



Lloyd's
Register

Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

This certificate supersedes certificate number 10/20029 issued on 30.08.2010 which are hereby cancelled.

This certificate is issued to:

PRODUCER	FKB GmbH Wehrstrasse 15 + 27 78727 Oberndorf Germany
DESCRIPTION	Tube clamps, Flat steel clamps, U-Bolts and Pipe saddles
TYPES	Tube clamps Series A (light series), Series B (twin tube clamp) and Series C (heavy series)
APPLICATION	General use in marine, offshore and industrial piping systems classed or intended for Classification with Lloyd's Register. For essential systems inside machinery spaces Category A and accommodation spaces only the tube clamp versions with two bolts in conjunction with a steel cover plate are to be used.
STANDARDS	DIN 3015, Part 1, 2 and 3; DIN 3567 Lloyd's Register Rules and Regulations for the Classification of Ships, January 2016
OTHER CONDITIONS	Selection and installation are to be in accordance with the manufacturer's instructions and recommendations.
RESTRICTIONS	Series A, size 0 and Series B with only one central bolt for each clamp are not to be used for essential systems inside machinery spaces of Category A or accommodation spaces.
Certificate No.	10 / 20029 (E1)
Issue Date	19 April 2016
Expiry Date	29 August 2020
Sheet	1 of 3



Torsten Schröder
Hamburg Technical Support Office
Lloyd's Register EMEA

Lloyd's Register EMEA
71 Fenchurch Street, London EC3M 4BS

Lloyd's Register EMEA
is a subsidiary of Lloyd's Register Group

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

RATINGS

Series		sizes	O.D. [mm]	
A	Light series	0 - 8	6 - 101,8	For normal mechanical loads
B	Twin tube clamp	1 - 5	6 - 42	
C	Heavy series	1 - 10	6 - 406,4	For high mechanical loads

Clamp material / design temperature range:

P = Polypropylene	-30°C up to +90°C
N = Polyamide (Nylon)	-40°C up to +120°C
V = Rubber ¹⁾	-50°C up to +120°C
A = Aluminium ²⁾	up to +300°C

Interior surface: standard grooved, G = smooth³⁾

- 1) Rubber only available for series A and B, inside smooth and series C grooved design (R)
- 2) Aluminium only available for series A size 1 to 6 and series C size 1 to 8
- 3) Smooth interior surface in series C only for size 4. Aluminium clamps in grooved design (R). Inside smooth series A size 1 to 6

Assembly is possible on to metal welding plates, support rails or construction assembly.

Screw tightening torques and axial pipe shearing forces depending on bolt and clamp material are to be observed according the manufacturer's catalogue.

All steel parts are also available in stainless steel.

Certificate No.	10 / 20029 (E1)
Issue Date	19 April 2016
Expiry Date	29 August 2020
Sheet	2 of 3

Lloyd's Register EMEA
71 Fenchurch Street, London EC3M 4BS



Torsten Schröder
Hamburg Technical Support Office
Lloyd's Register EMEA

Lloyd's Register EMEA
is a subsidiary of Lloyd's Register Group

The Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

If the specified standards are amended during the validity of this certificate, the product is to be re-approved prior to it being supplied to vessels to which the amended standards apply.

The Design Appraisal Document No. ENS 25773-10, Issue No. 1 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

Certificate No.	10 / 20029 (E1)
Issue Date	19 April 2016
Expiry Date	29 August 2020
Sheet	3 of 3

Lloyd's Register EMEA
71 Fenchurch Street, London EC3M 4BS


Torsten Schröder
Hamburg Technical Support Office

 Lloyd's
Register

Lloyd's Register EMEA

LR001 1.2016.12

Torsten Schröder
Hamburg Technical Support Office
Lloyd's Register EMEA

Lloyd's Register EMEA
is a subsidiary of Lloyd's Register Group

Part 1 A
 Subject: Pipe Fittings
 Product: Support Clamps (Part 1A)

