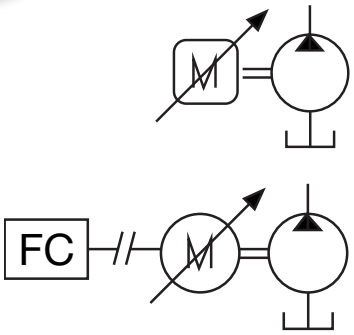

HYDRAULIC VANE PUMP T8MINI

Parker Denison Vane Technology

Parker

eReady™

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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 T8MINI hydraulic pumps

Introduction

With great pleasure and proudness, Parker Hannifin is presenting its New T8MINI of hydraulic Vane pumps.

It is an innovative vane pump series, designed and industrialized to match newest requirements of electric machines with variable speed drives.

Product key features

- High overall efficiency
- Very high speed capability
- Silent technology
- Long service life
- High pressure capability
- Stable pressure over time
- High dynamic response
- Low inertia technology
- Versatility and compactness

Description

Providing a compact and affordable solution for the global construction equipment, T8MINI enables to reach very high operational speeds and high service pressure by permiting to select lower displacements.

By combining T8MINI with a synchronous brushless electric motor, the best-in-class configuration can be obtained thanks to components downsizing selection.

The high overall efficiency generated by both components reduce power losses and increase operational time of the equipement.

Noise requirements for new electrical equipment in the construction segment are becoming increasingly stringent, due to growing awareness of environmental impacts and workers' health. The T8MINI is designed to support this breakthrought challenge with exceptional noise level performances.

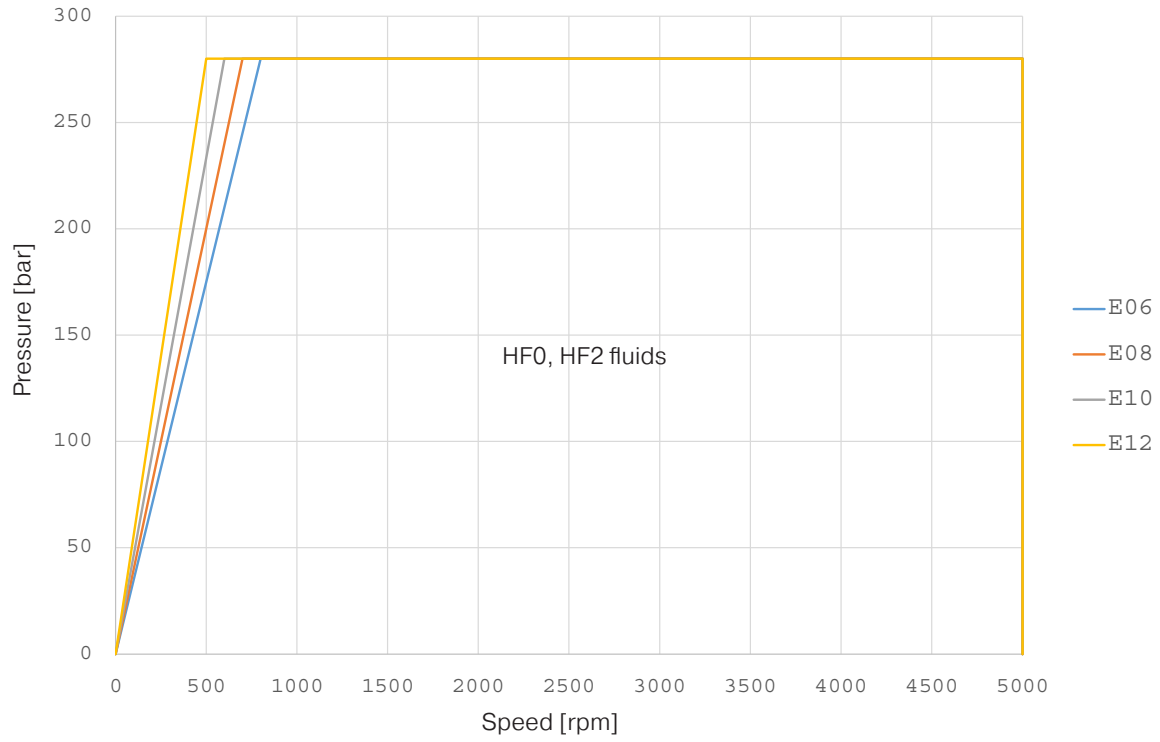
eReady

MAIN TECHNICAL DATA

Speed and pressure ratings

Single pumps		Theoretical Displacement Vi	Maximum Speed		Maximum Pressure					
			HF0, HF2 HF6a, HF6b	HF4, HF5	HF0, HF2, HF6a, HF6b			HF4, HF5		
Type	Ring size				Peak	Int.	Cont.	Peak	Int.	Cont.
		cm^3/rev.	rpm		bar	bar	bar	bar	bar	bar
T8MINI	**E06**	6.0	5000	2500	330	300	280	280	250	230
	E08	8.0								
	E10	10.0								
	E12	12.0								

