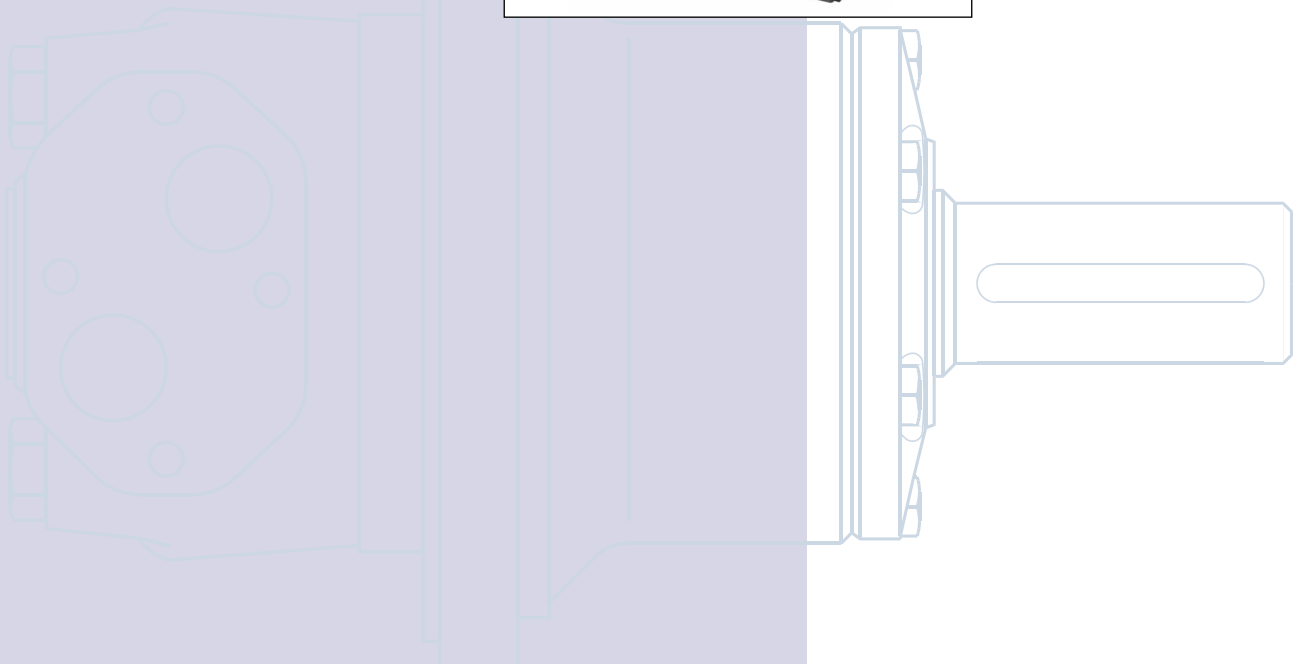


OMS
Orbital Motors

Technical
Information



Revision History

Table of Revisions

Date	Page	Changed	Rev
Nov 2009	67	conversions, and layout adjusted	ED
Nov 2010	68	Dimensions changed	EF
Jul 2012	57	Typo in 'Major dia'	EG
Nov 2012	3	Planetary Gears deleted	EH
Jan 2013	20	Correct drawing	EI
Apr 2013	16	Drawing corrected	EJ



F300 540., F300 030

A Wide Range of Orbital Motors

Sauer-Danfoss is a world leader within production of low speed orbital motors with high torque. We can offer more than 1600 different orbital motors, categorised in types, variants and sizes (incl. 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 approx. 2500 min⁻¹ (rpm) for the smallest type and up to approx 600 min⁻¹ (rpm) for the largest type.

Maximum operating torques vary from 13 Nm [115 lbf-in] to 2700 Nm [24.000 lbf-in] (peak) and maximum outputs are from 2.0 kW [2.7 hp] to 70 kW [95 hp].

Characteristic features:

- 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

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Frontpage: F300 211, F300 212, F300 351, F300 145, 151-1976

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:

- 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 Sauer–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 Sauer-
Danfoss Orbital Motors**

Detailed data on all Sauer-Danfoss motors can be found in our motor catalogue, which is divided into 5 individual subcatalogues:

- General information on Sauer-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 and OMEW
- Technical data on medium sized motors: DH and DS
- Technical data on large motors: OMS, OMT and OMV
- Technical data on large motors: TMT

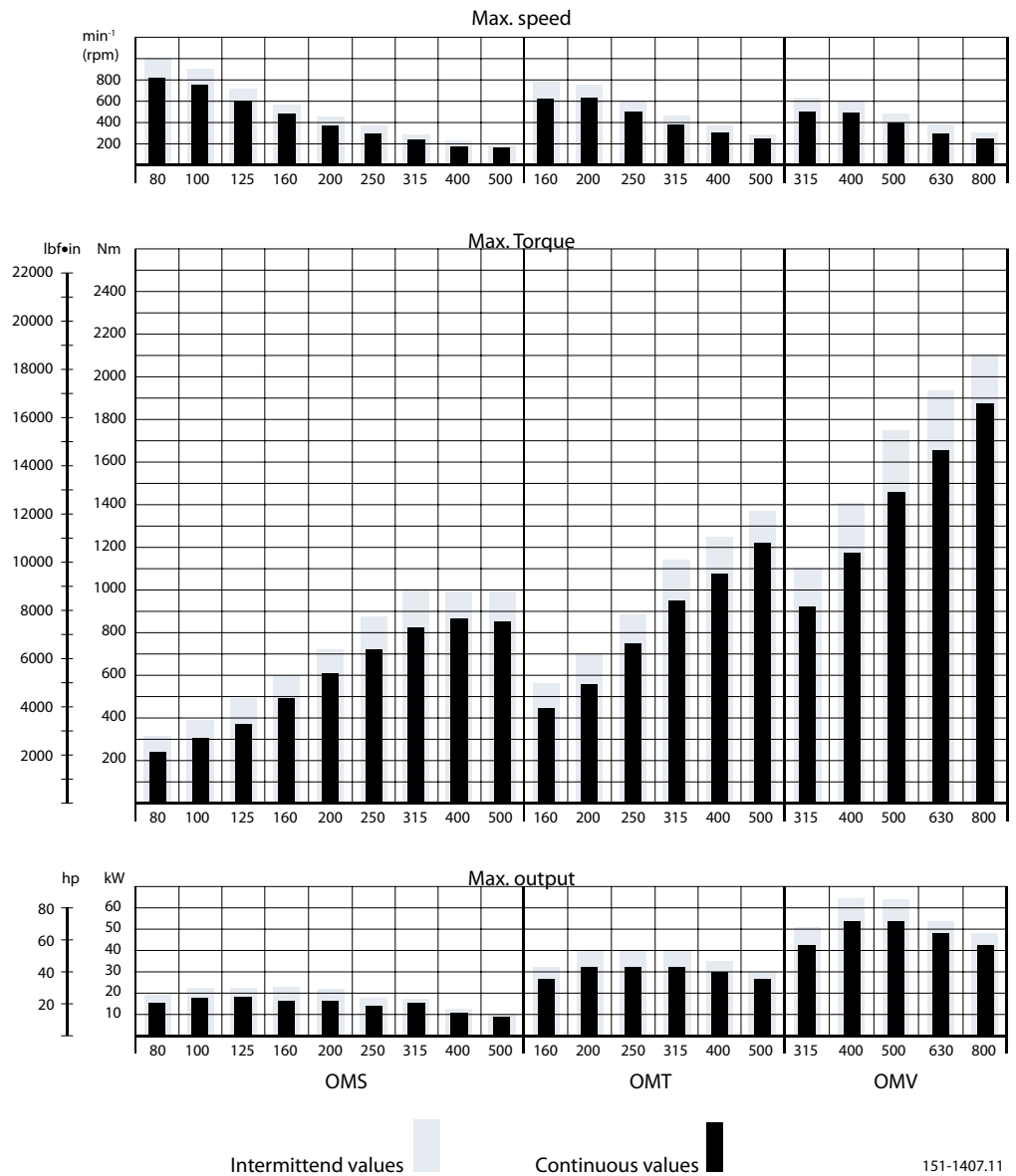
A general survey brochure on Sauer-Danfoss orbital motors gives a quick motor reference based on power, torque, speed and capabilities.

Contents

OMS, OMT and OMV 5
 Speed, Torque and Output..... 5

OMS 6
 Versions..... 6
 Code Numbers 7
Technical data for OMS..... 8
 Max. Permissible Shaft Seal Pressure..... 9
 Pressure Drop in Motor..... 9
 Oil Flow in Drain Line..... 10
 Direction of Shaft Rotation..... 10
 Permissible Shaft Loads..... 11
 Function Diagrams 14
 Shaft Version..... 19
 Port Thread Versions 22
 Dimension..... 23
 OMSS..... 32

**OMS, OMT and OMV
 Speed, Torque and
 Output**



151-1407.11

The bar diagrams above are useful for a quick selection of relevant motor size for the application. The final motor size can be determined by using the function diagram for each motor size.

- OMS can be found on pages 14-18
- OMT can be found on pages 42-44
- OMV can be found on pages 65-67

The function diagrams are based on actual tests on a representative number of motors from our production. The diagrams apply to a return pressure between 5 and 10 bar [75 and 150 psi] when using mineral based hydraulic oil with a viscosity of 35 mm²/s [165 SUS] and a temperature of 50°C [120°F]. For further explanation concerning how to read and use the function diagrams, please consult the paragraph "Selection of motor size" in the technical information "General Orbital motors" 520L0232.

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	●		Yes	Yes	OMS
	Cyl. 1.25 in	7/8-14 UNF		●	Yes	Yes	OMS
	Splined 1.25 in	G 1/2	●		Yes	Yes	OMS
		7/8-14 UNF		●	Yes	Yes	OMS
	Tapered 35 mm	G 1/2	●		Yes	Yes	OMS
	Tapered 1.25 in	7/8-14 UNF		●	Yes	Yes	OMS
P.t.o.	G 1/2	●		Yes	Yes	OMS	
Special flange	Splined 1.25 in	G 1/2	●		Yes	Yes	OMS
A-2 flange	Cyl. 1 in	7/8-14 UNF		●	Yes	Yes	OMS
	Cyl. 1.25 in	7/8-14 UNF		●	Yes	Yes	OMS
	Splined 1 in	7/8-14 UNF		●	Yes	Yes	OMS
	Splined 1.25 in	7/8-14 UNF		●	Yes	Yes	OMS
	Tapered 1.25 in	7/8-14 UNF		●	Yes	Yes	OMS
Magneto flange	Cyl. 1 in	7/8-14 UNF		●	Yes	Yes	OMS
	Cyl. 1.25 in	7/8-14 UNF		●	Yes	Yes	OMS
	Splined 1 in	7/8-14 UNF		●	Yes	Yes	OMS
	Splined 1.25 in	7/8-14 UNF		●	Yes	Yes	OMS
SAE B flange	Splined 1.25 in	7/8-14 UNF		●	Yes	Yes	OMS
	Splined 0.875 in	7/8-14 UNF		●	Yes	Yes	OMS
Wheel	Cyl. 32 mm	G 1/2	●		Yes	Yes	OMSW
	Cyl. 1.25 in	7/8-14 UNF		●	Yes	Yes	OMSW
	Tapered 35 mm	G 1/2	●		Yes	Yes	OMSW
	Tapered 1.25 in	7/8-14 UNF		●	Yes	Yes	OMSW
Short	No output shaft	G 1/2	●		Yes	Yes	OMSW

Function diagram - see page : →

Features available (options) :

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

Code Numbers

Code Numbers	Displacement [cm ³]									Technical data – Page	Shaft loads – Page	Dimensions – Page
	80	100	125	160	200	250	315	400	500			
151F	0500	0501	0502	0503	0504	0505	0506	0605	-	8	11	23
151F	2200	2201	2202	2203	2204	2205	2206	2261	2268	8	11	24
151F	0507	0508	0509	0510	0511	0512	0513	-	-	8	11	23
151F	2207	2208	2209	2210	2211	2212	2213	2262	2269	8	11	24
151F	0514	0515	0516	0517	0518	0519	0520	-	-	8	11	23
151F	2214	2215	2216	2217	2218	2219	2220	2264	2270	8	11	24
151F	0560	0561	0562	0563	0564	0565	0566	-	-	8	11	23
151F	0542	0543	0544	0545	0546	0547	0548	-	-	8	12	25
151F	2300	2301	2302	2303	2304	2305	2306	2307	2345	8	12	26
151F	2316	2317	2318	2319	2320	2321	2322	2323	2347	8	11	26
151F	2308	2309	2310	2311	2312	2313	2314	2315	2346	8	12	26
151F	2324	2325	2326	2327	2328	2329	2330	2331	2348	8	11	26
151F	2332	2333	2334	2335	2336	2337	2338	2339	2349	8	11	26
151F	2377	2378	2379	2380	2381	2382	2383	2384	2385	8	12	27
151F	2368	2369	2370	2371	2372	2373	2374	2375	2376	8	11	27
151F	2359	2360	2361	2362	2363	2364	2365	2366	2367	8	12	27
151F	2350	2351	2352	2353	2354	2355	2356	2357	2358	8	11	27
151F	2395	2396	2397	2398	2399	2400	2401	2402	2403	8	11	28
151F	2413	2414	2415	2416	2417	-	-	-	-	8	13	28
151F	0521	0522	0523	0524	0525	0526	0527	0610	-	8	11	29
151F	2235	2236	2237	2238	2239	2240	2241	2265	2266	8	11	30
151F	0528	0529	0530	0531	0532	0533	0534	0609	-	8	11	29
151F	2242	2243	2244	2245	2246	2247	2248	2263	2267	8	11	30
151F	0535	0536	0537	0538	0539	0540	0541	0608	-	8	-	31
	14	14	15	15	16	16	17	17	18			

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.

