

## VMP Orbital Motors

### Introduction

By introducing the VMP, Sauer-Danfoss is introducing the first Orbital Motor of a new Series. In order to meet the demands for motors that have the right duty cycle and efficiency capabilities for a given function, Sauer-Danfoss now has 3 Orbital Motor Series:

- T-Series: The Highest Torque
- O-Series: The Flexible Choice
- V-Series: The Core Solution

The V-Series is your quality benchmark in the medium duty market. Based on proven technology, these reliable motors will reduce your overall system costs while adding value to your machine. Perfect for many tasks.

The VMP Motor is designed by Sauer-Danfoss in Denmark, who for more than 50 years has been developing state-of-the-art orbital motors. It is based upon the same design principles as the well-proven Sauer-Danfoss OMP Motor.

Local Address:



*VMP 160 shown*

### Key data

- Displacement range : 50 to 315 cc
- Pressure up to : 140 bar
- Flow up to : 75 l/min
- Port connection : G 1/2
- Output shaft : Ø25 mm cylindrical shaft  
1" cylindrical shaft (optional)
- Mounting flange : A2
- Pilot diameter : Ø82.5 mm

### Features

- High pressure shaft seal
- Proven orbital motor design
- 3-chamber motor design
- Suitable for medium and low duty

### Benefits

- High power density
- High efficiency
- High constant quality
- Reliable

### Applications

- Sweeper
- Winch
- Conveyor
- Crane
- Aerial lift
- Combine Harvester
- Seeder
- Spreader
- Auger
- Machine tool
- And more

**Code numbers for VMP**

*G 1/2 side-port version with A2 mounting flange and ø25 cyl. Shaft*

With drain connection	With black paint	VMP 50	VMP 80	VMP 100	VMP 125	VMP 160	VMP 200	VMP 250	VMP 315
NO	NO	11115003	11115004	11106027	11115005	11115006	11115007	11115008	11104342
NO	YES	11118261	11118262	11118263	11118264	11118265	11118266	11118267	11118268
YES	NO	11118244	11118245	11118246	11118247	11118248	11118249	11118250	11118251
YES	YES	11118253	11118254	11118255	11118256	11115010	11118257	11118258	11118259

Other features available: 1 in cylindrical shaft

*Technical data for VMP*

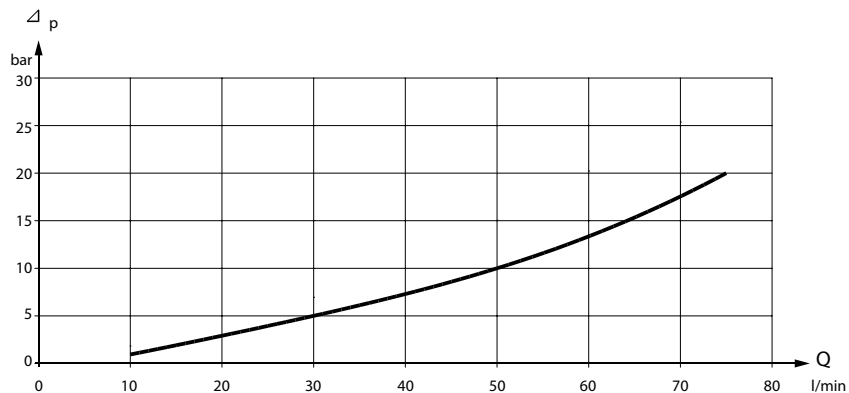
Type Motorsize		VMP	VMP	VMP	VMP	VMP	VMP	VMP	VMP	
		50	80	100	125	160	200	250	315	
Geometric displacement	ccm	48.6	77.8	97.3	125	155.7	194.6	242.3	306.1	
Max. pressure drop	bar	cont.	125	125	125	125	120	115	105	95
		int. <sup>1)</sup>	140	140	140	140	130	130	130	130
Max. oil flow	l/min	cont.	50	60	60	60	60	60	60	60
		int. <sup>1)</sup>	50	75	75	75	75	75	75	75

Type		Max inlet pressure	Max inlet pressure with drain line
VMP 50 - 315	bar	cont.	140
		int. <sup>1)</sup>	160
		peak <sup>2)</sup>	175

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.

