	G04
Product type: 053, 056 = 3/8 BSP 083, 086 = 1/2 BSP 123, 126 = 3/4 BSP Spool type: W022A = 3 way ports connected in central position W023A = 3 way ports closed in 1 position W024A = 3 way ports closed in central position W025A = 6 way ports connected in central position W026A = 6 way ports connected in central position Note: When ordering hydraulic control (H005), leave out ordering code for return spring kit.						
Thread: G03, G04, G05, S36 - S38 Circuit type: DA = Service ports 3 way DB = Service ports 6 way Spool return action: F0400 = Spring return F0420 = Detented F0430 = Pneumatic Spool actuation: H001 = Lever operated H005 = Hydraulic pilot						



Allison Hydraulics

Features:

- 3-6 way selector valves type HC-SVE have been developed to meet the always higher requirements, with the use of high quality materials and with a special care to gaskets which made possible the development of a reliable product.
- HC-SVE's performance may vary depending on the application conditions.
- The maximum operating pressure is the selector valve operation limit, while the maximum shifting pressure is the limit to make the change.
- In order to avoid mechanical stress to the solenoid, when the operating pressure exceeds 160 bar, it is advisable to use drainage.



Technical specifications:

SVE series options	Features	Oil capacity	Drain connection
Reliable solenoid operation	3 or 6 way	50 - 100 l/min (other options available)	Available for high pressure applications

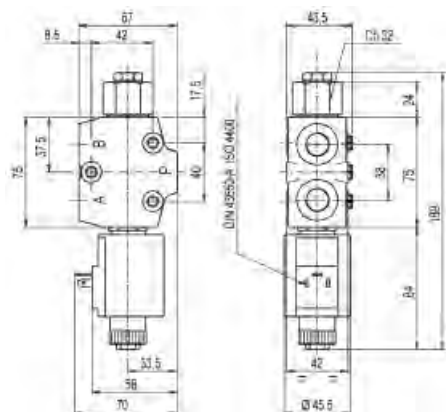
Main characteristics:

Type	053	056	083	086	123	126	206*	306*
Number of ways	3	6	3	6	3	6	6	6
Selector valves stroke (mm)	4	4	4	4	5	5	-	-
Max. recommended flow rate (l/min)	30	30	60	60	100	100	-	-
Max. operating pressure (bar)	350	350	350	350	350	350	350	350
Max. shifting pressure (bar)	130	130	180	180	130	130	-	-
Min. required pilot pressure for hydraulic operated (bar)	15		18		16		24	24

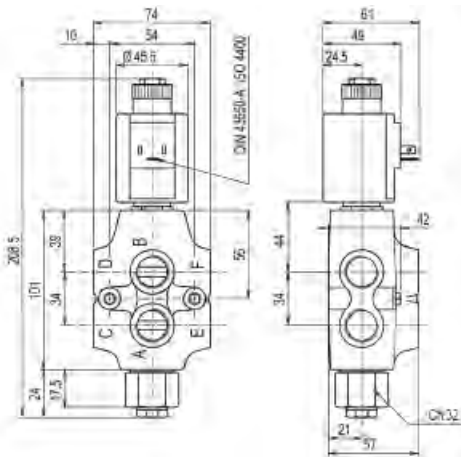
* Only hydraulic operated

Dimensions:

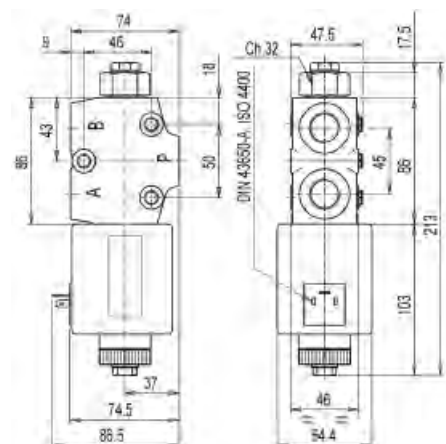
HC-SVE053



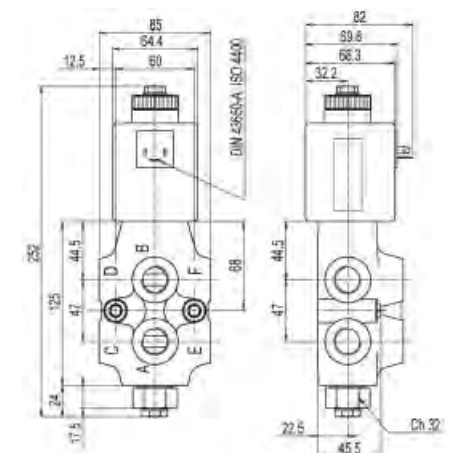
HC-SVE056



HC-SVE083

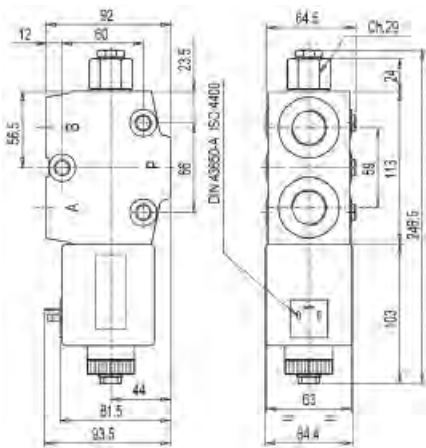


HC-SVE086

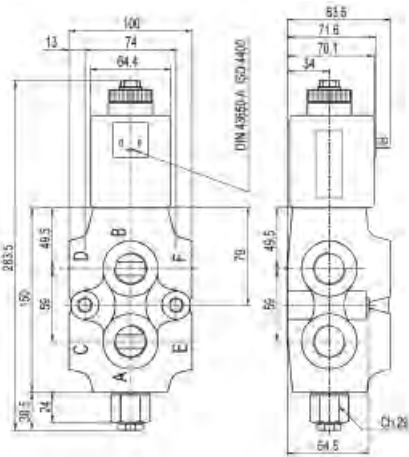


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HC-SVE123



HC-SVE126



Coil specifications:

Type	SVE053 - SVE056		SVE083 - SVE086 - SVE0123 - SVE126	
Rated voltage	12 VDC	24 VDC	12 VDC	24 VDC
Rated current	3.25 A	1.63 A	3.75 A	1.88 A
Rated power	39 W		45 W	
Permitted working voltage	± 10% Nominal			
Max. ambient temperature	+ 40°C			
Max. oil temperature	+ 80°C			
Operation time	S1 (100%)			
Protection degree	IP65			
Insulation degree	H			
Standard connector	DIN 43650			

Model code

HC-SVE	056	W029E	H338	DD	G03
Product type: 053, 056 = 3/8 BSP 083, 086 = 1/2 BSP 123, 126 = 3/4 BSP Spool type: W027E = 3 way port in A W028E = 3 way PAB (normally closed) W029E = 6 way A (B) (normally in port C (D) W030E = 6 way A (B) (normally in port C (D) E connected to F. E F ports in Y drainage. Note: W030E spool only compatible with H340-H341 controls (without drainage)					
Thread: G03 = 3/8" G04 = 1/2" G05 = 3/4" Circuit type: DC = Service ports 3 way DD = Service ports 6 way Spool actuation: H338 = Solenoid 12 Vdc without drainage H339 = Solenoid 24 Vdc without drainage H340 = Solenoid 12 Vdc without drainage H341 = Solenoid 12 Vdc without drainage					



Allison Hydraulics

Mobile Remote Controls



Allison Hydraulics



Index

Mobile Remote Controls

RCX Remote Control

Page 41



- Max. pressure up to 100 bar
- Flow rate up to 12 l/min

RCM Remote Control

Page 42



- Max. pressure up to 60 bar
- Flow rate up to 12 l/min

RCB Remote Control

Page 43



- Max. pressure up to 60 bar
- Flow rate up to 12 l/min

Foot Pedals

Pages 44



- Max. pressure up to 100 bar
- Flow rate up to 12 l/min

Pilot Supply Unit

Page 46



- Max. input pressure up to 350 bar
- Flow rate up to 12 l/min

Features:

- Hydraulic remote control HC-RCX belongs to the wide range of Hydrocontrol S.p.A. and is capable of working with a maximum input pressure of 100 bar at a maximum oil input capacity of 16 l/min.
- The lever anti-swaying system and the ergonomic handle provide great sensitivity while manoeuvring and make use very comfortable for the operator.
- Low operating efforts, low energy consumption and low maintenance makes these hydraulic remote controls HCRCX ideal for piloting remote control directional valves, variable displacement pumps and motors, auxiliary valves, frictions and hydraulic brakes.

HC-RCX has available:

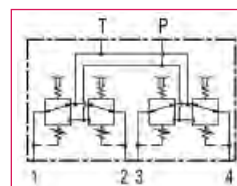
- A broad range of control curves; bodies have BSP connection threads.
- The remote control can be operated by means of different controls; simple return in central position, mechanical detent on one position; round and squared bellows are available with straight or bent levers.
- A version arranged to fit other commercial handles.

Applications:

- Mini-excavators, mini steer loaders, backhoe loaders, wheel loaders, tractors and boom mowers.

Technical specifications:

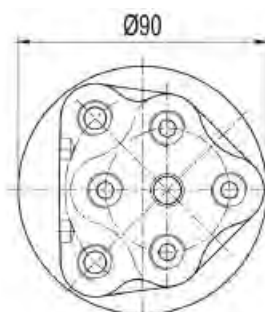
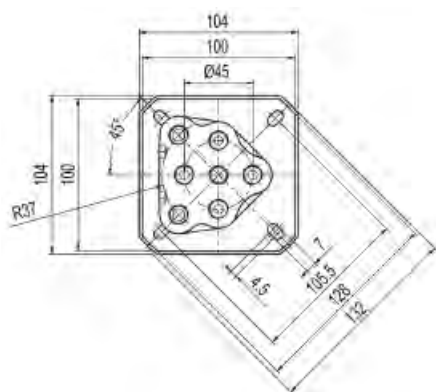
Max pressure	Oil capacity	Weight
100 bar	12 l/min	2.5Kg



Standard working conditions - Hydraulic remote control:

Max back pressure on tank line	Hysteresis	Hydraulic fluid	Fluid temperature range	Fluid viscosity range	Max contamination level	Recommended filtration	Leakage
100 bar	< 1 bar	Mineral oil HL, HM (or HLP acc. to DIN 51524)	-20°C/+80°C	10 ÷ 300 cSt	9 (NAS 1638) - 20/18/15 (ISO 16889:2008)	β10 > 75 (ISO 16889:2008)	3 cc/min (with 50 bar of pressure)

Dimensions:



Holder hole dimension



Model code

HC-RCX	01	A01	MA	RA G02
Product type Control type: 01 = Standard spring centre		Curve type: A01 = 5-19 bar as standard (others available on request)		Body arrangement: RA = body specification G02 = thread Return spring type: MA = 29.5N as standard

Option: For levers including microswitch buttons, contact sales office for information.



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Features:

- Hydraulic remote control HC-RCM belongs to the wide range of Hydrocontrol products.
- Low operating efforts, low energy consumption and low maintenance make these hydraulic remote controls ideal for piloting remote control directional valves, variable displacement pumps and motors, auxiliary valves, frictions and hydraulic brakes.
- It can assemble up to 12 working sections.

HC-RCM has available:

- A broad range of control curves; bodies have BSP connection threads.
- The remote control can be operated by means of different controls; simple return in central position, mechanical detent on one or both positions; lever security lock in central position, frictioned positioning, microswitch.

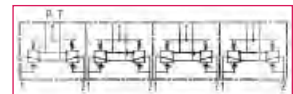
Applications:

- Mini-excavators, mini steer loaders, backhoe loaders, wheel loaders, tractors and boom mowers.



Technical specifications:

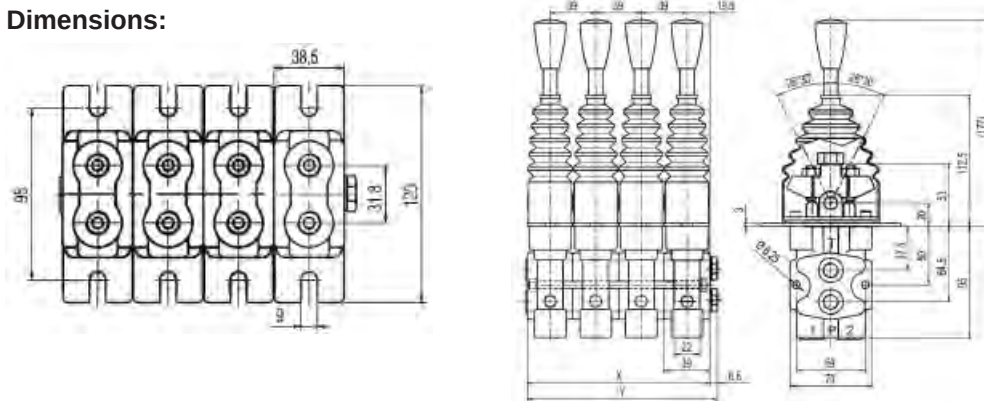
Working section no.	Max pressure	Oil capacity	Weight	Tie-rods clamping torque
1 - 12	60 bar	12 l/min	1.5 Kg	14 Nm



Standard working conditions - Hydraulic remote control:

Max back pressure on tank line	Hysteresis	Hydraulic fluid	Fluid temperature range	Fluid viscosity range	Max contamination level	Recommended filtration	Leakage
100 bar	< 1 bar	Mineral oil HL, HM (or HLP acc. to DIN 51524)	-20°C/+80°C	10 ÷ 300 cSt	9 (NAS 1638) - 20/18/15 (ISO 16889:2008)	β10 > 75 (ISO 16889:2008)	3 cc/min (with 50 bar of pressure)

Dimensions:



Type	/1	/2	/3	/4	/5	/6	/7	/8	/9	/10	/11	/12
X (mm)	39	78	117	156	195	234	273	312	351	390	429	468
Y (mm)	45.5	84.4	123.5	162.5	201.5	240.5	279	318.5	357.5	396.5	435.5	474.5
Weights (Kg)	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18

Model code

HC-RCM/1	01	A01	MA	RA G02
Product type: /1 = number of sections (Max 12) Control type: 01 = Spring return as standard 02 = Stroke end 05 = Security handle 06 = Friction Curve type: A01 = 5 - 19 bar as standard (others available on request)				Body arrangement: RA = body specification G02 = thread Return spring type: MA = 29.5N as standard



Allison Hydraulics

Features:

- Hydraulic remote control HC-RCB belongs to the wide range of Hydrocontrol products.
- Low operating efforts, low energy consumption and low maintenance makes these hydraulic remote controls ideal for piloting remote control directional valves, variable displacement pumps and motors, auxiliary valves, frictions and hydraulic brakes.

HC-RCB has available:

- A broad range of control curves; bodies have BSP connection threads.
- The remote control can be operated by means of different controls; simple return in central position, mechanical detent on one or both positions; lever security lock in central position, frictioned positioning, microswitch.

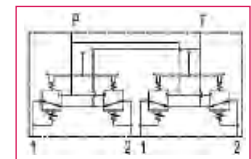
Applications:

- Mini skid loaders, backhoe loaders and tractors.



Technical specifications:

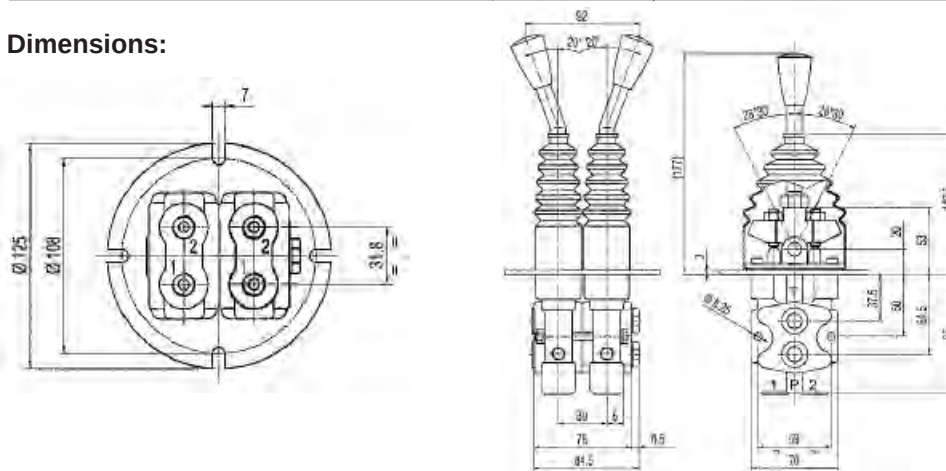
Working section no.	Max pressure	Oil capacity	Weight	Tie-rods clamping torque
2	60 bar	12 l/min	3.2 Kg	14 Nm



Standard working conditions - Hydraulic remote control:

Max back pressure on tank line	Hysteresis	Hydraulic fluid	Fluid temperature range	Fluid viscosity range	Max contamination level	Recommended filtration	Leakage
100 bar	< 1 bar	Mineral oil HL, HM (or HLP acc. to DIN 51524)	-20°C/+80°C	10 ÷ 300 cSt	9 (NAS 1638) - 20/18/15 (ISO 16889:2008)	$\beta_{10} > 75$ (ISO 16889:2008)	3 cc/min (with 50 bar of pressure)

Dimensions:



Model code

HC-RCB	01	A01	MA	RA G02
Product type Control type: 01 = Spring return as standard 05 = Friction control Curve type: A01 = 5 - 19 bar as standard (others available on request)				Body arrangement: RA = body specification G02 = thread Return spring type: MA = 29.5N as standard



Allison Hydraulics

Features:

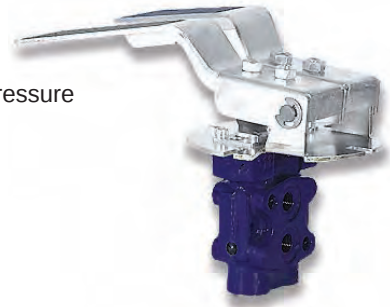
- Hydraulic remote control HC-RCD belongs to the wide range of Hydrocontrol S.p.A. and is capable of working with a maximum input pressure of 100 bar at a maximum oil input capacity of 16 l/min.
- Hydraulic remote control HC-RCD works according to the principle of direct-acting pressure reducing valves.

HC-RCD has available:

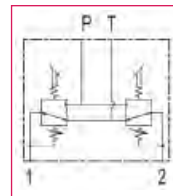
- A broad range of control curves; bodies have BSP connection threads.

Applications:

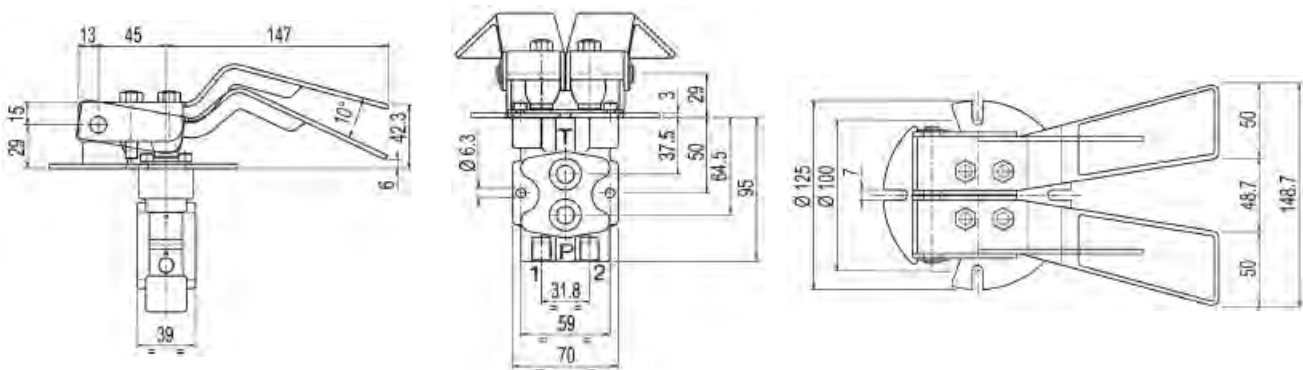
- Mini skid loaders, mini dumper.

**Technical specifications:**

Max pressure	Oil capacity	Weight
60 bar	12 l/min	3.2Kg

**Standard working conditions - Hydraulic remote control:**

Max back pressure on tank line	Hysteresis	Hydraulic fluid	Fluid temperature range	Fluid viscosity range	Max contamination level	Recommended filtration	Leakage
100 bar	< 1 bar	Mineral oil HL, HM (or HLP acc. to DIN 51524)	-20°C/+80°C	10 ÷ 300 cSt	9 (NAS 1638) - 20/18/15 (ISO 16889:2008)	$\beta_{10} > 75$ (ISO 16889:2008)	3 cc/min (with 50 bar of pressure)

Dimensions:**Model code**

HC-RCD	01S	A01	MA	RA G02
Product type Control type: 01S = Spring return foot pedal as standard				Body arrangement: RA = body specification G02 = thread Return spring type: MA = 29.5N as standard
Curve type: A01 = 5-19 bar as standard (others available on request)				



Allison Hydraulics

Features:

- HC-RCP is a pedal version remote control.
- Reduced overall dimensions and several configurations available; P, T and ports connections are on the body sides.

HC-RCP has available:

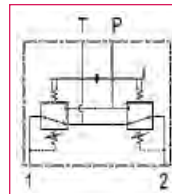
- A broad range of control curves; bodies have BSP connection threads.
- Standard pedals, pedals with connections for levers, bented pedals can also be supplied.

Applications:

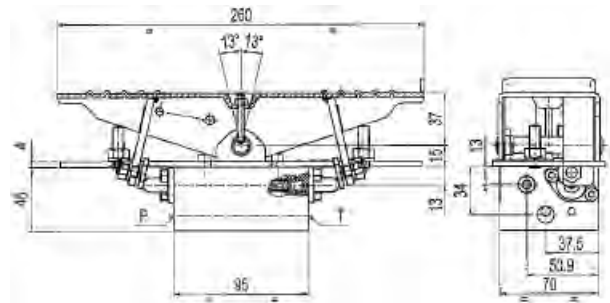
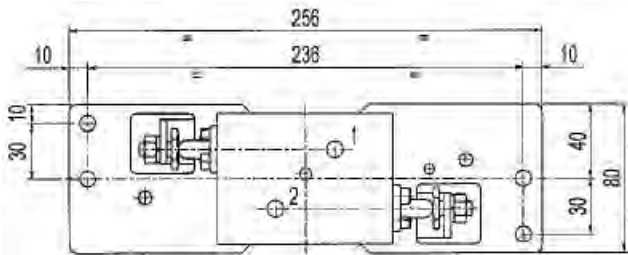
- Mini-excavators.

**Technical specifications:**

Max pressure	Oil capacity	Weight
100 bar	12 l/min	3.4Kg

**Standard working conditions - Hydraulic remote control:**

Max back pressure on tank line	Hysteresis	Hydraulic fluid	Fluid temperature range	Fluid viscosity range	Max contamination level	Recommended filtration	Leakage
100 bar	< 1 bar	Mineral oil HL, HM (or HLP acc. to DIN 51524)	-20°C/+80°C	10 ÷ 300 cSt	9 (NAS 1638) - 20/18/15 (ISO 16889:2008)	β10 > 75 (ISO 16889:2008)	3 cc/min (with 50 bar of pressure)

Dimensions:**Model code**

HC-RCP	01S	A01	MA	RA G02
Product type Control type: 01S = Spring return as standard				Body arrangement: RA = body specification G02 = thread Return spring type: MA = 29.5N as standard
Curve type: A01 = 5 - 19 bar as standard (others available on request)				



Allison Hydraulics

Features:

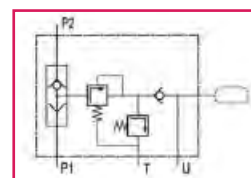
- The purpose of supply unit HC-SU is to supply hydraulic remote controls in a hydraulic system working at high pressure with reduced flow at low pressure.
- Operating principle is that of a direct acting pressure reducing valve.
High pressure fluid from the main circuit is routed through ports P1, P2 and P3: Pressure is decreased to the value required for supplying the hydraulic controls by means of a pressure reducing valve that directs the necessary fluid to the control via port (U).
- Supply units are fitted with an accumulator that satisfies short term peak power demands and is a source of emergency power should the main circuit pressure fail.
- To avoid the accumulator discharge, low pressure circuit is protected both by the adjustable main relief valve inside the cartridge of the pressure reducing valve and the check valve.
- To start the hydraulic system, a backpressure of at least 10 bar on service port (P) has to be applied when the accumulator is discharged.



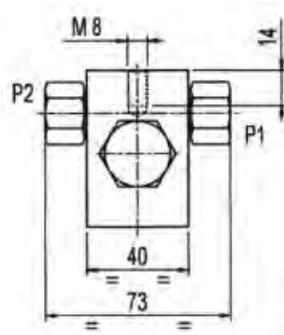
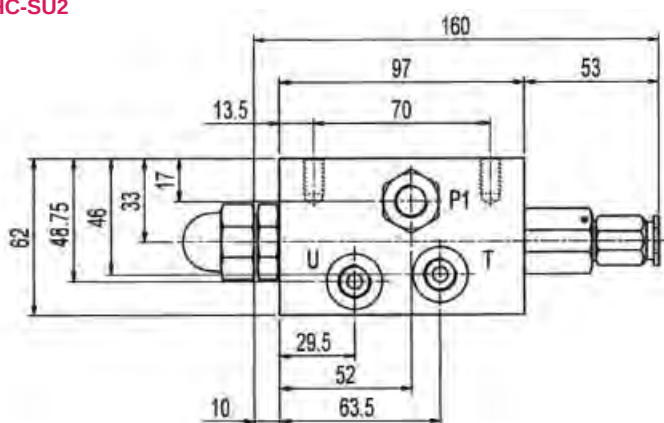
Note: Because of the small dimensions and working on the same adjusting screw, this valve has the possibility of setting both the pressure reducing valve and the main relief valve. Main relief valve pressure setting is higher than about 10 bar if compared to the pressure reducing valve - see the pressure setting diagram. Supply unit may be installed in any mounting position but the accumulator should be as far as possible from heat sources.

Technical specifications:

Type	MAX input pressure (bar)	MAX oil input capacity (l/min)	Weight (kg)
HC-SU2	350	12	1.7
HC-SU3	350	12	2

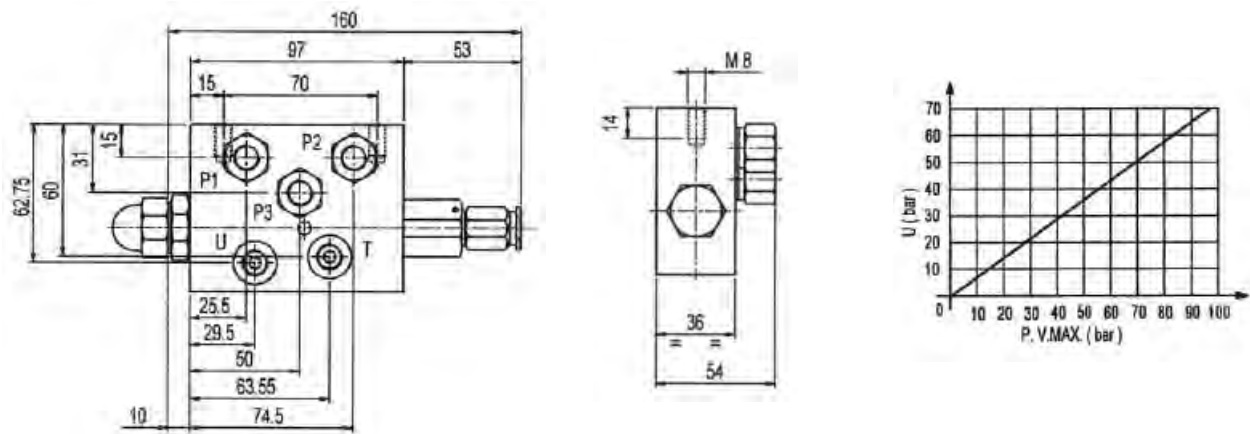
**Standard working conditions - Supply units:**

Max input pressure	Pressure on U port line	Hysteresis	Hydraulic fluid	Fluid temperature range	Fluid viscosity range	Max contamination level	Recommended filtration
100 bar	10 - 70 bar	< 1 bar	-20°C/+80°C	10 ÷ 300 cSt	10 ÷ 300 cSt	(NAS 1638) -20/18/15 (ISO 4406:1999)	$\beta_{10} > 75$ (ISO 16889:2008)

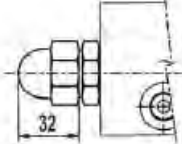
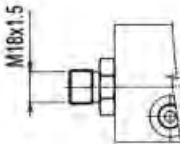
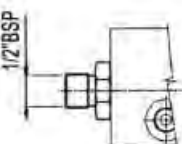
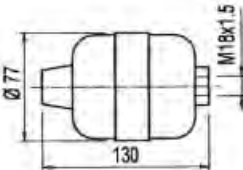
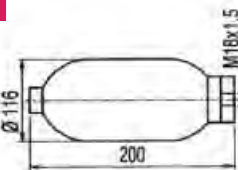
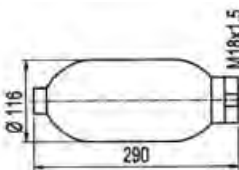
Dimensions:**HC-SU2**

Allison Hydraulics

Dimensions:
HC-SU3



Accumulator specification

V01		V02		V03	
Without accumulator		Prearranged for accumulator		Prearranged for accumulator	
V04		V05		V06	
Hydropneumatic accumulator with rubber membrane Volume nitrogen: lt. 0.35 - Precharge: 10 bar		Hydropneumatic accumulator with rubber membrane Volume nitrogen: lt. 0.75 - Precharge: 10 bar		Hydropneumatic accumulator with rubber membrane Volume nitrogen: lt. 1.5 - Precharge: 10 bar	
Max. working pressure		Working temperature		MAX. allowed pressure ratio	
210 bar		-20 +80°C		< 6/1	
				Accumulator precharge pressure	
				10 bar	

Model code

HC-SU2	V04	30	RA G02
Product type: SU = model 2 = number of lines Accumulator model: V04 = accumulator with rubber membrane			Body arrangement: RA = body configuration G02 = thread type Pressure setting: (0 - 70 bar on service port U)



Allison Hydraulics

Line Mounted Valves



Allison Hydraulics

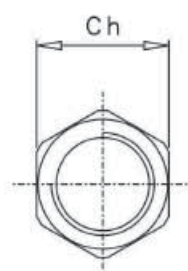
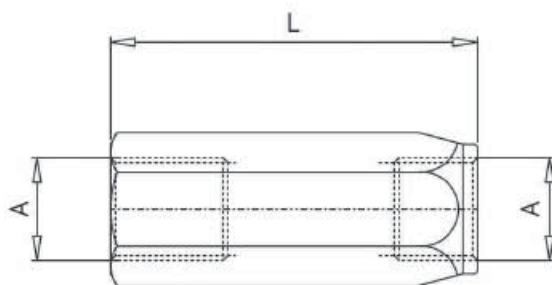
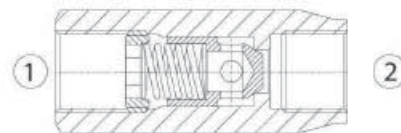
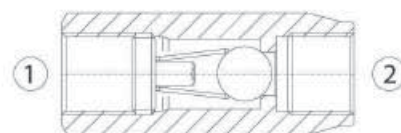
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Line Mounted Valves

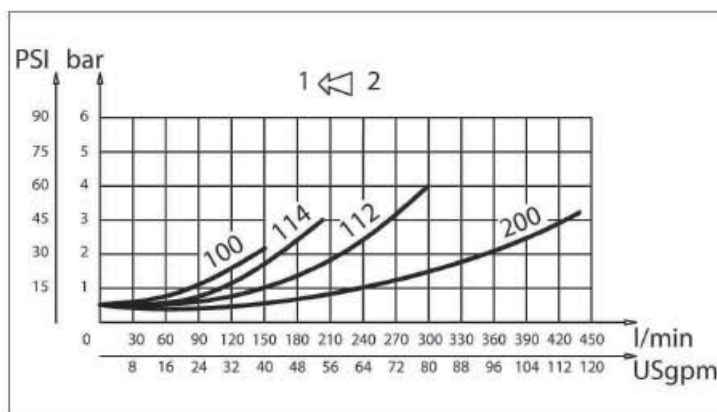
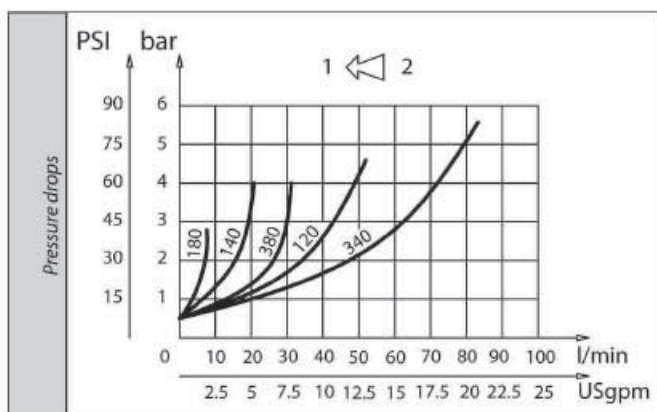
Check valves		• VUR-BSP Series	Page 50
Load shuttle ball valves		• VUSF Series	Page 51
Unidirectional flow control valves		• VURF Series	Page 52
Unidirectional flow control valves		• STUF-BSP Series	Page 53
Bidirectional flow control valves		• STBF-BSP Series	Page 54
Compensated flow control valves		• VRC Series	Page 55
Single acting pilot check valves		• VRPE Series	Page 56
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Double cross line direct acting relief valves		• VBDC Series	Page 58
Direct acting relief valves		• VMDR40 Series	Page 59
Direct acting relief valves		• VMDR90 Series	Page 60
Direct acting relief valves		• VMDR120 Series	Page 61
Single counterbalance valves (open centre)		• VBCL Series	Page 62
Dual counterbalance valves (open centre)		• VBCE Series	Page 63
Dual counterbalance valves (closed centre)		• VBCC Series	Page 64



Technical data	
Fluid viscosity	10-500 mm ² /s 45 to 2000 ssu (6 to 420 cSt)
Filtration	ISO code 16/13 SAE class 4 or better
Fluid temperature	-20°C +80°C -4°F +176°F
Ambient temperature	-20°C +50°C -4°F +122°F



mm
(inches)



Technical performances						
Code	A	Max flow l/min-USgpm	Max pressure bar/PSI	L	Ch	Approx weight Kg / lb
VUR 180	BSPP 1/8	5 (1.3)	400 (5800)	47 (1.85)	14 (0.55)	0,05 (0,11)
VUR 140	BSPP 1/4	15 (4)	350 (5000)	55 (2.16)	19 (0.75)	0,10 (0,22)
VUR 380	BSPP 3/8	30 (8)		65 (2.56)	24 (0.94)	0,18 (0,40)
VUR 120	BSPP 1/2	50 (13)	320 (4600)	75 (2.95)	27 (1.06)	0,31 (0,70)
VUR 340	BSPP 3/4	90 (23)	300 (4350)	86,5 (3.41)	35 (1.38)	0,45 (1)
VUR 100	BSPP 1	150 (40)	250 (3600)	110 (4.33)	41 (1.61)	0,95 (2,10)
VUR 114	BSPP 1-1/4	200 (50)		123 (4.84)	55 (2.16)	1,49 (3,30)
VUR 112	BSPP 1-1/2	300 (80)	210 (3000)	138 (5.43)	60 (2.36)	2,40 (5,30)
VUR 200	BSPP 2	430 (110)	150 (2100)	160 (6.30)	70 (2.76)	3 (6,60)

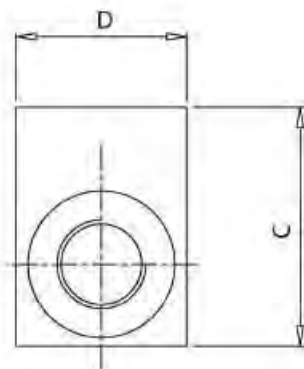
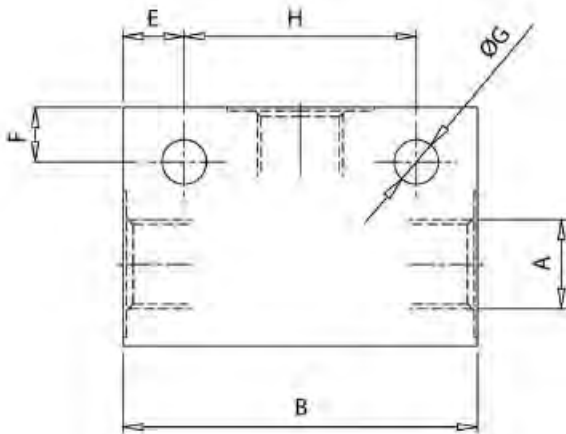
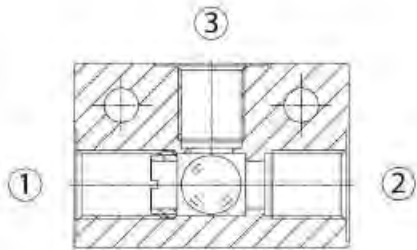
Ordering code			
VUR - X - Y - K			
X	Size	Y	Sealing
180	BSPP 1/8	SF	Ball sealing only for VUR 180/140/380/120
140	BSPP 1/4		
380	BSPP 3/8		
120	BSPP 1/2	SP	Poppet sealing
340	BSPP 3/4		
100	BSPP 1	K	Spring
114	BSPP 1-1/4	1	1 bar Standard
112	BSPP 1-1/2	3	3 bar
200	BSPP 2	6	6 bar



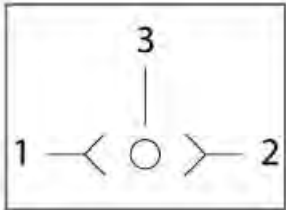
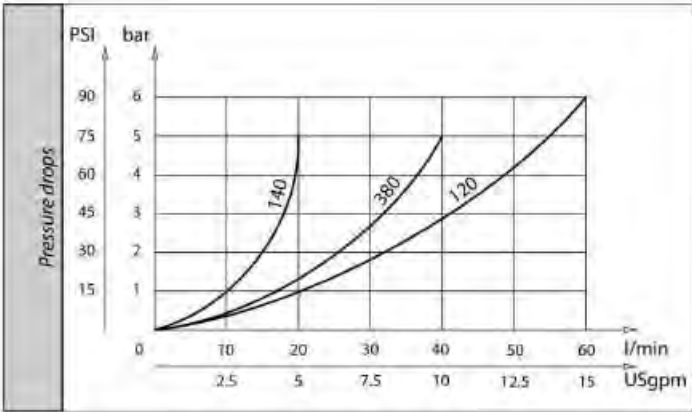
Allison Hydraulics



Technical data	
Fluid viscosity	10-500 mm ² /s 45 to 2000 ssu (6 to 420 cSt)
Filtration	ISO code 16/13 SAE class 4 or better
Fluid temperature	-20°C +80°C -4°F +176°F
Ambient temperature	-20°C +50°C -4°F +122°F



mm
(inches)



Technical performances											
Code	A	Max flow l/min - USgpm	Max pressure bar/PSI	B	C	D	E	F	G	H	Approx weight Kg / lb
VUSF 140	BSPP 1/4	20 (5)	350 (5000)	52 (2.047)	35 (1.38)	25 (0.98)	9 (0.35)	8 (0.31)	6,5 (0.26)	34 (1.34)	0,29 (0.65)
VUSF 380	BSPP 3/8	40 (10)		60 (2.362)	40 (1.57)		8 (0.31)			44 (1.73)	0,35 (0.80)
VUSF 120	BSPP 1/2	60 (15)		70 (2.756)	50 (1.97)	30 (1.18)	10 (0.39)	10 (1.38)	8,5 (0.33)	50 (1.97)	0,65 (0.15)

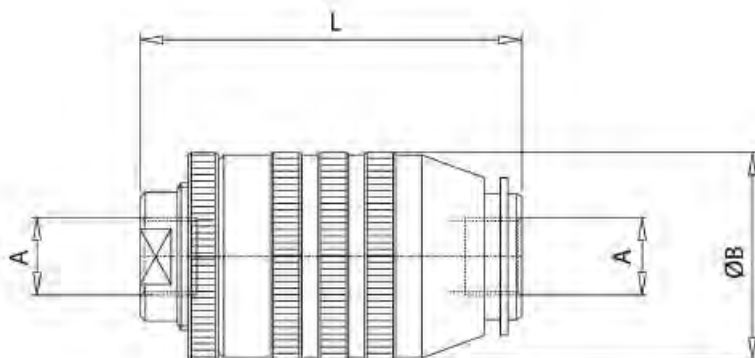
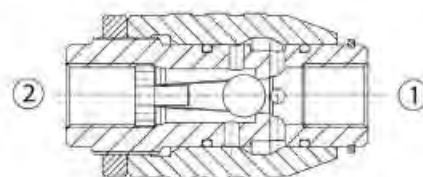
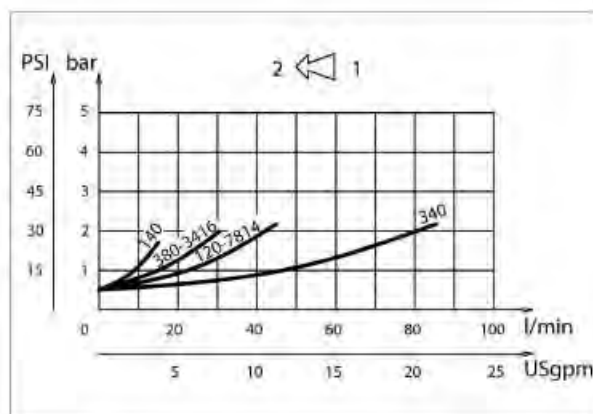
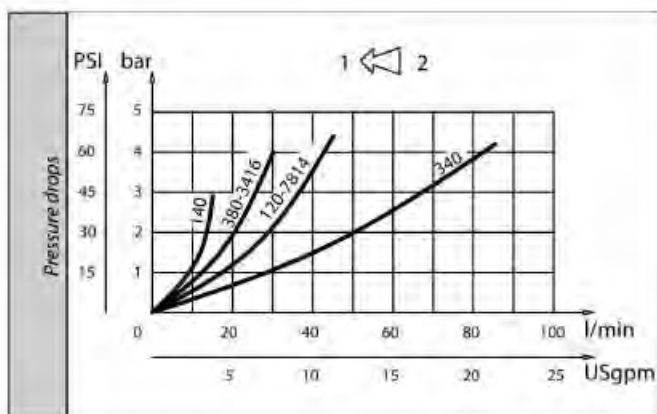
Ordering code	
VUSF-X-N	
X	Size
140	BSPP 1/4
380	BSPP 3/8
120	BSPP 1/2



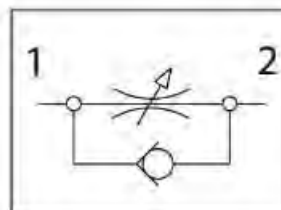
Allison Hydraulics



Technical data	
Fluid viscosity	10-500 mm ² /s 45 to 2000 ssu (6 to 420 cSt)
Filtration	ISO code 16/13 SAE class 4 or better
Fluid temperature	-20°C +80°C -4°F +176°F
Ambient temperature	-20°C +50°C -4°F +122°F


mm
(Inches)


Technical performances						
Code	A	Max flow l/min - USgpm	Max pressure bar/PSI	B	L	Approx weight Kg / lb
VURF 140	BSPP 1/4	15 (4)	350 (5000)	34 (1.34)	62 (2.44)	0,23 (0.50)
VURF 380	BSPP 3/8	30 (8)		39 (1.54)	73 (2.87)	0,42 (0.93)
VURF 120	BSPP 1/2	45 (12)		44 (1.73)	83 (3.27)	0,66 (1.45)
VURF 340	BSPP 3/4	85 (22)	300 (4350)	54 (2.13)	102 (4.02)	1,12 (2.5)
VURF 100	BSPP 1	150 (40)	250 (3600)	65 (2.56)	124,5 (4.90)	1,6 (3.5)
VURF 3416	3/4 - 16 UNF	30 (8)	350 (5000)	39 (1.54)	73 (2.87)	0,42 (0.93)
VURF 7814	7/8 - 14 UNF	45 (12)		44 (1.73)	83 (3.27)	0,66 (1.45)



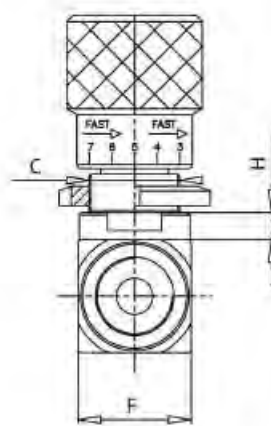
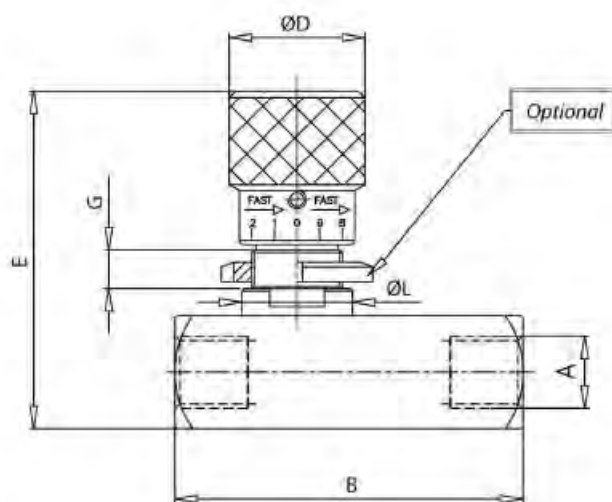
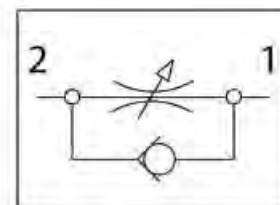
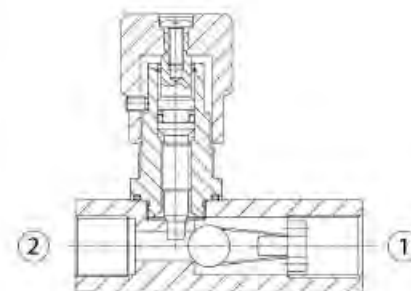
Ordering code	
VURF-X	
X	Size
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380	BSPP 3/8
120	BSPP 1/2
340	BSPP 3/4
100	BSPP 1
3416	3/4 - 16 UNF
7814	7/8 - 14 UNF



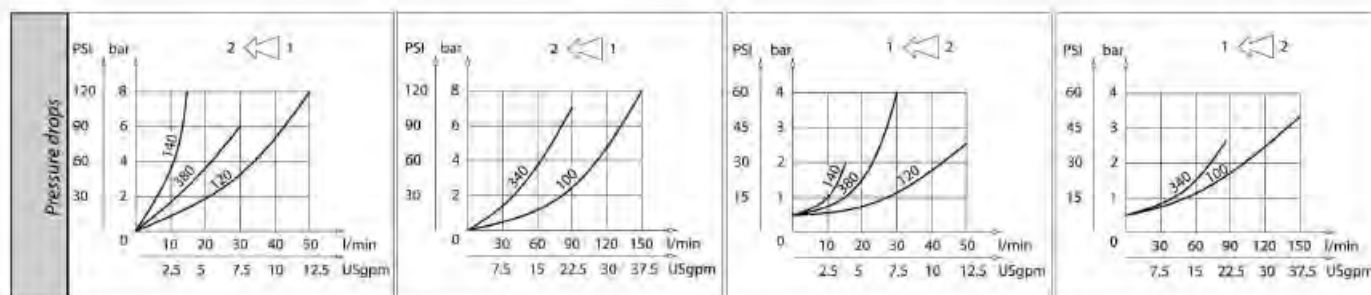
Allison Hydraulics



Technical data	
Fluid viscosity	10-500 mm ² /s 45 to 2000 ssu (6 to 420 cSt)
Filtration	ISO code 16/13 SAE class 4 or better
Fluid temperature	-20°C +80°C -4°F +176°F
Ambient temperature	-20°C +50°C -4°F +122°F



mm
(Inches)



Technical performances													
Code	A	Max flow l/min - USgpm	Max pressure bar/PSI	B	C	D	E	F	G	H	L	Optional Code	Approx weight kg / lb
STUF140	BSPP 1/4	15 (4)	400 (5800)	66 (2.60)	M20x1	30 (1.18)	75 (2.95)	25 (0.98)	7,5 (0.29)	6 (0.23)	24,5 (0.96)	84100022	0,38 (0.84)
STUF380	BSPP 3/8	30 (8)		77 (3.03)		30 (1.18)	75 (2.95)	25 (0.98)	7,5 (0.29)	6 (0.23)	24,5 (0.96)	84100022	0,40 (0.88)
STUF120	BSPP 1/2	50 (13)		91 (3.58)	M25x1,5	33 (1.30)	81 (3.19)	30 (1.18)	9 (0.35)	7 (0.27)	29,5 (1.16)	84100023	0,63 (1.40)
STUF340	BSPP 3/4	80 (21)		112,5 (4.43)	M35x1,5	42 (1.65)	110 (4.33)	40 (1.57)	15,5 (0.61)	8 (0.31)	39,5 (1.55)	84100024	1,45 (3.2)
STUF100	BSPP 1	150 (40)		141 (5.55)		42 (1.65)	115 (4.53)	45 (1.77)	15,5 (0.61)	8 (0.31)	39,5 (1.55)	84100024	2 (4.4)

Ordering code	
STUF-X	
X	Size
140	BSPP 1/4
380	BSPP 3/8
120	BSPP 1/2
340	BSPP 3/4
100	BSPP 1

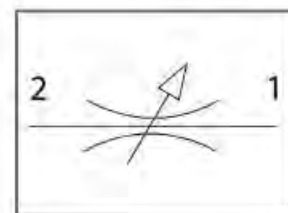
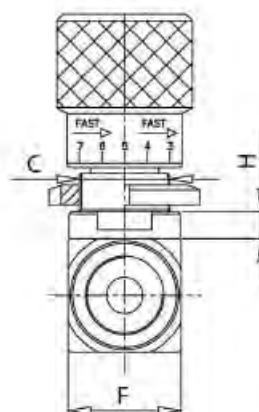
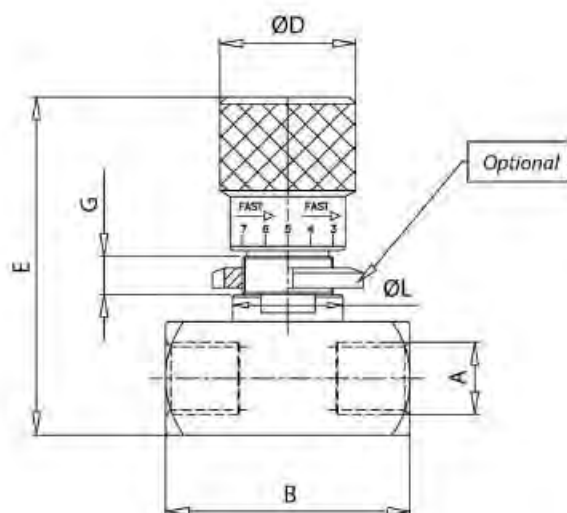
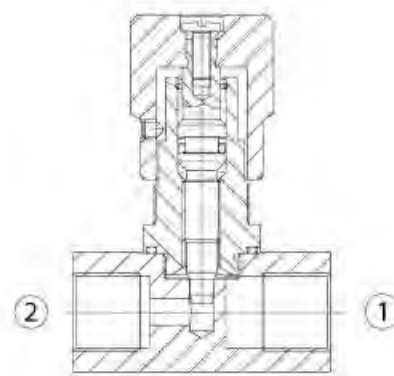
Ordering code	
STUF-X	
X	Size
140	BSPP 1/4
380	BSPP 3/8
120	BSPP 1/2
340	BSPP 3/4
100	BSPP 1



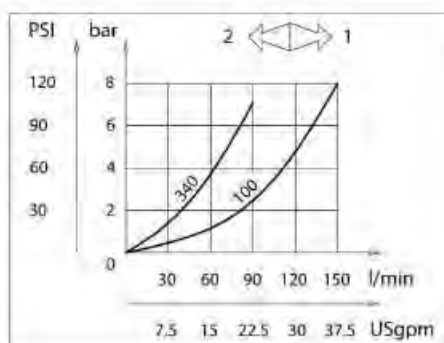
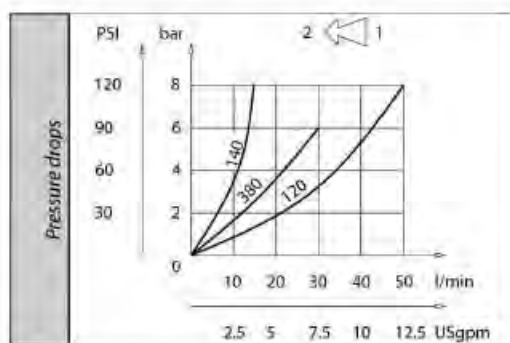
Allison Hydraulics



Technical data	
Fluid viscosity	10-500 mm ² /s 45 to 2000 ssu (6 to 420 cSt)
Filtration	ISO code 16/13 SAE class 4 or better
Fluid temperature	-20°C +80°C -4°F +176°F
Ambient temperature	-20°C +50°C -4°F +122°F



mm
(inches)



Ordering code	
STBF-X	
X	Size
140	BSPP 1/4
380	BSPP 3/8
120	BSPP 1/2
340	BSPP 3/4
100	BSPP 1

Technical performances

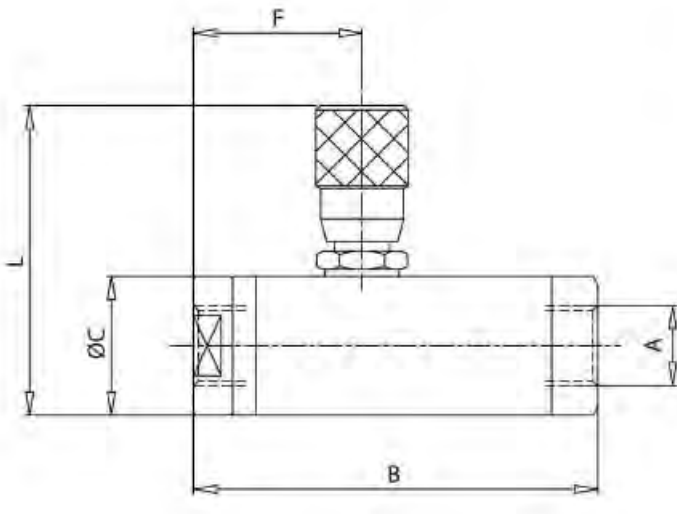
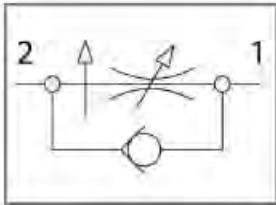
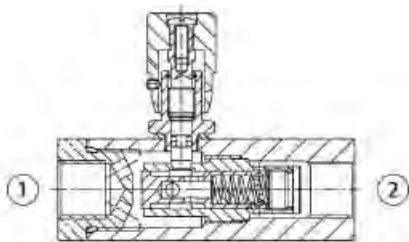
Code	A	Max flow l/min - USgpm	Max pressure bar/PSI	B	C	D	E	F	G	H	L	Optional Code	Approx weight Kg / lb
STBF140	BSPP 1/4	15 (4)	400 (5800)	54 (2.13)	M20x1	30 (1.18)	75 (2.95)	25 (0.98)	7,5 (0.29)	6 (0.23)	24,5 (0.96)	84100022	0,33 (0.73)
STBF380	BSPP 3/8	30 (8)		64 (2.52)	M25x1,5	33 (1.30)	81 (3.19)	30 (1.18)	9 (0.35)	7 (0.27)	29,5 (1.16)	84100023	0,31 (0.69)
STBF120	BSPP 1/2	50 (13)		81 (3.19)	M35x1,5	42 (1.65)	110 (4.33)	40 (1.57)	15,5 (0.61)	8 (0.31)	39,5 (1.55)	84100024	0,48 (1.06)
STBF340	BSPP 3/4	80 (21)		102 (4.02)			115 (4.53)	45 (1.77)					1,13 (2.50)
STBF100	BSPP 1	150 (40)											1,50 (3.3)



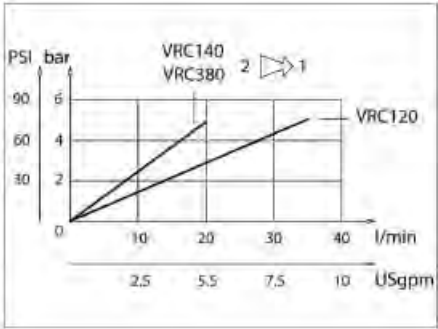
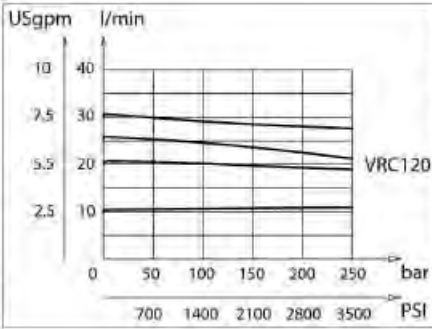
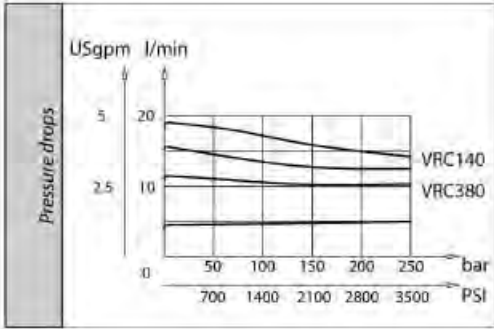
Allison Hydraulics



Technical data	
Fluid viscosity	10-500 mm ² /s 45 to 2000 ssu (6 to 420 cSt)
Filtration	ISO code 16/13 SAE class 4 or better
Fluid temperature	-20°C +80°C -4°F +176°F
Ambient temperature	-20°C +50°C -4°F +122°F



mm
(Inches)



Technical performances								
Code	A	Max flow l/min - USgpm	Max pressure bar/PSI	B	C	F	L	Approx weight Kg / lb
VRC140	BSPP 1/4	10 (2.5)	250 (3600)	88 (3.46)	27 (1.06)	51 (2)	52 (2.05)	0,49 (1.08)
VRC380	BSPP 3/8	18 (4.7)		108 (4.25)	36 (1.42)	61 (2.40)	57 (2.25)	0,48 (1.05)
VRC120	BSPP 1/2	33 (8.7)						0,72 (1.58)

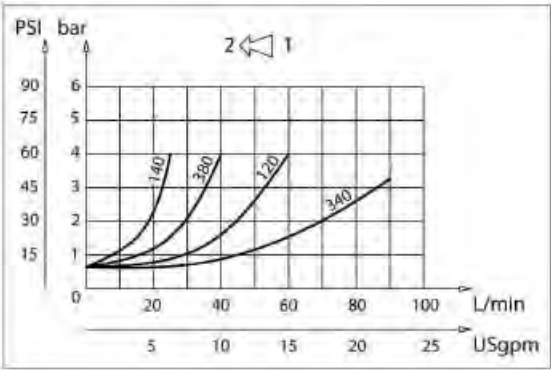
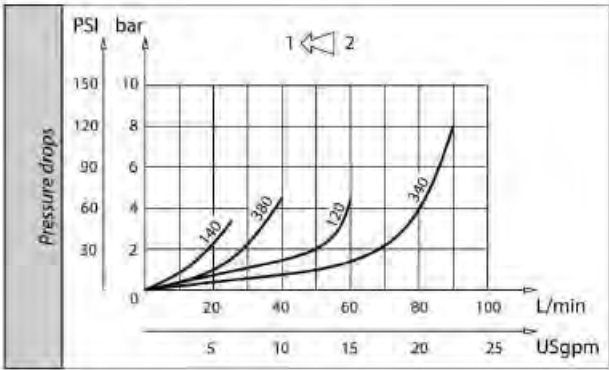
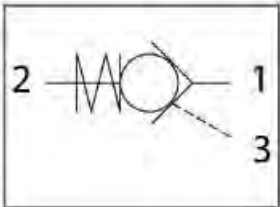
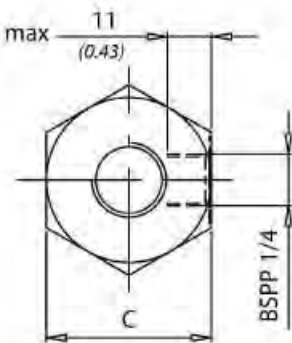
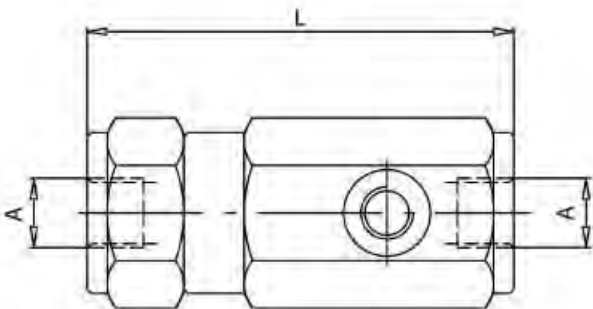
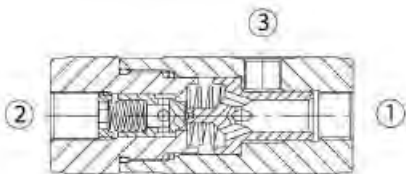
Ordering code	
VRC-X	
X	Size
140	BSPP 1/4
380	BSPP 3/8
120	BSPP 1/2



Allison Hydraulics



Technical data	
Fluid viscosity	10-500 mm ² /s 45 to 2000 ssu (6 to 420 cSt)
Filtration	ISO code 16/13 SAE class 4 or better
Fluid temperature	-20°C +80°C -4°F +176°F
Ambient temperature	-20°C +50°C -4°F +122°F



mm
(inches)

Technical performances							
Code	A	Max flow l/min - USgpm	Max pressure bar/PSI	L	C	Approx weight Kg / lb	Pilot ratio
VRPE140	BSPP 1/4	25 (6.5)	350 (5000)	100 (3.94)	36 (1.42)	0,75 (1.65)	1:3.6
VRPE380	BSPP 3/8	40 (10.5)		105 (4.13)	41 (1.62)	1 (2.2)	1:3.2
VRPE120	BSPP 1/2	60 (16)		125 (4.92)		1,1 (2.4)	1:2.8
VRPE340	BSPP 3/4	100 (26)	300 (4350)	130 (5.12)	55 (2.16)	2 (4.4)	1:3.2
VRPE100	BSPP 1	150 (40)		166 (6.54)	65 (2.56)	3,6 (7.92)	1:6.2

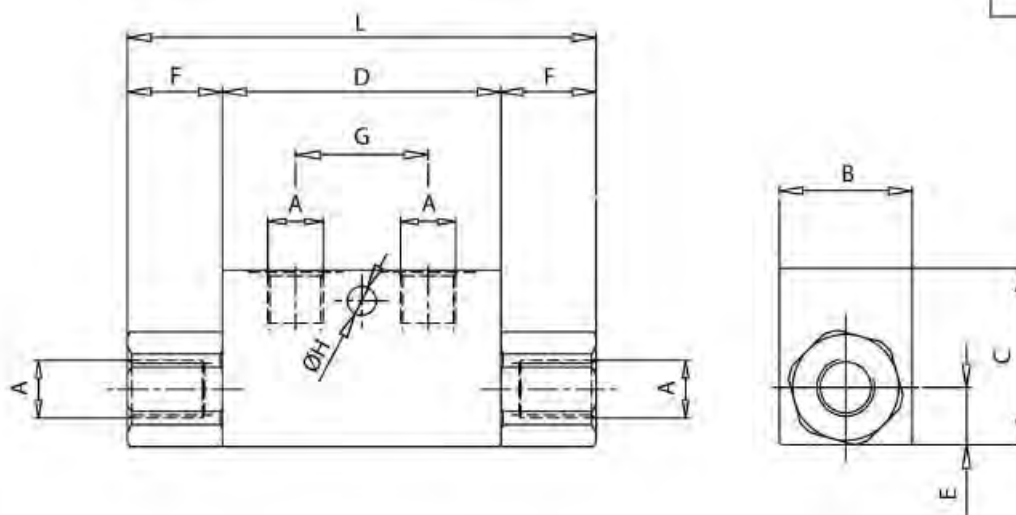
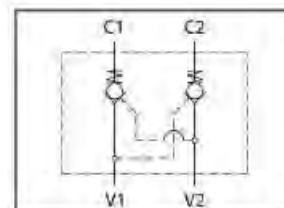
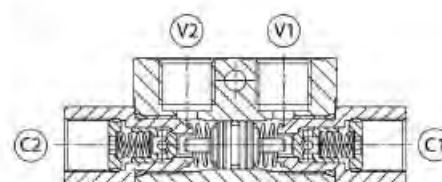
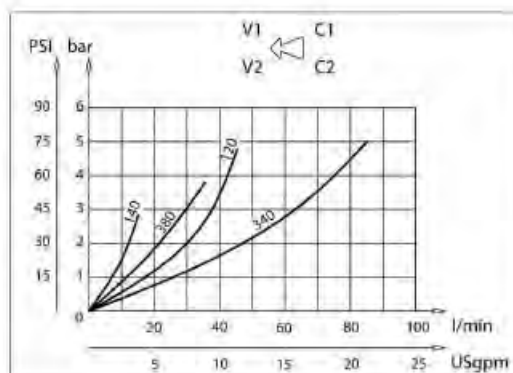
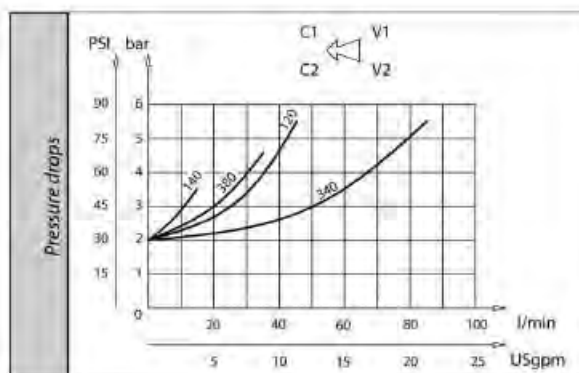
Ordering code	
VRPE - X	
X	Size
140	BSPP 1/4
380	BSPP 3/8
120	BSPP 1/2
340	BSPP 3/4
100	BSPP 1



Allison Hydraulics



Technical data	
Fluid viscosity	10-500 mm ² /s 45 to 2000 ssu (5 to 420 cSt)
Filtration	ISO code 16/13 SAE class 4 or better
Fluid temperature	-20°C +80°C -4°F +176°F
Ambient temperature	-20°C +50°C -4°F +122°F


mm
(Inches)


Ordering code	
VRDE - X	
X	Size
140	BSPP 1/4
380	BSPP 3/8
120	BSPP 1/2
340	BSPP 3/4

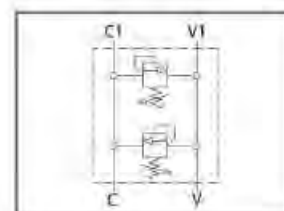
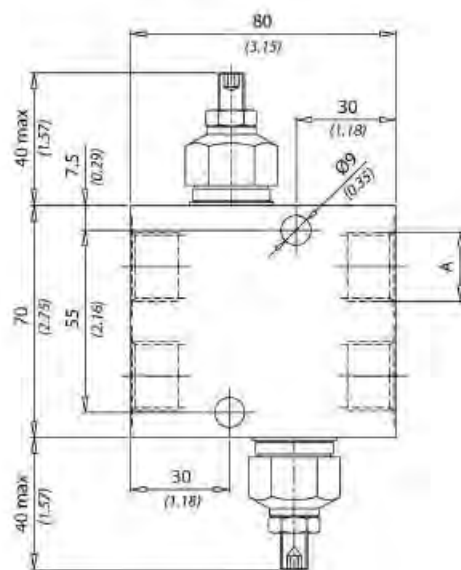
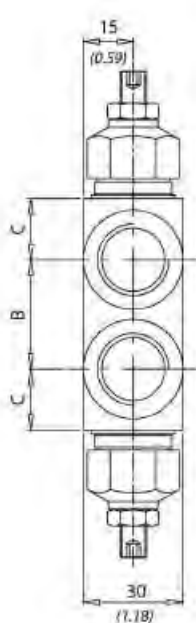
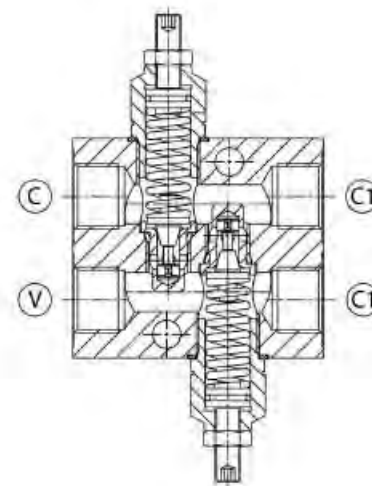
Technical performances													
Code	A	Max flow l/min - USgpm	Max pressure bar/PSI	B	C	D	E	F	G	H	L	Approx weight Kg / lb	Pilot ratio
VRDE140	BSPP 1/4	15 (4)	320 (4500)	30 (1.18)	40 (1.57)	63 (2.48)	13 (0.51)	21,5 (0.85)	30 (1.18)	6,5 (0.26)	106 (4.17)	0,63 (1.4)	1:4
VRDE380	BSPP 3/8	35 (9.3)		30 (1.18)	40 (1.57)	63 (2.48)	13 (0.51)	21,5 (0.85)	30 (1.18)		106 (4.17)	0,60 (1.32)	
VRDE120	BSPP 1/2	45 (12)	300 (4350)	35 (1.38)	50 (1.97)	82 (3.23)	16,5 (0.65)	31,5 (1.24)	36 (1.42)	8,5 (0.34)	145 (5.71)	1,10 (2.42)	
VRDE340	BSPP 3/4	70 (18.5)		40 (1.57)	60 (2.36)	100 (3.94)	22,5 (0.88)	46 (1.81)	50 (1.97)		192 (7.56)	2,10 (4.62)	1:2.9



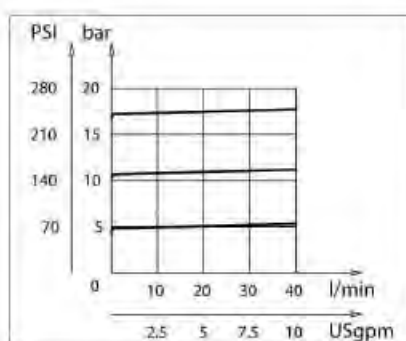
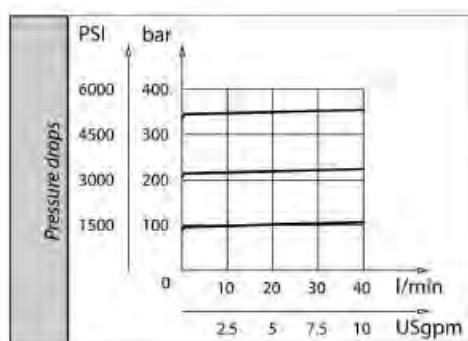
Allison Hydraulics



Technical data	
Fluid viscosity	10-500 mm ² /s 45 to 2000 ssu (6 to 420 cSt)
Filtration	ISO code 16/13 SAE class 4 or better
Fluid temperature	-20°C +80°C -4°F +176°F
Ambient temperature	-20°C +50°C -4°F +122°F



mm
(Inches)



Technical performances							
Code	A	Max flow l/min - USgpm	Max pressure bar/PSI	B	C	Approx weight Kg / lb	Type of valve
VBDC380	BSPP 3/8	40 (10.5)	350 (5000)	28 (1.10)	21 (0.83)	1,1 (2.45)	VMD40
VBDC120	BSPP 1/2			33 (1.30)	18,5 (0.73)		

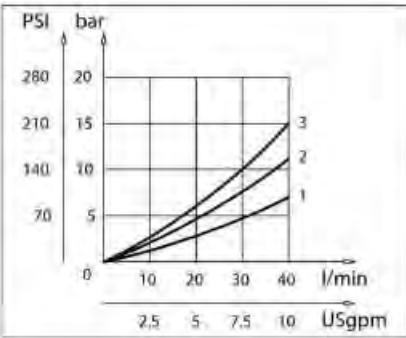
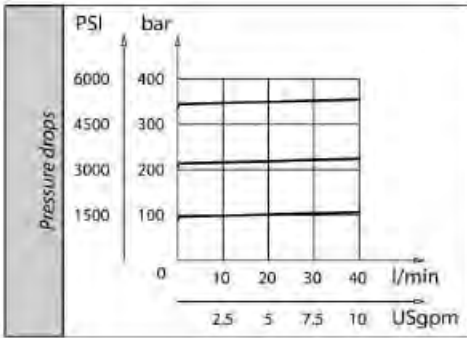
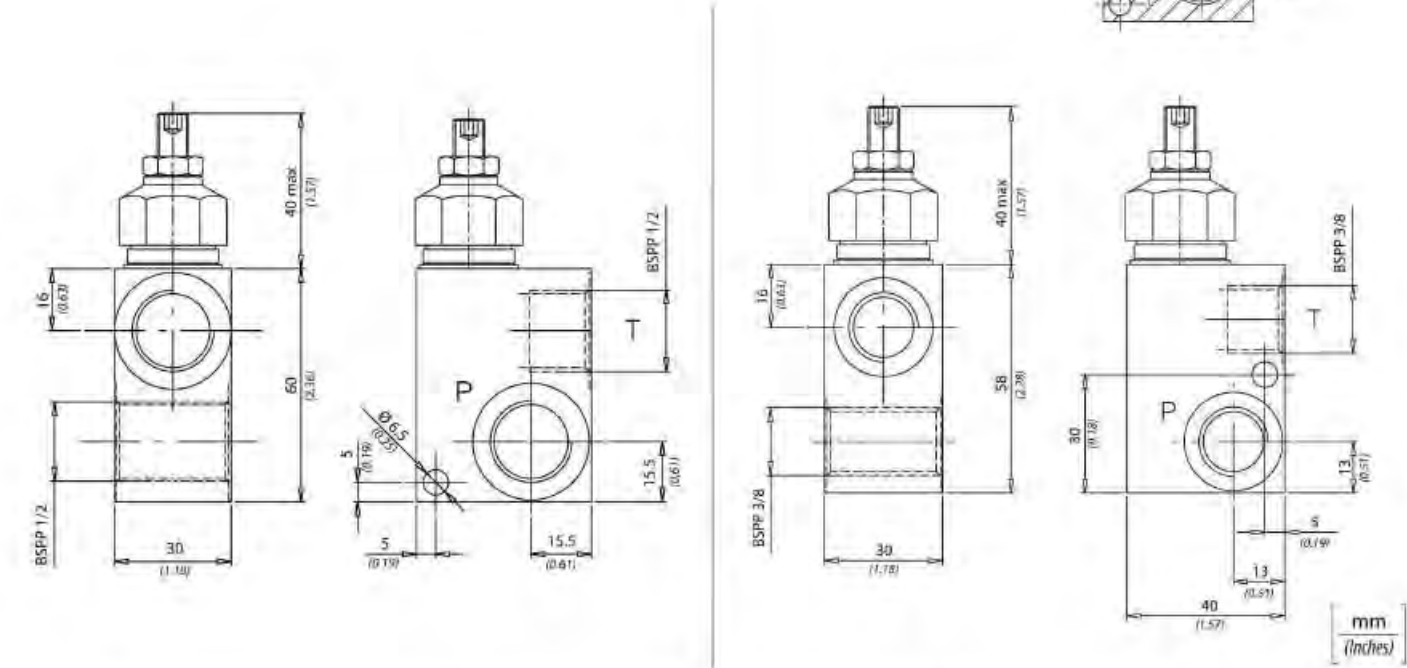
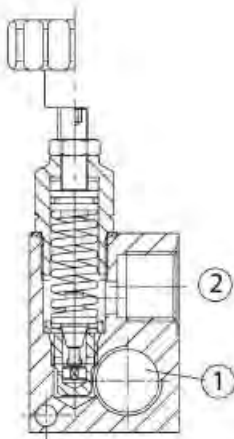
Ordering code			
VBDC - X - Y - K			
X	Size	K	Safety cap
380	BSPP 3/8	S	
120	BSPP 1/2		
Y	Spring		
1	100 bar (1450 PSI) max		
2	210 bar (3000 PSI) max		
3	350 bar (5000 PSI) max		



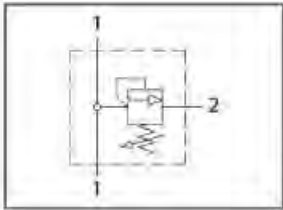
Allison Hydraulics



Technical data	
Fluid viscosity	10-500 mm ² /s 45 to 2000 ssu (6 to 420 cSt)
Filtration	ISO code 16/13 SAE class 4 or better
Fluid temperature	-20°C +80°C -4°F +176°F
Ambient temperature	-20°C +50°C -4°F +122°F



Technical performances			
Code	Max flow l/min - USgpm	Max pressure bar/PSI	Approx weight Kg / lb
VMDR40380	40 (10)	300 (4350)	0,50 (1,1)
VMDR40120			0,53 (1,2)



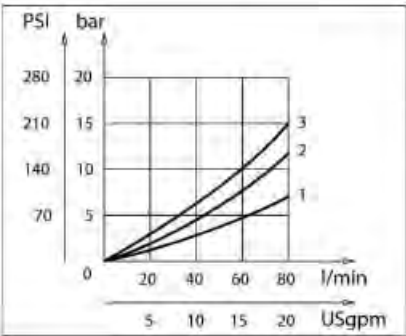
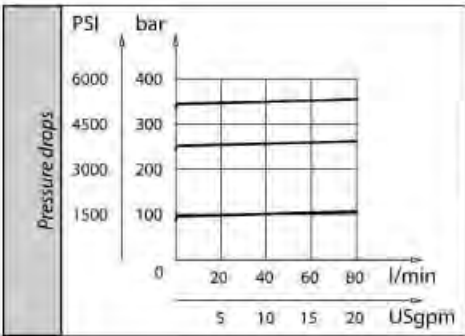
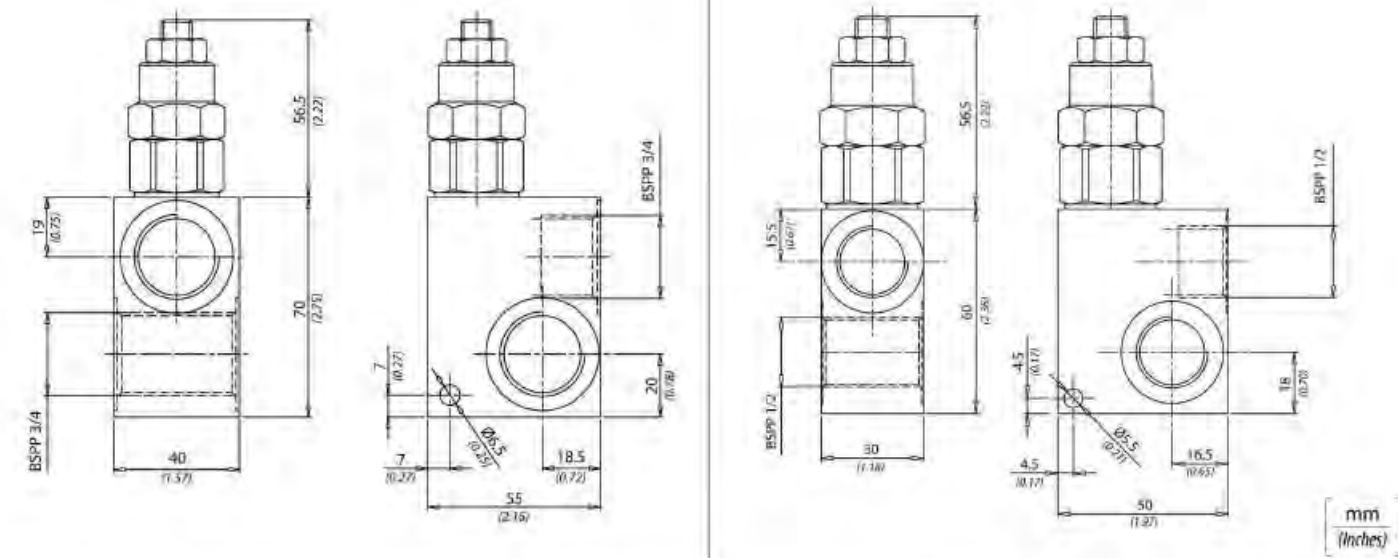
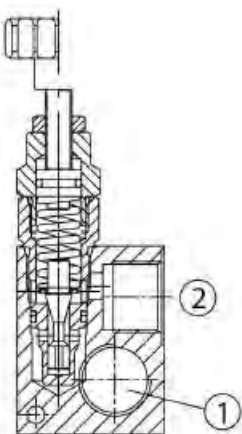
Ordering code			
VMDR40 - X - Y - K			
X	Size	Y	Setting
380	BSPP 3/8	C	
120	BSPP 1/2		
K	Spring	V	
1	110 bar (1450 PSI) max		
2	210 bar (3000 PSI) max		
3	300 bar (4350 PSI) max	S	



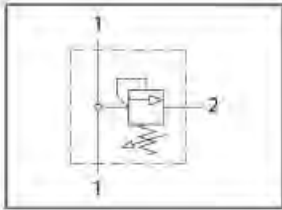
Allison Hydraulics



Technical data	
Fluid viscosity	10-500 mm ² /s 45 to 2000 ssu (6 to 420 cSt)
Filtration	ISO code 16/13 SAE class 4 or better
Fluid temperature	-20°C +80°C -4°F +176°F
Ambient temperature	-20°C +50°C -4°F +122°F



Technical performances			
Code	Max flow l/min - USgpm	Max pressure bar/PSI	Approx weight kg / lb
VMDR90120	10 (20)	350 (5000)	0,67 (1.5)
VMDR90340	10 (20)	350 (5000)	1 (2.2)



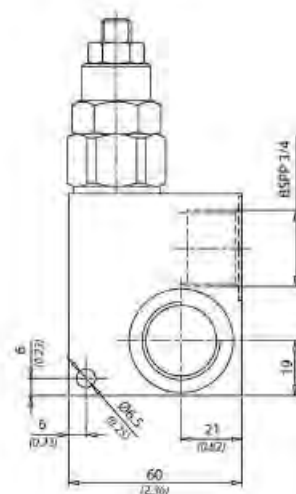
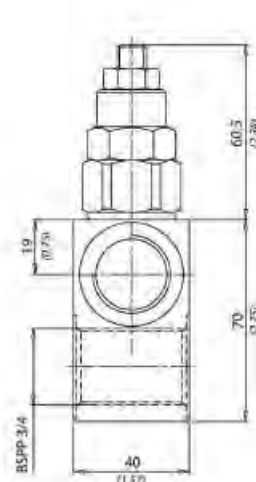
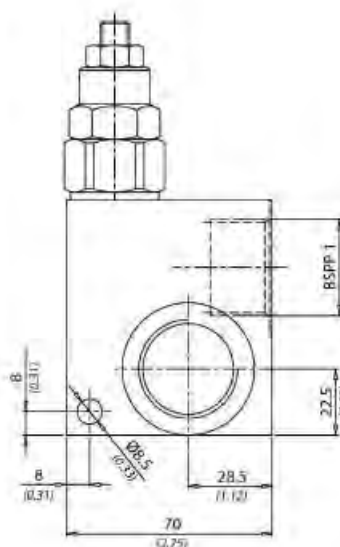
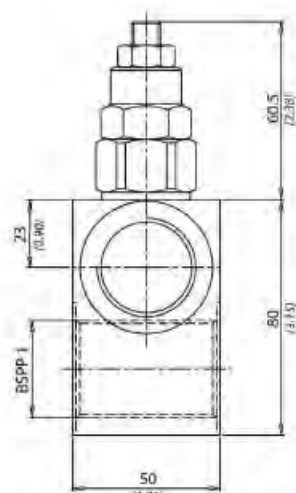
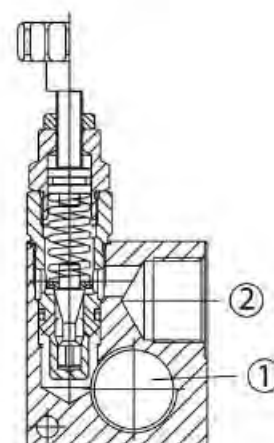
Ordering code			
VMDR90 - X - Y - K			
X	Size	Y	Setting
120	BSPP 1/2	C	
340	BSPP 3/4		
K	Spring	V	
1	100 bar (1450 PSI) max		
2	250 bar (3500 PSI) max		
3	350 bar (5000 PSI) max	S	



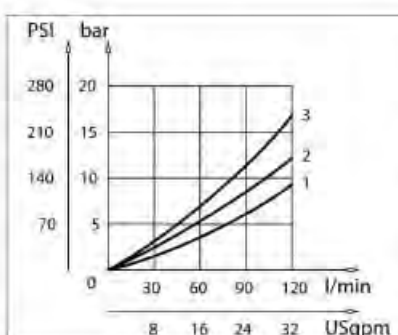
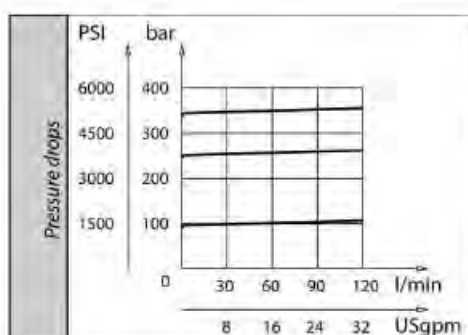
Allison Hydraulics



