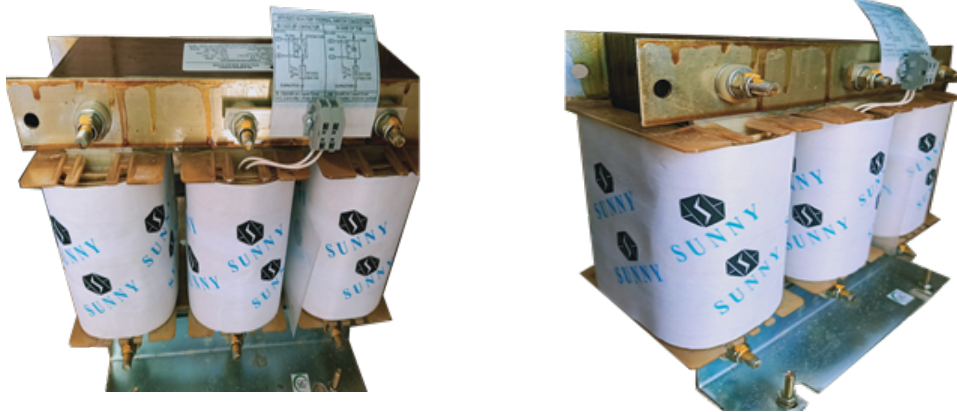


SUNNY Low Voltage Detuned Reactor



Detuned reactors are used to protect the shunt Capacitors bank from Harmonic Amplification & Harmonic Overloading of Capacitors. De-Tuning reactors are used to tune the capacitors Bank to know desirable Frequency to avoid the probability of resonance or harmonic amplification & thus protect the capacitors from Harmonic overloading.

SUNNY offers a wide range of reactors for Capacitors banks rated from 5 KVAR to 100 KVAR with % impedance of 5.67%, 7% & 14%.

These reactors are available with following types:

- Aluminum Flat,
- Aluminum Foil &
- Copper Conductor.

Features:

1. High Harmonic Loading Capacity.
2. Low Losses.
3. Convenient Mounting
4. Temperature protection (NC Contact)
5. High Class Copper ,AL Flat & AL wire used
6. Vacuum Impregnation which ensures they can with stands high Voltage, have Low noise & offer a long operating Time.
7. High Class Iron Core with multiple Air Gaps as well as staid design approach. Guarantee high Current Linearity & Low heat dissipation Losses.

Technical Data:

- Description : Three-Phase Dry Type Magnetic Circuit Impregnated
- Degree of protection : IP00
- Insulation Class : F & H
- Rated Voltage : 400 to 690 Volt- 50 Hz.
400 to 690 Volt- 60 Hz.
- Detuning : 5.67 %, 7 %, 14%
- Cooling Type : Natural
- Ambient Temp. : 55⁰C
- Temperature protection : Thermal Switch (NC)
- Inductance Tolerance : ± 5%
- Dielectric Test 50Hz / 60Hz Bet. Winding & Winding to body : 3KV for 1 Min.
- Temp. rise Test limit :
The temp . rise limit is as per IEC 60076-6 & IEC 60076-11
For class F = 100 ⁰C
For class H = 125 ⁰C

Insulation system temperature	Average winding temp. rise limit at rated Current
155 (F)	100
180 (H)	125

Reactor sizing Calculation:

Please measure / check the value of capacitance and inductance & ensure that computed tuning freq. is in a line with design application requirement.

% Reactor Impedance	Tuning Order	Tuning Freq. for a base for 50 Hz	Tuning Freq. for a base for 60 Hz
5.67	4.19	210	252
7	3.77	188.9	226
14	2.67	133.6	160

