

Catalogue NT 1 GB 96-09



Medium Voltage



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Description

Post insulators are made of epoxy resin with threaded inserts made of aluminium alloy. The casting methods we use guarantee products with excellent electrical and mechanical properties and constant quality. These insulators have been specifically designed so as to withstand the demands made upon them by extremes in climatic conditions and weather fluctuations.

The post insulator flanges are sharp and narrow which results in shape and creepage distance most suitable for countering problems of pollution. The insulators may be cleaned using water, spirit, petrol or toluene.

Even strong arcs fail to break the cast resin post insulators. Scars in the surface caused by flash-over can be easily made good by smoothing and cleaning the marks and rubbing a thin layer of silicone paste into the surface.

This treatment does not decrease the flashover strength of the insulator.

The cast resin post insulators also have a high resistance to chemicals. The insulators can be used in areas where the atmosphere includes large quantities of corrosive gasses such as sulphuric and nitrogenous compounds.

Indoor post insulators can be installed in any chosen position. The operating position of outdoor post insulators can vary from vertical to horizontal.

Aluminium compound busbar clamps are used for fixing busbars to post insulators. The dimensions and position of the busbar stack and the type of insulator used, determine the type of busbar clamp. The dimensions of the busbars have been calculated so that if the height of the busbar stack does not exceed the width of the busbars they will withstand greater mechanical strain than the corresponding support insulators.

Advantages

- Compact size
- Good dimensional accuracy
- High bending strength
- High tensile strength
- High impact resistance
- Good dielectric strength
- Long creepage distance
- Good arc strength
- Possibility to repair surface damage
- Low thermal capacity; temperature fluctuations cause no concentration of moisture on the surface

Post insulators Selection table

Indoor post insulators

Table 1

U kV	Type of post post insulator	Bending strenght and height		Tensile strength kN	Height mm	Cree- page dis- tance mm	Weight kg	Threads		Type of busbar clamp MTKP			
		kN	mm					Top	Bot- tom	Maximum width of busbar stack			
1	NTGB 1 A 4	4	0	8	35	35	0.07	M10	M10	40 M 3	60 M 3		
	NTGB 1 A 8	8	0	10	35	35	0.14	M10	M10	40 M 3	60 M 3		
	NTGB 1 A 15	15	0	14	35	35	0.33	M12	M12		60 N 3	80 N 3	
	NTGD 1 N 1	2.5	10	10	50	50	0.10	M8	M8	40 D 3			
	NTGM 1 N 1	5	35	19	50	50	0.31	M10	M10	40 M 3	60 M 3		
	NTGP 1 N 2	10	35	28	50	50	0.6	M16	M16		60 P 3	80 P 3	100 P 3
12	NTGA 12 B 5	5	0	20	130	160	0.42	M12	M16	40 N 3	60 N 3	80 N 3	
	NTGA 12 B 10	10	0	24	130	160	0.6	M16	M20		60 P 3	80 P 3	100 P 3
	NTGA 12 B 16	16	0	34	130	165	1.1	M16	M20		60 P 3	80 P 3	100 P 3
17.5	NTGA 17.5 B 5	5	0	22	175	215	0.72	M12	M16	40 N 3	60 N 3	80 N 3	
	NTGA 17.5 B 7.5	7.5	0	22	175	215	1.2	M12	M16	40 N 3	60 N 3	80 N 3	
24	NTGA 24 A 5	5	0	22	225	265	0.9	M12	M16	40 N 3	60 N 3	80 N 3	
	NTGA 24 B 5	5	0	22	210	250	0.9	M12	M16	40 N 3	60 N 3	80 N 3	
	NTGA 24 B 10	10	0	30	210	250	1.4	M16	M20		60 P 3	80 P 3	100 P 3
	NTGA 24 A 16	16	0	36	225	270	2.3	M16	M20			80 P 3	100 P 3
	NTGA 24 B 16	16	0	36	210	255	2.1	M16	M20			80 P 3	100 P 3
36	NTGM 36 N 3	5	35	40	310	535	2.9	M16	M20		60 P 3	80 P 3	100 P 3
52	NTGA 52 A 16 ⁽¹⁾	16	6	—	500	835	10.7	M16	M24		60 P 3	80 P 3	100 P 3

