IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx TUN 17.0039X**

Certificate history:
Issue 0 (2018-02-13)

Status: **Current**

Issue No: 1

Date of Issue: 2021-09-21

Applicant: **Barksdale GmbH**
Dorn-Assenheimer Str. 27
61203 Reichelsheim
Germany

Equipment: **Float switch and Limit switch**

Optional accessory: UNS*; UNS1000*; UNS2000*; UNS2100-EX*; UNS-VA/SB-VA52; UNS-VA/SB1-VA52; UNS-VA/SB5 Bilge Guard Plus; UNS-VA/SB5 GE347 Bilge Guard Plus; UNS-VA/SB4 Bilge Guard; UNS-VA/SB4 GE347 Bilge Guard and GK03-EXI

Type of Protection: **Intrinsic Safety "ia"**

Marking: **Float switch with floats from Buna-N or other plastic material (PP,PE,PVC, PTFE or PA), as well as with ST1-plug:**

Ex ia IIB T6 Ga or

Ex ia IIB T6 Ga/Gb or

Ex ia IIB T6 Gb or

Ex ia IIIC T100°C Da

Limit switch and other float switchs:

Ex ia IIC T6 Ga or

Ex ia IIC T6 Ga/Gb or

Ex ia IIC T6 Gb or

Ex ia IIIC T100°C Da

Approved for issue on behalf of the IECEx Certification Body: **Andreas Meyer**

Position: **Deputy Head of the IECEx Certification Body**

Signature:
(for printed version)

TÜV NORD
Digital unterschrieben von Meyer Andreas
Datum: 2021.09.21 16:57:43 +02'00'

Date:

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TÜV NORD

IECEx Certificate of Conformity

Certificate No.: **IECEx TUN 17.0039X**

Date of issue: 2021-09-21 Issue No: 1

Manufacturer: **Barksdale GmbH**
Dorn-Assenheimer Str. 27
61203 Reichelsheim
Germany

Additional manufacturing locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements.This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :
The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

IEC 60079-26:2014-10 Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga
Edition:3.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

DE/TUN/ExTR18.0002/01

Quality Assessment Report:

DE/TUN/QAR13.0009/05

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

General product information:

The float switches of the type series UNS*; UNS1000*; UNS2000*; UNS2100-EX*; UNS-VA/SB-VA52; UNS-VA/SB1-VA52; UNS-VA/SB5 Bilge Guard Plus; UNS-VA/SB5 GE347 Bilge Guard Plus; UNS-VA/SB4 Bilge Guard and UNS-VA/SB4 GE347 Bilge Guard are used for intrinsically safe level measurement of liquid media in containers.

In a tubular construction, encapsulated reed switches are mounted for continuous level determination.

The limit switch type GK03-EXI is used to detect limit values on magnetically controlled level indicators

For electrical data and all other data refer to the attachment to IECEx TUN 17.0039X issue No. 1.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. Metallic process connection parts have to be included in the local potential equalization. A good electrically conductive connection between float switch and system ground has to be ensured..
2. For the use in IIC-areas that require EPL Ga each float switch and limit switch, have to be installed and used in such a way that electrostatic charges through operation, maintenance and cleaning are excluded.
3. For the use in areas that require EPL Da all float switches and limit switch have to be protected from strong charge generation mechanisms.
4. By using an aluminium terminal box KX4(C), KX8(C), KXP(C), KLS1(C) or KLS2(C) in areas that require EPL Ga, the danger of ignition by impact or friction has to be excluded.
5. For EPL Ga/Gb applications and at risks by pendulum or vibration the respective parts of the float switches resp. the limit switch have to be secured effectively against these dangers.
6. For EPL Ga/Gb applications the medium tangent materials of the float switches resp. the limit switch have to be resistant to the media.
7. For EPL Ga/Gb applications the whole devices shall be mounted in a way that allows an installation that results in a sufficient tight joint (IP66 or IP67) or a flameproof joint (IEC 60079-1) in the direction of the less endangered area.

