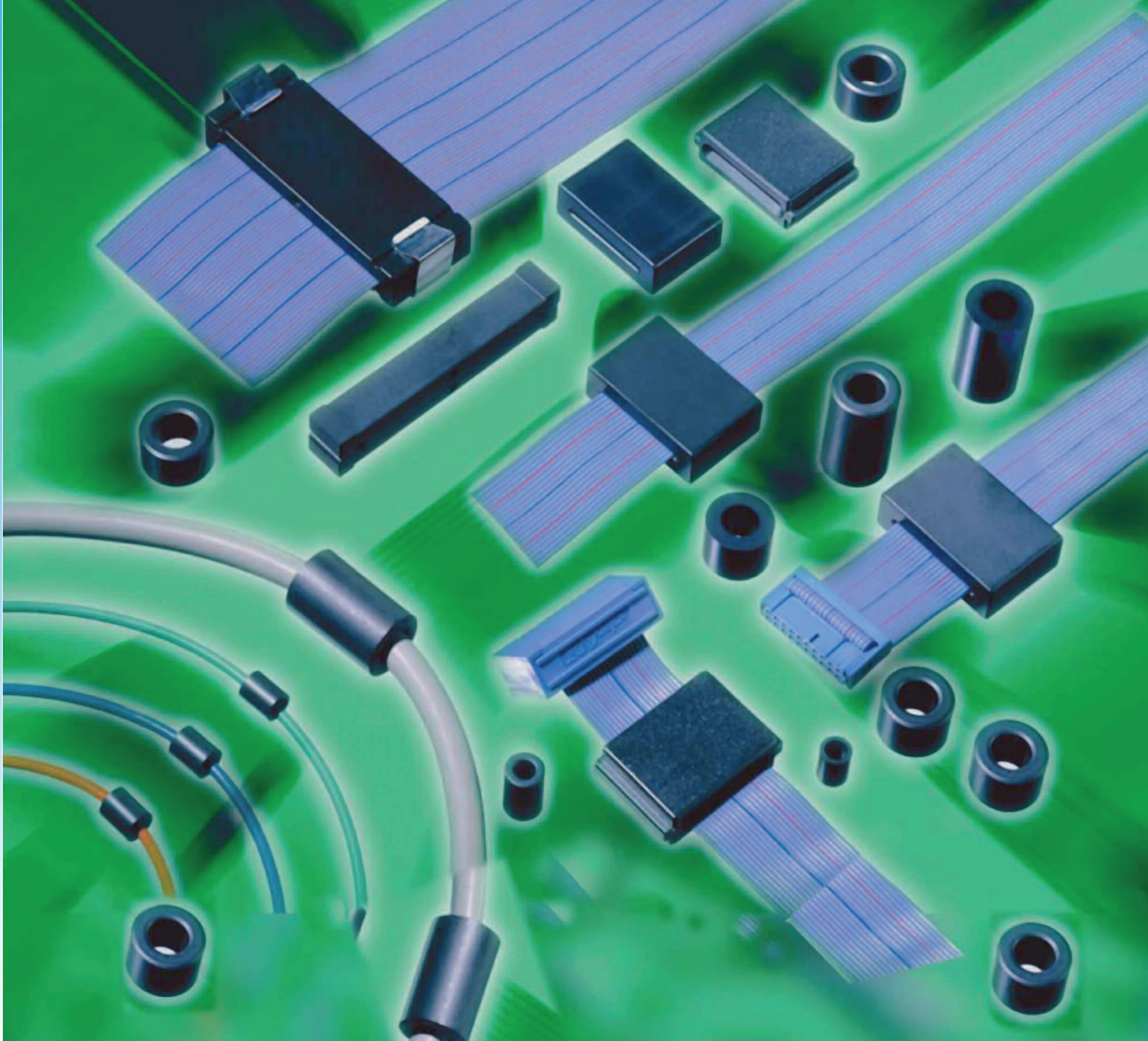


4S2F

The cost effective
EMI suppression alternative



Material specifications

SYMBOL	CONDITIONS	VALUE	UNIT
μ_i	25°C; 10kHz; 0.25 mT	≈ 700	
B	25°C; 10kHz; 1200A/m 100°C; 10kHz; 1200A/m	≈ 290 ≈ 170	mT
$ Z $ ⁽¹⁾	25°C; 30 MHz 25°C; 300 MHz	≥ 50 ≥ 85	Ω
ρ	DC, 25°C	$\approx 10^4$	Ωm
T_c		≥ 120	°C
density		≈ 4800	kg/m^3

(1) Measured on a bead $\text{Ø}5 \times \text{Ø}2 \times 10$ mm.

