DETUNED REACTORS · HARMONIC FILTERING

GRIDTUNE

Detuned Reactors

Antiresonance harmonic filter reactors for capacitor banks. Three detuning factors — p = 7 %, 5.67 % and 14 % — covering every standard THDV pollution level, from 2.5 to 100 kvar at 400–690 V.

400 – 690 V | **2.5 – 100 kvar** | p = 7% / 5.67% / 14% | ALUMINIUM WINDING | EN 61558-2-20 | IP00 PANEL MOUNT

3	100 kvar	690 V	189 Hz
DETUNING OPTIONS	MAXIMUM POWER	MAXIMUM VOLTAGE	TUNING FREQUENCY AT p = 7 %

Built to EN 61558-1 & EN 61558-2-20. Test documentation available on request.

ENGINEERED FOR FORTE GRIDFIX COMPENSATION SYSTEMS

GRIDTUNE — THREE-PHASE FILTER REACTOR

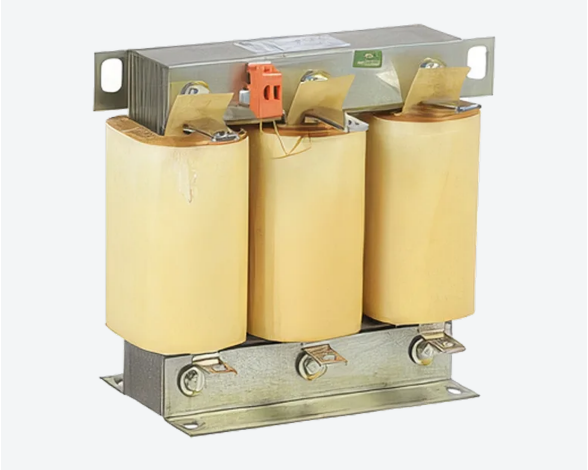
THE GRIDTUNE SERIES

Harmonic protection for capacitor banks

In power factor correction systems, capacitor banks are vulnerable to **harmonic resonance** — a condition where the natural frequency of the capacitor–reactor circuit coincides with a harmonic present in the network. This amplifies harmonic currents and can cause capacitor failure, overheating and nuisance tripping.

Detuned reactors solve this by shifting the resonant frequency **below** the lowest significant harmonic. Connected in series with each capacitor step, the reactor detunes the circuit so it cannot amplify harmonics.

The GRIDTUNE series offers three detuning factors to match every network pollution level — from light harmonic environments to heavily distorted industrial grids with VFDs, arc furnaces and rectifier loads. Aluminium winding, 2.5 to 100 kvar, with built-in bimetal microswitch (nc contact) as standard.



GRIDTUNE — THREE-PHASE FILTER REACTOR

WARNING — Hot surface

The reactor operates at high temperature *(thermostat 132 °C · thermal class F (155 °C))* and is open-frame *(IP00 — open frame, panel mounted)*. Isolate the capacitor step and allow the reactor to cool before handling it.

3	100 kvar	690 V	42 W
DETUNING FACTORS	MAXIMUM POWER RATING	MAXIMUM SYSTEM VOLTAGE	LOWEST UNIT LOSSES

KEY FEATURES

What makes GRIDTUNE the right choice

Antiresonance protection

Prevents harmful resonance between capacitor banks and network inductance. Protects capacitors, fuses and switchgear from harmonic overcurrents.

Three detuning options

p = 5.67 % (210 Hz) for high 5th harmonic content, p = 7 % (189 Hz) for standard balanced industrial load, p = 14 % (134 Hz) for unbalanced loads with 3rd harmonic.

Built-in thermal protection

Bimetal microswitch with NC contact embedded in the winding, opening at 132 °C. Disconnects the reactor on overtemperature — no external relay needed.

Low losses

Optimised core design and high-grade electrical steel minimise heat generation — losses as low as 42 W on the smallest units.

Wide voltage range

Standard models for 400 V, 440 V, 480 V, 600 V, 660 V and 690 V systems — covering low-voltage industrial and commercial installations worldwide.

Compact & panel ready

IP00 open-frame design mounts directly inside PFC panels. Compact footprint from 2.4 kg at 2.5 kvar to 67.9 kg at 100 kvar.

TECHNICAL SPECIFICATIONS

GRIDTUNE — full specification

All parameters for Forte GRIDTUNE detuned reactors. Standard range covers 2.5 to 100 kvar at 400–690 V.

PARAMETER	SPECIFICATION
Product	Forte GRIDTUNE Series — Detuned Reactor
Type	Three-phase antiresonance filter reactor
Function	Resonance suppression for capacitor-based PFC systems
Voltage range	400 · 440 · 480 · 600 · 660 · 690 V
Power range	2.5 … 100 kvar
Frequency	50 Hz
Winding material	Aluminium
Thermal protection	Bimetal microswitch (NC contact)
Thermostat opening	132 °C
Thermal class	F (155 °C)
Duty	100 %
Cooling	Natural convection (AN)
Ambient temperature	-10 … +45 °C (derate above 40 °C)
Lowest unit losses	42 W (smallest unit, 2.5 kvar)
Enclosure	IP00 — open frame, panel mounted
Standard	EN 61558-1 & EN 61558-2-20
Warranty	12 months (subject to warranty conditions)
Detuning factors	**p = 5.67 %** — 210 Hz · High 5th harmonic content — high filter current near resonance **p = 7 %** — 189 Hz · Standard industrial applications with balanced load **p = 14 %** — 134 Hz · Unbalanced loads with 3rd harmonic present

