Technical Information
Orbital Motors Type OMP, OMR and OMH

Contents

Chapter 1

A wide range of Orbital Motors

Topics:

Orbital Motors Features

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

Technical Features

The program is characterized by technical features appealing to a large number of applications and by motors that can be adapted to a given application.

Adaptions comprise the following variants:

- Motors with:
  - corrosion resistant parts
  - needle bearing (OMP, OMR)
  - integrated negative holding brake
  - integrated flushing valve
  - speed sensor
  - tachometer connection
  - black finish paint
- Short motors without bearings or Ultra short motors
- Wheel motors with recessed mounting flange

Orbital Motors Application Areas

The orbital motors are used in the following application areas:

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

Speed, torque and output

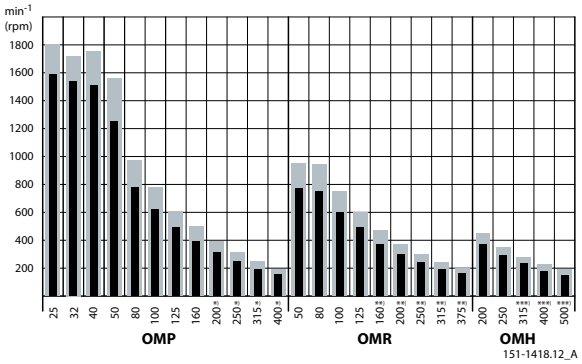


Figure 1: Maximum speed

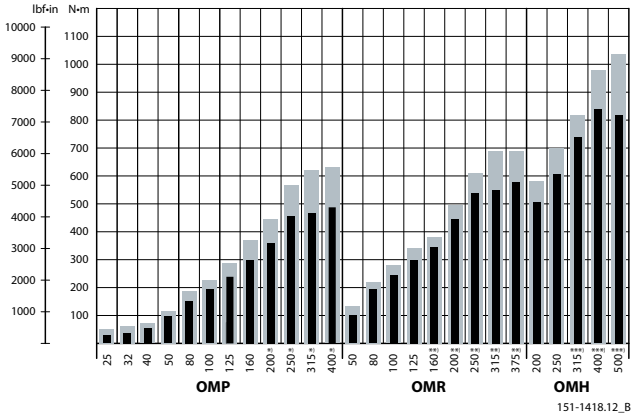
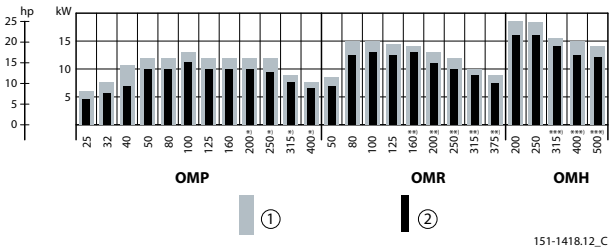


Figure 2: Maximum torque



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

Figure 3: Maximum 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.

- OMP and OMPW: see *OMP function diagrams*
- OMR and OMRW: see *OMR function diagrams* on page 75
- OMH: see *OMH function diagrams* on page 115

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].

Chapter 2

OMP versions and code numbers

Topics:

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

- Section *OMP technical data* on page 17, specify the technical data for OMP X for each shaft type.
- In section *OMP function diagrams* on page 31, the diagram for each motor size is shown.
- See *OMP dimensions* on page 45 for outer main dimensions for the different OMP X motor types.

OMP versions and code numbers

OMP standard motors

Table 1: 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***

Table 2: 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

* Motor painted black

Conf. code	Displacement											
	25	32	40	50	80	100	125	160	200	250	315	400
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

Table 3: 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*

Table 4: 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

Table 5: 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*

Table 6: Code numbers

Conf. code	Displacement											
	25	32	40	50	80	100	125	160	200	250	315	400
C1	-	-	-	151-5211	151-5212	-	-	-	151-5216	-	-	-

Conf. code	Displacement											
	25	**32**	**40**	**50**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**400**
C2	-	-	111302 16	151-70 61	151-70 62	151-70 63	-	151-70 65	151-70 66	151-70 67	151-70 68	151-70 69
C3	-	-	-	-	-	151-70 23	-	-	151-70 26	-	151-70 28	-

Table 7: 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***

Table 8: Code numbers

Conf. code	Displacement											
	25	**32**	**40**	**50**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**400**
D1	-	-	110361 35	151-71 01	151-71 02	151-71 03	151-71 04	151-71 05	151-71 06	151-71 07	151-71 08	151-71 09

OMP motors with corrosion resistant parts

Table 9: 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***

Table 10: Code numbers

Conf. code	Displacement											
	25	**32**	**40**	**50**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**400**
E1	151-53 76	-	-	151-12 08	151-12 09	151-12 10	-	151-12 11	151-12 12	151-12 13	151-12 14	-

OMP motors with needle bearings

Table 11: 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***

Table 12: 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

Table 13: 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***

Table 14: 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

Table 15: 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***

Table 16: 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

Chapter 3

OMP technical data

Topics:

OMP with 25 mm and 1 in cylindrical shaft

Table 17: OMP 25 cm³ - 100 cm³

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

[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			**OMP**	**OMP**	**OMP**	**OMP**	**OMP**	**OMP**
Motor size			**25**	**32**	**40**	**50**	**80**	**100**
		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]

Note: Technical data is based on splined 6B shaft.

Table 18: OMP 125 cm^3 - 400 cm^3

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	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.	290 [2570]	370 [3280]	380 [3360]	410 [3630]	390 [3450]	420 [3720]
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.	12.0 [16.1]	12.0 [16.1]	11.0 [14.8]	9.0 [12.1]	7.0 [9.4]	6.0 [8.1]

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

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

Note: Technical data is based on splined 6B shaft.

Type	**Max. inlet pressure**	**Max. return pressure with drain line**		
OMP 25 - 400	bar [psi]	cont.	200 [2900]	200 [2900]
	bar [psi]	int.[1)]	225 [3263]	225 [3263]

[2)] Peak load: the permissible values may occur for max. 1% of every minute.
[1)] Intermittent operation: the permissible values may occur for max. 10% 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		48.6	77.8	97.3	125.0	155.7	194.6	242.3	306.1	389.2
	[inch]		[2.97]	[4.76]	[5.95]	[7.65]	[9.53]	[11.91]	[14.83]	[18.73]	[23.82]
Maximum speed	min^{-1}	cont.	1230	770	615	480	385	310	250	195	155
	[rpm]	int.	1540	960	770	600	480	385	310	245	190
Maximum torque	N•m	cont.	93	150	190	240	300	360	360	360	360
	[lbf•in]		[820]	[1330]	[1680]	[2120]	[2660]	[3190]	[3190]	[3190]	[3190]
		int.[1)]	120	190	230	290	370	450	460	470	460
			[1060]	[1680]	[2040]	[2570]	[3280]	[3980]	[4070]	[4160]	[4070]
Maximum output	kW	cont.	10.0	10.0	11.0	10.0	10.0	10.0	8.0	6.0	5.0
	[hp]		[13.4]	[13.4]	[14.8]	[13.4]	[13.4]	[13.4]	[10.7]	[8.0]	[6.7]
		int.[1)]	12.0	12.0	13	12.0	12.0	12.0	10.5	7.5	6.0
			[16.1]	[16.1]	[17.4]	[16.1]	[16.1]	[16.1]	[14.1]	[10.1]	[8.0]
Maximum pressure drop	bar	cont.	140	140	140	140	140	140	105	90	70
	[psi]		[2030]	[2030]	[2030]	[2030]	[2030]	[2030]	[1520]	[1310]	[1020]
		int[1)]	175	175	175	175	175	175	140	120	90
			[2540]	[2540]	[2540]	[2540]	[2540]	[2540]	[2030]	[1740]	[1310]
		peak	225	225	225	225	225	225	180	160	130
			[3260]	[3260]	[3260]	[3260]	[3260]	[3260]	[2610]	[2320]	[1890]
Maximum oil flow	l/min	cont.	60	60	60	60	60	60	60	60	60
	[US gal/min]		[15.9]	[15.9]	[15.9]	[15.9]	[15.9]	[15.9]	[15.9]	[15.9]	[15.9]
		int.[1)]	75	75	75	75	75	75	75	75	75
			[19.8]	[19.8]	[19.8]	[19.8]	[19.8]	[19.8]	[19.8]	[19.8]	[19.8]
Maximum 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]

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		OMP	OMP	OMP	OMP	OMP	OMP	OMP	OMP	OMP
Motor size		**50**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**400**
Minimum starting torque	at max. press drop cont.	80	135	170	210	280	340	330	340	345
	N•m [lbf•in]	[710]	[1200]	[1510]	[1860]	[2480]	[3010]	[2920]	[3010]	[3050]
	at max. press.drop int.[1)]	100	170	210	270	350	420	440	450	425
	N•m [lbf•in]	[890]	[1510]	[1860]	[2390]	[3100]	[3720]	[3890]	[3980]	[3760]

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		48.6	77.8	97.3	125.0	155.7	194.6	242.3	306.1	389.2
	[inch]		[2.97]	[4.76]	[5.95]	[7.65]	[9.53]	[11.91]	[14.83]	[18.73]	[23.82]
Maximum speed	min^{-1}	cont.	1230	770	615	480	385	310	250	195	155
	[rpm]	int.	1540	960	770	600	480	385	310	245	190
Maximum torque	N•m	cont.	93	150	190	240	300	360	460	470	490
	[lbf•in]		[820]	[1330]	[1680]	[2120]	[2660]	[3190]	[4070]	[4160]	[4340]
		int.[1)]	120	190	230	290	370	450	570	620	630
			[1060]	[1680]	[2040]	[2570]	[3280]	[3980]	[5050]	[5490]	[580]
Maximum output	kW	cont.	10.0	10.0	11.0	10.0	10.0	10.0	9.5	7.5	6.5
	[hp]		[13.4]	[13.4]	[14.8]	[13.4]	[13.4]	[13.4]	[12.7]	[10.1]	[8.7]
		int.[1)]	12.0	12.0	13.0	12.0	12.0	12.0	12.0	9.0	7.5
			[16.1]	[16.1]	[17.4]	[16.1]	[16.1]	[16.1]	[16.1]	[12.1]	[10.1]

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

Type			OMP	OMP	OMP	OMP	OMP	OMP	OMP	OMP	OMP
Motor size			**50**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**400**
Maximum pressure drop	bar	cont.	140	140	140	140	140	140	140	120	95
	[psi]		[2030]	[2030]	[2030]	[2030]	[2030]	[2030]	[2030]	[1740]	[1380]
		int.[1)]	175	175	175	175	175	175	175	160	125
			[2540]	[2540]	[2540]	[2540]	[2540]	[2540]	[2540]	[2320]	[1810]
		peak[2)]	225	225	225	225	225	225	225	225	180
			[3260]	[3260]	[3260]	[3260]	[3260]	[3260]	[3260]	[3260]	[2610]
Maximum oil flow	l/min	cont.	60	60	60	60	60	60	60	60	60
	[US gal/min]		[15.9]	[15.9]	[15.9]	[15.9]	[15.9]	[15.9]	[15.9]	[15.9]	[15.9]
		int.[1)]	75	75	75	75	75	75	75	75	75
			[19.8]	[19.8]	[19.8]	[19.8]	[19.8]	[19.8]	[19.8]	[19.8]	[19.8]
Maximum 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]
Minimum starting torque	at max. press drop cont.		80	135	170	210	280	340	420	460	460
	N•m [lbf•in]		[710]	[1200]	[1510]	[1860]	[2480]	[3010]	[3720]	[4070]	[4070]
	at max. press.drop int.[1)]		100	170	210	270	350	420	530	600	600
	N•m [lbf•in]		[890]	[1510]	[1860]	[2390]	[3100]	[3720]	[4690]	[5310]	[5310]

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]

Maximum permissible shaft seal pressure

OMP with High Pressure Shaft Seal (HPS)

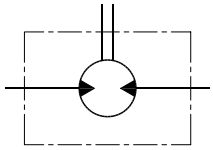
OMP with HPS and without drain connection:

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

[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.

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

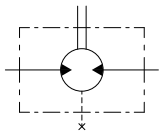


151-1743.10

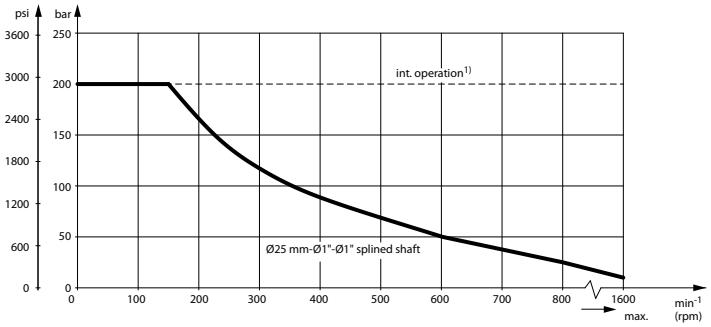
$$P_{seal} = \frac{P_{in} + P_{return}}{2}$$

OMP with HPS and drain connection:

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



151-1855.10

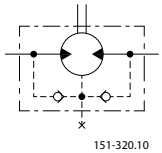


151-1745.10

Figure 4: Maximum permissible shaft seal pressure

OMP with standard shaft seal, check valves and without use of drain connection:

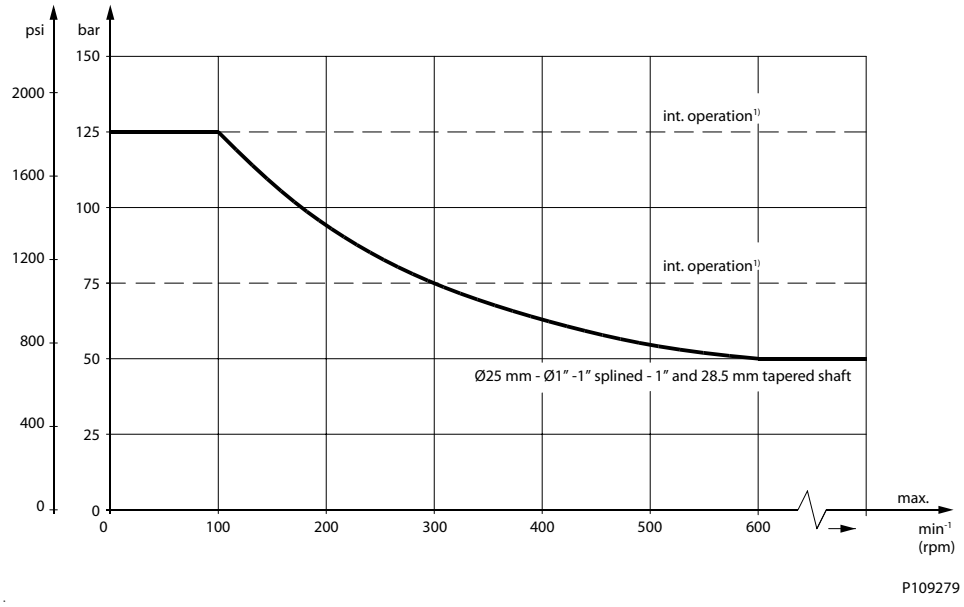
The pressure on the shaft seal never exceeds the pressure in the return line



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.



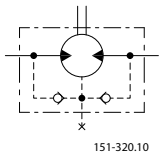
1. Intermittent operation: the permissible values may occur for max. 10% of every minute.

Figure 5: Maximum return pressure without drain line or max. pressure in the drain line

OMP with Standard Shaft Seal

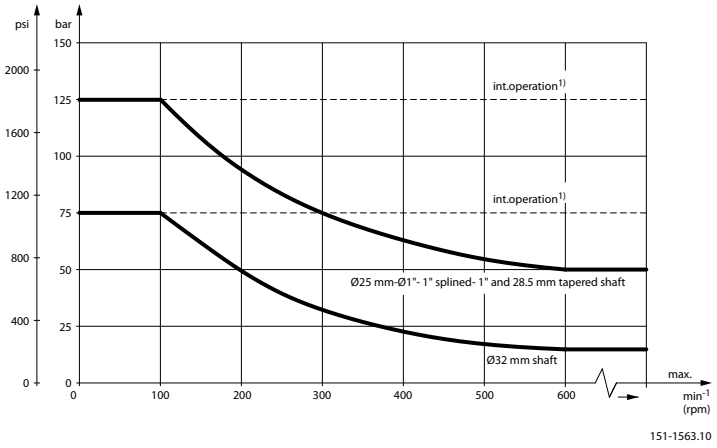
OMP with standard shaft seal, check valves and without use of drain connection:

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



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

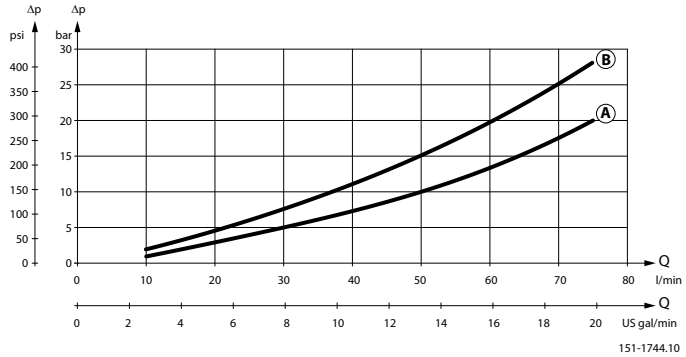
The shaft seal pressure equals the pressure on the drain line.



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

Figure 6: Maximum return pressure without drain line or max. pressure in the drain line

Pressure drop in OMP motor



A: OMP 50 - 400

B: OMP 25 - 40 / OMPW

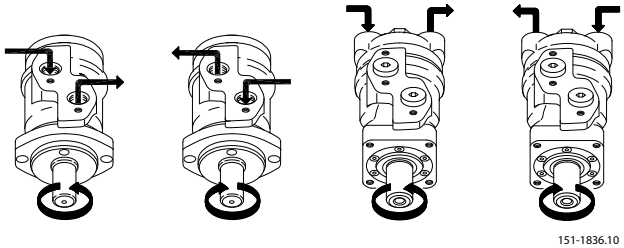
Figure 7: The curve applies to an unloaded motor shaft and an oil viscosity of 35 mm²/s [165 SUS]

Oil flow in drain line

Table 19: Max. oil flow in the drain line at return pressure less 5-10 bar

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

Direction of shaft rotation: clockwise



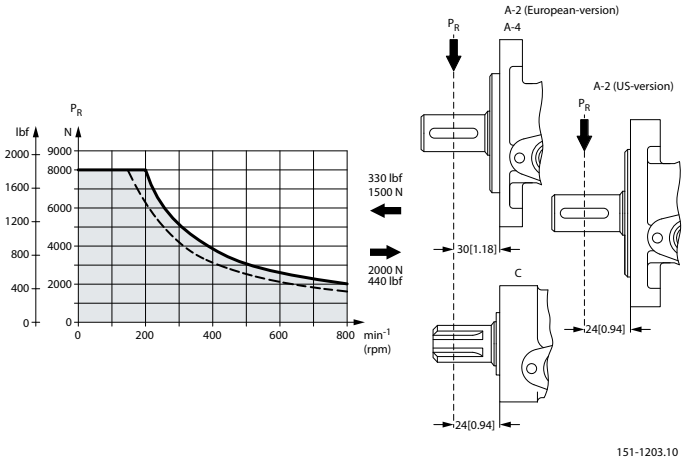
Permissible shaft loads

OMP and OMR shaft loads

The permissible radial shaft load (P_R) depends on: a distance from the point of load to the mounting flange (L), speed (n), mounting flange and 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	$\frac{800}{n} \cdot \frac{2215\ lbf^*}{3.74 + L}$	$\frac{800}{n} \cdot \frac{1660\ lbf^*}{3.74 + L}$	$\frac{800}{n} \cdot \frac{2215\ lbf^*}{3.98 + L}$

* $n \geq 200\ min^{-1}$ [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

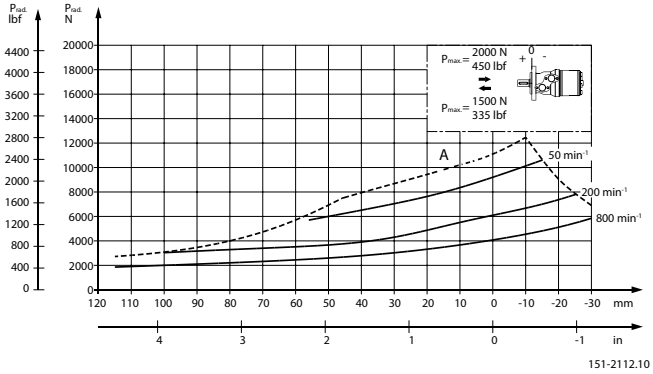
The curve shows the relation between P_R and n:

- 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.

** **For both European and US-version**

OMP N shaft loads



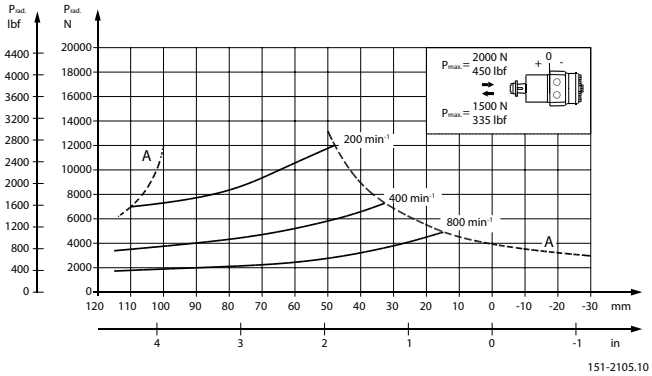
The output shaft on OMP N can be offered in needle bearings. These bearings and the recessed mounting flange allow a higher permissible radial load in comparison to OMP motors.

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.

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 B_{10} 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.

OMPW with slide bearings shaft loads



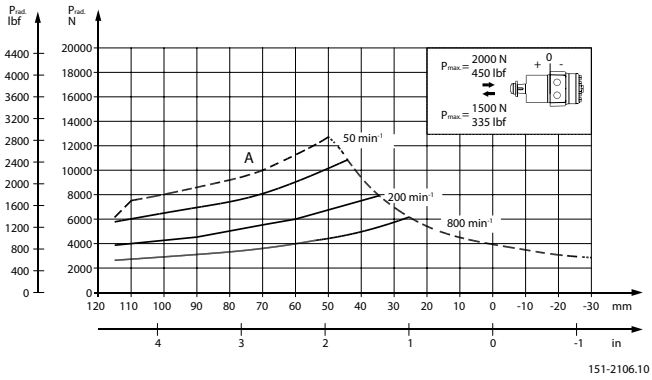
The output shaft on OMPW can be offered in slide bearings similar to the other OMP motors. The permissible higher radial load is therefore due to the recessed mounting flange moving the point of load closer to the motor bearings.

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.

OMPW N with needle bearing shaft loads



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 B_{10} 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.

Chapter 4

OMP function diagrams

Topics:

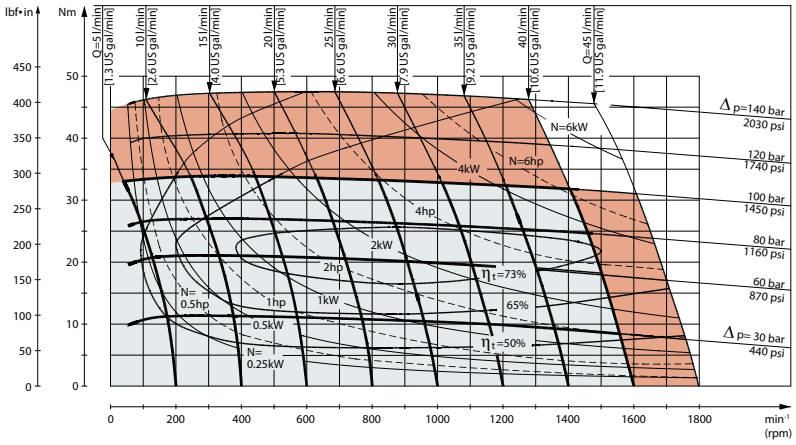
Explanation of function diagram use, basis and conditions can be found in *Speed, torque and output* on page 9.

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

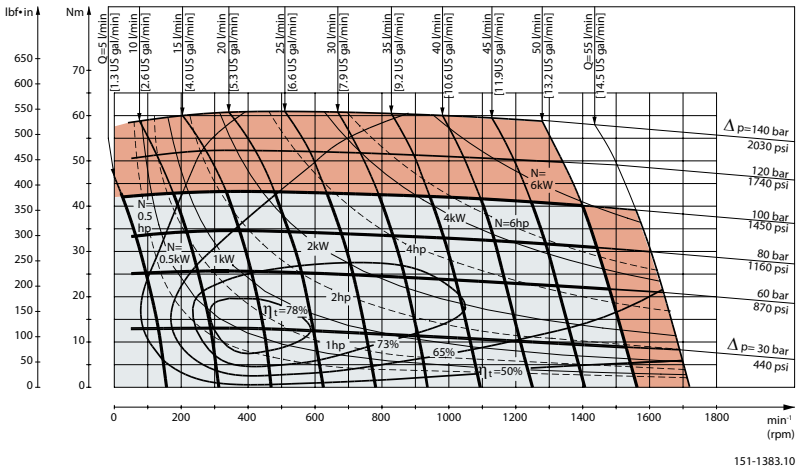
Max. permissible continuous/intermittent pressure drop for the actual shaft version can be found in *OMP technical data* on page 17.

Note: Intermittent pressure drop and oil flow must not occur simultaneously.

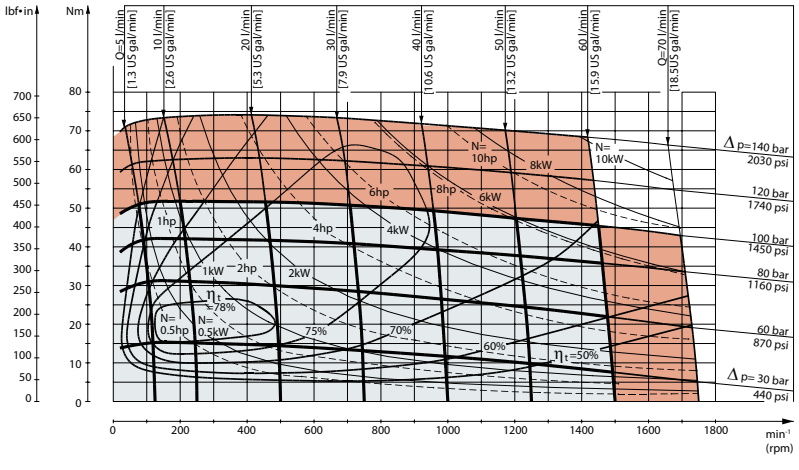
OMP 25 function diagram



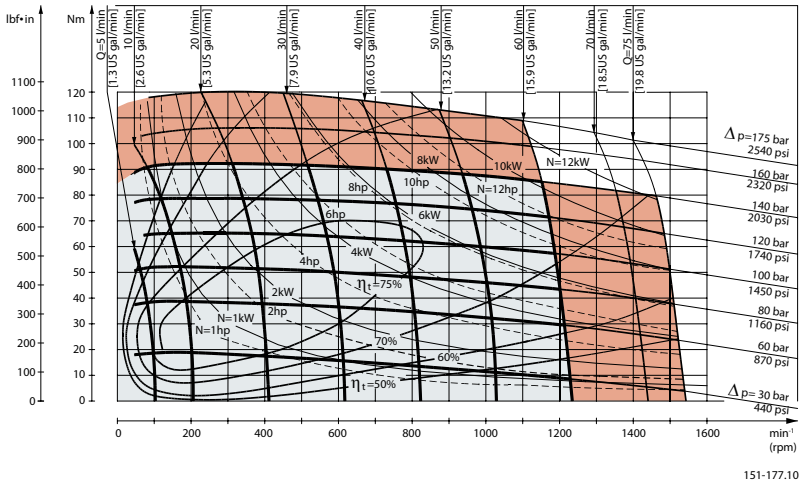
OMP 32 function diagram



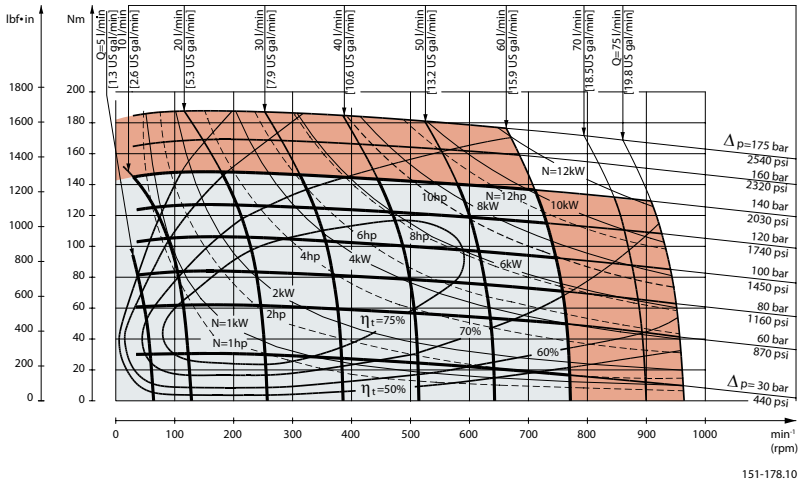
OMP 40 function diagram



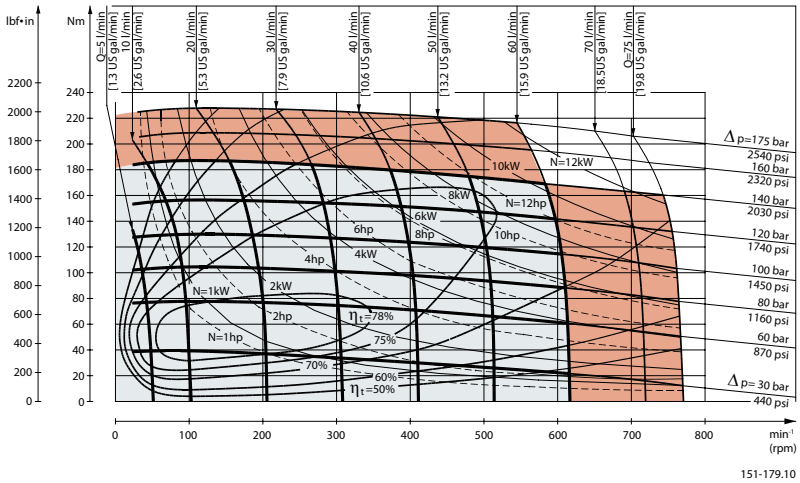
OMP 50 function diagram



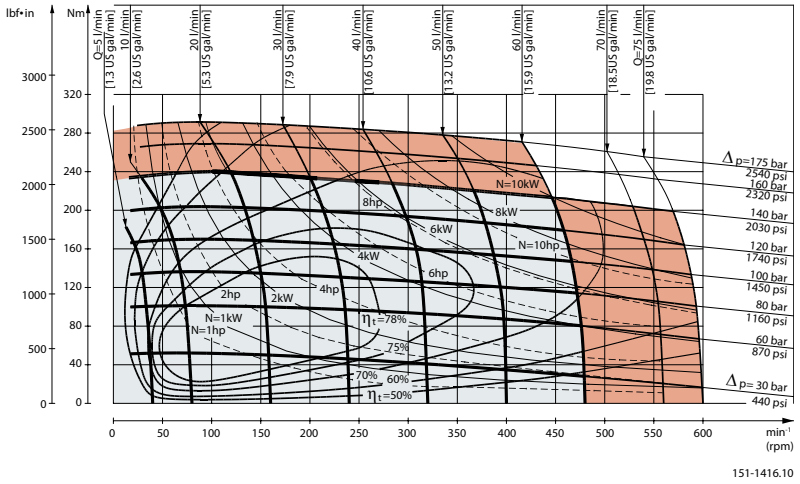
OMP 80 function diagram



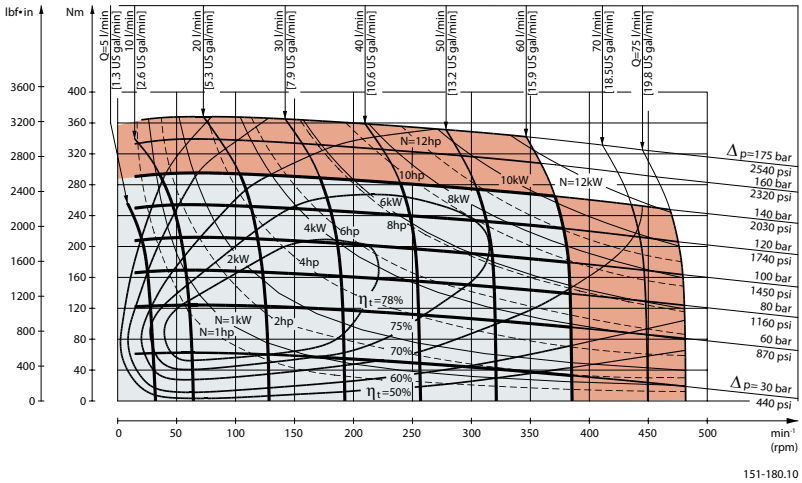
OMP 100 function diagram



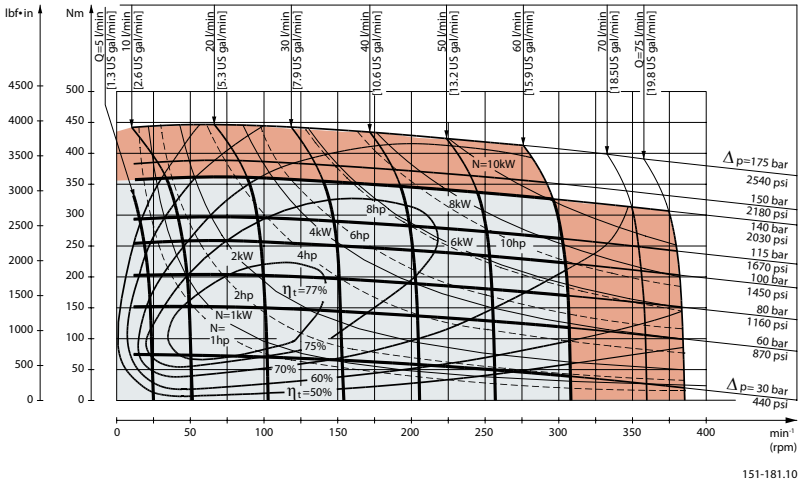
OMP 125 function diagram



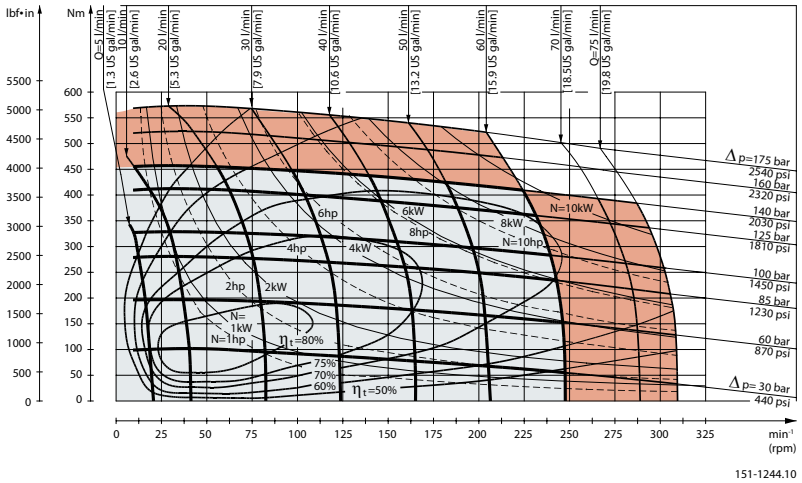
OMP 160 function diagram



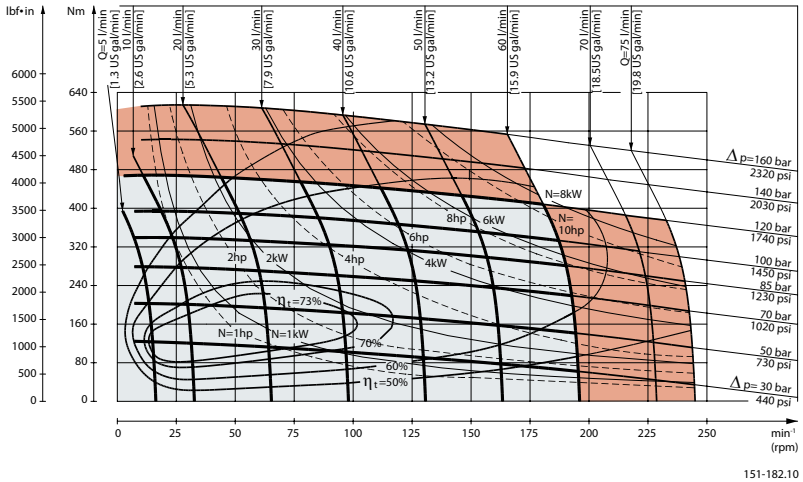
OMP 200 function diagram



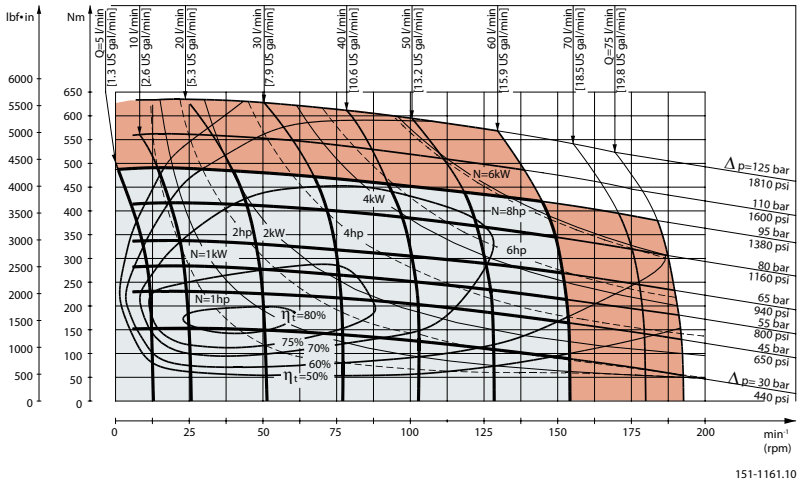
OMP 250 function diagram



OMP 315 function diagram



OMP 400 function diagram



Chapter

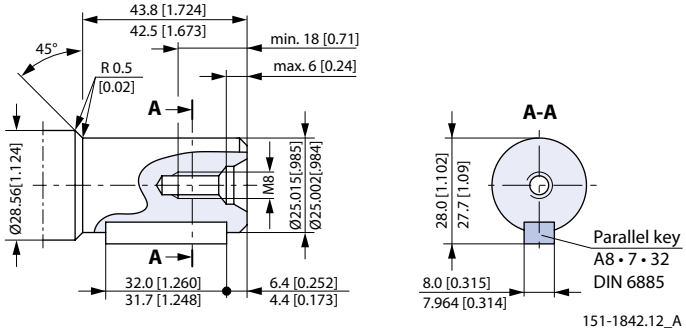
5

OMP shaft version

Topics:

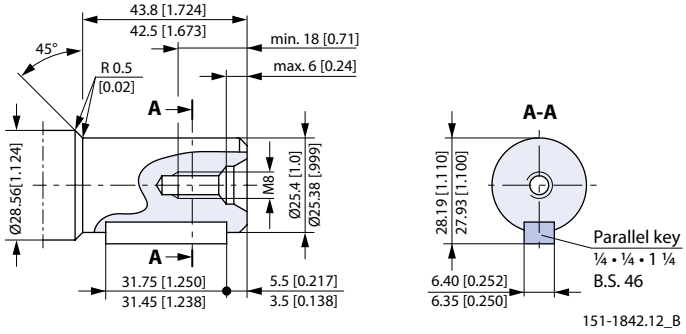
OMP shaft version

Cylindrical shaft 25 mm; Parallel key DIN 6885



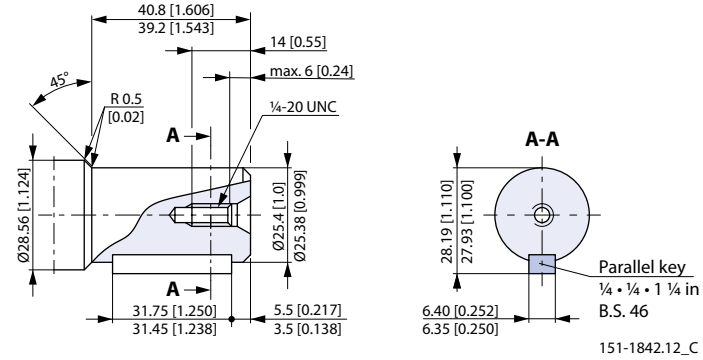
Max. torque: 360 N•m [3185 lb•in]

Cylindrical shaft 1 in; Parallel key B.S. 46



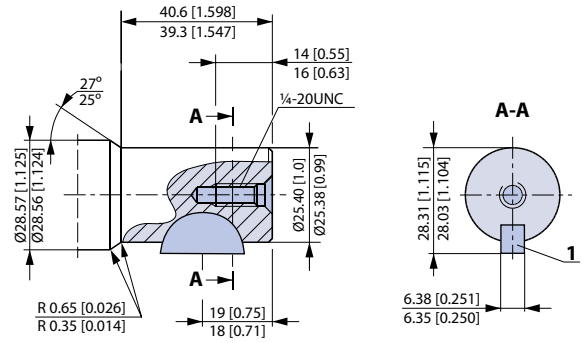
Max. torque: 360 N•m [3185 lb•in]

Cylindrical shaft 1 in; Parallel key B.S. 46 (US version)



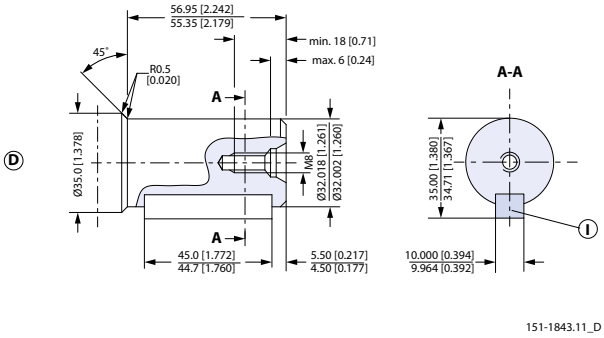
Max. torque: 360 N•m [3185 lb•in]

Cylindrical shaft 1 in (US version); SAE J502



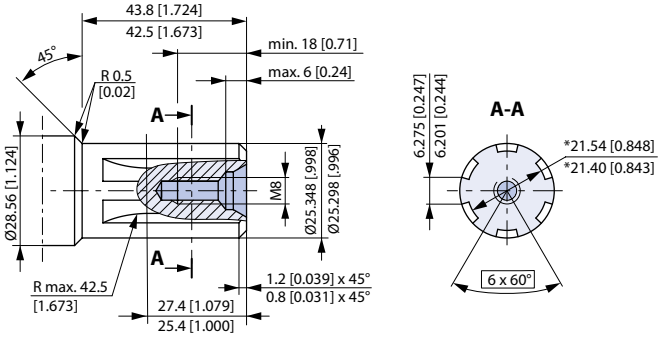
1 Woodruff key ¼ x 1 in SAE J502

Cylindrical shaft 32 mm; DIN 6885



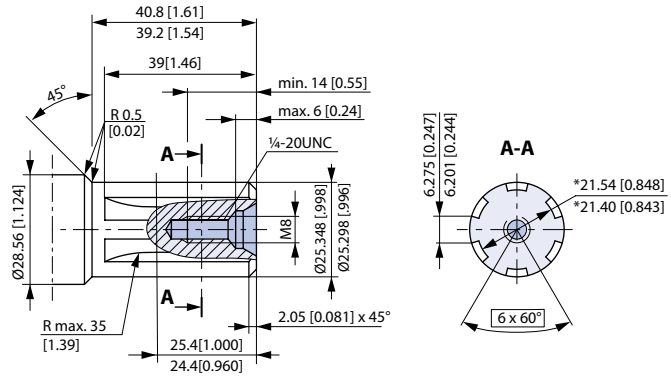
I: Parallel key A10 • 8 • 45; DIN 6885

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



Straight-sided, bottom fitting, dep. Fit 2, Nom. size 1 in; * Deviates from B.S. 2059 (SAE 6B)

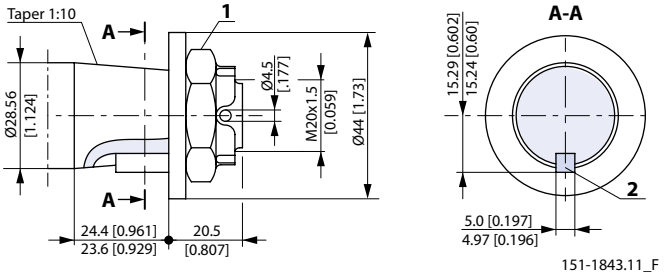
Splined shaft B.S. 2059 (SAE 6B); US version



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

Max. cont. torque 400 N•m [3540 lb•in]

Tapered shaft (taper 1:10); Parallel key DIN 6885



1. DIN 937 NV 30; Tightening torque: 100 ± 10 N•m [885 ± 88.5 lb•in]
2. Parallel key B5 • 5 • 14; DIN 6885

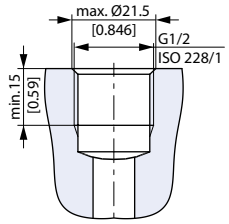
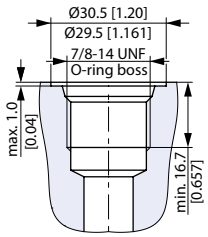
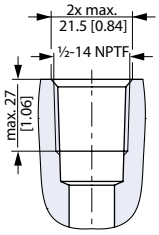
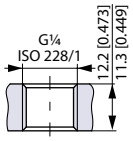
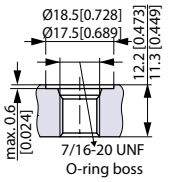
Chapter 6

OMP port thread versions

Topics:

Main port thread versions

Table 20: Main ports overview

G ISO 228/1 – G1/2	UNF 7/8–14 UNF O-ring boss	NPTF 1/2–14 NPTF	G drain ISO 228/1 – G1/4	UNF drain 7/16–20 UNF O-ring boss
				

OMP manifold mount

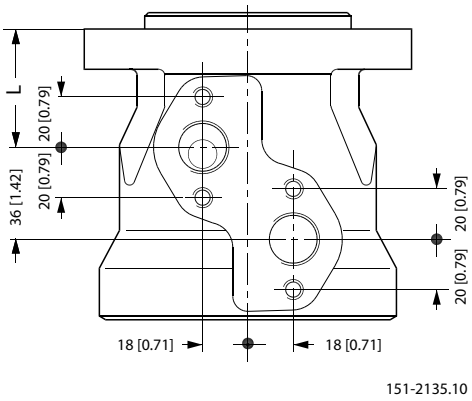


Figure 8: European version

L: see dimensional drawing for given OMP motor:

- *OMP dimensions - European version* on page 46
- *OMP dimensions - US version* on page 53

L: see dimensional drawing for given OMR motor:

- *OMR dimensions - European version* on page 90
- *OMR dimensions - US version* on page 99

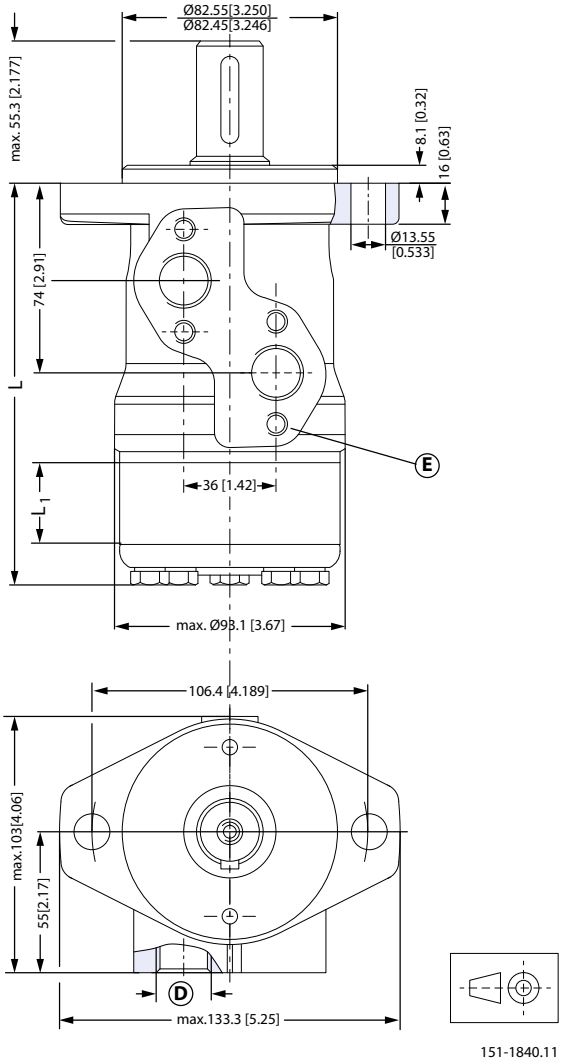
Chapter 7

OMP dimensions

Topics:

OMP dimensions - European version

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



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

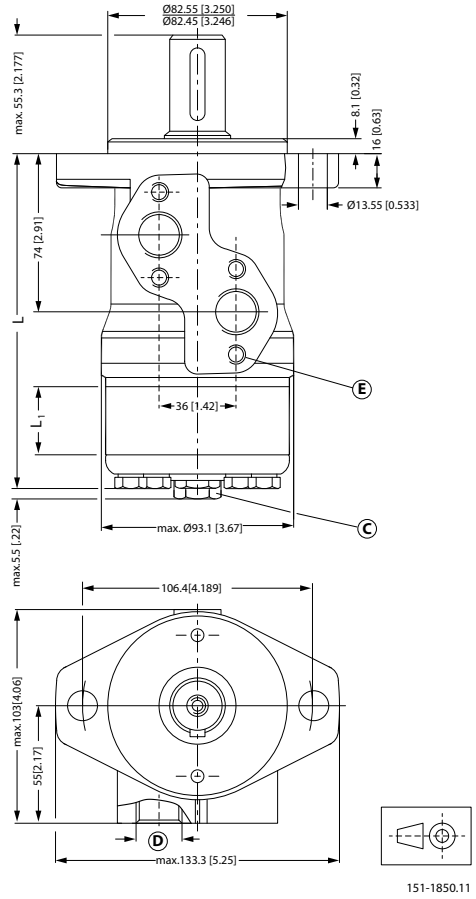
D: G 1⁄2; 15 mm [0.59 in] deep

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

Figure 9: Side port - European version

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]

EU version side port offset with 2-hole oval mounting flange (A2-flange) with drain connection



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.)

Figure 10: Side port - European version

Port connections:

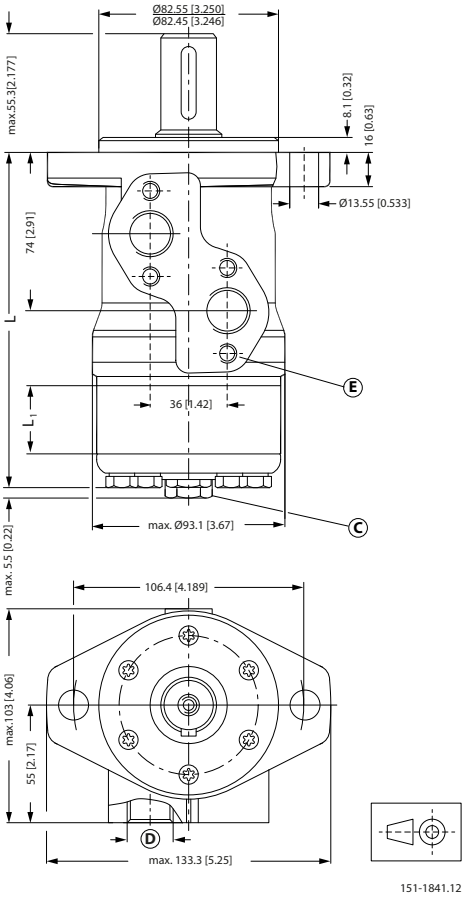
A, B Main ports: G 1/2; min 15 mm [0.59 in] deep

C Drain port: G 1/4; 11.5 mm [0.45 in]

D Thread: M8; 13 mm [0.51 in] deep

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



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

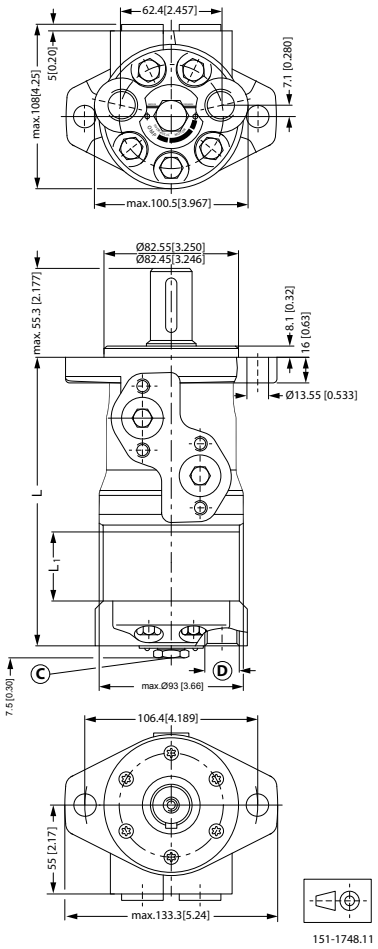
C: Drain connection G ¼; 12 mm [0.47 in] deep

D: G ½; 15 mm [0.59 in] deep

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

Figure 11: Side port - European version

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



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

Figure 12: End port - European version

Port connections:

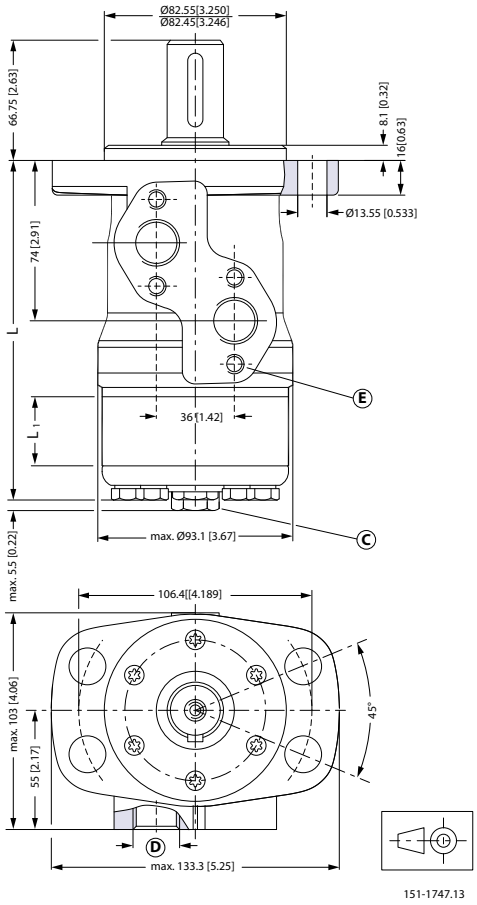
A, B Main ports: G 1/2; min 15 mm [0.59 in] deep

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

D Thread: M8; 13 mm [0.51 in] deep

Type		**OMP 50**	**OMP 80**	**OMP 100**	**OMP 125**	**OMP 160**	**OMP 200**	**OMP 250**	**OMP 315**	**OMP 400**
$L_{Max.}$	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]

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



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

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

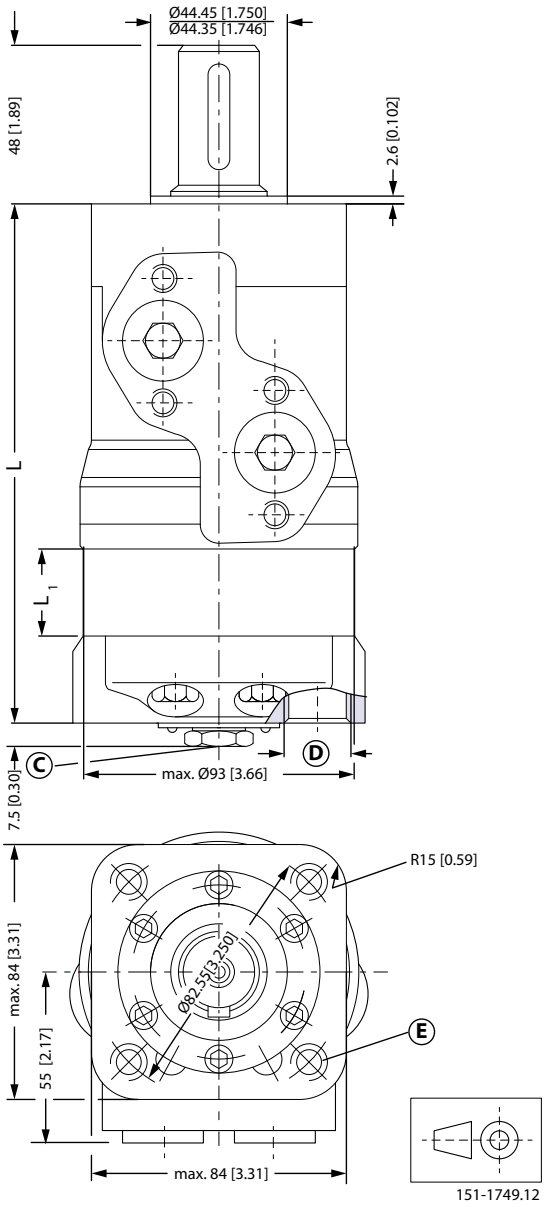
D: G ½; 15 mm [0.59 in] deep

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

Figure 13: Side port - European version

Type		**OMP 50**	**OMP 80**	**OMP 100**	**OMP 125**	**OMP 160**	**OMP 200**	**OMP 250**	**OMP 315**	**OMP 400**
$L_{Max.}$	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]

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



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

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

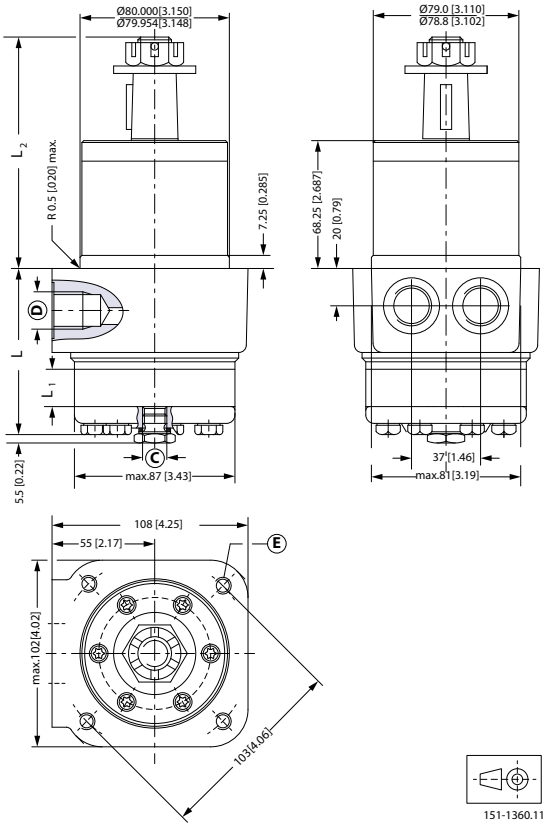
D: G ½; 15 mm [0.59 in] deep

E: M10; 15 mm [0.59 in] deep

Figure 14: End port - European version

Type		OMP 50	OMP 80	OMP 100	OMP 125	OMP 160	OMP 200	OMP 250	OMP 315	OMP 400
$L_{Max.}$	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]

EU version OMPW and OMPW N motors wheel type



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.)

