

LESER at a glance



LESER

The-Safety-Valve.com



API

Series 526



Applications

- Oil and gas
- Refineries
- Chemical industry
- Petrochemical industry

Product features

- Valve sizes 1" through 8", Orifice D through T
- Materials: WCB, CF8M, WC6, LCB, specials
- Design according to API 526
- Single trim for steam, gas and liquid
- Standard metal sealing, stellite, or O-ring disc for superior tightness
- Optional bellows design available

Compact Performance

Series 437, 459



Applications

- Thermal relief
- Air / gas compressors and pumps
- Industrial gases and CO₂ plants
- LPG / LNG terminals, carriers etc.
- Chemical equipment and piping
- Cryogenic systems and oxygen applications

Product features

- Valve sizes from 1/2" through 1 1/2"
- Materials: WCB, CF8M, 316L, specials
- Threaded or flanged connections
- Optional bellows design available
- Set pressure range up to 11600 psig
- Standard metal sealing, stellite, or O-ring disc for superior tightness
- Single trim for steam, gas and liquid



Series 437

Series 459

High Performance

Series 441



Applications

- Heat exchanger
- Chemical equipment and piping
- General steam installations
- Pressure vessels and piping systems containing gas, air and liquid or steam
- Air / gas compressors and pumps
- For use in Non-API applications

Product features

- Valve sizes from 1" through 16"
- Materials: WCB or CF8M
- Single trim for steam, gas and liquid
- Standard metal sealing, stellite, or O-ring disc for superior tightness
- Optional bellows design available
- High capacity compared to Type 526



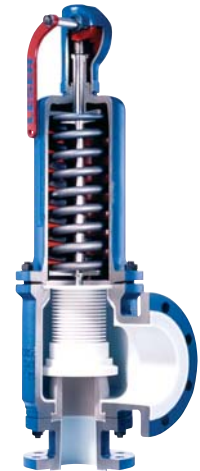
Clean Service



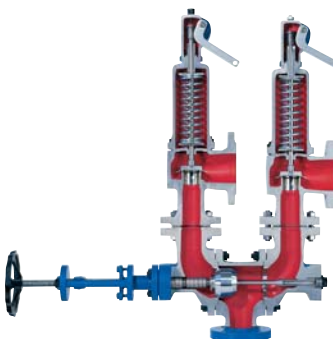
Series 48x		
<p>Applications</p> <ul style="list-style-type: none"> • Pharmaceutical industry • Breweries • Food and beverage industry • Cosmetic industry 	<p>Product features</p> <ul style="list-style-type: none"> • Valve sizes 1" through 4" • Materials: 316L stainless steel, specials • No bacteria traps or contamination • Minimum dead leg design and flush-mounting capability • Gap and crevice free design of internals • Optional pneumatic lifting device and proximity switch for plant automation • Wetted-part surfaces acc. to ASME BPE 2002 • Standard elastomer bellows for protection of the hard to clean parts • Single trim for steam, gas and liquid 	

Critical Service

Series 447		
TEFLON®-lined		
<p>Applications</p> <ul style="list-style-type: none"> • Corrosive or aggressive chemicals • Chemical equipment and piping • Chlorine manufacture and processing • Reducing acids • Alkalis or caustic service 	<p>Product features</p> <ul style="list-style-type: none"> • Valve sizes 1" through 4" • Body: WCB, PTFE-lined • Isostatic lining in virgin PTFE • Smooth PTFE surface, no adherence • Nozzle: PTFE / glass sintered • Single trim for gas and liquid • Maximum set pressure 232 psig 	



Change-over valve



Series 310		
<p>Applications</p> <ul style="list-style-type: none"> • Continuously functioning plant <ul style="list-style-type: none"> – Bitumen refineries – Oilfields – Ethylene plants • Non-drainable systems <ul style="list-style-type: none"> – Natural gas caverns – Storage tanks 	<p>Product features</p> <ul style="list-style-type: none"> • Valve sizes 1" through 16" • Materials: WCB, CF8M • Compact design • Full flow area on change-over • Standard packing gland or optional bellows design available • Low pressure losses on discharge flow (3% criteria) 	

Pilot Operated Safety Valve



Available
May 2010

Series 810, 820



Application

- Oil and gas production, onshore, offshore
- Refinery (Oil and gas processing)
- LNG / LPG Carrier and Terminals
- Gas distribution

Main Features

- Pop and modulating pilot for customization to the desired functionality.
- Product range acc. to API 526 for easy replaceability of installed pilot operated safety valves.
- Full bore for higher capacity based on nominal size.
- Separate pressure tapping line for safe blow-off independent of inlet pressure drop.