Note: Orders will not be accepted without the four digit prefix.

Technical data for OMS

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	
		int. ¹⁾	1000	900	720	560	450	360	285	230	
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.	180 [1590]	230 [2040]	290 [2570]	370 [3270]	470 [4160]	560 [4960]	710 [6280]	710 [6280]	660 [5840]	
	at max. press. drop int. ¹⁾	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]	140 [2030]
	bar [psi]	int. ¹⁾	295 [4280]	175 [2540]
	bar [psi]	peak ²⁾	300 [4350]	210 [3050]

			Splined 1 in	Cyl. 1 in	Splined 0.875 in
*Max torque for shaft type	Nm [lbf-in]	cont.	360 [3190]	300 [2660]	200 [1770]
		int. ¹⁾	450 [3980]	410 [3630]	200 [1770]

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

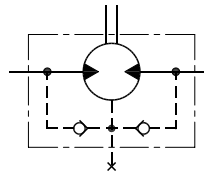
²⁾ Peak load: the permissible values may occur for max. 1% of every minute.

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

Max. Permissible Shaft Seal Pressure

OMS 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

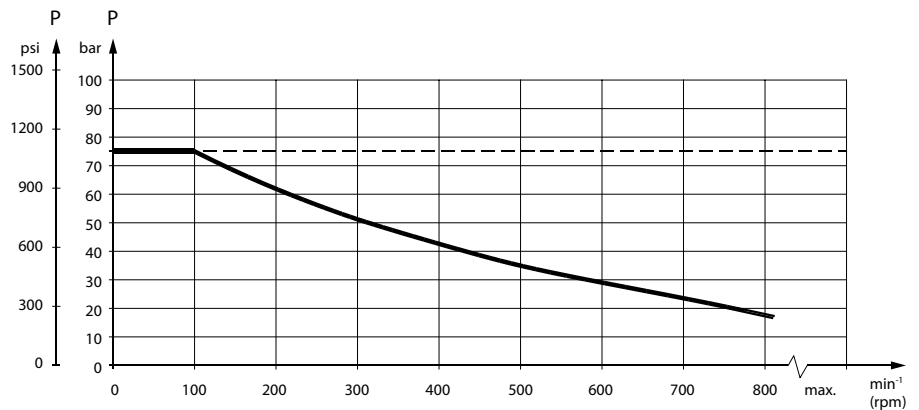


151-320.10

OMS with standard shaft seal, check valves and with drain connection:

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

Max. return pressure without drain line or max. pressure in the drain line

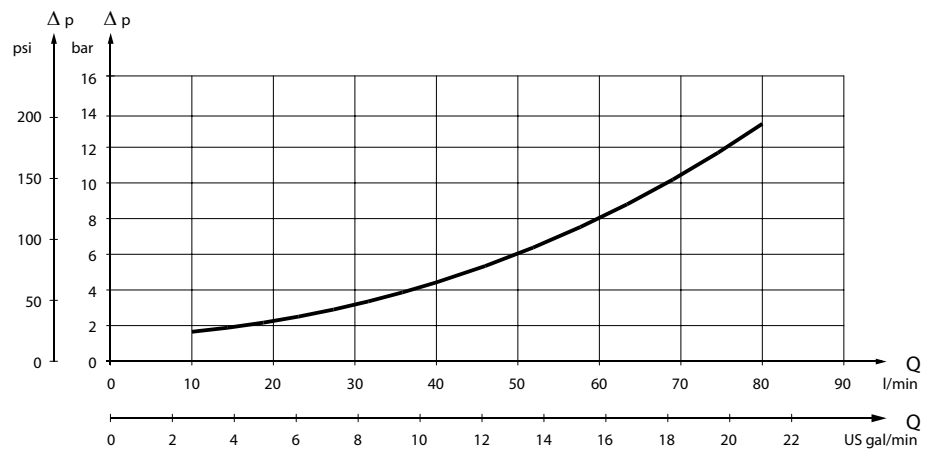


151-1674.10

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

— Continuous operation

Pressure Drop in Motor



151-1408.10

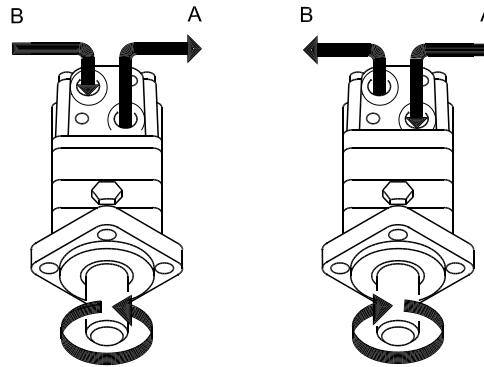
The curve applies to an unloaded motor shaft and an oil viscosity of 35 mm²/s [165 SUS]

Oil Flow in Drain Line

The table shows the max. 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**

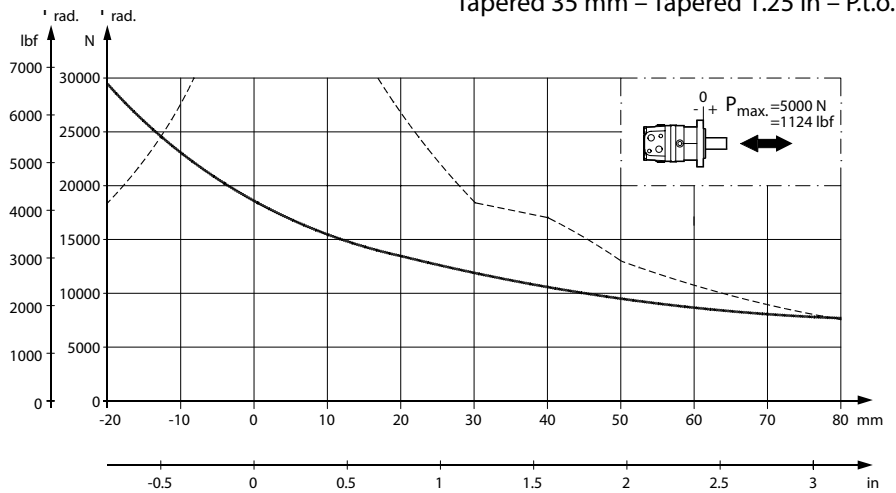


151-843.10

Permissible Shaft Loads for OMS

Mounting flange:
 Standard – A-2 – Magneto – SAE B

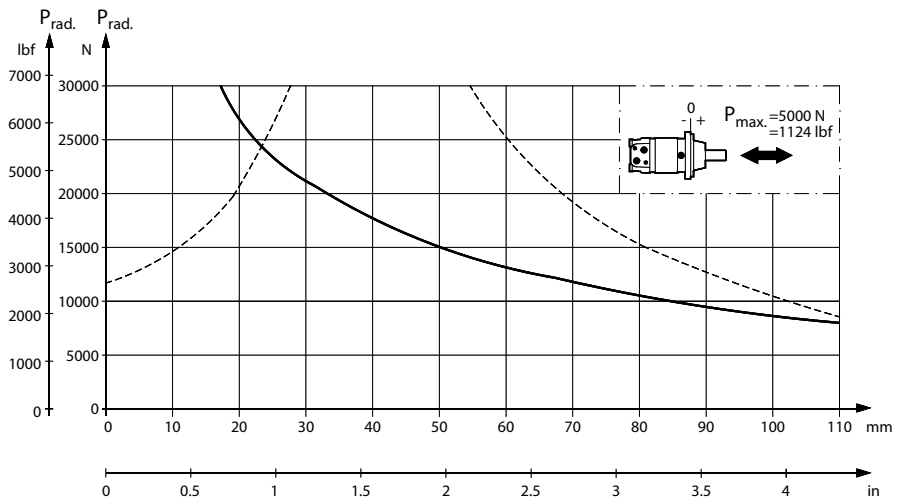
Shaft:
 Cyl. 32 mm – Cyl. 1.25 in – Splined 1.25 in.
 Tapered 35 mm – Tapered 1.25 in – Pt.o.



151-1962.10

Mounting flange:
 Wheel

Shaft:
 All shaft types



151-1964.10

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%.

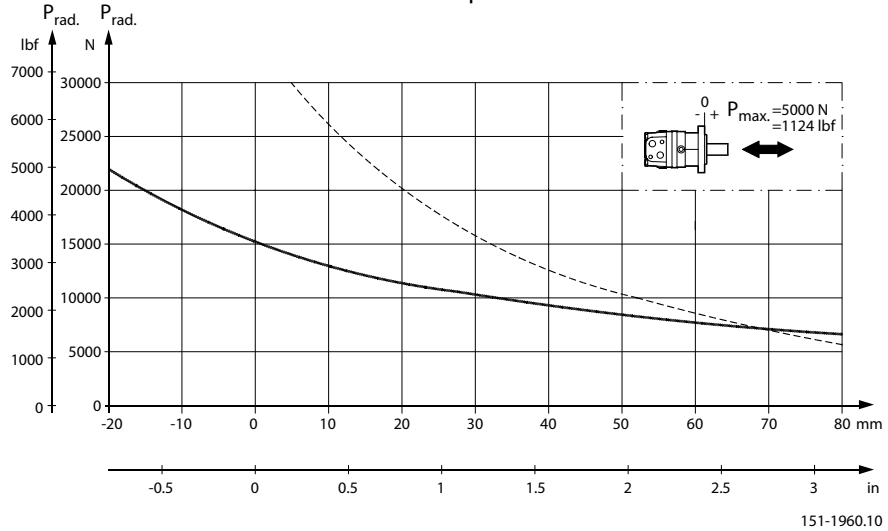
The dash curve shows max. radial shaft load. Any shaft load exceeding the values shown in the curve will involve a risk of breakage.

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.

**Permissible Shaft Loads
 for OMS**

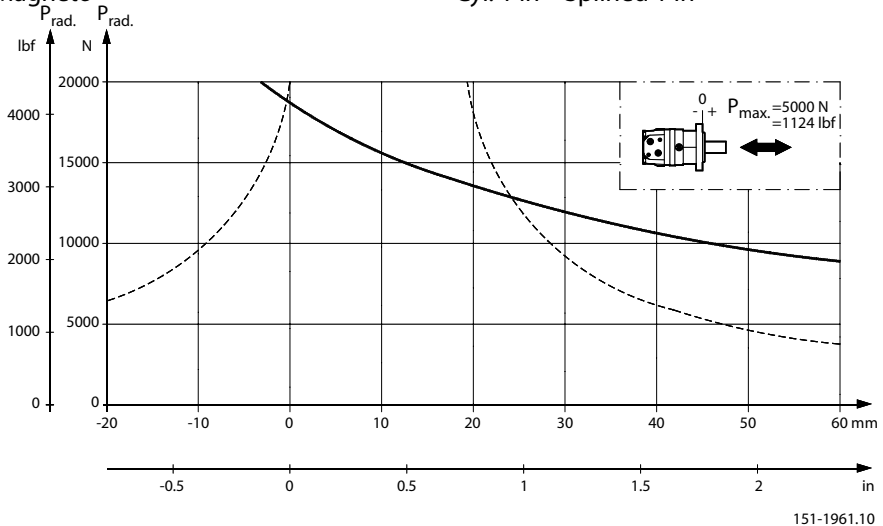
Mounting flange:
 Special

Shaft:
 Splined 1.25 in



Mounting flange:
 A-2 – Magneto

Shaft:
 Cyl. 1 in – Splined 1 in



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%.

