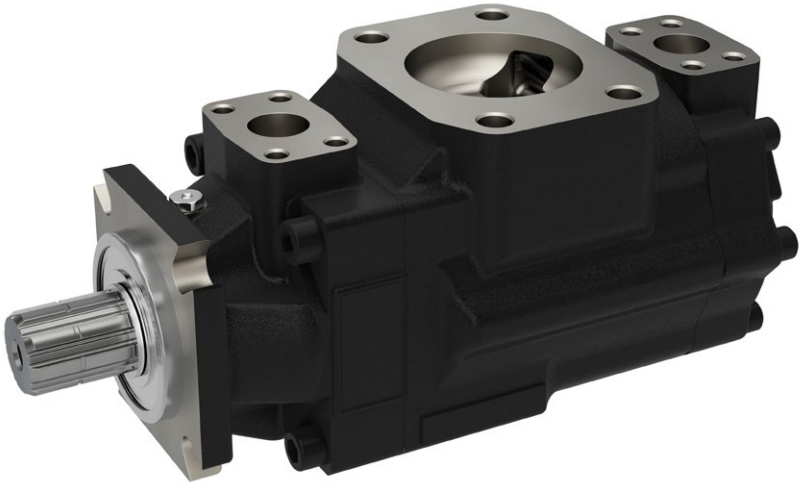

# HYDRAULIC VANE PUMP T7G SERIES

For electric, hybrid & diesel trucks

Parker

eReady™

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- The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.
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If you have questions about the products contained in this catalog, or their applications, please contact:
**Parker Hannifin EMEA Sàrl European Headquarters**
parker.com/msge

# GENERAL INFORMATION

## The T7G hydraulic pumps

### Introduction

With great pleasure and proudness, Parker Hannifin is presenting its new T7G Series of hydraulic pumps for trucks.

New stronger housings combined with our latest technology of Variable Speed Driven pumping units, this family of single and double hydraulic vane pumps is ready for installation on any kind of truck using the ISO 7653 mounting standard.

A family of Vane pumps designed for the heavy-duty applications offering optimal performances, lifetime and money savings for our OEM customers and end users.

These high-quality products are the result of years of constant improvements of the only and well-known Parker Denison Technology expertise.


### Product key features

**High performance**
- Enhanced pressure capability and high operating speeds for best efficiencies
- Better cold start capability with the Variable Speed Driven technology
- eLoad Sense ready Variable Speed Driven technology

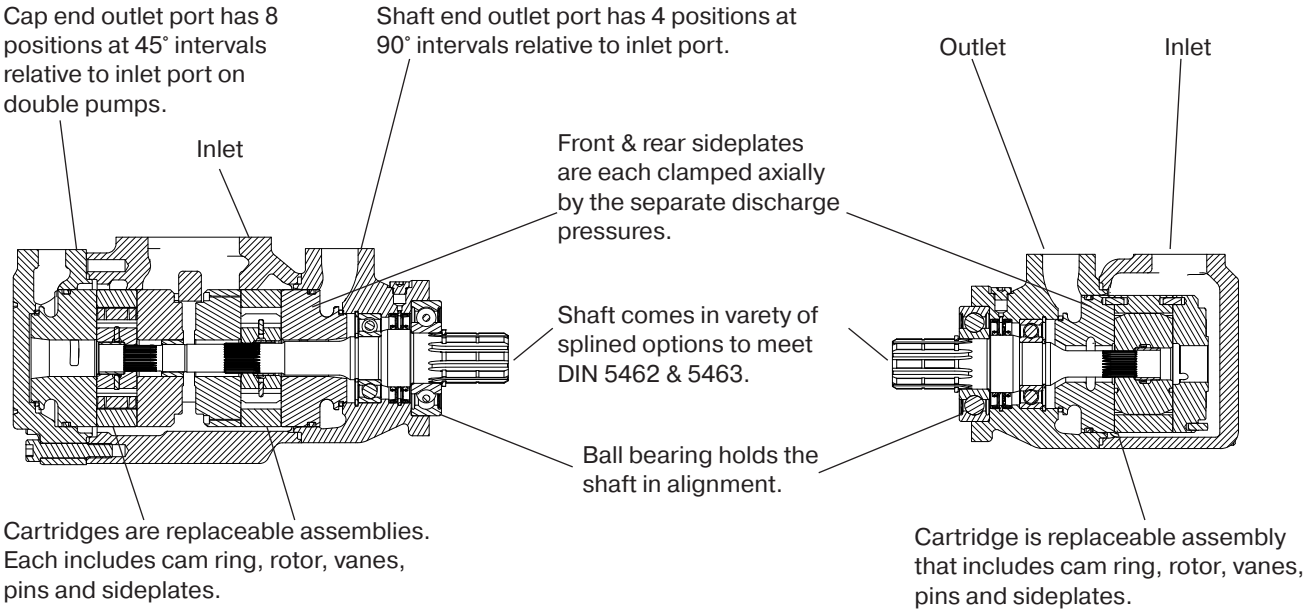
**Low noise**
The Denison Vane Technology allows very low noise levels over the entire operating range and during the whole life of the pump.

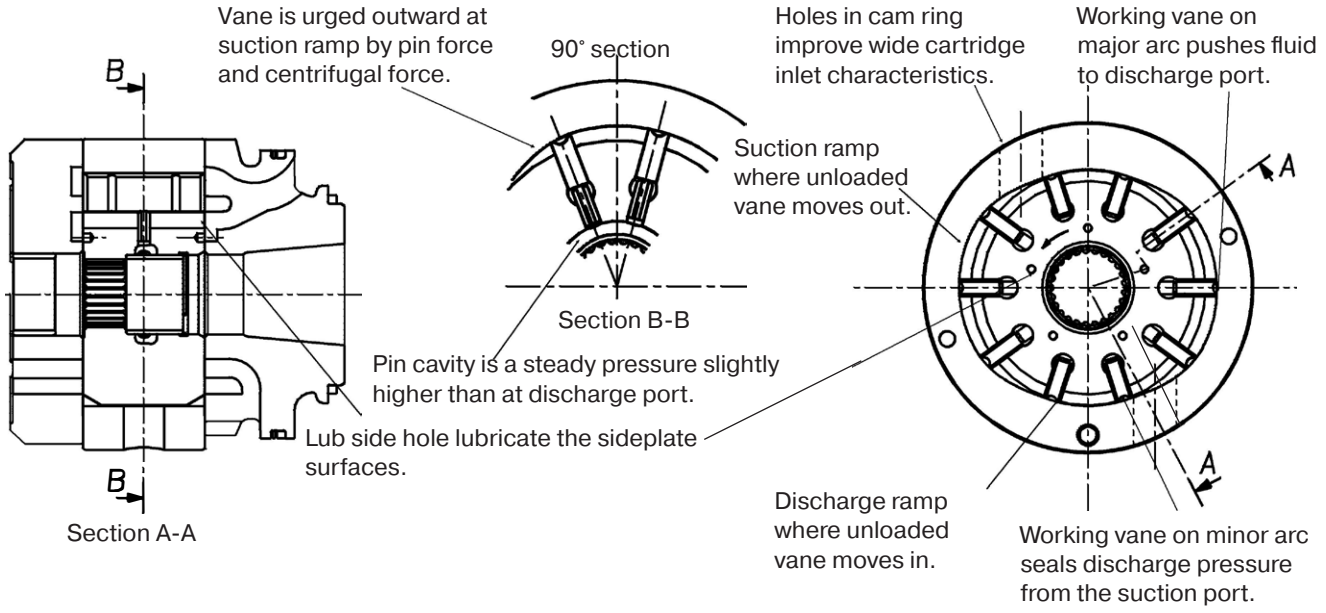
**Reliable performance**
The T7G hydraulic pumps are offering a wide operation speed range, and like all our T7G Series vane pumps, their performances do remain very stable over time, making these pumps an ideal solution for modern hydraulically operated machines.

**Environment friendly**
In addition to being almost fully recyclable, the T7G hydraulic pumps may also run with HEES Bio oils, helping the planet to stay clean.

**Versatility and compactness**
Shorter length and lighter bodies. The T7G Series is offering an easier installation that is respecting the specifications of the truck manufacturers.
Several displacements for the same installation size
Available as single or double pumps, with many different displacements to match with the application needs.

# Description of the T7G pumps



# MAIN TECHNICAL DATA

## Speed and pressure ratings

| Single pumps | | Theoretical Displacement Vi | Minimum Speed | Maximum Speed HF0. HF2 HF6a. HF6b | Maximum Pressure HF0. HF2. HF6a. HF6b | | |
|---|---|---|---|---|---|---|---|
| Type | Ring | | | | Peak | Int. | Cont. |
| | | $cm^3/rev.$ | rpm | rpm | bar | bar | bar |
| T7GC | M03 | 10.8 | 400 | *2800 | 300 | 275 | 240 |
| | M05 | 17.2 | | | | | |
| | M06 | 21.3 | | | | | |
| | M08 | 26.4 | | | | | |
| | M10 | 34.1 | | | | | |
| | M12 | 37.1 | | | | | |
| | M14 | 46.0 | | | | | |
| | M17 | 58.3 | | *2500 | | | |
| | M20 | 63.8 | | | | | |
| | M22 | 70.3 | | | | | |
| | M25 | 79.3 | | | | | |
| | M28 | 88.8 | | | 230 | 210 | 160 |
| | M31 | 100.0 | | | | | |
| T7GB | E03 | 9.8 | 150 | 3600 | 350 | 300 | 275 |
| | E04 | 12.8 | | | | | |
| | E05 | 15.9 | | | | | |
| | E06 | 19.8 | | | | | |
| | E07 | 22.5 | | | | | |
| | E08 | 24.9 | | | | | |
| | E09 | 28.0 | | | | | |
| | E10 | 31.8 | | | | | |
| | E11 | 35.0 | | 3400 | | | |
| | E12 | 41.0 | | 3000 | | | |
| | E14 | 45.0 | | | | | |
| | E15 | 50.0 | | 2700 | 330 | 280 | 240 |
| T7GC | E17 | 58.3 | 200 | 2400 | 290 | 260 | 230 |
| | E20 | 63.8 | | 2200 | | | |
| | E22 | 70.3 | | 2000 | | | |
| | E25 | 79.3 | | 1800 | | | |

HF0, HF2 = Antiwear Petroleum Base

HF6a = HEES saturated Bio fluids

HF6b = HEES partially saturated Bio fluids

Note : For further information or if the performance characteristics outlined in the table do not meet your particular requirements, please consult your local Parker office.

*Please be sure that the inlet velocity is under 1.9 m/sec.

# Speed and pressure ratings

| Double pumps | | Theoretical Displacement Vi | Minimum Speed | Maximum Speed HF0. HF2 HF6a. HF6b | Maximum Pressure HF0. HF2. HF6a. HF6b | | |
|---|---|---|---|---|---|---|---|
| | | | | | Peak | Int. | Cont. |
| Type | Ring | $cm^3/rev.$ | rpm | rpm | bar | bar | bar |
| T7GCC | M03 | 10.8 | 400 | *2800 | 300 | 275 | 240 |
| | M05 | 17.2 | | | | | |
| | M06 | 21.3 | | | | | |
| | M08 | 26.4 | | | | | |
| | M10 | 34.1 | | | | | |
| | M12 | 37.1 | | | | | |
| | M14 | 46.0 | | | | | |
| | M17 | 58.3 | | | | | |
| | M20 | 63.8 | | | | | |
| | M22 | 70.3 | | | | | |
| | M25 | 79.3 | | *2500 | | | |
| | M28 | 88.8 | | | | | |
| | M31 | 100.0 | | | 230 | 210 | 160 |
| T7GBB | E03 | 9.8 | 150 | 3600 | 350 | 300 | 275 |
| | E04 | 12.8 | | | | | |
| | E05 | 15.9 | | | | | |
| | E06 | 19.8 | | | | | |
| | E07 | 22.5 | | | | | |
| | E08 | 24.9 | | | | | |
| | E09 | 28.0 | | | | | |
| | E10 | 31.8 | | | | | |
| | E11 | 35.0 | | 3400 | | | |
| | E12 | 41.0 | | 3000 | | | |
| | E14 | 45.0 | | | | | |
| | E15 | 50.0 | | 2700 | 330 | 280 | 240 |

HF0, HF2 = Antiwear Petroleum Base

HF6a = HEES saturated Bio fluids

HF6b = HEES partially saturated Bio fluids

Note : For further information or if the performance characteristics outlined in the table do not meet your particular requirements, please consult your local Parker office.

*Please be sure that the inlet velocity is under 1,9 m/sec.

# Inlet pressure range

**- Minimum inlet pressure :**

Read the minimum inlet pressure requirement in the below table, depending on the pump type, ring size and its maximum operating speed. Never work under 0.8 bar Absolute (11.6 psi Absolute).

| Cartridge | | Theoretical Displacement Vi ($cm^3$/rev.) | Speed (rpm) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Type | Ring | | 1800 | 2100 | 2200 | 2300 | 2500 | 2800 | 3000 | 3100 | 3400 | 3600 |
| C | M03 | 10.8 | 0.80 | 0.80 | 0.80 | 0.80 | 0.90 | 1.00 | | | | |
| | M05 | 17.2 | | | | | | | | | | |
| | M06 | 21.3 | | | | | | | | | | |
| | M08 | 26.4 | | | | | | | | | | |
| | M10 | 34.1 | | | | | | | | | | |
| | M12 | 37.1 | | | | 0.85 | 0.92 | | | | | |
| | M14 | 46.0 | | | | | 0.95 | | | | | |
| | M17 | 58.3 | | | 0.85 | 0.90 | | 1.03 | | | | |
| | M20 | 63.8 | | | | | | | | | | |
| | M22 | 70.3 | | 0.85 | 0,90 | | 0.98 | 1.05 | | | | |
| | M25 | 79.3 | | 0.90 | 0.95 | 0.95 | 1.05 | | | | | |
| | M28 | 88.8 | | | 0.98 | 0.98 | 1.08 | | | | | |
| | M31 | 100.0 | | | | 1.00 | 1.11 | | | | | |
| B | E03 | 9.8 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| | E04 | 12.8 | | | | | | | | | | |
| | E05 | 15.9 | | | | | | | 0.82 | 0.85 | 0.92 | 0.98 |
| | E06 | 19.8 | | | | | | | | | | |
| | E07 | 22.5 | | | | | | | 0.85 | 0.88 | 0.98 | 1.05 |
| | E08 | 24.9 | | | | | | | | | | |
| | E09 | 28.0 | | | | | | | 0.90 | 0.94 | 1.07 | 1.15 |
| | E10 | 31.8 | | | | | | | | 0.96 | 1.15 | |
| | E11 | 35.0 | | | | | | | | | | |
| | E12 | 41.0 | | | | | | | | | | |
| | E14 | 45.0 | | | | | 0.84 | 0.9 | 1.13 | | | |
| | E15 | 50.0 | | | | | | | | | | |
| C | E17 | 58.3 | 0.80 | 0.80 | 0.85 | 0.90 | 0.95 | 1.03 | | | | |
| | E20 | 63.8 | | | | | | | | | | |
| | E22 | 70.3 | | 0.85 | 0.90 | | 0.98 | 1.05 | | | | |
| | E25 | 79.3 | | 0.90 | 0.95 | 0.95 | 1.05 | | | | | |

Inlet pressure is measured at inlet flange with petroleum base fluids at viscosity between 10 and 65 cSt. The difference between inlet pressure at the pump flange and atmospheric pressure must not exceed 0.2b bar to prevent aeration.

Multiply absolute pressure by 1.1 for HF-6a and HF-6b fluids.

For double pumps, take the value of the cartridge requiring the highest absolute pressure.

**- Maximum inlet pressure :**

Read the information on the product key sheet page.
Standard shaft seals are limited to 0.7 bar (10 psig) but some allow 7 bar (100 psig).

# Outlet pressure range

**- Minimum outlet pressure :**

It is recommended to always keep at least 1.5 bar (22 psi) differential between inlet and outlet.

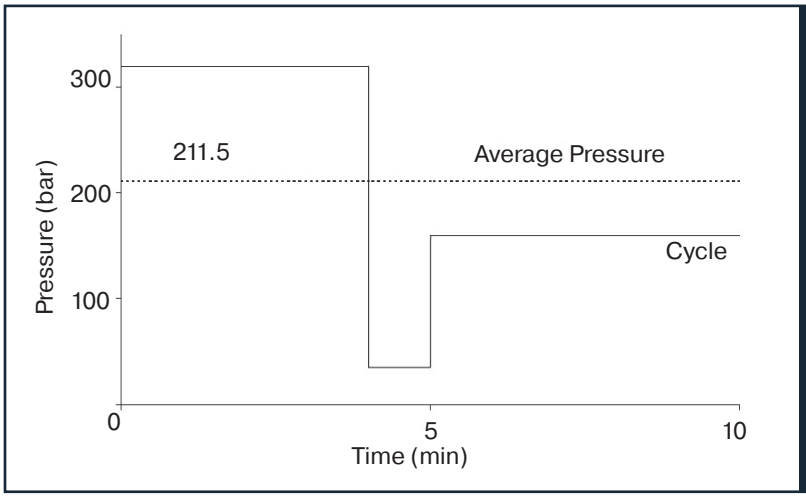
**- Maximum outlet pressure :**

Please read the charts in this catalogue for the Max continuous and the Max intermittent pressure ratings. Depending on the average pressure in cycle, either the continuous or the intermittent will be the limit.

**- Average pressure in cycle :**

These Pumps may be operated intermittently at pressures higher than the recommended continuous rating when the time weighted average of pressure is less than or equal to the continuous duty pressure rating. This intermittent pressure rating calculation is only valid when the other parameters : speed, fluid, viscosity and contamination level are respected.

For total cycle time longer than 15 minutes, please consult your Parker representative.




**Example : T7GB E10**

Duty cycle 4 min. at 320 bar

1 min. at 35 bar

5 min. at 160 bar

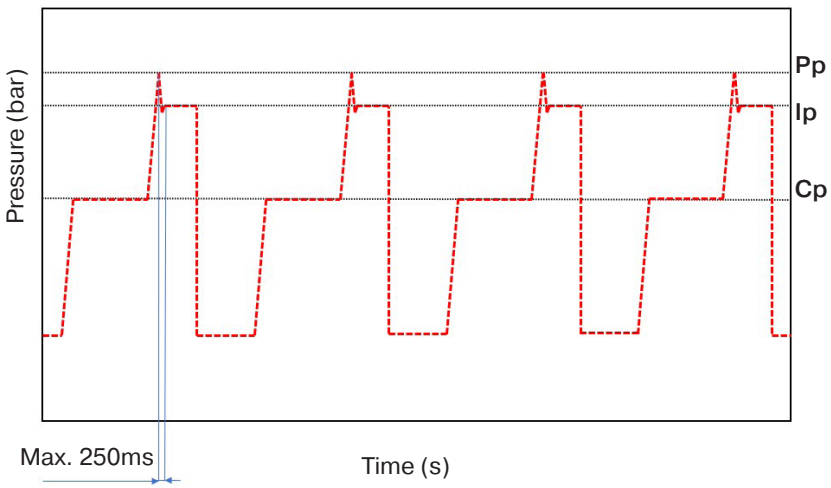
$$\frac{(4 \times 320) + (1 \times 35) + (5 \times 160)}{10} = 211.5 \text{ bar}$$

211.5 bar is lower than 290 bar allowed as continuous

pressure for T7GB E10 with HF-0 fluid.

**Peak pressure definition (Pp):**

Is the maximum pressure allowed and it corresponds to the overshoot of the relief valve.
Relief valve setting and overshoot must be lower than their limits.
If the relief valve setting is lower than the limit but the overshoot is higher, then the relief valve setting must be decreased until the overshoot will be compliant with Parker limit.
Please contact us for high frequency applications.

