

Low Speed High Torque

GENUINE METARIS ORBITAL MOTORS

MMPS, MMRSW, MMH, MMW,
MMS, MMK, MMT and MMV
Series Orbital Motors

Technical Information



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All measurements are in millimeters (mm) unless otherwise marked.

All manufacturers names, symbols and descriptions in this document are used for reference purposes only, and it is not implied that any parts listed is the product of these manufacturers.

General

Technical Information - All Series

Shaft Seal Specifications/Benefits:

- Genuine Metaris Motors incorporate a high pressure shaft seal which allows higher backpressures
- Case drain line is recommended when backpressure exceeds individual performance data table
- Increases ability to handle high pressure spikes

Recommended Fluid Specifications:

- Anti-wear hydraulic oil
- Viscosity of 172 - 334 SUS (37 - 73 cSt)
- Recommended oil cleanliness - ISO4406 = 18/13
- Maximum recommended operating temperature - 80°C (176°F)

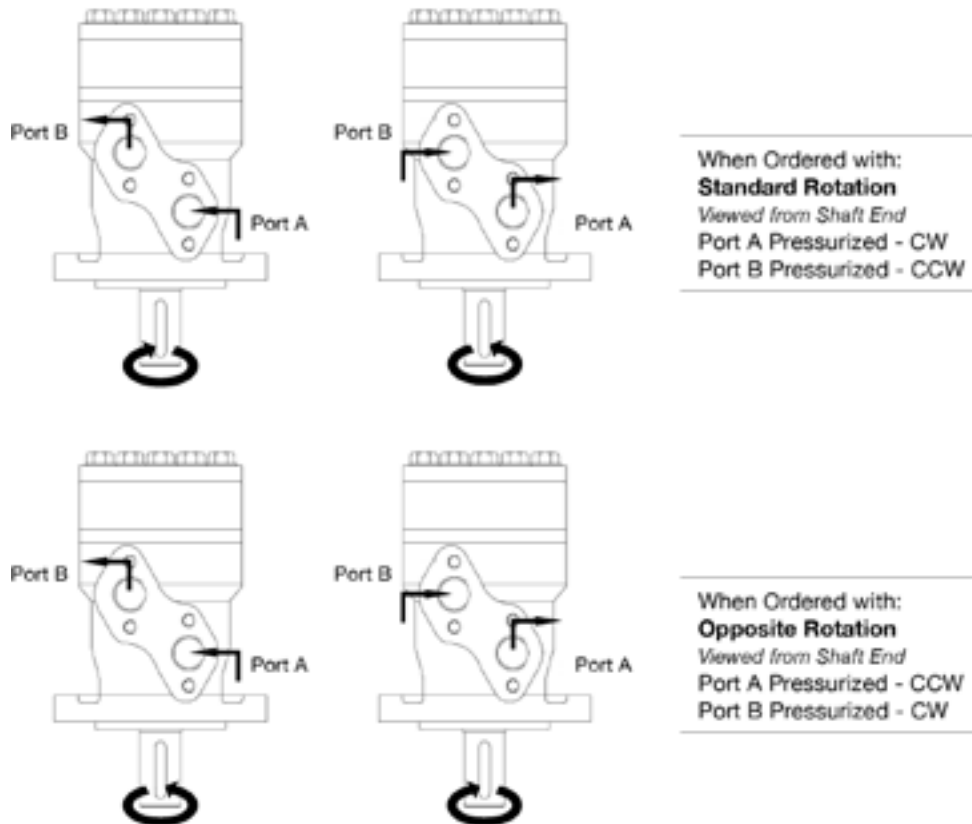
Pressure and Speed Operation Parameters:

- Simultaneous maximum RPM and maximum pressure **NOT** recommended
- Maximum pressure or maximum RPM operation: 10% of every minute
- Intermittent pressure is the allowed pressure at the inlet port
- Continuous pressure is the working pressure difference between inlet and outlet ports

Start-up Procedures (to assure best motor life):

- Ensure motor is filled with equipment manufacturers recommended fluids prior to any load application
- Operate motor at 30% of rated pressure for at least one hour before application of full load

Rotation - Port Plumbing



General

Technical Information - All Series

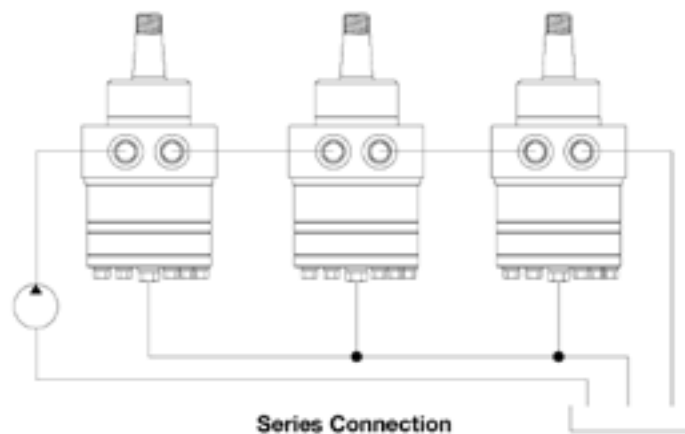
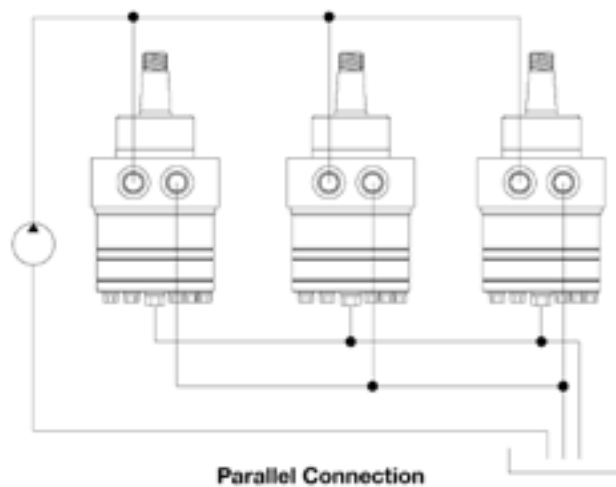
Case Drain Information:

- All Genuine Metaris Motors will be supplied with a case drain and shipped with a Steel Hex Socket Plug installed

Advantages provided by use of a case drain:

- Contamination control - flushing the motor case
- Cooler operating temperatures - exiting oil draws motor heat away
- Extended motor seal life - maintains lower case pressure (Due to the fact of a pre-installed preset restriction valve)

Plumbing Diagrams:



Individual Performance Data Graph Information:

- Motors run with high efficiency in all areas designed with a number for torque and speed.
- However, for best motor life, select a motor to run with a torque and speed range shown in the light gray area (Continuous).
- Performance data is typical at 120 SUS (25.2 cSt).
- Actual data may vary slightly from unit to unit in production.

General

Technical Information - All Series

Motor Testing:

- Motors tested prior to painting
 - Tested
 - Cleaned
 - Heated and dried
 - Painted while warm
- Test report provided with each unit
- High quality standards maintained
 - Volumetric efficiency 85% or higher
 - 10% re-tested by QC Department

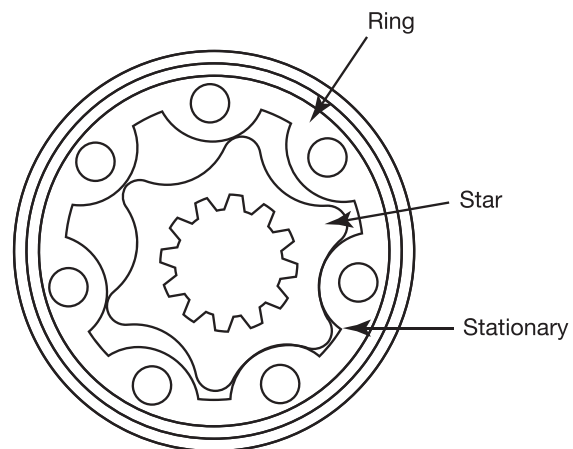
Geroter vs Roller-Star:

- All Genuine Metaris Orbital Motors incorporate Roller-Star design
- Roller-Star technology at Geroter prices
- Provides longer operational life

Geroter

Fixed Lobes on Ring:

- Higher Friction
- Lower Mechanical Efficiency
- Lower Start-up Torque
- Jerky Low Speed Operation
- Greater Wear on Lobes = Shorter Life
- Lower Price Point

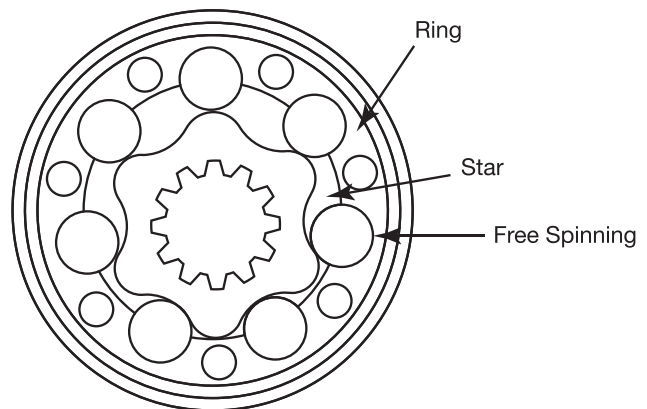


Roller-Star

Rotating Rollers on Ring:

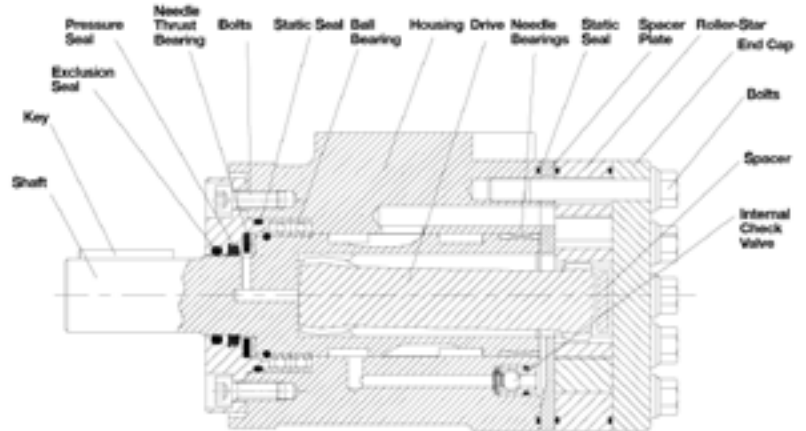
- Lower Friction
- Higher Mechanical Efficiency
- Higher Start-up Torque
- Smooth Low Speed Operation
- Less Wear on Rollers = Longer Life
- Higher Price Point*

(*Metaris offers the Roller-Star version at the Geroter Price Point.)



General

MMPS Series



Description

MMPS series motors are spool valve motors, with the characteristic features of:

- Advanced Roller-Star technology, requiring lower pressure at start-up and providing smooth reliable operation at all speeds
- High efficiency shaft bearing, which allows higher pressure, speed and radial force
- High pressure shaft seal, which allows for higher back pressures and an increased ability to handle high pressure spike conditions
- Internal integrated check valve, which limits case pressure by blocking the high pressure port side and allowing the motor housing to drain into the outlet (low pressure) port. Motors connected in series will utilize the case drain

These motors can be used in parallel or series. A diverse offering of mounting flanges, shafts, ports, and displacements allow for easy installation, product replacement, or OEM application.

Specifications

Model Code		01	02	03	04	05	06	07	08	09	10	11	
Displ.	cm ³ /r	50	63	80	100	125	160	200	250	305	370	395	
	in ³ /r	3.1	3.8	4.9	6.1	7.6	9.8	12.2	15.3	18.6	22.6	24.1	
Flow	LPM	Cont.	38	53	53	53	53	53	53	53	53	53	53
		Int.	45	57	57	57	57	57	57	57	57	57	57
	GPM	Cont.	10.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
		Int.	11.9	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
Max Speed	RPM	Cont.	750	778	635	510	430	329	266	213	171	142	133
		Int.	875	832	680	537	420	347	281	226	182	150	141
Pressure	ΔBar	Cont.	138	138	138	138	138	124	124	124	103	83	83
		Int.	155	155	155	155	155	138	138	127	110	90	90
	ΔPSI	Cont.	2002	2002	2002	2002	2002	1798	1798	1798	1494	1204	1204
		Int.	2248	2248	2248	2248	2248	2002	2002	1842	1595	1305	1305
Torque	NM	Cont.	93	123	155	196	230	271	328	401	417	402	429
		Int.	105	138	174	219	256	297	359	410	441	427	458
	LBF-IN	Cont.	823	1089	1372	1735	2036	2399	2903	3549	3691	3558	3797
		Int.	929	1221	1540	1938	2266	2629	3177	3629	3903	3779	4054

- Simultaneous maximum torque & maximum speed **NOT** recommended.
- Continuous Rating ▶ (Cont.) motor may be run continuously at these ratings.
- Intermittent Operation ▶ (Int.) 10% of every minute.
- Δ - True pressure difference between inlet port and outlet port.
- Maximum case pressure without case drain -- 1" Shaft = 125 Bar (1813 psi) | Greater than 1" Shaft 75 Bar (1088 psi).

Model Code

Genuine Metaris Orbital Motor MMPS

MMPS - 01 - A - 01 - D - 2 - B - A

Series

Displacement cm³/r (in³/r)

01 = 50 (3.1)
 02 = 63 (3.8)
 03 = 80 (4.9)
 04 = 100 (6.1)
 05 = 125 (7.6)
 06 = 160 (9.8)
 07 = 200 (12.2)
 08 = 250 (15.3)
 09 = 305 (18.6)
 10 = 370 (22.6)
 11 = 395 (24.1)

Flange & Pilot

A = 2-Bolt SAE "A", pilot Ø82.5 (3.25") x 8 (.31")
 B = 4-Bolt SAE "A", pilot Ø82.5 (3.25") x 8 (.31")
 C = 2-Bolt SAE "A", pilot Ø82.5 (3.25") x 2.8 (.11")
 D = 4-Bolt SAE "A", pilot Ø82.5 (3.25") x 2.8 (.11")
 E = 4-3/8-16 Square-flange, pilot Ø44.4 (1.75") x 2.8 (.11")
 F = 4-M10x1.5 Square-flange, pilot Ø44.4 (1.75") x 2.8 (.11")

Shafts

01 = 25mm (.984") Straight, Flat key 8 x 7 x 32
 02 = 25.4mm (1") Straight, Flat key 6.35 x 6.35 x 32
 03 = 25.4mm (1") SAE 6B Splined - M8 Tap
 04 = 32mm (1.26") Straight, Flat key 10 x 8 x 45
 05 = 31.75mm (1.25") Straight, Flat key 7.96 x 7.96 x 32
 06 = 31.75mm (1.25") Tapered Shaft, Flat key 7.96 x 7.96 x 32
 07 = 35mm (1.26") Tapered Shaft, Flat key 6 x 6 x 20
 08 = 31.75mm (1.25") 14t Splined
 09 = 25.4mm (1") Straight, Woodruff key
 10 = 25.4mm (1") SAE 6B Splined - 1/4" -20 Tap
 11 = 25.4mm (1") Straight, with 0.315" dia. crosshole
 12 = 25.4mm (1") Straight, with 0.406" dia. crosshole
 13 = 22.23mm (.875") Straight
 14 = 22.23mm (.875") SAE B Shaft 13t Splined
 15 = 25mm (.984") Straight, 8mm keyway
 16 = 25.4mm (1") Tapered Shaft, with Woodruff Key and Nut
 17 = 25.4mm (1") Straight, with 0.406" dia. crosshole & 6.35 x 32 Flat key

Rotation

A = Standard (Clock-wise)
 B = Opposite (Counter Clock-wise)

Paint

A = No Paint
 B = Blue (Standard)
 C = Black

Options A & C (or any other color needed) will only be considered for Large Quantity Orders

Drain Port

1 = G 1/4 BSP
 2 = 7/16"-20UNF
 3 = M14x1.5
 4 = PT(RC) 1/4"
 5 = M10x1

All motors come with a Steel Hex Socket Plugged Drain Port

Ports

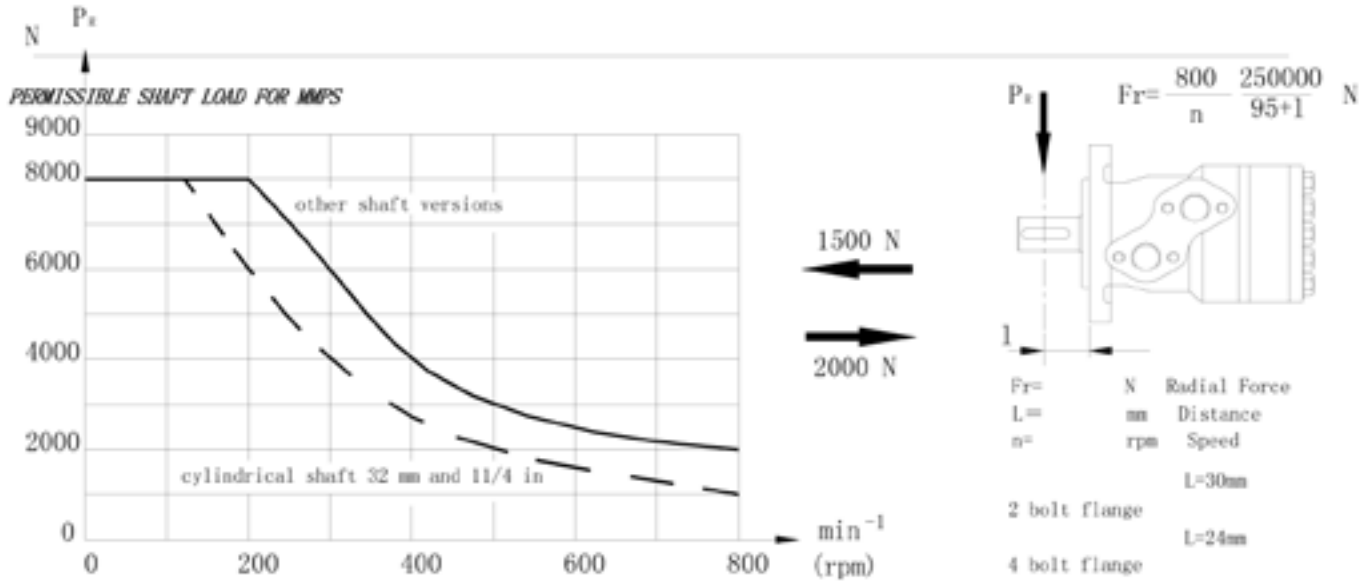
A = G 1/2, BSP
 B = 1/2"-14NPTF
 C = M18x1.5
 D = 7/8"-14UNF, O-ring
 E = G 1/2, O-ring
 F = M22x1.5
 G = 4-5/16"-18UNC (Manifold)
 H = 4-M8x1.5 (Manifold)
 I = PT(RC) 1/2"
 J = M20x1.5

MMPS Specifications

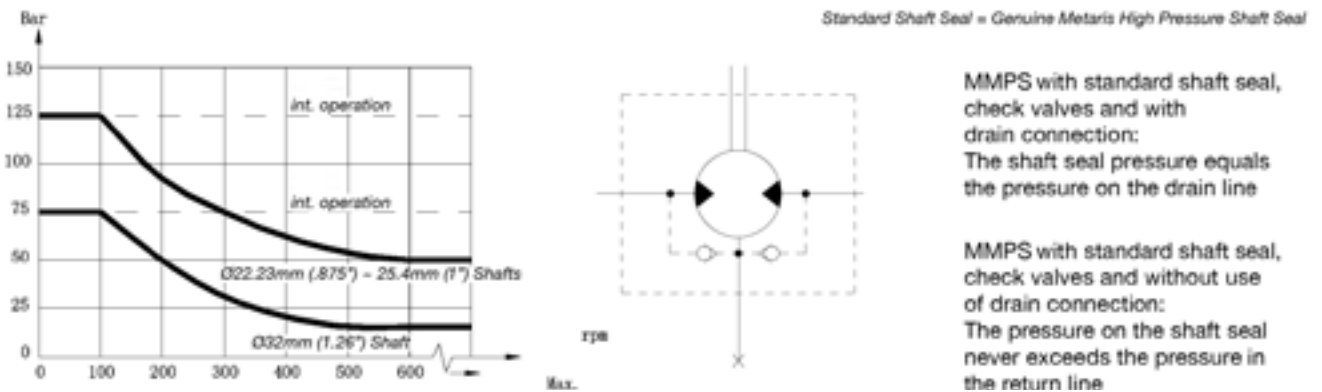
MMPS Series

To assure best motor life, run motor for approximately one hour at 30% of rated pressure before applying full load. Fill motor with equipment manufacturer's recommended fluid prior to any load application and startup.

Side Load



Shaft Seal



MMPS
 Specifications

Performance Data

☐ Continuous
 ■ Intermittent

50 cc/r

		Δ Pressure Bar							
		28	55	69	97	110	124	138	155
7.6	Flow LPM	18	37	46	64	72			
		152	147	142	134	124			
15.1	Flow LPM	18	37	47	66	75	84	93	
		298	290	276	265	261	245	243	
22.7	Flow LPM	17	37	47	66	75	84	93	105
		450	438	434	419	410	407	389	373
30.3	Flow LPM	14	35	44	64	74	83	92	104
		603	590	583	564	554	545	536	520
37.9	Flow LPM	14	34	44	64	73	83	92	104
		750	738	732	713	702	696	682	661
45.4	Flow LPM			43	62	72	81	91	102
				875	859	844	835	819	804

63cc/r

		Δ Pressure Bar							
		28	55	69	97	110	124	138	155
7.6	Flow LPM	22	47	59	80	91			
		111	107	105	96	92			
15.1	Flow LPM	24	50	62	87	99	110	122	
		229	216	212	194	190	188	183	
22.7	Flow LPM	22	48	60	86	99	111	123	138
		343	334	321	319	315	291	288	276
30.3	Flow LPM	21	47	60	86	98	111	123	138
		451	442	431	419	415	412	401	386
37.9	Flow LPM	18	45	58	84	97	110	122	137
		565	552	547	532	525	512	504	496
45.4	Flow LPM	18	44	57	82	95	109	121	137
		678	665	658	641	635	623	612	601
53.0	Flow LPM		42	55	81	95	107	120	135
			778	771	753	746	733	723	711
56.8	Flow LPM		40	53	80	93	106	119	135
			832	826	806	800	786	779	766

80cc/r

		Δ Pressure Bar							
		28	55	69	97	110	124	138	155
7.6	Flow LPM	30	61	77	106	119			
		90	83	80	70	63			
15.1	Flow LPM	30	62	78	109	124	140	155	
		185	179	175	166	162	156	150	
22.7	Flow LPM	29	61	77	109	124	140	155	174
		275	267	265	253	248	240	232	221
30.3	Flow LPM	27	60	76	108	124	139	155	174
		367	359	354	343	338	333	324	313
37.9	Flow LPM	26	58	74	106	122	138	153	173
		460	450	448	435	428	420	412	399
45.4	Flow LPM	24	56	72	106	121	138	152	172
		552	543	537	523	515	508	500	487
53.0	Flow LPM		54	70	102	118	134	150	170
			635	630	616	609	599	582	578
56.8	Flow LPM		52	69	101	117	133	149	168
			680	673	660	650	642	634	619

100cc/r

		Δ Pressure Bar							
		28	55	69	97	110	124	138	155
7.6	Flow LPM	39	79	98	135	152	171		
		71	66	63	56	51	46		
15.1	Flow LPM	38	79	99	139	158	177	195	
		146	141	138	131	128	124	118	
22.7	Flow LPM	37	78	98	139	158	178	195	219
		217	211	208	199	195	190	184	174
30.3	Flow LPM	36	76	97	137	157	177	195	218
		290	284	280	271	267	262	255	245
37.9	Flow LPM	33	74	95	135	155	174	193	217
		363	355	351	343	337	332	325	315
45.4	Flow LPM	31	72	92	133	153	173	192	215
		436	429	424	414	409	402	395	384
53.0	Flow LPM	27	69	90	130	150	170	189	213
		510	501	497	487	482	475	469	456
56.8	Flow LPM		67	88	128	148	168	187	211
			537	532	522	516	510	502	490

27 Torque Nm
 510 Speed RPM

125cc/r

		Δ Pressure Bar							
		28	55	69	97	110	124	138	155
7.6	Flow LPM	48	96	121	166	189	212		
		56	51	50	44	40	34		
15.1	Flow LPM	48	95	121	166	189	211	240	
		114	111	110	107	105	98	90	
22.7	Flow LPM	47	95	120	166	188	212	240	271
		172	171	168	157	155	151	145	130
30.3	Flow LPM	46	96	120	165	187	213	239	270
		230	225	220	216	212	206	200	190
37.9	Flow LPM	45	95	120	165	185	210	237	270
		267	263	278	272	267	260	253	240
45.4	Flow LPM	44	94	118	162	183	210	235	269
		345	341	335	328	323	317	310	300
53.0	Flow LPM	38	90	115	154	180	202	228	260
		405	401	395	390	384	378	371	358
56.8	Flow LPM		82	108	143	170	195	210	245
			426	424	420	415	410	404	390

160cc/r

		Δ Pressure Bar							
		28	55	69	97	110	124	138	155
7.6	Flow LPM	61	123	153	209	235	261		
		45	42	40	34	30	25		
15.1	Flow LPM	61	124	155	214	242	269	295	
		95	91	90	85	82	78	73	
22.7	Flow LPM	59	123	155	215	243	271	297	
		140	138	134	129	125	121	114	
30.3	Flow LPM	57	121	152	213	242	270	296	
		187	183	181	175	172	166	159	
37.9	Flow LPM	53	117	149	209	239	266	293	
		234	230	227	222	218	211	203	
45.4	Flow LPM	49	114	146	206	235	263	291	
		282	277	274	269	265	257	248	
53.0	Flow LPM	45	109	141	201	230	259	287	
		329	323	321	316	311	305	296	
56.8	Flow LPM		107	139	198	228	257	284	
			347	344	339	334	327	318	

MMPS
Specifications

Performance Data

200cc/r

		Δ Pressure Bar						
		28	55	89	97	110	124	138
7.6	Flow LPM	76	152	187	253	283		
		36	33	31	25	20		
15.1	Flow LPM	76	154	191	259	292	324	355
		77	73	73	68	65	61	55
22.7	Flow LPM	74	154	192	263	294	328	359
		113	110	109	104	100	95	87
30.3	Flow LPM	72	150	189	260	293	328	359
		151	148	146	142	139	132	123
37.9	Flow LPM	67	148	185	255	290	323	355
		189	186	184	181	176	166	156
45.4	Flow LPM	62	142	182	251	286	320	353
		228	224	222	219	213	204	192
53.0	Flow LPM	56	137	178	248	291	315	348
		286	281	259	256	251	242	229
56.8	Flow LPM		133	172	242	278	313	346
			281	279	275	269	260	247

250 cc/r

		Δ Pressure Bar						
		28	55	89	97	110	124	138
7.6	Flow LPM	94	187	230	306			
		29	26	24	17			
15.1	Flow LPM	95	192	235	319	359	388	
		62	59	59	55	50	49	
22.7	Flow LPM	93	191	236	321	361	371	401
		91	88	88	82	78	76	72
30.3	Flow LPM	89	187	233	319	359	369	399
		122	120	119	113	108	106	101
37.9	Flow LPM	84	182	228	313	356	366	396
		152	150	148	143	136	134	127
45.4	Flow LPM	78	175	222	309	351	361	392
		183	180	179	173	166	163	156
53.0	Flow LPM	71	169	216	302	345	356	387
		213	211	209	202	195	193	182
56.8	Flow LPM		165	212	298	341	352	383
			228	224	217	209	207	200

117 Torque Nm
23 Speed RPM

300cc/r

		Δ Pressure Bar							
		28	41	55	89	83	97	103	110
7.6	Flow LPM	117	178	230	283	329	368		
		23	22	21	19	16	11		
15.1	Flow LPM	119	180	237	289	342	391	418	
		49	48	48	47	47	44	41	
22.7	Flow LPM	118	178	237	290	342	391	417	441
		74	72	72	71	69	64	62	60
30.3	Flow LPM	110	172	232	285	339	390	414	438
		98	97	97	96	94	89	86	83
37.9	Flow LPM	105	166	226	280	334	385	410	435
		122	121	120	120	117	112	108	104
45.4	Flow LPM	98	159	218	271	326	379	404	428
		146	145	145	145	142	136	131	127
53.0	Flow LPM	89	151	209	264	318	371	397	423
		171	170	170	169	165	159	154	150
56.8	Flow LPM			204	258	313	366	393	419
				182	181	177	171	165	160

Continuous
Intermittent

370cc/r

		Δ Pressure Bar						
		14	28	41	55	89	83	90
7.6	Flow LPM	67	140	210	272	334		
		20	19	18	17	15		
15.1	Flow LPM	66	143	215	283	342	402	430
		41	41	40	40	39	38	37
22.7	Flow LPM	65	141	214	283	342	400	428
		61	60	60	59	58	57	56
30.3	Flow LPM	58	131	206	277	336	397	427
		82	81	80	79	78	77	77
37.9	Flow LPM	50	126	199	270	331	393	424
		102	102	101	101	100	97	96
45.4	Flow LPM	38	120	191	255	318	383	416
		122	121	120	119	119	118	118
53.0	Flow LPM	28	108	182	248	310	375	408
		142	141	140	139	138	137	134
56.8	Flow LPM				242	303	370	403
					150	149	147	145

395cc/r

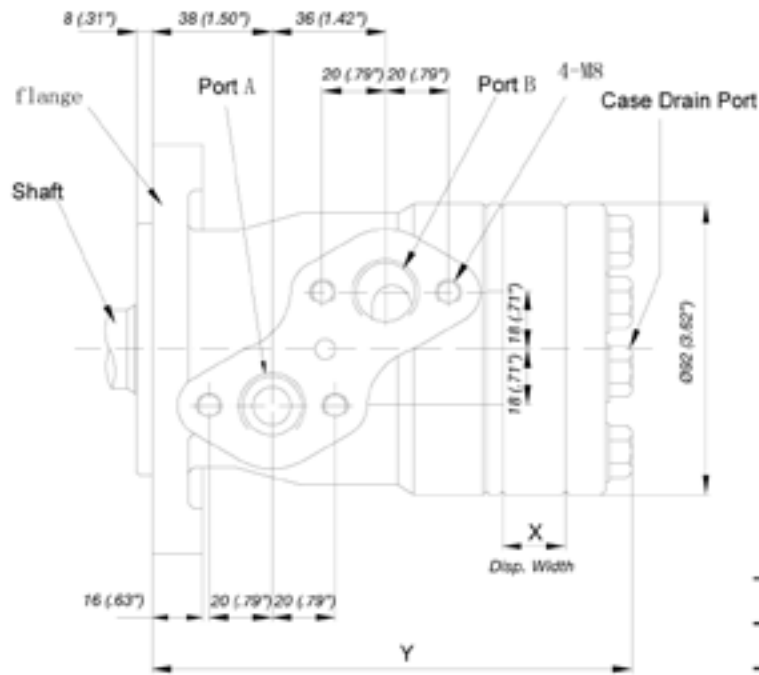
		Δ Pressure Bar						
		14	28	41	55	89	83	90
7.6	Flow LPM	71	150	224	290	356		
		18	17	17	16	14		
15.1	Flow LPM	70	152	229	302	365	429	458
		38	38	37	37	36	36	35
22.7	Flow LPM	69	150	228	302	365	427	456
		57	57	57	55	54	53	52
30.3	Flow LPM	62	140	220	295	368	423	455
		77	76	75	74	73	72	72
37.9	Flow LPM	53	134	212	288	353	419	452
		96	96	95	95	94	91	90
45.4	Flow LPM	40	129	204	272	339	408	444
		114	113	112	111	111	110	108
53.0	Flow LPM	28	115	194	267	330	400	435
		133	132	131	130	129	128	125
56.8	Flow LPM				258	323	394	430
					141	140	138	137

Performance data is typical with N68 anti-wear hydraulic oil at 50° C temperature. Actual data may vary slightly from unit to unit in production

MMPS
 Dimensions

Dimensions - Staggered Ports (Flanges A & B)

Displ. cm ³ /r.		50	63	80	100	125	160	200	250	305	370	395
X	Inches	(.35)	(.45)	(.57)	(.71)	(.90)	(1.14)	(1.40)	(1.76)	(2.21)	(2.67)	(2.84)
	Millimeters	9	11.5	14.44	18.05	22.78	28.88	35.61	44.65	56.03	67.92	72.01
Y	Inches	(5.64)	(5.74)	(5.85)	(6.0)	(6.19)	(6.43)	(6.69)	(7.04)	(7.49)	(7.96)	(8.12)
	Millimeters	143.3	145.8	148.7	152.4	157.1	163.2	170	178.9	190.3	202.2	206.3



Case Drain Port:
 None
 Or M14X1.5
 Or G1/4"
 Or 7/16-20UNF



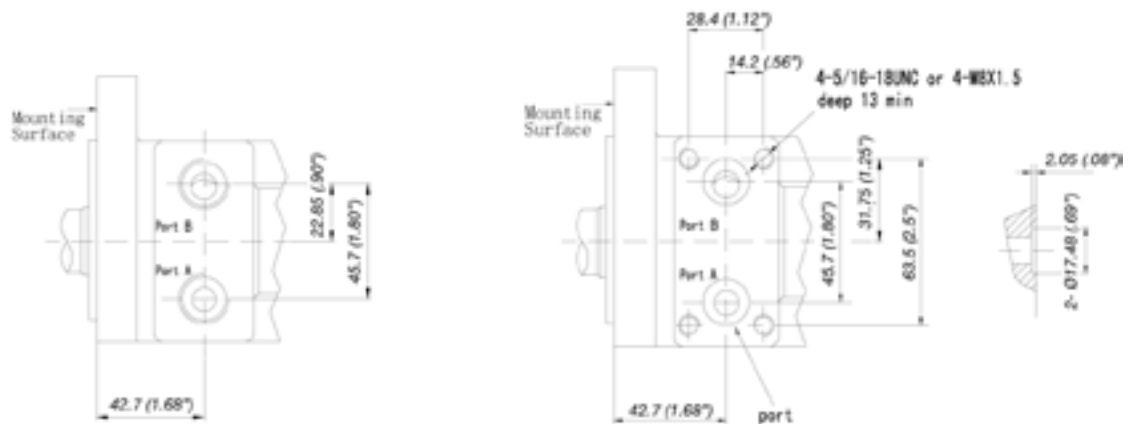
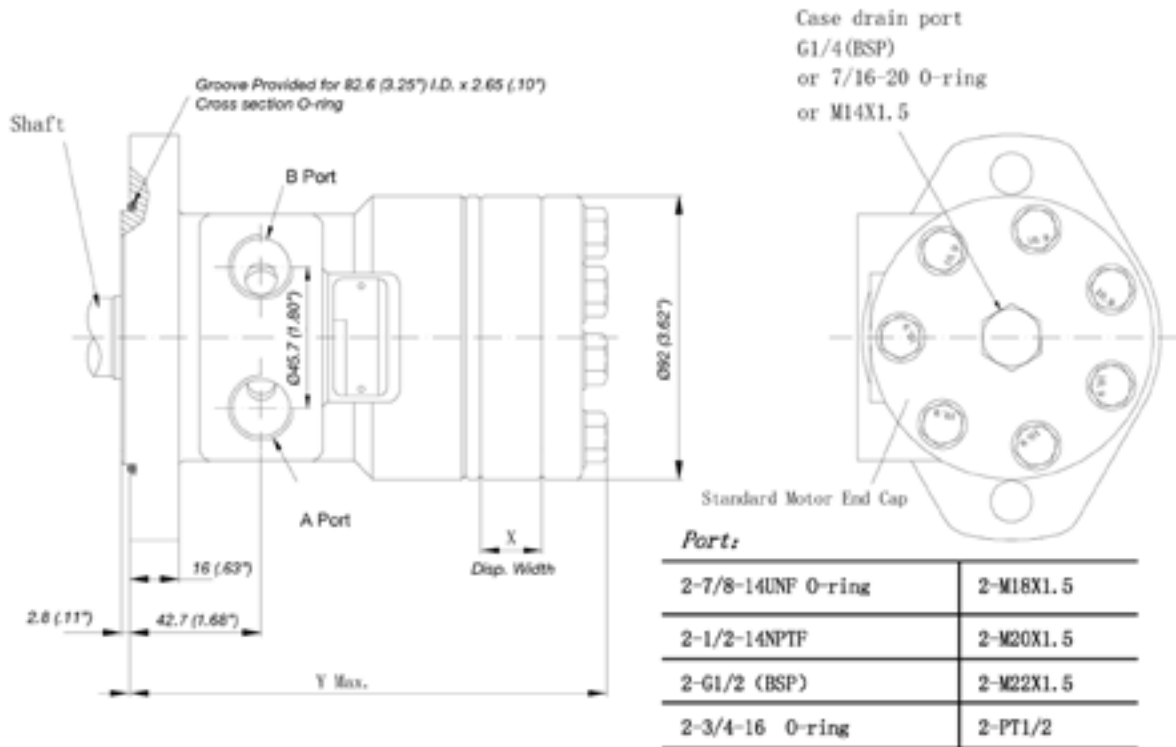
Ports:

2-7/8-14UNF O-ring	2-M18X1.5
2-1/2-14NPTF	2-M20X1.5
2-G1/2 (BSP)	2-M22X1.5
2-3/4-16 O-ring	2-PT1/2

MMPS Dimensions

Dimensions - Aligned Ports (Flanges C, D, E & F)

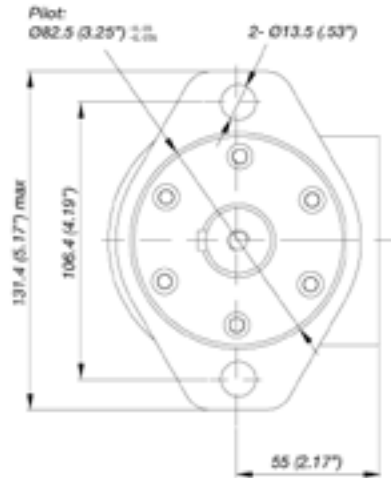
Displ. cm ³ /r.	50	63	80	100	125	160	200	250	305	370	395	
X	Inches	(.35)	(.45)	(.57)	(.71)	(.90)	(1.14)	(1.40)	(1.76)	(2.21)	(2.67)	(2.84)
	Millimeters	9	11.5	14.44	18.05	22.78	28.88	35.61	44.65	56.03	67.92	72.01
Y	Inches	(5.76)	(5.86)	(5.97)	(6.12)	(6.30)	(6.54)	(6.81)	(7.17)	(7.61)	(8.08)	(8.24)
	Millimeters	146.3	148.8	151.7	155.4	160.1	166.2	173	182	193.3	205.2	209.3



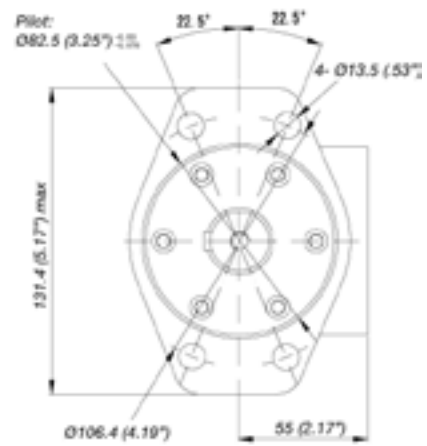
**MMPS
 Flanges**

Mounting Flanges

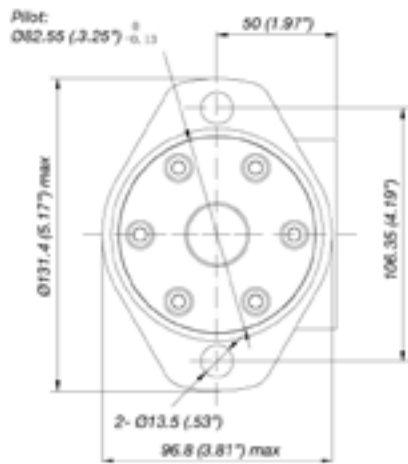
(A) = 2-Bolt SAE "A", Long Pilot 8mm (.31")



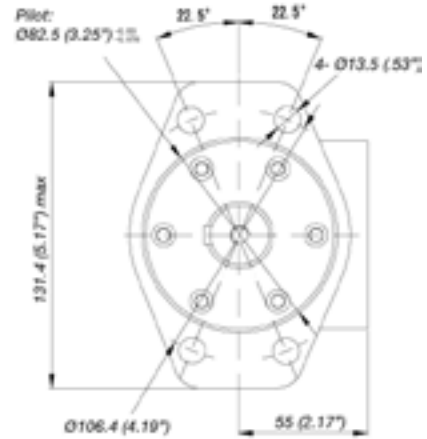
(B) = 4-Bolt SAE "A", Long Pilot 8mm (.31")



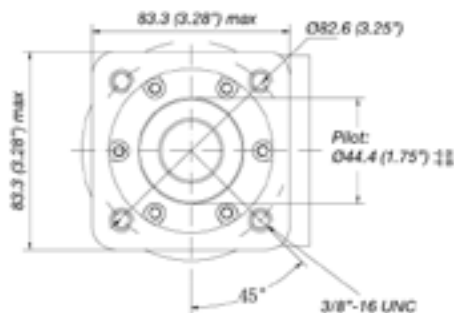
(C) = 2-Bolt SAE "A", Pilot 2.8mm (.11")



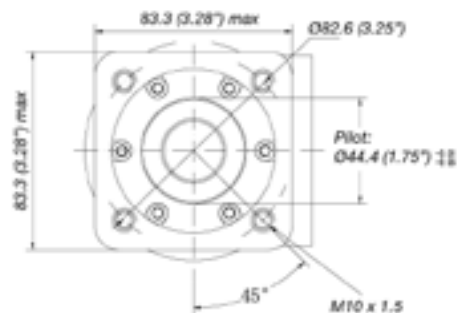
(D) = 4-Bolt SAE "A", Pilot 2.8mm (.11")



(E) = 4-3/8"-16 Square-flange

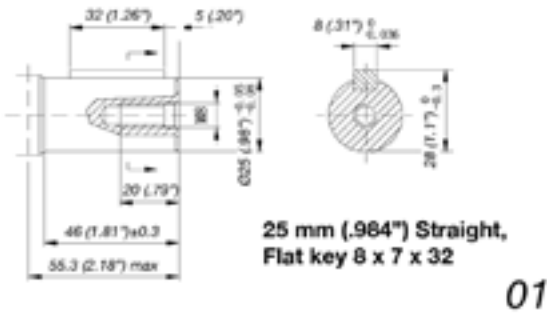


(F) = 4-M10x1.5 Square-flange

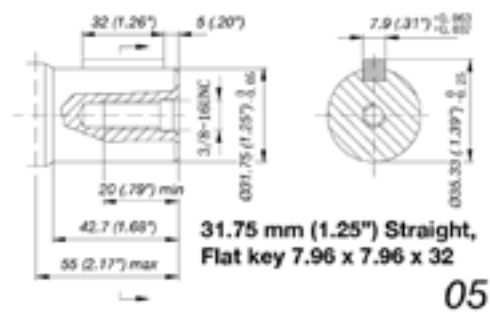


**MMPS
 Shafts**

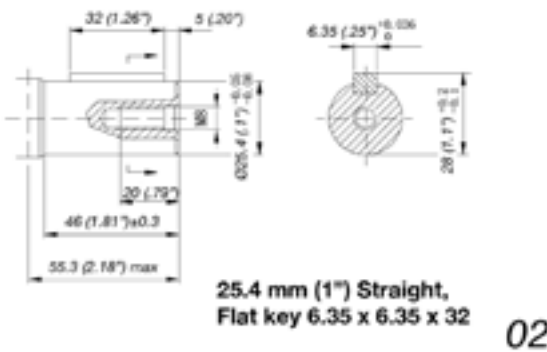
Shafts



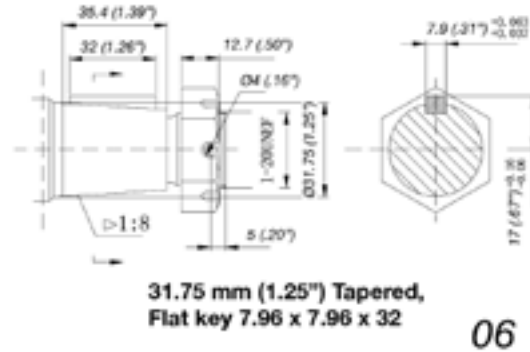
01



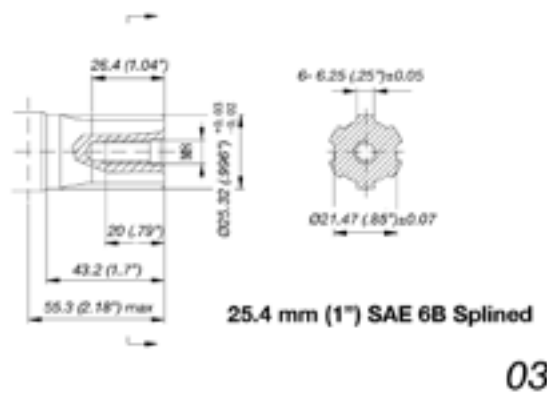
05



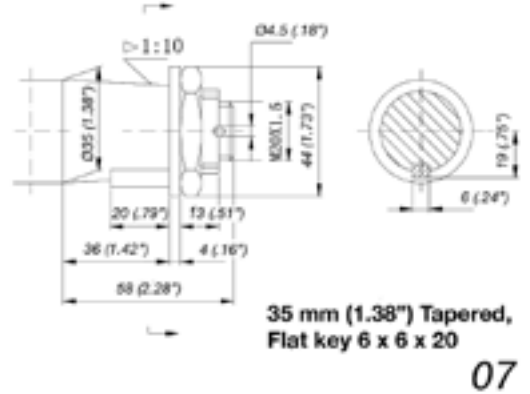
02



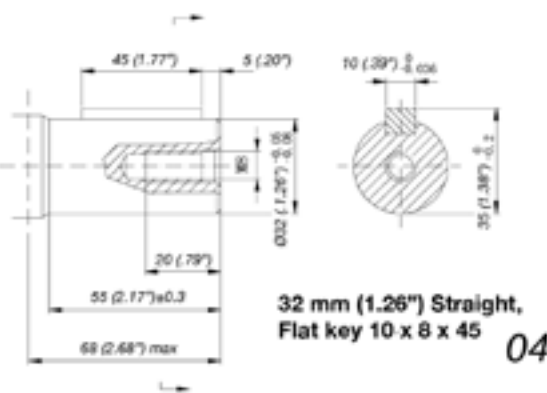
06



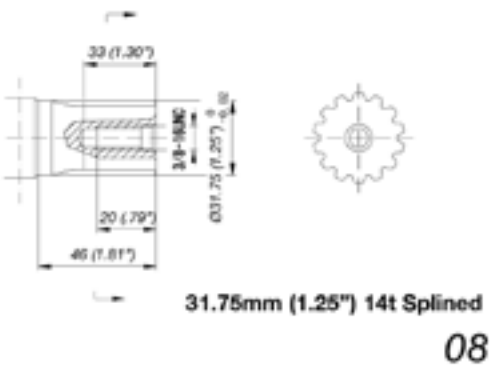
03



07



04

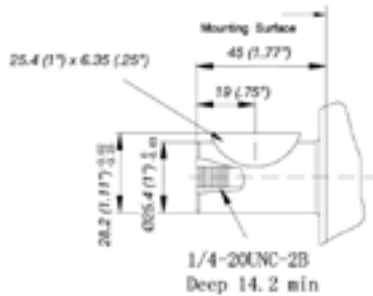


08

**MMPS
 Shafts**

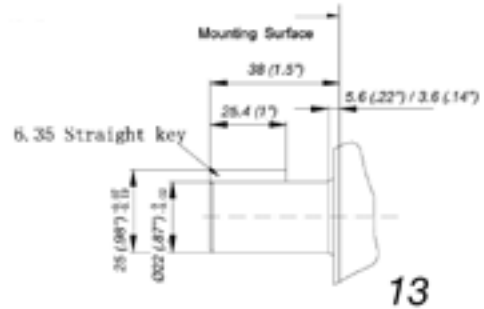
Shafts

**25.4 mm (1") Straight,
 Woodruff key**



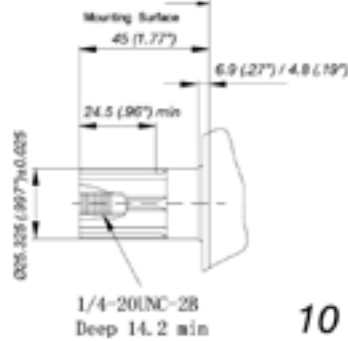
09

22.23 mm (.875") Straight



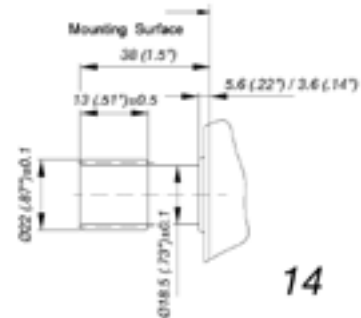
13

25.4 mm (1") SAE 6B Splined



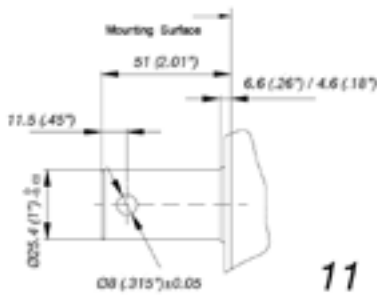
10

22.23 mm (.875") SAE B Shaft 13t Splined



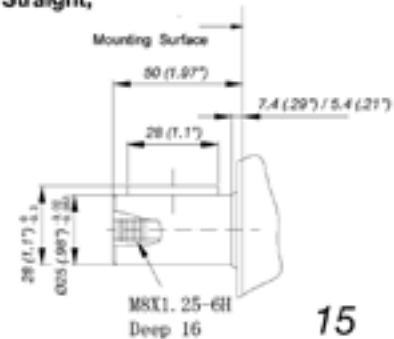
14

25.4 mm (1") Straight with .315 dia. crosshole



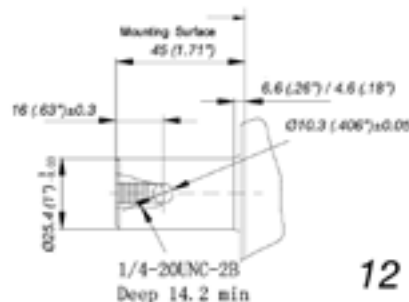
11

**25 mm (.984") Straight,
 8mm keyway**



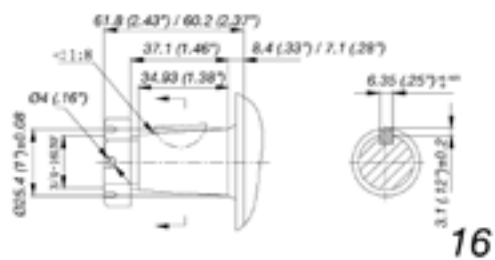
15

25.4 mm (1") Straight with .406 dia. crosshole



12

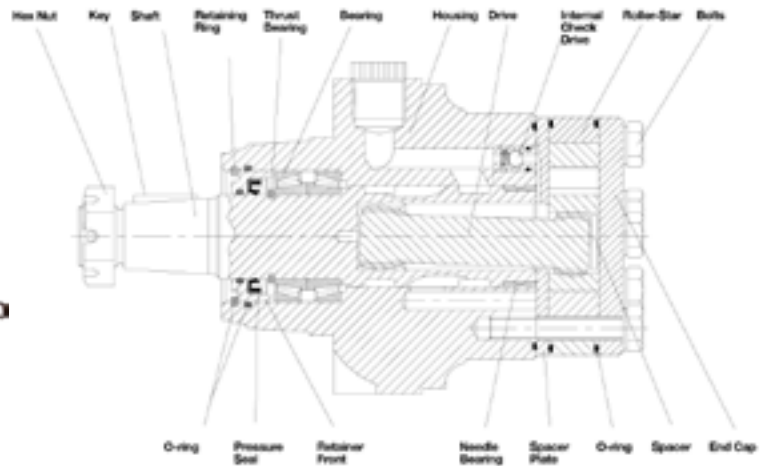
**25.4 mm (1") Tapered Shaft,
 Woodruff Key and Nut**



16

General

MMRSW Series



Description

MMRSW series wheel motors are spool valve motors, with the characteristic features of:

- Compact and light weight design
- Advanced Roller-Star technology, requiring lower pressure at start-up and providing smooth reliable operation at all speeds
- Dual high efficiency tapered roller bearings, providing excellent low speed and high speed operation with high side load capabilities
- High pressure shaft seal, which allows for higher back pressures and an increased ability to handle high pressure spike conditions
- Internal integrated check valve, which limits case pressure by blocking the high pressure port side and allowing the motor housing to drain into the outlet (low pressure) port. Motors connected in series will utilize the case drain

These motors can be used in parallel or series.

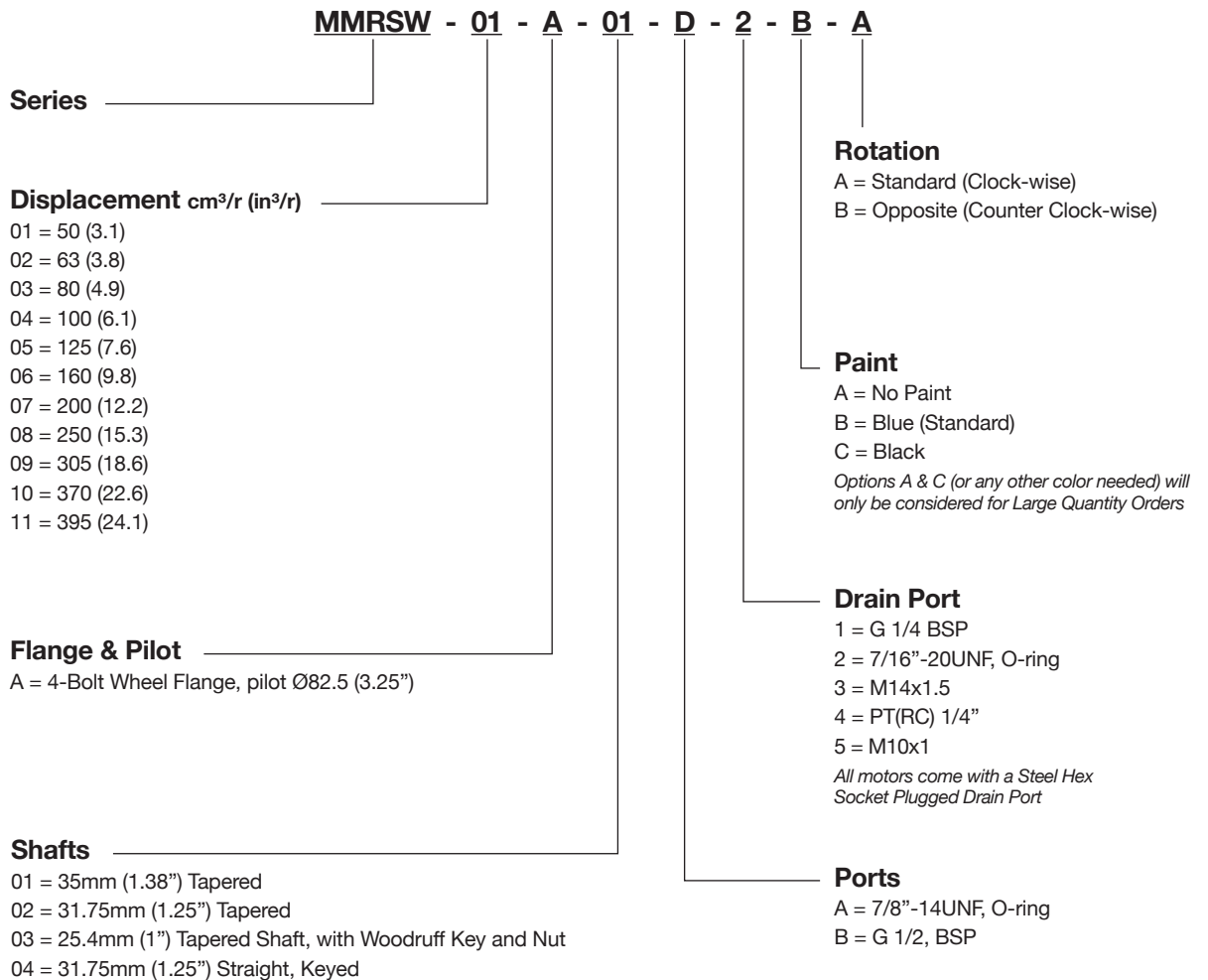
Specifications

Model Code		01	02	03	04	05	06	07	08	09	10	11	
Displ.	cm ³ /r	50	63	80	100	125	160	200	250	305	370	395	
	in ³ /r	3.1	3.8	4.9	6.1	7.6	9.8	12.2	15.3	18.6	22.6	24.1	
Flow	LPM	Cont.	40	50	60	60	60	60	60	60	60	60	60
		Int.	50	60	75	75	75	75	75	75	75	75	75
	GPM	Cont.	10.6	13.2	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9
		Int.	13.2	15.9	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8
Max Speed	RPM	Cont.	775	760	750	600	475	375	300	240	190	160	150
		Int.	970	950	940	750	600	470	375	300	240	200	185
Pressure	ΔBar	Cont.	140	140	175	175	175	175	175	175	135	115	115
		Int.	175	175	200	200	200	200	200	200	175	150	150
	ΔPSI	Cont.	2031	2031	2538	2538	2538	2538	2538	2538	1958	1668	1668
		Int.	2538	2538	2901	2901	2901	2901	2901	2901	2538	2176	2176
Torque	NM	Cont.	100	126	195	240	300	380	450	540	550	580	620
		Int.	130	163	220	280	340	430	500	610	690	690	735
	LBF-IN	Cont.	885	1115	1726	2124	2655	3363	3983	4779	4868	5133	5487
		Int.	1151	1443	1947	2478	3009	3806	4425	5399	6107	6107	6505

- Simultaneous maximum torque & maximum speed **NOT** recommended.
- Continuous Rating ▶ (Cont.) motor may be run continuously at these ratings.
- Intermittent Operation ▶ (Int.) 10% of every minute.
- Δ - True pressure difference between inlet port and outlet port.
- Maximum case pressure without case drain -- 75 Bar (1088 psi).

Model Code

Genuine Metaris Orbital Motor MMRSW

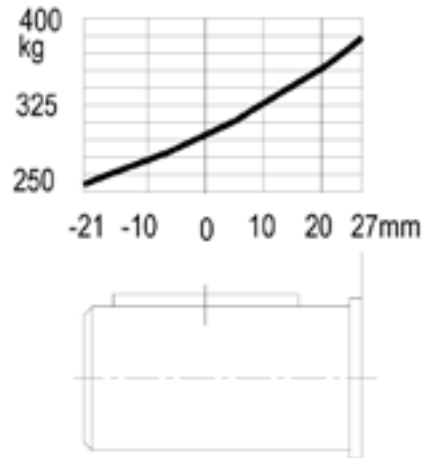


**MMRSW
 Specifications**

MMRSW Series

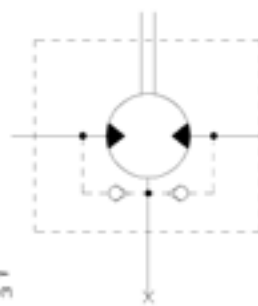
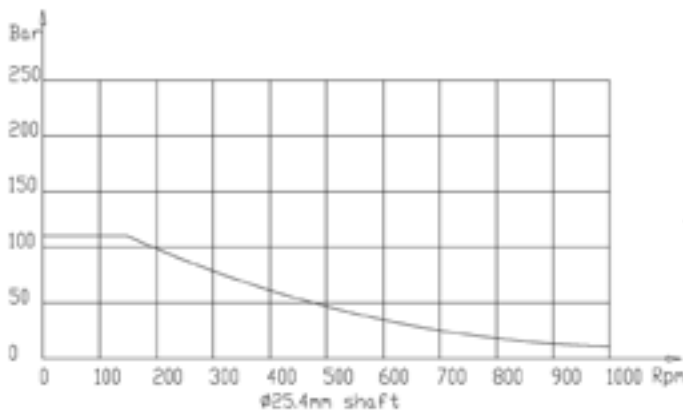
To assure best motor life, run motor for approximately one hour at 30% of rated pressure before applying full load. Fill motor with equipment manufacturer's recommended fluid prior to any load application and startup.

Side Load



Shaft Seal

Standard Shaft Seal = Genuine Metaris High Pressure Shaft Seal



MMRSW with standard shaft seal, check valves and with drain connection:
 The shaft seal pressure equals the pressure on the drain line

MMRSW with standard shaft seal, check valves and without use of drain connection:
 The pressure on the shaft seal never exceeds the pressure in the return line

MMRSW
Specifications

Performance Data

Continuous
Intermittent

50 cc/r

		Δ Pressure Bar							
		28	55	69	97	110	124	138	155
7.6		18	37	46	64	72			
	Flow LPM	152	147	142	134	124			
15.1		18	37	47	66	75	84	93	
	Flow LPM	298	290	276	265	261	245	243	
22.7		17	37	47	66	75	84	93	105
	Flow LPM	450	438	434	419	410	407	389	373
30.3		14	35	44	64	74	83	92	104
	Flow LPM	603	590	583	564	554	545	536	520
37.9		14	34	44	64	73	83	92	104
	Flow LPM	730	738	732	713	702	696	682	661
45.4				43	62	72	81	91	102
	Flow LPM			875	859	844	835	819	804

63cc/r

		Δ Pressure Bar							
		28	55	69	97	110	124	138	155
7.6		22	47	59	80	91			
	Flow LPM	111	107	105	94	92			
15.1		24	50	62	87	99	110	122	
	Flow LPM	229	216	212	194	190	186	183	
22.7		22	48	60	86	99	111	123	138
	Flow LPM	343	334	321	319	315	291	288	274
30.3		21	47	60	86	98	111	123	138
	Flow LPM	451	442	431	419	415	412	401	384
37.9		18	45	58	84	97	110	122	137
	Flow LPM	565	552	547	532	525	512	504	496
45.4		18	44	57	82	95	109	121	137
	Flow LPM	678	665	658	641	635	623	612	601
53.0			42	55	81	95	107	120	138
	Flow LPM		778	771	753	746	733	723	711
56.8			40	53	80	93	106	119	135
	Flow LPM		832	826	806	800	786	779	766

80cc/r

		Δ Pressure Bar							
		28	55	69	97	110	124	138	155
7.6		30	61	77	106	119			
	Flow LPM	90	83	80	70	63			
15.1		30	62	78	109	124	140	155	
	Flow LPM	185	179	175	166	162	156	150	
22.7		29	61	77	109	124	140	155	174
	Flow LPM	275	267	265	253	248	240	232	221
30.3		27	60	76	108	124	139	155	174
	Flow LPM	367	359	354	343	338	333	324	313
37.9		26	58	74	106	122	138	153	173
	Flow LPM	460	450	446	435	428	420	412	399
45.4		24	56	72	105	121	136	152	172
	Flow LPM	552	543	537	525	515	509	500	487
53.0		54	70	102	118	134	150	170	
	Flow LPM		635	630	616	609	599	592	578
56.8			52	69	101	117	133	149	168
	Flow LPM		680	673	660	650	642	634	619

100cc/r

		Δ Pressure Bar							
		28	55	69	97	110	124	138	155
7.6		39	79	98	135	152	171		
	Flow LPM	71	66	63	56	51	46		
15.1		38	79	99	139	158	177	195	
	Flow LPM	146	141	138	131	128	124	118	
22.7		37	78	98	139	158	178	196	219
	Flow LPM	217	211	208	199	195	190	184	174
30.3		36	76	97	137	157	177	195	218
	Flow LPM	290	284	280	271	267	262	255	245
37.9		33	74	95	135	155	174	192	217
	Flow LPM	363	355	351	343	337	332	325	315
45.4		31	72	92	133	153	173	192	215
	Flow LPM	436	429	424	414	409	402	395	384
53.0		27	69	90	130	150	170	189	213
	Flow LPM	510	501	497	487	482	475	469	456
56.8			67	88	128	148	168	187	211
	Flow LPM		537	530	522	514	510	500	490

27 Torque Nm
510 Speed RPM

125cc/r

		Δ Pressure Bar							
		28	55	69	97	110	124	138	155
7.6		48	96	121	166	189	212		
	Flow LPM	56	51	50	44	40	34		
15.1		48	95	121	166	189	211	240	
	Flow LPM	114	111	110	107	105	98	90	
22.7		47	95	120	166	188	212	240	271
	Flow LPM	172	171	168	157	155	151	145	130
30.3		46	96	120	165	187	213	239	270
	Flow LPM	230	225	220	216	212	206	200	190
37.9		45	95	120	165	185	210	237	270
	Flow LPM	287	283	278	272	267	260	253	240
45.4		44	94	118	162	183	210	235	269
	Flow LPM	345	341	335	328	323	317	310	300
53.0		38	90	115	154	180	200	228	260
	Flow LPM	405	401	395	390	384	378	371	358
56.8			82	108	140	170	195	210	245
	Flow LPM		426	424	420	415	410	404	390

160cc/r

		Δ Pressure Bar							
		28	55	69	97	110	124	138	
7.6		61	123	153	209	235	261		
	Flow LPM	45	42	40	34	30	25		
15.1		61	124	155	214	242	269	295	
	Flow LPM	95	91	90	85	82	78	73	
22.7		59	123	155	215	243	271	297	
	Flow LPM	140	136	134	129	125	121	114	
30.3		57	121	152	213	242	270	296	
	Flow LPM	187	183	181	175	172	166	159	
37.9		53	117	149	209	239	266	293	
	Flow LPM	234	230	227	222	218	211	203	
45.4		49	114	146	206	235	263	291	
	Flow LPM	282	277	274	269	265	257	248	
53.0		45	109	141	201	230	259	287	
	Flow LPM	329	323	321	316	311	305	296	
56.8			107	139	198	228	257	284	
	Flow LPM		347	344	339	334	327	318	

MMRSW Specifications

Performance Data

200cc/r

Flow LPM	Δ Pressure Bar						
	28	55	69	97	110	124	138
7.6	76	152	187	253	283		
	36	33	31	25	20		
15.1	76	154	191	259	292	324	355
	77	73	73	68	65	61	55
22.7	74	154	192	263	294	328	359
	113	110	109	104	100	95	87
30.3	72	150	189	260	293	326	359
	151	148	146	142	139	132	123
37.9	67	146	185	255	290	323	355
	189	186	184	181	176	166	156
45.4	62	142	182	251	286	320	353
	228	224	222	219	213	204	192
53.0	56	137	176	246	291	315	348
	266	261	259	256	251	242	229
56.8							
	133	172	242	278	313	346	
	281	279	275	269	260	247	

250 cc/r

Flow LPM	Δ Pressure Bar							
	28	55	69	97	110	114	125	127
7.6	94	187	230	306				
	29	26	24	17				
15.1	95	192	235	319	359	368		
	62	59	59	55	50	49		
22.7	93	191	236	321	361	371	401	410
	91	89	88	82	78	76	72	71
30.3	89	187	233	319	359	369	399	408
	122	120	119	113	108	106	101	99
37.9	84	182	228	313	356	366	395	406
	152	150	148	143	136	134	127	125
45.4	78	175	222	309	351	361	392	402
	183	180	179	173	166	163	156	153
53.0	71	169	216	302	345	356	386	397
	213	211	209	202	195	193	185	182
56.8								
	165	212	298	341	352	383	394	
	226	224	217	209	207	200	197	

117 Torque Nm
23 Speed RPM

305cc/r

Flow LPM	Δ Pressure Bar						
	28	41	55	69	83	97	103
7.6	117	176	230	283	329	366	
	23	22	21	19	16	11	
15.1	119	180	237	289	342	391	416
	49	48	48	47	47	44	41
22.7	116	178	237	290	342	391	417
	74	72	72	71	69	64	62
30.3	110	172	232	285	339	390	414
	98	97	97	96	94	89	86
37.9	105	166	226	280	334	385	410
	122	121	120	120	117	112	108
45.4	98	159	216	271	326	379	404
	146	145	145	145	142	136	131
53.0	89	151	209	264	318	371	397
	171	170	170	169	165	159	154
56.8							
	204	258	313	366	393	419	
	182	181	177	171	165	160	

Continuous
Intermittent

370cc/r

Flow LPM	Δ Pressure Bar					
	14	28	41	55	69	83
7.6	67	140	210	272	334	
	20	19	18	17	15	
15.1	66	143	215	283	342	402
	41	41	40	40	39	38
22.7	65	141	214	283	342	400
	61	60	60	59	58	57
30.3	58	131	206	277	336	397
	82	81	80	79	78	77
37.9	50	126	199	270	331	393
	102	102	101	101	100	97
45.4	38	120	191	255	318	383
	122	121	120	119	119	118
53.0	26	108	182	249	310	375
	142	141	140	139	138	137
56.8						
	242	303	370	403		
	150	149	147	146		

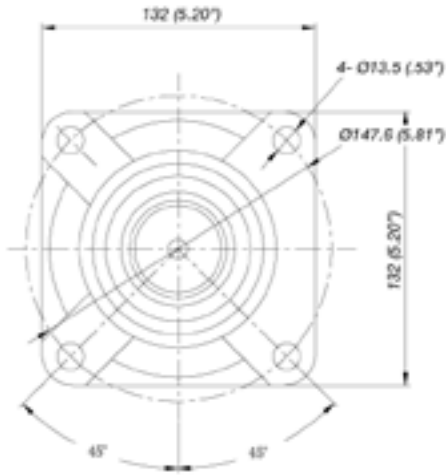
395cc/r

Flow LPM	Δ Pressure Bar					
	14	28	41	55	69	83
7.6	71	150	224	290	356	
	18	17	17	16	14	
15.1	70	152	229	302	365	429
	38	38	37	37	36	36
22.7	69	150	228	302	365	427
	57	57	57	55	54	53
30.3	62	140	220	295	358	423
	77	76	75	74	73	72
37.9	53	134	212	288	353	419
	96	96	95	95	94	91
45.4	40	129	204	272	339	408
	114	113	112	111	111	110
53.0	28	115	194	267	330	400
	133	132	131	130	129	128
56.8						
	258	323	394	400		
	141	140	138	137		

MMRSW
Flanges

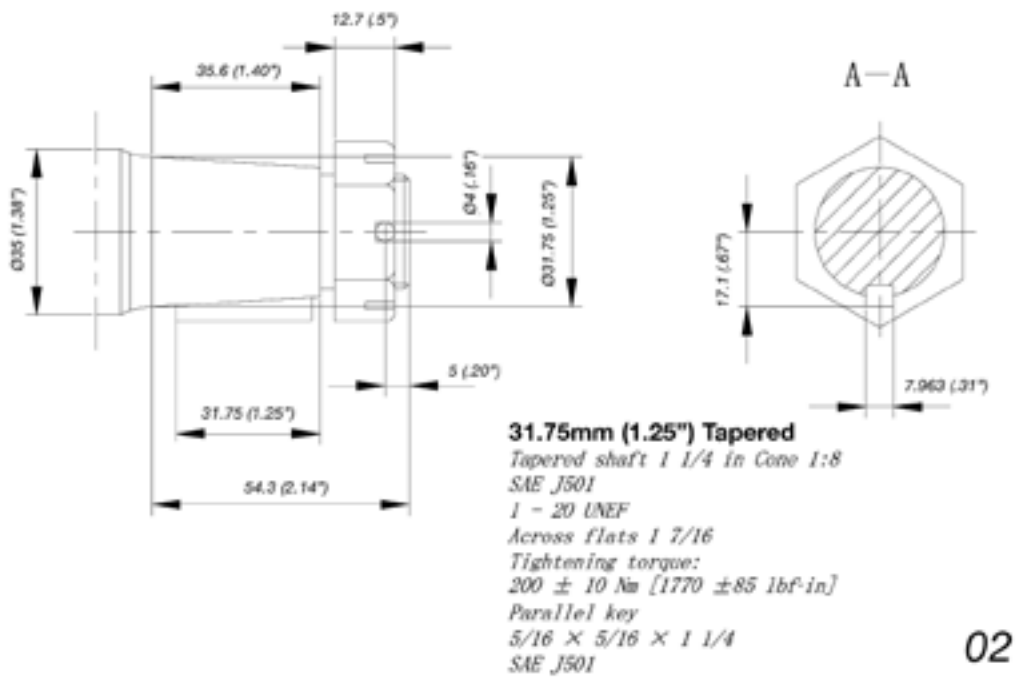
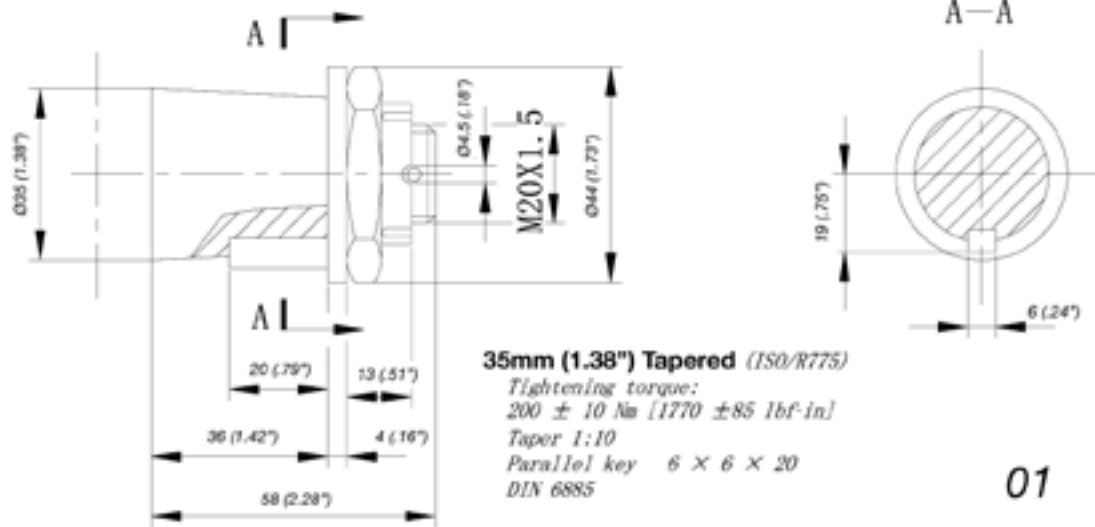
Mounting Flanges

(A) = 4-Bolt Wheel Flange, Pilot 82.6 (3.25")



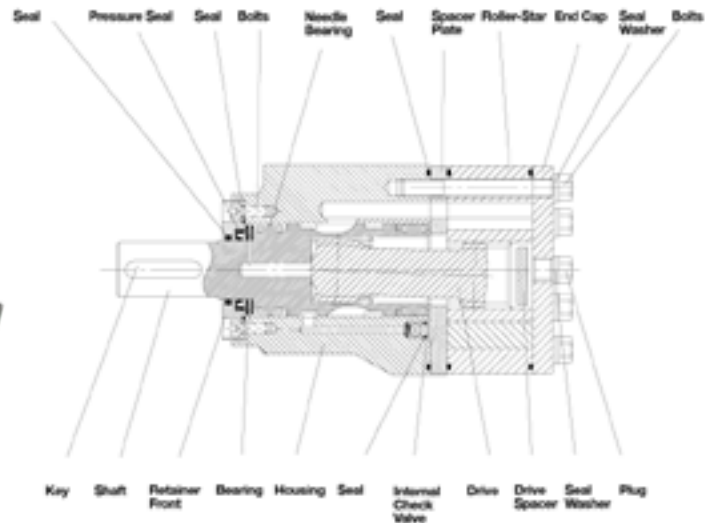
MMRSW
 Shafts

Shafts



General

MMH Series



Description

MMH series motors are spool valve motors, with the characteristic features of:

- Compact and light weight design
- Advanced Roller-Star technology, requiring lower pressure at start-up and providing smooth reliable operation at all speeds
- Dual needle bearings, providing high side load capacity with extended operating life
- High pressure shaft seal, which allows for higher back pressures and an increased ability to handle high pressure spike conditions
- Internal integrated check valve, which limits case pressure by blocking the high pressure port side and allowing the motor housing to drain into the outlet (low pressure) port. Motors connected in series will utilize the case drain

These motors can be used in parallel or series. The broad displacement range is a plus in meeting your power requirements.

