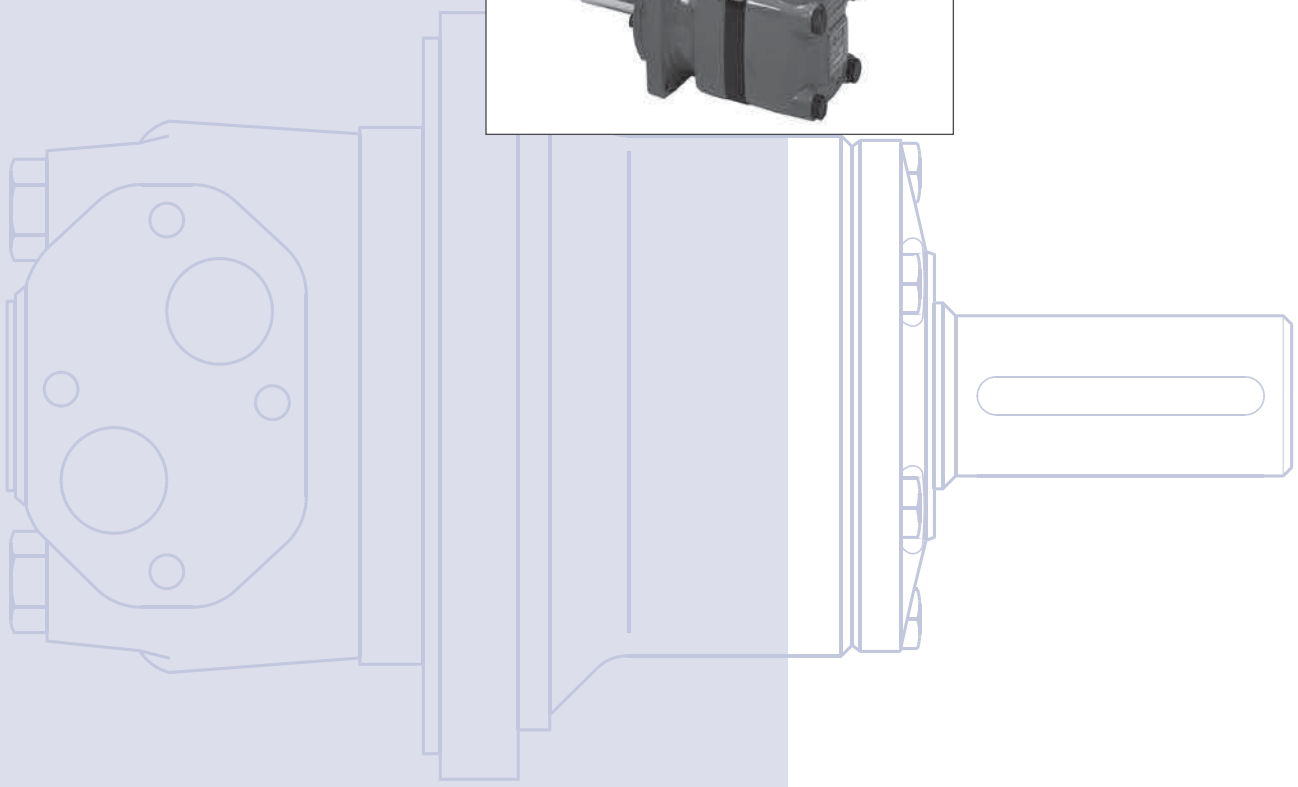
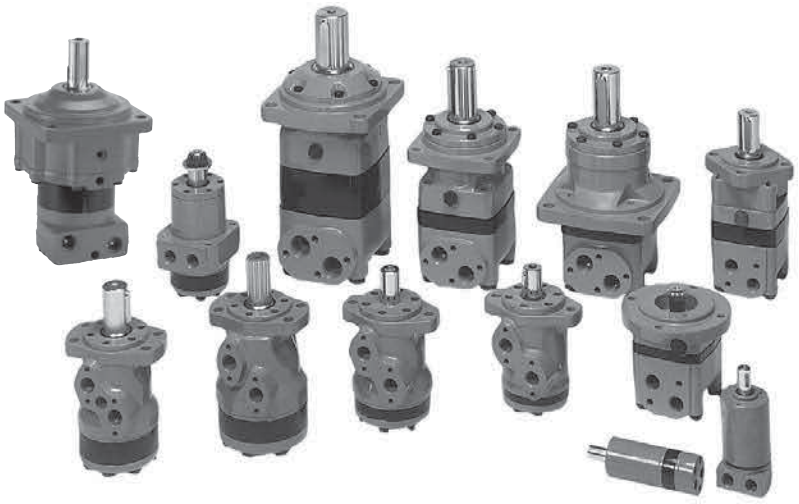
SAUER DANFOSS

OMS, OMT and OMV Orbital Motors

Technical Information



OMS, OMT and OMV
Technical Information
A wide range of orbital motors



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A WIDE RANGE OF ORBITAL MOTORS

Sauer-Danfoss is a world leader within production of low speed orbital motors with high torque. We can offer more than 1600 different orbital motors, categorised in types, variants and sizes (incl. different shaft versions).

The motors vary in size (rated displacement) from 8 cm^3 [0.50 in^3] to 800 cm^3 [48.9 in^3] per revolution.

Speeds range up to approx. 2500 min^{-1} (rpm) for the smallest type and up to approx 600 min^{-1} (rpm) for the largest type.

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

Characteristic features:

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

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DKMH.PK.130.B4.02 **520L0407** Rev.D1 03/2006

A wide range of orbital motors

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

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

Planetary gears

Sauer-Danfoss complements the motor range with a complete programme of planetary gears adapted to suit. The combination of motors and gears makes it possible to obtain smooth running at fractional speeds and with torques up to 650.000 Nm (5.800.000 lbf·in).

The Sauer–Danfoss orbital motors are used in the following application areas:

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

SURVEY OF LITERATURE WITH TECHNICAL DATA ON SAUER-DANFOSS ORBITAL MOTORS

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

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

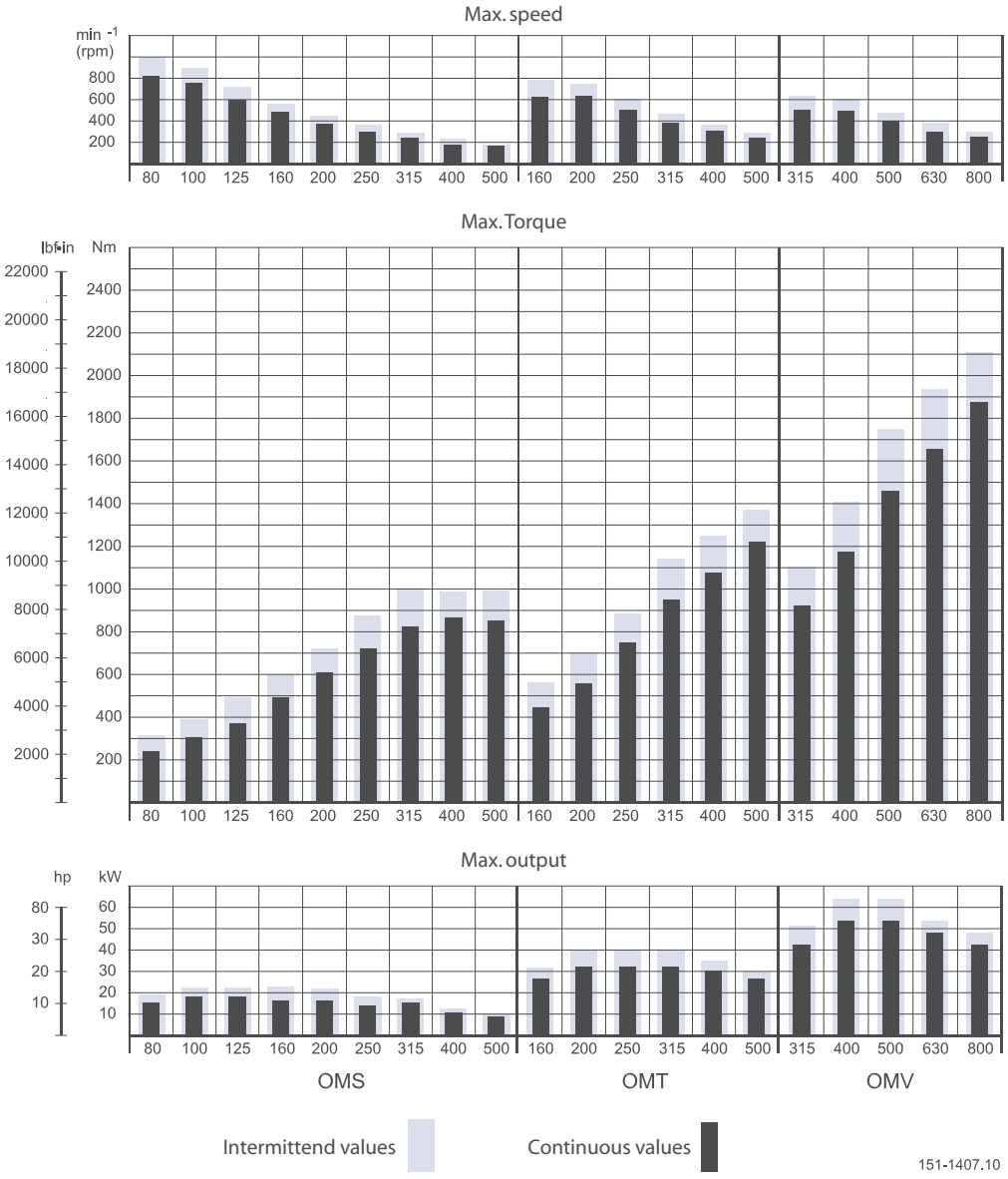
A general survey brochure on Sauer-Danfoss orbital motors gives a quick motor reference based on power, torque, speed and capabilities.

SAUER DANFOSS

OMS, OMT and OMV
Technical Information
Contents

CONTENTS

SPEED, TORQUE AND OUTPUT



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

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

The function diagrams are based on actual tests on a representative number of motors from our production. The diagrams apply to a return pressure between 5 and 10 bar [75 and 150 psi] when using mineral based hydraulic oil with a viscosity of 35 mm^2/s [165 SUS] and a temperature of 50°C [120°F]. For further explanation concerning how to read and use the function diagrams, please consult the paragraph "Selection of motor size" in the technical information "General Orbital motors" DHMH.PK.100.G2.02 520L0232.