Tuning Frequency $F = 1/(2 \times \pi) \sqrt{LC}$

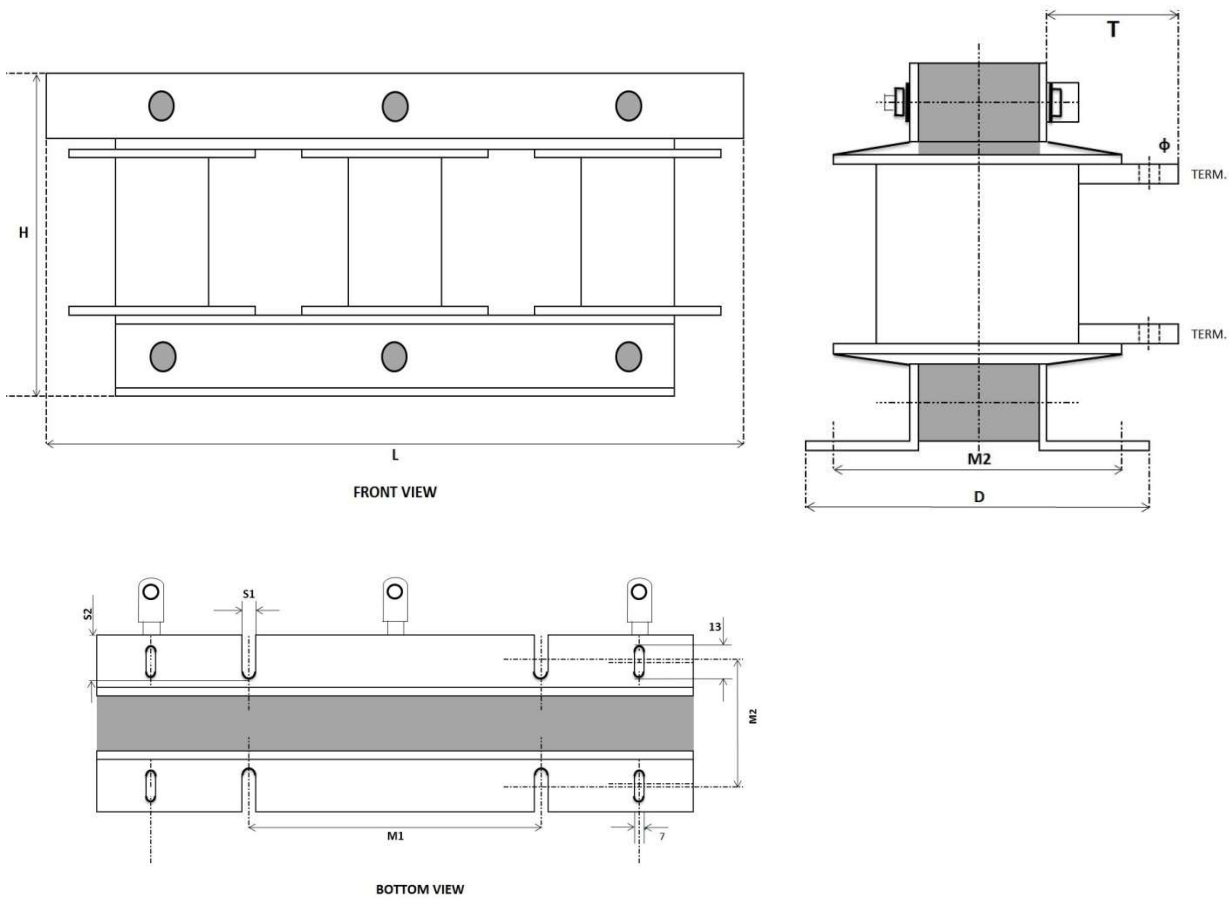
Where, C (μF) –Capacitance

L (mH)- Inductance

Installation Guideline:

1. The detuned reactor always requires forced ventilation system.
2. Mounting of reactor should be in zig zag manner so that heating of one reactor should not affect another reactor.
3. Install the reactor in vertical position.
4. Ensure that the ambient temperature installation does not exceed beyond 55°C (inside the panel).
5. Reactor should be earth to earth point.

Dimension Details:



7 % Aluminum Flat Type Detuned Reactor:

RATING	TERMINAL	L	H	D	M1	M2	T	S1	S2	φ	WEIGHT (Kg)
5K, 440V, 7 %	6 sq.mm.	190	100	78	60	61.5	50	11	16	---	7
10 K, 440V, 7 %	6 sq.mm.	190	125	98	60	82.5	50	11	16	---	9
12.5 K, 440V, 7 %	6 sq.mm.	190	125	98	60	82.5	50	11	16	---	9
15 K, 440V, 7 %	25 sq.mm.	225	155	90	150	73	89	11	16	8	13
20K, 440V, 7 %	25 sq.mm.	225	175	112	150	98	89	11	16	8	16
25K, 440V, 7 %	35 sq.mm.	240	175	112	150	98	89	11	16	8	17
30K, 440V, 7 %	50 sq.mm.	240	175	112	150	98	92	11	16	8	18
50K, 440V, 7 %	50 sq.mm.	285	235	185	150	168	98	11	16	8	26
60K, 440V, 7 %	70 sq.mm.	300	235	185	165	168	112	11	16	10	29
75K, 440V, 7 %	50 sq.mm.	310	265	167	150	143	132.5	11	16	10	39
100K, 440V, 7 %	120 sq.mm.	310	265	192	150	177	132.5	11	16	10	46

