VNKV Series Hydraulic Motor

INTRODUCTION

VNKV series motor adapt the advanced Geroler gear set designed with disc distribution flow and high pressure.The unit can be supplied the individual variant in operating multifunction in accordance with requirement of applications.

CHARACTERISTIC FEATURES

* **Advanced manufacturing** devices for the Geroler gear set, which use low pressure of start-up, provide smooth and reliable operation and high efficiency.
* **The output shaft** adapts in tapered roller bearings that permit high axial and radial forces. The case can offers capacities of high pressure and high torque in the wide of applications.
* **Advanced design in disc distribution flow**, which can automatically compensate in operating with high volume efficiency and long life , provide smooth and reliable operation.

SPECIFICATION Main Specification

Type		VNKV 315	VNKV 400	VNKV 500	VNKV 630	VNKV 800	VNKV 1000
Geometric displacement (cm3/rev.)		333	419	518	666	801	990
Max. speed (rpm)	cont.	510	500	400	320	250	200
	int.	630	600	480	380	300	240
Max. torque (N•m)	cont.	920	1180	1460	1660	1880	2015
	int.	1110	1410	1760	1940	2110	2280
	peak	1290	1640	2050	2210	2470	2400
Max. output (kW)	cont.	38.0	47.0	47.0	40.0	33.0	28.6
	int.	46.0	56.0	56.0	56.0	44.0	40.0
Max. pressure drop (MPa)	cont.	20	20	20	18	16	14
	int.	24	24	24	21	18	16
	peak	28	28	28	24	21	18
Max. flow (L/min)	cont.	160	200	200	200	200	200
	int.	200	240	240	240	240	240
Weight (Kg)		31.8	32.6	33.5	34.9	36.5	38.6

* **Continuous pressure:** Max. value of operating motor continuously.
* **Intermittent pressure:** Max. value of operating motor in 6 seconds per minute.
* **Peak pressure:** Max. value of operating motor in 0.6 second per minute.

Performance Data

VNKV 315 [333 cm3/rev.]

Pressure (MPa)

Flow (L/min)	3.5	7	10	14	18	20	24
						Max. cont	Max. int
10	140 26	294 24	440 23	610 22	742 20	845 17	1000 14
20	153 55	314 54	466 53	636 52	787 51	895 48	1070 44
50	149 145	312 144	465 142	654 140	815 137	935 133	1112 127
75	143 220	304 218	458 215	642 211	816 207	940 202	1119 195
100	136 294	297 292	452 290	636 287	810 283	936 278	1108 270
125	123 368	286 366	442 364	626 361	799 357	921 352	1093 345
150	114 445	275 443	435 441	615 437	788 430	906 422	1078 410
Max. cont 160 Max. int	107 475	268 473	430 470	608 466	780 460	895 452	1070 439
200	82 596	249 594	412 590	593 584	758 576	871 565	1047 544

VNKV 400 [419 cm3/rev.]

Pressure (MPa)

Flow (L/min)	3.5	7	10	14	18	20	24
						Max. cont	Max. int
10	183 20	385 20	568 19	776 18	968 17	1101 16	1292 14
20	196 44	398 44	590 43	815 42	1010 40	1152 39	1346 37
50	200 114	402 113	603 113	842 112	1040 110	1186 108	1430 103
75	195 175	394 173	596 170	838 166	1043 163	1188 157	1432 152
100	172 236	385 235	593 233	827 231	1036 227	1184 223	1425 215
125	167 296	374 294	583 291	816 288	1021 282	1177 275	1413 268
150	158 355	361 354	559 352	801 349	1008 344	1165 335	1390 324
175	143 416	346 414	553 411	784 407	989 403	1145 396	1377 388
Max. cont 200	118 475	331 473	536 469	770 463	969 455	1128 448	1356 439
Max. int 240	82 571	301 569	506 565	740 548	943 539	1104 530	1332 520

VNKV 500 [518 cm3/rev.]

Pressure (MPa)

Flow (L/min)	3.5	7	10	14	18	20	24
						Max. cont	Max. int
10	242 17	468 17	696 16	959 16	1190 15	1353 13	1607 11
20	245 36	501 35	738 35	1003 34	1232 33	1394 32	1658 29
50	240 93	500 92	758 91	1025 90	1270 88	1449 85	1743 80
75	233 140	498 139	752 137	1030 135	1288 132	1475 127	1766 120
100	228 189	491 187	748 185	1026 182	1289 178	1472 173	1760 166
125	220 237	483 236	742 234	1014 231	1280 227	1460 223	1745 216
Max. cont 150	201 287	465 286	723 284	1008 281	1250 276	1429 270	1736 260
Max. int 175	182 335	446 334	711 332	997 329	1238 325	1406 320	1715 310
200	161 384	423 383	676 381	974 378	1218 374	1385 366	1697 354
240	120 461	378 459	622 457	921 454	1172 450	1340 444	1650 432

Torque (N•m) 1340
Speed (rpm) 444

VNKV 630 [666 cm3/rev.]

