TAKFAN®

Since 1999

TKFn

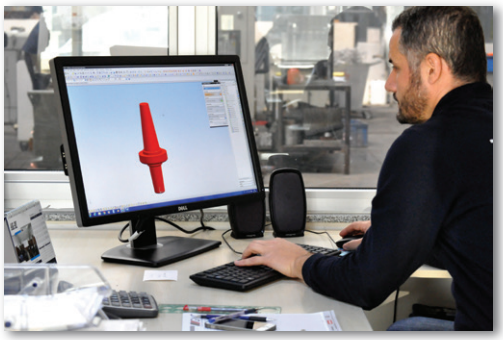
www.takfanmakina.com.tr

TAKFAN

TAKFAN is Turkey's leading company in the epoxy resin insulation which is among the leading companies in Europe and the World since 1999.

TAKFAN manufactures all types of plug-in bushings and monoblocks for distribution transformers and RMU bushings with all accessories in accordance with TSE, EN 50180,EN 50181, EN 50336, BS 2562, ENEL DJ 1107 / DJ 1109, and IEC 60137 norms. All the insert and conductive parts of the bushing and monoblock are manufactured with best quality material experienced in Turkey.

TAKFAN mission is with the skills of reliable company to increase continious improvement. TAKFAN manufactures, all kind industrial products, high voltage and low voltage solutions in accordance with customer requirements and expectations shortest delivery time and immediate actions...



TAKFAN PRODUCT RANGES;

- Epoxy Resin Bushings
- RMU Bushings
- Air Insulated Bushings
- LV Monoblocks
- CT Terminals

TK TAKFAN EPOXY RESIN BUSHING

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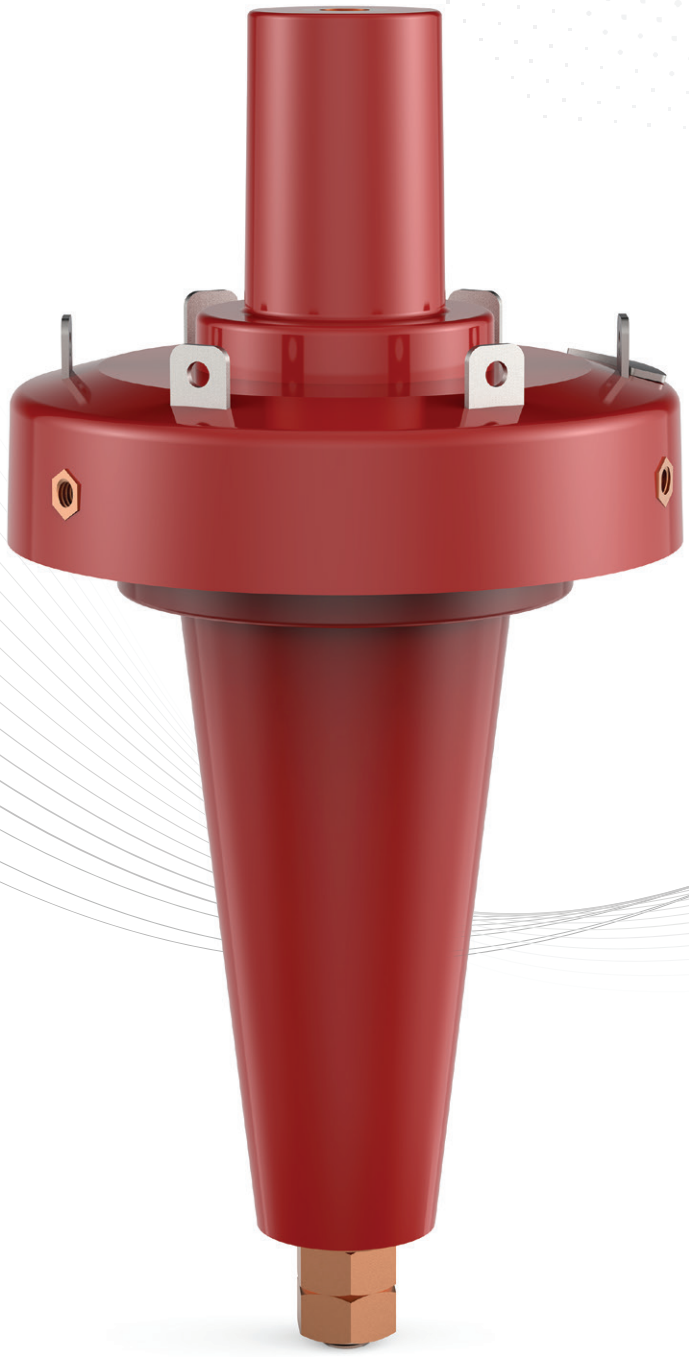

TECHNICAL SPECIFICATION

TK Takfan epoxy resin bushings was product the requirements of IEC TS EN 50180 , IEC TS EN 50181, IEC 60137.

DIMENSIONS OF INTERFACE CLASSIFICATION

Interface classifications and dimensions stated by IEC/EN 50181.

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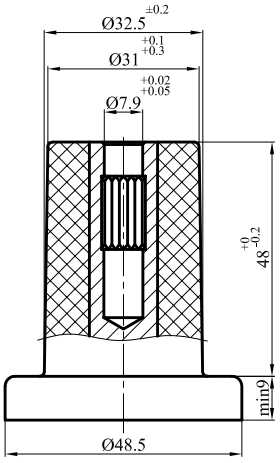
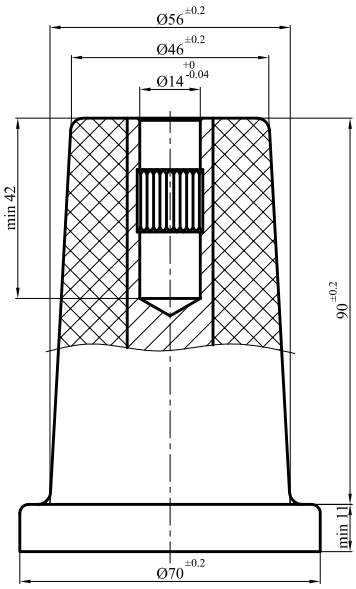
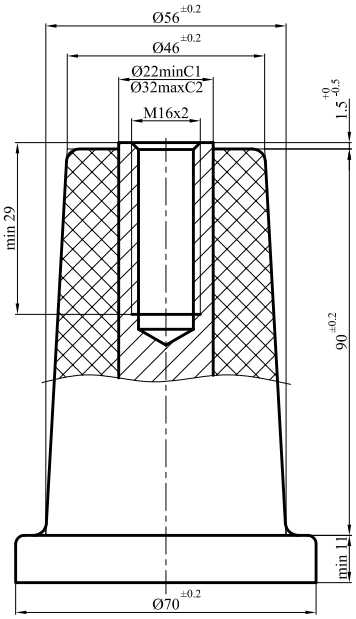


