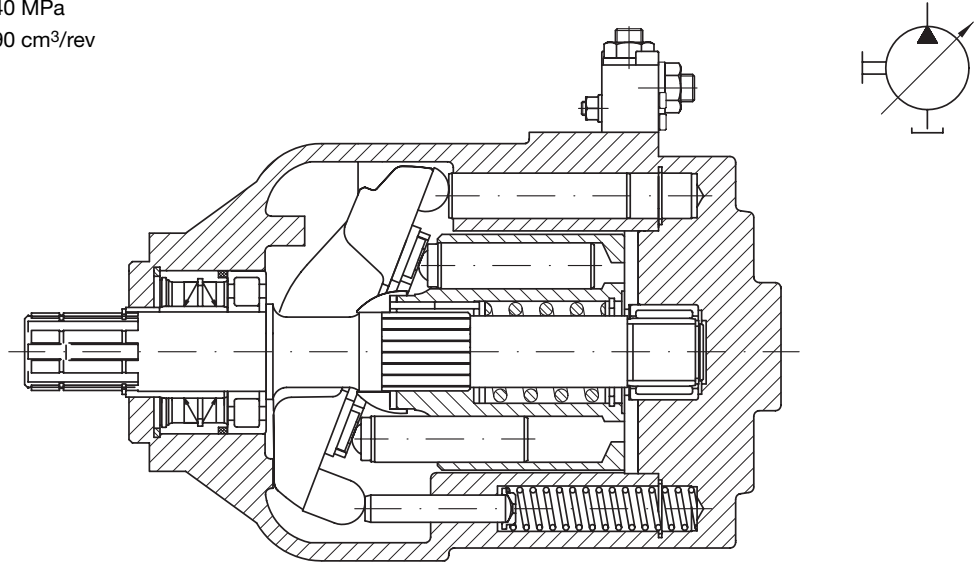


# Axial piston variable displacement pump typ SVH 092

For truck hydraulics  
Open circulation

Maximum pressure  $p_{max}$  = 40 MPa  
Displacement  $D_{max}$  = 90 cm<sup>3</sup>/rev



## 1. General information

This variable displacement pump with its rugged construction is designed for direct mounting on the power take off on trucks. SVH 092 has a displacement of 92 cm<sup>3</sup>/rev., peak pressure 40 MPa, high self priming rating and a low noise level. The pump is best employed when it is combined with load-sensing valves.

## 2. Available versions, main data

Example: **SVH - 092 R D N - 01/LSN - 28**

Basic type \_\_\_\_\_ Pressure specification (MPa) \_\_\_\_\_

**Table 1:** Nominal size

Coding	<b>092</b>
Displacement D	92 cm <sup>3</sup> /rev.
Pressure $p_{max}$	40 MPa

**Table 2:** Controllers

Coding	Description
<b>LSN</b>	Load-Sensing controller with integrated pressure limitation

Direction of rotation: **L** = left  
**R** = right  
always facing the drive shaft  
(note for changing the rotation direction see position 3)

Production standard \_\_\_\_\_

Seals: **N** = NBR (Nitril) - Standard

Pump shaft shape: \_\_\_\_\_

**D** = Spline shaft with mounting flange ISO 7653-1985

**S** = Spline shaft and mounting flange SAE-C

### 3. Additional parameter

#### 3.1. General

**Calculation formulae:**

Displacement D  

$$D = \frac{Q_1 \cdot 1000}{n_M \cdot z} \text{ (cm}^3\text{/rev.)}$$

Torque M  

$$M = \frac{D \cdot p}{6.3} \text{ (Nm)}$$

Power P  

$$P = \frac{Q_2 \cdot p}{60} \text{ (kW)}$$

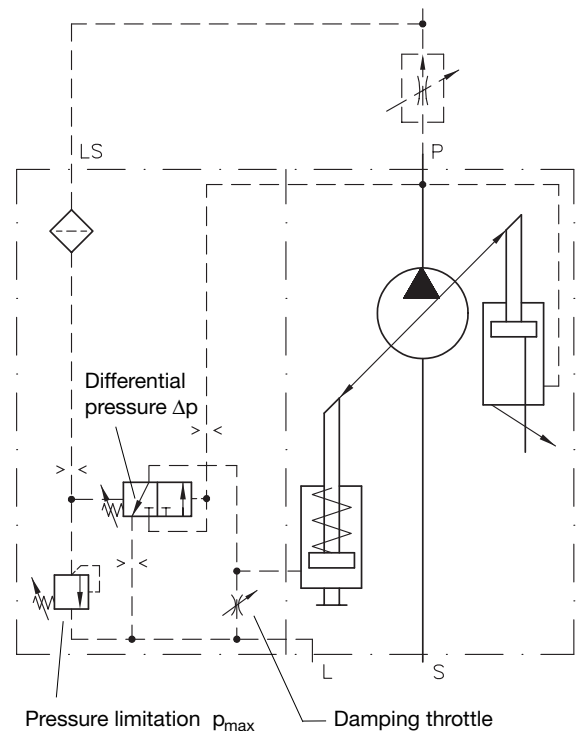
$Q_1$  = Flow demand (l/min.)  
 $n_M$  = Engine speed (rpm)  
 $z$  = PTO ratio

