



Technical Information

Orbital Motors

OMS, OMT and OMV



Orbital motors

Characteristic, features and application areas of Orbital Motors



F301 245

Danfoss is a world leader within production of low speed orbital motors with high torque. We can offer more than 3,000 different orbital motors, categorised in types, variants and sizes (including different shaft versions).

The motors vary in size (rated displacement) from 8 cm³ [0.50 in³] to 800 cm³ [48.9 in³] per revolution.

Speeds range up to approximate 2,500 min⁻¹ (rpm) for the smallest type and up to approximate 600 min⁻¹ (rpm) for the largest type.

Maximum operating torques vary from 13 N·m [115 lbf·in] to 2,700 N·m [24,000 lbf·in] (peak) and maximum outputs are from 2.0 kW [2.7 hp] to 70 kW [95 hp].

Characteristic features of Danfoss Orbital Motors

- Smooth running over the entire speed range
- Constant operating torque over a wide speed range
- High starting torque
- High return pressure without the use of drain line (High pressure shaft seal)
- High efficiency
- Long life under extreme operating conditions
- Robust and compact design
- High radial and axial bearing capacity
- For applications in both open and closed loop hydraulic systems
- Suitable for a wide variety of hydraulics fluids

Technical features of Danfoss Orbital Motor

The programme is characterised by technical features appealing to a large number of applications and a part of the programme is characterised by motors that can be adapted to a given application. Adaptions comprise the following variants among others:

Orbital motors

- Motors with corrosion resistant parts
- Wheel motors with recessed mounting flange
- OMP, OMR- motors with needle bearing
- OMR motor in low leakage version
- OMR motors in a super low leakage version
- Short motors without bearings
- Ultra short motors
- Motors with integrated positive holding brake
- Motors with integrated negative holding brake
- Motors with integrated flushing valve
- Motors with speed sensor
- Motors with tacho connection
- All motors are available with black finish paint

The Danfoss Orbital Motors are used in the following application areas:

- Construction equipment
- Agricultural equipment
- Material handling & Lifting equipment
- Forestry equipment
- Lawn and turf equipment
- Special purpose
- Machine tools and stationary equipment
- Marine equipment

Survey of literature with technical data on Danfoss Orbital Motors

Detailed data on all Danfoss Orbital Motors can be found in our motor catalogue, which is divided into more individual subcatalogues:

- General information on Danfoss Orbital Motors: function, use, selection of orbital motor, hydraulic systems, etc.
- Technical data on small motors: OML and OMM
- Technical data on medium sized motors: OMP, OMR, OMH
- Technical data on medium sized motors: DH and DS
- Technical data on medium sized motors: OMEW
- Technical data on medium sized motors: VMP
- Technical data on medium sized motors: VMR
- Technical data on large motors: OMS, OMT and OMV
- Technical data on large motors: TMK
- Technical data on large motors: TMT
- Technical data on large motors: TMTHW
- Technical data on large motors: TMVW

A general survey brochure on Danfoss Orbital Motors gives a quick motor reference based on power, torque, speed and capabilities.

OMS
Versions
OMS versions

Mounting flange	Shaft	Port size	European version	US version	Drain connection	Check valve	Main type designation
Standard flange	Cyl. 32 mm	G 1/2	X		Yes	Yes	OMS
	Cyl. 1.25 in	7/8-14 UNF		X	Yes	Yes	OMS
	Splined 1.25 in	G 1/2	X		Yes	Yes	OMS
		7/8-14 UNF		X	Yes	Yes	OMS
	Tapered 35 mm	G 1/2	X		Yes	Yes	OMS
	Tapered 1.25 in	7/8-14 UNF		X	Yes	Yes	OMS
	P.t.o.	G 1/2	X		Yes	Yes	OMS
Special flange	Splined 1.25 in	G 1/2	X		Yes	Yes	OMS
A-2 flange	Cyl. 1 in	7/8-14 UNF		X	Yes	Yes	OMS
	Cyl. 1.25 in	7/8-14 UNF		X	Yes	Yes	OMS
	Splined 1 in	7/8-14 UNF		X	Yes	Yes	OMS
	Splined 1.25 in	7/8-14 UNF		X	Yes	Yes	OMS
	Tapered 1.25 in	7/8-14 UNF		X	Yes	Yes	OMS
Magneto flange	Cyl. 1 in	7/8-14 UNF		X	Yes	Yes	OMS
	Cyl. 1.25 in	7/8-14 UNF		X	Yes	Yes	OMS
	Splined 1 in	7/8-14 UNF		X	Yes	Yes	OMS
	Splined 1.25 in	7/8-14 UNF		X	Yes	Yes	OMS
SAE B flange	Splined 1.25 in	7/8-14 UNF		X	Yes	Yes	OMS
	Splined 0.875 in	7/8-14 UNF		X	Yes	Yes	OMS
Wheel	Cyl. 32 mm	G 1/2	X		Yes	Yes	OMSW
	Cyl. 1.25 in	7/8-14 UNF		X	Yes	Yes	OMSW
	Tapered 35 mm	G 1/2	X		Yes	Yes	OMSW
	Tapered 1.25 in	7/8-14 UNF		X	Yes	Yes	OMSW
Short	No output shaft	G 1/2	X		Yes	Yes	OMSW

Features

Features available (options):

- Speed sensor
- Motor with tacho connection
- High pressure shaft seal
- Viton shaft seal
- Painted
- Ultra short
- Motor with drum brake

OMS
Code numbers
OMS code numbers

Code Numbers	Displacement [cm ³]								
	80	100	125	160	200	250	315	400	500
151F	0500	0501	0502	0503	0504	0505	0506	0605	-
151F	2200	2201	2202	2203	2204	2205	2206	2261	2268
151F	0507	0508	0509	0510	0511	0512	0513	-	-
151F	2207	2208	2209	2210	2211	2212	2213	2262	2269
151F	0514	0515	0516	0517	0518	0519	0520	-	-
151F	2214	2215	2216	2217	2218	2219	2220	2264	2270
151F	0560	0561	0562	0563	0564	0565	0566	-	-
151F	0542	0543	0544	0545	0546	0547	0548	-	-
151F	2300	2301	2302	2303	2304	2305	2306	2307	2345
151F	2316	2317	2318	2319	2320	2321	2322	2323	2347
151F	2308	2309	2310	2311	2312	2313	2314	2315	2346
151F	2324	2325	2326	2327	2328	2329	2330	2331	2348
151F	2332	2333	2334	2335	2336	2337	2338	2339	2349
151F	2377	2378	2379	2380	2381	2382	2383	2384	2385
151F	2368	2369	2370	2371	2372	2373	2374	2375	2376
151F	2359	2360	2361	2362	2363	2364	2365	2366	2367
151F	2350	2351	2352	2353	2354	2355	2356	2357	2358
151F	2395	2396	2397	2398	2399	2400	2401	2402	2403
151F	2413	2414	2415	2416	2417	-	-	-	-
151F	0521	0522	0523	0524	0525	0526	0527	0610	-
151F	2235	2236	2237	2238	2239	2240	2241	2265	2266
151F	0528	0529	0530	0531	0532	0533	0534	0609	-
151F	2242	2243	2244	2245	2246	2247	2248	2263	2267
151F	0535	0536	0537	0538	0539	0540	0541	0608	-

Ordering

Add the four digit prefix "151F" to the four digit numbers from the chart for complete code number.

Example:

151F0504 for an OMS 200 with standard flange, cyl. 32 mm shaft and port size G 1/2.

Orders will not be accepted without the four digit prefix.

Technical Information OMS, OMT and OMV Orbital Motors
OMS
Technical data

Type		OMS OMSW OMSS	OMS OMSW OMSS	OMS OMSW OMSS	OMS OMSW OMSS	OMS OMSW OMSS	OMS OMSW OMSS	OMS OMSW OMSS	OMS OMSW OMSS	OMS OMSW OMSS	
Motor size		80	100	125	160	200	250	315	400	500	
Geometric displacement	cm ³ [in ³]	80.5 [4.91]	100.0 [6.10]	125.7 [7.67]	159.7 [9.75]	200.0 [12.20]	250.0 [15.26]	314.9 [19.22]	393.0 [23.98]	488.0 [29.78]	
Max. speed	min ⁻¹ [rpm]	cont.	810	750	600	470	375	300	240	190	155
		int. ¹⁾	1000	900	720	560	450	360	285	230	185
Max. torque	Nm [lbf-in]	cont.	240 [2120]	305 [2700]	375 [3320]	490 [4340]	610 [5400]	720 [6370]	825 [7300]	865 [7660]	850 [7520]
		int. ¹⁾	310 [2740]	390 [3450]	490 [4340]	600 [5310]	720 [6370]	870 [7700]	1000 [8850]	990 [8760]	990 [8760]
Max. output	kW [hp]	cont.	15.5 [20.8]	18.0 [24.1]	18.0 [24.1]	16.5 [22.1]	16.5 [22.1]	14.5 [19.4]	15.0 [20.1]	11.0 [14.8]	9.0 [12.1]
		int. ¹⁾	19.5 [26.2]	22.5 [30.2]	22.5 [30.2]	23.0 [30.8]	22.0 [29.5]	18.0 [24.1]	17.0 [22.8]	12.5 [16.8]	10.5 [14.1]
Max. pressure drop	bar [psi]	cont.	210 [3050]	210 [3050]	210 [3050]	210 [3050]	210 [3050]	200 [2900]	200 [2900]	160 [2320]	120 [1740]
		int. ¹⁾	275 [3990]	275 [3990]	275 [3990]	260 [3770]	250 [3630]	250 [3630]	240 [3480]	190 [2760]	140 [2030]
		peak ²⁾	295 [4280]	295 [4280]	295 [4280]	280 [4060]	270 [3920]	270 [3920]	260 [3770]	210 [3050]	160 [2320]
Max. oil flow	l/min [USgal/min]	cont.	65 [17.2]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]
		int. ¹⁾	80 [21.1]	90 [23.8]	90 [23.8]	90 [23.8]	90 [23.8]	90 [23.8]	90 [23.8]	90 [23.8]	90 [23.8]
Max. starting pressure with unloaded shaft	bar [psi]	12 [175]	10 [145]	10 [145]	8 [115]	8 [115]	8 [115]	8 [115]	8 [115]	8 [115]	
Min. starting torque	at max. press. drop cont. Nm [lbf-in]	180 [1590]	230 [2040]	290 [2570]	370 [3270]	470 [4160]	560 [4960]	710 [6280]	710 [6280]	660 [5840]	
	at max. press. drop int. ¹⁾ Nm [lbf-in]	235 [2080]	300 [2660]	380 [3360]	460 [4070]	560 [4960]	700 [6200]	850 [7520]	840 [7430]	770 [6820]	

Type		Max. inlet pressure	Max. return pressure with drain line
OMS OMSW OMSS	bar [psi]	cont.	230 [3340]
	bar [psi]	int. ¹⁾	295 [4280]
	bar [psi]	peak ²⁾	300 [4350]

		Splined 1 in	Cyl. 1 in	Splined 0.875 in
*Max torque for shaft type	Nm [lbf-in]	cont.	360 [3190]	300 [2660]
		int. ¹⁾	450 [3980]	410 [3630]

¹⁾ Intermittent operation: the permissible values may occur for max. 10% of every minute.

²⁾ Peak load: the permissible values may occur for max. 1% of every minute.

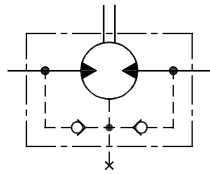
For max. permissible combination of flow and pressure, see function diagram for actual motor.

OMS

Maximum permissible shaft seal pressure

Motor with check valves and without use of drain connection

The pressure on the shaft seal never exceeds the pressure in the return line.

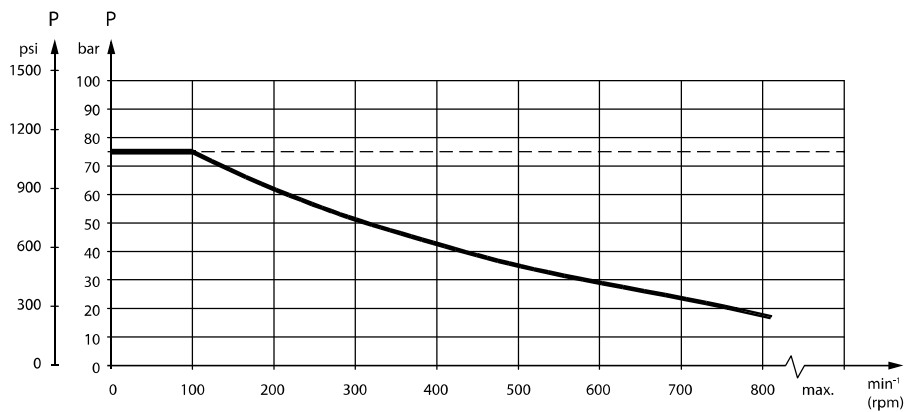


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Maximum return pressure

The shaft seal pressure equals the pressure on the drain line.

Maximum return pressure without drain line or maximum pressure in the drain line



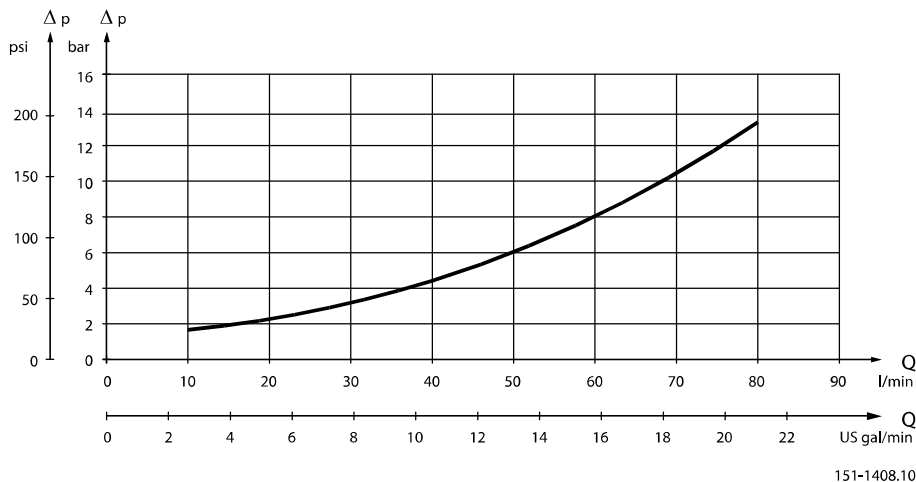
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--- Intermittent operation: the permissible values may occur for max. 10% of every minute.

— Continuous operation

OMS

Pressure drop in motor



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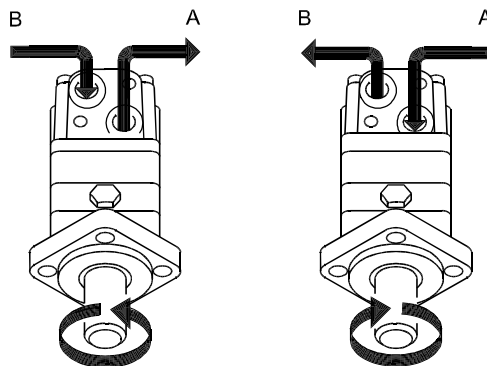
The curve applies to an unloaded motor shaft and an oil viscosity of 35 mm²/s [165 SUS]

Oil flow in drain line

Maximum oil flow in the drain line at a return pressure less than 5-10 bar [75-150 psi]

Pressure drop bar [psi]	Viscosity mm ² /s [SUS]	Oil flow in drain line l/min [US gal/min]
140 [2030]	20 [100]	1.5 [0.40]
	35 [165]	1.0 [0.26]
210 [3050]	20 [100]	3.0 [0.79]
	35 [165]	2.0 [0.53]

Direction of shaft rotation



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Permissible shaft loads for OMS

Mounting flange:

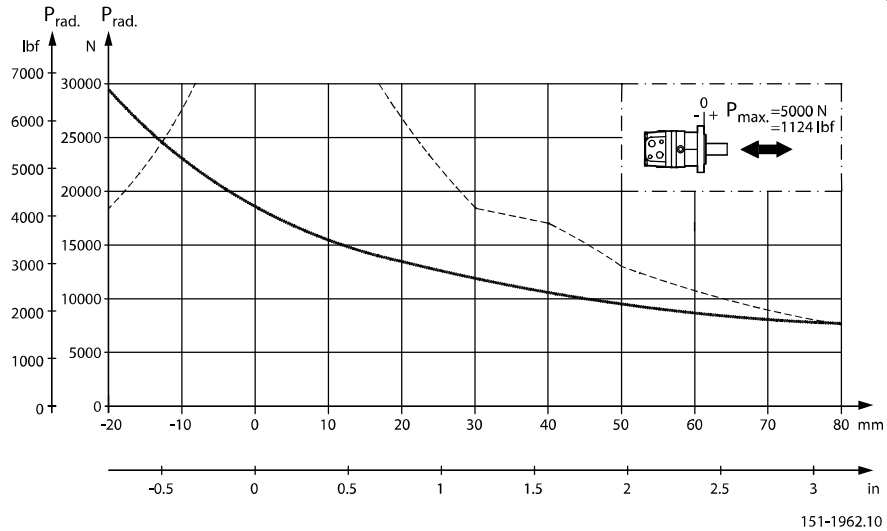
Standard – A-2 – Magneto – SAE B

OMS

Shaft:

Cyl. 32 mm – Cyl. 1.25 in – Splined 1.25 in.

Tapered 35 mm – Tapered 1.25 in – P.t.o.

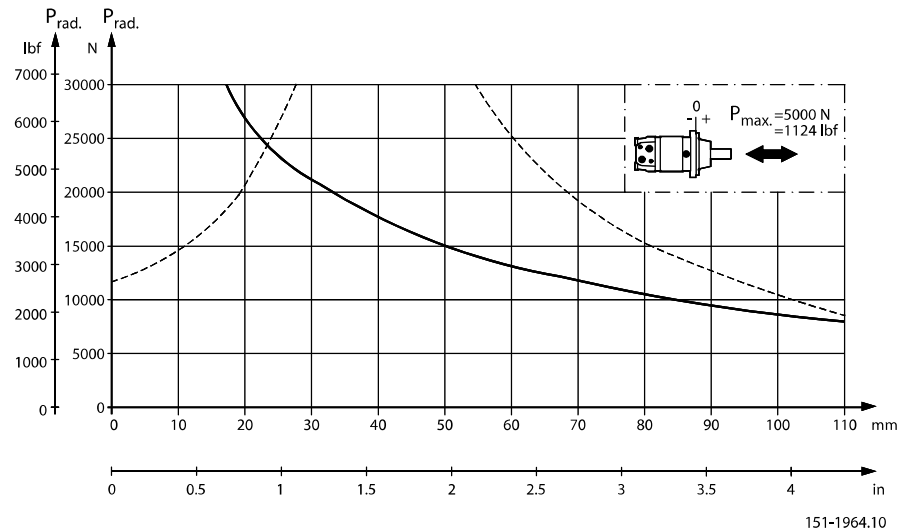


Mounting flange:

Wheel

Shaft:

All shaft types



The output shaft runs in tapered roller bearings that permit high axial and radial forces.

The permissible radial load on the shaft is shown for an axial load of 0 N as a function of the distance from the mounting flange to the point of load application.

OMS

The curve is based on B10 bearing life (2000 hours or 12,000,000 shaft revolutions at 100 min⁻¹) at rated output torque, when mineral-based hydraulic oil with a sufficient content of anti-wear additives, is used.

For 3,000,000 shaft revolutions or 500 hours – increase these shaft loads with 52%.

The dash curve shows maximum radial shaft load. Any shaft load exceeding the values shown in the curve will involve a risk of breakage.

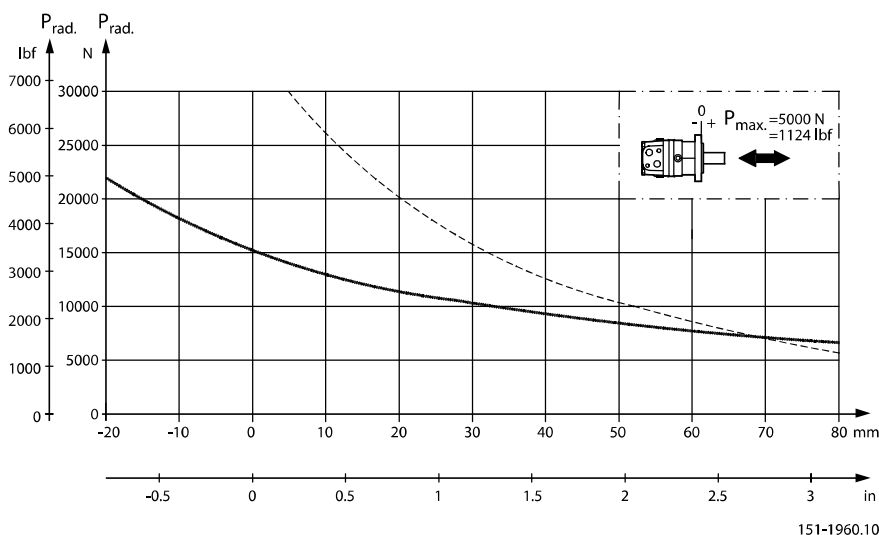
Bearing life calculations can be made using the explanation and formula provided in the chapter "Bearing dimensioning" in the technical information "General Orbital motors" 520L0232.

Mounting flange:

Special

Shaft:

Splined 1.25 in



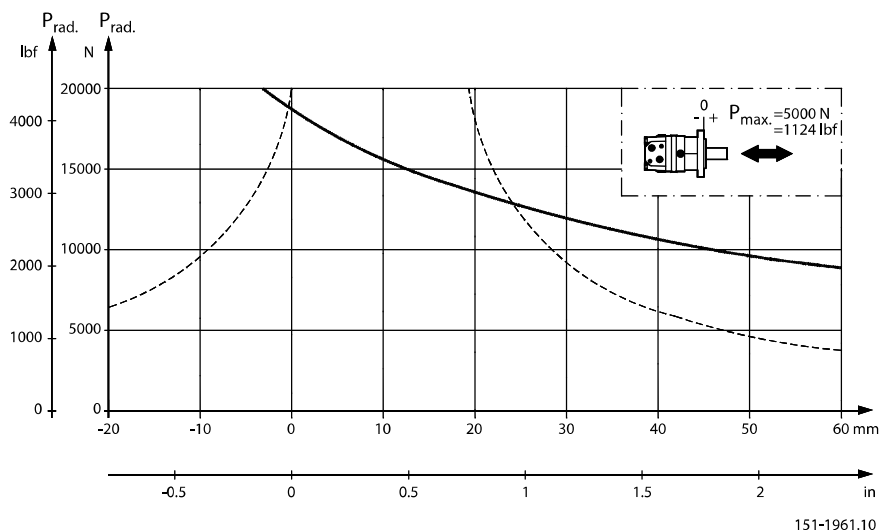
Mounting flange:

A-2 – Magneto

Shaft:

Cyl. 1 in – Splined 1 in

OMS



The output shaft runs in tapered roller bearings that permit high axial and radial forces.

The permissible radial load on the shaft is shown for an axial load of 0 N as a function of the distance from the mounting flange to the point of load application.

The curve is based on B10 bearing life (2000 hours or 12,000,000 shaft revolutions at 100 min^{-1}) at rated output torque, when mineral-based hydraulic oil with a sufficient content of anti-wear additives, is used.

For 3,000,000 shaft revolutions or 500 hours – increase these shaft loads with 52%.

The dash curve shows max. radial shaft load. Any shaft load exceeding the values shown in the curve will involve a risk of breakage.

Bearing life calculations can be made using the explanation and formula provided in the chapter "Bearing dimensioning" in the technical information "General Orbital motors" 520L0232.

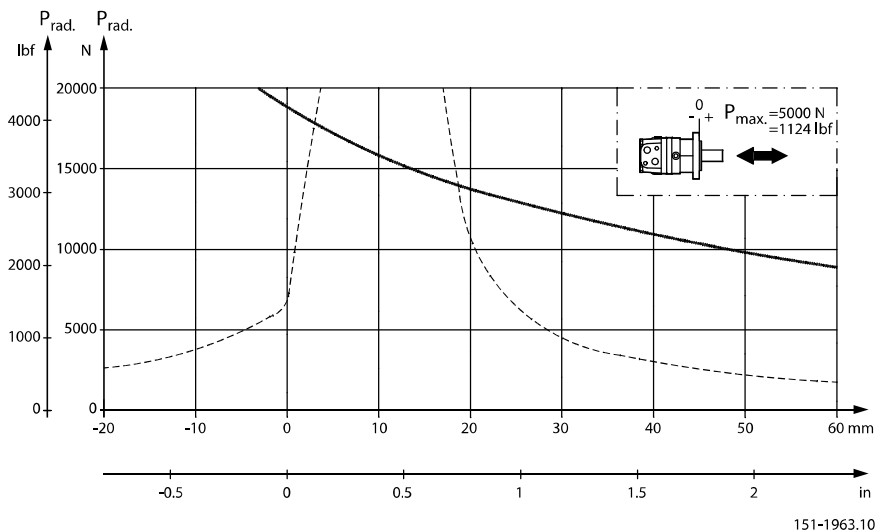
Mounting flange:

SAE B

Shaft:

Splined 0.875 in

OMS



The output shaft runs in tapered roller bearings that permit high axial and radial forces.

The permissible radial load on the shaft is shown for an axial load of 0 N as a function of the distance from the mounting flange to the point of load application.

The curve is based on B10 bearing life (2000 hours or 12,000,000 shaft revolutions at 100 min^{-1}) at rated output torque, when mineral-based hydraulic oil with a sufficient content of anti-wear additives, is used.

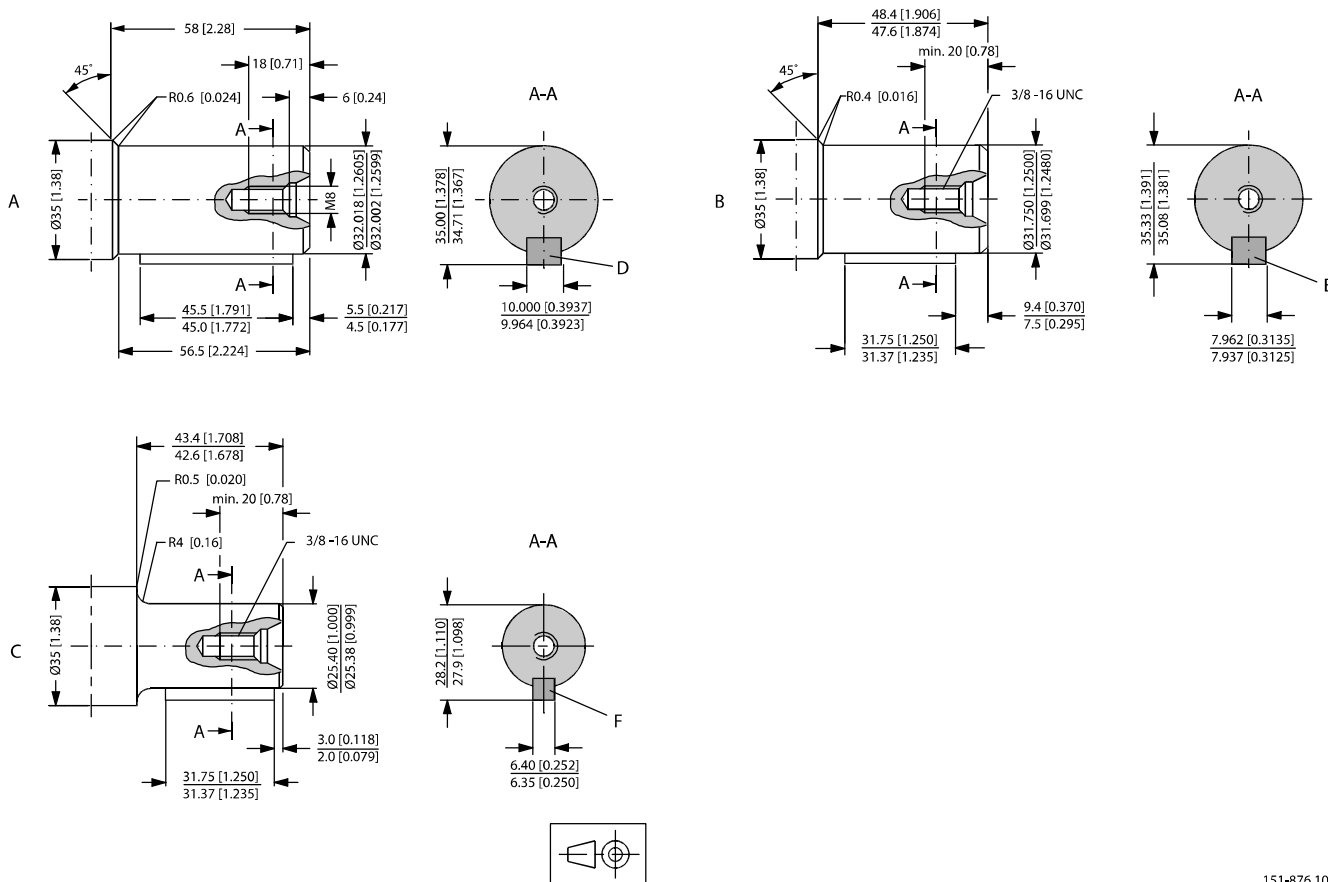
For 3,000,000 shaft revolutions or 500 hours – increase these shaft loads with 52%.

