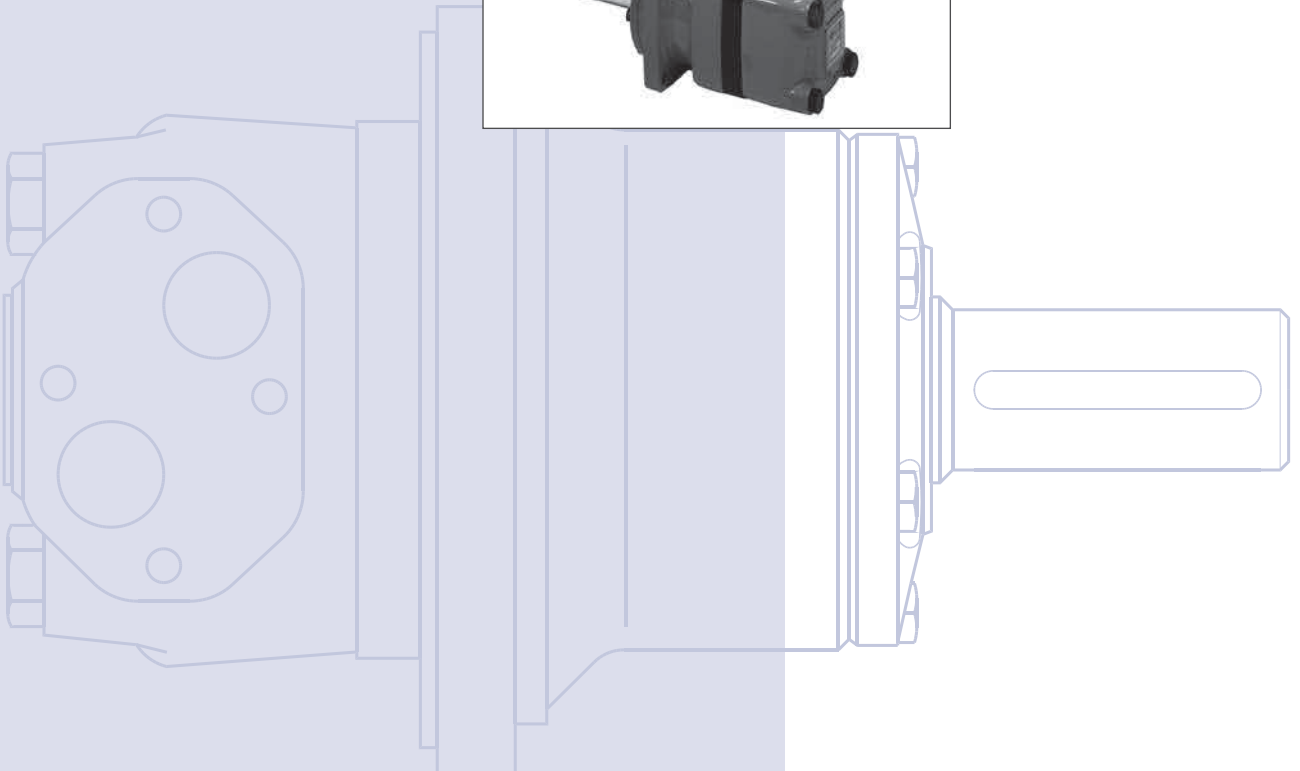
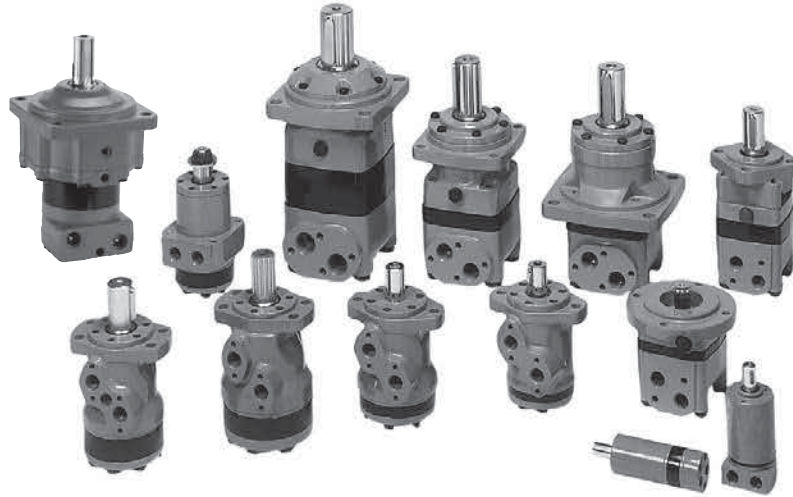




OMS, OMT and
OMV
Orbital Motors

Technical
Information





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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 cm³ [0.50 in³] to 800 cm³ [48.9 in³] per revolution.

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

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

Characteristic features:

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

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Frontpage: F300211.TIF, F300212.TIF, F300351.TIF, F300145.TIF, 151-1976forsidefa.eps

OMS, OMT and OMV Technical Information 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.

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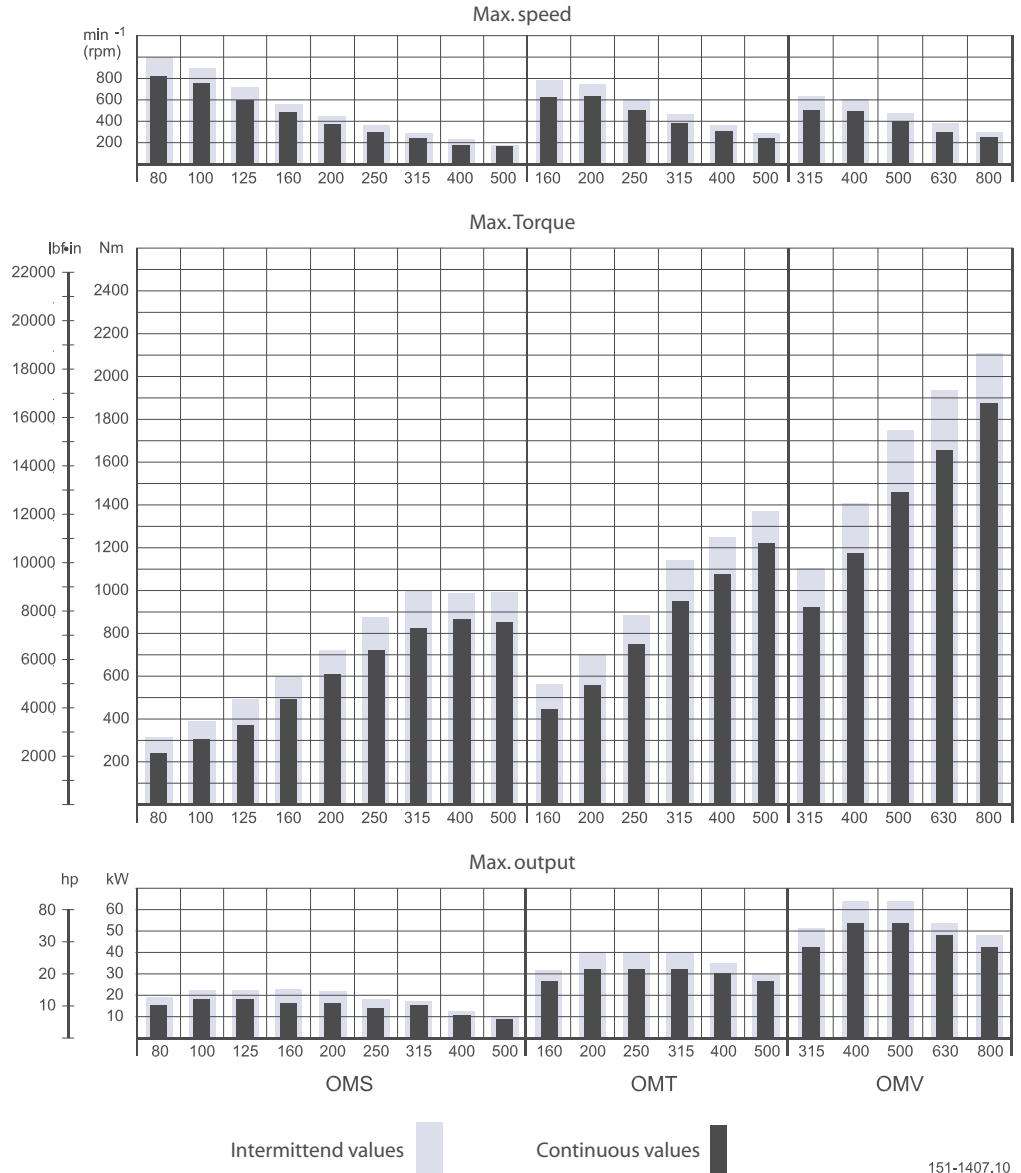
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SPEED, TORQUE AND OUTPUT



151-1407.10

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

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

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

CODE NUMBERS

| CODE NUMBERS | Displacement [cm ³] | | | | | | 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. | 340 [3010] | 430 [3810] | 530 [4690] | 740 [6550] | 840 [7430] | 950 [8410] | |
| | at max. press. drop int. ¹⁾ | 410 [3630] | 520 [4600] | 630 [5580] | 890 [7880] | 970 [8590] | 1060 [9380] | |
| | Nm [lbf-in] | | | | | | | |

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. pressure 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.

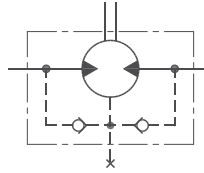
⁴⁾ For the supply of motors with holding torques higher than those stated, please contact the Sauer-Danfoss Sales Organization.

