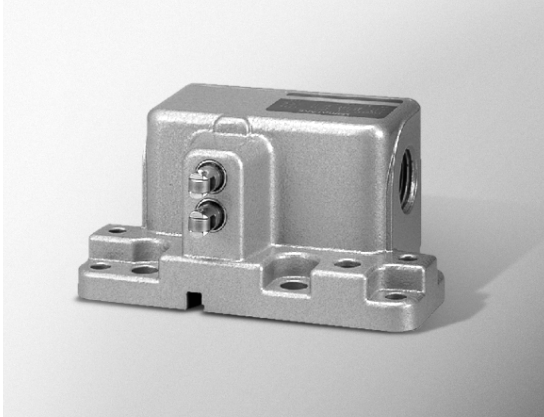


LDVS Series



Multiple-plunger limit switches compatible with EC directives for general industrial machinery and EN/IEC standards vital for acquiring CE marking.



- Complies with EN 60947-5-1.
Approval of compliancy with the standards of the “TÜV Rheinland” an EC official approving body has been acquired
- Highly reliable basic switch SSM series is used as internal switches to improve wirability
- In addition to COM, N.C. and N.O. indications, terminal Nos. 1, 2 and 3 are also indicated as switch terminal indications
- A continuous number (switch No.) corresponding the number of continuous plungers is also indicated on internal switches
- Wiring has been facilitated on the terminal block



ORDER GUIDE

| Actuator | | Specifications |
|--|--------------------|---|
| Name/shape | Number of plungers | G $\frac{1}{2}$ conduit Two on mounting surface and side surface Catalog listing |
| Bevel plunger  | 2 | LDVS-5204S |
| | 3 | LDVS-5304S |
| | 4 | LDVS-5404S |
| Roller plunger  | 2 | LDVS-5214S |
| | 3 | LDVS-5314S |
| | 4 | LDVS-5414S |

EXTERNAL STANDARDS

| Approval body | Approval standard | File No. |
|---------------|-------------------|-----------|
| TÜV | EN 60947-5-1 | J 9850943 |

PERFORMANCE

| | | |
|--|--|---|
| External standards | Conformed standards | JIS C 4508/JIS C8201-5-1 |
| | Approved standards | EN 60947-5-1 |
| Structure | Contact type | Single-Pole Double-Throw (SPDT) |
| | Terminal shape | Screw (M3 small round head screw with square washer) |
| | Contact shape | Normal load type: Silver rivet |
| | Protective structure | IP67 (IEC 529) |
| | Operating environment pollution level | 3 (EN 60947-5-1) |
| | Electrical rating | See Table 1. |
| Electrical performance (1) General characteristics | Dielectric strength | Between non-continuous terminals: 600Vac, 50/60Hz for 1 minute |
| | | Between each terminal and non-conducting metal part: 1,500Vac, 50/60Hz for 1 minute |
| | | Between each terminal and ground: 1,500Vac, 50/60Hz for 1 minute |
| | Insulation resistance | Min. 100M Ω (by 500Vdc megger) |
| | Initial contact resistance: Normal load | Max. 50m Ω (6 to 8Vdc, energizing current 1A, voltage drop method) |
| | Recommended min. contact operating voltage/current: Normal load | 24V-10mA, 12V-20mA |
| Electrical performance (2) EN 60947-5-1 related characteristics | Operating rated voltage | 240Vac, 30Vdc |
| | Rated frequency | 45 to 65Hz and "d.c." |
| | Rated insulating voltage (Ui) | 250Vac |
| | Rated impulse dielectric strength (Uimp) | 2,500V |
| | Rated energizing current (Ith): Normal load | 5A |
| | Short-circuit protection mechanism | Instant blowing fuse 8A (BASSMANN ABC8 (8A) or equivalent) |
| | Conditional rated short-circuit current | 50A (at resistive load) |
| | Switching overvoltage | Category III (IEC 60204-1) |
| Mechanical performance | Actuator strength | 75N for 1 minute in operating direction |
| | Terminal strength | Withstand tightening torque of 0.6N-m for 1 minute |
| | Impact resistance | Normal load: 600m/s ² Contact release of 1ms max. at free position and operating limit positions |
| | Vibration resistance | 1.5mm peak-to-peak amplitude, frequency 10 to 55Hz for 2 continuous hours Contact release of 1ms max. at free position and operating limit positions |
| | Allowable operating speed | 0.07mm/s to 0.5m/s Min. speed: Unstable state of contacts 0.1s max Max. speed: Actuator damage not allowed |
| | Mechanical operating frequency | Max. 120 operations/minute |
| Life | Mechanical life | Min. 5 million operations. Function after operation is 70 to 100% of standard value. |
| | Electrical life | See Table 1. |
| Environmental conditions | Operating ambient temperature | -10 to +70°C (freezing not allowed) |
| | Operating ambient humidity | Max. 98%RH |
| Recommended tightening torque | Body | 6 to 8N-m (M6 hexagon socket head bolt) |
| | Terminal screw | 0.4 to 0.6N-m (M3 small round head screw) |
| | Cover | 1.3 to 1.7N-m (M4 small round head screw) |

