CHEMICAL PROCESS INDUSTRY



Customized **solutions**
for your business.

ARMATUREN GOETZE

SAFE PLANT OPERATION IN THE CHEMICAL PROCESS INDUSTRY

The flanged safety valves have a wide pressure range and are available in stainless steel and spheroidal graphite cast iron. During development, the highest attention was paid to best performance with safe function, for liquid and gaseous media, in a valve seat/plug combination. Thanks to the **replaceable seat**, this series also breaks new ground in the field of maintenance and servicing.

Goetze KG safety valves are used wherever pressure systems for vapours, gases and liquids need to be reliably protected against impermissible overpressure scenarios and hazards safely averted. Customers from all areas of the process industry benefit from our experience and our process engineering know-how for plant safety:

Our solutions for critical media and operating conditions help to optimise processes and protect people, plants and the environment.













APPLICATIONS

- Chemical reactors
- Petrochemistry
- Raw material processing and Recycling
- Storage and transport of chemicals
- Process steam systems
- Hydrogen supply systems
- Refineries
- Power generation and energy supply

TECHNICAL DETAILS

Materials

Media

Temperatures
from -270 °C to +400 °C

Pressures
von 0,4 bar bis 40 bar

Flange connections
from DN 15 to DN 100



SERIES 355

Flange safety valve

made of spheroidal graphite cast
iron, angle-type with flange connections

The series of flanged safety valve 355 captivates with its consistent concept of capacity, function and design. The high capacity of the entire series from DN 15 up to DN 100 is unique in the sector of flanged safety valves. Using spheroidal graphite cast iron for the housing allows a particularly inexpensive variant to be produced. This is of particular interest for applications with heating water and steam as well as lower requirements with regard to high corrosion resistance.

This series can be supplied either with open or closed cap. The range of variants is further extended by offering bellows in either elastomer or stainless steel and either a metal or soft-sealing valve seal.

Temperatures
from -10 °C to +350 °C

Pressures
from 0,2 bar to 40 bar

Flange connections
from DN 15 to DN 100

ADVANTAGES OF THIS SERIES

- **Full-lift safety valve, after only 5% pressure increase already full opening of the valve*)**
- **Highest performance, even in the subcritical flow range (<3.0bar)**
- **Lowest overall height**
- **Orientation of the lifting variable**
- **Exchangeable seat**
- **Spheroidal cast iron - for efficient steam and neutral media applications**
- **Optional elastomer bellows to protect the sliding parts, e.g. for heating applications**
- **Optionally with counterpressure compensating stainless steel bellows already from <1.0bar**

***) for compressible media**

SERIES 455

Flange safety valve

made of stainless steel, angle-type
with flange connections

The series of flanged safety valve 455 captivates with its consistent concept of capacity, function and design.

The high capacity of the entire series from DN 15 up to DN 100 is unique in the sector of flanged safety valves. By using exclusively high-quality materials with outstanding media resistance and the option to secure the tightness towards the atmosphere on a high level with a backpressure compensating bellows, this safety valve is suitable for nearly all applications.

The pressure range extends from 0.2 to 40 bar and also extremely high temperatures can be applied up to a limit of 400 °C.

Temperatures
from -270 °C to +400 °C

Pressures
from 0,2 bar to 40 bar

Flange connections
from DN 15 to DN 100



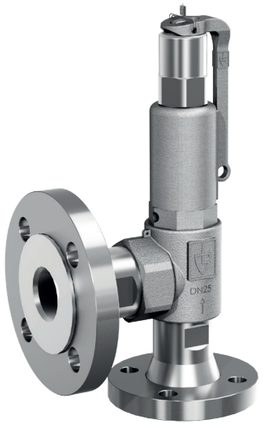
ADVANTAGES OF THIS SERIES

- **Full-lift safety valve, after only 5% pressure increase already full opening of the valve*)**
- **Highest performance, even in the subcritical flow range (<3.0bar)**
- **Lowest overall height**
- **Orientation of lifting can be varied**
- **Exchangeable seat**
- **Optional elastomer bellows to protect sliding parts, e.g. for heating applications**
- **Optionally with counterpressure compensating stainless steel bellows already from <1.0bar**

