

The detuned reactors (DR) are designed to protect the capacitors by preventing amplification of the harmonics present on the network.

PE90154-eps



Operating conditions

- Use: indoor.
- Storage temperature: -40 °C, +60 °C.
- Relative humidity in operation: 20-80 % .
- Salt spray withstand: 250 hours (for 400 V - 50 Hz range).
- Operating temperature:
 - altitude: ≤ 1000 m: Min = 0 °C, Max = 55 °C, highest average over 1 year = 40 °C, 24 hours = 50 °C.
 - altitude: ≤ 2000 m: Min = 0 °C, Max = 50°C, highest average over 1 year = 35 °C, 24 hours = 45°C.

Installation guidelines

- Forced ventilation required.
- Vertical detuned reactor winding for better heat dissipation.

As the detuned reactor is provided with thermal protection, the normally closed dry contact must be used to disconnect the step in the event of overheating.

Technical specifications

General characteristics

Description	Three-phase, dry, magnetic circuit, impregnated
Degree of protection	IP00
Insulation class	H
Rated voltage	400 to 690 V - 50Hz 400 to 600 V - 60Hz Other voltages on request
Inductance tolerance per phase	-5, +5%
Insulation level	1.1 kV
Dielectric test 50/60 Hz between windings and windings/earth	4 kV, 1 min
Thermal protection	Restored on terminal block 250 V AC, 2 A

Let's define the service current (I_s) as the current absorbed by the capacitor and detuned reactor assembly, when a purely sinusoidal voltage is applied, equal to the network service voltage (V).

$$I_s = Q \text{ (kvar)} / (\sqrt{3} \times U_s)$$

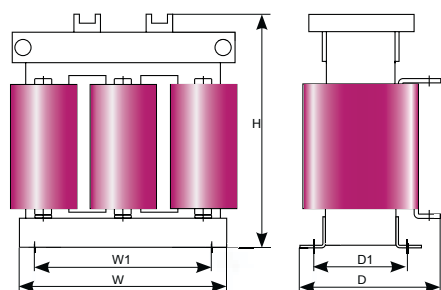
In order to operate safely in real conditions, a detuned reactor must be designed to accept a maximum permanent current (I_{MP}) taking account of harmonic currents and voltage fluctuations.

The following table gives the typical percentage of harmonic currents considered for the different tuning orders.

(%)	Harmonic currents			
Tuning order / Relative Impedance	i_3	i_5	i_7	i_{11}
2.7 / 14%	5	15	5	2
3.8 / 7%	3	40	12	5
4.2 / 5.7%	2	63	17	5

Detuned reactor has to be protected from over currents with MCCB. A 1.1 factor is applied in order to allow long-term operation at a supply voltage up to $(1.1 \times U_s)$. The maximum permanent current (I_{MP}) is given in the following table:

Tuning order	I_{MP} (times I_s)
2.7 / 14%	1.12
3.8 / 7%	1.2
4.2 / 5.7%	1.3



For dimensions and more details, please consult us.

Network voltage 400 V, 50 Hz

50 Hz Relative Impedance (%)	kvar	Inductance (mH)	I _{MP} (A)	Max losses at I _{MP} (W)	W (mm)	W1 (mm)	D (mm)	D1 (mm)	H (mm)	Weight (kg)	Reference Number
5.70% (4.2)	6.5	4.727	12	100	240	200	160	125	220	9	LVR05065A40T
	12.5	2.445	24	150	240	200	160	125	220	13	LVR05125A40T
	25	1.227	47	200	240	200	160	125	220	18	LVR05250A40T
	50	0.614	95	320	260	200	200	125	270	24	LVR05500A40T
	100	0.307	190	480	350	200	220	125	350	46	LVR05X00A40T
7% (3.8)	6.5	5.775	11	100	240	200	160	125	220	8	LVR07065A40T
	12.5	2.987	22	150	240	200	160	125	220	10	LVR07125A40T
	25	1.499	43	200	240	200	160	125	220	15	LVR07250A40T
	50	0.750	86	320	260	200	200	125	270	22	LVR07500A40T
	100	0.375	172	480	350	200	220	125	350	37	LVR07X00A40T
14% (2.7)	6.5	11.439	10	100	240	200	160	125	220	10	LVR14065A40T
	12.5	6.489	20	150	240	200	160	125	220	15	LVR14125A40T
	25	3.195	40	200	240	200	160	125	220	22	LVR14250A40T
	50	1.598	80	400	260	200	200	125	270	33	LVR14500A40T
	100	0.799	160	600	350	200	220	125	350	55	LVR14X00A40T

