

ENGINEERING  
TOMORROW



Technical Information

# Steering

## OSPM Mini-Steering Unit

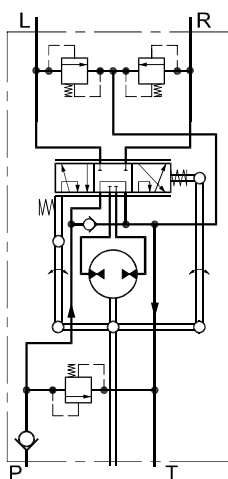
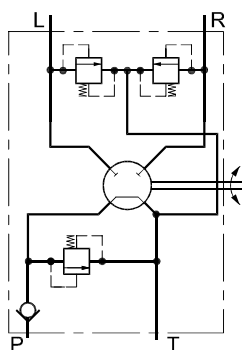


### Steering unit OSPM

- Power Beyond (PB) version where surplus oil can be led to the working hydraulics, and
- Load Sensing (LS) dynamic versions.

#### **OSPM ON**

Open centre steering units have open connection between pump and tank in the neutral position.



150-539.11

**Steering unit OSPM**

**Order specification**

**Specification table none catalogue for numbers of OSPM steering units**

Your company	Name	Vehicle			Potential, pcs/year		Completed by	Date
Steering unit type	OSPM ON	OSPM PB			OSPM LS			
DP <sup>1)</sup> cm <sup>3</sup> /rev [in <sup>3</sup> /rev] OSPM	32 [1.95]	40 [2.44]	50 [3.05]	60 [3.84]	70 [4.27]	80 [4.88]	100 [6.10]	
Rear ports P, T, E/LS	9/16"-18 UNF ORFS			11/16"-16 UNF ORFS		G 1/4"-30 flare		
Rear Ports L, R	9/16"-18 UNF ORFS			11/16"-16 UNF ORFS		G 1/4"-30 flare		
Side ports P, T, E/LS	9/16"-18 UNF			11/16"-16 UNF		M 14 x 1.5		
Side ports L,R	9/16"-18 UNF			11/16"-16 UNF		M 14 x 1.5		
RV <sup>2)</sup> bar [psi]	75 [1087]	80 [1160]	90 [1305]	100 [1450]	110 [1595]	125 [1812]	140 [2030]	No relief
Shock valves bar [psi]	130 [1885]	140 [2030]	150 [2175]	160 [2320]	170 [2610]	185 [2683]	200 [2900]	No shock valves
Check valve in P-line	YES				NO			

<sup>1)</sup> Displacement

<sup>2)</sup> Pressure relief valve

An alternative way to specify a variant is to state an existing code number and add the modifications you would like to have in the basic steering unit.

Code number of basic steering unit: \_\_\_\_\_

Requested modifications: \_\_\_\_\_  
 \_\_\_\_\_

**Technical data**

**Common data**

Look in sub catalogue: "General Steering Components"

## Steering unit OSPM

### Displacement, flow and pressure OSPM ON/PB

Steering unit	Displacement		Recommended* oil flow		Max pressure on connections											
					P		T		L, R		E					
	cm <sup>3</sup> /rev	[in <sup>3</sup> /rev]	l/min	[US gal/min]	bar	[psi]	bar	[psi]	bar	[psi]	bar	[psi]				
OSPM 32 ON	32	[1.95]	3-9	[0.8-2.4]	140	[2030]	20	[290]	200	[2900]	-					
OSPM 40 ON	40	[2.44]	4-12	[1.1-3.2]												
OSPM 50 ON	50	[3.05]	5-15	[1.3-4.0]												
OSPM 63 ON	63	[3.84]	6-18	[1.6-4.8]												
OSPM 70 ON	70	[4.27]	7-20	[1.9-5.3]												
OSPM 80 ON	80	[4.88]	7-20	[1.9-5.3]												
OSPM 100 ON	100	[6.10]	7-20	[1.9-5.3]												
OSPM 32 PB	32	[1.95]	3-20	[0.8-5.3]									140		[2030]	
OSPM 40 PB	40	[2.44]	4-20	[1.1-5.3]												
OSPM 50 PB	50	[3.05]	5-20	[1.3-5.3]												
OSPM 63 PB	63	[3.84]	6-20	[1.6-5.3]												
OSPM 70 PB	70	[4.27]	7-20	[1.9-5.3]												
OSPM 80 PB	80	[4.88]	7-20	[1.9-5.3]												
OSPM 100 PB	100	[6.10]	7-20	[1.9-5.3]												

\* Criteria for determining the recommended oil flow:

- Must minimum be the oil flow it takes to ensure sufficient steering speed at idle motor speed
- Must ensure the least possible pressure loss at full speed

The steering unit can cope with an oil flow that is up to 50% higher than the maximum recommended value.

### Displacement, flow and pressure OSPM LS

Steering unit	Displacement		Rated oil flow*		Max pressure on connections							
					P		T		L, R		LS	
	cm <sup>3</sup> /rev	[in <sup>3</sup> /rev]	l/min	[US gal/min]	bar	[psi]	bar	[psi]	bar	[psi]	bar	[psi]
OSPM 32 LS	32	[1.95]	3	[0.79]	140	[2030]	20	[290]	200	[2900]	140	[2030]
OSPM 40 LS	40	[2.44]	4	[1.06]								
OSPM 50 LS	50	[3.05]	5	[1.32]								
OSPM 63 LS	63	[3.84]	6	[1.58]								
OSPM 70 LS	70	[4.27]	7	[1.85]								
OSPM 80 LS	80	[4.88]	8	[2.11]								
OSPM 100 LS	100	[6.10]	10	[2.64]								

\* Criteria for determining the recommended oil flow:

- Must minimum be the oil flow it takes to ensure sufficient steering speed at idle motor speed
- Must ensure the least possible pressure loss at full speed

The steering unit can cope with an oil flow that is up to 50% higher than the maximum recommended value.

### Manual steering pressure

Under normal operating where the steering pump supplies an adequate oil flow at the required pressure, the maximum torque on the steering wheel will not exceed 2 Nm [17.7 lbf-in]. If the oil flow from the steering system pump fails or is too small, the steering unit functions automatically as a manual steering pump.

Manual steering can only be used for a limited control of the vehicle if a sudden drop of pump pressure occurs.



**Steering unit OSPM**

Mini steering unit	L <sub>1</sub>		L <sub>2</sub>	
	mm	[in]	mm	[in]
OSPM 32 ON	90	[3.54]	11.0	[0.43]
OSPM 40 ON	93	[3.66]	13.7	[0.54]
OSPM 50 ON	96	[3.78]	17.1	[0.67]
OSPM 63 ON	100	[3.94]	21.6	[0.85]
OSPM 70 ON	103	[4.05]	24.0	[0.94]
<b>OSPM 80 ON</b>	<b>106</b>	[4.17]	<b>27.4</b>	[1.08]
OSPM 100 ON	113	[4.45]	34.2	[1.35]
OSPM 32 PB/LS	103	[4.06]	11.0	[0.43]
OSPM 50 PB/LS	109	[4.29]	17.1	[0.67]
OSPM 63 PB/LS	113	[4.45]	21.6	[0.85]
OSPM 70 PB/LS	116	[4.57]	24.0	[0.94]
OSPM 80 PB/LS	119	[4.69]	27.4	[1.08]
OSPM 100 PB/LS	126	[4.96]	34.2	[1.35]