ENGINEERING
TOMORROW

Technical Information

Orbital Motors
Type OMP, OMR and OMH

powersolutions.danfoss.com

Revision history

Table of revisions

Date	Changed	Rev
March 2016	Engineering Tomorrow	0401
August 2015	Dimensions updated	0400
November 2014	Converted to Danfoss layout - DITA CMS	DA
November 2012	Planetary Gears deleted	CF
September 2011	Typo	CE
September 2010	New back cover	CD
March 2010	Japan location	CC
June 2007	Major revision with new lit-number (minus OMEW, will be prepared separately	CA
March 2006	Small updates	B

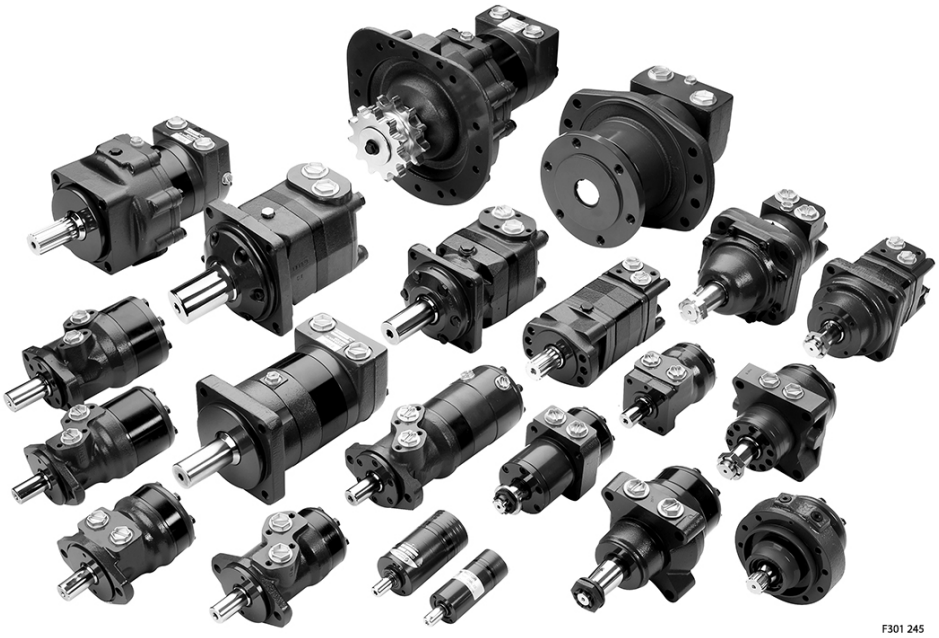
Contents

Contents

Contents

A wide range of Orbital Motors

Characteristic, features and application areas of Orbital Motors



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 cm^3 [0.50 in^3] to 800 cm^3 [48.9 in^3] 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:

- Motors with corrosion resistant parts
- Wheel motors with recessed mounting flange

A wide range of Orbital Motors

- 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:

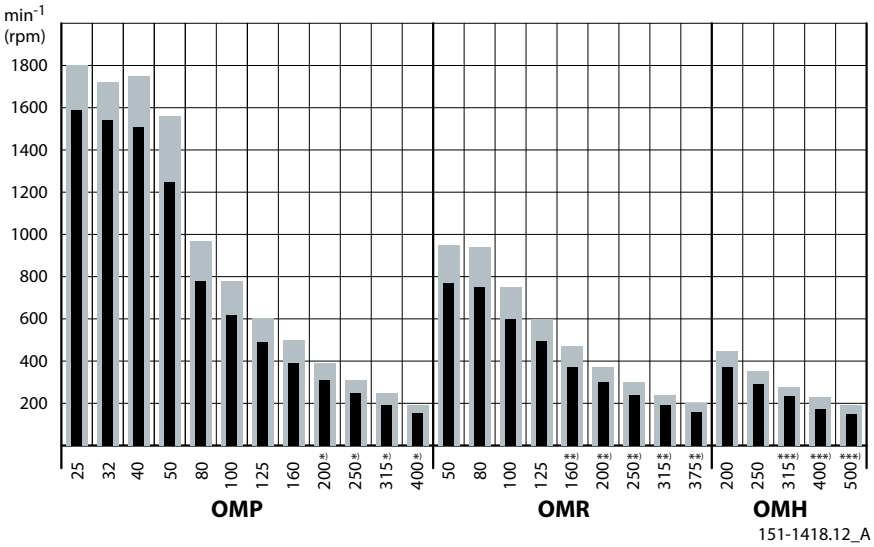
- General information on Danfoss Orbital Motors: function, use, selection of orbital motor, hydraulic systems, etc.
- Technical data on small motors: OML and OMM
- Technical data on medium sized motors: OMP, OMR, OMH
- Technical data on medium sized motors: DH and DS
- Technical data on medium sized 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.

A wide range of Orbital Motors

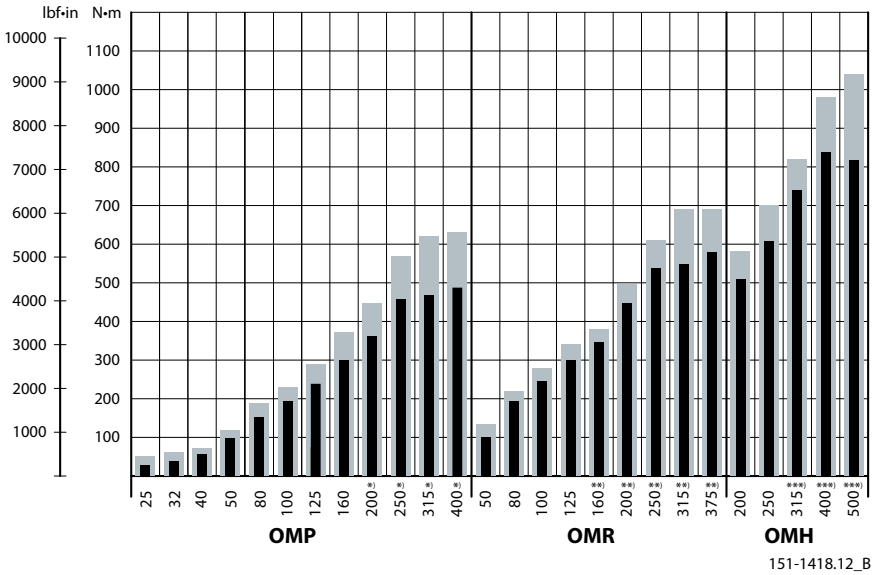
Speed, torque and output

Maximum speed



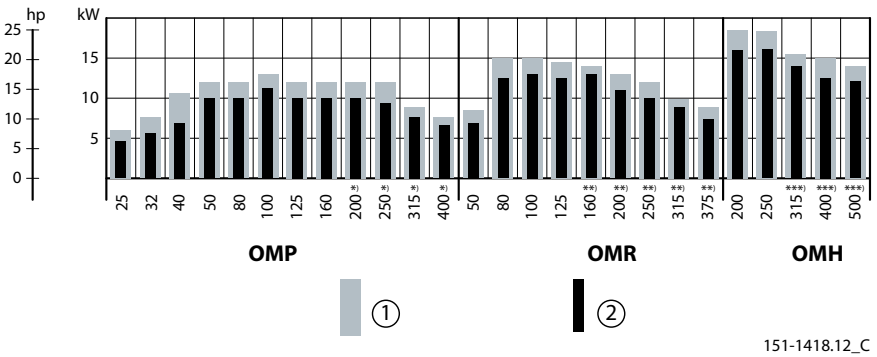
151-1418.12_A

Maximum torque



151-1418.12_B

Maximum output



151-1418.12_C

A wide range of Orbital Motors

1. Intermittend values

2. Continuous values

* Cylindrical 32 mm or 1 1/4 in shaft

** Cylindrical 32 mm, 35 mm, 1 1/4 in or 1 1/4 in tapered shaft

*** Cylindrical 35 mm, 1 1/4 in splined or 35 mm tapered shaft

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.

- OMP and OMPW: see *OMP function diagrams*
- OMR and OMRW: see *OMR function diagrams* on page 55
- OMH: see *OMH function diagrams* on page 85

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 mm^2/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.

OMP versions and code numbers

This section shows the different versions/configuration codes and the ordering numbers.

- Section *OMP technical data* on page 14, specify the technical data for OMP for each shaft type.
- In section *OMP function diagrams*, the diagram for each motor size is shown.
- See *OMP dimensions* on page 33 for outer main dimensions for the different OMP motor types.

OMP versions and code numbers

OMP standard motors

Mounting flange: 2 holde oval flange (A2)

Spigot diamer	**Ø82.5 mm [3.25 in]**							
Bolt circle diameter	**Ø106.4 mm [4.20 in]**							
Shaft	**Main port size**	**Port style**	**Drain port size**	**Standard shaft seal**	**High pressure shaft seal**	**Check valve**	**Main type designation**	**Conf. code**
Cyl. Ø25 mm	G 1/2	Side port	-	-	Yes	-	OMP	***A1***
Cyl. Ø25 mm	G 1/2	Side port	G 1/4	-	Yes	-	OMP	***A2***
Cyl. Ø25 mm	G 1/2	End port	G 1/4	Yes	-	Yes	OMP	***A3***
Cyl. 1 in	G 1/2	Side port	-	-	Yes	-	OMP	***A4***
Cyl. 1 in	G 1/2	Side port	G 1/4	-	Yes	-	OMP	***A5***
Cyl. 1 in	7/8-14 UNF	Side port	7/16-20 UNF	Yes	-	Yes	OMP	***A6***
Splined 1 in	G 1/2	Side port	-	-	Yes	-	OMP	***A7***
Splined 1 in	G 1/2	Side port	G 1/4	-	Yes	-	OMP	***A8***

Code numbers

Conf. code	**Displacement**											
	25	**32**	**40**	**50**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**400**
A1	151-0340	151-0341	151-0342	151-0310	151-0311	151-0312	151-0313	151-0314	151-0315	151-0316	151-0317	151-0318
A2	151-0640	151-0641	151-0652	151-0610	151-0611	151-0612	151-0613	151-0614	151-0615	151-0616	151-0617	151-0618
A3	-	-	-	151-5191	151-5192	151-5193	151-5194	151-5195	151-5196	151-5197	151-5198	151-5199
A4	-	-	11090903	151-0300	151-0301	151-0302	151-0303	151-0304	151-0305	151-0306	151-0307	151-0308
A5	-	-	-	151-0600	151-0601	151-0602	151-0603	151-0604	151-0605	151-0606	151-0607	151-0608
A6	151-7080	151-7081	151-7082	151-7041	151-7042	151-7043	151-7044*	151-7045	151-7046	-	151-7048	151-7049
A7	-	-	-	151-0330	151-0331	151-0332	151-0333	151-0334	151-0335	151-0336	151-0337	151-0338
A8	-	-	-	151-0630	151-0631	151-0632	151-0633	151-0634	151-0635	151-0636	151-0637	151-0638

* Motor painted black

Mounting flange : 4 hole oval flange (A4)

Spigot diamer	**Ø82.5 mm [3.25 in]**							
Bolt circle diameter	**Ø106.4 mm [4.20 in]**							
Shaft	**Main port size**	**Port style**	**Drain port size**	**Standard shaft seal**	**High pressure shaft seal**	**Check valve**	**Main type designation**	**Conf. code**
Cyl. Ø32 mm	G 1/2	Side port	G 1/4	Yes	-	Yes	OMP	***B1***

OMP versions and code numbers

Code numbers

Conf. code	Displacement											
	25	32	40	50	80	100	125	160	200	250	315	400
B1	-	-	-	-	-	-	151-5004	151-5005	151-5006	151-5007	151-5008	151-5009

Mounting flange: Square flange (C)

Spigot diamer	Ø44.4 mm [1.75 in]							
Bolt circle diameter	Ø82.5 mm [3.25 in]							
Shaft	**Main port size**	**Port style**	**Drain port size**	**Standard shaft seal**	**High pressure shaft seal**	**Check valve**	**Main type designation**	**Conf. code**
Cyl. Ø25 mm	G 1/2	End port	G 1/4	Yes	-	Yes	OMP	***C1***
Cyl. 1 in	7/8-14 UNF	Side port	7/16-20 UNF	Yes	-	Yes	OMP	***C2***
Cyl. 1 in	1/2-14 NPTF	Side port	7/16-20 UNF	Yes	-	Yes	OMP	***C3***

Code numbers

Conf. code	Displacement											
	25	32	40	50	80	100	125	160	200	250	315	400
C1	-	-	-	151-5211	151-5212	-	-	-	151-5216	-	-	-
C2	-	-	11130216	151-7061	151-7062	151-7063	-	151-7065	151-7066	151-7067	151-7068	151-7069
C3	-	-	-	-	-	151-7023	-	-	151-7026	-	151-7028	-

Mounting flange: Wheel

Spigot diamer	Ø80 mm [3.15 in]							
Bolt circle diameter	Ø103 mm [4.06 in]							
Shaft	**Main port size**	**Port style**	**Drain port size**	**Standard shaft seal**	**High pressure shaft seal**	**Check valve**	**Main type designation**	**Conf. code**
Cyl. Ø25 mm	G 1/2	Side port	Yes	Yes	-	Yes	OMPW	***D1***

Code numbers

Conf. code	Displacement											
	25	32	40	50	80	100	125	160	200	250	315	400
D1	-	-	11036135	151-7101	151-7102	151-7103	151-7104	151-7105	151-7106	151-7107	151-7108	151-7109

OMP motors with corrosion resistant parts

Mounting flange: 2 hole oval flange (A2)

Spigot diamer	Ø82.5 mm [3.25 in]							
Bolt circle diameter	Ø106.4 mm [4.20 in]							
Shaft	**Main port size**	**Port style**	**Drain port size**	**Standard shaft seal**	**High pressure shaft seal**	**Check valve**	**Main type designation**	**Conf. code**
Cyl. Ø25 mm	G 1/2	Side port	G1/4	Yes	-	Yes	OMP C	***E1***

OMP versions and code numbers

Code numbers

Conf. code	Displacement											
	25	32	40	50	80	100	125	160	200	250	315	400
E1	151-5376	-	-	151-1208	151-1209	151-1210	-	151-1211	151-1212	151-1213	151-1214	-

OMP motors with needle bearings

Mounting flange: 2 hole oval flange (A2)

Spigot diamer	Ø82.5 mm [3.25 in]							
Bolt circle diameter	Ø106.4 mm [4.20 in]							
Shaft	Main port size	Port style	Drain port size	Standard shaft seal	High pressure shaft seal	Check valve	Main type designation	Conf. code
Cyl. Ø25 mm	G 1/2	Side port	G1/4	Yes	-	Yes	OMP N	***F1***

Code numbers

Conf. code	Displacement											
	25	32	40	50	80	100	125	160	200	250	315	400
F1	-	-	11071283	151-5311	-	151-5313	-	-	151-5316	-	151-5318	-

OMPW motors with needle bearings

Mounting flange: Wheel

Spigot diamer	Ø80 mm [3.15 in]							
Bolt circle diameter	Ø103 mm [4.06 in]							
Shaft	Main port size	Port style	Drain port size	Standard shaft seal	High pressure shaft seal	Check valve	Main type designation	Conf. code
Tap. Ø28.5 mm	G 1/2	Side port	G 1/4	Yes	-	Yes	OMPW N	***F2***

Code numbers

Conf. code	Displacement											
	25	32	40	50	80	100	125	160	200	250	315	400
F2	-	-	151-5324	151-5301	151-5302	151-5303	151-5304	151-5305	151-5306	151-5307	151-5308	151-5309

OMP motors with free running gerotor

Mounting flange: 2 hole oval flange (A2)

Spigot diamer	Ø82.5 mm [3.25 in]							
Bolt circle diameter	Ø106.4 mm [4.20 in]							
Shaft	Main port size	Port style	Drain port size	Standard shaft seal	High pressure shaft seal	Check valve	Main type designation	Conf. code
Cyl. Ø25 mm	G 1/2	Side port	G1/4	Yes	-	-	OMP	***G1***

OMP versions and code numbers

Code numbers

Conf. code	Displacement											
	25	**32**	**40**	**50**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**400**
G1	-	-	-	-	-	151-0622	151-0623	151-0624	151-0625	-	151-0627	-

Features available (options)

Low leakage (low speed valve)

Speed sensor

Viton shaft seal

Reverse rotation

Painted

OMP technical data

OMP with 25 mm and 1 in cylindrical shaft

OMP 25 cm³ - 100 cm³

Type			**OMP**	**OMP**	**OMP**	**OMP**	**OMP**	**OMP**
Motor size			**25**	**32**	**40**	**50**	**80**	**100**
Geometric displacement	cm^3 [inch]		25.0 [1.53]	32.0 [1.96]	40.0 [2.45]	48.6 [2.97]	77.8 [4.76]	97.3 [5.95]
Max. speed	min^{-1}	cont.	1600	1560	1500	1230	770	615
	[rpm]	int.[1]	1800	1720	1750	1540	960	770
Max. torque	N•m [lbf•in]	cont.	33 [290]	43 [380]	52 [460]	93 [820]	150 [1330]	190 [1680]
		int.[1]	47 [420]	61 [540]	74 [660]	120 [1060]	190 [1680]	230 [2040]
Max. output	kW [hp]	cont.	4.5 [6.0	5.8 [7.8]	7.0 [9.4]	10.0 [13.4]	10.0 [13.4]	11.0 [14.8]
		int.[1]	6.1 [8.2]	7.8 [10.5]	10.6 [14.2]	12.0 [16.1]	12.0 [16.1]	13.0 [17.4]
Max. pressure drop	bar [psi]	cont.	100 [1450]	100 [1450]	100 [1450]	140 [2030]	140 [2030]	140 [2030]
		int.[1]	140 [2030]	140 [2030]	140 [2030]	175 [2540]	175 [2540]	175 [2540]
		peak[2]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]
Max. oil flow	l/min [US gal/min]	cont.	40 [10.6]	50 [13.2]	60 [15.9]	60 [15.9]	60 [15.9]	60 [15.9]
		int.[1]	45 [11.9]	55 [14.5]	70 [18.5]	75 [19.8]	75 [19.8]	75 [19.8]
Max. starting pressure with unloaded shaft	bar [psi]	standard	10 [145]	10 [145]	10 [145]	10 [145]	10 [145]	10 [145]
		free running gerotor	-	-	-	-	-	2 [29]
Min starting torque	at max. press drop cont. N•m [lbf•in]		30 [270]	40 [350]	45 [400]	80 [710]	135 [1200]	170 [1510]
	at max. press.drop int.[1] N•m [lbf•in]		40 [350]	55 [490]	63 [560]	100 [890]	170 [1510]	210 [1860]

[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.

OMP 125 cm³ - 400 cm³

Type			**OMP**	**OMP**	**OMP**	**OMP**	**OMP**	**OMP**
Motor size			**125**	**160**	**200**	**250**	**315**	**400**
Geometric displacement	cm^3 [inch]		125.0 [7.65]	155.7 [9.53]	194.6 [11.91]	242.3 [14.83]	306.1 [18.73]	389.2 [23.82]
Max. speed	min^{-1} [rpm]	cont.	480	385	310	250	195	155
		int[1]	600	480	385	310	245	190
Max. torque	N•m [lbf•in]	cont.	240 [2120]	300 [2660]	300 [2660]	300 [2660]	300 [2660]	300 [2660]
		int.[1]	290 [2570]	370 [3280]	380 [3360]	410 [3630]	390 [3450]	420 [3720]

OMP technical data

OMP 125 cm³ - 400 cm³ (continued)

Type			OMP	OMP	OMP	OMP	OMP	OMP
Motor size			**125**	**160**	**200**	**250**	**315**	**400**
Max. output	kW [hp]	cont.	10 [13.4]	10 [13.4]	8.0 [10.7]	6.0 [8.1]	5.0 [6.7]	4.0 [5.4]
		int.[1)]	12.0 [16.1]	12.0 [16.1]	11.0 [14.8]	9.0 [12.1]	7.0 [9.4]	6.0 [8.1]
Max. pressure drop	bar [psi]	cont.	140 [2030]	140 [2030]	115 [1670]	90 [1310]	75 [1090]	60 [870]
		int[1)]	175 [2540]	175 [2540]	150 [2180]	125 [1810]	100 [1450]	80 [1160]
		peak[2)]	225 [3260]	225 [3260]	225 [3260]	180 [2610]	160 [2320]	130 [1890]
Max. oil flow	l/min [US gal/min]	cont.	60 [15.9]	60 [15.9]	60 [15.9]	60 [15.9]	60 [15.9]	60 [15.9]
		int.[1)]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]
Max. starting pressure with unloaded shaft	bar [psi]	standard	9 [130]	7 [100]	5 [75]	5 [75]	5 [75]	5 [75]
		free running gerotor	2 [29]	2 [29]	2 [29]	-	-	-
Min starting torque	at max. press drop cont. N•m [lbf•in]		210 [1860]	280 [2480]	270 [2390]	280 [2480]	280 [2480]	280 [2480]
	at max. press.drop int.[1)] N•m [lbf•in]		270 [2390]	350 [3100]	360 [3190]	390 [3450]	370 [3280]	400 [3540]

[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.

OMP with 1 in splined and 28.5 mm tapered shaft

Type			OMP	OMP	OMP	OMP	OMP	OMP	OMP	OMP	OMP
Motor size			**50**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**400**
Geometric displacement	cm^3 [inch]		48.6 [2.97]	77.8 [4.76]	97.3 [5.95]	125.0 [7.65]	155.7 [9.53]	194.6 [11.91]	242.3 [14.83]	306.1 [18.73]	389.2 [23.82]
Maximum speed	min^{-1} [rpm]	cont.	1230	770	615	480	385	310	250	195	155
		int.[1)]	1540	960	770	600	480	385	310	245	190
Maximum torque	N•m [lbf•in]	cont.	93 [820]	150 [1330]	190 [1680]	240 [2120]	300 [2660]	360 [3190]	360 [3190]	360 [3190]	360 [3190]
		int.[1)]	120 [1060]	190 [1680]	230 [2040]	290 [2570]	370 [3280]	450 [3980]	460 [4070]	470 [4160]	460 [4070]
Maximum output	kW [hp]	cont.	10.0 [13.4]	10.0 [13.4]	11.0 [14.8]	10.0 [13.4]	10.0 [13.4]	10.0 [13.4]	8.0 [10.7]	6.0 [8.0]	5.0 [6.7]
		int.[1)]	12.0 [16.1]	12.0 [16.1]	13 [17.4]	12.0 [16.1]	12.0 [16.1]	12.0 [16.1]	10.5 [14.1]	7.5 [10.1]	6.0 [8.0]
Maximum pressure drop	bar [psi]	cont.	140 [2030]	140 [2030]	140 [2030]	140 [2030]	140 [2030]	140 [2030]	105 [1520]	90 [1310]	70 [1020]
		int[1)]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	140 [2030]	120 [1740]	90 [1310]
		peak[2)]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	180 [2610]	160 [2320]	130 [1890]

OMP technical data

Type			OMP	OMP	OMP	OMP	OMP	OMP	OMP	OMP	OMP
Motor size			**50**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**400**
Maximum oil flow	l/min [US gal/min]	cont.	60 [15.9]	60 [15.9]	60 [15.9]	60 [15.9]	60 [15.9]	60 [15.9]	60 [15.9]	60 [15.9]	60 [15.9]
		int.[1)]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]
Maximum starting pressure with unloaded shaft	bar [psi]		10 [145]	10 [145]	10 [145]	9 [130]	7 [100]	5 [75]	5 [75]	5 [75]	5 [75]
Minimum starting torque	at max. press drop cont. N•m [lbf•in]		80 [710]	135 [1200]	170 [1510]	210 [1860]	280 [2480]	340 [3010]	330 [2920]	340 [3010]	345 [3050]
	at max. press.drop int.[1)] N•m [lbf•in]		100 [890]	170 [1510]	210 [1860]	270 [2390]	350 [3100]	420 [3720]	440 [3890]	450 [3980]	425 [3760]

[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.

OMP with 32 mm cylindrical shaft

Type			OMP	OMP	OMP	OMP	OMP	OMP	OMP	OMP	OMP
Motor size			**50**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**400**
Geometric displacement	cm^3 [inch]		48.6 [2.97]	77.8 [4.76]	97.3 [5.95]	125.0 [7.65]	155.7 [9.53]	194.6 [11.91]	242.3 [14.83]	306.1 [18.73]	389.2 [23.82]
Maximum speed	min^{-1} [rpm]	cont.	1230	770	615	480	385	310	250	195	155
		int.[1)]	1540	960	770	600	480	385	310	245	190
Maximum torque	N•m [lbf•in]	cont.	93 [820]	150 [1330]	190 [1680]	240 [2120]	300 [2660]	360 [3190]	460 [4070]	470 [4160]	490 [4340]
		int.[1)]	120 [1060]	190 [1680]	230 [2040]	290 [2570]	370 [3280]	450 [3980]	570 [5050]	620 [5490]	630 [580]
Maximum output	kW [hp]	cont.	10.0 [13.4]	10.0 [13.4]	11.0 [14.8]	10.0 [13.4]	10.0 [13.4]	10.0 [13.4]	9.5 [12.7]	7.5 [10.1]	6.5 [8.7]
		int.[1)]	12.0 [16.1]	12.0 [16.1]	13.0 [17.4]	12.0 [16.1]	12.0 [16.1]	12.0 [16.1]	12.0 [16.1]	9.0 [12.1]	7.5 [10.1]
Maximum pressure drop	bar [psi]	cont.	140 [2030]	140 [2030]	140 [2030]	140 [2030]	140 [2030]	140 [2030]	140 [2030]	120 [1740]	95 [1380]
		int.[1)]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	175 [2540]	160 [2320]	125 [1810]
		peak[2)]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]	180 [2610]
Maximum oil flow	l/min [US gal/min]	cont.	60 [15.9]	60 [15.9]	60 [15.9]	60 [15.9]	60 [15.9]	60 [15.9]	60 [15.9]	60 [15.9]	60 [15.9]
		int.[1)]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]
Maximum starting pressure with unloaded shaft	bar [psi]		10 [145]	10 [145]	10 [145]	9 [130]	7 [100]	5 [75]	5 [75]	5 [75]	5 [75]
Minimum starting torque	at max. press drop cont. N•m [lbf•in]		80 [710]	135 [1200]	170 [1510]	210 [1860]	280 [2480]	340 [3010]	420 [3720]	460 [4070]	460 [4070]
	at max. press.drop int.[1)] N•m [lbf•in]		100 [890]	170 [1510]	210 [1860]	270 [2390]	350 [3100]	420 [3720]	530 [4690]	600 [5310]	600 [5310]

[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.

OMP technical data

Type			Max. inlet pressure	Max. return pressure with drain line
OMP 25 - 400	bar [psi]	cont.	175 [2540]	175 [2540]
	bar [psi]	int.[1)]	200 [2900]	200 [2900]
	bar [psi]	peak[2)]	225 [3260]	225 [3260]

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

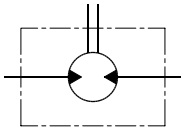
[2)] Peak load: the permissible values may occur for max. 1% of every minute.

Maximum permissible shaft seal pressure

OMP with High Pressure Shaft Seal (HPS)

OMP with HPS and without drain connection:

The shaft seal pressure equals the average of input pressure and return pressure.

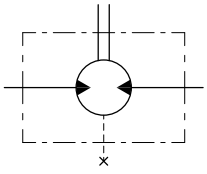


151-1743.10

$$P_{seal} = \frac{P_{in} + P_{return}}{2}$$

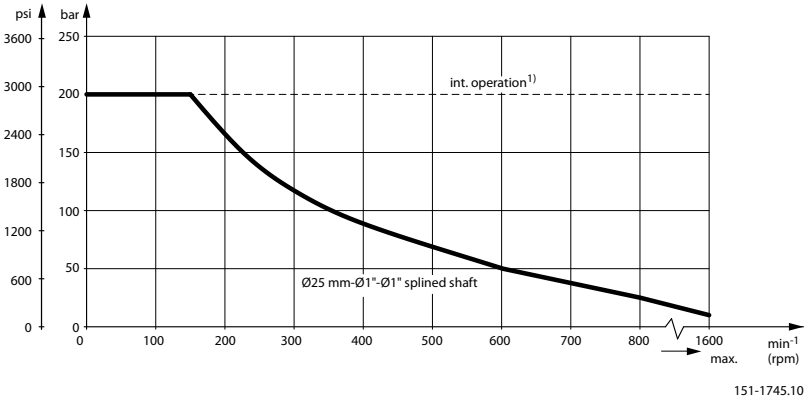
OMP with HPS and drain connection:

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



151-1855.10

Maximum permissible shaft seal pressure



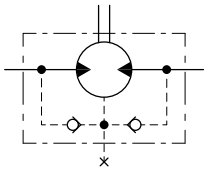
151-1745.10

OMP with Standard Shaft Seal

OMP 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

OMP technical data

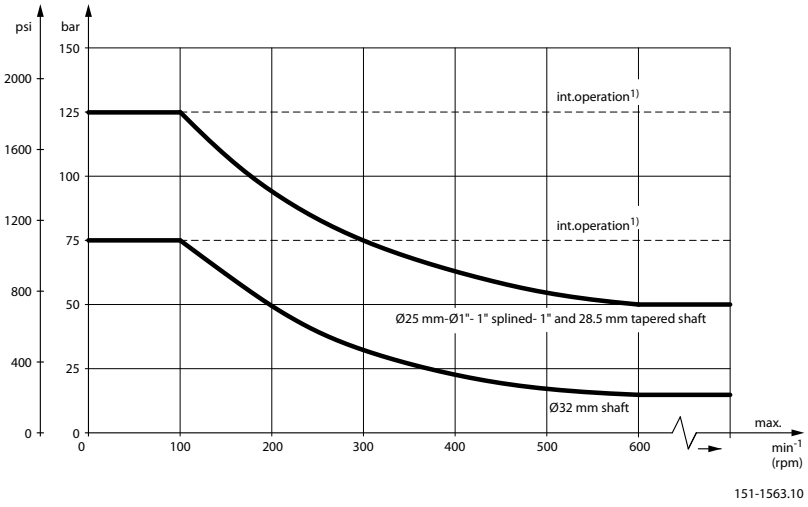


151-320.10

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

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

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

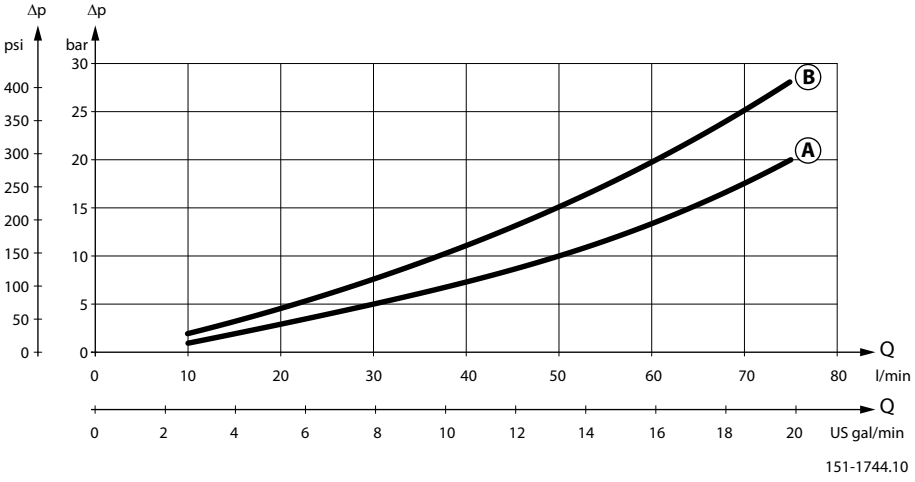


151-1563.10

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

Pressure drop in OMP motor

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



151-1744.10

A: OMP 50 - 400

B: OMP 25 - 40 / OMPW

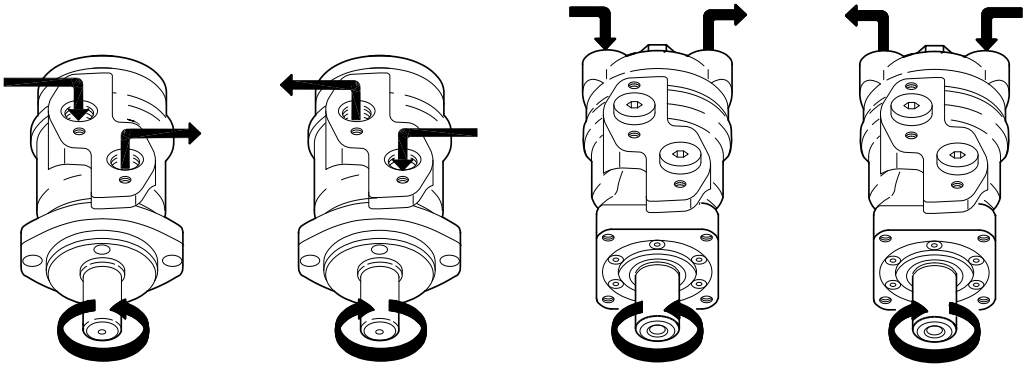
OMP technical data

Oil flow in drain line

The table shows the maximum oil flow in the drain line at a return pressure less than 5-10 bar [75-150 psi].

Pressure drop		Viscosity		Oil flow in drain line	
bar	**[psi]**	**mm^2/s**	**[SUS]**	**l/min**	**[US gal/min]**
100	[1450]	20	[100]	2.5	[0.66]
		35	[165]	1.8	[0.78]
140	[2030]	20	[100]	3.5	[0.93]
		35	[165]	2.8	[0.74]

Direction of shaft rotation



151-1836.10

Permissible shaft loads

OMP and OMR

The permissible radial shaft load (P_R) depends on:

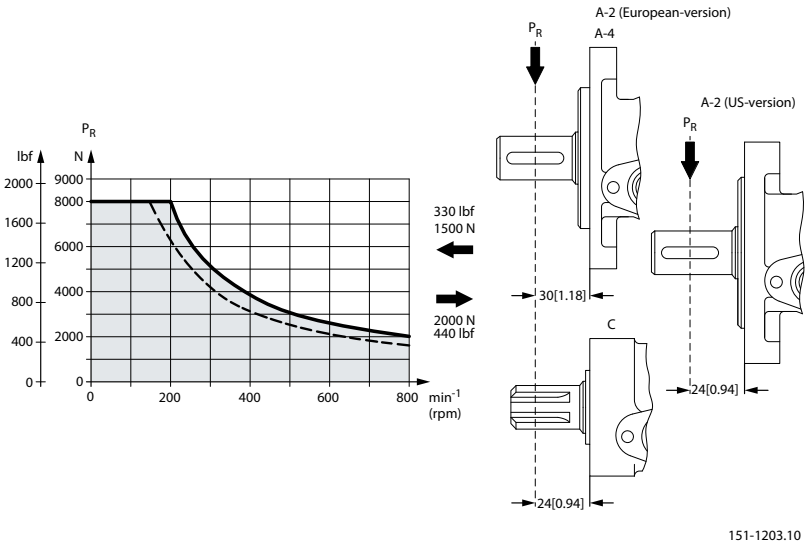
- Speed (n)
- Distance (L) from the point of load to the mounting flange
- Mounting flange version
- Shaft version

Mounting flange	**4-oval flange**** **2-hole oval flange (European version)**	**4-hole oval flange**	**Square flange**** **2-hole oval flange (US-version)**
Shaft version	**25 mm cylindrical shaft 1 in cylindrical shaft 1 in splined shaft**	**32 mm cylindrical shaft**	**25 mm cylindrical shaft**
Permissible shaft load (P_R) - l in mm	$\frac{800}{n} \cdot \frac{250000\ N^*}{95 + L}$	$\frac{800}{n} \cdot \frac{187500\ N^*}{95 + L}$	$\frac{800}{n} \cdot \frac{250000\ N^*}{101 + L}$
Permissible shaft load (P_R) - l in inch	$\frac{800}{n} \cdot \frac{2215\ lbf^*}{3.74 + L}$	$\frac{800}{n} \cdot \frac{1660\ lbf^*}{3.74 + L}$	$\frac{800}{n} \cdot \frac{2215\ lbf^*}{3.98 + L}$

** For both European and US-version

* $n \geq 200\ min^{-1}$ [rpm]; ≤ 55 mm [2.2 in]. $n < 200\ min^{-1}$ [rpm]; = > P_{Rmax} = 8000 N [1800 lbf]

OMP technical data



--------- cylindrical shaft 32 mm [1.26 in]

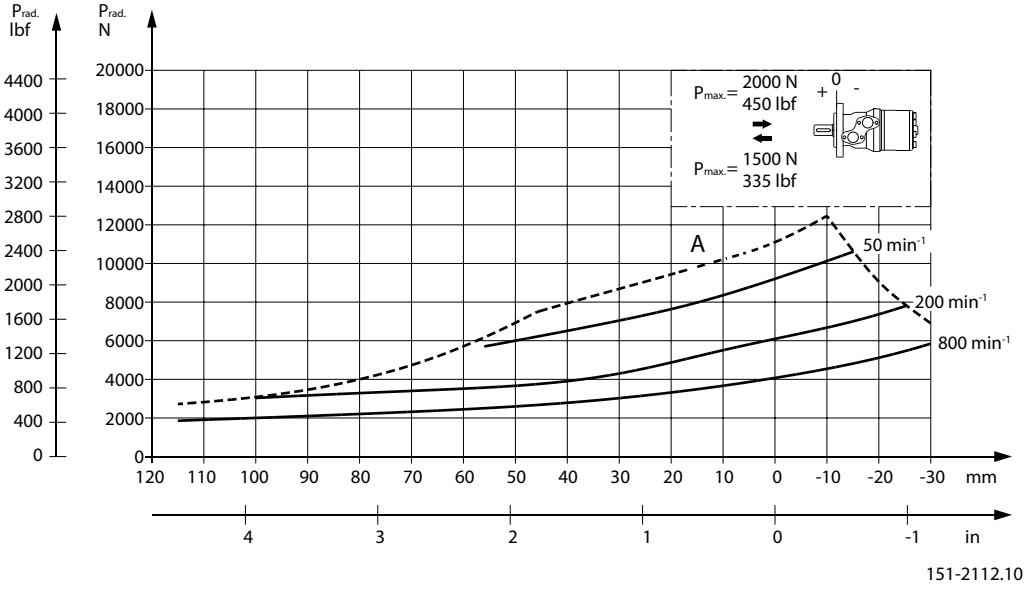
_____ other shaft versions

The curve shows the relation between P_R and n

- when l = 30 mm [1.18 in] for motors with A2 (European version) and A4 oval mounting flange
- when l = 24 mm [0.94 in] for motors with square mounting flange and A2 (US version)

For applications with special performance requirements we recommend OMP and OMR with the output shaft running in needle bearings.

OMP N



The output shaft on OMP N can be offered in needle bearings. These bearings and the recessed mounting flange allow a higher permissible radial load in comparison to OMP motors.

The permissible radial load on the shaft is shown for different speeds as a function of the distance from the mounting flange to the point of load application.

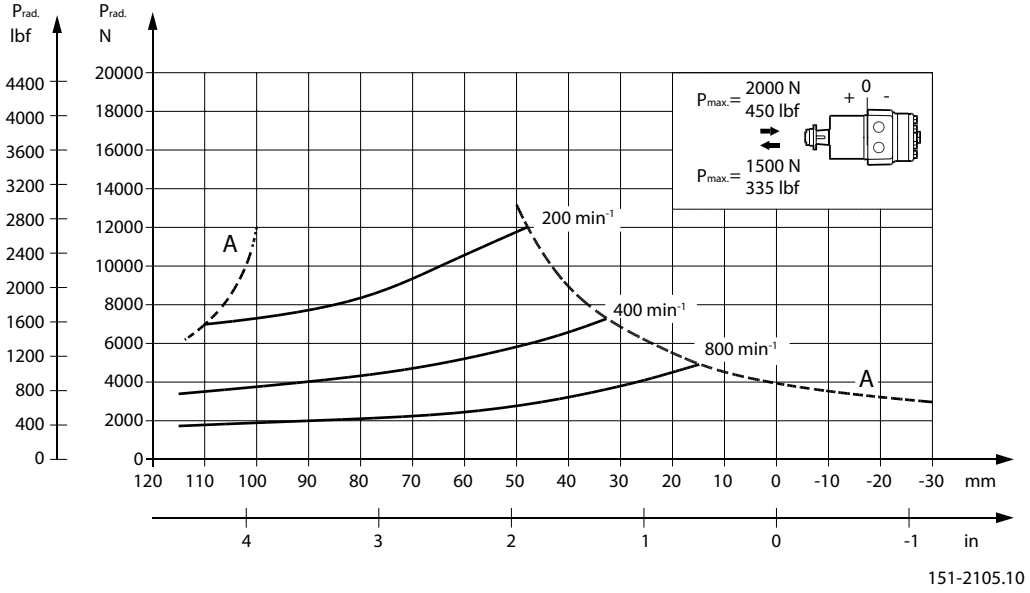
OMP technical data

Curve A indicates the max. radial shaft load. Any shaft load exceeding the values quoted in curve A will involve risk of breakage.

The other curves apply to a B10 bearing life of 2000 hours at the number of revolutions indicated by the curve letter. Mineral based hydraulic oil with a sufficient content of anti-wear additives must be used.

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.

OMPW with slide bearings



The output shaft on OMPW can be offered in slide bearings similar to the other OMP-motors. The permissible higher radial load is therefore due to the recessed mounting flange moving the point of load closer to the motor bearings.

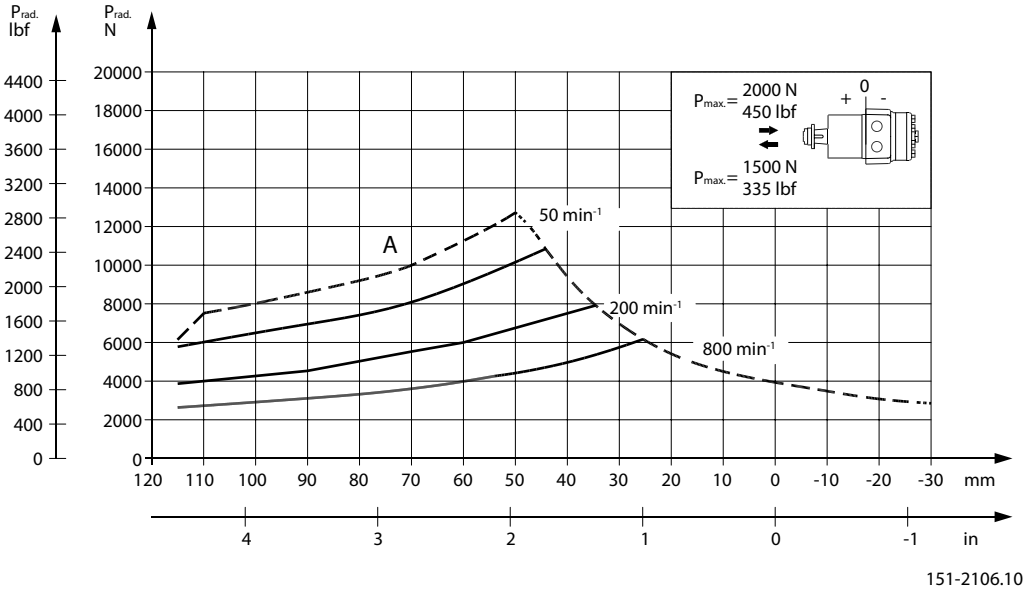
The permissible radial load on the shaft is shown for different speeds as a function of the distance from the mounting flange to the point of load application.

The curves are not based on calculations of B10 bearing life. They represent absolute limits that must not be exceeded.

Curve A indicates the max. radial shaft load. Any shaft load exceeding the values quoted in curve A will involve risk of breakage.

OMP technical data

OMPW N with needle bearing



151-2106.10

The output shaft on OMPW N can be offered in needle bearings. These bearings and the recessed mounting flange allow a higher permissible radial load in comparison to OMP motors.

The permissible radial load on the shaft is shown for different speeds as a function of the distance from the mounting flange to the point of load application.

Curve A indicates the max. radial shaft load. Any shaft load exceeding the values quoted in curve A will involve risk of breakage.

The other curves apply to a B10 bearing life of 2000 hours at the number of revolutions indicated by the curve letter. Mineral based hydraulic oil with a sufficient content of anti-wear additives must be used.

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.

OMP function diagrams

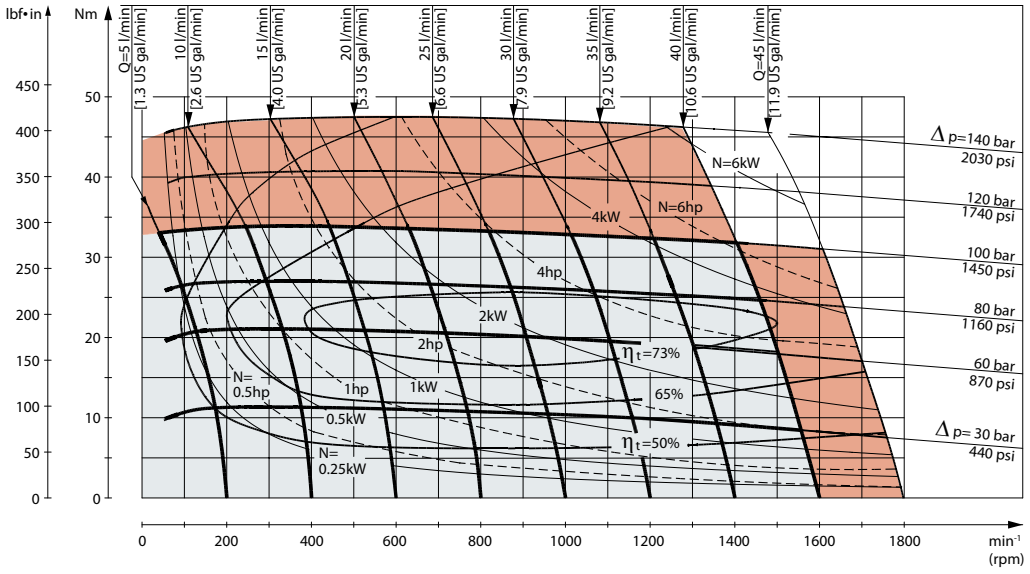
Explanation of function diagram use, basis and conditions can be found in *Speed, torque and output* on page 8.

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

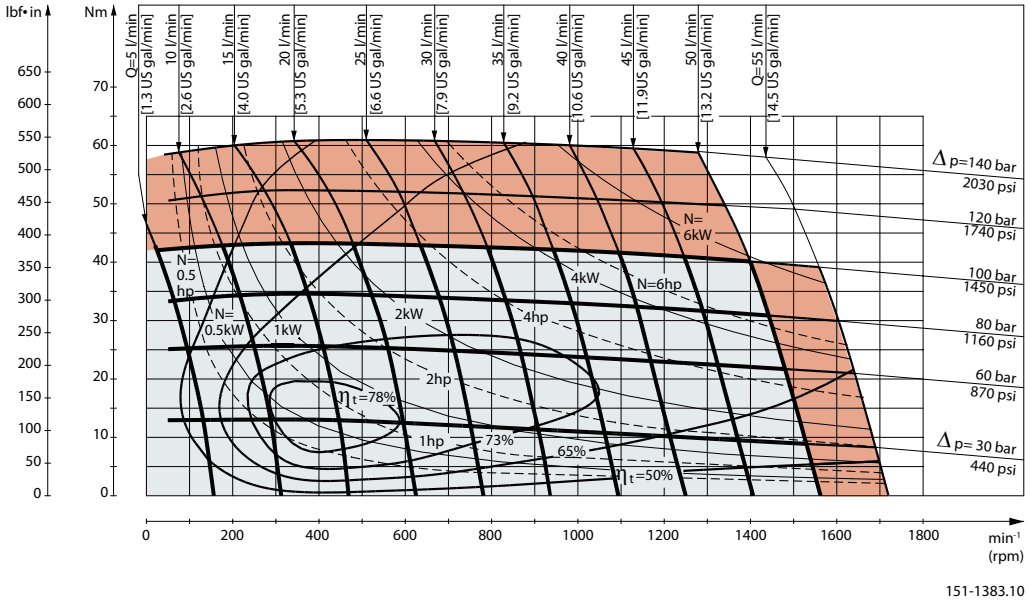
Max. permissible continuous/intermittent pressure drop for the actual shaft version can be found in *OMP technical data* on page 14.

Intermittent pressure drop and oil flow must not occur simultaneously.

OMP 25 function diagram

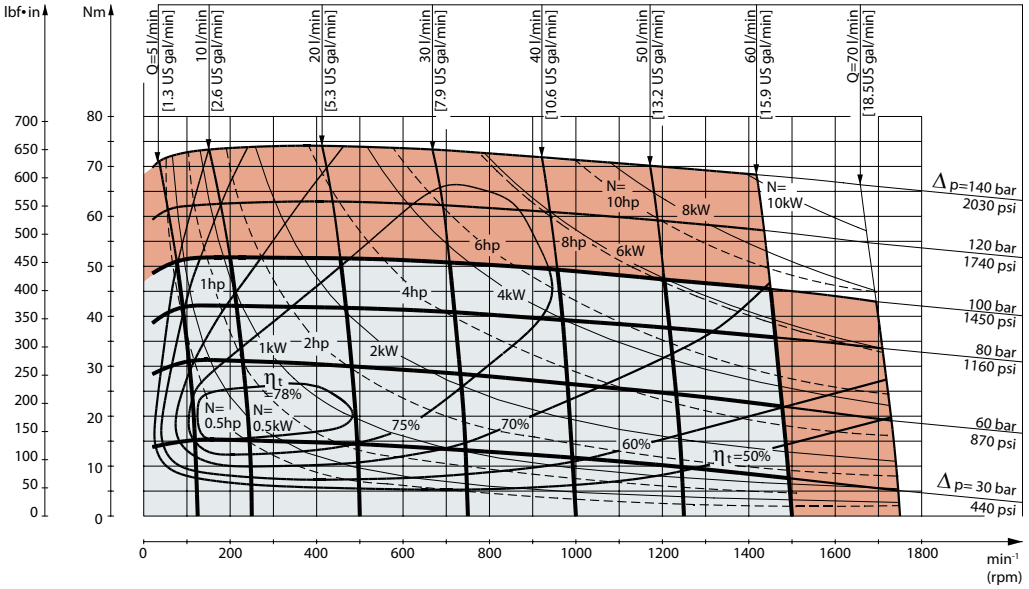


OMP 32 function diagram

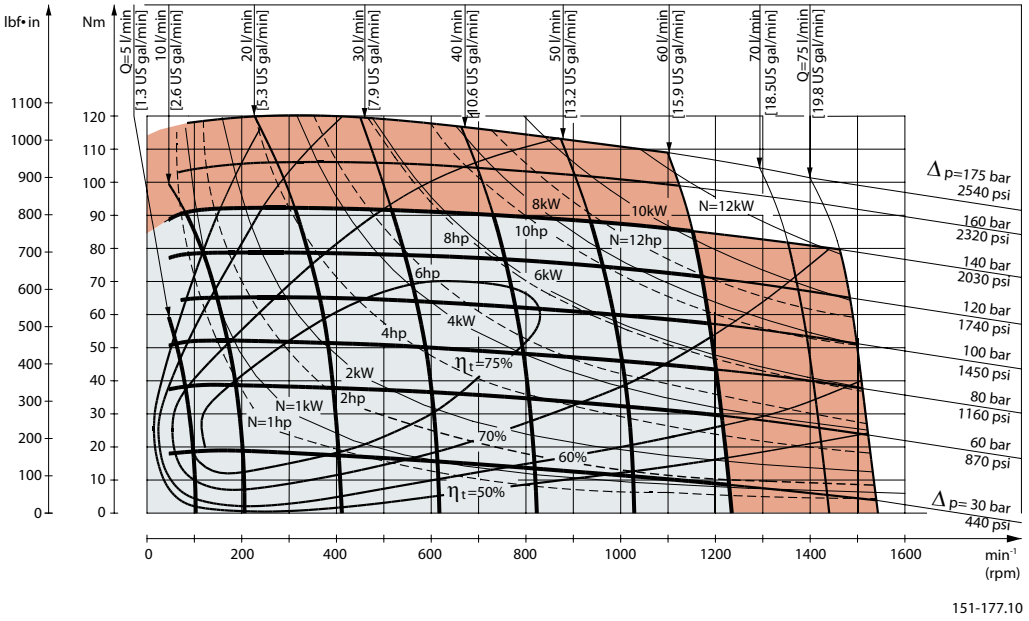


OMP function diagrams

OMP 40 function diagram

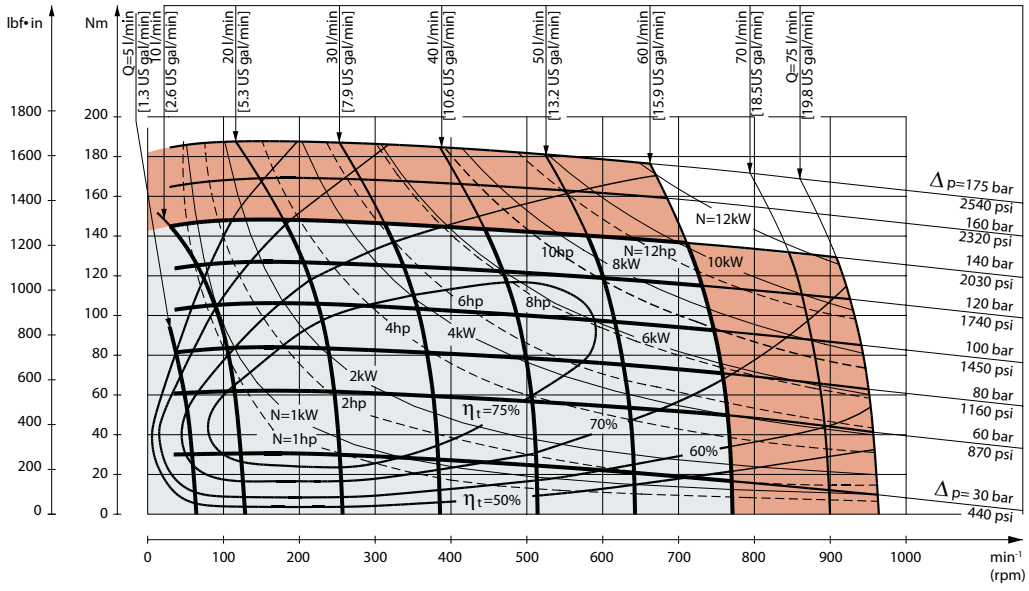


OMP 50 function diagram



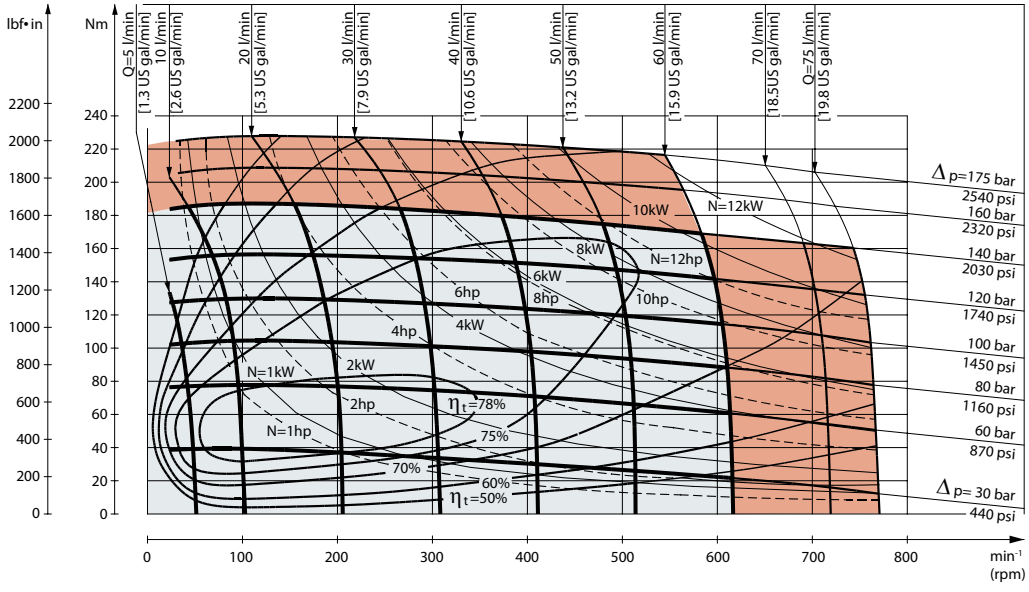
OMP function diagrams

OMP 80 function diagram



151-178.10

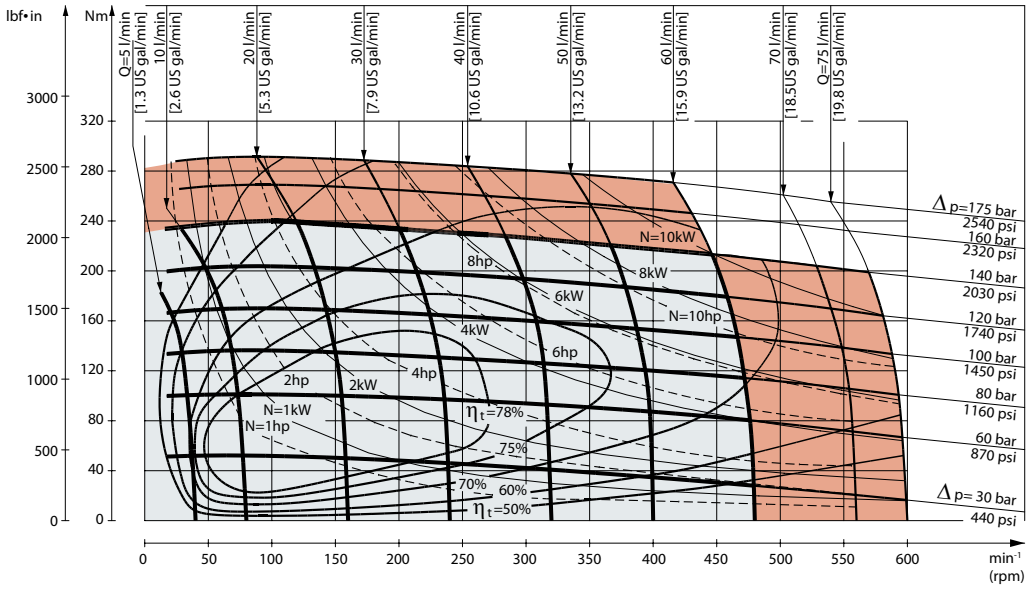
OMP 100 function diagram



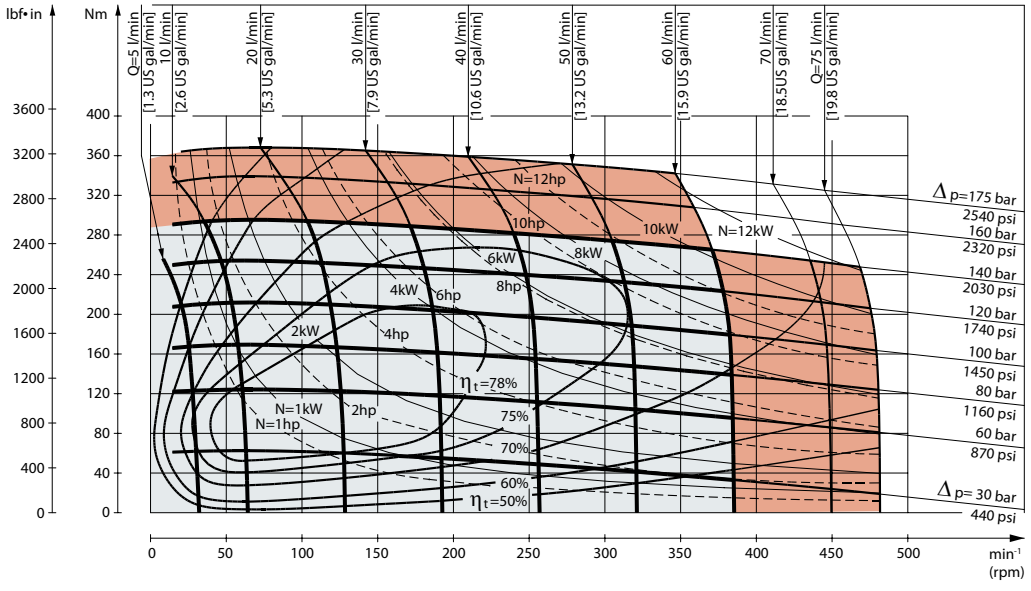
151-179.10

OMP function diagrams

OMP 125 function diagram

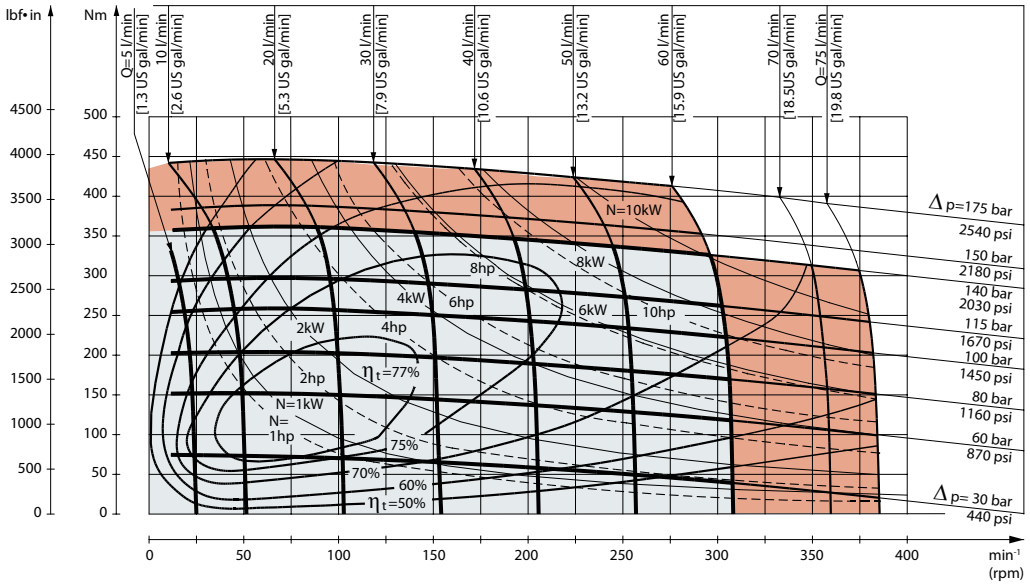


OMP 160 function diagram



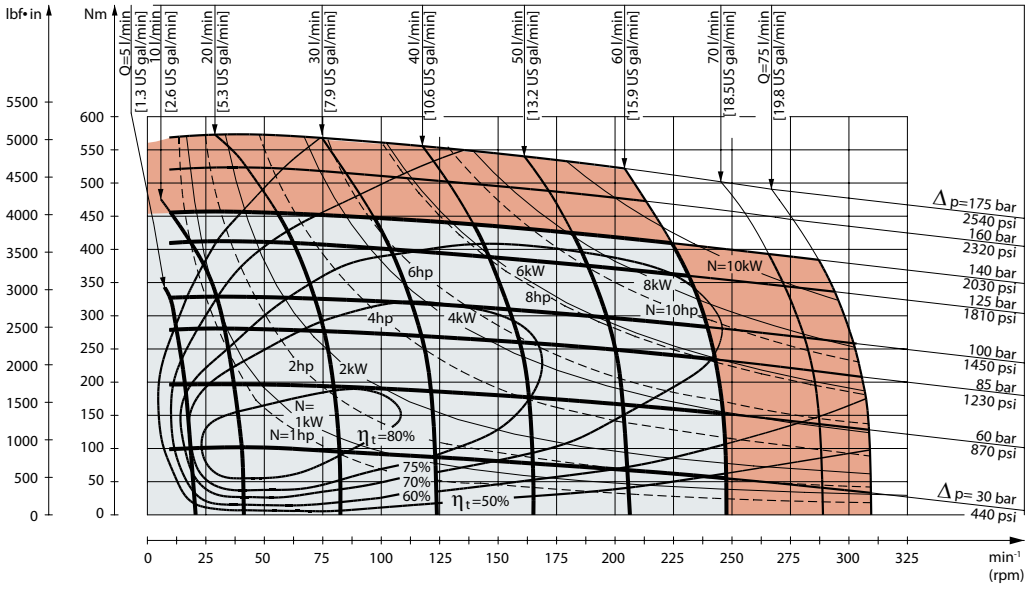
OMP function diagrams

OMP 200 function diagram



151-181.10

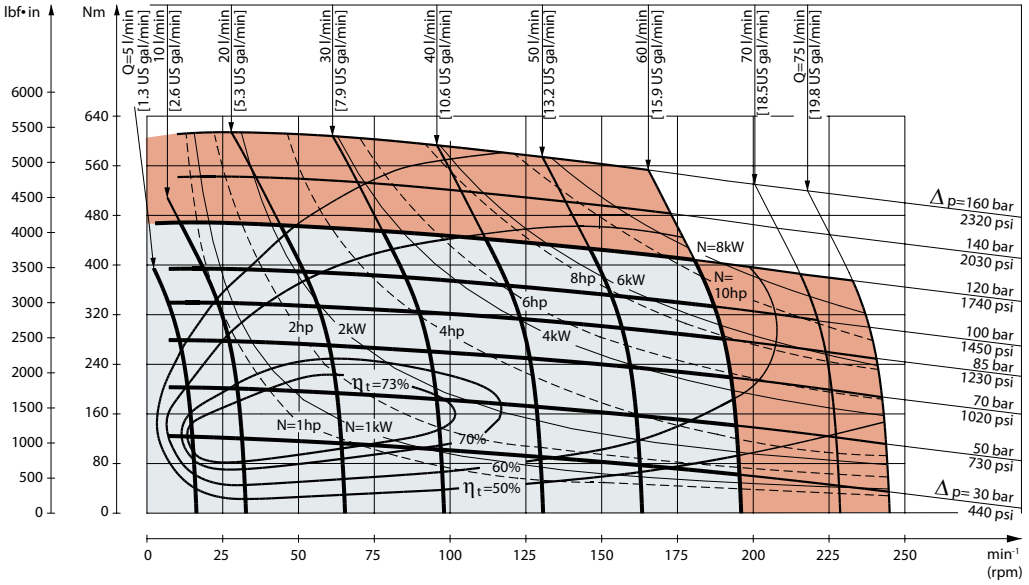
OMP 250 function diagram



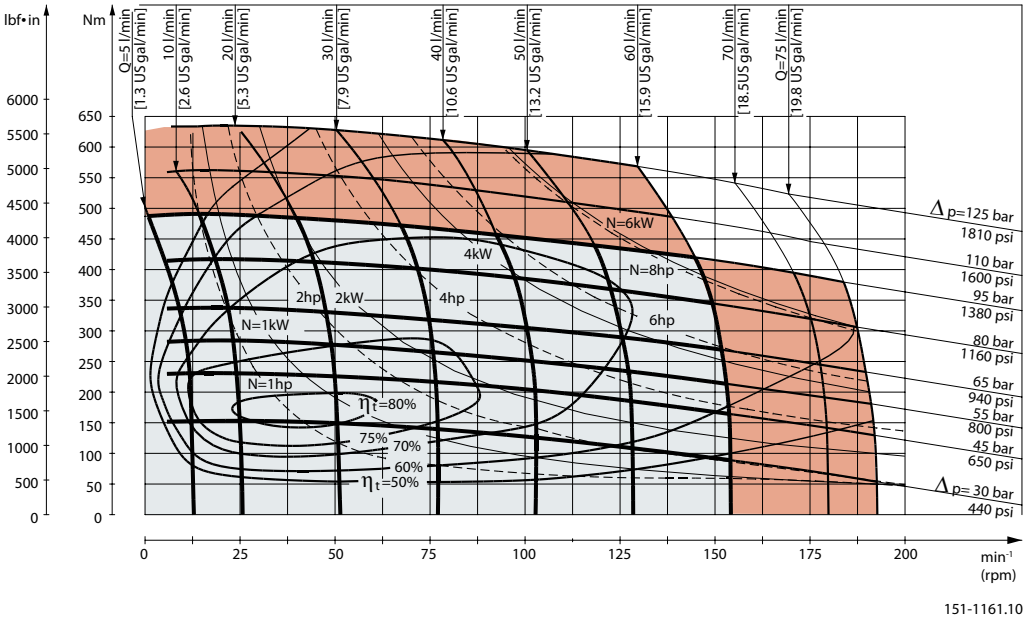
151-1244.10

OMP function diagrams

OMP 315 function diagram

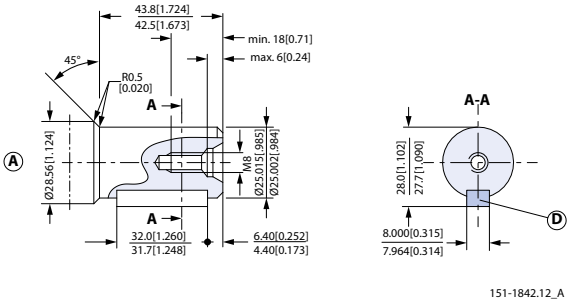


OMP 400 function diagram



OMP shaft version

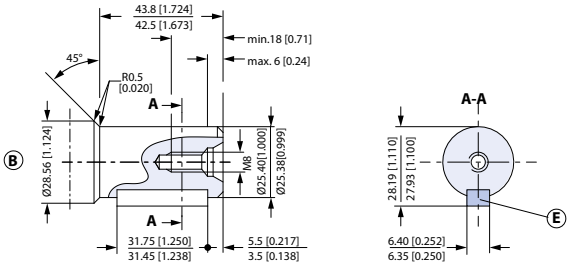
Shaft version



151-1842.12_A

A: Cylindrical shaft 25 mm

D: Parallel key A8 • 7 • 32 DIN 6885

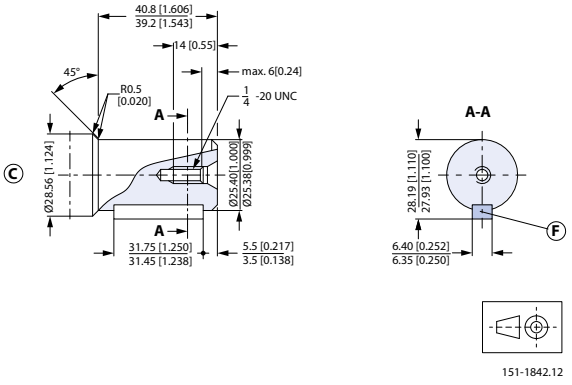


151-1842.12_B

B: Cylindrical shaft 1 in

E: Parallel key 1/4 • 1/4 • 11/4 in B.S. 46

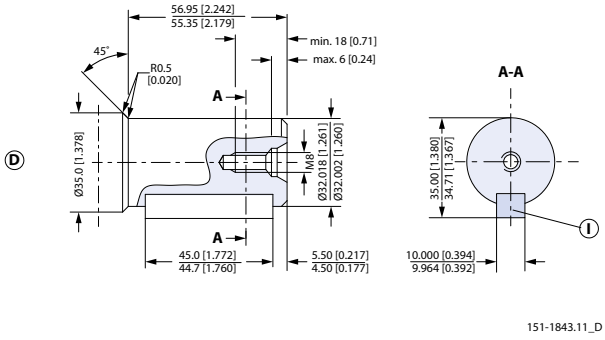
US version



151-1842.12

C: Cylindrical shaft 1 in

F: Parallel key 1/4 • 1/4 • 11/4 in B.S. 46

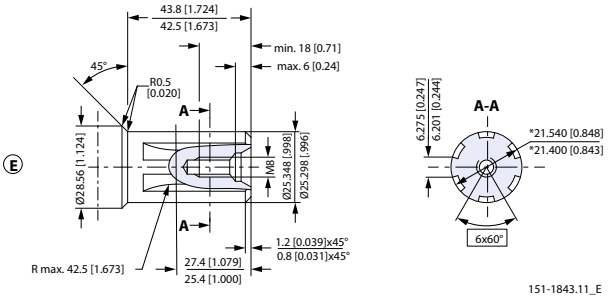


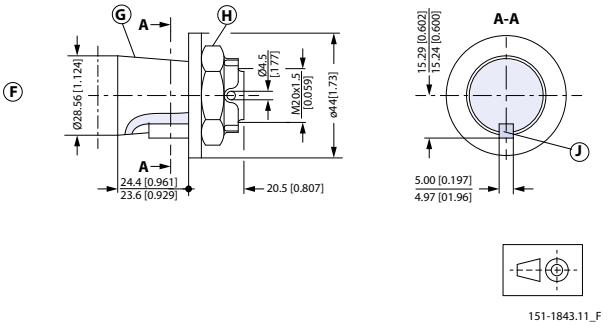
151-1843.11_D

D: Cylindrical shaft 32 mm

I: Parallel key A10 8 45 DIN 6885

OMP shaft version





E: Splined shaft B.S. 2059 (SAE 6 B)

