Leybold

LEYCON Valves

The maximum-quality valve program

176.35.01

The LEYCON Valve Program

Exceptional quality and extended service life

The LEYCON valve program

Leybold vacuum valves are a byword for exceptional quality.

Our LEYCON valves have a proven track record in both research and industry, ensuring reliability and dependability across all processes. See for yourself how our flexible solutions can meet and exceed your requirements.

With over 50 years' experience in the field, Leybold is a guarantee of long service life and trouble-free operation.

Trust in the quality and reliability of our vacuum systems and see how much time and money you will save. Leybold valves will match your expectations – and then some.

All valve types are available in a range of variants pertaining to casing material and drive type. In the case of drive types, a distinction is made between manual and pneumatic drives, and electropneumatic and electromagnetic drives.

The product range

The LEYCON valve program includes

- Micro valves (small valves), bellows-sealed
- Right-angle and straight-through valves, bellows-sealed, with nominal diameters DN 16 to DN 50 with ISO-KF flanges
- Right-angle valves, bellows-sealed, with nominal diameters DN 63 to DN 250 with ISO-K flanges.
- Gate valves in ISO-KF, ISO-F and ISO-CF variants
- Special valves for specific applications

User benefits

- Compact, lightweight construction
- Integral leak rate < 10^{-8} mbar l/s
- Extremely low vibration levels
- Lubricant-free wetted area due to FPM sealing
- Operating range up to 2000 mbar
- Very high conductance
- Principal dimensions are compatible with Leybold flange components of the same nominal diameter
- Reliable operation in any orientation
- Valves can be operated at various supply voltages
- Optical and electrical position indicators are integrated in many valve variants
- Pilot valve available for many variants

LEYCON

The right valve for your application

Small “micro” valves

Drive types
- Manual
- Pneumatic
- Electropneumatic
- Electromagnetic

Casing types
- Right-angle valve
- Straight-through valve (electromagnetic only)

Accessories
- Adapter (DN 10 ISO-KF flange, ¼” pipe, 6 mm pipe)

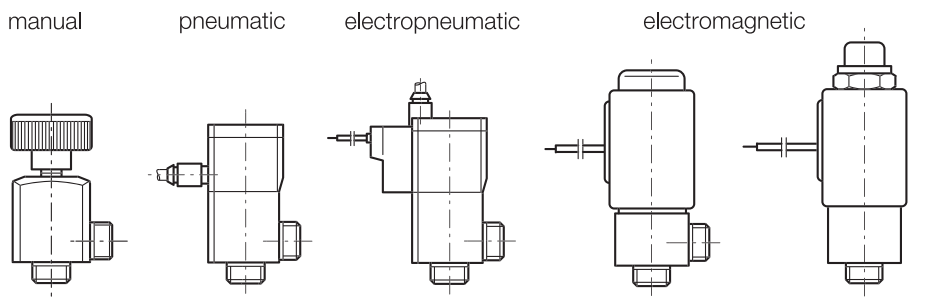
The “micro” range of valves is the space-saving and efficient solution in a compact size. Various optional connecting adapters guarantee the highest degree of flexibility during system integration.

User Benefits

- Compact construction
- High conductance at the molecular level
- Long service life at > 2 million switching cycles
- High switching frequency
- Protection class IP 65
- High flexibility of installation

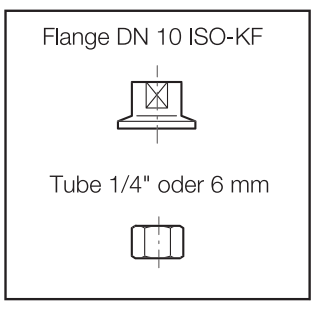
82 mm micro right-angle and straight-through valves

Micro valves / actuations



Micro valves overview (right-angle / straight-through valves)
Example dimensions for electromagnetic straight-through valve: 2 x 10 KF, approx. 100 mm long

Adaptors for micro valves



Adapter/connector for micro valves (optional)

Bellows-sealed, with various drive types

ISO-KF right-angle and straight-through valves

Drive types
- Manual
- Pneumatic
- Electropneumatic
- Electromagnetic

(right-angle valves only)

Casing material
- Aluminum construction
- Stainless steel construction

Valves from the ISO-KF range are especially suited to high-vacuum applications such as pump systems, semiconductor technology and research systems. Their rugged and intelligent valve design guarantees a high degree of impermeability and particulate resistance.

