

Innovative Power Engineering at its best!

HUGHES
POWER SYSTEM

DISCONNECTORS

FOR RAILWAY AND TRAM APPLICATIONS



OUTDOOR DISCONNECTORS FOR RAILWAYS, LIGHT RAIL AND TRAMS

1 pole version	15 kV 16.7 Hz, 25 kV 50 Hz 1600 A
1+1 pole version	15 kV 16.7 Hz, 25 kV 50 Hz 1600 A
2 poles version	15 kV 16.7 Hz, 25 kV 50 Hz 1600 A

ABOUT US

Hughes Power System is a Swedish manufacturer of environmentally friendly equipment for electrification and automation of mass transport and electrical distribution systems. Very high quality standards together with innovative approach result in an advanced range of products, aiming to improve network quality by minimizing the number and duration of faults.

Our product portfolio includes:

- High voltage solid insulated vacuum circuit breakers
- Reclosers
- Disconnectors
- Motor drives for disconnectors
- Voltage transformers
- D/C power supplies

With its more than 30 years expertise in research, development, manufacturing, marketing and sales the company operates in many countries though cooperation with local partners. As we move towards our goal of being a world class advanced technological company in electrical utility products, we guarantee our commitment to the well known Swedish standards of reliability, safety and quality.

The majority of Hughes Power System's products are designed and built in Sweden.



DISCONNECTORS FOR RAILWAYS AND TRAMS

GENERAL DESCRIPTION



RABS1S - 15

RABS AND DTST SERIES

RABS and **DTST** series of disconnectors are developed for railway, light rail and tram applications.

The disconnectors versions include:

- 1 pole
- 1+1 pole
- 2 poles

The mechanical parts are made of the highest-grade stainless steel, qualified hot dip galvanizing and nickel-plated high-grade copper to prevent corrosion.

Together with our existing motor drives it provides a complete solution for automation and remote control of the railway and tram electrical networks.

RABS SERIES MODEL RANGE FOR RAILWAYS

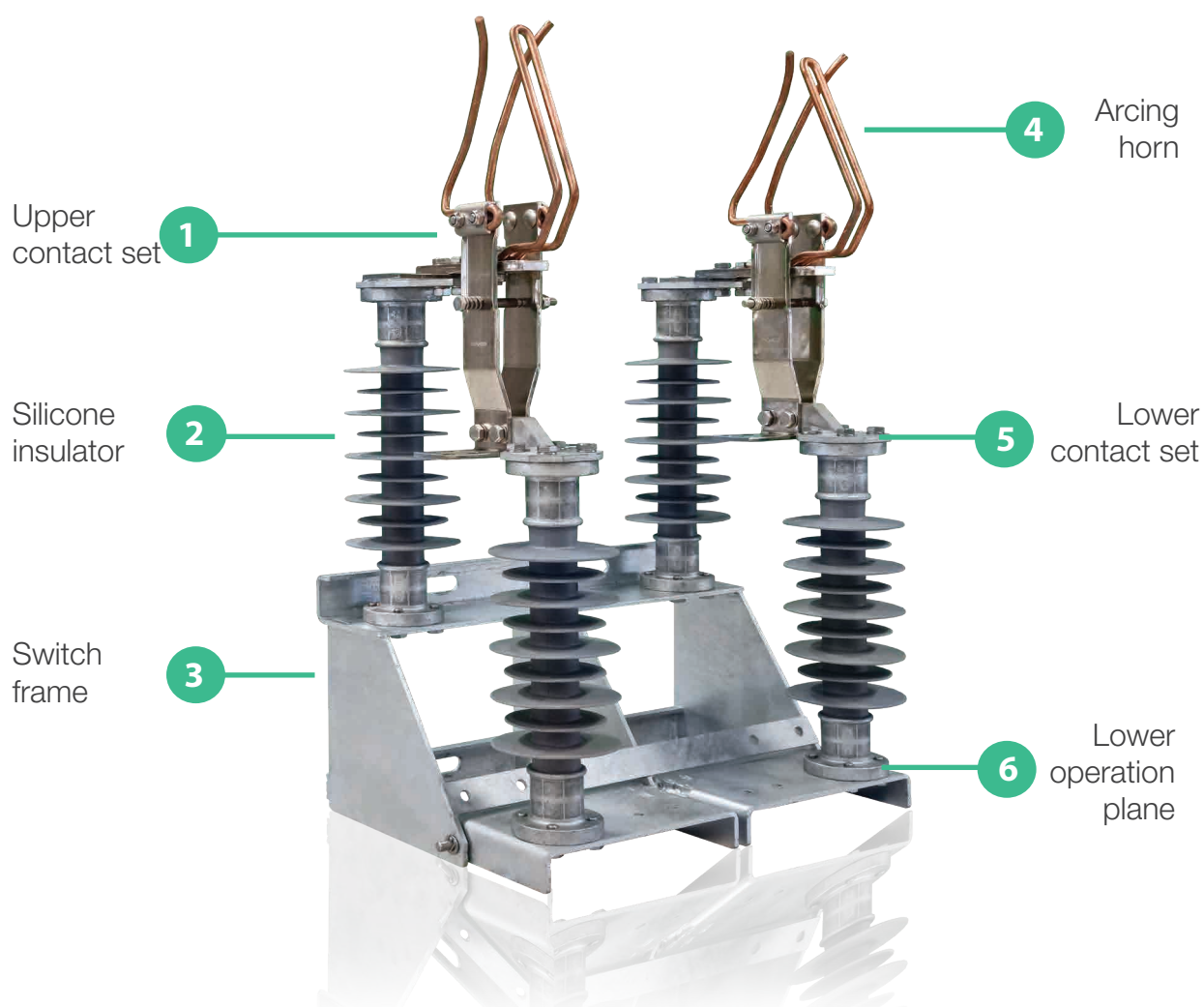
- **RABS1S-15** 1 pole for 15kV 16.7Hz;
- **RABS1S-25** 1 pole for 25kV 50Hz;
- **RABS2S-15** 1+1 pole for 15kV 16.7Hz;
- **RABS1S-25** 1+1 pole for 25kV 50Hz;
- **RABS3S-15** 2 poles for 15kV 16.7Hz
- **RABS3S-25** 2 poles for 25kV 50Hz.

DTST SERIES MODEL RANGE FOR TRAMS

- **DTST-DC-3-7** 1 pole for 0.75kV;
- **DTST-DC-3-15** 1 pole for 1.5kV;
- **DTST-DC-3-35** 1 pole for 3.5kV.



