

API

Product Profile, Features and Options



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Objectives of this Presentation.

1. [Objectives](#) | 2. [General Remarks](#) | 3. [Application Area](#) | 4. [Design](#) | 5. [Main Features](#) | 6. [Benefits](#) | 7. [Materials](#) | 8. [Options](#) | 9. [Spare Parts Kit](#) | 10. [Approvals](#)

The aim of this presentation is to provide an overview of **LESER API Safety Valves Series 526**

1. Objectives
2. General Remarks
3. Application Area
4. Design
5. Main Features
6. Benefits
7. Materials
8. Options
9. Spare Parts Kit
10. Approvals



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General Remarks. API Standards.

1. Objectives | 2. General Remarks | 3. Application Area | 4. Design | 5. Main Features | 6. Benefits | 7. Materials | 8. Options | 9. Spare Parts Kit | 10. Approvals

The **American Petroleum Institute (API)** is the main organization of rules and regulations for the oil and natural gas industry.



- **API 520**

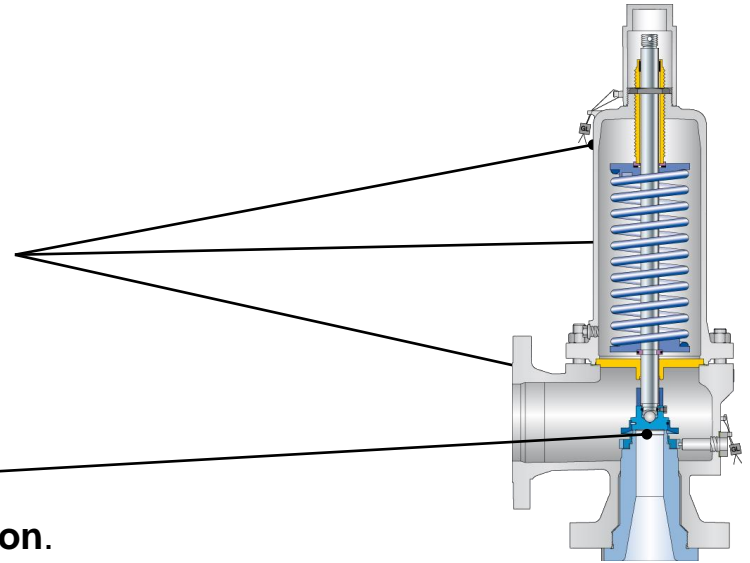
The API Recommended Practice 520 describes recommendations for valve sizing (e.g. *nominal coefficients of discharge K_d*)

- **API 526**

The API 526 standard is an order specification in which „API safety valves“ are defined and standardized (e.g. *material for body, bonnet, spring*)

- **API 527**

The API 527 standard describes methods of determining seat tightness of metal- and soft-seated pressure relief valves.



The **API** is not a standard, rather an **order specification**.

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General Remarks. What is an API Safety Valve?

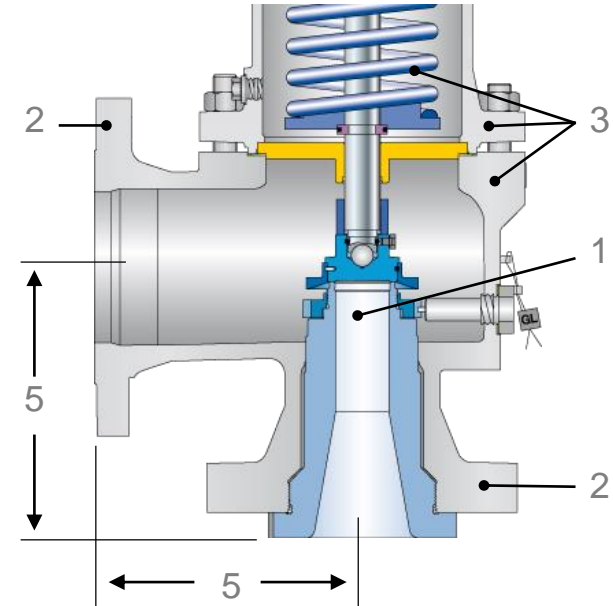
1. Objectives | 2. General Remarks | 3. Application Area | 4. Design | 5. Main Features | 6. Benefits | 7. Materials | 8. Options | 9. Spare Parts Kit | 10. Approvals

LESER API 526 Series Valves are entirely designed analog to API 526.

API 526 has standardized the following items:

1. Orifice designation and area (D to T)
2. Valve size and pressure rating, inlet and outlet
3. Materials
4. Pressure-temperature limits
5. Center-to-face dimensions, inlet and outlet
6. Sizing independently from manufacturer
7. Inspection and shop tests
8. Identification and preparation for shipment
9. Flanged safety valves only

In addition to API 526 approvals such as UV Stamp, CE or others **are required**



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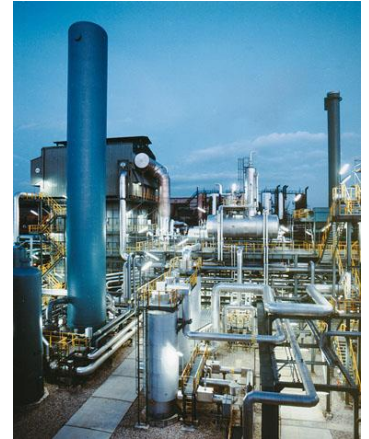
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Application Area. Applications and References.

1. Objectives | 2. General Remarks | 3. Application Area | 4. Design | 5. Main Features | 6. Benefits | 7. Materials | 8. Options | 9. Spare Parts Kit | 10. Approvals

LESER API safety valves are used wherever safety valves according to **API 526 Standard** are specified, e.g.:

- Refineries
- Chemical industry
- Petrochemical industry
- Oil and gas – Onshore and Offshore
- Vessel and piping systems
- Storage tank farms
- Floating Production Storage and Offloading (FPSO)



PETROBRAS



ارامكو السعودية
Saudi Aramco

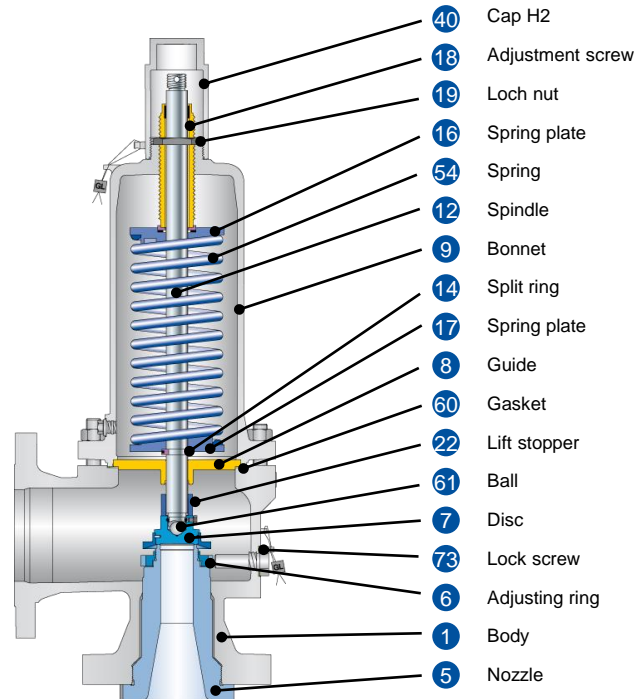


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Design. Sectional drawing.

1. Objectives | 2. General Remarks | 3. Application Area | 4. Design | 5. Main Features | 6. Benefits | 7. Materials | 8. Options | 9. Spare Parts Kit | 10. Approvals



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Main Features. Key figures in metric units.

1. Objectives | 2. General Remarks | 3. Application Area | 4. Design | 5. Main Features | 6. Benefits | 7. Materials | 8. Options | 9. Spare Parts Kit | 10. Approvals

API Series 526	
Size	1" x 2" ... 8" x 10"
Orifice	D ... T
Set pressure range	0,1 bar ... 415 bar
Temperature	-268°C ... +538°C
Flange class	150 x 150
	300L x 150
	300 x 150
	600 x 150
	900 x 300
	1500 x 300 2500 x 300



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Main Features. Key figures in US units.

1. Objectives | 2. General Remarks | 3. Application Area | 4. Design | 5. Main Features | 6. Benefits | 7. Materials | 8. Options | 9. Spare Parts Kit | 10. Approvals

API Series 526	
Size	1" x 2" ... 8" x 10"
Orifice	D ... T
Set pressure range	1.5 psig ... 6,000 psig
Temperature	-450°F ... 1,000°F
Flange class	150 x 150 300L x 150 300 x 150 600 x 150 900 x 300 1500 x 300 2500 x 300



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Benefits.