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Date of issue: 2021-09-21 Issue No: 1

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Proof of conformity of the float switches type UNS*; UNS1000*; UNS2000*; UNS2100-EX*; UNS-VA/SB-VA52; UNS-VA/SB1-VA52; UNS-VA/SB5 Bilge Guard Plus; UNS-VA/SB5 GE347 Bilge Guard Plus; UNS-VA/SB4 Bilge Guard and UNS-VA/SB4 GE347 Bilge Guard and the limit switch type GK03-EXI to the current versions of the standard IEC 60079-0:2017, IEC 60079-11:2011 and IEC 60079-26:2014.

Annex:

Attachment to IECEx TUN 17.0039X_issue 01.pdf

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Description:
The float switches of the type series UNS*; UNS1000*; UNS2000*; UNS2100-EX*; UNS-VA/SB-VA52; UNS-VA/SB1-VA52; UNS-VA/SB5 Bilge Guard Plus; UNS-VA/SB5 GE347 Bilge Guard Plus; UNS-VA/SB4 Bilge Guard and UNS-VA/SB4 GE347 Bilge Guard are used for intrinsically safe level measurement of liquid media in containers.
In a tubular construction, encapsulated reed switches are mounted for continuous level determination.
The limit switch type GK03-EXI is used to detect limit values on magnetically controlled level indicators.

Type code:
UNS1000*

Special Model
S = with ship building approval

Material
MS = brass
VA = stainless steel W. no. 1.4571, 1.4408

process connection (Fitting)
G1/8 = G1/8“-AG (male), mounting thread
G3/8 = G3/8“-AG (male), mounting thread
G1/2 = G1/2“-AG (male), mounting thread
1/8NPT = 1/8" NPT male, mounting thread
3/8NPT = 3/8" NPT male, mounting thread
1/2NPT = 1/2" NPT male, mounting thread
T1/2 = G1/2“-AG (male), tank screw
T3/4 = G3/4“-AG (male), tank screw
T1 = G1“-AG (male), tank screw
T1¼ = G1¼“-AG (male), tank screw
T1½ = G1½“-AG (male), tank screw
T2 = G2“-AG (male), Tankverschraubung
T1/2NPT = 1/2" NPT male, tank screw
T3/4NPT = 3/4" NPT male, tank screw
T1NPT = 1" NPT male, tank screw
T1¼NPT = 1¼" NPT male, tank screw
T1½NPT = 1½" NPT male, tank screw
T2NPT = 2" NPT male, tank screw
Tx = special tank screw thread
M20x1,5 = M20 x 1,5 mm AG (male), tank screw
FL2 = DN 25 / PN 16, Form A, DIN2527 blind flange
FL3 = DN 50 / PN 16, Form A, DIN2527 blind flange
FLA3 = 2” 150 lbs., RF, ASME B 16.5 blind flange
FLA5 = 3” 150 lbs., RF, ASME B 16.5 blind flange
FLx / FLS = special flange
(Other flanges and mounting threads available on request)

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Electrical connection

K x/y = cable, direct potted
C = conduit connection with cable
PG x/y = cable gland PG or metric thread with cable
x= cable length in m
y= Cable material: 1=SI(-40°C--), 2=PVC(-20°C--), 3=CR(-20°C--), 4=PUR(-40°C--), 5=FEP(-40°C--),(permanent installation)
ST1 = EN 175301-803-A, cube plug, 3 pin + 1 ground
KX4(C) = Ex ia, junction box (Al), 4 terminals, cable gland
KX8(C) = Ex ia, junction box (Al), 8 terminals, cable gland
KXP(C) = junction box, pressure proof
M12x1 = M12x1mm plug (PA or brass) with 4 or 5 pin
KLS1(C) = Aluminum Terminal Box, 6 Terminals (only in S model)
KLS2(C) = Aluminium Terminal Box, 9 Terminals (only in S model)
KS(C) = Cable with Shipbuilding Approvals (only in S model)