RABS1S - 25



COMPONENTS AND ADVANTAGES

The disconnecter consists of the following elements:

- Arcing horns and pre-arcing horns made of copper or stainless steel;
- Contact set made out of nickel plated high grade copper;
- Silicone insulators;
- Switch frame made out of specified silicone content steel for best hot dip galvanizing.

Advantages and Options:

- Flexible installation with single or double pole frame;
- Optional switch position indicator for connection to SCADA system;
- Optional earthing switch;
- Optional directional changer for operation;
- Optional rod insulator;
- Standard and custom-made operating rod system.

DISCONNECTORS FOR RAILWAYS AND TRAMS

GENERAL DESCRIPTION



DISCONNECTORS FOR RAILWAYS

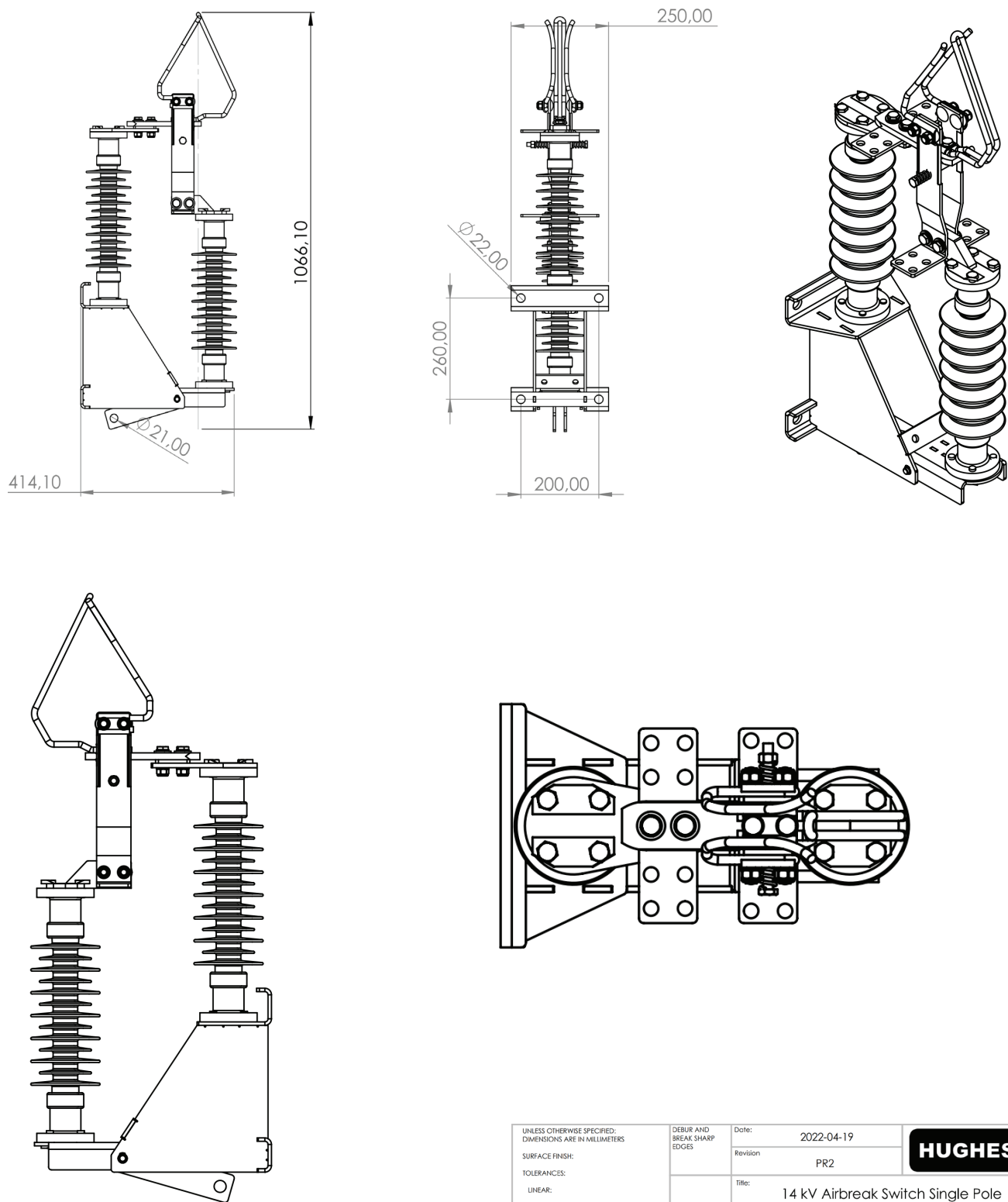
1-pole	1x2-pole, 2-pole
15 or 25 kV	15 or 25 kV
16.7 or 50 Hz	16.7 or 50 Hz
1600A line current	1600 A line current

DISCONNECTORS FOR TRAM LIGHT RAILS

1-pole
750 – 3500 VDC
2500 - 4500 A line current
optional integrated ground switch