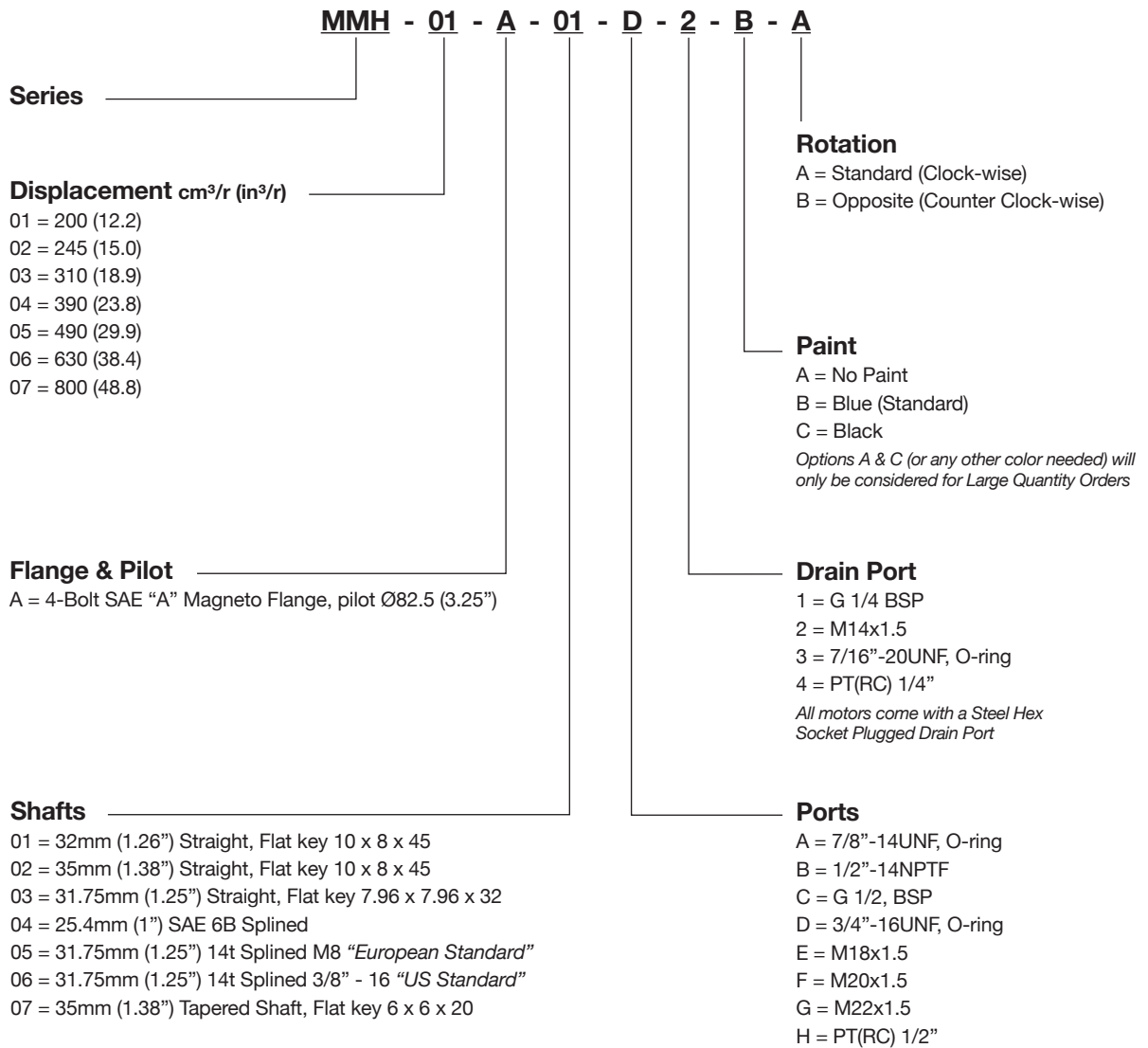
Specifications

Model Code		01	02	03	04	05	06	07
Displ.	cm ³ /r	200	245	310	390	490	630	800
	in ³ /r	12.2	15.0	18.9	23.8	29.9	38.4	48.8
Flow	LPM	Cont.	80	80	80	80	80	80
		Int.	100	100	100	100	100	100
	GPM	Cont.	21.1	21.1	21.1	21.1	21.1	21.1
		Int.	26.4	26.4	26.4	26.4	26.4	26.4
Max Speed	RPM	Cont.	360	320	250	200	156	100
		Int.	470	390	300	240	200	150
Pressure	ΔBar	Cont.	175	175	175	155	125	100
		Int.	200	200	200	190	150	120
	ΔPSI	Cont.	2538	2538	2538	2248	1813	1813
		Int.	2901	2901	2901	2756	2176	2176
Torque	NM	Cont.	500	614	777	866	877	1128
		Int.	573	700	888	1061	1053	1350
	LBF-IN	Cont.	4425	5434	6877	7665	7762	9984
		Int.	5071	6196	7859	9391	9320	11949

- Simultaneous maximum torque & maximum speed **NOT** recommended.
- Continuous Rating » (Cont.) motor may be run continuously at these ratings.
- Intermittent Operation » (Int.) 10% of every minute.
- Δ - True pressure difference between inlet port and outlet port.
- Maximum case pressure without case drain -- 75 Bar (1088 psi).

Model Code

Genuine Metaris Orbital Motor
MMH

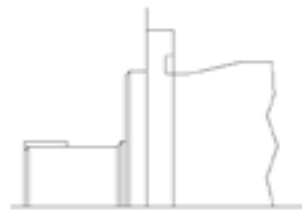
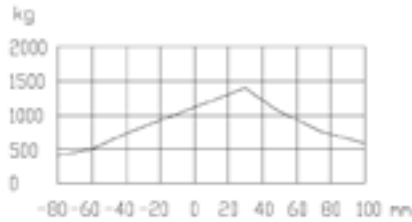


MMH Specifications

MMH Series

To assure best motor life, run motor for approximately one hour at 30% of rated pressure before applying full load. Fill motor with equipment manufacturer's recommended fluid prior to any load application and startup.

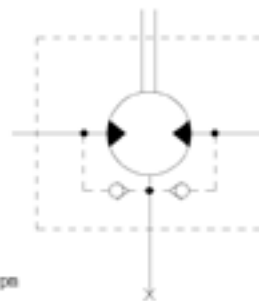
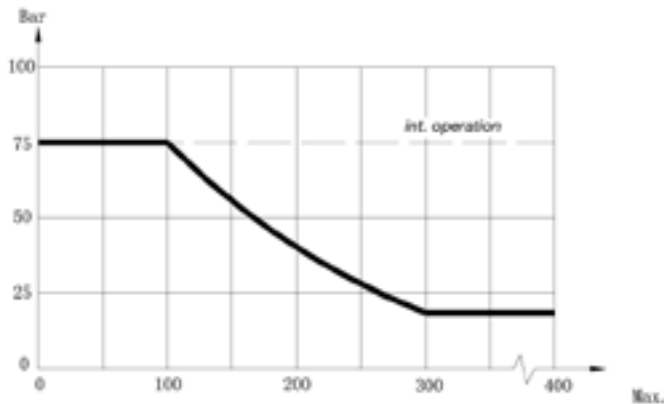
Side Load



Standard Motor 1-1/4 inch and 35 mm straight shaft

Shaft Seal

Standard Shaft Seal = Genuine Metaris High Pressure Shaft Seal



MMH with standard shaft seal, check valves and without use of drain connection:
The pressure on the shaft seal never exceeds the pressure in the return line

MMH with standard shaft seal, check valves and with drain connection:
The shaft seal pressure equals the pressure on the drain line

MMH
Specifications

Performance Data

□ Continuous
■ Intermittent

200 cc/r ΔBar

	35	70	105	140	175	200
10	89	178	268	357	446	
	48	46	45	40	33	
20	89	178	268	356	445	510
	96	92	90	80	65	50
30	89	178	268	358	442	509
	144	138	135	120	98	75
40	89	179	268	354	440	508
	192	184	180	160	130	100
50	89	181	268	357	439	508
	240	230	225	200	163	125
60	89	180	268	355	438	508
	288	276	270	240	195	150
70	89	179	268	356	437	509
	336	322	315	280	228	175
75	89	178	267	354	436	507
	360	345	338	300	244	188
80	89	176	264	357	435	
	384	368	360	320	260	
90	89	175	261	352	436	
	432	414	405	360	290	

245 cc/r ΔBar

	35	70	105	140	175	200
10	109	218	328	437	546	
	39	38	37	33	27	
20	109	218	328	437	546	624
	78	75	73	65	53	41
30	109	218	328	437	546	624
	118	113	110	98	80	61
40	111	221	332	442	553	632
	157	150	147	131	106	82
50	109	218	328	437	546	624
	196	188	184	163	133	102
60	108	216	324	431	539	616
	235	225	220	196	159	122
70	108	216	324	431	539	616
	274	263	257	229	186	143
75	108	216	324	431	539	616
	294	282	276	245	199	153
80	108	216	324	431	539	
	313	300	294	261	212	
90	108	216	324	431	539	
	353	338	331	294	239	

436 Torque N.m
290 Speed RPM

310 cc/r ΔBar

	35	70	105	140	175	200
20	138	276	415	553	691	
	62	59	58	52	42	
30	138	276	415	553	691	790
	93	89	87	77	63	48
40	138	276	415	553	691	790
	124	119	116	103	84	65
50	140	280	420	560	700	800
	155	148	145	129	105	81
60	138	276	415	553	691	790
	188	178	174	155	128	97
70	136	273	409	546	682	780
	217	208	203	181	147	113
75	136	273	409	546	682	780
	232	223	218	194	157	121
80	136	273	409	546	682	
	248	237	232	206	168	
90	136	273	409	546	682	
	279	267	261	232	189	

390 cc/r ΔBar

	35	70	105	140	155	190
20	174	348	522	696	770	
	49	47	46	41	33	
30	174	348	522	696	770	944
	74	71	69	62	50	38
40	174	348	522	696	770	944
	98	94	92	82	67	51
50	176	352	528	704	790	958
	123	118	115	103	83	64
60	174	348	522	696	770	944
	148	142	138	123	100	77
70	172	343	515	687	760	932
	172	165	162	144	117	90
75	172	343	515	687	760	932
	185	177	173	154	125	96
80	172	343	515	687	760	
	197	189	185	164	133	
90	172	343	515	687	760	
	222	212	208	185	150	

MMH
Specifications

Performance Data

□ Continuous
■ Intermittent

490 cc/r Δ Bar

	35	70	105	125	160
20	218	437	655	790	
	39	38	37	33	
30	218	437	655	790	999
	59	56	55	49	40
40	218	437	655	790	999
	78	75	73	65	53
50	221	442	664	790	1011
	98	94	92	82	66
60	218	437	655	790	999
	118	113	110	98	80
70	218	431	647	771	986
	137	131	129	114	93
75	218	431	647	771	986
	147	141	138	122	99
80	218	431	647	771	
	157	150	147	131	
90	218	431	647	771	
	175	169	165	147	

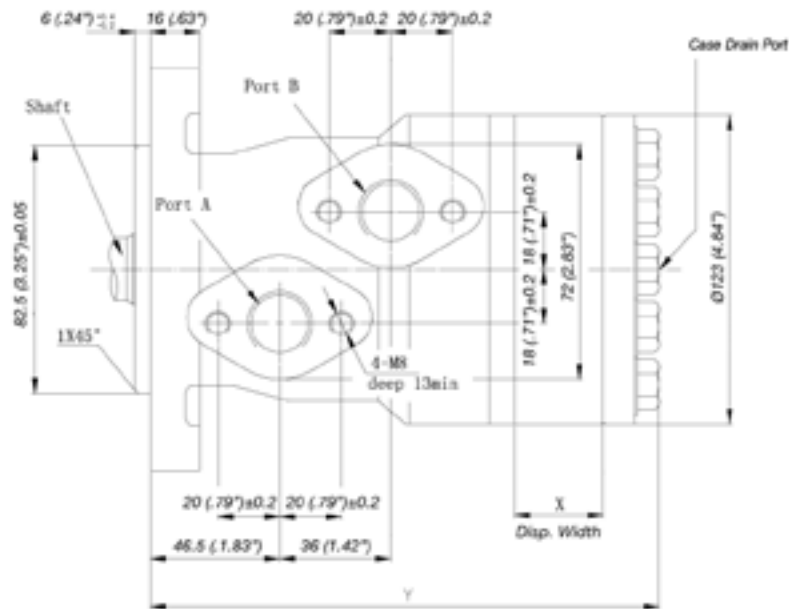
630 cc/r Δ Bar

	35	70	105	125	150
20	281	562	843	1000	
	30	29	29	25	
30	281	562	843	1000	1204
	46	44	43	38	31
40	281	562	843	1000	1204
	61	58	57	51	41
50	284	569	853	1016	1219
	76	73	71	63	52
60	281	562	843	1000	1204
	91	88	86	76	62
70	277	555	832	991	1189
	107	102	100	89	72
75	277	555	832	991	1189
	114	110	107	95	77
80	277	555	832	991	
	122	117	114	102	
90	277	555	832	991	
	137	131	129	114	

MMH
Dimensions

Dimensions - Staggered Ports

Displ. cm ³ /r.	200	245	310	390	490	630	800	
X	Inches	(.88)	(1.08)	(1.36)	(1.71)	(2.15)	(2.73)	(3.51)
	Millimeters	22.4	27.4	34.6	43.4	54.5	69.24	89.1
Y	Inches	(6.77)	(6.98)	(7.27)	(7.61)	(8.05)	(8.63)	(9.41)
	Millimeters	172	177.4	184.6	193.4	204.5	219.2	239.1



Ports:

7/8-14UNF O-ring	M18X1.5
1/2-14NPTF	M20X1.5
G1/2 (BSP)	M22X1.5
3/4-16 O-ring	PT (RC) 1/2

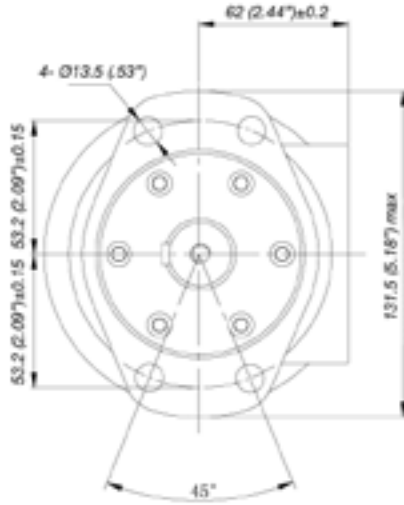
Case Drain Port:

G1/4
M14X1.5
7/16-20UNF
PT (RC) 1/2
None

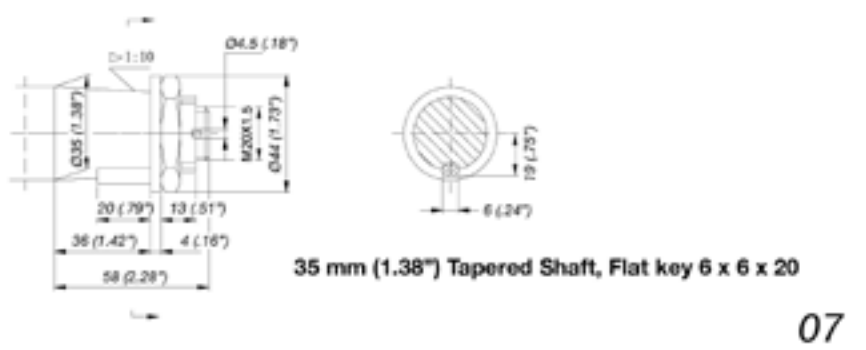
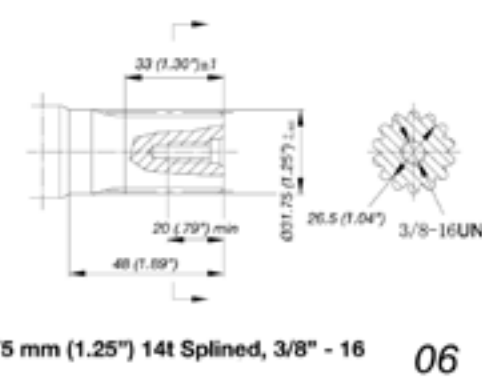
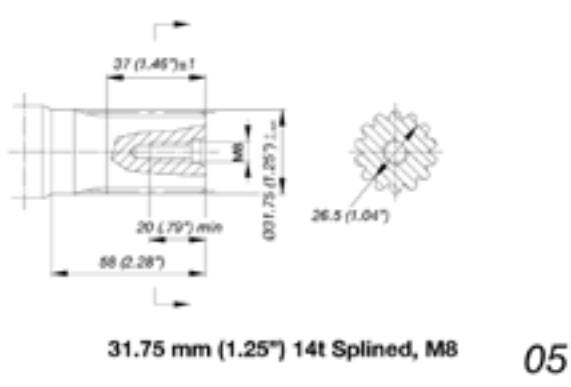
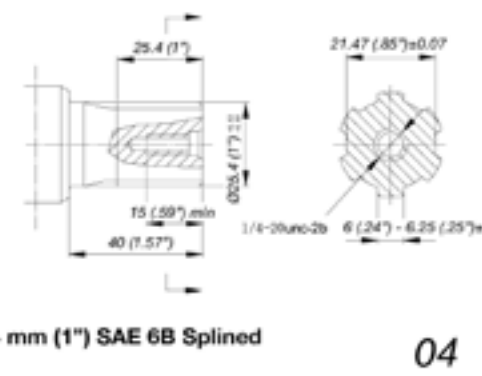
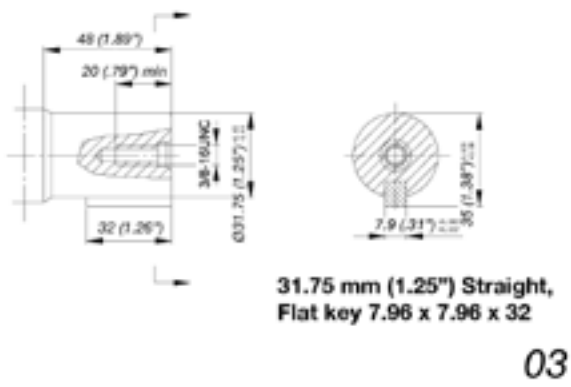
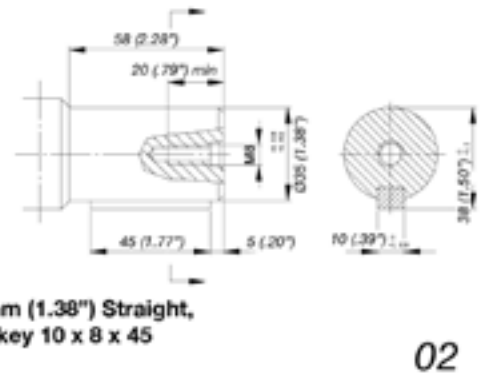
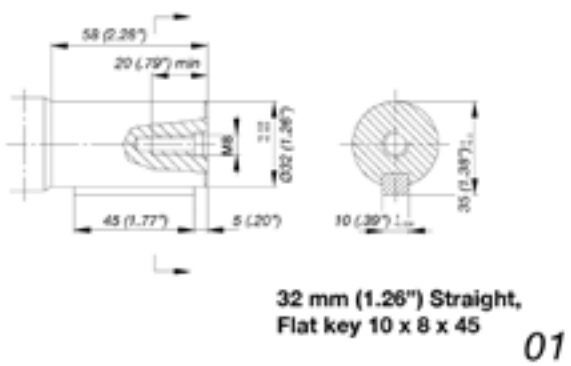
MMH
Flanges

Mounting Flanges

(A) = 4-Bolt SAE "A" Magneto Flange, Pilot 82.5 (3.25")

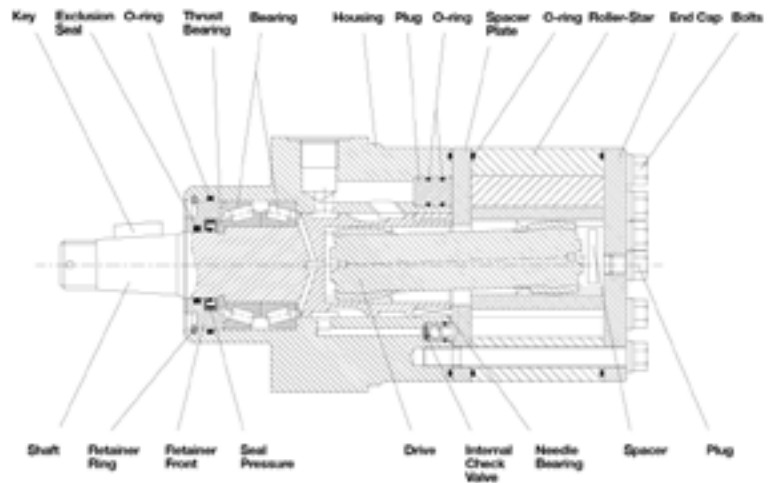


MMH Shafts



General

MMW Series



Description

MMW series wheel motors are spool valve motors, with the characteristic features of:

- Compact and light weight design
- Advanced Roller-Star technology, requiring lower pressure at start-up and providing smooth reliable operation at all speeds
- Dual high efficiency tapered roller bearings, providing excellent low speed and high speed operation with high side load capabilities
- High pressure shaft seal, which allows for higher back pressures and an increased ability to handle high pressure spike conditions
- Internal integrated check valve, which limits case pressure by blocking the high pressure port side and allowing the motor housing to drain into the outlet (low pressure) port. Motors connected in series will utilize the case drain

These motors can be used in parallel or series. The broad displacement range is a plus in meeting your power requirements.

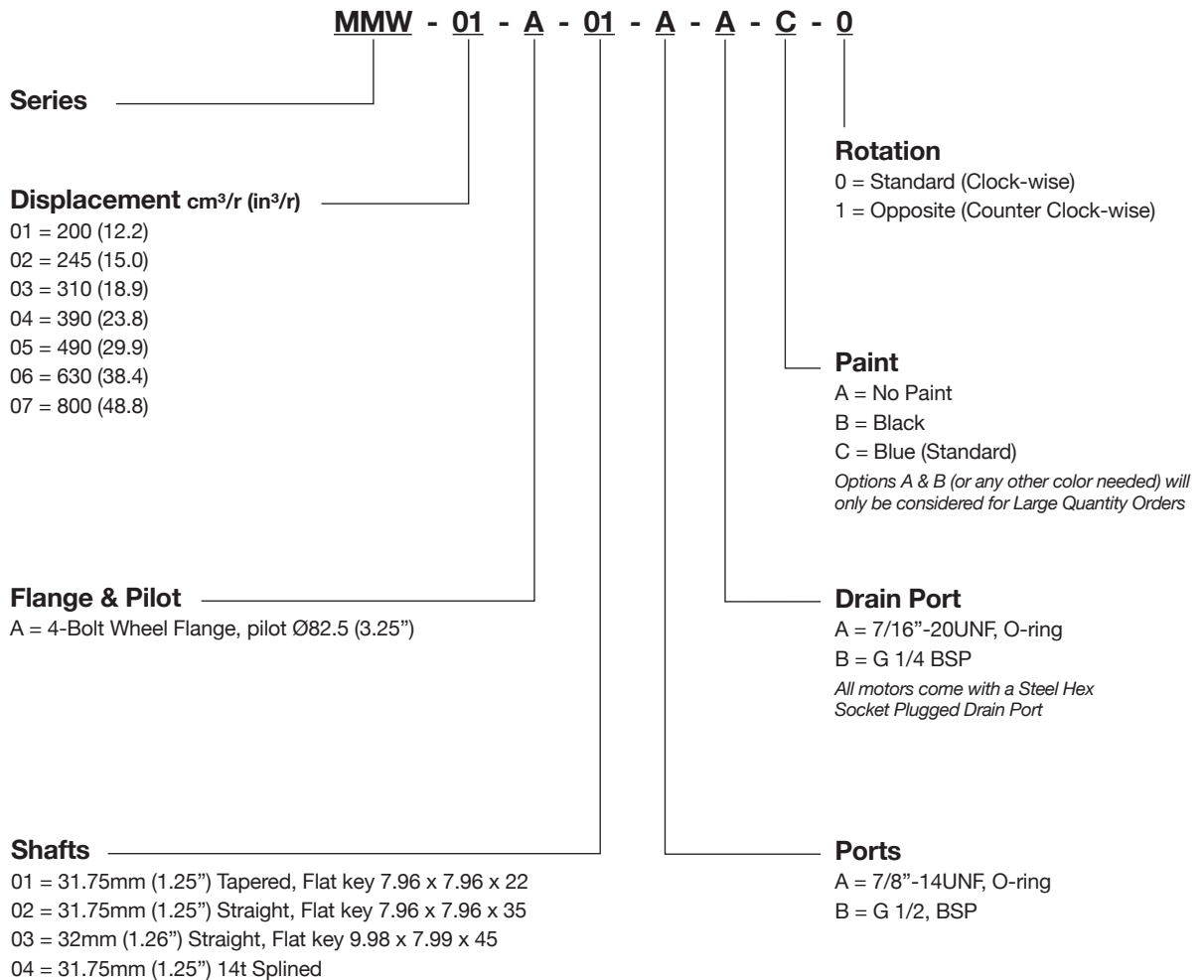
Specifications

Model Code		01	02	03	04	05	06	07
Displ.	cm ³ /r	200	245	310	390	490	630	800
	in ³ /r	12.2	15.0	18.9	23.8	29.9	38.4	48.8
Flow	LPM	Cont.	80	80	80	80	80	80
		Int.	100	100	100	100	100	100
	GPM	Cont.	21.1	21.1	21.1	21.1	21.1	21.1
		Int.	26.4	26.4	26.4	26.4	26.4	26.4
Max Speed	RPM	Cont.	360	320	250	200	156	120
		Int.	470	390	300	240	200	150
Pressure	ΔBar	Cont.	175	175	175	155	125	125
		Int.	200	200	200	190	150	150
	ΔPSI	Cont.	2538	2538	2538	2248	1813	1813
		Int.	2901	2901	2901	2756	2176	2176
Torque	NM	Cont.	500	614	777	866	877	1128
		Int.	573	700	888	1061	1053	1350
	LBF-IN	Cont.	4425	5434	6877	7665	7762	9984
		Int.	5071	6196	7859	9391	9320	11949

- Simultaneous maximum torque & maximum speed **NOT** recommended.
- Continuous Rating ▶ (Cont.) motor may be run continuously at these ratings.
- Intermittent Operation ▶ (Int.) 10% of every minute.
- Δ - True pressure difference between inlet port and outlet port.
- Maximum case pressure without case drain -- 75 Bar (1088 psi).

Model Code

Genuine Metaris Orbital Motor
MMW

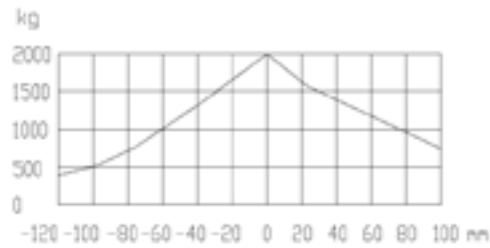


MMW Specifications

MMW Series

To assure best motor life, run motor for approximately one hour at 30% of rated pressure before applying full load. Fill motor with equipment manufacturer's recommended fluid prior to any load application and startup.

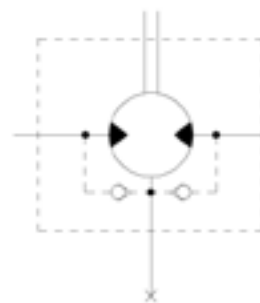
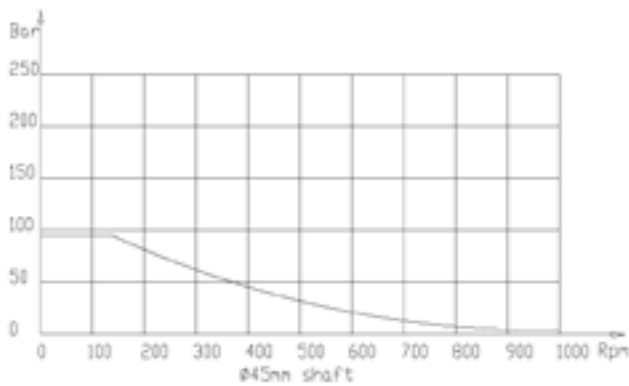
Side Load



Standard Motor 1-1/4 Inch and 35 mm straight shaft

Shaft Seal

Standard Shaft Seal = Genuine Metaris High Pressure Shaft Seal



MMW with standard shaft seal, check valves and with drain connection:
 The shaft seal pressure equals the pressure on the drain line

MMW with standard shaft seal, check valves and without use of drain connection:
 The pressure on the shaft seal never exceeds the pressure in the return line

MMW
Specifications

Performance Data

□ Continuous
■ Intermittent

200 cc/r Δ Bar

	35	70	105	140	175	200	
Flow LMP	10	89	178	268	357	446	
		45	91	45	40	33	
	20	89	178	268	356	445	510
		96	92	90	80	65	90
	30	89	178	268	358	442	509
		144	138	135	120	98	75
	40	89	179	268	354	440	508
		192	184	180	160	130	100
	50	89	181	268	357	439	508
		240	230	225	200	163	125
60	89	180	268	355	438	508	
	288	276	270	240	195	150	
70	89	179	268	356	437	509	
	336	322	315	280	228	175	
75	89	178	267	358	436	507	
	360	345	338	300	244	188	
80	89	176	264	357	435		
	384	368	360	320	260		
90	89	175	261	352	436		
	432	414	405	360	293		

245 cc/r Δ Bar

	35	70	105	140	175	200	
Flow LMP	10	109	218	328	437	546	
		39	38	37	33	27	
	20	109	218	328	437	546	624
		78	75	73	65	53	41
	30	109	218	328	437	546	624
		118	113	110	98	80	61
	40	111	221	332	442	553	632
		157	150	147	131	106	82
	50	109	218	328	437	546	624
		196	188	184	163	133	102
60	108	216	324	431	539	616	
	235	225	220	196	159	122	
70	108	216	324	431	539	616	
	274	263	257	229	186	143	
75	108	216	324	431	539	616	
	294	282	276	245	199	153	
80	108	216	324	431	539		
	313	300	294	261	212		
90	108	216	324	431	539		
	353	338	331	294	239		

616 Torque N.m
153 Speed RPM

310 cc/r Δ Bar

	35	70	105	140	175	200	
Flow LMP	20	138	276	415	553	691	
		62	59	58	52	42	
	30	138	276	415	553	691	790
		93	89	87	77	63	48
	40	138	276	415	553	691	790
		124	119	116	103	84	65
	50	140	280	420	560	700	800
		155	148	145	129	105	81
	60	138	276	415	553	691	790
		186	178	174	155	126	97
70	136	273	409	546	682	780	
	217	208	203	181	147	113	
75	136	273	409	546	682	780	
	232	223	218	194	157	121	
80	136	273	409	546	682		
	248	237	232	206	168		
90	136	273	409	546	682		
	279	267	261	232	189		

390 cc/r Δ Bar

	35	70	105	140	155	190	
Flow LMP	20	174	348	522	696	770	
		49	47	46	41	33	
	30	174	348	522	696	770	944
		74	71	69	62	50	38
	40	174	348	522	696	770	944
		98	94	92	82	67	51
	50	176	352	528	704	780	956
		123	118	115	103	83	64
	60	174	348	522	696	770	944
		148	142	138	123	100	77
70	172	343	515	687	760	932	
	172	165	162	144	117	90	
75	172	343	515	687	760	932	
	185	177	173	154	125	96	
80	172	343	515	687	760		
	197	189	185	164	133		
90	172	343	515	687	760		
	222	212	208	185	150		

MMW
Specifications

Performance Data

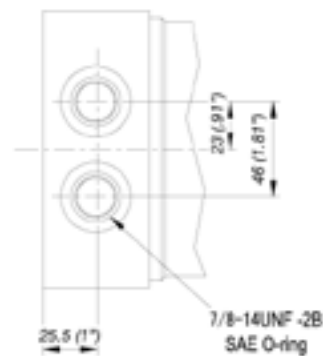
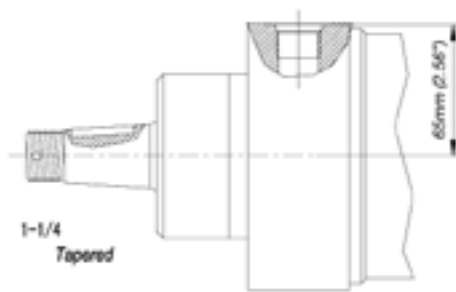
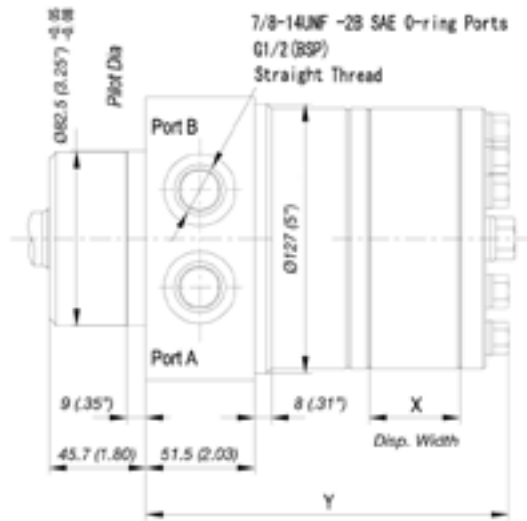
☐ Continuous
■ Intermittent

		490 cc/r Δ Bar					630 cc/r Δ Bar				
		35	70	105	125	160	35	70	105	125	150
Flow LMP	20	218	437	655	780		281	562	843	1003	
		39	38	37	33		30	29	29	25	
	30	218	437	655	780	999	281	562	843	1003	1204
		59	56	55	49	40	46	44	43	38	31
	40	218	437	655	780	999	281	562	843	1003	1204
		78	75	73	65	53	61	58	57	51	41
	50	221	442	664	790	1011	284	569	853	1016	1219
		98	94	92	82	66	76	73	71	63	52
	60	218	437	655	780	999	281	562	843	1003	1204
		118	113	110	98	80	91	88	86	76	62
70	216	431	647	771	986	277	555	832	991	1189	
	137	131	129	114	93	107	102	100	89	72	
75	216	431	647	771	986	277	555	832	991	1189	
	147	141	138	122	99	114	110	107	95	77	
80	216	431	647	771		277	555	832	991		
	157	150	147	131		122	117	114	102		
90	216	431	647	771		277	555	832	991		
	176	169	165	147		137	131	129	114		

**MMW
 Dimensions**

Dimensions - Aligned Ports

Displ. cm ³ /r.		200	245	310	390	490	630	800
X	Inches	(.88)	(1.08)	(1.36)	(1.71)	(2.15)	(2.73)	(3.51)
	Millimeters	22.4	27.4	34.6	43.4	54.5	69.2	89.1
Y	Inches	(5.92)	(6.12)	(6.41)	(6.75)	(7.19)	(7.77)	(8.55)
	Millimeters	150.4	155.5	162.7	171.5	182.6	197.3	217.2

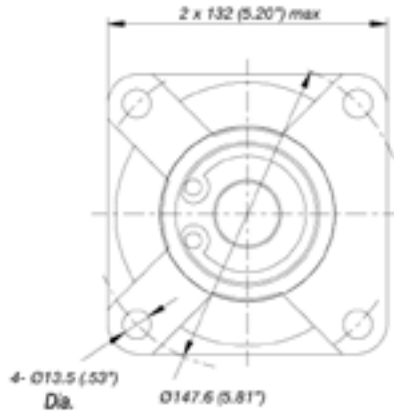


For complete shaft dimensions, see page ??

