Hydraulic Axial Piston Polyurethane Metering Rexroth A2VK Pump

Open or Closed Circuit Functions

Type A2VK12, A2VK28, A2VK55, A2VK107

Series 1 and 4

Nominal pressure 250 bar

Maximum pressure 315 bar

Polyurethane metering pump

Features

–Chemical Froth Hydraulic Axial Piston Polyurethane Metering Pump
– High metering accuracy and reproducibility of the variable pumped volumes
– Robust manual adjustment via hand wheel with integral precision measuring scale
– Operating pressure up to 250 bar
– Low pulsation of the pumped medium
– Pump components are compatible with the pumped media (polyol, isocyanate) due to special pairings of materials and sealing elements
– Low-noise
– Excellent volumetric efficiency for high metering accuracy
– Double shaft seals with buffer fluid ports to guarantee safe operation (and protect the environment)
– With corrosion protection

Ordering code

A2VK	12	MA	O	R	4	G	0	P	E	2	–	*

Axial piston unit

Variable pump	**A2VK**

Size

≙ Displacement $V_{g\,max}$ in cm^3	**12**	**28**	**55**	**107**

Control device

Manual adjustment	**MA**

Operating mode

Open circuit	**O**
Closed circuit	G

Direction of rotation

Looking onto drive shaft	clockwise	**R**
	anti-clockwise	**L**

Series

Size 28-107	**1**
Size 12	**4**

Model

Enclosed pump	**G**

Valve attachment

Without valve attached	**0**
Pressure limiting valve attached	**1**

Drive shaft

Cylindrical with key	**P**

Swivel angle

One-sided	**E**

Handwheel assembly version

Looking onto drive shaft	left side	**1**
	right side	**2**

Corrosion-protected version

	SO2

Technical data

Fluid

The pump pumps and meters fluids for manufacturing polyurethane (polyol and isocyanate components).

Operating viscosity range

The following limit conditions apply:

ν_{min} ——— 1 mm^2/s,

ν_{max} ——— 2000 mm^2/s

Please contact us if higher values are required.

Operating temperature range

Optimum operating temperature range t ——— 10-50°C

Maximum operating temperature t_{max} ——— 80°C

The permitted working temperature depends on the lubricity of the fluid. The maximum fluid temperature must not be exceeded even locally (e.g. no more than 5K over the leakage fluid temperature).

Filtering the fluid

The filter should be arranged so that only filtered fluid enters the pump. The finer the filter, the longer the service life of your axial piston pump.

We recommend a filter grade $\eta_{abs.} \leq$ ——— 125 µm

Operating pressure range

Input

Open circuit:

Max. filling pressure at the port S $p_{max\ abs.}$ ——— 10 bar

Min. filling pressure at the port S $p_{min\ abs.}$ ——— 1 bar

The pump must always be filled completely.

Closed circuit:

Leakage fluid pressure $p_{max\ abs.}$ ——— 10 bar

Max. intermittent cumulative pressure A + B p_{max} ——— 250 bar

Output

Maximum pressure at port A or B
(pressure data according to DIN 24312)

Nominal pressure p_N ——— 250 bar

Maximum pressure p_{max} ——— 315 bar

Leakage fluid

Max. leakage fluid pressure $p_{L\ max}$ ——— 10 bar

In the closed circuit, pump ports A and B are separated from the housing space. The leakage fluid must be removed via port T_1 or T_2 using a separate line.

In the open circuit, the suction port S is connected to the housing space. There is no need for a line for the leakage fluid. Ports T_1 and T_2 are plugged. The filling pressure at port S acts on the shaft sealing ring via the housing space.

The service life of the shaft sealing ring decreases as the pressure of the leakage fluid or the filling pressure at port S increases.

Through put flow

Swivel direction	Direction of rotation "clockwise"		Direction of rotation "anti-clockwise"	
	open circuit	closed circuit	open circuit	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 plugged	B to A	S to B A plugged	A to B

Installation position

Any. The pump must be completely filled with fluid. If installed with the shaft pointing upwards, the top leakage fluid port must be connected to the housing for both types of circuit to ensure that the housing is vented in the vicinity of the bearing.

Preferred installation position: drive shaft horizontal

The adjustment display in the hand wheel can only be guaranteed to work if the adjusting spindle is installed -30° to +30° from the horizontal.

Technical data

Table of values

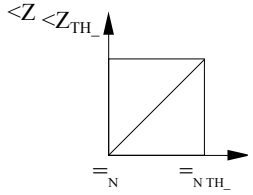
Size				12	28	55	107
Displacement	$V_{g\ max}$		cm³	11.6	28.1	54.8	107
Flow[1] at speed n	$q_{v\ max}$	n = 735 rpm	l/min	8.3	20	39.1	76.3
		n = 970 rpm	l/min	10.9	26.4	51.6	100.7
		n = 1450 rpm	l/min	16.3	39.5	77.1	150.5
		n = 1800 rpm	l/min	20.3	49.1	95.7	186.8
Power at Δp = 250 bar and speed n	P_{max}	n = 735 rpm	kW	3.4	8.3	16.3	31.8
		n = 970 rpm	kW	4.5	11	21.5	41.9
		n = 1450 rpm	kW	6.8	16.5	32.1	62.7
		n = 1800 rpm	kW	8.4	20.4	39.9	77.8

[1]) Includes 3% loss of displacement

Control unit MA

Turning the handwheel turns a self-locking threaded spindle which steplessly adjusts the pump's swivel section, and thus the volumetric flow in the range from $V_{g\ 0}$ to $V_{g\ max}$.

