MR Hydraulic Orbit Motor

Technical data for MR

Type		**MR 50**	**MR 80**	**MR 100**	**MR 125**	**MR 160**	**MR 200**	**MR 250**	**MR 315**	**MR 400**
Displacement (cm^3/rev)		51.7	81.5	102	127.2	157.2	194.5	253.3	317.5	381,4
Max. speed (RPM)	cont.	960	750	600	475	378	310	240	190	155
	int*	1150	940	750	600	475	385	300	240	190
Max. Torque (Nm)	cont.	100	195	240	300	360	360	390	390	365
	int*	126	220	280	340	430	440	490	535	495
	Peak**	165	270	320	370	460	560	640	650	680
Max. Output (kW)	cont.	9.5	12.5	13	12.5	12.5	10	7	6	5
	*int	11.2	15	15	14.5	14	13	9.5	9	8
Max. Pressure Drop (Bar)	cont.	140	175	175	175	165	130	110	90	70
	*int	175	200	200	200	200	175	150	130	100
	Peak**	225	225	225	225	225	225	200	175	150
Max Oil Flow (lpm)	cont.	50	60	60	60	60	60	60	60	60
	*int	60	75	75	75	75	75	75	75	75
Weight (kg)		6.7	6.9	7	7.3	7.6	8	8.5	9.0	9.5

*Intermitten operation: the permissible values may occur for max. 10% of every minute.
** Peak load: the permissible values may occur for max. 1% of every minute.

1. Intermittent speed and intermittent pressure drop must not occur simultaneously.
2. Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
3. Recommend using a premium quality, anti-wear type mineral based hydraulic oil HM (ISO 6743/4). If using synthetic fluids consult the factory for alternative seal materials.
4. Recommended minimum oil viscosity 70 SUS [13 mm^2/s] at 122ºF [50ºC].
5. Recommended maximum system operating temperature is 180ºF [82ºC].
6. To assure optimum motor life fill with fluid prior to loading and run at moderate load and speed for 10-15 minutes.

MR series motor adapt the advanced Geroler gear set design with shaft distribution flow, which can automatically compensate in operating with high pressure, provide reliable and smooth operation, high efficiency and long life.

CHARACTERISTICS FEATURES

- Advanced manufacturing devices for the Gerolor gear set, which use low pressure of start-up, provide smooth, reliable operation and high efficiency.
- Shaft seal can bear high pressure of back and the motor can be used in parallel or in series.
- Special design in the driver-linker and prolong operating life
- Compact volume and easy installation.

MR Hydraulic Orbit Motor

PERFORMANCE DATA

MR 50 [51.7cm³/rev.]

Flow (L/min)	Pressure (MPa) 5	7	9	10	12	14 (Max.cont.)	16	17.5 (Max.int.)
5	35	45	61	67	77	88		
	93	**84**	**76**	**73**	**69**	**46**		
10	36	46	62	69	80	95	108	120
	186	**178**	**166**	**162**	**153**	**136**	**118**	**97**
15	35	49	63	73	88	100	109	123
	283	**277**	**269**	**261**	**250**	**230**	**211**	**185**
20	34.5	47	61	69	83	96	109	126
	377	**375**	**365**	**361**	**346**	**330**	**302**	**270**
30	33	44	60	67	80	95	108	126
	576	**569**	**561**	**554**	**542**	**531**	**500**	**465**
40	30	41	58	66	79	92	106	122
	760	**758**	**753**	**750**	**738**	**724**	**700**	**670**
45	29.5	40	57	65	78	90	105	121
	856	**853**	**849**	**845**	**835**	**815**	**796**	**770**
50 (Max.cont.)	26	37	53	60	73	85	99	114
	950	**940**	**925**	**906**	**880**	**852**	**832**	**801**
60 (Max.int.)	20	33	48	56	69	81	95	109
	1138	**1124**	**1100**	**1075**	**1056**	**1028**	**1006**	**970**

MR 80 [81.5cm³/rev.]

