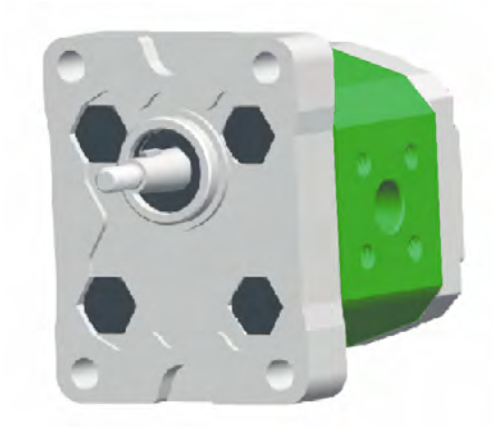
PUMPS
B1: INDEX

TYPE	CODE	MOUNT	DISPLACEMENT cc/rev	PRESSURE cont. / max BAR	PAGE
SALAMI GEAR PUMPS	1PE	DIN GROUP 1	0.91 to 5.8	250 / 300	B.2
	2PE	DIN GROUP 2	3.2 to 25.8	250 / 300	B.3
	2PE	GROUP 2 GEAR PUMP OPTIONS			B.4 - B.6
	2.5PB	DIN GROUP 2.5	5.5 to 44	250 / 300	B.7
	3PB	DIN GROUP 3	21 to 75	250 / 300	B.8
	3.5PB	DIN GROUP 3.5	55 to 98	250 / 300	B.9
AXIAL PISTON OPEN LOOP	V	SAE 'A'	15, 18	250	B.10
	V	SAE 'B'	23, 38	250	B.11
	HPA4	SAE 'B'	34/46/58/65	250	B.12 - B.13
AXIAL PISTON CLOSED LOOP	PMH	SAE 'C'	55, 72, 90, 110	250 / 450	B.14
	M4PV	SAE 'B'	21, 28, 32	250 / 350	B.15 - B.16
	M4PV	SAE 'B'	34, 45, 50, 58, 65	250 / 400	B.17 - B.18
	HPP8	SAE 'C'	82, 100, 125	380 / 420	B.19 - B.20
ACCESSORIES	HJ1	HYDRAULIC JOYSTICKS (CLOSED LOOP PUMPS)			B.21

B2: 1.5PE DIN GROUP 1.5 SALAMI GEAR PUMPS



- Gear pumps and motors made with alluminium alloy body, flanges and rear covers
- High volumetric efficiency by innovative design and accurate control of machining tolerances
- Axial compensation is achieved by using floating bushes that allow high volumetric efficiency throughout the pressure range
- DU bearings ensure high pressure capability
- Nitrile seals as standard and viton seals in high temperature range
- Available with flanges, shafts and ports for the main European, German and SAE standards
- Assembling on multiple stage pump available
- All pumps and motors are tested after assembly and run-in to ensure the high standard required

Performance carried out with oil viscosity at 16 cSt and oil temperature at 60 ^{0} C

TYPE		1.4	2.1	2.8	3.5	4.1	5.2	6.2	7.6	9.3	11
Displacement	cm^3/rev	1.4	2.1	2.8	3.5	4.1	5.2	6.2	7.6	9.3	11
	cu.in./rev	0.09	0.13	0.17	0.21	0.25	0.32	0.38	0.46	0.57	0.67
Dimension A	mm	44	45.9	47.9	49.9	51.6	54.7	57.5	61.5	66.3	71.1
	in	1.73	1.81	1.89	1.96	2.03	2.15	2.26	2.42	2.61	2.8
Dimension C	mm	22	22.95	23.95	24.95	25.8	27.35	28.75	30.75	33.15	35.55
	in	0.87	0.9	0.94	0.98	1.02	1.08	1.13	1.21	1.31	1.4
Working Pressure P1*	bar	250	250				230		200	180	170
	psi	3625	3625				3335		2900	2610	2465
Intermittent Pressure P2	bar	270	270				250		220	200	190
	psi	3915	3915				3625		3190	2900	2755
Peak Pressure P3	bar	290	290				270		250	240	220
	psi	4205	4205				3915		3625	3480	3190
Max Speed P2	rpm	5000		4500		4000		3600	3300	3000	
Min Speed P1	rpm	700						600			

** Working Pressure P1 - the value of max. Speed must be reduced by 15%*

B3: 2PE DIN GROUP 2 SALAMI GEAR PUMPS

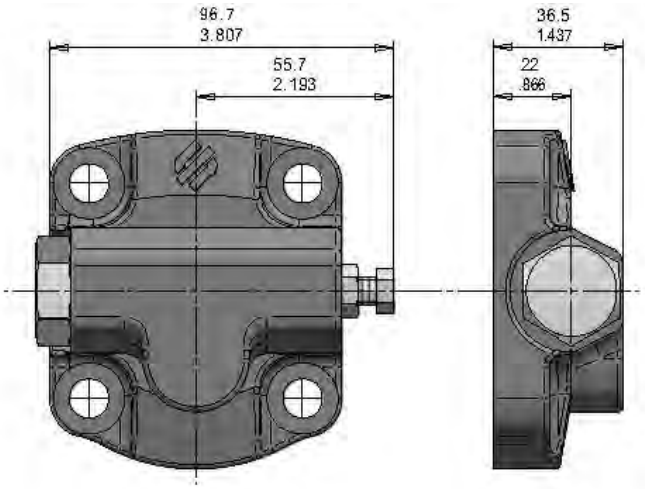
- Gear pumps and motors made with alluminium alloy body ande cast iron flanges and rear covers
- High volumetric efficiency by innovative design and accurate control of machining tolerances
- Axial compensation is achieved by using floating bushes that allow high volumetric efficiency throughout the pressure range
- DU bearings ensure high pressure capability
- 12 teeth integral one-piece gear and shaft
- Double shaft seals
- Nitrile seals as standard and viton seals in high temperature range
- Available with flanges, shafts and ports for the main European, German and SAE standards
- Outrigger bearing available
- Available with several rear covers with valves built-in
- Assembling on multiple stage pump available on both 2PB and 2PE types
- Extremely compact design on the multiple assembling pump for the 2PE type
- All pumps and motors are tested after assembly and run-in to ensure the high standard required

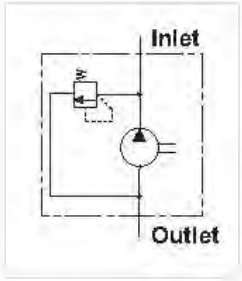
TYPE		3.2*	4.5	6.2	8.3	11.3	13.8	16	19	22.5	26
Displacement	cm^3/rev	3.2	4.6	6.5	8.2	11.5	13.8	18.6	19.4	22.9	25.8
	cu.in./rev	0.19	0.27	0.4	0.5	0.68	0.84	1.01	1.15	1.37	1.58
Working Pressure p^1	bar	250							220	200	180
	psi	3600							3140	2900	2600
Intermittent Pressure p^2	bar	280							240	220	200
	psi	4000							3450	3140	2900
Peak Pressure p^3	bar	300							260	240	220
	psi	4300							3750	3450	3140
Max Speed	rpm	4000			3500			3000		2750	2500
Min Speed	rpm	600			500			400		400	300

** Available only as rear pump*

B4: GROUP 2 GEAR PUMP OPTIONS

REAR COVERS WITH MAIN RELIEF VALVES



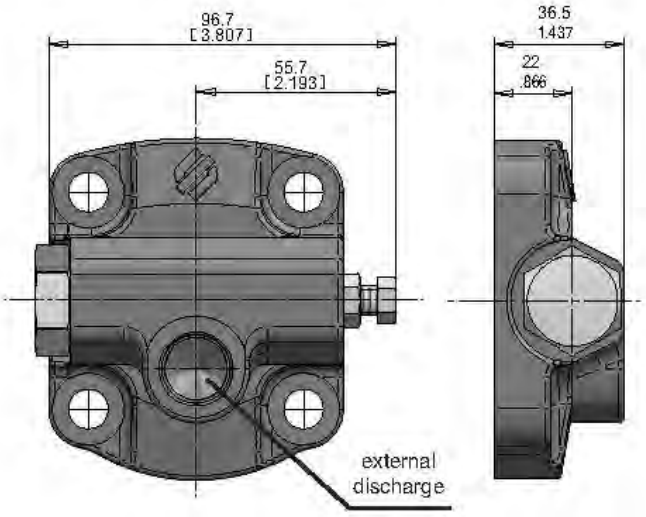


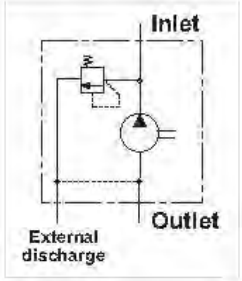
code VS

With main relief valve with internal exhaust gallery

For this main relief valve you can choice four setting ranges:

(20 - 50 bar)
(51 - 75 bar)
(76 - 150 bar)
(151 - 220 bar)





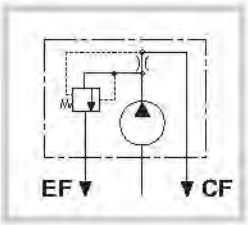
code VSE

D (external discharge)
M 18 x 1.5 (METRIC)
3/4-16 UNF-2B (SAE 8)
G 3/8 (BSPP)

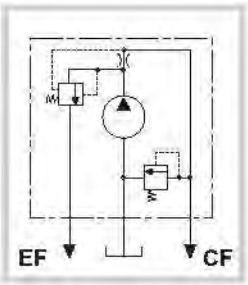
B5: GROUP 2 GEAR PUMP OPTIONS

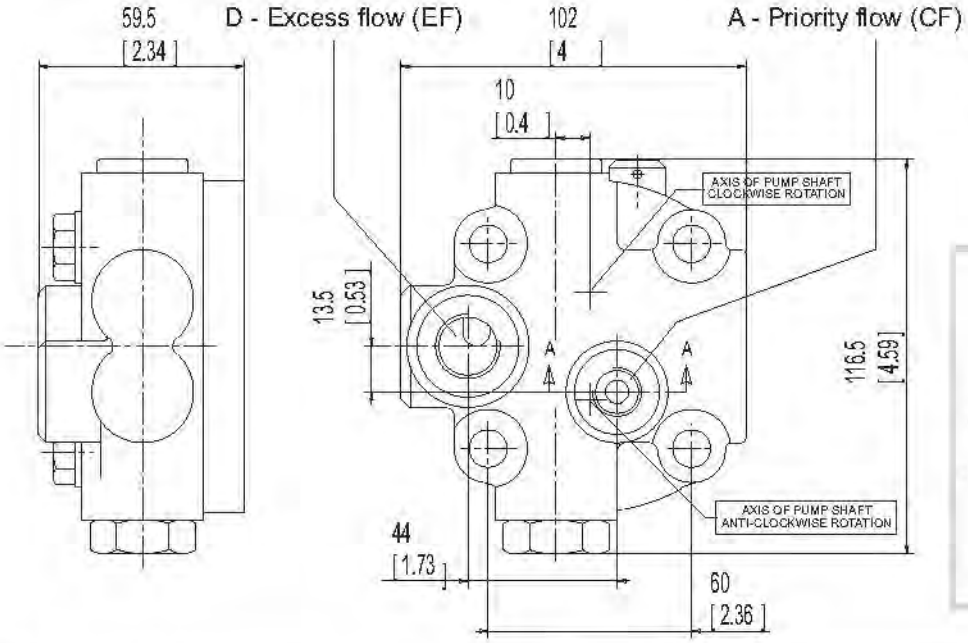
REAR COVER WITH PRESSURE COMPENSATED PRIORITY FLOW VALVE REAR PORTS

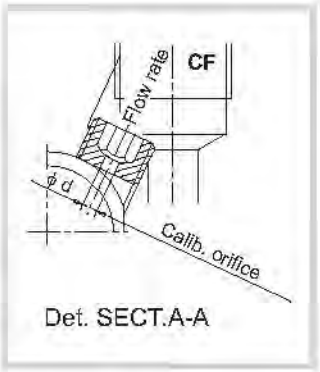
code VP Priority flow valve, excess flow to second actuator.



code VPS Priority flow valve, excess flow to second actuator with pressure relief valve on priority flow line.







A	D
G 3/8	G 1/2
9/16-18 UNF-2B (SAE 6)	3/4-16 UNF-2B (SAE 8)

PRIORITY FLOW DIVIDERS (VP - VPS)

These are basically the same as VR valves differing only because the two flows can be loaded at the same time for supplying two separate circuits defined priority flow remains constant regardless of pump speed and system pressure variations.The second defined excess flow is directly proportional to pump speed.Priority flow is determined by diameter of hole on threaded dowel (see table).The max. pressure of the priority circuit can be limited by valve which relieves into pump suction.

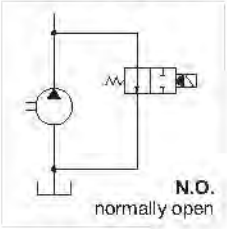
CALIBRATED ORIFICE Ø d(mm/*inch*)	FLOW RATE (l/min - *gpm*) ± 10%
1.5 *(0.06")*	2.5 *(0.66)*
2 *(0.08")*	4 *(1.06)*
2.4 *(0.09")*	6 *(1.59)*
2.8 *(0.11")*	8 *(2.11)*
3.1 *(0.12")*	10 *(2.64)*
3.5 *(0.14")*	12.5 *(3.30)*
4 *(0.16")*	16 *(4.23)*
4.4 *(0.17")*	20 *(5.28)*
4.9 *(0.19")*	25 *(6.61)*