Pressure (MPa)

Flow (L/min)	3.5	6	9	12	15	18	21
						Max. cont	Max. int
10	280 14	522 13	812 13	1100 12	1268 12	1549 11	1784 10
20	288 28	552 28	839 27	1101 27	1315 26	1607 24	1864 22
50	289 72	555 72	868 71	1137 69	1364 68	1682 66	1956 62
75	270 109	548 108	863 106	1120 104	1352 102	1680 99	1964 94
100	264 146	538 145	856 143	1093 141	1350 138	1674 135	1965 130
125	251 184	516 183	837 181	1071 179	1336 177	1659 173	1950 168
150	240 221	495 220	817 219	1063 217	1330 215	1650 212	1928 205
Max. cont 175	210 259	485 258	796 257	1052 254	1300 250	1636 246	1908 241
Max. int 200	182 297	469 297	751 295	1018 293	1280 290	1611 284	1883 273
240	130 358	416 357	712 355	978 351	1237 246	1563 340	1835 332

Int. Cont.

Performance Data

VNKV 800 [801 cm3/rev.]

Pressure (MPa)

Flow (L/min)	2.5	5	8	10	13	16	18
						Max. cont	Max. int
10	278 11	565 10	830 10	1095 9	1405 8	1712 8	1915 7
20	282 23	571 22	845 22	1150 21	1456 20	1783 18	1994 16
50	288 60	582 59	856 57	1162 56	1463 54	1790 52	2001 48
75	269 91	580 90	855 89	1165 87	1465 84	1786 81	1993 77
100	251 122	566 121	840 120	1140 118	1448 115	1767 111	1985 105
125	242 153	535 152	824 150	1118 147	1427 143	1739 139	1976 133
150	236 185	526 183	808 181	1102 178	1401 174	1714 169	1959 163
175	215 216	504 214	793 212	1079 209	1377 206	1698 203	1936 196
200	197 247	468 245	765 243	1063 240	1362 237	1681 232	1913 225
240	118 297	388 296	713 295	1020 293	1318 288	1637 283	1838 277

Max. cont
Max. int

VNKV 1000 [990 cm3/rev.]

Pressure (MPa)

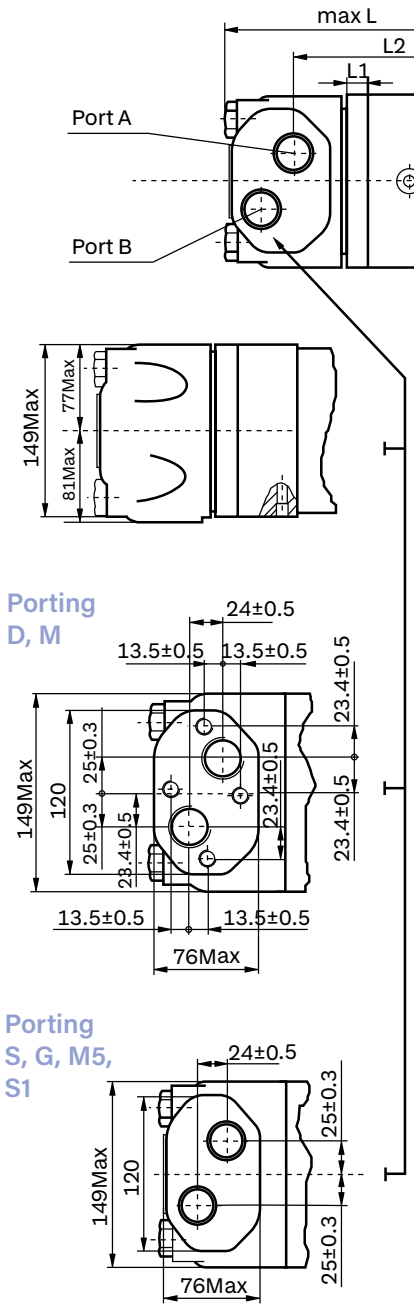
Flow (L/min)	2.5	5	7	10	14	16
					Max. cont	Max. int
10	183 20	385 20	568 19	776 18	968 17	1101 16
20	196 44	398 44	590 43	815 42	1010 40	1152 39
50	200 114	402 113	603 113	842 112	1040 110	1186 108
75	195 175	394 173	596 170	838 166	1043 163	1188 157
100	172 236	385 235	593 233	827 231	1036 227	1184 223
125	167 296	374 294	583 291	816 288	1021 282	1177 275
150	158 355	361 354	559 352	801 349	1008 344	1165 335
175	143 416	346 414	553 411	784 407	989 403	1145 396
200	118 475	331 473	536 469	770 463	969 455	1128 448
240	82 571	301 569	506 565	740 548	943 539	1104 530

