

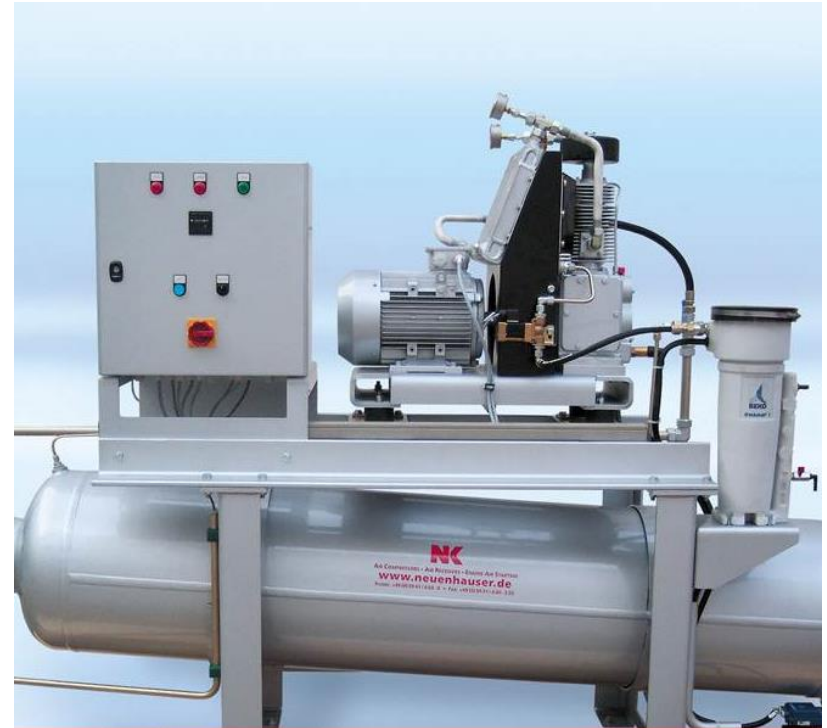
Compact Performance Series 437, Series 459



Objectives of this Presentation. Knowledge to learn.

1. Objectives | 2. Remarks | 3. Applications | 4. Product Overview | 5. Design & Features | 6. Differentiation | 7. Benefits | 8. Materials | 9. Options | 10. Spare Parts Kit | 11. Approvals

The aim of this presentation is to provide an overview of the **LESER Compact Performance Safety Valves** Series 437 and Series 459.



General Remarks. Knowledge to learn.

1. [Objectives](#) | 2. [Remarks](#) | 3. [Applications](#) | 4. [Product Overview](#) | 5. [Design & Features](#) | 6. [Differentiation](#) | 7. [Benefits](#) | 8. [Materials](#) | 9. [Options](#) | 10. [Spare Parts Kit](#) | 11. [Approvals](#)

LESER Compact Performance Safety Valves are **the first choice solution for all industrial applications** for steam, gas and liquid.

Modes of application:

- low dimensions of the safety valves
- small to medium capacities
- threaded connections, male and female according to all international standards
- high set pressure rating up to 850 bar/12,328 psig



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Application Area. Applications and References.

1. [Objectives](#) | 2. [Remarks](#) | 3. [Applications](#) | 4. [Product Overview](#) | 5. [Design & Features](#) | 6. [Differentiation](#) | 7. [Benefits](#) | 8. [Materials](#) | 9. [Options](#) | 10. [Spare Parts Kit](#) | 11. [Approvals](#)

- LESER Compact Performance safety valves are used wherever **threaded, small sized and high pressure safety valves** are specified, for example:
 - Air/gas compressors and pumps
 - Technical gases and CO₂ plants
 - Chemical equipment and piping
 - LPG/LNG terminals and carriers
 - Thermal relief
 - High pressure extraction plants



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Product Overview.

1. Objectives | 2. Remarks | 3. Applications | 4. Product Overview | 5. Design & Features | 6. Differentiation | 7. Benefits | 8. Materials | 9. Options | 10. Spare Parts Kit | 11. Approvals

