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.]

Pressure (MPa)

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

MR 80 [81.5cm³/rev.]

Pressure (MPa)

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

Torque (N•m) 135
Speed (rpm) **830**

MR 100 [102cm³/rev.]

Pressure (MPa)

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

cont.
int.

MR 125 [127.2cm³/rev.]

Pressure (MPa)

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

Pressure (MPa)

Flow (L/min)	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**

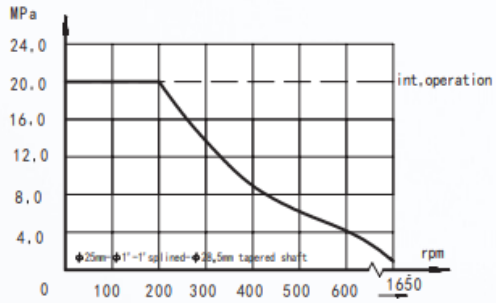
cont.

int.

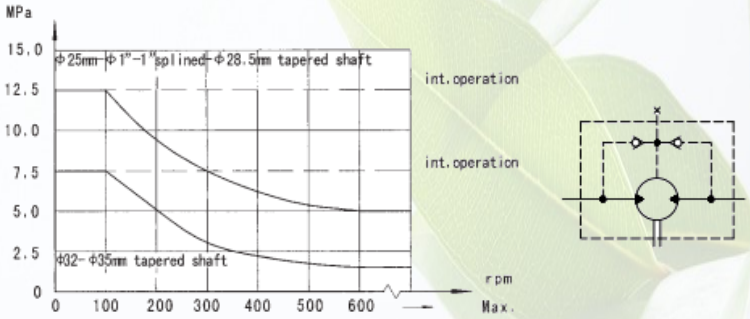
MR Hydraulic Orbit Motor

MR, MRS SERIES HYDRAULIC MOTOR

Permissible shaft seal pressure

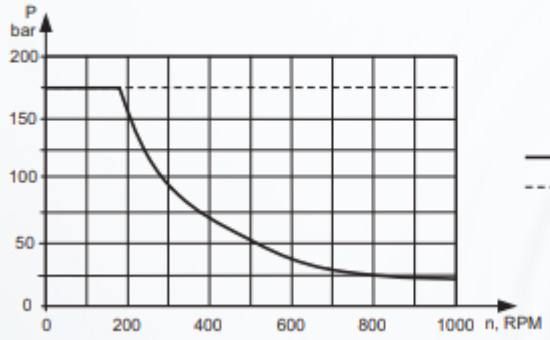


High pressure shaft seal

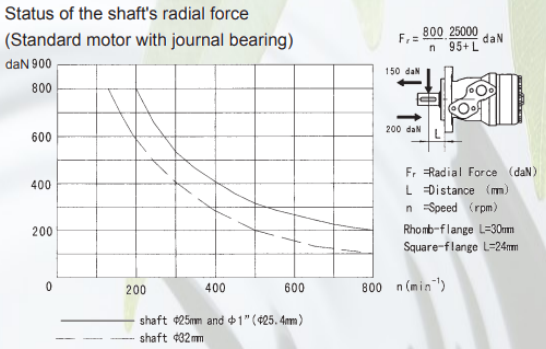


In applications without drain line, output shaft seal exceeds a bit of the pressure in the return line. When applications use the drain line, the pressure of output shaft seal equals the pressure in drain line.