***) for compressible media**

Additional benefits for service workshops

- **Easy maintenance**
  - Detailed, step-by-step explained revision and adjustment instructions
  - Documentation:
    - Spring tables
    - Marking tables
  - Assembly tools
- **Individual parts and assemblies available as spare parts**
- **For pressure changes:**
  - Only one pressure screw for the entire pressure range
  - Simple spring replacement
  - During pressure adjustment: no need to hold the spindle to secure the cone against rotation



SERIES 451FL

Safety valve angle-type

made of stainless steel, angle-type
with loose flange

The proven 451 series in the version with loose flanges also offers different connection options. Whether according to DIN EN 1092-1 or according to ASME B 16.5, solutions in different pressure ratings and nominal widths are available.

With the many optional equipment variants for seals, lifting and back-pressure compensating bellows, this solution is predestined for applications in the chemical process industry.

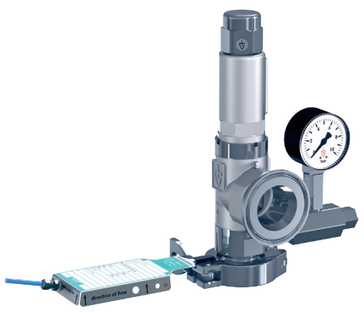
Temperatures
from -60 °C to +400 °C

Pressures
from 0,5 bar to 70 bar

Flange connections
from DN15 to DN50

ADVANTAGES OF THIS SERIES

- **Loose flange according to DIN or ASME**
- **Variable sealing materials**
- **Full Nozzle Design**
- **High blow-off capacity**
- **Optional back pressure compensating stainless steel bellows**



SERIES 451r

Safety valve angle-type

made of stainless steel, in angle-type in connection with
upstream bursting disc and clamp connections

The combination of a rupture disc and a safety valve offers advantages when a particularly high level of tightness is required up to near the system design pressure. The combination has its own approval (TÜV component test) after which the safe function has been fully tested. An additional performance-reducing factor no longer needs to be taken into account.

Temperatures
from -40 °C to +200 °C

Pressures
from 2,0 bar to 25 bar

Threaded connections
from DN20 to DN32

ADVANTAGES OF THIS SERIES

- **Gap-free installation of the seals in contact with the medium**
- **CIP/ SIP -capable**
- **No sticking of the safety valve seals by the product**
- **Highest tightness close to the set pressure**

SERIES 451

Safety valve angle-type

made of stainless steel, angle-type
with threaded connections

The benefits and applications of this series made of high-alloyed stainless steel begin, where versions made of gunmetal are at their limits. The flexibility of the various versions offer the optimal configuration for every application.

In addition to the basic version the numerous sealing possibilities and materials, back-pressure compensating metal bellows and/or a gastight cap offer the necessary optional extras required to fulfill the highest safety requirements.

Temperatures
from -60 °C to +400 °C

Pressures
from 0,5 bar to 70 bar

Threaded connections
from ½“ to 2“



ADVANTAGES OF THIS SERIES

- **Various connection types**
- **Optional back-pressure compensating stainless steel bellows**
- **surface roughness Ra < 0.4 µm**
- **High blow-off capacity**

SERIES 420

Safety valve angle-type

made of stainless steel, angle-type
with threaded connections

These angle-type safety valves are available for the first time with TÜV and European component approval. This allows the use of tested and approved quality on the smallest pressure tanks and small steam boilers with neutral and non-neutral gas and liquid medias.

The cutting ring threaded connections available as an option make this valve quick and easy to install for use in small pipelines.

Temperatures
from -40 °C to +260 °C

Pressures
from 0,5 bar to 50 bar

Threaded connections
from ¼“ to ⅜“



ADVANTAGES OF THIS SERIES

- **Compact safety valve for instrumentation and laboratory applications**
- **Optionally with cutting ring or compression fitting at inlet and outlet**
- **Bellows as standard from 1.5bar**



SERIES 492

Safety valve angle-type

made of stainless steel,
with threaded connections

A safety valve which impresses with its small dimensions and design for the protection of high-pressure air systems and high-pressure compressors.