VERSIONS

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

Function diagram - see page : ⟶

Features available (options) :
Speed sensor
Motor with tacho connection
Viton shaft seal
Painted
Ultra short

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CODE NUMBERS

CODE NUMBERS	Displacement [cm³]						Technical data – Page	Shaft loads – Page	Dimensions – Page
	160	200	250	315	400	500			
151B	3000	3001	3002	3003	3004	3005	36	40	49
151B	2050	2051	2052	2053	2054	2055	36	40	50
151B	3006	3007	3008	3009	3010	3011	36	40	49
151B	2056	2057	2058	2059	2060	2061	36	40	50
151B	3012	3013	3014	3015	3016	3017	36	40	49
151B	2062	2063	2064	2065	2066	2067	36	40	50
151B	3018	3019	3020	3021	3022	3023	36	40	49
151B	3024	3025	3026	3027	3028	3029	36	40	51
151B	3030	3031	3032	3033	3034	3035	36	40	51
151B	2080	2081	2082	2083	2084	2085	36	40	52
151B	3207	3208	3209	3210	3211	3212	36	41	53
151B	3200	3201	3202	3203	3204	3205	36	41	53
151B	4000	4001	4002	4003	4004	4005	36	41	54
151B	4007	4008	4009	4010	4011	4012	36	41	54
151B	4021	4022	4023	4024	4025	4026	36	41	54
151B	4028	4029	4030	4031	4032	4033	36	41	54
151B	3036	3037	3038	3039	3040	3041	36	–	55
	42	42	43	43	44	44			

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

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

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

TECHNICAL DATA FOR OMT, OMTW, OMTS, OMT FX OMT FL AND OMT FH

Type			OMT OMTW OMTS OMT FX OMT FL OMT FH	OMT OMTW OMTS OMT FX OMT FL OMT FH	OMT OMTW OMTS OMT FX OMT FL OMT FH	OMT OMTW OMTS OMT FX OMT FL OMT FH	OMT OMTW OMTS OMT FX OMT FL OMT FH	OMT OMTW OMTS OMT FX OMT FL OMT FH
Motor size			**160**	**200**	**250**	**315**	**400**	**500**
Geometric displacement	cm^3 [in^3]		161.1 [9.83]	201.4 [12.29]	251.8 [15.37]	326.3 [19.91]	410.9 [25.07]	523.6 [31.95]
Max. speed	min^{-1} [rpm]	cont.	625	625	500	380	305	240
		int[1]	780	750	600	460	365	285
Max. torque	Nm [lbf·in]	cont.	470 [4160]	590 [5220]	730 [6460]	950 [8410]	1080 [9560]	1220 [10800]
		int.[1]	560 [4960]	710 [6280]	880 [7790]	1140 [10090]	1260 [11150]	1370 [12130]
Max. output	kW [hp]	cont.	26.5 [35.5]	33.5 [44.9]	33.5 [44.9]	33.5 [44.9]	30.0 [40.2]	26.5 [35.5]
		int.[1]	32.0 [42.9]	40.0 [53.6]	40.0 [53.6]	40.0 [53.6]	35.0 [46.9]	30.0 [40.2]
Max. pressure drop	bar [psi]	cont.	200 [2900]	200 [2900]	200 [2900]	200 [2900]	180 [2610]	160 [2320]
		int.[1]	240 [3480]	240 [3480]	240 [3480]	240 [3480]	210 [3050]	180 [2610]
		peak[2]	280 [4060]	280 [4060]	280 [4060]	280 [4060]	240 [3480	210 [3050]
Max. oil flow	l/min [USgal/min]	cont.	100 [26.4]	125 [33.0]	125 [33.0]	125 [33.0]	125 [33.0]	125 [33.0]
		int.[1]	125 [33.0]	150 [39.6]	150 [39.6]	150 [39.6]	150 [39.6]	150 [39.6]
Max. starting pressure with unloaded shaft	bar [psi]		10 [145]	10 [145]	10 [145]	10 [145]	10 [145]	10 [145]
Min. starting torque	at max. press. drop cont. Nm [lbf·in]		340 [3010]	430 [3810]	530 [4690]	740 [6550]	840 [7430]	950 [8410]
	at max. press. drop int.[1] Nm [lbf·in]		410 [3630]	520 [4600]	630 [5580]	890 [7880]	970 [8590]	1060 [9380]

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

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

TECHNICAL DATA FOR OMT, OMTW, OMTS, OMT FX OMT FL AND OMT FH

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

Brake motors

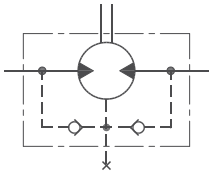
Type	Max. presssure in drain line[3]	Holding torque[4]	Brake-release pressure[3]	Max pressure in brake line
OMT FX, OMT FL	5 bar [70 psi]	1200 Nm [10620 lbf·in]	12 bar [170 psi]	30 bar [440 psi]
OMT FH	5 bar [70 psi]	1200 Nm [10620 lbf·in]	30 bar [440 psi]	280 bar [4060 psi]

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

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

MAX. PERMISSIBLE SHAFT SEAL PRESSURE

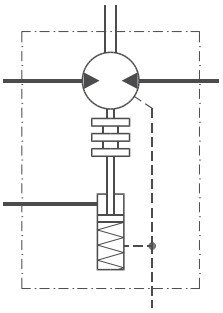
OMT with check valves and without use of drain connection:
The pressure on the shaft seal never exceeds the pressure in the return line



151-320.10

OMT with check valves and with drain connection:
The shaft seal pressure equals the pressure on the drain line.

OMT FX, OMT FL and OMT FH must always be fitted with drain line.
Max. pressure in drain line is 5 bar [75 psi]



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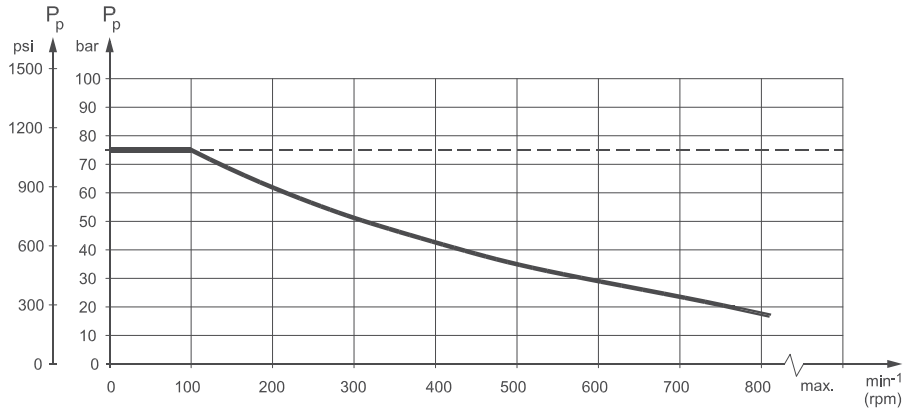
Max. return pressure without drain line or max. pressure in the drain line



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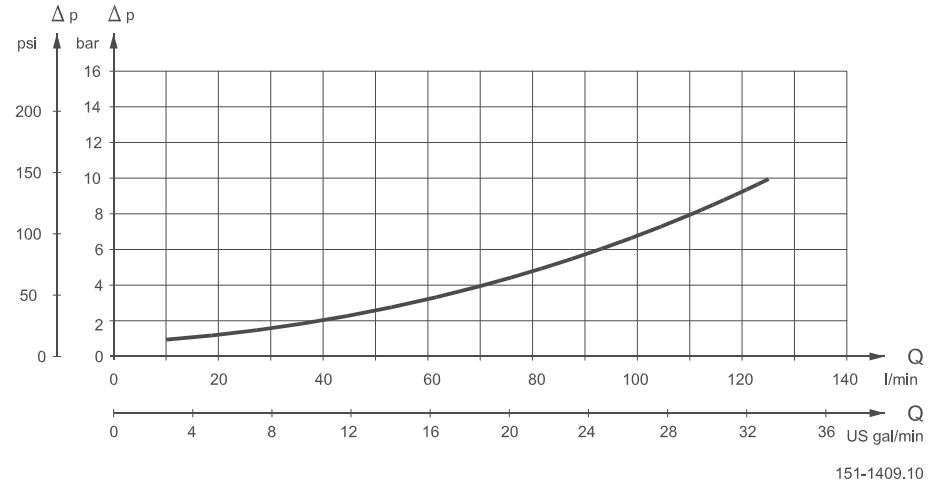
– – – – Intermittent operation: the permissible values may occur for max. 10% of every minute.

——— Continuous operation

PRESSURE DROP IN MOTOR



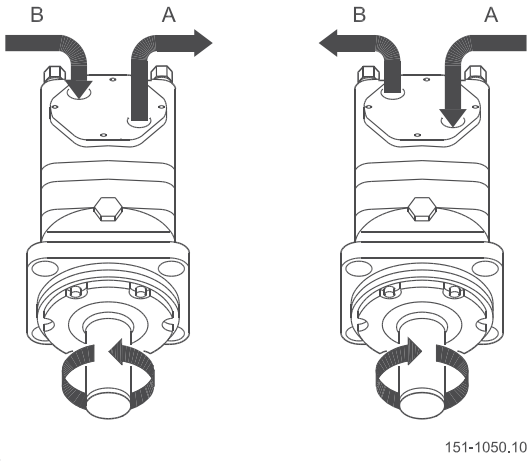
The curve applies to an unloaded motor shaft and an oil viscosity of 35 mm²/s [165 SUS]

OIL FLOW IN DRAIN LINE

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

Pressure drop bar [psi]	Viscosity mm²/s [SUS]	Oil flow in drain line l/min [US gal/min]
140 [2030]	20 [100]	2.5 [0.66]
	35 [165]	1.5 [0.40]
210 [3050]	20 [100]	5.0 [1.32]
	35 [165]	3.0 [0.79]