Float type

PE23 = Ø23 mm PE / Ø0.91“ PE foamed (cylinder) (IIB)
BN18 = Ø18 mm NBR / Ø0.71“ NBR foamed (cylinder)
BN25 = Ø25 mm NBR / Ø0.98“ NBR foamed (cylinder)
VA27 = Ø27 mm 1.4571 / Ø1.06“ stainless steel 316 Ti (cyl.)
VX44 = Ø44 mm 1.4571 / Ø1.73“ stainless steel 316 Ti (ball)

Number of switchpoints

L1 = one switchpoint
Ln = n (max. 5) switchpoints

Contact mode

1 = NO normally open (SPST)
2 = NC normally closed (SPST)
3 = WE change over (SPDT)

Option

Exi = intrinsically safe
DR = damping tube
DUAL = 1 float + 2 switch points
HT = high temp. application
PT100 = Pt100-Element / Pt100-sensor
U = mounting through bottom
90° = angled for side mount.
VV = vertical adjustment (max. 5 bar)
TSxx/2 = temperature switch
xx = +60°C, +70°C, +80°C, 90°C, /2 = NC

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UNS2000*

Special Model

S = with ship building approval

Material

MS = brass
VA = stainless steel, W. Nr. 1.4571., 1.4408

Process connection (Fitting)

G3/8 = G3/8“-AG (male), mounting thread
G1/2 = G1/2“-AG (male), mounting thread
1/2NPT = 1/2" NPT (male), mounting thread
T1/2 = G1/2“ –AG (male), tank screw
T1 = G1“-AG (male), tank screw
T1¼ = G1¼“-AG (male), tank screw
T1½ = G1½“-AG (male), tank screw
T2 = G2“-AG (male), tank screw (not with VA80/VX80 float)
T1NPT = 1" NPT (male), tank screw
T1¼NPT = 1¼" NPT (male), tank screw
T1½NPT = 1½" NPT (male), tank screw
T2NPT = 2" NPT (male), tank screw
Tx = special tank screw thread
FL3 = DN 50 / PN 16, Form A, DIN2527 blind flange
FL4 = DN 65 / PN 16, Form A, DIN2527 blind flange
FL5 = DN 80 / PN 16, Form A, DIN2527 blind flange
FLA3 = 2” 150 lbs., RF, ASME B 16.5 blind flange
FLA5 = 3” 150 lbs., RF, ASME B 16.5 blind flange
FLA6 = 4” 150 lbs., RF, ASME B 16.5 blind flange
FLx / FLS = special flange
(Other flanges and mounting threads available on request)

Electrical connection

K x/y = cable, direct potted
C = conduit connection with cable
PG x/y = cable gland PG or metric thread with cable
x= cable length in m
y= Cable material: 1=SI(-40°C--), 2=PVC(-20°C--), 3=CR(-20°C--), 4=PUR(-40°C--), 5=FEP(-40°C--),(permanent installation)
ST1 = EN 175301-803-A, cube plug, 3 pin + 1 ground (IIB)
KX4(C) = Ex ia, junction box (Al), 4 terminals, cable gland
KX8(C) = Ex ia, junction box (Al), 8 terminals, cable gland
KXP(C) junction box, pressure proof
KLS1(C) = Aluminum Terminal Box, 6 Terminals (only in S model)
KLS2(C) = Aluminum Terminal Box, 9 Terminals (only in S model)
KS = Cable with Shipbuilding Approvals (1m) (only in S model)
M12x1 = M12x1mm plug (PA or brass) with 4 or 5 pin

float type

BN30 = Ø30 mm NBR Ø1.18“ NBR foamed (cylinder) Ø1.18“ (IIB)
VX44/VA44 = Ø44 mm 1.4571 / Ø1.73“ stainl. st. (cylinder)
VX52 = Ø52 mm 1.4571 / Ø2.05“ stainless steel 316 Ti (ball)
VX80 = Ø80 mm 1.4571 / Ø3.15“ stainless steel 316 Ti (ball)

Anzahl der Schaltpunkte

L1 = one switchpoint
Ln = n (max. 5) switchpoints

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Schaltfunktion
1 = NO normally open (SPST)
2 = NC normally closed (SPST)
3 = WE change over (SPDT)