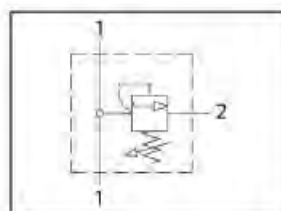
Technical data	
Fluid viscosity	10-500 mm ² /s 45 to 2000 ssu (6 to 420 cSt)
Filtration	ISO code 16/13 SAE class 4 or better
Fluid temperature	-20°C +80°C -4°F +176°F
Ambient temperature	-20°C +50°C -4°F +122°F



mm
(inches)



Technical performances			
Code	Max flow l/min - USgpm	Max pressure bar/PSI	Approx weight Kg / lb
VMDR120340	120 (30)	350 (5000)	1,1 (2.42)
VMDR120100			1,72 (3.8)



Ordering code			
VMDR120 - X - Y - K			
X	Size	Y	Setting
340	BSPP 3/4	C	
100	BSPP 1		
K	Spring	V	
1	100 bar (1450 PSI) max		
2	250 bar (3500 PSI) max		
3	350 bar (5000 PSI) max	S	



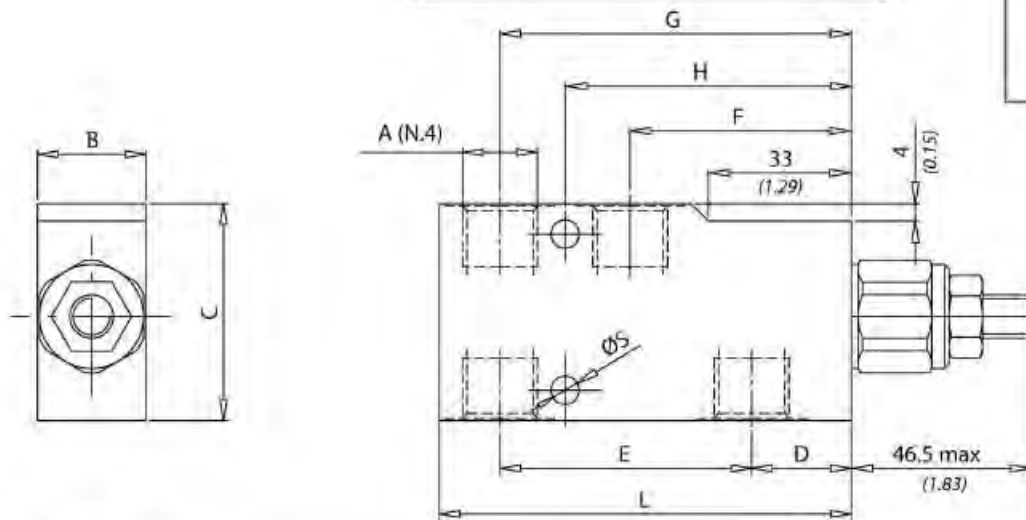
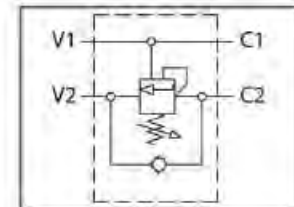
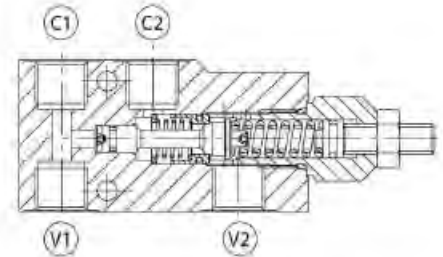
Allison Hydraulics



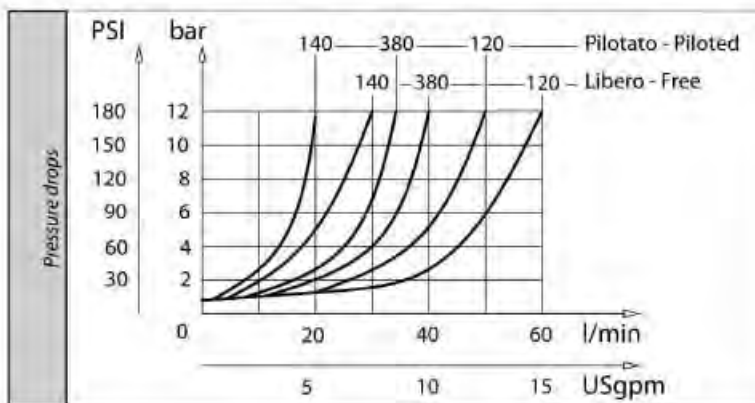
Technical data

Fluid viscosity	10-500 mm ² /s 45 to 2000 ssu (6 to 420 cSt)
Filtration	ISO code 16/13 SAE class 4 or better
Fluid temperature	-20°C +80°C -4°F +176°F
Ambient temperature	-20°C +50°C -4°F +122°F

Relief valve setting: at least 1.3 times the highest expected load.



mm
(Inches)



Ordering code					
VBCL - X - Y - K - Z					
X	Size	K	Material	Z	Optional
140	BSPP 1/4	S	Steel body	S	
380	BSPP 3/8				
120	BSPP 1/2				
Y	Spring	Press. increase		Std. setting (Q=5 l/min)	
1	30/210 bar (400/3000 PSI)	70 bar/turn (1000 PSI/turn)		200 bar (2900 PSI)	
2	60/350 bar (850/3500 PSI)	120 bar/turn (1700 PSI/turn)		350 bar (5000 PSI)	

Technical performances

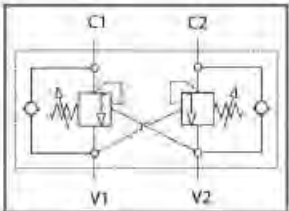
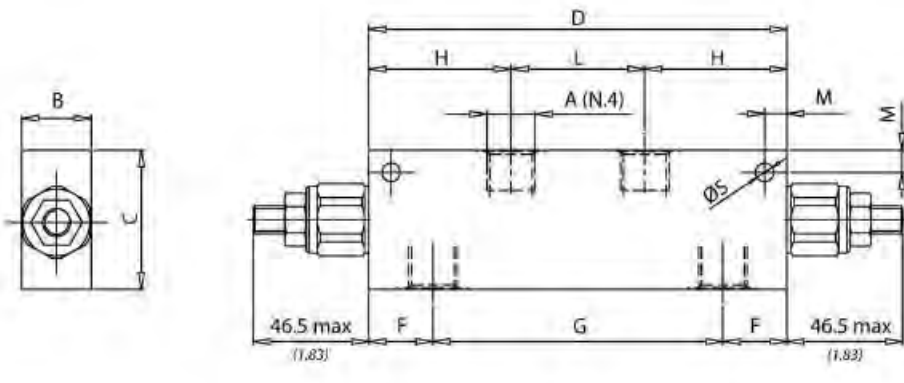
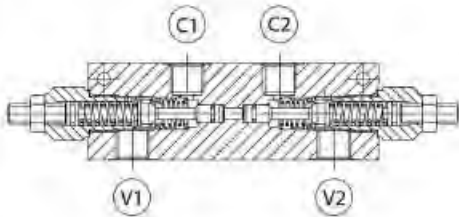
Code	A	Max flow l/min - USgpm	Max pressure bar/PSI	B	C	D	E	F	G	H	L	S	Approx weight Kg / lb	Pilot ratio
VBCL140	BSPP 1/4	30 (8)	350 (5000)	25 (0.98)	50 (1.97)	23 (0.90)	50 (2.28)	51 (2)	81 (3.19)	66 (2.60)	95 (3.74)	6,5 (0.26)	0,85 (1.90)	1:4.25
VBCL380	BSPP 3/8	40 (10.5)		30 (1.18)	60 (2.36)	21 (0.83)	63 (2.48)		84 (3.30)	67,5 (2.66)	100 (3.94)			
VBCL120	BSPP 1/2	60 (16)												



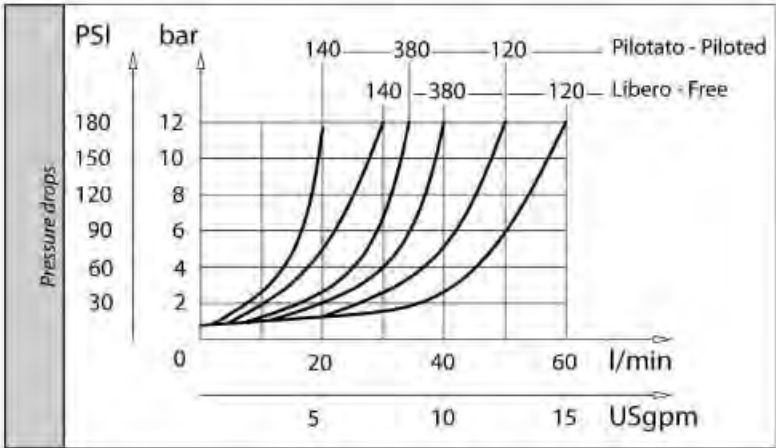
Allison Hydraulics



Technical data	
Fluid viscosity	10-500 mm ² /s 45 to 2000 ssu (6 to 420 cSt)
Filtration	ISO code 16/13 SAE class 4 or better
Fluid temperature	-20°C +80°C -4°F +176°F
Ambient temperature	-20°C +50°C -4°F +122°F
Relief valve setting: at least 1.3 times the highest expected load.	



mm
(Inches)



Ordering code					
VBCD - X - Y - K - Z					
X	Size	K	Material	Z	Optional
140	BSPP 1/4	S	Steel body	S	
380	BSPP 3/8				
120	BSPP 1/2				
Y	Spring	Press. increase		Std. setting (Q=5 l/min.)	
1	30/210 bar (400/3000 PSI)	70 bar/turn (1000 PSI/turn)		200 bar (2900 PSI)	
2	60/350 bar (850/3500 PSI)	120 bar/turn (1700 PSI/turn)		350 bar (5000 PSI)	

Technical performances														
Code	A	Max flow l/min - USgpm	Max pressure bar/PSI	B	C	D	F	G	H	L	M	S	Approx weight Kg / lb	Pilot ratio
VBCD140	BSPP 1/4	30 (8)	350 (5000)	25 (0.98)	50 (1.97)	150 (5.90)	23 (0.90)	104 (4.09)	51 (2)	48 (1.89)	8 (0.32)	6,5 (0.26)	1,5 (3.3)	1:4.25
VBCD380	BSPP 3/8	40 (10.5)		30 (1.18)	60 (2.36)		21 (0.83)	108 (4.25)		8 (0.32)	6,5 (0.26)	2 (4.4)		
VBCD120	BSPP 1/2	60 (16)												



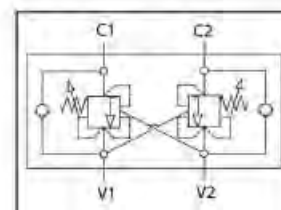
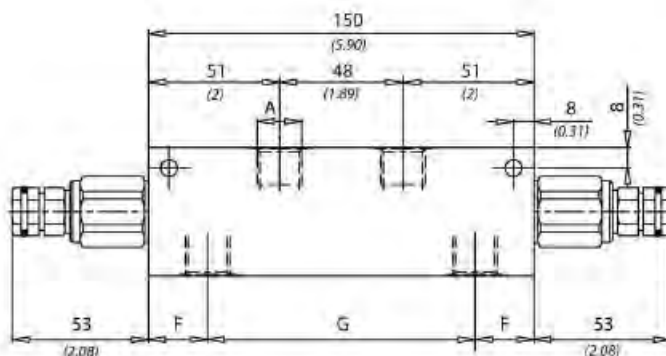
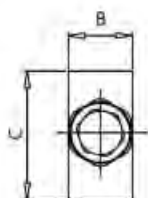
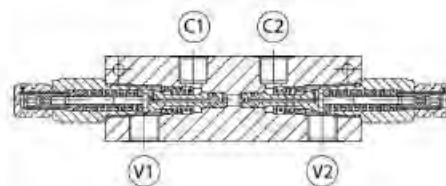
Allison Hydraulics



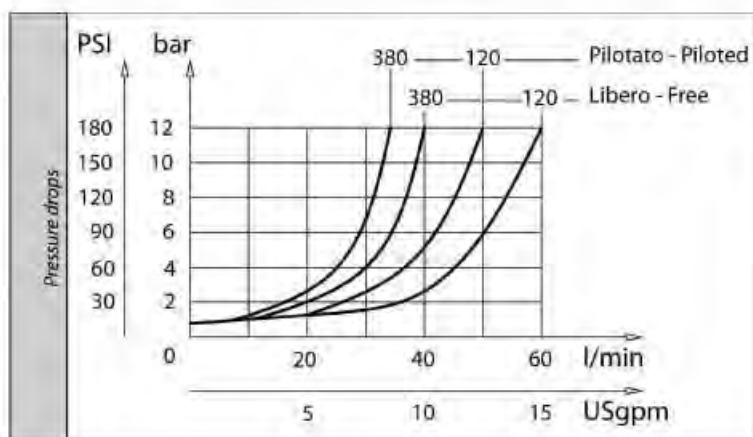
Technical data

Fluid viscosity	10-500 mm ² /s 45 to 2000 ssu (6 to 420 cSt)
Filtration	ISO code 16/13 SAE class 4 or better
Fluid temperature	-20°C +80°C -4°F +176°F
Ambient temperature	-20°C +50°C -4°F +122°F

Relief valve setting: at least 1.3 times the highest expected load.



mm
(inches)



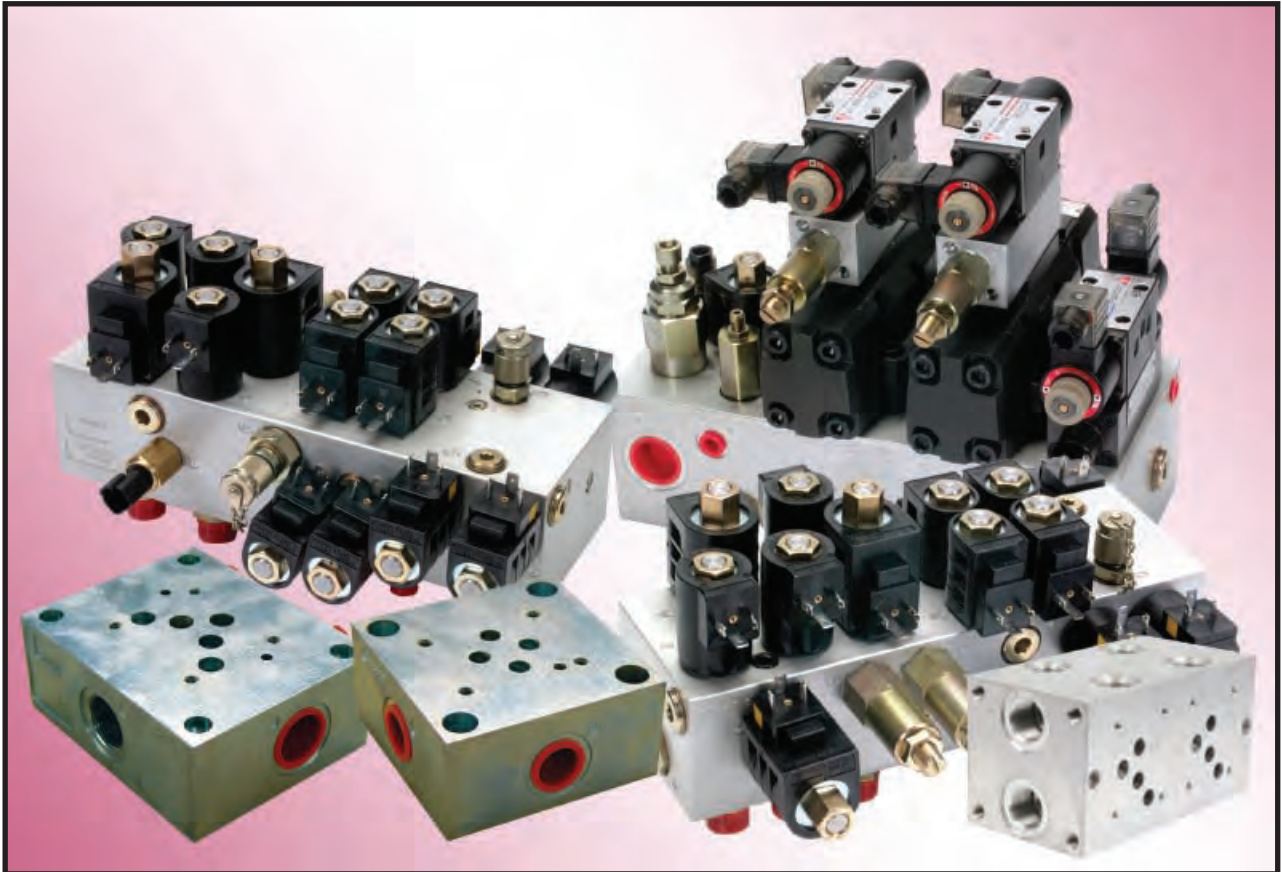
Ordering code			
VBCC - X - Y - K			
X	Size	K	Material
140	BSPP 1/4	S	Steel body
380	BSPP 3/8		
120	BSPP 1/2		
Y	Spring	Std. setting (Q=5 l/min)	
1	30/210 bar (400/3000 PSI)	70 bar/turn (1000 PSI/turn)	200 bar (2900 PSI)
2	60/350 bar (850/3500 PSI)	120 bar/turn (1700 PSI/turn)	350 bar (5000 PSI)

Technical performances							
Code	A	Max flow l/min - USgpm	Max pressure bar/PSI	F	G	Approx weight Kg / lb	Pilot ratio
VBCC140	BSPP 1/4	30 (8)	350 (5000)	23 (0.90)	104 (4.09)	1,5 (3.3)	1:4.25
VBCC380	BSPP 3/8	40 (10.5)		21 (0.83)	108 (4.25)	2,1 (4.6)	
VBCC120	BSPP 1/2	60 (16)					



Allison Hydraulics

Manifolds



 **Related**
Fluid Power



Allison Hydraulics

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Manifolds

CETOP base subplates

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- CETOP 3 base subplate
- CETOP 5 base subplate

CETOP strip manifolds

Page 69



- CETOP 3 strip manifold
- CETOP 5 strip manifold

CETOP special subplates

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- CETOP 3 relief subplate
- CETOP 5 relief subplate
- CETOP 7 relief subplate
- CETOP 3 tapping block

Lift blocks

Page 75

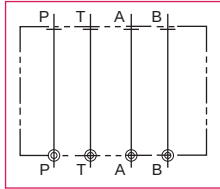
- Lift block solenoid operated single speed
- Lift block solenoid operated single speed with unloader
- Lift block solenoid operated two speed with unloader

Other manifolds

A large selection are available and this section will be updated regularly.

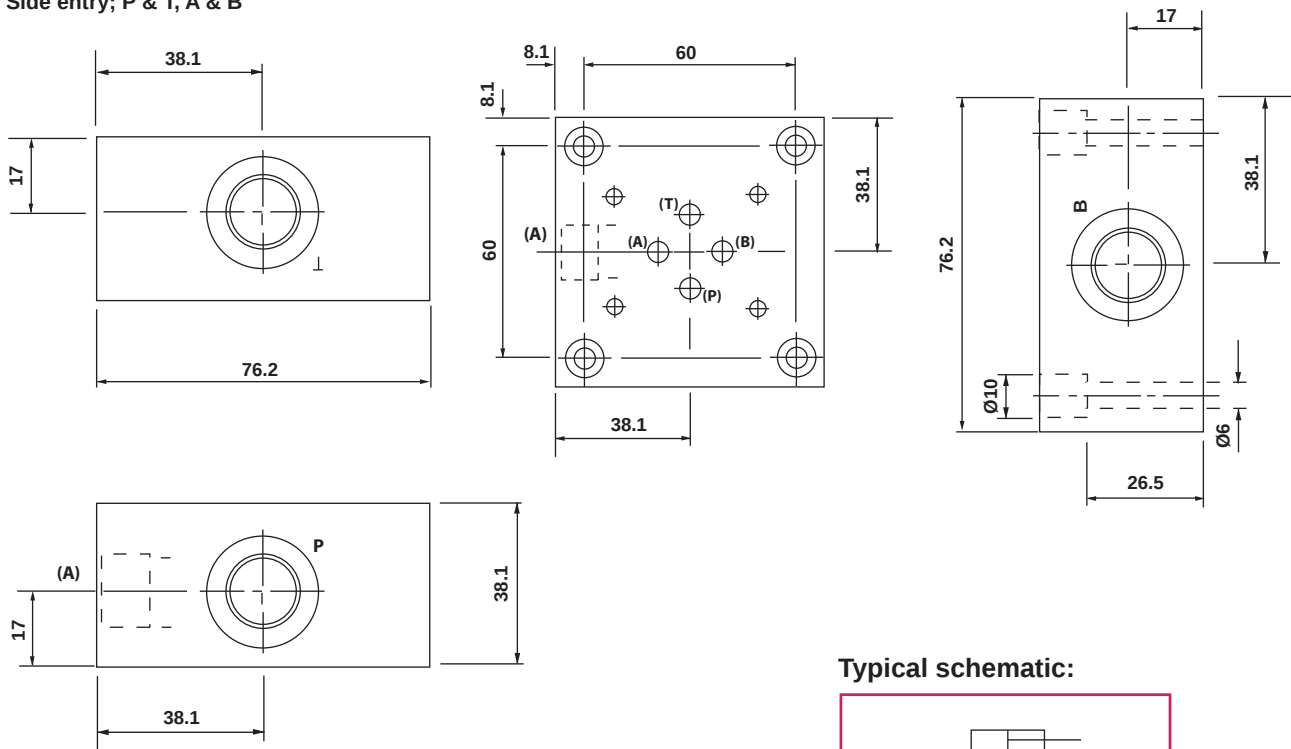
Features:

- Cetop 3 single-station side entry sideplate.
- Material; steel.
- Working pressure; 315 bar.
- 'P', 'T', 'A' and 'B' ports = 3/8" B.S.P. female.

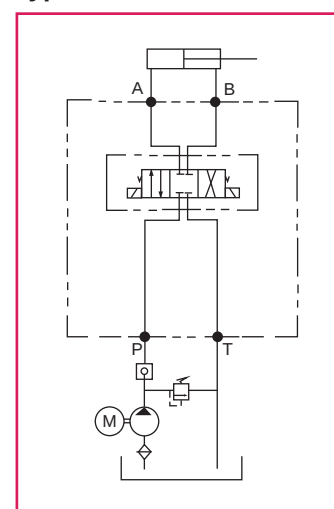


Dimensions:

Side entry; P & T, A & B



Typical schematic:



Model code

HSL 853	B	S
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Product type

Port size:
B = 3/8" BSP

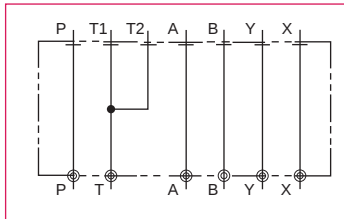
Manifold material:
S = steel



Allison Hydraulics

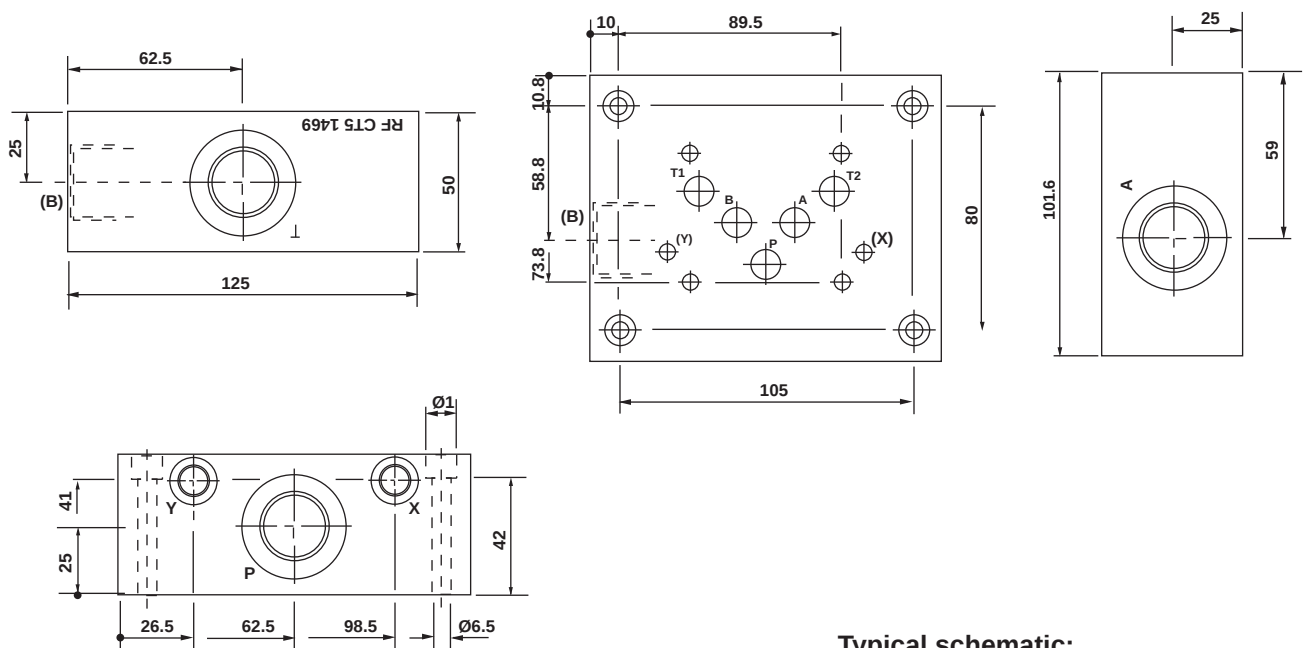
Features:

- Cetop 5 single-station side entry sideplate.
- Material; steel.
- Working pressure; 315 bar.
- 'P', 'T' ports = 3/4" B.S.P. female.
- 'A', 'B' ports = 3/4" B.S.P. female.
- 'X' and 'Y' ports = 1/8" B.S.P.



Dimensions:

Side entry; P & T, A & B, X & Y ports.



Model code

HSL 1469	XY	S
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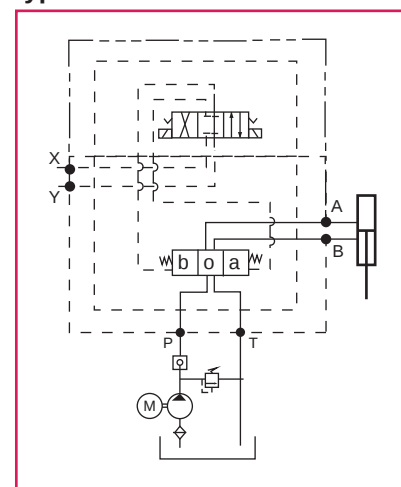
Product type

Port size:

P, T = 3/4" BSP
A, B = 3/4" BSP
X, Y = 1/8" BSP

Manifold material:
S = steel

Typical schematic:



Allison Hydraulics

Features:

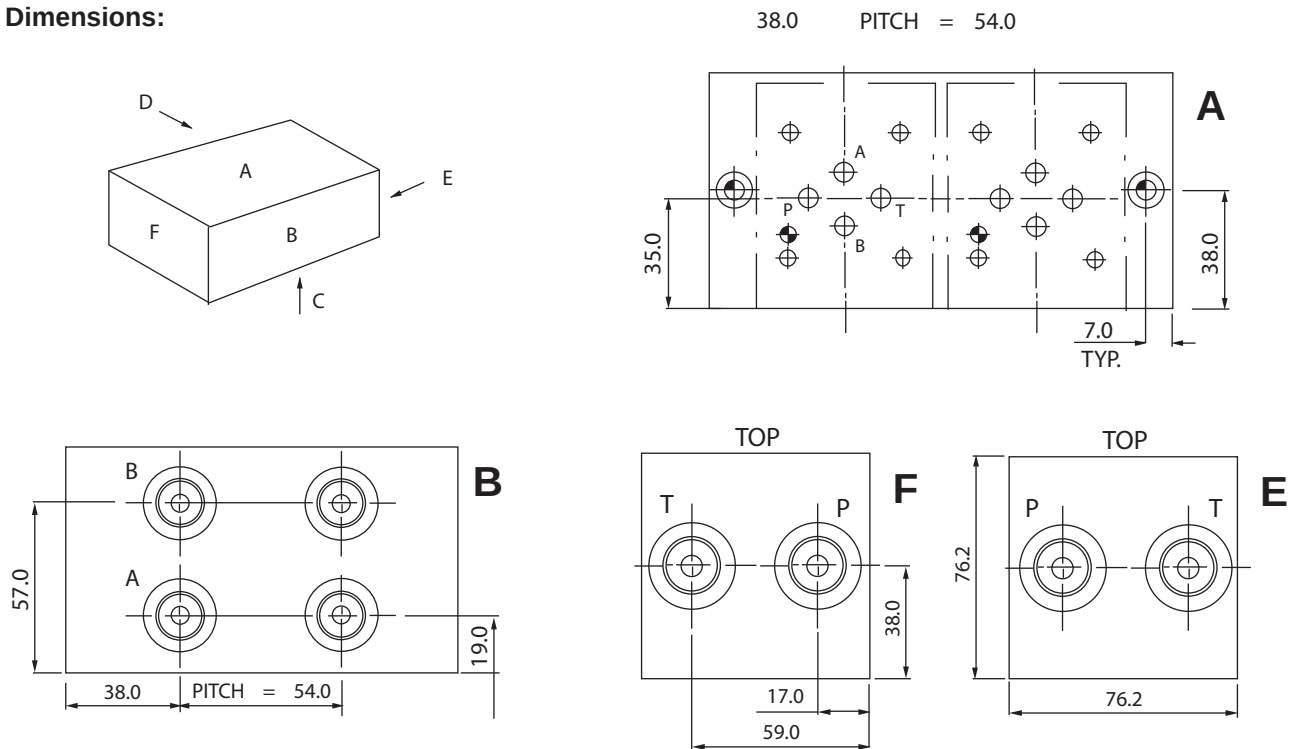
- Cetop 3 multi-station manifold.
- Material; steel or aluminium alloy.
- Working pressure; steel (315 bar), aluminium alloy (250 bar).
- 'A' and 'B' ports = 3/8" B.S.P.
- 'P' and 'T' ports = 1/2" B.S.P.

Technical specifications:

Number of stations	Overall length	Overall weight
One	76.0	3.0 Kg
Two	130.0	5.3 Kg
Three	184.0	7.6 Kg
Four	238.0	10.0 Kg
Five	292.0	12.2 Kg
Six	346.0	14.5 Kg



Dimensions:



Model code

105160	2
--------	---

Product type:
105160 (aluminium)
105161 (steel)

Number of stations:
105160; 1 - 6 options available
105161; 1 - 8 options available



Allison Hydraulics

Features:

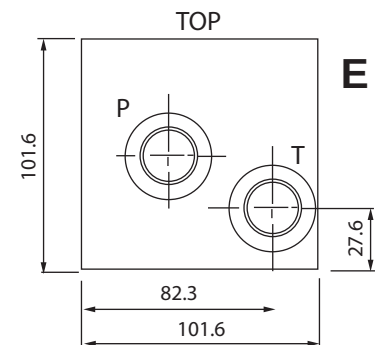
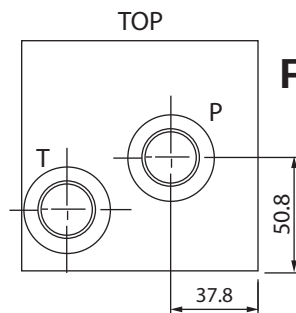
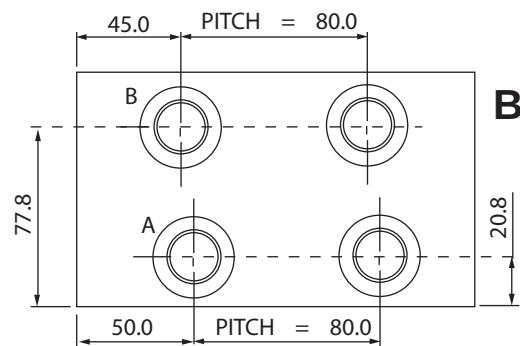
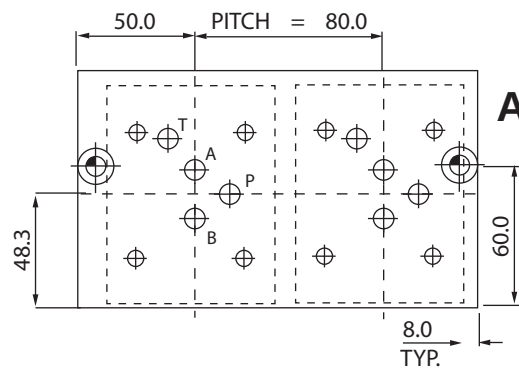
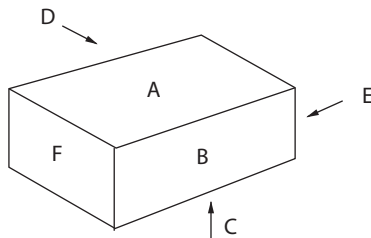
- Cetop 5 multi-station manifold.
- Material; steel.
- Working pressure; 315 bar.
- 'A' and 'B' ports = 3/4" B.S.P.
- 'P' and 'T' ports = 3/4" B.S.P.

Technical specifications:

Number of stations	Overall length	Overall weight
One	90.0	7.0 Kg
Two	170.0	12.5 Kg
Three	250.0	18.0 Kg
Four	330.0	24.0 Kg
Five	410.0	30.0 Kg
Six	490.0	36.0 Kg



Dimensions:



Model code

205171	2
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Product type:
205171 (steel)

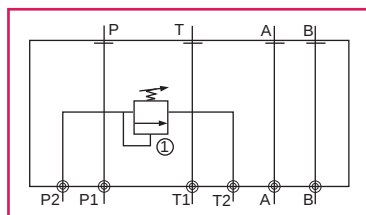
Number of stations:
205171; 1 - 6 options available



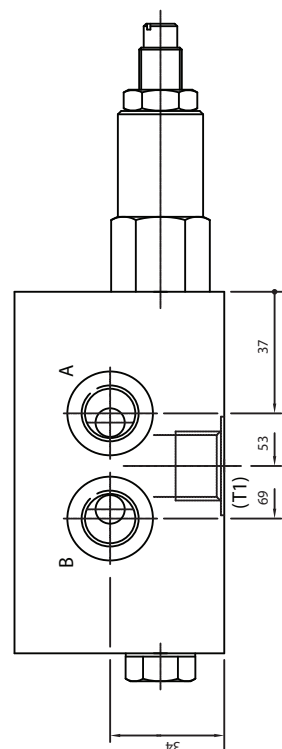
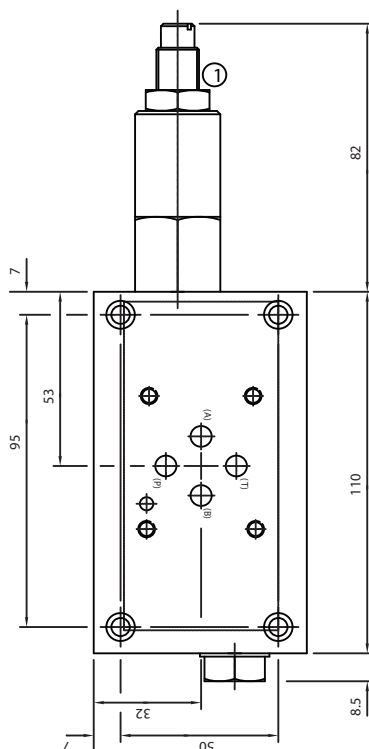
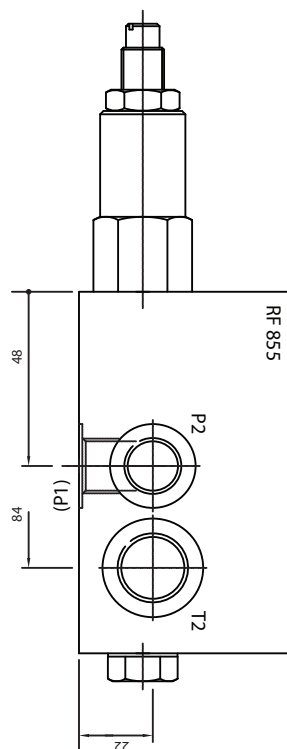
Allison Hydraulics

Features:

- Cetop 3 single-station side and rear entry relief sub plate.
- Material; steel.
- Working pressure; 276 bar.
- 'P', 'T', 'A' and 'B' ports = 3/8" B.S.P. female.



Dimensions:



Model code

HSL 855	B	S
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Product type

Manifold material:
S = steel

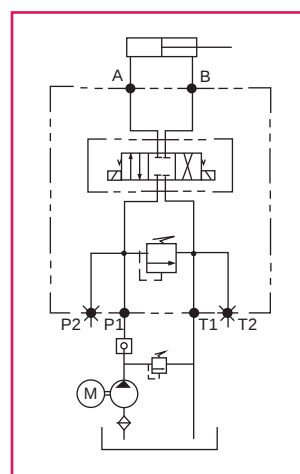
Port sizes:

P1, P2 - 3/8" BSP

T1, T2 - 1/2" BSP

A, B - 3/8" BSP

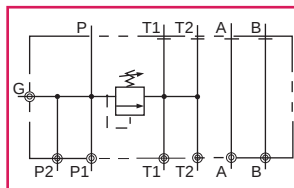
RV Adj. Range: 7 - 276 Bar



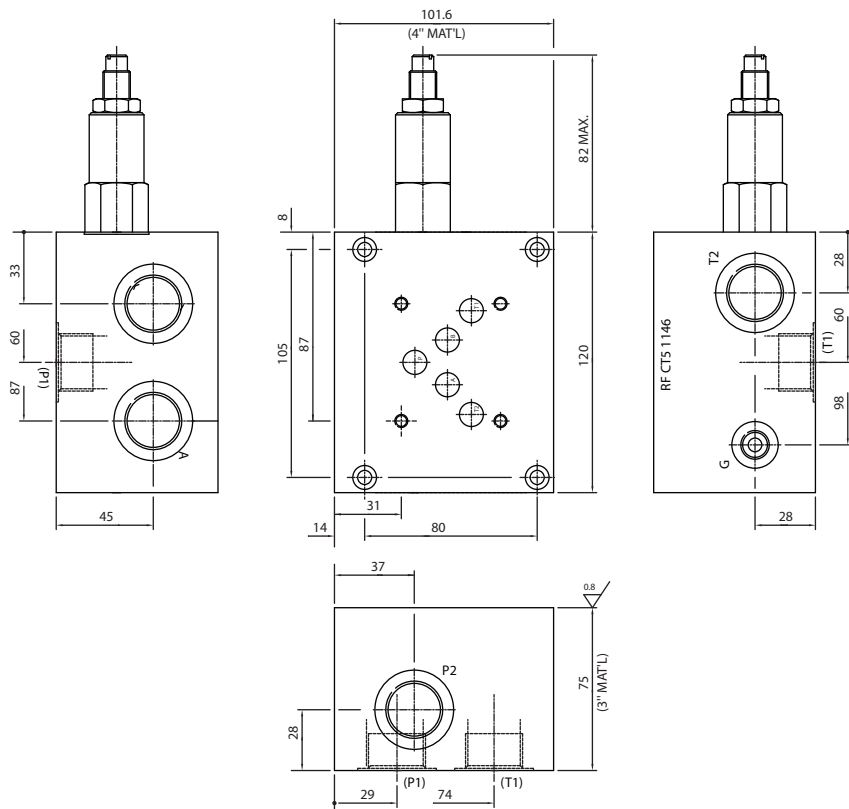
Allison Hydraulics

Features:

- Cetop 5 single-station side entry relief sub plate.
- Material; steel.
- Working pressure; 276 bar.
- 'P', 'T', 'A', 'B' and 'G' ports = 3/4" B.S.P. female.



Dimensions:



PORTS:- 'P1', 'P2', 'T1', 'T2',
'A' & 'B' - 3/4" BSP
'G' - 1/4" BSP

VALVE - 1. DE-RVP-OO-4000 - RELIEF
PRESSURE RANGE : 100 - 4000 Psi
NOMINAL FLOW : 76 Lpm
MTG.S. - 4 OFF HOLES FOR M6
SOCKET HEAD CAP SCREWS

Model code

HSL 1146	B	S
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Product type

Manifold material:
S = steel

Port sizes:

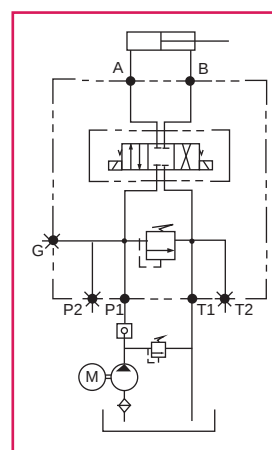
P1, P2 - 3/4" BSP

T1, T2 - 3/4" BSP

A, B - 3/4" BSP

G - 1/4" BSP

RV Adj. Range: 7 - 276 Bar

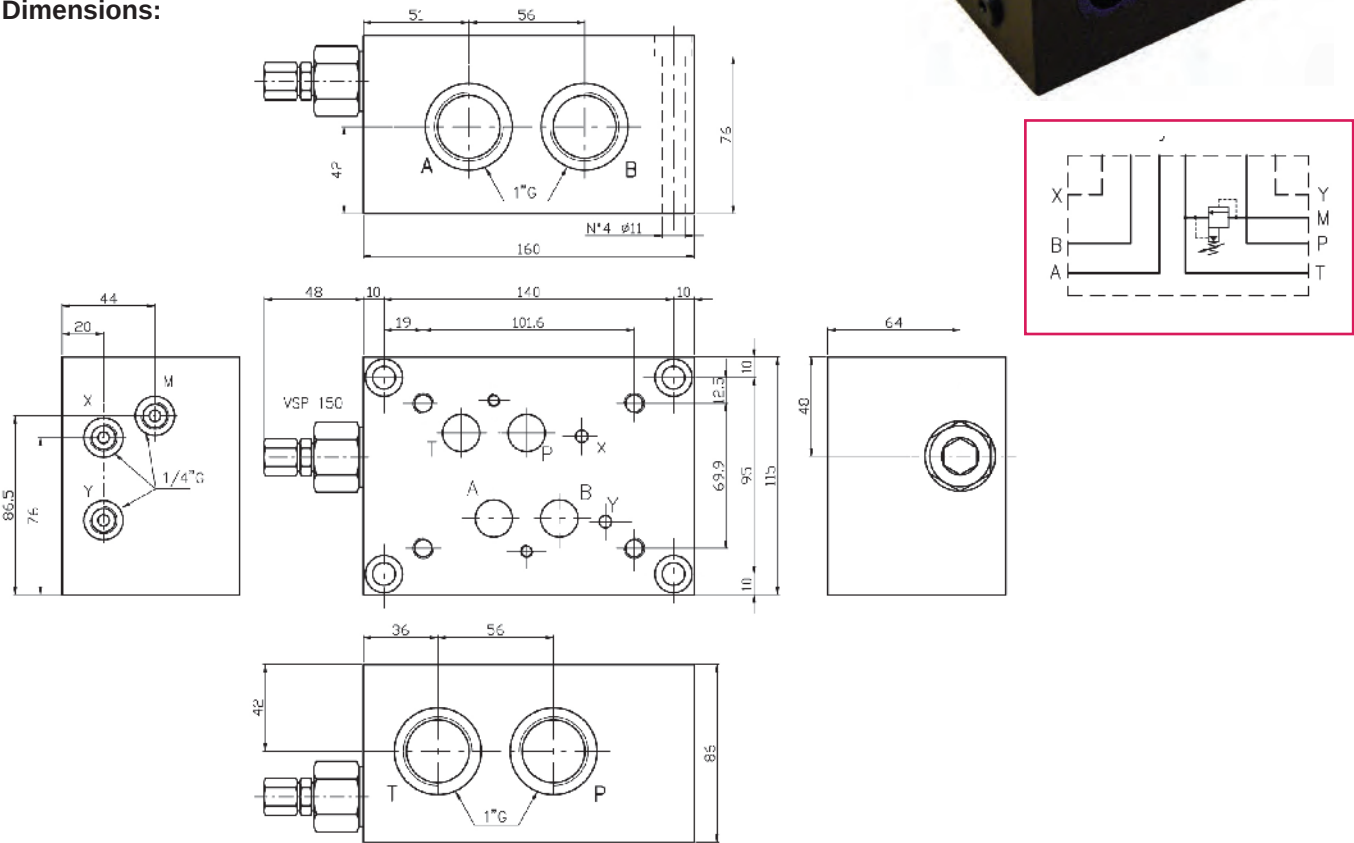


Allison Hydraulics

Features:

- Subplate A - B - P - T on long side = 1"G with pressure relief valve. (RV)
- Material; steel
- Weight = 10kg

Dimensions:



Model code

ES	7	10	LL	X	2	F
Product type: Subplate						Setting: F = allen screw adjustment
Cetop 7						Spring type: 0 = 1.7 - 70 bar 2 = 10-210 bar 3 = 35-420 bar
1"G = 10						
All ports on side = LL						X = with RV

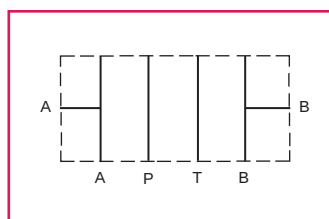


Allison Hydraulics

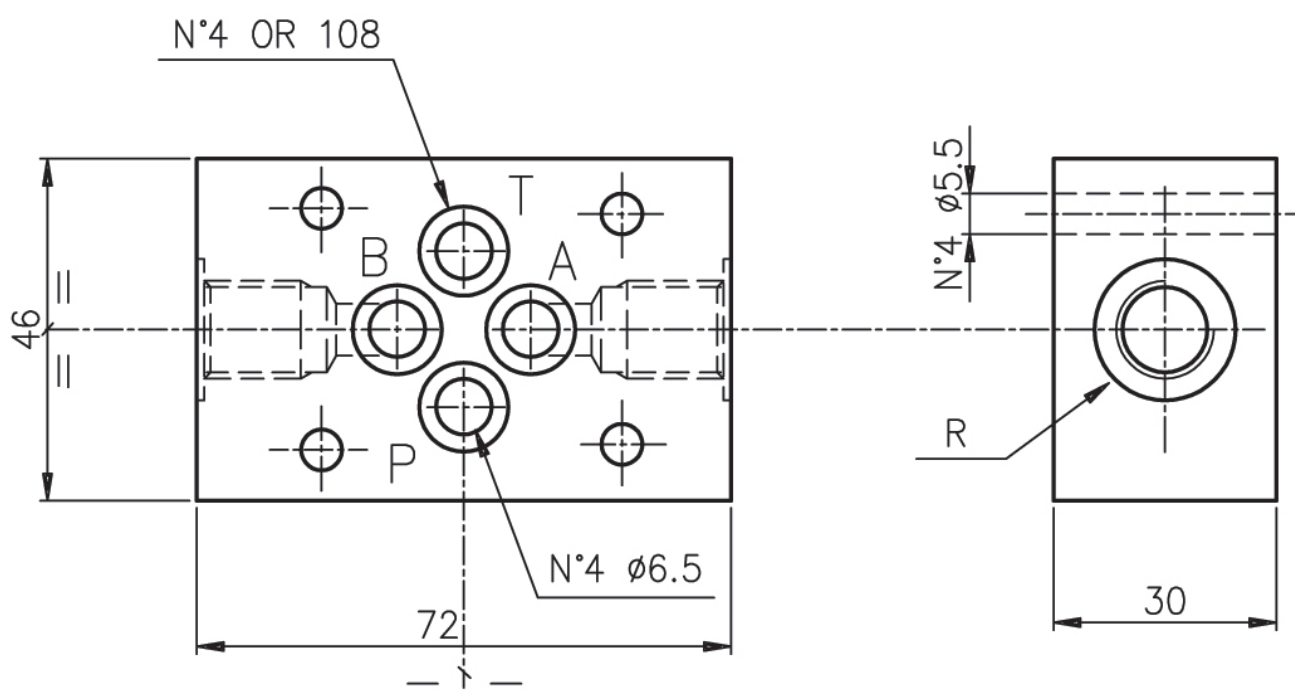
Features:

- Cetop 03 tapping module
- Material = steel
- Weight = 0.6kg

Type	Sorties
0	A + B
3	Side B P + T Side A



Example: ports on A and B

**Dimensions:****Model code**

EB3	0	3	14
-----	---	---	----

Product type:
Subplate for packing = B

Model type:
0 and 3
(see table above)

14 = R 1/4"G
38 = R 3/8"G

Cetop 3



Allison Hydraulics

Features:

These valves provide the control functions of 'raise', 'positive hold' and 'lower' (at a controlled speed) for lift applications using single acting cylinders such as 'scissor lifts', 'access platforms' etc.

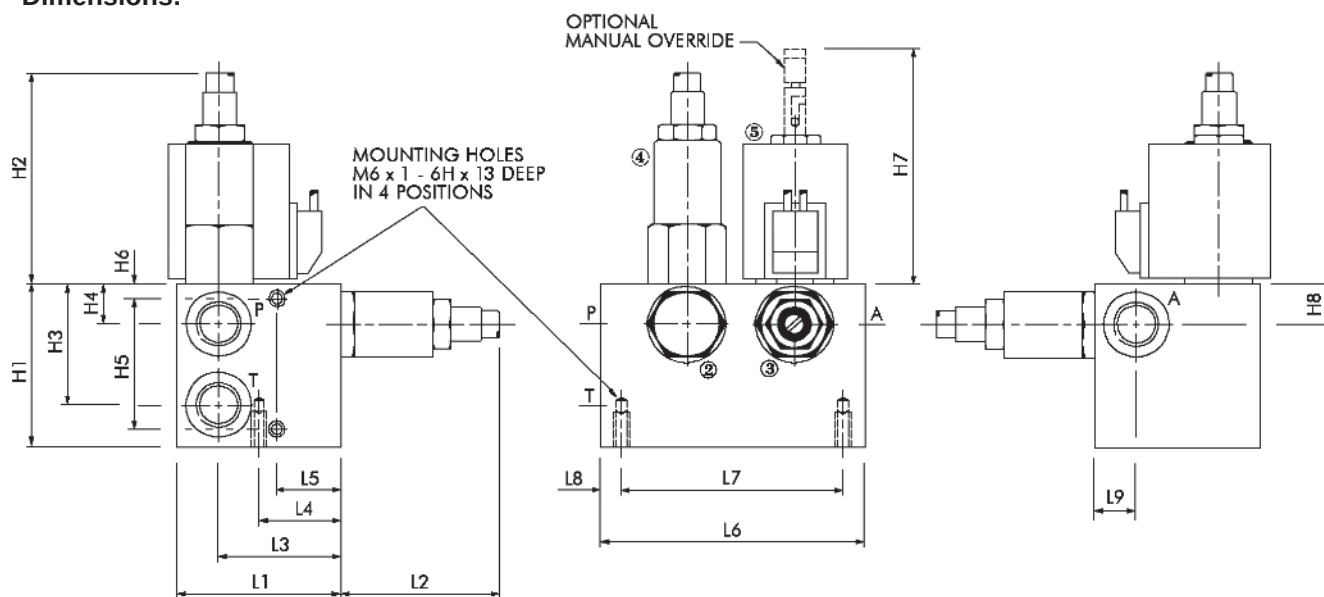
A pressure relief valve prevents peak circuit pressures.

Technical specifications:

Port size (BSP)	3/8"
Nom. flow (lpm)	48
Max. pressure (bar)	240
Cartridge material	steel
Body material	Alum/steel
Operating temp.	-20°C to +95°C

Hydraulic oil	Mineral oil
Viscosity range	3 to 640 cSc
Filtration	25 micron (nom.)
Seals	Nitrile/Viton
Response time	30-45 mil-sec
Voltage	DC and AC

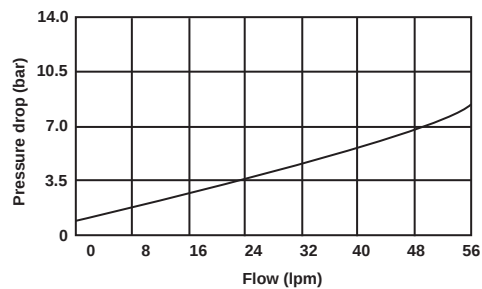
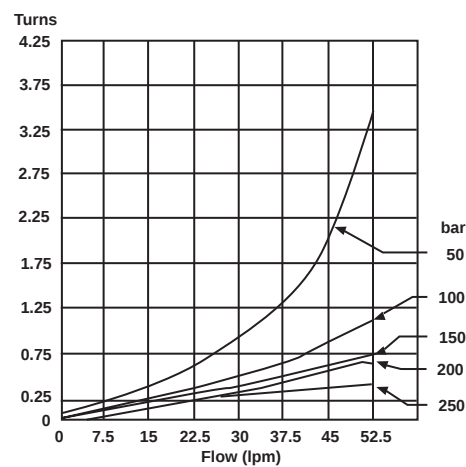
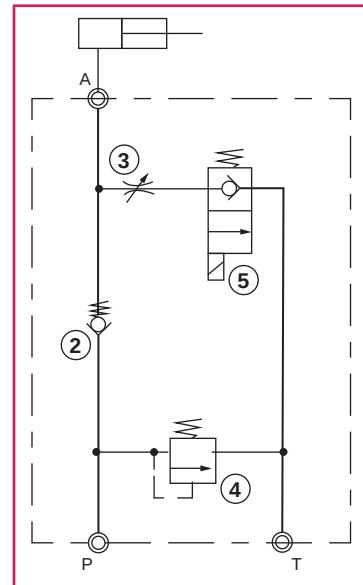
Dimensions:



L1	L2	L3	L4	L5	L6	L7	L8	L9	H1	H2	H3	H4	H5	H6	H7	H8
63.5	61	47.5	31.8	25	101.6	85.6	8	16	63.5	81.55 max.	47.5	16	51	6	87.1 min. 90.9 max.	16



Allison Hydraulics

Valves 5 - Pressure drop curve**32 cSc / 38°C.****Valve 3 - Performance curve****Flow vs number of turns at various pressures****32 cSc / 38°C****Schematic**

	FUNCTION		
	Raise	Hold	Lower
Pump	ON	OFF	OFF
Valve ⑤	OFF	OFF	ON

Model code

RF03	1	00	HC	06
Valve type: Solenoid operated flow control Relief valve pressure range: 1 - 3.5-14 bar 2 - 14-105 bar 3 - 105-210 bar 4 - 170-275 bar Options: 00 - Nitrile, standard V0 - Viton, standard 0M - Nitrile, man. override VM - Viton, man. override A0 - Nitrile, screen W0 - Viton, screen B4 - Nitrile screen, man. override V4 - Viton, screen, man. override (screen on valve ⑤)				
Coil voltage: 06 - 6Vdc 12 - 12Vdc 18 - 18Vdc 24 - 24Vdc 36 - 36Vdc 48 - 48Vdc 20 - 24Vac 11 - 110Vac 23 - 220Vac 44 - 440Vac Coil termination: DL - Double lead HC - DIN43650 (std)				

**Allison Hydraulics**

Features:

These valves provide the control functions of "raise", "positive hold" and "lower" (at a controlled speed) for lift applications using single acting cylinders such as "scissor lifts", "access platforms", etc.

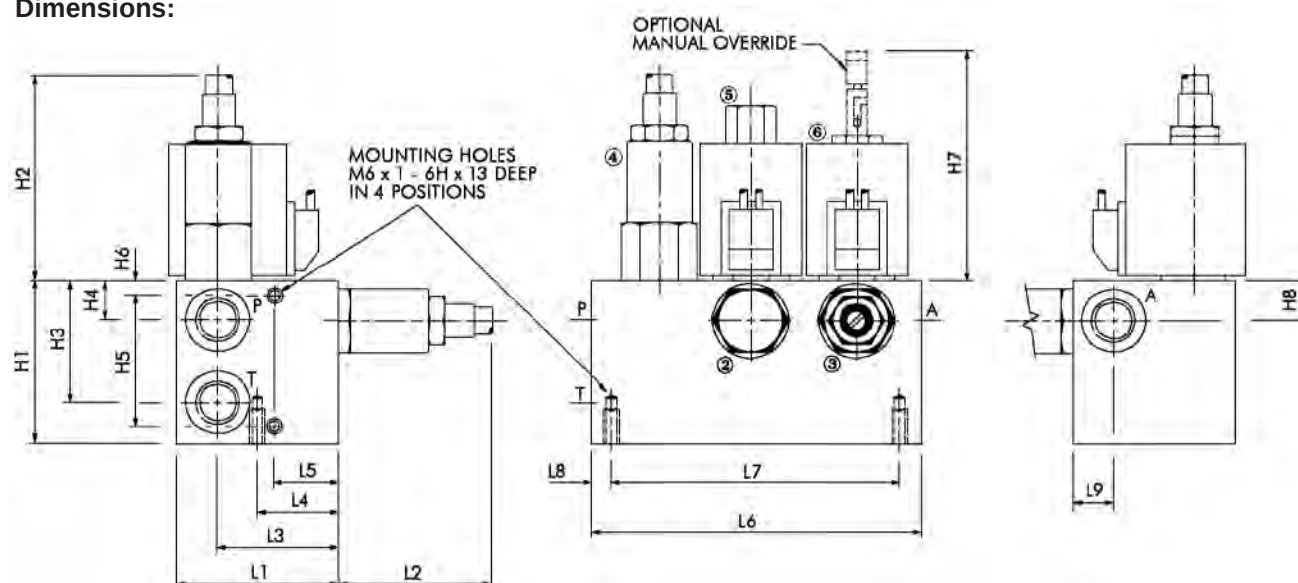
A pressure relief valve prevents peak circuit pressures.

A solenoid operated vent valve allows continuous running of the pump unit when lifting is not required.

Technical specifications:

Port size (BSP)	3/8"
Nom. flow (lpm)	48
Max. pressure (bar)	240
Cartridge material	steel
Body material	Alum/steel
Operating temp.	-20°C to +95°C

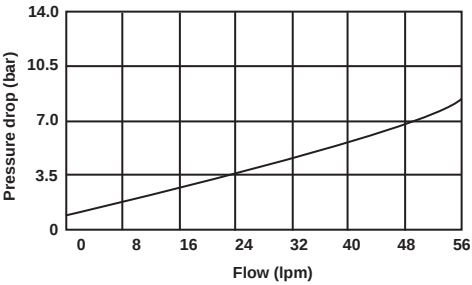
Hydraulic oil	Mineral oil
Viscosity range	3 to 640 cSc
Filtration	25 micron (nom.)
Seals	Nitrile/Viton
Response time	30-45 mil-sec
Voltage	DC and AC

Dimensions:

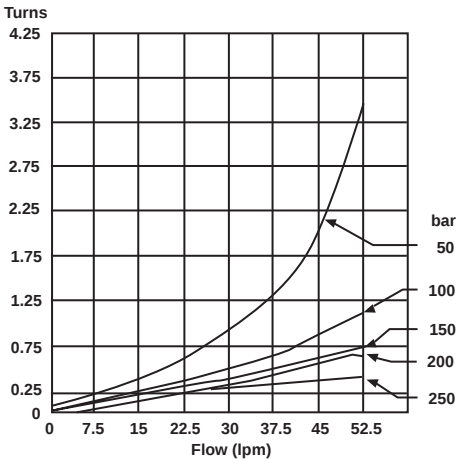
L1	L2	L3	L4	L5	L6	L7	L8	L9	H1	H2	H3	H4	H5	H6	H7	H8
63.5	61	47.5	31.8	25	130	114	8	16	63.5	81.55 max.	47.5	16	51	6	87.1 min. 90.9 max.	16


Allison Hydraulics

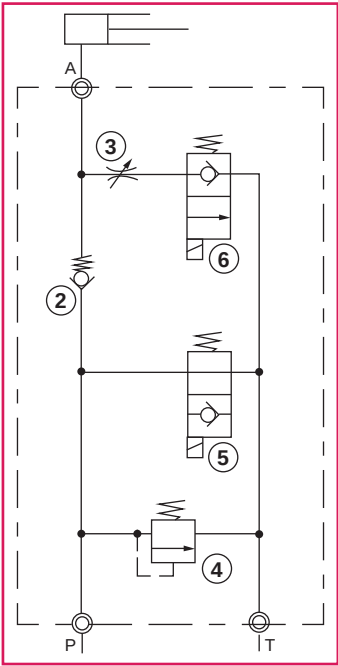
Valves 5-6 - Pressure drop curve
32 cSc / 38°C.



Valve 3 - Performance curve
Flow vs number of turns at various pressures
32 cSc / 38°C



Schematic



	FUNCTION		
	Raise	Hold	Lower
Pump	ON	-	-
Valve ⑤	ON	OFF	OFF
Valve ⑥	OFF	OFF	ON

Model code

RF04	1	00	HC	06
Valve type: Solenoid operated flow control Relief valve pressure range: 1 - 3.5-14 bar 2 - 14-105 bar 3 - 105-210 bar 4 - 170-275 bar Options: 00 - Nitrile, standard V0 - Viton, standard 0M - Nitrile, man. override VM - Viton, man. override A0 - Nitrile, screen W0 - Viton, screen B4 - Nitrile screen, man. override V4 - Viton, screen, man. override (screen on valve ⑤)				Coil voltage: 06 - 6Vdc 12 - 12Vdc 18 - 18Vdc 24 - 24Vdc 36 - 36Vdc 48 - 48Vdc 20 - 24Vac 11 - 110Vac 23 - 220Vac 44 - 440Vac Coil termination: DL - Double lead HC - DIN43650 (std)



Allison Hydraulics

Features:

These valves provide the control functions of “raise”, “positive hold” and “lower” (at 2 or 3 controlled speeds) for lift applications using single acting cylinders such as “scissor lifts”, “access platforms”, etc.

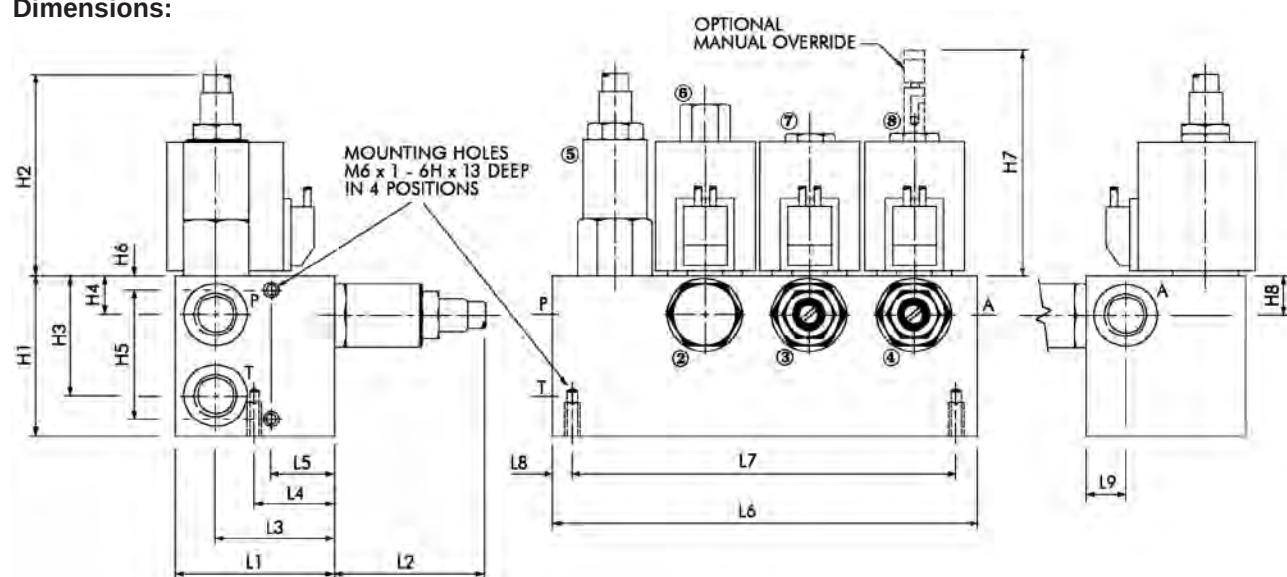
A pressure relief valve prevents peak circuit pressures.

A solenoid operated vent valve allows continuous running of the pump unit when lifting is not required.

Technical specifications:

Port size (BSP)	3/8"
Nom. flow (lpm)	48
Max. pressure (bar)	240
Cartridge material	steel
Body material	Alum/steel
Operating temp.	-20°C to +95°C

Hydraulic oil	Mineral oil
Viscosity range	3 to 640 cSc
Filtration	25 micron (nom.)
Seals	Nitrile/Viton
Response time	30-45 mil-sec
Voltage	DC and AC

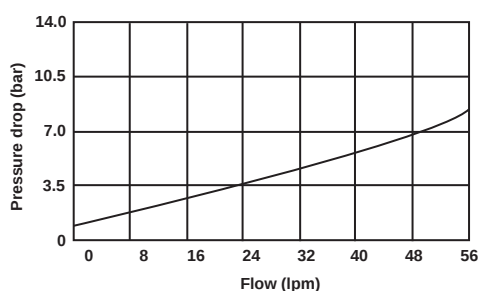
Dimensions:

L1	L2	L3	L4	L5	L6	L7	L8	L9	H1	H2	H3	H4	H5	H6	H7	H8
63.5	61	47.5	31.8	25	170	154	8	16	63.5	81.55 max.	47.5	16	51	6	87.1 min. 90.9 max.	16

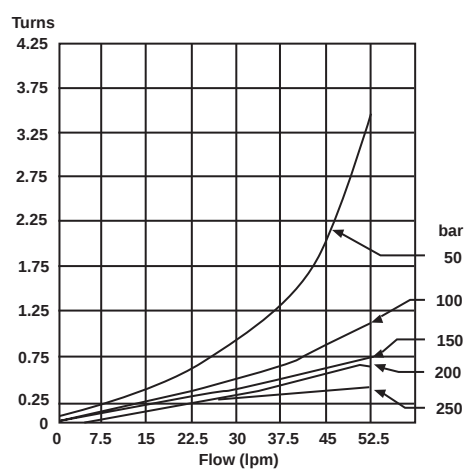


Allison Hydraulics

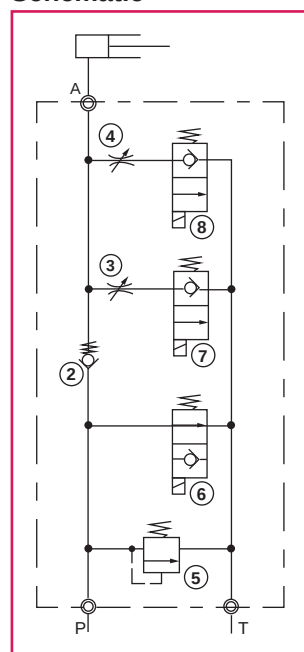
Valves 6-7-8 - Pressure drop curve 32 cSc / 38°C.



Valve 3-4 - Performance curve Flow vs number of turns at various pressures 32 cSc / 38°C



Schematic



	FUNCTION				
	Raise	Hold	Lower speed		
			1	2	3
Pump	ON	-	-	-	-
Valve ⑤	ON	OFF	OFF	OFF	OFF
Valve ⑥	OFF	OFF	OFF	ON	ON
Valve ⑧	OFF	OFF	ON	OFF	ON

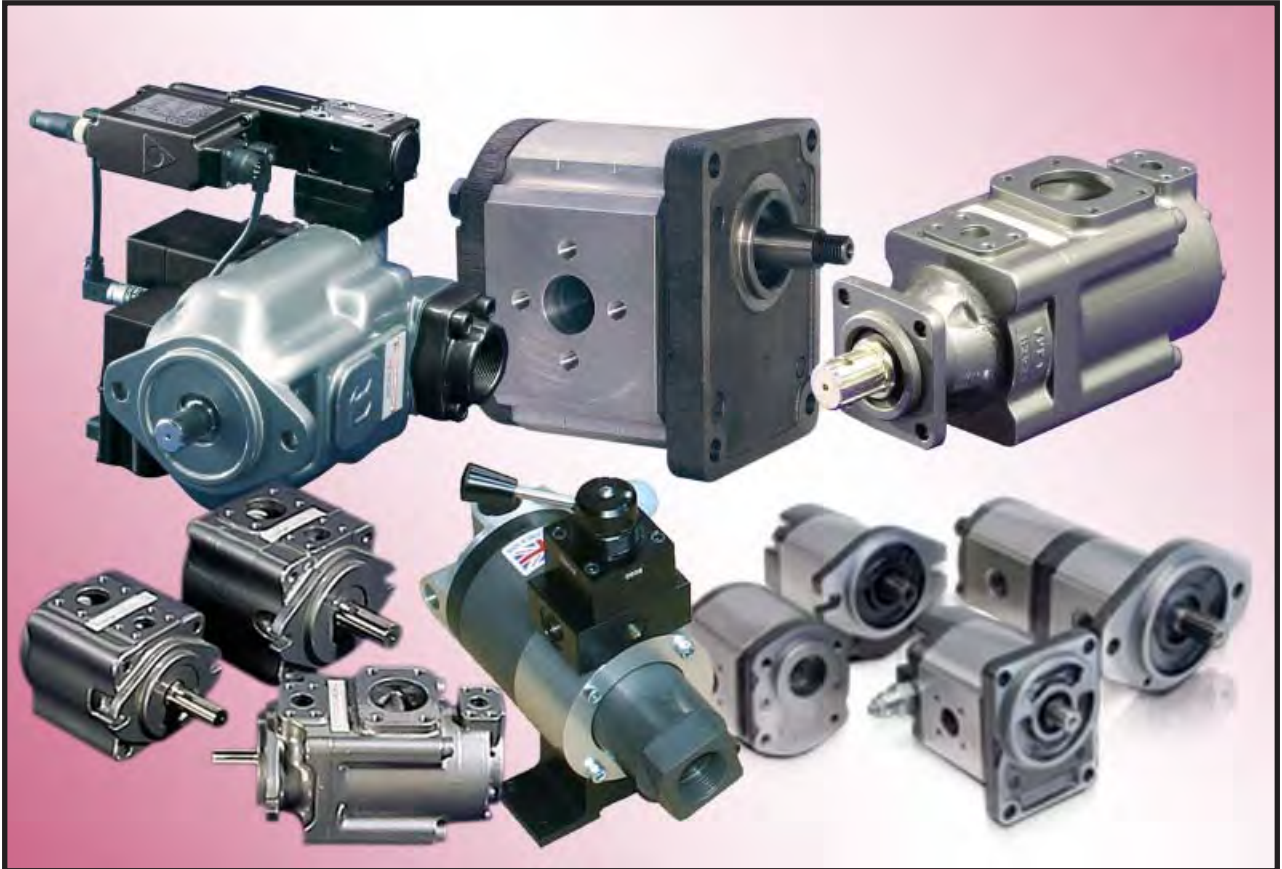
Model code

RF05	1	00	HC	06
Valve type: Solenoid operated flow control Relief valve pressure range: 1 - 3.5-14 bar 2 - 14-105 bar 3 - 105-210 bar 4 - 170-275 bar Options: 00 - Nitrile, standard V0 - Viton, standard 0M - Nitrile, man. override VM - Viton, man. override A0 - Nitrile, screen W0 - Viton, screen B4 - Nitrile screen, man. override V4 - Viton, screen, man. override (screen on valve ⑦ & ⑧)				Coil voltage: 06 - 6Vdc 12 - 12Vdc 18 - 18Vdc 24 - 24Vdc 36 - 36Vdc 48 - 48Vdc 20 - 24Vac 11 - 110Vac 23 - 220Vac 44 - 440Vac Coil termination: DL - Double lead HC - DIN43650 (std)



Allison Hydraulics

Pumps



 **ronzio**
OLEODINAMICA

 **atos** 

Allison Hydraulics



Index Pumps

Group 1 gear pumps & motors

Page 83



- Displacements up to 11 cc
- Max. speeds up to 6000 rpm (Continuous)
- Max. working pressure up to 240 bar

Group 2 gear pumps & motors

Page 85



- Displacements up to 31 cc
- Max. speeds up to 4500 rpm (Continuous)
- Max. working pressure up to 300 bar

Group 3 gear pumps & motors

Page 87



- Displacements up to 90 cc
- Max. speeds up to 3000 rpm (Continuous)
- Max. working pressure up to 310 bar

PFE vane pumps

Page 89



- Displacements up to 150 cc
- Max. speeds up to 2800 rpm (Continuous)
- Max. working pressure up to 210 bar

PVPC axial piston pumps

Page 101



- Displacements up to 88 cc
- Max. speeds up to 3000 rpm (Continuous)
- Max. working pressure up to 280 bar (Continuous) 350 bar (Peak)

Main Features:

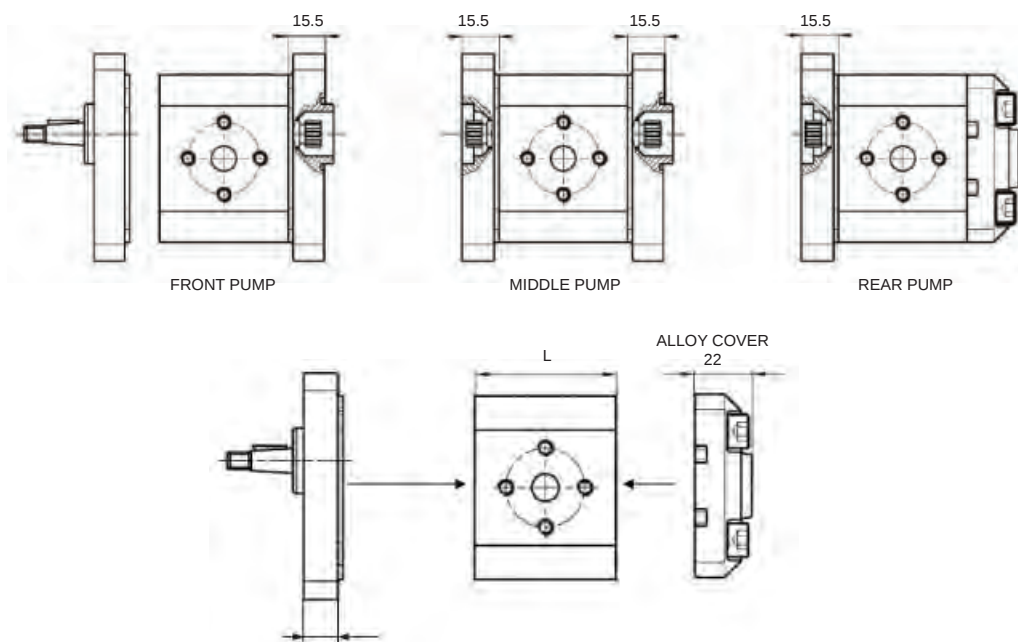
- Alloy covers and bodies
- High pressure option: up to 280 bar max. continuous pressure (4100 psi)
- Axial compensation achieved using pressure balanced bushing blocks.
- High volumetric efficiency: average 95%
- Wide range of capacities from 0.8 to 10.5 cm³/rev (see table below)
- Extruded aluminium body
- Gear tooth profile accurately projected providing low noise operation.
- A wide variety of shafts, flanges and ports are available to meet specific application requirements.
- High-temperature seals available.
- Single rotational pumps and motors.
- Bi-rotational pumps and motors.
- Multiple pumps availability: tandem pumps are possible both in aluminium series and with other cast iron series produced by Ronzio Oleodinamica.



ronzio
OLEODINAMICA

		Alloy cover and flange													
Type		08	11	16	21	26	32	37	42	48	55	62	78	88	105
Capacity	Cm ³ / rev	0.80	1.08	1.59	2.09	2.59	3.15	3.68	4.19	4.79	5.49	6.2	7.81	8.82	10.5
P1 Max working pressure	Bar	240	240	240	240	230	210	210	190	180	170	150	130	120	100
P2 Intermittent pressure	Bar	260	260	250	250	250	240	230	210	200	180	160	140	130	120
P3 Max peak pressure	Bar	280	280	280	280	280	270	260	240	230	210	190	170	160	130
Max speed for P1 pressure	Rpm	6000	6000	6000	6000	5500	4500	4000	3800	3500	3500	3000	3000	3000	3000
Max speed without load	Rpm	8000	8000	8000	8000	8000	7000	6000	5500	5000	4500	4500	4000	4000	4000
Min speed for P1 pressure	Rpm	1100	1100	950	800	700	600	500	450	400	400	400	400	400	400

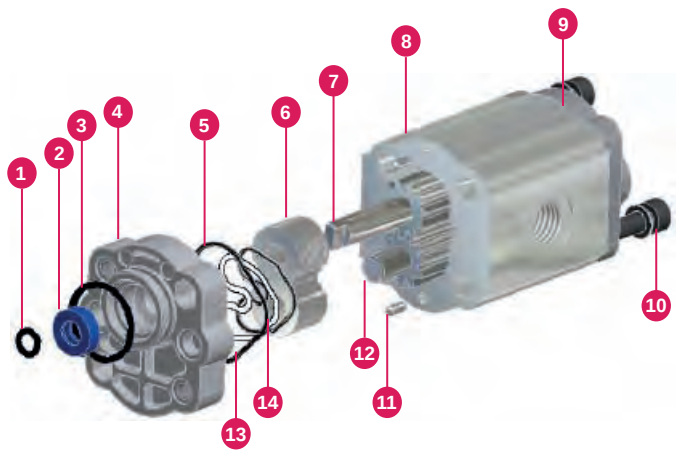
Dimensions:



Type	L
11	38.3
16	40.3
21	42.3
26	44.3
32	46.5
37	48.6
42	50.6
48	53
55	55.8
62	58.6
78	65
88	69



Allison Hydraulics



Components

- 1 Outlet seal
 - 2 Rotary shaft seal
 - 3 Flange seal
 - 4 Front flange
 - 5 Under cover seal
 - 6 Bushing block
 - 7 Drive gear
- 8 Housing
 - 9 Cover
 - 10 Bolt
 - 11 Pin
 - 12 Idle gear
 - 13 Compensation seal
 - 14 Seal against extruding

Model code

01	Z	A	G	21	C	4	01	D	N	VR	210
Z = pump ZM = motor										Valve setting values	
Flange A4 = 4 bolt European as standard (other options available)								Relief valve - = without VR = adjust calibration VF = Fixed calibration			
Capacity cm³ (see chart)								Shaft seal N = standard V = standard viton RB = 5 BAR NBR RV = 5 BAR VITON			
Shaft 1.8 tapered as standard (other options available)								Direction of rotation: D = clockwise S = counter clockwise R = bi-directional Y = bi-directional with internal drain			
Ports BSP ports as standard (other options available on request)											

Mineral oil (DIN 51524)
For use with fire resistant fluids like water glycol, water-oil emulsion and phosphate-esters, contact our technical or commercial office.



Allison Hydraulics

Main Features:

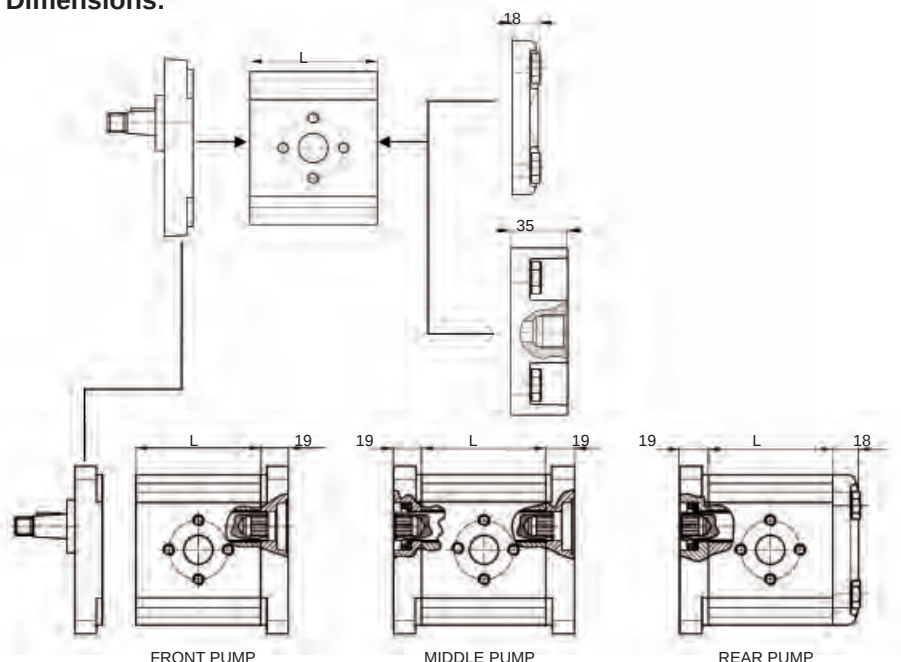
- Cast iron covers for high performances.
- High pressure option: up to 300 bar max. continuous pressure (4350 psi).
- Axial compensation achieved using pressure balanced bushing blocks.
- High volumetric efficiency: average 95-97%.
- Wide range of capacities from 4 - 31cm³/rev. (see table below)
- Extruded aluminium body.
- Gear tooth profile accurately projected providing low noise operation.
- A wide variety of shafts, flanges and ports are available to meet specific application requirements.
- High-temperature seals available.
- Single rotational pumps and motors.
- Bi-rotational pumps and motors.
- Multiple pumps availability: tandem pumps are possible both in aluminium series and with other cast iron series produced by Ronzio Oleodinamica.
- Easy-to-make tandem pumps and easy change of rotation.



Main Characteristics:

Type		04	06	08	11	14	17	20	25	31
Capacity	Cm ³ / rev	4.4	6.28	8.16	11.3	14.45	16.95	20.1	25.75	31.4
P1 Max working pressure	Bar	300	300	300	300	300	270	230	180	160
P2 Intermittent pressure	Bar	340	310	310	310	300	270	240	200	170
P3 Max peak pressure	Bar	360	360	360	360	360	330	290	230	200
Max speed for P1 pressure	Rpm	4500	4500	3700	3300	2700	2500	2500	2500	2200
Max speed without load	Rpm	5500	5500	4700	4000	3300	3000	3000	3000	2700
Min speed for P1 pressure	Rpm	1000	700	550	450	400	350	300	250	200

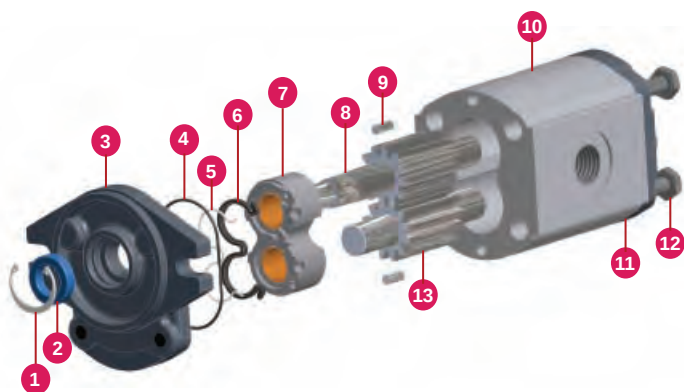
Dimensions:



Type	L
04	51
06	54
08	57
11	70
14	75
17	79
20	84
25	93
31	102

Allison Hydraulics





Components

- | | |
|--------------------------|---------------|
| 1 Snap ring | 8 Drive gear |
| 2 Rotary shaft seal | 9 Pin |
| 3 Front flange | 10 Housing |
| 4 Under cover seal | 11 Rear cover |
| 5 Seal against extruding | 12 Bolt |
| 6 Compensation seal | 13 Idle gear |
| 7 Bushing block | |

Model code

02	Z	A	G	06	C	0	34	D	N	VR	210
Z = pump ZM = motor										Valve setting values	
Flange 4 bolt European as standard (other options available on request)										Relief valve - = without VR = adjust calibration VF = Fixed calibration	
Capacity cm³ (see chart)										Shaft seal N = standard R = 5 BAR NBR RV = 5 BAR VITON	
Shaft C = 1.8 tapered as standard A = German 1:5 tapered E = 15mm parallel keyed S = 16/32 - 9 tooth both splined (other options available)										Direction of rotation: D = clockwise S = counter clockwise R = bi-directional Y = bi-directional with internal drain	
										Ports BSP ports as standard -34-35-43 European port adapts: -32-33 Bosch type port adapts: -36 (other options available on request)	

Mineral oil (DIN 51524)

For use with fire resistant fluids like water glycol, water-oil emulsion and phosphate-esters, contact our technical or commercial office.



Allison Hydraulics

Main Features:

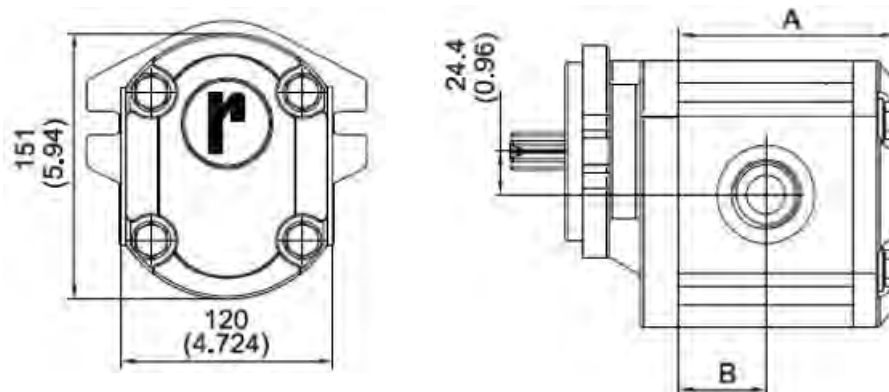
- Cast iron covers for high performances
- High pressure option: up to 280 bar max. continuous pressure
- Axial compensation achieved using pressure balanced bushing blocks.
- High volumetric efficiency: average 95-97%
- Wide range of capacities from 20 - 90 cm³/rev. (see table below)
- Extruded aluminium body
- Gear tooth profile accurately projected providing low noise operation.
- A wide variety of shafts, flanges and ports are available to meet specific application requirements.
- High-temperature seals available.
- Single rotational pumps and motors.
- Bi-rotational pumps and motors.
- Multiple pumps availability: tandem pumps are possible both in aluminium series and with other cast iron series produced by Ronzio Oleodinamica
- Easy-to-make tandem pumps and easy change of rotation.