The 360° rotatable outlet housing, in a gas-tight design for guided outflow or for connecting a blow-off line for non-neutral gaseous media, offers maximum assembly convenience and flexibility for the threaded safety valves. Through its special technical construction and design the series covers a pressure range that has not been catered for up to now.

Temperatures
from -60 °C to +180 °C

Pressures
from 50 bar to 1500 bar

Threaded connections
from ¼“ to 1“

ADVANTAGES OF THIS SERIES

- **High pressure up to 1500bar!**
- **360° positionable angled body for variable connection position**
- **Worldwide, most compact design for the protection of high-pressure systems with approval according to international standards**
- **Variable connection options**

SERIES 492GOX

Safety valve angle-type

made of monel and brass,
with threaded connections

Safety valves specially used for applications with oxygen are needed in multiple industries. Particularly in the production of technical gases, medical gases, by compressor manufacturers as well as component manufacturers and plant manufacturers.

The high-pressure safety valve is equipped with an outlet housing which can be adjusted by 360° and is suitable for gaseous oxygen, oxygen mixtures and gases.

A special property of the Goetze safety valve 492GOX is that it was explicitly inspected and approved for oxygen with adiabatic pressure shocks in a range between 50 bar and 420 bar at 60 °C.

Temperatures
from -40 °C to +60 °C

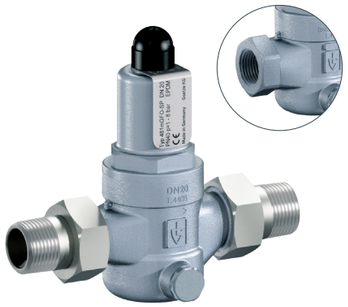
Pressures
from 50 bar to 420 bar

Threaded connections
from ¼“ to ¾“



ADVANTAGES OF THIS SERIES

- **O2 burn-out test up to 420bar**
- **Monel as housing material**
- **360° positionable angled body for variable connection position**
- **Variable connection options**



SERIES 481

Pressure reducing valves

made of stainless steel,
with threaded connections

The proven, robust pressure reducing valves in full-metal-version with threaded connectors have not only proven themselves in drinking water application, but especially also in rough industrial operating conditions with many different, also aggressive substances and at fluctuating environmental temperatures. The materials used are optimised for water of different qualities and for warm water applications.

Besides the standard range of adjustment of 1 to 8 bar the additional outlet pressure ranges of 0,5 bar to 2 bar and 5 bar to 15 bar cover a wide application range. Optionally available with female thread.

Temperatures
from -20 °C to +120 °C

Inlet pressure up to 40 bar,
Outlet pressure adjustable
from 0,5 bar to 15 bar

Threaded connections
from ½“ to 2“

ADVANTAGES OF THIS SERIES

- **Full stainless steel design**
- **Wide range of applications even with aggressive media**
- **Wide portfolio threaded connection, flange, EPDM and FKM diaphragm**
- **High-quality stainless steel**



SERIES 482

Pressure reducing valves

made of stainless steel,
with flange connections

Fittings often require flange connections. This is the exact reason for our series in the nominal diameter ranges of DN 15 up to DN 100. Besides the standard versions of these pressure reducing valves made of stainless steel and gunmetal, the valves are also available in nominal diameters from DN 15 to DN 50 in high-pressure and a low-pressure version. Upon request we can also equip the stainless steel pressure reducing valves for various pressure ranges with stainless steel pressure gauges.

For highest service-friendliness also in the case of the flange versions, a replacement internal cartridge with integrated dirt trap is available.

