

VNKP Series Hydraulic Motor

INTRODUCTION

VNKP series motor are small volume, economical type, which is designed with shaft distribution flow, which adapt the Gerotor gear set design and provide compact volume, high power and low weight.

CHARACTERISTIC FEATURES

- * **Advanced manufacturing devices** for the Gerotor gear set, which provide small volume, high efficiency and long life.
- * **Shaft seal** can bear high pressure of motor of which can be used in parallel or in series.
- * **Advanced construction design**, high power and low weight.
- * **HPS Shaft seal** can bear high pressure (150bar) of motor of which can be used in parallel or in series.
- * **The output shaft** runs in needle bearing capable of absorbing static and dynamic axial and radial loads.



SPECIFICATION Main Specification

Technical data for VNKP with 25 and 1 in and 1 in splined and 28.56 tapered shaft

Type		VNKP 27	VNKP 36	VNKP 50	VNKP 80	VNKP 100	VNKP 125	VNKP 160	VNKP 200	VNKP 250	VNKP 315	VNKP 400	VNKP 500
Geometric displacement (cm3/rev.)		26.6	36	51.7	77.7	96.2	120.2	157.2	194.5	240.3	314.5	389.5	486.5
Max. speed (rpm)	cont.	1465	1500	1150	770	615	490	383	310	250	192	155	120
	int.	1655	1650	1450	960	770	615	475	385	310	240	190	150
Max. torque (N·m)	cont.	35	55	100	146	182	236	302	360	380	375	360	385
	int.	50	76	128	186	227	290	370	440	460	555	525	560
	peak	70	96	148	218	264	360	434	540	550	650	680	680
Max. output (kW)	cont.	6	8.0	10.0	10.0	11.0	10.0	10.0	10.0	8.5	7.0	6.0	5.0
	int.	8	11.5	12.0	12.0	13.0	12.0	12.0	12.0	10.5	8.5	7.0	6.0
Max. pressure drop (MPa)	cont.	10	12.5	14	14	14	14	14	14	11	9	7	6
	int.	14	16.5	17.5	17.5	17.5	17.5	17.5	17.5	14	14	10.5	9
	peak	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	18	16	14	12
Max. flow (L/min)	cont.	40	55	60	60	60	60	60	60	60	60	60	60
	int.	45	60	75	75	75	75	75	75	75	75	75	75
Weight (kg)		5.1	5.6	5.6	5.7	5.9	6.0	6.2	6.4	6.7	6.9	7.4	8

*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.



Main Specification

SPECIFICATION Main Specification

Technical data for VNKP with 31.75 and 32 shaft

Type		VNKP 36	VNKP 50	VNKP 80	VNKP 100	VNKP 125	VNKP 160	VNKP 200	VNKP 250	VNKP 315	VNKP 400	VNKP 500
Geometric displacement (cm3/rev.)		36	51.7	77.7	96.2	120.2	157.2	194.5	240.3	314.5	389.5	486.5
Max. speed (rpm)	cont.	1500	1150	770	615	490	383	310	250	192	155	120
	int.	1650	1450	960	770	615	475	385	310	240	190	150
Max. torque (N•m)	cont.	55	100	146	182	236	302	360	460	475	490	430
	int.	76	128	186	227	290	370	440	570	555	580	560
	peak	96	148	218	264	360	434	540	670	840	840	780
Max. output (kW)	cont.	8.0	10.0	10.0	11.0	10.0	10.0	10.0	8.5	7.0	6.0	6.0
	int.	11.5	12.0	12.0	13.0	12.0	12.0	12.0	10.5	8.5	7.0	7.0
Max. pressure drop (MPa)	cont.	12.5	14	14	14	14	14	14	14	12	9.5	7
	int.	16.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	14	11.5	9
	peak	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	18	13
Max. flow (L/min)	cont.	55	60	60	60	60	60	60	60	60	60	60
	int.	60	75	75	75	75	75	75	75	75	75	75
Weight (kg)		5.6	5.6	5.7	5.9	6.0	6.2	6.4	6.7	6.9	7.4	8.0

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



Performance Data

VNKP 27 [26,6 cm3/rev.]

Pressure (MPa)

Max. cont

Max. int

		3	6	8	10	12	14
Flow (L/min)	5	11 155	20 122	26 90			
	10	12 340	22 315	29 285	35 240	42 180	48 140
	15	12 530	23 500	30 465	35 420	43 375	50 320
	20	11 720	22 670	30 640	35 595	44 545	51 490
	25	11 900	21 875	29 840	35 800	43 755	51 700
	35	10 1265	20 1235	27 1200	34 1170	42 1140	50 1100
	40	8 1465	19 1430	26 1400	33 1370	41 1335	49 1280
	45	8 1655	19 1610	26 1565	33 1510	41 1460	49 1405

Torque (N·m) 19
Speed (rpm) 1610

VNKP 36 [36 cm3/rev.]

