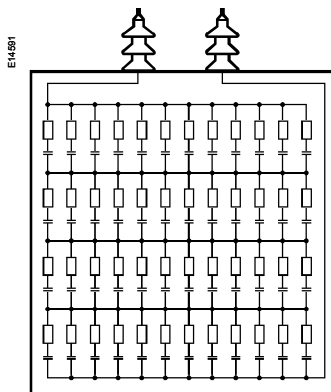


The Propivar capacitors are used to compensate reactive power on medium and high voltage networks.



Single-phase Propivar capacitor.



Propivar capacitor with internal fuses, composed of 4 groups connected in series, each group comprising 12 elements connected in parallel.

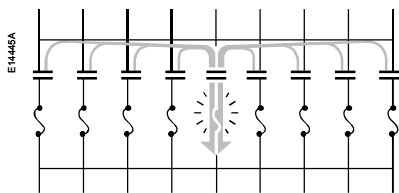


Fig. 1

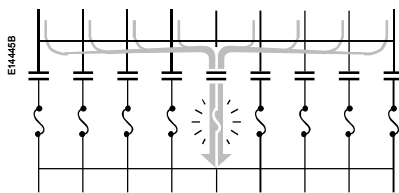


Fig. 2

Presentation

A Propivar medium voltage capacitor is a steel case or tank provided with resin insulators. The tank comprises an assembly of capacitor elements having a maximum permissible rated voltage of 2250 V.

When connected in series-parallel groups, they provide high power units for elevated system voltages.

There are two types of capacitors:

- with internal fuses (single-phase capacitor)
- without internal fuses (three-phase or single-phase capacitor).

Each capacitor is normally provided with discharge resistors to bring the residual voltage down to 75 V 10 minutes after the capacitor has been switched off.

If requested, the capacitors can be supplied without discharge resistors.

Construction

The Propivar capacitors are composed of elements which include:

- aluminium foil electrodes
- a dielectric liquid with no PCB or chlorine and a polypropylene film.

Compliance with standards

The Propivar capacitor complies with standard NF C 54-102 and with the following standards:

- IEC 60871, 1 and 2
- BS 1650
- VDE 0560
- C22-2 N° 190-M1985
- NEMA CP1.

Capacitors with internal fuses comply with the following standards: NF C 54-102, IEC 60871-4.

Protection by internal fuse

Propivar capacitors can be supplied with internal protection: each element or unit capacitor is equipped with a fuse. In the event of a breakdown of an element, the element is disconnected and isolated. Breakdown of a unit capacity may occur:

- when capacitor voltage is close to its maximum amplitude. In this case, it is the power stored in the capacitances of the parallel elements which guarantees a current sufficient to rupture the internal fuse (fig. 1)
- when capacitor voltage is close to zero. This current ensures breaking of the internal fuse (fig. 2).

Advantages of this protection type:

- instantaneous disconnection of the short-circuiting element
- lifetime of the capacitor
- reduction in material costs and maintenance
- continuity of service is ensured
- possibility of programming site maintenance.

Main characteristics

The exceptional life of Propivar capacitors is due to their temperature withstand, small temperature rise, chemical stability and overvoltage and overcurrent withstand.

Temperature withstand

These capacitors can be put into service at low temperatures without any special precautions being taken.

At higher ambient temperatures, the temperature rise is very low, so they can be operated without any risk of modifying the insulation characteristics of the dielectric.

Chemical stability

Transient overvoltages in circuits and partial discharge levels in tanks cause accelerated ageing of capacitors. The exceptional life of Propivar capacitors is closely connected with the intrinsic properties of the dielectric liquid:

- very high chemical stability
- high absorption capacity for gases generated during partial discharges
- very high dielectric strength.

Overvoltage and overcurrent withstand

The capacitors can accept:

- an overvoltage of 1.10 Un for 12 hours a day
- a power frequency overvoltage of 1.15 Un for 30 minutes a day
- a permanent overcurrent of 1.3 In. The withstand of capacitors is verified by:
 - 1 000 cycles at an overvoltage level of 2.25 Un (cycle duration 1 s)
 - ageing tests at 1.4 Un.