Temperatures
from -20 °C to +120 °C

Inlet pressure up to 40 bar,
Outlet pressure adjustable
from 0,5 bar to 15 bar

Flange connections
from DN 15 to DN 100

ADVANTAGES OF THIS SERIES

- **Full stainless steel design**
- **Wide range of applications even with aggressive media**
- **Wide portfolio threaded connection, flange, EPDM and FKM diaphragm**
- **High-quality stainless steel**

SERIES 484

Pressure reducing valves

made of stainless steel,
with female threaded connections

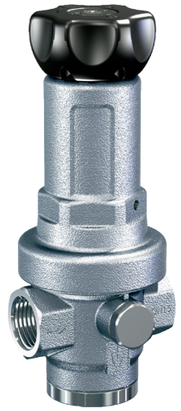
These diaphragm and piston pressure reducing valves made of stainless steel and with female threaded connections for pneumatic and hydraulic applications are distinguished particularly by high flow rates and low pressure losses even in situations of high performance demands.

Their extremely precise control characteristics, the inlet pressure of up to 60 bar and the wide outlet pressure range make these pressure reducing valves the optimal solution for almost all technically demanding applications.

Temperatures
from -40 °C to +120 °C

Inlet pressure up to 60 bar,
Outlet pressure adjustable
from 0,5 bar to 50 bar

Threaded connections
from ¼“ to 2“



ADVANTAGES OF THIS SERIES

- **High performance**
- **Handwheel lockable by hand for easiest adjustment security**
- **Optionally fixed and sealed**
- **Available with and without secondary ventilation**

OUR CERTIFICATES

Proof of the safety and reliability: We offer CE Certification according to the European Pressure Equipment Directive is mandatory for many products and markets. Additional certificates are however proof of our individual quality, such as: TÜV, DVG W, WRA S, ACS, EA C, SINTEF . Last but not least, DIN ISO 9001 stands for the internal quality management process, with its comprehensive functionality and performance assessment. The particularly strict regulations of the national rules guarantee the highest possible degree of safety – especially when it comes to the reliability of your plant.

GENERAL TYPE TEST APPROVALS

- EUROPEAN PED
- NATIONAL TYPE TEST (TÜV)
- EC-TYPE TEST
- TYPE TEST (USA)
- CANADIAN REGISTRATION NUMBER (CRN)
- TR ZU 032/2013 (RU)
- MANUFACTURE LICENSE (CHINA) TSG ZF001-2006
- KOREA GAS SAFETY (KR)
- KOSHA

APPLICATIONS: POTABLE WATER AND BUILDING TECHNOLOGY

- TYPE APPROVAL (DE)
- TYPE APPROVAL (FR)
- TYPE APPROVAL (EN)
- TYPE APPROVAL
- TYPE APPROVAL (PL)
- TYPE APPROVAL (NO)

