

PORCELAIN BUSHINGS LV Series



A tried-and-tested medium-voltage bushing
for distribution transformers



BUSHINGS: GENERAL INFORMATION

1.0 Electrical characteristics (Ir = rated current; Ur = rated voltage)

1.1 Standard insulation levels

Rated voltage Ur kV (r.m.s.)	One minute power frequency withstand voltage wet and dry kV (r.m.s.)	Dry lightning impulse withstand voltage dry (1,2/50 ms) kV
1	10	20
3,6	10	40
12	28	75
24	50	125
36	70	170
52	95	250

1.2 Standard values of rated thermal short time current (I_{th}) 25 times the rated current (I_r) for 2 s ; for I_r equal or greater than 4000A, I_{th} is always 100kA

1.3 Overload conditions (IEC 354): Bushing selected with I_r not less than 120% of the rated current of the transformers are considered to be able to withstand the overload conditions according to IEC 354.

2.0 Mechanical characteristic

2.1 Cantilever operating load (bushing installed less than 30° from vertical)

Ur kV	Ir			
	800 A	1600 A	2500 A	3150 A
36	500 N	625 N	1000 N	1575 N
52	500 N	625 N	1000 N	1575 N

2.2 Cantilever operating load (bushing installed more than 30° from vertical)

Ur kV	Ir			
	800 A	1600 A	2500 A	3150 A
36	300 N	375 N	600 N	945 N
52	300 N	375 N	600 N	945 N

2.3 Cantilever test load

Ur kV	Ir			
	800 A	1600 A	2500 A	3150 A
36	1000 N	1250 N	2000 N	3150 N
52	1000 N	1250 N	2000 N	3150 N

3.0 Tightening torque (suggested values, +/- 10% depending on the quality of the tank cover surface)

3.1 On the central conductor LV/HV in brass or copper




CEDASPE S.p.a
 S.Giuliano MILANE (ITALY)

- ▶ Closing nut partially tightened for transport / storing
 ATTENTION: complete the tightening before testing / commissioning
- ▶ Die Mutter ist aus Transportgruenden Und Lagergründen.
 ACHTUNG: Vor in Betrieb nahme sind alle Teile nochmals anzuziehen.
- ▶ Tuerca parcialmente serrada para transporte y para tenerlo en almacen
 ATENCION: completar el serraje de la tuerca antes de la puesta en marcha
- ▶ ATTENTION: Écrous partiellement vissé pour le transport et stockage.
 Le visser complètement avant essai/mise en service
- ▶ Dado parzialmente serrato per il trasporto / immagazzinamento.
 ATTENZIONE: completare il serraggio prima del collaudo / messa in servizio

Tightening Torque (+/-10%)

Current	Size	Torque
250 A	M12	13 Nm
630 A	M20	30 Nm
1250 A	M30x2	70 Nm
2000 A	M42x3	115 Nm
3150 A	M48x3	150 Nm
4500 A	M55x3	200 Nm
6300 A	M75x3	200 Nm
5000/8000 A	M90x4	200 Nm

3.2 On the steel fixing stud of HV bushings

Size	Torque
M10	15 Nm
M12	25 Nm
M16	40 Nm

3.3 On the locking bolts of the flags

Size	Torque
M10	25 Nm
M12	40 Nm
M16	90 Nm

4.0 Surface treatment of active metallic parts

Unless by special request, all active metallic parts in brass and copper have self colour surfaces.

Upon request, particularly for use in highly polluted environment conditions or in tropical climate, above parts can be supplied with electrolytic tinplated surfaces with 6-8 micron average coating thickness.

5.0 N.B.R. gaskets

The material of our gaskets is suitable to be used in mineral oil at the max temperature of 100°C (minimum temperature - 20°C) for continuous service; for different limit temperatures, please contact our engineering department.