Main Characteristics:

Type	20	25	30	35	40	45	50	55	60	64	70	80	90
Capacity cm ³ /rev	19.9	24.9	29.9	34.3	40.5	45.2	49.9	54.5	60	63.9	70	78.7	89.6
Delivery lt/min at 1500/min	29.9	37.4	44.9	51.5	60.8	67.8	74.9	81.8	90	95.9	105	118	134.4
P1 Max working pressure (bar) pressure	280	280	280	280	250	250	230	230	200	200	170	170	160
P2 Max peak pressure (bar)	310	310	310	310	280	280	250	250	220	220	190	190	180
Max speed for P1 pressure (Rpm)	450	450	350	350	350	350	350	350	350	350	350	350	350
Max speed without load (Rpm)	3000	3000	3000	3000	2700	2700	2200	2200	2000	2000	1800	1800	1800
Motor torque (Nm)	26.9	33.7	40.4	46.4	54.8	61.1	67.5	73.7	81.2	86.4	94.7	106.5	121.2
Mass (Kg)	10.6	10.8	11	11.2	11.4	11.5	11.7	11.9	12	12.2	12.4	12.7	13.1

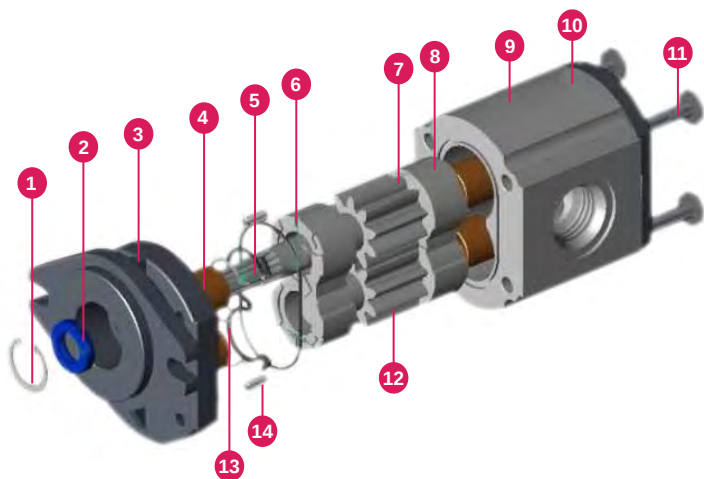
Dimensions:



Type	A (mm)	B (mm)
20	100.8	38.5
25	104	40
30	107.2	41.6
35	110	43
40	114	45
45	117	46.5
50	120	48
55	123	49.5
60	126.5	51
64	129	52.5
70	132.9	54.5
80	138.6	57.3
90	145.6	60.8



Allison Hydraulics



Components

- 1 Snap ring
 - 2 Rotary shaft seal
 - 3 Front flange
 - 4 Bushings
 - 5 Seal against extruding
 - 6 Under cover seal
 - 7 Drive gear
- 8 Bushing block
 - 9 Body
 - 10 Rear cover
 - 11 Bolt
 - 12 Idle gear
 - 13 Compensation seal
 - 14 Pins

Model code

03	Z	A	G	35	C	0	64	D	T	N
Z = pump ZM = motor		Flange A-0 = 4 bolt European as standard B-3 = SAE 'B' (2 bolt) (other options available)		Capacity cm³ (see chart)		Shaft C = 1.8 tapered as standard B = 13 tooth splined, 16/32 DP (other options available)		Direction of rotation: D = clockwise S = counter clockwise R = bi-directional Y = bi-directional with internal drain		Shaft seal N = standard V = standard viton R = 5 BAR NBR RV = 5 BAR VITON Unit type T = For tandem - = Normal Ports BSP ports as standard: 64-65 Port adaptors: 46-47-48 (other options available on request)

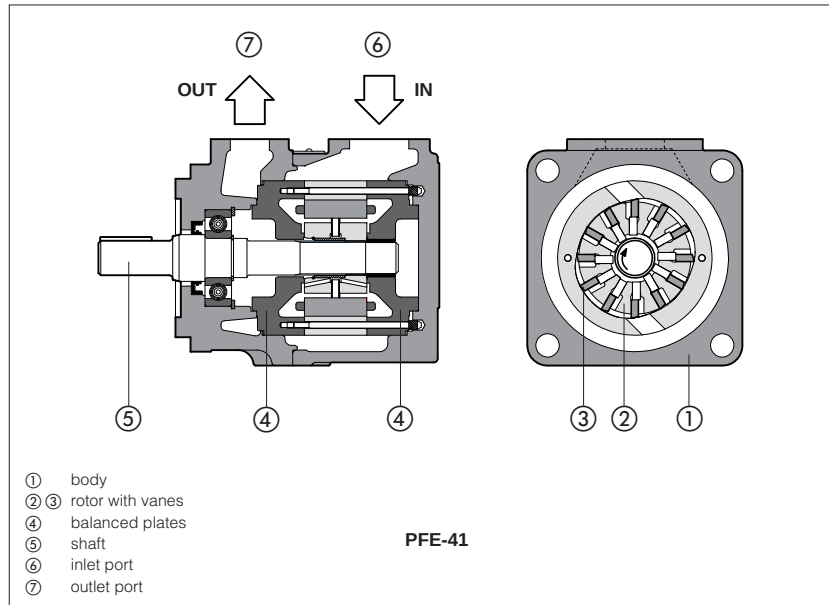
Mineral oil (DIN 51524)
For use with fire resistant fluids like water glycol, water-oil emulsion and phosphate-esters, contact our technical or commercial office.



Allison Hydraulics

Vane pumps type PFE-31, PFE-41, PFE-51

fixed displacement - cartridge design



PFE are fixed displacement-twelve-vane pumps, ② ③ cartridge design with integral hydraulic balancing ④ for high pressure operation and long service life with low noise level.

Suitable for hydraulic oils according to DIN 51524... 535 or synthetic fluids having similar lubricating characteristics.

These pumps are available as single, multiple or with through-shaft configuration. Mounting according to SAE J744 standard.

Easy installation as inlet and outlet ports can be assembled in any of four relative positions.

Easy maintenance as the pumping cartridge can be replaced in a few minutes.

Wide variety of displacements up to 150 cm³/rev.

Max pressure 210 bar.

1 MODEL CODE

PFE	X2	- 31	036	/31028	/	1	D	T	**	/*
Fixed displacement vane pump										
Additional suffix for multiple pumps: X2 = double pump composed of single vane pumps X3 = triple pump composed of single vane pumps Eventual suffix for pumps with through shaft: XA = for coupling one PFE-31 XB = for coupling one PFE-41 (only for PFE-41 and PFE-51) XC = for coupling one PFE-51 (only for PFE-51) XO = with through shaft, without rear flange Note: multiple pumps are assembled in decreasing order of size. See also tab. A190.										
Size, see section ②: 31, 41, 51										
Displacement [cm³/rev], see section ② for PFE 31: 016, 022, 028, 036, 044 for PFE 41: 029, 037, 045, 056, 070, 085 for PFE 51: 090, 110, 129, 150										
Only for multiple pumps PFE*: type of second (and third) pump										
Direction of rotation (viewed from the shaft end): D = clockwise (supplied standard if not otherwise specified) S = counterclockwise Note: PFE are not reversible										
Drive shaft, see section ⑥ and ⑦: cylindrical, keyed for single and multiple pump (only first position) 1 = standard 2 = long version (only for PFE-41 and PFE-51) 3 = for high torque applications splined 5 = for single and multiple pumps (any position) 6 = for single and multiple pumps (only first position) 7 = for second and third position in multiple pumps } only for PFE-31 and PFE-41										
Port orientation, see section ⑤: T = standard U, V, W = on request										
Synthetic fluids: WG = water-glycol PE = phospsphate ester										
Series number										

2 OPERATING CHARACTERISTICS at 1450 rpm (based on mineral oil ISO VG 46 at 50°C)

Model	Displacement cm³/rev	Max pressure	Speed range rpm (2)	7 bar (3)		70 bar (3)		140 bar (3)		210 bar (3)	
				l/min	kW	l/min	kW	l/min	kW	l/min	kW
PFE-31016	16,5	210 bar (1)	800-2800	23	0,5	21	3	19	5	16	8,3
PFE-31022	21,6			30	0,6	28	4	26	7	23	10,8
PFE-31028	28,1			40	0,8	38	5,5	36	10	33	14
PFE-31036	35,6			51	1	49	7	46	12,5	43	17,8
PFE-31044	43,7		800-2500	63	1,3	61	8	58	15,5	55	22
PFE-41029	29,3			41	0,8	39	5,5	37	10	34	14,7
PFE-41037	36,6			52	1	50	7	48	12,5	45	18,3
PFE-41045	45,0			64	1,3	62	8,5	60	16	57	22,6
PFE-41056	55,8			80	1,6	78	11	75	21	72	28
PFE-41070	69,9		800-2000	101	2	98	13,5	95	26	91	35
PFE-41085	85,3			124	2,4	121	16	118	32	114	43
PFE-51090	90,0		800-2200	128	2,7	124	17	119	33	114	45
PFE-51110	109,6			157	3,2	152	21	147	40	141	55
PFE-51129	129,2			186	3,7	180	25	174	47	168	65
PFE-51150	150,2			215	4,2	211	29	204	55	197	75

(1) Max pressure is 160 bar for /PE and /WG versions
 (2) Max speed is 1800 rpm for /PE versions; 1500 rpm for /WG versions
 (3) Flow rate and power consumption are proportional to the rotation speed

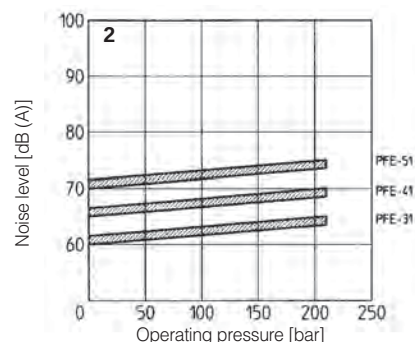
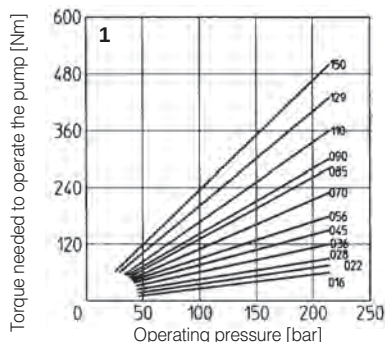
3 MAIN CHARACTERISTICS OF VANE PUMPS TYPE PFE-#1

Installation position	Any position.
Loads on the shaft	Axial and radial loads are not allowed on the shaft. The coupling should be sized to absorb the power peak.
Ambient temperature	from -20°C to +70°C
Fluid	Hydraulic oil as per DIN 51524...535; for other fluids see section 1
Recommended viscosity	max at cold start max at full power during operation min at full power 800 mm²/s 100 mm²/s 24 mm²/s 10 mm²/s
Fluid contamination class	ISO 19/16 (filters at 25 µm value with β ₂₅ ≥ 75 recommended)
Fluid temperature	-20°C +60°C -20°C +50°C (/WG seals) -20°C +80°C (/PE seals)
Recommended pressure on inlet port	from -0,15 to 1,5 bar for speed up to 1800 rpm; from 0 to +1,5 bar for speed over 1800 rpm

4 DIAGRAMS (based on mineral oil ISO VG 46 at 50°C)

1 = Torque versus pressure diagram

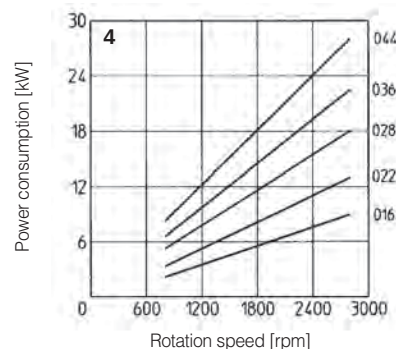
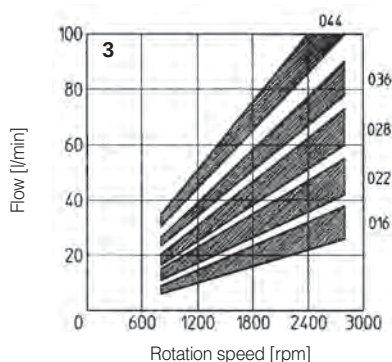
2 = Ambient noise levels measured in compliance with ISO 4412-1 oleohydraulics -Test procedure to define the ambient noise level - Pumps
Shaft speed: 1450 rpm.



PFE-31:

3 = Flow versus speed diagram with pressure variation from 7 bar to 210 bar.

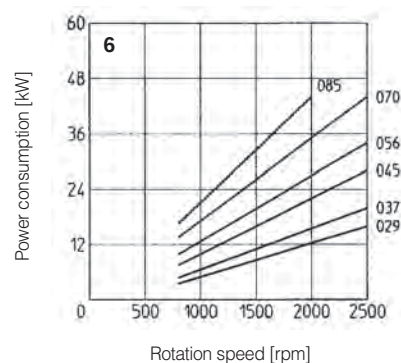
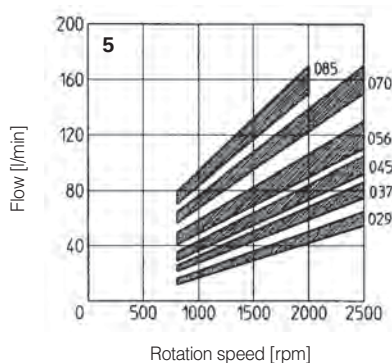
4 = Power consumption versus speed diagram at 140 bar. Power consumption is proportional to operating pressure.



PFE-41:

5 = Flow versus speed diagram with pressure variation from 7 bar to 210 bar.

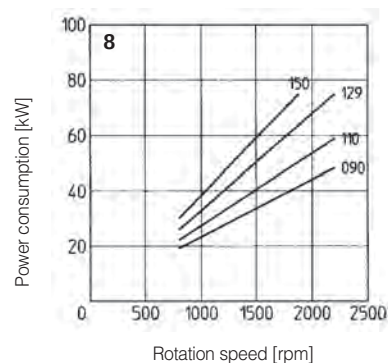
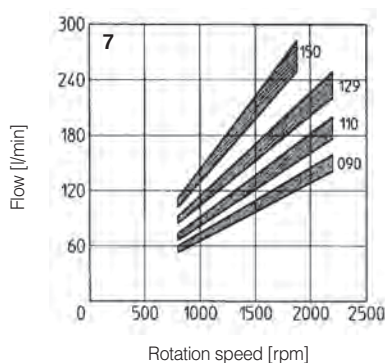
6 = Power consumption versus speed diagram at 140 bar. Power consumption is proportional to operating pressure.



PFE-51:

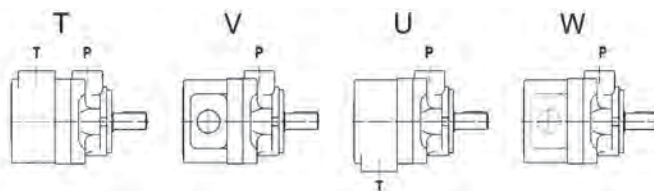
7 = Flow versus speed diagram with pressure variation from 7 bar to 210 bar.

8 = Power consumption versus speed diagram at 140 bar. Power consumption is proportional to operating pressure.



5 PORT ORIENTATION

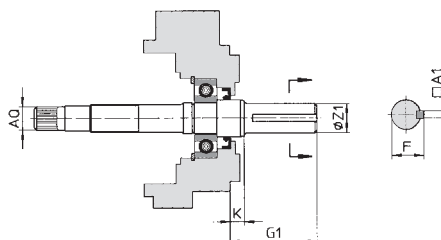
Single pumps can be supplied with oil ports oriented in different configuration in relation to the drive shaft, as follows (viewed from the shaft end);
T = inlet and outlet ports on the same axis (standard)
U = outlet orientated 180° with respect to the inlet
V = outlet oriented 90° with respect to the inlet
W = outlet oriented 270° with respect to the inlet
 In multiple pumps inlet ports and outlet ports are in line.
 Ports orientation can be easily changed by rotating the pump body that carries inlet port.



6 DRIVE SHAFT

CYLINDRICAL SHAFT KEYED

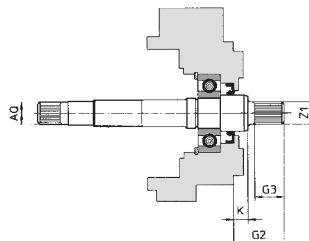
- 1** = for single and multiple pumps (only first position)
supplied as standard if not specified in the model code
- 2** = for single and multiple pumps (only first position)
long version (only for PFE-41 and PFE-51)
- 3** = for single and multiple pumps (only first position)
for high torque applications



Model	Keyed shaft type 1 (standard)						Keyed shaft type 2						Keyed shaft type 3					
	A1	F	G1	K	ØZ1	Only for through shaft execution Ø AQ	A1	F	G1	K	ØZ1	Only for through shaft execution Ø AQ	A1	F	G1	K	ØZ1	Only for through shaft execution Ø AQ
PFE-31	4,78	21,11	56,00	8,00	19,05	SAE 16/32-9T	—	—	—	—	—	—	4,78	24,54	56,00	8,00	22,22	SAE 16/32-9T
	4,75	20,94			19,00								4,75	24,41			22,20	
PFE-41	4,78	24,54	59,00	11,40	22,22	SAE 32/64-24T	6,36	25,03	71,00	8,00	22,22	SAE 32/64-24T	6,38	28,30	78,00	11,40	25,38	SAE 32/64-24T
	4,75	24,41			22,20		6,35	24,77			22,20		6,35	28,10			25,36	
PFE-51	7,97	35,33	73,00	14	31,75	SAE 16/32-13T	7,95	35,33	84,00	8,10	31,75	SAE 16/32-13T	7,97	38,58	84,00	14	34,90	SAE 16/32-13T
	7,94	35,07			31,70		7,94	35,07			31,70		7,94	38,46			34,88	

SPLINED SHAFT

- 5** = for single and multiple pumps (any position)
for PFE-31 according to SAE A 16/32 DP, 9 teeth;
for PFE-41 according to SAE B 16/32 DP, 13 teeth;
for PFE-51 according to SAE C 12/24 DP, 14 teeth;
- 6** = for single and multiple pumps (only first position)
for PFE-31 and PFEX*-31 according to SAE B 16/32 DP, 13 teeth;
for PFE-41 and PFEX*-41 according to SAE C 12/24 DP, 14 teeth;
- 7** = for second and third position pump in multiple configuration:
for PFEX*-31 according to SAE B 16/32 DP, 13 teeth;
for PFEX*-41 according to SAE C 12/24 DP, 14 teeth;



Model	Splined shaft type 5					Splined shaft type 6					Splined shaft type 7				
	G2	G3	K	Z1	Only for through shaft execution Ø AQ	G2	G3	K	Z1	Only for through shaft execution Ø AQ	G2	G3	K	Z1	Only for through shaft execution Ø AQ
PFE-31	32,00	19,50	6,50	SAE 16/32-9T	SAE 16/32-9T	41,00	28	8,00	SAE 16/32-13T	SAE 16/32-9T	32,00	19	8,00	SAE 16/32-13T	SAE 16/32-9T
PFE-41	41,25	28	8,00	SAE 16/32-13T	SAE 32/64-24T	55,60	42	8,00	SAE 12/24-14T	SAE 32/64-24T	41,60	28	8,00	SAE 12/24-14T	SAE 32/64-24T
PFE-51	56,00	42	8,10	SAE 12/24-14T	SAE 16/32-13T	—	—	—	—	—	—	—	—	—	—

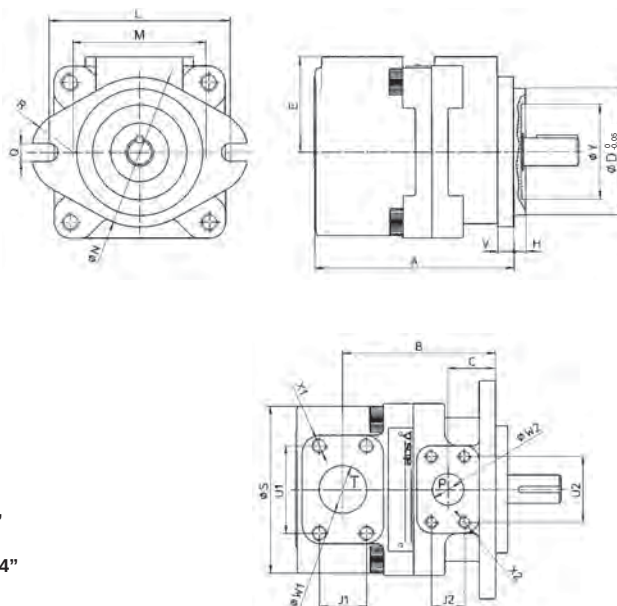
7 LIMITS OF SHAFT TORQUE

Pump model	Maximum driving torque [Nm]						Maximum torque available at the end of the through shaft [Nm]
	Shaft type 1	Shaft type 2	Shaft type 3	Shaft type 5	Shaft type 6	Shaft type 7	Any type of shaft
PFE-31	160	—	240	110	240	240	130
PFE-41	250	250	400	200	400	400	250
PFE-51	500	500	850	450	—	—	400

The values of torque required to operate the pumps are shown for each type on the "torque versus pressure" diagram at section 4.
 In multiple pumps the total torque applied to the shaft of the first element (drive shaft) is the sum of the single torque needed for operating each single pump and it is necessary to verify that this total torque applied to the drive shaft is not higher than the values indicated in the table.

8 DIMENSIONS OF SINGLE PUMPS [mm]

T = inlet port
P = outlet port



SAE FLANGES

PFE-31: port T = 1 1/4"; port P = 3/4"

PFE-41: port T = 1 1/2"; port P = 1"

PFE-51: port T = 2; port P = 1 1/4"

Mass:

PFE-31 = 9 kg

PFE-41 = 14 kg

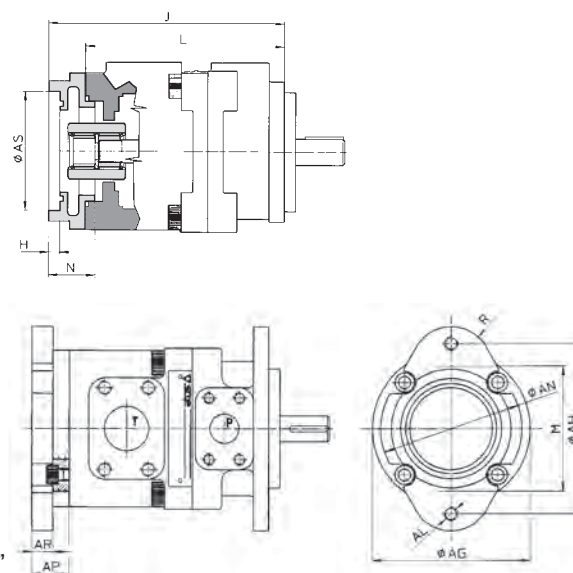
PFE-51 = 25,5 kg

SAE flanges can be supplied with the pump, see www.scoda.it, tab. SK155

Model	A	B	C	ØD	E	H	L	M	ØN	Q	R
PFE-31	136	100	28	82,5	70	6,4	106	73	95	11,1	28,5
PFE-41	160	120	38	101,6	76,2	9,7	146	107	120	14,3	34
PFE-51	186,5	125	38	127	82,6	12,7	181	143,5	148	17,5	35
Model	ØS	U1	U2	V	ØW1	ØW2	J1	J2	X1	X2	ØY
PFE-31	114	58,7	47,6	10	32	19	30,2	22,2	M10X20	M10X17	47
PFE-41	134	70	52,4	13	38	25	35,7	26,2	M12X20	M10X17	76
PFE-51	160	77,8	58	15	51	32	42,9	30,2	M12X20	M10X20	76

9 DIMENSIONS OF PUMPS WITH THROUGH-SHAFT (FOR MULTIPLE PUMPS) [mm]

T = inlet port
P = outlet port



SAE FLANGES

PFEX-31: port T = 1 1/4"; port P = 3/4"

PFEX-41: port T = 1 1/2"; port P = 1"

PFEX-51: port T = 2; port P = 1 1/4"

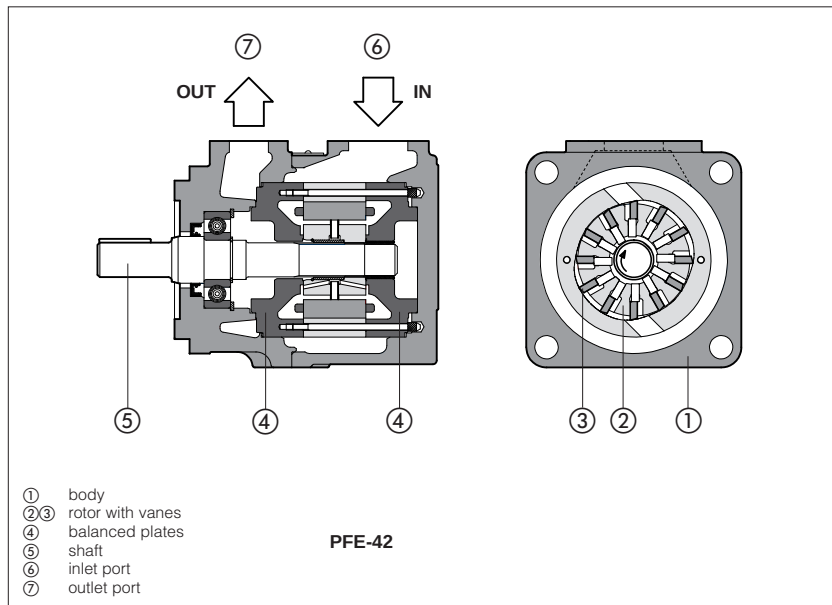
For other dimensions, see section 8

Model	Ø AG	Ø AH	AL	Tightening torque (Nm) ⁽¹⁾	Ø AN	AP	AR	Ø AS	H	J	L	M	N	R
PFEXA-31	114	106	M10X17	70	95	33	25	82,57 82,63	6,42 6,47	165,5	132,5	79	32	28,5
PFEXA-41	134	106	M10X17	70	95	23	11	82,57 82,63	6,42 6,47	194	171	73	32	28,5
PFEXB-41	134	146	M12	125	120	32	18	101,62 101,68	9,73 9,78	203	171	107	41	34
PFEXA-51	134	106	M10X17	70	95	22,7	11	82,57 82,63	6,42 6,47	206,2	183,5	73	32	28,5
PFEXB-51	134	146	M12	125	120	32	18	101,62 101,68	9,73 9,78	215,5	183,5	107	41	34
PFEXC-51	134	181	M16	300	148	46,5	30,7	127,02 127,02	12,73 12,78	230	183,5	143,5	56	35

(1) Tightening torque for screw class 12.9

Vane pumps type PFE-32, PFE-42, PFE-52

fixed displacement - cartridge design - high pressure and low noise level execution



New PFE-*2 are fixed displacement twelve-vanes pumps ②③, cartridge design with integral hydraulic balancing ④ for high pressure operation and long service life with further reduction of noise level compared with PFE-*1.

Suitable for hydraulic oils according to DIN 51524... 535 or synthetic fluids having similar lubricating characteristics.

These pumps are available as single, multiple or with through-shaft configuration.

Mounting according to SAE J744 standard.

Easy installation as inlet and outlet ports can be assembled in any of four relative positions.

Easy maintenance as the pumping cartridge can be replaced in a few minutes.

Wide variety of displacements up to 150 cm³/rev.

Max pressures up to 300 bar.

1 MODEL CODE

PFE	X2	- 42	045	/31028	/	3	D	T	**	/*
Fixed displacement vane pump Additional suffix for multiple pumps: X2 = double pump composed of single vane pumps X3 = triple pump composed of single vane pumps Additional suffix for pumps with through shaft: XA = for coupling one PFE-31 XB = for coupling one PFE-41 (only for PFE-42 and PFE-52) XC = for coupling one PFE-51 (only for PFE-52) XO = with through shaft, without rear flange Note: multiple pumps are assembled in decreasing order of size. See also tab. A190. Size, see section ②: 32, 42, 52 Displacement [cm³/rev], see section ② for PFE 32: 022, 028, 036 for PFE 42: 045, 056, 070, 085 for PFE 52: 090, 110, 129, 150 Only for multiple pumps PFE-X*: type of second (and third) pump										
Synthetic fluids: WG = water-glycol PE = phosphate ester Series number Port orientation, see section ⑤: T = standard U, V, W = on request Direction of rotation (viewed from the shaft end): D = clockwise (supplied standard if not otherwise specified) S = counterclockwise Note: PFE are not reversible and it is therefore necessary to specify the desired direction of rotation Drive shaft, see section ⑥ and ⑦: cylindrical, keyed for single and multiple pump (only first position) 3 = for high torque applications splined 5 = for single and multiple pumps (any position) 6 = for single and multiple pumps (only first position) 7 = for second and third position in multiple pumps } only for PFE-32 and PFE-42										

2 OPERATING CHARACTERISTICS at 1450 rpm (based on mineral oil ISO VG 46 at 50°C)

Model	Displacement cm ³ /rev	Max pressure (1)	Speed range rpm (2)	7 bar (3)		140 bar (3)		at max. pressure (3)	
				l/min	kW	l/min	kW	l/min	kW
PFE-32022	21,6	300 bar	1200-2500	30	0,6	26	7	20	16
PFE-32028	28,1			40	0,8	36	10	30	20
PFE-32036	35,6			51	1	46	12,5	40	26
PFE-42045	45	280 bar	1000-2200	64	1,3	60	16	56	31
PFE-42056	55,8			80	1,6	75	21	70	40
PFE-42070	69,9			101	2	95	26	90	42
PFE-42085	85,3	210 bar	800-2000	124	2,4	118	32	114	43
PFE-52090	90	250 bar	1000-2000	128	2,7	119	33	111	54
PFE-52110	109,6			157	3,2	147	40	138	66
PFE-52129	129,2			186	3,7	174	47	163	78
PFE-52150	150,2	210 bar	800-1800	215	4,2	204	55	197	80

(1) Max pressure is 160 bar for /PE and /WG versions

(2) Max speed is 1800 rpm for /PE versions; 1500 rpm for /WG versions

(3) Flow rate and power consumption are proportional to the rotation speed

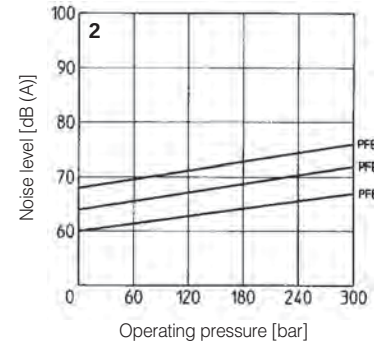
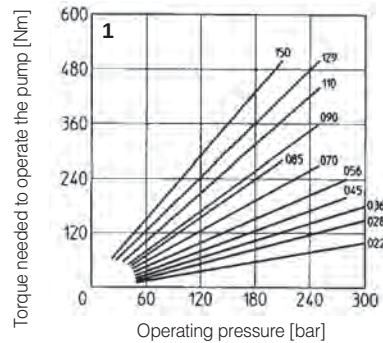
3 MAIN CHARACTERISTICS OF VANE PUMPS TYPE PFE-2

Installation position	Any position.
Loads on the shaft	Axial and radial loads are not allowed on the shaft. The coupling should be sized to absorb the power peaks.
Ambient temperature	from -20°C to +70°C
Fluid	Hydraulic oil as per DIN 51524...535; for other fluids see section 11
Recommended viscosity	max at cold start max at full power during operation min at full power 800 mm²/s 100 mm²/s 24 mm²/s 10 mm²/s
Fluid contamination class	ISO 19/16 (filters at 25 µm value with β ₂₅ ≥ 75 recommended)
Fluid temperature	-20°C +60°C -20°C +50°C (WG seals) -20°C +80°C (/PE seals)
Recommended pressure on inlet port	from 0 to 1,5 bar

4 DIAGRAMS (based on mineral oil ISO VG 46 at 50°C)

1 = Torque versus pressure diagram

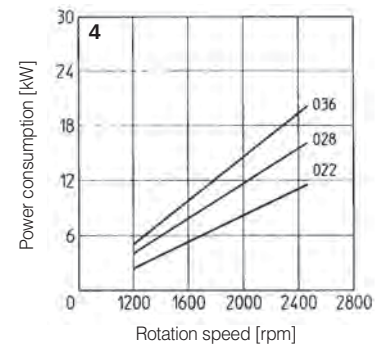
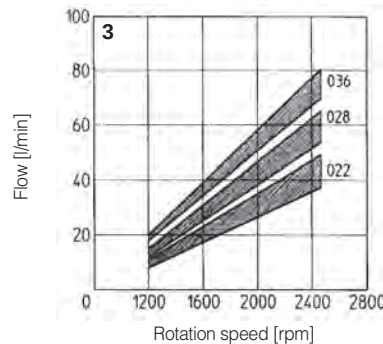
2 = Ambient noise levels measured in compliance with ISO 4412-1 oleohydraulics -Test procedure to define the ambient noise level - Pumps
Shaft speed: 1450 rpm.



PFE-32:

3 = Flow versus speed diagram with pressure variation from 7 bar to 210 bar.

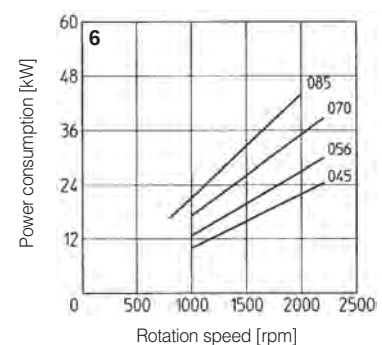
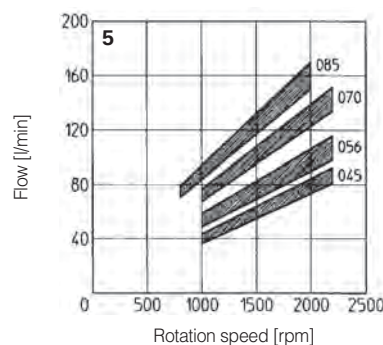
4 = Power consumption versus speed diagram at 140 bar. Power consumption is proportional to operating pressure.



PFE-42:

5 = Flow versus speed diagram with pressure variation from 7 bar to 210 bar.

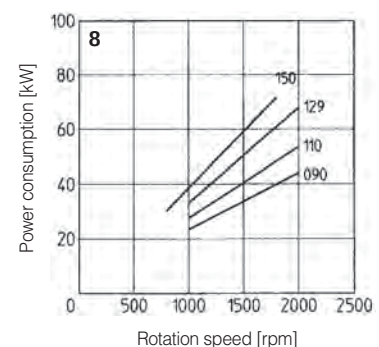
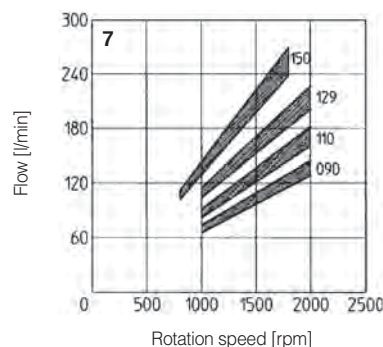
6 = Power consumption versus speed diagram at 140 bar. Power consumption is proportional to operating pressure.



PFE-52:

7 = Flow versus speed diagram with pressure variation from 7 bar to 210 bar.

8 = Power consumption versus speed diagram at 140 bar. Power consumption is proportional to operating pressure.



5 PORT ORIENTATION

Single pumps can be supplied with oil ports oriented in different configuration in relation to the drive shaft, as follows (viewed from the shaft end);

T = inlet and outlet ports on the same axis (standard)

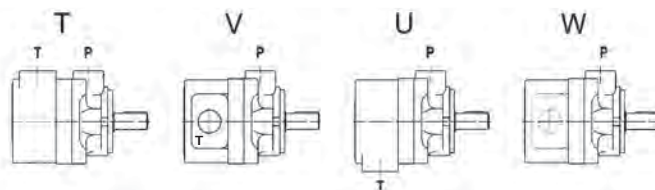
U = outlet orientated 180° with respect to the inlet

V = outlet oriented 90° with respect to the inlet

W = outlet oriented 270° with respect to the inlet

In multiple pumps inlet ports and outlet ports are in line.

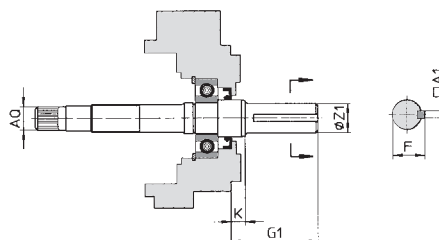
Ports orientation can be easily changed by rotating the pump body that carries inlet port.



6 DRIVE SHAFT

CYLINDRICAL KEYED SHAFT

3 = for single and multiple pumps (only first position)
for high torque applications



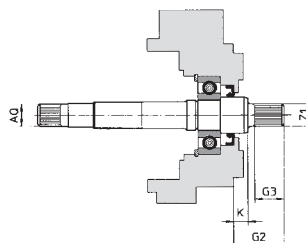
Model	Keyed shaft type 3					Only for through shaft execution Ø AQ
	A1	F	G1	K	ØZ1	
PFE-32	4,78	24,54	56,00	8,00	22,22	SAE 16/32-9T
	4,75	24,41			22,20	
PFE-42	6,38	28,30	78,00	11,40	25,38	SAE 32/64-24T
	6,35	28,10			25,36	
PFE-52	7,97	38,58	84,00	14	34,90	SAE 16/32-13T
	7,94	38,46			34,88	

SPLINED SHAFT

5 = for single and multiple pumps (any position)
for PFE-32 according to SAE A 16/32 DP, 9 teeth;
for PFE-42 according to SAE B 16/32 DP, 13 teeth;
for PFE-52 according to SAE C 12/24 DP, 14 teeth;

6 = for single and multiple pumps (only first position)
for PFE-32 and PFEX*-32 according to SAE B 16/32 DP, 13 teeth;
for PFE-42 and PFEX*-42 according to SAE C 12/24 DP, 14 teeth;

7 = for second and third position pump in multiple configuration:
for PFEX*-32 according to SAE B 16/32 DP, 13 teeth;
for PFEX*-42 according to SAE C 12/24 DP, 14 teeth;



Model	Splined shaft type 5					Splined shaft type 6					Splined shaft type 7				
	G2	G3	K	Z1	Only for through shaft execution Ø AQ	G2	G3	K	Z1	Only for through shaft execution Ø AQ	G2	G3	K	Z1	Only for through shaft execution Ø AQ
PFE-32	32,00	19,50	6,50	SAE 16/32-9T	SAE 16/32-9T	41,50	28	8,00	SAE 16/32-13T	SAE 16/32-9T	32,00	19	8,00	SAE 16/32-13T	SAE 16/32-9T
PFE-42	41,25	28	8,00	SAE 16/32-13T	SAE 32/64-24T	55,60	42	8,00	SAE 12/24-14T	SAE 32/64-24T	41,60	28	8,00	SAE 12/24-14T	SAE 32/64-24T
PFE-52	56,00	42	8,10	SAE 12/24-14T	SAE 16/32-13T	—	—	—	—	—	—	—	—	—	—

7 LIMITS OF SHAFT TORQUE

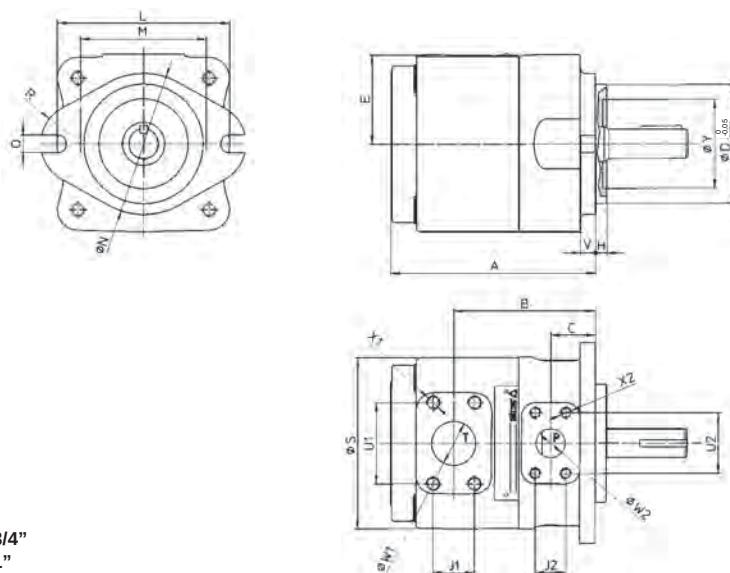
Pump model	Maximum driving torque [Nm]				Maximum torque available at the end of the through shaft [Nm]
	Shaft type 3	Shaft type 5	Shaft type 6	Shaft type 7	
PFE-32	240	110	240	240	130
PFE-42	400	200	400	400	250
PFE-52	850	450	—	—	400

The values of torque required to operate the pumps are shown for each type on the "torque versus pressure diagram" at section 4.

In multiple pumps the total torque applied to the shaft of the first element (drive shaft) is the sum of the single torque needed for operating each single pump and it is necessary to verify that this total torque applied to the drive shaft is not higher than the values indicated in the table.

8 DIMENSIONS OF SINGLE PUMPS [mm]

T = inlet port
P = outlet port



SAE FLANGES

PFE-32: port T = 1 1/4"; port P = 3/4"

PFE-42: port T = 1 1/2"; port P = 1"

PFE-52: port T = 2; port P = 1 1/4"

Mass:

PFE-32 = 9 kg

PFE-42 = 20,5 kg

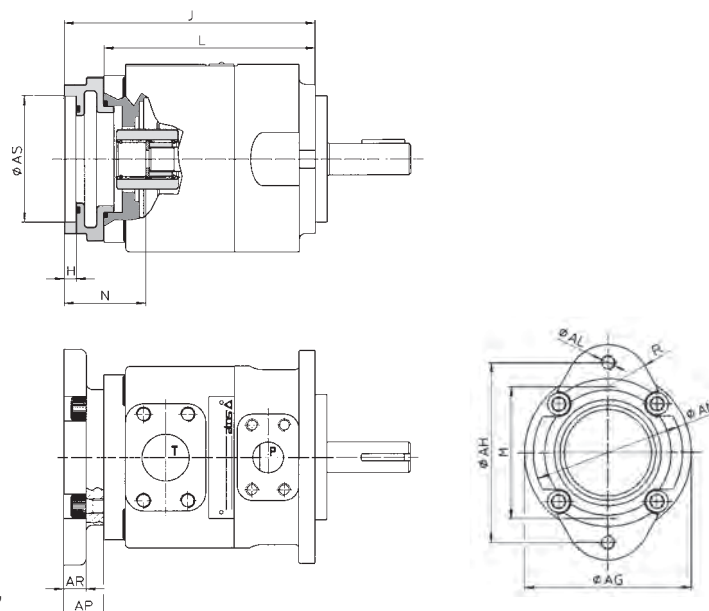
PFE-52 = 32,1 kg

SAE flanges can be supplied with the pump, see www.soda.it, tab. SK155

Model	A	B	C	ØD	E	H	L	M	ØN	Q	R
PFE-32	136	100	28	82,5	70	6,4	106	73	95	11,1	28,5
PFE-42	175,5	120	38	101,6	78	9,7	146	107	120	14,3	34
PFE-52	189	125	38	127	89	12,7	181	143,5	148	17,5	35
Model	ØS	U1	U2	V	ØW1	ØW2	J1	J2	X1	X2	ØY
PFE-32	114	58,7	47,6	10	32	19	30,2	22,2	M10X20	M10X17	47
PFE-42	134	70	52,4	13	38	25	35,7	26,2	M12X20	M10X17	76
PFE-52	158	77,8	58,7	15	51	32	42,9	30,2	M12X20	M10X20	76

9 DIMENSIONS OF PUMPS WITH THROUGH-SHAFT (FOR MULTIPLE PUMPS) [mm]

T = inlet port
P = outlet port



SAE FLANGES

PFEX-32: port T = 1 1/4"; port P = 3/4"

PFEX-42: port T = 1 1/2"; port P = 1"

PFEX-52: port T = 2; port P = 1 1/4"

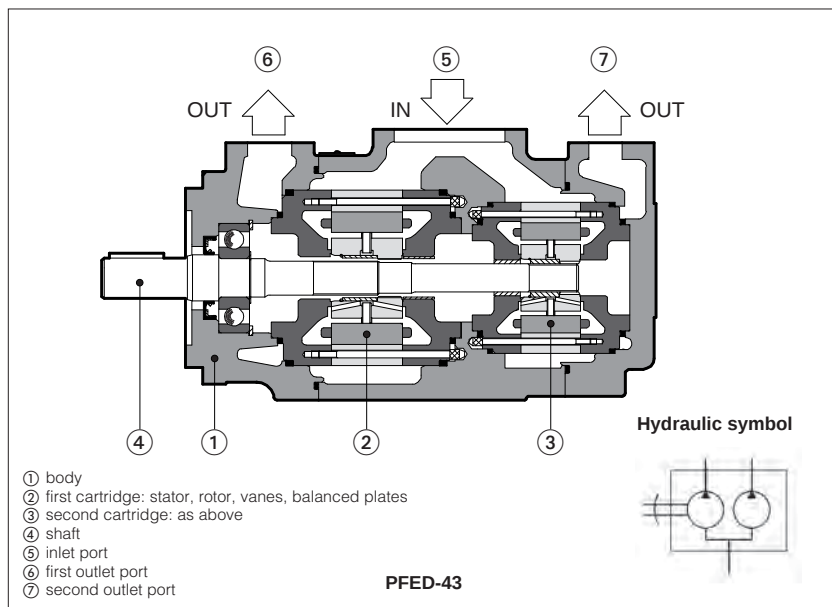
For other dimensions, see section 8

Model	Ø AG	Ø AH	AL	Tightening torque (Nm)	Ø AN	AP	AR	Ø AS	H	J	L	M	N	R
PFEXA-32	114	106	M10X17	70	95	33	25	82,57 82,63	6,42 6,47	165,5	132,5	79	32	28,5
PFEXA-42	134	106	M10X17	70	95	23	11	82,57 82,63	6,42 6,47	194	171	73	32	28,5
PFEXB-42	134	146	M12	125	120	32	18	101,62 101,68	9,73 9,78	203	171	107	41	34
PFEXA-52	134	106	M10X17	70	95	22,7	11	82,57 82,63	6,42 6,47	206,2	183,5	73	32	28,5
PFEXB-52	134	146	M12	125	120	32	18	101,62 101,68	9,73 9,78	215,5	183,5	107	41	34
PFEXC-52	134	181	M16	300	148	46,5	30,7	127,02 127,02	12,73 12,78	230	183,5	143,5	56	35

(1) Tightening torque for screw class 12.9

Double vane pumps type PFED

fixed displacement



PFED are fixed displacement double vane pumps (2)(3) composed by two cartridges of pumps type PFE (see tab. A005) assembled in a main body having one inlet port (5) and two outlet ports (6)(7).

PFED-43 are composed by one cartridge of PFE-41 and one cartridge of PFE-31. PFED-54 are composed by one cartridge of PFE-51 and one cartridge of PFE-41.

Suitable for hydraulic oils according to DIN 51524...535 or synthetic fluids having similar lubricating characteristics.

These pumps can be assembled, as second element, with PFE-4 and PFE-5 to obtain triple pumps, see tab A190.

Mounting according to SAE J744. Easy installation as inlet and outlet ports can be assembled in any of four relative positions. Easy maintenance as pumping cartridge can be replaced in a few minutes.

Wide variety of displacements: from 29+16 up to 150+85 cm³/rev. Max pressure up to 210 bar.

1 MODEL CODE

PFED	-	43	045	/	022	/	1	D	TA	**	/ *
Fixed displacement double vane pump											Synthetic fluids: WG = water-glycol PE = phopspate ester
Size of cartridges: 43 = composed by: one cartridge of PFE-41 + one cartridge of PFE-31 54 = composed by: one cartridge of PFE-51 + one cartridge of PFE-41										Series number	
Displacement of first element [cm ³ /rev], see section 3										Ports orientation, see section 4	
Displacement of second element [cm ³ /rev], see section 3										Direction of rotation (as viewed at the shaft end): D = clockwise (supplied standard if not otherwise specified) S = counterclockwise Note: PFED are not reversible	
										Drive shaft, see section 6 and 7: cylindrical, keyed 1 = supplied standard if not otherwise specified 2 = according to ISO/DIN 3019 3 = for high torque applications splined 5 = for PFED-43: according to SAE B 13T 16/32 DP (13 teeth) for PFED-54: according to SAE C 14T 12/24 DP (14 teeth) 6 = (only for PFED-43) = according to SAE C 14T 12/24 DP (14 teeth) 7 = (only for PFED-43) = similar to shaft type 6. It is used when PFED-43 is the last element of a multiple pump	

2 MAIN CHARACTERISTICS OF DOUBLE VANE PUMPS TYPE PFED

Installation position	Any position.
Loads on the shaft	Axial and radial loads are not allowed on the shaft. The coupling should be sized to absorb the peak horsepower developed.
Ambient temperature	from -20°C to +70°C
Fluid	Hydraulic oil as per DIN 51524...535; for other fluids see section 1
Recommended viscosity	max at cold start max at full power during operation min at full power 800 mm ² /s 100 mm ² /s 24 mm ² /s 10 mm ² /s
Fluid contamination class	ISO 19/16 (filters at 25 µm value with β ₂₅ ≥ 75 recommended)
Fluid temperature	T < 70°C, if T > 60 select /PE versions;
Recommended suction line pressure	from -0,5 to 1,5 bar for speed up to 1800 rpm; from 0 to +1,5 bar for speed over 1800 rpm

3 OPERATING CHARACTERISTICS at 1450 rpm with hydraulic oil having viscosity of 24 mm²/sec and 40°C

Model		7 bar				70 bar				140 bar				210 bar				Speed range min/max rpm
		1°flow		2°flow		1°flow		2°flow		1°flow		2°flow		1°flow		2°flow		
PFED-43		l/min	Kw	l/min	Kw	l/min	Kw	l/min	Kw	l/min	Kw	l/min	Kw	l/min	Kw	l/min	Kw	
PFED-43 029/016		41	0,8	23	0,5	39	5,5	21	3	37	10	19	5	34	14	16	6,5	
PFED-43 029/022		41	0,8	30	0,6	39	5,5	28	4	37	10	26	7	34	14	23	10	
PFED-43 029/028		41	0,8	40	0,8	39	5,5	38	5,5	37	10	36	10	34	14	33	14	
PFED-43 037/016		52	1	23	0,5	50	7	21	3	48	12,5	19	5	45	18	16	6,5	
PFED-43 037/022		52	1	30	0,6	50	7	28	4	48	12,5	26	7	45	18	23	10	
PFED-43 037/028		52	1	40	0,8	50	7	38	5,5	48	12,5	36	10	45	18	33	14	
PFED-43 037/036		52	1	51	1	50	7	49	7	48	12,5	46	12,5	45	18	43	18	
PFED-43 045/016		64	1,3	23	0,5	62	8,5	21	3	60	16	19	5	57	24	16	6,5	
PFED-43 045/022		64	1,3	30	0,6	62	8,5	28	4	60	16	26	7	57	24	23	10	
PFED-43 045/028		64	1,3	40	0,8	62	8,5	38	5,5	60	16	36	10	57	24	33	14	
PFED-43 045/036		64	1,3	51	1	62	8,5	49	7	60	16	46	12,5	57	24	43	18	
PFED-43 045/044		64	1,3	63	1,3	62	8,5	61	8	60	16	58	15,5	57	24	55	23	
PFED-43 056/016		80	1,6	23	0,5	78	11	21	3	75	21	19	5	72	30	16	6,5	
PFED-43 056/022		80	1,6	30	0,6	78	11	28	4	75	21	26	7	72	30	23	10	
PFED-43 056/028		80	1,6	40	0,8	78	11	38	5,5	75	21	36	10	72	30	33	14	
PFED-43 056/036		80	1,6	51	1	78	11	49	7	75	21	46	12,5	72	30	43	18	
PFED-43 056/044		80	1,7	63	1,3	78	11	61	8	75	21	58	15,5	72	30	55	23	
PFED-43 070/016		101	2	23	0,5	98	13,5	21	3	95	26	19	5	91	37	16	6,5	
PFED-43 070/022		101	2	30	0,6	98	13,5	28	4	95	26	26	7	91	37	25	10	
PFED-43 070/028		101	2	40	0,8	98	13,5	38	5,5	95	26	36	10	91	37	33	14	
PFED-43 070/036		101	2	51	1	98	13,5	49	7	95	26	46	12,5	91	37	43	18	
PFED-43 070/044		101	2	63	1,3	98	13,5	61	8	95	26	58	15,5	91	37	55	23	
PFED-43 085/016		124	2,4	23	0,5	121	16	21	3	118	32	19	5	114	46	16	6,5	
PFED-43 085/022		124	2,4	30	1,6	121	16	28	4	118	32	26	7	114	46	23	10	
PFED-43 085/028		124	2,4	40	0,8	121	16	38	5,5	118	32	36	10	114	46	33	14	
PFED-43 085/036		124	2,4	51	1	121	16	49	7	118	32	46	12,5	114	46	43	18	
PFED-43 085/044		124	2,4	63	1,3	121	16	61	8	118	32	58	15,5	114	46	55	23	
PFED-54																		
PFED-54 090/029		128	2,7	41	0,8	124	17	39	5,5	119	33	37	10	114	48	34	14	
PFED-54 090/037		128	2,7	52	1	124	17	50	7	119	33	48	12,5	114	48	45	18	
PFED-54 090/045		128	2,7	64	1,3	124	17	62	8,5	119	33	60	16	114	48	57	24	
PFED-54 090/056		128	2,7	80	1,6	124	17	78	11	119	33	75	21	114	48	72	30	
PFED-54 090/070		128	2,7	101	2	124	17	98	13,5	119	33	95	26	114	48	91	37	
PFED-54 090/085		128	2,7	124	2,4	124	17	121	16	119	33	118	32	114	48	114	46	
PFED-54 110/029		157	3,2	41	0,8	152	21	39	5,5	147	40	37	10	141	58	34	14	
PFED-54 110/037		157	3,2	52	1	152	21	50	7	147	40	48	12,5	141	58	45	18	
PFED-54 110/045		157	3,2	64	1,3	152	21	62	8,5	147	40	60	16	141	58	57	24	
PFED-54 110/056		157	3,2	80	1,6	152	21	78	11	147	40	75	21	141	58	72	30	
PFED-54 110/070		157	3,2	101	2	152	21	98	13,5	147	40	95	26	141	58	91	37	
PFED-54 110/085		157	3,2	124	2,4	152	21	121	16	147	40	118	32	141	58	114	46	
PFED-54 129/029		186	3,7	41	0,8	180	25	39	5,5	174	47	37	10	168	69	34	14	
PFED-54 129/037		186	3,7	52	1	180	25	50	7	174	47	48	12,5	168	69	45	18	
PFED-54 129/045		186	3,7	64	1,3	180	25	62	8,5	174	47	60	16	168	69	57	24	
PFED-54 129/056		186	3,7	80	1,6	180	25	78	11	174	47	75	21	168	69	72	30	
PFED-54 129/070		186	3,7	101	2	180	25	98	13,5	174	47	95	26	168	69	91	37	
PFED-54 129/085		186	3,7	124	2,4	180	25	121	16	174	47	118	32	168	69	114	46	
PFED-54 150/029		215	4,2	41	0,8	211	29	39	5,5	204	55	37	10	197	80	34	14	
PFED-54 150/037		215	4,2	52	1	211	29	50	7	204	55	48	12,5	197	80	45	18	
PFED-54 150/045		215	4,2	64	1,3	211	29	62	8,5	204	55	60	16	197	80	57	24	
PFED-54 150/056		215	4,2	80	1,6	211	29	78	11	204	55	75	21	197	80	72	30	
PFED-54 150/070		215	4,2	101	2	211	29	98	13,5	204	55	95	26	197	80	91	37	
PFED-54 150/085		215	4,2	124	2,4	211	29	121	16	204	55	118	32	197	80	114	46	

(1) Max pressure is 160 bar for /PE and /WG versions (2) Max speed is 1800 rpm for /PE versions; 1500 rpm for /WG versions

4 PORT ORIENTATION (pumps viewed from the shaf end)

Pumps can be supplied with the oil ports oriented in different configuration in relation to the drive shaft. Port orientation of the first element is designated as follows (as viewed at the shaft end);

T = inlet and outlet ports on the same axis (standard)

U = outlet orientated 180° with respect to the inlet

V = outlet oriented 90° with respect to the inlet

W = outlet oriented 270° with respect to the inlet

Outlet port of second element can be orientated, relative to the inlet port, in 8 positions at 45° (**O, A, B, C, D, E, F, G**)

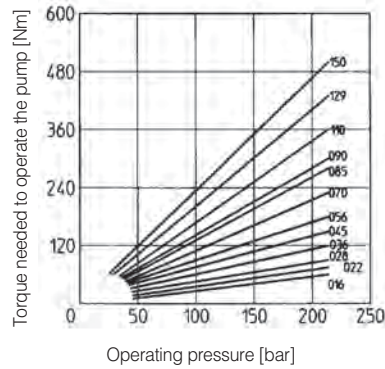
Ports orientation can be easily changed by rotating the pump body that carries inlet port.

TO 	TA 	TB 	TC 	TD 	TE 	TF 	TG
WO 	WA 	WB 	WC 	WD 	WE 	WF 	WG
UO 	UA 	UB 	UC 	UD 	UE 	UF 	UG
VO 	VA 	VB 	VC 	VD 	VE 	VF 	VG

P1 = outlet port of first element; P2 = outlet port of second element; T = inlet port

5 DIAGRAMS

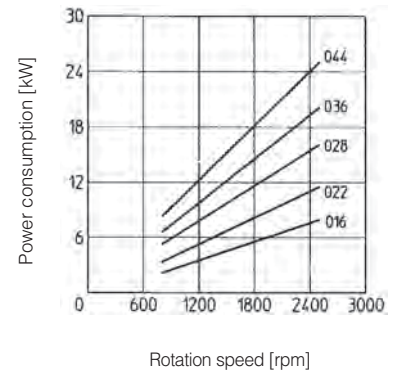
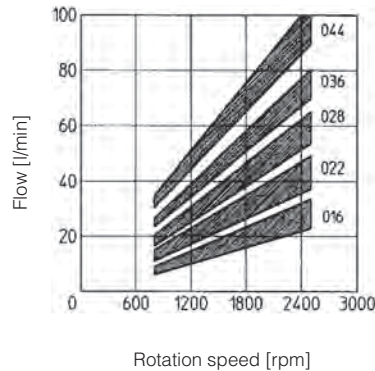
1 = Torque versus pressure diagram



PFED-43: Second element (cartridge SC-PFED-31**)

2 = Flow versus speed diagram with pressure variation from 7 bar to 210 bar.

3 = Power consumption versus speed diagram at 140 bar. Power consumption is proportional to operating pressure.

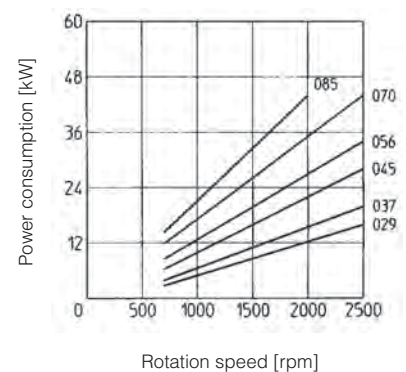
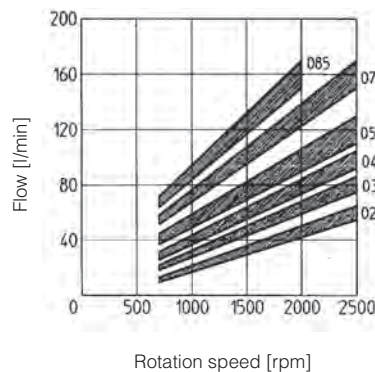


PFED-43: First element (cartridge SC-PFE-41**)

PFED-54: Second element (cartridge SC-PFED-41**)

4 = Flow versus speed diagram with pressure variation from 7 bar to 210 bar.

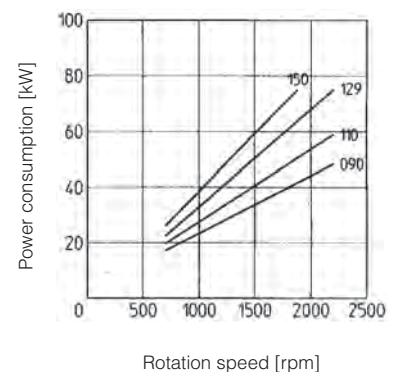
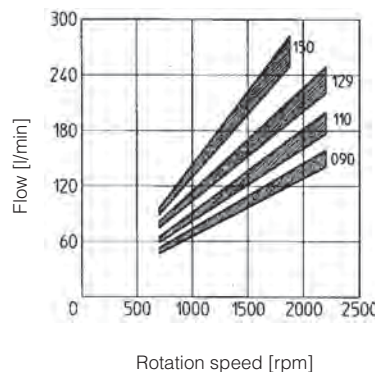
5 = Power consumption versus speed diagram at 140 bar. Power consumption is proportional to operating pressure.



PFED-54: First element (cartridge SC-PFE-51**)

6 = Flow versus speed diagram with pressure variation from 7 bar to 210 bar.

7 = Power consumption versus speed diagram at 140 bar. Power consumption is proportional to operating pressure.



6 LIMITS OF SHAFT TORQUE

Pump model	Maximum driving torque [Nm]					
	Shaft type 1	Shaft type 2	Shaft type 3	Shaft type 5	Shaft type 6	Shaft type 7
PFED-43	250	250	400	200	400	400
PFED-54	500	500	850	450	—	—

The values of torque needed to operate each single cartridge are shown on the "torque versus pressure diagram" at section 5. The total torque applied to the shaft of the pump is the sum of the single torque needed for operating each single cartridge and it is necessary to verify that this total torque applied to the drive shaft is not higher than the values indicated in the table.

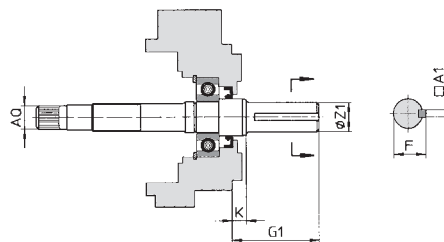
7 DRIVE SHAFT

CYLINDRICAL SHAFT KEYED

1 = supplied as standard if not specified in the model code

2 = according to ISO/DIN 3019 standards

3 = for high torque applications



Model	Keyed shaft type 1 (standard)					Keyed shaft type 2					Keyed shaft type 3				
	A1	F	G1	K	ØZ1	A1	F	G1	K	ØZ1	A1	F	G1	K	ØZ1
PFED-43	4,78	24,54	59,00	11,40	22,22	6,38	25,03	71,00	8,00	22,22	6,38	28,30	78,00	11,40	25,38
	4,75	24,41			22,20	6,35	24,77			22,20	6,35	28,10			25,35
PFED-54	7,97	35,33	73,1	14	31,75	7,97	35,33	84,1	8,1	31,75	7,97	38,58	84,1	14	34,90
	7,94	35,07			31,70	7,94	35,07			31,70	7,94	38,46			34,88

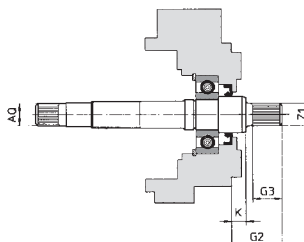
SPLINED SHAFT

5 = for PFED-43 according to SAE B 16/32 DP, 13 teeth;

for PFED-48 according to SAE B 10/32 DP, 18 teeth;
for PFED-54 according to SAE C 12/24 DP, 14 teeth;

6 = (only for PFED-43) according to SAE C 12/24 DP, 14 teeth;

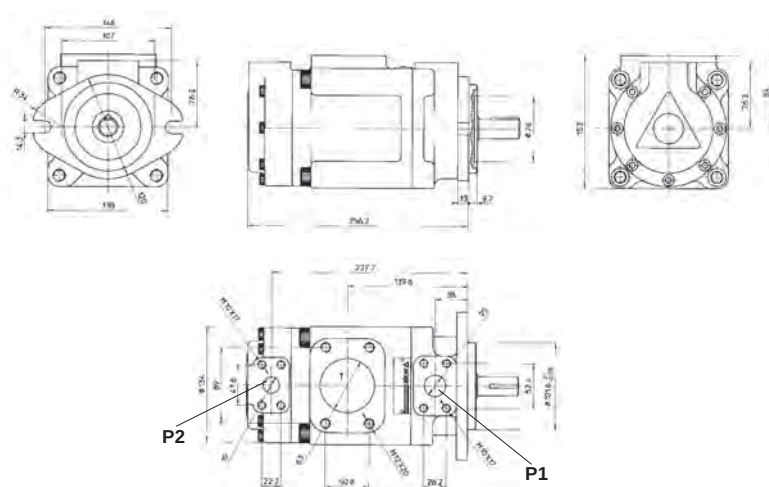
7 = only for PFED-43 when used as the last element of a multiple pump: similar to shaft type 6.



Model	Splined shaft type 5				Splined shaft type 6				Splined shaft type 7			
	G2	G3	K	Z2	G2	G3	K	Z2	G2	G3	K	Z2
PFED-43	41,25	28	8,00	SAE 16/32-13T	55,60	42	8,00	SAE 12/24-14T	41,60	28	8,00	SAE 12/24-14T
PFED-54	55,7	42	8,1	SAE 12/24-14T	—	—	—	—	—	—	—	—

8 DIMENSIONS [mm]

PFED-43



SAE FLANGES:

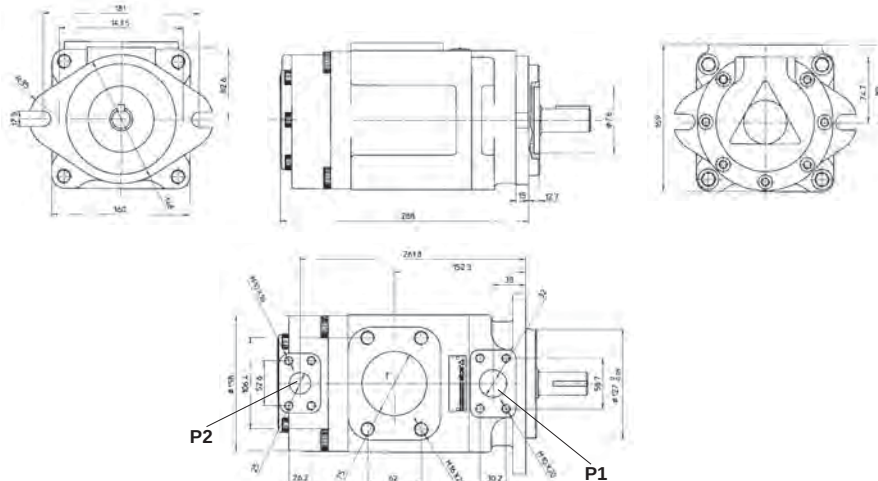
```
port P1 = 1";
```

port P2 = 3/4";

port T = 2 1/2"

Weight: 24,5 kg

PFED-54



SAE FLANGES:

port P1 = 1 1/4":

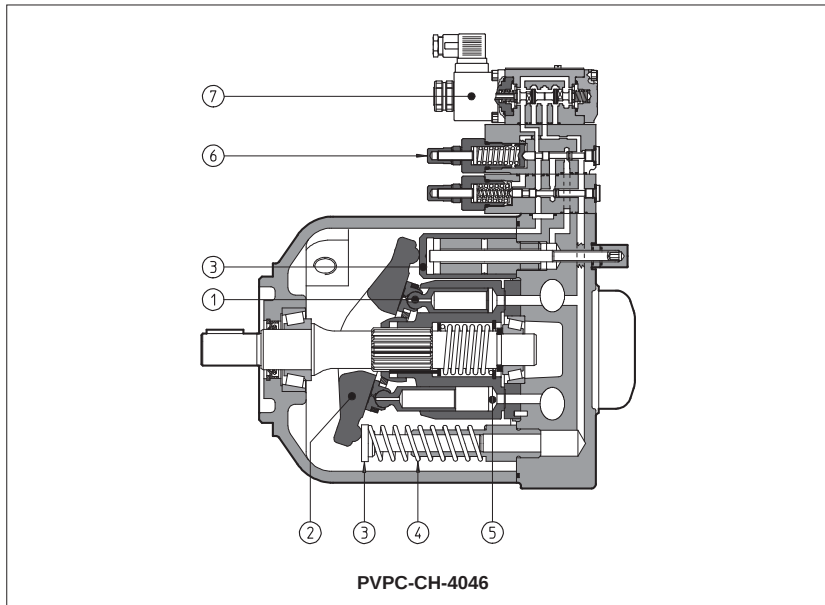
```
port P1 = 1";
port P2 = 1";
```

port T = 3"

Weight: 36 kg

Axial piston pumps type PVPC

variable displacement, by a full line of mechanical controls



PVPC are variable displacement axial piston pumps for high pressure operation, with low noise level, suitable for hydraulic oils or synthetic fluids having similar lubricating characteristics.

The actual displacement is dependent on the length of stroke of the pumping pistons (1). This length of stroke is determined by the position of the swash plate (2) that is achieved by two servo pistons (3) with differential areas, against a spring (4).

The rotating barrel (5) forces the pistons in a circular path in and out of the barrel and fluid displacement takes place. Typical section on side shows version CH with manual pressure compensator (6) and venting solenoid valve (7).

The available hydraulic controls are shown in sections (8). The wide range of electrohydraulic proportional controls is shown in tab. A170.

SAE J744 mounting flange and shaft (see note 1).

Max displacement: 29-46-73-88 cm³/rev.

Max pressure: 280 bar working
350 bar peak.

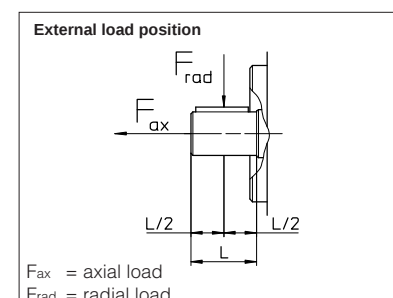
1 MODEL CODE

PVPC	X2E	-	C	-	4	046	/	31044	/	1	D	-	I	X	24DC	10	/*
Variable displacement axial piston pump	Eventual suffix for double pumps X2E = with a fixed displacement pump type PFE (see tab. A005)		Type of control (see section (8)): C = manual pressure compensator CH = manual pressure compensator, with venting R = remote pressure compensator L = load sensing (pressure & flow) LW = constant power (combined pressure & flow) For electrohydraulic proportional controls, see table A170														Synthetic fluids: WG = water-glycol PE = phosphate ester See notes in section (2)
Size: 3 = for displacement 029 4 = for displacement 046 5 = for displacement 073 and 090																	Series number
Max displacement of axial piston pump: 029 = 29 cm³/rev 046 = 46 cm³/rev 073 = 73 cm³/rev 090 = 88 cm³/rev																	Supply voltage, see section (5): 00 = solenoid valve without coils (only for OI solenoid)
Type of PFE (for double pumps), see tab. A005																	X = without connector See section (4) for available connectors, to be ordered separately
																	Solenoid of pilot valve: -I = solenoid OI (DHI) for AC and DC supply
																	Direction of rotation (viewed at the shaft end) D = clockwise S = counterclockwise
																	Shaft (SAE Standard) (1): 1 = keyed (7/8" for 029 - 1" for 046 - 1 1/4" for 073 and 090) 5 = splined (13 teeth for 029 - 15 for 046 - 14 for 073 and 090)

1) pumps with ISO 3019/2 mounting flange and shaft (option /M) are available on request

2 OPERATING CHARACTERISTICS

Pump model	PVPC*-3029	PVPC*-4046	PVPC*-5073	PVPC*-5090
Displacement [cm³/rev]	29	46	73	88
Theoretical max flow at 1450 rpm [l/min]	42	66,7	105,8	127,6
Max working pressure / Peak pressure [bar]	280/350	280/350	280/350	250/315
Min/Max inlet pressure [bar abs.]	0,8 / 25	0,8 / 25	0,8 / 25	0,8 / 25
Max pressure on drain port [bar abs.]	1,5	1,5	1,5	1,5
Power consumption at 1450 rpm and at maximum pressure and displacement [kW]	19,9	31,6	50,1	54,1
Max torque on the first shaft [Nm]	Type 1 200	Type 1 230	Type 1 490	Type 1 490
Max permissible load on drive shaft [N]	Type 5 1500	Type 5 1500	Type 5 3000	Type 5 3000
Speed rating [rpm]	600 ÷ 3000	600 ÷ 2600	600 ÷ 2200	600 ÷ 1850



Notes: For speeds over 1800 rpm the inlet port must be under oil level with adequate pipes.

Maximum pressure for all models with option /WG is 160 bar, with option /PE is 190 bar.

Max speed with options /WG and /PE is 2000/1900/1600/1500 rpm respectively for the four sizes.

3 MAIN CHARACTERISTICS OF VARIABLE DISPLACEMENT AXIAL PISTON PUMP TYPE PVPC

Installation position	Any position. The drain port must be on the top of the pump. Drain line must be separated and unrestricted to the reservoir and extended below the oil level as far from the inlet as possible. Suggested maximum line length is 3 m.		
Ambient temperature	from -20°C to +70°C		
Fluid	Hydraulic oil as per DIN 51524...535; for other fluids see section 11		
Recommended viscosity	15÷100 mm²/sec at 40°C (ISO VG 15÷100). Maximum start-up viscosity: 1000 mm²/sec		
Fluid contamination class	ISO 16/13 (filters at 10 µm value with β ₁₀ ≥ 75 recommended)		
Fluid temperature	-20°C +60°C	-20°C +50°C (seals /WG)	-20°C +80°C (seals /PE)

3.1 Coils characteristics (for version CH)

Insulation class	H
Connector protection degree	IP 65
Relative duty factor	100%
Supply voltage and frequency	See electric feature 5
Supply voltage tolerance	± 10%

4 ELECTRIC CONNECTORS ACCORDING TO DIN 43650 FOR VERSION CH

The connectors must be ordered separately

Code of connector	Function
SP-666	Connector IP-65, suitable for direct connection to electric supply source
SP-667	As SP-666 connector IP-65 but with built-in signal led, suitable for direct connection to electric supply source

5 ELECTRIC FEATURES FOR VERSION CH

Type of solenoid	External supply nominal voltage ±10% (1)		Type of connector	Power consumption (3)	Code of spare coil	Colour of coil label
OI	DIRECT CURRENT	6 DC 12 DC 24 DC 48 DC	SP-666 or SP-667	33 W	SP-COU-6DC /80 SP-COU-12DC /80 SP-COU-24DC /80 SP-COU-48DC /80	brown green red silver
		110/50 AC (2) 120/60 AC 230/50 AC (2) 230/60 AC			SP-COI-110/50/60AC /80 SP-COI-120/60AC /80 SP-COI-230/50/60AC /80 SP-COI-230/60AC /80	yellow white light blue silver

- (1) For other supply voltages available on request see technical table E010.
- (2) Coil can be supplied also with 60 Hz of voltage frequency: in this case the performances are reduced by 10 ÷ 15% and the power consumption is 55 VA.
- (3) Average values based on tests performed at nominal hydraulic condition and ambient/coil temperature of 20°C.
- (4) When solenoid is energized, the inrush current is approx 3 times the holding current. Inrush current values correspond to a power consumption of about 150 VA.

6 INSTALLATION POSITION

The pump is supplied with drain D2 open, and D1 plugged. Before installation fill the pump with hydraulic oil for at least 3/4 of its volume, keeping it in horizontal position. With exception of pump mounted below the oil level, we recommend to interpose a baffle plate between inlet and drain line.	VERTICAL INSTALLATION		
	INSIDE THE TANK Minimum oil level equal or above the pump mounting surface. A ≥ 200mm	INSIDE THE TANK Minimum oil level below the pump mounting surface. Minimum inlet pressure = 0,8 bar absolute B ≤ 800mm, C= 200mm	OUTSIDE THE TANK, above oil level Minimum inlet pressure = 0,8 bar absolute B ≤ 800mm, C= 200mm
HORIZONTAL INSTALLATION			
INSIDE THE TANK Minimum oil level equal or above the pump mounting surface. A ≥ 200mm	INSIDE THE TANK Minimum oil level below the pump mounting surface. Minimum inlet pressure = 0,8 bar (absolute) B ≤ 800mm, C= 200mm	OUTSIDE THE TANK, above oil level Minimum inlet pressure = 0,8 bar (absolute) B ≤ 800mm, C= 200mm	OUTSIDE THE TANK, below oil level C= 200mm

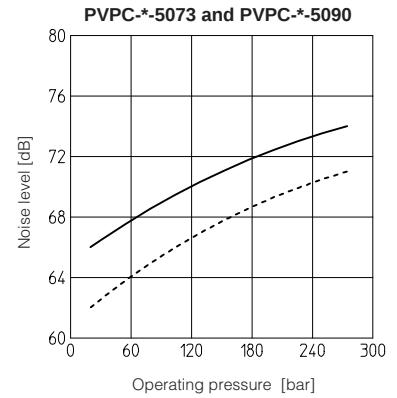
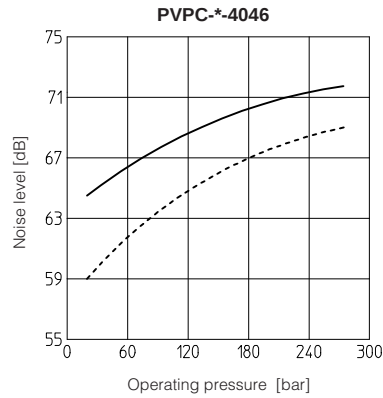
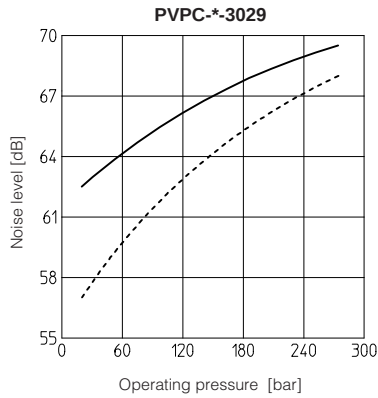
IN: inlet line - D1: drain line - A: minimum distance between inlet and drain line - B+C: permissible suction height - C: inlet line immersion dept

7 DIAGRAMS at 1450 rpm (based on mineral oil ISO VG 46 at 50°C)

7.1 Noise level curves

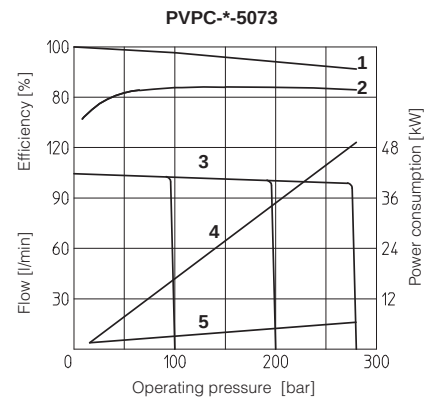
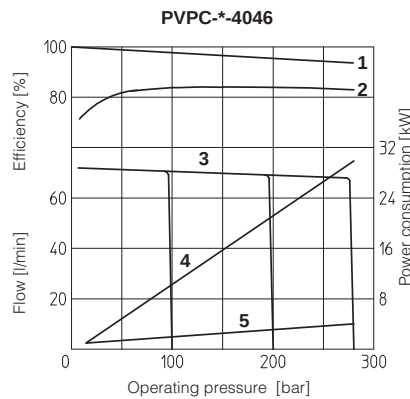
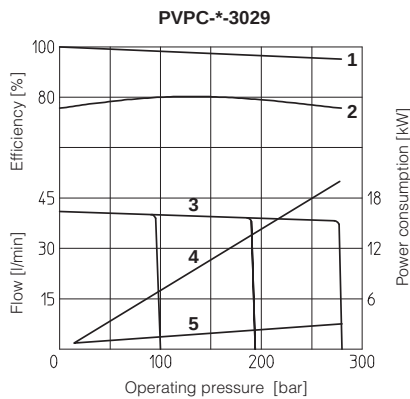
Ambient noise levels measured in compliance with ISO 4412-1 oleohydraulics -Test procedure to define the ambient noise level - Pumps
Shaft speed: 1450 rpm.

— = Qmax - - - - - = Qmin



7.2 Operating limits

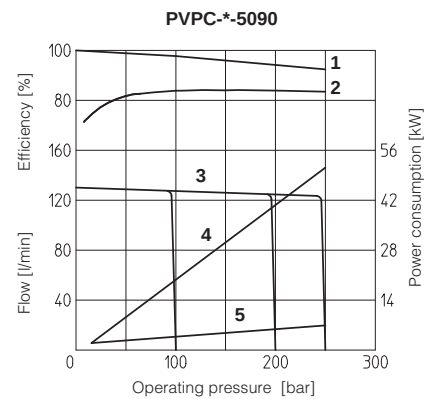
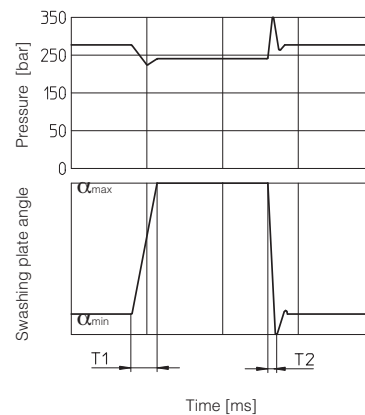
- 1 = Volumetric efficiency
- 2 = Overall efficiency
- 3 = Flow versus pressure curve
- 4 = Power consumption with full flow
- 5 = Power consumption at pressure compensation



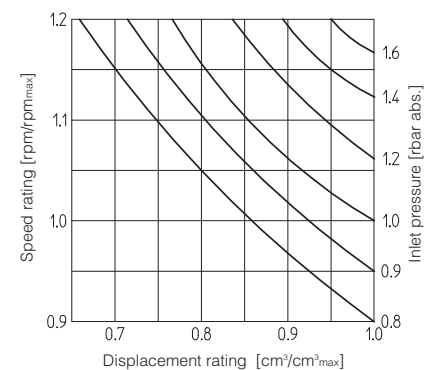
7.3 Response times

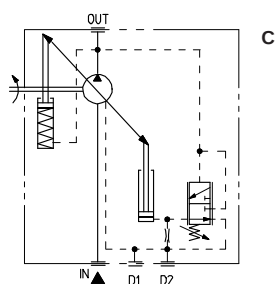
7.3.1 Response times and pressure peak due to variation 0% @ 100% @ 0% of the pump displacement, obtained with an instantaneous opening and shut-off of the delivery line.

Pump type	T1 (ms)	T2 (ms)
PVPC-*-3029	31	19
PVPC-*-4046	44	20
PVPC-*-5073	50	25
PVPC-*-5090	53	28



7.3.2 Variation of inlet pressure and reduction of displacement with increasing speed rating



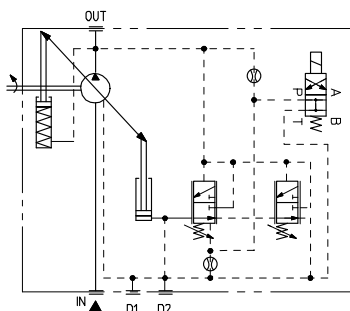
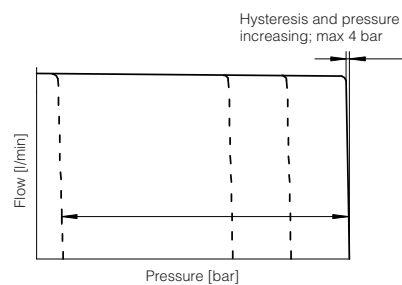


Manual pressure compensator

The pump displacement decreases when the line pressure approaches the setting pressure of the compensator. The pump supplies only the fluid required by the system. Pressure may be steplessly adjusted at the pilot valve.

Compensator setting range: 20 ÷ 350 bar (315 bar for 090)

Compensator standard setting: 280 bar (250 bar for 090)

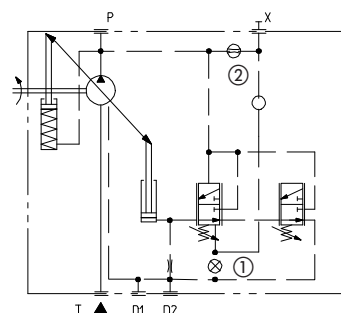
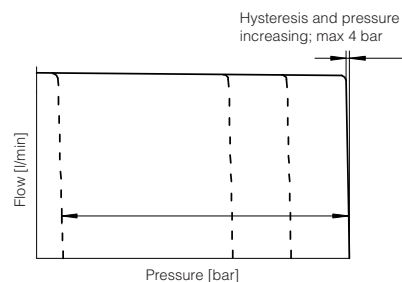


Manual pressure compensator with venting

As C plus venting function, when a long unloading time is required and heat generation and noise have to be kept at lowest level.

Compensator setting range: 20 ÷ 350 bar (315 bar for 090)

Compensator standard setting: 280 bar (250 bar for 090)



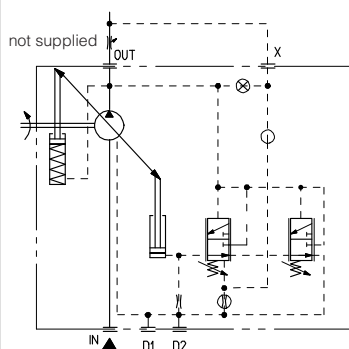
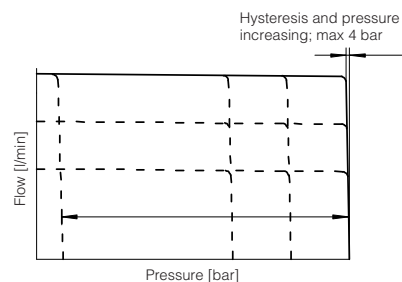
Remote pressure compensator

As C, but with remote setting of the compensator by means of a pressure relief valve on the piloting line X.

This version can be obtained from version L using a blind plug UNI 5923 M4x12 in pos. ① and a restrictor M4 drilled $\varnothing 0,75$ mm in pos. ②.