Insulating voltage of the Propivar capacitors in accordance with IEC 60871-1 and 2 standard in the majority of european and several other countries:

Highest voltage for equipment Um						
kV	7.2	12	17.5	24	36	
Insulation level						
Rms kV, 50 Hz-1 mn	10	20	28	38	50	70
Basic impulse level (BIL) kV, 1.2/50 µs	40	60	75	95	125	170

In accordance with NEMA CP1 standard based on current practice in some countries of North America and others:

Highest voltage for equipment Um						
kV	5.5	15.5	19.8	27.5	38	
Insulation level						
Rms kV, 50 Hz-1 mn	13	24	30	36	50	70
Basic impulse level (BIL) kV, 1.2/50 µs	45	75	95	125	150	200

Environmental protection / biodegradability

Propivar capacitor contains a dielectric liquid with no PCB or chlorine.

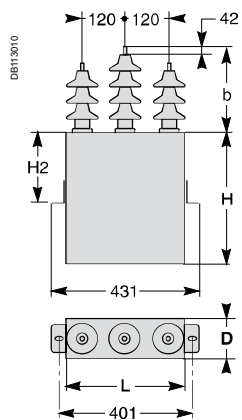
Other characteristics

Service frequency	50 Hz - (available in 60 Hz, please consult us)	
Temperature range	-25 to +45 °C	
Average loss factor at 20 °C after stabilisation	0.16 W/kvar with internal fuses 0.12 W/kvar without internal fuses	
Maximum rated reactive power ⁽¹⁾	three phase capacitors	450 kvar
	single phase capacitors	600 kvar
Capacitance value tolerance	-5, +15 %	
Capacitance variation DC/C	-3.5 . 10 ⁻⁴ °C	
Connection to resin insulators for cables with a section ≤ 50 mm ²		
Tank welded steel	Thickness	1.5 mm
	Colour	Grey RAL 7038
	Anticorrosion treatment	
Fixing system	2 perforated brackets for M10 screw	

(1) Other reactive powers, on request.

Propivar capacitors

Insulation level 7.2 kV (20/60)
50/60 Hz



Three-phase Propivar capacitor.

Three phase capacitors

Network voltage (V)	4160		3300		3000		2400		Ref.	
Capacitor voltage (V)	4160		3300		3000		2400			
Dimensions (mm) (H x L x D / b / H2)	Weight (kg)		50 Hz		60 Hz		50 Hz		60 Hz	
	300 x 347 x 190 / 135 / 120	33	50	60	30	37.5	25	30	15	20
300 x 347 x 190 / 135 / 120	34	100	120	60	75	50	60	30	40	3658406R
400 x 347 x 190 / 135 / 220	43	150	180	90	115	75	90	45	60	3658407R
500 x 347 x 190 / 135 / 320	51	200	240	120	150	100	120	60	80	3658408R
500 x 347 x 190 / 135 / 320	52	250	300	150	190	125	150	75	100	3658409R
600 x 347 x 190 / 135 / 420	61	300	360	180	225	150	180	90	120	3658410R
700 x 347 x 190 / 135 / 520	69	350	420	210	265	175	210	105	140	3658411R

Three phase capacitors

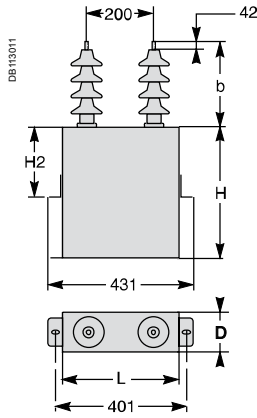
Network voltage (V)	6600		6300		6000		5500		Ref.	
Capacitor voltage (V)	6600		6300		6000		5500			
Dimensions (mm) (H x L x D / b / H2)	Weight (kg)		50 Hz		60 Hz		50 Hz		60 Hz	
	300 x 347 x 190 / 135 / 120	34	50	60	45	55	40	50	35	40
300 x 347 x 190 / 135 / 120	34	100	120	90	110	80	100	70	80	3658337R
400 x 347 x 190 / 135 / 220	43	150	180	135	165	120	150	105	120	3658338R
500 x 347 x 190 / 135 / 320	52	200	240	180	220	160	200	140	160	3658339R
810 x 347 x 165 / 135 / 630	71	250	300	225	275	200	250	175	200	3658340R
700 x 347 x 190 / 135 / 420	70	300	360	270	330	240	300	210	240	3658341R
700 x 347 x 190 / 135 / 420	76	350	420	315	385	280	350	245	280	3658342R
810 x 347 x 190 / 135 / 630	81	400	480	360	440	320	400	280	320	3658343R
810 x 347 x 190 / 135 / 630	81	450	540	405	495	360	450	315	360	3658344R

Options

Description	Ref.
Set of 3 clamps for delta connexion	73396904R
Set of 3 clamps for star connexion	73396905R

Propivar capacitors

Insulation level 7.2 kV (20/60)
50/60 Hz



Single-phase Propivar capacitor.

