

T1 Pump

The T1 fixed displacement pump is a further development of series T1, which was specifically designed to meet the requirements of light duty truck applications with short, non-frequent operating cycles such as tippers, and small loaders.

The design is very similar to that of the F1 series pumps but is even more compact. It utilises our well proven 45° concepts with spherical pistons and laminated piston rings, offering high volumetric and mechanical efficiencies and, thanks also to the small number of parts, unprecedented reliability.

- Shaft speed to 2300 rpm
- Operating pressure up to 350 bar
- High overall efficiency
- Low weight
- Small installation dimensions
- Robust construction

The T1, with shaft and mounting flange configuration conforming to the European standard, can be installed on most European truck gearboxes. Suitable power-take-offs are also available from Parker Hannifin.

See page 34



Find more information on
the T1 product page.



Typical T1 applications

- Front end tippers
- Under body tippers
- Hydraulic system infrequently used and with short cycle times.

T1 Pump



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Specifications

Frame size T1-	81	121
Displacement [cm ³ /rev]	81.5	118.5
Max flow ¹⁾ [l/min]	163	190
Max operating pressure [bar]		
continuous	250	250
intermittent ³⁾	350	350
Shaft speed [rpm]		
- short circuited pump (low press.)	2300	2300
max speed ²⁾	2000	1600
Torque ¹⁾ [Nm]		
at 200 bar	258	376
at 350 bar	453	658
Max input power ³⁾ [kW]	95	111
Weight [kg]	8.5	12.5

¹⁾ Theoretical values

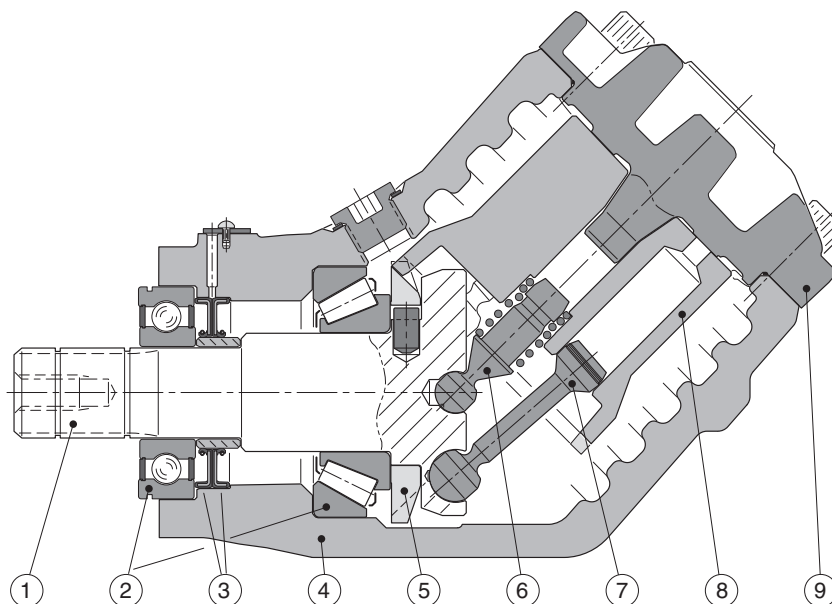
²⁾ Valid at an inlet pressure of 1.0 bar (abs.) when operating on mineral oil at a viscosity of 30 mm²/s (cSt).

³⁾ Max 6 seconds in any one minute.

NOTE: For noise level information, contact Parker Hannifin.

Pump cross section

(T1-121 shown)

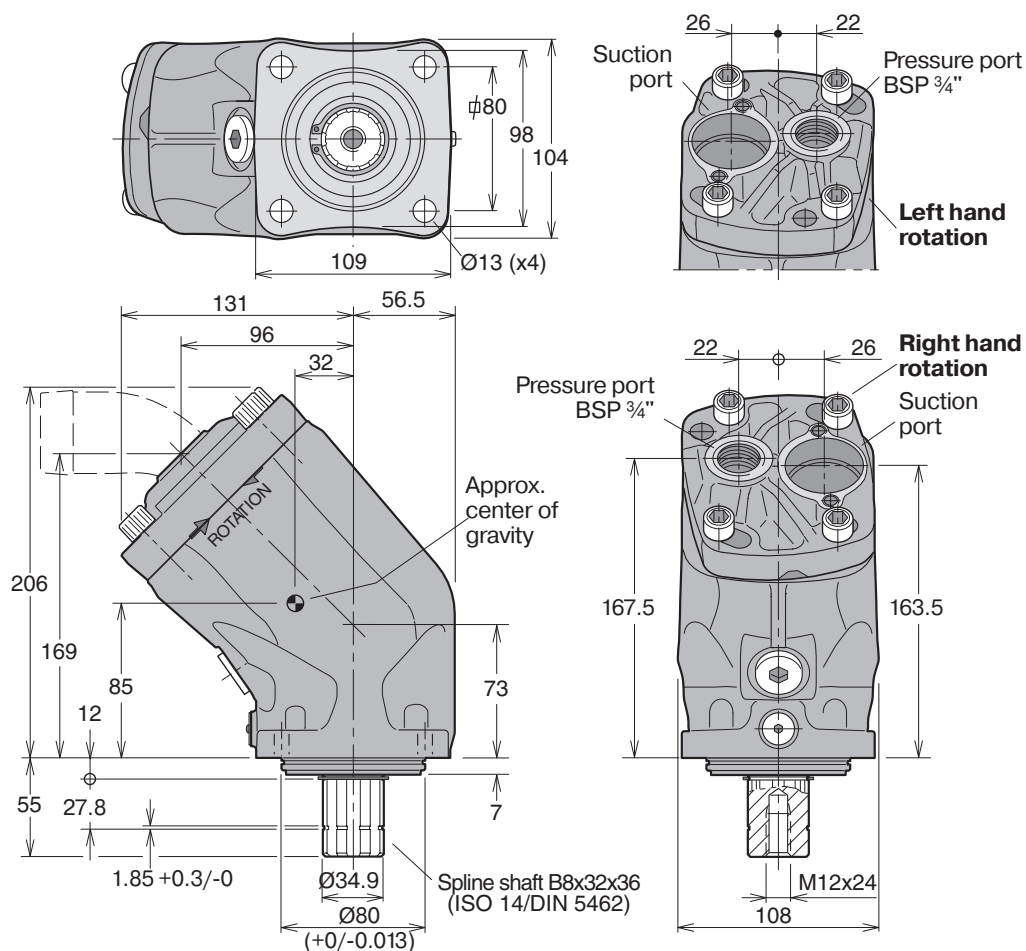


1. Input shaft
2. Bearings
3. Shaft seals

4. Housing
5. Timing gear
6. Barrel support

7. Piston with piston ring
8. Cylinder barrel
9. End cap

T1-81



Ordering code

Example:

T1 - 81 - R

T1 frame size
81 or 121

Shaft rotation
R Right hand
L Left hand

Port size

T1 frame size	Pressure port ¹⁾
-81	3/4"
-121	1"

¹⁾ BSP thread (fitting not included).

Standard versions

Designation	Ordering no.
T1-81-R	378 2180
T1-81-L	378 2181
T1-121-R	378 2120
T1-121-L	378 2121

NOTE: The pump **does not** include a suction fitting; it must be ordered separately. See page 63ff.

Technical drawings of the 1000 Series Hydraulic Motor, showing front, side, and top views with dimensions and labels.

Front View (Top Left): Shows the motor's front face with a central port. Dimensions include a width of 110, a height of 114, and a central port diameter of $\varnothing 80$. Four mounting holes are spaced $\varnothing 13$ (x4).

Side View (Bottom Left): Shows the motor's profile. Dimensions include a total width of 144, a mounting flange width of 108, and a base width of 63. The height is 119. The base material is labeled "Al-Si10Mg". The bottom flange has a diameter of $\varnothing 34.9$ and a spline of "Spline B8x32x36 (ISO 14/DIN 5462)". The bottom flange has a thickness of $.85 +0.3/-0$. The bottom flange has a diameter of $\varnothing 80$ and a tolerance of $(+0/-0.013)$. The bottom flange has a height of 7. The motor is labeled "R ROTATION L". The center of gravity is indicated as "Approx. center of gravity".

Top View (Right): Shows the motor's top face with two ports. Dimensions include a width of 118 and a height of 217. The ports are labeled "Suction port" and "Pressure port BSP 1\"". The motor is labeled "Left hand rotation".

Bottom View (Right): Shows the motor's bottom face with two ports. Dimensions include a width of 118 and a height of 213. The ports are labeled "Suction port" and "Pressure port BSP 1\"". The motor is labeled "Right hand rotation".

Basic formulas for hydraulic pumps

Flow (q)	D – displacement [cm ³ /rev]
$q = \frac{D \times n \times \eta_v}{1000}$ [l/min]	n – shaft speed [rpm]
	η_v – volumetric efficiency
Torque (M)	Δp – differential pressure [bar] (between inlet and outlet)
$M = \frac{D \times \Delta p}{63 \times \eta_{hm}}$ [Nm]	η_{hm} – mechanical efficiency
Power (P)	η_t – overall efficiency ($\eta_t = \eta_v \times \eta_{hm}$)
$P = \frac{q \times \Delta p}{600 \times \eta_t}$ [kW]	

Conversion factors

1 kg	2.20 lb
1 N.....	0.225 lbf
1 Nm.....	0.738 lbf ft
1 bar	14.5 psi
1 l	0.264 US gallon
1 cm ³	0.061 cu in
1 mm	0.039 in
$\frac{9}{5} \text{ } ^\circ\text{C} + 32$	1°F
1 kW.....	1.34 hp

On our website, www.parker.com/pmde,
you can find:
2D & 3D drawings,
Installation Manuals,
Service Manuals,
Spare Parts Lists