DISCONNECTORS FOR RAILWAYS. 1 POLE

DRAWINGS. RABS1S-15 15KV, 16.7HZ

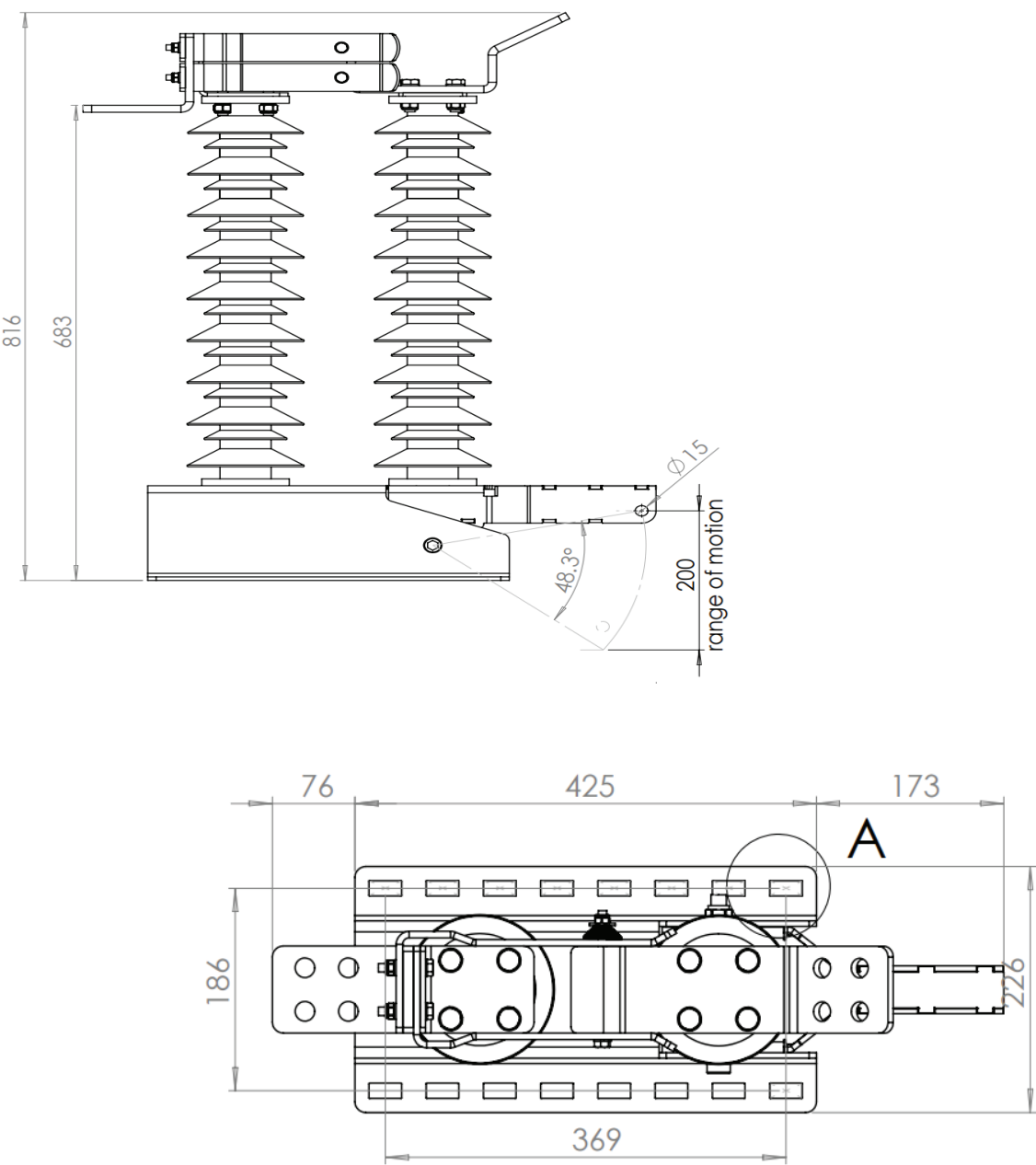


UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS		DEBUR AND BREAK SHARP EDGES		Date:	2022-04-19	HUGHES
SURFACE FINISH:				Revision	PR2	
TOLERANCES:				Title:		
LINEAR:				14 kV Airbreak Switch Single Pole		
ANGULAR:						
A3		FINISH:		Part No:		
				TFV-ABS-0000		
SCALE:1:10		MATERIAL:		DWG NO:		
				TFV-ABS-0000		
DO NOT SCALE DRAWING		WEIGHT:				
				SHEET 1 OF 1		

DISCONNECTORS FOR RAILWAYS AND TRAMS

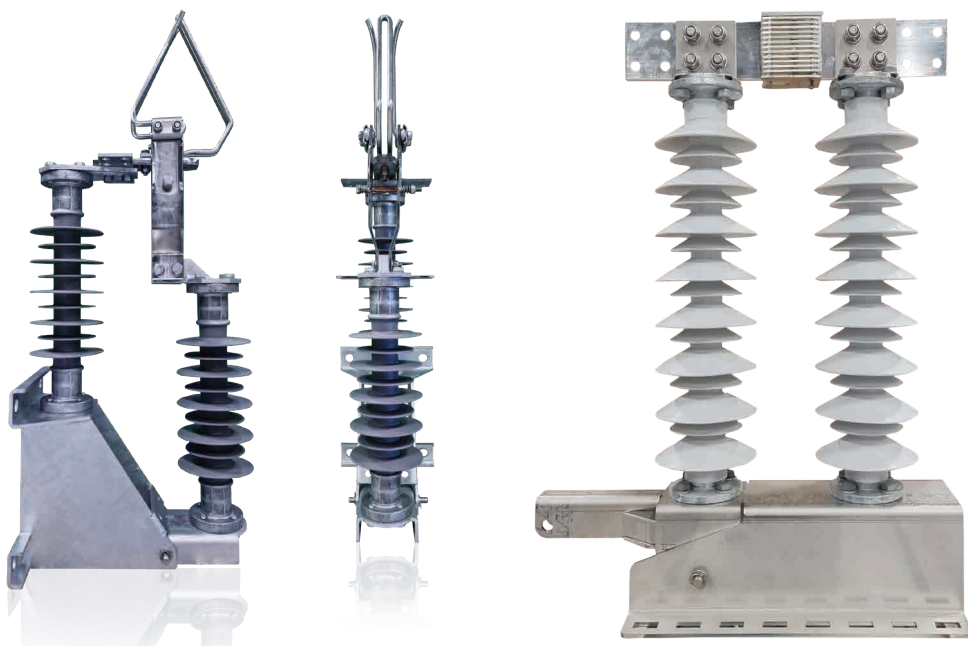
DISCONNECTORS FOR RAILWAYS. 1 POLE

DRAWINGS. RABS1S-25 25KV, 50HZ



DRAWN EriWal 27/11/2024	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS		DEBUR AND BREAK SHARE EDGES	Date: 2024-11-29	HUGHES
CHECKED HanOtt 27/11/2024	SURFACE FINISH: TOLERANCES: ISO 2768-1			Revision	
APPROVED HanOtt 27/11/2024	LINEAR: m	ANGULAR: K		Title: 25 kV 1600 A Traction disconnector	
APPR. PROD.	A4  SCALE:1:6		FINISH:	Part No: RABS251600	
	DO NOT SCALE DRAWING		MATERIAL:	DWG NO. RABS251600	
WEIGHT:			SHEET 2 OF 2		