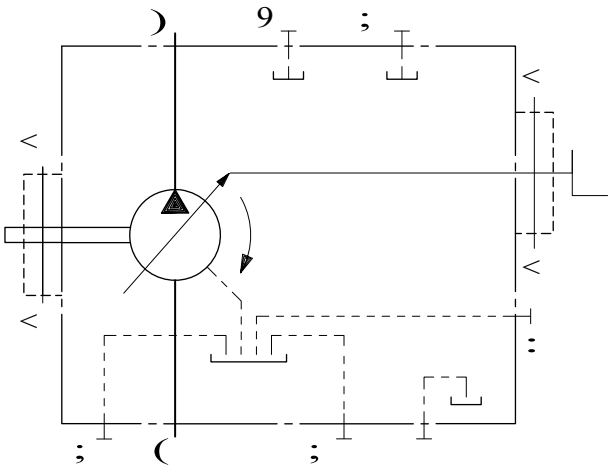
Characteristic



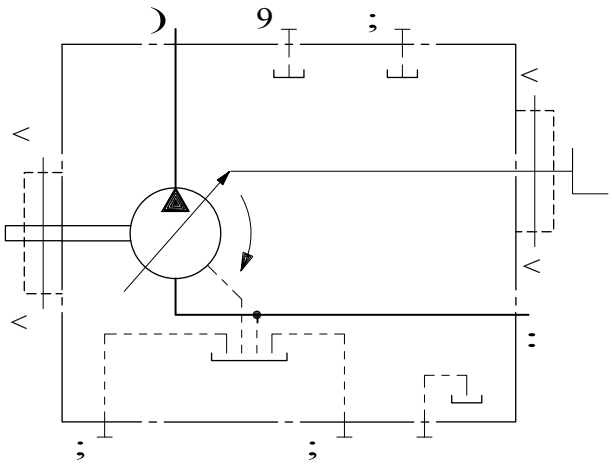
Control unit MA		12	28	55	107
Hand wheel turns from $V_{g\ 0}$ to $V_{g\ max}$	U_s	10.6	12.7	16	13.4
Max. hand wheel adjustment force F_{max}	N	70	70	80	120
Mass, approx. (pump with control unit)	kg	19	36	64	117

Circuit diagram

closed circuit

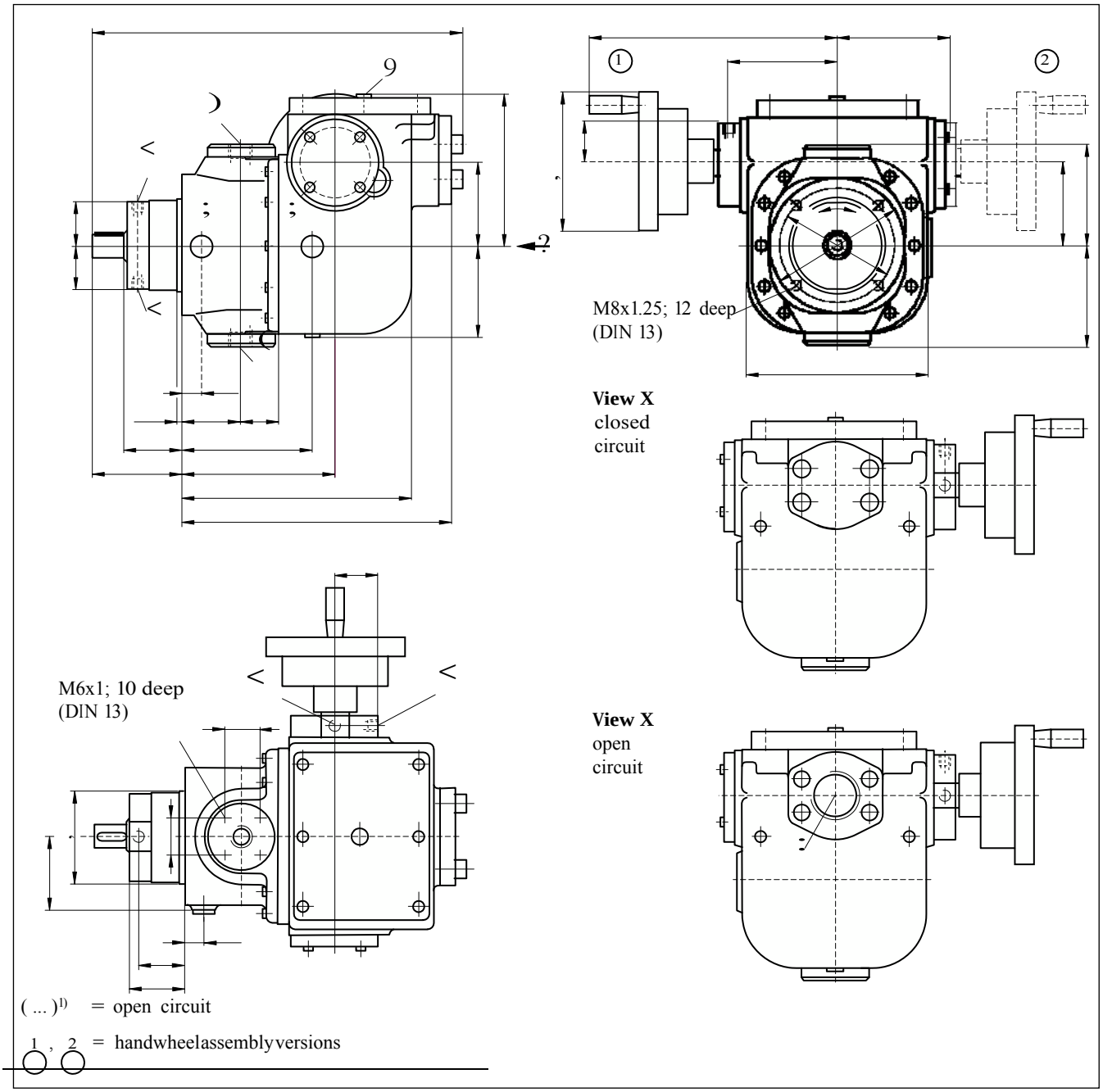


open circuit



Dimensions size 12

Before finalizing your design, request a binding installation drawing. Dimensions in mm.