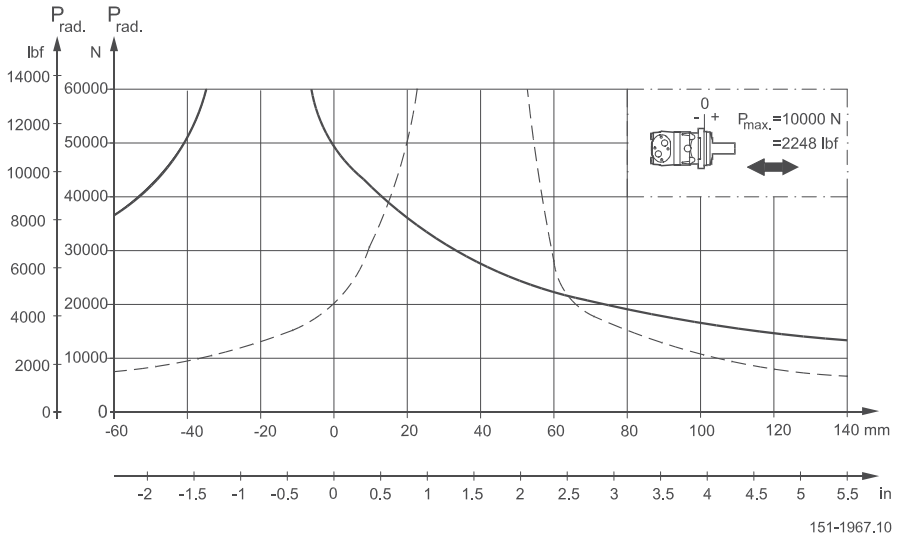
DIRECTION OF SHAFT ROTATION



PERMISSIBLE SHAFT LOADS FOR OMT

Mounting flange:
Standard

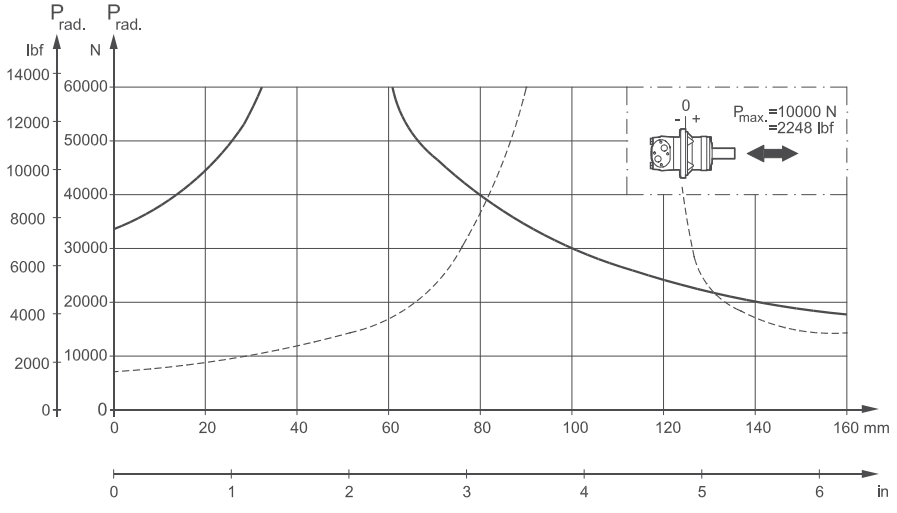
Shaft:
All shaft types



151-1967.10

Mounting flange:
Wheel

Shaft:
All shaft types



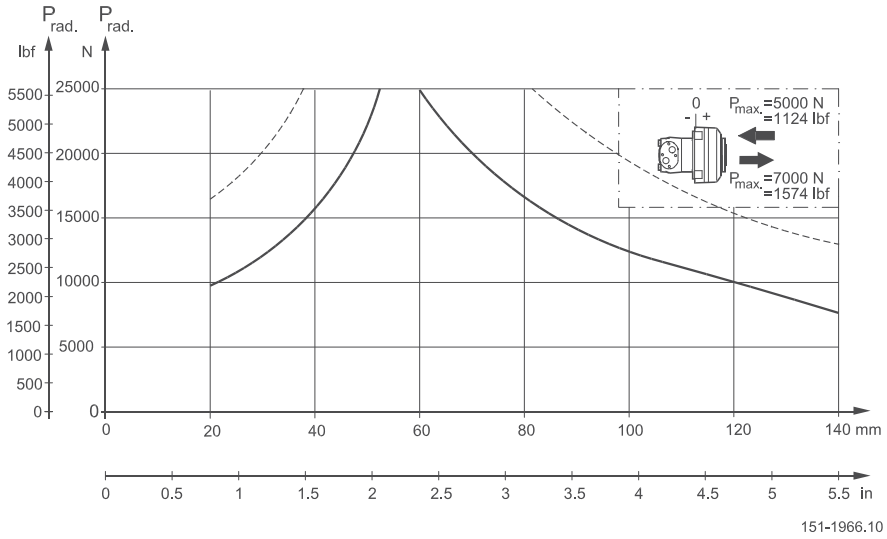
151-1970.10

The output shaft runs in tapered roller bearings that permit high axial and radial forces. The permissible radial load on the shaft is shown for an axial load of 0 N as a function of the distance from the mounting flange to the point of load application.
The curve is based on B10 bearing life (2000 hours or 12,000,000 shaft revolutions at 100 min^{-1}) at rated output torque, when mineral-based hydraulic oil with a sufficient content of anti-wear additives, is used.
For 3,000,000 shaft revolutions or 500 hours – increase these shaft loads with 52%.
The dash curve shows max. radial shaft load. Any shaft load exceeding the values shown in the curve will involve a risk of breakage.
Bearing life calculations can be made using the explanation and formula provided in the chapter "Bearing dimensioning" in the technical information "General Orbital motors" DHMH.PK.100.G2.02 520L0232.

PERMISSIBLE SHAFT LOADS FOR OMT

Mounting flange:
Brake-wheel

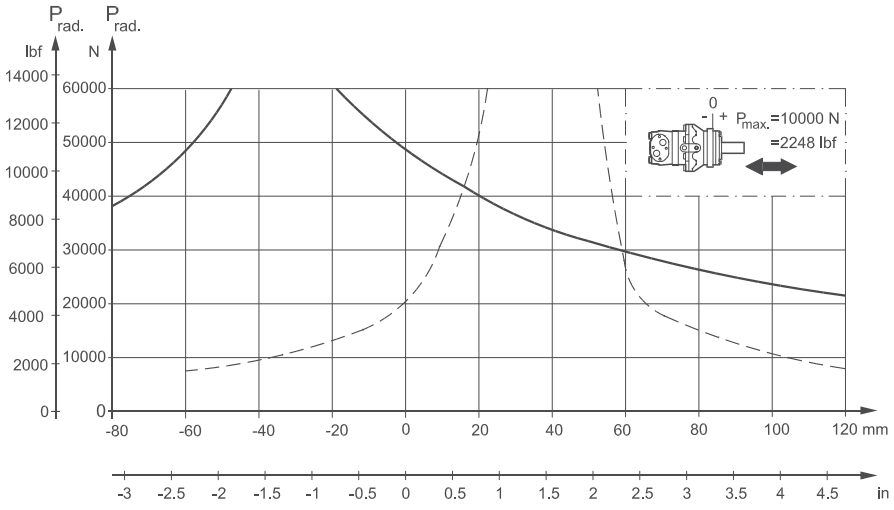
Shaft:
All shaft types



151-1966.10

Mounting flange:
Brake-standard

Shaft:
All shaft types



151-1968.10

The output shaft runs in tapered roller bearings that permit high axial and radial forces. The permissible radial load on the shaft is shown for an axial load of 0 N as a function of the distance from the mounting flange to the point of load application.
The curve is based on B10 bearing life (2000 hours or 12,000,000 shaft revolutions at 100 min^{-1}) at rated output torque, when mineral-based hydraulic oil with a sufficient content of anti-wear additives, is used.
For 3,000,000 shaft revolutions or 500 hours – increase these shaft loads with 52%.
The dash curve shows max. radial shaft load. Any shaft load exceeding the values shown in the curve will involve a risk of breakage.
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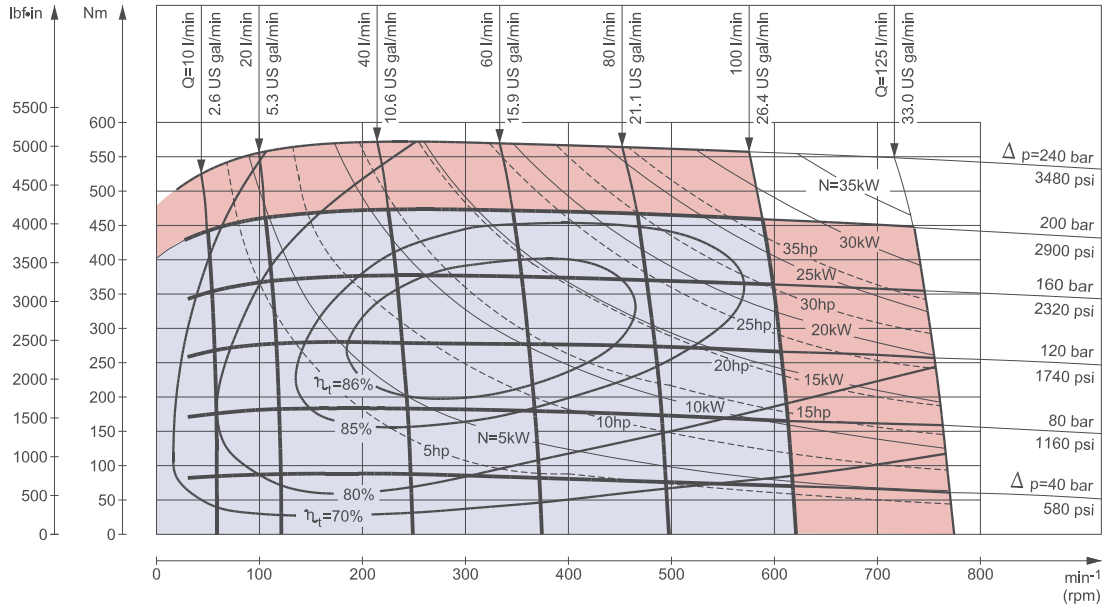
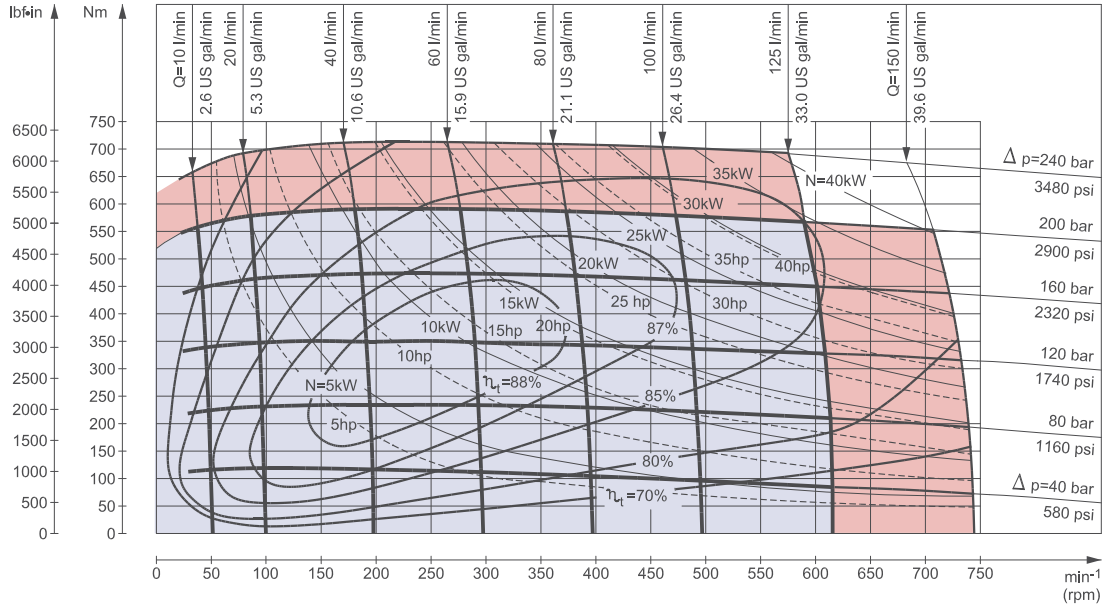
FUNCTION DIAGRAMS