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



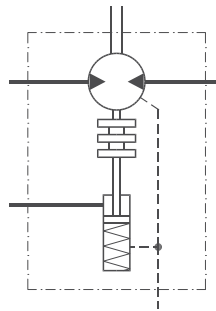
151-320.10

**OMT with check valves
 and with drain connection:**

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

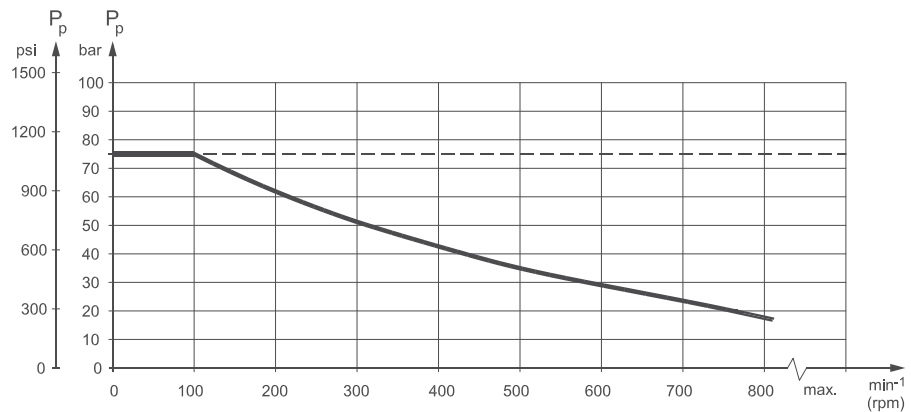
OMT FX, OMT FL and OMT FH
 must always be fitted with
 drain line.

Max. pressure in drain line is
 5 bar [75 psi]



151-1405.10

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

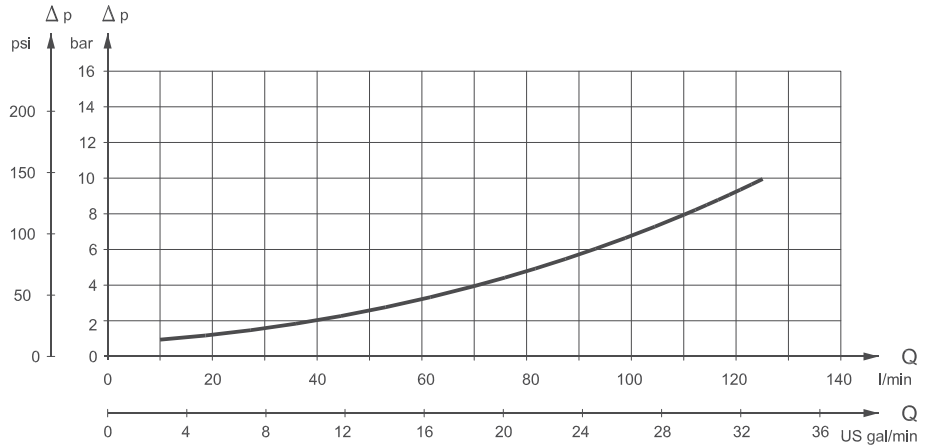


151-1674.10

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

——— Continuous operation

PRESSURE DROP IN MOTOR



151-1409.10

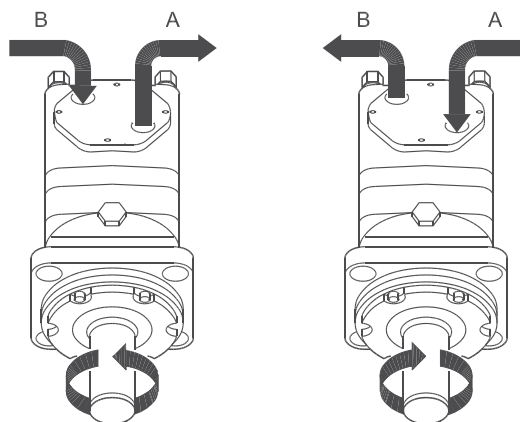
The curve applies to an unloaded motor shaft and an oil viscosity of 35 mm²/s [165 SUS]

OIL FLOW IN DRAIN LINE

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

| Pressure drop bar [psi] | Viscosity mm ² /s [SUS] | Oil flow in drain line l/min [US gal/min] |
|-------------------------------|--|---|
| 140 [2030] | 20 [100] | 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

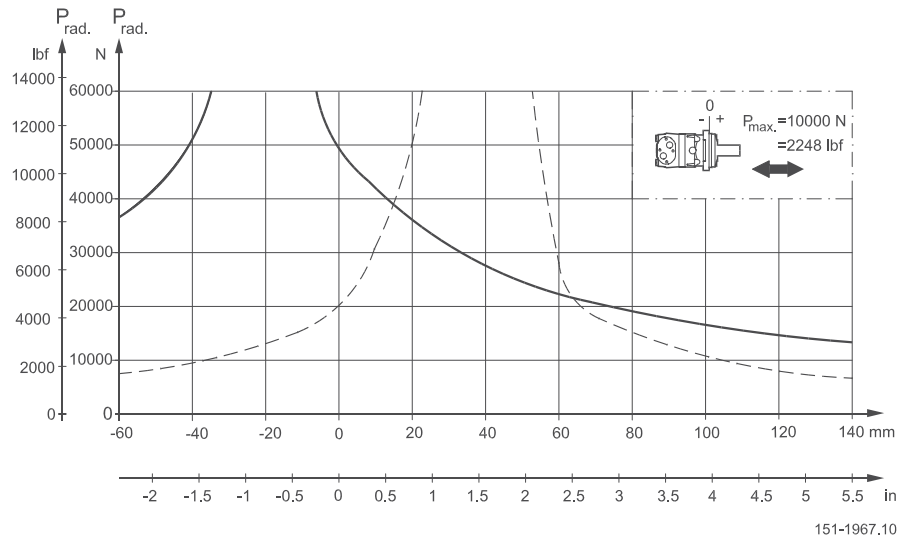


151-1050.10

PERMISSIBLE SHAFT LOADS FOR OMT

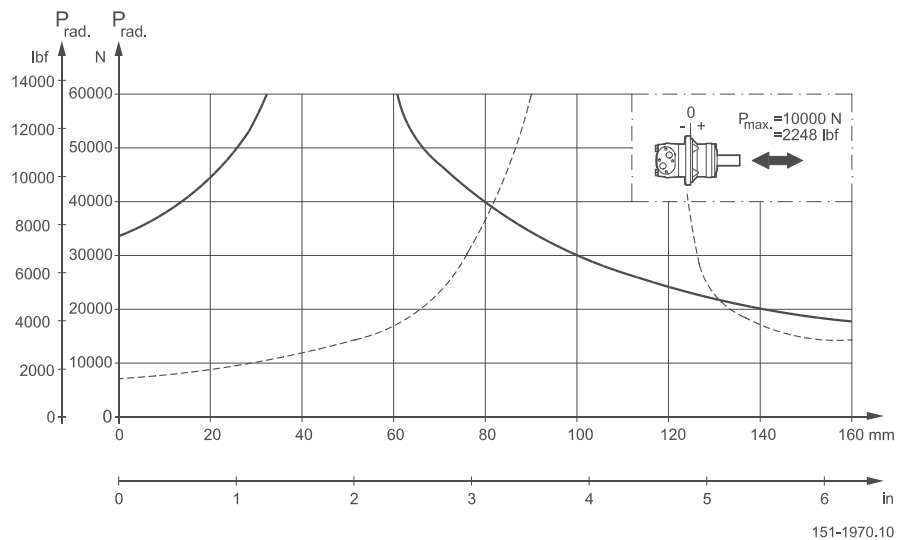
Mounting flange:
 Standard

Shaft:
 All shaft types



Mounting flange:
 Wheel

Shaft:
 All shaft types

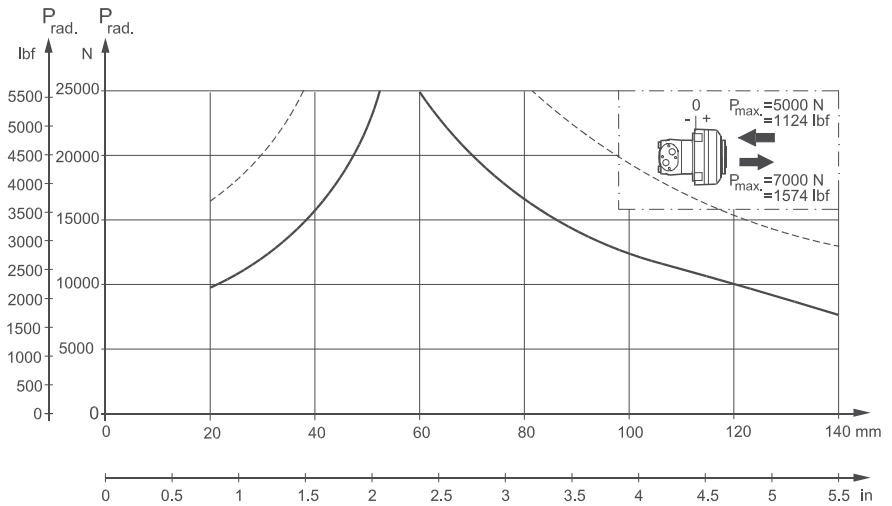


The output shaft runs in tapered roller bearings that permit high axial and radial forces. The permissible radial load on the shaft is shown for an axial load of 0 N as a function of the distance from the mounting flange to the point of load application. The curve is based on B10 bearing life (2000 hours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