**MMW
Flanges**

Mounting Flanges

(A) = 4-Bolt Wheel Flange, Pilot 82.6 (3.25")

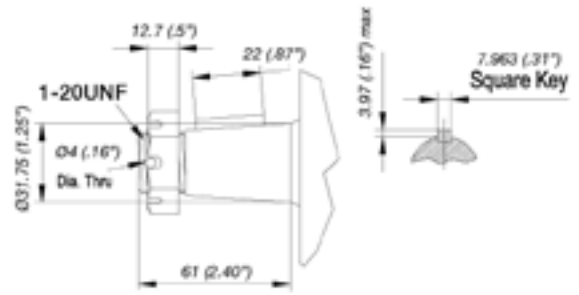
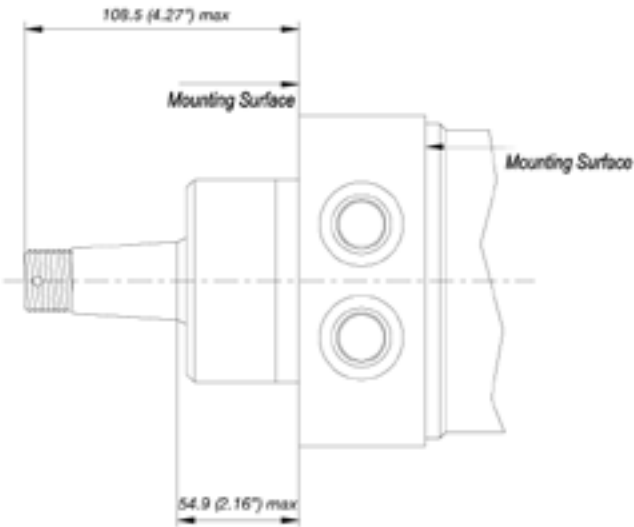


**MMW
 Shafts**

Shafts

01

**31.75 mm (1.25") Tapered
 Flat key 7.96 x 7.96 x 22**

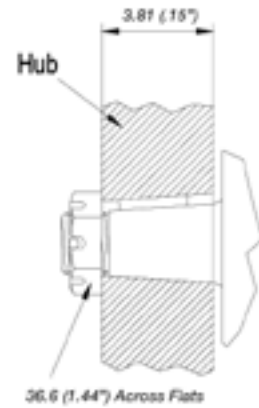


SAE J501 Standard Tapered Shaft

125,00 ± 0,17/m
 Taper per Meter

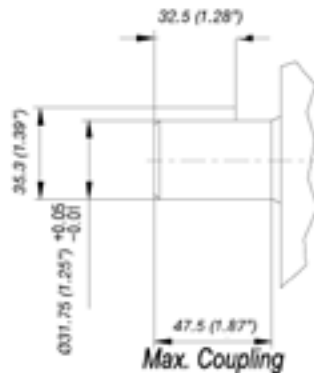
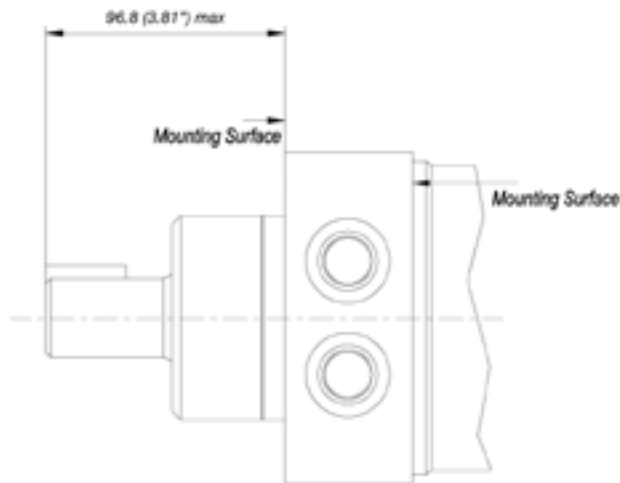
(373 Nm [275 lb-ft] Dry)
 (305 Nm [225 lb-ft] Lub)

Recommended Torque:
 (373 Nm [275 lb-ft] Dry)
 (305 Nm [225 lb-ft] Lub)
 Plus Torque required to
 align the slotted nut with
 the Shaft Crosshole.



02

**31.75 mm (1.25") Straight,
 Flat key 7.96 x 7.96 x 35**



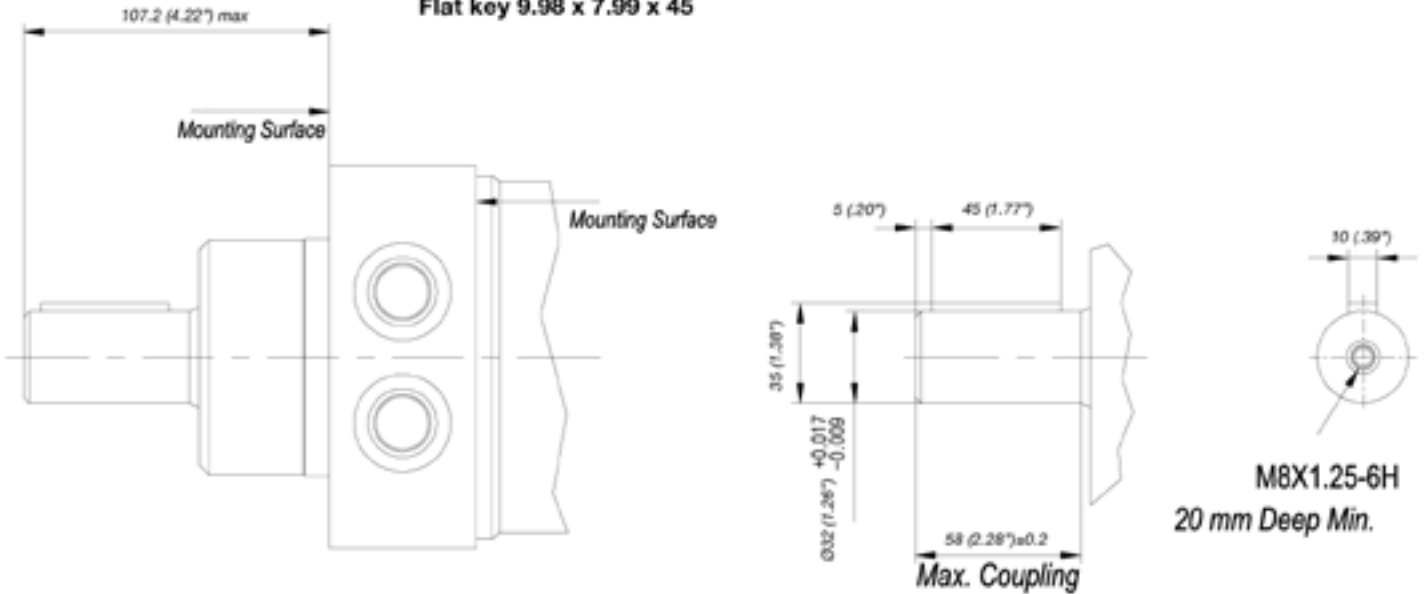
**0. 375-16UNC-2B
 20 mm Deep Min.**

**MMW
 Shafts**

Shafts

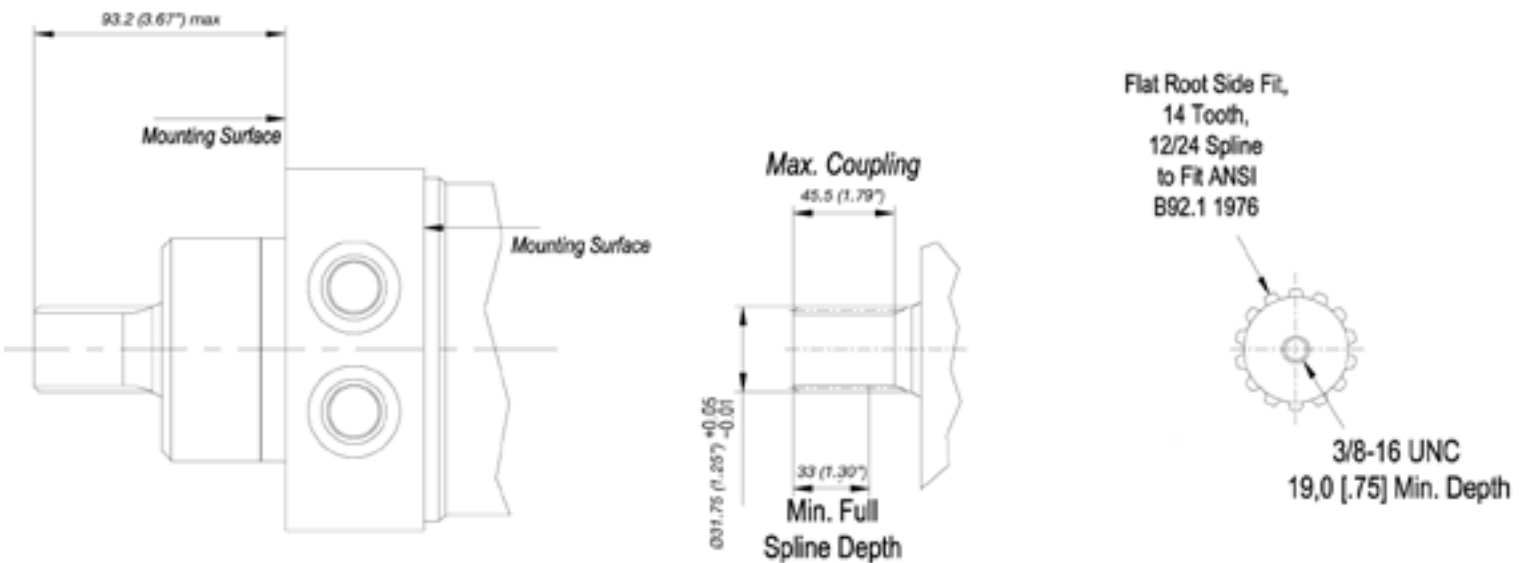
03

**32 mm (1.26") Straight,
 Flat key 9.98 x 7.99 x 45**



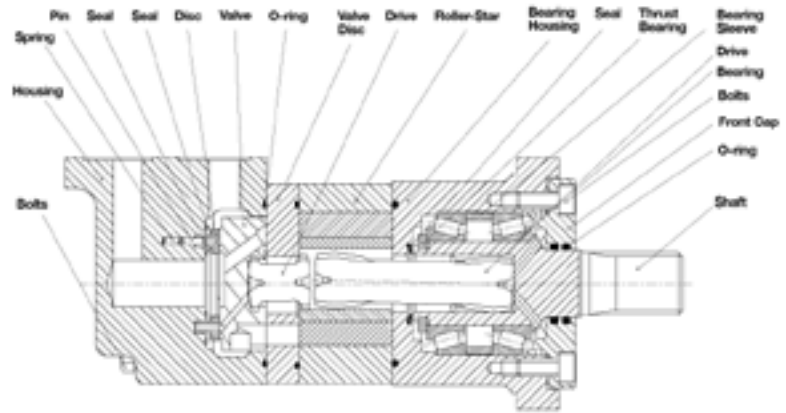
04

31.75 mm (1.25") 14t Splined



General

MMS Series



Description

MMS series motors are disc valve motors, with the characteristic features of:

- Compact and light weight design
- Advanced Roller-Star technology, requiring lower pressure at start-up and providing smooth reliable operation at all speeds
- Disc valve technology, providing greater speed and efficiency for medium duty applications
- Dual high efficiency tapered roller bearings, providing excellent low speed and high speed operation with high side load capabilities
- High pressure shaft seal, which allows for higher back pressures and an increased ability to handle high pressure spike conditions (no shaft seal on bearingless motors)
- Internal integrated check valve, which limits case pressure by blocking the high pressure port side and allowing the motor housing to drain into the outlet (low pressure) port. Motors connected in series will utilize the case drain

These motors can be used in parallel or series. A diverse offering of mounting flanges, shafts, ports, and displacements along with wheel and bearingless motors allow for easy installation, product replacement, or OEM application.

Specifications

Model Code		01	02	03	04	05	06	07	08	09	
Displ.	cm ³ /r	80	100	130	160	195	245	305	395	490	
	in ³ /r	4.9	6.1	7.9	9.8	11.9	15	18.6	24.1	29.9	
Flow	LPM	Cont.	75	75	75	75	75	75	75	75	75
		Int.	75	95	95	115	115	115	115	130	130
	GPM	Cont.	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8
		Int.	19.8	25.1	25.1	30.4	30.4	30.4	30.4	34.3	34.3
Max Speed	RPM	Cont.	799	742	576	477	385	308	246	191	153
		Int.	908	924	720	713	577	462	365	335	230
Pressure	ΔBar	Cont.	170	170	170	170	170	170	140	140	120
		Int.	275	275	275	240	240	240	205	170	140
	ΔPSI	Cont.	2466	2466	2466	2466	2466	2466	2031	2031	1740
		Int.	3989	3989	3989	3481	3481	3481	2973	2466	2031
Torque	NM	Cont.	195	245	315	380	455	555	560	700	845
		Int.	305	395	505	530	625	765	805	890	930
	LBF-IN	Cont.	1726	2168	2788	3363	4027	4912	4956	6196	7479
		Int.	2700	3496	4470	4691	5532	6771	7125	7877	8231

- Simultaneous maximum torque & maximum speed **NOT** recommended.
- Continuous Rating ▶ (Cont.) motor may be run continuously at these ratings.
- Intermittent Operation ▶ (Int.) 10% of every minute.
- Δ - True pressure difference between inlet port and outlet port.
- Maximum case pressure without case drain -- 50 Bar (725 psi).

Model Code

Genuine Metaris Orbital Motor
MMS

MMS - 01 - A - 01 - D - B - A

Series

Displacement cm³/r (in³/r)

- 01 = 80 (4.9)
- 02 = 100 (6.1)
- 03 = 130 (7.9)
- 04 = 160 (9.8)
- 05 = 195 (11.9)
- 06 = 245 (15.0)
- 07 = 305 (18.6)
- 08 = 395 (24.1)
- 09 = 490 (29.9)

Flange & Pilot

- A = 4-Bolt SAE "B" Flange, pilot Ø100 (3.94")
- B = 2-Bolt SAE "A" Flange, pilot Ø82.5 (3.25")
(Can be replaced by E)
- C = 4-Bolt SAE "A" Flange, pilot Ø82.5 (3.25")
- D = 4-Bolt Wheel Flange, pilot Ø107.9 (4.25")
- E = 6-Bolt Magneto Flange, pilot Ø82.5 (3.25")
(Can be replacement for B or G)
- F = 2-Bolt Rhomb Flange, pilot Ø80 (3.15")
- G = 4-Bolt Magneto Flange, pilot Ø82.5 (3.25")
(Can be replaced by E)
- H = 2-Bolt SAE "B" Flange, pilot Ø101.5 (4")
- I = 4-Bolt Square Bearingless Flange

Shafts

- 01 = 25.6mm (1") Square Spline, 6D - 30 x 26 x 8
- 02 = 25mm (.98") Straight, Flat key 8mm
- 03 = 26mm (1.02") Square Spline, 6D - 30 x 26 x 6
- 04 = 25.4mm (1") Straight, Woodruff key 6.35mm
- 05 = 31.75mm (1.25") Straight, Flat key 7.96mm
- 06 = 31.75mm (1.25") Tapered, Flat key 7.96mm
- 07 = 31.75mm (1.25") 14t, Splined
- 08 = 25.4mm (1") Square Spline, 6D - 25.4 x 21.5 x 6.25
- 09 = 25.4mm (1") Straight, Flat key 6.35mm
- 10 = 30mm (1.18") Straight, Flat key 10mm
- 11 = 22mm (.87") Straight, Flat key 6mm
- 12 = 32mm (1.26") Straight, Flat key 10mm
- 13 = 25mm (.98") Straight, Flat key 8mm
- 14 = 25.4mm (1") SAE 6B Splined
- 15 = 22.2mm (.875") SAE "B" 13t, Splined
- 16 = Bearingless

Paint

- A = No Paint
 - B = Blue (Standard)
 - C = Black
- Options A & C (or any other color needed) will only be considered for Large Quantity Orders*

Rotation

- A = Standard (Clock-wise)
- B = Opposite (Counter Clock-wise)

Ports & Drain Port

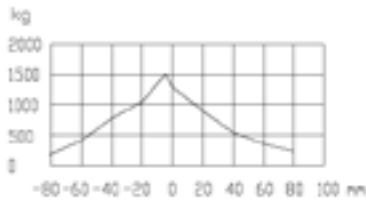
- A = 7/8"-14UNF, O-ring & 7/16"-20UNF
 - B = G 1/2, BSP & G 1/4 BSP
 - C = M22 x 1.5 & M14 x 1.5
 (Manifold Mount 3-M10)
 - D = G 1/2 & M14 x 1.5, O-ring
 - E = G 1/2 & G 1/4
 (Manifold Mount 3-M10)
 - F = M14 x 1.5 & M14 x 1.5
 - G = M22 x 1.5 & M10 x 1
 - H = Not Available
 - I = M20 x 1.5 & M14 x 1.5
 - J = 1/2"-14NPTF & 7/16"-20UNF
 - K = 1-1/16"-12 O-ring
 (Positioned 180° apart) & 7/16"-20UNF
 - L = End Port, 7/8"-14UNF, O-ring & 7/16"-20UNF
 - M = End Port, G 1/2, BSP & G 1/4 BSP
 - N = 12.70mm (.50") & 15.88mm (.625") & 7/16"-20UNF (Manifold Mount 3-3/8")
 - O = 12.70mm (.50") & 15.88mm (.625") & G 1/4 BSP (Manifold Mount 3-M10)
 - P = 4-5/16"-18UNC (Manifold)
 - Q = 4-M8x1.5 (Manifold)
- All motors come with a Steel Hex Socket Plugged Drain Port*

MMS Specifications

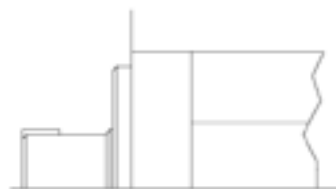
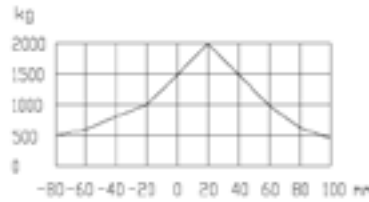
MMS Series

To assure best motor life, run motor for approximately one hour at 30% of rated pressure before applying full load. Fill motor with equipment manufacturer's recommended fluid prior to any load application and startup.

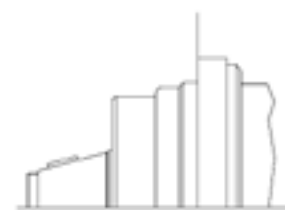
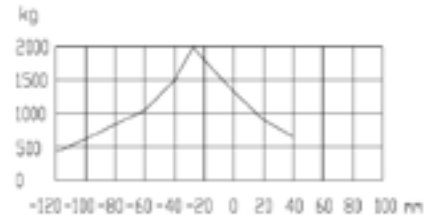
Side Load



Standard Motor 1 inch straight shaft

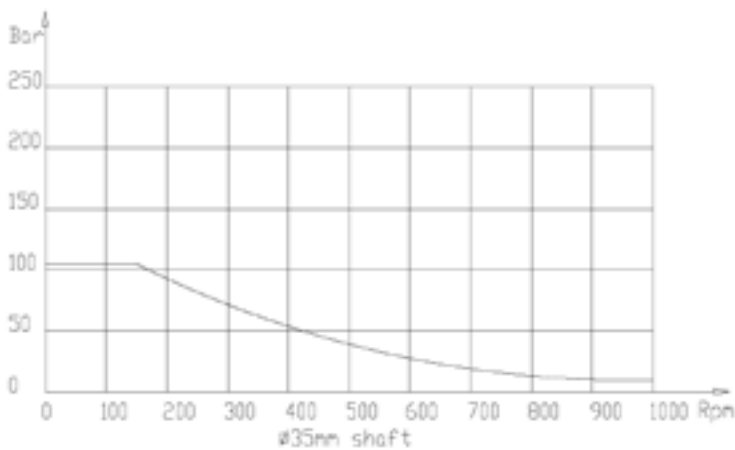


Standard Motor 1-1/4 inch and 32 mm straight shaft

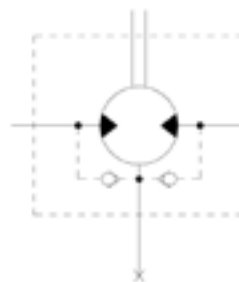


Wheel Motor Tapered Shaft

Shaft Seal



Standard Shaft Seal = Genuine Metaris High Pressure Shaft Seal




MMS with standard shaft seal, check valves and with drain connection:
The shaft seal pressure equals the pressure on the drain line

MMS with standard shaft seal, check valves and without use of drain connection:
The pressure on the shaft seal never exceeds the pressure in the return line

MMS
Specifications

Performance Data

 Continuous
 Intermittent

80cc/r

	Δ Pressure Bar							
	35	70	105	140	170	205	240	275
0.95	25 3	45 1						
1.90	30 17	50 8	85 3					
3.80	35 44	75 40	110 37	145 34	175 28	205 22	220 14	240 2
7.50	35 90	75 85	110 81	150 78	180 72	210 65	235 57	265 49
15.0	35 182	75 176	115 170	150 166	185 159	215 152	250 140	280 128
23.0	35 273	75 267	115 259	150 254	185 246	225 238	255 223	290 207
30.0	35 365	75 375	115 349	150 341	190 333	230 325	265 306	300 286
38.0	35 456	75 448	115 439	155 429	190 420	230 411	270 388	305 364
45.0	30 547	70 537	115 530	155 516	195 507	235 497	270 470	305 442
53.0	30 638	70 629	110 622	150 603	195 593	235 584	270 553	305 521
61.0	30 729	70 720	110 714	150 689	190 679	230 670	270 635	305 599
68.0	25 818	65 810	110 795	150 775	190 765	230 756	265 717	300 677
76.0	25 908	65 901	105 880	145 861	185 851	225 842	260 799	295 755



185 Torque Nm
851 Speed RPM

100cc/r

	Δ Pressure Bar							
	35	70	105	140	170	205	240	275
0.95	30 2							
1.90	35 9	70 5	105 2					
3.80	45 34	95 31	135 28	175 23	210 15	240 6		
7.50	45 71	95 68	140 63	180 59	215 51	250 38	285 24	315 14
15.0	45 145	90 141	140 136	185 131	225 121	270 104	310 94	355 80
23.0	45 219	90 215	140 209	190 202	235 192	280 172	325 163	370 149
30.0	40 294	90 288	140 281	190 273	240 261	290 243	340 231	385 216
38.0	40 368	90 362	145 354	195 344	245 330	295 316	340 300	390 283
45.0	40 442	90 436	145 427	195 415	245 399	295 389	345 369	395 350
53.0	35 516	90 509	140 500	195 486	245 469	295 463	345 437	395 417
61.0	35 591	90 583	140 573	195 558	245 540	295 537	345 506	395 485
68.0	35 665	85 657	140 646	190 630	240 611	290 609	340 574	390 552
76.0	30 739	80 731	135 715	185 703	235 684	290 662	335 643	390 619
83.0	30 813	80 805	135 794	185 777	235 758	280 749	330 712	380 687
91.0	30 887	80 879	130 868	175 852	230 834	280 814	330 782	375 754
95.0	25 924	75 916	125 905	175 890	225 873	275 846	325 817	

MMS
Specifications

Performance Data

 Continuous
 Intermittent

130cc/r

		Δ Pressure Bar							
		35	70	105	140	170	205	240	275
Flow LPM	0.95								
	1.90	45 8	100 2						
	3.80	60 27	120 23	180 19	230 16	285 13	330 9	375 3	
	7.50	80 56	120 53	180 47	235 42	290 39	330 36	375 28	410 21
	15.0	55 113	120 111	185 104	245 97	300 95	350 92	400 85	450 77
	23.0	55 171	120 169	185 161	245 153	310 149	370 146	425 132	485 118
	30.0	55 224	120 222	185 219	250 210	315 204	375 201	435 192	495 184
	38.0	55 286	120 282	185 276	250 269	315 261	385 255	445 243	505 231
	45.0	50 344	120 338	185 333	250 327	315 317	380 307	440 295	500 284
	53.0	50 402	115 395	185 391	250 385	340 373	380 360	440 348	500 336
	61.0	45 460	115 452	180 447	250 443	315 430	375 411	440 397	500 384
	68.0	45 517	110 509	180 504	245 500	310 484	375 471	435 456	500 440
	76.0	45 575	110 568	175 560	240 551	305 539	370 524	435 508	
	83.0	40 633	105 624	170 619	235 604	305 597	365 579	430 560	
	91.0	35 691	105 682	170 676	235 665	300 651	365 633	425 616	
	95.0	35 719	100 712	165 705	230 692	295 679	360 662	420 656	



160cc/r

		Δ Pressure Bar							
		15	35	70	105	140	170	205	240
Flow LPM	0.95	25 3							
	1.90	25 9	55 7	110 5	175 3	240 1			
	3.80	30 23	65 21	130 19	195 17	260 13	320 8	375 3	430 2
	7.50	35 46	70 45	135 42	200 39	265 35	330 34	395 33	460 28
	15.0	35 93	70 92	140 89	215 85	285 79	360 77	430 75	505 59
	23.0	35 142	75 140	145 137	220 131	295 124	370 118	445 113	520 104
	30.0	35 190	75 187	150 184	225 178	300 170	375 166	450 164	525 153
	38.0	35 237	70 235	150 231	230 226	320 217	385 212	455 205	530 193
	45.0	30 286	70 283	150 279	230 274	305 265	380 254	455 246	530 235
	53.0	25 334	65 331	145 326	230 322	305 312	380 305	455 297	530 286
	61.0	25 382	65 378	145 374	225 369	300 360	375 349	455 339	530 326
	68.0	20 429	60 426	140 422	220 416	300 407	375 394	450 387	
	76.0	20 477	60 474	135 469	215 462	300 451	375 440	445 430	
	83.0	15 525	55 522	130 517	210 510	295 501	370 484	445 473	
	91.0	15 572	50 569	130 564	210 556	290 546	370 531	440 522	
	95.0	10 596	50 593	130 587	210 580	290 566	265 553	440 544	
	114.0		35 713	120 706	200 696	280 682	355 672	430 658	

120 Torque Nm
706 Speed RPM

MMS
Specifications

Performance Data

 Continuous
 Intermittent

195cc/r

		Δ Pressure Bar							
		15	35	70	105	140	170	205	240
0.95		25	65						
		4	2						
1.90		35	70	150					
		8	6	2					
3.80		45	80	160	200	305	370	430	490
		17	16	14	11	7	4	2	1
7.50		45	85	165	250	325	415	510	575
		37	35	33	31	26	21	19	14
15.0		45	90	175	260	345	430	510	595
		76	74	72	70	64	61	57	51
23.0		45	90	180	270	360	445	530	615
		115	113	110	108	102	99	94	87
30.0		45	90	185	275	370	455	540	625
		154	151	148	146	140	135	130	123
38.0		45	95	185	280	375	465	545	630
		193	190	187	184	177	173	168	160
45.0		40	90	185	280	375	465	550	
		231	229	226	221	218	211	204	
53.0		35	85	185	280	380	465	550	
		289	267	264	260	254	248	241	
61.0		30	80	185	275	375	465	550	
		308	306	303	296	290	283	276	
68.0		30	80	180	270	375	465		
		346	345	342	334	327	315		
76.0		25	75	175	270	370	460		
		385	384	380	372	367	359		
83.0		20	70	170	265	365	460		
		424	423	418	410	404	395		
91.0		15	65	165	260	360	450		
		482	461	457	449	441	432		
95.0		15	60	160	260	355	445		
		484	482	476	469	459	449		
114.0			45	145	240	330			
			577	571	562	550			



245cc/r

		Δ Pressure Bar							
		15	35	70	105	140	170	205	240
0.95									
1.90		45	95						
		4	2						
3.80		50	105	210	315	410	515	615	715
		14	13	11	9	6	4	3	1
7.50		50	110	215	325	425	540	640	740
		29	28	26	23	20	18	15	12
15.0		55	115	225	340	450	555	660	765
		60	59	56	53	49	47	46	44
23.0		50	115	230	350	465	570	675	780
		91	90	87	83	78	73	69	65
30.0		50	115	235	360	475	585	690	
		122	121	118	113	108	104	101	
38.0		50	115	240	360	480	580	705	
		153	152	148	144	139	135	103	
45.0		45	110	235	360	480	600		
		184	183	180	175	170	165		
53.0		40	105	235	355	480	585		
		215	214	211	207	201	195		
61.0		40	95	230	355	470	580		
		246	245	242	238	232	223		
68.0		30	90	225	345	465	575		
		277	276	273	269	263	253		
76.0		30	90	215	340	465			
		308	306	302	298	291			
83.0		25	80	210	330	455			
		339	337	334	330	323			
91.0		15	75	200	325	445			
		370	369	364	360	353			
95.0		15	75	200	325	445			
		385	384	379	375	367			
114.0			60	185	305	430			
			462	458	453	447			

185 Torque Nm
458 Speed RPM

MMS
Specifications

Performance Data

 Continuous
 Intermittent

305cc/r

		Δ Pressure Bar						
		15	35	70	105	140	170	205
0.95								
	1.90	55 4	120 2					
3.80		70	135	280	390	500	610	
	7.50	12	11	10	9	6	1	
7.50		70	135	270	395	520	640	765
	15.0	24	24	22	20	18	15	11
15.0		75	140	280	415	545	675	805
	23.0	49	49	47	45	42	38	34
23.0		70	145	290	430	560	695	825
	30.0	74	74	72	69	64	58	52
30.0		70	145	295	440	575	705	
	38.0	98	98	96	93	86	80	
38.0		65	140	295	440	580	720	
	45.0	123	122	120	117	110	102	
45.0		60	140	295	440	580	720	
	53.0	148	147	144	142	133	124	
53.0		55	135	290	440	580		
	61.0	172	172	168	165	156		
61.0		50	125	280	440	575		
	68.0	196	196	192	188	178		
68.0		40	120	275	440	570		
	76.0	221	221	217	212	202		
76.0		35	110	265	420	565		
	83.0	246	245	241	236	226		
83.0		25	105	260	400	545		
	91.0	271	270	266	260	255		
91.0		20	100	255	385	525		
	95.0	296	294	290	285	280		
95.0		15	95	250	375	510		
	114.0	308	307	303	298	293		
114.0			75	230	355			
			365	360	356			

395cc/r

		Δ Pressure Bar							
		15	35	70	105	120	140	155	170
0.95									
	1.90	65 4	150 3						
3.80		85	175	350	505	585	665	745	820
	7.50	9	9	8	7	7	6	5	4
7.50		90	180	360	530	615	700	775	845
	15.0	18	18	17	16	15	14	13	11
15.0		90	190	375	560	650	740	815	890
	23.0	37	37	36	35	34	33	31	28
23.0		90	190	385	575	670	765	840	905
	30.0	57	56	55	52	50	49	47	45
30.0		90	190	390	580	675	770		
	38.0	78	75	74	71	69	68		
38.0		90	190	395	585	680	775		
	45.0	95	94	93	90	88	86		
45.0		85	190	390	580	675	770		
	53.0	114	113	112	109	106	103		
53.0		85	185	390	580	675			
	61.0	133	132	131	127	124			
61.0		80	180	380	570	670			
	68.0	153	152	150	146	144			
68.0		70	170	375	565	665			
	76.0	172	171	170	167	164			
76.0		65	165	370	560	660			
	83.0	191	190	189	186	184			
83.0		60	155	360	550				
	91.0	210	209	208	206				
91.0		50	150	350	540				
	98.0	230	229	227	224				
98.0		40	140	340	535				
	114.0	249	248	246	242				
114.0		20	120	320	515				
	132.0	287	286	283	277				
132.0			95	300					
			335	333					

300 Torque Nm
333 Speed RPM

MMS
Specifications

Performance Data

490cc/r

		Pressure Δ Bar							
		15	35	50	70	85	105	120	140
Flow LPM	1.9	75 2	180 1						
	3.8	105 7	225 6	340 5	440 4	550 2			
	7.5	105 14	235 13	350 12	460 10	575 9	715 7		
	15	110 30	240 29	365 28	480 27	605 26	720 24	835 22	900 20
	23	110 45	240 44	365 43	485 42	605 41	725 39	845 37	93 35
	30	110 61	240 60	365 59	490 58	610 57	730 55	855 52	
	38	105 76	230 75	360 74	485 73	610 72	730 70	855 68	
	45	95 91	225 90	355 90	480 89	605 87	730 85	855 84	
	53	90 106	220 105	345 105	475 104	60 102	725 100		
	61	80 122	210 121	340 120	465 119	590 118	715 116		
	68	70 153	190 152	315 151	445 150	570 149	700 146		
	76	60 153	190 152	315 151	445 150	570 149	700 146		
	83	50 168	175 168	305 167	435 165	560 164	685 161		
	91	40 184	165 184	295 183	420 181	550 179	675 177		
	98	30 199	155 195	285 195	410 192	540 190			
	106		140 212	270 211	400 209	525 207			
114		125 230	255 229	385 277	510 224				