Ports

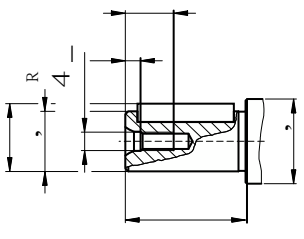
			Tightening torque, max.
A, B	Service line ports	M22x1.5 4)	210 Nm
S	Suction port 2)	G1 1/4 5)	720 Nm
T_1, T_2	Leakage port 3)	M12x1.5 4)	50 Nm
R	Air bleed 3)	M12x1.5 4)	50 Nm
U_1-U_4	Ports for buffer fluid	M10x1; 8 deep 4)	30 Nm

2) plugged in the closed circuit
3) plugged
4) DIN 3852

5) DIN ISO 228
6) centering hole to DIN 332

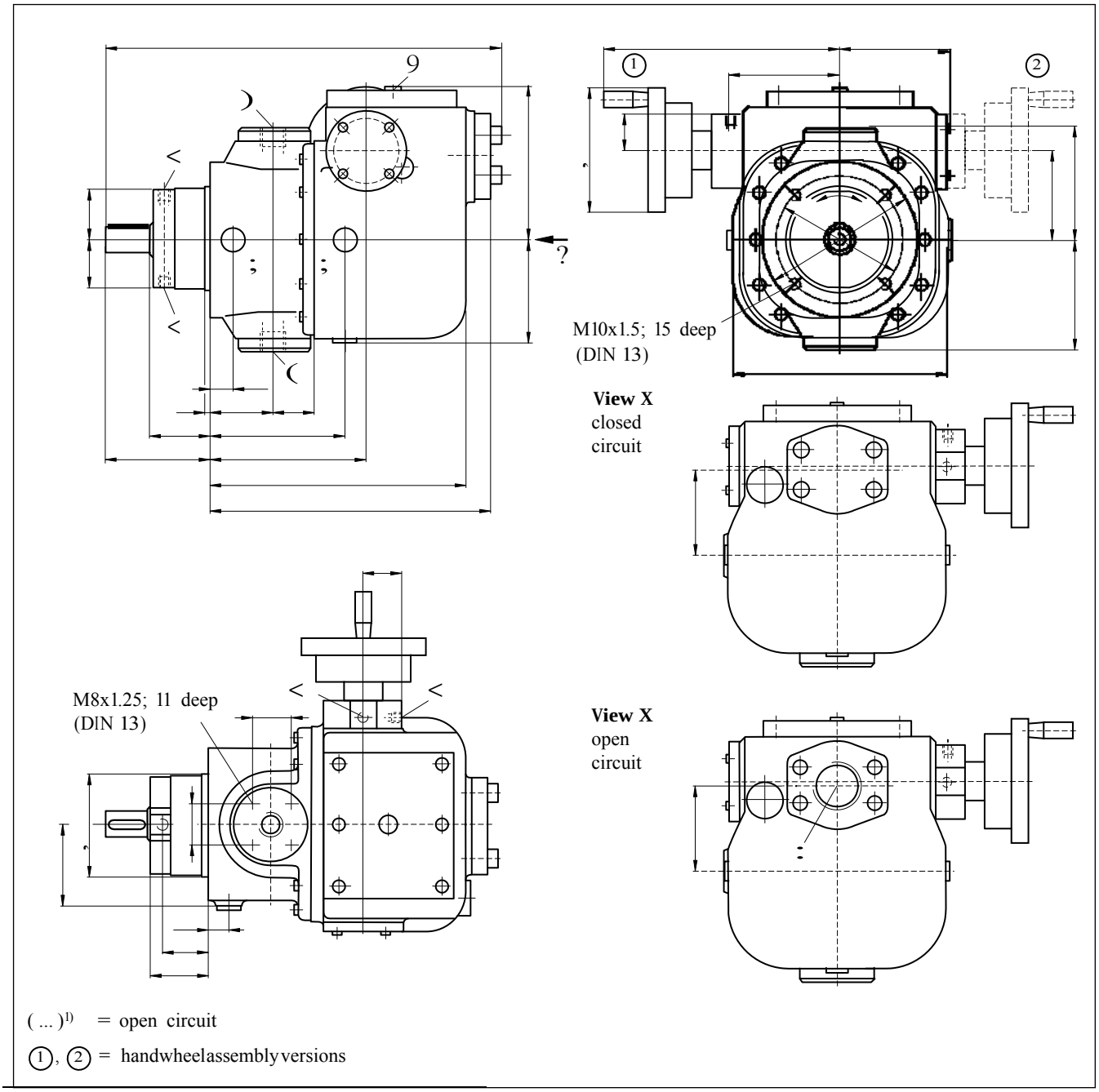
Drive shaft

P Cylinder shaft with key
DIN 6885 – A6x6x25.5



Dimensions size 28

Before finalizing your design, request a binding installation drawing. Dimensions in mm.