B6: GROUP 2 GEAR PUMP OPTIONS

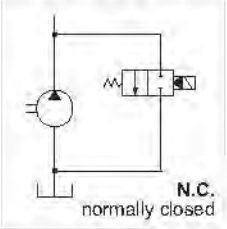
REAR COVER WITH ELECTRIC UNLOADING VALVE

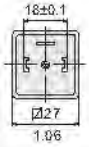
code EV

EV1 - 12 Vcc
EV2 - 24 Vcc

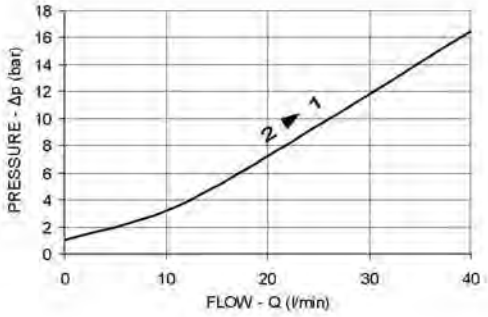


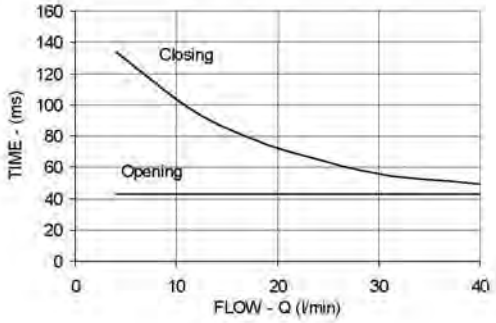
EV3 - 12 Vcc
EV4 - 24 Vcc

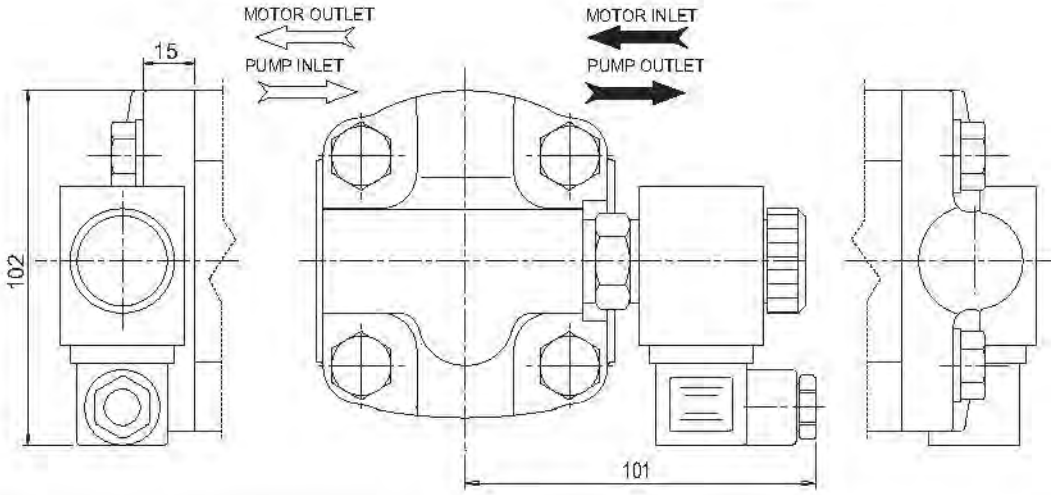




CONNECTOR DIN 43650 A/ISO 4400

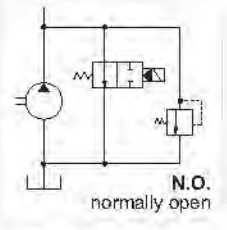




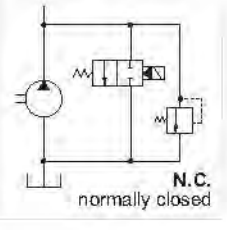


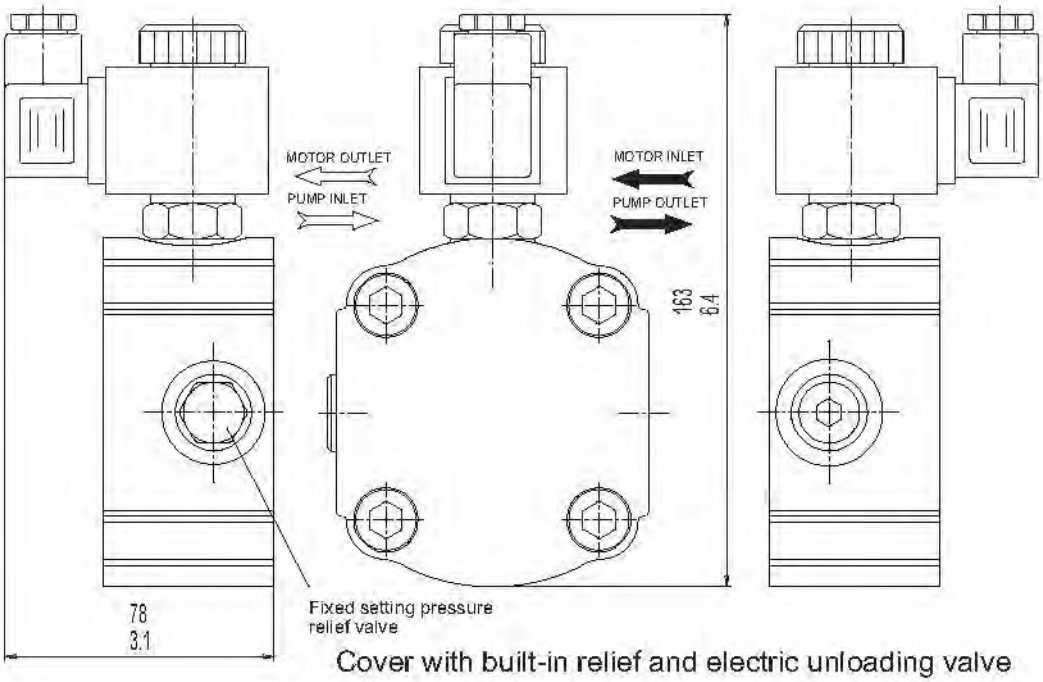
code EVS

EVS1 - 12 Vcc
EVS2 - 24 Vcc



EVS3 - 12 Vcc
EVS4 - 24 Vcc





Cover with built-in relief and electric unloading valve

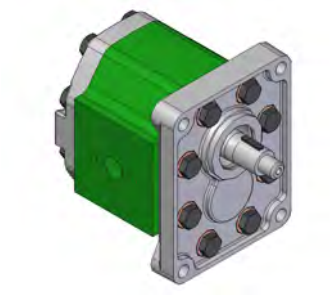
B7: 2.5PB DIN GROUP 2.5 SALAMI GEAR PUMPS

- Gear pumps and motors made with alluminium alloy body ande cast iron flanges and rear covers
- High volumetric efficiency by innovative design and accurate control of machining tolerances
- Axial compensation is achieved by using floating bushes that allow high volumetric efficiency throughout the pressure range
- DU bearings ensure high pressure capability
- 12 teeth integral one-piece gear and shaft
- Double shaft seals
- Nitrile seals as standard and Viton seals in high temperature range
- Available with flanges, shafts and ports for the main European, German and SAE standards
- Available with several rear covers with valves built-in
- Extremely compact design on the multiple assembling pump for the 2.5PB/2.5PN
- Assembling on multiple stage pump available on both 2PE or 1.5PB types
- All pumps and motors are tested after assembly and run-in to ensure the high standard required

TYPE		5.5*	8.3	11.5	13.8	16	19	22	25	28	32	38	44
Displacement	cm^3/rev	5.97	8.29	11.76	14.07	16	19.3	22.2	25.2	27.6	32.4	38.1	44.2
	cu.in./rev	0.36	0.5	0.72	0.86	0.97	1.17	1.35	1.53	1.68	1.97	2.32	2.69
Working Pressure p^1	bar	250									230	200	170
	psi	3600									3300	2900	2465
Intermittent Pressure p^2	bar	280									250	220	190
	psi	4000									3600	3140	2700
Peak Pressure p^3	bar	300									260	240	210
	psi	4300									3750	3450	3000
Max Speed	rpm	3000										2750	2500
Min Speed	rpm	600						500				400	

** Available only as rear pump*

B8: 3PB DIN GROUP 3 SALAMI GEAR PUMPS



- Gear pumps and motors made with alluminium alloy body ande cast iron flanges and rear covers
- High volumetric efficiency by innovative design and accurate control of machining tolerances
- Axial compensation is achieved by using floating bushes that allow high volumetric efficiency throughout the pressure range
- DU bearings ensure high pressure capability
- 12 teeth integral one-piece gear and shaft
- Double shaft seals
- Nitrile seals as standard and Viton seals in high temperature range
- Available with flanges, shafts and ports for the main European, German and SAE standards
- Outrigger bearing available
- Available with several rear covers with valves built-in
- Assembling on multiple stage pump 3PB/3PB available
- Assembling on multiple stage pump also available in combination with 2PE or 2PB types
- All pumps and motors are tested after assembly and run-in to ensure the high standard required

TYPE		21*	27	33	38	46	55	65	75%
Displacement	cm^3/rev	20.6	27	33.5	38.7	46.9	54.1	63.1	73.4
	cu.in./rev	1.26	1.65	2.04	2.36	2.86	3.30	3.85	4.48
Working Pressure p[1]	bar	250				245	220		
	psi	3600				3500	3190		
Intermittent Pressure p[2]	bar	280				265	240		
	psi	4000				3840	3480		
Peak Pressure p[3]	bar	300				275	250		
	psi	4300				3950	3600		
Max Speed	rpm	3000				2750	2500		
Min Speed	rpm	600		500			400		

** Available for quantity, please contact our sales department*

B9: 3.5PB DIN GROUP 3.5 SALAMI GEAR PUMPS

- Gear pumps and motors made with alluminium alloy body ande cast iron flanges and rear covers
- High volumetric efficiency by innovative design and accurate control of machining tolerances
- Axial compensation is achieved by using floating bushes that allow high volumetric efficiency throughout the pressure range
- DU bearings ensure high pressure capability
- 12 teeth integral one-piece gear and shaft
- Double shaft seals
- Nitrile seals as standard and Viton seals in high temperature range
- Available with flanges, shafts and ports for the main European, German and SAE standards
- Outrigger bearing available
- Assembling on multiple stage pump 3.5PB/3.5PB available
- Assembling on multiple stage pump also available in combination with 2PE, 2PB or 3PB types
- All pumps and motors are tested after assembly and run-in to ensure the high standard required

TYPE		55	64	75	87	98*
Displacement	cm^3/rev	54.8	63.2	74.7	88	99
	cu.in./rev	3.34	3.85	4.55	5.36	6.03
Working Pressure p^1	bar	250		230	210	200
	psi	3600		330	3000	2900
Intermittent Pressure p^2	bar	280		250	230	220
	psi	4000		3600	3300	3140
Peak Pressure p^3	bar	300		280	260	250
	psi	4300		4000	3750	3600
Max Speed	rpm	2750		2500	2250	2000
Min Speed	rpm	400	350	300		

