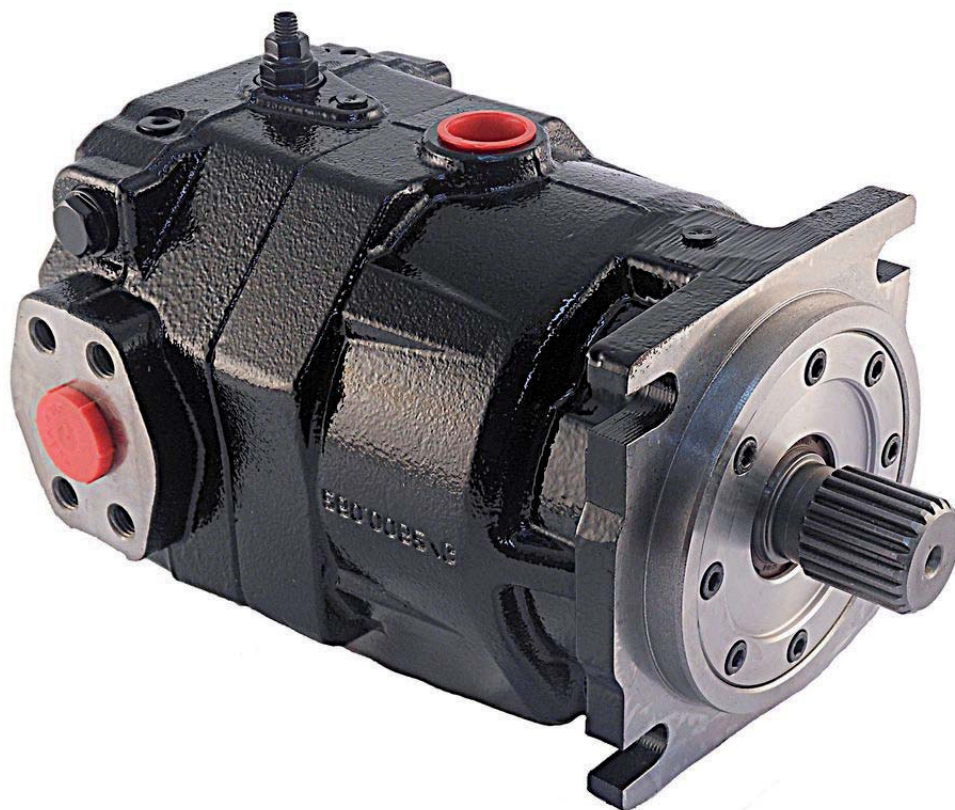


## THE PRODUCTION LINE OF HANSA-TMP

# Fixed Displacement Axial Piston Motor for Open and Closed Loop System

## TMF 900





**CONTENTS**

General Information.....	4
Technical Specifications.....	4
Order Code.....	5
Installation Drawings.....	6 - 7
Technical Manual.....	8 - 10

**MAIN FEATURES**
**General Information**

This is a fixed displacement motor with axial pistons, swash plate design and can be used in closed and open loop systems. The motor was developed for use on hydraulic transmissions, where high speeds and high torques are demanded.

The construction features help to minimize the losses due to leakage and considerably reduces the frictions. The small sizes allow easy installation.

The motor is equipped with flushing valve integrated on the motor casing which allows the temperature control, especially in heavy duty applications.

**TECHNICAL SPECIFICATIONS**
**Operating Parameters**

Model		TMF 900	72	90	110
Displacement	V	cm <sup>3</sup>	72	90	110
Maximum speed	n <sub>max</sub>	rpm	4.100	4.000	3.800
Maximum flow	q <sub>max</sub>	l/min.	295	340	400
Nominal pressure	p <sub>nom</sub>	bar	400	400	400
Maximum pressure	p <sub>max</sub>	bar	450	450	450
Maximum power	P <sub>max</sub>	Kw	156	180	210
Theoretical max torque	C <sub>max</sub>	Nm	480	570	700