OMT 160



151-493.10

OMT 200



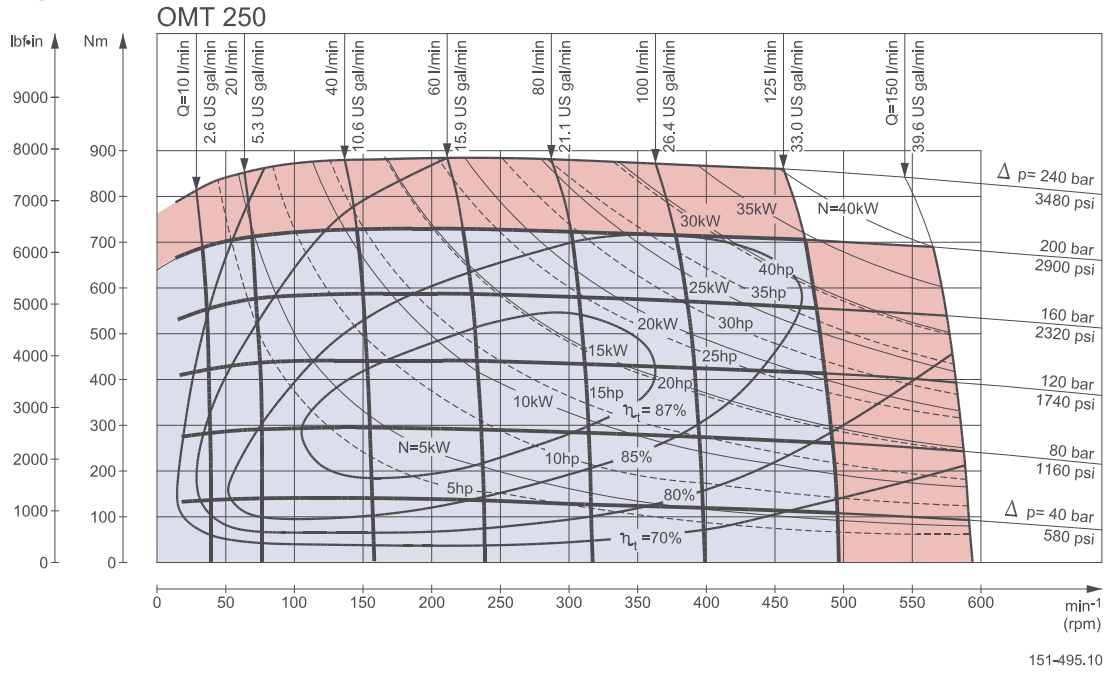
151-494.10

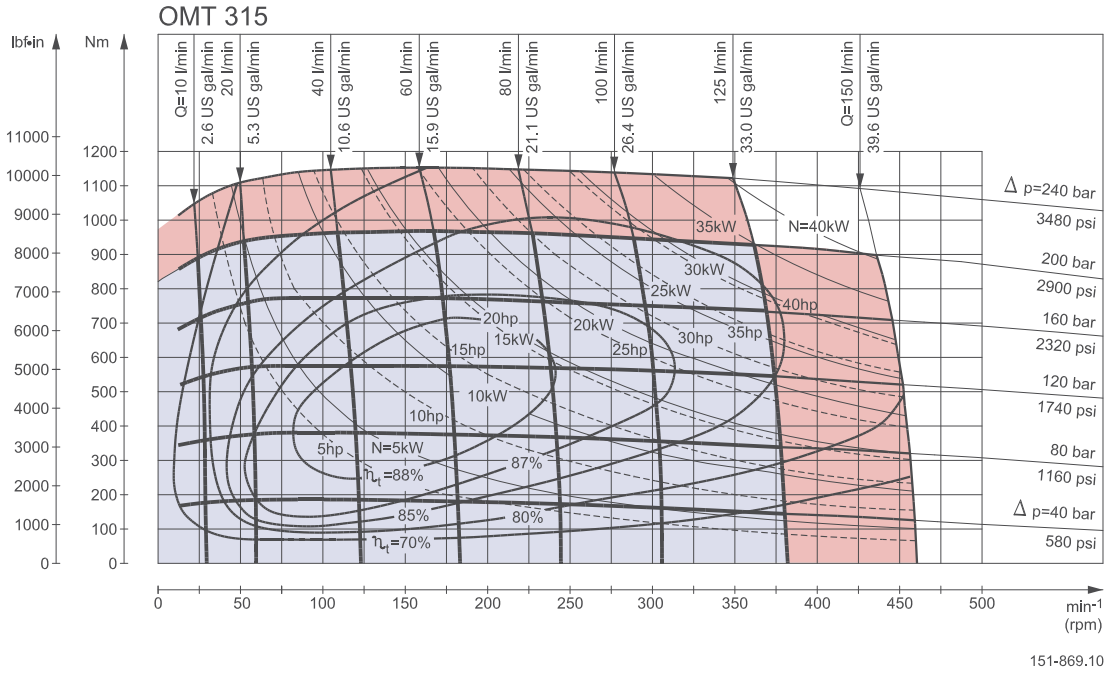
Explanation of function diagram use, basis and conditions can be found on page 5.

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

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

FUNCTION DIAGRAMS





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

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

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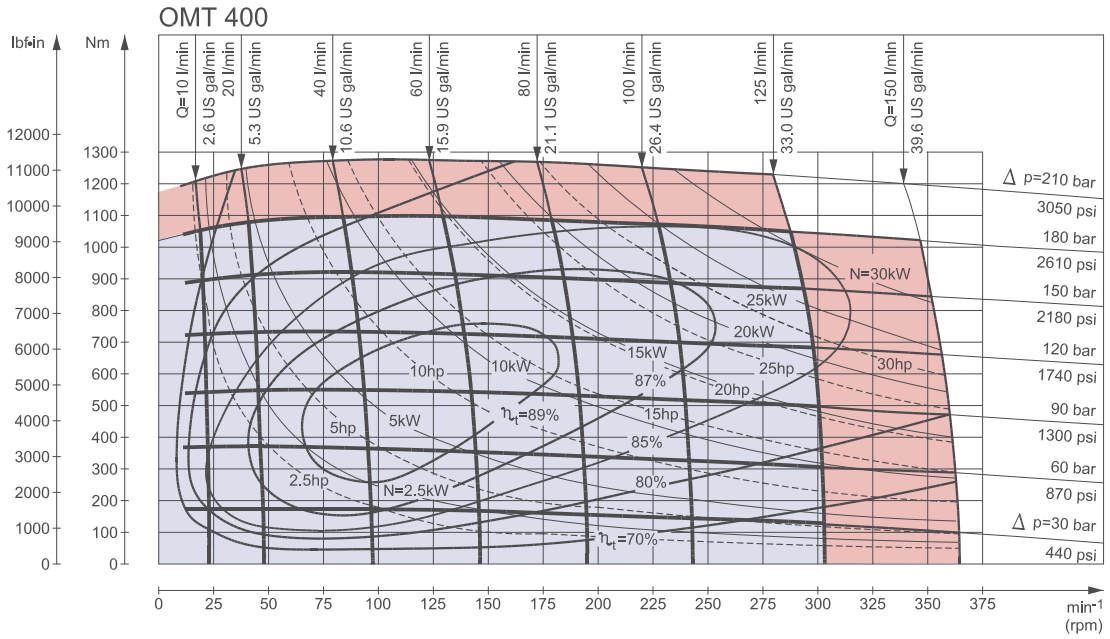
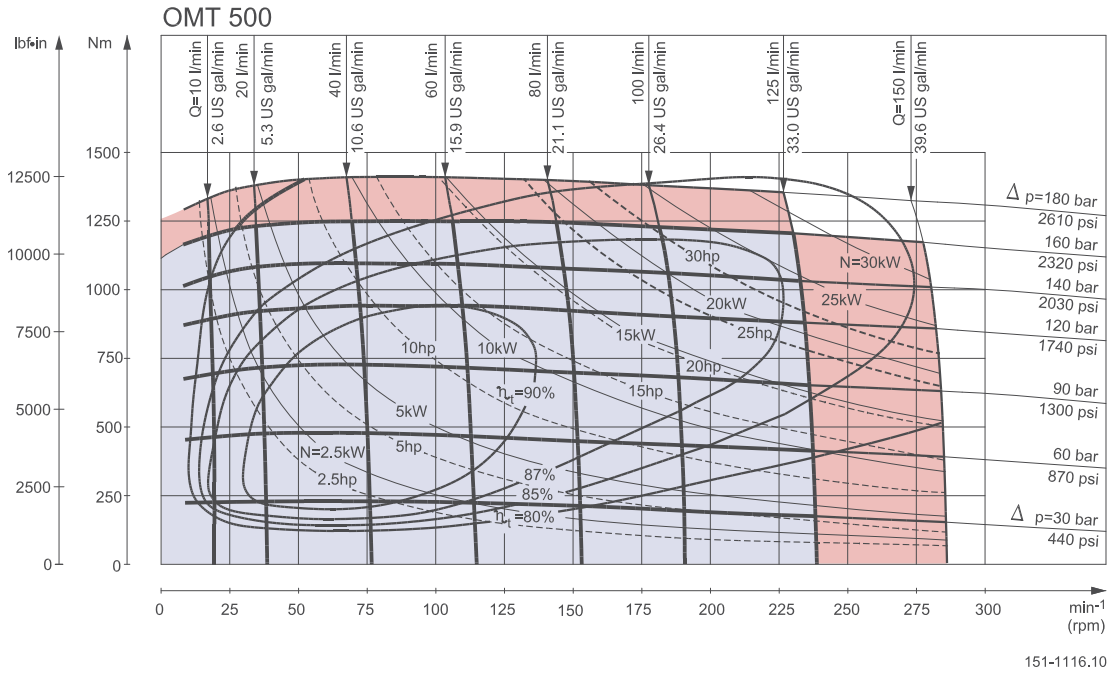
FUNCTION DIAGRAMS





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

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

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

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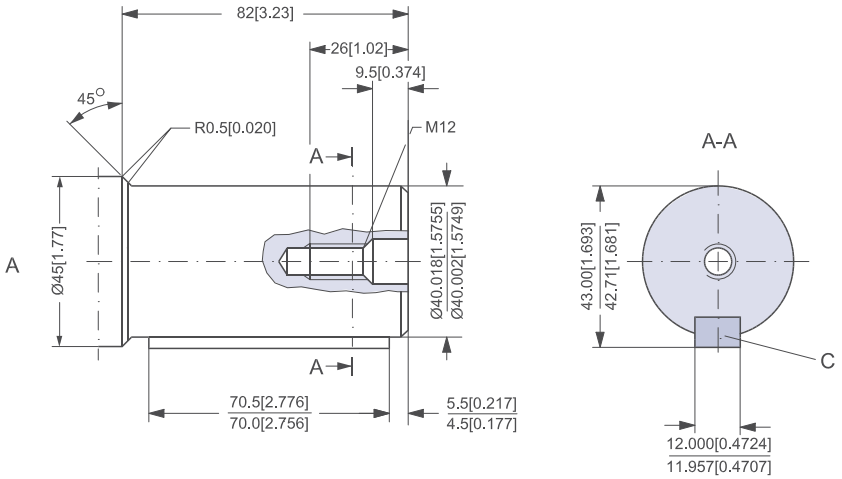
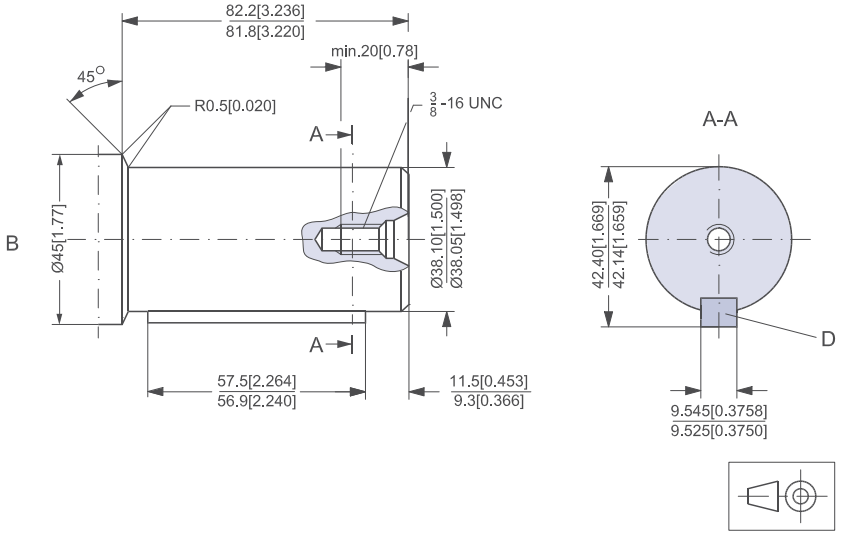
SHAFT VERSION