TECHNICAL DATA

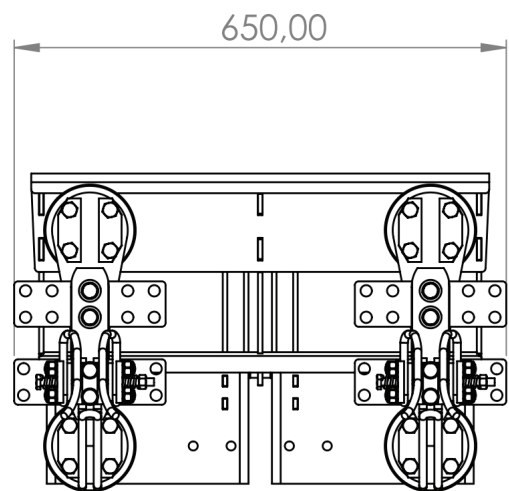
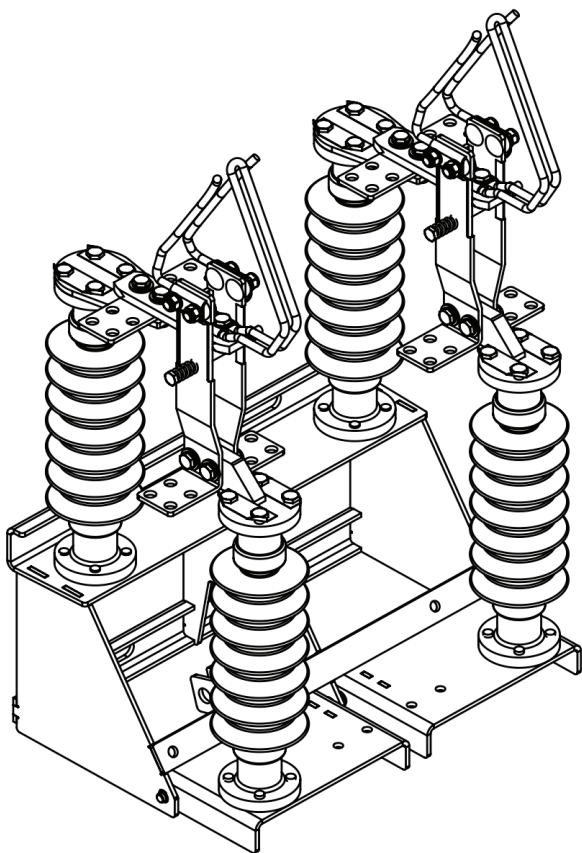
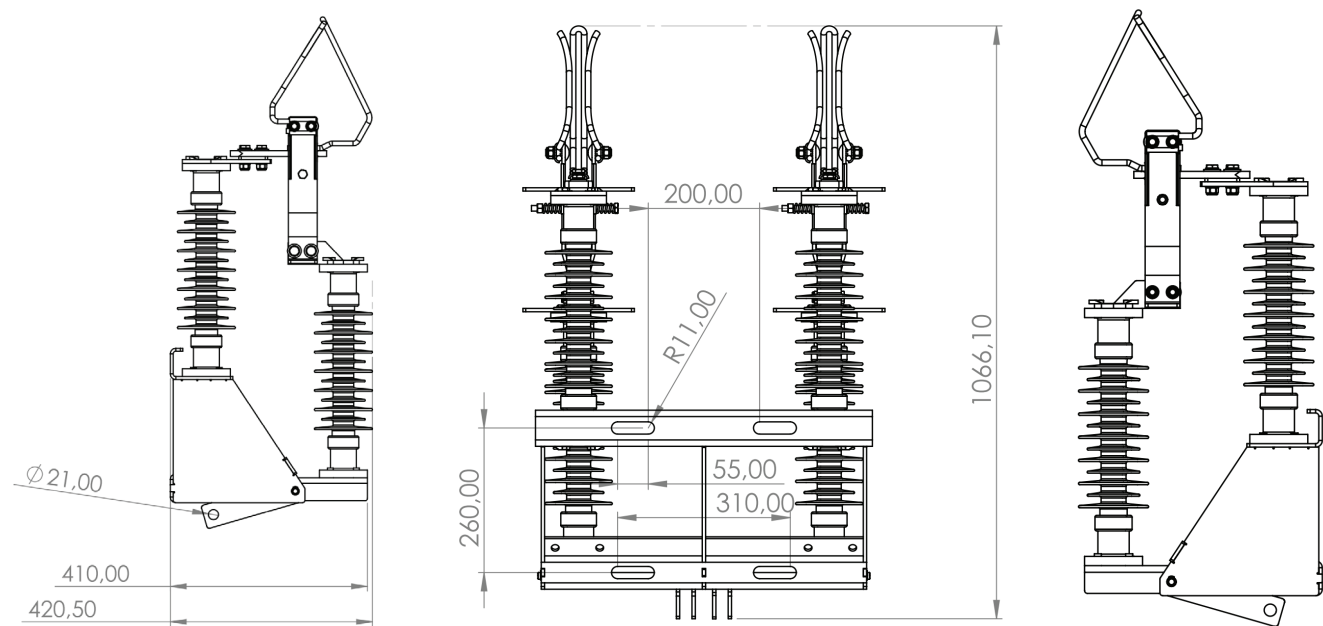


PARAMETERS		RABS1S-15	RABS1S-25
Nominal voltage	U_n	15kV	25kV
Rated current	I_n	1600A	1600A
Rated insulation level	U_{Nm}	17.5kV	27.5kV
Rated impulse voltage	U_{Ni}	170kV	250kV
Short-duration power-frequency test level	U_a	80kV	95kV
Rated frequency (A.C.)	f_r	16.7Hz	50Hz
Rated transformer breaking current	I_3	9A	9A
Rated cable-charging breaking current	I_{4a}	6A	6A
Rated short-time withstand current	I_k	32kA	32kA
Rated duration of short-circuit current	t_k	1s	1s
Rated peak withstand current	I_p	93kA	93kA
Rated short-circuit making current	I_{ma}	16kA	16kA
Creepage distance approx.	S	765	1100
Opening distance	L	310	480
Insulator type		silicone	silicone
Weight	kg	28.5	35
Endurance class		2	2
Over voltage class		OV4	OV4
Test: DIN EN 50152-2:2012, 50124-1: 2017			