Compensator setting range: 20 ÷ 350 bar (315 bar for 090)

Compensator standard setting: 280 bar (250 bar for 090)



Load sensing

The pump displacement is automatically adjusted to maintain a constant (load independent) pressure drop across an external throttle. Changing the throttle regulation, the pump flow is consequently adjusted.

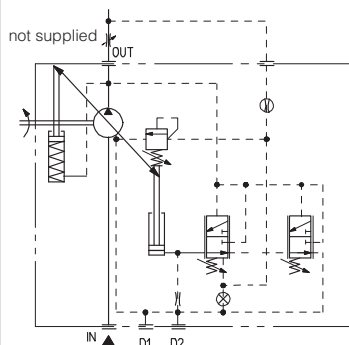
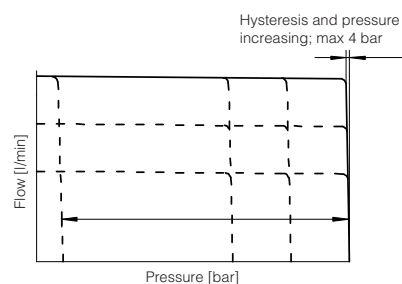
Load sensing control always incorporates an hydraulic compensator to limit the maximum pressure.

Compensator setting range: 20 ÷ 350 bar (315 bar for 090)

Compensator standard setting: 280 bar (250 bar for 090)

Differential pressure setting range: 10 ÷ 40 bar

Differential pressure standard setting: 14 bar

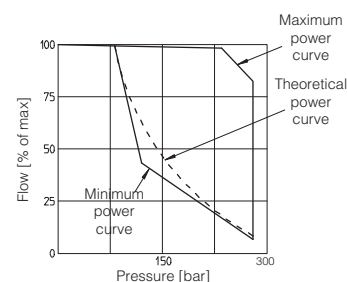


Constant power

In order to achieve a constant drive torque with varying operating pressure. The swashing angle and therefore the outlet flow is varied so that the product of flow and pressure remains constant.

For the best regulation, minimum working pressure is 80 bar.

While selecting LW control, the required value of power must be communicated with the order (ex. 10 kW at 1450 rpm).



9 DIMENSIONS OF PVPC-*-3029: BASIC VERSION "C" CONTROL

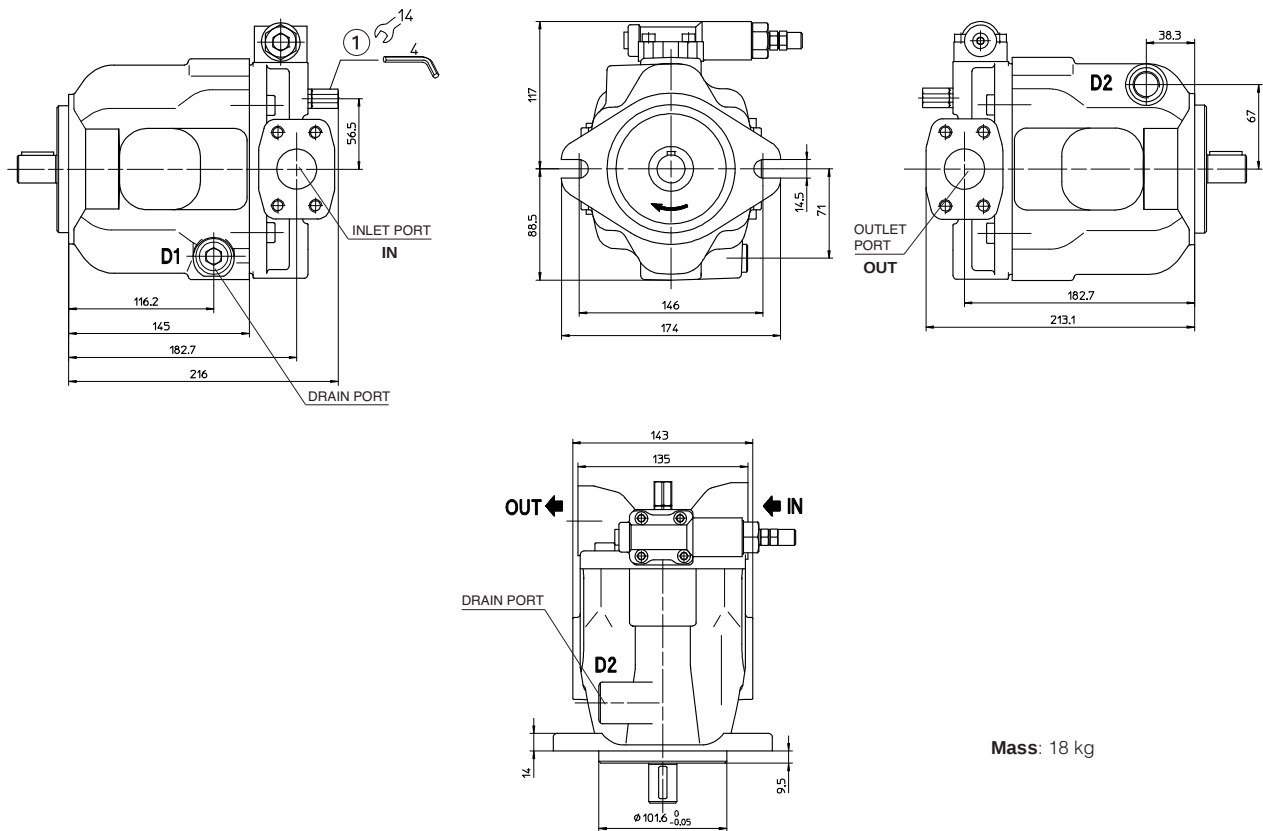
PORTS DIMENSION

IN = Flange SAE 3000 1 1/4"

OUT = Flange SAE 6000 3/4"

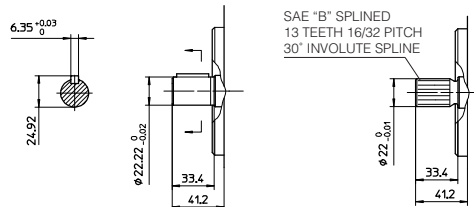
D1, D2 = 1/2" BSPP

① = Regulation screw for max displacement 1,5 cm³/rev per turn. Adjustable range 50% to 100% of max displacement.
In case of double pump the regulation screw is not always available, please contact our technical office.



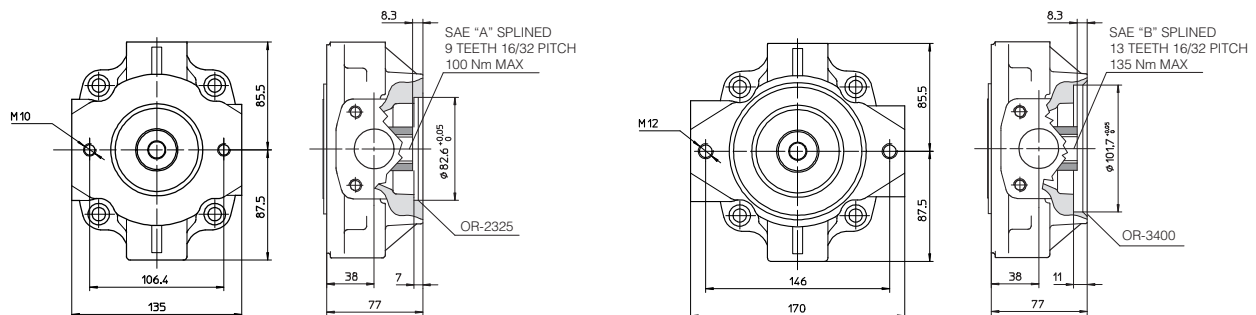
SHAFT TYPE "1"

SHAFT TYPE "5"



INTERMEDIATE FLANGE SAE "A" FOR PFE-31

INTERMEDIATE FLANGE SAE "B" FOR PFE-41



Drawing shows pumps with clockwise rotation (option D); pumps with counterclockwise rotation (option S) will have inlet and outlet ports inverted

10 DIMENSIONS OF PVPC-*4046: BASIC VERSION "C" CONTROL

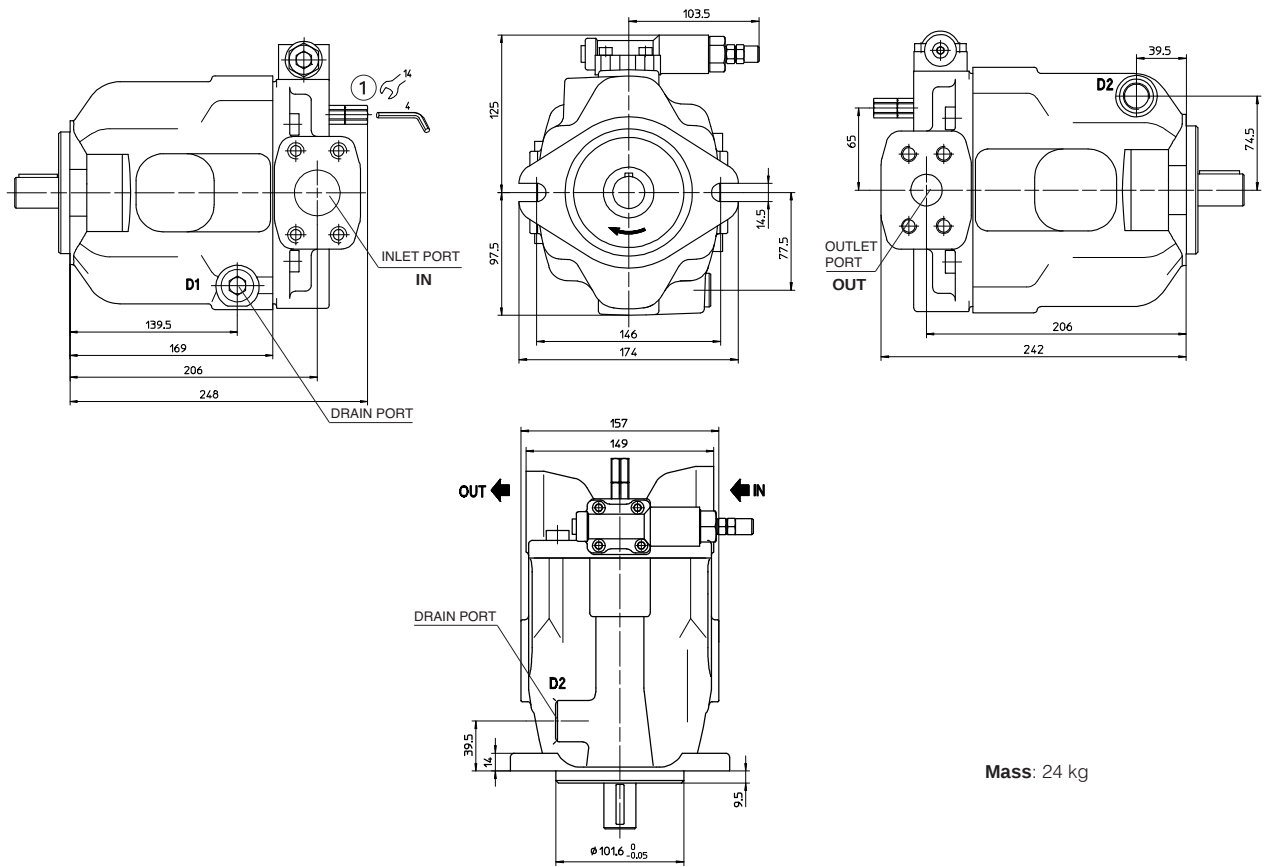
PORTS DIMENSION

IN = Flange SAE 3000 1 1/2"

OUT = Flange SAE 6000 1"

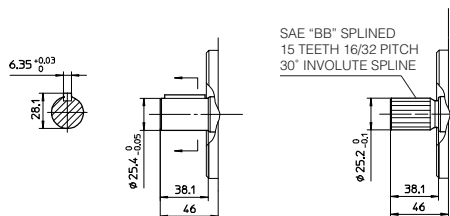
D1, D2 = 1/2" BSPP

① = Regulation screw for max displacement 2,2 cm³/rev per turn. Adjustable range 50% to 100% of max displacement.
In case of double pump the regulation screw is not always available, please contact our technical office.



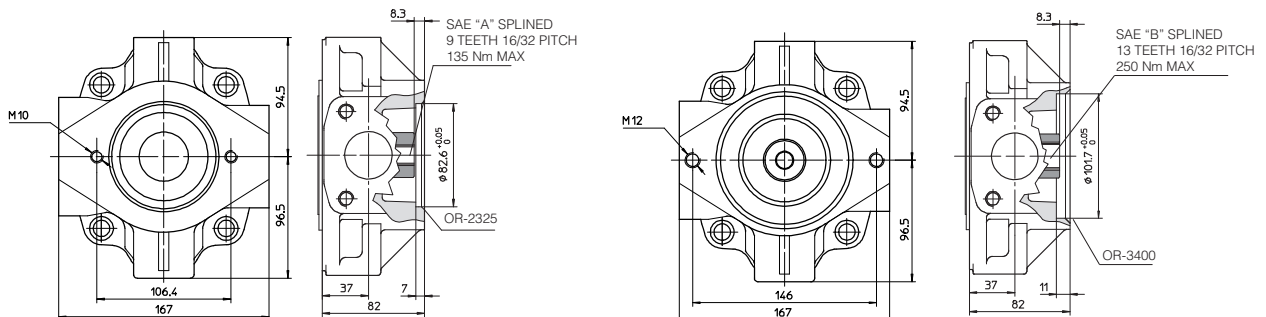
SHAFT TYPE "1"

SHAFT TYPE "5"



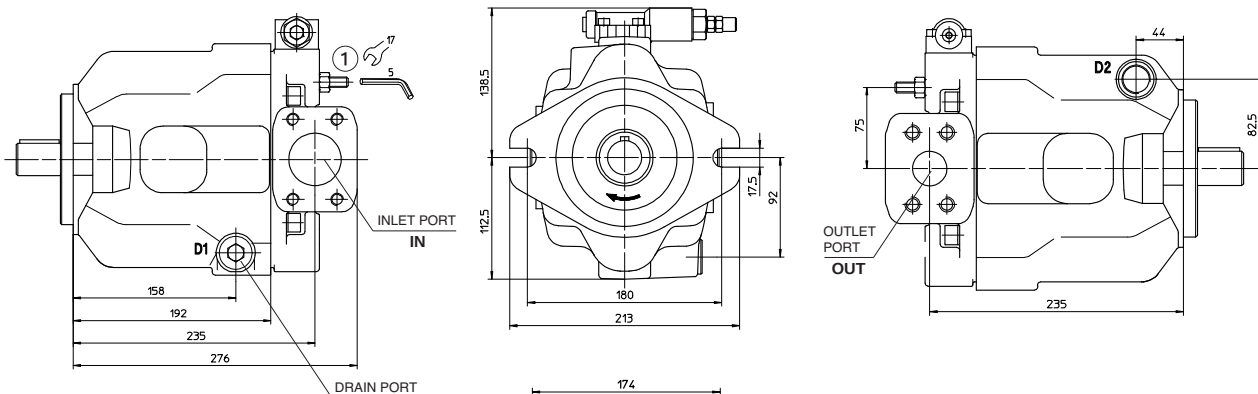
INTERMEDIATE FLANGE SAE "A" FOR PFE-31

INTERMEDIATE FLANGE SAE "B" FOR PFE-41



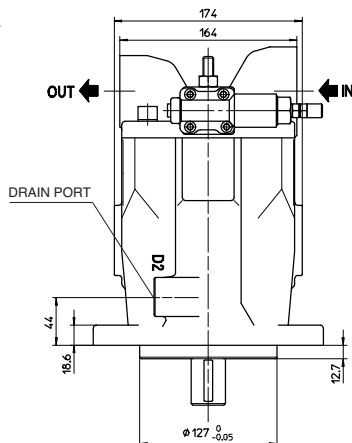
Drawing shows pumps with clockwise rotation (option D); pumps with counterclockwise rotation (option S) will have inlet and outlet ports inverted

11 DIMENSIONS OF PVPC-*-5073 and PVPC-*-5090: BASIC VERSION "C" CONTROL



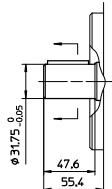
PORTS DIMENSION

IN = Flange SAE 3000 2"
OUT = Flange SAE 6000 1 1/4"
D1, D2 = 3/4" BSPP
① = Regulation screw for max displacement
3,2 cm³/rev per turn.
Adjustable range 50% to 100% of max displacement.
In case of double pump the regulation screw is not always available, please contact our technical office.



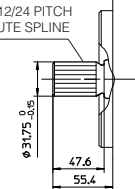
Mass: 33 kg

SHAFT TYPE "1"

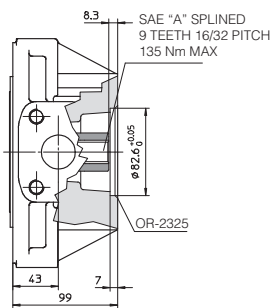
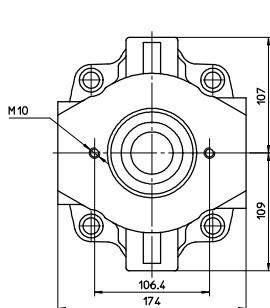


SHAFT TYPE "5"

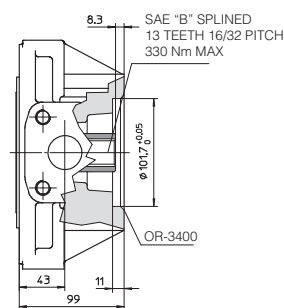
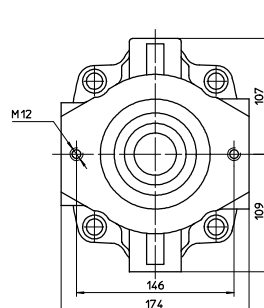
SAE "C" SPLINED
14 TEETH 12/24 PITCH
30° INVOLUTE SPLINE



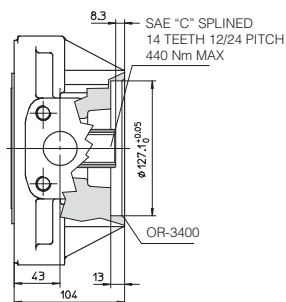
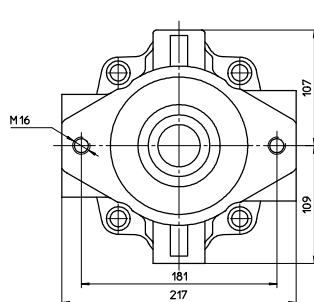
INTERMEDIATE FLANGE SAE "A" FOR PFE-31



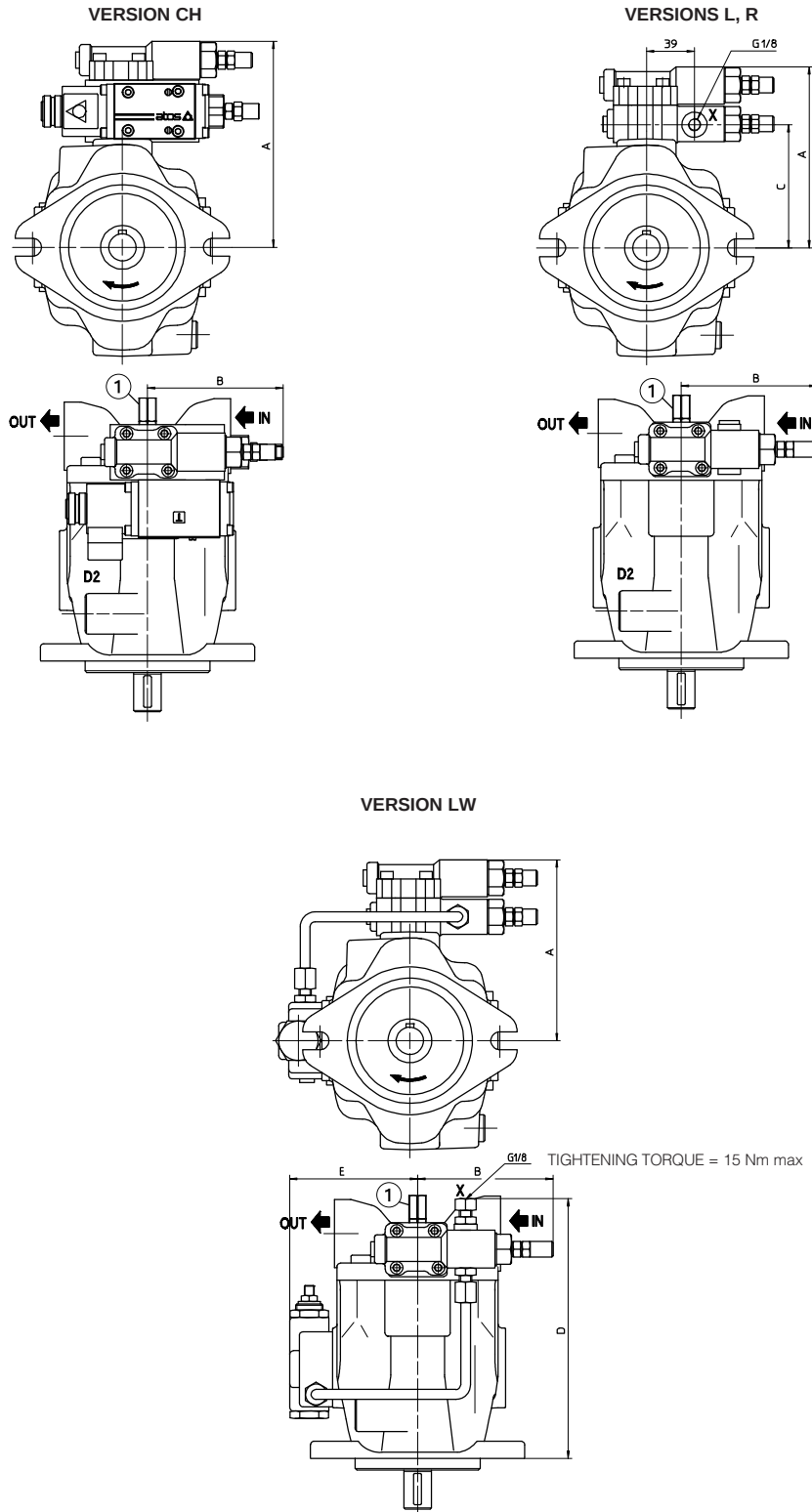
INTERMEDIATE FLANGE SAE "B" FOR PFE-41



INTERMEDIATE FLANGE SAE "C" FOR PFE-51



Drawing show pumps with clockwise rotation (option D); pumps with counterclockwise rotation (option S) will have inlet and outlet ports inverted



① = Regulation screw for max displacement. Adjustable range 50% to 100% of max displacement).

In case of double pump the regulation screw is not always available, please contact our technical office.

Drawing shows pumps with clockwise rotation (option D): pumps with counterclockwise rotation (option S) will have inlet and outlet ports inverted and also the consequently position of the control groups

Pump type	Version	A	B	C	D	E	Mass (kg)
PVPC-*-3029	CH	168	111	-	-	-	22
	L -R	144	111	100	-	-	19,2
	LW	144	111	-	211	104	20
PVPC-*-4046	CH	177	111	-	-	-	28
	L -R	153	111	109	-	-	25,2
	LW	153	111	-	235	111	26
PVPC-*-5073	CH	190	111	-	-	-	36,9
PVPC-*-5090	L -R	166	111	122	-	-	34,2
	LW	166	111	-	258	120	35

Hand Pumps



Allison Hydraulics



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Hand Pumps

PM

Page 111



- Double-acting hand pump for a single-acting cylinder
- Assembling to tank
- Displacement: 6 - 12 - 25 - 45 cc

PMD

Page 113



- Double-acting hand pump with 4/3 diverter for a double-acting cylinder
- Assembling to tank
- Displacement: 6 - 12 - 25 - 45 cc

PMDVB

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- Double-acting hand pump with 4/3 diverter, with check valve, for a double-acting cylinder
- Assembling to tank
- Displacement: 6 - 12 - 25 - 45 cc

PMP

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- Double-acting hand pump for a single-acting cylinder
- Assembling in-line
- Displacement: 12 - 20 - 25 cc

PMO

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- Double-acting hand pump for a single-acting cylinder
- Assembling in-line
- Displacement: 50 - 70 cc

OIL TANK

Page 123



- Painted steel oil tank
- Capacity Lt. 1-10

LEVERS

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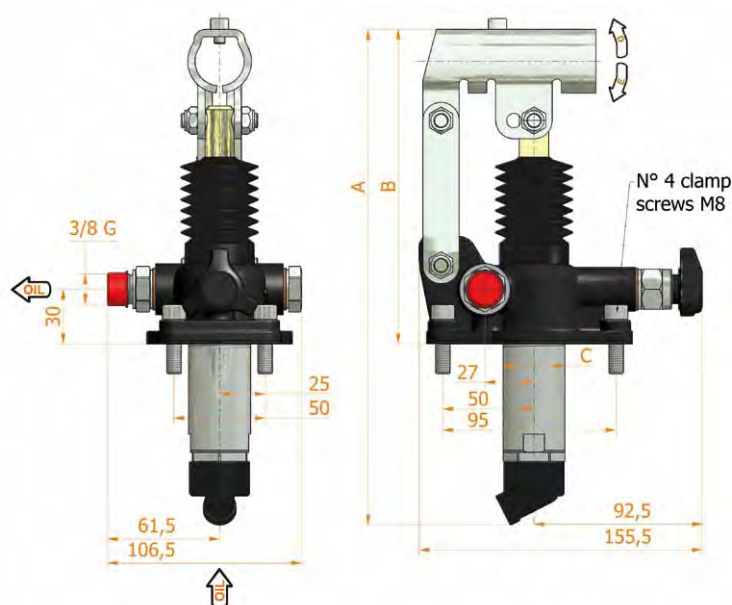
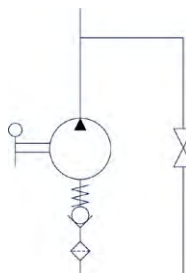
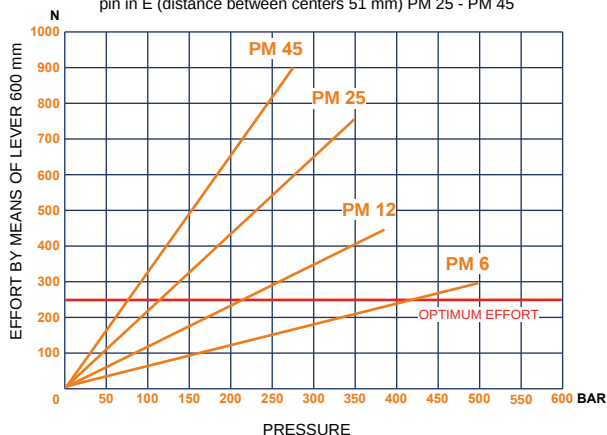
- Straight lever
- Zinc plated steel, with rubber hand grip

PM 6-12-25-45 s

Double-acting hand pump for a single-acting cylinder.
Assembling to tank.
Displacement: 6 - 12 - 25 - 45 cc.

EFFORT DIAGRAM

pin in D (distance between centers 40 mm) PM 6 - PM 12
pin in E (distance between centers 51 mm) PM 25 - PM 45



Specifications:

- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included

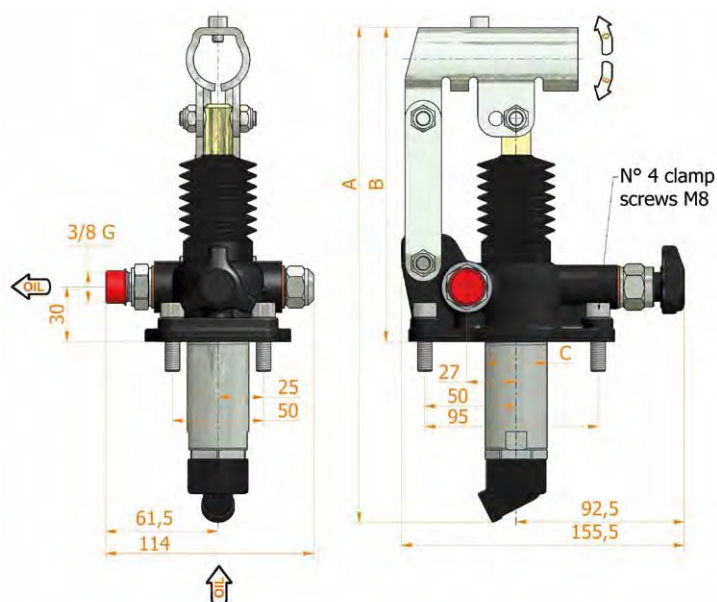
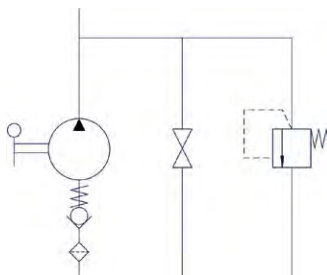
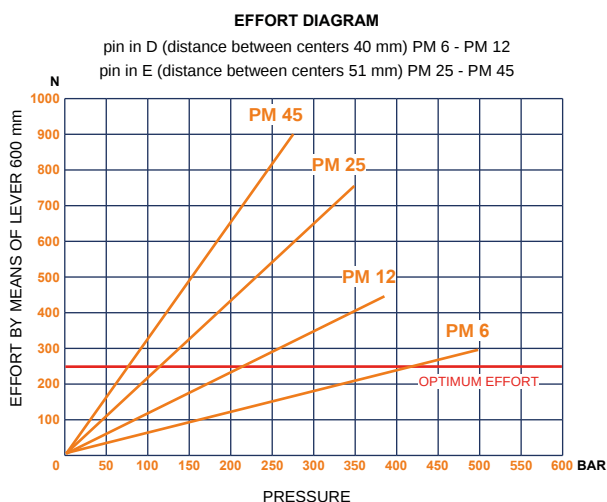
DISPLACEMENT cm ³	A mm	B mm	C mm	D °	E °	ACTUAL DISPLACEMENT cm ³	PRESSURE BAR		MASS KG	CODE WITH BELLOWS
							OPTIMAL	MAX		
6	253	166	34	26	31	6,970	420	500	2,900	PM6-S
12	253	166	34	26	31	12,095	220	380	2,900	PM12-S
25	273	172	34	30	30	25,280	120	350	2,950	PM25-S
45	283	172	40	45	33	44,532	80	280	3,000	PM45-S



Allison Hydraulics

PM 6-12-25-45 byB-s

Double-acting hand pump for a single-acting cylinder.
Assembling to tank.
Displacement: 6 - 12 - 25 - 45 cc.



Specifications:

- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included
- Pressure relief valve standard setting: 100 bar

DISPLACEMENT cm ³	A mm	B mm	C mm	D °	E °	ACTUAL DISPLACEMENT cm ³	PRESSURE BAR		MASS KG	CODE WITH BELLOWS
							OPTIMAL	MAX		
6	253	166	34	26	31	6,970	420	500	2,900	PM6-BYB-S
12	253	166	34	26	31	12,095	220	380	2,900	PM12-BYB-S
25	273	172	34	30	30	25,280	120	350	2,950	PM25-BYB-S
45	283	172	40	45	33	44,532	80	280	3,000	PM45-BYB-S



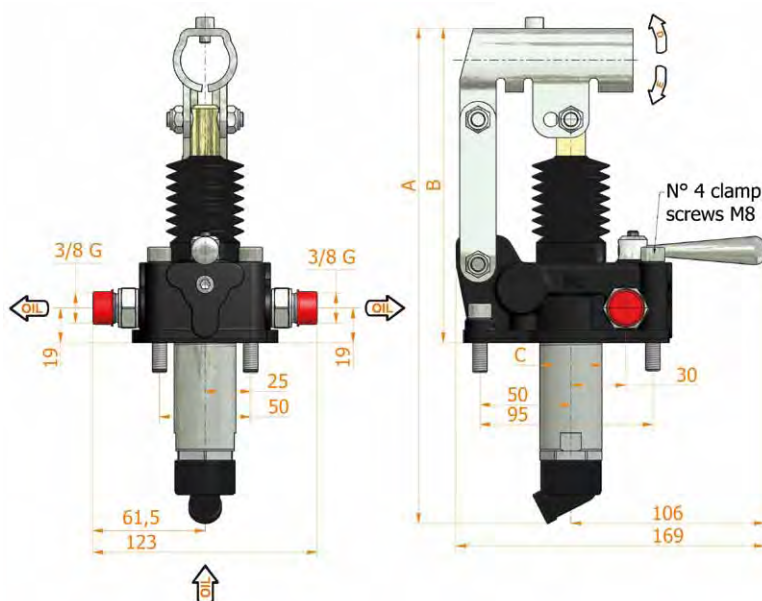
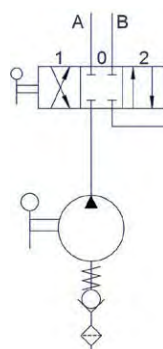
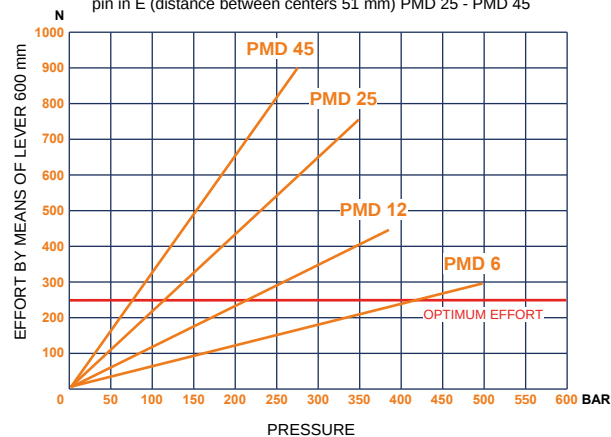
Allison Hydraulics

PMD 6-12-25-45 s

Double-acting hand pump with 4/3 diverter for a double-acting cylinder.
Assembling to tank.
Displacement: 6 - 12 - 25 - 45 cc.

EFFORT DIAGRAM

pin in D (distance between centers 40 mm) PMD 6 - PMD 12
pin in E (distance between centers 51 mm) PMD 25 - PMD 45



Specifications:

- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included

DISPLACEMENT cm ³	A mm	B mm	C mm	D °	E °	ACTUAL DISPLACEMENT cm ³	PRESSURE BAR		MASS KG	CODE WITH BELLOWS
							OPTIMAL	MAX		
6	253	166	34	26	31	6,970	420	500	3,400	PMD6-S
12	253	166	34	26	31	12,095	220	380	3,400	PMD12-S
25	273	172	34	30	30	25,280	120	350	3,450	PMD25-S
45	283	172	40	45	33	44,532	80	280	3,500	PMD45-S



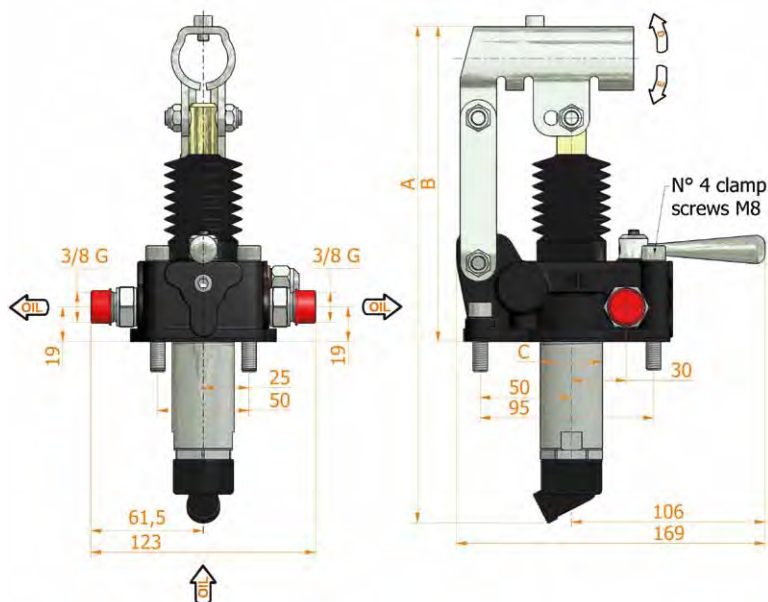
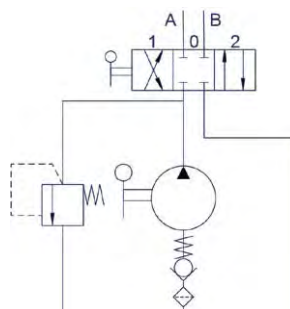
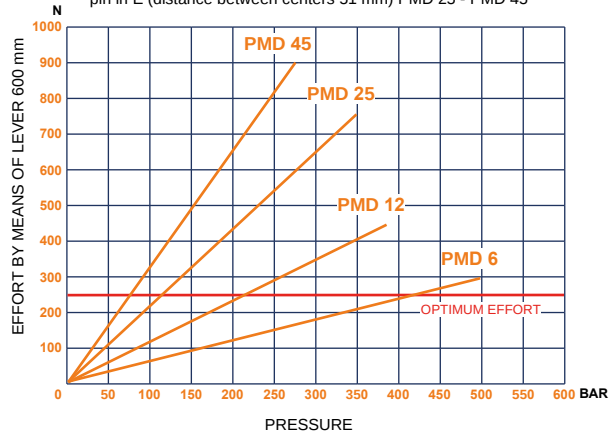
Allison Hydraulics

PMD 6-12-25-45 byB-s

Double-acting hand pump with 4/3 diverter for a double-acting cylinder.
Assembling to tank.
Displacement: 6 - 12 - 25 - 45 cc.

EFFORT DIAGRAM

pin in D (distance between centers 40 mm) PMD 6 - PMD 12
pin in E (distance between centers 51 mm) PMD 25 - PMD 45



Specifications:

- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included
- Pressure relief valve standard setting: 100 bar

DISPLACEMENT cm ³	A mm	B mm	C mm	D °	E °	ACTUAL DISPLACEMENT cm ³	PRESSURE BAR		MASS KG	CODE WITH BELLOWS
							OPTIMAL	MAX		
6	253	166	34	26	31	6,970	420	500	3,400	PMD6-BYB-S
12	253	166	34	26	31	12,095	220	380	3,400	PMD12-BYB-S
25	273	172	34	30	30	25,280	120	350	3,450	PMD25-BYB-S
45	283	172	40	45	33	44,532	80	280	3,500	PMD45-BYB-S

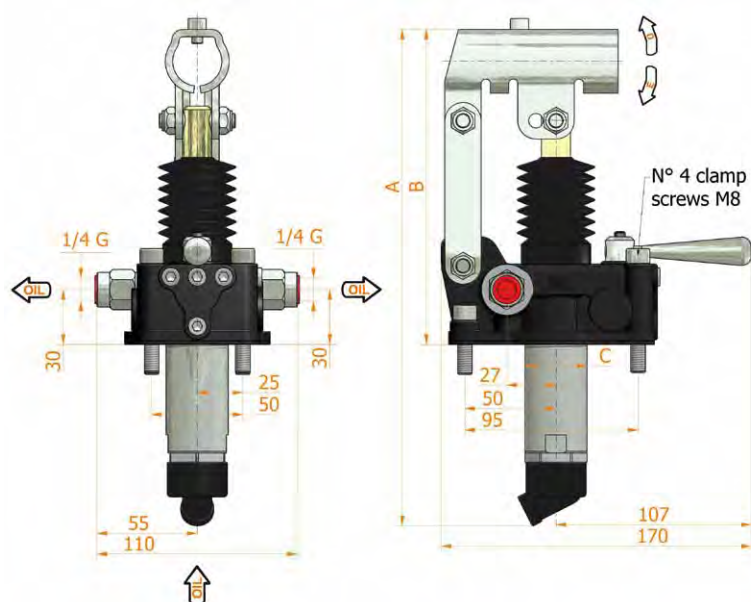
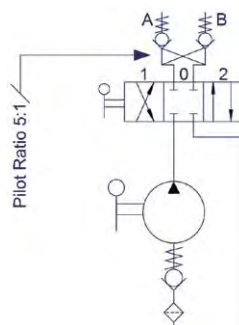
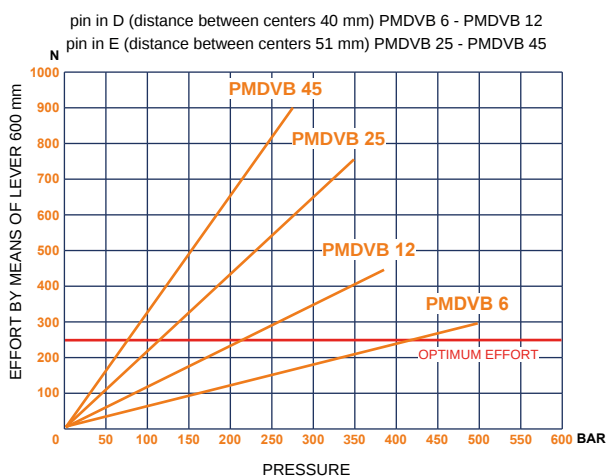


Allison Hydraulics

PMDVB 6-12-25-45 s

Double-acting hand pump with 4/3 diverter, with check valve, for a double-acting cylinder.
Assembling to tank.
Displacement: 6 - 12 - 25 - 45 cc.

EFFORT DIAGRAM



Specifications:

- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included
- With hydraulic brakes to operate under 50 bar pressure

DISPLACEMENT cm ³	A mm	B mm	C mm	D °	E °	ACTUAL DISPLACEMENT cm ³	PRESSURE BAR		MASS KG	CODE WITH BELLOWS
							OPTIMAL	MAX		
6	253	166	34	26	31	6,970	420	500	3,400	PMDVB6-S
12	253	166	34	26	31	12,095	220	380	3,400	PMDVB12-S
25	273	172	34	30	30	25,280	120	350	3,450	PMDVB25-S
45	283	172	40	45	33	44,532	80	280	3,500	PMDVB45-S



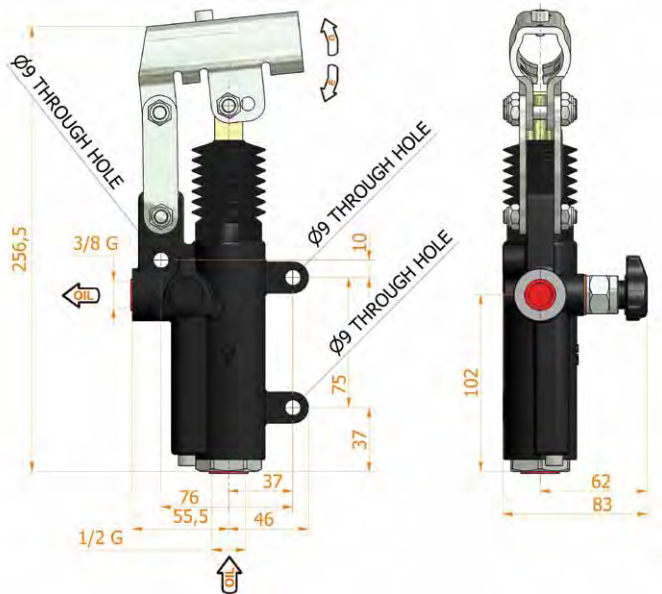
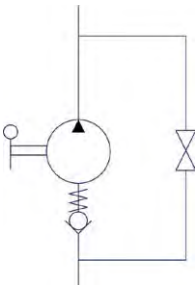
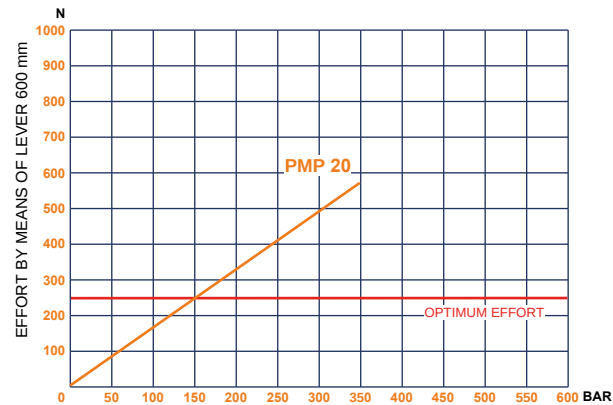
Allison Hydraulics

PMP 20 s

Double-acting hand pump for a single-acting cylinder.
Assembling in-line.
Displacement: 12 - 20 - 25 cc

EFFORT DIAGRAM

pin in D (distance between centers: 40 mm)



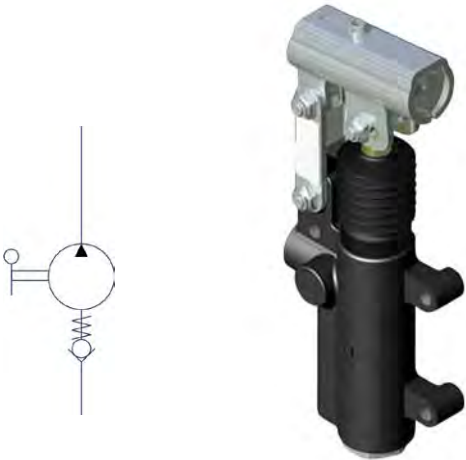
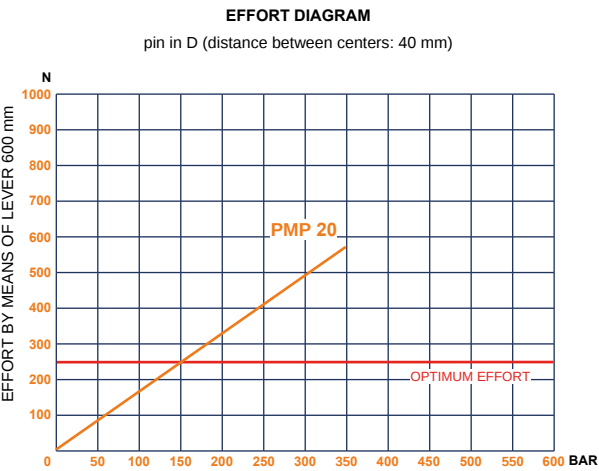
Specifications:

- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black

DISPLACEMENT cm³	A mm	B mm	C mm	D °	E °	ACTUAL DISPLACEMENT cm³	PRESSURE BAR		MASS KG	CODE WITH BELLOWS
							OPTIMAL	MAX		
20	--	--	--	32	30	20,090	150	350	2,650	PMP20-S

PMP 20 e-s

Double-acting hand pump for a single-acting cylinder.
Assembling in-line.
Displacement: 12 - 20 - 25 cc



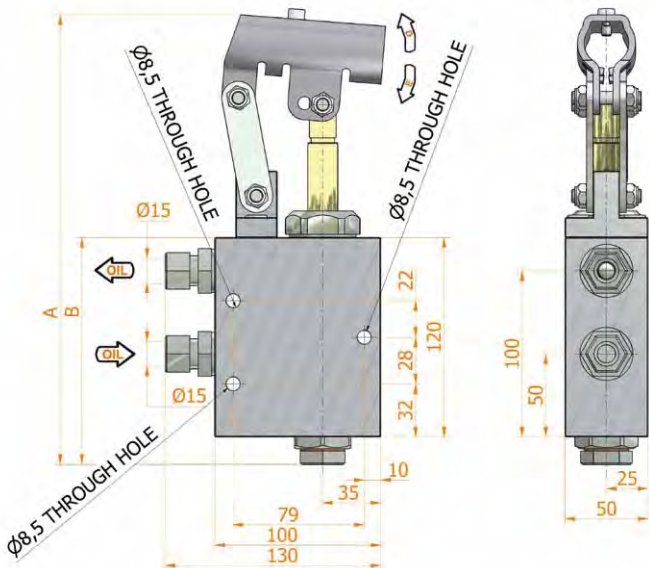
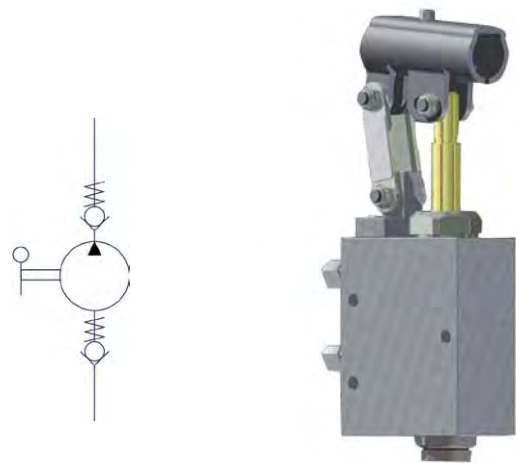
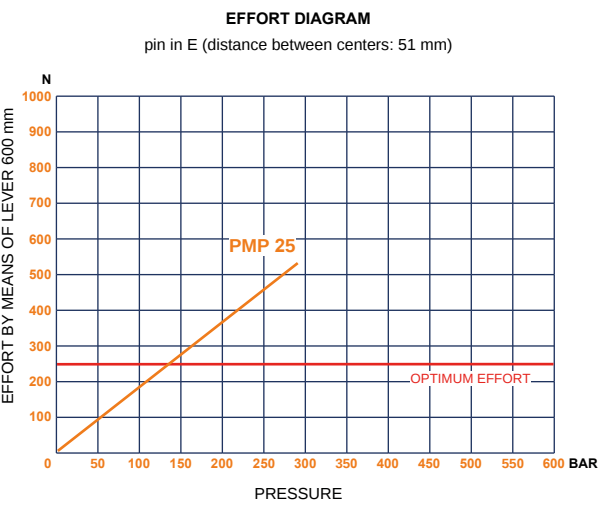
Specifications:

- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black

DISPLACEMENT cm³	A mm	B mm	C mm	D °	E °	ACTUAL DISPLACEMENT cm³	PRESSURE BAR		MASS KG	CODE WITH BELLOWS
							OPTIMAL	MAX		
20	--	--	--	32	30	20,090	150	350	2,650	PMP20-E-S

PMP 25 e

Double-acting hand pump for a single-acting cylinder.
Assembling in-line.
Displacement: 12 - 20 - 25 cc

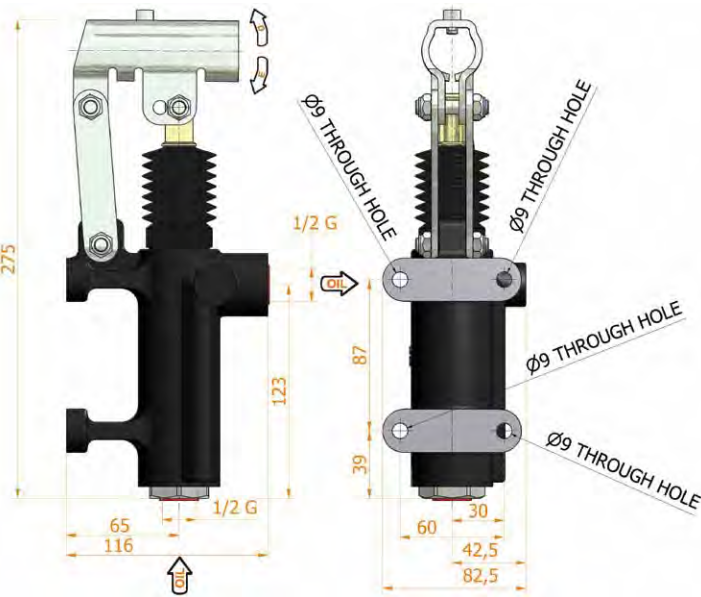
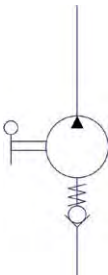
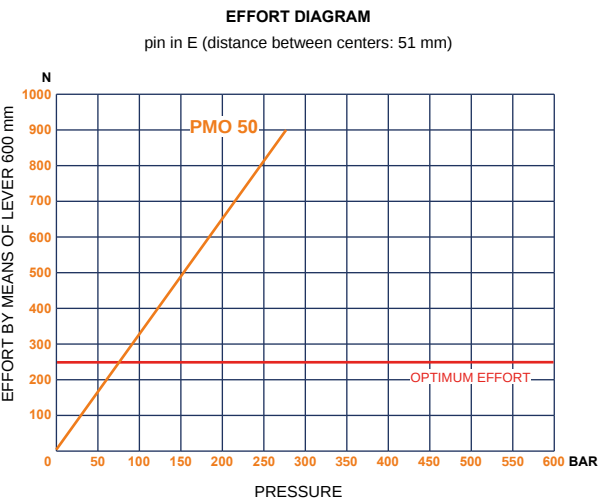


- Specifications:**
- Anticorodal aluminium body
 - Piston treated with Niploy 30 micron for high resistance in salt spray conditions.
 - Stainless steel support lever
 - Lever connection Ø 27
 - White zinc plated external parts

DISPLACEMENT cm³	A mm	B mm	C mm	D °	E °	ACTUAL DISPLACEMENT cm³	PRESSURE BAR		MASS KG	CODE WITH BELLOWS
							OPTIMAL	MAX		
25	270	136	--	26	29	24,285	120	280	3,000	PMP25-E

PMO 50 e-s

Double-acting hand pump for a single-acting cylinder.
Assembling in-line.
Displacement: 50 - 70 cc



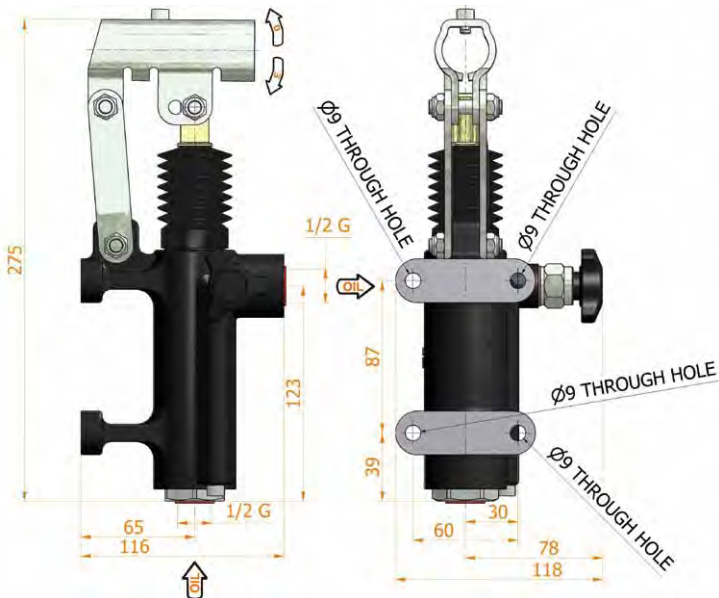
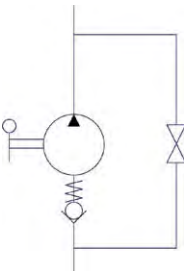
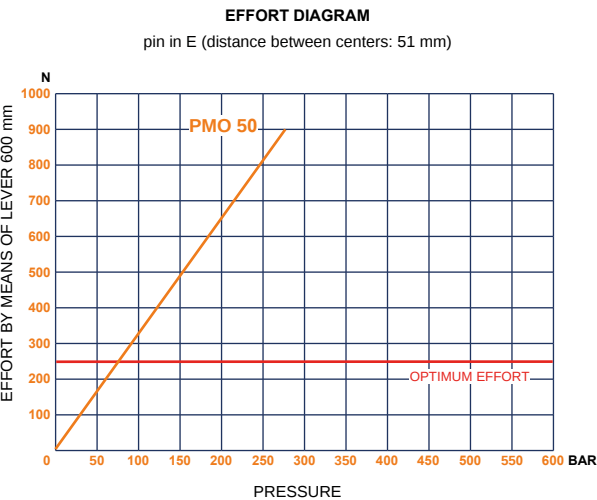
Specifications:

- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black

DISPLACEMENT cm³	A mm	B mm	C mm	D °	E °	ACTUAL DISPLACEMENT cm³	PRESSURE BAR		MASS KG	CODE WITH BELLOWS
							OPTIMAL	MAX		
50	--	--	--	38	37	43,825	80	280	3,400	PMO50-E-S

PMO 50 s

Double-acting hand pump for a single-acting cylinder.
Assembling in-line.
Displacement: 50 - 70 cc



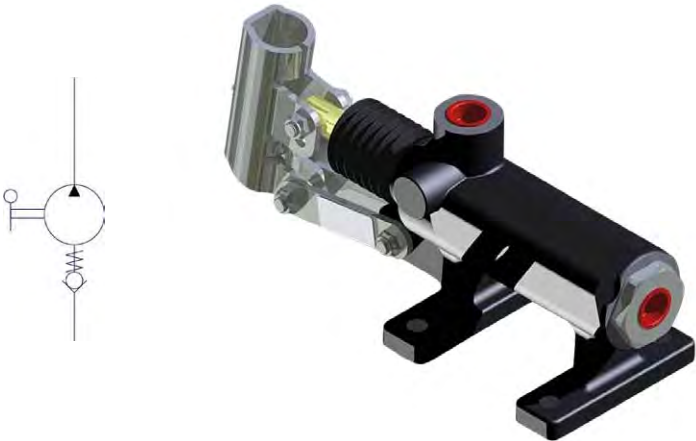
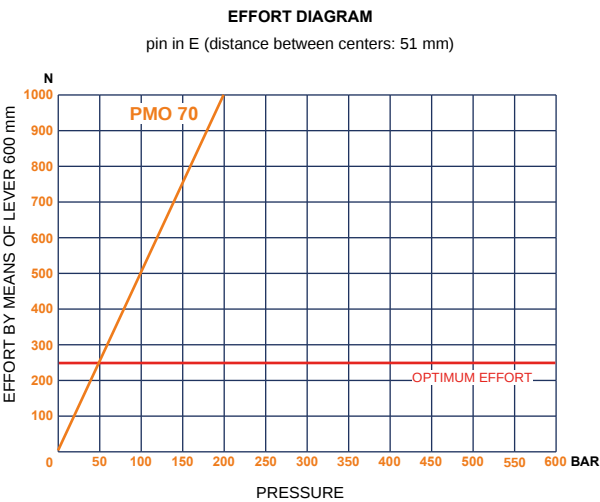
Specifications:

- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black

DISPLACEMENT cm ³	A mm	B mm	C mm	D °	E °	ACTUAL DISPLACEMENT cm ³	PRESSURE BAR		MASS KG	CODE WITH BELLOWS
							OPTIMAL	MAX		
50	--	--	--	38	37	43,825	80	280	3,400	PM050-S

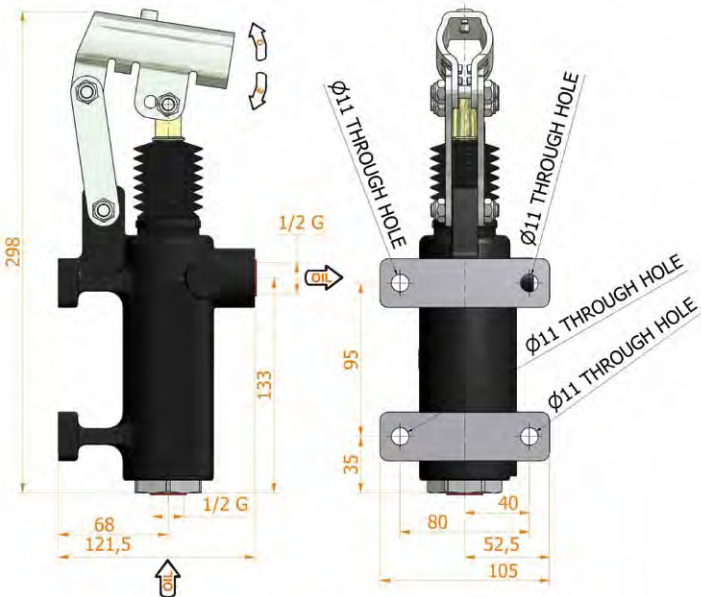
PMO 70 e-s

Double-acting hand pump for a single-acting cylinder.
Assembling in-line.
Displacement: 50 - 70 cc



Specifications:

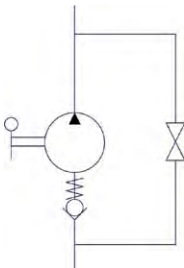
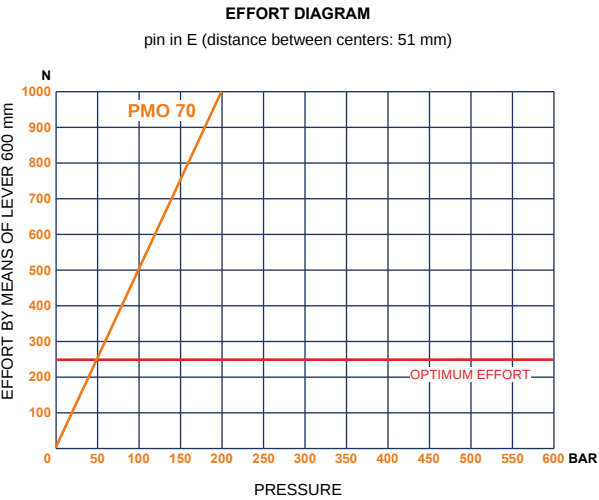
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black



DISPLACEMENT cm³	A mm	B mm	C mm	D °	E °	ACTUAL DISPLACEMENT cm³	PRESSURE BAR		MASS KG	CODE WITH BELLOWS
							OPTIMAL	MAX		
70	--	--	--	45	40	70,233	50	200	5,100	PMO70-E-S

PMO 70 s

Double-acting hand pump for a single-acting cylinder.
Assembling in-line.
Displacement: 50 - 70 cc



Specifications:

- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour blackblack



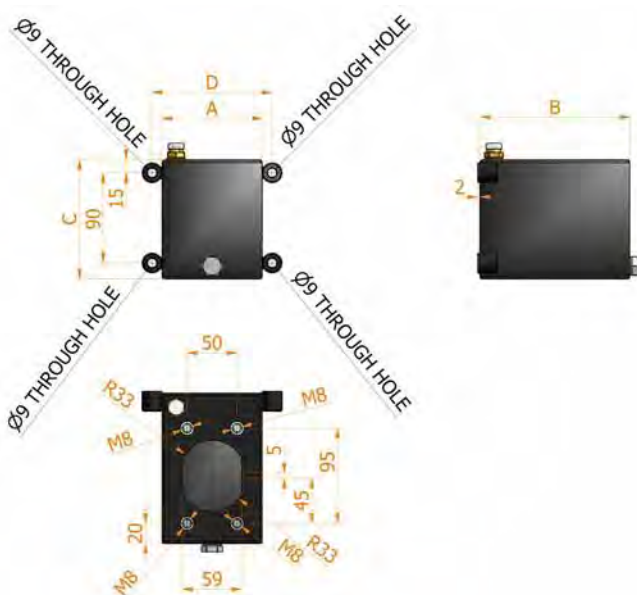
DISPLACEMENT cm³	A mm	B mm	C mm	D °	E °	ACTUAL DISPLACEMENT cm³	PRESSURE BAR		MASS KG	CODE WITH BELLOWS
							OPTIMAL	MAX		
70	--	--	--	45	40	70,233	50	200	5,100	PMO70-S

OIL TANK



Dimensions:

Model S1 ac 100x150x120
 Model S2 ac 100x150x185
 Model S3 ac 100x150x255
 Model S5 ac 175x175x200
 Model S7 ac 175x175x275
 Model S10 ac 175x175x380



Specifications:

- Painted steel oil tank
- Capacity Lt. 1-10
- Suction pipe included
- Breather cap 1/4 G
- Release cap 1/4 G
- Standard colour black

CAPACITY litri	A mm	B mm	C mm	D mm	MASS KG	SUCTION PIPE	CODE
1	100	150	120	120	2,200	Ø10x85 mm	S1 AC-R
2	100	150	185	120	3,000	Ø10x114 mm	S2 AC-R
3	100	150	255	120	3,700	Ø10x180 mm	S3 AC-R
5	175	175	200	195	5,300	Ø10x156 mm	S5 AC-R
7	175	175	275	195	6,600	Ø10x215 mm	S7 AC-R
10	175	175	380	195	8,300	Ø10x325 mm	S10 AC-R



Allison Hydraulics

LEVER FOR HAND PUMPS



Specifications:

- Black hand grip
- White zinc plated steel lever

LEVER	A mm	B mm	C mm	S mm	L mm	WEIGHT KG	LEVER FOR HAND PUMP	CODE
L 27x600 zb-d	--	--	--	27	600	0,90	PM :: PMD :: PMDVB :: PMO :: PMSE 20-30-40 :: PM2V 5-80	LPM27x600



Allison Hydraulics

Motors



Allison Hydraulics

Index

Low speed/High torque motors

WM Series

Page 127



- Displacements up to 40 cc
- Max. speeds up to 1521 rpm (Continuous)
- Max. torque up to 49 Nm

WP Series

Page 129



- Displacements up to 388 cc
- Max. speeds up to 1208 rpm (Continuous)
- Max. torque up to 488 Nm

WR Series

Page 131



- Displacements up to 400 cc
- Max. speeds up to 1116 rpm (Continuous)
- Max. torque up to 551 Nm

WS Series

Page 133



- Displacements up to 496 cc
- Max. speeds up to 745 rpm (Continuous)
- Max. torque up to 824 Nm

RE Series

Page 135



- Displacements up to 748 cc
- Max. speeds up to 360 rpm (Continuous)
- Max. torque up to 1062 Nm

DT Series

Page 137



- Displacements up to 2093 cc
- Max. speeds up to 320 rpm (Continuous)
- Max. torque up to 2661 daNm

SB Series brake

Page 139



- For use with a standard motor or as a stand-alone unit
- Holding torque up to 620 Nm

Overview:

The WM Series with spool valve design is an economical motor with integrated rotor technology. Intended for light duty applications, the WM series offers many advantages such as compact size, high speed, medium torque and extreme low weight.

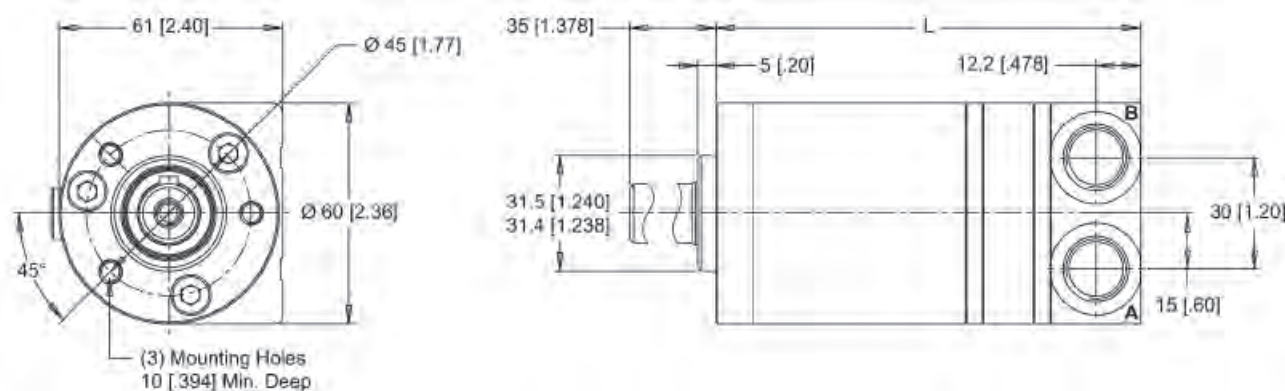
The WM series motors are used primarily in the mobile, industrial and agricultural markets.



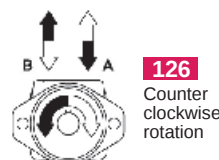
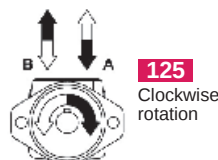
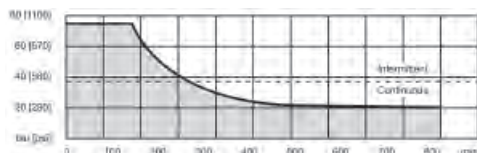
Main Characteristics:

Code	Displacement (cc/rev)	Max. Speed rpm		Max. Flow lpm		Max. Torque Nm		Max. Pressure bar (psi)		
		cont.	inter.	cont.	inter.	cont.	inter.	cont.	inter.	peak
012	13	1521	1871	20	25	17	22	100	140	200
020	20	989	1229	20	25	26	34	100	140	200
032	32	622	767	20	25	40	55	100	140	160
040	40	495	620	20	25	49	64	100	140	160

Dimensions:



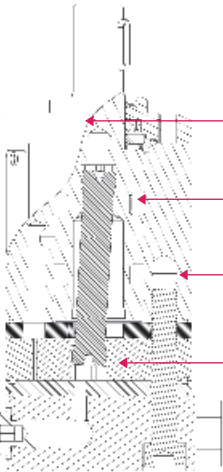
Permissible shaft seal pressure



Length/weight chart		
Dimension L		
Code	mm	kg
012	108	2.2
020	110	2.3
032	115	2.3
040	118	2.4



Allison Hydraulics



Components

- Variety of mounts and shafts provide flexibility in application designs.
- Spool valve design gives superior performance and smooth operation over a wide speed and torque range.
- Built-in check valves in the housing offers versatility and increased seal life.
- Integral rotor design provides smooth performance, compact volume and low weight.

Model code

125	012	JKB	C4	B	A	A	AA
Series: 125 = clockwise rotation 126 = counter clockwise rotation						Miscellaneous AA = none	
Displacement: (see chart)						Add on option A = standard (other options available)	
Housing: JKB = 3-hole M6 round moumt, 3/8-19 BSP.F side ports						Valve cavity and installed valve: A = none	
Shaft: C4 = 16mm straight (other options available)						Paint option: A = black B = black (unpainted flange) as standard	



Allison Hydraulics

Overview:

The WP motor series is an economical alternative to more complex geroler designs that still provides high efficiency across a wide performance range.

These motors are intended for medium-duty applications requiring high torque in a compact package and are suitable for industrial and mobile applications including car wash brushes, food processing equipment, conveyors, machine tools, agricultural equipment, sweepers, skid steer attachments, and more.

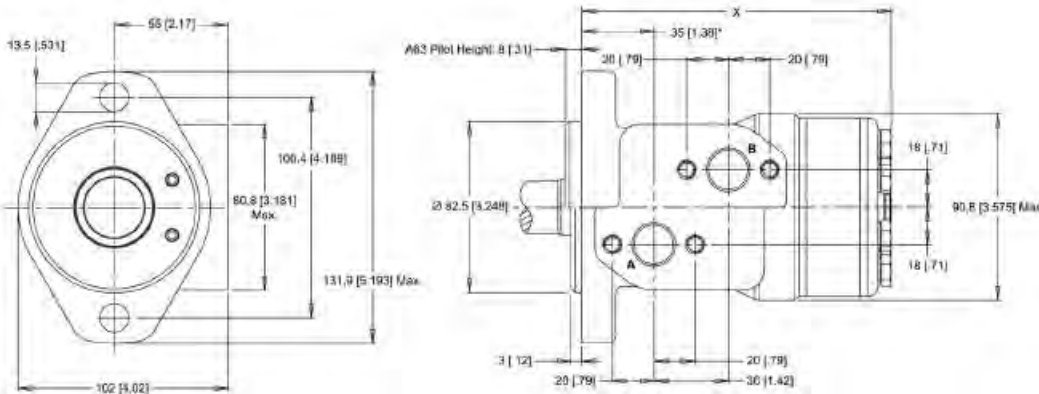
Main features include the variety of mounts and shafts that are available, a high pressure shaft seal and spool valve design offering superior seal life and performance and built-in check valves in the housing providing versatility and increased seal life.



Main Characteristics:

Code	Displacement (cc/rev)	Max. Speed rpm		Max. Flow lpm		Max. Torque Nm		Max. Pressure bar (psi)		
		cont.	inter.	cont.	inter.	cont.	inter.	cont.	inter.	peak
025	25	1570	1687	40	45	35	48	100 (1450)	140 (2030)	225 (3260)
032	32	1550	1674	50	55	45	57	100 (1450)	140 (2030)	225 (3260)
040	40	1471	1670	60	70	65	74	100 (1450)	140 (2030)	225 (3260)
050	50	1208	1500	60	75	91	108	140 (2030)	175 (2540)	240 (3480)
060	59	1185	1271	60	75	125	136	160 (2320)	175 (2540)	240 (3480)
080	78	896	960	60	75	164	183	160 (2320)	175 (2540)	240 (3480)
100	96	728	780	60	75	195	213	160 (2320)	175 (2540)	240 (3480)
125	125	559	599	60	75	258	278	160 (2320)	175 (2540)	240 (3480)
160	154	452	483	60	75	321	362	160 (2320)	175 (2540)	240 (3480)
200	190	367	385	60	75	380	420	150 (2180)	175 (2540)	240 (3480)
250	240	291	312	60	75	445	557	140 (2030)	175 (2540)	240 (3480)
315	303	228	245	60	75	460	602	120 (1740)	160 (2320)	200 (2900)
400	388	155	189	60	75	488	625	95 (1380)	125 (1810)	180 (2610)

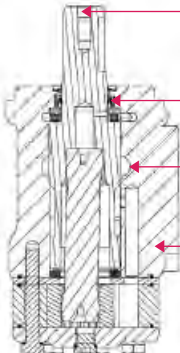
Dimensions:



Length/weight chart		
All mounts - Dimension X		
Code	mm	kg
050	136	6.5
060	137	6.5
080	139	6.6
100	142	6.7
125	146	6.8
160	150	6.9
200	155	7.1
250	162	7.3
315	170	7.6
400	181	7.9



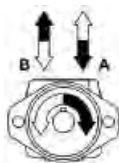
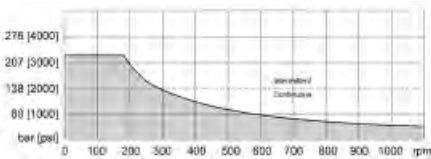
Allison Hydraulics



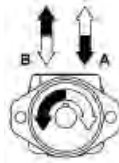
Components

- Variety of mounts and shafts provide flexibility in application design
- High pressure shaft seal offers superior seal life and performance
- Spool valve design gives superior performance and smooth operation over a wide speed and torque range
- Built-in check valves (not shown) in the housing offers versatility and increased seal life

Permissible shaft seal pressure
 The curve represents allowable seal pressure at various speeds. Operation in the grey area results in maintaining the rated life of the shaft seal. Actual shaft seal pressure depends on motor configuration.



155
 Clockwise rotation



156
 Counter clockwise rotation

Model code							
155	025	A63	12	B	A	A	AA
Series 155 = clockwise rotation 156 = counter clockwise rotation Displacement (see chart) Housing A63 = 2-hole 1/2" BSP.F Offset manifold 8mm pilot F31 = 4-hole 7/8" O-ring aligned ports (other options available) Shaft 04 = 6B (M8 x 1.25 tap) 10 = 1" straight 12 = 25mm straight (other options available)						Miscellaneous AA = none AC = Freeturning rotor Add on option A = standard (other options available) Valve cavity and installed valve A = standard B = relief valve cavity (other options available) Paint: B = black (unpainted flange) (as standard)	



Overview:

The WR Series motor incorporates the latest advances for smooth performance, efficiency and durability. It features an optimized Roller Stator® geometry with seven precision rollers to eliminate sliding friction and provide rolling contact between the rotor and stator. This increases motor efficiency. A three-zone spool valve, integral check valves and a provision for a case drain reduce pressure on internal seals to improve product life.

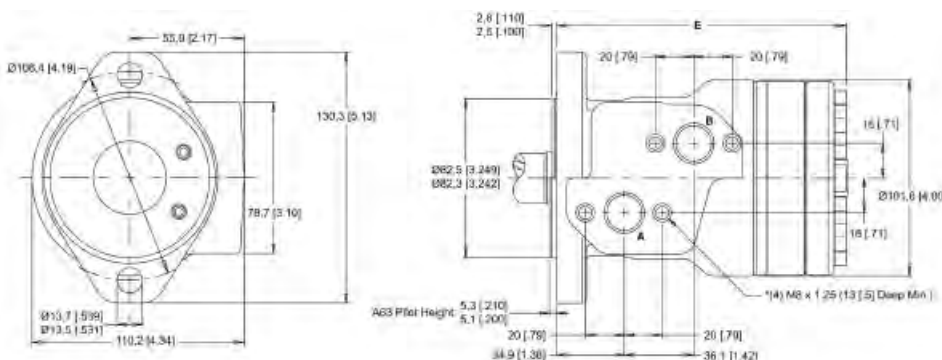
A wide variety of mounting, shaft, motor displacement and porting options are available to meet all application needs.



Main Characteristics:

Code	Displacement (cc/rev)	Max. Speed rpm		Max. Flow lpm		Max. Torque Nm		Max. Pressure bar (psi)		
		cont.	inter.	cont.	inter.	cont.	inter.	cont.	inter.	peak
040	40	1116	1515	45	61	93	123	155 (2250)	207 (3000)	224 (3250)
060	59	890	1142	53	68	138	172	155 (2250)	207 (3000)	224 (3250)
070	71	865	1078	61	76	176	207	172 (2500)	207 (3000)	241 (3500)
090	88	691	864	61	76	222	263	172 (2500)	207 (3000)	241 (3500)
100	100	610	760	61	76	246	289	172 (2500)	207 (3000)	241 (3500)
115	113	539	672	61	76	284	327	172 (2500)	207 (3000)	241 (3500)
130	129	472	588	61	76	316	375	172 (2500)	207 (3000)	241 (3500)
160	160	379	469	61	76	400	454	172 (2500)	207 (3000)	241 (3500)
200	198	308	384	61	76	462	544	172 (2500)	207 (3000)	241 (3500)
240	236	249	315	61	76	548	642	172 (2500)	207 (3000)	224 (3250)
320	322	188	235	61	76	518	690	121 (1750)	172 (2500)	190 (2750)
400	400	152	190	61	76	551	698	104 (1500)	138 (2000)	155 (2250)

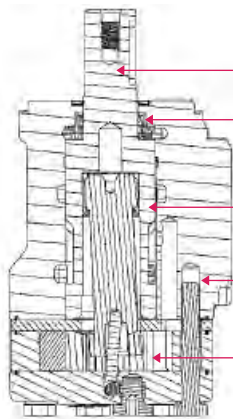
Dimensions:



Length/weight chart SAE A mount - Dimension E		
Code	mm	kg
040	142	6.6
060	146	6.7
070	147	6.7
090	151	6.8
100	154	6.9
115	156	7.1
130	160	7.3
160	166	7.5
200	173	8.0
240	182	8.5
320	198	9.0
400	213	9.8



Allison Hydraulics

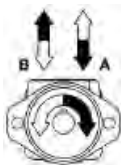
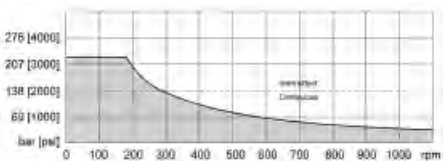


Components

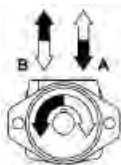
- Variety of mounts and shafts provide flexibility in application design
- High pressure shaft seal offers superior seal life and performance
- Spool valve design gives superior performance and smooth operation over a wide speed and torque range
- Built-in check valves (not shown) in the housing offers versatility and increased seal life
- Optimised Roller Stator® geometry provides a smooth running high efficient product

Permissible shaft seal pressure

The curve represents allowable seal pressure at various speeds. Operation in the grey area results in maintaining the rated life of the shaft seal. Actual shaft seal pressure depends on motor configuration.



255
 Clockwise rotation



256
 Counter clockwise rotation

Model code

255	040	A63	12	B	A	A	AA
Series 255 = clockwise rotation 256 = counter clockwise rotation Displacement (see chart) Housing A63 = 2-hole 1/2" BSP.F Offset manifold w/5.1mm pilot F31 = 4-hole 7/8" O-ring aligned ports (s) (other options available) Shaft 04 = 1" 6-B spline M8 tap 10 = 1" straight 5/16" tap 12 = 25mm straight (other options available)						Miscellaneous AA = none Add on option A = standard (other options available) Valve cavity and installed valve A = standard B = relief valve cavity (other options available) Paint: B = black (unpainted flange) (as standard)	

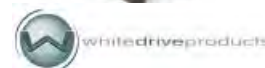


Overview:

The WS product family features flow rates up to 76 LPM, torque up to 824 Nm and pressures up to 207 bar [3000 PSI] at continuous ratings. The WS targets agricultural equipment, skid steer attachments, and other applications that require greater torque under demanding conditions. A distinguishing feature of the WS in relation to competitive products is its heavy duty drive link with a larger pitch diameter. This enables the WS to better withstand pressure and torque spikes and is reflected in its intermittent and peak performance ratings.

Additional product features include a three zone commutator valve, heavy-duty tapered roller bearings, and case drain with integral internal drain.

The WS offers displacements from 80cc to 496cc. Nine (9) shaft and seven (7) mounting options are available to meet the most common SAE and European requirements.

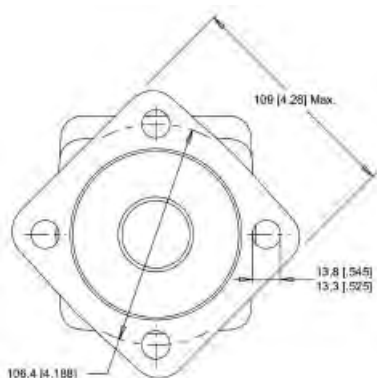


Main Characteristics:

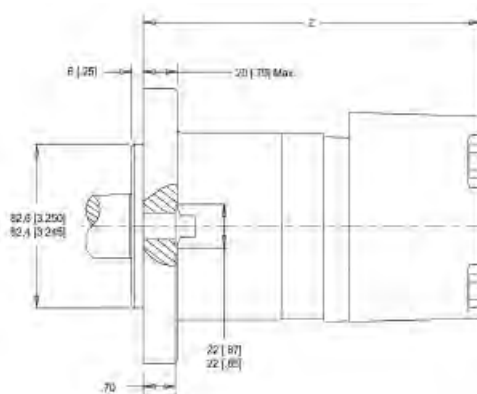
Code	Displacement (cc/rev)	Max. Speed rpm		Max. Flow lpm		Max. Torque Nm		Max. Pressure bar (psi)		
		cont.	inter.	cont.	inter.	cont.	inter.	cont.	inter.	peak
100	100	745	880	76	95	280	416	207 (3000)	310 (4500)	310 (4500)
110	112	675	840	76	95	307	468	207 (3000)	310 (4500)	310 (4500)
130	129	580	730	76	95	370	550	207 (3000)	310 (4500)	310 (4500)
160	162	465	700	76	114	462	618	207 (3000)	276 (4000)	310 (4500)
200	202	375	560	76	114	576	768	207 (3000)	276 (4000)	310 (4500)
230	228	325	490	76	114	642	806	207 (3000)	276 (4000)	310 (4500)
320	325	235	350	76	114	789	1029	190(2750)	224 (3250)	259 (3750)
400	399	190	280	76	114	816	1034	155 (2250)	190 (2750)	224 (3250)
500	496	155	230	76	114	824	1041	121 (1750)	155 (2250)	172 (2500)

Dimensions:

AH 4-hole square SAE A mount with side ports



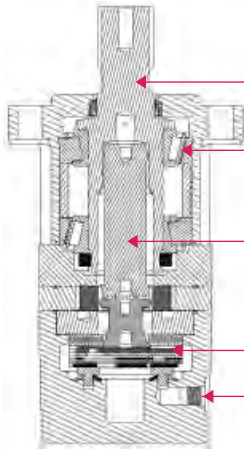
NOTE: AH-3 as standard



Length/weight chart 4.25" wheel mount - Dimension BB		
Code	mm	kg
100	153	12.0
110	155	12.2
130	159	12.4
160	165	12.8
200	173	13.1
230	179	13.5
320	197	14.5
400	197	14.5
500	212	15.3



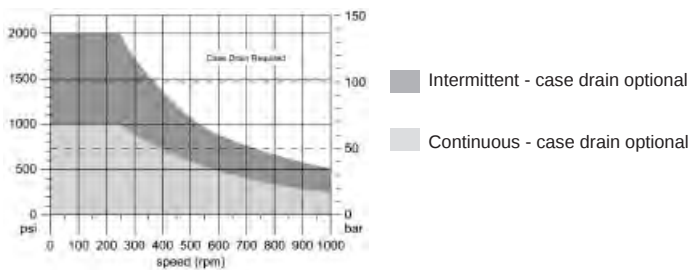
Allison Hydraulics



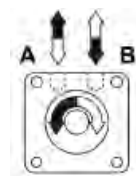
Components

- Nine shaft and seven mounting options to meet the most common SAE and European requirements
- Heavy duty tapered roller bearings for extra side load capacity
- Heavy duty drive link with larger pitch diameter than competitors for greater resistance to pressure and torque spikes
- Three zone commutator valve for high flow capacity
- Standard case drain with integral internal drain for extended shaft seal life

Permissible shaft seal pressure



355
Clockwise
rotation



356
Counter
clockwise
rotation

Model code

355	100	AH	3	21	A	A	A	AA
Series 355 = clockwise rotation 356 = counter clockwise rotation Displacement (see chart) Housing A8 = 4-hole magneto with side ports AH = 4-hole square SAE A mount with side ports S8 = short motor with side ports W8 = 4-hole 3.25" pilot wheel mount with side ports (other options available)								Miscellaneous AA = none Add on option A = standard (other options available) Valve cavity and installed valve A = none as standard (other options available) Paint: A = black as standard
								Shaft 12 = 25mm straight 21 = 32mm straight as standard 23 = 14 tooth spline 0A = Cardan (drive link only) NOTE: The 0A shaft must be used on the short motor only.



Allison Hydraulics

Overview:

RE Series motors offer the perfect compromise between price and performance by producing work horse power at a reasonable cost. Although these motors perform well in a wide range of applications, they are especially suited for low flow, high pressure applications. During startup, pressure causes the balance plate to flex toward the rotor, vastly improving volumetric efficiency.

As the motor reaches operating pressure, the balance plate relaxes, allowing the rotor to turn freely which translates into higher mechanical efficiencies.

Transmitting this power to the output shaft is the most durable drive link in its class.

Four bearing options, combined with standard mounting flanges and output shafts, allow the motor to be configured to suit nearly any application.