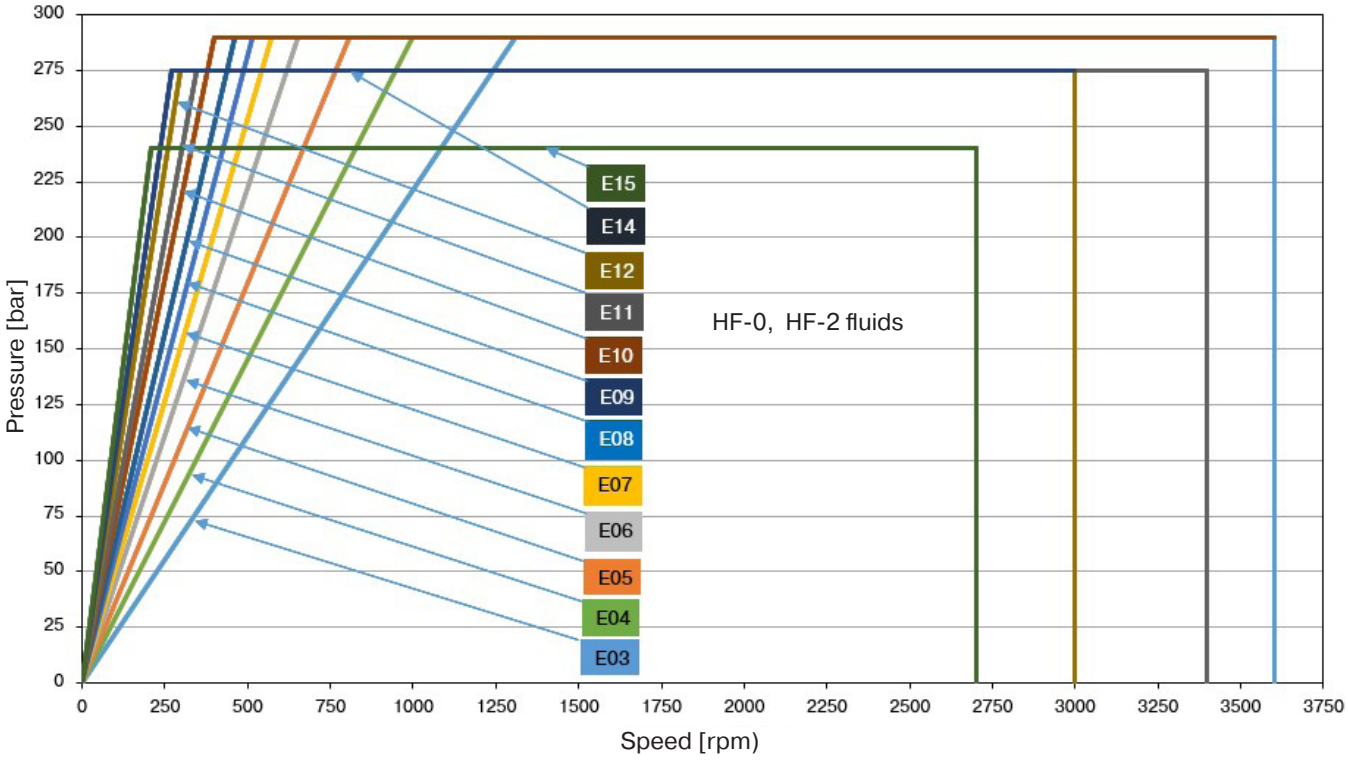



**Pp :** Peak pressure

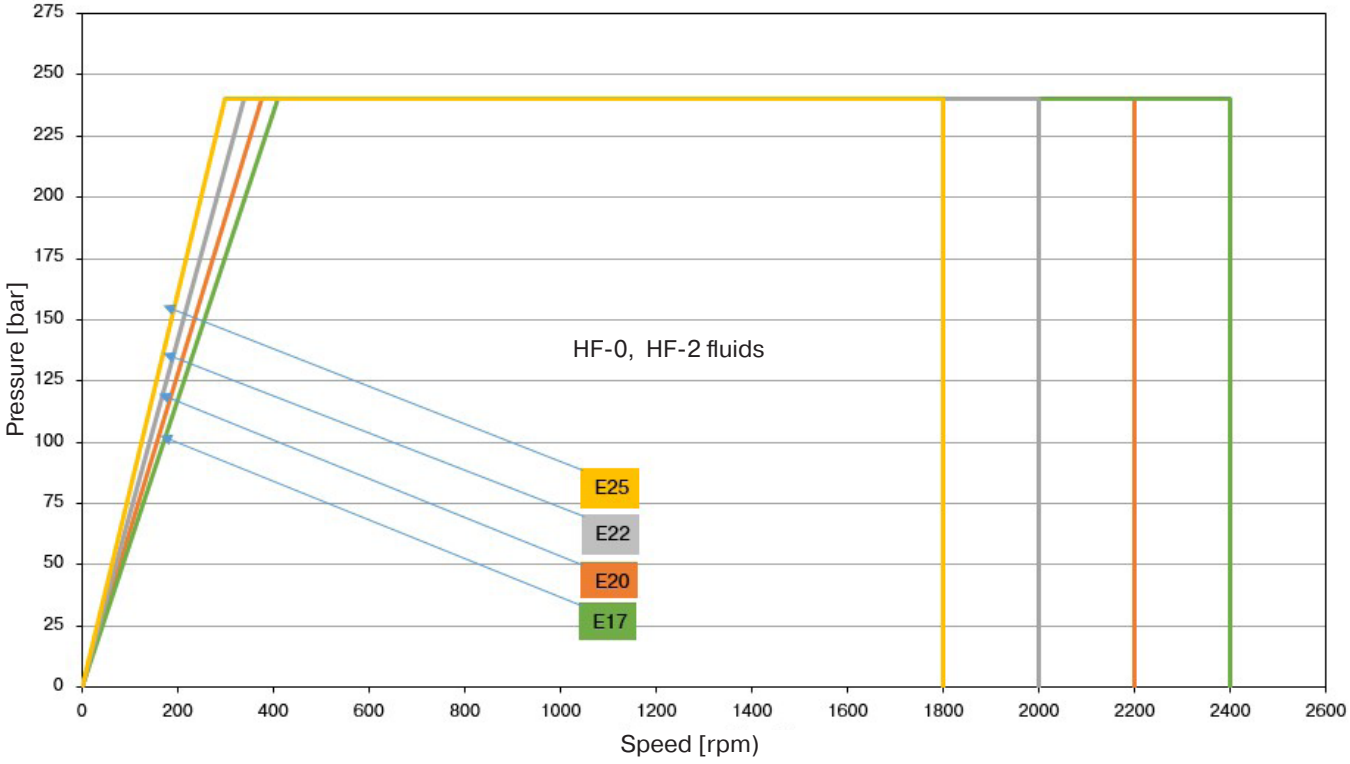
**Ip :** Intermitent pressure

**Cp:** Continuous pressure

# T7GB E** Operating Range




# T7GC E** Operating Range



# Hydraulic Fluids

## Recommended hydraulic fluids

Petroleum base anti-wear, anti-rust and anti-oxydation fluids (covered by Parker Denison HF0 and HF2 specifications).
Maximum catalogue ratings and performance data are based on operation with these fluids.

## Acceptable alternate hydraulic fluids

The use of fluids other than petroleum base anti-wear R & O fluids requires that the maximum ratings of the motor will be reduced. In some cases, the minimum replenishment pressure must be increased.
Parker Denison HF6a, HF6b : HEES Bio hydraulic fluids

## Hydraulic fluids viscosity

The minimum Viscosity Index is 90. The kinematic viscosity range is as below. Over or under these values, please contact Parker.

| | |
|---|---|
| Max. E** (cold start, low speed & pressure) | 5000 cSt |
| Max. M** (cold start, low speed & pressure) | 2000 cSt |
| Max. (full speed & pressure) | 108 cSt |
| Optimum (max. lifetime) | 30 cSt |
| Min. (full speed & pressure) | 10 cSt |

## Hydraulic fluids temperatures

The usual limitating factor of temperature (low or high) comes from the obtained viscosity. The seals are sometimes the limit.
Maximum fluid temperature (also depends on min. viscosity). Minimum fluid temperature (also depends on max. viscosity).

| | ° C | ° F |
|---|---|---|
| HF0, HF2 | + 100 | (+ 212) |
| HF6a, HF 6b | + 80 | (+ 176) |
| HF0, HF2, HF6a, HF6b | - 18 | (- 0.4) |

## Filtration requirement

The fluid must be cleaned before and during operation to maintain a contamination level of ISO 19 / 17 / 14 or NAS 1638 class 8 or better. No inlet strainer or inlet filter is allowed on these fixed displacement vane pumps.

## Water contamination in hydraulic fluid

The maximum acceptable content of water shall be limited to 0.10 % for mineral base fluids, and 0.05 % for synthetic fluids, crankcase oils, and biodegradable fluids. The eventual excess of water must be drained off the circuit.

## Types of seals

Seals type 1: Use this seal type for standard applications: Mineral oil hydraulic fluid and hydraulic fluid temperature <+ 90° C (+ 194° F).
Seals temperature range :
- 40°C to + 130° C (- 40° F to + 266° F).

Seals type 5: Use this seal type with:
Some Bio hydraulic fluids and/or hydraulic fluid temperature > + 90° C (+194° F).
Seals temperature range :
- 29° C to + 204°C (- 20° F to + 400°F).

