

ENGINEERING
TOMORROW

Danfoss

Technical Information

Orbital Motors

Type OMR



A wide range of Orbital Motors

Orbital Motors Introduction

Danfoss is a world leader within production of low speed orbital motors with high torque. We can offer more than 3000 different orbital motors, categorized in types, variants and sizes (including different shaft versions).

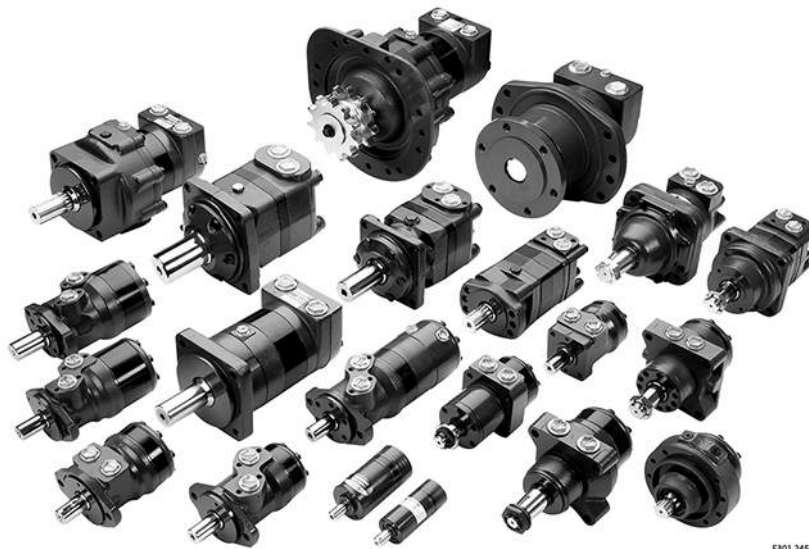
The motors size vary (rated displacement) from 8 to 800 cm³ [0.50 to 48.9 in³] per revolution.

- Small sized motors:
 - OML and OMM
- Medium sized motors:
 - OMP, OMR and OMH
 - OMP X and OMR X
 - DH and DS
 - OMEW
- Large sized motors:
 - OMS, OMT and OMV
 - TMK
 - TMT
 - TMTHW
 - TMVW

Speeds range up to approximate 2500 min⁻¹ (rpm) for the smallest type and up to approximate 600 min⁻¹ (rpm) for the largest type.

Maximum operating torques vary from 13 to 4000 N•m [115 to 35 400 lb•in] (peak) and maximum outputs are from 2.0 to 95 kW [2.7 to 128 hp].

Wide range of Danfoss orbital motors



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

A wide range of Orbital Motors

- 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)
 - low leakage version or super low leakage version (OMR, OMR X)
 - 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

Orbital Motors Literature Overview

A general catalog of all Orbital Motors with technical data gives a quick motor reference based on: selection of orbital motor, function in hydraulic systems, power, torque, speed and capabilities. More detailed information can be found in an individual motor catalogs.

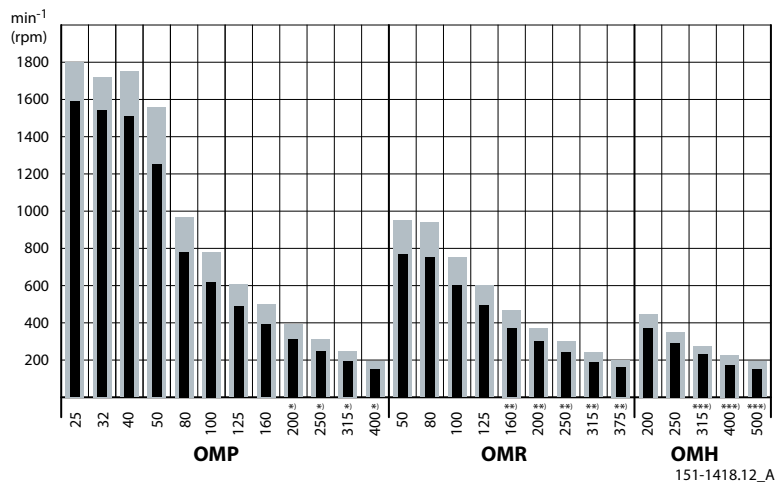
Literature title	Literature type	Reference number
Orbital Motors in General	Technical Information	BC00000083
OML and OMM Orbital Motors	Technical Information	BC00000087
OMP, OMR and OMH Orbital Motors	Technical Information	BC00000084
OMP X and OMR X Orbital Motors	Technical Information	BC00000388
OMS, OMT and OMV Orbital Motors	Technical Information	BC00000090
DH and DS Orbital Motors	Technical Information	BC00000092
OMEW Orbital Motors	Technical Information	BC00000062

A wide range of Orbital Motors

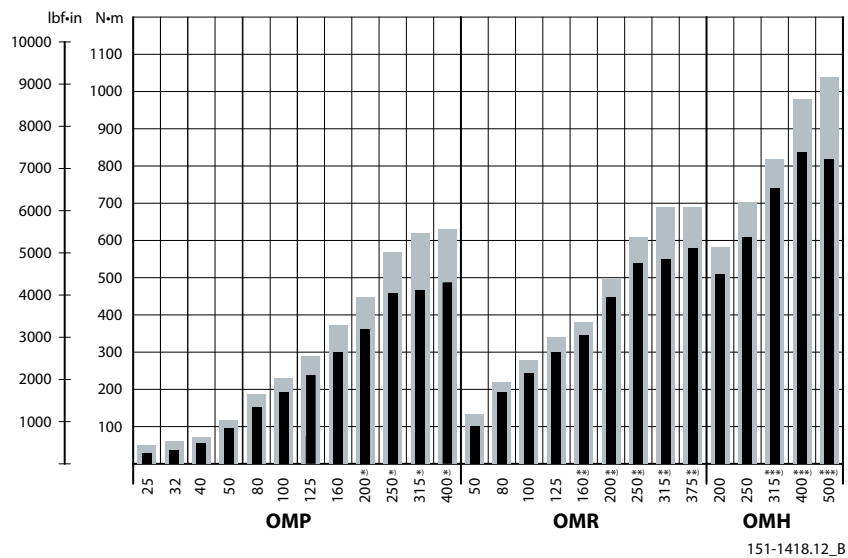
Literature title	Literature type	Reference number
TMK, TMKW, TMK FL Orbital Motors	Technical Information	BC00000098
TMT, TMTU, TMTW, TMT FL Orbital Motors	Technical Information	BC00000102
TMTHW Orbital Motors	Technical Information	BC00000230

Speed, torque and output

Maximum speed

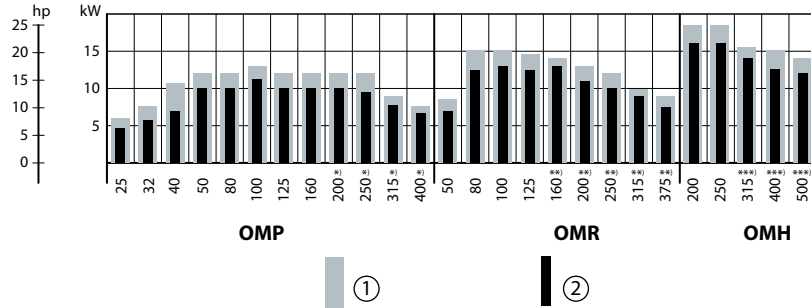


Maximum torque



A wide range of Orbital Motors

Maximum output



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1. Intermittent values

2. Continuous values

* Cylindrical 32 mm or 1 1/4 in shaft

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

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

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

- OMP and OMPW: see [OMP function diagrams](#)
- OMR and OMRW: see [OMR function diagrams](#) on page 58
- OMH: see [OMH function diagrams](#) on page 92

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

OMR technical data

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

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

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

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

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

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

Technical Information
Orbital Motors Type OMP, OMR and OMH

OMR technical data

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

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

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

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

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

Technical Information

Orbital Motors Type OMP, OMR and OMH

OMR technical data

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

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

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

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

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

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

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

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

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

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

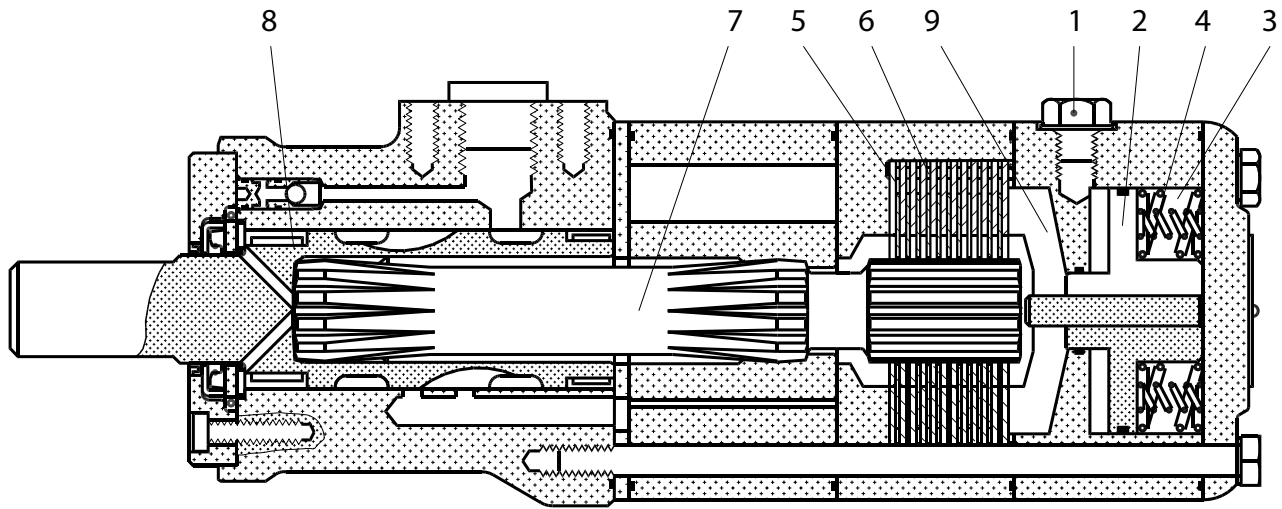
OMR F function

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

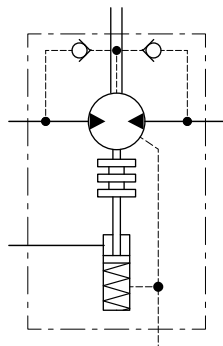
The pressure forces the piston (2) against the springs (3 and 4) disengaging the outer and inner discs (5 and 6) from each other so that the cardan shaft (7) and consequently output shaft (8) become free to rotate.