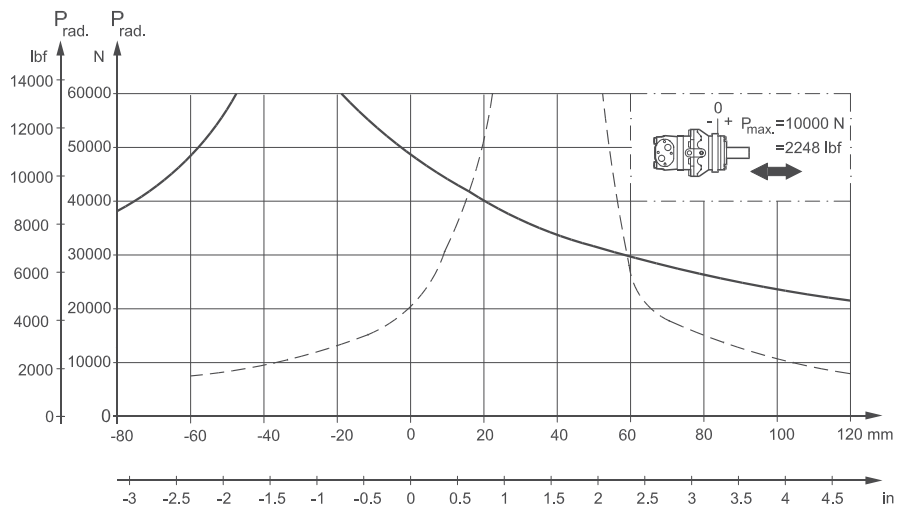
Shaft:
 All shaft types



151-1966.10

Mounting flange:
 Brake-standard

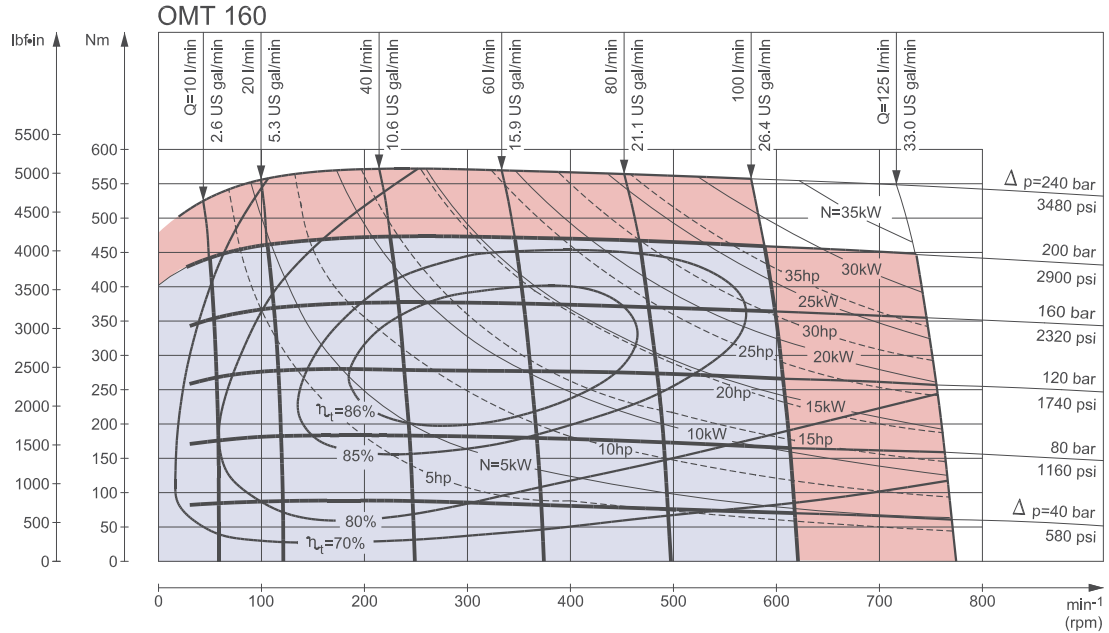
Shaft:
 All shaft types



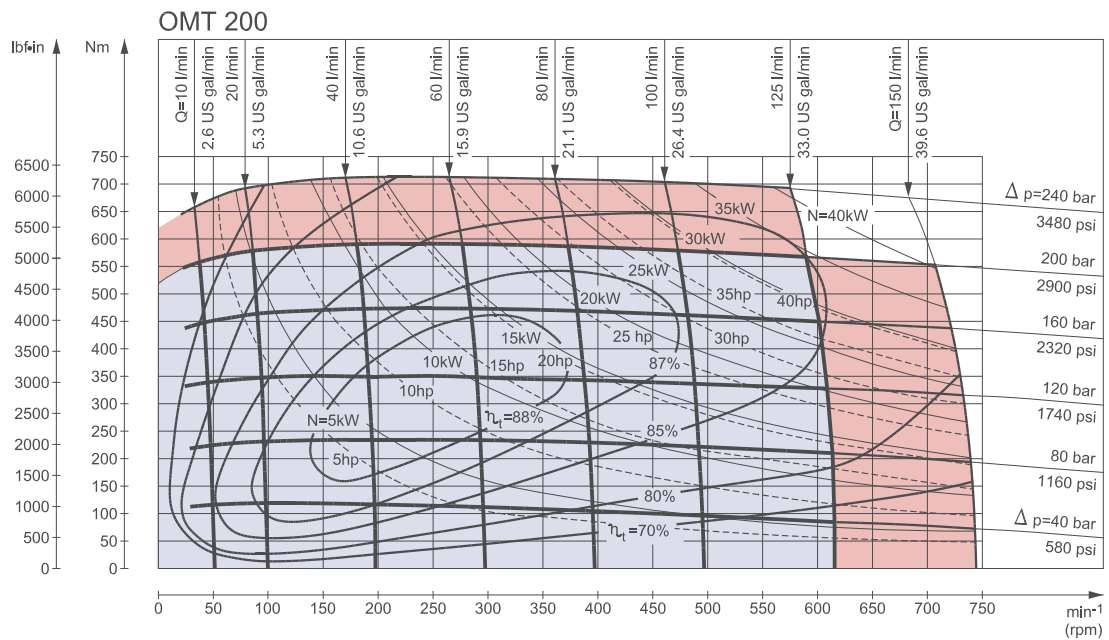
151-1968.10

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. 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.

FUNCTION DIAGRAMS



151-493.10



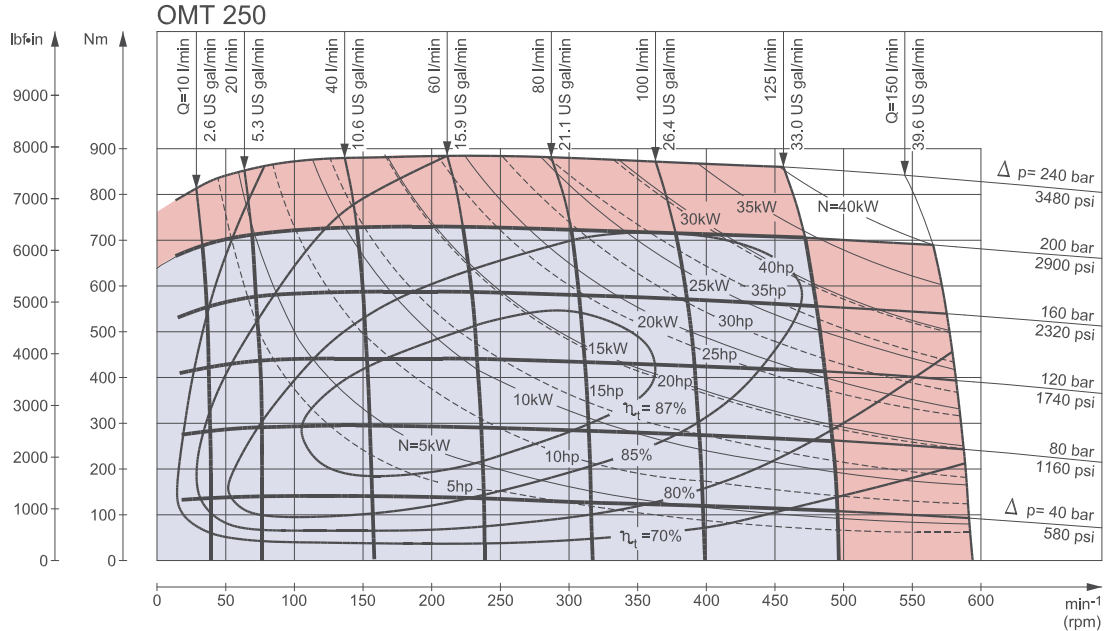
151-494.10

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

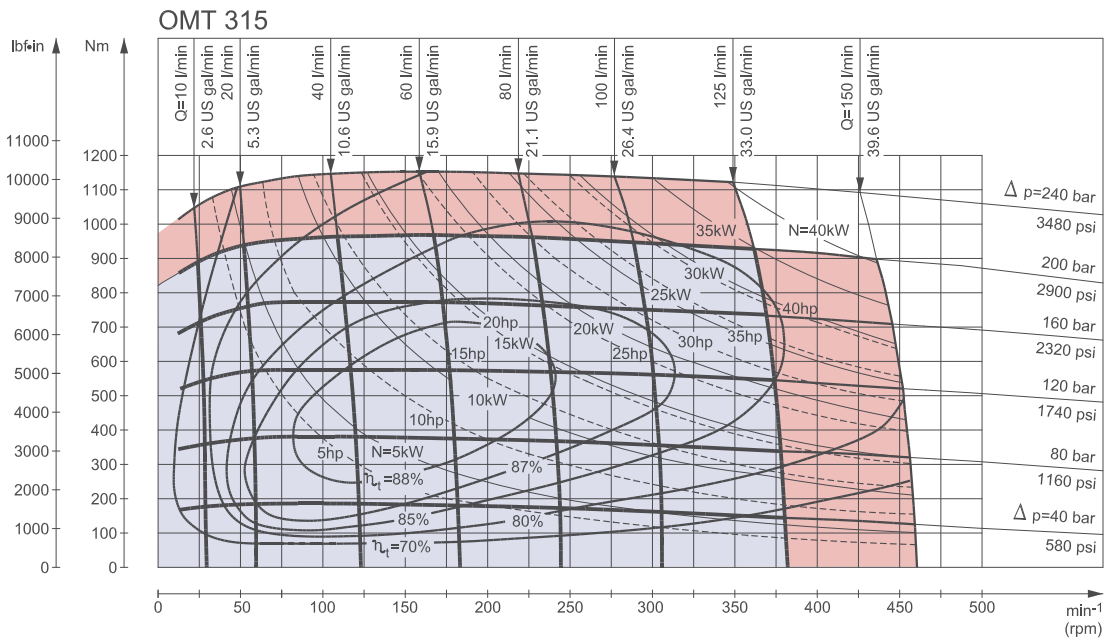
- Continuous range
- Intermittent range (max. 10% operation every minute)

