Certificate No: **2601231632458034**
TL Project No: **25-3650**

TYPE APPROVAL CERTIFICATE

This is to certify that the

BUSBAR ISOLATORS/SUPPORTS FOR MARINE TYPE SWITCHBOARDS

Manufacturer	:	**TEMPA PANO SANAYİ VE TİCARET ANONİM ŞİRKETİ**
Address	:	**Makine İhtisas OSB. Demirciler Mahallesi 2. Cadde No:1 / 41455**
Product Type	:	**S-BAR ISOLATOR/SUPPORTS: BRIZS3P-2, BRIZS4P-2** **K-BAR ISOLATOR/SUPPORTS: BRIZK1P, BRIZK3P, BRIZK4P**
Reference Rule	:	**TL Rules, Part E, Chapter 105 - Naval Ship Technology, Electrical Installations, 01.01.2022** **TL Rules, Part B, Chapter 5, Electric , 01.01.2024** **IACS UR E10 Rev.9 , 09.08.2023** **IEC 61439-1:2021 Low-voltage switchgear and controlgear assemblies General rules, 25.08.2022** **IEC 61363-1:1998 Electrical installations of ships and mobile and fixed offshore units , 01.02.1998**

Subject to the conditions referred to in the following pages, this certificate is valid until **16.10.2030**

Surveyor: **İbrahim Evren DAL**

- Isolates busbar system upto 1000VAC
- Wisthstand tested to 75 kA 1s short circuit for S-BAR isolators
- Wisthstand tested to 100 kA 0,2s short circuit for K-BAR isolators
- Construction according to IEC 60439-1

See Annex 1

Issued at **İstanbul** on **26.01.2026**

This document is electronically signed and does not require a manual signature

Click here for the verification website

Emrah SÖĞÜTÇÜ
New Building Division Manager
TÜRK LOYDU

Expire Date of Previous Certificate: 16.10.2025

For Information Only

This certificate is subject to terms and conditions described below:
Any significant change in design or construction may render this Certificate invalid. Certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. This certificate is not valid for products without marking above mentioned. The manufacturer should notify TÜRK LOYDU of any modifications or changes to equipment in order to obtain valid certificate. This certificate shows that tested specimens as representative of the product complies of the TÜRK LOYDU rules, and relevant international instruments that apply to it.

Product	**: BUSBAR ISOLATORS/SUPPORTS FOR MARINE TYPE SWITCHBOARDS**
Type of Product	**: S-BAR ISOLATOR/SUPPORTS: BRIZS3P-2, BRIZS4P-2** **K-BAR ISOLATOR/SUPPORTS: BRIZK1P, BRIZK3P, BRIZK4P**
Product Description	**: S-BAR ISOLATOR/SUPPORTS: BRIZS3P-2, BRIZS4P-2** **K-BAR ISOLATOR/SUPPORTS: BRIZK1P, BRIZK3P, BRIZK4P**
Approval No / Date	**: PAE-EPAS/023605/25-3650/MY , 15.01.2026**
Documentation	**: Test report issued by BÜSTYAL (AB-0479-T R.0054-13 11-13)** **Test report issued by BÜSTYAL (AB-0479-T R.0002-13 01-13)**
Performed Tests	**: Short circuit withstand test** **Dielectric strength test** **Isolation resistance measurement** **Flame retardant test** **Conductivity test** **Temperature rise test** **Quality Document** **Dimension check**
Test Place	**: Tempa Pano Dilovası-Kocaeli**
Last Inspection Date	**: 23.01.2026**
Application/Limitation	**: Short circuit calculation according to IEC 60363-1 and mechanical strength calculation according to IEC 60865-1 has to submitted to Türk Loydu for each case where used in switchboards with connected generatır power is over 500kVA.**
Approval Conditions	**: Manufacturer of switchboard shall confirm to installation distance (see Annex 1), creepage distances and clearances according to Türk Loydu rules and IEC 60439-1**

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TÜRK LOYDU

ANNEX 1

BRIZS3P-2, BRIZS4P-2 MAXIMUM INSTALLATION DISTANCES (mm) FOR 5 mm width BUSBARS						
BUSBAR mmxmmxpiece	SHORT CURRENT CIRCUIT	PEAK RMS	40 kA 20 kA	63 kA 30 kA	84 kA 40 kA	110 kA 50 kA
40x5x1			440	280	210	170
40x5x2			400	250	190	155
50x5x1			500	320	240	190
50x5x2			460	290	220	175
60x5x1			550	350	260	210
60x5x2			520	330	250	200
80x5x1			640	410	310	250
80x5x2			640	410	300	245
100x5x1			750	470	350	285
100x5x2			750	480	360	285

BRIZS3P-2, BRIZS4P-2 MAXIMUM INSTALLATION DISTANCES (mm) FOR 10 mm width BUSBARS						
BUSBAR mmxmmxpiece	SHORT CURRENT CIRCUIT	PEAK RMS	40 kA 20 kA	84 kA 40 kA	132 kA 60 kA	165 kA 75 kA
30x10x1			750	360	230	185
30x10x2			670	320	200	160
40x10x1			880	420	270	215
40x10x2			800	380	245	195
50x10x1			1000	480	300	240
50x10x2			920	440	280	225
60x10x1			1000	520	330	265
60x10x2			1000	500	320	250
80x10x1			1200	620	390	310
80x10x2			1200	610	390	310
100x10x1			1200	700	450	360
100x10x2			1200	720	450	360
120x10x1			1200	780	500	400
120x10x2			1200	820	525	400
160x10x1			1200	950	600	440
160x10x2			1200	1000	650	460

BRIZS3P-2, BRIZS4P-2 MAXIMUM INSTALLATION DISTANCES (mm)						
BUSBAR mmxmmxpiece	SHORT CURRENT CIRCUIT	PEAK RMS	40 kA 20 kA	63 kA 30 kA	84 kA 40 kA	100 kA 50 kA
K-BAR 38x36			750	550	450	370
K-BAR 64x36			1000	750	600	500
K-BAR 100x36			1300	1000	800	650

İbrahim Evren DAL
Senior Surveyor

For information only