

The Handtmann Armaturenfabrik



Safety without compromise

Safety valves for liquids, gases, and steam



handtmann
Ideas for the future.



▲ component number/CE-mark

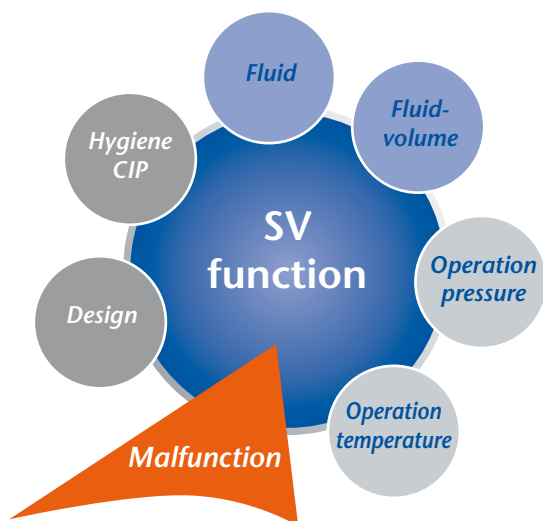
Safety Valves^f FoodSafe – Tradition Meets Innovation

Safety valves from Handtmann are first choice for hygienically sensitive product areas in the beverage and food industries, as well as in the chemical-pharmaceutical industry. With regard to safety, the protection of pressurized systems such as pressure vessels and pipelines, is an obligation for any operator. With Handtmann safety valves you will be on the safe side.

According to the Pressure Equipment Directive (PED 97/23/EC), pressurized systems in production plants have to be equipped with a safety device for pressure limitation, respectively for pressure relief. Handtmann safety valves comply with that requirement. With regard to layout, manufacturing, and function they are constructed according to the requirements of AD 2000/ instructions A2. The conformity of the valves with the PED is certified by the mentioned authority as well as by the stamped component number and the CE-mark.

Corresponding to their function, safety valves are used in critical areas. Therefore, it is good to have a reliable and competent partner for the layout of the valves. You know your production process, we know our safety valves!

Various process parameters affect the safe function during daily operation and have to be observed for a long-lasting reliability. Therefore, a process and risk analysis during the engineering phase is imperative. During tank filling or gas release in closed systems there is a pressure increase and the safety valves react. However, more critical are unexpected incidents, like a malfunction of process valves or a thermally caused liquid expansion.



In case of a rising fluid pressure in closed systems, the pressure directly acts on the valve disk of the safety valve. This force is countered by a mechanical back pressure from a spring or a weight.

Regulation AD 2000 defines limits for the opening and closing behavior, which are safely met by Handtmann safety valves. Mostly, they clearly remain below such limits.

Adjustable to specific process and customer requirements Handtmann safety valves are available in various types and performances. In addition to the spring-loaded executions (No. 335, 325) and the pneumatic types (No. 336, 326), a weight-loaded model (No. 320) is included in our line. Additional equipment such as proximity switch, heating insets, etc. is available upon request.



▲ valve outlet with valve disk



▲ available valve types

Overview – valve types and accessories

Type	Principle	Characteristic blow-off behavior	Fluids*	DN-size	Pressure range
33501	Pressure spring	normal	F/G/D	15 – 80	0.5 – 10.0
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33521	Pressure spring	normal	F/G/D	15 – 80	0.5 – 10.0
33621	Pressure spring	normal	F/G/D	15 – 80	0.5 – 10.0
33502	Pressure spring	proportional	F/G/D	50	0.5 – 10.0
33602	Pressure spring	proportional	F/G/D	50	0.5 – 10.0
32500	Pressure spring	normal	G/D	15 – 25	0.5 – 4.0 / 5.0
32503	Pressure spring	normal	G/D	15 – 40	0.5 – 6.0 / 10.0
32603	Pressure spring	normal	G/D	15 – 40	0.5 – 6.0 / 10.0
32504	Pressure spring	normal	F/G/D	25 – 40	0.5 – 5.0 / 10.0
32604	Pressure spring	normal	F/G/D	25 – 40	0.5 – 5.0 / 10.0
32010	Weight	normal	F	80 – 125	0.5 – 3.0 / 5.0