# ORDERING CODE

## T7GB E14 6R00 A100

**T7GB series - DIN - 4 bolts**
NF ISO 7653

**Displacement**
Volumetric displacement ($cm^3$/rev)
E03 = 9.8
E04 = 12.8
E05 = 15.9
E06 = 19.8
E07 = 22.5
E08 = 24.9
E09 = 28.0
E10 = 31.8
E11 = 35.0
E12 = 41.0
E14 = 45.0
E15 = 50.0

Optimized for
**Variable speed drive** application

**Type of shaft**
6 = splined (DIN 5462)

**Direction of rotation (shaft end view)**
R = Clockwise
L = Counter-clockwise

**Ports**

| | SAE Flange J518 | |
|---|---|---|
| | **Metric threads** | **UNC threads** |
| **Code** | **M0** | **00** |
| **S** | 1.1/2" | |
| **P** | 1" | |

**Seal class**
1 = S1 BUNA N
7 bar max. (for mineral oil)
5 = S5 VITON®
7 bar max. (for mineral oil and fire resistant fluids)

**Design letter**

**Porting combination**

Link to dimension drawing

Link to Technical Data

# T7GC M22 6R00 A100

**T7GC series - DIN - 4 bolts**
NF ISO 7653

**Displacement**
Volumetric displacement (cm3/rev)
M03 = 10.8
M05 = 17.2
M06 = 21.3
M08 = 26.4
M10 = 34.1
M12 = 37.1
M14 = 46.0
M17 = 58.3
M20 = 63.8
M22 = 70.3
M25 = 79.3
M28 = 88.8
M31 = 100.0

Optimized for
Mobile application

**Type of shaft**
6 = splined (DIN 5462)

**Direction of rotation (shaft end view)**
R = Clockwise
L = Counter-clockwise

**Ports**

| | SAE Flange J518 | |
|---|---|---|
| | **Metric threads** | **UNC threads** |
| **Code** | **M0** | **00** |
| **S** | 1.1/2" | |
| **P** | 1" | |

**Seal class**
1 = S1 BUNA N
7 bar max. (for mineral oil)
5 = S5 VITON®
7 bar max. (for mineral oil and fire resistant fluids)

**Design letter**

**Porting combination**

Link to dimension drawing

Link to Technical Data

# T7GC E22 6R00 A100

**T7GC series - DIN - 4 bolts**
NF ISO 7653

**Displacement**
Volumetric displacement (cm3/rev)
E17 = 58.3
E20 = 63.8
E22 = 70.3
E25 = 79.3

Optimized for
**Variable speed drive** application

**Type of shaft**
6 = splined (DIN 5462)

**Direction of rotation (shaft end view)**
R = Clockwise
L = Counter-clockwise

**Ports**

| | SAE Flange J518 | |
|---|---|---|
| | **Metric threads** | **UNC threads** |
| **Code** | **M0** | **00** |
| **S** | 1.1/2" | |
| **P** | 1" | |

**Seal class**
1 = S1 BUNA N
7 bar max. (for mineral oil)
5 = S5 VITON®
7 bar max. (for mineral oil and fire resistant fluids)

**Design letter**

**Porting combination**

Link to dimension drawing

Link to Technical Data

# T7GBB E14 E10 6R00 A110

**T7GBB series - DIN - 4 bolts**
NF ISO 7653

**Displacement P1 and P2**
Volumetric displacement (cm3/rev)
E03 = 9.8
E04 = 12.8
E05 = 15.9
E06 = 19.8
E07 = 22.5
E08 = 24.9
E09 = 28.0
E10 = 31.8
E11 = 35.0
E12 = 41.0
E14 = 45.0
E15 = 50.0

Optimized for
**Variable speed drive** application

**Type of shaft**
6 = splined (DIN 5462)

**Ports**

| | SAE Flange J518 | | | |
|---|---|---|---|---|
| | Metric threads | | UNC threads | |
| **Code** | **0M** | **1M** | **00** | **10** |
| **S** | 3" | 2.1/2" | 3" | 2.1/2" |
| **P1** | 1" | | | |
| **P2** | 1" | | | |

Always place the largest cartridge on the P1 port.

**Seal class**
1 = S1 BUNA N
7 bar max. (for mineral oil)
5 = S5 VITON®
7 bar max. (for mineral oil and fire resistant fluids)

**Design letter**

**Porting combination**
See Link to porting diagrams

**Direction of rotation (shaft end view)**
R = Clockwise
L = Counter-clockwise

Link to dimension drawing

Link to Technical Data

Link to porting diagrams

# T7GCC M17 M10 6R00 A100

**T7GCC series - DIN - 4 bolts**
NF ISO 7653

**Displacement P1 and P2**
Volumetric displacement (cm3/rev)
M03 = 10.8
M05 = 17.2
M06 = 21.3
M08 = 26.4
M10 = 34.1
M12 = 37.1
M14 = 46.0
M17 = 58.3
M20 = 63.8
M22 = 70.3
M25 = 79.3
M28 = 88.8
M31 = 100.0

Optimized for
Mobile application

**Type of shaft**
6 = splined (DIN 5462)

P1 P2

**Ports**

| | SAE Flange J518 | | | |
|---|---|---|---|---|
| | Metric threads | | UNC threads | |
| **Code** | **0M** | **1M** | **00** | **10** |
| **S** | 3" | 2.1/2" | 3" | 2.1/2" |
| **P1** | 1" | | | |
| **P2** | 1" | | | |

**A**lways place the largest cartridge on the P1 port.

**Seal class**
1 = S1 BUNA N
7 bar max. (for mineral oil)
5 = S5 VITON®
7 bar max. (for mineral oil and fire resistant fluids)

**Design letter**

**Porting combination**
See Link to porting diagrams

**Direction of rotation (shaft end view)**
R = Clockwise
L = Counter-clockwise

Link to dimension drawing

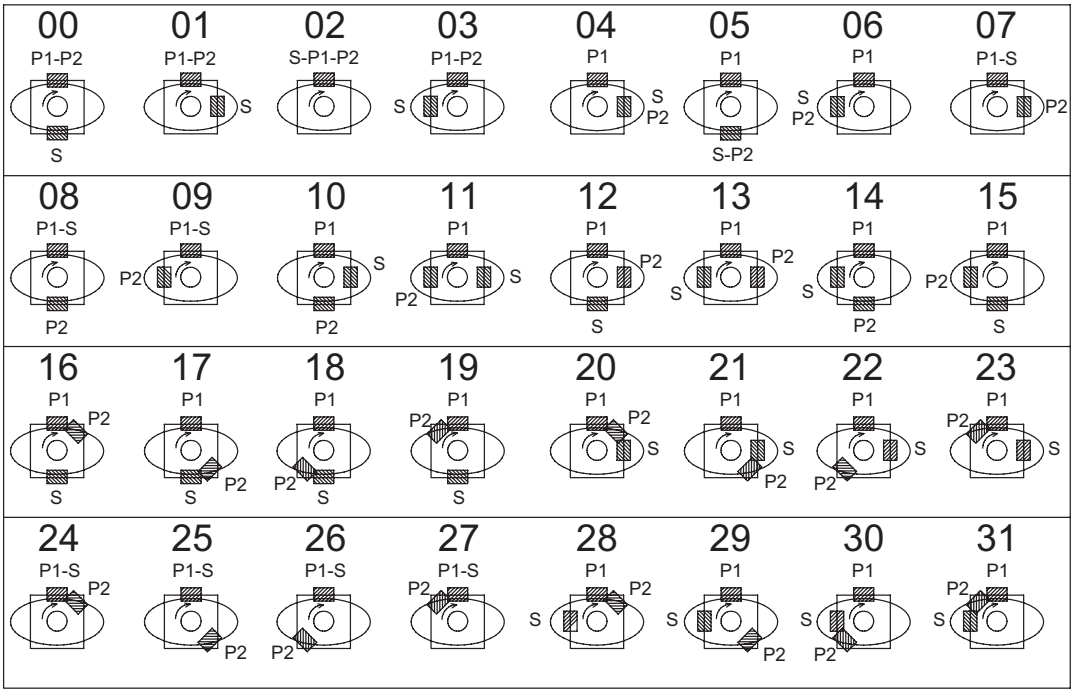
Link to technical data

Link to porting diagrams

# Porting diagrams for double pumps

**T7GBB**

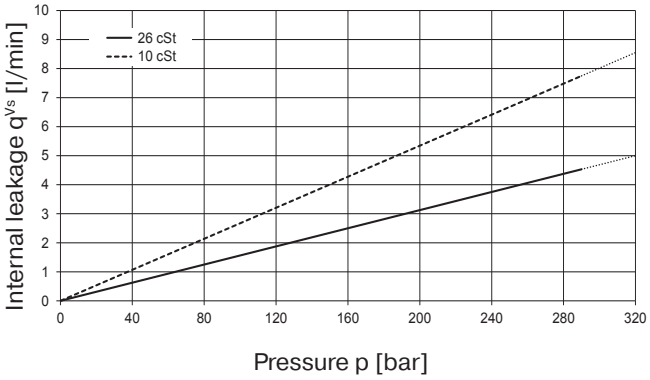
**T7GCC**



# TECHNICAL DATA

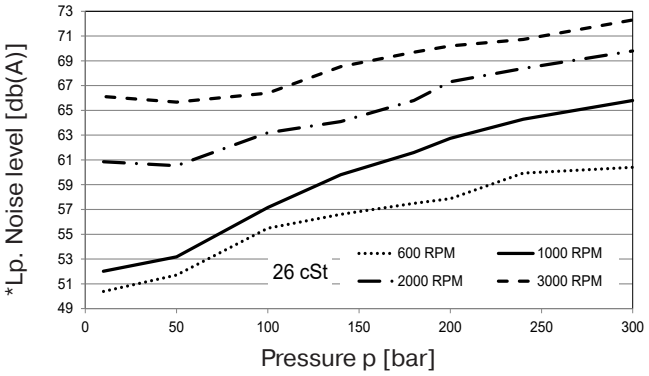
## T7GB E**

### Internal leakage (Typical)



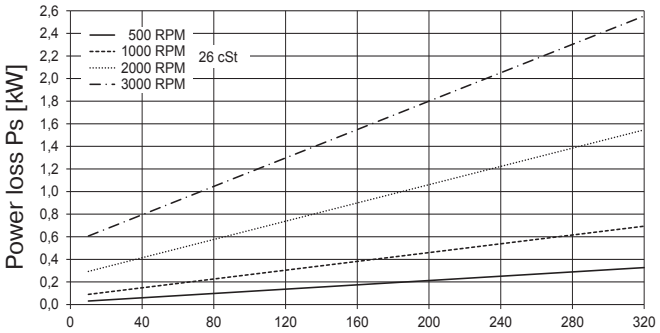

Do not operate pump more than 5 seconds at any speed or viscosity if internal leakage is higher than 50% of theoretical flow.