Flow (L/min)	Pressure (MPa) 5	7	9	10	12	14	16 (Max.cont.)	17.5	20 (Max.int.)
5	50	64	88	108	133				
	59	**56**	**50**	**44**	**38**				
10	54	77	99	108	129	150	173		
	118	**113**	**106**	**97**	**86**	**79**	**56**		
20	57	78.0	102	111	134	155	177	196	225
	238	**234**	**227**	**216**	**203**	**190**	**178**	**154**	**135**
30	54	75	100	108	131	152	176	195	223
	360	**352**	**340**	**332**	**316**	**302**	**290**	**274**	**250**
40	48	73	96	105	127	148	172	190	220
	480	**470**	**458**	**445**	**430**	**418**	**403**	**388**	**359**
50	42	70	93	102	124	147	170	188	218
	604	**595**	**582**	**570**	**556**	**540**	**521**	**504**	**487**
60 (Max.cont.)	37	66	89	98	121	144	166	184	213
	726	**715**	**704**	**692**	**678**	**663**	**647**	**622**	**594**
70	32	60	83	95	116	140	160	177	208
	845	**834**	**820**	**802**	**789**	**767**	**754**	**730**	**705**
75 (Max.int.)	21	50	78	90	111	135	154	171	200
	910	**895**	**881**	**867**	**852**	**830**	**806**	**787**	**756**

Torque (N•m) 135
Speed (rpm) **830**

MR 100 [102cm³/rev.]

Flow (L/min)	Pressure (MPa) 5	7	9	10	12	14	16 (Max.cont.)	17.5	20 (Max.int.)
5	66	92	120	135	156				
	45	**42**	**38**	**34**	**27**				
10	68	96	125	138	159	188	212		
	93	**90**	**86**	**81**	**74**	**57**	**42**		
20	65	94.0	123	137	155	186	210	238	274
	189	**185**	**180**	**173**	**165**	**158**	**150**	**139**	**118**
30	63	92	120	133	153	185	209	235	270
	286	**281**	**275**	**266**	**257**	**246**	**237**	**225**	**207**
40	57	88	117	130	152	185	208	233	267
	385	**378**	**365**	**355**	**345**	**332**	**320**	**314**	**297**
50	48	79	110	123	150	183	204	228	260
	482	**477**	**470**	**460**	**448**	**435**	**420**	**405**	**389**
60 (Max.cont.)	38	70	105	120	144	178	200	220	252
	580	**572**	**560**	**548**	**535**	**523**	**510**	**500**	**478**
70	32	65	100	118	141	176	197	215	246
	678	**670**	**660**	**648**	**638**	**626**	**615**	**606**	**580**
75 (Max.int.)	23	59	93	111	136	170	192	210	240
	728	**720**	**710**	**695**	**681**	**667**	**650**	**634**	**618**

cont.
int.

MR 125 [127.2cm³/rev.]

Flow (L/min)	Pressure (MPa) 5	7	9	10	12	14	16 (Max.cont.)	17.5	20 (Max.int.)
5	76	110	145	167	189				
	36	**31**	**25**	**19**	**13**				
10	84	118	155	176	202	228	253		
	73	**70**	**60**	**48**	**36**	**25**	**19**		
20	82	117	153	174	200	230	259	294	332
	153	**151**	**148**	**144**	**138**	**128**	**117**	**104**	**73**
30	79	116	151	171	198	228	257	292	329
	231	**228**	**224**	**218**	**210**	**201**	**183**	**168**	**137**
40	72	114	148	168	196	226	256	290	327
	309	**307**	**303**	**298**	**292**	**280**	**270**	**252**	**218**
50	62	105	143	165	195	223	254	287	323
	389	**386**	**382**	**378**	**370**	**360**	**344**	**328**	**292**
60 (Max.cont.)	52	98	136	160	191	220	250	282	319
	467	**463**	**459**	**456**	**448**	**427**	**410**	**399**	**352**
70	41	90	130	156	187	215	242	278	313
	545	**542**	**538**	**534**	**529**	**520**	**508**	**486**	**430**
75 (Max.int.)	32	79	126	148	180	208	234	262	300
	586	**583**	**578**	**570**	**560**	**546**	**532**	**520**	**480**

MR Hydraulic Orbit Motor

PERFORMANCE DATA (continued)

MR 160 [157.2cm³/rev.]