*F/liquids, G/gases, D/steam

Type	Lifting device manual/pneumatic	Gasket EPDM/FPM*	Proximity switch	Heating insets	Set pressure with scale
33501	m	●		H	
33601		●	N	H	
33521	m	●		H	S
33621		●	N	H	S
33502	m	●		H	S
33602		●	N	H	S
32500	m	●			
32503	m	●		H	S
32603		●	N	H	S
32504	m	●		H	S
32604		●	N	H	S
32010	m	●	N	H	

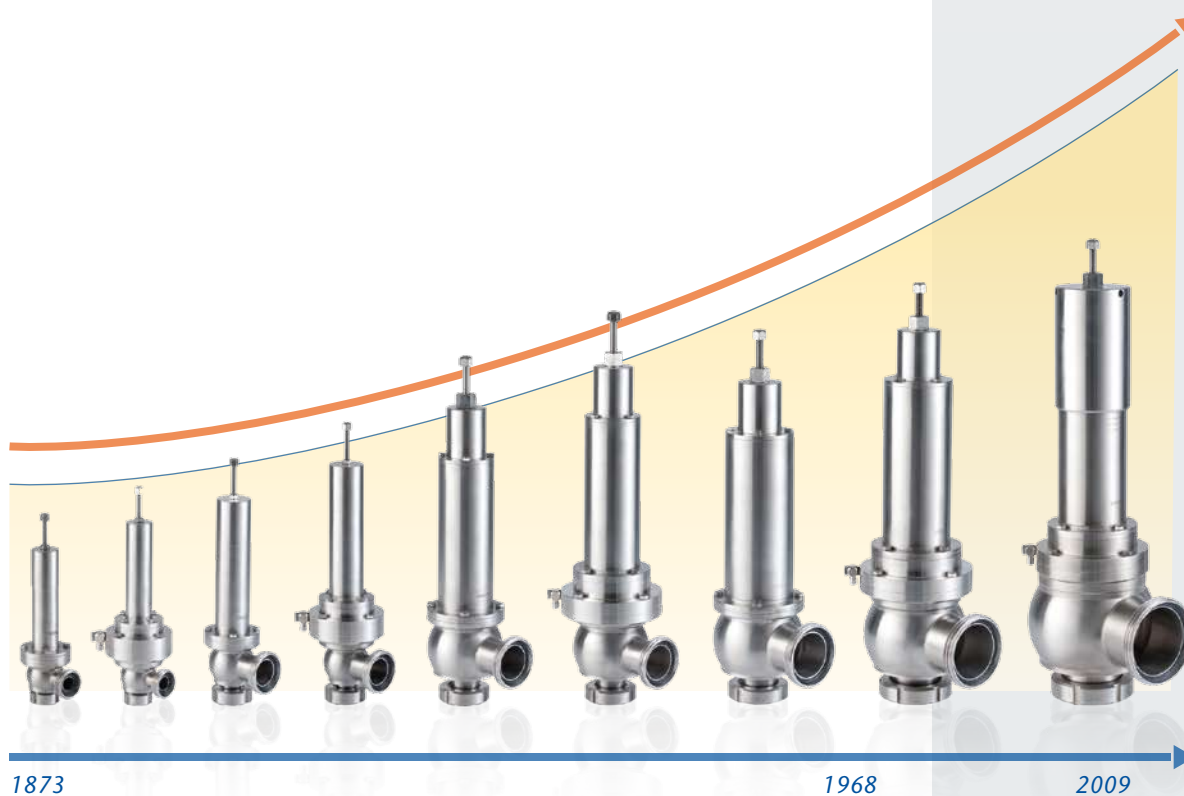
*FPM optional

We know what we are talking about!

The development of our safety valves is based on decades of experience in the beverage and biotechnical industries, combined with the latest legal and hygienic requirements, and perfectly matched to the demands of our customers.

Gain from our safety valve experience and from our know-how around the topic "Process Technique". For us not only the valve is important, but its vital function as part of an optimally customized process of your production.