Pressure (MPa)

Max. cont Max. int

		3	6	7	8	10	11	12,5	16,5
Flow (L/min)	8	13 214	25 205	29 200	34 194	43 187	48 179		
	15	13 406	25 398	29 391	34 383	43 374	48 366	56 353	75 324
	20	13 541	24 534	29 528	34 521	43 513	48 500	56 486	76 458
	30	12 814	24 804	29 792	34 778	43 763	48 749	56 726	76 701
	35	12 952	23 944	28 930	34 913	43 897	48 879	56 858	76 833
	40	12 1090	23 1078	28 1064	32 1048	41 1024	47 998	55 977	75 943
	45	11 1232	22 1218	26 1196	32 1175	41 1149	46 1118	54 1080	74 1044
	55	6 1505	15 1494	22 1480	28 1466	37 1438	44 1406	52 1367	71 1309

		3	6	7	8	10	11	12,5	16,5
Flow (L/min)	8	13 214	25 205	29 200	34 194	43 187	48 179		
	15	13 406	25 398	29 391	34 383	43 374	48 366	56 353	75 324
	20	13 541	24 534	29 528	34 521	43 513	48 500	56 486	76 458
	30	12 814	24 804	29 792	34 778	43 763	48 749	56 726	76 701
	35	12 952	23 944	28 930	34 913	43 897	48 879	56 858	76 833
	40	12 1090	23 1078	28 1064	32 1048	41 1024	47 998	55 977	75 943
	45	11 1232	22 1218	26 1196	32 1175	41 1149	46 1118	54 1080	74 1044
	55	6 1505	15 1494	22 1480	28 1466	37 1438	44 1406	52 1367	71 1309

Max. int Max. cont

VNKP 50 [51.7 cm3/rev.]

Pressure (MPa)

Max. cont Max. int

		3	6	8	10	12,5	14	16	17,5
Flow (L/min)	8	20 151	41 134	56 115	69 90	89 56	95 42		
	15	19 286	40 274	56 261	71 243	91 204	100 182	112 139	120 102
	20	18 382	39 373	55 361	71 348	92 318	101 309	117 287	128 251
	30	17 573	38 568	55 558	71 535	91 503	98 488	116 462	124 440
	35	17 670	38 661	54 652	69 640	89 606	98 589	117 562	124 548
	45	14 863	36 858	53 849	67 837	88 807	98 788	114 764	123 746
	55	12 1055	33 1042	50 1028	65 1010	85 979	96 963	111 947	121 920
	60	10 1150	32 1143	47 1126	64 1111	83 1079	94 1065	108 1043	119 1015

		3	6	8	10	12,5	14	16	17,5
Flow (L/min)	8	20 151	41 134	56 115	69 90	89 56	95 42		
	15	19 286	40 274	56 261	71 243	91 204	100 182	112 139	120 102
	20	18 382	39 373	55 361	71 348	92 318	101 309	117 287	128 251
	30	17 573	38 568	55 558	71 535	91 503	98 488	116 462	124 440
	35	17 670	38 661	54 652	69 640	89 606	98 589	117 562	124 548
	45	14 863	36 858	53 849	67 837	88 807	98 788	114 764	123 746
	55	12 1055	33 1042	50 1028	65 1010	85 979	96 963	111 947	121 920
	60	10 1150	32 1143	47 1126	64 1111	83 1079	94 1065	108 1043	119 1015

Max. int Max. cont

VNKP 80 [77.7 cm3/rev.]

Pressure (MPa)

Max. cont Max. int

		3	6	8	10	12,5	14	16	17,5
Flow (L/min)	8	32 97	62 87	85 74	104 55	129 33	144 22		
	15	32 186	63 181	84 170	107 154	126 132	144 118	165 86	
	20	31 251	63 243	84 236	107 225	132 207	146 196	168 178	185 155
	30	31 381	62 379	83 368	106 355	131 332	146 316	168 285	186 263
	35	30 443	59 435	81 426	102 415	130 397	144 383	167 361	185 342
	45	25 570	58 564	79 554	100 543	126 526	142 509	165 483	182 458
	55	23 696	57 685	78 672	97 656	124 643	140 630	161 602	179 579
	60	20 761	53 753	75 744	94 736	120 720	137 706	160 681	177 660

		3	6	8	10	12,5	14	16	17,5
Flow (L/min)	8	32 97	62 87	85 74	104 55	129 33	144 22		
	15	32 186	63 181	84 170	107 154	126 132	144 118	165 86	
	20	31 251	63 243	84 236	107 225	132 207	146 196	168 178	185 155
	30	31 381	62 379	83 368	106 355	131 332	146 316	168 285	186 263
	35	30 443	59 435	81 426	102 415	130 397	144 383	167 361	185 342
	45	25 570	58 564	79 554	100 543	126 526	142 509	165 483	182 458
	55	23 696	57 685	78 672	97 656	124 643	140 630	161 602	179 579
	60	20 761	53 753	75 744	94 736	120 720	137 706	160 681	177 660

Max. int Max. cont

Torque (N·m) 87
Speed (rpm) 920

Int. Cont.



Performance Data

VNKP 100 [96.2 cm3/rev.]

		Pressure (MPa)									
		3	6	8	10	12.5	14	16	17,5	Max. cont	Max. int
Flow (L/min)	8	40 81	77 75	105 69	130 57	161 36	180 24				
	15	39 152	77 149	106 145	130 140	160 122	180 103	208 81			
	20	36 204	74 200	104 195	128 190	161 177	179 166	205 148	227 133		
	30	33 308	72 304	103 298	125 290	160 280	177 268	203 255	225 231		
	35	30 360	70 352	98 343	122 331	159 320	176 306	202 294	224 275		
Max. int Max. cont	45	29 462	67 458	95 451	118 443	155 433	174 419	200 402	220 383		
	55	25 566	64 558	93 549	116 540	152 529	170 515	198 498	217 478		
	60	22 618	60 611	91 601	114 589	149 580	167 570	194 558	213 540		
	75	15 771	54 763	83 755	106 744	141 735	160 724	186 708	205 693		

VNKP 125 [120.2 cm3/rev.]

		Pressure (MPa)									
		3	6	8	10	12.5	14	16	17,5	Max. cont	Max. int
Flow (L/min)	8	51 63	98 60	137 55	168 47	208 28	236 15				
	15	51 121	101 116	138 110	168 102	209 89	236 73	267 48			
	20	48 162	98 158	135 153	167 148	211 137	237 128	269 109	290 94		
	30	46 243	96 239	132 234	164 227	209 216	232 202	264 189	287 176		
	35	42 284	92 279	130 274	160 269	206 259	229 247	260 231	284 222		
Max. int Max. cont	45	37 370	89 362	125 355	157 348	201 340	224 327	261 310	281 296		
	55	33 452	84 446	122 438	152 431	196 420	218 412	252 402	275 384		
	60	29 490	78 482	117 475	146 468	191 459	215 448	248 439	272 427		
	75	18 615	66 606	107 598	133 586	179 575	202 563	236 549	260 528		

VNKP 160 [157.2 cm3/rev.]

		Pressure (MPa)									
		3	6	8	10	12.5	14	16	17,5	Max. cont	Max. int
Flow (L/min)	8	62 49	120 48	170 46	212 42	263 26	290 14				
	15	60 93	122 91	172 88	215 85	264 76	294 68	340 48			
	20	57 125	120 123	170 120	214 117	262 110	290 106	340 92	371 81		
	30	53 187	115 184	164 181	206 178	259 175	288 168	335 155	368 139		
	35	49 220	110 216	160 213	202 209	255 205	284 202	328 192	362 176		
Max. int Max. cont	45	44 283	102 280	154 276	196 272	248 267	278 260	321 250	358 238		
	55	40 345	99 342	148 340	191 336	243 331	272 328	316 320	351 303		
	60	33 377	94 374	144 371	188 367	236 363	267 359	308 353	345 342		
	75	19 473	80 469	124 465	170 459	216 453	252 447	296 440	325 424		

VNKP 200 [194.5 cm3/rev.]

		Pressure (MPa)									
		3	6	8	10	12.5	14	16	17,5	Max. cont	Max. int
Flow (L/min)	8	79 40	164 39	207 38	250 35	320 28	360 22				
	15	78 76	162 75	205 74	250 71	322 66	361 61	410 51			
	20	76 100	158 98	203 97	247 95	320 92	358 89	403 73	422 57		
	30	70 151	153 149	200 147	245 145	315 142	350 139	398 131	417 120		
	35	66 177	149 175	194 173	232 171	297 168	343 166	386 160	415 149		
Max. int Max. cont	45	63 228	146 226	190 224	230 221	294 218	340 215	383 210	410 198		
	55	54 280	140 278	181 276	224 274	286 271	334 269	371 263	400 250		
	60	38 304	127 302	164 300	212 297	270 294	325 291	356 286	395 272		
	75	22 382	96 378	145 374	192 371	235 368	293 364	321 360	367 350		



Int.



Cont.



Performance Data

VNKP 250 [240.3 cm3/rev.]

Pressure (MPa)

		Max. cont					Max. int		
		3	6	8	10	12.5	14	16	17.5
Flow (L/min)	8	96 30	190 28	268 24	326 21	403 11			
	15	98 60	194 58	270 54	327 50	405 40	450 30	510 12	
	20	92 82	188 80	267 77	325 76	405 69	456 64	514 52	565 38
	30	85 123	180 120	259 118	320 114	400 106	448 98	513 87	561 76
	35	77 143	176 141	252 139	311 135	389 128	436 122	504 112	557 101
Max. int	45	70 185	168 182	243 178	300 174	377 168	428 161	495 152	543 139
	55	63 226	159 223	237 218	290 213	369 209	417 202	483 193	531 185
	60	60 248	150 246	228 243	280 239	358 233	407 226	473 215	520 207
	75	34 309	128 306	202 302	264 297	342 292	387 286	448 278	488 264
	Max. cont								

Torque (N·m) 128
Speed (rpm) 306

VNKP 315 [314.5 cm3/rev.]

Pressure (MPa)

		Max. cont					Max. int	
		3	5	7	9	10	12.5	14
Flow (L/min)	8	123 25	215 23	292 21	368 17	405 11		
	15	118 47	211 46	287 44	367 40	404 28	495 21	568 10
	20	110 62	205 61	278 60	360 57	395 46	494 40	566 36
	30	101 94	196 93	271 91	349 88	388 76	490 68	565 65
	35	96 109	188 107	264 106	341 104	382 96	478 89	557 84
Max. cont	45	89 141	180 140	254 138	337 135	372 127	468 120	553 115
	55	76 173	166 172	239 170	325 167	362 160	457 152	548 143
	60	65 188	154 186	227 184	308 182	348 178	443 172	529 163
	75	40 236	120 234	201 232	279 228	323 226	418 223	497 214
	Max. int							

VNKP 400 [389.5 cm3/rev.]

Pressure (MPa)

		Max. cont					Max. int	
		3	4.5	5.5	6.5	8	10	12.5
Flow (L/min)	8	166 20	232 19	287 18	340 16	418 12		
	15	165 38	228 36	277 35	337 33	417 31	496 27	612 21
	20	162 50	223 49	273 49	331 48	413 45	495 41	608 35
	30	154 76	216 75	266 74	318 73	405 71	486 67	600 60
	35	146 88	210 87	256 87	312 86	395 83	480 80	588 75
Max. cont	45	132 114	197 113	243 112	300 110	383 108	464 106	576 99
	55	117 139	184 137	227 136	283 135	363 135	450 132	552 123
	60	102 153	163 152	215 150	272 148	347 146	436 143	532 138
	75	53 191	128 189	182 187	234 185	318 183	391 180	484 176
	Max. int							

Torque (N·m) 234
Speed (rpm) 185

VNKP 500 [486.5 cm3/rev.]

Pressure (MPa)

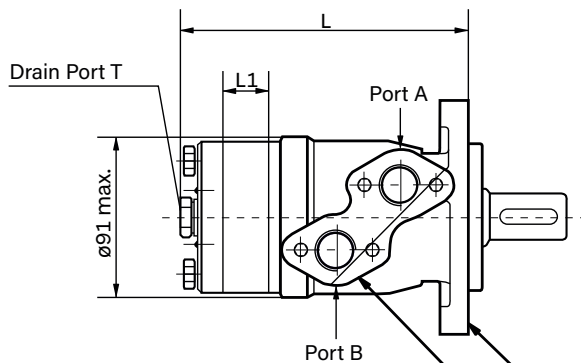
		Max. cont					Max. int	
		1.5	3	4.5	6	7	8	9
Flow (L/min)	4	96 7	194 6	285 4				
	8	98 15	201 15	304 14	391 14	443 12	512 9	574 7
	15	96 30	192 30	284 29	380 28	421 26	496 23	550 22
	20	96 40	191 40	280 40	372 39	418 37	493 33	546 31
	30	91 61	185 60	272 60	360 58	412 56	486 53	541 50
Max. cont	40	86 81	172 80	261 80	343 79	408 76	480 73	538 70
	50	78 102	160 101	241 100	332 98	391 96	466 93	528 90
	60	66 122	134 121	213 120	305 119	371 117	438 114	496 110
	70	52 143	111 142	189 141	292 139	344 137	418 135	475 131
	75	35 153	83 152	154 151	241 150	312 149	389 147	448 144
	Max. int							

Torque (N·m) 389
Speed (rpm) 147

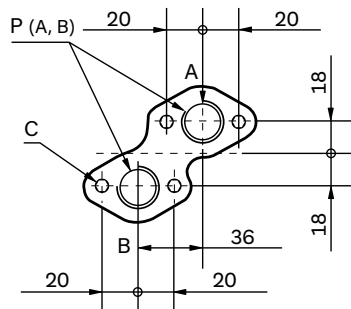
VNKP Dimensions and Mounting Data



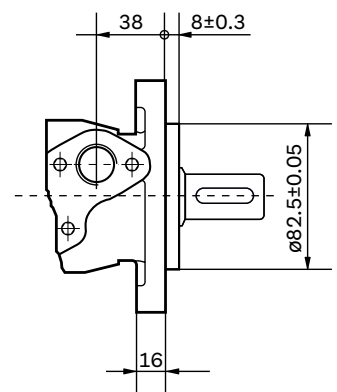
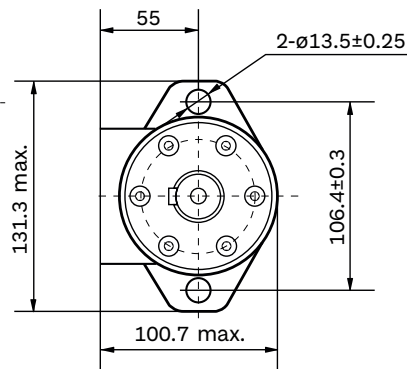
MOUNTING



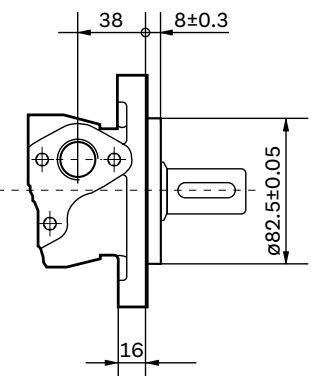
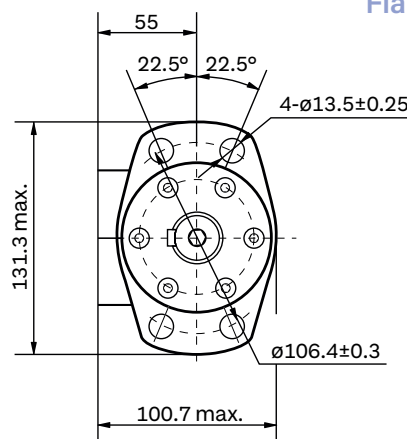
Port



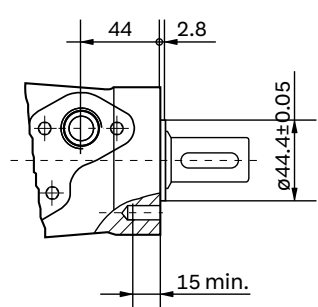
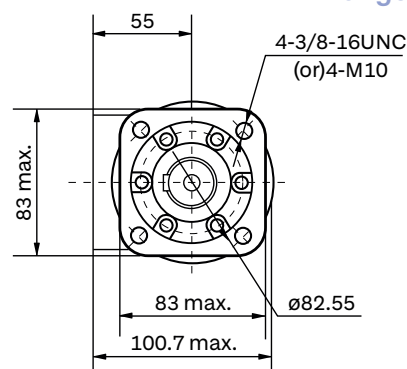
Flange 2



Flange 4



Flange H4/H5



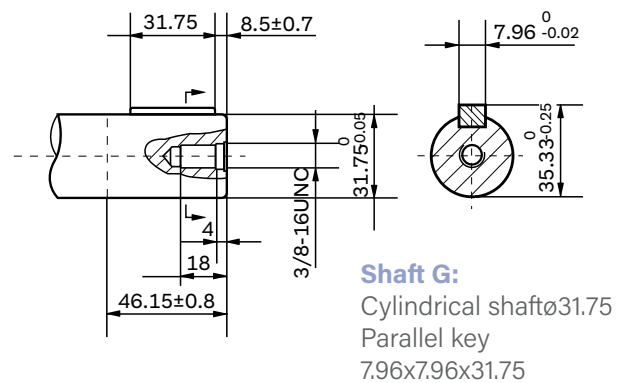
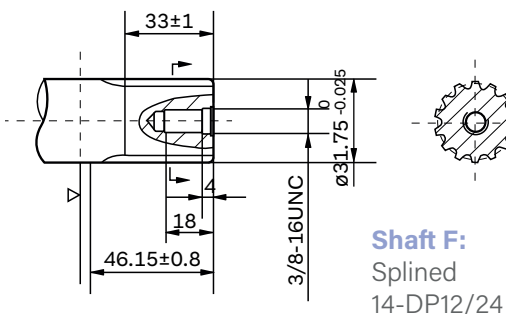
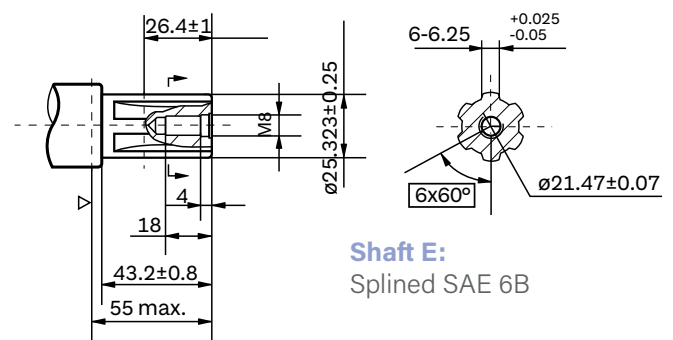
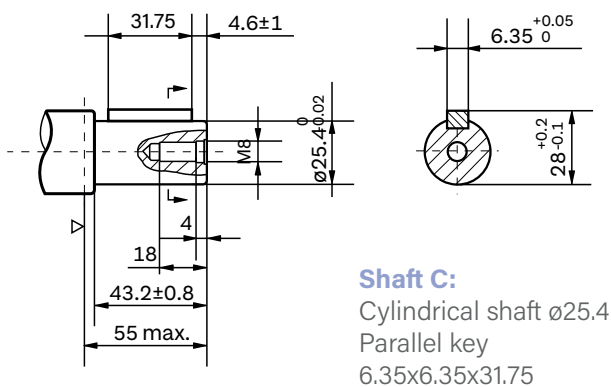
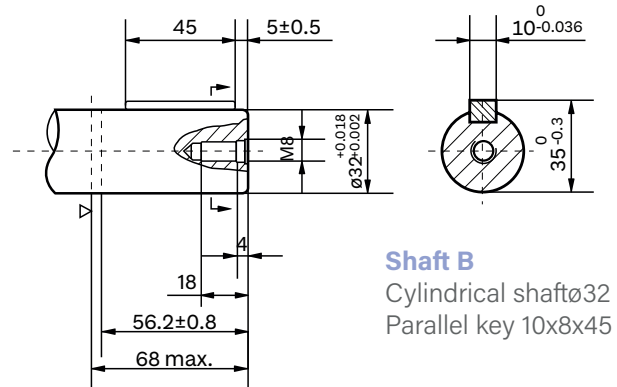
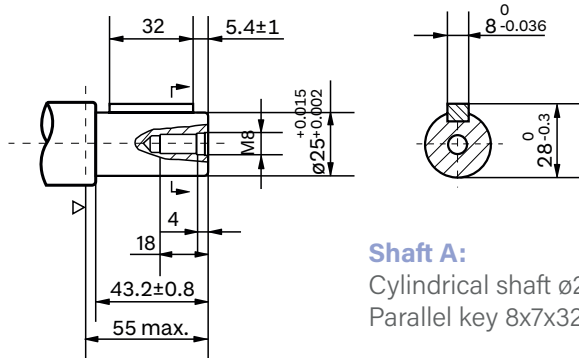
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VNKP27	137	7
VNKP36	137	7
VNKP50	137	7
VNKP80	140.5	10.5
VNKP100	143	13
VNKP125	146	16
VNKP160	151	21
VNKP200	157	26
VNKP250	162	32
VNKP315	172	42
VNKP400	182	52
VNKP500	195	65

Mounting Code	D (depth)	M (depth)	S (depth)	P (depth)	R (depth)
P (A,B)	G1/2 (15)	M22 x 1.5 (15)	7/8-14 O-ring (17)	1/2-14NPTF (15)	PT(RC)1/2 (15)
C	4-M8 (13)	4-M8 (13)	4-5/16-18UNC(13)	4-5/16-18UNC(13)	4-M8 (13)
T	G1/4 (12)	M14 x 1.5 (12)	7/16-20UNF (12)	7/16-20UNF (12)	PT(RC)1/4 (9.7)