Modulate Action



Series 429, 433



Applications

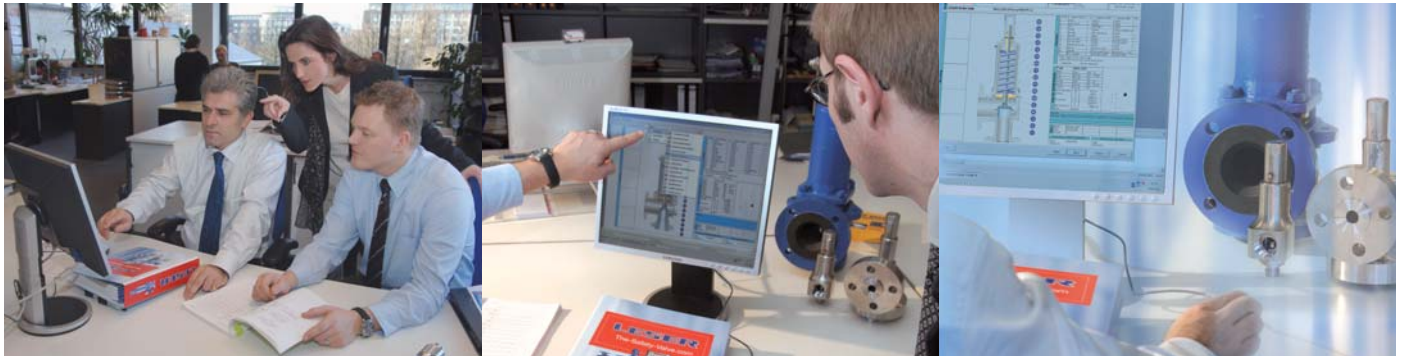
- Thermal expansion
- Reciprocating compressors and plants with pulsating operating pressure
- Heat transfer oil systems
- Protection of liquids
- Overflow operation
- Mechanical engineering (OEM)

Product features

- Great variety materials and options to fit any application
- Valve sizes DN 15 through DN 150, 1/2" through 6"
- Flange connections according to DIN EN, ASME and other
- Low overall height and low weight
- One connection size for inlet and outlets
- Single trim for gas and liquid
- Used for non-code applications (not ASME VIII certified)



VALVESTAR® 7 – The free sizing software for safety valves



VALVESTAR® 7, the sizing program for safety valves developed by LESER, supports all leading worldwide codes and standards. In addition to calculations and sizing the program provides user designed and configurable individual reports for technical documentation and archiving.

Program highlights

Sizing:

- Sizing of safety valves according to leading worldwide codes and standards such as: API 520, ASME VIII, ISO 4126-1, AD-2000 A2
- Calculation of two-phase flow in accordance with API 520 and fire case in accordance with API 521
- Evaluation of inlet pressure drop, built-up back pressure in pipework, reaction forces as well as noise levels

Reports:

- Selectable report types, e.g. project report, single page report
- Customisable design of report layouts (company logo, address etc.)
- Range of data export formats, e.g. XLS, RTF, PDF, etc.
- Integrated material part lists and sectional drawings for all LESER safety valves

Design and handling:

- A user friendly Wizard function leads step-by-step through the calculations
- Microsoft .Net based architecture offers latest graphical user interface for easy handling and enhanced performance