(1) The min. strength class of the bolts used in mounting must be 8.8

Outdoor post insulators

Table 2

U kV	Type of post post insulator	Bending strenght and height		Tensile strength kN	Height mm	Cree- page dis- tance mm	Weight kg	Threads		Type of busbar clamp MTKP			
		kN	mm					Top	Bot- tom	Maximum width of busbar stack			
1	NTWA 1 A 2	2	0		35	68	0.04	M8	M8	40 D 3			
	NTWD 1 A 1	2.5	0	10	50	65	0.1	M8	M8	40 D 3			
	NTWP 1 A 1	10	0	20	50	73	0.7	M16	M16		60 P 3	80 P 3	100 P 3
	NTWS 1 A 2	20	0	16	50	73	0.7	M16	M16		60 P 3	80 P 3	100 P 3
12	NTWA 12 A 16	16	0		130	315	1.6	M20	M20			80 S 3	100 S 3
24	NTWA 24 A 4	4	0		225	475	1.6	M16	M16		60 P 3	80 P 3	100 P 3
	NTWA 24 A 16	16	0		225	610	3.8	M20	M24			80 P 3	100 S 3
	NTWM 24 A 1	5	0		250	500	1.8	2xM8	M16				
36	NTWA 36 B 4	4	0		310	870	2.5	M16	M16		60 P 3	80 P 3	100 P 3

Insulators and Busbar Clamps

Technical data and ordering information

Order data for post insulators

- quantity
- type

Order data for busbar clamps

- quantity
- type (according to tables 1 and 2)
- dimensions and position of busbar stack

Test voltages

The test voltages are in accordance with the following standards:

IEC 38 (1975)

IEC 71-1 (1976)

SFS 2664 (1975)

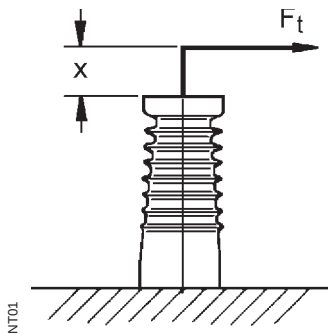
Rated voltage kV	Power-frequency short duration withstand voltage kV	Lightning impulse withstand voltage kV
1	3.5	–
3.6 ⁽¹⁾	10	40
12	28	75
24	50	125
36	70	170
52	95	250

(1) Types NTGD 1N1, NTGM 1N1 and NTGP 1N2 are also suitable for 3.6 kV rated voltage use.

The voltage tests for outdoor post insulators have been carried out as a wet test.