1. Objectives | 2. General Remarks | 3. Application Area | 4. Design | 5. Main Features | 6. Benefits | 7. Materials | 8. Options | 9. Spare Parts Kit | 10. Approvals

- Entirely designed analog to API 526 for **easy compatibility**
- **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 **ensures minimized product life cycle costs**
- Self-draining body design **prevents from residues and reduces corrosion**
- Integral cast support brackets for **easy handling and safe installation**



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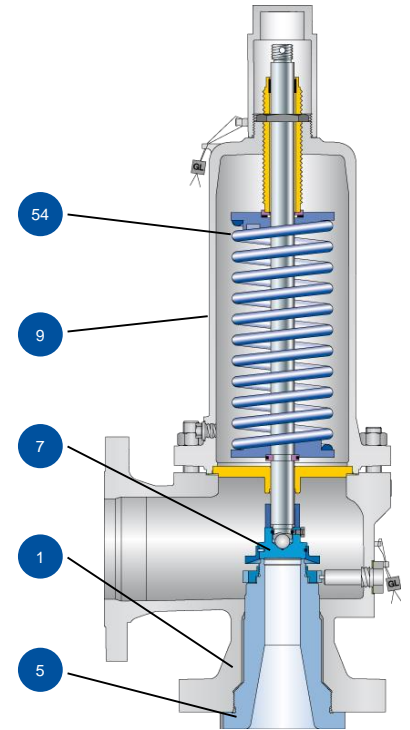
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Materials. According to ASME standards.

1. Objectives | 2. General Remarks | 3. Application Area | 4. Design | 5. Main Features | 6. Benefits | 7. **Materials** | 8. Options | 9. Spare Parts Kit | 10. Approvals

- LESER Type 526 is available in **four standard or equivalent materials** (WCB, LCB, CF8M and WC6)
- Other materials** are available **on request** (e.g. Monel®, Hastelloy®, Inconel®)
- Further all Type 526 materials are **specified and certified according to DIN EN** Material certificates. Therefore LESER has the multiple material test certificates.

Material					
Item	Component	Type 5262	Type 5263	Type 5264	Type 5267
	Material	Steel	Steel	Austenitic Stainless Steel	Chrome Molybdenum Steel
9	Bonnet	WCB	LCB	CF8M; 316 Ti	WC6
54	Spring	high temp., alloy steel	high temp., alloy steel	stainless steel	high temp., alloy steel
7	Dics	MT440 hardened	MT440 hardened	316L stellited	MT440 hardened
5	Nozzle	316L / CF8M	316L / CF8M	316L / CF8M	316L / CF8M
1	Body	WCB	LCB	CF8M	WC6



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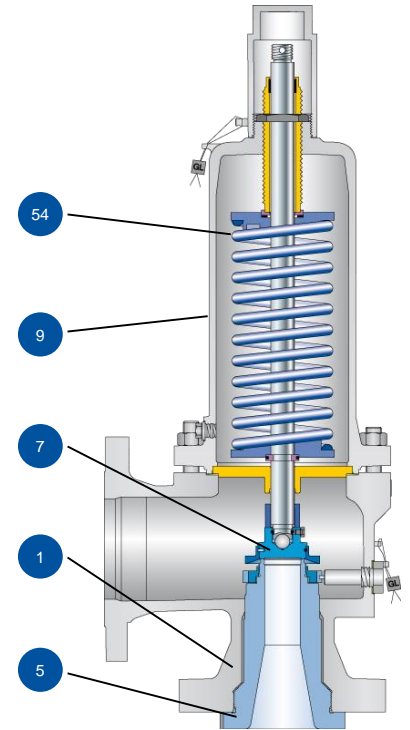
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Materials. According to DIN EN.

1. Objectives | 2. General Remarks | 3. Application Area | 4. Design | 5. Main Features | 6. Benefits | 7. **Materials** | 8. Options | 9. Spare Parts Kit | 10. Approvals

- LESER Type 526 is available in **four standard or equivalent materials** in dependence on ASME standards
- **Other materials** are available **on request** (e.g. Monel®, Hastelloy®, Inconel®)

Material					
Item	Component	Type 5262	Type 5263	Type 5264	Type 5267
	Material	Steel	Steel	Austenitic Stainless Steel	Chrome Molybdenum Steel
9	Bonnet	1.0619	1.0619	1.4408; 316 Ti	1.7357
54	Spring	1.8159 (high temp.)	1.8159 (high temp.)	1.4310 (low temp.)	1.8159 (high temp.)
7	Dics	1.4122 hardened	1.4122 hardened	1.4404 stellited	1.4122 hardened
5	Nozzle	1.4404 / 1.4408	1.4404 / 1.4408	1.4404 / 1.4408	1.4404 / 1.4408 stellited
1	Body	1.0619	1.0619	1.4408	1.7357



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Materials. Alloy concept.