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

OMR technical data



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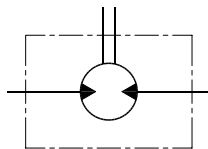


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Maximum permissible shaft seal pressure

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



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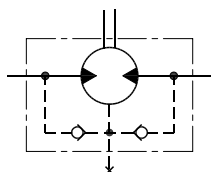
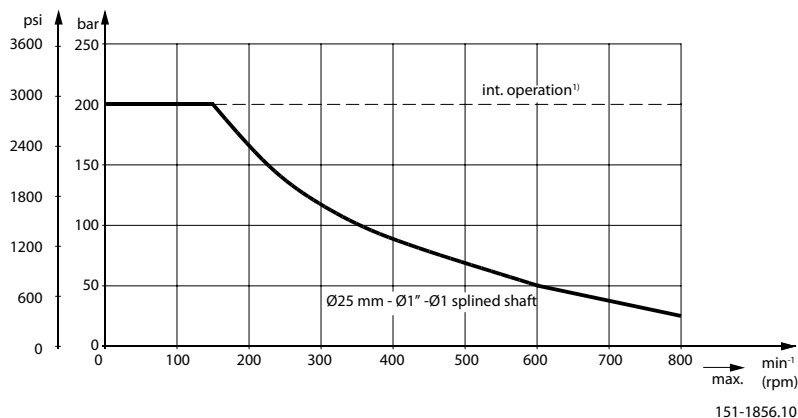
$$P_{\text{seal}} = \frac{P_{\text{in}} + P_{\text{return}}}{2}$$

- with HPS, check valves and

OMR technical data

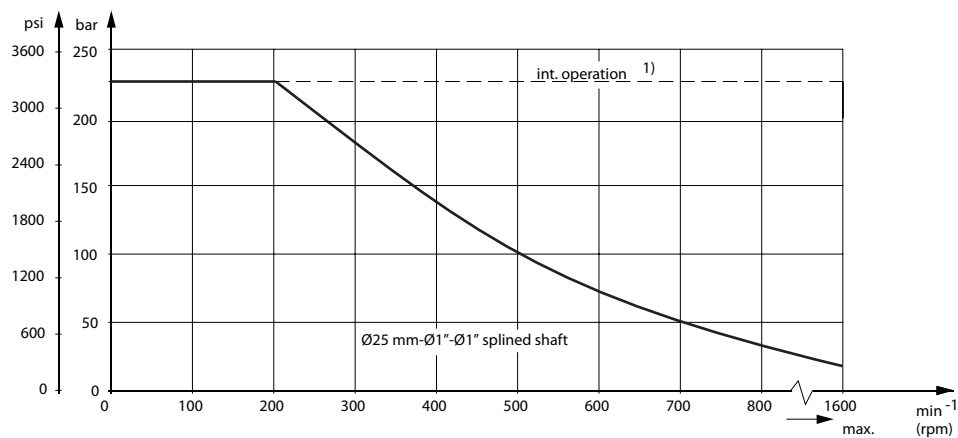
- with drain connection – **The shaft seal pressure equals the pressure in the drain line.**
- without drain connection – **The shaft seal pressure never exceeds the pressure in the return line.**

Max. permissible shaft seal pressure



151-320.10

Maximum permissible shaft seal pressure

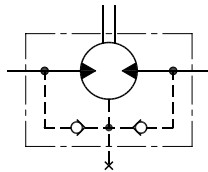


OMR with Standard Shaft seal

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 technical data

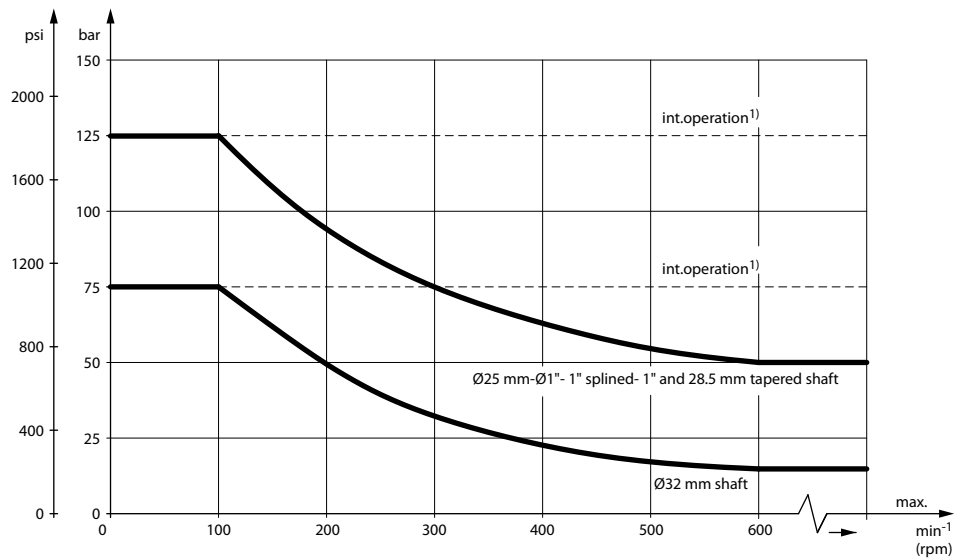


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OMR with standard shaft seal, check valves and with drain connection:

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

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

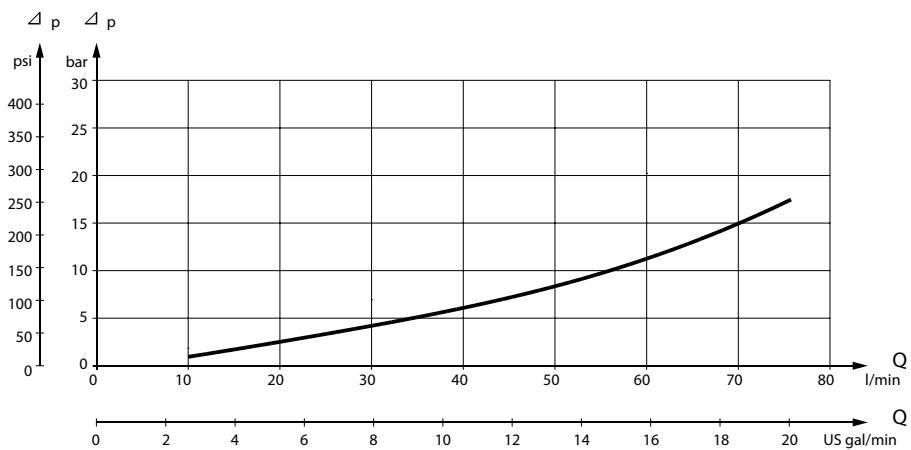


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1) Intermittent operation: the permissible values may occur for max. 10% of every minute.

Pressure drop in OMR motor

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



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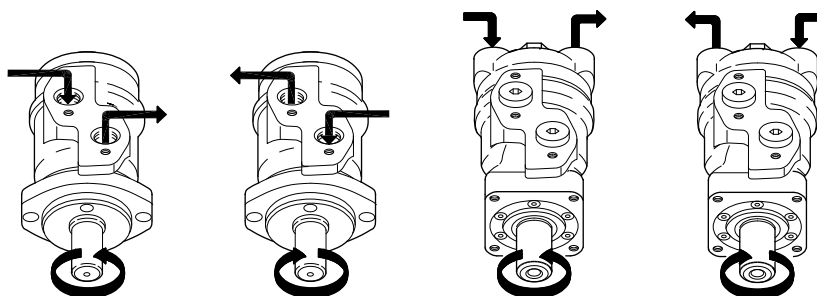
OMR technical data

Oil flow in drain line

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

Pressure drop	100 bar [1450 psi]		140 bar [2030 psi]	
	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

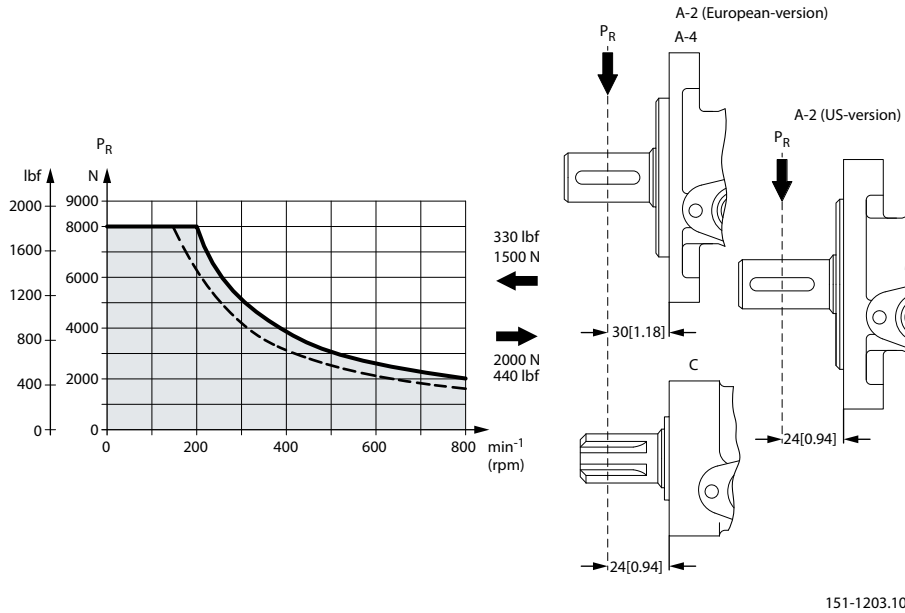
The permissible radial shaft load (P_R) depends on: a distance from the point of load to the mounting flange (L), speed (n), mounting flange and shaft version.

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	$\frac{800}{n} \cdot \frac{250000}{95 + L} \text{ N}^*$	$\frac{800}{n} \cdot \frac{187500}{95 + L} \text{ N}^*$	$\frac{800}{n} \cdot \frac{250000}{101 + L} \text{ N}^*$
Permissible shaft load (P_R) - l in inch	$\frac{800}{n} \cdot \frac{2215}{3.74 + L} \text{ lbf}^*$	$\frac{800}{n} \cdot \frac{1660}{3.74 + L} \text{ lbf}^*$	$\frac{800}{n} \cdot \frac{2215}{3.98 + L} \text{ lbf}^*$

** For both European and US-version

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

OMR technical data



151-1203.10

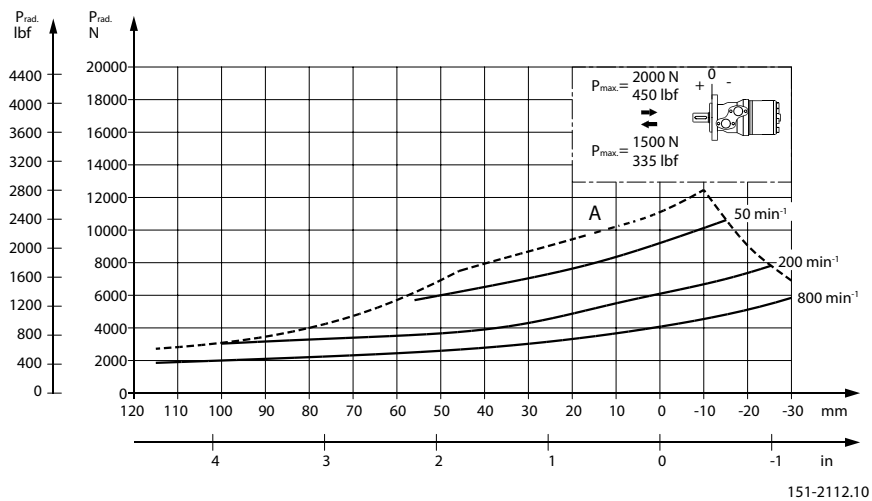
- cylindrical shaft 32 mm [1.26 in]
- _____ other shaft versions

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



151-2112.10

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

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

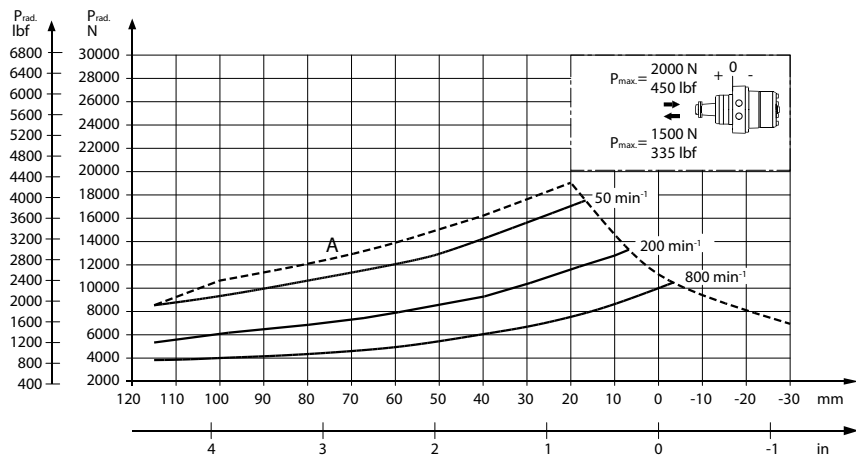
OMR technical data

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

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

Bearing life calculations can be made using the explanation and formula provided in the chapter "Bearing dimensioning" in the technical information *General Orbital Motors*, **BC0000083**.