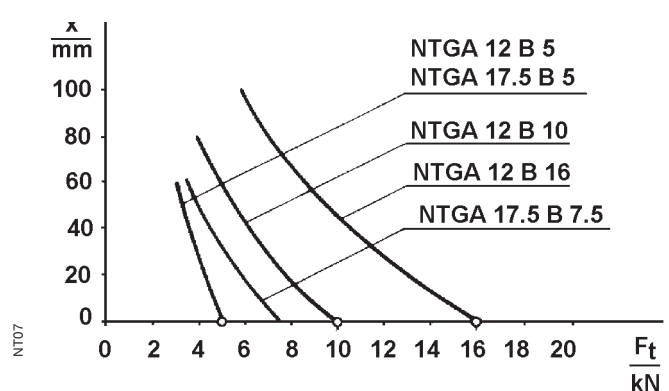
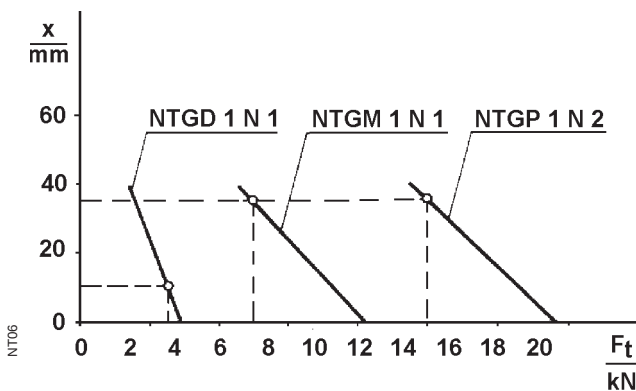
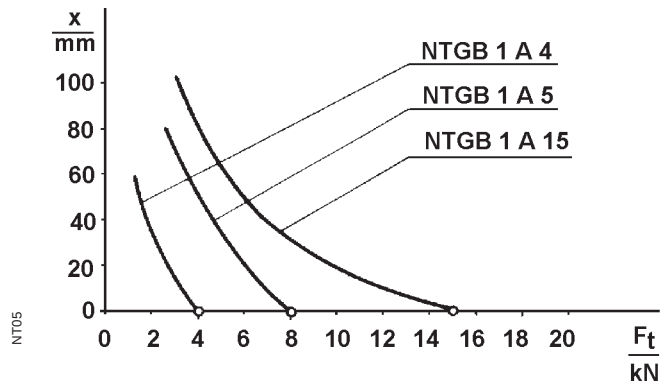
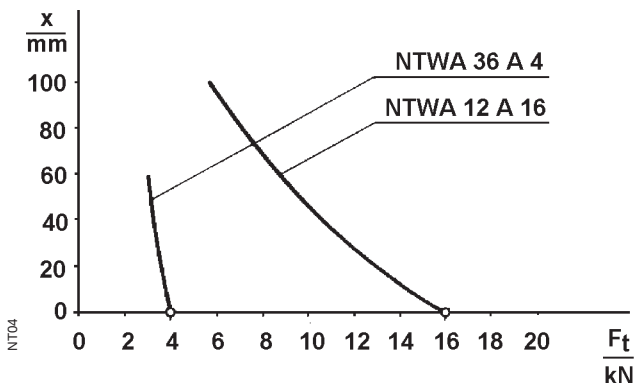
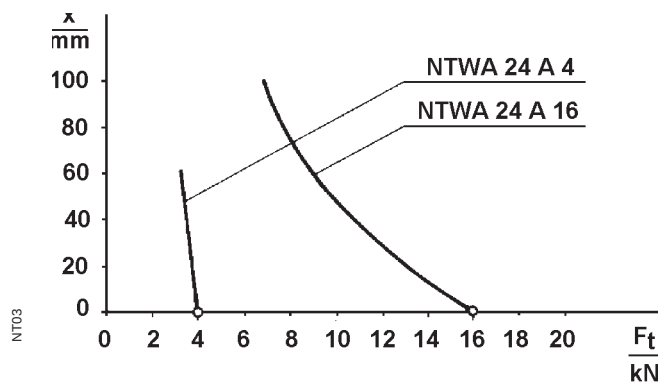
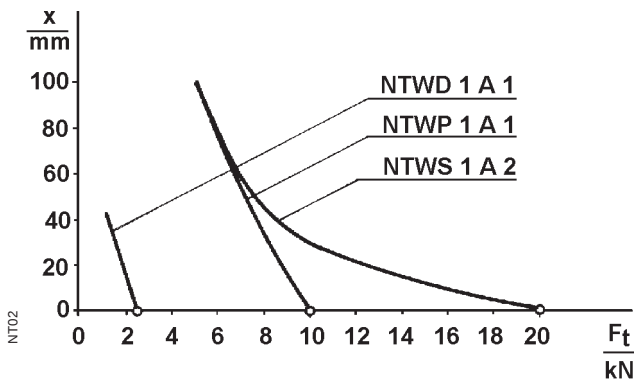
Bending strength

Technical data



○ Rated bending strength

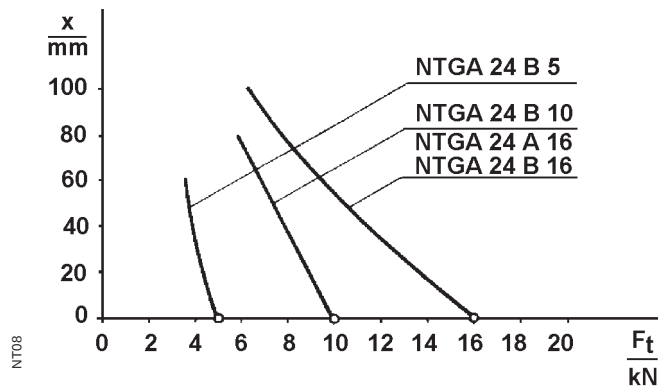
— Bending stress withstand by 95 % of the insulators



Strengths

Insulators and Busbar Clamps

Technical data



Compression strength

Compression strength of the cast resin post insulators is sufficient for all normal applications. For instance the insulator NTGD 1N1 can withstand an 185 kN compression force.

Maximum torque & hole diameter

For types NTG_ and NTW_ the table below applies when the length of the screw within the threaded insert is at least 1.4 x screw diameter.