Option
Exi = intrinsically safe
DR = damping tube
DUAL = 1 float + 2 switch points
HT = high temp. application
PT100 = Pt100-sensor
U = mounting through bottom
90° = angled for side mount.
VV = vertical adjustment
TPxx/x = temperature switch
TSxx/x = temperature switch

UNS*

Special Model
S = with ship building approval

Material
MS = brass
VA = stainless steel

Process connection (Fitting)
1/8 = G1/8"-AG (male), mounting thread
1/4 = G1/4"-AG (male), mounting thread
3/8 = G3/8"-AG (male), mounting thread
1/2 = G1/2"-AG (male), mounting thread
1/8NPT = 1/8" NPT male, mounting thread
1/4NPT = 1/4" NPT male, mounting thread
3/8NPT = 3/8" NPT male, mounting thread
1/2NPT = 1/2" NPT male, mounting thread
x/xX = special external mounting thread

Electrical connection
K x/y = cable, direct potted
PG x/y = cable gland PG or metric thread with cable
x= cable length in m
y= Cable material: 1=SI(-40°C--), 2=PVC(-20°C--), 3=CR(-20°C--), 4=PUR(-40°C--), 5=FEP(-40°C--),(permanent installation)

Float type
BN18 = Ø18 mm NBR foamed (cylinder) / Ø0.71" (IIB)
BN25 = Ø25 mm NBR foamed (cylinder) / Ø0.98" (IIB)
BN30 = Ø30 mm NBR foamed (cylinder) / Ø1.18"(IIB)
VA27 = Ø27 mm 1.4571 stainless steel (cylinder) / Ø1.06"
VX44/VA44 = Ø44 mm stainless steel 1.4571 (cylinder) / Ø1.73"316 Ti
VX52 = Ø52 mm stainless steel 1.4571 / Ø2.05" 316 Ti (ball)
VX80 (VA80)= Ø80 mm stainless steel 1.4571) / Ø 3.15"316 Ti (ball)
PP19 = Ø19 mm PP / Ø1.75" PP foamed (cylinder) (IIB)

Contact mode
1 = NO = normally open (SPST)
2 = NC = normally closed (SPST)
3 = WE = change over (SPDT)

Option

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Exi = / type of protection intrinsically safe
HT = high temp. application (-40°C…+75°C)
U = mounting through bottom
90° = angled for side mounting
TSxx/x = temp. switch (+60, +70, +80 / or +90°C)
TPxx/x = temp. switch (+50, +60, +70, +80 / or +90°C)
PT100 = Pt100-sensor

UNS2100-Ex*

Material

VA = Stainless steel, W. Nr. 1.4571., 1.4408

Process connection (Fitting)

T2 = G2"-AG (male), tank screw (not with VA80/VX80 float)
FL3 = DN 50 / PN 16, Form A, DIN2527 blind flange
FL4 = DN 65 / PN 16, Form A, DIN2527 blind flange
FLA3 = 2" 150 lbs., RF, ASME B 16.5 blind flange
FLx / FLS = special flange
(Other flanges and mounting threads available on request)

Electrical connection

KX4(C) = Ex ia,. junction box (Al), 4 terminals, cable gland
KX8(C) = Ex ia, junction box (Al), 8 terminals, cable gland

Float type

VX44 = Ø44 mm 1.4571 / Ø1.73" stainl. st. (cylinder)
VX52 = Ø52 mm 1.4571 / Ø2.05" stainless steel 316 Ti (ball)
VX80 = Ø80 mm 1.4571 / Ø3.15" stainless steel 316 Ti (ball)

number of switchpoints

L1 = one switchpoint
Ln = n (max. 4) switchpoints

Contact mode

1 = NO normally open (SPST)
2 = NC / normally closed (SPST)
3 = WE change over (SPDT)

Gesamtlänge L0 =… mm (max. 3000 mm)

Option

DR = Damping tube
U = Mounting through bottom
TPxx/x = Temperature switch

UNS-VA/SB-VA52

Bilge float switch with test function, VA, float VA52, Reed switch (NO or switcher), 2m, 5m or 10m cable

