

CLEAN VALVES



**SAFETY & HYGIENE –
GO HAND IN HAND**

Safety valves and fittings for clean utilities.

WHAT SETS GOETZE AND THEIR HYGIENIC PRODUCTS APART



YOUR PARTNER FOR SOLUTIONS

We are a multifaceted team of qualified specialists from various fields. Behind the name and title you will find one thing in particular: an individual with expertise and experience! We strive to pass on this expertise so that we can offer tailor-made solutions to our customers.



GOETZE HYGIENIC VALVES

Particularly high demands are placed on systems in the food and pharmaceutical industries with regard to the cleanability of the surfaces in contact with the medium. The hygienic products of Goetze KG consist of a very smooth and faultless surface with a standard surface roughness of Ra max. 0.75 µm, made of fully forged stainless steel.



HIGH STANDARDS

Not only the products but also the raw materials used must meet the highest standards. Goetze hygienic and aseptic safety valves offer a wide range of options and are based on standards and guidelines (DIN 11866, ASME BPE (Bioprocessing Equipment), EN 1672-2, DIN ISO 14159, USP class VI and FDA 21 CFR).



EASY AND QUICK MAINTENANCE

Hygienic valves are characterised by their simple and quick maintenance. Maintenance of the hygienic valves can easily be carried out in an installed position. The simple construction allows the operator to carry out a required and necessary exchange of the seal with a few simple steps.



SHORT DELIVERY TIMES WORLDWIDE

Whether safety valves, overflow valves, hygienic valves or other products from our range, you have the advantage of short worldwide delivery times for all products. In general all orders are processed within 3-5 working days. Are you in a hurry? Then use our „Fast Track“ production option and your order can be ready for dispatch within 48 hours.

LOW

DEAD SPACE RATIO

$L/D < 0,33 \mu\text{m}$

COMPLETE

SET OF SEALS

IN EPDM OR FKM

VARIOUS

OPTIONS FOR

VARIOUS

SURFACES

RA MAX. 0,375 µm,
mechanically- and e-polished

OPTIMAL CLEANING

THANKS TO THE LOW
DEAD SPACE RATIO

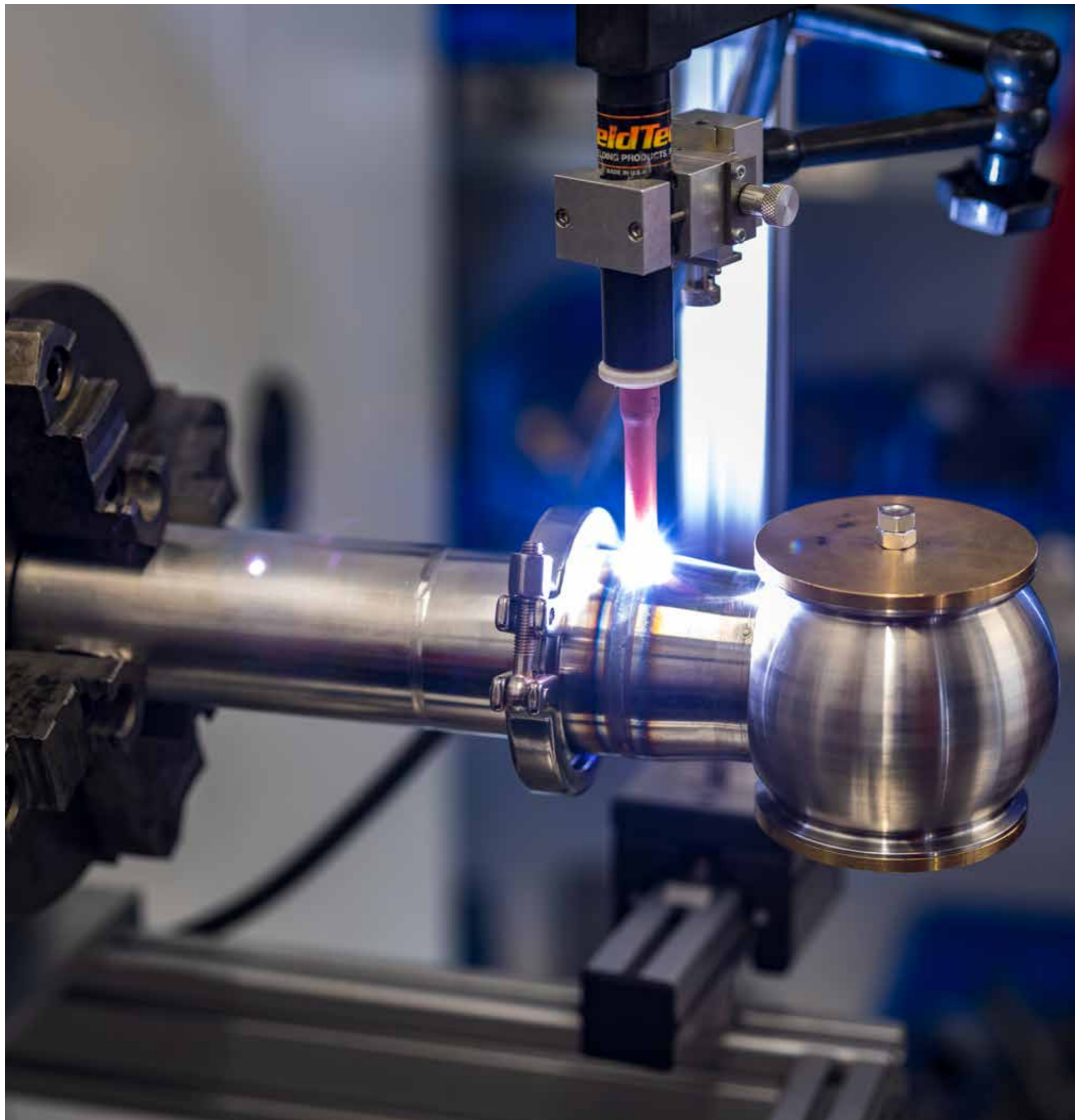
NEW!

SERIES
4020, 4040 & 4060



More general information about the hygienic valves can be found here:





Production process for hygienic applications

Safety valves, which are specially used for applications in the hygienic area, are used in a wide range of industries. In particular in the field of pharmaceutical manufacturing, food production, brewing and water treatment.

If a safety valve is used in hygienic areas, utmost care must be taken in the production process. Goetze KG meets these requirements with a production process specially implemented for the hygienic valves. Before the valve is assembled. Amongst others, all parts are washed so that they are free of oil and grease.

Assembly of the valves is carried-out on a special base which is free of dust and grease. During the entire assembly procedure, the fitter wears gloves and ensures that the workplace is clean. At the end of the procedure, yellow protective caps are fitted to the inlet and outlet of the valve so that no particles or dirt and no dirt can enter from the outside during delivery.

Technically trained personnel, compliance with all relevant regulations and recurring process monitoring of oil- and grease-free cleaning, assembly, testing, packaging and labelling, guarantee the customer a hygienic-compliant safety valve for his applications.

Particularly high demands are placed on systems in the food and pharmaceutical industries with regard to the cleanability, and thus on the design of system parts that are free of dead space. The hygienic valves from Goetze KG consist of a very smooth and defect-free surface with various surface options in accordance with ASME BPE.

For particularly clean applications in very sensitive areas, Goetze KG offers its customers the option of carrying out the assembly of the valves in a kind of „clean room“. By means of various air filters and a prevailing overpressure in the room, undesired particles and substances are not even able to reach the valve during the production process.

TECHNICAL BASICS FOR HYGIENIC VALVES

Materials

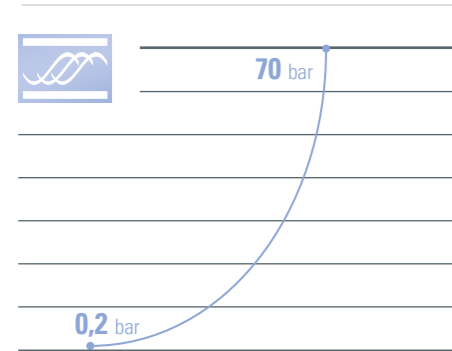
STAINLESS STEEL



- high-quality material
- corrosion-resistant
- for plants with particularly aggressive media