(...)[1] = open circuit

①, ② = handwheel assembly versions

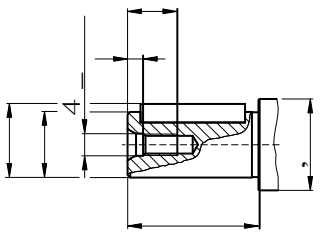
Ports

			Tightening torque, max.
A, B	Service line ports	M27x2 [4]	330 Nm
S	Suction port [2]	G1 1/2 [5]	960 Nm
T_1, T_2	Leakage port [3]	M16x1.5 [4]	100 Nm
R	Air bleed [3]	M12x1.5 [4]	50 Nm
U_1-U_4	Ports for buffer fluid	M10x1; 8 deep [4]	30 Nm

[2]) plugged in the closed circuit
[3]) plugged
[4]) DIN 3852
[5]) DIN ISO 228
[6]) centering hole to DIN 332

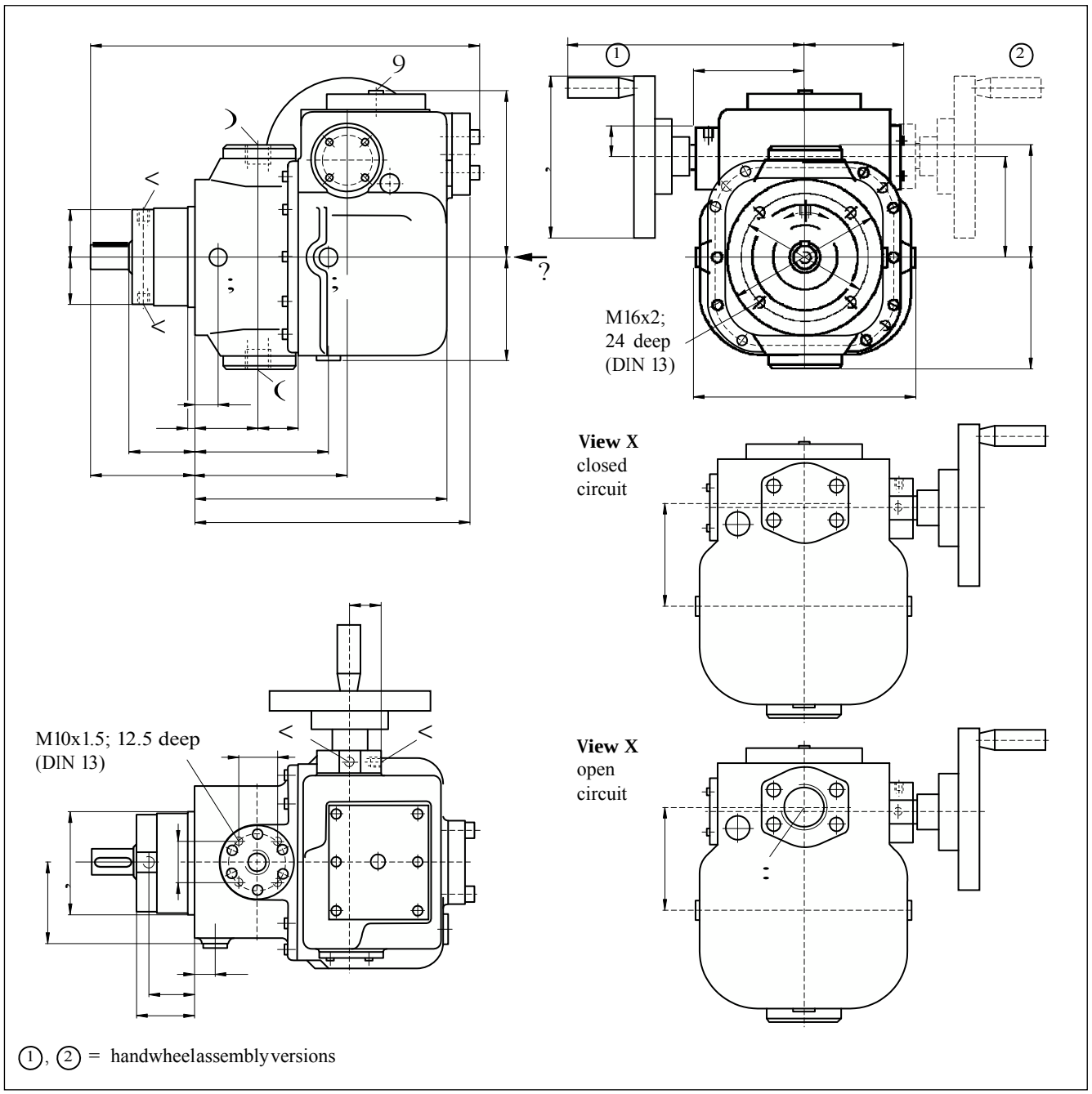
Drive shaft

P Cylinder shaft with key
DIN 6885 – AS8x7x40



Dimensions size 55

Before finalizing your design, request a binding installation drawing. Dimensions in mm.



