

Overview of product evaluation according to IEC 61439-2:

IEC 61439-2 Clause	Clause description	Tested ratings	Results
10.2	Strength of material and parts		
10.2.2	Resistance to corrosion	Severity test A: indoor	Pass
10.2.3	Properties of insulating materials		
10.2.3.1	Verification of thermal stability of enclosures		Pass
10.2.3.2	Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects	Insulating materials retaining current-carrying parts in position: 960 °C Other insulating materials: 650 °C	Pass
10.2.5	Lifting		Pass
10.2.8	Mechanical operation	200 operations	Pass
10.3	Degree of protection of assembly	IP40	Pass
10.4	Clearances and creepage distances	Clearances > 14 mm / 8 mm / 3 mm, based on Uimp = 12 kV / 8 kV / 4 kV; Creepage distances > 16 mm / 12,5 mm / 10 mm, based on Ui = 1000 V / 800 V / 690 V, pollution degree 3, material group IIIa.	Pass
10.5	Protection against electric shock and integrity of protective circuits		
10.5.3	Short-circuit withstand strength of the protective circuit	Icw 60 kA - 1 s (horizontal PE busbar) Icw 48 kA - 1 s (vertical PE busbar in cable compartment section 3 Feeder Module Fixed) Icw 36 kA - 1 s (vertical PE busbar in cable compartment section 4 Feeder Module Withdrawable&MCC)	Pass
10.6*	Incorporation of switching devices and components		Pass
10.7	Internal electrical circuits and connections		Pass
10.8	Terminals for external conductors		Pass
10.9	Dielectric properties		
10.9.2	Power-frequency withstand voltage	Ui 1000 V: - Main busbar and distribution busbar - ACBs 4000 A and 2500 A - MCCBs 1600 A, 1000 A, 630 A, 400 A Ui 800 V: - MCCB 250 A - MCCB 160 A withdrawable - DSD 110 kW withdrawable - DOL 55 kW withdrawable Ui 690 V: - DSD 75 kW, 55 kW, 30 kW withdrawable - DOL 30 kW, 15 kW withdrawable	Pass
10.9.3	Impulse withstand voltage	Uimp 12 kV: - Main busbar and distribution busbar - ACB 2500 A - MCCBs 1600 A, 1000 A, 630 A, 400 A Uimp 8 kV: - ACB 4000 A - MCCB 250 A - MCCB 160 A withdrawable - DSD 110 kW withdrawable - DOL 55 kW withdrawable Uimp 4 kV: - DSD 75 kW, 55 kW, 30 kW withdrawable - DOL 30 kW, 15 kW withdrawable	Pass
10.9.5	External operating handles of insulating material		Pass

IEC 61439-2 Clause	Clause description	Tested ratings	Results
10.10.2.3.5	Verification of the complete assembly (at normal ambient)	Incoming unit Ing **: <ul style="list-style-type: none"> - 2970 A (ACB 4000 A) Outgoing units Ing **: <ul style="list-style-type: none"> - 2500 A (ACB 2500 A) - 1000 A (MCCB 1600 A) - 900 A (MCCB 1000 A) - 500 A (MCCB 630 A) - 320 A (MCCB 400 A) - 250 A (MCCB 250 A) Withdrawable outgoing units Ing **: <ul style="list-style-type: none"> - 160 A (MCCB 160 A) - 104 A (DSD 110 kW) - 70 A (DSD 75 kW) - 32 A (DSD 55 kW) - 29 A (DSD 30 kW) - 125 A (DOL 55 kW) - 50 A (DOL 30 kW) - 26 A (DOL 15 kW) 	Pass
10.10.2.3.5	Verification of the complete assembly (at 50 °C ambient)	Incoming unit Ing **: <ul style="list-style-type: none"> - 2500 A (ACB 4000 A) Outgoing units Ing **: <ul style="list-style-type: none"> - 2150 A (ACB 2500 A) - 825 A (MCCB 1600 A) - 780 A (MCCB 1000 A) - 420 A (MCCB 630 A) - 300 A (MCCB 400 A) - 190 A (MCCB 250 A) Withdrawable outgoing units Ing **: <ul style="list-style-type: none"> - 150 A (MCCB 160 A) - 84 A (DSD 110 kW) - 55 A (DSD 75 kW) - 22 A (DSD 55 kW) - 24 A (DSD 30 kW) - 110 A (DOL 55 kW) - 39 A (DOL 30 kW) - 21 A (DOL 15 kW) 	Pass
10.11**	Short-circuit withstand strength	l _{cw} 80 kA - 1 s (main busbar) l _{cn} 60 kA - 1 s (neutral busbar) l _{cd} 80 kA - 1 s (distribution busbar section 3 Feeder Module Fixed) l _{cn} 48 kA - 1 s (N distribution busbar section 3 Feeder Module Fixed) l _{cd} 48 kA - 1 s (N cable compartment section 3 Feeder Module Fixed) l _{cn} 60 kA - 1 s (distribution busbar section 4 Feeder Module Withdrawable&MCC) l _{cd} 36 kA - 1 s (N cable compartment section 4 Feeder Module Withdrawable&MCC) l _{cc} 25 kA at 415 V (withdrawable outgoing units DSD 110 kW, DSD 75 kW, MCCB 160 A) l _{cc} 15 kA at 415 V (withdrawable outgoing units DSD 55 kW, DSD 30 kW, DOL 55 kW, DOL 30 kW)	Pass
10.12	Electromagnetic compatibility (EMC)		Pass

* The examination of the compliance of components in the assembly with their relevant product standard is not part of this product evaluation.