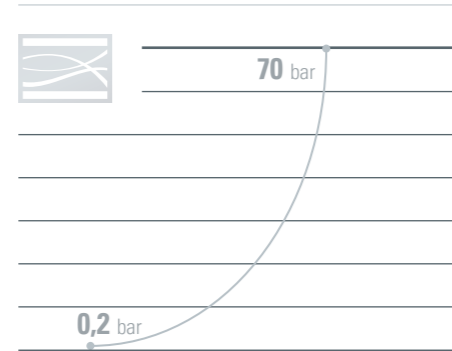
Media

LIQUIDS
from -270°C to +400°C



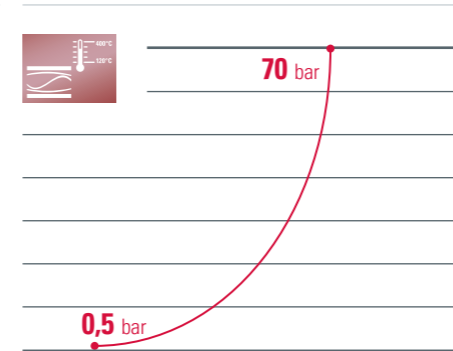
- Pump protection
- Pressure boosters (water-side)
- Sprinkler systems
- Cooling circuits

AIR, GASES AND VAPOURS
from -270°C to +400°C



- Compressors
- Pressure vessels
- Pressure boosters (air-side)
- Silo container
- Bulk transport vehicles

STEAM
from +120°C to +400°C

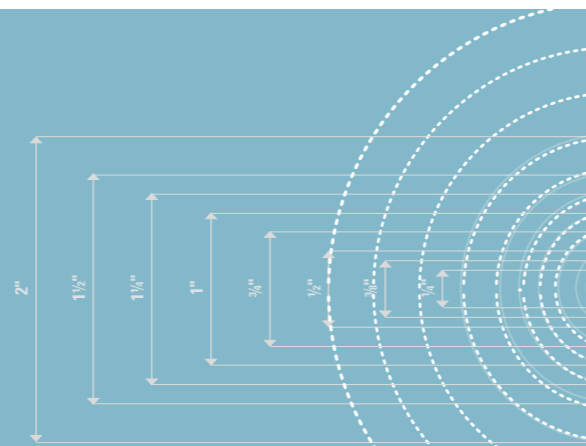


- Steam boiler
- Steam plants
- Sterilizers
- Autoclaves
- Boilers

Connections



from DN 25
to DN 100



Series	National Type Test (TÜV)	CE 2014/68/EU	EU Type Examination	UK CA	ASME	CRN	EAC	TS	KC	KCs	DNV	R	ABS	RII	RINA
HYGIENIC VALVES															
Hygienic 400	■	■	■	■			■	■	■	■	■			■	■
Hygienic 400.5		■					■				■				■
Hygienic 4000	■	■	■	■	■	■	■	■					■	■	■
Hygienic 4020	■	■	■	■	■	■	■						■		■
Hygienic 4040	■	■	■	■	■	■	■						■		■
Hygienic 4060	■	■	■	■	■	■	■						■		■
SAFETY VALVES															
451	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
451FL	■	■	■	■	■	■	■	■	■						■
461	■	■	■	■	■	■	■	■			■	■	■	■	■
6420	■	■	■	■	■	■			■		■	■	■	■	■
410	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
412	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
OVERFLOW AND PRESSURE CONTROL VALVES															
417		■		■			■				■	■	■	■	■
418		■		■			■				■	■	■	■	■
453		■		■			■				■	■	■	■	■
PRESSURE REDUCING VALVES															
9040		■					■						■		■
481		■		■			■				■	■	■	■	■
482		■		■			■				■	■	■	■	■

Series	Materials	Media						Temperature in °C							Set pressure bar													
		neutral			non neutral			Temperature in °C							Set pressure bar													
		liquid	air/gases	steam	liquid	air/gases	steam	-200	-100	-50	0	50	100	150	200	250	300	350	400	0	0.5	1	5	15	20	30	50	70
HYGIENIC VALVES																												
400	■	■	■	■	■	■	■	■							■													
400.5	■	■	■	■	■	■	■	■							■													
4000	■	■	■	■	■	■	■	■							■													
4020	■	■	■	■	■	■	■	■							■													
4040	■	■	■	■	■	■	■	■							■													
4060	■	■	■	■	■	■	■	■							■													
SAFETY VALVES																												
451	■	■	■	■	■	■	■	■							■													
451FL	■	■	■	■	■	■	■	■							■													
461	■	■	■	■	■	■	■	■							■													
6420	■	■	■	■	■	■	■	■							■													
410	■	■	■	■	■	■	■	■							■													
412	■	■	■	■	■	■	■	■							■													
OVERFLOW AND PRESSURE CONTROL VALVES																												
417	■	■	■	■	■	■	■	■							■													
418	■	■	■	■	■	■	■	■							■													
453	■	■	■	■	■	■	■	■							■													
VACUUM AND AIR VALVES																												
1940/45	■	■	■	■	■	■	■	■							from -6 mbar to -800 mbar													
PRESSURE REDUCING VALVES																												
9040	■	■	■	■	■	■	■	■							■													
481	■	■	■	■	■	■	■	■							■													
482	■	■	■	■	■	■	■	■							■													



SAFETY VALVES AND FITTINGS FOR HYGIENIC APPLICATIONS

Materials



Temperatures

from -40°C to +200 °C

Media



Pressures

from 0,4 bar to 16 bar

These valves are characterised by their particularly smooth, flawless surfaces. This makes them perfect for cleaning. Our engineers took particular care that no gaps were created during the designing of the valves: whether on the valve inlet or the fitting of all elastomer components.

GOETZE VALVES FOR HYGIENIC APPLICATIONS ARE USED HERE:



Series 4020

SAFETY VALVES SERIES 4020

made of stainless steel, angle-type, with hygienic connection



Particularly high demands are placed on the cleanability of systems in the food and pharmaceutical sectors and therefore on the dead space-free design of equipment parts. The 4020 series was developed with precisely these policies in mind.

Manufactured from fully forged stainless steel and with the usual slim and compact design, all medium residues can be removed perfectly thanks to the very smooth surface of $Ra < 0.76\mu m$.

 **Temperatures**
from $-40^{\circ}C$ to $+200^{\circ}C$

 **Pressures**
from 0,4 bar to 16 bar

 **Threaded connections***
from DN 25 to DN 50

* for further connections see p. 18 - 21.



Data sheet

Series 4040/4060

SAFETY VALVES SERIES 4040 / 4060

made of stainless steel, angle-type, with hygienic connection



Particularly high demands are placed on the cleanability of systems in the food and pharmaceutical sectors and therefore on the dead space-free design of equipment parts. The 4060 series was developed with precisely these policies in mind.

Manufactured from fully forged stainless steel and with the usual slim and compact design, all medium residues can be removed perfectly thanks to the very smooth surface of $Ra < 0.76\mu m$.

 **Temperatures**
from $-40^{\circ}C$ to $+200^{\circ}C$

 **Pressures**
from 0,4 bar to 16 bar

 **Pipe connection***
DN 25

* for further connections see p. 18 - 21.



Data sheet



Data sheet

+ ADVANTAGES OF THE SERIES 4020 / 4040 / 4060

Due to the extremely small dead space ratio of up to $L/D < 0,33$ microbiological danger zones and soiling can be effectively avoided

An optimal cleaning of the surface which comes into contact with the product in the inlet area – as stipulated in hygienic and aseptic processes – is therefore easily achievable at all times

Exposed o-ring seals in contact with the medium

Design of valve body avoids build-up of puddles after valve has opened

Suitable for CIP/ SIP process due to pneumatic lifting option

Gap-free installation of seals in contact with medium

Possible surface qualities

- Ra max. $0,375\mu m$
- mechanically polished
- electropolished

Moulded diaphragm to separate the product area from the spring area

The crease-free, flow-optimised and hygienic valves are completely autoclavable and can be disassembled for cleaning in just a few steps and without destroying the set pressure seal



Safety fittings for hygienic applications

SAFETY VALVES SERIES 400

made of stainless steel, angle-type,
with clamp connections and food
connections

with stainless steel bellows



The safety valves in the Goetze Hygienic series have been designed in compliance with the design features of Hygienic Design. These include smooth, flawless surfaces that are ideal for cleaning, minimised dead spaces, no gaps and many other details. Components that are difficult to clean are protected from contamination by stainless steel bellows.

The fulfilment of these design features is verified and confirmed by tests and certificates from the DGUV Food and Luxury Food Expert Committee and the EHEDG (European Hygienic Engineering & Design Group).

The safety valves are approved for worldwide use in accordance with numerous regulations.



Temperatures
from -40 °C to +200 °C



Pressures
from 0,4 bar to 16 bar



Clamp connections*
from DN 20 to DN 32

* Further connection options:
Threaded connections, aseptic connections



Data sheet

OVERFLOW / PRESSURE CONTROL VALVES SERIES 400.5

made of stainless steel, angle-type,
with clamp connections and food
connections

with stainless steel bellows



As with the Hygienic safety valves, the design features of the Hygienic Design have also been implemented in these overflow and pressure control valves and confirmed by the DGUV Food and Luxury Food Expert Committee.

Depending on the application and medium, the seals are available with FDA, USP, 3-A and ADI-FREE approvals.

