

DC 45 series

High Density, Low Inductance, Vacuum Silicone Oil impregnated DC-Link Capacitors - Prismatic Metal Case (steel, stainless steel or aluminum)

Designed for High-Voltage - High-Capacity applications, DC 45 can be made either with steel, stainless steel or aluminum cases and are vacuum impregnated with silicon oil.

The exclusive Ducati Energia metallization profiles guarantee high capacity stability and a controlled, open-circuit condition at the end of DC 45 operational life, while maximizing the current capability.

A special internal construction allows the minimization of field effects, thus guaranteeing real-life low ESL.


Main characteristics:

- High Capacity Density
- Self-Healing Metallized Polypropylene Film
- Steel, Stainless Steel or Aluminium Case
- Vacuum Silicone Oil Impregnation
- REAL Low ESL

Main applications:

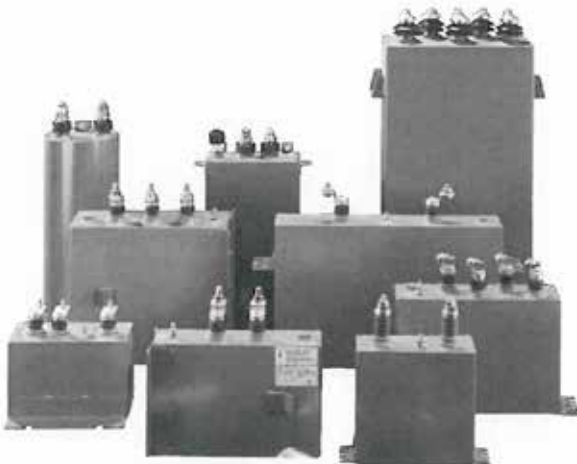
- DC-Link for Large Drives (Marine/Railway Propulsion; Mining Equipment, etc)
- Energy Storage / Pulse Generation

General Characteristics

DC Voltage range	800÷5000V (*)
Capacitance range	100÷5000 µF (*)
Capacitance tolerance	±5% / ±10%
Test voltage between terminals	1.5 Un 10 s
Test voltage between terminals and case	2 Un 50 Hz 60 s
Terminals	Bushings
Ambient operating temperature	- 25 / + 55 °C
Protection degree	-25 / +45 °C
Filling	Silicone Oil
Dielectric	Metallized polypropylene
Case	Steel
Life expectancy	100.000 h (**)
Installation	Vertical / horizontal
Reference standard	IEC 1071-1/2 - IEC 1881 - UL 810
In according to fire protection standard	 EN 45545-2

(*) Standard values. other values on request.

(**) For details please refer to page 75.



H 360 mm			
Rated DC Voltage	Capacitance Cn [μF]	Capacitance Cn [μF]	Capacitance Cn [μF]
Un [V]	Base: (W) 125 x (L) 340 mm	Base: (W) 140 x (L) 340 mm	Base: (W) 165 x (L) 480 mm
800	12000	14000	26000
1200	6000	7000	13000
1800	2600	3000	5600
2400	1400	1650	2400
3000	850	950	1700
3600	400	480	850
4200	300	480	850
4800	300	360	650

H 700 mm			
Rated DC Voltage	Capacitance Cn [μF]	Capacitance Cn [μF]	Capacitance Cn [μF]
Un [V]	Base: (W) 125 x (L) 340 mm	Base: (W) 140 x (L) 340 mm	Base: (W) 165 x (L) 480 mm
800	26000	29500	53000
1200	12000	14500	25000
1800	5500	6250	11500
2400	3000	3500	6500
3000	1750	3050	3650
3600	1150	1350	2450
4200	880	980	1500
4800	630	720	1100

H 515 mm			
Rated DC Voltage	Capacitance Cn [μF]	Capacitance Cn [μF]	Capacitance Cn [μF]
Un [V]	Base: (W) 125 x (L) 340 mm	Base: (W) 140 x (L) 340 mm	Base: (W) 165 x (L) 480 mm
800	18000	20500	36500
1200	8500	10000	18000
1800	3750	4250	8000
2400	2100	2500	4400
3000	1300	1500	2600
3600	850	1000	1700
4200	580	700	1250
4800	430	500	950

H 815 mm			
Rated DC Voltage	Capacitance Cn [μF]	Capacitance Cn [μF]	Capacitance Cn [μF]
Un [V]	Base: (W) 125 x (L) 340 mm	Base: (W) 140 x (L) 340 mm	Base: (W) 165 x (L) 480 mm
800	32000	36500	62000
1200	15500	18000	32000
1800	7000	8000	14500
2400	3850	4500	7650
3000	2150	2450	4500
3600	1400	1650	3000
4200	1050	1200	2300
4800	760	900	1650

Overvoltage conditions, Peak / Surge Voltage.

Rated DC Voltage Un [V]	Max. Working Voltage Umax [V]	Reeoeet. Peak Voltage Up [KV]	Surge Voltage Us [KV]
800	1040	1.3	1.7
1200	1560	2.0	2.5
1800	2340	3.0	3.8
2400	3120	4.0	5.0
3000	3900	5.0	6.3
3600	4680	5.9	7.6
4200	5460	6.9	8.8
4800	6240	7.9	10.1

NOTES:

(Umax) Working DC Voltage for a limited period of time, typically 4 hours/ day maximum.

(Up) Maximum Peak Voltage - repetitive condition. Pulse duration < 500μs

(Us) Surge Voltage, occasionally during the lifetime: < 100 times/life.

Equivalent serie inductance (ESL)

The values on this table are the maximum ESL referred to the case dimension of the capacitor. According to the number of terminals (2 or 4 - internal layout construction) and also the type of terminals (male or female, bushing height, ect...), ESL could be change.

Height	Base: 125 x 340 [mm]		Base: 140 x 340 [mm]		Base: 165 x 480 [mm]	
	12 terminals	4 terminals	2 terminals	4 terminals	2 terminals	4 terminals
H [mm]						
360	<130	<80	<135	<85	<145	<95
515	<145	<90	<150	<100	<165	<110
700	<160	<100	<170	<110	<185	<125
815	<180	<110	<200	<120	<220	<140