DISCONNECTORS FOR RAILWAYS AND TRAMS

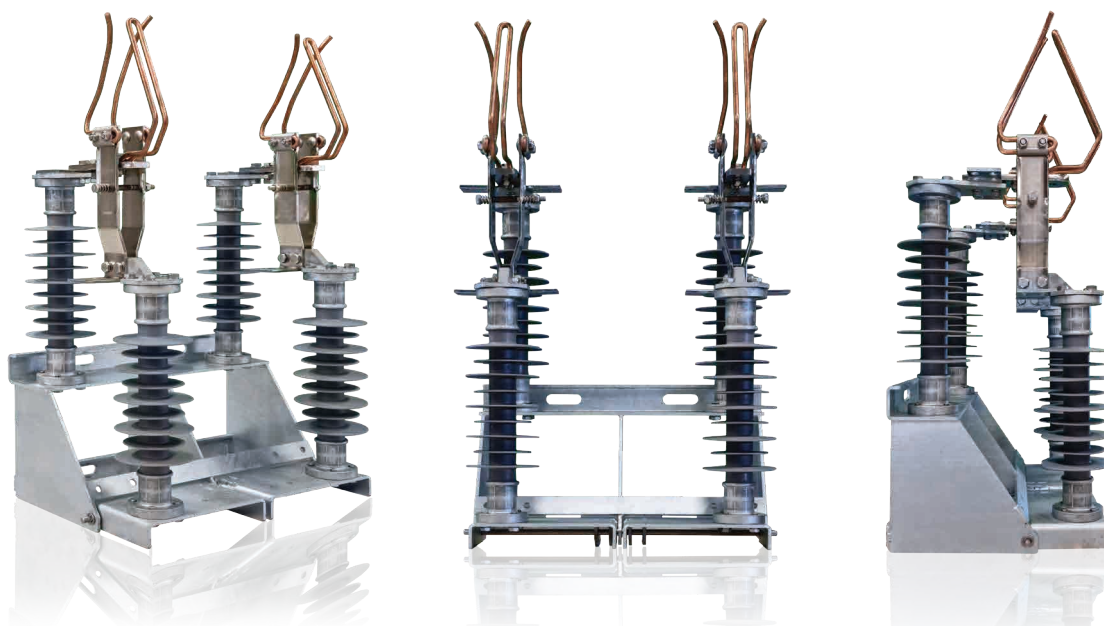
DISCONNECTORS FOR RAILWAYS. 1+1 POLE

DRAWINGS. RABS2S-15 15KV, 16.7HZ



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS		DEBUR AND BREAK SHARP EDGES	Date: 2022-04-19	HUGHES
SURFACE FINISH:			Revision PR2	
TOLERANCES:			Title: 14 kV Airbreak Switch Double Pole	
LINEAR:			Part No: TFV-ABD-0000	
ANGULAR:			DWG NO. TFV-ABD-0000	
A3		FINISH:		
SCALE:1:10		MATERIAL:		
DO NOT SCALE DRAWING		WEIGHT:		SHEET 1 OF 1

TECHNICAL DATA

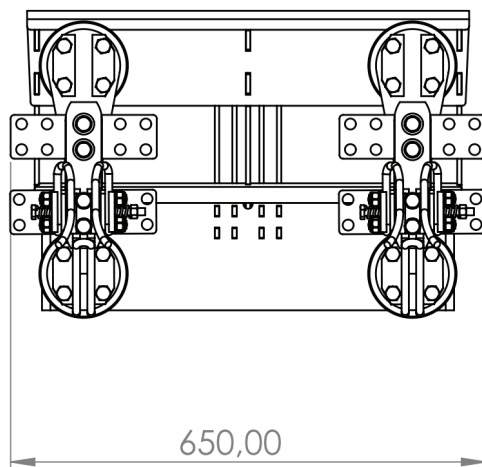
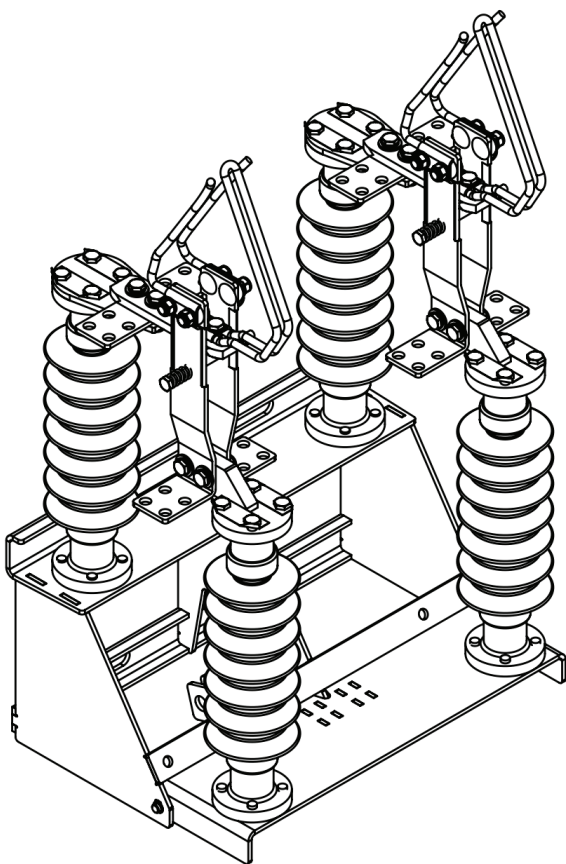
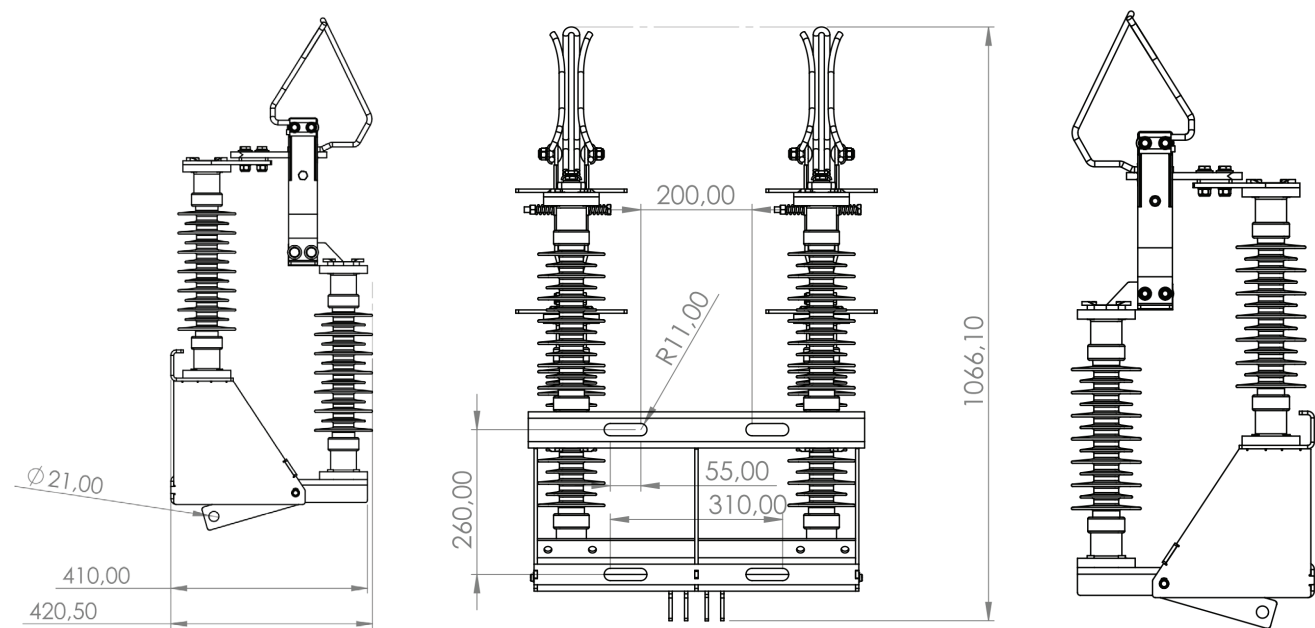