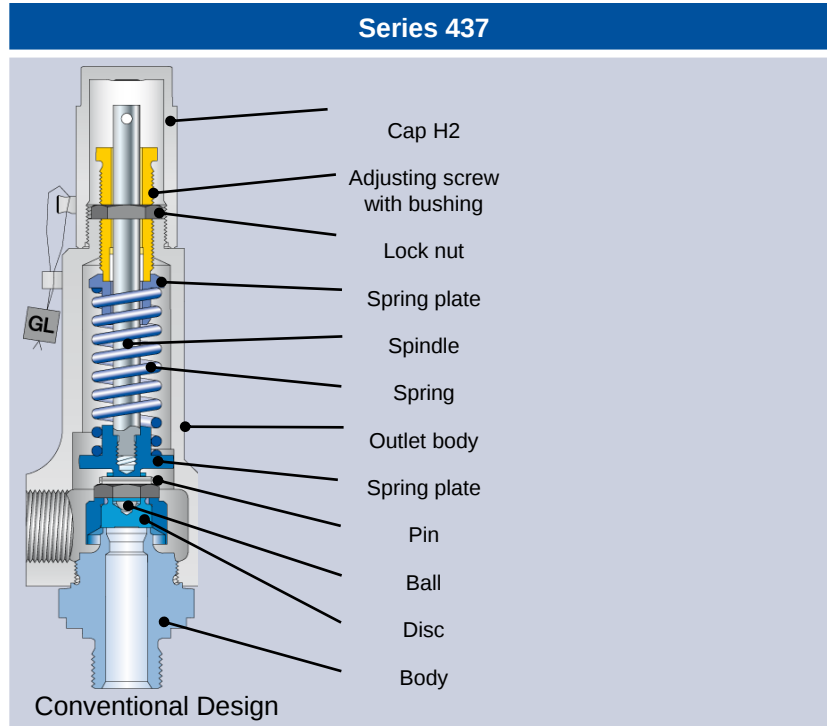
Compact Performance Product Range	
Series 437	Series 459
Type 437, Type 438, Type 439	Type 459, Type 459 HDD, Type 462, Type 462 HDD
	

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Design.

1. [Objectives](#) | 2. [Remarks](#) | 3. [Applications](#) | 4. [Product Overview](#) | 5. **[Design & Features](#)** | 6. [Differentiation](#) | 7. [Benefits](#) | 8. [Materials](#) | 9. [Options](#) | 10. [Spare Parts Kit](#) | 11. [Approvals](#)



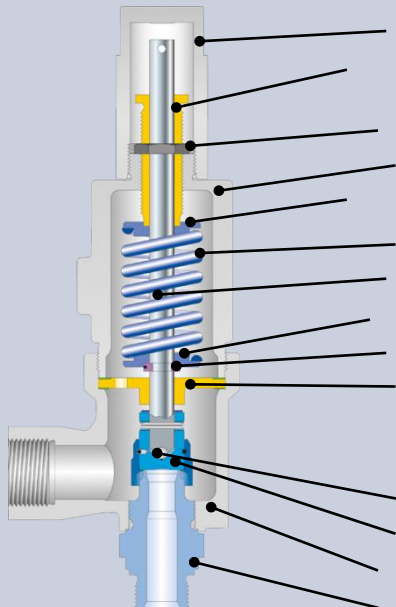
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Design.

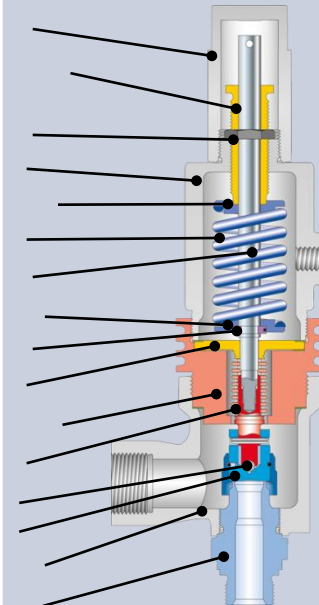
1. [Objectives](#) | 2. [Remarks](#) | 3. [Applications](#) | 4. [Product Overview](#) | 5. **[Design & Features](#)** | 6. [Differentiation](#) | 7. [Benefits](#) | 8. [Materials](#) | 9. [Options](#) | 10. [Spare Parts Kit](#) | 11. [Approvals](#)

Series 459



Conventional Design

Cap H2
Adjusting screw
with bushing
Lock nut
Bonnet
Spring plate
Spring
Spindle
Spring plate
Split ring
Guide
Bonnet spacer
Bellows
Ball
Disc
Outlet body
Inlet body



Balanced Bellows Design

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Main Features. Key Figures in Metric Units.

1. [Objectives](#) | 2. [Remarks](#) | 3. [Applications](#) | 4. [Product Overview](#) | 5. **[Design & Features](#)** | 6. [Differentiation](#) | 7. [Benefits](#) | 8. [Materials](#) | 9. [Options](#) | 10. [Spare Parts Kit](#) | 11. [Approvals](#)

	Type 437, Type 438, Type 439	Type 459, Type 462	Type 459 HDD, Type 462 HDD
Size	3/8" ... 1"	1/2" ... 1 1/2"	1/2" ... 1 1/2"
Flanged Size	DN 15 ... DN 25	DN 15 ... DN 40	DN 15 ... DN 40
Orifice	0,5 x D	0,7 x D ... F	0,7 x D
Set Pressure Range	0,1 bar ... 365 bar	0,2 bar ... 250 bar	250,01 bar ... 850 bar
Temperature (acc. to DIN EN ISO)	- 270° C ... + 280° C	- 273° C ... + 450° C	- 273° C ... + 450° C
Pressure Ratings	PN 250 ... PN 400	PN 160 ... PN 400	PN 250 ... PN 850

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Main Features. Key Figures in US Units.

