

2-10 Valve-Stations, Universal Functions



Advantages/Benefits

- ▶ UNF 1/4 - 28
- ▶ Universal functions
2/2-way, back pressure tight
3/2-mixer or distributor valve
2-10 valve-stations
- ▶ Body: PCTFE
- ▶ No dead volume
- ▶ Internal volume < 10 µl
- ▶ Hermetic isolation of fluid
from the actuator
- ▶ Seal material: Simriz™
perfluorelastomer
- ▶ Monitoring via LED-display
- ▶ Compact, expandable,
space-saving design
- ▶ Common wiring for manifold
assembly

Design/Function

This new innovative Burkert design is a further development of the rocker principle.

A perfluorelastomer separating dia-phragm hermetically isolates the fluid medium from the actuator.

Through the unique design (patent CNRS) of the valve body, internal volumes are reduced to values lower than 5 (2/2) and 10 µl (3/2).

The valve has no dead volume and risks of cross-contamination are avoided.

The metallic manifold with its UNF connection ensures high tightness, even after several disassembling of the valves.

Cleaning or replacing the actuator for example, after a cristallisation is easy and only requires the removal of 2 screws. The valves may be mounted side by side or on MDMV manifolds. Special valve manifold blocks or combinations are available on request.

Applications

Handling of aggressive or ultra-pure fluids without contamination in:

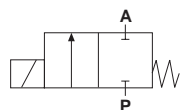
- Analysis equipment
- DNA - sequencer
- Peptide synthesis
- Diagnostic equipment



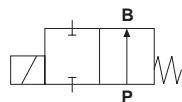
2/2 / 3/2-Way and 4/2-Way Miniature Solenoid Valve with Isolating Diaphragm

Type 127

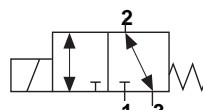
Functions



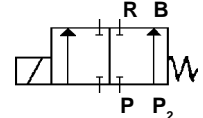
Circuit function A
2/2-way valve,
normally closed



Circuit function B
2/2-way valve,
normally open



Circuit function T,
for general use,
mixer or distributor valve



Circuit function R, inverse
2 valves 1 NO, 1 NC
4 orifices

Technical Data - Valve

Installation: as required

Seal Materials: Perfluorelastomer Simriz™
Temperature: fluid -10 to +40 °C
ambient +55 °C

Orifice: 1 mm

Flow: kv-value 0,01 m³/h
Qn-value 23 l/min

Pressure Range: gauge pressure 2,0 bar
vacuum 10⁻³ bar

Response Time: approx. 30 ms

Body Connections:

UNF 1/4-28: ø 1 mm for 1/16" tube
(ø 1,6 mm on request)

The UNF-Fitting is screwed into an anodised aluminium body, using a ferrule for flat surface seal. No metallic part is in contact with the fluid. Several assemblies/disassemblies do not affect the tightness or the valve.

On request

- FPM seals
- manual override
- valve manifold blocks

Technical Data - Actuator

Operating Voltages: 12 DC-24 DC;
24 GR: 24 V, 50/60 Hz and DC

Power Consumption: approx. 3W
(hold)

Voltage Tolerance: ± 10%

Duty Cycle: 100% continuous operation
intermittent operation 40% (with
manifold assembly and simultaneous
ambient- and fluid temperatures > 40°C)

Cycling Rate: approx. 300 c.p.m.

Electrical Connection: cable plug Type 1054/1057

| | |
|-----------------|-----------------------------------|
| Classification: | |
| 12-24DC - 24GR | IP65 with cable plug type 1054 |
| | IP20 with cable plug type 1057 SA |
| | IP00 without cable plug |
| 12DC - 24DC | IP65 with FEP-coated flying leads |

LED Display

Standard on GR voltages (not available on DC voltages)

Valve manifold blocks with common wiring: 1057 SA plug

Most of the valves may be placed side by side with a step of 18 mm with a common wiring of neutral and earth

Ask for our data sheet 1057/1054

| Version | Body Material | Seal | Pressure range* | | Backpressure | Pressure range* | | Internal volume | | Electrical Connection 1057 SA |
|------------|---------------|---------|-----------------|---------|--------------|-----------------|-----|-----------------|---|-------------------------------|
| | | | 2/2 Way | 2/2 Way | | 3 way | 2/2 | 3/2 | | |
| UNF 1/4-28 | PCTE | Simriz™ | 0-2 bar | 1,5 bar | 1,5 bar | 0-2 bar | 5µl | 10µl | ● | |

* on request: vacuum

Maintenance and spare parts

The actuator may be removed and replaced easily by unscrewing the 2 fixation screws