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

FUNCTION DIAGRAMS



151-495.10



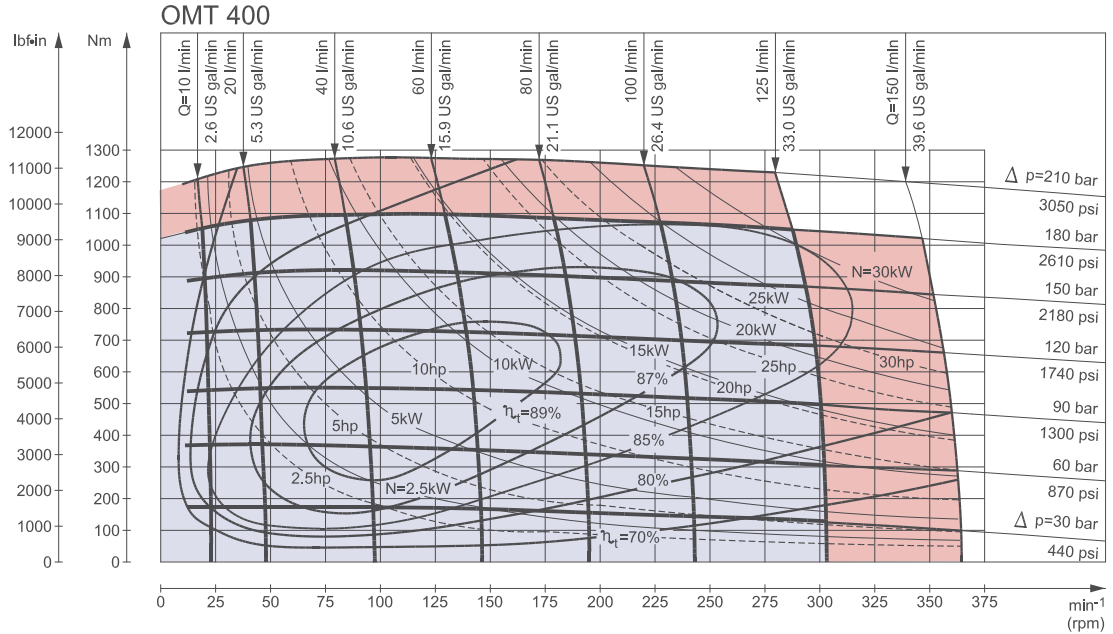
151-869.10

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

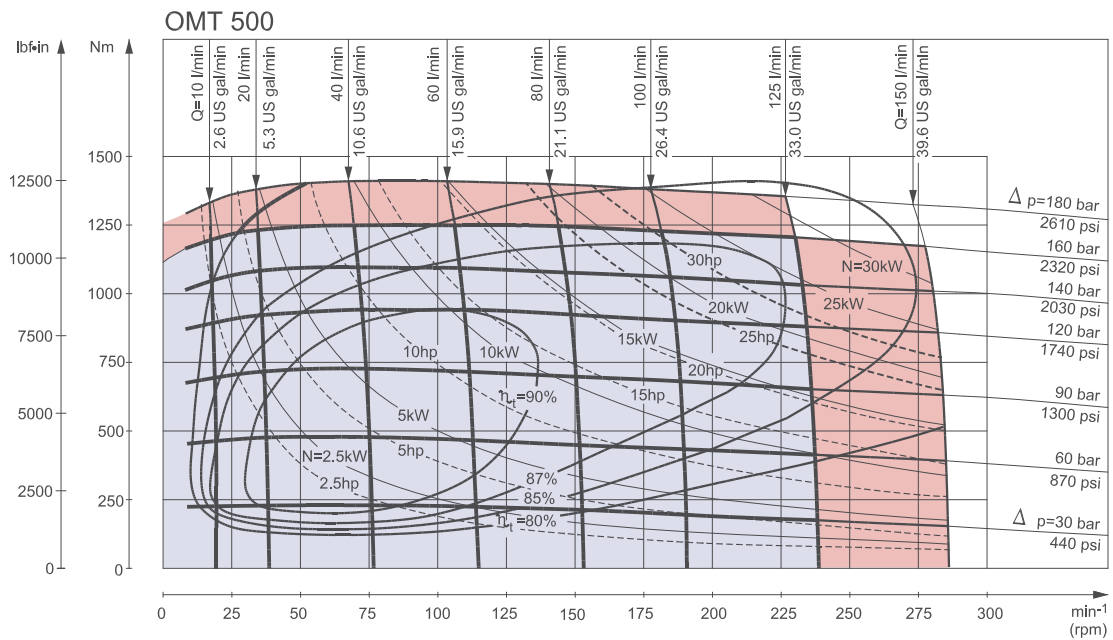
- Continuous range
- Intermittent range (max. 10% operation every minute)

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

FUNCTION DIAGRAMS



151-1058.10



151-1116.10

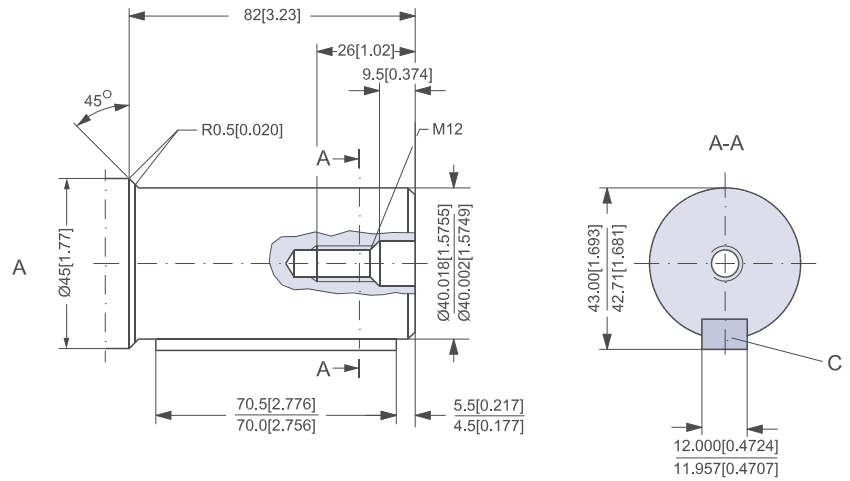
Explanation of function diagram use, basis and conditions can be found on page 5.

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

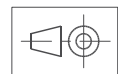
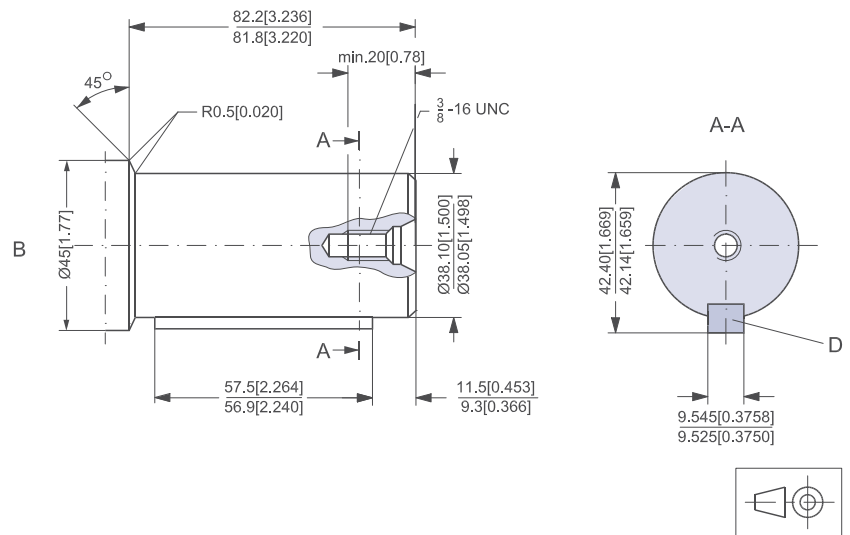
Note: Intermittent pressure drop and oil flow must not occur simultaneously.

SHAFT VERSION

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



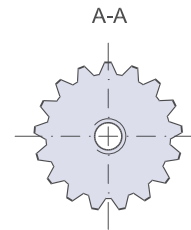
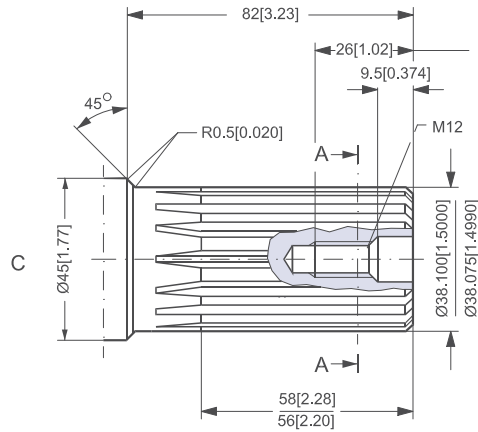
B: Cylindrical 1.5 in shaft
 D: Parallel key
 $\frac{3}{8} \times \frac{3}{8} \times 2\frac{1}{4}$ in
 B.S. 46
 Keyway deviates from standard



151-1032.10

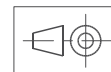
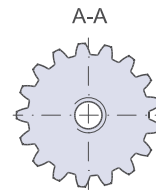
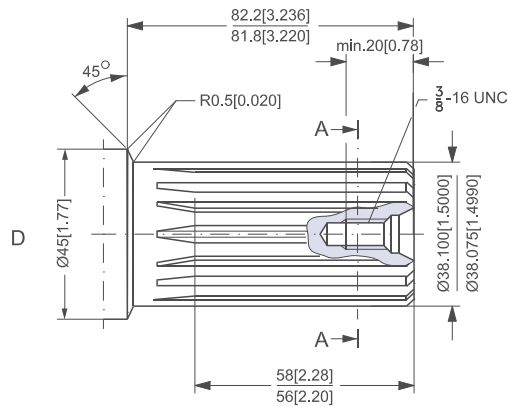
SHAFT VERSION