1. [Objectives](#) | 2. [Remarks](#) | 3. [Applications](#) | 4. [Product Overview](#) | 5. **[Design & Features](#)** | 6. [Differentiation](#) | 7. [Benefits](#) | 8. [Materials](#) | 9. [Options](#) | 10. [Spare Parts Kit](#) | 11. [Approvals](#)

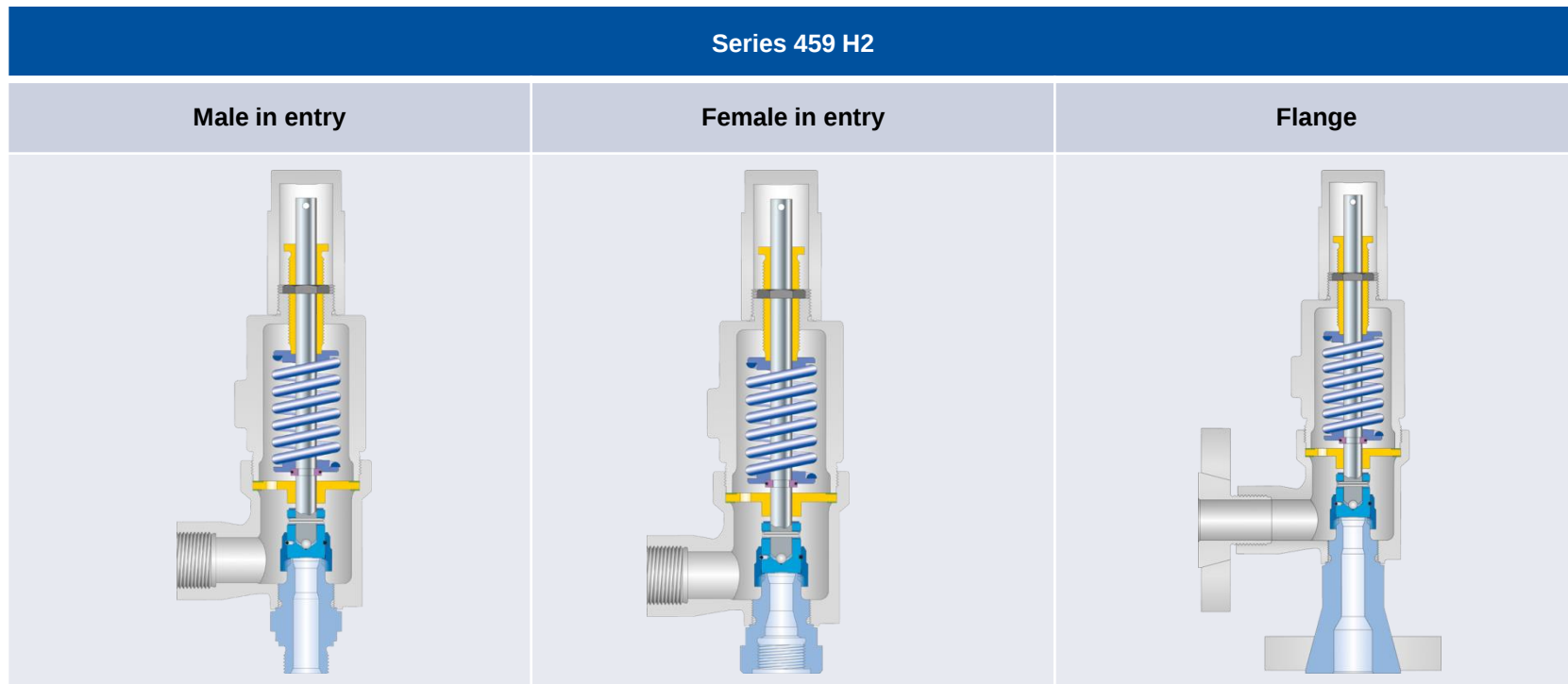
	Type 437, Type 438, Type 439	Type 459, Type 462	Type 459 HDD, Type 462 HDD
Size	½" ... 1"	1" ... 1 ½"	1" ... 1 ½"
Flanged Size	½" ... 1"	½" ... 1 ½"	½" ... 1 ½"
Orifice	0,5 x D	0,7 x D ... F	0,7 x D
Set Pressure Range	1.5 psig ... 5,294 psig	2.9 psig ... 3,625 psig	3626 psig ... 12,325 psig
Temperature (acc. to ASME)	- 450° F ... + 536° F	- 321° F ... + 842° F	- 321° F ... + 842° F
Pressure Ratings	Class 150 ... Class 2500	Class 150 ... Class 2500	Class 150 ... Class 2500

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Differentiation. Connections.