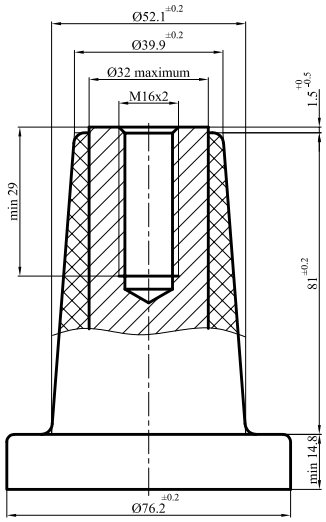
▪ Interface **A1**



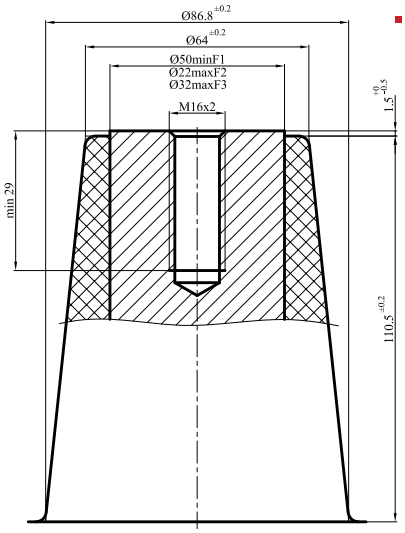
▪ Interface **B1, B2**



▪ Interface **C1, C2**



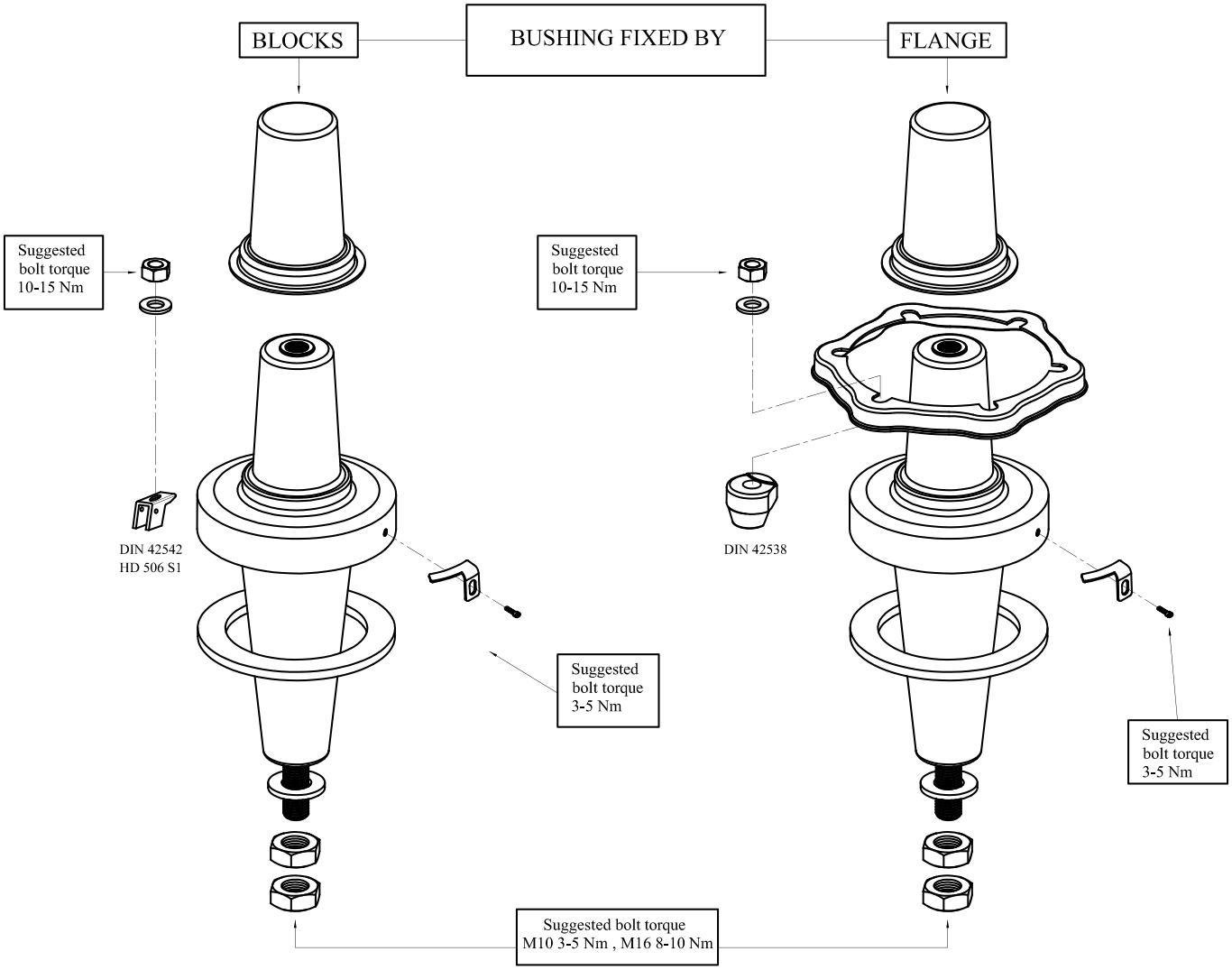
▪ Interface **D1, D2**



▪ Interface **F1, F2, F3**

SHORT CIRCUIT RATINGS

Interface type	Contact type	Current rating (A)	RMS symm (kA)			Peak symm (kA)
			1 sec.	2 sec.	3 sec.	
A1	Plug in socket	250	12.5	9.0	7.5	31
B1	Plug in socket	250	12.5	9.0	7.5	31
B2	Plug in socket	400	16.0	11.3	9.2	40
C1	Bolted	630	28.0	19.7	16.1	70
C2	Bolted	1250	75.0	53.0	43.3	>150
D1	Bolted	800	50.0	35.3	28.8	125
D2	Bolted	1250	75.0	53.0	43.3	>150
F1	Bolted	2500	-	-	-	-
F2	Bolted	630	28.0	19.7	16.1	70
F3	Bolted	1250	75.0	53.0	43.3	>150


BLOCKS
BUSHING FIXED BY
FLANGE
Suggested bolt torque 10-15 Nm
Suggested bolt torque 10-15 Nm
DIN 42542
HD 506 S1
DIN 42538
Suggested bolt torque 3-5 Nm
Suggested bolt torque 3-5 Nm
Suggested bolt torque M10 3-5 Nm , M16 8-10 Nm

TK 394 – TK 395/03/P

INTERFACE A1

Up to 24 kV - 250 A

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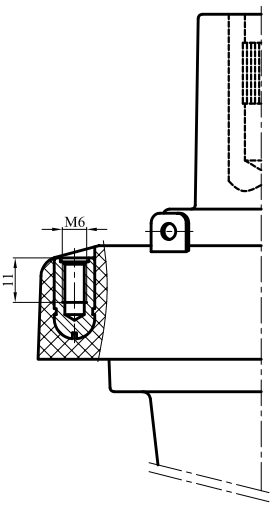
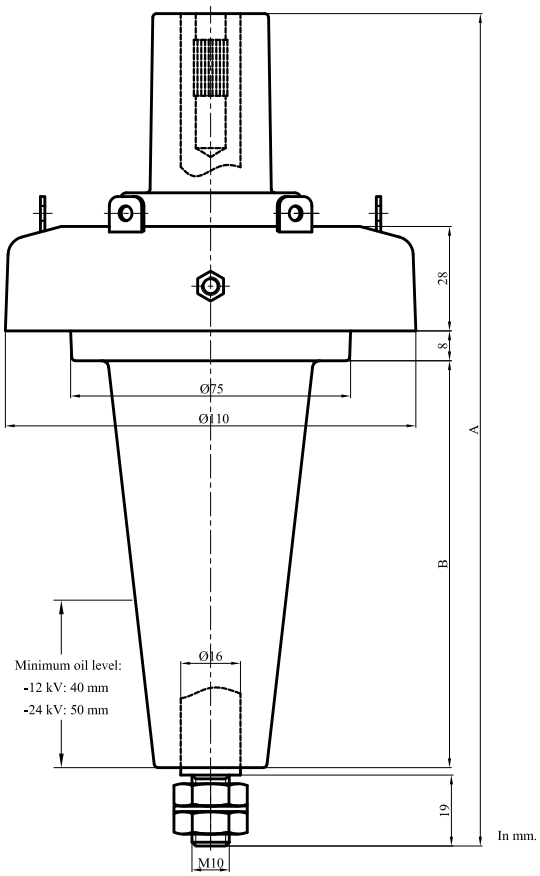
USING FOR

Plug in Bushing could use inside of distrubition Transformer with oil and other silicon cable connection using area.

• P- TYPE



• STANDART TYPE



ORDERING INSTRUCTION

To order the equipment bushing, please inform us for type of bushings.
The bushings are supplied with an earth cable or an earth plate .
This earth connection must be specified when ordering.

STANDARTS

The plug in type bushings
TK 394 –TK 395 /03/P was product the requirements of IEC TS EN 50180 ,IEC TS EN 50181, IEC 60137.

DESIGN

• The equipment bushings are moulded epoxy insulated parts in accordance with IEC EN 50180.
• The TK394-03/-P bushings has a length B outside this standard.
• The standard bushings, TK394/TK394-03/TK395/TK395-03, are equipped with 6 tabs for the bail restraint.
• The TK394-P /TK394-03-P /TK395-P/TK395-03-P are equipped with 4 tabs and 2 pins inserts M6 (-P version).

TESTING

All type bushings test by TAKFAN's Quality persons as %100 in TAKFAN Laboratory according to IEC 60137. Rank of tests as a belows;
• Dry power-Frequency voltage withstand test (55 kV/min.)
• Measurement of the partial discharge quantity
• Air leakage test (2 bars/min.)
• Cantilever load withstand test.
• Visual inspection and dimensional check

Product Code	Voltage Ur (kV)	Current Ir (A)	Dimensions (mm)	
			A	B
TK394	12 - 24	250	223	108,5
TK394 - P	12 - 24	250	223	108,5
TK394 - 03	12 - 24	250	284	168
TK394 - 03P	12 - 24	250	284	168
TK395	12 - 24	250	190	73,5
TK395 - P	12 - 24	250	190	73,5
TK395 - 03	12 - 24	250	171	55
TK395 - 03P	12 - 24	250	171	55

TK 975-1 /TK 975-2 /TK 975-3

INTERFACE B,C

Up to 36kV - 400A

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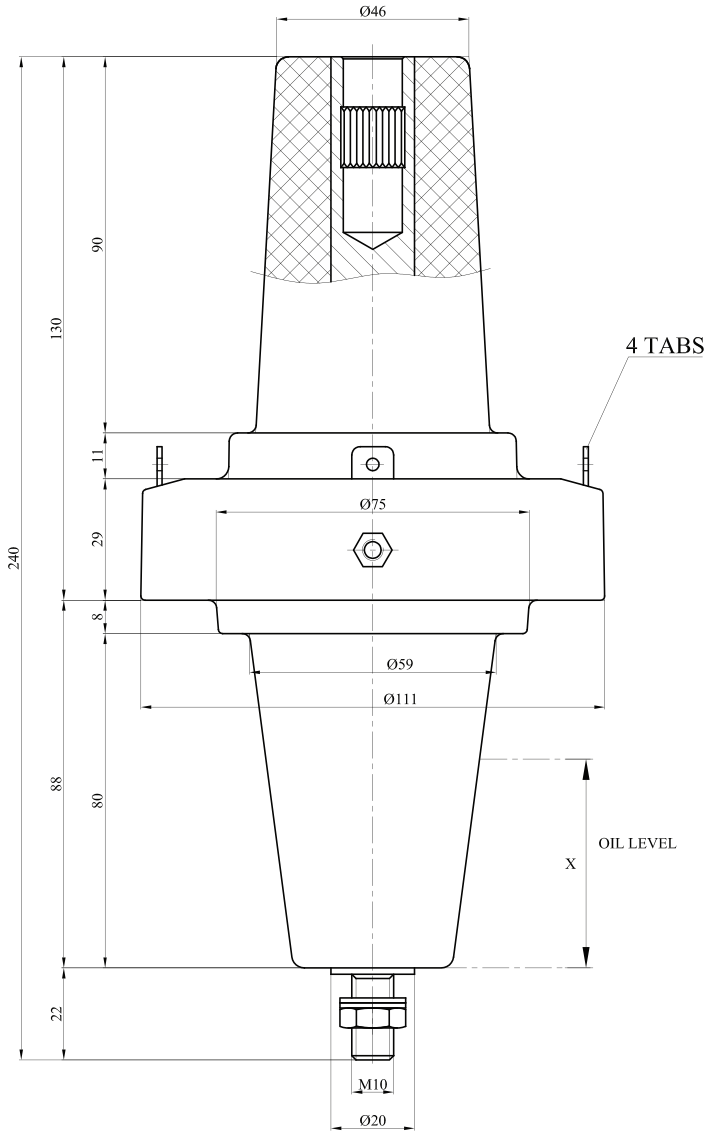

USING FOR

Plug in type bushing and bolted type bushing could use inside of distrubition Transformer with oil immersed and other silicon cable connection using area.

STANDARTS

The plug in type bushings TK 975-1/TK 975-2/TK 975-3was product the requirements of IEC TS EN 50180 , IEC TS EN 50181, IEC 60137.

DESIGN

- The equipment bushings are moulded epoxy insulated parts in accordance with IEC EN 50180.
- The standard bushings TK 975-1/TK 975-2/TK 975-3 are equipped with 4 tabs for the bail restraint.

TESTING

All type bushings test by TAKFAN's Quality persons as %100 in TAKFAN Laboratory according to IEC 60137 . Rank of tests as a belows;

- Dry power-Frequency voltage withstand test (72kV/1min.)
- Measurement of the partial discharge quantity
- Air leakage test (2 bars/min.)
- Cantilever load withstand test.
- Visual inspection and dimensional check

ORDERING INSTRUCTION

To order the equipment bushing, please inform us for type of bushings. The bushings are supplied with an earth cable or an earth plate . This earth connection and bushing connection type must be specified when ordering.