- 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

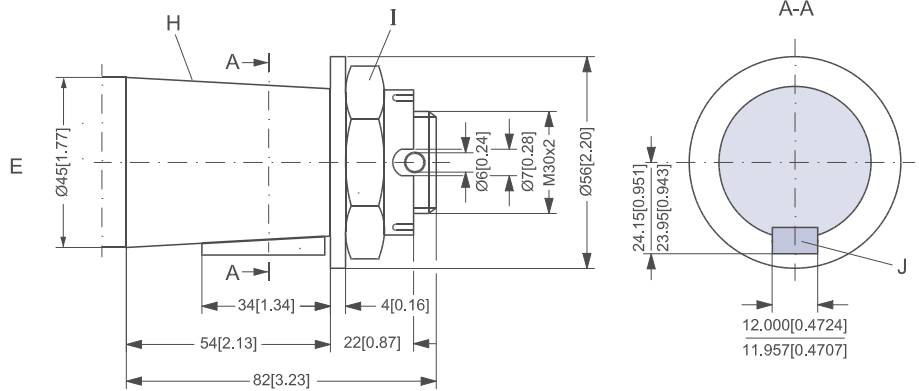
- D. Involute splined shaft
ANS B92.1 - 1970 standard
Flat root side fit
Pitch 12/24
Teeth 17
Major dia. 1.50 in
Pressure angle 30°



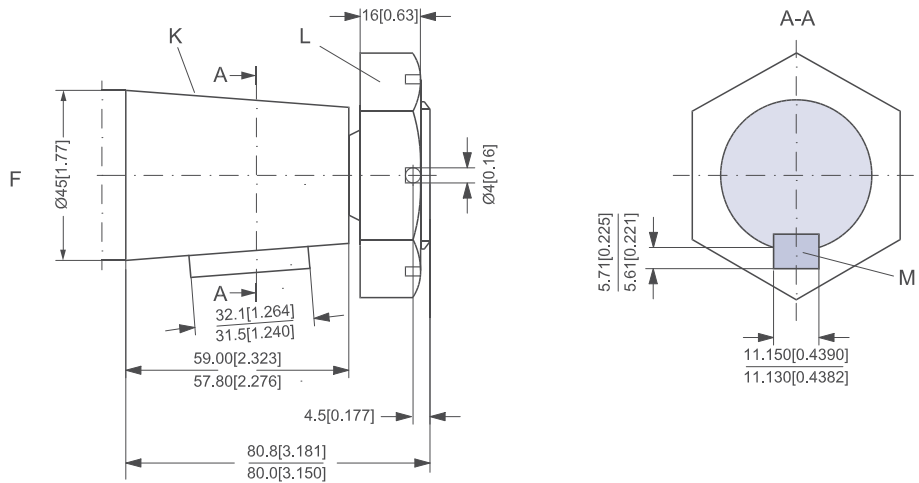
151-1916.10

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

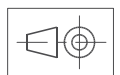
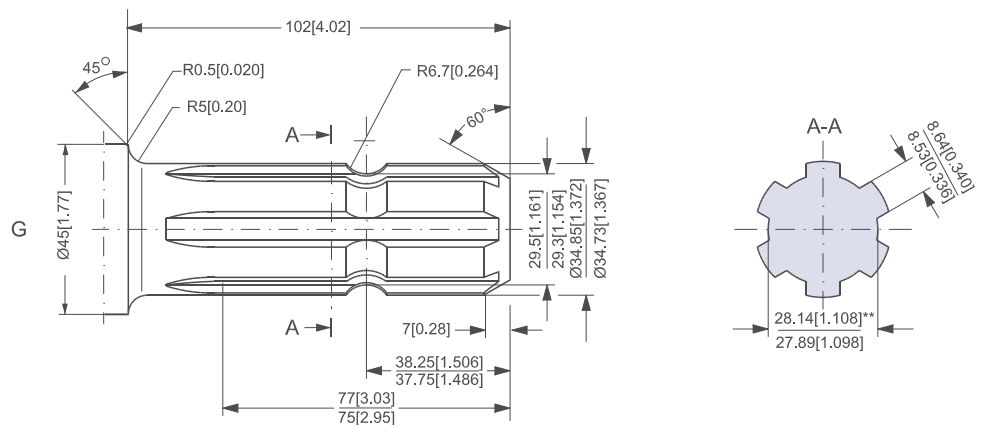


- F: Tapered 1.75 in shaft
- K: Cone 1:8
 SAE J501
- L: 1 1/4 - 18 UNEF
 Across flats 2 3/16 in
 Tightening torque:
 500 ± 10 Nm (4425 ± 90 lbf-in)
- M: Parallel key
 7/16 × 7/16 × 1 1/4
 B.S. 46
 Keyway deviates from standard

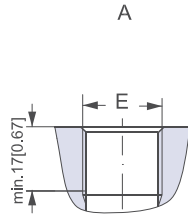


- G. Pt.o shaft
 DIN 9611 Form 1
 (ISO/R500 without pin hole)

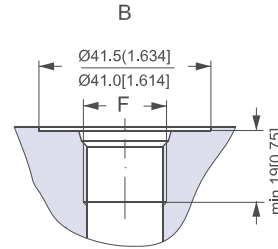
** Deviates from DIN 9611



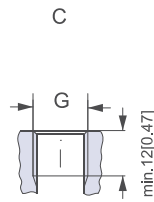
PORT THREAD VERSIONS



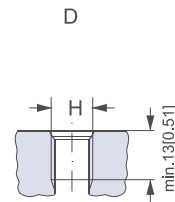
A: G main ports
E: ISO 228/1 - G^{3/4}



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



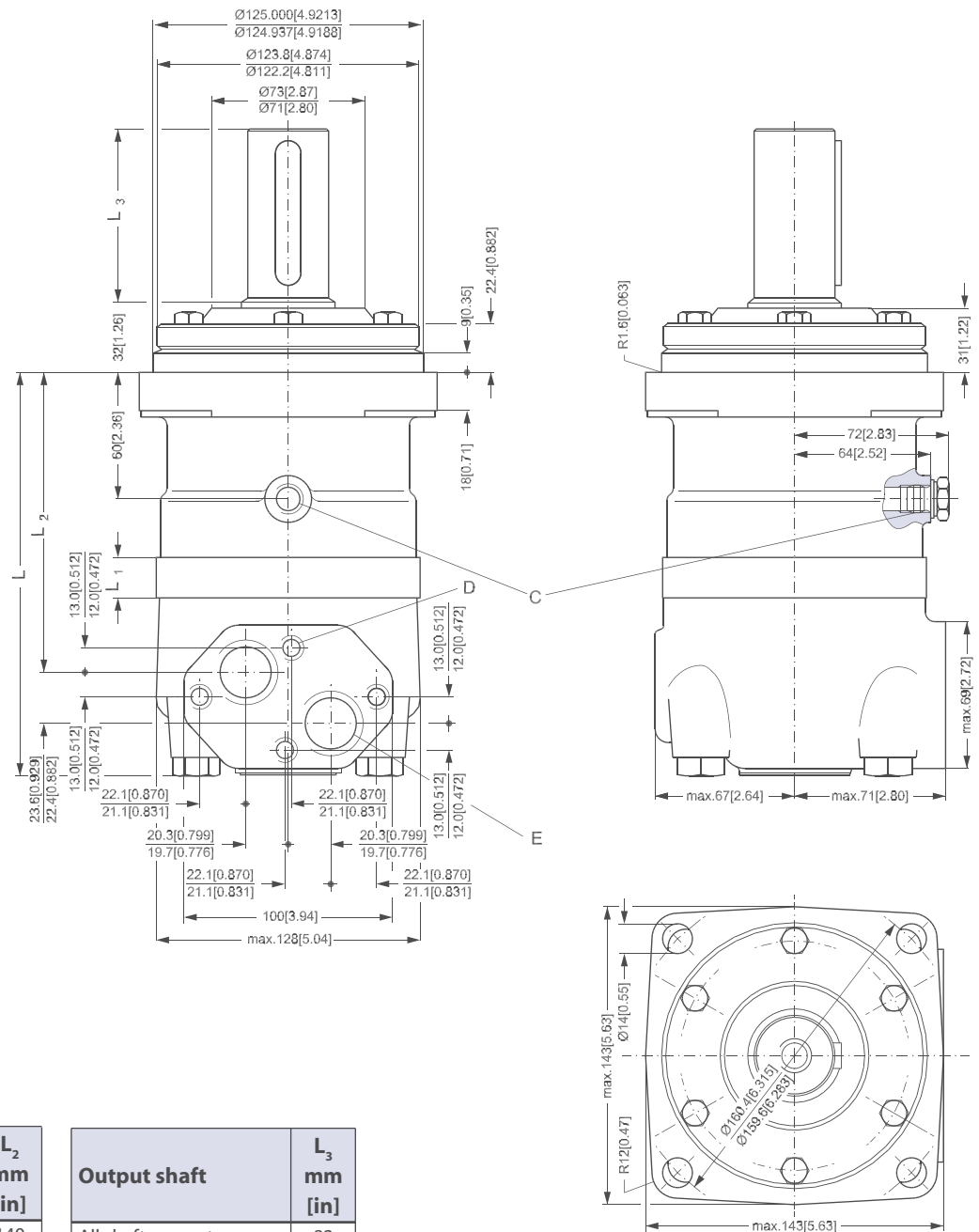
C: G drain port
G: ISO 228/1 - G^{1/4}



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

151-1977.10

STANDARD FLANGE

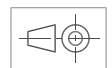


| Type | L _{max.} mm [in] | L _{1*} mm [in] | L ₂ mm [in] |
|---------|---------------------------------|-------------------------------|------------------------------|
| OMT 160 | 190 [7.48] | 16.5 [0.650] | 140 [5.51] |
| OMT 200 | 195 [7.68] | 21.5 [0.846] | 145 [5.71] |
| OMT 250 | 201 [7.91] | 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 Pt.o.shaft | max. 82 [3.23] |
| Pt.o.shaft | max. 102 [4.02] |

