



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **P-14277**

This is to certify that the
Pipe Couplings, Bite and Compression Type

with type designation(s)
VOSS ES-4 CUTTING RING COUPLINGS

Manufactured by
VOSS Fluid GmbH
WIPPERFÜRTH, Germany

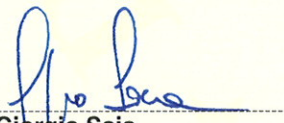
is found to comply with
Offshore Standard DNV-OS-D101, Marine and Machinery Systems and Equipment
Det Norske Veritas' Rules for Classification of Ships
Det Norske Veritas' Standards for Certification 2.9 No. 5-792.20

Application

May be used for the following: Hydraulic, fuel - and lube oil (not high pressure fuel oil injection), compressed air, steam
and condensate and fresh and sea water

Temperature range: -20°C to +120°C
Max. working press.: 250 to 800 bar (dep. on size, see cert.)
Sizes: 6 mm to 42 mm (see cert.)


Høvik, 2012-11-16
for **Det Norske Veritas AS**


Giorgio Saia
Acting Head of Section



DNV local office:
DNV Essen

This Certificate is valid until
2016-06-30


Mohsen Mohebbi
Surveyor

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.



Certificate No.: P-14277
File No.: 792.21
Job Id.: 262.1-002866-2

Type Approval documentation

- Voss Examination Report No.: AEL 225/05/1 dated 2005-12-23 and AEL 214/06/1 dated 2006-11-23
- IMA Dresden Test Report No.: C130/05 dated 2006-04-06 and C101/06 dated 2006-12-07
- WTD 71 Fire Test Report No.: 61070/107
- Test report 2011_328/1
- Retention survey report dated 2012-03-19

Tests carried out

Burst, leakage, vibration, repeated assembly, pullout, vacuum, fire and pressure pulsation test.

Marking of product

For traceability to this type approval the products are to be marked with:

- Manufacturer's trade mark: VOSS
- Type designation
- Size

Certificate Retention Survey

For 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. The Surveyor shall witness burst testing of samples of couplings selected at random from stock or from the running production as a part of this survey.

END OF CERTIFICATE



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Product description

Design:

Cutting ring couplings. The cutting ring provides the sealing with two edges. Additional sealing by o-ring and sealing ring. The type approval is valid for all configurations of the couplings.

The fitting body is manufactured in accordance with DIN 3861/ ISO 8434-1

The nut is manufactured in accordance with DIN 3870/ ISO 8434-1

Materials:

Fitting body: carbon steel and stainless steel in accordance with DIN 3859-1, table 2 or of higher grades. C35, C35Pb, 38SMn28-mod

Nut: carbon steel and stainless steel in accordance with DIN 3859-1, table 2 or of higher grades

Cutting ring: carbon steel in accordance with DIN 3859-1, table 2 or of higher grades

Sealing: FPM /FKM

Application/Limitation

The couplings are approved for the following maximum static working pressures:

Series	Tube OD (mm)	Pressure(bar)
L	6, 8 and 10	500
L	12, 15 and 18	400
L	22, 28, 35 and 42	250
S	6, 8 and 10	800
S	12, 14 and 16	630
S	20, 25, 30, 38	420

Temperature range:

FKM: -25 - 200°C

The working pressure is equal to the maximum nominal static pressure for working temperatures below 120 °C. For higher temperature approval has to be considered in each case.

Maximum working pressures to be reduced according to the manufacturer's recommendations for systems with pulsating pressures.

The wall thickness and material of the tubes is to be in accordance with the current Rules of Det Norske Veritas. Minimum pipe wall thickness according to DNV Rules for Classification of Ship:

Pipe OD (mm)	Min. pipe wall thickness (mm)
10 - 12	1.6
13 - 17	1.8
20 - 42	2.0

The wall thickness of hydraulic pipes in cargo oil tanks in systems for remote control of cargo oil valves is not to be less than:

Carbon steel pipes = 4 mm

Stainless steel pipes = 2 mm

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

No product certificate will be required.