The dash curve shows max. radial shaft load. Any shaft load exceeding the values shown in the curve will involve a risk of breakage.

Bearing life calculations can be made using the explanation and formula provided in the chapter "Bearing dimensioning" in the technical information "General Orbital motors" 520L0232.

OMS

Shaft version



A Cylindrical 32 mm shaft

D Parallel key

A10 × 8 × 45

DIN 6885

Keyway deviates from standard

B Cylindrical 1.25 in shaft

E Parallel key

5/16 × 5/16 × 11/4 in

SAE J744

Keyway deviates from standard

C Cylindrical 1 in shaft

F Parallel key

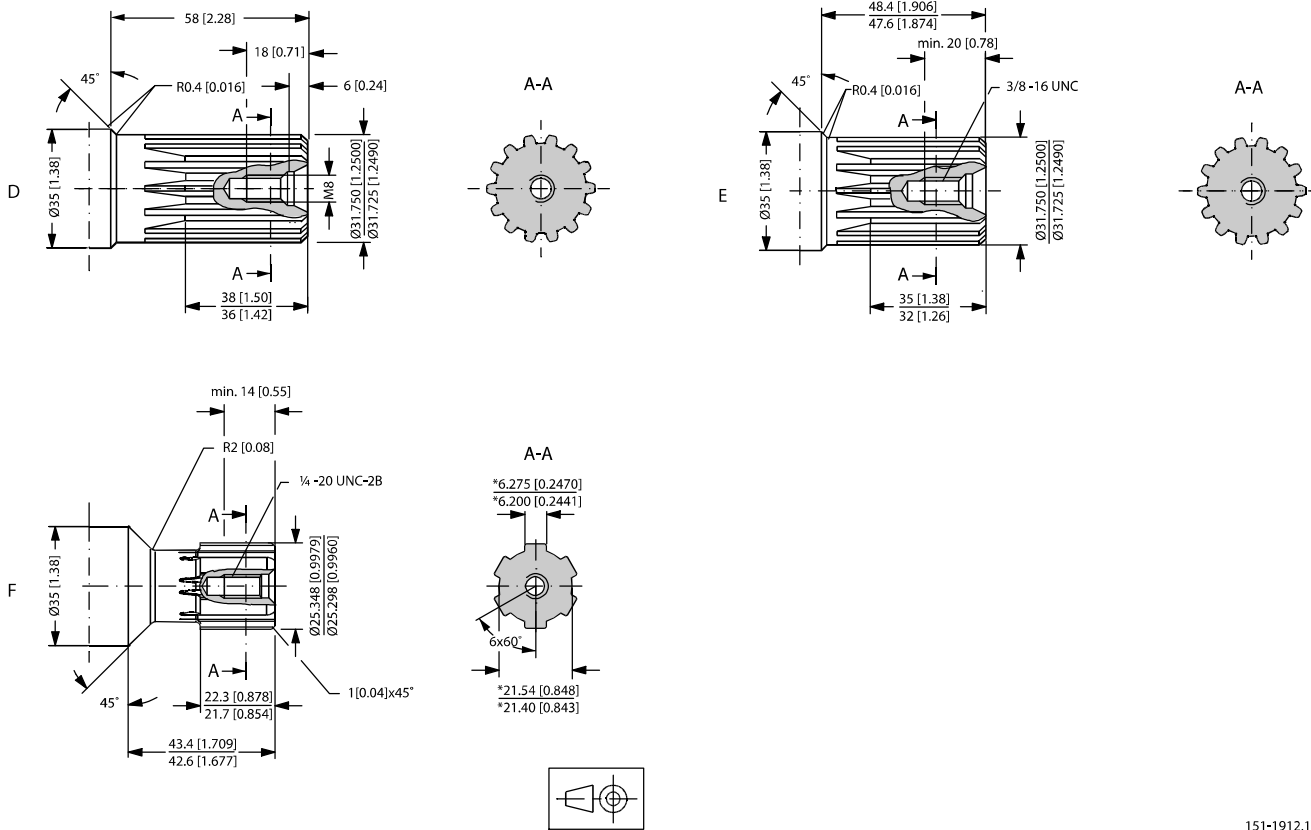
1/4 × 1/4 × 11/4 in

B.S. 46

Keyway deviates from standard

151-876.10

OMS



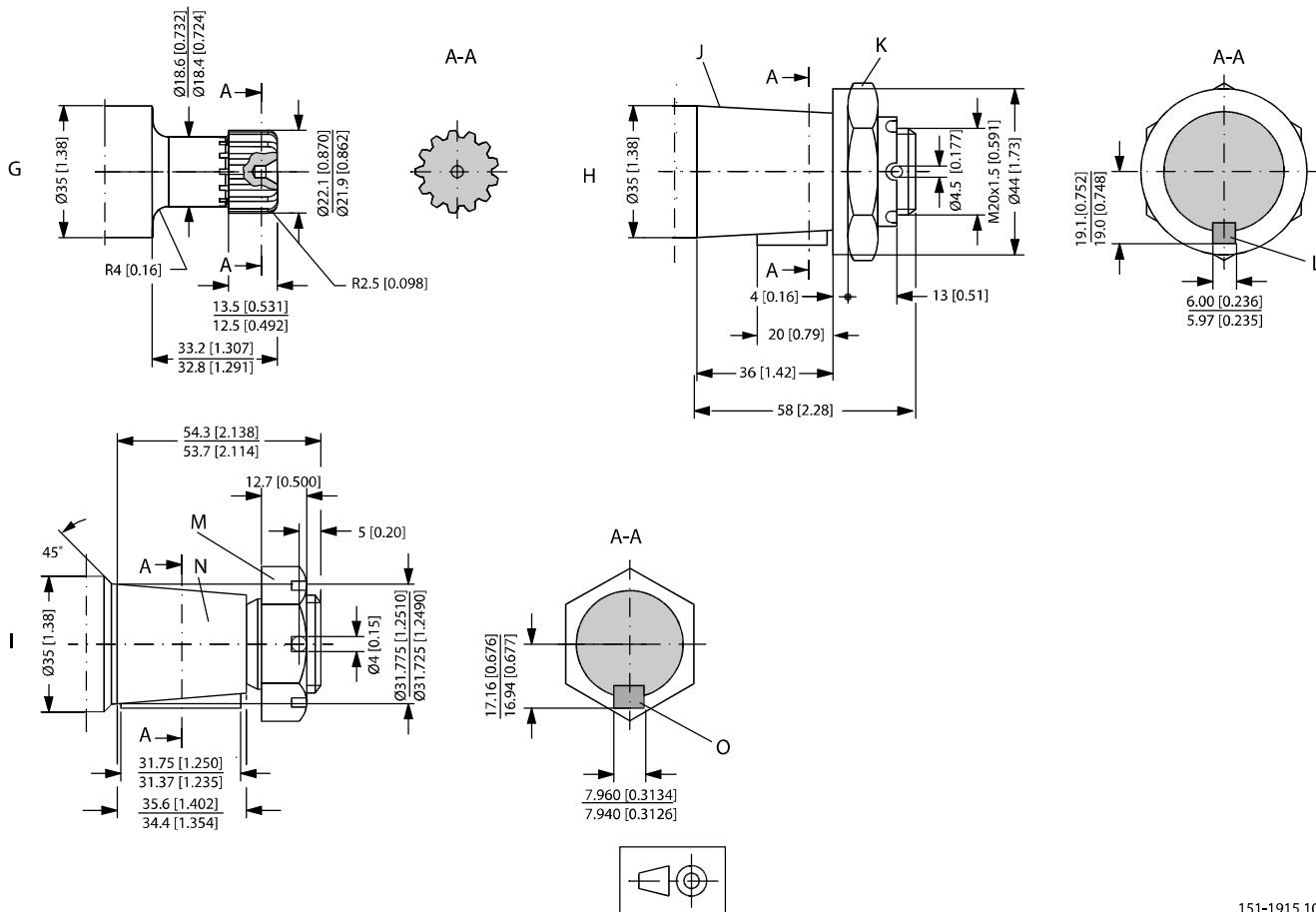
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D Involute splined shaft
ANS B92.1 - 1970 standard
Flat root side fit
Pitch 12/24
Teeth 14
Major diameter 1.25 in
Pressure angle 30°

E US version
Involute splined shaft
ANS B92.1 - 1970 standard
Flat root side fit
Pitch 12/24
Teeth 14
Major diameter 1.25 in
Pressure angle 30°

F Splined shaft
SAE 6 B (B.S. 2059)
Straight-sided, bottom fitting, deep
Fit 2
Nominal size 1 in
*Deviates from SAE 6 B (B.S. 2059)

OMS



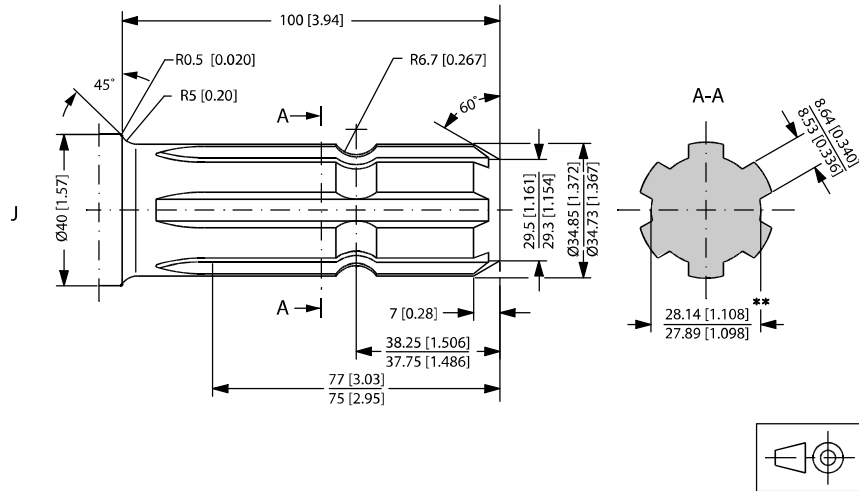
- G** Involute splined shaft
ANS B92.1 - 1970 standard
Flat root side fit
Pitch 16/32
Teeth 13
Major dia. 0.875 in
Pressure angle 30°
- I** Tapered 1 1/4 in shaft

- H** Tapered 35 mm shaft
(ISO/R775)
- K** DIN 937
Across flats: 41 mm
Tightening torque: 200 ± 10 Nm [1770 ±85 lbf-in]
- J** Taper 1:10
- L** Parallel key
B6 × 6 × 20
DIN 6885
Keyway deviates from standard

- I** Tapered 1 1/4 in shaft
- M** 1 - 20 UNEF
Across flats 1 7/16 in
Tightening torque: 200 ± 10 Nm (1770 ±85 lbf-in)
- N** Cone 1:8
SAE J501
- O** Parallel key
5/16 × 5/16 × 1 1/4
SAE J501
Keyway deviates from standard

151-1915.10

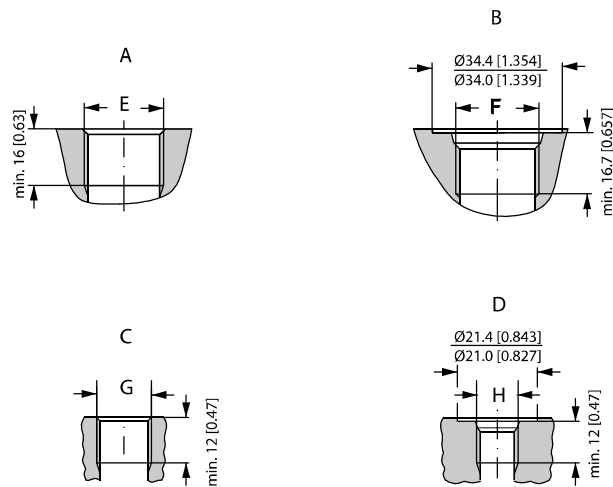
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- J P.t.o. shaft
- DIN 9611 Form 1
- (ISO/R500 without pin hole)
- ** Deviates from DIN 9611

Port thread versions



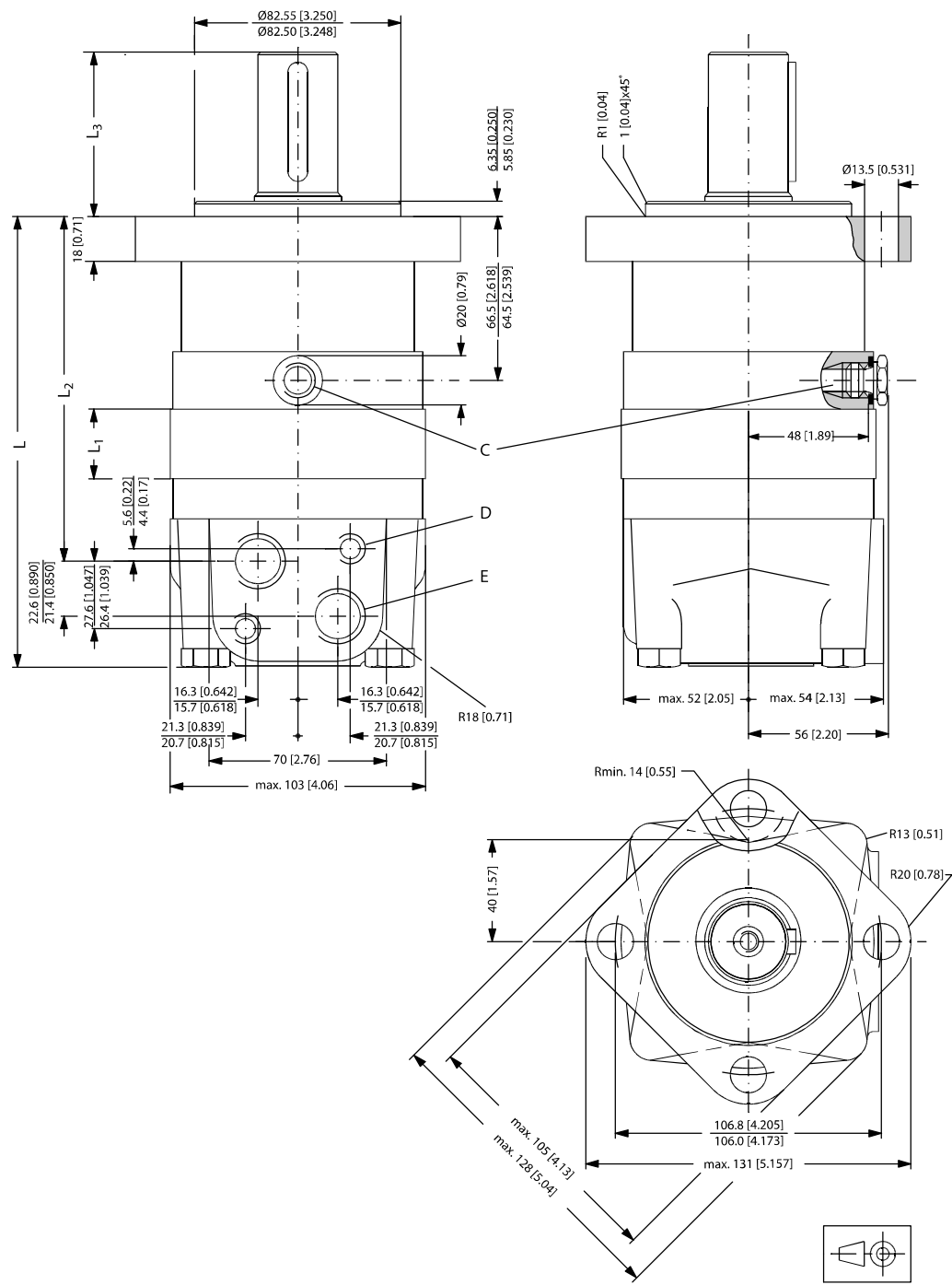
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- | | |
|--|-------------------------|
| A G main ports | B UNF main ports |
| E ISO 228/1 - G1/2 O-ring boss port | F 7/8 - 14 UNF |
| C G drain port | D UNF drain port |
| G ISO 228/1 - G1/4 O-ring boss port | H 7/16 - 20 UNF |

Dimensions

OMS

Standard flange—European version



C: Drain connection
G 1/4; 12 mm [0.47 in] deep
E: G 1/2; 15 mm [0.59 in] deep

D: M10; 13 mm [0.51 in] deep

151-1809.10

Technical Information OMS, OMT and OMV Orbital Motors

OMS

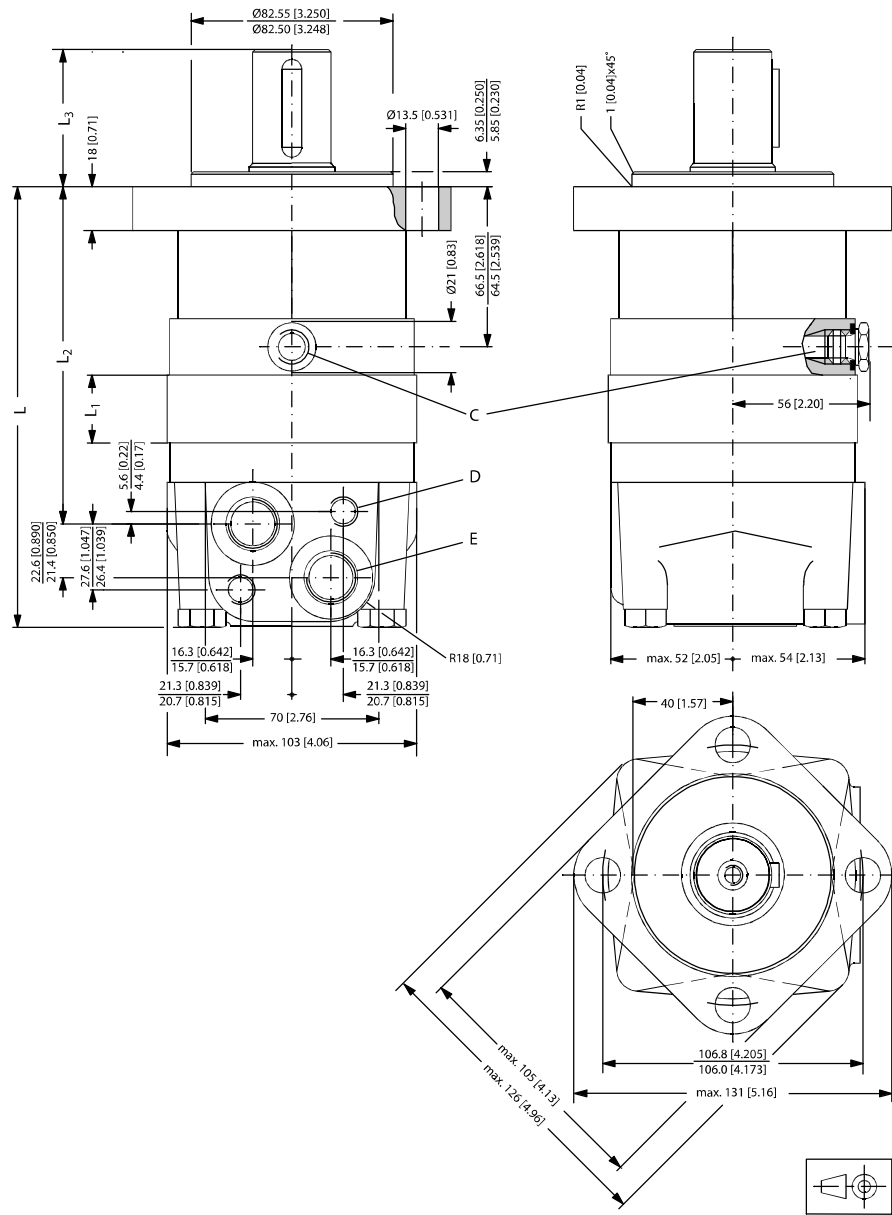
Type	L _{max} mm [in]	L ₁ mm [in]	L ₂ mm [in]
OMS 80	167 [6.57]	14.0 [0.551]	124 [4.88]
OMS 100	170 [6.69]	17.4 [0.685]	127 [5.00]
OMS 125	175 [6.89]	21.8 [0.858]	132 [5.20]
OMS 160	181 [7.13]	27.8 [1.094]	138 [5.43]
OMS 200	188 [7.40]	34.8 [1.370]	145 [5.71]
OMS 250	196 [7.72]	43.5 [1.713]	153 [6.02]
OMS 315	208 [8.19]	54.8 [2.157]	165 [6.50]
OMS 400	221 [8.70]	68.4 [2.693]	178 [7.01]

Output shaft		L ₃ mm [in]
All shafts except P.t.o. shaft	max	67 [2.64]
	min	65 [2.56]
P.t.o. shaft	max	109 [4.29]
	min	107 [4.21]

OMS

Standard flange—US version

Standard flange



C: Drain connection
7/16 - 20 UNF;
12 mm [0.47 in] deep
O-ring boss port

D: M10; 13 mm [0.51 in] deep

E: 7/8 - 14 UNF;
16.7 mm [0.657 in] deep
O-ring boss port

Type	L _{max} mm [in]	L ₁ mm [in]	L ₂ mm [in]
OMS 80	167 [6.57]	14.0 [0.551]	124 [4.88]
OMS 100	170 [6.69]	17.4 [0.685]	127 [5.00]
OMS 125	175 [6.89]	21.8 [0.858]	132 [5.20]

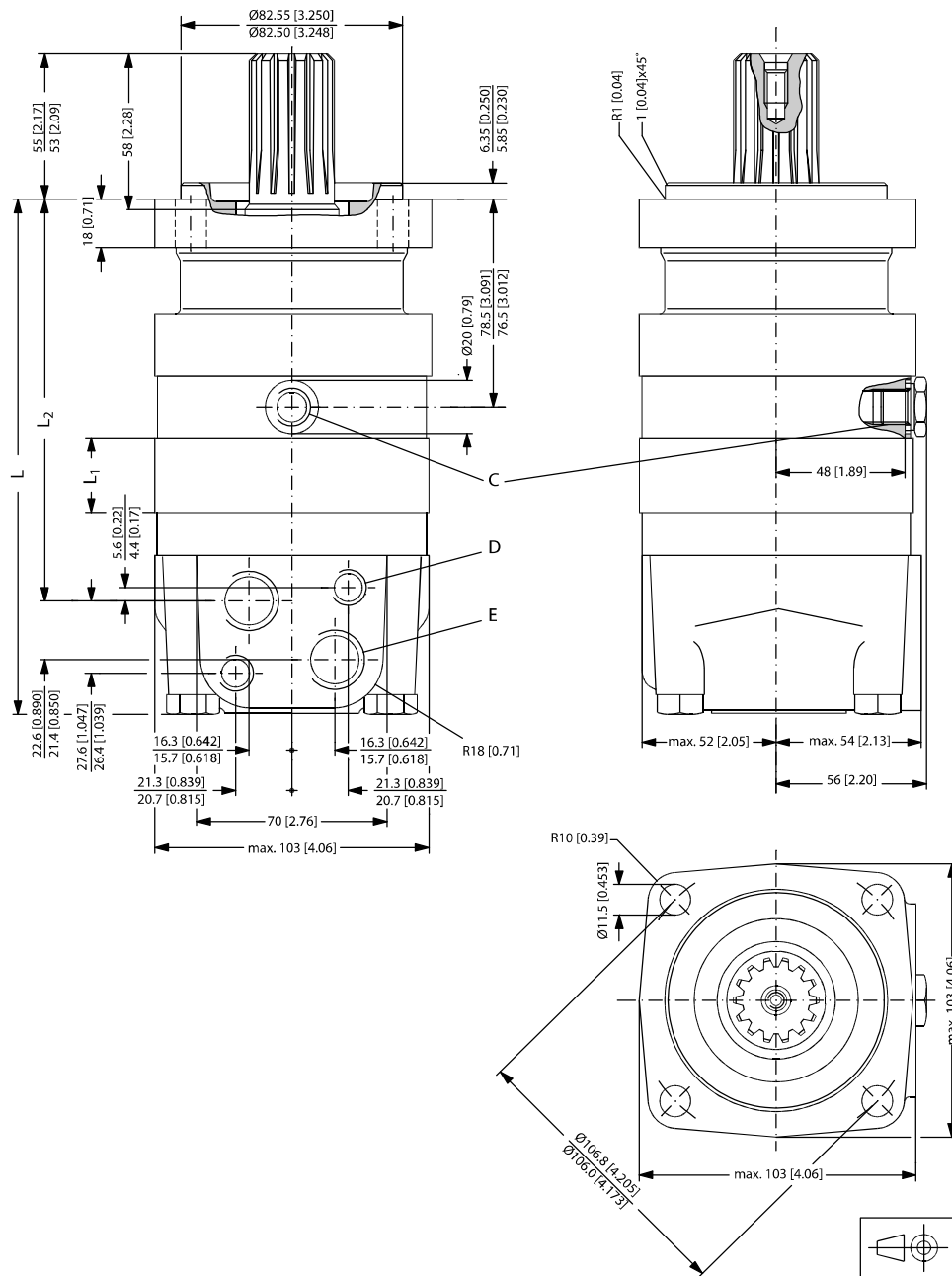
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Type	L _{max} mm [in]	L ₁ mm [in]	L ₂ mm [in]
OMS 160	181 [7.13]	27.8 [1.094]	138 [5.43]
OMS 200	188 [7.40]	34.8 [1.370]	145 [5.71]
OMS 250	196 [7.72]	43.5 [1.713]	153 [6.02]
OMS 315	208 [8.19]	54.8 [2.157]	165 [6.50]
OMS 400	221 [8.70]	68.4 [2.693]	178 [7.01]
OMS 500	221 [8.70]	68.4 [2.693]	178 [7.01]

Output shaft		L ₃ mm [in]
Cyl.1.25 in Splined 1.25 in	max	57 [2.24]
	min	55 [2.17]
Tapered 1.25 in	max	67 [2.64]
	min	65 [2.56]

