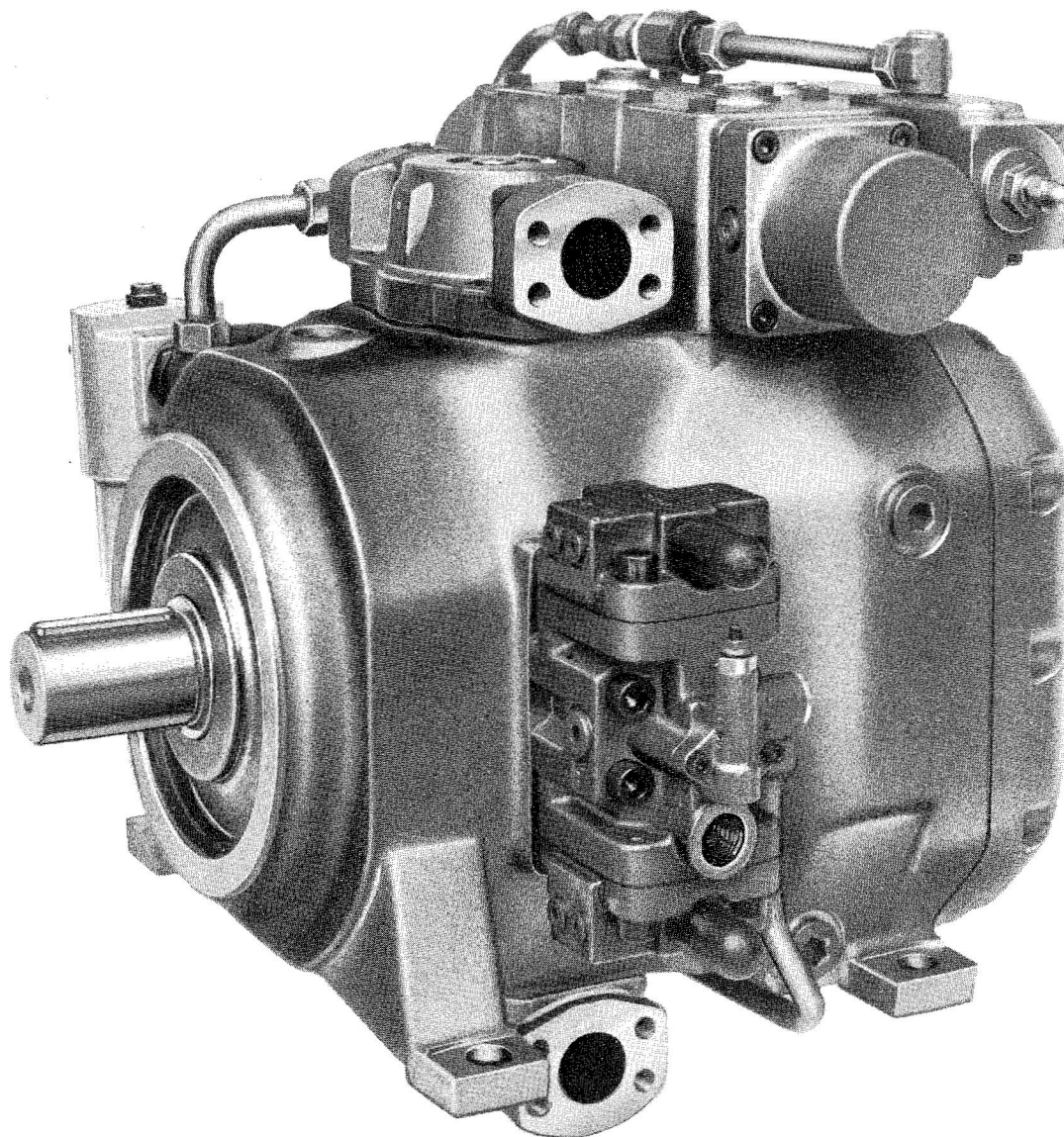


**MANNESMANN
REXROTH**Hydromatik
Brueninghaus Hydraulik**Power Pack A2P** Series 5A2V Variable Displacement Pump with Auxiliary Devices
Axial Piston – Bent Axis Design

Sizes 250 – 1000

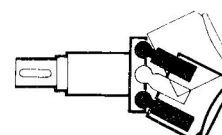
High pressure range up to 400 bar

**RE
93700
02.82****Description**

The power pack A2P is based on the variable pump, A2V, Series 5, and together with the auxiliary devices such as valve block and boost pumps mounted and piped on it, forms a complete pump unit for closed circuit operation. Further details are contained in leaflet RE 92450.