PARAMETERS		RABS2S-15	RABS2S-25
Nominal voltage	U_n	15kV	25kV
Rated current	I_n	1600A	1600A
Rated insulation level	U_{Nm}	17.5kV	27.5kV
Rated impulse voltage	U_{Ni}	170kV	250kV
Short-duration power-frequency test level	U_a	80kV	95kV
Rated frequency (A.C.)	f_r	16.7Hz	50Hz
Rated transformer breaking current	I_3	9A	9A
Rated cable-charging breaking current	I_{4a}	6A	6A
Rated short-time withstand current	I_k	32kA	32kA
Rated duration of short-circuit current	t_k	1s	1s
Rated peak withstand current	I_p	93kA	93kA
Rated short-circuit making current	I_{ma}	16kA	16kA
Creepage distance approx.	S	765	1100
Opening distance	L	310	480
Insulator type		silicone	silicone
Weight	kg	59.5	69
Endurance class		2	2
Over voltage class		OV4	OV4
Test: DIN EN 50152-2:2012, 50124-1: 2017			

DISCONNECTORS FOR RAILWAYS AND TRAMS

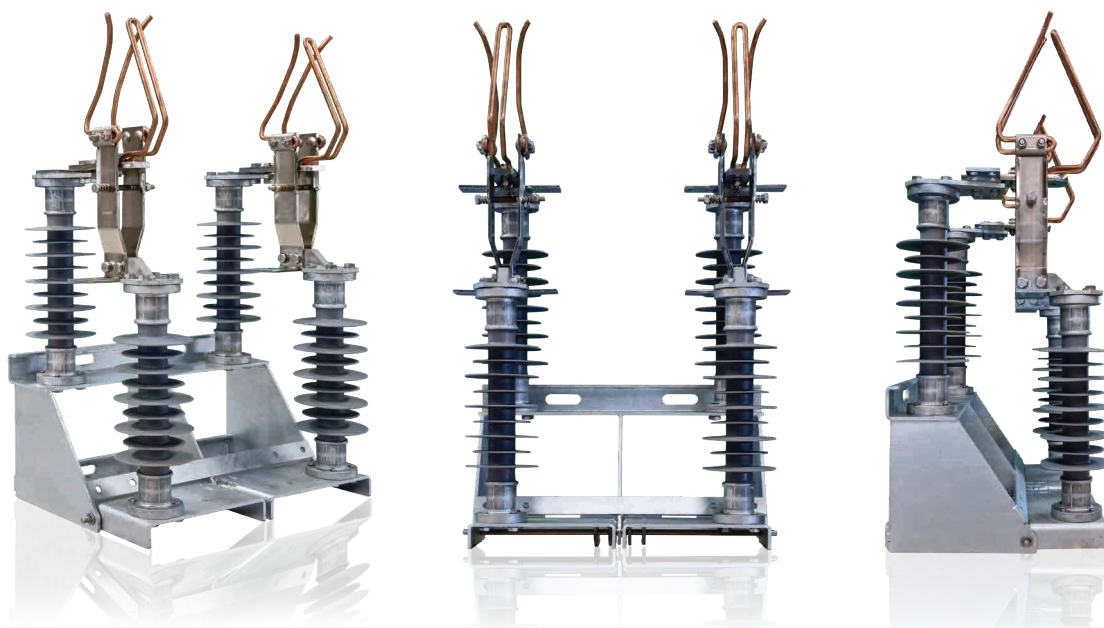
DISCONNECTORS FOR RAILWAYS. 2 POLES

DRAWINGS. RABS3S-15 15KV, 16.7HZ



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS		DEBUR AND BREAK SHARP EDGES	Date: 2022-04-19	HUGHES
SURFACE FINISH:			Revision PR2	
TOLERANCES:			Title: Airbreak Switch Double Pole, Double action	
LINEAR:			Part No: TFV-ABDD-0000	
ANGULAR:			DWG NO. TFV-ABDD-0000	
A3		FINISH:		
SCALE:1:10		MATERIAL:		
DO NOT SCALE DRAWING		WEIGHT:		SHEET 1 OF 1