OMRW N and OMRW NF with Needle Bearings



151-2113.10

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

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

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

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

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

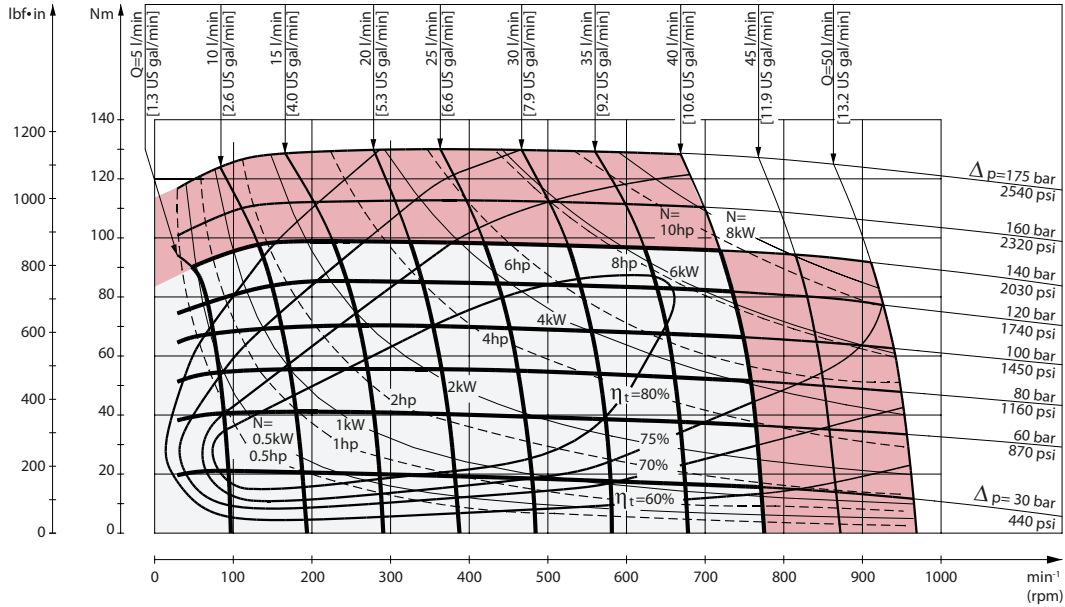
OMR function diagrams

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](#).

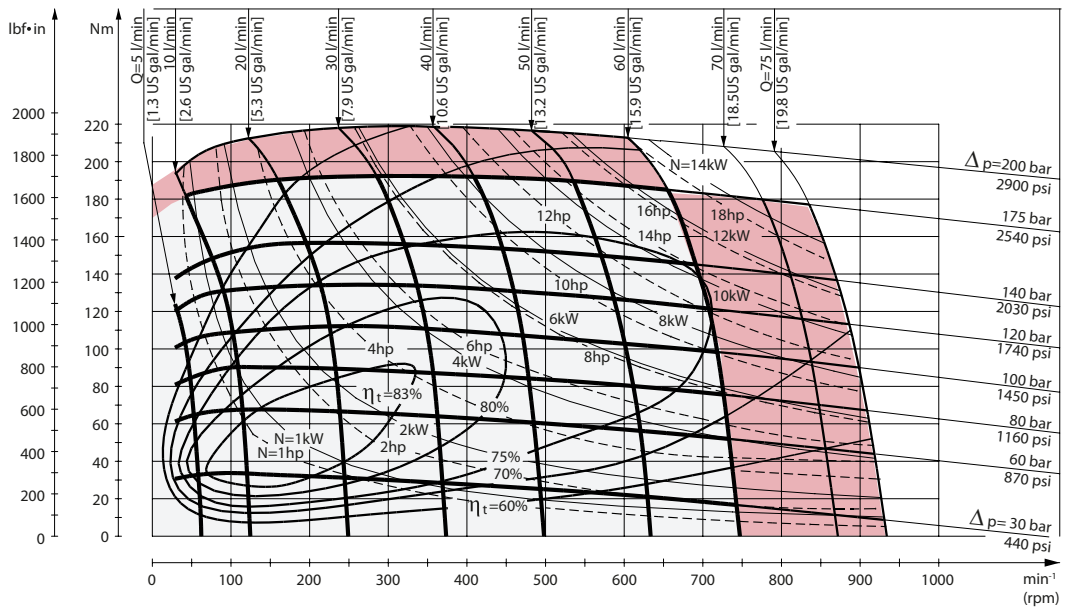
Intermittent pressure drop and oil flow must not occur simultaneously. Max. permissible continuous/ intermittent pressure drop for the actual shaft version can be found in [OMR technical data](#) on page 49.

OMR 50 function diagram



151-1172.10

OMR 80 function diagram

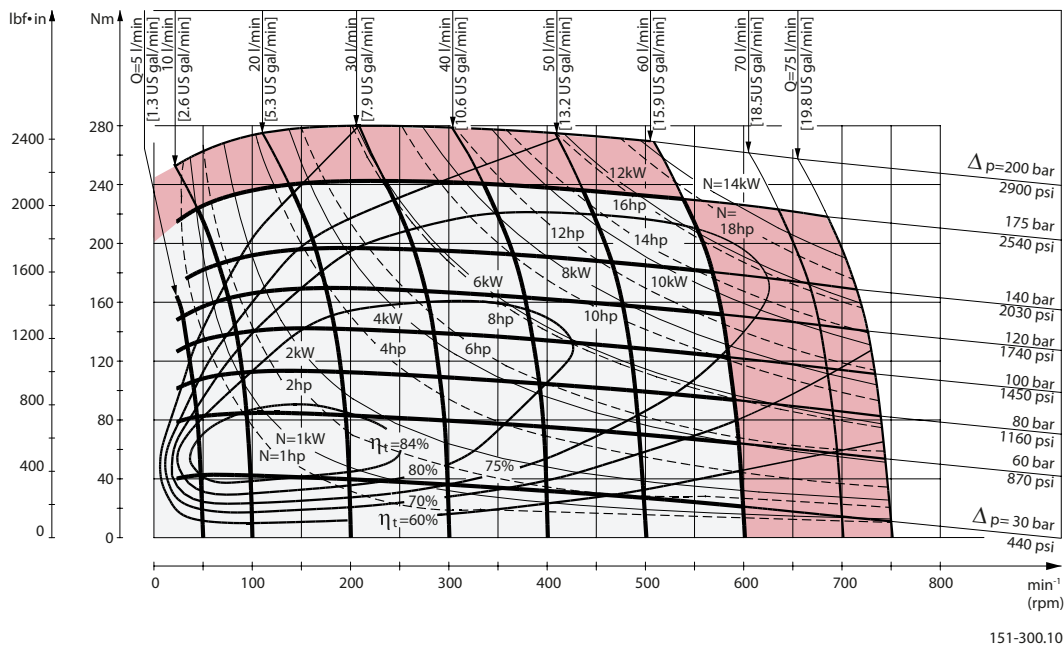


151-299.10

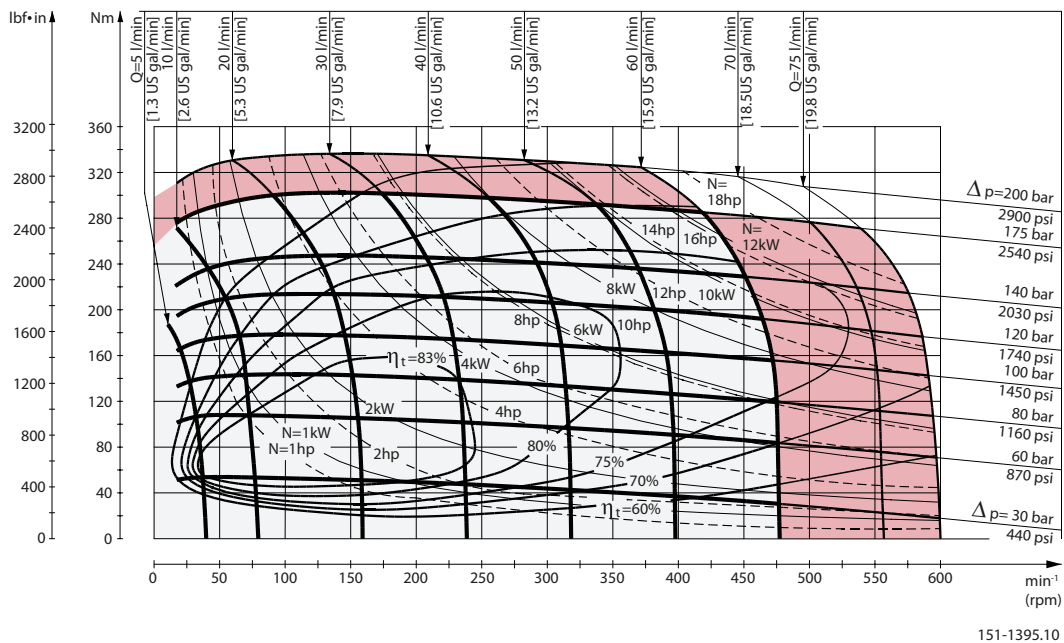
Technical Information
Orbital Motors Type OMP, OMR and OMH

