

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

*Intermittent 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 mm²/s] at 122°F [50°C].
5. Recommended maximum system operating temperature is 180°F [82°C].
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 Gerolol 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 Gerolol 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.



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PERFORMANCE DATA

MR 50 [51.7cm³/rev.]

Pressure (MPa)

Flow (L/min)	Max. cont.							Max. int.	
	5	7	9	10	12	14	16	17.5	
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	
Max. cont. 50	26	37	53	60	73	85	99	114	
	950	940	925	906	880	852	832	801	
Max. int. 60	20	33	48	56	69	81	95	109	
	1138	1124	1100	1075	1056	1028	1006	970	

MR 80 [81.5cm³/rev.]

Pressure (MPa)

Flow (L/min)	Max. cont.							Max. int.	
	5	7	9	10	12	14	16	17.5	20
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
Max. cont. 60	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
Max. int. 75	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.]

Pressure (MPa)

Flow (L/min)	Max. cont.							Max. int.	
	5	7	9	10	12	14	16	17.5	20
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
Max. cont. 60	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
Max. int. 75	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.]

Pressure (MPa)

Flow (L/min)	Max. cont.							Max. int.	
	5	7	9	10	12	14	16	17.5	20
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
Max. cont. 60	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
Max. int. 75	32	79	126	148	180	208	234	262	300
	586	583	578	570	560	546	532	520	480

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PERFORMANCE DATA (continued)

MR 160 [157.2cm³/rev.]

Pressure (MPa)

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

MR 200 [194.5cm³/rev.]

Pressure (MPa)

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

□ cont.
■ int.

MR 250 [253.5cm³/rev.]

Pressure (MPa)

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

Torque (N·m) 256
Speed (rpm) 287

MR 315 [317.5cm³/rev.]

Pressure (MPa)

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

Torque (N·m) 481
Speed (rpm) 200

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PERFORMANCE DATA (continued)

MR 400 [381.4cm³/rev.]

Pressure (MPa)

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

cont.
 int.

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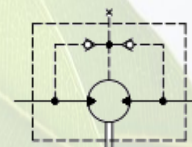
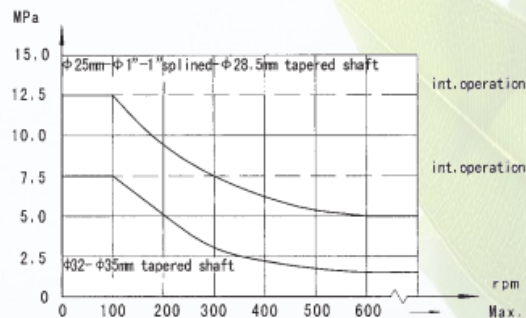
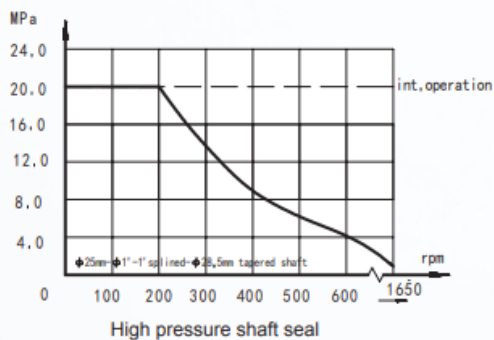
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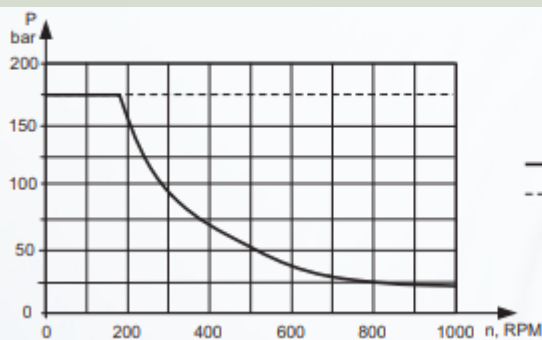
MR, MRS SERIES HYDRAULIC MOTOR

Permissible shaft seal pressure

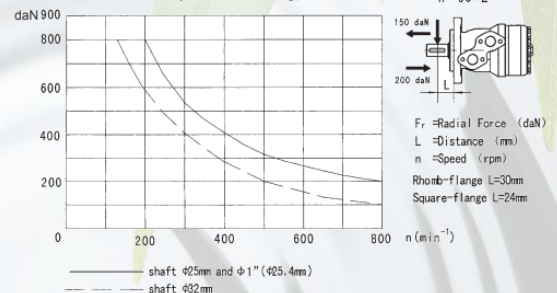


In applications without drain line, output shaft seal exceeds a bit of the pressure in the return line. When applications use the drain line, the pressure of output shaft seal equals the pressure in drain line.