Product Code	Voltage Ur (kV)	Current Ir (A)	Contact Type	Interface
TK 975-1	36	250	Sliding	B
TK 975-2	36	400	Sliding	B
TK 975-3	36	400	Bolted	C

TK 400-1, TK 400-2, TK 400-3, TK 400-4

INTERFACE B

Up to 36kV – 400A

TAKFAN®
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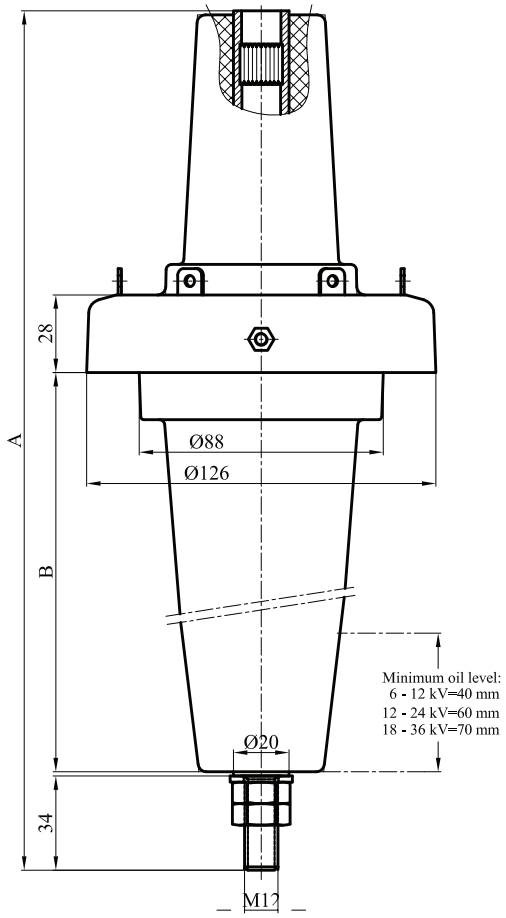
USING FOR

Plug in type bushing and bolted type bushing could use inside of distrubition Transformer with oil immersed and other silicon cable connection using area.



STANDARTS

The Plug in Bushings TK 400-1,TK 400-2, TK 400-3 and TK 400-4 was product the requirements of IEC TS EN 50180 , IEC TS EN 50181, IEC 60137.

DESIGN

- The equipment bushings are moulded epoxy insulated parts in accordance with IEC EN 50180.
- The standard bushings, TK 400-1,TK 400-2,TK 400-3 and TK 400-4 are equipped with 6 tabs for the bail restraint.

TESTING

All type bushings test by TAKFAN's Quality persons as %100 in TAKFAN Laboratory according to IEC 60137 . Rank of tests as a belows;

- Dry power-Frequency voltage withstand test (72kV/1min.)
- Measurement of the partial discharge quantity
- Air leakage test (2 bars/min.)
- Cantilever load withstand test.
- Visual inspection and dimensional check

ORDERING INSTRUCTION

To order the equipment bushing, please inform us for type of bushings. The bushings are supplied with an earth cable or an earth plate. 36kV/400A bushings are exigible plug in type or bolted type. This earth connection and bushing connection type must be specified when ordering.

Product Code	Voltage Ur (kV)	Current Ir (A)	Dimensions (mm)	
			A	B
TK 400 - 1	12 - 24 - 36	400	244	89
TK 400 - 2	12 - 24 - 36	400	310	144
TK 400 - 3	12 - 24 - 36	400	332	159
TK 400 - 4	12 - 24 - 36	400	380	226

TK 630-1 , TK 630-2 , TK 630-3, TK 630-4

INTERFACE B

Up to 36kV – 630A

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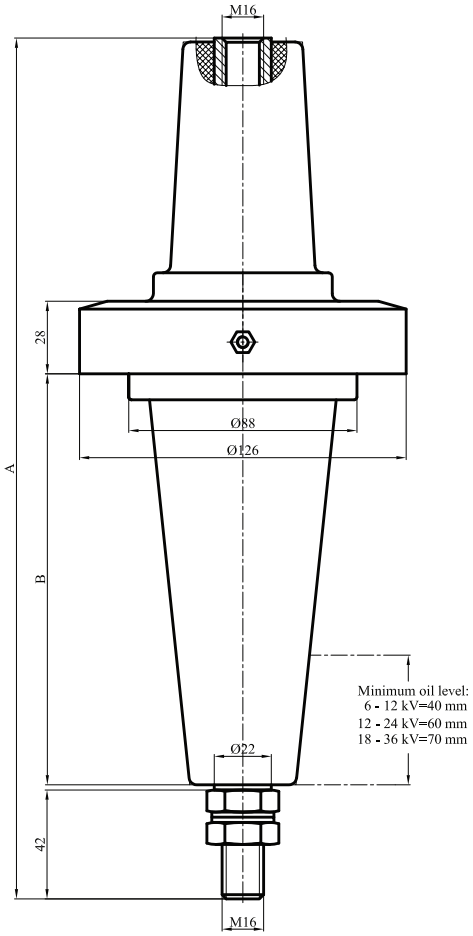
USING FOR

Bolted type bushing could use inside of distrubition Transformer with oil immersed and other silicon cable connection using area.



STANDARTS

The Plug in Bushings TK 630-1,TK 630-2, TK 630-3 and TK 630-4 was product the requirements of IEC TS EN 50180 , IEC TS EN 50181, IEC 60137.

DESIGN

- The equipment bushings are moulded epoxy insulated parts in accordance with IEC EN 50180.
- The standard bushings, TK 630-1,TK 630-2 ,TK 630-3 and TK 630-4 are equipped without tab for the bail restraint.

TESTING

All type bushings test by TAKFAN's Quality persons as %100 in TAKFAN Laboratory according to IEC 60137 . Rank of tests as a belows;

- Dry power-Frequency voltage withstand test (72kV/1min.)
- Measurement of the partial discharge quantity
- Air leakage test (2 bars/min.)
- Cantilever load withstand test.
- Visual inspection and dimensional check

ORDERING INSTRUCTION

To order the equipment bushing, please inform us for type of bushings. The bushings are supplied with an earth cable or an earth plate . 36kV/630A bushings are exigible without tab or with 6 tabs for the bail restraint . This earth connection and bail restraint type must be specified when ordering.

Product Code	Voltage Ur (kV)	Current Ir (A)	Dimensions (mm)	
			A	B
TK 630 - 1	12 - 24 - 36	630	262	89
TK 630 - 2	12 - 24 - 36	630	332	159
TK 630 - 3	12 - 24 - 36	630	380	214
TK 630 - 4	12 - 24 - 36	630	398	223

TK 1250-1 , TK 1250-2 , TK 1250-3, TK 1250-4

INTERFACE C2

Up to 36kV – 1250A

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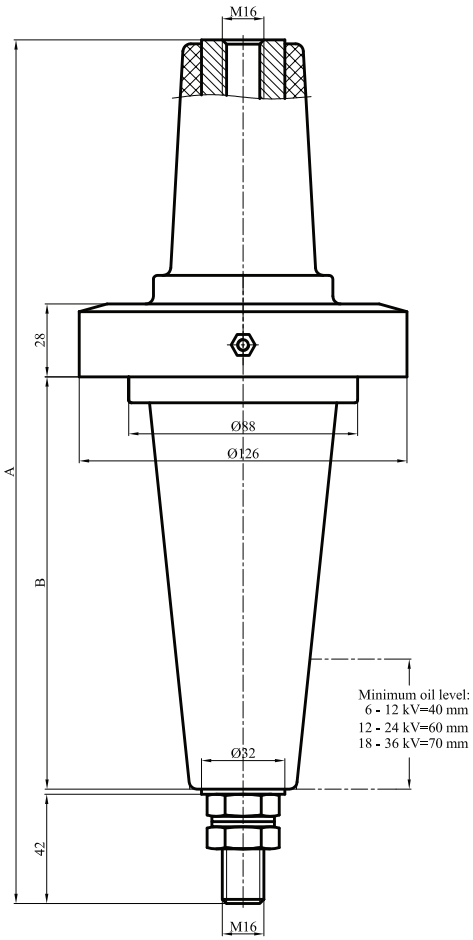
USING FOR

Bolted type bushing could use inside of distrubition Transformer with oil immersed and other silicon cable connection using area.



STANDARTS

The Plug in Bushings TK 1250-1,TK 1250-2, TK 1250-3 and TK 1250-4 was product the requirements of IEC TS EN 50180 , IEC TS EN 50181, IEC 60137.

DESIGN

- The equipment bushings are moulded epoxy insulated parts in accordance with IEC EN 50180.
- The standard bushings, TK 1250-1,TK 1250-2 ,TK 1250-3 and TK 1250-4 are equipped without tab for the bail restraint.

TESTING

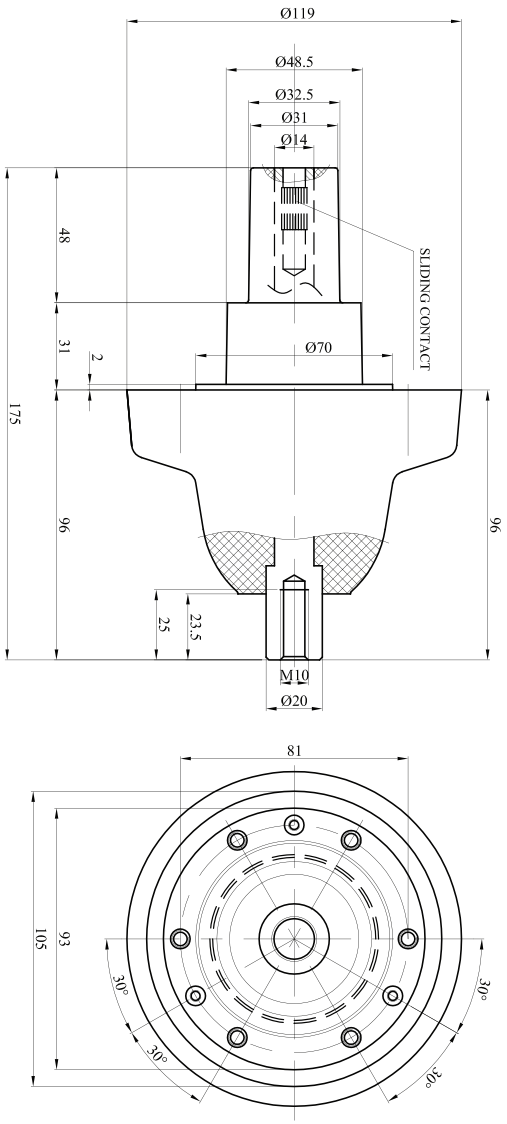
All type bushings test by TAKFAN's Quality persons as %100 in TAKFAN Laboratory according to IEC 60137 . Rank of tests as a belows;

- Dry power-Frequency voltage withstand test (72kV/1min.)
- Measurement of the partial discharge quantity
- Air leakage test (2 bars/min.)
- Cantilever load withstand test.
- Visual inspection and dimensional check

ORDERING INSTRUCTION

To order the equipment bushing, please inform us for type of bushings. The bushings are supplied with an earth cable or an earth plate . 36kV/1250A bushings are exigible without tab or with 6 tabs for the bail restraint . This earth connection and bail restraint type must be specified when ordering.

Product Code	Voltage Ur (kV)	Current Ir (A)	Dimensions (mm)	
			A	B
TK 1250 - 1	12 - 24 - 36	1250	262	89
TK 1250 - 2	12 - 24 - 36	1250	332	159
TK 1250 - 3	12 - 24 - 36	1250	380	214
TK 1250 - 4	12 - 24 - 36	1250	398	223



USING FOR

For use in equipment insulated with SF_6 gas.

STANDARTS

The plug in type bushings TK – RMU250 was product the requirements of IEC TS EN 50180 , IEC TS EN 50181, IEC 60137.

