



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. P-13063

This Certificate consists of 4 pages

This is to certify that the
Pipe Couplings, Bite and Compression Type
with type designation(s)
A-LOK twin ferrule tube fittings

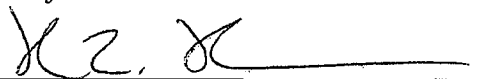
Manufactured by
PARKER HANNIFIN PLC
BARNSTAPLE, United Kingdom

is found to comply with
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. The O-ring version is not to be used for fire safe applications

Temperature range:	-20°C to +100°C
Max. working press.:	85 to 865 bar size and type dependant
Sizes:	1/16 to 1", 2 to 25 mm


Place and date
Høvik, 2009-02-05
for DET NORSKE VERITAS AS


Hanne Anita Hjerpetjønn
Head of Section



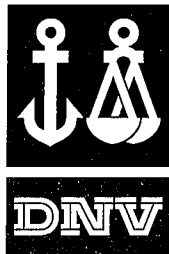
Local Office
DNV London

This Certificate is valid until
2012-12-31


Øyvind Skåra
Surveyor

Notice: 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.



Cert. No.: P-13063
 File No.: 792.21
 Job No.: 262.1-006561-1

Product description

Type designations:

Tube-Tube:	SC, SCM, RU, RUM, BC, BCM, DELTA, EE, EEM, ELZ, ET, ETM, JLZ, ECR, ECRM
Tube-Male Thread:	MSCN, MSCK, MSCR, MBCN, MFCN, MSELN, MSCBR, MSELK, MVELN, MRTN, MBTN, MAK, MAR, MAN, MTCK
Tube-Female Thread:	FSCN, FSCK, FBCN, GCR, FELN, FRTN, FBTN, FAN, FAK, FAR, FAGC
37° Flare (AN) to A-LOK	X6TU, XASC, XABC
Tube to O-ring seal	M1SC, M5SEL, MSEL(R), M5RT, MRT(R), M5BT, MBT(R), ZH3LA, M5VEL, M2SC, M3SC, AH2LZ, M2TU, M3TU, FHOA
Tube to welded systems	ZELW, ZELW2, ZHLW, ZHLW2
Analytical Fittings	Z2HLZ7, Z3HLZ7, ZHLZ7, Z2HLZ, ZHLZ, Z7HLZ7, FLZ7, ZHLS
Accessories:	TUR, TUCM, TURM, TUBC, TUHA, P2T3, P2LZ6, PC, PCM, LJF, ZH2LX, BLEN, BLENM, BLP, BLPM, NU, NUM, BZI, BZP, FF, FFM, BF, BFM, B2HF, B2TU, HCS, TIZ, MDF, WLZ, BN, L5N, P2HF, ZP2

Materials:

Stainless steel: BS970 316-S31, DIN 17440 W.no. 1.4401, ASTM SA479-316, ASTM SA182-316. BS970316-S11, DIN 17440 W.no 1.4404, ASTM SA479-316L, EN 10088-3 - 1.4401 1.4404

Brass: BS2874 CZ 121, BS 2872 CZ 122, BS2874 CZ124, ASTM B16 Alloy 360, ASTM B453 Alloy 345, ASTM B124 Alloy 377.

Titanium: ASTMB348, ASTM B381, ASTM B265

Monel: UNS N04400

Hastelloy C276®: UNS N10276

Alloy 600: UNS N06600

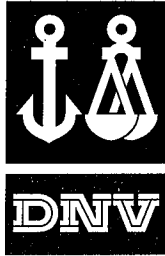
Carpenter 20®: UNS N08020

Inconel 625: UNS N06625

Incoloy 825: UNS N08825

6Mo: UNS S31254

The type approval also covers the version with O-ring seal on the stud end.



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Application/Limitation

The couplings may be used for:

1. Fuel (not couplings with O-ring seals)
2. Lubrication (not couplings with O-ring seals)
3. Hydraulic (water base hydraulic, only, for couplings with O-ring seals)
4. Fresh water
5. Compressed air
6. Sanitary
7. Steam
8. Condensate systems.

Maximum working pressures are made dependant on the tubing. Consult the Tube Selection section in catalogue 4230/4233 "CPI/A-LOK Tube Fittings" dated August 2004.

Size range:

Inch: 1/16, 1/8, 1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8 and 1".

Metric: 2, 3, 4, 6, 8, 10, 12, 14, 15, 16, 18, 20, 22 and 25mm

Metal temperature range:

- 4°F to + 212°F

- 20°C to + 100°C.

For higher temperatures the couplings to be derated according to the manufacturers recommendations.

For use in sea water systems it is recommended not to use couplings with a high zinc content (>30%) due to the possibility of dezincification.

For other purposes than listed, an approval has to be obtained in each case.

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

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

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

No product certificate will be required.



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- Manufacturer's catalogue 4230/4233 "CPI/A-LOK Tube Fittings" dated April 2005.
- Pressure impulse and vibration test report no. RR1875 from The British Hydromechanics Research Association dated July 1982
- Evaluation report G 342/85 from Central Electricity Generating Board dated July 1985.
- Vibration tests report no. C 690 from SIRA Ltd. dated August 1989
- Pressure test report no. C 1068 from SIRA Ltd. dated June 1994 (ISS.2)
- DNV Retention survey report dated 2009-01-29

Tests carried out

Burst, Vibration, Impulse, Helium leak, Crack test, Internal diameter check, Temperature cycling, Repeated assembly

Marking of product

For traceability to this Type Approval, the products are to be marked with:
- P or PARKER

Certificate retention survey

For retention of the Type Approval, the DNV Surveyor shall perform a survey every second year to verify that the conditions for the type approval are complied with, and to witness burst testing of samples of couplings selected at random from stock or from the running production.

END OF CERTIFICATE