APPLICATIONS: SHIPBUILDING AND RAILWAY

- TYPE APPROVAL
- TYPE APPROVAL
- TYPE APPROVAL
- TYPE APPROVAL
- TYPE APPROVAL
- TYPE APPROVAL
- DEUTSCHE BAHN

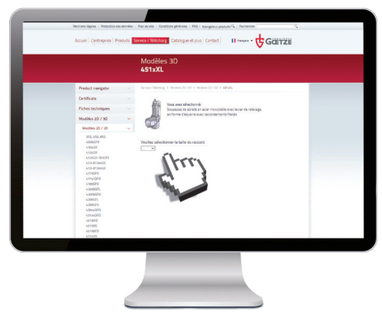
INTERNET SERVICE OF GOETZE

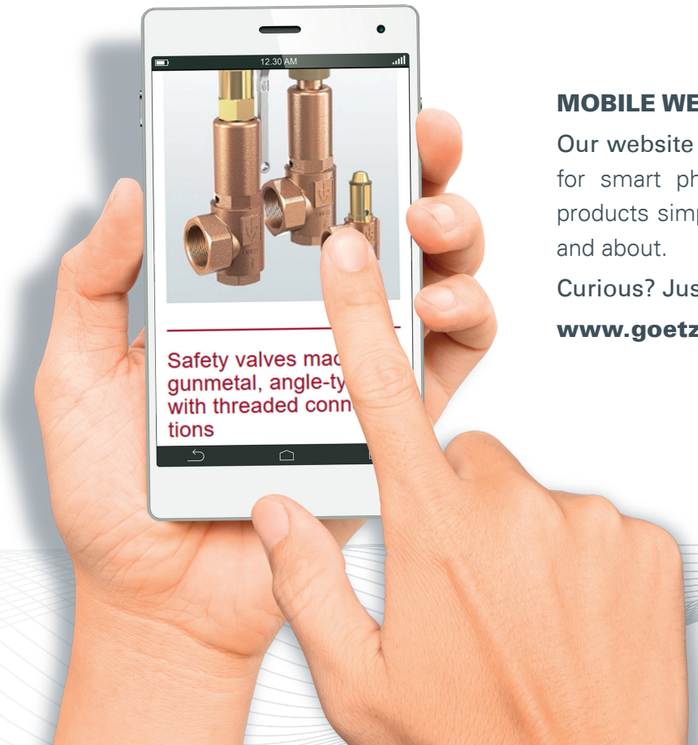
DESIGN AND CALCULATION OF SAFETY VALVES

With the help of our design programme and with the certified discharge number as well as the narrowest flow diameter of our safety valves, the valve suitable for discharging the required volume can be determined according to AD regulation A2-2000, in accordance with the international and European standard DIN EN ISO 4126, API 520 and ASME BPVC-VIII. Our experts offer you competent advice on the optimal and economical sizing of your valve.

3D MODELS AND TENDER DOCUMENTS

We provide free-of-charge our 3D models in various and common formats. On our website you will find them under the section „Download-Service“.





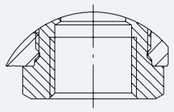
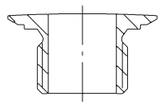
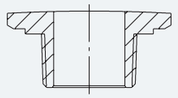
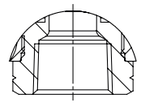
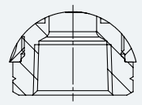
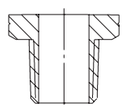
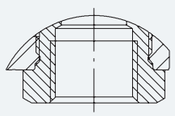
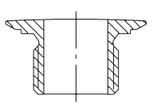
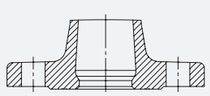
MOBILE WEBSITE

Our website is also available in a version optimised for smart phones. As usual, you may find your products simply and easily – also when you are out and about.

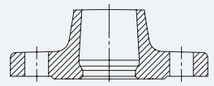
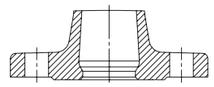
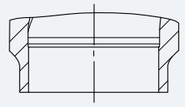
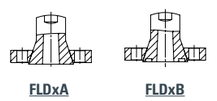
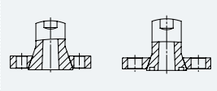
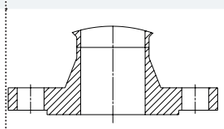
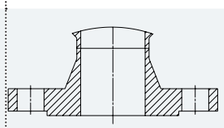
Curious? Just take a look!

www.goetze-group.com

CONNECTION POSSIBILITIES

Connection type	Drawing	Description
f		Whitworth male threaded pipe connection cylindrical; seal not made on thread BSP-P according to DIN ISO 228
m		Whitworth male threaded pipe connection cylindrical; seal not made on thread BSP-P according to DIN ISO 228
BSP-Tm		Whitworth male threaded pipe connection tapered; seal made on thread male connection BSP-T according to DIN EN 10226
NPTf		US standard tapered pipe thread NPT female threaded pipe connection NPT according to ANSI / ASME B 1.20.1 seal made on thread
NPTFf		US tapered pipe thread for dry closure NPTF female threaded pipe connection NPTF according to ANSI / ASME B1.20.3 seal made on thread
NPTm		US standard tapered pipe thread NPT male threaded pipe connection NPT according to ANSI / ASME B 1.20.1 seal made on thread
METf		Metric ISO female connection according to DIN 13 seal not made on thread
METm		Metric ISO male connection according to DIN 13 seal not made on thread
FCDxA		FCD = Flange connection moulded to DIN EN 1092 x = Pressure rating PN | 1 = PN10; 2 = PN16; 3= PN25; 4 = PN40 A = Standard with sealing strip form B[1]

[1] Other versions of the sealing strip on request.