Screw	Max. torque Nm	Max. hole diam. in busbar / mm
M8	9	10
M10	18	12
M12	31	15
M16	76	19
M20	150	24
M24	250	28

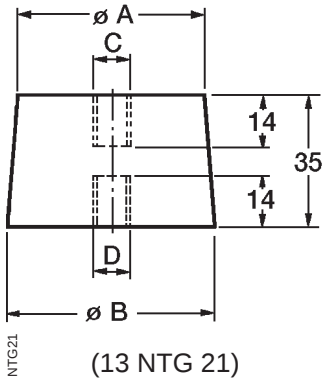
Strength class for screws 5.6

The screw must not reach the bottom of the threaded insert when tightened.

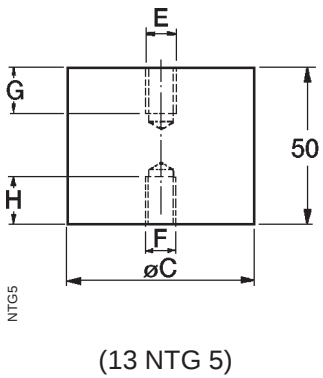
Indoor post insulators

Dimensions

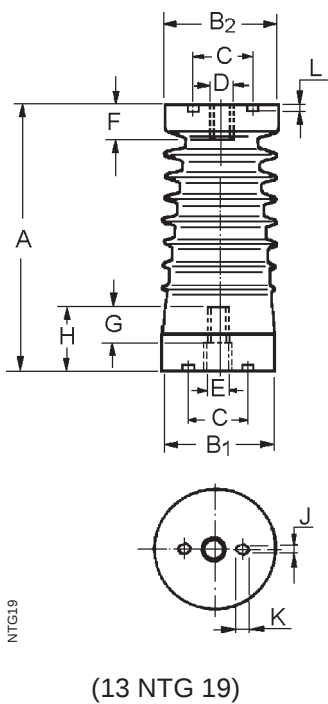
Indoor post insulators



Type	A	B	C	D
NTGB 1 A 4	36	41	M10	M10
NTGB 1 A 8	50	55	M10	M10
NTGB 1 A 15	75	80	M12	M12



Type	H	G	Diam. C	E	F
NTGD 1 N 1	13	13	35	M8	M8
NTGM 1 N 1	14.5	14.5	60	M10	M10
NTGP 1 N 2	20	20	80	M16	M16



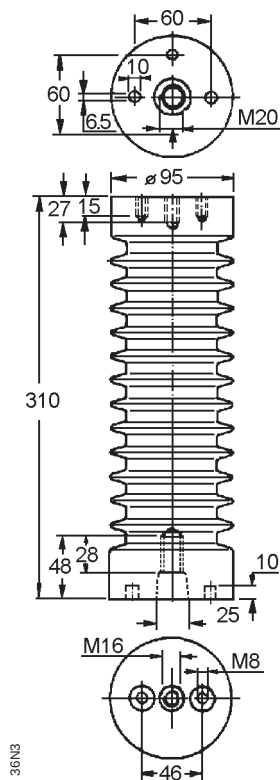
Type	A	B ₁ /B ₂	C	D	E	F	G	H	J	K	L
NTGA 12 B 5	130	55	36	M12	M16	25	30	50	6	9	6
NTGA 12 B 10	130	65		M16	M20	30	30	50			
NTGA 12 B 16	130	82		M16	M20	30	30	50			
NTGA 17.5 B 5	175	60	36	M12	M16	25	30	50	6	9	6
NTGA 17.5 B 7.5	175	75		M12	M16	25	30	50			
NTGA 24 A 5	225	65	36	M12	M16	25	30	50	6	9	6
NTGA 24 B 5	210	65	36	M12	M16	25	30	50	6	9	6
NTGA 24 B 10	210	75		M16	M20	30	30	50			
NTGA 24 A 16	225	90/60		M16	M20	30	30	50			
NTGA 24 B 16	210	90		M16	M20	30	30	50			

Indoor post insulators

Outdoor post insulators

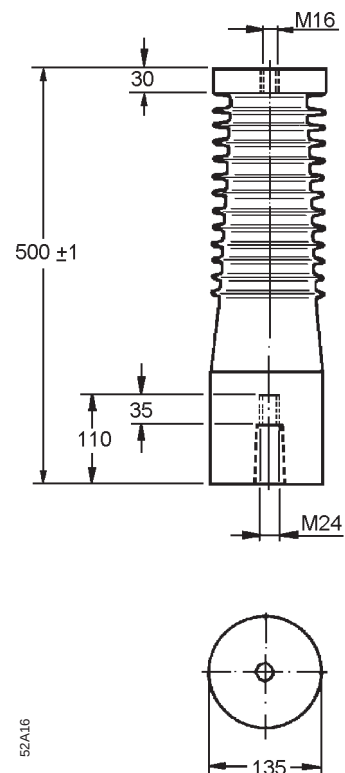
Dimensions

NTGM 36 N 3



(13 NTG 18)