Pressure (MPa)

Flow (L/min)	5	7	9	10	12	14	16 (Max.cont.)	17.5	20 (Max.int.)
5	104 / **26**	146 / **23**	190 / **20**	210 / **16**	245 / **10**				
10	107 / **59**	150 / **56**	195 / **50**	216 / **45**	250 / **37**	290 / **30**	335 / **22**		
20	102 / **121**	151 / **118**	198 / **115**	220 / **113**	257 / **108**	298 / **102**	342 / **97**	370 / **90**	420 / **78**
30	97 / **184**	146 / **178**	190 / **173**	217 / **170**	256 / **164**	295 / **155**	340 / **143**	368 / **128**	416 / **103**
40	89 / **246**	140 / **241**	185 / **235**	210 / **228**	252 / **220**	290 / **210**	335 / **194**	363 / **177**	412 / **150**
50	72 / **310**	128 / **307**	179 / **300**	202 / **295**	244 / **287**	284 / **278**	327 / **262**	358 / **247**	409 / **210**
60 (Max.cont.)	60 / **374**	116 / **367**	170 / **359**	198 / **354**	240 / **346**	279 / **338**	321 / **323**	352 / **306**	400 / **265**
70	49 / **437**	107 / **430**	164 / **421**	193 / **415**	233 / **403**	271 / **393**	309 / **381**	344 / **365**	390 / **318**
75 (Max.int.)	36 / **472**	98 / **463**	152 / **450**	185 / **441**	226 / **431**	265 / **420**	300 / **405**	334 / **389**	379 / **365**

MR 200 [194.5cm³/rev.]

Pressure (MPa)

Flow (L/min)	5	7	9	10	12	14	16 (Max.cont.)	17.5	20 (Max.int.)
5	132 / **24**	181 / **22**	238 / **18**	262 / **13**	310 / **10**				
10	135 / **49**	186 / **47**	240 / **45**	264 / **43**	315 / **38**	356 / **33**	403 / **24**		
20	131 / **99**	183 / **97**	238 / **94**	260 / **92**	314 / **88**	358 / **83**	404 / **74**	438 / **64**	498 / **56**
30	126 / **149**	178 / **147**	233 / **144**	254 / **141**	311 / **135**	355 / **126**	402 / **113**	431 / **105**	486 / **91**
40	112 / **200**	169 / **197**	228 / **194**	250 / **191**	307 / **185**	352 / **174**	400 / **160**	426 / **151**	477 / **127**
50	95 / **252**	156 / **249**	221 / **246**	246 / **243**	300 / **238**	350 / **228**	398 / **212**	421 / **194**	470 / **161**
60 (Max.cont.)	78 / **304**	145 / **301**	213 / **298**	238 / **294**	289 / **286**	342 / **276**	386 / **262**	412 / **243**	459 / **218**
70	67 / **355**	135 / **353**	206 / **349**	228 / **340**	277 / **329**	336 / **316**	375 / **300**	408 / **288**	453 / **257**
75 (Max.int.)	58 / **382**	125 / **379**	197 / **373**	220 / **362**	270 / **350**	321 / **337**	360 / **322**	398 / **312**	442 / **278**

cont.

int.

MR 250 [253.5cm³/rev.]

Pressure (MPa)

Flow (L/min)	5	7	9	10	12	14	16 (Max.cont.)	17.5	20 (Max.int.)
5	175 / **17**	243 / **16**	304 / **14**	342 / **12**	407 / **10**				
10	178 / **37**	246 / **35**	310 / **31**	344 / **28**	409 / **23**	465 / **18**	525 / **11**		
20	175 / **75**	244 / **73**	308 / **72**	340 / **70**	408 / **66**	463 / **58**	520 / **53**	558 / **50**	636 / **42**
30	162 / **114**	235 / **111**	304 / **108**	332 / **106**	400 / **100**	455 / **92**	516 / **83**	550 / **77**	621 / **65**
40	143 / **154**	223 / **152**	300 / **150**	329 / **147**	396 / **143**	447 / **132**	512 / **120**	546 / **110**	617 / **90**
50	124 / **193**	208 / **190**	289 / **187**	323 / **174**	384 / **168**	440 / **160**	503 / **149**	535 / **140**	600 / **116**
60 (Max.cont.)	103 / **233**	192 / **230**	280 / **227**	314 / **224**	371 / **218**	426 / **205**	489 / **190**	514 / **181**	578 / **155**
70	88 / **273**	178 / **270**	264 / **267**	301 / **263**	356 / **252**	418 / **242**	479 / **226**	498 / **209**	560 / **173**
75 (Max.int.)	62 / **294**	165 / **291**	256 / **287**	288 / **283**	347 / **274**	412 / **263**	474 / **249**	486 / **236**	542 / **211**

Torque (N•m) 256
Speed (rpm) **287**

MR 315 [317.5cm³/rev.]