** Available for quantity, please contact our sales department*

B10: 'V' LOAD SENSE AXIAL PISTON PUMPS

HOW TO ORDER

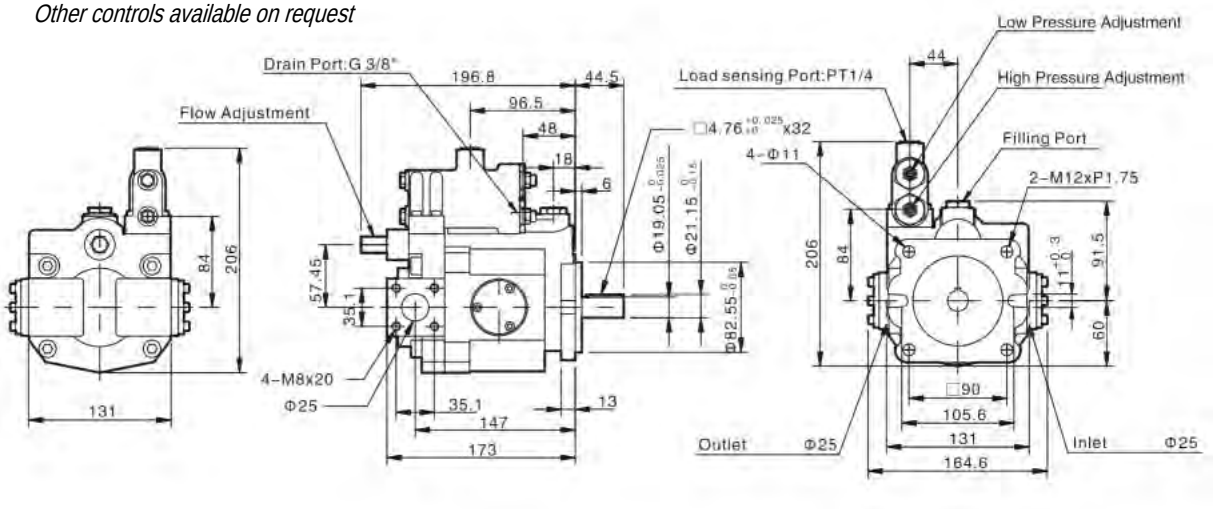
V | 1 | HL | 2 | 3 | 4 | 5

- 1 — DISPLACEMENT
- HL — LOAD SENSE COMPENSATOR
- 2 — CONTROL TYPE
- 3 — PRESSURE ADJUSTMENT
- 4 — ROTATION
- 5 — SHAFT

1	DISPLACEMENT	CODE	4	ROTATION	CODE
	cc/REV			Clockwise	R
	15	15		Anti-Clockwise	L
	18	18		viewed from shaft end	
2	CONTROL TYPE		5	SHAFT	CODE
	A			3/4" Keyed	BLANK
	B			7/8" 13T Splined	S
	C				
3	PRESSURE ADJUSTMENT	CODE			
	15 - 140 Bar	A2			
	35 - 250 Bar	A3			
	15 - 250 Bar	A4			

V15 & 18 Series Load Sense Compensated Pumps have:

- *SAE 'A' 2 Bolt Mount*
- *Flanged Ports*
- *Manual Stroke Limiter*
- *Other controls available on request*



CODE	DISPLACEMENT cc/REV	MAX PRESSURE (Bar)	MIN SPEED rpm	MAX SPEED rpm	WEIGHT (Kg)
V15	14.8	250	600	1800	11.5
V18	17.8				

B11: 'V' LOAD SENSE AXIAL PISTON PUMPS

HOW TO ORDER

V | 1 | HL | 2 | 3 | 4 | 5

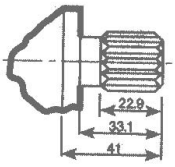
- 1 — DISPLACEMENT
- HL — LOAD SENSE COMPENSATOR
- 2 — CONTROL TYPE
- 3 — PRESSURE ADJUSTMENT
- 4 — ROTATION
- 5 — SHAFT

1	DISPLACEMENT	CODE	4	ROTATION	CODE
	cc/REV			Clockwise	R
	23	23		Anti-Clockwise	L
	38	38		viewed from shaft end	
2	CONTROL TYPE		5	SHAFT	CODE
	Load Sense	HL		7/8" Keyed	BLANK
	Other control available on request			7/8" 13T Splined	S
3	PRESSURE ADJUSTMENT	CODE			
	15 - 140 Bar	A2			
	35 - 250 Bar	A3			

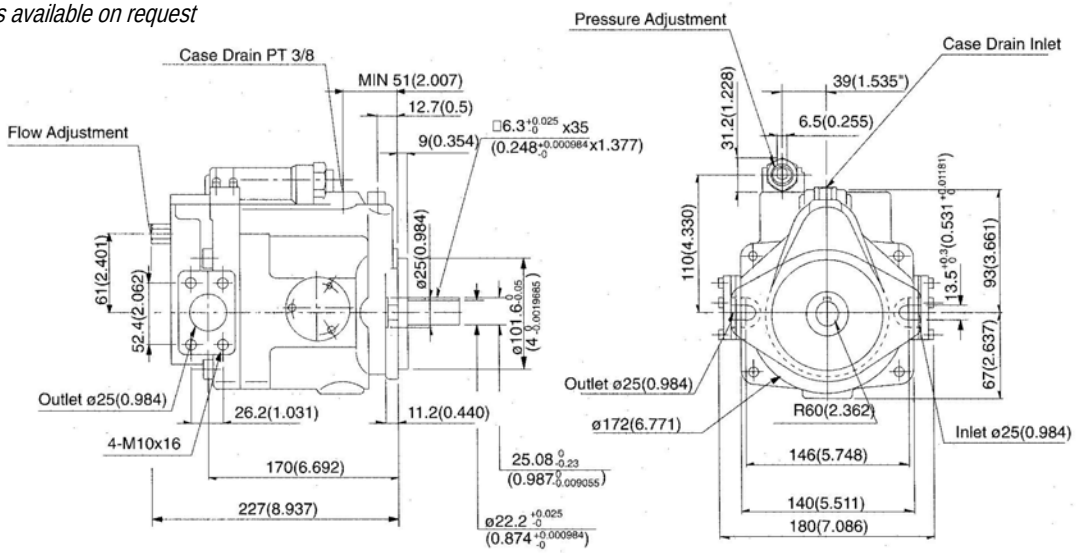
V23 Series Load Sense Compensated Pumps have:

- *SAE 'B' 2 Bolt Mount*
- *Flanged Ports*
- *Manual Stroke Limiter*
- *Other controls available on request*

'B'
SHAFT



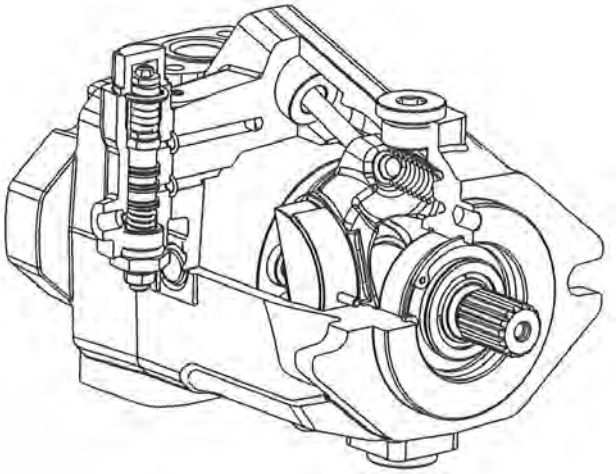
7/8"
13 TOOTH

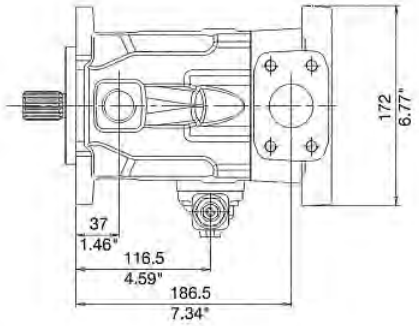


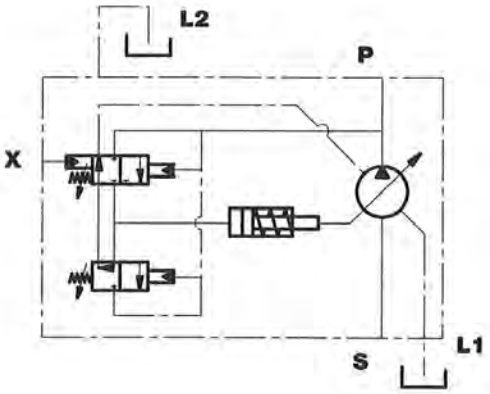
CODE	DISPLACEMENT cc/REV	MAX PRESSURE (Bar)	MIN SPEED rpm	MAX SPEED rpm	WEIGHT (Kg)
V23	23	250	600	1800	23