MAX. PERMISSIBLE SHAFT PRESSURE



Status of the shaft's radial force
(Standard motor with journal bearing)



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 (mm ² /s)	Oil flow in the drain line (L/min.)
100	20	2.5
	35	1.8
100	20	3.5
	35	2.8

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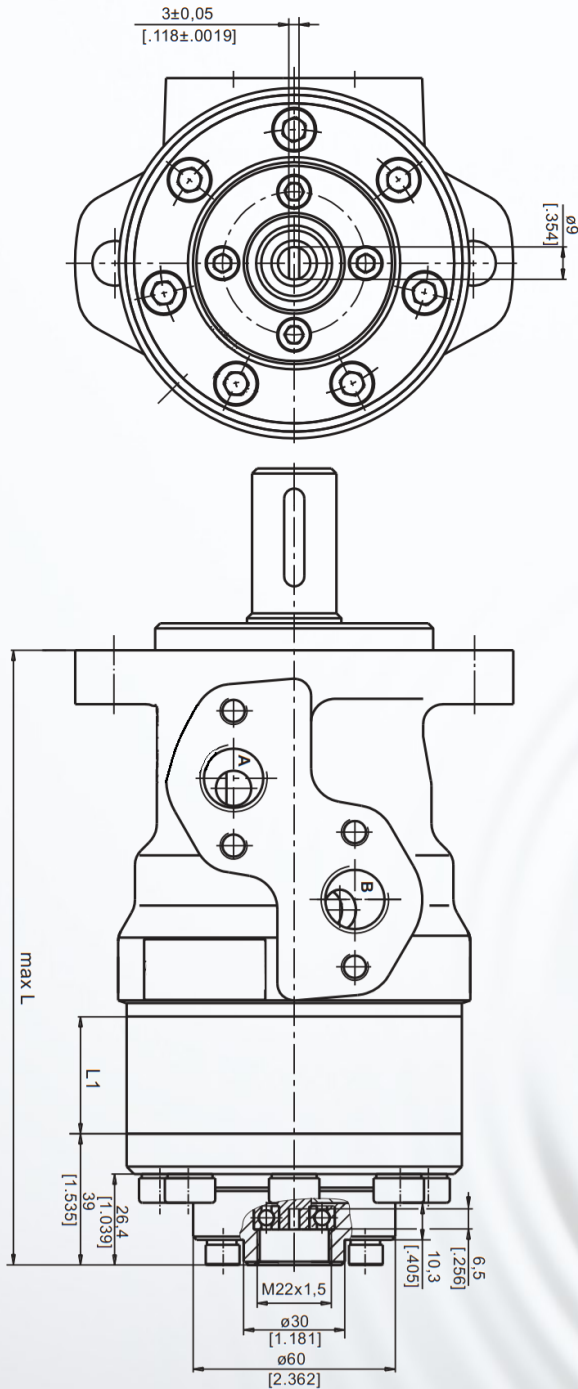
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MR DIMENSIONS AND MOUNTING DATA



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

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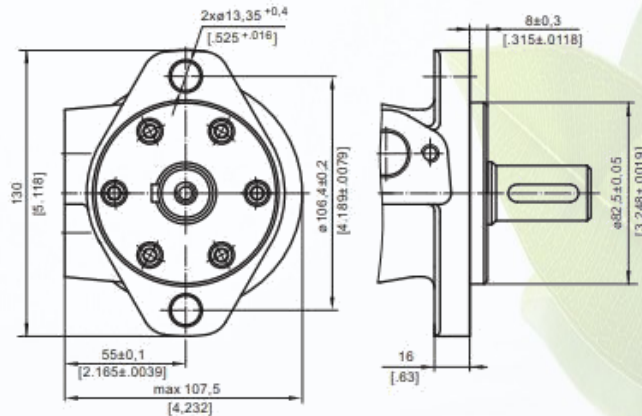
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MOUNTING

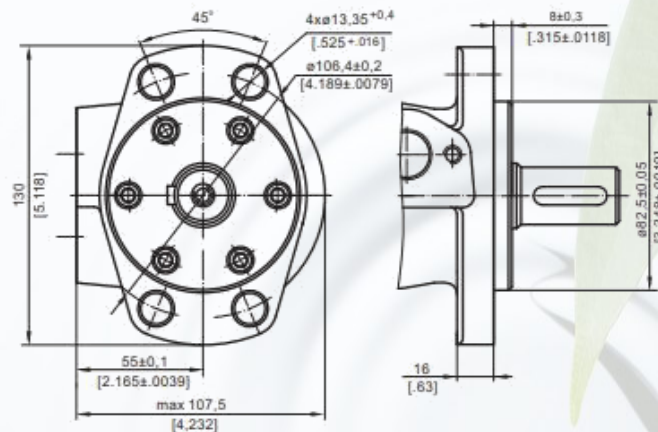
STANDARD

Oval Mount (2 Holes)