Separate leaflets are available for accessories:
standard accessories (Z14) RE 95034
noise insulating accessories (Z15) RE 95035

Mounting Brackets, coupling protection, oil-air cooler, oil tank and other accessories on request.



Power Pack A2P (Series 5)

Codification

Short designation

A2P	500	HD	G	R	5	G	V	O	P
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Additional details
in clear text

Type Code

Power Pack
variable displacement

A2P

Size

250 cm³)

250

355 cm³)

355

500 cm³)

500

1000 cm³)

1000

(displacement)

Control device

Hydraulic control

HD

pressure related
additional functions
constant HP, constant
pressure control and electrical
Control. Details in clear text)

Hydraulic control

HW

servo stem

Hydraulic control

HM

flow related

Hydraulic control

HS

flow related and
servo valve

Electric control

EL

electro-mechanical

Manual control

MA

handwheel

Type of Circuit

closed circuit

G

Direction of Rotation

viewed on drive shaft

clockwise

R

anti-clockwise

L

Series

Series

5

Design

Housed pump

G

Shaft End

keyed

P

splined

Z

Boost Pump

without boost pump

0

with single circuit
boost pump
(make up-circuit)

1

with dual circuit
aux. pump
(make up and control
oil circuit, incl. pilot circuit)

2

Valve Assembly

without valve block

O

with valve block

V

Ordering example

A2P 500 HD G R 5 G V O P
 Power Pack A2P, size 500,
 with hydraulic control,
 pressure related, closed
 circuit, clockwise rotation,
 series 5, design G, with
 valve block, without boost
 pump, keyed shaft

Power Pack A2P (Series 5)

Make-Up Circuit

One circuit of the integral boost pump is used as a make-up circuit to cover leakage in the main circuit. The boost pump draws oil from the tank and supplies it through filter (7) with bypass valve via the appropriate make-up check valve (8) to the low pressure side, which is always connected – by means of the high pressure operated change over valve(4.1) – with the flushing valve (4.2). With the pump in the centre position, the make-up oil is directed to the check valve (9) and via flushing valve (4.2).

See separate leaflet for description of flushing block SDVB.
(RE 95533)

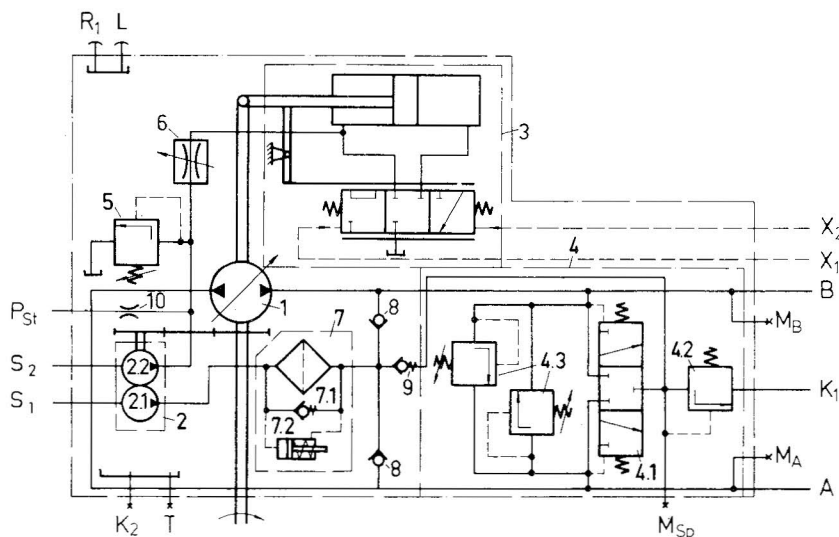
Control oil supply

When the HD control (3) is fitted, the second auxiliary pump serves as a force intensifier and pilot circuit. Flow and operating pressure range are designed to suit the requirements for short swivel times.