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



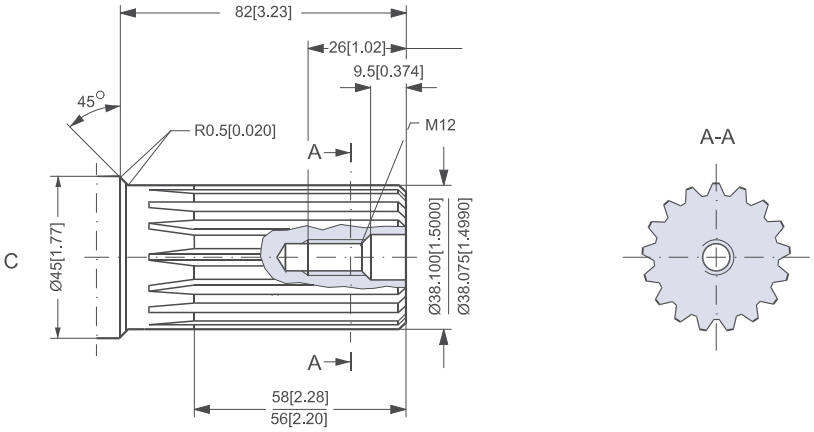
B: Cylindrical 1.5 in shaft
D: Parallel key
$^3/_8 \times {}^3/_8 \times 2^1/_4$ in
B.S. 46
Keyway deviates from standard



151-1032.10

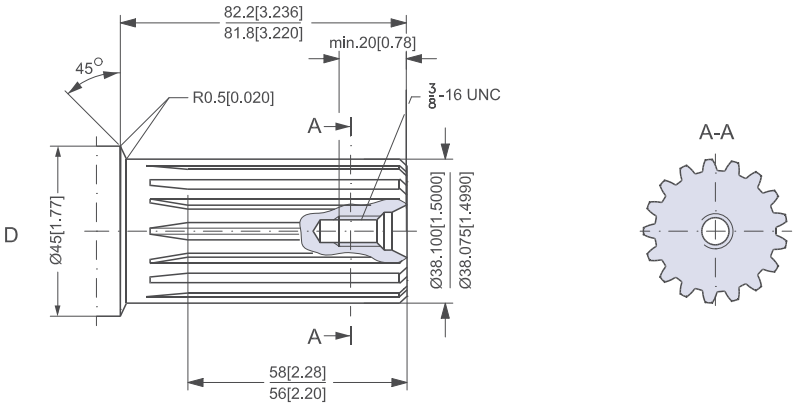
SHAFT VERSION

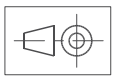
C. Involute splined shaft
ANS B92.1 - 1970 standard
Flat root side fit
Pitch 12/24
Teeth 17
Major dia. 1.50 in
Pressure angle 30°



US version

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





151-1916.10

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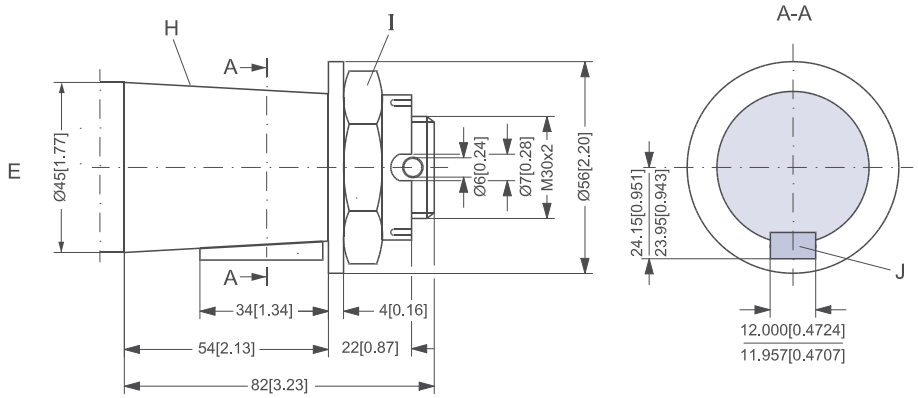
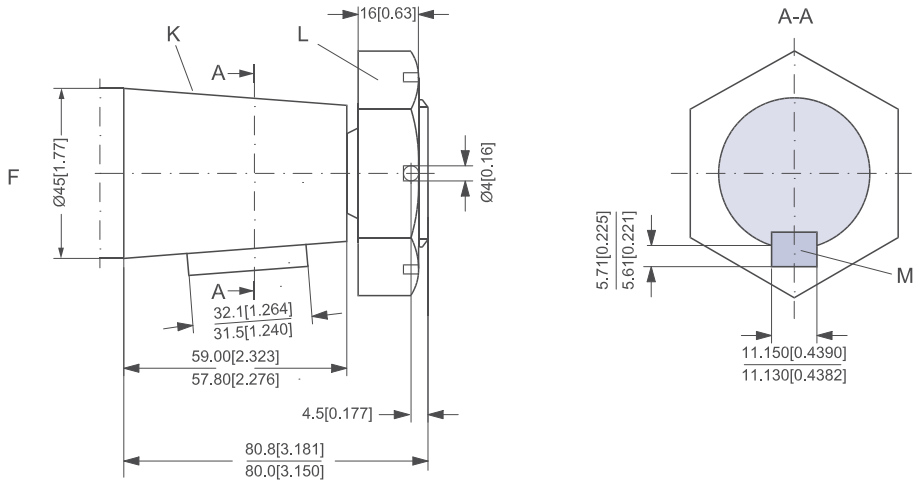
SHAFT VERSION

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

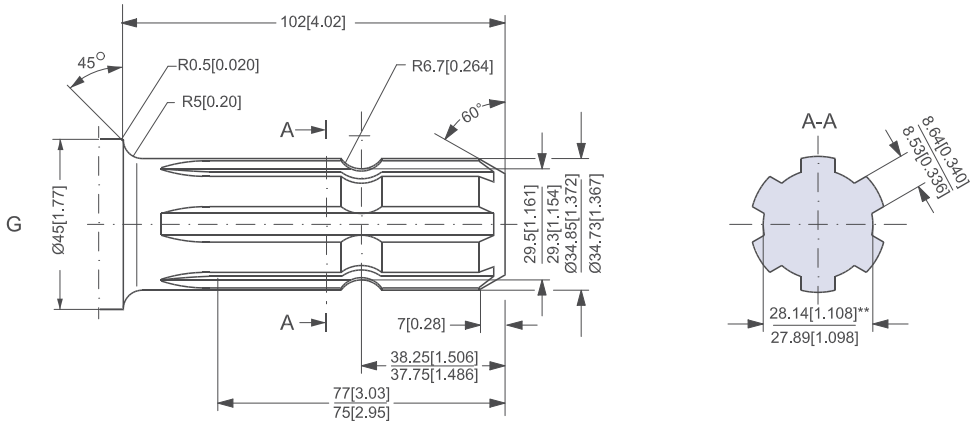


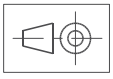
F: Tapered 1.75 in shaft
K: Cone 1:8
SAE J501
L: 1 1/4 - 18 UNEF
Across flats 2 3/16 in
Tightening torque:
500 ±10 Nm (4425 ±90 lbf·in)
M: Parallel key
7/16 × 7/16 × 1 1/4
B.S. 46
Keyway deviates from
standard



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

** Deviates from DIN 9611

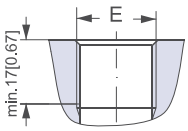




151-1917.10

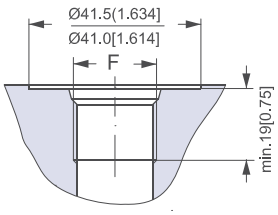
PORT THREAD VERSIONS

A



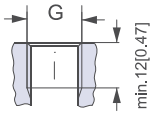
A: G main ports
E: ISO 228/1 - G3/4

B



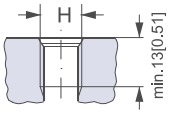
B: UN main ports
F: 1 1/16 - 12 UN
O-ring boss port

C



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

D

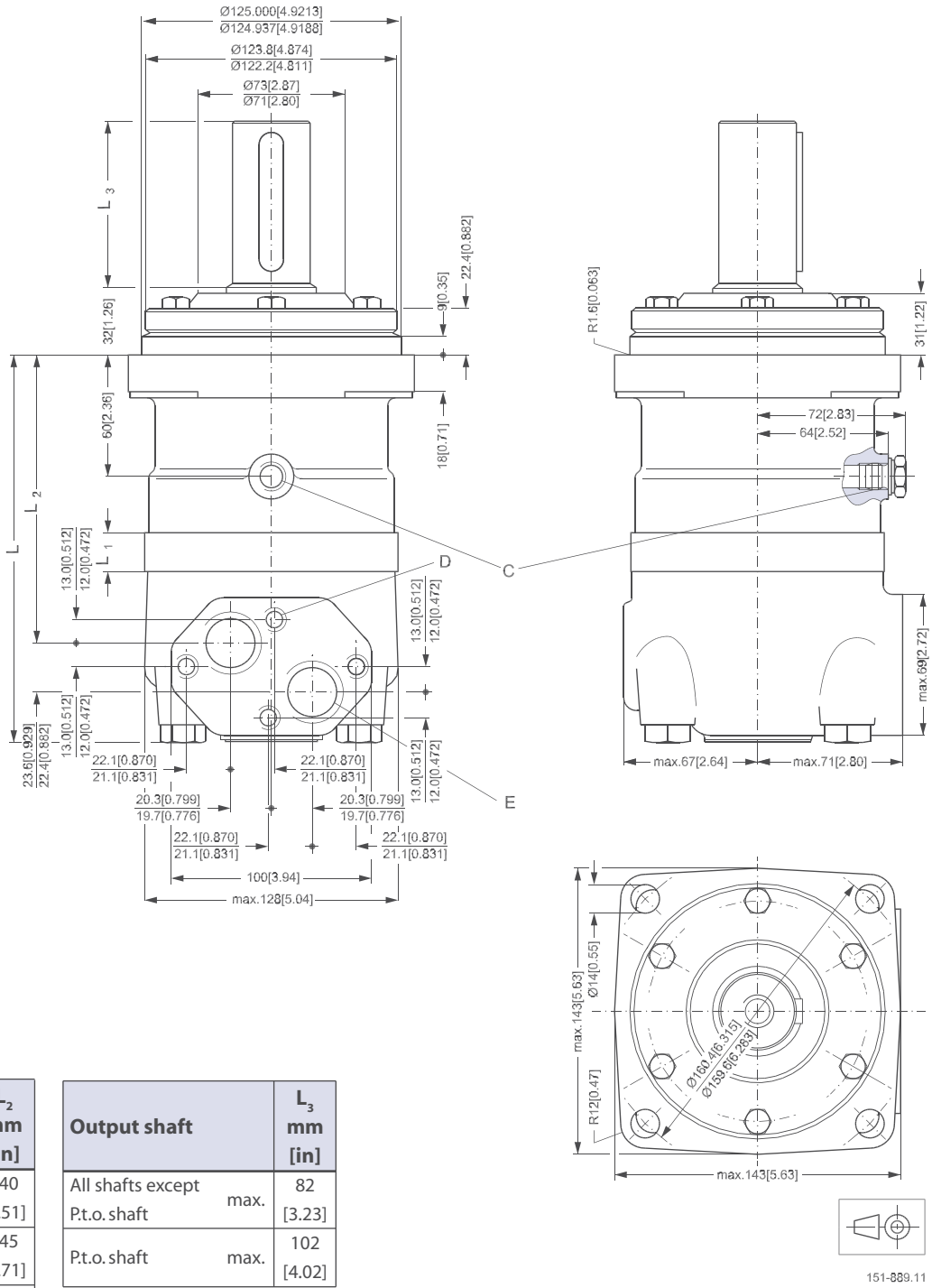


151-1977.10

D: UNF drain port
H: 9/16 - 18 UNF
O-ring boss port

Dimensions – European version

STANDARD FLANGE



Type	$L_{max.}$ mm [in]	L_{1*} mm [in]	L_2 mm [in]
OMT 160	190 [7.48]	16.5 [0.650]	140 [5.51]
OMT 200	195 [7.68]	21.5 [0.846]	145 [5.71]
OMT 250	201 [7.91]	27.8 [1.094]	151 [5.94]
OMT 315	211 [8.31]	37.0 [1.457]	161 [6.34]
OMT 400	221 [8.70]	47.5 [1.870]	171 [6.73]
OMT 500	235 [9.25]	61.5 [2.421]	185 [7.28]