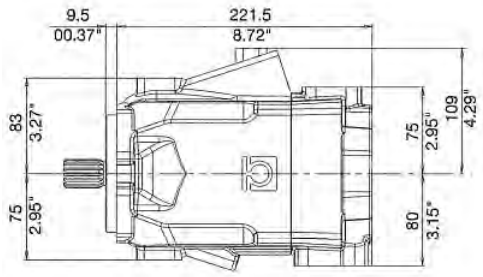
B12: 'HPA4' LOAD SENSE AXIAL PISTON PUMPS

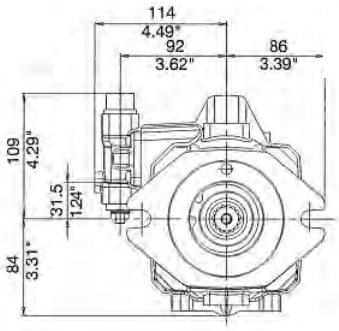
DISPLACEMENT	cc/REV	34	46	58	65
MAX SPEED CONTINUOUS	rpm	2800	2600	2650	2500
MAX PRESSURE CONTINUOUS	Bar	280		250	
MAX PRESSURE PEAK	Bar	350		320	
LOAD SENSE FLOW REGULATOR RATE	Bar	14 - 25			
WEIGHT	Kg	23		24	
DIMENSIONS (mm)					
X	1/8" BSPP				
P (OUTLET)	1" SAE CODE 61				
S (INLET)	1.5" SAE CODE 61				
L1, L2	3/4" BSPP				
FLANGE MOUNT	SAE 'B'				

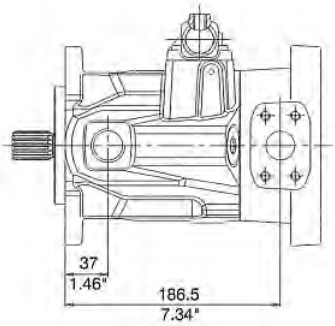






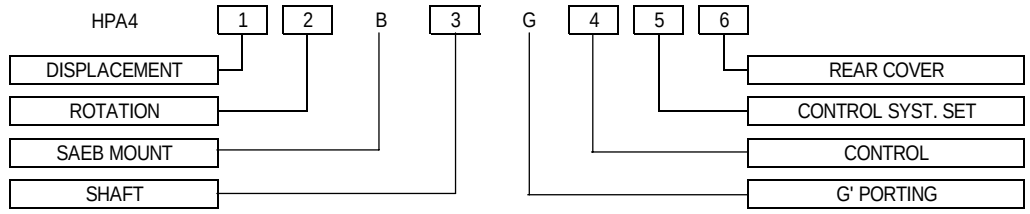






B13: 'HPA4' LOAD SENSE AXIAL PISTON PUMPS

HOW TO ORDER



1	DISPLACEMENT	CODE
	cc/REV	
	34	34
	46	46
	58	58
	65	65

2	ROTATION	CODE
	viewed from shaft end	
	Clockwise	R
	Anti-Clockwise	L

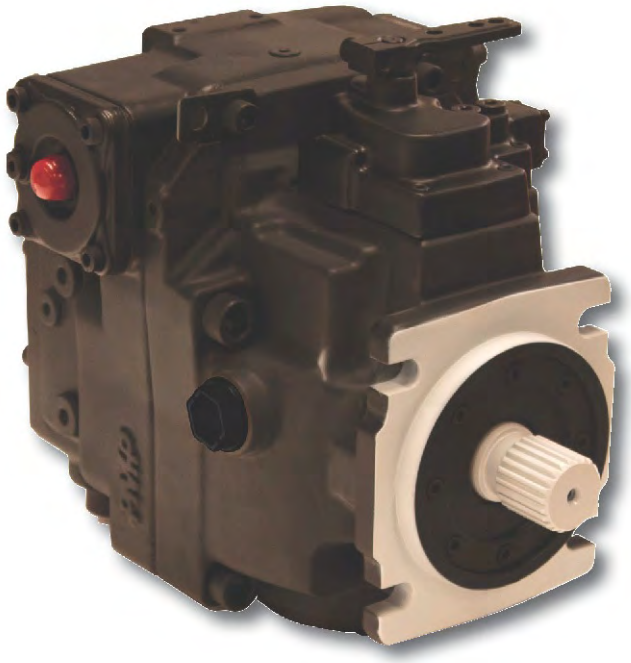
3	SHAFT	CODE
	7/8" Keyed	6
	1" 15 tooth Splined	1
	7/8" 13 tooth Splined	9

4	CONTROL	CODE
	Load Sense	L

5	CONTROL SYSTEM SET	CODE
	Consult supplier	

6	REAR COVER	CODE
	Plain cover	0
	SAE 'A' 2 Bolt	5
	SAE 'B' 2 Bolt	6

B14: 'PMH' HYDRAULIC PISTON PUMPS - CLOSED LOOP Manual & Electronic Controls



		PMH P55	PMH P72	PMH PM90	PMH P110
Displacement	(cc/rev)	55	72	90	110
Max Output Speed	(rpm)	4.000	4.000	4.000	3.800
Peak Pressure	(bar)	450	450	450	450
Max Output Torque	(Nm)	235	308	385	460
Weight	(kg)	55	68	68	68

B15: 'M4PV' AXIAL PISTON PUMPS

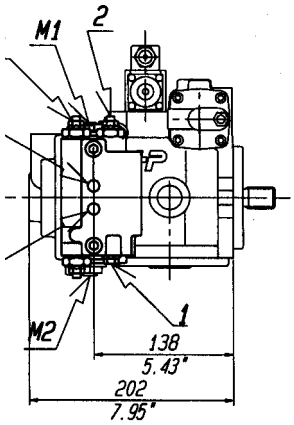
DISPLACEMENT	cc/REV	21	28
BOOST PUMP DISPLACEMENT	cc/REV	9	
MOUNT	SAE 'B' 2 BOLT		
BOOST PUMP PRESSURE (SET 20 BAR)	BAR	15 - 30	
MAX SPEED	RPM	3600	
MIN SPEED	RPM	500	
MAX CONTINUOUS PRESSURE	BAR	250	
INTERMITTENT PRESSURE	BAR	350	
MAX HOUSING PRESSURE	BAR	1.5	
MAX CONTINUOUS TEMPERATURE	^{O}C	80	

STANDARD FEATURES

- *MANUAL STROKE ADJUSTMENT*
- *CROSS PORT RELIEF VALVES*
- *BOOST PUMP C/W RELIEF*
- *BYPASS VALVE*

BOLT ON OPTIONS

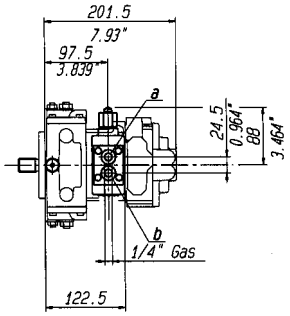
- *BOOST PRESSURE FILTER*
- *PRESSURE OVERRIDE / CUTOFF*
- *PURGE / LOOP FLUSHING VALVE*
- *SWASHPLATE RAMP CONTROL SPOOLS*
- *SAEA 5/8" 9T or SAEB 7/8" 13T THROUGH DRIVE*



'D'

AUTOMOTIVE CONTROL

Varies the pump displacement proportional to engine rpm

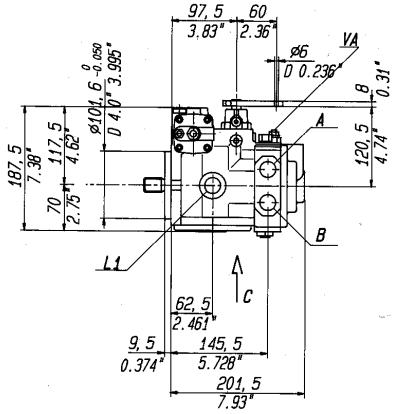


'G' & 'K'

HYDRAULIC PILOT

K - Displacement is proportional to the external pilot pressure signal.