Single phase capacitors with internal fuses

Network voltage (V)	6600		6300		6000		5500		Ref.		
Capacitor voltage (V)	3810		3640		3460		3180				
Dimensions (mm) (H x L x D / b / H2)	Weight (kg)		50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	
400 x 347 x 165 / 233 / 220	39	100	120	90	110	80	95	-	-		3658354R
400 x 347 x 190 / 233 / 220	44	150	180	135	160	125	150	105	125		3658355R
500 x 347 x 190 / 233 / 320	54	200	240	180	220	160	190	140	170		3658356R
500 x 347 x 190 / 233 / 320	54	250	300	225	270	205	245	175	210		3658357R
600 x 347 x 190 / 233 / 420	63	300	360	270	320	250	300	210	250		3658358R
700 x 347 x 190 / 233 / 520	72	400	480	360	440	320	380	280	340		3658359R

Single phase capacitors without internal fuses

Network voltage (V)	6600		6300		6000		5500		Ref.		
Capacitor voltage (V)	3810		3640		3460		3180				
Dimensions (mm) (H x L x D / b / H2)	Weight (kg)		50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	
300 x 347 x 190 / 233 / 120	35	100	120	90	110	80	95	70	85		3658375R
300 x 347 x 190 / 233 / 120	35	150	180	135	160	125	150	105	125		3658376R
400 x 347 x 190 / 233 / 220	44	200	240	180	220	160	190	140	170		3658377R
400 x 347 x 190 / 233 / 220	44	250	300	225	270	205	245	175	210		3658378R
500 x 347 x 190 / 233 / 320	53	300	360	270	320	250	300	210	250		3658379R
600 x 347 x 190 / 233 / 420	62	400	480	360	440	320	380	280	340		3658380R

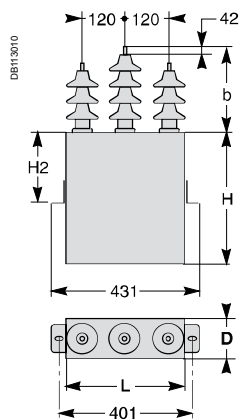
Options

Description	Ref.
Set of 2 clamps for delta connexion	73396902R
Set of 2 clamps for star connexion	73396903R

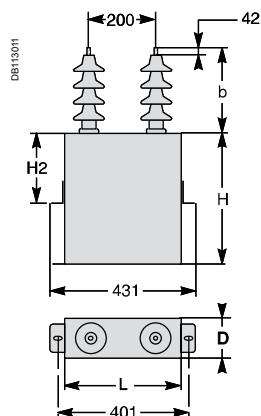
Propivar capacitors

Insulation level 12 kV (28/75)

50/60 Hz



Three-phase Propivar capacitor.



Single-phase Propivar capacitor.

Three phase capacitors

Network voltage (V)	12000		11000		10500		10000		Ref.	
Capacitor voltage (V)	12000		11000		10500		10000			
Dimensions (mm) (H x L x D / b / H2)	Weight (kg)		50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz		
300 x 347 x 190 / 233 / 120	35	150	180	125	150	115	135	105	125	3658347R
400 x 347 x 190 / 233 / 220	44	200	240	170	200	150	180	140	165	3658348R
500 x 347 x 190 / 233 / 320	53	250	300	210	250	190	230	175	210	3658349R
600 x 347 x 190 / 233 / 420	62	300	360	250	300	230	270	210	250	3658350R
600 x 347 x 190 / 233 / 420	63	350	420	295	350	265	320	245	295	3658351R
700 x 347 x 190 / 233 / 520	71	400	480	340	400	300	360	280	330	3658352R
810 x 347 x 190 / 233 / 630	81	450	540	380	450	345	410	315	375	3658353R