DESIGN

- The equipment bushings are moulded epoxy insulated parts in accordance with IEC EN 50180.
- The TK-RMU250 bushing has a shank outside this standard, adapted for use in SF_6 gas.

TESTING

All type bushings test by TAKFAN's Quality persons as %100 in TAKFAN Laboratory according to IEC 60137 . Rank of tests as a belows;

- Dry power-Frequency voltage withstand test
- Measurement of the partial discharge quantity
- Air leakage test (2 bars/min.)
- Cantilever load withstand test.
- Visual inspection and dimensional check

ORDERING INSTRUCTION

To order the product bushings, simply specify the type.

Product Code	Voltage Ur (kV)	Current Ir (A)
TK - RMU250	12 - 24	250

TK – RMU400/TK – RMU250-1

INTERFACE B

Up to 36kV - 400A

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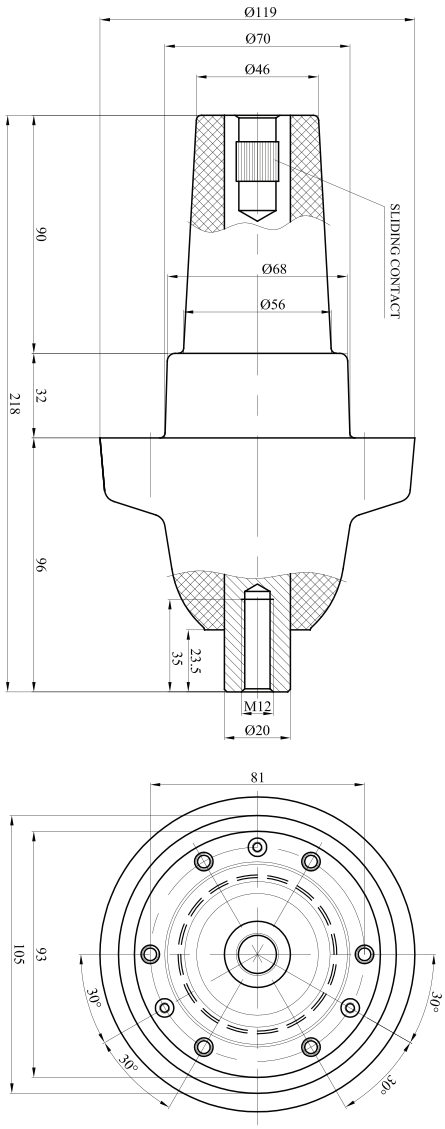
RMU BUSHING



USING FOR

For use in equipment insulated with SF_6 gas.

STANDARTS

The plug in type bushings TK – RMU400/TK – RMU250-1 was product the requirements of IEC TS EN 50180 , IEC TS EN 50181, IEC 60137.

DESIGN

- The equipment bushings are moulded epoxy insulated parts in accordance with IEC EN 50180.
- The TK – RMU400/TK – RMU250-1 bushing has a shank outside this standard, adapted for use in SF_6 gas.

TESTING

All type bushings test by TAKFAN's Quality persons as %100 in TAKFAN Laboratory according to IEC 60137 . Rank of tests as a belows;

- Dry power-Frequency voltage withstand test
- Measurement of the partial discharge quantity
- Air leakage test (2 bars/min.)
- Cantilever load withstand test.
- Visual inspection and dimensional check

ORDERING INSTRUCTION

To order the product bushings, simply specify the type.

Product Code	Voltage Ur (kV)	Current Ir (A)
TK - RMU250-1	36	250
TK - RMU400	12 - 24 - 36	400

TK – RMU630 / TK RMU1250

INTERFACE C

Up to 36kV - 1250A

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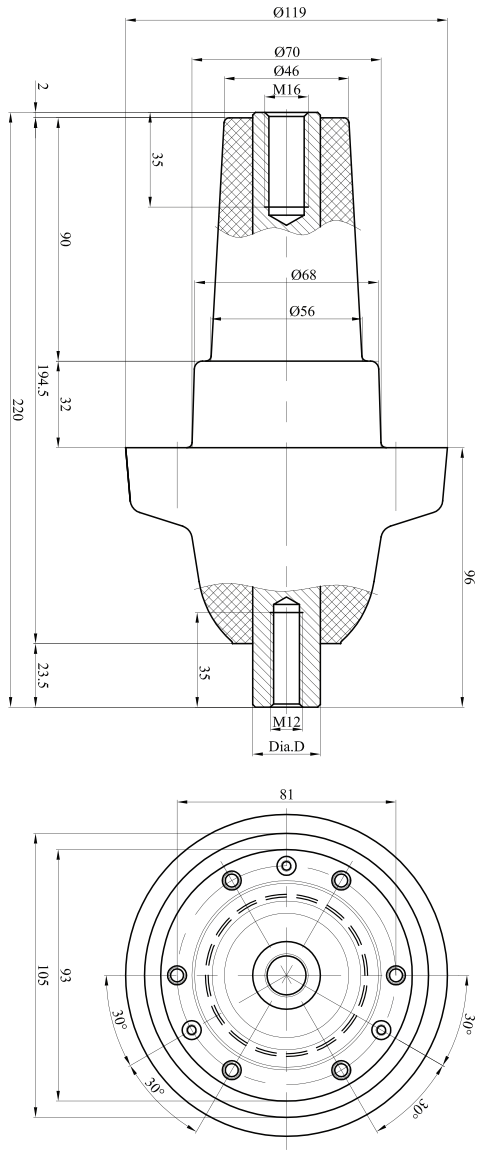
RMU BUSHING



USING FOR

For use in equipment insulated with SF_6 gas.

STANDARTS

The plug in type bushings TK – RMU630/TK – RMU1250 was product the requirements of IEC TS EN 50180 , IEC TS EN 50181, IEC 60137.

DESIGN

- The equipment bushings are moulded epoxy insulated parts in accordance with IEC EN 50180.
- The TK-RMU630/TK-RMU1250 bushing has a shank outside this standard, adapted for use in SF6 gas.

TESTING

All type bushings test by TAKFAN's Quality persons as %100 in TAKFAN Laboratory according to IEC 60137 . Rank of tests as a belows;

- Dry power-Frequency voltage withstand test
- Measurement of the partial discharge quantity
- Air leakage test (2 bars/min.)
- Cantilever load withstand test.
- Visual inspection and dimensional check

ORDERING INSTRUCTION

To order the product bushings, simply specify the type.

Product Code	Voltage Ur (kV)	Current Ir (A)	Dia.D (mm)
TK - RMU630	12 - 24 - 36	630	25
TK - RMU1250	12 - 24 - 36	1250	32

TK – A36-1/TK-A36-2/TK-A36-3

INTERFACE B,C

Up to 36kV - 630A

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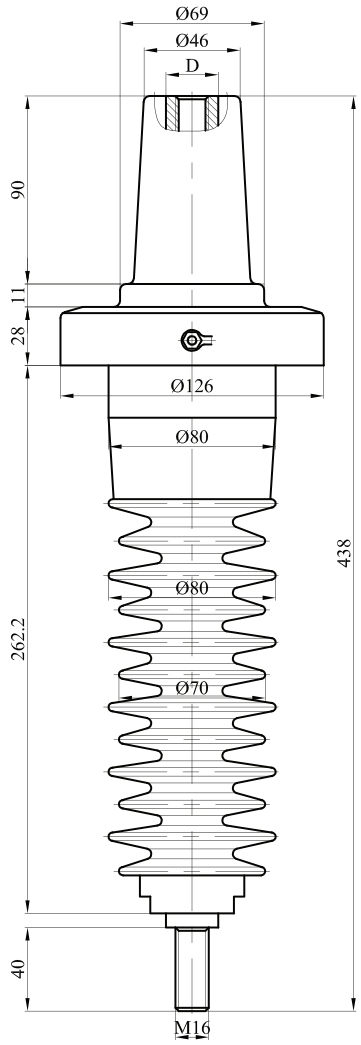
AIR INSULATED BUSHING



USING FOR

For use in equipment insulated with air, typically for dry type transformers, motors, switchgear...

STANDARTS

The plug in type bushings TK – A36-1/TK-A36-2/TK-A36-3 was product the requirements of IEC TS EN 50180 , IEC TS EN 50181, IEC 60137.

DESIGN

• The equipment bushings are moulded epoxy insulated parts in accordance with IEC EN 50180.

TESTING

All type bushings test by TAKFAN's Quality persons as %100 in TAKFAN Laboratory according to IEC 60137 . Rank of tests as a belows;

• Dry power-Frequency voltage withstand test
• Measurement of the partial discharge quantity
• Cantilever load withstand test
• Visual inspection and dimensional check

ORDERING INSTRUCTION

To order the equipment bushing, please inform us for type of bushings. The bushings are supplied with an earth cable or an earth plate . This earth connection must be specified when ordering.

Product Code	Voltage Ur (kV)	Current Ir (A)	D (mm)	Contact Type	Interface
TK - A36 - 1	36	250	250	Sliding	B
TK - A36 - 2	12 - 24 - 36	400	400	Sliding	B
TK - A36 - 3	12 - 24 - 36	630	630	Bolted	C

TK-SM TAKFAN CAST RESIN SINGLE PHASE MONOBLOCK

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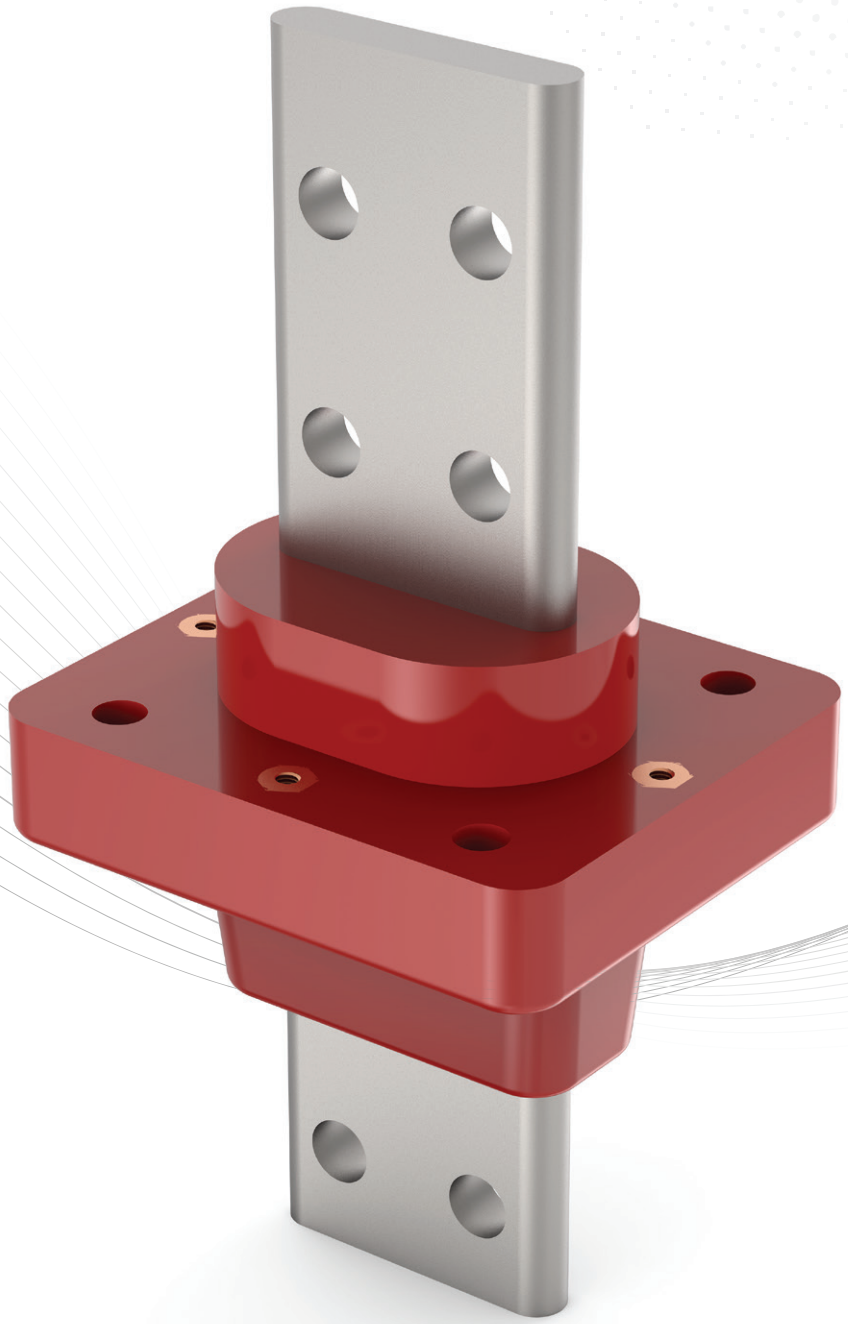
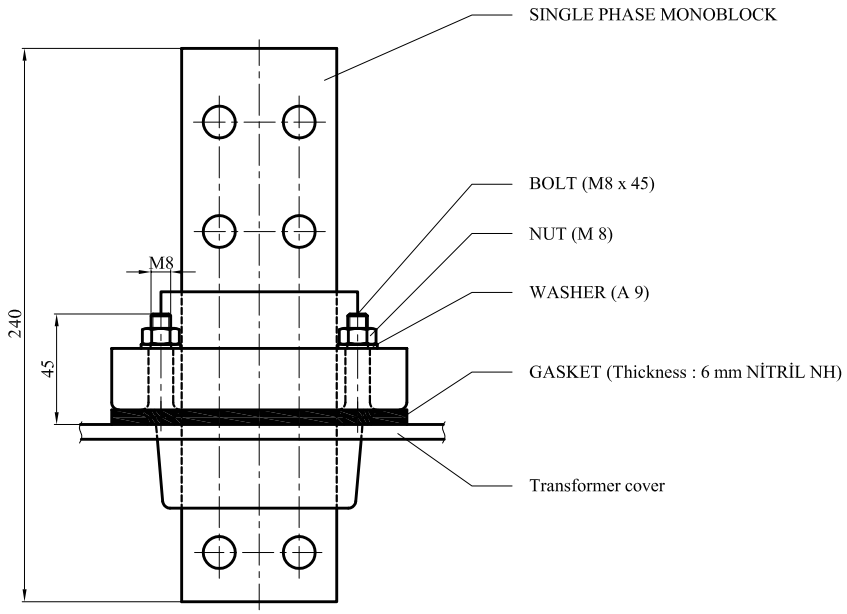


TECHNICAL SPECIFICATION

TK-SM Takfan cast resin single phase monoblock bushings 1 kV – 1250A/1600A/2500A/3150A oil/air for indoor and outdoor applications, acoording to BS 2562,EN50336 and ENEL DJ 1107 / DJ 1109.

TK-SM 1kV/1250 A

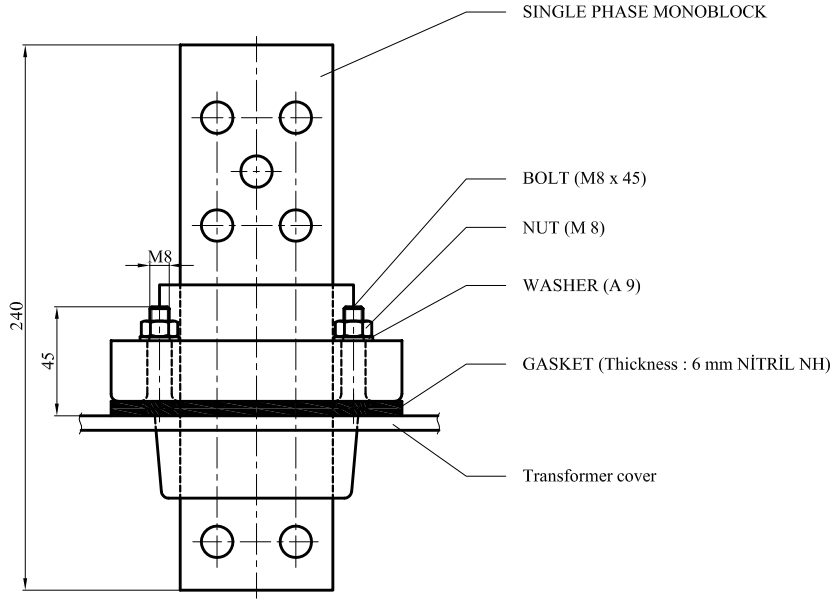


TECHNICAL SPECIFICATIONS

TK-SM 1kV/1250A

Nominal Current: 1250A
Nominal Voltage: 1 kV Dry Power
Frequency: 10 kV Dry Lighting Impuls
Withstand Voltage: 20kV Operating
Temperature: -20°C÷100°C

TK-SM 1 kV/1600 A

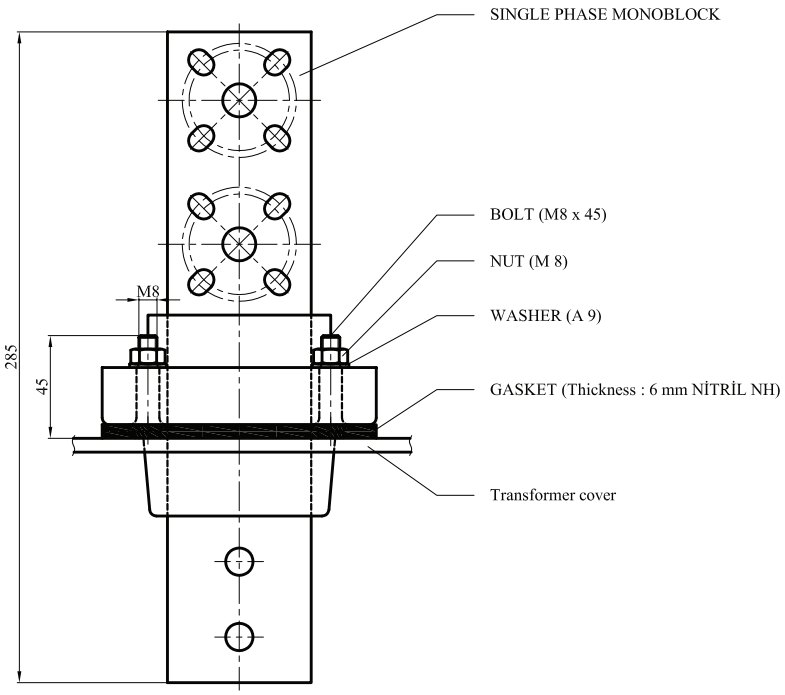


TECHNICAL SPECIFICATIONS

TK-SM 1kV/1600A

Nominal Current: 1600 A
Nominal Voltage: 1 kV
Dry Power Frequency: 10 kV
Dry Lighting Impulse Withstand Voltage: 20 kV Min Creepage
Distance: 55 mm Max Operating Cantilever
Load: 625 N
Thermal Short Time Current Test: 16.5 kA
Dynamic Short Circuit Current Withstand Test: 41 kA
Operating temperature: -20°C÷100°C

TK-SM 1 kV/2000 A

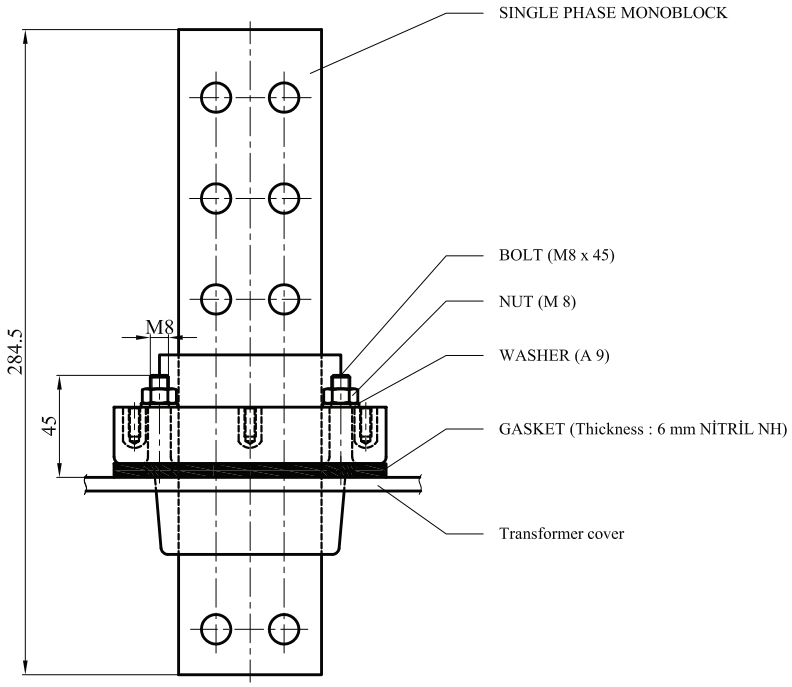


TECHNICAL SPECIFICATIONS

TK-SM 1kV/2000A

Nominal current: 2000 A
Nominal voltage: 1 kV
Dry power frequency: 10 kV
Dry lighting impulse withstand voltage: 20 kV
Min creepage distance: 55 mm
Max operating cantilever load: 1000 N
Thermal short time current withstand test: 29 kA
Dynamic short circuit current withstand test: 72.5 kA
Operating temperature: -20°C÷100°C