1. Objectives | 2. General Remarks | 3. Application Area | 4. Design | 5. Main Features | 6. Benefits | 7. **Materials** | 8. Options | 9. Spare Parts Kit | 10. Approvals

Level selection in corrosive applications												
Level		Description	Corrosive		Open		Repair after opening			Components made of high-alloyed materials		
Conventional	Bellows		Medium	Environment	seldom	frequent	immediate	delayed	planned			
		1.0	1.1	Inlet media-exposed	x	–	x	–	x	–	–	Nozzle, disc
		2.0	–	Inlet media-exposed and int. parts	x	–	–	x	–	x	–	Nozzle, disc, spindle, guide
		–	2.1	Inlet media-exposed and bellows	x	–	–	x	–	x	–	Nozzle, disc, bellows
		–	3.1	Inlet and outlet media-exposed	x	–	–	x	–	–	x	all media-exposed
		4.0	4.1	Valve exterior	–	x	N/A	N/A	–	–	x	all external
5.0	5.1	Complete valve	x	x	–	x	–	–	x	all components		

Materials. Alloy concept.

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









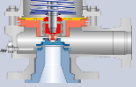
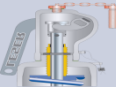
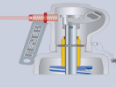







Media-exposed inlet		Inlet and internal parts media-exposed		In- & outlet media-exposed	Valve exterior		Complete valve	
Level 1.0	Level 1.1	Level 2.0	Level 2.1	Level 3.1	Level 4.0	Level 4.1	Level 5.0	Level 5.1
								
Conventional	Bellows	Conventional	Bellows	Bellows	Conventional	Bellows	Conventional	Bellows

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Options.

1. Objectives | 2. General Remarks | 3. Application Area | 4. Design | 5. Main Features | 6. Benefits | 7. Materials | 8. Options | 9. Spare Parts Kit | 10. Approvals

 Butt-weld connection	 Heating jacket	 O-ring disc	 Disc with sealing plate	 Open bonnet
 Threaded cap H2	 Open lifting device H3	 Packed lever H4	 Bolted cap H1	 Bolted lifting device H6
 Inconel bellows	 Proximity switch	 Proximity switch	 Inconel bellows	 Inconel bellows
 Bug screen	 INCONEL X-750 spring	 API Alloy Concept	 Sour gas acc. to NACE MRO103 and MRO175	 Spare part kit

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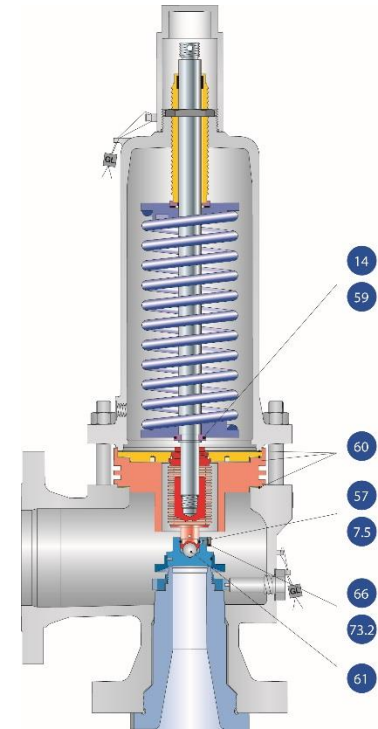
Spare Parts Kits. Contents of the API kit.

1. Objectives | 2. General Remarks | 3. Application Area | 4. Design | 5. Main Features | 6. Benefits | 7. Materials | 8. Options | 9. Spare Parts Kit | 10. Approvals

The kits are organised by orifice letter

Orifice	Flange Class
D – G	CL150 – CL2500
H – L	CL150 – CL1500
M – P	CL150 – CL900
Q – R	CL150 – CL600
T	CL150 – CL300

Materials			
Pos.	Components	Material	Quantity
7.5	Securing ring (Disc)	1.4571 316Ti	1
14	Split ring	1.4404 316L	2
57	Ball	1.4401 316	15
59	Securing ring	1.4571 316Ti	1
60	Gasket	Graphite/ 1.4401 Graphite/ 316	3
61	Ball	1.4401 316	1
66	Screw	1.4401 316	1
73.2	Gasket (Lock screw)	1.4401 316	1



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Approvals.