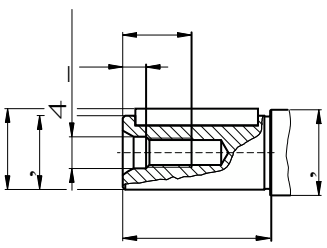
Ports

			Tightening torque, max.
A, B	Service line ports	M33x2 [3])	540 Nm
S	Suction port [1])	G2 [4])	1200 Nm
T_1, T_2	Leakage port [2])	M18x1.5 [3])	140 Nm
R	Air bleed [2])	M12x1.5 [3])	50 Nm
U_1-U_4	Ports for buffer fluid	M10x1; 8 deep [3])	30 Nm

[1]) plugged in the closed circuit
[2]) plugged
[3]) DIN 3852
[4]) DIN ISO 228
[5]) centering hole to DIN 332

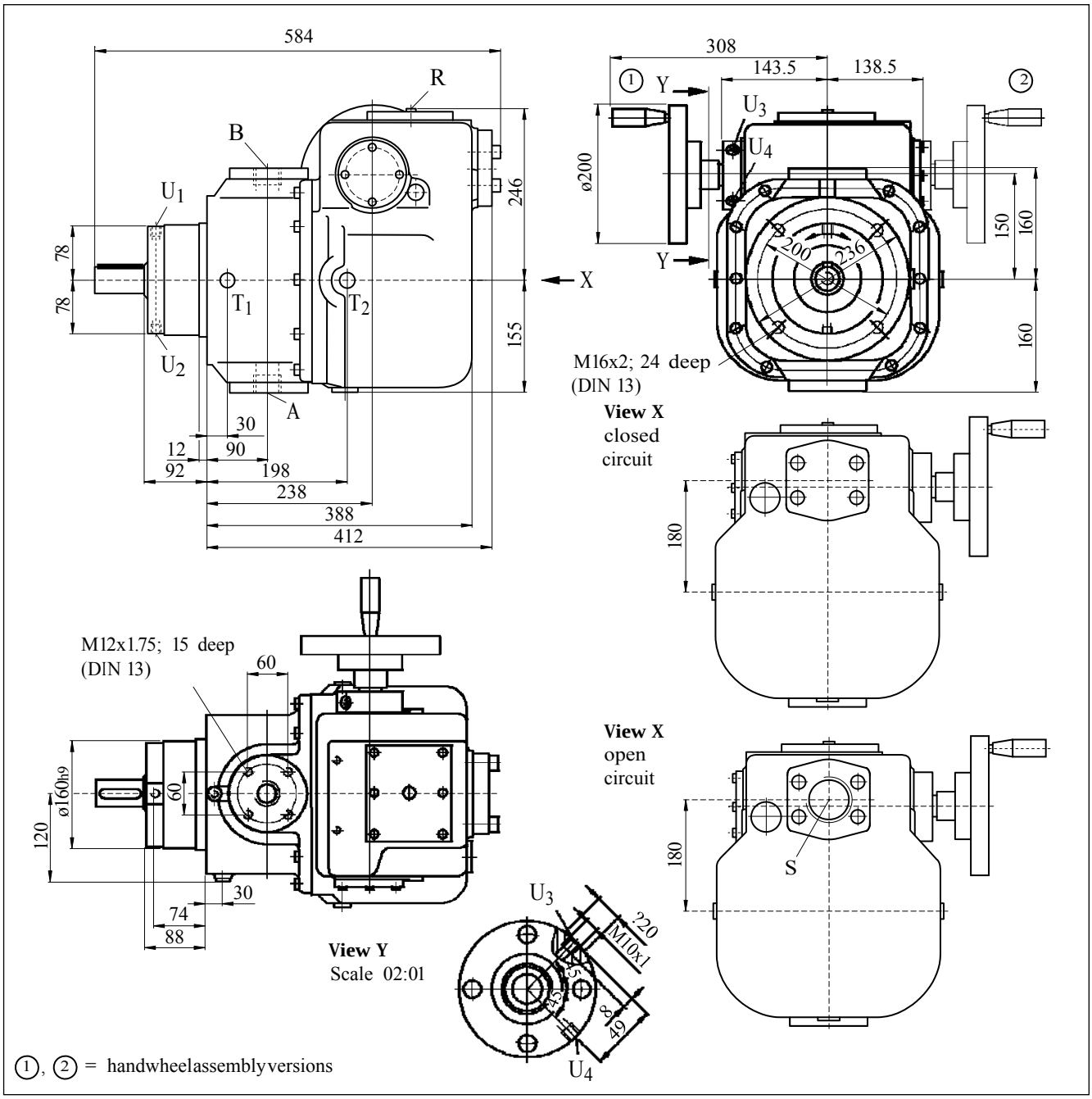
Drive shaft

P Cylinder shaft with key
DIN 6885 – AS8x7x43



Dimensions size 107

Before finalizing your design, request a binding installation drawing. Dimensions in mm.



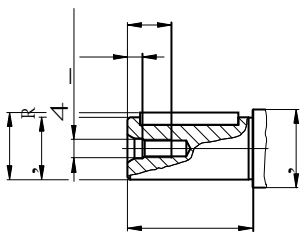
Ports

			Tightening torque, max.
A, B	Service line ports	M42x2 [3]	720 Nm
S	Suction port [1]	G2 1/2 [4]	2000 Nm
T_1, T_2	Leakage port [2]	M18x1.5 [3]	140 Nm
R	Air bleed [2]	M12x1.5 [3]	50 Nm
U_1-U_4	Ports for buffer fluid	M10x1; 8 deep [3]	30 Nm

[1]) plugged in the closed circuit
[2]) plugged
[3]) DIN 3852
[4]) DIN ISO 228
[5]) centering hole to DIN 332

