CERTIFICATE NUMBER	21-2116530-PDA
EFFECTIVE DATE	25-Jun-2021
EXPIRY DATE	24-Jun-2026
ABS TECHNICAL OFFICE	Hamburg Engineering Department

CERTIFICATE OF

Product Design Assessment

This is to certify that a representative of this Bureau did, at the request of

RITTAL GMBH & CO. KG

located at

AUF DEM STUETZELBERG, D-35745 HERBORN, Germany

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product:	**Power Distribution BusBar System**
Model:	**BusBar System: Riline60, Maxi-PLS, Flat-PLS**
Endorsements:	
Tier:	**2 - PDA Issued**

This Product Design Assessment (PDA) Certificate remains valid until 24/Jun/2026 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau Of Shipping

Dimitrios Nikolakis,Engineer/Consultant

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Web: www.rittal.de

Tier: 2 - PDA Issued

Product: **Power Distribution BusBar System**
Model: **BusBar System: Riline60, Maxi-PLS, Flat-PLS**
Endorsements:

Intended Service:
Electrical distribution suitable for Shipboard and Offshore Applications.

Description:
Modular busbar systems for low voltage switchgear and control gear assemblies.

Rating:
Rated voltage: 690 V AC, 1500 V DC
Rated frequency: 50 Hz
Insulation voltage: 1000 V
Material: copper (Cu)

Riline:
Impulse withstand voltage: 8 kV
Rated current: up to 1600 A
Peak withstand current: up to 105 kA
Short-time withstand current: up to 50 kA for 1s/3s

Maxi-PLS:
Impulse withstand voltage: 8 kV
Rated current: up to 4000 A
Peak withstand current: up to 154 kA
Short-time withstand current: up to 70 kA for 1s

Flat-PLS:
Impulse withstand voltage: 12 kV
Rated current: up to 5500 A
Peak withstand current: up to 220 kA
Short-time withstand current: up to 100 kA for 1s

For further product details see attached file.

Service Restriction:
Unit Certification is not required for this product.
If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

Comments:
1. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
2. Derating is to be applied to the nominal current rating where the ambient temperature is other than 35° C. Each particular installation arrangement together with the relevant rating and protection details is to be specifically approved.
3. Installation of the busbar systems, as per manufacturer's instructions.

Notes/Drawing/Documentation:
Rittal-The System- Technical Details 2nd edition 2015
Rittal-The System- Technical System Catalogue Ri4Power
Rittal-The System- Technical System Catalogue RiLine
U145928E1, Vibration/Ins.Resistance/High Voltage Test Report, Flat-PLS/Maxi-PLS Busbar System, Phoenix

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Tier: 2 - PDA Issued

Testlab, 02 Mar. 2015
U145928E2, Vibration/Ins.Resistance/High Voltage Test Report, Riline Busbar System, Phoenix Testlab, 02 Mar. 2015
2012-00139e, IEC 61439-2:2011 Test Report, RiLine9340050, Institute for International Product Safety, 04.05.2012
General Instruction rules for Power distribution solutions of Rittal
---------- Revalidation 2021----------
Drawing No. 1579.2081382.1180, Ri4Power Form 1 (Maxi-PLS), Test Report acc. IEC 60934-1:2004, IPH Berlin, 28 Sep.2010
Drawing No. 1579.2081382.1180e, Ri4Power Form 1 (Maxi-PLS), Test Report acc. IEC 60934-1:2004, IPH Berlin, 29 Sep. 2010
Drawing No. 1579.1579.2080904.435e, Ri4Power Maxi PLS, Test Report acc. IEC 60439-1, IPH Berlin, 25 Jul.2008
Drawing No. 1579.0522.1.318e, Maxi-PLS 2000, Test Report according to IEC 60439-1, IPH Berlin, 22 May 2002
Drawing No. ASTA_16940, Ri4Power FLAT PLS 60, Test report acc. IEC 60439-1, IPH Berlin, 14 Sep. 2009
Drawing No. ASTA_17917, Ri4Power Form 2-4, Test report acc. IEC 61439-2, IPH Berlin, 03 Jun. 2011
Drawing No. ASTA_17918, Ri4Power Form 2-4, Test report acc. IEC 61439-2, IPH Berlin, 03 Jun. 2011
Drawing No. ASTA_20105, Ri4Power FLAT PLS 100, Test report acc. IEC 61439-2, IPH Berlin, 10 Apr. 2015
Drawing No. ASTA_19629, Ri4Power FLAT PLS 100, Test report acc. IEC 61439-2, IPH Berlin, 06 Oct. 2014
Technical Datasheets, 06.04.2021

Terms of Validity:
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STANDARDS

ABS Rules:
2021 Marine Vessel Rules: 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-8-3/1.7, 4-8-3/5.3.2 & 4-8-3/5.5.1
2021 Mobile Offshore Units Rules: 1-1-4/9.7, 1-1-A2, 1-1-A3, 4-3-1/11, 6-1-7/9.9

National:
NA

International:
IEC 61439-1 Edition 3.0 2020-05 / EN 61439-1:2011 Low-voltage switchgear and controlgear assemblies Part 1: General rules
IEC 61439-2 Edition 3.0 2020-07 / EN 61439-2:2011 Low-voltage switchgear and controlgear assemblies Part 2: Power switchgear and controlgear assemblies

Government:
NA

EUMED:
NA

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OTHERS:
NA