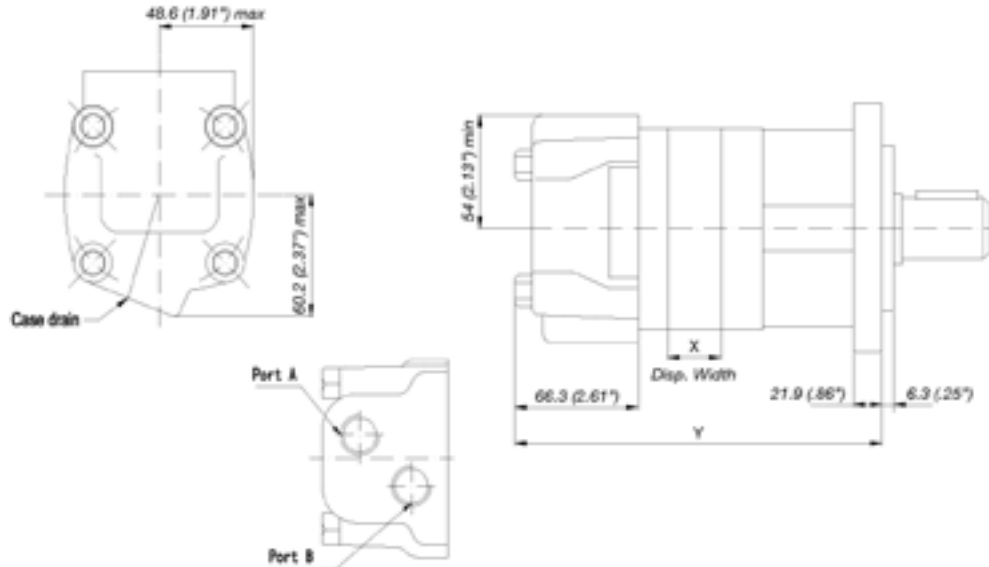
Continuous
 intermittent

255 Torque NM
229 Speed rpm

MMS Dimensions

Dimensions - Staggered Ports

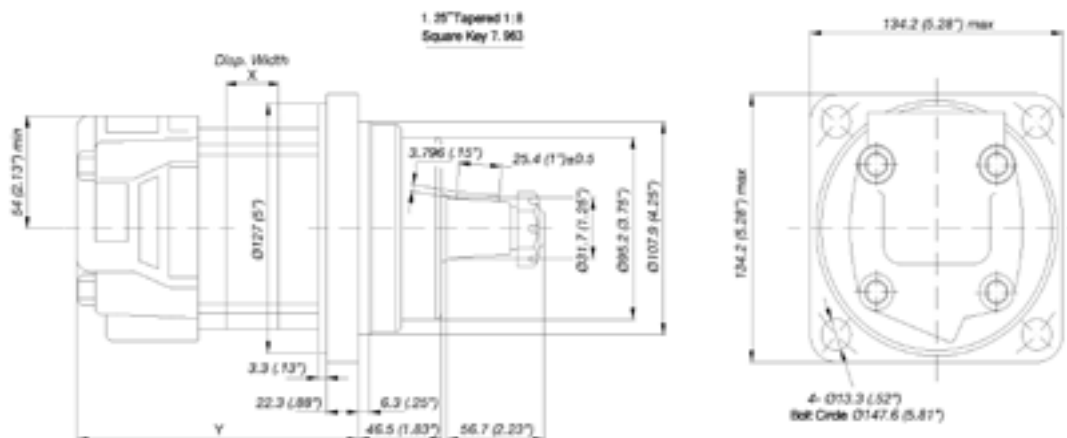
Displ. cm ³ /r.	80	100	130	160	195	245	305	395	490	
X	Inches	(.57)	(.70)	(.89)	(1.14)	(1.40)	(1.76)	(2.20)	(2.83)	(3.52)
	Millimeters	14.4	17.8	22.5	28.9	35.6	44.7	56.0	72.0	89.3
Y	Inches	(7.24)	(7.44)	(7.68)	(7.68)	(7.95)	(8.31)	(8.78)	(9.41)	(10.08)
	Millimeters	184	189	195	195	202	211	223	239	256



MMS Dimensions

Dimensions - Wheel Mount (Flange Code: D)

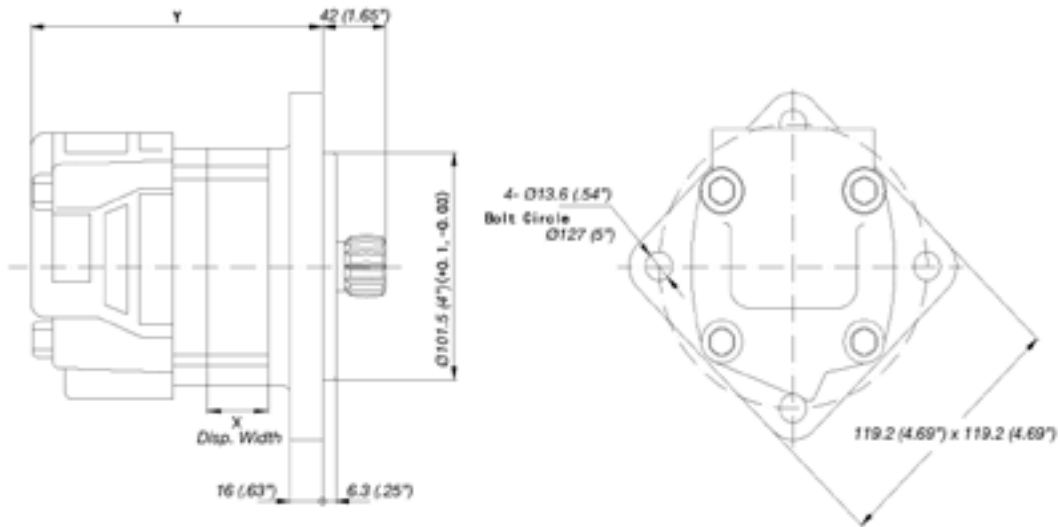
Displ. cm ³ /r.	80	100	130	160	195	245	305	395	490	
X	Inches	(.57)	(.70)	(.89)	(1.14)	(1.40)	(1.76)	(2.20)	(2.83)	(3.52)
	Millimeters	14.4	17.8	22.5	28.9	35.6	44.7	56.0	72.0	89.3
Y	Inches	(5.67)	(5.83)	(6.10)	(6.10)	(6.38)	(6.73)	(7.17)	(7.80)	(8.50)
	Millimeters	144	148	155	155	162	171	182	198	216



MMS
 Dimensions

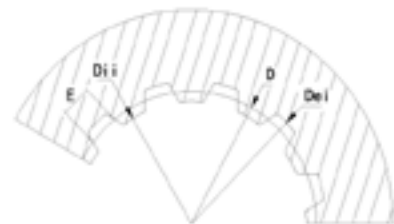
Dimensions - Bearingless (Flange Code: I, Shaft Code: 16)

Displ. cm ³ /r.		80	100	130	160	195	245	305	395	490
X	Inches	(.57)	(.70)	(.89)	(1.14)	(1.40)	(1.76)	(2.20)	(2.83)	(3.52)
	Millimeters	14.4	17.8	22.5	28.9	35.6	44.7	56.0	72.0	89.3
Y	Inches	(5.00)	(5.16)	(5.43)	(5.43)	(5.71)	(6.06)	(6.50)	(7.13)	(7.80)
	Millimeters	127	131	138	138	145	154	165	181	198



Dimensions - Shaft Code: 16

Fillet Root Side Fit	mm	
Number of Teeth	Z	12
Diametral Pitch	DP	12/24
Pressure Angle	D	30
Pitch Dia.	D	φ 25.4
Major Dia.	D _o	φ 28
Minor Dia.	D _i	φ 23
Space Width	E	4.308

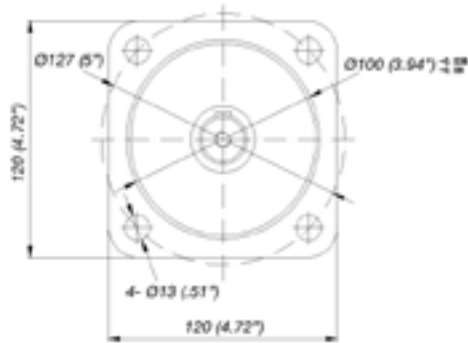


Hardening Specification: HRC62
 Effective Case Depth: 0.7

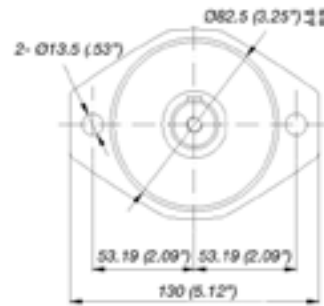
**MMS
 Flanges**

Mounting Flanges

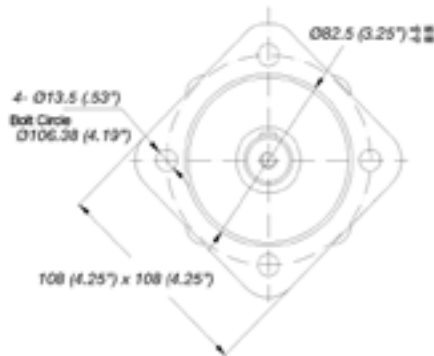
(A) = 4-Bolt SAE "B" Flange, Pilot 100 (3.94")



(B) = 2-Bolt SAE "A" Flange, Pilot 82.5 (3.25")



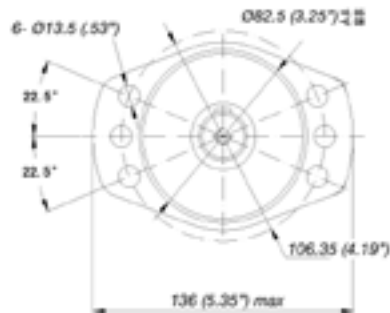
(C) = 4-Bolt SAE "A" Flange, Pilot 82.5 (3.25")



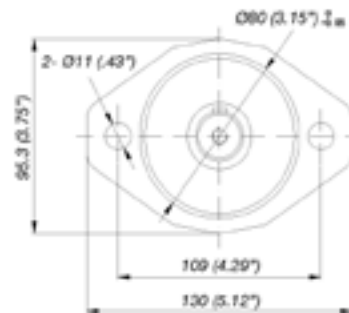
(D) = 4-Bolt Wheel Flange, Pilot 107.9 (4.25")

[For Dimensions - see page 50]

(E) = 6-Bolt Magneto Flange, Pilot 82.5 (3.25")



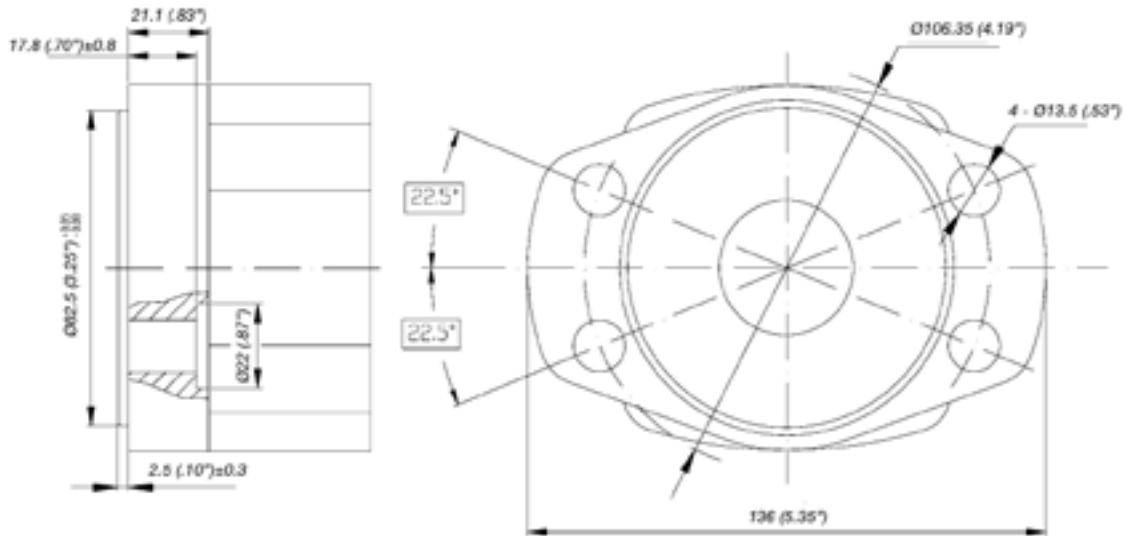
(F) = 2-Bolt Rhomb Flange, Pilot 80 (3.15")



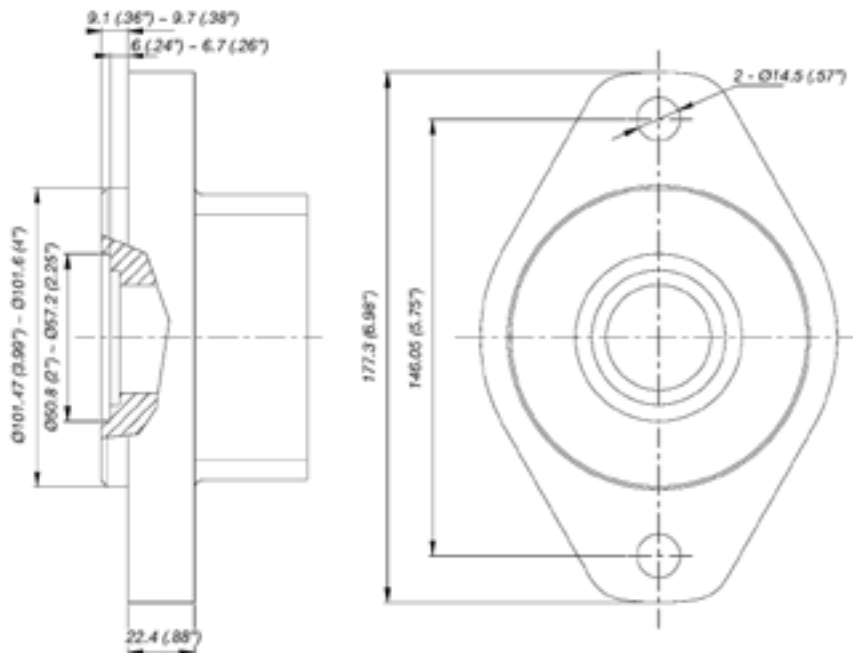
**MMS
 Flanges**

Mounting Flanges

(G) = 4-Bolt Magneto Flange, Pilot 82.5 (3.25")



(H) = 2-Bolt SAE "B" Flange, Pilot 101.5 (4")

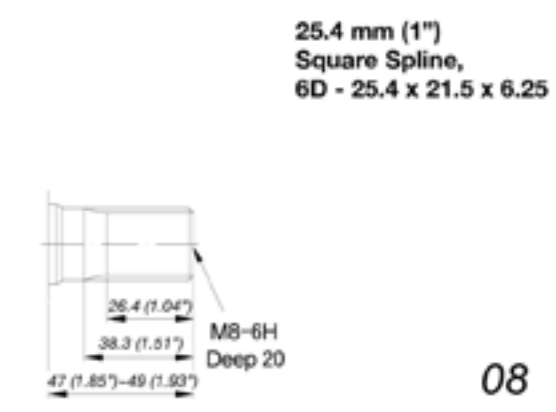
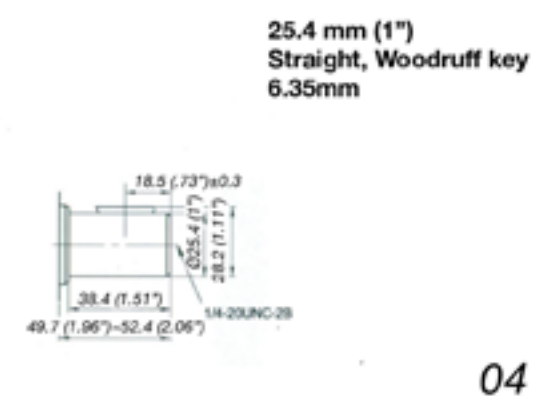
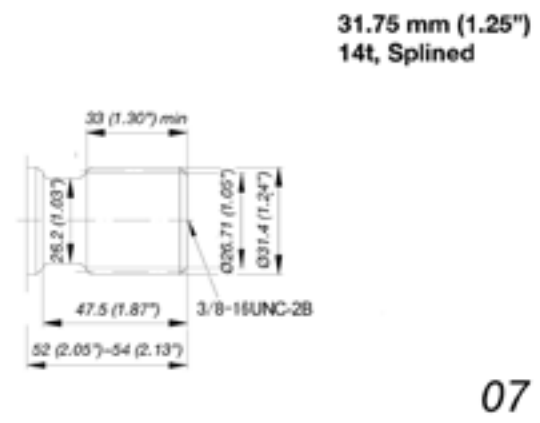
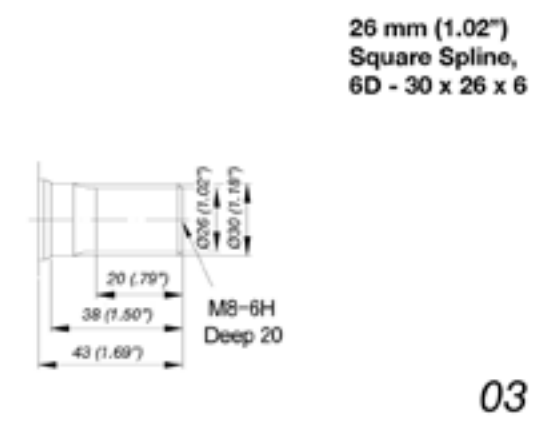
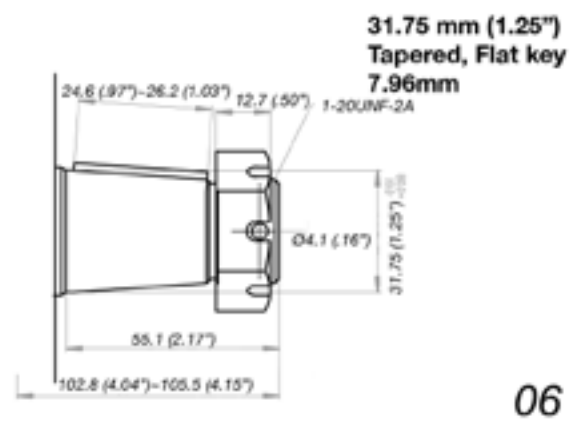
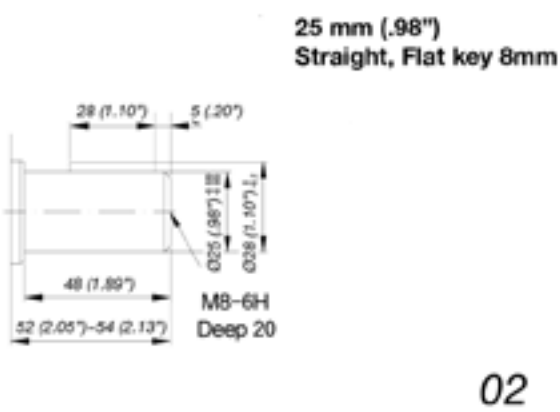
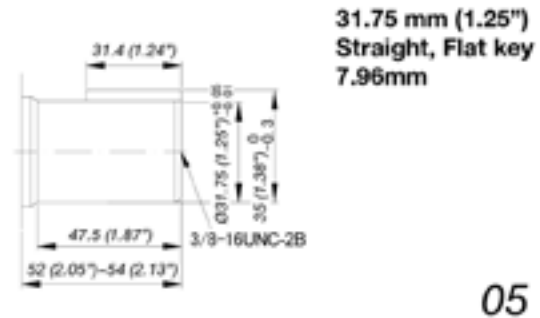
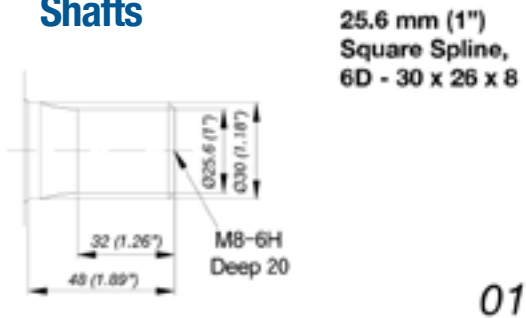


(I) = 4-Bolt Square Flange, Pilot 101.5 (4")

[Bearingless - see page 51]

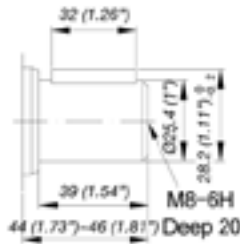
MMS
 Shafts

Shafts



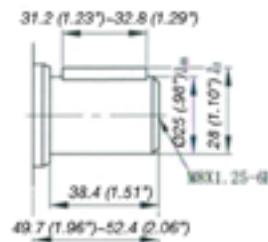
MMS
 Shafts

Shafts



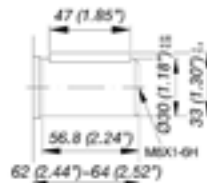
25.4 mm (1")
Straight, Flat key
6.35mm

09



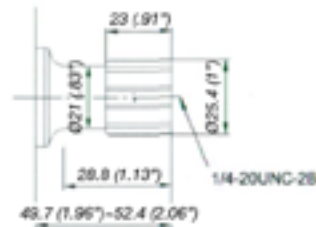
25 mm (.98")
Straight, Flat key
8mm

13



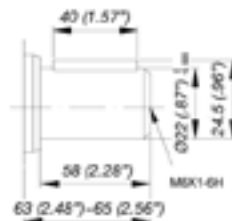
30 mm (1.18")
Straight, Flat key
10mm

10



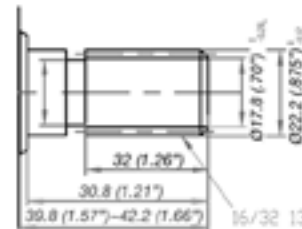
25.4 mm (1")
SAE 6B, Splined

14



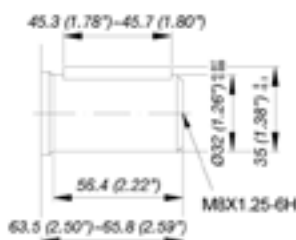
22 mm (.87")
Straight, Flat key
6mm

11



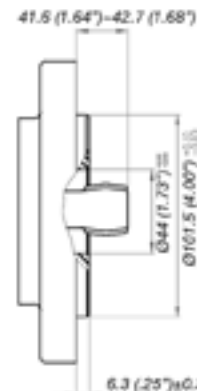
22.2 mm (.875")
SAE "B" 13t, Splined

15



32 mm (1.26")
Straight, Flat key
10mm

12

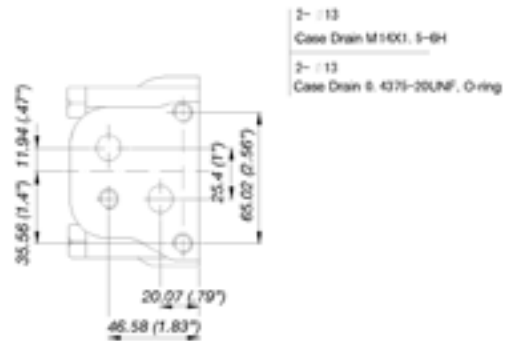
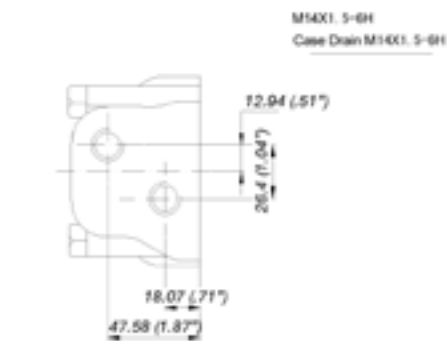
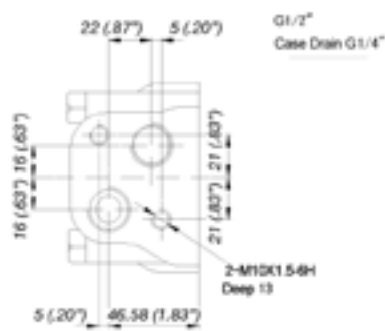
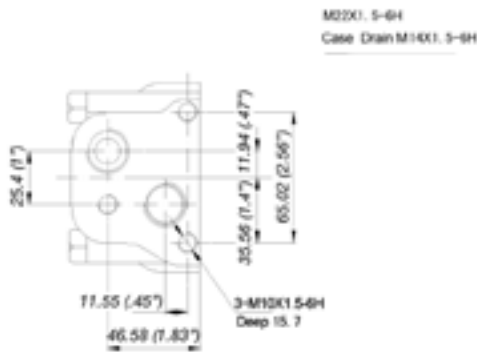
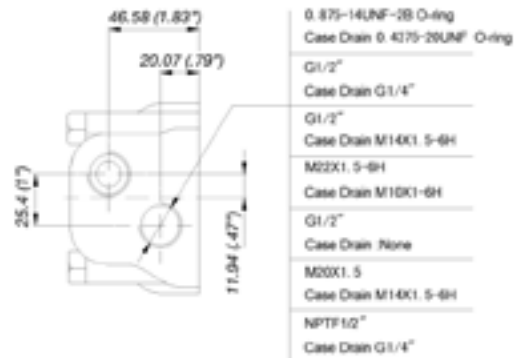
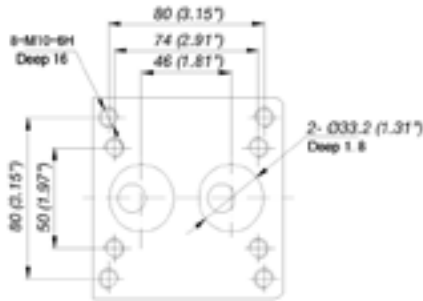


Bearingless

16

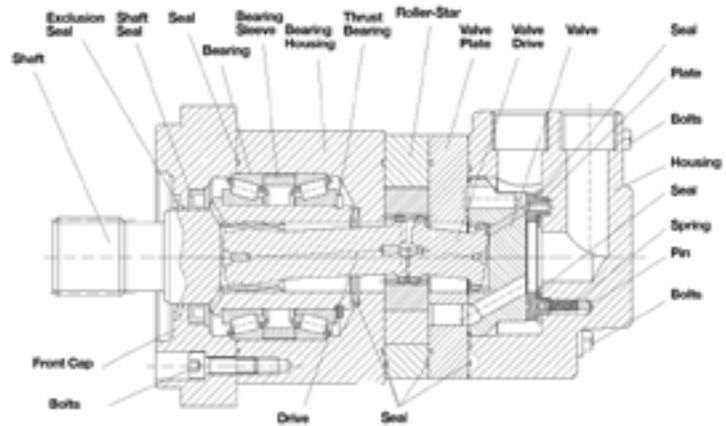
MMS
 Dimensions

Port Dimensions



General

MMK Series



Description

MMK series motors are disc valve motors, with the characteristic features of:

- Compact and light weight design
- Advanced Roller-Star technology, requiring lower pressure at start-up and providing smooth reliable operation at all speeds
- Disc valve technology, providing greater speed and efficiency for medium duty applications
- Dual high efficiency tapered roller bearings, providing excellent low speed and high speed operation with high side load capabilities
- High pressure shaft seal, which allows for higher back pressures and an increased ability to handle high pressure spike conditions (no shaft seal on bearingless motors)
- Internal integrated check valve, which limits case pressure by blocking the high pressure port side and allowing the motor to drain into the outlet (low pressure) port. Motors connected in series will utilize the case drain

These motors can be used in parallel or series. A diverse offering of mounting flanges, shafts, ports, and displacements along with wheel and bearingless motors allow for easy installation, product replacement, or OEM application.

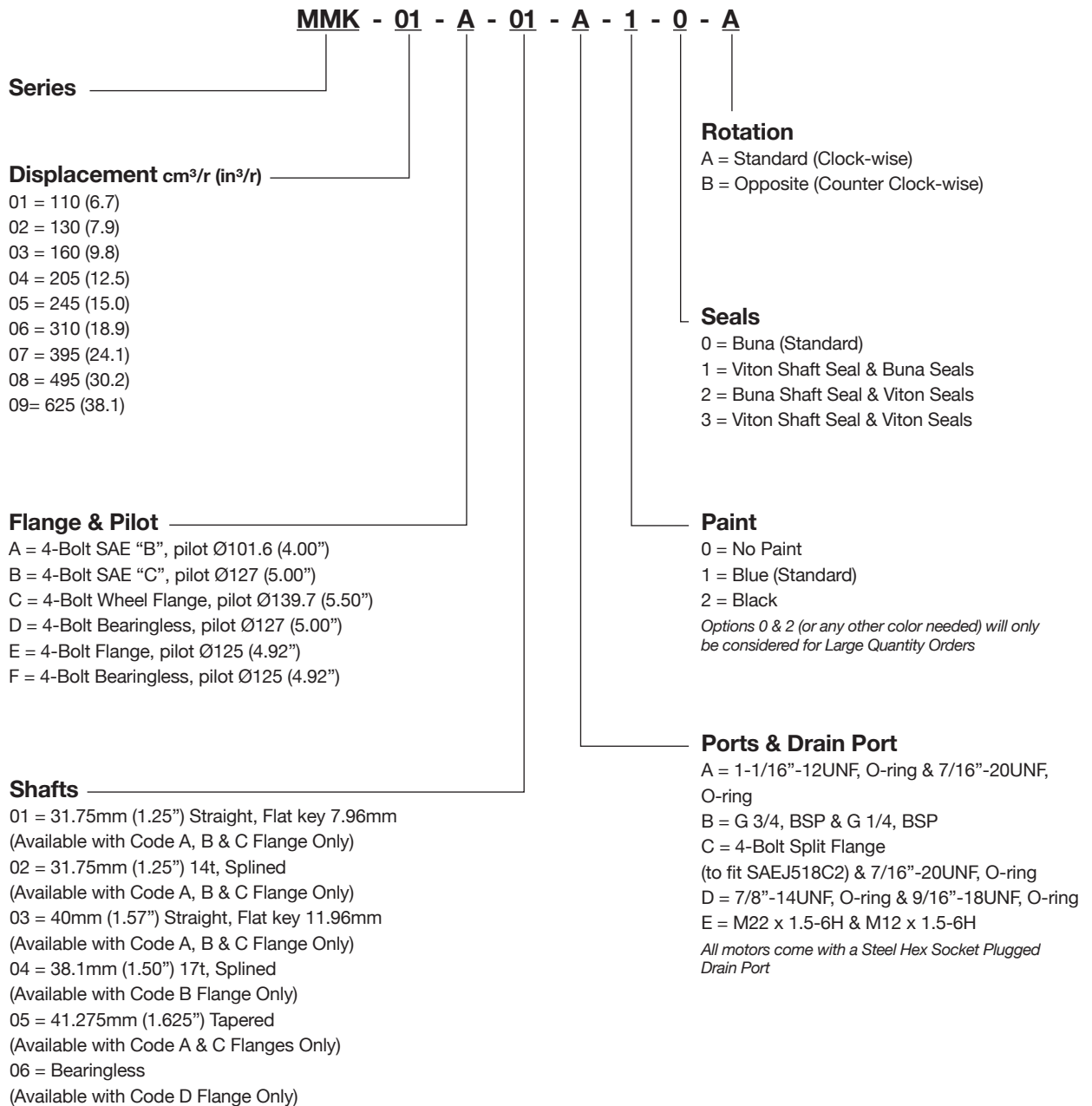
Specifications

Model Code		01	02	03	04	05	06	07	08	09	
Displ.	cm ³ /r	110	130	160	205	245	310	395	495	625	
	in ³ /r	6.7	7.9	9.8	12.5	15.0	18.9	24.1	30.2	38.1	
Flow	LPM	Cont.	75	95	95	95	95	95	95	95	95
		Int.	95	115	115	115	130	130	150	150	150
	GPM	Cont.	19.8	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1
		Int.	25.1	30.4	30.4	30.4	34.4	34.4	39.6	39.6	39.6
Max Speed	RPM	Cont.	697	722	582	459	383	303	239	191	151
		Int.	868	862	693	546	532	422	376	305	241
Pressure	ΔBar	Cont.	205	205	205	205	205	205	190	140	115
		Int.	310	310	310	310	260	260	240	170	140
	ΔPSI	Cont.	2973	2973	2973	2973	2973	2973	2756	2031	1668
		Int.	4496	4496	4496	4496	3771	3771	3481	2466	2031
Torque	NM	Cont.	320	375	485	600	705	850	930	945	970
		Int.	470	560	705	800	845	1065	1185	1170	1180
	LBF-IN	Cont.	2832	3319	4293	5310	6240	7523	8231	8364	8585
		Int.	4160	4956	6240	7081	7479	9426	10488	10355	10444

- Simultaneous maximum torque & maximum speed **NOT** recommended.
- Continuous Rating » (Cont.) motor may be run continuously at these ratings.
- Intermittent Operation » (Int.) 10% of every minute.
- Δ - True pressure difference between inlet port and outlet port.
- Maximum case pressure without case drain -- 80 Bar (1160 psi).

Model Code

Genuine Metaris Orbital Motor MMK

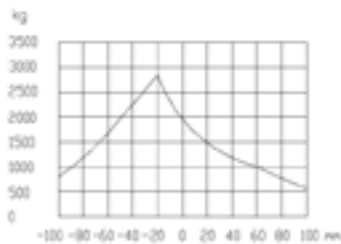


MMK Specifications

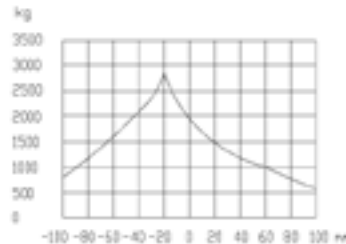
MMK Series

To assure best motor life, run motor for approximately one hour at 30% of rated pressure before applying full load. Fill motor with equipment manufacturer's recommended fluid prior to any load application and startup.