Options

Description	Ref.
Set of 3 clamps for delta connexion	73396904R
Set of 3 clamps for star connexion	73396905R

Single phase capacitors with internal fuses

Network voltage (V)	11000		10500		10000		Ref.
Capacitor voltage (V)	6350		6060		5770		
Dimensions (mm) (H x L x P / b / H2)	Weight (kg)		50 Hz	60 Hz	50 Hz	60 Hz	
400 x 347 x 165 / 233 / 220	40	180	215	165	200	-	3658360R
500 x 347 x 180 / 233 / 320	51	240	290	220	260	200	3658361R
600 x 347 x 180 / 233 / 420	60	300	360	275	330	250	3658362R
700 x 347 x 190 / 233 / 520	71	360	430	330	400	300	3658363R
810 x 347 x 190 / 233 / 630	82	480	580	440	520	400	3658364R
1000 x 347 x 190 / 233 / 820	99	600	720	550	660	500	3658708R

Single phase capacitors without internal fuses

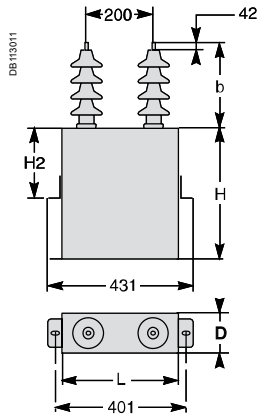
Network voltage (V)	11000		10500		10000		Ref.
Capacitor voltage (V)	6350		6060		5770		
Dimensions (mm) (H x L x P / b / H2)	Weight (kg)		50 Hz	60 Hz	50 Hz	60 Hz	
300 x 347 x 190 / 233 / 120	35	120	145	110	130	100	3658381R
300 x 347 x 190 / 233 / 120	35	180	215	165	200	150	3658382R
400 x 347 x 190 / 233 / 220	43	240	290	220	260	200	3658383R
500 x 347 x 190 / 233 / 320	52	300	360	275	330	250	3658384R
600 x 347 x 190 / 233 / 420	61	360	430	330	400	300	3658385R
700 x 347 x 190 / 233 / 520	70	480	580	440	520	400	3658386R
900 x 347 x 190 / 233 / 720	83	600	720	550	660	500	3658709R

Options

Description	Ref.
Set of 2 clamps for delta connexion	73396902R
Set of 2 clamps for star connexion	73396903R

Propivar capacitors

Insulation level 17.5 kV (38/95)
50/60 Hz



Single-phase Propivar capacitor.

Single phase capacitors with internal fuses

Network voltage (V)	15000		13800		12000		Ref.	
Capacitor voltage (V)	8660		7970		6930			
Dimensions (mm) (H x L x D / b / H2)	Weight (kg)	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	
400 x 347 x 165 / 282 / 420	56	200	240	170	200	-	-	3658365R
500 x 347 x 190 / 282 / 320	54	250	300	210	250	-	-	3658366R
600 x 347 x 190 / 282 / 420	63	300	360	250	300	-	-	3658367R
700 x 347 x 190 / 282 / 520	73	400	480	340	400	260	320	3658368R
900 x 347 x 190 / 282 / 720	91	500	600	420	505	320	385	3658710R
1000 x 347 x 190 / 282 / 820	100	600	720	510	610	385	460	3658711R

Single phase capacitors without internal fuses

Network voltage (V)	15000		13800		12000		Ref.	
Capacitor voltage (V)	8660		7970		6930			
Dimensions (mm) (H x L x D / b / H2)	Weight (kg)	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	
300 x 347 x 190 / 282 / 120	36	100	120	85	100	65	80	3658387R
300 x 347 x 190 / 282 / 120	35	150	180	125	150	95	115	3658388R
400 x 347 x 190 / 282 / 220	44	200	240	170	200	130	160	3658389R
400 x 347 x 190 / 282 / 220	45	250	300	210	250	160	190	3658390R
500 x 347 x 190 / 282 / 320	54	300	360	250	300	190	230	3658391R
600 x 347 x 190 / 282 / 420	63	400	480	340	400	260	320	3658392R
810 x 347 x 190 / 282 / 630	82	500	600	420	505	320	385	3658712R
900 x 347 x 190 / 282 / 720	91	600	720	510	610	385	460	3658713R

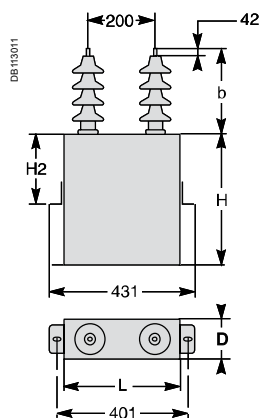
Options

Description	Ref.
Set of 2 clamps for delta connexion	73396902R
Set of 2 clamps for star connexion	73396903R

Propivar capacitors

Insulation level 24 kV (50/125)

50/60 Hz



Single-phase Propivar capacitor.