OMS

Special flange—European version



151-1810.10

C: Drain connection
G 1/4; 12 mm [0.47 in] deep
E: G 1/2; 15 mm [0.59 in] deep

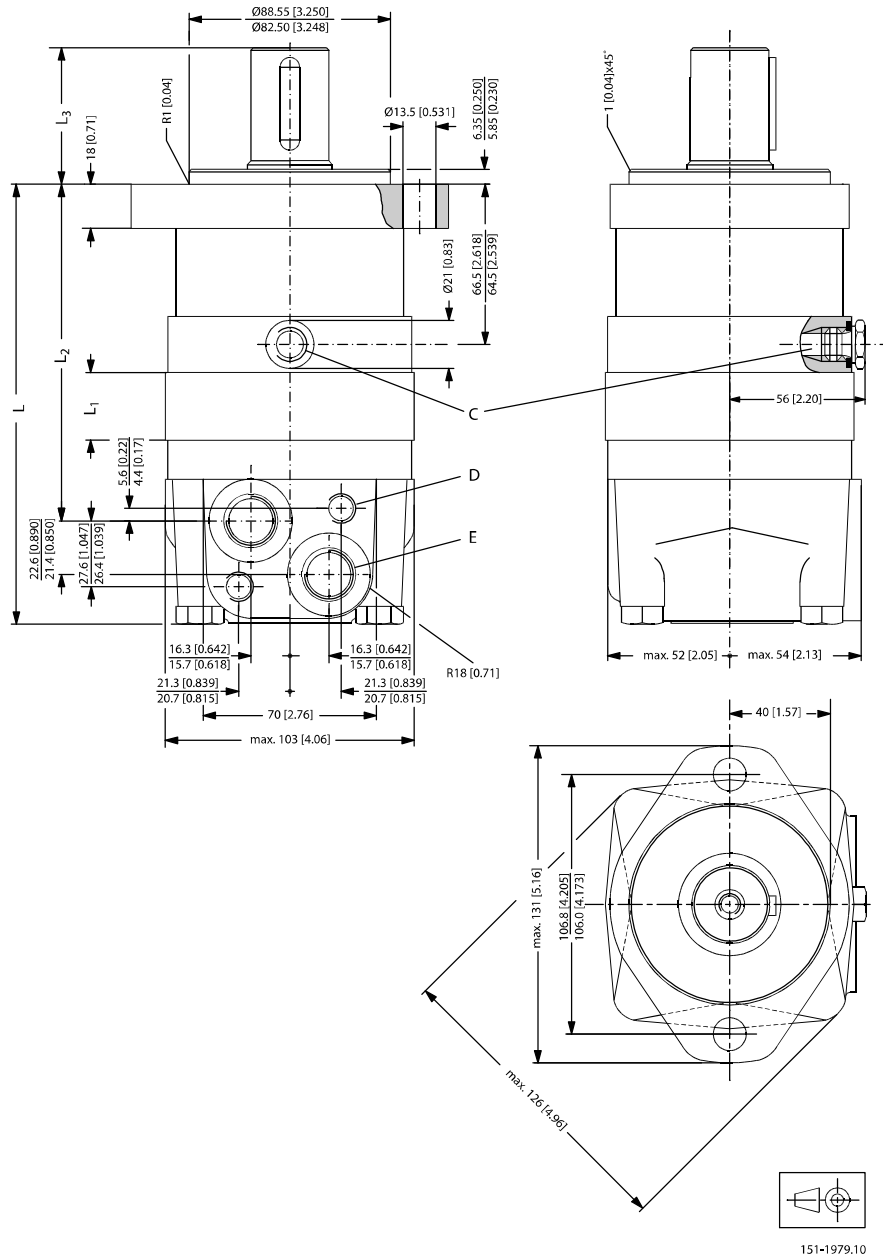
D: M10; 13 mm [0.51 in] deep

Type	L _{max} mm [in]	L ₁ mm [in]	L ₂ mm [in]
OMS 80	178 [7.01]	14.0 [0.551]	136 [5.35]
OMS 100	182 [7.17]	17.4 [0.685]	140 [5.51]

OMS

Type	L _{max} mm [in]	L ₁ mm [in]	L ₂ mm [in]
OMS 125	186 [7.32]	21.8 [0.858]	144 [5.67]
OMS 160	192 [7.56]	27.8 [1.094]	150 [5.91]
OMS 200	199 [7.83]	34.8 [1.370]	157 [6.18]
OMS 250	208 [8.19]	43.5 [1.713]	166 [6.54]
OMS 315	219 [8.62]	54.8 [2.157]	177 [6.97]
OMS 400	232 [9.13]	68.4 [2.693]	190 [7.48]

A-2 flange—US version



C: Drain connection
7/16 - 20 UNF;

D: M10; 13 mm [0.51 in] deep

Technical Information OMS, OMT and OMV Orbital Motors

OMS

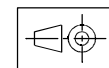
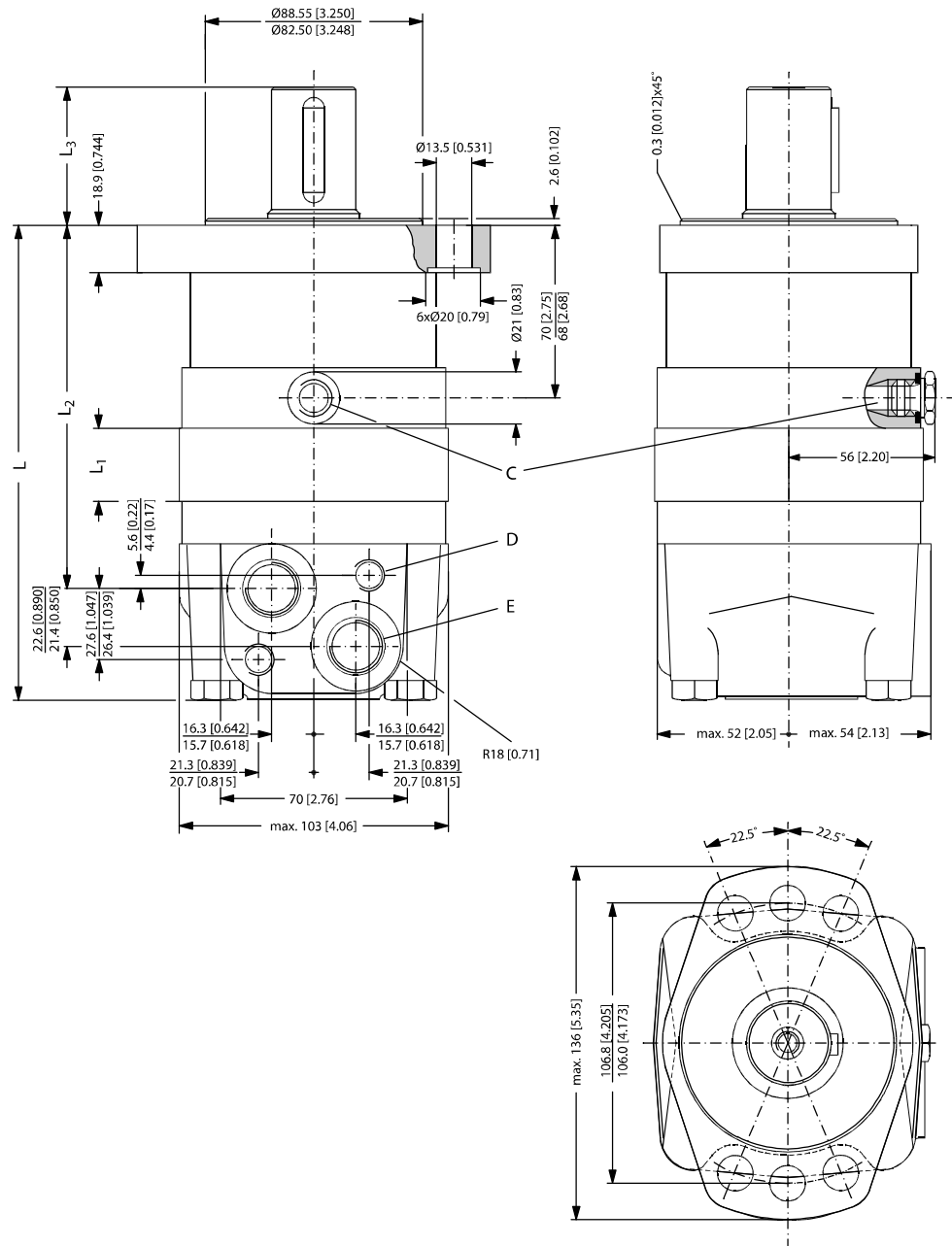
12 mm [0.47 in] deep
 O-ring boss port
E: 7/8 - 14 UNF;
 16.7 mm [0.657 in] deep
 O-ring boss port

Type	L _{max} mm [in]	L ₁ mm [in]	L ₂ mm [in]
OMS 80	167 [6.57]	14.0 [0.551]	124 [4.88]
OMS 100	170 [6.69]	17.4 [0.685]	127 [5.00]
OMS 125	175 [6.89]	21.8 [0.858]	132 [5.20]
OMS 160	181 [7.13]	27.8 [1.094]	138 [5.43]
OMS 200	188 [7.40]	34.8 [1.370]	145 [5.71]
OMS 250	196 [7.72]	43.5 [1.713]	153 [6.02]
OMS 315	208 [8.19]	54.8 [2.157]	165 [6.50]
OMS 400	221 [8.70]	68.4 [2.693]	178 [7.01]
OMS 500	221 [8.70]	68.4 [2.693]	178 [7.01]

Output shaft		L ₃ mm [in]
Cyl.1 in Splined 1 in	max	52 [2.05]
	min	50 [1.97]
Cyl.1.25 in Splined 1.25 in	max	57 [2.24]
	min	55 [2.17]
Tapered 1.25 in	max	67 [2.64]
	min	65 [2.56]

OMS

Magneto flange—US version



151-1980.10

C: Drain connection
7/16 - 20 UNF;
12 mm [0.47 in] deep
O-ring boss port

D: M10; 13 mm [0.51 in] deep

E: 7/8 - 14 UNF;
16.7 mm [0.657 in] deep
O-ring boss port

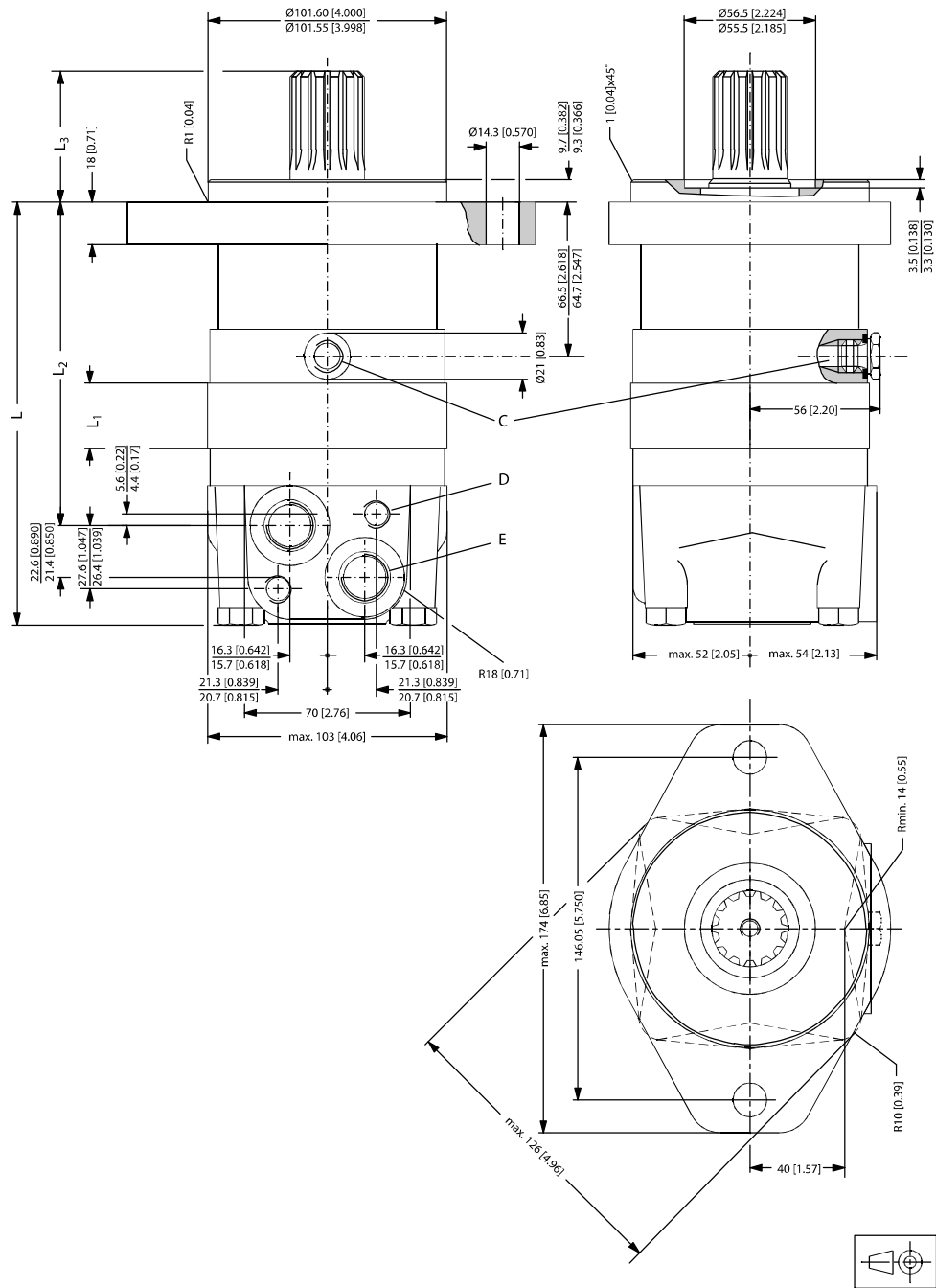
OMS

Type	L _{max} mm [in]	L ₁ mm [in]	L ₂ mm [in]
OMS 80	171 [6.73]	14.0 [0.551]	128 [5.04]
OMS 100	174 [6.85]	17.4 [0.685]	131 [5.16]
OMS 125	179 [7.05]	21.8 [0.858]	136 [5.35]
OMS 160	185 [7.28]	27.8 [1.094]	142 [5.59]
OMS 200	192 [7.56]	34.8 [1.370]	149 [5.87]
OMS 250	200 [7.87]	43.5 [1.713]	157 [6.18]
OMS 315	212 [8.35]	54.8 [2.157]	169 [6.65]
OMS 400	225 [8.86]	68.4 [2.693]	182 [7.17]
OMS 500	225 [8.86]	68.4 [2.693]	182 [7.17]

Output shaft		L ₃ mm [in]
Cyl.1 in Splined 1 in	max	49 [1.93]
	min	47 [1.85]
Cyl.1.25 in Splined 1.25 in	max	54 [2.13]
	min	52 [2.05]

OMS

SAE-B flange—US version



C: Drain connection
7/16 - 20 UNF;
12 mm [0.47 in] deep
O-ring boss port

E: 7/8 - 14 UNF;
16.7 mm [0.657 in] deep
O-ring boss port

D: M10; 13 mm [0.51 in] deep



151-1981.10

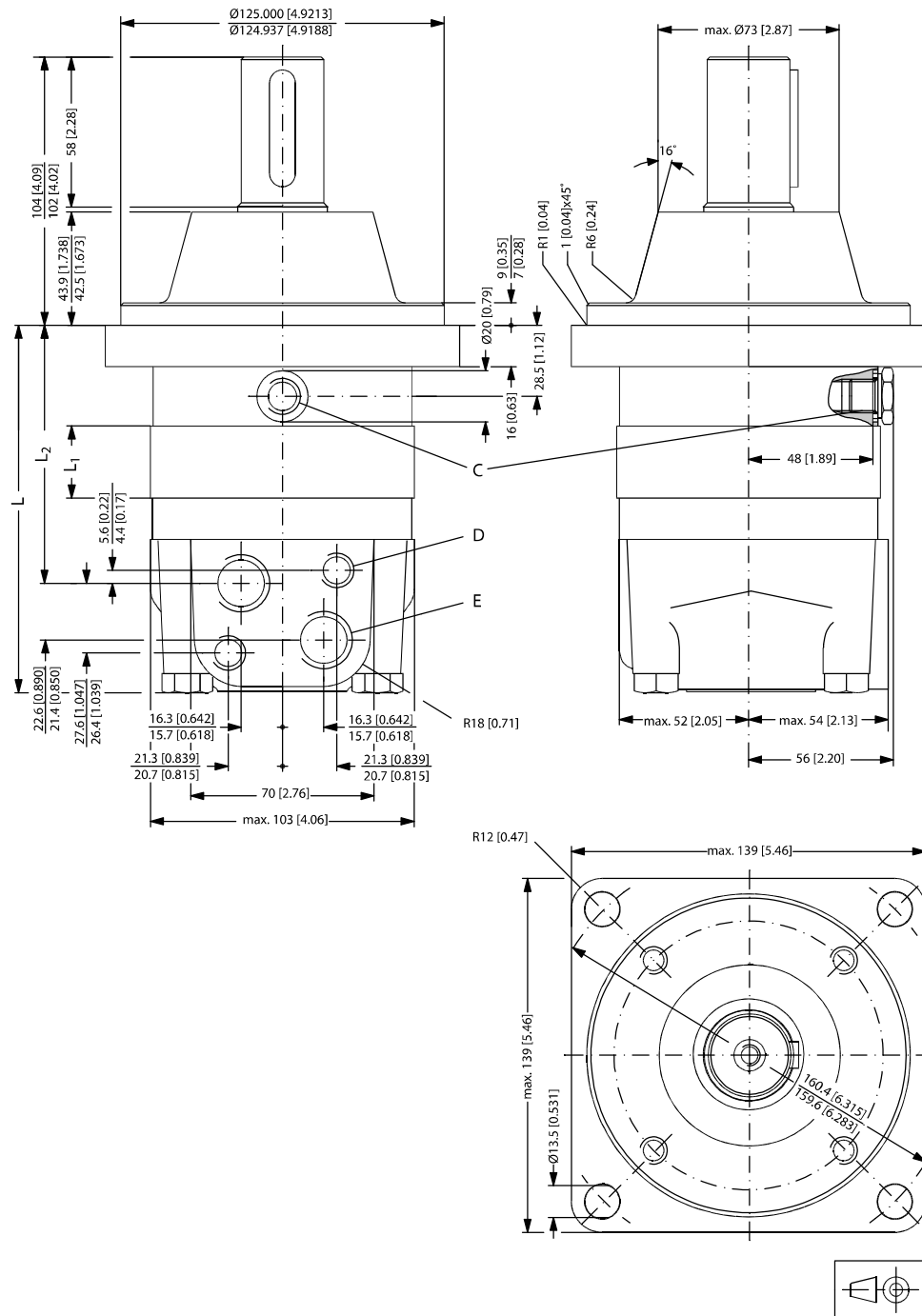
OMS

Type	L _{max} mm [in]	L ₁ mm [in]	L ₂ mm [in]
OMS 80	167 [6.57]	14.0 [0.551]	124 [4.88]
OMS 100	170 [6.69]	17.4 [0.685]	127 [5.00]
OMS 125	175 [6.89]	21.8 [0.858]	132 [5.20]
OMS 160	181 [7.13]	27.8 [1.094]	138 [5.43]
OMS 200	188 [7.40]	34.8 [1.370]	145 [5.71]
OMS 250	196 [7.72]	43.5 [1.713]	153 [6.02]
OMS 315	208 [8.19]	54.8 [2.157]	165 [6.50]
OMS 400	221 [8.70]	68.4 [2.693]	178 [7.01]
OMS 500	221 [8.70]	68.4 [2.693]	178 [7.01]

Output shaft		L ₃ mm [in]
Splined 1.25 in	max	57 [2.24]
	min	55 [2.17]
Splined 0.875 in	max	42 [1.65]
	min	40 [1.57]

OMS

Wheel—European version



151-1812.10

C: Drain connection
G 1/4; 12 mm [0.47 in] deep
E: G 1/2; 15 mm [0.59 in] deep

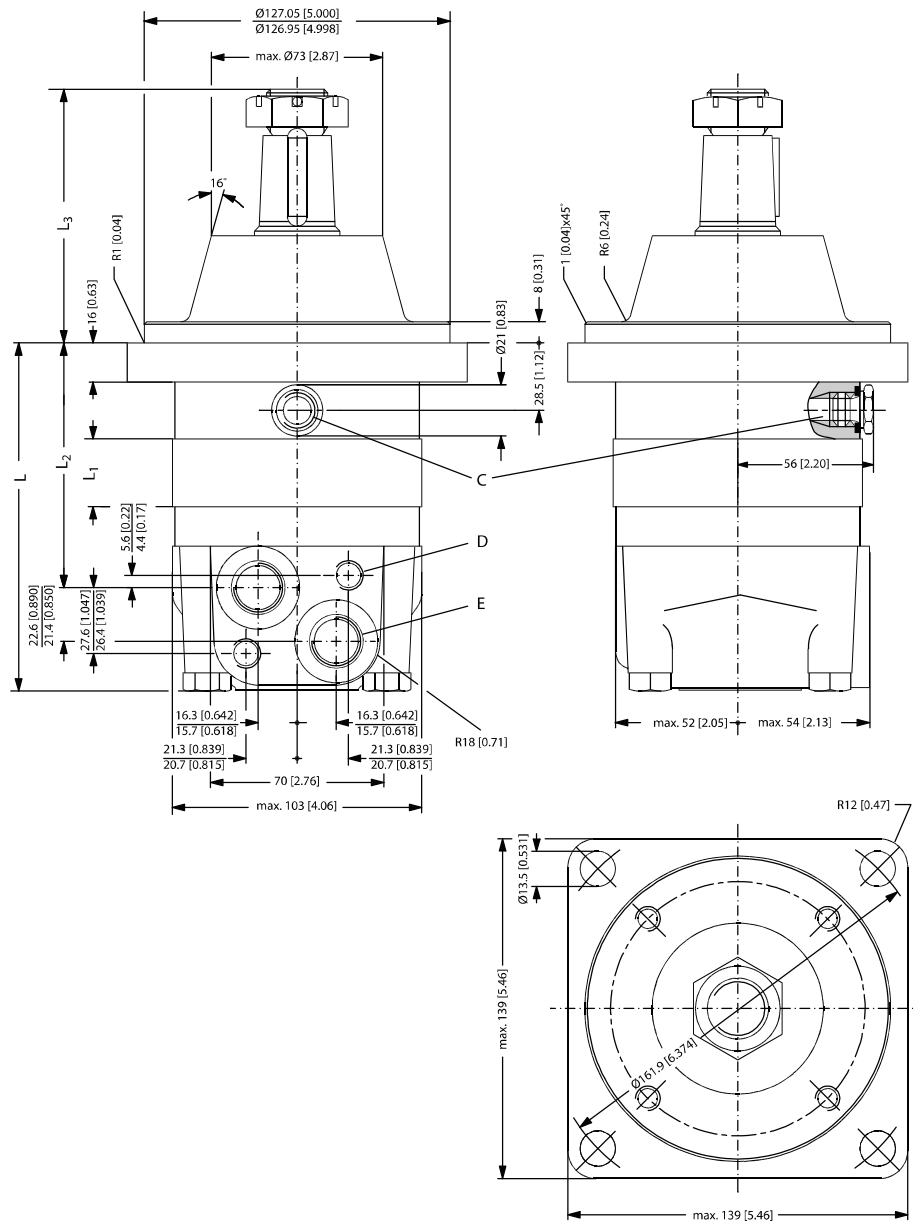
D: M10; 13 mm [0.51 in] deep

OMS

Type	L_{max} mm [in]	L₁ mm [in]	L₂ mm [in]
OMSW 80	129 [5.08]	14.0 [0.551]	87 [3.43]
OMSW 100	132 [5.20]	17.4 [0.685]	90 [3.54]
OMSW 125	137 [5.39]	21.8 [0.858]	95 [3.74]
OMSW 160	143 [5.63]	27.8 [1.094]	101 [3.98]
OMSW 200	150 [5.91]	34.8 [1.370]	108 [4.25]
OMSW 250	158 [6.22]	43.5 [1.713]	116 [4.57]
OMSW 315	170 [6.69]	54.8 [2.157]	128 [5.04]
OMSW 400	183 [7.20]	68.4 [2.693]	142 [5.59]

OMS

Wheel—US version



151-1982.10

C: Drain connection
7/16 - 20 UNF;
12 mm [0.47 in] deep
O-ring boss port

D: M10; 13 mm [0.51 in] deep

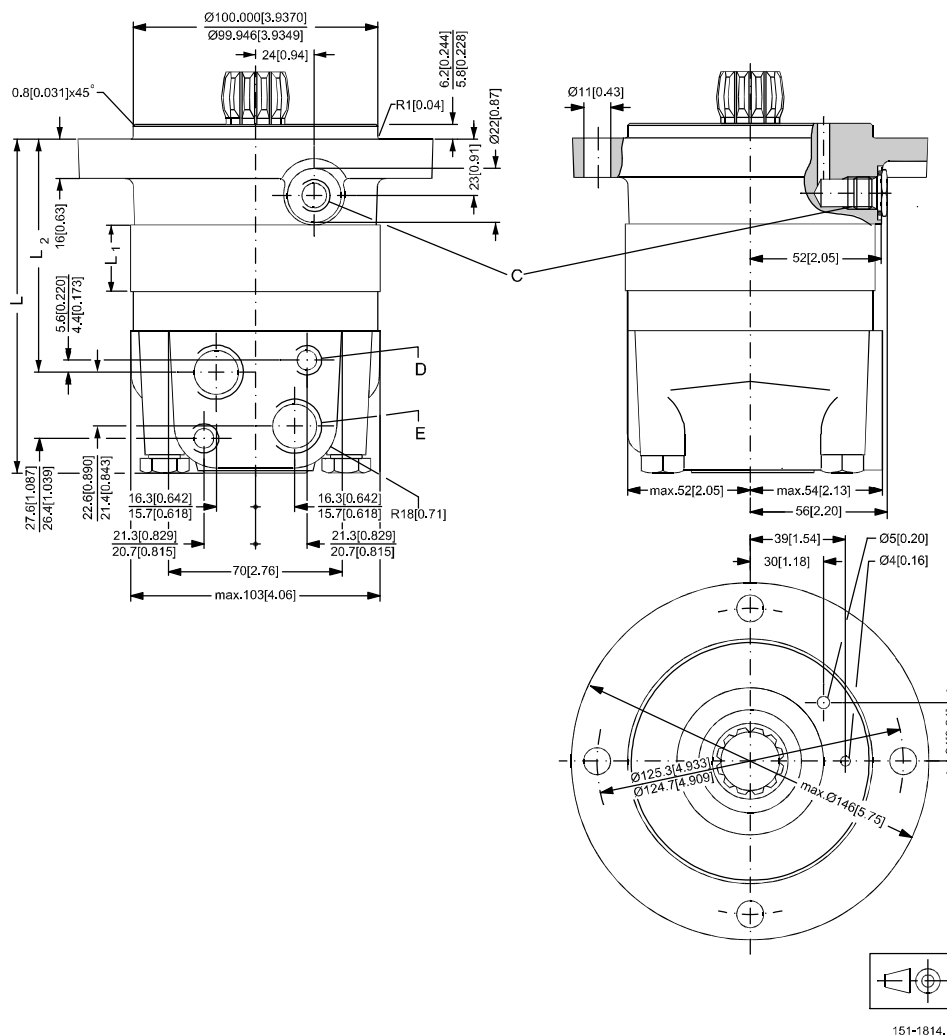
E: 7/8 - 14 UNF;
16.7 mm [0.657 in] deep
O-ring boss port

Type	L _{max} mm [in]	L ₁ mm [in]	L ₂ mm [in]
OMSW 80	130 [5.12]	14.0 [0.551]	88 [3.46]
OMSW 100	133 [5.24]	17.4 [0.685]	91 [3.58]

OMS

Type	L _{max} mm [in]	L ₁ mm [in]	L ₂ mm [in]
OMSW 125	138 [5.43]	21.8 [0.858]	96 [3.78]
OMSW 160	144 [5.67]	27.8 [1.094]	102 [4.02]
OMSW 200	151 [5.94]	34.8 [1.370]	109 [4.29]
OMSW 250	159 [6.26]	43.5 [1.713]	117 [4.61]
OMSW 315	171 [6.73]	54.8 [2.157]	129 [5.08]
OMSW 400	184 [7.24]	68.4 [2.693]	142 [5.59]
OMSW 500	184 [7.24]	68.4 [2.693]	142 [5.59]

Output shaft		L ₃ mm [in]
Cyl.1.25 in	max	94 [3.70]
	min	92 [3.62]
Tapered 1.25 in	max	104 [4.09]
	min	102 [4.02]

OMS
Short—European version


C: Drain connection
G 1/4; 12 mm [0.47 in] deep

D: M10; 13 mm [0.51 in] deep

E: G 1/2; 15 mm [0.59 in] deep

Type	L _{max} mm [in]	L ₁ mm [in]	L ₂ mm [in]
OMSS 80	124 [4.88]	14.0 [0.551]	83 [3.27]
OMSS 100	128 [5.04]	17.4 [0.685]	86 [3.39]
OMSS 125	132 [5.20]	21.8 [0.858]	90 [3.54]
OMSS 160	138 [5.43]	27.8 [1.094]	96 [3.78]
OMSS 200	145 [5.71]	34.8 [1.370]	103 [4.06]
OMSS 250	154 [6.06]	43.5 [1.713]	112 [4.41]
OMSS 315	165 [6.50]	54.8 [2.157]	123 [4.84]
OMSS 400	179 [7.05]	68.4 [2.693]	137 [5.39]

OMS

OMSS

Installing the OMSS

The cardan shaft of the OMSS motor acts as an “output shaft”. Because of the movement of the shaft, no seal can be fitted at the shaft output.

Internal oil leakage from the motor will therefore flow into the attached component.

During start and operation it is important that the spline connection and the bearings in the attached component receive oil and are adequately lubricated. To ensure that the spline connection receives sufficient oil, a conical sealing ring between the shaft of the attached component and the motor intermediate plate is recommended. This method is used in the OMS.

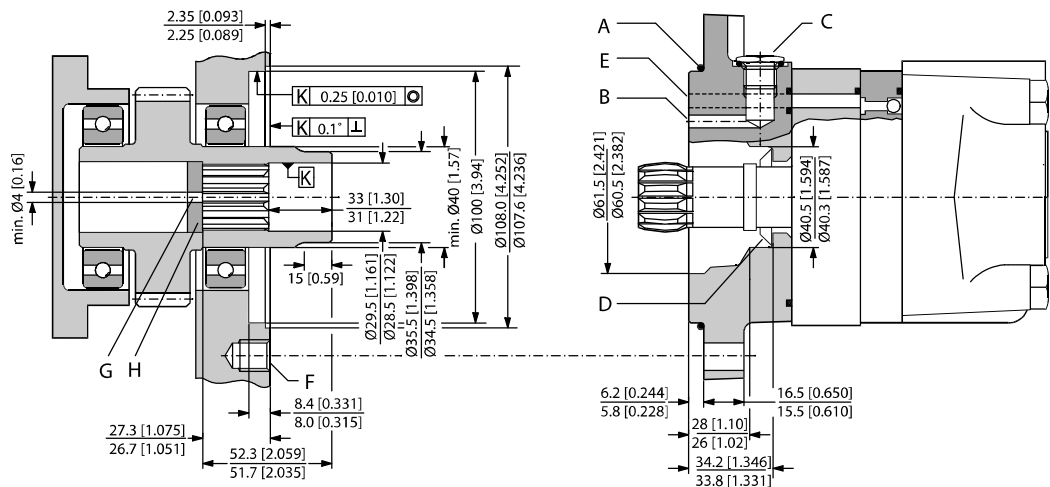
The conical sealing ring (code. no. 633B9023) is supplied with the motor.

To ensure that oil runs to the bearings and other parts of the attached component, the stop plate must have a hole in it (see fig. below).

We recommend an O-ring between motor and attached component. The O-ring (code no. 151F1033) is supplied with the motor. If motor and attached component have been separated, remember to refill before starting up. Fill the oil through the drain connection.

Attached component dimensions

OMSS dimensions of the attached component in millimeter [inches]



151-873.10

- | | | |
|-------------------------------|---------------------------------|---|
| A O-ring: 100 × 3 mm | B External drain channel | C Drain connection G 1/4; 12 mm [0.47 in] deep |
| D Conical seal ring | E Internal drain channel | F M10; min. 15 mm [0.59 in] deep |
| G Oil circulation hole | H Hardened stop plate | |

Internal spline data for the component to be attached

The attached component must have internal splines corresponding to the external splines on the motor cardan shaft (see drawing below).

OMS
Material:

Case hardening steel with a tensile strength corresponding at least to 20 MoCr4 (900 N/mm²) or SAE 8620.

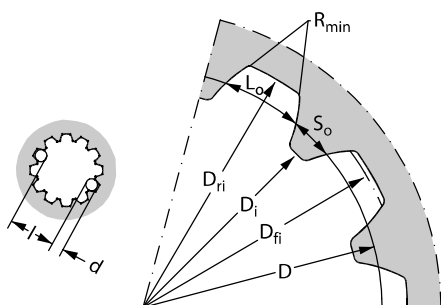
Hardening specification:

- On the surface: HV = 750 ± 50
- 0.7 ± 0.2 mm under the surface: HV = 560

Internal involute spline data; Standard ANS B92.1-1970, class 5 (corrected $m \cdot X = 0.8$; $m = 2.1166$)

Flat root side fit		mm	in
Number of teeth	z	12	12
Pitch	DP	12/24	12/24
Pressure angle		30°	30°
Pitch dia.	D	25.4	1.0
Major dia.	D _{ri}	28.0 ⁰ _{-0.1}	1.10 0-0.004
Form dia. (min.)	D _{fi}	27.6	1.09
Minor dia.	D _i	23.0 ^{+0.033} ₀	0.9055 ^{+0.0013} ₀
Space width (circular)	L _o	4.308 ^{±0.020}	0.1696 ^{±0.0008}
Tooth thickness (circular)	S _o	2.341	0.09217
Fillet radius	R _{min.}	0.2	0.008
Max. measurement between pins*	l	17.62 ^{+0.15} ₀	0.700 ⁰ _{-0.006}
Pin dia.	d	4.835 ^{±0.001}	0.1903 ^{±0.00004}

* Finished dimensions (when hardened).



151-874.10

Motor or attached component drain connection

Use the drain line when pressure in the return line exceeds the permissible pressure on the shaft seal of the attached component.

Connect the drain line either at the:

- Motor drain connection
- Drain connection of the attached component

If a drain line is fitted to the attached component, it must be possible for oil to flow freely between motor and attached component.

OMS

The drain line must be led to the tank in such a way that there is no risk of the motor and attached component being drained of oil when at rest.

The maximum pressure in the drain line is limited by the attached component and its shaft seal.

OMT
Versions
OMT versions

Mounting flange	Shaft	Port size	European version	US version	Drain connection	Check valve	Low pressure release	High pressure release	Main type designation
Standard flange	Cyl. 40 mm	G 3/4	X		Yes	Yes			OMT
	Cyl. 1.5 in	1 1/16-12 UN		X	Yes	Yes			OMT
	Splined 1.5 in	G 3/4	X		Yes	Yes			OMT
		1 1/16-12 UN		X	Yes	Yes			OMT
	Tapered 45 mm	G 3/4	X		Yes	Yes			OMT
	Tapered 1.75 in	1 1/16-12 UN		X	Yes	Yes			OMT
P.t.o.	G 3/4	X		Yes	Yes			OMT	
Wheel	Cyl. 40 mm	G 3/4	X		Yes	Yes			OMTW
	Tapered 45 mm	G 3/4	X		Yes	Yes			OMTW
	Tapered 1.75 in	1 1/16-12 UN		X	Yes	Yes			OMTW
Brake-wheel	Wheel bolt flange	G 3/4	X		Yes	No	X		OMT FX
	Thread hole flange	G 3/4	X		Yes	No	X		OMT FX
Brake-standard	Cyl. 40 mm	G 3/4	X		Yes	No	X		OMT FL
	Splined 1.5 in	G 3/4	X		Yes	No	X		OMT FL
	Cyl. 40 mm	G 3/4	X		Yes	No		X	OMT FH
	Splined 1.5 in	G 3/4	X		Yes	No		X	OMT FH
Short	No output shaft	G 3/4	X		Yes	Yes			OMTS

Features

Features available (options):

- Speed sensor
- Motor with tacho connection
- Viton shaft seal
- Painted
- Ultra short

Code numbers
OMT code numbers

Code Numbers	Displacement [cm ³]					
	160	200	250	315	400	500
151B	3000	3001	3002	3003	3004	3005
151B	2050	2051	2052	2053	2054	2055
151B	3006	3007	3008	3009	3010	3011
151B	2056	2057	2058	2059	2060	2061
151B	3012	3013	3014	3015	3016	3017
151B	2062	2063	2064	2065	2066	2067

OMT
OMT code numbers (continued)

Code Numbers	Displacement [cm ³]					
	160	200	250	315	400	500
151B	3018	3019	3020	3021	3022	3023
151B	3024	3025	3026	3027	3028	3029
151B	3030	3031	3032	3033	3034	3035
151B	2080	2081	2082	2083	2084	2085
151B	3207	3208	3209	3210	3211	3212
151B	3200	3201	3202	3203	3204	3205
151B	4000	4001	4002	4003	4004	4005
151B	4007	4008	4009	4010	4011	4012
151B	4021	4022	4023	4024	4025	4026
151B	4028	4029	4030	4031	4032	4033
151B	3036	3037	3038	3039	3040	3041

Ordering

Add the four digit prefix "151B" to the four digit numbers from the chart for complete code number.

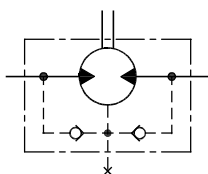
Example:

151B3002 for an OMT 250 with standard flange, cyl. 40 mm shaft and port size G 3/4.

Orders will not be accepted without the four digit prefix.

Technical data
Maximum permissible shaft seal pressure
Motor with check valves and without use of drain connection

The pressure on the shaft seal never exceeds the pressure in the return line.



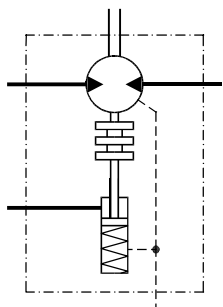
151-320.10

Motor with check valves and with drain connection

The shaft seal pressure equals the pressure on the drain line.

OMT FX, OMT FL and OMT FH must always be fitted with drain line.

Maximum pressure in drain line is 5 bar [75 psi]

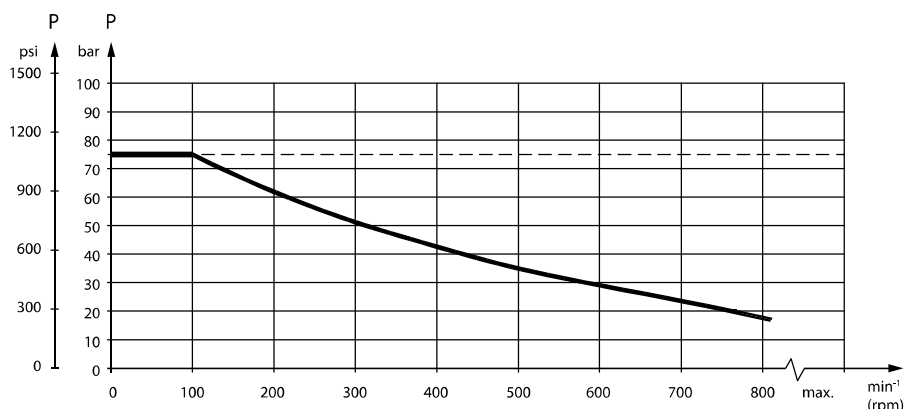
OMT


151-1405.10

Maximum return pressure

The shaft seal pressure equals the pressure on the drain line.

Maximum return pressure without drain line or maximum pressure in the drain line



151-1674.10

----- Intermittent operation: the permissible values may occur for max. 10% of every minute.

———— Continuous operation

OMT, OMTW, OMTS, OMT FX OMT FL and OMT FH

Technical data for OMT, OMTW, OMTS, OMT FX OMT FL and OMT FH

Type		OMT OMTW OMTS OMT FX OMT FL OMT FH	OMT OMTW OMTS OMT FX OMT FL OMT FH	OMT OMTW OMTS OMT FX OMT FL OMT FH	OMT OMTW OMTS OMT FX OMT FL OMT FH	OMT OMTW OMTS OMT FX OMT FL OMT FH	OMT OMTW OMTS OMT FX OMT FL OMT FH	
Motor size		160	200	250	315	400	500	
Geometric displacement	cm ³ [in ³]	161.1 [9.83]	201.4 [12.29]	251.8 [15.37]	326.3 [19.91]	410.9 [25.07]	523.6 [31.95]	
Maximum speed	min ⁻¹ [rpm]	cont.	625	625	500	380	305	240
		int ¹⁾	780	750	600	460	365	285

Technical Information OMS, OMT and OMV Orbital Motors
OMT
Technical data for OMT, OMTW, OMTS, OMT FX OMT FL and OMT FH (continued)

Type			OMT OMTW OMTS OMT FX OMT FL OMT FH	OMT OMTW OMTS OMT FX OMT FL OMT FH	OMT OMTW OMTS OMT FX OMT FL OMT FH	OMT OMTW OMTS OMT FX OMT FL OMT FH	OMT OMTW OMTS OMT FX OMT FL OMT FH	OMT OMTW OMTS OMT FX OMT FL OMT FH
Motor size			160	200	250	315	400	500
Maximum torque	Nm [lbf-in]	cont.	470 [4160]	590 [5220]	730 [6460]	950 [8410]	1080 [9560]	1220 [10800]
		int. ¹⁾	560 [4960]	710 [6280]	880 [7790]	1140 [10090]	1260 [11150]	1370 [12130]
Maximum output	kW [hp]	cont.	26.5 [35.5]	33.5 [44.9]	33.5 [44.9]	33.5 [44.9]	30.0 [40.2]	26.5 [35.5]
		int. ¹⁾	32.0 [42.9]	40.0 [53.6]	40.0 [53.6]	40.0 [53.6]	35.0 [46.9]	30.0 [40.2]
Maximum pressure drop	bar [psi]	cont.	200 [2900]	200 [2900]	200 [2900]	200 [2900]	180 [2610]	160 [2320]
		int. ¹⁾	240 [3480]	240 [3480]	240 [3480]	240 [3480]	210 [3050]	180 [2610]
		peak ²⁾	280 [4060]	280 [4060]	280 [4060]	280 [4060]	240 [3480]	210 [3050]
Maximum oil flow	l/min [USgal/min]	cont.	100 [26.4]	125 [33.0]	125 [33.0]	125 [33.0]	125 [33.0]	125 [33.0]
		int. ¹⁾	125 [33.0]	150 [39.6]	150 [39.6]	150 [39.6]	150 [39.6]	150 [39.6]
Maximum starting pressure with unloaded shaft	bar [psi]		10 [145]	10 [145]	10 [145]	10 [145]	10 [145]	10 [145]
Minimum starting torque	at maximum pressure drop cont. Nm [lbf-in]		340 [3010]	430 [3810]	530 [4690]	740 [6550]	840 [7430]	950 [8410]
	at maximum pressure drop int. ¹⁾ Nm [lbf-in]		410 [3630]	520 [4600]	630 [5580]	890 [7880]	970 [8590]	1060 [9380]

1) Intermittent operation: the permissible values may occur for max. 10% of every minute.

2) Peak load: the permissible values may occur for max. 1% of every minute.

For maximum permissible combination of flow and pressure, see function diagram for actual motor.

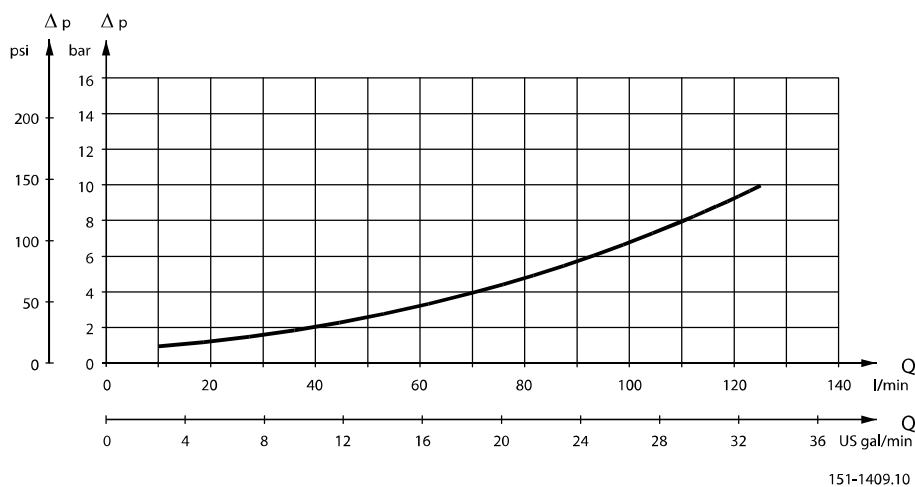
Type			Maximum inlet pressure	Maximum return pressure with drain line
OMT, OMTW, OMTS, OMT FX, OMT FL, OMT FH	bar [psi]	cont.	210 [3050]	140 [2030]
	bar [psi]	int. ¹⁾	250 [3630]	175 [2540]
	bar [psi]	peak ²⁾	300 [4350]	210 [3050]

OMT
Brake motors

Type	Maximum pressure in drain line ³⁾	Holding torque ⁴⁾	Brake-release pressure ³⁾	Maximum pressure in brake line
OMT FX, OMT FL	5 bar [70 psi]	1200 Nm [10620 lbf-in]	12 bar [170 psi]	30 bar [440 psi]
OMT FH	5 bar [70 psi]	1200 Nm [10620 lbf-in]	30 bar [440 psi]	280 bar [4060 psi]

- 1) Intermittent operation: the permissible values may occur for maximum 10% of every minute.
- 2) Peak load: The permissible values may occur for maximum 1% of every minute.
- 3) Brake motors must always have a drain line. The brake-release pressure is the difference between the pressure in the brake line and the pressure in the drain line.
- 4) For the supply of motors with holding torques higher than those stated, please contact the Danfoss sales organization.

For maximum permissible combination of flow and pressure, see function diagram for actual motor.

Pressure drop in motor


The curve applies to an unloaded motor shaft and an oil viscosity of 35 mm²/s [165 SUS]

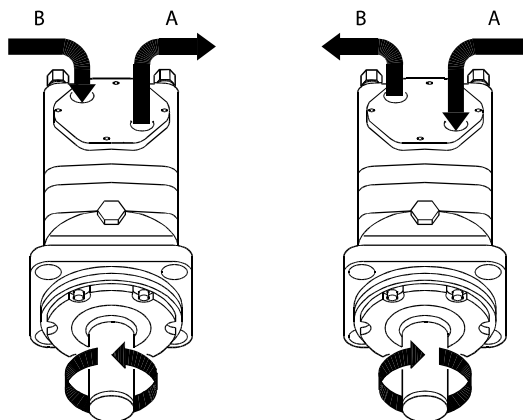
Oil flow in drain line

Maximum oil flow in the drain line at a return pressure less than 5-10 bar [75-150 psi]

Pressure drop bar [psi]	Viscosity mm ² /s [SUS]	Oil flow in drain line l/min [US gal/min]
140 [2030]	20 [100]	2.5 [0.66]
	35 [165]	1.5 [0.40]
210 [3050]	20 [100]	5.0 [1.32]
	35 [165]	3.0 [0.79]

OMT

Direction of shaft rotation



151-1050.10

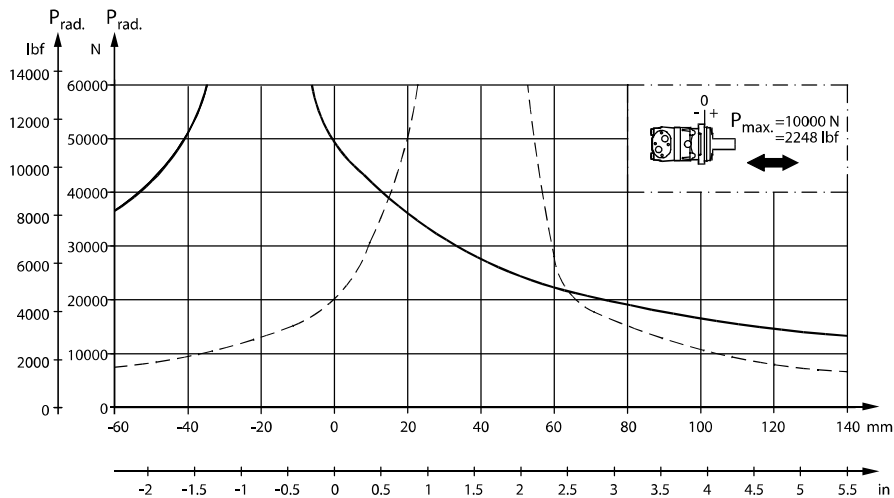
Permissible shaft loads for OMT

Mounting flange:

Standard

Shaft:

All shaft types



151-1967.10

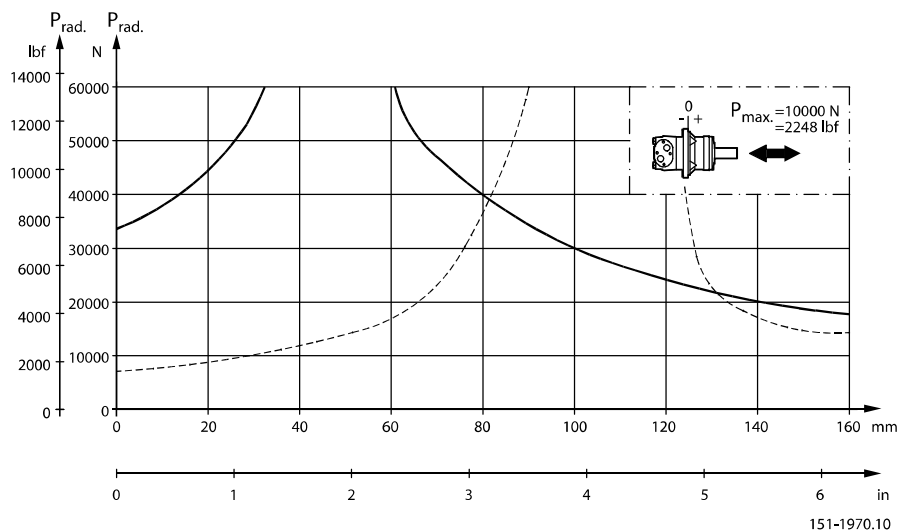
Mounting flange:

Wheel

Shaft:

All shaft types

OMT



The output shaft runs in tapered roller bearings that permit high axial and radial forces.

The permissible radial load on the shaft is shown for an axial load of 0 N as a function of the distance from the mounting flange to the point of load application.

The curve is based on B10 bearing life (2000 hours or 12,000,000 shaft revolutions at 100 min^{-1}) at rated output torque, when mineral-based hydraulic oil with a sufficient content of anti-wear additives, is used.

For 3,000,000 shaft revolutions or 500 hours – increase these shaft loads with 52%.

The dash curve shows maximum radial shaft load. Any shaft load exceeding the values shown in the curve will involve a risk of breakage.

Bearing life calculations can be made using the explanation and formula provided in the chapter "Bearing dimensioning" in the technical information "General Orbital motors" 520L0232.

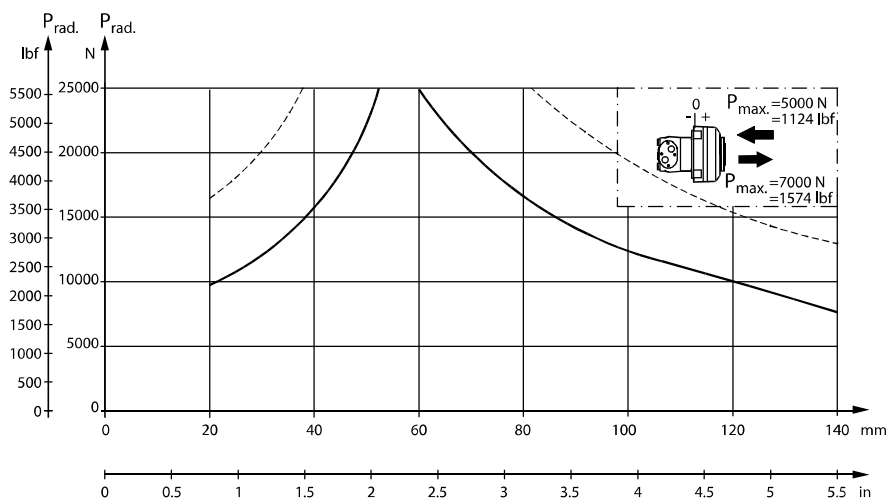
Mounting flange:

Brake-wheel

Shaft:

All shaft types

OMT



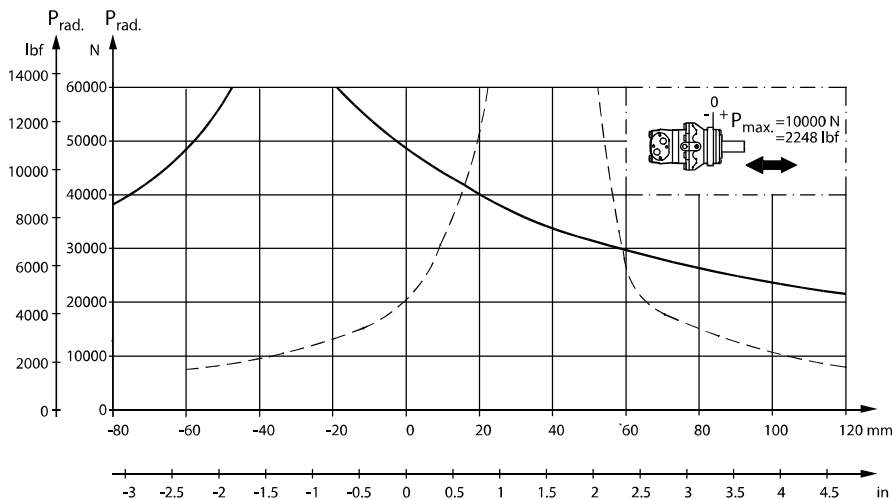
151-1966.10

Mounting flange:

Brake-standard

Shaft:

All shaft types



151-1968.10

The output shaft runs in tapered roller bearings that permit high axial and radial forces.

The permissible radial load on the shaft is shown for an axial load of 0 N as a function of the distance from the mounting flange to the point of load application.