INDUCTANCE LINEARITY

DETUNING FACTOR	INDUCTANCE LINEARITY	VALID UP TO
p = 7 %	L ≥ 0.95 × L_R	up to 1.73 × I_RMS
p = 5.67 %	L ≥ 0.95 × L_R	up to 1.73 × I_RMS
p = 14 %	L ≥ 0.95 × L_R	up to 1.37 × I_RMS

SELECTION GUIDE

THDV-based type code selection

TYPE CODE	THDV RANGE	TYPICAL ENVIRONMENT
T07	THDV ≤ 5 %	Light pollution — offices, commercial buildings, light industry
T08	THDV 3 – 8 %	Standard — majority of industrial & commercial installations (default)
T14	THDV > 8 %	Heavy pollution — VFDs, rectifiers, welding, arc furnaces

Note. If on-site THDV measurement is not available, **T08** is the recommended default for standard industrial environments.
Open question [V20] — every catalogue row on page 04 carries **T08** regardless of detuning factor. Whether the T-code and the detuning factor are one field or two is not yet settled; this code appears on the product label.

CHARACTERISTICS — 400 V RANGE

Detuned reactor data by detuning factor

p = 7 % — 189 Hz · standard industrial, balanced load

QC	L	I_N	I_{EFF}	P_L	KG	ORDER CODE
2.5	15.3	3.6	3.8	42.86	2.4	1DR07-T08400-C03S01
6.25	6.13	9	9.51	70.12	4.7	1DR07-T08400-C06S01
10	3.84	14.4	15.21	56.02	8	1DR07-T08400-C10S01
12.5	3.07	18.1	19.11	80.02	9.3	1DR07-T08400-C13S01
20	1.92	29	30.63	101.95	12.8	1DR07-T08400-C20S01
25	1.53	36.1	38.12	125.21	13.4	1DR07-T08400-C25S01
40	0.95	57.7	60.94	172.7	18.1	1DR07-T08400-C40S01
50	0.76	72.2	76.26	221.8	21	1DR07-T08400-C50S01
75	0.51	108	114.1	289.2	27.6	1DR07-T08400-C75S01
100	0.38	145	153	353.8	42.4	1DR07-T08400-C100S01

p = 14 % — 134 Hz · unbalanced, 3rd harmonic

QC	L	I_N	I_{EFF}	P_L	KG	ORDER CODE
2.5	33.2	3.6	3.63	55.96	3.9	1DR14-T08400-C03S01
6.25	13.3	9	9.06	70.56	8.9	1DR14-T08400-C06S01
10	8.3	14.4	14.49	94.75	10.2	1DR14-T08400-C10S01
12.5	6.63	18	18.11	118.2	12.6	1DR14-T08400-C13S01
20	4.15	28.9	29.08	168.74	16.1	1DR14-T08400-C20S01
25	3.32	36.1	36.32	144.5	19.2	1DR14-T08400-C25S01
40	2.07	57.7	58.06	192.1	33.8	1DR14-T08400-C40S01
50	1.66	72.2	72.65	283	42.5	1DR14-T08400-C50S01
75	1.11	109	109.6	334	55.5	1DR14-T08400-C75S01
100	0.83	144	144.9	425.3	67.9	1DR14-T08400-C100S01

p = 5.67 % — 210 Hz · high 5th harmonic filtering

QC	L	I_N	I_{EFF}	P_L	KG	ORDER CODE
2.5	12.25	3.6	4.179	61.37	2.7	1DR56-T08400-C03S01
6.25	4.9	9	10.48	88.24	7.2	1DR56-T08400-C06S01
10	3.06	16.79	16.79	95.05	7.4	1DR56-T08400-C10S01
12.5	2.33	19	22.09	114.18	8.1	1DR56-T08400-C13S01
20	1.53	28.9	33.62	119.9	13.7	1DR56-T08400-C20S01
25	1.22	36.1	42.01	146.5	15.6	1DR56-T08400-C25S01
40	0.76	57.7	67.15	213.1	19.9	1DR56-T08400-C40S01
50	0.58	75.9	88.34	238.2	31.5	1DR56-T08400-C50S01
75	0.41	108	125.7	320.6	51.2	1DR56-T08400-C75S01
100	0.31	144	167.6	431	52.2	1DR56-T08400-C100S01

ORDER CODE

1DR07-T08400-C100S01

1DR	GRIDTUNE family — detuned reactor
07	detuning factor p = 7 % · 56 → 5.67 % · 14 → 14 %
T08	THDV type code [V20]
400	system voltage V
C100	capacitor power kvar
S01	series

> **Reactor and capacitor are selected together.** A p = 7 % step at 400 V uses a 525 V capacitor; p = 14 % uses 800 V. If on-site THDV is unknown, **T08** is the default.

Need help selecting the right detuned reactor?

Our engineering team will recommend the detuning factor and power rating from your network analysis and harmonic profile.

REQUEST A QUOTE HARMONIC SURVEY

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A document without a complete identification block is a draft *(T1-A Rule 2.2)*. The document number is not allocated while a data gate is open *(T1-A Rule 3.19)*.