Operating range



Inlet pressure range

Cartridge		Theoretical Displacement Vi (cm^3/rev.)	Speed (rpm)								
Type	Ring size		1500	2000	2500	3000	3500	4000	4500	4800	5000
T8MINI	**E06**	6.0	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.90	1.00
	E08	8.0									
	E10	10.0									
	E12	12.0									

- 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 go under 0,8 bar Absolute (11.6 psi Absolute).

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 1,10 for HF6a and HF6b fluids.
1,25 for HF4 fluids
1,35 for HF5 fluids

Outlet pressure range

- Minimum outlet pressure :

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

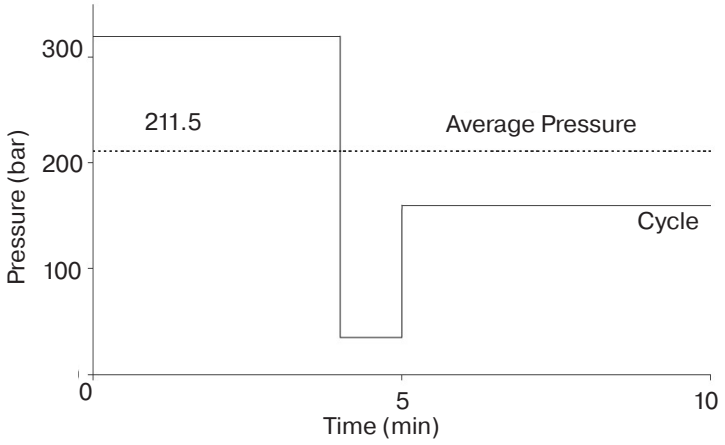
- Maximum outlet pressure :

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 : T8MINI E10

Duty cycle 4 min. at 320 bar

1 min. at 35 bar

5 min. at 160 bar

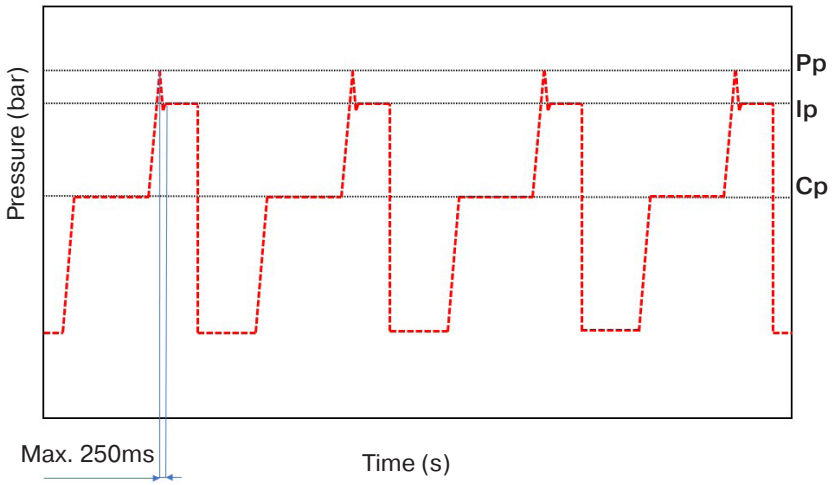
$$\frac{(4 \times 320) + (1 \times 35) + (5 \times 160)}{10} = 211.5 \text{ bar}$$

211.5 bar is lower than 290 bar allowed as continuous

pressure for T8MINI 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

Hydraulic Fluids and Seals

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. (cold start, low speed & pressure)	5000 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, HF6b	+ 80	(+ 176)
HF3, HF4	+ 50	(+ 122)
HF0, HF2, HF6a, HF6b	- 18	(- 0.4)
HF3, HF4	+ 10	(+ 50)

Filtration requirement

The fluid must be cleaned before and during operation to maintain a contamination level of ISO 4406 class 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

T8MINI E10 4R00 A50W

T8MINI series - SAE A 2 bolts
J744 mounting flange

Displacement
Volumetric displacement (cm^3/rev)
E06 = 6,0
E08 = 8,0
E10 = 10,0
E12 = 12,0