The valves are primarily used for regulating processes and systems in the food and pharmaceutical industries. The medium suitability ranges from air to a wide variety of neutral and non-neutral vapours, gases and liquids.



Temperatures
from -40 °C to +200 °C



Pressures
from 0,4 bar to 16 bar



Clamp connections*
from DN 20 to DN 32

* Further connection options:
Threaded connections, aseptic connections



Data sheet

SAFETY VALVES SERIES 4000

made of stainless steel, angle-type,
with stainless steel spring



In the field of hygienic or clean service applications, particularly high demands are placed on the cleanability and therefore the dead space-free design of equipment parts.

The development of the series 4000 safety valve, which ranges from DN 25 to DN 100, has realised precisely these policies.

By using a cone-shaped diaphragm instead of a rubber bellows, the area in contact with the medium is optimally separated from the spring chamber of the valve. The design principles have been fully implemented for all surfaces, the primary valve cone seal and the body seals. This means that all surfaces are easy to clean.

A pneumatic piston actuator and an optional proximity switch to indicate the opening of the safety valve are also available for lifting the valves.



Temperatures
from -40 °C to +200 °C



Pressures
from 0,4 bar to 16 bar



Clamp connections*
from DN 20 to DN 100

* Further connection options:
Threaded connections, aseptic connections,
flange connections



Data sheet

Type test approved safety valves angle-type

SAFETY VALVES SERIES 420

made of stainless steel, angle-type,
with hygienic connection



The 420 series is characterised by its outstanding blow-off capacity compared to its size as a hygienic valve for pharmaceutical applications.

One of our smallest angle safety valves offers a unique continuous and hygienic flat seal in the inlet area, which often makes it the optimal choice for hygienic applications in the pharmaceutical industry.

Other options include an e-polished surface and a wide range of hygienic connections.



Temperatures
from -40 °C to +260 °C



Pressures
from 0,5 bar to 50 bar



Clamp connections*
from DN 8 to DN 10

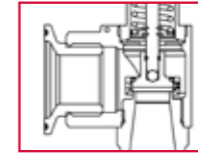
* Further connection options:
Threaded connections, aseptic connections,
flange connections



Data sheet

SAFETY VALVES SERIES 451

made of stainless steel, angle-type,
with hygienic connection



A valve made of stainless steel is often required in the secondary process. Compared to the primary process, the hygiene requirements, e.g. in terms of cleanability, are somewhat lower.

This is where our 451 series valves are used. All components are made of durable stainless steel. The different sizes from DN15 to DN32 can be designed with all the connections required in the food and pharmaceutical sectors. In combination with its hygienic, directly pressurised area, the safety valve offers a flexible and cost-effective solution for fulfilling the necessary hygiene requirements.

In addition to the basic version, a wide variety of seal designs and materials, a back-pressure compensating stainless steel bellows and/or a gas-tight bonnet offer the necessary special equipment to fulfil the highest safety requirements.



Temperatures
from -60 °C to +400 °C



Pressures
from 0,5 bar to 25 bar



Clamp connections*
from DN 15 to DN 50

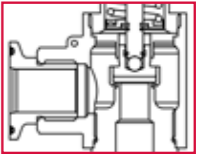
* Further connection options:
Threaded connections, aseptic connections,
flange connections



Data sheet

SAFETY VALVES SERIES 461

made of stainless steel, angle-type,
with hygienic connection



The consistent expansion with smaller nominal diameters now also enables the safety valve to be optimised and thus economically sized for smaller blow-off quantities.

The proven diversity of variants means that the valve can be used for a wide variety of media in different states of aggregation.

Possible applications include medical apparatus engineering and secondary applications in the food, beverage, pharmaceutical and cosmetics industries. Furthermore, all components are made of durable stainless steel.



Temperatures
from -60 °C to +225 °C



Pressures
from 0,5 bar to 70 bar



Clamp connections*
from DN 10 to DN 15

* Further connection options:
Threaded connections, aseptic connections,
flange connections

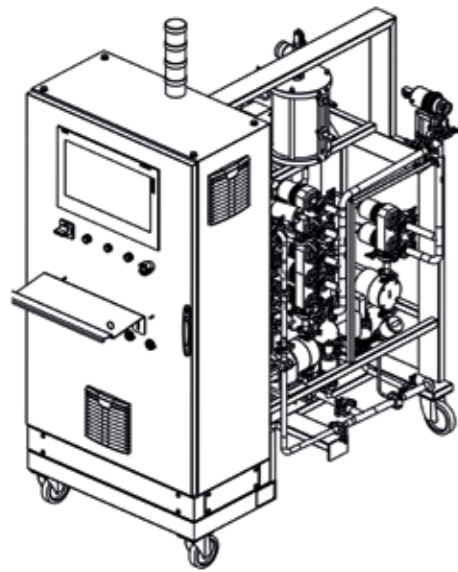


Data sheet

Hygienic safety valves for liquid chromatography systems

Challenges in choosing the right safety valve and extensive certifications also go hand in hand here and ensure that smooth operation, even under demanding cleaning and environmental conditions, is guaranteed at all times.

The process liquid is heated up to 75 °C in different circuits before it is passed through the chromatography columns. These circuits must be protected against overpressure. The protection is primarily for thermal expansion, as well as protection against overpressure due to pump or valve failures.



The customised product solution according to customer specifications provides the Goetze product portfolio for life science and pharmaceutical processes of this type with several possible matching valve series.

The challenge in choosing the right safety valve are as follows:

- high response pressure of up to 21 bar
- different blow-off capacities due to small and large CT systems
- hygienic design
- hygienic, electropolished surface on the inlet side according to customer specifications
- special ASME compliant connections according to customer requirements
- special certifications according to customer requirements (ATEX, ASME)

Here we are your partner in security.

Our safety valves of the 420 and 451 series in a particularly hygienic design and with electropolished surfaces in contact with the process, especially in the inlet area. In addition, in this application, the valve position is transmitted to the control system at all times via proximity sensors.

Both valve series are available in different sizes, which means that the same series can be used for both small and large chromatography systems.



Series 420



Series 451

Briefly explained: Liquid chromatography

Liquid chromatography is a process that not only separates substances, but also identifies and quantifies them via standards (determines the exact concentration).

In biopharmaceutical production, this achieves optimal separation and purification of monoclonal antibodies, vaccines, plasma and therapeutic proteins. Example: Liquid chromatography can be used to determine the concentration of a chemical substance (e.g. vitamin E in a vegetable oil).



Type test approved safety valves angle-type

SAFETY VALVES SERIES 6420

made of gunmetal, angle-type,
with clamp connections



With the 6420 series, Goetze offers an all-round safety valve for numerous applications.

Just like the inlet on the product side, the parts inside the valve that come into contact with the product are also made entirely of stainless steel. This allows the 6420 series to be used in beverage processing or the food industry, for example. However, a graduated hygienic standard is also often required in the secondary sector of these industries.

The valve impresses with its diverse designs, application options and easy handling. In addition, the safety valve offers numerous professional connection options, e.g. with clamp connections, especially for hygienic applications, but also with classic thread or flange connections.

SAFETY VALVES SERIES 451FL

made of stainless steel, angle-type,
with flange connections



A valve made of stainless steel is often required in the secondary process, although the hygiene requirements, e.g. in terms of cleanability, are lower than in the primary process.

The valves in the 451FL series are made entirely of high-quality stainless steel. All components are made of durable stainless steel. With their variable sizes from DN15 to DN32, they offer a wide range of compatibility for various connections. In addition to the basic version, a wide range of seal designs and materials, a back-pressure compensating stainless steel bellows and/or a gas-tight bonnet offer the necessary special equipment to fulfil the highest safety requirements.

SAFETY VALVES SERIES 410

made of stainless steel, atmospheric
discharge, with hygienic connection



Our smallest and most compact hygienic safety valve with gigantic blow-off capacities. The 410 series in sizes DN8 to DN25 is ideal for protecting small and large pressure vessels, e.g. made of stainless steel.

It is also used in many areas with aggressive cleaning media, for example, as well as in secondary areas of the food, pharmaceutical and cosmetics industries.

Manufactured entirely from stainless steel as standard and with a male thread, additional connections such as flanges or clamps are possible at any time on the inlet side.

SAFETY VALVES SERIES 412

made of stainless steel, atmospheric
discharge, with hygienic connection



Free blow-off stainless steel safety valves with a hygienic design are often used on both small and large mobile production containers.

The uniqueness of the 412 series is demonstrated not only by the continuous and hygienic flat seal in the inlet area but also by the variety of sizes from DN15 to DN50.

The 412 series is also used as a bung valve in the fermentation process. During the fermentation process of beer or cider, adjustable bunging valves enable a constant bunging pressure by blowing off the CO₂. This is important for the beer quality. Options such as K/M connection or mounting flange with or without glass are available.

