


## Type Approval Certificate

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

This certificate is issued to:

<b>PRODUCER</b>	Hydro Bond Engineering	
<b>REGISTERED OFFICE</b>	Hydro House Claymore Avenue Aberdeen Energy Park Bridge of Don Aberdeen – AB23 8GW UK	
<b>PLACE OF PRODUCTION</b>	Hydro House Claymore Avenue Aberdeen Energy Park Bridge of Don Aberdeen – AB23 8GW UK	
<b>DESCRIPTION</b>	Design and Manufacture of Submersible Electrical Penetrators for use on Diving Bells and Deck Decompression Chambers (DDC) Systems to a working depth of 650 meters	
<b>TYPE</b>	<u>HBE Diving Bell Penetrators:</u> HPS20, 1 $\frac{3}{4}$ " UNF HPS21, 1 $\frac{1}{2}$ " UNF HPS22(S), 1" UNF HPS17, $\frac{1}{2}$ " NPT HPS16, $\frac{3}{4}$ " NPT HPS15, 1" NPT HPS14, 1 $\frac{1}{4}$ " NPT	<u>HBE DDC Penetrators:</u> HPS435, 1" NPT HPS436, $\frac{3}{4}$ " NPT
<b>Certificate No.</b>	17/90008	
<b>Issue Date</b>	12 December 2017	
<b>Expiry Date</b>	11 December 2022	
<b>Sheet</b>	1 of 2	



Winston D'Souza

UK&I Offshore Technical Support Office, Marine & Offshore  
Lloyd's Register EMEA

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APPLICATION	Diving Bells and Deck Decompression Chambers	
CONFIGURATION	Moulded Right Angle Moulded In-Line	
STANDARDS	Lloyd's Register Rules and Regulations for the Construction and Classification of Submersibles and Diving Systems (2016)	
RATINGS	Working Depth (metres):	650msw
	Working Temperature (°C):	-40°C to 60°C
	Working Voltage (V):	500V (all types, except the following) 300V (HPS17, ½" NPT)

#### LIMITATIONS OR OTHER CONDITIONS

1. Penetrators are to be selected and installed in accordance with the manufacturer's instructions and recommendations.
2. The certificate is not valid for equipment, the design, ratings or operating parameters which have been varied from the original designs submitted for design review and testing at various accredited test facilities. The manufacturer should inform Lloyd's Register of any modification or changes to the equipment in order to obtain a valid certificate.
3. The Type Approval Design Appraisal Document no: O-35637/17/90008 and the Supplementary Type Approval Terms and Conditions form part of this Certificate.

#### Supplementary Type Approval Terms and Conditions

*Type Approval certifies that a representative sample of the product(s) referred to herein 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 Lloyd's Register Type Approval System Procedure.*

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