Reference of spare actuator

127-T-00-C-00000-Voltage-E-000

or for leads

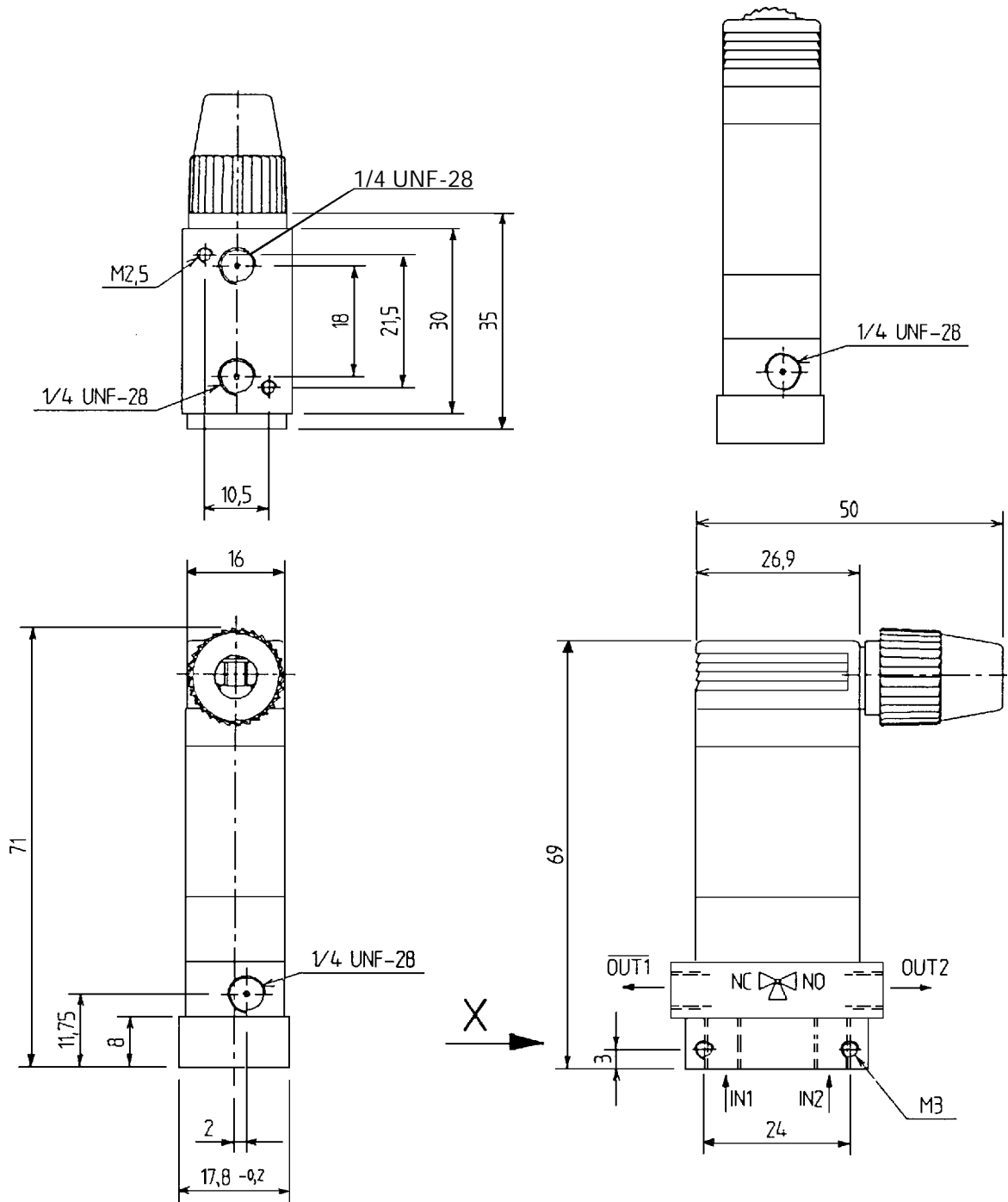
127-T-00-C-00000-Voltage-S-000

Fittings:

The UNF 1/4 - 28 fittings suitable with our valves have a ferrule for flat surface sealing.