Overflow and pressure control valves

OVERFLOW AND PRESSURE CONTROL VALVES SERIES 417

made of stainless steel, angle-type,
with hygienic connection



Overflow and pressure control valves from the 417 and 418 series are suitable for protecting pumps. The valves are also ideal for relieving pressure and regulating containers and tanks (e.g. CO₂ blanketing) and are ideal for relieving pressure in closed pipework systems. This is because the escaping medium can be discharged or returned in a controlled manner.

The valves are made entirely of stainless steel and are also suitable for use in hygienic processes such as CIP or SIP cleaning. Thanks to the use of stainless steel as a material, the valves are particularly resistant to corrosion and aggressive media.

Thanks to the closed and gas-tight design of the 417 series, the series covers an even wider range of applications. The main advantage of the 418 overflow valve is its high operating pressure of up to 30 bar. Maximum ease of maintenance is guaranteed by a replaceable valve cartridge.

Applications from -60 to +225 °C are possible thanks to a variety of possible seals. The valves can be conveniently adjusted during operation via the external adjustment. This enables optimum adaptation to the operating conditions of the system. However, the valves can also be supplied permanently set and sealed at the factory.

According to the EC Pressure Equipment Directive 97/23/EC, overflow valves are not equipment with a safety function and therefore do not have a type examination certificate.

OVERFLOW AND PRESSURE CONTROL VALVES SERIES 418

made of stainless steel, angle-type,
with hygienic connection



 **Temperatures**
from -50 °C to +205 °C

 **Pressures**
from 0,5 bar to 16 bar

 **Clamp connections***
from DN 15 to DN 65

* Further connection options:
Threaded connections, aseptic connections



Data sheet

 **Temperatures**
from -60 °C to +400 °C

 **Pressures**
from 0,5 bar to 70 bar

 **Clamp connections**
from DN 15 to DN 50


* Further connection options:
Threaded connections, aseptic connections,
flange connections



Data sheet

 **Temperatures**
from -60 °C to +225 °C

 **Pressures**
from 0,2 bar to 50 bar

 **Clamp connections***
from DN 8 to DN 25


* Further connection options:
Threaded connections, aseptic connections,
flange connections



Data sheet

 **Temperatures**
from -60 °C to +225 °C

 **Pressures**
from 0,2 bar to 50 bar

 **Clamp connections***
from DN 8 to DN 50


* Further connection options:
Threaded connections, aseptic connections,
flange connections



Data sheet

 **Temperatures**
from -60 °C to +225 °C

 **Pressures**
from 0,2 bar to 20 bar

 **Clamp connections***
from DN 10 to DN 50

* Further connection options:
Threaded connections, aseptic connections,
flange connections



Data sheet

 **Temperatures**
from -60 °C to +225 °C

 **Pressures**
from 0,2 bar to 30 bar

 **Clamp connections***
from DN 10 to DN 32

* Further connection options:
Threaded connections, aseptic connections,
flange connections



Data sheet

Overflow and pressure control valves

OVERFLOW AND PRESSURE CONTROL VALVES SERIES 453

made of stainless steel, angle-type, with hygienic connection



The adjustable hygienic overflow valves in the 453 series are characterised by a back pressure compensating stainless steel bellows. This ensures that any back pressure acting on the outlet side does not impair the efficiency and functionality of the valve.

CIP and SIP cleaning is possible at any time due to the design. The pressure springs designed for the pressure ranges, with the technically complex design of the functional parts in the flow area and the body, result in flow rates with proportional control behaviour.

In terms of the EC Pressure Equipment Directive 97/23/EC, overflow valves are not equipment with a safety function and therefore do not have a type examination certificate.

Series 453 valves are often used in systems in the beverage industry.

Vacuum and air valves

VENT VALVES TYPE 1940/45

made of stainless steel, with hygienic connection



The valves in the 1940 and 1945 series are used to protect vessels or systems against underpressure.

This prevents, for example, the formation of a vacuum and the resulting damage to the pipework or a tank. This protection against vacuum formation is mainly used when emptying containers, in tanks, pipelines, heat exchangers and containers in vapour systems.

Other applications include systems in which the pressure should not fall below atmospheric pressure.

Made entirely of stainless steel, the valves are ideal for CIP or SIP cleaning.

Pressure reducing valves

PRESSURE REDUCING VALVES SERIES 9040

made of stainless steel, with threaded connections



The 9040 series is made of stainless steel.

The stainless steel pressure reducers in the 9040 series are used in various systems and pipes in the food, cosmetics and beverage industries.

The 9040 series is the right choice, especially in dosing devices, water treatment systems, water supply to steam generators and CIP systems or in CIP rinsing systems.

As an option and also for hygienic applications, a stainless steel filter bowl can be fitted.

PRESSURE REDUCING VALVES SERIES 481

made of stainless steel, with threaded connections



The stainless steel pressure reducing valves in the 481 series can be supplied with a wide range of connections.

This is the right choice for harsh operating conditions in the secondary area of hygienic processes.

The high inlet pressure of up to 40 bar results in a very wide range of applications.

PRESSURE REDUCING VALVES SERIES 482

made of stainless steel and gunmetal with flange connections



The 482 series stainless steel pressure reducer with flange connections is ideal for large flow rates.

The options of a high-pressure and low-pressure version offer a very wide variety.

A stainless steel pressure gauge is also possible, as is a replaceable function cartridge with dirt trap strainer.

 **Temperatures**
from -60°C to +225°C

 **Pressures**
from 0,5 bar to 25 bar

 **Clamp connections***
from DN 15 to DN 50


* Further connection options:
Threaded connections, aseptic connections, flange connections



Data sheet

 **Temperatures**
from -60°C to +225°C

 **Pressures**
from -6 mbar to - 800 mbar

 **Clamp connections***
from DN 15 to DN 25

* Further connection options:
Threaded connections, aseptic connections, flange connections



Data sheet



Data sheet

 **Temperatures**
from +5°C to +85°C

 **Inlet pressure** up to 25 bar,
Outlet pressure adjustable
from 0,5 bar to 12 bar

 **Threaded connections***
from ½" to 2"

* Further connection options:
Clamp connections, aseptic connections, flange connections



Data sheet

 **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"

* Further connection options:
Clamp connections, aseptic connections, flange connections



Data sheet

 **Temperatures**
from -20°C to +120°C

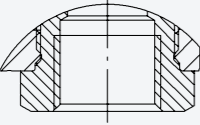
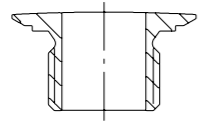
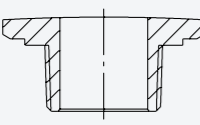
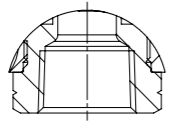
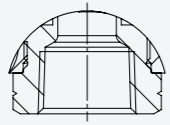
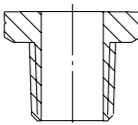
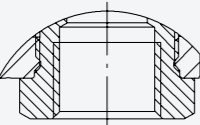
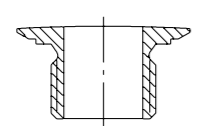
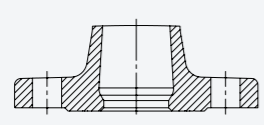
 **Inlet pressure** up to 40 bar,
Outlet pressure adjustable
from 0,5 bar to 15 bar

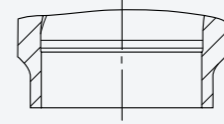
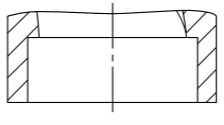
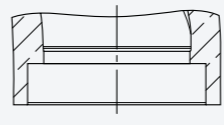
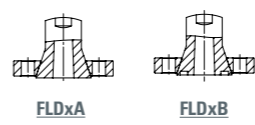
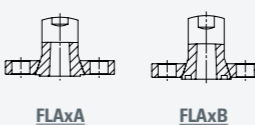
 **Flange connections**
from DN 15 to DN 100



Data sheet

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
FL		Cast flange connection according to DIN EN 1092

Connection type	Drawing	Description
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 to 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		Loose flange connection according to DIN EN 1092 up to max. PN 100 x = Pressure rating A = Without sealing groove B = With sealing groove
FLAxA, FLAxB		Loose flange connection according to ASME B 16.5 up to max. 600 lbs x = Pressure rating A = Without sealing groove B = With sealing groove