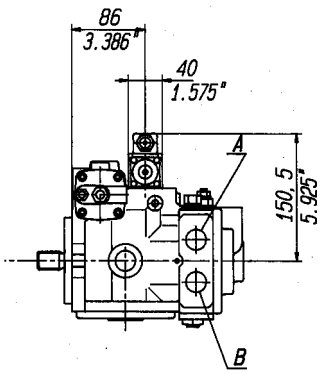
G - As 'K' with mechanical feedback



'I'

LEVER OPERATED SERVO

Displacement varied by rotating the lever 26^{o} either side of centre

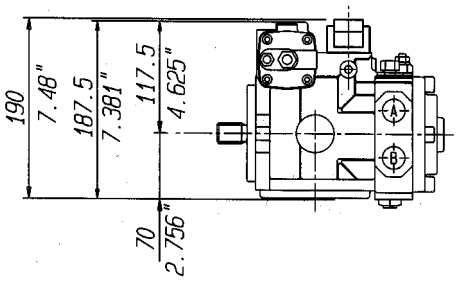


'N' (12VDC) & 'Q' (24VDC)

SOLENOID CONTROL

Cetop 3 Control (12 or 24 VDC)

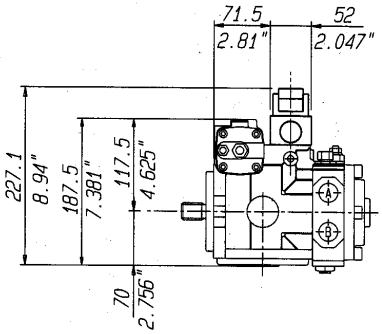
Max displacement when solenoid is energised



'S'

ELECTRONIC PROPORTIONAL

Displacement is proportional to the control current.



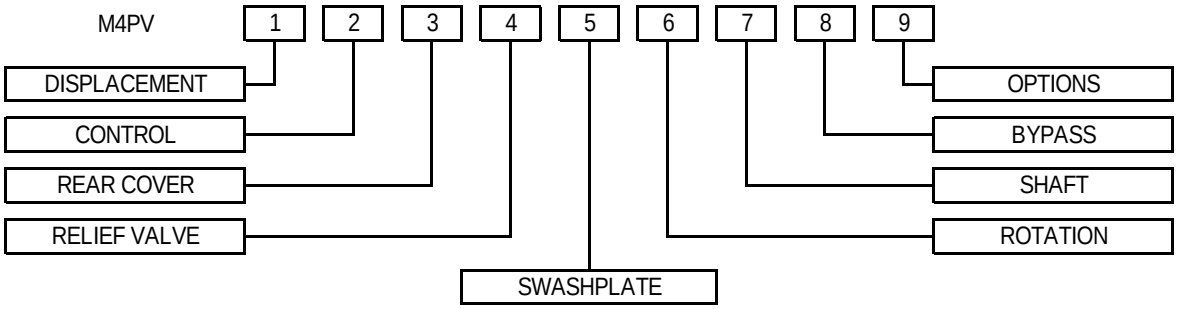
'T'

ELECTRONIC PROPORTIONAL

As 'S' with mechanical feedback

B16: 'M4PV' AXIAL PISTON PUMPS

HOW TO ORDER



1	DISPLACEMENT	CODE
	cc/REV	
	21	21
	28	28

2	CONTROL	CODE
	Hydraulic Pilot with Feedback	G
	Hydraulic Pilot	K
	Lever Operated Servo	I
	Solenoid - 12VDC	N
	Solenoid - 24VDC	Q
**	Electronic Proportional	S
**	Electronic Proportional with Feedback	T
**	*Proportional Amplifiers also available*	

3	REAR COVER	CODE
	Plain end cover c/w boost pump	1
	SAE 'A' 2 Bolt mount c/w boost pump	2
	SAE 'B' 2 Bolt mount c/w boost pump	3
	SAE 'A' 2 Bolt mount NO boost pump	5
	SAE 'B' Low Flange NO boost Pump	7

4	RELIEF VALVES	CODE
	140 bar	14
	175 Bar	17
	210 Bar	21
	250 Bar	25
	300 Bar	30
	350 Bar	35

5	SWASHPLATE MOUNT	CODE
	Mounted on Needle Bearings	A
	Mounted on Bronze Bushes	B

6	ROTATION	CODE
	Clockwise	R
	Anti Clockwise	L

7	SHAFT	CODE
	7/8" Keyed	1
	1.0" 15 tooth Splined	3
	7/8" 13 tooth Splined	6

8	BYPASS VALVE	CODE
	Bypass Valve	B

9	OPTIONS	CODE
	Automotive ('N' or 'Q' Control)	D
	- Hydraulic Inching ('D' Control)	H
	- Mechanical Inching ('D' Control)	M
	Purge Valve	V
	Pressure Override / Cutoff	W
	Filter on Boost pump	Y

MULTIPLE SELECTIONS CAN BE MADE

B17: 'M4PV' AXIAL PISTON PUMPS

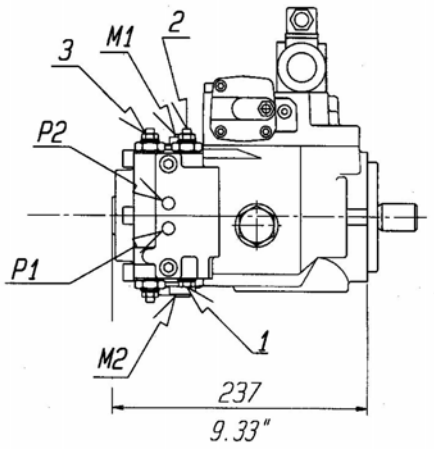
DISPLACEMENT	cc/REV	34	46	50	58	65
BOOST PUMP DISPLACEMENT	cc/REV	13				
MOUNT		SAE 'B' 2 BOLT				
BOOST PUMP PRESSURE (SET 20 BAR)	BAR	15 - 30				
MAX SPEED	RPM	3000				
MIN SPEED	RPM	500				
MAX CONTINUOUS PRESSURE	BAR	250				
INTERMITTENT PRESSURE	BAR	400				
MAX HOUSING PRESSURE	BAR	1.5				
MAX CONTINUOUS TEMPERATURE	^{O}C	80				

STANDARD FEATURES

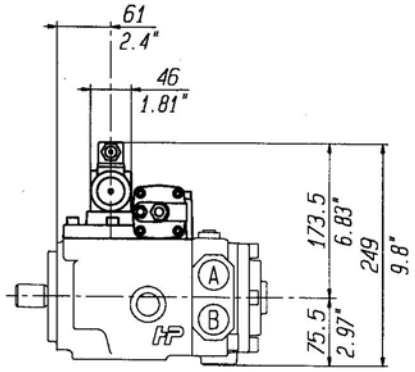
- *MANUAL STROKE ADJUSTMENT*
- *CROSS PORT RELIEF VALVES*
- *BOOST PUMP C/W RELIEF*
- *BYPASS VALVE*

BOLT ON OPTIONS

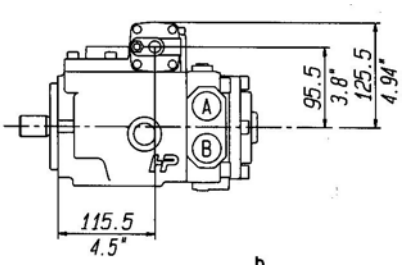
- *BOOST PRESSURE FILTER*
- *PRESSURE OVERRIDE / CUTOFF*
- *PURGE / LOOP FLUSHING VALVE*
- *SWASHPLATE RAMP CONTROL SPOOLS*
- *SAEA 5/8" 9T OR SAEB 7/8" 13T THROUGH DRIVE*



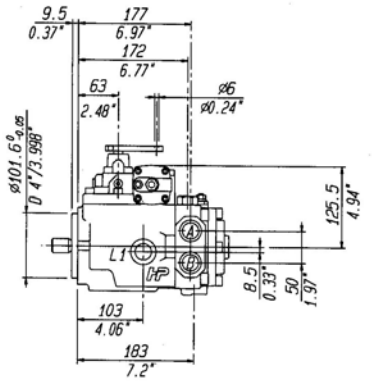
'D'
AUTOMOTIVE CONTROL
Varies the pump displacement proportional to engine rpm



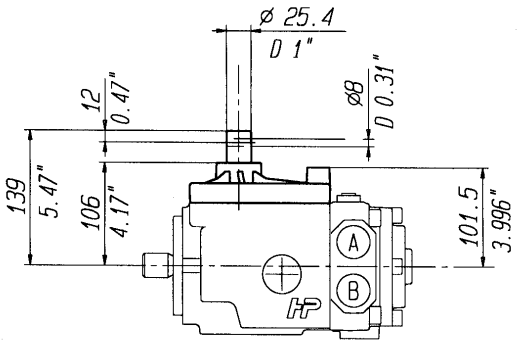
'N' (12VDC) & 'Q' (24VDC)
SOLENOID CONTROL
Cetop 3 Control (12 or 24 VDC)
Max displacement when solenoid is energised