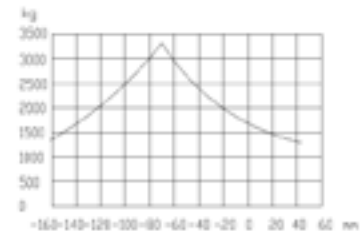
Side Load



Standard Motor 3/4 inch and 40 mm straight shaft

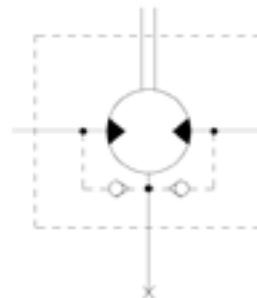
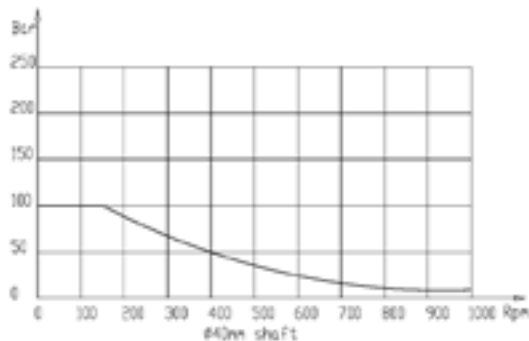


Standard Motor 1-1/4 inch 14 Tooth splined shaft



Wheel Motor Tapered Shaft

Shaft Seal



Standard Shaft Seal = Genuine Metaris High Pressure Shaft Seal

MMK with standard shaft seal, check valves and with drain connection:
The shaft seal pressure equals the pressure on the drain line

MMK with standard shaft seal, check valves and without use of drain connection:
The pressure on the shaft seal never exceeds the pressure in the return line

MMK
Specifications

Performance Data

110 cc/r ΔBar

	15	35	70	105	140	170	205	240	275	310
1.9	15	45	95	145						
	14	10	5	2						
3.8	20	50	100	155	210	255	305	350		
	34	33	31	28	25	22	18	11		
7.5	20	50	105	155	210	260	305	355	390	
	68	67	62	56	50	44	36	28	18	
15	20	50	105	160	210	260	310	355	400	440
	138	136	123	110	97	84	70	56	42	28
23	25	55	110	160	210	260	310	360	410	455
	207	204	200	193	184	174	163	150	136	121
30	20	50	105	160	210	265	315	365	415	455
	277	274	270	262	253	241	228	213	196	179
38	20	50	105	160	215	265	320	370	420	460
	347	344	340	331	322	308	292	274	255	236
45	20	50	105	160	210	265	320	370	420	460
	417	414	410	400	390	374	355	335	313	292
53	15	50	105	160	210	265	320	370	420	465
	487	484	480	469	458	440	419	406	471	348
61	15	50	105	160	210	265	320	375	425	465
	556	553	549	537	525	505	482	455	428	404
68	10	50	105	160	210	265	320	375	425	465
	626	622	618	606	593	570	545	516	485	460
76	10	50	100	155	210	265	320	375	430	470
	697	694	690	677	664	638	611	579	545	518
95		45	95	155	210	260	320	375	425	
		868	861	838	816	792	767	729	690	

Flow LMP

Continuous
 Intermittent

375 Torque N.m
729 Speed RPM

130 cc/r ΔBar

	15	35	70	105	140	170	205	240	275	310
1.9	35	60	120	180						
	12	9	5	2						
3.8	35	60	120	180	240	300	345	390		
	30	28	25	19	14	13	12	4		
7.5	30	60	125	185	240	300	360	405	455	460
	67	56	53	47	42	40	38	29	20	12
15	30	60	125	185	250	305	365	415	465	515
	116	114	111	105	100	95	90	70	50	37
23	25	60	125	185	250	305	365	420	470	525
	173	170	167	161	156	149	142	123	104	91
30	25	60	120	185	250	310	370	425	480	535
	228	225	222	216	210	202	194	176	158	145
38	25	60	120	185	250	310	375	430	490	545
	283	281	278	272	266	256	246	229	212	189
45	25	55	120	185	250	310	375	435	495	550
	341	338	335	329	323	312	300	282	263	237
53	20	55	120	185	250	310	375	435	495	550
	400	396	392	386	380	368	355	335	315	286
61	20	55	120	185	250	310	375	435	495	555
	457	453	449	443	437	424	410	388	366	335
68	15	55	120	185	250	310	375	435	500	560
	516	511	506	500	494	480	465	442	418	384
76	10	55	120	185	250	310	375	440	500	
	574	569	564	559	551	536	520	495	470	
83	10	50	115	180	245	310	375	440	500	
	633	628	624	615	606	590	573	547	520	
95	5	50	115	180	245	305	375	435	500	
	722	718	714	702	690	672	653	625	595	
114		45	105	170	235	300	360	425		
		862	855	842	827	806	783	749		

Flow LMP

MMK Specifications

Performance Data

		160 cc/r ΔBar										205 cc/r ΔBar										245 cc/r ΔBar																					
		15	35	70	105	140	170	205	240	275	310	15	35	70	105	140	170	205	240	275	310	15	35	50	70	85	105	120	140	155	170	190	205	225	240	260							
Flow LMP	1.9	35	75	150	230	310						45	90	170									50	110																			
	3.8	35	80	155	235	315	375	445	500	560		45	95	180	250	325	435	515	610	625				55	110	170	225	280	335	385	435	480	530	565									
	7.5	35	80	155	235	315	375	450	510	575	630	45	95	190	270	355	460	540	610	680	700			60	115	175	235	295	355	410	465	525	580	630	680	730	775	830					
	15	35	80	160	240	320	385	455	520	590	645	50	100	200	295	385	480	570	645	715	760			61	115	180	245	310	375	435	495	555	615	670	725	780	835	890					
	23	35	80	160	240	320	395	470	540	605	665	50	100	205	295	400	495	585	665	745	800			61	120	175	235	295	355	415	475	530	590	645	695	750	795	840					
	30	30	80	165	245	330	400	480	550	620	680	50	100	205	300	400	500	590	670	755	810			61	121	175	235	295	355	415	475	535	595	645	700	755	800	845					
	38	30	80	165	250	335	410	485	555	630	695	50	100	205	300	400	500	590	670	755	810			61	121	175	235	295	355	415	475	535	595	645	700	755	800	845					
	45	25	80	165	245	330	405	485	555	630	700	50	100	205	300	400	500	590	670	755	810			61	121	175	235	295	355	415	475	535	595	645	700	755	800	845					
	53	25	75	160	245	325	405	480	555	630	700	50	100	205	300	400	500	590	670	755	810			61	121	175	235	295	355	415	475	535	595	645	700	755	800	845					
	61	25	75	160	240	325	400	480	555	630	700	50	100	205	300	400	500	590	670	755	810			61	121	175	235	295	355	415	475	535	595	645	700	755	800	845					
	68	20	75	155	235	320	400	480	555	635	705	50	100	205	300	400	500	590	670	755	810			61	121	175	235	295	355	415	475	535	595	645	700	755	800	845					
	76	15	70	150	235	315	395	480	555	635		50	100	205	300	400	500	590	670	755	810			61	121	175	235	295	355	415	475	535	595	645	700	755	800	845					
	83	15	70	150	235	315	395	475	555	635		50	100	205	300	400	500	590	670	755	810			61	121	175	235	295	355	415	475	535	595	645	700	755	800	845					
	95	10	70	150	230	315	395	475	555	630		50	100	205	300	400	500	590	670	755	810			61	121	175	235	295	355	415	475	535	595	645	700	755	800	845					
114		65	145	225	305	390	450	525			50	100	205	300	400	500	590	670	755	810			61	121	175	235	295	355	415	475	535	595	645	700	755	800	845						

755 Torque N.m
152 Speed RPM

Continuous
Intermittent

MMK
Specifications

Performance Data

		310 cc/r ΔBar														
		15	35	50	70	85	105	120	140	155	170	190	205	225	240	260
Flow LMP	1.9	70	130													
		4	2													
	3.8	70	145	215	290	360	425	485	555	620	685	755	820	890	960	1035
		11	11	11	10	10	10	9	9	9	8	8	7	7	6	5
	7.5	70	145	220	295	365	435	505	575	640	710	780	850	920	995	1065
		23	23	22	22	21	21	20	20	19	18	18	17	17	16	15
	15	70	145	220	300	370	445	520	590	665	735	810	880	955	1030	
		47	47	46	46	45	45	44	44	43	42	42	41	41	40	
	23	75	145	225	300	375	450	530	600	675	750	825	895			
		71	71	70	70	69	69	68	67	66	64	64	63			
	30	70	145	225	300	380	455	530	605	680	755	825				
		96	96	95	95	94	94	93	92	91	89	89				
	38	70	145	225	300	375	460	535	610	685	760	835				
		121	120	120	119	119	118	117	116	115	112	109				
	45	70	140	220	295	375	455	535	610	685	760					
		145	144	144	143	142	142	141	140	139	135					
53	65	140	215	295	375	450	530	610	685	760						
	169	169	168	168	167	167	165	164	163	159						
61	60	140	215	290	370	450	530	610	685							
	193	193	192	192	190	189	188	187	185							
68	55	135	210	290	365	445	530	605	680							
	217	217	216	216	214	213	211	209	207							
76	50	135	210	285	365	440	530	605	680							
	242	242	242	241	240	238	236	234	232							
83	45	130	205	285	360	440	525	600								
	267	266	266	265	264	262	260	258								
95	40	120	200	285	355	430	520	595								
	303	303	302	301	300	299	296	292								
114		115	190	275	350	420	510	580								
		363	362	360	359	358	354	351								
132			180	265	335	400	495									
			422	420	419	418	413									

		395 cc/r ΔBar														
		15	35	50	70	85	105	120	140	155	170	190	205	225	240	
Flow LMP	1.9	80	150													
		4	2													
	3.8	85	160	240	315	390	470	550	635	715	790	870				
		9	9	8	8	8	7	7	7	5	4	2				
	7.5	90	170	260	340	435	520	600	680	765	845	930	1015	1100	1185	
		18	18	17	16	16	15	15	14	13	12	12	11	10	8	
	15	95	185	280	375	465	555	635	720	810	890	990				
		38	38	37	36	36	35	35	34	34	33	32				
	23	95	190	285	385	470	565	655	745	835	930					
		57	57	56	55	54	53	52	50	49	47					
	30	95	190	290	385	480	575	665	750	845						
		76	76	75	74	73	72	70	68	66						
	38	90	190	290	385	480	575	670	760	855						
		95	95	94	93	92	91	89	86	84						
	45	85	190	285	380	480	575	665	755							
		114	114	113	112	111	110	108	105							
53	85	185	280	380	480	575	665	750								
	133	133	132	131	130	129	127	124								
61	80	185	280	380	480	575	660									
	153	153	152	151	149	147	145									
68	75	180	275	375	475	570	655									
	172	172	171	170	168	166	164									
76	70	180	270	375	475	570	655									
	192	191	190	189	187	185	183									
83	65	170	265	365	470	565	650									
	211	210	209	208	206	204	201									
95	55	155	255	350	460	560	645									
	239	238	237	236	235	233	230									
114		120	185	255	340	435										
		285	284	282	280	279										
132			170	240	325	425										
			331	330	328	325										
151				230	315	410										
				376	374	371										

645 Torque N.m
230 Speed RPM

Continuous
 Intermittent

MMK
Specifications

Performance Data

495 cc/r ΔBar

	15	35	50	70	85	105	120	140	155	170
1.9	90	200								
	3	1								
3.8	100	210	325	430	540	645	755	860		
	7	6	6	5	4	3	2	1		
7.5	100	220	335	450	565	680	790	905	1015	
	18	17	17	16	15	12	11	10	8	
15	105	225	345	470	595	710	830	945	1060	1170
	30	29	28	27	26	23	21	19	17	14
23	105	225	350	475	595	715	840	955	1070	
	45	44	43	42	40	37	35	32	30	
30	100	230	355	475	600	720	845	960		
	61	60	59	57	55	52	49	46		
38	100	225	350	475	600	720	845	960		
	76	75	74	72	70	66	63	59		
45	95	225	350	475	600	720	845			
	91	90	89	87	85	81	77			
53	95	220	345	470	595	720	840			
	106	105	104	102	100	96	92			
61	90	215	340	465	590	715	840			
	122	120	119	117	115	111	107			
68	85	210	335	465	590	715	835			
	137	136	134	132	130	125	121			
76	75	205	330	460	590	710				
	153	152	150	147	145	140				
95	65	190	315	455	590	695				
	191	189	187	184	182	177				
114		170	300	425	560	675				
		228	226	223	220	215				
132			270	395						
			265	263						
151			245	370						
			305	303						

675 Torque N.m
215 Speed RPM

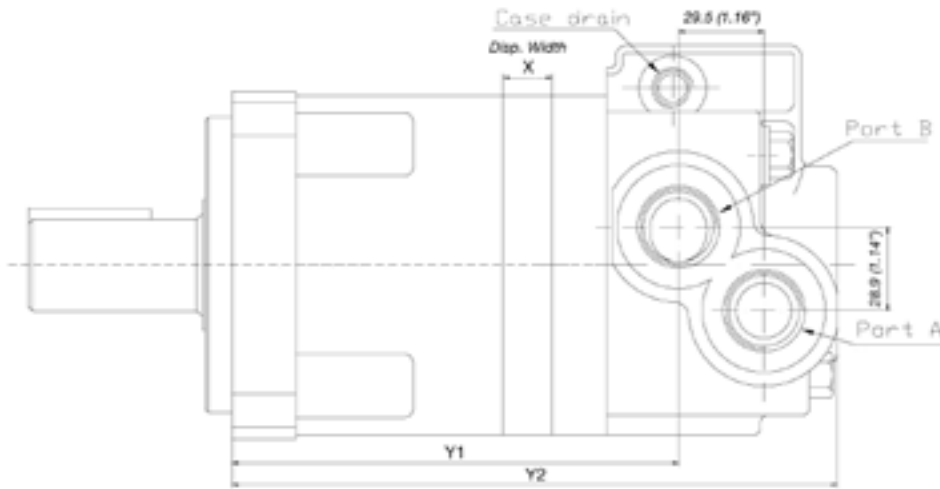
625 cc/r ΔBar

	15	35	50	70	85	105	100	115	125	140
1.9	115									
	2									
3.8	120	265	405	550	690	830	885	935	990	
	5	5	5	4	4	3	3	2	2	
7.5	125	270	415	565	715	860	915	970	1030	1140
	14	14	14	13	12	11	10	9	8	7
15	125	275	425	585	745	895	950	1015	1085	1180
	23	23	23	22	21	19	18	17	16	14
23	125	280	430	590	750	900	960	1025	1070	
	35	35	35	34	33	31	30	29	28	
30	125	280	440	595	750	905	965	1010		
	48	48	47	46	45	43	43	42		
38	130	290	450	600	755	910	970	1035		
	60	60	59	58	57	54	53	52		
45	130	295	460	605	755	915	980			
	72	72	71	70	69	65	64			
53	125	285	450	600	755	910	975			
	84	84	83	82	81	77	76			
61	120	280	440	595	755	910	970			
	96	95	95	94	93	89	88			
68	110	270	430	590	750	900	960			
	108	107	107	105	104	100				
76	105	265	425	590	750					
	121	120	120	118	116					
95	85	245	405	565	725					
	151	150	149	147	146					
114	60	225	385	530	700					
	181	180	179	177	176					
132			355	515						
			210	208						
151			320	485						
			241	239						

**MMK
Dimensions**

Dimensions - Configuration Flange A

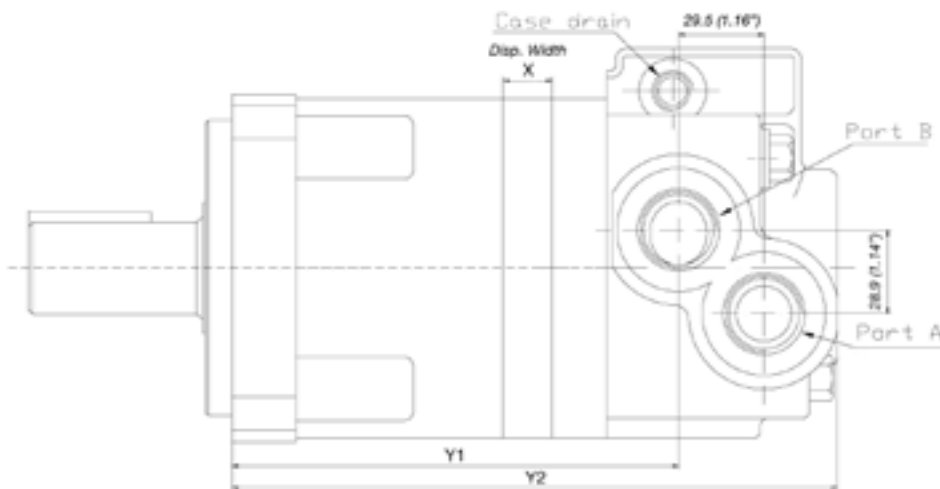
Displ. cm ³ /r.		110	130	160	205	245	310	395	495	625
X	Inches	(.57)	(.67)	(.83)	(1.06)	(1.26)	(1.60)	(2.03)	(2.54)	(3.20)
	Millimeters	14.4	17.1	21.1	26.8	32.1	40.6	51.5	64.5	81.4
Y1	Inches	(6.02)	(6.14)	(6.30)	(6.54)	(6.73)	(7.09)	(7.48)	(7.99)	(8.66)
	Millimeters	153	156	160	166	171	180	190	203	220
Y2	Inches	(8.23)	(8.35)	(8.50)	(8.74)	(8.94)	(9.29)	(9.69)	(10.20)	(10.86)
	Millimeters	209	212	216	222	227	236	246	259	276



**MMK
Dimensions**

Dimensions - Configuration Flange B

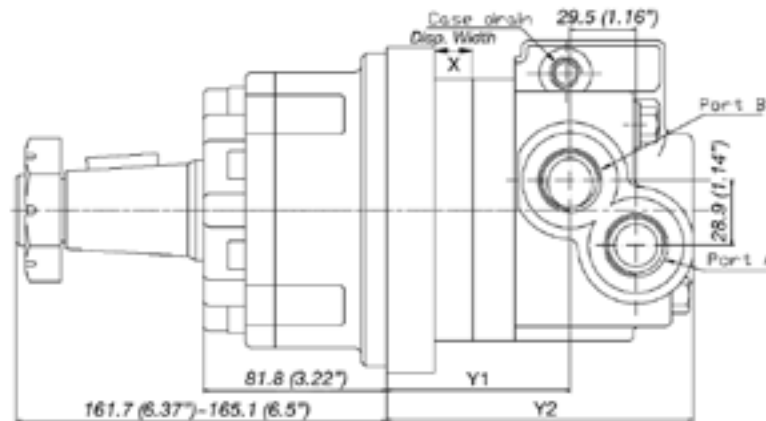
Displ. cm ³ /r.		110	130	160	205	245	310	395	495	625
X	Inches	(.57)	(.67)	(.83)	(1.06)	(1.26)	(1.60)	(2.03)	(2.54)	(3.20)
	Millimeters	14.4	17.1	21.1	26.8	32.1	40.6	51.5	64.5	81.4
Y1	Inches	(6.22)	(6.30)	(6.46)	(6.69)	(6.89)	(7.24)	(7.64)	(8.15)	(9.21)
	Millimeters	158	160	164	170	175	184	194	207	224
Y2	Inches	(8.43)	(8.50)	(8.66)	(8.90)	(9.09)	(9.45)	(9.84)	(10.35)	(11.02)
	Millimeters	214	216	220	226	231	240	250	263	280



**MMK
Dimensions**

Dimensions - Configuration Wheel Mount Flange C

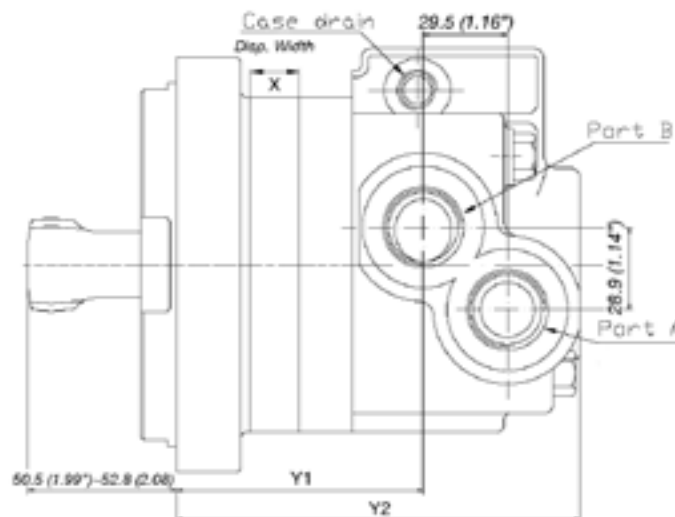
Displ. cm ³ /r.	110	130	160	205	245	310	395	495	625	
X	Inches	(.57)	(.67)	(.83)	(1.06)	(1.26)	(1.60)	(2.03)	(2.54)	(3.20)
	Millimeters	14.4	17.1	21.1	26.8	32.1	40.6	51.5	64.5	81.4
Y1	Inches	(3.12)	(3.23)	(3.39)	(3.61)	(3.81)	(4.15)	(4.58)	(5.09)	(5.76)
	Millimeters	79	82	86	92	97	106	116	129	146
Y2	Inches	(5.33)	(5.43)	(5.59)	(5.81)	(6.02)	(6.36)	(6.79)	(7.30)	(7.96)
	Millimeters	135	138	142	148	153	162	172	185	202



**MMK
Dimensions**

Dimensions - Configuration Bearingless Flange D

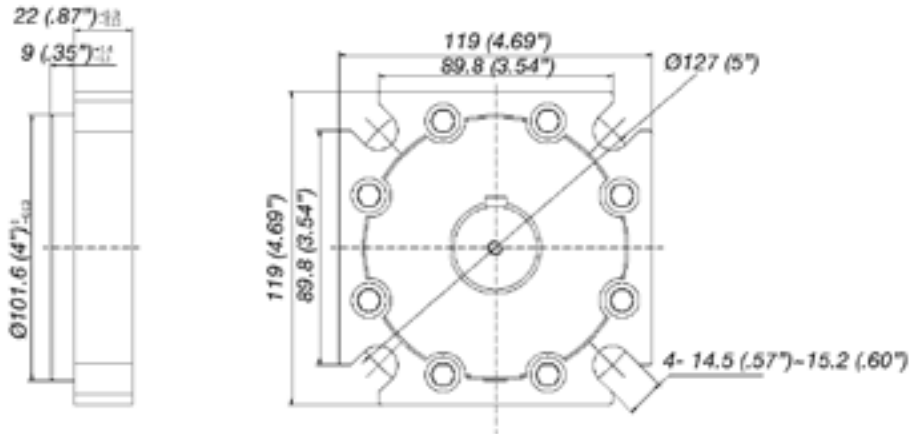
Displ. cm ³ /r.	110	130	160	205	245	310	395	495	625	
X	Inches	(.57)	(.67)	(.83)	(1.06)	(1.26)	(1.60)	(2.03)	(2.54)	(3.20)
	Millimeters	14.4	17.1	21.1	26.8	32.1	40.6	51.5	64.5	81.4
Y1	Inches	(3.32)	(3.43)	(3.58)	(3.81)	(4.02)	(4.35)	(4.78)	(5.29)	(5.96)
	Millimeters	84	87	91	97	102	111	121	134	151
Y2	Inches	(5.52)	(5.63)	(5.79)	(6.01)	(6.22)	(6.56)	(6.98)	(7.50)	(8.16)
	Millimeters	140	143	147	153	158	167	177	190	207



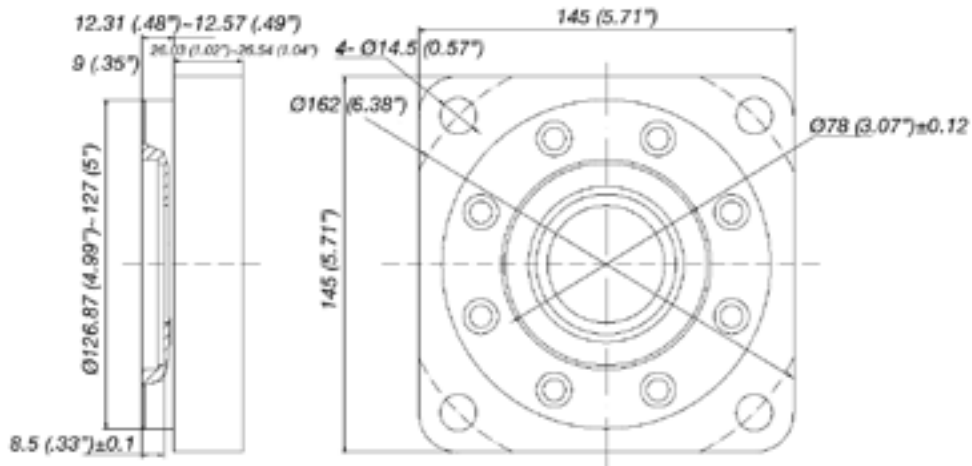
MMK
 Flanges

Mounting Flanges

(A) = 4-Bolt SAE "B", Pilot 101.6 (4.00")



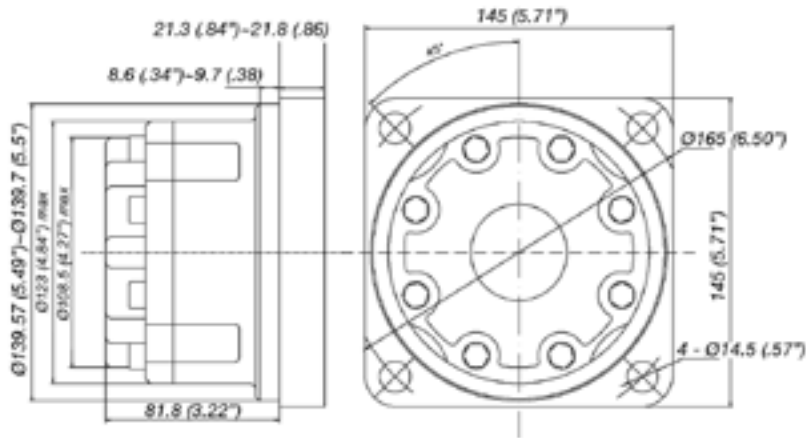
(B) = 4-Bolt SAE "C", Pilot 127 (5.00")



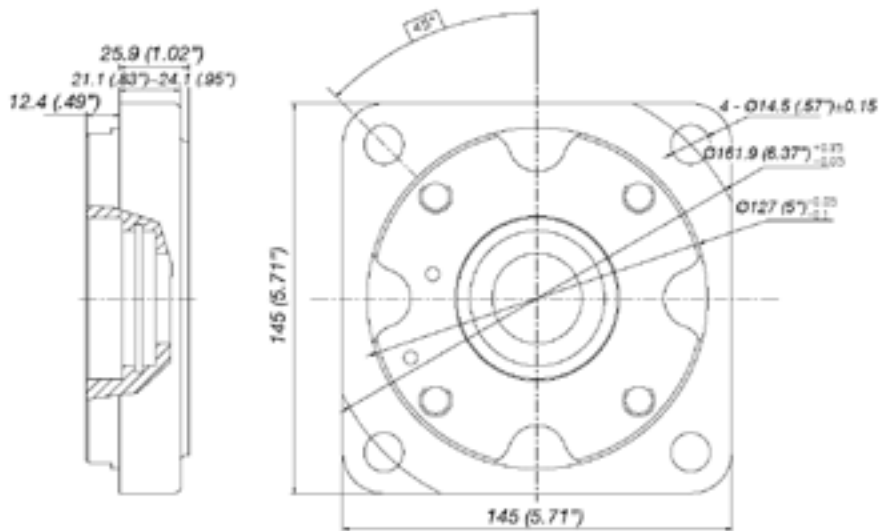
MMK
 Flanges

Mounting Flanges

(C) = 4-Bolt Wheel Flange, Pilot 139.7 (5.50")

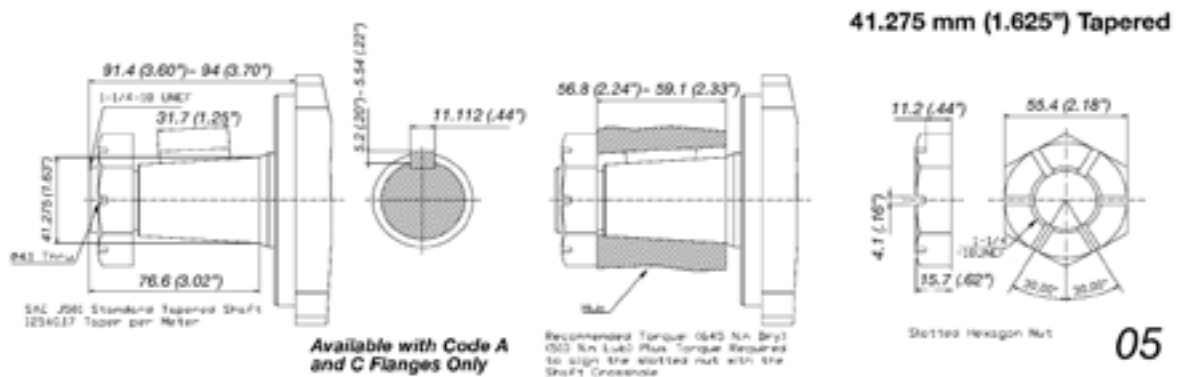
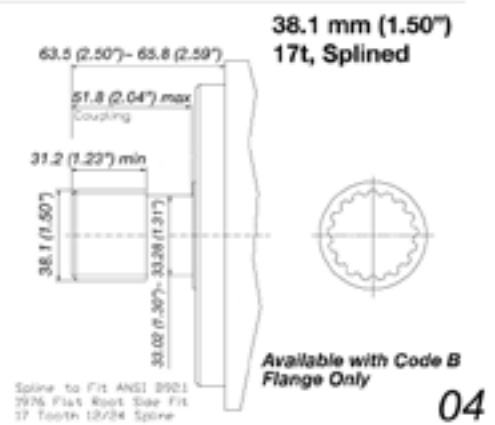
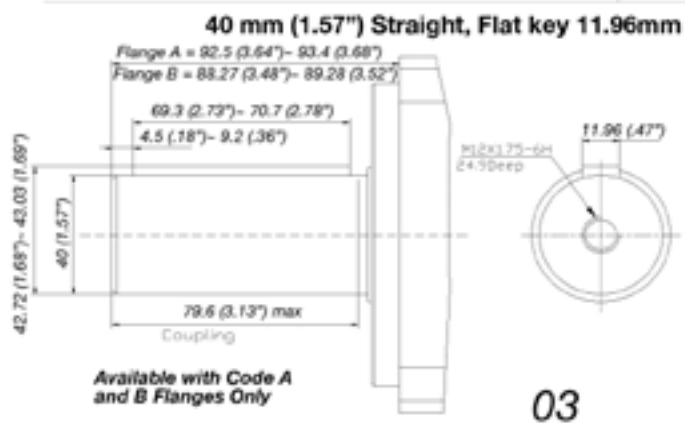
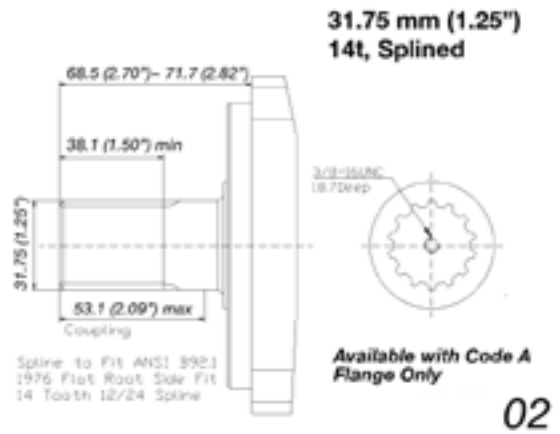
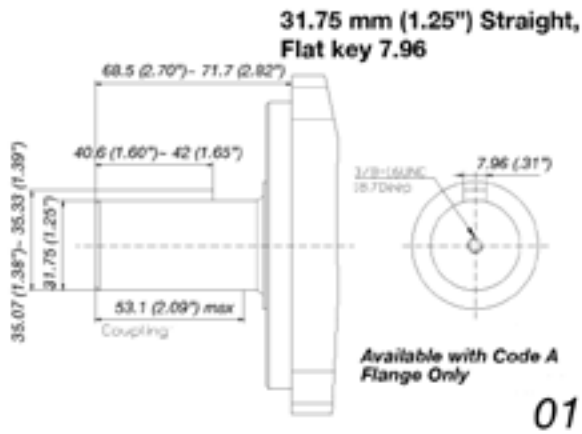


(D) = 4-Bolt Bearingless, Pilot 127 (5.00")



MMK Shafts

Shafts



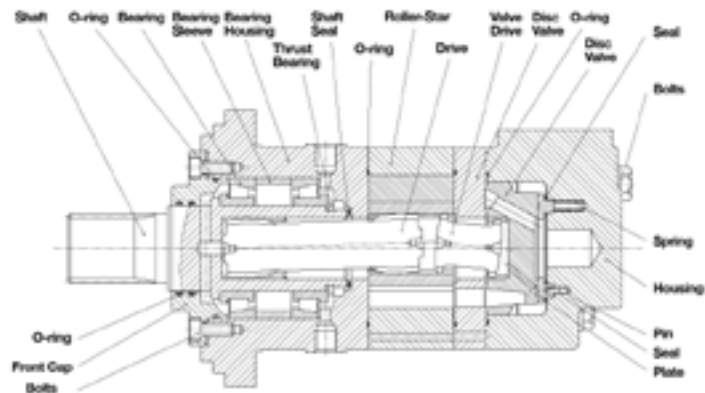
Bearingless
[see page 66]

Available with Code D Flange Only

06

General

MMT Series



Description

MMT series motors are disc valve motors, with the characteristic features of:

- Compact and light weight design
- Advanced Roller-Star technology, requiring lower pressure at start-up and providing smooth reliable operation at all speeds
- Disc valve technology, providing greater speed and efficiency for medium duty applications
- Dual high efficiency tapered roller bearings, providing excellent low speed and high speed operation with high side load capabilities
- High pressure shaft seal, which allows for higher back pressures and an increased ability to handle high pressure spike conditions (no shaft seal on bearingless motors)
- Internal integrated check valve, which limits case pressure by blocking the high pressure port side and allowing the motor to drain into the outlet (low pressure) port. Motors connected in series will utilize the case drain

These motors can be used in parallel or series. A diverse offering of mounting flanges, shafts, ports, and displacements along with wheel and bearingless motors allow for easy installation, product replacement, or OEM application.

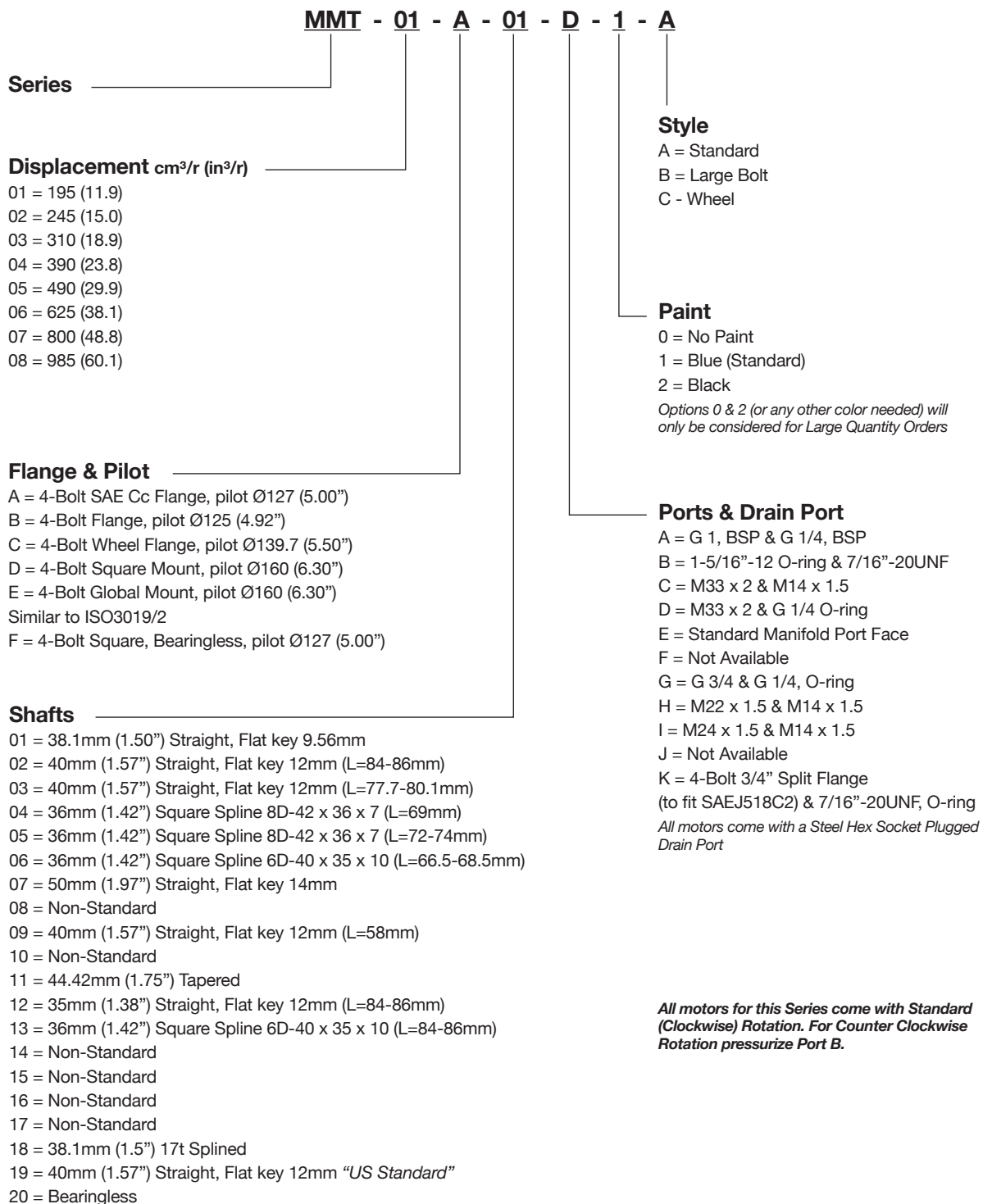
Specifications

Model Code		01	02	03	04	05	06	07	08	
Displ.	cm ³ /r	195	245	310	390	490	625	800	985	
	in ³ /r	11.9	15.0	18.9	23.8	29.9	38.1	48.8	60.1	
Flow	LPM	Cont.	150	150	150	150	150	150	150	150
		Int.	170	210	225	225	225	225	225	225
	GPM	Cont.	39.6	39.6	39.6	39.6	39.6	39.6	39.6	39.6
		Int.	44.9	55.5	59.4	59.4	59.4	59.4	59.4	59.4
Max Speed	RPM	Cont.	775	615	698	387	306	240	184	153
		Int.	866	834	485	570	454	355	278	230
Pressure	ΔBar	Cont.	170	170	170	170	170	120	120	120
		Int.	275	275	275	275	240	140	140	140
	ΔPSI	Cont.	2466	2466	2466	2466	2466	1740	1740	1740
		Int.	3989	3989	3989	3989	3481	2031	2031	2031
Torque	NM	Cont.	475	615	775	965	1215	1125	1308	1570
		Int.	770	980	1225	1455	1685	1330	1650	1875
	LBF-IN	Cont.	4204	5443	6859	8541	10754	9957	11577	13896
		Int.	6815	8674	10842	12878	14914	11772	14604	16595

- Simultaneous maximum torque & maximum speed **NOT** recommended.
- Continuous Rating » (Cont.) motor may be run continuously at these ratings.
- Intermittent Operation » (Int.) 10% of every minute.
- Δ - True pressure difference between inlet port and outlet port.
- Maximum case pressure without case drain -- 50 Bar (725 psi).

Model Code

Genuine Metaris Orbital Motor MMT

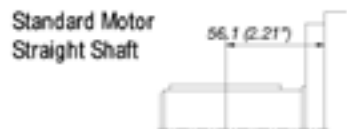
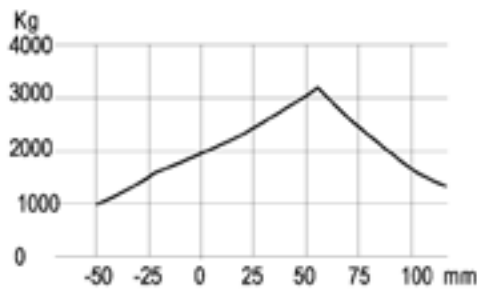
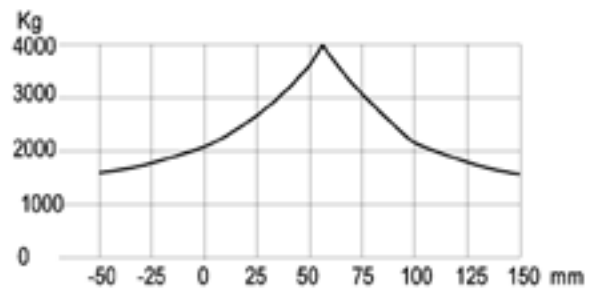
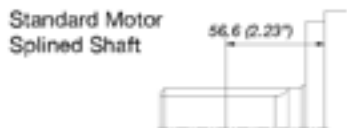
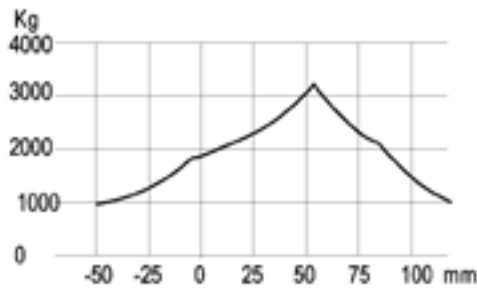


MMT Specifications

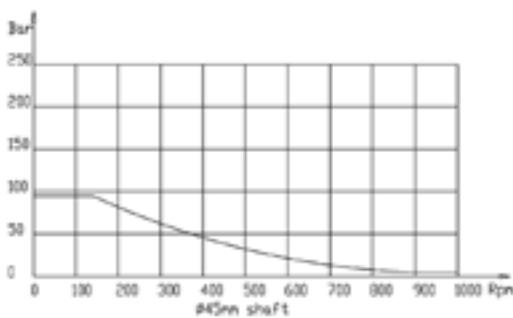
MMT Series

To assure best motor life, run motor for approximately one hour at 30% of rated pressure before applying full load. Fill motor with equipment manufacturer's recommended fluid prior to any load application and startup.

