VNKP SERIES HYDRAULIC MOTOR

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 use low pressure of start-up, provide smooth, reliable operation and high efficiency.
- Special design in the driver-linker and prolong operating life
- Special design for distribution system can meet the requirement of low noise of unit.
- Compact volume and easy installation.
- **HPS** Shaft seal can bear high pressure (150bar) of motor of which can be used in parallel or in series.
- Advanced construction design, high power and low weight.
- The output shaft runs in **needle bearing** capable of absorbing static and dynamic axial and radial loads.
- Supporting +300 hours of salt spray.

Main Specification

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

Type		VNKP VNKPH VNKPW 36	VNKP VNKPH VNK-PW 50	VNKP VNKPH VNKPW 80	VNKP VNKPH VNKPW 100	VNKP VNKPH VNKPW 125	VNKP VNKPH VNKPW 160	VNKP VNKPH VNKPW 200	VNKP VNKPH VNKPW 250	VNKP VNKPH VNKPW 315	VNKP VNKPH VNKPW 400	VNKP VNKPH VNKPW 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	380	375	360	385
	int.	76	128	186	227	290	370	440	460	555	525	560
	peak	96	148	218	264	360	434	540	550	650	680	680
Max. output (kW)	cont.	8,0	10,0	10,0	11,0	10,0	10,0	10,0	8,5	7,0	6,0	5,0
	int.	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.	12,5	14	14	14	14	14	14	11	9	7	6
	int.	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	18	16	14	12
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

- 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.

VNKP 36 [36cm³/rev.]

Pressure (MPa)

Flow (L/min)	3	6	7	8	10	11	12.5	16.5
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**
Max.cont. 55	6 / **1505**	15 / **1494**	22 / **1480**	28 / **1466**	37 / **1438**	44 / **1406**	52 / **1367**	71 / **1309**
Max.int. 60	3 / **1650**	11 / **1640**	18 / **1626**	20 / **1603**	30 / **1571**	38 / **1536**	49 / **1502**	67 / **1446**

VNKP 50 [51.7cm³/rev.]

Pressure (MPa)

Flow (L/min)	3	6	8	10	12.5	14	16	17.5
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**
Max.cont. 60	10 / **1150**	32 / **1143**	47 / **1126**	64 / **1111**	83 / **1079**	94 / **1065**	108 / **1043**	119 / **1015**
Max.int. 75	6 / **1440**	25 / **1430**	42 / **1416**	56 / **1395**	76 / **1367**	87 / **1351**	101 / **1335**	112 / **1312**

VNKP 80 [77.7cm³/rev.]

Pressure (MPa)

Flow (L/min)	3	6	8	10	12.5	14	16	17.5
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**
Max.cont. 60	20 / **761**	53 / **753**	75 / **744**	94 / **736**	120 / **720**	137 / **706**	160 / **681**	177 / **660**
Max.int. 75	14 / **948**	44 / **940**	67 / **931**	87 / **920**	112 / **906**	151 / **890**	169 / **871**	169 / **854**

Torque (N•m) 87
Speed (rpm) **920**

VNKP 100 [96.2cm³/rev.]

Pressure (MPa)

Flow (L/min)	3	6	8	10	12.5	14	16	17.5
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**
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**
Max.cont. 60	22 / **618**	60 / **611**	91 / **601**	114 / **589**	149 / **580**	167 / **570**	194 / **558**	213 / **540**
Max.int. 75	15 / **771**	54 / **763**	83 / **755**	106 / **744**	141 / **735**	160 / **724**	186 / **708**	205 / **693**

cont.
int.

VNKP 125 [120.2cm³/rev.]