**Hydraulic Fluid**

Recommended Hydraulic Fluid	Mineral Oil High Viscosity Index		
Operating viscosity *	v	cSt	16 ÷ 36
Maximum viscosity short term at cold start	v <sub>max</sub>	cSt	≤1600
Minimum viscosity at maximum temperature	v <sub>min</sub>	cS	≥7
Maximum working temperature of the fluid	T <sub>max</sub>	°C	90
Permissible temperature range of seals	ΔT	°C	-25 ÷ 120

\*Referred to the circuit temperature-closed circuit

**Filtration**

It is recommended for an efficient and lasting working life, a solid particle contamination level of 18/16/13 according to ISO 4406. To ensure said level of contamination is not exceeded, filter should be chosen accordingly, with filtration grade of  $\beta_{10} \geq 2$ .

In any case the contamination level must not be below 20/18/15 according to ISO 4406.

**Safety Regulation**

This publication provides just an overview of the product and it is addressed to skilled personnel properly equipped to perform maintenance. During maintenance, assembly and disassembly activities use caution and proper safety equipment, in observance of the rules provided by safety laws.

**ATTENTION**

The motors are made with heavy parts: secure the parts and use proper lifting equipment.

**ORDER CODE**

EXAMPLE						
1	2	3	4	5	6	7
<b>TMF 900</b>	<b>90</b>	<b>V</b>	<b>C4</b>	<b>2IN</b>	<b>RO</b>	<b>F18</b>

1	PRODUCT GROUP AND FAMILY
<b>TMF 900</b>	Fixed displacement axial piston motor

2	DISPLACEMENT
<b>72</b>	72,1 cm <sup>3</sup> (@18°)
<b>90</b>	89,2 cm <sup>3</sup> (@18°)
<b>110</b>	110,0 cm <sup>3</sup> (@18°)

3	SHAFT SEAL	72	90	110
<b>V</b>	Viton	A	A	A

4	MOUNTING FLANGE	72	90	110
<b>C4</b>	SAE J 744 - SAE C four bolts	A	A	A

5	SHAFT END	72	90	110
<b>2IN</b>	ANSI B92.1A - 1976 - 1"3/8 - 21T - 16/32 DP	A	A	A

6	SERVICE LINE PORTS	72	90	110
<b>RO</b>	Radial opposite side	A	A	A

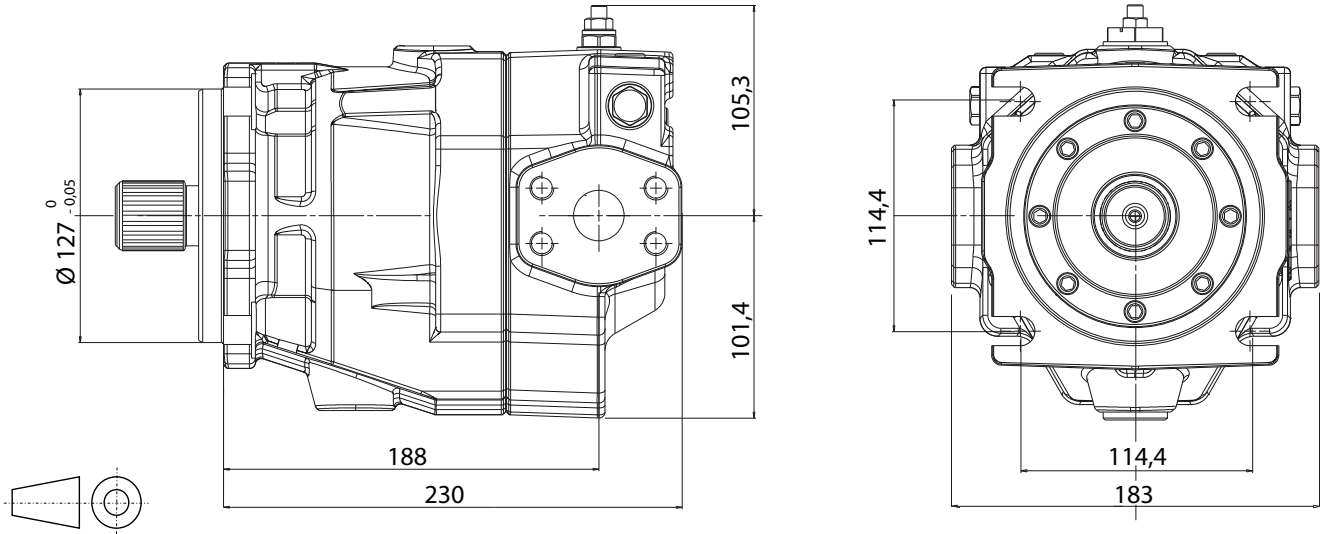
7	FLUSHING VALVE SETTINGS	72	90	110
<b>0</b>	Without pressure valve	R	R	R
<b>F20</b>	20 bar	A	A	A
<b>F18</b>	18 bar	R	R	R
<b>F16</b>	16 bar	R	R	R