TK-SM 1 kV/2500 A

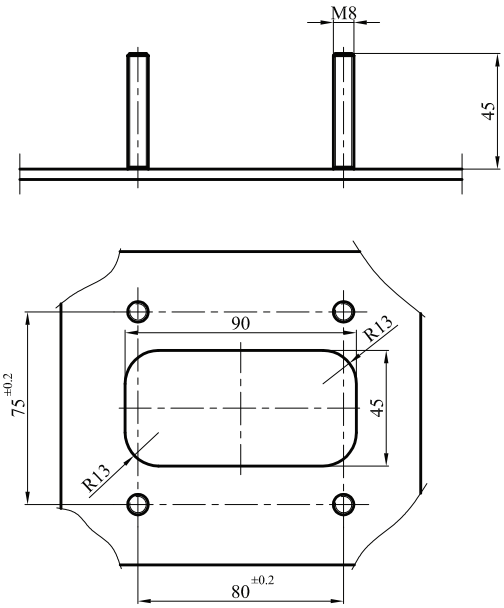


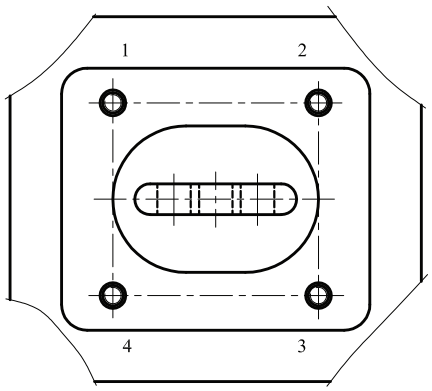
TECHNICAL SPECIFICATIONS

TK-SM 1kV/2500A

Nominal current: 2500 A
Nominal voltage: 1 kV
Dry power frequency: 10 kV
Dry lighting impulse withstand voltage: 20 kV
Min creepage distance: 55 mm
Max operating cantilever load: 1000 N
Thermal short time current withstand test: 36 kA
Dynamic short circuit current withstand test: 90 kA
Operating temperature: -20°C÷100°C

ASSEMBLING INSTRUCTIONS

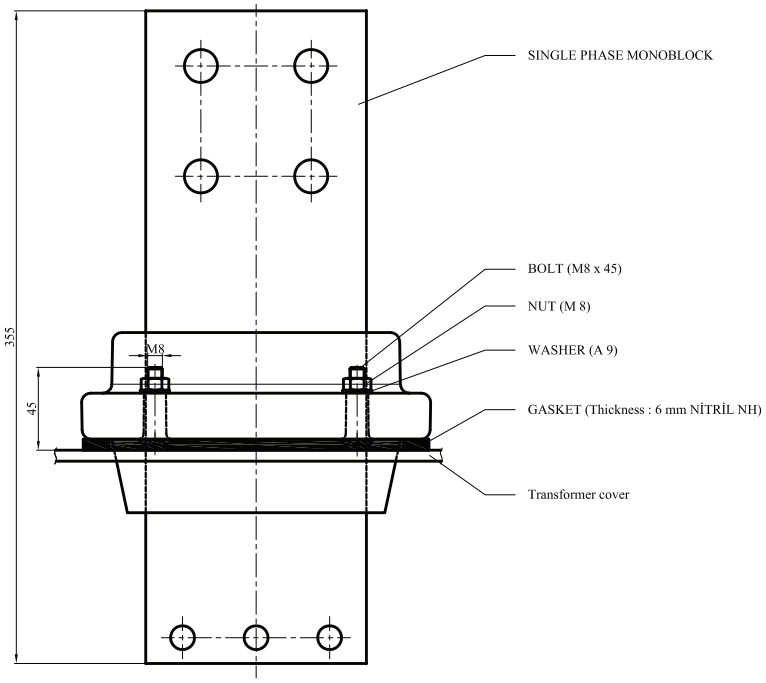




Assembling instructions:
Screw the 4xM8 nuts according to a cross sequence 1-3-4-2
1st step: 2 Nm
2nd step: 5 Nm
3rd step: 12 Nm (max)

- Upper Assembling Instructions can be used for TK-SM 1kV/ 1250A-1600A-2000A-2500A.

TK-SM 1 kV/3150 A



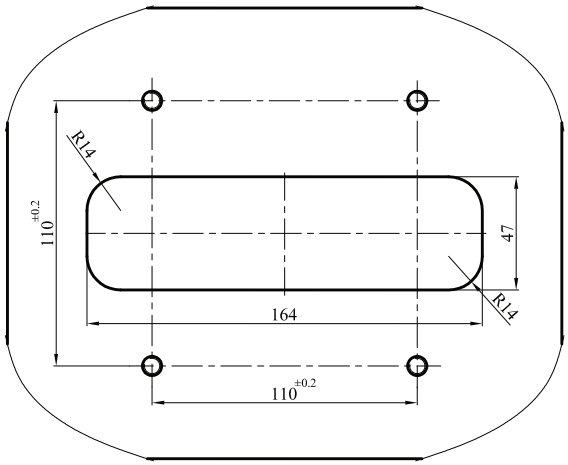
TECHNICAL SPECIFICATIONS

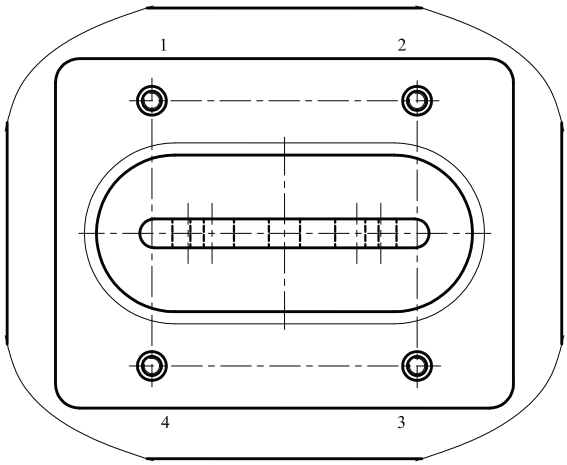
TK-SM 1kV/3150 A

Nominal current: 3150 A
Nominal voltage: 1 kV
Dry power frequency: 10 kV
Dry lighting impulse withstand voltage: 20 kV
Operating temperature: -20°C÷100°C

ASSEMBLING INSTRUCTIONS

Assembling instructions:
Screw the 4xM8 nuts according to a cross sequence 1-3-4-2
1st step: 2 Nm
2nd step: 5 Nm
3rd step: 12 Nm (max)





TK-MN TAKFAN EPOXY RESIN MONOBLOCK

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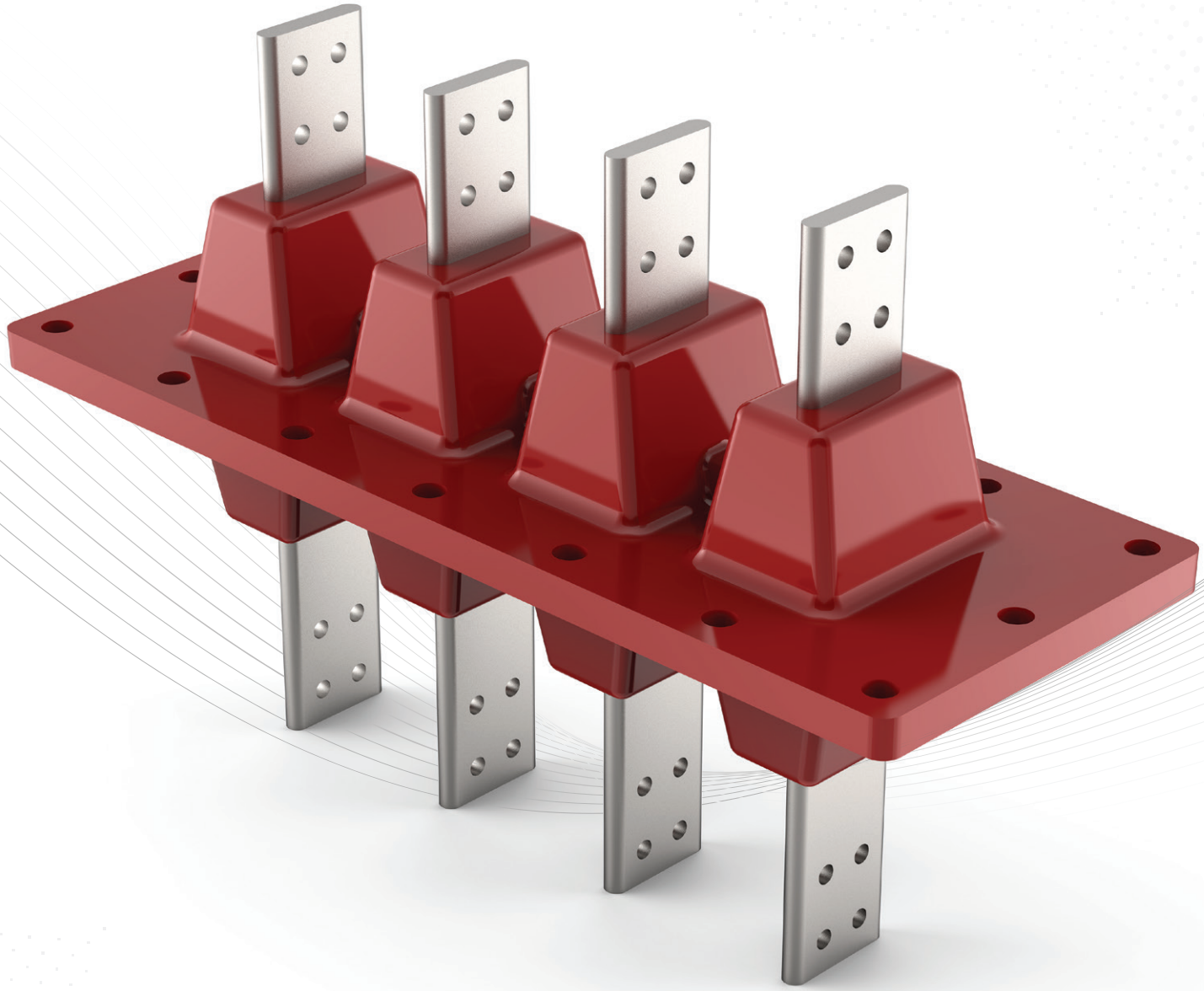
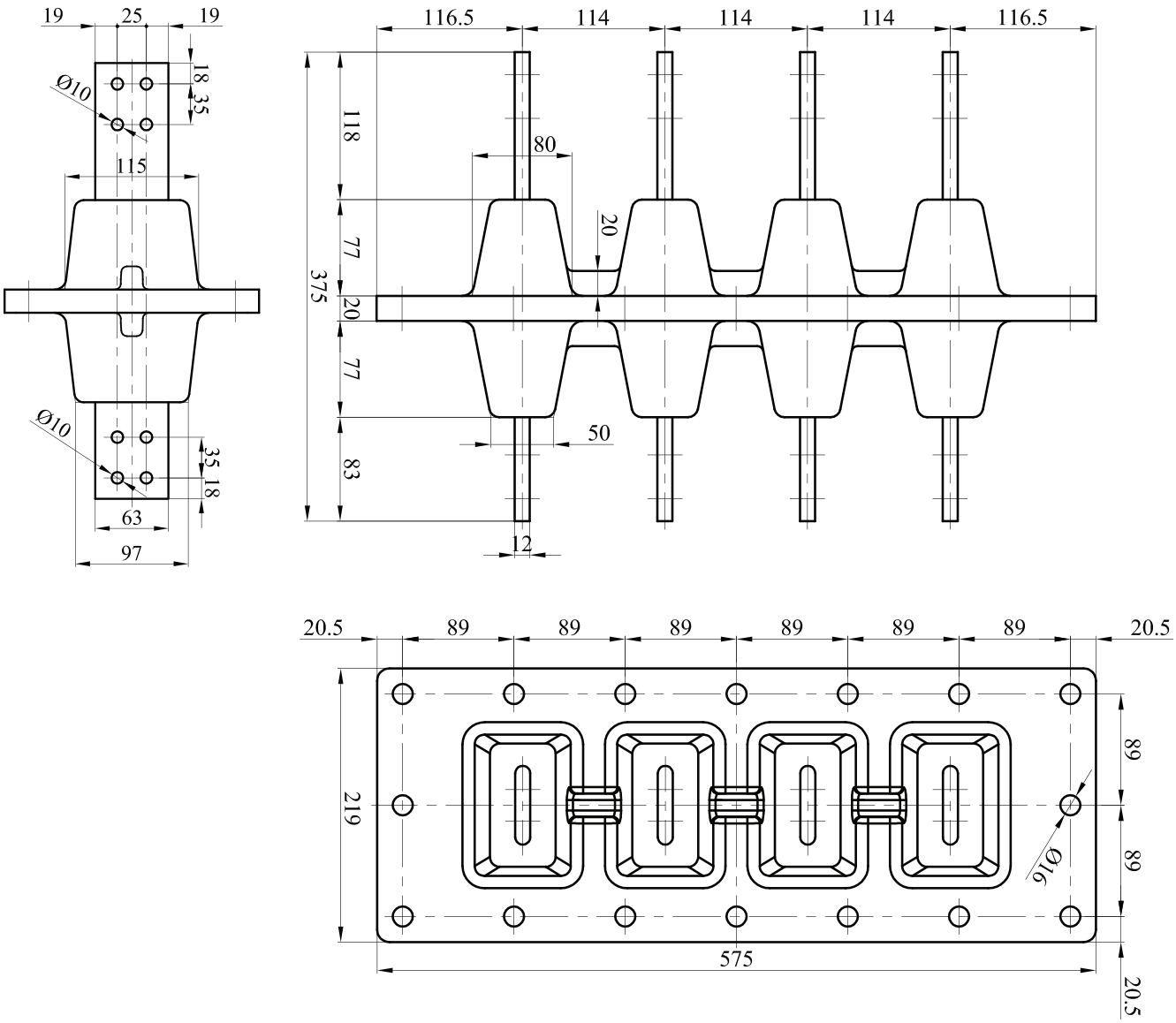
Since 1999