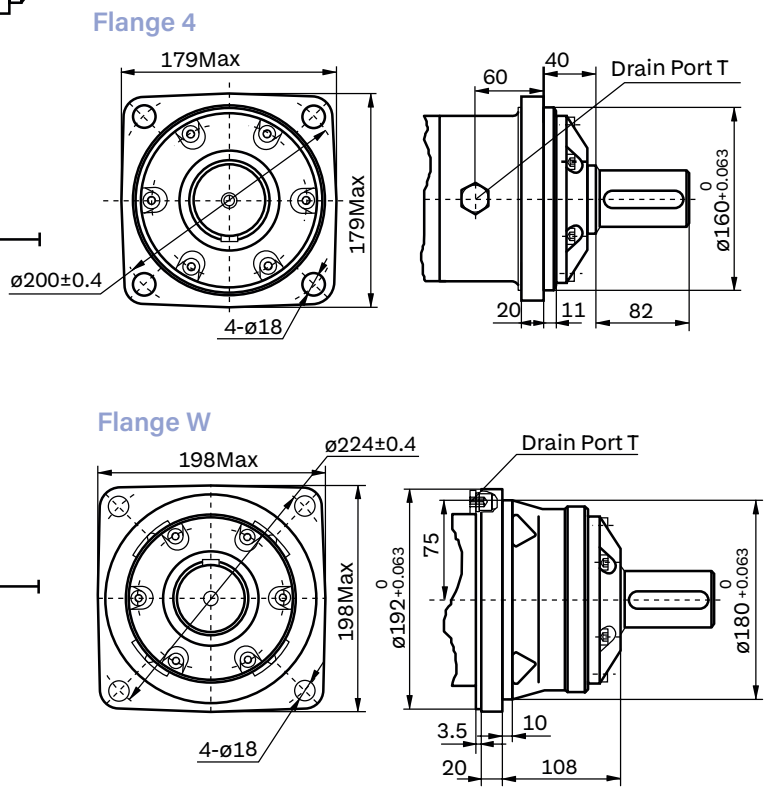
Max. cont
Max. int

Torque (N•m) 1825
Speed (rpm) 225

Int. Cont.

VNKV Dimensions and Munting Data





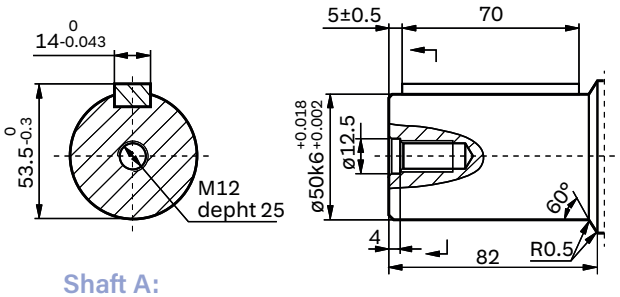
Model	L	L1	L2
VNKV-315-W	148.5	20	93.5
VNKV-400-W	155.5	27	100.5
VNKV-500-W	163.5	35	108.5
VNKV-630-W	175.5	47	120.5
VNKV-800-W	186.5	58	131.5
VNKV-1000-W	202.5	74	147.5

Model	L	L1	L2
VNKV315	217	20	161.5
VNKV400	224	27	168.5
VNKV500	232	35	176.5
VNKV630	244	47	188.5
VNKV800	255	58	199.5
VNKV1000	271	74	215.5

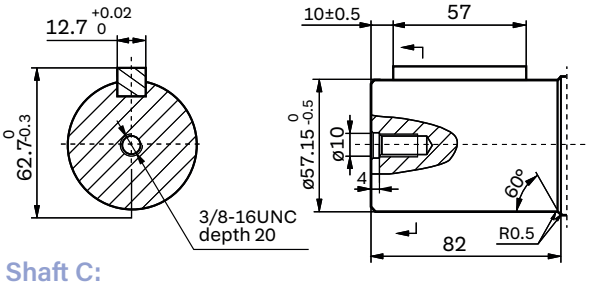
Note: The thickness of the stator and rotor is the dimension of L1adding on 7mm.

