

| | | | |
|-------------------------------|-------------------------------------------------------------------------|------------------------------------------------|---------------------------|
| MANNESMANN REXROTH | Variable Pump A2VK series 1 and 4 | | RE 94000/05.85 |
| | Model for Pumping Plastics Components Axial Piston, Bent Axis Design | | |
| | NG 12 ... 107 | Nominal Pressure 250 bar Peak Pressure 315 bar | Replaces 06.79 |



Axial Piston high pressure variable pumps are used for the pumping and metering of polyurethane components..

The particular advantages offered by the A2VK variable pumps are:

- High metering accuracy and repeatability of the variable flows
- Manual control via handwheel with built-in-precision measuring scale or alternatively mechanical rod control, for mounting pneumatic or hydraulic control cylinders (remote control)
- Operating pressure up to 250 bar
- Low suction pressure, even when pumping highly viscous fluids
- Very little pulsation of flow
- Compatability of pump components with materials to be pumped (Polyol, Isocyanat) through use of specially matched materials and special seals
- Quiet operation
- Optimum volumetric efficiency

For certain applications:

Constant capacity models available.

Please consult our industrial transmissions sales dept.

Ordering Code

— Short Code —

| | | | | | | | | | | |
|------|----|----|---|---|---|---|---|---|---|---|
| A2VK | 55 | MA | O | R | 1 | G | 1 | P | E | 1 |
|------|----|----|---|---|---|---|---|---|---|---|

Pump Type

Variable pump

Size

11,6 cm≈

28,1 cm≈

54,8 cm≈

107,0 cm≈

(Displacement)

Control Device

Manual control

Mechanical rod control

Type of Circuit

open circuit

closed circuit

Direction of Rotation (View on drive shaft)

Clockwise

Anti-clockwise

Assembly Design

MA-handwheel on left

GE-mechanical rod on left

MA-handwheel on right

GE-mechanical rod on right

Viewed on drive shaft

Swivel Movement

to one side only

Shaft End

Parallel, keyed

Valve Assembly

without valve assembly

built-on-pressure relief valve

Design

Housed pump

Series

Size 28 - 107

Size 12

Ordering Example:

A2VK.55.MA.O.R.1.G.1.P.E.1

Variable pump A2VK,
size 55,
with manual control MA,
open circuits, clockwise rotation,
series 1, design G, built-on
pressure relief valve,
parallel shaft with key, swivel
to one side only,
assembly design 1

Technical Data

Mounting Position: Optional; the unit must always be filled with oil.

With MA control device: axis of handwheel must be horizontal, because of position indicator.

Direction of Flow

| Swivel Direction | Clockwise open circuit | Rotation closed circuit | Anti-Clockwise open circuit | Rotation closed circuit |
|------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| clockwise | S to B A plugged | A to B | S to A B plugged | B to A |
| Anti-clockwise | S to A | B to A B plugged | S to B | A to B A plugged |

Operating Pressure Range - inlet side

Open circuit:

Pre-fill pressure 1 - 3 bar absolute at suction port S

Closed circuit:

Sum of combined pressures at A and B ≤ 250 bar (315 bar for short period), fit leakage line at port T.

Operating Pressure Range - outlet side

Pressure at port A or B

Nominal pressure _____ $p_N = 250$ bar

Peak pressure _____ $p_{max} = 315$ bar

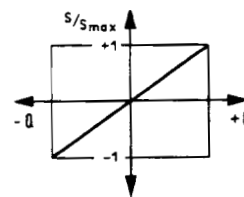
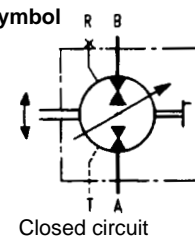
(Pressure data to DIN 24312)

Table of Values

| Size | | 12 | 28 | 55 | 107 | |
|-------------------------------------------------------------------------------------------------------|-----------------|-------|------|------|-----|-----|
| Displacement $V_{g\ max}$ | cm ³ | 11,6 | 28,1 | 54,8 | 107 | |
| Flow $Q_{\ max}$ in open circuit and at speed (at a viscosity of $\nu = 36$ mm ² /s) | $n = 735$ rpm | l/min | 8,3 | 20 | 39 | 76 |
| | $n = 970$ rpm | l/min | 10,9 | 26 | 51 | 100 |
| | $n = 1450$ rpm | l/min | 16,3 | 39 | 77 | 150 |
| Power at $\Delta p = 250$ bar and speed | $n = 735$ rpm | kW | 4 | 9 | 17 | 33 |
| | $n = 970$ rpm | kW | 5 | 12 | 22 | 43 |
| | $n = 1450$ rpm | kW | 7 | 17 | 33 | 65 |

MA Manual Control

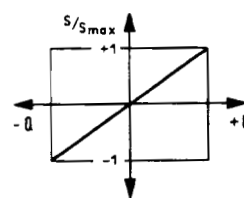
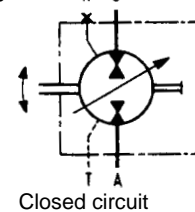
By turning the handwheel, the pump swivel body and thus the displacement or output flow is infinitely varied within the range Q_0 to $Q_{\ max}$ via a self-locking threaded spindle.