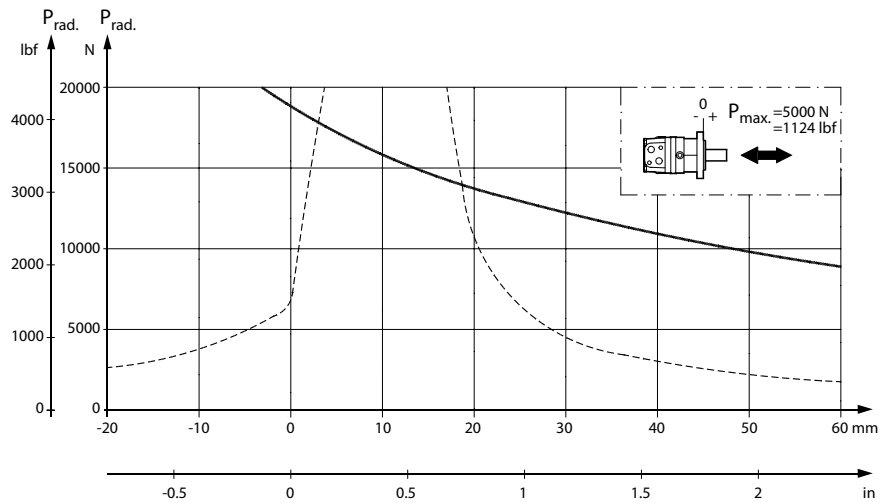
The dash curve shows max. radial shaft load. Any shaft load exceeding the values shown in the curve will involve a risk of breakage.

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.

**Permissible Shaft Loads
 for OMS**

Mounting flange:
 SAE B

Shaft:
 Splined 0.875 in



151-1963.10

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.

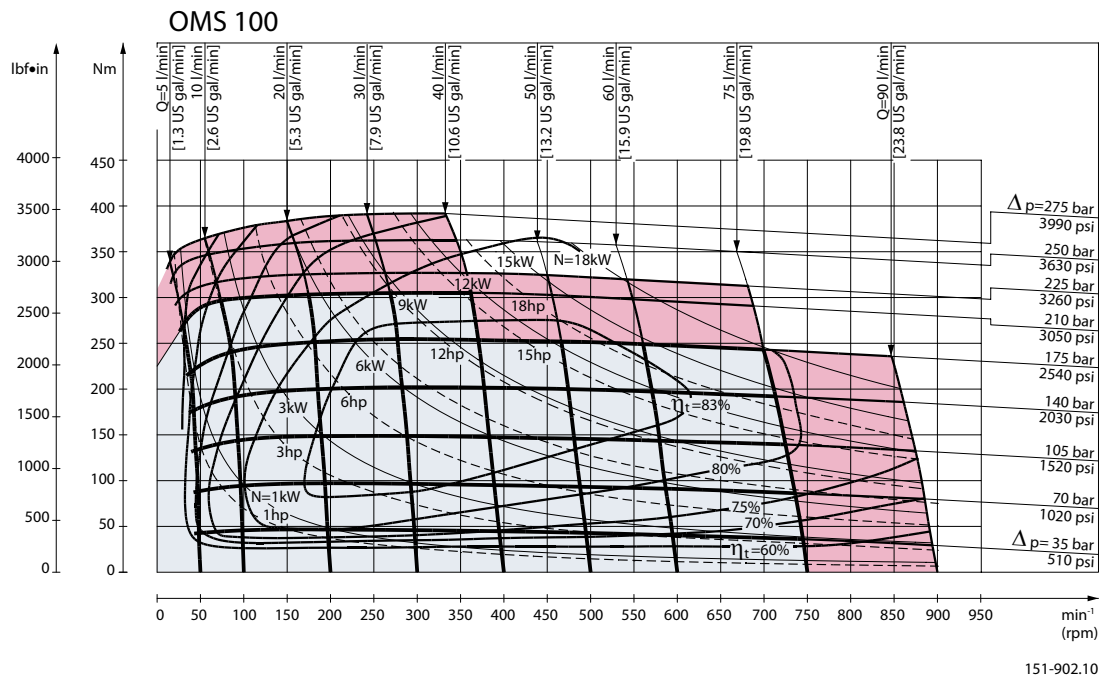
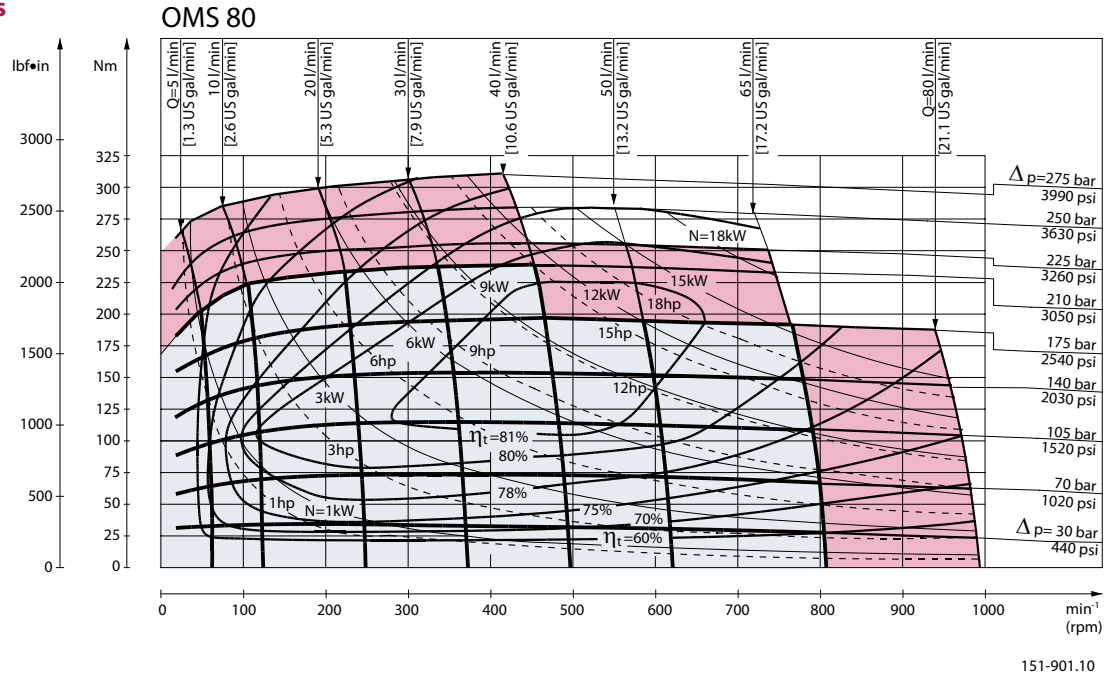
The curve is based on B10 bearing life (2000 hours or 12,000,000 shaft revolutions at 100 min^{-1}) at rated output torque, when mineral-based hydraulic oil with a sufficient content of anti-wear additives, is used.

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.

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



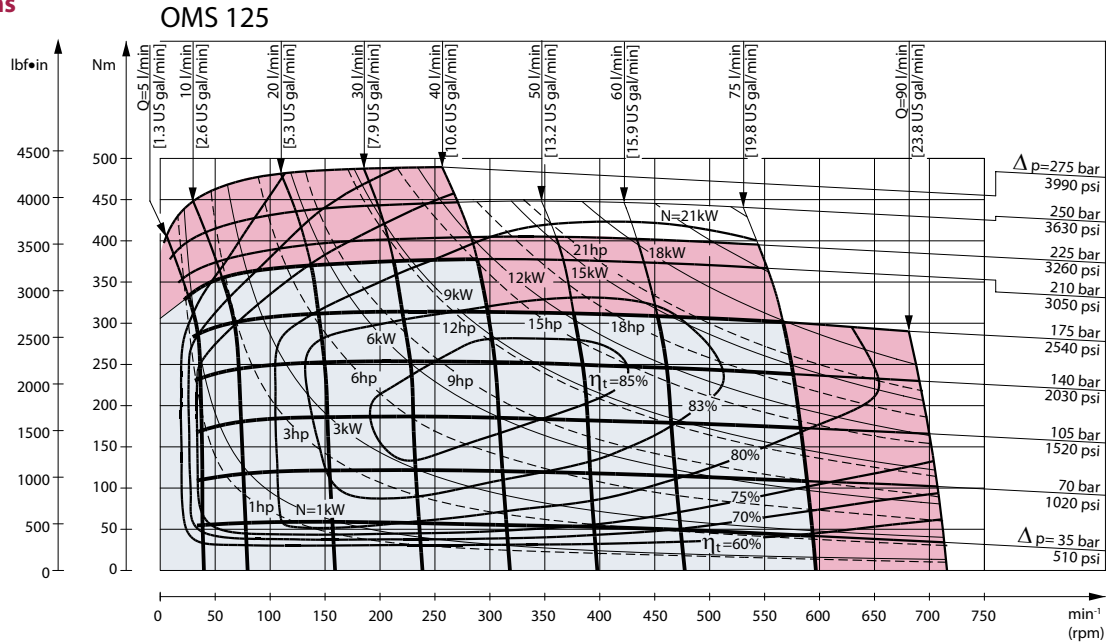
Explanation of function diagram use, basis and conditions can be found on page 5.

- Continuous range
- Intermittent range (max. 10% operation every minute)

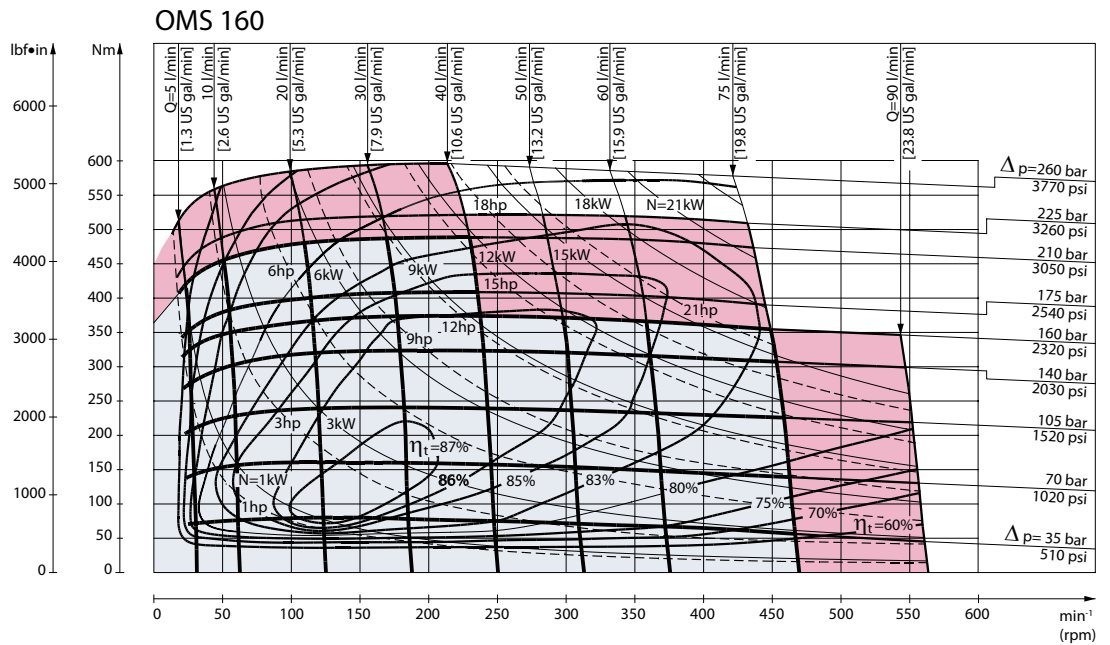
Max. permissible continuous/intermittent torque for the actual shaft version can be found on page 8.

Intermittent pressure drop and oil flow must not occur simultaneously.