D = Pump displacement (cm<sup>3</sup>/rev.)  
 p = Working pressure (MPa)  
 $Q_2 = \text{Flow (l/min.)} = D \cdot n_M \cdot z$

Nomenclature	Axial piston pump according to the swash plate principal.
Mounting	For direct mounting on PTO D (DIN 5462, ISO 7563) or S (SAE C 4-bolt) alternatively on driveshaft.
Direction of rotation	Right or left.
Changing the rotation direction	Change the port plate. Turn the end plate. Order No.: port plate    right                    79-29020 left                     79-29035
Installed position	Any but under oil level.
Hydraulic fluid	Hydraulic oil acc. to DIN 51524 table 2 and 3; ISO VG 10 to 68 acc. to DIN 51519 Viscosity range: min. approx. 10; max. approx. 1000 mm <sup>2</sup> /s Optimal operation range: approx. 10...35 mm <sup>2</sup> /s Also suitable are biologically degradable pressure fluids type HEES (synth. Ester) at operation temperatures up to approx. +70°C.
Temperature	Ambient: approx. -40...+60°C Fluid: -25...+80°C, pay attention to the viscosity range! Start temperature down to -40°C are allowable (Pay attention to the viscosity range during start!), as long as the operation temperature during subsequent running is at least 20° higher. Biological degradable pressure fluids: Pay attention to manufacturer's information. With regard to the compatibility with sealing materials do not exceed +70°C.
Filtration	Recommended contamination class = 18/13 conforming DIN ISO 4406
Initial operation	All pipes should be flushed with the same fluid intended for the later service prior to initial operation. The housing of the pump should be primed via the upper case drain port. The case drain line must be routed in such a way that running empty is prevented. The pressure limiting valve should be set to 5 MPa or lower for initial operation and the first few minutes of regular service.

Max. rev. rating when self priming and max. angle of the swash plate at 0.1 MPa abs. inlet pressure	2400 rpm
Min. rev. rating for permanent running	500 rpm
Drive power for 25 MPa and 2000 rpm	79.5 kW
Mass (weight) complete with controller	approx. 25.8 kg
Inertia moment	0.008 kg m <sup>2</sup>
Sound level 25 MPa 1500 rpm and max. swash plate angle (Measured in a sound measuring room DIN ISO 4412, distance 1m)	75 dB(A)
Pressure range    Differential pressure Δp	1.5 ... 3.0 MPa (setting ex-works 1.8 MPa)
Pressure limitation	5 ... 40 MPa

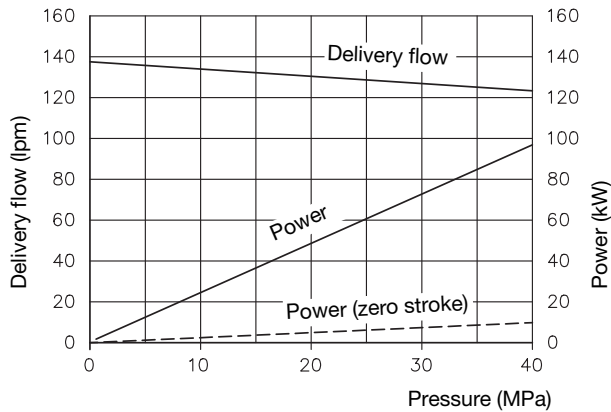
**Symbol with LSN-controller**



### 3.2. Curves

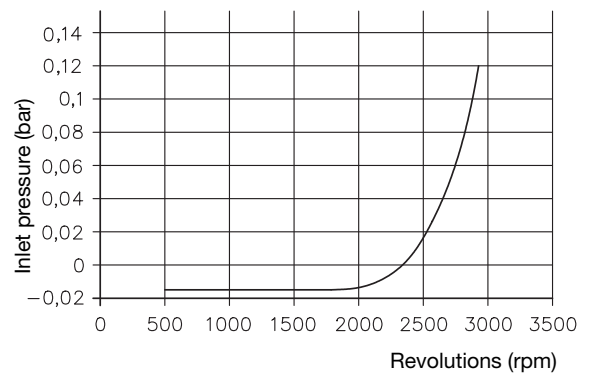
#### Delivery flow and performance (basic pump)

The curves illustrate delivery flow/pressure (without controller). Drive power at max. swash plate angle and drive power at zero stroke at 1500 rpm.