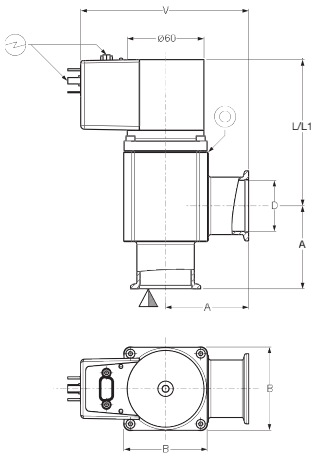
User Benefits

Manual
- Simple operability with low physical effort
- Allows reduced plant ventilation in a targeted manner
- Suitable for use as a coarse variable leak valve for manual flow control
- Space-saving: compact size thanks to efficient construction
- Maximum flexibility: any orientation is possible

Electropneumatic
- Time-saving installation thanks to standards-compliant electrical and compressed air connections
- Low noise and low vibration when opening and closing
- High process efficiency thanks to very short opening and closing times
- High degree of safety thanks to a normally closed design
- Maximum flexibility: any orientation and flow direction is possible
- Optical position indicator for straight-forward process monitoring

Electromagnetic
- Ideal for remote control on vacuum units
- Convenient process monitoring through an LED position indicator for valve open, valve closed and valve error states
- High process efficiency thanks to very short opening and closing times
- High degree of safety thanks to a normally closed design
- Maximum flexibility: any orientation and flow direction is possible
- Low operating temperature

Right-angle and straight-through valves up to DN 50 ISO-KF



Connection pictogram

- Safety cap
- Valve seat side
- Electrical connection
- Position indicator connection
- Flow direction
- Leak detection port
- Position indicator

Dimensions table

DN	ISO-KF	16	25	40
A	mm	170.9	193.0	246.0
B	mm	51.4	64.9	92.9
C	mm	40	50	65
D	mm	96.0	112.7	139.0
E	mm	86.0	97.3	119.5
F	mm	59	70	90
G	mm	10.0	15.4	19.5

Dimensional drawing (mm) shows stainless steel right-angle valve, DN ISO-KF, with electromagnetic drive, as an example. The complete program can be found in Chapter 14 of the Oerlikon Leybold Vacuum complete catalogue.

ISO-K right-angle valves

Drive types
- Manual
- Electropneumatic

Casing material
- Aluminum construction
- Stainless steel construction

The new ISO-K range offers reliable valves of the very highest quality. Due to their modular construction, these valves are very easy to maintain and can be adapted to changing requirements almost at will.

User Benefits

- Designed for universal deployment with high dependability
- Ideally suited to processes with high gas throughput
- Long service life thanks to a rugged and intelligent valve design
- Simple and convenient operation
- Valves from the ISO-K range are also available in a soft-start variant. Further details available on request.

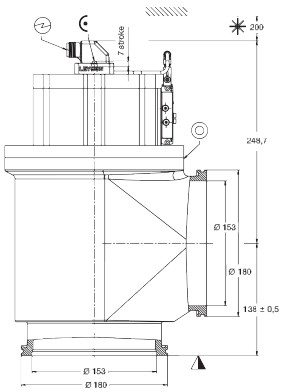
Manual

- Maximum flexibility: any orientation and flow direction is possible
- Simple operation thanks to a smooth-running manual drive
- Also suitable for use as a coarse variable leak valve for flow control
- Modular construction ensures straightforward maintenance and ease of cleaning
- Mechanical position indicator for continuous status monitoring
- Resistant to magnetic radiation and strong vibrations