OMR function diagrams

OMR 100 function diagram

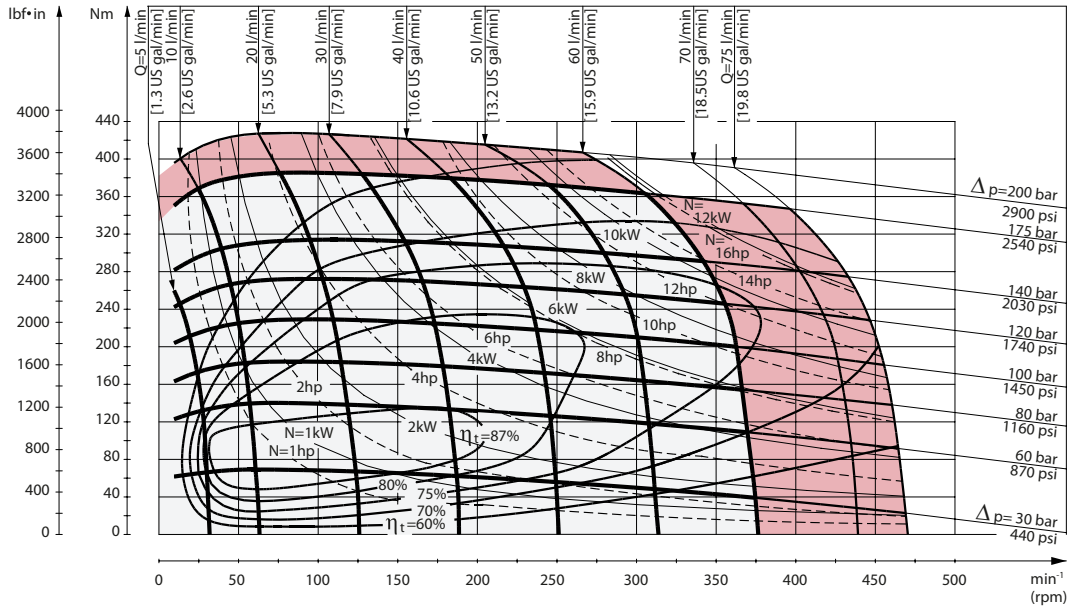


OMR 125 function diagram



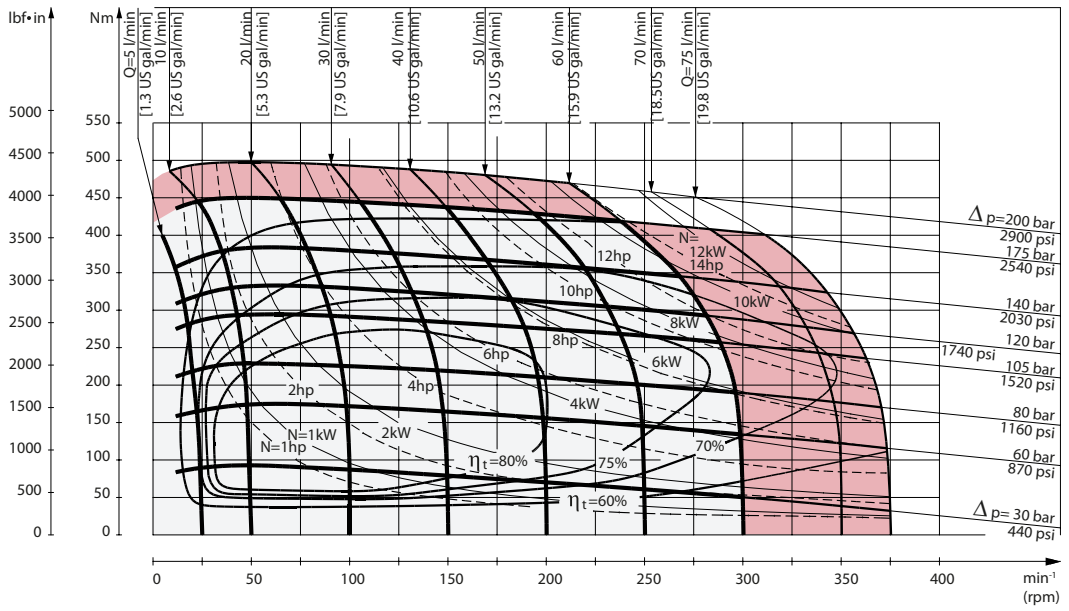
OMR function diagrams

OMR 160 function diagram



151-1044.10

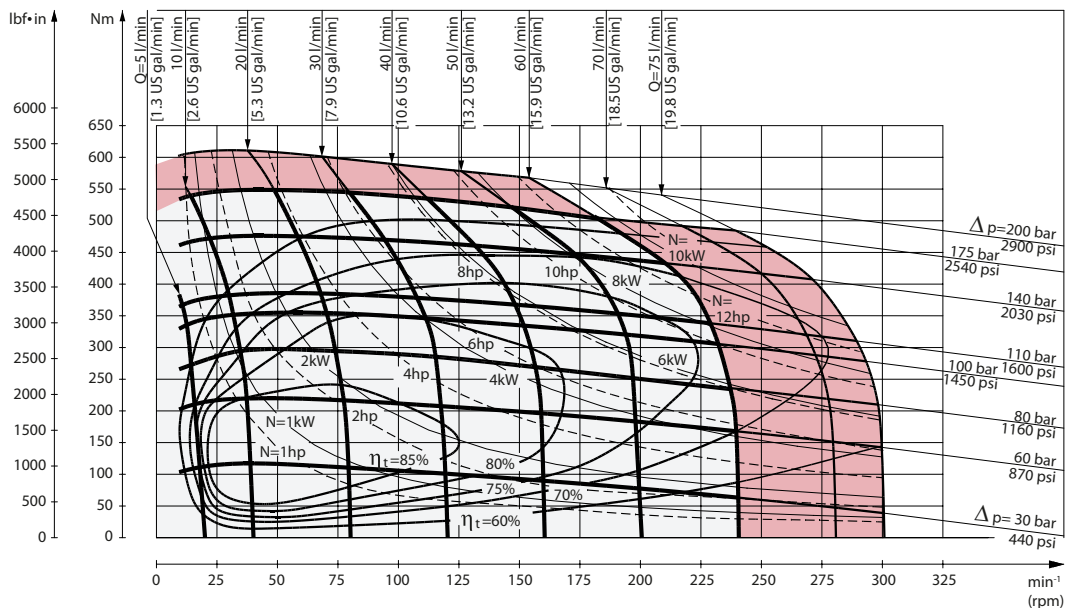
OMR 200 function diagram



151-1396.10

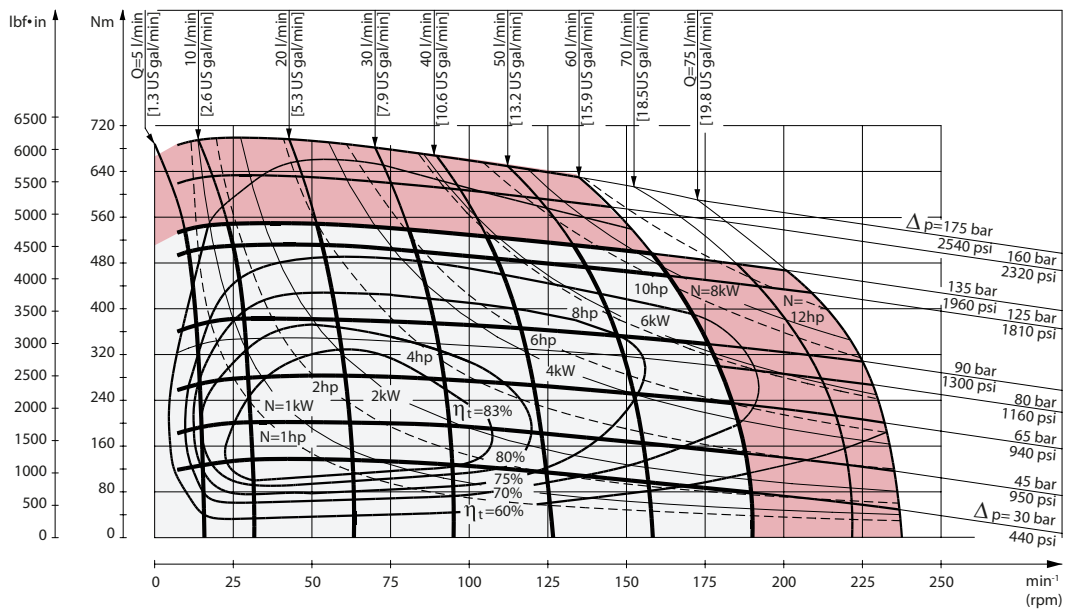
OMR function diagrams

OMR 250 function diagram



151-1119.10

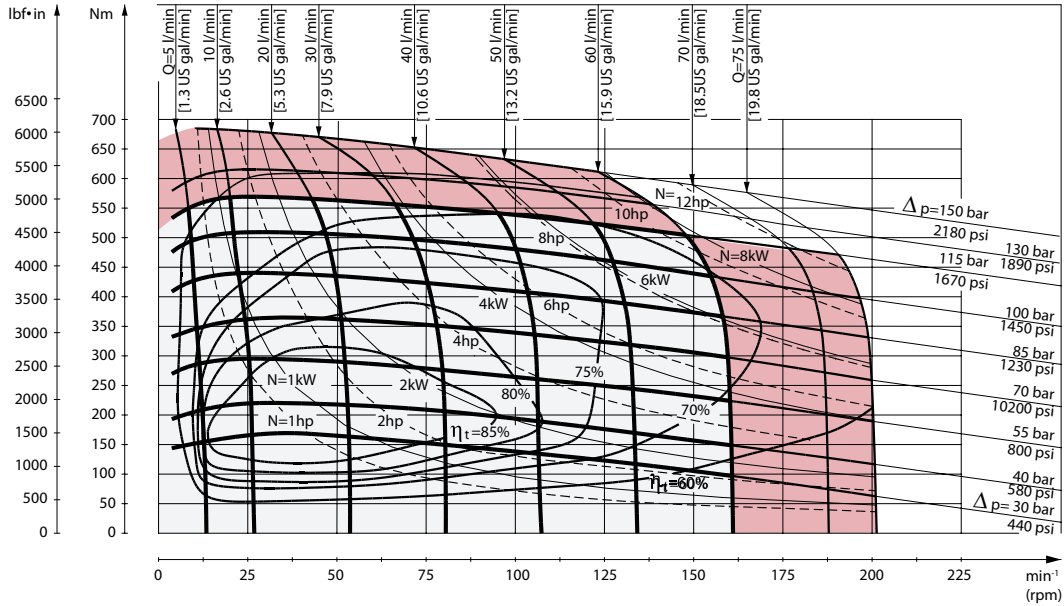
OMR 315 function diagram



151-809.10

OMR function diagrams

OMR 375 function diagram

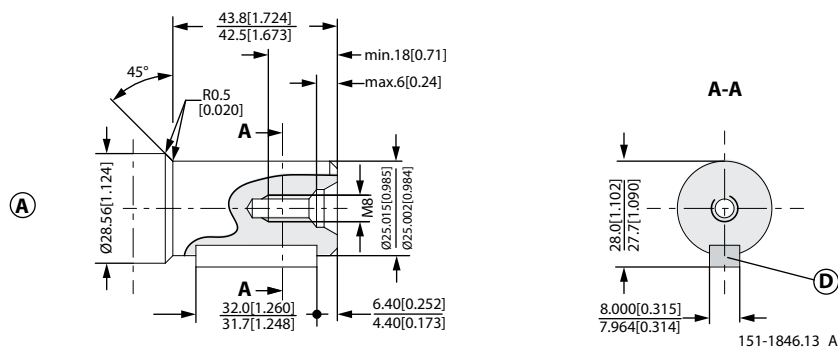


151-1385.12

OMR Shaft version

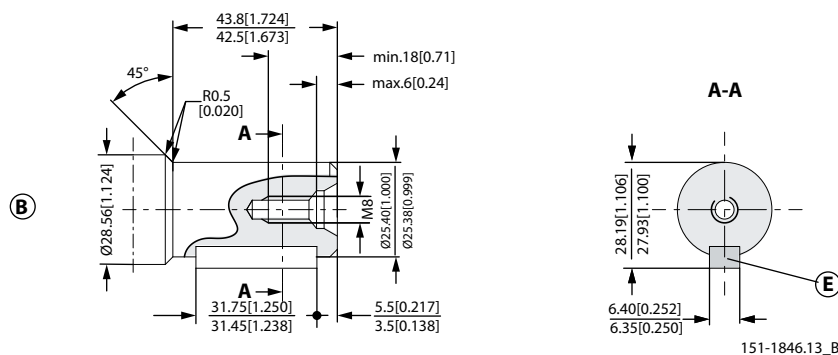
OMR shaft version

Cylindrical shaft 25 mm



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

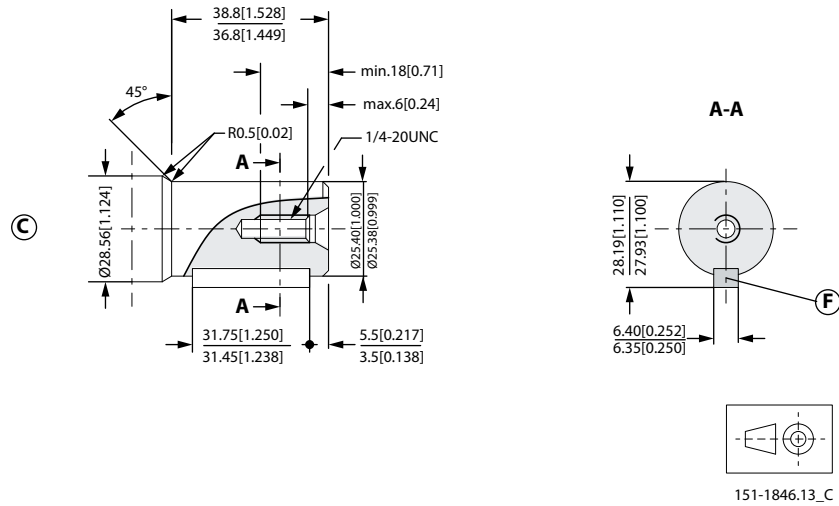
Cylindrical shaft 1 in



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

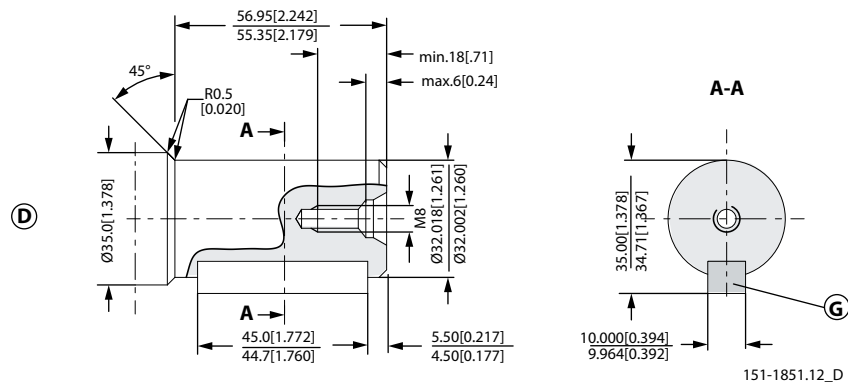
OMR Shaft version

Cylindrical shaft 1 in (US version)



