



# DET NORSKE VERITAS

## TYPE APPROVAL CERTIFICATE

**CERTIFICATE NO. P-13110**  
This Certificate consists of 4 pages

*This is to certify that the*  
**Pipe Couplings, Bite and Compression Type**  
*with type designation(s)*

**ES-V, W-V, GS-V, T-V, G-V, WS-V, K-V, WE-V, GE-V, TE-V,  
LE-V, TR-V, EG-V, EW-V, ET-V, EL-V, MA-V, MA-EV, MA-  
VD, EW-VD, ET-VD, EL-VD, EG-VD, KOR-V, RED-V, GAS-  
V, GAI-V, GR-V, ETH-V and EWH-V**

*Manufactured by*  
**Volz Gruppe GmbH**  
**DEILINGEN, GERMANY**

*is found to comply with*  
Det Norske Veritas' Rules for Classification of Ships and Mobile Offshore Units  
Det Norske Veritas' Standards for Certification 2.9 No. 5-792.20

*Application*  
May be used for: Hydraulic- and lubrication oil, fuel oil (not high-pressure fuel injection),  
compressed air, oxygen (see cert.), steam and condensate, fresh- and sea water

Temperature range:	(See Cert.)
Max. working press.:	100 to 800 bar (See Cert.)
Sizes:	Tube O.D. 4 to 42 mm

*Place and date*  
Høvik, 2009-04-03  
for DET NORSKE VERITAS AS

*Helge Drange*  
*Head of Section*



*Local Office*  
DNV Essen

*This Certificate is valid until*  
2012-06-30

*Oyvind Skåra*  
*Surveyor*

**Notice: This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.**

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.



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File No.: 792.21  
Job Id.: 262.1-005646-2

## Product description

Cutting ring pipe couplings acc. to DIN 2353.

### Materials:

Couplings: Stainless steel, X6CrNiMoTi17-12-2, No.1.4571 DIN EN 10088-3  
Sealing rings: FPM or PTFE

### Coupling types:

ESV	Welding bulkhead	MA-V	Manometer coupling
W-V	Equal elbow	MA-EV	Adjustable manometer
GS-V	Threaded bulkhead	coupling	
T-V	Equal tee	MA-VD	Adjustable manometer
G-V	Straight coupling	coupling	
WS-V	Bulkhead elbow	EW-VD	Adjustable W-coupling
K-V	Equal cross	ET-VD	Adjustable T-coupling
WE-V	Male stud elbow	EL-VD	Adjustable L-coupling
GE-V	Male stud straight	EG-VD	Standpipe adaptor
TE-V	Male stud branch tee	KOR-V	Reducing standpipe
LE-V	Male stud barrel tee	RED-V	Reducing standpipe
TR-V	Male stud branch tee	GAS-V	Straight welding coupling
EG-V	Standpipe adaptor	GAI-V	Straight female adaptor
EW-V	Adjustable barrel tee	GR-V	Straight reducing
ET-V	Adjustable barrel tee	ETH-V	Adjustable T-swivel
EL-V	Adjustable barrel tee	EW-H-V	Adjustable W-swivel

Adaptors available with conical or cylindrical thread.

## Application/ limitation

Normal working pressures defined at 20°C:

Product line	Tube O.D. mm	Pressure Bar
LL	4 - 8	100
L	6 - 10	500
L	12 - 18	400
L	22 - 42	250
S	6 - 10	800
S	12 - 16	630
S	20 - 38	420



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At elevated temperatures, the maximum pressures are to be reduced according to following:

Temperature, °C:	50	100	200	300	400
Reduction, %:	4.5	11	20	29	33

Temperature range depending on sealing ring materials:

FPM (Viton):	-25 to 200°C
PTFE (Teflon):	-60 to 200°C

Coupling series L and S may be used for gases having an oxygen content exceeding 21% at working pressure 250 bar respectively 360 bar.

Couplings used for low temperature gas may only be used for accessory lines and instrumentation lines with external diameters of 25 mm and less. DNV Rules Pt.5, Ch.5, Sec.6, C509

Threaded bulkhead couplings type GS-V and WS-V may not be used on watertight bulkheads.

Couplings with non-metallic components are not to be used for fire safe applications.

The approval is only valid when the couplings are assembled with tubing of correct temper and tolerances as recommended by the manufacturer.

These couplings are not to be used on tubes in cold fabricated (hard temper) conditions.

The wall thickness and material of the tubes to be in accordance with the current Rules of Det Norske Veritas.

No product certificate will be required.

### Type Approval documentation

Reference documents:

- Manufacturer's catalogue
- Test witnessed by DNV, 1995-03-02
- DNV test report no. 95-1017, Oxygen shock test, 1995-02-23
- MPA NRW Prüfzeugnis Nr. 12 0016 0 95, 1994-12-19
- Test witnessed by DNV 2004-04-02, Pruf-Nr 04/020
- Test witnessed by DNV 2004-04-30, Pruf- Nr 04/020-1
- Retention Survey Report Date: 28,04,2008
- SZMF Test Report D 048/2008 Date: 12,03,2008
- Flexitest test reports dated 2008-09-24
- Salzgitter Mannesmann Forschung test reports

*04/08*



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- Survey report ESN-09-32242 including test reports

### Tests carried out

Leakage, Burst Pressure, Vacuum test, Pull-Out, Repeated assembly test, Vibration, Pressure Pulsation Test, Oxygen shock test,

### Marking of product

For traceability to this type approval, each coupling is at least to be marked with:

- Manufacturer's trade mark
- Type designation
- Size

### Certificate retention survey

For retention of the Type Approval, a DNV Surveyor shall perform a survey - before the expiry date of this certificate - to verify that the conditions for the type approval are complied with. The Surveyor shall perform the following tasks on samples selected at random from stock or from the running production:

- Verify that the dimensions of the couplings comply with Type Approved documentation.
- Verify that the material composition complies with Type Approved documentation.
- Witness burst testing.

The burst testing may be omitted at the Surveyor's discretion.

END OF CERTIFICATE