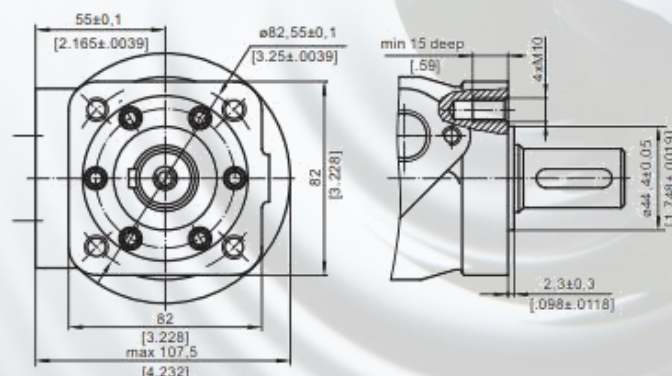
F

Oval Mount (4 Holes)



Q

Square Mount (4 Bolts)



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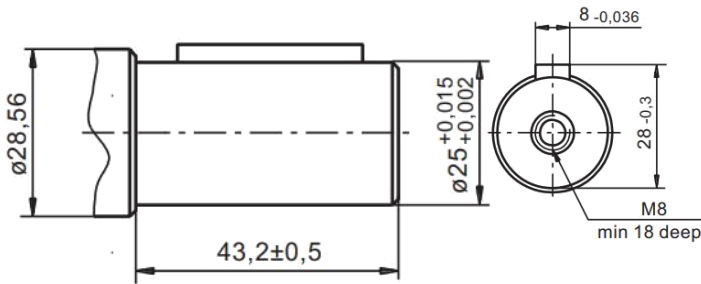
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SHAFT EXTENSIONS

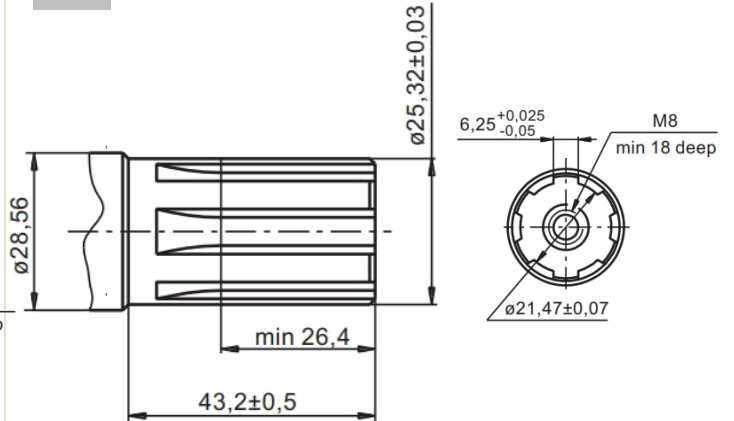
C

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

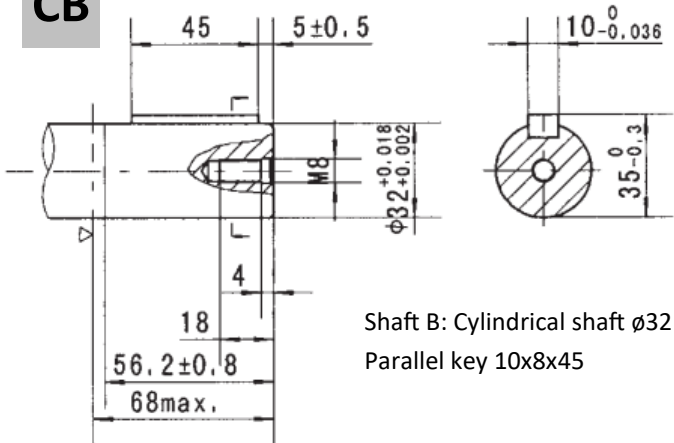


SH

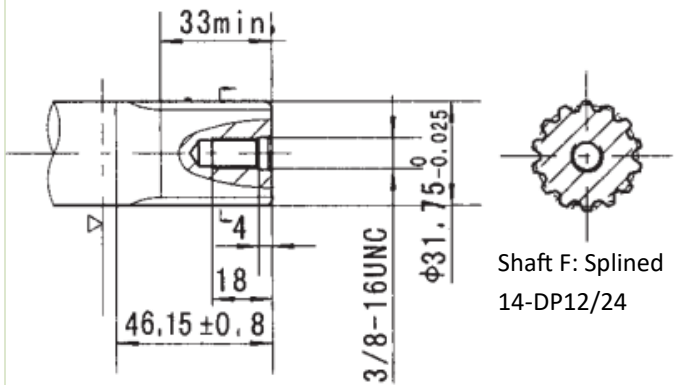
Splined, BS 2059 (SAE 6B)
Max. Torque 400 Nm



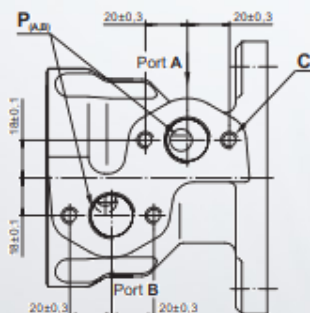
CB



HB



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)

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