

# Compu-Spread

## Variable Displacement Piston Pump A10V..O

10.2016



Series 31



Series 52/53

- **Variable pump of axial piston swashplate design for open loop hydraulic systems. Fitted with pressure and flow regulator for use in energy efficient load sensing applications.**

The Rexroth A10V..O family of variable displacement piston pumps forms the heart of reliable energy-efficient hydraulic machines and systems around the world. The A10V is available in displacements ranging from 1.1 to 11 in<sup>3</sup>/rev (18 to 180 cm<sup>3</sup>/rev) with many control options for varying the pump displacement. Many mounting styles are offered to most effectively suit the application.

From this broad product offering of displacements, controls and styles, Compu-Spread has selected particular versions which best satisfy the system requirements for modern Snow and Ice Control applications. This select product portfolio satisfies the majority of these requirements, while providing the additional benefit of reduced logistics effort, support and service complexity. The data table, which follows, lists the key technical data for this product subset. Should system requirements exceed those found in this table please contact Bosch Rexroth.

The A10V..O pump offers maximum value and performance benefit when used in load sensing (closed-centre) systems. When the system requires no hydraulic flow, the controller moves the pump to standby mode by adjusting the swashplate angle to reduce the displacement, thereby

greatly reducing its power consumption. When flow is called for, the appropriately selected load sense control valve gives a hydraulic signal to the controller which adjusts the swashplate to provide the displacement necessary to produce the required flow. Maximum system pressure can be set with the pump pressure regulator which overrides the flow setting when this set pressure is reached. A full flow system relief valve, set higher than the pressure regulator, is still required for safety reasons.

The standard Compu-Spread pump regulator requires that the load sense signal is bled down in the valve system, standard with Rexroth M4 valve assemblies and related Compu-Spread control manifold assemblies. Other options are available to meet this requirement—please contact Bosch Rexroth accordingly.

### Features

- Very high power to weight ratio
- Short controller response times
- Excellent suction characteristics
- Low noise level
- Long service life
- 2 case drain ports standard

## A10V.O Key Technical Data

The following table contains select technical information for those Rexroth A10V.O pumps ideally suited for Snow and Ice Control applications by Compu-Spread.

Pump Size Design Series	A10VO 28 Series 31	A10VO 45 Series 52	A10VO 60 Series 52	A10VO 74 Series 31	A10VO 85 Series 52	A10VNO 85 Series 53	A10VO 100 Series 31
<b>Rexroth Data Sheet</b>	RA 92 701	RA 92 703	RA 92 703	drawing	RA 92 703	RA 92 735	RA 92 701
<b>Displacement in<sup>3</sup>/rev (cm<sup>3</sup>/rev) <math>V_{g\ max}</math></b>	1.71 (28)	2.75 (45)	3.66 (60)	4.51 (74)	5.19 (85)	5.19 (85)	6.10 (100)
<b>Max rotational speed rpm <math>n_{nom}</math> @ <math>V_{g\ max}</math></b>	3000	2600	2700	2200	2500	2700	2000
<b>Nominal pressure psi (bar)</b>	4000 (280)	3625 (250)	3625 (250)	4000 (280)	3625 (250)	3050 (210)	4000 (280)
<b>Max flow @ <math>n_{nom}</math> &amp; <math>V_{g\ max}</math> gpm (l/min)</b>	22 (84)	31 (117)	41 (156)	42 (160)	55 (212)	60.8 (230)	53 (200)
<b>Torque @ nominal pressure lb-ft (Nm)</b>	91 (125)	132 (179)	175 (238)	236 (325)	247 (338)	209 (284)	324 (445)
<b>Weight lbs (kg)</b>	33 (15)	40 (18)	48.5 (22)	73 (33)	79 (36)	48.5 (22)	99 (45)
<b>Rotation (right- or left-hand)</b>	right	right	right or left	right or left	right or left	right	left
<b>Mounting flange</b>	SAE B, 2 bolt	SAE B, 2 bolt	SAE B, 2 bolt	SAE C, 2 bolt	SAE C, 2 bolt	SAE C, 2 bolt	SAE C, 2 bolt
<b>Drive shaft—keyed</b>	7/8"	1"	1-1/4"	1-1/4"	1-1/2"	-	1-1/2"
<b>Drive shaft—splined (SAE J744)</b>	-	-	1" 15T, 16/32	1-1/4" 14T, 12/24	-	1-1/4" 14T, 12/24	-
<b>Port orientation (rear- or side-ported)</b>	rear	rear	rear & side	rear & side	side	rear	side
<b>Inlet port</b>	1-1/4" SAE J518 code 61	#24 SAE "O" Boss	2" SAE J518 code 61	2" SAE J518 code 61	2-1/2" SAE J518 code 61	2" SAE J518 code 61	2-1/2" SAE J518 code 61
<b>Pressure port</b>	3/4" SAE J518 code 61	#16 SAE "O" Boss	1" SAE J518 code 61	1" SAE J518 code 61	1-1/4" SAE J518 code 62	1" SAE J518 code 61	1-1/4" SAE J518 code 62
<b>Case drain</b>	#8 SAE "O" Boss	#10 SAE "O" Boss	#10 SAE "O" Boss	#10 SAE "O" Boss	#12 SAE "O" Boss	#10 SAE "O" Boss	#12 SAE "O" Boss

## Fluid and other Operating Considerations

### Hydraulic fluid

Rexroth A10V.O pumps are designed to run with mineral oil which have characteristics identified in our data sheet RE 90220. Please contact us when considering the use of other fluids.

### Operating viscosity range

For optimum efficiency and service life the operating viscosity (at operating temperature) must be in the range

$v_{opt}$  = optimum operating viscosity 80 - 170 SUS (16 ... 36 mm<sup>2</sup>/s)

### Limits of viscosity range

For critical operating conditions the following values apply:

$v_{min}$  = 60 SUS (10 mm<sup>2</sup>/s) - short-term ( $t \leq 1$  min), at max permissible case drain temperature of 239 °F (115 °C).

The maximum case drain temperature of 239 °F (115 °C) may not be exceeded in localized areas e.g. the bearing area). The fluid temperature here can be 7 °F (5 °C) higher than the average case drain temperature.

$v_{max}$  = 7500 SUS (1600 mm<sup>2</sup>/s), short-term ( $t \leq 1$  min) on cold start ( $p \leq 435$  psi) (30 bar),  $n \leq 1000$  rpm,  $t_{min}$  -13 °F (-25 °C)

Depending on the installation situation, special measures are necessary at temperatures between -40 °F (-40°C) and -13 °F (-25°C). Please contact us.

### Hydraulic fluid cleanliness

A fluid cleanliness level of at least 20/18/15 (to ISO 4406-C) must be maintained. At very high hydraulic fluid temperatures (195 °F (90 °C) to maximum 239 °F (115 °C), a cleanliness level of at least 19/17/14 is necessary.

### Pressure at suction port S (inlet)

Minimum pressure  $p_{S\ min}$  12 psi (0.8 bar) absolute

Maximum pressure  $p_{S\ max}$  145 psi (10 bar) absolute

$p_{S\ max}$  for A10VNO only 75 psi (5 bar) absolute

### Case drain pressure

Maximum case drain pressure (at port L, L1) may be no more than 7 psi (0.5 bar) higher than the inlet pressure, however not higher than 2 bar absolute.

$P_{L\ max\ abs}$  30 psi (2 bar) absolute

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