Figure 15: Wheel motor -- European version

Port connections:

A, B Main ports: G 1/2; min 15 mm [0.59 in] deep

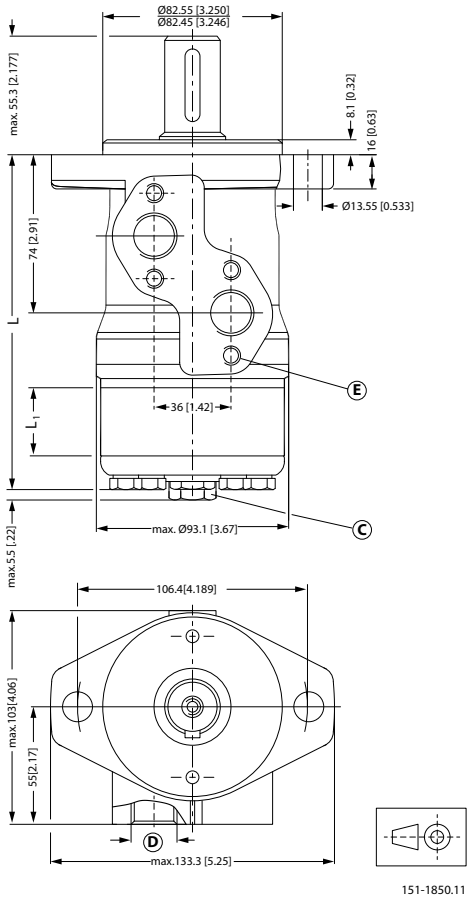
C Drain port: G 1/4; 12 mm [0.47 in] deep

D Thread: M10, 20 mm [0.78 in] deep

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

OMP dimensions - US version

US version side port offset with 2-hole oval mounting flange (A2-flange)



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.)

Figure 16: Side port - US version

Port connections:

A, B Main ports: 7/8 - 14 UNF; min. 16.7 mm [0.66 in] deep

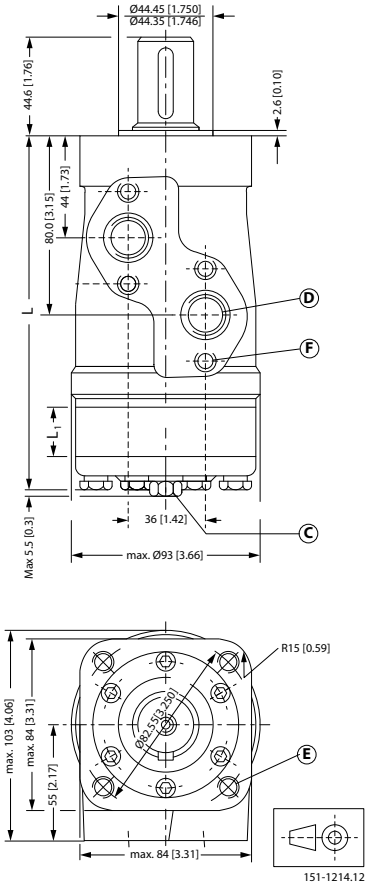
C Drain port: 7/16 - 20 UNF; 11.5 mm [0.45 in] deep

D Thread: M8; 13 mm [0.51 in] deep

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]

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_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]

US version side port with square mounting flange (C-flange)



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.)

Figure 17: Side port - US version

Port connections:

A, B Main ports: 7/8 - 14 UNF; min. 11.5 mm [0.45 in] deep

C Drain port: 7/16 - 20 UNF; 11.5 mm [0.45 in] deep

D Thread: 3/8 - 16 UNC; 15 mm [0.59 in] deep

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

Chapter 8

OMR versions and code numbers

Topics:

OMR versions and code numbers

OMR standard motors

Table 21: 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***

Table 22: 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

Conf. code	Displacement								
	50	80	100	125	160	200	250	315	375
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

Table 23: 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***

Table 24: 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

Table 25: 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***

Table 26: 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

Table 27: 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*

Table 28: 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 motors with needle bearings

Table 29: 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*

Table 30: 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

Table 31: 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***

Table 32: 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

Table 33: 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***

Table 34: 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

Table 35: 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***

Table 36: 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

Table 37: 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***

Table 38: 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

Chapter 9

OMR technical data

Topics:

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.	970	940	750	600	470	375	300	240	200
Max. torque	N•m	cont.	100	195	240	300	300	300	300	300	300
	[lbf•in]		[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	cont.	7.0	12.5	13.0	12.5	10.0	8.0	6.0	5.0	4.0
	[hp]		[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	cont.	140	175	175	175	130	110	80	70	55
	[psi]		[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	cont.	40	60	60	60	60	60	60	60	60
	[US gal/min]		[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]

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		OMR	OMR	OMR	OMR	OMR	OMR	OMR	OMR	OMR
Motor size		**50**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**375**
Min starting torque	at max. press drop cont. N•m [lbf•in]	80 [710]	150 [1330]	200 [1770]	250 [2210]	240 [2120]	260 [2300]	240 [2120]	260 [2300]	240 [2120]
	at max. press.drop int.[1] N•m [lbf•in]	100 [890]	170 [1510]	230 [2040]	280 [2480]	320 [2830]	330 [2920]	310 [2740]	350 [3100]	380 [3360]

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.	970	940	750	600	470	375	300	240	200
Max. torque	N•m	cont.	100	195	240	300	360	360	360	360	360
	[lbf•in]		[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]
Max. output	kW	cont.	7.0	12.5	13.0	12.5	12.5	10.0	7.0	5.0	5.0
	[hp]		[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	cont.	140	175	175	175	165	130	100	85	70
	[psi]		[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	225	225	225	225	225	225	200	150	130
			[3260]	[3260]	[3260]	[3260]	[3260]	[3260]	[2900]	[2180]	[1890]

[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			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	cont.	40	60	60	60	60	60	60	60	60
	[US gal/ min]		[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]

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.	970	940	750	600	470	375	300	240	200
Max. torque	N•m	cont.	100	195	240	300	380	450	540	550	580
	[lbf•in]		[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	cont.	7.0	12.5	13.0	12.5	12.5	11.0	10.0	9.0	7.5
	[hp]		[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]

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

Type			OMR	OMR	OMR	OMR	OMR	OMR	OMR	OMR	OMR
Motor size			**50**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**375**
Max. pressure drop	bar	cont	140	175	175	175	175	175	175	135	115
	[psi]		[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	225	225	225	225	225	225	225	210	175
			[3260]	[3260]	[3260]	[3260]	[3260]	[3260]	[3260]	[3050]	[2540]
Max. oil flow	l/min	cont.	40	60	60	60	60	60	60	60	60
	[US gal/min]		[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.		80	150	200	250	320	410	500	500	470
	N•m [lbf•in]		[710]	[1330]	[1770]	[2210]	[2830]	[3630]	[4430]	[4430]	[4170]
	at max. press.drop int.[1)]		100	170	230	280	370	460	550	660	570
	N•m [lbf•in]		[890]	[1510]	[2040]	[2480]	[3280]	[4070]	[4870]	[5840]	[5050]

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]

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]

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

[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.

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

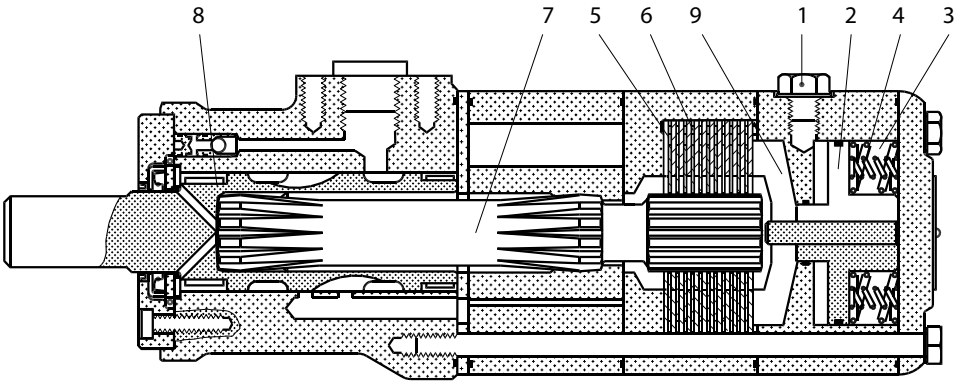
Technical data for brake motor		
Max. pressure in brake line	bar [psi]	200 [2900]

OMR F function

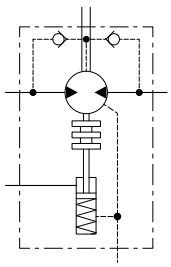
In normal condition where there is no pressure on the integrated brake in OMR, i.e. the brake is applied. The brake is released when hydraulic pressure of 21 bar [300 psi] min. is applied to the brake release port (1).

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.



151-1739.10.10



151-1726.10

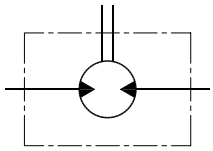
Maximum permissible shaft seal pressure

High Pressure Shaft Seal (HPS) in motor

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

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

[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.



151-1743.10

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

- with HPS, check valves and
  - with drain connection – **The shaft seal pressure equals the pressure in the drain line.**
  - without drain connection – **The shaft seal pressure never exceeds the pressure in the return line.**

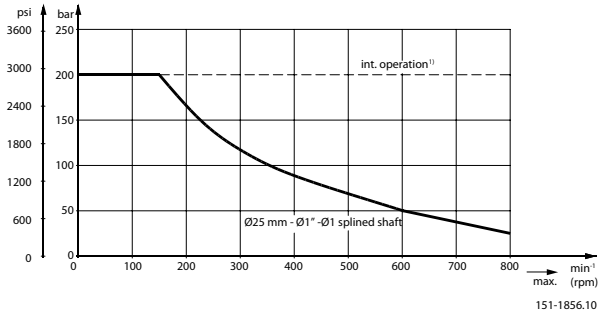
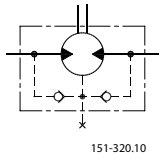


Figure 18: Max. permissible shaft seal pressure



151-320.10

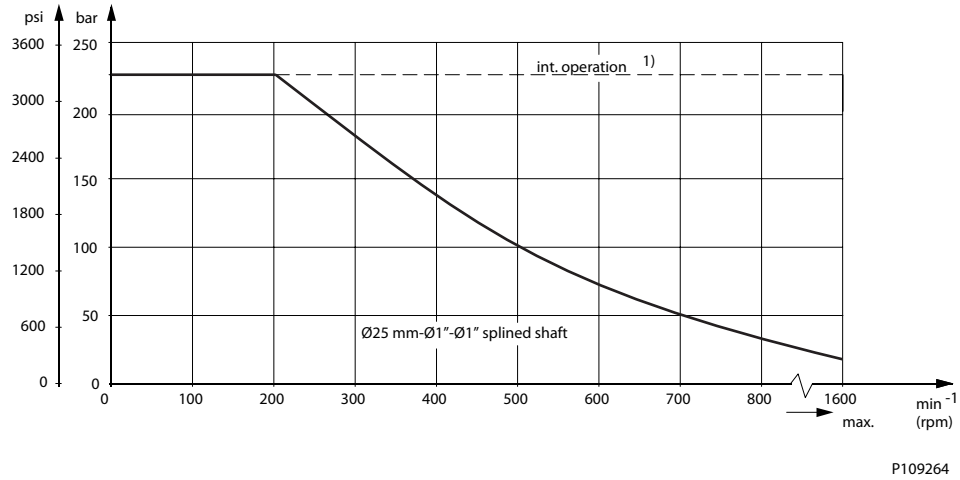
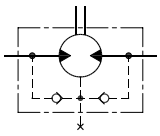


Figure 19: Maximum permissible shaft seal pressure

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



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

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

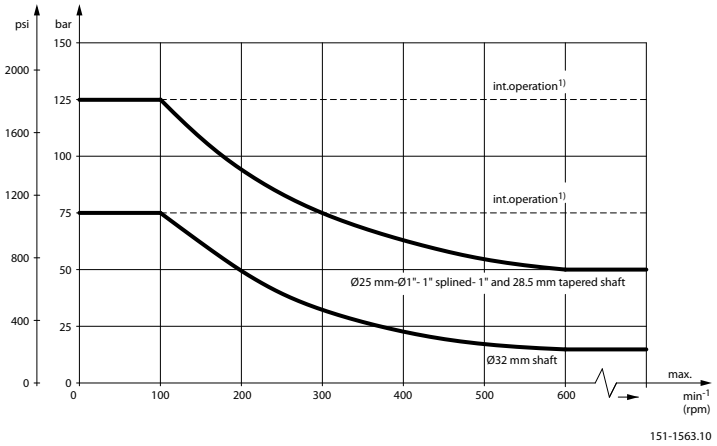


Figure 20: Max. return pressure without drain line or max. pressure in the drain line

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

Pressure drop in motor

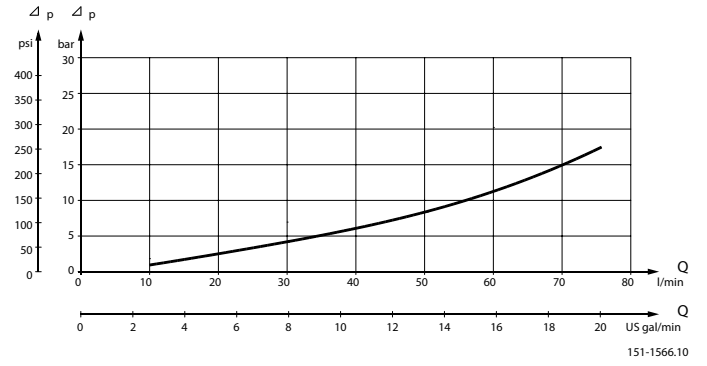


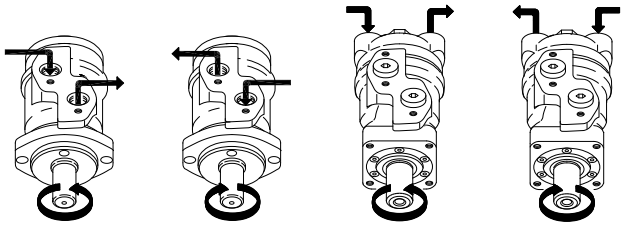
Figure 21: The curve applies to an unloaded motor shaft and an oil viscosity of 35 mm^2/s [165 SUS]

Oil flow in drain line

Table 39: Max. oil flow in the drain line at return pressure less 5-10 bar

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

Direction of shaft rotation: clockwise



151-1836.10

Permissible shaft loads

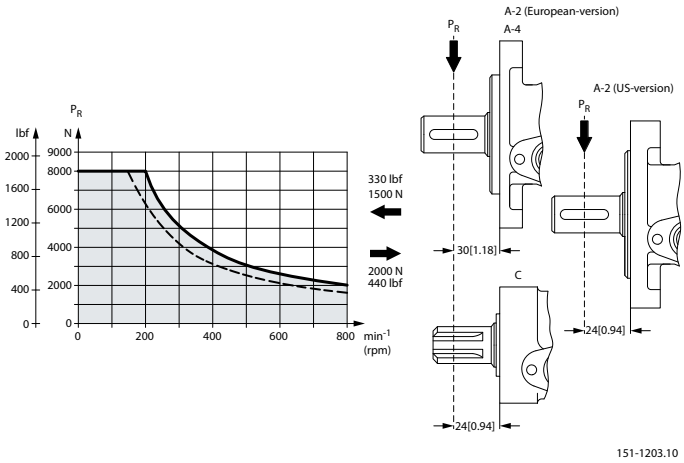
OMP and OMR shaft loads

The permissible radial shaft load (P_R) depends on: a distance from the point of load to the mounting flange (L), speed (n), mounting flange and 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	$\frac{800}{n} \cdot \frac{2215\ lbf^*}{3.74 + L}$	$\frac{800}{n} \cdot \frac{1660\ lbf^*}{3.74 + L}$	$\frac{800}{n} \cdot \frac{2215\ lbf^*}{3.98 + L}$

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

** **For both European and US-version**



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

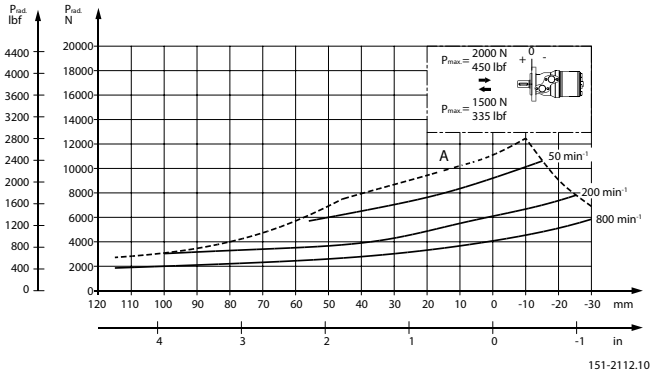
_____ other shaft versions

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 N and OMR NF with needle bearings shaft loads



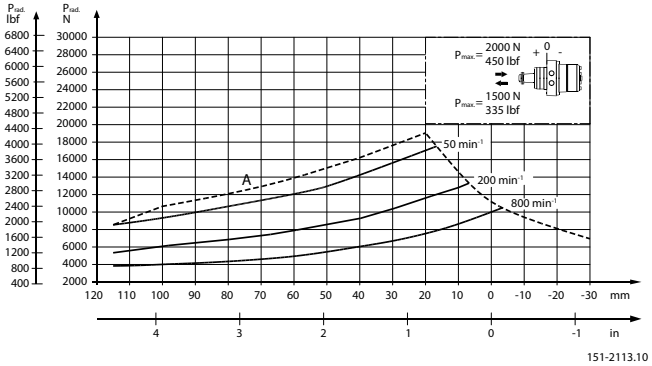
The output shaft on OMR N and OMR NF runs in needle bearings. These bearings and the recessed mounting flange allow a higher permissible radial load in comparison to OMR motors with slide bearings.

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 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 B_{10} 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.

OMRW N and OMRW NF with Needle Bearings



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.

Chapter 10

OMR function diagrams

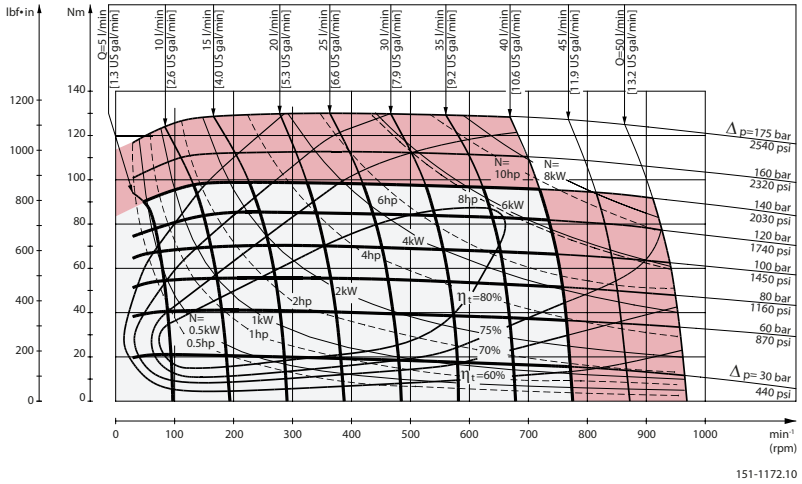
Topics:

Performance graphs for OMR X motors according to the displacement. Blue area shows continuous range and red area shows intermittent range (max. 10% operation every minute).