Pressure (MPa)

Flow (L/min)	5	7	9	10	12	14 (Max.cont.)	16	17.5 (Max.int.)
5	215 / **13**	302 / **11**						
10	218 / **28**	305 / **27**	383 / **25**	422 / **24**	488 / **21**	551 / **18**	622 / **13**	
20	215 / **60**	303 / **59**	380 / **57**	418 / **55**	485 / **52**	549 / **49**	620 / **45**	660 / **42**
30	204 / **91**	296 / **89**	375 / **86**	413 / **84**	480 / **81**	542 / **78**	613 / **72**	654 / **67**
40	196 / **122**	287 / **120**	368 / **117**	410 / **112**	477 / **106**	539 / **100**	609 / **94**	650 / **85**
50	176 / **154**	270 / **151**	356 / **147**	393 / **140**	461 / **131**	526 / **120**	597 / **109**	645 / **100**
60 (Max.cont.)	162 / **185**	246 / **182**	339 / **177**	374 / **172**	446 / **163**	511 / **152**	586 / **140**	628 / **134**
70	143 / **217**	235 / **213**	324 / **208**	358 / **201**	430 / **190**	493 / **178**	562 / **166**	614 / **158**
75 (Max.int.)	125 / **232**	212 / **228**	303 / **222**	339 / **216**	417 / **208**	481 / **200**	543 / **183**	582 / **171**

Torque (N•m) 481
Speed (rpm) **200**

MR Hydraulic Orbit Motor

PERFORMANCE DATA (continued)

MR 400 [381.4cm³/rev.]

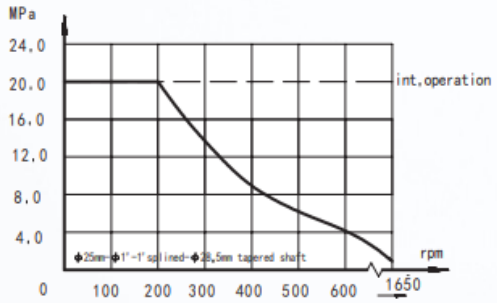
Flow (L/min)	Pressure (MPa) 3	4.5	5.5	6.5	8	10 (Max.cont.)	12.5	14 (Max.int.)
5	153 **12**	232 **10**						
10	157 **24**	236 **23**	284 **22**	337 **21**	406 **19**	497 **17**	612 **15**	668 **12**
20	150 **49**	232 **48**	280 **47**	332 **46**	401 **44**	490 **41**	606 **38**	660 **32**
30	142 **76**	215 **75**	274 **74**	327 **73**	398 **71**	483 **67**	603 **63**	652 **50**
40	126 **103**	212 **101**	268 **99**	320 **97**	393 **95**	477 **92**	593 **88**	635 **70**
50	105 **128**	187 **126**	242 **124**	302 **121**	376 **118**	455 **115**	583 **111**	608 **96**
60 (Max.cont.)	90 **154**	167 **152**	229 **150**	281 **148**	362 **145**	444 **138**	566 **130**	600 **121**
70	90 **180**	149 **179**	200 **178**	258 **176**	341 **173**	425 **168**	546 **160**	580 **148**
75 (Max.int.)	56 **195**	125 **194**	182 **193**	241 **191**	320 **189**	408 **185**	524 **178**	565 **170**

cont.
int.