7 % Copper Type Detuned Reactor:

RATING	TERMINAL	L	H	D	M1	M2	T	S1	S2	φ	WEIGHT (Kg)
5K, 440V, 7 %	6 sq.mm.	190	100	78	60	61.5	50	11	16	---	7
10 K, 440V, 7 %	6 sq.mm.	190	125	98	60	82.5	50	11	16	---	9
12.5 K, 440V, 7 %	6 sq.mm.	190	125	98	60	82.5	50	11	16	---	9
15 K, 440V, 7 %	16 sq.mm.	225	155	90	150	73	89	11	16	8	13
20K, 440V, 7 %	16 sq.mm.	225	175	112	150	98	89	11	16	8	16
25K, 440V, 7 %	16 sq.mm.	240	175	112	150	98	89	11	16	8	17
30K, 440V, 7 %	16 sq.mm.	240	175	112	150	98	92	11	16	8	18
50K, 440V, 7 %	35 sq.mm.	285	235	185	150	168	98	11	16	8	26
60K, 440V, 7 %	35 sq.mm.	300	235	185	165	168	112	11	16	10	29
75K, 440V, 7 %	50 sq.mm.	310	265	167	150	143	132.5	11	16	10	39
100K, 440V, 7 %	70 sq.mm.	310	265	192	150	177	132.5	11	16	10	46

7 % Aluminum Foil Type Detuned Reactor:

RATING	TERMINAL	L	H	D	M1	M2	T	S1	S2	φ	WEIGHT (Kg)
20K, 440V, 7 %	20x3 Bus-Bars	225	175	112	150	98	89	11	16	8	16
25K, 440V, 7 %	20x3 Bus-Bar	240	175	112	150	98	89	11	16	8	17
30K, 440V, 7 %	20x3 Bus-Bar	240	175	112	150	98	92	11	16	8	18
50K, 440V, 7 %	20x3 Bus-bar	285	235	185	150	168	98	11	16	8	26
60K, 440V, 7 %	20x3 Bus-bar	300	235	185	165	168	112	11	16	10	29
75K, 440V, 7 %	20x3 Bus-Bar	310	265	167	150	143	132.5	11	16	10	39
100K, 440V, 7 %	25x3 Bus-Bar	310	265	192	150	177	132.5	11	16	10	46

5.67 % Aluminum Flat Type Detuned Reactor:

RATING	TERMINAL	L	H	D	M1	M2	T	S1	S2	φ	WEIGHT (Kg)
5K, 440V, 5.67 %	6 sq.mm.	190	100	78	60	61.5	50	11	16	---	7
10 K, 440V, 5.67 %	6 sq.mm.	190	125	98	60	82.5	50	11	16	---	9
12.5 K, 440V, 5.67 %	6 sq.mm.	190	125	98	60	82.5	50	11	16	---	9
15 K, 440V, 5.67 %	25 sq.mm.	225	155	90	150	73	89	11	16	8	13
20K, 440V, 5.67 %	25 sq.mm.	225	175	112	150	98	89	11	16	8	16
25K, 440V, 5.67 %	35 sq.mm.	240	175	112	150	98	89	11	16	8	17
30K, 440V, 5.67 %	50 sq.mm.	240	175	112	150	98	92	11	16	8	18
50K, 440V, 5.67 %	50 sq.mm.	285	235	185	150	168	98	11	16	8	26
60K, 440V, 5.67 %	70 sq.mm.	300	235	185	165	168	112	11	16	10	29
75K, 440V, 5.67 %	50 sq.mm.	310	265	167	150	143	132.5	11	16	10	39
100K, 440V, 5.67 %	120 sq.mm.	310	265	192	150	177	132.5	11	16	10	46

5.67 % Copper Type Detuned Reactor:

RATING	TERMINAL	L	H	D	M1	M2	T	S1	S2	φ	WEIGHT (Kg)
5K, 440V, 5.67 %	6 sq.mm.	190	100	78	60	61.5	50	11	16	---	7
10 K, 440V, 5.67 %	6 sq.mm.	190	125	98	60	82.5	50	11	16	---	9
12.5 K, 440V, 5.67 %	6 sq.mm.	190	125	98	60	82.5	50	11	16	---	9
15 K, 440V, 5.67 %	16 sq.mm.	225	155	90	150	73	89	11	16	8	13
20K, 440V, 5.67 %	16 sq.mm.	225	175	112	150	98	89	11	16	8	16
25K, 440V, 5.67 %	16 sq.mm.	240	175	112	150	98	89	11	16	8	17
30K, 440V, 5.67 %	16 sq.mm.	240	175	112	150	98	92	11	16	8	18
50K, 440V, 5.67 %	35 sq.mm.	285	235	185	150	168	98	11	16	8	26
60K, 440V, 5.67 %	35 sq.mm.	300	235	185	165	168	112	11	16	10	29
75K, 440V, 5.67 %	50 sq.mm.	310	265	167	150	143	132.5	11	16	10	39
100K, 440V, 5.67 %	70 sq.mm.	310	265	192	150	177	132.5	11	16	10	46

5.67 % Aluminum Foil Type Detuned Reactor:

RATING	TERMINAL	L	H	D	M1	M2	T	S1	S2	φ	WEIGHT (Kg)
20K, 440V, 5.67 %	20x3 Bus-Bar	225	175	112	150	98	89	11	16	8	16
25K, 440V, 5.67 %	20x3 Bus-Bar	240	175	112	150	98	89	11	16	8	17
30K, 440V, 5.67 %	20x3 Bus-bar	240	175	112	150	98	92	11	16	8	18
50K, 440V, 5.67 %	20x3 Bus-bar	285	235	185	150	168	98	11	16	8	26
60K, 440V, 5.67 %	20x3 Bus-Bar	300	235	185	165	168	112	11	16	10	29
75K, 440V, 5.67 %	25x3 Bus-Bar	310	265	167	150	143	132.5	11	16	10	39
100K, 440V, 5.67 %	20x3 Bus-Bars	310	265	192	150	177	132.5	11	16	10	46

14 % Aluminum Flat Type Detuned Reactor:

RATING	TERMINAL	L	H	D	M1	M2	T	S1	S2	φ	WEIGHT (Kg)
5K, 440V, 14 %	6 sq.mm.	190	125	98	60	82	50	11	16	--	7
10 K, 440V, 14 %	6 sq.mm.	225	145	90	150	73	89	11	16	6	9
12.5 K, 440V, 14 %	6 sq.mm.	225	145	90	150	73	89	11	16	6	9
15 K, 440V, 14%	25 sq.mm.	240	175	112	150	98	98	11	16	8	13
20K, 440V, 14 %	25 sq.mm.	285	235	185	150	168	98	11	16	8	26
25K, 440V, 14%	35 sq.mm.	285	235	185	150	168	98	11	16	8	26

14 % Copper Type Detuned Reactor:

RATING	TERMINAL	L	H	D	M1	M2	T	S1	S2	φ	WEIGHT (Kg)
5K, 440V, 14%	6 sq.mm.	190	125	98	60	82	50	11	16	--	7
10 K, 440V, 14 %	6 sq.mm.	225	145	90	150	73	89	11	16	6	9
12.5 K, 440V, 14 %	6 sq.mm.	225	145	90	150	73	89	11	16	6	9
15 K, 440V, 14 %	16 sq.mm.	240	175	112	150	98	98	11	16	8	13
20K, 440V, 14 %	16 sq.mm.	225	175	112	150	98	89	11	16	8	16
25K, 440V, 14 %	16 sq.mm.	240	175	112	150	98	89	11	16	8	17
30K, 440V, 14 %	16 sq.mm.	240	175	112	150	98	92	11	16	8	18
50K, 440V, 14 %	35 sq.mm.	285	235	185	150	168	98	11	16	8	26
75K, 440V, 14 %	120 sq.mm.	340	285	224	150	208	142.5	11	16	10	80
100K, 440V, 14 %	120 sq.mm.	340	285	224	150	208	142.5	11	16	10	80

14 % Aluminum Foil Type Detuned Reactor:

RATING	TERMINAL	L	H	D	M1	M2	T	S1	S2	φ	WEIGHT (Kg)
20K, 440V, 14 %	20x3 Bus-Bars	285	235	185	150	168	98	11	16	8	26
25K, 440V, 14 %	20x3 Bus- Bar	285	235	185	150	168	98	11	16	8	26
50K, 440V, 14 %	23x3 bus-Bar	310	265	192	150	177	132.5	11	16	10	46

* Above Dimensions are Subject to Change as per Customer requirement.