1. [Objectives](#) | 2. [Remarks](#) | 3. [Applications](#) | 4. [Product Overview](#) | 5. [Design & Features](#) | 6. **[Differentiation](#)** | 7. [Benefits](#) | 8. [Materials](#) | 9. [Options](#) | 10. [Spare Parts Kit](#) | 11. [Approvals](#)

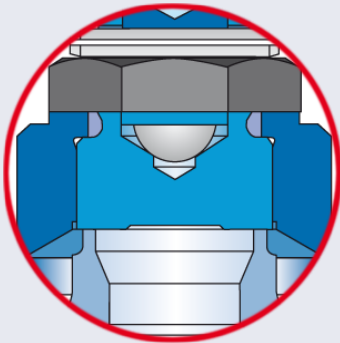
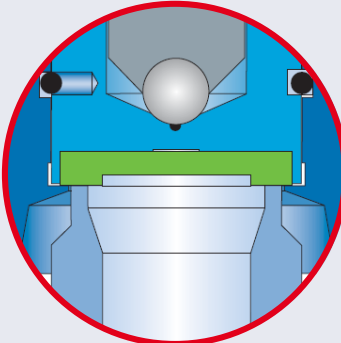
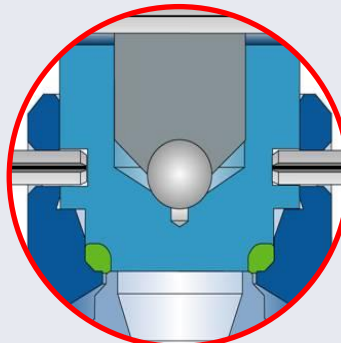
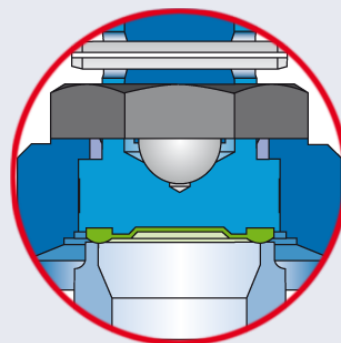


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Differentiation. Seat and Sealing.

1. Objectives | 2. Remarks | 3. Applications | 4. Product Overview | 5. Design & Features | 6. **Differentiation** | 7. Benefits | 8. Materials | 9. Options | 10. Spare Parts Kit | 11. Approvals

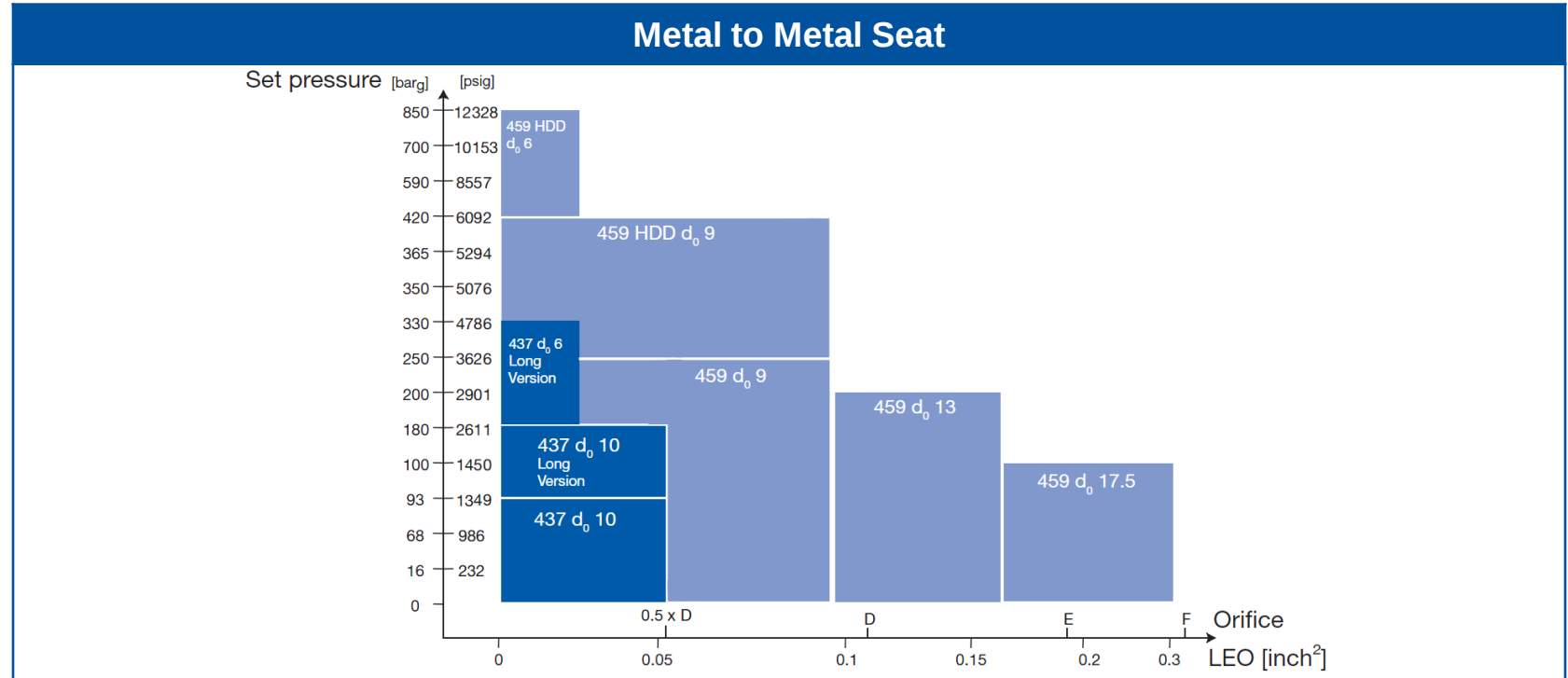
Metal to Metal	Sealing Plate	Soft Seal (o-ring disc)	Soft Seal (vulcanized)
Type 437, Type 459	Type 437, Type 459 (optional)	Type 438, Type 462	Type 439
			