Function Diagrams



151-903.10



151-904.11

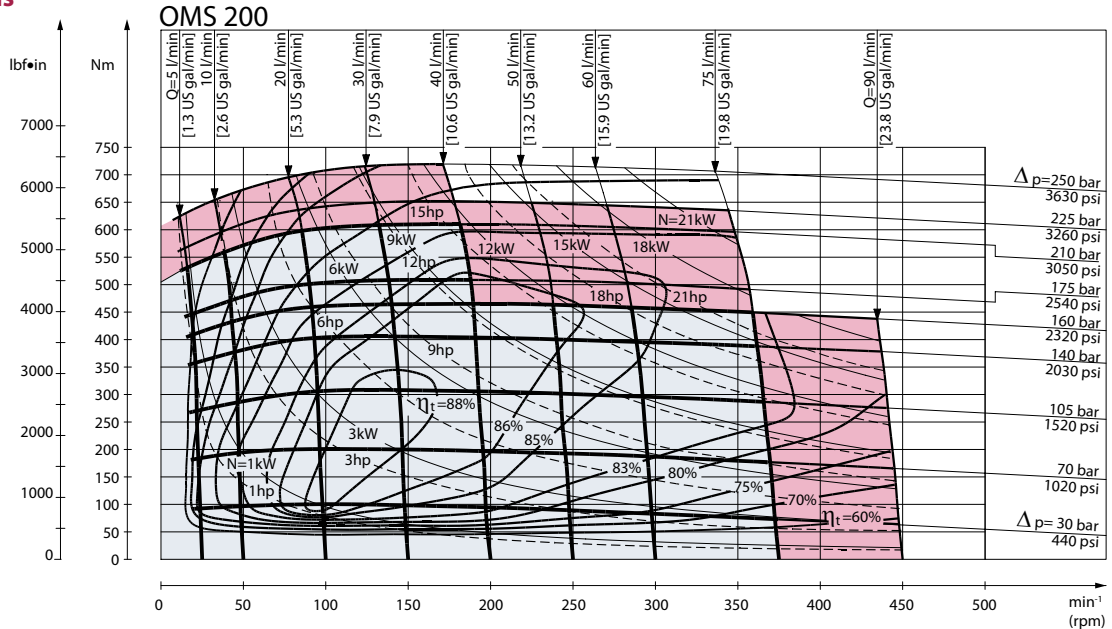
Explanation of function diagram use, basis and conditions can be found on page 5.

- Continuous range
- Intermittent range (max. 10% operation every minute)

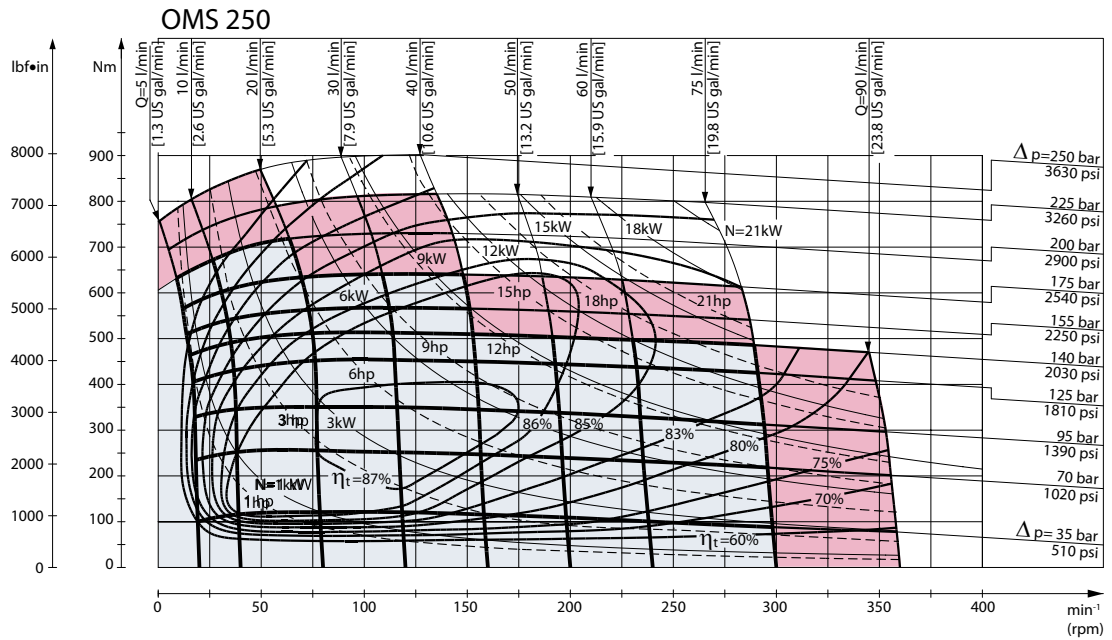
Max. permissible continuous/intermittent torque for the actual shaft version can be found on page 8.

Intermittent pressure drop and oil flow must not occur simultaneously.

Function Diagrams



151-905.10



151-1039.10

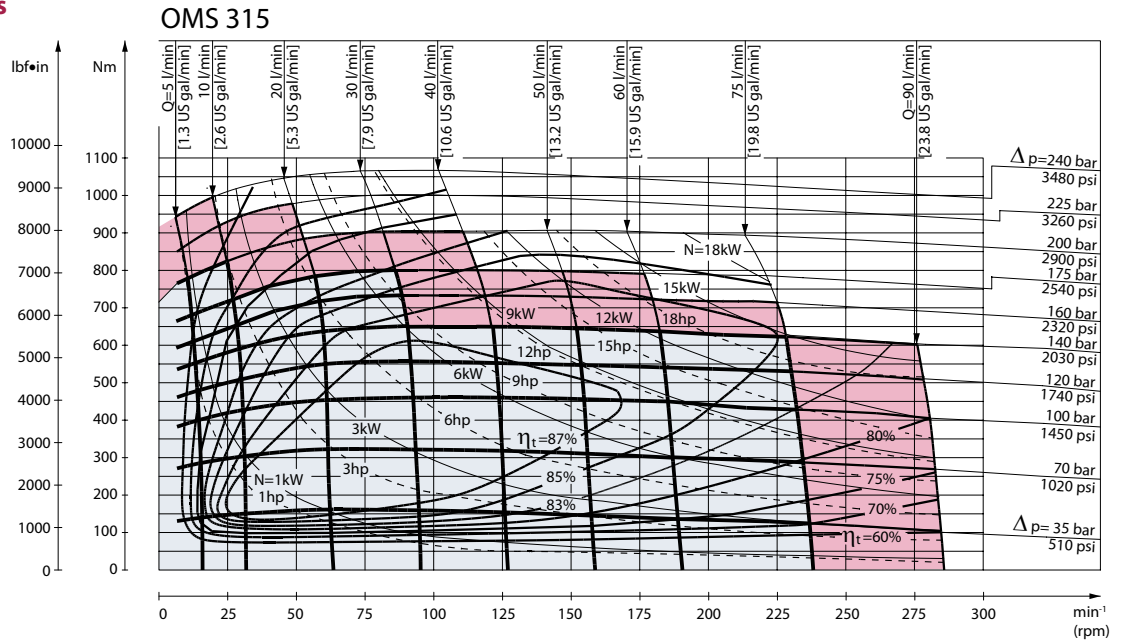
Explanation of function diagram use, basis and conditions can be found on page 5.

- Continuous range
- Intermittent range (max. 10% operation every minute)

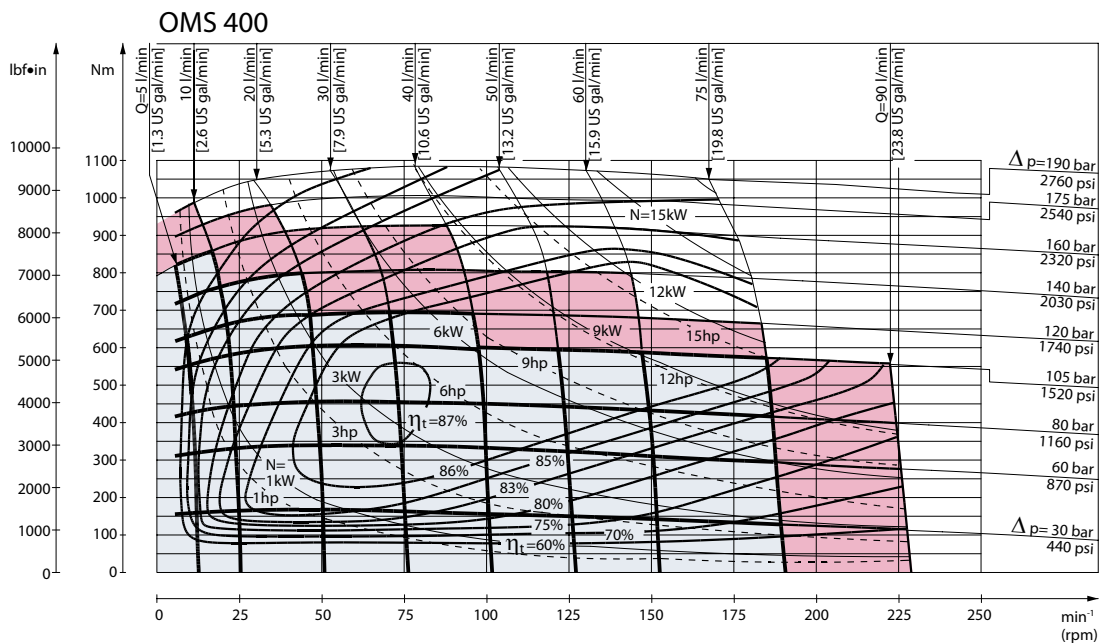
Max. permissible continuous/intermittent torque for the actual shaft version can be found on page 8.

Intermittent pressure drop and oil flow must not occur simultaneously.

Function Diagrams



151-906.10



151-1491.10

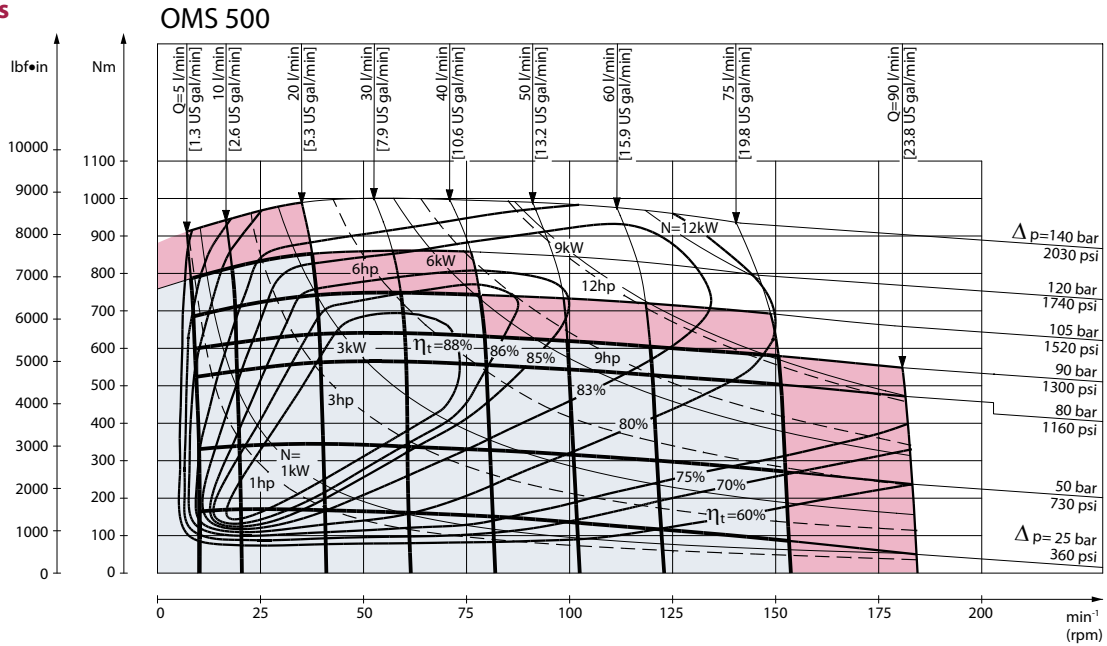
Explanation of function diagram use, basis and conditions can be found on page 5.

- Continuous range
- Intermittent range (max. 10% operation every minute)

Max. permissible continuous/intermittent torque for the actual shaft version can be found on page 8.

Intermittent pressure drop and oil flow must not occur simultaneously.

Function Diagrams



151-1984.10

Explanation of function diagram use, basis and conditions can be found on page 5.

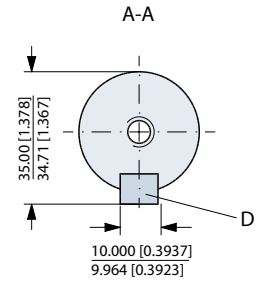
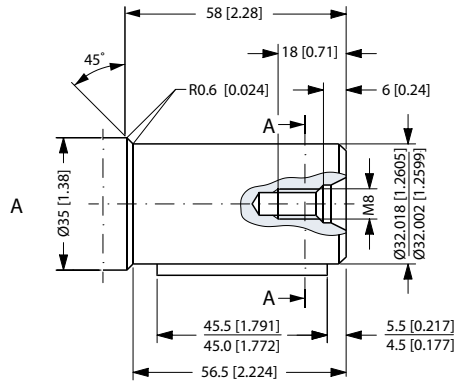
- Continuous range
- Intermittent range (max. 10% operation every minute)

Max. permissible continuous/intermittent torque for the actual shaft version can be found on page 8.