Flow (L/min) \ Pressure (MPa)	3	6	8	10	12.5	14	16 (Max.cont)	17.5 (Max. int)
8	51	98	137	168	208	236		
	63	**60**	**55**	**47**	**28**	**15**		
15	51	101	138	168	209	236	267	
	121	**116**	**110**	**102**	**89**	**73**	**48**	
20	48	98	135	167	211	237	269	290
	162	**158**	**153**	**148**	**137**	**128**	**109**	**94**
30	46	96	132	164	209	232	264	287
	243	**239**	**234**	**227**	**216**	**202**	**189**	**176**
35	42	92	130	160	206	229	260	284
	284	**279**	**274**	**269**	**259**	**247**	**231**	**222**
45	37	89	125	157	201	224	261	281
	370	**362**	**355**	**348**	**340**	**327**	**310**	**296**
55	33	84	122	152	196	218	252	275
	452	**446**	**438**	**431**	**420**	**412**	**402**	**384**
Max.cont. 60	29	78	117	146	191	215	248	272
	490	**482**	**475**	**468**	**459**	**448**	**439**	**427**
Max.int. 75	18	66	107	133	179	202	236	260
	615	**606**	**598**	**586**	**575**	**563**	**549**	**528**

VNKP 160 [157.2cm³/rev.]

Flow (L/min) \ Pressure (MPa)	3	6	8	10	12.5	14	16 (Max.cont)	17.5 (Max. int)
8	62	120	170	212	263	290		
	49	**48**	**46**	**42**	**26**	**14**		
15	60	122	172	215	264	294	340	
	93	**91**	**88**	**85**	**76**	**68**	**48**	
20	57	120	170	214	262	290	340	371
	125	**123**	**120**	**117**	**110**	**106**	**92**	**81**
30	53	115	164	206	259	288	335	368
	187	**184**	**181**	**178**	**175**	**168**	**155**	**139**
35	49	110	160	202	255	284	328	362
	220	**216**	**213**	**209**	**205**	**202**	**192**	**176**
45	44	102	154	196	248	278	321	358
	283	**280**	**276**	**272**	**267**	**260**	**250**	**238**
55	40	99	148	191	243	272	316	351
	345	**342**	**340**	**336**	**331**	**328**	**320**	**303**
Max.cont. 60	33	94	144	188	236	267	308	345
	377	**374**	**371**	**367**	**363**	**359**	**353**	**342**
Max.int. 75	19	80	124	170	216	252	296	325
	473	**469**	**465**	**459**	**453**	**447**	**440**	**424**

VNKP 200 [194.5cm³/rev.]

Flow (L/min) \ Pressure (MPa)	3	6	8	10	12.5	14	16 (Max.cont)	17.5 (Max. int)
8	79	164	207	250	320	360		
	40	**39**	**38**	**35**	**28**	**22**		
15	78	162	205	250	322	361	410	
	76	**75**	**74**	**71**	**66**	**61**	**51**	
20	76	158	203	247	320	358	403	422
	100	**98**	**97**	**95**	**92**	**89**	**73**	**57**
30	70	153	200	245	315	350	398	417
	151	**149**	**147**	**145**	**142**	**139**	**131**	**120**
35	66	149	194	232	297	343	386	415
	177	**175**	**173**	**171**	**168**	**166**	**160**	**149**
45	63	146	190	230	294	340	383	410
	228	**226**	**224**	**221**	**218**	**215**	**210**	**198**
55	54	140	181	224	286	334	371	400
	280	**278**	**276**	**274**	**271**	**269**	**263**	**250**
Max.cont. 60	38	127	164	212	270	325	356	395
	304	**302**	**300**	**297**	**294**	**291**	**286**	**272**
Max.int. 75	22	96	145	192	235	293	321	367
	382	**378**	**374**	**371**	**368**	**364**	**360**	**350**

Torque (N•m) 128
Speed (rpm) 306

VNKP 250 [240.3cm³/rev.]

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

cont.
int.

VNKP 315 [314.5cm³/rev.]