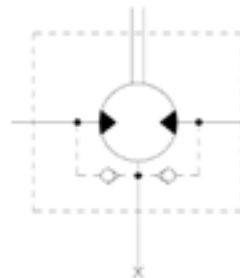
Side Load



Shaft Seal



Standard Shaft Seal = Genuine Metaris High Pressure Shaft Seal



MMT with standard shaft seal, check valves and with drain connection:
The shaft seal pressure equals the pressure on the drain line

MMT with standard shaft seal, check valves and without use of drain connection:
The pressure on the shaft seal never exceeds the pressure in the return line

MMT
Specifications

Performance Data

Continuous Intermittent

195cc/r

		Δ Pressure Bar							
		35	70	105	140	170	205	240	275
Flow LPM	1.9	75 7	165 5	260 2					
	7.5	75 37	170 35	265 34	350 30	440 26	470 18		
15	80 78	175 74	270 72	365 66	455 62	520 46	590 32	655 18	
	30	85 153	180 148	275 144	370 131	465 119	545 116	625 99	705 83
45	85 230	180 225	280 221	375 212	475 203	565 186	655 167	750 148	
	61	80 307	180 303	280 300	375 291	475 283	575 258	665 236	760 214
76	80 384	180 379	280 374	380 365	480 356	575 332	670 306	770 280	
	91	80 462	175 456	275 450	375 440	475 429	575 413	670 388	770 363
106	75 539	175 532	270 526	375 514	475 502	570 476	670 448	770 421	
	121	70 617	170 609	270 602	370 589	470 576	570 542	670 511	765 480
136	70 692	165 683	265 674	365 659	465 645	565 601	665 564	765 527	
	151	70 770	165 759	260 746	365 733	465 718	560 666	660 624	
170	65 866	160 854	260 843	360 825	460 808	555 749	655 702		

245cc/r

		Δ Pressure Bar							
		35	70	105	140	170	205	240	275
Flow LPM	1.9	95 4	215 1						
	7.5	100 29	220 26	340 24	445 21	555 17	670 11	870 6	
15	105 80	225 58	345 54	460 48	575 42	640 39	750 30	855 12	
	30	110 120	235 116	355 113	475 104	595 95	700 81	800 67	905 53
45	110 182	235 178	360 174	480 165	605 157	720 141	840 125	965 109	
	61	110 244	235 240	360 236	485 228	610 221	730 202	845 184	960 165
76	105 306	230 301	355 297	485 287	615 277	735 257	855 238	980 218	
	91	105 365	230 361	355 358	480 348	610 338	735 316	860 294	980 271
106	100 426	225 421	350 416	480 404	610 376	730 358	855 340	980 322	
	121	90 489	215 481	345 475	470 461	600 448	725 423	850 398	975 373
136	80 549	210 543	335 537	460 524	580 509	710 482	840 456		
	151	80 612	200 606	330 599	455 585	580 570	700 540	800 510	
170	65 688	160 682	260 674	360 665	460 641	555 608	655 574		
	189		195 758	315 749	440 731	555 712	670 676		
208		190 834	310 824	430 804	550 783	665 744			

460 Torque Nm
808 Speed RPM

Motors run with high efficiency in all areas designated with a number for torque and speed. However for best motor life select a motor to run with a torque and speed in the Continuous Area.

Performance data is typical at 120 SUS. Actual data may vary slightly from unit to unit in production

Performance Data

Continuous  Intermittent 

310cc/r

		Δ Pressure Bar							
		35	70	105	140	170	205	240	275
Flow LPM	1.9	60 6	125 4	275 1					
	7.5	130 23	280 22	410 20	540 17	645 14	755 10	880 4	
	15	135 47	290 45	430 42	570 38	685 32	800 24	935 17	1025 10
	30	140 95	300 91	450 87	595 81	730 73	870 64	985 55	1105 46
	45	140 143	305 140	460 135	610 129	760 121	910 111	1045 99	1185 88
	61	140 192	300 188	460 184	615 178	770 167	920 156	1060 141	1205 126
	76	135 241	295 236	455 232	615 226	770 216	925 201	1075 184	1225 167
	91	130 289	295 282	455 279	615 273	775 260	930 248	1080 232	1230 215
	106	130 336	290 333	450 328	610 320	770 308	930 295	1075 276	1225 257
	121	125 384	285 381	445 375	600 368	765 354	920 341	1065 320	
	136	120 430	275 421	435 416	590 410	750 396	915 383	1055 360	
	151	115 478	270 466	425 461	580 456	745 441	905 427	1040 403	
	189	110 597	245 582	385 576	525 570	685 551	840 534		
	227		220 608	365 601	515 684	650 661	800 641		

390cc/r

		Δ Pressure Bar							
		35	70	105	140	170	205	240	275
Flow LPM	3.8	175 2	365 1						
	7.5	180 18	370 17	555 16	730 14	875 12	1025 9	1195 4	
	15	185 38	375 37	560 35	740 33	920 29	1080 22	1275 14	1370 5
	30	185 76	380 74	575 72	760 68	950 66	1135 55	1315 45	1455 33
	45	185 115	385 112	580 109	770 105	965 100	1150 91	1340 81	1540 79
	61	180 154	380 151	580 147	770 143	965 132	1155 126	1345 116	
	76	180 193	380 189	580 187	775 182	970 175	1160 162	1355 152	
	91	170 230	370 229	570 225	765 220	965 212	1155 204		
	106	165 268	365 266	565 261	760 256	960 248	1150 236		
	121	160 306	355 304	555 299	750 292	945 282	1145 269		
	136	155 346	340 340	545 336	730 329	930 317	1130 301		
	151	150 386	325 380	535 375	730 368	915 359			
	189	130 482	300 475	515 469	730 460	910 449			
	227		280 570	500 562	720 552	890 538			

650 Torque Nm
661 Speed RPM

Motors run with high efficiency in all areas designated with a number for torque and speed. However for best motor life select a motor to run with a torque and speed in the Continuous Area.

MMT
Specifications

Performance Data

Continuous Intermittent

490cc/r

		Δ Pressure Bar						
		35	70	105	140	170	205	240
Flow LPM	3.8	235 7	480 5	695 3				
	7.5	240 14	480 13	710 12	945 11	1175 8	1370 3	
	15	235 30	485 29	725 28	960 27	1195 25	1410 21	1645 17
	30	235 60	485 59	735 57	975 54	1215 51	1445 45	1665 38
	45	235 91	485 89	735 87	975 84	1220 79	1455 71	
	61	235 122	480 121	730 118	975 114	1220 109	1460 100	
	76	225 152	470 150	725 147	975 144	1220 139		
	91	220 184	470 181	720 180	970 176	1215 171		
	106	210 214	460 211	710 208	960 204	1210 198		
	121	195 244	450 241	700 237	950 232	1205 226		
	136	175 275	435 272	685 265	940 260	1175 255		
	151	160 306	425 303	675 295	920 290	1150 284		
	189	130 382	365 379	590 369	860 362			
	227		325 454	550 442	805 438			

625cc/r

		Δ Pressure Bar						
		35	50	70	85	105	120	140
Flow LPM	3.8	250 5	380 4	510 4	640 3	755 2		
	7.5	260 12	395 13	535 13	670 10	795 10	925 8	1060 6
	15	275 24	425 24	570 24	710 22	850 21	965 18	1065 16
	30	295 45	450 44	605 44	755 43	925 42	1095 39	1270 37
	45	295 72	450 71	610 71	765 70	920 68	1125 66	1330 64
	61	285 94	445 93	605 92	760 91	915 89	1120 87	1325 85
	76	280 119	440 118	595 117	755 116	915 115	1120 112	1325 110
	91	265 143	430 142	585 140	745 139	905 138	1110 135	1320 132
	106	255 168	415 168	575 165	735 164	895 162	1105 159	1315 156
	121	240 192	400 190	560 188	720 187	880 185	1090 182	1300 179
	136	220 216	380 214	540 213	700 212	855 210	1050 207	
	151	200 240	360 239	520 238	680 237	835 236	1015 233	
	189		310 298	470 296	630 294	790 290		
	227		255 355	430 353	590 350	745 345		

805 Torque Nm
435 Speed RPM

Motors run with high efficiency in all areas designated with a number for torque and speed. However for best motor life select a motor to run with a torque and speed in the Continuous Area.

MMT
 Specifications

Performance Data

800cc/r

		Pressure Δ Bar						
		35	50	70	85	105	120	140
3.8		420	590	776	960			
	Flow LPM	4	4	3	2			
7.5		420	594	790	972	1176	1344	1568
	Flow LPM	4	8	8	7	6	5	4
15		435	608	840	1020	1204	1308	1650
	Flow LPM	18	17	17	16	15	14	13
30		420	396	830	1005	1204	1415	1610
	Flow LPM	36	35	35	34	33	31	29
45		380	565	795	972	1190	1362	
	Flow LPM	55	55	54	54	53	51	
61		340	520	760	940	1172		
	Flow LPM	75	74	72	71	70		
76		325	500	730	900	1140		
	Flow LPM	93	92	90	89	87		
91		315	470	700	860	1080		
	Flow LPM	111	110	109	108	105		
106		310	450	650	800	1020		
	Flow LPM	129	128	127	125	123		
121		280	420	610	750			
	Flow LPM	148	146	145	143			
136		270	400	550	700			
	Flow LPM	166	165	165	164			
151		250	350	500	635			
	Flow LPM	184	183	182	180			
189			300	440	580			
	Flow LPM		230	228	225			
227				380	520			
	Flow LPM			276	273			

985cc/r

		Pressure Δ Bar							
		15	35	50	70	85	105	120	140
3.8		215	465	645	865	1080			
	Flow LPM	3	3	2	2	1			
7.5		215	470	710	940	1175	1410	1565	1685
	Flow LPM	8	8	7	7	6	5	4	3
15		225	485	775	965	1205	1445	1570	1790
	Flow LPM	15	15	15	14	14	13	13	13
30		230	495	750	995	1235	1480	1640	1875
	Flow LPM	30	30	30	29	28	27	26	25
45		230	495	750	1000	1250	1495	1700	
	Flow LPM	45	45	45	44	43	42	41	
61		225	490	740	995	1245	1500		
	Flow LPM	61	61	61	60	59	58		
76		215	475	730	985	1235	1485		
	Flow LPM	77	77	76	76	75	74		
91		205	460	705	960	1220	1470		
	Flow LPM	92	92	92	91	90	89		
106		185	445	700	950	1200	1450		
	Flow LPM	107	107	107	106	105	103		
121		165	425	675	925	1180			
	Flow LPM	123	123	122	121	120			
136		130	395	645	895	1125			
	Flow LPM	138	138	138	137	135			
151		95	365	610	865	1085			
	Flow LPM	153	153	152	151	150			
189			325	585	830	1050			
	Flow LPM		191	190	189	188			
227				525	810	1025			
	Flow LPM			230	229	228			

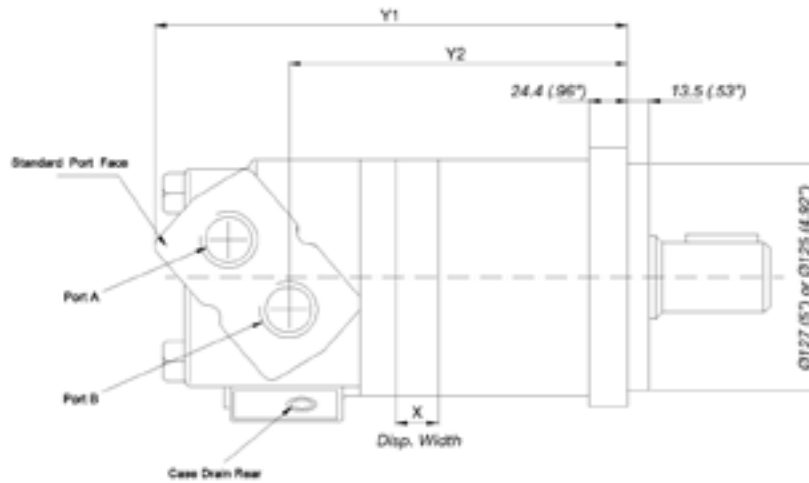
Continuous Intermittent

Motors run with high efficiency in all areas designated with a number for torque and speed, However for best motor life select a motor to run with a torque and speed in the Continuous Area.

MMT Dimensions

Dimensions - Configuration Flanges A & B

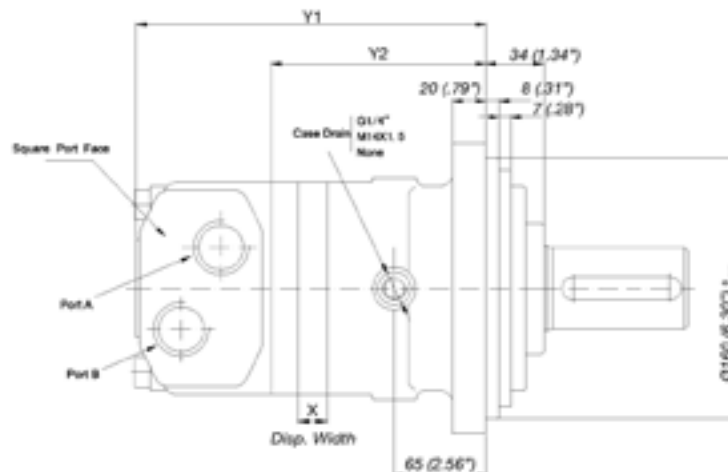
Displ. cm ³ /r.		195	245	310	390	490	625	800	985
X	Inches	(.86)	(1.08)	(1.36)	(1.71)	(2.14)	(2.72)	(3.50)	(4.29)
	Millimeters	22	27	35	44	54	69	89	109
Y1	Inches	(10.63)	(10.87)	(11.14)	(11.50)	(11.93)	(12.52)	(13.11)	(14.09)
	Millimeters	270	276	283	292	303	318	333	358
Y2	Inches	(5.91)	(6.14)	(6.42)	(6.77)	(7.20)	(7.80)	(8.43)	(9.33)
	Millimeters	150	156	163	172	183	198	214	237



MMT Dimensions

Dimensions - Configuration Flanges D & E

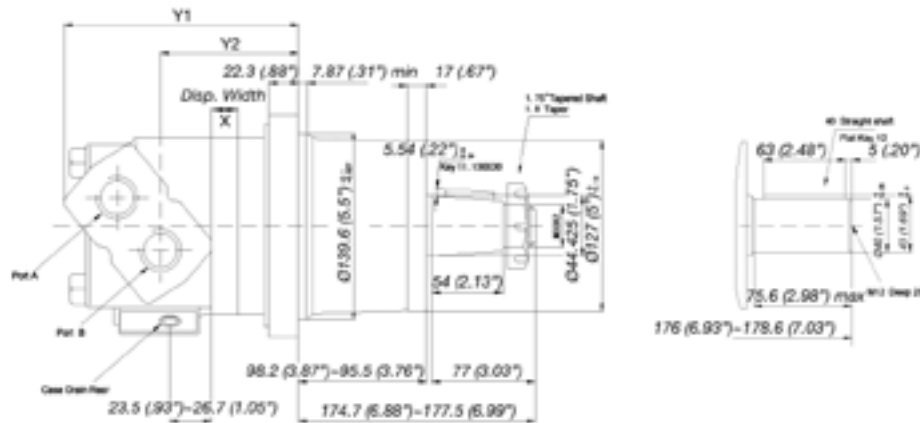
Displ. cm ³ /r.		195	245	310	390	490	625	800	985
X	Inches	(.86)	(1.08)	(1.36)	(1.71)	(2.14)	(2.72)	(3.50)	(4.29)
	Millimeters	22	27	35	44	54	69	89	109
Y1	Inches	(9.06)	(9.25)	(9.69)	(9.88)	(10.35)	(10.91)	(11.54)	(12.48)
	Millimeters	230	235	246	251	263	277	293	317
Y2	Inches	(5.31)	(5.55)	(5.83)	(6.18)	(6.61)	(7.20)	(7.83)	(8.74)
	Millimeters	135	141	148	157	168	183	199	222



MMT Dimensions

Dimensions - Wheel Mount (Flange Code: C, Shaft Code: 11)

Displ. cm ³ /r.		195	245	310	390	490	625	800	985
X	Inches	(.86)	(1.08)	(1.36)	(1.71)	(2.14)	(2.72)	(3.50)	(4.29)
	Millimeters	22	27	35	44	54	69	89	109
Y1	Inches	(7.28)	(7.52)	(7.80)	(8.15)	(8.58)	(9.17)	(9.80)	(10.75)
	Millimeters	185	191	198	207	218	233	249	273
Y2	Inches	(4.06)	(4.25)	(4.57)	(4.88)	(5.35)	(5.91)	(7.01)	(7.48)
	Millimeters	103	108	116	124	136	150	178	190

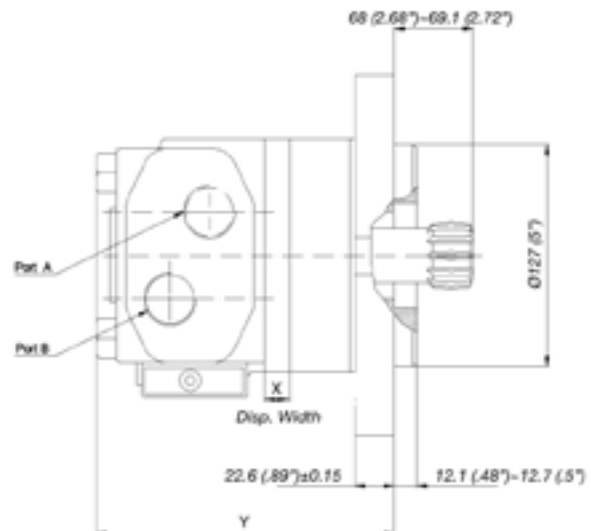


MMT Dimensions

Dimensions - Bearingless (Flange Code: F, Shaft Code: 20)

Displ. cm ³ /r.		195	245	310	390	490	625	800	985
X	Inches	(.86)	(1.08)	(1.36)	(1.71)	(2.14)	(2.72)	(3.50)	(4.29)
	Millimeters	22	27	35	44	54	69	89	109
Y	Inches	(7.01)	(7.20)	(7.52)	(7.87)	(8.31)	(8.90)	(9.88)	(10.43)
	Millimeters	178	183	191	200	211	226	251	265

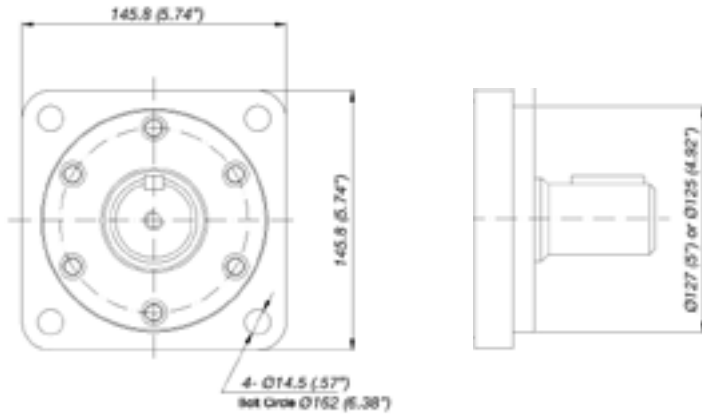
Diametral Pitch	8.5/17
Pressure Angle	30
Number of Teeth	12
Major Dia.	38.4
Minor Dia.	31.5
Space width	5.7



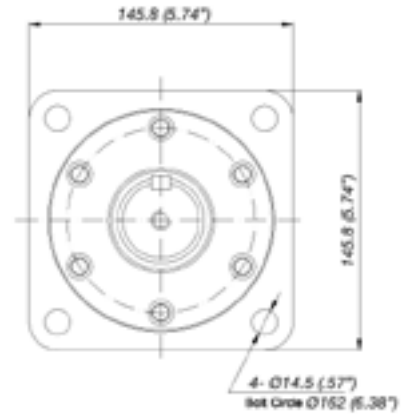
**MMT
 Flanges**

Mounting Flanges

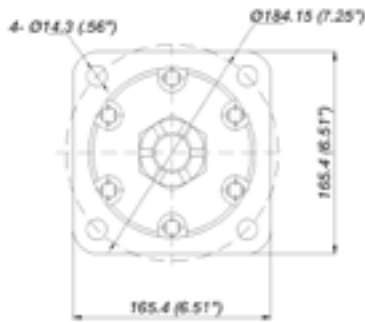
(A) = 4-Bolt SAE Cc Flange, Pilot 127 (5")



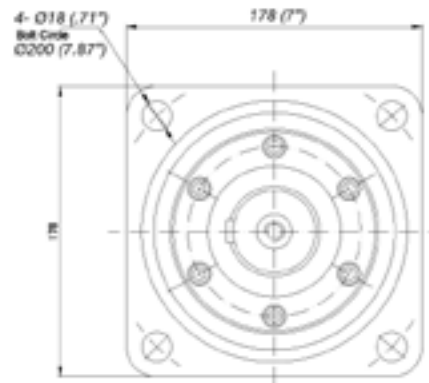
(B) = 4-Bolt Flange, Pilot 125 (4.92")



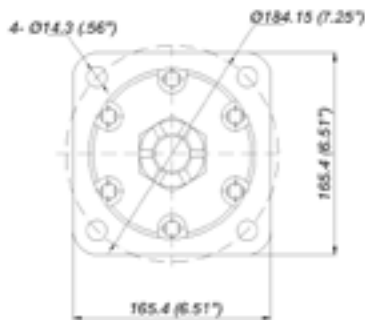
(C) = 4-Bolt Wheel Flange, Pilot 139.7 (5.50")



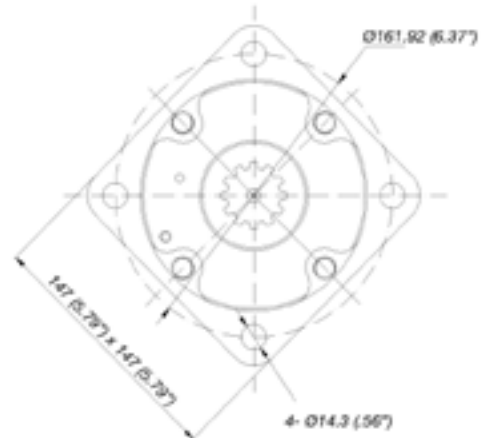
(D) = 4-Bolt Square Mount, Pilot 160 (6.30")



**(E) = 4-Bolt Global Mount, Pilot 160 (6.30"),
 Similar to ISO3019/2**



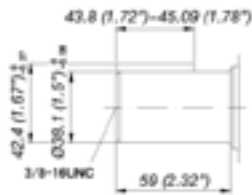
(F) = 4-Bolt Square Flange, Pilot 127 (5.00")



MMT
 Shafts

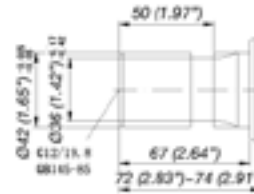
Shafts

38.1 mm (1.50")
 Straight, Flat key, 9.56mm



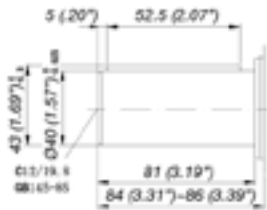
01

36 mm (1.42")
 Square Spline,
 8D - 42 x 36 x 7



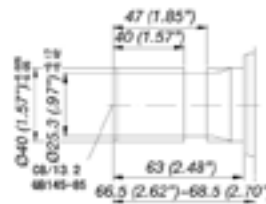
05

40 mm (1.57")
 Straight, Flat key, 12mm



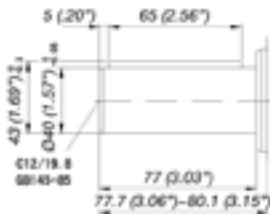
02

36 mm (1.42")
 Square Spline,
 6D - 40 x 35 x 10



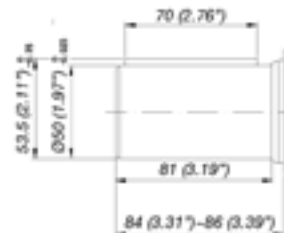
06

40 mm (1.57")
 Straight, Flat key, 12mm



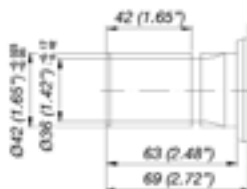
03

50 mm (1.97")
 Straight, Flat key, 14mm



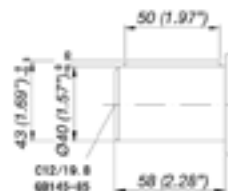
07

36 mm (1.42")
 Square Spline,
 8D - 42 x 36 x 7



04

40 mm (1.57")
 Straight, Flat key, 12mm



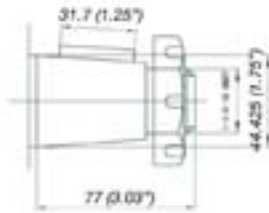
09

08 = Non-Standard Shaft Code

MMT
 Shafts

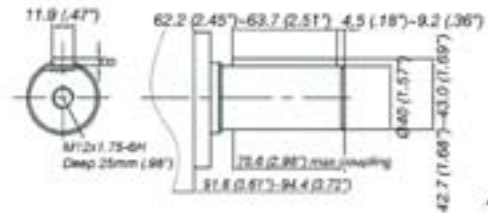
Shafts

**44.42 mm (1.75")
 Tapered**



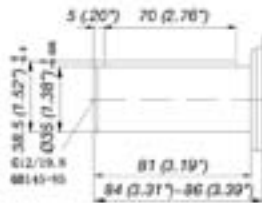
11

**40mm (1.57") Straight,
 Flat key 12mm**



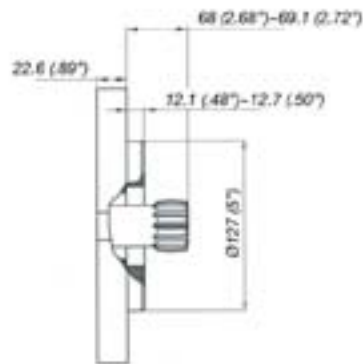
19

**35 mm (1.38")
 Straight, Flat key 12mm**



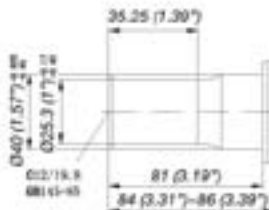
12

Bearingless



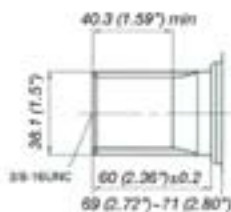
20

**36 mm (1.42")
 Square Spline,
 6D - 40 x 35 x 10**



13

38.1mm (1.50") 17t Splined

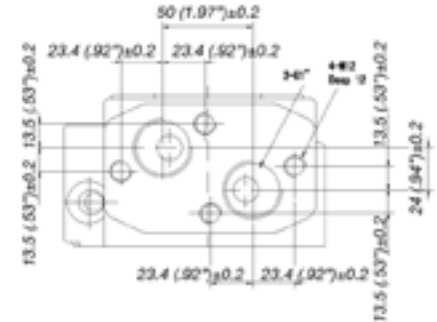
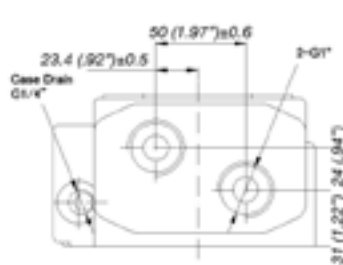
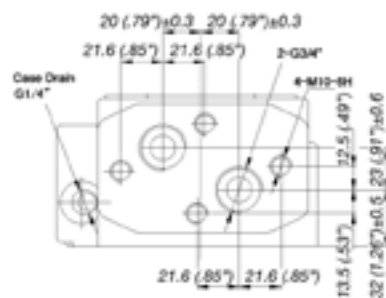
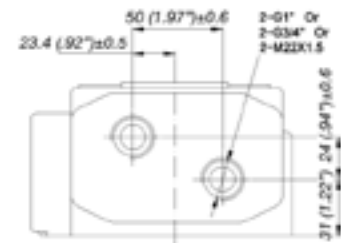
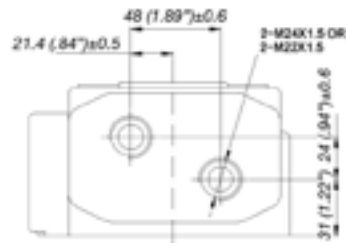
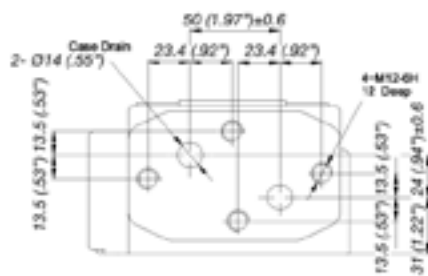
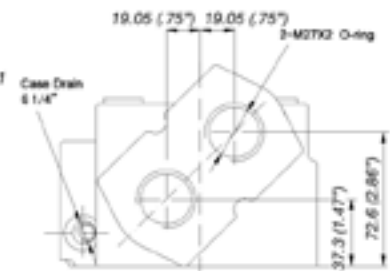
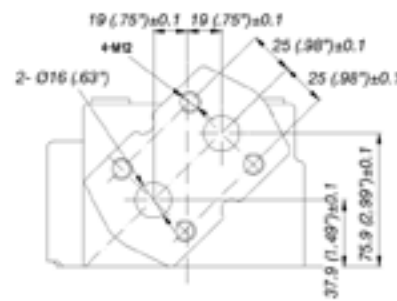
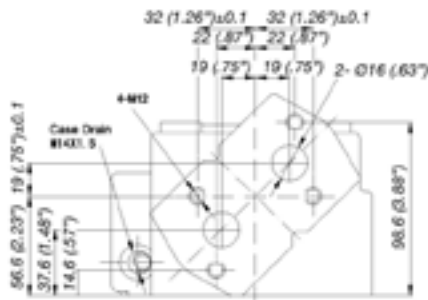
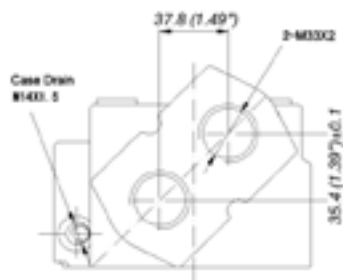
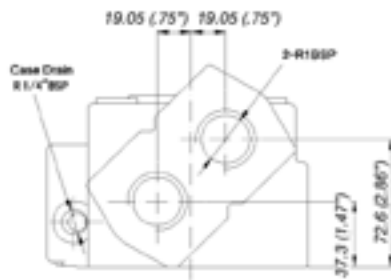


18

10, 14, 15, 16 & 17 = Non-Standard Shaft Code

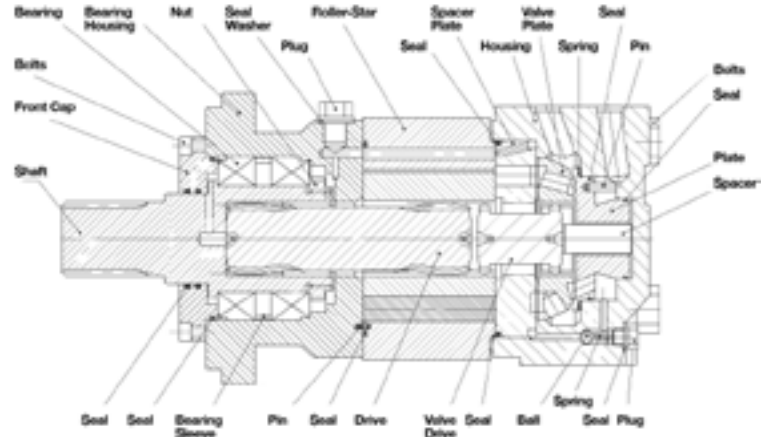
MMT Dimensions

Port Dimensions



General

MMV Series



Description

MMV series motors are disc valve motors, with the characteristic features of:

- Compact and light weight design
- Advanced Roller-Star technology, requiring lower pressure at start-up and providing smooth reliable operation at all speeds
- Disc valve technology, providing greater speed and efficiency for heavy duty applications
- Dual high efficiency tapered roller bearings, providing excellent low speed and high speed operation with high side load capabilities
- High pressure shaft seal, which allows for higher back pressures and an increased ability to handle high pressure spike conditions (no shaft seal on bearingless motors)
- Internal integrated check valve, which limits case pressure by blocking the high pressure port side and allowing the motor to drain into the outlet (low pressure) port. Motors connected in series will utilize the case drain

These motors can be used in parallel or series. A diverse offering of mounting flanges, shafts, ports, and displacements along with wheel and bearingless motors allow for easy installation, product replacement, or OEM application.

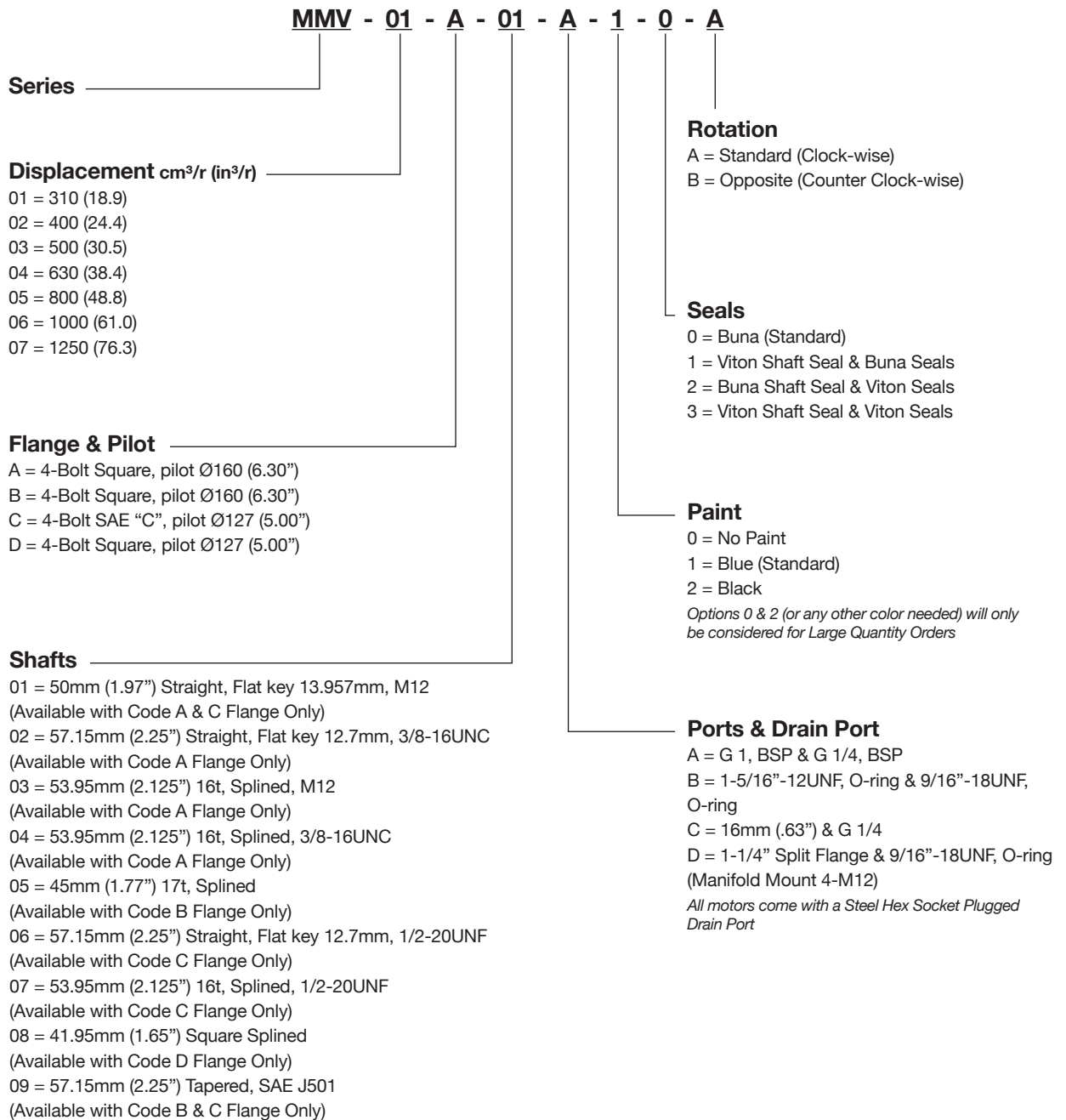
Specifications

Model Code		01	02	03	04	05	06	07	
Displ.	cm ³ /r	310	400	500	630	800	1000	1250	
	in ³ /r	18.9	24.4	30.5	38.4	48.8	61.0	76.3	
Flow	LPM	Cont.	160	200	200	200	200	200	
		Int.	200	240	240	240	240	240	
	GPM	Cont.	42.3	52.8	52.8	52.8	52.8	52.8	
		Int.	52.8	63.4	63.4	63.4	63.4	63.4	
Max Speed	RPM	Cont.	510	500	400	315	250	200	160
		Int.	630	600	480	380	300	240	190
Pressure	ΔBar	Cont.	200	200	200	180	160	160	150
		Int.	240	240	240	210	180	180	170
	ΔPSI	Cont.	2901	2901	2901	2611	2321	2321	2176
		Int.	3481	3481	3481	3046	2611	2611	2466
Torque	NM	Cont.	920	1180	1460	1660	1880	2340	2740
		Int.	1110	1410	1760	1940	2110	2640	3120
	LBF-IN	Cont.	8143	10444	12922	14692	16639	20711	24251
		Int.	9824	12480	15577	17170	18675	23366	27614

- Simultaneous maximum torque & maximum speed **NOT** recommended.
- Continuous Rating » (Cont.) motor may be run continuously at these ratings.
- Intermittent Operation » (Int.) 10% of every minute.
- Δ - True pressure difference between inlet port and outlet port.
- Maximum case pressure without case drain -- 20 Bar (290 psi).