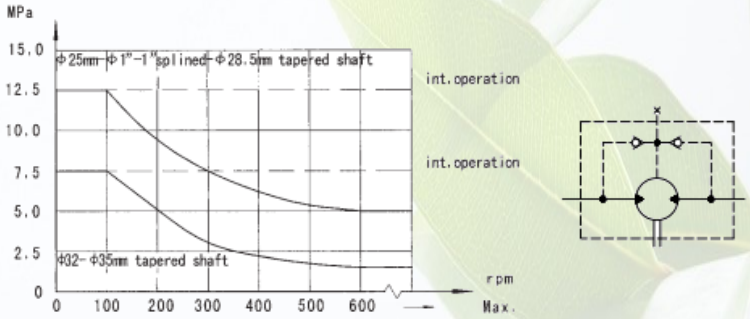
MR Hydraulic Orbit Motor

MR, MRS SERIES HYDRAULIC MOTOR

Permissible shaft seal pressure

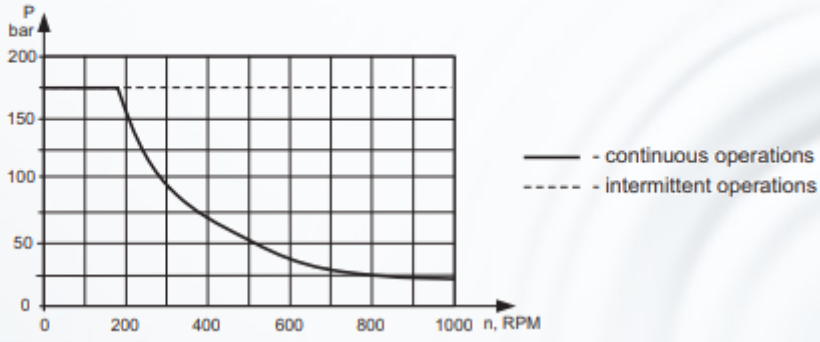


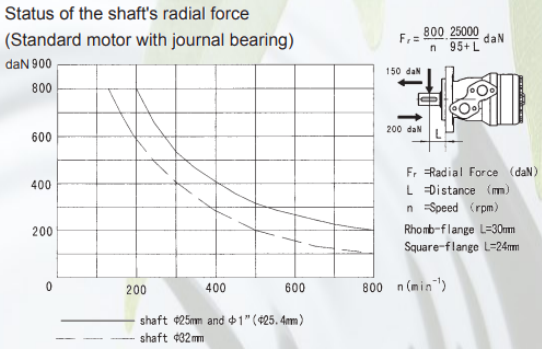
High pressure shaft seal



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.

MAX. PERMISSIBLE SHAFT PRESSURE





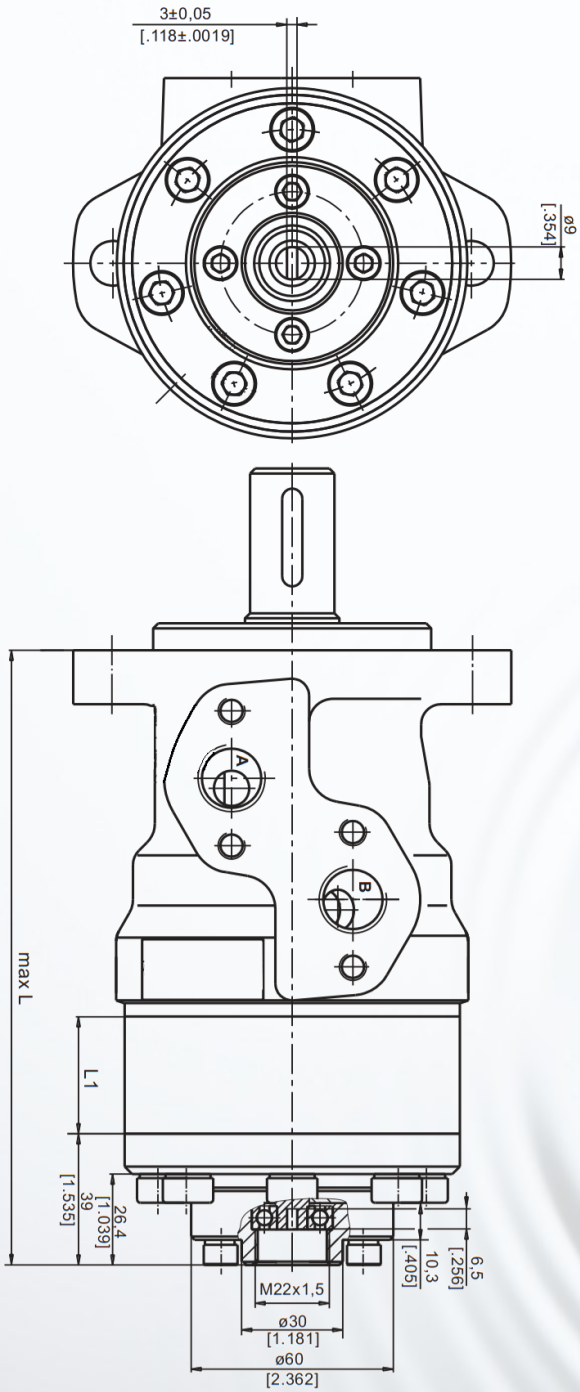
OIL FLOW IN DRAIN LINE

The table shows the Max. oil flow in the drain line at the return pressure less than 5-10 Bar.

Pressure drop (Bar)	**Viscosity** (mm2/s)	**Oil flow in the drain line** (L/min.)
100	20	2.5
	35	1.8
100	20	3.5
	35	2.8

MR Hydraulic Orbit Motor

MR DIMENSIONS AND MOUNTING DATA



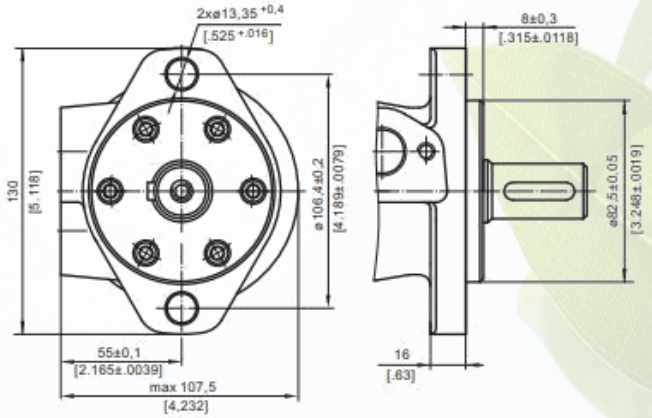
Type	L, mm	L_1, mm
MR 50	140	10
MR 80	146	16
MR 100	150	20
MR 125	155	25
MR 160	160.5	30.5
MR 200	168	38.1
MR 250	180	50
MR 315	192	62
MR 400	204	74

MR Hydraulic Orbit Motor

MOUNTING

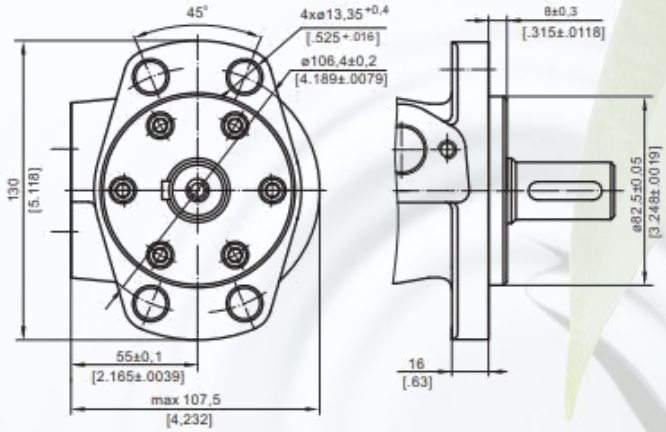
STANDARD

Oval Mount (2 Holes)



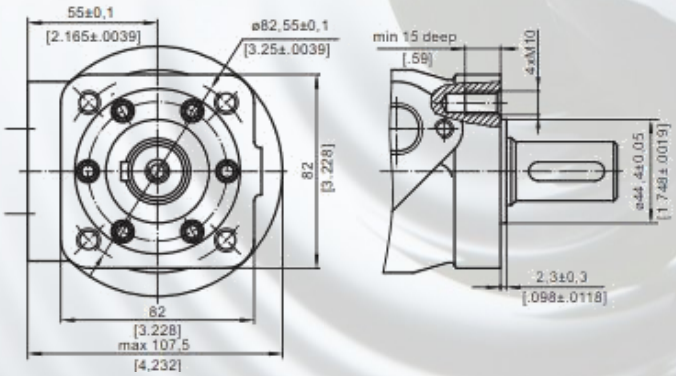
F

Oval Mount (4 Holes)



Q

Square Mount (4 Bolts)