HYGIENIC AND ASEPTIC CONNECTIONS

Connection type	Drawing	Description	Standard	Pipe standard
KLSDIN KLSISO KLSASME KLSIX		Clamp connection Clamp connection Clamp connection Clamp connection	DIN 32676-A DIN 32676-B DIN 32676-C ISO 2852	Pipe standard DIN 11850-2 / 11866-A Pipe standard DIN EN ISO 1127 / DIN 11866-B Pipe standard BS 4825-1 / DIN 11866-C Pipe standard ISO 2037
GS1		Threaded ferrule connection	DIN 11851-SC	Pipe standard DIN 11850-2 / 11866-A
KS1		Taper nipple with groove cap nut	DIN 11851-SD	Pipe standard DIN 11850-2 / 11866-A
A-NKS1 A-NKS2 A-NKS3		Aseptic groove clamp connection Aseptic groove clamp connection Aseptic groove clamp connection	DIN 11864-3-NKS DIN 11864-3-NKS DIN 11864-3-NKS	Pipe standard DIN 11850-2 / DIN 11866-A Pipe standard DIN EN ISO 1127 / DIN 11866-B Pipe standard BS 4825-1 / DIN 11866-C
A-BKS1 A-BKS2 A-BKS3		Aseptic collar clamp connection Aseptic collar clamp connection Aseptic collar clamp connection	DIN 11864-3-BKS DIN 11864-3-BKS DIN 11864-3-BKS	Pipe standard DIN 11850-2 / DIN 11866-A Pipe standard DIN EN ISO 1127 / DIN 11866-B Pipe standard BS 4825-1 / DIN 11866-C
A-GS1 A-GS2 A-GS3		Aseptic threaded ferrule connection Aseptic threaded ferrule connection Aseptic threaded ferrule connection	DIN 11864-1-GS DIN 11864-1-GS DIN 11864-1-GS	Pipe standard DIN 11850-2 / DIN 11866-A Pipe standard DIN EN ISO 1127 / DIN 11866-B Pipe standard BS 4825-1 / DIN 11866-C
A-KS1 A-KS2 A-KS3		Aseptic collar connection with groove cap nut Aseptic collar connection with groove cap nut Aseptic collar connection with groove cap nut	DIN 11864-1-BS DIN 11864-1-BS DIN 11864-1-BS	Pipe standard DIN 11850-2 / DIN 11866-A Pipe standard DIN EN ISO 1127 / DIN 11866-B Pipe standard BS 4825-1 / DIN 11866-C
A-BF1 A-BF2 A-BF3		Aseptic flanged connection Aseptic flanged connection Aseptic flanged connection	DIN 11864-2-BF DIN 11864-2-BF DIN 11864-2-BF	Pipe standard DIN 11850-2 / DIN 11866-A Pipe standard DIN EN ISO 1127 / DIN 11866-B Pipe standard BS 4825-1 / DIN 11866-C
A-NF1 A-NF2 A-NF3		Aseptic grooved flanged connection Aseptic grooved flanged connection Aseptic grooved flanged connection	DIN 11864-2-NF DIN 11864-2-NF DIN 11864-2-NF	Pipe standard DIN 11850-2 / DIN 11866-A Pipe standard DIN EN ISO 1127 / DIN 11866-B Pipe standard BS 4825-1 / DIN 11866-C
SE4 SE5 SE6		Butt weld Butt weld Butt weld		Pipe standard DIN 11850-2 / DIN 11866-A Pipe standard DIN EN ISO 1127 / DIN 11866-B Pipe standard BS 4825-1 / DIN 11866-C
VC		Container flange at valve inlet		

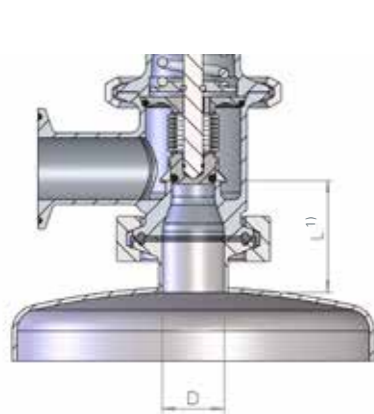
Other connection types such as flange connection according to DIN EN 1092 / ASME B16.5, APV plain / grooved flanges, NA Connect, SMS threaded / tapered connection pieces are available on request.

GENERAL INFORMATION ABOUT THE HYGIENIC VALVES

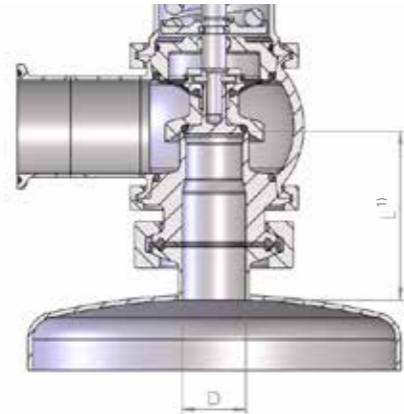
DEAD SPACE RATIO

The dead space ratio is determined by the ratio of the total inlet length L (usually the base of the container lid to the top of the seat) to the diameter of the inlet pipe at the widest point D. A large dead space ratio generally leads to poorer cleanability of the area under consideration. Therefore, the smaller the dead space ratio, the better the cleanability of this area.

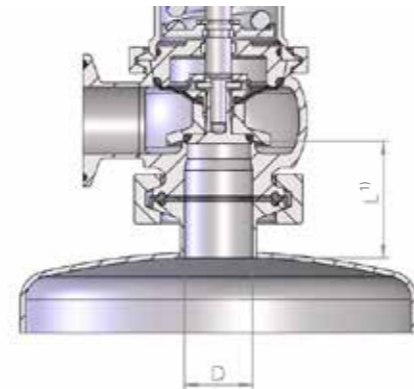
Below you will find a schematic diagram of the dead space ratio. The information on the actual dead space ratio L/D is given in the corresponding data sheet or in a separate dimensional drawing (for special connections).



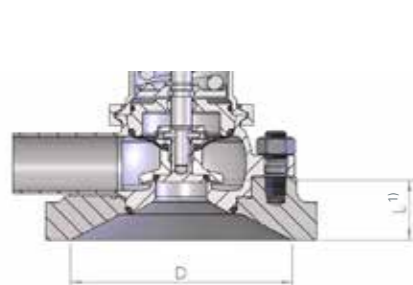
Type 400



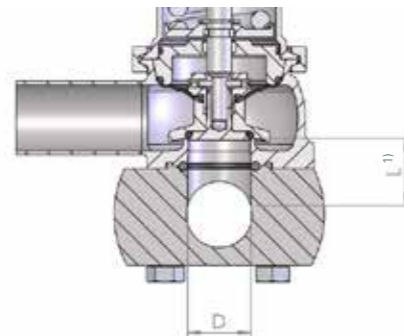
Type 4000



Type 4020



Type 4040

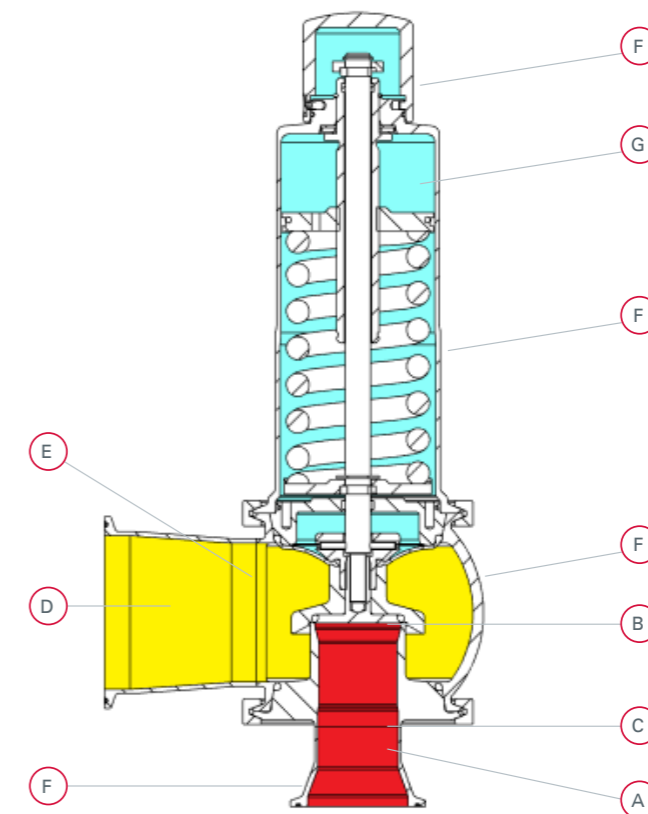


Type 4060

¹⁾ Actual dimension L depends on the connection piece on the container side.