TECHNICAL DATA

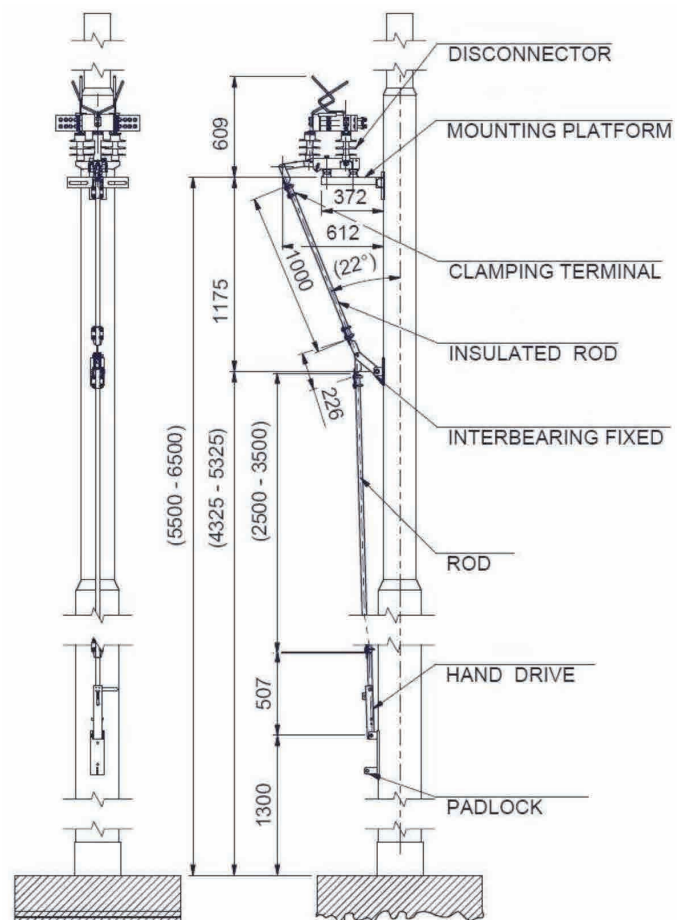
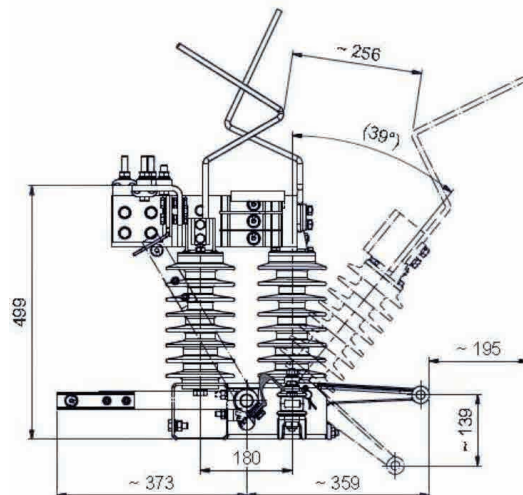
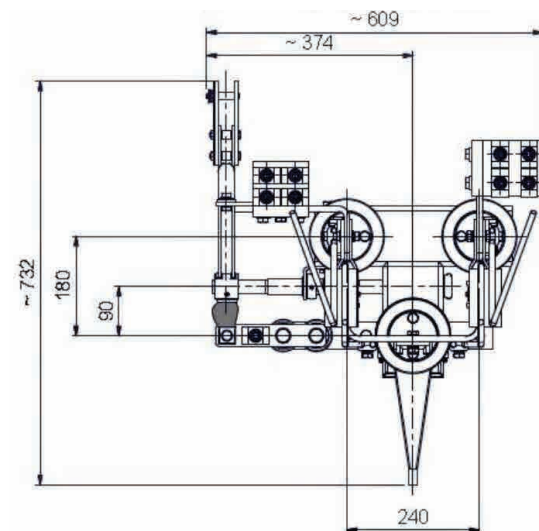
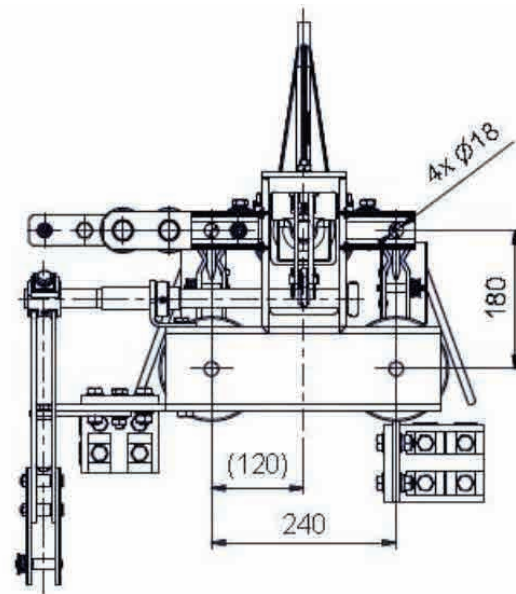
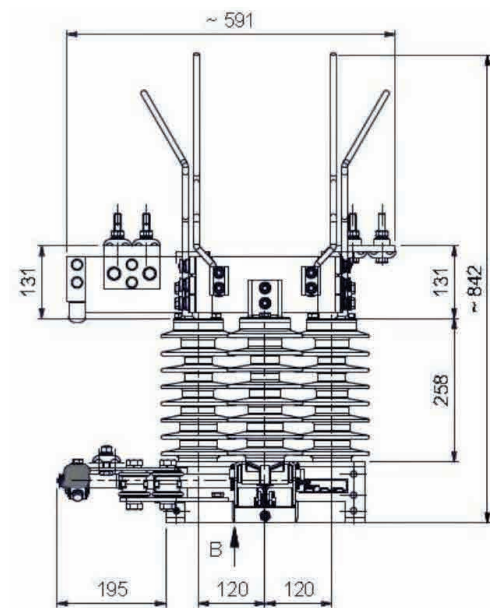


PARAMETERS		RABS3S-15	RABS3S-25
Nominal voltage	U_n	15kV	25kV
Rated current	I_n	1600A	1600A
Rated insulation level	U_{Nm}	17.5kV	27.5kV
Rated impulse voltage	U_{Ni}	170kV	250kV
Short-duration power-frequency test level	U_a	80kV	95kV
Rated frequency (A.C.)	f_r	16.7Hz	50Hz
Rated transformer breaking current	I_3	9A	9A
Rated cable-charging breaking current	I_{4a}	6A	6A
Rated short-time withstand current	I_k	32kA	32kA
Rated duration of short-circuit current	t_k	1s	1s
Rated peak withstand current	I_p	93kA	93kA
Rated short-circuit making current	I_{ma}	16kA	16kA
Creepage distance approx.	S	765	1100
Opening distance	L	310	480
Insulator type		silicone	silicone
Weight	kg	59.5	69
Endurance class		2	2
Over voltage class		OV4	OV4
Test: DIN EN 50152-2:2012, 50124-1: 2017			

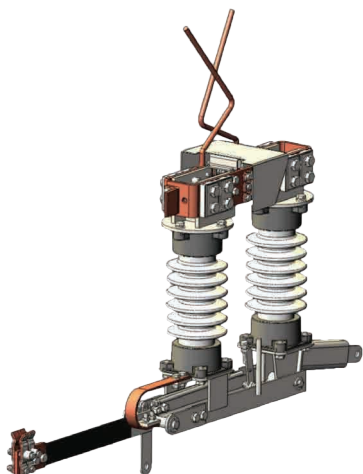
DISCONNECTORS FOR RAILWAYS AND TRAMS

DISCONNECTOR FOR TRAMS. 1 POLE

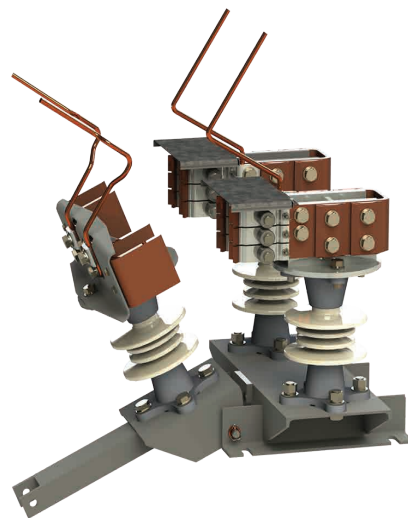
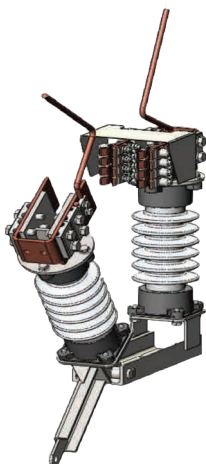
DRAWINGS. DTST-DC-3 3.5KV



