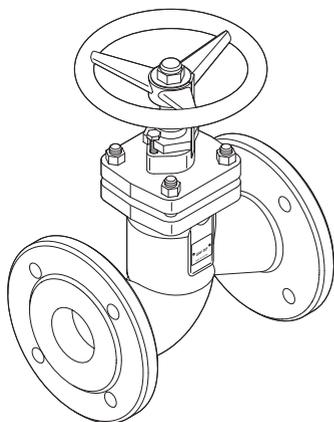


Stop valve

GAV 54F
GAV 36F



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Important Notes

Intended use

Use stop valve GAV 54F, GAV 36F only for isolating and throttling the flow of neutral gas, steam and fluid within the admissible pressure and temperature limits, and check the corrosion resistance and the chemical suitability for the application being considered.

Safety notes

The equipment may only be installed and brought into service by qualified and competent staff. Maintenance and modification may only be performed by authorised staff who have undergone specific instruction/training.

Danger



The valve is under pressure during operation.

Hot water or steam escapes when flanged connections, sealing plugs or stuffing box connections are unfastened. Risk of severe scalding of the entire body.

Before carrying out installation and maintenance work make sure the system is not under pressure.

Isolate the valve from both upstream and downstream pressure.

The valve becomes hot during operation.

Risk of severe burns to hands and arms.

Make sure the system is cold before performing assembly and maintenance work.

Sharp edges on parts present a danger of cuts to hands.

Always wear industrial gloves when replacing valves or parts of valves.

Danger of trapping or squashing! During operation, moving parts can trap hands and fingers, causing severe injuries. Do not touch moving parts.

Attention



The name plates specify the technical properties of the equipment.

Do not start up or operate any item of equipment that does not bear its own specific name plate!

PED (Pressure Equipment Directive)

The equipment satisfies the safety requirements of the Pressure Equipment Directive 97/23/EC (up to 18.07.2016) or 2014/68/EU (from 19.07.2016).

For use in Fluid Groups 1 and 2.

CE marking present, apart from equipment excluded from the scope of the PED as specified in section 3.3. (up to 18.07.2016) or section 4.3 (from 19.07.2016)

ATEX (Hazardous Area)

The equipment does not have its own potential ignition source and is therefore not subject to the ATEX Directive 94/9/EC (up to 19.04.2016) or 2014/34/EU (from 20.04.2016).

Suitable for use in Ex zones 1, 2, 21, 22. The equipment does not have Ex classification.

Scope of supply

GAV ...

- 1 Stop valve GAV ...
- 1 Installation & Operating Instructions

System description

Maintenance-free bellows-type stop valve with straight seat design and EN 1092 flanged end connections. The stop valve is equipped with stainless steel bellows and a safety stuffing box with a gland packing of pure graphite.

In nominal sizes DN 15 to DN 100, the stop valves are equipped with a throttling plug as standard. Nominal sizes DN 125 to DN 300 have an isolating plug as standard.

GAV 54F: The handwheel features a non-rising system and a locking device. GAV 36F: The handwheel has a rising system for sizes DN 15 to DN 200 and a non-rising system for DN 250 to DN 300.

Functionality

Turn the handwheel clockwise to close the stop valve and anti-clockwise to open the valve. Direction symbols can be found on top of the handwheel.

The valve stem is sealed by stainless steel bellows and a safety stuffing box with a gland packing of pure graphite.

GAV 54F: Use the locking device to lock the handwheel in place by turning clockwise as far as it will go. The handwheel is not locked in place on delivery.



Attention

Incorrect operation of the valve may have a substantial impact on the entire system, for example:

- ▶ Leaking fluid
- ▶ System/machine brought to a standstill
- ▶ Function of system/machine is impaired or its function/effect is reduced or increased.



Danger

When delivered ex works, the safety stuffing box is not fully tightened. The stuffing box screws must be tightened in the event of bellows failure (safety stuffing box), to prevent the leakage of fluid (read "Danger" section on page 4). The valve stem bellows seal is maintenance-free.

Technical Data

Pressure and temperature ratings for GAV 54F DN 15 – 300

Type of end connection		PN 16 flanged				
p (pressure ¹) [barg]		16.0	14.4	12.8	11.2	9.6
T (temperature ¹) [°C]		-10/120	150	200	250	300
ΔP (admissible differential pressure ²) [bar]	up to DN 150	16				
	DN 200	12				
	DN 250	9				
	DN 300	6				

1) Pressure and temperature ratings for strength of body/cover to EN 1092-2.