Curve**Symbol**

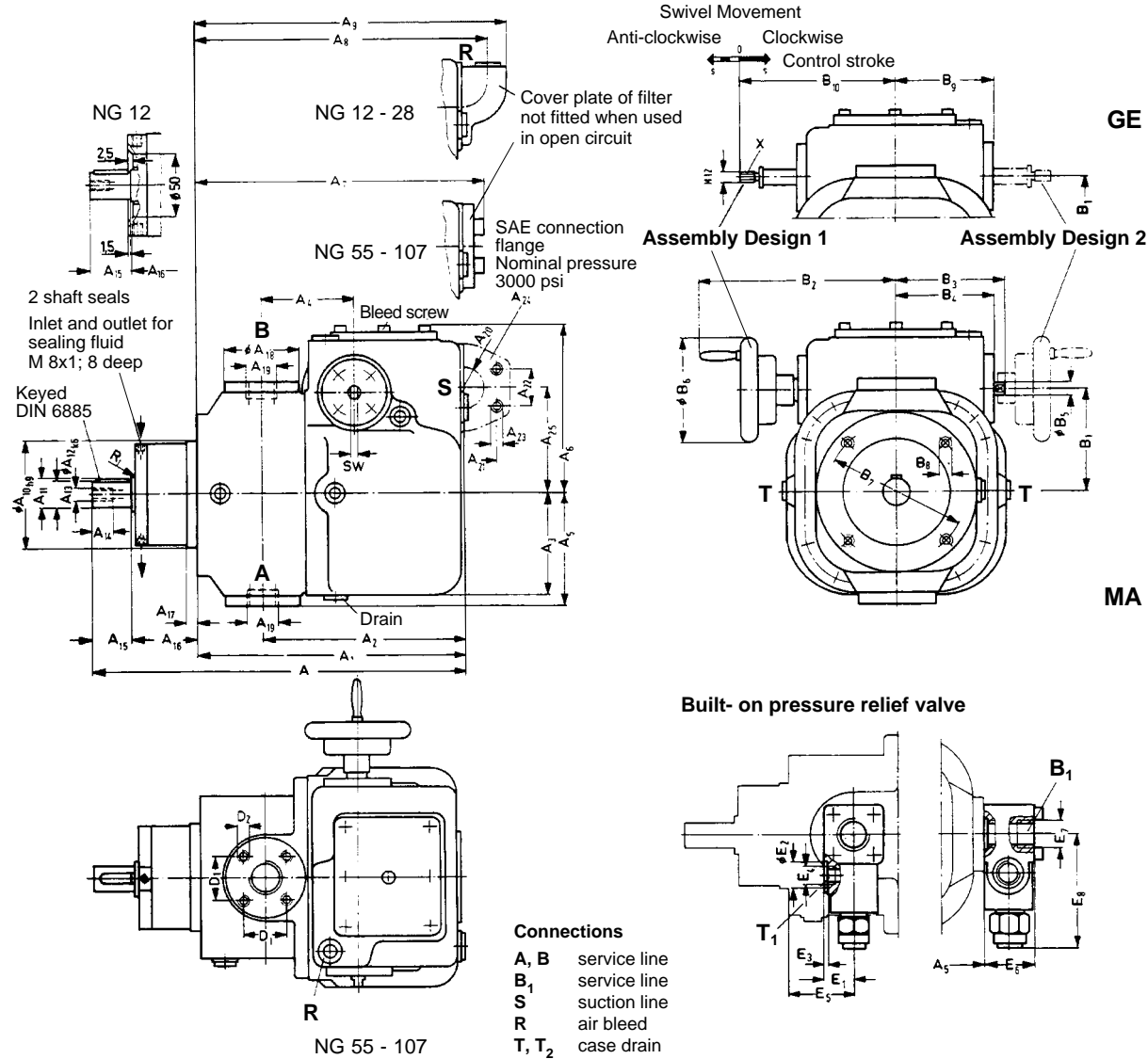
| | | | | | |
|-------------------------------------------------|----|------|------|----|------|
| Rotations of handwheel V_{g0} to $V_{g\ max}$ | Us | 10,6 | 12,7 | 16 | 13,4 |
| Max. operating force on handwheel | kp | 7 | 7 | 8 | 12 |
| Approx. weight (pump with control device) | kg | 19 | 36 | 64 | 117 |

GE Mechanical Rod Control

By means of the positioning rod, the pump swivel body and thus the displacement or output flow is infinitely varied within the range Q_0 to $Q_{\ max}$.