Straight-sided, bottom fitting, dep. Fit 2 Nom. size 1 in

* Deviates from BS 2059 (SAE 6B)

F: Tapered shaft

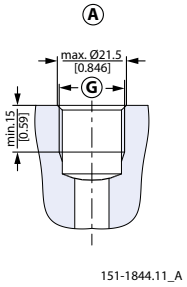
H: DIN 937 NV 30. Tightening torque: 100 ± 10 N•m [885 ± 88.50 lbf•in]

G: Taper 1:10

J: Parallel key B5 5 14 DIN 6885

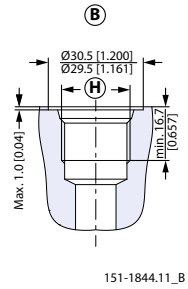
OMP port thread versions

Port thread versions



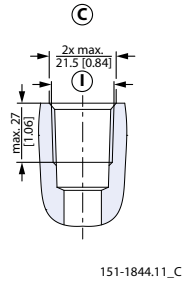
A: G main ports

G: ISO 228/1 - G1/2



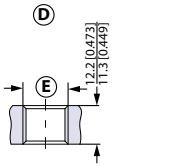
B: UNF main ports

H: 7/8 - 14 UNF O-ring boss port



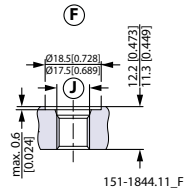
C: NPTF main ports

I: 1/2 - 14 NPTF



D: G drain port

E: ISO 228/1 - G1/4



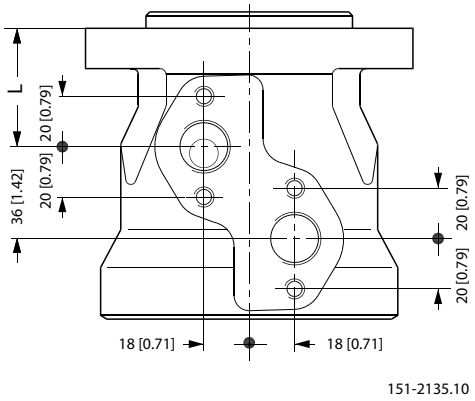
F: UNF drain port

J: 7/16 - 20 UNF O-ring boss port

OMP port thread versions

OMP manifold mount

European version



L: see dimensional drawing for given OMP motor:

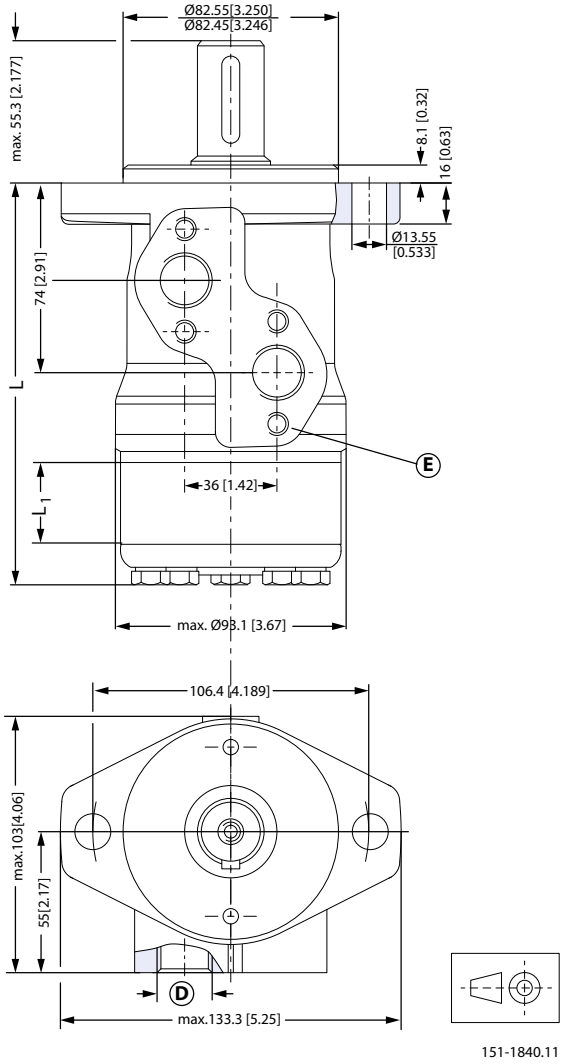
OMP dimensions - European version on page 33
OMP dimensions - US version on page 40

OMP dimensions

OMP dimensions - European version

OMP Side port version with 2 hole oval mounting flange (A2-flange)

Side port - European version



Tolerance for basic dimensions = ±1 mm [0.04 in]

D: G 1⁄2; 15 mm [0.59 in] deep

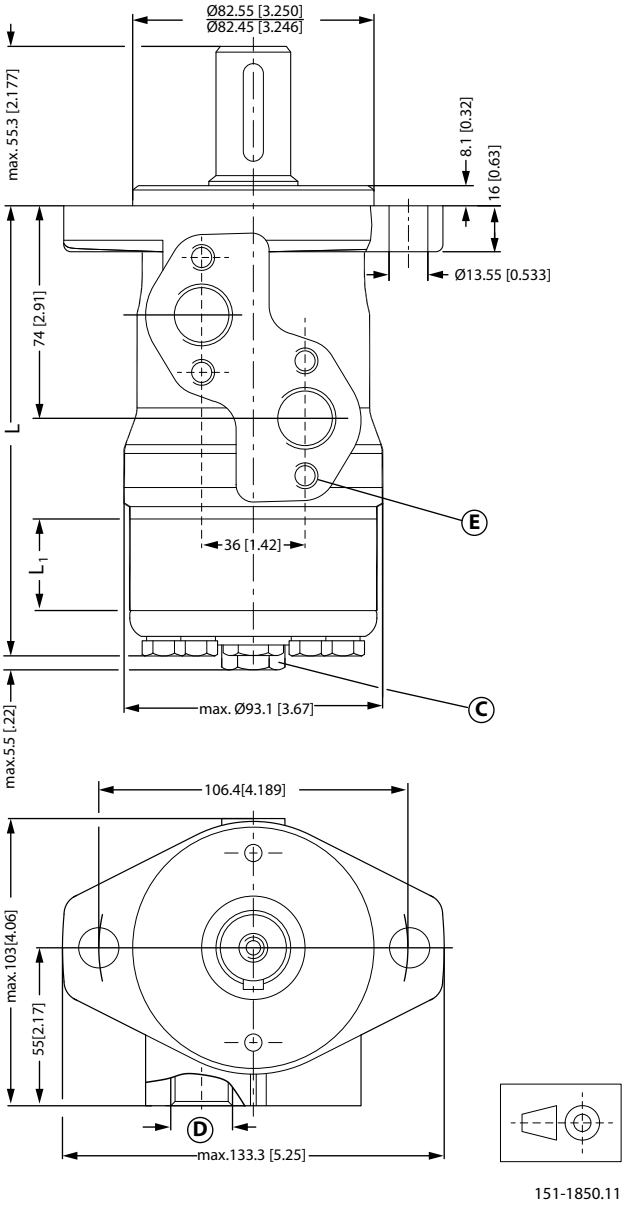
E: M8; 13 mm [0.51 in] deep (4 pcs.)

Type		OMP 25	OMP 32	OMP 40	OMP 50	OMP 80	OMP 100	OMP 125	OMP 160	OMP 200	OMP 250	OMP 315	OMP 400
$L_{Max.}$	mm [in]	130.8 [5.15]	131.9 [5.19]	133.2 [5.24]	133.2 [5.24]	137.2 [5.40]	139.7 [5.50]	143.5 [5.65]	147.5 [5.81]	152.7 [6.01]	159.2 [6.27]	167.6 [6.60]	178.7 [7.04]
L_1	mm [in]	4.1 [0.16]	5.2 [0.20]	6.5 [0.26]	6.5 [0.26]	10.4 [0.41]	13.0 [0.51]	16.7 [0.66]	20.8 [0.82]	26.0 [1.02]	32.5 [1.28]	40.9 [1.61]	52.0 [2.05]

OMP dimensions

Side port version with 2 hole oval mounting flange (A2-flange). With drain connection

Side port - European version



151-1850.11

Tolerance for basic dimensions = ±1 mm [0.04 in]

C: Drain connection G ¼; 12 mm [0.47 in] deep

D: G ½; 15 mm [0.59 in] deep

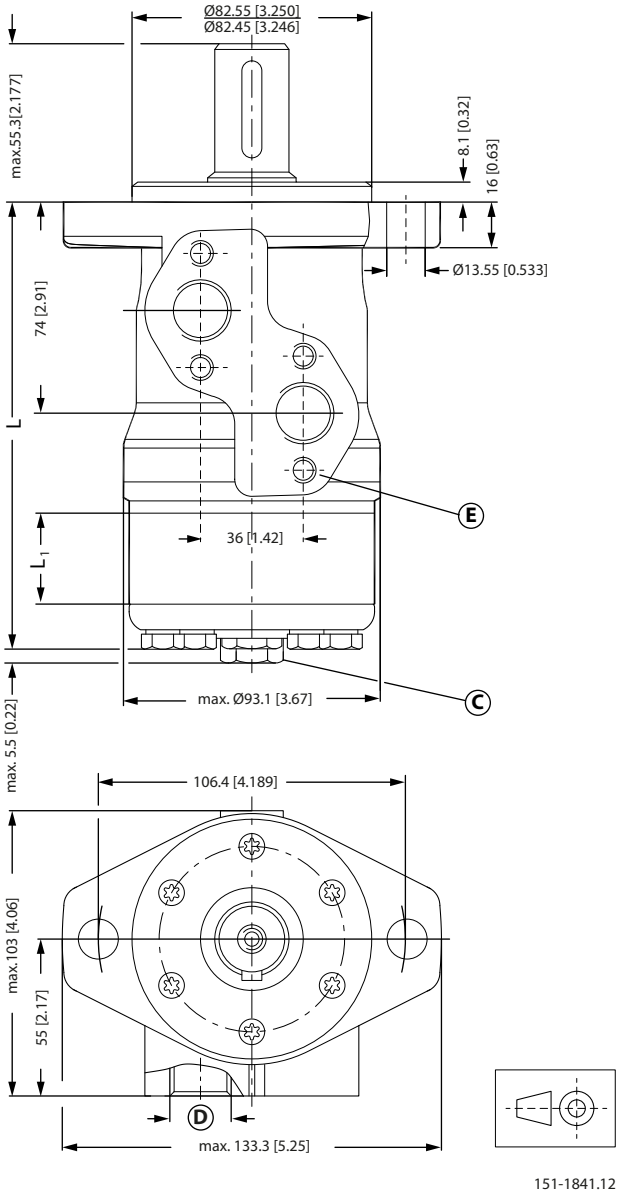
E: M8; 13 mm [0.51 in] deep (4 pcs.)

Type		OMP 25	OMP 32	OMP 40	OMP 50	OMP 80	OMP 100	OMP 125	OMP 160	OMP 200	OMP 250	OMP 315	OMP 400
$L_{Max.}$	mm [in]	130.8 [5.15]	131.9 [5.19]	133.2 [5.24]	133.2 [5.24]	137.2 [5.40]	139.7 [5.50]	143.5 [5.65]	147.5 [5.81]	152.7 [6.01]	159.2 [6.27]	167.6 [6.60]	178.7 [7.04]
L_1	mm [in]	4.1 [0.16]	5.2 [0.20]	6.5 [0.26]	6.5 [0.26]	10.4 [0.41]	13.0 [0.51]	16.7 [0.66]	20.8 [0.82]	26.0 [1.02]	32.5 [1.28]	40.9 [1.61]	52.0 [2.05]

OMP dimensions

OMP C and OMP N-side port version with 2 hole oval mounting flange (A2-flange)

Side port - European version



Tolerance for basic dimensions = ±1 mm [0.04 in]

C: Drain connection G ¼; 12 mm [0.47 in] deep

D: G ½; 15 mm [0.59 in] deep

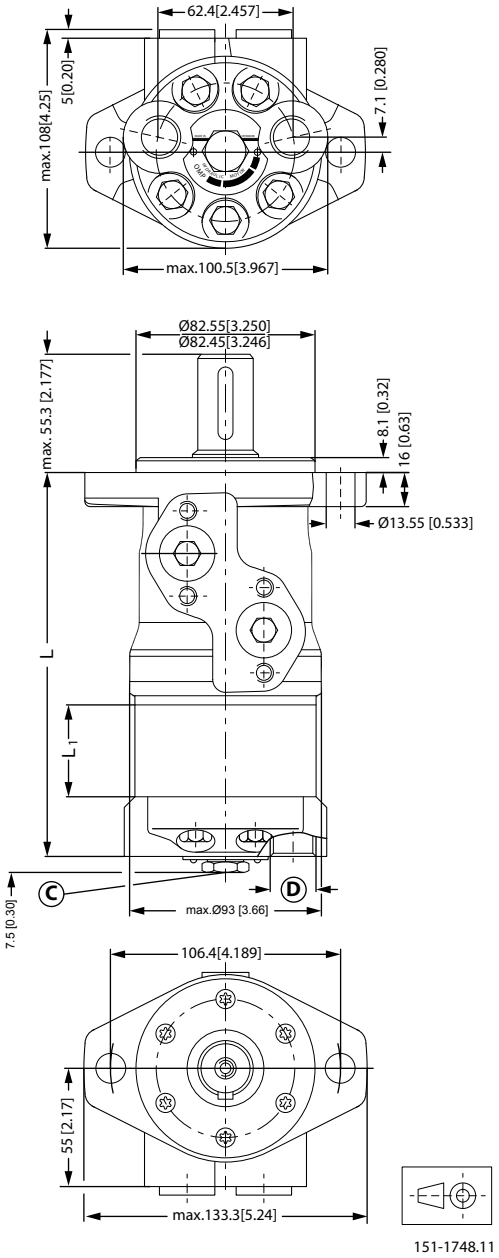
E: M8; 13 mm [0.51 in] deep (4 pcs.)

Type		**OMP 25**	**OMP 32**	**OMP 40**	**OMP 50**	**OMP 80**	**OMP 100**	**OMP 125**	**OMP 160**	**OMP 200**	**OMP 250**	**OMP 315**	**OMP 400**
$L_{Max.}$	mm [in]	130.8 [5.15]	131.9 [5.19]	133.2 [5.24]	133.2 [5.24]	137.2 [5.40]	139.7 [5.50]	143.5 [5.65]	147.5 [5.81]	152.7 [6.01]	159.2 [6.27]	167.6 [6.60]	178.7 [7.04]
L_1	mm [in]	4.1 [0.16]	5.2 [0.20]	6.5 [0.26]	6.5 [0.26]	10.4 [0.41]	13.0 [0.51]	16.7 [0.66]	20.8 [0.82]	26.0 [1.02]	32.5 [1.28]	40.9 [1.61]	52.0 [2.05]

OMP dimensions

End port version with 2 hole oval mounting flange (A2-flange)

End port - European version



Tolerance for basic dimensions = ±1 mm [0.04 in]

C: Drain connection G ¼; 12 mm [0.47 in] deep

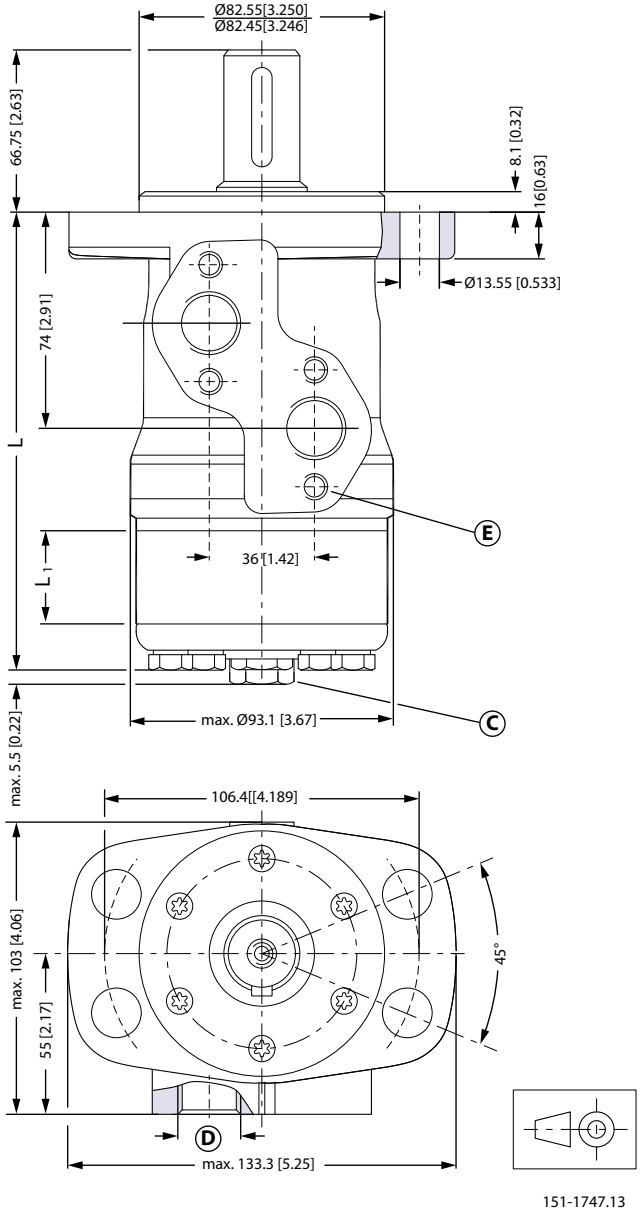
D: G ½; 15 mm [0.59 in] deep

Type		OMP 50	OMP 80	OMP 100	OMP 125	OMP 160	OMP 200	OMP 250	OMP 315	OMP 400
Max. L	mm [in]	146.7 [5.78]	150.6 [5.93]	153.2 [6.03]	157.0 [6.18]	161.0 [6.34]	166.2 [6.54]	172.7 [6.80]	181.1 [7.13]	192.2 [6.57]
L_1	mm [in]	6.5 [0.26]	10.4 [0.41]	13.0 [0.51]	16.7 [0.66]	20.8 [0.82]	26.0 [1.02]	32.5 [1.28]	40.9 [1.61]	52.0 [2.05]

OMP dimensions

Side port version with 4 hole oval mounting flange (A4-flange)

Side port - European version



Tolerance for basic dimensions = ±1 mm [0.04 in]

C: Drain connection G ¼; 12 mm [0.47 in] deep

D: G ½; 15 mm [0.59 in] deep

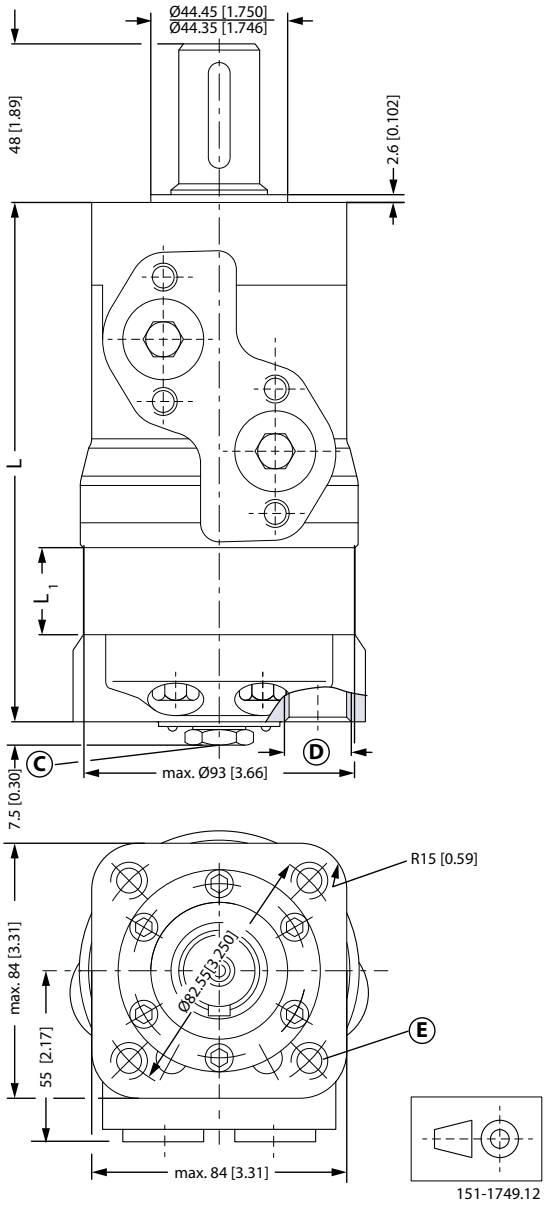
E: M8; 13 mm [0.51 in] deep (4 pcs.)

Type		OMP 50	OMP 80	OMP 100	OMP 125	OMP 160	OMP 200	OMP 250	OMP 315	OMP 400
Max. L	mm [in]	133.2 [5.24]	137.2 [5.40]	139.7 [5.50]	143.5 [5.65]	147.5 [5.81]	152.7 [6.01]	159.2 [6.27]	167.6 [6.60]	178.7 [7.04]
L_1	mm [in]	6.5 [0.26]	10.4 [0.41]	13.0 [0.51]	16.7 [0.66]	20.8 [0.82]	26.0 [1.02]	32.5 [1.28]	40.9 [1.61]	52.0 [2.05]

OMP dimensions

End port version with square mounting flange (C-flange)

End port - European version



Tolerance for basic dimensions = ±1 mm [0.04 in]

C: Drain connection G ¼; 12 mm [0.47 in] deep (4 pcs.)

D: G ½; 15 mm [0.59 in] deep

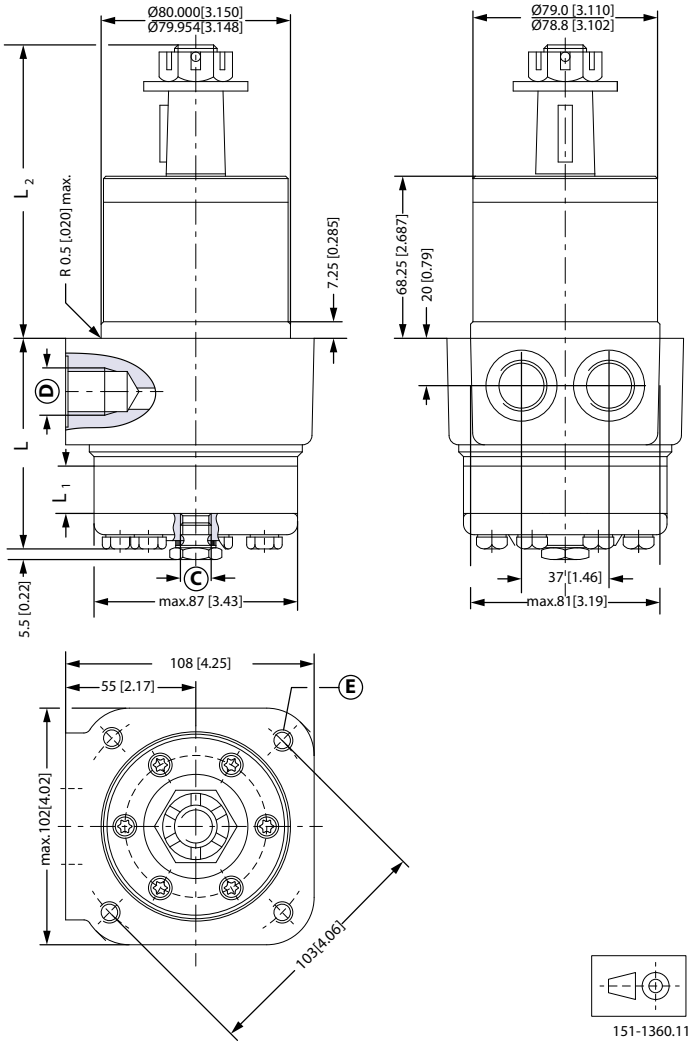
E: M10; 15 mm [0.59 in] deep

Type		OMP 50	OMP 80	OMP 100	OMP 125	OMP 160	OMP 200	OMP 250	OMP 315	OMP 400
Max. L	mm [in]	152.7 [6.01]	156.6 [6.17]	159.2 [6.27]	162.9 [6.41]	167.0 [6.57]	172.2 [6.78]	178.7 [7.04]	187.1 [7.37]	198.2 [7.80]
L_1	mm [in]	6.5 [0.26]	10.4 [0.41]	13.0 [0.51]	16.7 [0.66]	20.8 [0.82]	26.0 [1.02]	32.5 [1.28]	40.9 [1.61]	52.0 [2.05]

OMP dimensions

OMPW and OMPW N wheel motor

Wheel motor -- European version



Tolerance for basic dimensions = ±1 mm [0.04 in]

C: Drain connection G ¼; 12 mm [0.47 in] deep

D: G ½; 15 mm [0.59 in] deep

E: M10; 20 mm [0.79 in] deep (4 pcs.)

Output shaft. max.	**L_2 mm [in]**
Cylindrical shaft 25 mm [0.98 in]	max. 115 [4.53]
Tapered shaft 28.56 mm [1.12 in]	max. 117.8 [4.64]

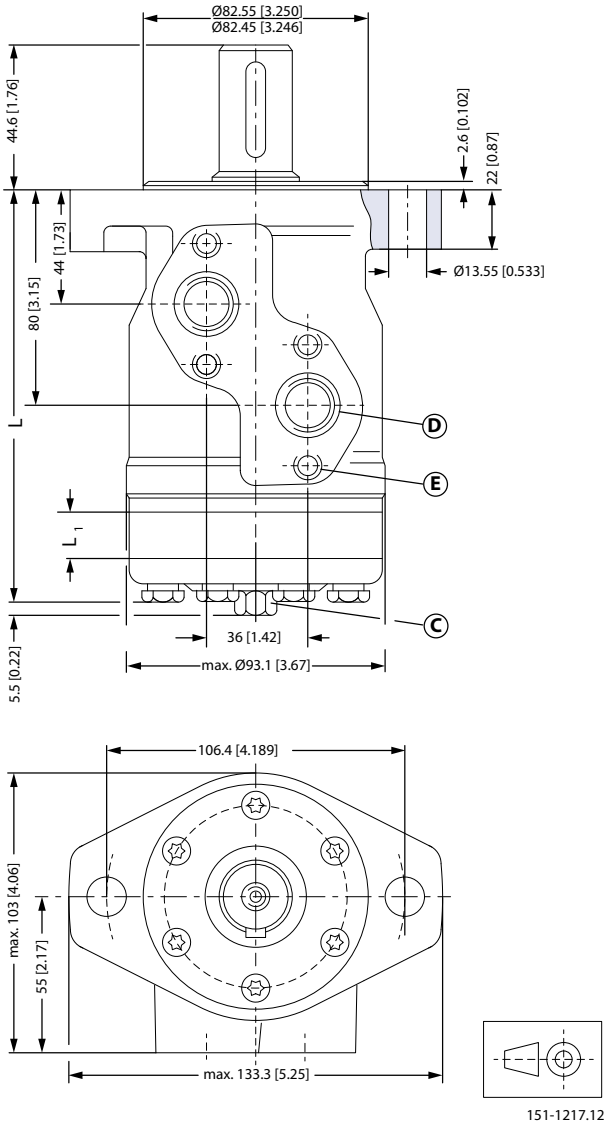
Type		**OMP 40**	**OMP 50**	**OMP 80**	**OMP 100**	**OMP 125**	**OMP 160**	**OMP 200**	**OMP 250**	**OMP 315**	**OMP 400**
Max. L	mm [in]	73.5 [2.89]	73.5 [2.89]	77.4 [3.05]	80.0 [3.15]	83.7 [3.30]	87.8 [3.46]	93.0 [3.66]	99.5 [3.92]	107.9 [4.25]	119.0 [4.69]
L_1	mm [in]	6.5 [0.26]	6.5 [0.26]	10.4 [0.41]	13.0 [0.51]	16.7 [0.66]	20.8 [0.82]	26.0 [1.02]	32.5 [1.28]	40.9 [1.61]	52.0 [2.05]

OMP dimensions

OMP dimensions - US version

Side port version with 2 hole oval mounting flange (A2-flange)

Side port - US version



Tolerance for basic dimensions = ±1 mm [0.04 in]

C: Drain connection 7/16 UNF; 12 mm [0.47 in] deep

D: 7/8 - 14 UNF; 16.7 mm [0.66 in] deep

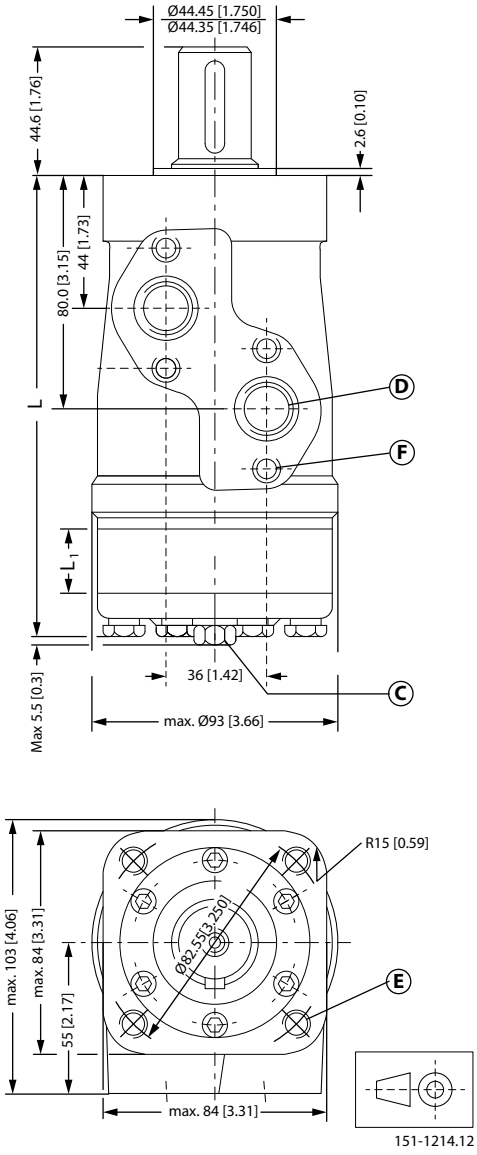
E: M8; 13 mm [0.51 in] deep (4 pcs.)

Type		OMP 25	OMP 32	OMP 40	OMP 50	OMP 80	OMP 100	OMP 125	OMP 160	OMP 200	OMP 250	OMP 315	OMP 400
$L_{Max.}$	mm [in]	137.2 [5.40]	138.3 [5.44]	139.6 [5.50]	139.6 [5.50]	143.6 [5.65]	146.1 [5.75]	149.9 [5.90]	153.9 [6.06]	159.1 [6.26]	165.6 [6.52]	174.0 [6.85]	185.1 [7.29]
L_1	mm [in]	4.1 [0.16]	5.2 [0.20]	6.5 [0.26]	6.5 [0.26]	10.4 [0.41]	13.0 [0.51]	16.7 [0.66]	20.8 [0.82]	26.0 [1.02]	32.5 [1.28]	40.9 [1.61]	52.0 [2.05]

OMP dimensions

Side port version with square mounting flange (C-flange)

Side port - US version



Tolerance for basic dimensions = ±1 mm [0.04 in]

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

D: 7/8 - 14 UNF; 16.76 mm [0.66 in] deep or 1/2 - 14 NPTF

E: 3/8 - 16 UNC; 15 mm [0.59 in] deep (4 off)

F: M8; 13 mm [0.51 in] deep (4 pcs.)

Type		**OMP 40**	**OMP 50**	**OMP 80**	**OMP 100**	**OMP 125**	**OMP 160**	**OMP 200**	**OMP 250**	**OMP 315**	**OMP 400**
Max. L	mm [in]	139.6 [5.50]	139.6 [5.50]	143.5 [5.65]	146.1 [5.75]	149.8 [5.90]	153.9 [6.06]	159.1 [6.26]	165.6 [6.52]	174.0 [6.85]	185.1 [7.29]
L_1	mm [in]	6.5 [0.26]	6.5 [0.26]	10.4 [0.41]	13.0 [0.51]	16.7 [0.66]	20.8 [0.82]	26.0 [1.02]	32.5 [1.28]	40.9 [1.61]	52.0 [2.05]

OMR versions and code numbers

OMR versions and code numbers

OMR standard motors

Mounting flange: 2 hole oval flange (A2)

Spigot diamer	Ø82.5 mm [3.25 in]							
Bolt circle diameter	Ø106.4 mm [4.20 in]							
Shaft	**Main port size**	**Port style**	**Drain port size**	**Standard shaft seal**	**High pressure shaft seal**	**Check valve**	**Main type designation**	**Conf. code**
Cyl. Ø25 mm	G 1/2	Side port	-	-	Yes	-	OMR	***A1***
Cyl. Ø25 mm	G 1/2	Side port	G 1/4	-	Yes	Yes	OMR	***A2***
Cyl. Ø25 mm	G 1/2	End port	G 1/4	Yes	-	Yes	OMR	***A3***
Cyl. 1 in	G 1/2	Side port	-	-	Yes	-	OMR	***A4***
Cyl. 1 in	G 1/2	Side port	G 1/4	-	Yes	Yes	OMR	***A5***
Cyl. 1 in	7/8-14 UNF	Side port	7/16-20 UNF	Yes	-	Yes	OMR	***A6***
Splined 1 in	G 1/2	Side port	-	-	Yes	-	OMR	***A7***
Splined 1 in	G 1/2	Side port	G 1/4	-	Yes	Yes	OMR	***A8***
Splined 1 in	7/8-14 UNF	Side port	7/16-20 UNF	Yes	-	Yes	OMR	***A9***
Cyl. Ø32 mm	G 1/2	Side port	G 1/4	Yes	-	Yes	OMR	***A10***
Tap. Ø28.5 mm	G 1/2	Side port	G 1/4	Yes	-	Yes	OMR	***A11***

Code numbers

Conf. code	Displacement								
	50	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**375**
A1	151-0410	151-0411	151-0412	151-0413	151-0414	151-0415	151-0416	151-0417	151-0418
A2	151-0710	151-0711	151-0712	151-0713	151-0714	151-0715	151-0716	151-0717	151-0718
A3	151-6190	151-6191	151-6192	151-6193	151-6194	151-6195	151-6196	151-6197	151-6198
A4	151-0400	151-0401	151-0402	151-0403	151-0404	151-0405	151-0406	151-0407	151-0408
A5	151-0700	151-0701	151-0702	151-0703	151-0704	151-0705	151-0706	151-0707	151-0708
A6	151-7240	151-7241	151-7242	151-7243	151-7244	151-7245	151-7246	151-7247	151-7248
A7	151-0420	151-0421	151-0422	151-0423	151-0424	151-0425	151-0426	151-0427	151-0428
A8	151-0720	151-0721	151-0722	151-0723	151-0724	151-0725	151-0726	151-0727	151-0728
A9	151-7250	151-7251	151-7252	151-7253	151-7254	151-7255	151-7256	151-7257	151-7258
A10	151-0248	151-0242	151-0243	151-0208	151-0244	151-0245	151-0247	151-0246	151-6294
A11	151-0265	151-0266	151-0267	151-6295	151-0268	151-0269	151-0271	151-0270	151-6296

Mounting flange : 4 hole oval flange (A4)

Spigot diamer	Ø82.5 mm [3.25 in]							
Bolt circle diameter	Ø106.4 mm [4.20 in]							
Shaft	**Main port size**	**Port style**	**Drain port size**	**Standard shaft seal**	**High pressure shaft seal**	**Check valve**	**Main type designation**	**Conf. code**
Cyl. Ø25 mm	G 1/2	Side port	G 1/4	Yes	-	Yes	OMR	***B1***
Cyl. Ø32 mm	G 1/2	Side port	G 1/4	Yes	-	Yes	OMR	***B2***
Cyl. Ø1 1/4 in	7/8-14 UNF	Side port	7/16-20 UNF	Yes	-	Yes	OMR	***B3***

OMR versions and code numbers

Code numbers

Conf. code	Displacement								
	50	80	100	125	160	200	250	315	375
B1	151-6010	151-6011	151-6012	151-6013	151-6014	151-6015	151-6016	151-6017	151-6018
B2	151-6000	151-6001	151-6002	151-6003	151-6004	151-6005	151-6006	151-6007	151-6008
B3	151-6110	151-6111	151-6112	151-6113	151-6114	151-6115	151-6116	151-6117	151-6118

Mounting flange: Square flange (C)

Spigot diamer	Ø44.4 mm [1.75 in]							
Bolt circle diameter	Ø82.5 mm [3.25 in]							
Shaft	Main port size	Port style	Drain port size	Standard shaft seal	High pressure shaft seal	Check valve	Main type designation	Conf. code
Cyl. Ø25 mm	G 1/2	End port	G 1/4	Yes	-	Yes	OMR	***C1***
Cyl. 1 in	7/8-14 UNF	Side port	7/16-20 UNF	Yes	-	Yes	OMR	***C2***

Code numbers

Conf. code	Displacement								
	50	80	100	125	160	200	250	315	375
C1	151-6210	151-6211	151-6212	151-6213	151-6214	151-6215	151-6216	151-6217	151-6218
C2	151-7260	151-7261	151-7262	151-7263	151-7264	151-7265	151-7266	151-7267	151-7269

OMR motors with corrosion resistant parts

Mounting flange: 2 hole oval flange (A2)

Spigot diamer	Ø82.5 mm [3.25 in]							
Bolt circle diameter	Ø106.4 mm [4.20 in]							
Shaft	Main port size	Port style	Drain port size	Standard shaft seal	High pressure shaft seal	Check valve	Main type designation	Conf. code
Cyl. Ø25 mm	G 1/2	Side port	G1/4	Yes	-	Yes	OMR C	***D1***

Code numbers

Conf. code	Displacement								
	50	80	100	125	160	200	250	315	375
D1	151-1231	151-1232	151-1233	151-1238	151-1234	151-1235	151-1236	151-1237	151-1243

OMR versions and code numbers

OMR motors with needle bearings

Mounting flange: 2 hole oval flange (A2)

Spigot diamer	Ø82.5 mm [3.25 in]							
Bolt circle diameter	Ø106.4 mm [4.20 in]							
Shaft	**Main port size**	**Port style**	**Drain port size**	**Standard shaft seal**	**High pressure shaft seal**	**Check valve**	**Main type designation**	**Conf. code**
Cyl. Ø25 mm	G 1/2	Side port	G1/4	Yes	-	Yes	OMR N	***E1***

Code numbers

Conf. code	Displacement								
	50	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**375**
E1	151-6380	151-6381	-	151-6383	151-6384	151-6385	151-6386	151-6387	151-6388

OMRW motors with needle bearings

Mounting flange: Wheel

Spigot diamer	Ø82.5 mm [3.25 in]							
Bolt circle diameter	Ø147.6 mm [5.81 in]							
Shaft	**Main port size**	**Port style**	**Drain port size**	**Standard shaft seal**	**High pressure shaft seal**	**Check valve**	**Main type designation**	**Conf. code**
Tap. Ø35 mm	G 1/2	Side port	G 1/4	Yes	-	Yes	OMRW N	***F1***
Tap. Ø 1 1/4 in	7/8-14 UNF	Side port	7/16-20 UNF	Yes	-	Yes	OMRW N	***F2***

Code numbers

Conf. code	Displacement								
	50	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**375**
F1	151-6300	151-6301	151-6302	151-6303	151-6304	151-6305	151-6306	151-6307	151-6308
F2	151-6430	151-6431	151-6432	151-6433	151-6434	151-6435	151-6436	151-6437	151-6438

OMR motors with integrated brake

Mounting flange: 2 hole oval flange (A2)

Spigot diamer	Ø82.5 mm [3.25 in]							
Bolt circle diameter	Ø106.4 mm [4.20 in]							
Shaft	**Main port size**	**Port style**	**Drain port size**	**Standard shaft seal**	**High pressure shaft seal**	**Check valve**	**Main type designation**	**Conf. code**
Cyl. Ø25 mm	G 1/2	Side port	G 1/4	Yes	-	Yes	OMR F	***G1***

OMR versions and code numbers

Code numbers

Conf. code	Displacement								
	50	80	100	125	160	200	250	315	375
G1	-	151-6461	151-6462	151-6463	151-6464	151-6465	151-6466	151-6467	151-6468

OMR motors with integrated brake and needle bearings

Mounting flange: 2 hole oval flange (A2)

Spigot diamer	Ø82.5 mm [3.25 in]							
Bolt circle diameter	Ø106.4 mm [4.20 in]							
Shaft	Main port size	Port style	Drain port size	Standard shaft seal	High pressure shaft seal	Check valve	Main type designation	Conf. code
Cyl. 1 in	7/8-14 UNF	Side port	7/16-20 UNF	Yes	-	Yes	OMR NF	***H1***

Code numbers

Conf. code	Displacement								
	50	80	100	125	160	200	250	315	375
H1	-	151-6471	151-6472	151-6473	151-6474	151-6475	151-6476	151-6477	151-6478

OMRW motors with integrated brake and needle bearings

Mounting flange: Wheel

Spigot diamer	Ø82.5 mm [3.25 in]							
Bolt circle diameter	Ø147.6 mm [5.81 in]							
Shaft	Main port size	Port style	Drain port size	Standard shaft seal	High pressure shaft seal	Check valve	Main type designation	Conf. code
Tap. Ø35 mm	G 1/2	Side port	G 1/4	Yes	-	Yes	OMRW NF	***J1***

Code numbers

Conf. code	Displacement								
	50	80	100	125	160	200	250	315	375
J1	-	-	151-6442	151-6443	151-6444	151-6445	-	-	-

Features available (options)

Low leakage (low speed valve) Reverse rotation

Speed sensor Painted

Viton shaft seal

OMR technical data

Technical data for OMR with 25 mm and 1 in cylindrical shaft

Type			OMR	OMR	OMR	OMR	OMR	OMR	OMR	OMR	OMR
Motor size			**50**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**375**
Geometric displacement	cm^3		51.6	80.3	99.8	125.7	159.6	199.8	249.3	315.7	372.6
	[inch]		[3.16]	[4.91]	[6.11]	[7.69]	[9.77]	[12.23]	[15.26]	[19.32]	[22.80]
Max. speed	min^{-1}	cont.	775	750	600	475	375	300	240	190	160
	[rpm]	int.[1]	970	940	750	600	470	375	300	240	200
Max. torque	N•m [lbf•in]	cont.	100	195	240	300	300	300	300	300	300
			[890]	1730]	[2120]	[2660]	[2660]	[2660]	[2660]	[2660]	[2660]
		int.[1]	130	220	280	340	390	390	380	420	430
			[1150]	[1960]	[2480]	[3010]	[3450]	[3450]	[3360]	[3720]	[3810]
Max. output	kW [hp]	cont.	7.0	12.5	13.0	12.5	10.0	8.0	6.0	5.0	4.0
			[9.4]	[16.8]	[17.4]	[16.8]	[13.4]	[10.7]	[8.1]	[6.7]	[5.4]
		int.[1]	8.5	15.0	15.0	14.5	12.5	10.0	8.0	6.5	6.0
			[11.4]	[20.1]	[20.1]	[19.4]	[16.8]	[13.4]	[10.7]	[8.7]	[8.1]
Max. pressure drop	bar [psi]	cont.	140	175	175	175	130	110	80	70	55
			[2030]	[2540]	[2540]	[2540]	[1890]	[1600]	[1160]	[1020]	[800]
		int.[1]	175	200	200	200	175	140	110	100	85
			[2540]	[2900]	[2900]	[2900]	[2540]	[2030]	[1600]	[1450]	[1230]
		peak[2]	225	225	225	225	225	225	200	150	130
			[3260]	[3260]	[3260]	[3260]	[3260]	[3260]	[2900]	[2180]	[1890]
Max. oil flow	l/min [US gal/min]	cont.	40	60	60	60	60	60	60	60	60
			[10.6]	[15.9]	[15.9]	[15.9]	[15.9]	[15.9]	[15.9]	[15.9]	[15.9]
		int.[1]	50	75	75	75	75	75	75	75	75
			[13.2]	[19.8]	[19.8]	[19.8]	[19.8]	[19.8]	[19.8]	[19.8]	[19.8]
Max. starting pressure with unloaded shaft	bar		10	10	10	9	7	5	5	5	5
	[psi]		[145]	[145]	[145]	[130]	[100]	[75]	[75]	[75]	[75]
Min starting torque	at max. press drop cont. N•m [lbf•in]		80	150	200	250	240	260	240	260	240
			[710]	[1330]	[1770]	[2210]	[2120]	[2300]	[2120]	[2300]	[2120]
	at max. press.drop int.[1] N•m [lbf•in]		100	170	230	280	320	330	310	350	380
			[890]	[1510]	[2040]	[2480]	[2830]	[2920]	[2740]	[3100]	[3360]

[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.

Technical data for OMR with 1 in splined and 28.5 mm tapered shaft

Type			OMR	OMR	OMR	OMR	OMR	OMR	OMR	OMR	OMR
Motor size			**50**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**375**
Geometric displacement	cm^3		51.6	80.3	99.8	125.7	159.6	199.8	249.3	315.7	372.6
	[inch]		[3.16]	[4.91]	[6.11]	[7.69]	[9.77]	[12.23]	[15.26]	[19.32]	[22.80]
Max. speed	min^{-1}	cont.	775	750	600	475	375	300	240	190	160
	[rpm]	int.[1]	970	940	750	600	470	375	300	240	200
Max. torque	N•m [lbf•in]	cont.	100	195	240	300	360	360	360	360	360
			[890]	[1730]	[2120]	[2660]	[3190]	[3190]	[3190]	[3190]	[3190]
		int.[1]	130	220	280	340	430	440	470	470	460
			[1150]	[1950]	[2480]	[3010]	[3810]	[3890]	[4160]	[4160]	[4070]

OMR technical data

Type			OMR	OMR	OMR	OMR	OMR	OMR	OMR	OMR	OMR
Motor size			**50**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**375**
Max. output	kW [hp]	cont.	7.0	12.5	13.0	12.5	12.5	10.0	7.0	5.0	5.0
			[9.4]	[16.8]	[17.4]	[16.8]	[16.8]	[13.4]	[9.4]	[6.7]	[6.7]
		int.[1]	8.5	15.0	15.0	14.5	14.0	13.0	9.5	8.0	7.0
			[11.4]	[20.1]	[20.1]	[19.4]	[18.8]	[17.4]	[12.7]	[10.7]	[9.4]
Max. pressure drop	bar [psi]	cont.	140	175	175	175	165	130	100	85	70
			[2030]	[2540]	[2540]	[2540]	[2390]	[1890]	[1450]	[1230]	[1020]
		int.[1]	175	200	200	200	200	175	140	115	90
			[2540]	[2900]	[2900]	[2900]	[2900]	[2540]	[2030]	[1670]	[1310]
		peak[2]	225	225	225	225	225	225	200	150	130
			[3260]	[3260]	[3260]	[3260]	[3260]	[3260]	[2900]	[2180]	[1890]
Max. oil flow	l/min [US gal/min]	cont.	40	60	60	60	60	60	60	60	60
			[10.6]	[15.9]	[15.9]	[15.9]	[15.9]	[15.9]	[15.9]	[15.9]	[15.9]
		int.[1]	50	75	75	75	75	75	75	75	75
			[13.2]	[19.8]	[19.8]	[19.8]	[19.8]	[19.8]	[19.8]	[19.8]	[19.8]
Max. starting pressure with unloaded shaft	bar		10	10	10	9	7	5	5	5	5
	[psi]		[145]	[145]	[145]	[130]	[100]	[75]	[75]	[75]	[75]
Min starting torque	at max. press drop cont. N•m [lbf•in]		80	150	200	250	300	300	290	315	300
			[710]	[1330]	[1770]	[2210]	[2660]	[2660]	[2570]	[2790]	[2660]
	at max. press.drop int.[1] N•m [lbf•in]		100	170	230	280	350	400	400	400	380
			[890]	[1510]	[2040]	[2480]	[3100]	[3540]	[3540]	[3540]	[3360]

[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.

Technical data for OMR with 32 mm , 1 ¼ in cylindrical shaft and 35 mm, 1 ¼ in tapered shaft

Type			OMR	OMR	OMR	OMR	OMR	OMR	OMR	OMR	OMR
Motor size			**50**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**375**
Geometric displacement	cm^3		51.6	80.3	99.8	125.7	159.6	199.8	249.3	315.7	372.6
	[inch]		[3.16]	[4.91]	[6.11]	[7.69]	[9.77]	[12.23]	[15.26]	[19.32]	[22.80]
Max. speed	min^{-1}	cont.	775	750	600	475	375	300	240	190	160
	[rpm]	int.[1]	970	940	750	600	470	375	300	240	200
Max. torque	N•m [lbf•in]	cont.	100	195	240	300	380	450	540	550	580
			[890]	[1730]	[2120]	[2660]	[3360]	[3980]	[4780]	[4870]	[5130]
		int.[1]	130	220	280	340	430	500	610	690	690
			[1150]	[1957]	[2480]	[3010]	[3810]	[4430]	[5400]	[6110]	[6110]
Max. output	kW [hp]	cont.	7.0	12.5	13.0	12.5	12.5	11.0	10.0	9.0	7.5
			[9.4]	[16.8]	[17.4]	[16.8]	[16.8]	[14.8]	[13.4]	[12.1]	[10.1]
		int.[1]	8.5	15.0	15.0	14.5	14.0	13.0	12.0	10.0	9.0
			[11.4]	[20.1]	[20.1]	[19.4]	[18.8]	[17.4]	[16.1]	[13.4]	[12.1]
Max. pressure drop	bar [psi]	cont	140	175	175	175	175	175	175	135	115
			[2030]	[2540]	[2540]	[2540]	[2540]	[2540]	[2540]	[1960]	[1670]
		int.[1]	175	200	200	200	200	200	200	175	150
			[2540]	[2900]	[2900]	[2900]	[2900]	[2900]	[2900]	[2540]	[2180]
		peak[2]	225	225	225	225	225	225	225	210	175
			[3260]	[3260]	[3260]	[3260]	[3260]	[3260]	[3260]	[3050]	[2540]

OMR technical data

Type			OMR	OMR	OMR	OMR	OMR	OMR	OMR	OMR	OMR
Motor size			**50**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**375**
Max. oil flow	l/min [US gal/min]	cont.	40	60	60	60	60	60	60	60	60
			[10.6]	[15.9]	[15.9]	[15.9]	[15.9]	[15.9]	[15.9]	[15.9]	[15.9]
		int.[1]	50	75	75	75	75	75	75	75	75
			[13.2]	[19.8]	[19.8]	[19.8]	[19.8]	[19.8]	[19.8]	[19.8]	[19.8]
Max. starting pressure with unloaded shaft	bar		10	10	10	9	7	5	5	5	5
	[psi]		[145]	[145]	[145]	[130]	[100]	[75]	[75]	[75]	[75]
Min starting torque	at max. press drop cont. N•m [lbf•in]		80	150	200	250	320	410	500	500	470
			[710]	[1330]	[1770]	[2210]	[2830]	[3630]	[4430]	[4430]	[4170]
	at max. press.drop int.[1] N•m [lbf•in]		100	170	230	280	370	460	550	660	570
			[890]	[1510]	[2040]	[2480]	[3280]	[4070]	[4870]	[5840]	[5050]

[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.

Type			Max. inlet pressure	Max.return pressure with drain line
OMR 50 - 375	bar [psi]	cont	175 [2540]	175 [2540]
	bar [psi]	int.[1]	200 [2900]	200 [2900]
	bar [psi]	peak[2]	225[3260]	225 [3260]

[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.

Technical data for parking brake motor OMR F, OMR NF and OMRW NF

Technical data for brake motor		
Holding torque[1]	N•m [lbf•in]	400 [3540]
Min. release pressure [2]	bar [psi]	21 [305]
Max. pressure in brake line	bar [psi]	200 [2900]

[1] This brake is to be used only as a passive parking brake. It may not be used for dynamic braking.

[2] Brake motors must always have a drain line. The brake release pressure is the difference between the pressure in the brake release line and the pressure in the drain line.

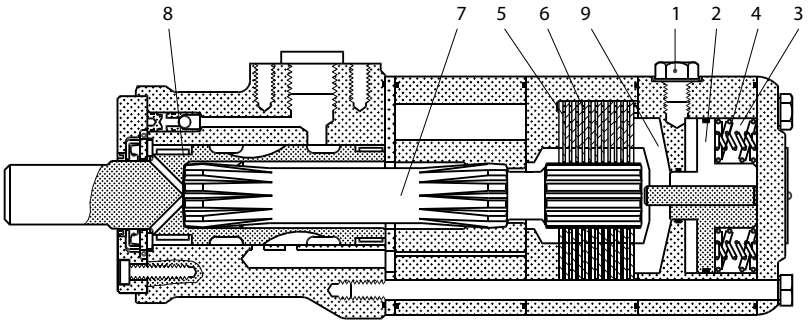
OMR F function

In normal condition where there is no pressure on the integrated brake in OMR, i.e. the brake is applied. The brake is released when hydraulic pressure of 21 bar [300 psi] min. is applied to the brake release port (1).

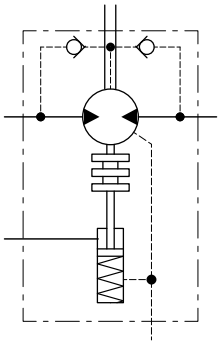
The pressure forces the piston (2) against the springs (3 and 4) disengaging the outer and inner discs (5 and 6) from each other so that the cardan shaft (7) and consequently output shaft (8) become free to rotate.

If the pressure on the brake release port is reduced to less than 21 bar [300 psi], the springs force the piston and pressure pad (9) against the brake discs and the cardan shaft/output shaft begin to lock up.