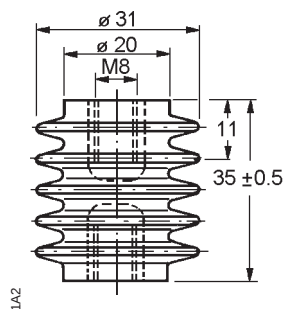
NTGA 52 A 16



(13 NTG 20)

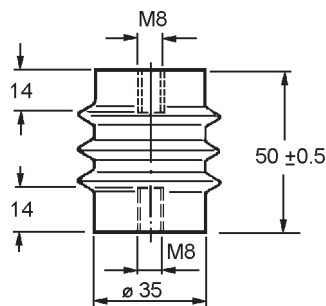
Outdoor post insulators

NTWA 1 A 2



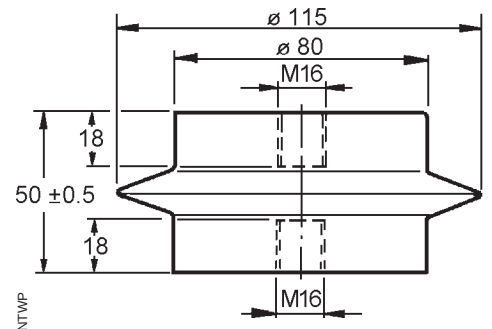
(13 NTW 12)

NTWD 1 A 1



(13 NTW 9)

NTWP 1 A 1

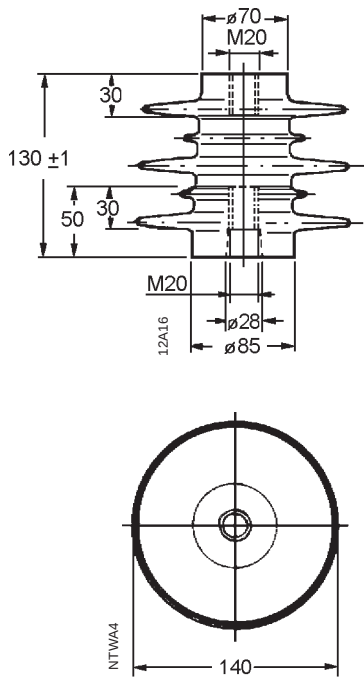


(13 NTW 10)

Outdoor post insulators

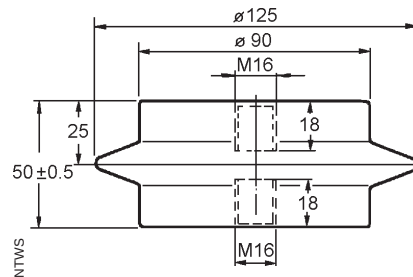
Dimensions

NTWA 12 A 16



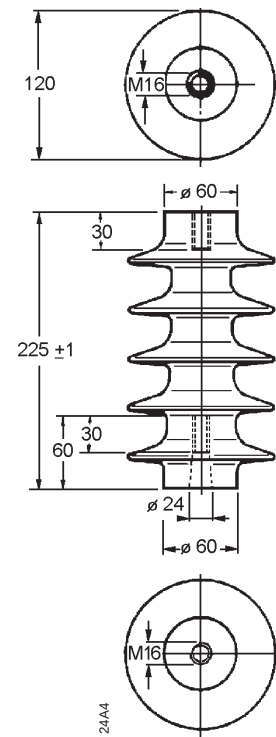
(13 NTWA 4)

NTWS 1 A 2



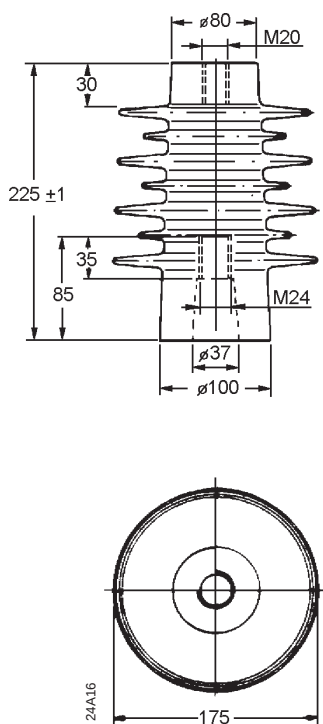
(13 NTW 11)