F: Parallel key $\frac{1}{4} \cdot \frac{1}{4} \cdot 1 \frac{1}{4}$ in B.S. 46
Max torque 360 N·m [3185 lb·in]

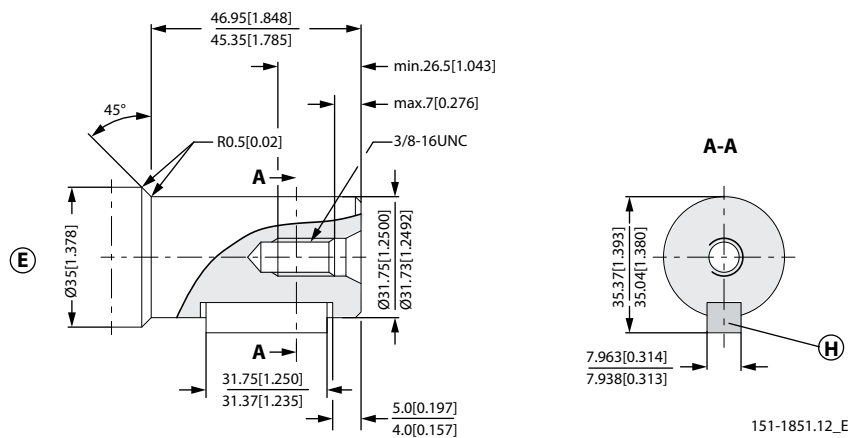
D – Cylindrical shaft 32 mm



G: Parallel key A10 · 8 · 45 DIN 6885

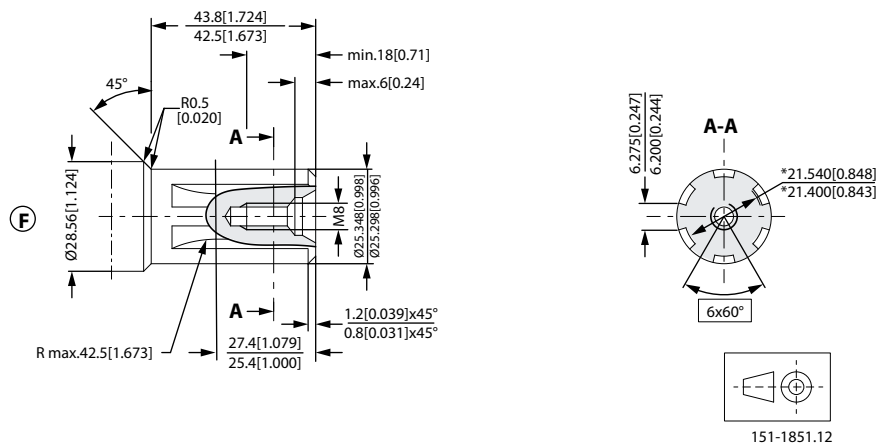
OMR Shaft version

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)



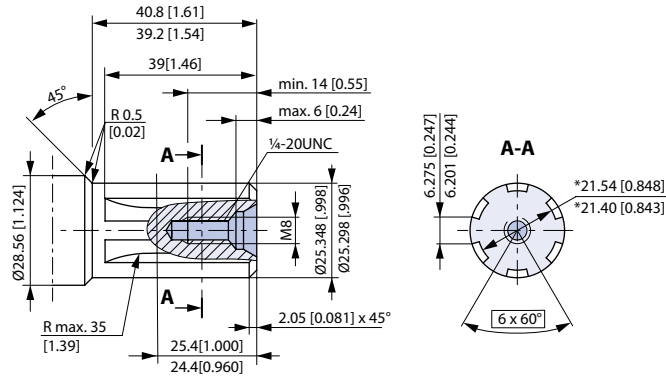
F: Straight-sided, bottom fitting, deep. Fit 2; Nom. size 1 in

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

Max. torque 360 N·m [3185 lb·in] Max. cont. torque 400 N·m [3540 lb·in]

OMR Shaft version

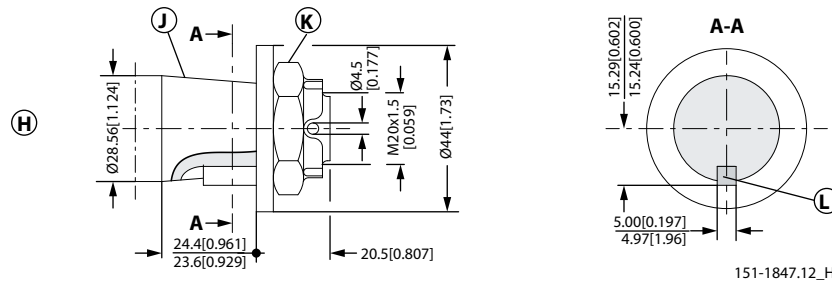
Splined shaft B.S. 2059 (SAE 6B - US version)



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]

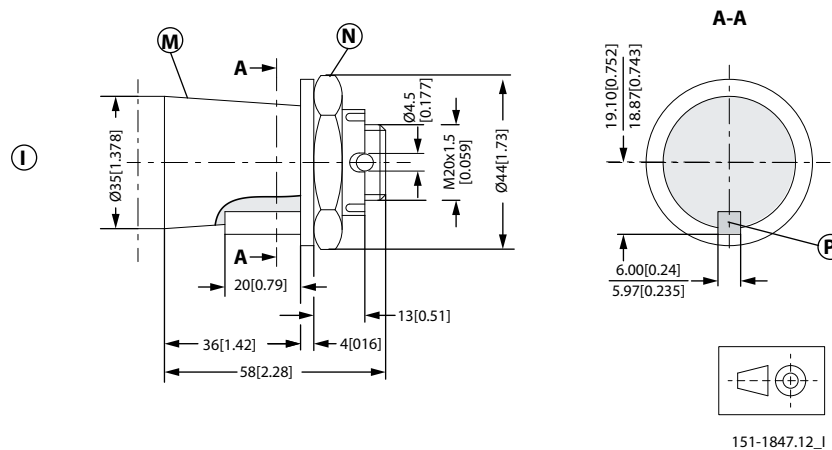
H – Tapered shaft 28.5 mm; ISO/R775 (taper 1:10)



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)

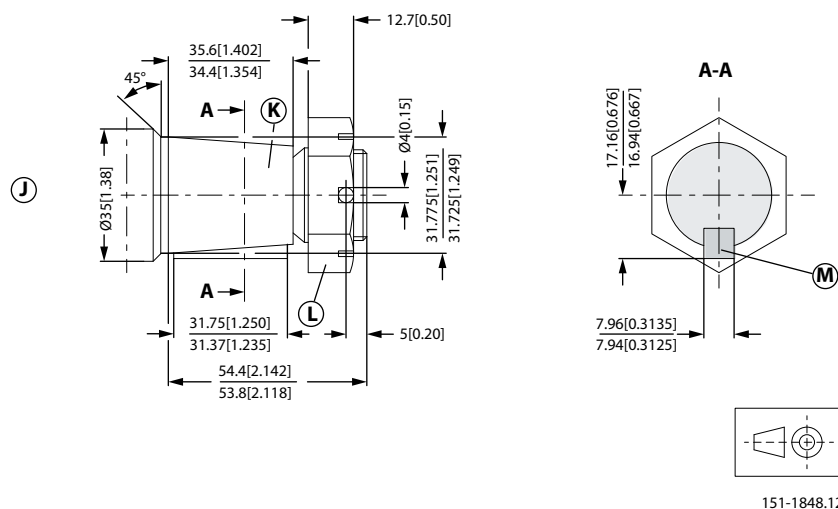


N: DIN 937 NV 41 Tightening torque: 200 ± 10 N·m [1770 ± 85 lb·in]

P: Parallel key B6 · 6 · 20 DIN 6885

OMR Shaft version

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]

OMR port thread versions

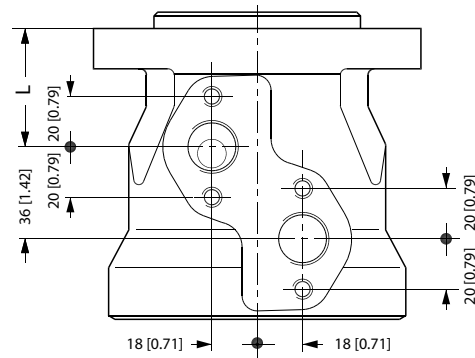
Main port thread versions

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

European version



151-2135.10

L: see dimensional drawing for given OMR motor:

- [OMR dimensions - European version](#) on page 69
- [OMR dimensions - US version](#) on page 79

L: see dimensional drawing for given OMP motor:

- [OMP dimensions - European version](#) on page 34
- [OMP dimensions - US version](#) on page 42

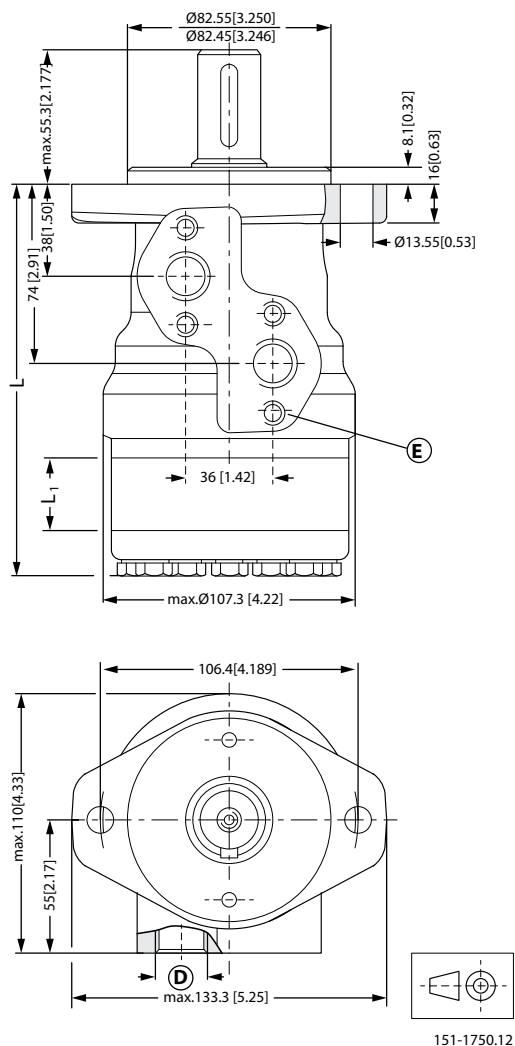
OMR dimensions

OMR dimensions - European version

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

- With high pressure shaft seal

Side port - European version



D: G ½; 15 mm [0.59 in] deep

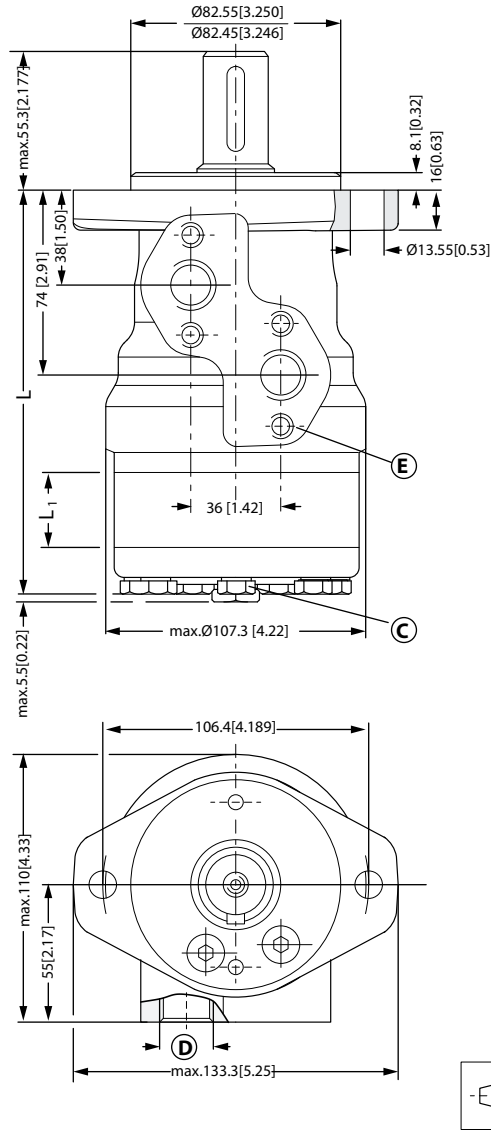
E: M8; 13 mm [0.51 in] deep (4 pcs.)

Type		OMR 50	OMR 80	OMR 100	OMR 125	OMR 160	OMR 200	OMR 250	OMR 315	OMR 375
L _{Max}	mm	137.8	142.8	146.2	150.6	156.6	163.6	172.3	183.6	193.8
	[in]	[5.43]	[5.62]	[5.76]	[5.93]	[6.17]	[6.44]	[6.78]	[7.23]	[7.63]
L ₁	mm	9.0	14.0	17.4	21.8	27.8	34.8	43.5	54.8	65.0
	[in]	[0.35]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]

OMR dimensions

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

Side port - European version



151-1845.12

- 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.)

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

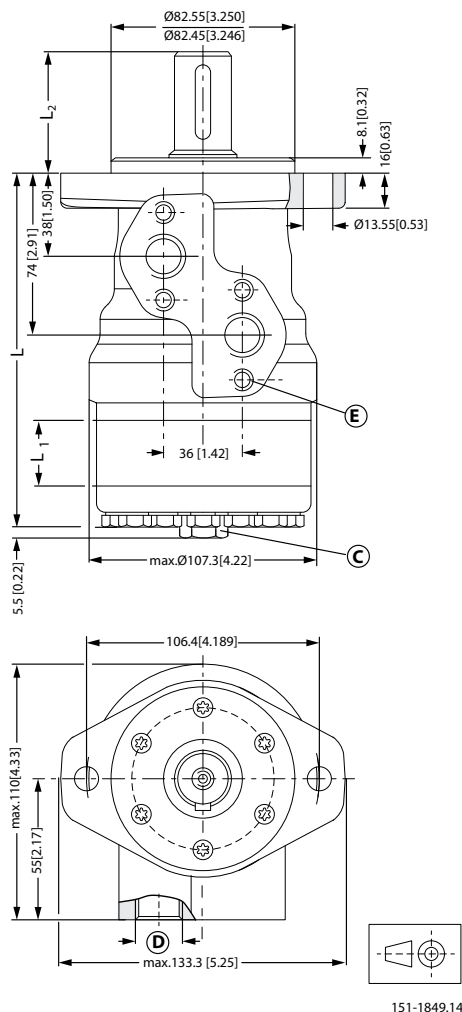
Type		OMR 50	OMR 80	OMR 100	OMR 125	OMR 160	OMR 200	OMR 250	OMR 315	OMR 375
L _{MAX}	mm	137.8	142.8	146.2	150.6	156.6	163.6	172.3	183.6	193.8
	[in]	[5.43]	[5.62]	[5.76]	[5.93]	[6.17]	[6.44]	[6.78]	[7.23]	[7.63]

OMR dimensions

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

Side port - European version



151-1849.14

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

D: G ½; 15 mm [0.59 in] deep

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

Output shaft. max.		Cylindrical shaft 32 mm [1.26 in]	Cylindrical shaft 25 mm [0.98 in]	Tapered shaft 28.56 mm [1.12 in]
L ₂ max	mm	68.3	55.3	56.65
	[in]	[2.69]	[2.18]	[2.23]

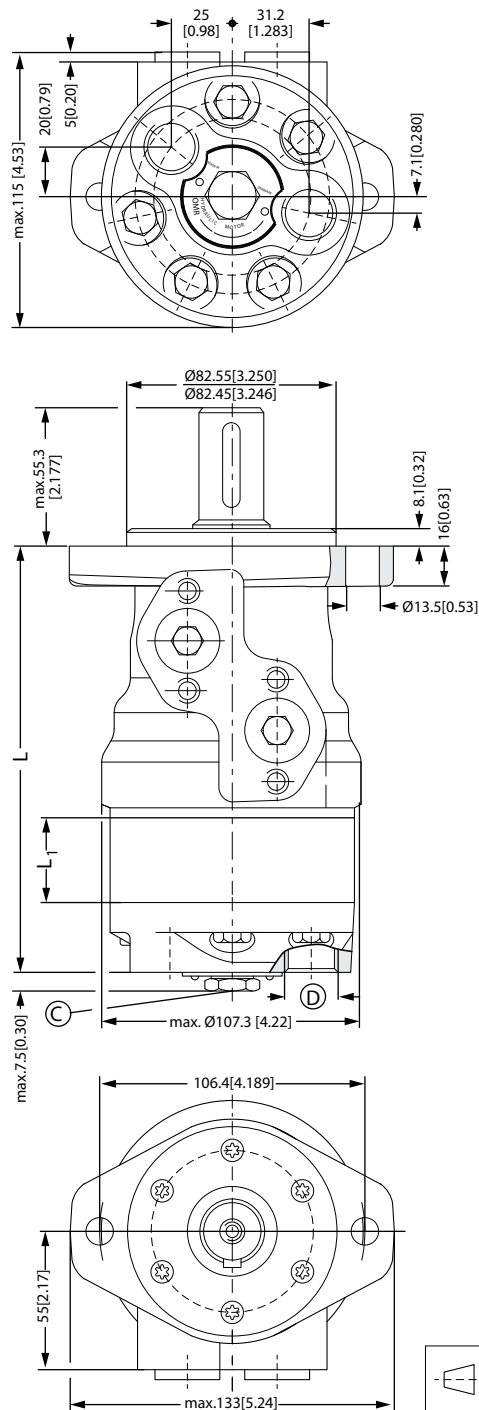
Type		OMR 50	OMR 80	OMR 100	OMR 125	OMR 160	OMR 200	OMR 250	OMR 315	OMR 375
L _{max}	mm	137.8	142.8	146.2	150.6	156.6	163.6	172.3	183.6	193.8
	[in]	[5.43]	[5.62]	[5.76]	[5.93]	[6.17]	[6.44]	[6.78]	[7.23]	[7.63]

OMR dimensions

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]

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

End port - European version



151-1752.12

OMR dimensions

C: G ¼; 12 mm [0.47 in] deep

D: G ½; 15 mm [0.59 in] deep

Port connections:

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

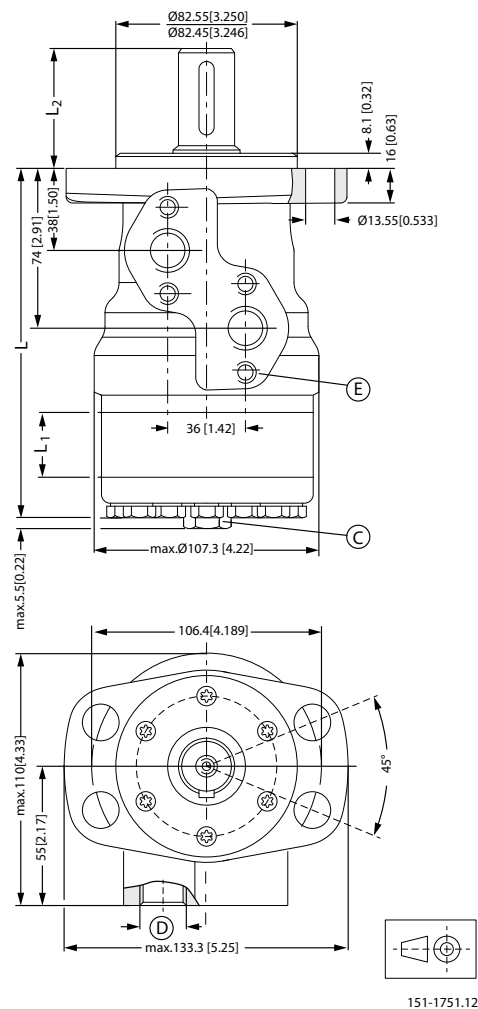
C Drain port: G 1/4; 12 mm [0.47 in] deep

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]
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)

Side port - European version



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

OMR dimensions

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

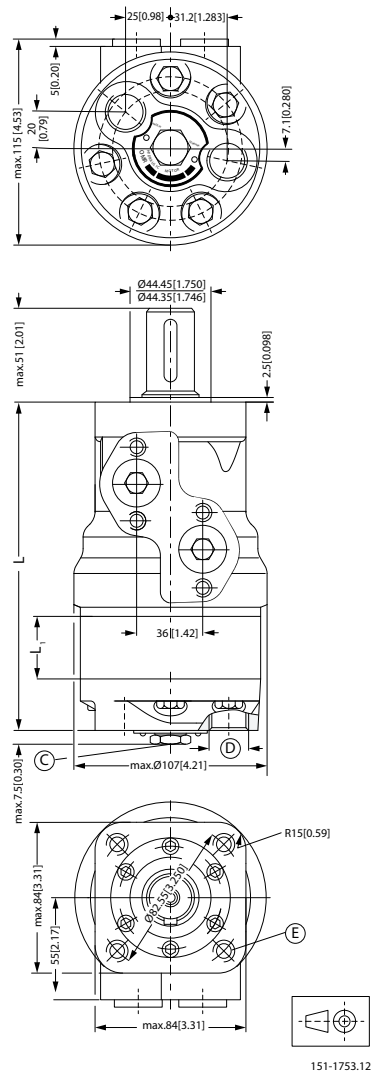
E: M8; 13 mm [0.51 in] deep (4 pcs.)

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

Type		OMR 50	OMR 80	OMR 100	OMR 125	OMR 160	OMR 200	OMR 250	OMR 315	OMR 375
L _{Max.}	mm	137.8	142.8	146.2	150.6	156.6	163.6	172.3	183.6	193.8
	[in]	[5.43]	[5.62]	[5.76]	[5.93]	[6.17]	[6.44]	[6.78]	[7.23]	[7.63]
L ₁	mm	9.0	14.0	17.4	21.8	27.8	34.8	43.5	54.8	65.0
	[in]	[0.35]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]

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

End port - European version



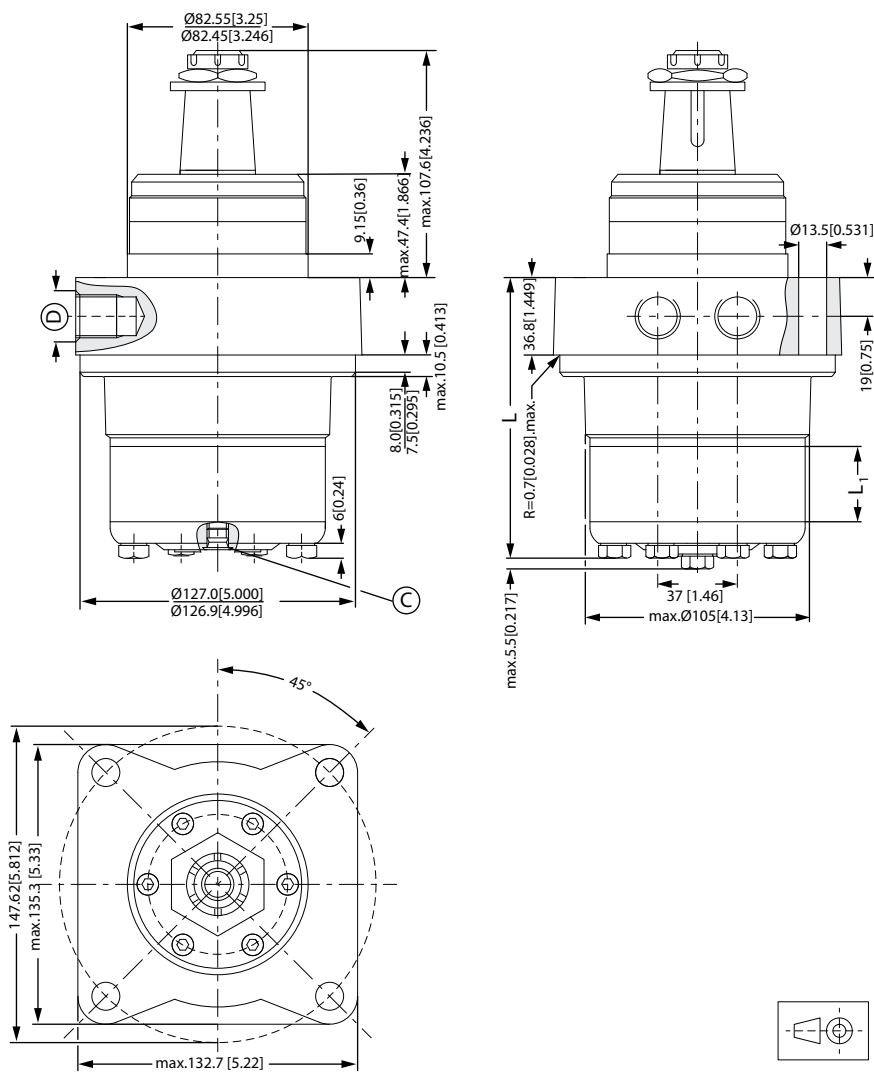
OMR dimensions

- C:** Drain connection G ¼; 12 mm [0.47 in] deep
- D:** G ½; 15 mm [0.59 in] deep
- E:** M10; 15 mm [0.59 in] deep (4 pcs.)