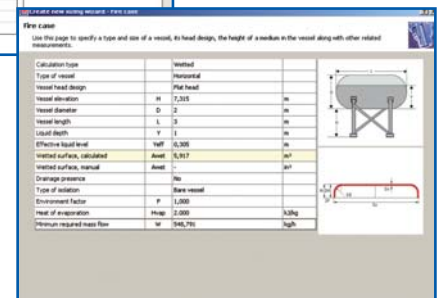
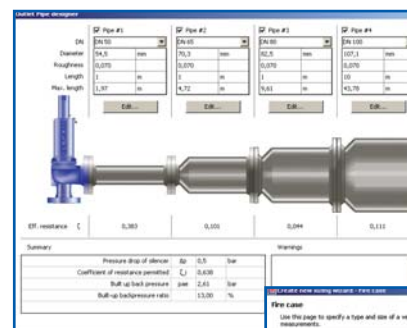
Settings:

Customisable user interface:

- User specified profile settings with preselection of units, calculation methods, etc.
- More than 15 languages selectable

VALVESTAR® Web:

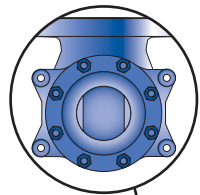
- Online-calculation for safety valves and projects at www.valvestar.com without any software installation



Flanged Safety Relief Valves

LESER safety relief valves have been optimized, in close cooperation with plant engineers and service specialists, simplifying design with fewer components for less down time, fewer spare parts and lower maintenance costs.

Integral cast support brackets for safe handling of the valves (API and heavy safety valves).

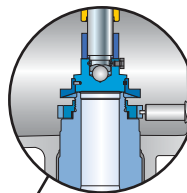


One piece spindle allows better alignment.

Guiding: Upper and lower guiding with small surface areas help reduce friction, a major cause of galling.

Horizontal installation/shipping is possible due to the one-piece spindle and guiding design

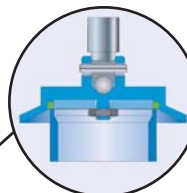
Long spring allows large pressure range for each spring thus drastically reducing the overall number of different springs.



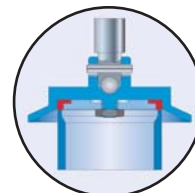
Single trim for steam, gas and liquids for fewer spare valves in your stock.

Stellited or hardened metal sealing for longer product life.

Soft seat solutions for superior tightness:
O-ring or sealing plate design



O-ring

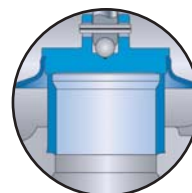


Sealing plate

LESER defines the set pressure as **“initial audible discharge”** (not “pop”). This avoids damage to valve seats during set pressure testing and allows for increased tightness closer to set point.

Self-draining body avoids residue build-up and reduces corrosion.