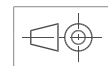
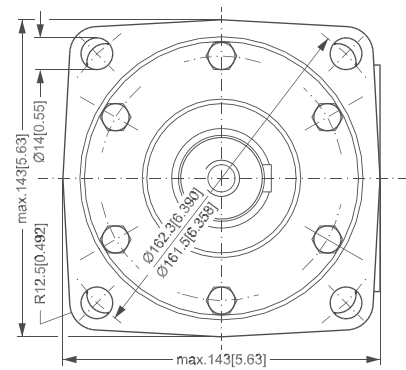
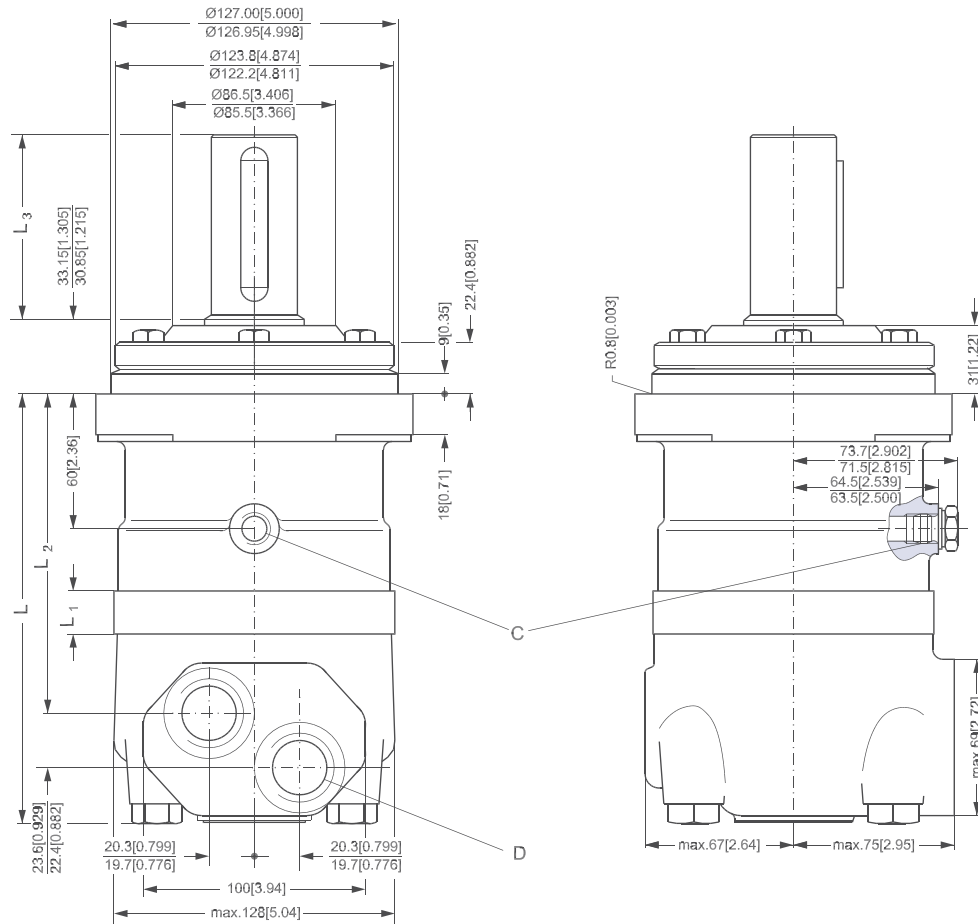
- C: Drain connection
 G 1/4; 12 mm [0.47 in] deep
 D: M10; 10 mm [0.39 in] deep
 E: G 3/4; 17 mm [0.67 in] deep

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



151-889.11

STANDARD FLANGE



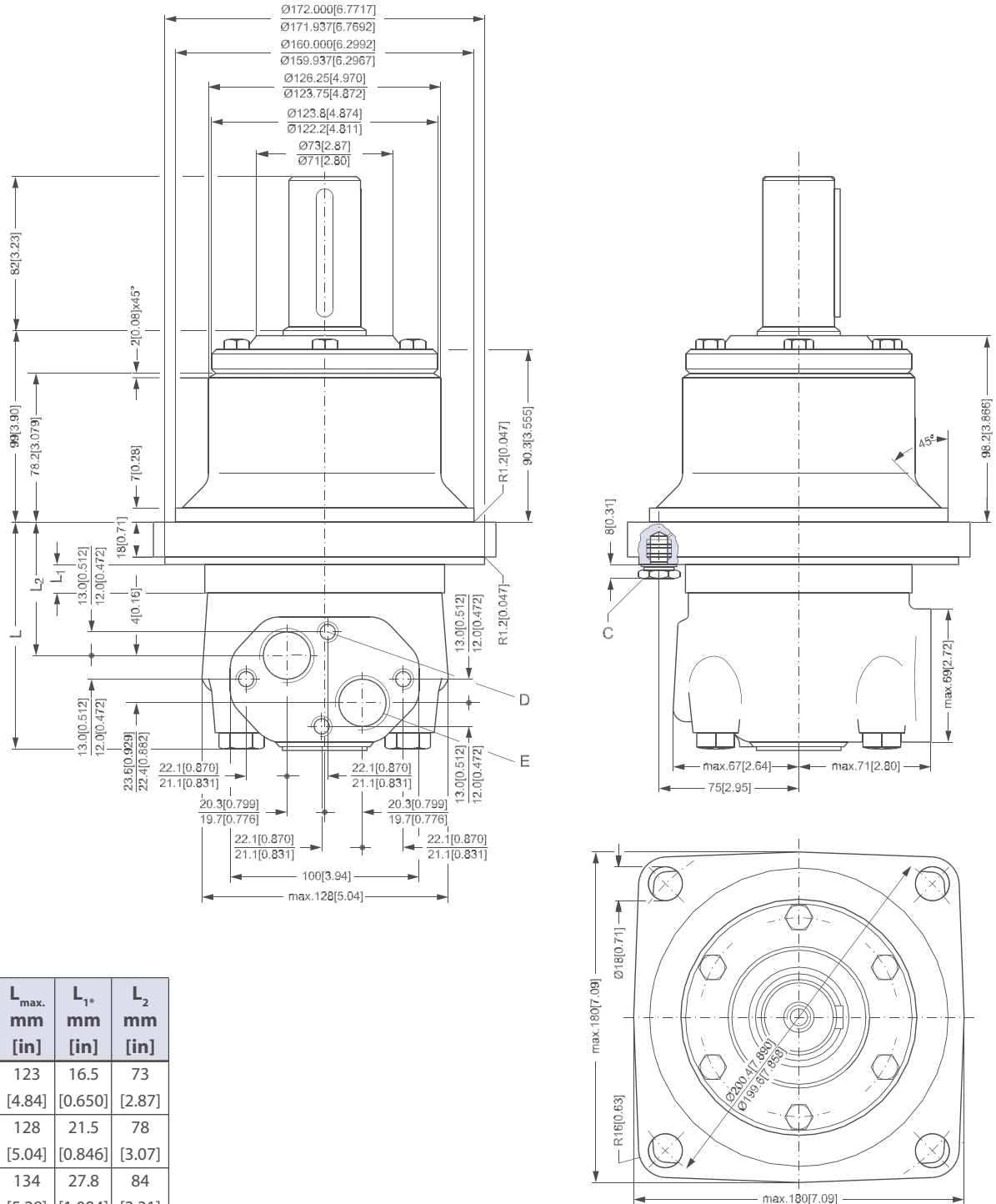
151-889.11..22

| 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 | 82 [3.23] |
| Splined 1.5 in | 80.4 [3.17] |
| Tapered 1.75 in | |

- C: Drain connection
 $\frac{9}{16}$ - 18 UNF;
 13 mm [0.51 in] deep
 O-ring boss port
- D: $1\frac{1}{16}$ - 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

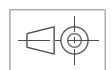
WHEEL



| Type | L _{max.} mm [in] | L _{1*} mm [in] | L ₂ mm [in] |
|------|---------------------------------|-------------------------------|------------------------------|
| OMTW | 123 | 16.5 | 73 |
| 160 | [4.84] | [0.650] | [2.87] |
| OMTW | 128 | 21.5 | 78 |
| 200 | [5.04] | [0.846] | [3.07] |
| OMTW | 134 | 27.8 | 84 |
| 250 | [5.28] | [1.094] | [3.31] |
| OMTW | 144 | 37.0 | 94 |
| 315 | [5.67] | [1.457] | [3.70] |
| OMTW | 154 | 47.5 | 104 |
| 400 | [6.06] | [1.870] | [4.09] |
| OMTW | 168 | 61.5 | 118 |
| 500 | [6.61] | [2.421] | [4.65] |