OMR technical data



151-1739.10.10



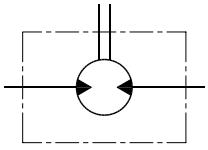
151-1726.10

Maximum permissible shaft seal pressure

OMR with High Pressure Shaft seal (HPS)

OMR with HPS, without check valves and without drain connection:

The shaft seal pressure equals the average of input pressure and return pressure



151-1743.10

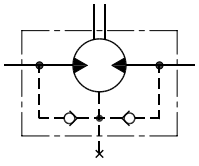
$$P_{seal} = \frac{P_{in} + P_{return}}{2}$$

OMR with HPS, check valves and with drain connection:

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

OMR with HPS, check valves and without drain connection:

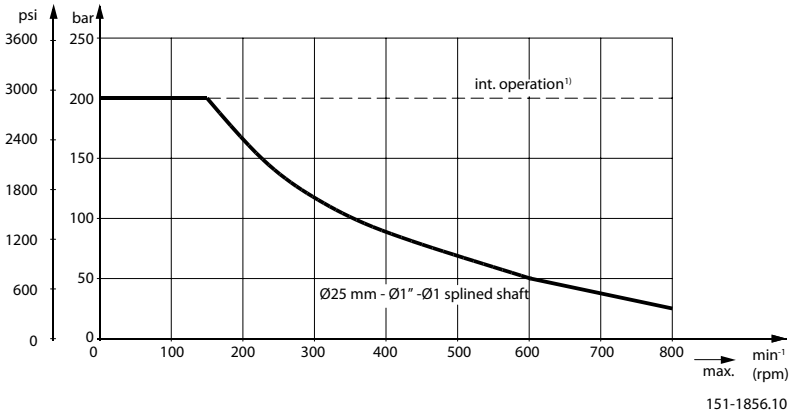
The pressure on the shaft seal never exceeds the pressure in the return line.



151-320.10

OMR technical data

Max. permissible shaft seal pressure

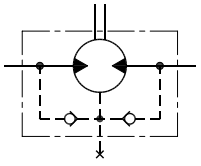


151-1856.10

OMR with Standard Shaft seal

OMR 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

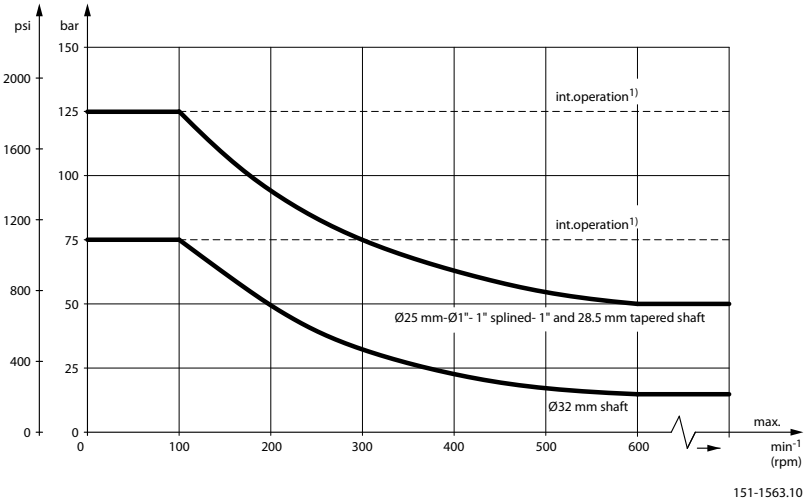


151-320.10

OMR 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



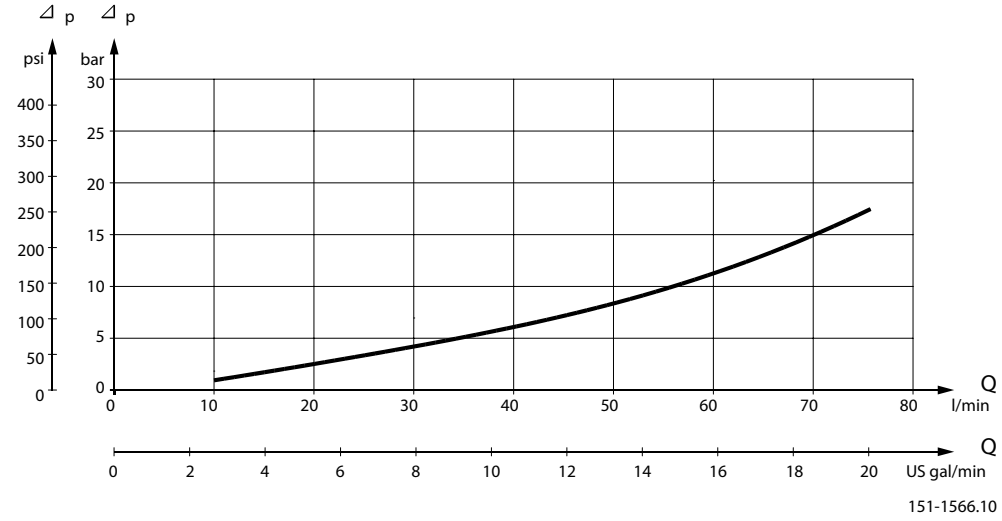
151-1563.10

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

OMR technical data

Pressure drop in OMR motor

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



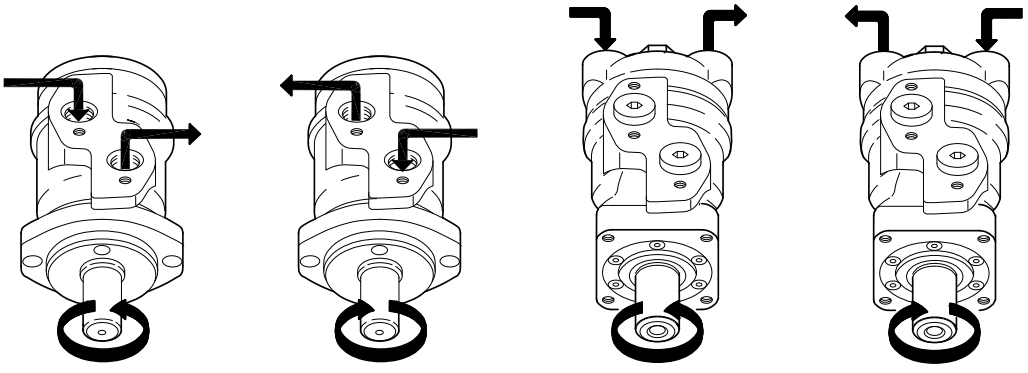
151-1566.10

Oil flow in drain line

The table shows the maximum oil flow in the drain line at a return pressure less than 5-10 bar [75-150 psi].

Pressure drop		Viscosity		Oil flow in drain line	
bar	**[psi]**	**mm²/s**	**[SUS]**	**l/min**	**[US gal/min]**
100	[1450]	20	[100]	2.5	[0.66]
		35	[165]	1.8	[0.78]
140	[2030]	20	[100]	3.5	[0.93]
		35	[165]	2.8	[0.74]

Direction of shaft rotation



151-1836.10

Permissible shaft loads

OMR technical data

OMP and OMR

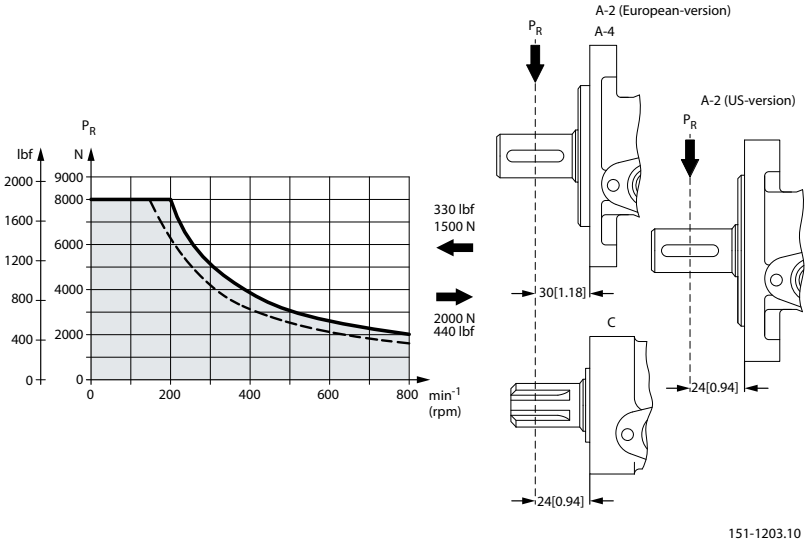
The permissible radial shaft load (P_R) depends on:

- Speed (n)
- Distance (L) from the point of load to the mounting flange
- Mounting flange version
- Shaft version

Mounting flange	**4-oval flange**** **2-hole oval flange (European version)**	**4-hole oval flange**	**Square flange**** **2-hole oval flange (US-version)**
Shaft version	**25 mm cylindrical shaft 1 in cylindrical shaft 1 in splined shaft**	**32 mm cylindrical shaft**	**25 mm cylindrical shaft**
Permissible shaft load (P_R) - l in mm	$\frac{800}{n} \cdot \frac{250000\ N^*}{95 + L}$	$\frac{800}{n} \cdot \frac{187500\ N^*}{95 + L}$	$\frac{800}{n} \cdot \frac{250000\ N^*}{101 + L}$
Permissible shaft load (P_R) - l in inch	$\frac{800}{n} \cdot \frac{2215\ lbf^*}{3.74 + L}$	$\frac{800}{n} \cdot \frac{1660\ lbf^*}{3.74 + L}$	$\frac{800}{n} \cdot \frac{2215\ lbf^*}{3.98 + L}$

** For both European and US-version

* n≥ 200 min^{-1} [rpm]; ≤ 55 mm [2.2 in]. n< 200 min^{-1} [rpm]; = > P_{Rmax} = 8000 N [1800 lbf]



--------- cylindrical shaft 32 mm [1.26 in]

_____ other shaft versions

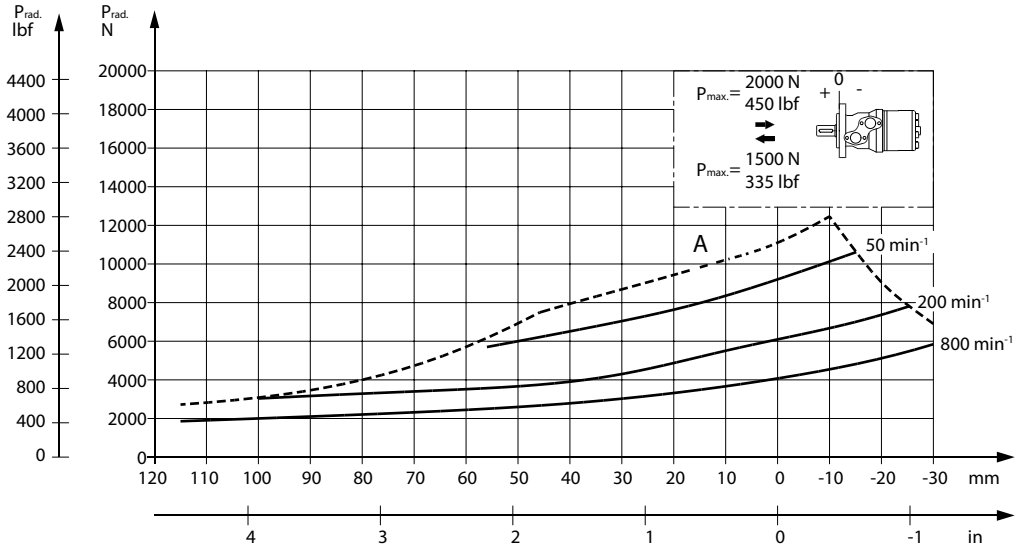
The curve shows the relation between P_R and n

- when l = 30 mm [1.18 in] for motors with A2 (European version) and A4 oval mounting flange
- when l = 24 mm [0.94 in] for motors with square mounting flange and A2 (US version)

For applications with special performance requirements we recommend OMP and OMR with the output shaft running in needle bearings.

OMR technical data

OMR N and OMR NF with Needle Bearings



151-2112.10

The output shaft on OMR N and OMR NF runs in needle bearings. These bearings and the recessed mounting flange allow a higher permissible radial load in comparison to OMR motors with slide bearings.

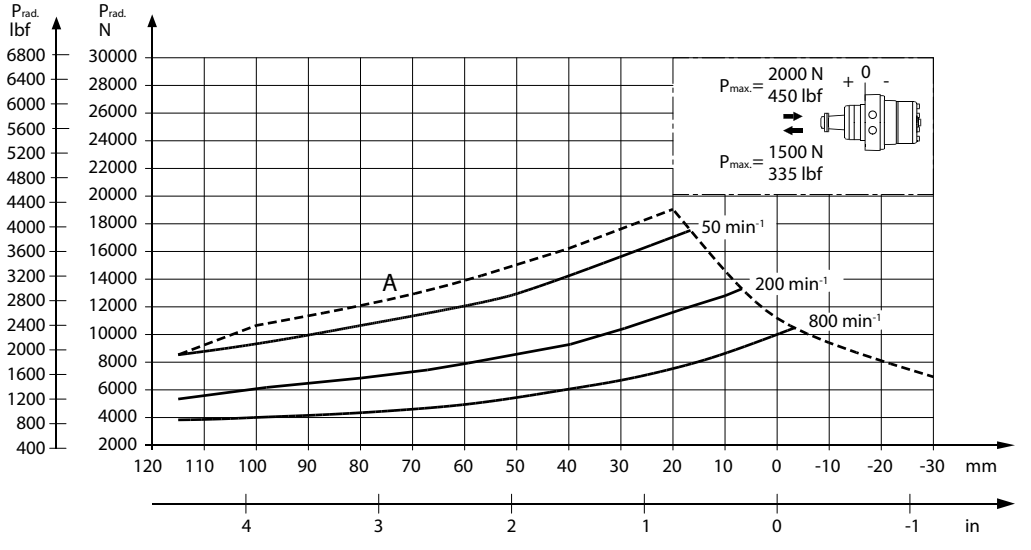
The permissible radial load on the shaft is shown for different speeds as a function of the distance from the mounting flange to the point of load application.

Curve A shows max. radial shaft load. Any shaft load exceeding the values quoted in the curve will involve a risk of breakage.

The other curves apply to a B10 bearing life of 2000 hours at the number of revolutions indicated by the curve letter. Mineral based hydraulic oil with a sufficient content of anti-wear additives must be used.

Bearing life calculations can be made using the explanation and formula provided in the chapter »Bearing dimensioning« in the technical information *Orbital Motors General* 520L0232.

OMRW N and OMRW NF with Needle Bearings



151-2113.10

OMR technical data

The output shaft on OMRW N runs in needle bearings. These bearings and the recessed mounting flange allow a higher permissible radial load in comparison to OMR motors with slide bearings.

The permissible radial load on the shaft is shown for different speeds as a function of the distance from the mounting flange to the point of load application.

Curve A shows max. radial shaft load. Any shaft load exceeding the values quoted in the curve will involve a risk of breakage.

The other curves apply to a B10 bearing life of 2000 hours at the number of revolutions indicated by the curve letter. Mineral based hydraulic oil with a sufficient content of anti-wear additives must be used.

Bearing life calculations can be made using the explanation and formula provided in the chapter »Bearing dimensioning« in the technical information *Orbital Motors General* 520L0232.

OMR function diagrams

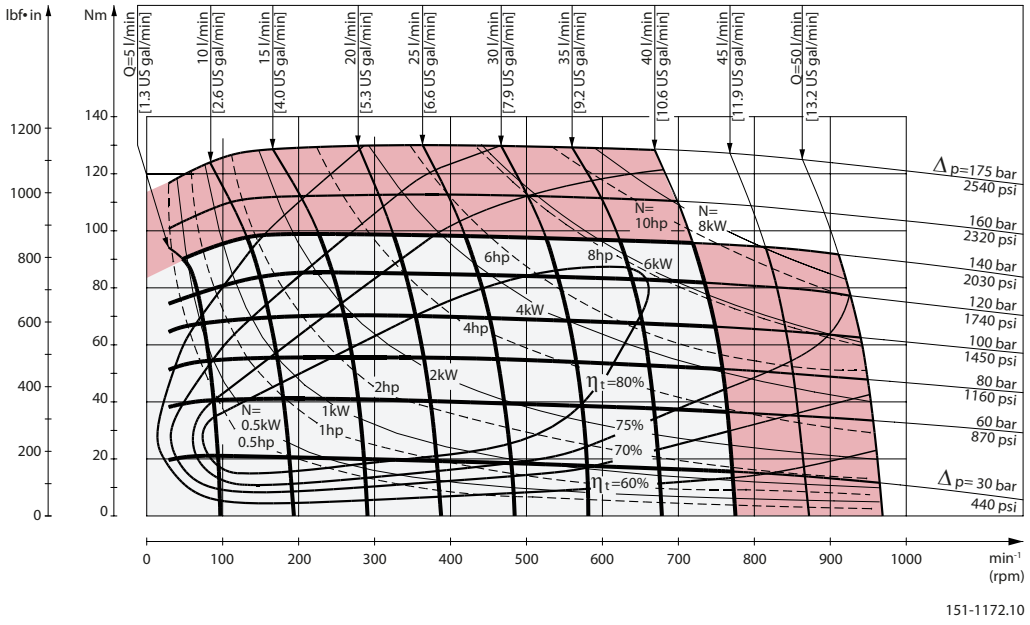
Explanation of function diagram use, basis and conditions can be found in *Speed, torque and output* on page 8.

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

Max. permissible continuous/intermittent pressure drop for the actual shaft version can be found in *OMR technical data* on page 46.

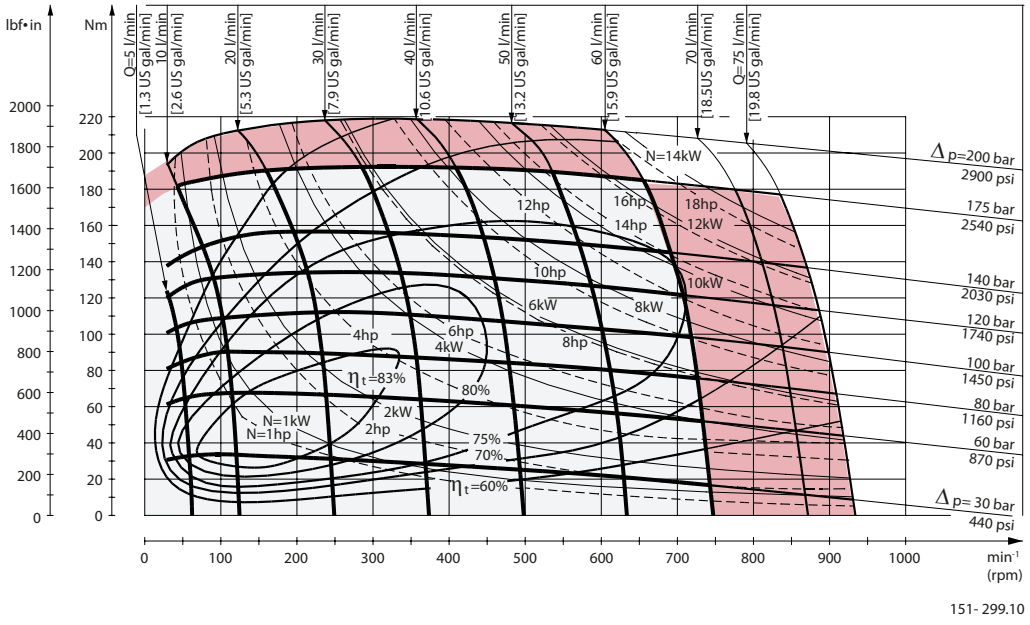
Intermittent pressure drop and oil flow must not occur simultaneously.

OMR 50 function diagram



151-1172.10

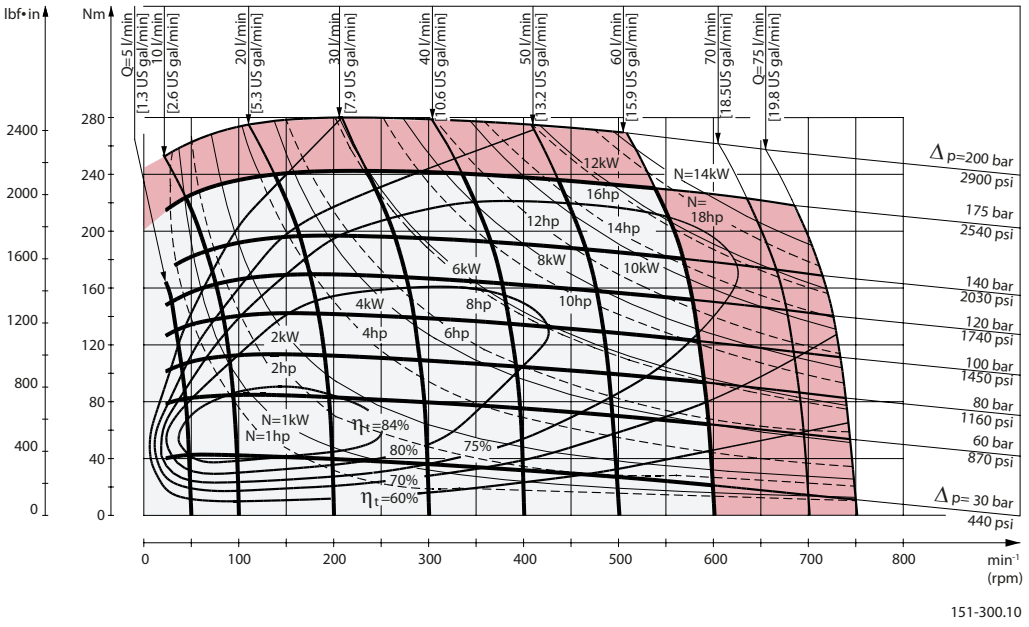
OMR 80 function diagram



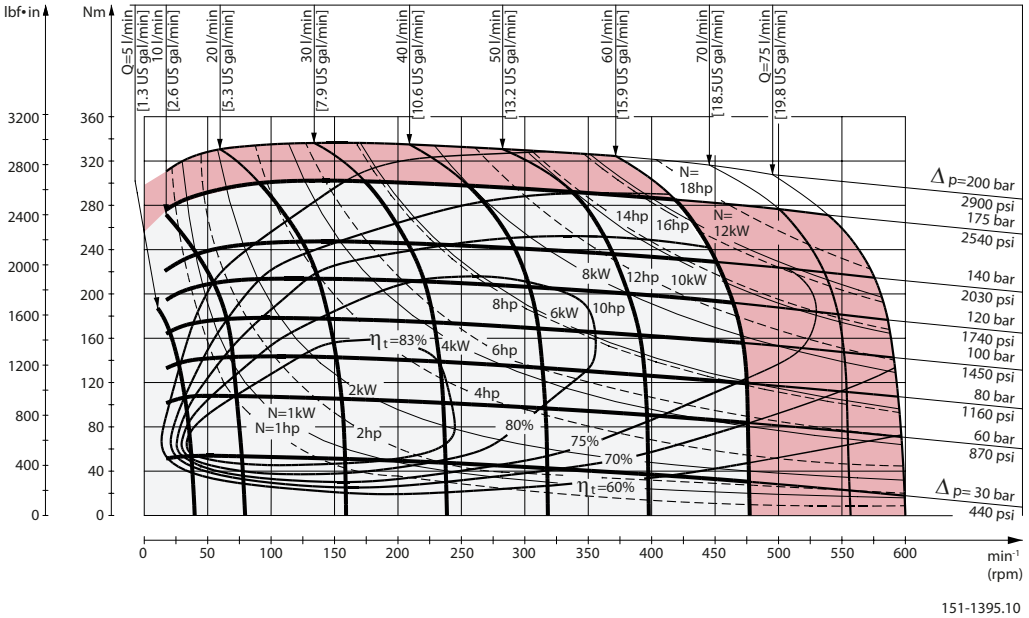
151- 299.10

OMR function diagrams

OMR 100 function diagram

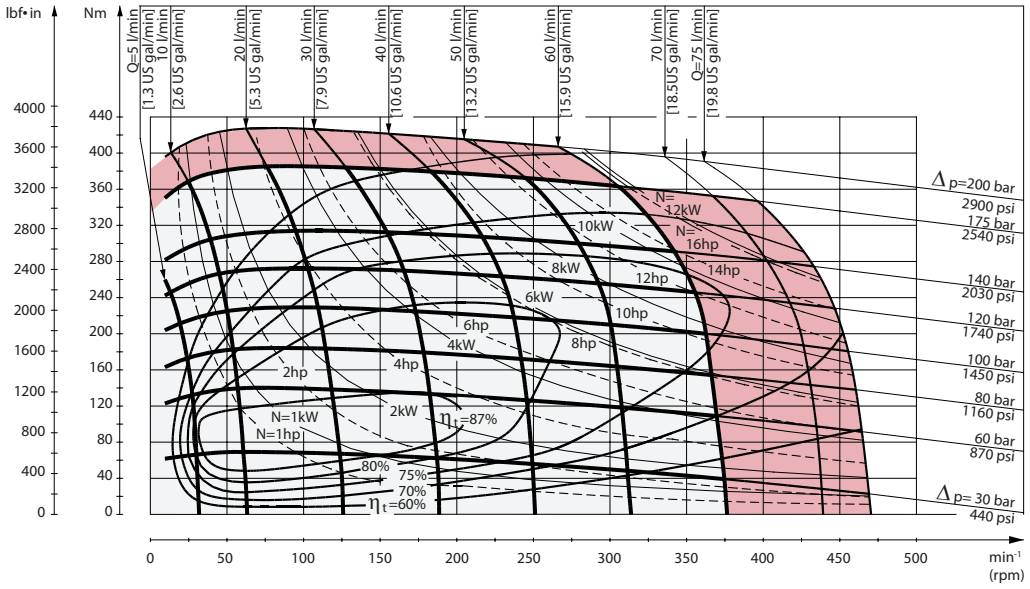


OMR 125 function diagram

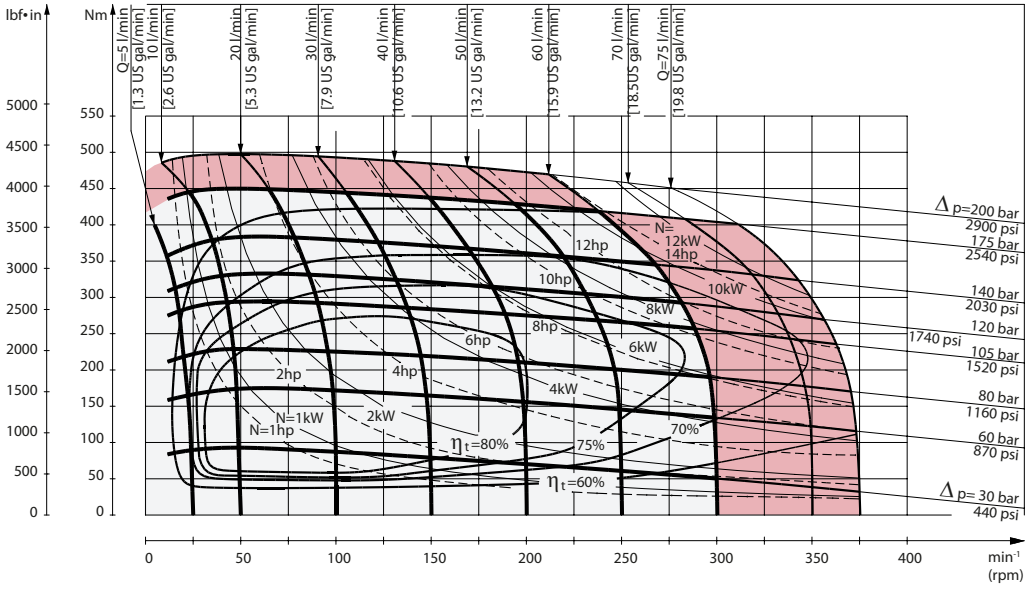


OMR function diagrams

OMR 160 function diagram

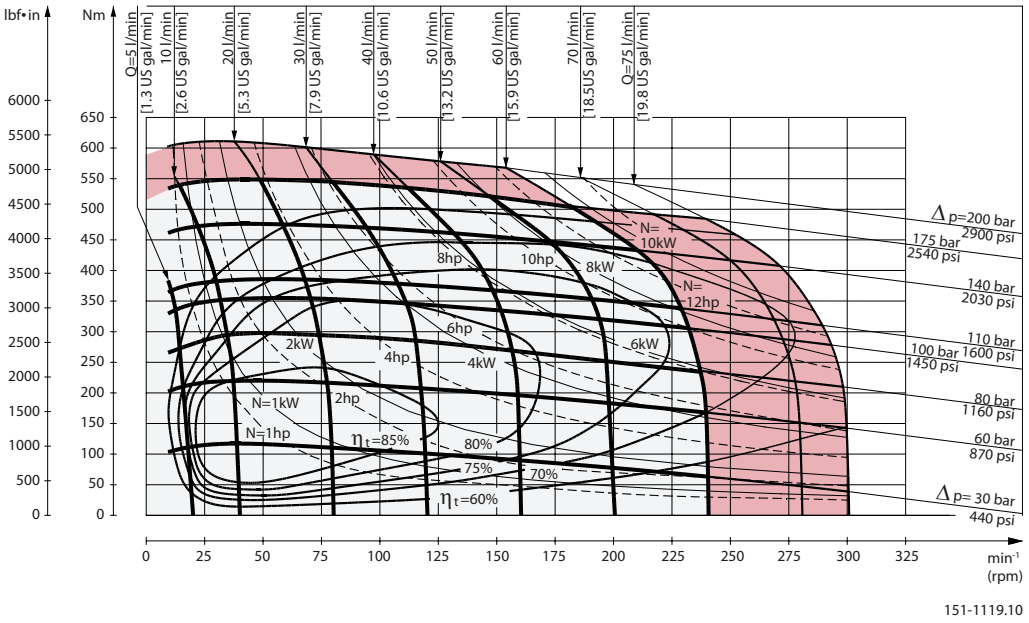


OMR 200 function diagram

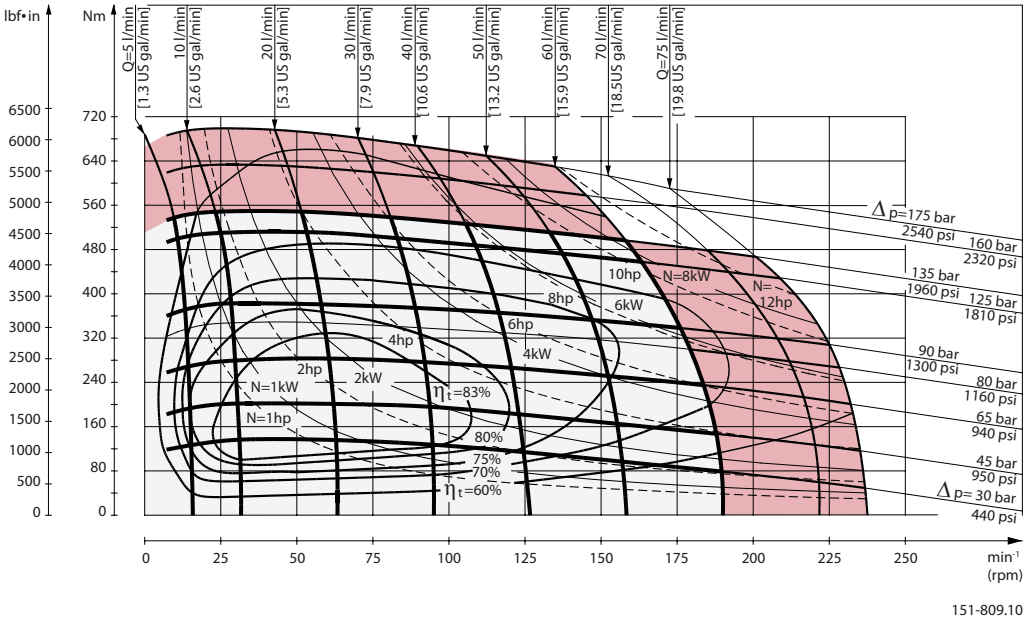


OMR function diagrams

OMR 250 function diagram

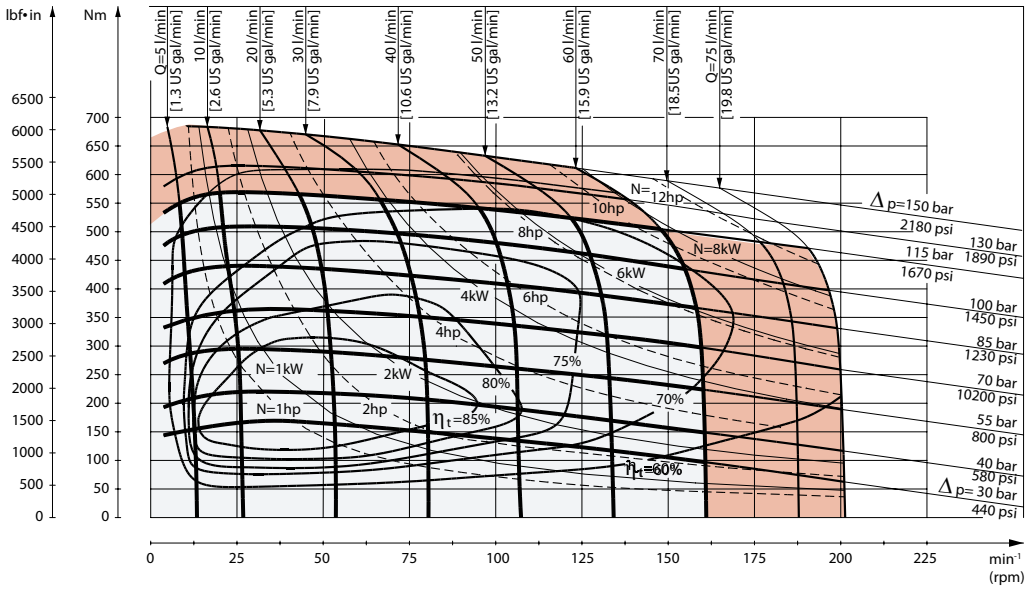


OMR 315 function diagram



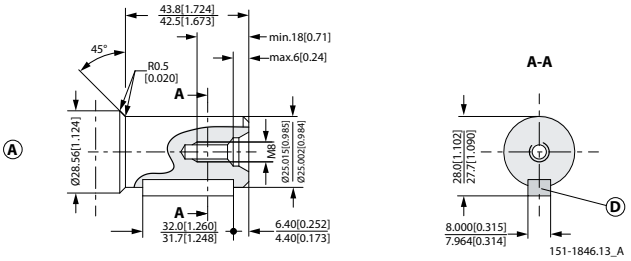
OMR function diagrams

OMR 375 function diagram



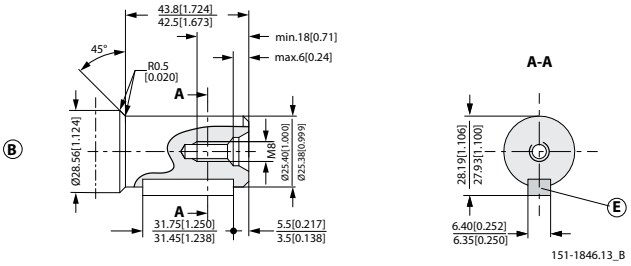
Shaft version

OMR shaft version



A: Cylindrical shaft 25 mm

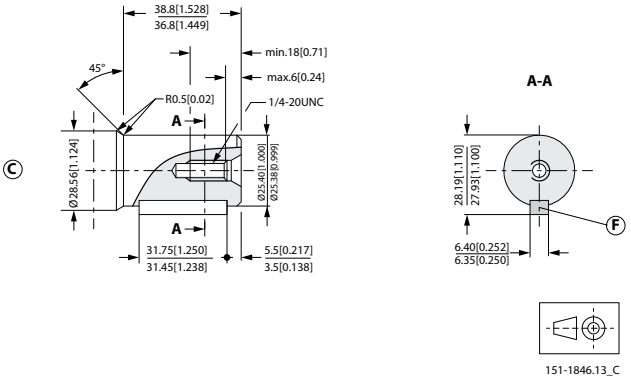
D: Parallel key A8 • 7 • 32 DIN 6885



B: Cylindrical shaft 1 in

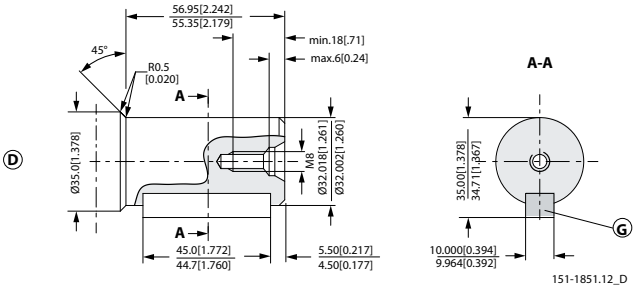
E: Parallel key ¼ • ¼ • 1 ¼ in B.S. 46

US version



C: Cylindrical shaft 1 in

F: Parallel key ¼ • ¼ • 1 ¼ in B.S. 46

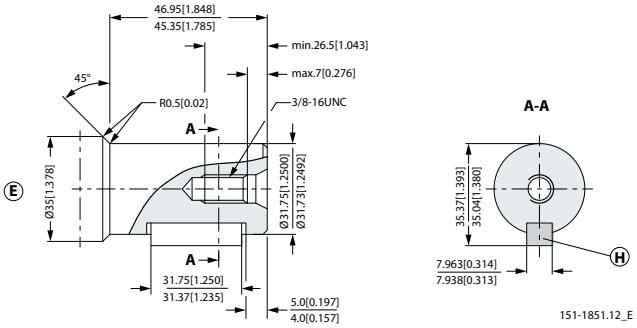


D: Cylindrical shaft 32 mm

G: Parallel key A10 • 8 • 45 DIN 6885

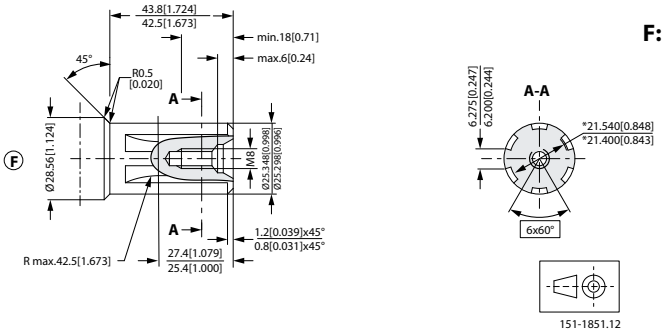
Shaft version

US version



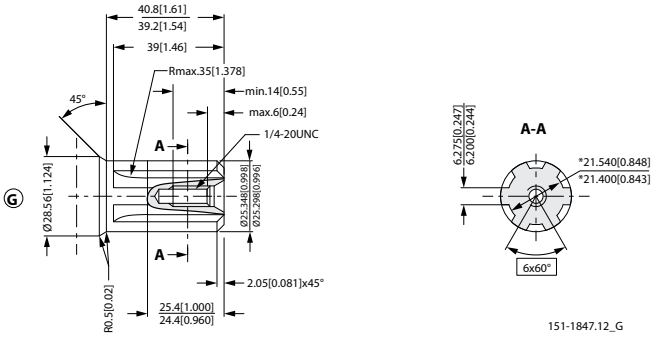
E: Cylindrical shaft 1 ¼ in

H: Parallel key 5/16 5/16 1 ¼ in B.S. 46

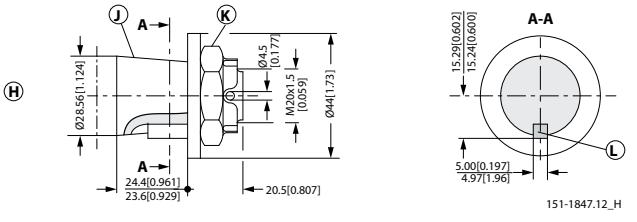


F: Involute splined shaft B.S. 2059 (SAE 6 B) Straight-sided, bottom fitting, deep. Fit 2 Nom. size 1 in *Deviates from B.S. 2059 (SAE 6 B)

US version



G: 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)



H: Tapered shaft 28.5 mm (ISO/R775)

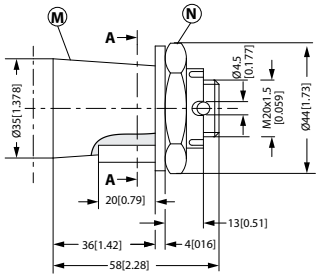
K: DIN 937 NV 30 Tightening torque: 100 ± 10 N•m [885 ± 85 lbf•in]

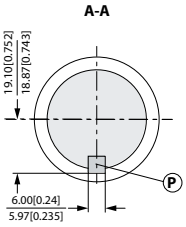
J: Taper 1:10

L: Parallel key B5 • 5 • 14 DIN 6885

Shaft version

Ⓘ





151-1847.12_I

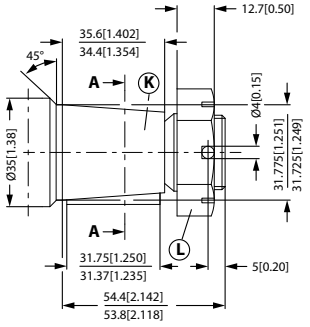
I: Tapered shaft 35 mm

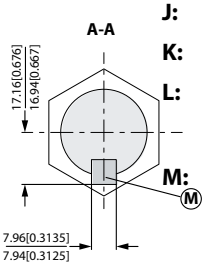
N: DIN 937 NV 41 Tightening torque: 200 ± 10 N•m [1770 ± 85 lbf•in]

M: Taper 1:10

P: Parallel key B6 • 6 • 20 DIN 6885

Ⓙ





151-1848.12

J: Tapered shaft 1 1/4 in

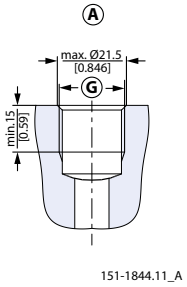
K: Cone 1:8 SAE J501

L: 1 - 20 UNEF Across flats 1 7/16 Tightening torque: 200 ± 10 N•m [1770 ± 85 lbf•in]

M: Parallel key 5/16 • 5/16 • 1 1/4 SAE J501

OMR port thread versions

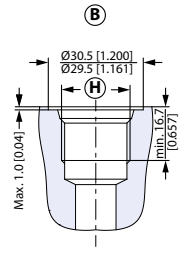
Port thread versions



151-1844.11_A

A: G main ports

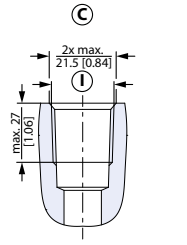
G: ISO 228/1 - G1/2



151-1844.11_B

B: UNF main ports

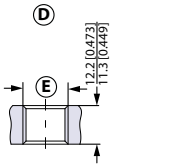
H: 7/8 - 14 UNF O-ring boss port



151-1844.11_C

C: NPTF main ports

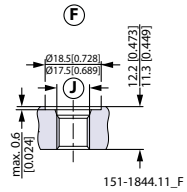
I: 1/2 - 14 NPTF



151-1844.11_D

D: G drain port

E: ISO 228/1 - G1/4



151-1844.11_F

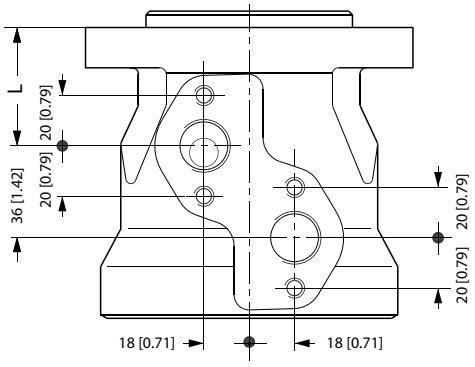
F: UNF drain port

J: 7/16 - 20 UNF O-ring boss port

OMR port thread versions

OMR manifold mount

European version



151-2135.10

L: see dimensional drawing for given OMR motor: *OMR dimensions* on page 65 and *Dimension-US Version*

L: see dimensional drawing for given OMP motor:

OMR dimensions - European version on page 65
OMR dimensions - US version on page 74

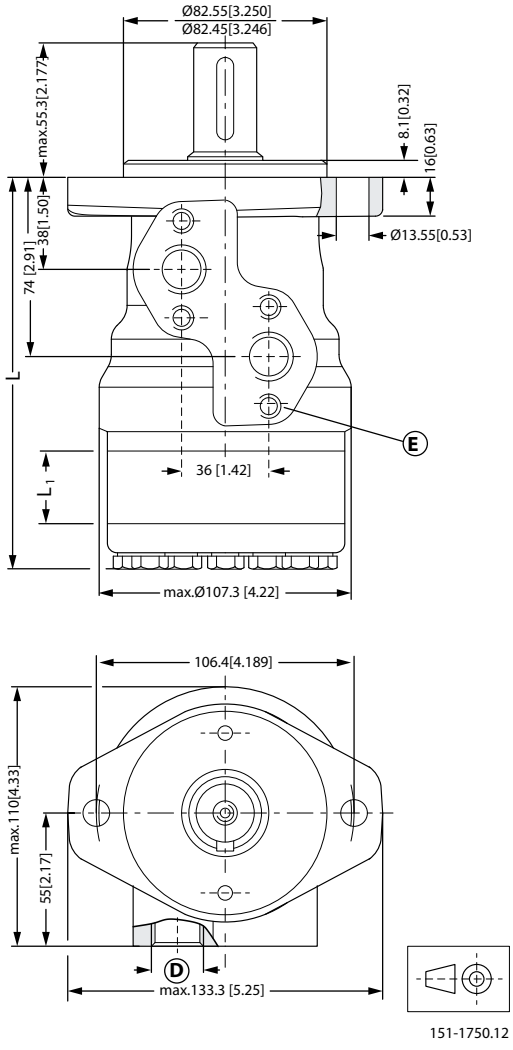
OMR dimensions

OMR dimensions - European version

OMR Side port version with 2-hole oval mounting flange (A2 flange)

- With high pressure shaft seal

Side port - European version



D: G ½; 15 mm [0.59 in] deep

E: M8; 13 mm [0.51 in] deep (4 pcs.)

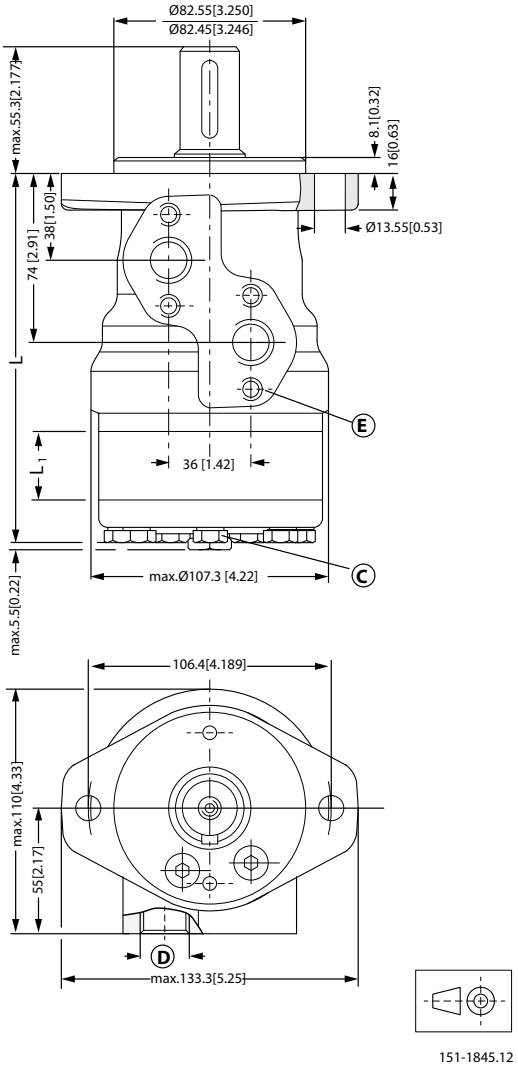
Type		OMR 50	OMR 80	OMR 100	OMR 125	OMR 160	OMR 200	OMR 250	OMR 315	OMR 375
L_{Max}	mm	137.8	142.8	146.2	150.6	156.6	163.6	172.3	183.6	193.8
	[in]	[5.43]	[5.62]	[5.76]	[5.93]	[6.17]	[6.44]	[6.78]	[7.23]	[7.63]
L_1	mm	9.0	14.0	17.4	21.8	27.8	34.8	43.5	54.8	65.0
	[in]	[0.35]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]

OMR dimensions

OMR Side port version with 2-hole oval mounting flange (A2 flange)

- With check valves and drain connection
- With high pressure shaft seal

Side port - European version



C: Drain connection G ¼; 15 mm [0.47 in] deep

D: G ½; 15 mm [0.59 in] deep

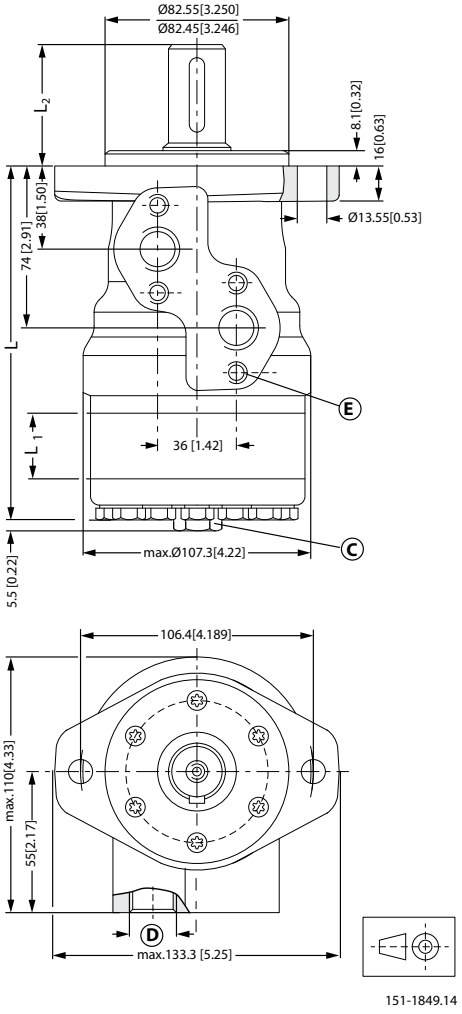
E: M8; 13 mm [0.51 in] deep (4 pcs.)

Type		OMR 50	OMR 80	OMR 100	OMR 125	OMR 160	OMR 200	OMR 250	OMR 315	OMR 375
L_{MAX}	mm	137.8	142.8	146.2	150.6	156.6	163.6	172.3	183.6	193.8
	[in]	[5.43]	[5.62]	[5.76]	[5.93]	[6.17]	[6.44]	[6.78]	[7.23]	[7.63]
L_1	mm	9.0	14.0	17.4	21.8	27.8	34.8	43.5	54.8	65.0
	[in]	[0.35]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]

OMR dimensions

OMR, OMR C and OMR N Side port version with 2-hole oval mounting flange (A2 flange)

Side port - European version



C: Drain connection G ¼; 12 mm [0.47 in] deep

D: G ½; 15 mm [0.59 in] deep

E: M8; 13 mm [0.51 in] deep (4 pcs.)

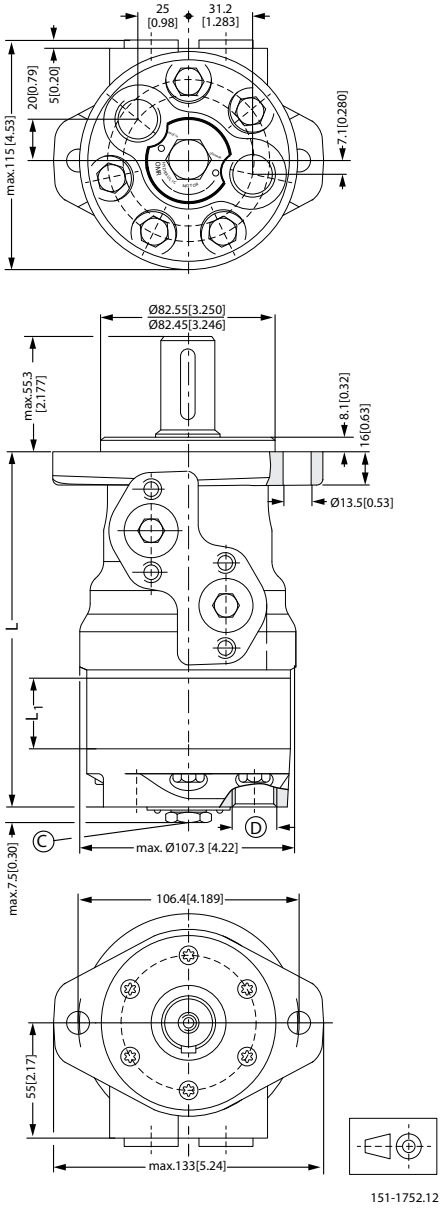
Output shaft. max.		Cylindrical shaft 32 mm [1.26 in]	Cylindrical shaft 25 mm [0.98 in]	Tapered shaft 28.56 mm [1.12 in]
$L_{2\ max}$	mm	68.3	55.3	56.65
	[in]	[2.69]	[2.18]	[2.23]

Type		OMR 50	OMR 80	OMR 100	OMR 125	OMR 160	OMR 200	OMR 250	OMR 315	OMR 375
L_{max}	mm	137.8	142.8	146.2	150.6	156.6	163.6	172.3	183.6	193.8
	[in]	[5.43]	[5.62]	[5.76]	[5.93]	[6.17]	[6.44]	[6.78]	[7.23]	[7.63]
L_1	mm	9.0	14.0	17.4	21.8	27.8	34.8	43.5	54.8	65.0
	[in]	[0.35]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]

OMR dimensions

OMR End port version with 2-hole oval mounting flange (A2-flange)

End port - European version



C: G ¼; 12 mm [0.47 in] deep

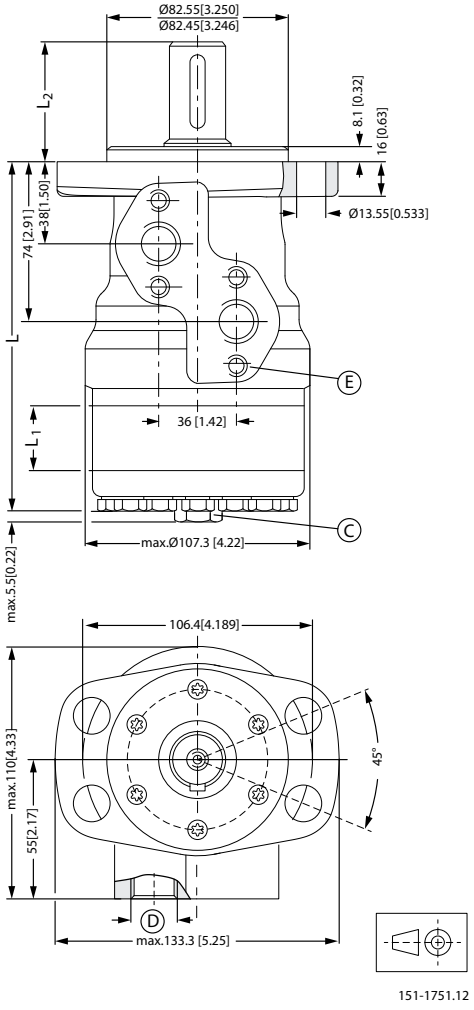
D: G ½; 15 mm [0.59 in] deep

Type		OMR 50	OMR 80	OMR 100	OMR 125	OMR 160	OMR 200	OMR 250	OMR 315	OMR 375
L_{Max}	mm	152.2	157.2	160.6	165.0	171.0	178.0	186.7	198.0	208.2
	[in]	[5.99]	[6.19]	[6.32]	[6.50]	[6.73]	[7.01]	[7.35]	[7.80]	[8.20]
L_1	mm	9.0	14.0	17.4	21.8	27.8	34.8	43.5	54.8	65.0
	[in]	[0.35]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]

OMR dimensions

OMR Side port version with 4-hole oval mounting flange (A4 flange)

Side port - European version



C: Drain connection G ¼; 15 mm [0.47 in] deep

D: G ½; 15 mm [0.59 in] deep

E: M8; 13 mm [0.51 in] deep (4 pcs.)

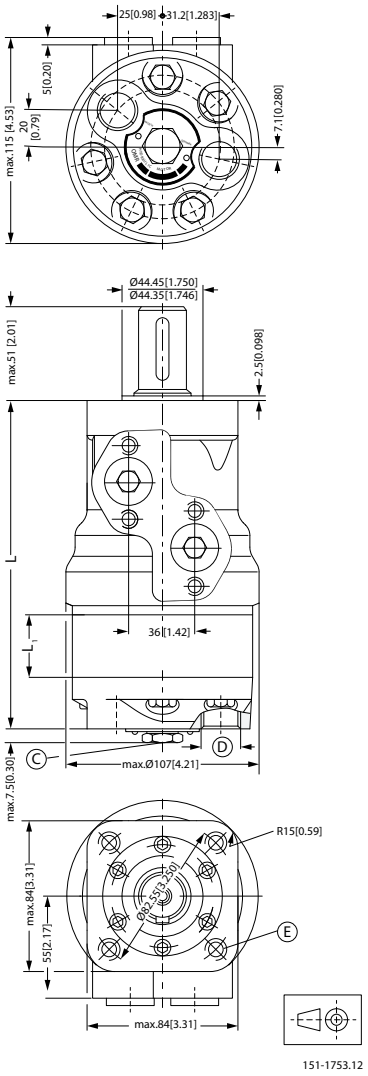
Output shaft.max.		Cylindrical shaft 32 mm [1.26 in]	Cylindrical shaft 25 mm [0.98 in]	Tapered shaft 28.56 mm [1.12 in]
L2	mm	68.3	55.3	56.3
	[in]	[2.69]	[2.18]	[2.22]

Type		OMR 50	OMR 80	OMR 100	OMR 125	OMR 160	OMR 200	OMR 250	OMR 315	OMR 375
$L_{Max.}$	mm	137.8	142.8	146.2	150.6	156.6	163.6	172.3	183.6	193.8
	[in]	[5.43]	[5.62]	[5.76]	[5.93]	[6.17]	[6.44]	[6.78]	[7.23]	[7.63]
L_1	mm	9.0	14.0	17.4	21.8	27.8	34.8	43.5	54.8	65.0
	[in]	[0.35]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]

OMR dimensions

OMR End port version with square mounting flange (C-flange)

End port - European version



C: Drain connection G ¼; 12 mm [0.47 in] deep

D: G ½; 15 mm [0.59 in] deep

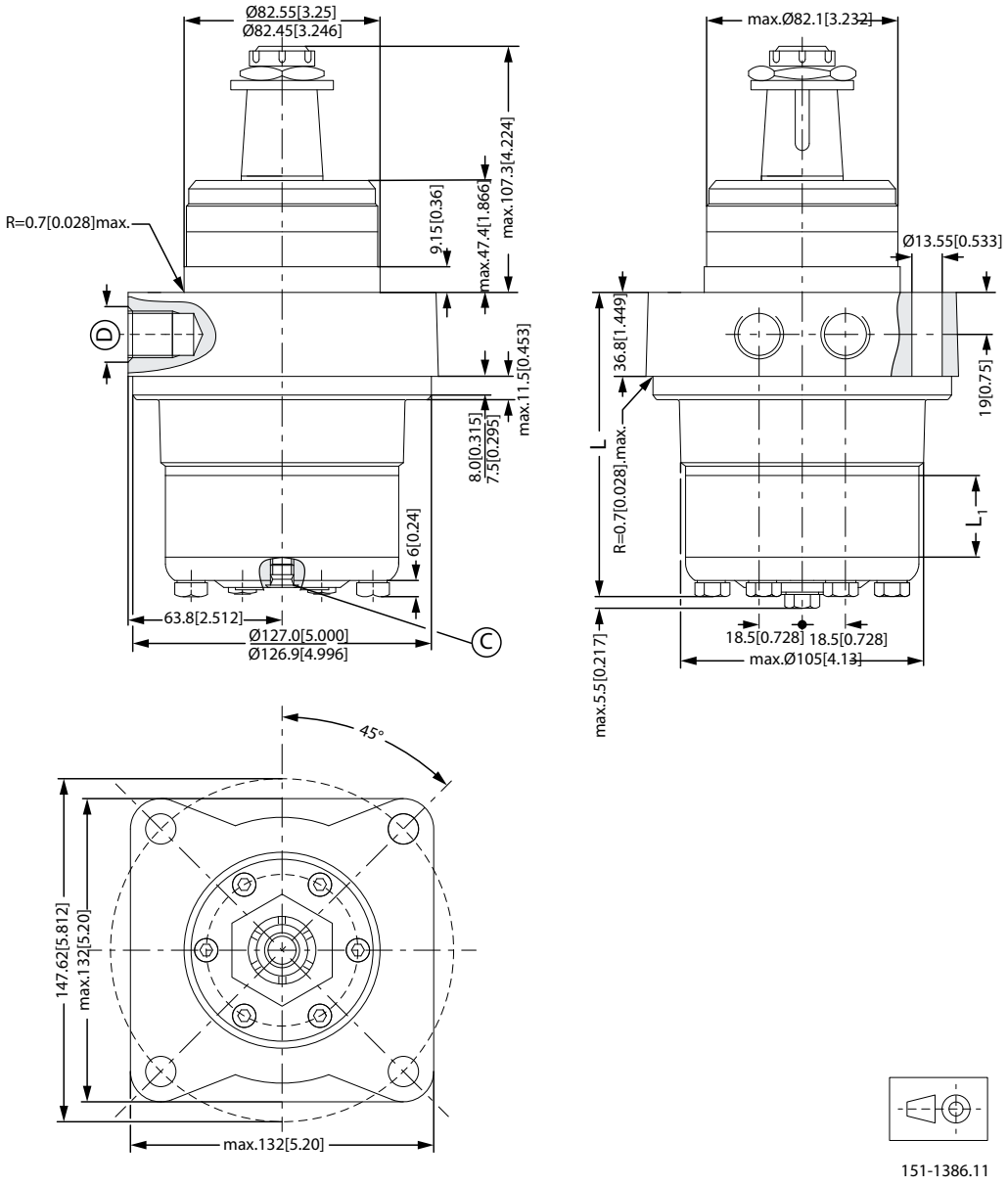
E: M10; 15 mm [0.59 in] deep (4 pcs.)