Pressure (MPa)

Flow (L/min)	3	5	7	9	10	12.5 (Max.cont)	14 (Max. int)
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**
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 (Max.cont.)	65 **188**	154 **186**	227 **184**	308 **182**	348 **178**	443 **172**	529 **163**
75 (Max.int.)	40 **236**	120 **234**	201 **232**	279 **228**	323 **226**	418 **223**	497 **214**

VNKP 400 [389.5cm³/rev.]

Pressure (MPa)

Flow (L/min)	3	4.5	5.5	6.5	8	10 (Max.cont)	12.5 (Max. int)
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**
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 (Max.cont.)	102 **153**	163 **152**	215 **150**	272 **148**	347 **146**	436 **143**	532 **138**
75 (Max.int.)	53 **191**	128 **189**	182 **187**	234 **185**	318 **183**	391 **180**	484 **176**

Torque (N•m) 234
Speed (rpm) 185

VNKP500[486.5cm³/rev.]

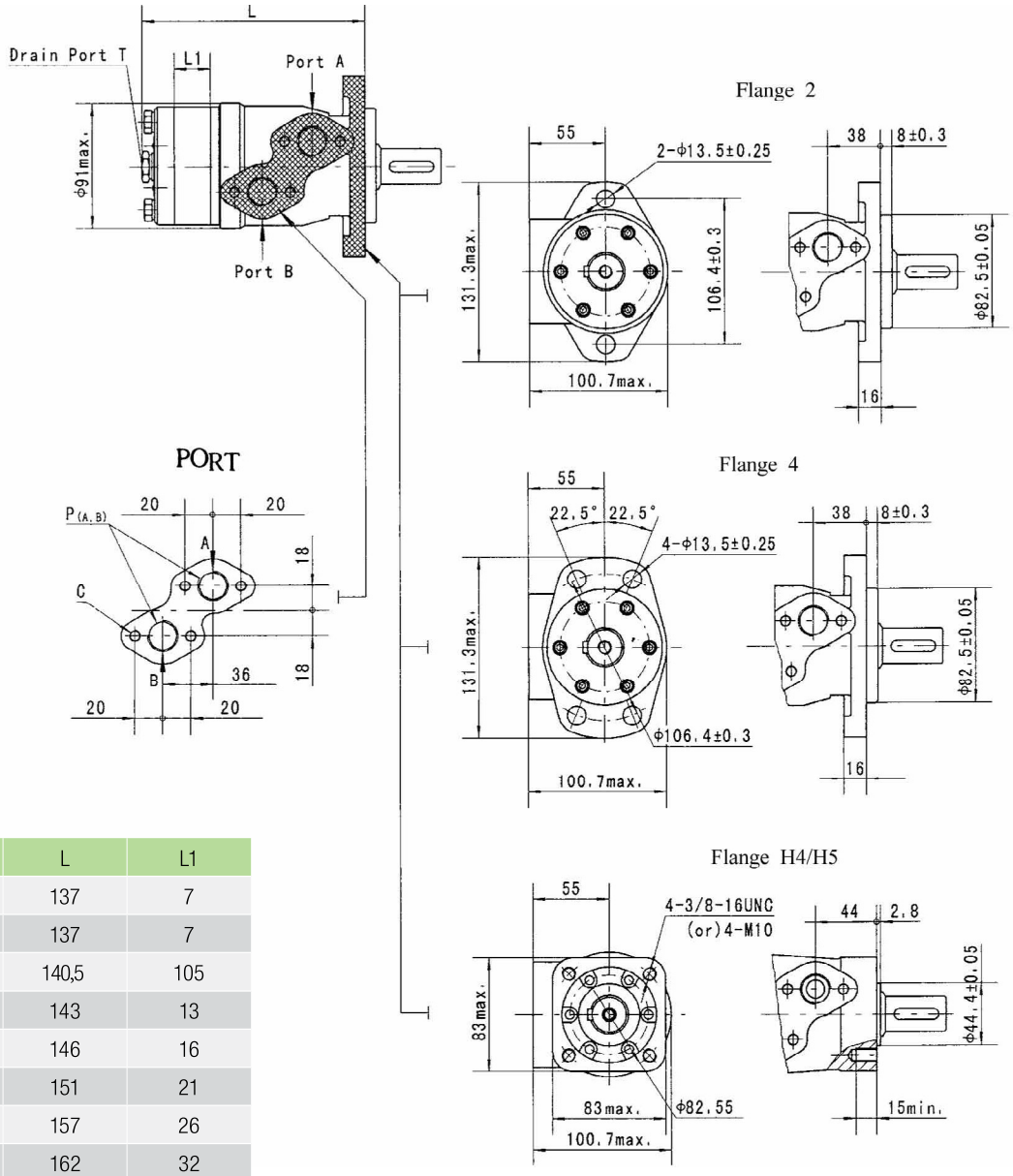
Pressure (MPa)