Electropneumatic

- Very short opening and closing times due to efficient solenoids (available for various different supply voltages)
- Modular construction ensures straightforward maintenance and ease of cleaning
- Mechanical position indicator for continuous status monitoring
- Resistant to magnetic radiation and strong vibrations

Right-angle valves up to DN 160 ISO-K



Connection pictogram

- Electrical connection
- Position indicator connection
- Position indicator connection

Dimensions table

DN	ISO-K	63	100	160
A	mm	197	282	366
B	mm	123	170	221
C	mm	189.5	208	264
D	mm	88	108	138
E	mm	41.2	14	14
◑	mm	6	6	6

Dimensional drawing (mm) shows right-angle valve, DN ISO-K, with electropneumatic drive as an example.
The complete program can be found in Chapter 14 of the Oerlikon Leybold Vacuum complete catalogue.

A comprehensive product program

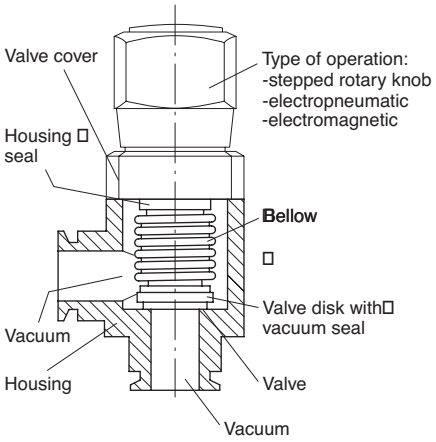
Leybold offers a range of special valves for the most varied of applications.

Special Valves

- Pressure relief valves
  DN 16 ISO-KF
- Power failure venting valves
  DN 10 ISO-KF
- Coarse variable leak valves
  with or without isolation valve
  DN 10/16 ISO-KF
- Venting valves DN 10 ISO-KF
- Vacuum locks
  (DN 16 bis DN 40 ISO-KF)
- Sealing valves
  (DN 16 bis DN 40 ISO-KF)
- Ball valves
  (DN 16 bis DN 40 ISO-KF)
- UHV valves (DN 16 bis 63 CF)
- Purge gas and venting valves
  for turbomolecular pumps

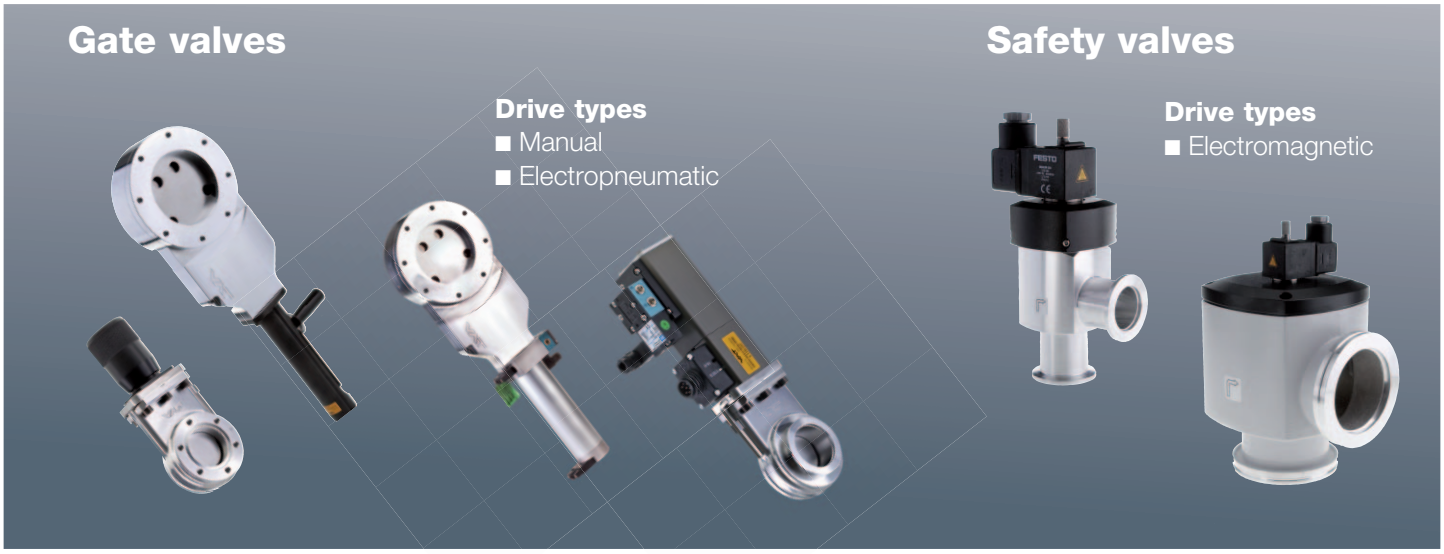
The special valves are described in detail in Chapter 14 of the complete Leybold catalogue.