Type		OMR 50	OMR 80	OMR 100	OMR 125	OMR 160	OMR 200	OMR 250	OMR 315	OMR 375
L _{Max}	mm	158.6	163.3	167.0	171.0	177.0	184.0	192.7	204.0	214.2
	[in]	[6.24]	[6.44]	[6.57]	[6.73]	[6.97]	[7.24]	[7.24]	[8.03]	[8.43]
L ₁	mm	9.0	14.0	17.4	21.8	27.8	34.8	43.5	54.8	65.0
	[in]	[0.35]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]

OMRW N wheel motor

Wheel motor - European version



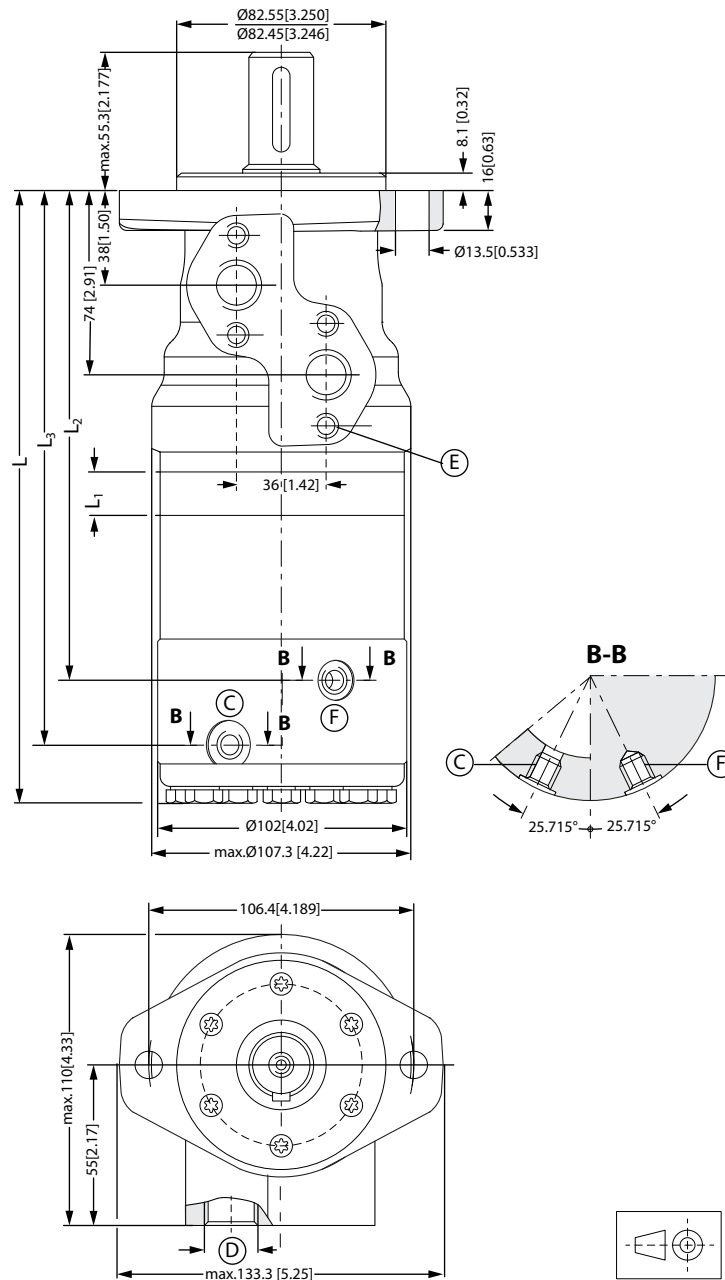
- C:** Drain connection G ¼; 12 mm [0.47 in] deep
- D:** G ½; 15 mm [0.59 in] deep

OMR dimensions

Type		OMRW 50 N	OMRW 80 N	OMRW 100 N	OMRW 125 N	OMRW 160 N	OMRW 200 N	OMRW 250 N	OMRW 315 N	OMRW 375 N
L _{Max.}	mm	113.7	114.7	118.1	122.5	128.5	135.1	144.2	155.5	165.7
	[in]	[4.48]	[4.52]	[4.65]	[4.82]	[5.06]	[5.33]	[5.68]	[6.12]	[6.52]
L ₁	mm	9.0	14.0	17.4	21.8	27.8	34.8	43.5	54.8	65.0
	[in]	[0.35]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]

OMR F motor

F motor - European version



151-1719.12

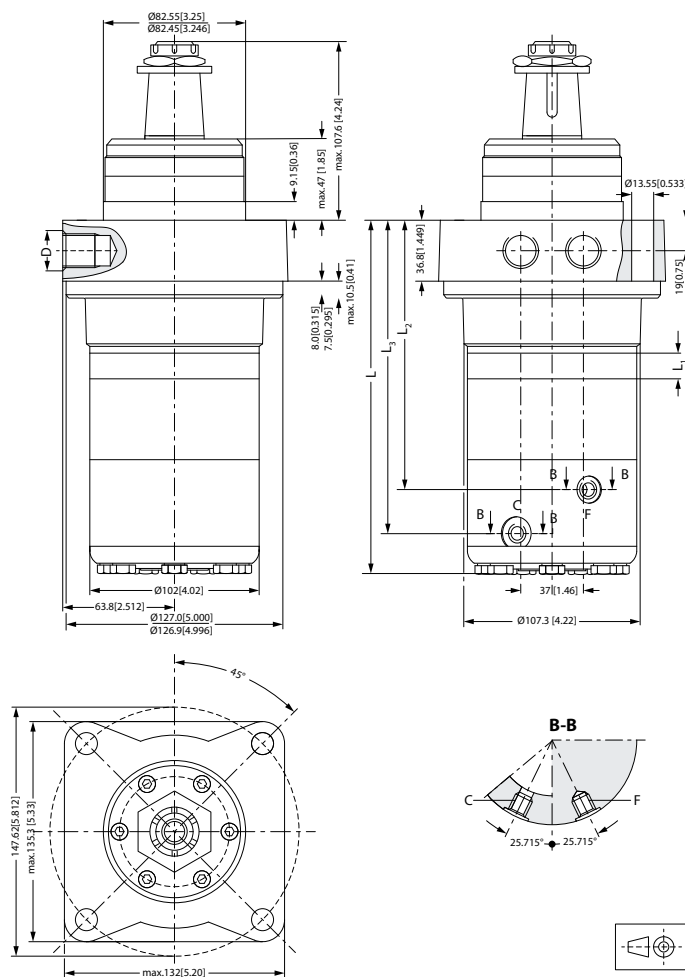
OMR dimensions

- C:** Drain connection G ¼; 12 mm [0.47 in] deep
- D:** G ½; 15 mm [0.59 in] deep
- E:** M8; 13 mm [0.51 in] deep
- F:** Brake release connection G ¼

Type		OMR 80 F	OMR 100 F	OMR 125 F	OMR 160 F	OMR 200 F	OMR 250 F	OMR 315 F	OMR 375 F
L _{max.}	mm	242.7	246.1	250.5	265.1	263.5	272.2	283.5	293.7
	[in]	[9.56]	[9.69]	[9.86]	[10.10]	[10.37]	[10.72]	[11.16]	[11.56]
L ₁	mm	14.0	17.4	21.8	27.8	34.8	43.5	54.8	65.0
	[in]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]
L ₂	mm	186.8	190.2	194.6	200.6	207.6	216.3	227.6	237.7
	[in]	[7.35]	[7.49]	[7.66]	[7.90]	[8.17]	[8.51]	[8.96]	[9.36]
L ₃	mm	210.3	213.7	218.1	224.1	231.1	239.8	251.1	261.2
	[in]	[8.28]	[8.41]	[8.58]	[8.82]	[9.10]	[9.45]	[9.88]	[10.28]

OMRW NF motor

NF motor - European version



151-1793.12

OMR dimensions

- C:** Drain connection G ¼; 12 mm [0.47 in] deep
- D:** G ½; 15 mm [0.59 in] deep
- E:** M8; 13 mm [0.51 in] deep
- F:** Brake release connection G ¼

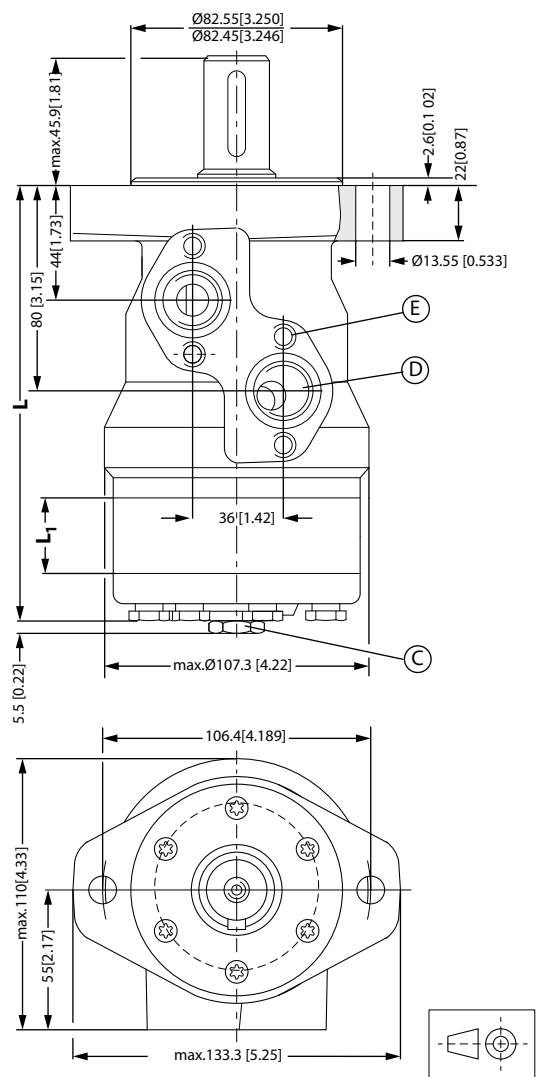
Type		OMRW 80 NF	OMRW 100 NF	OMRW 125 NF	OMRW 160 NF	OMRW 200 NF	OMRW 250 NF	OMRW 315 NF	OMRW 375 NF
L _{max.}	mm	213.2	218.0	222.4	228.4	235.4	242.7	254.0	264.2
	[in]	[8.39]	[8.58]	[8.76]	[8.99]	[9.27]	[9.56]	[10.0]	[10.40]
L ₁	mm	14.0	17.4	21.8	27.8	34.8	43.5	54.8	65.0
	[in]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]
L _{2 max}	mm	159.2	161.9	166.3	172.3	179.3	188.7	200.0	210.2
	[in]	[6.27]	[6.37]	[6.55]	[6.78]	[7.06]	[7.43]	[7.87]	[8.28]
L ₃	mm	182.7	185.4	189.8	195.8	202.8	212.2	223.5	233.7
	[in]	[7.19]	[7.30]	[7.47]	[7.71]	[7.98]	[8.35]	[8.80]	[9.20]