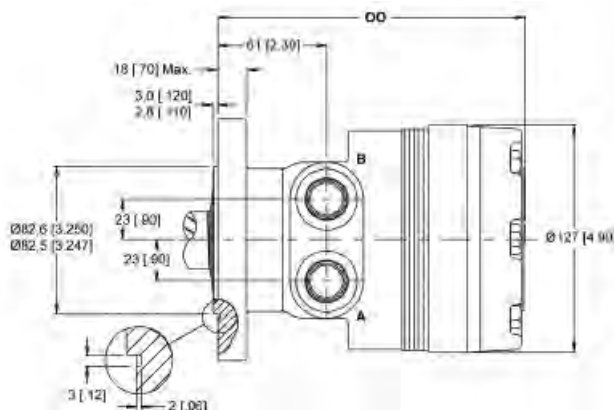
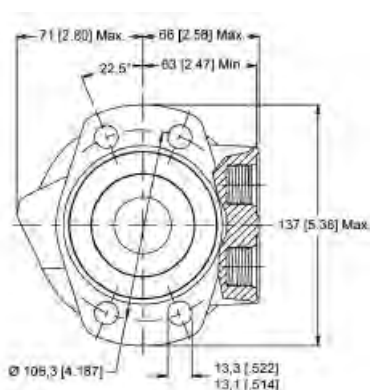
Main Characteristics:

Code	Displacement (cc/rev)	Max. Speed rpm		Max. Flow lpm		Max. Torque Nm		Max. Pressure bar (psi)		
		cont.	inter.	cont.	inter.	cont.	inter.	cont.	inter.	peak
120	121	360	490	45	61	327	383	207 (3000)	241 (3500)	276 (4000)
160	162	370	470	61	76	475	542	207 (3000)	241 (3500)	276 (4000)
200	204	300	370	68	83	542	633	207 (3000)	241 (3500)	276 (4000)
230	232	260	320	68	83	644	712	207 (3000)	241 (3500)	276 (4000)
260	261	260	350	76	91	712	791	207 (3000)	241 (3500)	276 (4000)
300	300	250	320	83	95	825	938	207 (3000)	241 (3500)	276 (4000)
350	348	220	270	83	95	921	1045	207 (3000)	241 (3500)	276 (4000)
375	375	200	250	76	91	1006	1158	207 (3000)	241 (3500)	276 (4000)
470	465	160	200	76	91	1096	1184	172 (2500)	189 (2750)	207 (3000)
540	536	140	170	76	91	983	1243	138 (2000)	172 (2500)	207 (3000)
750	748	100	130	76	91	1062	1237	103 (1500)	121 (1750)	138 (2000)

Dimensions:

A31 4-hole 7/8" O-ring aligned ports

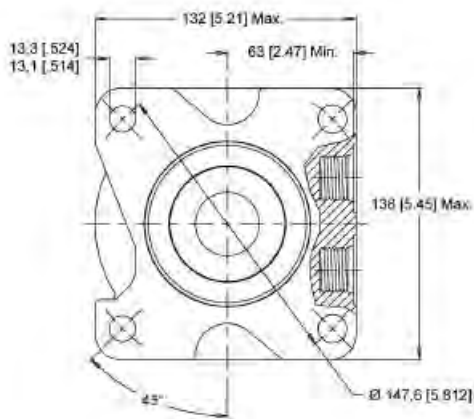
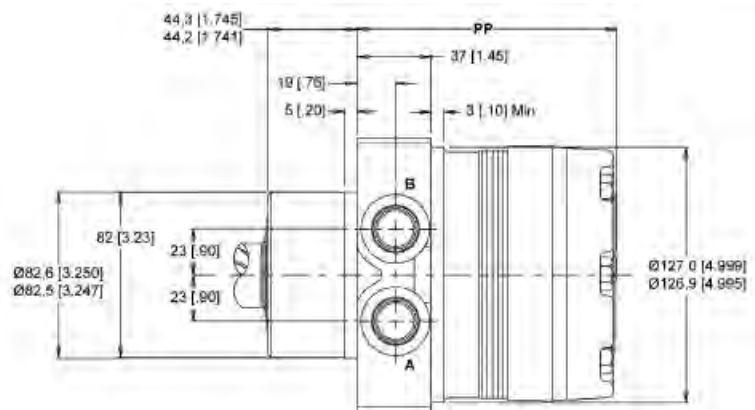
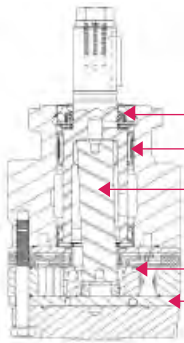
A38 4-hole 1/2" BSP.F aligned ports



Length/weight chart SAE A mount - Dimension 00		
Code	mm	kg
120	162	10.6
160	162	10.6
200	165	11.0
230	168	11.1
260	170	11.3
300	174	11.7
350	187	12.8
375	180	12.2
470	187	12.8
540	194	13.3
750	212	14.8

Allison Hydraulics

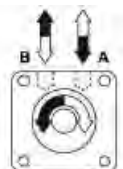


W31 4-hole 7/8" O-ring aligned ports

W38 4-hole 1/2" BSP.F aligned ports

Components


- High pressure shaft seal offers superior seal life and performance and eliminates need for case drain
- Three bearing options allow load carrying capability of motor to be matched to application
- Heavy duty drive link is the most durable in its class and receives full flow lubrication to provide long life
- Valve-in-rotor design provides cost effective, efficient distribution of oil and reduces overall motor length
- Pressure-compensated balance plate improves volumetric efficiency at low flows and high pressure

Model code

500	120	A31	12	A	A	A	AA
Series 500 = counter clockwise rotation 501 = clockwise rotation Displacement (see chart) Housing A31 = 4-hole 7/8" O-ring aligned ports (s) A38 = 4-hole 1/2" BSP.F aligned ports (s) W31 = 4-hole 7/8" O-ring aligned ports W38 = 4-hole 1/2" BSP.F aligned ports (other options available) Shaft 12 = 25mm straight 20 = 1-1/4" tapered 21 = 32mm straight 22 = 1-1/4" tapered 23 = 14 tooth spline (other options available)							Miscellaneous AA = none Add on option A = standard B = lock nut Valve cavity A = none B = relief valve cavity C = 1000 psi relief valve installed D = 1250 psi relief valve installed E = 1500 psi relief valve installed F = 1750 psi relief valve installed G = 2000 psi relief valve installed J = 2500 psi relief valve installed L = 3000 psi relief valve installed Paint: A = black



500
Counter
clockwise
rotation



501
Clockwise
rotation



Allison Hydraulics

Overview:

The most amazing aspect of the DT Series motor is its huge torque potential from its relatively small size. The DT Series motor is capable of producing output torque comparable to competitive designs, but from a package that is both shorter and lighter. The savings in space and weight in no way compromises durability, as the motor uses massive shafts, bearings and drive links to transmit the torque produced by this powerful package.

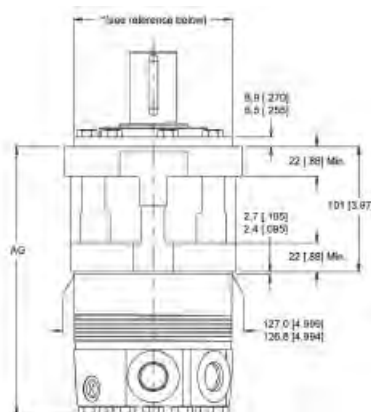
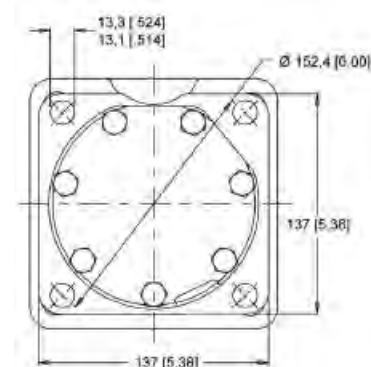
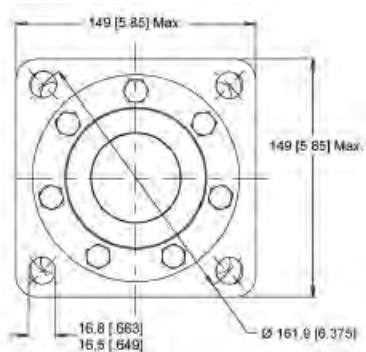
The use of a case drain allows reduced pressure on the shaft seal while maintaining driveline lubrication for maximum motor life. Standard mounting and shaft options offer interchangeability with competitive designs. An internal drain option is also available.



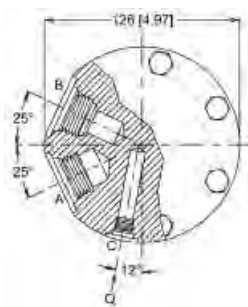
Main Characteristics:

Code	Displacement (cc/rev)	Max. Speed rpm		Max. Flow lpm		Max. Torque Nm		Max. Pressure bar (psi)		
		cont.	inter.	cont.	inter.	cont.	inter.	cont.	inter.	peak
300	300	320	380	95	114	819	955	207 (3000)	241 (3500)	259 (3750)
375	374	250	300	95	114	1045	1127	207 (3000)	224 (3250)	241 (3500)
470	464	200	240	95	114	1071	1390	172 (2500)	224 (3250)	241 (3500)
540	536	180	210	95	114	1277	1525	172 (2500)	207 (3000)	241 (3500)
750	747	130	150	95	114	1780	2090	172 (2500)	207 (3000)	241 (3500)
930	929	100	120	95	114	1780	2141	138 (2000)	172 (2500)	207 (3000)
1K1	1047	90	110	95	114	1915	2316	138 (2000)	172 (2500)	207 (3000)
1K5	1495	60	70	95	114	2090	2316	103 (1500)	121 (1750)	138 (2000)
2K1	2093	40	50	95	114	2661	3342	103 (1500)	121 (1750)	138 (2000)

Dimensions:



Note: *Dimension for the C2 & C8 is 127.0 (5.00) - 127.7 (4.99)
*Dimension for the E2 & E8 is 124.9 (4.92) - 124.5 (4.90)

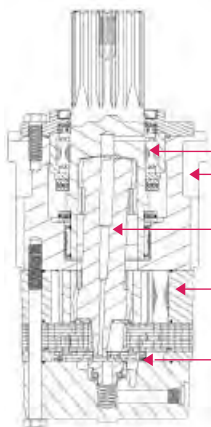


Note: Shown with standard case drain

Length/weight chart		
Standard mount - Dimension AG		
Code	mm	kg
300	209	20.2
375	216	20.8
470	223	21.4
540	230	21.9
750	248	23.3
930	263	24.4
1K1	273	25.3
1K5	311	28.3
2K1	362	32.3

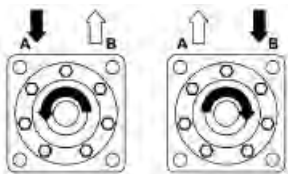


Allison Hydraulics



Components

- Heavy duty roller bearing supports high side loads and receives forced lubrication for cooling and increased life
- Compact housing contributes to high power-to-weight ratio of motors and offers front and rear mounting flanges
- Heavy duty drive link receives forced lubrication for long life and is capable of extreme duty cycles
- Roller Stator® motor available in displacements up to 2093cc (127.7 cid) for high torque output
- Three-zone orbiting valve precisely meters oil to produce exceptional volumetric efficiencies



NOTE: DT series motors do not have internal components that allow the motor to turn in either direction. Refer to the diagram on the left to determine which way the motor will turn when either port A or port B is pressurised.

Model code								
700	300	E8	2	36	A	A	A	AA
Series 700 = DT series motor							Miscellaneous AA = none AB = internal drain	
Displacement (see chart)							Add on option A = standard (other options available)	
Housing E8 = standard mount 125mm pilot side ports (other options available)							Valve cavity A = none (other options available)	
Ports 2 = 3/4" BSP.F with 1/4" drain (radial ports) as standard (other options available)								
Shaft 36 = 40mm straight as standard 23 = 14 tooth spline 41 = 50mm straight 30 = 1-1/2" straight							Paint: A = black as standard	



Allison Hydraulics

Overview:

The SB Series is a multiple-wet-disc-brake that provides superior performance in an extremely compact package. Unlike conventional brakes offered today, the SB brake is performance-matched to fit the full range of small-frame SAE A mount motors available today.

With an overall diameter of less than 137mm, the SB has a holding capacity in excess of 620 Nm and is easily mated to a variety of global industry standard motor mounting and shaft options. In addition, the SB Series can be used as a stand-alone brake solution without an input drive motor.

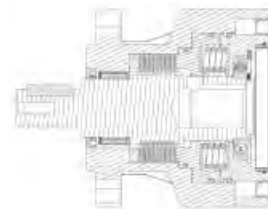
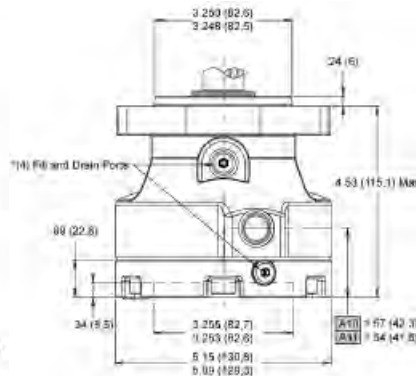
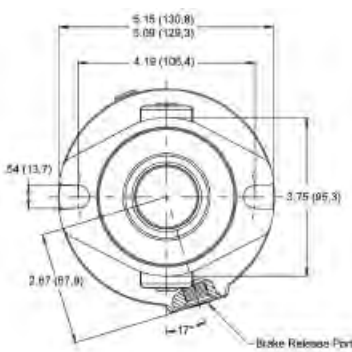
This option further opens design flexibility to meet a wider variety of application needs.



Main characteristics:

Code	225	315	415	520	620
Holding torque	225 Nm	315 Nm	415 Nm	520 Nm	620 Nm
Max. release pressure	250 bar				
Full release pressure	20 bar	20 bar	20 bar	31 bar	31 bar
Release volume	8.3 cc				
Unit weight	8 kg				

Dimensions:



Features:

- All wear components are fully immersed in fluid (wet multi-disc design)
- Performance-matched to fit small-frame motors with SAE A mount
- Release pressure independent of motor pressure
- Brake directly coupled to the output shaft
- Wide-variety of input and output shaft options
- Environmentally sealed / factory prefilled with oil

Model code

930	225	A11	ZW	B	A	A	AA
Series SB series brake		Holding torque (see chart)		Housing A11 = 2-hole 1/4" BSP.P release ports A31 = 4-hole 1/4" BSP.P release ports (other options available)		Shaft ZW = 1" straight output with 6B spline input ZZ = 6B spline output with 6B spline input ZY = 25mm straight output with 25mm straight input ZX = 32mm straight output with 25mm straight input	
Miscellaneous AA = standard* Add on option A = standard		Valve cavity A = none		Paint: B = black (unpainted flange face)			

Note: * The standard paint code for an SB brake with an input drive motor is the Z option (no paint).



Allison Hydraulics

Cylinders



atos® 



Allison Hydraulics



Index

Cylinders

Welded construction

Page 142



- Single/Double-acting
- 210 bar Max. pressure
- 50-100 mm bore standard range
- 20-250 mm bore non standard range available

ISO Standard range

Page 143



- 250 bar Max. pressure
- 25-320 mm bore

Servo-cylinders

Page 145



- 40-200 mm bore
- Magnetosonic, Magnetostrictive, Potentiometric and Inductive types
- Available with ATEX certification and Integral subplate

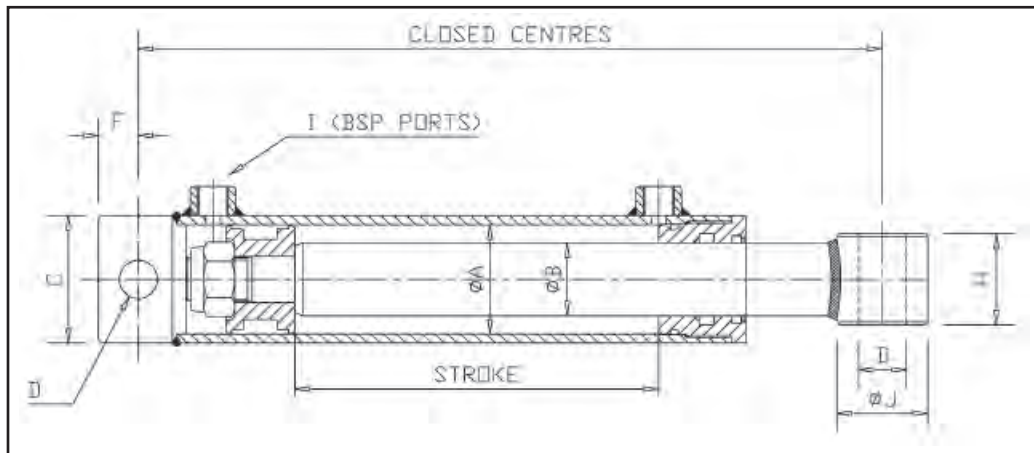
Stainless steel cylinders

Page 146



- 250 bar Max. pressure
- 25-200 mm bore

Standard cylinders



Part No.	Bore Ø A	Rod Ø B	Stroke	Closed centres cc	Female ports I	Eye Ø J	Pin size D	Rod eye length H	Capacity (210 bar)
5030100	50	30	100	260	3/8" BSP	45	21	40	3.8 Ton
5030200			200	360		45	21	40	3.8 Ton
5030300			300	460		45	21	40	3.8 Ton
5030400			400	560		45	21	40	3.8 Ton
5030500			500	660		45	21	40	3.8 Ton
5030600			600	760		45	21	40	3.8 Ton
5030700			700	860		45	21	40	3.8 Ton
6040100	60	40	100	270	3/8" BSP	45	26	50	5.9 Ton
6040200			200	370		45	26	50	5.9 Ton
6040300			300	470		45	26	50	5.9 Ton
6040400			400	570		45	26	50	5.9 Ton
6040500			500	670		45	26	50	5.9 Ton
6040600			600	770		45	26	50	5.9 Ton
6040700			700	870		45	26	50	5.9 Ton
7040100	70	40	100	270	3/8" BSP	45	26	50	8.2 Ton
7040200			200	370		45	26	50	8.2 Ton
7040300			300	470		45	26	50	8.2 Ton
7040400			400	570		45	26	50	8.2 Ton
7040500			500	670		45	26	50	8.2 Ton
7040600			600	770		45	26	50	8.2 Ton
7040700			700	870		45	26	50	8.2 Ton
8040200	80	45	200	400	3/8" BSP	45	26	60	10 Ton
8040300			300	500		45	26	60	10 Ton
8040400			400	600		45	26	60	10 Ton
8040500			500	700		45	26	60	10 Ton
8040600			600	800		45	26	60	10 Ton
8040700			700	900		45	26	60	10 Ton
9050300	90	50	300	500	3/8" BSP	50	26	60	13.4 Ton
9050400			400	600		50	26	60	13.4 Ton
9050500			500	700		50	26	60	13.4 Ton
9060600			600	800		50	26	60	13.4 Ton
9060700			700	900		50	26	60	13.4 Ton
10050300	100	50	300	500	1/2" BSP	50	31	60	16.5 Ton
10050400			400	600		50	31	60	16.5 Ton
10050500			500	700		50	31	60	16.5 Ton
10050600			600	800		50	31	60	16.5 Ton
10050700			700	900		50	31	60	16.5 Ton

Note: Dimensions are an indication only and should not be used for final details.
If necessary, please request an up to date dimensioned drawing with your order.

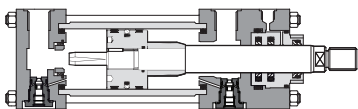


Allison Hydraulics

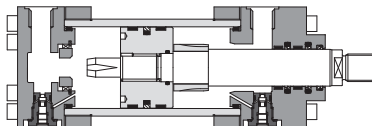
hydraulic cylinders



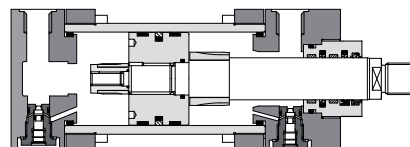
ISO standard hydraulic cylinders, double acting
engineered design and high quality machining, to suit the
requirements of modern machines and systems: top
reliability, easy installation & service, long service life



CK ISO 6020-2
square heads
nominal pressure up to 160 bar
max 250 bar



CN ISO 6020-1
round heads
nominal pressure up to 160 bar
max 250 bar



CC ISO 6022
round heads heavy duty
nominal pressure up to 250 bar
max 320 bar



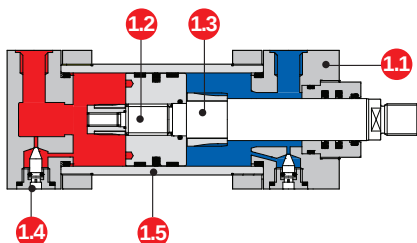
103 CK cylinders, mounting styles G, E, N **104** CN cylinder **105** CC cylinders, mounting styles S and A

Standard hydraulic cylinders

details on tables B137, B180, B241

[illegible]

CC heavy duty cylinder



- 11 round head & abundant guide
- 12 piston, largely sized
- 13 progressive cushion
& adjusting screw 14
- 15 ISO seals

Cylinder's code

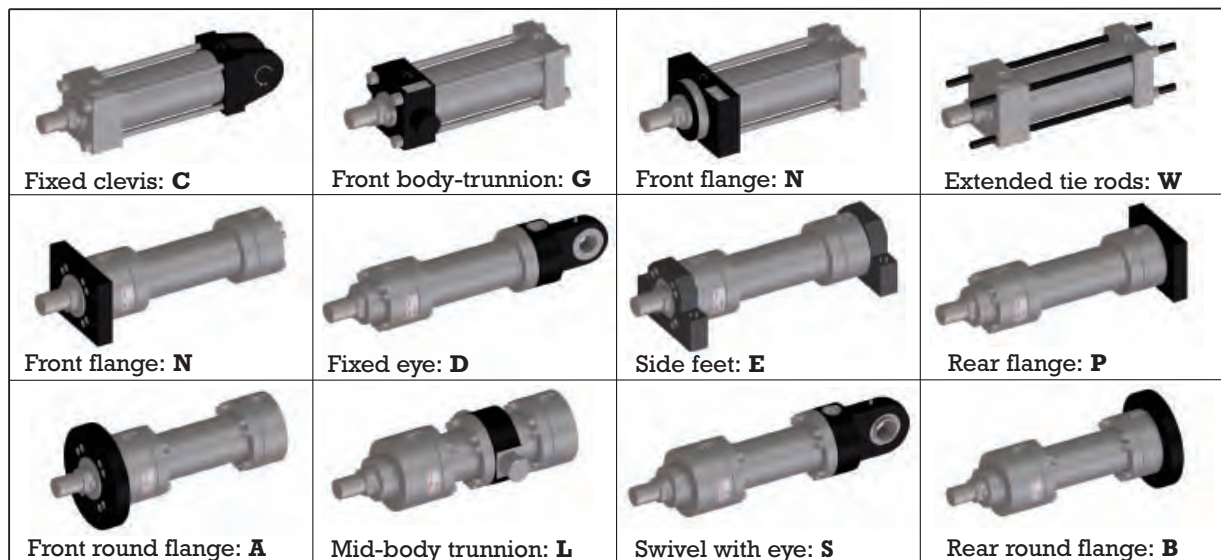
CK - 63/45 * 0500 - S 0 0 1 *

[illegible]

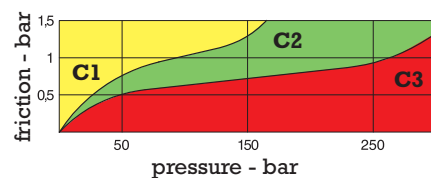
notes

- (1) CH big bores cylinders also available, see On-line Master Catalog
- (2) Double rod cylinders available: add the second rod diameter
- (3) Standard strokes for CK: 25, 50, 100, 160, 200, 250, 320, 400, 500
- (4) Fast or slows, fixed or adjustable
- (5) Spacer: normally requested for stroke over 1000 mm to increase the rod guide and protect against overload and premature wear

ISO standard mounting style



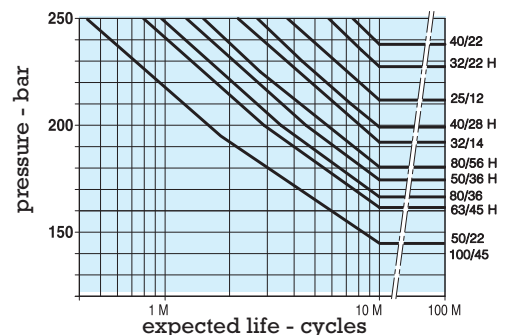
Seals options



seals	material	characteristics	friction
1	Poliurethane	high static and dynamic sealing	C1
2	FKM + PTFE	high fluid temperature	C3
4	NBR + PTFE	high speed, up to 4m/s	C3
6/7	NBR + PTFE	single acting - pushing/pulling	C3
8	Poliurethane+PTFE	low friction	C2

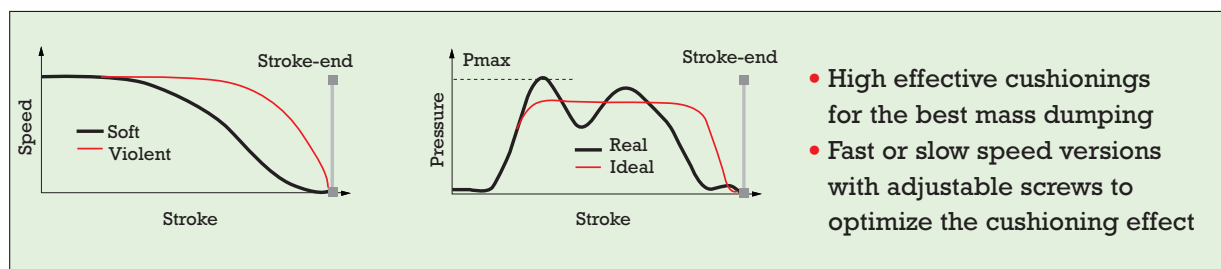
Rod features and options

- Hardened and tempered alloy steel rod and rolled rod threads for high strength and improved fatigue working life
- Optional NIKROM treatment and induction hardening to improve rod hardness and corrosion resistance



Engineered cushionings

details on table B015



DVC cylinder designer

- Technical information on variants and options: cushioning, seals, etc.
- Computer assisted compilation of the cylinder's code
- 2D & 3D drawing can be directly imported in any CAD system
- Calculation software for cylinder's sizing
- Compilation modules for requests, orders, bill of materials, etc



hydraulic servocylinders



Atos servocylinders derive from hydraulic cylinders by incorporation of an integral rod position transducer and mounting of special anti-low friction seals

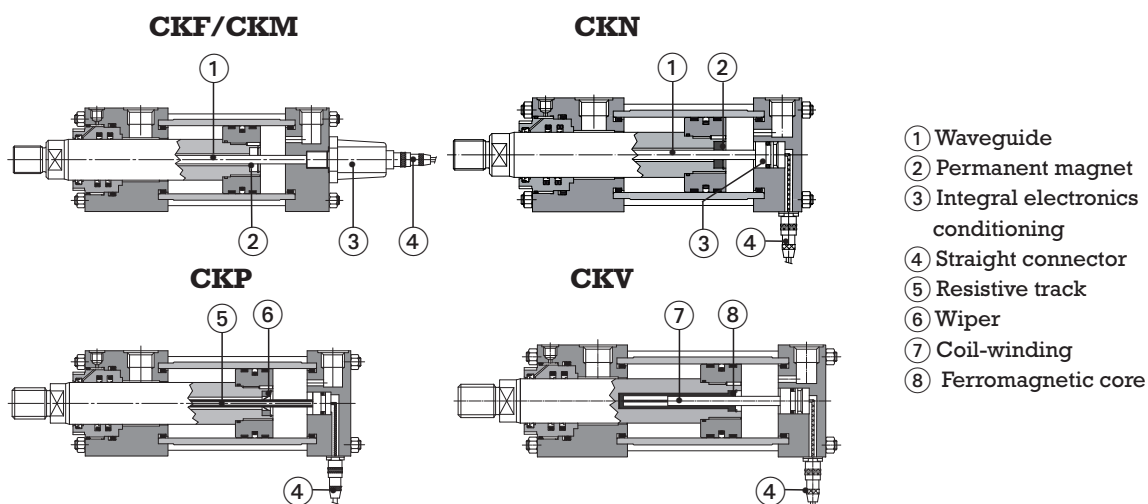
The integration of the electronic transducer inside the cylinder ensures protection also in hard conditions - shocks, vibrations, high working frequency, dirt, etc. - and consequently a long working life

Rod position transducers

details on table B310

code	CKF	CKM	CKN	CKP	CKV
transducer type	Magnetosonic	Magnetosonic	Magnetostrictive	Potentiometric	Inductive
electronic conditioning	Integral	Integral	Integral	None	Separate
linearity error (1)	$< \pm 0,03\%$	$< \pm 0,01\%$	$< \pm 0,02\%$	$\pm 0,1\%$	$\pm 0,2\%$
repeatability (1)	$< \pm 0,005\%$	$< \pm 0,001\%$	$< \pm 0,005\%$	$\pm 0,05\%$	$\pm 0,05\%$
max speed	1 m/s	2 m/s	1 m/s	0,5 m/s	1 m/s
strokes	100 to 1000	100 to 3000	100 to 4000	100 to 900	100 to 1000
output	$0 \div 10\text{ V}$	$0 \div 10\text{ V}, 4 \div 20\text{ mA}$ digital SSI, CANopen PROFIBUS DP	$0,1 \div 10,1\text{ V}$ $4 \div 20\text{ mA}$	$0 \div 10\text{ V}$	$0 \div 10\text{ V}$ $4 \div 20\text{ mA}$
typical applications	sawing & bending machines	steel plants, plastic & rubber machines	foundry and energy	various	simulators & energy
temperature limits	-20°C to $+75^{\circ}\text{C}$	-20°C to $+75^{\circ}\text{C}$	-20°C to $+90^{\circ}\text{C}$	-20°C to $+75^{\circ}\text{C}$	-20°C to $+120^{\circ}\text{C}$

Note: (1) percentage of the total stroke



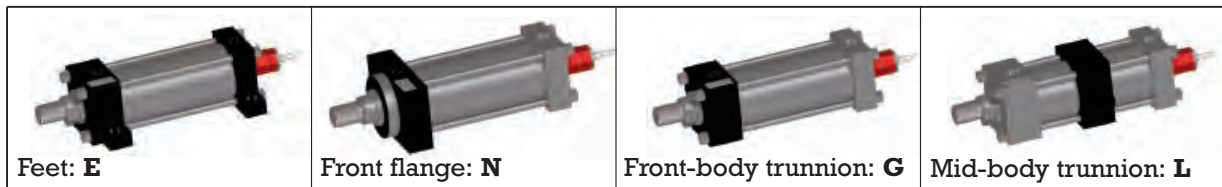
Atex certified CKA cylinder *tables B400, B310*

CKA cylinders are designed to limit the external surface temperature, according to ATEX 94/9/CE Directive, thus to avoid self-ignition of gas, vapours and dust mixtures.

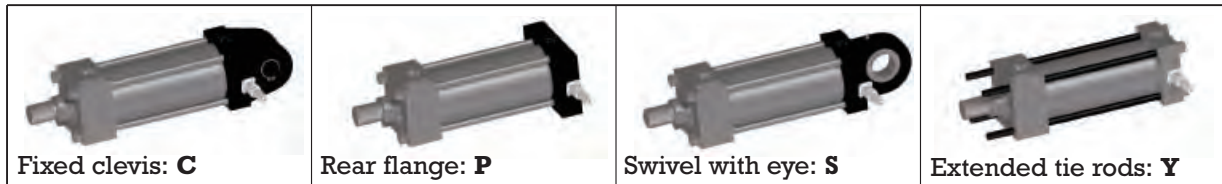
CKA are also available with ex-proof built-in digital magnetostrictive transducer, ATEX certified see picture 113



CKM and CKF standard mounting style

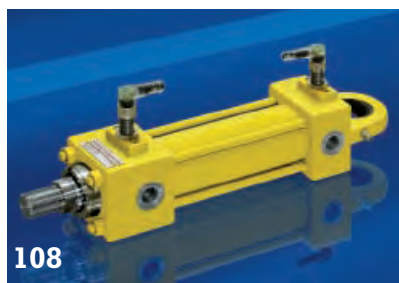


CKN, CKP and CKV standard mounting style



Sizes of hydraulic servocylinders - mm

bore $\varnothing$	40	50	63	80	100	125	160	200
rod $\varnothing$	28	36	45	56	70	90	110	140



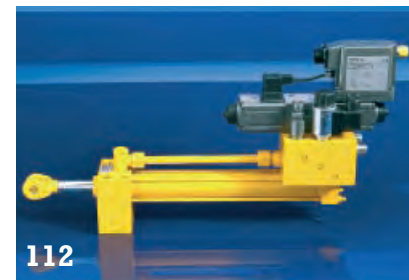
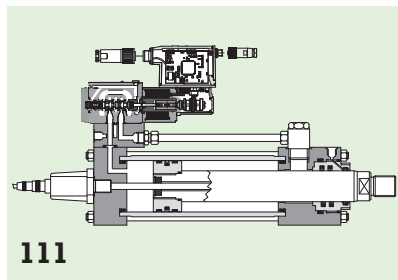
108 **CK** with **proximity end stroke sensors**, fixed, on front and rear heads: motion cycles, operating sequences, fast-slow cycles and safety functions can be easily performed, [table B137](#)

109 **CKS** with **proximity sensors**, "Reed" or "Hall effect" adjustable along the rod stroke, [table B450](#)

110 **CKV** servocylinders with external electronic card for signal conditioning, [table B310](#)

Integral subplates

Servocylinders can be supplied with integral subplates for mounting of valves to realize any kind of servoactuators, page 17



stainless steel cylinders

Atos cylinders are available in stainless steel **CNX** executions for sea water and aggressive environment conditions & water hydraulics applications, page 23

113 **CKX** ex-proof servocylinder in stainless steel execution, [table B137](#)

114 Special stainless steel cylinder with reinforced rod guide for marine applications

115 Special stainless steel cylinder for railway switches



Heat Exchangers



TE Thermal
Transfer Products
A ThermaSys Company



Allison Hydraulics

Index

Heat Exchangers

BOL Series (industrial fan cooler)

Page 149



- Standard core: Brazed aluminium bar and plate
- Max. operating pressure up to 17 bar
- Max. operating temperature up to 150°C

MA Series (mobile fan cooler)

Page 152



- Core: Brazed aluminium bar and plate
- Max. operating pressure up to 17 bar
- Max. operating temperature up to 150°C

EK Series (water oil cooler)

Page 155



- Oil flow rates up to 300 l/min
- Operating pressure/shell side: 35 bar
- Operating pressure/tubeshell side: 10 bar
- Operating temperature: 120°C

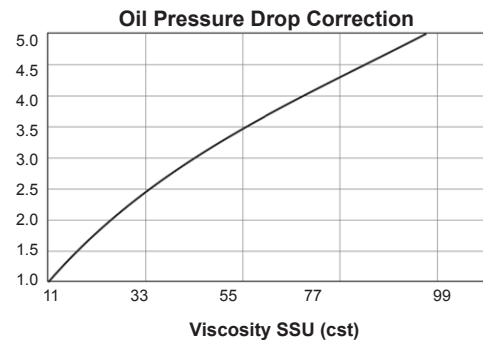
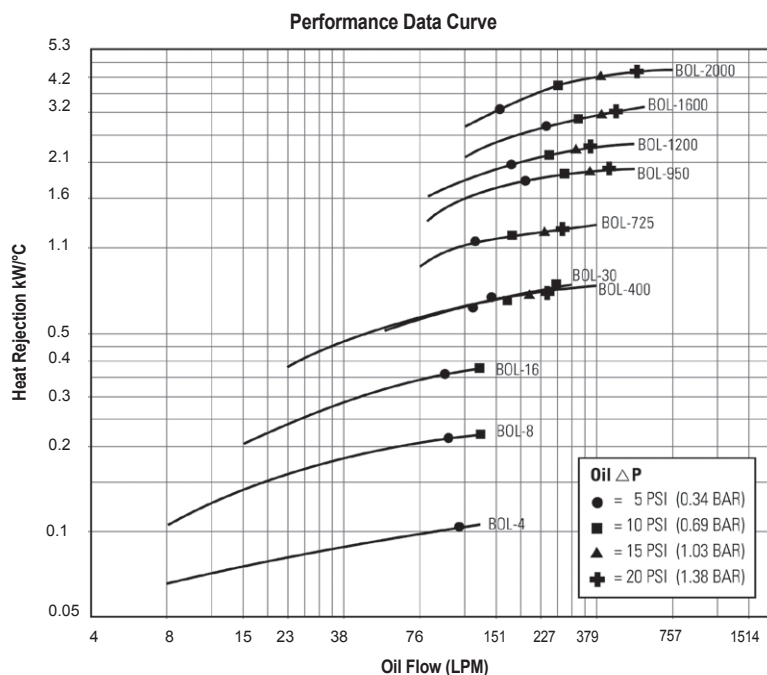
Features:

- Bar and Plate Brazed Aluminium Core
- Rugged, lightweight, and compact
- Provides the best heat transfer per given envelope size while minimising pressure drop
- Air-side fin design minimises fouling and static pressure ensuring long-term, reliable performance
- Welded fittings/ports and manifolds ensure structural integrity
- Customised units are available to meet your specific performance requirements
- Additional capabilities for radiators, charge-air-coolers, condensers, and multi-circuit units
- T-BAR core optional for high viscosity oils or other highly fouling fluids
- Low noise option available



Main Characteristics:

Performance curve - BOL models with with standard P-BAR Core



Ratings:

Maximum Operating Pressure

250 psi (17 BAR)

Maximum Operating Temperature

300° F (150° C)

Materials:

Mounting Feet Steel

Standard Core Brazed Aluminium Bar and Plate

- Tanks – 5052 Aluminium
- Nose Bar & Little Bar – 3003-H Aluminium
- Air Fin, Plate, Turbulator & End Plate – 3003-0 Aluminium

Fanguard Steel

Connectors Aluminum

Fan Aluminium Hub, Plastic Blades

Shroud Steel

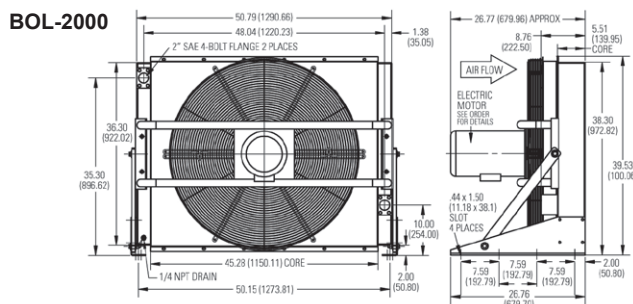
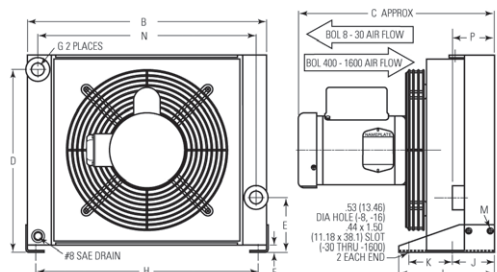
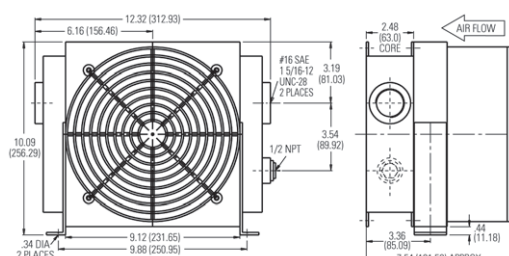
Motor TEFC & IEC



Allison Hydraulics

[illegible]

BOL-8 through BOL-1600



Model code

BOL	4	1	2	TB	LN
Model series Size: 4, 8, 16, 30, 400, 725, 950, 1200, 1600, 2000					Noise level: blank = standard noise level LN = low noise level Core: blank = standard bar and plate TB = T-BAR Core*
Connection type*: 1 = NPT as standard 2 = SAE 3 = BSPP as standard					Motor type: 2 = single phase 9 = hydraulic 18 = IEC three phase



Selection procedure

Step 1 Determine Heat Load. Typical Rule of Thumb, - size cooler for 1/3 of the input kW.

Step 2 Determine Entering Temperature Difference. (Actual E.T.D.)

(E.T.D.= Entering oil
temperature (°C) – Entering Ambient
air temperature (°C)

- The entering oil temperature is generally the maximum desired system oil temperature.
- Entering air temperature is the highest Ambient Air temperature the application will see.

Step 3 Determine Heat Dissipation to use the Curves
English Version:

$$\text{Corrected Heat Rejection} = \frac{\text{kW}}{^{\circ}\text{C}} \times \frac{\text{Heatload (kW)}}{\text{Desired E.T.D (}^{\circ}\text{C)}}$$

Step 4 Select Model From Curves Enter the Performance Curves at the bottom with the LPM oil flow and proceed upward to the adjusted Heat Rejection from Step 3. Any Model or Curve on or above this point will meet these conditions.

Step 5 Calculate Oil Pressure Drop Find the oil pressure drop correction factor and multiply it by the Oil Pressure Drop found on performance curve.

Listed Performance Curves are based on:

- 32 cSt oil
- If your application conditions are different, then continue with the selection procedure.*



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Features:

- Bar and Plate Brazed Aluminium Core.
- Rugged, lightweight, and compact.
- Provides the best heat transfer per given envelope size while minimising pressure drop.
- Air-side fin design minimises fouling and static pressure ensuring longterm, reliable performance.
- Fan motor assembly has an IP 68 with AMP -#180908 connection.
- Welded aluminium fittings/ports and manifolds ensure structural integrity.
- Standard SAE ports – NPT and BSPP ports available.
- Customised units are available to meet your specific performance requirements.
- Additional capabilities for radiators, charge-air-coolers, condensers and multi-circuit units.



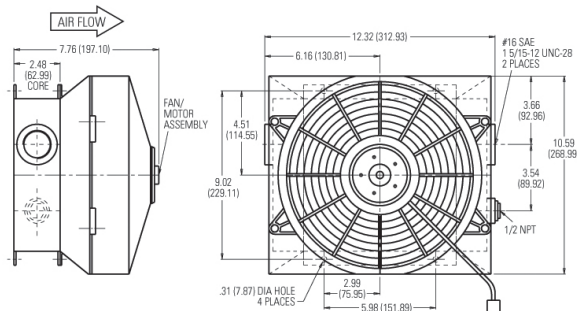
TS Thermal Transfer Products
A ThermoSys Company

Main Characteristics:

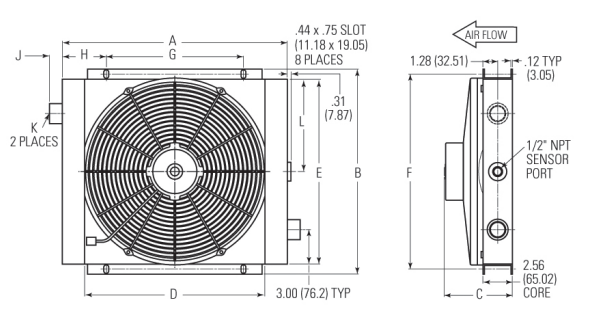
Model	A	B	C	D	E	F	G	H	J	K	L	DC Amp Draw 12V	24V	CMM	Approx. Ship Wt. Kg
MA-4-4	See diagram below			-	-	-	-	-	-	-	-	12.5	6.3	10.28	7
MA-12-4	350	297	159	250	253	276	145	112	25	3/4"	126	12.5	6.3	14.75	9
MA-18-4	400	345	128	300	300	325	149	126	25	3/4"	150	10.6	5.3	22.17	10
MA-32-4	500	468	151	400	410	440	305	98	29	1"	205	22.2	11.1	38.74	13
MA-48-4	See diagram below			-	-	-	-	-	-	-	-	22.2	11.1	46.40	20
MA-232-4	See diagram below			-	-	-	-	-	-	-	-	19.3*	9.7*	63.26	29
MA-248-4	See diagram below			-	-	-	-	-	-	-	-	19.3*	9.7*	82.24	41

Dimensions:

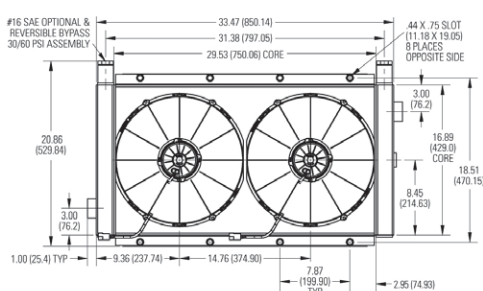
MA-4-4



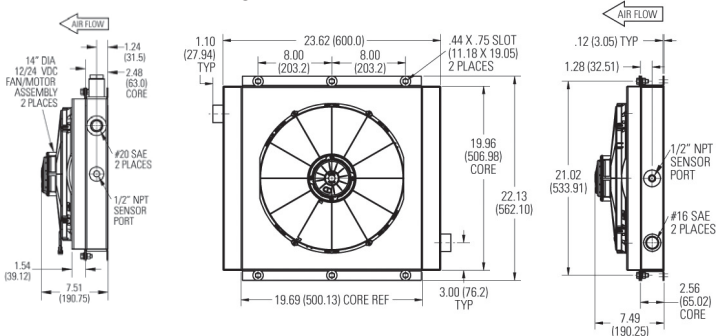
MA-12-4, MA-18-4, MA-32-4



MA-232-4

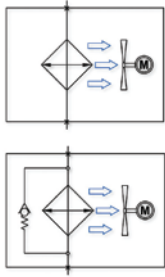
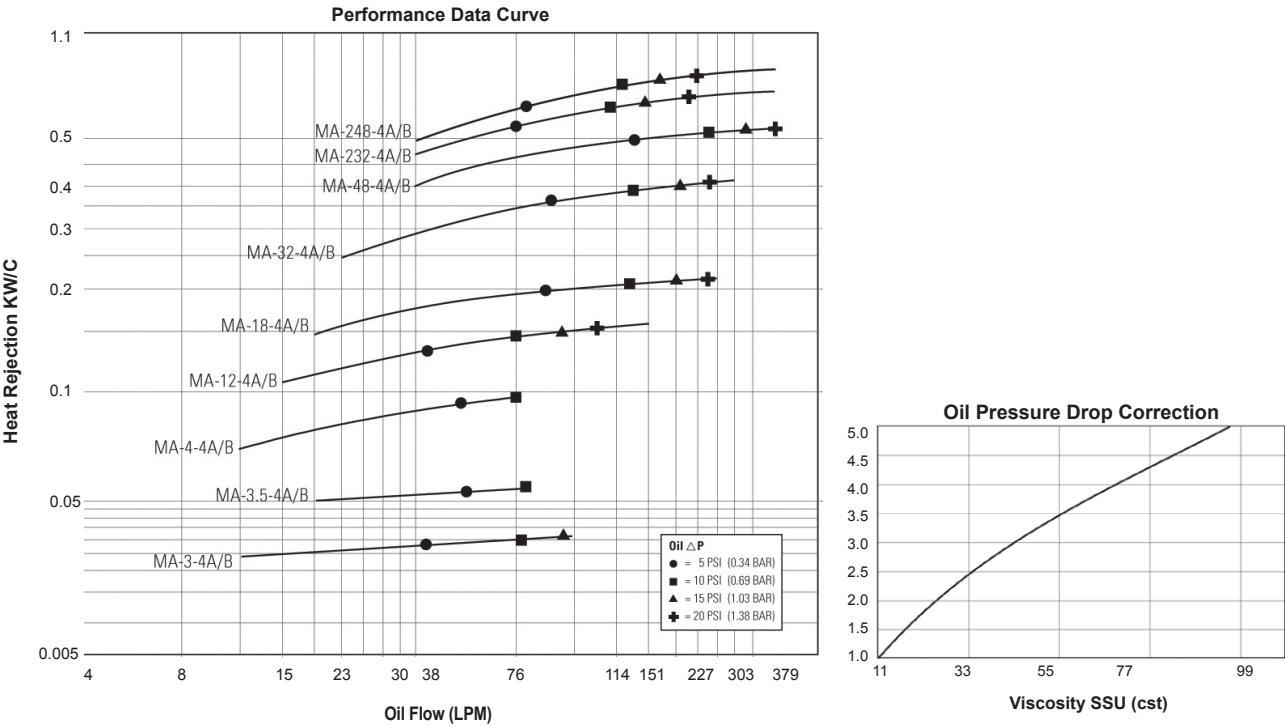


MA-48-4



Allison Hydraulics

Performance curve - MA models with DC fan assemblies



Ratings:

Maximum Operating Pressure
250 psi (17 BAR)

Maximum Operating Temperature
300° F (150° C)

Materials:

Core Brazed Aluminium Bar and Plate
• Tanks – 5052 Aluminium
• Nose Bar & Little Bar – 3003-H Aluminium
• Air Fin, Plate, Turbulator & End Plate – 3003-O Aluminium

Connections: Aluminium
Core Mounting Brackets: Brazed Aluminium

Model code

MA	4	1	4A	30
Model series				Bypass* 30 = 30 PSI 60 = 60 PSI
Sizes: 4, 12, 18, 32, 48, 232, 248				
Connection type*: 1 = NPT 2 = SAE 3 = BSPP as standard				Motor type: 4A = 12 VDC 4B = 24 VDC

*Bypass available on MA-12, MA-18, MA-32, MA-48, MA-232, MA-248 only. (MAR)
MA-8, MA-14, MA-20, MA-66, MA-32 do not have fan option.



Selection procedure

Step 1 Determine Heat Load. Typical Rule of Thumb, - size cooler for 1/3 of the input kW.

Step 2 Determine Entering Temperature Difference. (Actual E.T.D.)
(E.T.D.= Entering oil temperature – Entering Ambient air temperature)
The entering oil temperature is generally the maximum desired system oil temperature.

Entering air temperature is the highest Ambient Air temperature the application will see, plus
– add any pre-heating of the air prior to its entering the cooler. Pay special attention if air is drawn from the engine compartment for cooling.

Step 3 Find Air Velocity Correction Factor
(Skip to Step 4 if using our DC Fan Assembly)

Calculate actual SMPM Air Velocity or SCMM (Standard Cubic Metre per Minute) for selection using the Face Area from the table.

$$\text{SMPM} = \frac{\text{SCMM Air Flow}}{\text{Square Metre Cooler Face Area}}$$

(SCMM Air flow = SMPM Air velocity x Square Feet Cooler Face Area)

*If the air velocity calculated is different than the value in Step 4, then recheck corrected oil pressure drop.

Step 4 Determine the Corrected Heat Dissipation to use the Curves
Corrected Heat Rejection $\frac{\text{(kW)}}{^{\circ}\text{C}}$ = $\frac{\text{Heatload (kW)}}{(\text{E.T.D (}^{\circ}\text{C)} \times \text{Air Velocity Correction Factor})}$

Step 5 Select Model From Curves Enter the Performance Curves at the bottom with the LPM oil flow and proceed upward to the adjusted Heat Rejection from Step 4. Any Model or Curve on or above this point will meet these conditions.

Step 6 Calculate Oil Pressure Drop Find the oil pressure drop correction factor and multiply it by the Oil Pressure Drop found on performance curve.

Listed Performance Curves are based on:

- 32 cSt oil
- 304.8 Standard Metres per Minute (SMPM) Air Velocity

If your application conditions are different, then continue with the selection procedure.



Allison Hydraulics

Features:

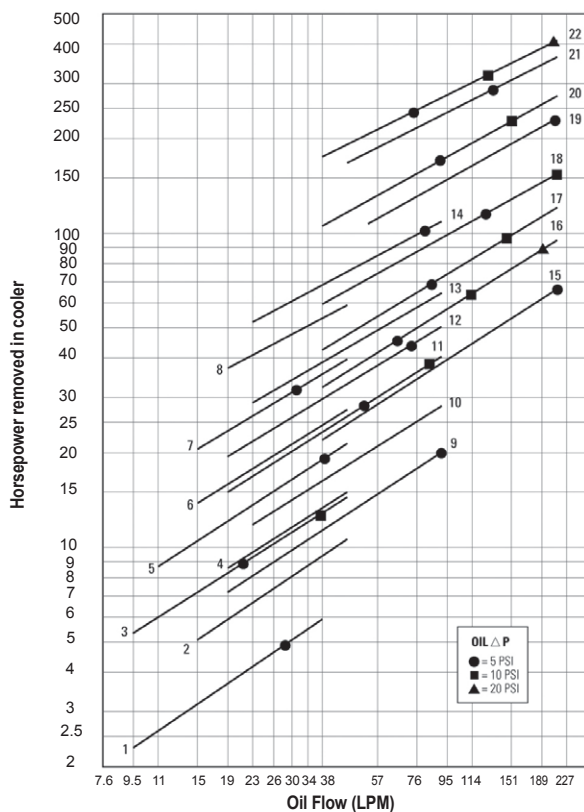
- Copper & Steel Construction
- Compact Size
- High Efficiency Finned Bundle Design
- Low Cost
- Optional Patented Built-in Surge-Cushion® Relief Bypass
- 3/16" Tube Size
- Heat Removal up to 300 kW
- Oil Flow rates up to 300 Litres/min.
- Large Oil Connections for Minimum Entering and Exiting Flow Restriction
- Removable End Bonnets for easy tube cleaning
- Mounting Brackets Designed so that Cooler can be Rotated in 90° increments
- High Pressure Ratings
- Complete Line of Accessories Available



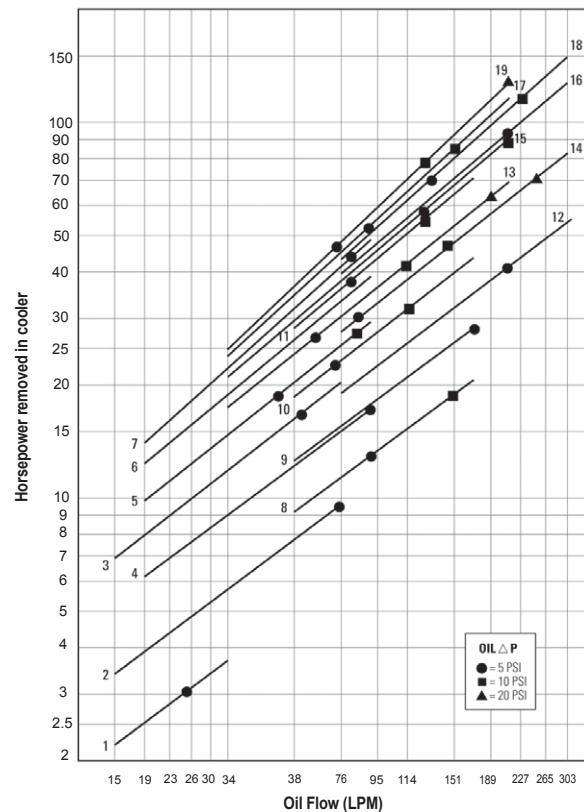
Main Characteristics:

Performance curves

1:1 oil to water ratio - high water usage



4:1 oil to water ratio - low water usage



Ratings:

Operating Pressure/Shell side 500 psi
Operating Pressure/Tubeshell side 150 psi
Operating Temperature 250° F

Materials:

Shell Steel
Tube Sheets Steel
Baffles Steel
Mounting Brackets Steel
Gaskets Nitrile Rubber/Cellulose Fibre
Nameplate Aluminium Foil
Tubes Copper
Fins Aluminium
End Caps Grey Iron

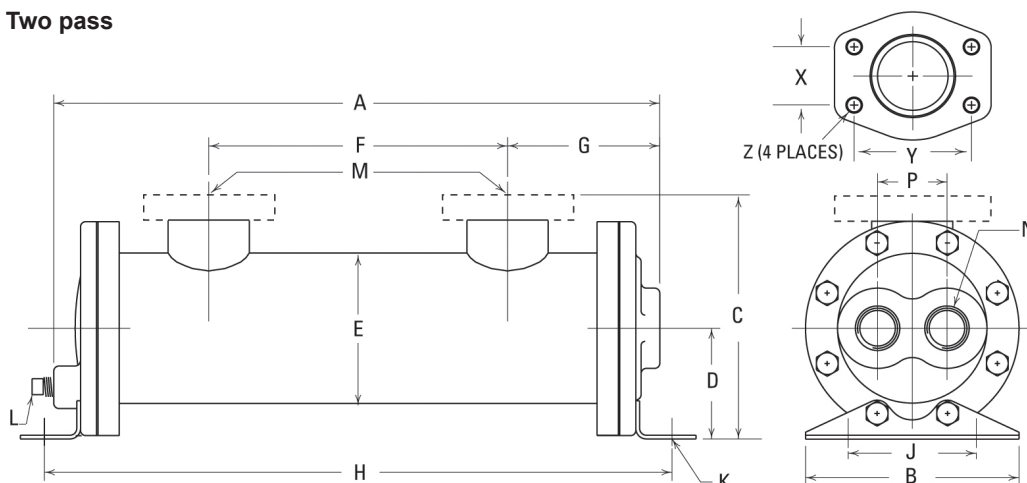


Allison Hydraulics

Dimensions:

Model	A	B	BSPP SAE O-RING SAE FLANGE		D	E	F	G	H	J	K	L BSPP	M BSPP	N BSPP			
EKM-505	187	89	95	N/A	41	65 DIA.	56	66	189	64	9 x 16 SLOT	N/A	3/4"	3/4"			
EKM-508	264		99				N/A	41	65 DIA.						98	83	265
EKM-510	314														149		316
EKM-512	365														199		367
EKM-514	416														250		418
EKM-518	518														352		519
EKM-524	670														504		672
EKM-536	975														809		976
EKM-708	282	127	139	145	66	89 DIA.	76	103	272	76	11 x 19 SLOT	1/4"	1 1/2"	1 1/4"			
EKM-712	384						178		374								
EKM-714	434						229		424								
EKM-718	536						330		526								
EKM-724	689						483		678								
EKM-736	994						787		983								
EKM-1012	389	165	195	210	102	128 DIA	157	16	392	102	11 x 25 SLOT		1/4"	2"	1 1/2"		
EKM-1014	440						208		443								
EKM-1018	542						309		545								
EKM-1024	695						462		697								
EKM-1036	999						767		1002								
EKM-1048	1304						1071		1307								

Two pass



Model code

EKM	****	*	O	R	CN	NP
Model series						End bonnet material: blank = cast iron NP = Electroless nickel plate (as standard)
Size						Cooling tube material: blank = copper CN = CuNi
Baffle spacing: EK-1036 and EK-1048 models only						Surge cushion: blank = no relief bypass R = relief bypass
Tubeside passes: O = one pass T = two pass F = four pass						



Allison Hydraulics

Selection procedure

Step 1 Determine the Heat Load. This will vary with different systems, but typically coolers are sized to remove 25 to 50% of the input nameplate horsepower. (Example: 100 HP Power Unit x .33 = 33 HP Heat load.)
If BTU/Hr. is known: $HP = \frac{BTU/Hr}{2545}$

Step 2 Determine Approach Temperature.
Desired oil leaving cooler °F – Water Inlet temp. °F = Actual Approach

Step 3 Determine Curve Horsepower Heat Load.
Enter the information from above:

$$HP \text{ heat load} \times \frac{40}{\text{Actual Approach}} \times \frac{\text{Viscosity}}{\text{Correction A}} = \frac{\text{Curve}}{\text{Horsepower}}$$

Step 4 Enter curves at oil flow through cooler and curve horsepower.
Any curve above the intersecting point will work.

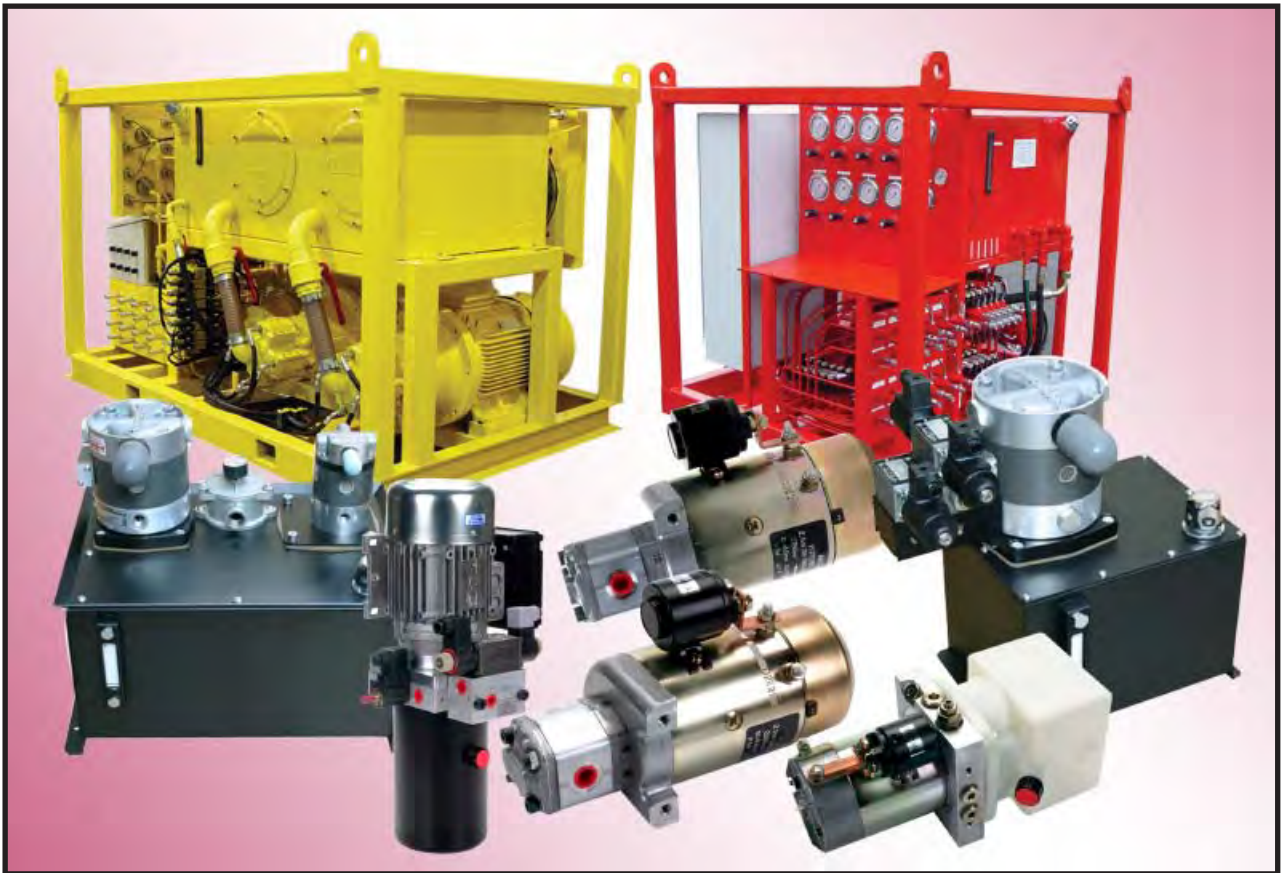
Step 5 Determine Oil Pressure Drop from Curves. Multiply pressure drop from curve by correction factor B found on oil viscosity correction curve.

● = 5 PSI; ■ = 10 PSI; ▲ = 20 PSI.



Allison Hydraulics

Power Units



Allison Hydraulics

Index

Power Units

Standard power packs

Page 160



- Features
- 415V 3 phase
- 240V 1 phase

Air driven pumps/power packs

Page 163



- KR range
- GX range

Mini power packs

Page 166



- AC Mini system
- DC Micro system
- DC Mini system
- DC Motor pump unit
- Standard applications

Main Characteristics:

The AHPP series of standard industrial power packs range from 0.55 kW up to 15 kW in 3 phase and from 0.55 kW up to 2.2 kW in 1 phase.

All units are supplied fully assembled, tested and painted to standard company colours and complete with all required certification, hydraulic and electrical drawings.

All power units are available with standard electrical starter or specially designed control panels.

Installation details

- All electric motors are supplied with totally enclosed fan cooled frame.
- Three phase motors are standard UK voltage 415/3/50.
- Single phase motors are standard UK voltage 240/1/50 and supplied as capacitor start and run to give a high starting torque.



Electrically driven - Industrial power units

Standard

- Totally enclosed fan ventilated motor (TEFC) to Class F insulation (IE2).
- Immersed gear pump for quieter operation.
- Adjustable relief valve, factory pre-set.
- Terminations in either BSP parallel thread or standard CETOP 3/CETOP 5 interface.
- Oil level sight gauge and filler breather with mesh strainer.
- 90 micron suction strainer fitted to pump.
- Reservoir drain port.
- Gloss external paint finish, grey internal oxide primer.
- Reservoir mounting feet.

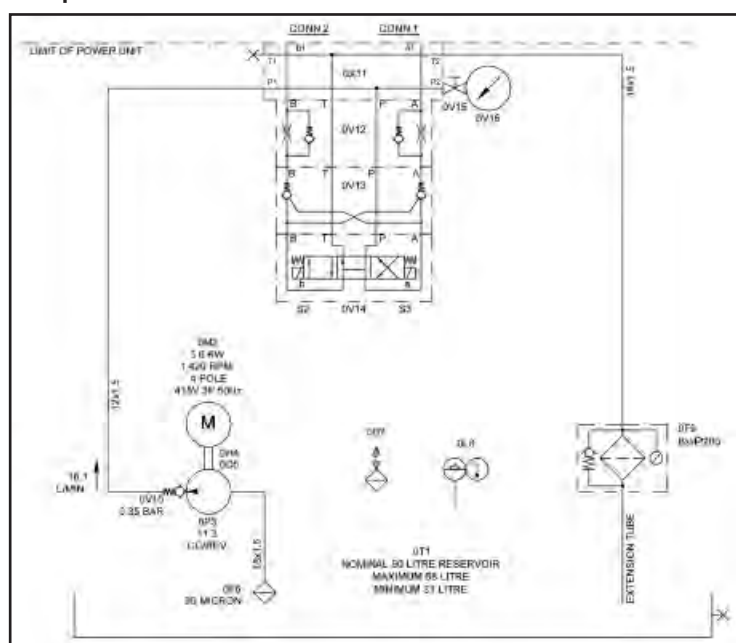
Optional extras:

- Return line filter plus indicator.
- Glycerine filled dual scale pressure gauge plus isolator.
- Directional, flow and pressure control valves.
- Solenoid indicator lights.
- Special paint colours and finishes as requested.
- Electrical starter with start/stop buttons, isolators and thermal overloads.

Optional electrical panels:

All are fully wired and tested on the specific unit. Specially designed control panels can be built to incorporate features such as limit, pressure and float switches, thermostats and programmable logic controllers (PLC). All of which can be fitted to a standard unit, fully tested and supplied with electrical circuit diagram.

Sample circuit



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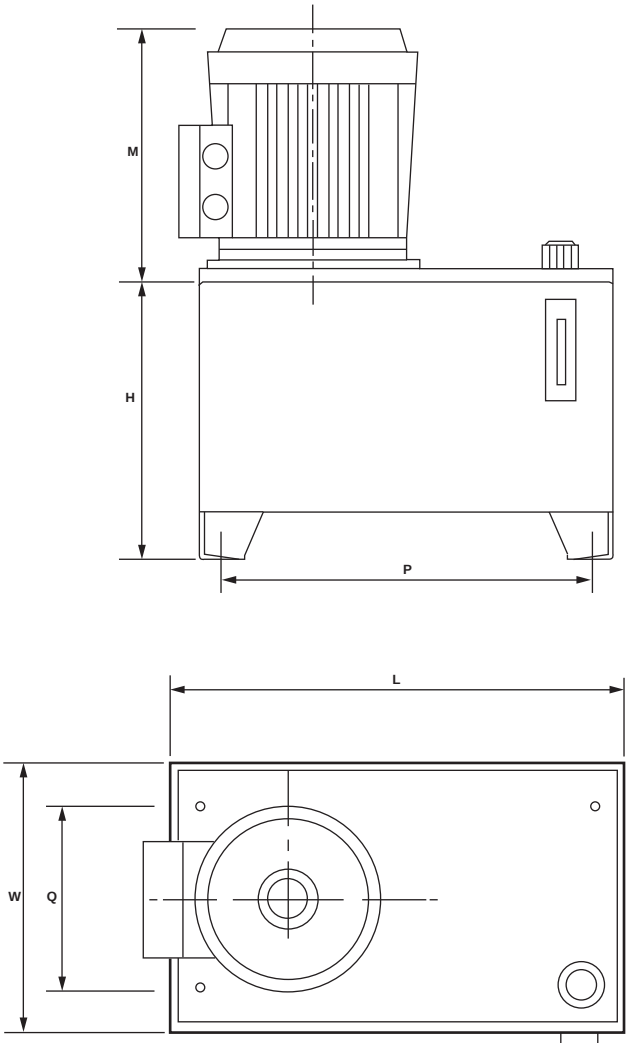
Reservoir dimensions

Capacity	H	L	W	P	Q
10 Litre	250	320	240	270	190
25 Litre	300	450	300	400	250
50 Litre	430	600	350	550	300
100 Litre	500	600	500	550	450
150 Litre	500	800	550	750	500
200 Litre	600	825	600	775	550
300 Litre	700	1000	600	950	550
400 Litre	700	1100	700	1050	650

Electric motor details

	Motor kW	Frame	M
3 Phase	0.55	80	250
	0.75	80	270
	1.10	90S	255
	1.50	90L	270
	2.20	100L	298
	3.00	100L	298
	4.00	112M	312
	5.50	132S	381
	7.50	132M	381
	11.00	160M	486
1 Phase	15.00	160L	530
	0.75	80	232
	1.10	90S	245
	1.50	90L	270
	2.20	100L	298

Reservoir 10 - 400 Litres



Model code

AHPP	1	16	2.9	180	25	RP
Model series						R = Return line filter E = Electrical starter P = Pressure gauge S = Special valves (Consult our sales office)
Electric motor: 1ph - 240V - max 3kW 3ph - 415v 50/60HZ - max 15kW						Reservoir size: 10/25/50/100/150/200/300/400
Power pack No. (see chart)						Flow/LPM: Pressure/Bars (see chart)



Fixed 3 phase

Model No.	Flow LPM	Max pressure Bars	Electric motor kW	Reservoir size							
				10	25	50	100	150	200	300	400
AHPP-3-01	1.5	200	0.55	•	•	-	-	-	-	-	-
AHPP-3-02	2.2	135	0.55	•	•	-	-	-	-	-	-
AHPP-3-03	2.9	105	0.55	•	•	-	-	-	-	-	-
AHPP-3-04	3.6	85	0.55	•	•	-	-	-	-	-	-
AHPP-3-05	4.3	70	0.55	•	•	-	-	-	-	-	-
AHPP-3-06	1.5	270	0.75	•	•	-	-	-	-	-	-
AHPP-3-07	2.2	185	0.75	•	•	-	-	-	-	-	-
AHPP-3-08	2.9	140	0.75	•	•	-	-	-	-	-	-
AHPP-3-09	3.6	115	0.75	•	•	-	-	-	-	-	-
AHPP-3-10	4.3	95	0.75	•	•	-	-	-	-	-	-
AHPP-3-11	5.1	80	0.75	-	•	•	-	-	-	-	-
AHPP-3-12	5.8	70	0.75	-	•	•	-	-	-	-	-
AHPP-3-13	6.6	60	0.75	-	•	•	-	-	-	-	-
AHPP-3-14	7.6	55	0.75	-	•	•	-	-	-	-	-
AHPP-3-15	8.6	50	0.75	-	•	•	-	-	-	-	-
AHPP-3-16	2.9	205	1.1	•	•	-	-	-	-	-	-
AHPP-3-17	3.6	165	1.1	•	•	-	-	-	-	-	-
AHPP-3-18	4.4	135	1.1	•	•	-	-	-	-	-	-
AHPP-3-19	5.2	115	1.1	-	•	•	-	-	-	-	-
AHPP-3-20	5.9	100	1.1	-	•	•	-	-	-	-	-
AHPP-3-21	6.7	90	1.1	-	•	•	-	-	-	-	-
AHPP-3-22	7.7	80	1.1	-	•	•	-	-	-	-	-
AHPP-3-23	8.7	70	1.1	-	•	•	-	-	-	-	-
AHPP-3-24	10.9	55	1.1	-	•	•	-	-	-	-	-
AHPP-3-25	2.9	280	1.5	•	•	-	-	-	-	-	-
AHPP-3-26	3.6	225	1.5	•	•	-	-	-	-	-	-
AHPP-3-27	4.4	185	1.5	•	•	-	-	-	-	-	-
AHPP-3-28	5.2	155	1.5	-	•	•	-	-	-	-	-
AHPP-3-29	5.9	140	1.5	-	•	•	-	-	-	-	-
AHPP-3-30	6.7	120	1.5	-	•	•	-	-	-	-	-
AHPP-3-31	7.7	105	1.5	-	•	•	-	-	-	-	-
AHPP-3-32	8.7	95	1.5	-	•	•	-	-	-	-	-
AHPP-3-33	10.9	75	1.5	-	•	•	-	-	-	-	-
AHPP-3-34	15.8	50	1.5	-	-	•	-	-	-	-	-
AHPP-3-35	4.5	265	2.2	-	•	•	-	-	-	-	-
AHPP-3-36	5.2	230	2.2	-	•	•	-	-	-	-	-
AHPP-3-37	6.2	190	2.2	-	•	•	-	-	-	-	-
AHPP-3-38	8.9	135	2.2	-	•	•	-	-	-	-	-
AHPP-3-39	11.6	105	2.2	-	-	•	•	-	-	-	-
AHPP-3-40	16.0	75	2.2	-	-	•	•	-	-	-	-
AHPP-3-41	20.5	60	2.2	-	-	-	•	-	-	-	-
AHPP-3-42	24.1	50	2.2	-	-	-	•	-	-	-	-
AHPP-3-43	6.2	260	3	-	•	•	-	-	-	-	-
AHPP-3-44	8.9	180	3	-	•	•	-	-	-	-	-
AHPP-3-45	11.6	140	3	-	•	•	-	-	-	-	-
AHPP-3-46	16.0	100	3	-	-	•	-	-	-	-	-
AHPP-3-47	20.5	80	3	-	-	•	•	-	-	-	-
AHPP-3-48	24.1	70	3	-	-	•	•	-	-	-	-
AHPP-3-49	28.5	60	3	-	-	•	•	-	-	-	-
AHPP-3-50	36.6	45	3	-	-	•	•	-	-	-	-
AHPP-3-51	9.0	245	4	-	-	•	•	-	-	-	-
AHPP-3-52	11.7	185	4	-	-	•	•	-	-	-	-
AHPP-3-53	16.2	135	4	-	-	•	•	-	-	-	-
AHPP-3-54	20.7	105	4	-	-	•	•	-	-	-	-
AHPP-3-55	24.2	90	4	-	-	-	•	•	-	-	-
AHPP-3-56	28.7	75	4	-	-	-	•	•	-	-	-
AHPP-3-57	35.6	60	4	-	-	-	-	•	-	-	-
AHPP-3-58	44.9	50	4	-	-	-	-	•	-	-	-
AHPP-3-59	11.8	255	5.5	-	-	•	•	-	-	-	-
AHPP-3-60	16.3	185	5.5	-	-	•	•	-	-	-	-
AHPP-3-61	20.8	145	5.5	-	-	-	•	-	-	-	-
AHPP-3-62	24.4	125	5.5	-	-	-	•	•	-	-	-
AHPP-3-63	28.9	105	5.5	-	-	-	•	•	-	-	-
AHPP-3-64	35.9	85	5.5	-	-	-	-	•	-	-	-
AHPP-3-65	43.1	70	5.5	-	-	-	-	•	•	-	-
AHPP-3-66	49.4	60	5.5	-	-	-	-	-	•	-	-
AHPP-3-67	58.3	50	5.5	-	-	-	-	-	•	•	-

Fixed 3 phase (continued)

Model No.	Flow LPM	Max pressure Bars	Electric motor kW	Reservoir size							
				10	25	50	100	150	200	300	400
AHPP-3-68	16.4	250	7.5	-	-	-	•	•	-	-	-
AHPP-3-69	21.0	195	7.5	-	-	-	•	•	-	-	-
AHPP-3-70	24.6	165	7.5	-	-	-	•	•	-	-	-
AHPP-3-71	36.1	115	7.5	-	-	-	-	•	-	-	-
AHPP-3-72	43.4	95	7.5	-	-	-	-	-	•	-	-
AHPP-3-73	49.7	80	7.5	-	-	-	-	-	•	-	-
AHPP-3-74	58.7	70	7.5	-	-	-	-	-	•	•	-
AHPP-3-75	65.5	65	7.5	-	-	-	-	-	•	•	-
AHPP-3-76	21.1	280	11	-	-	-	•	-	-	-	-
AHPP-3-77	24.7	240	11	-	-	-	•	•	-	-	-
AHPP-3-78	29.3	200	11	-	-	-	-	•	-	-	-
AHPP-3-79	36.4	165	11	-	-	-	-	•	-	-	-
AHPP-3-80	43.7	140	11	-	-	-	-	-	•	-	-
AHPP-3-81	50.1	120	11	-	-	-	-	-	•	•	-
AHPP-3-82	59.1	100	11	-	-	-	-	-	•	•	-
AHPP-3-83	66.0	90	11	-	-	-	-	-	-	•	-
AHPP-3-84	79.6	75	11	-	-	-	-	-	-	•	-
AHPP-3-85	29.1	280	15	-	-	-	-	•	-	-	-
AHPP-3-86	36.4	225	15	-	-	-	-	•	-	-	-
AHPP-3-87	43.7	190	15	-	-	-	-	•	•	-	-
AHPP-3-88	50.1	165	15	-	-	-	-	-	•	-	-
AHPP-3-89	59.1	140	15	-	-	-	-	-	•	•	-
AHPP-3-90	66.0	125	15	-	-	-	-	-	-	•	-
AHPP-3-91	79.6	105	15	-	-	-	-	-	-	•	•
AHPP-3-92	93.3	90	15	-	-	-	-	-	-	-	•

Fixed 1 phase

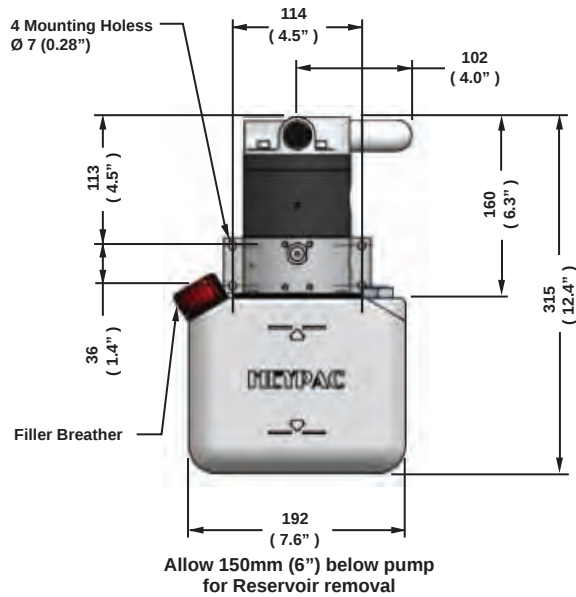
Model No.	Flow LPM	Max pressure Bars	Electric motor kW	Reservoir size		
				10	25	50
AHPP-1-01	1.5	200	0.55	•	•	-
AHPP-1-02	2.2	135	0.55	•	•	-
AHPP-1-03	2.9	105	0.55	•	•	-
AHPP-1-04	3.6	85	0.55	•	•	-
AHPP-1-05	4.3	70	0.55	•	•	-
AHPP-1-06	1.5	270	0.75	•	•	-
AHPP-1-07	2.2	185	0.75	•	•	-
AHPP-1-08	2.9	140	0.75	•	•	-
AHPP-1-09	3.6	115	0.75	•	•	-
AHPP-1-10	4.3	95	0.75	•	•	-
AHPP-1-11	5.1	80	0.75	-	•	-
AHPP-1-12	5.8	70	0.75	-	•	•
AHPP-1-13	6.6	60	0.75	-	•	•
AHPP-1-14	7.6	55	0.75	-	•	•
AHPP-1-15	8.6	50	0.75	-	•	•
AHPP-1-17	2.9	205	1.1	•	•	-
AHPP-1-18	3.6	165	1.1	•	•	-
AHPP-1-19	4.4	135	1.1	•	•	-
AHPP-1-20	5.2	115	1.1	-	•	-
AHPP-1-21	5.9	100	1.1	-	•	•
AHPP-1-22	6.7	90	1.1	-	•	•
AHPP-1-23	7.7	80	1.1	-	•	•
AHPP-1-24	8.7	70	1.1	-	•	•
AHPP-1-25	10.9	55	1.1	-	•	•
AHPP-1-27	2.9	280	1.5	•	•	-
AHPP-1-28	3.6	225	1.5	•	•	-
AHPP-1-29	4.4	185	1.5	•	•	-
AHPP-1-30	5.2	155	1.5	-	•	-
AHPP-1-31	5.9	140	1.5	-	•	•
AHPP-1-32	6.7	120	1.5	-	•	•
AHPP-1-33	7.7	105	1.5	-	•	•
AHPP-1-34	8.7	95	1.5	-	•	•
AHPP-1-35	10.9	75	1.5	-	-	•
AHPP-1-36	15.8	50	1.5	-	-	•
AHPP-1-38	3.6	265	2.2	-	•	•
AHPP-1-39	4.5	230	2.2	-	•	•
AHPP-1-40	5.2	228	2.2	-	•	•
AHPP-1-41	6.2	135	2.2	-	•	•
AHPP-1-42	8.9	105	2.2	-	•	•
AHPP-1-43	11.6	75	2.2	-	-	•
AHPP-1-44	16.0	60	2.2	-	-	•
AHPP-1-45	20.5	50	2.2	-	-	-
AHPP-1-46	24.1	49	2.2	-	-	-



Allison Hydraulics

Dimensions:

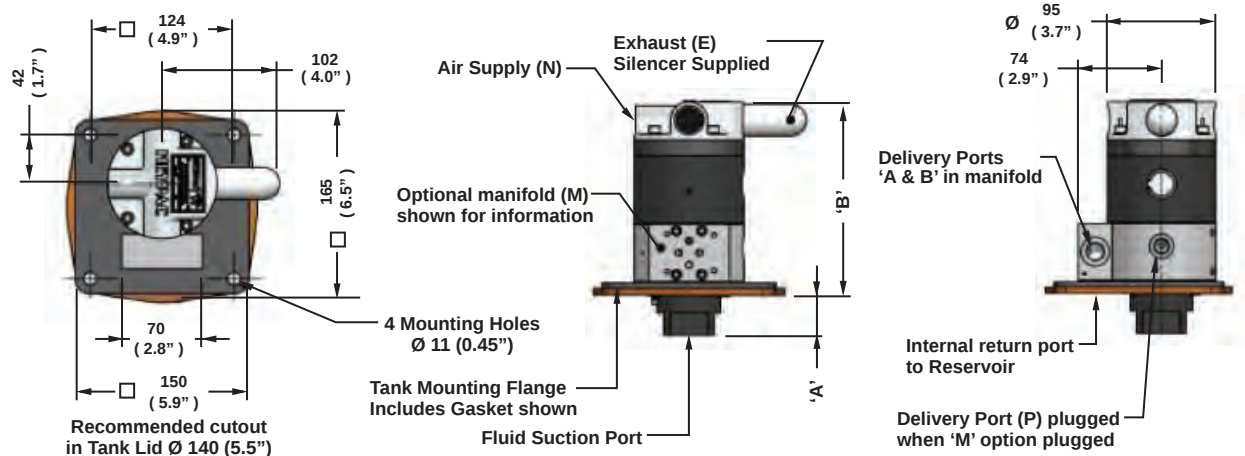
Type 'R5'



Other option dimensions:	
'OO' - as T2 but without flange	
'R5M' - as R5 but with manifold	
'W2' - as R5 but without reservoir	

Mode	Dimension A	Dimension B
KR02	11	213
KR05 & 10	50	168
KR20 & 40	35	168
KR80	26	168

Type 'T2'



Technical data:

Air consumption:	For details on air consumption, please contact Heypac or your local distributor.	Min. air pressure: 1.4 bar
Max. hydraulic power: 0.37 kW		Fluid temperature range: Minus 5°C to plus 70°C
Max. cycle speed: 500 cycles/minute (intermittent) For continuous duty maximum cycle speed should be reduced to approx. 50-60 cycles/minute. Applications involving continuous pumping should be referred to Heypac.		"Q max." Is defined as the maximum pump flow at 500 cycles/minute - intermittent duty only.
Max. air pressure: 8.5 bar		"Q max. avge" Is defined as the maximum average allowable flow over the complete system operating cycle including both periods of pressure holding (stall condition) and fluid delivery.



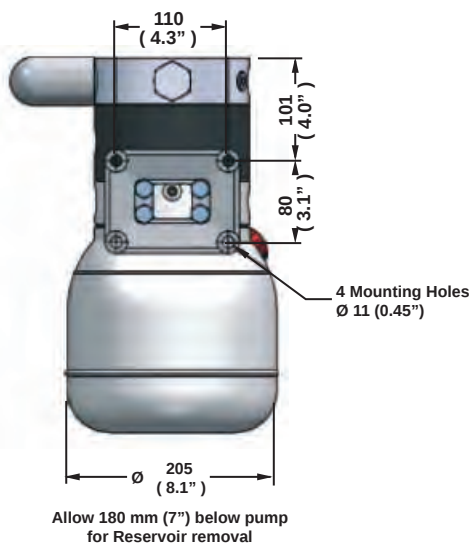
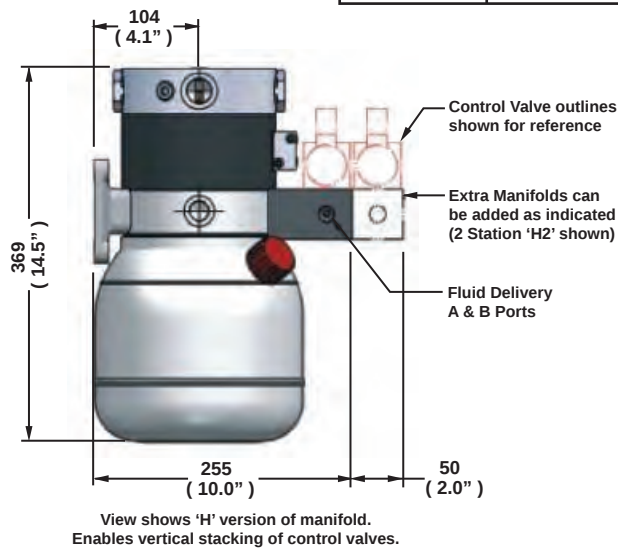
For the complete Heypac product brochure, please click on the above link.