API: Full nozzle design

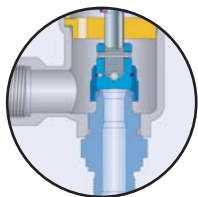
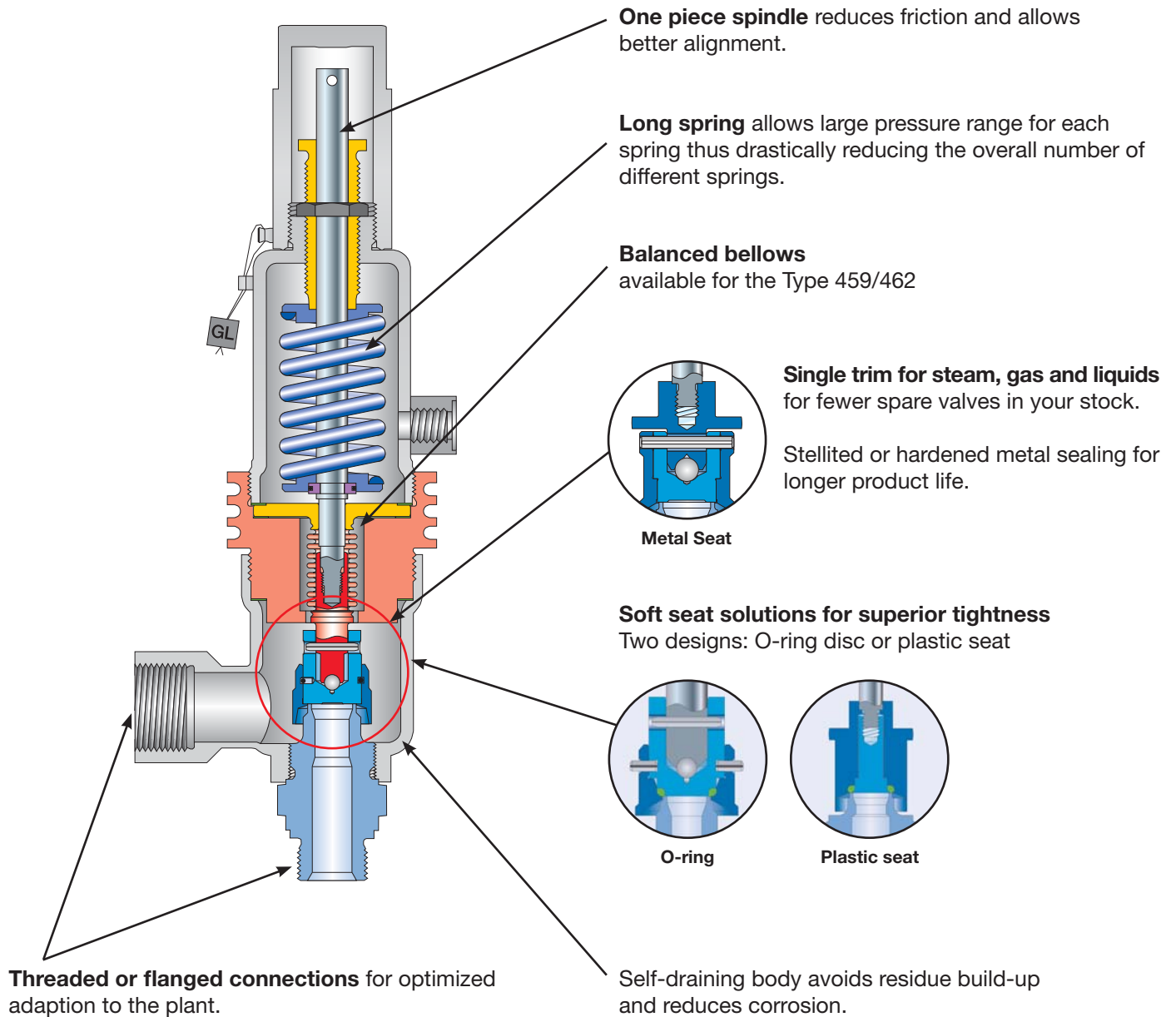


High Performance:
Semi nozzle – full bore – design

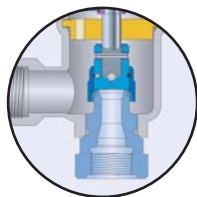
Options:

LESER's safety relief valves can be customized with a great variety of options. For further information please refer to “Available options” of each Type.

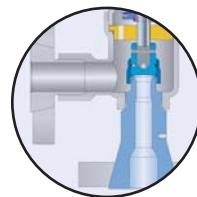
Compact Performance Safety Relief Valves



Male thread



Female Thread



Flanged version

Threaded connections male or female acc. to NPT ANSI/ASME B1.20.1. Threads according to other standards, e.g. ISO, DIN, BSP are also available.

Flanged connections acc. to ANSI/ASME B16.5 Flanges acc. to other standards, e.g. ISO, DIN, JIS are also available.

A not so brief history of LESER GmbH & Co. KG and LESER LLC

LESER GmbH & Co. KG is headquartered in Germany and maintains a state-of-the-art factory with almost 400 employees. ISO 9001 certified, LESER can guarantee a high standard of quality by following an “in-house” manufacturing philosophy, which has allowed LESER to become an industry leader for safety valves world-wide.

LESER was founded in 1818, nearly 200 years ago, as a brass foundry during the “industrial revolution”. Over the following years, LESER developed a product portfolio consisting of components for mechanical equipment.