VNKP Shaft Extensions

Dimensions Data

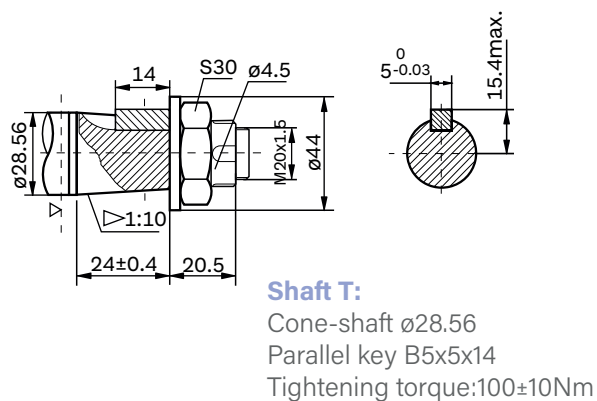
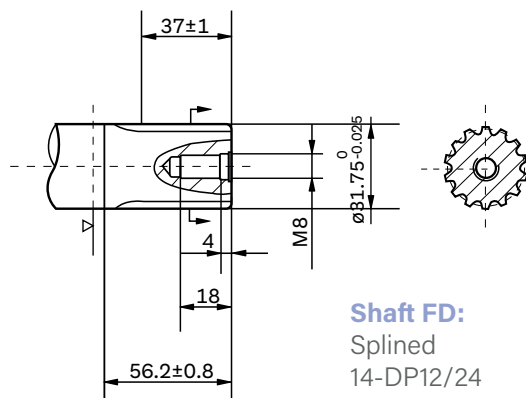
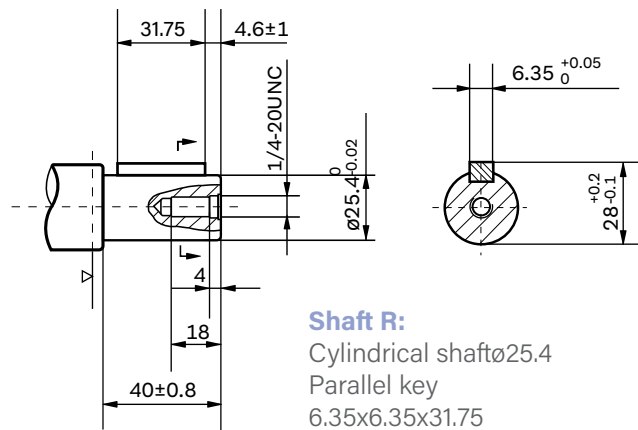
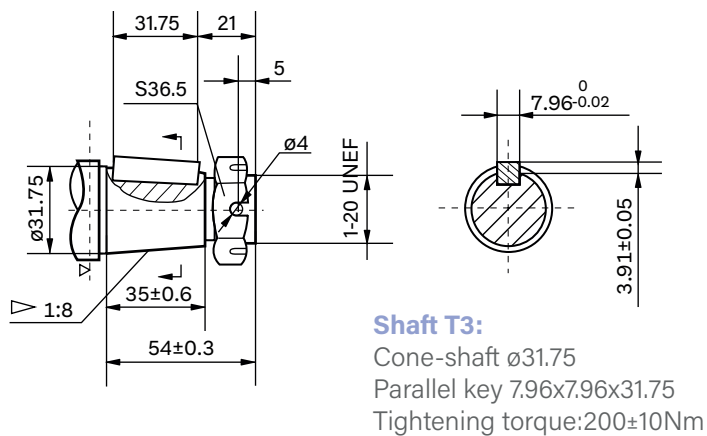