Typical construction
of a vacuum valve



Compact Design and Maximum Safety

for your process



Gate valves are available in aluminum or stainless steel, with ISO-KF, CF and ISO-F flanges. SECUVAC safety valves have been specially designed for connecting to rotating vacuum pumps without a built-in inlet valve.

Gate Valves

Type	Drive type	Flange sizes	Material
HV gate valves	Manual	DN 63 ISO-F to DN 160 ISO-F	Aluminum
	Flange sizes	DN 63 ISO-F to DN 250 ISO-F	Aluminum
Miniature HV gate valves	Manual	DN 16, DN 25, DN 40 ISO-KF	Aluminum
	Electropneumatic (24 V DC)	DN 40 ISO-KF	Stainless steel
UHV gate valves	Manual	DN 63 ISO-CF to DN 200 ISO-CF	Stainless steel
	Electropneumatic (24 V DC or 230 V AC)	DN 100 ISO-F to DN 250 ISO-F and DN 63 ISO-CF to DN 200 ISO-CF	Stainless steel
Miniature UHV gate valves	Manual	DN 40 ISO-CF	Stainless steel
	Electropneumatic (24 V DC or 230 V AC)	DN 40 ISO-CF	Stainless steel

Safety Valves

SECUVAC

- SECUVAC safety valves (DN 16 ISO-KF to DN 100 ISO-KF) with electromagnetic drive 24 V DC, 100-115 V AC, 200-230 V AC

Shut-off valve between backing pump and vacuum chamber to prevent ventilation if a power failure occurs.

User Benefits

- Rapid closure high-vacuum shut-off valve
- Can be used as a venting valve
- Closes immediately in the case of a power failure
- Can only be opened once the intake line has been evacuated
- No „air swallowing“

User Benefits

Gate valves	Manual	Electro-pneumatic
Cost-effective gates for industrial applications	✓	
Compact and light	✓	✓
Bellows-sealed design	✓	✓
Minimal locking impact and wear	✓	
Mechanical position indicator	✓	✓
Vibration-free actuation	✓	✓
Bakeable UHV gate valves	✓	✓

LEYCON Valves

Proven in all applications

The demands placed on our valves are as varied as their potential applications.

LEYCON valves meet those requirements, for example in the following fields

- Coating technology
  - Short switching cycles (e.g. 1.5s)
  - Very high number of opening and closing cycles (e.g. more than 10 million cycles)
- Analytical technology
  - High conductance
  - Low integral leak rate ($<10^{-9}$ mbar l/s)
- Lamp and tube manufacture
  - Temperature resistance
  - Max. ambient temperature 80 °C
- Accelerator technology
  - Materials are radiation, temperature and corrosion resistant
- Metallurgy and furnace manufacture
  - Rugged and resilient with regard to impurities
- Chemistry
  - Selectable wetted casing materials

Other application areas include:

- Semiconductor engineering
- Quality control while a process is running
- Refrigeration and air conditioning
- Materials research
- Research and development from the lab to Big Science
- High-vacuum systems

Leybold

Leybold GmbH
Bonner Str. 498 · D-50968 Köln
T +49 (0) 221-347-0
F +49 (0) 221-347-1250
info@leybold.com
www.leybold.com

Certificate No.: CH06 / 1040.0

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