2) ΔP max. admissible differential pressure for shutting off flow.

For greater differential pressures, the optional balance plug is required

Pressure and temperature ratings for GAV 36F DN 15 – 200

Type of end connection		PN 40 flanged								
p (pressure ¹) [barg]		40.0	37.1	35.2	33.3	30.4	27.6	25.7	23.8	13.1
T (temperature ¹) [°C]		-10/50	100	150	200	250	300	350	400	450
ΔP (admissible differential pressure ²) [bar]	up to DN 100	40								
	DN 125	33								
	DN 150	21								
	DN 200	14								

1) Pressure and temperature ratings for strength of body/cover to EN 1092-1.

2) ΔP max. admissible differential pressure for shutting off flow.

For greater differential pressures, the optional balance plug is required

Pressure and temperature ratings for GAV 36F DN 250 – 300

Type of end connection		PN 40 flanged								
p (pressure ¹) [barg]		27.0	27.0	23.0	22.0	21.0	19.0	18.0	17.0	13.0
T (temperature ¹) [°C]		-10/50	100	150	200	250	300	350	400	450
ΔP (admissible differential pressure ²) [bar]	DN 250	9								
	DN 300	6								

1) Pressure and temperature ratings for strength of body/cover contrary to EN 1092-1.

2) ΔP max. admissible differential pressure for shutting off flow.

For greater differential pressures, the optional balance plug is required

GAV 54F

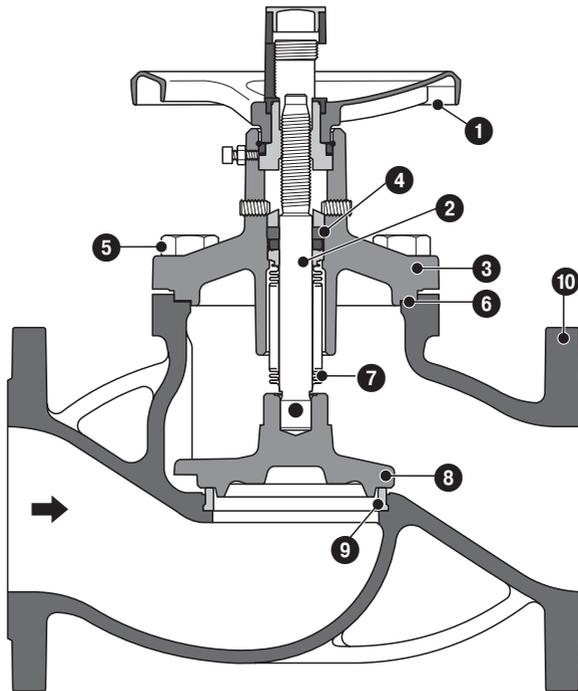


Fig. 1

Key

- | | |
|-----------------------|---------------|
| 1 Handwheel | 6 Body gasket |
| 2 Stem | 7 Bellows |
| 3 Cover | 8 Valve plug |
| 4 Gland packing | 9 Seat ring |
| 5 Hexagon-head screws | 10 Body |