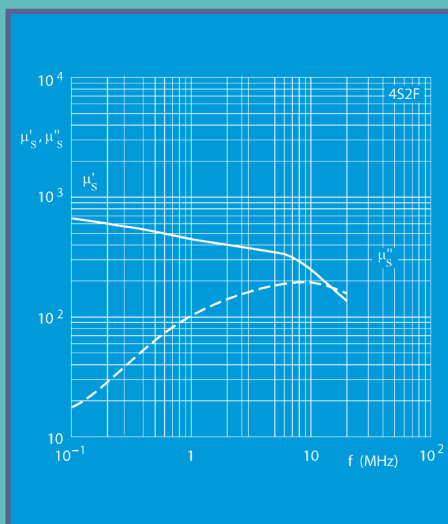


Fig. 1 Complex permeability as a function of frequency

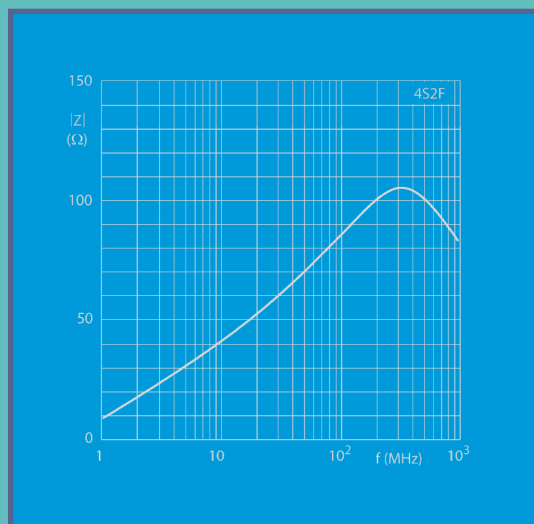


Fig. 2 Impedance as a function of frequency, measured on a bead $\text{Ø}5 \times \text{Ø}2 \times 10$ mm

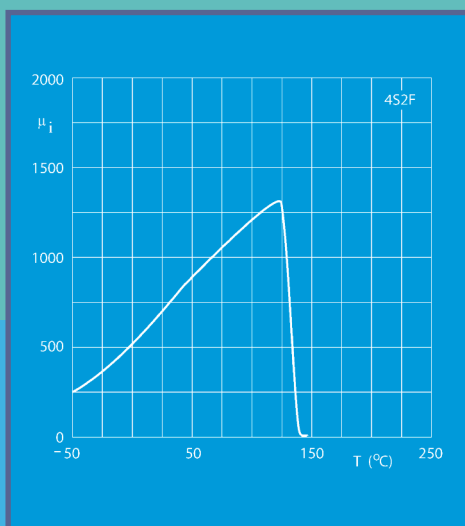


Fig. 3 Initial permeability as a function of temperature

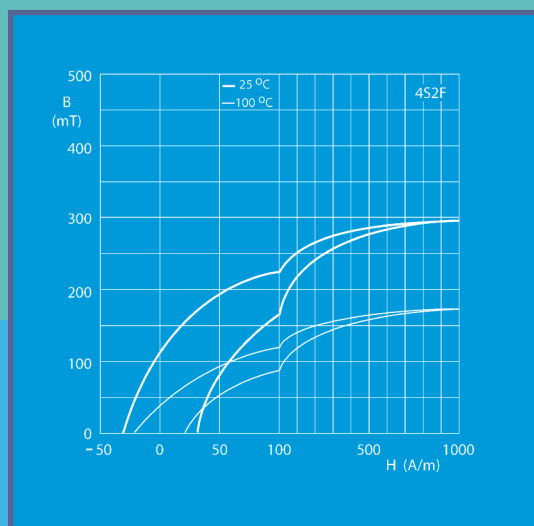


Fig. 4 Typical B-H loops

The cost effective

Conducted interference through cables can now be suppressed at lower cost with Ferroxcube's new range of cable shields in 4S2F material. All the standard cable shielding shapes are available in 4S2F with similar performance to 4S2 such as tubular, round, and flat.