In 1885, LESER supplied the first safety valve. Since the 1970s LESER became specialized solely in the production of safety valves. During the 1980s LESER became the leading supplier for safety valves in Europe and continues to strengthen its position with each passing year.

Growth in the North American market led LESER to found its first fully owned subsidiary, LESER LLC in Charlotte, North Carolina in 2007. LESER LLC has now formed a sales, distribution, and service network which includes its own stocking and assembly facility. Now LESER is able to supply high quality ASME-code stamped safety valves to North America for a full range of applications.



Corporate Vision

In the “world of safety valves” and their applications we are developing LESER into a world leader who is a competent, reliable and responsive partner for our customers.

Due to our worldwide activities we are experiencing steady growth.

Commitment, Integrity and Tradition are the foundation of our company.

Time line

1885

Complete range of steam fittings, incl. safety valves

1957

First test lab for safety valves

1980s

Leading supplier for safety valves in Europe

1994

Test lab receives ASME certification (first and only outside of the US)

2008

Facility expansion in Hohenwestedt



1818

Founded as a brass foundry in Hamburg, Germany

1943

Destruction of the plant, relocation and founding of new factory in Hohenwestedt, Germany

1970s

Specialization in safety valves

1990

First ASME approval

2003

Launch of the API Series

2010

Launch of the Pilot Operated Safety Valve

Spotlight on LESER LLC in Charlotte, North Carolina

“High Performance” staff

All LESER LLC employees have a high level of expertise and go through rigorous training. Training is considered a continual process and not a one-time activity. With a “High Performance” staff, LESER LLC is able to provide fast and detailed responses for all customers.

Fast delivery

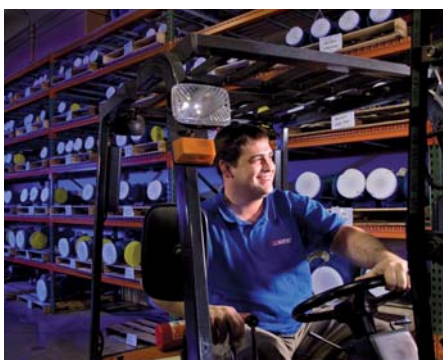
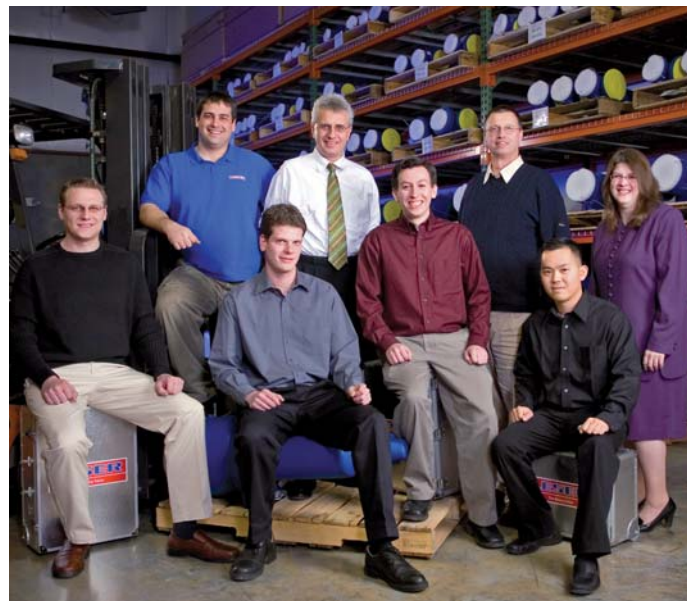
LESER LLC carries 4 million USD worth of stock in valves and parts at its Charlotte, NC facility. LESER is able to supply safety valves in 1 week or less (same-day possible for emergencies) and same-day for spare parts.

Global approvals and setting facility

LESER LLC is able to supply valves into applications requiring the UV stamp, CE mark, and other worldwide approvals from stock. LESER LLC maintains a fully operational assembling and setting facility which is certified by the ASME, National Board. Every safety valve is thoroughly tested to ensure the valve is tight and is functioning properly.