Allison Hydraulics

Dimensions:

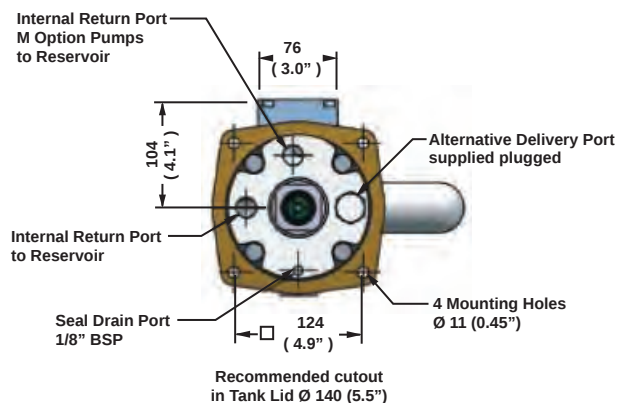
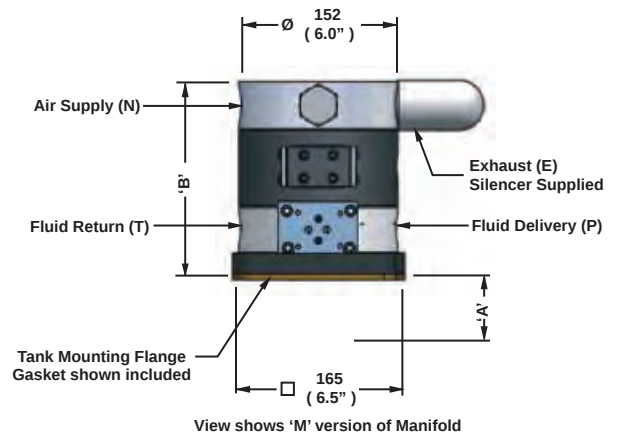
Type 'R2'



Model	Dimension A	Dimension B
GX025	4	303
GX05	91	188
GX10	73	188
GX20<80	66	188

Other option dimensions:
'OO' - as T1 but without flange
'W1' - as R2 but without reservoir
'R1' - as R2 but reservoir ø 152
'R3' - as R1 but for horizontal mounting
'R4' - as R2 but for horizontal mounting

Type 'T1'



Technical data:

Air consumption:	For details on air consumption, please contact Heypac or your local distributor.	Min. air pressure:	1.4 bar
Max. hydraulic power:	1.5 kW	Fluid temperature range:	Minus 5°C to plus 70°C
Max. cycle speed:	500 cycles/minute (intermittent) For continuous duty maximum cycle speed should be reduced to approx. 50-60 cycles/minute. Applications involving continuous pumping should be referred to Heypac.	"Q max."	Is defined as the maximum pump flow at 500 cycles/minute - intermittent duty only.
Max. air pressure:	7.0 bar	"Q max. avge"	Is defined as the maximum average allowable flow over the complete system operating cycle including both periods of pressure holding (stall condition) and fluid delivery.



For the complete Heypac product brochure, please click on the above link.



Allison Hydraulics

Model code

AHPP	GX40	B	P	V	R2	M	W	DM
Model series								Design modifications: DM** = eg DM14 - low temperature seals (other options available on request)
Fluid/air pressure ratio: GX40 - 40:1								Water option: W = pump for use with water
Port threads: B = BSP S = SAE (US Standard)								Manifold options: H = pump with CETOP03/D03/NG6 manifold fitted H2 = pump with 2 station CETOP03/D03/NG6 manifold fitted
Dynamic fluid seals: C = carbon filled PTFE P = polyethylene (as standard) O = special options upon request								Pump configuration: 00 = basic pump T1 = as 00 plus tank mounting flange W1 = as 00 plus wall mounting bracket R1 = power pack including 2.5L reservoir & mounting bracket R2 = power pack including 4.5L reservoir & mounting bracket R3 = horizontal mounting version of R1 R4 = horizontal mounting version of R2 (not available with ATEX approved pumps)
Static fluid seals: V = as standard								

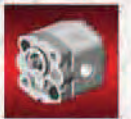
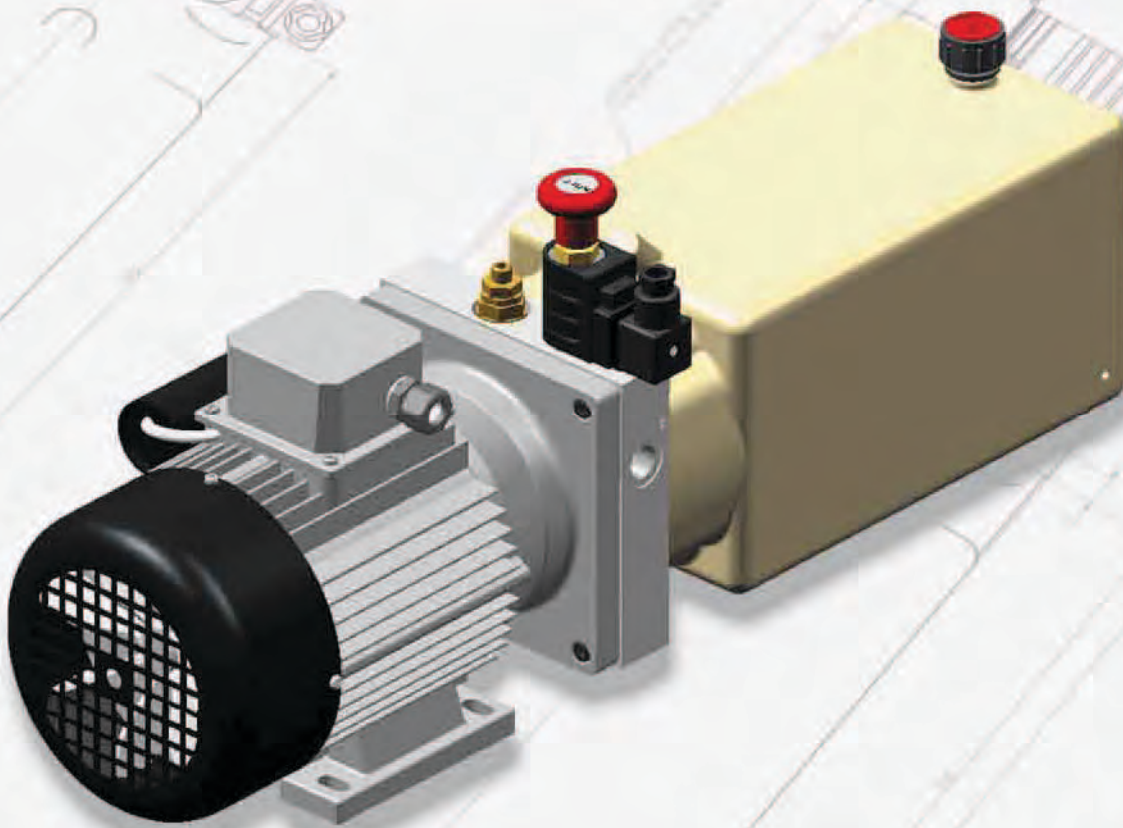
Model code

AHPP	KR40	B	P	V	00	M2	W	DM
Model series								Design modifications: DM** = eg DM14 - low temperature seals (other options available on request)
Fluid/air pressure ratio: KR40 - 40:1								Water option: W = pump for use with water
Port threads: B = BSP S = SAE (US Standard)								Manifold options: H = pump with CETOP03/D03/NG6 manifold fitted H2 = pump with 2 station CETOP03/D03/NG6 manifold fitted
Dynamic fluid seals: C = carbon filled PTFE S = polyethylene P = polyurethane O = special options upon request								Pump configuration: 00 = basic pump T2 = as 00 plus tank mounting flange W3 = as 00 plus wall mounting bracket R5 = 2.5L reservoir & mounting bracket (not available with ATEX approved pumps) R5ST = 3.0L steel reservoir & mounting bracket
Static fluid seals: V = as standard								



Allison Hydraulics

Allison Hydraulics



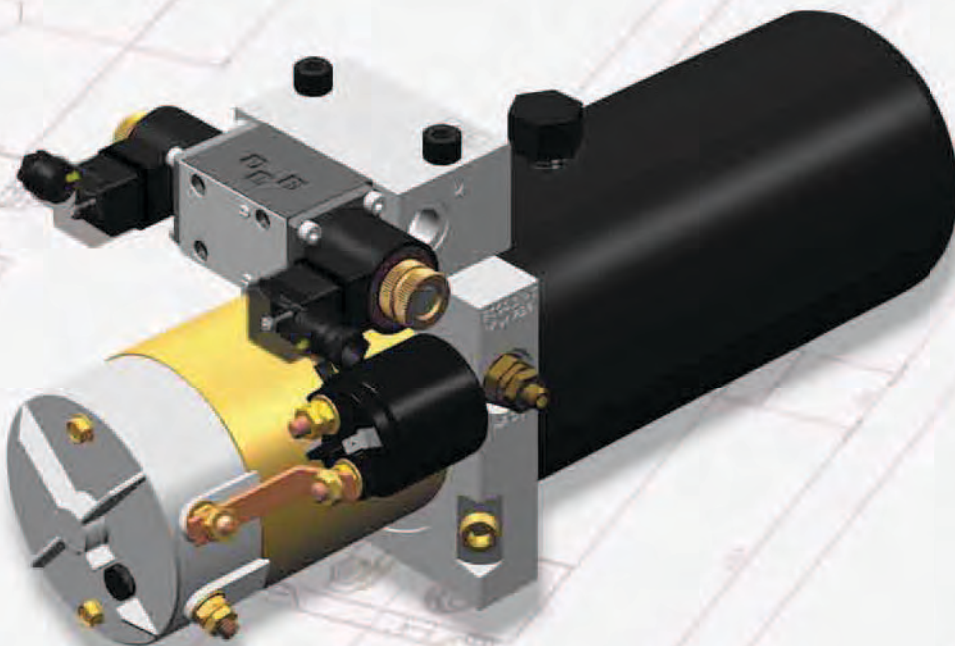
**HYDRAULIC
POWER UNITS**
AC MINI SYSTEM

Allison Hydraulics





Allison Hydraulics



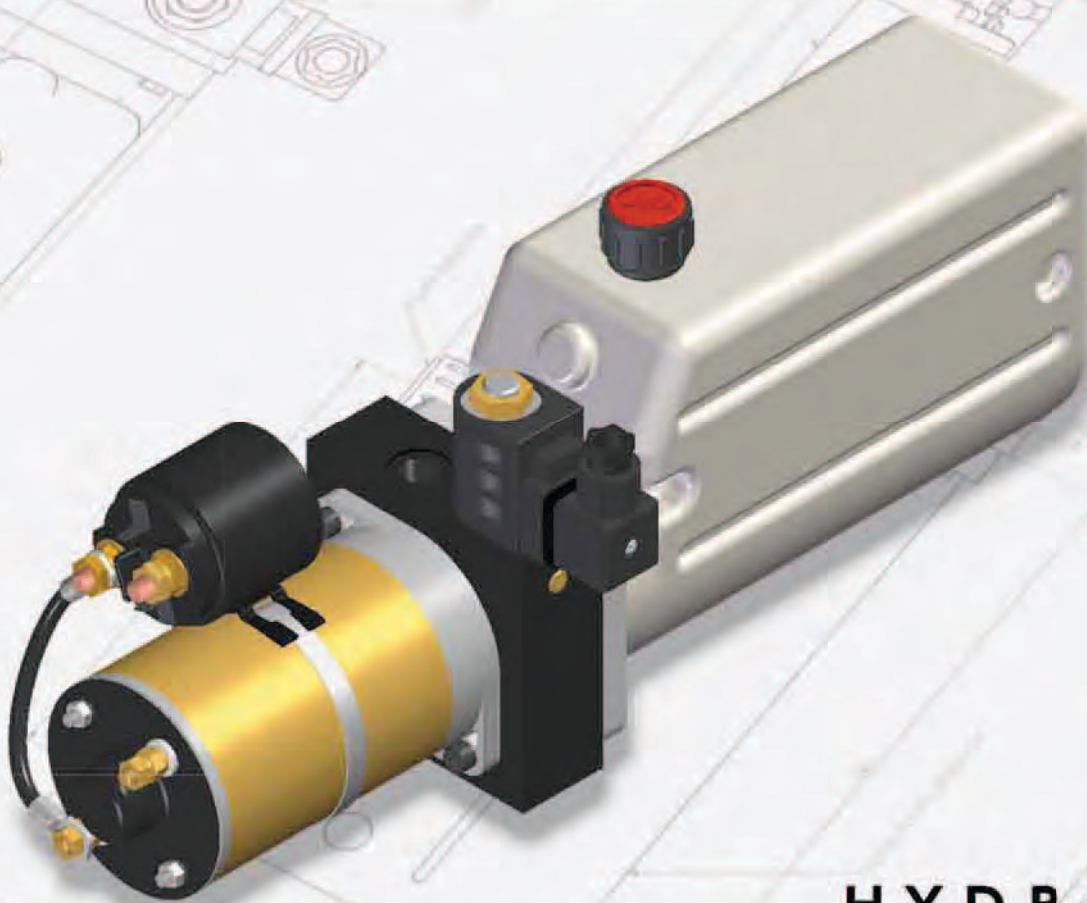
**HYDRAULIC
POWER UNITS**
DC MINI SYSTEM



Allison Hydraulics



Allison Hydraulics

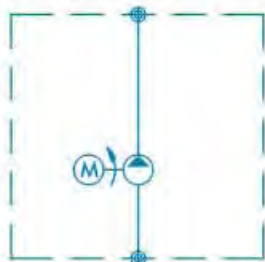


**HYDRAULIC
POWER UNITS**
DC MICRO SYSTEM

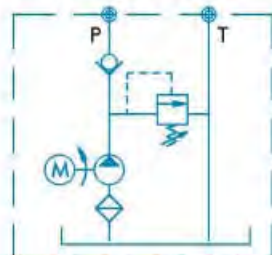


Allison Hydraulics

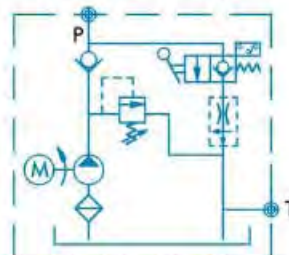
Motor/Pump unit



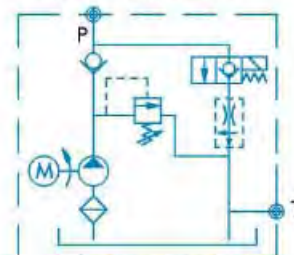
Pressure and return
Relief valve, check valve



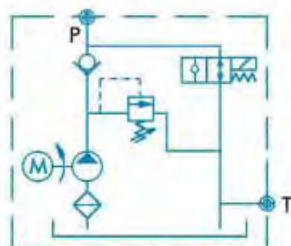
Manual lift, check & lower
Relief valve, check valve
** optional flow control



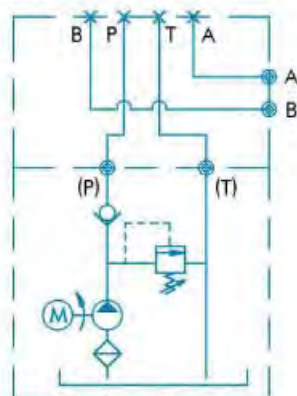
Solenoid/N.C. lift, check
& lower
relief valve, check valve
** optional flow control



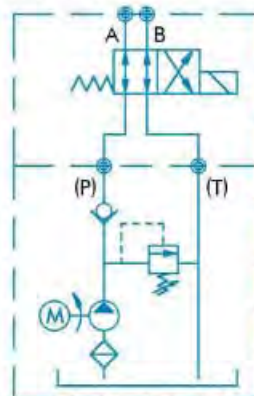
Solenoid/N.O. lift, check
& lower
relief valve, check valve
** optional flow control



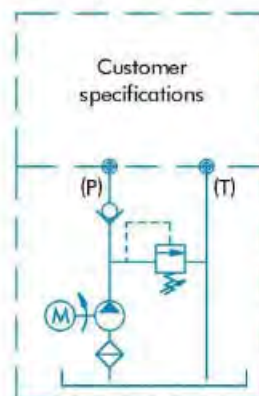
// Cetop 3, subplate



Solenoid, 2 position 4 way



Custom (please ask)



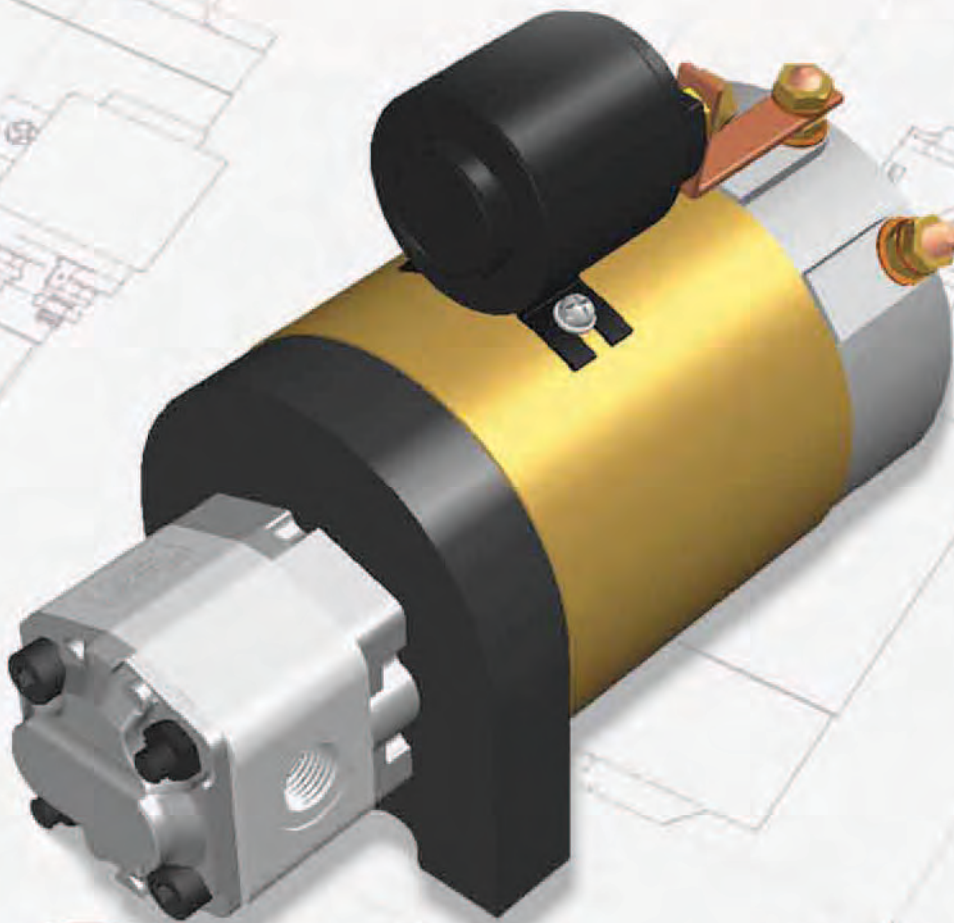
// Cetop 3, directional valve can be supplied if required

** Flow control can be supplied in two options: 1. Fixed pressure compensated flow control (fitted internally)
2. In-line adjustable flow control



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HYDRAULIC DC MOTOR/PUMP UNITS

Allison Hydraulics



Accessories



Allison Hydraulics

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Accessories

Electric Motors

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Standard reservoirs

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- TAF series

Level gauges

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- LVA series
- LVU series

Bell housings/Couplings

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- LMC series bell housings
- AKG series couplings

Pressure switches/Instrumentation

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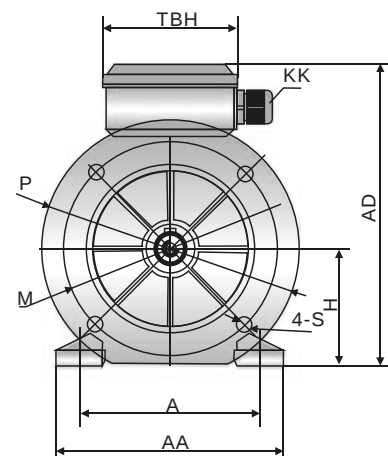
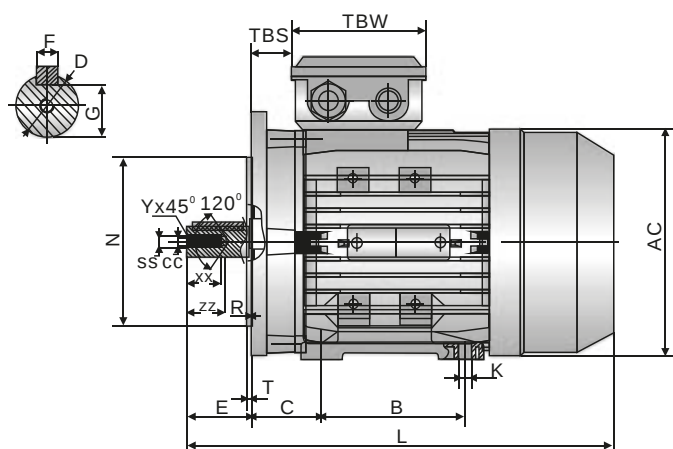
- MG type
- MAP type

Aluminium Series

Aluminum three phase electric motors up to 200 frame, utilising new automated production technology. The motors are manufactured to IEC Standard. Motors are: Easily maintained, light weight with high performance and low noise levels. The multi-mount design offers both O.E.M and stockist greater flexibility where terminal box position is important.



Part Number	Frame Size	kW	HP	Mounting	Number of Poles	Speed
AH2-802-4	D80M	0.75	1.00	B35	4	1500rpm
AH2-90S-4	D90S	1.10	1.50	B35	4	1500rpm
AH2-90L1-4	D90L	1.50	2.00	B35	4	1500rpm
AH2-100L1-4	D100L	2.20	3.00	B35	4	1500rpm
AH2-100L2-4	D100L	3.00	4.00	B35	4	1500rpm
AH2-112M-4	D112M	5.00	4.00	B35	4	1500rpm
AH2-132S-4	D132S	5.50	7.50	B35	4	1500rpm
AH2-132M1-4	D132M	7.50	10.00	B35	4	1500rpm
AH2-160M-4	D160M	11.00	15.00	B35	4	1500rpm
AH2-160L1-4	D160L	15.00	20.00	B35	4	1500rpm
AH2-180M-4	D180M	18.50	25.00	B35	4	1500rpm
AH2-180L-4	D180L	22.00	29.50	B35	4	1500rpm
AH2-200L-4	D200L	30.00	40.00	B35	4	1500rpm



Allison Hydraulics

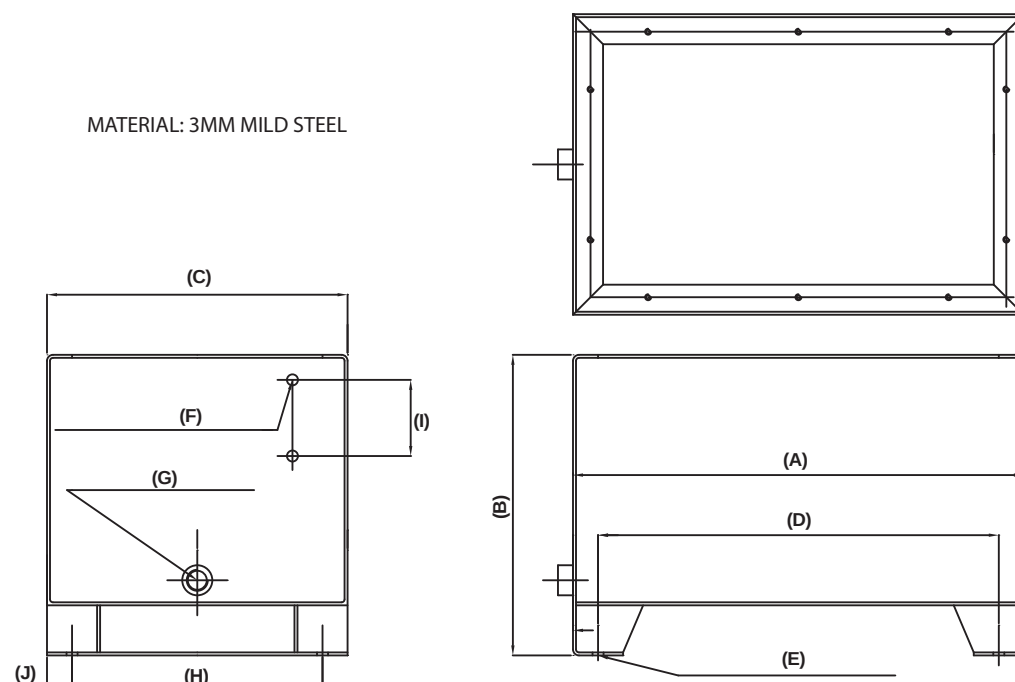
Features:

- Tanks complete with drain boss, holes for oil level sight gauge and filler breather.
- 100% leak tested.
- Available painted on request.
- Material: 3mm mild steel plate.

**Reservoir dimensions:**

	10 Litre (mm)	25 Litre (mm)	50 Litre (mm)	100 Litre (mm)	150 Litre (mm)	200 Litre (mm)	300 Litre (mm)	400 Litre (mm)
A	320	450	600	583	783	825	1000	1100
B	250	300	430	483	533	600	700	700
C	240	300	350	500	550	600	600	700
D	270	400	550	550	750	775	950	1050
E	4 off holes 11 mm	4 off holes 11 mm	4 off holes 11 mm	4 off holes 11 mm	4 off holes 11 mm	4 off holes 11 mm	4 off holes 11 mm	4 off holes 11 mm
F	2 off holes 11 mm	2 off holes 11 mm	2 off holes 11 mm	2 off holes 11 mm	2 off holes 11 mm	2 off holes 11 mm	2 off holes 11 mm	2 off holes 11 mm
G	1/2" BSP boss	1/2" BSP boss	1/2" BSP boss	1/2" BSP boss	1/2" BSP boss	1/2" BSP boss	1/2" BSP boss	1/2" BSP boss
H	190	250	300	450	500	550	550	650
I	76	76	127	127	127	127	254	254
J	25	25	25	25	25	25	25	25

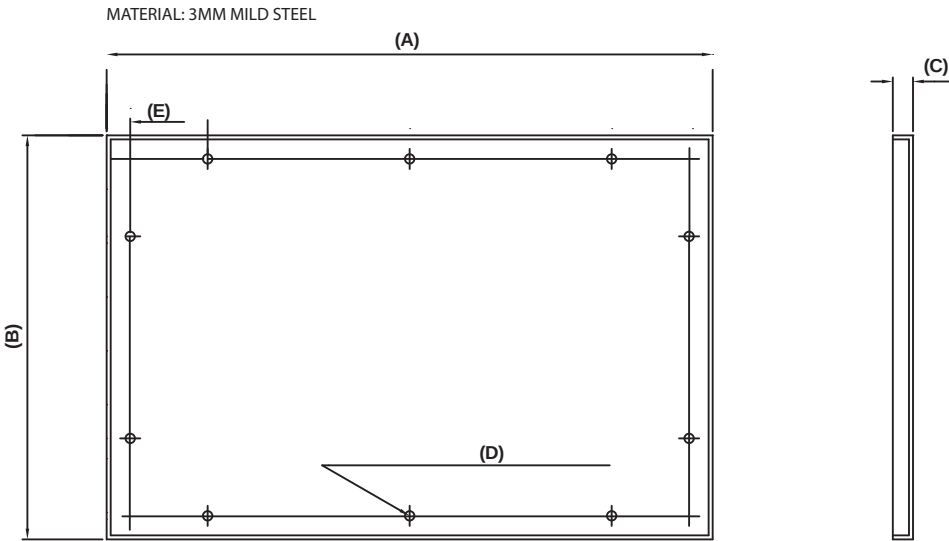
MATERIAL: 3MM MILD STEEL



Allison Hydraulics

Lid dimensions:

	10 Litre (mm)	25 Litre (mm)	50 Litre (mm)	100 Litre (mm)	150 Litre (mm)	200 Litre (mm)	300 Litre (mm)	400 Litre (mm)
A	320	450	583	583	800	808	1000	1100
B	240	300	350	500	550	600	600	700
C	15	15	15	15	15	15	15	5
D	10 off holes 7.5 mm	10 off holes 7.5 mm	10 off holes 7.5 mm	12 off holes 9.5 mm	12 off holes 9 mm	16 off holes 9.5 mm	18 off holes 9.5 mm	18 off holes 9.5 mm
E	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5



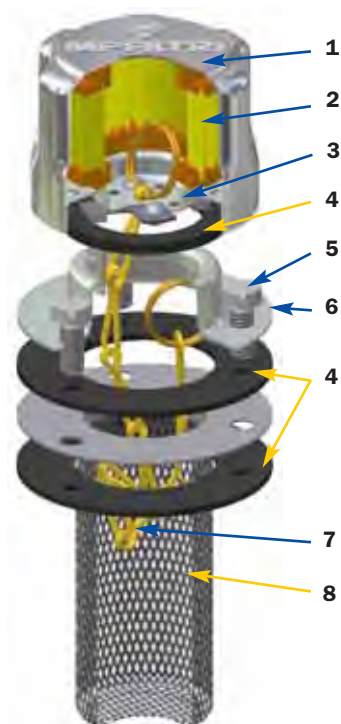
Model code

TNK	25L	P	BH90
Model series	Capacity	Option for motor cut out: (25 - 150 litre only) BH 90 = 90 frame electric motor BH 100 = 100 frame electric motor BH 132 = 132 frame electric motor BH 160 = 160 frame electric motor Finish: Painted/Unpainted	



Allison Hydraulics

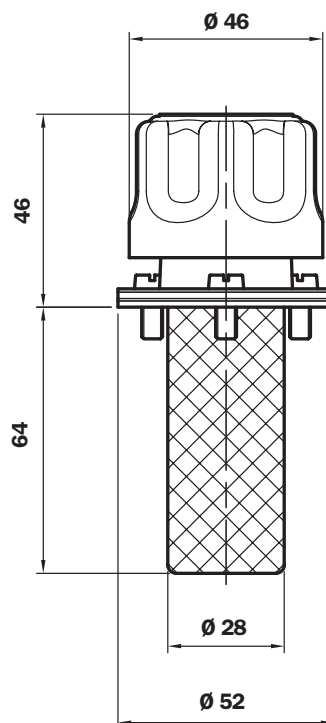
Dimensions



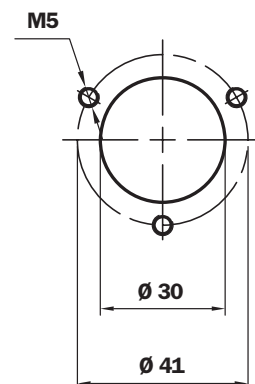
TA46 B (Materials)

- 1** - Cover: Chrome plated steel
- 2** - Breather filter: Resin impregnated cellulose
- 3 - 6** - Flange: Galvanised Steel
- 4** - Seals: NBR
Cork Gasket
- 5** - Screws: Galvanised Steel
- 7** - Chain, ring: Brass
- 8** - Strainer: Galvanised Steel

Bayonet connection



**Reservoir
holes**



Flow rates with Δp : 0,02 bar

Filtration	l/min
3 μm	150
10 μm	200

Weight

TA 46: 0,100 kg

TA 46 B

Bayonet connection

Non-removable strainer



Ordering information

**Filler caps
series**

TA46

Example: TA46

1	2	3	4	5	6	7
☐	☐	☐	☐	☐	☐	☐
B	03	A	0	C	1	P01

1 - Connection to reservoir

☐	Flange with bayonet connection
--------------------------	--------------------------------

2 - Filter element

☐	3 μm
☐	10 μm

3 - Seals

☐	NBR
☐	Cork Gasket

4 - Valves

☐	Without
--------------------------	---------

5 - Variants

☐	Standard
☐	With chain

6 - Strainer

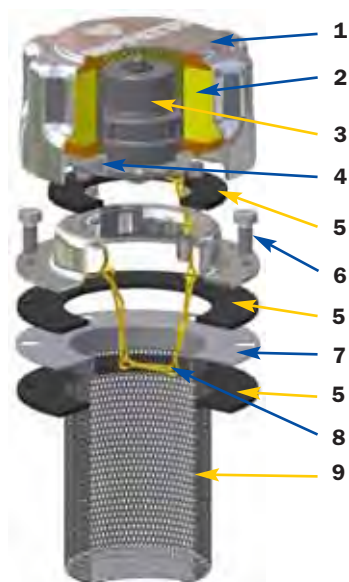
☐	Without strainer
☐	L= 65 mm

7 - Options

☐	MP Standard
--------------------------	-------------

Series TA 80

Metal filler / breather filler caps



TA80 B/D (Materials)

- 1 - Cover: Chrome plated steel
- 2 - Breather filter: Resin impregnated cellulose
- 3 - Pressurisation valve:
 - Bodies: Nylon
 - End cap-disk: Galvanised Steel
 - Spring: Steel
 - Seals: NBR
- 4 - Flange and anti-slosh feature: Galvanised Steel
- 5 - Seals: Cork Gasket
 - NBR
- 6 - Screws and washers: Galvanised Steel
- 7 - Flange: Galvanised Steel
- 8 - Chain, ring: Brass
- 9 - Strainer TA80B: Galvanised Steel

Flow rates with Δp : 0,02 bar

Filtration	l/min
3 μm	450
10 μm	550

Weight

Strainer L 80 mm: 0,330 Kg
Strainer L 150 mm: 0,350 Kg

TA 80 B

Bayonet connection
Non-removable strainer



TA 80 B

Bayonet connection
With Padlock Hasp



TA 80 D

Bayonet connection
Removable strainer



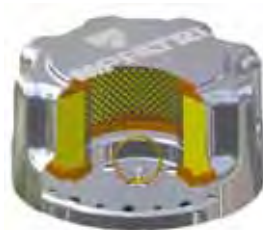
TA80B00....P01

Bayonet connection
Closed filler cap without
filter element



TA80B10....P01

Bayonet connection
Filler cap with filter element



TA80B03.9..P01

Bayonet connection
Filler cap with anti-slosh
feature and filter element

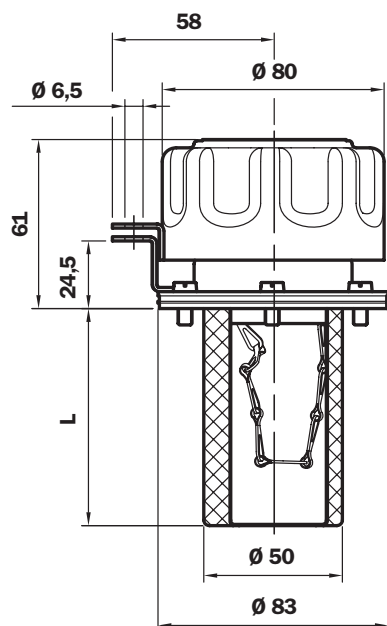


TA80B10.1..P01

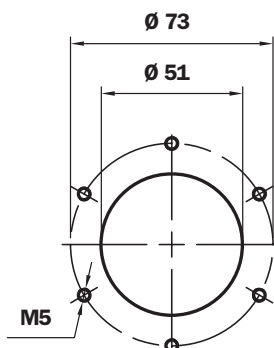
Bayonet connection
Filler cap with
pressurisation valve and
filter element



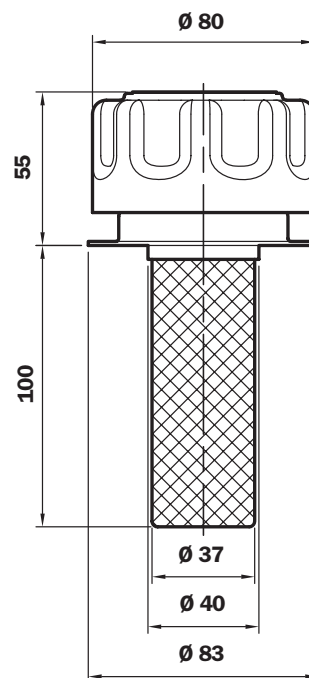
Bayonet connection



Reservoir holes



Weld flange



Ordering information

Filler caps series

TA80

Example: TA80

1	2	3	4	5	6	7
☐	☐	☐	☐	☐	☐	☐
B	03	A	1	L	2	P01

1 - Connection to reservoir

☐ B	Flange with bayonet connection
☐ D	Weld flange

2 - Filter element

☐ 00	Without filter (Blank filler cap)
☐ 03	3 µm
☐ 10	10 µm

3 - Seals

☐ A	NBR
☐ B	Cork Gasket

4 - Valves

☐ 0	Without
☐ 1	0,3 bar pressurisation valve (only with seals NBR)
☐ 2	0,7 bar pressurisation valve (only with seals NBR)
☐ 9	Anti-slosh feature (only with filter element 3 µm)

5 - Variants

☐ 0	Standard
☐ L	With Padlock Hasp (B versions only)

6 - Strainer

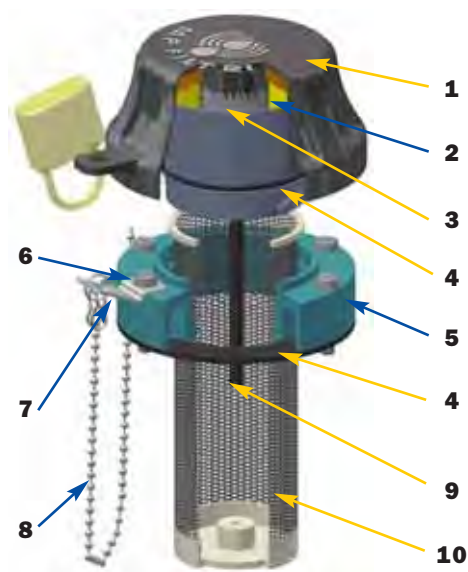
☐ 0	Without strainer
☐ 1	L= 80 mm (B versions only)
☐ 2	L= 150 mm (B versions only)
☐ 3	L= 100 mm (D versions only)

7 - Options

☐ P01	MP Standard
------------------------------	-------------

Series TAP 90

Nylon filler /
breather filler caps



TAP90 (Materials)

- 1 - Cover/ringnut: Nylon
- 2 - Breather filter: Resin impregnated cellulose
Polyurethane
- 3 - Pressurisation valve:
Nylon
Galvanised Steel
NBR
- 4 - Seal: NBR
- 5 - Flange B: Nylon
- 6 - Screws: Galvanised Steel
- 7 - Padlock hasp: Galvanised Steel
- 8 - Chain, ring: Brass
- 9 - Dipstick: Phosphated steel
- 10 - Strainer: Galvanised Steel/Nylon

Flow rate with Δp : 0,02 bar

Filtration l/min

3 μm 450

10 μm 550

Weight

Strainer L 120 mm: 0,180 Kg

Strainer L 250 mm: 0,210 Kg

TAP90 B.....

Flange with
bayonet connection



External chain

TAP90 R.....

Flange with
M52x2 connection



Internal chain

TAP90 F.....

Flange with spigot
DIN 24557 Connection
M52x2



Internal chain

TAP90 C.....

Weld riser
Connection
M52x2



Weld riser in
galvanised steel,
internal chain

TAP90 B-C-R-F

With dipstick



TAP90 B-C-R-F

Closed filler cap without
filter element



TAP90 B-C-R-F

Filler cap with filter
element



TAP90 B-C-R-F

Filler cap with
pressurisation valve



Changing the filter element in

TAP 115 series filler caps

1 Thoroughly clean the filler cap and adjacent parts.

2 Unscrew and raise the cover.

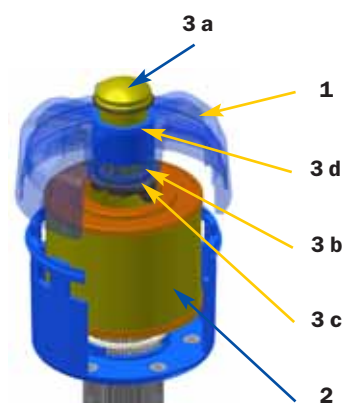


3 Renew the filter element and screw the cover fully home into the cartridge (DO NOT OVER TIGHTEN).



TAP 115 spare parts

Pos.	Description	Q.ty	Filler cap series TAP 115	
1	Complete filler cap	1	See order table	
2	Filter Element	1	See order table	
3	Indicator Kit	1	NBR 02005187	FPM 02005188
3a	Visual indicator	1	S62P01	
3b	Seal	1	O-R 3106 Ø 26,64 X 2,62	
3c	Indicator securing screw	1	01022670	
3d	O-R indicator	1	O-R 2112 Ø 28,3 x 1,78	



Ordering information

Filler caps series

TAP115

Example: TAP115

1	2	3	4	5	6	7
☐	☐	☐	☐	☐	☐	☐
2	F	A03	A	1	B	P01

Filter Element

A115

Example: A115

1	3	7
☐	☐	☐
2	A03	P01

1 - Length

☐
1
☐
2

2 - Connection

☐	Flange
F	

3 - Filter element

☐	Resin impregnated cellulose 10 µm
L10	
☐	Inorganic microfibre 3 µm
A03	

4 - Seals

☐	NBR
A	
☐	FPM
V	

5 - Strainer

☐	Without
0	
☐	L= 120 mm
1	

6 - Indicator

☐	Without
A	
☐	Visual indicator
B	

7 - Options

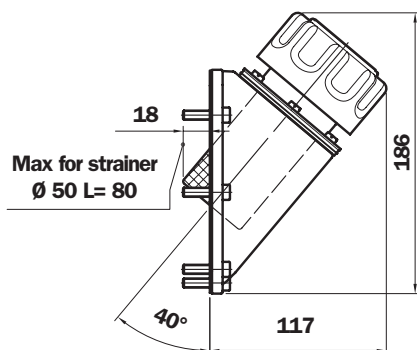
☐	MP Standard
P01	

- Nylon inclined flange
- Metal filler / breather filler caps

Series TAF 80

Dimensions

TAF 80 B



For tank hole see "SMF 1"
page 18.



Flow rate with Δp : 0,02 bar

Filtration	l/min
3 μ m	450
10 μ m	550

Weight

TAF 80: 0,655 Kg

Ordering information

TAF80	1	2	3	4	5	6	7	8
Example: TAF80	B	03	A	1	L	1	M	P01

1 - Filler cap connection

B	Flange with bayonet connection
----------	--------------------------------

2 - Filter element

00	Without filter (Blank filler cap)
03	3 μ m
10	10 μ m

3 - Seals

A	NBR
B	Cork Gasket

4 - Pressurisation valve

0	Without	] Only with seal NBR
1	0.3 bar pressurisation valve	
2	0.7 bar pressurisation valve	
9	Anti-slosh feature (only with filter element 3 μ m)	

5 - Variants

0	Standard
L	With Padlock Hasp

6 - Strainer

0	Without
1	L= 80 mm

7 - Connection to reservoir

M	Fixing with Metric screws
U	Fixing with UNC screws

8 - Options

P01	MP Standard
------------	-------------

Series TAF 90

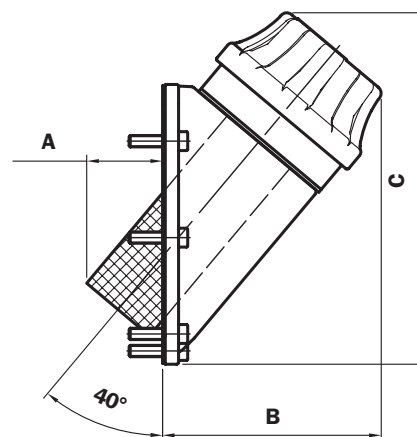
- Nylon inclined flange
- Nylon filler / breather filler caps

Dimensions

TAF 90 ...



TAF 90 B - R - F



TYPE	A	B	C
TAF90 B - R	40	116	186
TAF90 F	48	109	178

For tank hole see "SMF 1"
page 18.

Flow rate with Δp : 0,02 bar

Filtration	l/min
3 μm	450
10 μm	550

Weight

TAF 90: 0,535 Kg

Ordering information

TAF90	1	2	3	4	5	6	7	8
Example: TAF90	B	03	A	1	L	1	M	P01

1 - Filler cap connection

B	Flange with bayonet connection
F	Flange with threaded connection M52x2 Spigot $\varnothing$ 60 (DIN 24557)
R	Flange with threaded connection M52x2

2 - Filter element

00	Without filter (Blank filler cap)
03	3 μm
10	10 μm

3 - Seals

A	NBR
----------	-----

4 - Pressurisation valve

0	Without
1	0.3 bar pressurisation valve
2	0.7 bar pressurisation valve

5 - Variants

0	Standard
L	With Padlock Hasp
C	With Chain external for connection B With Chain internal for connection F-R (with strainer only)
D	With Padlock Hasp and chain external for raccordement B With Padlock Hasp and chain internal for raccordements F-R (with strainer only)

6 - Strainer

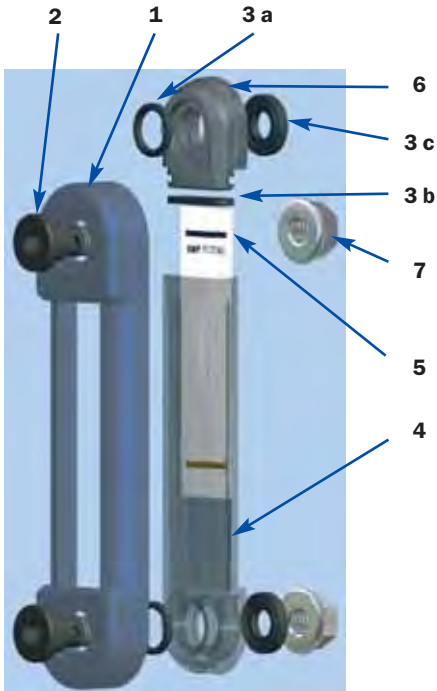
0	Without
1	L= 120 mm

7 - Connection to reservoir

M	Fixing with Metric screws
U	Fixing with UNC screws

8 - Options

P01	MP Standard
------------	-------------

**LVA (Materials)**

- 1** - Cover: Polyamide
- 2** - Screws: Phosphated steel
- 3** - Seals: NBR
FPM
- 4** - Lens: Polyamide
- 5** - Nameplate: Painted aluminium
- 6** - Terminal cap: Nylon
- 7** - Nuts: Galvanised steel

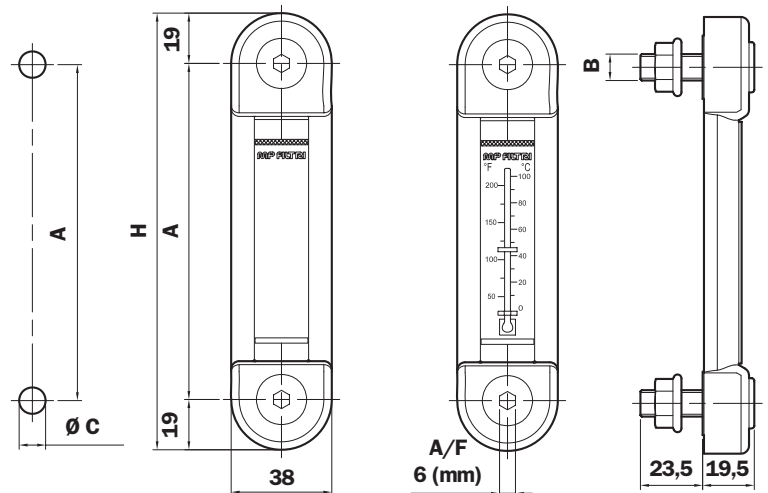
Quantity per pack
Number of Parts

LVA 10

Screw tightening torque: 15Nm

Dimensions

Reservoir
holes



Size	A	H	Weight (Kg)
LVA10	76	114	0,13
LVA20	127	165	0,18
LVA30	254	292	0,23

Type	B	C
LVA.....M10	M10	10,5
LVA.....M12	M12	12,5
LVA.....U38	3/8" UNC	10
LVA.....U12	1/2" UNC	13,5

LVA20T.....S01**LVA**

Example: LVA

1 - Size

10

20

30

2 - Accessories

S Without thermometer

T With thermometer

3 - Seals

A NBR

V FPM

1

2

3

4

5

6

20

T

A

P

M10

S01

4 - Cover

P Cover polyamide

5 - Connection

M10 Screws M10

M12 Screws M12

U38 Screws 3/8" UNC

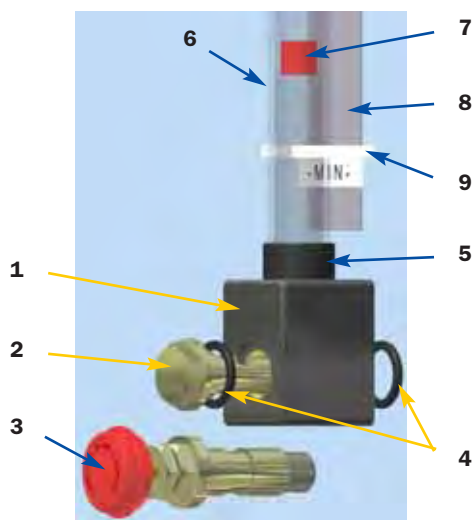
U12 Screws 1/2" UNC

6 - Options

S01 With nuts - Tag MP Filtri

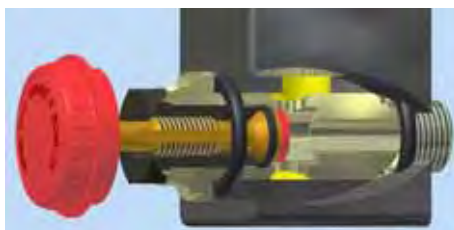
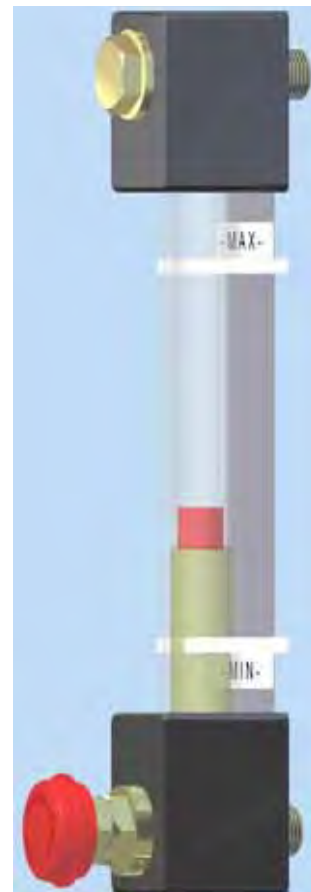
S02 Without nuts - Tag MP Filtri

Ordering information



LVU (Materials)

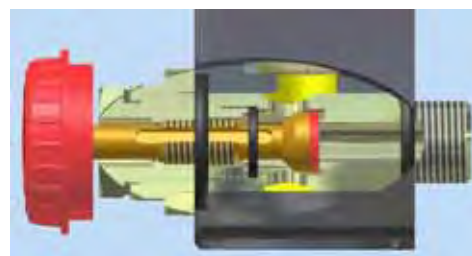
- 1** - Head: Nylon
- 2** - Connection G 3/8": Nickel plated brass
- 3** - G 3/8" valve: Steel
- 4** - Seal: NBR
- 5** - Pipe Seal: NBR
- 6** - Pipe: Acrylic
Pyrex
- 7** - Float: Nylon
- 8** - Protection: Aluminium
- 9** - Clamps MIN - MAX: Nylon



Open the valve completely.

Allows the oil to flow from the reservoir to the level tube.

ATTENTION - The intermediate valve opening or closing position allows the oil to flow from the reservoir to the exterior.



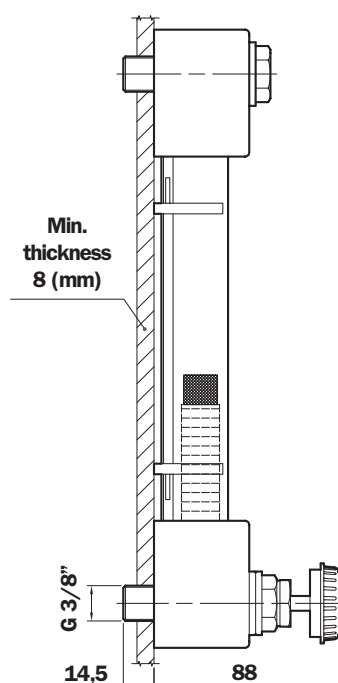
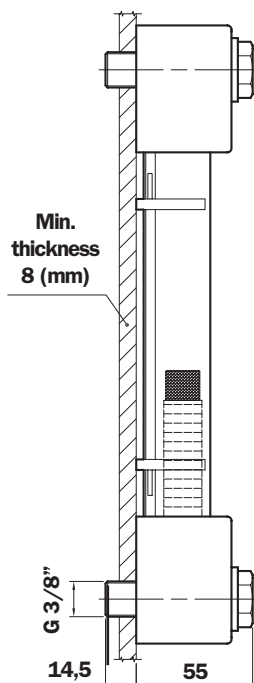
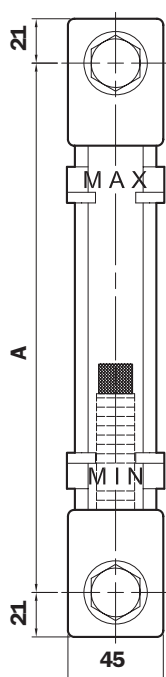
Close the valve fully.

Stops the oil flow from the reservoir to the level tube.

Allows the oil to be discharged from the level tube to an external container.

LVU.....10

LVU.....20



LVU spare parts

Pos.	Description	Q.ty	LVU
1	Seals kit	1	02050130
4	O-Ring	4	OR 4181 Ø 20,22 x 3,53
2	Fixing element kit series 10	1	02049014
2	G 3/8" connection	2	
3	Fixing element kit series 20	1	02049015
2	G 3/8" connection	1	
3	G 3/8" bibcock	1	

Weights	Version U (Kg)	Version S (Kg)
0500	0,780	0,580
1000	1,150	0,790
1500	1,550	1,100
2000	1,950	1,400

Size	A (mm)
0500	500
1000	1000
1500	1500
2000	2000

Ordering information

Visual level indicator series LVU

Example: LVU

1	2	3	4	5
☐	☐	☐	☐	☐
0500	U	A	10	P01

1 - Size

0500	Dimension "A" in mm
1000	Dimension "A" in mm
1500	Dimension "A" in mm
2000	Max. dimension "A" in mm
XXXX	Dimension "A" in mm (on request)

2 - Variants

S	Standard
U	"U" protection
P	"U" protection + Pyrex lens (max size 1500)

3 - Seal

A	NBR
---	-----

4 - Filter

10	2 G 3/8" connections
20	1 G 3/8" connection + 1 valve

3 - Options

P01	MP Standard
-----	-------------

Bellhousing Series

SERIES LMC



LMC series monobloc bell housings are used to connect between **UNEL-MEC** electric motors (**form B3 - B5**) and a wide range of hydraulic pumps available on the international market.

With special machining, they can become motor bases on which it is possible to fit standard flanges produced by **MP Filtri S.P.A.** (MODUL-2).

Due to their considerable flexibility and the vast range of the **LMC** series monobloc bell housings are suitable for most applications, and offer an operational range from **0.5 kW** size **80** electric motors to **30 kW**, frame size **225** electric motors.

Technical data

Material

- **Monobloc Bellhousing**
Aluminium.
- **Pump Flange**
Aluminium.
- **Foot Bracket**
Aluminium.

Fluids compatibility

- **Motor bases compatibility with:**

Mineral oil

Types HH-HL-HM-HR-HV-HG as per ISO 6743/4

Water-based emulsions

Types HFAE – HFAS as per ISO 6743/4

Water-glycol

Types HFC as per ISO 6743/4

Ask for anodized version.

Temperature range

- **Working temperature**
from -30°C to +80°C
For values outside these temperatures,
please consult our Sales Network Organisation.

Special applications

- **For applications not included in this brochure, please consult our technical office.**

How to use this catalogue

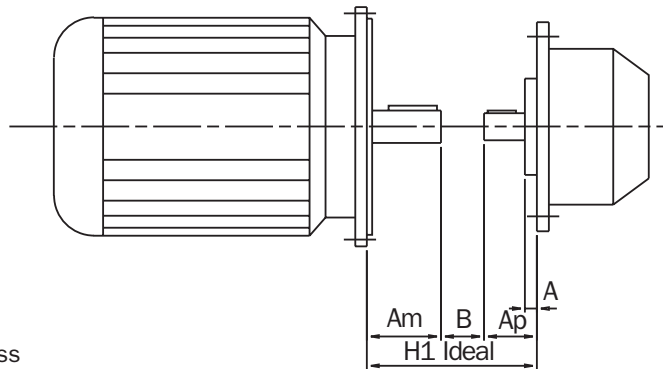
This catalogue provides the technical and dimensional characteristics to correctly select the LMC low noise bellhousing.

- Once the motor power and the type of hydraulic pump have been selected, you will need to determine the correct flange pump for the type of motor & pump.
- All the available combinations between motor base and flanges are shown in chart 2. With the information, establish exactly the H1 dimensions of the LMC bellhousing and the exact ordering code.

Version available

- **Monobloc bellhousing:** bellhousing complete with machined pump interface; **flange code FS***
- **MODUL 2 bellhousing:** pump interface machined on a supplementary flange and assembled to the monobloc bellhousing; **flange code FR* - F5* - F6***

Practical example of calculating the height H1



DATA

- Am** Motor shaft length
B Spider element Thickness
Ap Total length of the pump shaft (including pump spigot)

- The **H1** length has been calculated using the following:
 $Am + B + Ap$,
Optimum solution: H1 ideal is $\leq$ bellhousing length.
- In the first instance, we try to use a monobloc bell housing.

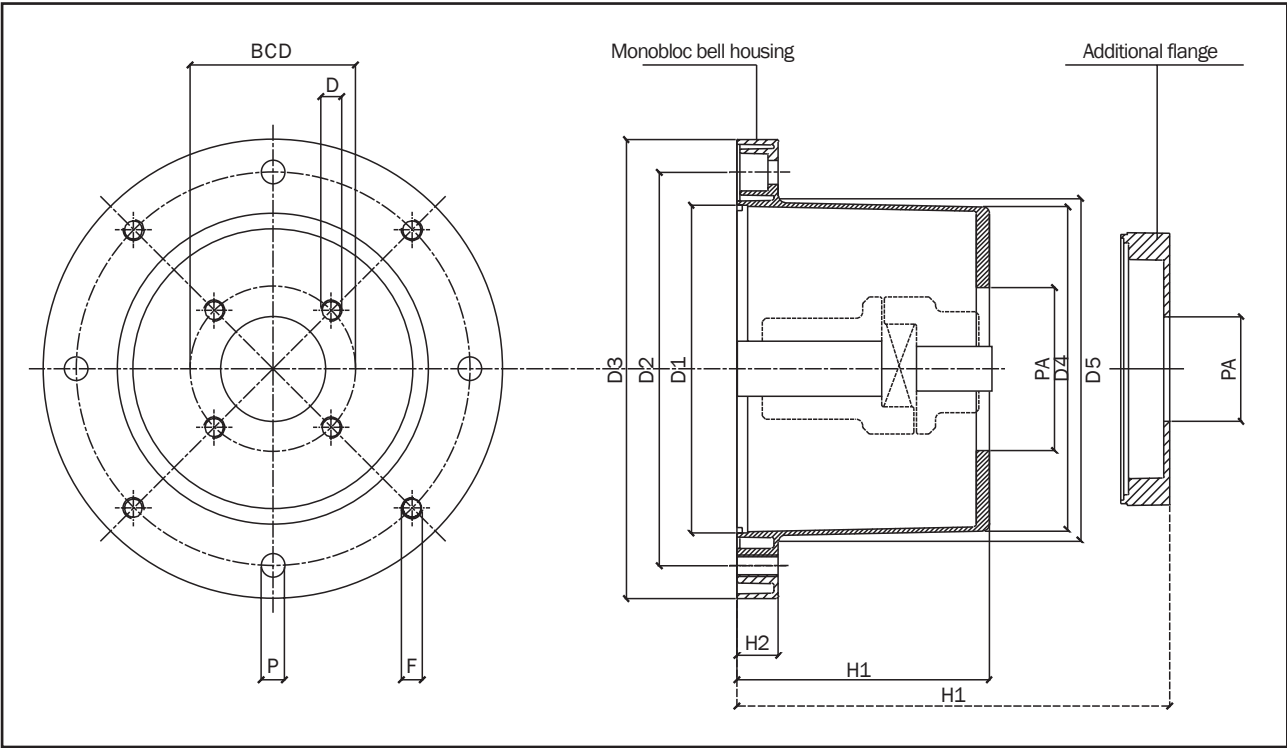
In the event that:

1. A bell housing that meets the above condition does not exist;
2. The drilling of the pump is not compatible with a standard flange;

We use the flanges described later.

In this case, the bell housing is composite (MODUL-2).

Monobloc bell housing - Additional assembled flange



The additional flange, if request, is supplied already fitted on the bell housing (MODUL-2).

Drive coupling not included in the ordering code- please see page 41.

- For technical information, see paragraph "DRIVE COUPLINGS" page 41

- For loose components see pages 7-8-9-10

NB Drill the hole in the cover of the tank at least 2 mm larger than measurement D5

CHART 1

4 poles 1500 rpm motor				LMC monobloc bell housing dimensions												
Motor Frame Size	kW	Hp	Motor shaft	Bell housing code	Foot bracket Code	D1	D2	D3	D4	D5	H1	H2	F.	Nr.	P	Nr.
80	0.53-0.75	0.75-1	19x40	LMC 200	PDM A 200	130	165	200	125	135		18	M10	4	11	4
90	1.1-1.5	1.5-2	24x50	LMC 200	PDM A 200	130	165	200	125	135		18	M10	4	11	4
100-112	2.2-4	3-5.5	28x60	LMC 250	PDM A 250	180	215	250	175	186		19	M12	4	14	4
132	5.5-7.5	7.5-12.5	38x80	LMC 300	PDM A 300	230	265	300	230	235		23	M12	4	14	4
160	11-15	15-20	42x110	LMC 350	PDM A 350	250	300	350	240	254		31	M16	4	18	4
180	18.5-22	25-30	48x110	LMC 350	PDM A 350	250	300	350	240	254		31	M16	4	18	4
200	37	45	55x140	LMC 400	/	300	350	400	280	305		31	M16	8	-	-
225	37-45	50-60	60x140	LMC 450	/	350	400	450	320	350		31	M16	8	-	-

See
Tab.
2

To determine dimension **H1** of bell-housing,
To **determine foot bracket dimension**,
To **determine pump flange dimension**,

see **Chart 2**
see **Page 50**
see **refer to the pump manufacturers technical literature.**

LMC bell housing H1 height

CHART 2

Monobloc		
Code	H1	Notes
FSJ***	100	LMC 200
FSW***	125	LMC 200
FSM***	114	LMC 250
FSQ***	136	LMC 250
FST***	155	LMC 300
FSX***	170	LMC 300
FSY***	178	LMC 350
FSU***	194	LMC 350
FSV***	202	LMC 400
FSZ***	250	LMC 450

MODUL 2		
Code	H1	Notes
FRA***	117	Additional flange for LMC 200
FRB***	125	
FRC***	133	
FRD***	158	Additional flange for LMC 250
FRA***	153	
FRB***	156	
FRC***	161	Additional flange for LMC 300
FRA***	185	
FRB***	191	
FRC***	193	Additional flange for LMC 350
FRD***	201	
F5A***	192	
F5B***	198	

Modul 2		
Code	H1	Notes
F5A***	218	Additional flange for LMC 350
F5B***	224	
F6A***	239	
F6B***	252	Additional flange for LMC 400
F5A***	228	
F5B***	234	
F6A***	247	Additional flange for LMC 450
F6B***	260	
F5A***	276	
F5B***	234	Additional flange for LMC 450
F6A***	295	
F6B***	308	

Additional flanges tightening torque

- FR* 18 Nm
- F5* 100 Nm
- F6* 180 Nm

Recommended tightening torque for motor/pump mounting screws

- M6 10 Nm
- M8 24 Nm
- M10 50 Nm
- M12 84 Nm
- M14 135 Nm
- M16 205 Nm
- M18 280 Nm
- M20 400 Nm
- M22 530 Nm
- M24 690 Nm

These values are calculated at 70% of the max admissible load.

In these special conditions the bolt's body will undergo an average 60-70% of max. admissible load during tightening. These values are valid for UNI 5737 hexagon head screws and cylinder head screws with UNI 5931 built in hexagon with 8.8 resistance class, and torques gradually modulated with dynamometric screwdriver.

If tightening is carried out with hydraulic power tool with torque control system, it is recommended that the tightening torque is decreased by 10%.

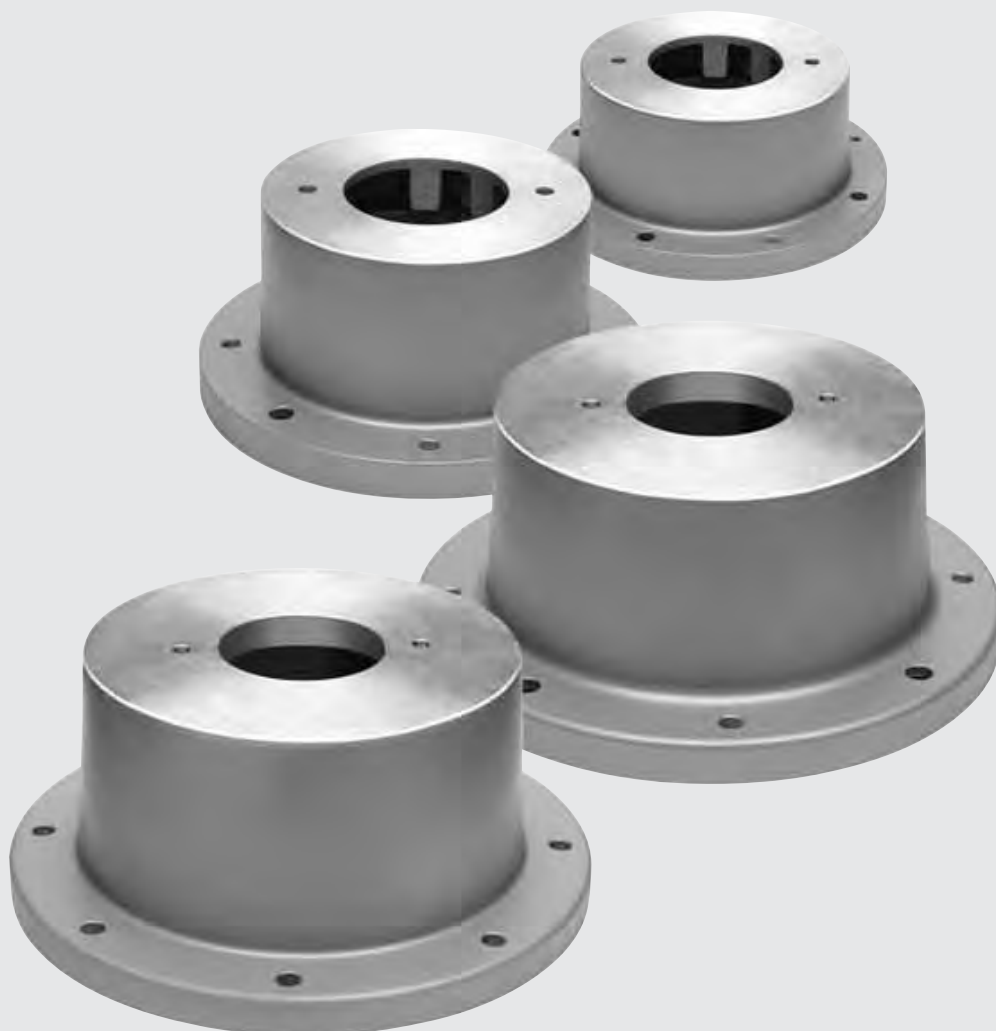
NB. The 3 asterisks in the table represent the 3 numerals determining the pump drilling code (see Page 39).

Monobloc bell housing

LMC		250		- A -		FSQ 072		- P00	
Series									

Comparative table

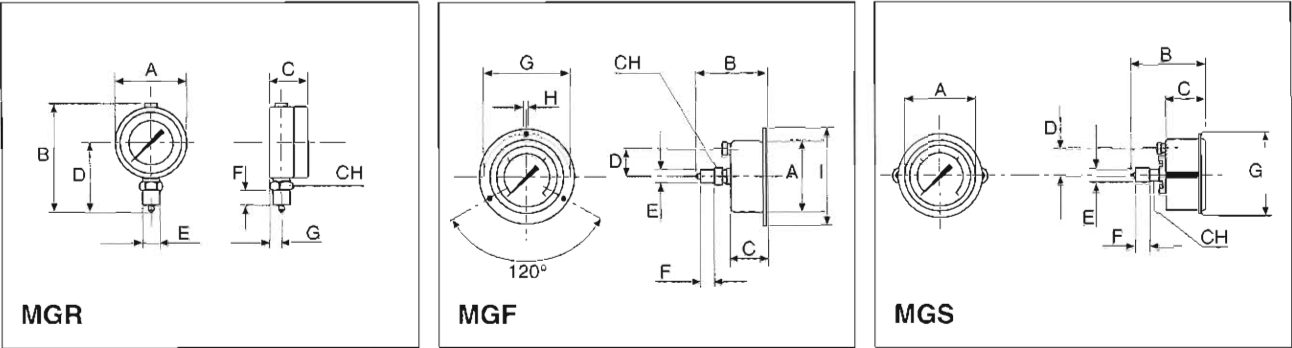
MP Filtri		OMT	Hydrapp	Raja	KTR
old code	new code	code	code	code	code
LMB200A100***	LMC200A***	TH20A***	/	R200/99-115/...	PK200/3/...
/	LMC200A***	TH1***	HLC1	R200/120-135/...	PL200/8/...
LMB250A109***	LMC250A***	TH2***	HLC3	R250/120-135/...	PL250/6/...
LMB300A130***	LMC300A***	TH3***	HLC5	R300/155-170/...	PL300/4/...
LMB350A179***	LMC350A***	TH4***	HLC8	R350/173-194/...	PK350/4/...
/	LMC400A***	TH15***	HLC12	R400/194-210/...	PK400/4/...
/	LMC450A***	TH18***	/	R450/250-210/...	PK450/4/...



PRESSURE GAUGE - TYPE MG

- Glycerine filled
 - 0 to 600bar ranges
Dual scale (bar/psi)
 - Accuracy
EN837 - class 1.6 to 2.5
DSMG B40 - 1 - Grade 'B'
- Protection - IP43
 - Sizes
63mm(1/4 BSP) and
100mm(1/2 BSP)
 - Operating temperature
± 60°C
- Materials
Case Stainless Steel
Tube Brass / copper alloy
Movement Brass
Window Polycarbonate

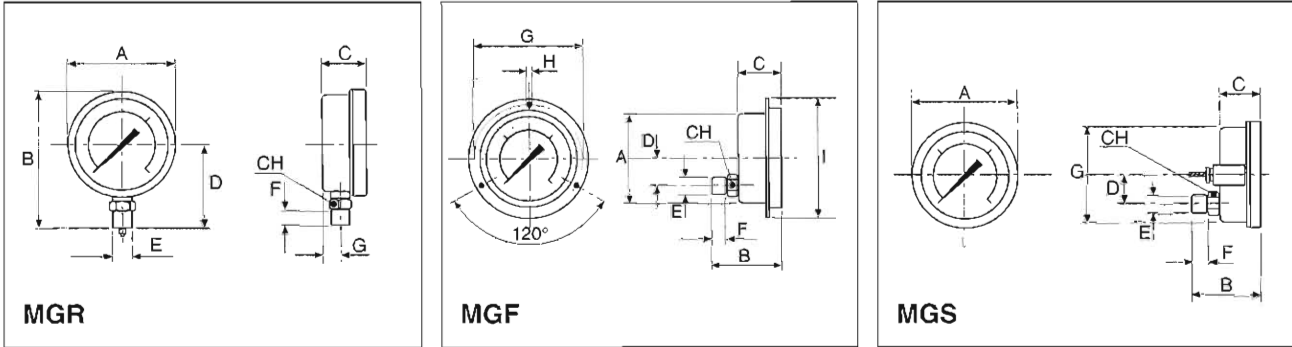
MG-63 size



DIMENSIONS

TYPE	A mm	B mm	C mm	D mm	E bsp	F mm	G mm	H mm	I mm	CH mm	WEIGHT g
MGR 63	63	84.5	37	53	1/4"	12	12	-	-	14	300
MGF 63	63	58.5	69.5	24	1/4"	12	75	3.6	85	14	300
MGS 63	63	60	37	24	1/4"	12	68	-	-	14	300

MG-100 size



DIMENSIONS

TYPE	A mm	B mm	C mm	D mm	E bsp	F mm	G mm	H mm	I mm	CH mm	WEIGHT g
MGR 100	100	137	49	87	1/2"	20	13.5	-	-	22	1200
MGF 100	100	75.5	49	30	1/2"	20	116	4.8	132	22	1200
MGS 100	107	77	50	30	1/2"	20	100	-	-	22	1200

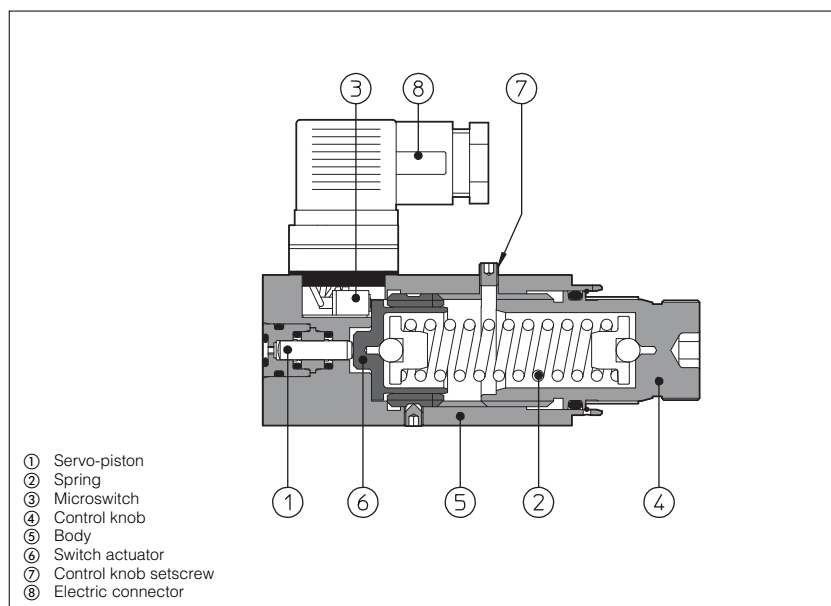
ORDERING INFORMATION M G - R - 6 3 - G - 1 0 0

MODEL Glycerine-filled pressure gauge	Mounting R - Radial F - Flange S - Bracket	Normal size 63 - 63 Ø 100 - 100 Ø	Connection G - BSP thread	Full scale - 10 100 400 25 160 600 60 250
---	---	--	------------------------------	---

ORDERING EXAMPLE MGR 63G 160 - 63mm gauge, Radial connector, 1/4 BSP, 160bar

Pressure switches type MAP

with fixed differential



MAP pressure switches produce an electrical make/break contact which is triggered when pressure in the hydraulic circuit reaches a given setting.

Fluid pressure in the circuit operates a piston ① flitted with adjustable spring bias ②; once the pressure setting is reached, the piston is urged forward so as to actuate a microswitch ③ and make or break its contacts.

The pressure setting is selected by turning a graduated control knob ④.

Clockwise rotation increases the setting pressure.

Pressure switches are designed to operate in hydraulic systems with hydraulic mineral oil or synthetic fluid having similar lubricating characteristics.

Max pressure = 650 bar

1	MODEL CODE
---	------------

MAP - 160 /M 06 /E ** /WG

Fixed differential pressure switch

Pressure range:

Pressure range:

40	= 5 ÷ 40 bar
80	= 7 ÷ 80 bar
160	= 10 ÷ 160 bar
320	= 30 ÷ 320 bar
630	= 50 ÷ 630 bar

Type of adaptor (if required), see section 6 and 7

/M = BMM – adaptor - male fittings
/MF = BMF – adaptor - female fittings
/F = BFM – adaptor - in line mounting
/H = BHM adaptor - modular mounting
 ISO 4401 size 06
/K = BKM adaptor - modular mounting
 ISO 4401 size 10

Synthetic fluids:
WG = water-glycol
PE = phosphate ester

Series number

Options:

E = Common electric contact connected to pin 1 (see section [3])

Threatened connections for BMM and BFM adaptors, see section 7

BMM	BFM
06 = G 1/4"	06 = G 1/4"
10 = G 3/8"	10 = G 3/8"
15 = G 1/2"	15 = G 1/2"
	20 = G 3/4"
BMF	25 = G 1"
06 = G 1/4"	32 = G 1 1/4"

Port to serve for BHM and BKM adaptors, see section 7

11 = port P
12 = port A und B
13 = port A

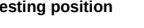
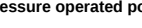
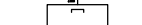
14 = port B
17 = port P und A
18 = port P und B

Note: special version with gold-plated microswitch contact available on request

2 MAIN CHARACTERISTICS OF PRESSURE SWITCHES TYPE MAP

Assembly position / location	Any position
Subplate surface finishing	Roughness index $\sqrt{0.4}$ flatness ratio 0,01/100 (ISO 1101).
Ambient temperature	from -20°C to +70°C.
Fluid	Hydraulic oil as per DIN 51524 535; for other fluids see section II .
Recommended viscosity	15 ÷ 100 mm²/s at 40°C (ISO VG 15 ÷ 100).
Fluid contamination class	ISO 19/16, achieved with in line filters at 25 µ value and $\beta_{25} \geq 75$ (recommended).
Fluid temperature	T ≤ 80°C; if T ≤ 60°C select /PE seals

3 MAIN CHARACTERISTICS AND WIRING OF INTERNAL MICROSWITCH

		Supply voltage [V]						
		125 AC	250 AC	30 DC	250 DC			
Max current - resistive load -	[A]	7	5	5	0,2	STD		
Max current - inductive load (Cos φ = 0,4) -	[A]	4	2	3	0,02			
Insulating resistance	≥	100 MΩ				/E		
Contact resistance	=	15 mΩ						
Electrical life-expectancy	≥	1.000.000 switchings						
Mechanical life-expectancy	≥	10.000.000 switchings						

Filtration



Allison Hydraulics

Index

Filtration

Suction filters

Page 197



- STR series
- MPA/MPM series

Return line filters

Page 203



- MPF series

Pressure in-line filters

Page 219



- FHP series
- FMP series
- FMM 050 series

Spin on filters

Page 235



- MPS/MST series

STR

These strainers are suitable for use in the suction line, submerged in the reservoir.

They are available for nominal flows up to 900 l/min (with oil at 30 mm²/s).

These filters are particularly suitable for applications where it is necessary to protect pumps from coarse particles of contamination.

STR series are available with or without a bypass valve.

MPA-MPM series are equipped with safety tie rod.

MPM series are supplied with an internal magnet column.

MPA - MPM



UNI EN ISO 9001
N° 037/98

ITALCERT

Filter element:

Materials

STR series

MPA-MPM series

Connection and End cap: Support tube:

Nylon

Galvanized Steel

Bypass valve:

Nylon

Connection:

Aluminium

End cap:

Galvanized Steel

Support tube:

Galvanized Steel

Nut and tie rod:

Galvanized Steel

Element material Nominal filtration

M Series

Square wire mesh (filtration degree is defined in microns by the maximum diameter of a sphere corresponding to the mesh size).

Filtering area Filter elements

STR series

MPA-MPM series

Type STR	050-1-2	070-1-2	070-3-4	100-1-5	100-2-3-4	140-1-2	140-3-4	140-5	140-6
M 60	290	470	720	1046	1850	2000	3550	3620	4160
M 90	290	470	720	1046	1850	2000	3550	3620	4160
M250	290	470	720	1046	1850	2000	3550	3620	4160

Values in cm²

Type MPA MPM	012-015	025-030	045-50	075-095	120-150	180-220	280-300	380-430
M 60	280	480	770	1000	1820	1920	3450	4250
M 90	280	480	770	1000	1820	1920	3450	4250
M250	280	480	770	1000	1820	1920	3450	4250

Values in cm²

Working

Temperature

STR series

From -25°C to + 110°C

MPA-MPM series

From -40°C to + 120°C

For temperature outside this range, please consult our Sales Network Organization

Bypass valve

Setting pressure

Bypass valve, differential opening pressure:
(STR series only)

B: 30 kPa ± 10%

Compatibility

with fluids

As per ISO 2943; suitable for mineral oils (types HH-HL-HM-HR-HV-HG as per ISO 6743/4)
synthetic fluids
(types HS-HFDR-HFDS-HFDU as per ISO 6743/4)

For water-based emulsions (type HFAE-HFAS as per ISO 6743/4) and fluids other than those mentioned, please consult our Sales Network Organization.

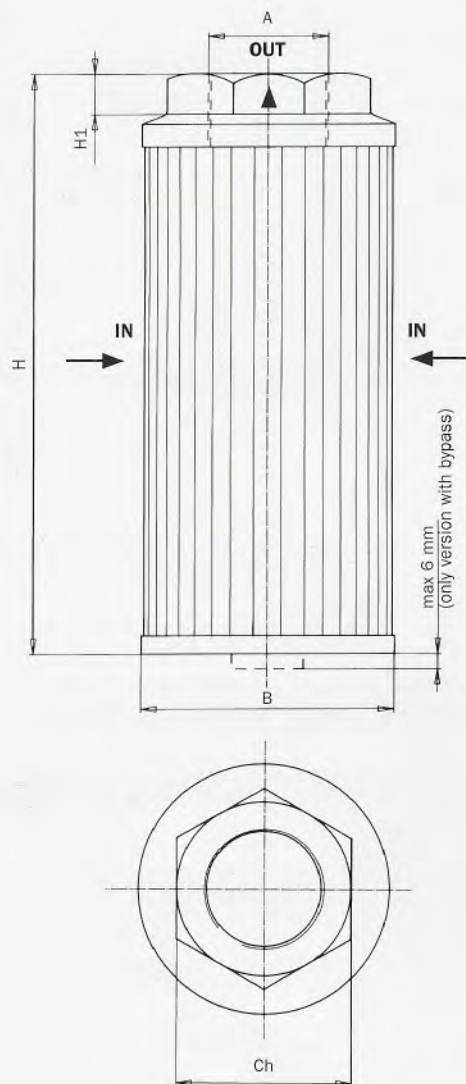
Filter element types

M series

Metal mesh media, available in 60,90 or 250 μm
Example - **M60, M90 or M250**

1 bar = 100 kPa

The following filter setting recommendations are based using a mineral oil fluid at 30 mm^2/s (cSt) with a maximum total filter pressure drop of **8 kPa (0,08 bar)**.