Type		OMR 50	OMR 80	OMR 100	OMR 125	OMR 160	OMR 200	OMR 250	OMR 315	OMR 375
$L_{Max.}$	mm	158.6	163.3	167.0	171.0	177.0	184.0	192.7	204.0	214.2
	[in]	[6.24]	[6.44]	[6.57]	[6.73]	[6.97]	[7.24]	[7.24]	[8.03]	[8.43]
L_1	mm	9.0	14.0	17.4	21.8	27.8	34.8	43.5	54.8	65.0
	[in]	[0.35]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]

OMR dimensions

OMRW N wheel motor

Wheel motor - European version



151-1386.11

C: Drain connection G ¼; 12 mm [0.47 in] deep

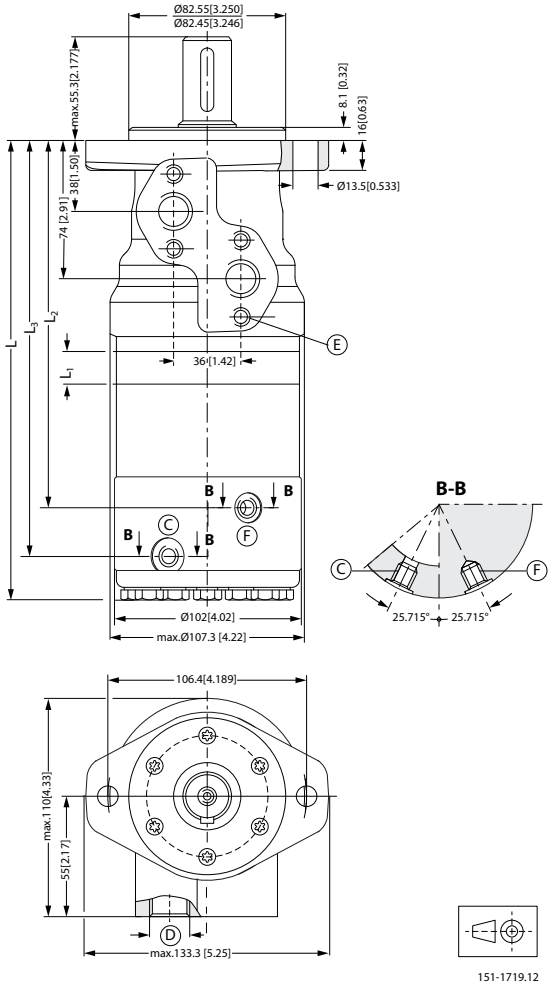
D: G ½; 15 mm [0.59 in] deep

Type		OMRW 50 N	OMRW 80 N	OMRW 100 N	OMRW 125 N	OMRW 160 N	OMRW 200 N	OMRW 250 N	OMRW 315 N	OMRW 375 N
$L_{Max.}$	mm	113.7	114.7	118.1	122.5	128.5	135.1	144.2	155.5	165.7
	[in]	[4.48]	[4.52]	[4.65]	[4.82]	[5.06]	[5.33]	[5.68]	[6.12]	[6.52]
L_1	mm	9.0	14.0	17.4	21.8	27.8	34.8	43.5	54.8	65.0
	[in]	[0.35]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]

OMR dimensions

OMR F motor

F motor - European version



C: Drain connection G ¼; 12 mm [0.47 in] deep

D: G ½; 15 mm [0.59 in] deep

E: M8; 13 mm [0.51 in] deep

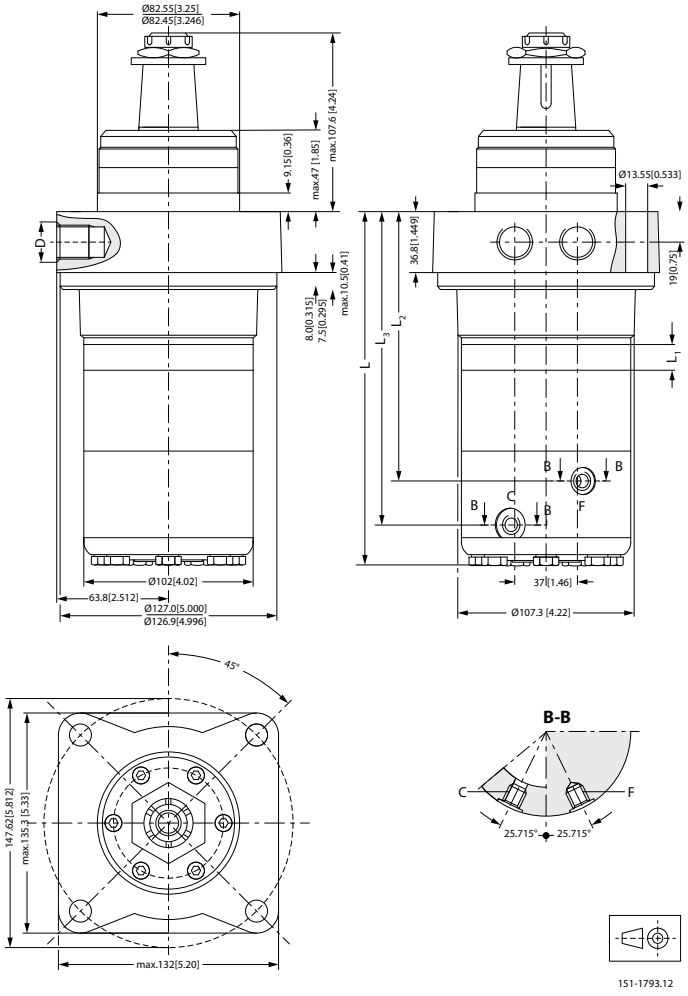
F: Brake release connection G ¼

Type		OMR 80 F	OMR 100 F	OMR 125 F	OMR 160 F	OMR 200 F	OMR 250 F	OMR 315 F	OMR 375 F
$L_{max.}$	mm	242.7	246.1	250.5	265.1	263.5	272.2	283.5	293.7
	[in]	[9.56]	[9.69]	[9.86]	[10.10]	[10.37]	[10.72]	[11.16]	[11.56]
L_1	mm	14.0	17.4	21.8	27.8	34.8	43.5	54.8	65.0
	[in]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]
L_2	mm	186.8	190.2	194.6	200.6	207.6	216.3	227.6	237.7
	[in]	[7.35]	[7.49]	[7.66]	[7.90]	[8.17]	[8.51]	[8.96]	[9.36]
L_3	mm	210.3	213.7	218.1	224.1	231.1	239.8	251.1	261.2
	[in]	[8.28]	[8.41]	[8.58]	[8.82]	[9.10]	[9.45]	[9.88]	[10.28]

OMR dimensions

OMRW NF motor

NF motor - European version



C: Drain connection G ¼; 12 mm [0.47 in] deep

D: G ½; 15 mm [0.59 in] deep

E: M8; 13 mm [0.51 in] deep

F: Brake release connection G ¼

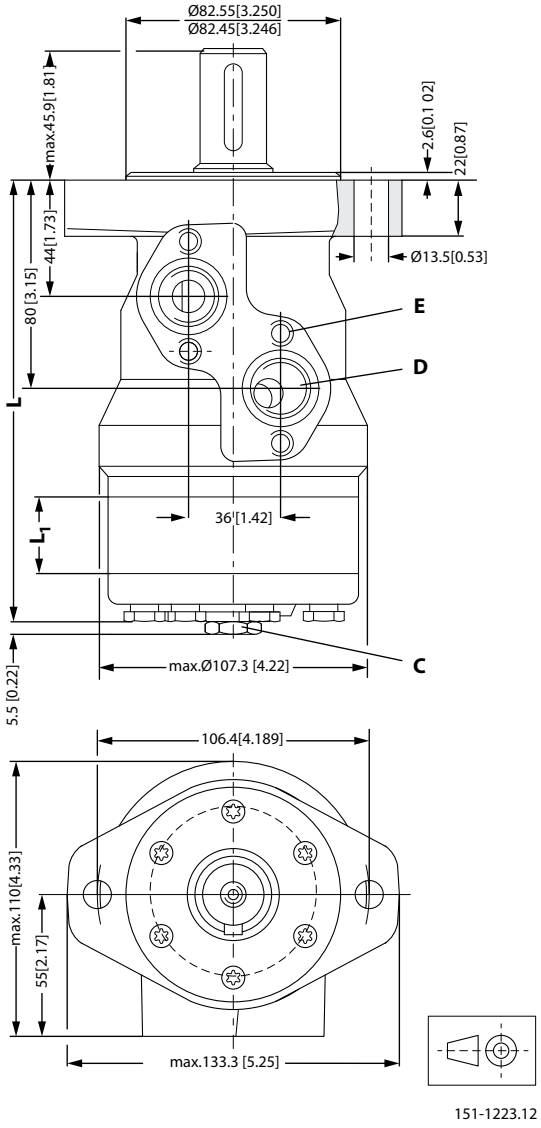
Type		OMRW 80 NF	OMRW 100 NF	OMRW 125 NF	OMRW 160 NF	OMRW 200 NF	OMRW 250 NF	OMRW 315 NF	OMRW 375 NF
$L_{max.}$	mm	213.2	218.0	222.4	228.4	235.4	242.7	254.0	264.2
	[in]	[8.39]	[8.58]	[8.76]	[8.99]	[9.27]	[9.56]	[10.0]	[10.40]
L_1	mm	14.0	17.4	21.8	27.8	34.8	43.5	54.8	65.0
	[in]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]
$L_{2\ max}$	mm	159.2	161.9	166.3	172.3	179.3	188.7	200.0	210.2
	[in]	[6.27]	[6.37]	[6.55]	[6.78]	[7.06]	[7.43]	[7.87]	[8.28]
L_3	mm	182.7	185.4	189.8	195.8	202.8	212.2	223.5	233.7
	[in]	[7.19]	[7.30]	[7.47]	[7.71]	[7.98]	[8.35]	[8.80]	[9.20]

OMR dimensions

OMR dimensions - US version

OMR Side port version with 2-hole oval mounting flange (A2-flange)

Side port - US version



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

D: 7/8 - 14 UNF; 16.76 mm [0.66 in] deep

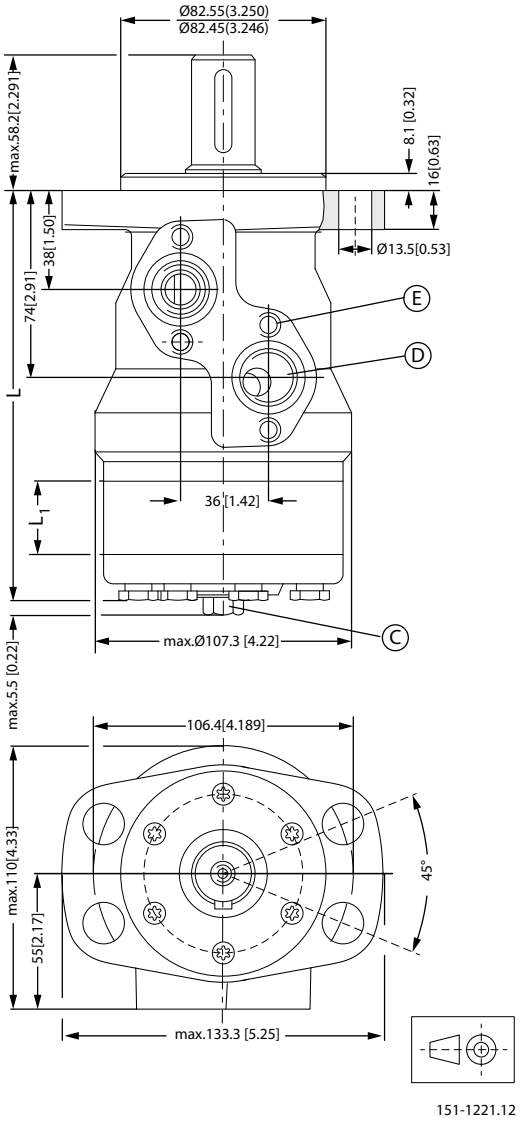
E: M8; 13 mm [0.51 in) deep (4-off)

Type		OMR 50	OMR 80	OMR 100	OMR 125	OMR 160	OMR 200	OMR 250	OMR 315	OMR 375
L_{max}	mm	143.7	148.7	152.1	156.5	162.5	169.5	178.2	189.5	199.7
	[in]	[5.66]	[5.85]	[5.99]	[6.16]	[6.40]	[6.67]	[7.02]	[7.46]	[7.86]
L_1	mm	9.0	14.0	17.4	21.8	27.8	34.8	43.5	54.8	64.8
	[in]	[0.35]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]

OMR dimensions

OMR Side port version with 4-hole oval mounting flange (A4-flange)

Side port - US version



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

D: 7/8 - 14 UNF; 17 mm [0.66 in] deep

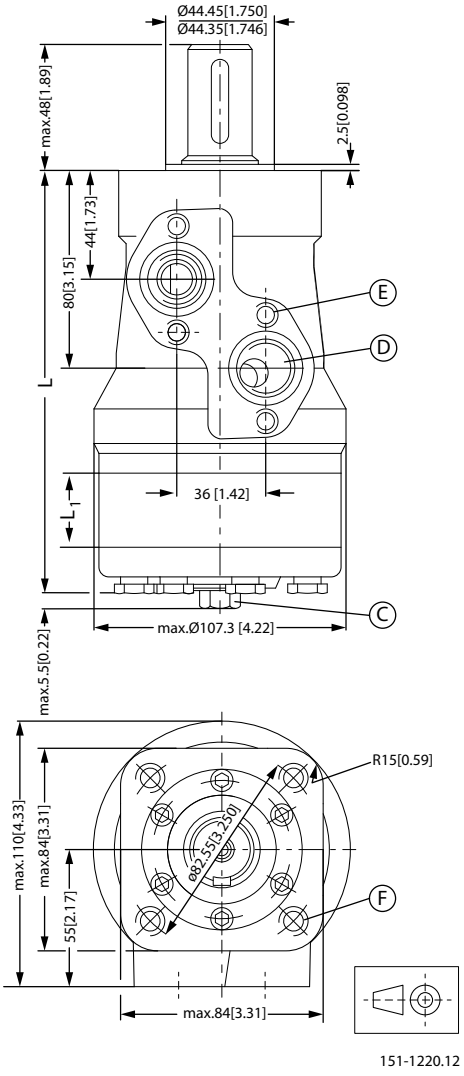
E: M8; 13 mm [0.51 in] deep (4-off)

Type		OMR 50	OMR 80	OMR 100	OMR 125	OMR 160	OMR 200	OMR 250	OMR 315	OMR 375
L_{max}	mm	137.8	142.8	146.2	150.6	156.6	163.6	172.3	183.6	193.8
	[in]	[5.43]	[5.62]	[5.76]	[5.93]	[6.17]	[6.44]	[6.78]	[7.23]	[7.63]
L_1	mm	9.0	14.0	17.4	21.8	27.8	34.8	43.5	54.8	65.0
	[in]	[0.35]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]

OMR dimensions

OMR Side port version with square mounting flange (C-flange)

Side port - US version



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

D: 7/8 - 14 UNF; 17 mm [0.66 in] deep

E: M8; 13 mm [0.51 in) deep (4-off)

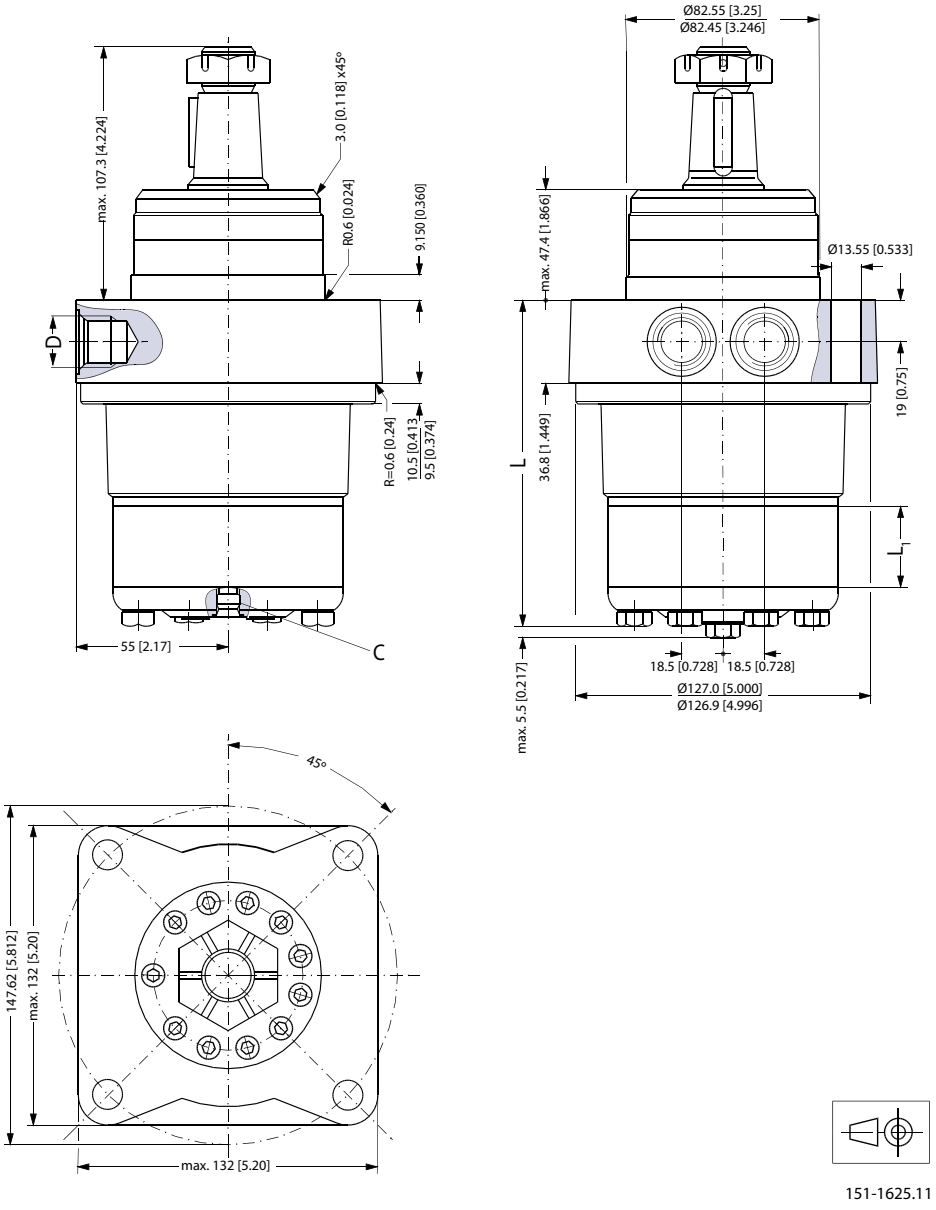
F: 3/8 - 16 UNC; 15 mm [0.59 in] deep (4-off)

Type		OMR 50	OMR 80	OMR 100	OMR 125	OMR 160	OMR 200	OMR 250	OMR 315	OMR 375
L_{max}	mm	143.8	148.8	152.2	156.6	162.6	169.6	178.3	189.6	199.8
	[in]	[5.66]	[5.86]	[5.99]	[6.17]	[6.40]	[6.68]	[7.02]	[7.46]	[7.87]
L_1	mm	9.0	14.0	17.4	21.8	27.8	34.8	43.5	54.8	65.0
	[in]	[0.35]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]

OMR dimensions

OMRW N wheel motor

Wheel motor - US version



151-1625.11

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

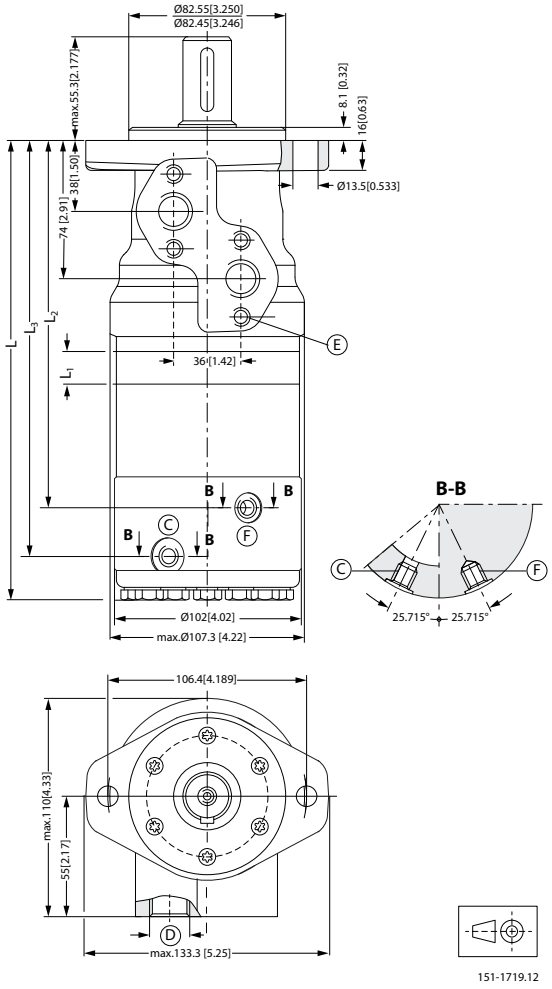
D: 7/8 - 14 UNF; 17 mm [0.66 in] deep

Type		OMRW 50 N	OMRW 80 N	OMRW 100 N	OMRW 125 N	OMRW 160 N	OMRW 200 N	OMRW 250 N	OMRW 315 N	OMRW 375 N
L_{max}	mm	113.7	114.7	118.1	122.5	128.5	135.1	144.2	155.5	165.7
	[in]	[4.48]	[4.52]	[4.65]	[4.82]	[5.06]	[5.33]	[5.68]	[6.12]	[6.52]
L_1	mm	9.0	14.0	17.4	21.8	27.8	34.8	43.5	54.8	65.0
	[in]	[0.35]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]

OMR dimensions

OMR NF motor

NF motor - US version



C: Drain connection 7/16 - 20 UNF

D: 7/8 -14 UNF, 0.66 in (15 mm) deep

E: M8; 0.51 in (13 mm) deep

F: Brake release connection 7/16 - 20 UNF

Type		OMR 80 NF	OMR 100 NF	OMR 125 NF	OMR 160 NF	OMR 200 NF	OMR 250 NF	OMR 315 NF	OMR 375 NF
L_{max}	mm	248.7	252.1	256.5	262.5	269.5	278.2	289.5	299.7
	[in]	[9.79]	[9.93]	[10.10]	[10.33]	[10.61]	[10.95]	[11.40]	[11.80]
L_1	mm	14.0	17.4	21.8	27.8	34.8	43.5	54.8	65.0
	[in]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]
L_2	mm	186.8	195.2	200.6	206.6	213.6	222.3	233.6	243.7
	[in]	[7.35]	[7.72]	[7.90]	[8.13]	[8.41]	[8.75]	[9.19]	[9.59]
L_3	mm	216.3	213.7	224.1	230.1	237.1	245.8	257.1	267.2
	[in]	[8.51]	[8.41]	[8.82]	[9.06]	[9.33]	[9.68]	[10.12]	[10.52]

OMH versions and code numbers

OMH versions and code numbers

OMH standard motors

Mounting flange: 4 hole oval flange (A4))

Spigot diamer	**Ø82.5 mm [3.25 in]**							
Bolt circle diameter	**Ø106.4 mm [4.20 in]**							
Shaft	**Main port size**	**Port style**	**Drain port size**	**Standard shaft seal**	**High pressure shaft seal**	**Check valve**	**Main type designation**	**Conf. code**
Cyl. Ø32 mm	G 1/2	Side port	G 1/4	Yes	-	Yes	OMH	***A1***
Cyl. Ø35 mm	G 1/2	Side port	G 1/4	Yes	-	Yes	OMH	***A2***
Cyl. 1 1/4 in	7/8-14 UNF	Side port	7/16-20 UNF	Yes	-	Yes	OMH	***A3***
Splined 1 in (SAE 6B)	7/8-14 UNF	Side port	7/16-20 UNF	Yes	-	Yes	OMH	***A4***
Splined 1 1/4 in	G 1/2	Side port	G 1/4	Yes	-	Yes	OMH	***A5***
Splined 1 1/4 in	7/8-14 UNF	Side port	7/16-20 UNF	Yes	-	Yes	OMH	***A6***
Tap. Ø35 mm	G 1/2	Side port	G 1/4	Yes	-	Yes	OMH	***A7***

Code numbers

Conf. code	**Displacement**				
	200	**250**	**315**	**400**	**500**
A1	151H1002	151H1003	151H1004	151H1005	151H1006
A2	151H1012	151H1013	151H1014	151H1015	151H1016
A3	151H1042	151H1043	151H1044	151H1045	151H1046
A4	151H1080	151H1082	151H1083	151H1084	151H1081
A5	151H1022	151H1023	151H1024	151H1025	151H1026
A6	151H1052	151H1053	151H1054	151H1055	151H1056
A7	-	-	151H1034	151H1035	151H1036

OMH technical data

Technical data for OMH with 1 in SAE 6 B splined shaft

Type			OMH	OMH	OMH	OMH	OMH
Motor size			**200**	**250**	**315**	**400**	**500**
Geometric displacement	cm^3 [inch]		201.3 [12.32]	252.0 [15.42]	314.9 [19.27]	396.8 [24.28]	470.6 [28.80]
Max. speed	min^{-1}	cont.	370	295	235	185	155
	[rpm]	int.[1)]	445	350	285	225	190
Max. torque	N•m [lbf•in]	cont.	340 [3000]	340 [3000]	340 [3000]	340 [3000]	340 [3000]
		int.[1)]	510 [4500]	510 [4500]	540 [4800]	540 [4800]	520 [4600]
		peak[2)]	610 [5400]	610 [5400]	610 [5400]	610 [5400]	610 [5400]
Max. output	kW [hp]	cont.	11.2 [15.0]	7.5 [10.0]	5.2 [7.0]	4.8 [6.5]	3.7 [5.0]
		int.[1)]	17.2 [23.0]	11.9 [16.0]	9.7 [13.0]	8.2 [11.0]	6.0 [8.0]
Max. pressure drop	bar [psi]	cont.	115 [1650]	90 [1300]	75 [1100]	60 [900]	50 [725]
		int.[1)]	170 [2500]	145 [2100]	120 [1750]	95 [1400]	75 [1100]
		peak[2)]	215 [3120]	175 [2540]	145 [2100]	110 [1600]	90 [1300]
Max. oil flow	l/min [US gal/min]	cont.	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]
		int.[1)]	90 [23.8]	90 [23.8]	90 [23.8]	90 [23.8]	90 [23.8]
Max. starting pressure with unloaded shaft	bar [psi]		7 [100]	7 [100]	7 [100]	7 [100]	7 [100]
Min starting torque	at max. press drop cont. N•m [lbf•in]		255 [2250]	270 [2400]	280 [2500]	290 [2550]	300 [2650]
	at max. press.drop int.[1)] N•m [lbf•in]		390 [3450]	435 [3850]	450 [4000]	450 [4000]	450 [4000]

[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.

Technical data for OMH with 32 mm and 1 1/4 in cylindrical shaft

Type			OMH	OMH	OMH	OMH	OMH
Motor size			**200**	**250**	**315**	**400**	**500**
Geometric displacement	cm^3 [inch]		201.3 [12.32]	252.0 [15.42]	314.9 [19.27]	396.8 [24.28]	470.6 [28.80]
Max. speed	min^{-1}	cont.	370	295	235	185	155
	[rpm]	int.[1)]	445	350	285	225	190

OMH technical data

Type			OMH	OMH	OMH	OMH	OMH
Motor size			**200**	**250**	**315**	**400**	**500**
Max. torque	N•m [lbf•in]	cont.	510 [4500]	610 [5400}	590 [5220]	590 [5220]	580 [5130]
		int.[1)]	580 [5130]	700 [6200]	670 [5930]	700 [6200]	680 [6020]
		peak[2)]	640 [5660]	790 [6990]	840 [7440]	840 [7440]	840 [7440]
Max. output	kW [hp]	cont.	16.0 [21.5]	16.0 [21.5]	12.5 [16.8]	10.0 [13.4]	8.5 [11.4]
		int.[1)]	18.5 [24.8]	18.5 [24.8]	14.0 [18.8]	12.0 [16.1]	10.0 [13.4]
Max. pressure drop	bar [psi]	cont.	175 [2540]	175 [2540]	135 [1960]	105 [1520]	85 [1230]
		int.[1)]	200 [2900]	200 [2900]	155 [2250]	125 [1810]	100 [1450]
		peak[2)]	225 [3260]	225 [3260]	190 [2760]	155 [2250]	130 [1890]
Max. oil flow	l/min [US gal/min]	cont.	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]
		int.[1)]	90 [23.8]	90 [23.8]	90 [23.8]	90 [23.8]	90 [23.8]
Max. starting pressure with unloaded shaft	bar [psi]		7 [100]	7 [100]	7 [100]	7 [100]	7 [100]
Min starting torque	at max. press drop cont. N•m [lbf•in]		390 [3450]	520 [4600]	510 [4510]	490 [4340]	490 [4340]
	at max. press.drop int.[1)] N•m [lbf•in]		450 [3980]	590 [5220]	590 [5220]	600 [5310]	600 [5310]

[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.

Technical data for OMH with 35 mm cylindrical, 1 1/4 in splined and 35 mm tapered shaft

Type			OMH	OMH	OMH	OMH	OMH
Motor size			**200**	**250**	**315**	**400**	**500**
Geometric displacement	cm^3 [inch]		201.3 [12.32]	252.0 [15.42]	314.9 [19.27]	396.8 [24.28]	470.6 [28.80]
Max. speed	min^{-1}	cont.	370	295	235	185	155
	[rpm]	int.[fn]	445	350	285	225	190
Max. torque	N•m [lbf•in]	cont.	510 [4500]	610 [5400}	740 [6550]	840 [7440]	820 [7260]
		int.[fn]	580 [5130]	700 [6200]	820 [7260]	980 [8670]	1040 [9210]
		peak[2)]	640 [5660]	790 [6990]	980 [8670]	1090 [9650]	1170 [10360]
Max. output	kW [hp]	cont.	16.0 [21.5]	16.0 [21.5]	14.0 [18.8]	12.5 [16.8]	11.0 [14.8]
		int.[fn]	18.5 [24.8]	18.5 [24.8]	15.5 [20.8	15.0 [20.1]	14.0 [18.8]

OMH technical data

Type			OMH	OMH	OMH	OMH	OMH
Motor size			**200**	**250**	**315**	**400**	**500**
Max. pressure drop	bar [psi]	cont.	175 [2540]	175 [2540]	175 [2540]	155 [2250]	125 [1810]
		int.[fn]	200 [2900]	200 [2900]	200 [2900]	190 [2760]	160 [2320]
		peak[2)]	225 [3260]	225 [3260]	225 [3260]	210 [3050]	180 [2610]
Max. oil flow	l/min [US gal/min]	cont.	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]	75 [19.8]
		int.[fn]	90 [23.8]	90 [23.8]	90 [23.8]	90 [23.8]	90 [23.8]
Max. starting pressure with unloaded shaft	bar [psi]		7 [100]	7 [100]	7 [100]	7 [100]	7 [100]
Min starting torque	at max. press drop cont. N•m [lbf•in]		390 [3450]	520 [4600]	660 [5840]	720 [6370]	720 [6370]
	at max. press.drop int.[fn] N•m [lbf•in]		450 [3980]	590 [5220]	730 [6460]	880 [7790]	880 [7790]

[fn] 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.

Type		Max. inlet pressure	Max.return pressure with drain line
OMH 200 - 500	bar [psi] cont	200 [2900]	175 [2540]
	bar int.[1)] [psi]	225 [3260]	200 [2900]
	bar peak [2)] [psi]	250 [3630]	225 [3260]

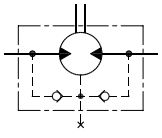
[1)] Intermittent operation: the permissible values may occur for max. 10% of every minute.

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

Max. Permissible Shaft Seal Pressure

OMH 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

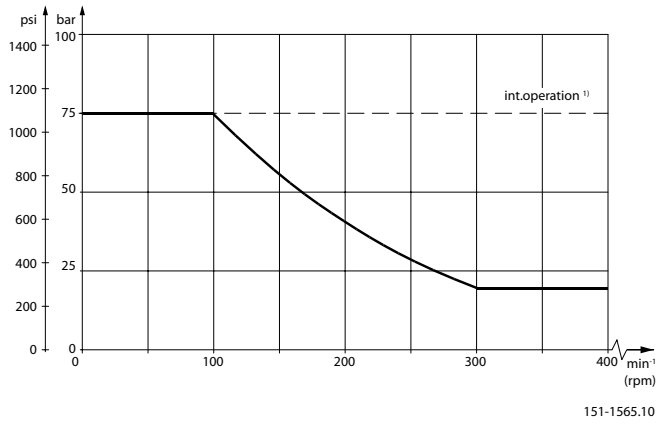


OMH with standard shaft seal, check valves and with drain connection:

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

OMH technical data

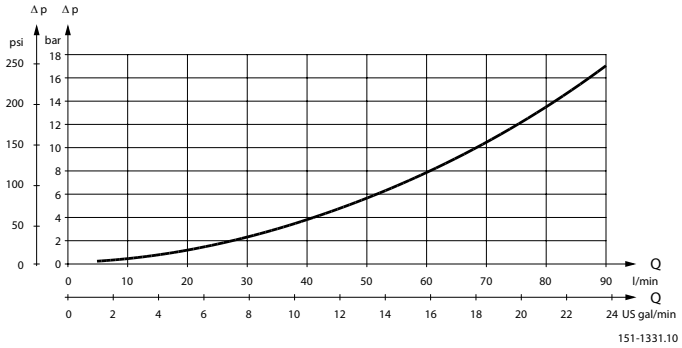
Max. return pressure without drain line or max. pressure in the drain line



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

Pressure Drop in Motor

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

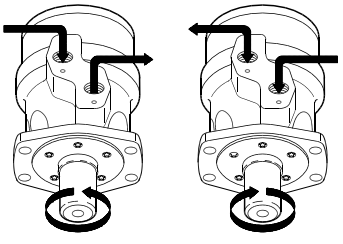


Oil Flow in Drain Line

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		Oil flow in drain line	
	mm²/s	[SUS]	l/min	[US gal/min]
100 [1450]	20	[100]	2.5	[0.66]
	35	[165]	1.8	[0.78]
140 [2030]	20	[100]	3.5	[0.93]
	35	[165]	2.8	[0.74]

Direction of Shaft Rotation



OMH technical data

Permissible Shaft Loads for OMH

The permissible shaft load (Prad) is calculated from the speed (n) and the distance (l) between the point of load application and the mounting flange.

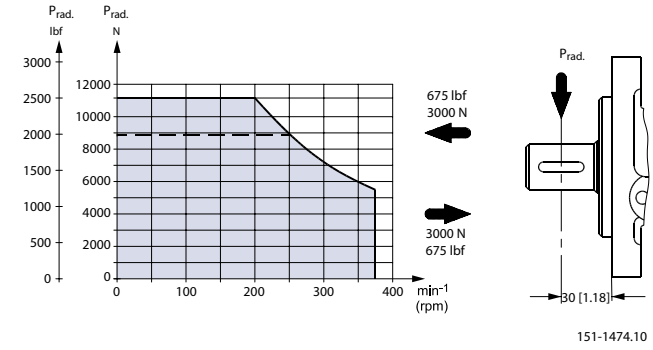
$$P_{rad} = \frac{1100}{n} \cdot \frac{250000}{103.5 + l} \quad N^*;\ l \text{ in mm}$$

$$P_{rad} = \frac{1100}{n} \cdot \frac{2215}{4.07 + l} \quad lbf^*;\ l \text{ in inch}$$

*n > 200 min^{-1} (rpm); l < 60 mm [2.36 in]

n < 200 min^{-1} (rpm); => PRmax = 11000 N [2475 lbf]

------ *1 in SAE 6B splined shaft*



The drawing shows the permissible radial load when l = 30 mm [1.18 in].

OMH function diagrams

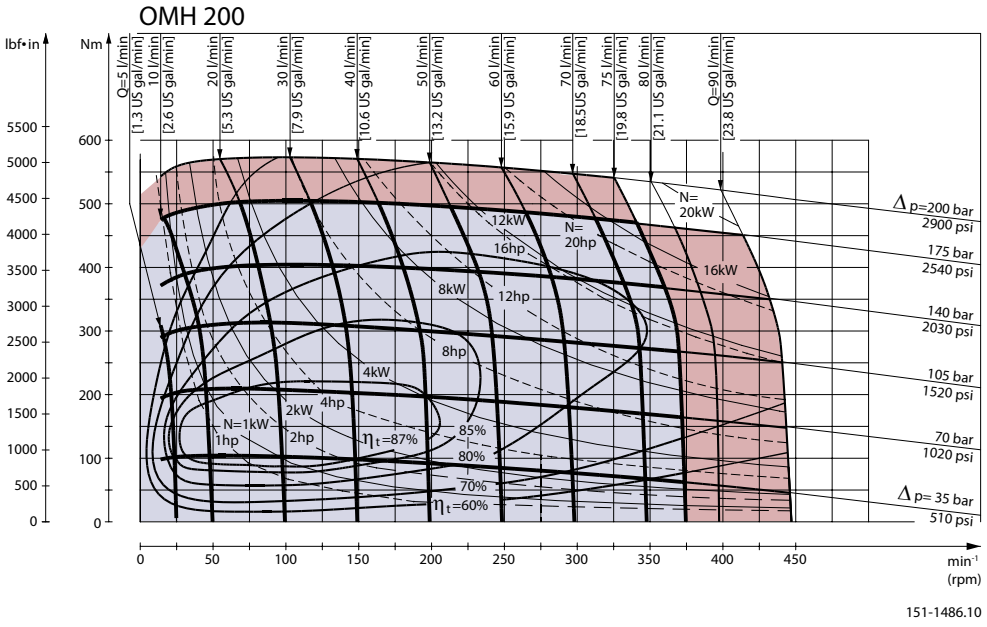
Explanation of function diagram use, basis and conditions can be found in *Speed, torque and output* on page 8.

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

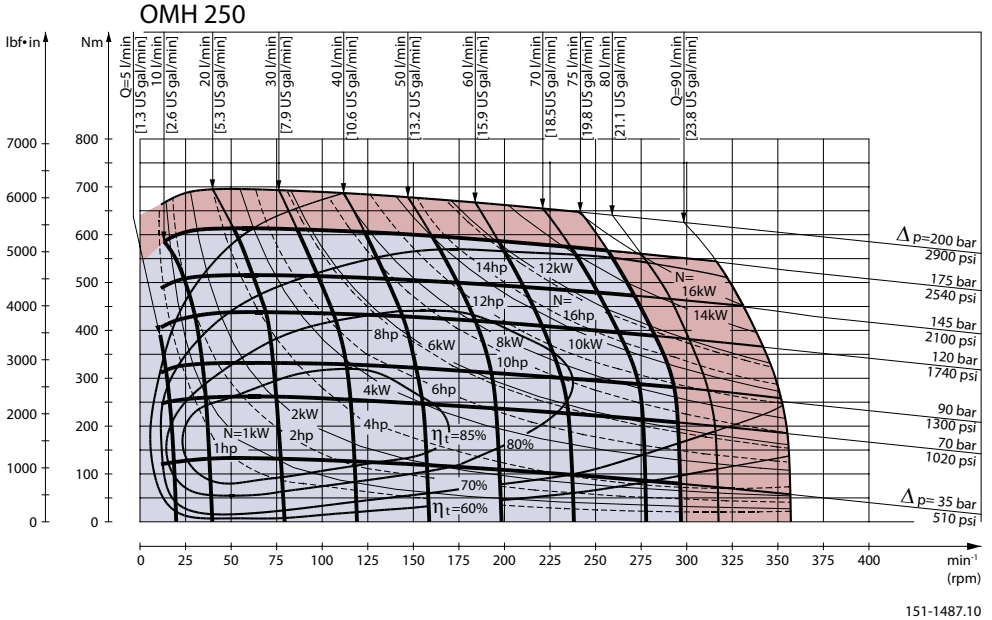
Max. permissible continuous/intermittent pressure drop for the actual shaft version can be found in *OMH technical data* on page 80.

Intermittent pressure drop and oil flow must not occur simultaneously.

OMH 200 function diagram

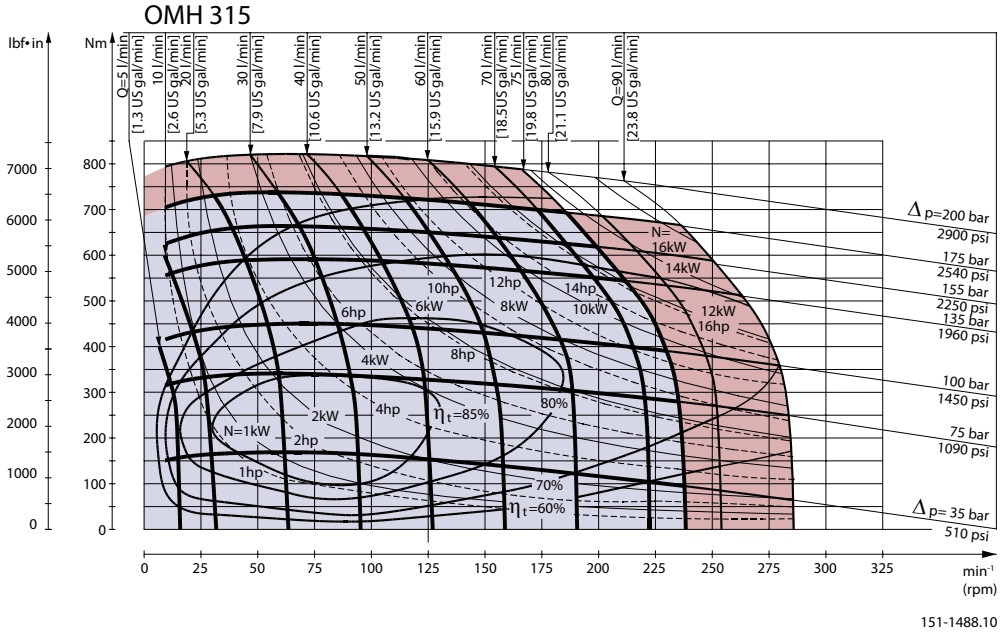


OMH 250 function diagram

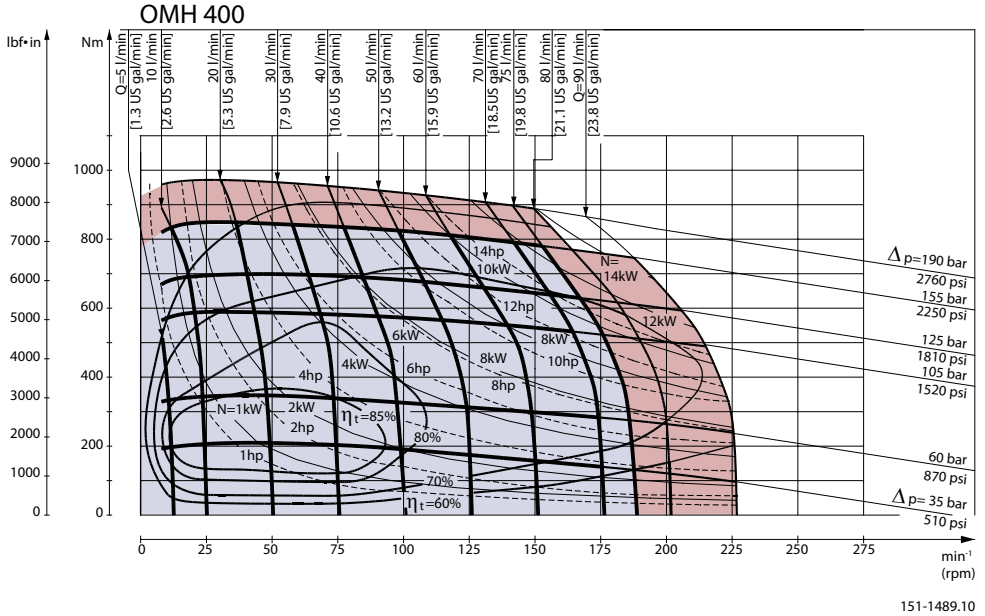


OMH function diagrams

OMH 315 function diagram

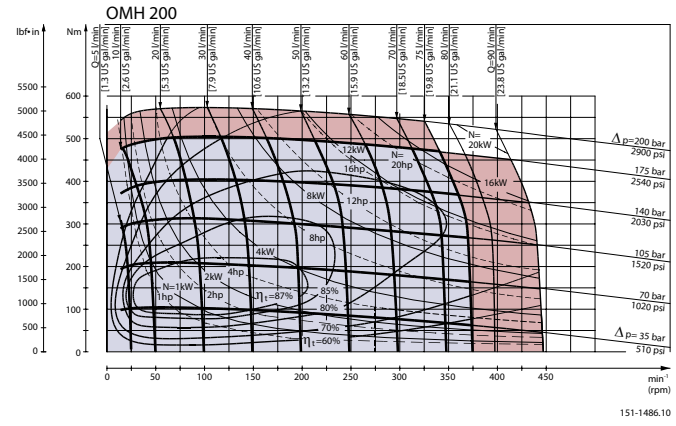


OMH 400 function diagram



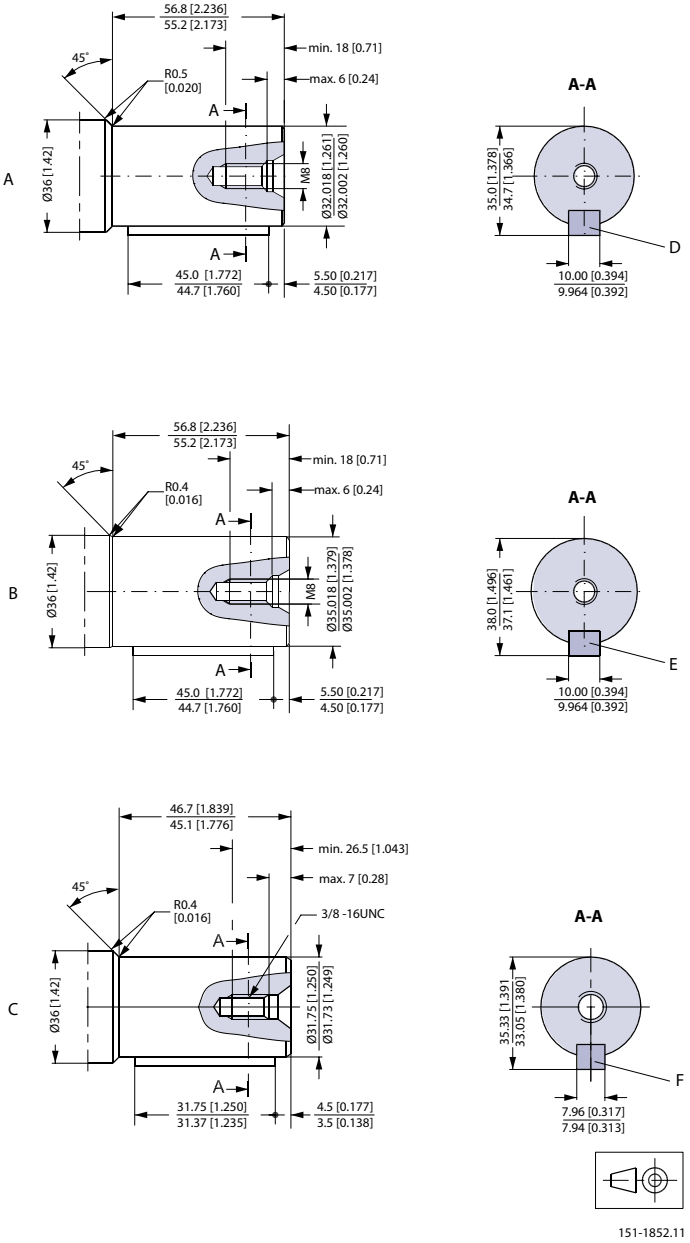
OMH function diagrams

OMH 500 function diagram



Shaft Version

Shaft Version



A: Cylindrical shaft 32 mm

B: Cylindrical shaft 35 mm

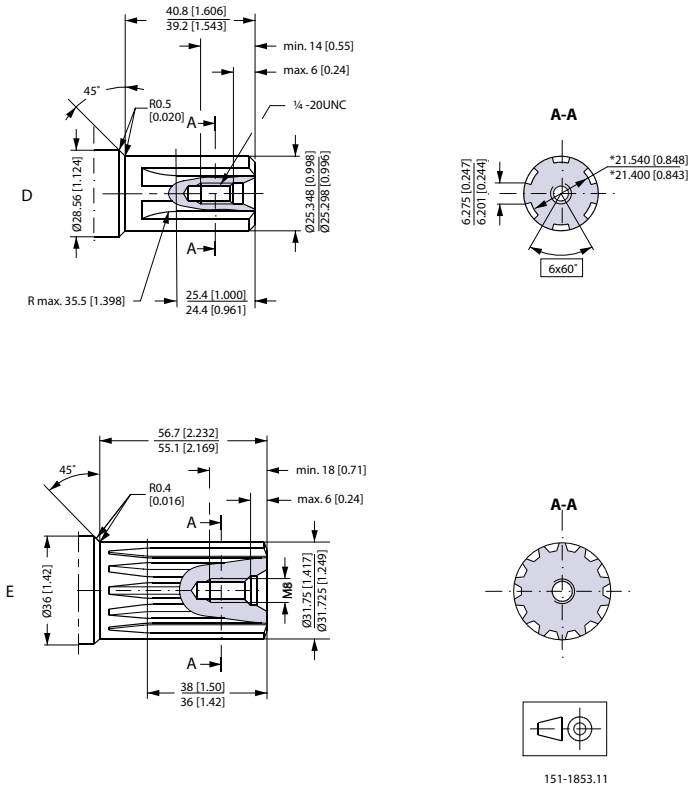
US version
C: Cylindrical shaft 1 1/4 in

D: Parallel key
A10 × 8 × 45
DIN 6885

E: Parallel key
A10 × 8 × 45
DIN 6885

F: Parallel key
5/16 × 5/16 × 11/4 in
SAE J 744

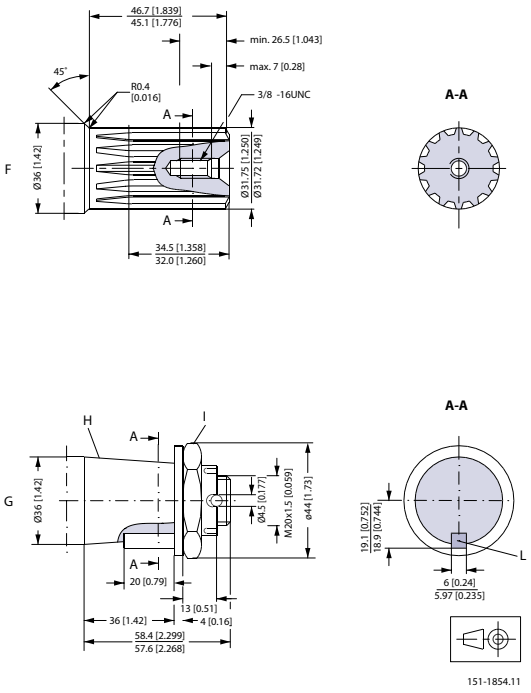
Shaft Version



D: 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)

E. Involute splined shaft
ANS B92.1 - 1980 standard
Flat root side fit
Pitch 12/24
Teeth 14
Major dia. 1.25 in
Pressure angle 30°

Shaft Version



US version
F. 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°

L: Parallel key
B6 • 6 • 20
DIN 6885

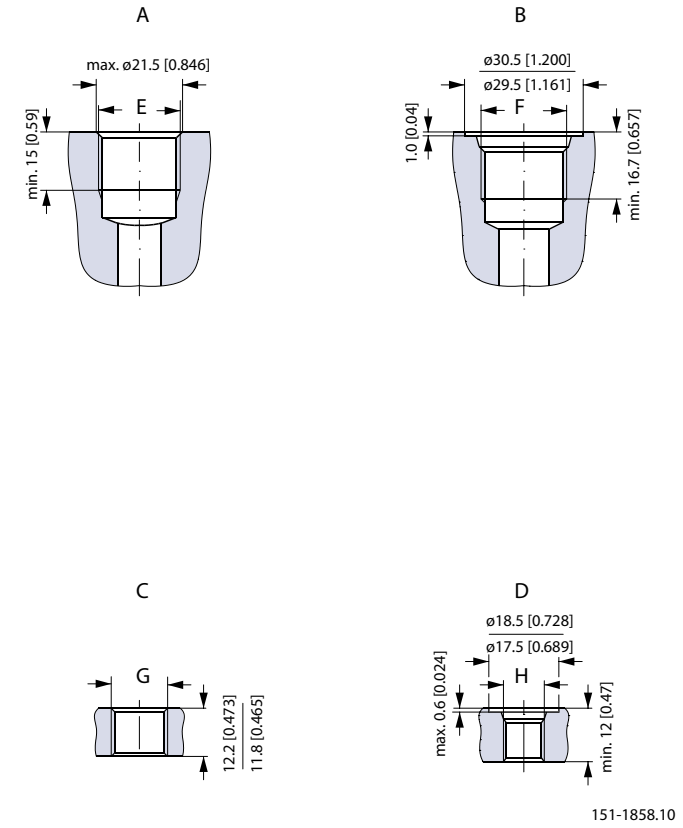
G: Tapered shaft 35 mm

H: Taper 1:10

I: DIN 937
NV 41
Tightening torque:
200 ± 10 Nm [1770 ±85 lbf·in]

Technical Data

Port Thread Versions



A: G main ports

E: ISO 228/1 - G1/2

C: G drain port

G: ISO 228/1 - G1/4

B: UNF main ports

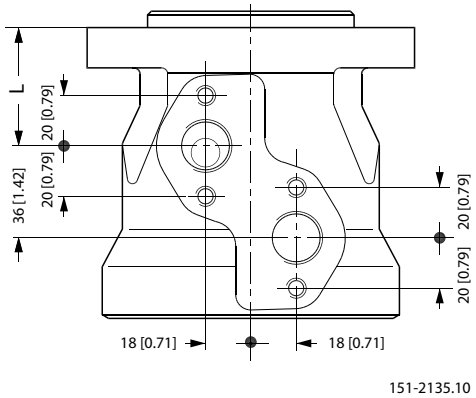
F: 7/8 - 14 UNF
O-ring boss port

D: UNF drain port

H: 7/16 - 20 UNF
O-ring boss port

Manifold Mount

European version



Technical Data

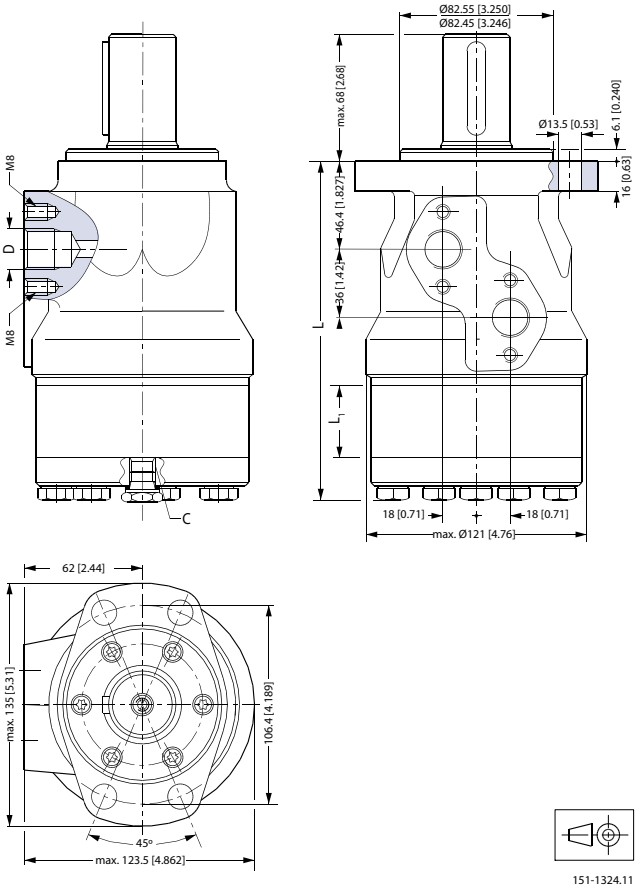
L: see dimensional drawing for given OMH motor: *Dimensions-European Version* on page 93 and *Dimensions-US Version* on page 94

OMH dimensions

Dimensions-European Version

Dimensions

Side port version with 4 hole oval mounting flange (A4-flange).



C: Drain connection
G ¼; 12 mm [0.47 in] deep

D: G ½; 15 mm [0.59 in] deep

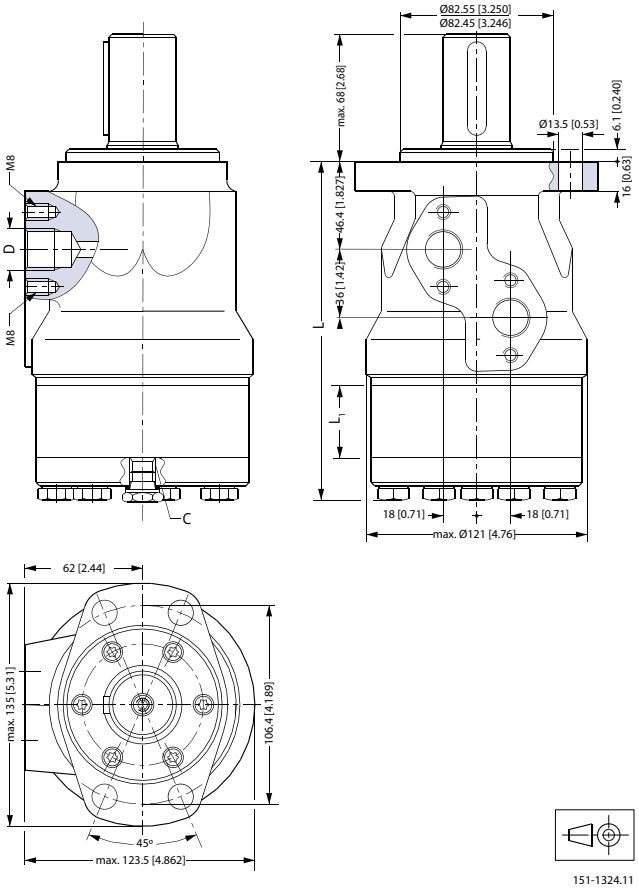
Type	Max. L		L1	
	mm	[in]	mm	[in]
OMH 200	171.1	[6.74]	27.8	[1.09]
OMH 250	178.1	[7.01]	34.8	[1.37]
OMH 315	186.8	[7.35]	43.5	[1.71]
OMH 400	198.1	[7.80]	54.8	[2.16]
OMH 500	208.3	[8.20]	65.0	[2.56]

OMH dimensions

Dimensions-US Version

Dimensions

Side port version with 4 hole oval mounting flange (A4 flange).