### Noise level (Typical) - T7GB E10

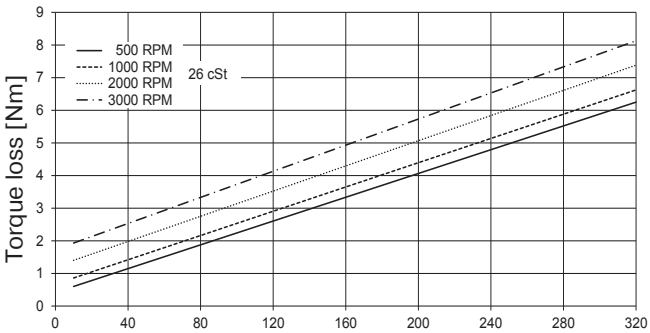



*1m ISO 4412

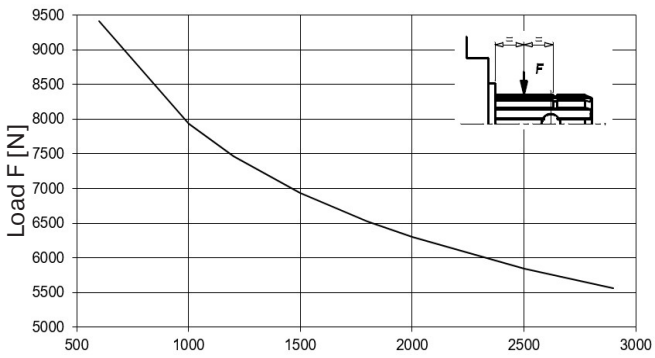
### Power loss hydromechanical (Typical)




### Torque loss hydromechanical (Typical)




### Permissible radial load




Maximum permissible axial load Fa = 800 N

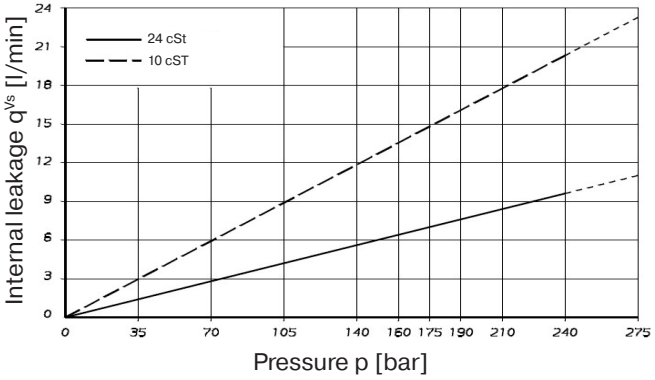
### Pump information

**Pump type :** T7GB
**Weight :** 15.3 kg
**Moment of inertia :** 9.1 $Kgm^2 \times 10^{-4}$
**Input torque limit :**

| Shaft | Vi [$cm^3$/rev] x p max. [bar] | Nm |
|---|---|---|
| 6 | 24000 | 381 |

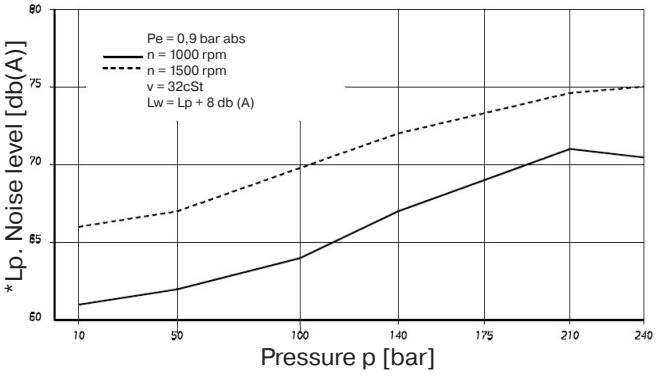
# T7GC M**

## Internal leakage (Typical)



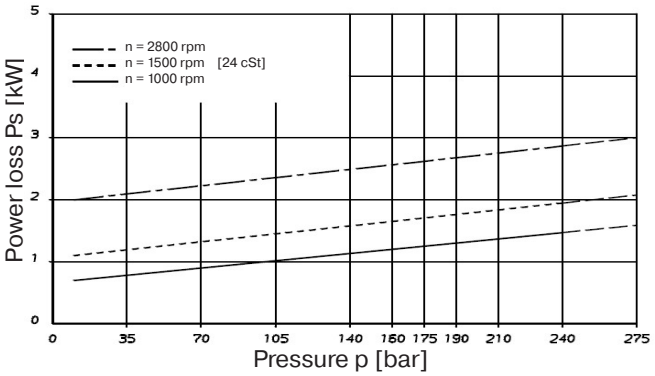

Do not operate pump more than 5 seconds at any speed or viscosity if internal leakage is higher than 50% of theoretical flow.

## Noise level (Typical) - T7GC M22

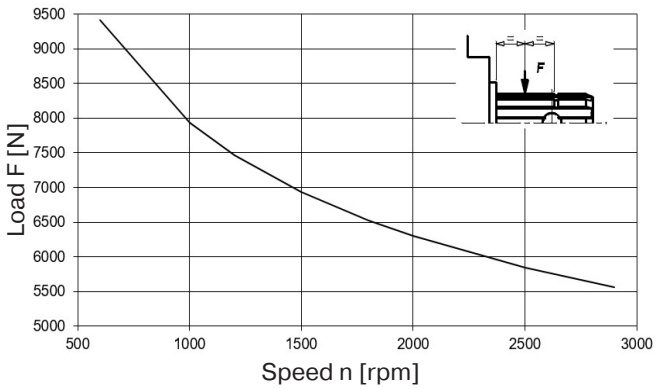



*1m ISO 4412

## Power loss hydromechanical (Typical)




## Permissible radial load




Maximum permissible axial load Fa = 800 N

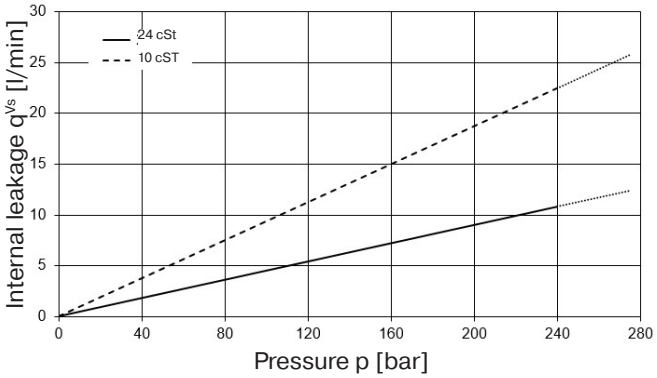
## Pump information

**Pump type :** T7GC
**Weight :** 15.3 kg
**Moment of inertia :** 9.1 Kgm$^2$ x 10$^{-4}$
**Input torque limit :**

| Shaft | Vi [cm$^3$/rev] x p max. [bar] | Nm |
|---|---|---|
| 6 | 24000 | 381 |

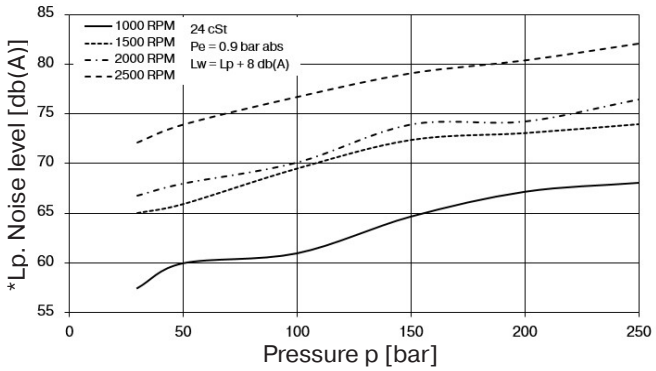
# T7GC E**

## Internal leakage (Typical)



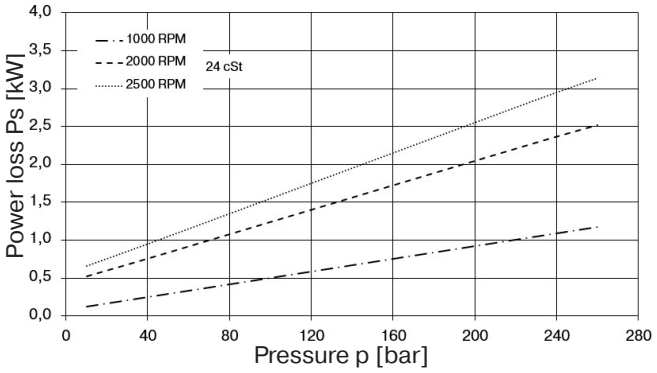

Do not operate pump more than 5 seconds at any speed or viscosity if internal leakage is higher than 50% of theoretical flow.