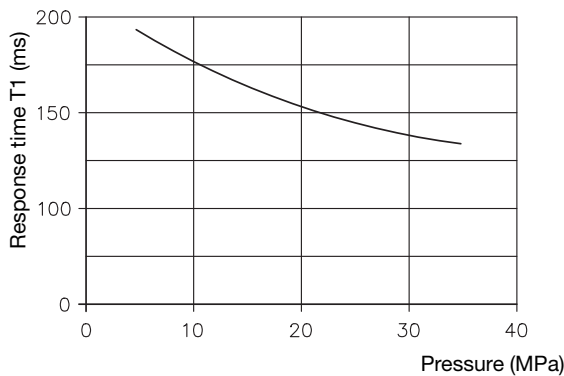


#### Inlet pressure

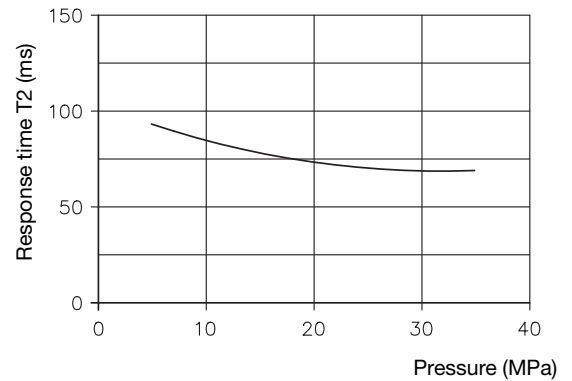
The curve was taken at viscosity 75 mm<sup>2</sup>/s and max. swash plate angle



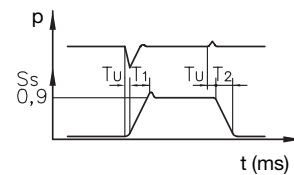
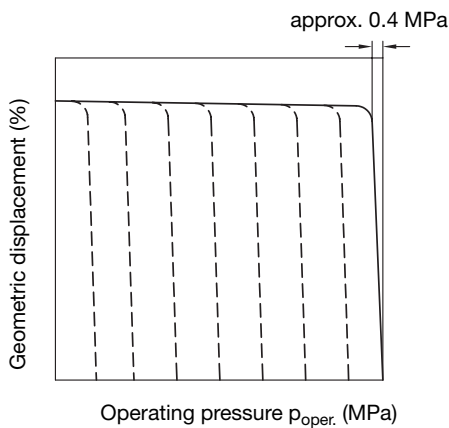
#### Response time T1 (LSN-controller)