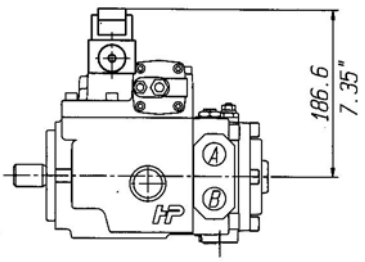
'G' & 'K'
HYDRAULIC PILOT
K - Displacement is proportional to the external pilot pressure signal.
G - As 'K' with mechanical feedback



'I'
LEVER OPERATED SERVO
Displacement varied by rotating the lever 26o either side of centre



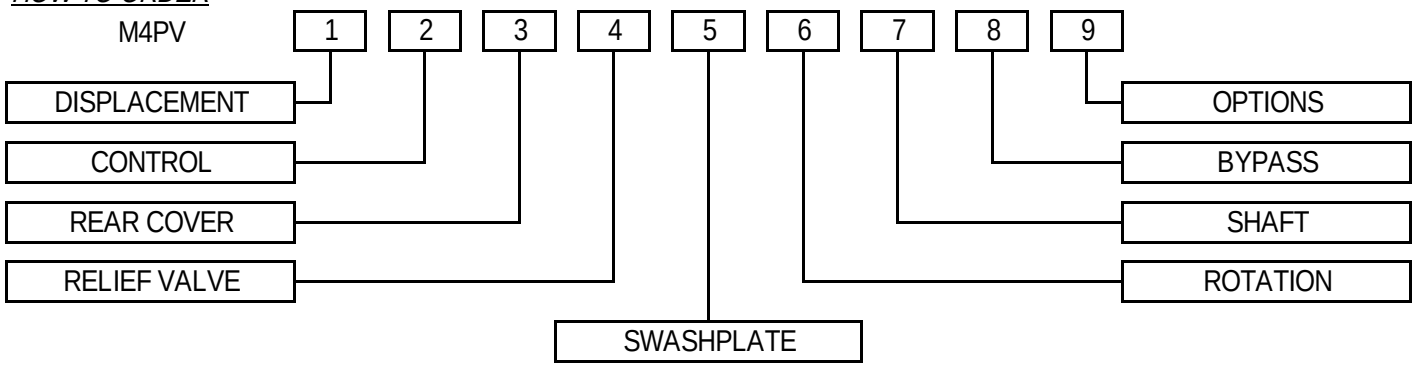
'M'
MANUAL LEVER
Displacement varied by rotating the control lever which is directly coupled to the swashplate



'S' & 'T'
ELECTRONIC PROPORTIONAL
'S' - Displacement is proportional to the control current.
'T' - As 'S' with mechanical feedback

B18: 'M4PV' AXIAL PISTON PUMPS

HOW TO ORDER



1	DISPLACEMENT	CODE
	cc/REV	
	34	34
	46	46
	50	50
	58	58
	65	65

2	CONTROL	CODE
	Hydraulic Pilot with Feedback	G
	Hydraulic Pilot	K
	Lever Operated Servo	I
	Manual (ratio 1:2)	M
	Solenoid - 12VDC	N
	Solenoid - 24VDC	Q
**	Proportional Control	S
**	Proportional Control c/w feedback	T
**	*Proportional Amplifiers also available*	

3	REAR COVER	CODE
	Plain end cover c/w boost pump	1
	SAE 'A' 2 Bolt mount c/w boost pump	2
	SAE 'B' 2 Bolt mount c/w boost pump	3
	SAE 'A' 2 Bolt mount NO boost pump	5
	SAE 'B' Low FLange NO boost pump	7

4	RELIEF VALVES	CODE
	140 bar	14
	175 Bar	17
	210 Bar	21
	250 Bar	25
	300 Bar	30
	350 Bar	35
	400 Bar	40

5	SWASHPLATE MOUNT	CODE	
	Mounted on Needle Bearings	A	[Standard]
	Mounted on Bronze Bushes	B	['M' Cont.]

6	ROTATION	CODE
	Clockwise	R
	Anti Clockwise	L

7	SHAFT	CODE
	7/8" Keyed	1
	1.0" Keyed	2
	1.0" 15 tooth Splined	3
	30mm Keyed	4
	7/8" 13 tooth Female Splined	5
	7/8" 13 tooth Splined	6

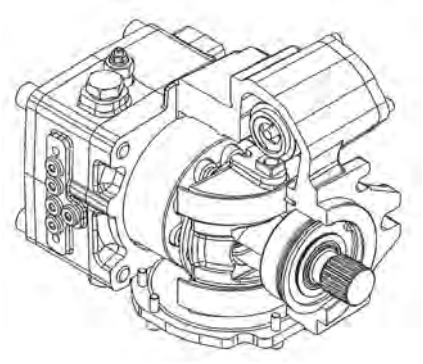
8	BYPASS VALVE	
	Bypass Valve	B

9	OPTIONS	CODE
	Automotive ('N' or 'Q' control]	D
	- Hydraulic Inching ('D' Control)	H
	- Mechanical Inching ('D' Control)	M
	Purge Valve	V
	Pressure Override / Cutoff	W
	Filter on Boost pump	Y

MULTIPLE SELECTIONS CAN BE MADE

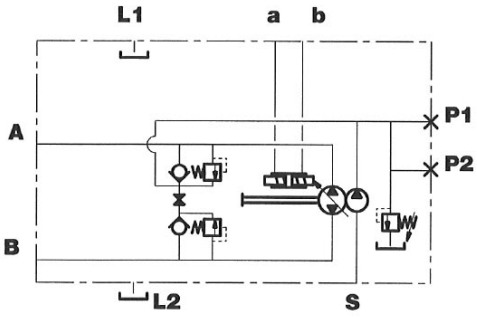
B19: 'HPP8' AXIAL PISTON PUMPS

DISPLACEMENT	cc/REV	82	100	125
BOOST PUMP DISPLACEMENT	cc/REV	25		
MOUNT	SAE 'C' 4 BOLT			
BOOST PUMP PRESSURE (SET 20 BAR)	BAR	15 - 30		
MAX SPEED	RPM	4000		
MIN SPEED	RPM	500		
MAX CONTINUOUS PRESSURE	BAR	400		
INTERMITTENT PRESSURE	BAR	420		
MAX HOUSING PRESSURE	BAR	2 BAR		
MAX CONTINUOUS TEMPERATURE	^{O}C	90		

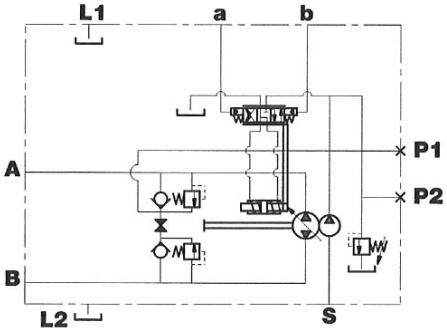


STANDARD FEATURES
MANUAL STROKE ADJUSTMENT
CROSS PORT RELIEF VALVES
BOOST PUMP C/W RELIEF
BYPASS VALVE

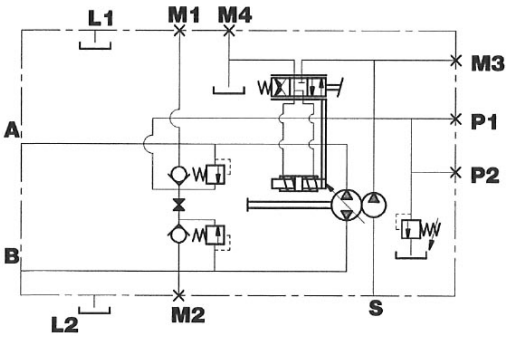
BOLT ON OPTIONS
BOOST PRESSURE FILTER
PRESSURE OVERRIDE / CUTOFF
PURGE / LOOP FLUSHING VALVE
SWASHPLATE RAMP CONTROL SP
SAEA 5/8" 9T, SAEB 7/8" 13T, SAEC THROUGH DRIVE



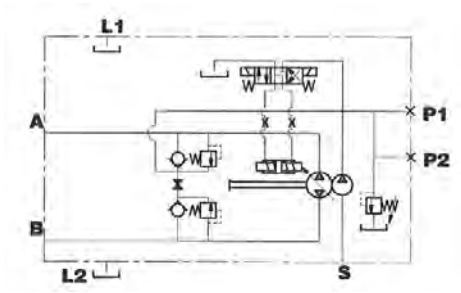
"K"
HYDRAULIC PILOT
Displacement is proportional to the external pilot pressure