Curve**Symbol**

| | | | | | |
|-------------------------------------------------------------------------------------------------------|---------------|------|-------|-------|-----|
| Control stroke s V_{g0} to $V_{g\ max}$ | mm | 25,3 | 31,7 | 40,1 | |
| Operating force F (internal operating force of pump without accelerating force) at operating pressure | $p = 100$ bar | kp | 23 | 35 | 56 |
| | $p = 150$ bar | kp | 34,5 | 54 | 84 |
| | $p = 200$ bar | kp | 46 | 73 | 112 |
| | $p = 250$ bar | kp | 57,5 | 92 | 140 |
| Min. perm. control times $t_{\ min}$ V_{g0} to $V_{g\ max}$ | s | 0,03 | 0,004 | 0,005 | |
| Approx. weight (pump with control device) | kg | 30 | 57 | 105 | |



| Size | A | A ₁ | A ₂ | A ₃ | A ₄ | A ₅ | A ₆ | A ₇ | A ₈ | A ₉ | A ₁₀ | A ₁₁ | A ₁₂ | A ₁₃ | A ₁₄ | A ₁₅ | A ₁₆ | A ₁₇ | A ₁₈ | A ₁₉ thread | depth | A ₂₀ |
|------|-----------------|--------------------------|---------------------------|----------------|-----------------|--------------------------|----------------|----------------|----------------|-------------------|-----------------|------------------|-----------------|--------------------------|-----------------|-----------------|-----------------|-----------------|--------------------------|---------------------------|----------------|-----------------|
| 12 | 302 | 222 | 172 | 75 | 80 | 85 | 132 | - | 248 | 270 | 80 | 22,5 | 20 | M 6 | 16 | 30 | 50 | 6 | 60 | M 22x1,5 | 14 | 32 |
| 28 | 357 | 257 | 195 | 95 | 90 | 106 | 142 | - | 286 | 308 | 100 | 27,9 | 25 | M 8 | 16 | 38 | 62 | 8 | 73 | M 27x2 | 16 | 40 |
| 55 | 440 | 317 | 240 | 120 | 110 | 132,5 | 195 | 342,5 | - | - | 125 | 32,9 | 30 | M 12 | 28 | 49 | 74 | 10 | 88 | M 33x2 | 18 | 50 |
| 107 | 548 | 388 | 298 | 150 | 148 | 160 | 242 | 413,5 | - | - | 160 | 43,1 | 40 | M 12 | 28 | 66 | 94 | 12 | 110 | M 42x2 | 20 | 63 |
| Size | A ₂₁ | A ₂₂ | A ₂₃ thread | depth | A ₂₄ | A ₂₅ | B ₁ | B ₂ | B ₃ | B ₄ | B ₅ | B ₆ | B ₇ | B ₈ thread | depth | B ₉ | B ₁₀ | D ₁ | D ₂ thread | depth | E ₁ | E ₂ |
| 12 | 58,7 | 30,2 | M 10 | 15 | 1 1/4" | 71 | 71 | 207 | 102 | 94 | 10 | 125 | 100 | M 8 | 12 | - | - | 32 | M 6 | 9 | 22,5 | - |
| 28 | 69,9 | 35,7 | M 12 | 18 | 1 1/2" | 80 | 85 | 218 | 110 | 102 | 10 | 125 | 125 | M 10 | 15 | 104,5 | 162 | 40 | M 8 | 11 | 27,5 | 28 |
| 55 | 77,8 | 42,9 | M 12 | 18 | 2" | 125 | 120 | 272 | 125 | 115 | 12 | 200 | 160 | M 16 | 24 | 119,6 | 180,4 | 48 | M 10 | 12,5 | 33 | 33 |
| 107 | 88,9 | 50,8 | M 12 | 18 | 2 1/2" | 160 | 150 | 303 | 150 | 132,5 | 22 | 200 | 200 | M 16 | 24 | 44,5 | 222,5 | 60 | M 12 | 15 | 40 | 40 |
| Size | E ₃ | E ₄ thread | depth | E ₅ | E ₆ | E ₇ thread | depth | E ₈ | R ₁ | Keyed DIN 6885 | A/F | Control stroke s | Port T | Port R | | | | | | | | |
| 12 | - | M 18x1,5 | 12 | 50 | 46 | M 22x1,5 | 14 | 109,5 | 0,4 | A 6x6x25,5 | 9 | - | M 12x1,5 | M 27x1,5 | | | | | | | | |
| 28 | 1 | M 22x1,5 | 14 | 62 | 50 | M 27x2 | 16 | 115,5 | 0,6 | AS 8x7x32,5 | 9 | 25,3 | M 16x1,5 | M 27x1,5 | | | | | | | | |
| 55 | 1,5 | M 27x2 | 16 | 77 | 56 | M 33x2 | 18 | 133,5 | 1,6 | AS 8x7x43 | 10 | 31,7 | M 18x1,5 | M 27x1,5 | | | | | | | | |
| 107 | 1,5 | M 33x2 | 18 | 90 | 65 | M 42x2 | 20 | 166 | 1,6 | AS 12x8x57 | 19 | 40,1 | M 18x1,5 | M 42x1,5 | | | | | | | | |

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