Single phase capacitors with internal fuses

Network voltage (V)	22000		20000		Ref.	
Capacitor voltage (V)	12700		11550			
Dimensions (mm) (H x L x D / b / H2)	Weight (kg)	50 Hz	60 Hz	50 Hz	60 Hz	
810 x 347 x 165 / 282 / 630	73	300	360	-	-	3658369R
810 x 347 x 165 / 282 / 630	73	360	430	300	360	3658370R
810 x 347 x 190 / 282 / 630	83	480	580	400	480	3658371R
1000 x 347 x 190 / 282 / 820	100	600	720	500	600	3658715R

Single phase capacitors without internal fuses

Network voltage (V)	22000		20000		Ref.	
Capacitor voltage (V)	12700		11550			
Dimensions (mm) (H x L x D / b / H2)	Weight (kg)	50 Hz	60 Hz	50 Hz	60 Hz	
300 x 347 x 190 / 282 / 120	36	120	145	100	120	3658393R
400 x 347 x 190 / 282 / 220	44	180	215	150	180	3658394R
400 x 347 x 190 / 282 / 220	45	240	290	200	240	3658395R
500 x 347 x 190 / 282 / 320	53	300	360	250	300	3658396R
600 x 347 x 190 / 282 / 420	62	360	430	300	360	3658397R
700 x 347 x 190 / 282 / 520	71	480	580	400	480	3658398R
900 x 347 x 190 / 282 / 720	88	600	720	500	600	3658716R

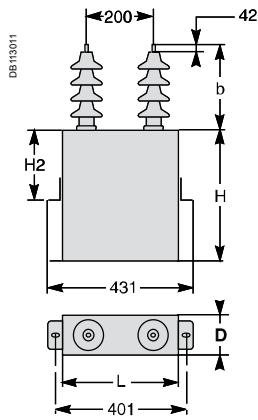
Options

Description	Ref.
Set of 2 clamps for delta connexion	73396902R
Set of 2 clamps for star connexion	73396903R

Propivar capacitors

Insulation level 36 kV (70/170)

50/60 Hz



Single-phase Propivar capacitor.

Single phase capacitors with internal fuses

Network voltage (V)	33000		31500		30000		Ref	
Capacitor voltage (V)	9530		9090		8660			
Dimensions (mm) (H x L x D / b / H2)	Weight (kg)	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	
600 x 347 x 190 / 377 / 420	65	300	360	275	330	250	300	3658372R
700 x 347 x 190 / 377 / 520	75	360	430	330	400	300	360	3658373R
810 x 347 x 190 / 377 / 630	85	480	580	440	520	400	480	3658374R
1000 x 347 x 190 / 377 / 820	100	600	720	550	660	500	600	3658706R

Single phase capacitors without internal fuses

Network voltage (V)	33000		31500		30000		Ref.	
Capacitor voltage (V)	9530		9090		8660			
Dimensions (mm) (H x L x D / b / H2)	Weight (kg)	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	
300 x 347 x 190 / 377 / 120	37	120	145	110	130	100	120	3658399R
400 x 347 x 190 / 377 / 220	46	180	215	165	200	150	180	3658400R
500 x 347 x 190 / 377 / 320	55	240	290	220	260	200	240	3658401R
500 x 347 x 190 / 377 / 320	55	300	360	275	330	250	300	3658402R
600 x 347 x 190 / 377 / 420	64	360	430	330	400	300	360	3658403R
810 x 347 x 190 / 377 / 630	83	480	580	440	520	400	480	3658404R
1000 x 347 x 190 / 377 / 820	100	600	720	550	660	500	600	3658707R

Options

Description	Ref.
Set of 2 clamps for delta connexion	73396902R
Set of 2 clamps for star connexion	73396903R