ESL (nH) - Measured according to IEC 61071, annex C

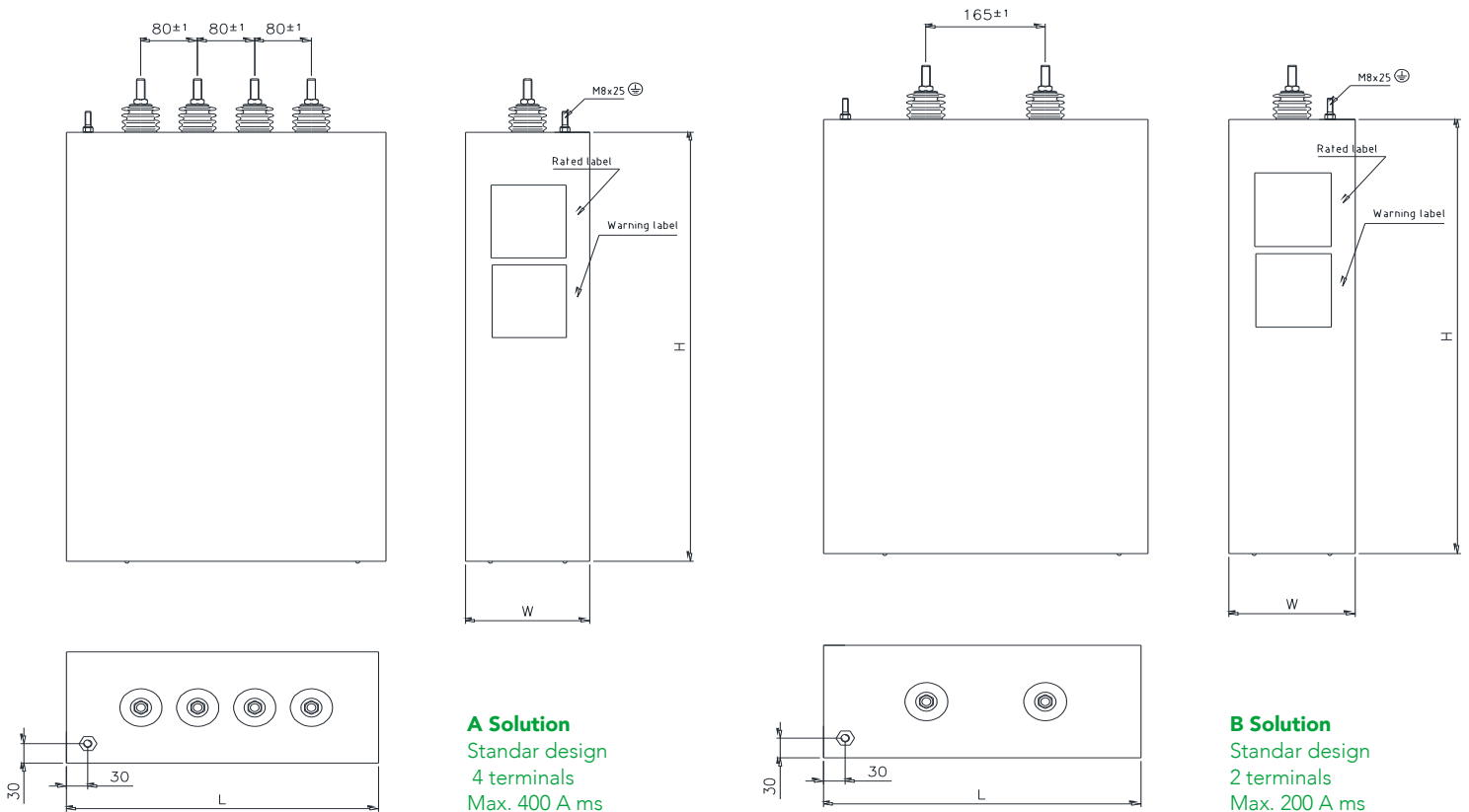
Thermal resistance (R_{TH})

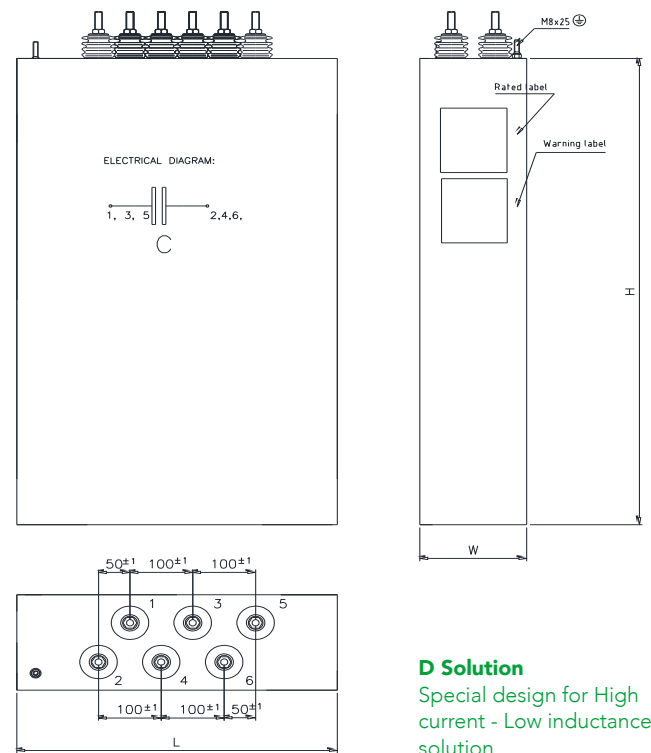
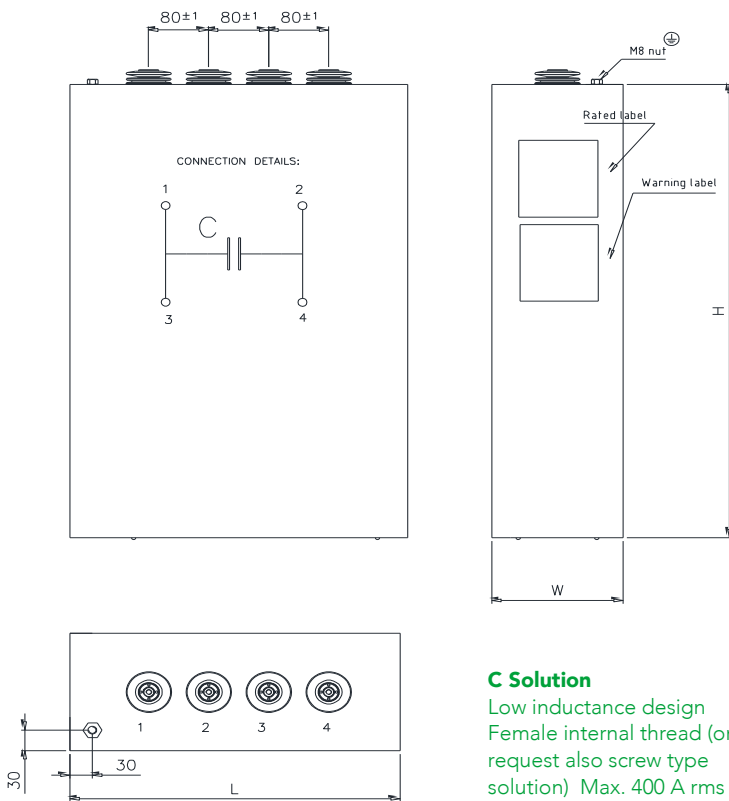
R_{TH} (°C/W) Typical thermal resistance between case to ambient air, at thermal equilibrium.

Height	Base dimension Natural convection			Base dimension Forced air (>2m/s)		
	125x340 [mm]	140x340 [mm]	165x480 [mm]	25x340 [mm]	40x340[mm]	165x480 [mm]
H [mm]						
360	0.25	0.22	0.20	0.12	0.11	0.10
515	0.18	0.17	0.14	0.09	0.08	0.07
700	0.13	0.12	0.11	0.08	0.07	0.06
815	0.11	0.10	0.09	0.07	0.06	0.05

Mechanical Design

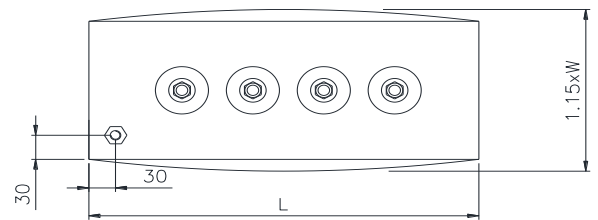
No magnetic metal case: Stainless steel case, no magnetic / Aluminum case / Steel case





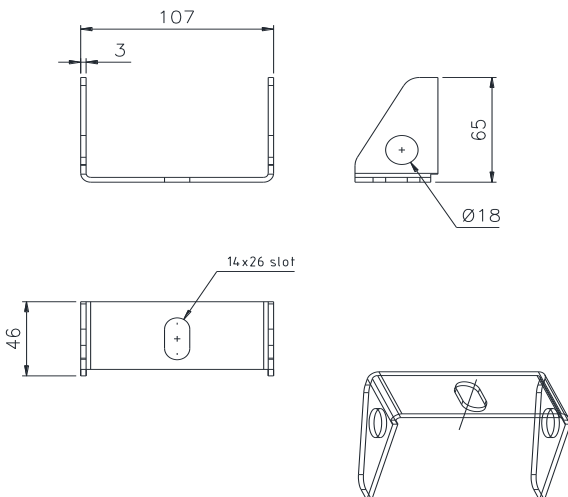
These are some examples of standard mechanical solutions.
According to customer specification, other mechanical design and dimensions, terminals position and quantity are available on request.