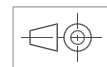
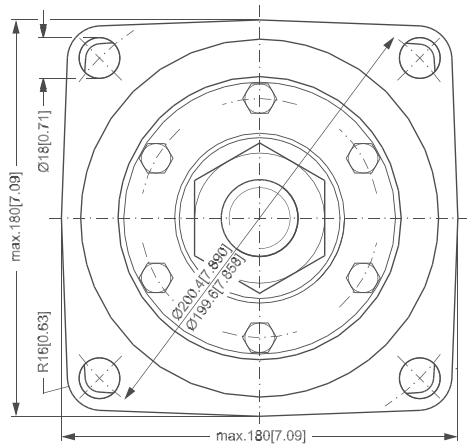
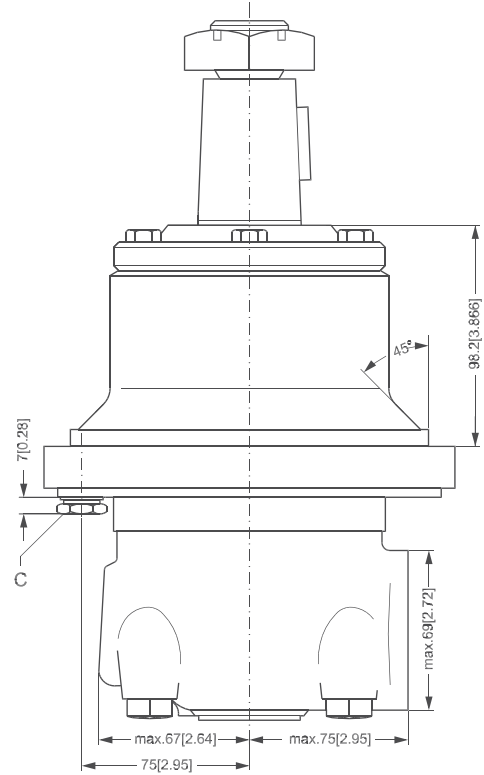
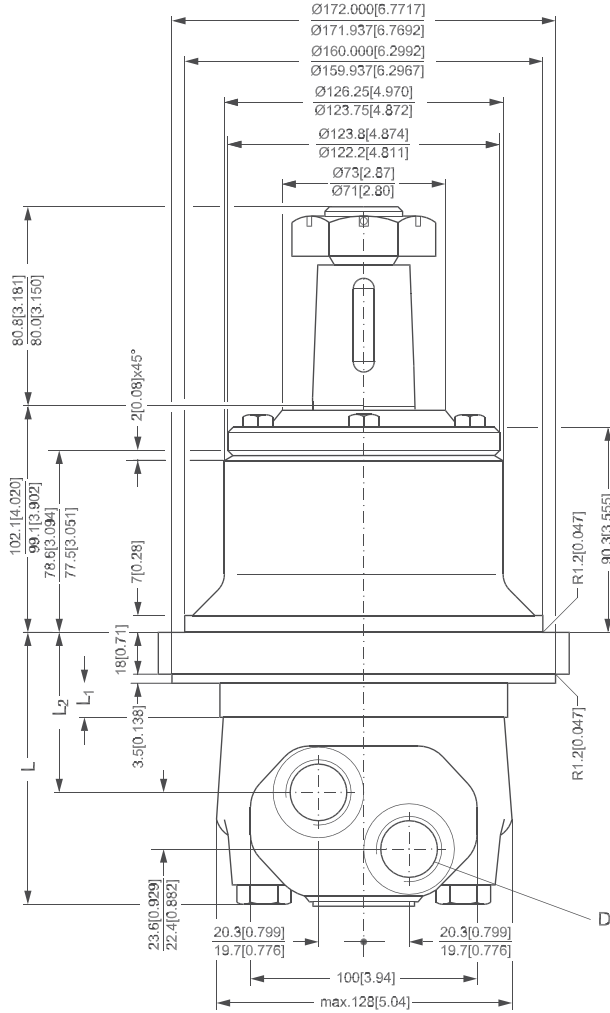
- C: Drain connection
G 1/4; 12 mm [0.47 in] deep
- D: M10; 10 mm [0.39 in] deep
- E: G 3/4; 17 mm [0.67 in] deep

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



151-897.12

WHEEL



151-897.11.22

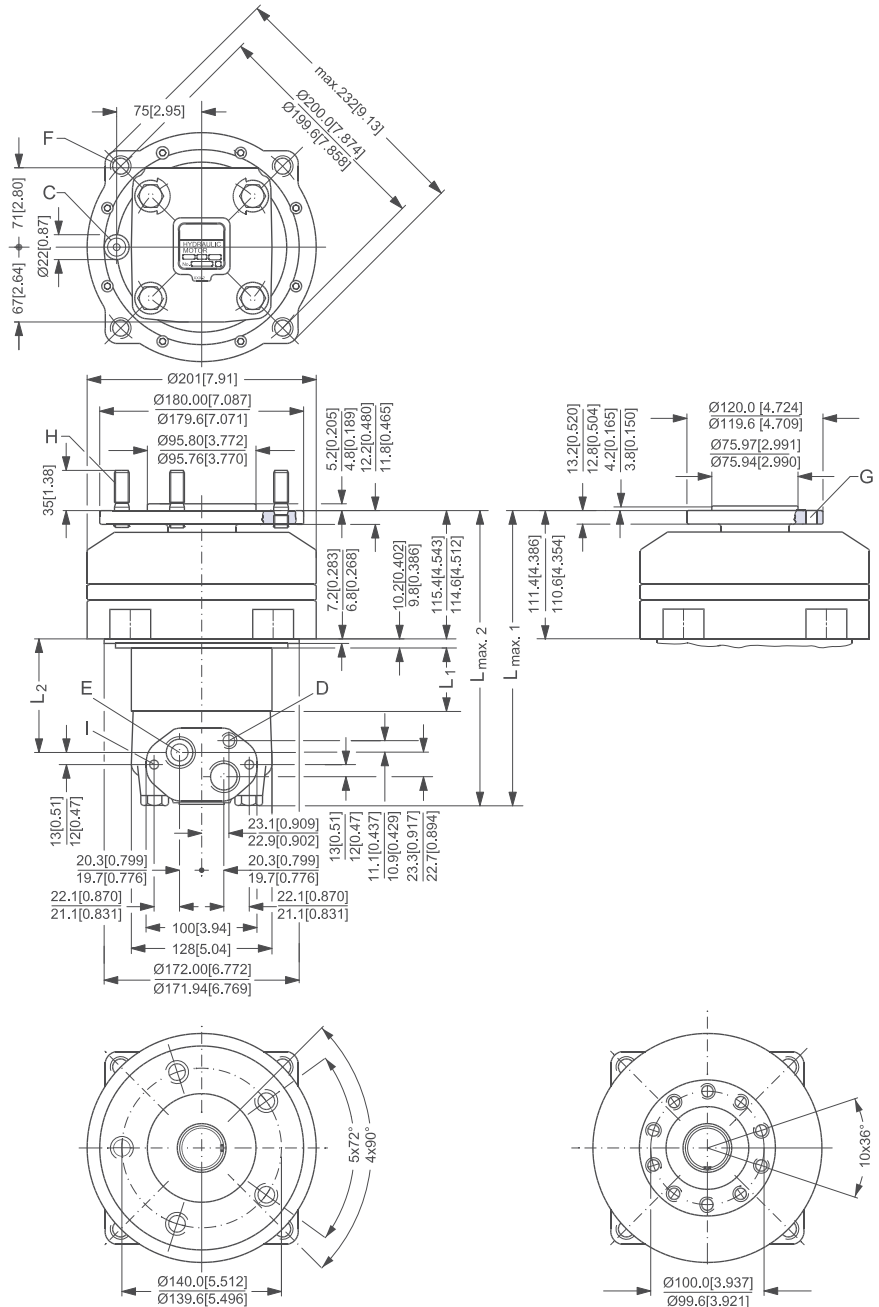
| Type | L _{max.} mm [in] | L _{1*} mm [in] | L ₂ mm [in] |
|------|---------------------------------|-------------------------------|------------------------------|
| OMTW | 123 | 16.5 | 73 |
| 160 | [4.84] | [0.650] | [2.87] |
| OMTW | 128 | 21.5 | 78 |
| 200 | [5.04] | [0.846] | [3.07] |
| OMTW | 134 | 27.8 | 84 |
| 250 | [5.28] | [1.094] | [3.31] |
| OMTW | 144 | 37.0 | 94 |
| 315 | [5.67] | [1.457] | [3.70] |
| OMTW | 154 | 47.5 | 104 |
| 400 | [6.06] | [1.870] | [4.09] |
| OMTW | 168 | 61.5 | 118 |
| 500 | [6.61] | [2.421] | [4.65] |

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

D: $1\frac{1}{16}$ - 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

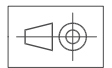
BRAKE-WHEEL



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

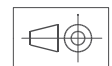
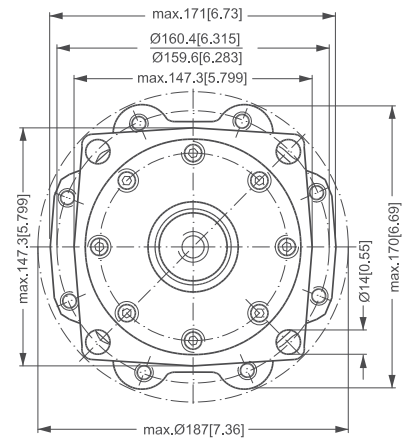
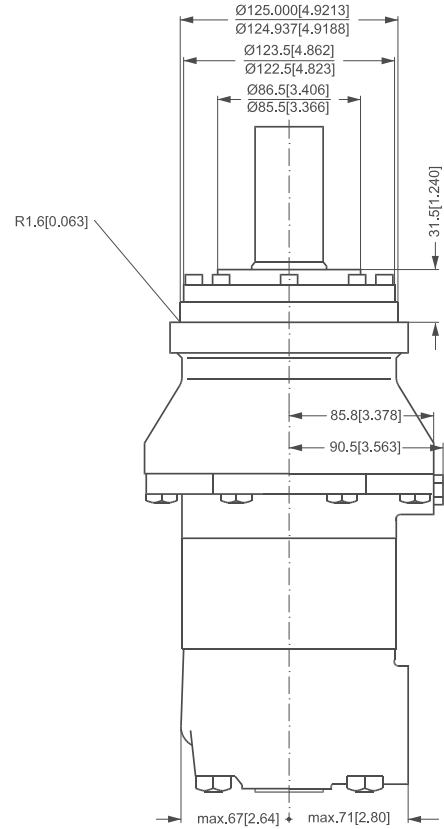
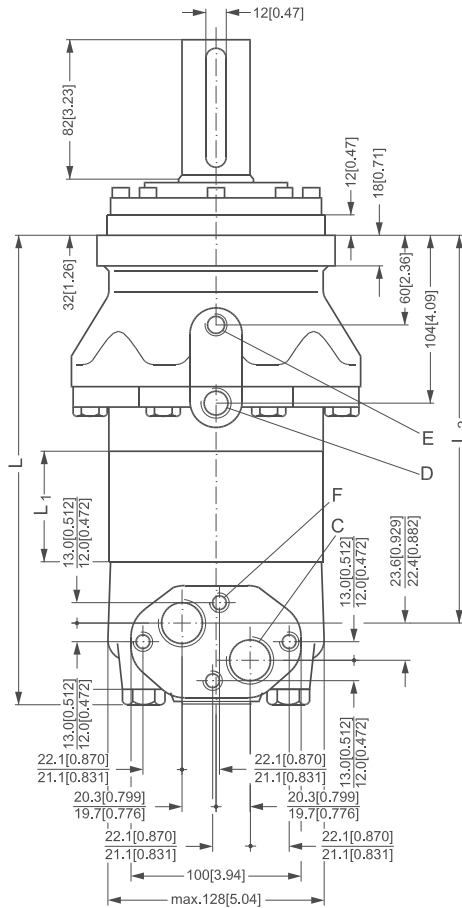
- C: Brake-release port G 1/4;
12 mm [0.47 in] deep (BS/ISO 228/1)
- D: Drain connection G 1/4;
12 mm [0.47 in] deep
- E: G 3/4; 17 mm [0.67 in] deep
- F: 4 × M12; 27 mm [1.06 in] deep
- G: 10 × M12
- H: Wheel bolts 5 × M14 × 1.5
- I: M10; 10 mm [0.39 in] deep