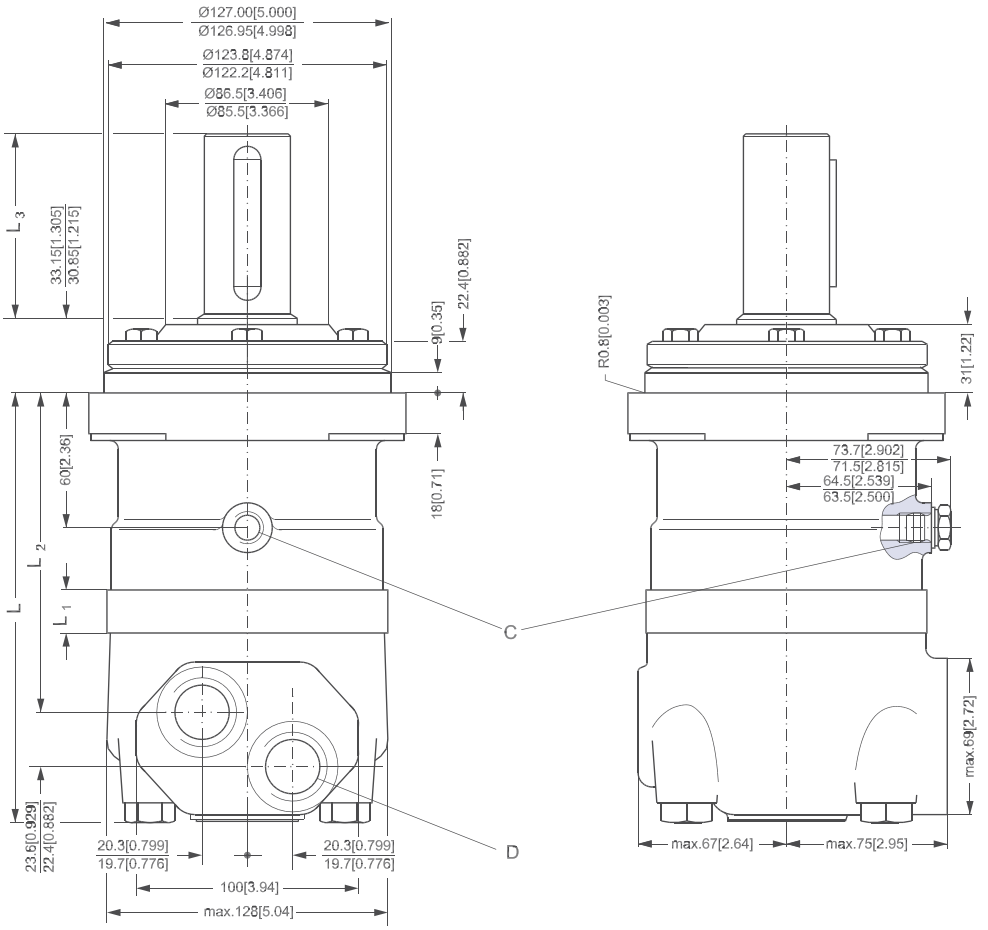
Output shaft		L_3 mm [in]
All shafts except P.t.o. shaft	max.	82 [3.23]
P.t.o. shaft	max.	102 [4.02]

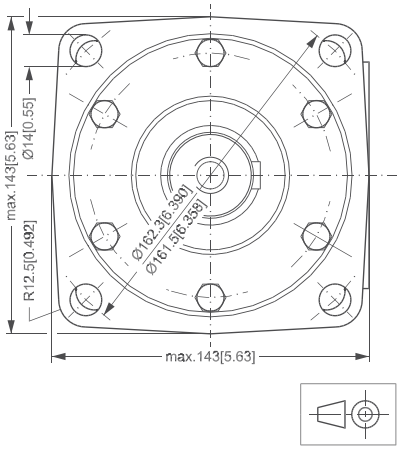
C: Drain connection G 1/4; 12 mm [0.47 in] deep
D: M10; 10 mm [0.39 in] deep
E: G 3/4; 17 mm [0.67 in] deep

*) The gearwheel set is 3.5 mm [0.138 in] wider across the rollers than the L_1 dimensions

151-889.11

STANDARD FLANGE





151-889.11..22

Type	$L_{max.}$ mm [in]	L_{1*} mm [in]	L_2 mm [in]
OMT 160	190 [7.48]	16.5 [0.650]	140 [5.51]
OMT 200	195 [7.68]	21.5 [0.846]	145 [5.71]
OMT 250	201 [7.91]	27.8 [1.094]	151 [5.94]
OMT 315	211 [8.31]	37.0 [1.457]	161 [6.34]
OMT 400	221 [8.70]	47.5 [1.870]	171 [6.73]
OMT 500	235 [9.25]	61.5 [2.421]	185 [7.28]

Output shaft	L_3 mm [in]
Cyl. 1.5 in Splined 1.5 in	82 [3.23]
Tapered 1.75 in	80.4 [3.17]

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

D: $1\,^{1}/_{16}$ - 12 UN;
19 mm [0.75 in] deep
O-ring boss port

*) The gearwheel set is 3.5 mm [0.138 in] wider across the rollers than the L_1 dimensions

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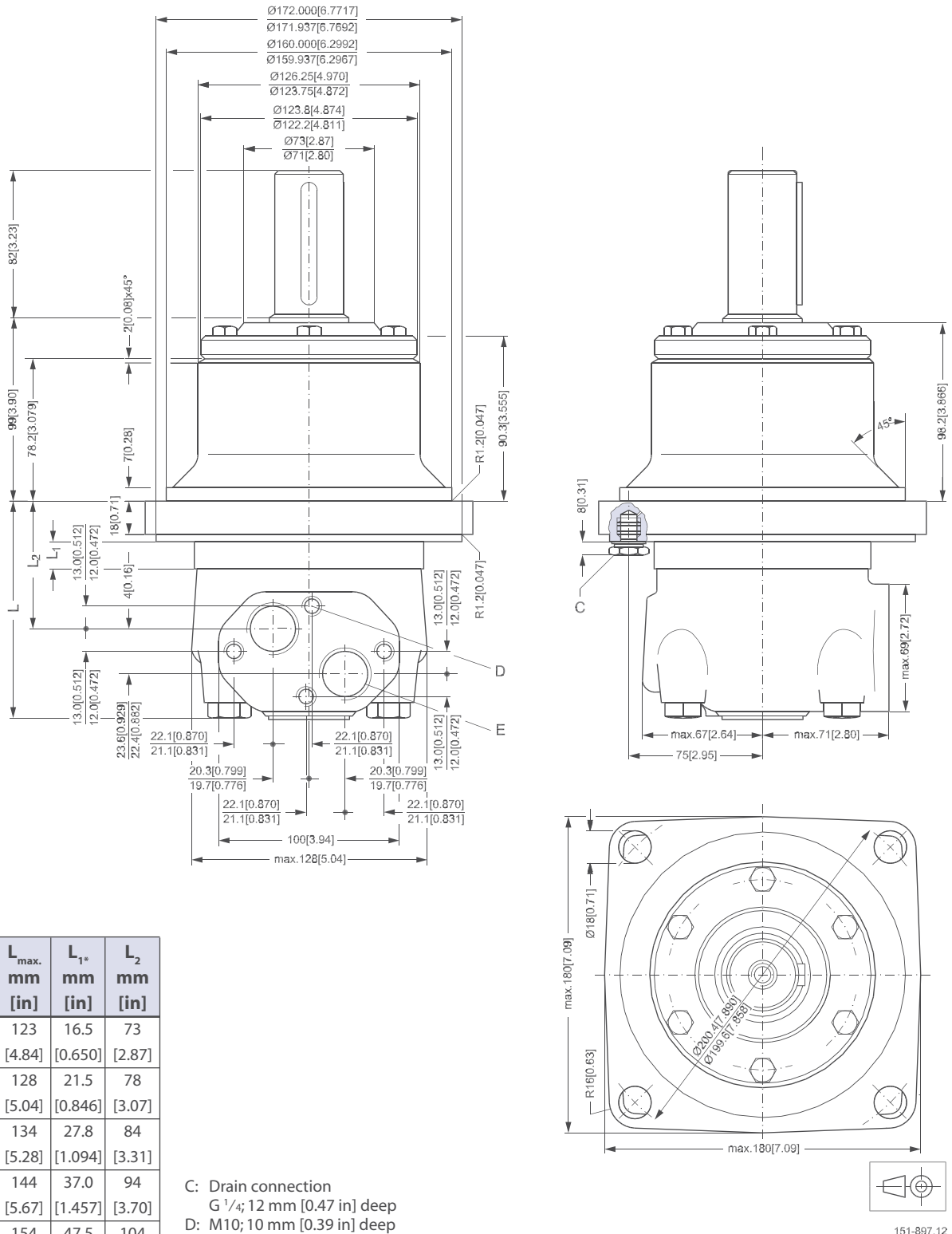
Dimensions – European version

WHEEL



Type	$L_{max.}$ mm [in]	L_{1*} mm [in]	L_2 mm [in]
OMTW 160	123 [4.84]	16.5 [0.650]	73 [2.87]
OMTW 200	128 [5.04]	21.5 [0.846]	78 [3.07]
OMTW 250	134 [5.28]	27.8 [1.094]	84 [3.31]
OMTW 315	144 [5.67]	37.0 [1.457]	94 [3.70]
OMTW 400	154 [6.06]	47.5 [1.870]	104 [4.09]
OMTW 500	168 [6.61]	61.5 [2.421]	118 [4.65]