Mounting Content	**D** (depth)	**M** (depth)	**S** (depth)	**G** (depth)	**M5** (depth)	**S1** (depth)
P(A,B)	G1 (18)	M33 x 2 (18)	1-5/16-12UN(18)	G1 (18)	M33 x 2 (18)	1-5/16-12UN(18)
T	G1/4 (12)	M14 x 1.5 (12)	9/16-18UNF(12)	G1/4 (12)	M14 x 1.5 (12)	7/16-20UNF(12)
C	4-M12 (10)	4-M12 (10)	-	-	-	-

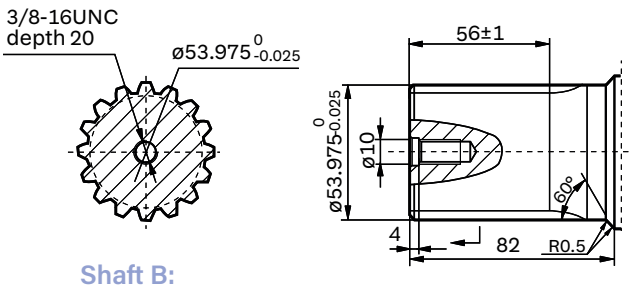
VNKV Dimensions and Munting Data



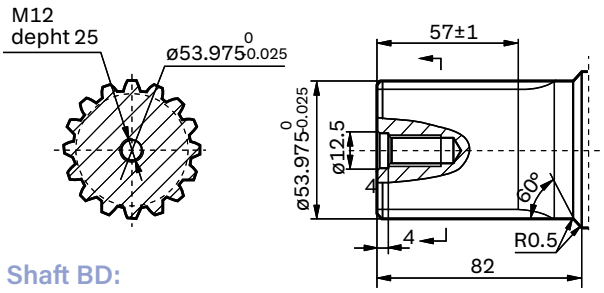
Shaft A:
Cylindrical shaft ø50
Parallel key 14x9x70



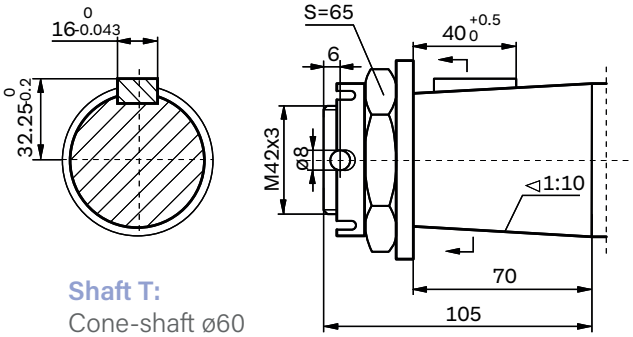
Shaft C:
Cylindrical shaft ø57.15
Parallel key 12.7x12.7x57



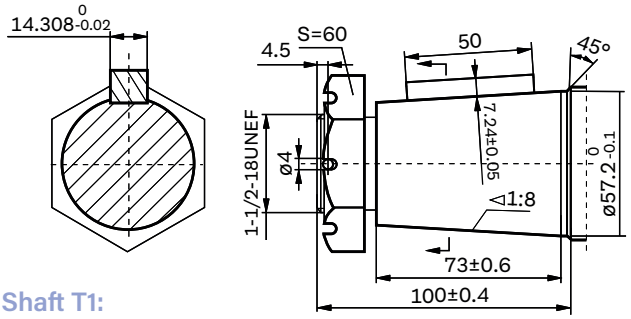
Shaft B:
Splined key 16-DP8/16



Shaft BD:
Splined key 16-DP8/16



Shaft T:
Cone-shaft ø60
Parallel key 16x10x32
Tightening torque: 750±50Nm



Shaft T1:
Cone-shaft ø57.2
Parallel key 14.308x14.308x50
Tightening torque: 750±50Nm

