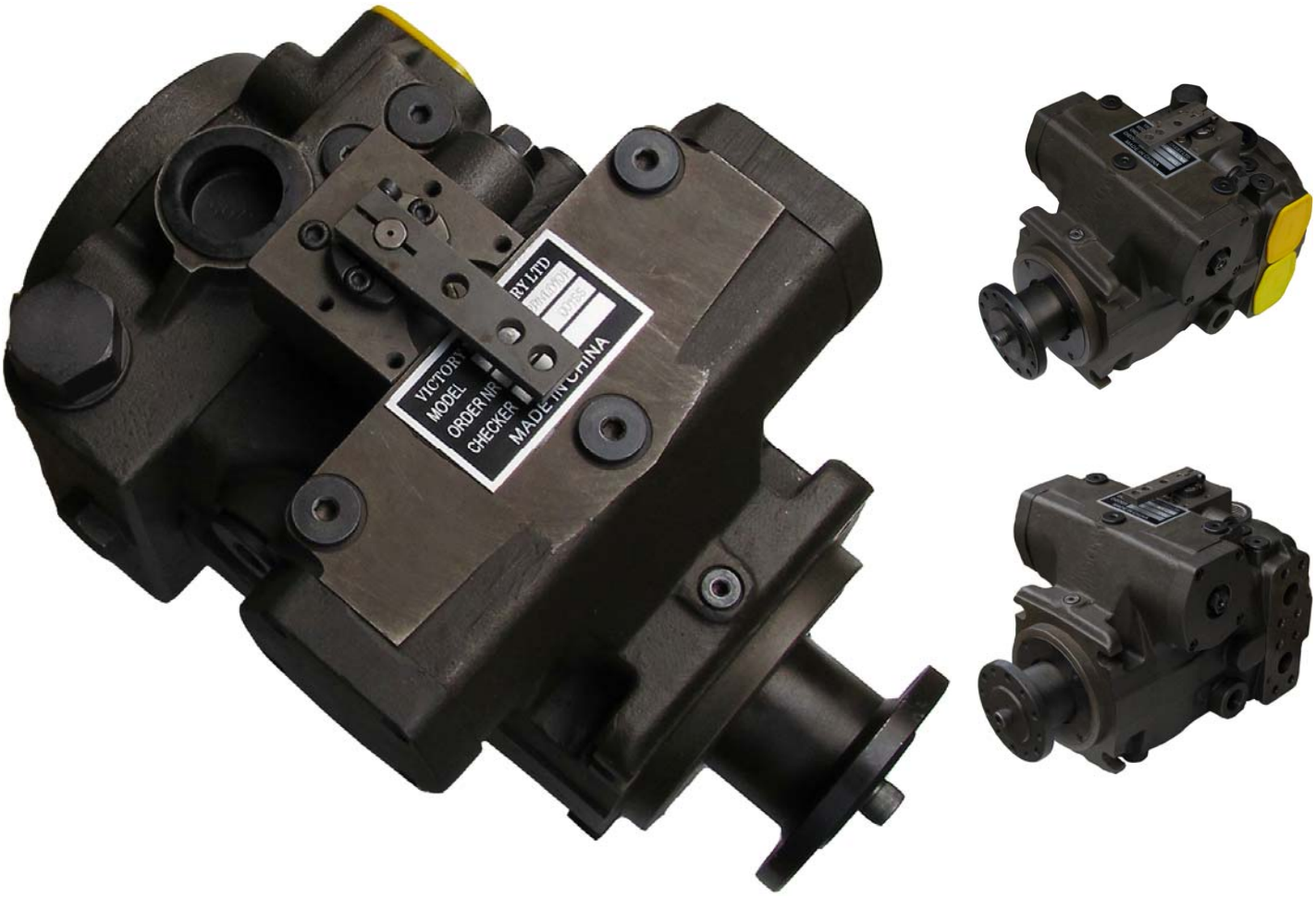
Brueninghaus Hydromatik Rexroth A4VTG pump

Hydraulic piston pump A4VTG71 and A4VGT90



Closed circuit

Series 32

Sizes 71, 90

Nominal pressure 5800 psi (400 bars)

Maximum pressure 6500 psi (450 bars)

Control type: (HW) Proportional control hydraulic, mechanical servo, hexagon shaft with lever to the rear.

(EP) Proportional control electric, with emergency actuation and spring return.

EP1: Control current I = 400 – 1200 mA (12V DC proportional solenoids)

EP2: Control current I = 200 – 600 mA (24V DC proportional solenoids)

Features and Benefits

For the drum drive in mobile concrete mixer model A4VTG071, A4VGT090 pump.

–Variable axial piston pump of swash plate design for hydrostatic drives in closed circuit

–The flow is proportional to the drive speed and displacement.

–The flow increases as the angle of the swash plate is adjusted from zero to its maximum value.