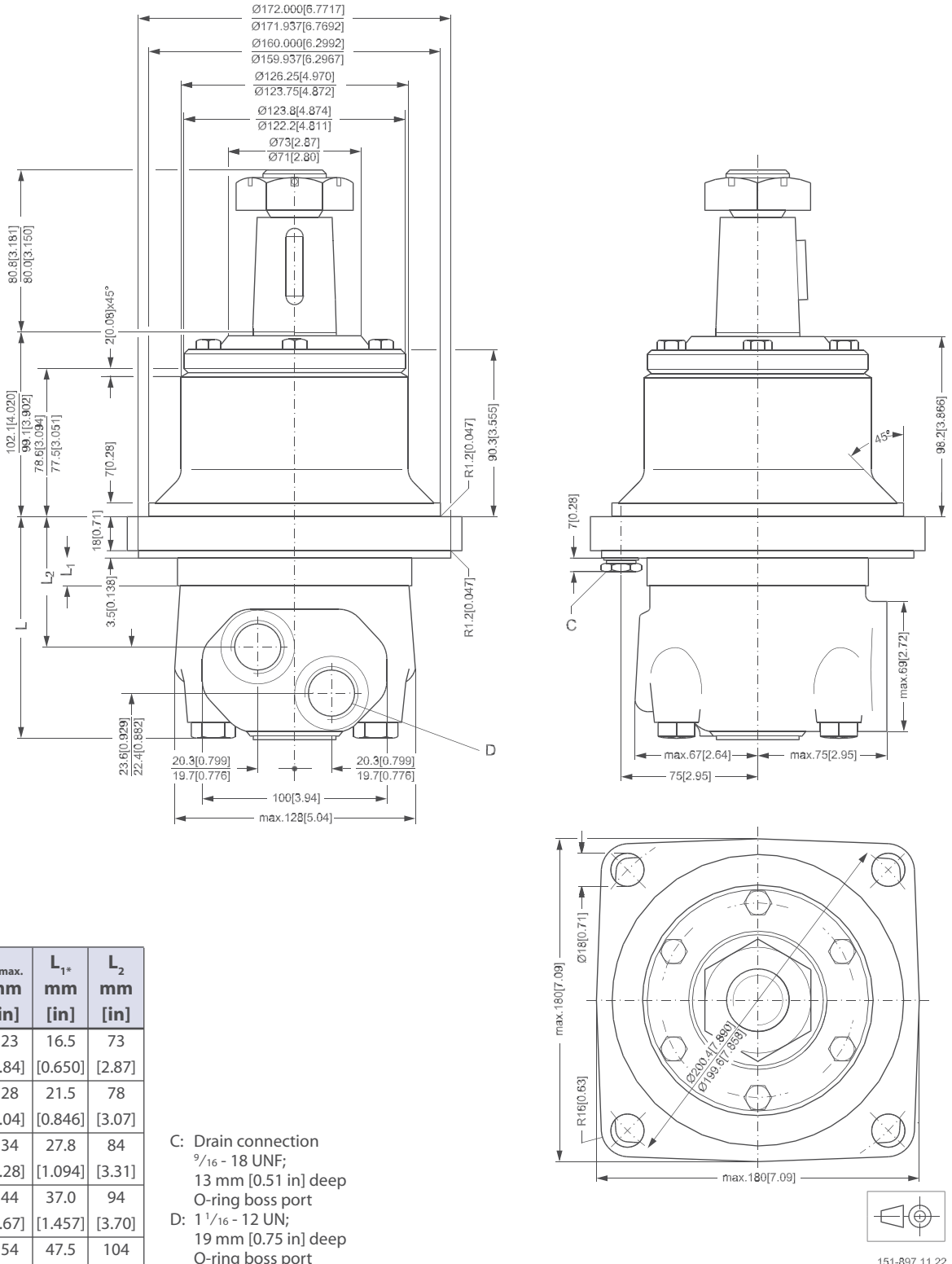
C: Drain connection
G 1/4; 12 mm [0.47 in] deep
D: M10; 10 mm [0.39 in] deep
E: G 3/4; 17 mm [0.67 in] deep

*) The gearwheel set is 3.5 mm [0.138 in] wider across the rollers than the L_1 dimensions

151-897.12

Dimensions – US version

WHEEL



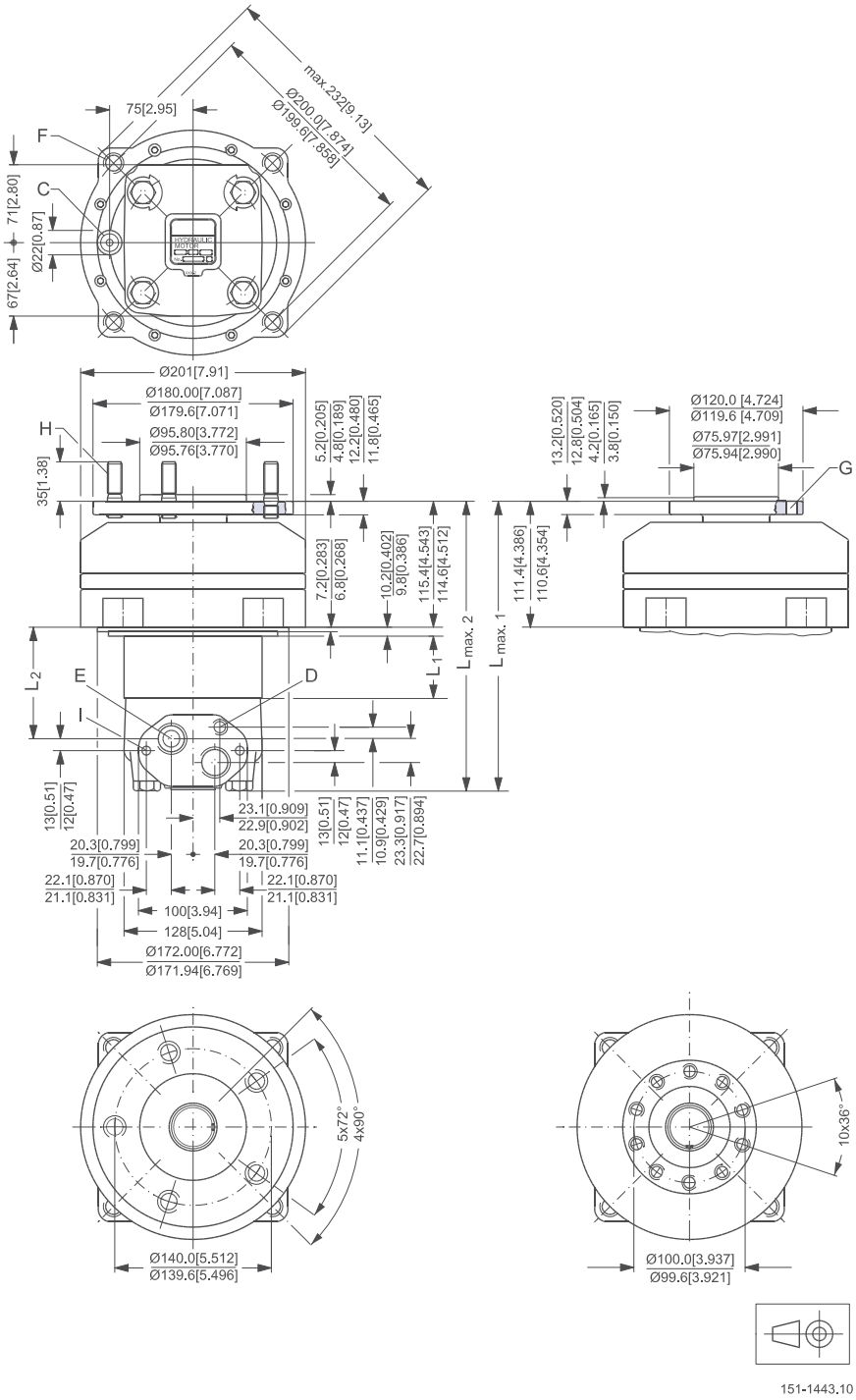
Type	$L_{max.}$ mm [in]	L_{1*} mm [in]	L_2 mm [in]
OMTW 160	123 [4.84]	16.5 [0.650]	73 [2.87]
OMTW 200	128 [5.04]	21.5 [0.846]	78 [3.07]
OMTW 250	134 [5.28]	27.8 [1.094]	84 [3.31]
OMTW 315	144 [5.67]	37.0 [1.457]	94 [3.70]
OMTW 400	154 [6.06]	47.5 [1.870]	104 [4.09]
OMTW 500	168 [6.61]	61.5 [2.421]	118 [4.65]

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

D: $1\,^{1}/_{16}$ - 12 UN;
19 mm [0.75 in] deep
O-ring boss port

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

BRAKE-WHEEL



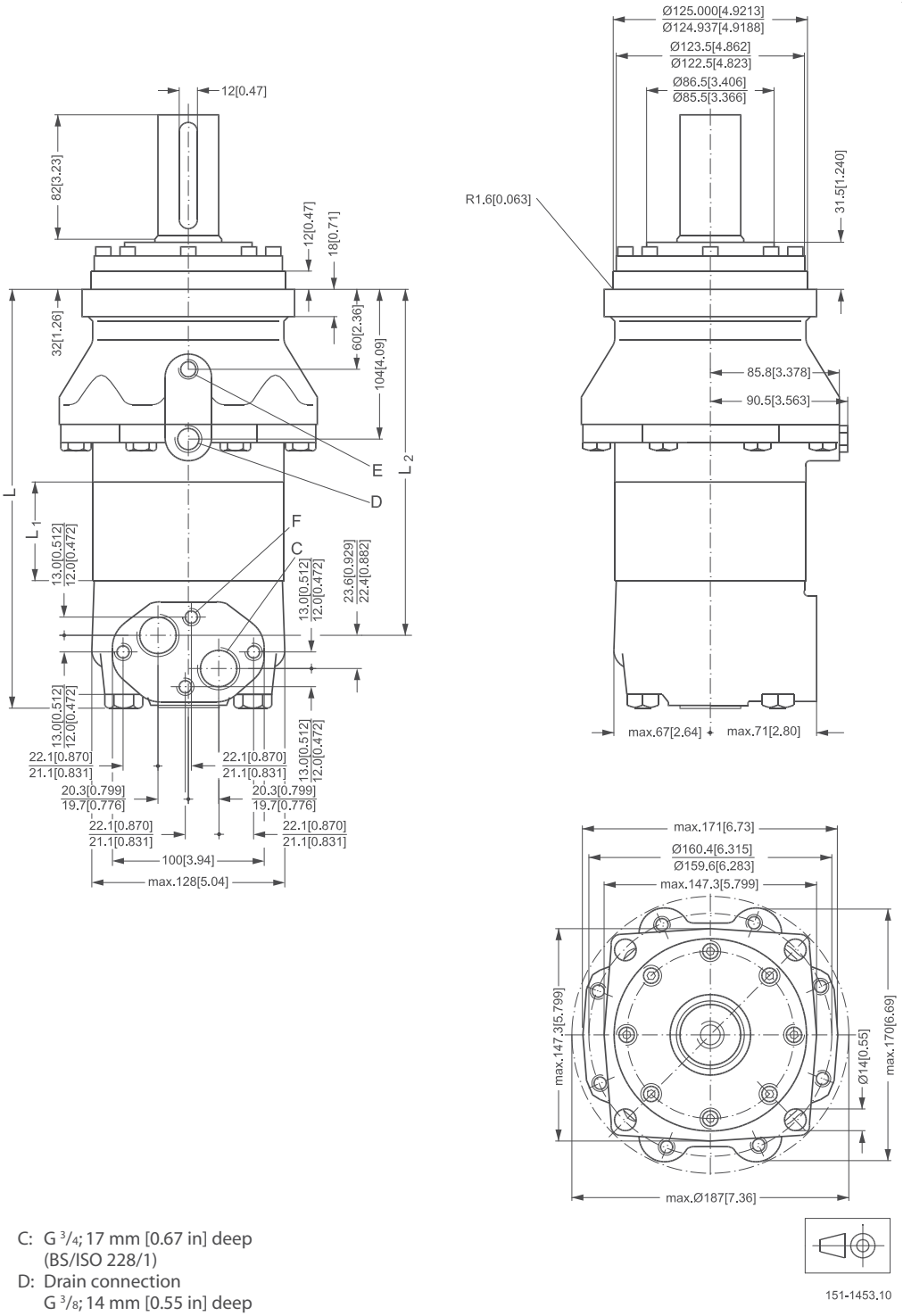
Type	$L_{max.1}$ mm [in]	$L_{max.2}$ mm [in]	L_{1*} mm [in]	L_2 mm [in]
OMT 160 FX	223 [8.78]	227 [8.94]	16,5 [0.650]	62 [2.45]
OMT 200 FX	228 [8.98]	232 [9.13]	21.5 [0.846]	67 [2.65]
OMT 250 FX	234 [9.21]	238 [9.37]	27.8 [1.094]	74 [2.89]
OMT 315 FX	243 [9.57]	247 [9.72]	37.0 [1.457]	83 [3.26]
OMT 400 FX	254 [10.00]	258 [10.16]	47.5 [1.870]	93 [3.67]
OMT 500 FX	268 [10.55]	272 [10.71]	61.5 [2.421]	107 [4.22]

C: Brake-release port G 1/4; 12 mm [0.47 in] deep (BS/ISO 228/1)
D: Drain connection G 1/4; 12 mm [0.47 in] deep
E: G 3/4; 17 mm [0.67 in] deep
F: 4 × M12; 27 mm [1.06 in] deep
G: 10 × M12
H: Wheel bolts 5 × M14 × 1.5
I: M10; 10 mm [0.39 in] deep

*) The gearwheel set is 3.5 mm [0.138 in] wider across the rollers than the L_1 dimensions

Dimensions – European version

BRAKE-STANDARD



Type	$L_{max.}$ mm [in]	L_{1*} mm [in]	L_2 mm [in]
OMT 160 FL/FH	228 [8.98]	16.5 [0.650]	178 [7.01]
OMT 200 FL/FH	233 [9.17]	21.5 [0.846]	183 [7.20]
OMT 250 FL/FH	239 [9.41]	27,8 [1.094]	189 [7.44]
OMT 315 FL/FH	248 [9.76]	37.0 [1.457]	199 [7.83]
OMT 400 FL/FH	259 [10.20]	47.5 [1.870]	209 [8.23]
OMT 500 FL/FH	273 [10.75]	61.5 [2.421]	223 [8.78]

C: G 3/4; 17 mm [0.67 in] deep (BS/ISO 228/1)
D: Drain connection G 3/8; 14 mm [0.55 in] deep
E: Brake-release port G 1/4; 12 mm [0.47 in] deep
F: M10; 10 mm [0.39 in] deep

*) The gearwheel set is 3.5 mm [0.138 in] wider across the rollers than the L_1 dimensions

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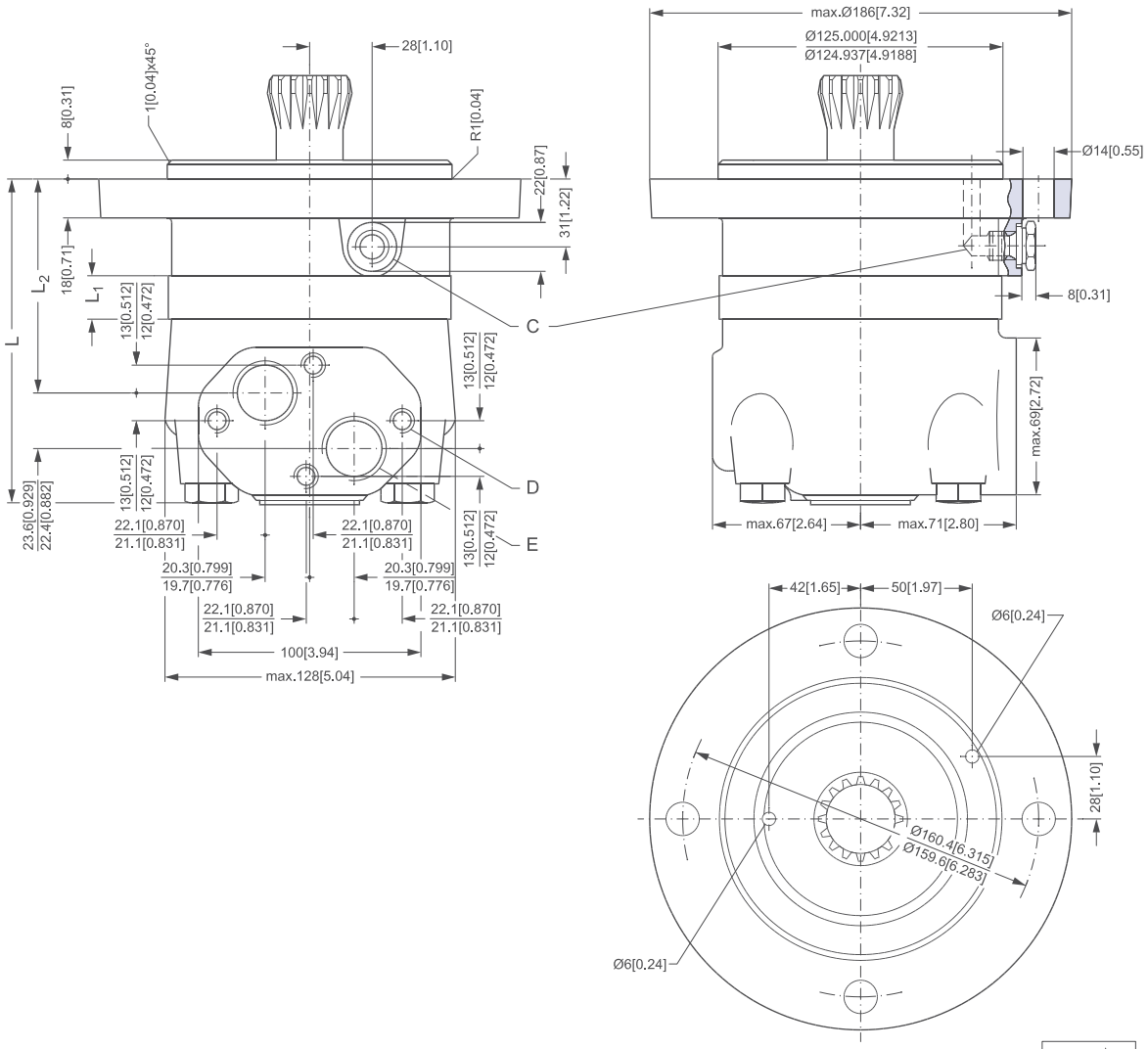
Dimensions – European version

SHORT



151-898.11

Type	$L_{max.}$ mm [in]	L_{1*} mm [in]	L_2 mm [in]
OMTS 160	146 [5.75]	16.5 [0.650]	96 [3.78]
OMTS 200	151 5.94]	21.5 [0.846]	101 [3.98]
OMTS 250	157 [6.18]	27.8 [1.094]	107 [4.21]
OMTS 315	166 [6.54]	37.0 [1.457]	116 [4.57]
OMTS 400	177 [6.97]	47.5 [1.870]	127 [5.00]
OMTS 500	191 [7.52]	61.5 [2.421]	142 [5.59]

C: Drain connection
G 1/4; 12 mm [0.47 in] deep
D: M10; 10 mm [0.39 in] deep
E: G 3/4; 17 mm [0.67 in] deep

*) The gearwheel set is 3.5 mm [0.138 in] wider across the rollers than the L_1 dimensions

INSTALLING THE OMTS

The cardan shaft of the OMTS motor acts as an "output shaft". Because of the movement of the shaft, no seal can be fitted at the shaft output.
Internal oil leakage from the motor will therefore flow into the attached component.

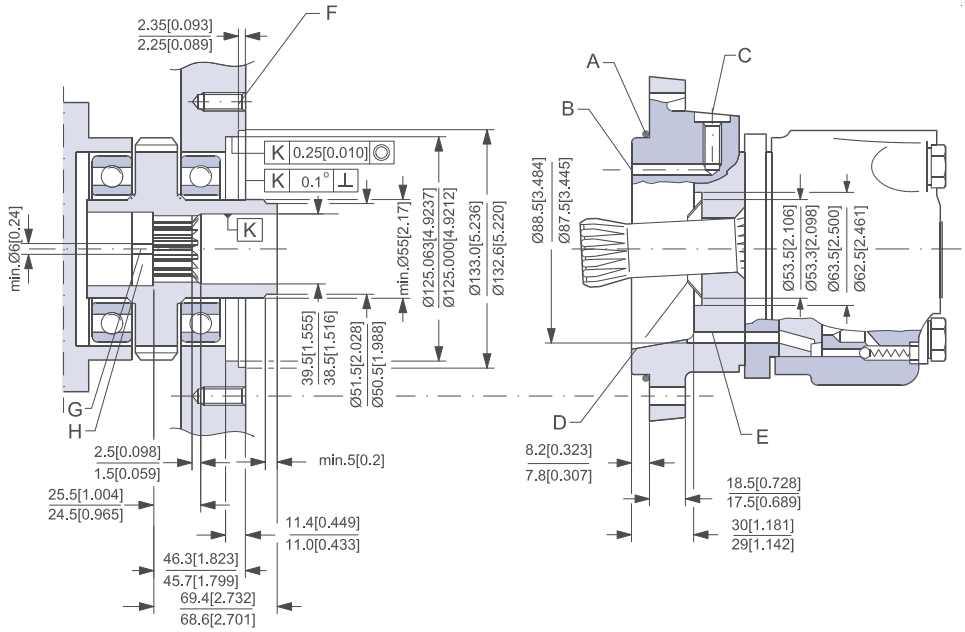
During start and operation it is important that the spline connection and the bearings in the attached component receive oil and are adequately lubricated. To ensure that the spline connection receives sufficient oil, a conical sealing ring between the shaft of the attached component and the motor intermediate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

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

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

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

OMTS DIMENSIONS OF THE ATTACHED COMPONENT



151-452.10

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

INTERNAL SPLINE DATA FOR THE COMPONENT TO BE ATTACHED

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

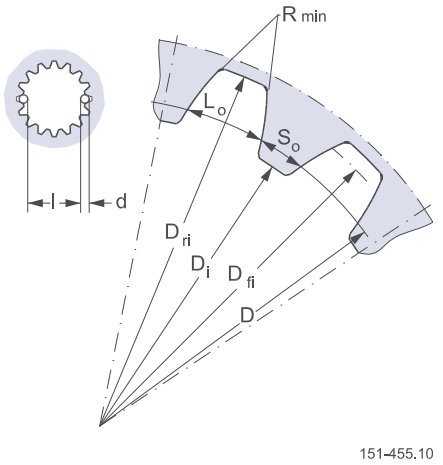
Material:
Case hardening steel with a tensile strength corresponding at least to 20 MoCr4 (900 N/mm²) or SAE 8620.

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

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

Flat root side fit		mm	in
Number of teeth	z	16	16
Pitch	DP	12/24	12/24
Pressure angle		30°	30°
Pitch dia.	D	33.8656	1.3333
Major dia.	D_{ri}	$38.4\ ^{+0.4}_{0}$	$1.5118\ ^{+0.0157}_{0}$
Form dia. (min.)	D_{fi}	37.6	1.4803
Minor dia.	D_i	$32.150\ ^{+0.04}_{0}$	$1.2657\ ^{+0.00157}_{0}$
Space width (circular)	L_o	$4.516\ ^{\pm0.037}$	$0.1777\ ^{\pm0.0014}$
Tooth thickness (circular)	S_o	2.170	0.0854
Fillet radius	$R_{min.}$	0.5	0.02
Max. measurement between pins*	l	$26.9\ ^{+0.1}_{0}$	$1.059\ ^{+0.004}_{0}$
Pin dia.	d	$4.834\ ^{\pm0.001}$	$0.1903\ ^{\pm0.00004}$

* Finished dimensions (when hardened)



151-455.10

DRAIN CONNECTION ON OMTS OR ATTACHED COMPONENT

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

The drain line can be connected at two different points:
1) at the motor drain connection
2) at the drain connection of the attached component.

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

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