TECHNICAL SPECIFICATION

TK-MN Takfan epoxy resin monoblock 800A/1400A/1700A/2500A oil/air for indoor and outdoor applications, acoording to BS 2562,EN50336.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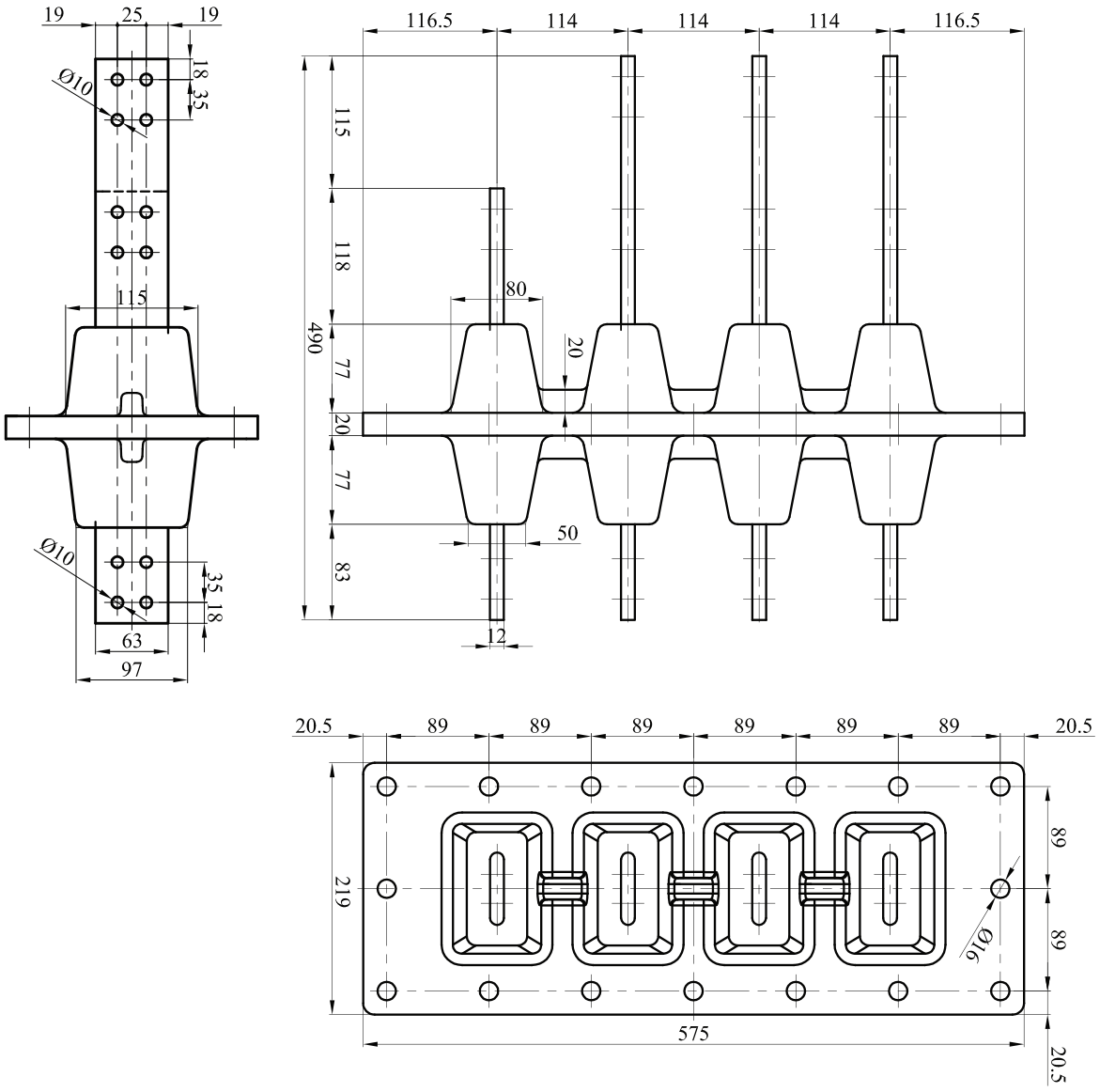
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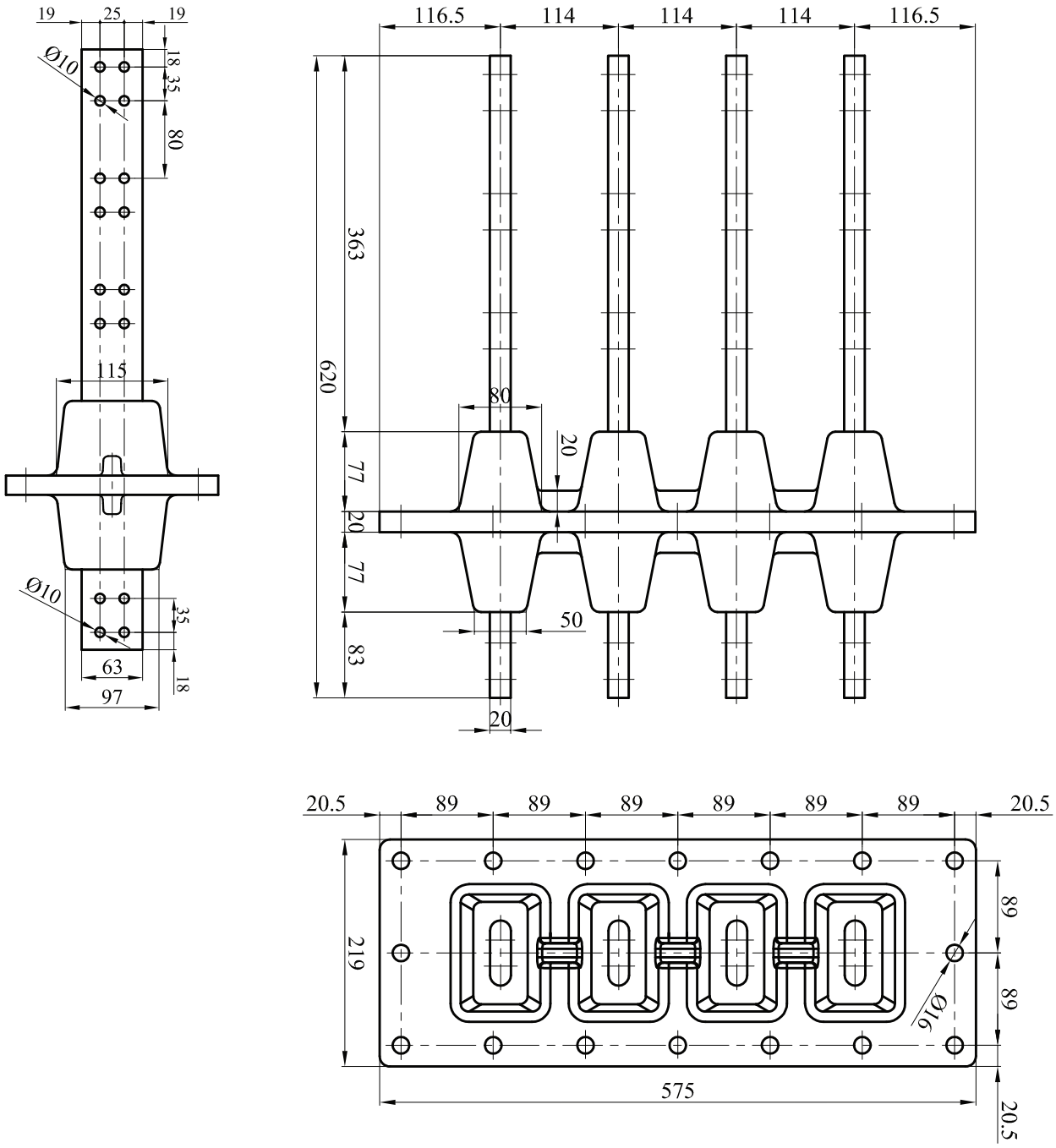
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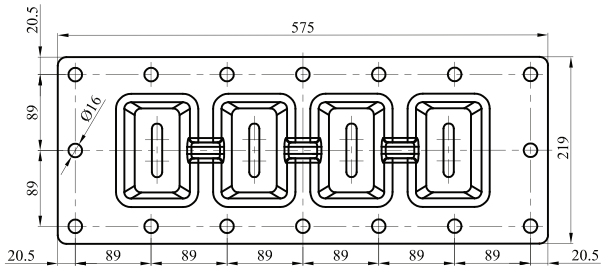
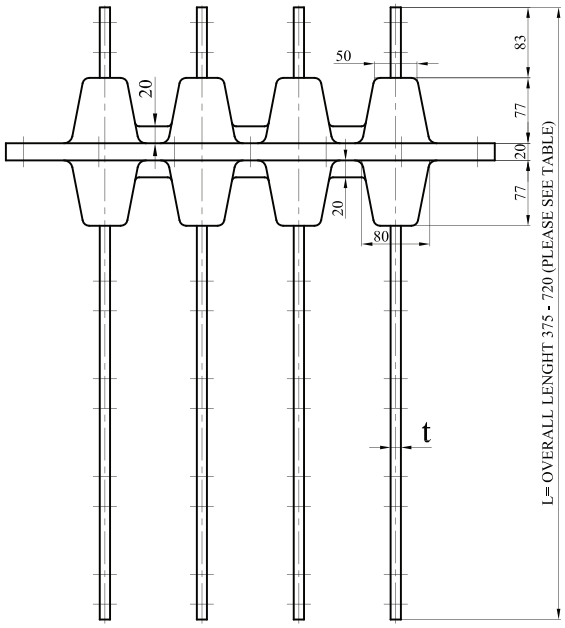
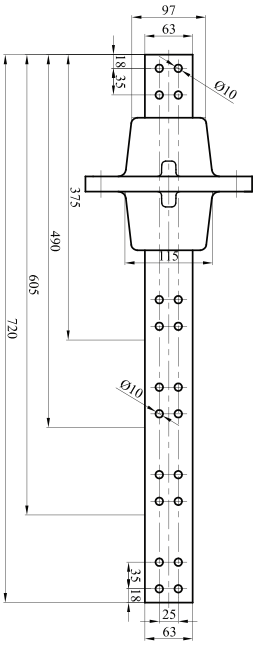
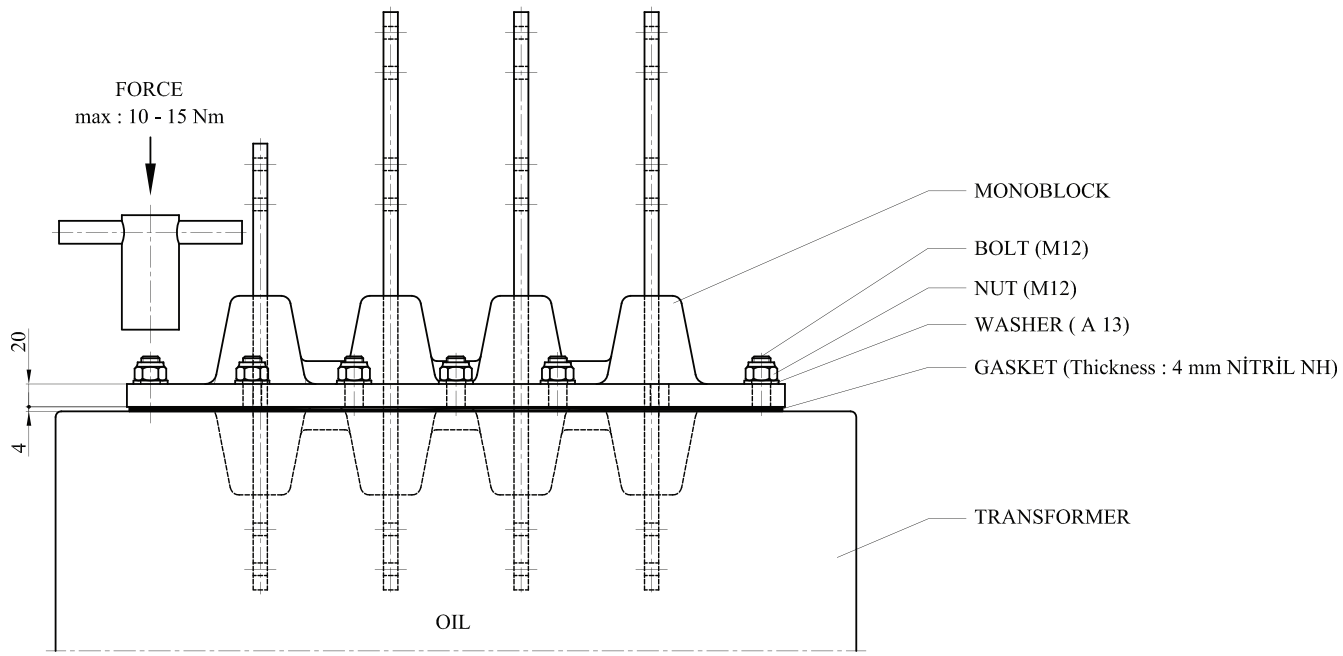