Factory-equivalent support

LESER LLC’s sales system is directly integrated with LESER’s factory in Germany. This direct link allows LESER LLC to provide accurate delivery times for factory direct shipments. LESER LLC also has daily contact with and is regularly visited by factory specialists, ensuring strong product knowledge. Regular training keeps LESER LLC employees focused and updated on any code or product changes that might occur. In the end, LESER LLC is able to provide factory-equivalent support.



10 good reasons to use LESER safety valves

1

High quality manufactured in Germany, assembled in the US

All LESER safety valves are manufactured in-house in Germany and later assembled at LESER's certified assembly locations in the US. LESER can ensure high quality through its highly trained staff and state-of-the-art machinery. As a result, LESER can also guarantee the highest reliability and lowest life cycle costs.



2

Service and availability

An extensive worldwide network of sales and service representatives guarantees close relationships with customers, the fastest response times, and the shortest down times for service and maintenance. LESER LLC carries an extensive stock of safety valves and spare parts which allows a lead time of one week or less (emergency orders can be handled in 24 hours).

3

Global approvals

LESER is able to supply safety valves all over the world due to its many worldwide approvals. LESER is approved for applications for the American ASME-UV stamp, European PED-CE Mark, Chinese AQSIQ and Canadian CRN, as well as many other approvals. No modifications of LESER products are required in order to supply for these approvals.

5

Product literature in every language

LESER's worldwide presence and dedication to customers has led it to develop documentation and literature in many languages. All LESER's literature is available in hard-cover in English, Spanish, French, German, Russian, and other languages. LESER's literature is also available for download at www.leser.com.

4

Sizing and selection software VALVESTAR®

LESER's excellent, free of charge sizing software VALVESTAR® 7 features user friendly selection wizards, which allows for quick results. Another key feature is the ability to create reports with customized/individualized designs to allow the user to adjust the report to specific needs. VALVESTAR® 7 is also the first safety valve sizing software to be offered in an online version at www.valvestar.com.

As a result, LESER can meet customers' requirements for documentation in all languages.



No local installation on the user's computer is required to use the online version.

6

Installed base and global contracts

LESER's market leadership in Europe and strong worldwide presence is documented by more than 1,000,000 safety valves currently in service all around the world. LESER supplies safety valves to more than 3,000 customers and has global contracts with DOW Chemical, BASF, CIBA, Tetrapak and Bayer. With such a large installed base LESER's safety valves are proven each day.

For references please visit www.leser.com.

7

ASME and CE approved test facilities

LESER's test lab is one of the biggest in the world. In 1990 LESER's test lab was approved by the ASME-NB as the first and only air and water certified "Testing Laboratory" outside of the US. In addition to capacity tests, LESER is able to simulate back pressure tests and other situations. This thorough testing ensures LESER valves are able to function properly in a wide range of applications.

8

Proven design / lower cost of ownership / better function

The efficient design of LESER's safety valves reduces maintenance and life-cycle-costs. The improved alignment, with upper and lower guiding allows for increased lifetime (less galling) and increased tightness.

9

Product portfolio

LESER has developed a wide range of specialized safety valves which operate efficiently whether supplying chemical, petrochemical, general industrial, food and beverage, or pharmaceutical applications. Additionally, LESER is able to supply highly customized solutions to meet special customer requirements.



10

Commitment

LESER's main focus is on producing high quality safety relief valves to meet all customer requirements. The combination of long standing expertise of LESER employees, high percentage of engineers, and constant research and development allows LESER to achieve this goal.

LESER is also dedicated to providing as much support to the customer as possible. No matter where the customer is located they can expect prompt answers to questions and inquiries. LESER employees and partners are able to pass on their technical expertise through seminars, "lunch & learns", and one on one meetings with our customers.



How to contact LESER

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Local LESER Sales Representatives

Please visit www.leser.com and click the “Representatives” tab for a list of LESER’s Sales Representatives.

www.leser.com information

- US Order and Pricing Information
- Product Catalogs
- VALVESTAR® sizing Software – PC and web-based versions
- Certificates
- Approvals
- Customer references
- AutoCAD drawings