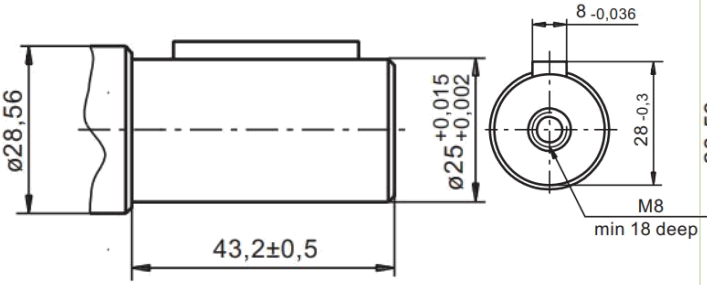


MR Hydraulic Orbit Motor

SHAFT EXTENSIONS

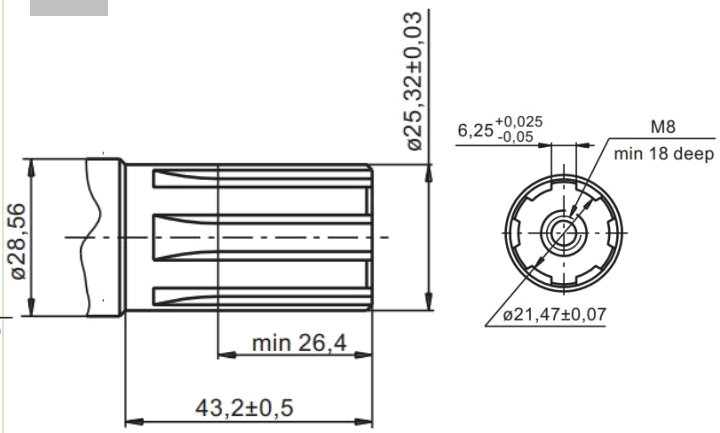
C

Ø25 straight, Parallel key A8x7x32 DIN 6885
Max. Torque 34 daNm

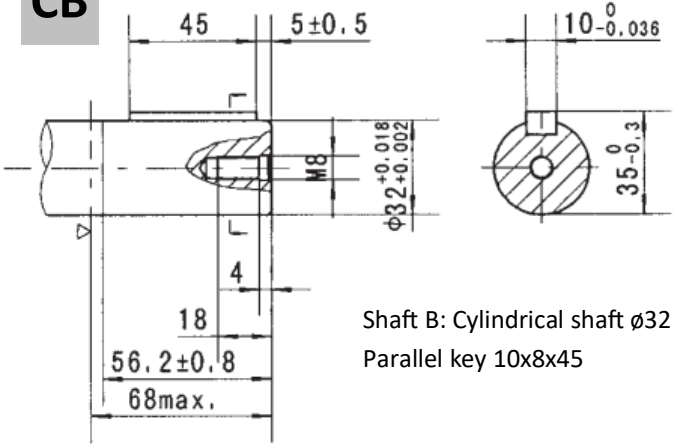


SH

Splined, BS 2059 (SAE 6B)
Max. Torque 400 Nm

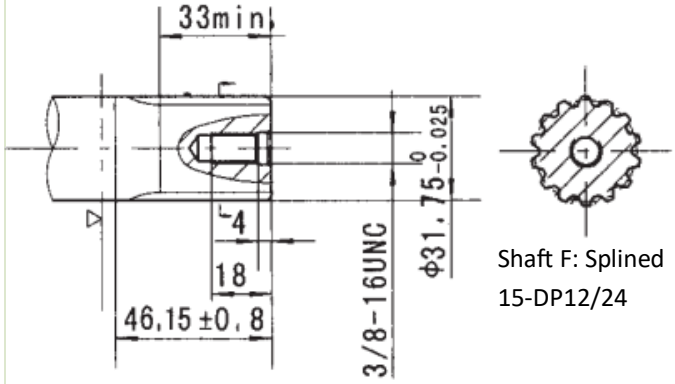


CB



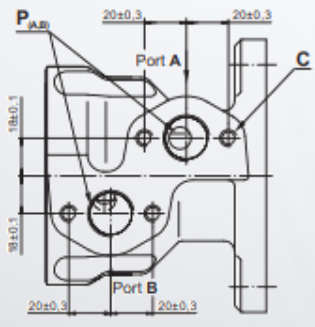
Shaft B: Cylindrical shaft ø32
Parallel key 10x8x45

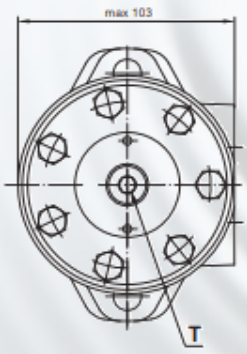
HB



Shaft F: Splined
15-DP12/24

PORTS





Standard Rotation
Viewed from Shaft End
Port **A** Pressurized - **CW**
Port **B** Pressurized - **CCW**

Reverse Rotation
Viewed from Shaft End
Port **A** Pressurized - **CW**
Port **B** Pressurized - **CCW**

C : 4xM8 - 13 mm depth
P (A, B) : 2xG1/2 - 16 mm depth
T : G1/4 - 12mm depth (plugged)