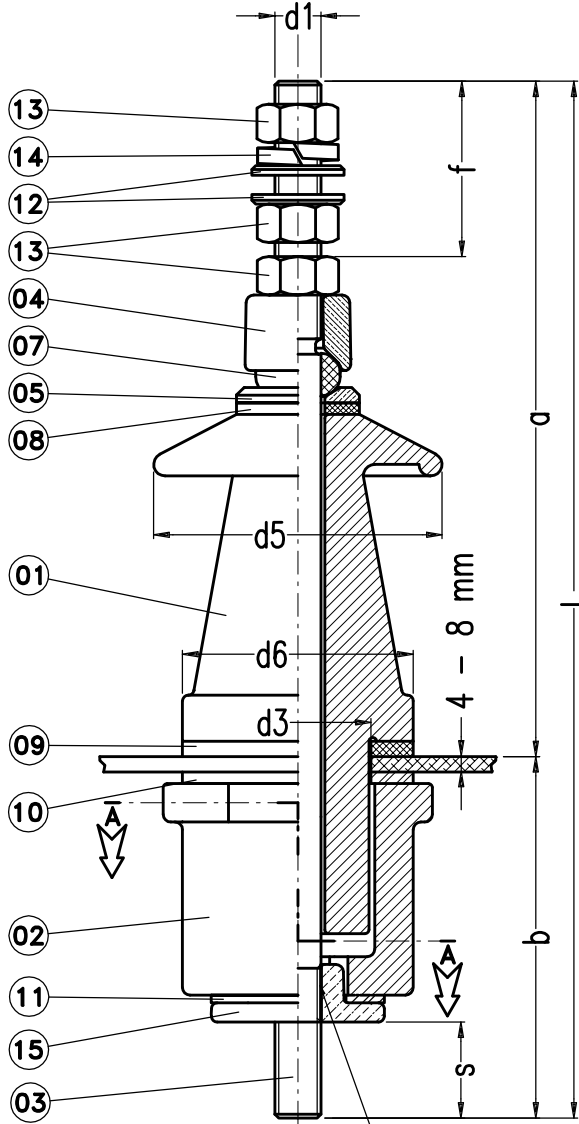
During the impregnation of the transformer it is possible to reach the max temperature of 110°C in oil and 120°C in air for 24 hours, without damaging the gaskets.

Upon request available cork rubber impregnated gaskets, or in Viton, or in silicon rubber.

Sect. 1 : L.V. BUSHINGS

Page 1.8/1.9 : L.V. bushings according to DIN 42539 (3,6 kV)
Page 1.10 : Bushings type 3/4500-6300

Fig. A1



Pos	Qty	Descrizione/Description
1	1	Porc. Sup. "A"/Top porcelain "A"
2	1	Porc. Inf. "B"/Bottom porcelain "B"
3	1	Tirante/Stem
4	1	Roset. Sup. "E"/Brass washer "E"
5	1	Roset. Inf. "G"/Brass washer "G"
7	1	Guarn. Tor./Ring gasket "J"
8	1	Guarn. Piana/Plain gasket
9	1	Guarn. Flangia/Flange gasket
10	1	Guarn. Interna/Internal gasket
11	1	Guarn. Interna/Internal gasket
12	2	Rondella OT/Brass contact washer
13	3/4	Dado OT UNI5588/Brass nut DIN934
14	1	Rondella Grower/Spring washer
15	1	Ghiera/Brass closing piece
17	2	Dado OT UNI5589/Brass locknut DIN936
19	1	Rosetta a tazza/Bellville washer

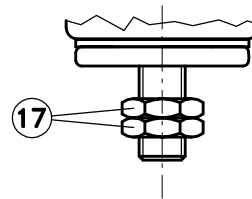


Fig. A2

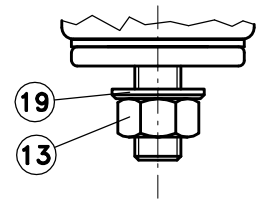
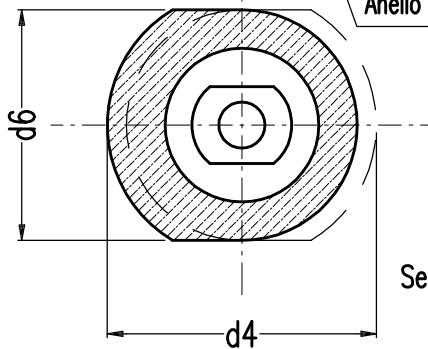


Fig. E1

Ring pos.15 + Stem pos.3 Crimped (on demand can be tinbrazed)
 Anello pos.15 + Tirante pos.3 Crimpato (su richiesta può essere saldato a stagno)



Sez. A - A

LA FIGURA MOSTRA ISOLATORE 3/250 IN SCALA 1:2

THE FIGURE SHOWS THE BUSHING 3/250 (1:2 SCALE)

