

# 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.

**Manufacturer** **Hydro Group Ltd.**

**Address** Aberdeen Science and Energy Park, Hydro House, Claymore Avenue, Aberdeen, AB23 8GW, United Kingdom

**Type** Submersible Pressure Hull Electrical Penetrators

**Description** 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>Trade Name</b>	<u>HBE Diving Bell Penetrators</u>	<u>HBE DDC Penetrators</u>
	HPS20, 1¼"UNF	HPS435, 1"NPT
	HPS21, 1½"UNF	HPS436, ¾"NPT
	HPS22(S), 1"UNF	
	HPS17, ½"NPT	
	HPS16, ¾"NPT	
	HPS15, 1"NPT	
	HPS14, 1¼"NPT	

**Application** Diving Bells and Deck Decompression Chambers

**Specified Standard** Lloyd's Register Rules and Regulations for the Construction and Classification of Submersibles and Diving Systems (July 2022)

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

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<b>Ratings</b>	Working depth (metres): 650 msw Working temperature (deg. C): -40 to 60 Working voltage (Volts): 500V (all types, except for the following) 300V (HPS17, ½" NPT)
<b>Additional Tests</b>	Moulded In-line Moulded Right Angle
<b>Other Conditions</b>	<ol style="list-style-type: none"><li>1. Penetrators are to be selected and installed in accordance with the manufacturer's instructions and recommendations.</li><li>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 to obtain a valid certificate.</li><li>3. The Type Approval Design Appraisal Doc. no: UKI/ENG/TA/WD/PRJ11100420309, and the Supplementary Type Approval Terms and Conditions form part of this Certificate.</li></ol>

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment to obtain a valid Certificate.

**Previous Version:** 14/00069; 17/90008

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