

# Pulse Generator

## SP/SFE 30/5, SP/SFE 30/6 GL

for total-loss oil and grease lubrication systems



### General remarks

Group SP/SFE30 pulse generators are used to monitor oil and grease volumetric flow rates of 0,1 to 50 ccm/min at a maximum permissible operating pressure of 600 bars.

Group SP/SFE30 pulse generators are mainly used on metal-forming machines and for the lubrication of cylinders and compressors.

The SP/SFE30/6GL pulse generator has been approved by Germanischer Lloyd for use on ships.

The pulses from the pulse generator are evaluated by a downstream pulse evaluator.

## How it works

(See Fig. 1) The lubricant flows from the inlet port through duct  $K_R$  into outlet chamber  $D_4$ . Piston  $K_1$  moves to the left. The control bolt with balls  $E_1$  locks piston  $K_2$ . The lubricant in outlet chamber  $D_1$  is pressed through the right-hand annular groove of piston  $K_2$  to the outlet port. When piston  $K_1$  reaches the end position on the left, the locking of piston  $K_2$  is terminated.

(See Fig. 2) The lubricant flows from the inlet port through duct  $K_{ML}$  into outlet chamber  $D_2$ . Piston  $K_2$  moves to the right. The control bolt with balls  $E_1$  locks piston  $K_1$ . The lubricant in outlet chamber  $D_3$  is pressed through the right-hand annular groove of piston  $K_1$  to the outlet port. When piston  $K_2$  reaches the end position on the right, the locking of piston  $K_1$  is terminated.

The lubricant flows from the inlet port through duct  $K_L$  into outlet chamber  $D_1$ . Piston  $K_1$  moves to the right. The control bolt with balls  $E_1$  locks piston  $K_2$ . The lubricant in outlet chamber  $D_4$  is pressed through the left-hand annular groove of piston  $K_2$  to the outlet port. When piston  $K_1$  reaches the end position on the right, the locking of piston  $K_2$  is terminated.

(See Fig. 1, position  $K_1$ , right hand)

The lubricant flows from the inlet port through duct  $K_{MR}$  into outlet chamber  $D_3$ . Piston  $K_2$  moves to the left. The control bolt with balls  $E_1$  locks piston  $K_1$ . The lubricant in outlet chamber  $D_2$  is pressed through the left-hand annular groove of piston  $K_1$  to the outlet port.

The sequence described above is repeated as long as the lubricant flows.

After the procedure described above is completed, reed contact  $S_1$  in the switch part is closed once and opened once by the ring magnet affixed to piston  $K_1$ . The switching pulses are generated at a rate proportional to the volumetric flow. They are fed to the connected pulse evaluator and monitored by the built-in timer. If the switching period is longer than the set monitoring time, a fault is signaled.

See important product usage information the on back cover.