*Experience in:
stainless steel fittings and components,
plant and process technique, vacuum
valves, safety valves.*



▶ valve type 33601
with pneumatic lifting



▲ valve type 33501
with manual lifting



▶ valve type 33621/33602
with pneumatic lifting



Valve type 33501/33601

These Handtmann safety valves show a normal blow-off behavior. During operation this means a sensitive opening reaction and a reliable function, combined with a high blow-off capacity for liquids.

This is also valid for the newly developed small valves DN 15, 25, and 40. Compared to the old type 325/326 the blow-off capacity has almost doubled. Aside from the flow geometry, the hygienically perfect design of the product chamber was most important during construction. The safety valves are fully CIP- and SIP-able. Equipped with additional accessories they can be integrated in a process control.

Valve type 33521/33621

In some applications the required set pressure only turns out during the commissioning. With this type Handtmann offer a safety valve, which can be adjusted on-site to the operation process. It is equipped with an adjustable pressure range with scale for continuous control of the set pressure. With regard to design, flow geometry, and opening behavior the valves correspond to types 33501/33601.

Valve type 33502/33602

These valves are characterized by their proportional blow-off behavior for liquids and gases. Thus, they are not only suitable for a simple overpressure protection, but also for pressure regulation or pressure keeping during fermentation. Very practical is the continuous pressure adjustment with scale for process-specifically changing pressure requirements.

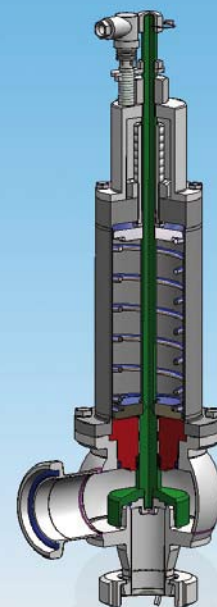
Product area	
material	stainless steel 1.4404 (316L)
gaskets	EPDM, FPM (FDA proof)
surface	≤ 0.8 µm
Other parts	
material	stainless steel 1.4301, 1.4307 (304, 304L)
gaskets	EPDM/HNBR
surface	ground, unpolished
Production / CIP	
operation pressure	0 – 10 bar
temperature	-20 to 140 °C / 160 °C
control air pressure	5 – 7 bar
fluids (poisonless)	liquids (F)/gases (G)/steam (D)
	acc. to Group II of PED 97/23/EC
	usual detergents for the food processing industry 2 – 4 % caustic/acid

Process technical specials

- ❑ certified for liquids, gases and steam
- ❑ extensive sizes DN 15-80 available
- ❑ high blow-off capacities
- ❑ process specific valve types
- ❑ manual or pneumatic lifting
- ❑ vertical/horizontal installation for spring-loaded valves
- ❑ vertical installation for weight-loaded valves
- ❑ variable process connections
- ❑ optional accessories

Constructional specials

- ❑ solid housing construction
- ❑ ball housing with hygienically designed product chamber
- ❑ optimized flow and discharge behavior
- ❑ EPDM, FPM gaskets (FDA)
- ❑ divided valve disk, defined compressed gasket
- ❑ pressure springs for high switching frequency
- ❑ low-maintenance construction, long service life



▲ cutaway of valve type 33501



▲ valve type 32501
with manual lifting



▶ valve type 32603/32604
with pneumatic lifting

Valve type 32500/32501/32502

The remarkable feature of these cost-effective types with variable connections is the compact and open housing. They are most suitable for overpressure protection of small vessels. Combined with additional accessories (water trap, scale) they can also be used as bunging device for pressure keeping during fermentation. As the blow-off is given into the surrounding area they are useful for air and non-unhealthy gases. For the possible blow-off of steam special safety precautions will be indispensable.

Valve type 32503/32603, 32504/32604

These valves are equipped with housing with a blow-off branch. They are suitable for the controlled blow-off of liquids, gases and steam from small to medium-sized vessels.

As bunging device during fermentation they can be used for pressure keeping with combined CO₂ recovery. Another feature is the possible application as overflow valve in a pipe system.