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Worldwide approvals with one design.

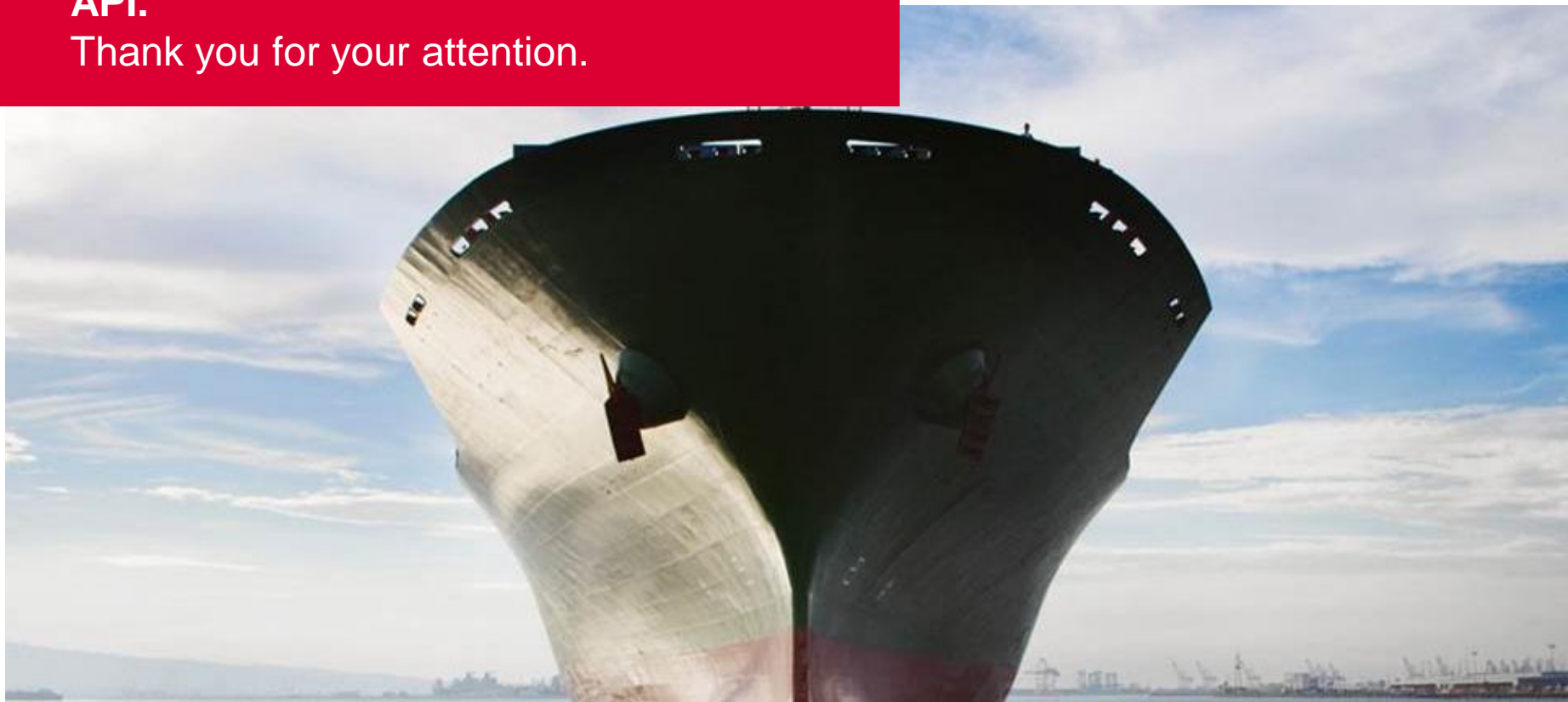
Europe	DIN EN ISO 4126-1
Germany	AD 2000-Merkblatt A2
United States	ASME Sec. VIII
Canada	CRN
China	AQSIQ
Eurasian Custom Union	EAC



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Thank you for your attention.



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