2/2 / 3/2-Way and 4/2-Way Miniature Solenoid Valve with Isolating Diaphragm

Type 127



Orifices used in different valve functions

| Function | Valve | Inlet | Outlet | Remark |
|--------------|-------|---------|---------|---|
| 2/2 NC | A | IN1 | OUT1 | |
| 2/2 NO | B | IN1 | OUT1 | |
| Distributing | 3/2 T | OUT1 | IN1/IN2 | Coil and cable plug turned 180° |
| Mixing | 3/2 T | IN1/IN2 | OUT1 | IN 1 closed when de-energized |
| Inverse | 4/2 R | IN1 | OUT1 | IN2 --> OUT1 open when de-energized |
| | | IN2 | OUT2 | 2 channels are separated, 1 valve is NC |
| | | | | 1 valve is NO (IN2 --> OUT2) |

2/2 / 3/2-Way and 4/2-Way Miniature Solenoid Valve with Isolating Diaphragm

Type 127

Ordering: Type 127 basic valve, dead volume free

Version: single valve

| Function | Body | Voltage | Electrical connection | Order-Nr. |
|--------------------------------|-------------------|--------------|--------------------------------|------------------------|
| 2/2 NC 2/2 NC | PCTFE, UNF 1/4-28 | 24GR 24DC | For cable plug Leads 500 mm | 414 655 Z 414 656 S |
| 2/2 NO 2/2 NO | | 24GR 24DC | For cable plug Leads 500 mm | 414 657 T 414 658 C |
| 4/2 Bistable 4/2 Bistable | | 24GR 24DC | For cable plug Leads 500 mm | 414 659 D 414 660 A |
| 3/2 Universal 3/2 Universal | | 24GR 24DC | For cable plug Leads 500 mm | 414 661 X 414 662 Y |

Version: MDMV manifold block

| Function | Voltage | Connection | Number of valves | Order-Nr. |
|------------|-----------|----------------|------------------|-----------|
| UNF 1/4-28 | 24 GR | For cable plug | 2 | 414 663 Z |
| | | | 3 | 414 665 T |
| | | | 4 | 414 667 V |
| | | | 5 | 414 669 F |
| | | | 6 | 414 671 Z |
| | | | 7 | 414 673 T |
| | | | 8 | 414 675 V |
| | | | UNF 1/4-28 | 24 DC |
| 3 | 414 666 U | | | |
| 4 | 414 668 E | | | |
| 5 | 414 670 C | | | |
| 6 | 414 672 S | | | |
| 7 | 414 674 U | | | |
| 8 | 414 676 W | | | |

Accessories

Cable plug IP65 type 1054

Cable plug IP20 type 1057 for common wiring

AMP-connector for type 1057

AMP-connector shroud for type 1057

006 699 H
629 253 M

916 893 G
629 186 T

On request

Other voltages

Viton diaphragm

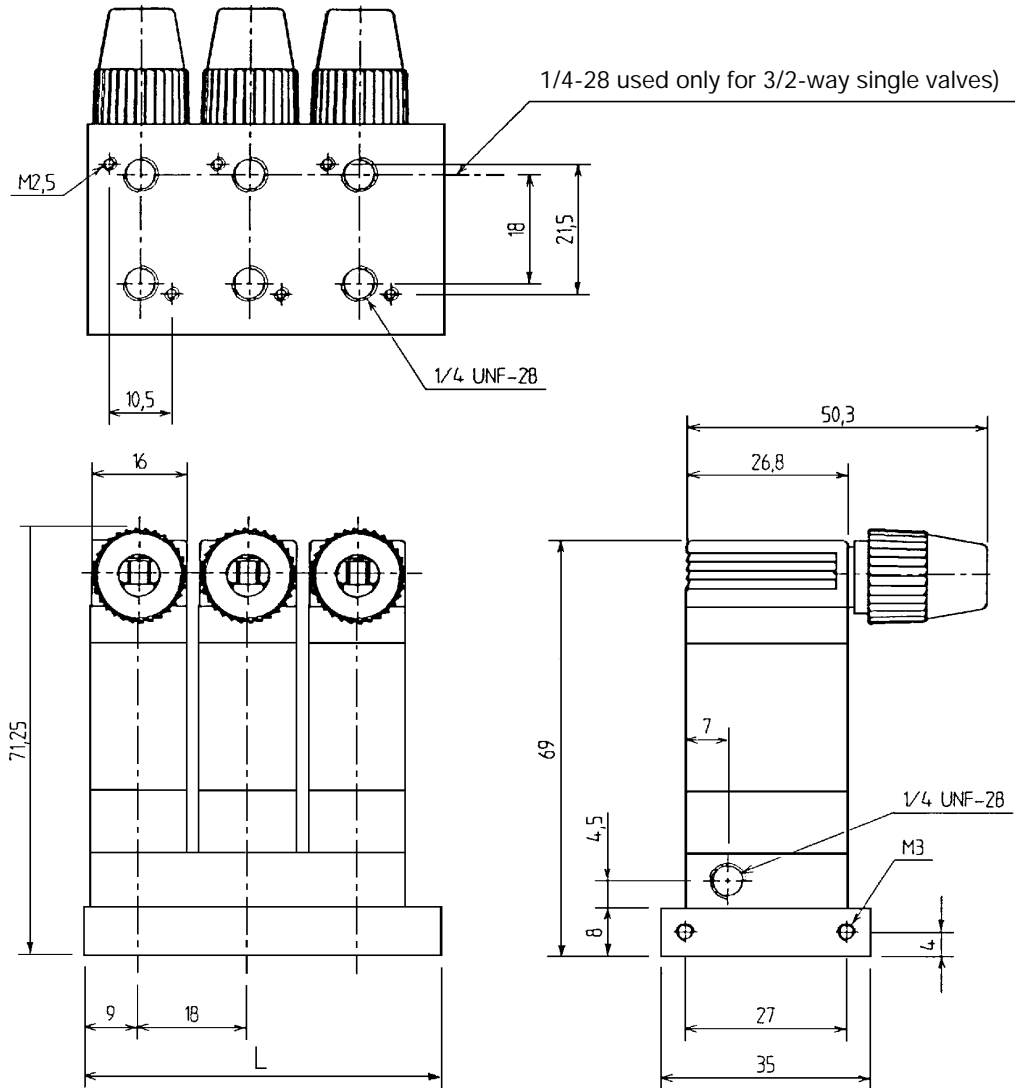
1,6 mm orifice

Valve blocks on request

- All individual valves may be mounted side by side with a 18 mm step for common wiring system on the metallic manifold
- MDMV manifold block with 9 and 10 stations.
- Combination blocks: Single valves and MDMV manifold blocks may be combined and mounted side by side with a common wiring system on the metallic manifold. Please give us your specifications.
- Special manifold blocks: Using this modular system, we may consider your request for specific valve manifold systems. Please provide us with your specifications regarding circuit diagram, fluid, pressures, voltages, electrical and fluid connections.

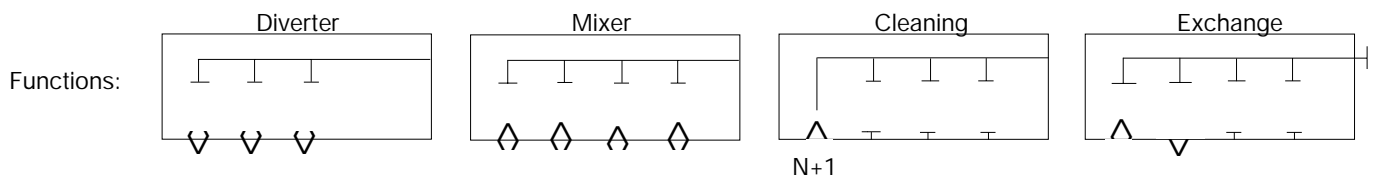
2/2 / 3/2-Way and 4/2-Way Miniature Solenoid Valve with Isolating Diaphragm

Type 127



| | | | | | | | | | |
|-----------|----|----|----|----|-----|-----|-----|-----|-----|
| L | 41 | 59 | 77 | 95 | 113 | 131 | 149 | 167 | 185 |
| n-station | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Technical Data



Body: PCTFE
 Connection: UNF 1/4-28
 DN: 1 mm (1,6 on request)
 Technical data actuator: see single valves.

2/2 / 3/2-Way and 4/2-Way Miniature Solenoid Valve with Isolating Diaphragm

Type 127

Function of the MDMV manifold blocks:

Universal functions:

This patented (Patent CNRS) multi-distributor multi way valve system (MDMV) can provide all functions used in analytical processes:

- mixing, diverting, exchange, cleaning function.

2 to 10 valves cells are connected with a common channel of 1 mm diameter, reducing the internal volumes.

Dead volume free:

Each valve cell is dead-volume free, the cell being completely closed by the diaphragm when the valve is de-energized. The only remaining dead volume is the distance between the central channel and valve cell (2 μ l)

Cleaning:

For manifold blocks with n valves, we use a (n+1) valve for the cleaning function:

This valve, at the end of the manifold enables each valve cell and the central channel to be cleaned. Thus, the complete manifold is cleaned without dead volumes, and risks of cross-contamination in the process are eliminated.

New fitting concept:

The fittings used are UNF 1/4-28 with a ferrule for flat-end contact. The ferrule makes a seal between the tube and PCTFE body, the threads are in the metallic base part. Therefore, there is no contact between the anodised aluminium manifold and the fluid and no risk of damage.

The metallic manifold allows several assembling/disassembling operations and provides a rigid assembly of the actuator to the valve body. Stainless steel manifolds may be provided to aggressive environments on request.

Easy replacement:

For cleaning, or replacement of the actuator, each actuator may be removed without disassembling the tube and fittings by only loosening 2 screws on the top of the actuator. For instance, where dirt particles have contaminated the diaphragm, it may be easily cleaned and reinstalled.