LEGEND							
<b>A</b>	available (preferred)	<b>A</b>	available	<b>R</b>	on request	<b>-</b>	not available

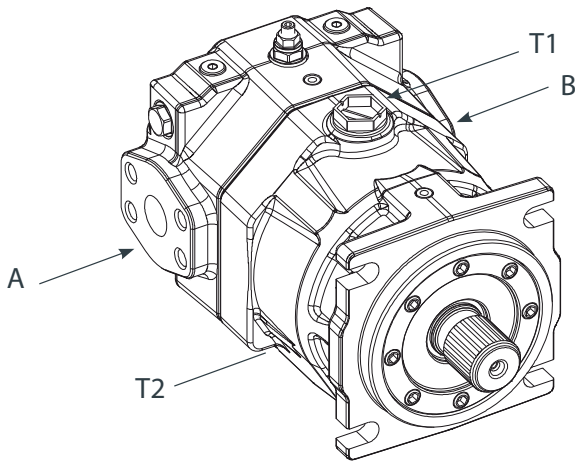


**INSTALLATION DRAWINGS**

Size **72**

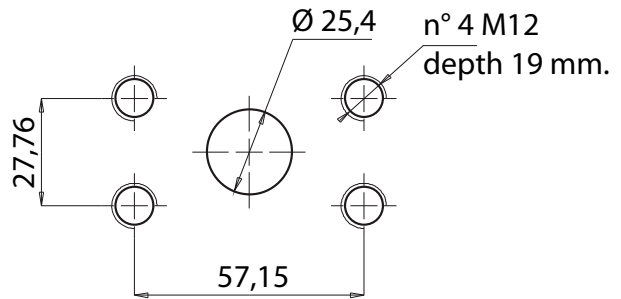


**Ports**



**Detail Ports A-B**

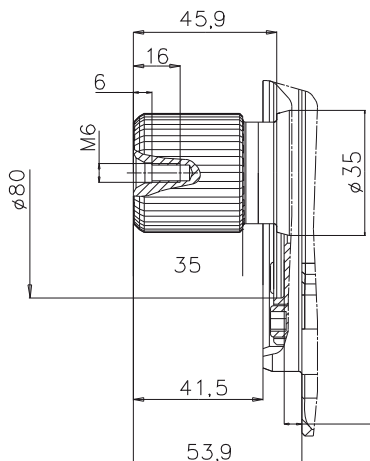
**SAE J 518 - 1" - Code 62**



Port	Description	Standards	Size
A,B	High pressure ports	SAE flange J518-62	1"
T1, T2	Case drain ports	ISO 1179	3/4" BSP

