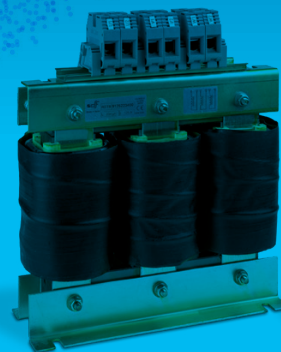




## RET9 HARMONIC CIRCUIT FILTER

three-phase reactors



## PROTECTING THE WORLD



## RET9 Harmonic circuit filter Three-phase reactors

The increase of the use of non-linear loads such variable speed drives, soft starters, induction ovens, power converters, etc produce a high contents of harmonic currents in the networks.

These currents have bad effects on the capacitor banks used in the reactive power compensation equipment, causing current overload, overvoltages and resonance effects between the capacitors and the inductances presents in the network (distribution transformer, lines, etc).

We offer three-phase reactors specially designed for give solutions to these disturbances that can lead to a fast deterioration or destruction of the capacitor banks. The resonance effects can be avoided with the use of eactors in order to have a detuned system capacitor-reactor.

The most common value of resonant frequency is 189 Hz ( $p = 7\%$ ), but on request we can design and manufacture reactors with another detuning factors.

In addition to avoid the resonance, the use of reactors offers supplementary advantages:

- Protection of the capacitors against harmonics
- Reduce the losses in the capacitors
- Reduce the inrush current of the capacitor banks, extend their life and reducing perturbations in the network

The main characteristics of this reactors are:

- Low inductance tolerance
- High linearity of the inductance with currents up to  $1,8 \cdot I_N$
- Thermally designed for main frequency and harmonics
- Long useful life

These reactors have a thermal micro switch in order to disconnect the filter circuit in case of abnormal over temperature (this switch must be connected in the control circuit of the filter).

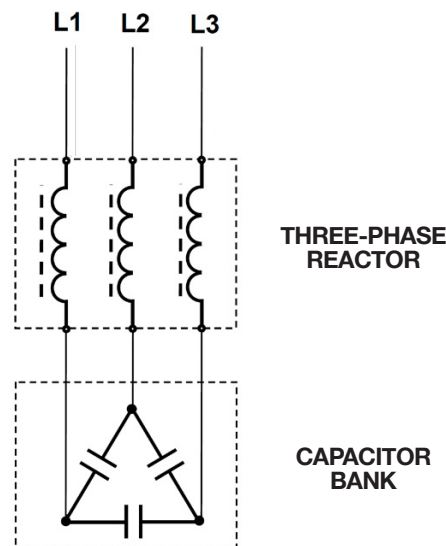
On request we can design and manufacture reactors with other characteristics.

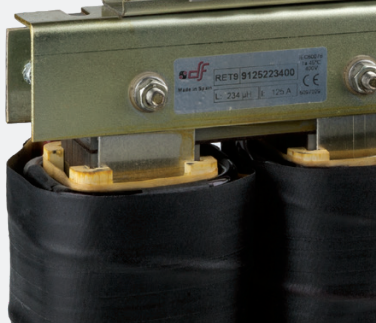
## Range

POWER *	L (mH)	CURRENT		REFERENCE
		(kvar)	(A)	
		50Hz	rms	
5	7,67	7,65	8,44	9008100760
10	3,83	15,3	16,9	9015100380
12,5	3,07	19,1	21,1	9019100310
15	2,56	22,9	25,3	9023100260
20	1,92	30,6	33,7	9031100190
25	1,53	38,2	42,2	9038100150
30	1,28	45,9	50,6	9046100120
40	0,958	61,2	67,5	9061295800
50	0,767	76,5	84,4	9076276700
60	0,639	91,8	101,3	9092263900
70	0,548	107,1	118,2	9107254800
80	0,479	122,4	135,1	9122247900