**Pressure Drop in Motor**



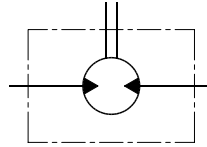
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*The curve applies to an unloaded motor shaft and an oil viscosity of 35 mm<sup>2</sup>/s*

**VMP with High Pressure Shaft Seal (HPS)**

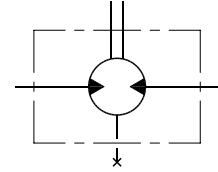
VMP with HPS and without drain connection:  
The shaft seal pressure equals the average of input pressure and return pressure.

$$P_{\text{seal}} = \frac{P_{\text{in}} + P_{\text{return}}}{2}$$



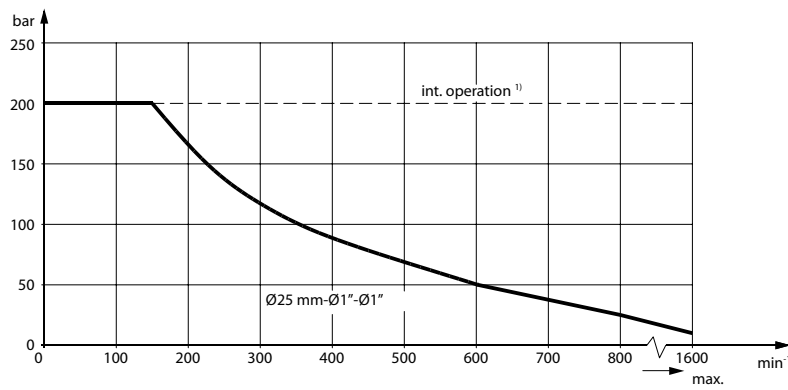
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VMP with HPS and drain connection:  
The shaft seal pressure equals the pressure in the drain line.



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*Max. permissible shaft seal pressure*



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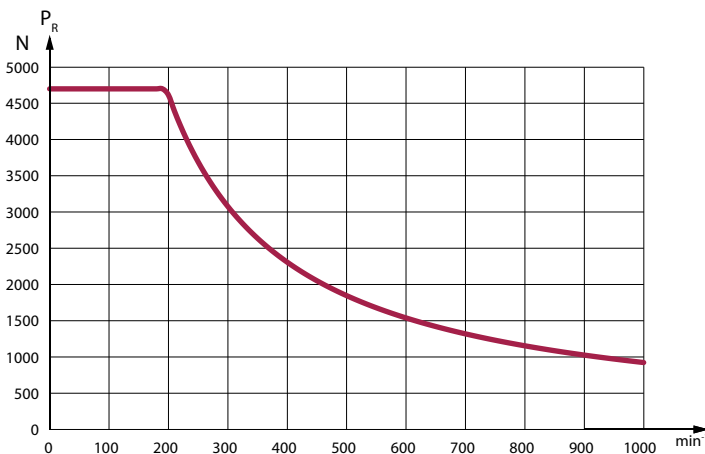
Shaft seal curve is higher than motor rating.

**Permissible Shaft Load**

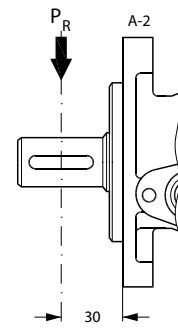
The permissible shaft load ( $P_R$ ) depends on:

- $n$  = Speed ( $\text{min}^{-1}$ )
- $L$  = Distance from the point of load to the mounting flange (mm)

Side Load  $P_R$  (N) =  $\frac{800}{n} \times \left( \frac{150000}{L + 100} \right)$  from 200-800 rpm