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

D: 7/8 - 14 UNF;
15 mm [0.59 in] deep

Output shaft.max.	**L2**	
	mm	**[in]**
Splined shaft 1 in	50.5	[1.99]
Other shaft versions	58.0	[2.28]

Type	**Max. L**		**L1**	
	mm	**[in]**	**mm**	**[in]**
OMH 200	171.1	[6.74]	27.8	[1.09]
OMH 250	178.1	[7.01]	34.8	[1.37]
OMH 315	186.8	[7.35]	43.5	[1.71]
OMH 400	198.1	[7.80]	54.8	[2.16]
OMH 500	208.3	[8.20]	65.0	[2.56]

Weight of motors

Weight of OMP, OMR and OMH motors

Weight of OMP, OMR and OMH motors

Code no	Weight	
	kg	[lb]
151-0208	7.2	[15.9]
151-0242	6.9	[15.2]
151-0243	7.0	[15.4]
151-0244	7.5	[16.5]
151-0245	8.0	[17.6]
151-0246	9.0	[19.8]
151-0247	8.5	[18.7]
151-0248	6.7	[14.8]
151-0265	6.7	[14.8]
151-0266	6.9	[15.2]
151-0267	7.0	[15.4]
151-0268	7.5	[16.5]
151-0269	8.0	[17.6]
151-0270	9.0	[19.8]
151-0271	8.5	[18.7]
151-0300	5.6	[12.3]
151-0301	5.7	[12.6]
151-0302	5.9	[13.0]
151-0303	6.0	[13.2]
151-0304	6.2	[13.7]
151-0305	6.4	[14.1]
151-0306	6.6	[14.6]
151-0307	6.9	[15.2]
151-0308	7.4	[16.3]
151-0310	5.6	[12.3]
151-0311	5.7	[12.6]
151-0312	5.9	[13.0]
151-0313	6.0	[13.2]
151-0314	6.2	[13.7]
151-0315	6.4	[14.1]
151-0316	6.6	[14.6]
151-0317	6.9	[15.2]
151-0318	7.4	[16.3]
151-0319	5.6	[12.3]
151-0330	5.6	[12.3]
151-0331	5.7	[12.6]
151-0332	5.9	[13.0]
151-0333	6.0	[13.2]
151-0334	6.2	[13.7]
151-0335	6.4	[14.1]
151-0336	6.6	[14.6]
151-0337	6.9	[15.2]

Weight of motors

Weight of OMP, OMR and OMH motors (continued)

Code no	Weight	
	kg	[lb]
151-0338	7.4	[16.3]
151-0340	5.5	[12.1]
151-0341	5.5	[12.1]
151-0342	5.6	[12.3]
151-0400	6.7	[14.8]
151-0401	6.9	[15.2]
151-0402	7.0	[15.4]
151-0403	7.2	[15.9]
151-0404	7.5	[16.5]
151-0405	8.0	[17.6]
151-0406	8.5	[18.7]
151-0407	9.0	[19.8]
151-0408	9.5	[20.9]
151-0410	6.7	[14.8]
151-0411	6.9	[15.2]
151-0412	7.0	[15.4]
151-0413	7.2	[15.9]
151-0414	7.5	[16.5]
151-0415	8.0	[17.6]
151-0416	8.5	[18.7]
151-0417	9.0	[19.8]
151-0418	9.5	[20.9]
151-0420	6.7	[14.8]
151-0421	6.9	[15.2]
151-0422	7.0	[15.4]
151-0423	7.2	[15.9]
151-0424	7.5	[16.5]
151-0425	8.0	[17.6]
151-0426	8.5	[18.7]
151-0427	9.0	[19.8]
151-0428	9.5	[20.9]
151-0600	5.6	[12.3]
151-0601	5.7	[12.6]
151-0602	5.9	[13.0]
151-0603	6.0	[13.2]
151-0604	6.2	[13.7]
151-0605	6.4	[14.1]
151-0606	6.6	[14.6]
151-0607	6.9	[15.2]
151-0608	7.4	[16.3]
151-0610	5.6	[12.3]
151-0611	5.7	[12.6]
151-0612	5.9	[13.0]

Weight of motors

Weight of OMP, OMR and OMH motors (continued)

Code no	Weight	
	kg	[lb]
151-0613	6.0	[13.2]
151-0614	6.2	[13.7]
151-0615	6.4	[14.1]
151-0616	6.6	[14.6]
151-0617	6.9	[15.2]
151-0618	7.4	[16.3]
151-0622	5.9	[13.0]
151-0624	6.2	[13.7]
151-0625	6.4	[14.1]
151-0627	6.9	[15.2]
151-0630	5.6	[12.3]
151-0631	5.7	[12.6]
151-0632	5.9	[13.0]
151-0633	6.0	[13.2]
151-0634	6.2	[13.7]
151-0635	6.4	[14.1]
151-0636	6.6	[14.6]
151-0637	6.9	[15.2]
151-0638	7.4	[16.3]
151-0640	5.5	[12.1]
151-0641	5.5	[12.1]
151-0642	5.6	[12.3]
151-0646	5.9	[13.0]
151-0700	6.7	[14.8]
151-0701	6.9	[15.2]
151-0702	7.0	[15.4]
151-0703	7.2	[15.9]
151-0704	7.5	[16.5]
151-0705	8.0	[17.6]
151-0706	8.5	[18.7]
151-0707	9.0	[19.8]
151-0708	9.5	[20.9]
151-0710	6.7	[14.8]
151-0711	6.9	[15.2]
151-0712	7.0	[15.4]
151-0713	7.2	[15.9]
151-0714	7.5	[16.5]
151-0715	8.0	[17.6]
151-0716	8.5	[18.7]
151-0717	9.0	[19.8]
151-0718	9.5	[20.9]
151-0720	6.7	[14.8]
151-0721	6.9	[15.2]

Weight of motors

Weight of OMP, OMR and OMH motors (continued)

Code no	Weight	
	kg	[lb]
151-0722	7.0	[15.4]
151-0723	7.2	[15.9]
151-0724	7.5	[16.5]
151-0725	8.0	[17.6]
151-0726	8.5	[18.7]
151-0727	9.0	[19.8]
151-0728	9.5	[20.9]
151-1208	5.6	[12.3]
151-1209	5.7	[12.6]
151-1210	5.9	[13.0]
151-1211	6.2	[13.7]
151-1212	6.4	[14.1]
151-1213	6.6	[14.6]
151-1214	6.9	[15.2]
151-1215	7.4	[16.3]
151-1217	6.0	[13.2]
151-1231	6.7	[14.8]
151-1232	6.9	[15.2]
151-1233	7.0	[15.4]
151-1234	7.5	[16.5]
151-1235	8.0	[17.6]
151-1236	8.5	[18.7]
151-1237	9.0	[19.8]
151-1238	7.2	[15.9]
151-1243	9.5	[20.9]
151-5001	5.6	[12.3]
151-5002	5.7	[12.6]
151-5003	5.9	[13.0]
151-5004	6.0	[13.2]
151-5005	6.2	[13.7]
151-5006	6.4	[14.1]
151-5007	6.6	[14.6]
151-5008	6.9	[15.2]
151-5009	7.4	[16.3]
151-5010	5.4	[11.9]
151-5174	5.4	[11.9]
151-5191	6.1	[13.4]
151-5192	6.2	[13.7]
151-5193	6.4	[14.1]
151-5194	6.5	[14.3]
151-5195	6.7	[14.8]
151-5196	6.9	[15.2]
151-5197	7.1	[15.7]

Weight of motors

Weight of OMP, OMR and OMH motors (continued)

Code no	Weight	
	kg	[lb]
151-5198	7.4	[16.3]
151-5199	7.9	[17.4]
151-5211	5.5	[12.1]
151-5212	5.6	[12.3]
151-5213	5.8	[12.8]
151-5214	5.9	[13.0]
151-5215	6.1	[13.4]
151-5216	6.3	[13.9]
151-5217	6.5	[14.3]
151-5218	6.8	[15.0]
151-5219	7.3	[16.1]
151-5301	5.5	[12.1]
151-5302	5.6	[12.3]
151-5303	5.8	[12.8]
151-5304	5.9	[13.0]
151-5305	6.1	[13.4]
151-5306	6.3	[13.9]
151-5307	6.5	[14.3]
151-5308	6.8	[15.0]
151-5309	7.3	[16.1]
151-5311	5.6	[12.3]
151-5312	5.7	[12.6]
151-5313	5.9	[13.0]
151-5315	6.2	[13.7]
151-5316	6.4	[14.1]
151-5318	6.9	[15.2]
151-6000	6.7	[14.8]
151-6001	6.9	[15.2]
151-6002	7.0	[15.4]
151-6003	7.2	[15.9]
151-6004	7.5	[16.5]
151-6005	8.0	[17.6]
151-6006	8.5	[18.7]
151-6007	9.0	[19.8]
151-6008	9.5	[20.9]
151-6010	6.7	[14.8]
151-6011	6.9	[15.2]
151-6012	7.0	[15.4]
151-6013	7.2	[15.9]
151-6014	7.5	[16.5]
151-6015	8.0	[17.6]
151-6016	8.5	[18.7]
151-6017	9.0	[19.8]

Weight of motors

Weight of OMP, OMR and OMH motors (continued)

Code no	Weight	
	kg	[lb]
151-6018	9.5	[20.9]
151-6110	6.7	[14.8]
151-6111	6.9	[15.2]
151-6112	7.0	[15.4]
151-6113	7.2	[15.9]
151-6114	7.5	[16.5]
151-6115	8.0	[17.6]
151-6116	8.5	[18.7]
151-6117	9.0	[19.8]
151-6118	9.5	[20.9]
151-6190	7.3	[16.1]
151-6191	7.5	[16.5]
151-6192	7.6	[16.8]
151-6193	7.8	[17.2]
151-6194	8.1	[17.9]
151-6195	8.6	[19.0]
151-6196	9.1	[20.1]
151-6197	9.6	[21.2]
151-6198	10.1	[22.3]
151-6210	6.7	[14.8]
151-6211	6.9	[15.2]
151-6212	7.0	[15.4]
151-6213	7.2	[15.9]
151-6214	7.5	[16.5]
151-6215	8.0	[17.6]
151-6216	8.5	[18.7]
151-6217	9.0	[19.8]
151-6218	9.5	[20.9]
151-6294	9.5	[20.9]
151-6295	7.2	[15.9]
151-6296	9.5	[20.9]
151-6300	9.0	[19.8]
151-6301	9.4	[20.7]
151-6302	9.5	[20.9]
151-6303	9.7	[21.4]
151-6304	10.0	[22.1]
151-6305	10.5	[23.1]
151-6306	11.0	[24.3]
151-6307	11.5	[25.4]
151-6308	12.0	[26.5]
151-6380	6.7	[14.8]
151-6381	6.9	[15.2]
151-6383	7.2	[15.9]

Weight of motors

Weight of OMP, OMR and OMH motors (continued)

Code no	Weight	
	kg	[lb]
151-6384	7.5	[16.5]
151-6385	8.0	[17.6]
151-6386	8.5	[18.7]
151-6387	9.0	[19.8]
151-6388	9.5	[20.9]
151-6430	9.0	[19.8]
151-6431	9.4	[20.7]
151-6432	9.5	[20.9]
151-6433	9.7	[21.4]
151-6434	10.0	[22.1]
151-6435	10.5	[23.1]
151-6436	11.0	[24.3]
151-6437	11.5	[25.4]
151-6438	12.0	[26.5]
151-6442	14.5	[32.0]
151-6443	14.7	[32.4]
151-6444	15.0	[33.1]
151-6445	15.5	[34.2]
151-6461	11.5	[25.4]
151-6462	12.0	[26.5]
151-6463	12.0	[26.5]
151-6464	12.5	[27.6]
151-6465	12.5	[27.6]
151-6466	13.0	[28.7]
151-6467	13.5	[29.8]
151-6468	14.0	[30.9]
151-6471	11.5	[25.4]
151-6472	12.0	[26.5]
151-6473	12.0	[26.5]
151-6474	12.5	[27.6]
151-6475	12.5	[27.6]
151-6476	13.0	[28.7]
151-6477	13.5	[29.8]
151-6478	14.0	[30.9]
151-7021	5.0	[11.0]
151-7022	5.1	[11.2]
151-7023	5.3	[11.7]
151-7024	5.4	[11.9]
151-7025	5.6	[12.3]
151-7026	5.8	[12.8]
151-7027	6.0	[13.2]
151-7028	6.3	[13.9]
151-7029	6.8	[15.0]

Weight of motors

Weight of OMP, OMR and OMH motors (continued)

Code no	Weight	
	kg	[lb]
151-7041	5.6	[12.3]
151-7042	5.7	[12.6]
151-7043	5.9	[13.0]
151-7044	5.4	[11.9]
151-7045	6.2	[13.7]
151-7046	6.4	[14.1]
151-7047	6.6	[14.6]
151-7048	6.9	[15.2]
151-7049	7.4	[16.3]
151-7061	5.0	[11.0]
151-7062	5.1	[11.2]
151-7063	5.3	[11.7]
151-7065	5.6	[12.3]
151-7066	5.8	[12.8]
151-7067	6.0	[13.2]
151-7068	6.3	[13.9]
151-7069	6.8	[15.0]
151-7080	5.4	[12.0]
151-7081	5.4	[12.0]
151-7082	5.6	[12.3]
151-7101	5.5	[12.1]
151-7102	5.6	[12.3]
151-7103	5.8	[12.8]
151-7104	5.9	[13.0]
151-7105	6.1	[13.4]
151-7106	6.3	[13.9]
151-7107	6.5	[14.3]
151-7108	6.8	[15.0]
151-7109	7.3	[16.1]
151-7240	6.7	[14.8]
151-7241	6.9	[15.2]
151-7242	7.0	[15.4]
151-7243	7.2	[15.9]
151-7244	7.5	[16.5]
151-7245	8.0	[17.6]
151-7246	8.5	[18.7]
151-7247	9.0	[19.8]
151-7248	9.5	[20.9]
151-7250	6.7	[14.8]
151-7251	6.9	[15.2]
151-7252	7.0	[15.4]
151-7253	7.2	[15.9]
151-7254	7.5	[16.5]

Weight of motors

Weight of OMP, OMR and OMH motors (continued)

Code no	Weight	
	kg	[lb]
151-7255	8.0	[17.6]
151-7256	8.5	[18.7]
151-7257	9.0	[19.8]
151-7258	9.5	[20.9]
151-7260	6.1	[13.4]
151-7261	6.3	[13.9]
151-7262	6.4	[14.1]
151-7263	6.6	[14.6]
151-7264	6.9	[15.2]
151-7265	7.4	[16.3]
151-7266	7.9	[17.4]
151-7267	8.4	[18.5]
151-7269	8.9	[19.6]
151H1002	10.5	[23.1]
151H1003	11.0	[24.3]
151H1004	11.5	[25.4]
151H1005	12.3	[27.1]
151H1006	13.0	[28.7]
151H1012	10.5	[23.1]
151H1013	11.0	[24.3]
151H1014	11.5	[25.4]
151H1015	12.3	[27.1]
151H1016	13.0	[28.7]
151H1022	10.5	[23.1]
151H1023	11.0	[24.3]
151H1024	11.5	[25.4]
151H1025	12.3	[27.1]
151H1026	13.0	[28.7]
151H1034	11.5	[25.4]
151H1035	12.3	[27.1]
151H1036	13.0	[28.7]
151H1042	10.5	[23.1]
151H1043	11.0	[24.3]
151H1044	11.5	[25.4]
151H1045	12.3	[27.1]
151H1046	13.0	[28.7]
151H1052	10.5	[23.1]
151H1053	11.0	[24.3]
151H1054	11.5	[25.4]
151H1055	12.3	[27.1]
151H1056	13.0	[28.7]
151H1080	10.5	[23.1]
151H1081	13.0	[28.7]

Weight of motors

Weight of OMP, OMR and OMH motors (continued)

Code no	Weight	
	kg	[lb]
151H1082	11.0	[24.3]
151H1083	11.5	[25.4]
151H1084	12.3	[27.1]

ENGINEERING
TOMORROW

Products we offer:

- Bent Axis Motors
- Closed Circuit Axial Piston Pumps and Motors
- Displays
- Electrohydraulic Power Steering
- Electrohydraulics
- Hydraulic Power Steering
- Integrated Systems
- Joysticks and Control Handles
- Microcontrollers and Software
- Open Circuit Axial Piston Pumps
- Orbital Motors
- PLUS+1® GUIDE
- Proportional Valves
- Sensors
- Steering
- Transit Mixer Drives

Danfoss Power Solutions is a global manufacturer and supplier of high-quality hydraulic and electronic components. We specialize in providing state-of-the-art technology and solutions that excel in the harsh operating conditions of the mobile off-highway market. Building on our extensive applications expertise, we work closely with our customers to ensure exceptional performance for a broad range of off-highway vehicles.

We help OEMs around the world speed up system development, reduce costs and bring vehicles to market faster.

Danfoss – Your Strongest Partner in Mobile Hydraulics.

Go to www.powersolutions.danfoss.com for further product information.

Wherever off-highway vehicles are at work, so is Danfoss. We offer expert worldwide support for our customers, ensuring the best possible solutions for outstanding performance. And with an extensive network of Global Service Partners, we also provide comprehensive global service for all of our components.

Please contact the Danfoss Power Solution representative nearest you.

Comatrol
www.comatrol.com

Schwarzmüller-Inverter
www.schwarzmueller-inverter.com

Turolla
www.turollaocg.com

Hydro-Gear
www.hydro-gear.com

Daikin-Sauer-Danfoss
www.daikin-sauer-danfoss.com

Local address:

Danfoss
Power Solutions (US) Company
2800 East 13th Street
Ames, IA 50010, USA
Phone: +1 515 239 6000

Danfoss
Power Solutions GmbH & Co. OHG
Krokamp 35
D-24539 Neumünster, Germany
Phone: +49 4321 871 0

Danfoss
Power Solutions ApS
Nordborgvej 81
DK-6430 Nordborg, Denmark
Phone: +45 7488 2222

Danfoss
Power Solutions Trading (Shanghai) Co., Ltd.
Building #22, No. 1000 Jin Hai Rd
Jin Qiao, Pudong New District
Shanghai, China 201206
Phone: +86 21 3418 5200

MAKING MODERN LIVING POSSIBLE

Technical Information

Orbital Motors

OMS, OMT and OMV

powersolutions.danfoss.com

Revision history

Table of revisions

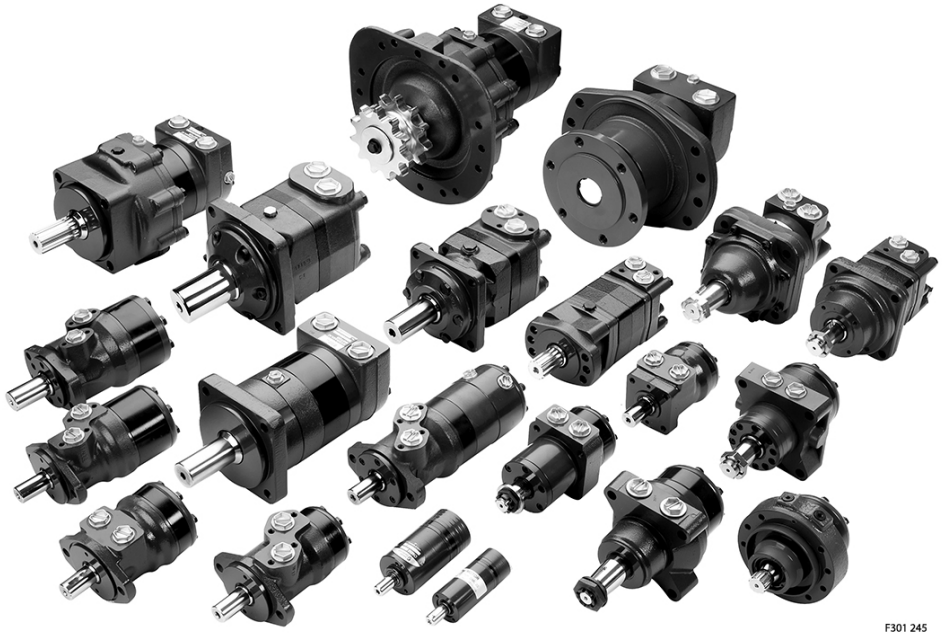
Date	Changed	Rev
February 2016	Corrected Hardening specification for OMSS, OMTS, OMVS	0601
November 2014	Converted to Danfoss layout - DITA CMS	FA
December 2013	Table updated	EL
June 2013	Drawing corrected	EK
April 2013	Drawing corrected	EJ
January 2013	Correct drawing	EI
November 2012	Planetary Gears deleted	EH
July 2012	Typo in 'Major dia'	EG
November 2010	Dimensions changed	EF
November 2009	conversions, and layout adjusted	ED

Contents

Contents

Orbital motors

Characteristic, features and application areas of Orbital Motors



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 cm^3 [0.50 in^3] to 800 cm^3 [48.9 in^3] 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

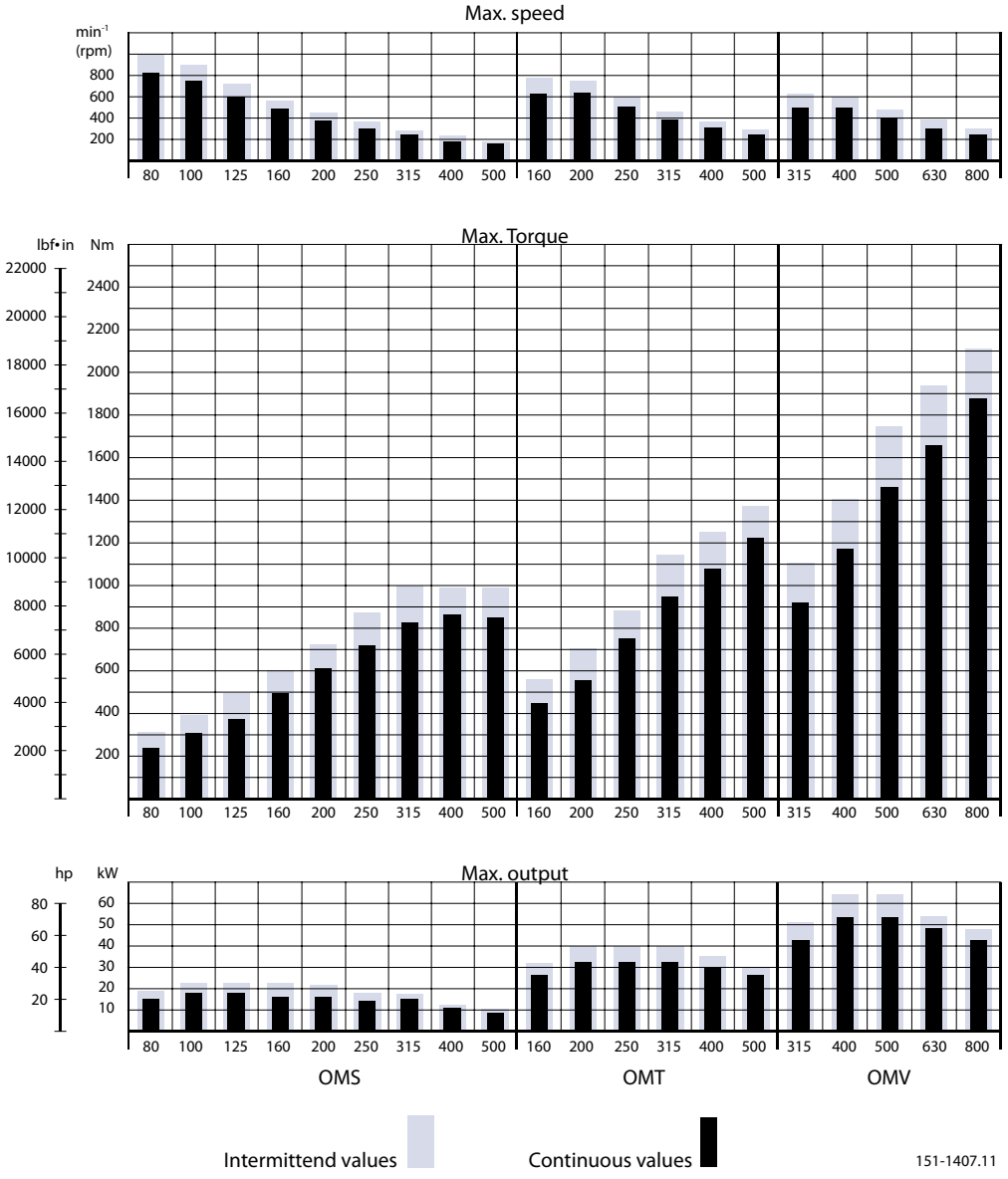
Detailed data on all Danfoss Orbital Motors can be found in our motor catalogue, which is divided into more individual subcatalogues:

- 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, OMT and OMV

Speed, torque and output



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 *Function diagrams* on page 18
- OMT *Function diagrams* on page 54

OMS, OMT and OMV

- OMV *Function diagrams* on page 81

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 mm^2/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

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 [cm³]								
	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.

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]
		peak2)	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]	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.

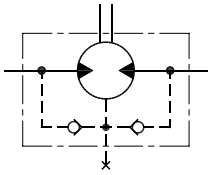
For max. permissible combination of flow and pressure, see function diagram for actual motor.

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.

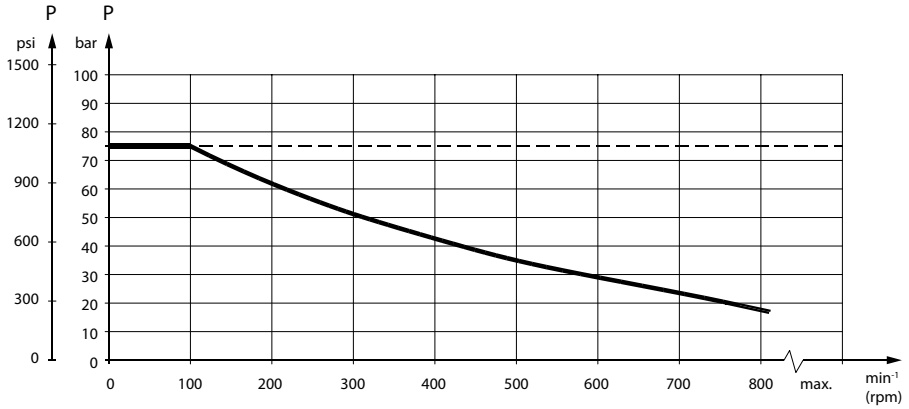


151-320.10

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



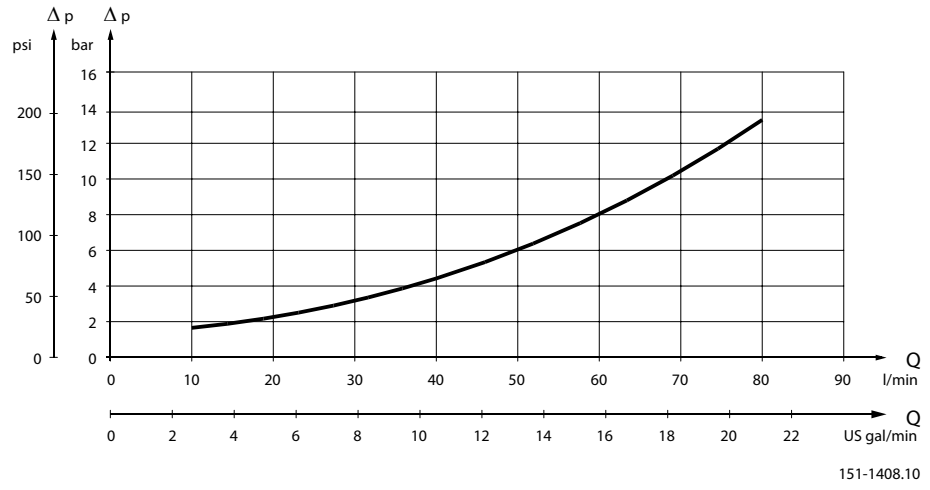
151-1674.10

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

——— Continuous operation

OMS

Pressure drop in motor



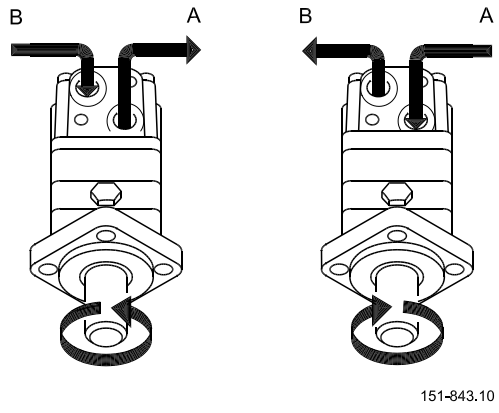
The curve applies to an unloaded motor shaft and an oil viscosity of 35 mm^2/s [165 SUS]

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



Permissible shaft loads for OMS

Mounting flange:

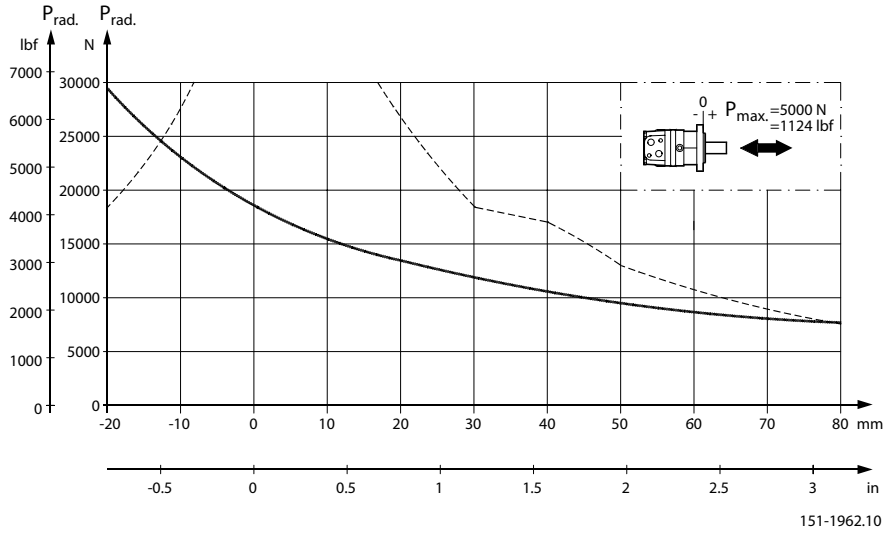
Standard – A-2 – Magneto – SAE B

OMS

Shaft:

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

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

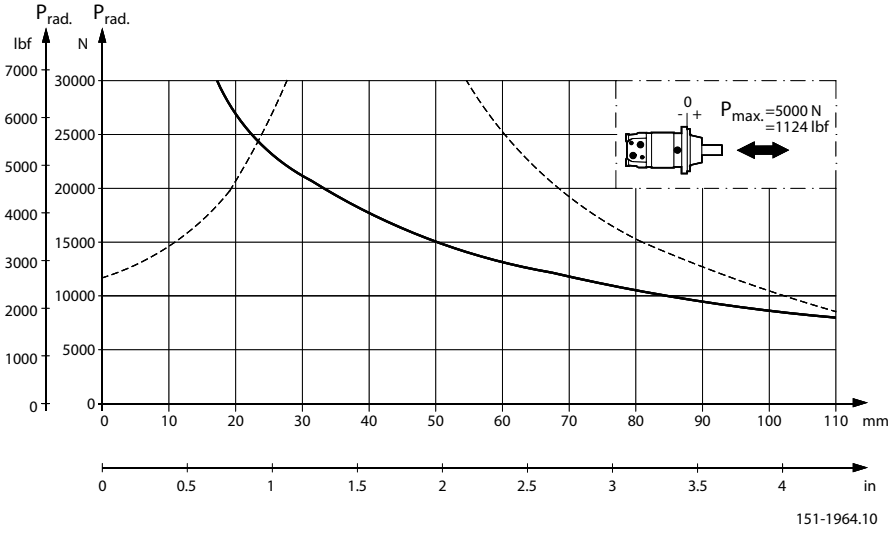


Mounting flange:

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.

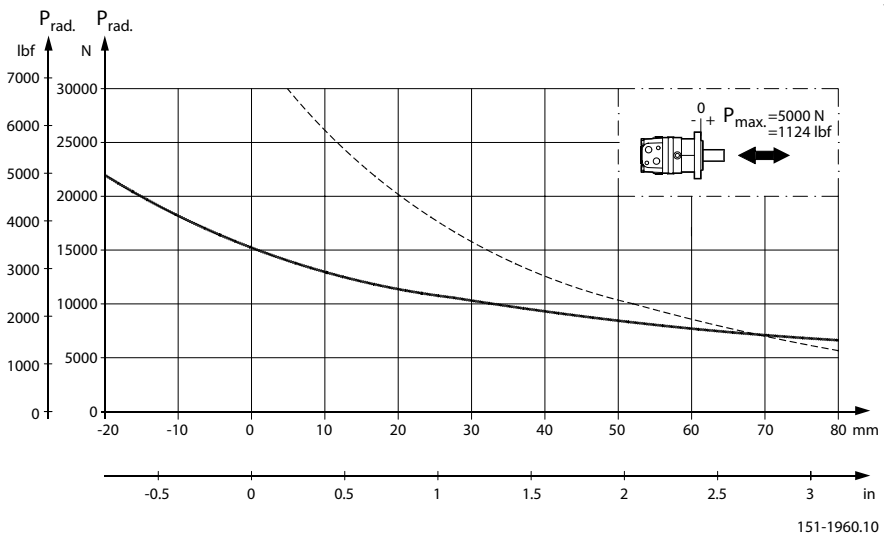
Bearing life calculations can be made using the explanation and formula provided in the chapter "Bearing dimensioning" in the technical information "General Orbital motors" 520L0232.

Mounting flange:

Special

Shaft:

Splined 1.25 in



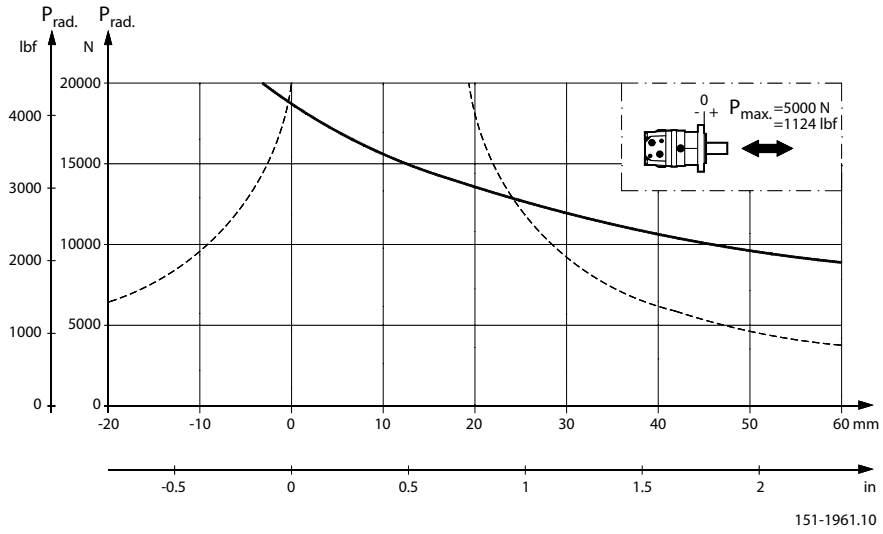
Mounting flange:

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.

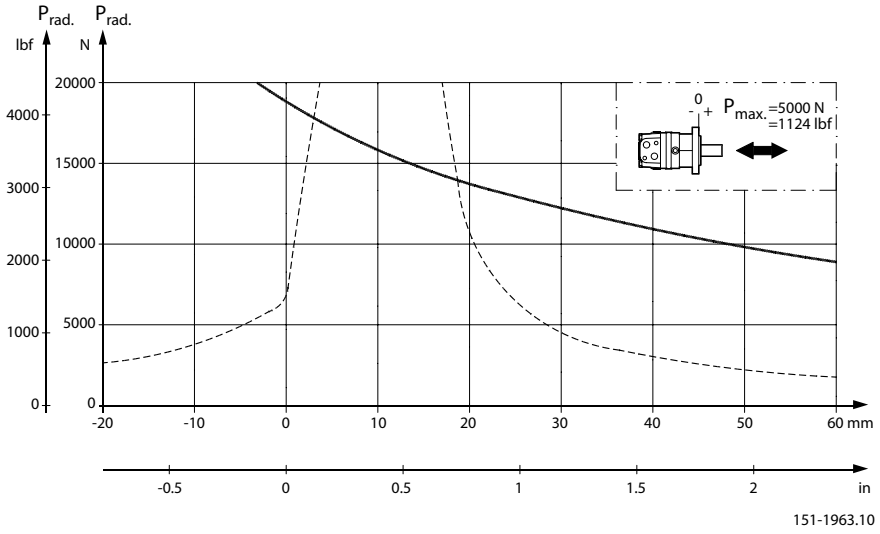
Mounting flange:

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.

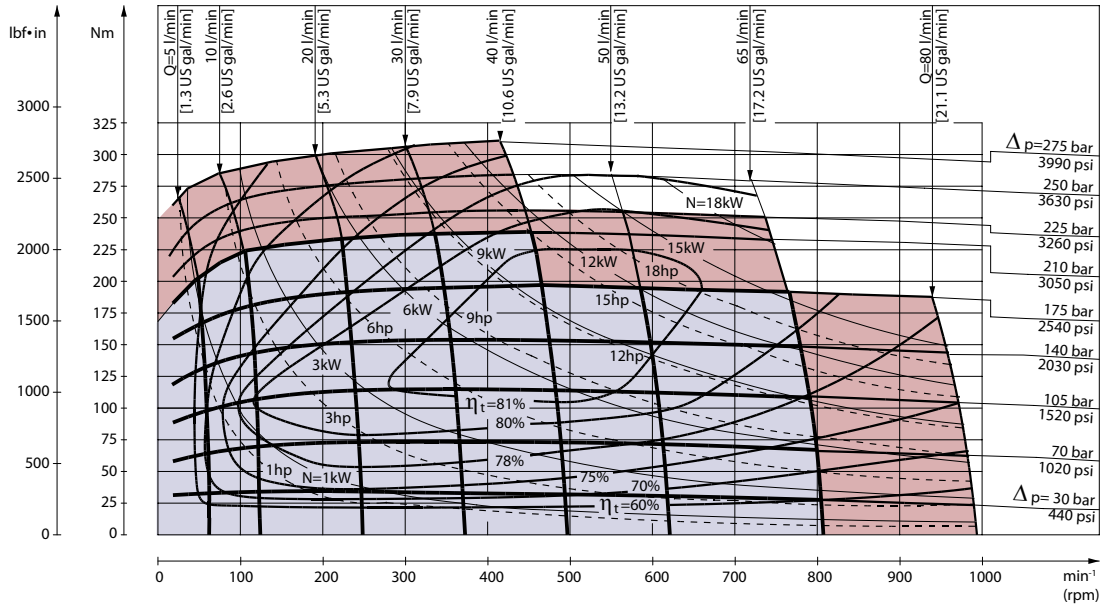
OMS

Function diagrams

Continuous range

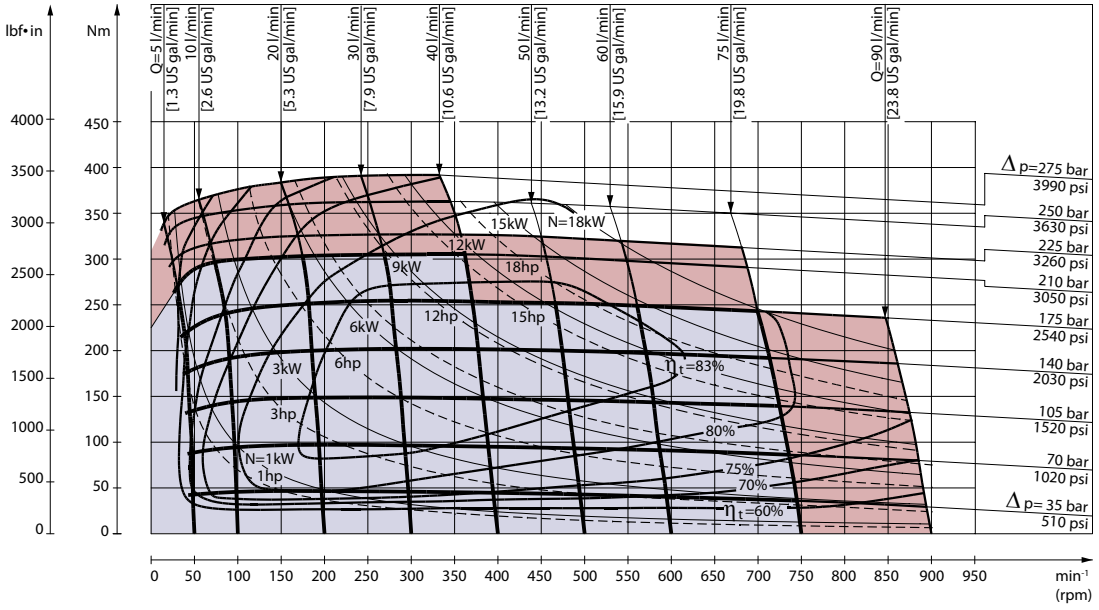
Intermittent range (maximum 10% operation every minute)

OMS 80



151-901.10

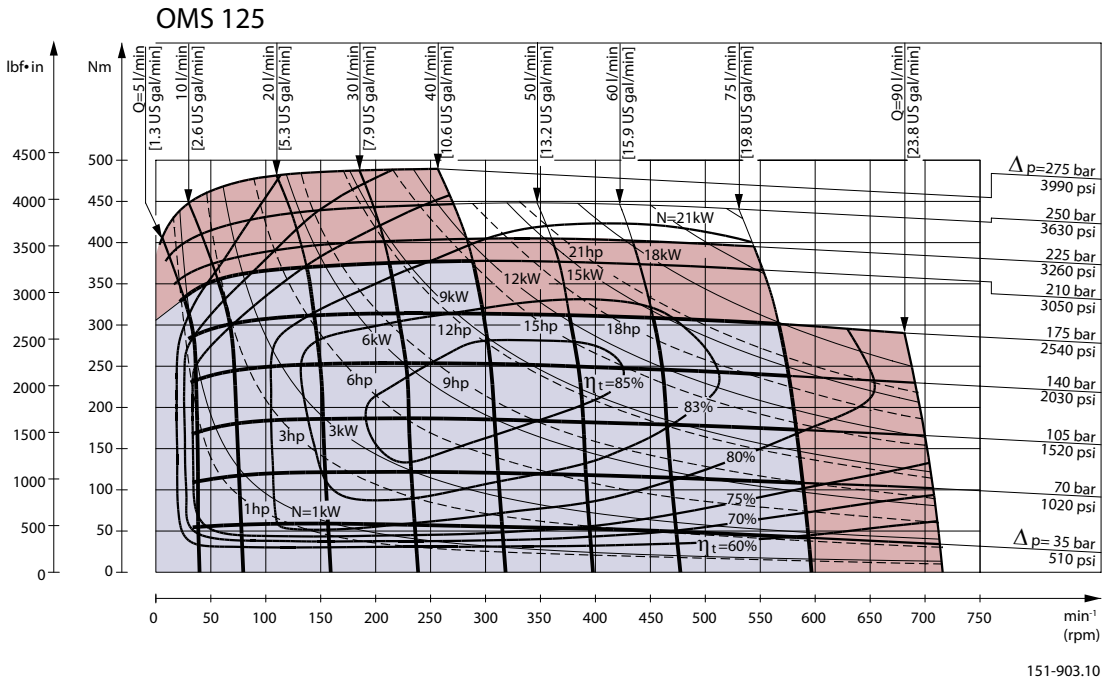
OMS 100

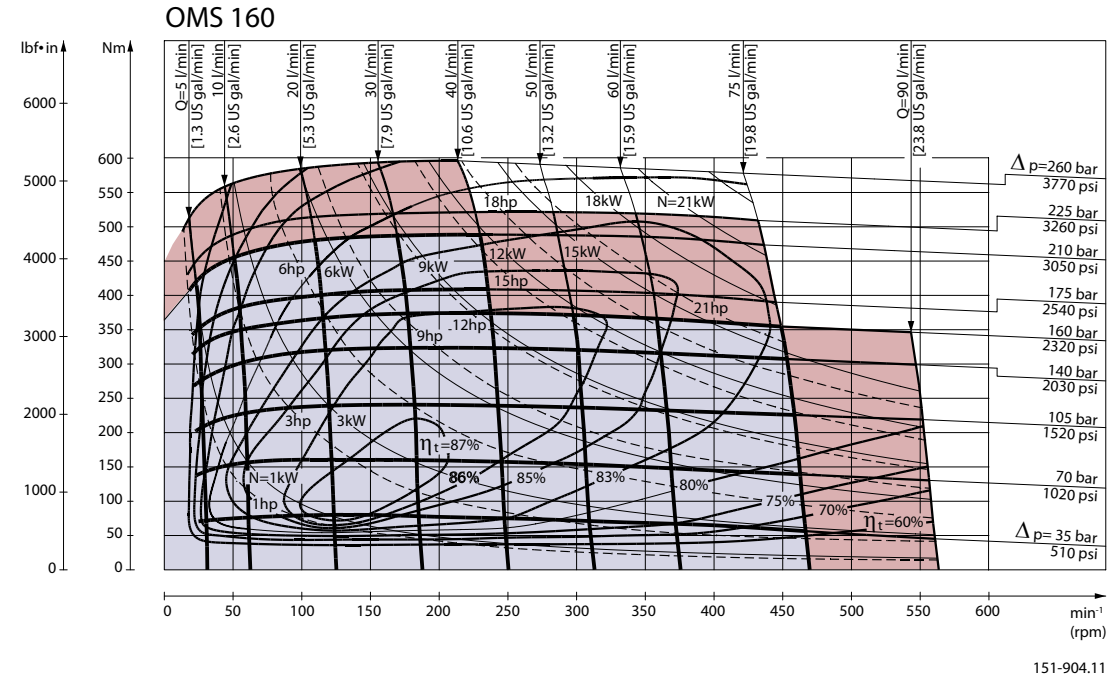


151-902.10

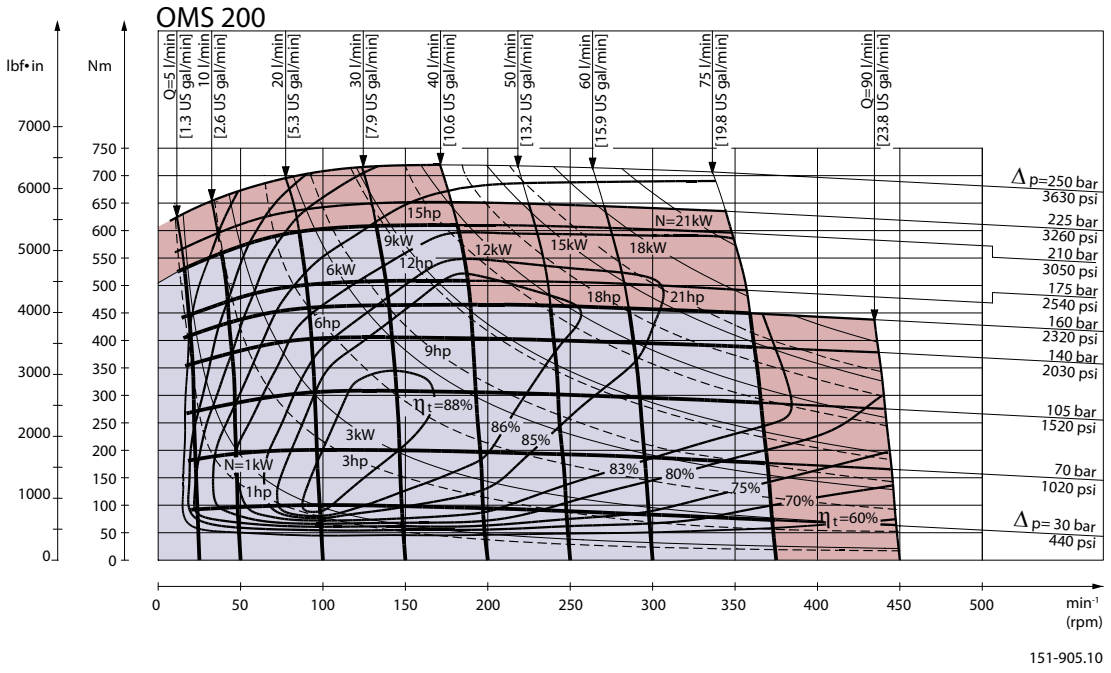
9hp

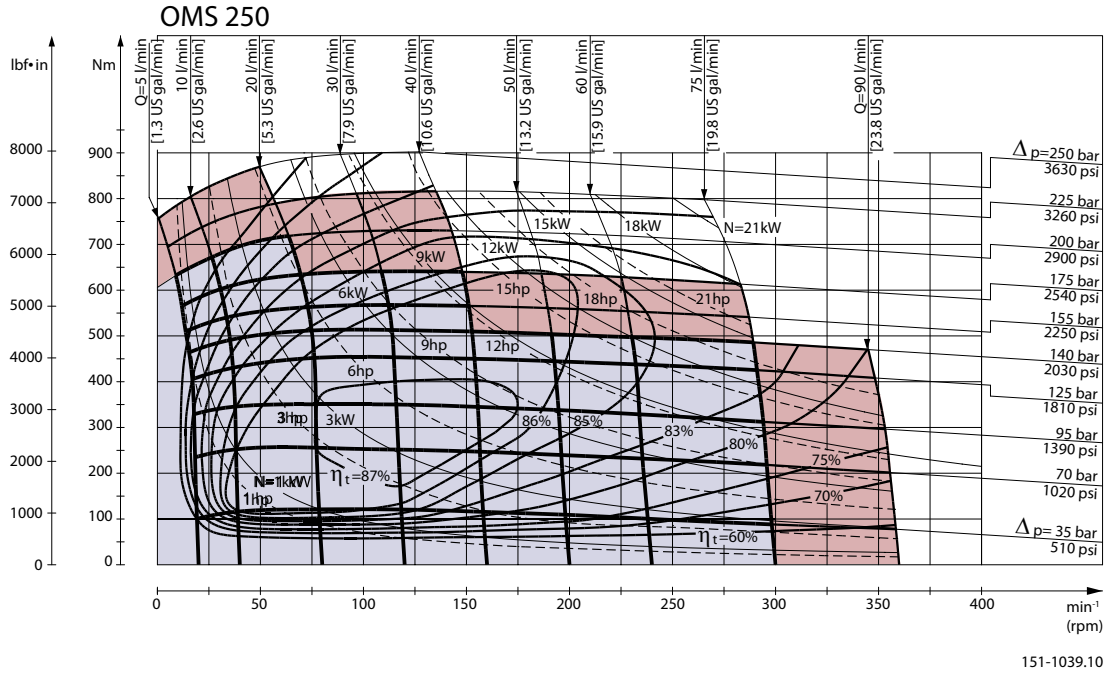
OMS


OMS 125
lbf•in
Nm
Q=5 l/min [1.3 US gal/min]
10 l/min [2.6 US gal/min]
20 l/min [5.3 US gal/min]
30 l/min [7.9 US gal/min]
40 l/min [10.6 US gal/min]
50 l/min [13.2 US gal/min]
60 l/min [15.9 US gal/min]
75 l/min [19.8 US gal/min]
Q=90 l/min [23.8 US gal/min]
Δp=275 bar 3990 psi
250 bar 3630 psi
225 bar 3260 psi
210 bar 3050 psi
175 bar 2540 psi
140 bar 2030 psi
105 bar 1520 psi
70 bar 1020 psi
Δp= 35 bar 510 psi
N=21kW
21hp
18kW
12kW
15kW
9kW
12hp
15hp
18hp
6kW
6hp
9hp
ηt=85%
83%
3hp
3kW
80%
1hp
N=1kW
75%
70%
ηt=60%
min-1 (rpm)
151-903.10

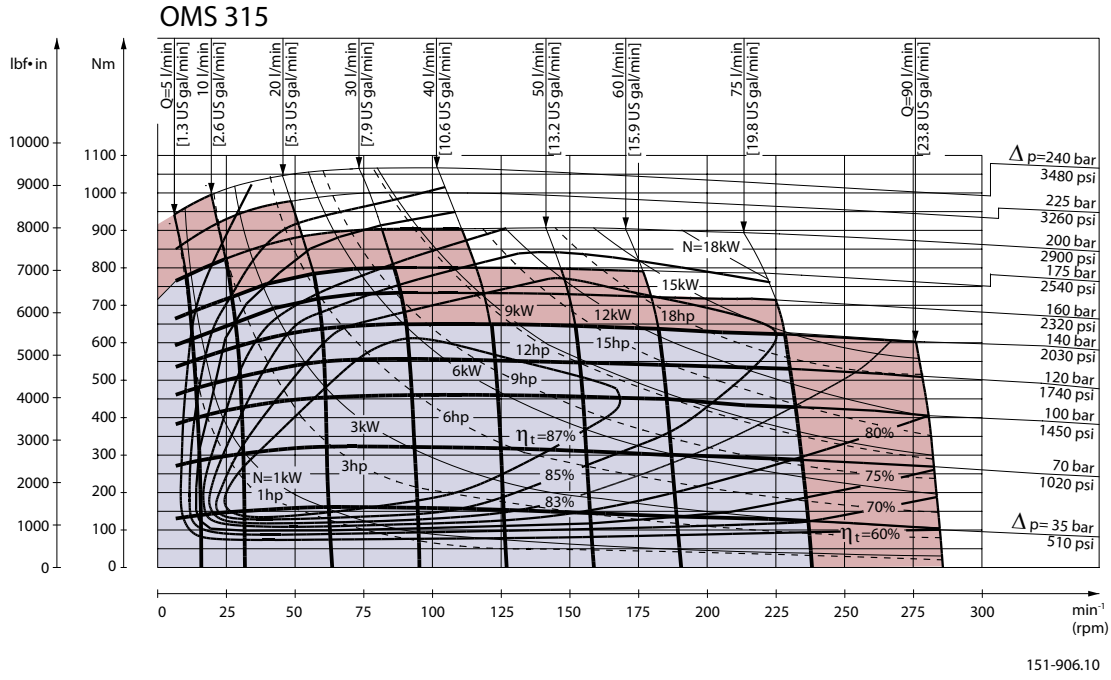

OMS 160
lbf•in
Nm
Q=5 l/min [1.3 US gal/min]
10 l/min [2.6 US gal/min]
20 l/min [5.3 US gal/min]
30 l/min [7.9 US gal/min]
40 l/min [10.6 US gal/min]
50 l/min [13.2 US gal/min]
60 l/min [15.9 US gal/min]
75 l/min [19.8 US gal/min]
Q=90 l/min [23.8 US gal/min]
Δp=260 bar 3770 psi
225 bar 3260 psi
210 bar 3050 psi
175 bar 2540 psi
160 bar 2320 psi
140 bar 2030 psi
105 bar 1520 psi
70 bar 1020 psi
Δp= 35 bar 510 psi
18hp
18kW
N=21kW
12kW
15kW
6hp
6kW
9kW
15hp
21hp
12hp
9hp
3hp
3kW
ηt=87%
86%
85%
83%
80%
N=1kW
1hp
75%
70%
ηt=60%
min-1 (rpm)
151-904.11

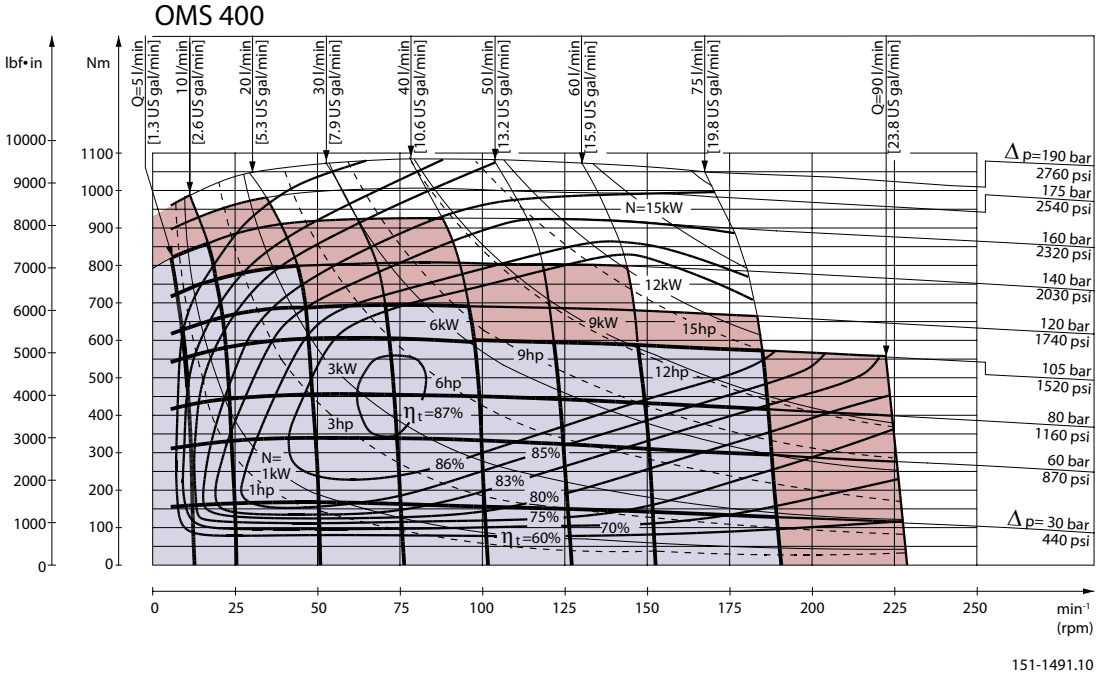
OMS


OMS 200
lbf•in
Nm
Q=5 l/min [1.3 US gal/min]
10 l/min [2.6 US gal/min]
20 l/min [5.3 US gal/min]
30 l/min [7.9 US gal/min]
40 l/min [10.6 US gal/min]
50 l/min [13.2 US gal/min]
60 l/min [15.9 US gal/min]
75 l/min [19.8 US gal/min]
Q=90 l/min [23.8 US gal/min]
Δ p=250 bar 3630 psi
225 bar 3260 psi
210 bar 3050 psi
175 bar 2540 psi
160 bar 2320 psi
140 bar 2030 psi
105 bar 1520 psi
70 bar 1020 psi
Δ p= 30 bar 440 psi
N=21kW
N=1kW
15hp
9kW
12kW
15kW
18kW
6kW
12hp
18hp
21hp
6hp
9hp
3kW
3hp
1hp
ηt=88%
86%
85%
83%
80%
75%
70%
ηt=60%
min-1 (rpm)
151-905.10

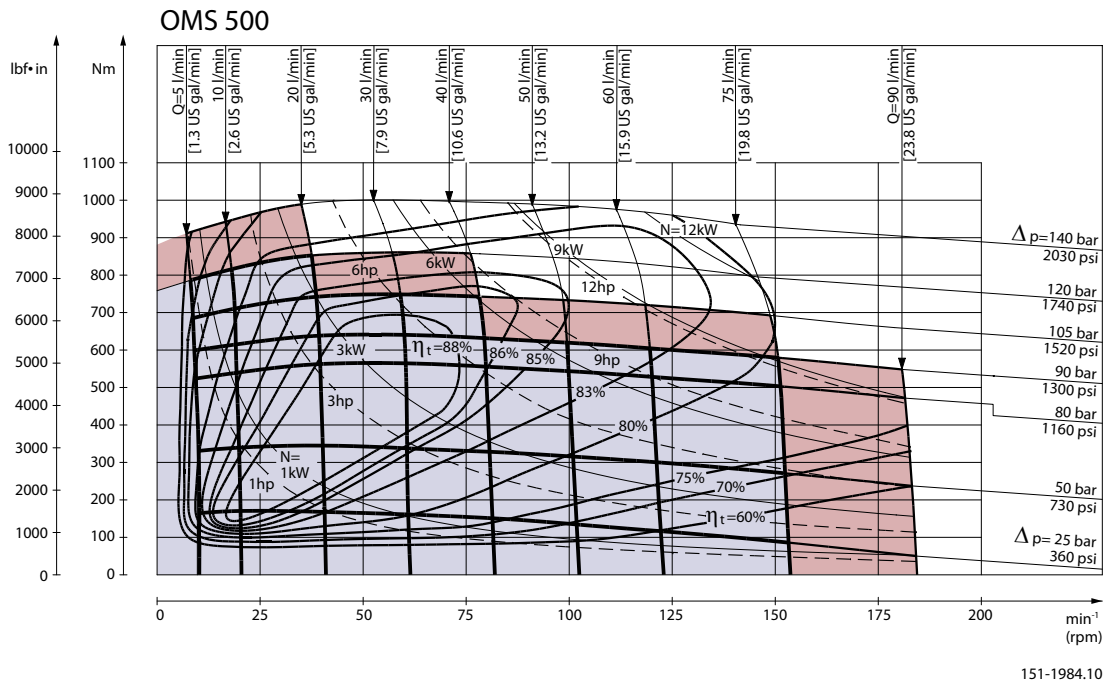

OMS 250
lbf•in
Nm
Q=5 l/min [1.3 US gal/min]
10 l/min [2.6 US gal/min]
20 l/min [5.3 US gal/min]
30 l/min [7.9 US gal/min]
40 l/min [10.6 US gal/min]
50 l/min [13.2 US gal/min]
60 l/min [15.9 US gal/min]
75 l/min [19.8 US gal/min]
Q=90 l/min [23.8 US gal/min]
Δ p=250 bar 3630 psi
225 bar 3260 psi
200 bar 2900 psi
175 bar 2540 psi
155 bar 2250 psi
140 bar 2030 psi
125 bar 1810 psi
95 bar 1390 psi
70 bar 1020 psi
Δ p= 35 bar 510 psi
N=21kW
15kW
18kW
12kW
9kW
6kW
15hp
18hp
21hp
9hp
12hp
6hp
3hp
3kW
N=1kW
1hp
ηt=87%
86%
85%
83%
80%
75%
70%
ηt=60%
min-1 (rpm)
151-1039.10

OMS


OMS 315
lbf•in
Nm
Q=5 l/min [1.3 US gal/min]
10 l/min [2.6 US gal/min]
20 l/min [5.3 US gal/min]
30 l/min [7.9 US gal/min]
40 l/min [10.6 US gal/min]
50 l/min [13.2 US gal/min]
60 l/min [15.9 US gal/min]
75 l/min [19.8 US gal/min]
Q=90 l/min [23.8 US gal/min]
Δ p=240 bar 3480 psi
225 bar 3260 psi
200 bar 2900 psi
175 bar 2540 psi
160 bar 2320 psi
140 bar 2030 psi
120 bar 1740 psi
100 bar 1450 psi
70 bar 1020 psi
Δ p= 35 bar 510 psi
N=18kW
15kW
12kW
9kW
6kW
3kW
N=1kW
18hp
15hp
12hp
9hp
6hp
3hp
1hp
ηt=87%
85%
83%
80%
75%
70%
ηt=60%
min-1 (rpm)
151-906.10


OMS 400
lbf•in
Nm
Q=5 l/min [1.3 US gal/min]
10 l/min [2.6 US gal/min]
20 l/min [5.3 US gal/min]
30 l/min [7.9 US gal/min]
40 l/min [10.6 US gal/min]
50 l/min [13.2 US gal/min]
60 l/min [15.9 US gal/min]
75 l/min [19.8 US gal/min]
Q=90 l/min [23.8 US gal/min]
Δ p=190 bar 2760 psi
175 bar 2540 psi
160 bar 2320 psi
140 bar 2030 psi
120 bar 1740 psi
105 bar 1520 psi
80 bar 1160 psi
60 bar 870 psi
Δ p= 30 bar 440 psi
N=15kW
12kW
9kW
6kW
3kW
N= 1kW 1hp
15hp
12hp
9hp
6hp
3hp
ηt=87%
86%
85%
83%
80%
75%
70%
ηt=60%
min-1 (rpm)
151-1491.10

OMS



Function diagram use

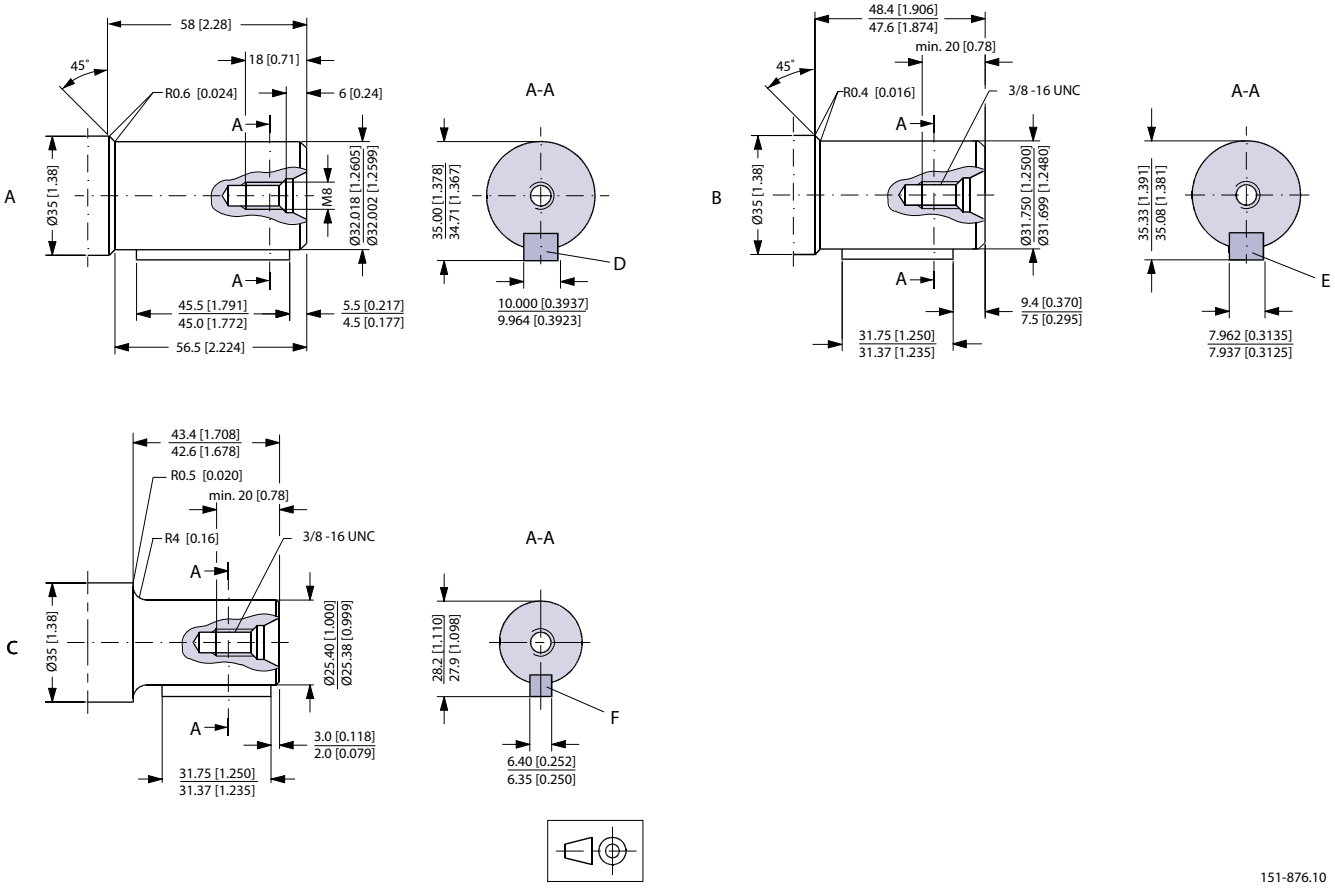
Explanation of function diagram use, basis and conditions, see *Speed, torque and output* on page 7.

Maximum permissible continuous/intermittent torque for the actual shaft version, see *Technical data* on page 11.

Intermittent pressure drop and oil flow must not occur simultaneously.