## Noise level (Typical) - T7GC E25

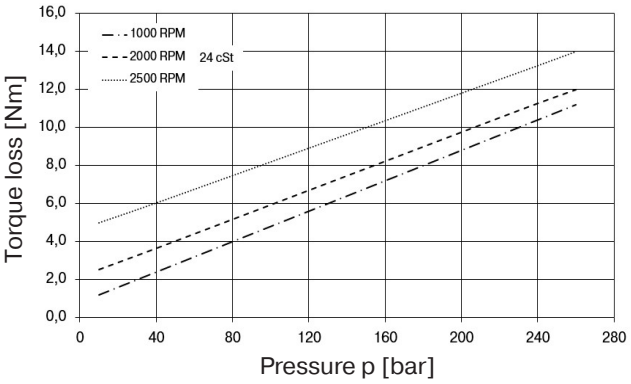



**1m ISO 4412*

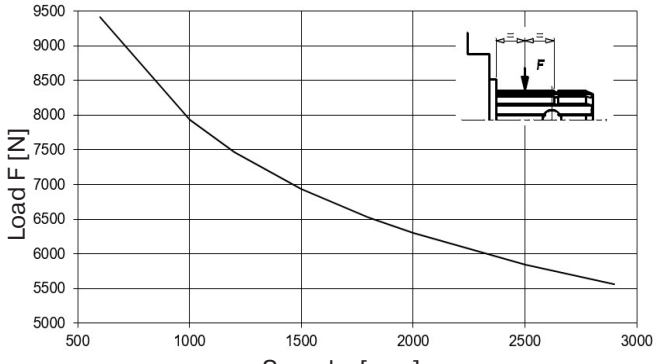
## Power loss hydromechanical (Typical)




## Torque loss hydromechanical (Typical)




## Permissible radial load




Maximum permissible axial load Fa = 800 N

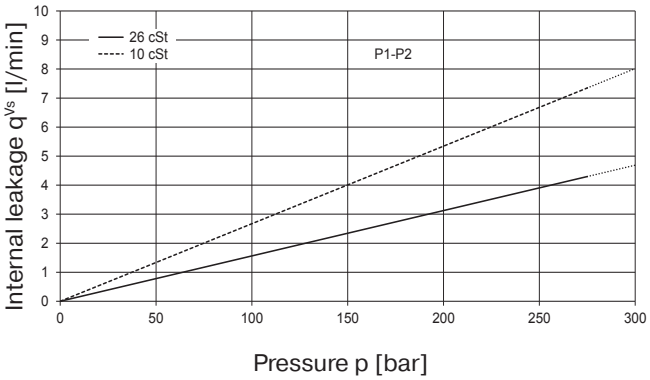
## Pump information

**Pump type :** T7GC
**Weight :** 15.3 kg
**Moment of inertia :** 9.1 $Kgm^2 \times 10^{-4}$
**Input torque limit :**

| Shaft | Vi [$cm^3$/rev] x p max. [bar] | Nm |
|---|---|---|
| 6 | 24000 | 381 |

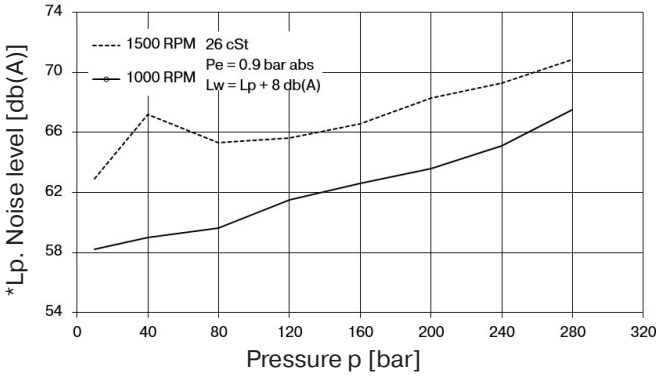
# T7GBB E**

## Internal leakage (Typical)



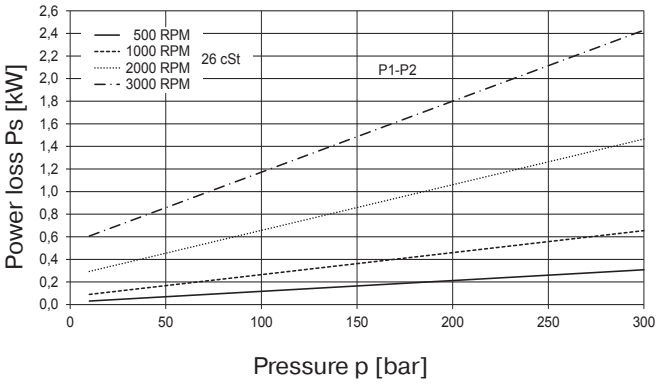

Do not operate pump more than 5 seconds at any speed or viscosity if internal leakage is higher than 50% of theoretical flow.

## Noise level (Typical) - T7GBB E14 E14

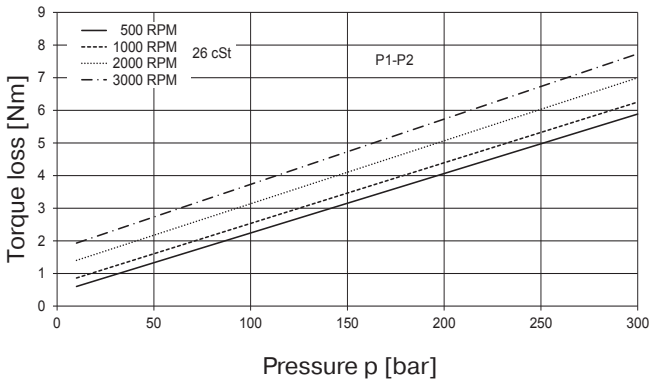



*1m ISO 4412

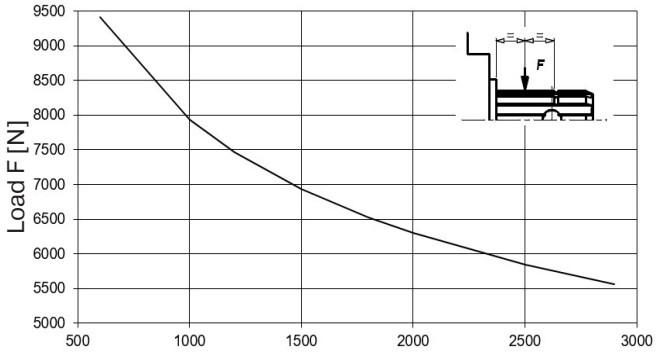
## Power loss hydromechanical (Typical)




## Torque loss hydromechanical (Typical)




## Permissible radial load




Maximum permissible axial load Fa = 800 N

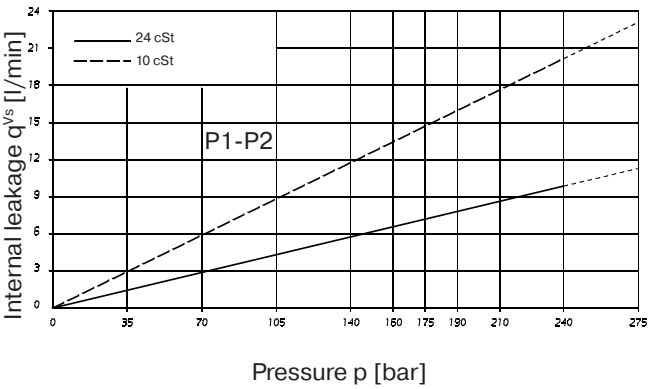
## Pump information

**Pump type :** T7GBB
**Weight :** 25.6 kg
**Moment of inertia :** 15.9 Kgm$^2$ x $10^{-4}$
**Input torque limit :**

| Shaft | Vi [cm$^3$/rev] x p max. [bar] | Nm |
|---|---|---|
| 6 | 43440 | 690 |

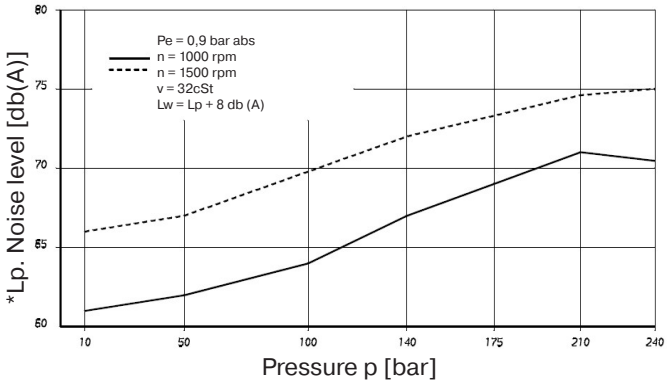
# T7GCC M**

## Internal leakage (Typical)



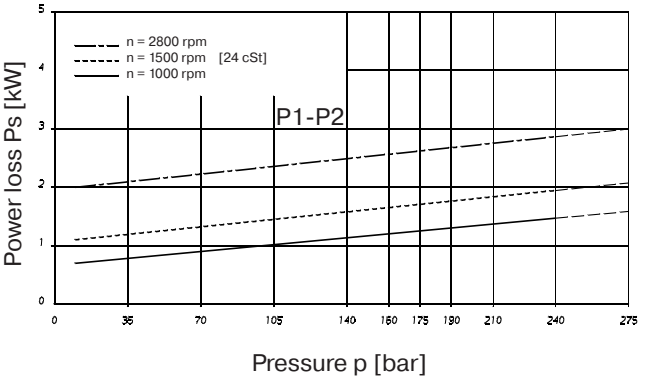

Do not operate pump more than 5 seconds at any speed or viscosity if internal leakage is higher than 50% of theoretical flow.