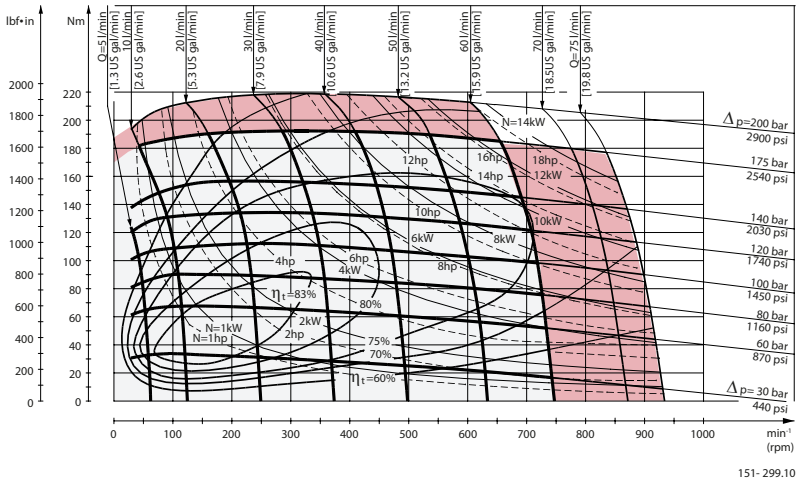
Explanation of function diagram use, basis and conditions can be found in *Speed, torque and output* on page 9.

Intermittent pressure drop and oil flow must not occur simultaneously. Max. permissible continuous/intermittent pressure drop for the actual shaft version can be found in *OMR technical data* on page 63.

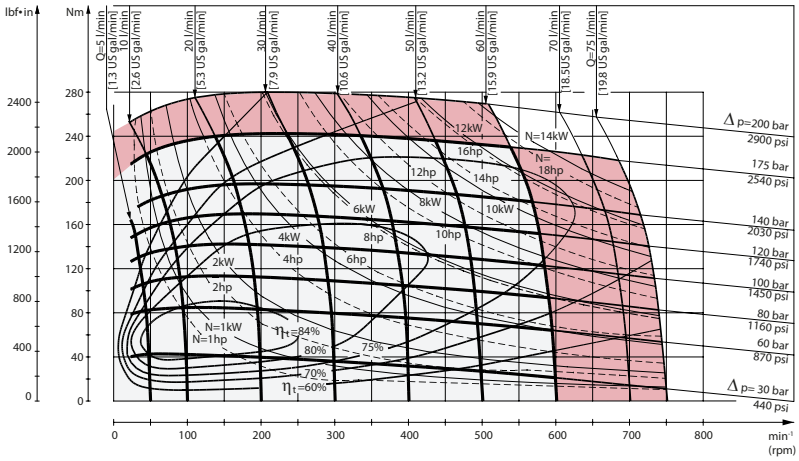
OMR 50 function diagram



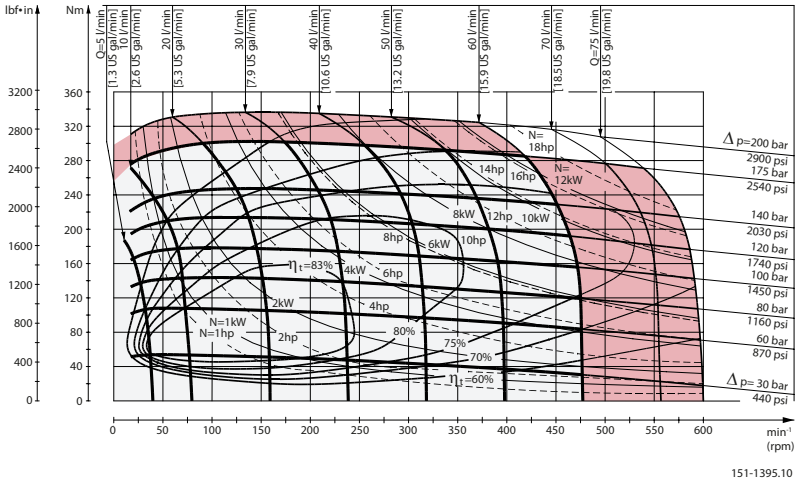
OMR 80 function diagram



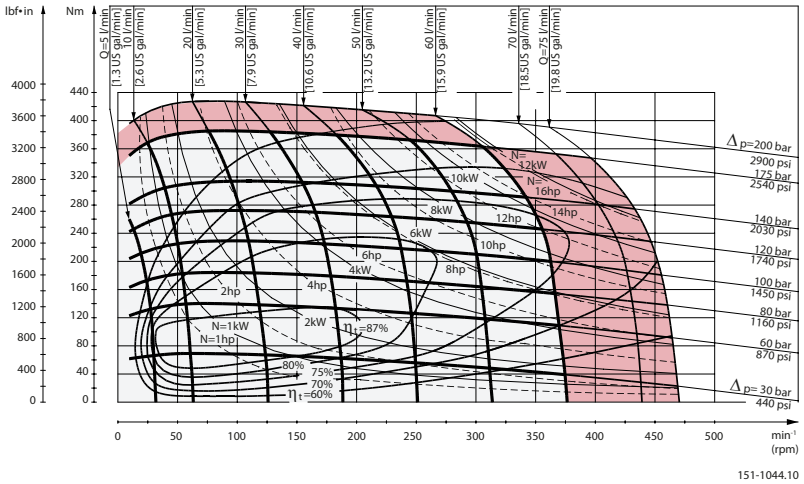
OMR 100 function diagram



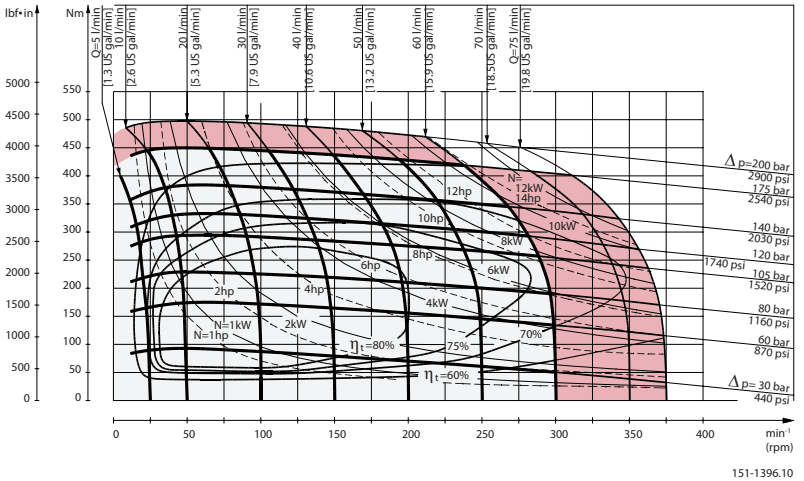
OMR 125 function diagram



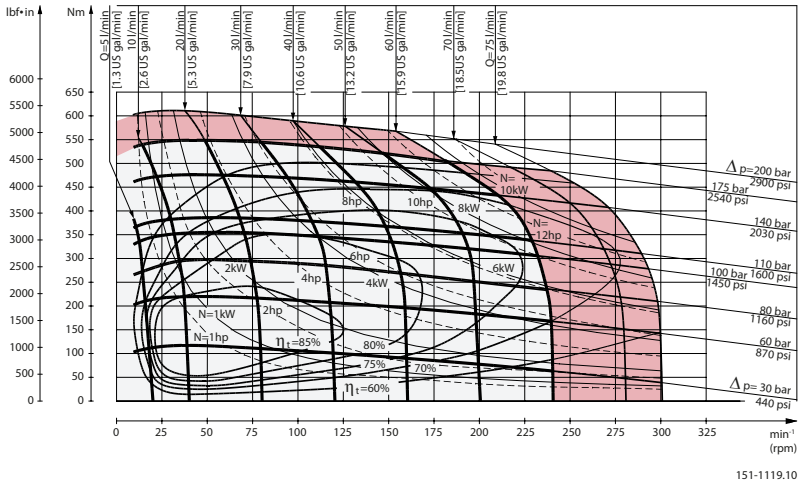
OMR 160 function diagram



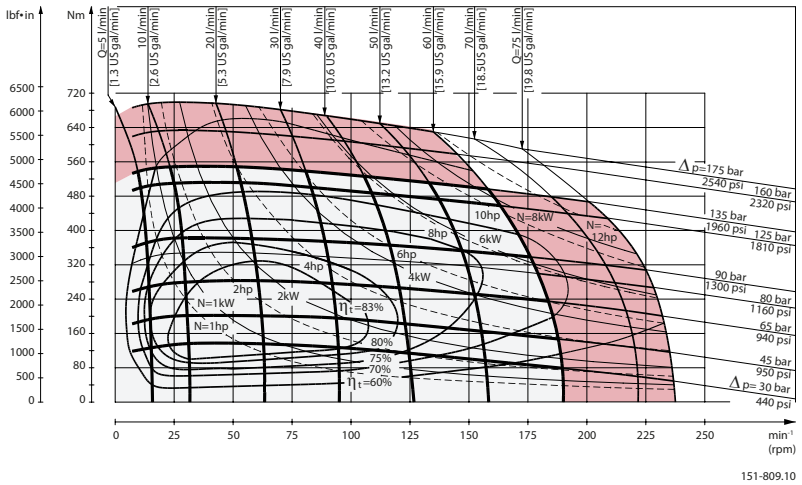
OMR 200 function diagram



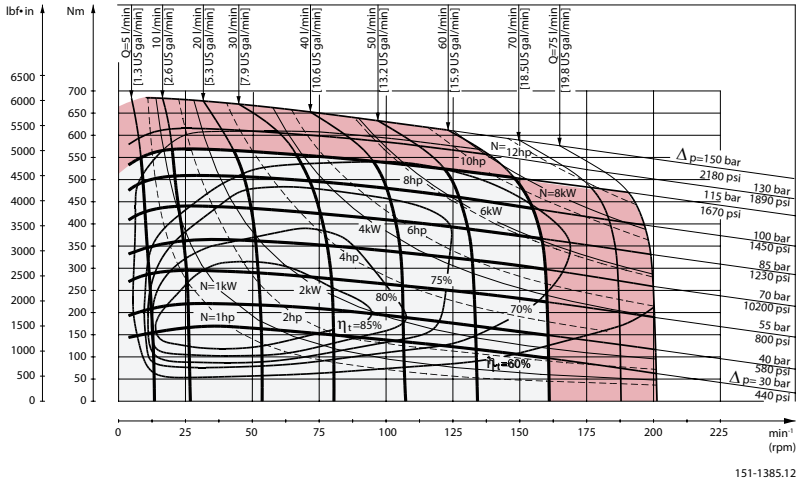
OMR 250 function diagram



OMR 315 function diagram



OMR 375 function diagram



Chapter

11

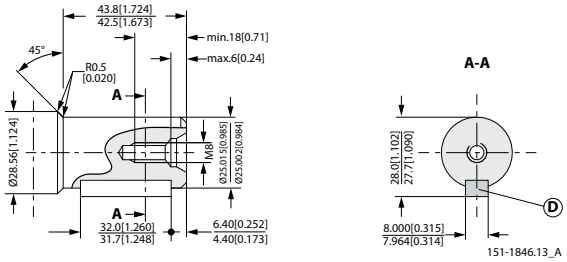
OMR Shaft version

Topics:

OMR shaft version

Cylindrical shaft 25 mm

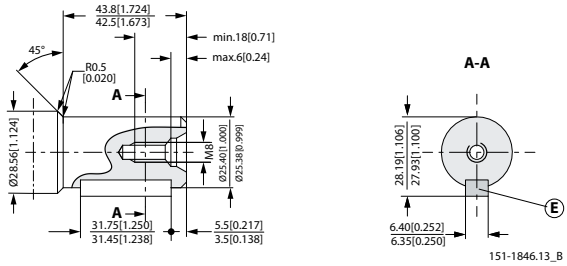
Ⓐ



D: Parallel key A8 • 7 • 32 DIN 6885
Max. torque 360 N•m [3185 lb•in]

Cylindrical shaft 1 in

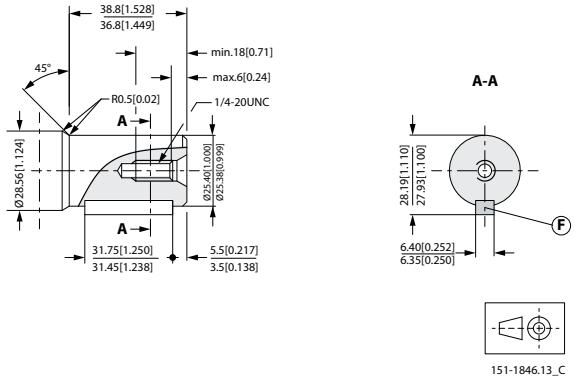
Ⓑ



E: Parallel key ¼ • ¼ • 1 ¼ in B.S. 46
Max. torque 360 N•m [3185 lb•in]

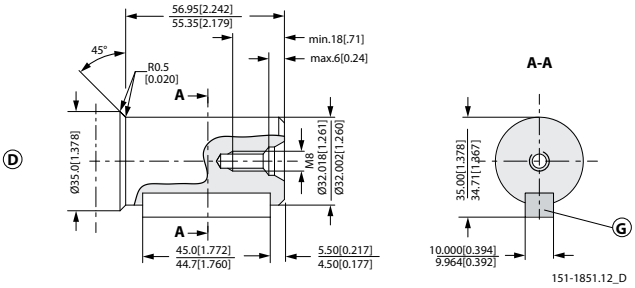
Cylindrical shaft 1 in (US version)

Ⓒ



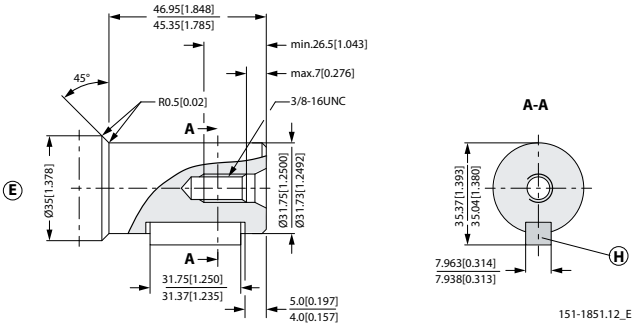
F: Parallel key ¼ • ¼ • 1 ¼ in B.S. 46
Max torque 360 N•m [3185 lb•in]

D – Cylindrical shaft 32 mm



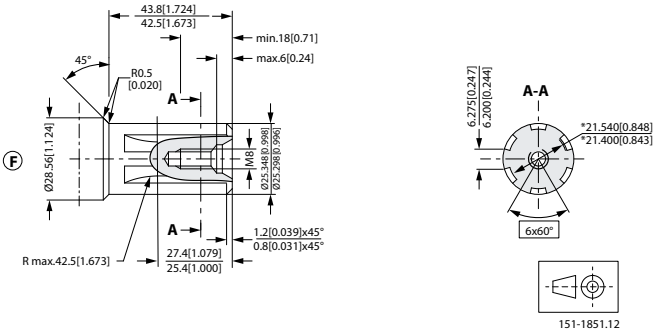
G: Parallel key A10 • 8 • 45 DIN 6885

E – Cylindrical shaft 1 ¼ in (US version)



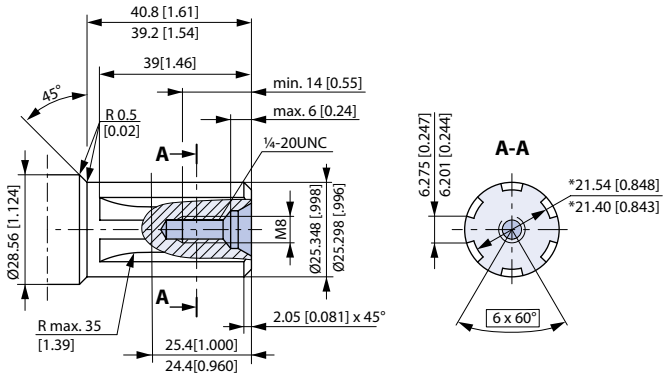
H: Parallel key 5⁄16 • 5⁄16 • 1 ¼ in B.S. 46

F – Involute splined shaft B.S. 2059 (SAE 6B)



F: Straight-sided, bottom fitting, deep. Fit 2; Nom. size 1 in
*Deviates from B.S. 2059 (SAE 6B)
Max. torque 360 N•m [3185 lb•inMax. cont. torque 400 N•m [3540 lb•in]

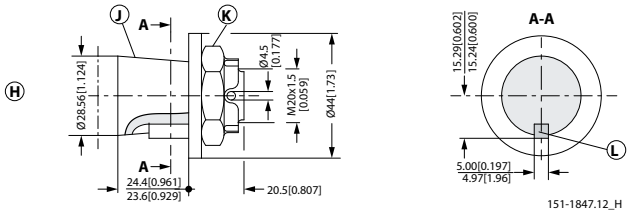
Splined shaft B.S. 2059 (SAE 6B - US version)



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

Max. cont. torque 400 N•m [3540 lb•in]

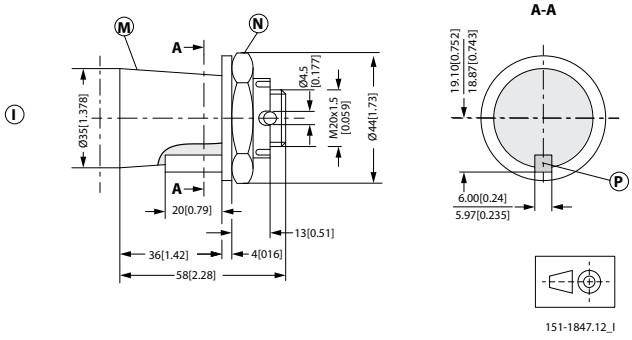
H – Tapered shaft 28.5 mm; ISO/R775 (taper 1:10)



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

L: Parallel key B5 • 5 • 14 DIN 6885

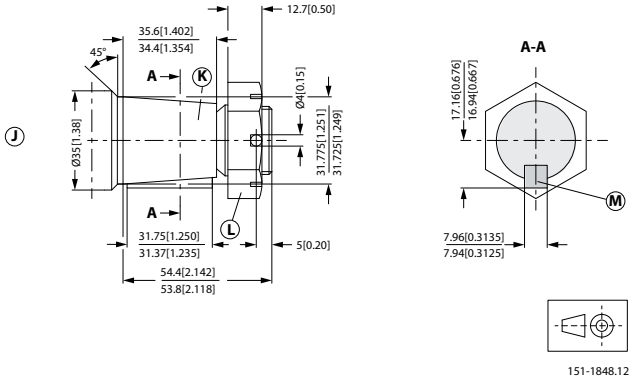
I – Tapered shaft 35 mm (taper 1:10)



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

P: Parallel key B6 • 6 • 20 DIN 6885

J – Tapered shaft 1 ¼ in (taper 1:8); SAE J501



L: 1 - 20 UNF across flats 1 7/16; Tightening torque: 200 ± 10 N•m [1770 ± 85 lb•in]

M: Parallel key 5/16 • 5/16 • 1 ¼ SAE J501; Max. cont. torque 400 N•m [3540 lb•in]

Chapter

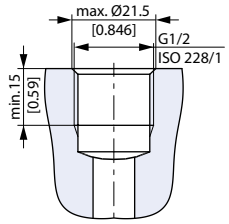
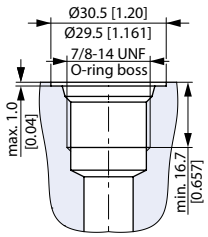
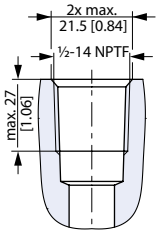
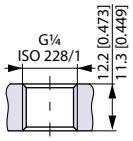
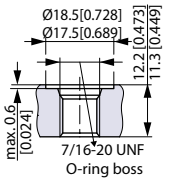
12