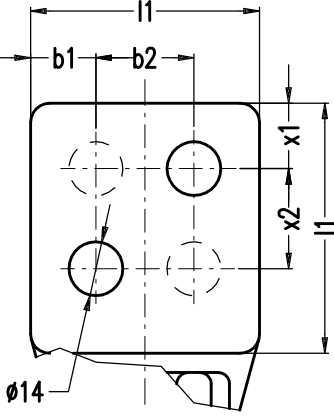
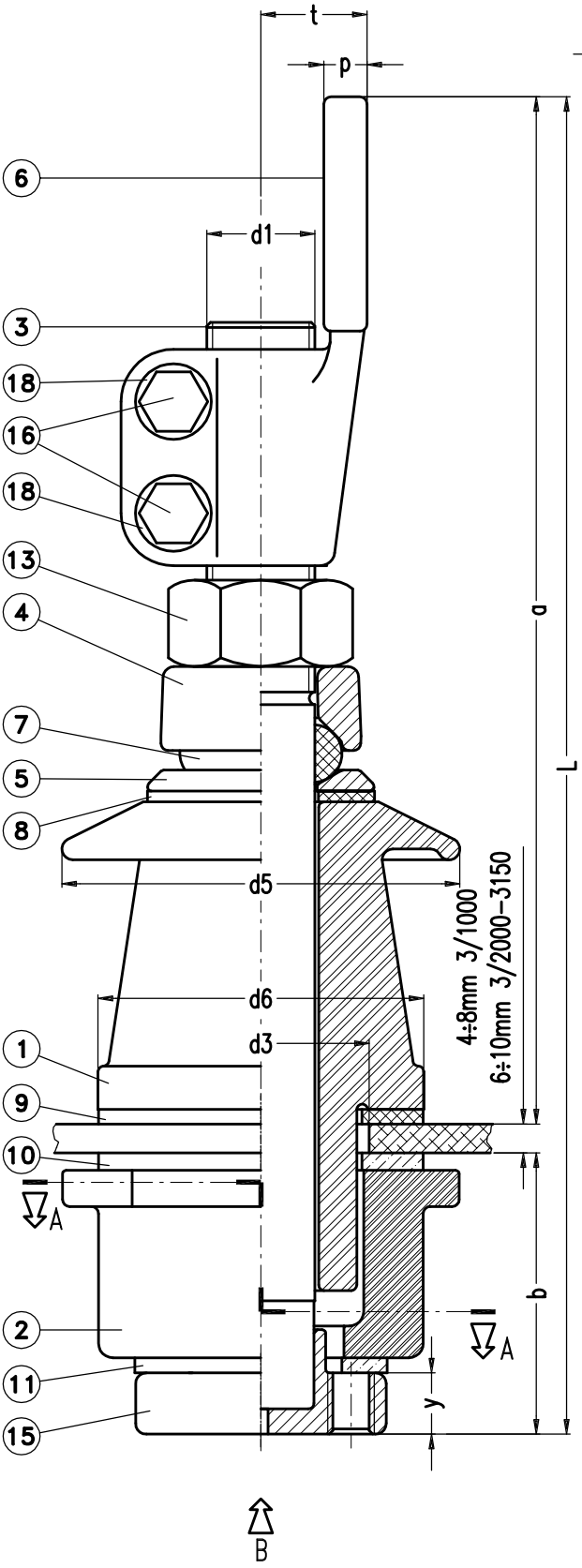
Isolatore Bushing	Tensione Voltage KV	Corrente Current A	Linea di fuga Creepage distance	a mm	b mm	f mm	L mm	s mm	d1 mm	d3 mm	d4 mm	d5 mm	d6 mm	Peso Weight Kg	Volume Volume dm ³	Materiale Tirante-pos.3 Stem-pos.3 Material
3/250	3.6	250	120	180	92	50	272	25	M12	39	70	75	60	1.0	2.7	Ottone / Brass
3/630 - CU	3.6	630	120	210	108	65	318	37	M20	45	85	90	70	2.5	4.8	Rame / Copper
3/630 - MS	3.6	630	120	209	105	65	314	35	M20	45	85	90	70	2.5	4.8	Ottone / Brass



Titolo
**Outdoor transformer
 bushings DIN 42539
 Rated voltage 3.6kV
 Rated current 250-630A**

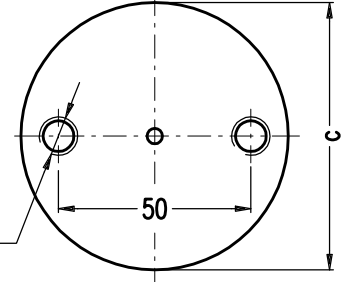
Data **11/03/13**
 Scala **1:2**
 Dis.
 Visto