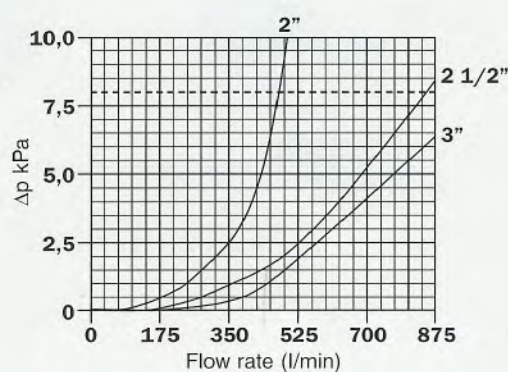
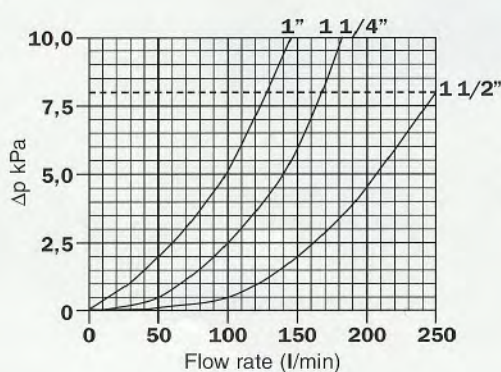
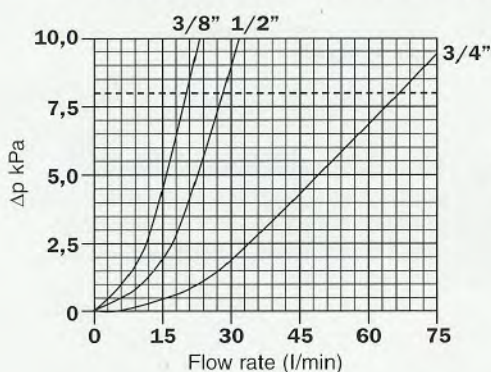


STR

STR SERIES

Type	A	B	H	H1	Ch	Weight Max (kg)
050-1 G1	3/8" BSP	52	78	10	30	0,16
050-1 G2	3/8" NPT					
050-2 G1	1/2" BSP	70	95	10	42	0,22
050-2 G2	1/2" NPT					
070-1 G1	1/2" BSP	99	135	15	69	0,30
070-1 G2	1/2" NPT					
070-2 G1	3/4" BSP	130	160	15	70	0,30
070-2 G2	3/4" NPT					
070-3 G1	3/4" BSP	130	262	20	101	0,30
070-3 G2	3/4" NPT					
070-4 G1	1" BSP	130	270	20	101	0,30
070-4 G2	1" NPT					
100-1 G1	1 1/4" BSP	130	270	20	101	0,30
100-1 G2	1 1/4" NPT					
100-2 G1	1 1/4" BSP	130	270	20	101	0,30
100-2 G2	1 1/4" NPT					
100-3 G1	1 1/2" BSP	130	270	20	101	0,30
100-3 G2	1 1/2" NPT					
100-4 G1	2" BSP	130	270	20	101	0,30
100-4 G2	2" NPT					
100-5 G1	1 1/2" BSP	130	270	20	101	0,30
100-5 G2	1 1/2" NPT					
140-1 G1	1 1/2" BSP	130	270	20	101	0,30
140-1 G2	1 1/2" NPT					
140-2 G1	2" BSP	130	270	20	101	0,30
140-2 G2	2" NPT					
140-3 G1	2" BSP	130	270	20	101	0,30
140-3 G2	2" NPT					
140-4 G1	2 1/2" BSP	130	270	20	101	0,30
140-4 G2	2 1/2" NPT					
140-5 G1	3" BSP	130	270	20	101	0,30
140-5 G2	3" NPT					
140-6 G1	3" BSP	130	270	20	101	0,30
140-6 G2	3" NPT					

Filter element pressure drop



Ordering code example

STR

050-1

B

G1

M60

Example order

Series

STR	Strainer
-----	----------

Micron rating

M 60	
M 90	Wire mesh
M 250	

Nominal sizes

050-1	3/8" - H78
050-2	1/2" - H78
070-1	1/2" - H95
070-2	3/4" - H95
070-3	3/4" - H140
070-4	1" - H140
100-1	1 1/4" - H135
100-2	1 1/4" - H225
100-3	1 1/2" - H225
100-4	2" - H225
100-5	1 1/2" - H135
140-1	1 1/2" - H160
140-2	2" - H160
140-3	2" - H262
140-4	2 1/2" - H270
140-5	3" - H270
140-6	3" - H330

Connections

G1	BSP Thread
G2	NPT Thread

Bypass valve

S	Without bypass
B	With bypass

Selection & installation information

Filter element types

M series

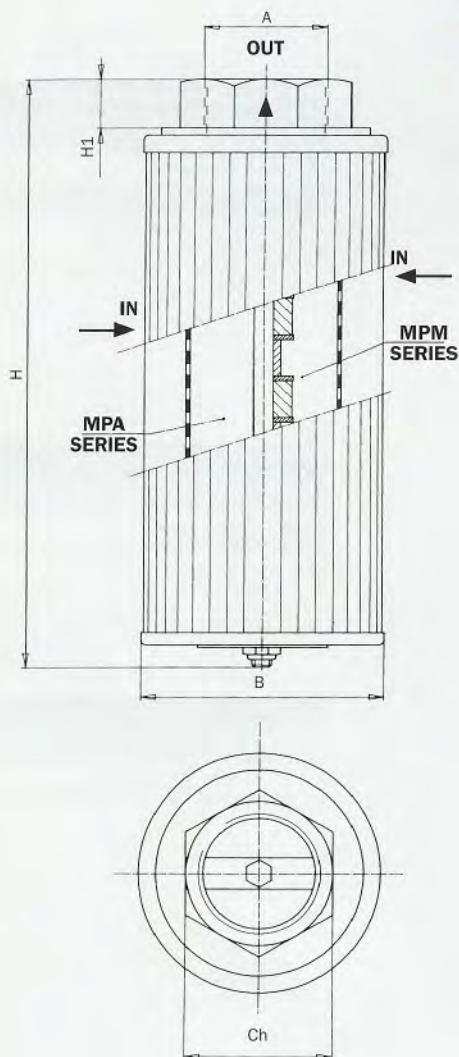
Metal mesh media, available in 60,90 or 250 μm
Example - **M60**, **M90** or **M250**

1 bar = 100 kPa

The following filter setting recommendations are based using a mineral oil fluid at 30 mm^2/s (cSt) with a maximum total filter pressure drop of **8 kPa (0,08 bar)**.

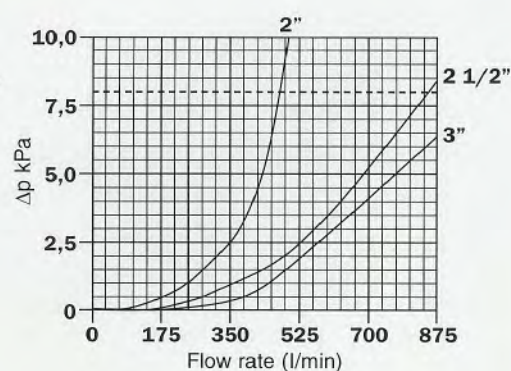
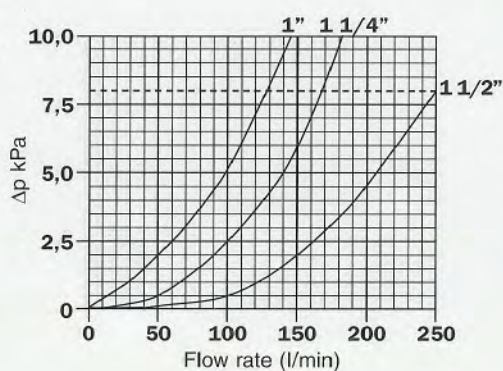
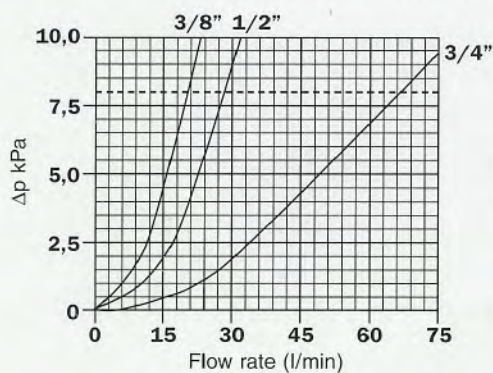
MPA MPM

MPA - MPM SERIES



Type	A	B	H	H1	Ch	Weight Max (kg)
012 G1	3/8" BSP	50	95	15	28	0,17
012 G2	3/8" NPT					
015 G1	1/2" BSP	50	95	15	28	0,17
015 G2	1/2" NPT					
025 G1	1/2" BSP	70	110	15	28	0,27
025 G2	1/2" NPT					
030 G1	3/4" BSP	70	111,5	17	42	0,36
030 G2	3/4" NPT					
045 G1	3/4" BSP	70	156,5	17	42	0,39
045 G2	3/4" NPT					
050 G1	1" BSP	70	156,5	17	42	0,35
050 G2	1" NPT					
075 G1	1" BSP	99	146,5	17	42	0,54
075 G2	1" NPT					
095 G1	1 1/4" BSP	99	147	21	60	0,63
095 G2	1 1/4" NPT					
120 G1	1 1/4" BSP	99	237	21	60	0,95
120 G2	1 1/4" NPT					
150 G1	1 1/2" BSP	99	237	21	60	0,91
150 G2	1 1/2" NPT					
180 G1	1 1/2" BSP	136	172	21	60	0,98
180 G2	1 1/2" NPT					
220 G1	2" BSP	136	160	13	80	1,00
220 G2	2" NPT					
280 G1	2" BSP	136	270	13	80	1,60
280 G2	2" NPT					
300 G1	2 1/2" BSP	136	279	21	90	1,67
300 G2	2 1/2" NPT					
380 G1	2" BSP	136	320	13	80	1,60
380 G2	2" NPT					
430 G1	3" BSP	136	333	22	106	1,93
430 G2	3" NPT					

Filter element pressure drop



Ordering code example

MPA

050

G1

M60

Example order

Series

MPA	Complete strainer without int. magnet
MPM	Complete strainer with int. magnet

Micron rating

M 60	
M 90	Wire mesh
M 250	

Nominal sizes

012	3/8"
015	1/2"
025	1/2"
030	3/4"
045	3/4"
050	1"
075	1"
095	1 1/4"
120	1 1/4"
150	1 1/2"
180	1 1/2"
220	2"
280	2"
300	2 1/2"
380	2"
430	3"

Connections

G1	BSP Thread
G2	NPT Thread

MP Filtri - Filtration products will only be guaranteed if original MP Filtri replacement elements and spares are used

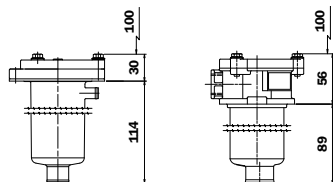
Data held in this publication is given only for indicative purposes. MP Filtri reserves to introduce modifications to described items for technical or commercial reasons. Copyright reserved.

MPF



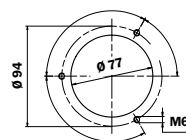
Maximum pressure 8 bar
Flow rates to 750 l/min

MPF 020/030

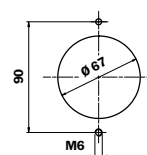


Holes on the tank

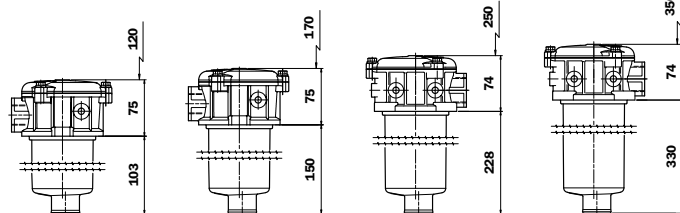
MPF 020



MPF 030

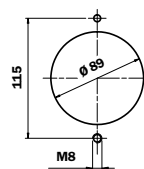


MPF 100/104

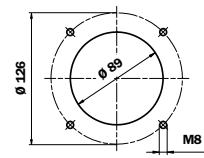


Holes on the tank

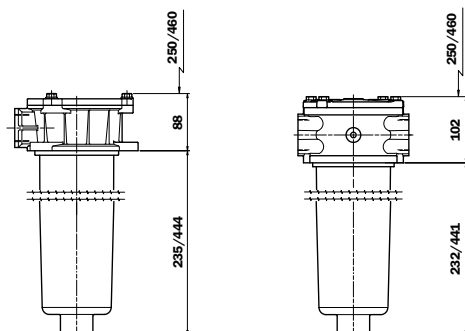
MPF 100



MPF 104

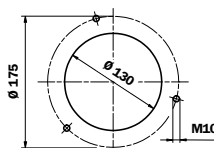


MPF 180/184

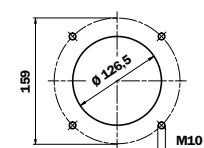


Holes on the tank

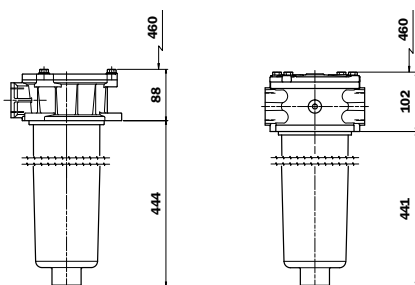
MPF 180



MPF 184

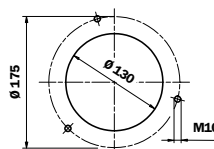


MPF 190/194

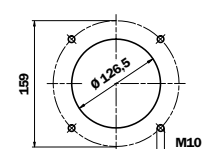


Holes on the tank

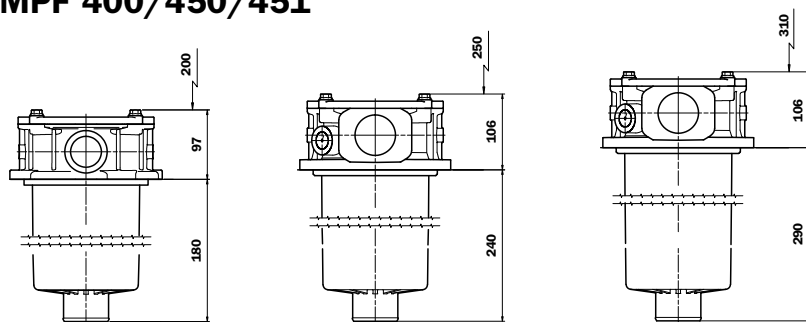
MPF 190



MPF 194

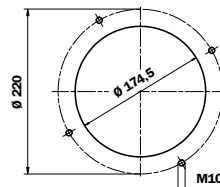


MPF 400/450/451

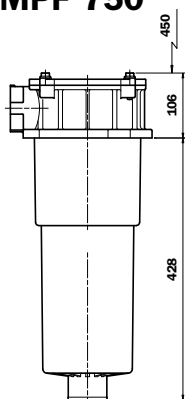


Holes on the tank

MPF 400/450/451

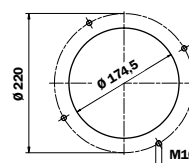


MPF 750



Holes on the tank

MPF 750



- Pressure drop of filter assembly equal to Δp 0,5 bar.
- Oil kinematic viscosity 30 mm²/s (cSt).
- Density 0,86 kg/dm³.

	Length	A03	A06	A10	A16	A25	P10	P25	M25	M60
MPF020	1	6	9	15	16	25	26	27	30	30
MPF030	1	7	10	20	21	37	38	39	40	40
MPF100/104	1	18	26	50	55	110	110	130	250	250
	2	31	40	80	90	160	170	190	360	360
	3	50	65	135	150	240	260	280	360	360
	4	93	110	190	220	275	300	330	380	380
MPF180/184	1	120	135	215	230	300	320	380	445	445
	2	210	235	330	350	385	385	390	445	445
MPF190/194	2	250	290	445	460	530	400	500	600	600
MPF400	1	150	175	335	340	550	385	600	680	680
	2	230	250	440	455	660	550	690	750	750
	3	250	295	470	480	680	700	750	800	800
MPF450	1	150	175	335	340	550	385	600	680	680
	2	230	250	440	455	660	550	690	750	750
	3	250	295	470	480	680	700	750	800	800
MPF750	1	390	450	625	700	780	700	750	900	900

Technical data

MPF

Filter housing (Materials)

- Head: Aluminium (Nylon only MPF 020)
- Cover: Zytel (MPF 020/030/100/104)
Aluminium (MPF 180/184/190/194/400/450/750)
- Bowl: Nylon

Pressure

- Working pressure: 8 bar (0,8 MPa)

Temperature

- From -25 °C to +110 °C

Bypass valve

- Opening pressure 1,75 bar $\pm 10\%$
- Opening pressure 3 bar $\pm 10\%$

Δp Elements type

- Series N and H elements: 10 bar
- Oil flow from exterior to interior.

Seals

- Standard NBR series A
- Optional FPM series V

Weights (kg)

Length	1	2	3	4
• MPF 020	0,30	-	-	-
• MPF 030	0,40	-	-	-
• MPF 100	0,76	0,85	0,98	1,10
• MPF 104	0,82	0,96	1,02	1,25
• MPF 180	2,16	2,97	-	-
• MPF 184	2,55	3,45	-	-
• MPF 190	-	2,97	-	-
• MPF 194	-	3,45	-	-
• MPF 400	3,35	3,65	3,90	-
• MPF 450/451	3,95	4,25	4,50	-
• MPF 750	6,30	-	-	-

Volumes (dm³)

Length	1	2	3	4
• MPF 020	0,26	-	-	-
• MPF 030	0,29	-	-	-
• MPF 100	0,64	0,85	1,20	1,65
• MPF 104	0,64	0,85	1,20	1,65
• MPF 180	2,50	4,00	-	-
• MPF 184	2,65	4,45	-	-
• MPF 190	-	4,25	-	-
• MPF 194	-	4,45	-	-
• MPF 400	3,70	4,60	5,40	-
• MPF 450/451	3,70	4,60	5,40	-
• MPF 750	8,45	-	-	-

Compatibility

- Housings compatible with:
Mineral oils to ISO 2943 - aqueous emulsions
synthetic fluids, water and glycol.
- The filter elements are compatible with:
Mineral oils to ISO 2943, Synthetic fluids
Aqueous emulsions, water and glycol
(series W required).
- NBR seals series A, compatible with:
Mineral oils to ISO 2943 - aqueous emulsions
synthetic fluids, water and glycol.
- FPM seals series V, compatible with:
Synthetic fluids type HS-HFDR-HFDS-HFDU
To ISO 2943

Filter Element Area

Filter element in stainless steel mesh
Length

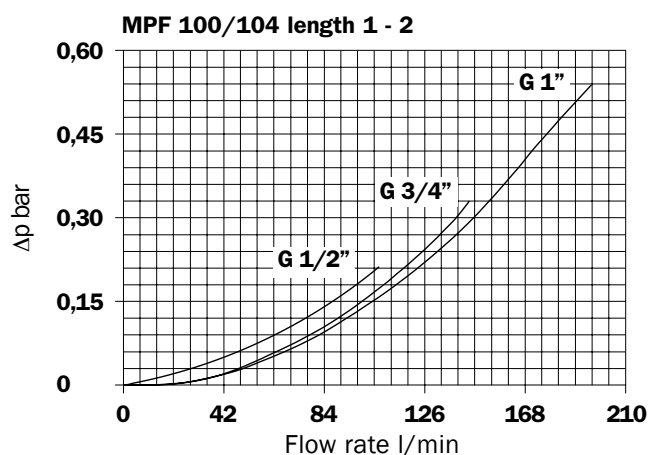
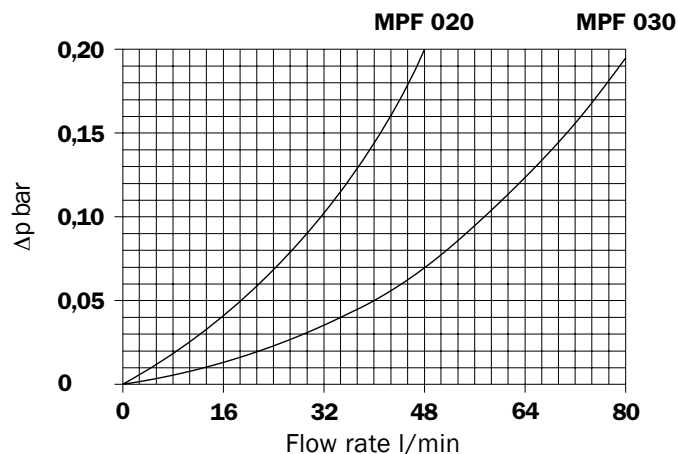
Type	1	2	3	4
MF 030	336	-	-	-
MF 100	493	781	1286	1933
MF 180	2496	5342	-	-
MF 190	-	5342	-	-
MF 400/450	2701	3885	4713	-
MF 750	8059	-	-	-

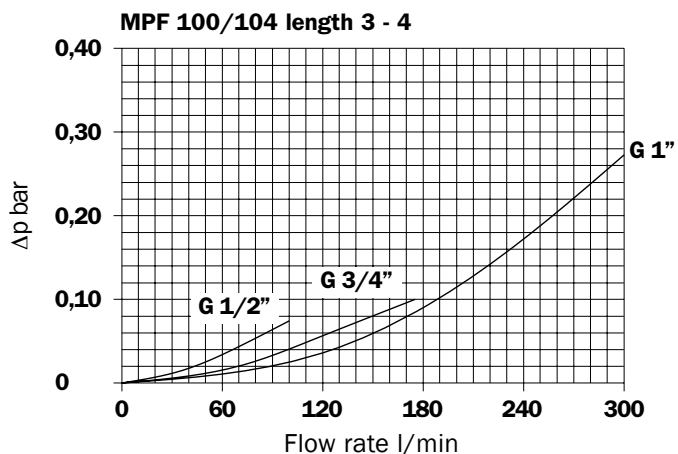
Values expressed in cm²

Filter housings Δp pressure drop

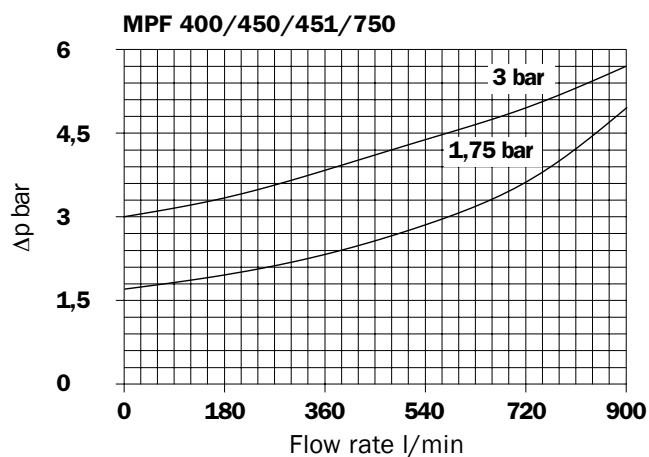
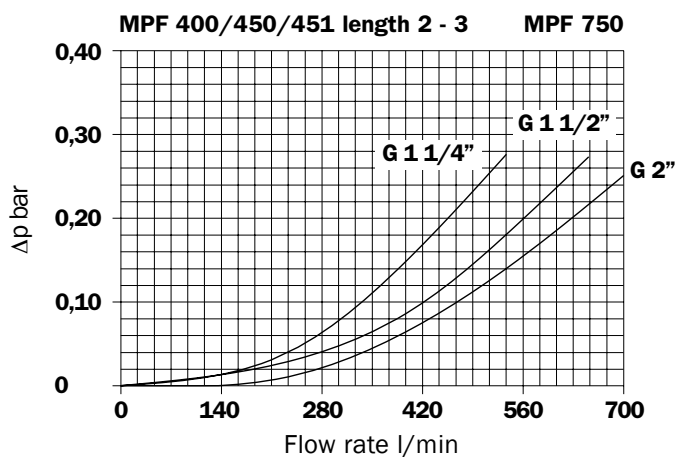
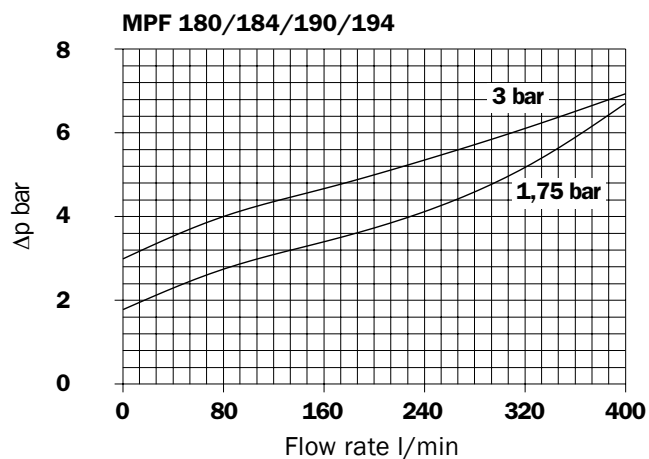
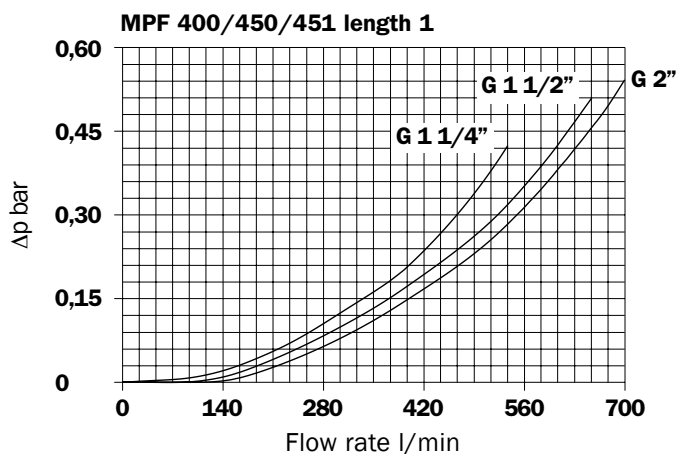
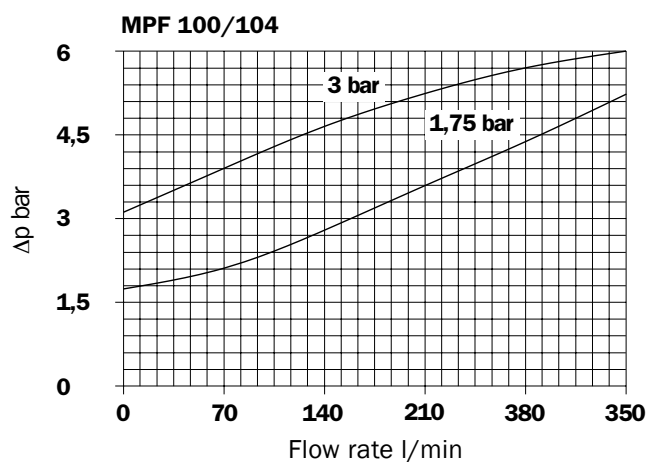
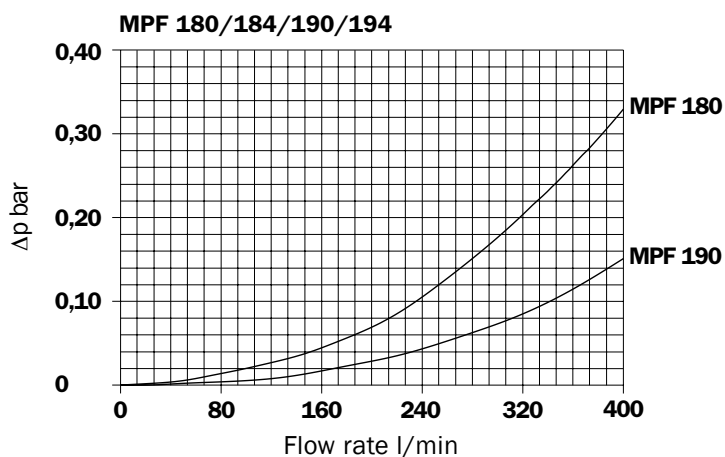
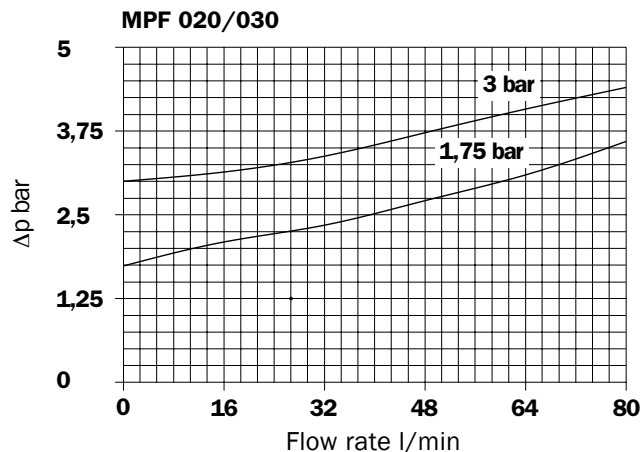
The curves are plotted utilising mineral oil with density of 0.86 kg/dm³ to ISO 3968.

Δp varies proportionally with density.



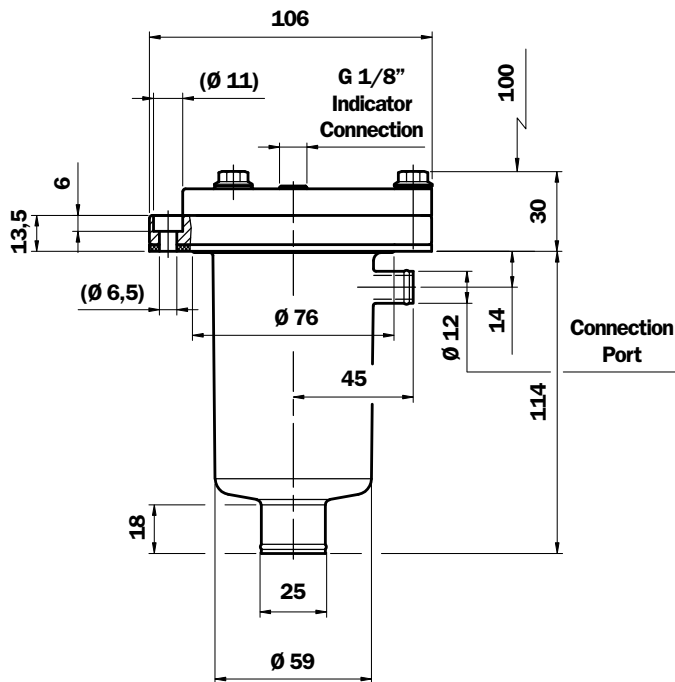


Valves
Bypass valve pressure drop
For individual filter:

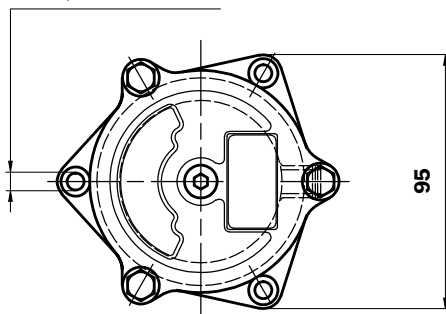


Dimensions

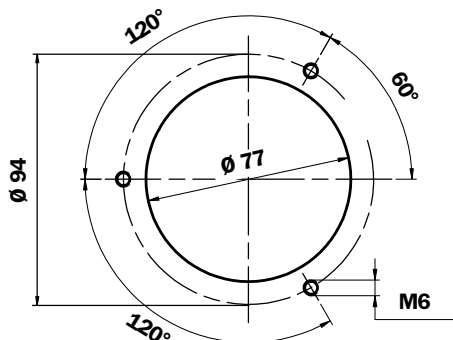
MPF 020



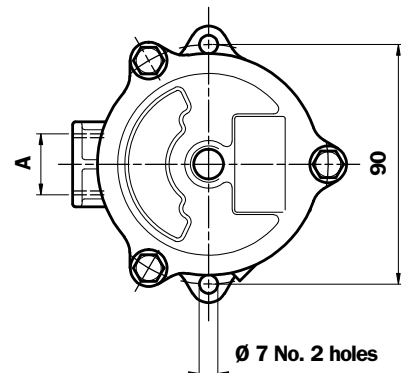
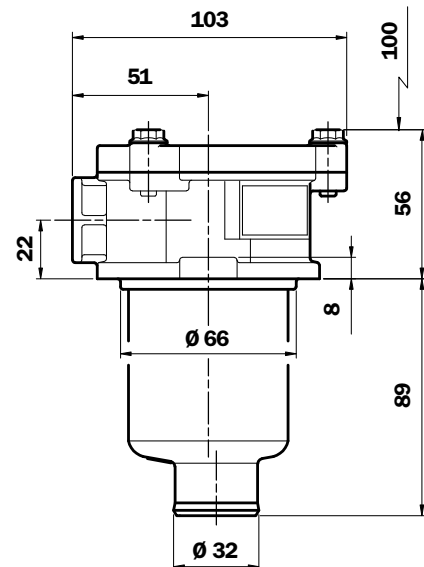
Ø 11 No. 3 spotfaced
Ø 6,5 No. 3 holes



Holes on the tank

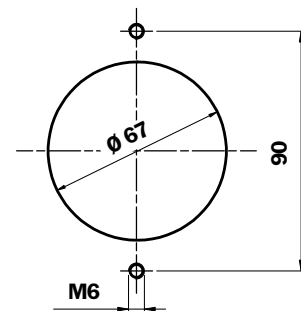


MPF 030



Ø 7 No. 2 holes

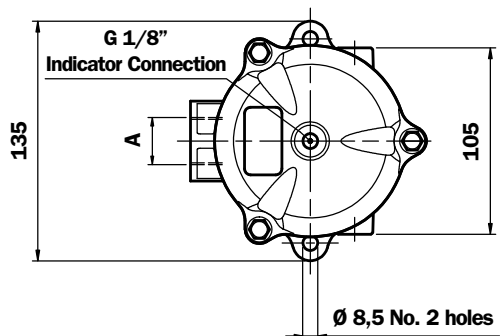
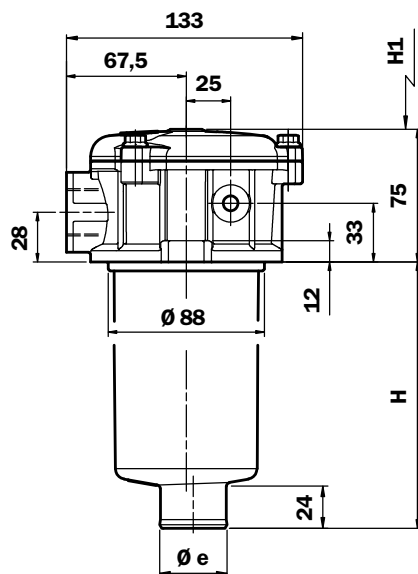
Holes on the tank



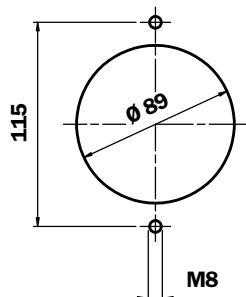
Thread connections

St.	A
G1	G 1/2"
G4	1/2" NPT
G7	SAE 8 3/4" 16 UNF

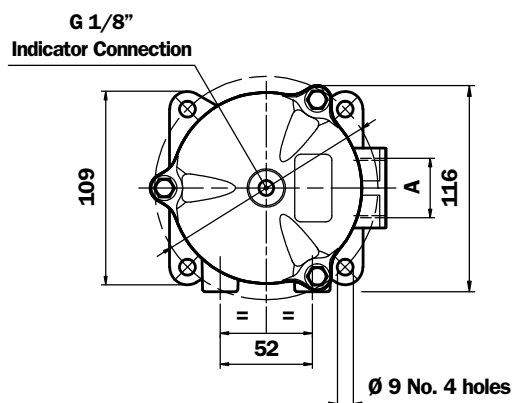
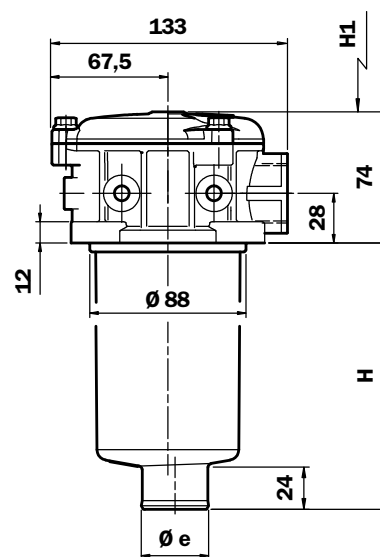
MPF 100



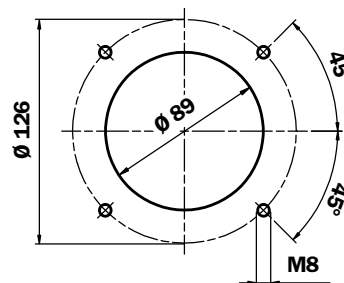
Holes on the tank



MPF 104



Holes on the tank



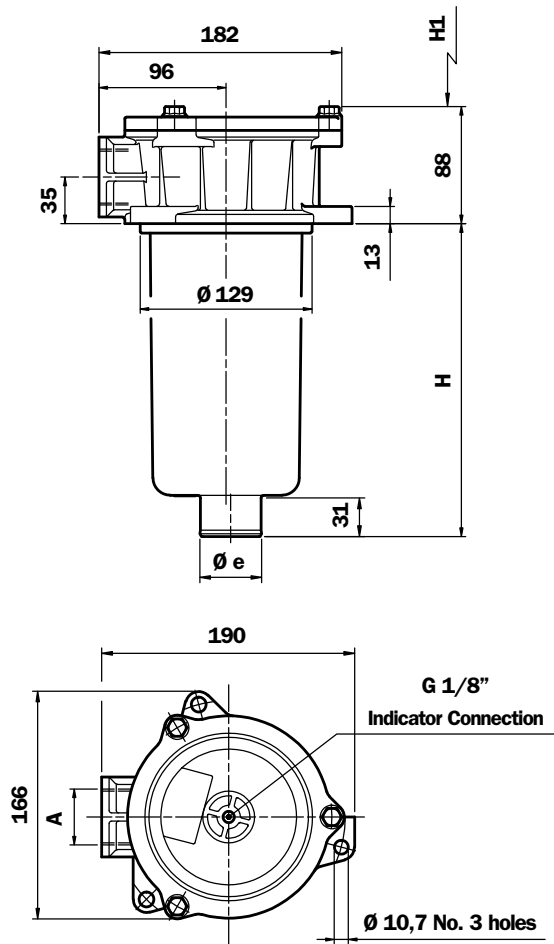
Thread connections

St.	A
G1	G 1/2"
G2	G 3/4"
G3	G 1"
G4	1/2" NPT
G5	3/4" NPT
G6	1" NPT
G7	SAE 8 3/4" 16 UNF
G8	SAE 12 1 1/16" 12 UN
G9	SAE 16 1 5/16" 12 UN

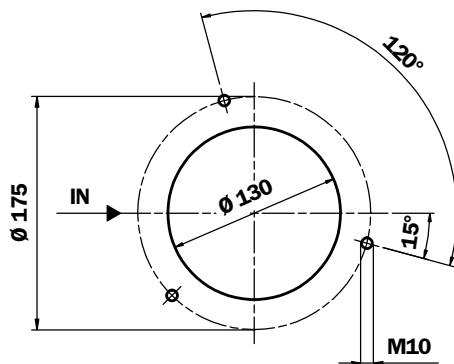
MPF 100/104

Length Filter	H mm	H1 mm	Ø e mm
1	103	120	38
2	150	170	38
3	228	250	46,5
4	330	350	46,5

MPF 180/190



Holes on the tank



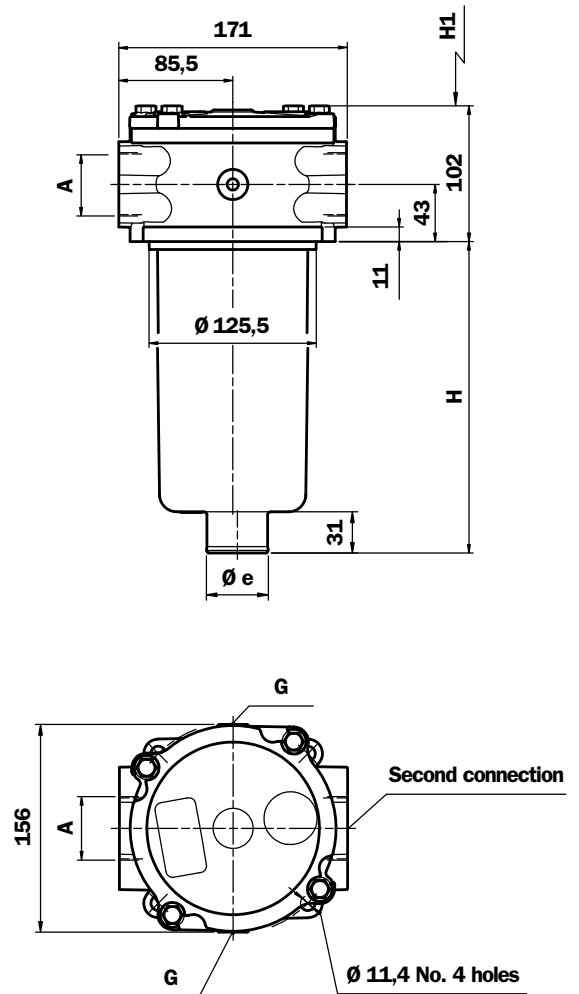
Thread connections MPF 180/190

St.	A
G1	G 1 1/4"
G4	1 1/4" NPT
G7	SAE 20 1 5/8" 12 UN

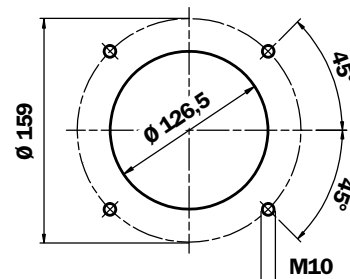
MPF	Length Filter	H mm	H1 mm	Ø e mm
180	1	235	250	47
190	2	444	460	50

MPF	Length Filter	H mm	H1 mm	Ø e mm
184	1	232	250	47
194	2	441	460	50

MPF 184/194



Holes on the tank



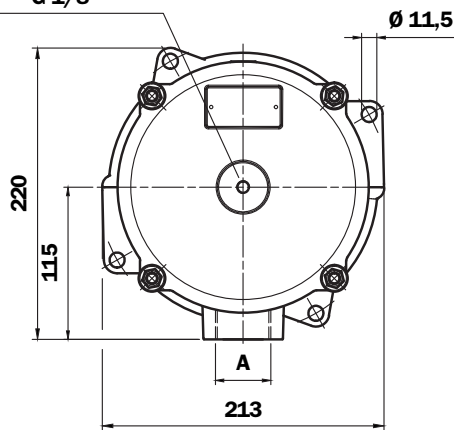
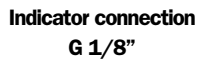
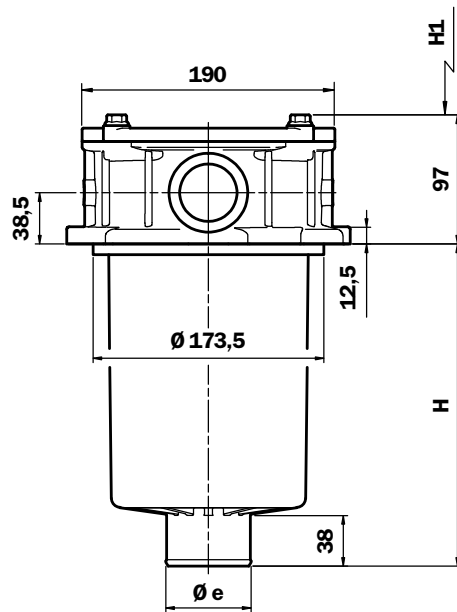
Thread connections MPF 184/194

St.	A	St.	G
G1	G 1 1/4"	G1	G 1/8"
G2	2 Connections G 1 1/4"	G2	G 1/8"
G4	1 1/4" NPT	G4	1/8" NPT
G5	2 Connections 1 1/4" NPT	G5	1/8" NPT
G7	SAE 20 1 5/8" 12 UN	G7	1/8" NPT
G8	2 Connections SAE 20 1 5/8" 12 UN	G8	1/8" NPT

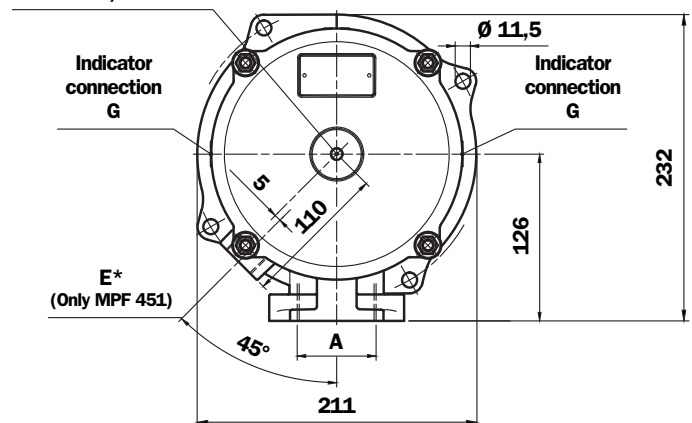
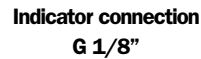
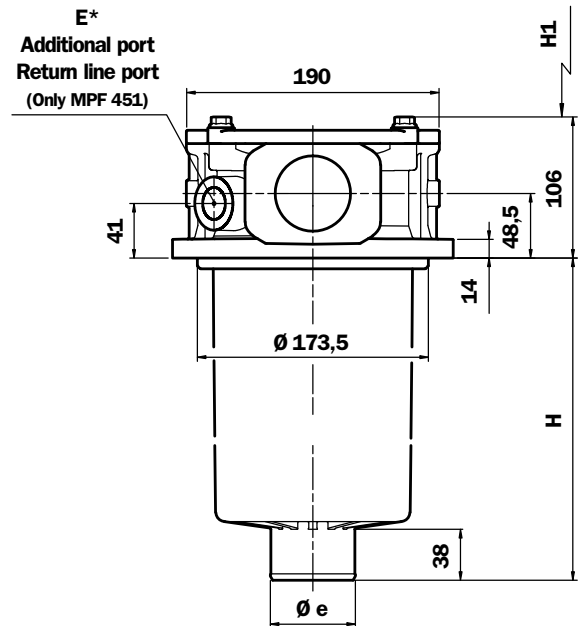
Flange connections MPF 184/194

St.	A	St.	G
F1	1 1/2" SAE 3000 psi/M	F1	G 1/8"
F2	1 1/2" SAE 3000 psi/UNC	F2	1/8" NPT
F3	2 Connections 1 1/2" SAE 3000 psi/M	F3	G 1/8"
F4	2 Connections 1 1/2" SAE 3000 psi/UNC	F4	1/8" NPT

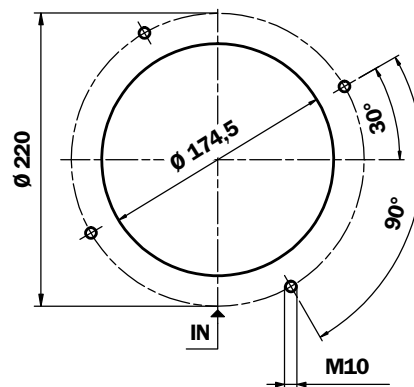
MPF 400



MPF 450/451



Holes on the tank



Thread connections

MPF 400

St.	A
G1	G 1 1/4"
G2	G 1 1/2"
G3	G 2"
G4	1 1/4" NPT
G5	1 1/2" NPT
G6	2" NPT
G7	SAE 20 1 5/8" 12 UN
G8	SAE 24 1 7/8" 12 UN
G9	SAE 32 2 1/2" 12 UN

MPF 400/450/451

Length Filter	H mm	H1 mm	Ø e mm
1	180	200	51
2	240	250	64
3	290	310	64

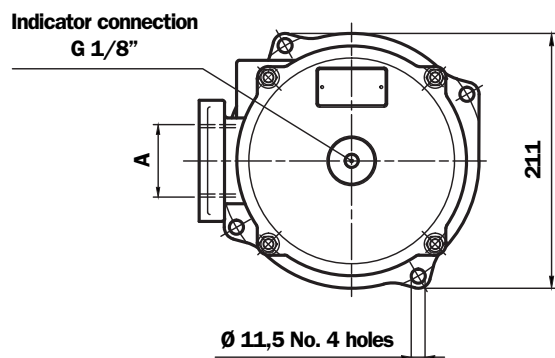
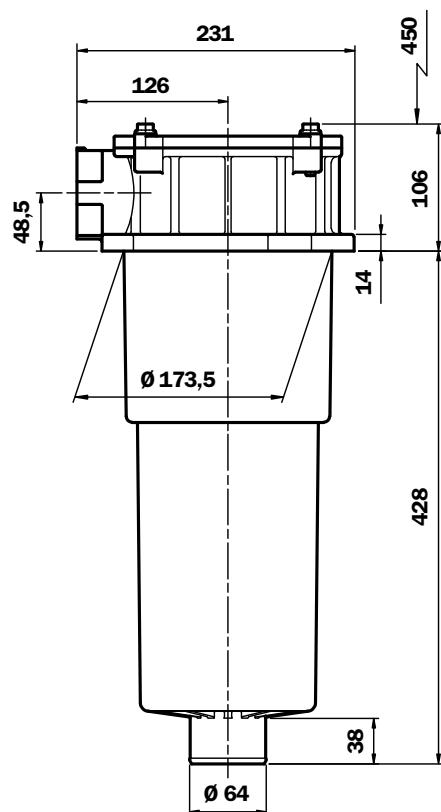
Thread connections MPF 450/451

St.	A	E*	G
G1	G 2"	G 3/4"	G 1/8"
G4	2" NPT	3/4" NPT	1/8" NPT
G7	SAE 32 2 1/2" 12 UN	SAE 12	1/8" NPT

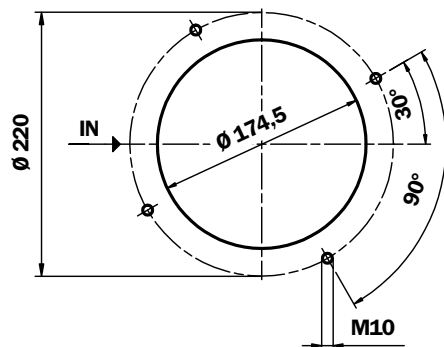
Flange connections MPF 450/451

St.	A	E*	G
F1	2" SAE 3000 psi/M	G 3/4"	G 1/8"
F2	2" SAE 3000 psi/UNC	3/4" NPT	1/8" NPT

MPF 750



Holes on the tank



Thread connections
MPF 750

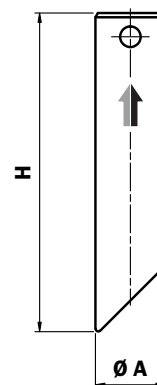
St.	A
G1	G 2"
G4	2" NPT
G7	SAE 32 2 1/2" 12 UN

Flange connections
MPF 750

St.	A
F1	2" SAE - 3000 psi/M
F2	2" SAE - 3000 psi/UNC

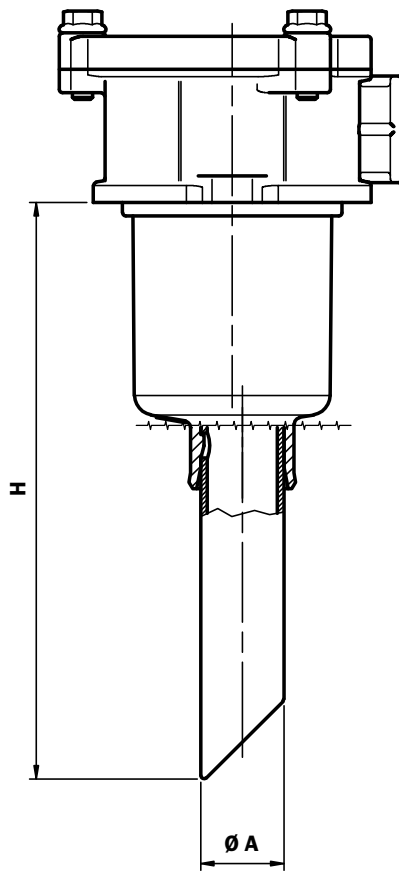
Accessories

Standard Nylon extension tube
Supplied not fitted



Code	H	Ø A	Size MPF (Option P01)	Filter Length
TE25A200	200	25	030	1
TE25A250	250			
TE25A300	300			
TE25A350	350			
TE25A400	400			
TE25A450	450			
TE25A500	500			
TE32A200	200	32	100 - 104	1 - 2
TE32A250	250			
TE32A300	300			
TE32A350	350			
TE32A400	400			
TE32A450	450			
TE32A500	500			
TE40A200	200	40	100 - 104	3 - 4
TE40A250	250			
TE40A300	300			
TE40A350	350		180 - 184	1 - 2
TE40A400	400			
TE40A450	450			
TE40A500	500			

“H” Dimensions
Filter assembled with
Standard Nylon extension tube



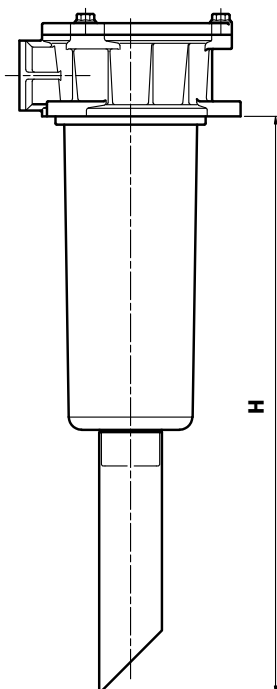
Tube extension Code	MPF....P01	Filter Length	H	Ø A
TE25A200	030	1	265	25
TE25A250			315	
TE25A300			365	
TE25A350			415	
TE25A400			465	
TE25A450			515	
TE25A500			565	
TE32A200	100 o 104	1	276	32
		2	323	
TE32A250		1	326	
		2	373	
TE32A300		1	376	
		2	423	
TE32A350		1	426	
		2	473	
TE32A400		1	476	
		2	523	
TE32A450		1	526	
		2	573	
TE32A500		1	576	
		2	623	
TE40A200	100 o 104	3	400	40
		4	500	
	180	1	406	
		2	617	
	184	1	403	
		2	614	
TE40A250	100 o 104	3	450	40
		4	550	
	180	1	456	
		2	667	
	184	1	453	
		2	664	
TE40A300	100 o 104	3	500	40
		4	600	
	180	1	506	
		2	717	
	184	1	503	
		2	714	
TE40A350	100 o 104	3	550	40
		4	650	
	180	1	556	
		2	767	
	184	1	553	
		2	764	
TE40A400	100 o 104	3	600	40
		4	700	
	180	1	606	
		2	817	
	184	1	603	
		2	814	
TE40A450	100 o 104	3	650	40
		4	750	
	180	1	656	
		2	867	
	184	1	653	
		2	864	
TE40A500	100 o 104	3	700	40
		4	800	
	180	1	706	
		2	917	
	184	1	703	
		2	914	

Accessories

See ordering information: Option 9

Filter MPF.....Sxx

Filter assembly with Steel extension tube
mounted (for filter size 190 to 750 only)



Series MPF	Filter Length
190/194	2
400/450/451	1 - 2 - 3
750	1

Code Options 9	H*
S25	250 mm
S30	300 mm
S35	350 mm
S40	400 mm
S....	 mm

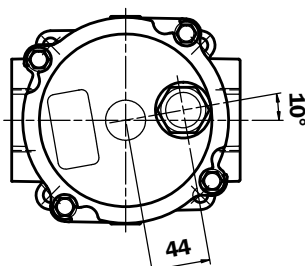
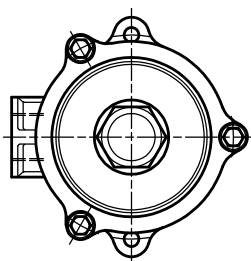
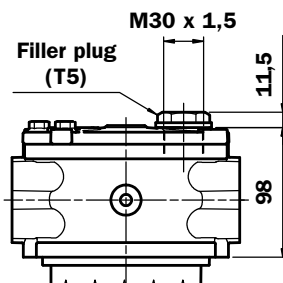
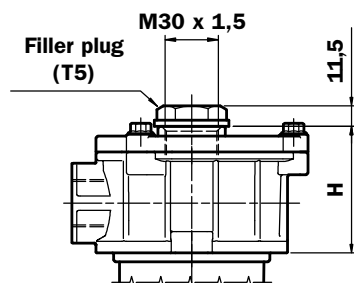
* Lengths are in multiple of 50 mm

Filter code example:

H length= 250 mm

MPF 400 1 x xx xxx x x S25

Filler Plug



Only size 184/194

Series MPF	H
030	66
100	72
104	72
180	80
190	80
400	86
450	106
451	106
750	95

Ordering example:

Filter with Filler Plug
(page codes 18)

MPF 100 2 x H3 xxx x..

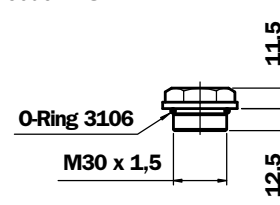
For filter sizes:

If plug is required, an indicator can not be fitted
to the following sizes:

MPF 030 - 180 - 190 - 750

Filler plug

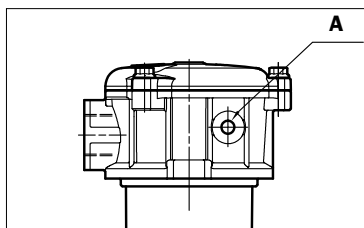
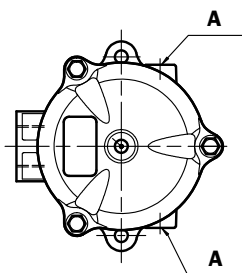
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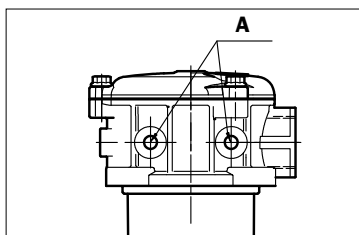
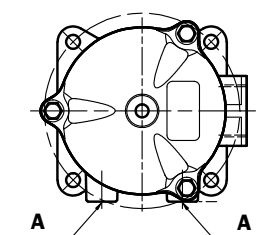
Connection options

Drain port 1/4"

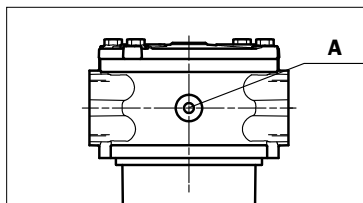
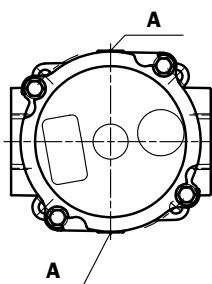
MPF 100



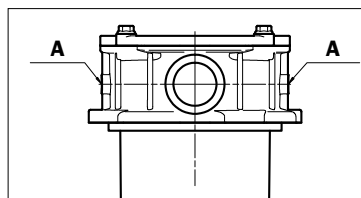
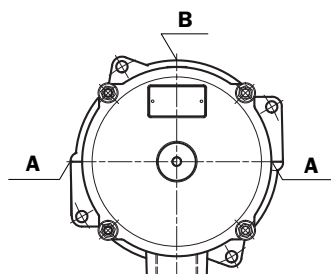
MPF 104



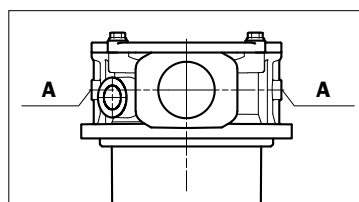
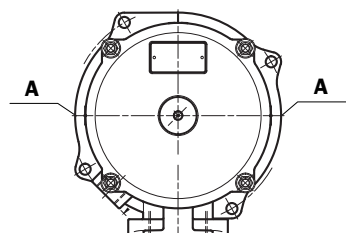
MPF 184/194



MPF 400



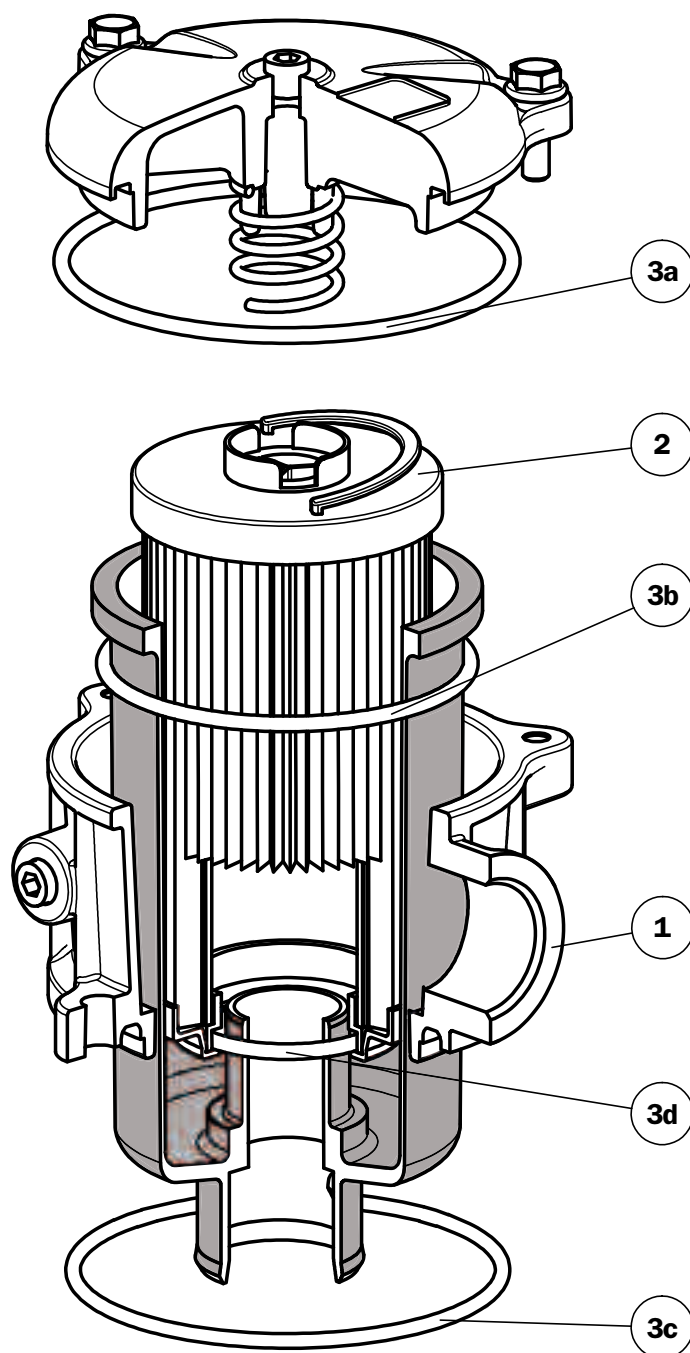
MPF 450/451



	Connections IN	A	B
MPF 100	G	G 1/4"	-
MPF 100	NPT - SAE	1/4" NPT	-
MPF 104	G	G 1/4"	-
MPF 104	NPT - SAE	1/4" NPT	-
MPF 184/194	G	G 1/4"	-
MPF 184/194	NPT - SAE	1/4" NPT	-
MPF 184/194	SAE 3000/M	G 1/4"	-
MPF 184/194	SAE 3000/UNC	1/4" NPT	-
MPF 400	G	G 1/4"	G 1/4"
MPF 400	NPT - SAE	1/4" NPT	1/4" NPT
MPF 450/451	G	G 1/4"	-
MPF 450/451	NPT - SAE	1/4" NPT	-
MPF 450/451	SAE 3000/M	G 1/4"	-
MPF 450/451	SAE 3000/UNC	1/4" NPT	-

Contact MP FILTRI for special ordering code

Spare parts



Spare parts

Pos.	Description	Qty	FILTER Series MPF							
			020		030		100		104	
1	Filter assembly	1	See order table							
2	Filter element	1	See order table							
3	Seal Kit	1	NBR 02050438	FPM 02050439	NBR 02050055	FPM 02050056	NBR 02050057	FPM 02050058	NBR 02050350	FPM 02050408
3a	Seal cover	1	O-R 174 Ø 71,44 x 3,53		O-R 174 Ø 71,44 x 3,53		O-R 4387 Ø 98,02 x 3,53		O-R 4387 Ø 98,02 x 3,53	
3b	Seal bowl	1	-		O-R 3225 Ø 56,82 x 2,62		O-R 4312 Ø 78,97 x 3,53		O-R 4312 Ø 78,97 x 3,53	
3c	Seal head	1	01026335	01026336	O-R 3275 Ø 69,52 x 2,62		O-R 6362 Ø 91,44 x 5,34		01026256	01026286
3d	Seal filter element	1	O-R 3093 Ø 23,47 x 2,62		O-R 3093 Ø 23,47 x 2,62		Length 1-2 O-R 4112 Ø 28,17 x 3,53	Length 1-2 O-R 4112 Ø 28,17 x 3,53		
							Length 3-4 O-R 4162 Ø 40,86 x 3,53	Length 3-4 O-R 4162 Ø 40,86 x 3,53		

Pos.	Description	Qty	FILTER Series MPF							
			180		184		190		194	
1	Filter assembly	1	See order table							
2	Filter element	1	See order table							
3	Seal Kit	1	NBR 02050059	FPM 02050060	NBR 02050455	FPM 02050456	NBR 02050457	FPM 02050458	NBR 02050459	FPM 02050460
3a	Seal cover	1	O-R 4537 Ø 136,10 x 3,53		O-R 4512 Ø 129,80 x 3,53		O-R 4537 Ø 136,10 x 3,53		O-R 4512 Ø 129,80 x 3,53	
3b	Seal bowl	1	O-R 4425 Ø 107,50 x 3,53		O-R 4425 Ø 107,50 x 3,53		O-R 6425 Ø 107,20 x 5,34		O-R 6425 Ø 107,20 x 5,34	
3c	Seal head	1	O-R 6535 Ø 135,89 x 5,34		O-R 210 Ø 133,40 x 5,34		O-R 6535 Ø 135,89 x 5,34		O-R 210 Ø 133,40 x 5,34	
3d	Seal filter element	1	O-R 4162 Ø 40,86 x 3,53		O-R 4162 Ø 40,86 x 3,53		O-R Metric Ø 50 x 4		O-R Metric Ø 50 x 4	

Pos.	Description	Qty	FILTER Series MPF					
			400		450 / 451		750	
1	Filter assembly	1	See order table					
2	Filter element	1	See order table					
3	Seal Kit	1	NBR 02050061	FPM 02050062	NBR 02050461	FPM 02050462	NBR 02050106	FPM 02050107
3a	Seal cover	1	O-R 4675 Ø 171 x 3,53		O-R 4675 Ø 171 x 3,53		O-R 4675 Ø 171 x 3,53	
3b	Seal bowl	1	O-R 221 Ø 149,20 x 5,34		O-R 221 Ø 149,20 x 5,34		O-R 221 Ø 149,20 x 5,34	
3c	Seal head	1	O-R 233 Ø 181 x 6,99		O-R 6720 Ø 183,51 x 5,34		O-R 6720 Ø 183,51 x 5,34	
3d	Seal filter element	1	Length 1 Ø 50,80 x 3,53	O-R 155	Length 1 Ø 50,80 x 3,53	O-R 155	O-R 168 Ø 65,09 x 3,53	
			Length 2-3 Ø 65,09 x 3,53	O-R 168	Length 2-3 Ø 65,09 x 3,53	O-R 168		

Ordering information MPF

Filter assembly

MPF

	1	2	3	4	5	6	8	9a
								
Example 1: MPF	100	2	A	G3	A06	H	B	P01
Example 2: MPF	190	2	V	G1	M25	N	E	S60

Filter element

MF

	1	2	5	6	7	8	9b
							
Example 1: MF	100	2	A06	H	B		P01
Example 2: MF	190	2	M25	N	V	E	P01

1 - Style

Filter

020
030
100
180
190
400
750

Filter element

030
030
100
180
190
400
750

2 - Filter length

020
030
100
180
190
400
750

3 - Filter seals & Treatment

A	NBR
V	FPM
W*	NBR, head anodized
Z*	FPM, head anodized

4 - Connections

Type		MPF						
		030	100 /104	180/190	184/194	400	450/451	750
G1	H1	G 1/2"	G 1/2"	G 1 1/4"	G 1 1/4"	G 1 1/4"	G 2"	G 2"
G2	H2	-	G 3/4"	-	G 1 1/4" 2 Connections	G 1 1/2"	-	-
G3	H3	-	G 1"	-	-	G 2"	-	-
G4	H4	1/2" NPT	1/2" NPT	1 1/4" NPT	1 1/4" NPT	1 1/4" NPT	2" NPT	2" NPT
G5	H5	-	3/4" NPT	-	1 1/4" NPT 2 Connections	1 1/2" NPT	-	-
G6	H6	-	1" NPT	-	-	2" NPT	-	-
G7	H7	SAE 8	SAE 8	SAE 20	SAE 20	SAE 20	SAE 32	SAE 32
G8	H8	-	SAE 12	-	SAE 20 2 Connections	SAE 24	-	-
G9	H9	-	SAE 16	-	SAE 16	SAE 32	-	-
F1	K1	-	-	-	1 1/2" SAE 3000 PSI/M	-	2" SAE 3000 PSI/M	2" SAE 3000 PSI/M
F2	K2	-	-	-	1 1/2" SAE 3000 PSI/UNC	-	2" SAE 3000 PSI/UNC	2" SAE 3000 PSI/UNC
F3	K3	-	-	-	2 x 1 1/2" SAE 3000 PSI/M	-	-	-
F4	K4	-	-	-	2 x 1 1/2" SAE 3000 PSI/UNC	-	-	-

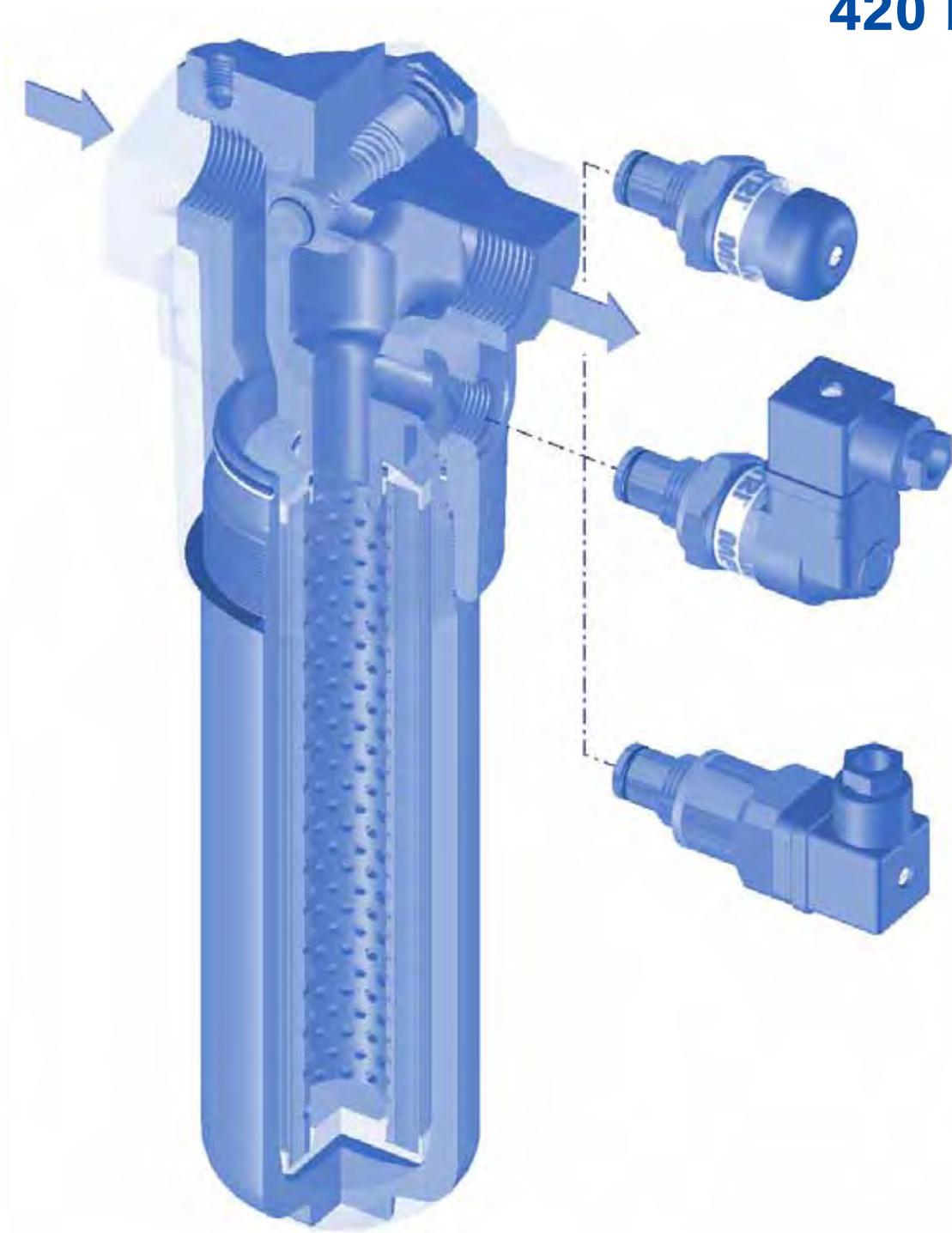
➔ Filter with filler plug (T5)

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SERIES
FHP

Working pressure
420 bar



Style S

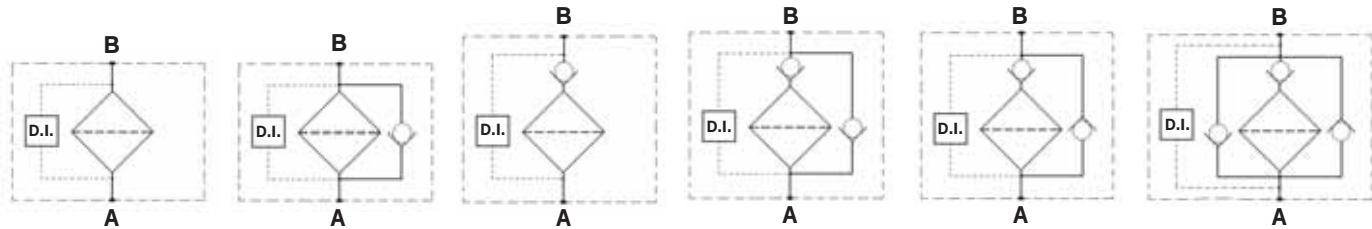
Style B

Style T

Style D

Style V

Style Z



Technical data

Filter body (Materials)

- Head: Cast iron (chemical heat treatment)
- Housing: Steel (chemical heat treatment)
- Bypass valve: Brass
- Reverse Flow: Steel (only for series 320)

Pressure

- Maximum operating pressure: 420 bar (42 MPa)
- Test pressure: 630 bar (63 MPa)
- Burst pressure: 1250 bar (125 MPa)
- Pulsed pressure fatigue test 1,000,000 of cycles with pressure from 0 to 420 bar (42 MPa)

Temperature

- From -25°C to +110°C

Bypass valve

- Opening pressure 6 bar $\pm$ 10%
- Other opening pressures on request.

Elements type Δp

- Elements in microfibre series N-R: 20 bar
- Elements in microfibre series H-S: 210 bar
- Elements in stainless steel mesh series N: 20 bar
- Oil flow from exterior to interior.

Seals

- Standard Nitrile (NBR) series A
- Optional FPM series V

Weights without filter elements (kg.)

Length	1	2	3	4
• FHP 065	3.9	4.2	5.7	—
• FHP 135	7.5	9.4	12	—
• FHP 320/321	14.5	16.5	22.5	25.5

Filter internal volumes (dm³)

Length	1	2	3	4
• FHP 065	0.35	0.40	0.60	—
• FHP 135	0.55	0.85	1.20	—
• FHP 320/321	1.25	1.95	2.80	3.50

Connections

In-line Inlet/Outlet

Style FHP 321 inlet/outlet 90°

Compatibility

- Bodies compatible with:
Mineral oils to ISO 2943 - aqueous emulsions
Synthetic fluids, water/glycol.
- Filter elements compatible with:
Mineral oils to ISO 2943 - aqueous emulsions
Synthetic fluids, water/glycol.
- Nitrile (NBR) seals series A, compatible with:
Mineral oils to ISO 2943 - aqueous emulsions
Synthetic fluids, water/glycol.
- V series FPM seals, compatible with:
Synthetic fluids type HS-HFDR-HFDS-HFDU.
To ISO 2943

Filter Element Area

Filter element in stainless steel mesh
Length

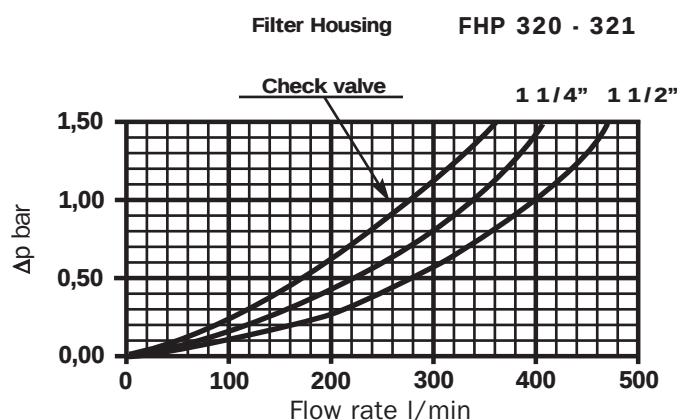
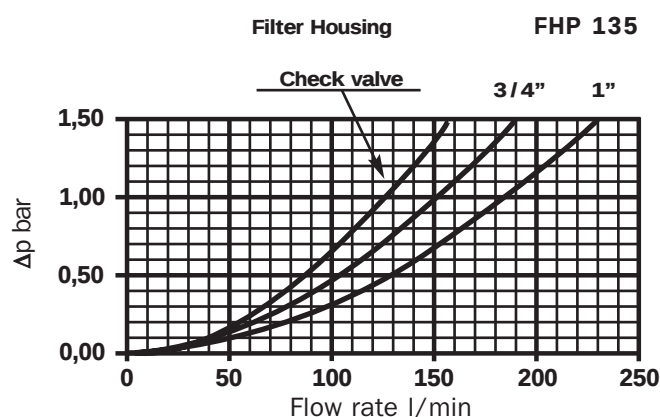
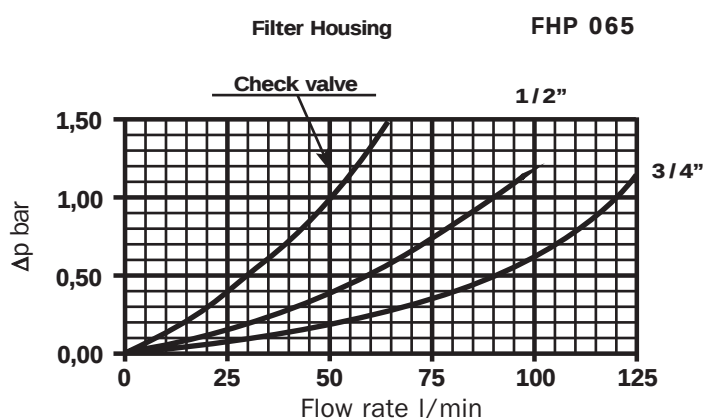
Type	1	2	3	4
HP065	374	530	1064	-
HP135	950	2020	2700	-
HP320	1650	3645	5970	8280

Values expressed in cm²

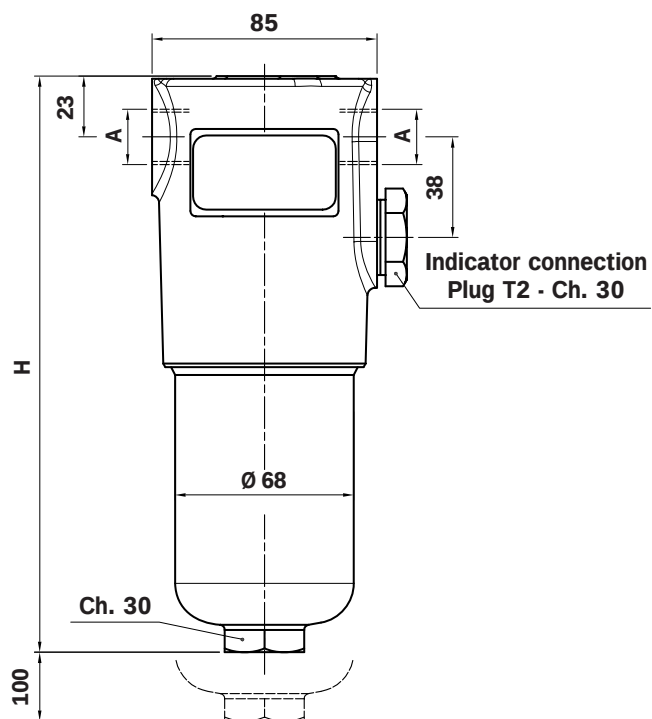
Pressure drops Δp Housing

The curves are plotted using mineral oil with density of 0.86 kg/dm³ to ISO 3968.

Δp varies proportional with density.



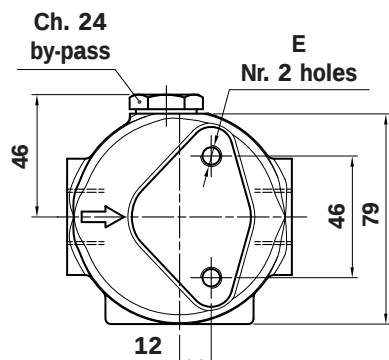
FHP065



Recommended maximum flow rate

- Pressure drop of complete filter equal to Δp 1.5 bar.
- Oil kinematic viscosity 30 mm²/s (cSt).
- Density 0.86 kg/dm³.
- Connections of filter under test G 3/4".

Filter element type	Flow rate l/min Series N	Flow rate l/min Series H	Filter Length
A03	23	22	1
A06	30	23	
A10	48	43	
A16	53	50	
A25	72	68	
M25	105	-	2
A03	31	30	
A06	45	35	
A10	60	57	
A16	64	63	
A25	82	77	3
M25	106	-	
A03	53	52	
A06	61	58	
A10	79	78	
A16	84	83	
A25	94	93	
M25	108	-	



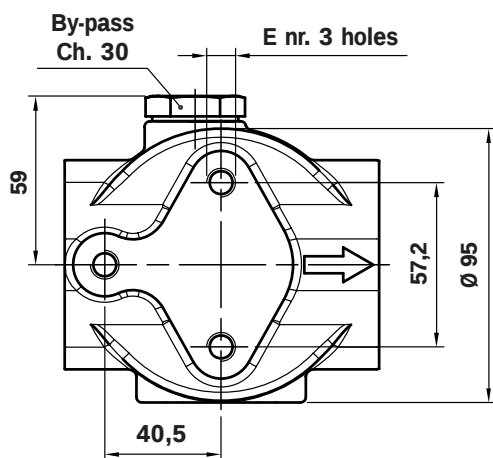
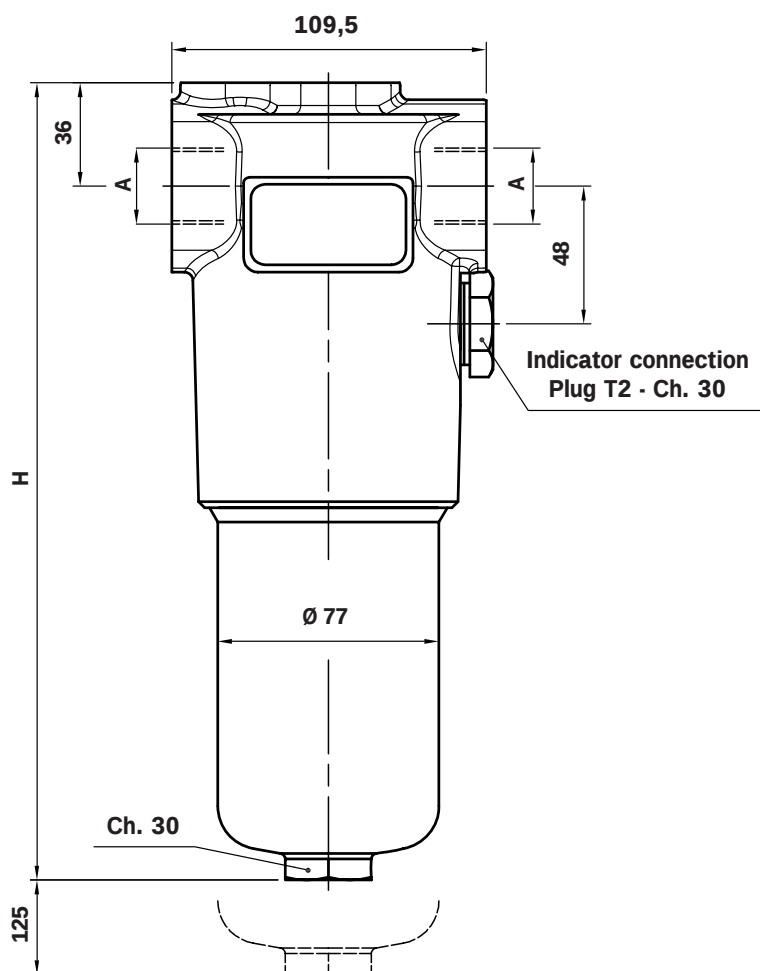
A Threaded Connections	E Depth 15 mm
G 1/2"	M8
G 3/4"	M8
1/2" NPT	5/16" UNC
3/4" NPT	5/16" UNC
SAE 8 (3/4"- 16 UNF)	5/16" UNC
SAE 12 (1 1/16"- 12 UN)	5/16" UNC

Filter Length	H mm
1	200
2	230
3	330

FHP135

Recommended maximum flow rate

- Pressure drop of complete filter equal to Δp 1.5 bar.
- Oil kinematic viscosity 30 mm²/s (cSt).
- Density 0.86 kg/dm³.
- Connections of filter under test G 1".