GAV 36F

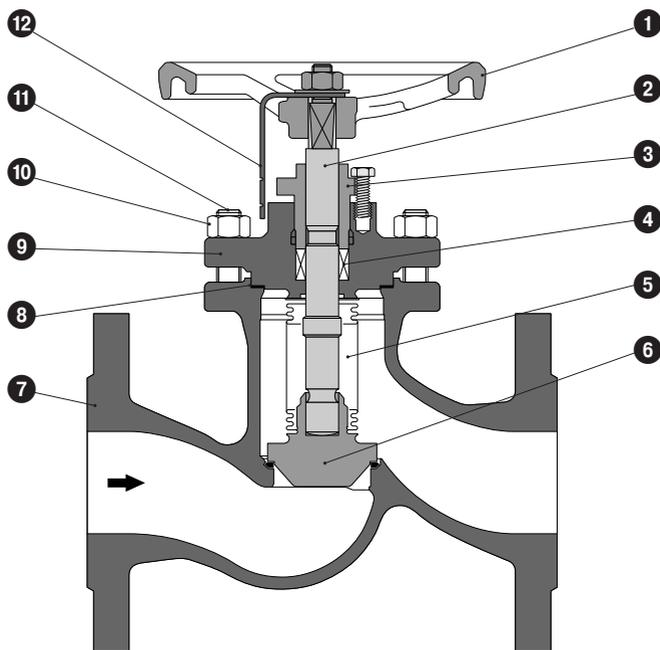


Fig. 2

Key

- | | |
|-------------------|----------------------|
| ① Handwheel | ⑦ Body |
| ② Stem | ⑧ Body gasket |
| ③ Threaded sleeve | ⑨ Cover |
| ④ Gland packing | ⑩ Hexagon-head nut |
| ⑤ Bellows | ⑪ Stud |
| ⑥ Valve plug | ⑫ Position indicator |

GAV 54F, GAV 36F

Responsibility for positioning and installing the valves always lies with the engineering company, construction company or operator. Planning and installation errors may impair the reliable function of the valves and pose a substantial safety hazard.

For this reason it is especially important to note the following.



Attention

The piping must be laid such that detrimental thrust and torsional forces are kept away from the valve body during installation and operation to avoid leakage and damage to the body.

Remove caps from connection ports immediately prior to installation. Mating flange faces must be clean and undamaged.



Danger

The gaskets on the flange faces must be properly centred.

Only fasteners (e.g. to DIN EN 1515-1) and flange gaskets (e.g. to DIN EN 1514) made of materials suitable for the respective valve size may be used.

Use all flange bolt holes provided for the flanged connection (valve to pipe).

Attention

When using steel flanges to DIN EN 1092-1 in conjunction with GAV 54F valves with flanges machined to DIN EN 1092-2, make sure that the mating flanges are fitted offset by 22.5° for size DN 65, to prevent the valve being in an oblique position. This is necessary because of the different number of holes.

DIN EN 1092-1 specifies 8 holes for steel, DIN EN 1092-2 specifies only 4 holes for cast iron.

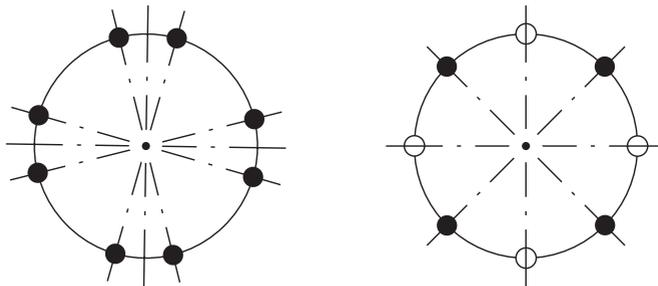


Fig. 3

DN 65 (steel/steel):

DIN EN 1092-1 with DIN EN 1092-1,
bolts through 8 holes

DN 65 (steel/cast iron):

DIN EN 1092-1 with DIN EN 1092-2,
bolt hole circle DIN EN 1092-1 turned 22.5° ,
bolts through 4 holes, 4 holes free



Attention continued

If the valve is to be used outdoors, sufficient weather protection must be provided to prevent corrosion and other damage caused by the penetration of moisture.

When painting pipes or equipment, do not apply paint to the stem or plastic parts, as this will adversely affect function.

If construction work is still in progress, the valves must be protected against dust, sand and building material (cover with suitable material).

The valve and its components (e.g. handwheel, drive, cover) must not be subjected to excessive loads (e.g. used as footholds).

The valve body and cover must not be subjected to any sudden impacts (e.g. with tools), as they could be irreparably damaged.



Danger

Valves and pipes operated at high ($> 50\text{ °C}$) or low ($< 0\text{ °C}$) temperatures must be insulated to prevent direct contact, or warning signs put up to highlight the risk of personal injury if they are touched.



Attention

If there is a risk of condensation water or ice formation — in air-conditioning, cooling and refrigerating systems, for example — the complete valve, including handwheel, if applicable, must be insulated to prevent diffusion. The formation of ice may cause the valve actuator to jam.

Installation notes

Flow through stop valves should be in the direction of the embossed arrow. An alternating direction of flow is admissible with the standard plug but not with the pressure balance plug. If the differential pressures below (see pressure & temperature ratings) are exceeded in valves size DN 125 or larger, a pressure balance plug is required.