## Noise level (Typical) - T7GCC M22 M22

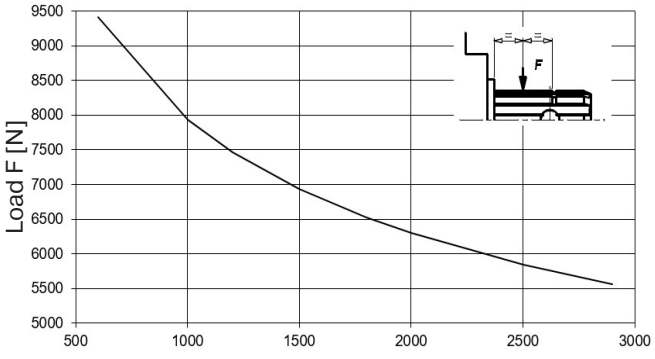



*1m ISO 4412

## Power loss hydromechanical (Typical)




## Permissible radial load




Maximum permissible axial load Fa = 800 N

## Pump information

**Pump type :** T7GCC
**Weight :** 25.6 kg
**Moment of inertia :** 15.9 $Kgm^2 \times 10^{-4}$
**Input torque limit :**

| Shaft | Vi [$cm^3$/rev] x p max. [bar] | Nm |
|---|---|---|
| 6 | 43440 | 690 |

# CIRCUIT DESIGN

## Pump selection example

| To resolve | |
|---|---|
| Volumetric displ. | $V_i$ [cm³/rev.] |
| Available flow | $Q_{eff}$ [l/min] |
| Input power | $P_{eff}$ [kW] |

| Performances required | | |
|---|---|---|
| Requested flow | Q [l/min] | 75 |
| Speed | n [RPM] | 2000 |
| Pressure | p [bar] | 200 |

**Routine :**

1. First calculation

$$V_i = \frac{1000\ Q}{n}$$

2. Choice $V_i$ of pump immediately greater (see tabulation)

3. Theoretical flow of this pump

$$Q_{theo} = \frac{V_i \times n}{1000}$$

4. Find qvs leakage function of pressure
$q_{Vs}$ = f(p) on curve at 10 or 24 cSt

5. Available flow $Q_{eff} = Q_{theo} - q_{Vs}$

6. Theoretical input power

$$P_{theo} = \frac{Q_{theo} \times p}{600}$$

7. Find Ps hydrodynamic power loss on curve

8. Calculation of necessary input power $P_{eff} = P_{theo} + Ps$

9. Results

**Example :**

$$V_i = \frac{1000 \times 70}{2000} = 37.5\ cm^3/rev.$$

T7GB E12, $V_i$ = 41 cm³/rev.

$$Q_{theo} = \frac{41 \times 2000}{1000} = 82\ l/min$$

T7GB (page **) : $q_{Vs}$ = 3 l/min at 200 bar, 26 cSt

$Q_{eff}$ = 82 - 3 = 79 l/min

$$P_{theo} = \frac{79 \times 200}{600} = 26.35\ kW$$

T7GB (page **) : Ps at 2000 RPM, 200 bar = 1.05 kW

P = 26.35 + 1.05 = 27.4 kW

$V_i$ = 41 ml/rev.
$Q_{eff}$ = 79 l/min
$P_{eff}$ = 27.4 kW
| T7GB E12

These calculation steps must be followed for each application.

# Start-up instructions

All Parker vane pumps are individually factory tested to provide the best quality & reliability. They are to be used within the design limits indicated in our documentation. Only qualified personnel who is competent and familiar with the installation and operation of hydraulic drives and has hydraulic circuits and hydraulic equipment knowledge is allowed to put the equipment into operation. Make sure to have all necessary documentation available and always conform yourself to the valid regulations (safety, electrical, environment...).

## Rotation way and ports indication

The rotation way and ports orientation are viewed from the shaft end.

CW stands for clockwise = Right-hand rotation.

CCW stands for counter-clockwise = Left-hand rotation.

## Pre-start checks

Before initial starting of the pump, the following checks should be made :

a. Check the rotation of the power source to be sure the pump shaft will rotate in the direction indicated by the arrow on the pump nameplate.

b. Check inlet and discharge lines to be sure all connections are tight and properly connected.

c. Check fluid type, its cleanliness and level. Make sure it can freely reach the pump inlet.

## Filling, air removing & priming

The pressure relief valve should be backed off to its minimum setting value so the pump is unloaded when started. Circuit priming and air bleed off have to be performed before resetting the pressure relief valve. For priming, a minimum pump shaft speed of 600 rpm is recommended. To prevent possible damage to the internal parts, the pump should never be started dry or without internal lubrication.

- Pump with positive head : allow the fluid to flow to the pump inlet, loosen the discharge port(s) fitting(s) until the fluid comes out and re-tighten the discharge line(s). Then start the pump which should prime quite instantly. Purge the air off the circuit, preferably using air bleed off valves or pressure test points. Let the pump discharge several minutes unloaded.

- Pump mounted above fluid level : fill the pump through outlet port(s) with suitable and clean fluid and start rotation in jog mode. Purge the air off the circuit, preferably using air bleed off valves or pressure test points. Let the pump discharge several minutes unloaded.

## Notes

If the pump does not prime properly or pressure cannot be obtained within seconds, it should be shut down and conditions corrected. Refer to the machine/vehicle manufacturer instructions and pump catalogue.

## Maintenance

The pump is self-lubricating and its preventive maintenance is limited to keeping the hydraulic fluid clean and maintaining its viscosity within the acceptable limits. Keep all fittings and screws tight. Do not operate at pressures or speeds in excess of the recommended limits. If the pump does not operate properly, check the troubleshooting chart before attempting to overhaul the unit. The pump is fully serviceable.

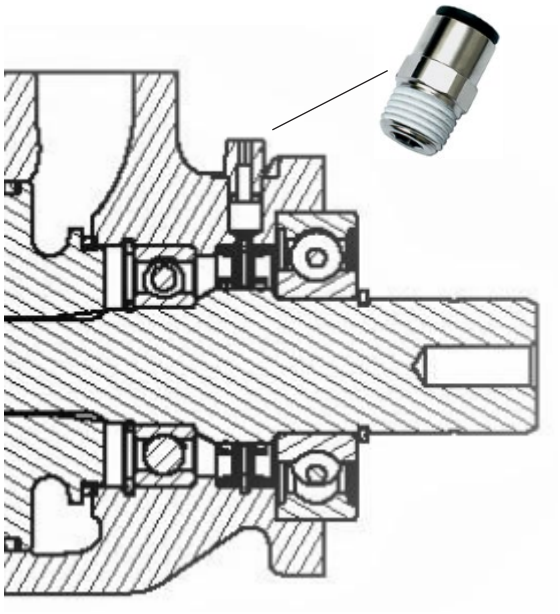
# Sweep hole

All our T7G* pumps are delivered with a fitting mounted on the threaded hole between the 2 shaft seals.

The propose of this sweep hole is to detect a leakage from the pump or/and from wet gear box.

This fitting is plugged, we highly recommend to add a Polyurethane tubing (not provided) or similar to collect the leakage in case of issue with the shaft seals

Parker Legris fitting
Ref. **3175 06 10**



Example of compatible Polyurethane tubing:
White crystal version recommended

## 1025U..R Polyurethane (PU) Ether Tubing

Tubepack® 25 m

| ØD ext. | ØD int. | R | | | Crystal | Crystal | Crystal | Crystal | Crystal | Kg |
|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 2.5 | 12 | 1025U04R01 | 1025U04R04 | 1025U04R08 | 1025U04R12 | 1025U04R13 | 1025U04R14 | 1025U04R17 | 0.310 |
| 5 | 3 | 13 | | | 1025U05R08 | | | | | 0.522 |
| 6 | 4 | 15 | 1025U06R01 | 1025U06R04 | 1025U06R08 | 1025U06R12 | 1025U06R13 | 1025U06R14 | 1025U06R17 | 0.591 |
| 8 | 5.5 | 20 | 1025U08R01 | 1025U08R04 | 1025U08R08 | 1025U08R12 | 1025U08R13 | 1025U08R14 | 1025U08R17 | 0.971 |
| 10 | 7 | 25 | 1025U10R01 | 1025U10R04 | 1025U10R08 | | | 1025U10R14 | | 1.467 |
| 12 | 8 | 35 | 1025U12R01 | 1025U12R04 | 1025U12R08 | | | 1025U12R14 | | 2.406 |
| 14 | 9.5 | 45 | | 1025U14R04 95 | | | | | | 2.421 |
| 16 | 11 | 45 | | | 1025U16R08 11 | | | | | 2.815 |

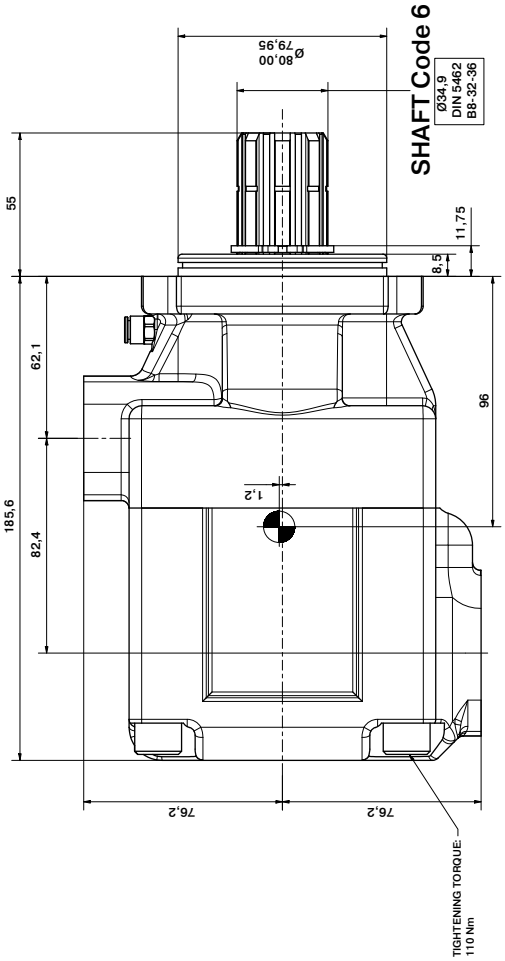
## 1100U ..R Polyurethane (PU) Ether Tubing