Optimized for
Variable speed drive application

Type of shaft
4 = splined (SAE A) 9T

Direction of rotation (shaft end view)
R = Clockwise

Porting combination
00
Note :
S' port will be always delivered with a steel plug
It's possible to swap this plug on the S port if needed

Ports

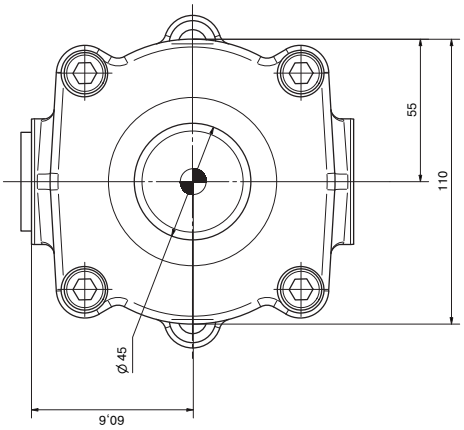
	S	P
Code	**Threaded ports**	
W	UNF SAE 16	UNF SAE 12
Y	Metric M33 x 2	Metric M27 x 2
Z	BSPP 1"	BSPP 3/4"

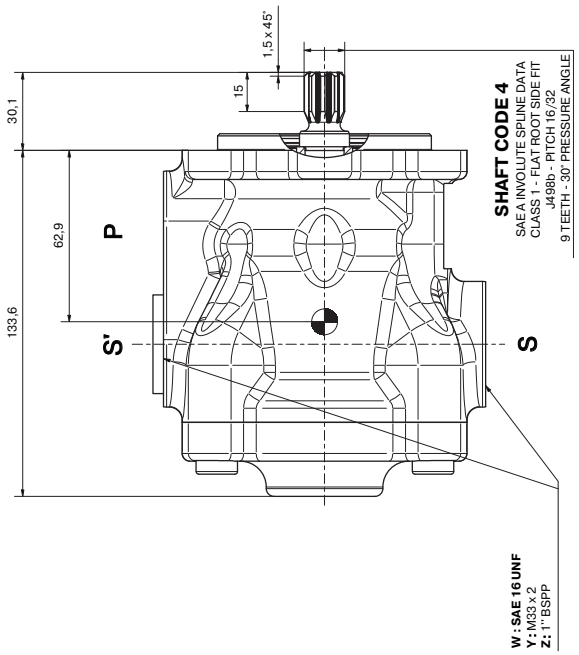
Option

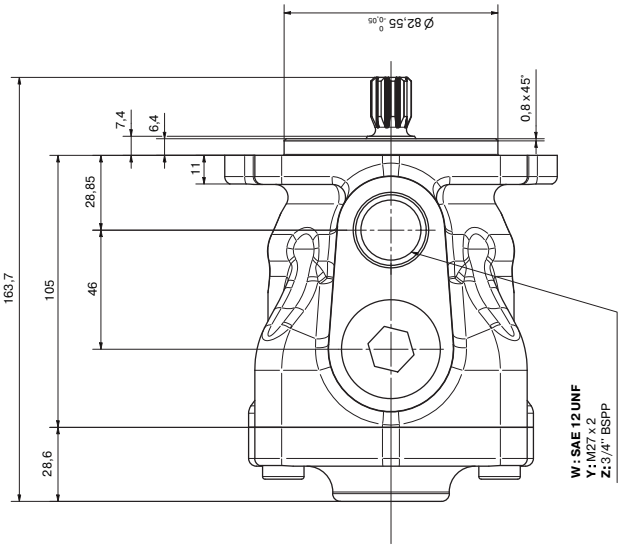
Seal class
1 = S1 BUNA N
0,7 bar max. (for mineral oil)
5 = S5 VITON®
7 bar max. (for mineral oil and fire resistant fluids)