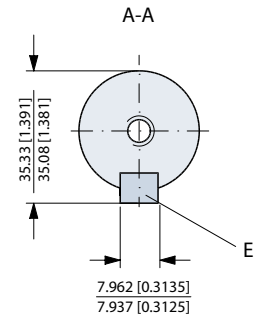
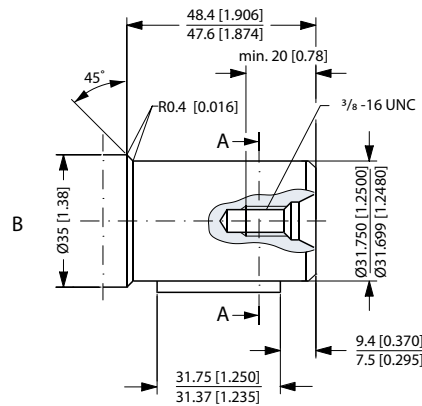
Intermittent pressure drop and oil flow must not occur simultaneously.

Shaft Version

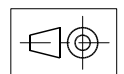
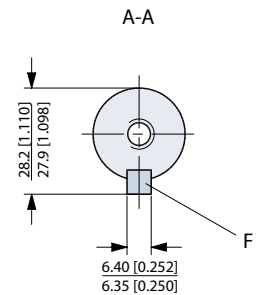
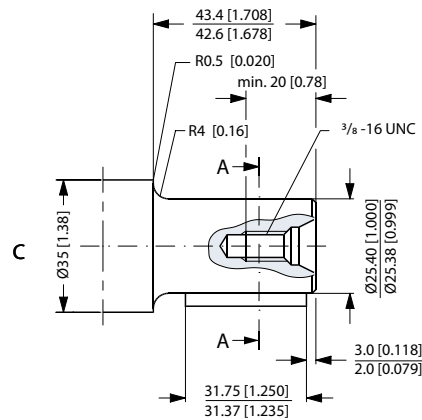
A: Cylindrical 32 mm shaft
 D: Parallel key
 A10 × 8 × 45
 DIN 6885
 Keyway deviates from standard



B: Cylindrical 1.25 in shaft
 E: Parallel key
 $5/16 \times 5/16 \times 1 1/4$ in
 SAE J744
 Keyway deviates from standard



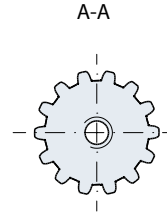
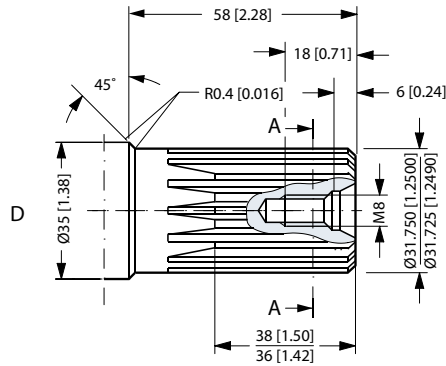
C: Cylindrical 1 in shaft
 F: Parallel key
 $1/4 \times 1/4 \times 1 1/4$ in
 B.S. 46
 Keyway deviates from standard



151-876.10

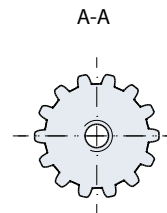
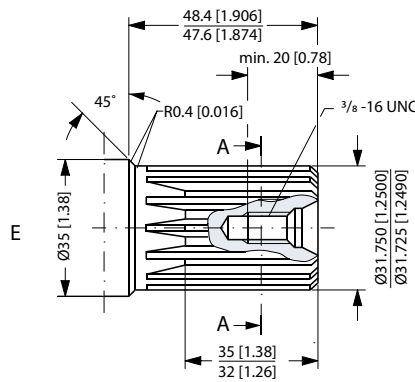
Shaft Version

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



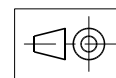
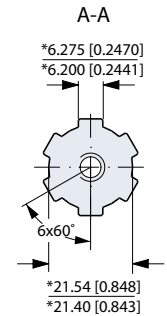
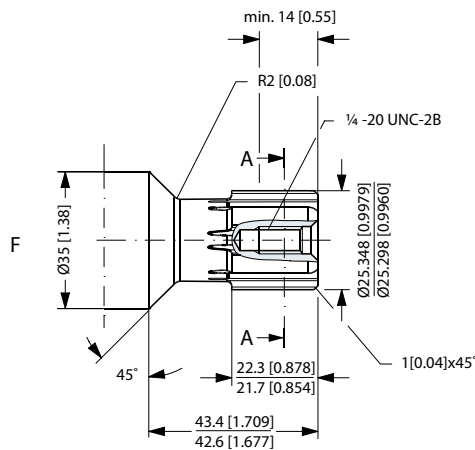
US version

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



- F: Splined shaft
SAE 6 B (B.S. 2059)
Straight-sided,
bottom fitting, deep.
Fit 2
Nom. size 1 in

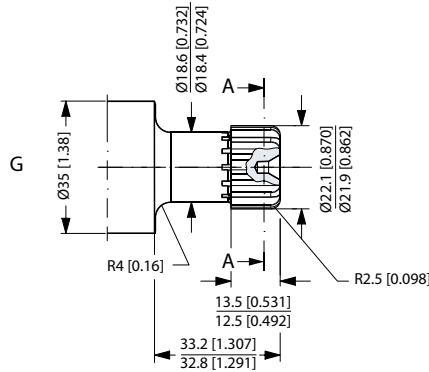
*Deviates from
SAE 6 B (B.S. 2059)



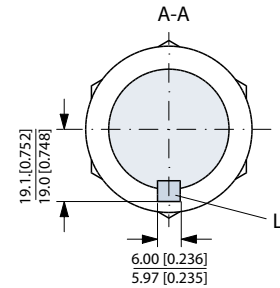
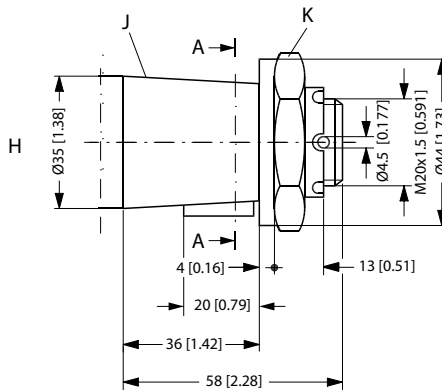
151-1912.11

Shaft Version

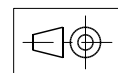
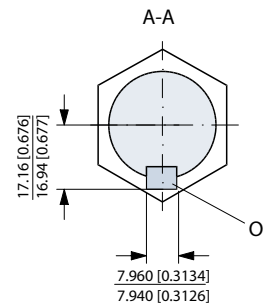
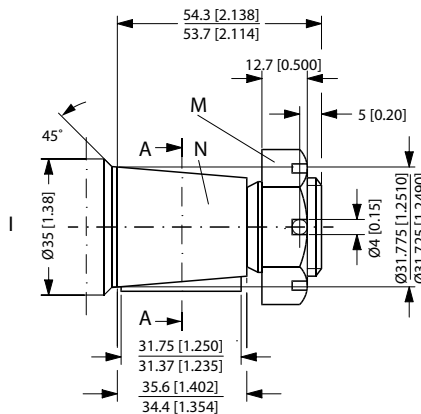
- G: Involute splined shaft
 ANS B92.1 - 1970 standard
 Flat root side fit
 Pitch 16/32
 Teeth 13
 Major dia. 0.875 in
 Pressure angle 30°



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

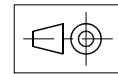
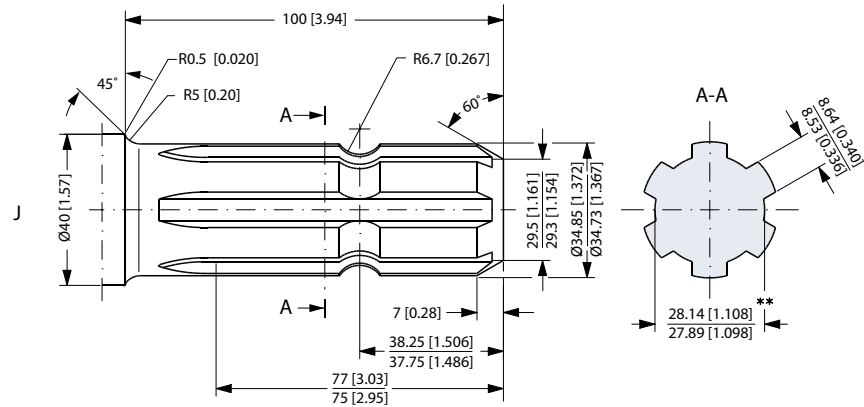


151-1915.10

Shaft Version

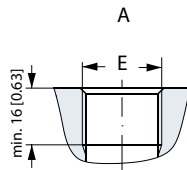
J. Pt.o shaft
DIN 9611 Form 1
(ISO/R500 without pin hole)

** Deviates from DIN 9611

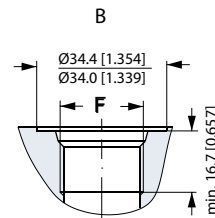


151-1948.10

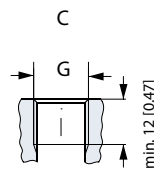
Port Thread Versions



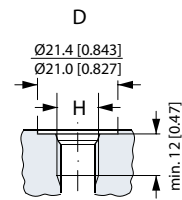
A: G main ports
E: ISO 228/1 - G¹/₂
O-ring boss port



B: UNF main ports
F: ⁷/₈ - 14 UNF



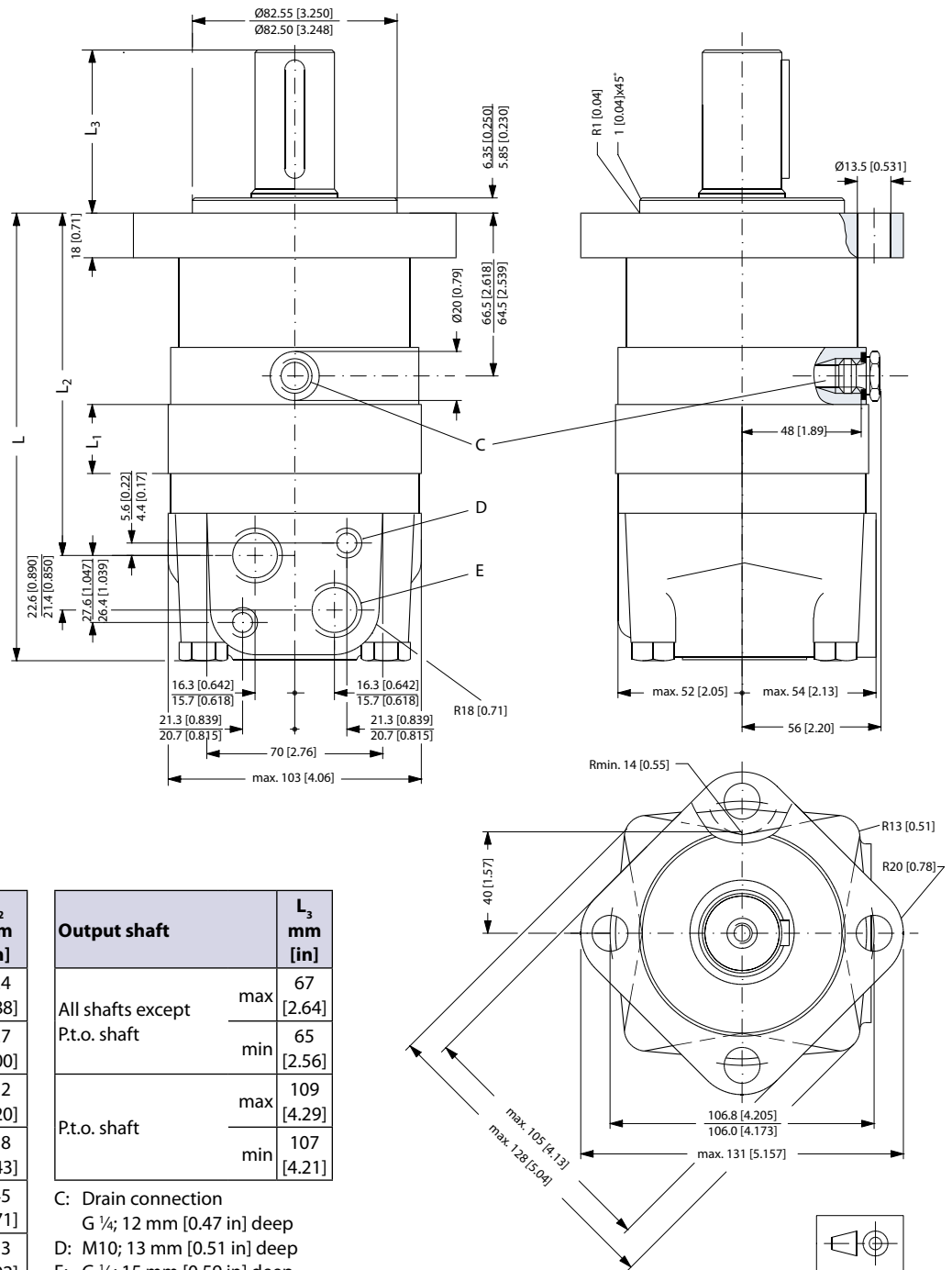
C: G drain port
G: ISO 228/1 - G¹/₄
O-ring boss port