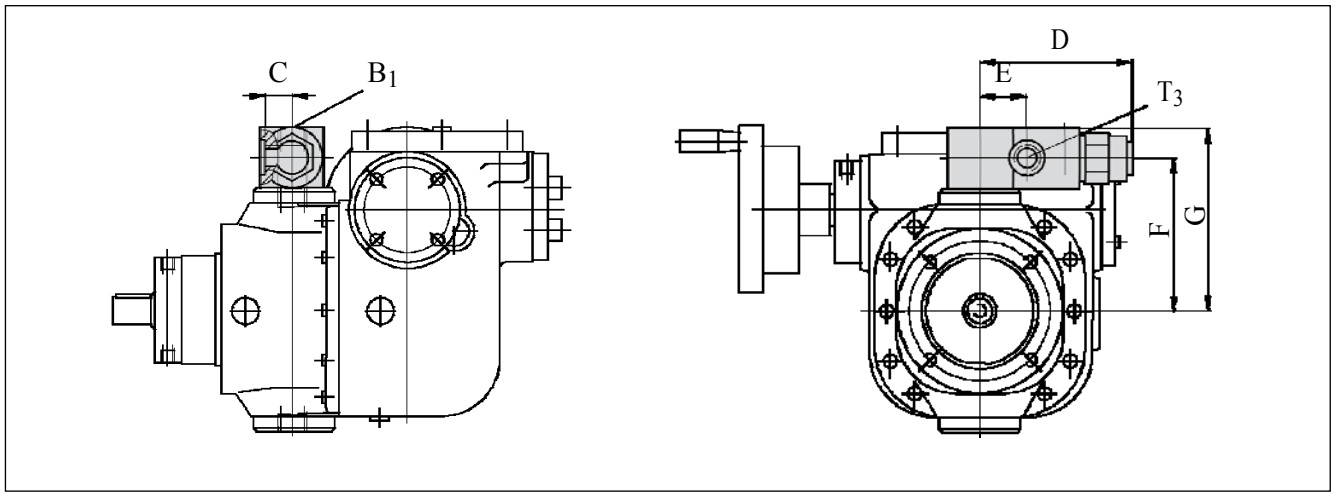
Drive shaft

P Cylinder shaft with key
DIN 6885 – AS12x8x63



Pressure limiting valve attached

Before finalizing your design, request a binding installation drawing. Dimensions in mm.



Size	C	D	E	F	G	Service line port B_1 [1)]	Tightening torque, max.	Return port T_3 [1)]	Tightening torque, max.
12	25	109	32	108	131	M22x1.5; 14 deep	210 Nm	M18x1.5; 12 deep	140 Nm
28	26.5	121	40	131	156	M27x2; 16 deep	330 Nm	M22x1.5; 14 deep	210 Nm
55	31.5	133.5	46	160.5	188.5	M33x2; 18 deep	540 Nm	M27x2; 16 deep	330 Nm
107	38.5	174	58	192.5	225	M42x2; 20 deep	720 Nm	M33x2; 20 deep	540 Nm