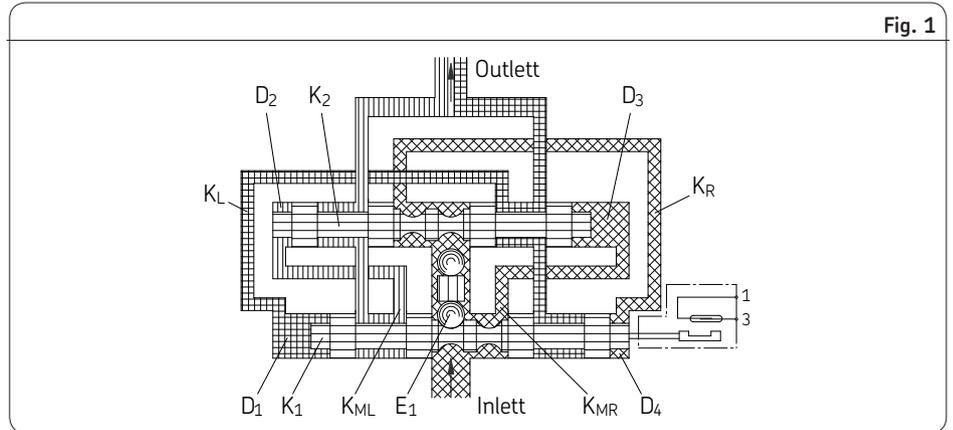


Fig. 1

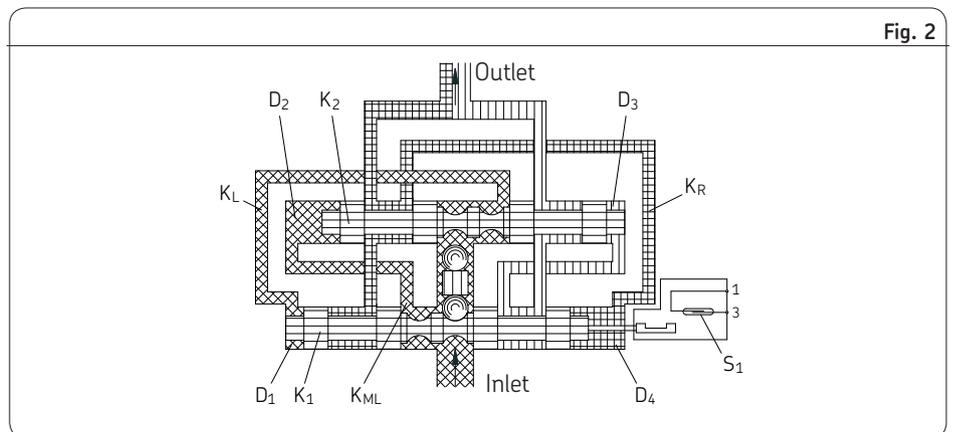
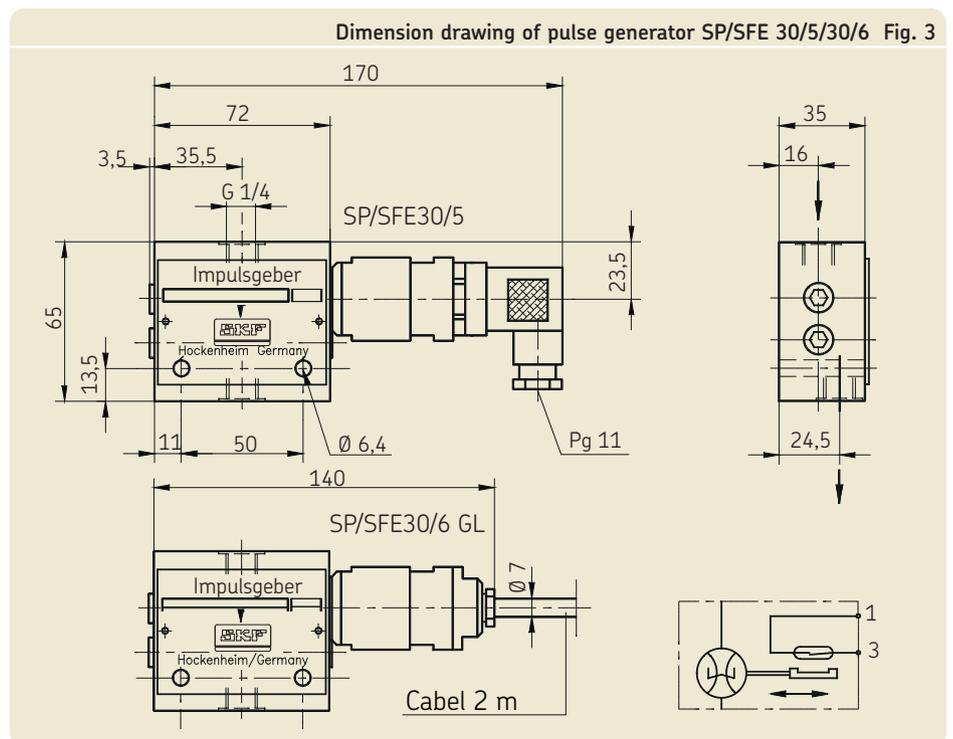


Fig. 2



Dimension drawing of pulse generator SP/SFE 30/5/30/6 Fig. 3

Technical data	
<b>General information</b>	
Mounting position	any
Ambient and lubricant temperature range	-15 to +70 °C
Vibration resistance	4 x g
Weight	1,1 kg
<b>Hydraulic system</b>	
Operating pressure	4 to 600 bars
Control pressure loss	approx. 4 bars
Lubricant	mineral, synthetic and ecofriendly oils, grease based on mineral oil
Service viscosity	> 12 mm <sup>2</sup> /s
Worked penetration	> 260 <sup>1</sup> / <sub>10</sub> mm
Volumetric flow range	0,1 to 50 ccm/min
Volume/pulses	0,34 ccm <sup>1</sup> 2)
<b>Electrical system</b>	
Type of contact	reed contact
Switching capacity	10 W with AC/DC
Switched voltage	24 V/48V
Switched current <sup>3)</sup>	216 mA at 24 V, 208 mA at 48 V
Type of enclosure	IP 65
Switching rate	> 10 <sup>7</sup>
<b>Connection</b>	
Type of connection	
SP/SFE 30/5	plug, DIN 43 650
SP/SFE 30/6 GL	cable (2 m)
Plug	3 +PE
Cable diameter	12 mm
Conductor size	1,5 mm <sup>2</sup>
<p>1) One pulse comprises the opening or closing of the reed contact.</p> <p>2) Volume/pulse = 0,68 ccm when a pulse monitoring unit is used (opening till reopening or closing to reclosing of reed contact).</p> <p>3) Adequate spark quenching presupposed.</p>	

Order No.	
<b>Designation</b>	<b>Order No.</b>
SP/SFE 30/5 pulse generator	24-2583-2516
SP/SFE 30/6 GL pulse generator with 2 m connecting cable (approved by Germanischer Lloyd)	24-2583-2517

Accessories	
<b>Designation</b>	<b>Order No.</b>
Straight connector G1/4 for Ø 6 mm tubing	406-411
Straight connector G 1/4 for Ø 8 mm tubing	96-1108-0058

**Order No. 1-3009-EN**

Subject to change without notice! (07/2014)

**Important product usage information**

All products from SKF may be used only for their intended purpose as described in this brochure and in any instructions. If operating instructions are supplied with the products, they must be read and followed.

Not all lubricants are suitable for use in centralized lubrication systems. SKF does offer an inspection service to test customer supplied lubricant to determine if it can be used in a centralized system. SKF lubrication systems or their components are not approved for use with gases, liquefied gases, pressurized gases in solution and fluids with a vapor pressure exceeding normal atmospheric pressure (1013 mbars) by more than 0.5 bar at their maximum permissible temperature.

Hazardous materials of any kind, especially the materials classified as hazardous by European Community Directive EC 67/548/EEC, Article 2, Par. 2, may only be used to fill SKF centralized lubrication systems and components and delivered and/or distributed with the same after consulting with and receiving written approval from SKF.

**Further brochures**

- 1-3018-EN Pulse generator SP/SFE 30/3003 according to ATEX Directive 94/9/EC
- 1-3012-EN Pulse generator SP/SFE30/3002
- 1-1700-5-EN Pulse monitoring unit

**SKF Lubrication Systems Germany GmbH**

2. Industriestrasse 4 · 68766 Hockenheim · Germany  
Tel. +49 (0)62 05 27-0 · Fax +49 (0)62 05 27-101  
[www.skf.com/lubrication](http://www.skf.com/lubrication)

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