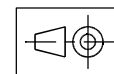
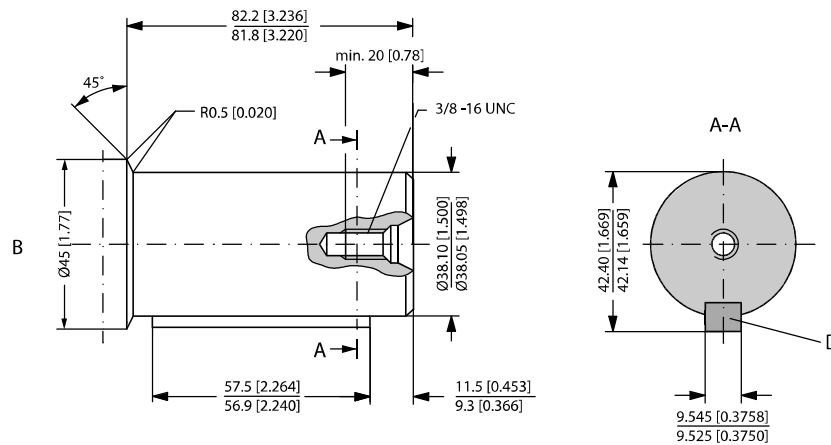
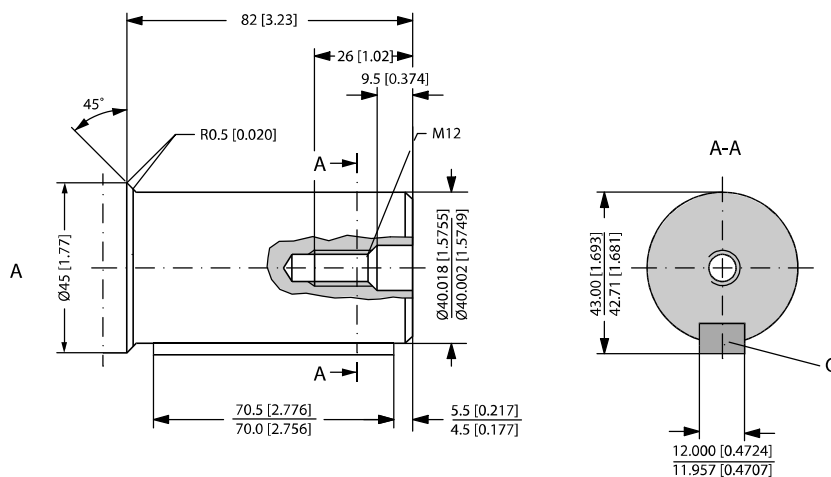
The curve is based on B10 bearing life (2000 hours or 12,000,000 shaft revolutions at 100 min^{-1}) at rated output torque, when mineral-based hydraulic oil with a sufficient content of anti-wear additives, is used.

For 3,000,000 shaft revolutions or 500 hours – increase these shaft loads with 52%.

The dash curve shows max. radial shaft load. Any shaft load exceeding the values shown in the curve will involve a risk of breakage.

OMT

Shaft version

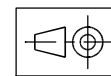
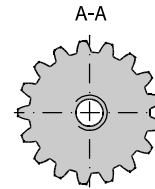
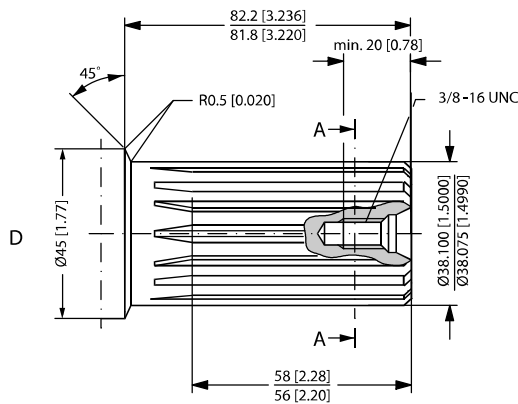
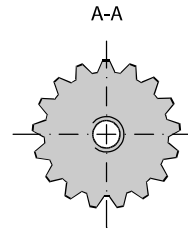
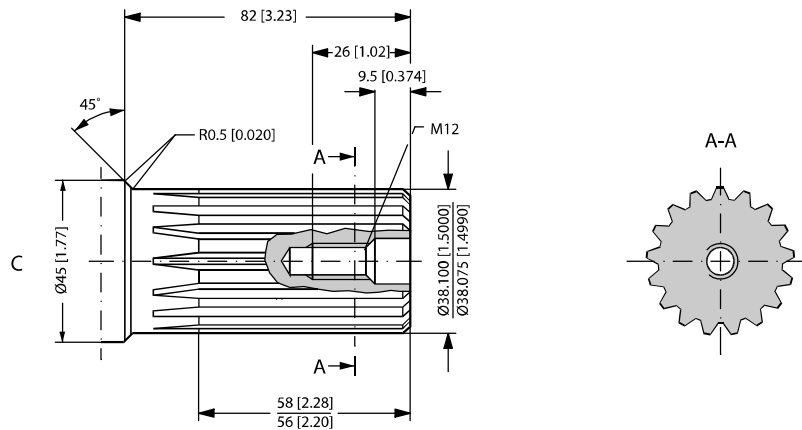


151-1032.10

- A** Cylindrical 40 mm shaft
- C** Parallel key
A12 × 8 × 70
DIN 6885
Keyway deviates from standard

- B** Cylindrical 1.5 in shaft
- D** Parallel key
3/8 × 3/8 × 21/4 in
B.S. 46
Keyway deviates from standard

OMT

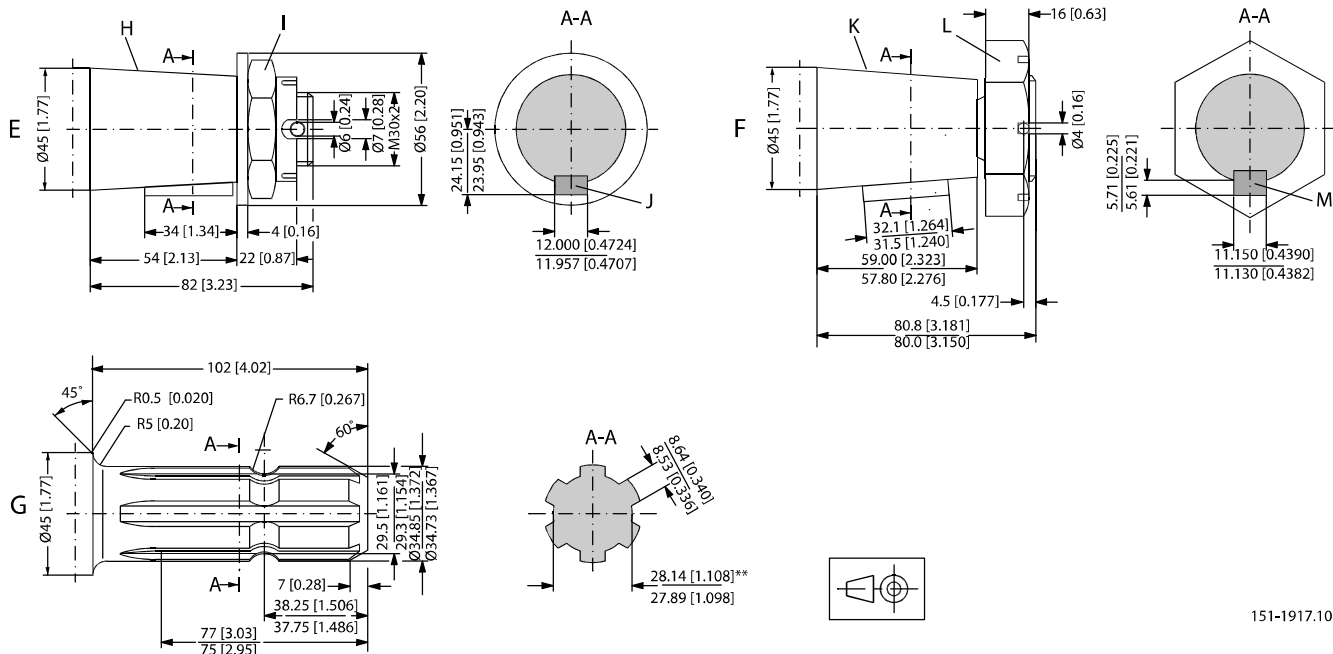


151-1916.10

C Involute splined shaft
ANS B92.1 - 1970 standard
Flat root side fit
Pitch 12/24
Teeth 17
Major diameter 1.50 in
Pressure angle 30°

D **US version**
Involute splined shaft
ANS B92.1 - 1970 standard
Flat root side fit
Pitch 12/24
Teeth 17
Major diameter 1.50 in
Pressure angle 30°

OMT



151-1917.10

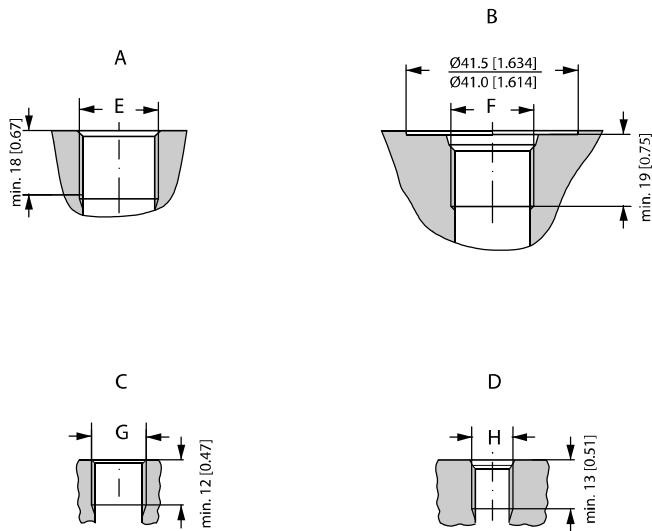
- E** Tapered 45 mm shaft (ISO/R775)
- I** DIN 937
Across flats: 46 mm
Tightening torque: 500 ± 30 Nm [4430 ±270 lbf-in]
- H** Taper 1:10
- J** Parallel key
B12 × 8 × 28
DIN 6885
Keyway deviates from standard

- F** Tapered 1.75 in shaft
- K** Cone 1:8
SAE J501
- L** 1 1/4 - 18 UNEF
Across flats 2 3/16 in
Tightening torque: 500 ±10 Nm (4425 ±90 lbf-in)
- M** Parallel key
7/16 × 7/16 × 1 1/4
B.S. 46
Keyway deviates from standard

- G** P.t.o. shaft
DIN 9611 Form 1 (ISO/R500 without pin hole)
** Deviates from DIN 9611

OMT

Port thread versions



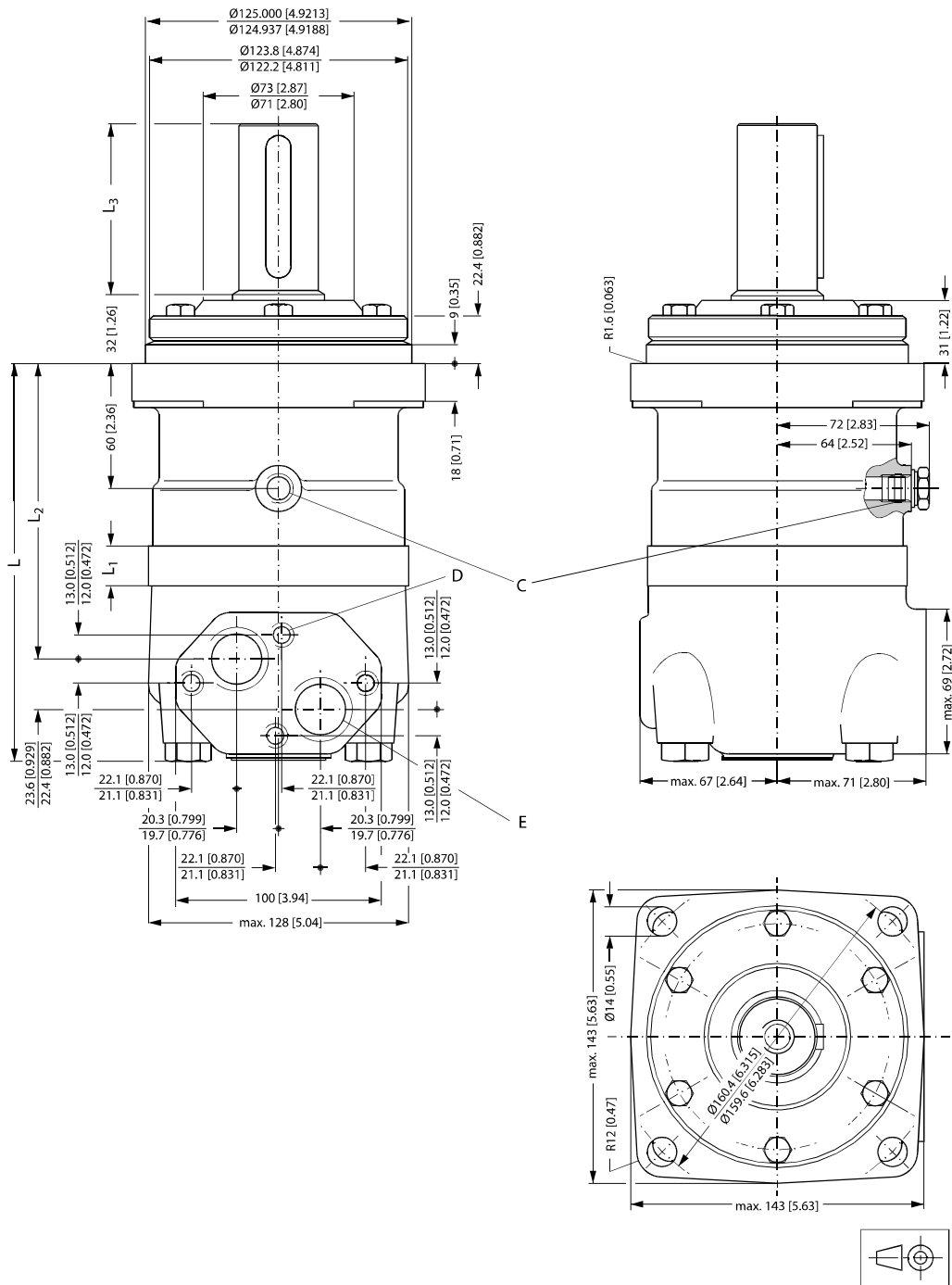
151-1977.11

- | | | | |
|----------|---|----------|----------------|
| A | G main ports | B | UN main ports |
| E | ISO 228/1 - G3/4
O-ring boss port | F | 1 1/16 - 12 UN |
| C | G drain port | D | UNF drain port |
| G | G: ISO 228/1 - G1/4
O-ring boss port | H | 9/16 - 18 UNF |

OMT

Dimensions

Standard flange—European version



C: Drain connection
G 1/4; 12 mm [0.47 in] deep

D: M10; 10 mm [0.39 in] deep

E: G 3/4; 17 mm [0.67 in] deep

OMT

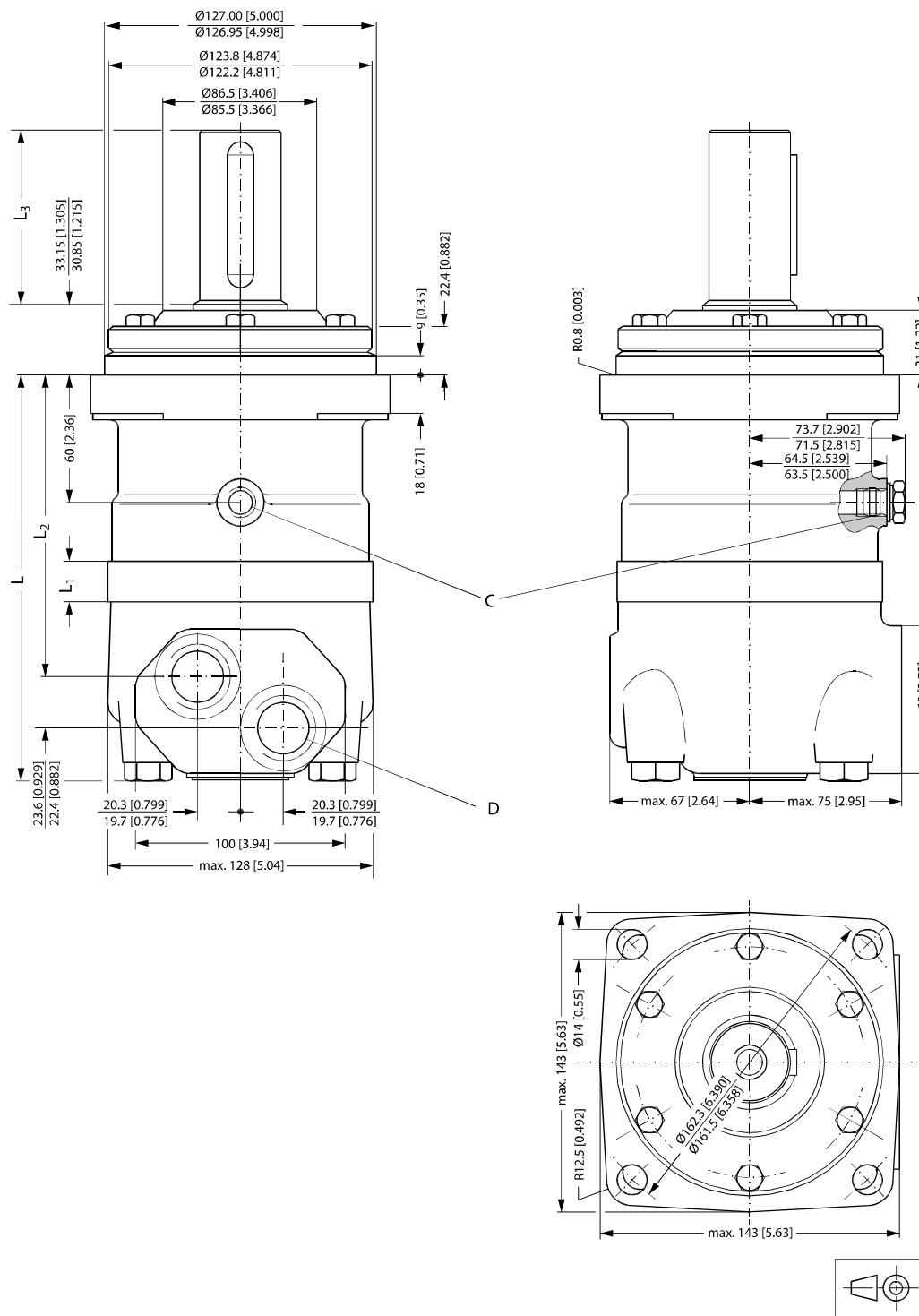
Type	L _{max} mm [in]	L ₁ * mm [in]	L ₂ mm [in]
OMT 160	190 [7.48]	16.5 [0.650]	140 [5.51]
OMT 200	195 [7.68]	21.5 [0.846]	145 [5.71]
OMT 250	201 [7.91]	27.8 [1.094]	151 [5.94]
OMT 315	211 [8.31]	37.0 [1.457]	161 [6.34]
OMT 400	221 [8.70]	47.5 [1.870]	171 [6.73]
OMT 500	235 [9.25]	61.5 [2.421]	185 [7.28]

* The gearwheel set is 3.5 mm [0.138 in] wider across the rollers than the L1 dimensions

Output shaft		L ₃ mm [in]
All shafts except P.t.o. shaft	max.	82 [3.23]
P.t.o. shaft	max.	102 [4.02]

OMT

Standard flange—US version



C: Drain connection 9/16 - 18 UNF; 13 mm [0.51 in] deep O-ring boss port

D: 1 1/16 - 12 UN; 19 mm [0.75 in] deep O-ring boss port

OMT

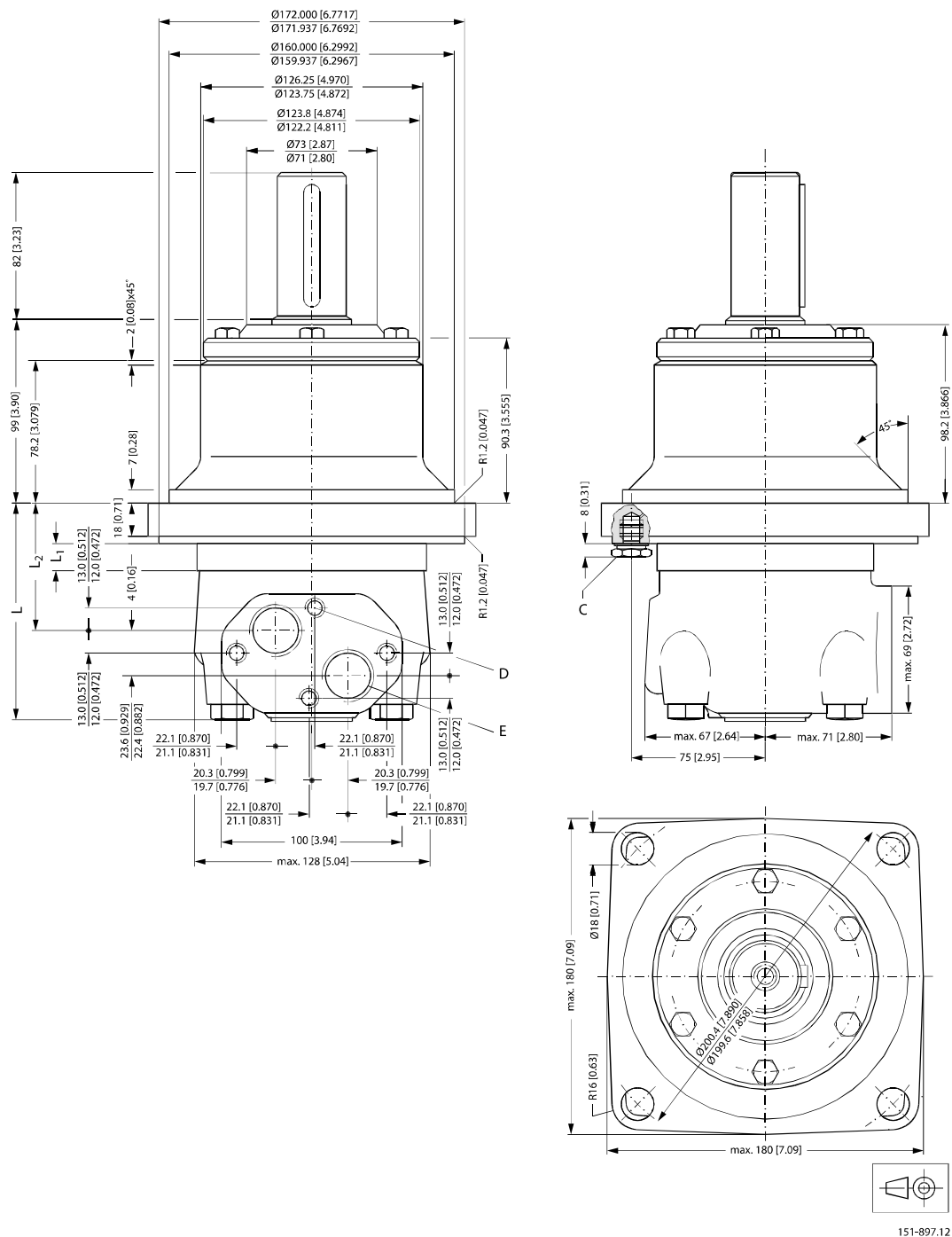
Type	L _{max} mm [in]	L ₁ * mm [in]	L ₂ mm [in]
OMT 160	190 [7.48]	16.5 [0.650]	140 [5.51]
OMT 200	195 [7.68]	21.5 [0.846]	145 [5.71]
OMT 250	201 [7.91]	27.8 [1.094]	151 [5.94]
OMT 315	211 [8.31]	37.0 [1.457]	161 [6.34]
OMT 400	221 [8.70]	47.5 [1.870]	171 [6.73]
OMT 500	235 [9.25]	61.5 [2.421]	185 [7.28]

* The gearwheel set is 3.5 mm [0.138 in] wider across the rollers than the L1 dimensions

Output shaft	L ₃ mm [in]
Cyl. 1.5 in Splined 1.5 in	82 [3.23]
Tapered 1.75 in	80.4 [3.17]

OMT

Wheel—European version



C: Drain connection
G 1/4; 12 mm [0.47 in] deep

D: M10; 10 mm [0.39 in] deep

E: G 3/4; 17 mm [0.67 in] deep

Type	L _{max} mm [in]	L ₁ * mm [in]	L ₂ mm [in]
OMTW 160	123 [4.84]	16.5 [0.650]	73 [2.87]
OMTW 200	128 [5.04]	21.5 [0.846]	78 [3.07]

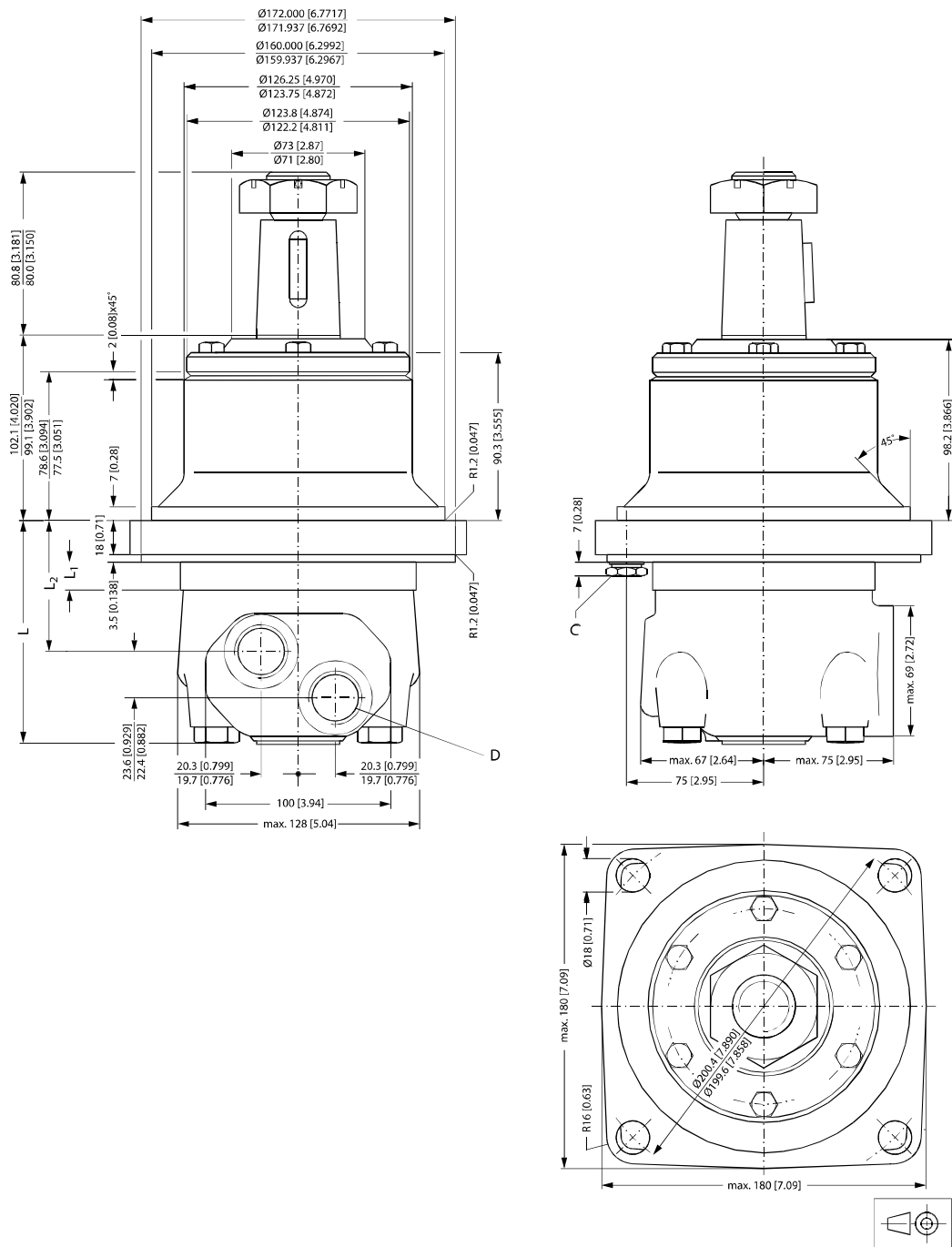
OMT

Type	L _{max} mm [in]	L ₁ *mm [in]	L ₂ mm [in]
OMTW 250	134 [5.28]	27.8 [1.094]	84 [3.31]
OMTW 315	144 [5.67]	37.0 [1.457]	94 [3.70]
OMTW 400	154 [6.06]	47.5 [1.870]	104 [4.09]
OMTW 500	168 [6.61]	61.5 [2.421]	118 [4.65]