NOTES:
In case of two or more units connected as a battery, please take also into consideration the maximum deformation of W (width of the case):
at the end of life, this dimension may be grow up to 15% greater.

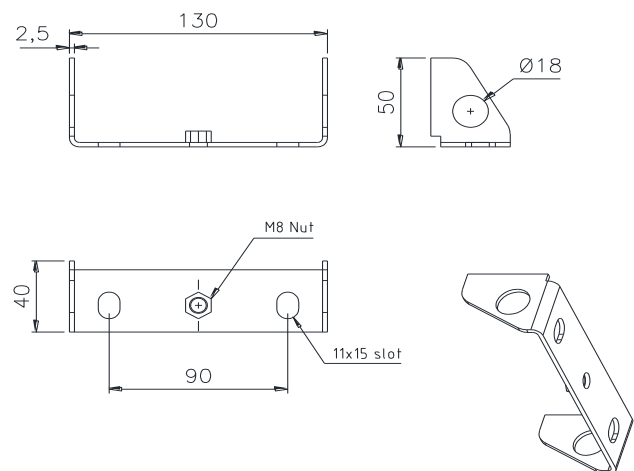


Mounting brackets (suggested)

For H < 500 mm, use only one mounting bracket for each side.
Take also into consideration the type of fixing frame (vertical / horizontal, resting or cantilevered): it may be necessary to use two mounting brackets on each side.
In case of doubts, please contact DUCATI technical department to choose the right solution.



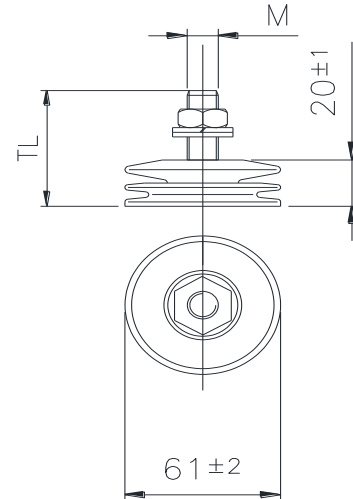
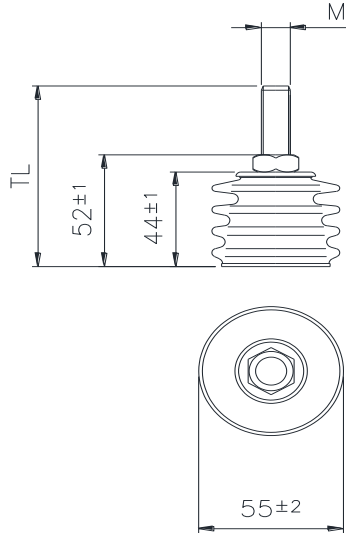
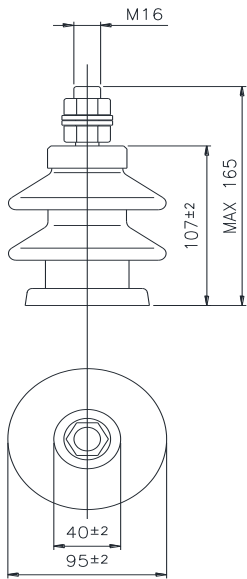
MB1 solution
Suggested for cabinet with dimension W : 125 and 140 mm
Code: 315104102



MB2 solution
Suggested for cabinet with dimension W : 140 and 165 mm
Code: 315104138