#### Response time T2 (LSN-controller)



#### Coding LSN

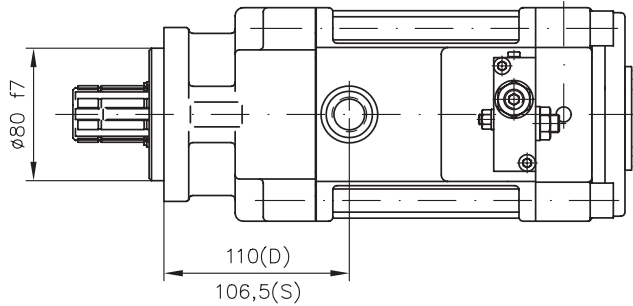
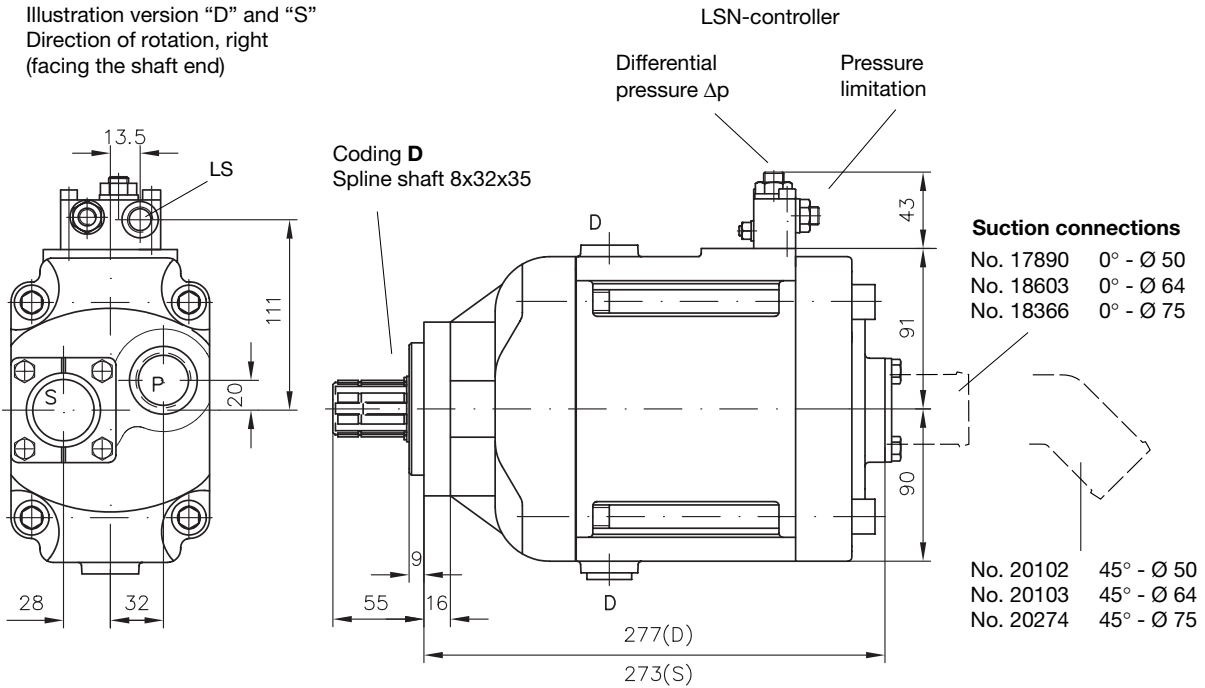


- $S_s$  = Displacement
  - $T_u$  = Delay < 3 ms
  - $T_1$  = Response time min to max
  - $T_2$  = Response time max to min
  - $p$  = Pressure
- The curve applies to a hydraulic capacity of 0.015 cm<sup>3</sup>/MPa (1.5 m hose NW 20)

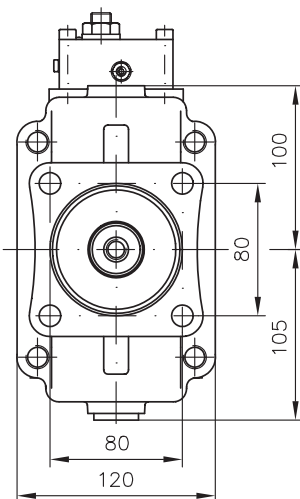
## 4. Unit dimensions

All dimensions in mm, subject to change without notice !

Illustration version "D" and "S"  
Direction of rotation, right  
(facing the shaft end)

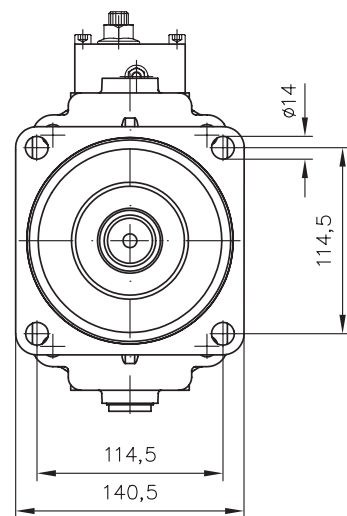
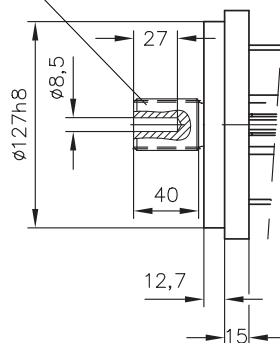


**Version D (DIN)**



**Version S (SAE)**

Coding S  
Spline shaft 14T-12/24DP



Ports:

- P = Pressure port G 1"
- S = Suction port Ø 50-75
- D = Case drain G 1/2"
- LS = LS signal port G 1/4"

**Pressure adjustment**

	Pressure range MPa	Δp MPa / rev.
Pressure limitation	5 ... 20	4.0
	20 ... 40	9.5
Differential pressure Δp	1.5 ... 3.0	1.2