■ Wide temperature range and good chemical resistance.	■ Increased tightness at very cold or very warm media. ■ Increased chemical resistance	■ Superior tightness ■ Maintained tightness close to the set pressure	■ Maintained tightness close to the set pressure, especially at lower set pressures

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Differentiation. Seat and Sealing.

1. Objectives | 2. Remarks | 3. Applications | 4. Product Overview | 5. Design & Features | 6. Differentiation | 7. Benefits | 8. Materials | 9. Options | 10. Spare Parts Kit | 11. Approvals

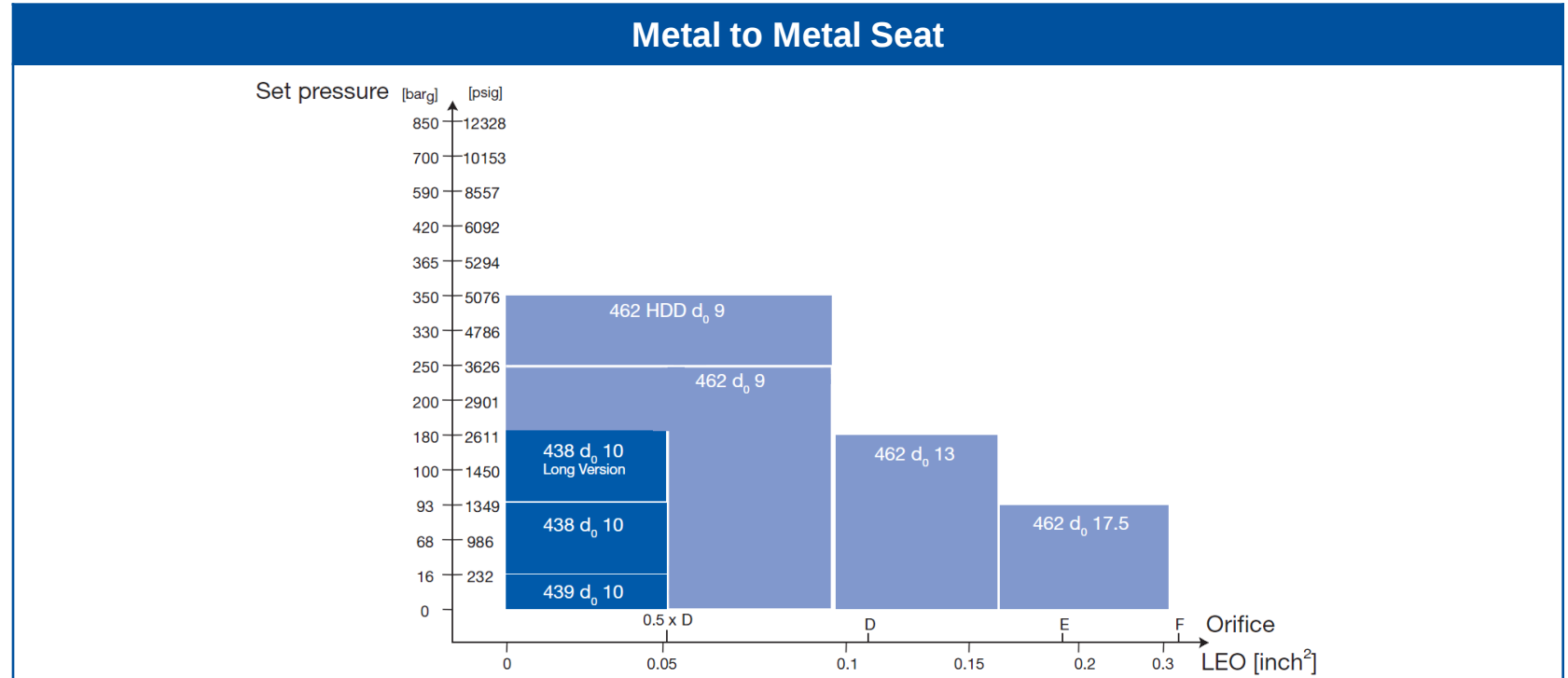


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Differentiation. Seat and Sealing.