There is also available a new designer kit so that you can test several 4S2F alternatives in your equipment (ordering code of the sample box: 432703222191)

Tubular cable shields

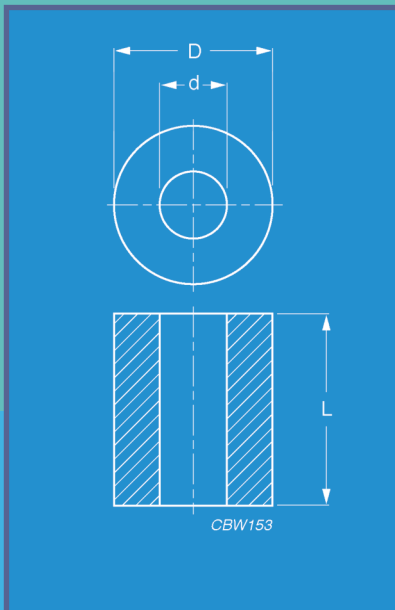


Fig. 1 Tubular cable shield

TYPE NUMBER	DIMENSIONS (Fig 1)			Z _{typ} ² (Ω)	
	D	d	L	25 MHz	100 MHz
CST9.5/4.8/4.8-4S2F	9.5 ±0.25	4.75 ±0.25	4.8 ±0.2	18	35
CST9.5/4.8/6.4-4S2F	9.5±0.25	4.75 ±0.25	6.35 ±0.35	23	50
CST9.5/4.8/9.5-4S2F	9.5 ±0.25	4.75 ±0.15	9.5 ±0.35	40	70
CST9.5/4.8/10-4S2F	9.5 ±0.25	4.75 ±0.15	10.4 ±0.25	53	80
CST9.5/4.8/13-4S2F	9.5 ±0.25	4.75 ±0.15	12.7±0.5	60	95
CST9.5/4.8/19-4S2F	9.5 ±0.25	4.75 ±0.15	19.05 ±0.7	100	145
CST9.5/5.1/15-4S2F	9.5 ±0.3	5.1 ±0.15	14.5 ±0.45	66	110
CST9.7/5/5.1-4S2F	9.65 ±0.25	5 ±0.2	5.05 ±0.45	26	43
CST14/6.4/5.3-4S2F	14.3 ±0.45	6.35 ±0.25	5.3 ±0.45	35	60
CST14/6.4/10-4S2F	14.3 ±0.45	6.35 ±0.25	10.1±0.4	70	105
CST14/6.4/14-4S2F	14.3 ±0.45	6.35 ±0.25	13.8 ±0.4	90	150
CST14/6.4/15-4S2F	14.3 ±0.45	6.35 ±0.25	15 ±0.45	100	170
CST14/6.4/29-4S2F	14.3 ±0.45	6.35 ±0.25	28.6 ±0.75	170	250
CST14/7.3/29-4S2F	14.3 ±0.45	7.25 ±0.15	28.6 ±0.75	143	215
CST16/7.9/14-4S2F	16.25 ±0.75	7.9 ±0.25	14.3 ±0.35	70	113
CST16/7.9/29-4S2F	16.25 ±0.75	7.9 ±0.25	28.6 ±0.75	130	213
CST17/9.5/13-4S2F	17.45 ±0.4	9.5 ±0.25	12.7 ±0.5	55	88
CST17/9.5/29-4S2F	17.45 ±0.35	9.53 ±0.25	28.55 ±0.75	125	250
CST19/10/15-4S2F	19 -0.65	10.15 ±0.25	14.65 -0.75	70	110
CST19/10/29-4S2F	19 -0.65	10.15 ±0.25	28.6 ±0.75	128	196
CST26/13/21-4S2F	25.9 ±0.75	12.8 ±0.25	21.3±0.5	110	180
CST26/13/29-4S2F	25.9 ±0.75	12.8 ±0.25	28.6 ±0.8	145	225
CST29/19/7.5-4S2F	29 ±0.75	19 ±0.5	7.5 ±0.25	28	47

alternative for EM

Round cable shields (split)