Flow (L/min)	1.5	3	4.5	6	7 (Max.cont)	8	9 (Max. int)
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**
40	86 **81**	172 **80**	261 **80**	343 **79**	408 **76**	480 **73**	538 **70**
50 (Max.cont.)	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 (Max.int.)	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**

Torque (N•m) 389
Speed (rpm) 147

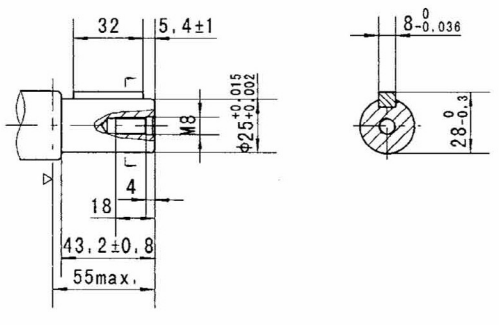
cont.
int.

MOUNTING

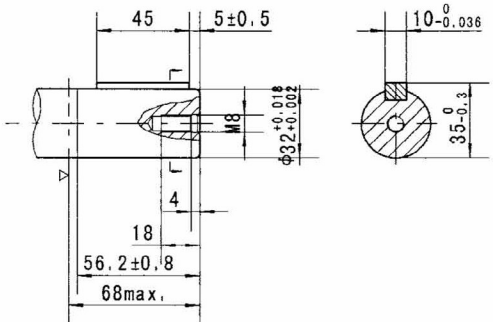


Model	L	L1
VNKP36	137	7
VNKP50	137	7
VNKP80	140,5	105
VNKP100	143	13
VNKP125	146	16
VNKP160	151	21
VNKP200	157	26
VNKP250	162	32
VNKP315	172	42
VNKP400	182	52
VNKP500	195	65

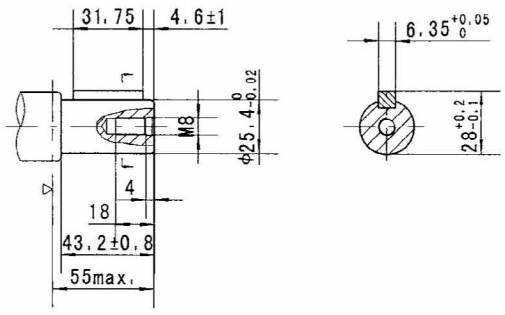
Code / Mounting	D (depth)	M (depth)	S (depth)	P (depth)	R (depth)
P(A,B)	G1/2 (15)	M22 x 1.5 (15)	7/8-14 O-ring (17)	1/2-14NPTF (15)	PT(RC)1/2 (15)
C	4-M8 (13)	4-M8 (13)	4-5/16-18UNC(13)	4-5/16-18UNC(13)	4-M8 (13)
T	G1/4 (12)	M14 x 1.5 (12)	7/16-20UNF (12)	7/16-20UNF (12)	PT(RC)1/4 (9.7)