MAX. PERMISSIBLE SHAFT PRESSURE



——— - continuous operations
----- - intermittent operations



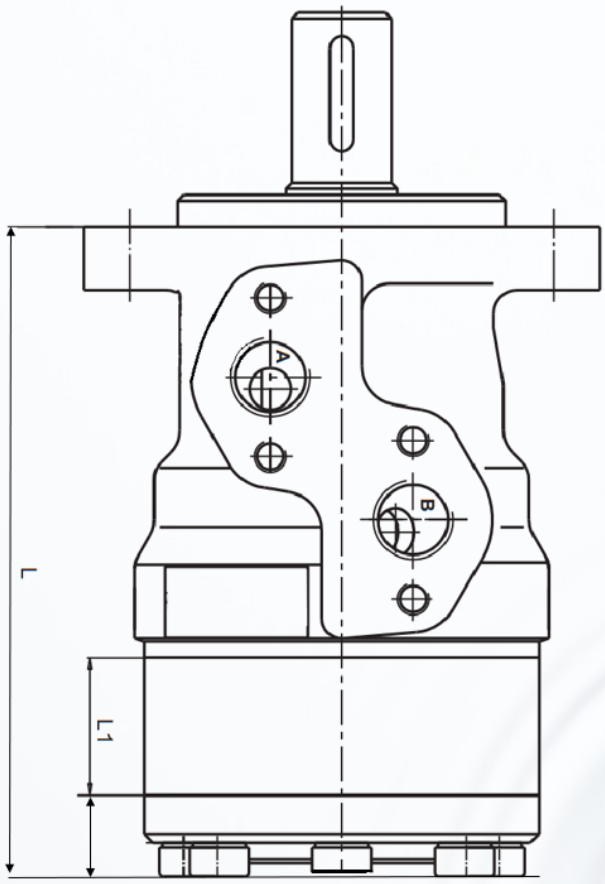
OIL FLOW IN DRAIN LINE

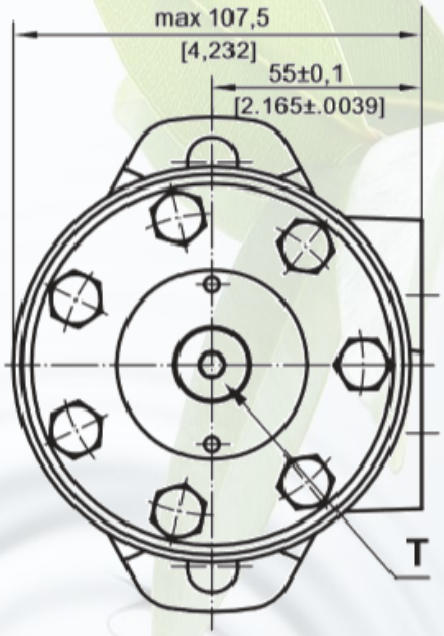
The table shows the Max. oil flow in the drain line at the return pressure less than 5-10 Bar.

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





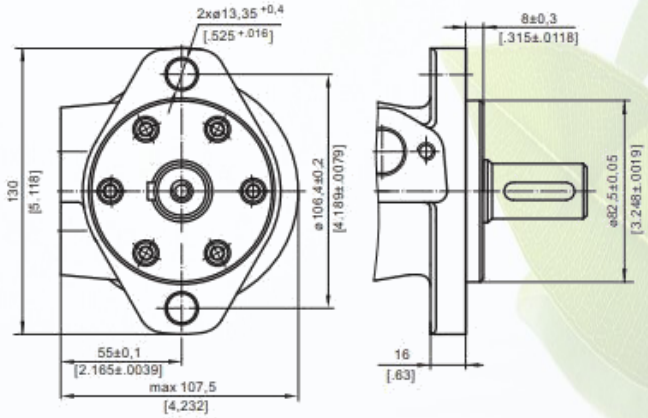
Type	L, mm	L_1, mm
MR 50	140	10
MR 80	146	16
MR 100	150	20
MR 125	155	25
MR 160	160.5	30.5
MR 200	168	38.1
MR 250	180	50
MR 315	192	62
MR 400	204	74

MR Hydraulic Orbit Motor

MOUNTING

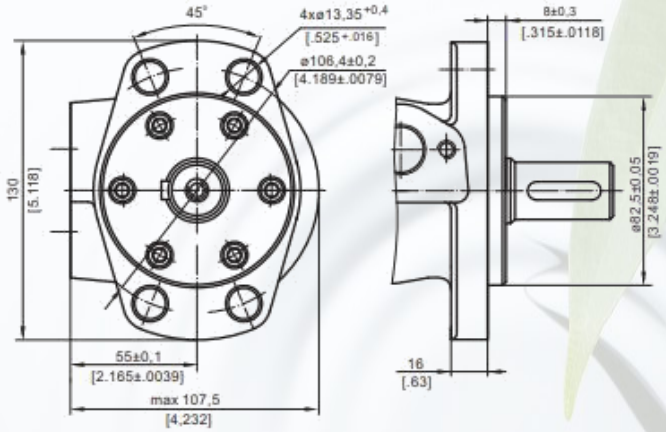
STANDARD

Oval Mount (2 Holes)



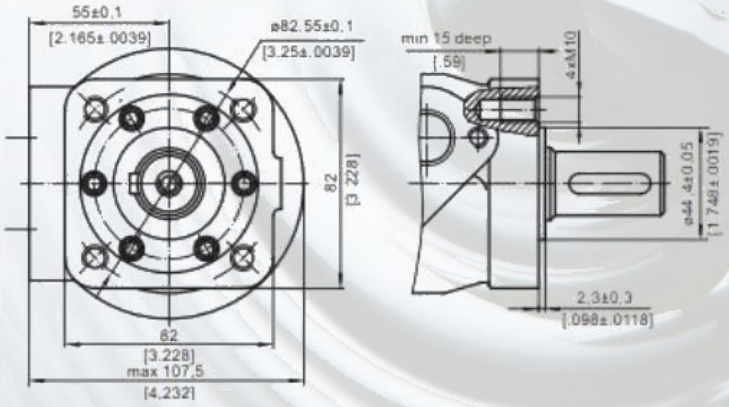
F

Oval Mount (4 Holes)