The pressure balance plug only takes effect when pressure builds up above the valve plug. Consequently, the flow through the valves is reversed (the flow direction arrow is reversed).



Danger

As far as possible, avoid installing valves with the stem pointing downwards, to prevent dirt deposits between the folds of the bellows which might cause valve failure.

When using with steam, do not install the valve with the stem pointing downwards (risk of steam hammer due to condensate collecting in the valve neck).

Stop valves are installed in the pipe in such a way that the fluid enters the valve below the plug and flows out above the plug. However, they can also be installed in pipes with alternating flow.

If the valves are to be used for throttling the medium, a throttling plug (standard version DN 15-100) is required.

In stop valves with pressure balance plug, the direction of flow must match the flow arrow. The pressure that needs to be sealed off must be above the plug.

Bringing into Service

GAV 54F, GAV 36F

Before bringing into service, compare the material, pressure and temperature data of the valves with the operating conditions of the piping, to check the material's chemical resistance and stability under load.



Danger

Venting and bleeding the valve by undoing the cover flange connection or removing the stuffing box is dangerous and therefore prohibited.

The use of lamellar graphite cast iron (EN-JL1040) in systems at risk of pressure surges is prohibited, as this material does not withstand pressure surges and the valve could be damaged or destroyed. Instead, valves of nodular cast iron (EN-JS1025) or steel (GAV 36F) must be used.

In new systems and after repairs, in particular, the pipe system must be thoroughly flushed with the valves fully open, so that particles and welding beads that might damage sealing surfaces are removed.

Valve actuation

Viewed from above, the valves are closed by turning the handwheel clockwise, and opened by turning it anti-clockwise.

Direction symbols can be found on top of the handwheel.



Attention

The use of additional levers for turning the handwheel is prohibited for all valve sizes, to prevent damage due to excessive force.

Stop valves are normally either fully open or fully closed during use. If intermediate positions are required, versions with throttling plug should be installed, unless such a plug is integrated as standard.

Throttling without the use of a throttling plug may lead to increased noise and excessive wear, or irreparable valve damage due to cavitation.

Functional test

Check the following functions:

- ▶ Check the isolating function of installed valves before bringing into service by opening and closing several times.
 - ▶ Check that cover bolts are leak-proof after valves have been subjected to load or heat for the first time.
 - ▶ If necessary, gradually tighten cover bolts by turning them evenly in diagonally opposite pairs to the right.
-



Attention

Before tightening the cover bolts, open the stop valve by roughly two turns of the handwheel, to prevent stress or distortion.

Subsequent tightening of the cover bolts is especially important for valves used in heat transfer systems.

GAV 54F, GAV 36F

Maintenance and repair work may only be performed by skilled, properly trained personnel. For all maintenance and repair work on valves, the safety instructions below and danger warnings on page 4 must be read and observed.



Attention

Always use genuine spare parts and suitable tools, even in the event of sudden emergencies, in order to ensure that valves continue to function correctly.

Removal of valves

Perform the steps below before removing the complete valve from the pipe, and before repairs or maintenance work on the valve itself, i.e.

- ▶ before undoing the flange bolting between valve and pipe
- ▶ before undoing cover bolts
- ▶ before undoing the stuffing box screw in the stuffing box ring
- ▶ if bellows are defective or there is fluid leakage in this area
- ▶ before removing any sealing, opening or vent plugs

relieve the complete valve of pressure and cool so that the evaporation temperature of the fluid is lower than all areas it is in contact with, preventing the risk of scalding.

Danger



Danger to life: Never open a valve under pressure!

If toxic or highly flammable fluids are in the system, or fluids whose residues may cause corrosion in conjunction with humidity, drain the valve and flush or vent it. Wear protective clothing and a protective mask if necessary.

Depending on the installation position, fluid residues may be left in the valve; these must be collected and properly disposed of.

Thoroughly flush and drain valves before any transport.

All valve components have been designed to be largely maintenance-free.

The materials of moving parts have been selected to ensure minimum wear. However, to ensure reliable and safe operation and keep repair costs to a minimum, all valves – especially those that are actuated rarely or are difficult to access – must be checked regularly, i.e. actuated (opened/closed) once or twice a year.

The plant operator is responsible for setting appropriate inspection and servicing intervals based on the service conditions of the valves. The service life of valves can be prolonged by:

- ▶ Lubricating moving parts such as the stem and stem nut using standardised lubricants to DIN 51825.