SURFACE QUALITY FOR HYGIENIC SAFETY VALVES ACCORDING TO GOETZE STANDARD

Surface position	Comment	Surface definition according to Goetze standard
Primary surface in contact with medium (A) : Valve inlet area (B) : Valve disc lower surface (C) : Weld seam (if present)	Primary area in permanent contact with medium	If necessary, increased surface quality as an additional option. The weld seam is ground internally in the inlet area as standard.
Secondary surface in contact with medium (D) : inner surface blow-out area (E) : Weld seam	Surface is not in contact with medium when the valve is closed, the surface should be suitable to ensure efficient cleaning (CIP and COP).	Taken into account seam is not ground as standard and is therefore not considered in the surface quality.
Outer surface (F) : Outer surface of body, housing, cap that is not in contact with the medium	The surface is not in contact with the medium and is therefore not relevant for CIP/COP cleaning. A clean, smooth surface is nevertheless required.	No technical requirements for the surface quality. Taken into account seam is not ground as standard and is therefore not included in the surface quality. If necessary, increased surface quality, as an additional option. Add-on components such as valve clamps or lifting levers are not included.
Area not in contact with medium (G) : area above the spindle seal which is shielded from the medium	For valve versions with diaphragm or bellows, this area is permanently separated from the medium.	No surface quality requirements, as not in contact with the medium.



SAFETY & HYGIENE – GO HAND IN HAND



Systems for the food and pharmaceutical industry need to comply to very strict requirements regarding their cleanability. In order to meet the highest demands here, Goetze gave top priority to precisely these requirements during development of this safety valve series.

The result of this is our Hygienic Safety valve series 4000, which is fully forged stainless steel with its distinctive slim and compact design. However, one thing distinguishes the 4000 valve series from previous Goetze safety valves. The valve sets new standards when it comes to cleaning: With a very smooth surface of $0,75\mu\text{m}$ (optional $Ra\ max.\ 0,375\mu\text{m}$) all residues can be removed effortlessly.

In order to ensure a constant hygienic status during the entire service life of the valve, usually cleaning and if necessary, disinfection must be carried out at regular intervals.

The Goetze valve can be disassembled and cleaned in just a few simple steps. This can be done without either removal of the valve from the plant nor destruction of the setting seal. Cleaning and Sterilisation in place (CIP and SIP) is very easy. It is also possible to partially disassemble the valve for cleaning. Step one: Loosen the valve clamp between the body and the spring housing in the pressureless state using common tools.

This is easily possible without any effort. Now the complete spring housing can be removed from the body.

Now, all surfaces that were in contact with the medium can be professionally cleaned and sanitized.

After this, the valve is reassembled in reverse order – the valve is ready for use again without the need to reset the pressure. Valuable time is not lost due to downtime and the duration of the cleaning process is kept to a minimum.

Although cleanability has a high priority, the most important characteristic is safety. The valve is protected against unauthorised adjustment by a visible setting-seal disc pressed into the cap. Therefore, there is no need for a conventional sealing wire, which is not easy to clean. This allows simple assembly or disassembly with common tools without changing or affecting the set pressure of the valve. This is a unique feature of our safety valves used in such applications.

ASSEMBLY / MAINTENANCE

The cleaning process

Hygiene is an omnipresent topic, especially in the food processing industry. Particularly high demands are placed on the surface in contact with the media. Therefore, a dead space-free design of components is essential.



⊕ ADVANTAGES

Maintenance without breaking the seal

Simple and quick replacement of sealing elements

Maintenance in the installed position is fuss-free

Watch our cleaning and disassembling video.



HOW TO HANDLE PRESSURE

The competence of Goetze KG Armaturen has been in demand for more than 70 years. Our wealth of experience is as broad and varied as our areas of application for our high-performance fittings.

The Goetze product range

500.000 VALVES PER YEAR

out of a wide product portfolio – „Made in Germany“

Our locations

GERMANY, LUDWIGSBURG

CHINA, BRAZIL, USA | OWN DISTRIBUTORS

-270 °C – +400 °C

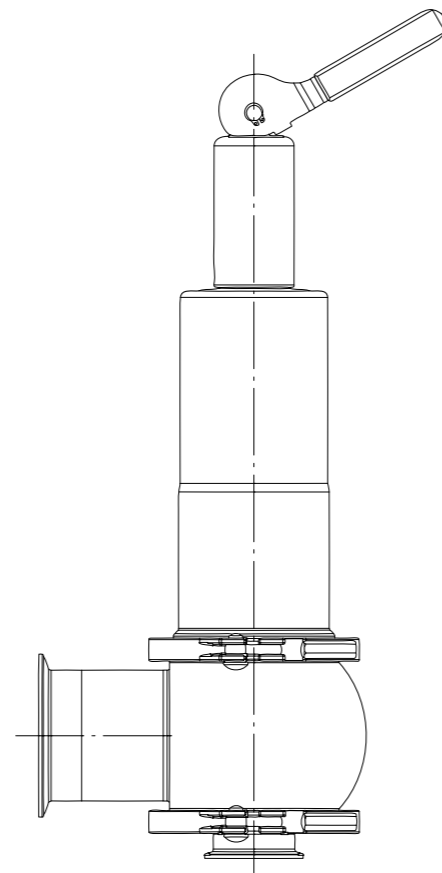
uncompromising performance

0,2 BAR – 1500 BAR

impressive pressure range

Goetze's concentrated expertise

We support our customers with our many years of experience in this sector at the highest level. Thanks to the expertise of our qualified development team, we are able to continuously develop new and innovative products and adapt to individual customer requirements. Using precise manual work and precision manufacturing, we are able to advance the ideas and product innovations of our customers – customer-focused, solution-oriented, flexible and always in German brand quality.



THE GOETZE KG ARMATUREN

Individuality for more safety

The competence of Goetze KG Armaturen has been in demand for 70 years. Our wealth of experience is as broad and varied as our areas of application for our high-performance fittings. Our well thought-out product portfolio 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. The greatest possible safety is a priority.

PROFESSIONAL AND COMPETENT ADVICE

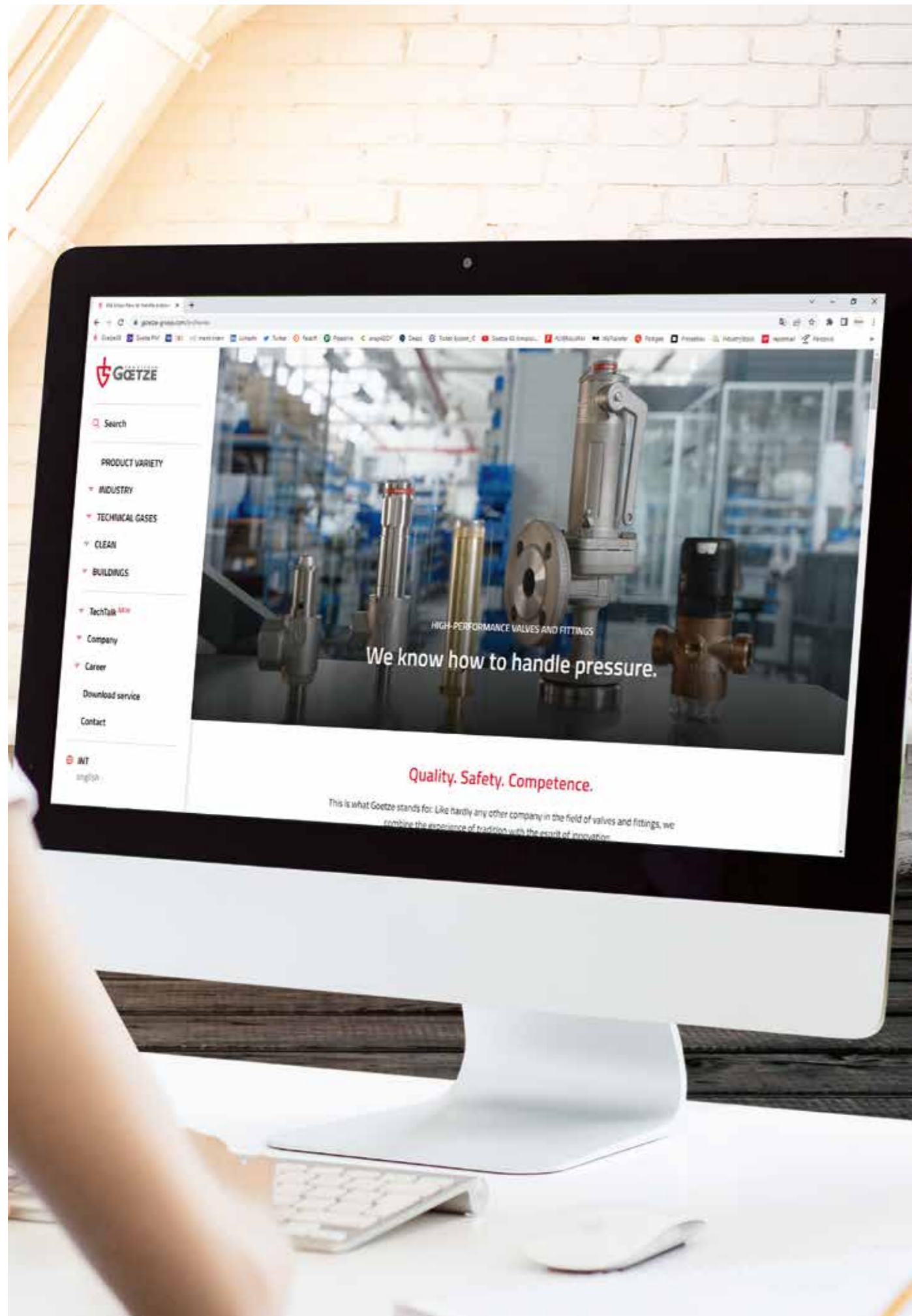
At any time, you can reach a competent contact partner as part of our in-house team at Goetze. Whether it is for the product selection, the configuration of the right valve, urgent requests, whether per telephone call or per mail, there is a personal multilingual consultant at your disposal. With over 500.000 valves per year „Made in Germany“; we are your competent partner for all matters relating to the handling of pressure.

Technical consulting is not only the focus of our in-house team. We provide support for our customers with the necessary information and instructions throughout the entire life cycle of the valve thereby assisting those persons who have to work with the fittings every day. Our field representatives are tasked with providing customers with the best possible consultation service at the customer's facility and supporting them in all questions concerning our products.

GLOBAL TRADE

Goetze products – available worldwide, directly and quickly. No matter whether through Goetze or our trading partners. Our sales subsidiaries and local dealers will always provide the advice you need to find the product that suits you best. Discover our dealer network and find your local dealer.





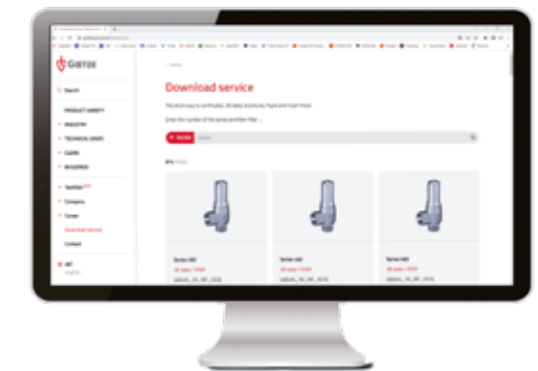
INTERNET SERVICE OF GOETZE

DESIGN AND CALCULATION OF SAFETY VALVES

With the help of a design programme and with the alpha-w value 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 „Service/Download“



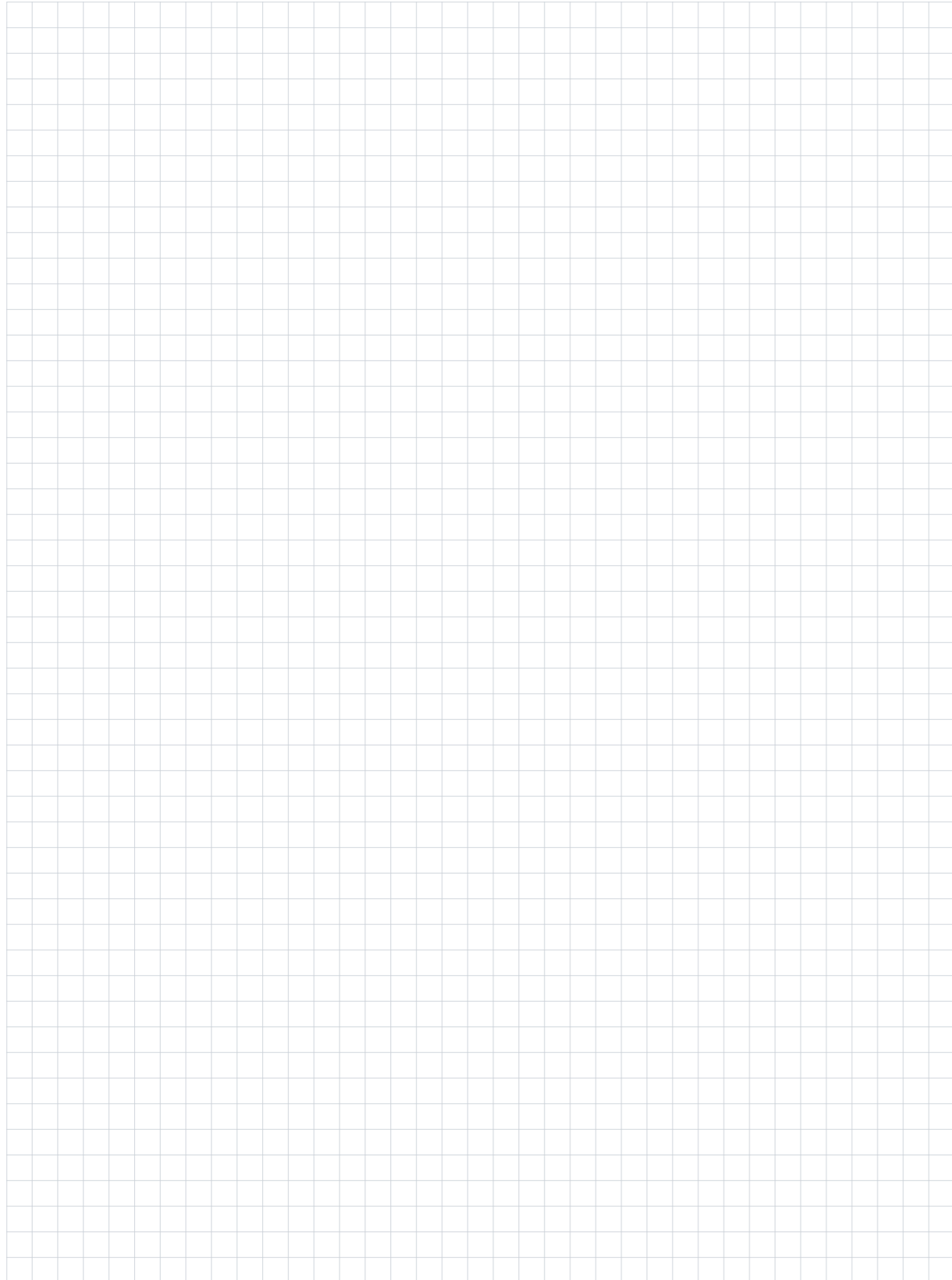
MOBILE WEBSITE

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.

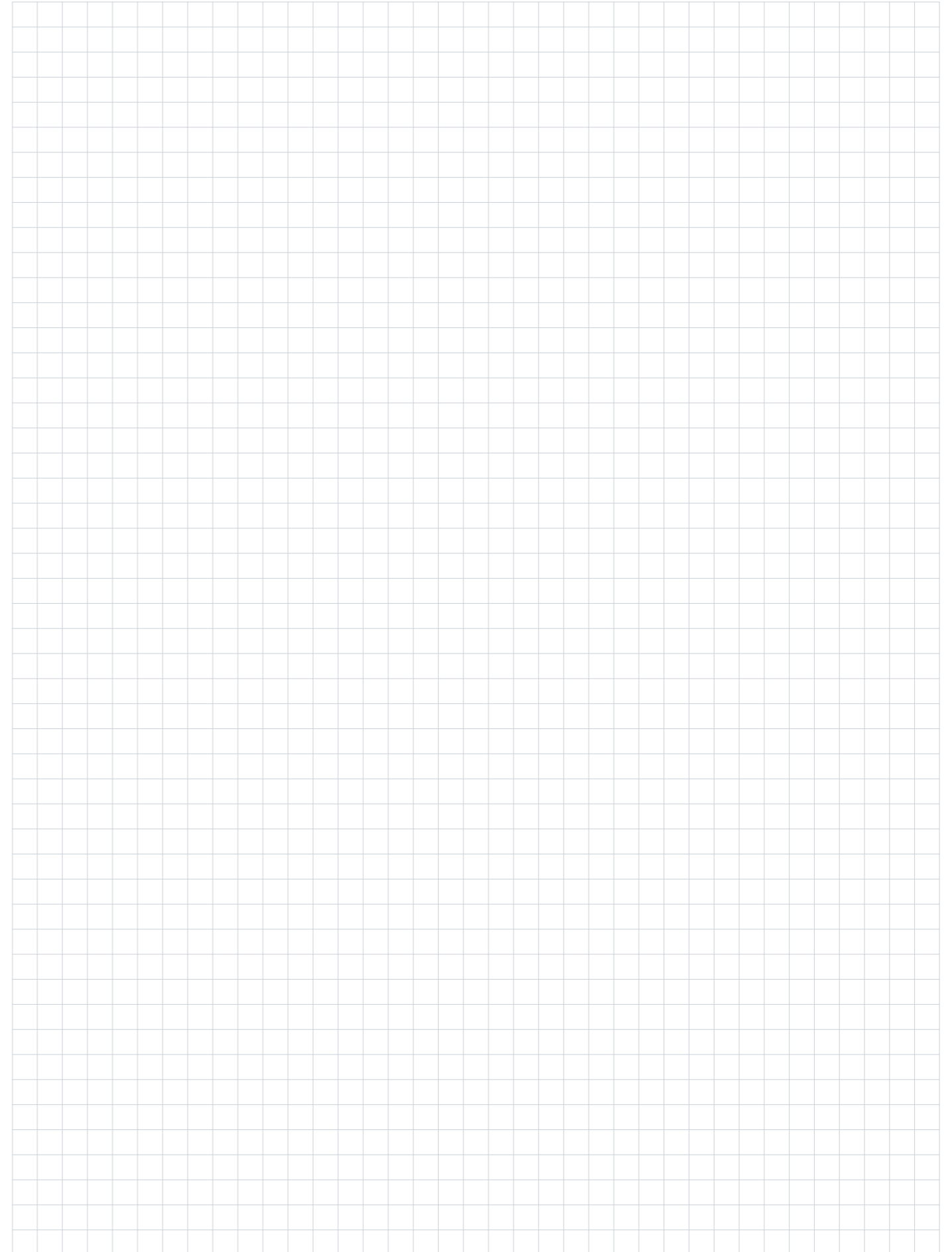
Curious? Just take a look!