–Flow direction changes smoothly when the swash plate is moved through the neutral position.

–Two pressure-relief valves are provided on the high pressure ports to protect the hydrostatic transmission from overload.

–The high-pressure relief valves also function as boost valves.

–The integrated boost pump acts as a feed pump and control pressure supply.

–The maximum boost pressure is limited by a built-in boost pressure-relief valve.

–Tapered shaft option for direct drive shaft yoke installation.

Technical Data

Table of values (theoretical values)

Rexroth A4VTG pump				A4VTG71	A4VTG90
Displacement	Variable pump	Vg max	cm3	71	90
	auxiliary pump	Vg H	cm3	18,7	25,7
Speed	Max. speed at Vg max	*N max continuous*	rpm	3300	3050
	Limited max.	*N max limited*	rpm	3600	3300
	Intermittent max.	*N max continuous*	rpm	4100	3800
	minimum speed	N min	rpm	500	500
Flow	at N max Dauer and Vg max	*Q max*	L/min	234	275
Power	at N max Dauer Δ p = 400 bar	P max	kW	156	183
Torque	at Vg max Δ p = 400 bar	T max	Nm	451	572
(Variable pump without aux. pump) Δ p = 100 bar		T	Nm	112,8	143
Moment of inertia (about drive axis)		J	kgm2	0,0072	0,0106

Hydraulic fluid

Before starting project planning, please refer to our data sheets RE 90220 (mineral oil) and RE 90221 (environmentally acceptable hydraulic fluids) for detailed information regarding the choice of hydraulic fluids and application conditions.

The variable pump A4VTG is not suitable for operation with HFA, HFB and HFC. If HFD or environmentally acceptable hydraulic fluids are being used, the limitations regarding technical data and seals must be observed.

The correct choice of hydraulic fluid requires knowledge of the operating temperature in relation to the ambient temperature: in a closed circuit the circuit temperature. The hydraulic fluid should be chosen so that the operating viscosity in the operating temperature range is within the optimum range (vopt), see shaded area of the selection diagram. We recommended that the higher viscosity class be selected in each case.

Example: At an ambient temperature of X °F (X °C), an operating temperature of 140 °F (60 °C) is set in the circuit. In the optimum operating viscosity range (vopt shaded area), this corresponds to the viscosity classes VG 46 or VG 68; to be selected: VG 68. The case drain temperature, which is affected by pressure and speed, is always higher than the circuit temperature. At no point of the component may the temperature be higher than 240 °F (115 °C), however. The temperature difference specified below is to be taken into account when determining the viscosity in the bearing.

Shaft seal ring

The service life of the shaft seal ring is affected by the speed of the pump and the case drain pressure. It is recommended that the average, continuous case drain pressure 45 psi (3 bar) absolute at operating temperature not be exceeded (maximum permissible case drain pressure 90 psi (6 bar) absolute at reduced speed, see diagram). Short-term (t < 0.1 s) pressure spikes of up to 145 psi (10 bar) absolute are permitted. The service life of the shaft seal ring decreases with an increase in the frequency of pressure spikes. The case pressure must be equal to or greater than the external pressure on the shaft seal ring.

Control device HW – Proportional control hydraulic, mechanical servo

The output flow of the pump can be sleeplessly varied in the range between 0 to 100 %, proportional to the rotation of the control lever between 0° and ±29°. A feedback lever connected to the stroke piston maintains the pump flow for any given position of the control lever between 0° and 29°.

The maximum required torque at the lever is 15 lb-in (170 Ncm). To prevent damage to the HW control unit, a positive mechanical stop must be provided for the HW control lever.

Control device EP – Proportional control electric

The output flow of the pump can be sleeplessly varied in the range between 0 to 100 %, proportional to the electrical current supplied to solenoid a or b.

The electrical energy is converted into force acting on the control piston. This control piston then directs control hydraulic fluid into and out of the stroke cylinder to adjust pump displacement as required.

A feedback lever connected to the stroke piston maintains the pump flow for any given current within the control range.

Temperature and Viscosity

Temperature: The high temperature limits apply at the hottest point in the transmission, which is normally the motor case drain. The system should generally be run at or below the quoted rated temperature.

The maximum intermittent temperature is based on material properties and should never be exceeded.

Cold oil will generally not affect the durability of the transmission components, but it may affect the ability of oil to flow and transmit power; therefore temperatures should remain 16 °C [30 °F] above the pour point of the hydraulic fluid. The minimum temperature relates to the physical properties of component materials. Size heat exchangers to keep the fluid within these limits. Viscosity: For maximum efficiency and bearing life, ensure the fluid viscosity remains in the recommended range.

The minimum viscosity should be encountered only during brief occasions of maximum ambient temperature and severe duty cycle operation. The maximum viscosity should be encountered only at cold start.