NTWA 24 A 4



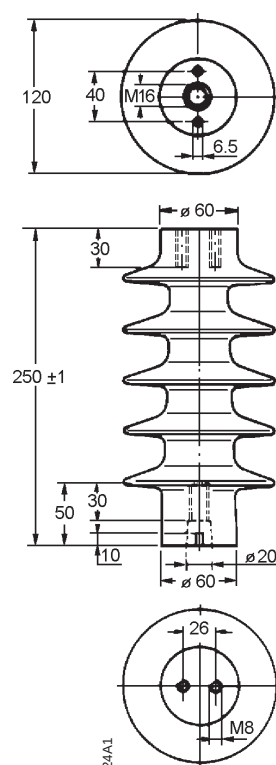
(13 NTW 6)

NTWA 24 A 16



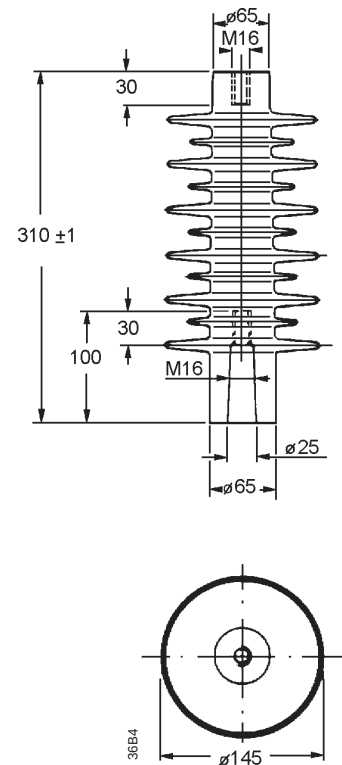
(13 NTWA 3)

NTWM 24 A 1



(13 NTWM 3)

NTWA 36 B 4

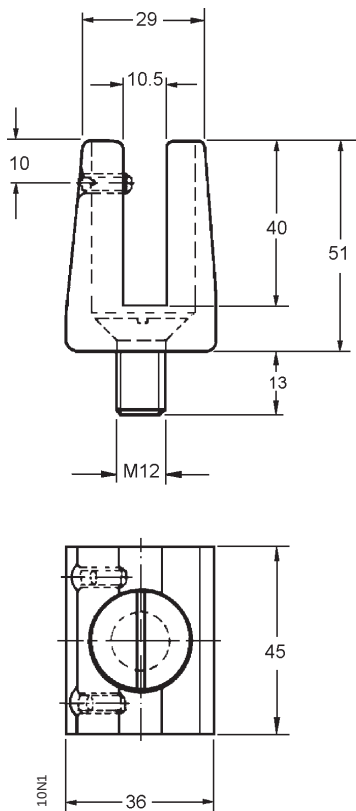


(13 NTW 7)