\* Effective filtered compensating reactive power

OTHER CHARACTERISTICS ON REQUEST SUBJECT TO AVAILABILITY AND POSSIBILITY



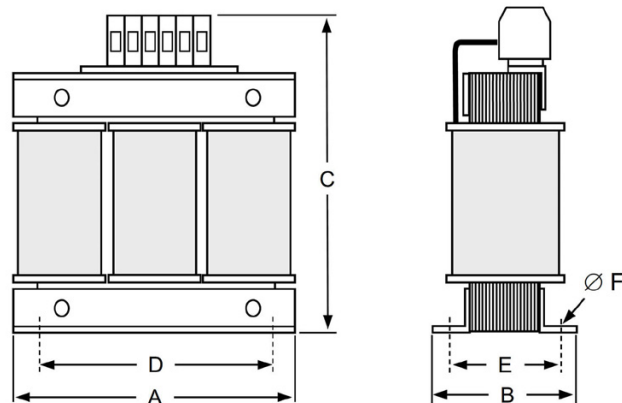


## Technical data

Maximum working voltage	400V
Protection against electric shock	Class I
Thermal class	up to 15kvar → B (130°C) 20...80kvar → H (180°C)
Maximum ambient temperature	40°C
Protection index	IP00
Frequency	50Hz
Inductance tolerance	3%
Filtering factor p	7%
Resonance frequency	189Hz
Linearity 95% L <sub>N</sub>	up to 1,18·I <sub>N</sub>
Maximum permanent overload	1,17·I <sub>N</sub>
Dielectric strength	≥ 4kV
Ambient temperature of service *	-25°C ... 70°C
Storage temperature	-40°C ... 85°C
Cooling	<b>Natural air cooling</b> If the transformer is placed into a cabinet, it must have adequate ventilation

\* For ambient temperatures higher than 40°C it is necessary to apply a derating.

## Dimensions



POWER (kvar)	DIMENSIONS (mm)						WEIGHT (kg)
	A	B	C	D	E	F	
5	180	80	215	140	70	7	8,1
10	180	80	215	140	70	7	8,4
12,5	180	90	215	140	80	7	9,4
15	180	90	215	140	80	7	9,8
20	240	95	271	200	80	7	12,5
25	240	95	275	200	80	7	12,8
30	240	95	275	200	80	7	12,9

## Constructive characteristics

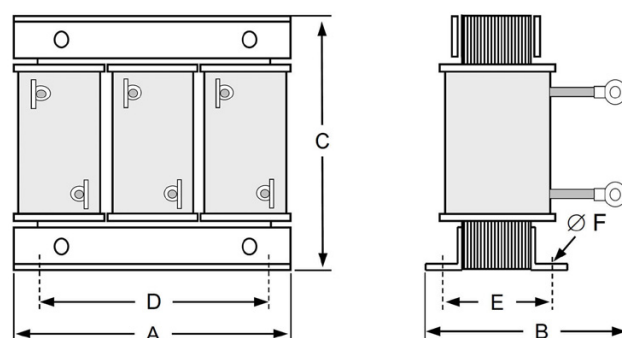
Core made with electrical steel with high permeability and low losses

Multiple air gap in order to obtain low losses and good behavior against the core saturation

Windings in copper F (155°C) or H (180°C) thermal class

Vacuum impregnation with epoxy class H (180°C) in order to obtain low noise, good isolating properties and good protection against adverse ambient

Connection with terminal blocks or copper lugs



POWER (kvar)	DIMENSIONS (mm)						WEIGHT (kg)
	A	B	C	D	E	F	
40	240	150	210	200	90	7	17,9
50	240	175	210	200	115	7	27,4
60	300	170	260	200	100	7	33,5
70	300	190	260	200	140	7	44,0
80	300	215	250	200	140	7	45,0