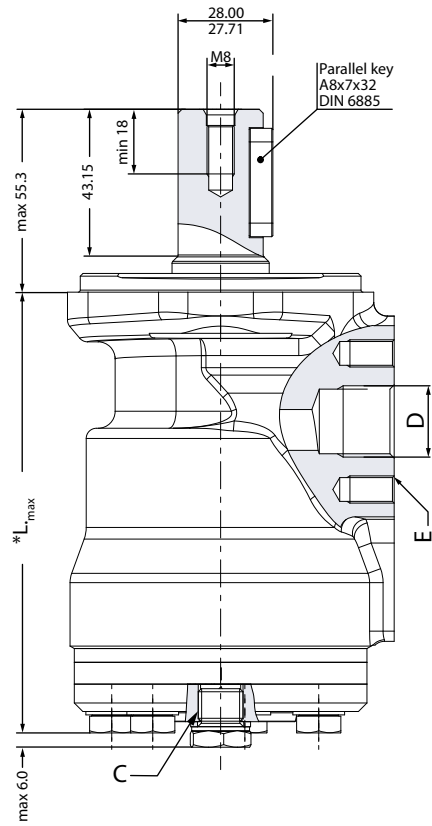
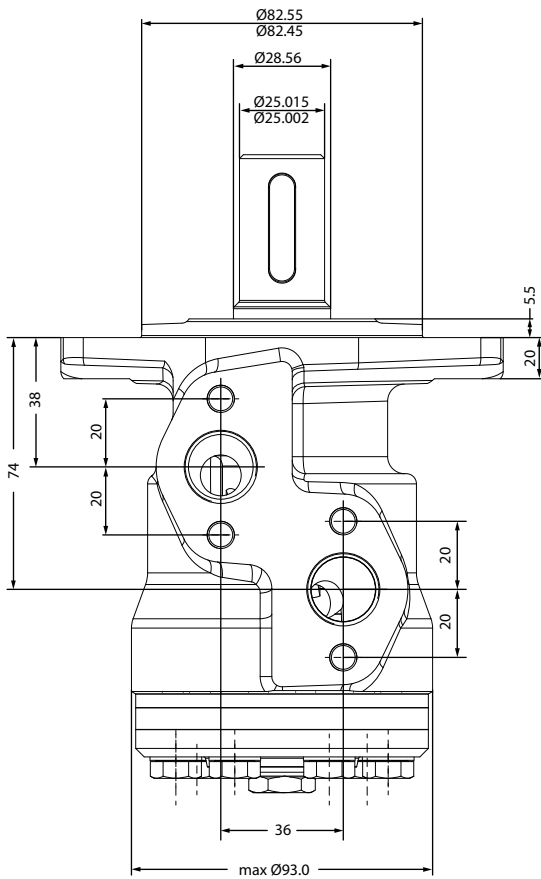


1500 N  
2000 N



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**Dimension**

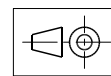
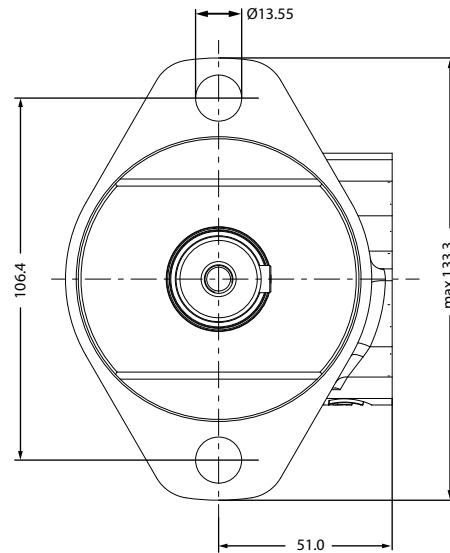
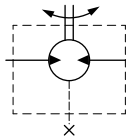


C: Drain connection, G1/4; 12 deep

D: G1/2; min 15 deep

E: M8; 13 deep (4 pcs)

Tolerance for basic dimensions = ±1 mm



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Type	Max. L (mm)	Weight (kg)
VMP 50	132.0	4.9
VMP 80	135.9	5.0
VMP 100	138.5	5.2
VMP 125	142.2	5.3
VMP 160	146.3	5.5
VMP 200	151.5	5.7
VMP 250	158.0	5.9
VMP 315	166.4	6.2