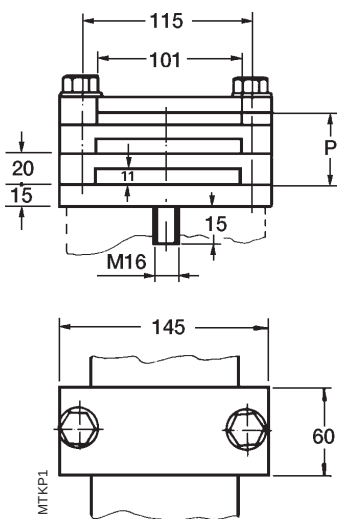
Busbar clamps Dimensions

Busbar clamps

MTKPS 10 N 1

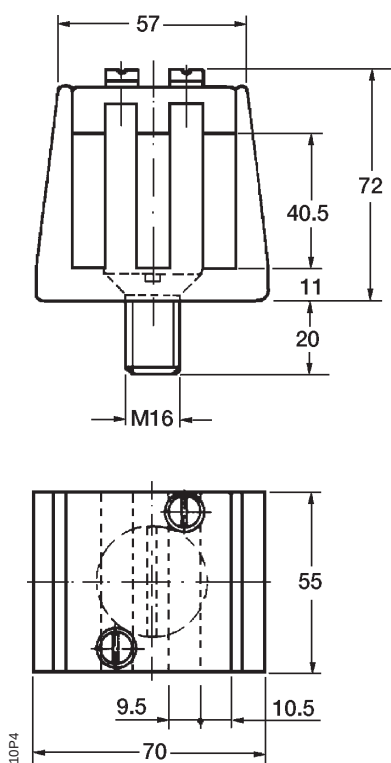


MTKP_

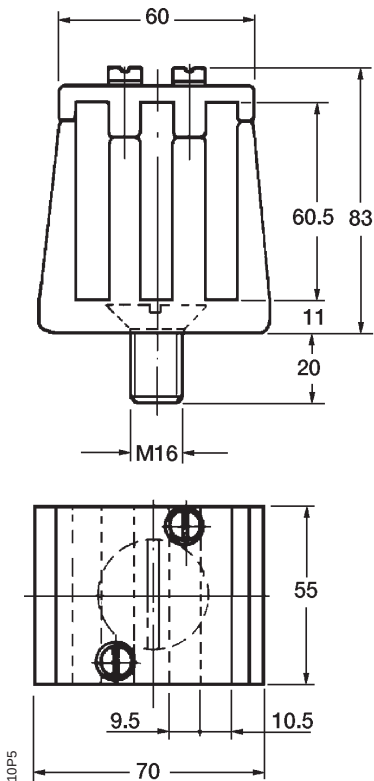


Type	P
MTKP 100 P 5	11
MTKP 100 P 6	31
MTKP 100 P 7	51
MTKP 100 P 8	71
MTKP 100 P 9	91

MTKPS 10 P 4



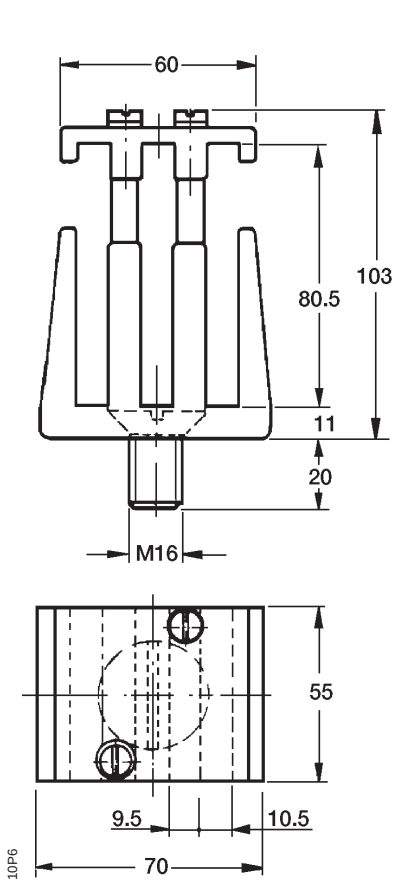
MTKPS 10 P 5



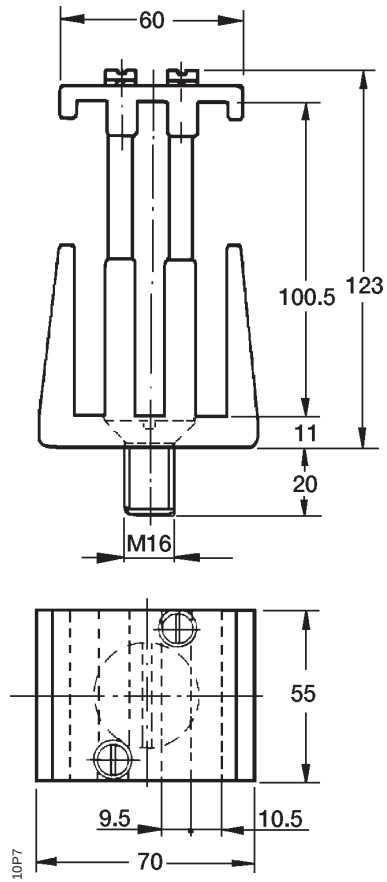
Busbar clamps

Dimensions

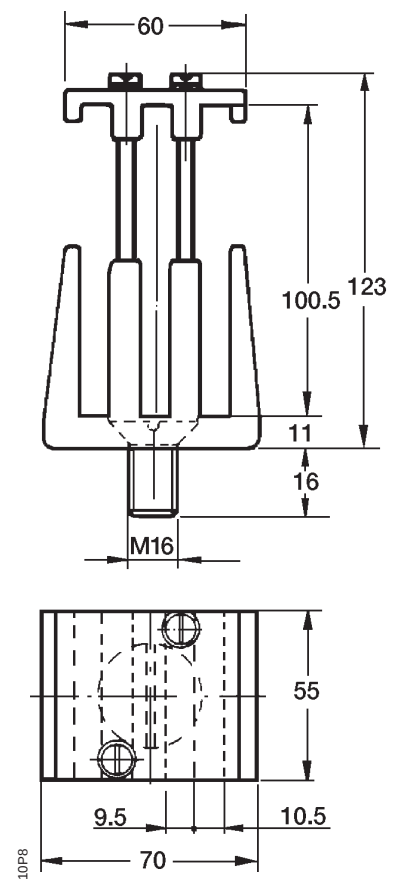
MTKPS 10 P 6



MTKPS 10 P 7

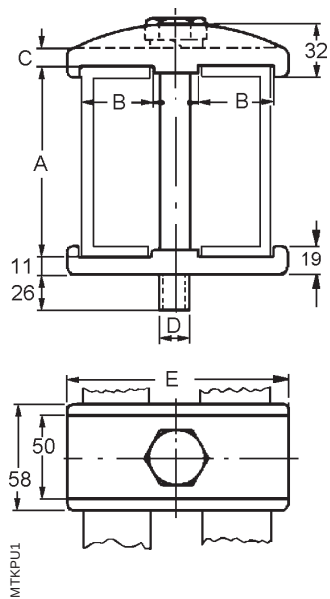


MTKPS 10 P 8



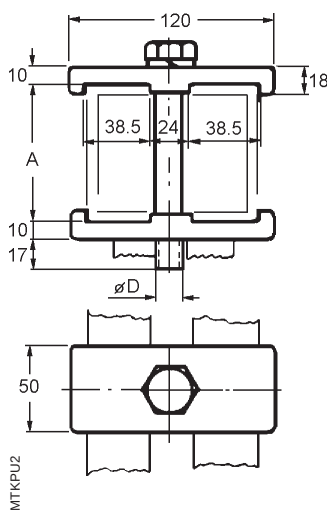
Busbar Clamps Dimensions

MTKPU_



Type	A	B	C	D	E
MTKPU 14 S 1	140	53.5	11	M20	163
MTKPU 14 P 1	140	53.5	11	M16	162
MTKPU 12 S 2	120	46	9	M20	140
MTKPU 12 P 1	120	46	9	M16	140

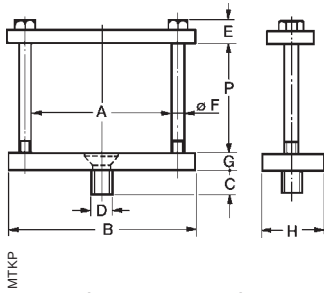
MTKPU_



Type	A	D
MTKPU 10 S 2	100	M20
MTKPU 8 S 2	80	M20
MTKPU 10 P 2	100	M16
MTKPU 8 P 2	80	M16

Busbar Clamps Dimensions

MTKP_



(13 MTKP 13)