GENERAL MONOBLOCK SELECTION TABLE

Conductor Code	Cast Resin Monoblock Code														Conductor Details				
	TK- MN 170001	TK- MN 170002	TK- MN 170003	TK- MN 170004	TK- MN 170005	TK- MN 170006	TK- MN 170007	TK- MN 250001	TK- MN 250002	TK- MN 250003	TK- MN 250004	TK- MN 250005	TK- MN 250006	TK- MN 250007	L (mm)	t (mm)	Base Standart	Current (Max.)	T-Off
TK-CU375-12	4	1													375	12	BS 2562 EN 50336	1700 A	1
TK-CU490-12		3	4	1		1									490	12			2
TK-CU605-12				3	4										605	12			3
TK-CU720-12						3	4								720	12			4
TK-CU375-20								4	1						375	20	BS 2562 EN 50336	2500 A	1
TK-CU490-20									3	4	1		1		490	20			2
TK-CU605-20											3	4			605	20			3
TK-CU720-20													3	4	720	20			4


FORCE
max : 10 - 15 Nm
20
4
MONOBLOCK
BOLT (M12)
NUT (M12)
WASHER (A 13)
GASKET (Thickness : 4 mm NİTRİL NH)
TRANSFORMER
OIL

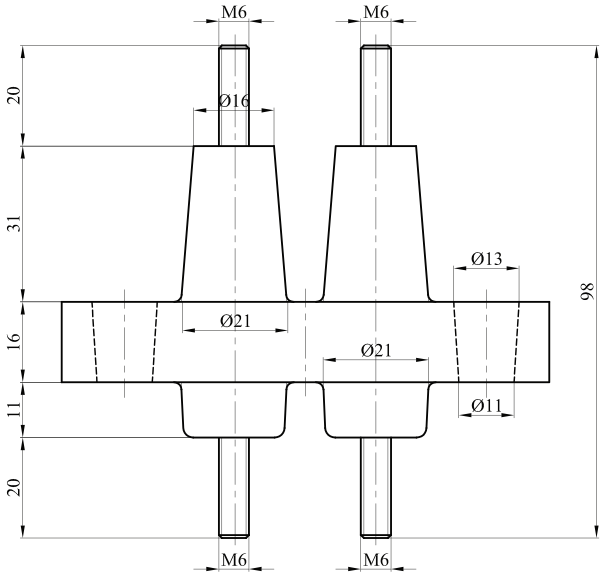
PRODUCTION

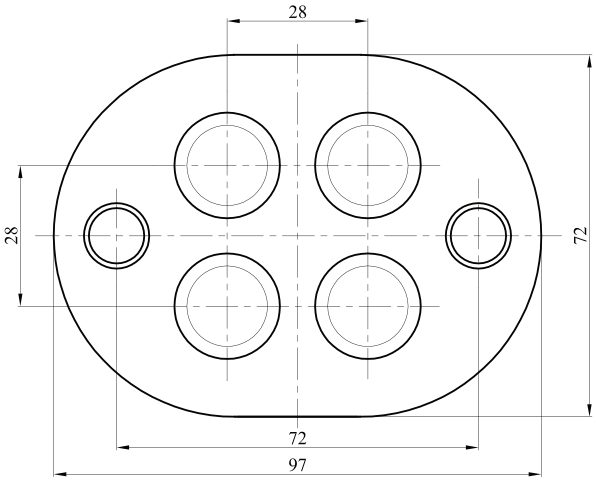
All the insert and conductive parts of the CT Terminals are manufactured with best quality material experienced in Turkey by TAKFAN.

TESTING

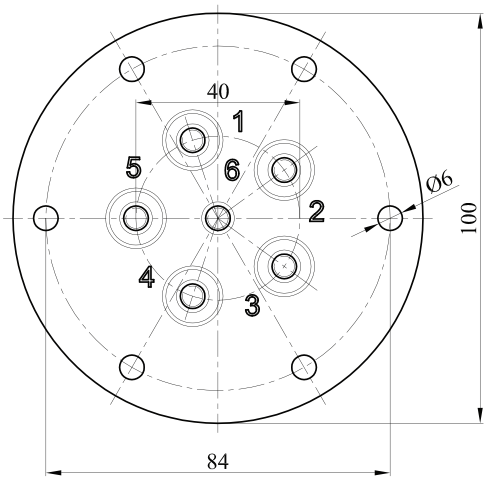
The terminal block shall be air pressure leak tested at 1 bar for 15 minutes, where there should be no signs of air leakage.

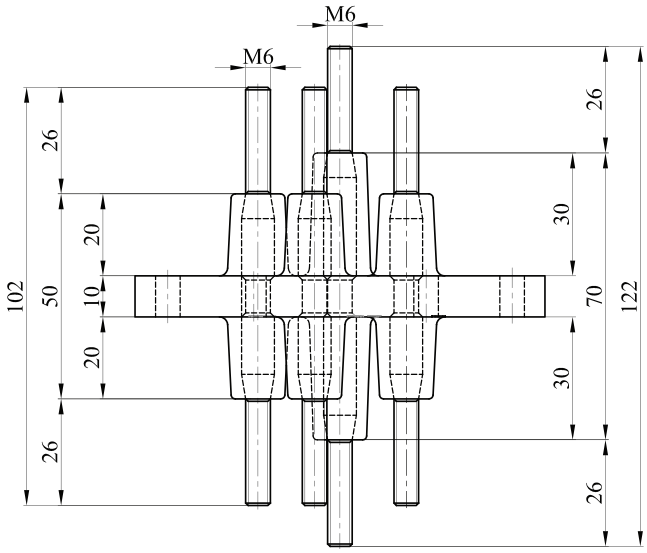
4 WAY CT TERMINAL
TK CT-4





6 WAY CT TERMINAL
TK CT-6





NOTES

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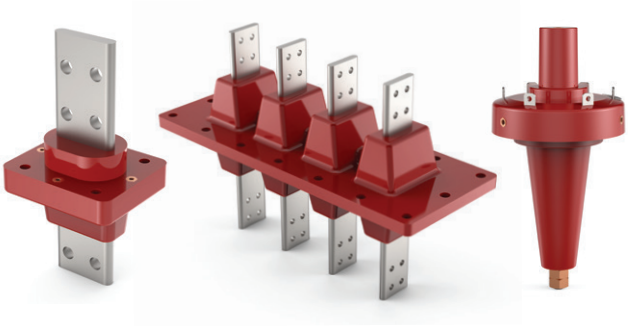

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+90 262 373 37 21
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