Oil mist lubrication unit NVCM

For main spindle bearing oil mist lubrication

- Lubrication by oil drop lets with high uniformity
- Air cooling effect
- Air seals against contamination
- Low cost solution

Overview oil mist lubrication

Modern oil mist lubrication systems, such as those offered by SKF, are tailored to minimize floating mist and are used in combination with non-toxic and non-carcinogenic oils and appropriate sealing systems to address environmental and health concerns,

These systems, when properly managed, will continuously and effectively spray oil and supply the bearings with the minimum amount of oil required in a cost-effective and environmentally friendly manner,

In modern oil mist lubrication systems, oil droplets of 1-5 microns are present as a mist in dry air, The oil-to-air ratio is typically 1:200 000, resulting in a dilute, but highly effective, mixture being sprayed,

Characteristics

SKF offers oil air and oil mist units that are mixing air and oil and which are mainly used for the lubrication of machine tool spindles,

These units can be used in areas close to the maximum permissible rotation speed of the bearing, leading to improved machine and machining performance,

At the same time, air is usually flowing, which raises the internal pressure inside the spindle, This effectively prevents the inflow of coolant liquid from the outside,

In the case of the oil mist lubrication unit, the cyclone conveys the atomized oil, The characteristic of this oil makes it possible to lubricate several bearings simultaneously from a single system,

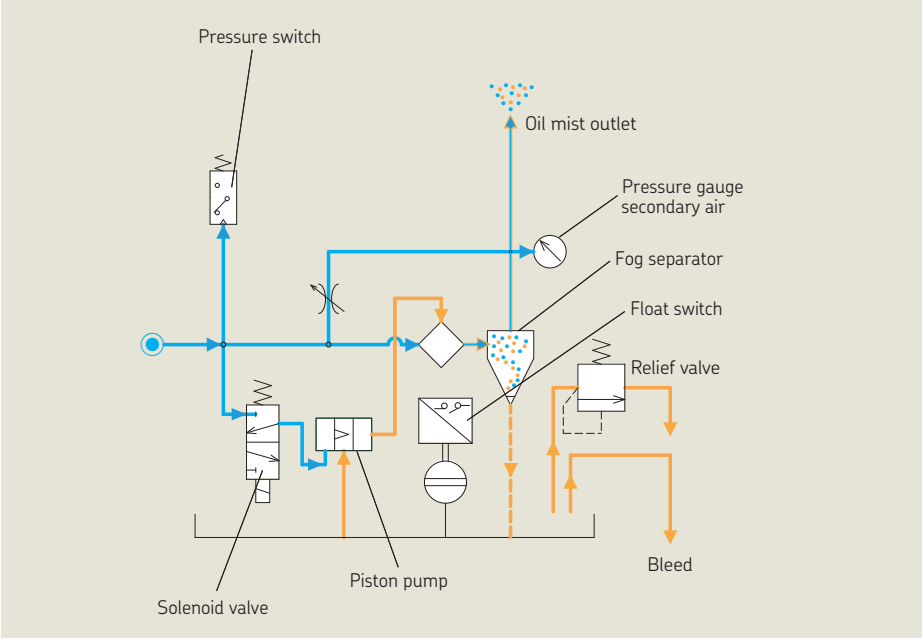
As a result, the oil circuit and the parts omposition can be simplified,
In addition, the all-in-one structure eliminates the need for mixing valves (e,g,, distribution units),

Design

The piston pump delivers the oil to a Venturi nozzle, At the Venturi nozzle, the oil is partitioned into small droplets by compressed air, These are then fed to the cyclone,
Inside the cyclone, the oil droplets are divided into large and small droplets by centrifugal force, The smaller droplets are transported to the outlet, while the larger droplets are returned to the reservoir,

The Oil Micron unit generates and supplies oil as an oil mist in the smallest and most precise quantity, Also due to the cooling effect of the air, the machining speed of machine tools and special purpose machines can be increased,

System layout



Technical data

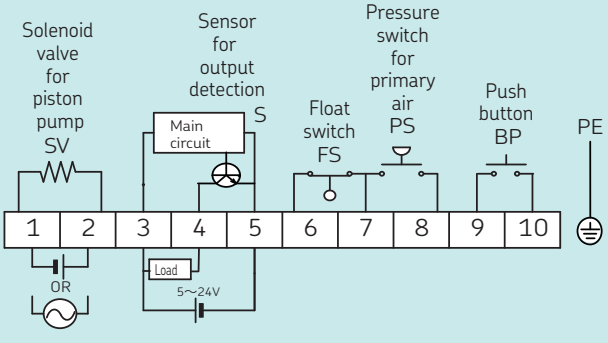
Technical data

Designation	NVCM
Medium used	Compressed air*1
Supply air pressure range	0,15 - 0,35 MPa
Secondary pressure range	0,05 - 0,25 MPa
Connecting thread	Inlet: Rc3/8; Outlet: Rc1/2
Air consumption	max. 500 Nl/min *2
Operating viscosity	ISO VG 32 - 68 *3
Average mist particle size	about 1,6 µm
Operating frequency piston pump	max. 20 shots/min (0,05 cm^3/shot)
Control voltage piston pump	DC 24 V
Reservoir capacity	Effective volume 1,1 L

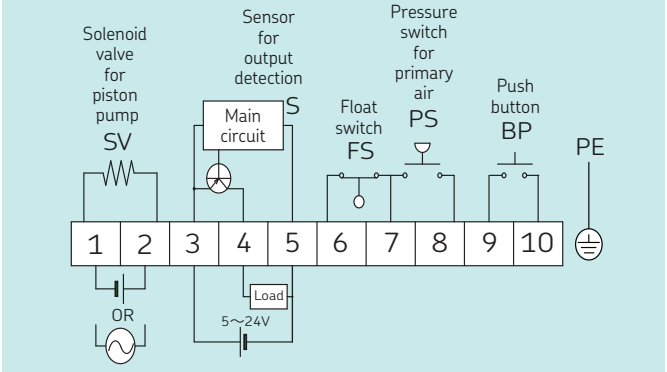
*1 Compressed air filtered to 0,3 µm recommended
*2 May change with nozzle hole diameter, number of nozzles, and secondary side pressure,
*3 Some ISO VG 32-68 oils may not be suitable for oil mist lubrication,