OMR port thread versions

Topics:

Main port thread versions

Table 40: Main ports overview

G ISO 228/1 – G1/2	UNF 7/8–14 UNF O-ring boss	NPTF 1/2–14 NPTF	G drain ISO 228/1 – G1/4	UNF drain 7/16–20 UNF O-ring boss
				

OMR manifold mount

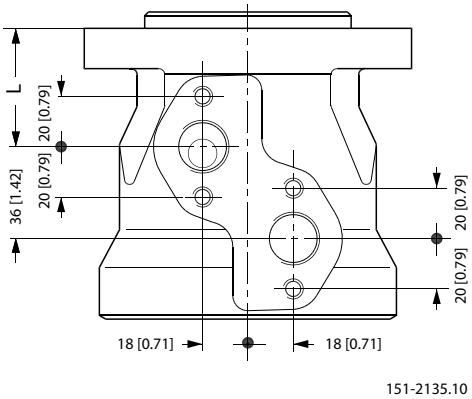


Figure 22: European version

L: see dimensional drawing for given OMR motor:

- *OMR dimensions - European version* on page 90
- *OMR dimensions - US version* on page 99

L: see dimensional drawing for given OMP motor:

- *OMP dimensions - European version* on page 46
- *OMP dimensions - US version* on page 53

Chapter

13

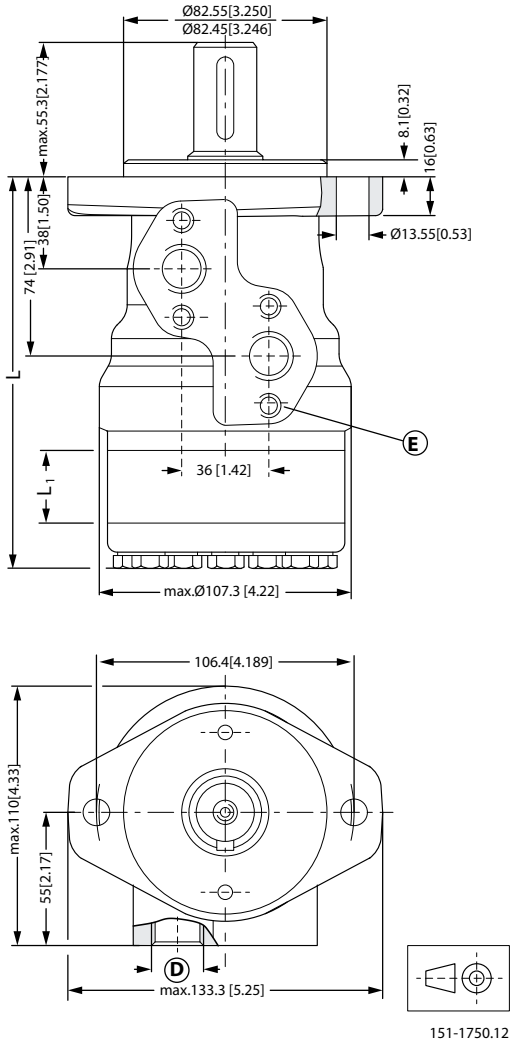
OMR dimensions

Topics:

OMR dimensions - European version

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

- With high pressure shaft seal



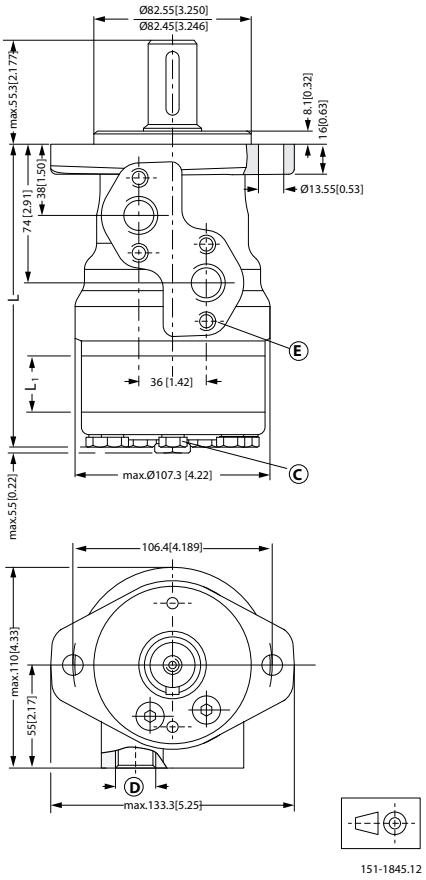
D: G ½; 15 mm [0.59 in] deep

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

Figure 23: Side port - European version

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]

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



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.)

Figure 24: Side port - European version

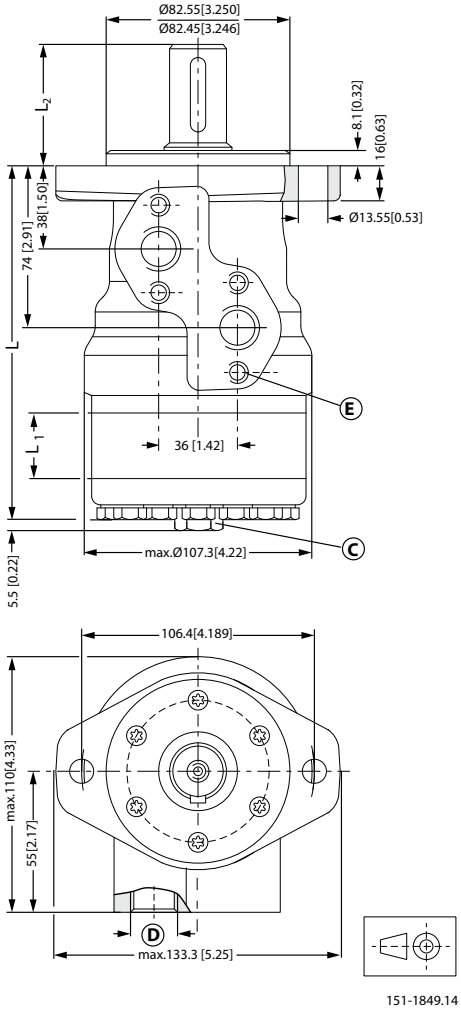
Port connections:

A, B Main ports: G 1/2; min 15 mm [0.59 in] deep

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

Type		**OMR 50**	**OMR 80**	**OMR 100**	**OMR 125**	**OMR 160**	**OMR 200**	**OMR 250**	**OMR 315**	**OMR 375**
L_{MA}	mm	137.8	142.8	146.2	150.6	156.6	163.6	172.3	183.6	193.8
X	[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, OMR C and OMR N Side port version with 2-hole oval mounting flange (A2 flange)



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

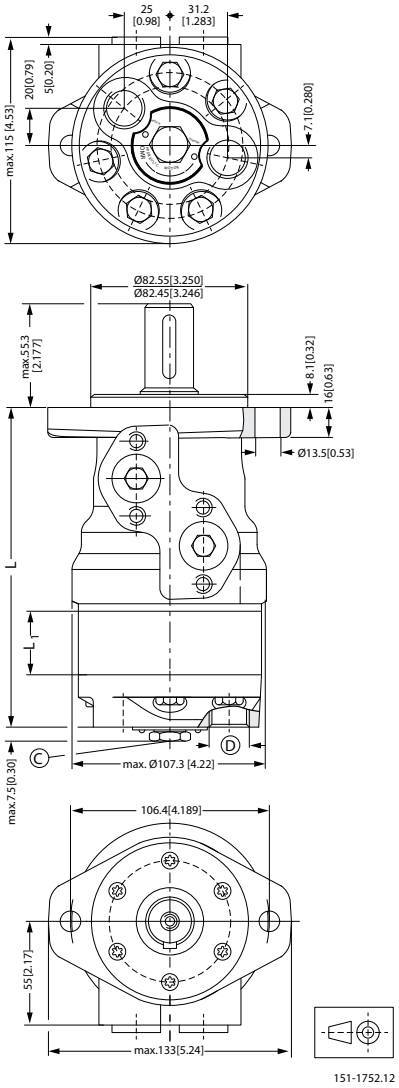
D: G ½; 15 mm [0.59 in] deep

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

Figure 25: Side port - European version

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]

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



C: G ¼; 12 mm [0.47 in] deep

D: G ½; 15 mm [0.59 in] deep

Figure 26: End port - European version

Port connections:

A, B Main ports: G 1/2; min 15 mm [0.59 in] deep

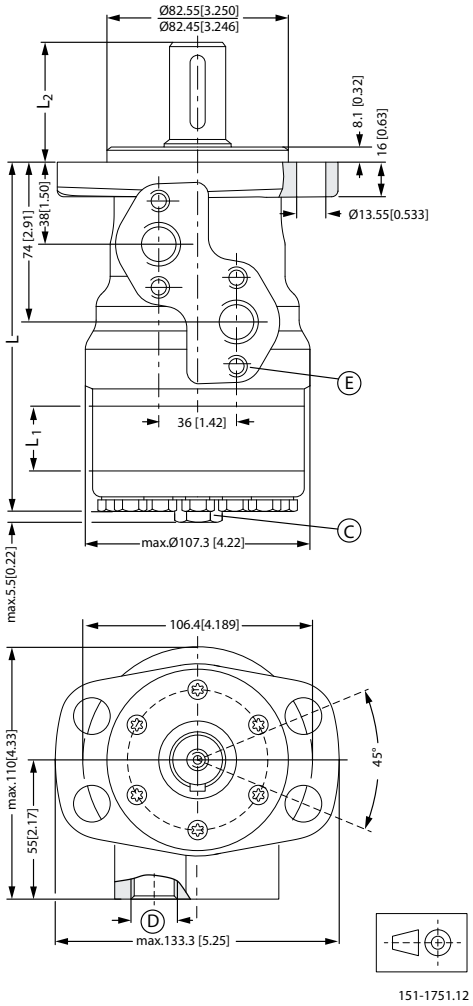
C Drain port: G 1/4; 12 mm [0.47 in] deep

D Thread: M8; 13 mm [0.51 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]

Type		OMR 50	OMR 80	OMR 100	OMR 125	OMR 160	OMR 200	OMR 250	OMR 315	OMR 375
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 Side port version with 4-hole oval mounting flange (A4 flange)



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

D: G ½; 15 mm [0.59 in] deep

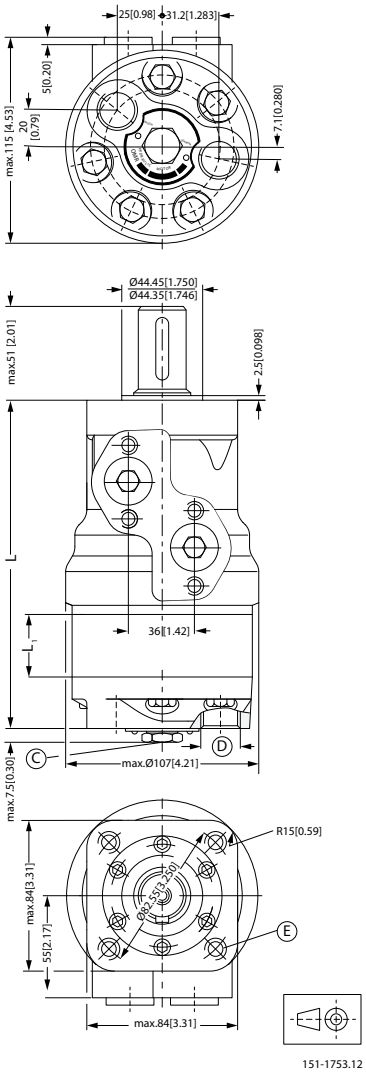
E: M8; 13 mm [0.51 in] deep (4 pcs.)

Figure 27: Side port - European version

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



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

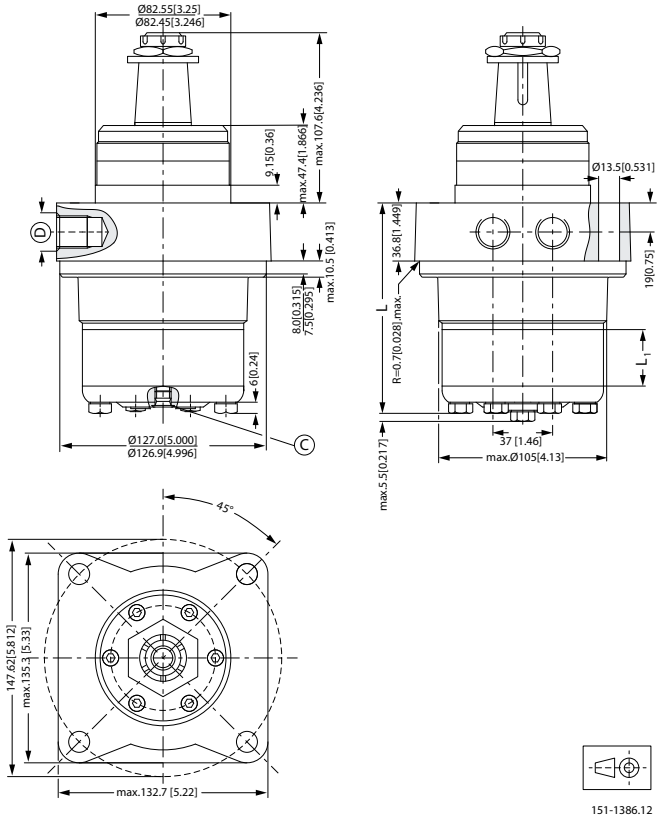
D: G ½; 15 mm [0.59 in] deep

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

Figure 28: End port - European version

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]

OMRW N wheel motor



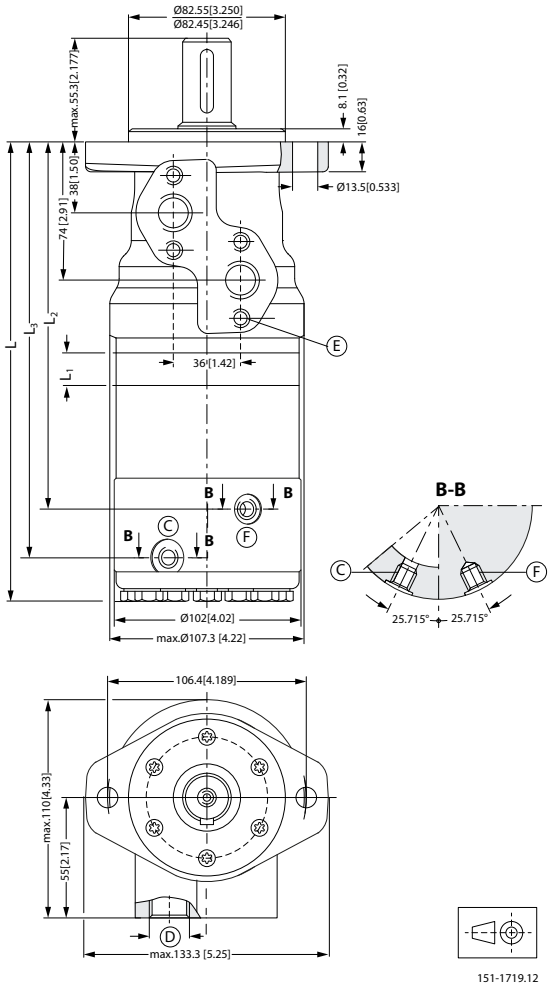
C: Drain connection G ¼; 12 mm [0.47 in] deep

D: G ½; 15 mm [0.59 in] deep

Figure 29: Wheel motor - European version

Type		OMR W 50 N	OMR W 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 F motor



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

D: G ½; 15 mm [0.59 in] deep

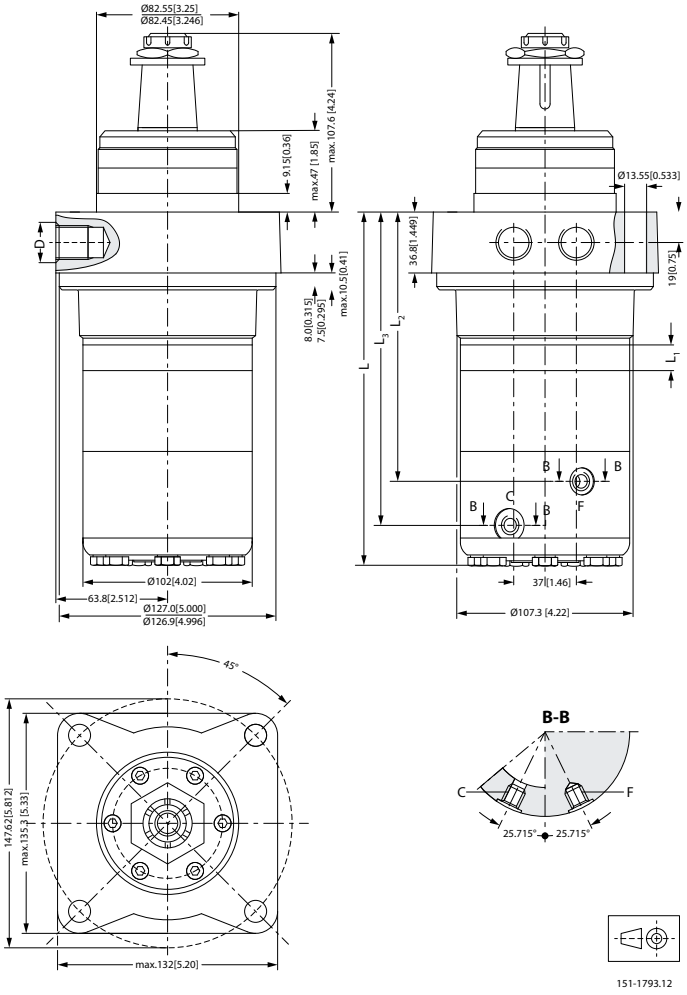
E: M8; 13 mm [0.51 in] deep

F: Brake release connection G ¼

Figure 30: F motor - European version

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	mm	242.7	246.1	250.5	265.1	263.5	272.2	283.5	293.7
max.	[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]

OMRW NF motor



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

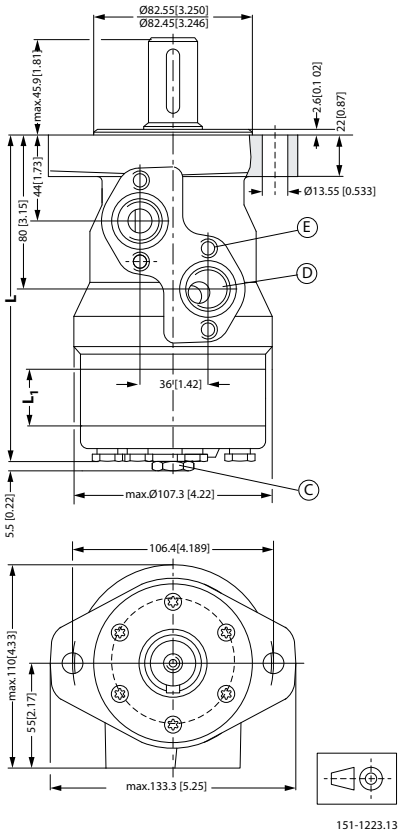
F: Brake release connection G ¼

Figure 31: NF motor - European version

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 - US version

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



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)

Figure 32: Side port - US version

Port connections:

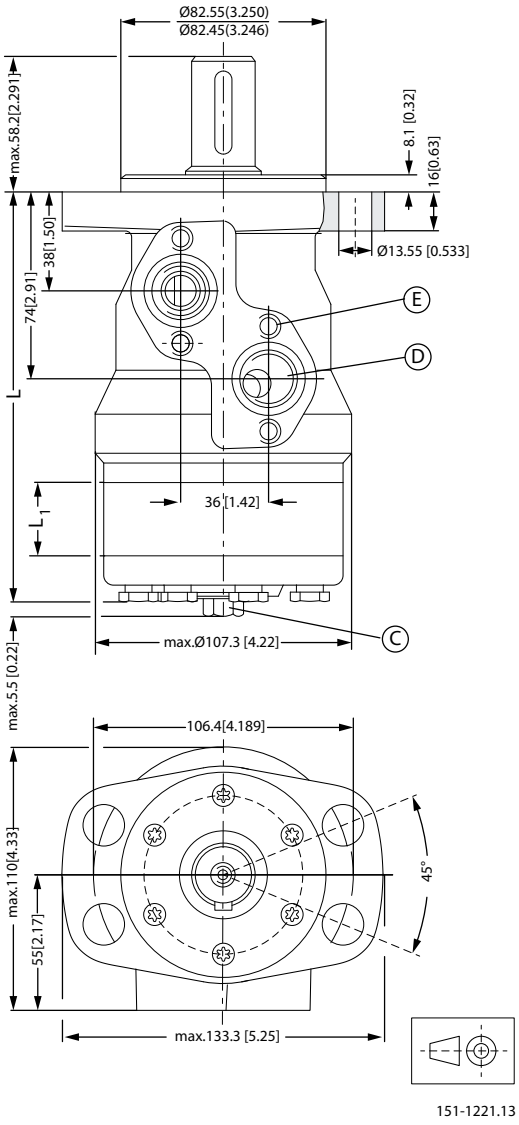
A, B Main ports: 7/8 - 14 UNF; min. 16.7 mm [0.66 in] deep

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

D Thread: M8; 13 mm [0.51 in] deep

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



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

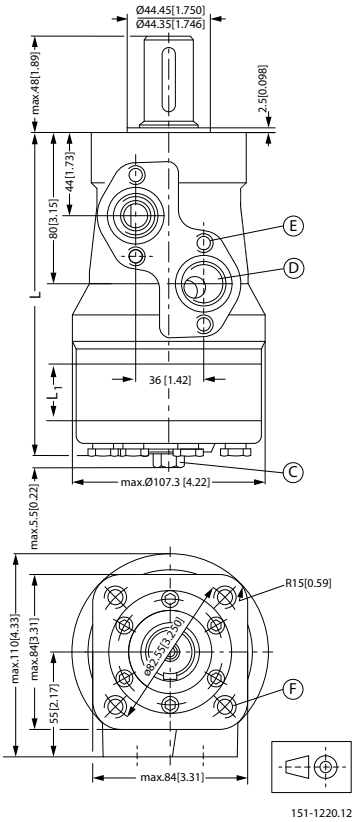
D: 7/8 - 14 UNF; 17 mm [0.66 in] deep

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

Figure 33: Side port - US version

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]

US version side port with square mounting flange (C-flange)



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)

Figure 34: Side port - US version

Port connections:

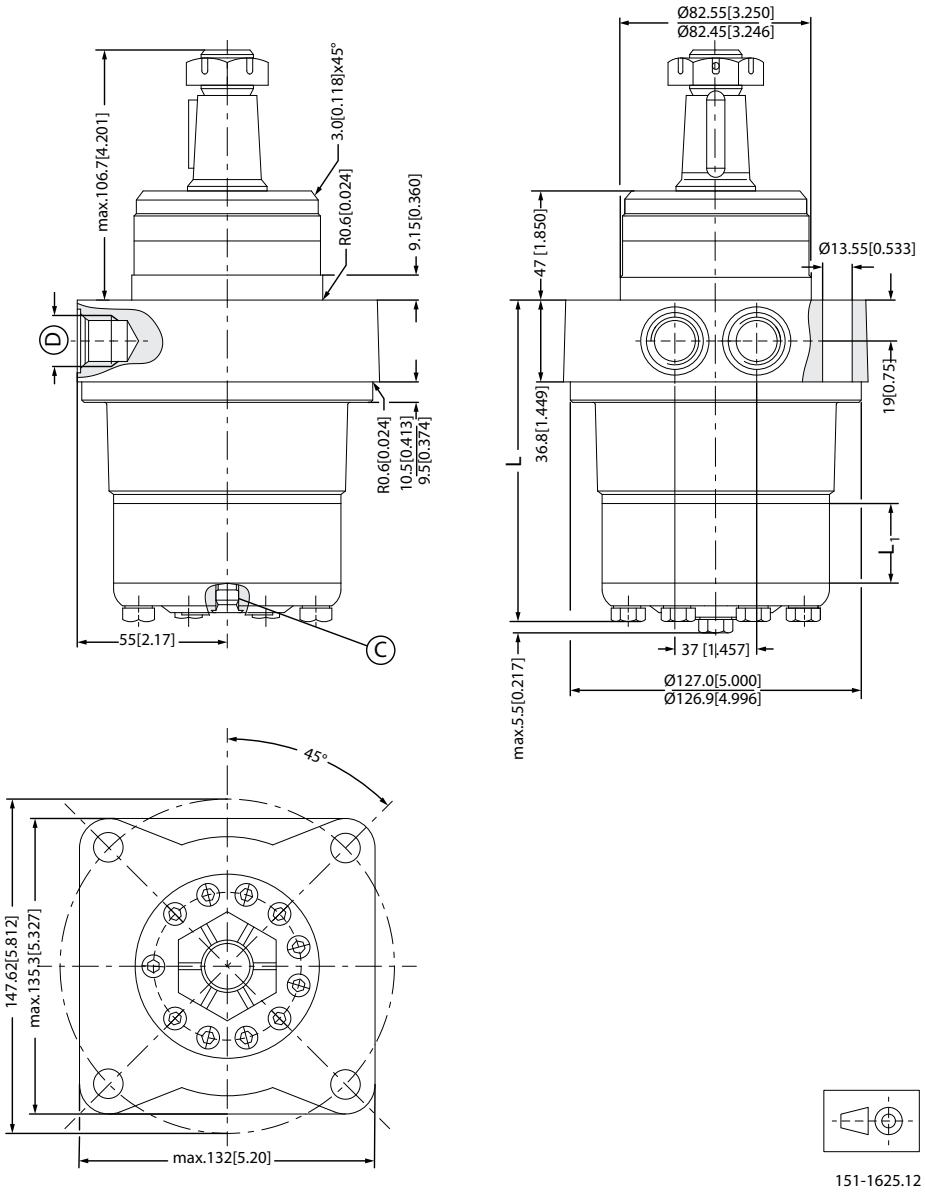
A, B Main ports: 7/8 - 14 UNF; min. 16.7 mm [0.66 in] deep

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

D Thread: 3/8 - 16 UNC; 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	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]

OMRW N wheel motor



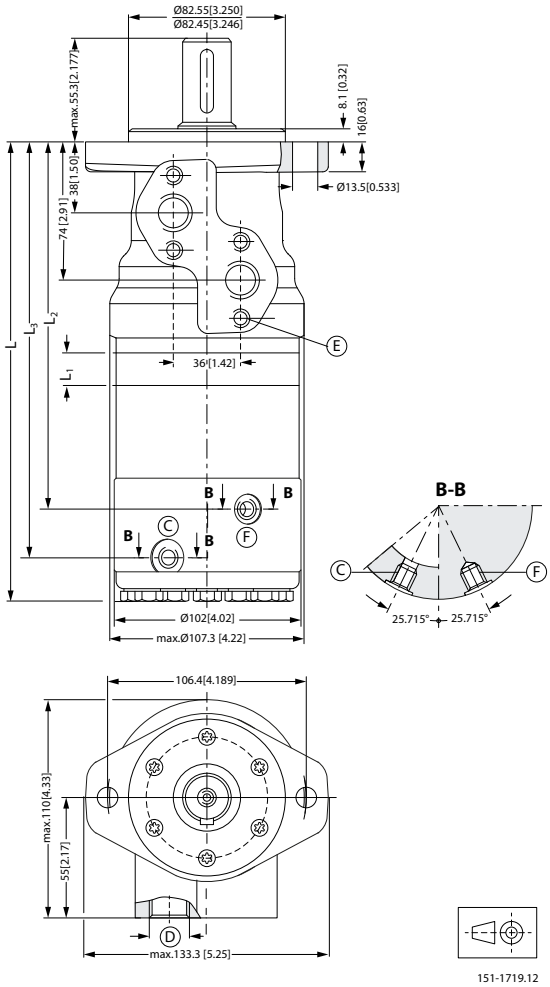
C: Drain connection 7/16 - 20 UNF; 12 mm [0.47 in] deep

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

Figure 35: Wheel motor - US version

Type		OMR W 50 N	OMR W 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 NF motor



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

Figure 36: NF motor - US version

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	196.2	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]

Chapter 14

OMH versions and code numbers

Topics:

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

- Section *OMH technical data* on page 107, specify the technical data for OMH for each shaft type.
- In section *OMH function diagrams* on page 115, the diagram for each motor size is shown.
- See *OMH dimensions* on page 125 for outer main dimensions for the different OMH motor types.

OMH versions and code numbers

OMH standard motors

Table 41: 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***

Table 42: 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

Chapter 15

OMH technical data

Topics:

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		201.3	252.0	314.9	396.8	470.6
	[inch]		[12.32]	[15.42]	[19.27]	[24.28]	[28.80]
Maximum speed	min^{-1}	cont.	370	295	235	185	155
	[rpm]	int.	445	350	285	225	190
Maximum torque	N•m	cont.	340	340	340	340	340
	[lbf•in]		[3000]	[3000]	[3000]	[3000]	[3000]
		int.[1)]	510	510	540	540	520
			[4500]	[4500]	[4800]	[4800]	[4600]
Maximum output	kW	cont.	11.2	7.5	5.2	4.8	3.7
	[hp]		[15.0]	[10.0]	[7.0]	[6.5]	[5.0]
		int.[1)]	17.2	11.9	9.7	8.2	6.0
			[23.0]	[16.0]	[13.0]	[11.0]	[8.0]
Maximum pressure drop	bar	cont.	115	90	75	60	50
	[psi]		[1650]	[1300]	[1100]	[900]	[725]
		int.[1)]	170	145	120	95	75
			[2500]	[2100]	[1750]	[1400]	[1100]
		peak	215	175	145	110	90
			[3120]	[2540]	[2100]	[1600]	[1300]
Maximum oil flow	l/min	cont.	75	75	75	75	75
	[US gal/ min]		[19.8]	[19.8]	[19.8]	[19.8]	[19.8]
		int.[1)]	90	90	90	90	90
			[23.8]	[23.8]	[23.8]	[23.8]	[23.8]
Maximum starting pressure with unloaded shaft	bar		7	7	7	7	7
	[psi]		[100]	[100]	[100]	[100]	[100]

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		OMH	OMH	OMH	OMH	OMH
Motor size		**200**	**250**	**315**	**400**	**500**
Minimum starting torque	at maximum press drop cont. N•m [lbf•in]	255 [2250]	270 [2400]	280 [2500]	290 [2550]	300 [2650]
	at maximum press.drop int.[1] N•m [lbf•in]	390 [3450]	435 [3850]	450 [4000]	450 [4000]	450 [4000]

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		201.3	252.0	314.9	396.8	470.6
	[inch]		[12.32]	[15.42]	[19.27]	[24.28]	[28.80]
Maximum speed	min^{-1}	cont.	370	295	235	185	155
	[rpm]	int.	445	350	285	225	190
Maximum torque	N•m	cont.	510	610	590	590	580
	[lbf•in]		[4500]	[5400]	[5220]	[5220]	[5130]
		int.[1]	580	700	670	700	680
			[5130]	[6200]	[5930]	[6200]	[6020]
Maximum output	kW	cont.	16.0	16.0	12.5	10.0	8.5
	[hp]		[21.5]	[21.5]	[16.8]	[13.4]	[11.4]
		int.[1]	18.5	18.5	14.0	12.0	10.0
			[24.8]	[24.8]	[18.8]	[16.1]	[13.4]
Maximum pressure drop	bar	cont.	175	175	135	105	85
	[psi]		[2540]	[2540]	[1960]	[1520]	[1230]
		int.[1]	200	200	155	125	100
			[2900]	[2900]	[2250]	[1810]	[1450]
		peak	225	225	190	155	130
			[3260]	[3260]	[2760]	[2250]	[1890]

[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			OMH	OMH	OMH	OMH	OMH
Motor size			**200**	**250**	**315**	**400**	**500**
Maximum oil flow	l/min	cont.	75	75	75	75	75
	[US gal/min]		[19.8]	[19.8]	[19.8]	[19.8]	[19.8]
		int.[1)]	90	90	90	90	90
			[23.8]	[23.8]	[23.8]	[23.8]	[23.8]
Maximum starting pressure with unloaded shaft	bar		7	7	7	7	7
	[psi]		[100]	[100]	[100]	[100]	[100]
Minimum starting torque	at max. press drop cont.		390	520	510	490	490
	N•m [lbf•in]		[3450]	[4600]	[4510]	[4340]	[4340]
	at max. press.drop int.[1)]		450	590	590	600	600
	N•m [lbf•in]		[3980]	[5220]	[5220]	[5310]	[5310]

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		201.3	252.0	314.9	396.8	470.6
	[inch]		[12.32]	[15.42]	[19.27]	[24.28]	[28.80]
Maximum speed	min^{-1}	cont.	370	295	235	185	155
	[rpm]	int.	445	350	285	225	190
Maximum torque	N•m	cont.	510	610	740	840	820
	[lbf•in]		[4500]	[5400}	[6550]	[7440]	[7260]
		int.[fn]	580	700	820	980	1040
			[5130]	[6200]	[7260]	[8670]	[9210]
Maximum output	kW	cont.	16.0	16.0	14.0	12.5	11.0
	[hp]		[21.5]	[21.5]	[18.8]	[16.8]	[14.8]
		int.[fn]	18.5	18.5	15.5	15.0	14.0
			[24.8]	[24.8]	[20.8]	[20.1]	[18.8]

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

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

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

Maximum permissible shaft seal pressure

OMH with Standard Shaft Seal

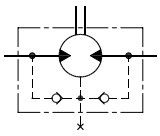
OMH with standard shaft seal, check valves and without use of drain connection:

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

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

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.



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

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

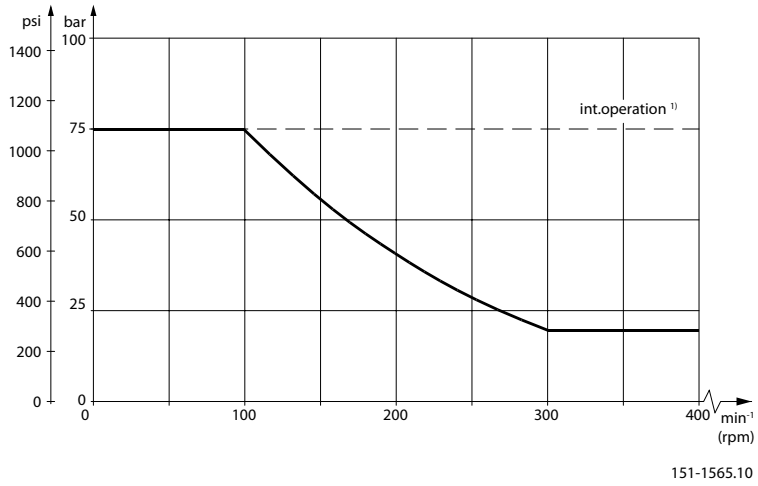


Figure 37: Maximum return pressure without drain line or max. pressure in the drain line

1)

Pressure drop in OMH motor

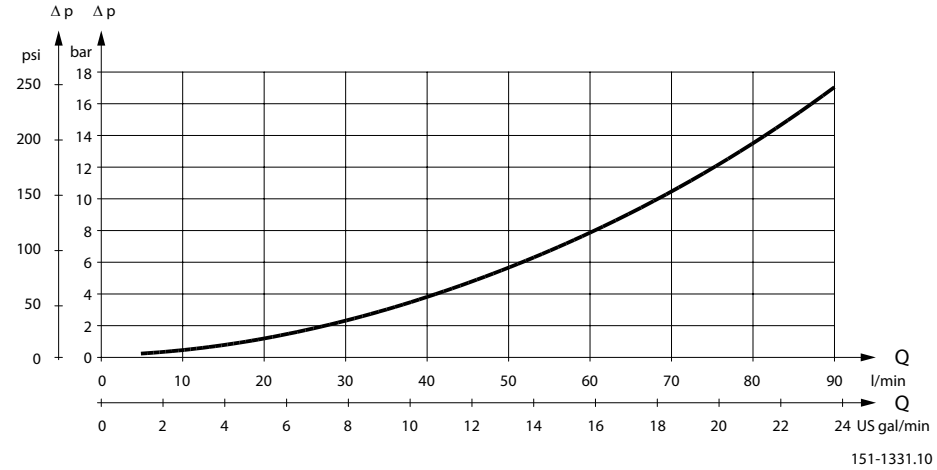


Figure 38: The curve applies to an unloaded motor shaft and an oil viscosity of 35 mm^2/s [165 SUS]

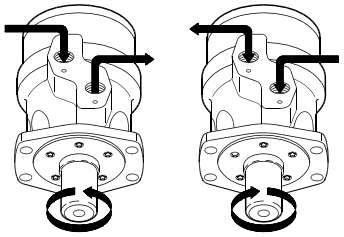
1) Intermittent operation: the permissible values may occur for maximum 10% of every minute.

Oil flow in drain line

Table 43: Max. oil flow in the drain line at return pressure less 5-10 bar

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

Direction of shaft rotation



151-2107.10

Permissible shaft loads

OMH permissible shaft loads

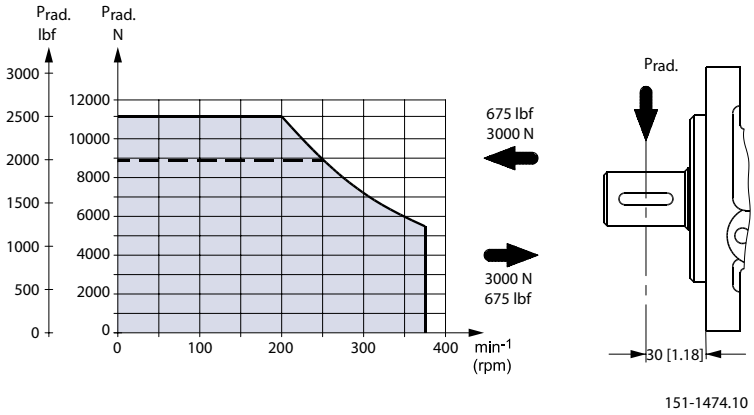
The permissible shaft load (P_{rad}) is calculated from the speed (n) and the distance (l) between the point of load application and the mounting flange.

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

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

*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].

Chapter

16

OMH function diagrams

Topics:

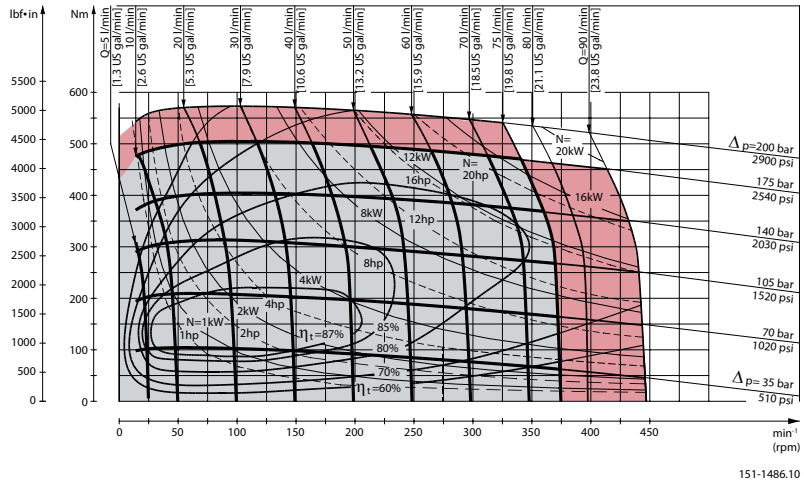
Explanation of function diagram use, basis and conditions can be found in *Speed, torque and output* on page 9.