www.goetze-group.com

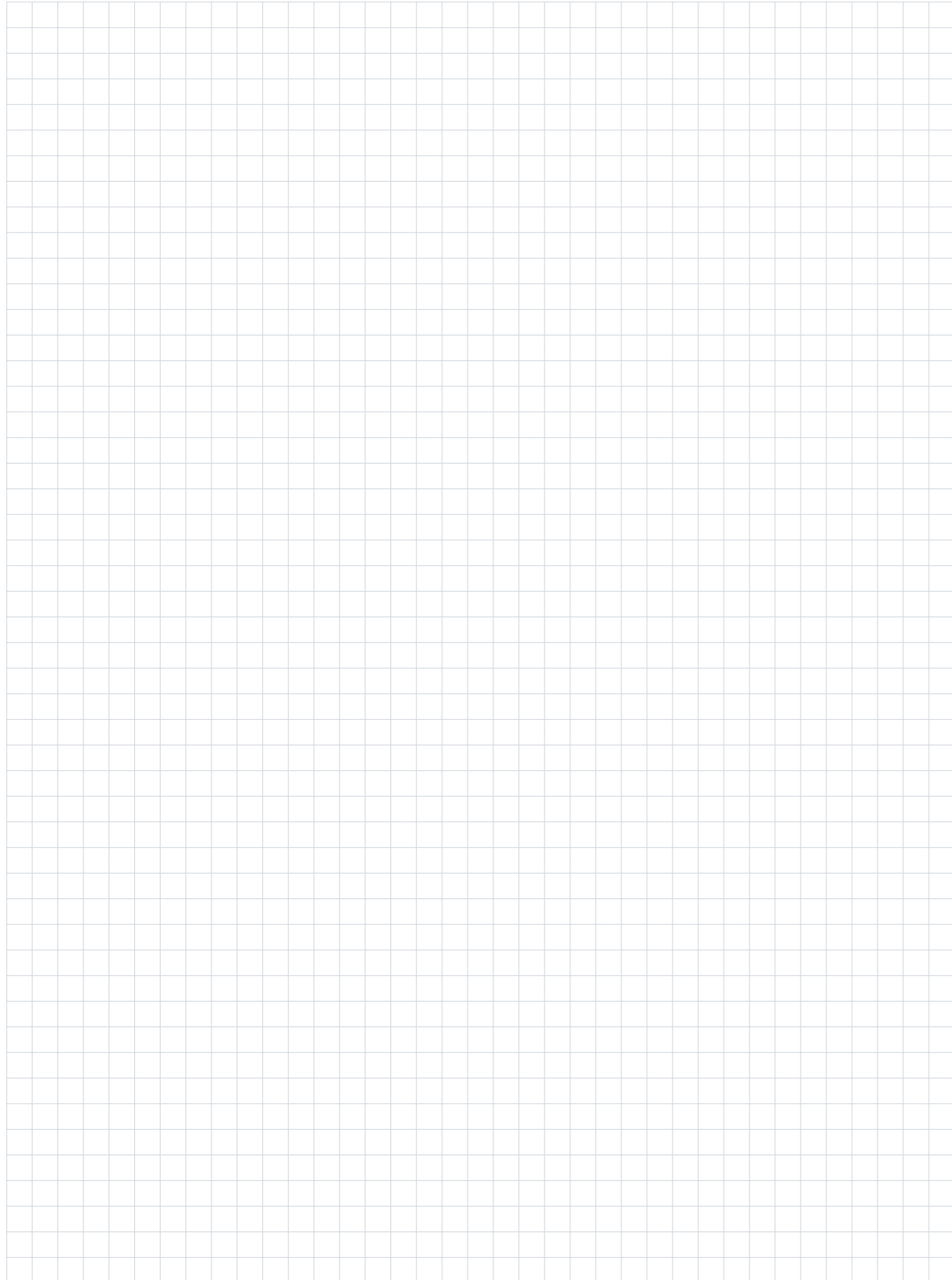
NOTES



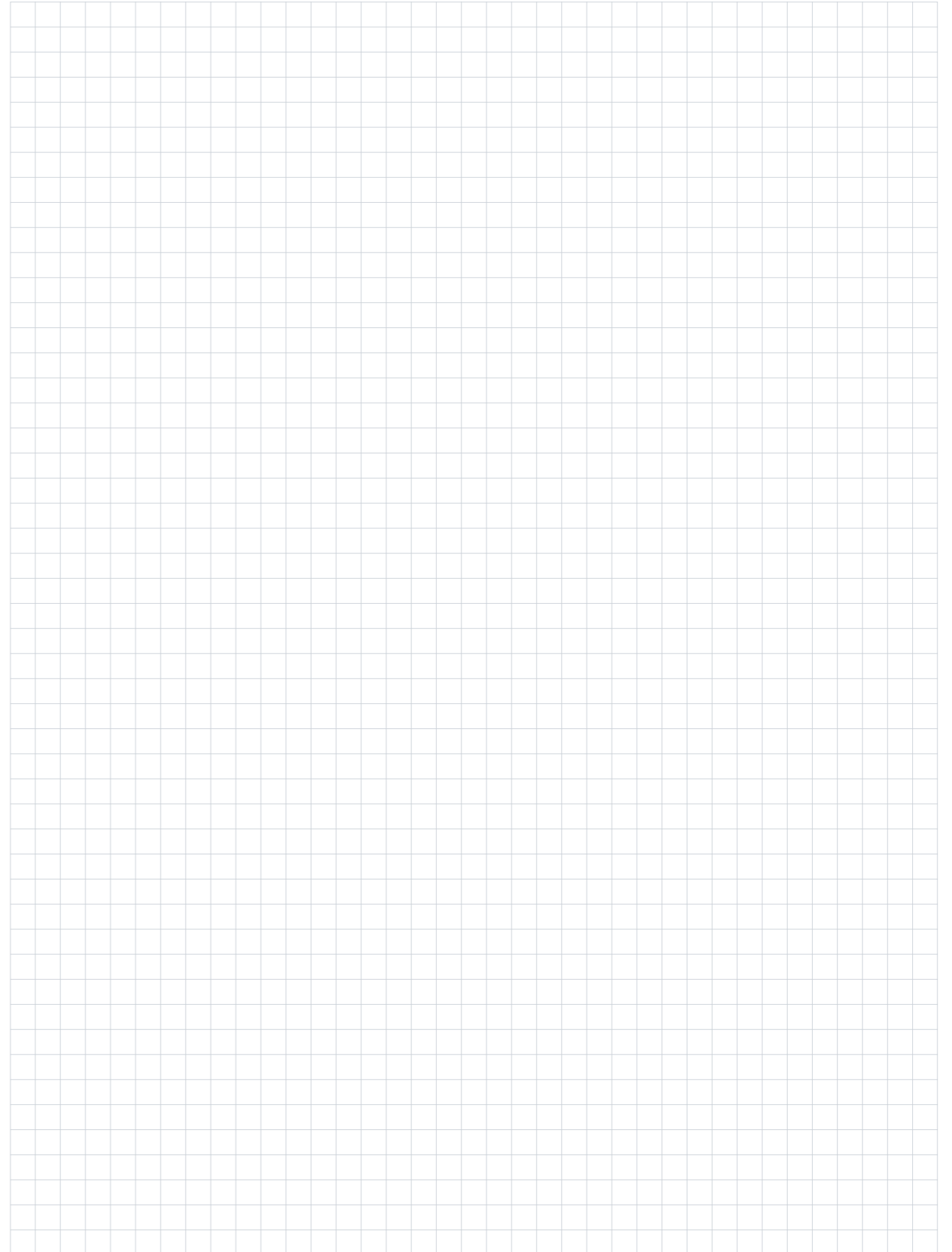
NOTES



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