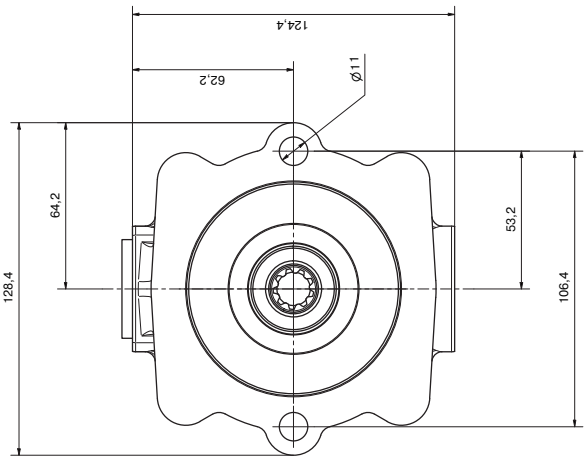
Design letter

DIMENSION DRAWING





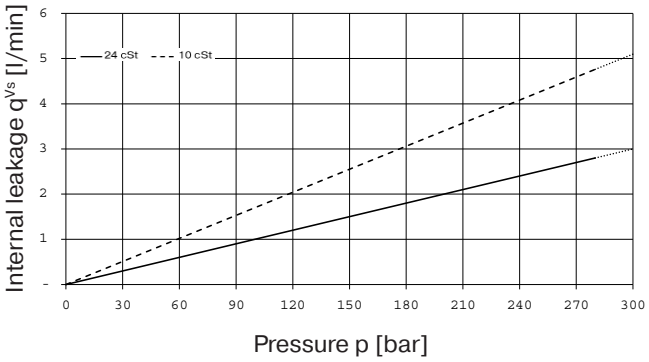




TECHNICAL DATA

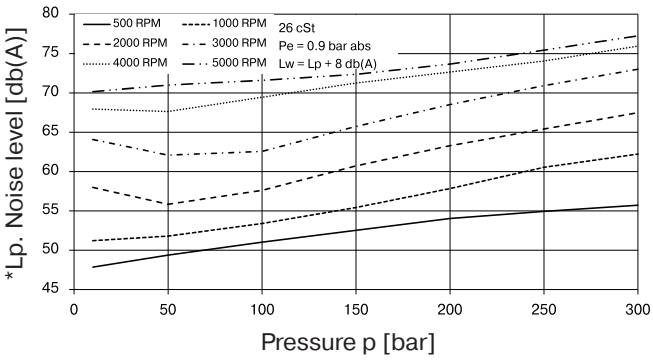
T8MINI E**

Internal leakage (Typical)



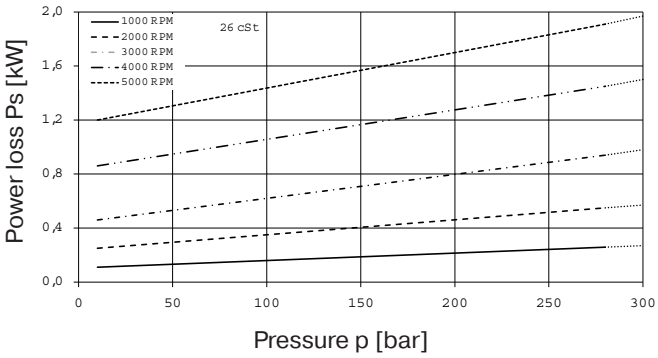
Do not operate pump more than 5 seconds at any speed or viscosity if internal leakage is higher than 50% of theoretical flow.

Noise level (Typical) - T8MINI E12

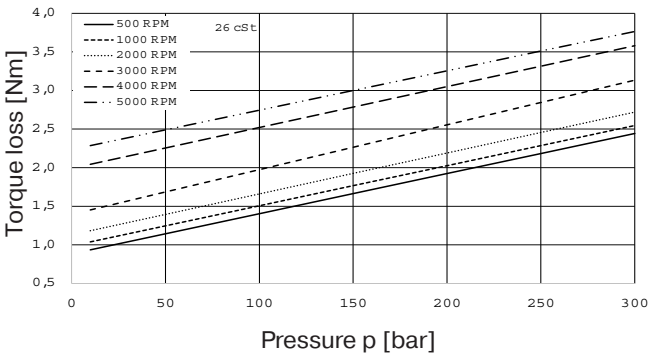


*1m ISO 4412

Power loss hydromechanical (Typical)



Torque loss hydromechanical (Typical)



Pump information

Pump type : T8MINI
Weight : 6,9 kg
Moment of inertia : 0,5 $Kgm^2 \times 10^{-4}$
Input torque limit :

Shaft	Vi [cm^3/rev] x p max. [bar]	Nm
4	3600	57

CIRCUIT DESIGN

Intended Usage

These operating instructions is valid for T8MINI series.

The T8MINI pump is a component intended for use in hydraulics systems that meet the safety requirements and rules according to DIN EN ISO 4413.

Any different or unintended use it to be considered as not intended. The manufacturer is not liable for warranty claims resulting from this.

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.

Liability

Parker does not assume liability for damage due to following failure:

- incorrect mounting / installation

- improper handling

- lack of maintenance

- unintended usage

If the pump does not operate properly or in case of defect suspicion, please contact your Parker representative or a local Certified Pump Motor Service Center by Parker trained to repair our fully serviceable pumps.

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