Connection type	Drawing	Description
FCAxA		FCA = flange connections moulded according to ASME B 16.5 x = Pressure rating / class | 1 = Class 150; 2= Class 300 A = Standard with sealing strip raised face[1]
FCBxA		FCB = Cast flange connections according to ASME B 16.24 x = Pressure rating / class | 1 = Class 150; 2= Class 300 A = Standard with raised face sealing strip[1]
SE		Welding end SE1 for pipes according to DIN EN ISO 1127 SE2 for pipes according to ASTM A312 S10 SE3 for pipes according to ASTM A312 S40 SE4 for pipes according to DIN 11850 row 2; DIN 11866-A; DIN EN 10357 series A SE5 for pipes according to DIN EN ISO 1127; DIN 11866-B; DIN EN 10357 series C SE6 for pipes according to BS 4825-1; DIN 11866-C
SM		Welding socket SM1 for pipes according to DIN EN ISO 1127 SM2 for pipes according toh ASTM A312 S10 SM3 for pipes according to ASTM A312 S40
LM		Soldering socket LM1 for pipes according to DIN EN ISO 1127 LM2 for pipes according to ASTM A312 S10 LM3 for pipes according to ASTM A312 S40 LM4 for pipes according to DIN EN 12449
FLDxA, FLDxB	 FLDxA FLDxB	FLD = loose flange to DIN EN 1092 up to max. PN100 x = Pressure class PN | 1 = PN10; 2 = PN16; 3= PN25; 4 = PN40; 5 = PN63; 6= PN100 A = Standard with raised face form B[1] B = Sealing strip with groove form D[1]
FLAxA, FLAxB	 FLAxA FLAxB	FLA = loose flange according to ASME B 16.5 up to max. 600 lbs x = Pressure rating / class | 1 = Class 150; 2= Class 300; 3 = Class 400; 4 = Class 600 A = Standard with sealing strip raised face[1] B = Sealing strip with ring joint face[1]
FWDxA		FWD = Welding neck flange according to DIN EN 1092 x = Pressure class PN | 1 = PN10; 2 = PN16; 3= PN25; 4 = PN40; 5 = PN63; 6= PN100 A = Standard with sealing strip form B[1]
FWAxA		FWA = Welding neck flange according to ASME B 16.5 x = Pressure rating / class | 1 = Class 150; 2= Class 300; 3 = Class 400; 4 = Class 600 A = Standard with sealing strip raised face[1]

[1] Other versions of the sealing strip on request.

THE GOETZE KG

Individuality for more safety

The competence of Goetze KG Armaturen has been in demand for 75 years. Our wealth of experience is as broad and varied as our areas of application for our high-performance fittings. Our well thought-out family of products covers every industrial application: Liquids of all kinds, gases, technical vapours and steam. Goetze valves are used with temperatures ranging from -270 °C up to +400 °C and the greatest possible safety is a priority.

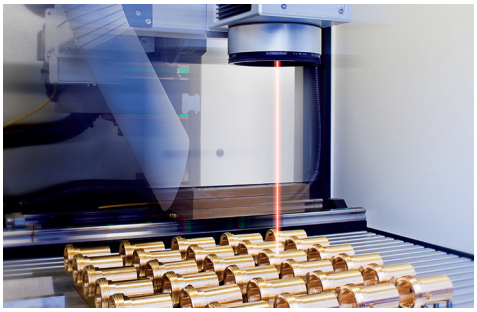
At any time, you can reach a competent contact partner as part of our in-house team at Goetze. Whether it is for the product selection, the configuration of the right valve, urgent requests, whether per telephone call or per mail, there is a personal multilingual consultant at your disposal.

We are your competent partner for all matters relating to the handling of pressure – „Made in Germany".











ARMATUREN GOETZE

Goetze KG Armaturen
Schlieffenstraße 42
71636 Ludwigsburg

Fon: +49 (0) 7141 / 488 94 60
info@goetze.de

www.goetze-group.com