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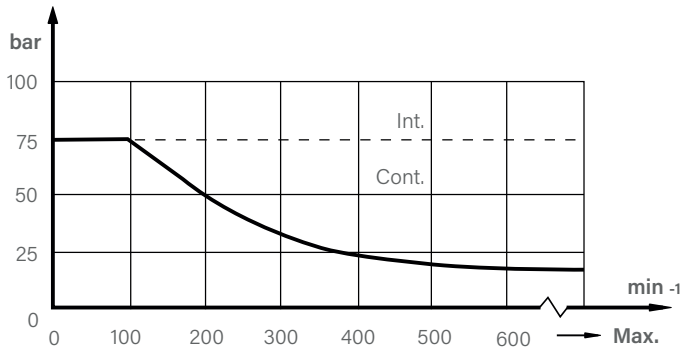
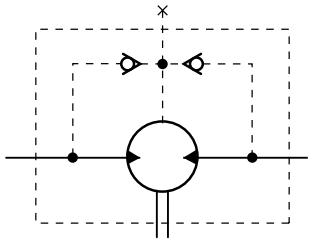
PERMISSIBLE SHAFT SEAL PRESSURE

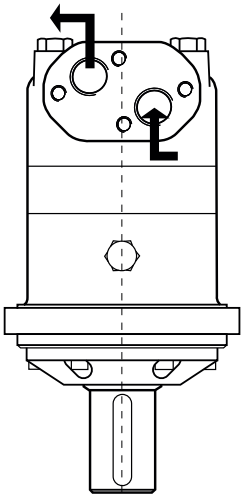




In applications without drain line, output shaft seal exceeds a bit of the pressure in the return line. When applications use the drain line, the pressure of output shaft seal equals the pressure in drain line.

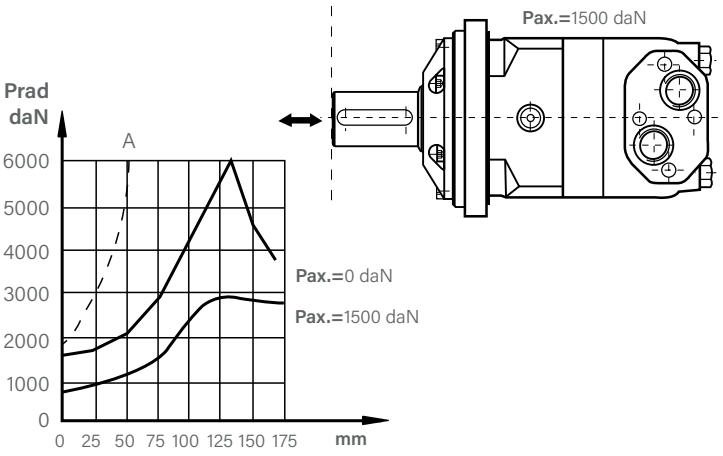
DIRECTION OF SHAFT ROTATION:
Standard

When facing shaft end of motor, shaft to rotate:
Clockwise when **port "A"** is pressurized.
Counter-clockwise **port "B"** is pressurized.



AXIAL AND RADIAL FORCES

The output shaft runs in tapered bearings that permit high axial and radial forces, **Curve "A"** shows max radial shaft load. Any shaft loads exceeding the values quoted in the curve will involve a risk of breakage. The two other curves apply to a B10 bearing life of 3000 hours at 200 RPM.



OIL FLOW in drain line

The table shows the Max. oil flow in the drain line at a return pressure less than 0.5-1MPa.

Pressure drop (MPa)	**Viscosity** (mm^2/s)	**Oil flow in the drain line** (L/min)
14	20	3
	35	2
21	20	6
	35	4

Order Information

1	2	3	4	5	6	7	8
VNKV	–	–	–	–	–	–	–

Pos.1	2	3		4		5		6		7		8	
Code	Disp.	Flange		Output shaft		Ports and drain port		Rotation Direction		Paint		Unusually Function	
Omit	315 400 500 630 800 1000	W	4-Ø18 Square-flan-geØ200, pilot Ø160×11 4-Ø18 Wheel-flange Ø224, pilot Ø180×10	A BD B C T T1	Shaft Ø50 , parallel key 14×9×70 Shaft Ø53.975, splined key 16-DP8/16 Shaft Ø53.975, splined key 16-DP8/16 Shaft Ø57.15, parallel key 12.7×12.7×57.15 Cone shaft Ø60, parallel key 16×10×32 Cone shaft Ø57.2, parallel key 14.308×14.308×50.8	D M S G M5 S1	G1 Manifold 4×M12, G1/4 M33×2 Manifold 4×M12, M14×1.5 1-5/16-12UN, 9/16-18UNF G1,G1/4 M33×2, M14×1.5 1-5/16-12UN 7/16-20UNF	Omit R	Standard Opposite	00 Omit B S	No paint Blue Black Silver grey	Omit SD	Standard Speed Sensor

Note: When the table is used, please fill the code of left rows in dash area and give us, which the code information is consists of construction, displacement, mounting flange, output shaft and ports. If the specification is not in the table or you have specific requirements, please contact us.