## Standards

IEC/EN 61558-2-20

IEC/EN60076-6

RoHS Compliant







## PROTECTING THE WORLD



### HEAD OFFICE AND FACTORY

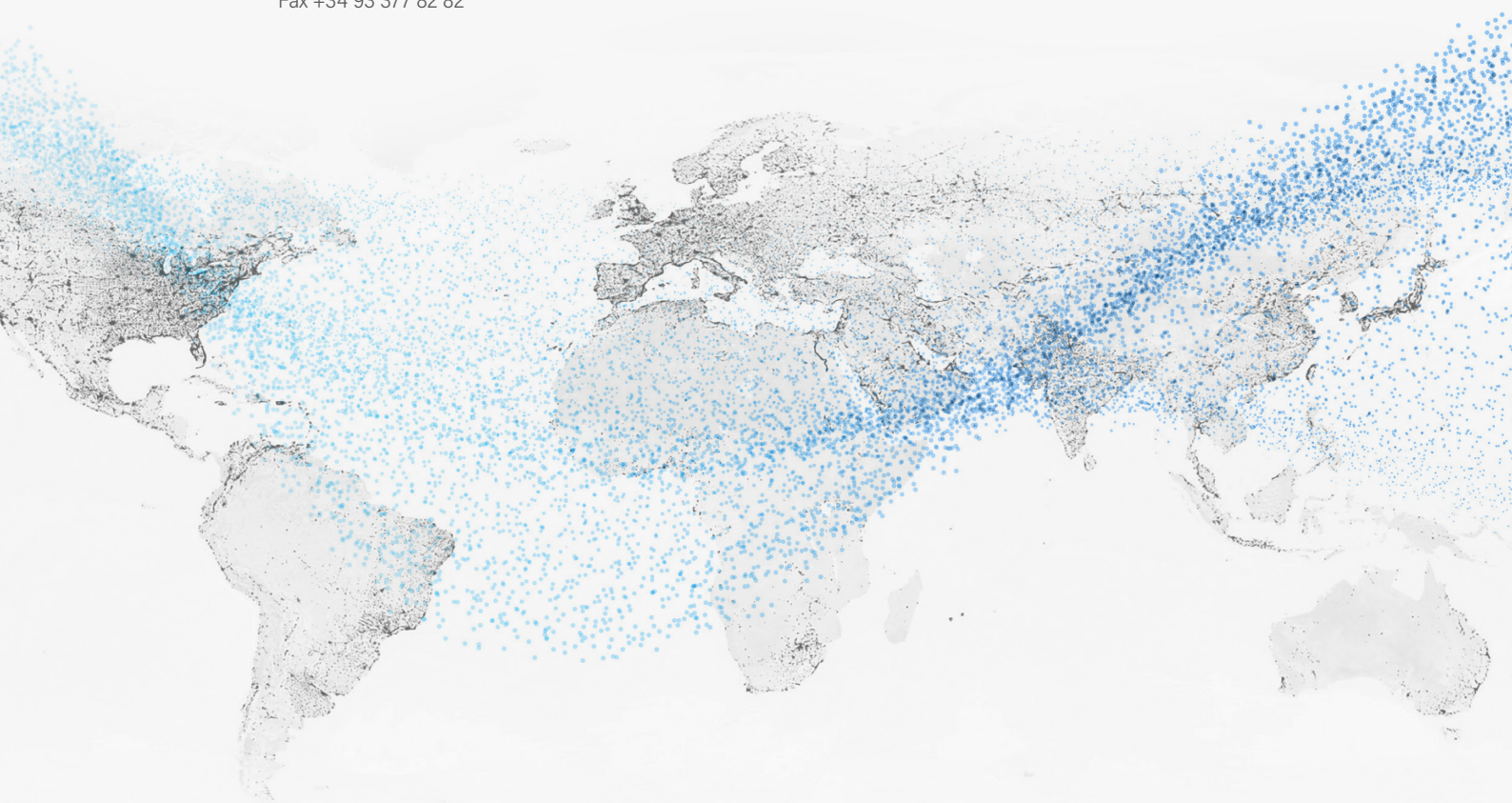
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The "electro technical expert" logo marked on the products included in this data sheet indicates that the installation of these products must be carried out by expert personnel with specialized knowledge.



To prevent electrical hazards, carry out the installation without voltage.



**Safety notice**  
Please capture the following QR code and read our safety notice carefully before installing our products.



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