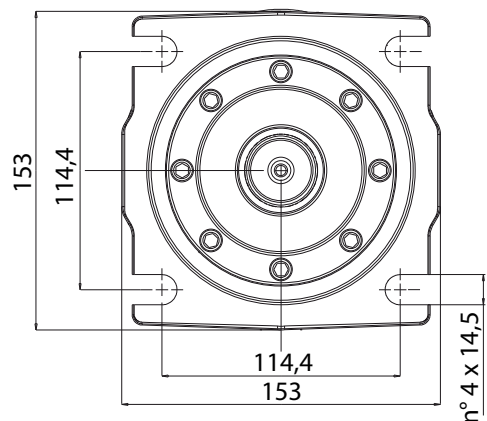
**Shaft End 21 N**

ANSI B92.1A-1976 - 1"3/8 - 21 T - 16/32 DP



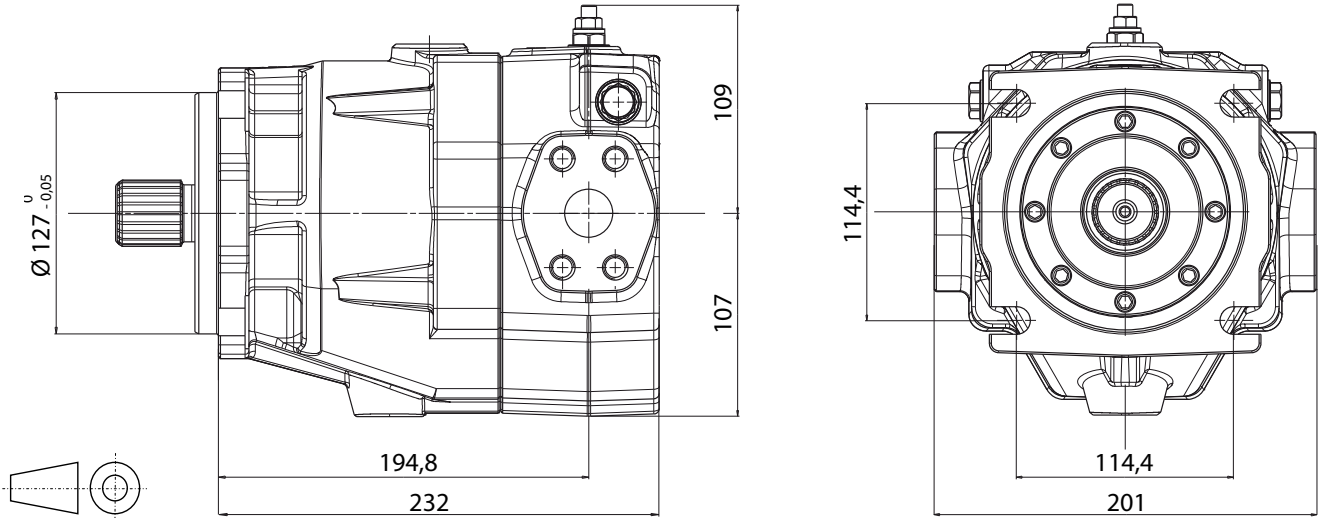
**Mounting Flange C4**

SAE J744 - Flange SAE C - 4 Bolts

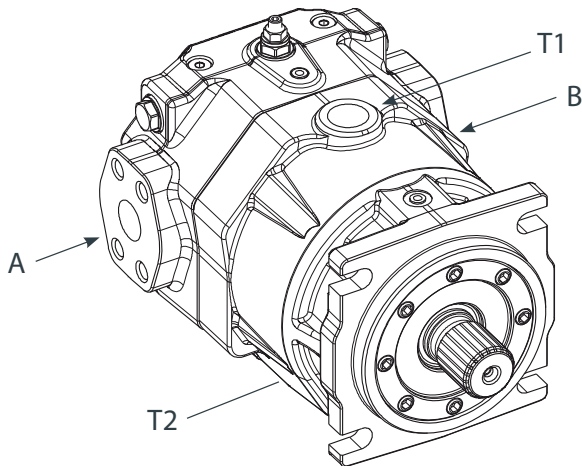


**INSTALLATION DRAWINGS**

**Size 90 - 110**

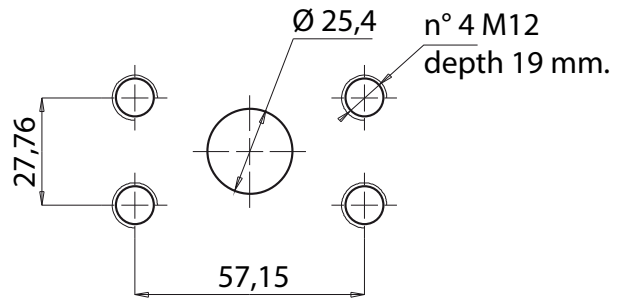


**Ports**



**Detail Ports A-B**

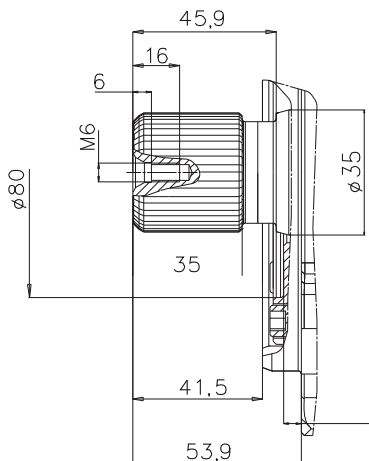
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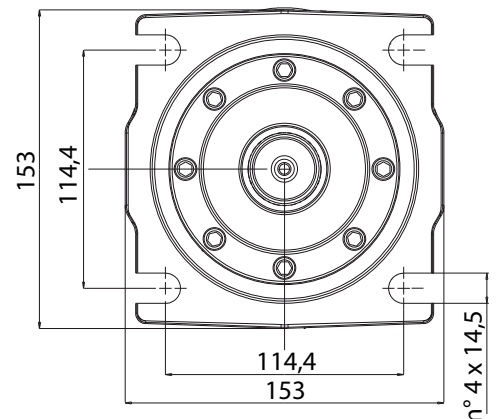
**Shaft End 21 N**