Filtration System

To prevent premature wear, ensure only clean fluid enters the hydrostatic transmission circuit. A filter capable of controlling the fluid cleanliness to ISO 4406 class 22/18/13

(SAE J1165) or better, under normal operating conditions, is recommended. These cleanliness levels cannot be applied for hydraulic fluid residing in the component housing/case or any other cavity after transport. The filter may be located on the pump (integral) or in another location (remote). The integral filter has a filter bypass sensor to signal the machine operator when the filter requires changing. Filtration strategies include suction or pressure filtration. The selection of a filter depends on a number of factors including the contaminant ingression rate, the generation of contaminants in the system, the required fluid cleanliness, and the desired maintenance interval. Filters are selected to meet the above requirements using rating parameters of efficiency and capacity. Filter efficiency can be measured with a Beta ratio[1] (βX). For simple suction-filtered closed circuit transmissions and open circuit transmissions with return line filtration, a filter with a β-ratio within the range of β35-45 = 75 (β10 ≥ 2) or better has been found to be satisfactory. For some open circuit systems, and closed circuits with cylinders being supplied from the same reservoir, considerably higher filter efficiency is recommended. This also applies to systems with gears or clutches using a common reservoir. For these systems, a charge pressure or return filtration system with a filter β-ratio in the range of β15-20 = 75 (β10 ≥ 10) or better is typically required.

Rexroth A4VTG71 pump & Rexroth A4VTG90 pump			
R902132673	A4VTG071HW100/33MLNC4C82F0000AS-0	R902069484	A4VTG90EP2/32L-NZD10N001EW-S
R902132671	A4VTG071HW100/33MRNC4C82F0000AS-0	R902071852	A4VTG71EP2/32R-NLD10F001ST-S
R902155546	A4VTG090HW100/33MRNC4C92F0000AS-0	R902072877	A4VTG90EP2/32R-NSD10F011ST-S
R902155618	A4VTG090HW100/33MRNC4C92F0000AS-0	R902072914	A4VTG71EP2/32L-NSD10F001SX-S
R902155547	A4VTG090HW100/33MLNC4C92F0000AS-0	R902074155	A4VTG71EP1/32R-NLD10F001SGT-S
R902061570	A4VTG90EZ1/32L-NSD10F071SH-S	R902074168	A4VTG71HW/32R-NSD10F011S
R902061572	A4VTG71EZ1/32L-NXD10F071SH-S	R902074373	A4VTG71EP1/32R-NSD10F001ST-S
R902061573	A4VTG71EZ1/32L-NXD10F001SH-S	R902074403	A4VTG90EP2/32R-NLD10F011ST-S
R902062961	A4VTG90EP1/32L-NZD10K021EW-S	R902074406	A4VTG90EP2/32L-NLD10F001ST-S
R902085645	A4VTG90EZ1/32L-NZD10F021SH-S	R902074408	A4VTG90EP2/32R-NSD10F011SGT-S
R902064251	A4VTG71EP2/32L-NXD10F001SH-S	R902077977	A4VTG71HW/32R-NLD10F021S-K
R902084560	A4VTG71EP2/32L-NZD10K021EP-S	R902079554	A4VTG71EP2/32L-NXD10F021SH-S
R902064721	A4VTG71EP2/32R-NLD10F001SGT-S	R902079556	A4VTG71EP1/32R-NLD10F001ST-S
R902064723	A4VTG90EP2/32R-NLD10F001SGT-S	R902079583	A4VTG90HW/32R-NSD10F001S-S
R902066191	A4VTG90HW/32L-NSD10F001S-S	R902079590	A4VTG71EP2/32L-NZD10K021EP-S
R902066730	A4VTG90EP2/32R-NLD10F011SGT-S	R902079597	A4VTG71EP2/32L-NZD10K021EP-SK
R902066731	A4VTG90EP2/32L-NLD10F011SGT-S	R902079762	A4VTG71EP2/32R-NSD10F011ST-S
R902066732	A4VTG71EP2/32L-NLD10FXX1SGT-S	R902079857	A4VTG90EP2/32L-NLD10F011ST-S
R902068067	A4VTG90EZ1/32L-NZD10F011SH-S	R902079888	A4VTG90HW/32R-NLD10F001S
R902068087	A4VTG90EZ1/32L-NSD10FXX1SH-S	R902079961	A4VTG71HW/32R-NLD10F001S
R902068090	A4VTG90EP2/32R-NLD10F001ST-S	R902081370	A4VTG90EP2/32R-NSD10F001ST-S
R902068121	A4VTG90HW/32L-NLD10F001S	R902083530	A4VTG90HW/32L-NLD10F001S
R902068451	A4VTG71EP2/32L-NSD10F001SW-S	R902069445	A4VTG71EP2/32L-NZD10K021EW-S
		R902083968	A4VTG71EP2/32L-NZD10K021EP-S