Dis. Nr
3772

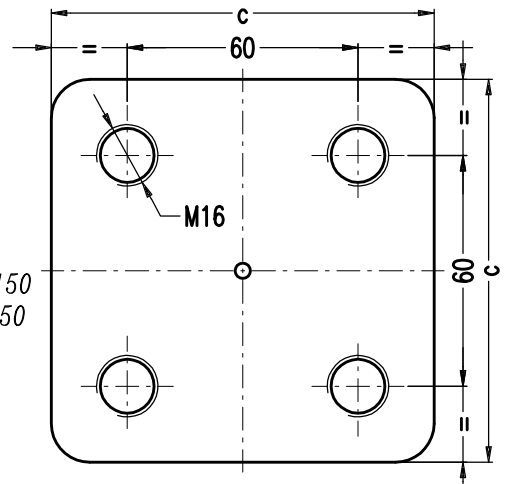


Pos	Qty	Descrizione/Description
1	1	Porc. Sup. "A"/Top porcelain "A"
2	1	Porc. Inf. "B"/Bottom porcelain "B"
3	1	Tirante/Stem
4	1	Roset. Sup. "E"/Brass washer "E"
5	1	Roset. Inf. "G"/Brass washer "G"
6	1	Banderuola/Brass flag
7	1	Guarn. Tor./Ring gasket "J"
8	1	Guarn. Piana/Plain gasket
9	1	Guarn. Flangia/Flange gasket
10	1	Guarn. Interna/Internal gasket
11	1	Guarn. Interna/Internal gasket
13	1	Dado OT UNI5588/Brass nut DIN934
15	1	Ghiera/Brass closing piece
16	2	Vite UNI 5739/Bolt DIN 933
18	2	Rondella/Washer

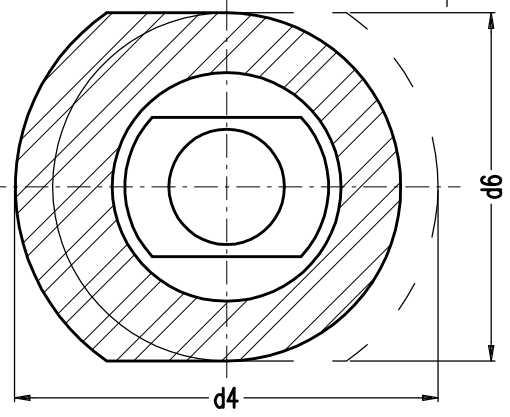
VISTA B
Isolatore 3/1000
Bushing 3/1000



VISTA B
Isolatore 3/2000-3150
Bushing 3/2000-3150



Sez. A:A



LA FIGURA MOSTRA ISOLATORE 3/1000 IN SCALA 1:2

dim in mm

THE FIGURE SHOWS THE BUSHING 3/1000 (1:2 SCALE)

Isolatore Bushing	Tensione Voltage KV	Corrente Current A	Linea di fuga Creepage distance	a mm	b mm	c mm	y mm	t mm	L mm	p mm	d1 mm	d3 mm	d4 mm	d5 mm	d6 mm	x1 mm	x2 mm	b1 mm	b2 mm	l1 mm	Massa Kg	Volume Volume dm ³	N°Fori N°Holes Z	Band. Band.
3/1000	3.6	1250	125	290	80	70	17	28	370	10	M30X2	56	110	110	90	17	26	17	26	60	6	8	2	
3/2000	3.6	2000	125	370	90	100	22	40	460	15	M42X3	70	125	125	104	20	40	25	50	100	13	15	4	
3/3150	3.6	3150	125	400	95	110	27	45	495	15	M48X3	90	150	145	125	20	40	30	60	120	18	20	4	