**ANSI B92.1A-1976 - 1"3/8 - 21 T - 16/32 DP**



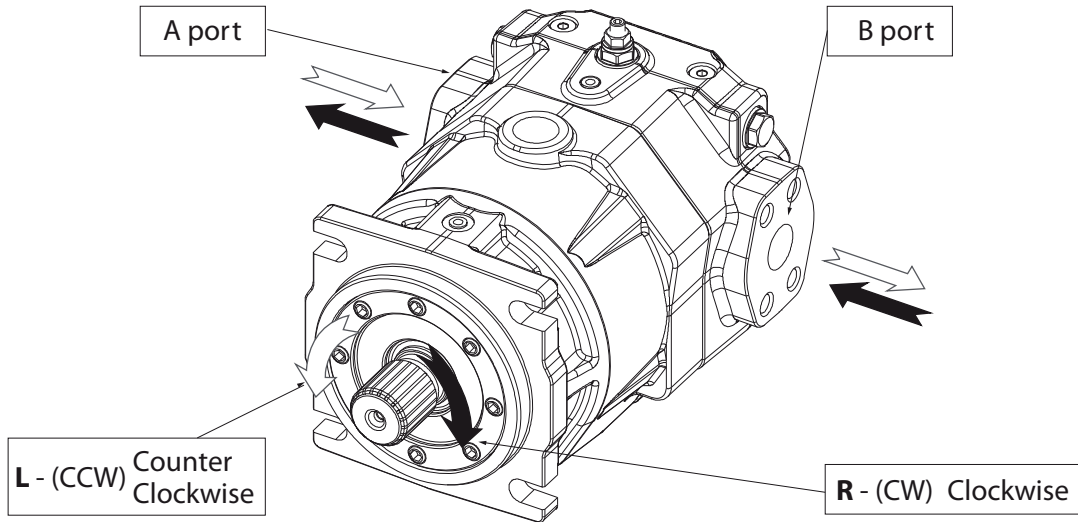
**Mounting Flange C4**

**SAE J744 - Flange SAE C - 4 Bolts**



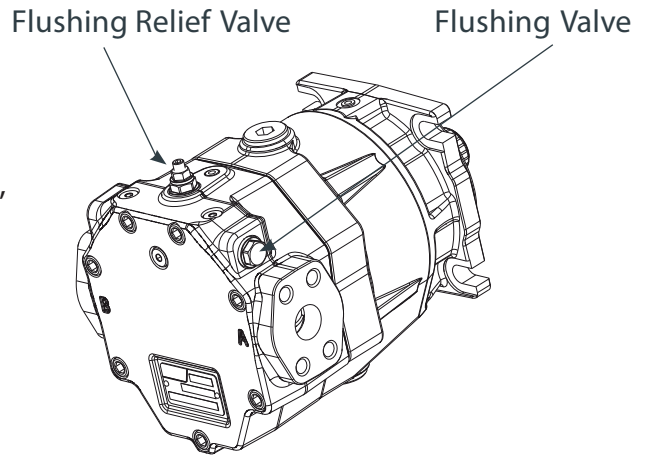
**DIRECTION of ROTATION - DIRECTION of the FLOW  
Ports**

Flow direction through the motor		
Direction of rotation	R (CW)	B in to A out
	L (CCW)	A in to B out

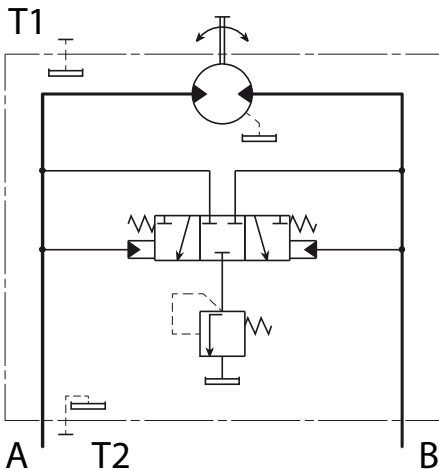


**Flushing Valve**

The motor is equipped with a flushing valve, integrated on the distributor of the motor that allows to direct a flow of oil from the low pressure channel inside the motor and later, through the discharge port, to a heat exchanger. This flow is restored by the anticavitation valve on the pump. The use of this valve allows dispose of excessive heat.