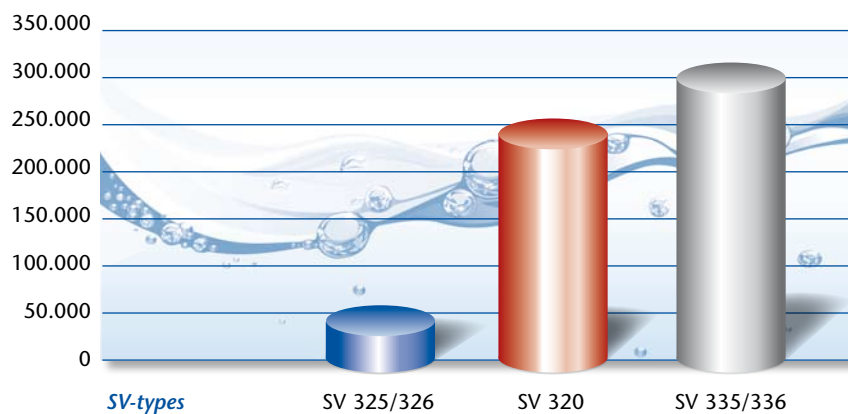
Valve type 32010

Handtmann weight-loaded safety valves are characterized by a high blow-off capacity for liquids. With regard to cost and function this optimized valve type is the ideal solution for the overpressure protection of big vessels. Installed in a tank top flange it is mainly used in combination with a vacuum valve as tank protection system.

Equipped with a pneumatic lifting device and proximity switch the valve is suitable for integration in the process control.

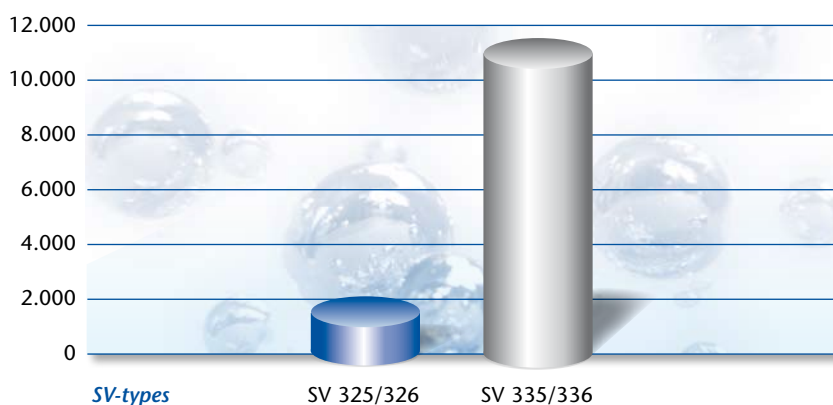
Performance range water

mass flow [kg/h]



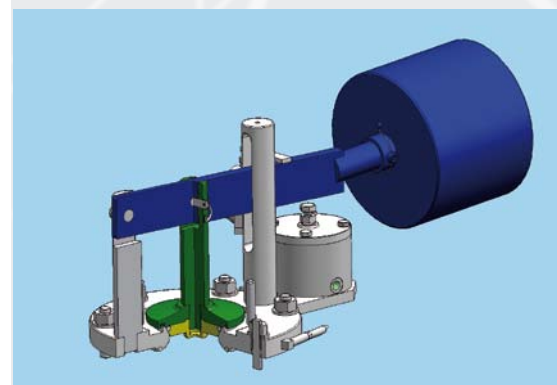
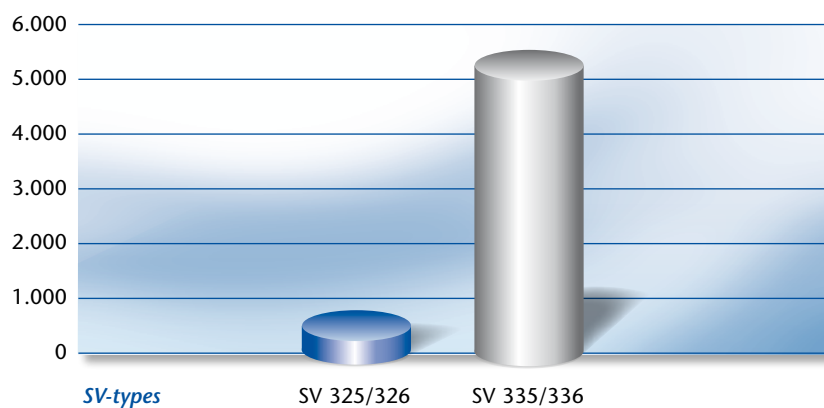
Performance range air/gas

volume flow [Nm³/h]