Q

Square Mount (4 Bolts)

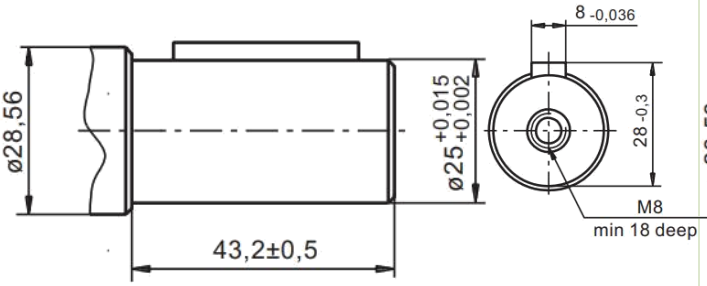


MR Hydraulic Orbit Motor

SHAFT EXTENSIONS

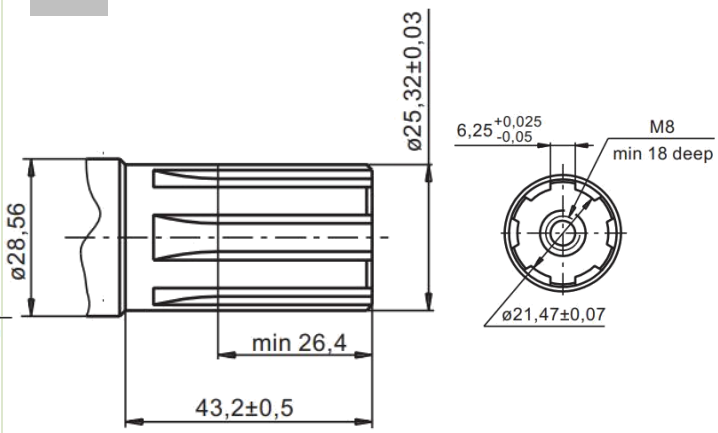
C

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

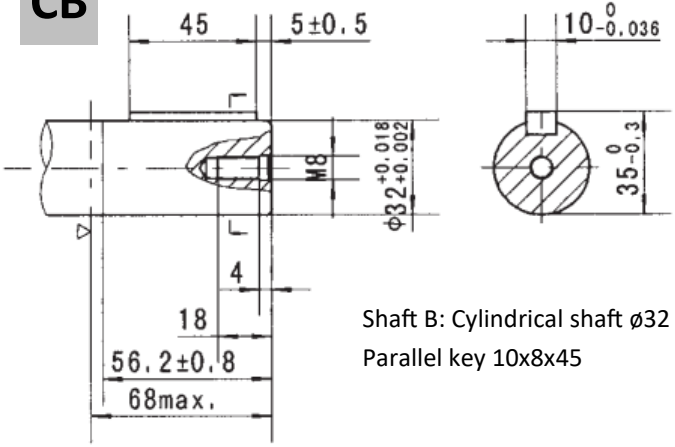


SH

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

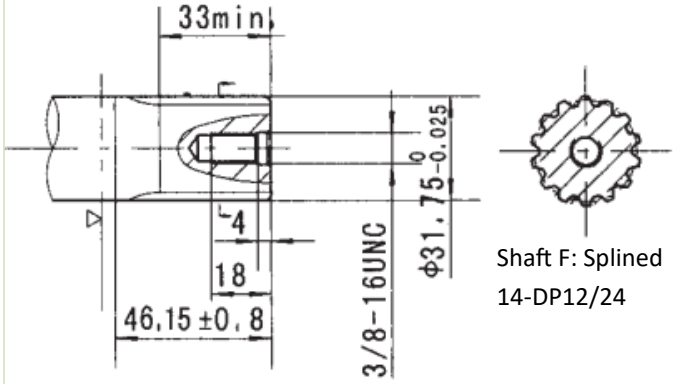


CB



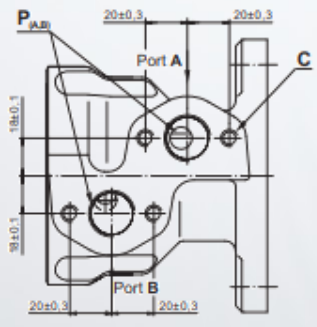
Shaft B: Cylindrical shaft ø32
Parallel key 10x8x45

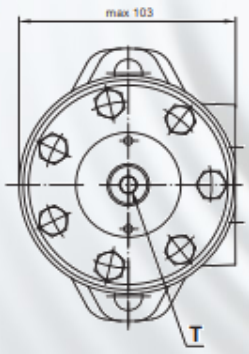
HB



Shaft F: Splined
14-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)