D: UNF drain port
H: ⁷/₁₆ - 20 UNF

151-1971.11

**Dimension
 Standard Flange**

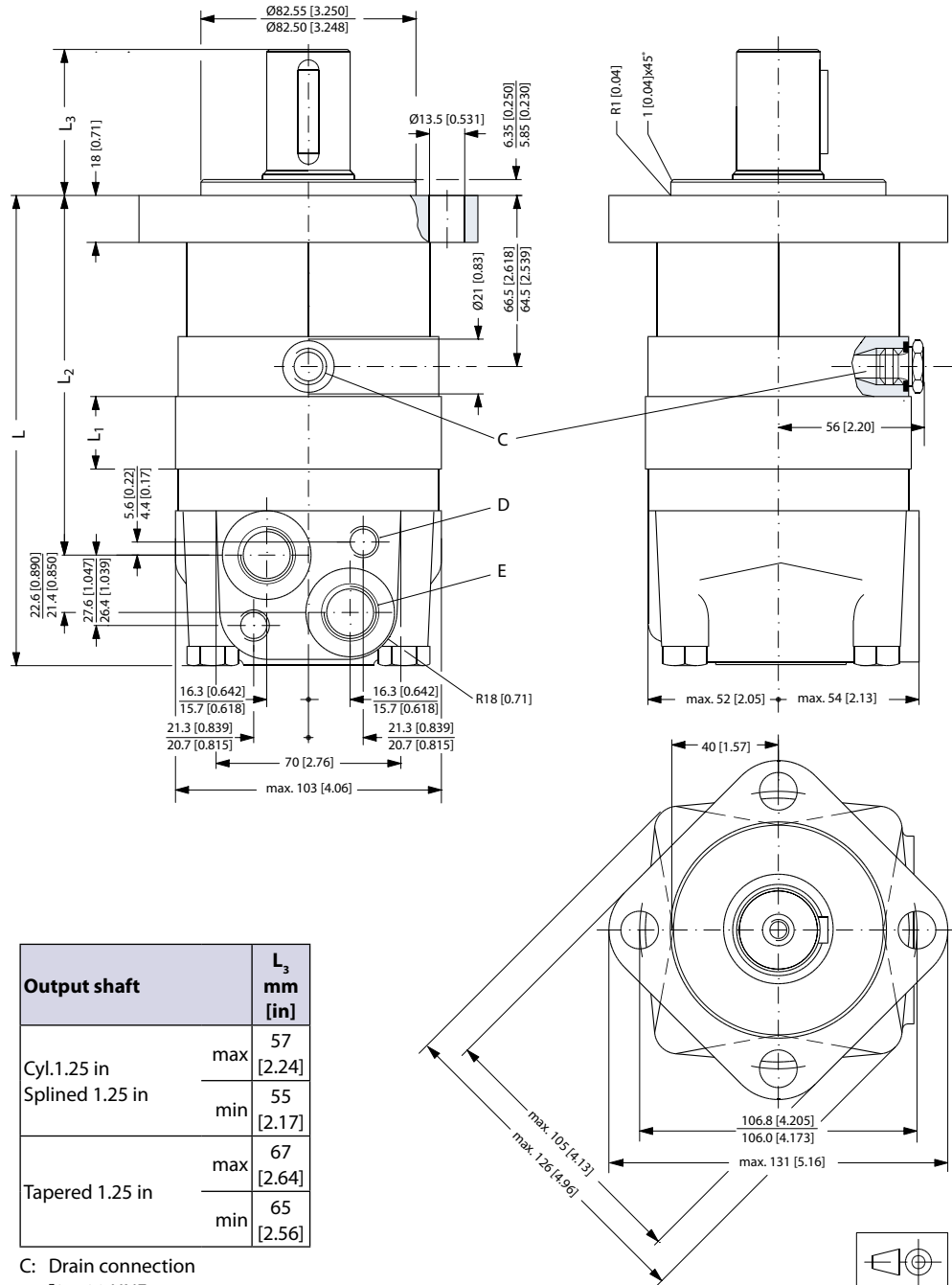


Type	L _{max} mm [in]	L ₁ mm [in]	L ₂ mm [in]
OMS 80	167 [6.57]	14.0 [0.551]	124 [4.88]
OMS 100	170 [6.69]	17.4 [0.685]	127 [5.00]
OMS 125	175 [6.89]	21.8 [0.858]	132 [5.20]
OMS 160	181 [7.13]	27.8 [1.094]	138 [5.43]
OMS 200	188 [7.40]	34.8 [1.370]	145 [5.71]
OMS 250	196 [7.72]	43.5 [1.713]	153 [6.02]
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]

C: Drain connection
 G ¼; 12 mm [0.47 in] deep
 D: M10; 13 mm [0.51 in] deep
 E: G ½; 15 mm [0.59 in] deep

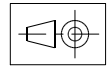
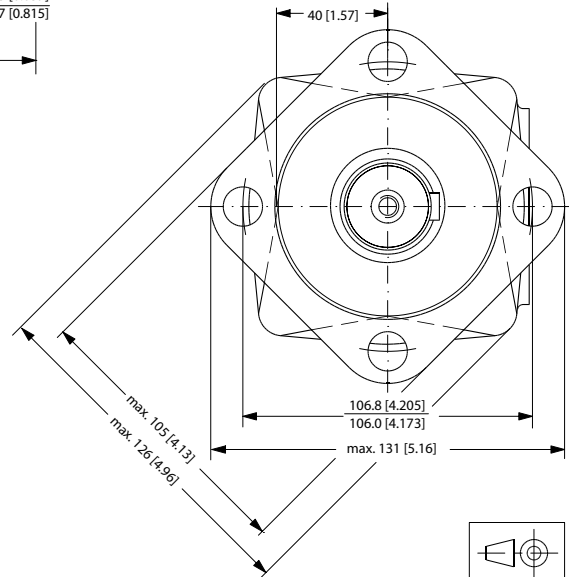
Standard Flange



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]

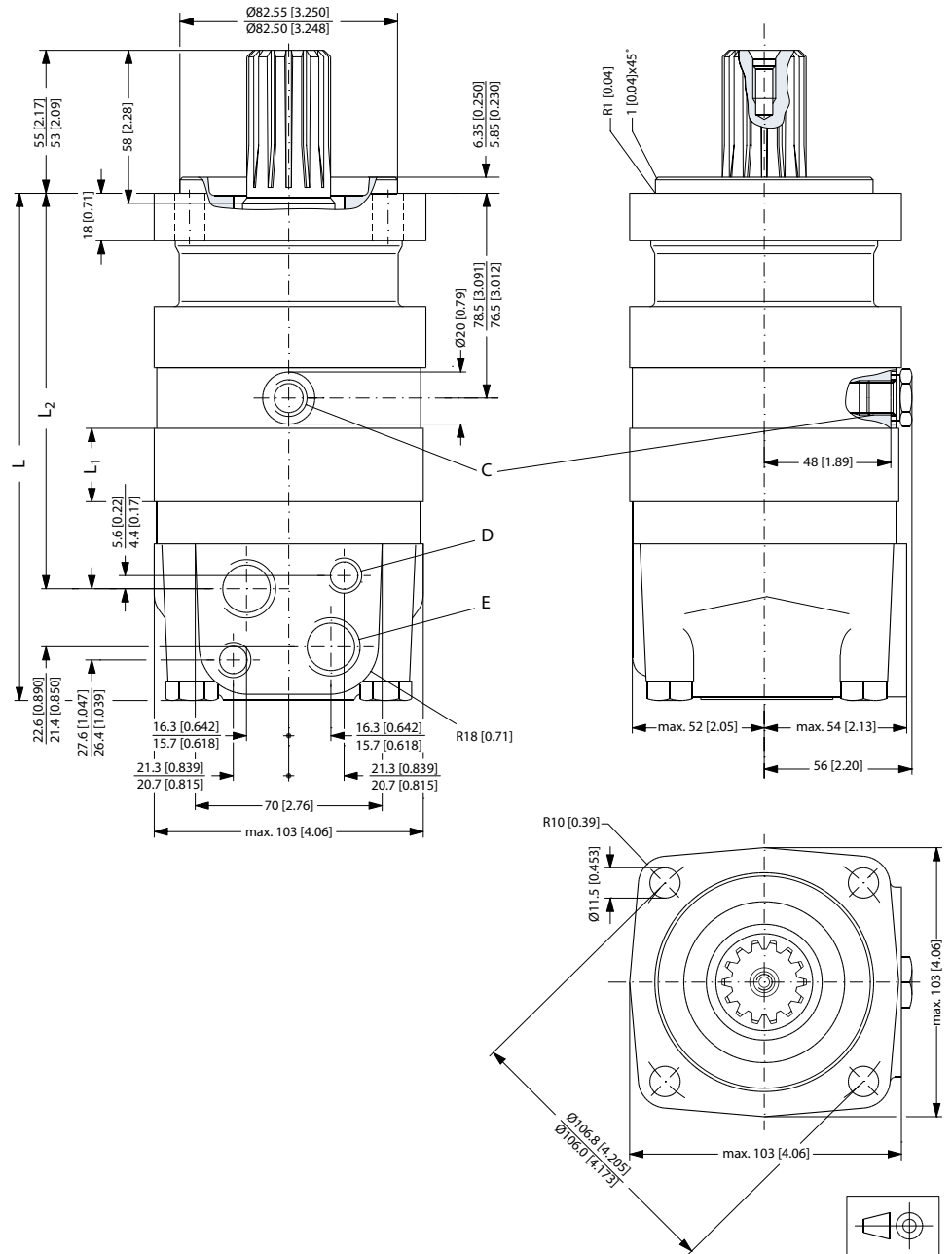
Output shaft	L ₃ mm [in]
Cyl. 1.25 in Splined 1.25 in	max 57 [2.24]
	min 55 [2.17]
Tapered 1.25 in	max 67 [2.64]
	min 65 [2.56]

- 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



151-1972.10

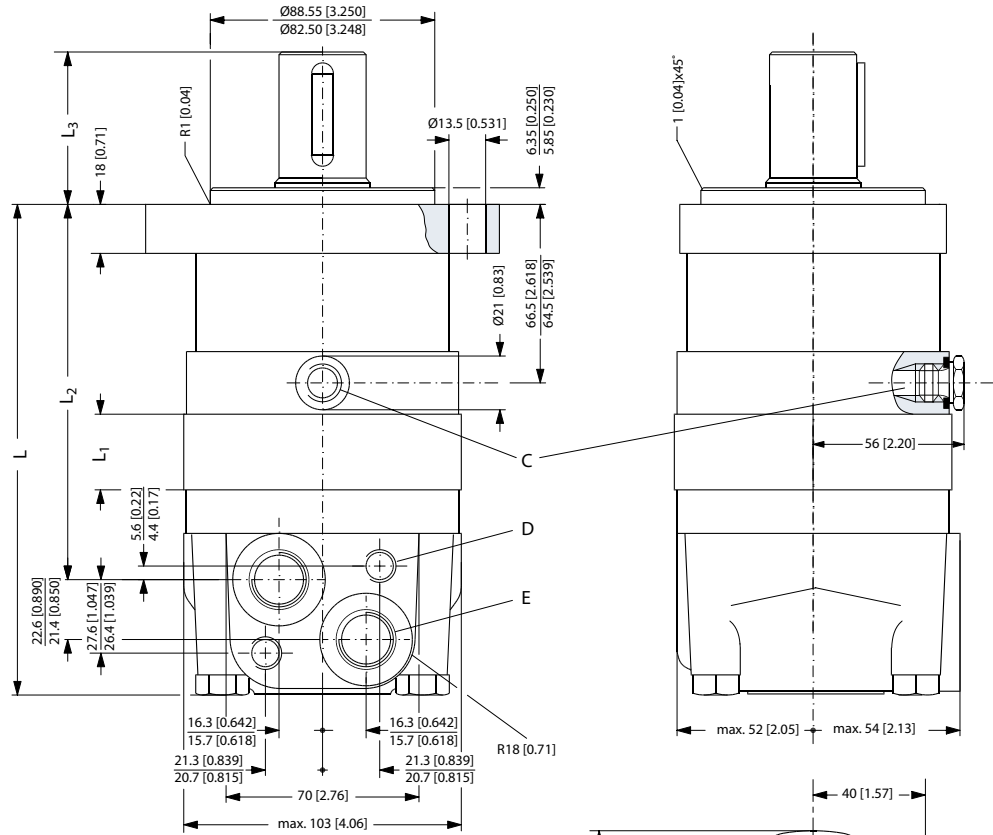
Special Flange



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 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]