UNS-VA/SB1-VA52

Bilge float switch without test function, VA, float VA52, Reed switch (NO or Wechsler), 2m, 5m or 10m cable

UNS-VA/SB5 Bilge Guard Plus

Bilge float switch with test function, VA, float PE33 (IIB), Reed switch (NO), 2m, 5m, 10m or 15m cable

UNS-VA/SB5 GE347 Bilge Guard Plus

Bilge float switch with test function, VA, float PE33 (IIB), Reed switch (NO), 2m, 5m, 10m oder 15m cable, cable break detection according to Namur

UNS-VA/SB4 Bilge Guard

bilge float switch without test function, VA, float PE33 (IIB), Reed switch (NO), 2m, 5m, 10m or 15m cable

UNS-VA/SB4 GE347 Bilge Guard

Bilge float switch without test function, VA, float PE33 (IIB), Reed switch (NO), 2m, 5m, 10m or 15m cable, cable break detection according to Namur

GK03-EXI

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Limit switch

Marking:

	Float switch with floats from Buna-N or other plastic material (PP,PE,PVC, PTFE or PA), as well as with ST1- plug	**Limit switch and other float switchs:**
Ex	**Ex ia IIB T6 Ga or Ex ia IIB T6 Ga/Gb or Ex ia IIB T6 Gb or Ex ia IIIC T100°C Da**	**Ex ia IIC T6 Ga or Ex ia IIC T6 Ga/Gb or Ex ia IIC T6 Gb or Ex ia IIIC T100°C Da**

Electrical data:

Power supply (Terminal box or cable or plug)	In type of protection intrinsic safety Ex ia IIB/IIC/IIIC Only for the connection to certified intrinsically safe circuits. Maximum values: Ui = 28 V Ii = 125 mA Pi = 0.5 W
Effective internal capacitance	C_i = Capacitance of 10 m connection cable = 2 nF
Effective internal inductance	L_i = Inductance of 10 m connection cable = 10 µH

Thermal data:

Permissible ambient temperature range:

Float switch with PVC and CR-cable material:	-20 °C ≤ T_a ≤ +75 °C
Limit switch GK03-EXI and float switch with SI, PUR, FEP-cable material:	-40 °C ≤ T_a ≤ +75 °C

Details of change (applicable only when revising an existing ExTR package):

Proof of conformity of the float switches type UNS*; UNS1000*; UNS2000*; UNS2100-EX*; UNS-VA/SB-VA52; UNS-VA/SB1-VA52; UNS-VA/SB5 Bilge Guard Plus; UNS-VA/SB5 GE347 Bilge Guard Plus; UNS-VA/SB4 Bilge Guard and UNS-VA/SB4 GE347 Bilge Guard and the limit switch type GK03-EXI to the current versions of the standard IEC 60079-0:2017, IEC 60079-11:2011 and IEC 60079-26:2014.

Specific Conditions of Use"

1. Metallic process connection parts have to be included in the local potential equalization. A good electrically conductive connection between float switch and system ground has to be ensured.

2. For the use in IIC-areas that require EPL Ga each float switch and limit switch, have to be installed and used in such a way that electrostatic charges through operation, maintenance and cleaning are excluded.

3. For the use in areas that require EPL Da all float switches and limit switch have to be protected from strong charge generation mechanisms.

4. By using an aluminium terminal box KX4(C), KX8(C), KXP(C), KLS1(C) or KLS2(C) in areas that require EPL Ga, the danger of ignition by impact or friction has to be excluded.

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5. For EPL Ga/Gb applications and at risks by pendulum or vibration the respective parts of the float switches resp. the limit switch have to be secured effectively against these dangers.

6. For EPL Ga/Gb applications the medium tangent materials of the float switches resp. the limit switch have to be resistant to the media.

7. For EPL Ga/Gb applications the whole devices shall be mounted in a way that allows an installation that results in a sufficient tight joint (IP66 or IP67) or a flameproof joint (IEC 60079-1) in the direction of the less endangered area.