Rexroth
Bosch Group

Axial Piston Variable Pump A4VG

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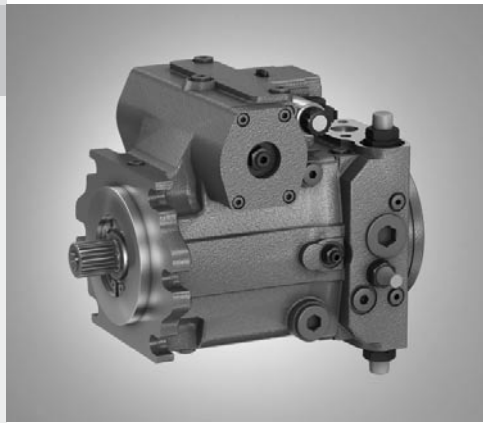
Data sheet



Series 32
Size 28 to 250
Nominal pressure 400 bar
Maximum pressure 450 bar
Closed circuit

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Features

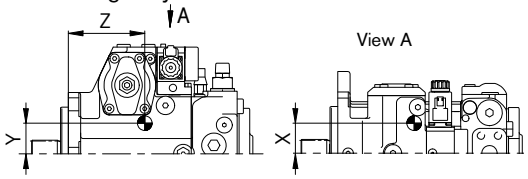
- Variable axial piston pump of swashplate design for hydrostatic drives in closed circuit.
- The flow is proportional to the drive speed and displacement.
- The flow can be infinitely varied by adjusting the swashplate angle.
- Flow direction changes smoothly when the swashplate is moved through the neutral position.
- A wide range of highly adaptable control devices with different control and regulating functions, for all important applications.
- Two pressure-relief valves are provided on the high-pressure side to protect the hydrostatic transmission (pump and motor) 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 low-pressure relief valve.
- As standard with integrated pressure cut-off

Technical data

Table of values (theoretical values, without efficiency and tolerances; values rounded)

Size		NG		28	40	56	71	90	125	180	250
Displacement geometric, per revolution											
variable pump		$V_{g\,max}$	cm^3	28	40	56	71	90	125	180	250
boost pump (at p = 20 bar)		$V_{g\,Sp}$	cm^3	6.1	8.6	11.6	19.6	19.6	28.3	39.8	52.5
Speed[1]											
maximum at $V_{g\,max}$		n_{nom}	rpm	4250	4000	3600	3300	3050	2850	2500	2400
limited maximum[2]		n_{max}	rpm	4500	4200	3900	3600	3300	3250	2900	2600
intermittent maximum[3]		n_{max}	rpm	5000	5000	4500	4100	3800	3450	3000	2700
minimum		n_{min}	rpm	500	500	500	500	500	500	500	500
Flow											
at n_{nom} and $V_{g\,max}$		q_v	L/min	119	160	202	234	275	356	450	600
Power[4]											
at n_{nom}, $V_{g\,max}$ and	Δp = 400 bar	P	kW	79	107	134	156	183	238	300	400
Torque[4]											
at $V_{g\,max}$ and	Δp = 400 bar	T	Nm	178	255	357	452	573	796	1146	1592
	Δp = 100 bar	T	Nm	45	64	89	113	143	199	286	398
Rotary stiffness drive shaft	S	c	kNm/rad	31.4	69	80.8	98.8	158.1	218.3	244.5	354.5
	T	c	kNm/rad	–	–	95	120.9	–	252.1	318.4	534.3
	A	c	kNm/rad	–	79.6	95.8	142.4	176.8	256.5	–	–
	Z	c	kNm/rad	32.8	67.5	78.8	122.8	137	223.7	319.6	624.2
	U	c	kNm/rad	–	50.8	–	–	107.6	–	–	–
Moment of inertia for rotary group		J_{GR}	kgm^2	0.0022	0.0038	0.0066	0.0097	0.0149	0.0232	0.0444	0.0983
Maximum angular acceleration[5]		α	rad/s^2	38000	30000	24000	21000	18000	14000	11000	6700
Case volume		V	L	0.9	1.1	1.5	1.3	1.5	2.1	3.1	6.3
Mass approx. (without through drive)		m	kg	29	31	38	50	60	80	101	156
Center of gravity[6]		X	mm	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
		Y	mm	24	20	20	15	20	30	33	30
		Z	mm	105	112	106	135	145	160	180	203

1) The values are valid:
   - for the optimum viscosity range from ν_{opt} = 36 to 16 mm^2/s
   - with hydraulic fluid based on mineral oils
2) Limited maximum speed:
   - at half of corner power (e. g. at $V_{g\,max}$ and p_N /2)
3) Intermittent maximum speed:
   - at high idle speed
   - at overspeed: Δp = 70 to 150 bar and $V_{g\,max}$
   - at reversing peaks: Δp < 300 bar and t < 0.1 s.
4) Without boost pump
5) The data are valid for values between the minimum required and maximum permissible speed.
   Valid for external excitation (e. g. engine 2 to 8 times rotary frequency; cardan shaft twice the rotary frequency).
   The limit value applies for a single pump only.
   The load capacity of the connection parts must be considered.
6) Center of gravity



Note:
Operation above the maximum values or below the minimum values may result in a loss of function, a reduced service life or in the destruction of the axial piston unit. We recommend testing the loads by means of experiment or calculation / simulation and comparison with the permissible values.