Network voltage 690 V, 50 Hz

Relative Impedance (%)	kvar	Inductance (mH)	I _{MP} (A)	Max losses at I _{MP} (W)	W (mm)	W1 (mm)	D (mm)	D1 (mm)	H (mm)	Weight (kg)	Reference Number
5.70% (4.2)	12.5	7.28	13.3	150	240	200	160	125	220	13	LVR05125A69T
	25	3.654	27	200	240	200	160	125	220	18	LVR05250A69T
	50	1.827	53	320	260	200	200	125	270	30	LVR05500A69T
	100	0.913	106	600	350	200	220	125	350	42	LVR05X00A69T
7% (3.8)	12.5	8.893	12	150	240	200	160	125	220	13	LVR07125A69T
	25	4.464	24	200	240	200	160	125	220	18	LVR07250A69T
	50	2.232	47	320	260	200	200	125	270	22	LVR07500A69T
	100	1.116	94	480	350	200	220	125	350	40	LVR07X00A69T

Network voltage 230 V, 50 Hz

Relative Impedance (%)	kvar	Inductance (mH)	I _{MP} (A)	Max losses at I _{MP} (W)	W (mm)	W1 (mm)	D (mm)	D1 (mm)	H (mm)	Weight (kg)	Reference Number
5.70% (4.2)	6.5	1.651	20	100	240	200	160	125	220	8	LVR05065A23T
	12.5	0.794	42	150	240	200	160	125	220	13	LVR05125A23T
	25	0.397	84	200	240	200	160	125	220	18	LVR05250A23T

Network voltage 400 V, 60 Hz

60 Hz Relative Impedance (%)	kvar	Inductance (mH)	I _{MP} (A)	Max losses at I _{MP} (W)	W (mm)	W1 (mm)	D (mm)	D1 (mm)	H (mm)	Weight (kg)	Reference Number
5.70% (4.2)	12.5	2.005	24	150	240	200	160	125	220	10	LVR05125B40T
	25	1.000	48.1	200	240	200	160	125	220	17	LVR05250B40T
	50	0.500	96.3	320	260	200	200	125	270	22	LVR05500B40T
	100	0.250	192.5	480	350	200	220	125	350	39	LVR05X00B40T
7% (3.8)	12.5	2.450	21.8	150	240	200	160	125	220	9	LVR07125B40T
	25	1.221	43.8	200	240	200	160	125	220	15	LVR07250B40T
	50	0.611	87.6	320	260	200	200	125	270	22	LVR07500B40T
	100	0.305	175.3	480	350	200	220	125	350	35	LVR07X00B40T
14% (2.7)	12.5	5.139	21	150	240	200	160	125	220	13	LVR14125B40T
	25	2.704	39.9	200	240	200	160	125	220	18	LVR14250B40T
	50	1.352	79.8	400	260	200	200	125	270	33	LVR14500B40T
	100	0.676	159.7	600	350	200	220	125	350	54	LVR14X00B40T

Network voltage 480 V, 60 Hz

5.70% (4.2)	12.5	2.764	20.9	150	240	200	160	125	220	13	LVR05125B48T
	25	1.421	40.6	200	240	200	160	125	220	18	LVR05250B48T
	50	0.710	81.3	320	260	200	200	125	270	25	LVR05500B48T
	75	0.474	121.9	480	350	200	220	125	350	35	LVR05X00B48T
	100	0.355	162.6	480	350	200	220	125	350	40	LVR05X00B48T
	150	0.237	243.9	600	350	200	220	125	350	50	LVR05X00B48T

Network voltage 220 V, 60 Hz

5.70% (4.2)	12.5	0.618	42.8	150	240	200	160	125	220	13	LVR05125B22T
	25	0.309	85.6	200	240	200	160	125	220	18	LVR05250B22T
	50	0.155	171.2	320	260	200	200	125	270	29	LVR05500B22T
	100	0.077	342.3	480	350	200	220	125	350	39	LVR05X00B22T

Network voltage 240 V, 60 Hz

5.70% (4.2)	12.5	0.665	43.4	150	240	200	160	125	220	13	LVR05125B24T
	25	0.332	86.9	200	240	200	160	125	220	18	LVR05250B24T
	50	0.166	173.7	320	260	200	200	125	270	29	LVR05500B24T

Network voltage 600 V, 60 Hz

5.70% (4.2)	12.5	4.345	16.6	150	240	200	160	125	220	13	LVR05125B60T
	25	2.165	33.3	200	240	200	160	125	220	18	LVR05250B60T
	50	1.083	66.7	320	260	200	200	125	270	24	LVR05500B60T
	75	0.722	100.0	480	350	200	220	125	350	35	LVR05750B60T
	100	0.541	133.3	480	350	200	220	125	350	40	LVR05X00B60T
	150	0.361	200.0	600	350	200	220	125	350	56	LVR05X50B60T