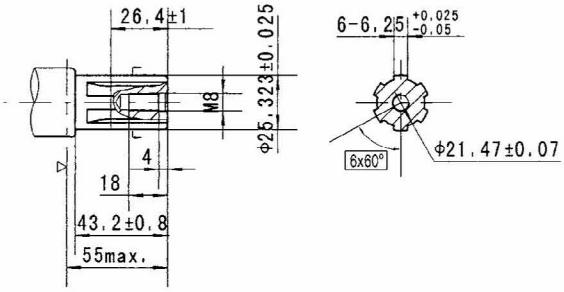
Shaft A: Cylindrical shaft ø25
Parallel key 8x7x32



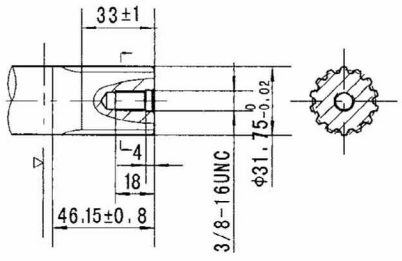
Shaft B: Cylindrical shaftø32
Parallel key 10x8x45



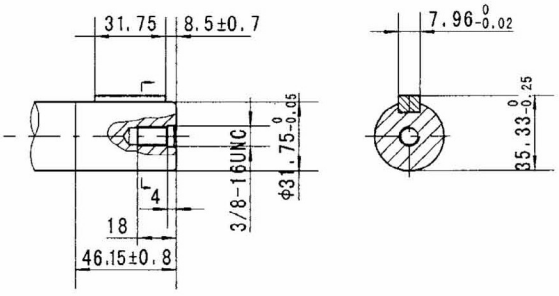
Shaft C: Cylindrical shaft ø25.4
Parallel key 6.35x6.35x31.75



Shaft E: Splined SAE 6B

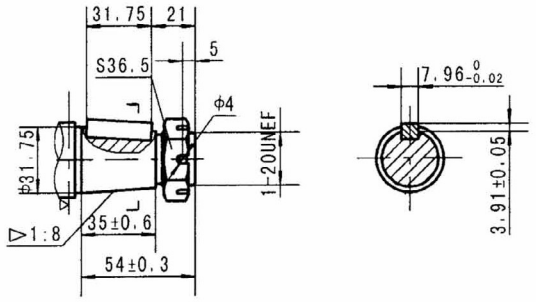


Shaft F: Splined
14-DP12/24

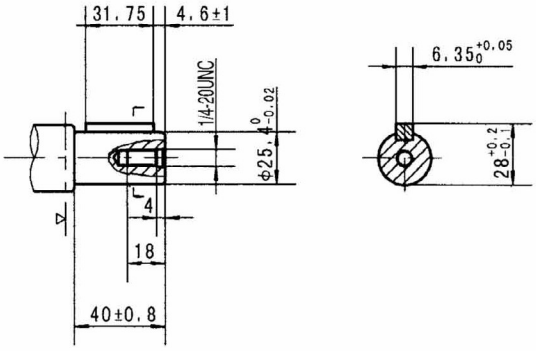


Shaft G: Cylindrical shaftø31.75
Parallel key 7.96x7.96x31.75

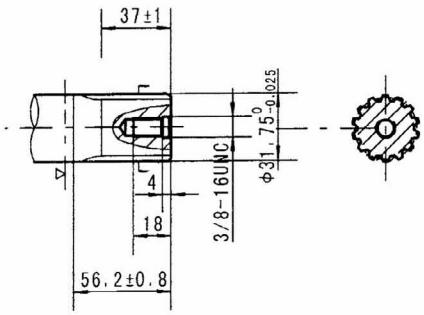
Motor Mounting Surface →



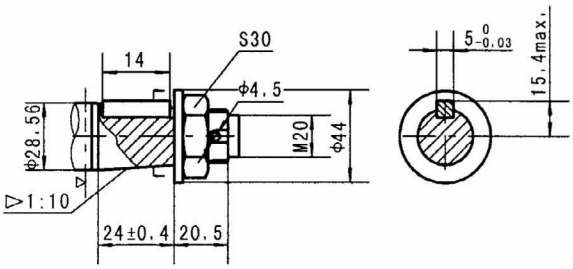
Shaft T3: Cone-shaft ø31.75
Parallel key 7.96x7.96x31.75
Tightening torque:200±10Nm