Terminals and Connections

Screw type solution
Material: tinned copper



TYPE TC1

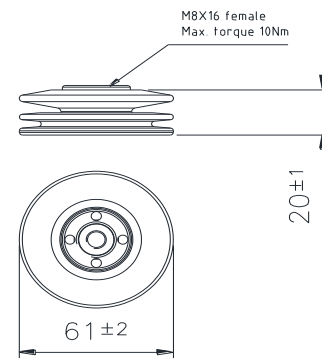
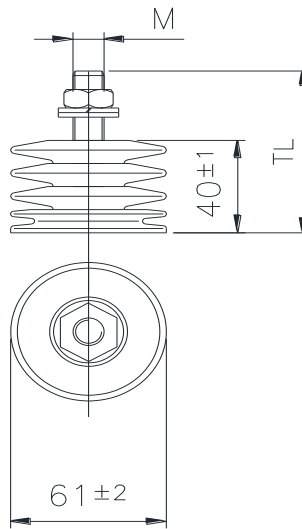
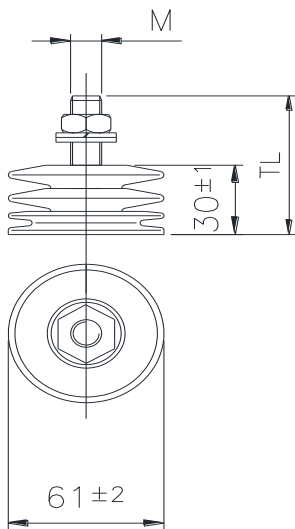
- Bushing:
- Ceramic - brown colour
Connector
- type: M12 / M16
- length: LT on request

TYPE TC2

- Bushing:
- Ceramic - brown colour
Connector
- type: M12 / M16
- length: LT on request
Creepage distance: 85mm
Air distance: 50mm

TYPE TCP1

- Bushing:
- Plastic - grey / black colour
- Height: 20mm
Connector
- type: M12 / M16
- length: LT on request
Creepage distance: 42mm
Air distance: 30mm



TYPE TCP2

- Bushing:
- Plastic - grey / black colour
- Height: 30mm
Connector
- type: M12 / M16
- length: LT on request
Creepage distance: 64mm
Air distance: 40mm

TYPE TCP3

- Bushing:
- Plastic - grey / black colour
- Height: 40mm
Connector
- type: M12 / M16
- length: LT on request
Creepage distance: 85mm
Air distance: 50mm

TYPE TCP4

- Bushing:
- Plastic grey / black colour
- Height: 20mm (available also 30 / 40 mm)
Connector
- type: female M8 (available also M12 / M16)
Creepage distance: 42mm
Air distance: 30mm



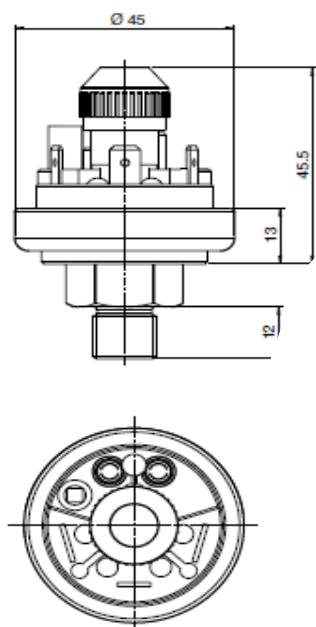
Terminals and Connections

Female internal thread
Material: tinned copper

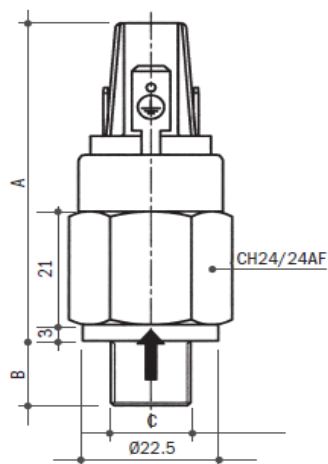
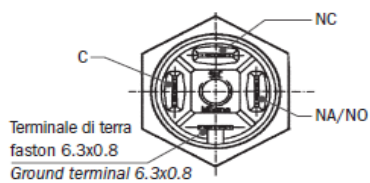
Pressure Switch

Adjustable pressure switch with SPD contacts - Normally closed
IP54 cover - Switch rating: 6A / 250Vac
Available on two different solution, according to the maximum dimension accepted:

Standard solution:



On request, solution with reduced dimension:



IP 54 Cover