▷ Motor Mounting Surface



VNKP Shaft Extensions

Dimensions Data

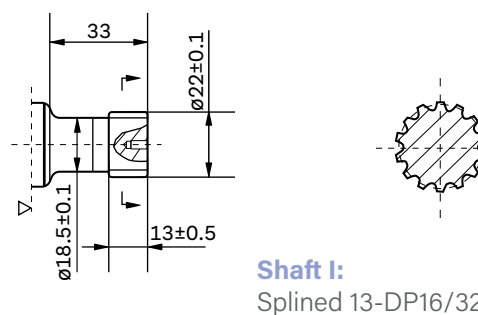
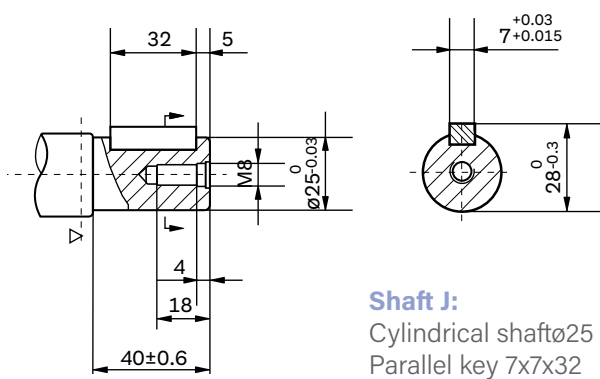
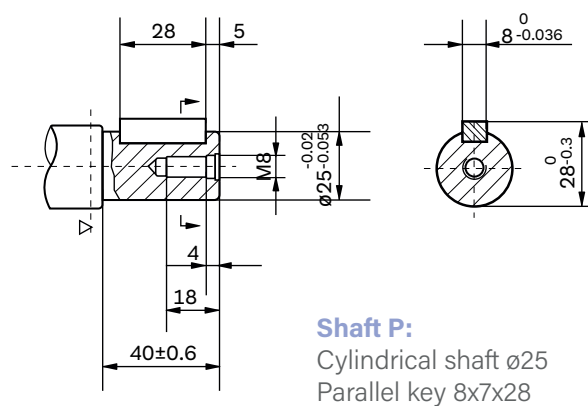
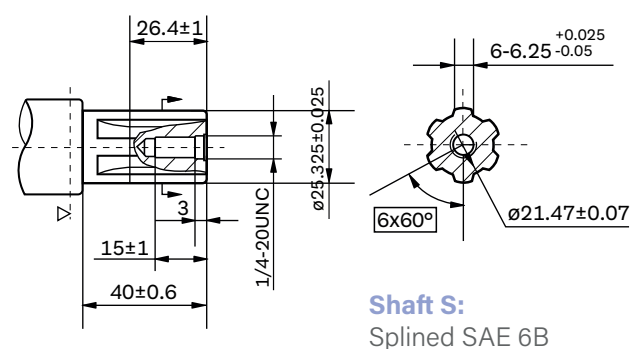
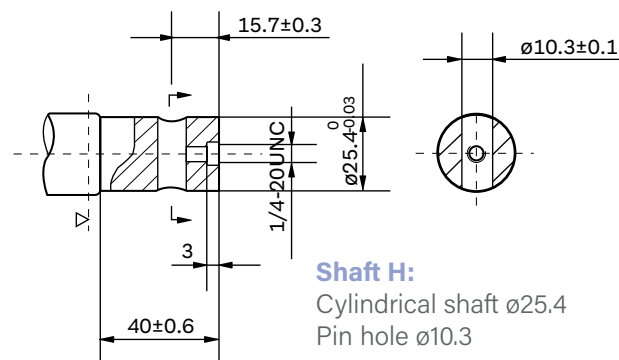
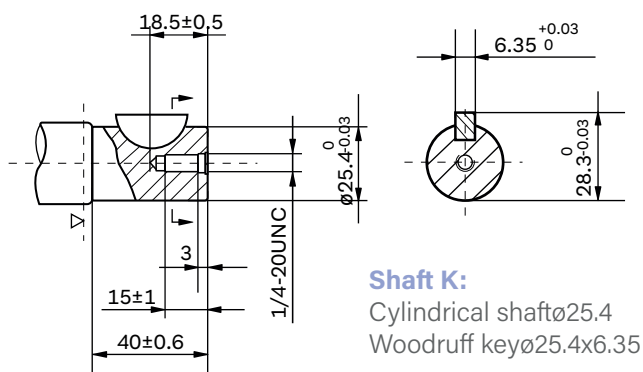