[1)] DIN 3852

Details model of Rexroth A2VK pump

R902000250 A2VK55MAGR1G0PE1	R909063496 A2VK28OVOR1G00P	R902070571 A2VK12OVGW4G00P-SO
R902000251 A2VK55MAGR1G0PE2-SO	R909064723 A2VK55OVOR1G00P	R902070940 A2VK28OVGW1G00P-SO
R902000252 A2VK55GEOR1G0PE2-SO	R909065157 A2VK28OVGR1G00P	R902070941 A2VK28OVOL1G00P-SO
R902000253 A2VK55GEOR1G0PE1-SO	R909070964 A2VK55OVGR1G00P	R902070943 A2VK55OVGL1G00P-SO2
R902004079 A2VK12MAOR4G1PE1-SO2	R909076531 A2VK28OVGR1G00P	R902073966 A2VK28MAGL1G0PE1-SO
R902004081 A2VK12MAOR4G1PE2-SO2	R909081581 A2VK107MA/GE	R902073985 A2VK12MAOL4G0PE1-SO2
R902004352 A2VK12MAGR4G1PE1-SO2	R909081600 A2VK55OVOR1G00P-SO	R902073999 A2VK107MAOL1G0PE1-SO
R902004353 A2VK28MAGR1G1PE1-SO2	R909081716 A2VK12OVOR4G00P-SO	R902078760 A2VK12MAGR4G1PE1-SO11
R902004354 A2VK28MAOR1G1PE1-SO2	R909081903 A2VK28OVGR1G00P-SO	R902080650 A2VK55OVOL1G00P-SO2
R902004355 A2VK55MAGR1G1PE1-SO2	R909081904 A2VK28OVOR1G00P-SO	R902080651 A2VK55MAOL1G0PE2-SO2
R902009694 A2VK28GEOR1G0PE2-SO7	R909081905 A2VK55OVGR1G00P-SO	R902080653 A2VK107OVOL1G00P
R902009895 A2VK28MAOR1G1PE2-SO2	R909081906 A2VK107OVGR1G00P	R902080654 A2VK107MAOL1G0PE2-SO2
R902014085 A2VK12GEOR4G1PE1-SO10	R909416620 A2VK28OVOR1G00P	R902080731 A2VK12MAOR4G1PE2-SO7
R902014086 A2VK28GEOR1G1PE1-SO10	R909417793 A2VK28OVGR1G00P	R902084059 A2VK28MAOL1G1PE2-SO2
R902014299 A2VK28GEGW1G0PE1-SO	R909442492 A2VK12OVOR4G00P-SO2	R902084061 A2VK12MAOL4G1PE2-SO2
R902018193 A2VK107GEOR1G1PE1-SO4	R909442566 A2VK28OVGR1G00P-SO2	R902084124 A2VK107MAOR1G0PE2-SO2
R902021874 A2VK55OVOR1G00P-SO10	R909442567 A2VK28OVOR1G00P-SO2	R902086544 A2VK12MAOR4G1PE1-SO7
R902021875 A2VK55MAOR1G1PE1-SO10	R909442588 A2VK55OVOR1G00P-SO2	R902086610 A2VK28OVGR1G00P-SO12
R902024706 A2VK28MAOR1G1PE1-SO7	R909442660 A2VK107OVGR1G00P	R902086611 A2VK28GEGR1G0PE1-SO16
R902024707 A2VK28MAOR1G1PE2-SO7	R909442661 A2VK107OVOR1G00P	R902088528 A2VK12GEGR4G0PE1-SO6
R902024765 A2VK12MAOR4G0PE2-SO2	R909446008 A2VK12MAOR4G0PE1-SO3	R902092011 A2VK28MAOR1G0PE1-ESO2
R902024800 A2VK55MAGR1G1PE1-SO10	R909446009 A2VK28MAOR1G0PE1-SO3	R902101233 A2VK28MAOL1G0PE1-SO2
R902024879 A2VK55MAGR1G1PE1	R909446046 A2VK28MAOR1G0PE2-SO3	R909605536 A2VK107MAOR1G0PE2-SO7
R902024881 A2VK55MAGR1G1PE2	R909446351 A2VK28MAOR1G0PE1-SO2	R909604865 A2VK107MAOR1G0PE1-SO
R902027140 A2VK12MAGR4G1PE2-SO2	R909446352 A2VK55MAOR1G0PE1-SO2	R909604891 A2VK28MAGR1G0PE1-SO9
R902027141 A2VK28MAGR1G1PE2-SO2	R909447014 A2VK12MAOR4G0PE2-SO7	R909604892 A2VK28MAGR1G0PE2-SO9
R902028554 A2VK28MAOR1G0PE2-SO2	R909447017 A2VK12MAOR4G0PE1-SO7	R909604911 A2VK28MAOR1G1PE1
R902028557 A2VK107MAOR1G1PE1-SO2	R909447063 A2VK28MAOR1G0PE2-SO7	R909604912 A2VK12MAGR4G0PE2
R902028558 A2VK107MAOR1G1PE2-SO2	R909447064 A2VK28MAOR1G0PE1-SO7	R909604913 A2VK12MAOR4G0PE2
R902031610 A2VK12MAGL4G0PE2	R909447172 A2VK12MAOR4G0PE1-SO2	R909604914 A2VK107MAOR1G1PE2
R902031665 A2VK28MAOL1G0PE1-SO	R909447193 A2VK12MAGR4G0PE1-SO2	R909604952 A2VK12MAOR4G0PE1-SO9
R902033112 A2VK12GEGL4G1PE1-SO	R909447194 A2VK28MAGR1G0PE1-SO2	R909604986 A2VK12MAGR4G0PE2-SO
R902033114 A2VK28GEGR1G0PE1-SO6	R909447290 A2VK55GEOR1G0PE1-SO6	R909604987 A2VK12MAOR4G0PE2-SO
R902034181 A2VK12MAGR4G0PE1-SO11	R909447432 A2VK28GEOR1G0PE1-SO6	R909604988 A2VK28MAGR1G0PE1-SO
R902035132 A2VK12GEGW4G0PE1-SO	R909447718 A2VK12GEOR4G0PE1-SO6	R909604989 A2VK28MAOR1G0PE2-SO
R902035184 A2VK28OVOR1G00P-SO61	R909448100 A2VK12MAGR4G1PE1-SO3	R909605114 A2VK12MAGR4G0PE1-SO9
R902035185 A2VK28GEOR1G0PE1-SO61	R909448595 A2VK107MAOR1G0PE1-SO2	R909605115 A2VK12MAGR4G0PE2-SO9
R902036627 A2VK28OVGW1G00P-SO	R909603350 A2VK12MAOR4G1PE2-SO8	R909605128 A2VK12GEGR4G0PE1-SO