** The position of the incoming and outgoing units is detailed in the Product Details table

*** Incoming unit ACB 4000 A and outgoing units ACB 2500 A, MCCB 1600 A, MCCB 1000 A, MCCB 630 A, MCCB 400 A, MCCB 250 A and DOL 15 kW are not part of this product evaluation (clause 10.11) as per manufacturer's request.

Product details:

	Description
Incoming unit	1x ACB, NW40H2 ML2EW, 4000 A, 4-poles (position 1.2)
Outgoing units	1x ACB, NW25H2 ML2EW, 2500 A, 4-poles (position 2.2) 1x MCCB, NS 1600H Mic.2.0, 1600 A, 3-poles (position 3.1) 1x MCCB, NS 1000H Mic.2.0, 1000 A, 3-poles (position 3.2) 1x MCCB, NSX 630H Mic.2.3, 630 A, 3-poles (position 3.3) 1x MCCB, NSX 400H Mic.2.3, 400 A, 3-poles (position 3.4) 1x MCCB, NSX 250H TM250D, 250 A, 3-poles (position 3.5)
Withdrawable outgoing units	DSD 110 kW (position 4.1): <ul style="list-style-type: none"> • 1x MCCB, NSX 250F ML2.2, 220 A, 3-poles • 2x contactor, Tesys D, 150 A, 3-poles • 1x contactor, Tesys D, 95 A, 3-poles DSD 75 kW (position 4.2): <ul style="list-style-type: none"> • 1x MCCB, NSX 160F ML2.2, 150 A, 3-poles • 2x contactor, Tesys D, 95 A, 3-poles • 1x contactor, Tesys D, 65 A, 3-poles DSD 55 kW (position 4.3): <ul style="list-style-type: none"> • 1x MCCB, NSX 160F ML2.2, 150 A, 3-poles • 2x contactor, Tesys D, 80 A, 3-poles • 1x contactor, Tesys D, 65 A, 3-poles DSD 30 kW (position 4.4): <ul style="list-style-type: none"> • 1x Motor Current Breaker, GV2P, 50 A, 3-poles • 2x contactor, Tesys D, 40 A, 3-poles • 1x contactor, Tesys D, 32 A, 3-poles 1x MCCB, NSX 160H TM160D, 160 A, 3-poles (position 4.5)
	DOL 55 kW (position 4.6): <ul style="list-style-type: none"> • 1x MCCB, NSX 160F ML2.2, 150 A, 3-poles • 1x contactor, Tesys D, 150 A, 3-poles DOL 30 kW (position 4.7): <ul style="list-style-type: none"> • 1x Motor Current Breaker, GV2P, 50 A, 3-poles • 1x contactor, Tesys D, 65 A, 3-poles DOL 15 kW (position 4.8): <ul style="list-style-type: none"> • 1x Motor Current Breaker, GV2P, 24 A, 3-poles • 1x contactor, Tesys D, 32 A, 3-poles All components are Schneider Electric brand
Main busbar	Horizontal main busbar: 4 x 80 x 10 mm Copper (3-phase) 4 x 80 x 10 mm Copper (neutral)
Protective Earth	Horizontal PE: 2 x 80 x 10 mm Copper (PE)
Distribution busbars	Section 3 vertical busbar Feeder Module Fixed: 4 x 80 x 10 mm Copper (3-phase) 4 x 80 x 10 mm Copper (neutral)
	Section 3 cable compartment Feeder Module Fixed: 2 x 80 x 10 mm Copper (neutral) 1 x 40 x 10 mm Copper (PE)
	Section 4 vertical busbar Feeder Module Withdrawable&MCC: 60 x 10 mm Copper (3-phase)
	Section 4 cable compartment Feeder Module Withdrawable&MCC: 30 x 10 mm Copper (neutral) 30 x 5 mm Copper (PE)

Applicant : Tekpan Teknik Elektrik Kumanda Pano San. ve Turizm Tic. As.
Kemalpasa O.S.B.
Istiklal Mah.17 SK No. 8, Ulucak Kemalpasa
Izmir
Turkey

Application Date : 11 February 2020

Order Number : 2220729.00-INC

Product : Low-voltage switchgear and controlgear assembly

Trade name : Tekpan / PDS

Type/Model : Teos Series (plus+/standard) 4000A -Fixed&Withdrawable MCC


Arnhem, 22 September 2020


Manufacturer/
Production sites : Tekpan Teknik Elektrik Kumanda Pano San. ve Turizm Tic. As.
Kemalpasa O.S.B.
Istiklal Mah.17 SK No. 8, Ulucak Kemalpasa
Izmir
Turkey

Subject : Design verification

Requirements : IEC 61439-2:2020
Clauses 10.2, 10.3, 10.4, 10.5.3, 10.6, 10.7, 10.8, 10.9, 10.10.2.3.5,
10.11, 10.12

Conclusion : The product complies with the specified requirements

Tested by : R. Verhagen 

Checked by : F. Fu 

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