OMS

Shaft version



A Cylindrical 32 mm shaft

D Parallel key
A10 × 8 × 45
DIN 6885
Keyway deviates from standard

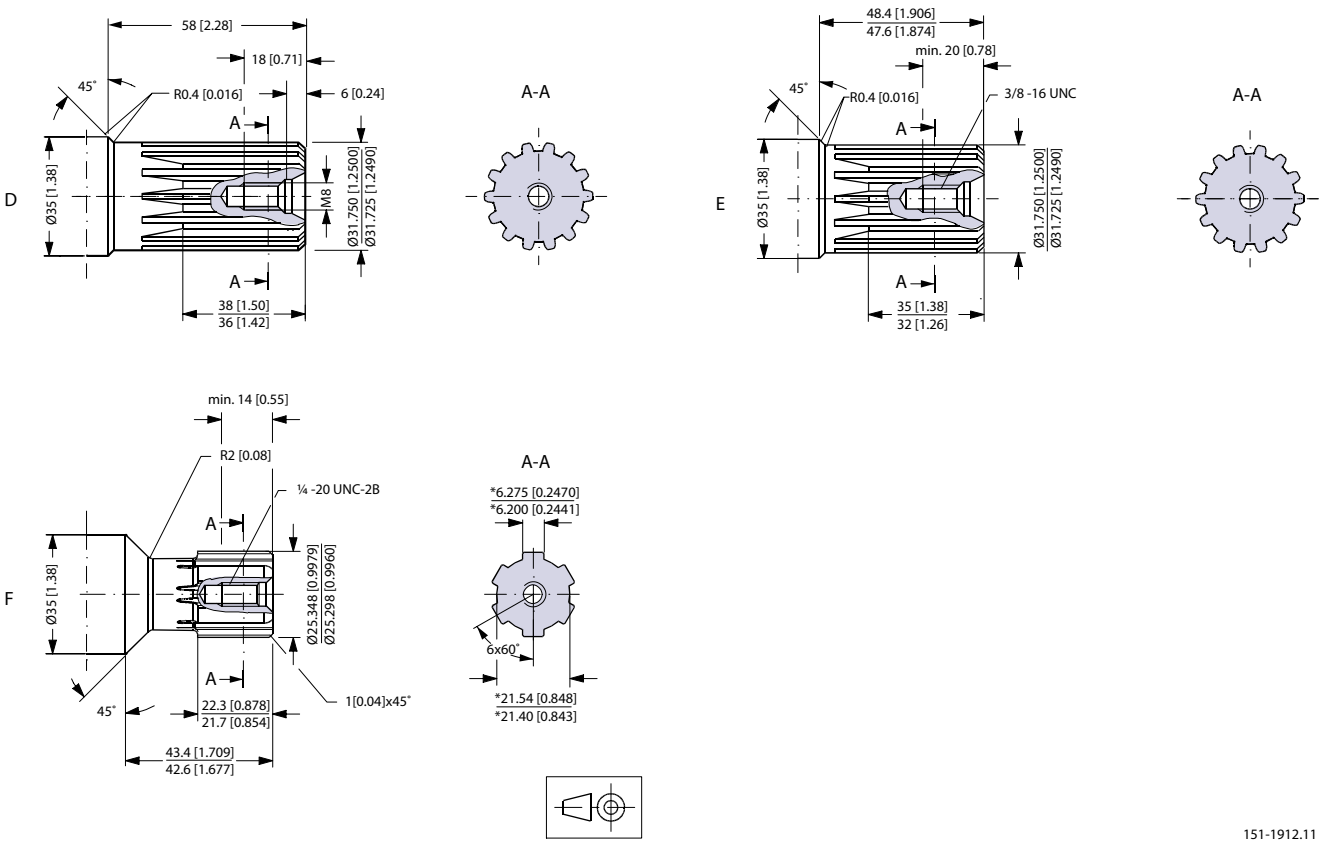
B Cylindrical 1.25 in shaft

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

OMS

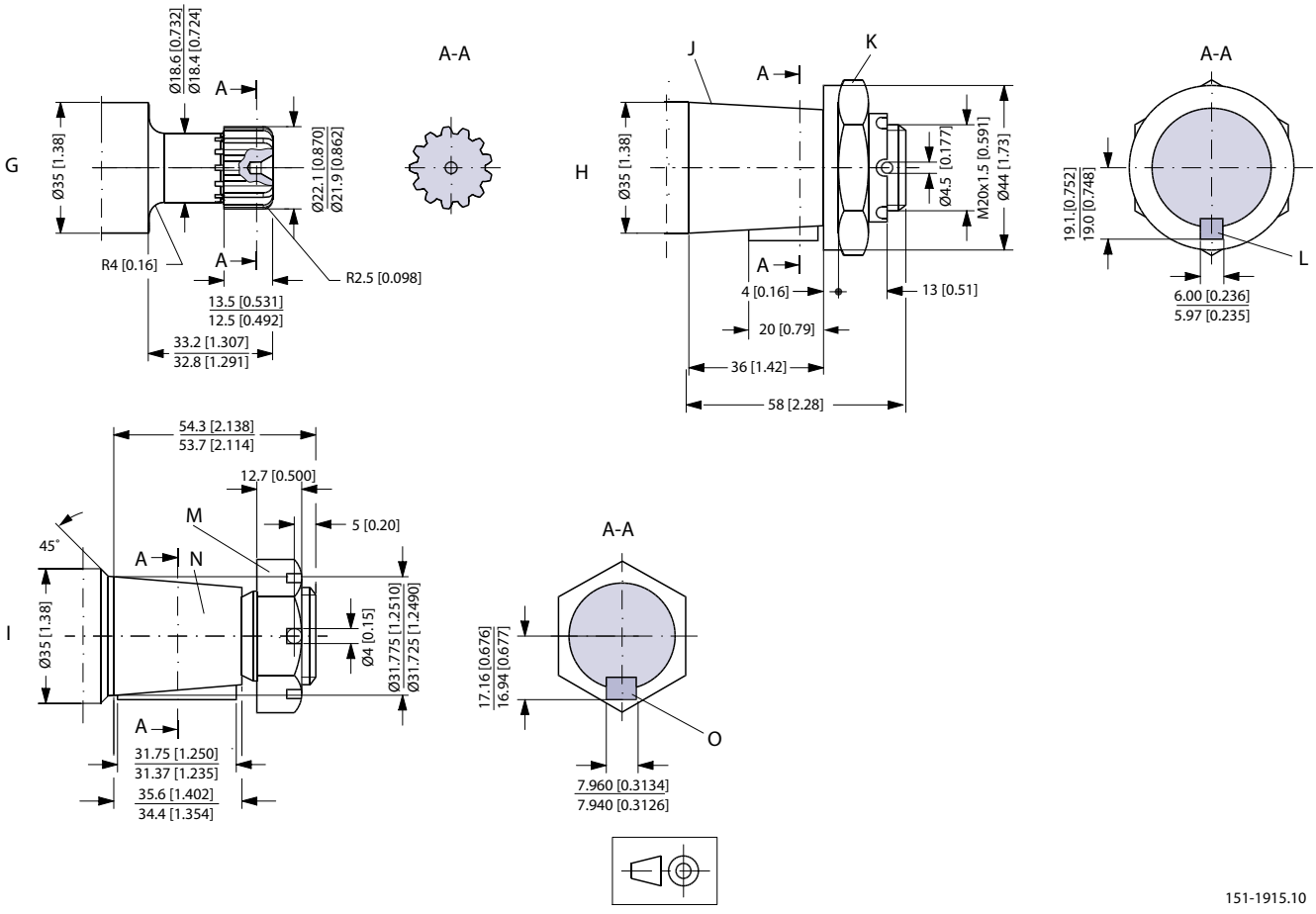


D Involute splined shaft
ANS B92.1 - 1970 standard
Flat root side fit
Pitch 12/24
Teeth 14
Major diameter 1.25 in
Pressure angle 30°

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

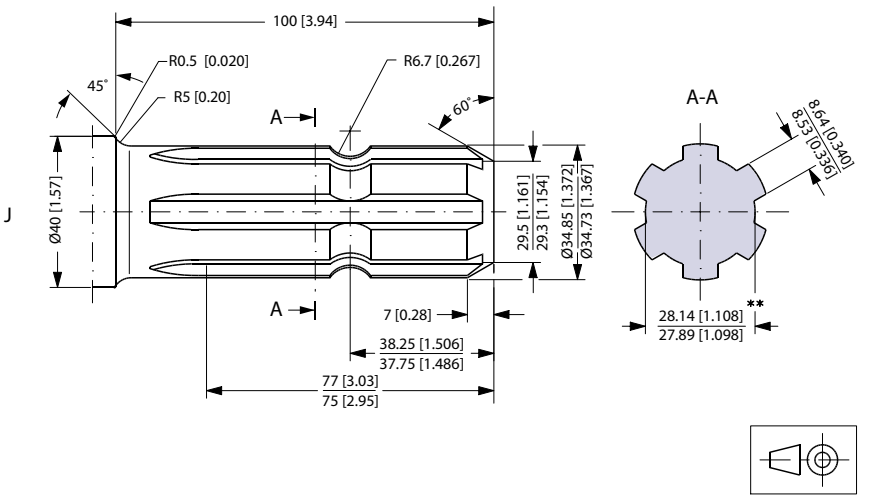
I Tapered 1 1/4 in shaft

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

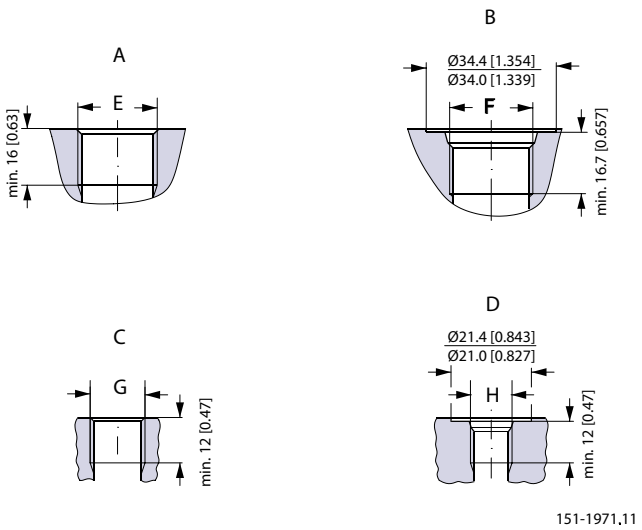
OMS



151-1948.10

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

Port thread versions



151-1971.11

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

B UNF main ports
F 7/8 - 14 UNF

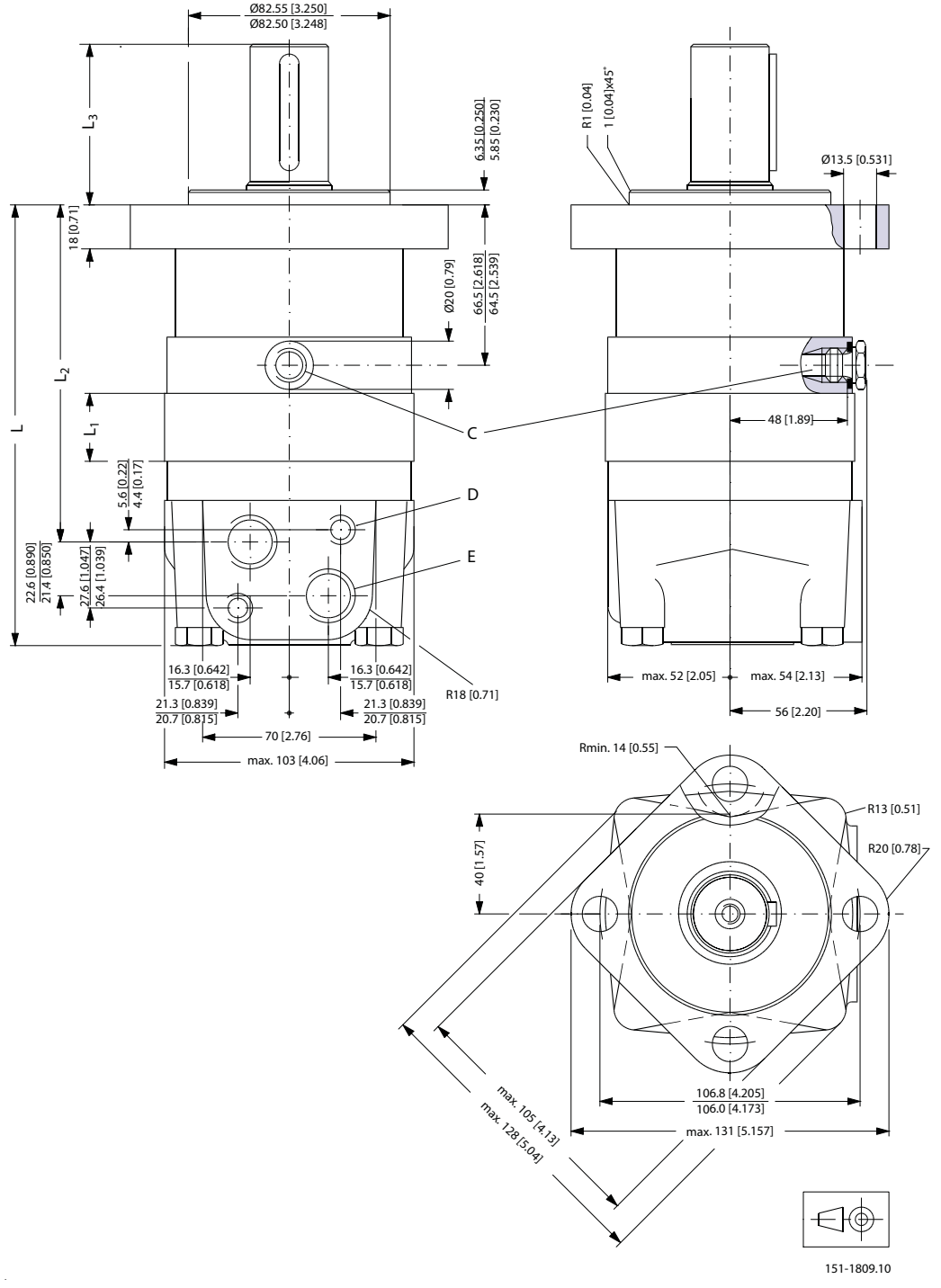
C G drain port
G ISO 228/1 - G1/4 O-ring boss port

D UNF drain port
H 7/16 - 20 UNF

Dimensions

OMS

Standard flange—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

OMS

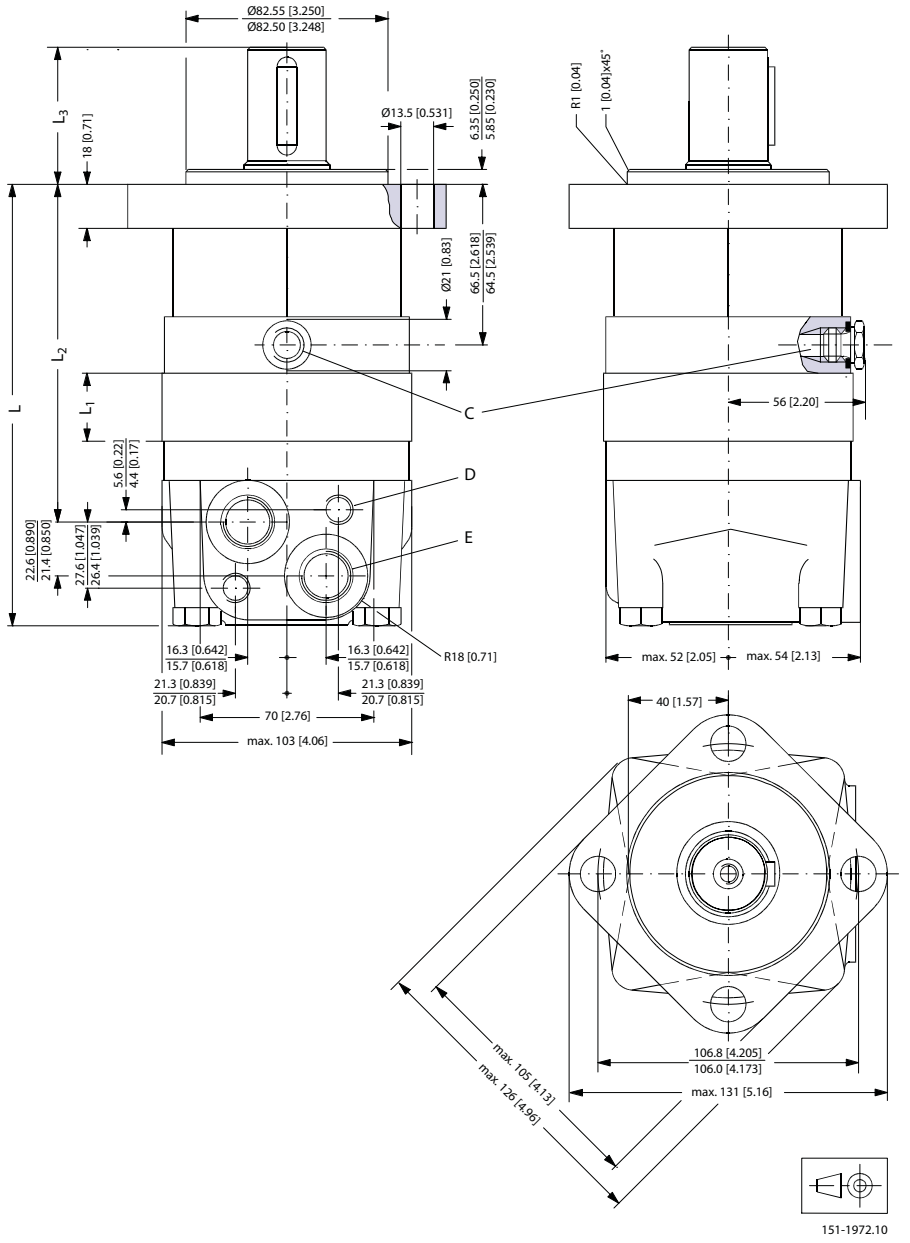
Type	L_{max} mm [in]	L_1 mm [in]	L_2 mm [in]
OMS 80	167 [6.57]	14.0 [0.551]	124 [4.88]
OMS 100	170 [6.69]	17.4 [0.685]	127 [5.00]
OMS 125	175 [6.89]	21.8 [0.858]	132 [5.20]
OMS 160	181 [7.13]	27.8 [1.094]	138 [5.43]
OMS 200	188 [7.40]	34.8 [1.370]	145 [5.71]
OMS 250	196 [7.72]	43.5 [1.713]	153 [6.02]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

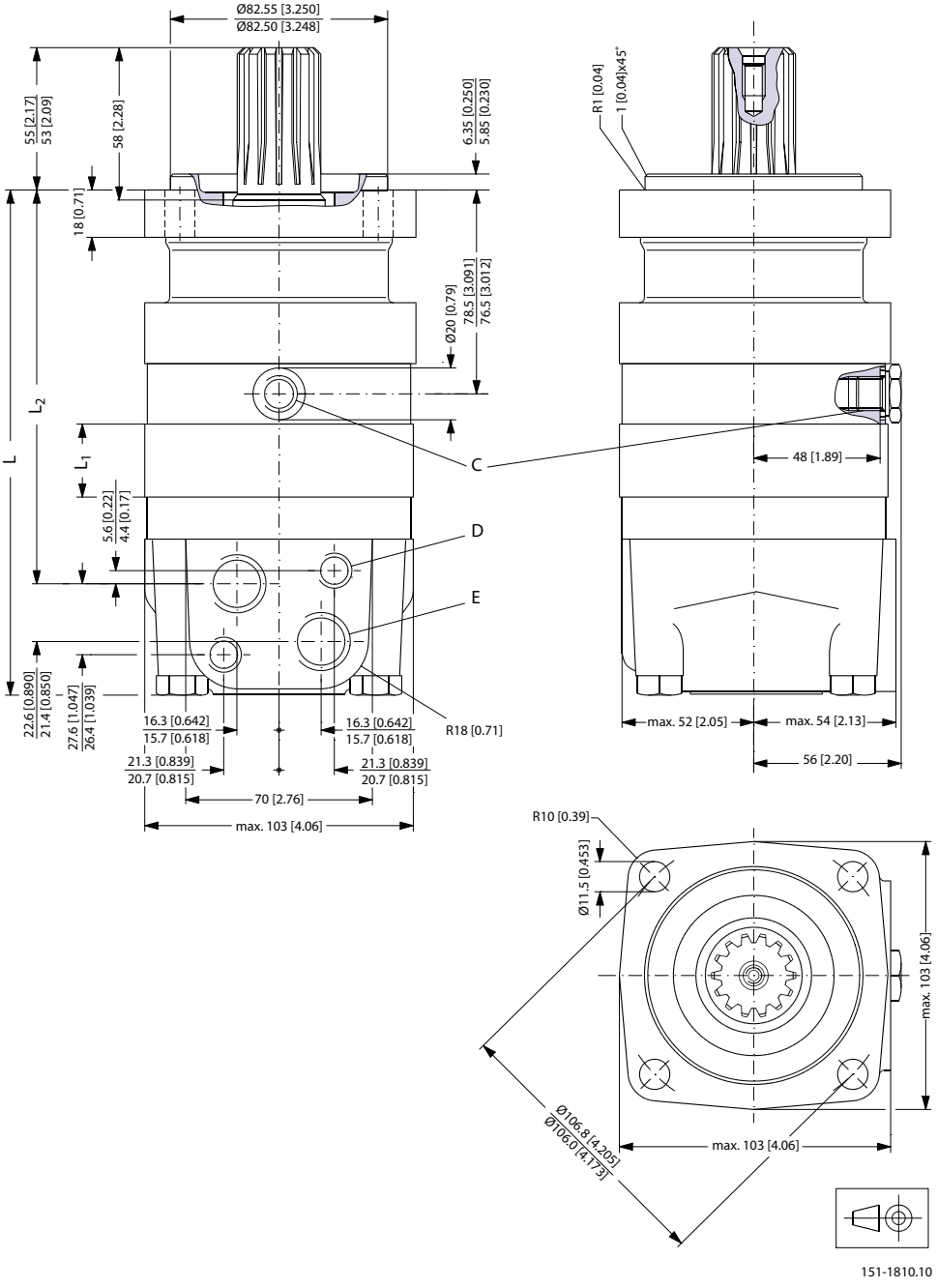
OMS

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



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

D: M10; 13 mm [0.51 in] deep

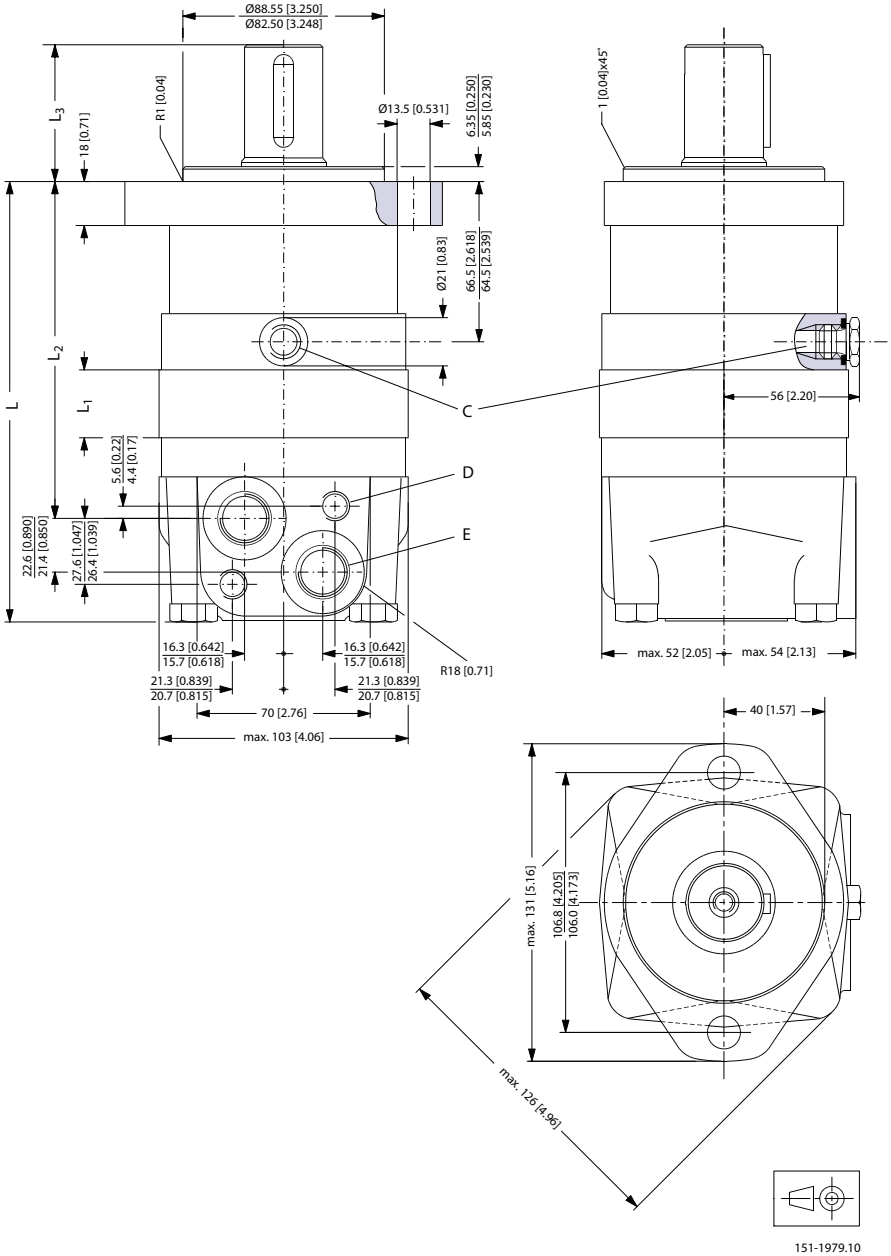
E: G 1⁄2; 15 mm [0.59 in] deep

Type	L_{max} mm [in]	L_1 mm [in]	L_2 mm [in]
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

OMS

12 mm [0.47 in] deep
O-ring boss port

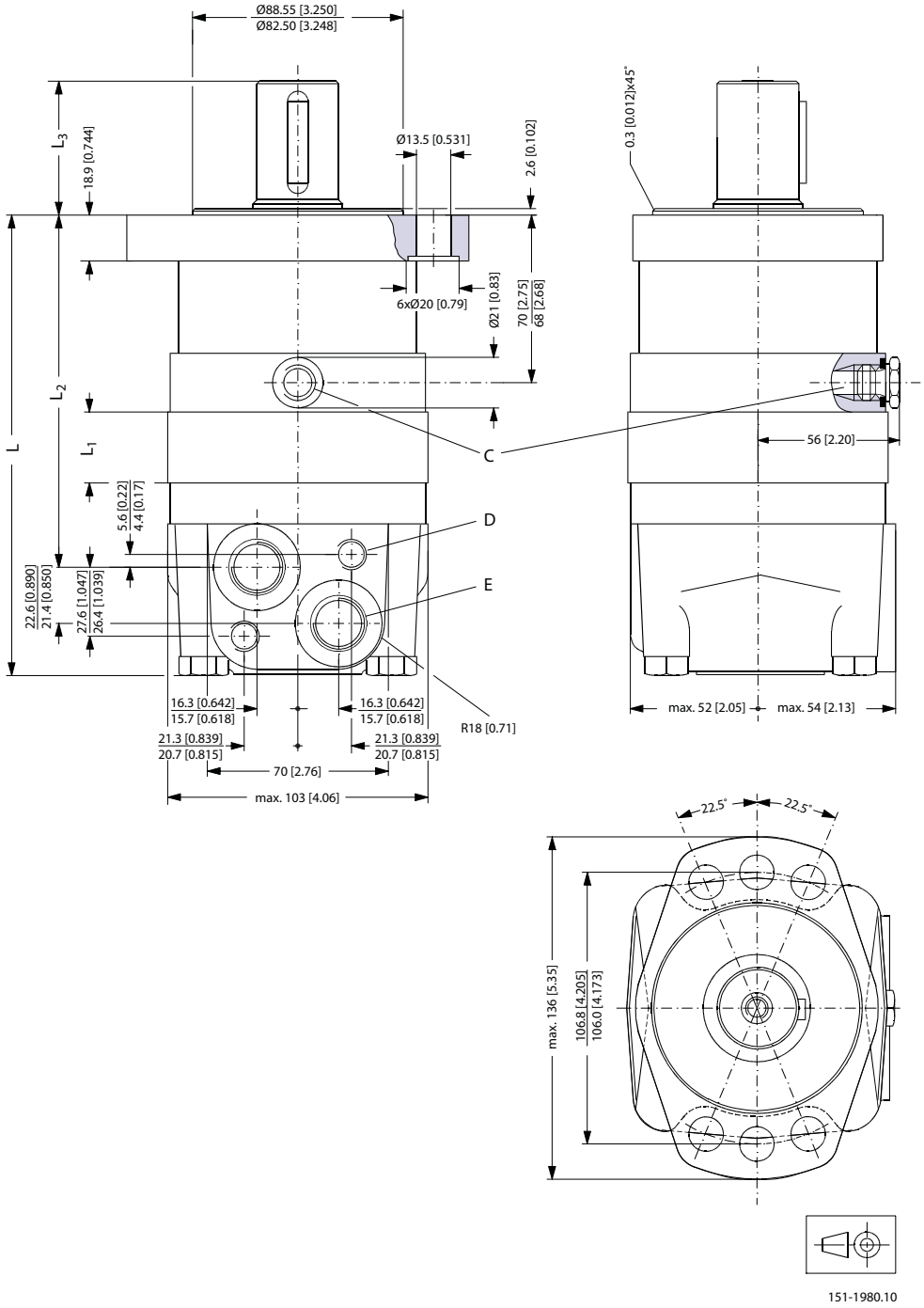
E: 7/8 - 14 UNF;
16.7 mm [0.657 in] deep
O-ring boss port

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



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

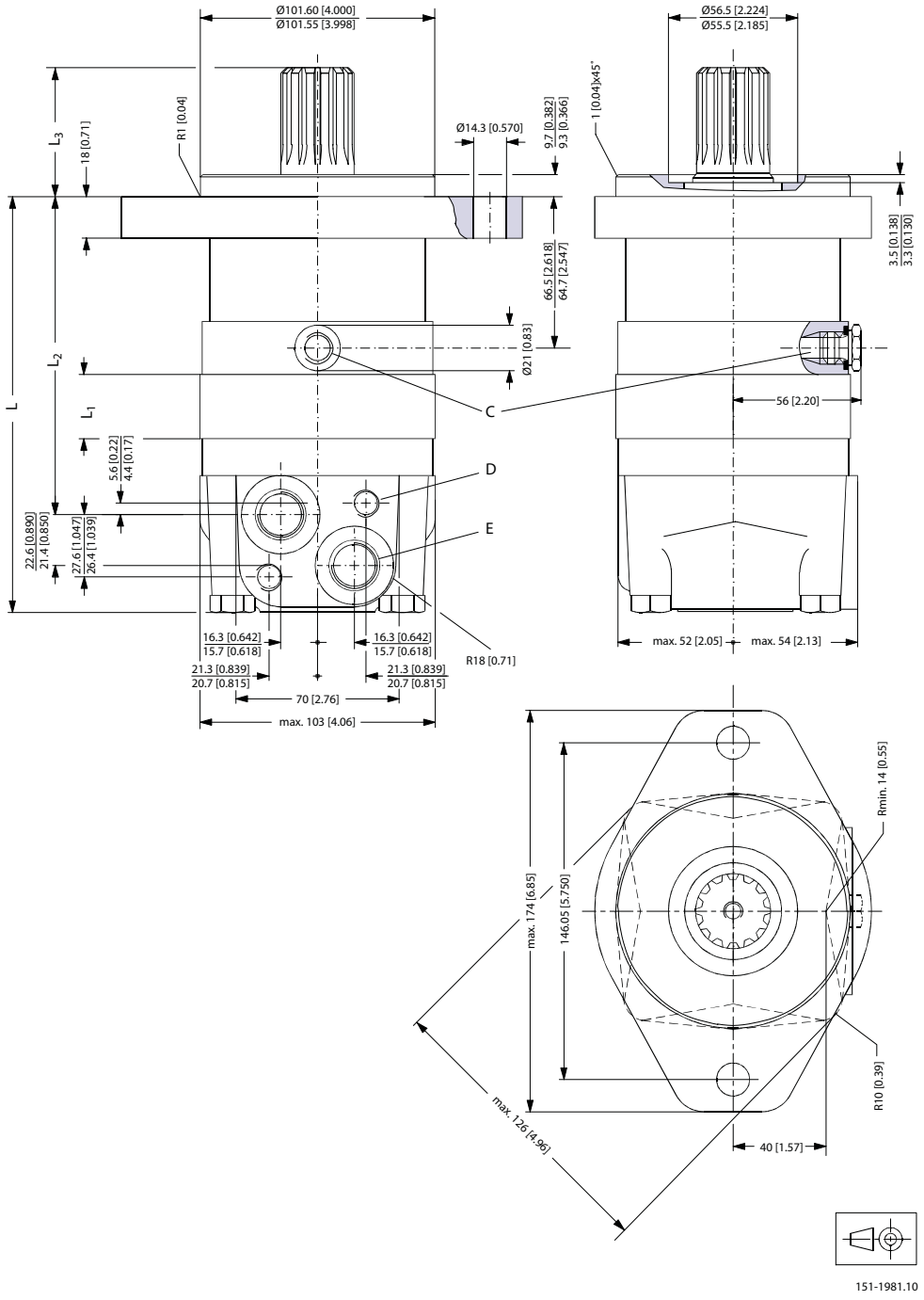
OMS

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

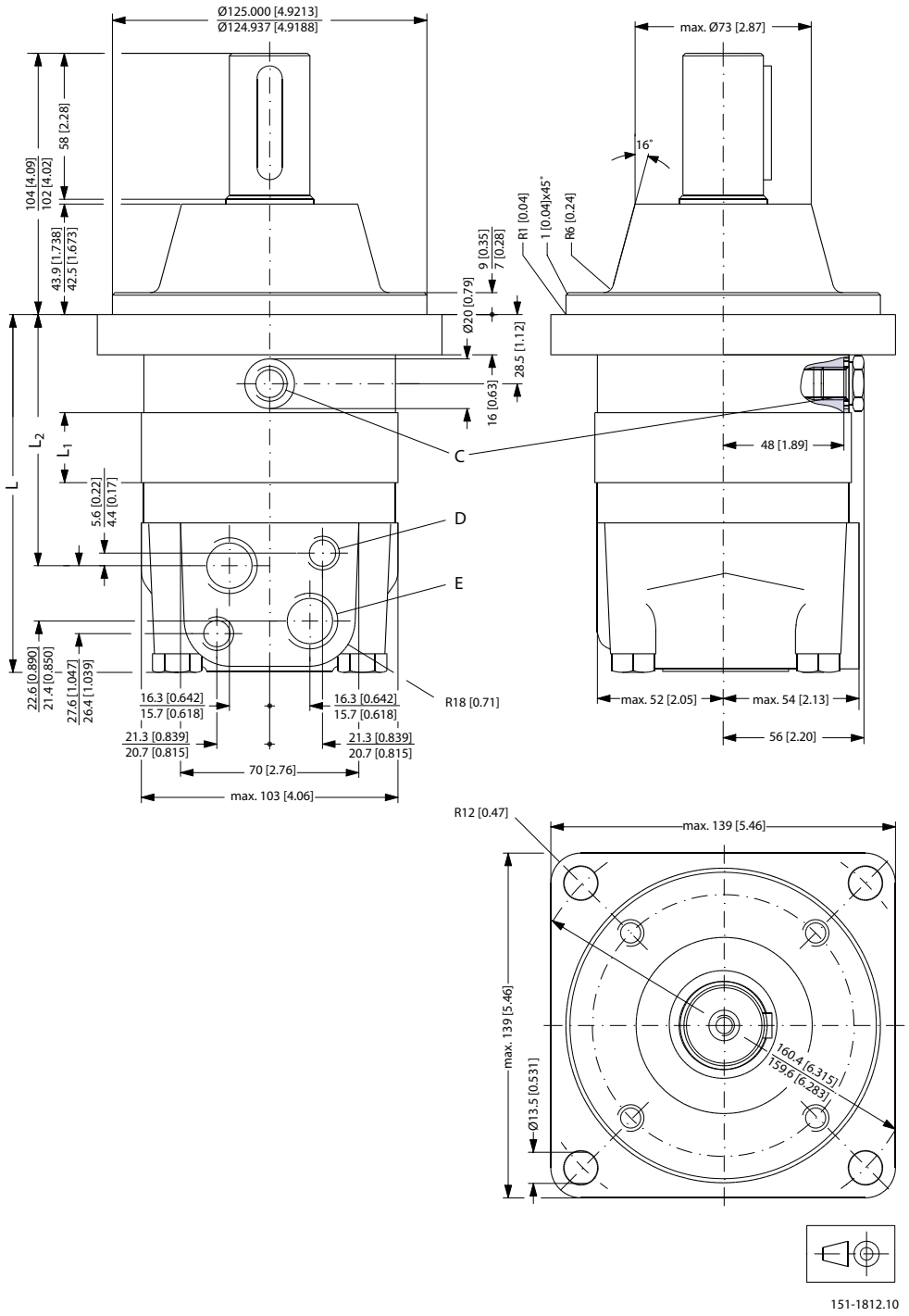
OMS

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

D: M10; 13 mm [0.51 in] deep

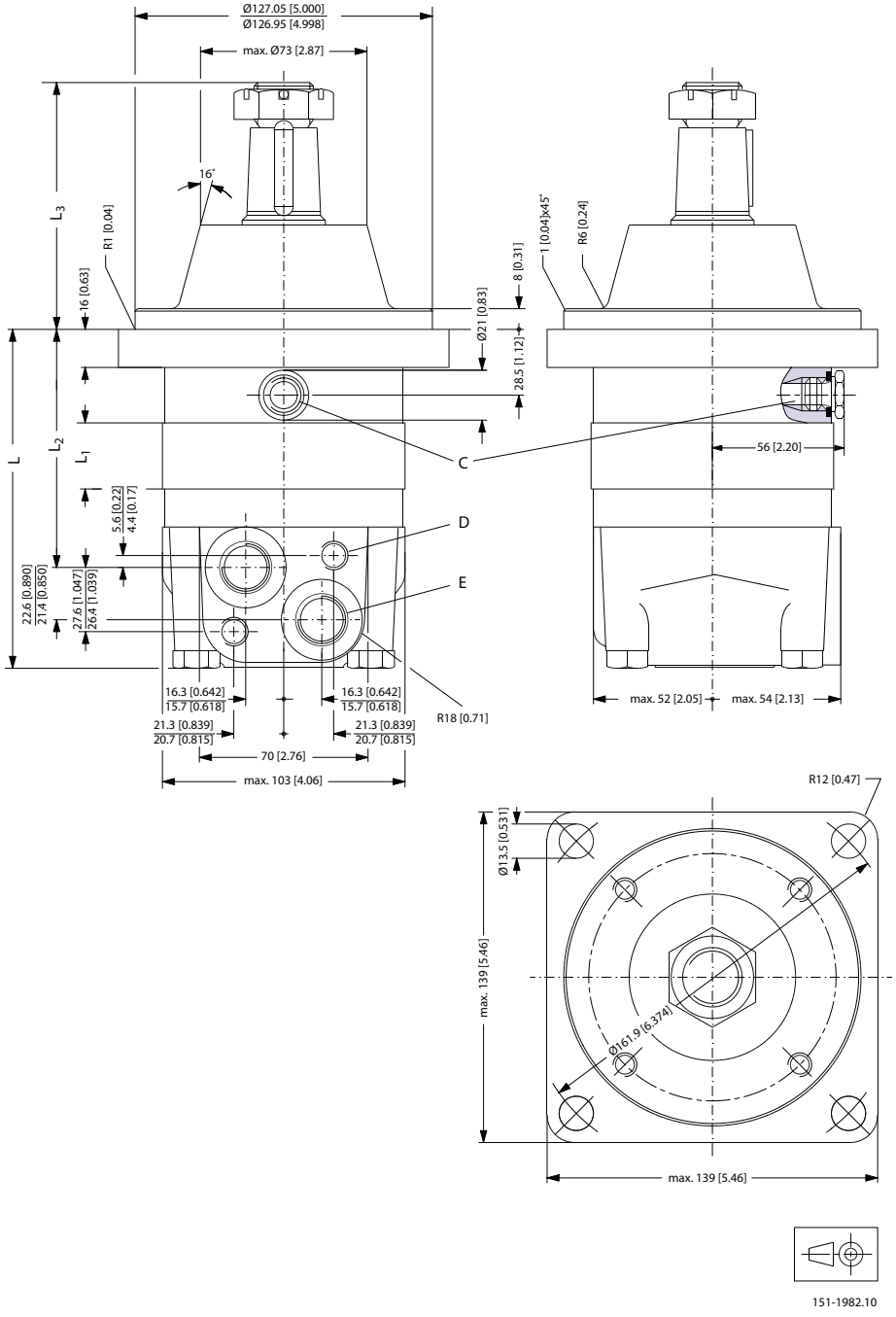
E: G 1⁄2; 15 mm [0.59 in] deep

OMS

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]

OMS

Wheel—US version



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]

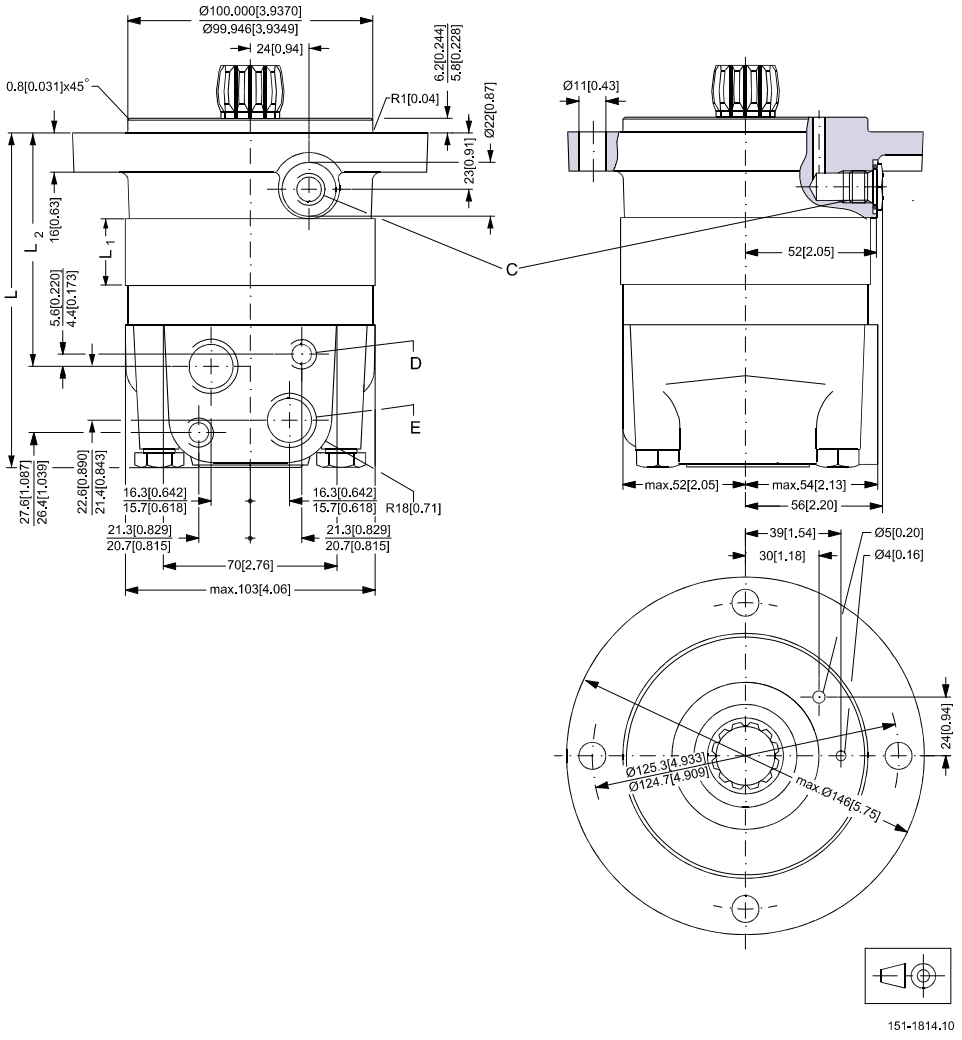
OMS

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.

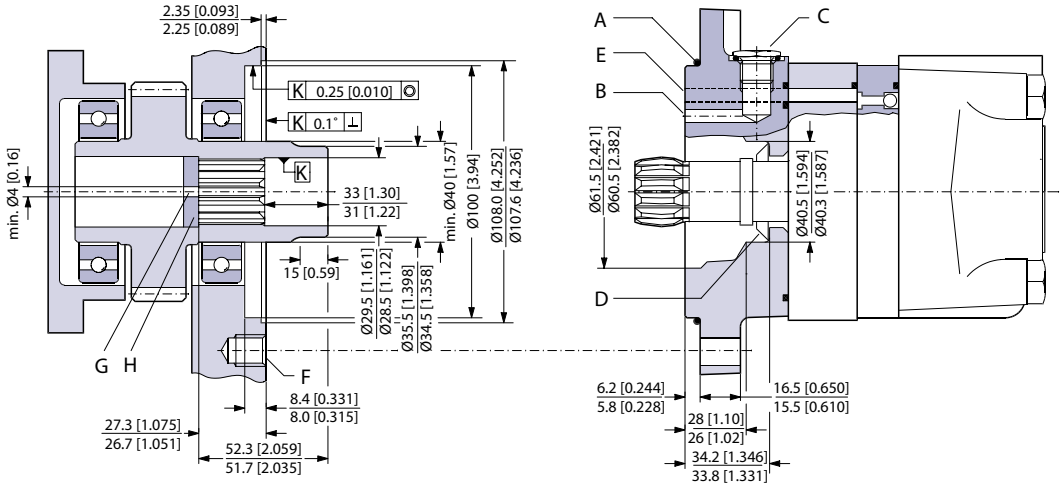
The conical sealing ring (code. no. 633B9023) is supplied with the motor.

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/mm^2) or SAE 8620.

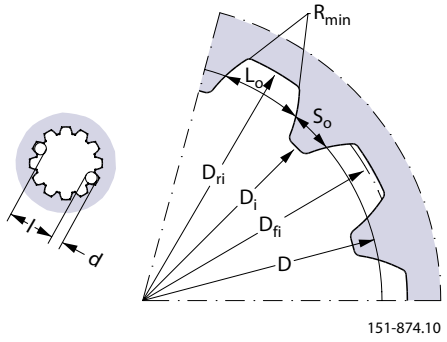
Hardening specification:

- 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 · 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	$23.0_{0}^{+0.033}$	$0.9055_{0}^{+0.0013}$
Space width (circular)	L_o	$4.308^{\pm0.020}$	$0.1696^{\pm0.0008}$
Tooth thickness (circular)	S_o	2.341	0.09217
Fillet radius	$R_{min.}$	0.2	0.008
Max. mea surement between pins*	I	$17.62_{0}^{+0.15}$	$0.700^{0}_{-0.006}$
Pin dia.	d	$4.835^{\pm0.001}$	$0.1903^{\pm0.00004}$

* Finished dimensions (when hardened).



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 [cm³]					
	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.

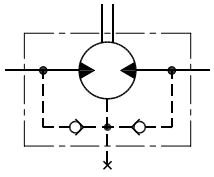
Orders will not be accepted without the four digit prefix.

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

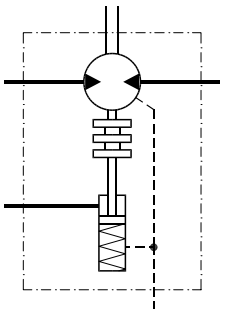
Motor with check valves and with drain connection

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

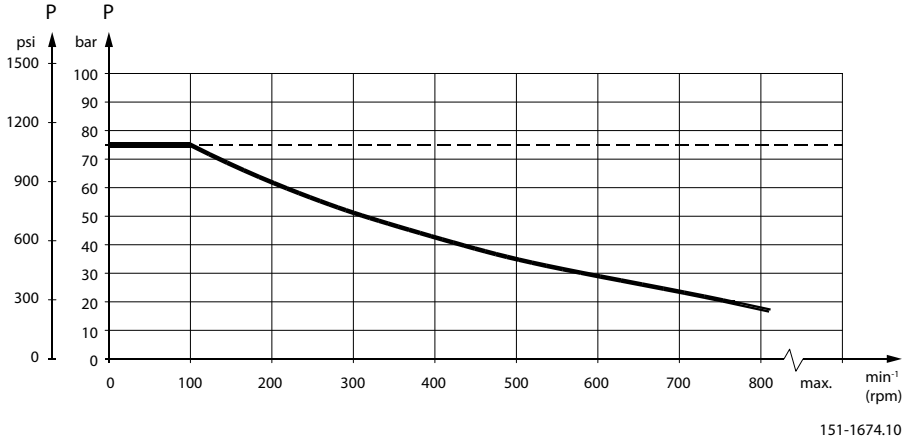


151-1405.10

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

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 presssure 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.

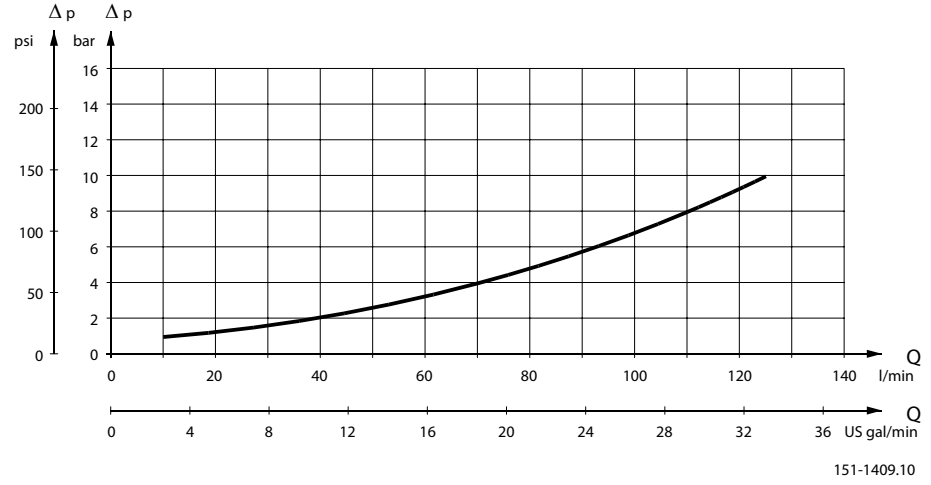
2) Peak load: The permissible values may occur for maximum 1% of every minute.

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 mm^2/s [165 SUS]

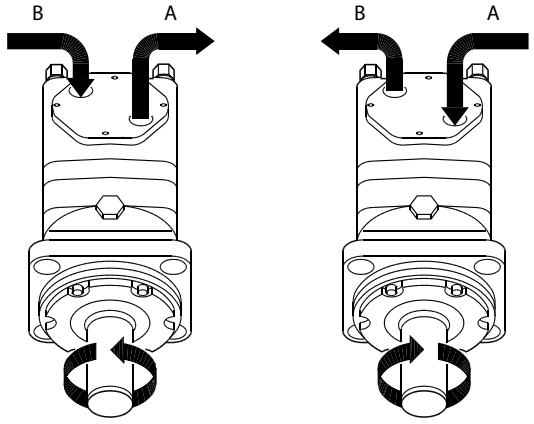
Oil flow in drain line

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

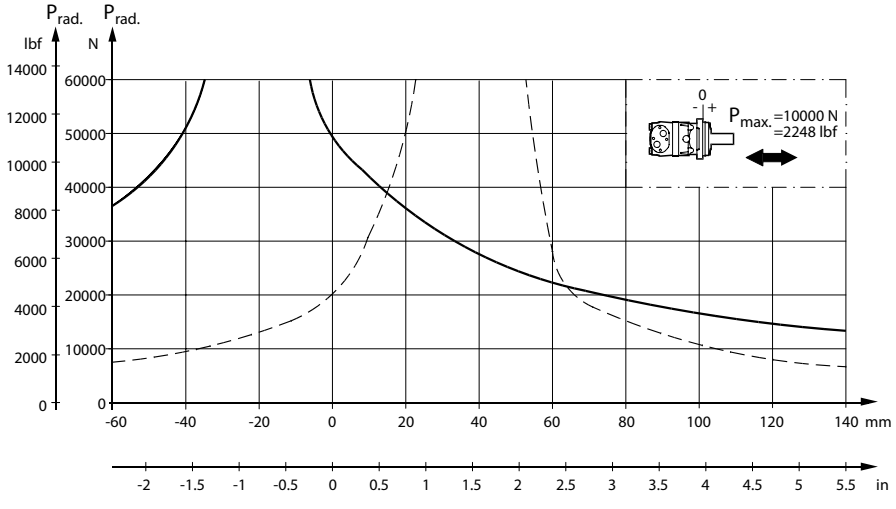
Permissible shaft loads for OMT

Mounting flange:

Standard

Shaft:

All shaft types



151-1967.10

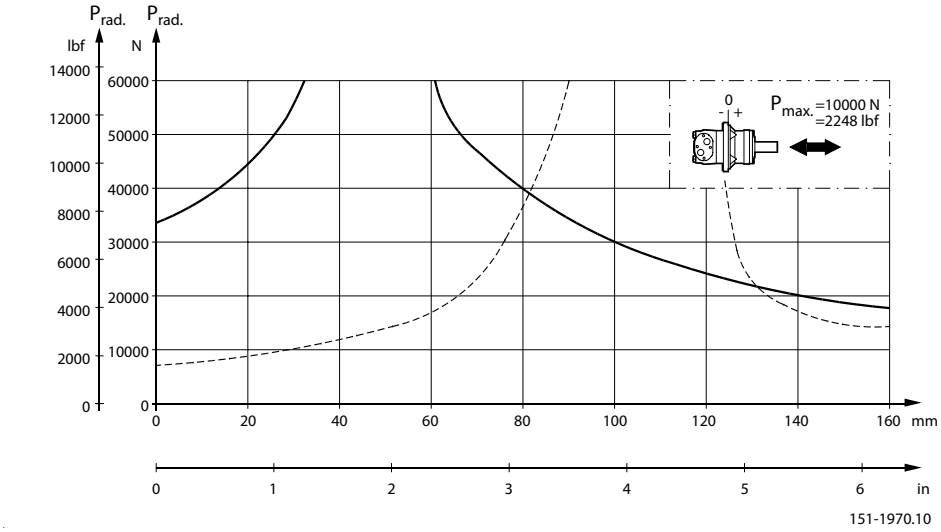
Mounting flange:

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.

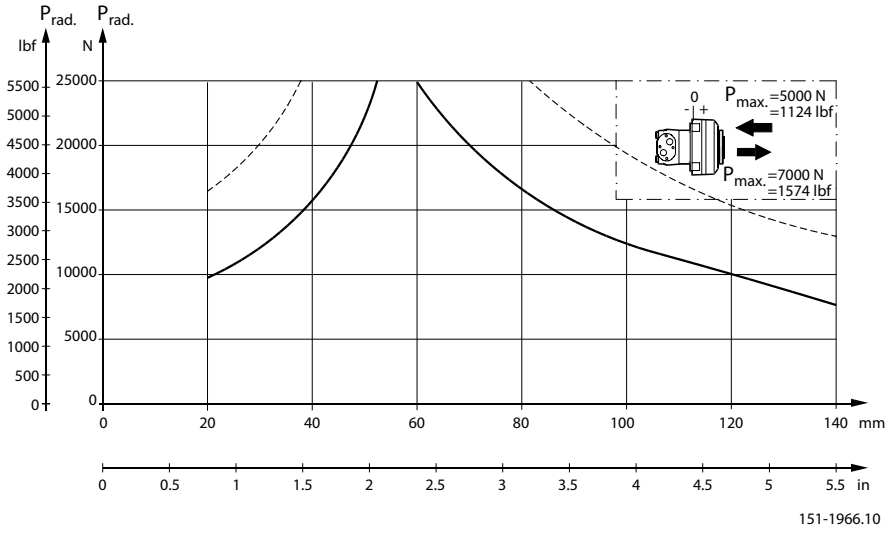
Mounting flange:

Brake-wheel

Shaft:

All shaft types

OMT

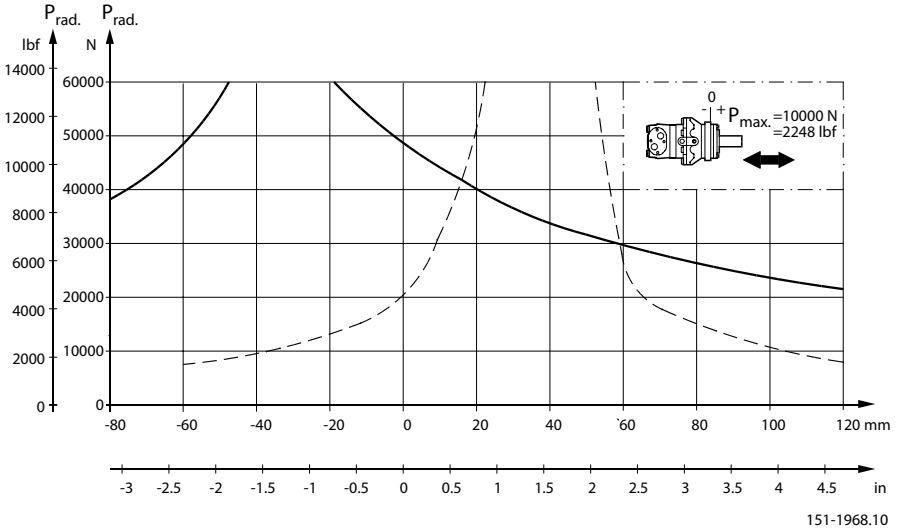


Mounting flange:

Brake-standard

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.

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.

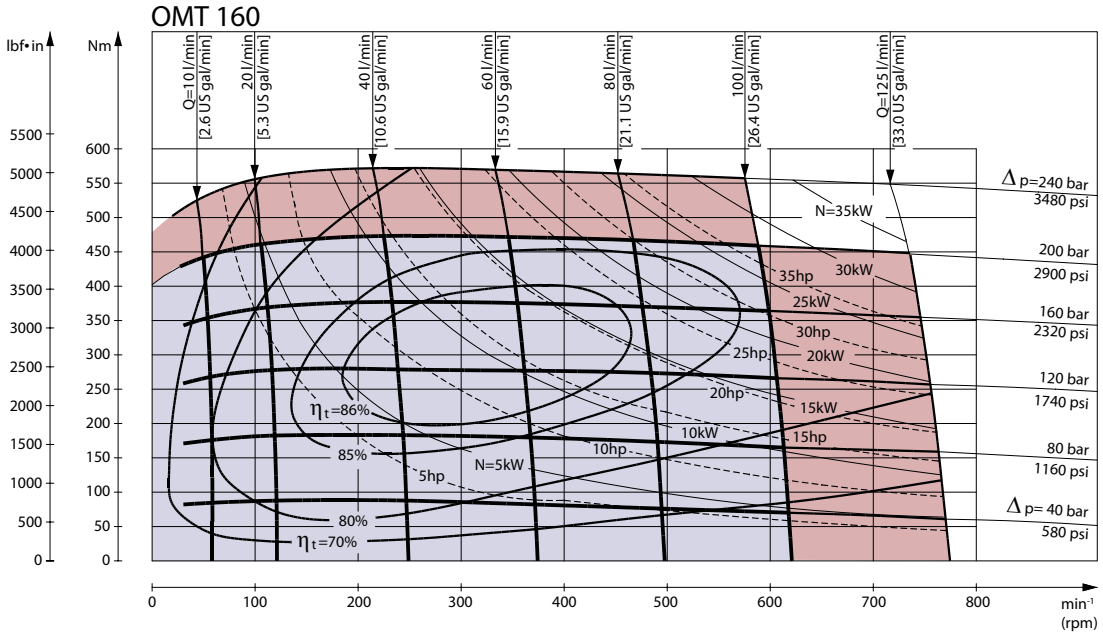
OMT

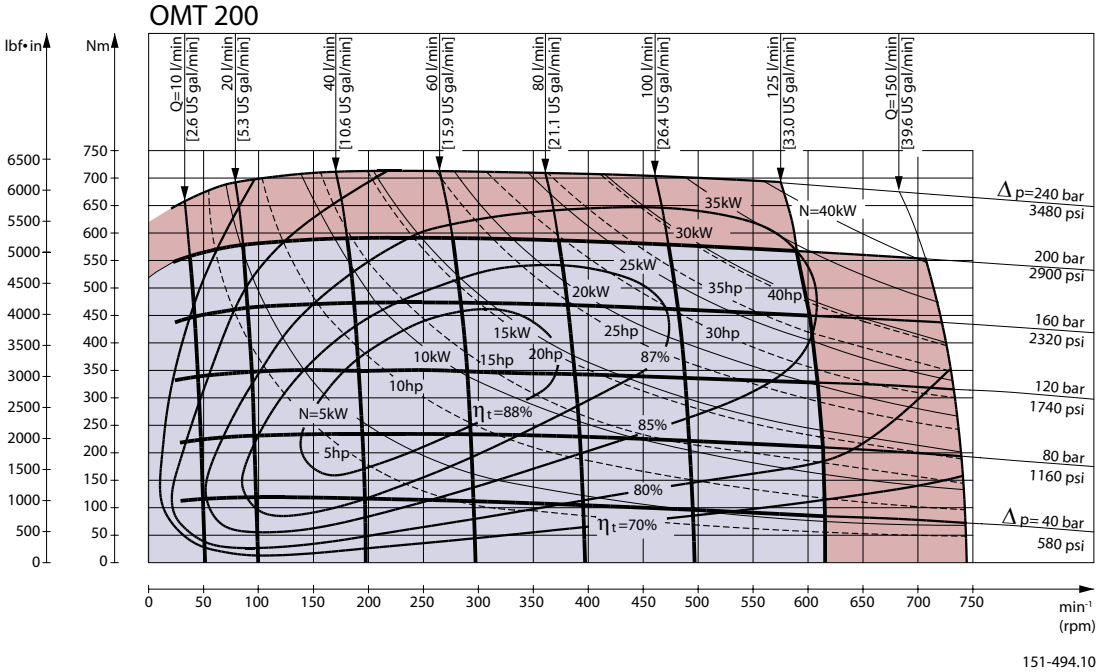
Bearing life calculations can be made using the explanation and formula provided in the chapter "Bearing dimensioning" in the technical information "General Orbital motors" 520L0232.