OMR dimensions

OMR dimensions - US version

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

Side port - US version



151-1223.13

- 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)

Port connections:

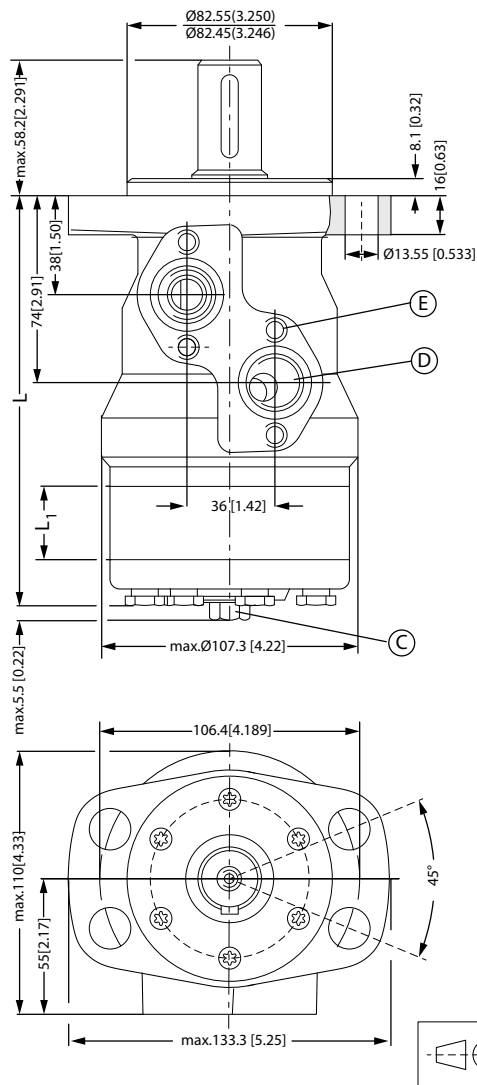
- A, B** Main ports: 7/8 - 14 UNF; min. 16.7 mm [0.66 in] deep
- C** Drain port: 7/16 - 20 UNF; 12 mm [0.47 in] deep
- D** Thread: M8; 13 mm [0.51 in] deep

OMR dimensions

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)

Side port - US version



151-1221.13

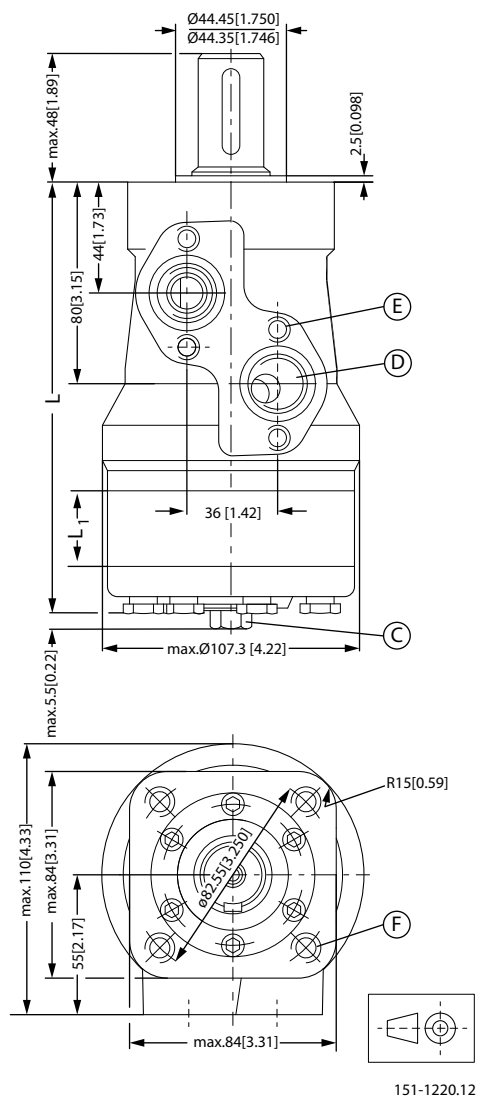
- C:** Drain connection 7/16 - 20 UNF; 12 mm [0.47 in] deep
- D:** 7/8 - 14 UNF; 17 mm [0.66 in] deep
- E:** M8; 13 mm [0.51 in] deep (4-off)

OMR dimensions

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)

Side port - US version



- C:** Drain connection 7/16 - 20 mm UNF; 12 mm [0.47 in] deep
- D:** 7/8 - 14 UNF; 17 mm [0.66 in] deep
- E:** M8; 13 mm [0.51 in] deep (4-off)
- F:** 3/8 - 16 UNC; 15 mm [0.59 in] deep (4-off)

Port connections:

OMR dimensions

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

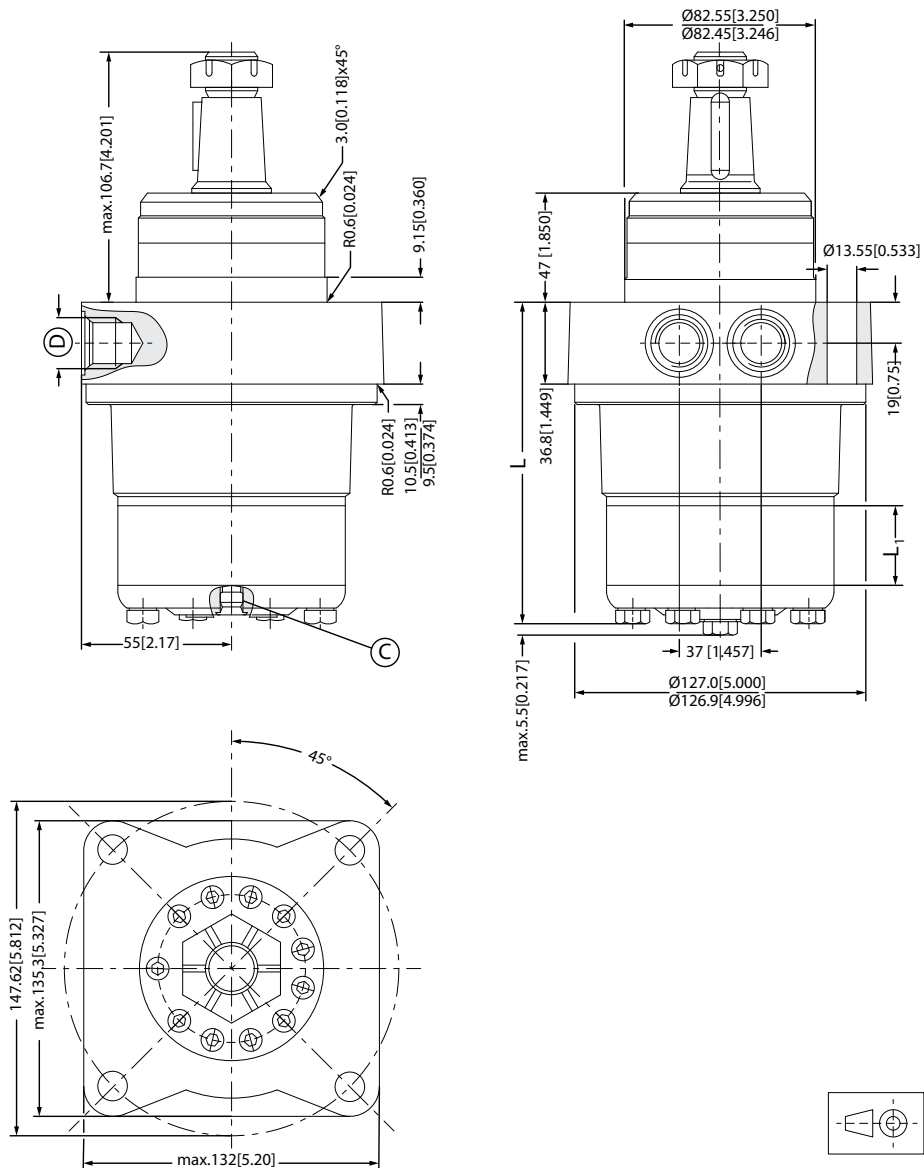
C Drain port: 7/16 - 20 UNF; 12 mm [0.47 in] deep

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

Wheel motor - US version



151-1625.12

OMR dimensions

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

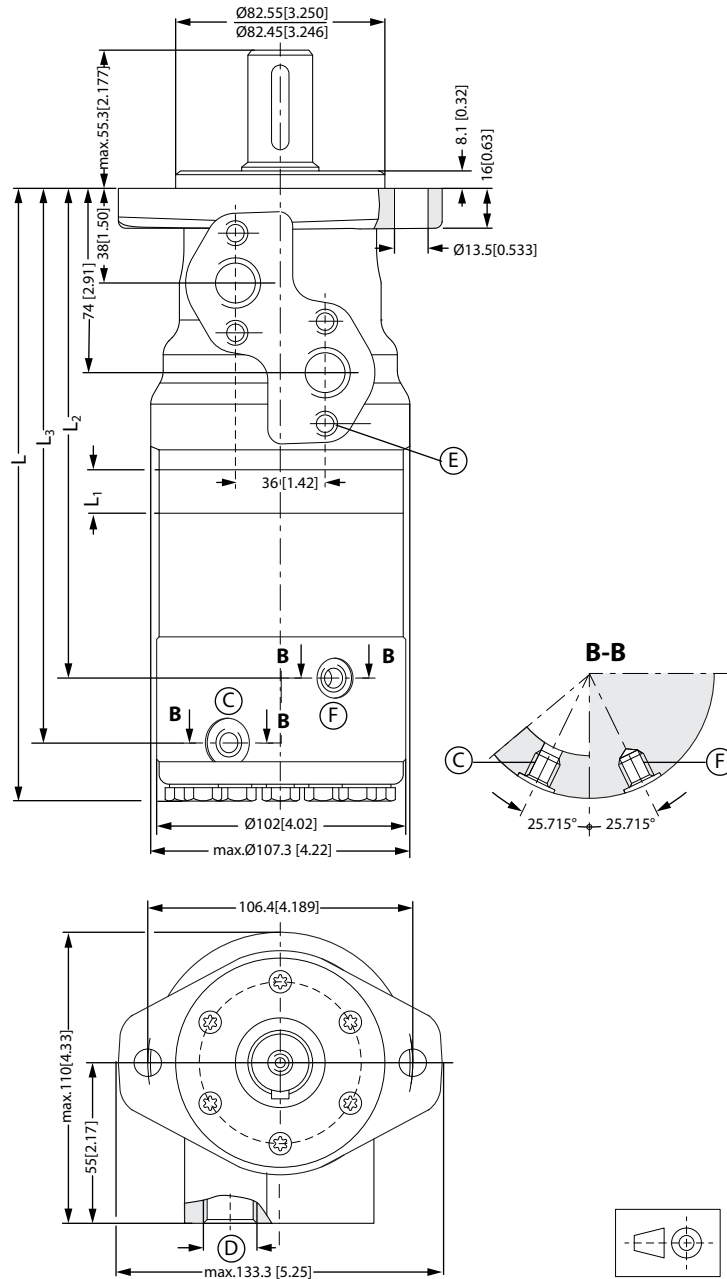
D: 7/8 - 14 UNF; 17 mm [0.66 in] deep

Type		OMRW 50 N	OMRW 80 N	OMRW 100 N	OMRW 125 N	OMRW 160 N	OMRW 200 N	OMRW 250 N	OMRW 315 N	OMRW 375 N
L _{max}	mm	113.7	114.7	118.1	122.5	128.5	135.1	144.2	155.5	165.7
	[in]	[4.48]	[4.52]	[4.65]	[4.82]	[5.06]	[5.33]	[5.68]	[6.12]	[6.52]
L ₁	mm	9.0	14.0	17.4	21.8	27.8	34.8	43.5	54.8	65.0
	[in]	[0.35]	[0.55]	[0.69]	[0.86]	[1.09]	[1.37]	[1.71]	[2.16]	[2.56]

OMR dimensions

OMR NF motor

NF motor - US version



151-1719.12

- 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

OMR dimensions

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]