**Hydraulic Diagram**



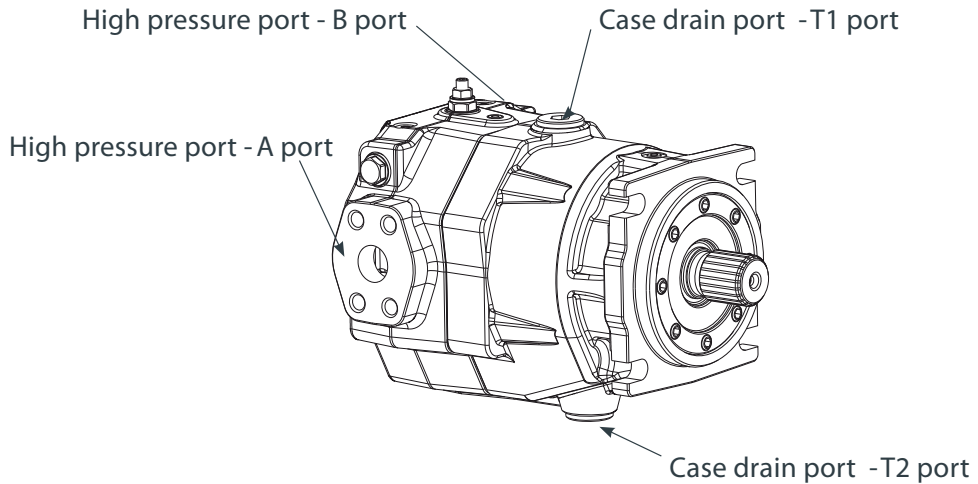
A, B	High pressure ports
T1, T2	Case Drain ports



**INSTALLATION INSTRUCTION**

**Introduction**

In the following pages are described the standards of installation of the motor. Compliance of the standards set has decisive effect on the life of the unit. The following illustration can identify the links for a correct installation. A standard requirement is that the motor must be filled with pre filtered hydraulic oil. The case must be filled with oil both in operation and during the break. The motor must be connected to the tank through the drain line. Lack of compliance with that condition can damage the unit irreparably.