TYPE NUMBER	FIG.	DIMENSIONS					Z _{typ} ² (Ω)	
		A	B	C	D	E	25 MHz	100 MHz
Round cable shields								
CSA15/7.5/29-4S2F	2	15 ±0.25	6.6 ±0.3	28.6 ±0.8	7.5 ±0.15	-	165	275
CSA19/9.4/29-4S2F	2	18.65 ±0.4	10.15 ±0.3	28.6 ±0.8	9.4 ±0.15	-	140	225
CSA26/13/29-4S2F	2	25.9 ±0.5	13.05 ±0.3	28.6 ±0.8	12.8 ±0.25	-	155	250
CSC16/7.9/14-4S2F	4	15.9 ±0.4	7.9 ±0.3	14.3 ±0.4	7.95 ±0.2	-	50	113
Round cable shields in matching nylon cases								
CSA15/7.5/29-4S2F-EN	2+3	17.9	7.0	32.3	9.2	9.0	165	275
Nylon case	3	17.9	7.0	32.3	9.2	9.0	-	-
CSA19/9.4/29-4S2F-EN	2+3	22.1	10.2	32.3	11.7	9.0	140	225
Nylon case	3	22.1	10.2	32.3	11.7	9.0	-	-
CSA26/13/29-4S2F-EN	2+3	29	13.4	32.5	14.8	18.0	155	250
Nylon case	3	29	13.4	32.5	14.8	18.0	-	-
CSC16/7.9/14-4S2F-EN	4+5	24.7	7.6	22.8	10.2	17.8	50	113
Nylon case	5	24.7	7.6	22.8	10.2	17.8	-	-

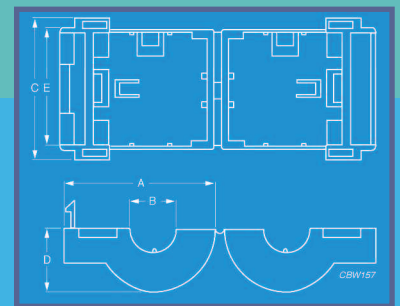
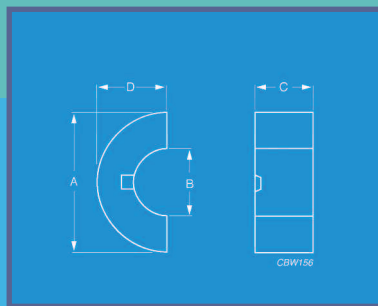
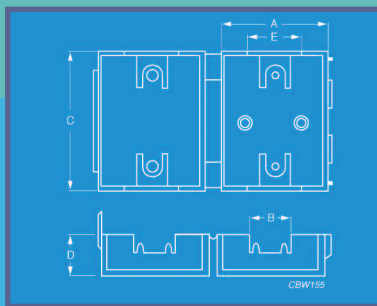
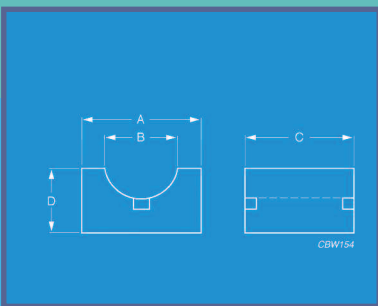


Fig. 2 Shield (CSA) outline

Fig. 3 Nylon case

Fig. 4 Shield (CSC) outline

Fig. 5 Nylon case

EM suppression

Flat cable shields (split)

TYPE NUMBER	FIG.	DIMENSIONS					Z _{typ} 2 (Ω)	
		A	B	C	D	E	25 MHz	100 MHz
Flat cable shields (split)								
CSU45/6.4/29-4S2F	6a	45.1±0.75	34.4 ±0.7	28.6 ±0.7	6.35 ±0.25	0.85 ±0.2	96	225
CSU76/6.4/29-4S2F	6a	76.2 ±1.5	65.3 ±1.3	28.6 ±0.8	6.35 ±0.25	0.85 ±0.2	75	215
CLI-CSU6.4	6c	16.1	11.0	12.7	11.4	8.0	-	-
Round cable shields in matching nylon cases								
CSU45/6.4/29-4S2F-EN	6a+b	49.5	34.3	32.3	8.1	20	96	225
Nylon case	6b	49.5	34.3	32.3	8.1	20	-	-
CSU76/6.4/29-4S2F-EN	6a+b	80.8	65.5	32.3	8.1	50.8	75	215
Nylon case	6b	80.8	65.5	32.3	8.1	50.8	-	-