Type	A	B	C	D	E	F	G	H
MTKP 40 D 3	42	64	11	M8	11	6	10	30
MTKP 40 M 3	42	64	13	M10	11	6	10	30
MTKP 40 N 3	42	64	15	M12	11	6	10	30
MTKP 60 M 3	62	90	11	M10	15	8	12	36
MTKP 60 N 3	62	90	14	M12	15	8	12	36
MTKP 60 P 3	62	96	18	M16	17	10	13	50
MTKP 80 N 3	82	112	13	M12	16	8	13	42
MTKP 80 P 3	83	125	16	M16	19	12	15	60
MTKP 80 S 3	83	125	27	M20	19	12	15	60
MTKP 100 P 3	103	145	16	M16	20	12	15	60
MTKP 100 S 3	103	145	27	M20	20	12	15	72

Table for tightening screws. Screws are delivered only when dimension P is stated on the order.

Busbar clamp type	Screw type	Length of screw when dimension P is				
		10 mm	30 mm	50 mm	70 mm	90 mm
MTKP	FLHS					
40 D, M, N	M6	25	45	–	–	–
60 M, N	M8	30	50	70	–	–
60 P	M10	30	50	70	–	–
80 N	M8	30	50	70	90	–
80 P, S	M12	35	55	75	95	–
100 P, S	M12	35	55	75	95	115



ABB Transmit Oy
MV Systems Division
Instrument Transformers
P.O. Box 613, FIN-65101 Vaasa
Finland
Telephone +358 10 22 4000
Telefax +358 10 22 42616