Table 1. Electrical rating and electrical life

| Contact material | Electrical rating | | Electrical life | |
|------------------------|-------------------|-------------------------------------|---|-------------------------|
| | Normal rating | EN (IEC) standard compliance rating | Conditions | Number of operations |
| Silver for normal load | 250Vac-5A | Category AC-15: 240Vac-1.5A | 250Vac-5A 125Vdc-0.4A, 250Vdc-0.2A | Min. 50,000 operations |
| | | Category DC-12: 30Vdc-0.5A | 250Vac-3A 30Vdc-0.4A 125Vdc-0.2A, 250Vdc-0.1A | Min. 100,000 operations |

Note 1: Life is the value measured at a startup dog angle of 30°.

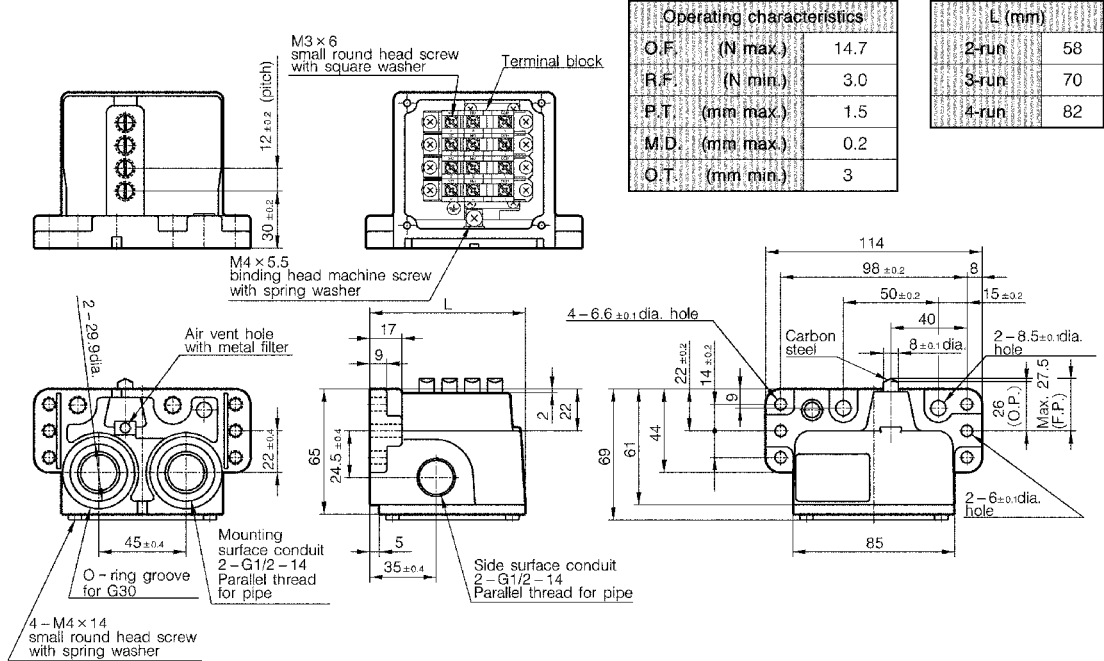
Note 2: Electrical life is the value measured at an operating frequency of 20 operations/minute.

APPEARANCE, OPERATING CHARACTERISTICS AND EXTERNAL DIMENSIONS

● Bevel plunger (2-, 3- or 4-run)

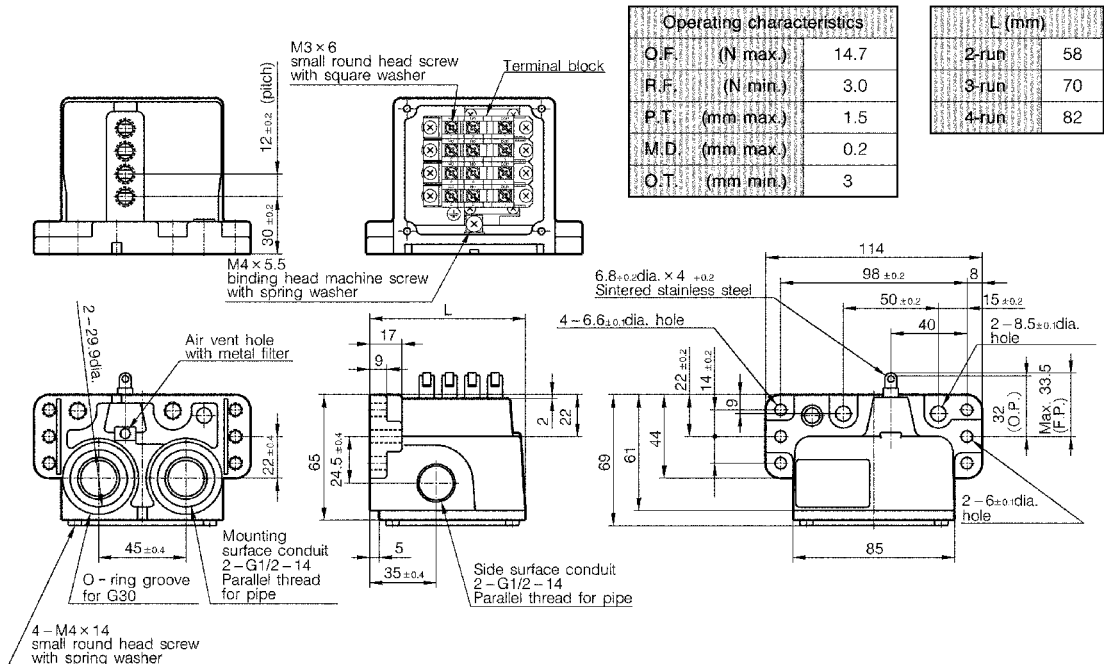
LDVS-5□0□

(unit: mm)



● Roller plunger (2-, 3- or 4-run)

LDVS-5□1□



PRECAUTIONS UPON USE

● Mounting

- Tighten each of the parts on limit switches according to the appropriate tightening torques listed in the performance tables.
Overtightening leads to damage to screws and other parts. Alternately, insufficient tightening results in a drop in switch sealability and performance such as various characteristics.
- Do not leave or use covers and conduit parts opened.
Water or dirt and dust may enter, which causes malfunction.
- Prevent the plunger from being pushed into beyond the operating limit.
- Do not use silicon rubber electrical lead, silicon adhesive or grease containing silicon. Doing so might result in defective electrical conduction.

● Wiring

- Do not perform wiring with the power ON. Doing so might cause electric shock, or the machine may start suddenly, causing unexpected accidents.
- Use crimp-type terminal lugs with covered insulation for electrical leads to prevent contact with covers and housings.
If a crimp-type terminal lug contacts a cover, the cover may no longer be shut or a ground fault may occur.
- Use seal connectors (PA1 series, etc. sold separately) or flexible piping (PA3 series) that have IP67 or equivalent sealability on conduits.
- Firmly tighten covers and conduits. If covers and conduits are not sufficiently tightened, not only sealability will be impaired and cause defective insulation, but also switch performance may no longer be ensured.

● Adjustment

- Do not apply excessive force (5 times of O.F.) to the actuator beyond the operating limit position. Doing so might damage the switch.
- Limit overtravel to 70 to 100% of the specified characteristic values. Small overtravel might cause the contacts to rattle due to vibration and impact, resulting in defective contact.