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



151-1443.10

BRAKE-STANDARD



151-1453.10

| Type | L _{max.} mm [in] | L ₁₊ mm [in] | L ₂ mm [in] |
|---------|---------------------------------|-------------------------------|------------------------------|
| OMT 160 | 228 | 16.5 | 178 |
| FL/FH | [8.98] | [0.650] | [7.01] |
| OMT 200 | 233 | 21.5 | 183 |
| FL/FH | [9.17] | [0.846] | [7.20] |
| OMT 250 | 239 | 27,8 | 189 |
| FL/FH | [9.41] | [1.094] | [7.44] |
| OMT 315 | 248 | 37.0 | 199 |
| FL/FH | [9.76] | [1.457] | [7.83] |
| OMT 400 | 259 | 47.5 | 209 |
| FL/FH | [10.20] | [1.870] | [8.23] |
| OMT 500 | 273 | 61.5 | 223 |
| FL/FH | [10.75] | [2.421] | [8.78] |

C: G³/₄; 17 mm [0.67 in] deep
 (BS/ISO 228/1)

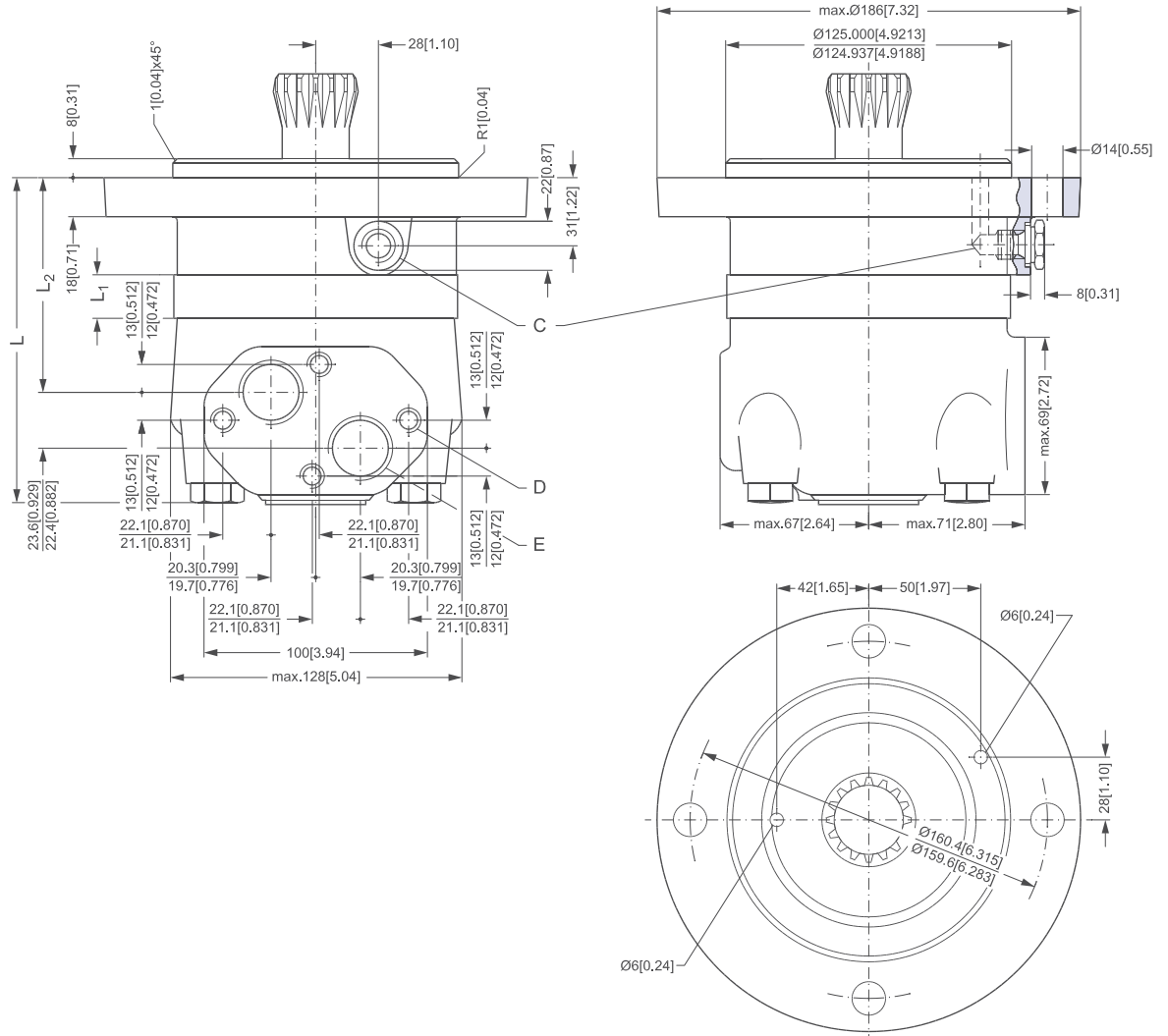
D: Drain connection
 G³/₈; 14 mm [0.55 in] deep

E: Brake-release port G¹/₄;
 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 L₁ dimensions

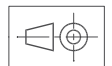
SHORT



| Type | L _{max.} mm [in] | L ₁ * mm [in] | L ₂ mm [in] |
|------|---------------------------------|--------------------------------|------------------------------|
| OMTS | 146 | 16.5 | 96 |
| 160 | [5.75] | [0.650] | [3.78] |
| OMTS | 151 | 21.5 | 101 |
| 200 | [5.94] | [0.846] | [3.98] |
| OMTS | 157 | 27.8 | 107 |
| 250 | [6.18] | [1.094] | [4.21] |
| OMTS | 166 | 37.0 | 116 |
| 315 | [6.54] | [1.457] | [4.57] |
| OMTS | 177 | 47.5 | 127 |
| 400 | [6.97] | [1.870] | [5.00] |
| OMTS | 191 | 61.5 | 142 |
| 500 | [7.52] | [2.421] | [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 L₁ dimensions



151-898.11

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.

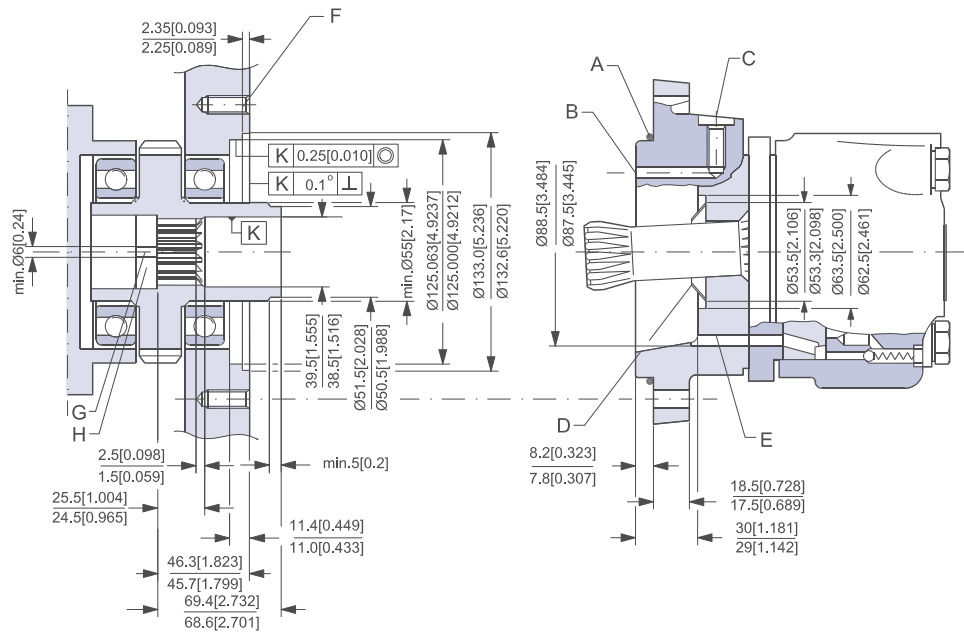
During start and operation it is important that the spline connection and the bearings in the attached component receive oil and are adequately lubricated. To ensure that the spline connection receives sufficient oil, a conical sealing ring between the shaft of the attached component and the motor intermediate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

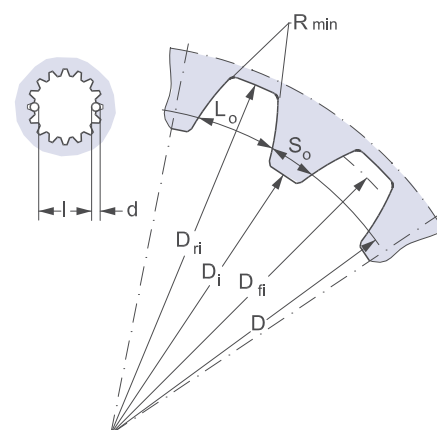
- On the surface: HV = 750 ± 50
- 0.7 ± 0.2 mm under the surface: HV = 560

Internal involute spline data

Standard ANS B92.1-1970, class 5 (corrected $m \cdot X = 1; m = 2.1166$)

| 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 ^{±0.037} | 0.1777 ^{±0.0014} |
| Tooth thickness (circular) | S _o | 2.170 | 0.0854 |
| Fillet radius | R _{min} | 0.5 | 0.02 |
| Max. measurement l between pins* | | 26.9 ^{+0.1} ₀ | 1.059 ^{+0.004} ₀ |
| Pin dia. | d | 4.834 ^{±0.001} | 0.1903 ^{±0.00004} |

* 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.