



## DCH 85 C series

### Very High Density, Low Inductance DC-Link Capacitors Cylindrical Aluminum Case

Thanks to the exclusive Ducati Energia High Crystallinity Film DCH 85 C DC-link Capacitors provide leading Capacity Density without any de-rating or limitation, respective to standard makes.

The very high capacity density allows substantial cost reductions due to the reduction of capacitor size and/or number, as well as particularly low inductance values.

The exclusive Ducati Energia metallization profiles guarantee high capacity stability and a controlled, open-circuit condition at the end of DCH 85 C operational life, while maximizing the current capability.

Main characteristics:



- Self-Healing Metallized Polypropylene Film
- UL-Approved Overpressure Safety Device
- Aluminum Case
- DRY Resin filling

Main applications:

- DC-Link
- Energy Storage / Pulse Generation



#### General Characteristics

DC Voltage range	700÷2100 V
Maximum ripple voltage	1150 V
Maximum ripple current	100 A
Capacitance range	Up to 5600 µF
Capacitance tolerance	standard: ±10% on request ±5%
Series resistance (RS)	< 4.5 mΩ
Maximum Voltage rate of rise (dV/dT)	≤ 40 V/µs
Terminals	M6 internal threads M8 screw types bolts
Voltage test	$U_{tc} = 3.5 \text{ kVac @50 Hz 10 s}$ $U_{tt} = 1.5 \times U_{nDC} 10 \text{ s}$
Working temperature ( $\theta_{MIN} - \theta_{MAX}$ )	-25 / +85 °C
Storage temperature	-25 / +85 °C
Filling	Dry polyurethane resin
New PP Dielectric	Self healing. PPMdh film
Cylindrical case	Aluminum
Failure quota	50/10 E9
Life expectancy	100.000 h(*)
Maximum altitude	2000 m a.s.l.
Reference standard	IEC 1071-1/2 - IEC 1881 - UL 810
Internal thread terminals	Max 3 Nm
M8 screw terminals	Max 6 Nm
M12 fixing bolt	Max 12 Nm
UL - CSA approved (  )	File n. E192559
In according to fire protection standard 	EN 45545-2 (only for 85 and 100mm diameters)

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

**Safety system:** These capacitors are designed with a particular type of polypropylene metallized film (PPMd film) that assures an open circuit at the end of life, if the operation is within the specification.



Capacitance Cn [μF]	Diameter Ø [mm]	Height H [mm]	Max. RMS Current I <sub>MAX</sub> [A]	Repet Peak Current Ip [A]	Surge Current Is [kA]	Series Resistance Rs [mΩ]	Thermal Resistance R <sub>THC</sub> [°C/W]	Series Inductance Lesr [nH]	Weight [kg]	Pcs./box - Box type	Part n. 416.85.V.
<b>Un<sub>DC</sub>= 700 V Ur= 320 V Up= 1050 V Us= 1470V</b>											
480	75	105	25	1500	5.0	3.8	5.4	< 45	0.6	12 - A	009.x
750	75	140	30	2200	6.5	3.6	4.8	< 50	0.8	6 - B	019.x
840	75	155	35	2200	7.0	3.0	4.6	< 60	0.9	6 - B	029.x
980	85	140	35	3000	7.5	2.9	4.2	< 50	1.0	6 - B	039.x
1050	90	140	40	3000	8.0	2.8	4.0	< 50	1.1	6 - B	045.x
1100	85	155	40	3000	9.0	2.7	3.6	< 60	1.1	6 - B	049.x
1800	100	185	65	3700	11.0	1.6	2.6	< 60	1.8	6 - C	055.x
2500	116	185	70	4000	12.0	1.4	2.3	< 60	2.3	4 - G	059.x
2700	100	255	70	4200	13.0	1.2	2.3	< 75	2.4	6 - D	069.x
3700	116	255	75	5800	15.0	1.0	2.1	< 75	3.2	4 - G	079.x
4300	116	285	80	6700	18.0	0.8	1.7	< 80	3.6	4 - G	089.x
5600	116	373	100	10000	22.0	0.7	1.6	< 90	4.8	4 - G	095.x
<b>Un<sub>DC</sub>= 900 V Ur= 550 V Up= 1350 V Us= 1900 V</b>											
340	75	105	28	2200	6.6	3.9	5.4	< 45	0.6	12 - A	109.x
500	75	140	30	2800	8.4	3.7	4.8	< 50	0.8	6 - B	119.x
600	75	155	35	3200	9.6	3.2	4.6	< 60	0.9	6 - B	129.x
680	85	140	35	3300	10.0	3.1	4.2	< 50	1.0	6 - B	135.x
780	90	140	40	3500	10.0	3.0	4.0	< 50	1.1	6 - B	139.x
800	85	155	40	3800	11.5	2.9	3.6	< 60	1.1	6 - B	149.x
1300	100	185	65	5400	16.0	1.8	2.6	< 60	1.8	6 - C	155.x
1850	116	185	70	6600	20.0	1.7	2.3	< 60	2.3	4 - G	159.x
2000	100	255	70	7000	21.0	1.6	2.3	< 75	2.4	6 - D	169.x
2700	116	255	75	7100	21.0	1.3	2.1	< 75	3.2	4 - G	179.x
3200	116	285	85	8200	24.5	1.2	1.7	< 80	3.5	4 - G	189.x
4500	116	373	100	10000	28.0	1.0	1.6	< 90	4.6	4 - G	195.x
<b>Un<sub>DC</sub>= 1100 V Ur= 700 V Up= 1650 V Us= 2300 V</b>											
260	75	105	30	2200	6.7	4.1	5.4	< 45	0.7	12 - A	219.x
400	75	140	35	2400	7.1	3.8	4.8	< 50	0.8	6 - B	239.x
520	85	140	35	3400	10.3	3.6	4.2	< 50	1.0	6 - B	249.x
600	90	140	40	3600	10.3	3.5	4.0	< 50	1.1	6 - B	259.x
680	90	155	40	3900	11.7	3.5	3.6	< 60	1.3	6 - B	269.x
1000	100	185	65	5300	15.8	2.2	2.6	< 70	1.8	6 - C	279.x
1400	116	185	70	7300	21.8	2.0	2.3	< 70	2.3	4 - G	285.x
1500	100	255	70	7800	23.3	1.9	2.3	< 75	2.4	6 - D	289.x
1600	100	285	75	8100	24.3	1.8	2.2	< 80	2.6	6 - E	291.x
2100	116	255	75	9900	29.7	1.4	2.1	< 75	3.2	4 - G	293.x
2300	100	373	100	10500	31.7	1.2	1.8	< 90	3.5	6 - F	295.x
2400	116	285	85	10000	30.0	1.5	1.7	< 80	3.6	4 - G	297.x
3.200	116	373	100	11550	30.0	1.1	1.6	< 90	4.7	4 - H	299.x



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Capacitance Cn [μF]	Diameter Ø [mm]	Height H [mm]	Max. RMS Current I <sub>MAX</sub> [A]	Repet Peak Current Ip [A]	Surge Current Is [kA]	Series Resistance Rs [mΩ]	Thermal Resistance R <sub>THC</sub> [°C/W]	Series Inductance Lesr [nH]	Weight [kg]	Pcs./box - Box type	Part n. 416.85.V.
<b>Un<sub>DC</sub> = 1350 V Ur = 850 V Up = 2000 V Us = 2800V</b>											
170	75	105	30	2160	6.5	4.2	5.4	< 45	0.6	12 - A	319.x
250	75	140	35	3240	9.7	3.9	4.8	< 50	0.8	6 - B	329.x
340	85	140	35	3960	11.9	3.7	4.2	< 50	1.0	6 - B	339.x
380	85	155	40	4200	12.6	3.6	3.6	< 60	1.1	6 - B	350.x
500	90	185	65	5200	16.0	3.1	2.8	< 70	1.5	6 - C	355.x
640	100	185	65	5850	17.6	2.3	2.6	< 70	1.8	6 - C	360.x
880	116	185	70	8100	24.3	2.1	2.3	< 70	2.4	4 - G	365.x
960	100	255	70	8500	25.5	2.0	2.3	< 75	2.4	6 - D	370.x
1100	100	285	75	9200	27.6	1.9	2.2	< 80	2.6	6 - E	380.x
1350	116	255	75	11900	30.0	1.7	2.1	< 75	3.2	4 - G	385.x
1450	100	373	100	13500	32.0	1.3	1.8	< 90	3.5	6 - F	389.x
1550	116	285	85	12800	32.0	1.7	1.7	< 80	3.5	4 - G	393.x
2000	116	373	100	14400	32.0	1.3	1.6	< 90	4.4	4 - H	398.x
<b>Un<sub>DC</sub> = 1600 V Ur = 990 V Up = 2400 V Us = 3100 V</b>											
120	75	105	30	2160	6.5	4.3	5.4	< 45	0.6	12 - A	419.x
180	75	140	35	3240	9.7	4.0	4.8	< 50	0.8	6 - B	420.x
230	85	140	35	4000	12.0	3.9	4.2	< 50	1.0	6 - B	430.x
260	85	155	40	4200	12.0	3.8	4.0	< 50	1.2	6 - B	435.x
350	90	185	40	4480	13.5	3.7	3.6	< 60	1.5	6 - B	440.x
450	100	185	65	7200	21.6	2.3	2.6	< 70	1.8	6 - C	450.x
530	90	255	70	8500	25.0	2.2	2.4	< 70	2.3	6 - D	453.x
620	116	185	70	9750	29.5	2.2	2.3	< 70	2.4	4 - G	455.x
680	100	255	70	9800	30.0	2.1	2.3	< 75	2.5	6 - D	460.x
780	100	285	75	11200	32.0	2.0	2.2	< 80	2.7	6 - E	470.x
930	116	255	75	12740	32.0	1.8	2.1	< 75	3.2	4 - G	475.x
1000	100	373	100	12600	32.0	1.3	1.8	< 90	3.5	6 - F	485.x
1100	116	285	85	13800	32.0	1.8	1.7	< 80	3.6	4 - G	489.x
1400	116	373	100	14500	32.0	1.4	1.6	< 90	4.7	4 - H	495.x



Capacitance Cn [µF]	Diameter Ø [mm]	Height H [mm]	Max. RMS Current I <sub>MAX</sub> [A]	Repet Peak Current Ip [A]	Surge Current Is [kA]	Series Resistance Rs [mΩ]	Thermal Resistance R <sub>THC</sub> [°C/W]	Series Inductance Lesr [nH]	Weight [kg]	Pcs./box - Box type	Part n. 416.85.V.
<b>Un<sub>DC</sub>= 1900 V Ur= 1150 V Up= 2700 V Us= 3100 V</b>											
85	75	105	30	2250	6.5	4.4	5.4	< 45	0.6	12 - A	519.x
130	75	140	35	2940	9.7	4.1	4.8	< 50	0.8	6 - B	520.x
170	85	140	35	3600	12.0	4.0	4.2	< 50	1.0	6 - B	530.x
200	85	155	40	4200	13.5	3.8	3.6	< 60	1.1	6 - B	540.x
230	90	155	45	5000	15.0	3.4	3.3	< 60	1.2	6 - B	545.x
330	100	185	65	7000	21.6	2.3	2.6	< 70	1.9	6 - C	550.x
380	90	255	70	7500	25.0	2.2	2.4	< 70	2.1	6 - D	557.x
450	116	185	70	8460	29.5	2.3	2.3	< 70	2.4	4 - G	555.x
500	100	255	70	9000	30.0	2.2	2.3	< 75	2.4	6 - D	560.x
570	100	285	75	9600	32.0	2.0	2.2	< 80	2.6	6 - E	570.x
680	116	255	75	11200	32.0	1.9	2.1	< 75	3.2	4 - G	575.x
740	100	373	100	12000	32.0	1.4	1.8	< 90	3.3	6 - F	580.x
780	116	285	85	13120	32.0	1.9	1.7	< 80	3.6	4 - G	585.x
1030	116	373	100	14700	32.0	1.4	1.6	< 90	4.6	4 - H	598.x
<b>Un<sub>DC</sub>= 2100 V Ur= 1150 V Up= 2700 V Us= 3100 V</b>											
60	75	105	30	2100	6.5	4.5	5.4	< 45	0.6	12 - A	610.x
90	75	140	35	3000	9.7	4.2	4.8	< 50	0.8	6 - B	620.x
125	85	140	35	3375	12.0	4.1	4.2	< 50	1.0	6 - B	630.x
145	85	155	40	3450	12.0	3.9	3.6	< 60	1.1	6 - B	640.x
160	90	155	45	3900	13.5	3.4	3.3	< 60	1.3	6 - B	645.x
210	100	185	65	4800	15.0	2.3	2.6	< 70	1.5	6 - C	650.x
290	90	255	70	6500	21.6	2.1	2.4	< 70	2.2	6 - D	653.x
320	116	185	70	6800	25.0	2.2	2.3	< 70	2.4	4 - G	655.x
360	100	255	70	7400	29.5	2.1	2.3	< 75	2.3	6 - D	660.x
420	100	285	75	9600	30.0	2.0	2.2	< 80	2.7	6 - E	670.x
510	116	255	75	10750	32.0	2.0	2.1	< 75	3.3	4 - G	675.x
540	100	373	100	11500	32.0	1.4	1.8	< 90	3.5	6 - F	680.x
580	116	285	85	12500	32.0	1.9	1.7	< 80	3.6	4 - G	685.x
760	116	373	100	14400	32.0	1.5	1.6	< 90	4.7	4 - H	698.x

**NOTES:**

(Cn) Tolerance standard value: ±10%. Other tolerance values on request.

(Cn) - (Un) Capacitance and rated voltage standard values, other values on request.

(Ur) Maximum peak to peak alternating voltage component on the DC working voltage.

(Rs) Releated at 1 kHz.

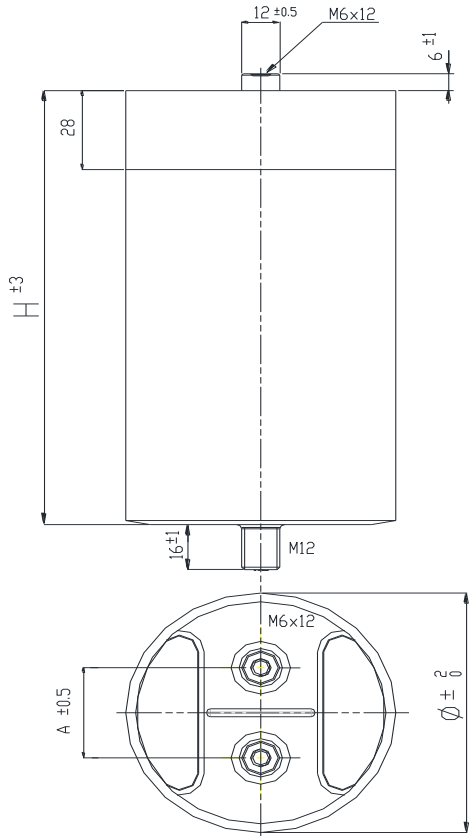
(R<sub>THC</sub>) Thermal resistance CASE TO AMBIENT in natural cooling environment.

(Imax) Maximum RMS current, referred to an ambient temperature of 50 °C (natural cooling) and working frequency of 1 KHz.

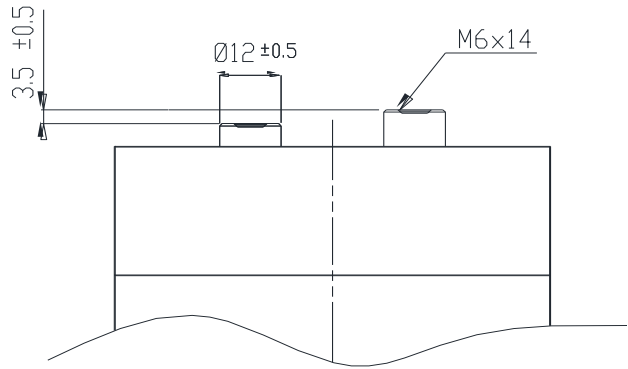
(x code) According to the terminal type: x=0--> A SOLUTION (internal thread M6) / x=1 B SOLUTION (M8 screw type bolts).



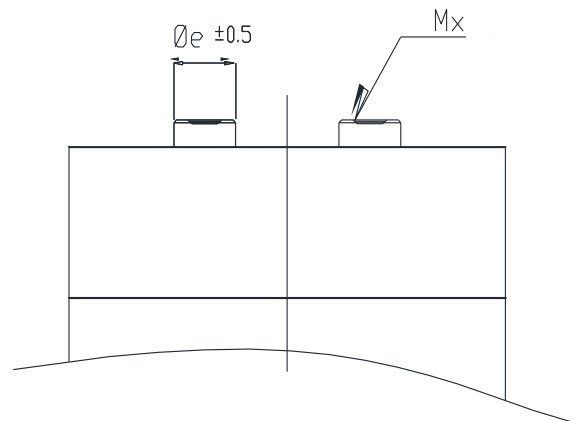
### Mechanical Standard configuration:



### Terminal variations on request:



Two different terminals height for special BUS BAR coupling.



For Capacitor diameter  $\varnothing 116$  and  $\varnothing 136$  mm are available these different terminals type:

- $\varnothing e$  : 12 - 14 - 16 mm
- $Mx$  : M6 - M8

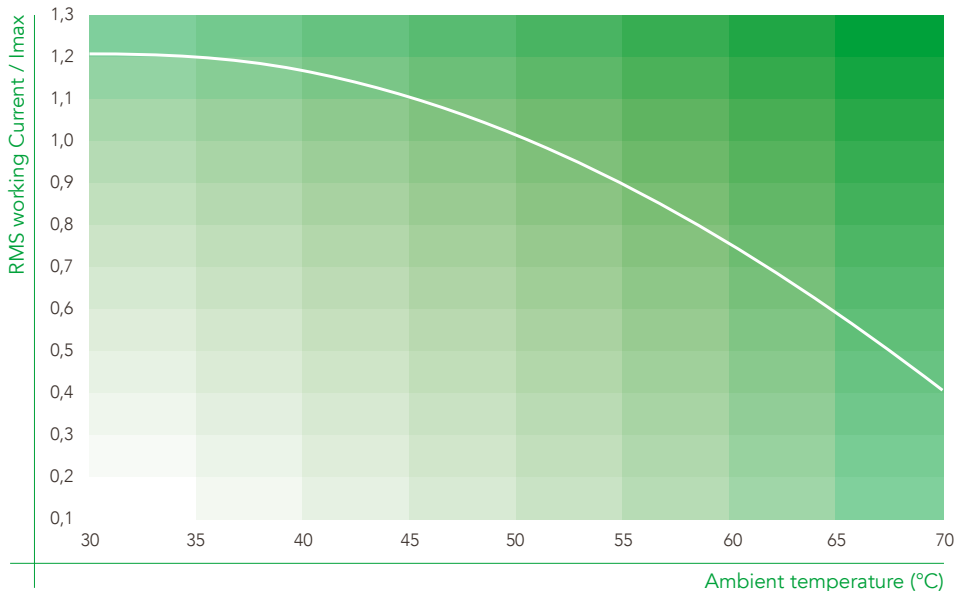
Diameter $\varnothing$ (mm)	A spacing (mm)	Type of terminals	Insulating spacing	
			Surface (mm)	Air (mm)
75, 85, 100	32	M6 female / M8 male	36	20
90	45 (*)	M6 female / M8 male	49	33
116, 136	50 (**)	M6 - M8 female / M8 male	54	38

(\*) Available also in the dimensions: 32 - 50 mm

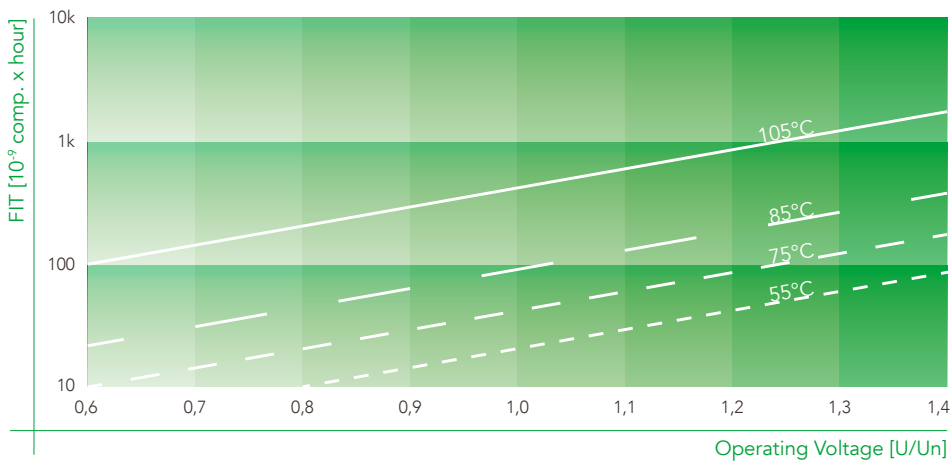
(\*\*) Available also in the dimensions: 32 - 45 mm



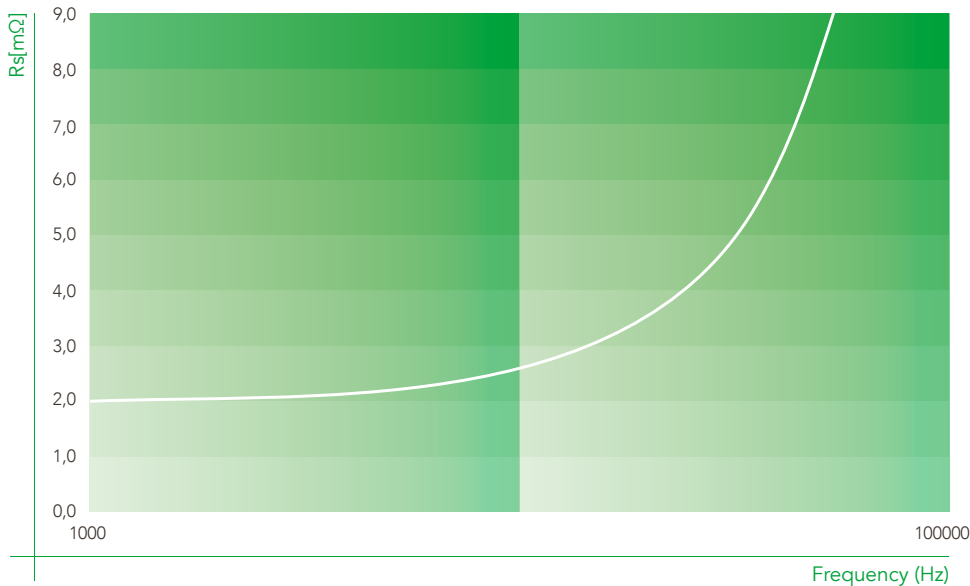
### RMS working current vs Ambient temperature



### FIT vs Hot Spot Temperature



### DCH 85C Un=900V



Typical DCH85C Series Resistance at ambient temperature for a specific model. For the characterization of a different model, please contact R&D department.