The swivel time of the pump can be controlled by means of a throttle valve (6) fitted in the pipework. The control pressure is set at the required value by means of a built-on force intensifier valve (5).

The pilot oil is taken from the control circuit via the orifice (10). (Pilot oil flow approx. 4 L/min).

Symbol



Calculation of Size

$$\text{Flow } Q = \frac{V_g \cdot n \cdot \eta_v}{1000} \quad [\text{l/min}]$$

$$\text{Drive Torque } M = \frac{1,59 \cdot V_g \cdot \Delta p}{100 \cdot \eta_{mh}} \quad [\text{Nm}]$$

$$\text{Drive Power } P = \frac{2 \pi \cdot M \cdot n}{60 \cdot 1000} = \frac{M \cdot n}{9549} = \frac{Q \cdot \Delta p}{600 \cdot \eta_t} \quad [\text{kW}]$$

Allocation of Valves

A2P size		250	355	500	1000
Flushing block (4)	SDVB 30	●	●	●	
	SDVB 50				●
Pressure relief valve (5)	DBDS 6G	●			
	DBDS 10G		●	●	●
Throttle valve (6)	MG 8	●			
	MG 10		●	●	●
Check valve (9)	3 bar	●	●	●	●

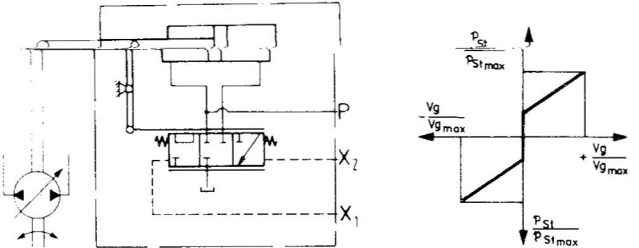
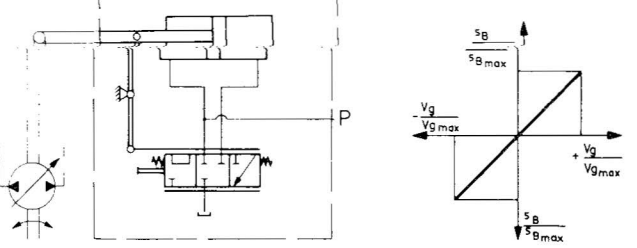
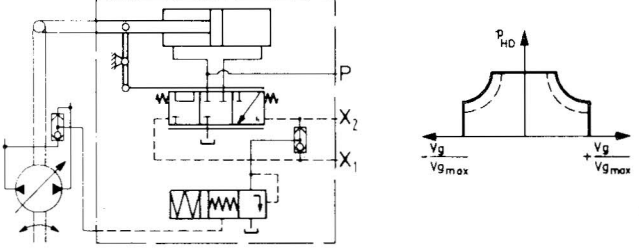
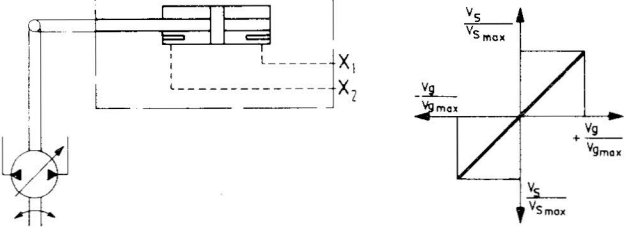
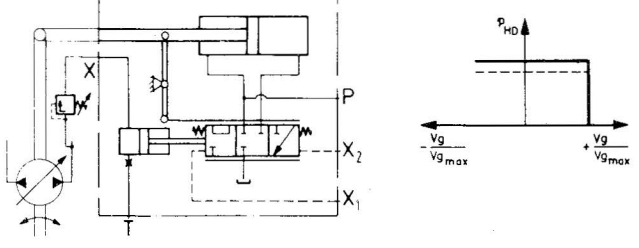
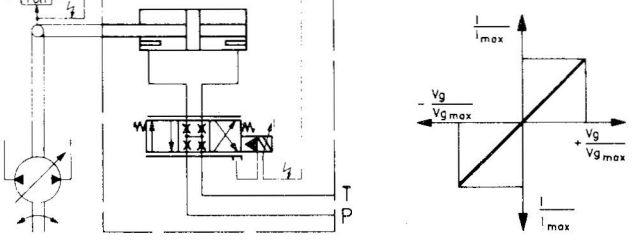
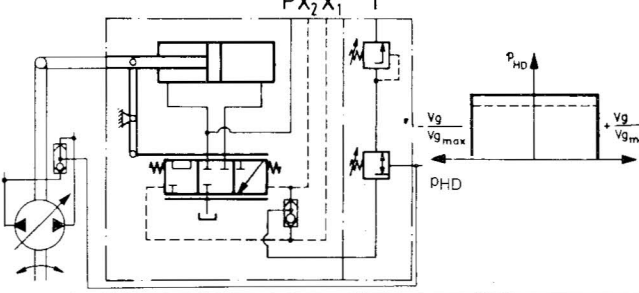
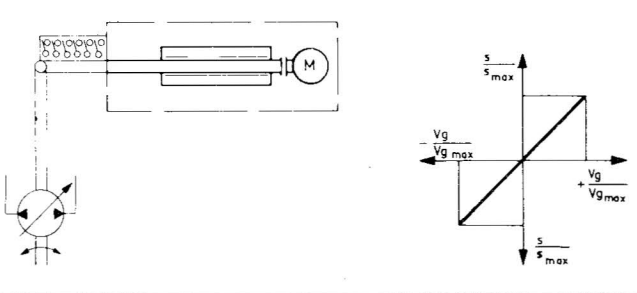
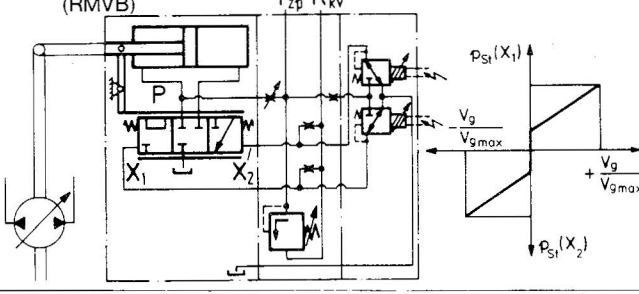
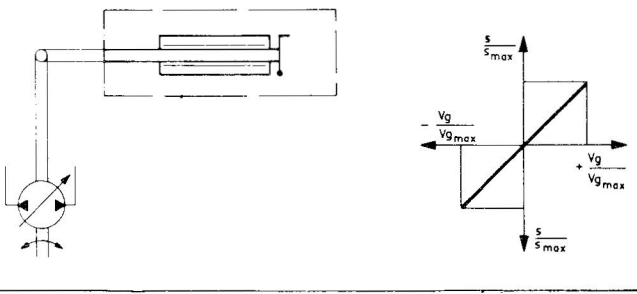
Key

- 1 Variable displacement pump (basic unit A2P)
- 2 Dual circuit boost pump
- 2.1 Boost pump
- 2.2 Control pump
- 3 Hydraulic control HD, pressure related
- 4 Flushing block SDVB
- 4.1 Changeover valve
- 4.2 Flushing valve
- 4.3 Pressure relief valves
- 5 Pressure relief valve, control oil
- 6 Throttle valve
- 7 Boost circuit filter
- 7.1 Bypass valve
- 7.2 Visual clogging indicator
- 8 Make-up check valves
- 9 Check valve (bypass valve for boost circuit)
- 10 Orifice