1. Objectives | 2. Remarks | 3. Applications | 4. Product Overview | 5. Design & Features | 6. Differentiation | 7. Benefits | 8. Materials | 9. Options | 10. Spare Parts Kit | 11. Approvals



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Benefit. Main Features.

1. [Objectives](#) | 2. [Remarks](#) | 3. [Applications](#) | 4. [Product Overview](#) | 5. [Design & Features](#) | 6. [Differentiation](#) | 7. **[Benefits](#)** | 8. [Materials](#) | 9. [Options](#) | 10. [Spare Parts Kit](#) | 11. [Approvals](#)

- **Rapid opening** with an overpressure of 5% to full lift (Series 459)
- **Maximum blowdown** of minus 10% for steam/gas service and 20% for liquid service
- **One design and spring** for steam, gas, liquid and multi-phase (single trim)
- **One-piece spindle** for optimized setting accuracy and less friction
- Few spare parts **minimize product life cycle costs**
- **Self-draining body design** prevents from residues and reduces corrosion
- **Replaceable nozzle and disc** for easy maintenance and repair

Materials. According to DIN EN Standards.

1. Objectives | 2. Remarks | 3. Applications | 4. Product Overview | 5. Design & Features | 6. Differentiation | 7. Benefits | 8. Materials | 9. Options | 10. Spare Parts Kit | 11. Approvals

Material					
Component	Type 4373 Type 4383 Type 4393 ¹	Type 4374 Type 4384 Type 4394	Type 4592 Type 4622 ¹	Type 4593 Type 4623 ¹	Type 4594 Type 4624 Type 4594 HDD ¹ Type 4624 HDD ¹
Body / Inlet Body	1.4104 ¹ 1.4404	1.4404	1.4404	1.4104 1.4404	1.4404
Outlet Body	1.4104 1.4404 ²	1.4404	1.0619	1.0619	1.4408
Disc	1.4122 1.4404 ³	1.4404	1.4122 1.4404	1.4122 1.4404	1.4404
Bonnet	—	—	1.0619	0.7043	1.4408
Spring	1.4310	1.4310	1.1200 1.8159 1.7107	1.1200 1.8159 1.7107	1.4310

① only for specified connections, see catalogue

② only for ASME-applications

③ also for 4373 long version $d_0 = 6 \text{ mm}$

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Materials. According to ASME Standards.

1. Objectives | 2. Remarks | 3. Applications | 4. Product Overview | 5. Design & Features | 6. Differentiation | 7. Benefits | 8. Materials | 9. Options | 10. Spare Parts Kit | 11. Approvals

Material					
Component	Type 4373 Type 4383 Type 4393 ¹	Type 4374 Type 4384 Type 4394	Type 4592 Type 4622 ¹	Type 4593 Type 4623 ¹	Type 4594 Type 4624 Type 4594 HDD ¹ Type 4624 HDD ¹
Body / Inlet Body	SA 479 430 ¹ SA 479 316L	SA 479 316L	SA 479 316L	SA 479 430 SA 479 316L	SA 479 316L
Outlet Body	SA 479 430 SA 479 316L ²	SA 479 316L	SA 216 WCB	SA 216 WCB	SA 351 CF8M
Disc	Hardened Stainless steel, SA 479 316L ³	SA 479 316L	Hardened Stainless steel, SA 479 316L	Hardened Stainless steel, SA 479 316L	SA 479 316L
Bonnet	–	–	SA 216 WCB	Ductile Gr. 60-40-18	SA 351 CF8M
Spring	Stainless steel	Stainless steel	Carbon steel	Carbon steel	Stainless steel

❶ only for specified connections, see catalogue

❷ only for ASME-applications

❸ also for 4373 long version $d_0 = 6 \text{ mm}$

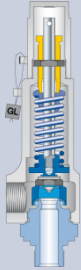
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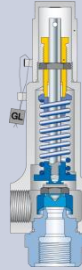
Options.