**Installation Position**

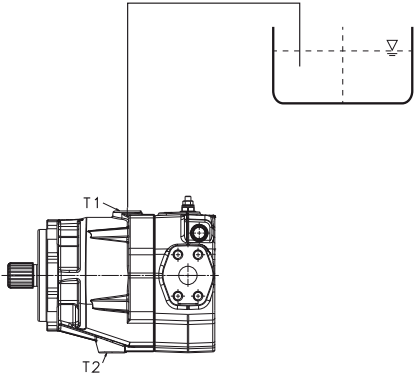
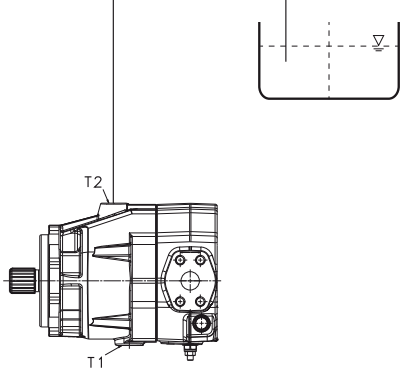
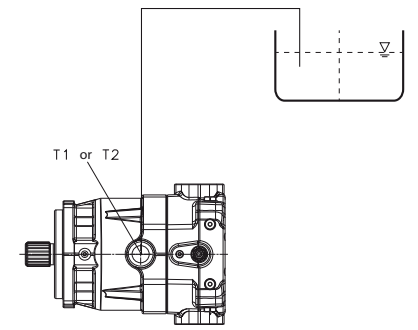
The case drain line must be always connected with the highest port. The motor can be installed in the following positions respect to the level of the tank of the hydraulic fluid:

	Motor Orientation	Notes
Under the tank		Standard Positioning
Above the tank		You must provide a non return valve on the case drain line to prevent the emptying of the line.

**INSTALLATION INSTRUCTION**

**Motor Orientation**

The motor can be oriented in the following positions:

	Motor Orientation	Notes
<p>Horizontal shaft Service lines on side</p>		<p>The case drain line must be always connected with the highest port (T1)</p>
<p>Horizontal shaft Service lines on side</p>		<p>The case drain line must be always connected with the highest port (T2).</p>
<p>Horizontal shaft and Service lines on top and bottom</p>		<p>The case drain line must be always connected with the highest port (T1 or T2).</p>

## MOTORS



Axial Piston Motors (Two Speed) - 25-64 cc

Model	Displacement cm <sup>3</sup> /n.	Rated Pressure MPa	Peak Pressure MPa	Maximum speed n/min.	Weight kg
TMV 650 (plug-in)	25, 30, 35, 38, 45	30	35	3.500	15,6
TMV 550	46, 50, 64	30	40	4.000	20



Axial Piston Motors (Fixed Displacement) - 22-110 cc

Model	Displacement cm <sup>3</sup> /n.	Rated Pressure MPa	Peak Pressure MPa	Maximum speed n/min.	Weight kg
TMF 600 (medium duty)	22, 28	35	42	4.200	11,3
	35, 40, 46			4.000	17,8
	50		41	3.600	32,5
	63, 71, 75, 92		42	3.500	
	100		41	3.240	
TMF 900 (heavy duty)	72	40	45	4.100	28
	90			4.000	34
	110			3.800	



Bent Axis Motors - 12-130 cc

Model	Displacement cm <sup>3</sup> /n.	Rated Pressure MPa	Peak Pressure MPa	Maximum speed n/min.	Weight kg
TMB 700	9.6, 12.6, 17.0	35	40	8.000	9
	25.4, 34.2			6.300	
	41.2, 47.1, 56.7, 63.5			5.700	15
	83.6, 90.7			4.700	18
	108.0, 130.0				35

The table values can change in function of the configuration.









As HANSA-TMP has a very extensive range of products and some products have a variety of applications, the information supplied may often only apply to specific situations.

If the catalogue does not supply all the information required, please contact HANSA-TMP.

In order to provide a comprehensive reply to queries we may require specific data regarding the proposed application.

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