- A, B service lines
 S₁ boost pump suction line
 S₂ control pump suction line
 P_{st} pilot pressure
 X₁, X₂ pilot lines
 M_A, M_B gauge connections
 M_{sp} gauge connection, flushing pressure
 R₁ oil filler and air bleed
 K₁ flushing oil outlet (to cooler)
 L(K₂) Leakage fluid
 T case drain

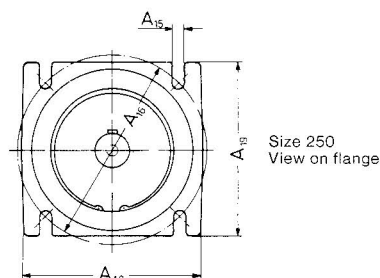
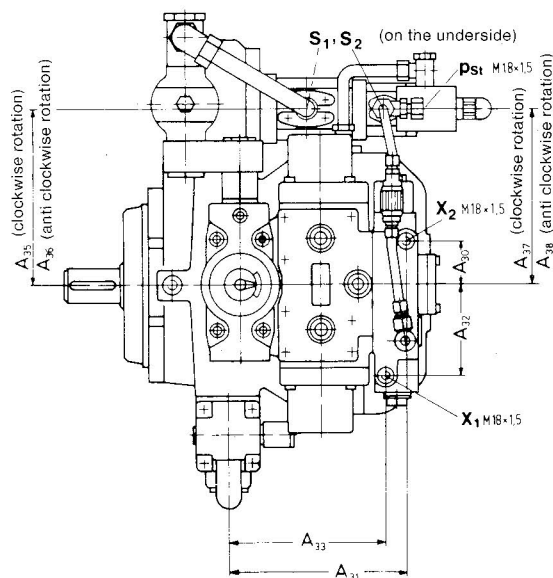
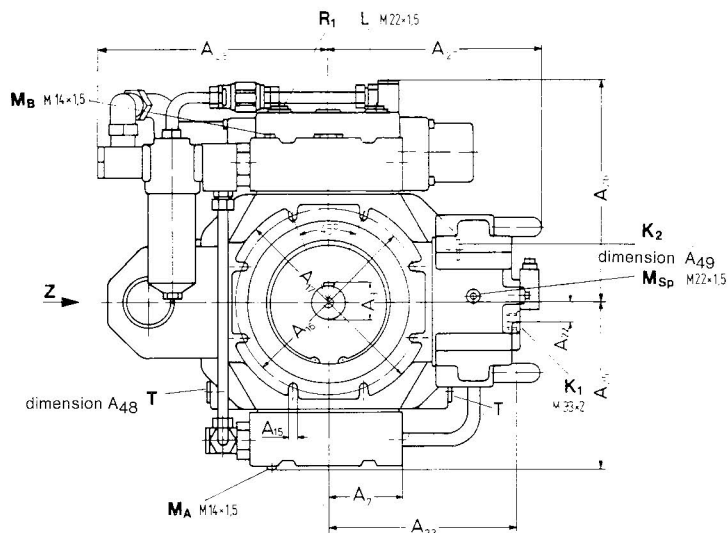
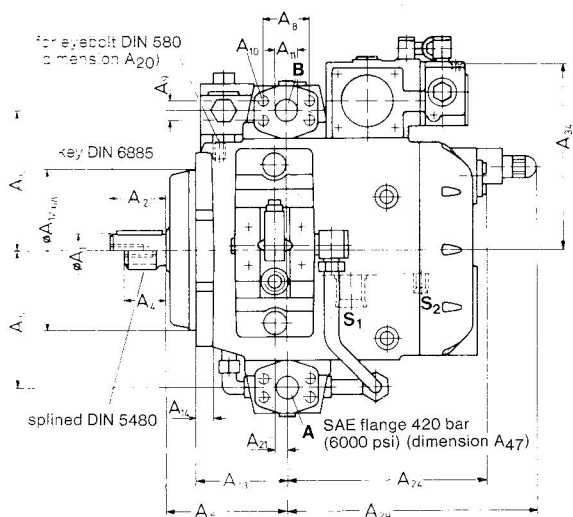
- V_g = geometric displacement (cm³)
 Δp = differential pressure (bar)
 n = speed (rpm)
 η_v = volumetric efficiency
 η_{mh} = mechanical-hydraulic efficiency
 η_t = overall efficiency