* The gearwheel set is 3.5 mm [0.138 in] wider across the rollers than the L1 dimensions

OMT

Wheel—US version



151-897.11.22

C: Drain connection
 9/16 - 18 UNF;
 13 mm [0.51 in] deep
 O-ring boss port

D: 1 1/16 - 12 UN;
 19 mm [0.75 in] deep
 O-ring boss port

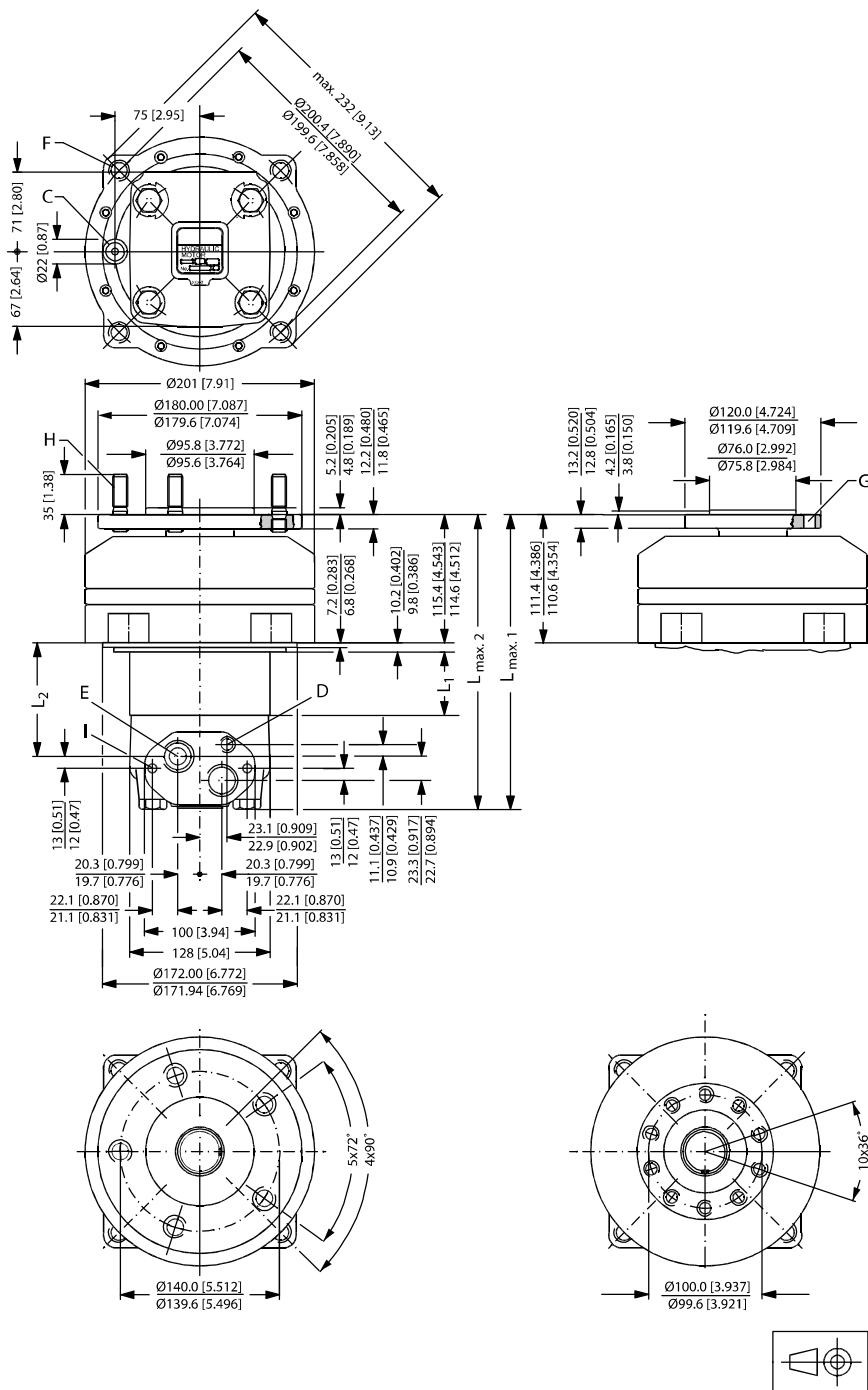
OMT

Type	L _{max} mm [in]	L ₁ * mm [in]	L ₂ mm [in]
OMTW 160	123 [4.84]	16.5 [0.650]	73 [2.87]
OMTW 200	128 [5.04]	21.5 [0.846]	78 [3.07]
OMTW 250	134 [5.28]	27.8 [1.094]	84 [3.31]
OMTW 315	144 [5.67]	37.0 [1.457]	94 [3.70]
OMTW 400	154 [6.06]	47.5 [1.870]	104 [4.09]
OMTW 500	168 [6.61]	61.5 [2.421]	118 [4.65]

* The gearwheel set is 3.5 mm [0.138 in] wider across the rollers than the L1 dimensions

OMT

Brake-wheel—European version



C: Brake-release port G 1/4; 12 mm [0.47 in] deep (BS/ISO 228/1)

D: Drain connection G 1/4; 12 mm [0.47 in] deep

E: G 3/4; 17 mm [0.67 in] deep

F: 4 × M12; 27 mm [1.06 in] deep

G: 10 × M12

H: Wheel bolts 5 × M14 × 1.5

I: M10; 10 mm [0.39 in] deep

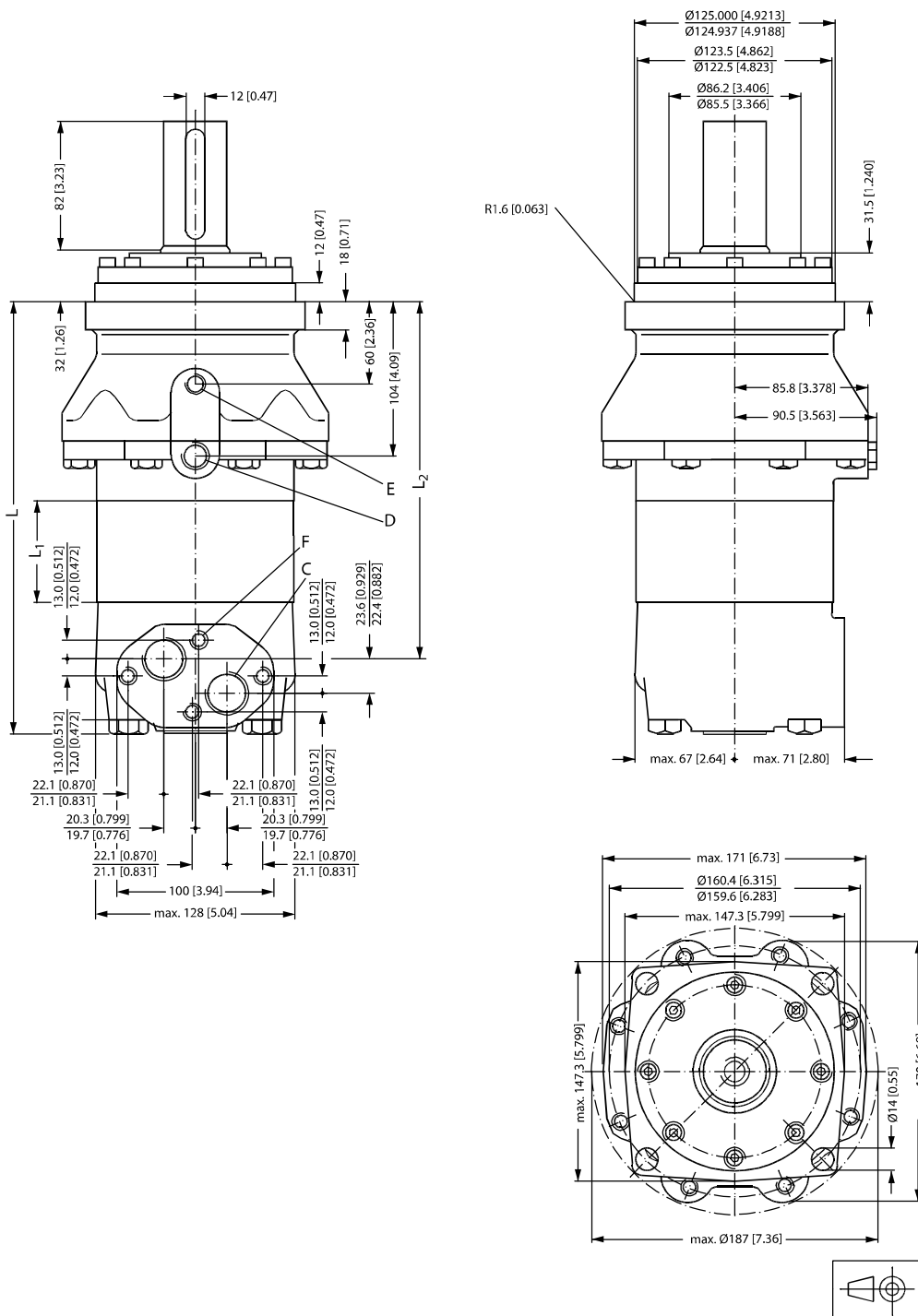
OMT

Type	L _{max 1} mm [in]	L _{max 2} mm [in]	L ₁ * mm [in]	L ₂ mm [in]
OMT 160 FX	223 [8.78]	227 [8.94]	16.5 [0.650]	62 [2.45]
OMT 200 FX	228 [8.98]	232 [9.13]	21.5 [0.846]	67 [2.65]
OMT 250 FX	234 [9.21]	238 [9.37]	27.8 [1.094]	74 [2.89]
OMT 315 FX	243 [9.57]	247 [9.72]	37.0 [1.457]	83 [3.26]
OMT 400 FX	254 [10.00]	258 [10.16]	47.5 [1.870]	93 [3.67]
OMT 500 FX	268 [10.55]	272 [10.71]	61.5 [2.421]	107 [4.22]

* The gearwheel set is 3.5 mm [0.138 in] wider across the rollers than the L₁ dimensions

OMT

Brake-standard—European version



151-1453.10

C: G 3/4; 17 mm [0.67 in] deep (BS/ISO 228/1)

D: Drain connection G 3/8; 14 mm [0.55 in] deep

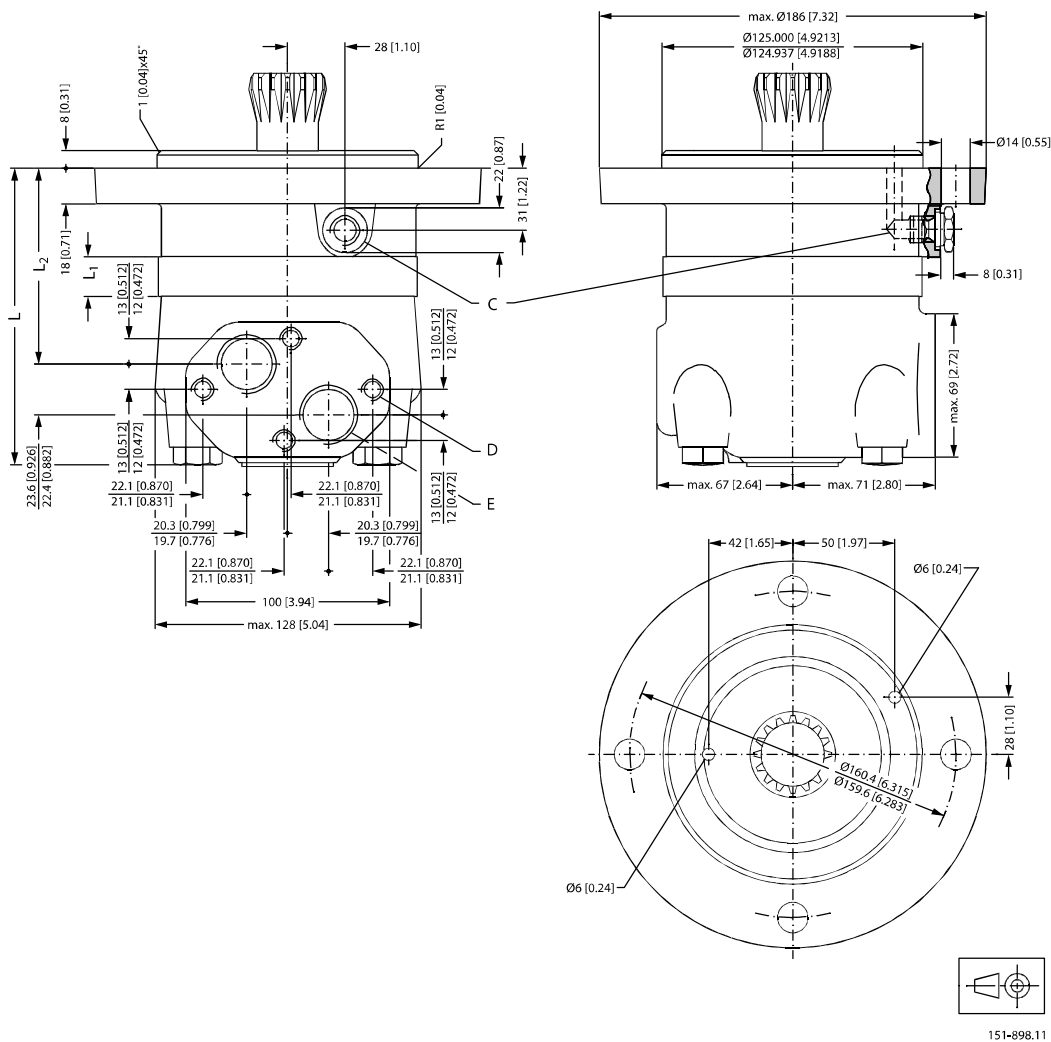
E: Brake-release port G 1/4; 12 mm [0.47 in] deep

F: M10; 10 mm [0.39 in] deep

OMT

Type	L _{max} mm [in]	L ₁ * mm [in]	L ₂ mm [in]
OMT 160 FL/FH	228 [8.98]	16.5 [0.650]	178 [7.01]
OMT 200 FL/FH	233 [9.17]	21.5 [0.846]	183 [7.20]
OMT 250 FL/FH	239 [9.41]	27.8 [1.094]	189 [7.44]
OMT 315 FL/FH	248 [9.76]	37.0 [1.457]	199 [7.83]
OMT 400 FL/FH	259 [10.20]	47.5 [1.870]	209 [8.23]
OMT 500 FL/FH	273 [10.75]	61.5 [2.421]	223 [8.78]

* The gearwheel set is 3.5 mm [0.138 in] wider across the rollers than the L₁ dimensions

Short—European version


C: Drain connection G 1/4; 12 mm [0.47 in] deep

D: M10; 10 mm [0.39 in] deep **E:** G 3/4; 17 mm [0.67 in] deep

Type	L _{max} mm [in]	L ₁ * mm [in]	L ₂ mm [in]
OMTS 160	146 [5.75]	16.5 [0.650]	96 [3.78]
OMTS 200	151 [5.94]	21.5 [0.846]	101 [3.98]

OMT

Type	L _{max} mm [in]	L ₁ * mm [in]	L ₂ mm [in]
OMTS 250	157 [6.18]	27.8 [1.094]	107 [4.21]
OMTS 315	166 [6.54]	37.0 [1.457]	116 [4.57]
OMTS 400	177 [6.97]	47.5 [1.870]	127 [5.00]
OMTS 500	191 [7.52]	61.5 [2.421]	142 [5.59]

* The gearwheel set is 3.5 mm [0.138 in] wider across the rollers than the L₁ dimensions

OMTS
Installation

The cardan shaft of the OMTS motor acts as an "output shaft". Because of the movement of the shaft, no seal can be fitted at the shaft output.

Internal oil leakage from the motor will therefore flow into the attached component.

During start and operation it is important that the spline connection and the bearings in the attached component receive oil and are adequately lubricated. To ensure that the spline connection receives sufficient oil, a conical sealing ring between the shaft of the attached component and the motor intermediate plate is recommended. This method is used in the OMT.

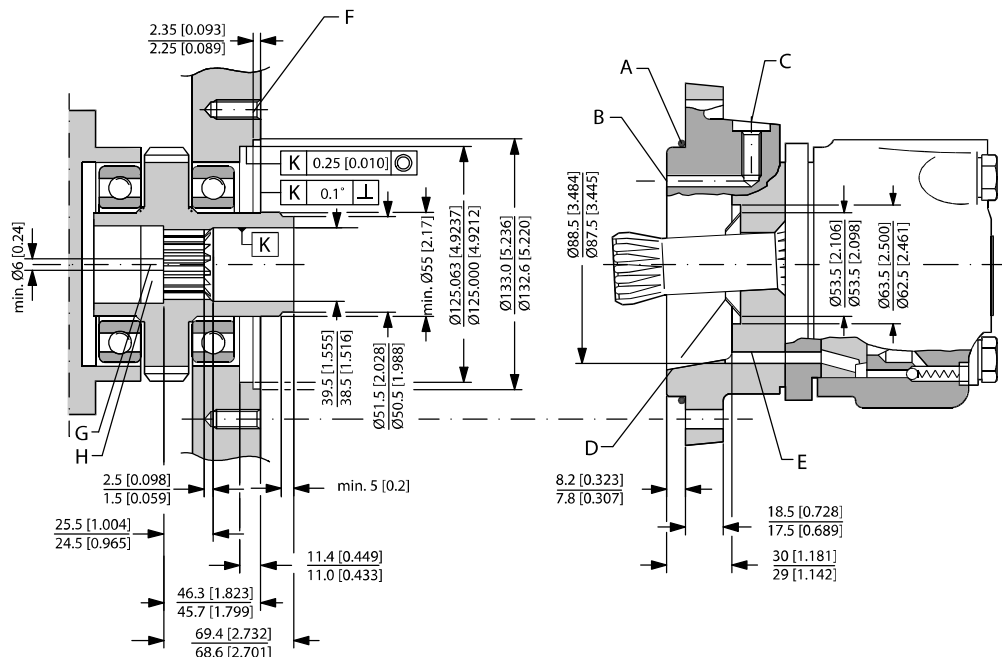
The conical sealing ring (code. no. 633B9022) is supplied with the motor.

To ensure that oil runs to the bearings and other parts of the attached component, the stop plate must have a hole in it (see fig. below).

We recommend an O-ring between motor and attached component. The O-ring (code no. 151B1040) is supplied with the motor. If motor and attached component have been separated, remember to refill before starting up. Fill the oil through the drain connection.

Attached component dimensions

OMTS dimensions of the attached component in millimeter [inches]



OMT

- | | | | |
|----------|---|----------|--------------------------------|
| A | O-ring: 125 × 3 mm | B | External drain channel |
| C | Drain connection
G 1/4; 12 mm [0.47 in] deep | D | Conical seal ring |
| E | Internal drain channel | F | M12; min. 18 mm [0.71 in] deep |
| G | Oil circulation hole | H | Hardened stop plate |

Attached component internal splines

The attached component must have internal splines corresponding to the external splines on the motor cardan shaft (see the following drawing).

Material:

Case hardening steel with a tensile strength corresponding at least to 20 MoCr4 (900 N/mm²) or SAE 8620.

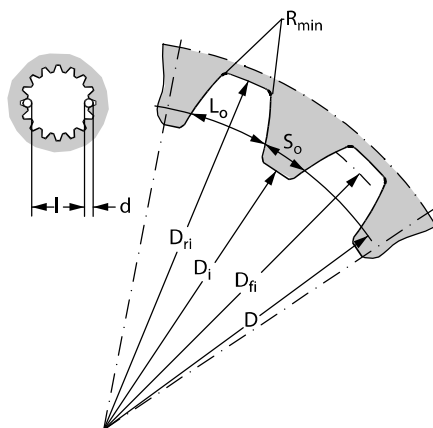
Hardening specification:

- On the surface: HV = 750 ± 50
- 0.7 ± 0.2 mm under the surface: HV = 560

Internal involute spline data; Standard ANS B92.1-1970, class 5 (corrected $m \cdot X = 1$; $m = 2.1166$)

Flat root side fit		mm	in
Number of teeth	z	16	16
Pitch	DP	12/24	12/24
Pressure angle		30°	30°
Pitch dia.	D	33.8656	1.3333
Major dia.	D _{ri}	38.4 ₀ ^{+0.4}	1.5118 ₀ ^{+0.0157}
Form dia. (min.)	D _{fi}	37.6	1.4803
Minor dia.	D _i	32.150 ₀ ^{+0.04}	1.2657 ₀ ^{+0.00157}
Space width (circular)	L _o	4.516 ^{±0.037}	0.1777 ^{±0.0014}
Tooth thickness (circular)	S _o	2.170	0.0854
Fillet radius	R _{min.}	0.5	0.02
Max. measurement between pins*	l	26.9 ₀ ^{+0.1}	1.059 ₀ ^{+0.004}
Pin dia.	d	4.834 ^{±0.001}	0.1903 ^{±0.00004}

* Finished dimensions (when hardened).

OMT


151-455.10

Motor or attached component drain connection

Use the drain line when pressure in the return line exceeds the permissible pressure on the shaft seal of the attached component.

Connect the drain line either at the:

- Motor drain connection
- Drain connection of the attached component

If a drain line is fitted to the attached component, it must be possible for oil to flow freely between motor and attached component.

The drain line must be led to the tank in such a way that there is no risk of the motor and attached component being drained of oil when at rest.

The maximum pressure in the drain line is limited by the attached component and its shaft seal.

OMV
Versions
OMV versions

Mounting flange	Shaft	Port size	European version	US version	Drain connection	Check valve	Main type designation
Standard flange	Cyl. 50 mm	G1	X		Yes	Yes	OMV
	Cyl. 2.25 in	1 5/16-12 UN		X	Yes	Yes	OMV
	Splined 2.125 in	G1	X		Yes	Yes	OMV
		1 5/16-12 UN		X	Yes	Yes	OMV
	Tapered 60 mm	G1	X		Yes	Yes	OMV
	Tapered 2.25 in	1 5/16-12 UN		X	Yes	Yes	OMV
SAE-C flange	Cyl. 2.25 in	1 5/16-12 UN		X	Yes	Yes	OMV
	Splined 2.125 in	1 5/16-12 UN		X	Yes	Yes	OMV
Wheel	Cyl. 50 mm	G1	X		Yes	Yes	OMVW
	Tapered 60 mm	G1	X		Yes	Yes	OMVW
	Tapered 2.25 in	1 5/16-12 UN		X	Yes	Yes	OMVW
Short	No output shaft	G1	X		Yes	Yes	OMVS

Features

Features available (options):

- Speed sensor
- Motor with tacho connection
- Viton shaft seal
- Painted
- Ultra short

Code numbers
OMV code numbers

Code Numbers	Displacement [cm ³]				
	315	400	500	630	800
151B	3100	3101	3102	3103	3104
151B	2150	2151	2152	2153	2154
151B	3105	3106	3107	3108	3109
151B	2155	2156	2157	2158	2159
151B	3110	3111	3112	3113	3114
151B	2160	2161	2162	2163	2164
151B	2183	2184	2185	2186	2187
151B	2188	2189	2190	2191	2192
151B	3115	3116	3117	3118	3119
151B	3120	3121	3122	3123	3124
151B	2170	2171	2172	2173	2174
151B	3125	3126	3127	3128	3129

Technical Information OMS, OMT and OMV Orbital Motors

OMV

Ordering

Add the four digit prefix "151B" to the four digit numbers from the chart for complete code number.

Example:

151B3101 for an OMV 400 with standard flange, cyl. 50 mm shaft and port size G 1.

Orders will not be accepted without the four digit prefix.

Technical data

Technical data for OMV, OMVW and OMVS

Type			OMV OMVW OMVS	OMV OMVW OMVS	OMV OMVW OMVS	OMV OMVW OMVS	OMV OMVW OMVS
Motor size			315	400	500	630	800
Geometric displacement	cm ³ [in ³]		314.5 [19.19]	400.9 [24.46]	499.6 [30.49]	629.1 [38.39]	801.8 [48.93]
Max. speed	min ⁻¹ [rpm]	cont.	510	500	400	315	250
		int. ¹⁾	630	600	480	380	300
Max. torque	Nm [lbf-in]	cont.	920 [8140]	1180 [10440]	1460 [12920]	1660 [14690]	1880 [16640]
		int. ¹⁾	1110 [9820]	1410 [12480]	1760 [15580]	1940 [17170]	2110 [18680]
Max. output	kW [hp]	cont.	42.5 [57.0]	53.5 [71.7]	53.5 [71.7]	48.0 [64.4]	42.5 [57.0]
		int. ¹⁾	51.0 [68.4]	64.0 [85.8]	64.0 [85.8]	56.0 [75.1]	48.0 [64.4]
Max. pressure drop	bar [psi]	cont.	200 [2900]	200 [2900]	200 [2900]	180 [2610]	160 [2320]
		int. ¹⁾	240 [3480]	240 [3480]	240 [3480]	210 [3050]	180 [2610]
		peak ²⁾	280 [4060]	280 [4060]	280 [4060]	240 [3480]	210 [3050]
Max. oil flow	l/min [USgal/ min]	cont.	160 [42.3]	200 [52.8]	200 [52.8]	200 [52.8]	200 [52.8]
		int. ¹⁾	200 [52.8]	240 [63.4]	240 [63.4]	240 [63.4]	240 [63.4]
Max. starting pressure with unloaded shaft	bar [psi]		8 [116]	8 [116]	8 [116]	8 [116]	8 [116]
Min. starting torque	at max. press. drop cont. Nm [lbf-in]		710 [6280]	910 [8050]	1130 [10000]	1330 [11770]	1510 [13360]
	at max. press. drop int. ¹⁾ Nm [lbf-in]		850 [7520]	1090 [9650]	1360 [12040]	1550 [13720]	1700 [15050]

Type			Max. inlet pressure	Max. return pressure with drain line
OMV OMVW OMVS	bar [psi]	cont.	210 [3050]	140 [2030]
	bar [psi]	int. ¹⁾	250 [3630]	175 [2540]
	bar [psi]	peak ²⁾	300 [4350]	210 [3050]

¹⁾ Intermittent operation: the permissible values may occur for max. 10% of every minute.

²⁾ Peak load: The permissible values may occur for max. 1% of every minute.

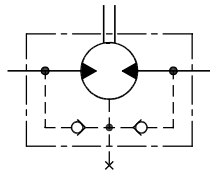
For max. permissible combination of flow and pressure, see function diagram for actual motor.

Maximum permissible shaft seal pressure

Motor with check valves and without use of drain connection

The pressure on the shaft seal never exceeds the pressure in the return line.