Troubleshooting

If the bellows start to leak, prevent fluid from escaping by tightening the gland packing. After this, replace the complete valve.



Danger

Risk of burns due to hot surfaces or radiated heat.

Wear suitable protective clothing for the temperatures occurring in the system.

GAV54F

- ▶ Tighten the threaded pins in the cover using an Allen key, until no more fluid escapes.

GAV 36F

- ▶ Remove the hexagon-head screw(s) from the threaded sleeve.
- ▶ Tighten the threaded sleeve until no more fluid escapes.
- ▶ Tighten the hexagon-head screw(s) in the threaded sleeve.

Spare Parts

GAV 54F, GAV 36F

No spare parts are available for stop valves.

A faulty stop valve must be replaced with a new one.



Attention

All repair and maintenance work must be performed by skilled, properly trained personnel using suitable tools and genuine spare parts. We recommend having this work done by our service personnel, or contact one of our repair service partners (www.gestra.com).

Taking out of Service



Danger

The equipment is under pressure and hot during operation. Risk of injuries and severe burns to the entire body.

Before undoing flanged connections, stuffing box bolts or sealing plugs, make sure that all connected pipes are no longer under pressure (0 bar) and have cooled to room temperature (20°C).

Sharp edges on parts present a danger of cuts to hands.

Always wear industrial gloves when working on the equipment.

In the event of prolonged shutdowns, fluids that change their physical condition due to changes in concentration, due to polymerization, crystallization, solidification, etc. must be drained from the pipe system.

If necessary, flush the pipe system with the valves fully open.

Disposal

The equipment must be disposed of in accordance with statutory waste disposal provisions.

Transportation and Storage

Transportation

Valves are closed on delivery and, if required, connection ports are capped. The valves are ready for operation upon delivery.



Attention

The valves must always be kept in the closed position for transport and interim storage, and the connection ports must be covered by suitable means (e. g. caps, film) to avoid damage to seat/disc contact faces.

The valve must never be suspended by the handwheel during transport, to prevent damage or personal injury. Please note the hoisting instructions on page 17.

After delivery and prior to installation, check the valve for potential damage acquired during transit. Damaged valves must not be installed.

Storage

Storage/interim storage of the valves must be such that even after a prolonged period of storage the valves' function is not impaired.

The following steps are required:

- ▶ Store closed (to protect against damage to seat/disc contact faces)
- ▶ Take measures to protect against dirt (dust, sand, mortar and building material), frost and corrosion, e.g. by covering with film or caps.
- ▶ Keep the storage room dry, free from dust and reasonably ventilated. The temperature must not exceed +25°C.
- ▶ As mentioned above, store valves in the closed position.

If these storage conditions cannot be met, please contact GESTRA.

Hoisting the valve for installation in horizontal pipeline

Loop straps 1 and 2 around the body. To hold the valve in the position shown below and to avoid tilting, route both straps to the lifting hook between the arms of the handwheel.

Fig. 4

Loop straps 1 and 2 around the body. Use the third strap to keep the valve in a horizontal position. **Fig. 5**

Hoisting the valve for installation in vertical pipeline

Loop straps 1 and 2 around the body. Use the third strap to keep the valve in a horizontal position. **Fig. 6**

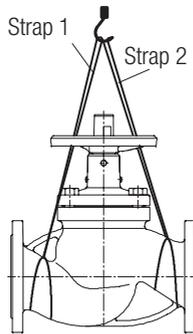


Fig. 4

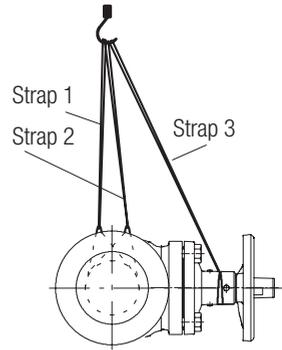


Fig. 5

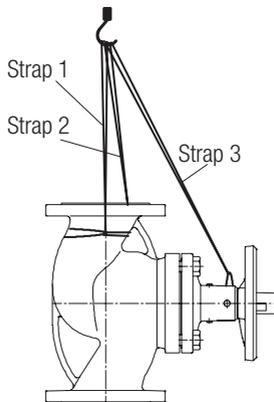


Fig. 6

For Your Notes

For Your Notes



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