



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **P-14703**

This is to certify that the
Safety Valve for Boiler and Pressure Vessel

with type designation(s)
459, 462

Issued to
LESER GmbH & Co. KG
HOHENWESTEDT, Germany

is found to comply with
Det Norske Veritas' Offshore Standards
Det Norske Veritas' Rules for Classification of Ships
Det Norske Veritas' Standards for Certification 2.9 No. 5-794.40

Application
The safety valves may be used for steam, liquids and gases (LNG/LPG services)

Type:	K. factor:
459	2,35
462	2,41

This Certificate is valid until **2017-12-31**.

Issued at **Høvik** on **2014-01-15**

DNV local station: **Essen**

Approval Engineer: **Adel Samieizafarghandi**

for **Det Norske Veritas AS**

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Marianne Spæren Marveng
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

Design: Angled type, direct spring loaded
 Disc seat: Metal (459, 459HDD)
 Soft seal (462, 462HDD)
 Connections: Flanged or Threaded
 Opening characteristic: Full lift safety valve for steam and gases
 Standard safety valve for liquids
 Lifting device: Packed lever H4
 Plain lever H3
 Cap (gas tight) H2

Sizes and max. set pressure:

Feature / Type	459 / 462			459 HDD / 462 HDD		
	d ₀ [mm]	9	13	17,5	6	9
Inlet size	threaded: ½" – 1"			threaded: ½" - 1"		
	flanged: DN 15 – DN 40 / NPS ½" – NPS 1½"					
Outlet size	threaded: 1" - 2"			threaded: 1" - 1½"		
	flanged: DN 25 – DN40 / NPS 1" – NPS 1½"					
Pressure Rating max. (bar) inlet	500	250	160	850	500	250
Pressure Rating max. (bar) outlet	160	160	40	160	160	160
Pressure rating (DIN / ANSI)	PN500	PN250	PN160	PN850	PN500	PN250
Set pressure range [bar]	1,50 to 420 (type 459)	0,10 to 250 (type 459)	0,20 to 140	200 to 850	1,50 to 420 (type 459 HDD)	0,10 to 250 (type 459 HDD)
	0,50 to 420 (type 462)	0,20 to 250 (type 462)			0,50 to 420 (type 462 HDD)	0,20 to 250 (type 462 HDD)

Material and temperature range:

Part / Type	4593 / 4623		4592 / 4622	4594 / 4624		4594 HDD / 4624 HDD
Outlet Body	0.7043 /60-40-18		1.0619 / WCB	1.4404 / 316L or 1.4408/CF8M		1.4404 / 316L
Inlet Body	1.4104/430 or 1.4404/316L		1.4404 / 316L	1.4404 / 316L		1.4404 / 316L
Disc	1.4122 / MT440			1.4404 / 316L		
Temperature range [°C]	-10 to +300	-60 to +300	-85 to +450	-273 to +400		-273 to +550

The valves are manufactured at:
 LESER GmbH & Co.KG
 Hohenwestedt, Germany

Application/Limitation

Each valve is to be:

- Subject to hydraulic test of body (1, 5 times the design pressure)
- Subject to leakage test (at 90% of set pressure) after reset
- Supplied with material work's certificate

Each valve is to be inspected and certified by Det Norske Veritas Surveyor and to be delivered with a product certificate when required by DNV Rules or by the purchaser.

Parallel threads without o-ring seal is not allowed used in Class I piping systems.

The valves are not to be used on boilers or steam heated steam generators.

Type Approval documentation

The approval is based on the following documentation:

Manufacturer's complete catalogue (Compact performance catalogue Edition July 2012/1.000 0777.5681)

Drawing nos.

351.4409-06-B01 dated 30.03.04
351.4309-10-B01 dated 20.09.11
351.4309-05-B02 dated 21.11.07
136.7509-01-B01 dated 05.02.07
136.8009-01-B01 dated 05.02.07
136.3609-07-B01 dated 09.02.07
136.7009-01-B01 dated 05.02.07
123.3509-00-B01 dated 06.04.04
123.3009-00-B01 dated 06.04.04 and
123.3109-05-B01 dated 01.06.11.

VdTÜV "Bauteilgeprüftes Sicherheitsventil Bauteilprüfnr. 12-909", 11.2012

Manufacturer's hydrostatic test report dated 2006-02-03

Manufacturer's test report witnessed by DNV Hamburg dated 2010-02-24 (HAM 600226-1)

Type approval assessment report signed by DNV Hamburg (HAM-13-4606) dated 04.12.2013

Tests carried out

Cryogenic type test.

Marking of product

For traceability to this Type Approval the products are at least to be marked with:

- Manufacturer's name or trade mark
- Type designation
- Pressure rating
- Size

Certificate Retention Survey

For the retention of the Type Approval, a DNV-surveyor shall perform a survey - every second year and before the expiry date of this certificate to verify that the conditions for the type approval are complied with.

END OF CERTIFICATE