1. [Objectives](#) | 2. [Remarks](#) | 3. [Applications](#) | 4. [Product Overview](#) | 5. [Design & Features](#) | 6. [Differentiation](#) | 7. [Benefits](#) | 8. [Materials](#) | 9. **Options** | 10. [Spare Parts Kit](#) | 11. [Approvals](#)

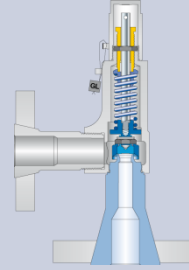
Series 437



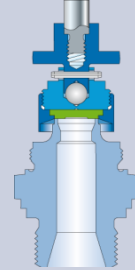
Male Thread



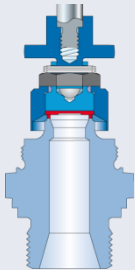
Female Thread



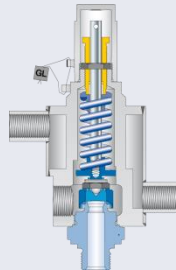
Flanged Version



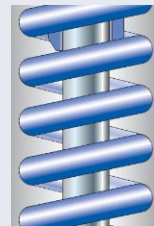
Sealing Plate



Stellited Sealing



Heating Jacket



Inconel X-750 spring



Sour gas acc. to NACE
MRO103 and MRO175

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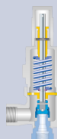
Options.

1. [Objectives](#) | 2. [Remarks](#) | 3. [Applications](#) | 4. [Product Overview](#) | 5. [Design & Features](#) | 6. [Differentiation](#) | 7. [Benefits](#) | 8. [Materials](#) | 9. **Options** | 10. [Spare Parts Kit](#) | 11. [Approvals](#)

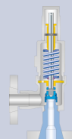
Series 459



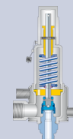
Male Thread



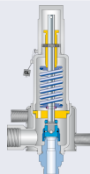
Female Thread



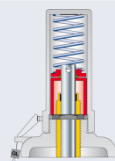
Balanced Bellows



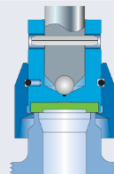
Heating Jacket



Heating Jacket



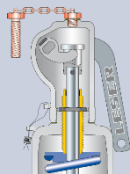
O-Ring Damper



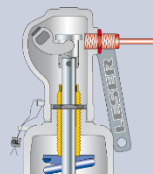
Sealing Plate



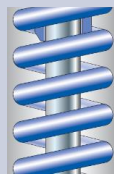
Stellited Sealing



Test Gag



Lift Indicator



Inconel X-750 spring



Sour gas acc. to NACE MRO103 and
MRO175

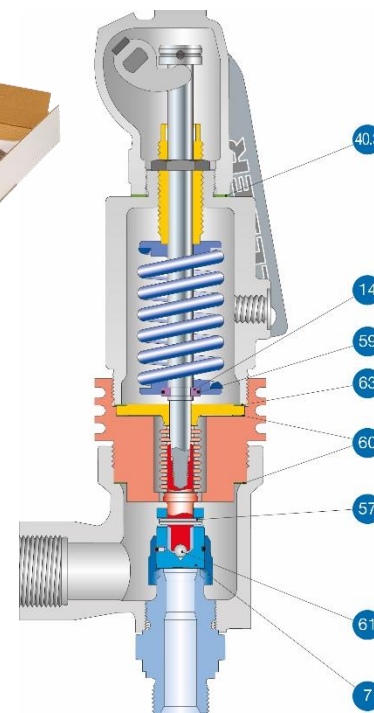
Spare Parts Kits. Contents of the compact-performance kits – Type 459.

1. Objectives | 2. Remarks | 3. Applications | 4. Product Overview | 5. Design & Features | 6. Differentiation | 7. Benefits | 8. Materials | 9. Options | 10. Spare Parts Kit | 11. Approvals

Kits are available for sizes $d_0 = 9 \text{ mm}$ to 17.5 mm .

Material Type 459

Item	Component	Material	Qty.
7	Disc	1.4404 316L	1
14	Split ring	1.4404 316L	2
57	Pin	1.4310	1
59	Securing ring (split ring)	1.4571	1
60	Gasket	Graphite/ 1.4401 Graphite/ 316	2
63	Gasket	Graphit/ 1.4401 Graphit/ 316	1
61	Ball	1.4401 316	1
40.3	Spacer	1.4571	3



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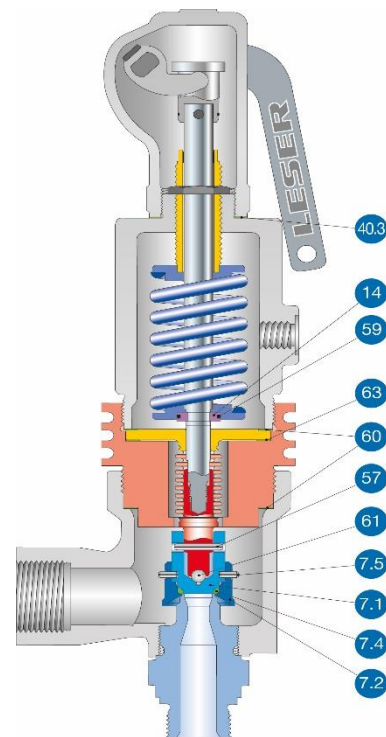
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Spare Parts Kits. Contents of the compact-performance kits-Type 462, 462 HDD.