Function diagrams

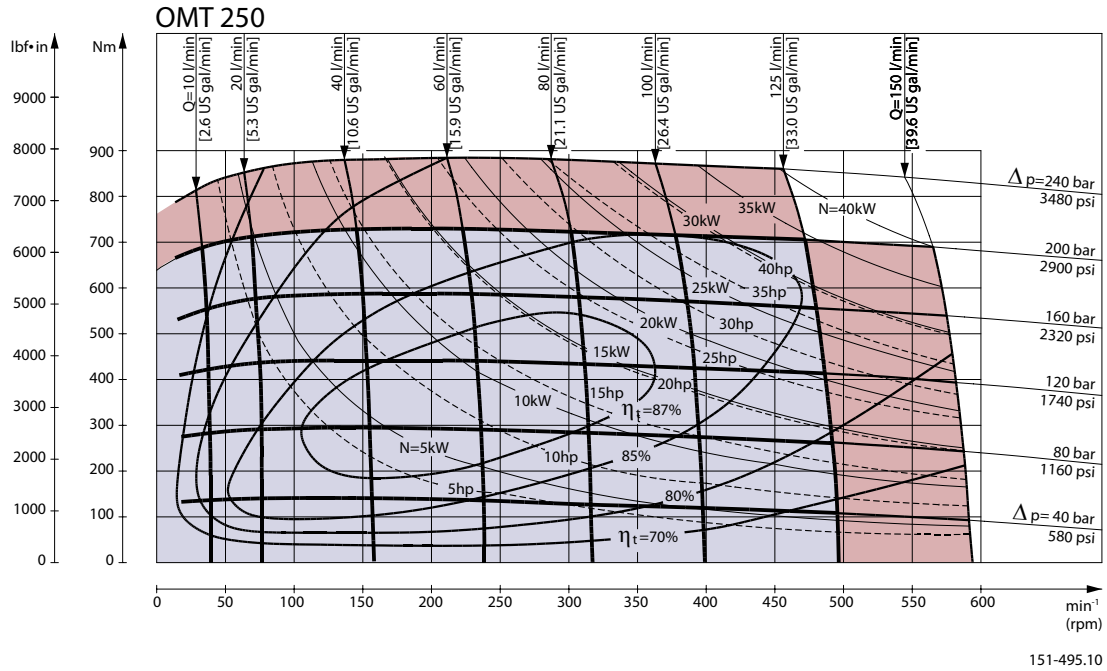
Continuous range

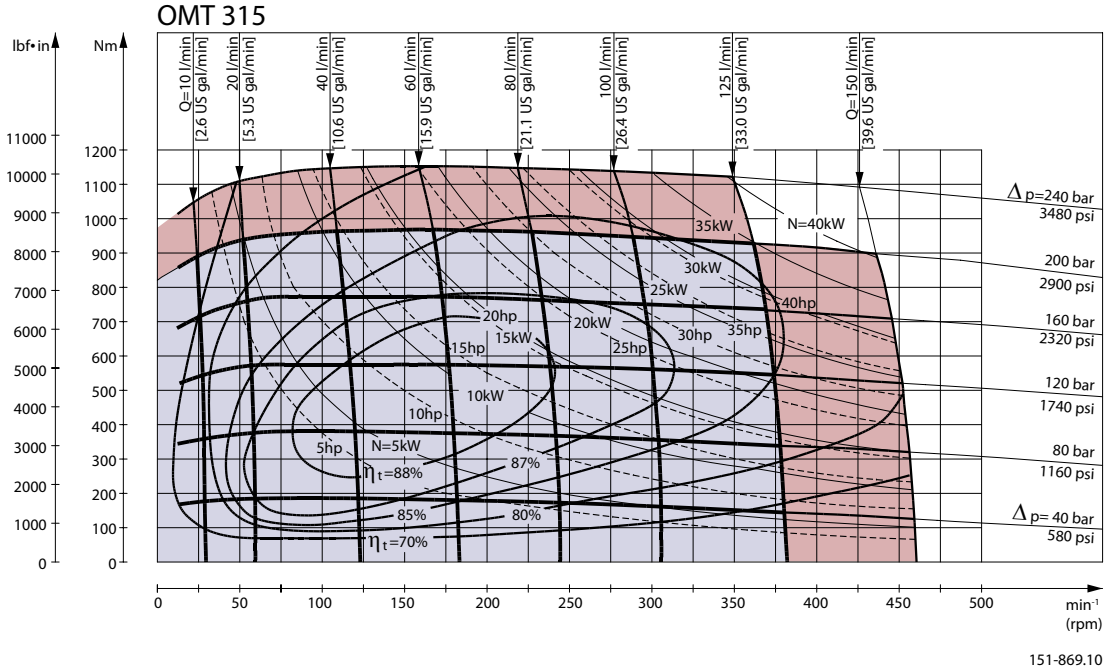
Intermittent range (maximum 10% operation every minute)



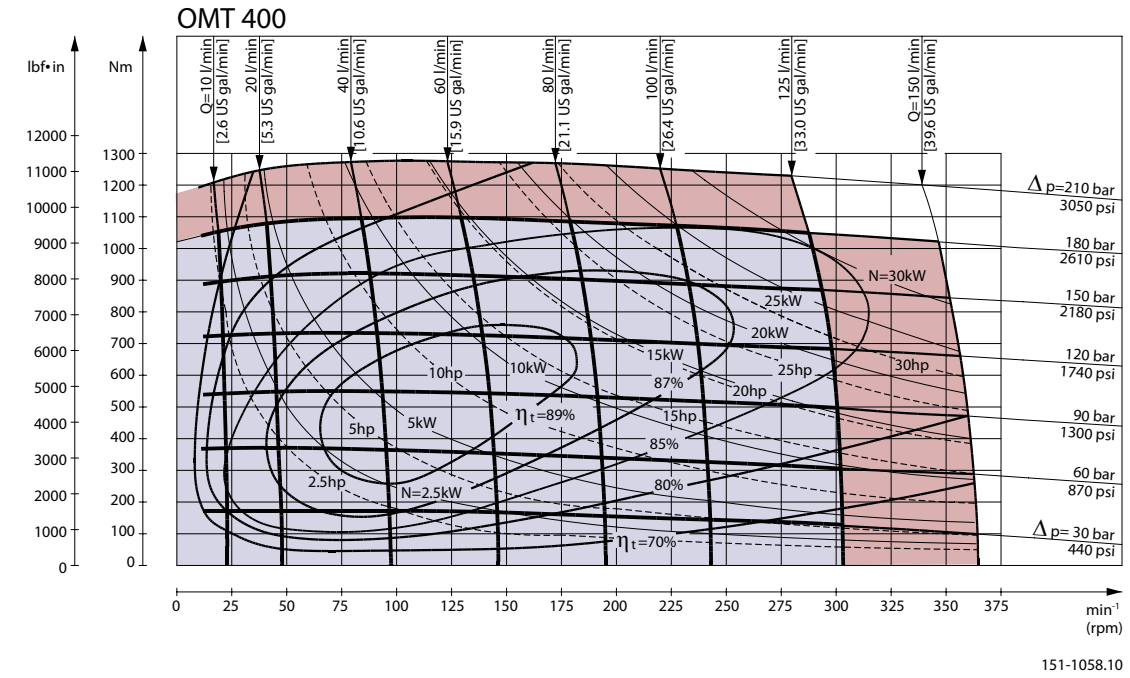


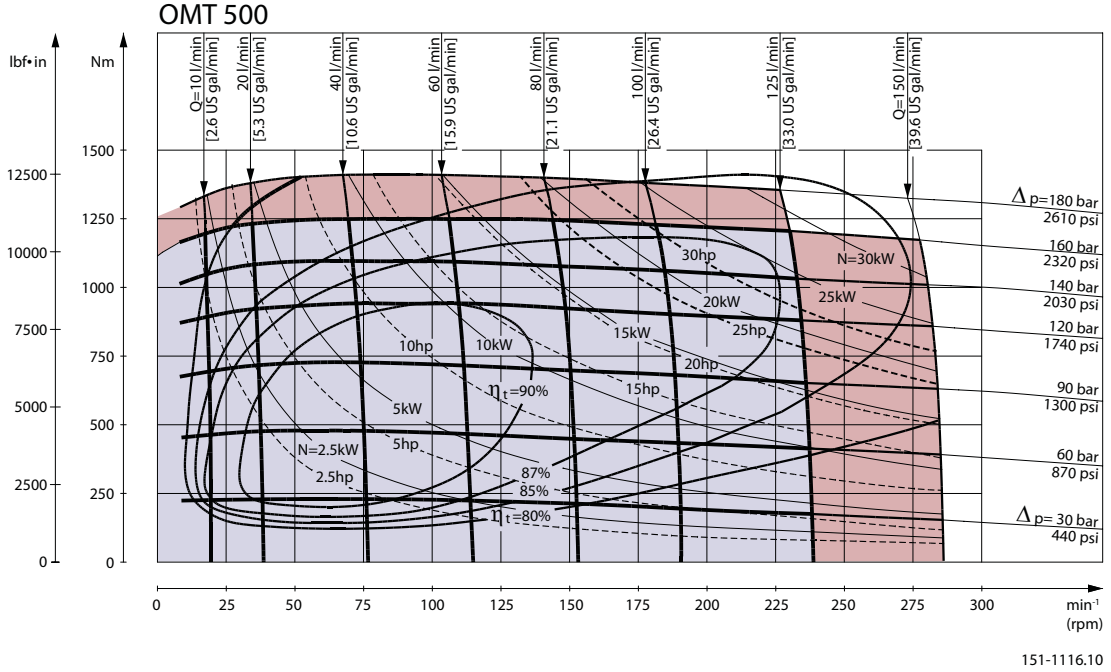
OMT


OMT 250
lbf•in
Nm
Q=10 l/min [2.6 US gal/min]
20 l/min [5.3 US gal/min]
40 l/min [10.6 US gal/min]
60 l/min [15.9 US gal/min]
80 l/min [21.1 US gal/min]
100 l/min [26.4 US gal/min]
125 l/min [33.0 US gal/min]
Q=150 l/min [39.6 US gal/min]
Δp=240 bar 3480 psi
200 bar 2900 psi
160 bar 2320 psi
120 bar 1740 psi
80 bar 1160 psi
Δp= 40 bar 580 psi
N=40kW
35kW
30kW
25kW
20kW
15kW
10kW
N=5kW
40hp
35hp
30hp
25hp
20hp
15hp
10hp
5hp
ηt=87%
85%
80%
ηt=70%
min-1 (rpm)
151-495.10


OMT 315
lbf•in
Nm
Q=10 l/min [2.6 US gal/min]
20 l/min [5.3 US gal/min]
40 l/min [10.6 US gal/min]
60 l/min [15.9 US gal/min]
80 l/min [21.1 US gal/min]
100 l/min [26.4 US gal/min]
125 l/min [33.0 US gal/min]
Q=150 l/min [39.6 US gal/min]
Δp=240 bar 3480 psi
200 bar 2900 psi
160 bar 2320 psi
120 bar 1740 psi
80 bar 1160 psi
Δp= 40 bar 580 psi
N=40kW
35kW
30kW
25kW
20kW
15kW
10kW
N=5kW
40hp
35hp
30hp
25hp
20hp
15hp
10hp
5hp
ηt=88%
87%
85%
80%
ηt=70%
min-1 (rpm)
151-869.10

OMT





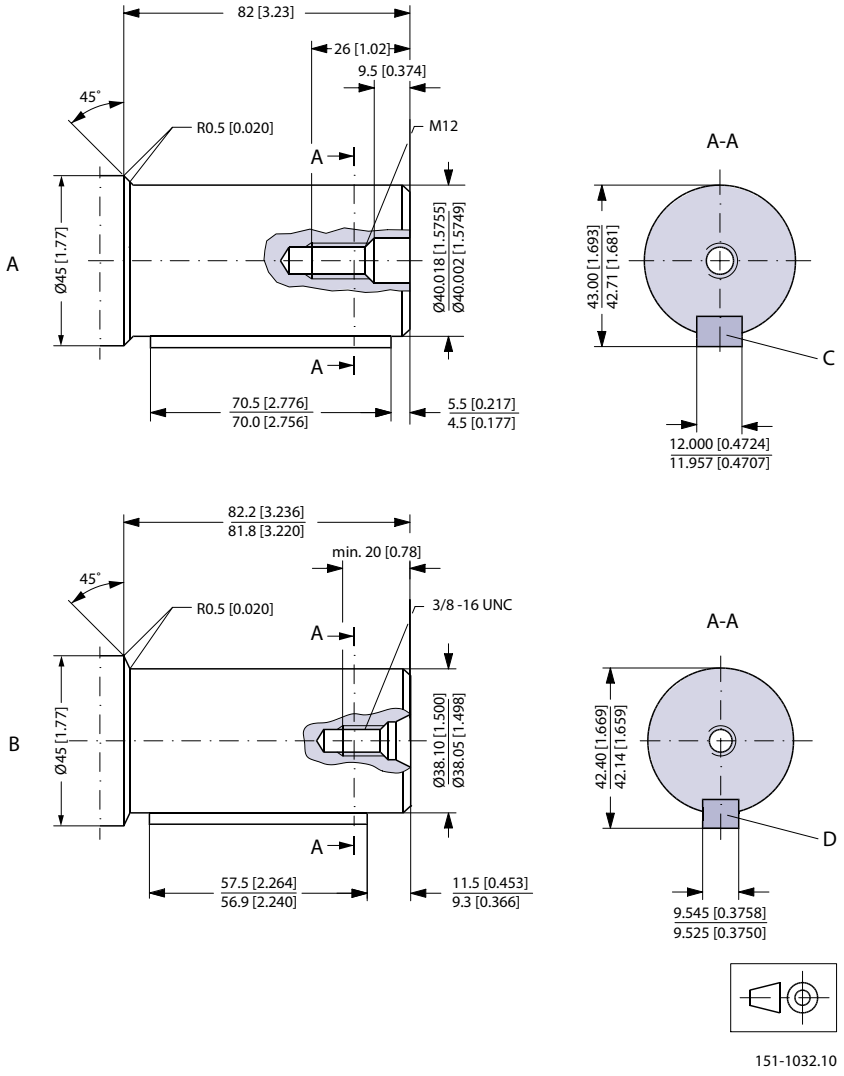
Function diagram use

Explanation of function diagram use, basis and conditions, see *Speed, torque and output* on page 7.

Intermittent pressure drop and oil flow must not occur simultaneously.

OMT

Shaft version



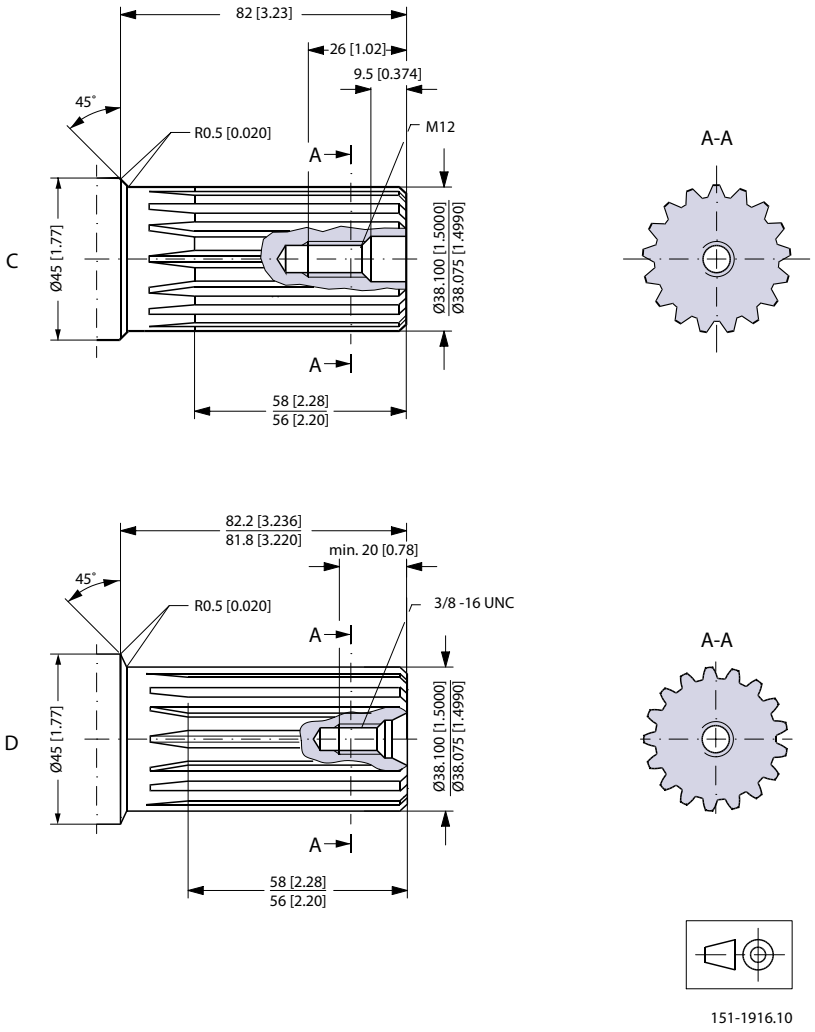
A Cylindrical 40 mm shaft

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

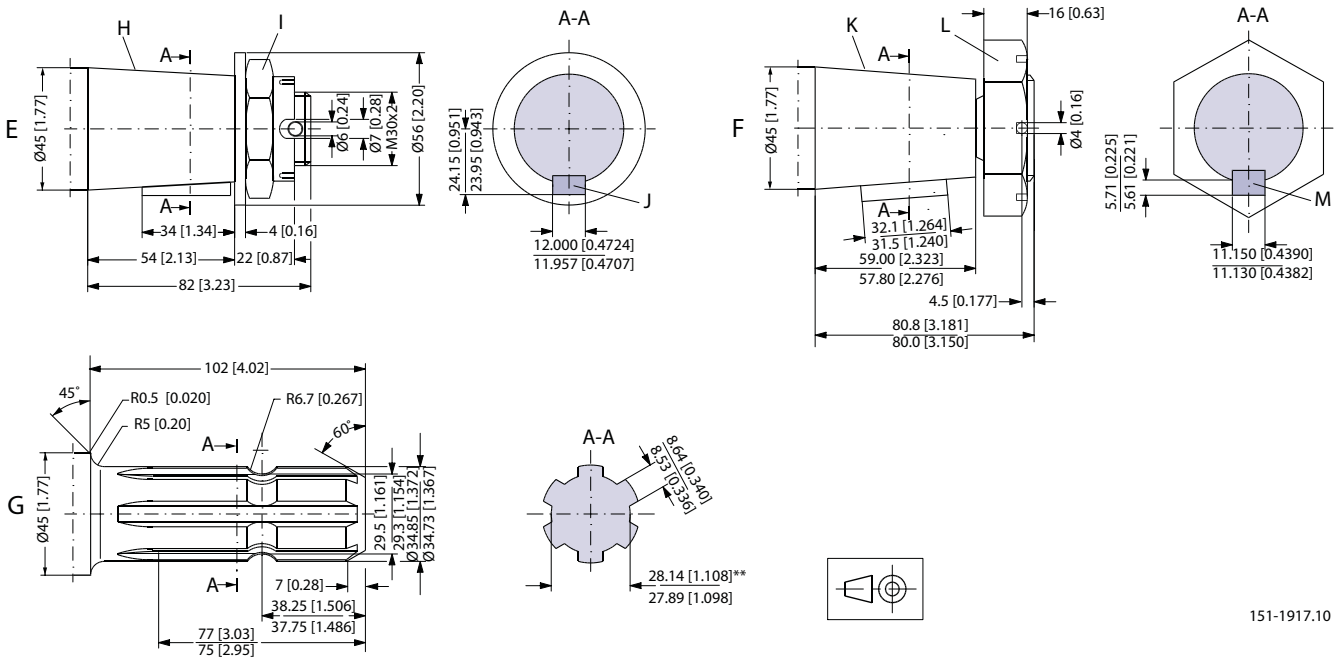
OMT



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



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

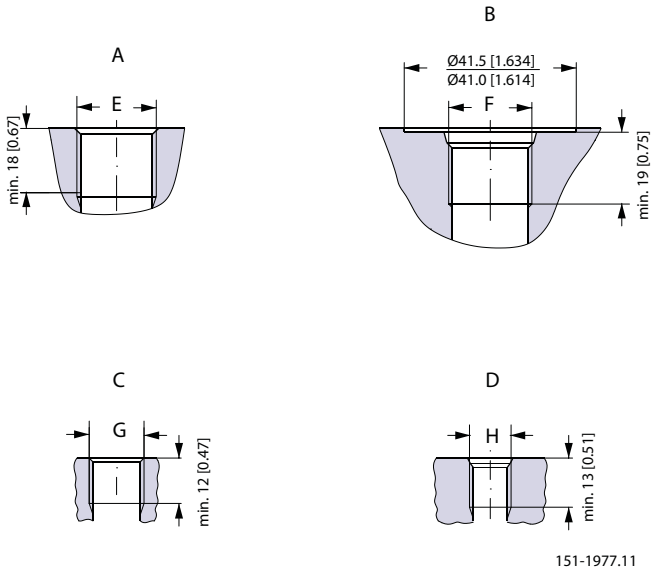
G P.t.o. shaft

DIN 9611 Form 1 (ISO/R500 without pin hole)

** Deviates from DIN 9611

OMT

Port thread versions

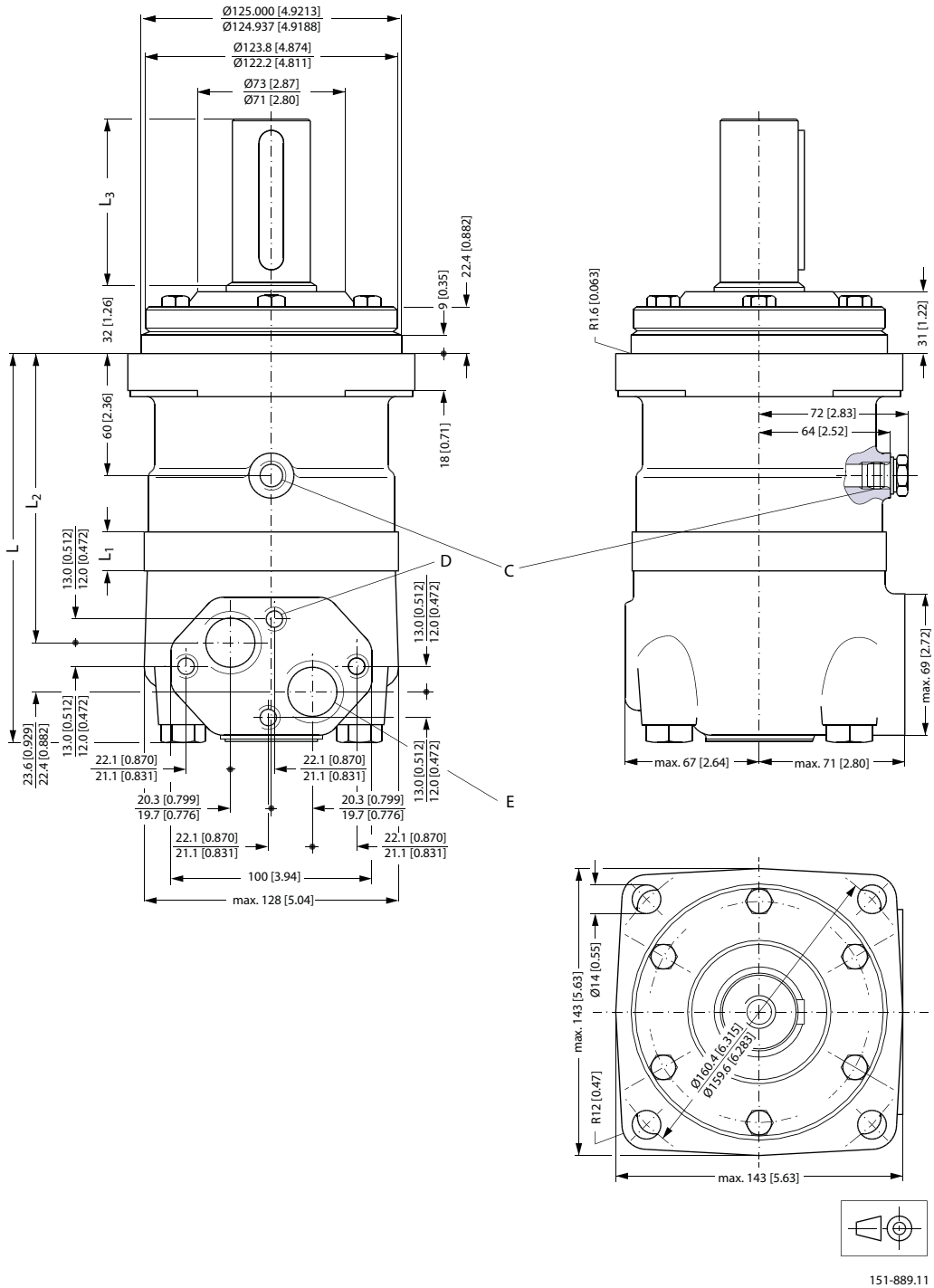


A	G main ports	**B**	UN main ports
E	ISO 228/1 - G3/4 O-ring boss port	**F**	1 1/16 - 12 UN
C	G drain port	**D**	UNF drain port
G	G: ISO 228/1 - G1/4 O-ring boss port	**H**	9/16 - 18 UNF

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

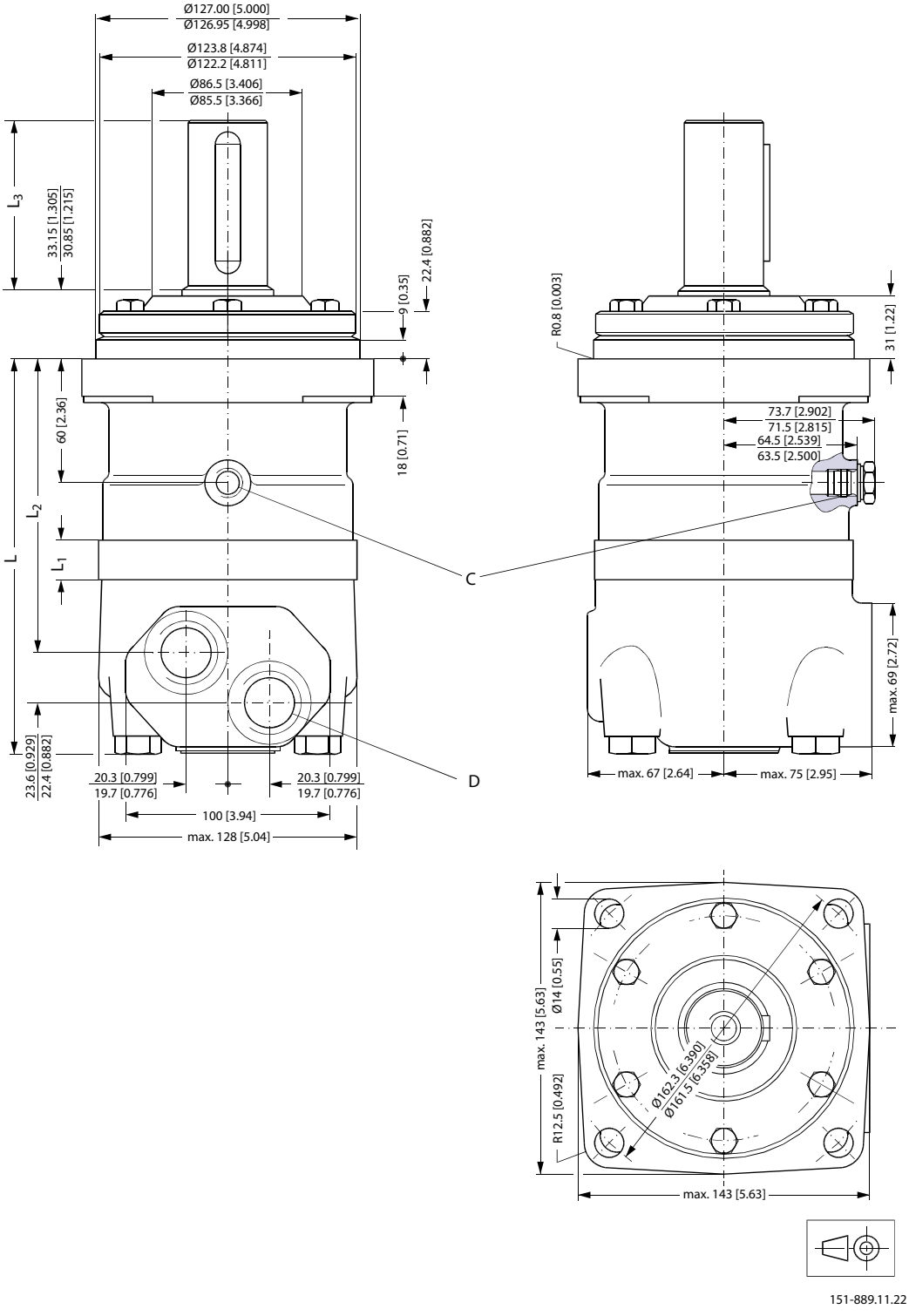
Type	L_{max} mm [in]	L_1* mm [in]	L_2 mm [in]
OMT 160	190 [7.48]	16.5 [0.650]	140 [5.51]
OMT 200	195 [7.68]	21.5 [0.846]	145 [5.71]
OMT 250	201 [7.91]	27.8 [1.094]	151 [5.94]
OMT 315	211 [8.31]	37.0 [1.457]	161 [6.34]
OMT 400	221 [8.70]	47.5 [1.870]	171 [6.73]
OMT 500	235 [9.25]	61.5 [2.421]	185 [7.28]

* 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

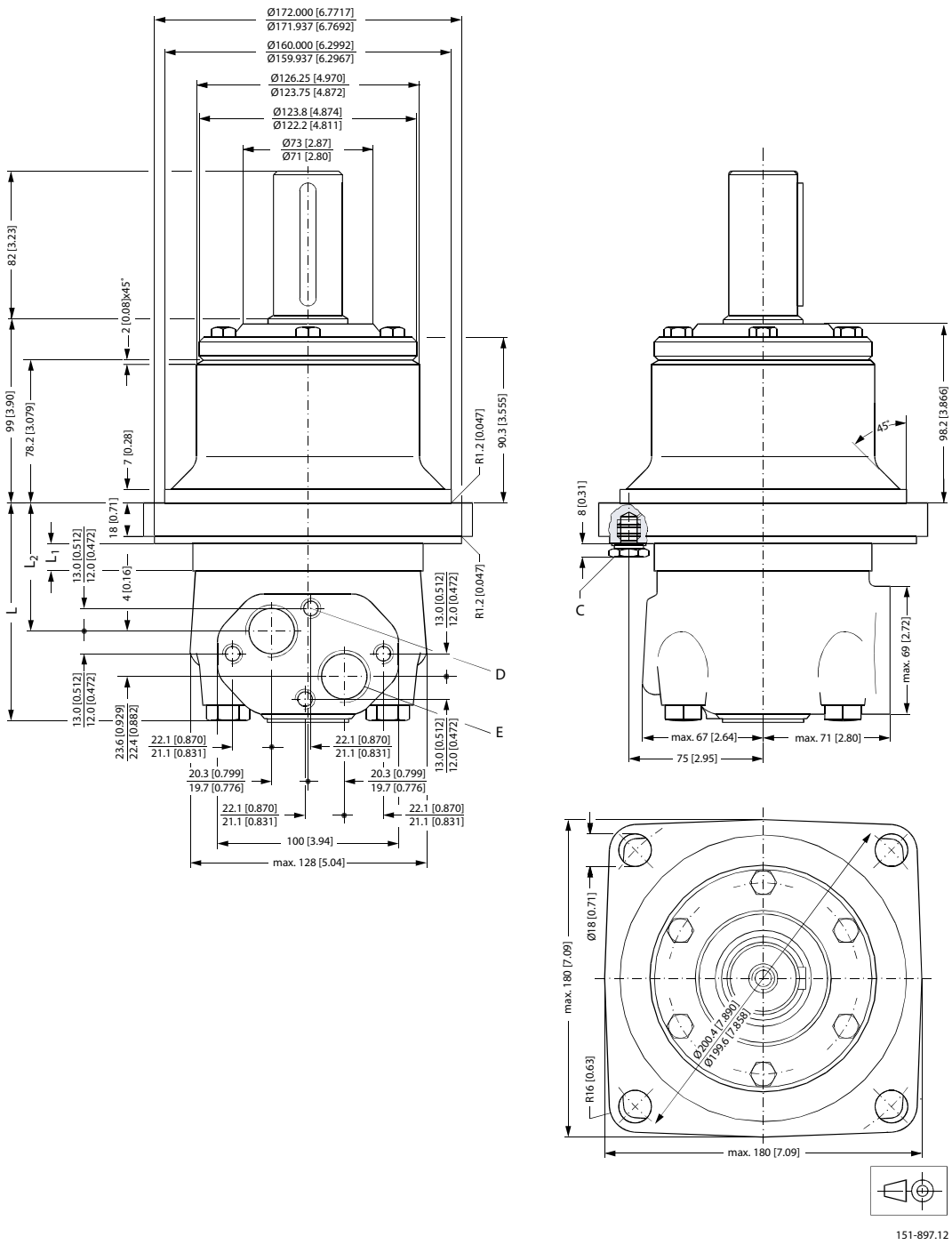
Type	L_{max} mm [in]	L_1* mm [in]	L_2 mm [in]
OMT 160	190 [7.48]	16.5 [0.650]	140 [5.51]
OMT 200	195 [7.68]	21.5 [0.846]	145 [5.71]
OMT 250	201 [7.91]	27.8 [1.094]	151 [5.94]
OMT 315	211 [8.31]	37.0 [1.457]	161 [6.34]
OMT 400	221 [8.70]	47.5 [1.870]	171 [6.73]
OMT 500	235 [9.25]	61.5 [2.421]	185 [7.28]

* 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]

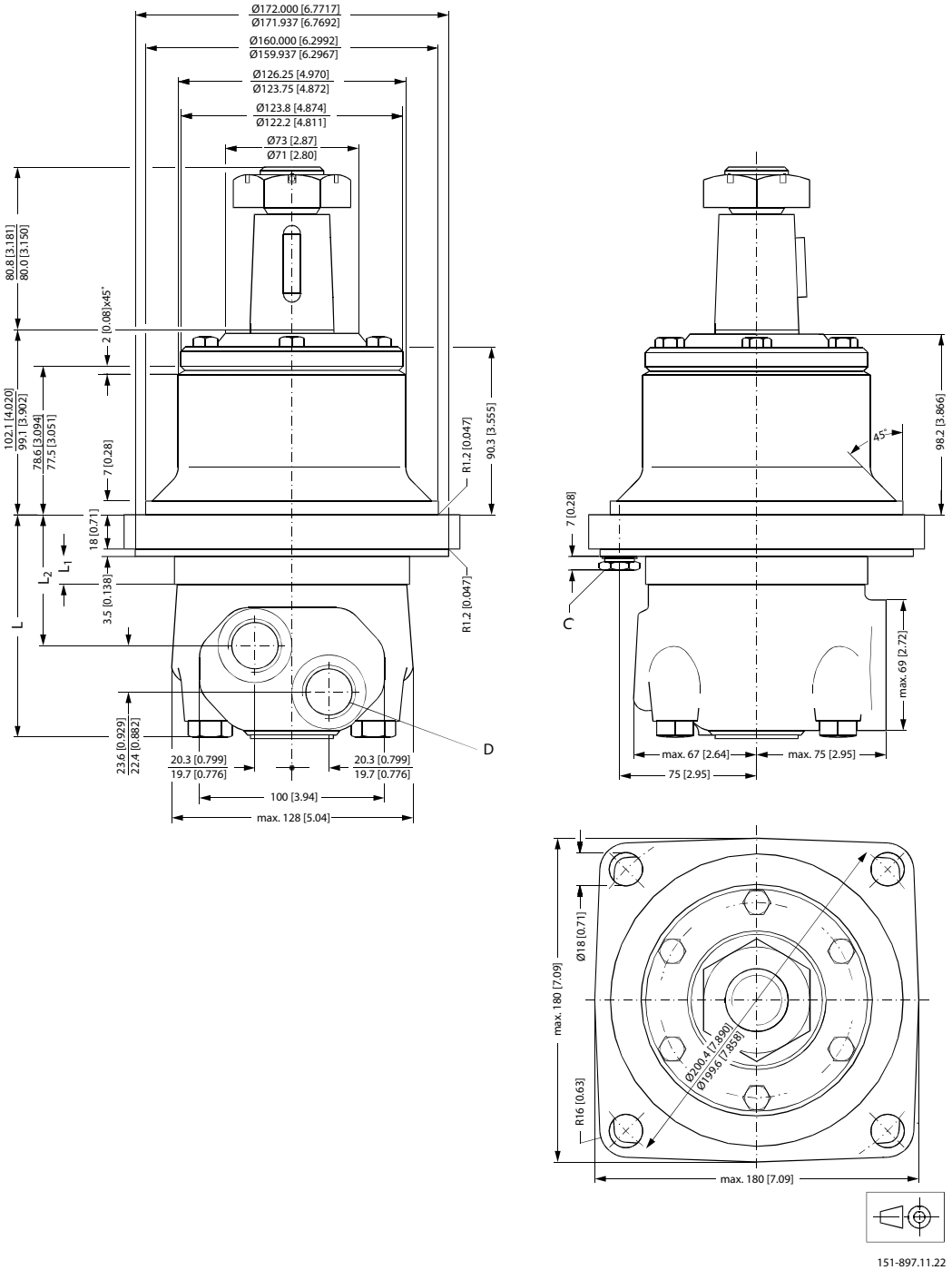
OMT

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



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

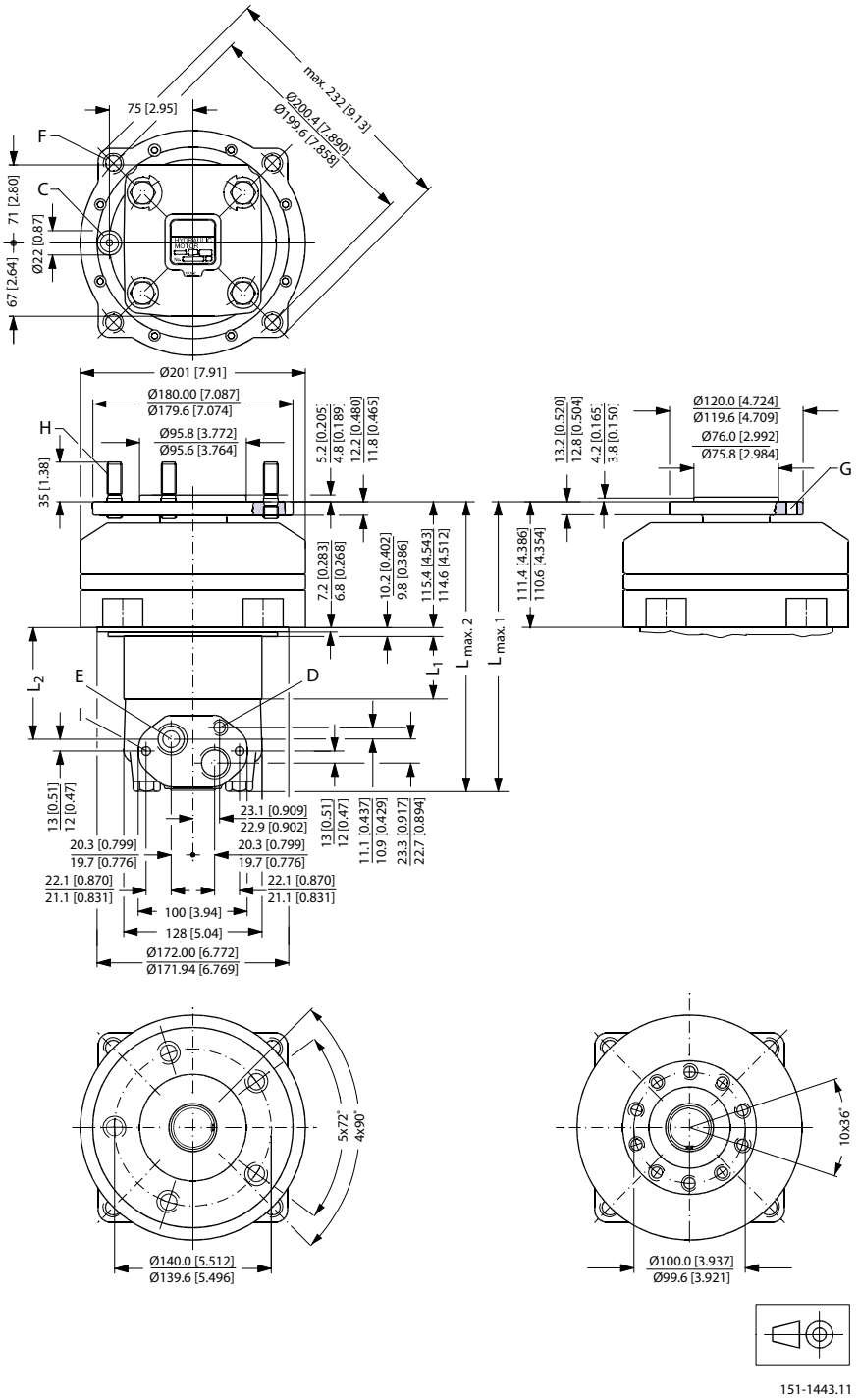
OMT

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

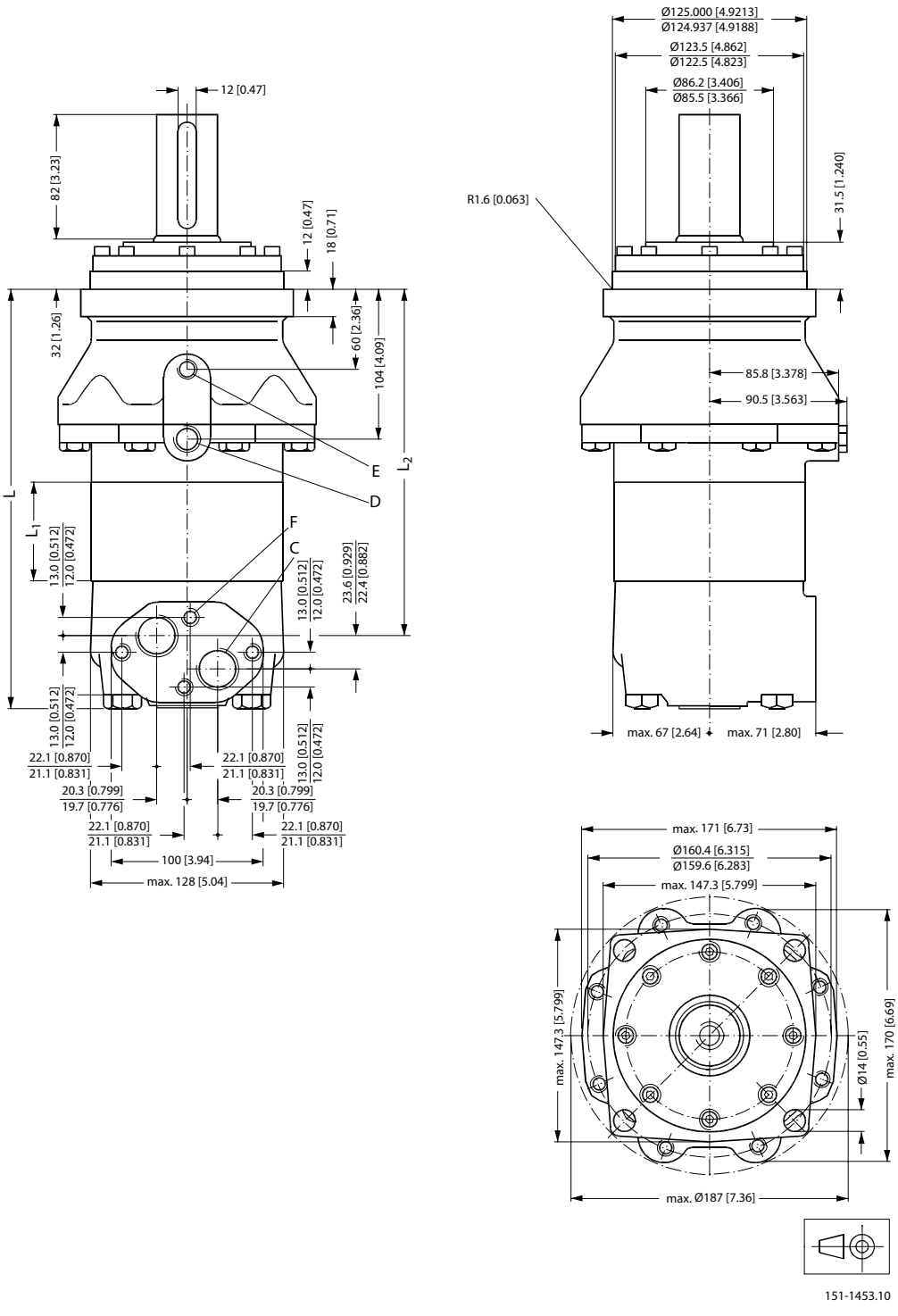
OMT

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



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

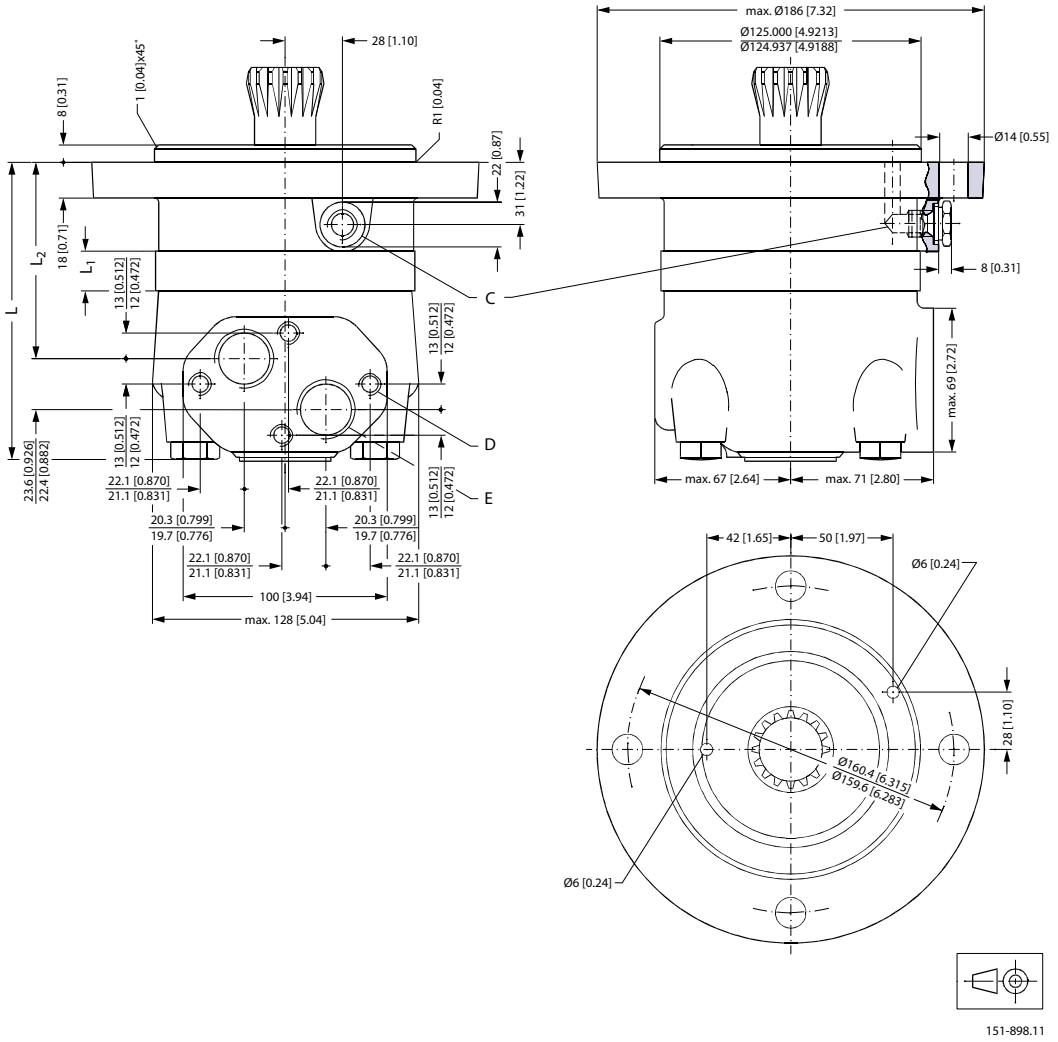
F: M10; 10 mm [0.39 in] deep

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.

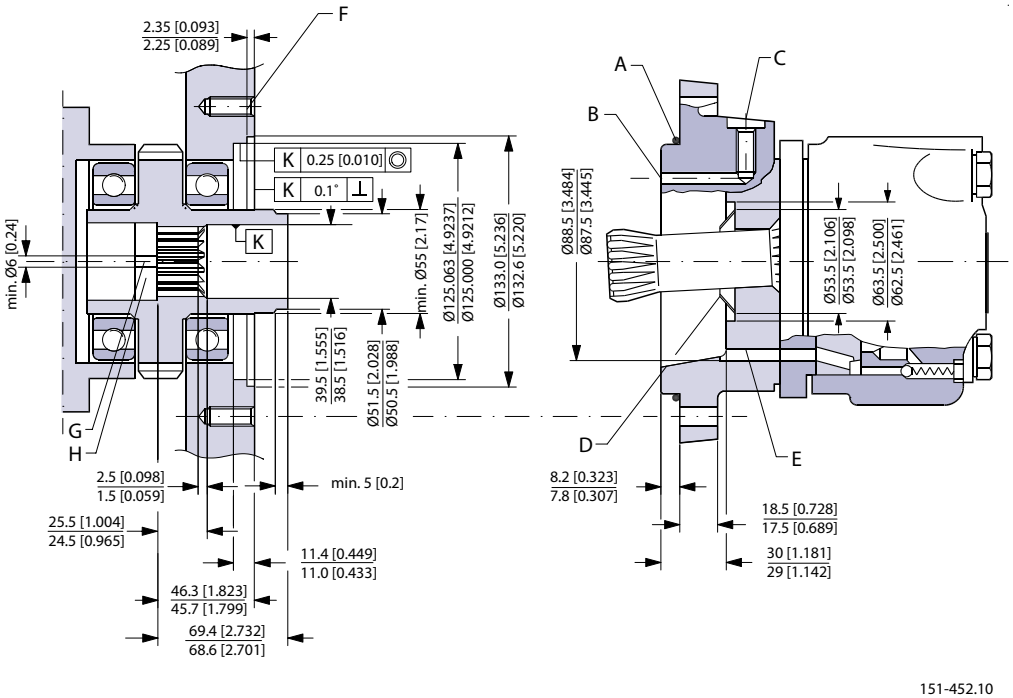
The conical sealing ring (code. no. 633B9022) is supplied with the motor.

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]



151-452.10

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/mm^2) or SAE 8620.

Hardening specification:

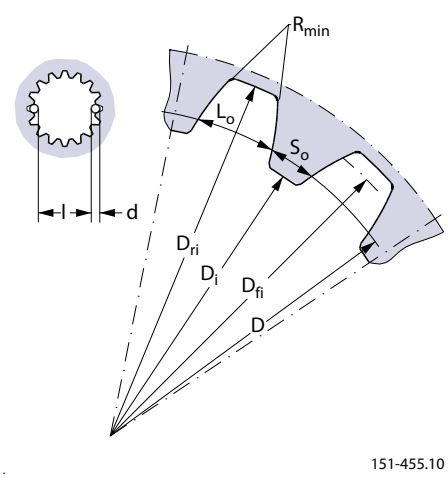
- On the surface: HV = 750 ± 50
- 0.7 ± 0.2 mm under the surface: HV = 560

Internal involute spline data; Standard ANS B92.1-1970, class 5 (corrected m · 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	$4.516^{\pm0.037}$	$0.1777^{\pm0.0014}$
Tooth thickness (circular)	S_o	2.170	0.0854
Fillet radius	$R_{min.}$	0.5	0.02
Max. measurement between pins*	I	$26.9_0^{+0.1}$	$1.059_0^{+0.004}$
Pin dia.	d	$4.834^{\pm0.001}$	$0.1903^{\pm0.00004}$

* Finished dimensions (when hardened).

OMT



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 [cm³]				
	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

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.

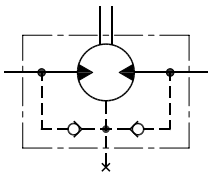
For max. permissible combination of flow and pressure, see function diagram for actual motor.

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

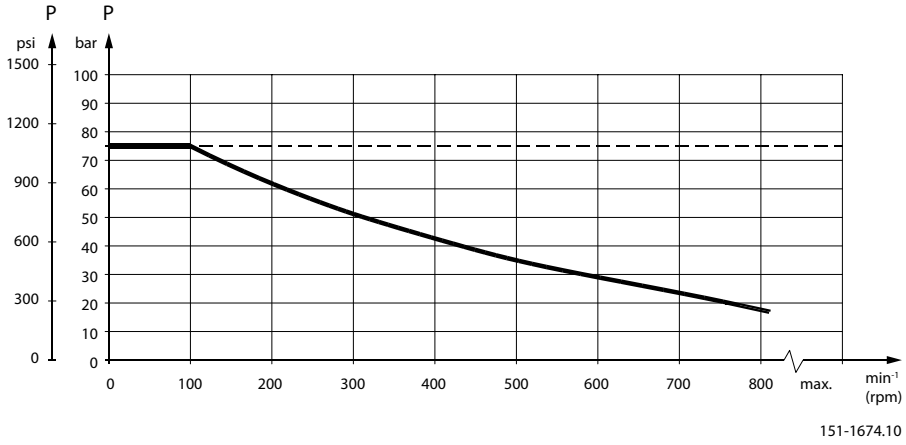


151-320.10

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

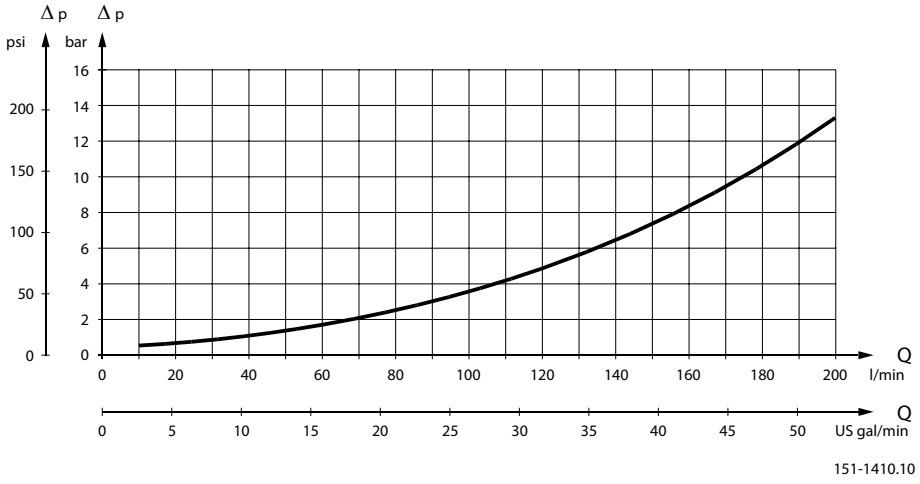


151-1674.10

– – – – 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 mm^2/s [165 SUS]

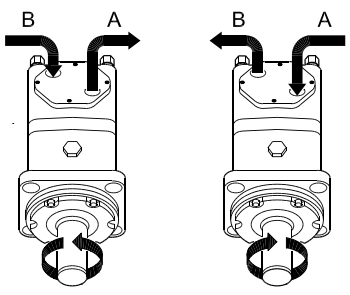
OMV

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



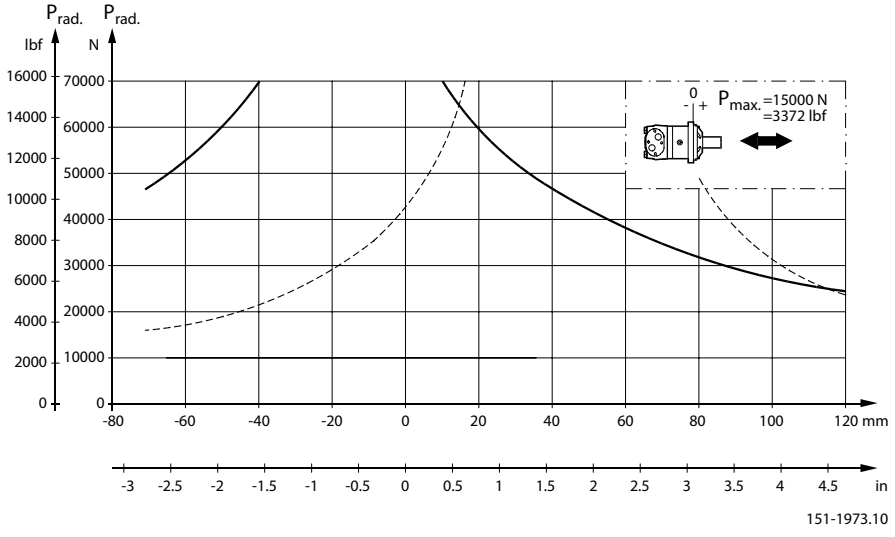
Permissible shaft loads for OMV

Mounting flange:

Standard

Shaft:

All shaft types



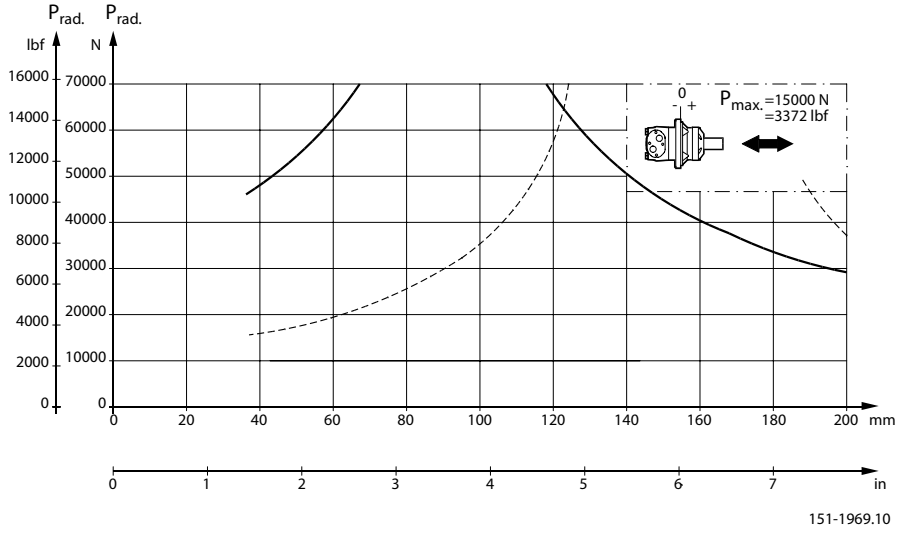
OMV

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.

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.

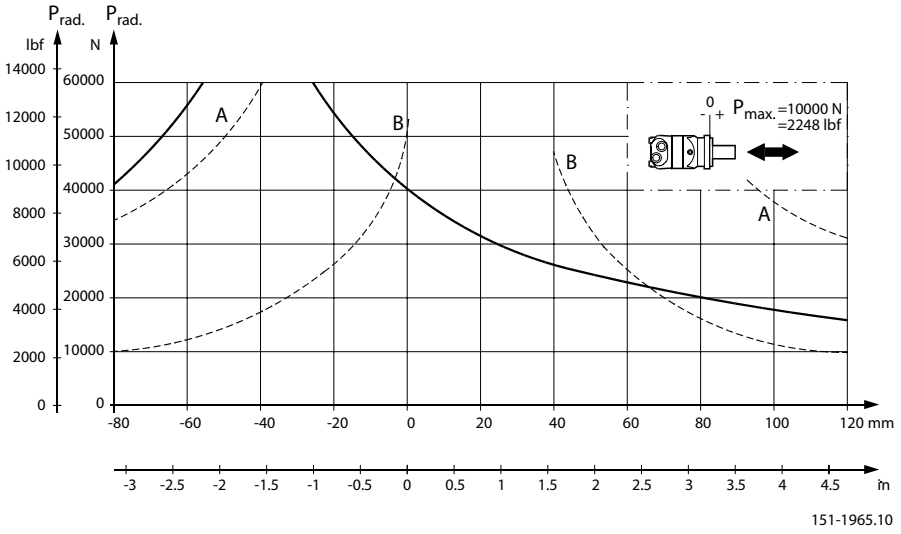
Mounting flange:

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.

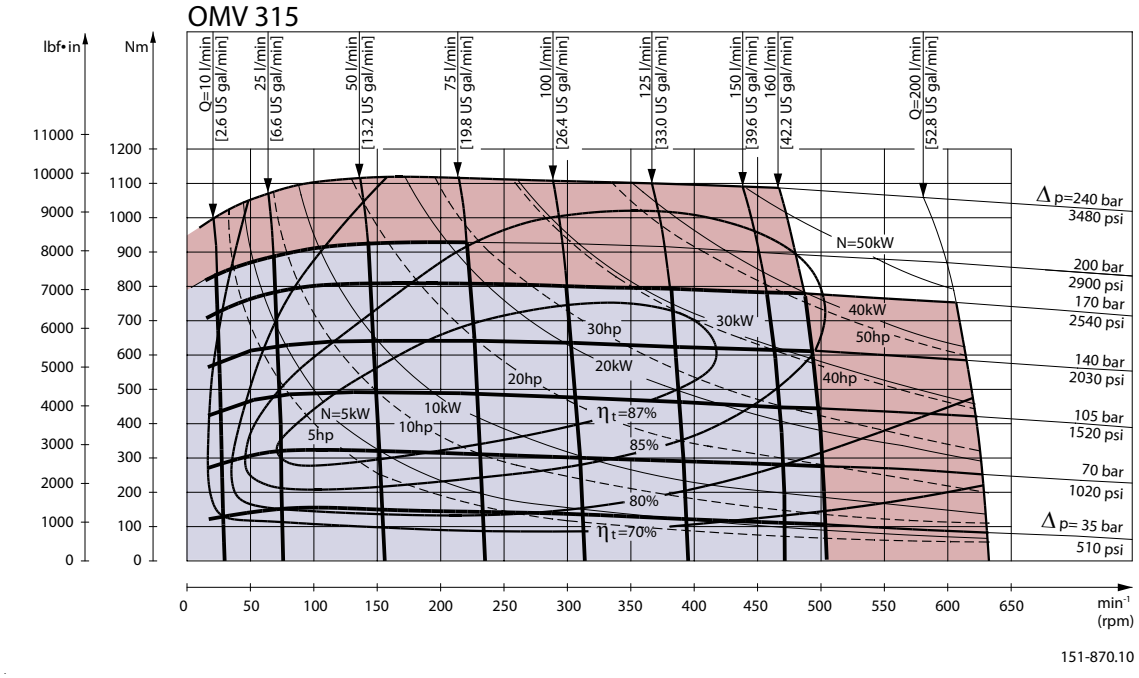
Bearing life calculations can be made using the explanation and formula provided in the chapter "Bearing dimensioning" in the technical information "General Orbital motors" 520L0232.