Shaft R:Cylindrical shaftø25.4
Parallel key 6.35x6.35x31.75



Shaft FD: Splined
14-DP12/24

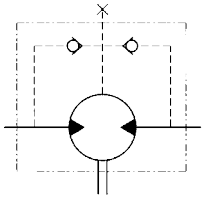


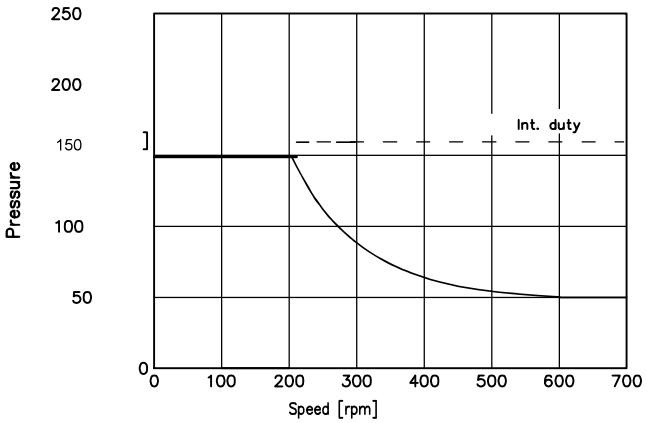
Shaft T: Cone-shaft ø28.56
Parallel key B5x5x14
Tightening torque:100±10Nm

Motor Mounting Surface →

HPS

Permissible shaft seal pressure





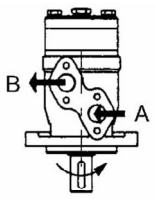
Vincke are made as standard with HPS seal version.

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.

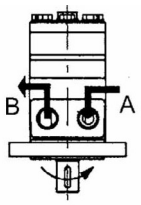
In applications without drain line, output shaft seal exceeds a bit of the pressure in the return line. When applications use the drain line, the pressure of output shaft seal equals the pressure in drain line.

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.

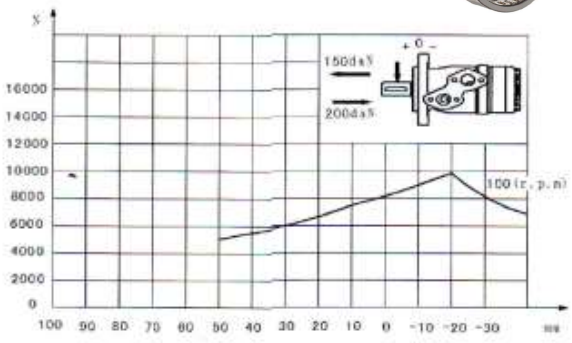


VNKP

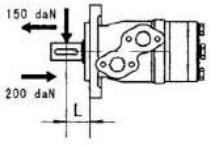


VNKPH

Status of the shaft's radial force with needle bearing



$$F_r = \frac{800}{n} \cdot \frac{25000}{95+L}\ daN$$



F_r =Radial Force (daN)
L =Distance (mm)
n =Speed (rpm)
Rhomb-flange L=30mm
Square-flange L=24mm

The output Shaft on VNKP-N series is supplied with needle bearing and the recessed mounting allow a higher permissible radial load in comparasion with VNK series motors. The curves apply to a B10 needle roaller bearing life of 2000 hours.