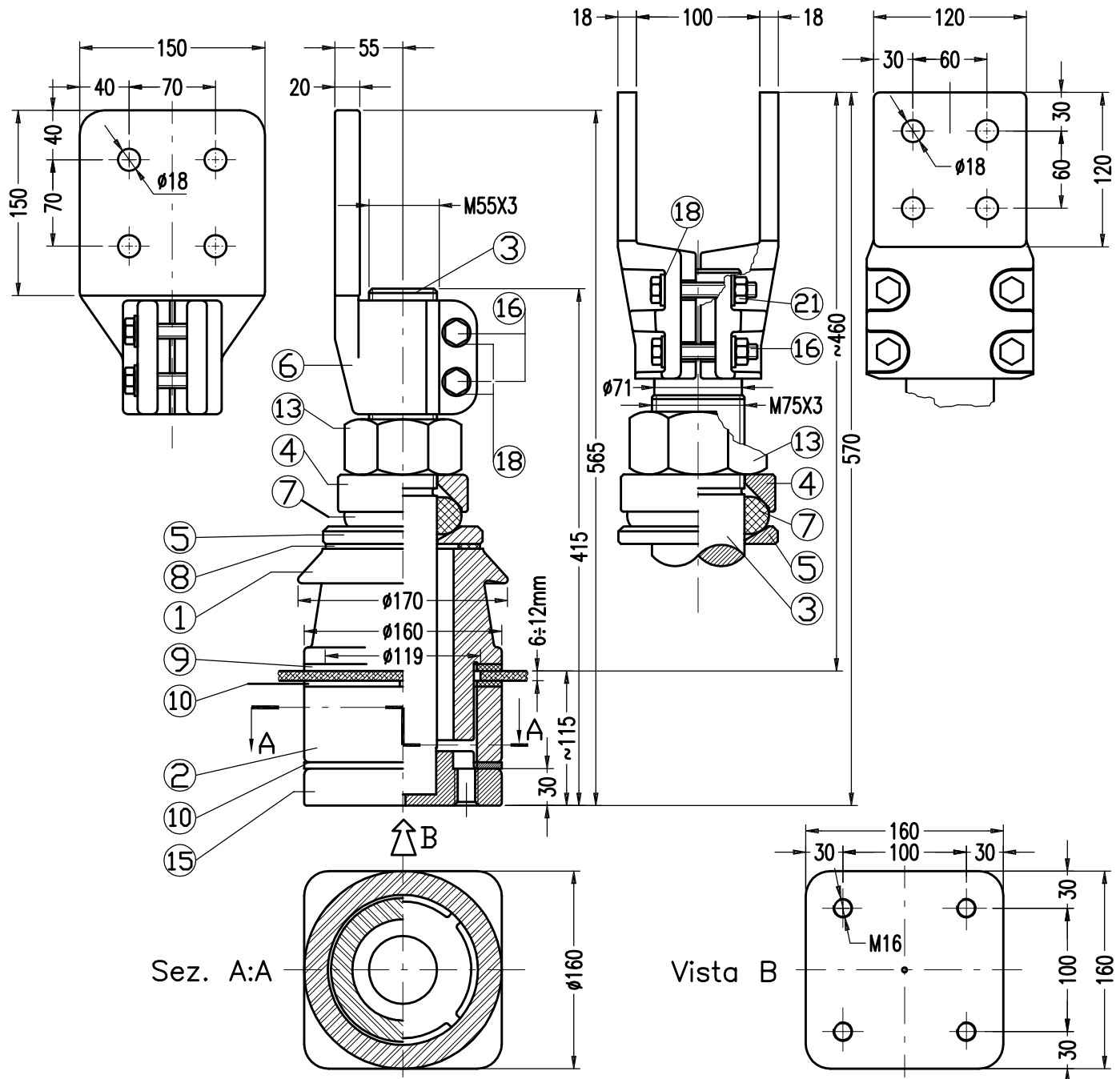
Titolo
Outdoor transformer bushings
DIN 42539
Rated voltage 3.6kV
Rated current
1000-2000-3150A

Data **11/03/13**
Scala **1:2**
Dis.
Visto

Dis. Nr
3773

Type 3kV/4500A

Type 3kV/6300A



Pos	Qty	Descrizione/Description	Pos	Qty	Descrizione/Description
1	1	Porc. Sup. 'A'/Top porcelain 'A'	9	1	Guarn. Flangia/Flange gasket
2	1	Porc. Inf. 'B'/Bottom porcelain 'B'	10	2	Guarn. Interna/Internal gasket
3	1	Tirante/Stem	13	1	Dado DT UNI5588/Brass nut DIN934
4	1	Roset. Sup. 'E'/Brass washer 'E'	15	1	Ghiera/Brass closing piece
5	1	Roset. Inf. 'G'/Brass washer 'G'	16	2/4	Vite UNI 5739/Bolt DIN 933
6	1	Banderuola/Brass flag	18	2/8	Rondella/Washer
7	1	Guarn. Tor./Ring gasket 'J'	21	0/4	Dado UNI5588/Nut DIN934
8	1	Guarn. Piana/Plain gasket			

Isolatore Bushing	Tensione Voltage KV	Corrente Current A	Linea di fuga Creepage distance	Peso Weight Kg	Volume Volume dm ³
3/4500	3	4500	130	32	30
3/6300	3	6300	130	38	35

LA FIGURA MOSTRA ISOLATORE 3/4500-6300

dim. in mm

THE FIGURE SHOWS THE BUSHING 3/4500-6300

	Titolo Outdoor transformer bushings Rated voltage 3.6kV Rated current 4500-6300 A	Data 11/03/13 Scala 1:2 Dis. Visto	Dis. Nr 3774