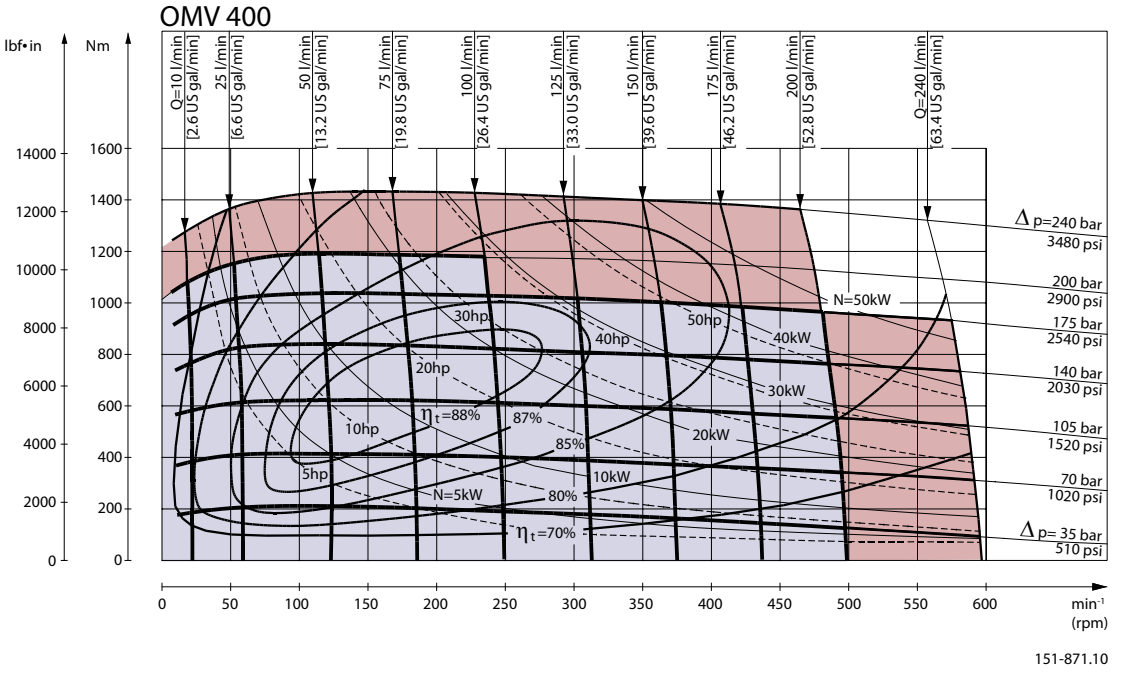
Function diagrams

Continuous range

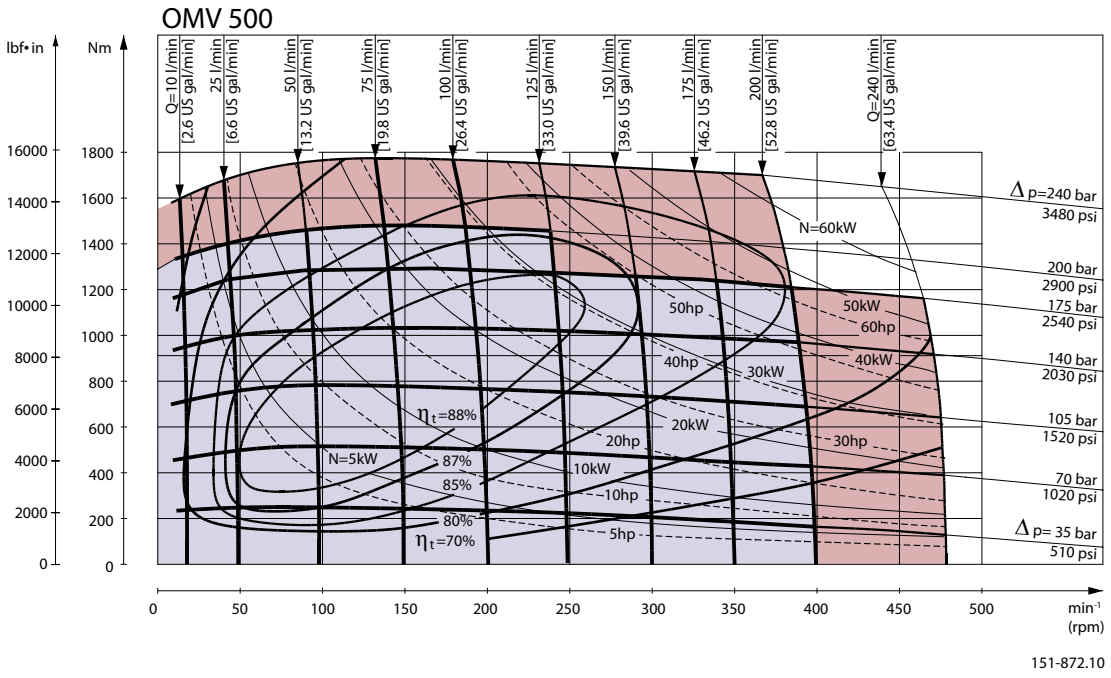
Intermittent range (maximum 10% operation every minute)

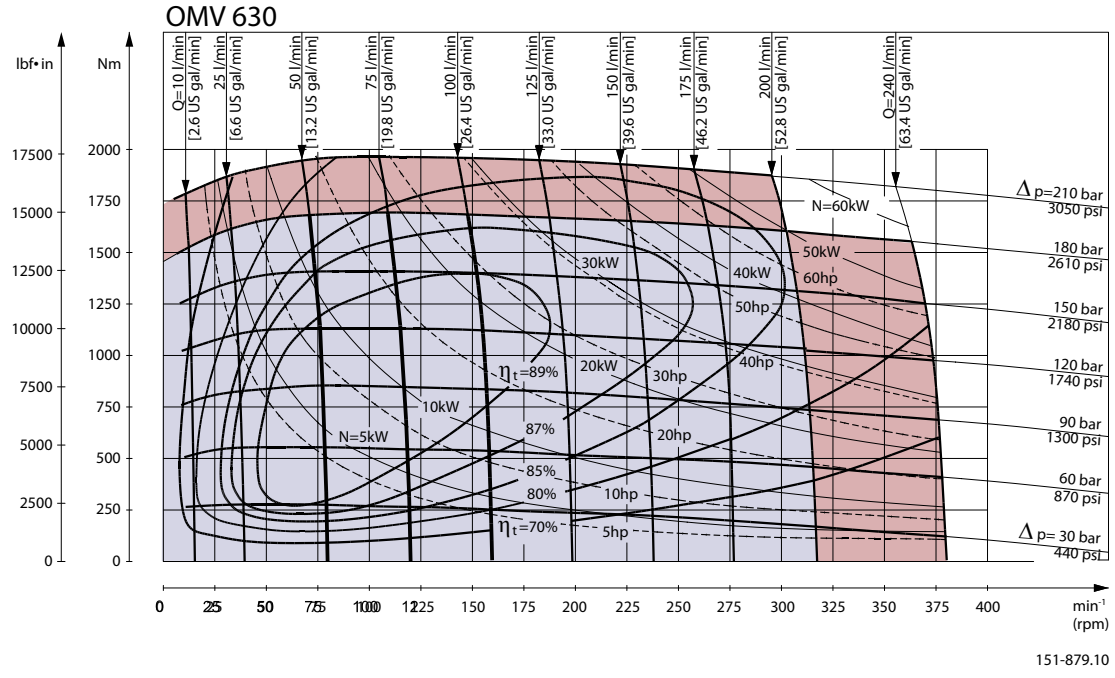
OMV


OMV 315
lbf•in
Nm
Q=10 l/min [2.6 US gal/min]
25 l/min [6.6 US gal/min]
50 l/min [13.2 US gal/min]
75 l/min [19.8 US gal/min]
100 l/min [26.4 US gal/min]
125 l/min [33.0 US gal/min]
150 l/min [39.6 US gal/min]
160 l/min [42.2 US gal/min]
Q=200 l/min [52.8 US gal/min]
Δ p=240 bar 3480 psi
200 bar 2900 psi
170 bar 2540 psi
140 bar 2030 psi
105 bar 1520 psi
70 bar 1020 psi
Δ p= 35 bar 510 psi
N=50kW
40kW
50hp
30hp
30kW
20hp
20kW
40hp
N=5kW
10kW
10hp
5hp
ηt=87%
85%
80%
ηt=70%
min-1 (rpm)
151-870.10

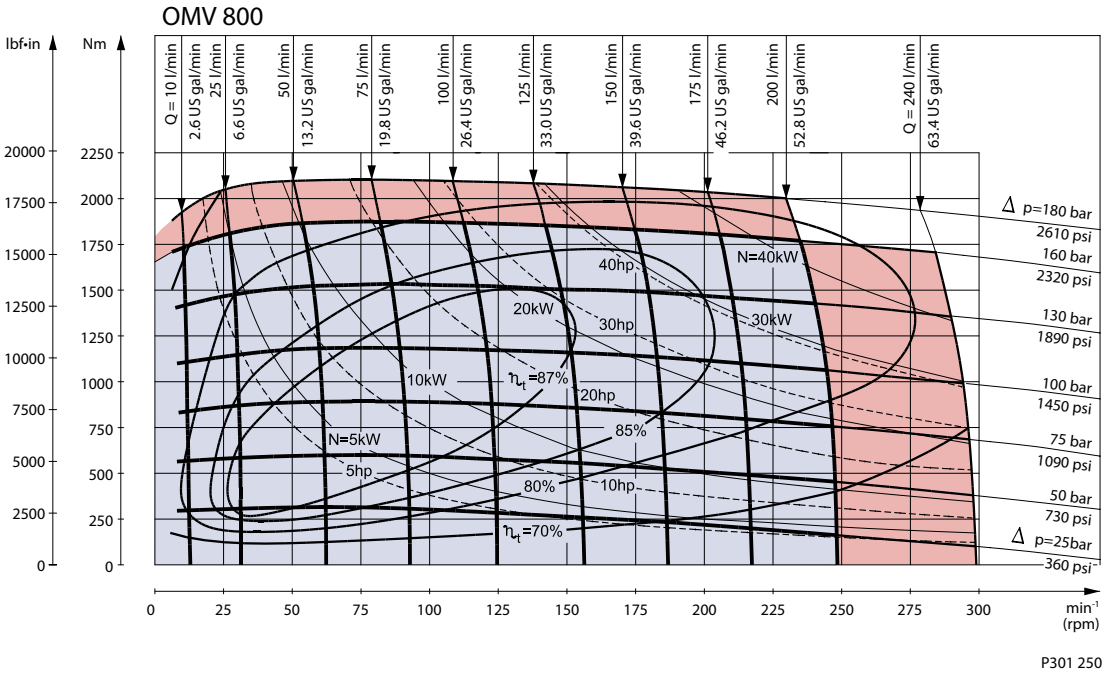

OMV 400
lbf•in
Nm
Q=10 l/min [2.6 US gal/min]
25 l/min [6.6 US gal/min]
50 l/min [13.2 US gal/min]
75 l/min [19.8 US gal/min]
100 l/min [26.4 US gal/min]
125 l/min [33.0 US gal/min]
150 l/min [39.6 US gal/min]
175 l/min [46.2 US gal/min]
200 l/min [52.8 US gal/min]
Q=240 l/min [63.4 US gal/min]
Δ p=240 bar 3480 psi
200 bar 2900 psi
175 bar 2540 psi
140 bar 2030 psi
105 bar 1520 psi
70 bar 1020 psi
Δ p= 35 bar 510 psi
N=50kW
30hp
50hp
40hp
40kW
20hp
30kW
ηt=88%
87%
85%
20kW
10hp
10kW
5hp
N=5kW
80%
ηt=70%
min-1 (rpm)
151-871.10

OMV


OMV 500
lbf• in
Nm
Q=10 l/min [2.6 US gal/min]
25 l/min [6.6 US gal/min]
50 l/min [13.2 US gal/min]
75 l/min [19.8 US gal/min]
100 l/min [26.4 US gal/min]
125 l/min [33.0 US gal/min]
150 l/min [39.6 US gal/min]
175 l/min [46.2 US gal/min]
200 l/min [52.8 US gal/min]
Q=240 l/min [63.4 US gal/min]
Δ p=240 bar 3480 psi
200 bar 2900 psi
175 bar 2540 psi
140 bar 2030 psi
105 bar 1520 psi
70 bar 1020 psi
Δ p= 35 bar 510 psi
N=60kW
50kW
60hp
50hp
40kW
40hp
30kW
30hp
20kW
20hp
10kW
10hp
5hp
N=5kW
ηt=88%
87%
85%
80%
ηt=70%
min-1 (rpm)
151-872.10


OMV 630
lbf• in
Nm
Q=10 l/min [2.6 US gal/min]
25 l/min [6.6 US gal/min]
50 l/min [13.2 US gal/min]
75 l/min [19.8 US gal/min]
100 l/min [26.4 US gal/min]
125 l/min [33.0 US gal/min]
150 l/min [39.6 US gal/min]
175 l/min [46.2 US gal/min]
200 l/min [52.8 US gal/min]
Q=240 l/min [63.4 US gal/min]
Δ p=210 bar 3050 psi
180 bar 2610 psi
150 bar 2180 psi
120 bar 1740 psi
90 bar 1300 psi
60 bar 870 psi
Δ p= 30 bar 440 psi
N=60kW
50kW
60hp
50hp
40kW
40hp
30kW
30hp
20kW
20hp
10kW
10hp
5hp
N=5kW
ηt=89%
87%
85%
80%
ηt=70%
min-1 (rpm)
151-879.10

OMV



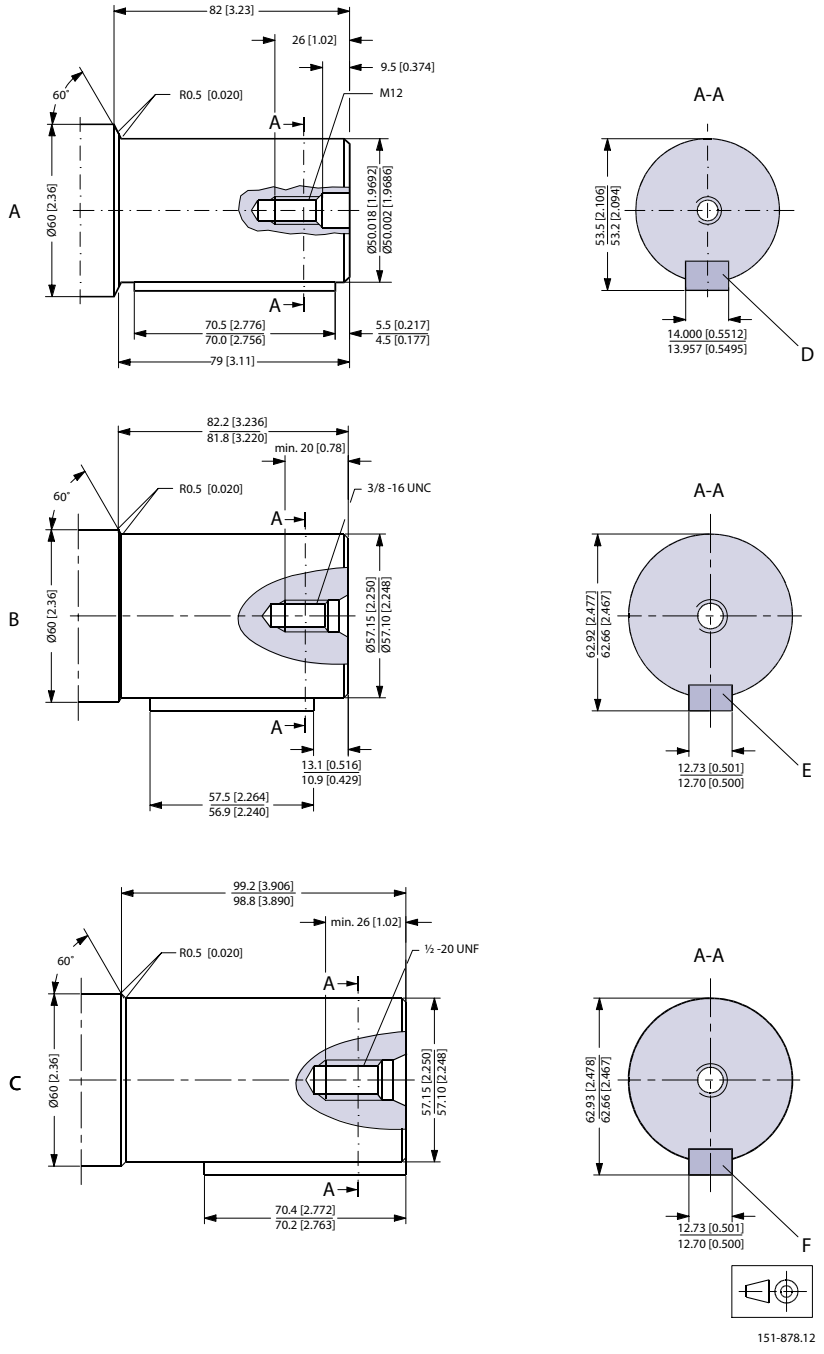
Function diagram use

Explanation of function diagram use, basis and conditions, see *Speed, torque and output* on page 7.

Intermittent pressure drop and oil flow must not occur simultaneously.

OMV

Shaft version



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

$1/2 \times 1/2 \times 2^1/_4$ in; B.S. 46

Keyway deviates from standard

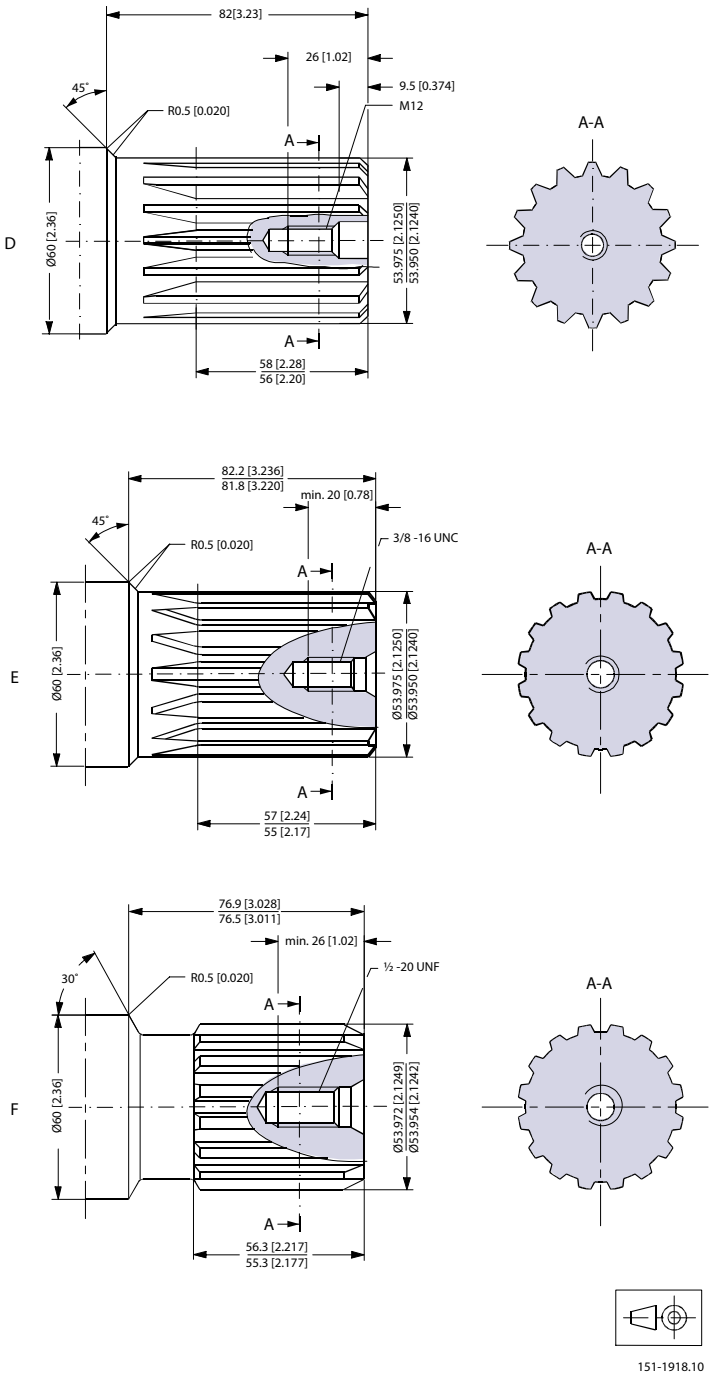
C Cylindrical 2.25 in shaft for OMV with mounting flange SAE-C

F Parallel key

$1/2 \times 1/2 \times 2^1/_4$ in; B.S. 46

Keyway deviates from standard

OMV



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

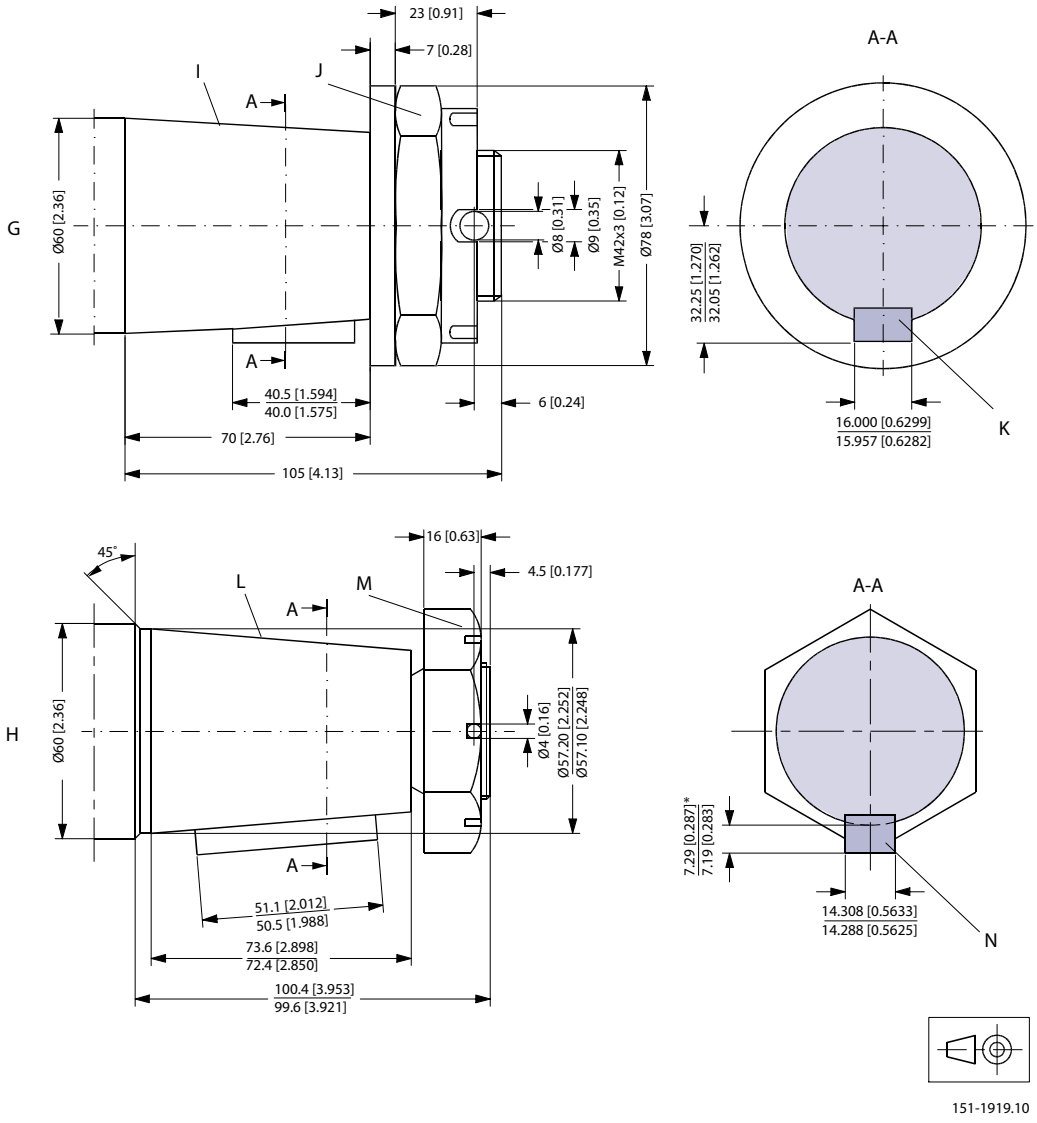
Flat root side fit

Pitch 8/16; Teeth 16

Major dia. 2.125 in

OMV

Pressure angle 30°



Pressure angle 30°

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

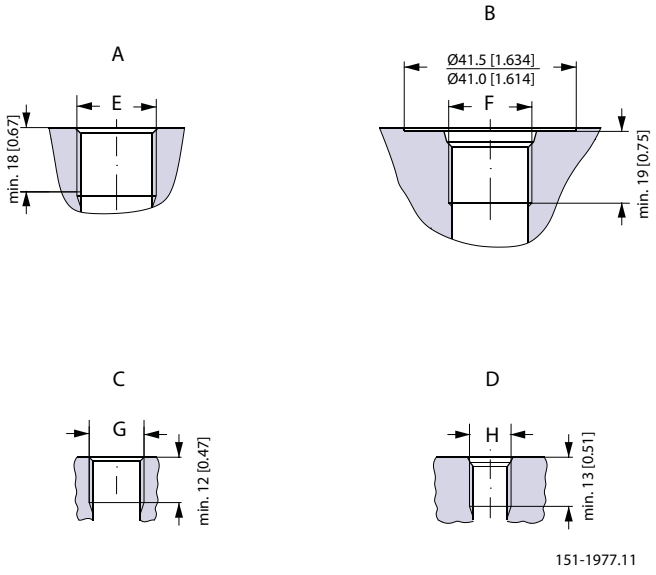
M 11/2 - 18 UNEF
Across flats: 23/8 in
Tightening torque: 750 ±50 Nm [6640 ±440 lbf·in]

N Parallel key
9/16 × 9/16 × 2 in
B.S. 46

OMV

Keyway deviates from standard

Port thread versions

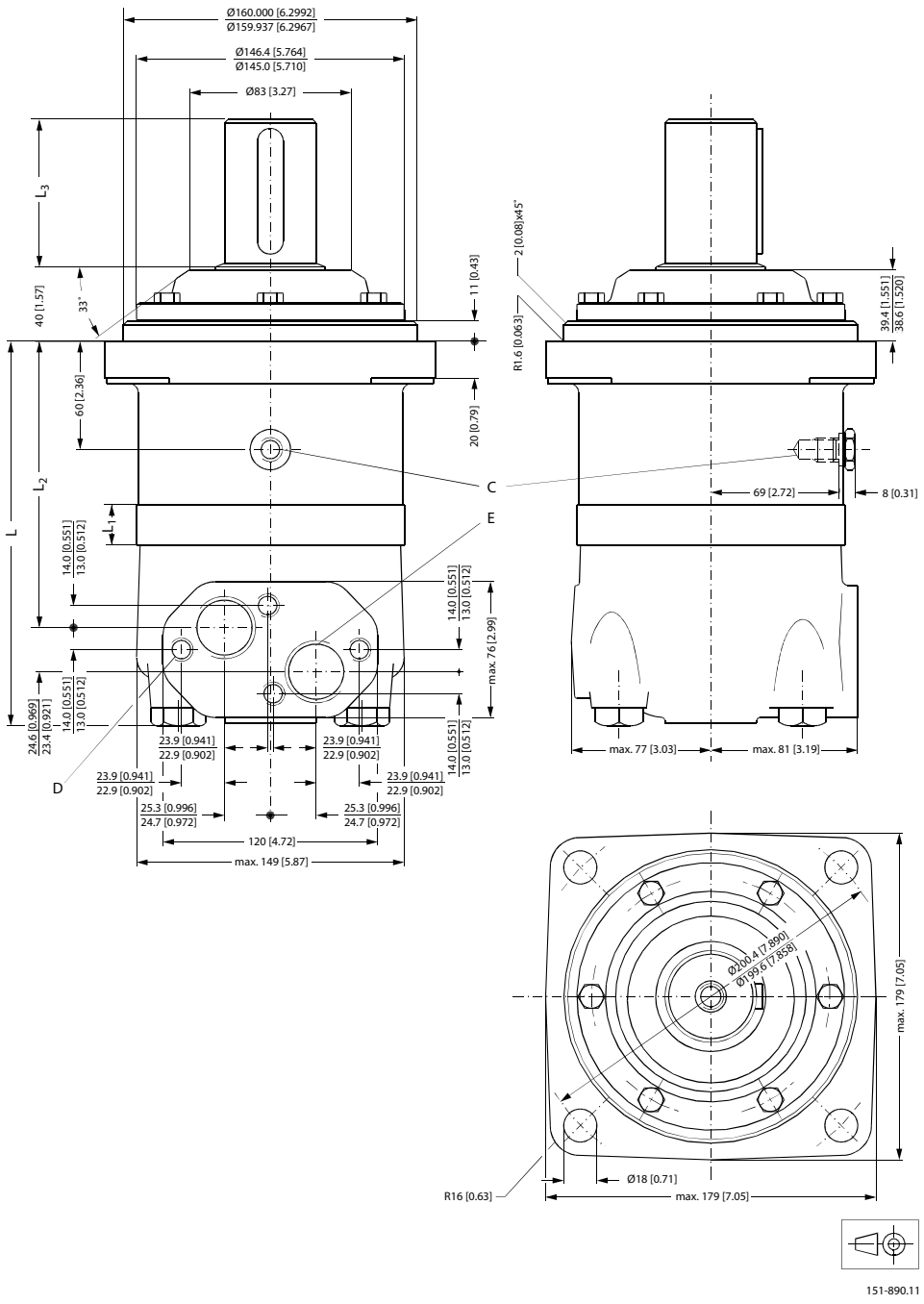


A	G main ports	**B**	UN main ports
E	ISO 228/1 - G1 O-ring boss port	**F**	1 5/16 - 12 UN
C	G drain port	**D**	UNF drain port
G	ISO 228/1 - G1/4 O-ring boss port	**H**	9/16 - 18 UNF

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

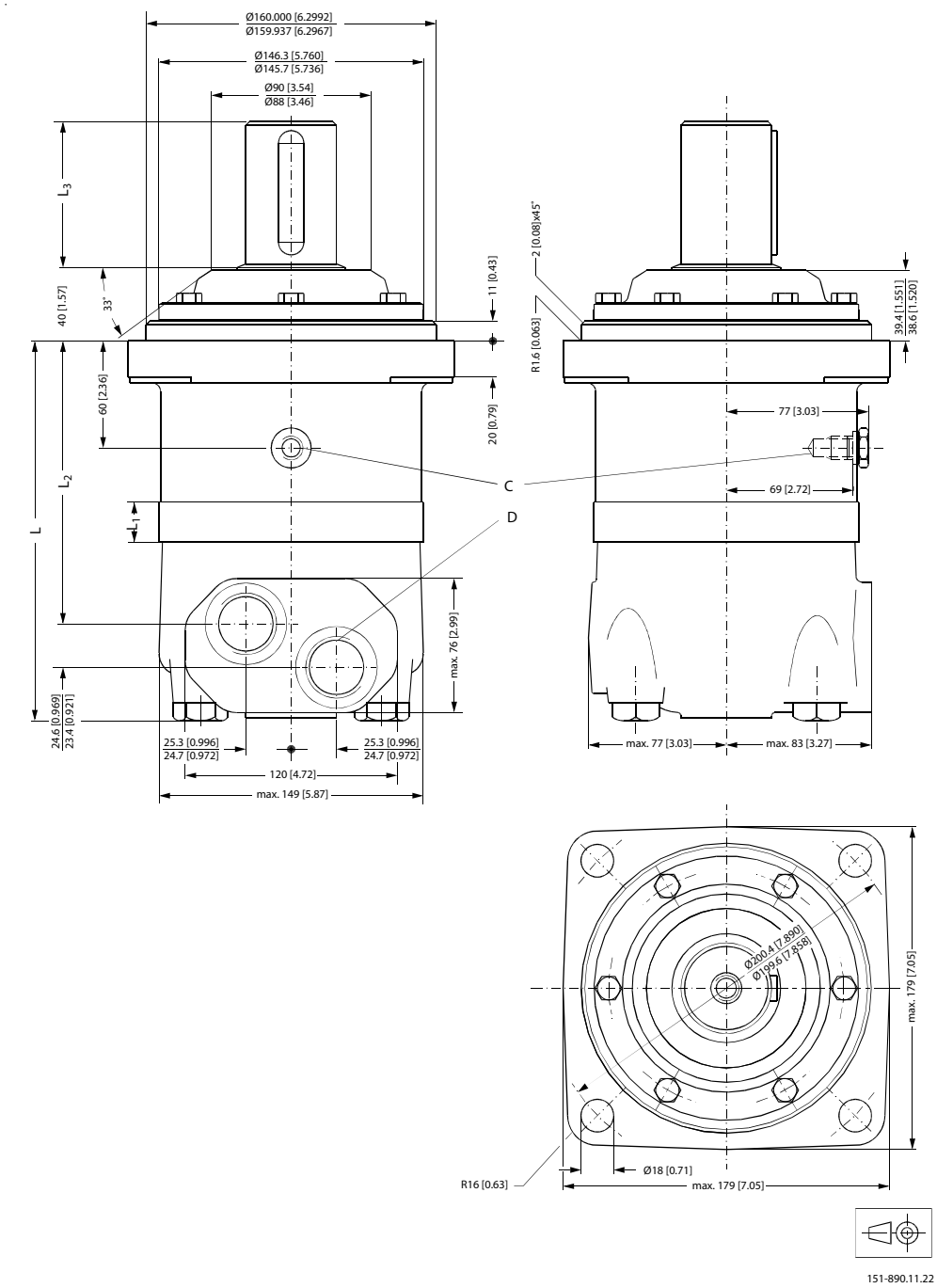
Type	L_{max} mm [in]	L_1* mm [in]	L_2 mm [in]
OMV 315	215 [8.46]	22.0 [0.866]	160 [6.30]
OMV 400	222 [8.74]	29.0 [1.142]	167 [6.57]
OMV 500	230 [9.05]	37.0 [1.457]	175 [6.89]
OMV 630	240 [9.45]	47.5 [1.870]	186 [7.32]
OMV 800	254 [10.00]	61.5 [2.421]	200 [7.87]

* 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



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

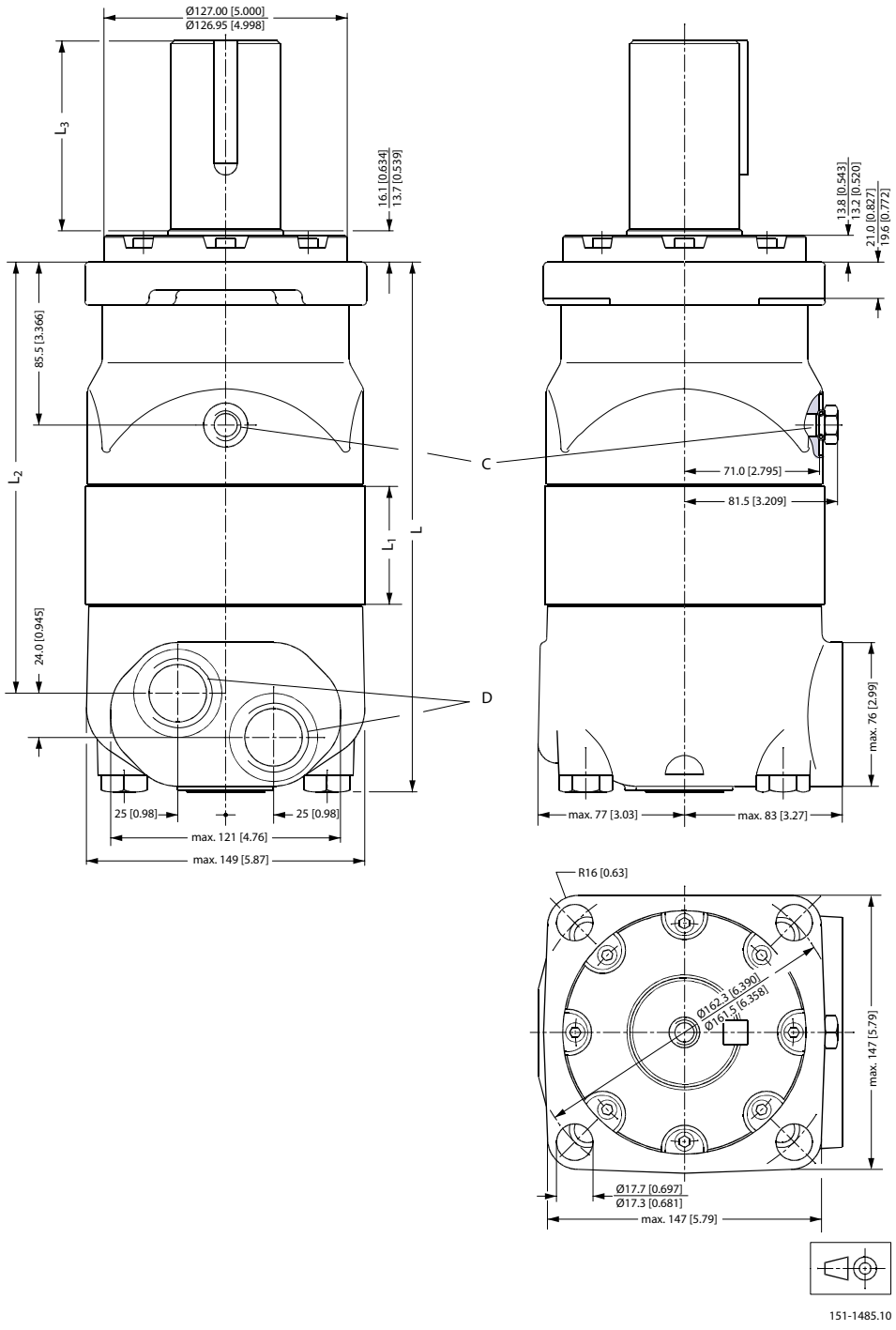
Type	L_{max} mm [in]	L_1 *mm [in]	L_2 mm [in]
OMV 630	240 [9.45]	47.5 [1.870]	186 [7.32]
OMV 800	254 [10.00]	61.5 [2.421]	200 [7.87]

* 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



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

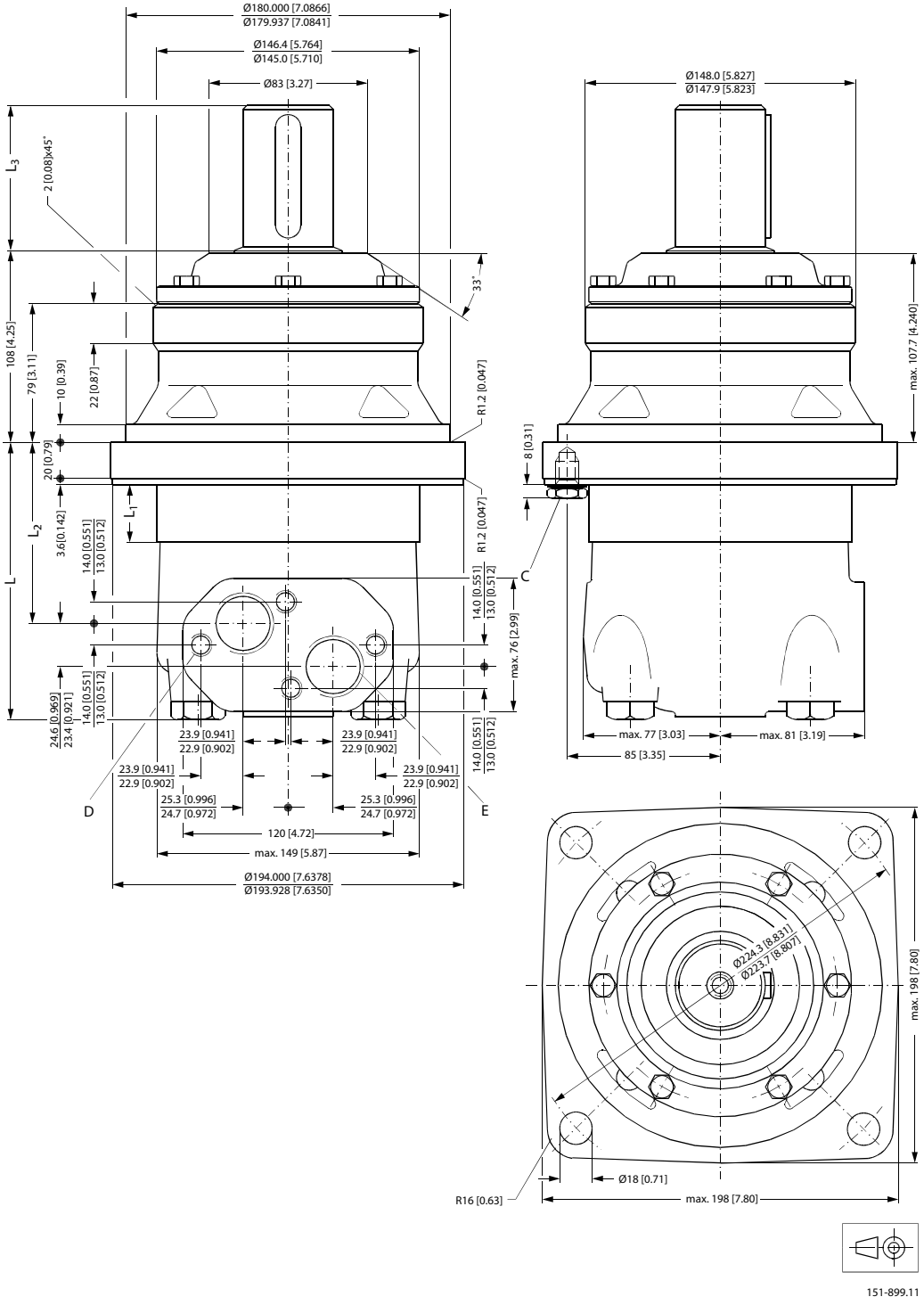
Type	L_{max} mm [in]	L_1 *mm [in]	L_2 mm [in]
OMV 315	239 [9.41]	22.0 [0.866]	185 [7.28]
OMV 400	246 [9.69]	29.0 [1.142]	192 [7.56]
OMV 500	254 [10.00]	37.0 [1.457]	200 [7.87]
OMV 630	265 [10.43]	47.5 [1.870]	211 [8.31]
OMV 800	279 [10.98]	61.5 [2.421]	225 [8.86]

* 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

OMV

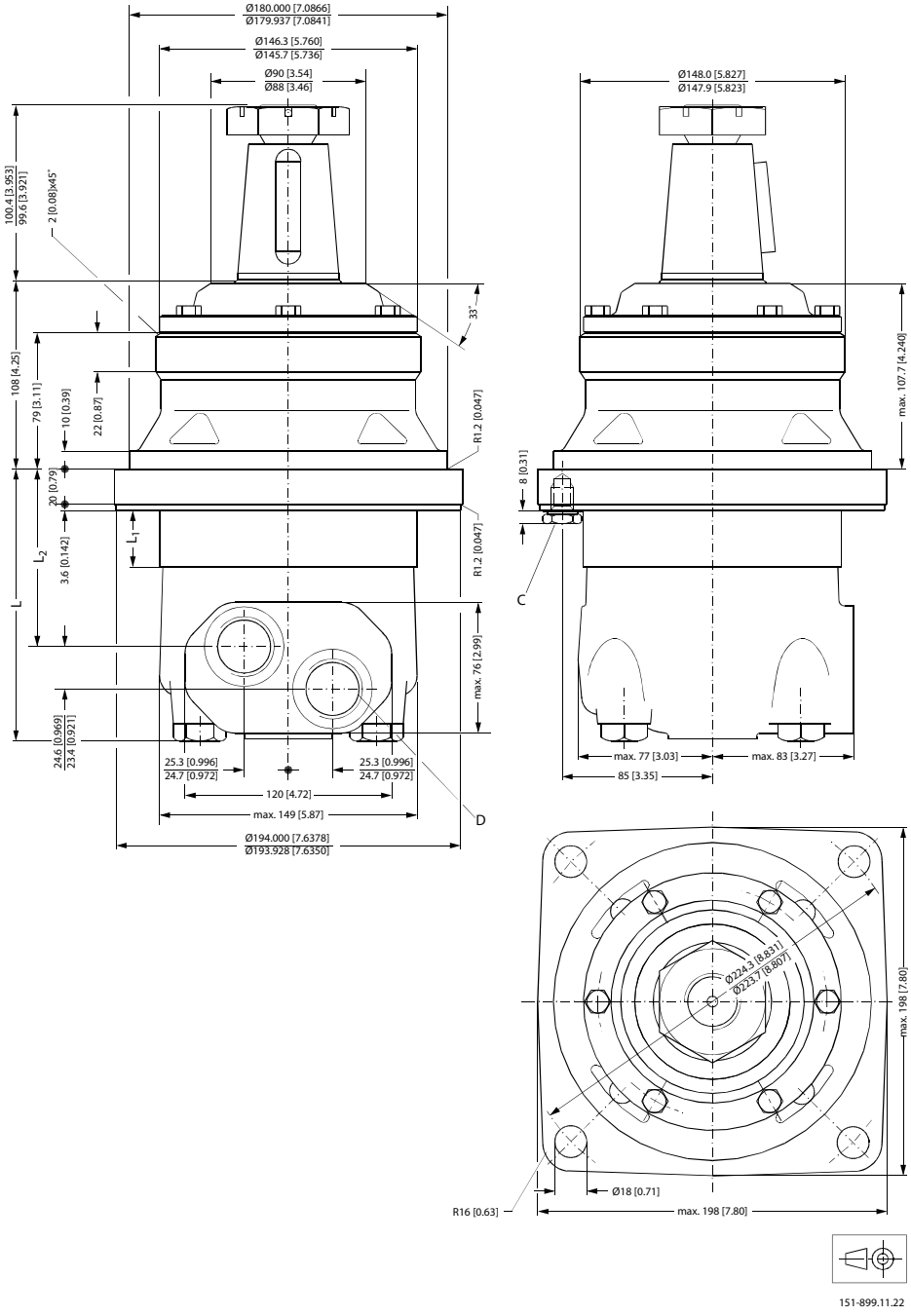
Type	L_{max} mm [in]	L_1 *mm [in]	L_2 mm [in]
OMVW 315	146 [5.75]	22.0 [0.866]	92 [3.62]
OMVW 400	153 [6.02]	29.0 [1.142]	99 [3.90]
OMVW 500	161 [6.34]	37.0 [1.457]	107 [4.21]
OMVW 630	172 [6.77]	47.5 [1.870]	118 [4.65]
OMVW 800	185 [7.28]	61.5 [2.421]	132 [5.20]

* 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

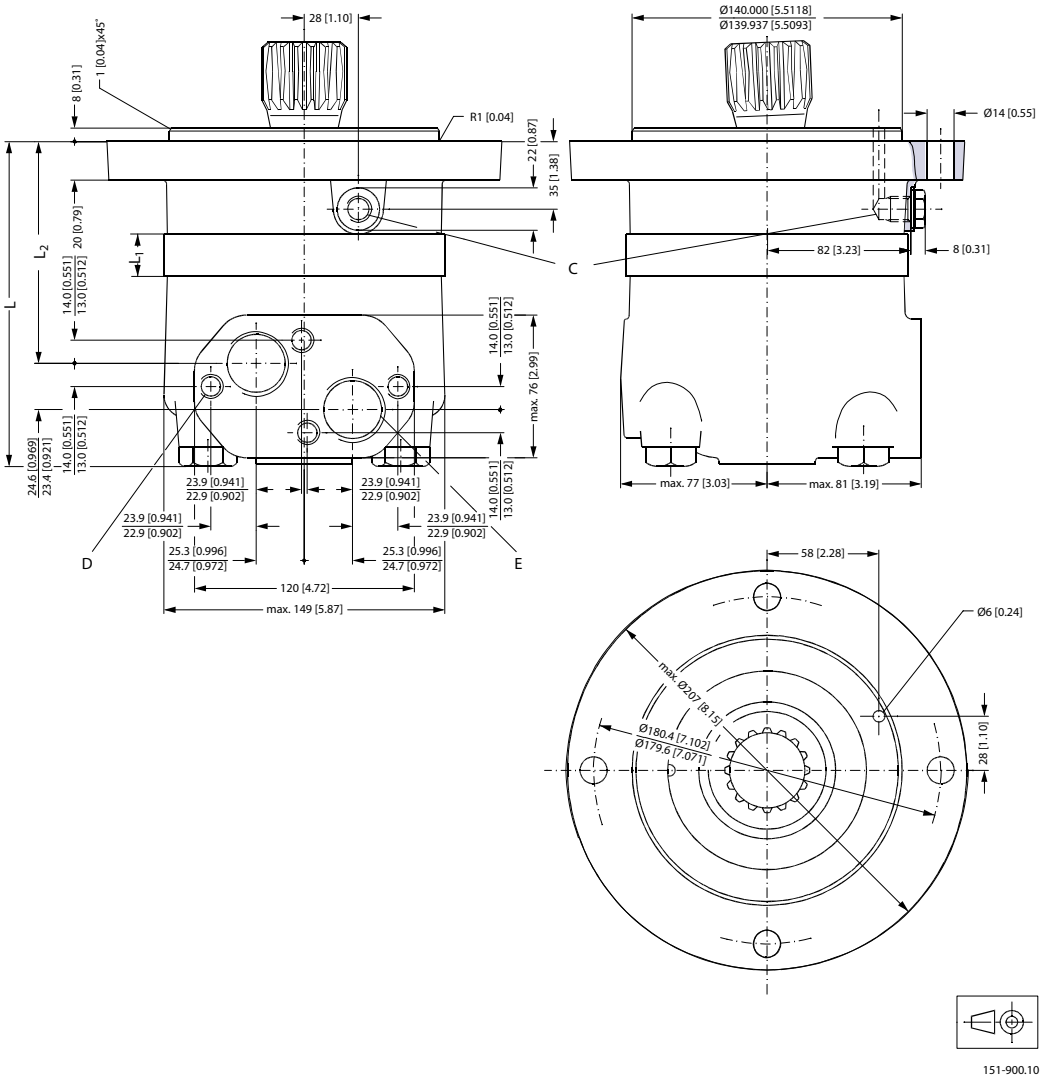
Type	L_{max} mm [in]	L_1 * mm [in]	L_2 mm [in]
OMVW 315	147 [5.79]	22.0 [0.866]	92 [3.62]
OMVW 400	154 [6.06]	29.0 [1.142]	99 [3.90]
OMVW 500	162 [6.38]	37.0 [1.457]	107 [4.21]

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



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.

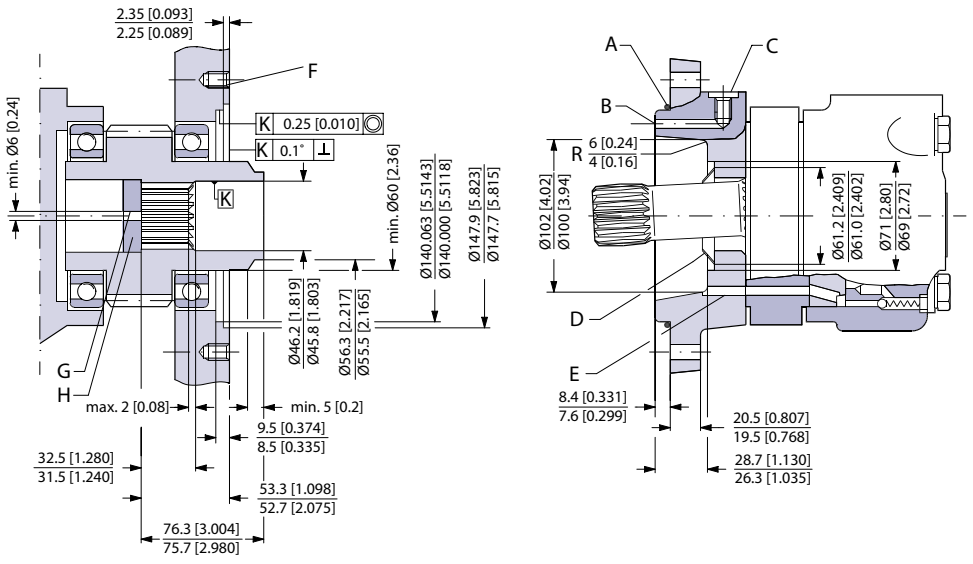
The conical sealing ring (code. no. 633B9021) is supplied with the motor.

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]



A O-ring: 140 × 3 mm

B External drain channel

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

E Internal drain channel

F M12; minimum 18 mm [0.71 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/mm^2) or SAE 8620.

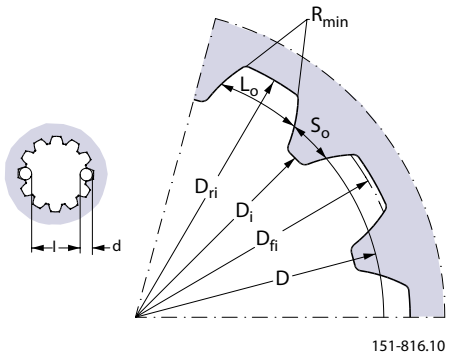
Hardening specification:

- 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 · 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	$5.180^{\pm0.037}$	$0.204^{\pm0.0015}$
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	$5.6^{\pm0.001}$	$0.22^{\pm0.00004}$

* Finished dimensions (when hardened)



151-816.10

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.

Weight of motors

Code number and weight

Code number and weight of motors

Code no	Weight	
	kg	[lb]
151B2050	20.0	44.1
151B2051	20.5	45.2
151B2052	21.0	46.3
151B2053	22.0	48.5
151B2054	23.0	50.7
151B2055	24.0	52.9
151B2056	20.0	44.1
151B2057	20.5	45.2
151B2058	21.0	46.3
151B2059	22.0	48.5
151B2060	23.0	50.7
151B2061	24.0	52.9
151B2062	20.0	44.1
151B2063	20.5	45.2
151B2064	21.0	46.3
151B2065	22.0	48.5
151B2066	23.0	50.7
151B2067	24.0	52.9
151B2080	22.0	48.5
151B2081	22.5	49.6
151B2082	23.0	50.7
151B2083	24.0	52.9
151B2084	25.0	55.1
151B2085	26.0	57.3
151B2150	31.8	70.1
151B2151	32.6	71.9
151B2152	33.5	73.9
151B2153	34.9	76.9
151B2154	36.5	80.5
151B2155	31.8	70.1
151B2156	32.6	71.9
151B2157	33.5	73.9
151B2158	34.9	76.9
151B2159	36.5	80.5
151B2160	31.8	70.1
151B2161	32.6	71.9
151B2162	33.5	73.9
151B2163	34.9	76.9

Weight of motors

Code number and weight of motors (continued)

Code no	Weight	
	kg	[lb]
151B2164	36.5	80.5
151B2170	32.4	71.4
151B2171	33.2	73.2
151B2172	34.1	75.2
151B2173	35.5	78.3
151B2174	37.1	81.8
151B2183	30.0	66.2
151B2184	30.8	67.9
151B2185	31.7	69.9
151B2186	33.1	73.0
151B2187	34.7	76.5
151B2188	30.0	66.2
151B2189	30.8	67.9
151B2190	31.7	69.9
151B2191	33.1	73.0
151B2192	34.7	76.5
151B3000	20.0	44.1
151B3001	20.5	45.2
151B3002	21.0	46.3
151B3003	22.0	48.5
151B3004	23.0	50.7
151B3005	24.0	52.9
151B3006	20.0	44.1
151B3007	20.5	45.2
151B3008	21.0	46.3
151B3009	22.0	48.5
151B3010	23.0	50.7
151B3011	24.0	52.9
151B3012	20.0	44.1
151B3013	20.5	45.2
151B3014	21.0	46.3
151B3015	22.0	48.5
151B3016	23.0	50.7
151B3017	24.0	52.9
151B3018	20.0	44.1
151B3019	20.5	45.2
151B3020	21.0	46.3
151B3021	22.0	48.5
151B3022	23.0	50.7
151B3023	24.0	52.9

Weight of motors

Code number and weight of motors (continued)

Code no	Weight	
	kg	[lb]
151B3024	22.0	48.5
151B3025	22.5	49.6
151B3026	23.0	50.7
151B3027	24.0	52.9
151B3028	25.0	55.1
151B3029	26.0	57.3
151B3030	22.0	48.5
151B3031	22.5	49.6
151B3032	23.0	50.7
151B3033	24.0	52.9
151B3034	25.0	55.1
151B3035	26.0	57.3
151B3036	15.0	33.1
151B3037	15.5	34.2
151B3038	16.0	35.3
151B3039	17.0	37.5
151B3040	18.0	39.7
151B3041	19.0	41.9
151B3100	31.8	70.1
151B3101	32.6	71.9
151B3102	33.5	73.9
151B3103	34.9	76.9
151B3104	36.5	80.5
151B3105	31.8	70.1
151B3106	32.6	71.9
151B3107	33.5	73.9
151B3108	34.9	76.9
151B3109	36.5	80.5
151B3110	31.8	70.1
151B3111	32.6	71.9
151B3112	33.5	73.9
151B3113	34.9	76.9
151B3114	36.5	80.5
151B3115	32.4	71.4
151B3116	33.2	73.2
151B3117	34.1	75.2
151B3118	35.5	78.3
151B3119	37.1	81.8
151B3120	32.4	71.4
151B3121	33.2	73.2

Weight of motors

Code number and weight of motors (continued)

Code no	Weight	
	kg	[lb]
151B3122	34.1	75.2
151B3123	35.5	78.3
151B3124	37.1	81.8
151B3125	22.7	50.1
151B3126	23.5	51.8
151B3127	24.4	53.8
151B3128	25.6	56.4
151B3129	27.7	61.1
151B3200	31.0	68.3
151B3201	31.5	69.4
151B3202	32.0	70.5
151B3203	33.0	72.8
151B3204	34.0	75.0
151B3205	35.0	77.2
151B3207	31.0	68.3
151B3208	31.5	69.4
151B3209	32.0	70.5
151B3210	33.0	72.8
151B3211	34.0	75.0
151B3212	35.0	77.2
151B4000	24.5	54.0
151B4001	25.0	55.1
151B4002	25.5	56.2
151B4003	26.5	58.4
151B4004	27.5	60.6
151B4005	28.5	62.8
151B4007	24.5	54.0
151B4008	25.0	55.1
151B4009	25.5	56.2
151B4010	26.5	58.4
151B4011	27.5	60.6
151B4012	28.5	62.8
151B4021	24.5	54.0
151B4022	25.0	55.1
151B4023	25.5	56.2
151B4024	26.5	58.4
151B4025	27.5	60.6
151B4026	28.5	62.8
151B4028	24.5	54.0
151B4029	25.0	55.1

Weight of motors

Code number and weight of motors (continued)

Code no	Weight	
	kg	[lb]
151B4030	25.5	56.2
151B4031	26.5	58.4
151B4032	27.5	60.6
151B4033	28.5	62.8
151F0500	9.8	21.6
151F0501	10.0	22.1
151F0502	10.3	22.7
151F0503	10.7	23.6
151F0504	11.1	24.5
151F0505	11.6	25.6
151F0506	12.3	27.1
151F0507	9.8	21.6
151F0508	10.0	22.1
151F0509	10.3	22.7
151F0510	10.7	23.6
151F0511	11.1	24.5
151F0512	11.6	25.6
151F0513	12.3	27.1
151F0514	9.8	21.6
151F0515	10.0	22.1
151F0516	10.3	22.7
151F0517	10.7	23.6
151F0518	11.1	24.5
151F0519	11.6	25.6
151F0520	12.3	27.1
151F0521	10.3	22.7
151F0522	10.5	23.1
151F0523	10.8	23.8
151F0524	11.2	24.7
151F0525	11.6	25.6
151F0526	12.1	26.7
151F0527	12.8	28.2
151F0528	10.3	22.7
151F0529	10.5	23.1
151F0530	10.8	23.8
151F0531	11.2	24.7
151F0532	11.6	25.6
151F0533	12.1	26.7
151F0534	12.8	28.2
151F0535	7.8	17.2

Weight of motors

Code number and weight of motors (continued)

Code no	Weight	
	kg	[lb]
151F0536	8.0	17.6
151F0537	8.3	18.3
151F0538	8.7	19.2
151F0539	9.1	20.1
151F0540	9.6	21.2
151F0541	10.3	22.7
151F0542	10.2	22.5
151F0543	10.4	22.9
151F0544	10.7	23.6
151F0545	11.1	24.5
151F0546	11.5	25.4
151F0547	12.0	26.5
151F0548	12.7	28.0
151F0560	9.8	21.6
151F0561	10.0	22.1
151F0562	10.3	22.7
151F0563	10.7	23.6
151F0564	11.1	24.5
151F0565	11.6	25.6
151F0566	12.3	27.1
151F0605	13.1	28.9
151F0608	11.1	24.5
151F0609	13.6	30.0
151F0610	13.6	30.0
151F2200	9.8	21.6
151F2201	10.0	22.1
151F2202	10.3	22.7
151F2203	10.7	23.6
151F2204	11.1	24.5
151F2205	11.6	25.6
151F2206	12.3	27.1
151F2207	9.8	21.6
151F2208	10.0	22.1
151F2209	10.3	22.7
151F2210	10.7	23.6
151F2211	11.1	24.5
151F2212	11.6	25.6
151F2213	12.3	27.1
151F2214	9.8	21.6
151F2215	10.0	22.1

Weight of motors

Code number and weight of motors (continued)

Code no	Weight	
	kg	[lb]
151F2216	10.3	22.7
151F2217	10.7	23.6
151F2218	11.1	24.5
151F2219	11.6	25.6
151F2220	12.3	27.1
151F2235	10.3	22.7
151F2236	10.5	23.1
151F2237	10.8	23.8
151F2238	11.2	24.7
151F2239	11.6	25.6
151F2240	12.1	26.7
151F2241	12.8	28.2
151F2242	10.3	22.7
151F2243	10.5	23.1
151F2244	10.8	23.8
151F2245	11.2	24.7
151F2246	11.6	25.6
151F2247	12.1	26.7
151F2248	12.8	28.2
151F2261	13.1	28.9
151F2262	13.1	28.9
151F2263	13.6	30.0
151F2264	13.1	28.9
151F2265	13.6	30.0
151F2300	9.8	21.6
151F2301	10.0	22.1
151F2302	10.3	22.7
151F2303	10.7	23.6
151F2304	11.1	24.5
151F2305	11.6	25.6
151F2306	12.3	27.1
151F2307	13.1	28.9
151F2308	9.8	21.6
151F2309	10.0	22.1
151F2310	10.3	22.7
151F2311	10.7	23.6
151F2312	11.1	24.5
151F2313	11.6	25.6
151F2314	12.3	27.1
151F2315	13.1	28.9

Weight of motors

Code number and weight of motors (continued)

Code no	Weight	
	kg	[lb]
151F2316	9.8	21.6
151F2317	10.0	22.1
151F2318	10.3	22.7
151F2319	10.7	23.6
151F2320	11.1	24.5
151F2321	11.6	25.6
151F2322	12.3	27.1
151F2323	13.1	28.9
151F2324	9.8	21.6
151F2325	10.0	22.1
151F2326	10.3	22.7
151F2327	10.7	23.6
151F2328	11.1	24.5
151F2329	11.6	25.6
151F2330	12.3	27.1
151F2331	13.1	28.9
151F2332	9.8	21.6
151F2333	10.0	22.1
151F2334	10.3	22.7
151F2335	10.7	23.6
151F2336	11.1	24.5
151F2337	11.6	25.6
151F2338	12.3	27.1
151F2339	13.1	28.9
151F2345	14.0	30.9
151F2346	14.0	30.9
151F2347	14.0	30.9
151F2348	14.0	30.9
151F2349	14.0	30.9
151F2350	9.8	21.6
151F2351	10.0	22.1
151F2352	10.3	22.7
151F2353	10.7	23.6
151F2354	11.1	24.5
151F2355	11.6	25.6
151F2356	12.3	27.1
151F2357	13.1	28.9
151F2358	14.0	30.9
151F2359	9.8	21.6
151F2360	10.0	22.1

Weight of motors

Code number and weight of motors (continued)

Code no	Weight	
	kg	[lb]
151F2361	10.3	22.7
151F2362	10.7	23.6
151F2363	11.1	24.5
151F2364	11.6	25.6
151F2365	12.3	27.1
151F2366	13.1	28.9
151F2367	14.0	30.9
151F2368	9.8	21.6
151F2369	10.0	22.1
151F2370	10.3	22.7
151F2371	10.7	23.6
151F2372	11.1	24.5
151F2373	11.6	25.6
151F2374	12.3	27.1
151F2375	13.1	28.9
151F2376	14.0	30.9
151F2395	9.8	21.6
151F2396	10.0	22.1
151F2397	10.3	22.7
151F2398	10.7	23.6
151F2399	11.1	24.5
151F2400	11.6	25.6
151F2401	12.3	27.1
151F2402	13.1	28.9
151F2403	14.0	30.9
151F2413	9.8	21.6
151F2414	10.0	22.1
151F2415	10.3	22.7
151F2416	10.7	23.6
151F2417	11.1	24.5

Products we offer:

- Bent Axis Motors
- Closed Circuit Axial Piston Pumps and Motors
- Displays
- Electrohydraulic Power Steering
- Electrohydraulics
- Hydraulic Power Steering
- Integrated Systems
- Joysticks and Control Handles
- Microcontrollers and Software
- Open Circuit Axial Piston Pumps
- Orbital Motors
- PLUS+1® GUIDE
- Proportional Valves
- Sensors
- Steering
- Transit Mixer Drives

Danfoss Power Solutions is a global manufacturer and supplier of high-quality hydraulic and electronic components. We specialize in providing state-of-the-art technology and solutions that excel in the harsh operating conditions of the mobile off-highway market. Building on our extensive applications expertise, we work closely with our customers to ensure exceptional performance for a broad range of off-highway vehicles.

We help OEMs around the world speed up system development, reduce costs and bring vehicles to market faster.

Danfoss – Your Strongest Partner in Mobile Hydraulics.

Go to www.powersolutions.danfoss.com for further product information.

Wherever off-highway vehicles are at work, so is Danfoss. We offer expert worldwide support for our customers, ensuring the best possible solutions for outstanding performance. And with an extensive network of Global Service Partners, we also provide comprehensive global service for all of our components.

Please contact the Danfoss Power Solution representative nearest you.

Comatrol
www.comatrol.com

Schwarzmüller-Inverter
www.schwarzmueller-inverter.com

Turolla
www.turollaocg.com

Hydro-Gear
www.hydro-gear.com

Daikin-Sauer-Danfoss
www.daikin-sauer-danfoss.com

Local address:

Danfoss
Power Solutions (US) Company
2800 East 13th Street
Ames, IA 50010, USA
Phone: +1 515 239 6000

Danfoss
Power Solutions GmbH & Co. OHG
Krokamp 35
D-24539 Neumünster, Germany
Phone: +49 4321 871 0

Danfoss
Power Solutions ApS
Nordborgvej 81
DK-6430 Nordborg, Denmark
Phone: +45 7488 2222

Danfoss
Power Solutions Trading (Shanghai) Co., Ltd.
Building #22, No. 1000 Jin Hai Rd
Jin Qiao, Pudong New District
Shanghai, China 201206
Phone: +86 21 3418 5200