▷ Motor Mounting Surface



VNKP Shaft Extensions

Dimensions Data



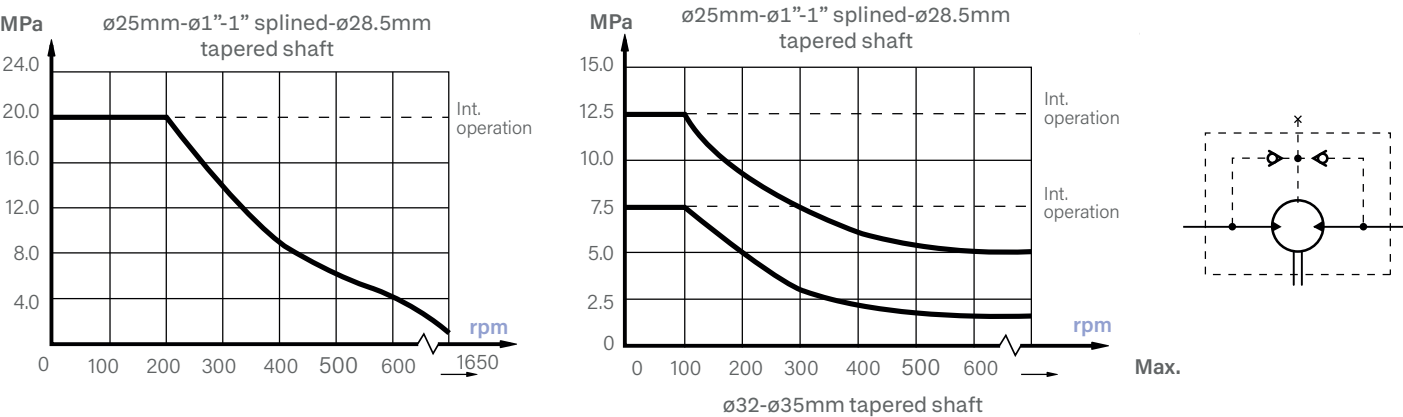
▷ Motor Mounting Surface



VNKP, VNKPH Series Hydraulic Motor



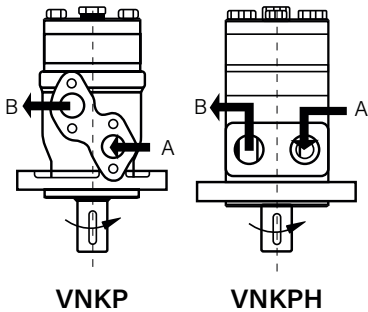
PERMISSIBLE SHAFT SEAL PRESSURE



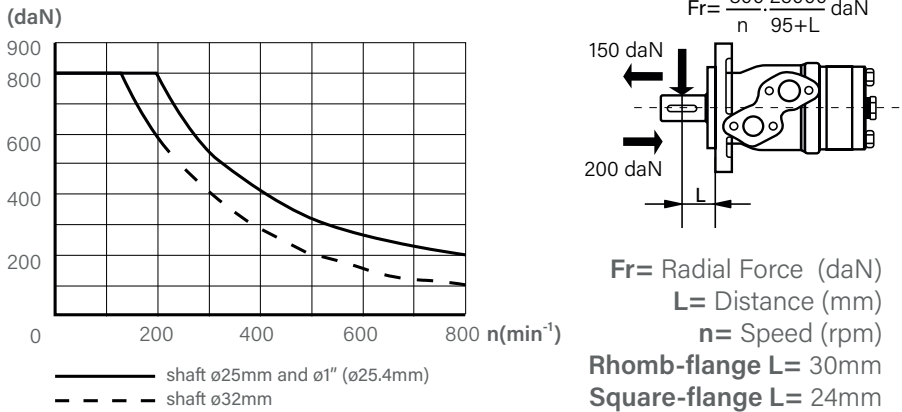
In applications without drain line, output shaft seal exceeds a bit of the pressure in the return line. When applications use the drain line, the pressure of output shaft seal equals the pressure in drain line.

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.



STATUS OF THE SHAFT'S RADIAL FORCE



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 (PmPa)	Viscosity (mm²/s)	Oil flow in the drain line (L/min)
10	20	2.5
	35	1.8
14	20	3.5
	35	2.8

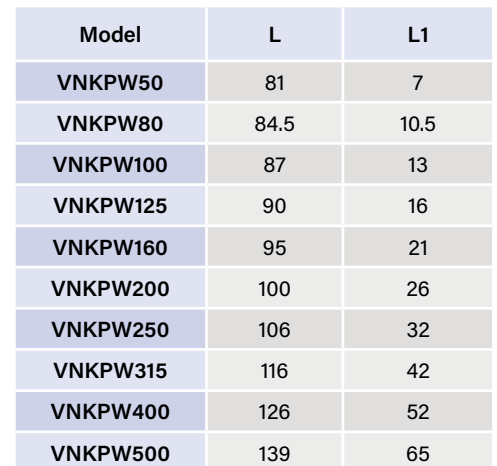
Order Information



1	2	3	4	5	6	7	8					
VNKP												
Pos.1	2	3	4	5	6	7	8					
Code	Disp.	Flange	Output shaft	Ports and drain port	Rotation direction	Paint	Unusually Function					
VNKP	27	2-Ø13.5 Rhomb-flange, pilot Ø82.5x8	A	Shaft Ø25,parallel key 8x7x32	D	00	Omit					
	36		C	Shaft Ø25.4,parallel key 6.35x6.35x31.75								
	50		E	Shaft Ø25.4,splined tooth SEA 6B								
	80		R	Short shaft Ø25.4,parallel key6.35x6.35x31.75	M			M22x1.5 Manifold Mount 4xM8, M14x1.5				
	100		T	Cone shaft Ø28.56,parallel key B5x5x14	S			7/8-14 O-ring manifold 4x5/16-18UNC, 7/16-20UNF				
	125	4-Ø13.5 Rhomb-flange, pilot Ø82.5x8	B	Shaft Ø32,parallel key 10x8x45	P	R	Opposite	Free Running				
	160								4-3/8-16 Square-flange, pilot Ø44.4x2.8			
	200											
	250											
	315											
	400											
	500											
		4-M10 Square-flange, pilot Ø44.4x2.8	FD	Long shaft Ø31.75,splined tooth14-DP12 / 24	R	PT(Rc)1/2 Manifold 4xM8, PT(Rc)1/4	SD	Speed Sensor				
									G	Shaft Ø31.75, parallel key 7.96x7.96x31.75		
											T3	Cone shaft Ø31.75,parallel key 7.96x7.96x25.4

Note: The shafts of B\F\FD\G\T1\T3 are only suitable for flanges of 2 and 4.





Mounting Code	G (depth)	S (depth)	M (depth)
P (A,B)	G1/2 (15)	7/8-14 O-ring (17)	M22×1.5 (15)
T	G1/4 (12)	7/16-20UNF (12)	M14×1.5 (12)
C	4×M10(20)	4×3/8-16UNC(20)	4×M10(20)

Order Information



1	2	3	4	5	6	7	8
VNKPW							
Pos.1	2	3	4	5	6	7	8
Code		Flange	Output shaft	Ports and drain port	Rotation direction	Paint	Unusually Function
VNKPW	50	Omit	A	G	Omit	00	Omit
	80		C				
	100						
	125						
	160						
	200						
	250	Wheel-flange pilot Ø80x75	E	S	R	B	0
	315						
	400						
	500		T	M		S	SD
			Shaft Ø25k6 ,Parallel key 8x7x32	G1/2, G1/4	Standard	No paint	Standard
			Shaft Ø25.4 , Parallel key 6.35x6.35x31.75	7/8-14 O-ring, 7/16-20UNF	Opposite	Blue	Big radial force
			Shaft Ø25.4 ,Splined key SAE 6B			Black	No case drain
			Cone shaft Ø28.56 ,Parallel key B5x5x14	M22x1.5,M14x1.5		Silver grey	Speed sensor

Note: When the table is used, please fill the code of left rows in the table 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.