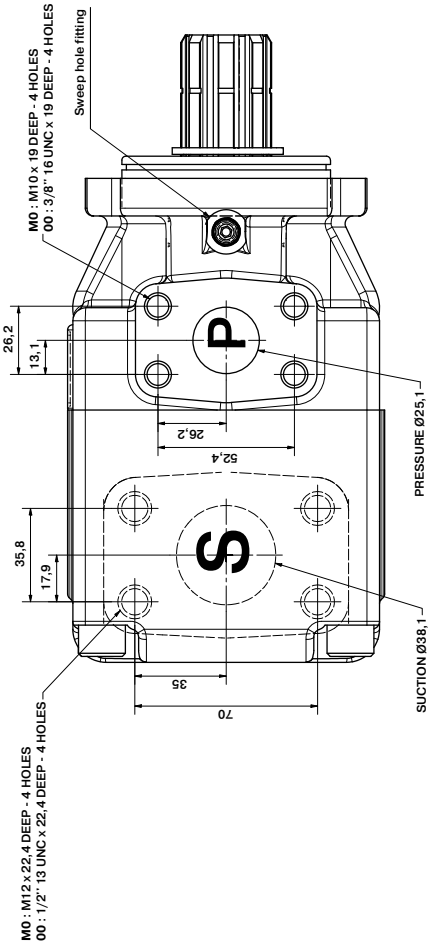
Tubepack® 100 m

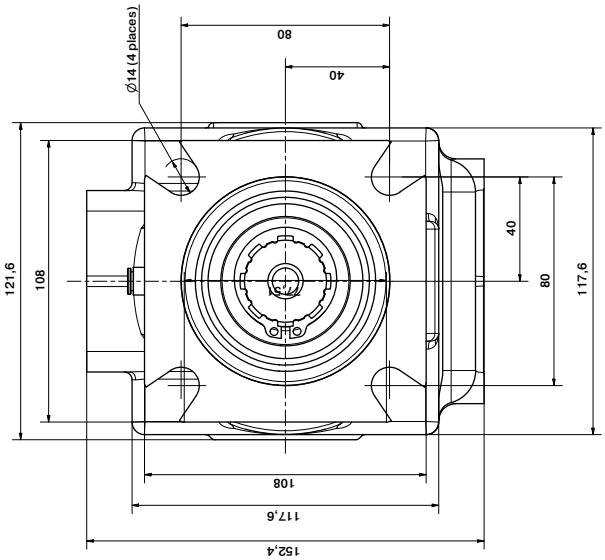
| ØD ext. | ØD int. | R | | | Crystal | Crystal | Crystal | Crystal | Crystal | Kg |
|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 2.5 | 12 | 1100U04R01 | 1100U04R04 | 1100U04R08 | 1100U04R12 | 1100U04R13 | 1100U04R14 | 1100U04R17 | 1.092 |
| 6 | 4 | 15 | 1100U06R01 | 1100U06R04 | 1100U06R08 | 1100U06R12 | 1100U06R13 | 1100U06R14 | 1100U06R17 | 2.064 |
| 8 | 5.5 | 20 | 1100U08R01 | 1100U08R04 | 1100U08R08 | 1100U08R12 | 1100U08R13 | 1100U08R14 | 1100U08R17 | 3.610 |
| 10 | 7 | 25 | | | 1100U10R08 | | | 1100U10R14 | | 6.109 |
| 12 | 8 | 35 | | 1100U12R04 | 1100U12R08 | | | | | 8.610 |
| 14 | 9.5 | 45 | | | 1100U14R08 95 | | | | | 10.000 |
| 16 | 11 | 45 | | | 1100U16R08 11 | | | | | 12.176 |

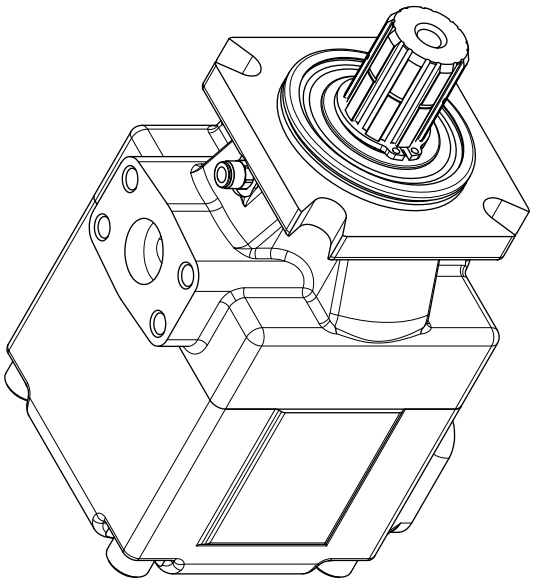
# DIMENSIONS DRAWINGS

## T7GB - T7GC

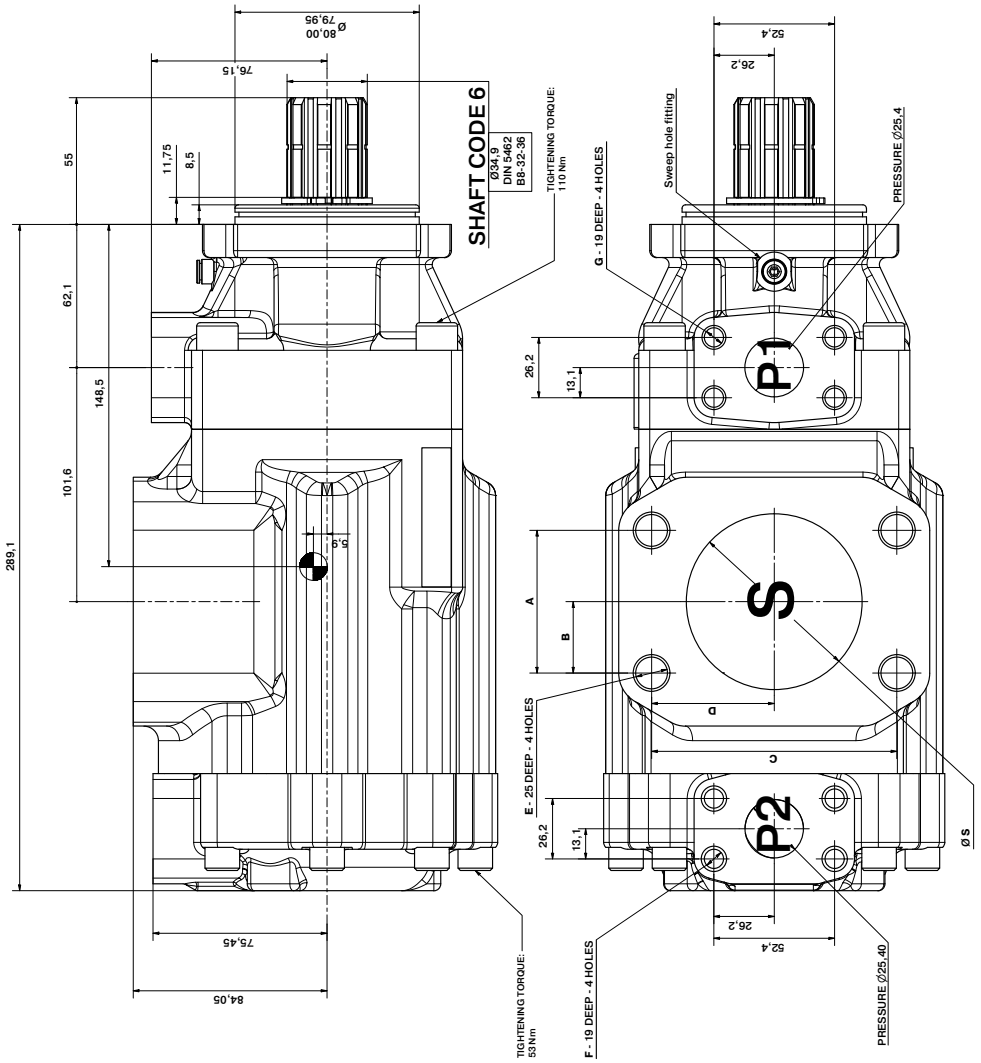


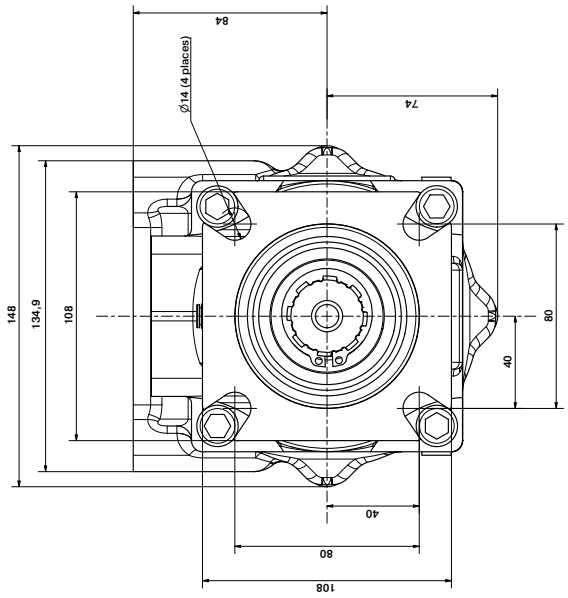



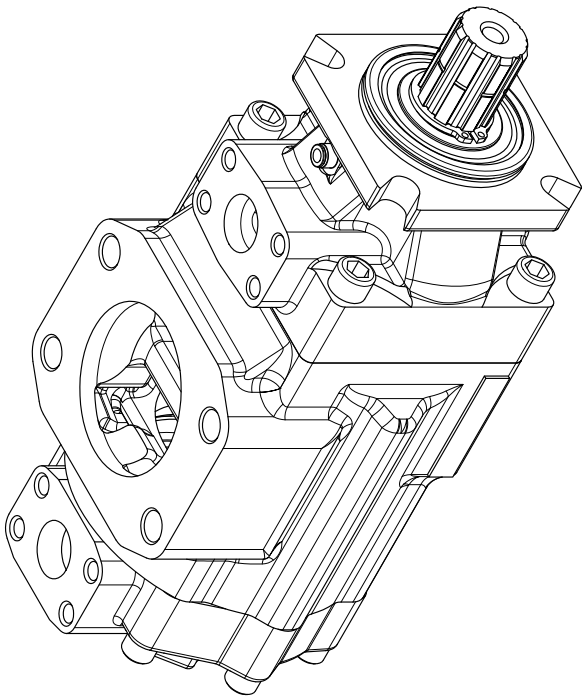



# T7GBB - T7GCC




| CONNECTION DETAILS (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Code | Ø S | A | B | C | D | E | F | G |
| 1M | 63,5 | 50,8 | 25,4 | 88,9 | 44,45 | M12 | M10 | M10 |
| 10 | 63,5 | 50,8 | 25,4 | 88,9 | 44,45 | 1/2'' 13 | 3/8'' 16 | 3/8'' 16 |
| 0M | 76,2 | 61,9 | 30,95 | 106,4 | 53,2 | M16 | M10 | M10 |
| 00 | 76,2 | 61,9 | 30,95 | 106,4 | 53,2 | 5/8'' 11 | 3/8'' 16 | 3/8'' 16 |



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