Producer/Licence No.	Description of Product				Cert. No.																	
	Types	Details of Approval		Application		Remarks																
FKE GmbH Wehrstrasse 15 + 27 78727 Oberndorf Germany	Tube clamps Series A (light series). Series B (twin tube clamp) and Series C (heavy series)	Tube clamps, Flat steel clamps, U-Bolts and Pipe saddles <u>Rating:</u> <table border="0"> <tr> <td>Series</td> <td>sizes</td> <td>O.D. [mm]</td> <td></td> </tr> <tr> <td>A</td> <td>0 - 8</td> <td>6 - 101,8</td> <td>For normal mechanical loads</td> </tr> <tr> <td>B</td> <td>1 - 5</td> <td>6 - 42</td> <td></td> </tr> <tr> <td>C</td> <td>1 - 10</td> <td>6 - 406,4</td> <td>For high mechanical loads</td> </tr> </table>		Series	sizes	O.D. [mm]		A	0 - 8	6 - 101,8	For normal mechanical loads	B	1 - 5	6 - 42		C	1 - 10	6 - 406,4	For high mechanical loads	General use in marine, offshore and industrial piping systems classed or intended for Classification with Lloyd's Register. For essential systems inside machinery spaces Category A and accommodation spaces only the tube clamp versions with two bolts in conjunction with a steel cover plate are to be used.	Expires: 29 August 2020 <u>Standards</u> DIN 3015, Part 1, 2 and 3; DIN 3567 <u>Restrictions:</u> Series A, size 0 and Series B with only one central bolt for each clamp are not to be used for essential systems inside machinery spaces of Category A or accommodation spaces.	10/20029(E1)
Series	sizes	O.D. [mm]																				
A	0 - 8	6 - 101,8	For normal mechanical loads																			
B	1 - 5	6 - 42																				
C	1 - 10	6 - 406,4	For high mechanical loads																			
		<u>Clamp material / design temperature range:</u> P = Polypropylene -30°C up to +90°C N = Polyamide (Nylon) -40°C up to +120°C V = Rubber ¹⁾ -50°C up to +120°C A = Aluminium ²⁾ up to +300°C Interior surface: standard grooved, G = smooth ³⁾ 1) Rubber only available for series A and B, inside smooth and series C grooved design (R) 2) Aluminium only available for series A size 1 to 6 and series C size 1 to 8 3) Smooth interior surface in series C only for size 4. Aluminium clamps in grooved design (R). Inside smooth series A size 1 to 6 Assembly is possible on to metal welding plates, support rails or construction assembly. Screw tightening torques and axial pipe shearing forces depending on bolt and clamp material are to be observed according the manufacturer's catalogue. All steel parts are also available in stainless steel.																				



Marine Design Appraisal Document

Lloyd's Register EMEA
Hamburg Technical Support Office
Am Sandtorkai 41
20457 Hamburg
Telephone +49 (0)40 328107 - 0 Fax +49 (0)40 328107 - 480
E-mail: hamburg-technical-support@lr.org

Date
19 April 2016

Please quote this reference number on all future communications
HPC 1561061/34295-16/TS/LK

**THE LLOYD'S REGISTER'S TYPE APPROVAL SYSTEM, 2014
ISSUED TO: FKB GMBH
FOR: TUBE CLAMPS SERIES A, B AND C
TYPE APPROVAL CERTIFICATE NO. 10/20029(E1)**

Please note that Issue Number 0 of DAD ENS 25773-10 is superseded hereby.

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register's Type Approval System, 2014 and this Design Appraisal Document forms part of the Certificate.

COMMENTS

1. The tube clamps are to be installed so that no significant stresses can be induced in the piping system. Allowances are to be made for thermal expansion of pipes or similar cases. Additional sliding bearings may be necessary.
2. The clamps are limited for applications within the design temperature range depending on the material according catalogue.
3. The clamps are to be installed to the satisfaction of the Surveyor.

TEST REPORTS

Form-PQA 00612/2001	LR Production Quality Assessment / B.B. Mechanical shocktest for tube clamps RBVG-325 and RAVG-106 at Fraunhofer Institute in Pfinztal / Germany	2015 19.07.2001
00722/2002	Mechanical shocktest for tube clamps RCPR-333,7 and RCVR-333,7 at Fraunhofer Institute in Pfinztal / Germany	31.01.2002
510-501-004	Tensile test for APL-A3 at FKB witnessed by LR-Surveyor	08.06.2010

FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

Lloyd's Register EMEA
is a member of Lloyd's Register group

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

Lloyd's Register EMEA
Hamburg Technical Support Office
Am Sandtorkai 41
20457 Hamburg
Telephone +49 (0)40 328107 - 0 Fax +49 (0)40 328107 - 480
E-mail: hamburg-technical-support@lr.org

Date
19 April 2016

Please quote this reference number on all future communications
HPC 1561061/34295-16/TS/LK

APPROVAL DOCUMENTATION

-	Application for Type Approval	09.06.2015
-	FKB RSB tube clamps Catalogue	-
00-0004-020-50-3, rev. d	Tube clamp size A2 RAPR / RANR	29.05.2006
390-000-185	Clamp RAPR-212	08.12.2001


Torsten Schröder
Hamburg Technical Support Office

Lloyd's Register EMEA

Torsten Schröder
Senior Specialist
Engineering Systems
Hamburg Technical Support Office
Lloyd's Register EMEA
T +49 (0)40 328107-463
E torsten.schroeder@lr.org

Supplementary Type Approval Terms and Conditions

Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.

Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.

Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

Lloyd's Register EMEA reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the LR Type Approval System Procedure.

FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

Lloyd's Register EMEA
is a member of Lloyd's Register group

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.