OMV

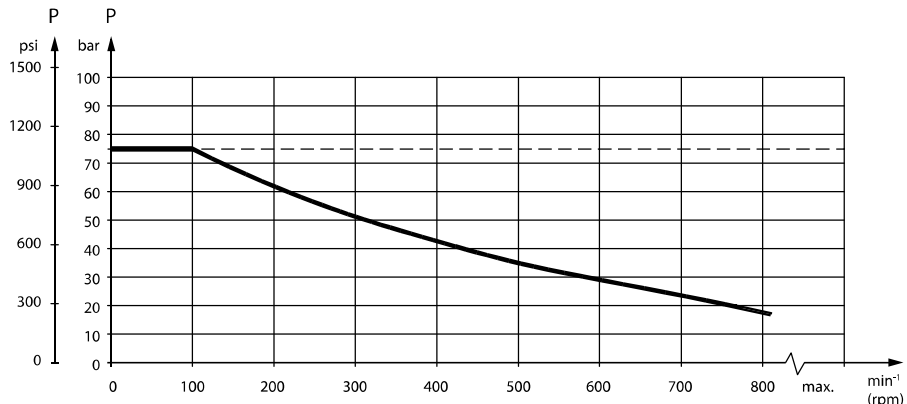


151-320.10

Maximum return pressure

The shaft seal pressure equals the pressure on the drain line.

Maximum return pressure without drain line or maximum pressure in the drain line

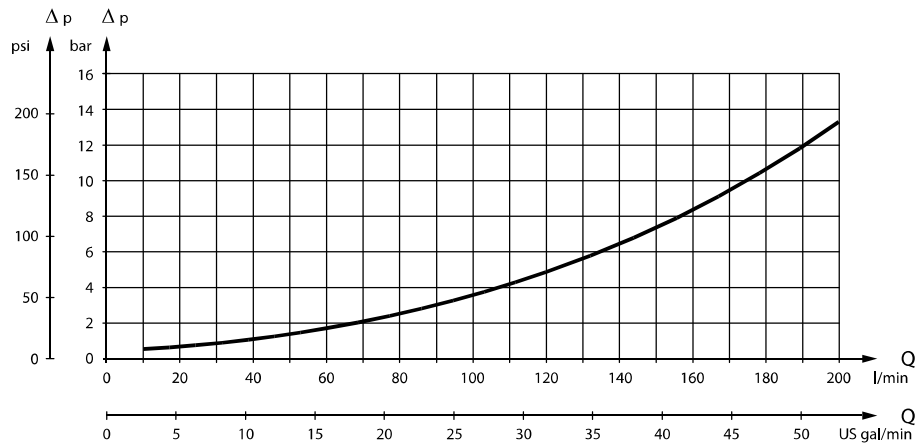


151-1674.10

----- Intermittent operation: the permissible values may occur for max. 10% of every minute.

———— Continuous operation

Pressure drop in motor



151-1410.10

The curve applies to an unloaded motor shaft and an oil viscosity of 35 mm²/s [165 SUS]

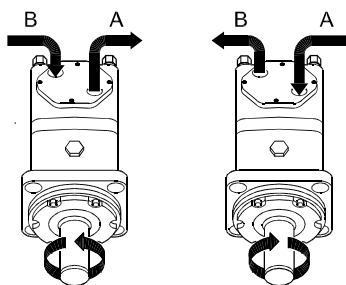
OMV

Oil flow in drain line

Maximum oil flow in the drain line at a return pressure less than 5-10 bar [75-150 psi]

Pressure drop bar [psi]	Viscosity mm ² /s [SUS]	Oil flow in drain line l/min [US gal/min]
140 [2030]	20 [100]	3.0 [0.79]
	35 [165]	2.0 [0.53]
210 [3050]	20 [100]	6.0 [1.59]
	35 [165]	4.0 [1.06]

Direction of shaft rotation



151-394.10

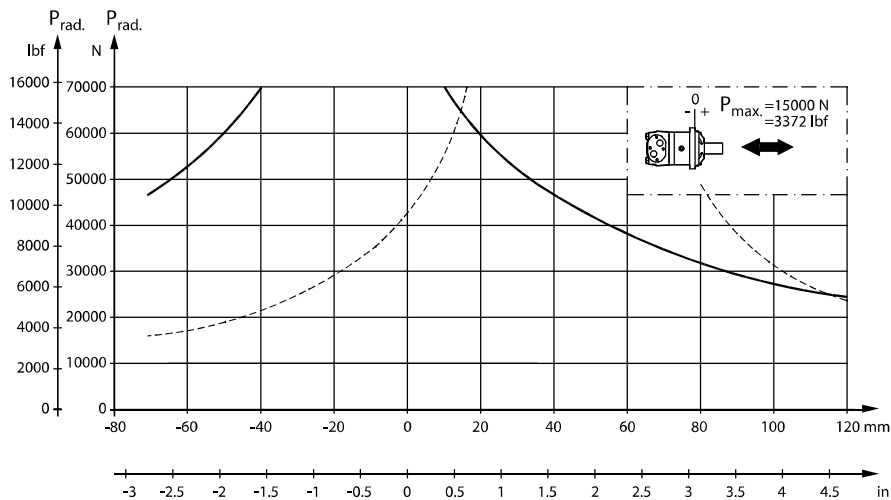
Permissible shaft loads for OMV

Mounting flange:

Standard

Shaft:

All shaft types



151-1973.10

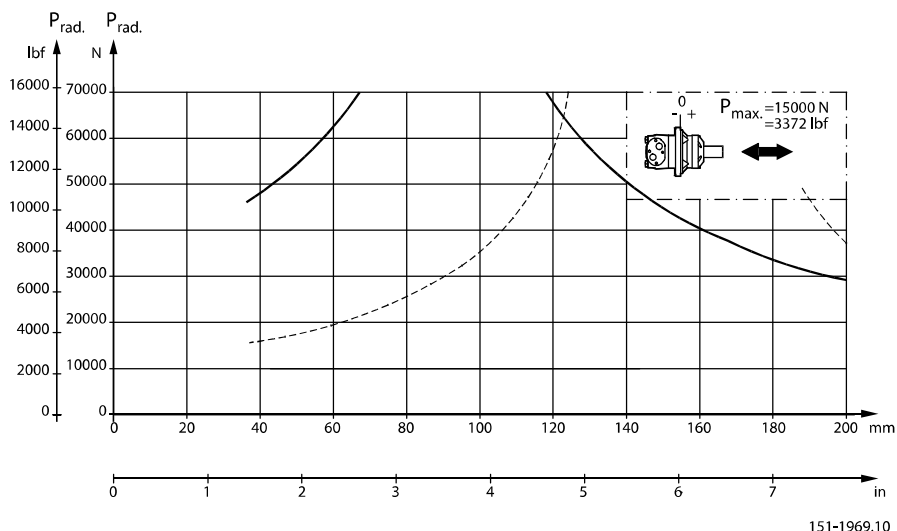
OMV

Mounting flange:

Wheel

Shaft:

All shaft types



151-1969.10

The output shaft runs in tapered roller bearings that permit high axial and radial forces.

The permissible radial load on the shaft is shown for an axial load of 0 N as a function of the distance from the mounting flange to the point of load application.

The curve is based on B10 bearing life (2000 hours or 12,000,000 shaft revolutions at 100 min⁻¹) at rated output torque, when mineral-based hydraulic oil with a sufficient content of anti-wear additives, is used.

For 3,000,000 shaft revolutions or 500 hours – increase these shaft loads with 52%.

The dash curve shows maximum radial shaft load. Any shaft load exceeding the values shown in the curve will involve a risk of breakage.

Bearing life calculations can be made using the explanation and formula provided in the chapter "Bearing dimensioning" in the technical information "General Orbital motors" 520L0232.

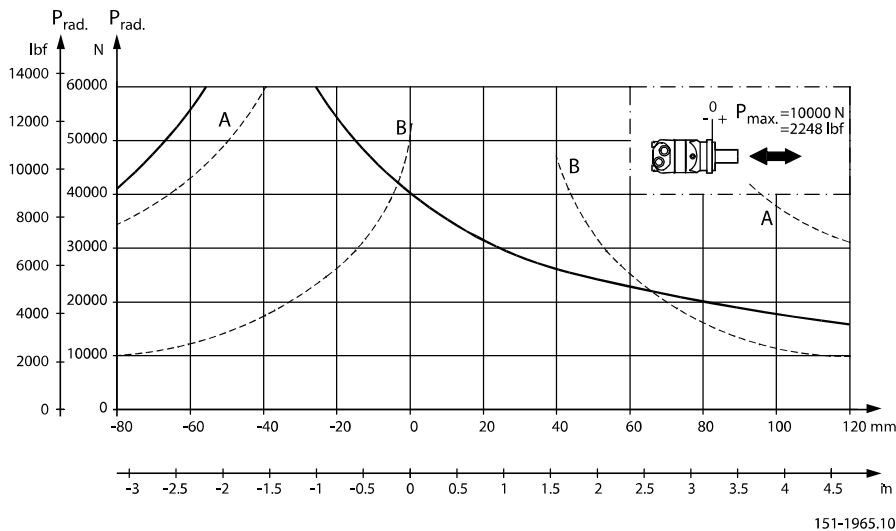
Mounting flange:

SAE-C

Shaft:

All shaft types

OMV



- A** Cyl. 2.25 in shaft
- B** Splined 2.125 in shaft

The output shaft runs in tapered roller bearings that permit high axial and radial forces.

The permissible radial load on the shaft is shown for an axial load of 0 N as a function of the distance from the mounting flange to the point of load application.

The curve is based on B10 bearing life (2000 hours or 12,000,000 shaft revolutions at 100 min⁻¹) at rated output torque, when mineral-based hydraulic oil with a sufficient content of anti-wear additives, is used.

For 3,000,000 shaft revolutions or 500 hours – increase these shaft loads with 52%.

The dash curve shows max. radial shaft load. Any shaft load exceeding the values shown in the curve will involve a risk of breakage.

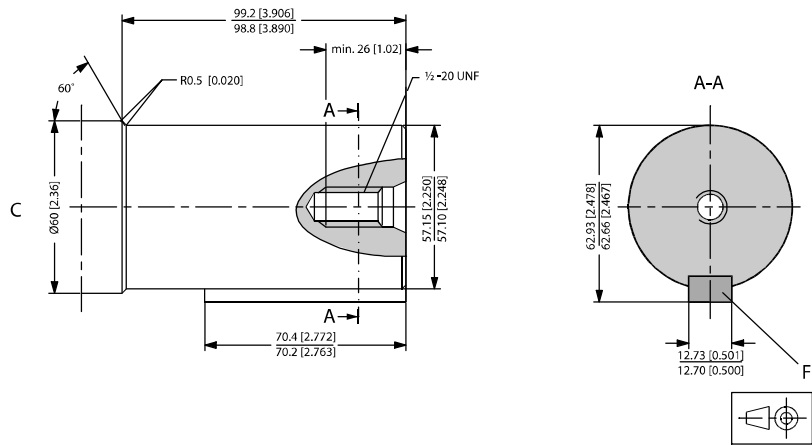
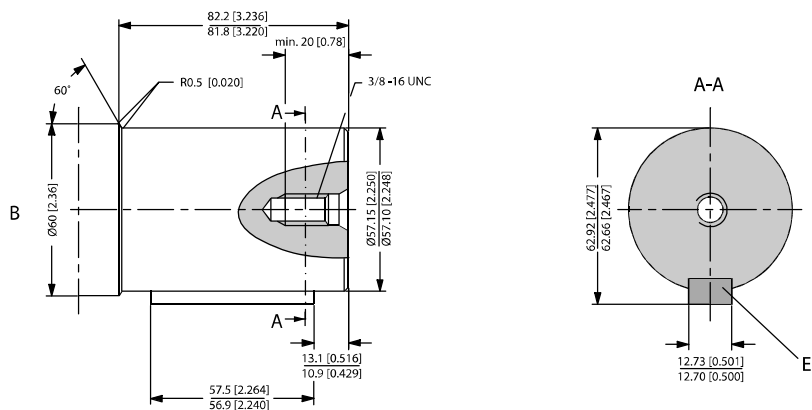
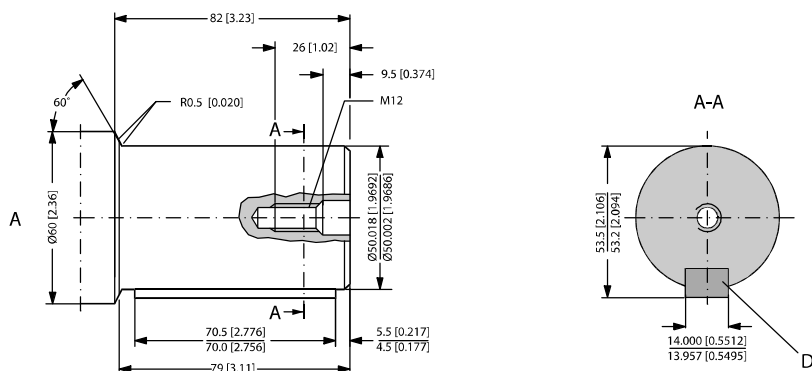
Bearing life calculations can be made using the explanation and formula provided in the chapter "Bearing dimensioning" in the technical information "General Orbital motors" 520L0232.

Function diagrams

- Continuous range** ■
- Intermittent range (maximum 10% operation every minute)** ■

OMV

Shaft version



151-878.12

A Cylindrical 50 mm shaft

D Parallel key

A14 × 9 × 70; DIN 6885

Keyway deviates from standard

B Cylindrical 2.25 in shaft for OMV with standard mounting flange

E Parallel key

1/2 × 1/2 × 2 1/4 in; B.S. 46

Keyway deviates from standard

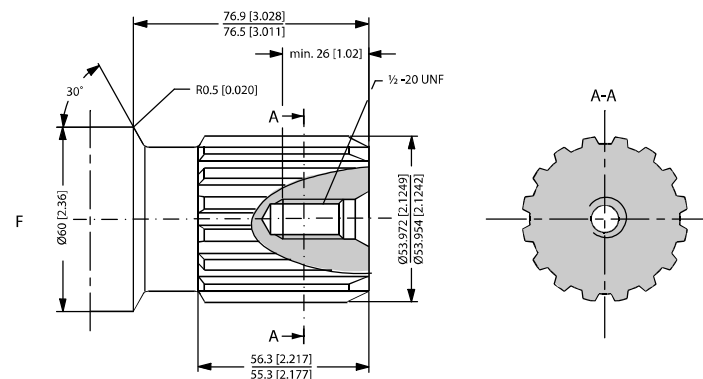
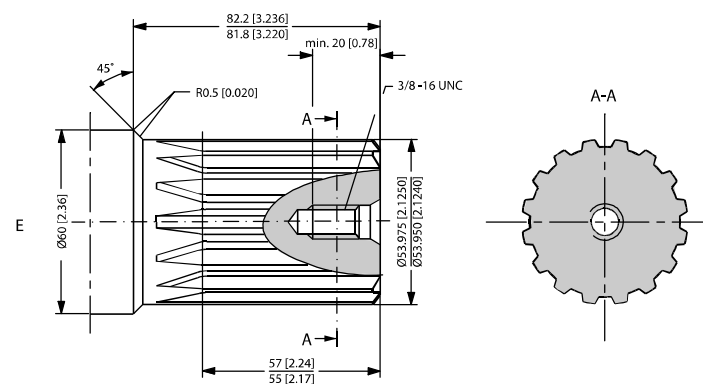
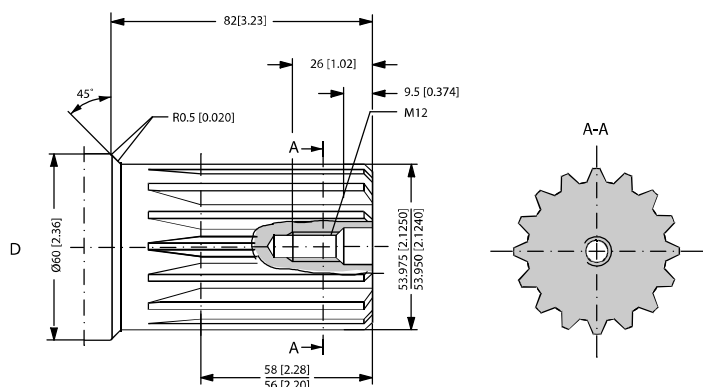
C Cylindrical 2.25 in shaft for OMV with mounting flange SAE-C

F Parallel key

1/2 × 1/2 × 2 1/4 in; B.S. 46

Keyway deviates from standard

OMV



151-1918.10

D Involute splined shaft ANS B92.1 - 1970 standard
 Flat root side fit
 Pitch 8/16; Teeth 16
 Major dia. 2.125 in
 Pressure angle 30°

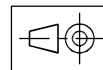
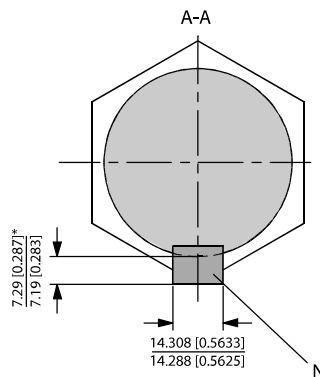
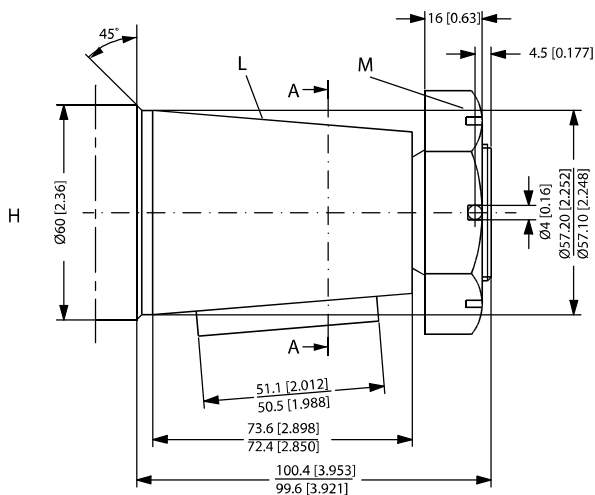
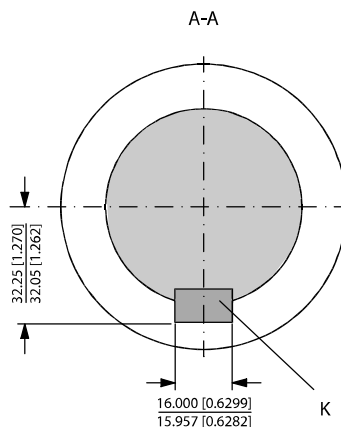
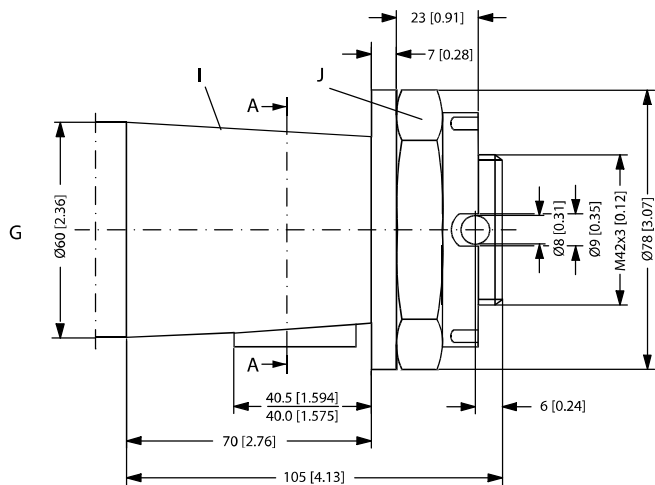
E US version
 Involute splined shaft for OMV with standard mounting flange ANS B92.1 - 1970 standard
 Flat root side fit
 Pitch 8/16; Teeth 16
 Major dia. 2.125 in

F (US version)
 Involute splined shaft for OMV with mounting flange SAE-C ANS B92.1 - 1970 standard
 Flat root side fit
 Pitch 8/16; Teeth 16
 Major dia. 2.125 in

OMV

Pressure angle 30°

Pressure angle 30°



151-1919.10

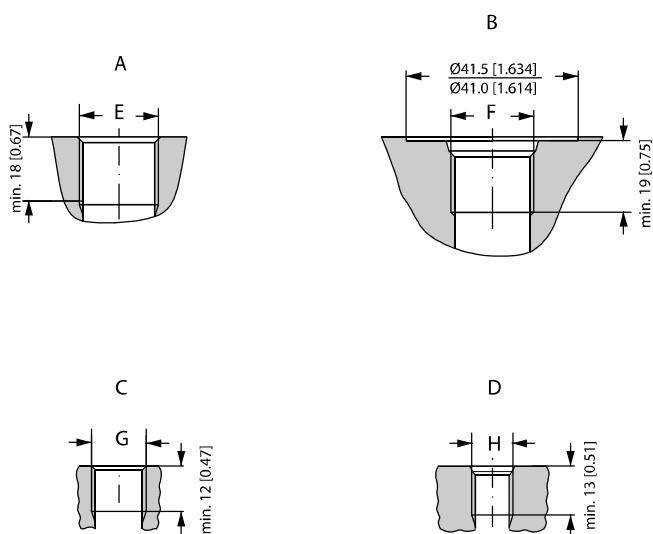
- G** Tapered 60 mm shaft (ISO/R775)
- J** DIN 937
Across flats: 65 mm
Tightening torque: 750 ±50 Nm [6640 ±440 lbf-in]
- I** Taper 1:10
- K** Parallel key B16 × 10 × 32
DIN 6885
Keyway deviates from standard

- H** Tapered 2.25 in shaft
- L** Cone 1:8
SAE J501
- M** 11/2 - 18 UNEF
Across flats: 23/8 in
Tightening torque: 750 ±50 Nm [6640 ±440 lbf-in]
- N** Parallel key
9/16 × 9/16 × 2 in
B.S. 46

OMV

Keyway deviates from standard

Port thread versions



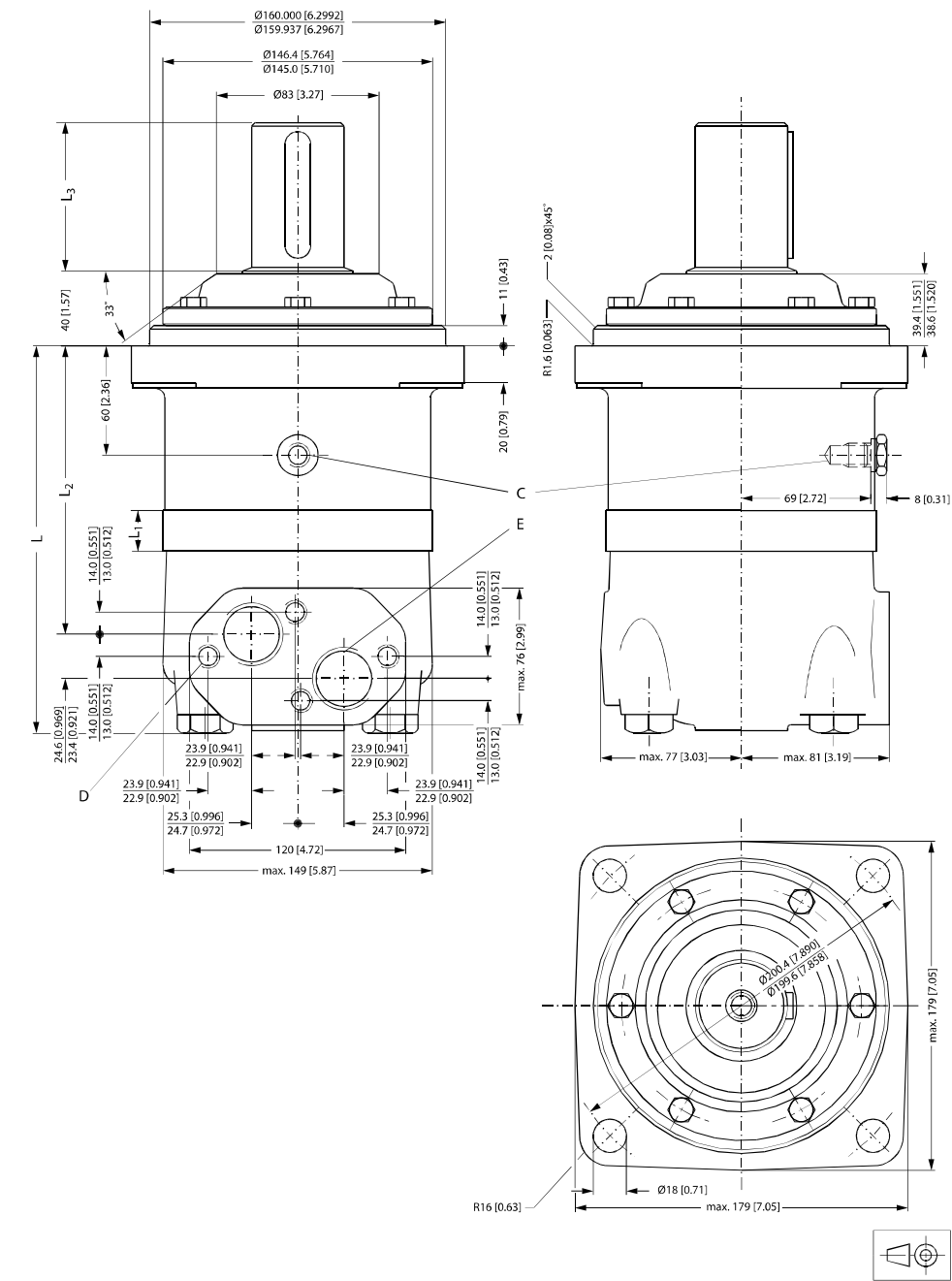
151-1977.11

- | | | | |
|----------|-----------------------------------|----------|----------------|
| A | G main ports | B | UN main ports |
| E | ISO 228/1 - G1 O-ring boss port | F | 1 5/16 - 12 UN |
| C | G drain port | D | UNF drain port |
| G | ISO 228/1 - G1/4 O-ring boss port | H | 9/16 - 18 UNF |