151-1810.10

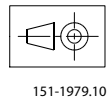
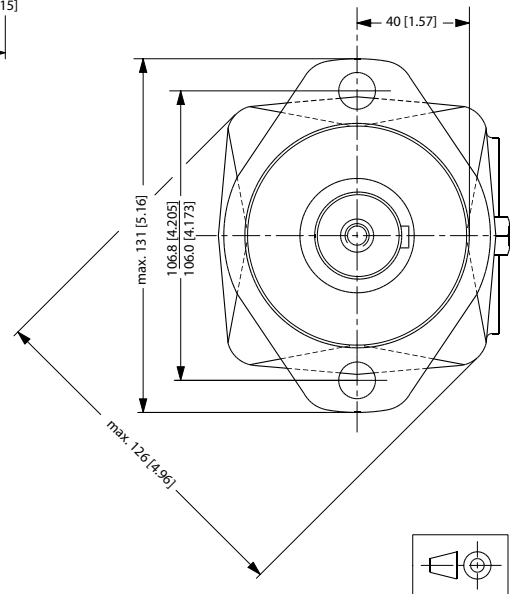
A-2 Flange



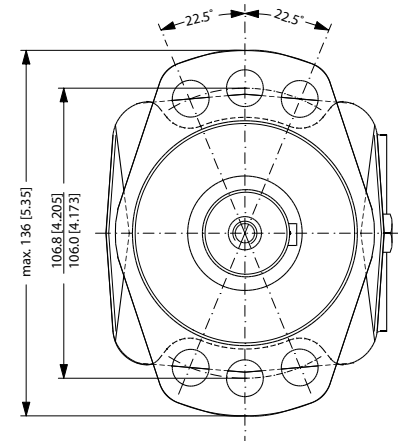
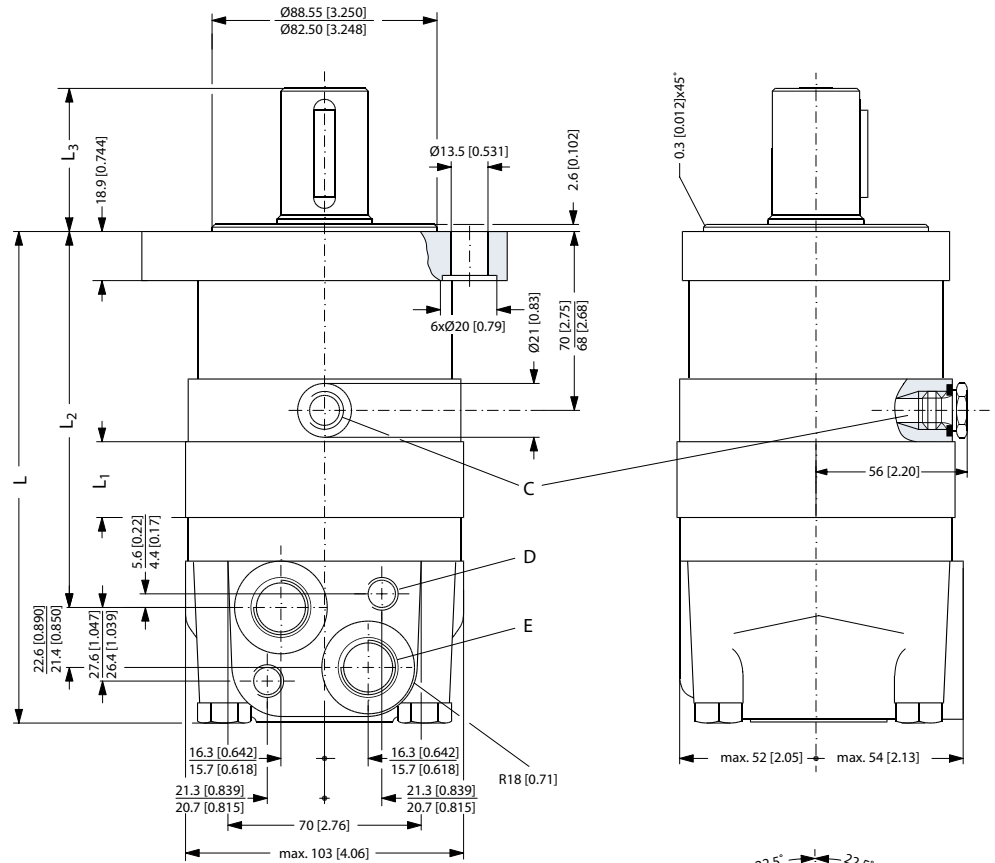
Type	L_{max} mm [in]	L_1 mm [in]	L_2 mm [in]
OMS 80	167 [6.57]	14.0 [0.551]	124 [4.88]
OMS 100	170 [6.69]	17.4 [0.685]	127 [5.00]
OMS 125	175 [6.89]	21.8 [0.858]	132 [5.20]
OMS 160	181 [7.13]	27.8 [1.094]	138 [5.43]
OMS 200	188 [7.40]	34.8 [1.370]	145 [5.71]
OMS 250	196 [7.72]	43.5 [1.713]	153 [6.02]
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]

- 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



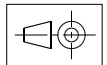
Magneto Flange



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]

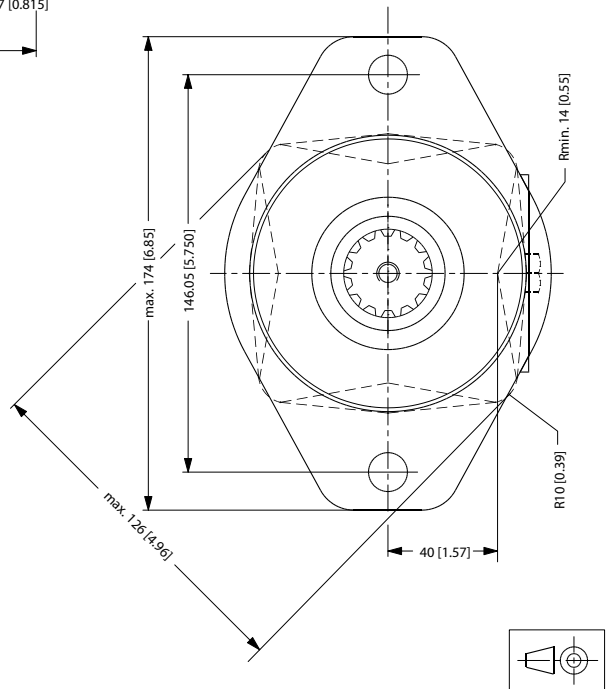
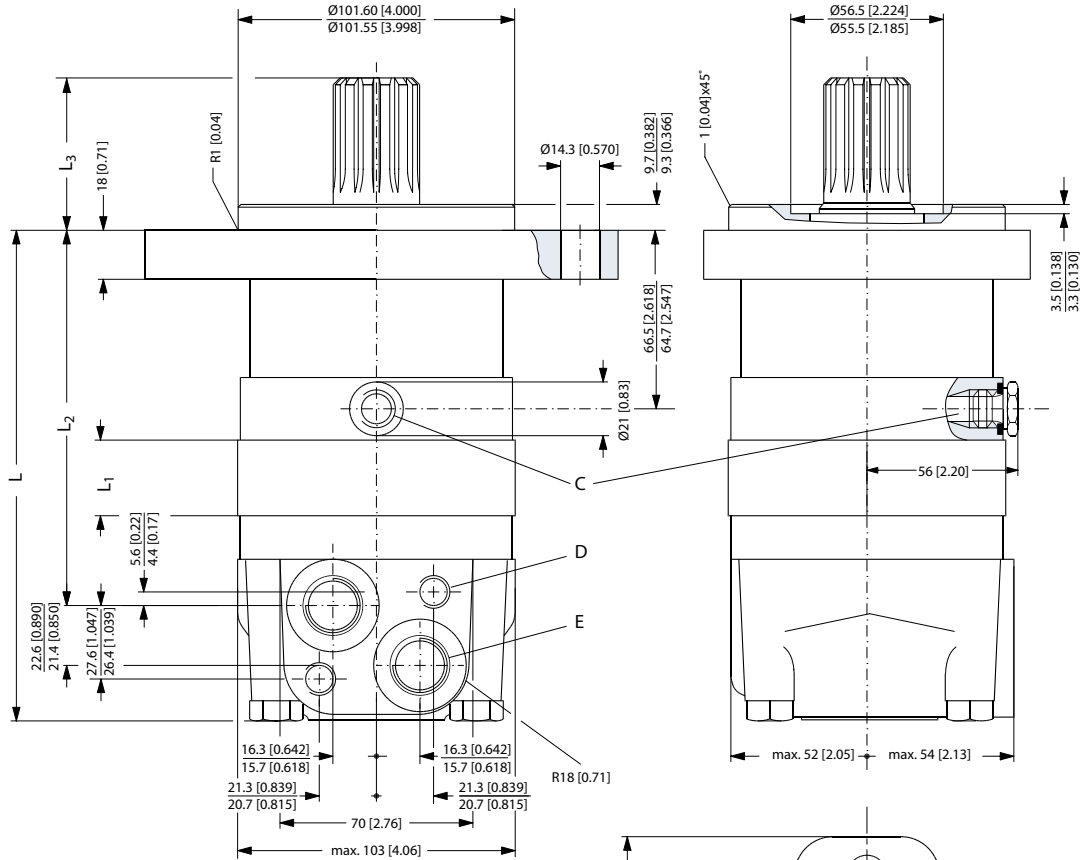
Output shaft	L ₃ mm [in]
Cyl.1 in	max 49 [1.93]
Splined 1 in	min 47 [1.85]
Cyl.1.25 in	max 54 [2.13]
Splined 1.25 in	min 52 [2.05]

- 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



151-1980.10

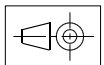
SAE-B Flange



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]

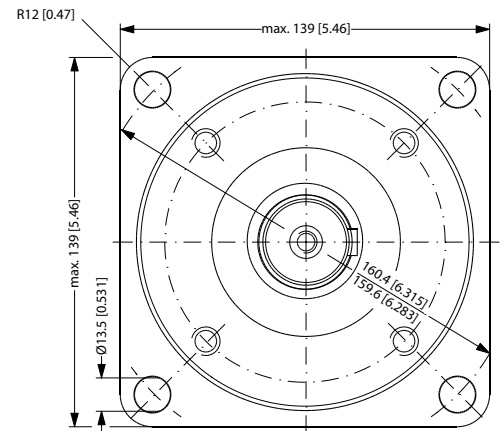
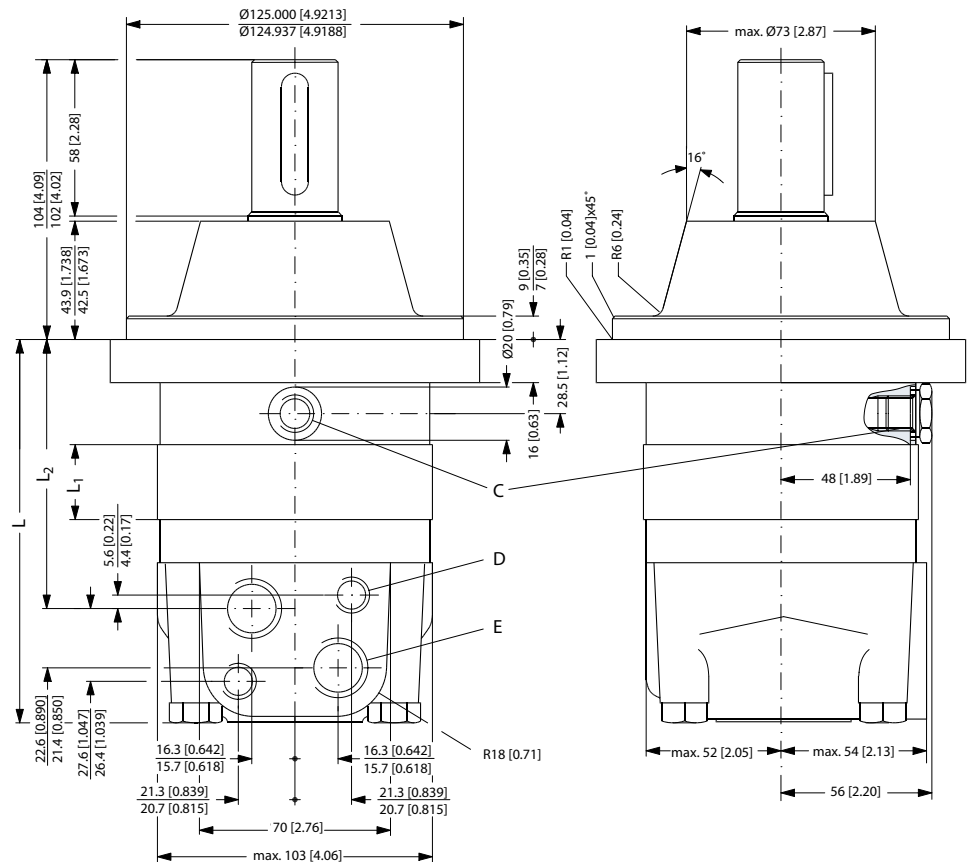
Output shaft	L ₃ mm [in]
Splined 1.25 in	max 57 [2.24]
	min 55 [2.17]
Splined 0.875 in	max 42 [1.65]
	min 40 [1.57]