(2) Minimum guaranteed impedance is $|Z|_{\text{typ}} - 20\%$

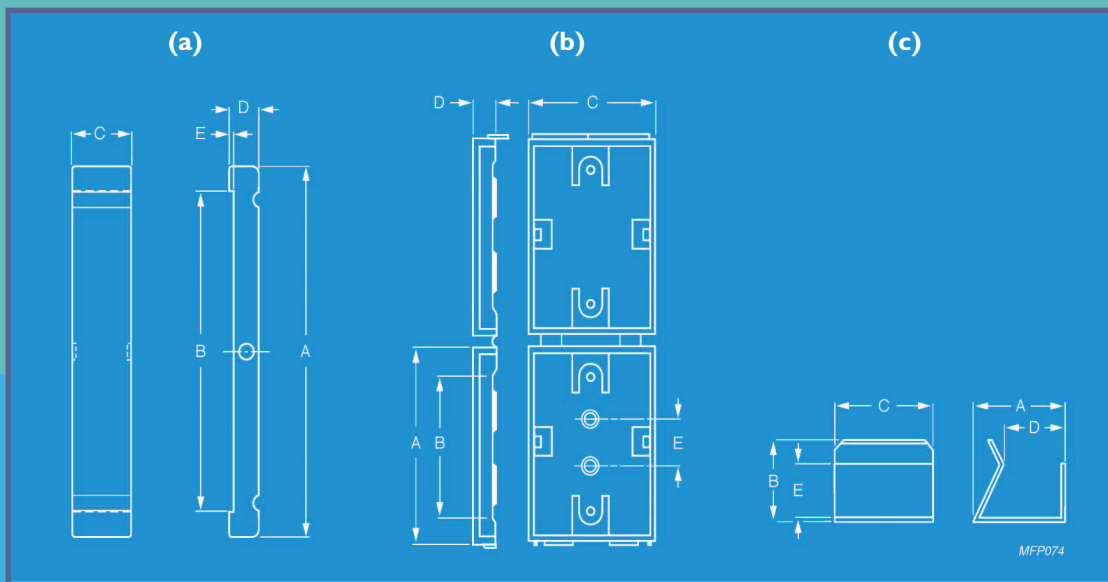


Fig. 6 Outlines of flat cable shields (split) and accessories

Australia: Contact Ferroxcube Taiwan
Tel. +886 3 599 5886, Fax: +886 3 599 5882

Austria: Contact Ferroxcube Germany
Tel: +49 40 52728 302, Fax: +49 40 52728 308

Benelux: Contact Ferroxcube Germany
Tel: +49 40 52728 302, Fax: +49 40 52728 308

Bosnia: Contact Ferroxcube Italy
Tel: +39 02 660454 69, Fax: +39 02 612917 39

Brazil: Richardson Electronics, Sao Paulo
Tel: +55 11 5186 9672, Fax: +55 11 5186 9678

Canada east: Contact Ferroxcube, USA
Tel: +1 (915) 599 2328, Fax: +1 (915) 599 2555

China: Ferroxcube South of China
Tel: +86 769 87382420, Fax: +86 769 87339561
Ferroxcube Suzhou
Tel: +86 512 68095048, Fax: +86 512 68097128

Colombia: Richardson Electronics
Tel: +57 1 636 1028, Fax: +57 1 636 1005

Croatia: Contact Ferroxcube Italy
Tel: +39 02 660454 69, Fax: +39 02 612917 39

Czech Republic: Contact Ferroxcube Poland
Tel: +48 46 834 00 07, Fax: +48 46 834 00 35

Denmark: Contact Ferroxcube Germany
Tel: +49 40 52728 302, Fax: +49 40 52728 308

Finland: Contact Ferroxcube Germany
Tel: +49 40 52728 302, Fax: +49 40 52728 308

France: Contact Ferroxcube Hispano Ferritas S.A., SPAIN
Tel: +34 949 247 153, Fax: +34 949 247 166

Germany: Ferroxcube Germany, HAMBURG
Tel: +49 40 52728 302, Fax: +49 40 52728 308