Relationship between output shaft bearing load and multiplication coefficient

Rotating speed	50	100	200	300	400	500	600	700	800
coefficient	1.23	1	0.81	0.72	0.66	0.62	0.58	0.56	0.54

VNKP	1	2	3	4	5	6	7	8

Pos.1	2	3		4		5		6		7		8	
Code	Disp.	Flange		Output Shaft		Ports and Drain Port		Rotation Direction		Paint		Unusually Function	
VNKP	36 50 80 100 125 160 200 250 315 400 500	2 4 H4 H5	2-Ø13.5 Rhomb-flange , pilot Ø82.5×8 4-Ø13.5 Rhomb-flange , pilot Ø82.5×8 4-3/8-16 Square-flange , pilot Ø44.4×2.8 4-M10 Square-flange , pilot Ø44.4×2.8	A C E R B F FD G T T3	Shaft Ø25,parallel key 8x7x32 Shaft Ø25.4,parallel key 6.35x6.35x31.75 Shaft Ø25.4,splined tooth SEA 6B Short shaft Ø25.4,parallel key6.35x6.35x31.75 Shaft Ø32,parallel key 10x8x45 Shaft Ø31.75,splined tooth 14-DP12/24 Long shaft Ø31.75,splined tooth14-DP12/24 Shaft Ø31.75, parallel key 7.96x7.96x31.75 Cone shaft Ø28.56,parallel key B5x5x14 Cone shaft Ø31.75,parallel key 7.96x7.96x25.4	D M S P R	G1/2 Manifold Mount 4×M8, G1/4 M22×1.5 Manifold Mount 4×M8, M14×1.5 7/8-14 O-ring manifold 4x5/16-18UNC, 7/16-20UNF 1/2-14 NPTF Manifold 4x5/16-18UNC, 7/16-20UNF PT(Rc)1/2 Manifold 4xM8, PT(Rc)1/4	Omit R	Standard Opposite	00 Omit B S	No paint Blue Black Silver grey	Omit N O F LS SK	Standard HPS Big radial force No case drain Free Running Low Speed Speed sensor

VNKPH	1	2	3	4	5	6	7	8

Pos.1	2	3		4		5		6		7		8	
Code	Disp.	Flange		Output Shaft		Ports and Drain Port		Rotation Direction		Paint		Unusually Function	
VNKPH	36 50 80 100 125 160 200 250 315 400 500	H2 H6 H4 H5	2-Ø13.5 Rhomb-flange , pilot Ø82.5×2.8 4-Ø13.5 Rhomb-flange , pilot Ø82.5×2.8 4-3/8-16 Square-flange , pilot Ø44.4×2.8 4-M10 Square-flange , pilot Ø44.4×2.8	K S A R H H1 D I T2 P J	Shaft Ø25.4, woodruff key Ø25.4×6.35 Shaft Ø25.4 , splined tooth SEA 6B Shaft Ø25 , parallel key 8×7×32 Shaft Ø25.4, parallel key 6.35×6.35×31.75 Shaft Ø25.4 , pin hole Ø10.3 Shaft Ø25.4 , pin hole Ø8 Shaft Ø22.22, parallel key 6.35×6.35×25.4 Shaft Ø22.22, splined tooth 13-DP16/32 Cone shaft Ø25.4 , woodruff key Ø25.4×6.35 Shaft Ø25 , parallel key 8×7×28 Shaft Ø25 , parallel key 7×7×32	G S P T R B4 B5	G1/2, G1/4 7/8-14 O-ring ,7/16-20UNF 1/2-14 NPTF, 7/16-20UNF 3/4-16 O-ring, 7/16-20UNF PT(Rc)1/2 ,PT(Rc)1/4 Ø10 O-ring manifold 4x5/16-18UNC,7/16-20UNF Ø10 O-ring manifold 4xM8, 7/16-20UNF	Omit R	Standard Opposite	00 Omit B S	No paint Blue Black Silver grey	Omit N O F LS SK	Standard HPS Big radial force No case drain Free Running Low Speed 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.