TECHNICAL DATA



DTST-DC-3 1.5KV

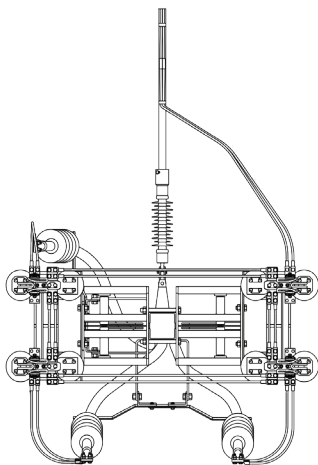
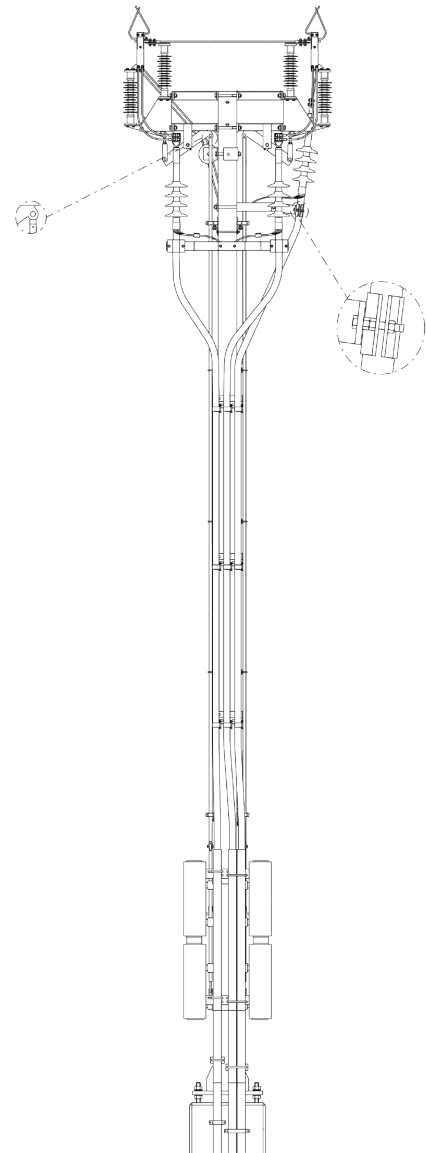
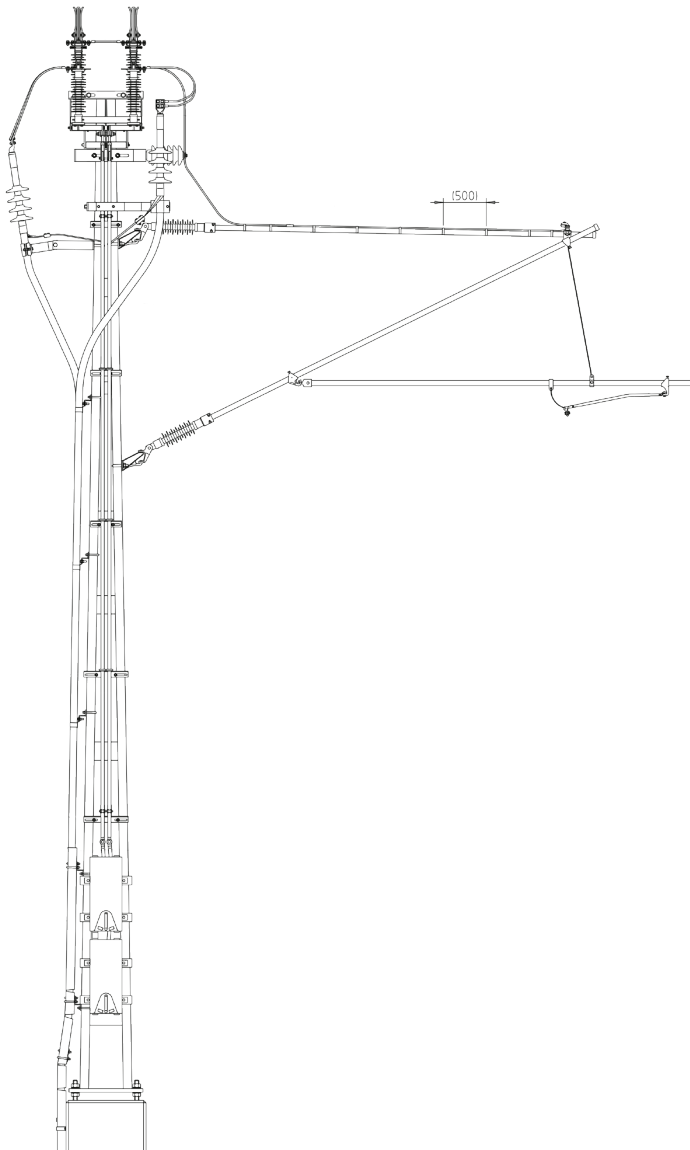


DTST-DC-3 0.75KV

PARAMETERS		DTST-DC-3-7	DTST-DC-3-15	DTST-DC-3-35
Rated DC voltage	kV	0.75	1.5	3.5
Lightning impulse test voltage 1,2/50 μ s, 15 pulses	kV	75	75	80
Short-time withstand AC voltage, 50 Hz, 1 minute, (in both dry and wet conditions)	kV	20	20	30
Rated current	kA	2.5 - 4.5	2.5 - 4.5	2.5 - 4.5
Rated short-time current 1s	kA	20	31,5	31,5
Stroke of the operating handle	mm	140	140	140
Weight	kg	27	29	30
Endurance class		2	2	2
Over voltage class		OV4	OV4	OV4
Optional double insulation		yes	yes	yes

DISCONNECTORS FOR RAILWAYS AND TRAMS

INSTALLATIONS



Installation of the disconnector and four motor drives on one pole.



DISCONNECTORS FOR RAILWAYS AND TRAMS

ACCESSORIES FOR DISCONNECTORS



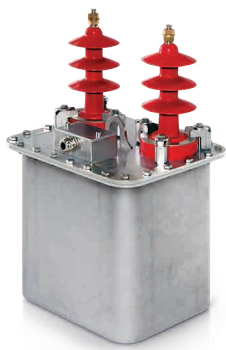
MOTOR DRIVES

Model:	EOA600R
Operating voltage:	24-230V AC/DC
Frequency:	16.7, 50, 60Hz
Operating power:	250W
Mechanism:	hand crank, remote
Remote blocking	impulse controlled
Options	RTU, Fiber, TP or serial connections



VOLTAGE TRANSFORMER

Description:	1-Phase, class 3
Operating voltage:	15kV 16.7 Hz 25kV 50Hz
Mounting brackets:	- wood/concrete poles - concrete poles
Weight:	49kg



DC - DC CONVERTER

Description:	DC Power supply, traction power 400 – 2100 VDC
Bushings:	Silicone
	Separate minus and positive pole
Power	250W
Operating power:	24, 48, 36, 110 VDC
Installation:	indoor and outdoor



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