Performance range steam

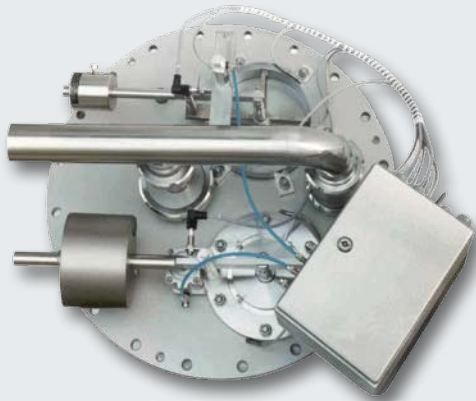
mass flow [kg/h]



▲ cutaway of valve type 32010



▲ valve type 32010, weight-loaded



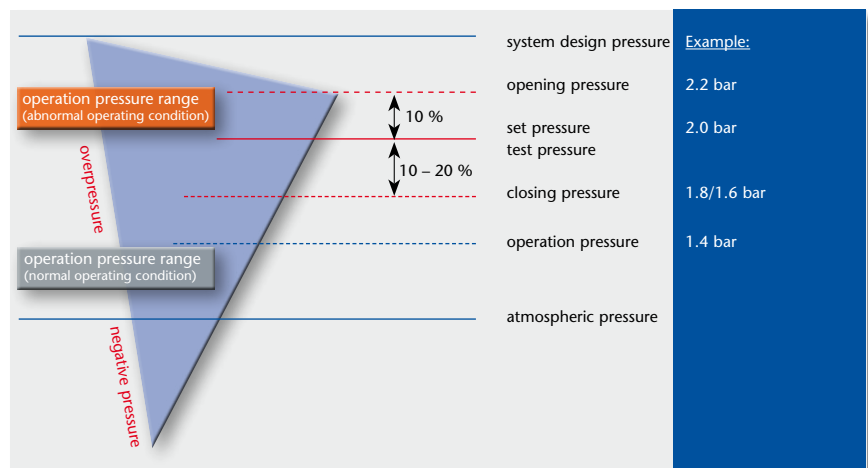
▲ dome cap with safety device



▲ tank farm

Layout and operation of safety valves

For the layout of the safety valves a detailed process examination is necessary. The possible working pressure range is between the desired operation pressure and the admissible design pressure of the system. This results in the set pressure which lies above the operation pressure. The difference between these two pressures has to be sufficiently big, in order to avoid a reaction of the safety valve in normal operation due to a short-time pressure increase. Also important is a sufficient distance between opening pressure and max. design pressure of the system.



The adjusted test pressure of the safety valve normally corresponds to the set pressure at operating conditions. In case of an increasing overpressure (abnormal operating condition) the set pressure will be reached at first. The valve starts to open, fluid is blown-off and the system pressure decreases. If the overpressure continues to increase the opening pressure with the specific blow-off capacity of the valve will be reached. With a perfect layout of the safety valve for the required performance there will be no further pressure increase. In case of a decreasing overpressure the closing pressure is reached and the valve will close completely.

Reproducible, tested and documented quality

Handtmann offer a complete and extensive quality package for the safety valves. Process, manufacture, and testing are certified acc. to the PED. The component number includes the adjusted test pressure (set pressure) and a specific valve serial number. Thus a clear retracing to our products and customers is guaranteed.

In addition to the Declaration of Conformity further certificates are available. Every Handtmann safety valve is tested and adjusted separately to the desired set pressure. A pressure modification at the valve at a later date is not possible due to internally adapted components. This way you are always on the safe side.



▲ *Conformity acc. to PED*

*Handtmann, your specialist and partner
for valves, plants, and engineering*



handtmann
Ideas for the future.