1. Objectives | 2. Remarks | 3. Applications | 4. Product Overview | 5. Design & Features | 6. Differentiation | 7. Benefits | 8. Materials | 9. Options | 10. Spare Parts Kit | 11. Approvals

Kits are available for Type 462 in sizes $d_0 = 9 \text{ mm}$ to 17.5 mm and for Type 462 HDD in size $d_0 = 9$

Material Type 462			
Item	Component	Material	Qty.
7.1	O-ring disc body	1.4571 316Ti	1
7.2	Lifting aid	1.4404 316L	1
7.4	O-Ring (FKM/ EPDM)	1.4401 316	4
7.5	Pin	1.4404 316L	2
14	Split ring	1.4401 316	2
59	Securing ring (split ring)	1.4404 316L	1
57	Pin	1.4401 316	1
61	Ball	1.4571 316Ti	1
60	Gasket	Graphite/ 1.4401 Graphite/ 316	2
63	Gasket	Graphite/ 1.4401 Graphite/ 316	1
40.3	Spacer	1.4401 316	3



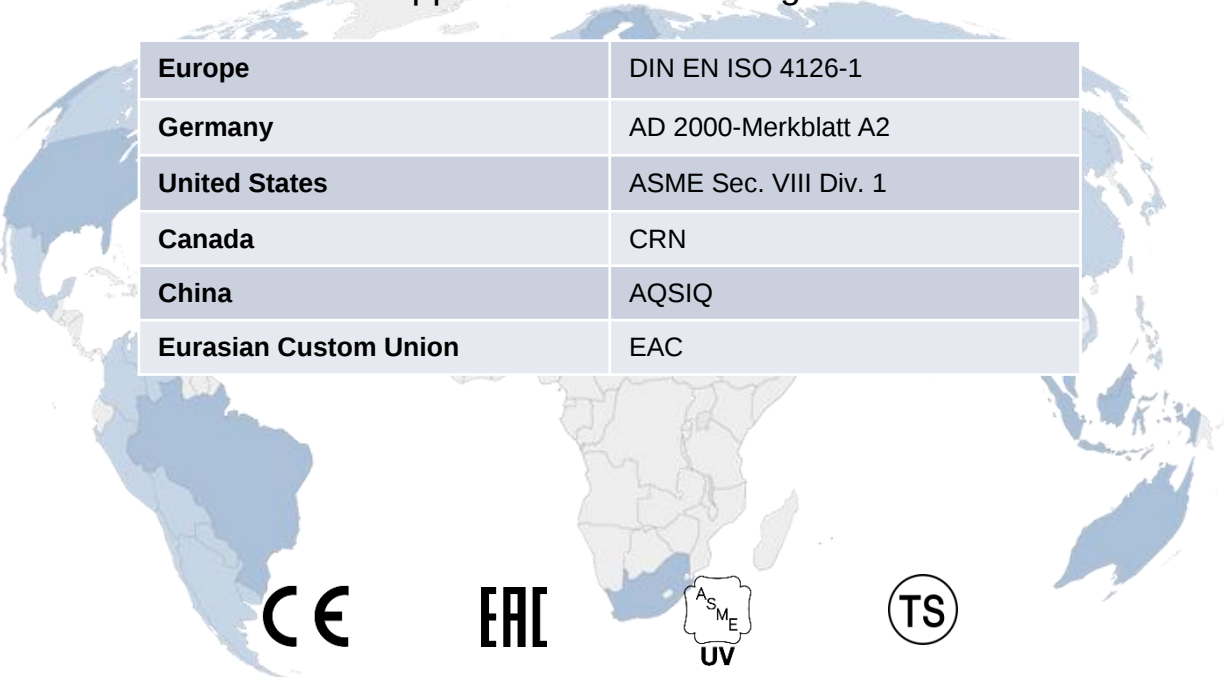
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Approvals.

1. [Objectives](#) | 2. [Remarks](#) | 3. [Applications](#) | 4. [Product Overview](#) | 5. [Design & Features](#) | 6. [Differentiation](#) | 7. [Benefits](#) | 8. [Materials](#) | 9. [Options](#) | 10. [Spare Parts Kit](#) | 11. **Approvals**

Worldwide approvals with one design.



Europe	DIN EN ISO 4126-1
Germany	AD 2000-Merkblatt A2
United States	ASME Sec. VIII Div. 1
Canada	CRN
China	AQSIQ
Eurasian Custom Union	EAC



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Compact Performance
Thank you for your attention.