- 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



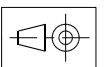
151-1981.10

Wheel



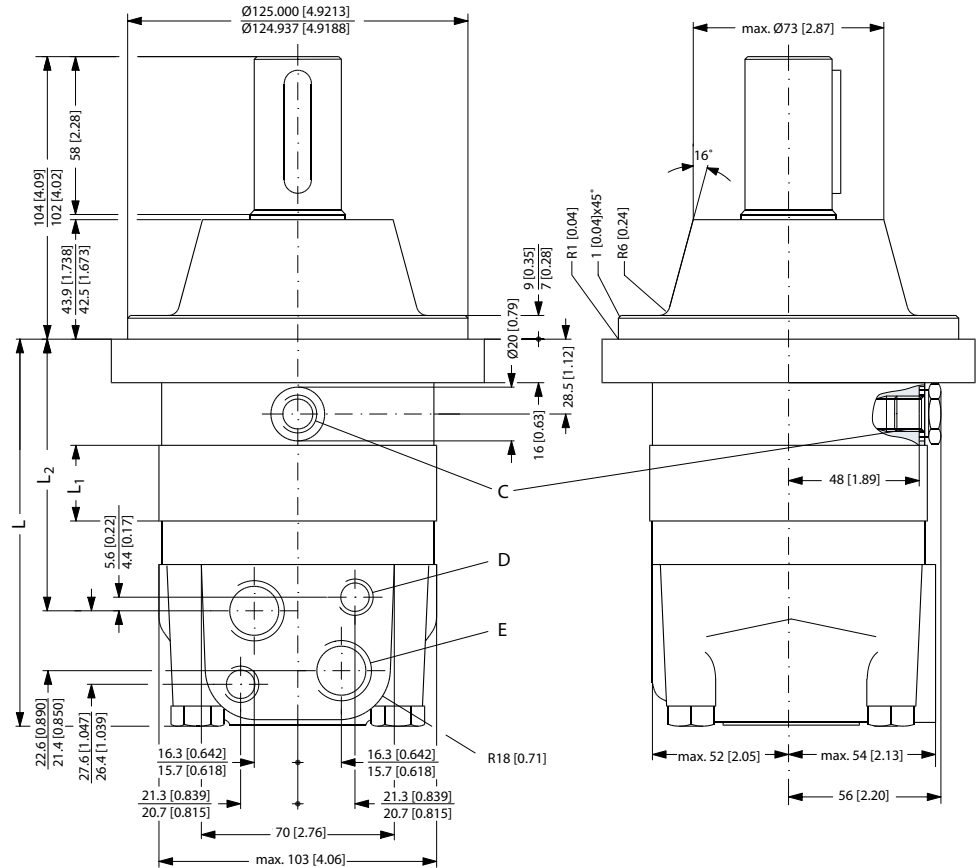
Type	L _{max} mm [in]	L ₁ mm [in]	L ₂ mm [in]
OMSW 80	129 [5.08]	14.0 [0.551]	87 [3.43]
OMSW 100	132 [5.20]	17.4 [0.685]	90 [3.54]
OMSW 125	137 [5.39]	21.8 [0.858]	95 [3.74]
OMSW 160	143 [5.63]	27.8 [1.094]	101 [3.98]
OMSW 200	150 [5.91]	34.8 [1.370]	108 [4.25]
OMSW 250	158 [6.22]	43.5 [1.713]	116 [4.57]
OMSW 315	170 [6.69]	54.8 [2.157]	128 [5.04]
OMSW 400	183 [7.20]	68.4 [2.693]	142 [5.59]

- 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



151-1812.10

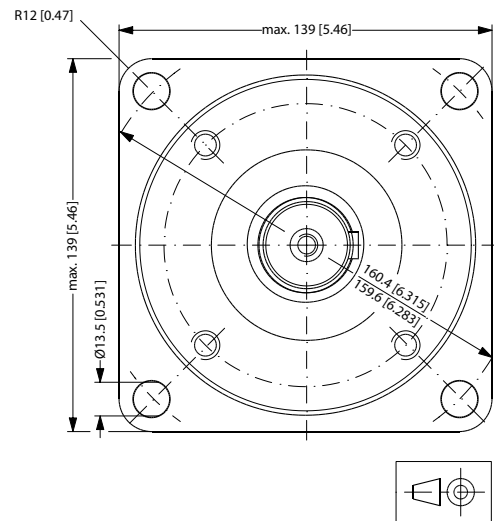
Wheel



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]
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]

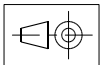
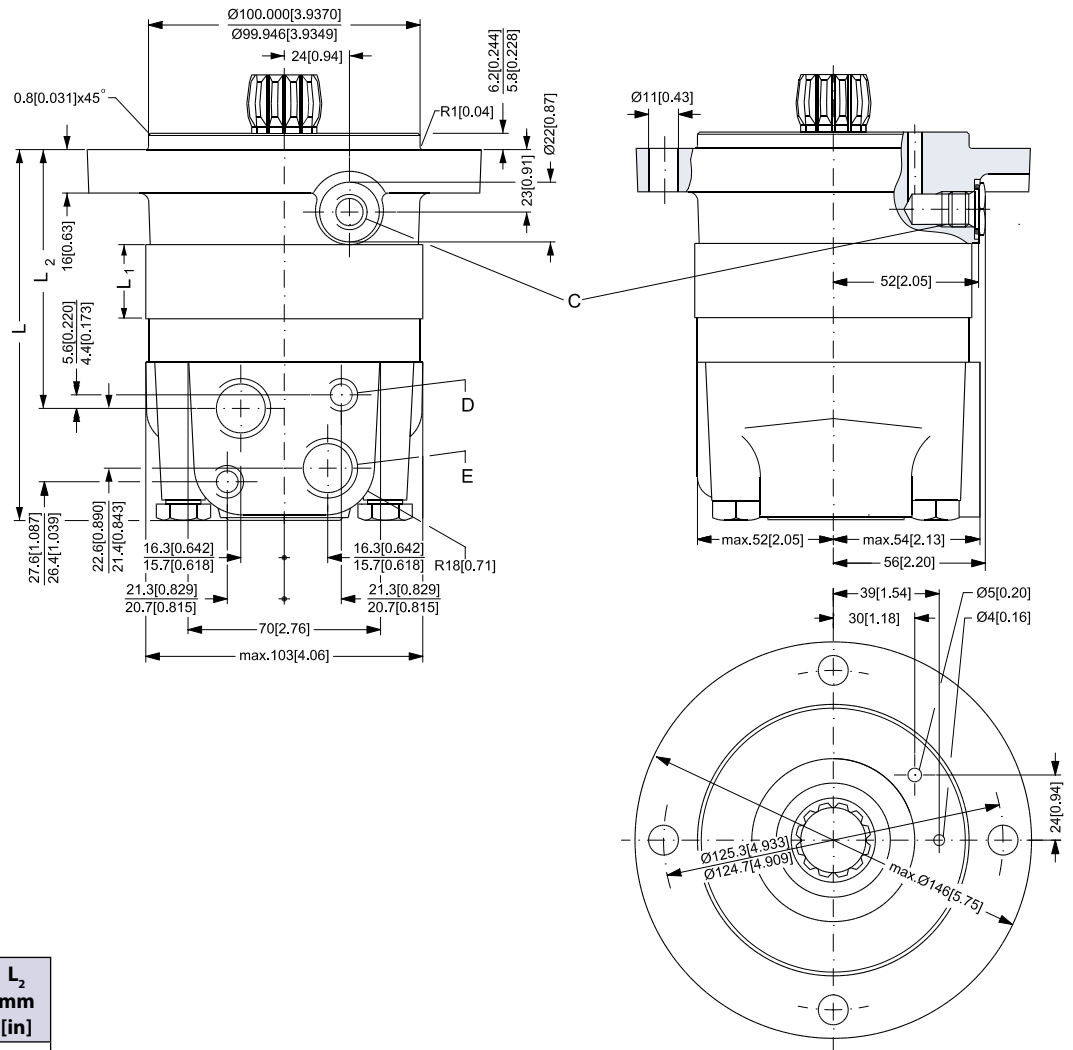
- C: Drain connection
 7/16 - 20 UNF;
 12 mm [0.47 in] deep
 O-ring boss port
- D: M10; 13 mm [0.51 in] deep
- E: 7/8 - 14 UNF;
 16.7 mm [0.657 in] deep
 O-ring boss port



151-1812.10

- 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

Short



151-1814.10

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]

- 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

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.

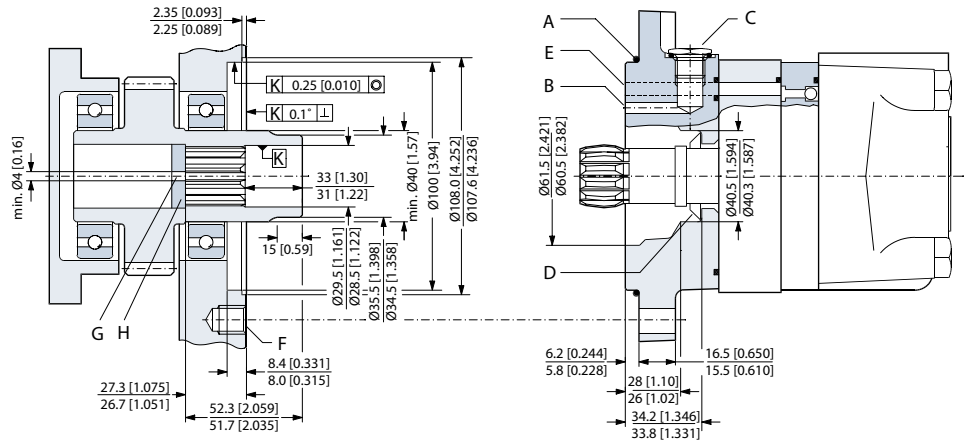
During start and operation it is important that the spline connection and the bearings in the attached component receive oil and are adequately lubricated. To ensure that the spline connection receives sufficient oil, a conical sealing ring between the shaft of the attached component and the motor intermediate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

**OMSS
 Dimensions of the
 Attached Component**



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).

Material:

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

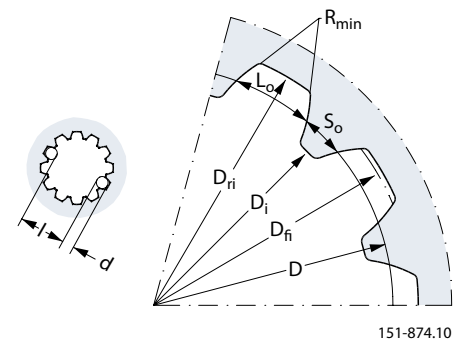
Hardening specification:

- 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)

Drain Connection on OMSS or Attached Component

A drain line ought to be used when pressure in the return line can exceed the permissible pressure on the shaft seal of the attached component.

The drain line can be connected at two different points:

- 1) at the motor drain connection
- 2) at the 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.