

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Termination and Joint for Cable**with type designation(s)
FibreEx

Issued to

**HAWKE International, A member of the Hubbell Group
Lancashire, United Kingdom**

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft**Application :****Hazardous Area Connectors for fiber optical cables.
For use with braid armoured elastomer or plastic insulated cables.****Products approved by this certificate are accepted for installation on all vessels classed by
DNV GL.**Issued at **Høvik** on **2020-08-12**for **DNV GL**This Certificate is valid until **2024-09-17**.DNV GL local station: **Manchester**Approval Engineer: **Ivar Bull****Marta Alonso Pontes
Head of Section**

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.


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Job Id: **262.1-033226-1**
 Certificate No: **TAE000040B**
 Revision No: **1**

Product description

TECHNICAL DATA :

Hazardous Area Connector	
Type	FibreEx
Protection Concept	Protected Radiation(PR) , Inherently Safe (IS)*
Connector characteristics	(CP) In line Connector Plug, (CR) In line Connector Receptable, (BR) Bulkhead Connector
Number of Contacts	4 Way or 8 Way
Cable Type	OM1 & OS1 cable as standard. Other options are available on request.
Material	Nickel Plated or Stainless Steel
Mating durability	500 cycles
Attenuation/Insertion Loss	0.45 typical (measured with 62.5/125mm fiber @ 1310nm)
Back Reflection	Better than -40dB - PC polish
Terminating range	-40°C to +60°C
T rating at different power	T6 + 60°C
Ingress Protection	IP67
Contact Technology	Low loss ceramic PC technology in both multimode and singlemode
Application	For use with braid armoured elastomer or plastic insulated cables
Classification	Intended use in explosive gas and dust atmosphere, high level protection, dust ignition and flameproof protection enclosure, increased safety protection. See Marking as reference.
Certification	ATEX, IECEX
Marking	Hawke FibreEx,  II2GD Ex op pr IIC T6 Gb, Extb IIIC T85°C Db (Tamb: - 40°C to +60°C) IP66/67, Cert, No, Ser. No, Rating, Warning. Alternative marking: Ex [db e] op pr IIC T6 Gb – for bulkhead/ box mount version, Cert, No, Ser. No, Rating, Warning. Ex [op is] IIC T* Ga – with separately certified “op is” source, Cert, No, Ser. No, Rating, Warning.

*IS protection concept has a std rating of T6, this is limited to 15mW radiated power and 5mW/mm2 Irradiance.

TESTING DATA : (tested with F/O cable type NEK TS 606 QFCI)

Tensile Strength (OEC 6074-1-21, E1)		Fire and Smoke Classifications	
Max tensile load during inst.	1500N	IEC 60331-25 (750°C, 90 minutes)	<1.0 dB excess loss
Max tensile load during operation	500N	Upgraded IEC 60331-25 (1000°C, 3 hours)	<1.5 dB excess loss
Crush (IEC 60794-1-21, E3)	3000 N/10cm	IEC 60331-1 (830°C, 120 minutes incl. hammer shock, followed by water jet acc. To BS 8491:2008)	<1.5 dB excess loss
Impact (IEC 60794-1-21, E4)	30J	IEC 6033102 (830°C, 90 minutes incl. hammer shock) followed by water spray acc. to EN50200	<1.5 dB excess loss
Torsion (IEC 60794-1-21, E17)	-±1 turn/1m		

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Cable Bending	
Minimum bending diameter	-250mm
Cable Bend (IEC 60794-1-21, E11)	<0.1dB/-+5 turn

Chemical Resistance	
Mineral oils IRM 902 (IEC60811-404)	7 days/23°C
Diesel - IRM 903 (IEC60811-404)	4 hours/70°C

Application/Limitation

The manufacturer's application instructions to be followed.
The manufacturer's assembly installation to be followed.
The information related to gas dangerous areas is for information only. Please refer to corresponding ATEX and IEC EX certificates.

Type Approval documentation

Type Approval documentation FibreEx IECEx Certificate of Conformity IECEx BAS 16.0032X
IECEX Test report :GB/BAS/ExTR17.0199/00
IECEX Test report :GB/BAS/ExTR16.0066/00
IECEX Test report :GB/BAS/ExTR16.0066/01
Assembly instruction: FIBRE OPTIC CONNECTOR TERMINATION HOOK UP PROCEDURE AI502 Rev C – 29Jun17
General Arrangement drawings as listed in the Test Reports
Catalogue pages FIBRE Ex CONNECTORS
HAWKE_FIBCONN_V5_JANUARY 2018

Tests carried out

InstrumEx	IEC/EN 60079-0, IEC/EN 60079-1, IEC/ EN 60079-7, IEC/EN 60079-28 and IEC/EN60079-31 standards
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Marking of product

According to IECx Certificate of Conformity. See also product description

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to RT shall be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE