

DUCA POWER SUPER HEAVY DUTY CAPACITORS

Cylindrical 3 Phase MPP Type Super Heavy Series

Technical Specifications

Standard Voltage (Un)	: 440V to 690V
Rated frequency	: 50 Hz (60 Hz on request)
Capacitance tolerance	: -5 +10%
Dielectric losses	: ≤ 0.2 W/kvar
Altitude	: ≤ 2000 m a.s.l.
Duty	: Continuous
Protection Rating	: IP 20
Discharge Resistors	: External (50V after 1 Min.)
Terminals	: Screw terminals
A.C. test voltage between terminals	: 2, 15 Un x 2 s
A.C. test voltage between terminals & case	: 3 kV x 10 s
Temperature class	: -25 to 70/D
Max. Inrush current	: 450 In
Max. Overload In	: 4 x In
Life expectancy	: ≥ 170000 h - 25/D
Reference standard	: IEC 831-1/2



Qn (KVar)	In (A)	Cn (uF)	Dia (mm)	Height (mm)
10	12,83	3x55	90 \pm 1	300 \pm 1
12,5	16,04	3x69	100 \pm 1	300 \pm 1
25	32,08	3x137	115 \pm 1	390 \pm 2

The capacitors making up the **DUCA POWER** Super Heavy Duty Series are used in static & automatic power factor correction equipment. The series has three capacitor elements wired internally in a delta connection.

The capacitors making up the new series are obtained using three elements wound with the new PPMh and positioned inside metal case. The use of impregnation technology and positioning of the individual elements inside the case assure extremely high capacitor performance in terms of heat dissipation, as well as ensuring a long life and excellent ground insulation.

This series is used in practically all Neptune Thyristor Switched Power Factor Correction Systems which rely on three-phase capacitors. In fact, the above-described characteristics make these capacitors especially suitable for continuous duty under highly demanding conditions in harmonic rich environments.

Network Analysis by:



E-mail : info@naacenergy.com



Sales & Marketing Office :

NEPTUNE SYSTEMS PVT. LTD.

A-11, Sec.-59, Noida-201301 (UP) (INDIA)

Tel: 0120-3069000, 3069040, 3069042

Fax: 0120-3069041

E-mail: enquiry@neptuneindia.com

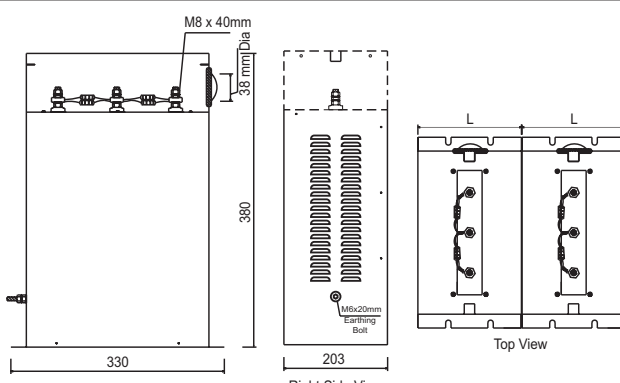
Web: www.neptuneindia.com

ULTIMA - THE ULTIMATE CAPACITORS

Technical Specifications

Standard Voltage (Un)	: 440V to 690V
Rated frequency	: 50 Hz (60 Hz on request)
Capacitance tolerance	: -5 +10%
Dielectric losses	: ≤ 0.2 W/kvar
Altitude	: ≤ 2000 m a.s.l.
Duty	: Continuous
Discharge Resistors	: External (50V after 1 Min.)
Protection Rating	: IP 20 Indoor Mounting
Terminals	: M8 Terminal
A.C. test voltage between terminals	: 2, 15 Un x 2 s
A.C. test voltage between terminals & case	: 3 kV x 10 s
Temperature class	: -25 to 70/D
Max. Inrush current	: 450 In
Max. Overload In	: 4 x In
Life expectancy	: ≥ 170000 h - 25/D ≥ 200000 h - 25/C
Reference standard	: IEC 831-1/2



KVAR Rating	In (A)	Length (L)			
5	6,6	90			
10	13,1	90			
12.5	16,4	90			
15	19,7	203			
20	26,2	203			
25	32,8	203			
50	65,6	406			
75	98,4	809			
100 KVAR	131,2	1012			

The Three-phase Ultima Capacitors are latest from Neptune has been designed for power factor correction in networks with high harmonic current content. They are capable of withstanding 4xIn which is Maximum in comparison to other technologies offered in the market with very low losses.

The capacitor has been made by three elements connected in a delta configuration with metalization done in special profile to allow high voltage stress on the film. The elements are housed into an aluminium can and finally impregnated by resin oil.

The impregnation technology allow:

- to treat the capacitor in a vacuum
- to eliminate gas and humidity from the active area
- impregnate the element
- to control the "partial discharge effect" which is one of the reason to have precocious ageing (life longer than 200,000 operating hours)

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POWER-9 HEAVY DUTY CAPACITORS

Cylindrical 3 Phase Heavy Duty Series

Technical Specifications

Standard Voltage (Un)	: 440V
Rated frequency	: 50 Hz (60 Hz on request)
Capacitance tolerance	: -5 +10%
Dielectric losses	: ≤ 0.2 W/kvar
Altitude	: ≤ 2000 m a.s.l.
Duty	: Continuous
Protection Rating	: IP 20
Discharge Resistors	: External (50V after 1 Min.)
Terminals	: Screw terminals
A.C. test voltage between terminals	: 2, 15 Un x 2 s
A.C. test voltage between terminals & case	: 3 kV x 10 s
Temperature class	: -25 to 55/D
Max. Inrush current	: 200 In
Max. Overload In	: 2.5 x In
Life expectancy	: ≥ 100000 h - 25/D
Reference standard	: IEC 831-1/2



Qn (KVAR), 440V	In (A)	Cn (uF)	Dia (mm)	Height (mm)	
5 KVAR	6,6	3x27,4	70 \pm 1	215 \pm 1	
10 KVAR	13,1	3x55	85 \pm 1	215 \pm 1	
12.5 KVAR	16,4	3x69	100 \pm 1	215 \pm 1	
15 KVAR	19,7	3x82	100 \pm 1	300 \pm 1	
25 KVAR	32,8	3x137	100 \pm 1	300 \pm 2	

The capacitors making up the POWER-9 series are used for static power factor correction of a wide range of motors and transformers. This series share the same internal configuration, with three capacitor elements wired internally in a delta connection. The overpressure protection system is specifically dimensioned so as to constantly ensure maximum safety in terms of ground protection and protection against the risk of arcing, even in conditions where there is a high energy density.

In these series HEAVY DUTY of resin-impregnated capacitors, the three elements are housed in a plastic container which, together with the impregnating agents, assures dual insulation between the wound cores and metal enclosure. To guarantee perfect filling during the resin impregnation process, the process itself is carried out prior to the elements being placed in the enclosure; in this way the distribution and uniformity of the impregnation can be subjected to a complete visual and dimensional inspection.

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NSL-10 Modular Capacitors Standard Life



Neptune-Ducati NSL-10 is award winning design Modular Capacitor. It offers "Safety-Reliability-Long Life Expectancy - Easy Handling and Mounting".

- Capacitive elements provided with a sensitive "FLOPPY CAP" over pressure device - low loss metallized polypropylene film as dielectric impregnated with polyurethane resins.
- Excellent dissipation of the internally-generated heat. The triple word vertical structure improves the heat-dissipation area for a better cooling of the internally-fit capacitive elements especially when two or more modules are used.

A lower dielectric temperature means an extended life expectancy of the capacitor.

- The Modular design permits a most simple mechanical assembly. No extra accessory metal parts are required. Electrical connections are made by copper-links available on request.
- Most easy mounting
- Capacitor "Modules" already include all fittings required for their correct operation such as:
Protection cover - Feed - Through grommet-switch-on current limitation reactors. Over pressure protection device on each capacitive element - Discharge resistors 50V after 1 min.) - Self Extinguishing plastic container.

NSL10 capacitors are particularly suitable in the production of automatic power factor correction systems. They are also used in power factor correction of motors and transformers. The NSL10 three-phase capacitor is made with three 3 single-phase capacitors. The three switch-on reactors are made of copper windings.

TECHNICAL SPECIFICATIONS : (NSL-10)

Standard Voltage (Un)	: 440/450V
Other Voltage on request (Un)	: 415V - 550V
Rated frequency	: 50 Hz
Capacitance tolerance	: -5 + 10%
A.C. test voltage bet. terminals	: 2, 15 Un per 10"
A.C. test volt. bet. terminals & case	: 3 kV per 10"
Installation	: Internal
Ambient air temperature category	: -40 + 55°C
Altitude	: < 2000 m

The external case, made with insulating material, (Class V2 according to UL 94 standard flammability classification) eliminates the need to provide a protective earthing connection. The easy assembly using "small feet" make the capacitor a universal one.

Heavy Duty NSL-10 Capacitors



NSL-10 - Heavy Duty Type range for use in the P.F. Correction of industrial & office electrical networks. It is a series of quality products which has been designed to cater to the most demanding users where operating conditions are particularly critical and where reliability is of prime importance. The NSL-10 HD range also satisfies the demand for a product with durability and longer life.

Total lack of air between the capacitors plates ensures that the dielectric - and hence the capacitor too- lasts a long time. The dielectric consist of heavy film of polypropylene.

The capacitors are designed with a very low loss dielectric & high quality film is used. They combine these high-tech advantages with the safety and reliability of the traditional technology of impregnation used for Medium Voltage capacitors. The capacitive elements are housed in a cylindrical container made of aluminum.

All of the materials employed are non-toxic and biodegradable. Thanks to the above characteristics the capacitor has an expected life which greatly exceeds 1,00,000 hours. It is characterized by the capability of bearing high harmonic components up to R.M.S. Currents level in excess of 2 In.

Service	: Continuous
Protection degree	: IP 40
Discharge resistor	: Internal (50V after 1 min)
Max. permissible current	: 1.3 In maximum
Max. permissible current (NSL-10-HD)	: 2 In maximum
Terminals	: 3 x M8
Dielectric losses	: < 0.3 W/kvar
Reference standard	: EN 60831-1/2

Three Phase Power Capacitors

Series - S-5 and POWER-9

General

The capacitors making up the S-5 Power Capacitor (1 KVAR to 5 KVAR) and Power-9 Heavy Duty Power Capacitor series (5 KVAR to 25 KVAR) are used for static and automatic power factor correction of a wide range of industrial & commercial applications. All series models share the same internal configuration, with three capacitor elements wired internally in a delta connection.

The overpressure protection system is specifically dimensioned so as to constantly ensure maximum safety in terms of ground protection and protection against the risk of arcing, even in conditions where there is a high energy density.

S-5 Series



S-5 Series Technical Specifications

Standard Voltage (Un)	: 440V
Rated frequency	: 50 Hz / 60 Hz
Capacitance tolerance	: -5 +10%
Dielectric losses	: ≤ 0.3 W/kvar
Altitude	: ≤ 2000 m a.s.l.
Duty	: Continuous
Protection Rating	: IP 20
AC test voltage between terminals	: 2, 15 Un x 2 s
A.C. test voltage between terminals & case	: 3 kV x 10 s (Un \leq 660V)
Discharge Resistors	: External (50V after 60")
Temperature class	: -25/D
Terminals	: Screw terminals
Max. Inrush current	: 200 In
Max. Overload In	: 1.5 x In
Life expectancy	: ≥ 80000 h - 25/D
Max dV/dt	: 100V / us
Reference standard	: IEC 831-1/2

POWER-9 Series



The Capacitors are resin impregnated, the three elements are housed in container which, together with the impregnating agents, assures insulation between the wounded cores and metal enclosure.

Power9 Series Technical Specifications

Standard Voltage (Un)	: 440V
Rated frequency	: 50 Hz / 60 Hz
Capacitance tolerance	: -5 +10%
Dielectric losses	: ≤ 0.3 W/kvar
Altitude	: ≤ 2000 m a.s.l.
Duty	: Continuous
Protection Rating	: IP 20
AC test voltage between terminals	: 2, 15 Un x 2 s
A.C. test voltage between terminals & case	: 3 kV x 10 s (Un \leq 660V)
Discharge Resistors	: External (50V after 60")
Temperature class	: -25/D
Terminals	: Screw terminals
Max. Inrush current	: 200 In
Max. Overload In	: 1.8 x In
Life expectancy	: ≥ 100000 h - 25/D
Max dV/dt	: 100V / us
Reference standard	: IEC 831-1/2

Series - S-5 and POWER-9

To guarantee perfect filling during the resin impregnation process, the process itself is carried out prior to the elements being placed in the enclosure; in this way the distribution and uniformity of the impregnation can be subjected to a complete visual and dimensional inspection.

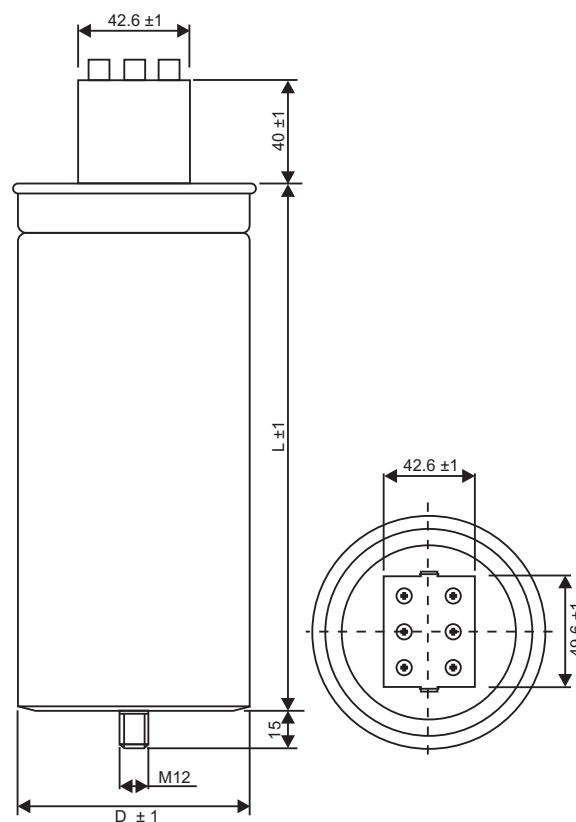
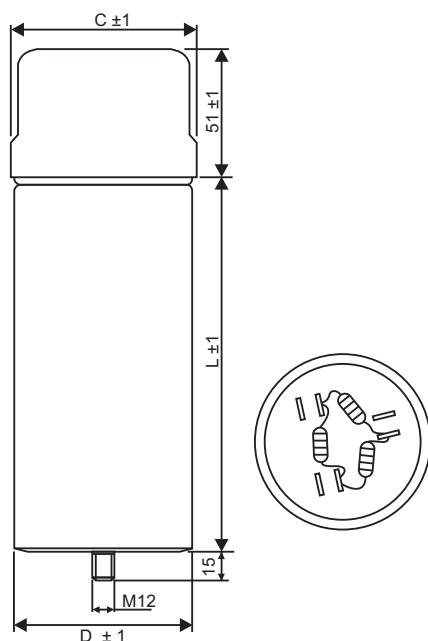
Thanks to the technological innovation of self-healing PPM film and new mechanical construction S-5 and POWER-9 achieved wide

range of power 1 KVAR to 5 KVAR for S-5 Series and 5 KVAR to 25 KVAR of POWER-9 with voltage at 440V.

The series S-5 and POWER-9 are used in all our power factor correction systems (fixed or automatic) which rely on three-phase capacitors. In fact, the above-described characteristics make these capacitors especially suitable for continuous duty under highly demanding conditions.

Un (V)	Qn (KVar)	In (A)	Cn (uF)	L (mm)	D (mm)	C (mm)
S-5 Series						
440V	1 KVAR	1,3A	3x5,5	146	50	53.2
	2 KVAR	2,6A	3x11	130	50	53.2
	3 KVAR	3,9A	3x16,5	130	63.5	67
	4 KVAR	5,2A	3x22	191	63.5	67
	5 KVAR	6,5A	3x28	191	63.5	67

Un (V)	Qn (KVar)	In (A)	Cn (uF)	L (mm)	D (mm)
Power-9 Series					
440V	5 KVAR	6.5A	3x28	194	75
	10 KVAR	13,1A	3x55	194	85
	12.5 KVAR	16,4A	3x68,5	270	85
	15 KVAR	19,6A	3x82	270	85
	20 KVAR	26,2A	3x110	346	90
	25 KVAR	32,8A	3x137	346	90



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