Filter element type	Flow rate l/min Series N	Flow rate l/min Series H	Filter Length
A03	69	50	1
A06	74	57	
A10	120	98	
A16	129	101	
A25	171	156	
M25	200	-	2
A03	110	91	
A06	117	110	
A10	148	136	
A16	151	139	
A25	208	175	
M25	230	-	3
A03	150	126	
A06	153	140	
A10	192	170	
A16	195	179	
A25	213	196	
M25	232	-	

A Threaded Connections	E Depth 15 mm
G 3/4"	M10
G 1"	M10
3/4" NPT	3/8" UNC
1 NPT	3/8" UNC
SAE 12 (1 1/16"- 12 UN)	3/8" UNC
SAE 16 (1 5/16"- 12 UN)	3/8" UNC

A Flanged Connections	E Depth 15 mm
3/4" SAE 3000 psi/M	M10
1" SAE 3000 psi/M	M10
3/4" SAE 3000 psi/UNC	3/8" UNC
1" SAE 3000 psi/UNC	3/8" UNC
3/4" SAE 6000 psi/M	M10
3/4" SAE 6000 psi/UNC	3/8" UNC

Filter Length	H mm
1	260
2	373
3	448

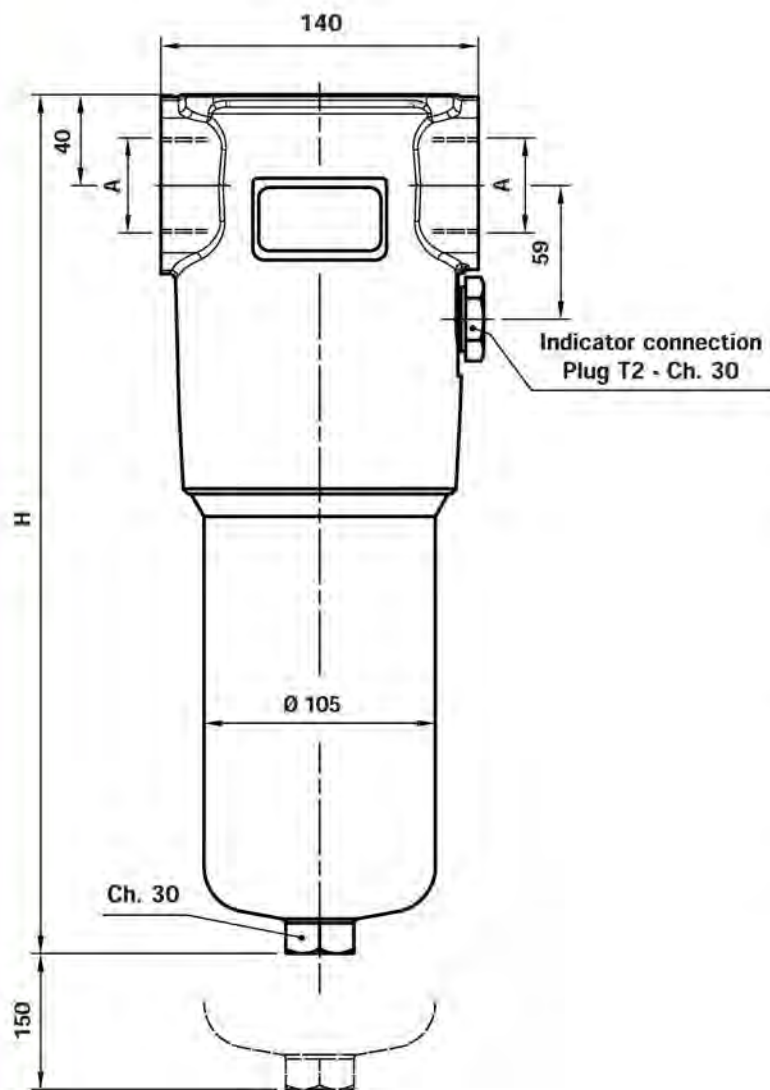
FHP320/321

Recommended maximum flow rate

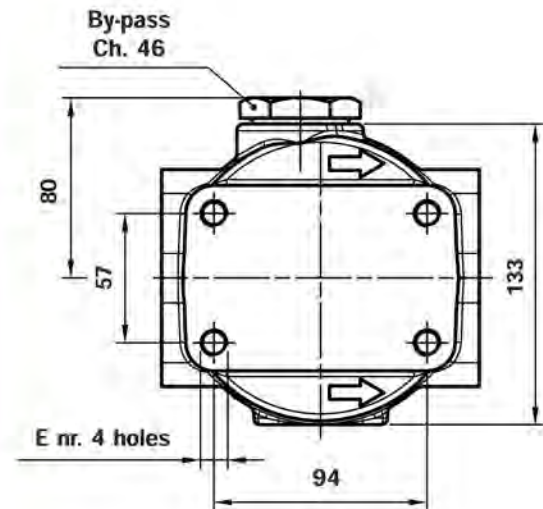
- Pressure drop of complete filter equal to Δp 1.5 bar.
- Oil kinematic viscosity 30 mm²/s (cSt).
- Density 0.86 kg/dm³.
- Connections of filter under test G 1 1/2".

Filter element type	Flow rate l/min Series N	Flow rate l/min Series H	Filter Length
A03	126	107	1
A06	137	112	
A10	230	185	
A16	274	193	
A25	330	292	
M25	425	-	2
A03	248	192	
A06	270	220	
A10	376	300	
A16	395	312	
A25	440	378	3
M25	445	-	
A03	319	255	
A06	353	300	
A10	427	367	
A16	440	375	4
A25	450	417	
M25	465	-	
A03	354	298	
A06	375	320	
A10	430	375	4
A16	447	382	
A25	467	422	
M25	475	-	

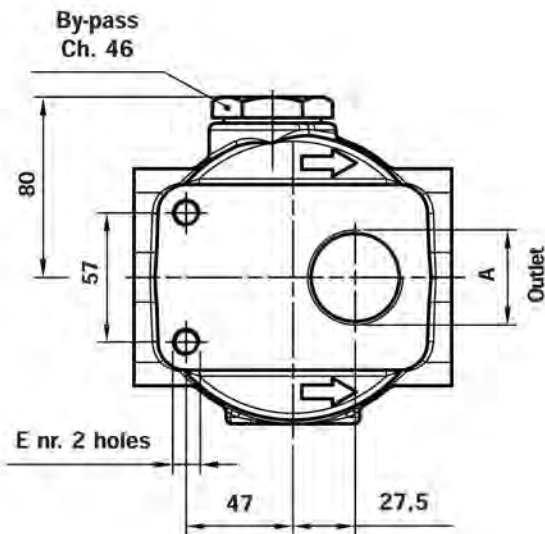
Filter Length	H mm
1	298
2	422
3	554
4	709



FHP 320



FHP 321
Top Outlet



Ordering information FHP

Filter assembly FHP

Example: FHP

1	2	3	4	5	6	7	8a
135	1	S	A	G1	A03	H	P01

Filter element HP

Example: HP

1	2	4	6	7	8b
135	1	A	A03	H	P01

1 - Size

065
135
320
321

2 - Filter length

1
2
3
4

(only for FHP 320-321)

3 - Valves

S
B
D
V
Z
T

Without bypass

With bypass

With bypass + chek valve*

With Reverse Flow*
(only for FHP 320)

With Reverse Flow + bypass
(only for FHP 320)

With bypass + chek valve*
(only for FHP 320)

*Reduced cross-section oilways

4 - Seals

A
V

NBR

FPM

6 - Filter elements

A03
A06
A10
A16
A25
M25

Inorganic microfibre 3 µ

Inorganic microfibre 6 µ

Inorganic microfibre 10 µ

Inorganic microfibre 16 µ

Inorganic microfibre 25 µ

Stainless steel mesh 25 µ (style N only)

βx (c) ≥ 1000

See page 10

7 - Filter elements differential pressure

N
H

20 bar

210 bar

R
S

(Filter with Reverse Flow + bypass)

(Filter with Reverse Flow)

8 - Options

a) Filter

P01
P02
Pxx

MP Standard filters

Maintenance from base of housing (FHP 320 - 4 only)

Customer request

b) Filter element

P01
Pxx

MP Filtri standard

Customer request

5 - Connections

Type	065	135	320	321
G1	G 1/2"	G 3/4"	G 1 1/4"	G 1 1/4"
G2	G 3/4"	G 1"	G 1 1/2"	G 1 1/2"
G3	1/2" NPT	3/4" NPT	1 1/4" NPT	1 1/4" NPT
G4	3/4" NPT	1" NPT	1 1/2" NPT	1 1/2" NPT
G5	SAE 8	SAE 12	SAE 20	SAE 20
G6	SAE 12	SAE 16	SAE 24	SAE 24
F1	-	3/4" SAE 3000 PSI/M	1 1/4" SAE 3000 PSI/M	-
F2	-	1" SAE 3000 PSI/M	1 1/2" SAE 3000 PSI/M	-
F3	-	3/4" SAE 3000 PSI/UNC	1 1/4" SAE 3000 PSI/UNC	-
F4	-	1" SAE 3000 PSI/UNC	1 1/2" SAE 3000 PSI/UNC	-
F5	-	3/4" SAE 6000 PSI/M	1 1/4" SAE 6000 PSI/M	-
F6	-	3/4" SAE 6000 PSI/UNC	1 1/4" SAE 6000 PSI/UNC	-

DIFFERENTIAL INDICATORS
(see page 15)

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SERIES FMP

Working pressure
280 bar



Style S

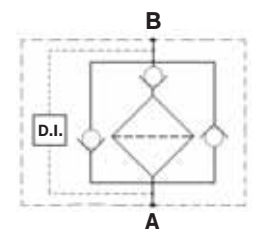
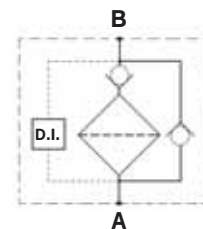
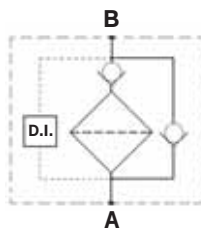
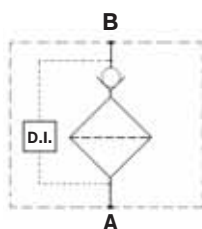
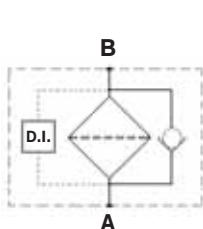
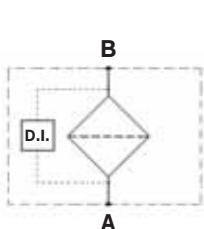
Style B

Style T

Style D

Style V

Style Z



Technical data

Filter body (Materials)

- Head: Cast iron (chemical heat treatment)
- Housing: Cast iron (chemical heat treatment)
- Bypass valve: Brass
- Reverse Flow: Steel (series 135 - 320 only)
- Check valve: Steel

Pressure

- Maximum operating pressure: 280 bar (28 MPa)
- Test pressure: 420 bar (42 MPa)
- Burst pressure: 840 bar (84 MPa)
- Pulsed pressure fatigue test 1,000,000 cycles with pressure from 0 to 280 bar (28 MPa)

Temperature

- From -25°C to +110°C

Bypass valve

- Opening pressure 6 bar $\pm 10\%$
- Other opening pressures on request.

Elements type Δp

- Microfibre elements series N-R: 20 bar
- Elements in stainless steel mesh series N: 20 bar
- Elements in microfibre series H-S: 210 bar
- Oil flow from exterior to interior.

Seals

- Standard Nitrile (NBR) series A
- Optional FPM series V

Weights without filter elements (kg)

Length	1	2	3	4
• FMP 065	3.0	3.4	5.2	—
• FMP 135	6.0	8.2	12.0	—
• FMP 320	12.7	14.7	20.7	23.7

Filter internal volumes (dm³)

Length	1	2	3	4
• FMP 065	0.38	0.45	0.67	—
• FMP 135	0.40	1.02	1.24	—
• FMP 320	1.61	2.61	3.27	4.20

Connections

In-line Inlet/Outlet

Compatibility

- Bodies compatible with:
Mineral oils to ISO 2943 - aqueous emulsions
Synthetic fluids, water/glycol.
- Filter elements compatible with:
Mineral oils to ISO 2943 - aqueous emulsions
Synthetic fluids, water/glycol.
- Nitrile (NBR) seals series A, compatible with:
Mineral oils to ISO 2943 - aqueous emulsions
Synthetic fluids, water/glycol.
- V series FPM seals, compatible with:
Synthetic fluids type HS-HFDR-HFDS-HFDU.
To ISO 2943

Filter Element Area

Filter element in stainless steel mesh
Length

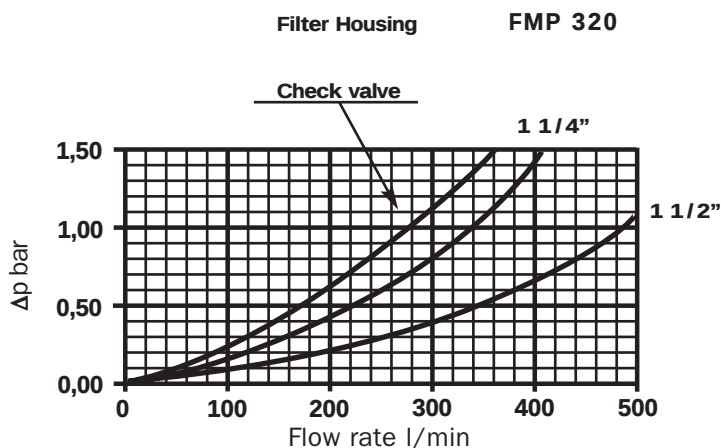
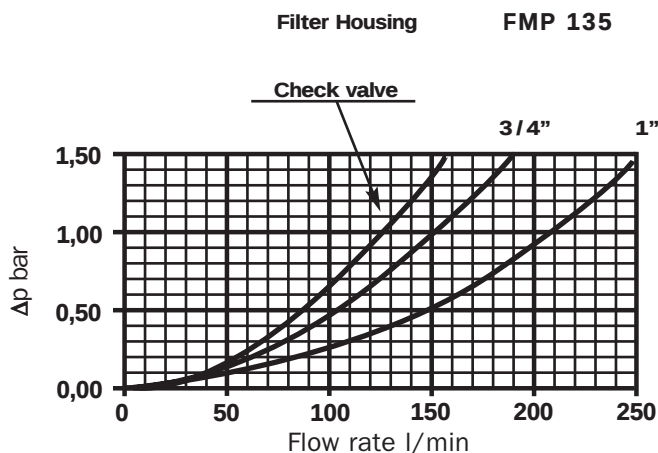
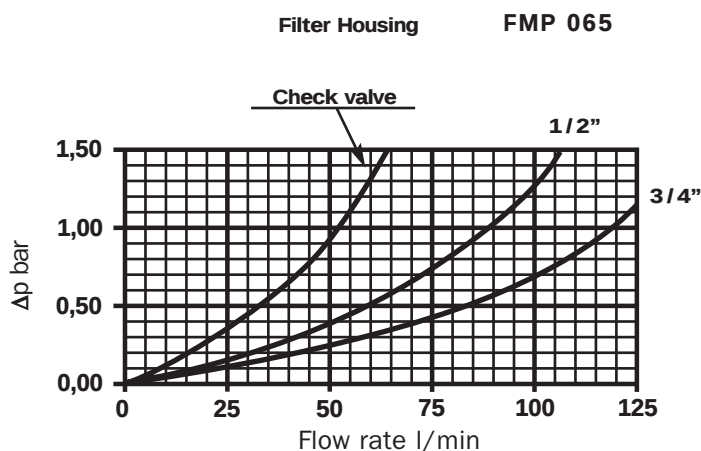
Type	1	2	3	4
HP065	374	530	1064	-
HP135	950	2020	2700	-
HP320	1650	3645	5970	8280

Values expressed in cm²

Pressure drops Δp Housing

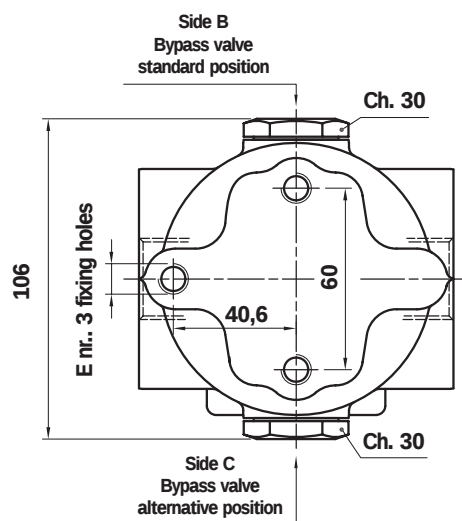
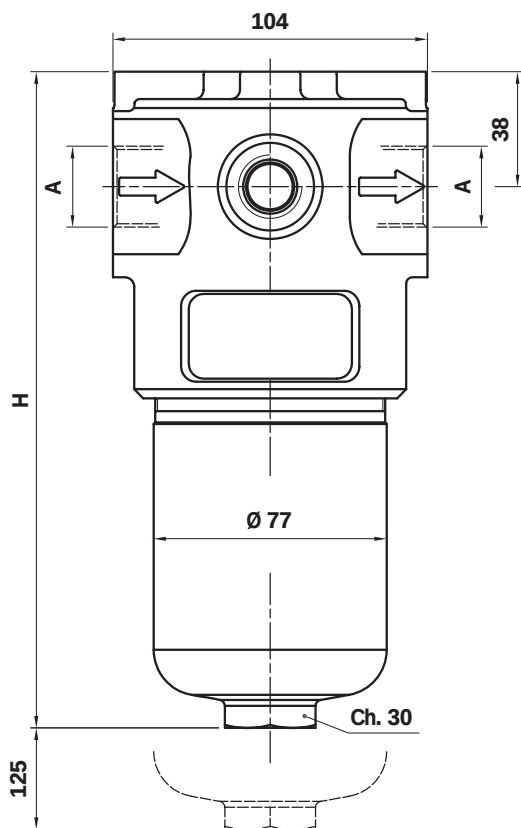
The curves are plotted using mineral oil with density of 0.86 kg/dm³ to ISO 3968.

Δp varies proportional with density.



Indicator and bypass valve positions can be inverted.

FMP 135



Indicator and bypass valve positions can be inverted.

Recommended maximum flow rate

- Pressure drop of complete filter equal to Δp 1.5 bar.
- Oil kinematic viscosity 30 mm²/s (cSt).
- Density 0.86 kg/dm³.
- Connections of filter under test G 1".

Filter element type	Flow rate l/min Series N	Flow rate l/min Series H	Filter Length
A03	69	50	1
A06	74	57	
A10	120	98	
A16	129	101	
A25	171	156	
M25	200	-	2
A03	110	91	
A06	117	110	
A10	148	136	
A16	151	139	
A25	208	175	
M25	230	-	3
A03	150	126	
A06	153	140	
A10	192	170	
A16	195	179	
A25	213	196	
M25	232	-	

A Threaded Connections E Depth 15 mm

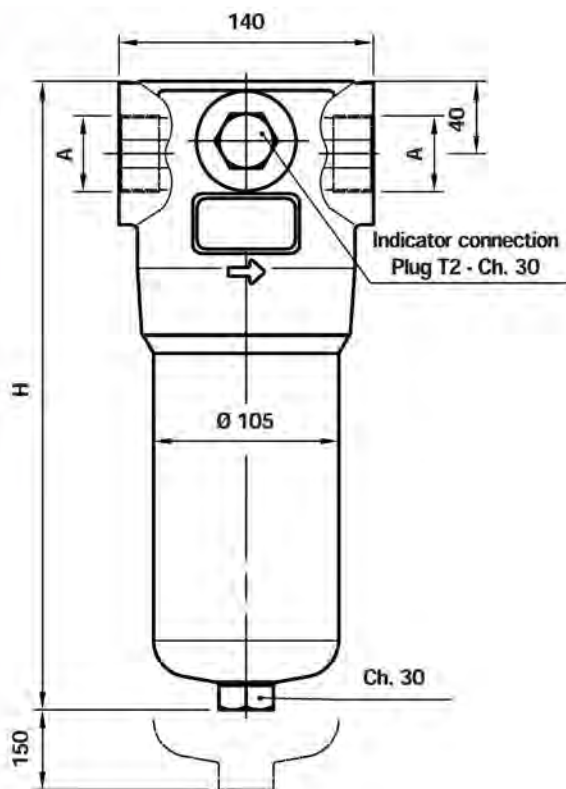
G 3/4"	M10
3/4" NPT	3/8" UNC
G 1"	M10
1" NPT	3/8" UNC
SAE 12 (1 1/16" - 12 UN)	3/8" UNC
SAE 16 (1 5/16" - 12 UN)	3/8" UNC

A Flanged Connections B Depth 15 mm

3/4" SAE 3000 psi/M	M10
3/4" SAE 3000 psi/UNC	3/8" UNC
1" SAE 3000 psi/M	M10
1" SAE 3000 psi/UNC	3/8" UNC

Filter Length	H mm
1	220
2	333
3	408

FMP 320

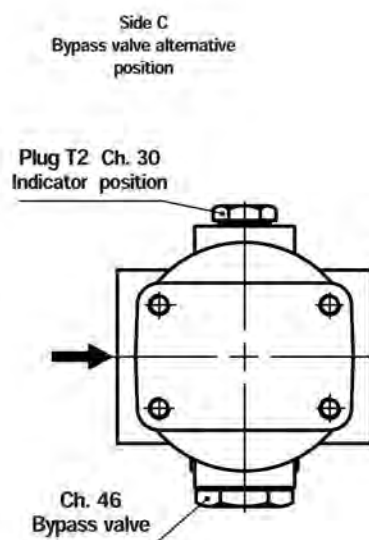
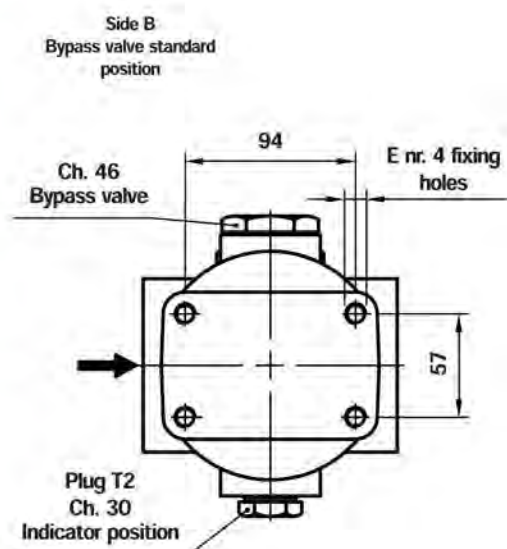


Recommended maximum flow rate

- Pressure drop of complete filter equal to Δp 1.5 bar.
- Oil kinematic viscosity 30 mm²/s (cSt).
- Density 0.86 kg/dm³.
- Connections of filter under test G 1 1/2".

Filter element type	Flow rate l/min Series N	Flow rate l/min Series H	Filter Length
A03	126	107	1
A06	137	112	
A10	230	185	
A16	274	193	
A25	330	292	
M25	425	-	2
A03	248	192	
A06	270	220	
A10	376	300	
A16	395	312	
A25	440	378	3
M25	445	-	
A03	319	255	
A06	353	300	
A10	427	367	
A16	440	375	4
A25	450	417	
M25	465	-	
A03	354	298	
A06	375	320	
A10	430	375	
A16	447	382	4
A25	467	422	
M25	475	-	

Filter Length	H mm
1	263
2	386
3	518
4	673



Ordering information FMP

Filter assembly FMP

Example: FMP

Filter element HP

Example: HP

1	2	3	4	5	6	7	8a
065	2	B	A	G1	A03	N	P01

1	2	6	4	7	8b
065	2	A03	A	N	P01

1 - Size

065
135
320

2 - Filter length

1
2
3
4

(only for FMP 320)

3 - Valves

S
B
C
D
V
Z
T
E

Without bypass side B - Optional

With bypass side B - Standard

With bypass side C - Optional

With bypass side B + check valve*

With Reverse Flow*
(Only for size 320)

With Reverse Flow + bypass*
(Only for size 320)

Without bypass +
check valve*

Without bypass side C - Optional

*Reduced cross-section oilways

4 - Seals

A
V

NBR

FPM

5 - Connections

Type	065	135	320
	G 1/2"	G 3/4"	G 1 1/4"
	G 3/4"	G 1"	G 1 1/2"
	1/2" NPT	3/4" NPT	1 1/4" NPT
	3/4" NPT	1" NPT	1 1/2" NPT
	SAE 8 (3/4" 16 UNF)	SAE 12 (1 - 1/16" 12 UN)	SAE 20 (1 5/8" 12 UN)
	SAE 12 (1 - 1/16" 12 UN)	SAE 16 (1 - 5/16" 12 UN)	SAE 24 (1 7/8" 12 UN)
	-	3/4" SAE 3000 PSI/M	1 - 1/4" SAE 3000 PSI/M
	-	1" SAE 3000 PSI/M	1 - 1/2" SAE 3000 PSI/M
	-	3/4" SAE 3000 PSI/UNC	1 - 1/4" SAE 3000 PSI/UNC
	-	1" SAE 3000 PSI/UNC	1 - 1/2" SAE 3000 PSI/UNC

DIFFERENTIAL INDICATORS
(see page 15)

6 - Filter elements

A03
A06
A10
A16
A25
M25

Inorganic microfibre 3 µ

Inorganic microfibre 6 µ

Inorganic microfibre 10 µ

Inorganic microfibre 16 µ

Inorganic microfibre 25 µ

Stainless steel mesh 25 µ (style N only)

8x (c) ≥ 1000

See page 10

7 - Filter elements collapse pressure

N
H
R
S

20 bar

210 bar

20 bar (Filter with reverse flow + bypass)

210 bar (Filter with reverse flow)

8 - Options

a) Filter

P01
P02
Pxx

MP Standard filters

Maintenance from housing base (only for FMP 320 - 4)

Customer request

b) Filter element

P01
Pxx

MP Filtri standard

Customer request

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FMM

SERIES 050

Working pressure
280 bar

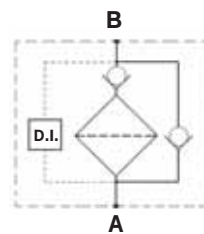
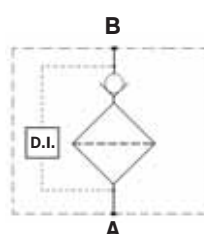
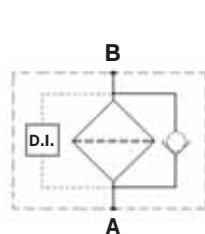
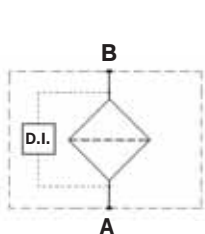


Style S

Style B

Style T

Style D



Technical data

Filter body (Materials)

- Head: Cast iron (chemical heat treatment)
- Housing: Steel (chemical heat treatment)
- Bypass valve: Steel

Pressure

- Working pressure: 280 bar (28 MPa)
- Test pressure: 420 bar (42 MPa)
- Burst pressure: 840 bar (84 MPa)
- Pulsed pressure fatigue test 1,000,000 of cycles with variable pressure from 0 to 280 bar (28 MPa)

Temperature

- From -25°C to +110°C

Bypass valve

- Opening pressure 6 bar $\pm 10\%$
- Other opening pressures on request.

Elements type Δp

- Microfibre filter elements series N: 20 bar
- Microfibre filter elements series H: 210 bar
- Stainless steel mesh elements series N: 20 bar
- Oil flow from exterior to interior.

Seals

- Standard Nitrile (NBR) series A
- Optional FPM series V

Weights without filter elements (kg)

Length

- FMM050-1 2.6
- FMM050-2 3.6
- FMM050-3 3.9
- FMM050-4 4.5
- FMM050-5 6.1

Filter internal volumes (dm³)

Length

- FMM050-1 0.38
- FMM050-2 0.48
- FMM050-3 0.58
- FMM050-4 0.69
- FMM050-5 0.86

Connections

In-line Inlet/Outlet

Compatibility

- Bodies compatible with:
Mineral oils to ISO 2943 - aqueous emulsions
Synthetic fluids, water/glycol.
- Filter elements compatible with:
Mineral oils to ISO 2943 - aqueous emulsions
Synthetic fluids, water/glycol.

- Nitrile (NBR) seals series A, compatible with:
Mineral oils to ISO 2943 - aqueous emulsions
Synthetic fluids, water/glycol.
- V series FPM seals, compatible with:
Synthetic fluids type HS-HFDR-HFDS-HFDU.
To ISO 2943

Filter Element Area

Filter element in stainless steel mesh

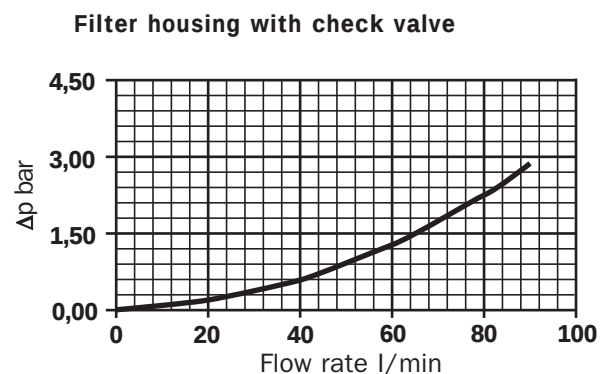
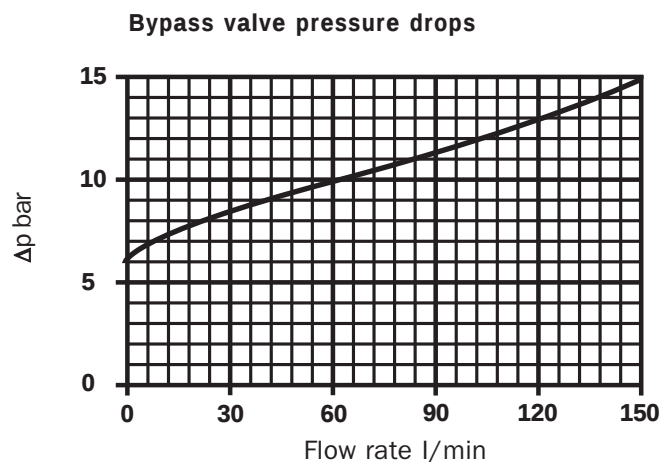
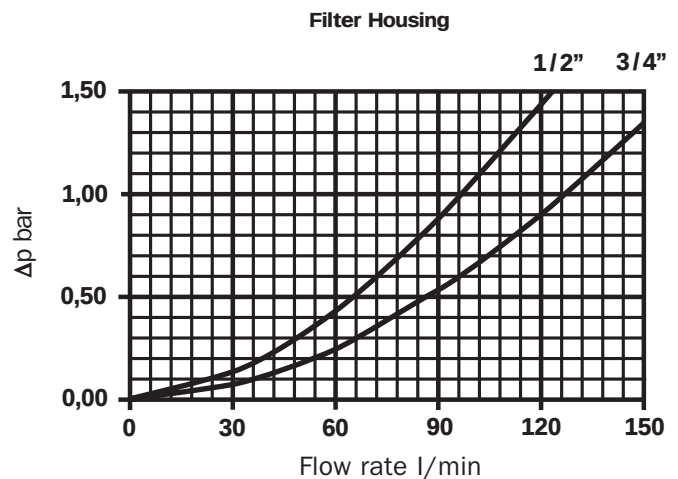
Type	Length				
	1	2	3	4	5
HP050	450	700	1000	1300	2100

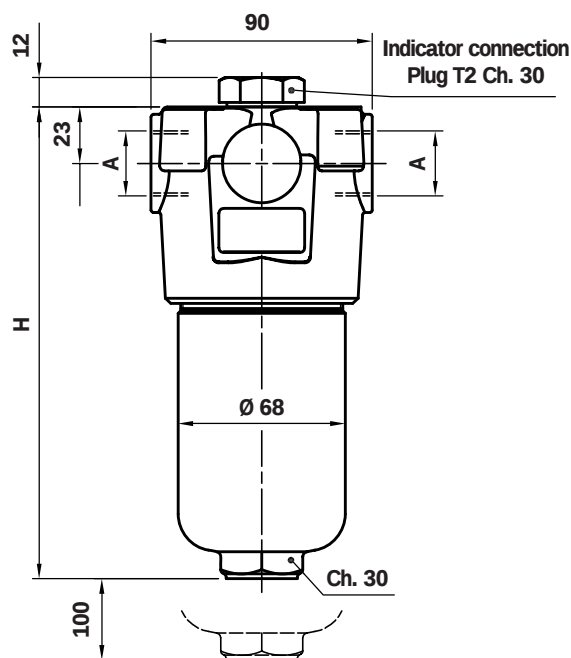
Values expressed in cm²

Pressure drops Δp Housing

The curves are plotted using mineral oil with density of 0.86 kg/dm³ to ISO 3968.

Δp varies proportional with density.



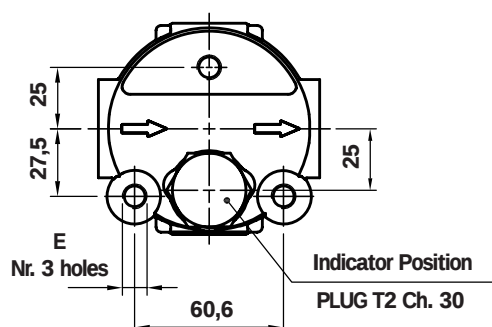


Recommended maximum flow rate

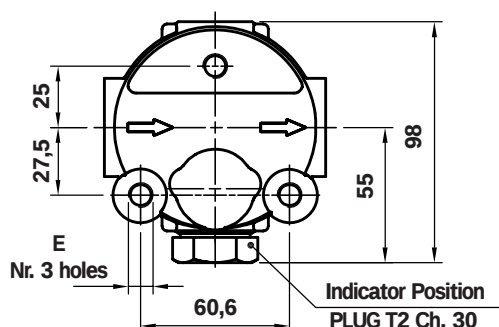
- Pressure drop of complete filter equal to Δp 1.5 bar.
- Oil kinematic viscosity 30 mm²/s (cSt).
- Density 0.86 kg/dm³.
- Connections of filter under test G 3/4".

Filter element type	Flow rate l/min Series N	Flow rate l/min Series H	Filter Length
A03	44	30	1
A06	44	40	
A10	80	58	
A16	82	60	
A25	110	75	
M25	140	-	
A03	53	45	2
A06	58	50	
A10	87	78	
A16	100	90	
A25	125	119	
M25	140	-	
A03	68	59	3
A06	71	62	
A10	100	92	
A16	110	100	
A25	135	130	
M25	140	-	
A03	85	75	4
A06	92	82	
A10	118	106	
A16	120	112	
A25	135	135	
M25	145	-	
A03	110	94	5
A06	112	98	
A10	130	112	
A16	135	120	
A25	140	140	
M25	152	-	

With standard indicator



Option P03 with indicator at 90°



A	E
Threaded Connections	Depth 15 mm
18x1,5 ISO 6149	M10
22x1,5 ISO 6149	M10
G 1/2"	M10
G 3/4"	M10
1/2" NPT	3/8" UNC
3/4" NPT	3/8" UNC
SAE 8 (3/4" - 16 UNF)	3/8" UNC
SAE 12 (1 1/16" - 12 UN)	3/8" UNC

Filter Length	H mm
1	158
2	195
3	237
4	285
5	407

Note. Differential indicator versions are supplied with plug T2.

Ordering information FMM050

Filter assembly **FMM 050**

Example: HP050

1	2	3	4	5	6	7 _a
2	B	A	C	A10	N	P01

Filter element **HP 050**

Example: HP050

1	5	3	6	7 _b
2	A10	A	N	P01

1 - Filter lengths

1
2
3
4
5

2 - Bypass valve

	S	Without bypass
	B	With bypass
	T	Without bypass + check valve*
	D	With bypass + check valve*

*Reduced cross-section oilways

3 - Seals

	A	NBR
	V	FPM

4 - Threaded connections

	A	M18x1.5 ISO 6149
	B	M22x1.5 ISO 6149
	C	G 1/2"
	D	G 3/4"
	E	1/2" NPT
	F	3/4" NPT
	G	SAE 8 (3/4" - 16 UNF)
	H	SAE 12 (1 1/16" - 12 UN)

5 - Filter elements

	A03	Inorganic microfibre 3 µ	β _x (c) ≥ 1000 see page 10
	A06	Inorganic microfibre 6 µ	
	A10	Inorganic microfibre 10 µ	
	A16	Inorganic microfibre 16 µ	
	A25	Inorganic microfibre 25 µ	
	M25	Stainless steel mesh 25 µ (N style only)	

6 - Filter elements differential pressure

	N	20 bar
	S	210 bar

7 - Options

a) Filter

	P01	Standard threaded connection for indicator
	P02	Without threaded connection for indicator
	P03	Threaded connection for indicator at 90°
	Pxx	Customer request

b) Filter element

	P01	MP Filtri standard
	Pxx	Customer request

DIFFERENTIAL INDICATORS (see page 15)

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Description

MPS / MIST

The **MPS** spin-on filter series is a complete product range suitable, for both suction and return applications. Utilising spin-on canisters, the MPS series are quick and easy to service and provide a 'clean' solution when changing elements.

The filter elements are either resin-impregnated paper ($\beta_x > 2$), glass fibre ($\beta_x \geq 200$) or square wire mesh.

The unique filter head is designed for both European CS and American CG standard canister series. One head design series accommodates both styles of elements.

Also available is a new design utilizing a pressure differential visual and electrical indicators - ideal for lubrication applications.

MPS filters are specifically designed for contamination control in hydraulic and lubrication circuits for mobile applications, agricultural and machine tool systems.

The **CW** series of canister removes water from oil while filtering the oil at the same time.

Water absorbent polymers up to 800 times their own weight, provide this major feature.

Water holding capacities: - CW 050 - 240 ml.
CW 150 - 788 ml.

DIFFERENTIAL INDICATORS For Use with series "1" filter heads.



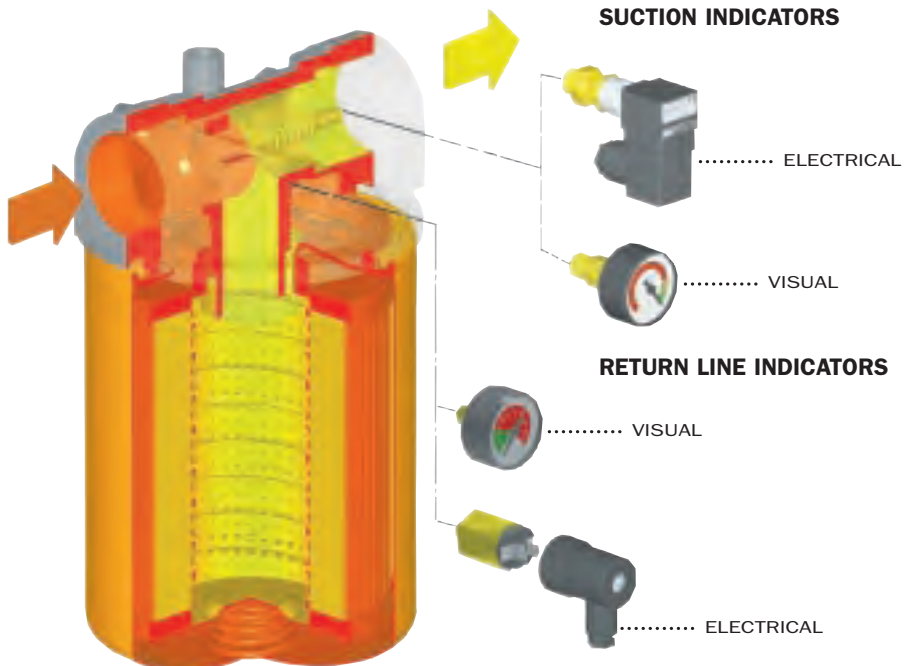
New

absolute filter elements
independently tested
in the following Institutes:

Institute of Filtration
(France)



For Use with series "0"
filter head.



Filter element:

Materials

End caps:

Galvanized steel

Support tube:

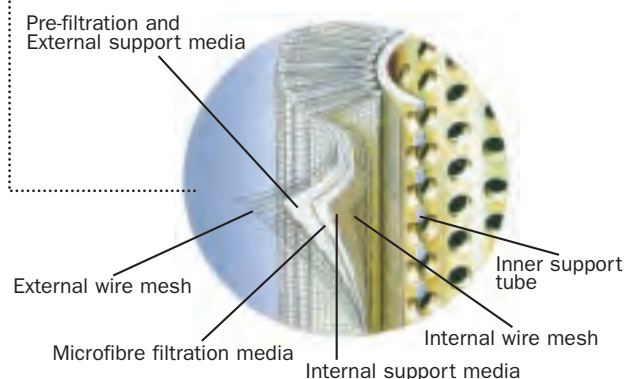
Galvanized steel

Support frames:

Galvanized steel with an epoxy coating

A Series

Inorganic microfibre



MP Filter elements - Conform to the following ISO standards

- ISO 2941 - Verification of collapse/burst resistance.
- ISO 2942 - Verification of fabrication integrity and determination of the first bubble point.
- ISO 2943 - Verification of material compatibility with fluids.
- ISO 3723 - Method for end load test.
- ISO 3724 - Verification of flow fatigue characteristics.
- ISO 3968 - Evaluation of pressure drop versus flow characteristics.
- ISO 16889 - Multi-pass method for evaluating filtration performance.

Element material Absolute filtration

A Series

Inorganic microfibre with acrylic support

Contamination retention

as per ISO 16889: Multi-pass test.

New improved $\beta \geq 200$ filter elements with greater efficiency and increased dirt holding capacity

Filter elements	Dimensions for β (μm) values				Filtration ratios			ΔP (bar)
	$\beta \geq 2$ (50%)	$\beta \geq 20$ (95%)	$\beta \geq 75$ (98,7%)	$\beta \geq 200$ (99,5%)	β_2	β_{10}	β_{20}	
A03	—	2	2,4	3	20	> 10.000	> 10.000	7
A06	—	3	4,6	6	8	> 2.000	> 10.000	7
A10	3	6	7,8	10	1,5	≥ 200	> 10.000	7
A25	13	19	22	25	—	> 1,5	> 35	7

N.B. Other materials giving different degrees of filtration are available on request.

Type	050	070	100	150
CS-CG-CT				
A03/A06	1900	3160	3950	5390
A10/A25	1900	3160	3950	5390

Values in cm^2

Filtering area Filter elements

Element material Nominal filtration

P Series

Resin - impregnated paper

M Series

Square wire mesh (filtration degree is defined in microns by the maximum diameter of a sphere corresponding to the mesh size)

Filtering area Filter elements

Type	050	070	100	150
CS-CG-CT				
P10/P25	2440	4140	4300	5760
M25	1000	1270	1990	2400
M60	1000	1270	1990	2400
M90	1000	1270	1990	2400

Values in cm^2

CW Series

Resin - impregnated paper

Type CW	050	150
P10/P25	2000	3050

Materials

Head

Aluminium

Bypass valve

Nylon

Seals

A Series: Nitrile (Buna-N)

V Series: Viton

Indicator

Brass

Working

temperature

From -25 to +110°C

For temperatures outside this range, please consult our Sales Network Organization

Pressure filter

body

Maximum working pressure up to

12 bar

Collapse pressure

filter elements

4 bar

Bypass valve

Calibration pressure

Bypass valve, differential opening pressure:

S series: 0,3 bar $\pm$ 10% (MPS series only)

R series: 1,75 bar $\pm$ 10%

Types of indicators for MPS series "0" (MPS 050-070-100...) and MST series

Description:

MPS series filters are fitted with indicators switching:

Suction filters at a pressure of:

Line filters at a pressure of:

Return filter at a pressure of:

1 Kpa = 0.01 bar

20 kPa $\pm$ 10%

1,3 bar $\pm$ 10% (MPS series only)

1,3 bar $\pm$ 10% (MPS-MST series only)

Visual indicator

Suction filter: (MPS series only)

VS vacuum switch

scale 0 - 76 cm Hg

Return and line filter

VA Pressure gauge

VR colour coded pressure gauge

scale 0 - 12 bar

scale 0 - 6 bar

Electrical indicator

Operational information:

Suction filter (MPS series only)

E0 Vacuum switch with change over contact

Switching at 20kPa $\pm$ 10%

Max voltage: 250V 50÷60 Hz

Max current: 5 A resistive, 2 A inductive

Protection degree IP65

Return filter

ER Pressure switch with N.O. contacts

EC Pressure switch with N.C. contacts

Switching at 1,3 bar $\pm$ 10%

Max voltage: 48V 50÷60 Hz

Max current: 0,5A resistive

0,2A inductive

Types of indicators for MPS series "1" (MPS 051-071-101-151-301-351)

MPS filter series 1 (051-071-101... and so on) are fitted with, differential style indicators.

Visual indicator

1V - Z1 Series for Filter with bypass set to 1,75 bar

switching at 1,2 bar $\pm$ 10%

V6 - Z6 Series for Filter without bypass

switching at 2 bar $\pm$ 10%

Electrical indicator

N1 Series for Filter with bypass set to 1,75 bar

switching at 1,2 bar $\pm$ 10%

N6 Series for Filter without bypass

switching at 2 bar $\pm$ 10%

Visual-electrical

indicator

1E - K1* Series for Filter with bypass set to 1,75 bar

switching at 1,2 bar $\pm$ 10%

E6 - K6* Series for Filter without bypass

switching at 2 bar $\pm$ 10%

*For K visual-electrical indicator, specify the voltage (il. K61 = LED: 24 volt)

* $\begin{cases} 1 - 24 \text{ Volt} \\ 2 - 115 \text{ Volt} \\ 3 - 230 \text{ Volt} \end{cases}$

Fluid

Compatibility

Filter head and bowls

compatible for use with:

- mineral oils
(types HH-HL-HM-HR-HV-HG as per ISO 6743/4)
- water-based emulsions
(types HFAE-HFAS as per ISO 6743/4)
- synthetic fluids
(types HS-HFDR-HFDS-HFDU as per ISO 6743/4)
- water-glycol (types HFC as per ISO 6743/4)

Seals

A Series

Nitrile (Buna-N) compatible with mineral oils
(types HH-HL-HM-HR-HV-HG as per ISO 6743/4)

water-based emulsions
(types HFAE-HFAS as per ISO 6743/4)
water - glycol (types HFC as per ISO 6743/4)

V Series

Viton compatible with synthetic fluids
(types HS-HFDR-HFDS-HFDU as per ISO 6743/4)

Filter elements

As per ISO 2943; suitable for mineral oils
(types HH-HL-HM-HR-HV-HG as per ISO 6743/4)
and synthetic fluids (A and M series only)
(types HS-HFDR-HFDS-HFDU as per ISO 6743/4)
For water-based emulsions (types HFAE-HFAS
as per ISO 6743/4) and fluids other than
those mentioned, please consult our Sales
Network Organization.

International standards for contamination fluid control

A general (no direct) comparison between ISO 4406 and NAS 1638 is given in table below.

Contamination codes ISO 4406			Correspondent codes NAS 1638	Recommended filtration degree	Typical applications
4µm(c)	6µm(c)	14µm(c)		<i>B x ≥ 200</i>	
14	12	9	3	3	High precision and laboratory servo-systems
17	15	12	6	3-6	Robotic and servo-systems
18	16	13	7	10-12	Very sensitive - high reliability systems
20	18	15	9	12-15	Sensitive - reliable systems
21	19	16	10	15-25	General equipment of limited reliability
23	21	18	12	25-40	Low - pressure equipment not in continuous service

Selection & installation information

Filter elements types

A Series

Absolute inorganic microfibre filtration media, available in 3, 6, 10 and 25 micron
Example - **A03, A06, A10** or **A25**

P Series

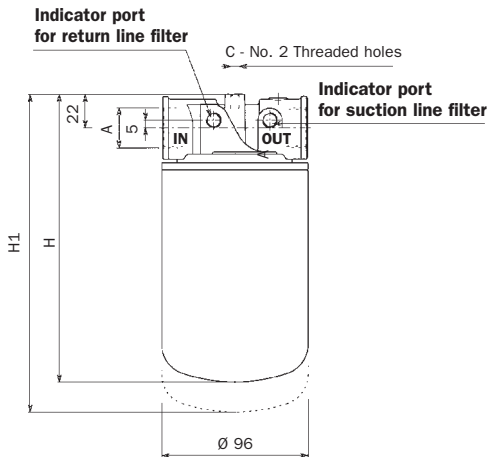
Nominal cellulose impregnated paper media, available in 10 and 25 micron.
Example - **P10** or **P25**

M Series

Metal mesh media, available in 25, 60, and 90 micron.
Example - **M25, M60** or **M90**.

Please refer to individual pressure drop curves to obtain filter assembly pressure drop information

The following filter sizing recommendations are based using a mineral oil fluid at 30 mm²/s (cSt) with a maximum total filter assembly (housing and filter element) pressure drop of 30% of the filter condition indicator (0.4 bar) for line and return filter and 8 kPa for suction filter.



MPS 050-071

Lengths

Type	H	H1
050-051	180	200
070-071	248	268

MPS SERIES 050-051 SIZES

Filter assembly	Line Flow rate l/min *	Suction Flow rate l/min *	Port size BSP/NPT/SAE	Weight kg **
A03	40	9	SEE TABLE BELOW	1,0
A06	44	11		
A10	48	14		
A25	58	18		
P10	55	16		
M60-M90	-	24		

MPS SERIES 070-071 SIZES

Filter assembly	Line Flow rate l/min *	Suction Flow rate l/min *	Port size BSP/NPT/SAE	Weight kg **
A03	45	11	SEE TABLE BELOW	1,3
A06	49	13		
A10	53	15		
A25	63	20		
P10	58	18		
M60-M90	-	26		

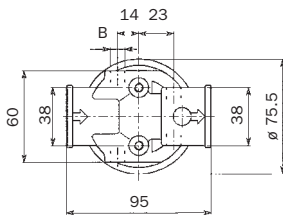
* Flow rates with 30 mm²/s fluid viscosity

** Weight including filter element

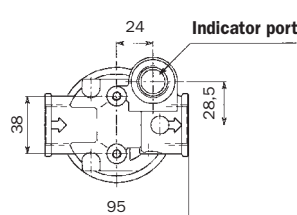
Thread connections

Type	A	B	C
G1	3/4" BSP	1/8" BSP	M6
G2	3/4" NPT	1/8" NPT	1/4" UNC
G3	SAE 12 - 1 1/16" - 12 UN	1/8" NPT	1/4" UNC
G4	SAE 8 - 3/4" - 16 UNF	1/8" NPT	1/4" UNC
G5	1" BSP	1/8" BSP	M6
G6	1" NPT	1/8" NPT	1/4" UNC

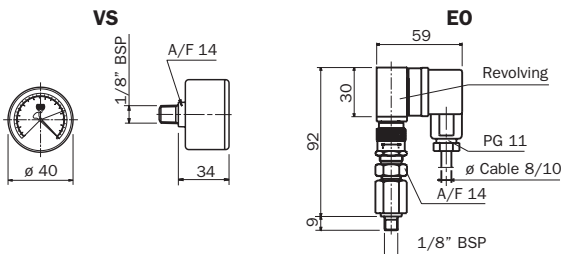
MPS 050-070 Series



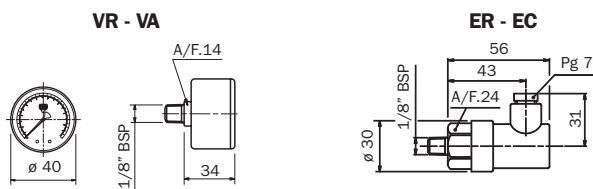
MPS 051-071 Series



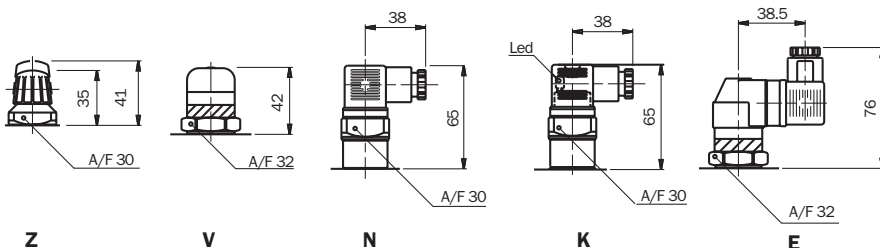
Indicator for suction filter MPS 050-070 (only for option G1-G5)



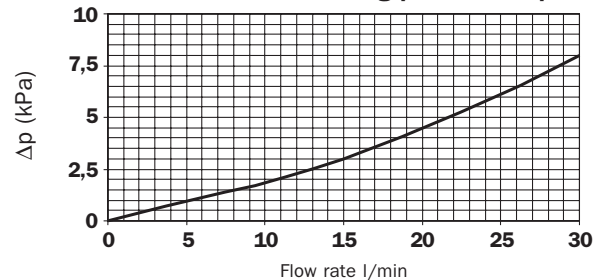
Indicator for return filter MPS 050-070 (only for option G1-G5)



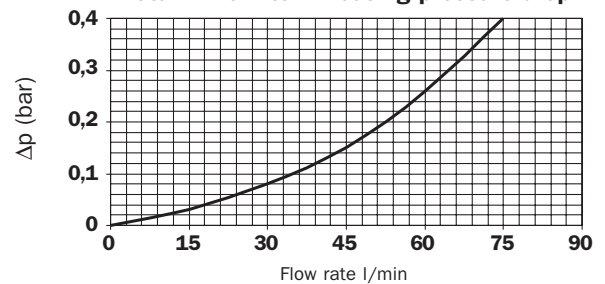
Indicator for line filter MPS 051-071



Suction filter - Housing pressure drop



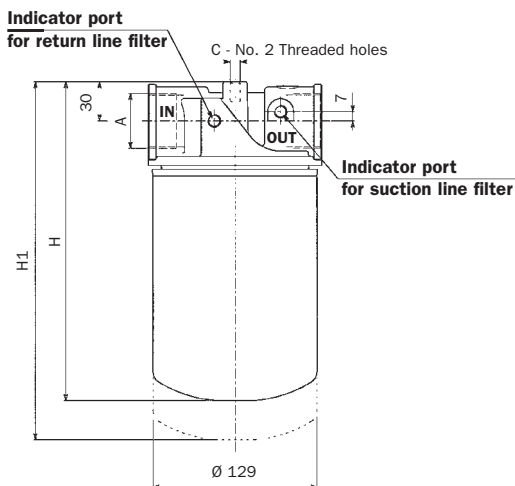
Return line filter - Housing pressure drop



Selection & installation information

Please refer to individual pressure drop curves to obtain filter assembly pressure drop information

The following filter sizing recommendations are based using a mineral oil fluid at 30 mm²/s (cSt) with a maximum total filter assembly (housing and filter element) pressure drop of 30% of the filter condition indicator (0.4 bar) for line and return filter and 8 kPa for suction filter.



MPS 100-151

Lengths

Type	H	H1
100-101	241	266
150-151	286	311

MPS SERIES 100-101 SIZES

Filter assembly	Line Flow rate l/min *	Suction Flow rate l/min *	Port size BSP/NPT/SAE	Weight kg **
A03	75	16	1 1/4"	2,2
A06	85	19		
A10	110	25		
A25	140	40		
P10	130	35		
M60-M90	-	65		

MPS SERIES 150-151 SIZES

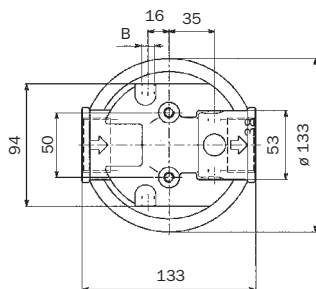
Filter assembly	Line Flow rate l/min *	Suction Flow rate l/min *	Port size BSP/NPT/SAE	Weight kg **
A03	85	18	1 1/4"	2,3
A06	100	22		
A10	115	30		
A25	160	45		
P10	150	40		
M60-M90	-	68		

* Flow rates with 30 mm²/s fluid viscosity
** Weight including filter element

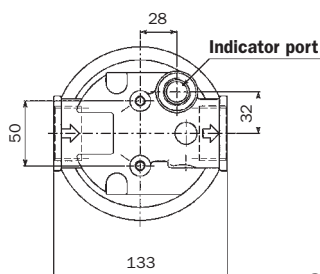
Thread connections

Type	A	B	C
G1	1 1/4" BSP	1/8" BSP	M8
G2	1 1/4" NPT	1/8" NPT	5/16" UNC
G3	SAE 20 - 1 5/8" - 12 UN	1/8" NPT	5/16" UNC

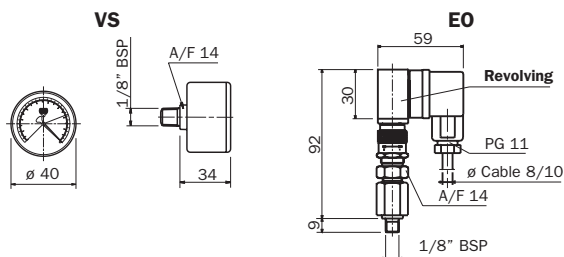
MPS 100-150 Series



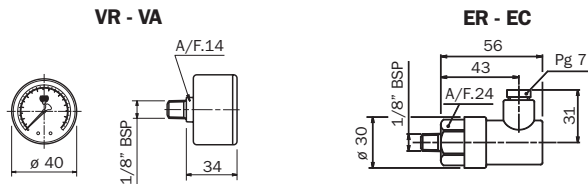
MPS 101-151 Series



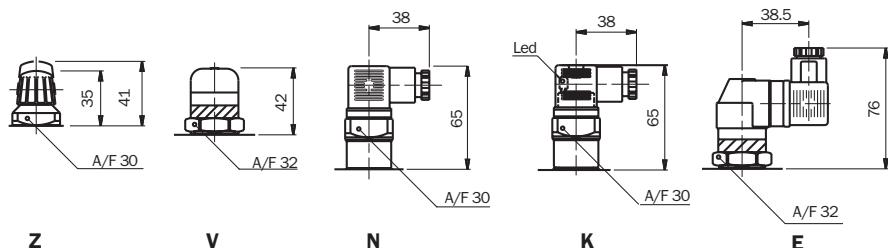
Indicator for suction filter MPS 100-150 (only for option G1)



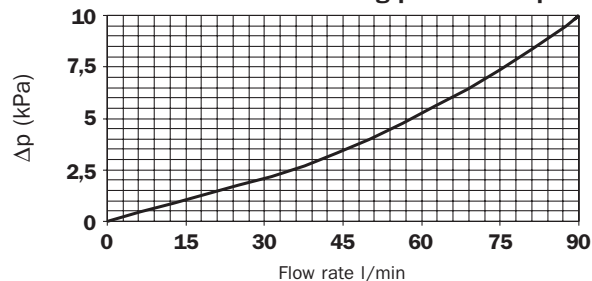
Indicator for return filter MPS 100-150 (only for option G1)



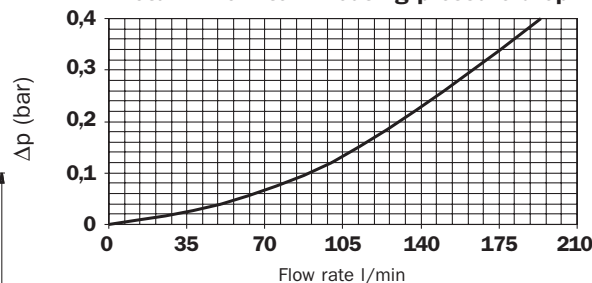
Indicator for line filter MPS 101-151



Suction filter - Housing pressure drop



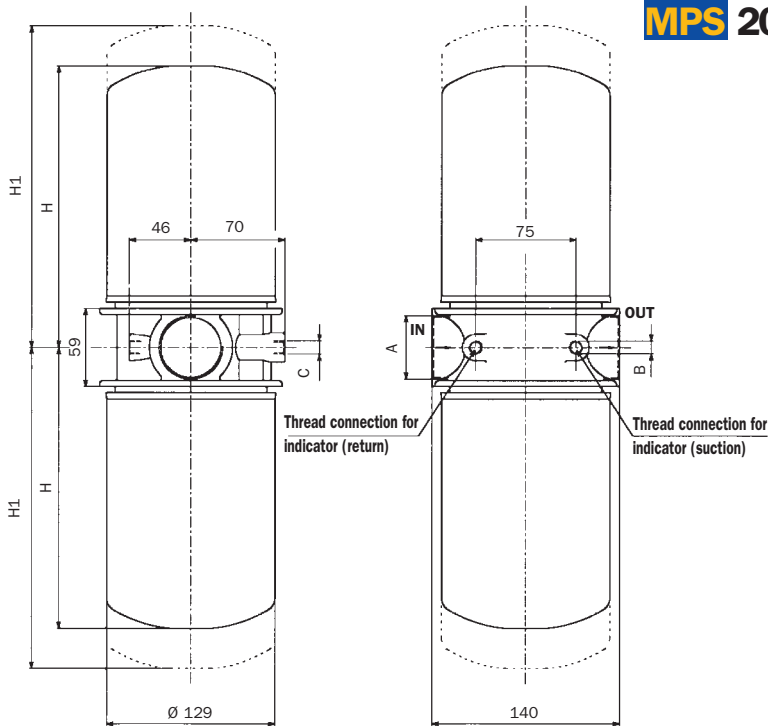
Return line filter - Housing pressure drop



Selection & installation information

Please refer to individual pressure drop curves to obtain filter assembly pressure drop information

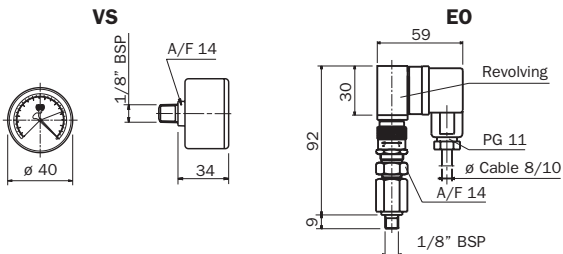
The following filter sizing recommendations are based using a mineral oil fluid at 30 mm²/s (cSt) with a maximum total filter assembly (housing and filter element) pressure drop of 30% of the filter condition indicator (0.4 bar) for line and return filter and 8 kPa for suction filter.



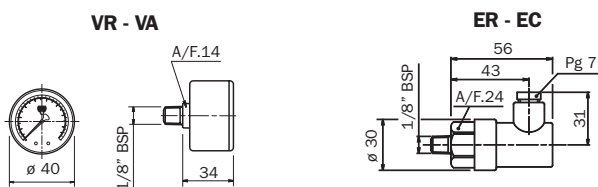
Lengths

Type	H	H1
200	216	241
250	261	286

Indicator for suction filter (only for option G1)



Indicator for return filter (only for option G1)



MPS 200-250

MPS SERIES 200 SIZES

Filter assembly	Line Flow rate l/min *	Suction Flow rate l/min *	Port size BSP/NPT/SAE	Weight kg **
A03	130	30	1 1/2"	4,0
A06	170	45		
A10	220	65		
A25	290	110		
P10	270	100		
M60-M90	-	120		

MPS SERIES 250 SIZES

Filter assembly	Line Flow rate l/min *	Suction Flow rate l/min *	Port size BSP/NPT/SAE	Weight kg **
A03	180	50	1 1/2"	4,2
A06	210	60		
A10	250	80		
A25	310	125		
P10	280	118		
M60-M90	-	130		

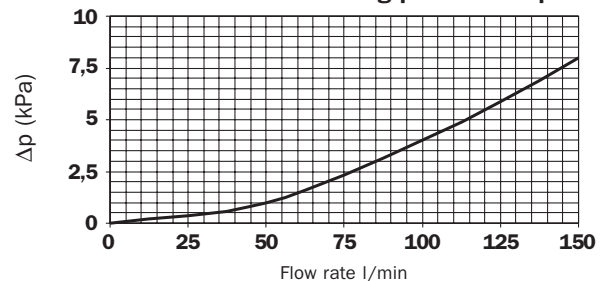
* Flow rates with 30 mm²/s fluid viscosity

** Weight including filter element

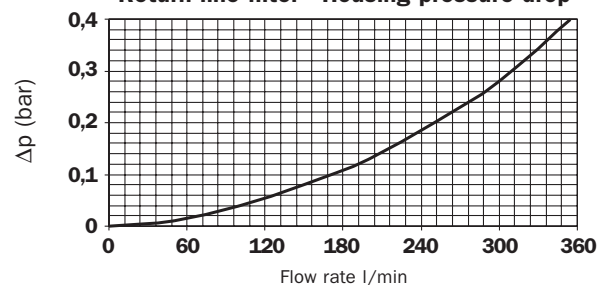
Thread connections

Type	A	B	C
G1	1 1/2" BSP	1/8" BSP	M10
G2	1 1/2" NPT	1/8" NPT	3/8" UNC
G3	SAE 24 - 1 7/8" - 12 UN	1/8" NPT	3/8" UNC

Suction filter - Housing pressure drop



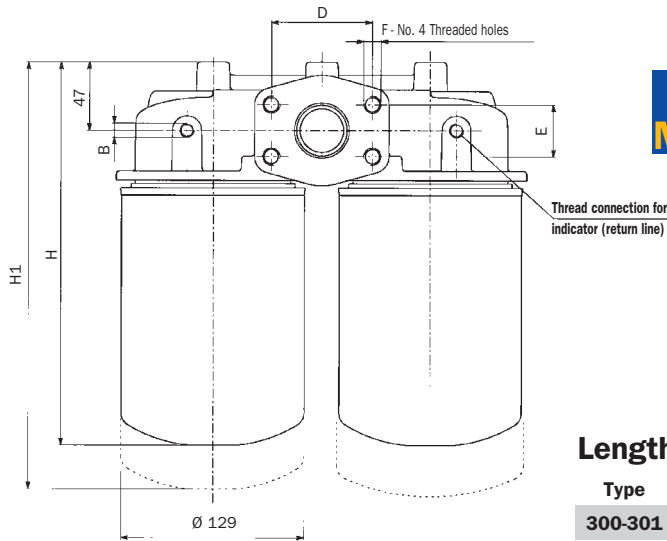
Return line filter - Housing pressure drop



Selection & installation information

Please refer to individual pressure drop curves to obtain filter assembly pressure drop information

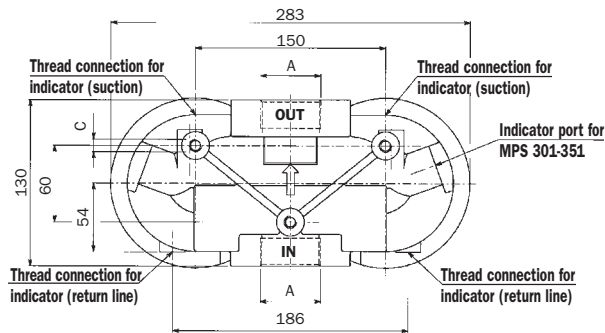
The following filter sizing recommendations are based using a mineral oil fluid at 30 mm²/s (cSt) with a maximum total filter assembly (housing and filter element) pressure drop of 30% of the filter condition indicator (0.4 bar) for line and return filter and 8 kPa for suction filter.



MPS 300-351

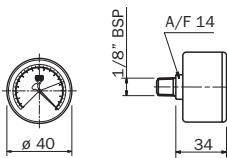
Lengths

Type	H	H1
300-301	265	290
350-351	310	335

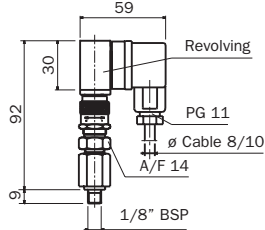


Indicator for suction filter MPS 300-350 (only for option G1-G5-F1)

VS



E0

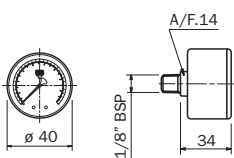


Flange connections

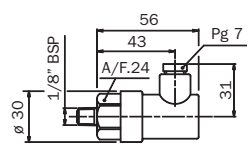
Type	A	B	C	D	E	F
F1	1 1/2" SAE 3000 PSI/M	1/8" BSP	M12	69,85	35,71	M12
F2	1 1/2" SAE 3000 PSI/UNC	1/8" NPT	1/2" UNC	69,85	35,71	1/2" UNC

Indicator for return filter MPS 300-350 (only for option G1-G5-F1)

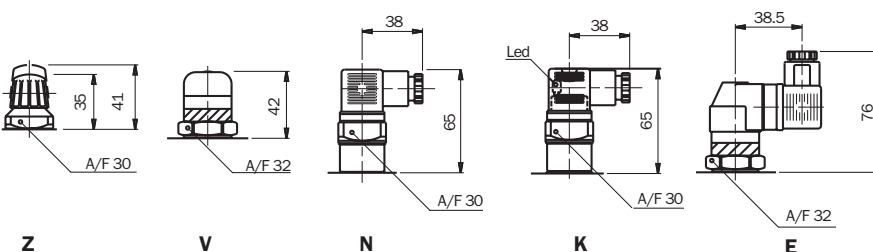
VR - VA



ER - EC



Indicator for line filter MPS 301-351



MPS SERIES 300-301 SIZES

Filter assembly	Line Flow rate l/min	Suction Flow rate l/min	Port size BSP/NPT/SAE	Weight kg **
A03	130	30	1 1/2"	5,4
A06	170	45		
A10	220	65		
A25	290	110		
P10	270	100		
M60-M90	-	120		

MPS SERIES 350-351 SIZES

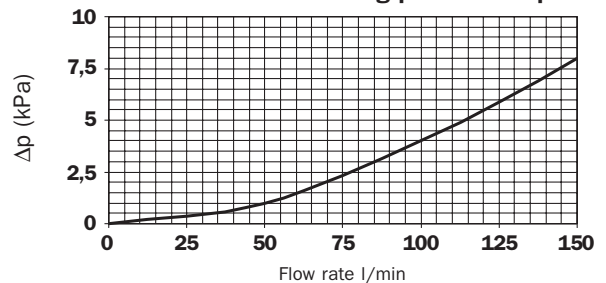
Filter assembly	Line Flow rate l/min	Suction Flow rate l/min	Port size BSP/NPT/SAE	Weight kg **
A03	180	50	1 1/2"	5,6
A06	210	60		
A10	250	80		
A25	310	125		
P10	280	118		
M60-M90	-	130		

* Flow rates with 30 mm²/s fluid viscosity
** Weight including filter element

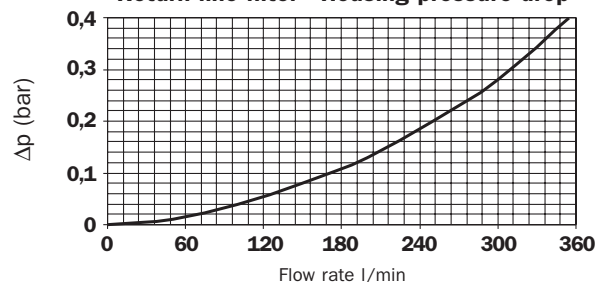
Thread connections

Type	A	B	C
G1	1 1/2" BSP	1/8" BSP	M10
G2	1 1/2" NPT	1/8" NPT	3/8" UNC
G3	SAE 24 - 1 7/8" - 12 UN	1/8" NPT	3/8" UNC

Suction filter - Housing pressure drop



Return line filter - Housing pressure drop



Selection & installation information

Filter elements

A Series

Absolute inorganic microfibre filtration media, available in 3, 6, 10 and 25 micron
Example - **A03, A06, A10** or **A25**

P Series

Nominal cellulose impregnated paper media, available in 10 and 25 micron.
Example - **P10** or **P25**

M Series

Metal mesh media, available in 25, 60, and 90 micron.
Example - **M25, M60** or **M90**.

types

Please refer to individual pressure drop curves to obtain filter assembly pressure drop information

The following filter sizing recommendations are based using a mineral oil fluid at 30 mm²/s (cSt) with a maximum total filter assembly (housing and filter element) pressure drop of 30% of the filter condition indicator (0.4 bar) for line and return filter.

MST SERIES 050 SIZES

MST 050-070

Filter assembly	Flow rate l/min *	Port size BSP/NPT/SAE	Weight kg **
A03	42	3/4"	1,2
A06	50		
A10	65		
A25	75		
P10	68		

MST SERIES 070 SIZES

Filter assembly	Flow rate l/min *	Port size BSP/NPT/SAE	Weight kg **
A03	55	3/4"	1,5
A06	60		
A10	68		
A25	80		
P10	76		

* Flow rates with 30 mm²/s fluid viscosity

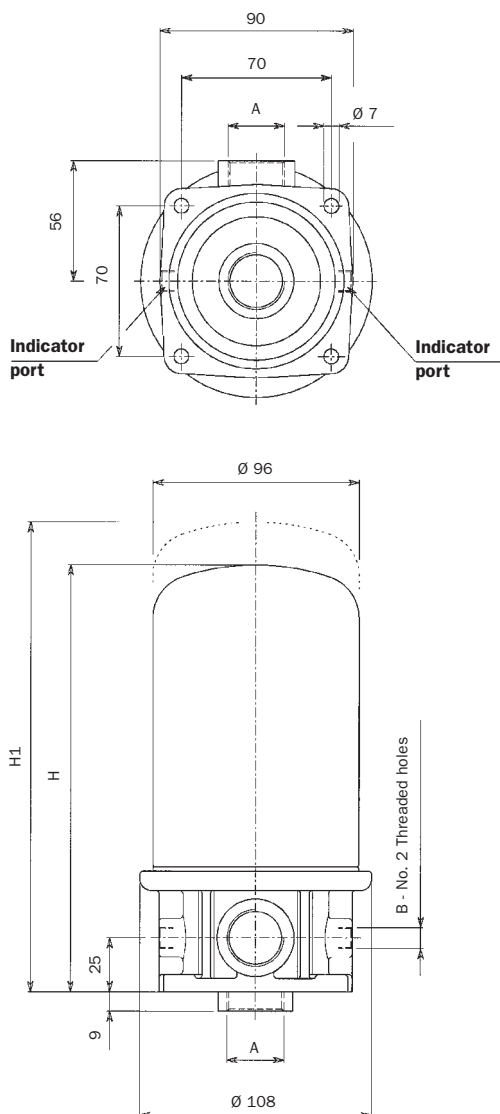
** Weight including filter element

Thread connections

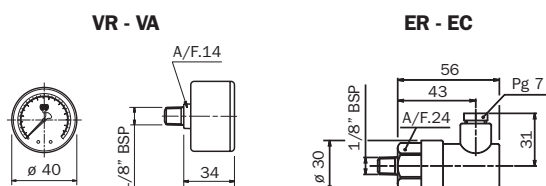
Type	A	B
G1	3/4" BSP	1/8" BSP
G2	3/4" NPT	1/8" NPT
G3	SAE 8 - 3/4" - 16 UN	1/8" NPT

Lengths

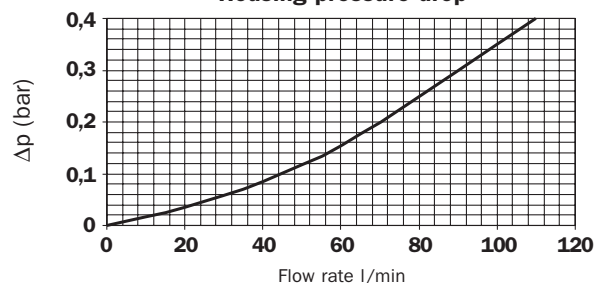
Type	H	H1
050	190	208
070	265	283



Indicator (only for option G1)



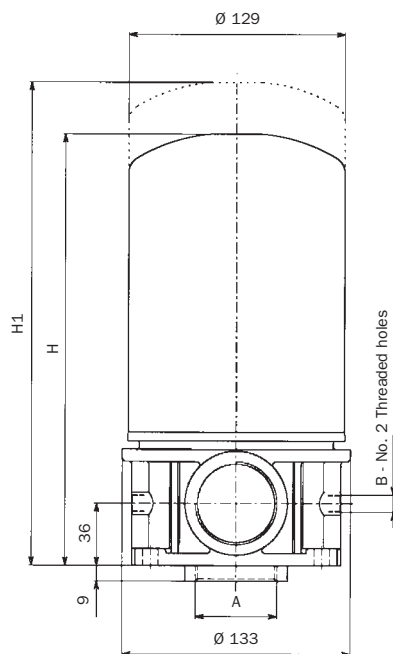
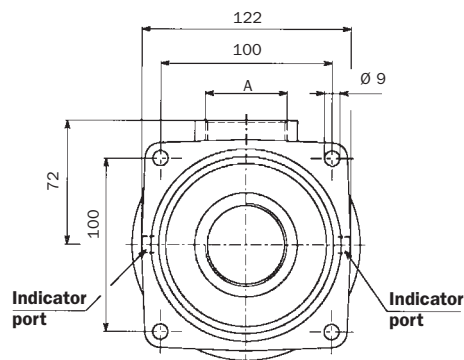
Housing pressure drop



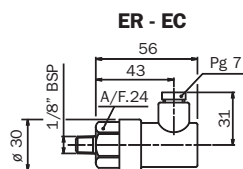
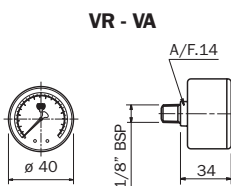
Selection & installation information

Please refer to individual pressure drop curves to obtain filter assembly pressure drop information

The following filter sizing recommendations are based using a mineral oil fluid at 30 mm²/s (cSt) with a maximum total filter assembly (housing and filter element) pressure drop of 30% of the filter condition indicator (0.4 bar) for line and return filter.



Indicator (only for option G1)



MST 100-150

MST SERIES 100 SIZES

Filter assembly	Flow rate l/min *	Port size BSP/NPT/SAE	Weight kg **
A03	80	1 1/2"	2,3
A06	90		
A10	125		
A25	185		
P10	175		

MST SERIES 150 SIZES

Filter assembly	Flow rate l/min *	Port size BSP/NPT/SAE	Weight kg **
A03	90	1 1/2"	2,4
A06	110		
A10	140		
A25	210		
P10	190		

* Flow rates with 30 mm²/s fluid viscosity

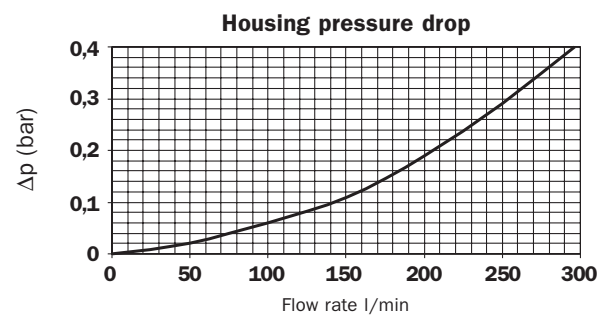
** Weight including filter element

Thread connections

Type	A	B
G1	1 1/2" BSP	1/8" BSP
G2	1 1/2" NPT	1/8" NPT
G3	SAE 20 - 1 5/8" - 12 UN	1/8" NPT

Lengths

Type	H	H1
100	250	275
150	280	305



Pressure drop information

General

Pressure drop versus flow rate curve information for both housing and filter elements is in accordance with ISO 3968

Filter assembly pressure drop - $\Delta p_{\text{Total}} = \Delta p_{\text{Housing}} + \Delta p_{\text{Filter element}}$

Housing pressure drop - The housing pressure drop is proportional to the fluid density

Filter element pressure drop - Filter element pressure drop is proportional to kinematic viscosity therefore always check the fluid operating temperature and fluid type to obtain the working viscosity according to the following formula:

$$\Delta p_1 \text{ Filter element} = (\text{working viscosity} / \text{brochure viscosity}) \times \Delta p \text{ filter element}$$

Brochure viscosity 30 mm²/s (cSt)

$$1\text{kPa} = 0,01 \text{ bar}$$

Filter assembly sizing example

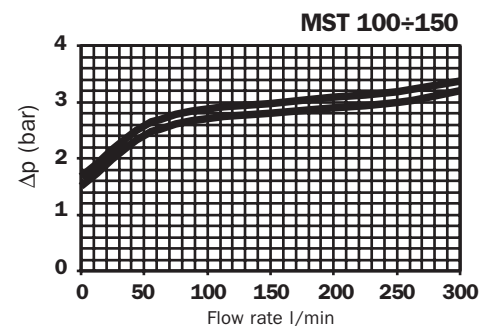
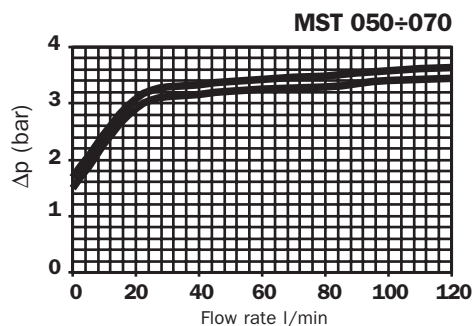
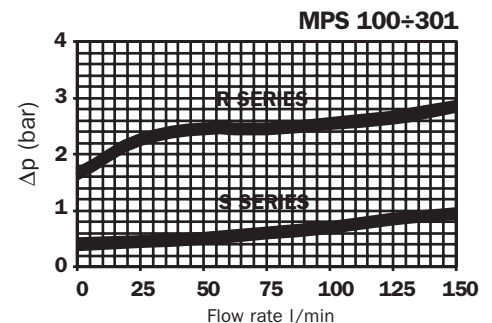
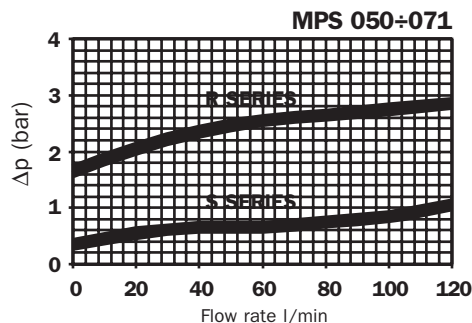
- Customer requires a 100 l/min filter assembly
- Mineral oil fluid: ISO VG46 (46 mm²/s (cSt) at 40°C)
- 25 micron absolute filtration
- return line application

Selection :

- **Housing pressure drop** - MPS 100/101 with 100 l/min $\Delta p = 0,13 \text{ bar}$ (see curve on page 8)
- **Filter element pressure drop** brochure viscosity - CS 100A25 with 100 l/min $\Delta p = 0,09 \text{ bar}$ (see curve on page 17)
- **Filter element pressure drop** working viscosity - With 46 mm²/s (cSt) $\Delta p_1 = 0,09 \times (46/30) = 0,138 \text{ bar}$
- **Filter assembly pressure drop** $\Delta p_{\text{Total}} = \Delta p_{\text{Housing}} + \Delta p_1 \text{ Filter element} = 0,13 + 0,138 = \mathbf{0,268 \text{ bar}^*}$ { Acceptable pressure drop value, as per our recommendations

Bypass valves pressure drop

The curves were obtained using a mineral oil with a density of 0,86 kg/dm³.
The Δp varies proportionally to the density.



R series: Return filter
S series: Suction filter

Ordering information

MST

Nominal sizes

050
070
100
150

Seals

A Nitrile (Buna - N)
V Viton

Port options

Type	MST 050-070	MST 100-150
G1	3/4" BSP	1 1/2" BSP
G2	3/4" NPT	1 1/2" NPT
G3	SAE 8	SAE 20

Filter elements indicator

S With threaded hole only
T With plug
VR Colour coded pressure gauge
ER Pressure switch with N.O. contacts
EC Pressure switch with N.C. contacts

Bypass valve

B Calibration: 1,75 bar

Seals

A Nitrile (Buna - N)
V Viton

Filter elements M/P series

P10
P25 Resin-impregnated paper $\beta_x \geq 2$
M25
M60
M90 Square wire mesh

Filter elements A series

A03
A06
A10
A25 Inorganic microfibre $\beta_x \geq 200$

CT

Replacement element

MP Filtri - Filtration products will only be guaranteed if original MP Filtri replacement elements and spares are used

Data held in this publication is given only for indicative purposes. MP Filtri reserves to introduce modifications to described items for technical or commercial reasons. Copyright reserved.

Hose & Fittings



Allison Hydraulics

Hose and Fittings

Hydraulic hoses

	Part no.	Description
	4M4K	1/4" 280 bar two wire
	6M4K	3/8" 280 bar two wire
	8M4K	1/2" 280 bar two wire
	10M4K	5/8" 280 bar two wire
	12M4K	3/4" 280 bar two wire
	16M4K	1" 225 bar two wire
	16EFG6K	1" 420 bar spiral hose

BSP couplings straight

	Part no.	Description
	4G4FBSPORX	1/4" BSP coupling straight
	6G6FBSPORX	3/8" BSP coupling straight
	8G8FBSPORX	1/2" BSP coupling straight
	10G10FBSPORX	5/8" BSP coupling straight
	12G12FBSPORX	3/4" BSP coupling straight
	16G16FBSPORX	1" BSP coupling straight

Quick release couplings

	Part no.	Description
	ANV38M	3/8" male ISO A quick release probe
	ANV38F	3/8" female ISO A quick release carrier
	ANV12M	1/2" male ISO A quick release probe
	ANV12F	1/2" female ISO A quick release carrier
	ANV34M	3/4" male ISO A quick release probe
	ANV34F	3/4" female ISO A quick release carrier

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45/90 swept couplings

	Part no.	Description
	4G4FBSPORX90	1/4" BSP coupling 90 swept
	6G6FBSPORX90	3/8" BSP coupling 90 swept
	8G8FBSPORX90	1/2" BSP coupling 90 swept
	10G10FBSPORX90	5/8" BSP coupling 90 swept
	12G12FBSPORX90	3/4" BSP coupling 90 swept
	16G16FBSPORX90	1" BSP coupling 90 swept
	4G4FBSPORX45	1/4" BSP coupling 45 swept
	6G6FBSPORX45	3/8" BSP coupling 45 swept
	8G8FBSPORX45	1/2" BSP coupling 45 swept
	4G8FDLORX90	8L metric female 90 swept
	4G10FDLORX90	10L metric female 90 swept
	6G10FDLORX90	10L metric female 90 swept
	6G12FDLORX90	12L metric female 90 swept
	8G15FDLORX90	15L metric female 90 swept
	10G18FDLORX90	18L metric female 90 swept
	12G22FDLORX90	22L metric female 90 swept
	4G10FDHORX90	10S metric female 90 swept
	6G12FDHORX90	12S metric female 90 swept
	8G16FDHORX90	16S metric female 90 swept
	10G20FDHORX90	20S metric female 90 swept
	12G25FDHORX90	25S metric female 90 swept
	6G6FJX90	9/16 JIC female 90 swept
	8G8FJX90	3/4 JIC female 90 swept
	8G10FJX90	7/8 JIC female 90 swept
	12G12FJX	1.1/16 JIC female 90 swept
	16G16FJX90	1.5/16 JIC female 90 swept



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Quality components and expertise

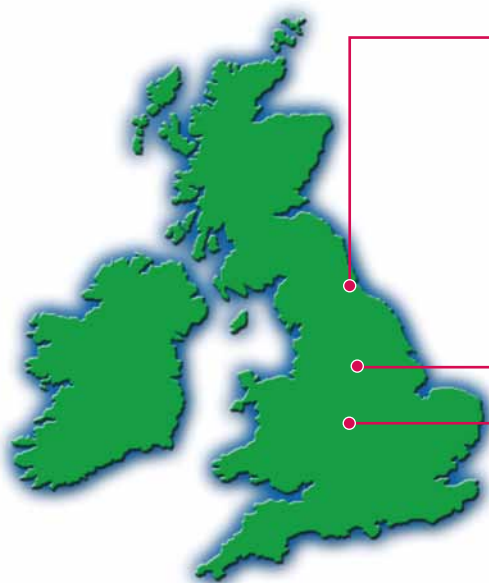
Allison Hydraulics takes great pride in offering a very personal service to its customers. We understand that our customers are essential to our continued success and future growth. We strive to offer the best in quality hydraulic components and systems whilst maintaining competitive prices for our marketplace. As part of the DCA/Hydrastore group of companies, we have access to vast stocks of components from our UK warehouses, as well as a wealth of expertise in all aspects of hydraulic engineering.



Local service

The company understands the customer's need for a local service that can respond quickly to its requirements whether this is for advice and guidance, urgently needed parts for production machinery or implementing planned/preventative maintenance systems. To this end, the company is geared towards offering a doorstep service from its two strategic locations.

Where to find us:



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