Model Code

Genuine Metaris Orbital Motor MMV

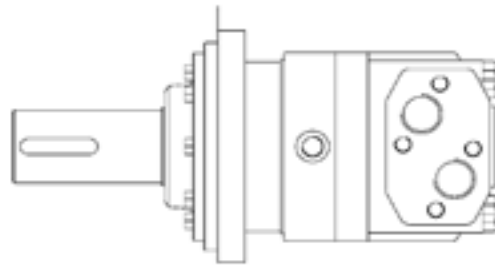
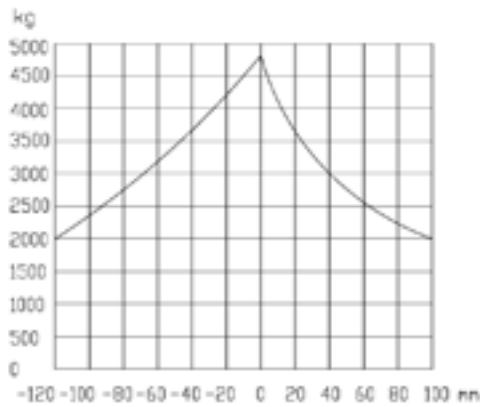


MMV Specifications

MMV Series

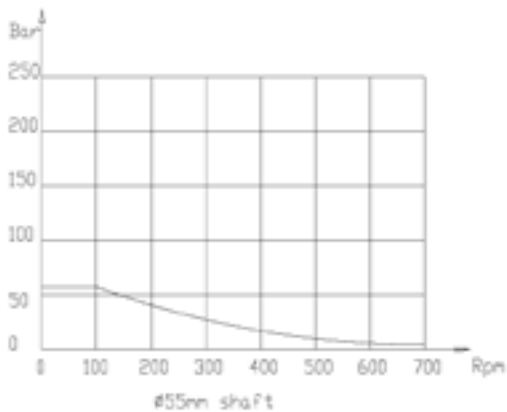
To assure best motor life, run motor for approximately one hour at 30% of rated pressure before applying full load. Fill motor with equipment manufacturer's recommended fluid prior to any load application and startup.

Side Load

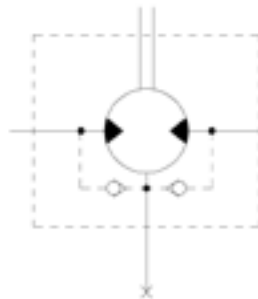


Standard Motor For all shaft

Shaft Seal



Standard Shaft Seal = Genuine Metaris High Pressure Shaft Seal



MMV with standard shaft seal, check valves and with drain connection:
The shaft seal pressure equals the pressure on the drain line

MMV with standard shaft seal, check valves and without use of drain connection:
The pressure on the shaft seal never exceeds the pressure in the return line

MMV
Specifications

Performance Data

310 cc/r ΔBar

	35	70	105	140	175	200	240
10	140 27	283 23	430 16	581 10			
25	140 78	283 74	430 71	581 68	734 64	839 59	1019 55
50	140 160	283 153	430 148	581 144	734 137	839 134	1019 127
75	140 237	283 235	430 227	581 223	734 218	839 213	1019 206
100	140 319	283 313	430 306	581 300	734 294	839 290	1019 287
125	140 399	283 391	430 383	581 375	734 371	839 367	1019 363
150	140 479	283 469	430 465	581 460	734 455	839 450	1019 440
160	140 511	283 501	430 495	581 490	734 485	839 480	1019 475
200	140 639	283 626	430 619	581 613	734 606		

Continuous
 Intermittent

734 Torque N.m
606 Speed RPM

400 cc/r ΔBar

	35	70	105	140	175	200	240
10	181 21	366 18	555 13	749 8			
25	181 61	366 58	555 55	749 53	947 49	1083 46	1315 43
50	181 124	366 119	555 115	749 111	947 106	1083 104	1315 99
75	181 184	366 182	555 176	749 173	947 169	1083 165	1315 159
100	181 248	366 243	555 238	749 233	947 228	1083 225	1315 223
125	181 309	366 303	555 297	749 291	947 288	1083 284	1315 281
150	181 371	366 364	555 360	749 356	947 353	1083 349	1315 341
175	181 433	366 424	555 420	749 416	947 411	1083 407	1315 403
200	181 495	366 485	555 480	749 475	947 470	1083 465	1315 460
240	181 594	366 582	555 576	749 570	947 564		

500 cc/r ΔBar

	35	70	105	140	175	200	240
10	226 17	457 14	694 10	936 6			
25	226 49	457 46	694 44	936 42	1184 40	1354 37	1643 34
50	226 99	457 95	694 92	936 89	1184 85	1354 83	1643 79
75	226 147	457 146	694 141	936 138	1184 135	1354 132	1643 128
100	226 198	457 194	694 190	936 186	1184 182	1354 180	1643 178
125	226 248	457 243	694 238	936 233	1184 230	1354 228	1643 225
150	226 297	457 291	694 288	936 285	1184 282	1354 279	1643 273
175	226 347	457 340	694 336	936 333	1184 329	1354 326	1643 322
200	226 396	457 388	694 384	936 380	1184 376	1354 372	1643 368
240	226 475	457 466	694 461	936 456	1184 451		

630 cc/r ΔBar

	30	60	90	120	150	180	210
10	244 13	494 11	749 8				
25	244 38	494 37	749 35	1011 33	1279 31	1535 29	1812 27
50	244 79	494 75	749 73	1011 71	1279 67	1535 66	1812 63
75	244 117	494 115	749 112	1011 110	1279 107	1535 105	1812 101
100	244 157	494 154	749 151	1011 148	1279 144	1535 143	1812 141
125	244 196	494 192	749 188	1011 185	1279 183	1535 181	1812 179
150	244 236	494 231	749 229	1011 226	1279 224	1535 221	1812 217
175	244 275	494 269	749 267	1011 264	1279 261	1535 258	1812 256
200	244 314	494 308	749 305	1011 302	1279 298	1535 295	1812 292
240	244 377	494 370	749 366	1011 362	1279 358	1535 354	

MMV
Specifications

Performance Data

		800 cc/r Δ Bar						1000 cc/r Δ Bar									
		25	50	75	100	130	160	180			25	50	75	100	130	160	180
Flow LMP	12	258 12	522 11	793 8					Flow LMP	15	322 12	653 11	991 8				
	25	258 30	522 29	793 28	1070 26	1408 25	1732 23	1972 21		25	322 24	653 23	991 22	1338 21	1760 20	2166 18	2465 17
	50	258 62	522 59	793 58	1070 56	1408 53	1732 52	1972 49		50	322 50	653 48	991 46	1338 45	1760 43	2166 42	2465 40
	75	258 92	522 91	793 88	1070 86	1408 84	1732 83	1972 80		75	322 74	653 73	991 71	1338 69	1760 68	2166 66	2465 64
	100	258 124	522 121	793 119	1070 116	1408 114	1732 113	1972 111		100	322 99	653 97	991 95	1338 93	1760 91	2166 90	2465 89
	125	258 155	522 152	793 148	1070 145	1408 144	1732 142	1972 141		125	322 124	653 121	991 119	1338 116	1760 115	2166 114	2465 113
	150	258 186	522 182	793 180	1070 178	1408 176	1732 174	1972 171		150	322 149	653 146	991 144	1338 143	1760 141	2166 140	2465 137
	175	258 217	522 212	793 210	1070 208	1408 206	1732 203	1972 201		175	322 173	653 170	991 168	1338 166	1760 165	2166 163	2465 161
	200	258 248	522 243	793 240	1070 238	1408 235	1732 233	1972 230		200	322 198	653 194	991 192	1338 190	1760 188	2166 186	2465 184
	240	258 297	522 291	793 288	1070 285	1408 282	1732 279			240	322 238	653 233	991 230	1338 228	1760 226	2166 223	

1732 Torque N.m
279 Speed RPM

Continuous
Intermittent

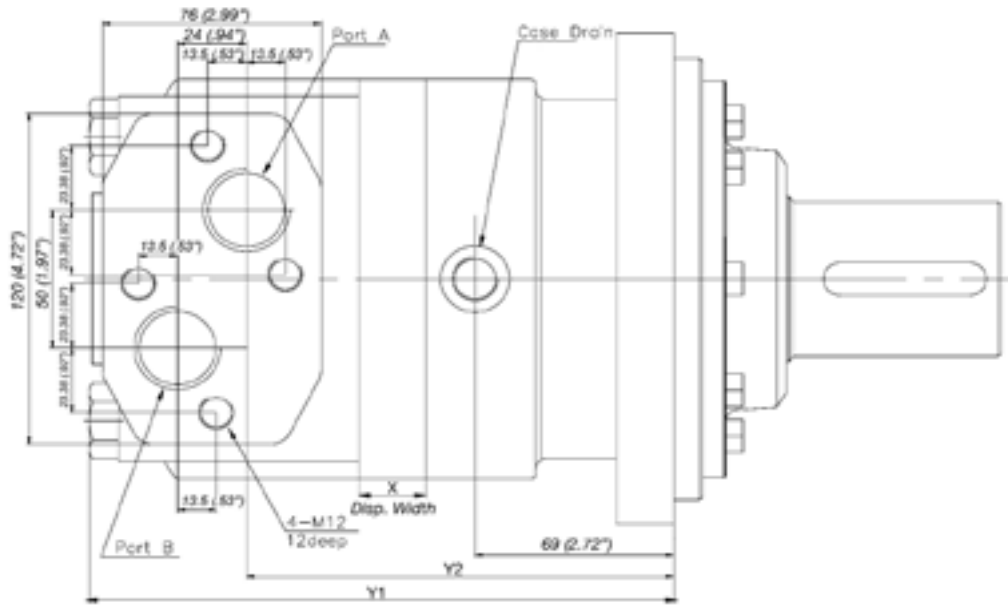
		1250 cc/r Δ Bar						
		25	40	70	100	130	150	170
Flow LMP	25	403 19	653 18	1156 17	1672 14	2199 13	2538 12	2910 11
	50	403 40	653 38	1156 37	1672 36	2199 34	2538 33	2910 32
	75	403 59	653 58	1156 56	1672 55	2199 54	2538 53	2910 51
	100	403 79	653 78	1156 76	1672 74	2199 73	2538 72	2910 71
	125	403 99	653 97	1156 95	1672 93	2199 92	2538 91	2910 90
	150	403 119	653 116	1156 115	1672 114	2199 113	2538 112	2910 109
	175	403 139	653 136	1156 134	1672 133	2199 132	2538 130	2910 129
	200	403 158	653 155	1156 154	1672 152	2199 150	2538 149	2910 147
	240	403 190	653 186	1156 184	1672 182	2199 180	2538 179	

Continuous
Intermittent

MMV
Dimensions

Dimensions - Configuration Flanges A & B

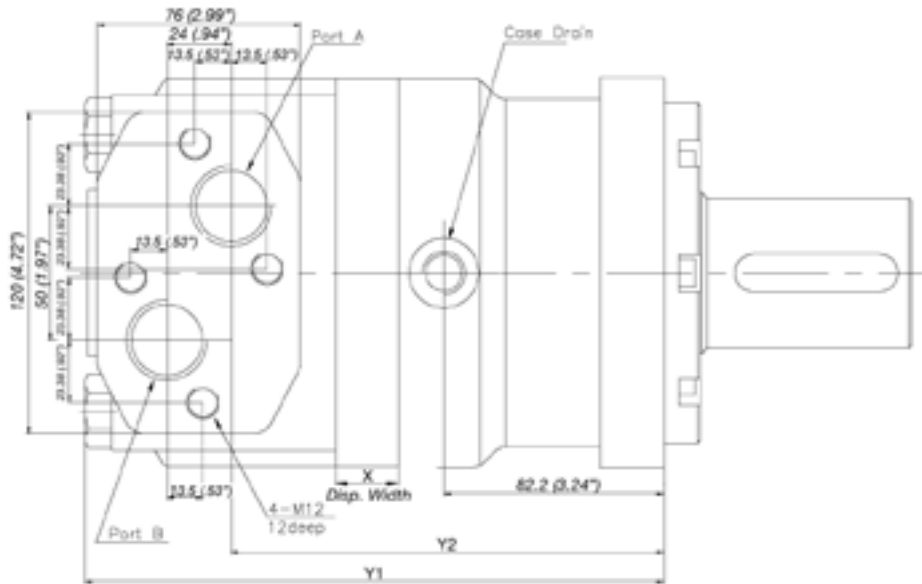
Displ. cm ³ /r.		310	400	500	630	800	1000	1250
X	Inches	(.67)	(.93)	(1.30)	(1.69)	(2.24)	(2.87)	(3.50)
	Millimeters	17	24	33	43	57	73	89
Y1	Inches	(7.95)	(8.19)	(8.58)	(8.98)	(9.53)	(10.16)	(10.79)
	Millimeters	202	208	218	228	242	258	274
Y2	Inches	(5.67)	(5.91)	(6.30)	(6.69)	(7.24)	(7.87)	(8.50)
	Millimeters	144	150	160	170	184	200	216



MMV
 Dimensions

Dimensions - Configuration Flange C

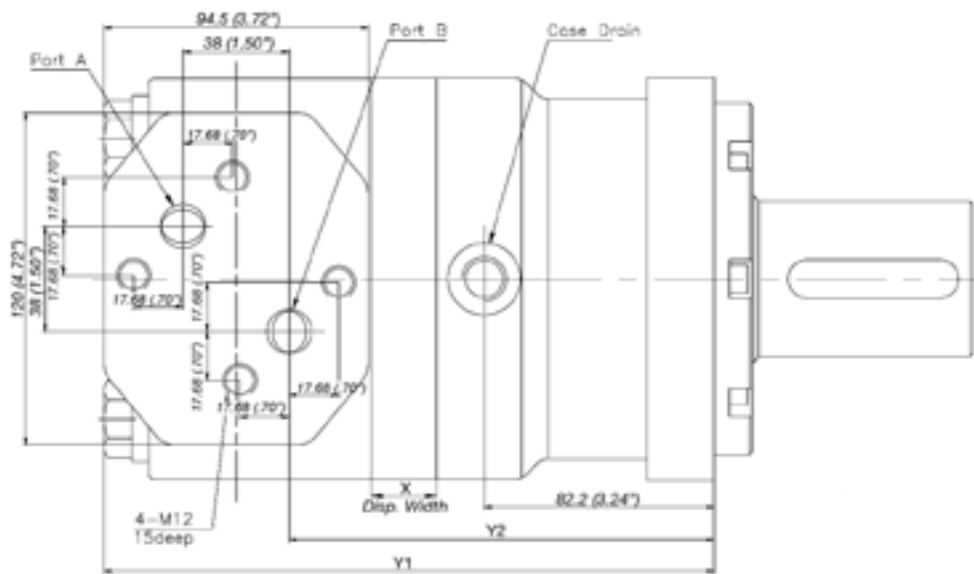
Displ. cm ³ /r.		310	400	500	630	800	1000	1250
X	Inches	(.67)	(.93)	(1.30)	(1.69)	(2.24)	(2.87)	(3.50)
	Millimeters	17	24	33	43	57	73	89
Y1	Inches	(8.35)	(8.58)	(8.98)	(9.37)	(9.92)	(10.55)	(11.18)
	Millimeters	212	218	228	238	252	268	284
Y2	Inches	(6.18)	(6.42)	(6.81)	(7.20)	(7.76)	(8.39)	(9.02)
	Millimeters	157	163	173	183	197	213	229



MMV
Dimensions

Dimensions - Configuration Flange D

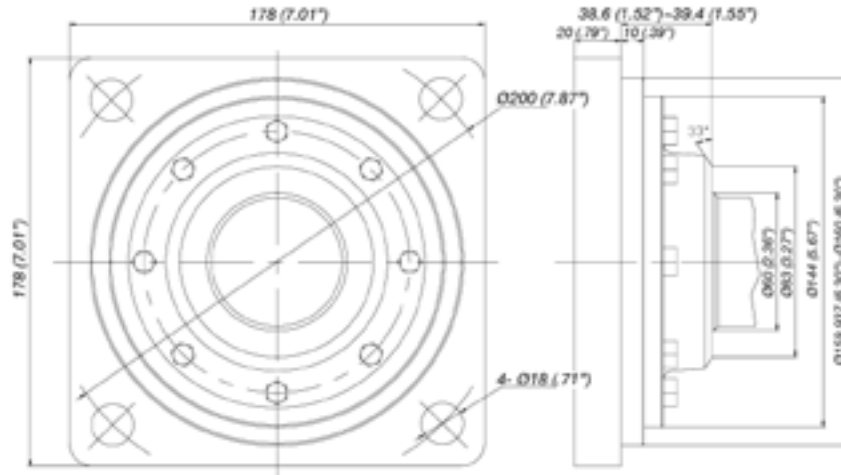
Displ. cm ³ /r.		310	400	500	630	800	1000	1250
X	Inches	(.67)	(.93)	(1.30)	(1.69)	(2.24)	(2.87)	(3.50)
	Millimeters	17	24	33	43	57	73	89
Y1	Inches	(8.54)	(8.78)	(9.17)	(9.57)	(10.12)	(10.75)	(11.38)
	Millimeters	217	223	233	243	257	273	289
Y2	Inches	(5.79)	(6.02)	(6.42)	(6.81)	(7.36)	(7.99)	(8.62)
	Millimeters	147	153	163	173	187	203	219



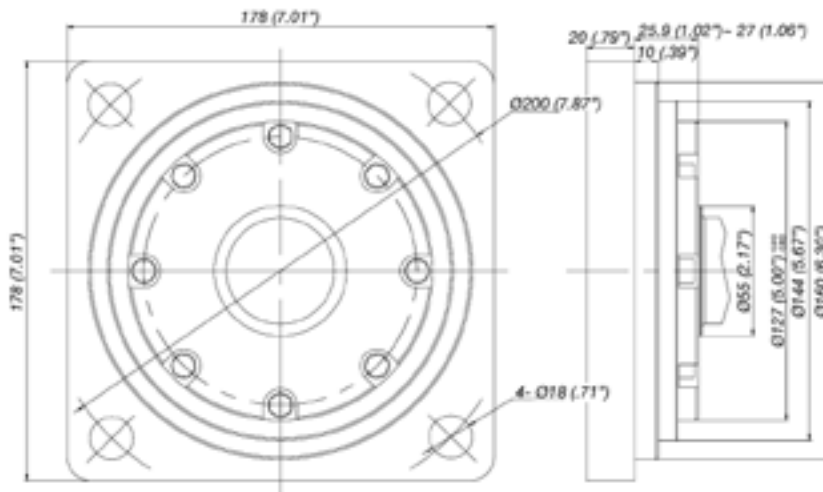
**MMV
 Flanges**

Mounting Flanges

(A) = 4-Bolt Square, Pilot 160 (6.30")



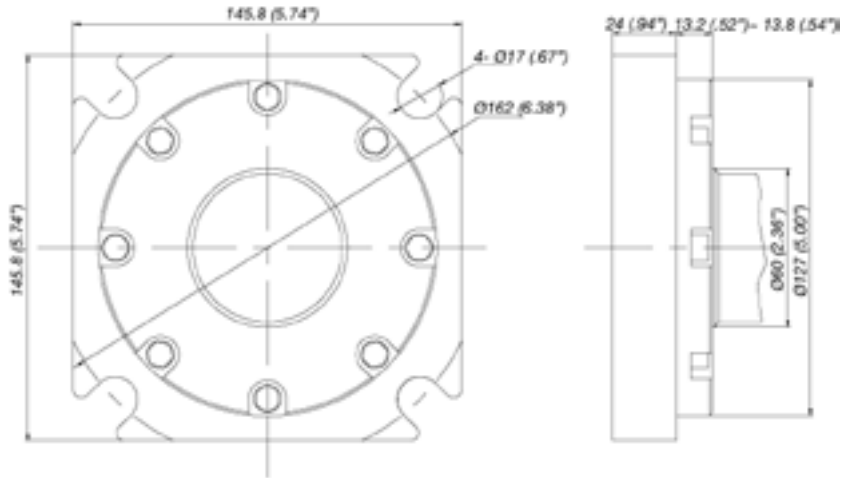
(B) = 4-Bolt Square, Pilot 160 (6.30")



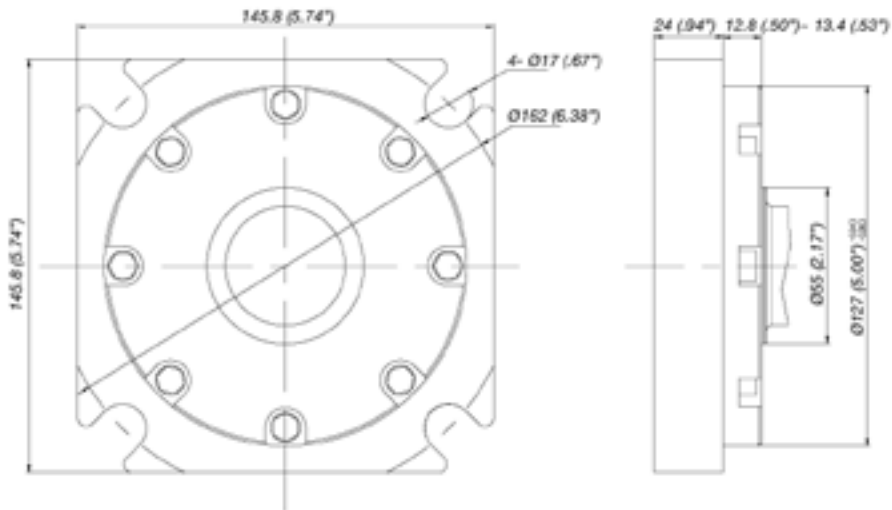
**MMV
 Flanges**

Mounting Flanges

**(C) = 4-Bolt SAE "C", Pilot 127 (5.00")
 (US Standard)**

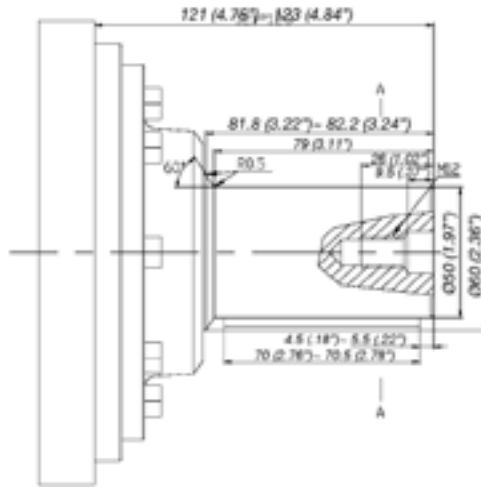


(D) = 4-Bolt Square, Pilot 127 (5.00")

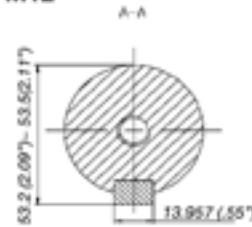


**MMV
 Shafts**

Shafts



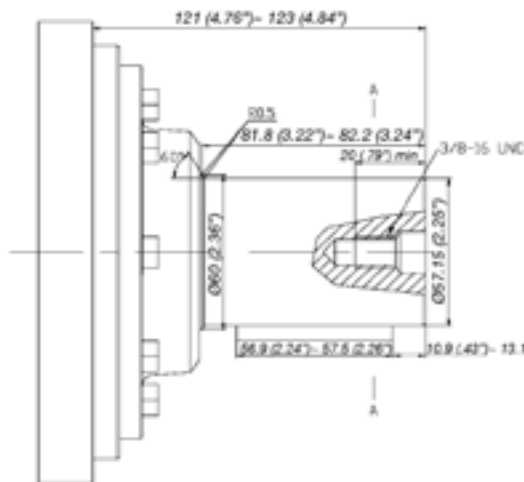
**50 mm (1.97") Straight,
 Flat key 13.957mm
 M12**



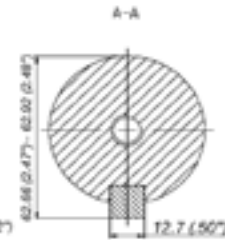
Parallel key A14X9X70 DIN 6955
 keyway deviates from standard

**Available with Code A
 Flange Only**

01



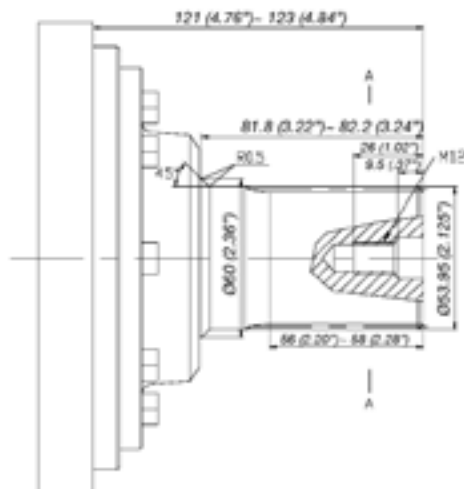
**57.15 mm (2.25") Straight,
 Flat key 12.7mm
 3/8-16UNC**



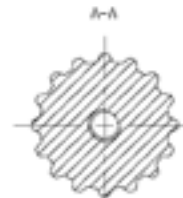
Parallel key 1/2X1/2X1/4 inch BS46
 keyway deviates from standard

**Available with Code A
 Flange Only**

02



**53.95 mm (2.125") 16t, Splined
 M12**



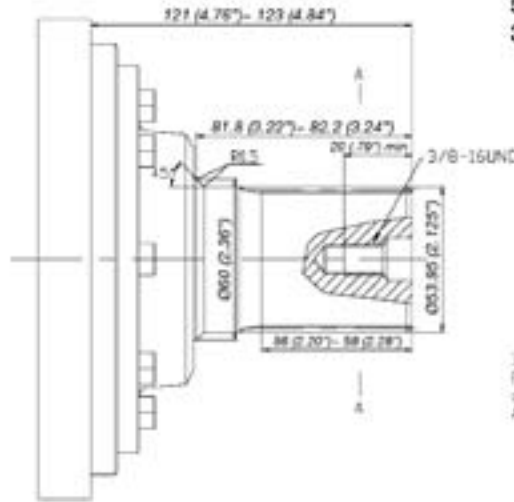
Involute splined shaft, ANSI B92.1-1978 standard,
 Flat root size fit, Pitch 8/16, Teeth 16, Major
 dia. 2.125 inch, Pressure angle: 30°

**Available with Code A
 Flange Only**

03

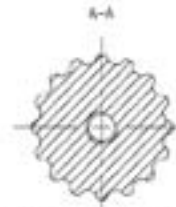
**MMV
 Shafts**

Shafts



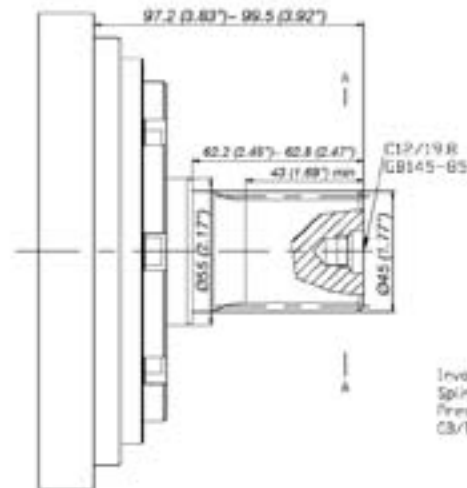
**53.95 mm (2.125") 16t, Splined,
 3/8-16UNC**

Available with Code A
 Flange Only



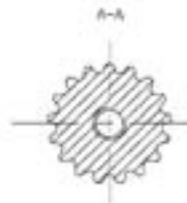
Involute splined shaft, AWS B921-1970 standard,
 Flat root side fit, Pitch B/36, Teeth 16, Major
 dia. 2.125 inch, Pressure angle 30°
 AWS B921-1970

04



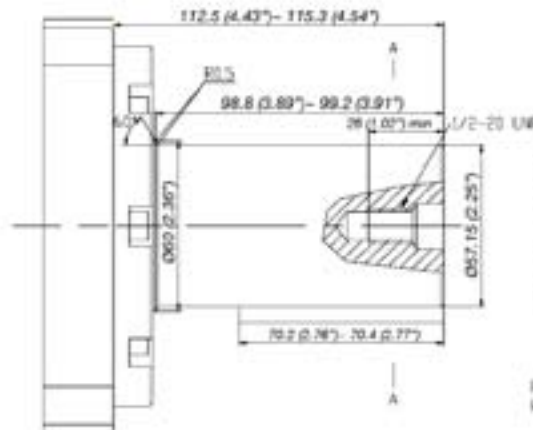
45 mm (1.77") 17t, Splined

Available with Code B
 Flange Only



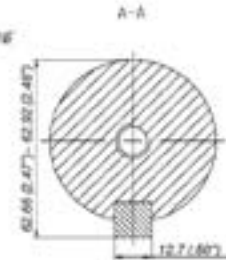
Involute splined shaft, GB/T1356-1988 standard,
 Spline module 2.5, Teeth 17, Major dia. 45mm,
 Pressure angle 30°, Flat root side fit
 GB/T1356-1988

05



**57.15 mm (2.25") Straight,
 Flat key 12.7mm
 1/2-20UNF**

Available with Code C
 Flange Only

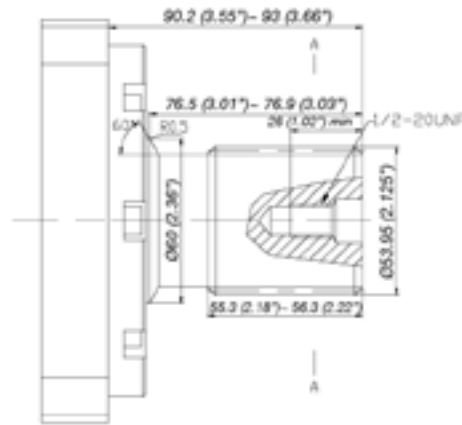


Parallel key 1/20X1/20X1-1/4 inch BS 46
 keyways deviate from standard

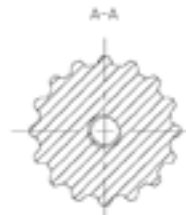
06

**MMV
 Shafts**

Shafts



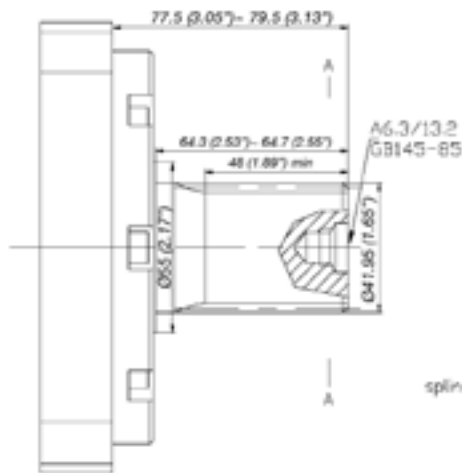
**53.95 mm (2.125") 16t, Splined,
 1/2-20UNC**



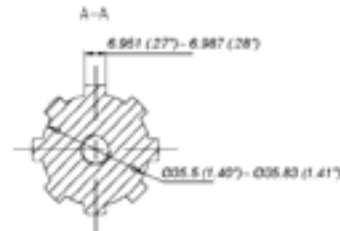
Involute splined shaft, ANSI B92.1-1970 standard, Flat root side fit, Pitch 8/16, Teeth 16, Major dia. 2.125 inch, Pressure angle 30°

**Available with Code C
 Flange Only**

07



41.95 mm (1.65") Square Splined



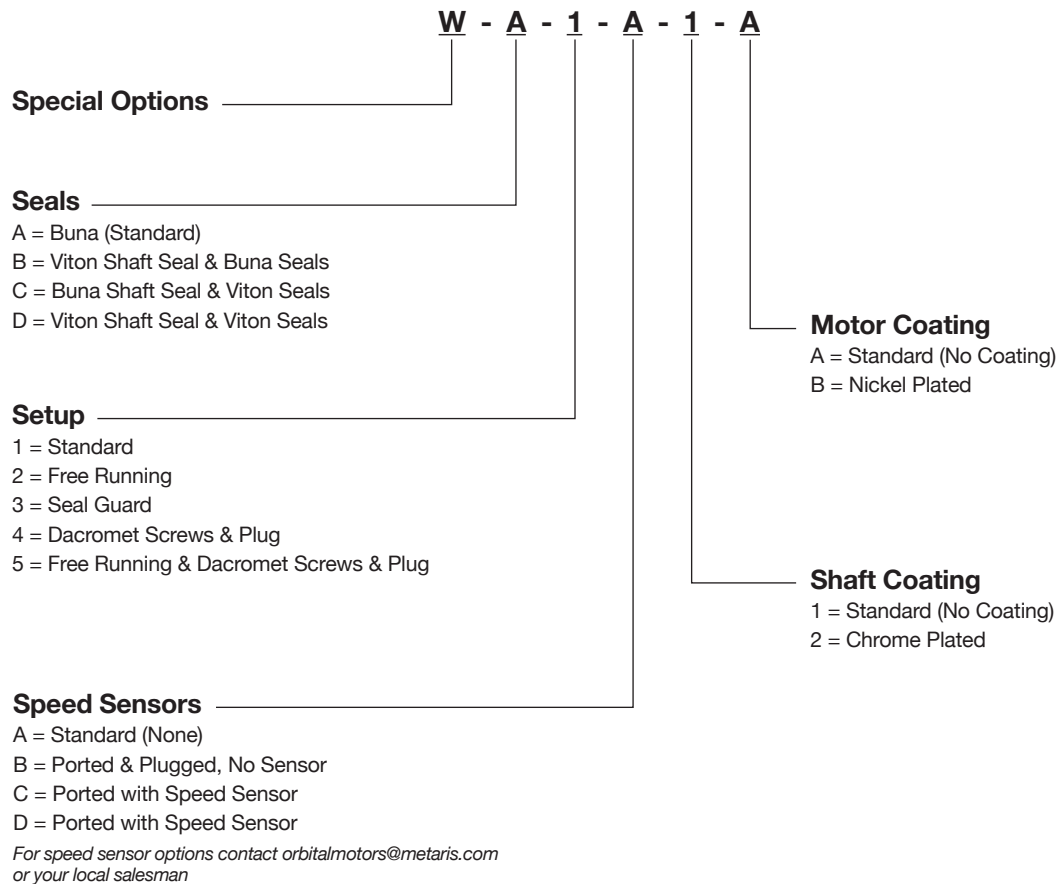
splined per GB/T 1144-1987 standard

**Available with Code D
 Flange Only**

08

Model Code

**Genuine Metaris Orbital Motor
 Special Options**



Above options are **non-stock**. Please call or email for availability.

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- High Speed Motors
- Servo Motors
- Orbital Motors
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- Pressure Control Valves
- Relief Valves
- Check Valves
- Stack Valves
- Servo Valves
- Proportional Valves
- PTOs (Power Take-offs)
- Cylinders



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