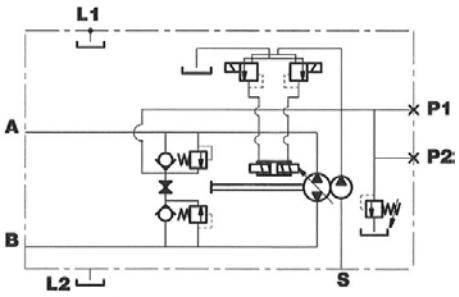
"G"
HYDRAULIC PILOT WITH FEEDBACK
'G' - As 'K' with mechanical feedback



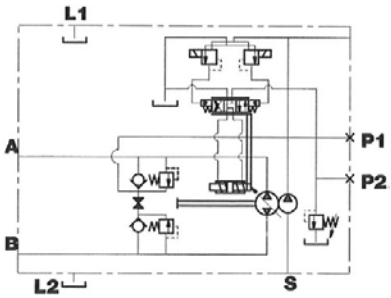
"I"
LEVER OPERATED SERVO
Displacement varied by rotating the lever 26^{0} either side of centre



"N" [12VDC] & "Q" [24VDC]
SOLENOID CONTROL
Cetop 3 Control [12 or 24 VDC]
Max displacement when solenoid is energised



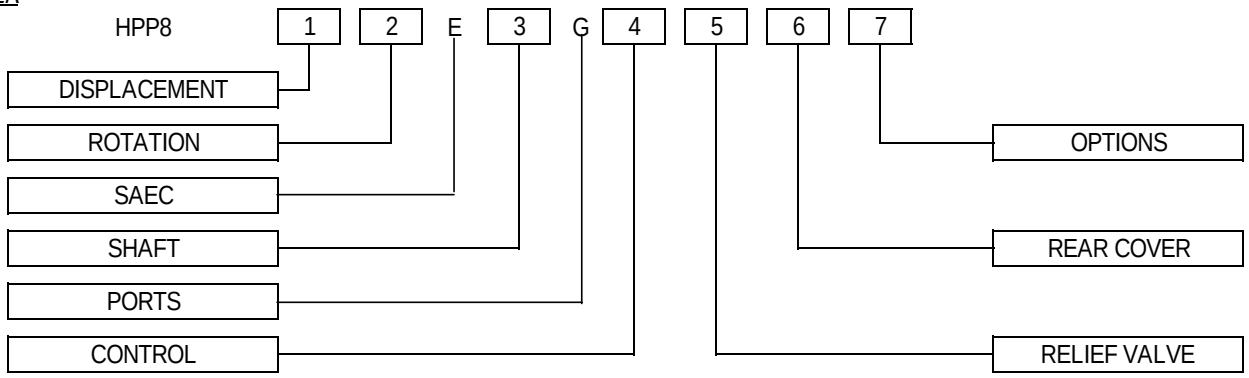
"S"
ELECTRONIC PROPORTIONAL
Displacement is proportional to the control current



"O"
ELECTRONIC PROPORTIONAL
As "S" with mechanical feedback

B20: 'HPP8' AXIAL PISTON PUMPS

HOW TO ORDER



1	DISPLACEMENT	CODE
	cc/REV	
	82	82
	100	100
	125	125

2	ROTATION	CODE
	Clockwise	R
	Anti Clockwise	L

3	SHAFT	CODE
	14 tooth Splined	3
	21 tooth Splined	7
	23 tooth Splined	8

4	CONTROL	CODE
	Hydraulic Pilot c/w Feedback	G
	Hydraulic Pilot	K
	Lever Operated Servo	I
	Solenoid 12VDC	N
	Solenoid 24VDC	Q
**	Proportional Control	S
**	Proportional Control c/w feedback	O

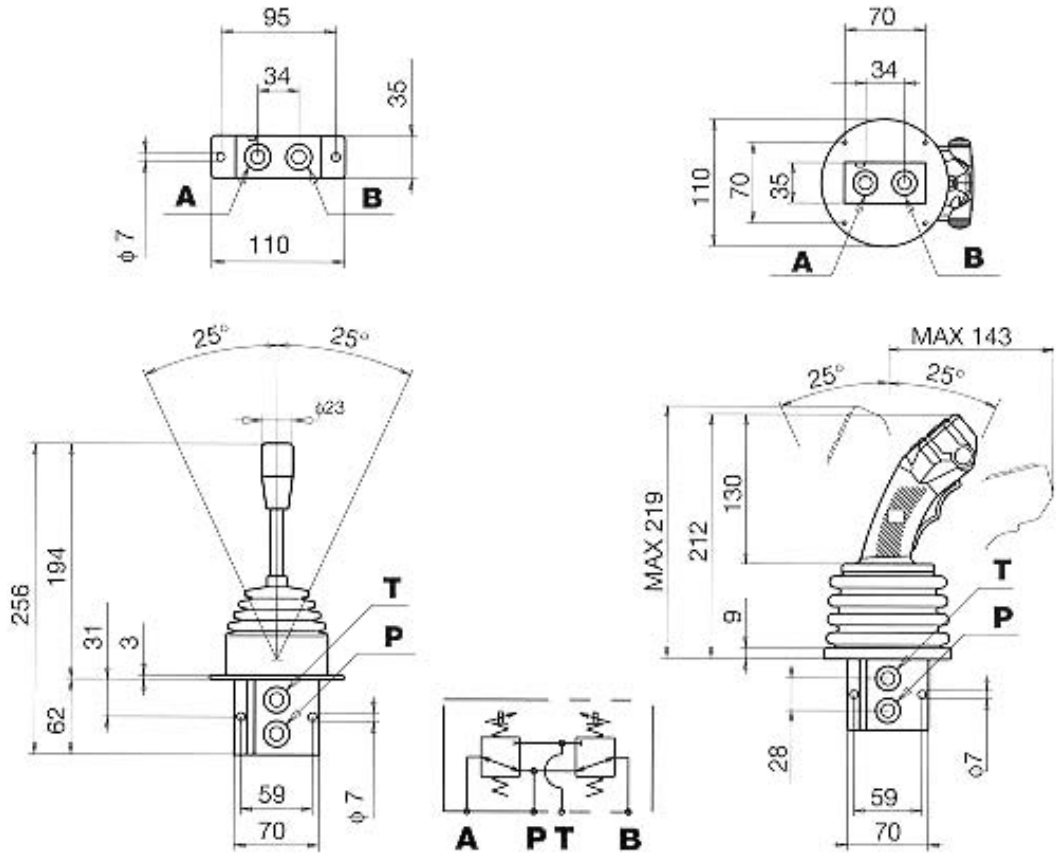
5	RELIEF VALVES	CODE
	280 Bar	I
	300 Bar	L
	350 Bar	O
	400 Bar	P
	420 Bar	Q
	450 Bar	R

6	REAR COVER	CODE
	Plain end cover c/w boost pump	1
	SAE 'A' 2 Bolt mount c/w boost pump	2
	SAE 'B' 2 Bolt mount c/w boost pump	3
	SAE 'C' 4 Bolt mount c/w boost pump	4

7	OPTIONS	CODE
	Purge Valve	V
	Power Limiter	W
	Filter on Boost Pump c/w Clogging Indicator	X

MULTIPLE SELECTIONS CAN BE MADE
Other options are also available upon request.

B21: 'HJ1' HYDRAULIC JOYSTICKS



MAXIMUM INPUT PRESSURE	100 BAR	MAXIMUM BACK PRESSURE	3 BAR
MINIMUM FLOW RATE	5 L/MIN	MAXIMUM OIL TEMPERATURE	80°C
CONTROL PRESSURE RANGE	2 - 16 BAR	PORTS	1/4" BSPP

CODE	DESCRIPTION
HJ1B001AG000000	SINGLE AXIS - FRICTION DETENT
HJ1B001SG000000	SINGLE AXIS - SPRING CENTERED
HJ1B001AB000000	SINGLE AXIS - FRICTION DETENT WITH CENTRE MECHANICAL LOCK
HJ1B001SB000000	SINGLE AXIS - SPRING CENTERED
HJ1B001CJ016002	SINGLE AXIS - ERGONOMIC HANDLE - 2 TOP BUTTONS SINGLE AXIS - FRICTION DETENT WITH CENTRE MECHANICAL LOCK NEUTRAL START SWITCH
HJ1B001SJ016002	SINGLE AXIS - ERGONOMIC HANDLE - 2 TOP BUTTONS SINGLE AXIS - SPRING CENTERED NEUTRAL START SWITCH