Wiring diagram

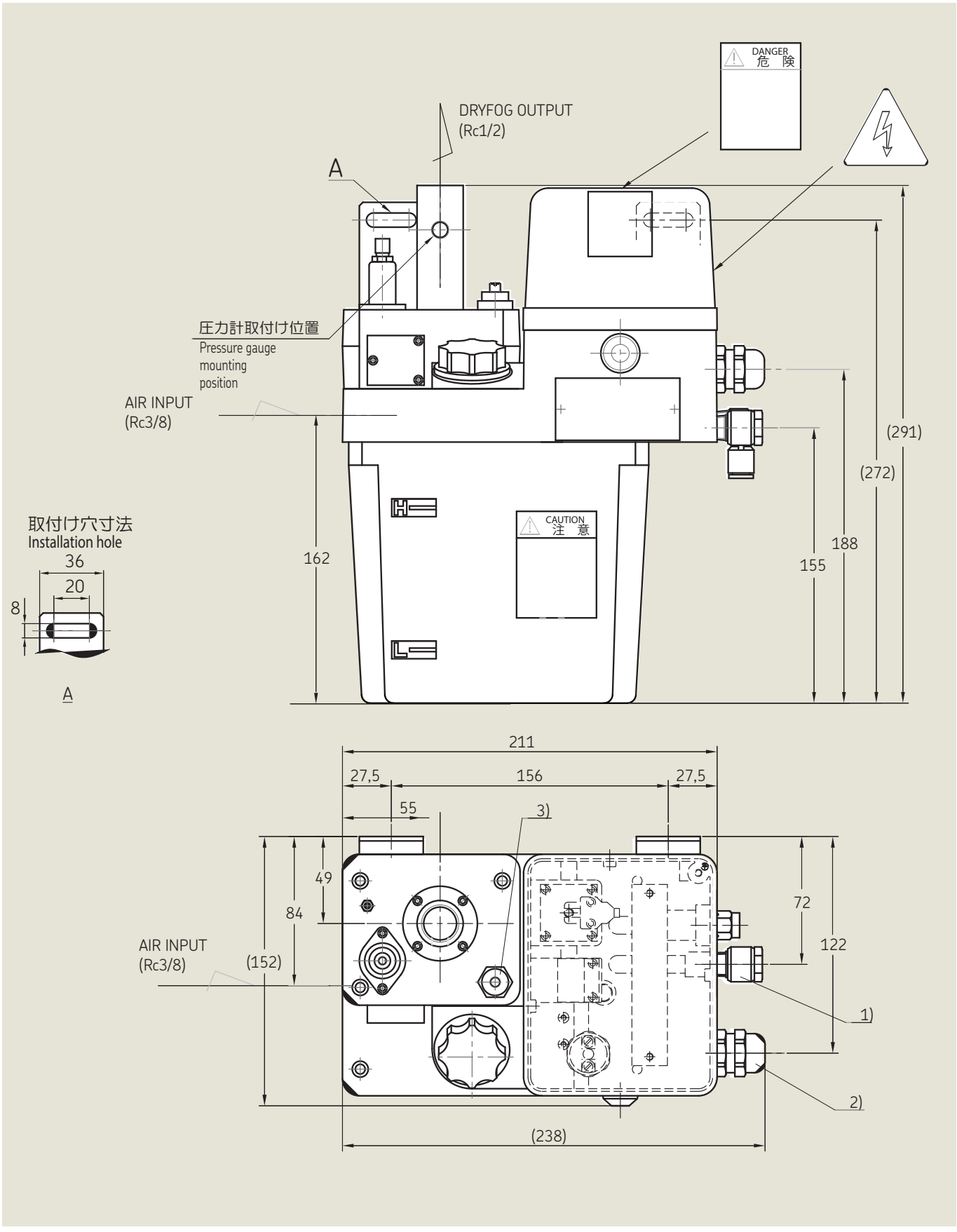
NPN variant



PNP variant



Dimensions


DANGER
危 険
DRYFOG OUTPUT
(Rc1/2)
A
圧力計取付け位置
Pressure gauge
mounting
position
AIR INPUT
(Rc3/8)
CAUTION
注 意
162
155
188
(272)
(291)
取付け穴寸法
Installation hole
36
20
8
A
211
27,5
156
27,5
55
3)
49
84
72
122
AIR INPUT
(Rc3/8)
(152)
1)
2)
(238)

Order information

NVCM - KW2 - P - S1 - A1 - M - 24

Product series

Reservoir size
KW2 = standard (2 L plastic)

Outlet sensor - output type
P = PNP
N = NPN

Piston pump sensor

External pneumatic equipment
S0 = without
S1 = FR
S6 = F2+F3+R

FR : filter regulator
F2 : filter *(0,3 μm)*
F3 : filter *(0,01 μm)*
R : regulator

Pressure switch air supply
A1 = 0,2 MPa
A2 = 0,1 MPa
A3 = 0,15 MPa
A4 = 0,25 MPa

Pressure gauge for secondary pressure
M = MPa display
N = without (to be provided for by customer)

Primary pressure: 0,15 – 0,35 MPa
Secondary pressure: 0,05 – 0,25 MPa
Maximum pressure difference: 0,1 – 0,25 MPa

Voltage solenoid valve

※ The outlet sensor only monitors the piston movement,

※ Pressure gauge only available with MPa display (full scale: 0,4 MPa)

※ Only available voltage is DC 24 V,

Order example

NVCM-KW2-N-S0-A1-M-24

- NVCM-series pump unit
- 2 L reservoir
- NPN type piston sensor
- without filter regulator
- 0,2 MPa pressure switch air supply
- Pressure gauge with MPa reading
- with DC 24 V solenoid valve

NVCM-KW2-P-S1-A1-M-24

- NVCM-series pump unit
- 2 L reservoir
- PNP type piston sensor
- Filter regulator
- 0,2 MPa pressure switch air supply
- Pressure gauge with MPa reading
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Memo

skf.jp/lubrication

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