R902036628 A2VK28MAGW1G0PE1-SO	R909603364 A2VK12MAOR4GOPE1-SO8	R909605243 A2VK12MAGR4G0PE1-SO10
R902036692 A2VK12MAGR4G0PE2-SO10	R909603406 A2VK12MAGR4G1PE1-SO8	R909605251 A2VK28OVOR1G0PE-SO9
R902036991 A2VK28MAOL1G0PE2-SO	R909603462 A2VK12MAOR4G1PE1-SO8	R909605252 A2VK28MAOR1G0PE1-SO10
R902038629 A2VK55MAGR1G0PE2-SO2	R909603547 A2VK28MAGR1G0PE1-SO8	R909605307 A2VK12MAOR4G1PE1-SO12
R902042042 A2VK55MAOR1G0PE2-SO2	R909603595 A2VK55MAOR1G0PE2-SO7	R909605308 A2VK12MAOR4G1PE2-SO12
R902043533 A2VK107MAGR1G1PE1-SO	R909603596 A2VK55MAOR1G0PE1-SO7	R909605327 A2VK28OVOR1GPE-SO12
R902043534 A2VK107MAGR1G1PE2-SO	R909603618 A2VK107GEOR1G0PE1-SO6	R909605335 A2VK28MAOR1G0PE1-SO12
R902043851 A2VK55MAGL1G0PE1-SO2	R909603682 A2VK12MAGR4G1PE2-SO8	R909605336 A2VK28MAOR1G1PE2-SO12
R902045259 A2VK12MAGL4G1PE2-SO	R909603727 A2VK28MAOR1G0PE1-SO11	R909605414 A2VK12GEOR4G0PE1-SO
R902047068 A2VK55MAGR1G1PE2-SO2	R909603730 A2VK12MAOR4G0PE1-SO11	R909605415 A2VK28GEOR1G0PE1-SO
R902047230 A2VK12MAGR4G0PE2-SO2	R909603866 A2VK12MAOR4G0PE1-SO12	R909605535 A2VK107MAOR1G0PE1-SO7
R902047231 A2VK12MAGL4G0PE1-SO2	R909604012 A2VK28GEGR1G1PE2-SO5	R902000445 A2VK12GEOR4G0PE2-SO6
R902052254 A2VK28OVGL1G00P-SO2	R909604336 A2VK28MAOR1G1PE1-SO	R902054701 A2VK55OVOL1G00P
R902052255 A2VK28GEGL1G0PE2-SO6	R909604337 A2VK28MAOR1G0PE1	R902054827 A2VK12MAOL4G1PE2-SO
R902052369 A2VK28MAOL1G0PE2-SO2	R909604348 A2VK12MAOR4G1PE1-SO	R902054914 A2VK12OVOL4G00P-SO
R902052370 A2VK28OVOL1G00P-SO2	R909604352 A2VK12MAOR4G1PE2-SO	R902054915 A2VK12MAOL4G0PE2
R902052372 A2VK12MAOL4G0PE2-SO2	R909604353 A2VK12MAOR4G0PE1	R902057442 A2VK55OVOL1G00P-SO
R902052373 A2VK12OVOL4G00P-SO	R909604386 A2VK55MAOR1G0PE2-SO	R902057443 A2VK55MAOL1G0PE2-SO
R902052376 A2VK55OVGL1G00P-SO	R909604387 A2VK55MAOR1G0PE1-SO	R902060108 A2VK12MAOL4G1PE1-SO2
R902052393 A2VK12MAOL4G0PE2-SO	R909604391 A2VK28MAOR1G0PE1-SO	R902060110 A2VK12MAOL4G1PE1-SO
R902052394 A2VK12OVOL4G00P-SO	R909604446 A2VK28MAOR1G1PE2-SO	R902060111 A2VK28OVOL1G00P-SO
R902054201 A2VK12GEGW4G0PE1-SO6	R909604506 A2VK12MAOR4G0PE1-SO	R902060112 A2VK28MAOL1G1PE1-SO
R902054202 A2VK12GW4G0PE-SO	R909604508 A2VK55MAGR1G0PE2	R902060113 A2VK28MAOL1G1PE1-SO2
R902054241 A2VK28MAOL1G0PE2	R909604654 A2VK12MAGR4G1PE1	R902060359 A2VK107GEGR1G0PE1-SO6
R902054242 A2VK28OVOL1G00P	R909604655 A2VK12MAGR4G1PE2	R902063697 A2VK28MAGR1G0PE2-SO2
R902054700 A2VK55MAOL1G0PE2	R909604656 A2VK28MAGR1G1PE1	R902065599 A2VK12GL4G0PE-SO
R909604803 A2VK55GEOR1G1PE2-SO5	R909604657 A2VK28MAGR1G1PE2	R902065600 A2VK12MAGL4G1PE2-SO2
R909604829 A2VK12MAOR4G1PE2	R909604658 A2VK28MAGR1G1PE2-SO	R902065720 A2VK12MAOL4G0PE1-SO
R909604830 A2VK12MAOR4G1PE1	R909604725 A2VK55MAGR1G1PE1-SO	R902065834 A2VK12OVGL4OOP
R909604834 A2VK12MAOR4G0PE1-SO10	R909604726 A2VK55MAGR1G1PE2-SO	R902065835 A2VK12MAGL4G0PE2-SO
R909604836 A2VK28OVGR1G00P-SO10	R909604727 A2VK28GEOR1G1PE2-SO5	R902067593 A2VK28OVGL1G00P-SO
R909604837 A2VK28MAGR1G0PE1-SO10	R909604729 A2VK55MAOR1G1PE1-SO	R902067594 A2VK28MAGL1G0PE2-SO
R909604841 A2VK55OVGR1G00P-SO10	R909604730 A2VK55MAOR1G1PE2-SO	R902067668 A2VK107MA/GE-LINKSLAUF
R909604844 A2VK55MAGR1G0PE1-SO10	R909604755 A2VK12MAOR4G0PE1-SO1	R902067669 A2VK107MAOL1G0PE2-SO
R909604857 A2VK107MAGR1G0PE1-SO2	R909604763 A2VK12MAGR4G0PE1-SO	R902067773 A2VK12GW4G0PE-SO11
R909604864 A2VK107MAOR1G0PE2-SO	R909604764 A2VK12MAGR4G1PE2-SO	R902067774 A2VK12GEGR4G0PE1-SO16
R909604768 A2VK28MAOR1G1PE2-SO8	R909604765 A2VK12MAGR4G0PE1	R902067940 A2VK12 -RECHTSLAUF
R909604769 A2VK28MAOR1G1PE1-SO8	R909604766 A2VK28MAGR1G1PE1-SO	R909604767 A2VK28MAGR1G0PE1