OMV

Dimensions

Standard flange—European version



C: Drain connection G 1/4; 12 mm [0.47 in] deep

D: M12; 12 mm [0.47 in] deep

E: G 1; 18 mm [0.71 in] deep

OMV

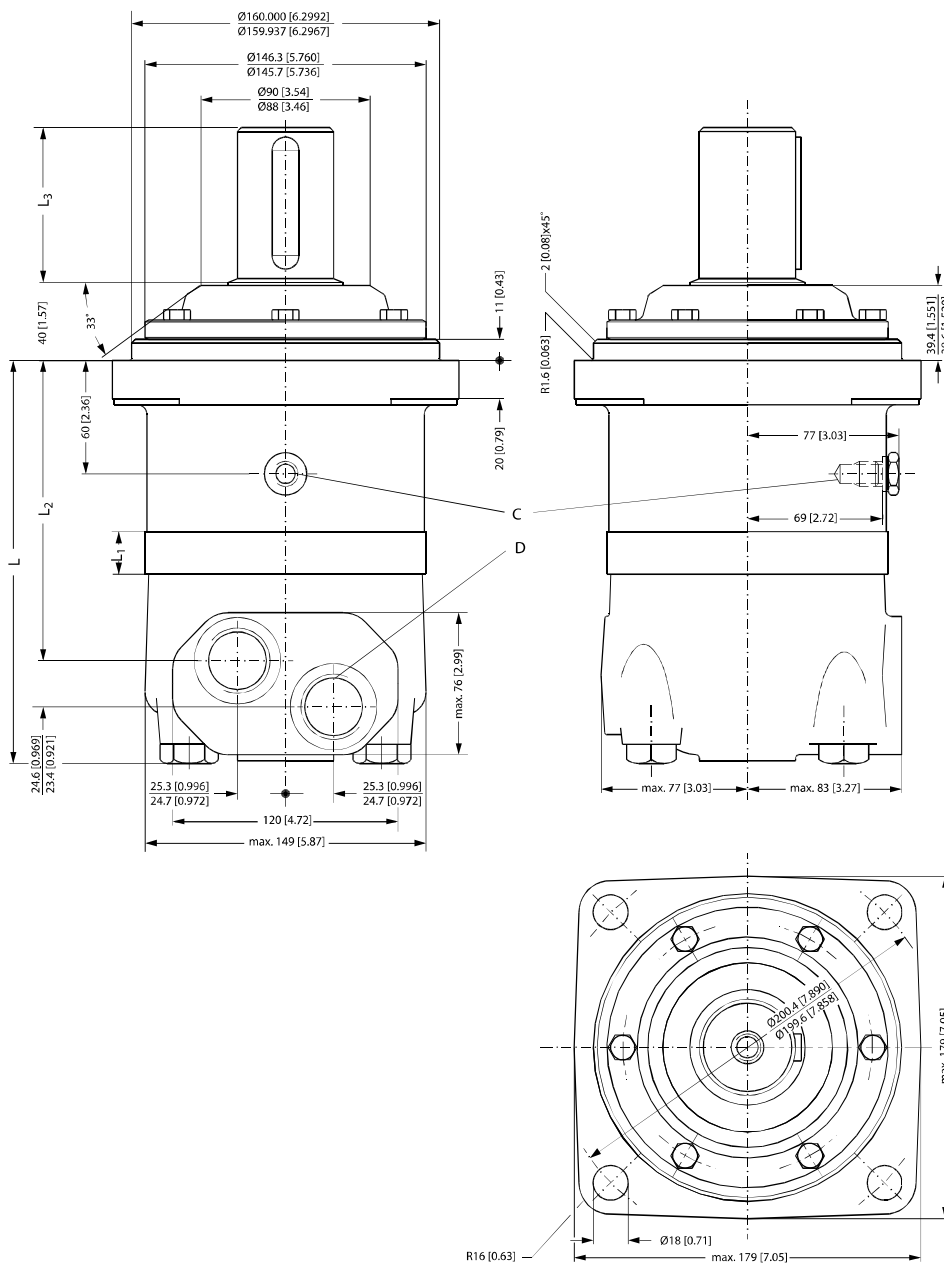
Type	L _{max} mm [in]	L ₁ * mm [in]	L ₂ mm [in]
OMV 315	215 [8.46]	22.0 [0.866]	160 [6.30]
OMV 400	222 [8.74]	29.0 [1.142]	167 [6.57]
OMV 500	230 [9.05]	37.0 [1.457]	175 [6.89]
OMV 630	240 [9.45]	47.5 [1.870]	186 [7.32]
OMV 800	254 [10.00]	61.5 [2.421]	200 [7.87]

* The gearwheel set is 3.5 mm [0.138 in] wider across the rollers than the L₁ dimensions

Output shaft	L ₃ mm [in]
Cyl. 50 mm Splined 2.125 in	82 [3.23]
Tapered 60 mm	105 [4.13]

OMV

Standard flange—US version



151-890.11.22

C: Drain connection 9/16 - 18 UNF; 13 mm [0.51 in] deep O-ring boss port

D: 1 5/16 - 12 UN; 19 mm [0.75 in] deep O-ring boss port

Type	L_{\max} mm [in]	L_1^* mm [in]	L_2 mm [in]
OMV 315	215 [8.46]	22.0 [0.866]	160 [6.30]
OMV 400	222 [8.74]	29.0 [1.142]	167 [6.57]
OMV 500	230 [9.05]	37.0 [1.457]	175 [6.89]

OMV

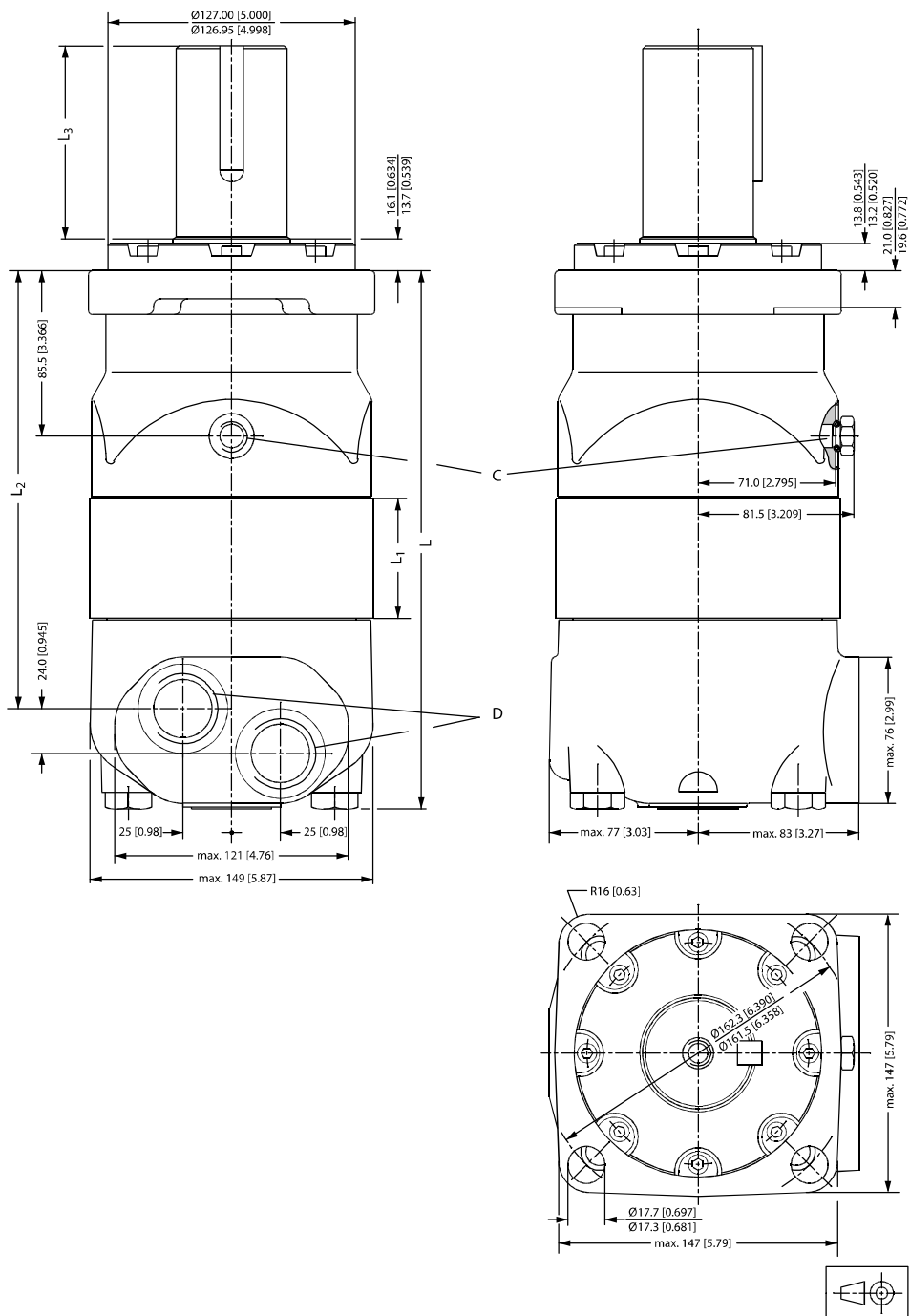
Type	L _{max} mm [in]	L ₁ *mm [in]	L ₂ mm [in]
OMV 630	240 [9.45]	47.5 [1.870]	186 [7.32]
OMV 800	254 [10.00]	61.5 [2.421]	200 [7.87]

* The gearwheel set is 3.5 mm [0.138 in] wider across the rollers than the L1 dimensions

Output shaft	L ₃ mm [in]
Cyl. 2.25 in Splined 2.125 in	82 [3.23]
Tapered 2.25 in	100 [3.94]

OMV

SAE-C flange—US version



151-1485.10

- C:** Drain connection 9/16 - 18 UNF; 13 mm [0.51 in] deep O-ring boss port
- D:** 1 5/16 - 12 UN; 19 mm [0.75 in] deep O-ring boss port

OMV

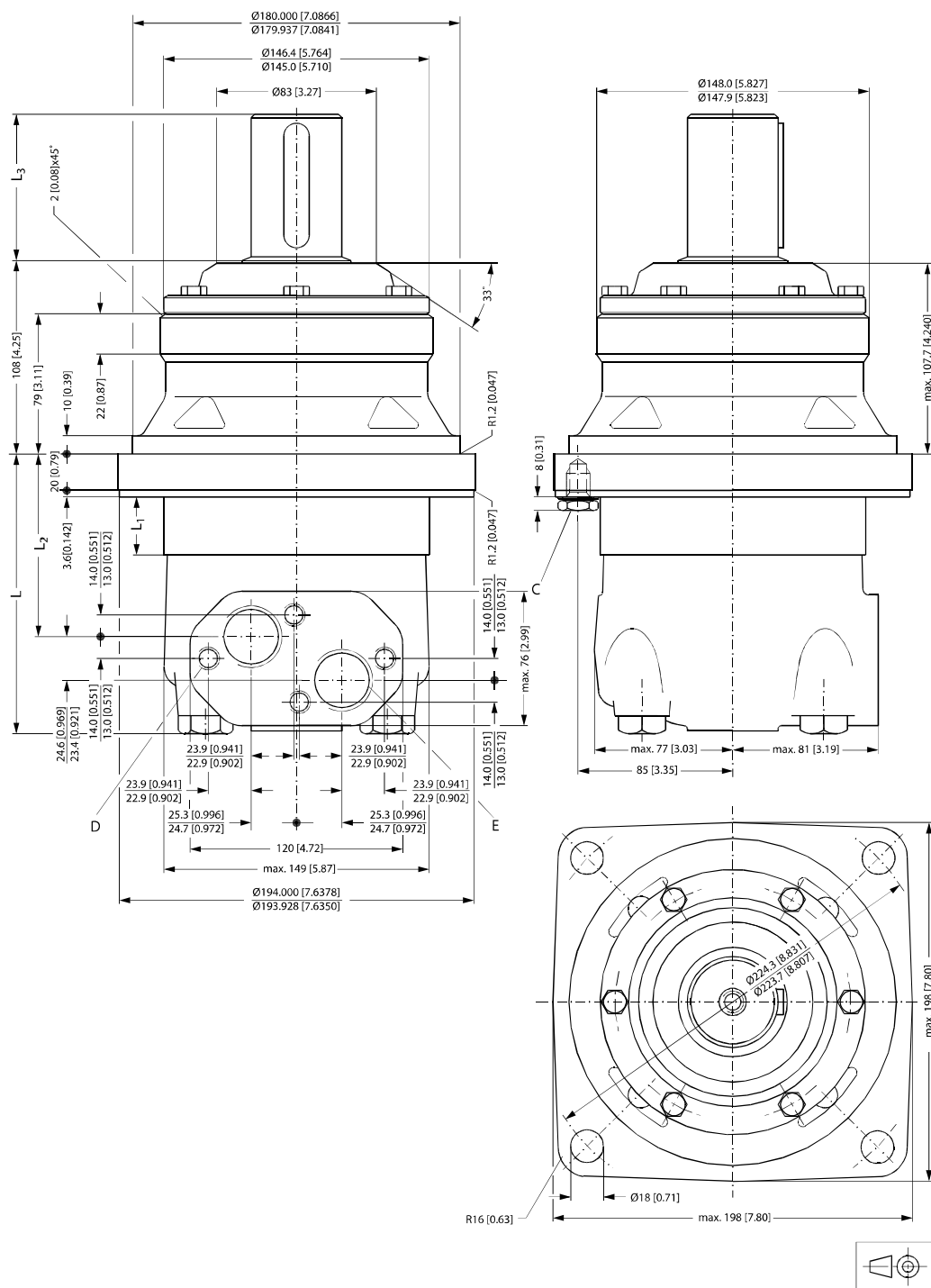
Type	L _{max} mm [in]	L ₁ *mm [in]	L ₂ mm [in]
OMV 315	239 [9.41]	22.0 [0.866]	185 [7.28]
OMV 400	246 [9.69]	29.0 [1.142]	192 [7.56]
OMV 500	254 [10.00]	37.0 [1.457]	200 [7.87]
OMV 630	265 [10.43]	47.5 [1.870]	211 [8.31]
OMV 800	279 [10.98]	61.5 [2.421]	225 [8.86]

* The gearwheel set is 3.5 mm [0.138 in] wider across the rollers than the L1 dimensions

Output shaft	L ₃ mm [in]
Cyl. 2.25 in	99 [3.90]
Splined 2.125 in	76.7 [3.02]

OMV

Wheel—European version



- C:** Drain connection G 1/4; 12 mm [0.47 in] deep
- D:** M12; 12 mm [0.47 in] deep
- E:** G 1; 18 mm [0.71 in] deep



151-899.11

OMV

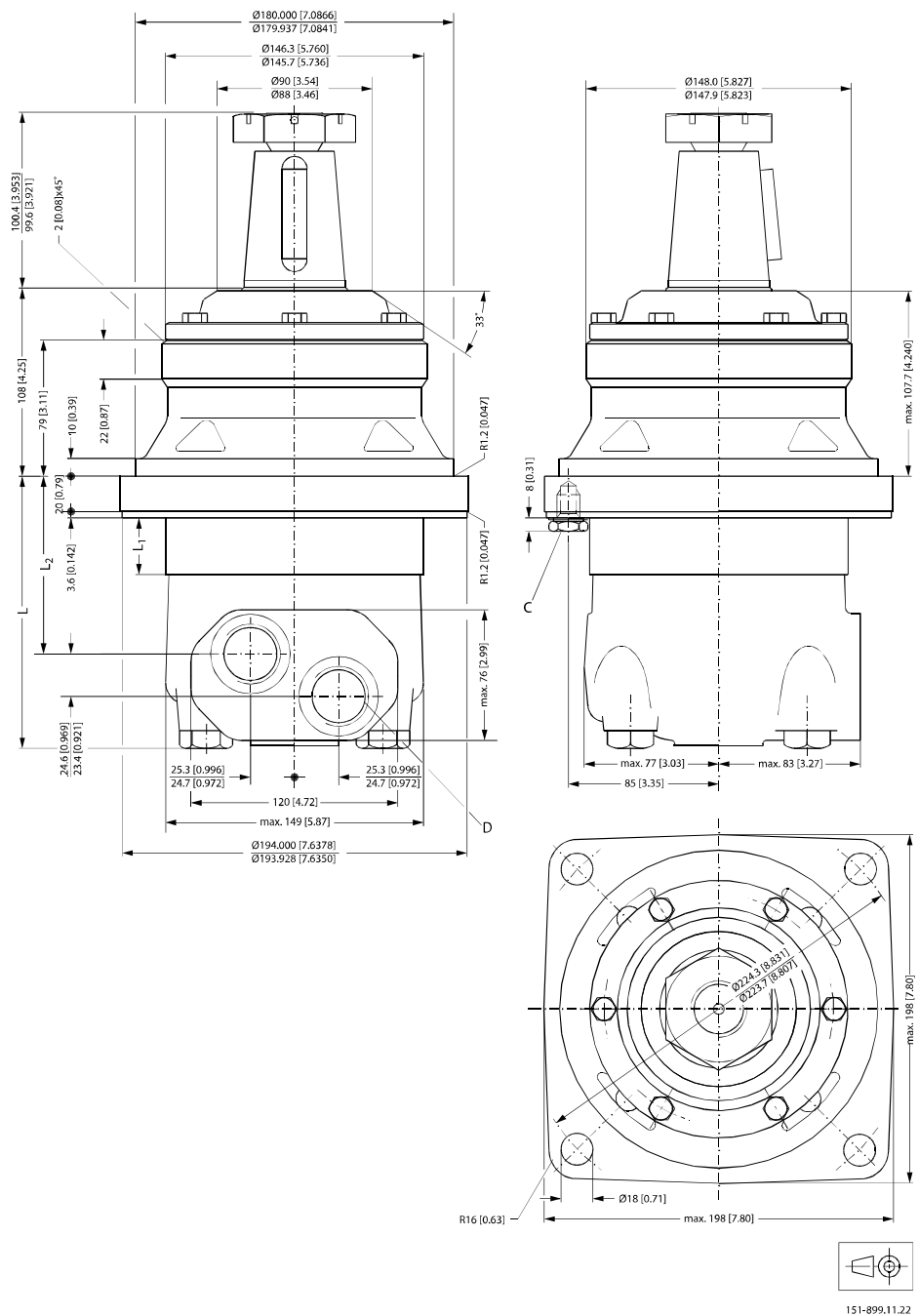
Type	L _{max} mm [in]	L ₁ *mm [in]	L ₂ mm [in]
OMVW 315	146 [5.75]	22.0 [0.866]	92 [3.62]
OMVW 400	153 [6.02]	29.0 [1.142]	99 [3.90]
OMVW 500	161 [6.34]	37.0 [1.457]	107 [4.21]
OMVW 630	172 [6.77]	47.5 [1.870]	118 [4.65]
OMVW 800	185 [7.28]	61.5 [2.421]	132 [5.20]

* The gearwheel set is 3.5 mm [0.138 in] wider across the rollers than the L1 dimensions

Output shaft	L ₃ mm [in]
Cyl. 50 mm	82 [3.23]
Tapered 60 mm	105 [4.13]

OMV

Wheel—US version



C: Drain connection 9/16 - 18 UNF; 13 mm [0.51 in] deep O-ring boss port

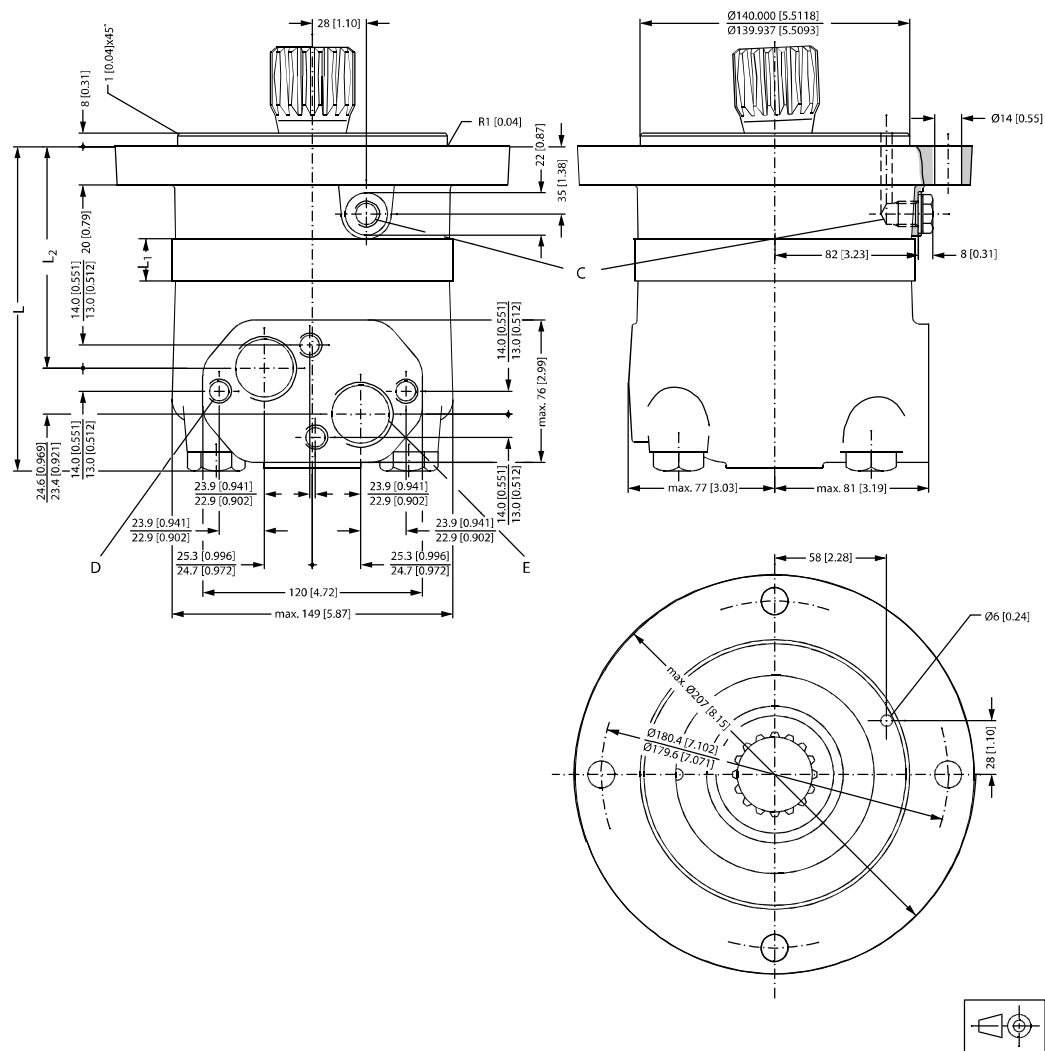
D: 1 5/16 - 12 UN; 19 mm [0.75 in] deep O-ring boss port

Type	L _{max} mm [in]	L ₁ * mm [in]	L ₂ mm [in]
OMVW 315	147 [5.79]	22.0 [0.866]	92 [3.62]
OMVW 400	154 [6.06]	29.0 [1.142]	99 [3.90]
OMVW 500	162 [6.38]	37.0 [1.457]	107 [4.21]

OMV

Type	L _{max} mm [in]	L ₁ * mm [in]	L ₂ mm [in]
OMVW 630	172 [6.77]	47.5 [1.870]	118 [4.65]
OMVW 800	187 [7.36]	61.5 [2.421]	132 [5.20]

* The gearwheel set is 3.5 mm [0.138 in] wider across the rollers than the L₁ dimensions

Short—European version


151-900.10

C: Drain connection G 1/4; 12 mm [0.47 in] deep

D: M12; 12 mm [0.47 in] deep

E: G 1; 18 mm [0.71 in] deep

Type	L _{max} mm [in]	L ₁ * mm [in]	L ₂ mm [in]
OMVS 315	171 [6.73]	22.0 [0.866]	117 [4.61]
OMVS 400	179 [7.05]	29.0 [1.142]	124 [4.88]
OMVS 500	186 [7.32]	37.0 [1.457]	132 [5.20]

OMV

Type	L _{max} mm [in]	L ₁ * mm [in]	L ₂ mm [in]
OMVS 630	197 [7.76]	47.5 [1.870]	143 [5.63]
OMVS 800	211 [8.31]	61.5 [2.421]	157 [6.18]

* The gearwheel set is 3.5 mm [0.138 in] wider across the rollers than the L₁ dimensions

OMVS
Installation

The cardan shaft of the OMVS motor acts as an "output shaft". Because of the movement of the shaft, no seal can be fitted at the shaft output.

Internal oil leakage from the motor will therefore flow into the attached component.

During start and operation it is important that the spline connection and the bearings in the attached component receive oil and are adequately lubricated. To ensure that the spline connection receives sufficient oil, a conical sealing ring between the shaft of the attached component and the motor intermediate plate is recommended. This method is used in the OMV.

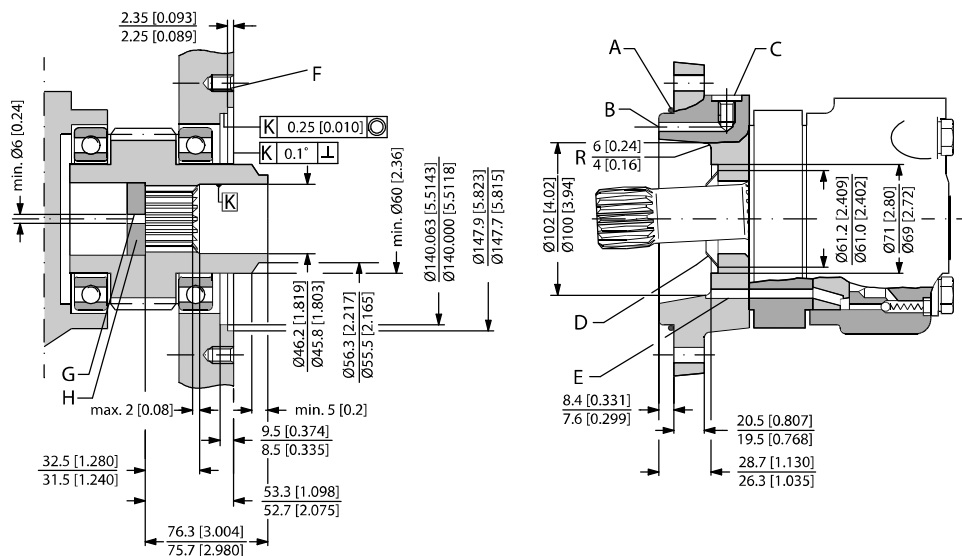
The conical sealing ring (code. no. 633B9021) is supplied with the motor.

To ensure that oil runs to the bearings and other parts of the attached component, the stop plate must have a hole in it (see fig. below).

We recommend an O-ring between motor and attached component. The O-ring (code no. 151B1041) is supplied with the motor. If motor and attached component have been separated, remember to refill before starting up. Fill the oil through the drain connection.

Attached component dimensions

OMVS dimensions of the attached component in millimeter [inches]



151-815.10

- | | |
|---|--|
| A O-ring: 140 × 3 mm | E Internal drain channel |
| B External drain channel | F M12; minimum 18 mm [0.71 in] deep |
| C Drain connection G 1/4; 12 mm [0.47 in] deep | G Oil circulation hole |

OMV
D Conical seal ring

H Hardened stop plate

Attached component internal splines

The attached component must have internal splines corresponding to the external splines on the motor cardan shaft (see the following drawing).

Material:

Case hardening steel with a tensile strength corresponding at least to 20 MoCr4 (900 N/mm²) or SAE 8620.

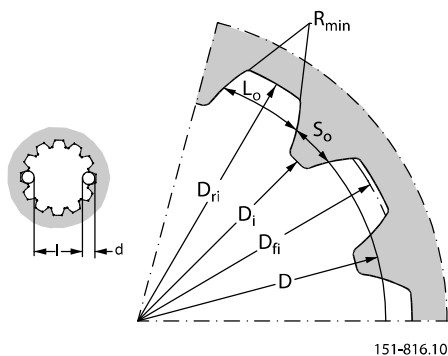
Hardening specification:

- On the surface: HV = 750 ± 50
- 0.7 ± 0.2 mm under the surface: HV = 560

Internal involute spline data; Standard ANS B92.1-1970, class 5 (corrected $m \cdot X = 1$; $m = 2.54$)

Flat root side fit		mm	in
Number of teeth	z	16	16
Pitch	DP	10/20	10/20
Pressure angle		30°	30°
Pitch diameter	D	40.640	1.6
Major diameter	D _{ri}	45.2 ₀ ^{+0.4}	1.780 ₀ ^{+0.016}
Form diameter (minimum)	D _{fi}	44.6	1.756
Minor diameter	D _i	38.5 ₀ ^{+0.039}	1.516 ₀ ^{+0.0015}
Space width (circular)	L _o	5.180 ^{±0.037}	0.204 ^{±0.0015}
Tooth thickness (circular)	S _o	2.835	0.1116
Fillet radius	R _{min.}	0.4	0.015
Maximum measurement between pins*	l	32.47 ₀ ^{+0.15}	1.278 ₀ ^{+0.006}
Pin diameter	d	5.6 ^{±0.001}	0.22 ^{±0.00004}

* Finished dimensions (when hardened)



OMV**Motor or attached component drain connection**

Use the drain line when pressure in the return line exceeds the permissible pressure on the shaft seal of the attached component.

Connect the drain line either at the:

- Motor drain connection
- Drain connection of the attached component

If a drain line is fitted to the attached component, it must be possible for oil to flow freely between motor and attached component.

The drain line must be led to the tank in such a way that there is no risk of the motor and attached component being drained of oil when at rest.

The maximum pressure in the drain line is limited by the attached component and its shaft seal.



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