Pump Control Devices of Modular Design for Every Control and Regulating Function

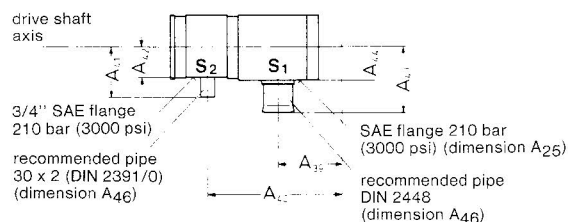
HB Hydraulic Control pressure related 	HW Hydraulic Control servo stem 
HD Hydraulic Control pressure related with constant HP control 	HM Hydraulic control flow related 
HD Hydraulic Control pressure related with pressure cutoff cylinder type DAZ 	HS Hydraulic control flow related with servo valve 
HD Hydraulic Control pressure related with constant pressure control 	EL Electric Control 
HD Hydraulic Control pressure related with electrical control (RMVB) 	MA Manual Control 

P_{st} pilot pressure R_{kv} return line (control oil) V_g/V_{gmax} displacement S/S_{max} control stroke P control pressure
 PHD working pressure S_B operating stroke I/I_{max} control current T tank
 P_{zp} boost pump line V_S control volume X_1/X_2 pilot pressure

Unit Dimensions, Size 250 and 355



View Z



Connections

- A, B service lines
- S₁ boost pump suction line
- S₂ control pump suction line
- P_{st} pilot pressure
- X₁, X₂ pilot lines
- M_A, M_B gauge connections
- M_{sp} gauge connections flushing oil
- R₁ oil filler and air bleed
- K₁ flushing oil outlet (to cooler)
- L (K₂) flushing oil return (from cooler) (if required)
- T case drain

Size	250		355	
Drive direction	clockwise	anti clockwise	clockwise	anti clockwise
Relationship of ports S ₁ and S ₂ to the drive axis	above	below	below	below

	A ₁₀																								
Size	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₉	thread	depth	A ₁₁	A ₁₂	A ₁₃	A ₁₄	A ₁₅	A ₁₆	A ₁₇	A ₁₈	A ₁₉	A ₂₀	A ₂₁	A ₂₂	A ₂₃	A ₂₄
250	50 _{k6}	82	53,5	58	211	184	120	66,6	31,8	M 14	22	32	224	134	25	22	280	–	266	249	M 16	20	44,5	297,5	314
355	60 _{m6}	105	64	82	238	210	130	79,4	36,6	M 16	24	40	280	160	28	18	320	360	–	–	M 20	23	44,5	317,5	347

Size	A ₂₅	A ₂₆	A ₂₇	A ₂₈	A ₂₉	A ₃₀	A ₃₁	A ₃₂	A ₃₃	A ₃₄	A ₃₅	A ₃₆	A ₃₇	A ₃₈	A ₃₉	A ₄₀	A ₄₁	A ₄₂	A ₄₃	A ₄₄	A ₄₅	A ₄₆	A ₄₇	A ₄₈
250	253	342	331	370	—	75	285	175	241	294	280	280	278	278	100	215	93	43	96	46	1"	42,4×3,2	1 1/4"	M 22×1,5
355	285	368	351	450	422	75	294	175	250	314	298	335	300	333	110	234	93	43	101	46	1 1/4"	48,3×3,2	1 1/2"	M 33×2

Size	A ₄₉	Keyed DIN 6885	Splined Shaft DIN 5480	Approx. Weight (kg)
250	M 22×1,5	AS 14×9×80	W 50×2×24×9 g	300
355	M 33×2	AS 18×11×100	W 60×2×28×9 g	375