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

Maximum permissible continuous/intermittent pressure drop for the actual shaft version can be found in *OMH technical data* on page 107.

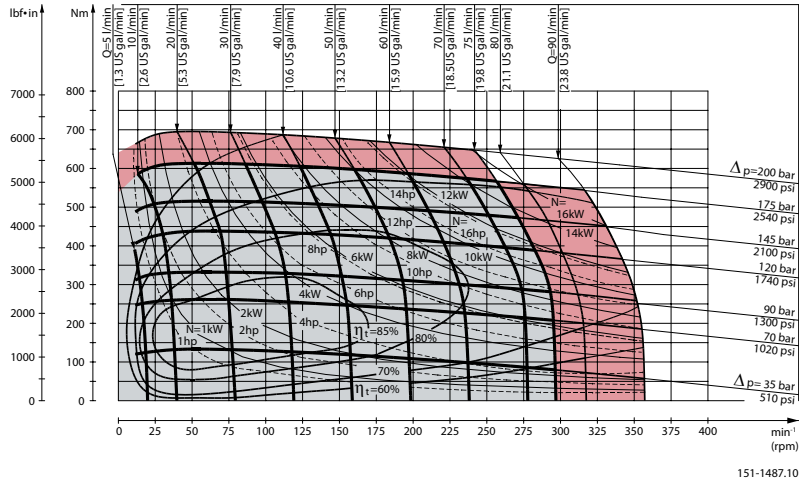
Note: Intermittent pressure drop and oil flow must not occur simultaneously.

OMH 200 function diagram



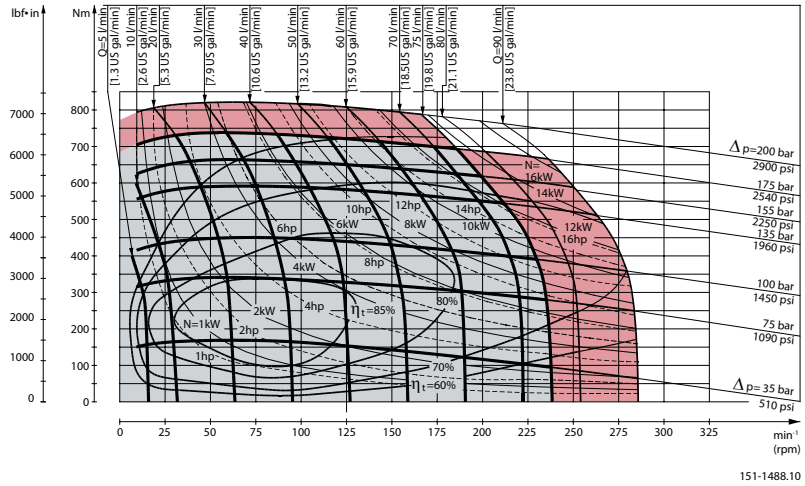
151-1486.10

OMH 250 function diagram

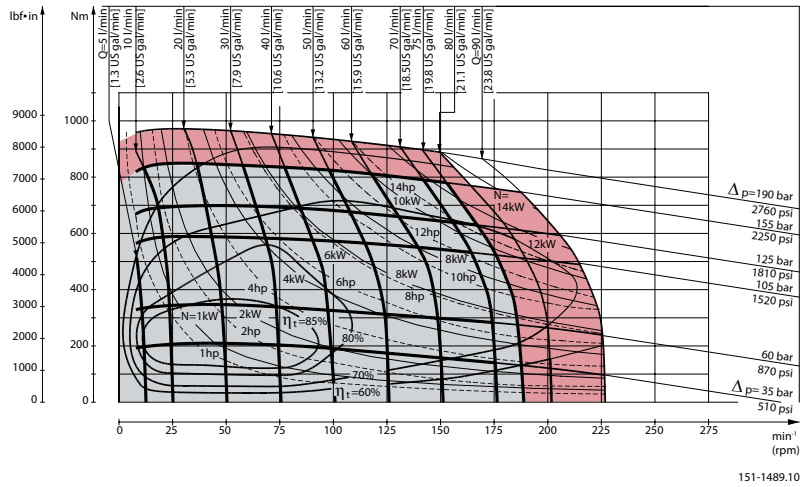


151-1487.10

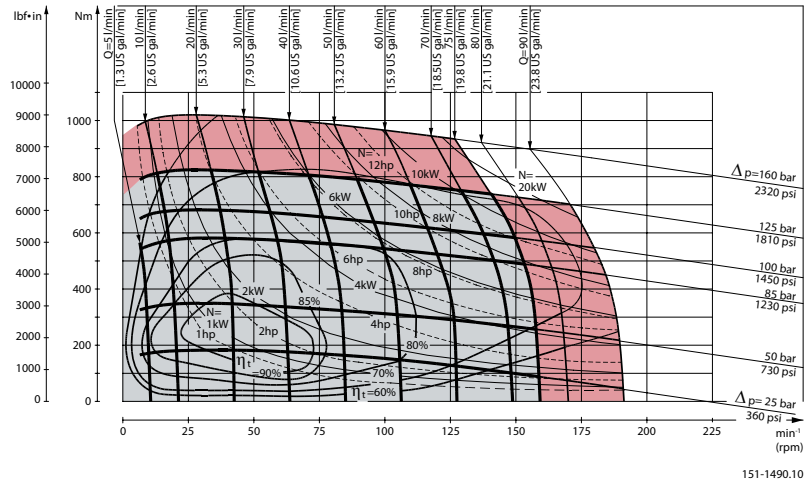
OMH 315 function diagram



OMH 400 function diagram



OMH 500 function diagram



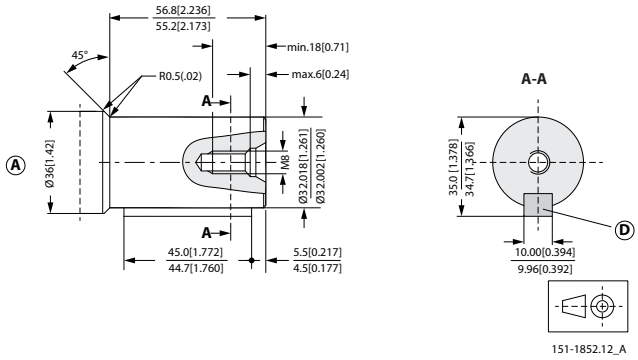
Chapter

17

OMH shaft version

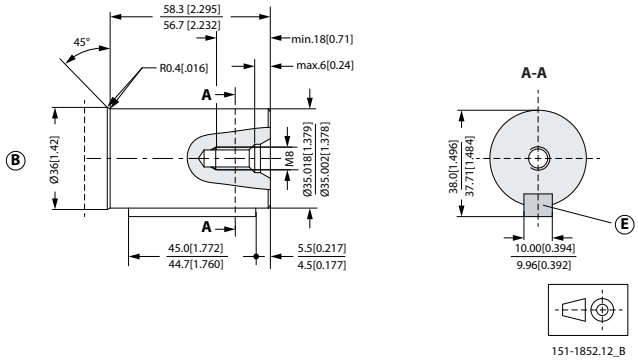
Topics:

Shaft Version



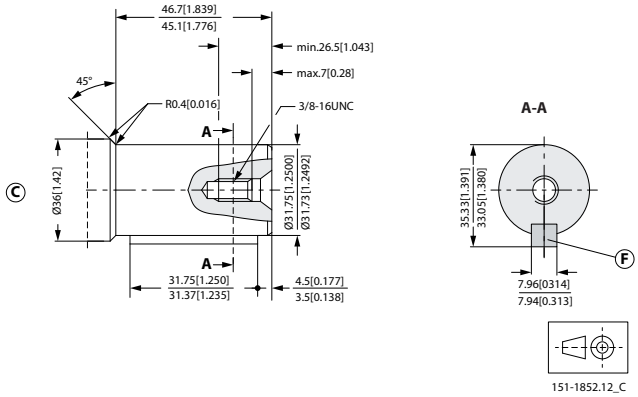
A: Cylindrical shaft 32 mm

D: Parallel key, A10 × 8 × 45, DIN 6885



B: Cylindrical shaft 35 mm

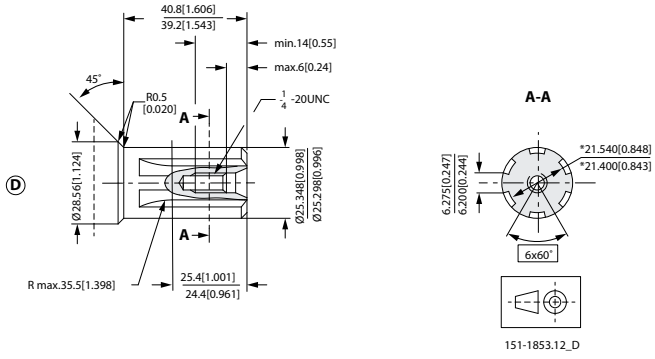
E: Parallel key, A10 × 8 × 45, DIN 6885



C: Cylindrical shaft 1 1/4 in

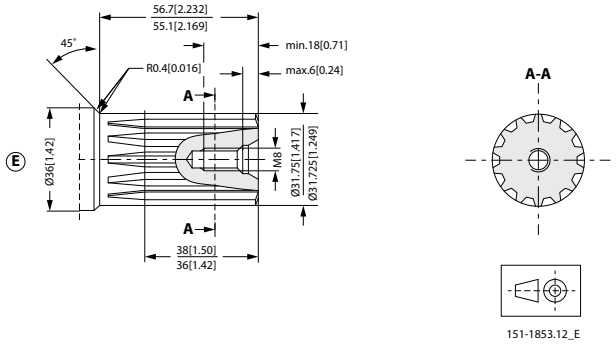
F: Parallel key, 5/16 × 5/16 × 11/4 in, SAE J 744

Figure 39: US version

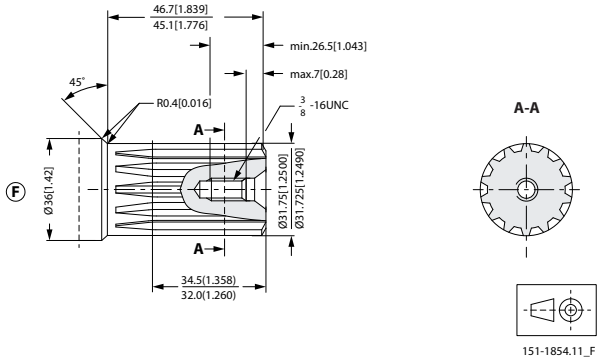


D: Splined shaft, SAE 6 B (B.S. 2059), Straight-sided, bottom fitting, deep. Fit 2, Nom. size 1 in

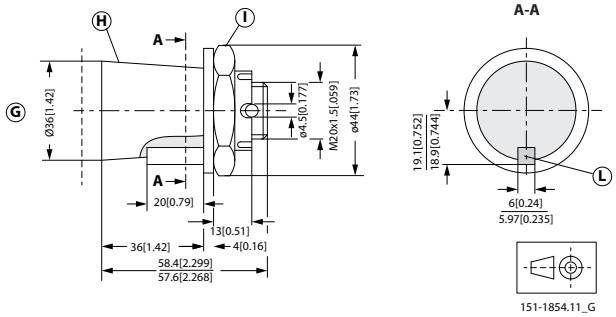
*Deviates from SAE 6 B (B.S. 2059)



E: Involute splined shaft, ANS B92.1 - 1996 standard, Flat root side fit, Pitch 12/24, Teeth 14, Major dia. 1.25 inch, Pressure angle 30°



F: Involute splined shaft, ANS B92.1 - 1996 standard, Flat root side fit, Pitch 12/24, Teeth 14, Major dia. 1.25 inch, Pressure angle 30°



G: Tapered shaft 35 mm

I: DIN 937, NV 4, Tightening torque: 200 ± 10 N•m [1770 ±85 lbf•in]

H: Taper 1:10

L: Parallel key, B6 × 6 × 20, DIN 6885

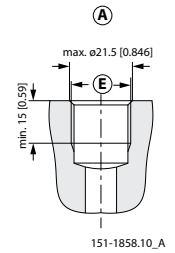
Chapter

18

OMH port thread versions

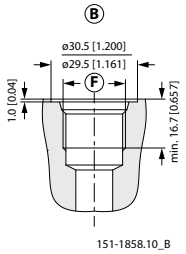
Topics:

Port Thread Versions



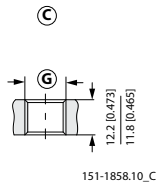
A: G main ports

E: ISO 228/1 - G1/2



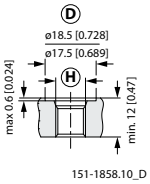
B: UNF main ports

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



C: G drain port

G: ISO 228/1 - G1/4



D: UNF drain port

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

OMH manifold mount

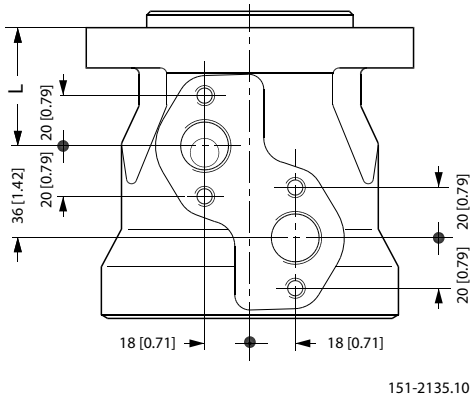


Figure 40: European version

L: see dimensional drawing for given OMH motor:

OMH dimensions - European version on page 126
OMH dimensions - US version on page 127

Chapter

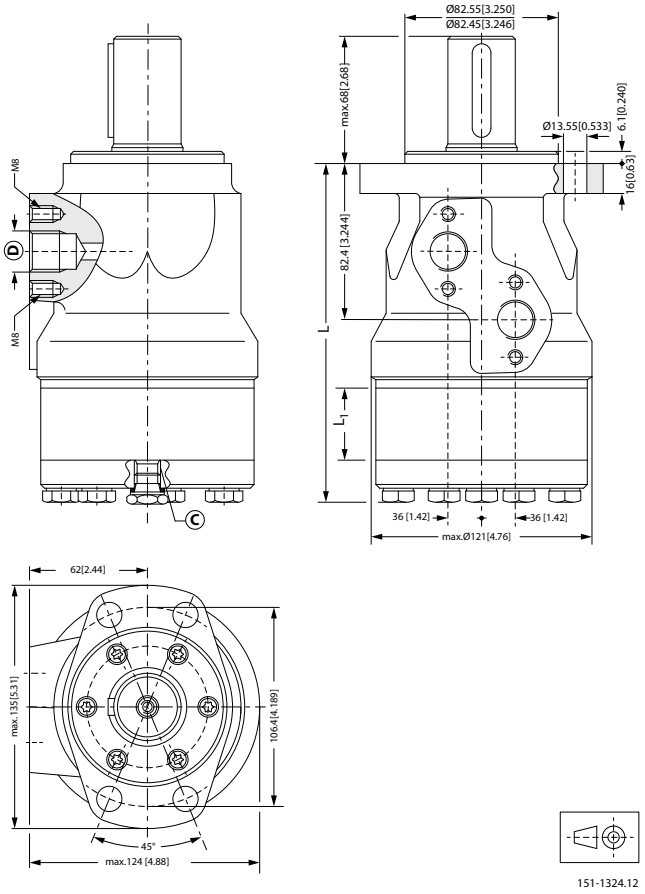
19

OMH dimensions

Topics:

OMH dimensions - European version

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



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

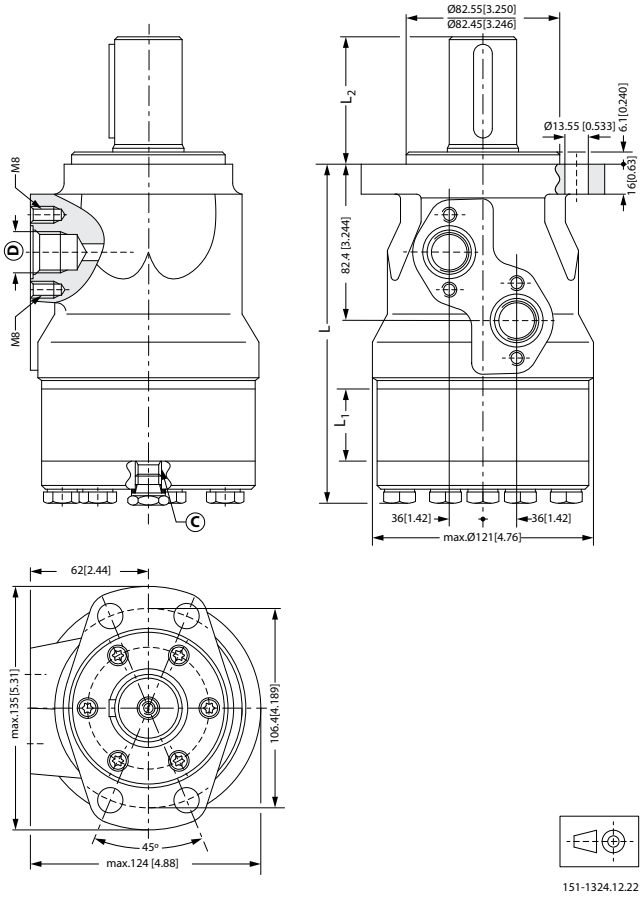
D: G ½; 15 mm [0.59 in] deep

Figure 41: Side port - European version

Type		OMH 200	OMH 250	OMH 315	OMH 400	OMH 500
$L_{Max.}$	mm	171.8	179.5	187.5	198.8	209.0
	[in]	[6.77]	[7.07]	[7.39]	[7.83]	[8.23]
L_1	mm	27.8	34.8	43.5	54.8	65.0
	[in]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]

OMH dimensions - US version

OMH 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

Figure 42: Side port - US version

Output shaft. maximum				**Splined shaft 1 in**		**Other shaft versions**
L_2			mm	50.5		58.0
			[in]	[1.99]		[2.28]
Type		**OMH 200**	**OMH 250**	**OMH 315**	**OMH 400**	**OMH 500**
$L_{Max.}$	mm	171.8	179.5	187.5	198.8	209.0
	[in]	[6.77]	[7.07]	[7.39]	[7.83]	[8.23]
L_1	mm	27.8	34.8	43.5	54.8	65.0
	[in]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]

Chapter

20

Weight of motors

Topics:

Weight of OMP, OMR and OMH motors

Table 44: 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]

Code no	**Weight**	
	kg	**[lb]**
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]
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]

Code no	**Weight**	
	kg	**[lb]**
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]
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]

Code no	**Weight**	
	kg	**[lb]**
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]
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]

Code no	**Weight**	
	kg	**[lb]**
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]
151-5198	7.4	[16.3]

Code no	Weight	
	kg	[lb]
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]

Code no	**Weight**	
	kg	**[lb]**
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]
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]

Code no	Weight	
	kg	[lb]
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]
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]

Code no	Weight	
	kg	[lb]
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]
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]

Code no	**Weight**	
	kg	**[lb]**
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]
151-7255	8.0	[17.6]
151-7256	8.5	[18.7]
151-7257	9.0	[19.8]
151-7258	9.5	[20.9]

Code no	**Weight**	
	kg	**[lb]**
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]

Code no	**Weight**	
	kg	**[lb]**
151H1055	12.3	[27.1]
151H1056	13.0	[28.7]
151H1080	10.5	[23.1]
151H1081	13.0	[28.7]
151H1082	11.0	[24.3]
151H1083	11.5	[25.4]
151H1084	12.3	[27.1]