Greece: Contact Ferroxcube Italy
Tel: +39 02 660454 69, Fax: +39 02 612917 39

Hungary: Contact Ferroxcube Poland
Tel: +48 46 834 00 07, Fax: +48 46 834 00 35

Indonesia: Contact Ferroxcube Singapore
Tel: +65 6244 7815, Fax: +65 6449 0446

Ireland: Contact Ferroxcube Germany
Tel: +49 40 52728 302, Fax: +49 40 52728 308

Israel: ArrowRapac Ltd., PETACH TIKVA
Tel: +972 3 9203480, Fax: +972 3 9203443

Italy: Ferroxcube Italy, CINISELLO BALSAMO (MI)
Tel: +39 02 660454 69, Fax: +39 02 612917 39

Korea: Contact Ferroxcube Taiwan
Tel: +886 3 599 5886, Fax: +886 3 599 5882

Malaysia: Contact Ferroxcube Singapore
Tel: +65 6244 7815, Fax: +65 6449 0446

Mexico: R.V. Componentes, Guadalajara, MX.
Tel: +52 (33) 3165-5570 Fax: +52 (33) 3165-4663

Montenegro: Contact Ferroxcube Italy
Tel: +39 02 660454 69, Fax: +39 02 612917 39

New Zealand: Contact Ferroxcube Taiwan
Tel: +886 3 599 5886, Fax: +886 3 599 5882

Norway: Contact Ferroxcube Germany
Tel: +49 40 52728 302, Fax: +49 40 52728 308

Philippines: Contact Ferroxcube Singapore
Tel: +65 6244 7815, Fax: +65 6449 0446

Poland: Ferroxcube Polska, SKIERNIEWICE
Tel: +48 46 834 00 07, Fax: +48 46 834 00 35

Portugal: Contact Ferroxcube Hispano Ferritas S.A., SPAIN
Tel: +34 949 247 153, Fax: +34 949 247 166

Romania: Contact Ferroxcube Poland
Tel: +48 46 834 00 07, Fax: +48 46 834 00 35

Russia: Contact Ferroxcube Poland
Tel: +48 46 834 00 07, Fax: +48 46 834 00 35

Serbia: Contact Ferroxcube Italy
Tel: +39 02 660454 69, Fax: +39 02 612917 39

Singapore: Ferroxcube Singapore, SINGAPORE
Tel: +65 6244 7815, Fax: +65 6449 0446

Slovak Republic: Contact Ferroxcube Poland
Tel: +48 46 834 00 07, Fax: +48 46 834 00 35

Slovenia: Contact Ferroxcube Italy
Tel: +39 02 660454 69, Fax: +39 02 612917 39

South-Africa: Contact Ferroxcube Germany
Tel: +49 40 52728 302, Fax: +49 40 52728 308

Spain: Ferroxcube Hispano Ferritas, GUADALAJARA
Tel.: +34 (949) 247 153, Fax: + 34 (949) 247 166

Sweden: Contact Ferroxcube Germany
Tel: +49 40 52728 302, Fax: +49 40 52728 308

Switzerland: Contact Ferroxcube Germany
Tel: +49 40 52728 302, Fax: +49 40 52728 308

Taiwan: Ferroxcube Taiwan, HSINCHU
Tel: +886 3 599 5886, Fax: +886 3 599 5882

Turkey: Contact Ferroxcube Italy
Tel: +39 02 660454 69, Fax: +39 02 612917 39

United Kingdom: Contact Ferroxcube Germany
Tel: +49 40 52728 302, Fax: +49 40 52728 308

United States: Ferroxcube USA, EL PASO (TX)
Tel: +1 915 599 2328/2533, Fax: +1 915 599 2555

For all other countries apply to closest regional sales office:

- HAMBURG, Germany
Tel: +49 40 52728 302, Fax: +49 40 52728 308
e-mail: saleseurope@ferroxcube.com
- EL PASO (TX), USA
Tel: +1 915 599 2328/2533, Fax: +1 915 599 2555
e-mail: salesusa@ferroxcube.com
- HSINCHU, Taiwan
Tel: +886 3 599 5886, Fax: +886 3 599 5882
e-mail: salesasia@ferroxcube.com

© Ferroxcube International Holding B.V. 2010

All rights are reserved. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice. No liability will be accepted by the publisher for any consequence of its use. Publication thereof does not convey nor imply any license under patent- or other industrial or intellectual property rights.

Visit our web-site for the latest information on new products, application info as well as updated phone- and fax numbers

Internet: www.ferroxcube.com

Printed in Spain 9930 030 00161

Date of Release: Mar 2012



FERROXCUBE
A YAGEO COMPANY