

# DATA SHEET

**E55/28/21**

**E cores and accessories**

Supersedes data of September 2004

2008 Sep 01

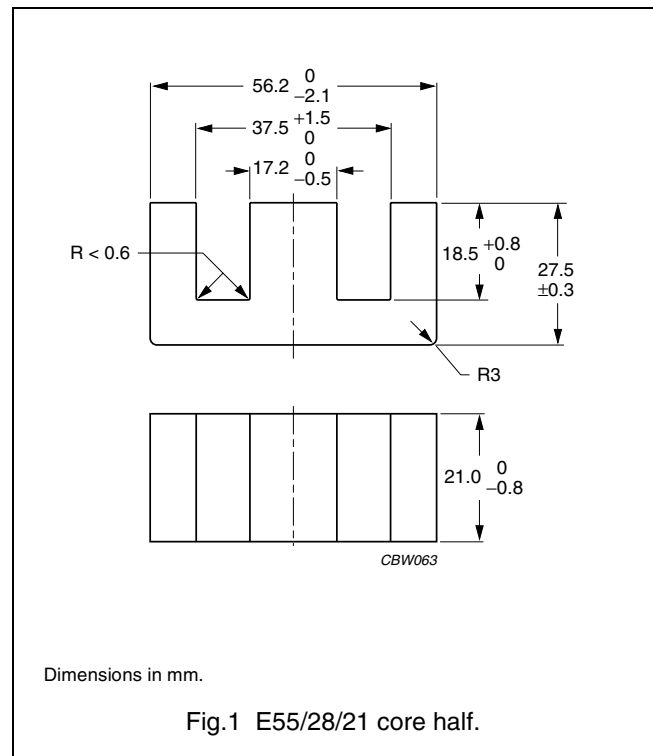


**FERROXCUBE**  
A YAGEO COMPANY

**CORE SETS**

**Effective core parameters**

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.350	mm <sup>-1</sup>
$V_e$	effective volume	44000	mm <sup>3</sup>
$l_e$	effective length	124	mm
$A_e$	effective area	353	mm <sup>2</sup>
$A_{min}$	minimum area	345	mm <sup>2</sup>
m	mass of core half	≈ 108	g



**Core halves**

$A_L$  measured in combination with a non-gapped core half, clamping force for  $A_L$  measurements  $40 \pm 20$  N, unless stated otherwise.

GRADE	$A_L$ (nH)	$\mu_e$	TOTAL AIR GAP ( $\mu\text{m}$ )	TYPE NUMBER
3C81	100 ±5% <sup>(1)</sup>	≈ 28	≈ 8740	E55/28/21-3C81-E100
	160 ±5% <sup>(1)</sup>	≈ 45	≈ 4560	E55/28/21-3C81-E160
	250 ±5% <sup>(1)</sup>	≈ 70	≈ 2500	E55/28/21-3C81-E250
	315 ±5% <sup>(1)</sup>	≈ 88	≈ 1840	E55/28/21-3C81-E315
	400 ±8% <sup>(1)</sup>	≈ 112	≈ 1360	E55/28/21-3C81-E400
	630 ±10% <sup>(1)</sup>	≈ 176	≈ 780	E55/28/21-3C81-E630
	8625 ±25%	≈ 2410	≈ 0	E55/28/21-3C81
3C90	100 ±5% <sup>(1)</sup>	≈ 28	≈ 8740	E55/28/21-3C90-E100
	160 ±5% <sup>(1)</sup>	≈ 45	≈ 4560	E55/28/21-3C90-E160
	250 ±5% <sup>(1)</sup>	≈ 70	≈ 2500	E55/28/21-3C90-E250
	315 ±5% <sup>(1)</sup>	≈ 88	≈ 1840	E55/28/21-3C90-E315
	400 ±8% <sup>(1)</sup>	≈ 112	≈ 1360	E55/28/21-3C90-E400
	630 ±10% <sup>(1)</sup>	≈ 176	≈ 780	E55/28/21-3C90-E630
	6300 ±25%	≈ 1760	≈ 0	E55/28/21-3C90
3C91 <span style="border: 1px solid black; padding: 0 2px;">des</span>	8625 ±25%	≈ 2410	≈ 0	E55/28/21-3C91
3C92 <span style="border: 1px solid black; padding: 0 2px;">des</span>	4700 ±25%	≈ 1310	≈ 0	E55/28/21-3C92
3C94	6400 ±25%	≈ 1790	≈ 0	E55/28/21-3C94

## E cores and accessories

E55/28/21

GRADE	$A_L$ (nH)	$\mu_e$	TOTAL AIR GAP ( $\mu\text{m}$ )	TYPE NUMBER
3C95 <small>des</small>	8625 $\pm$ 25%	$\approx$ 2410	$\approx$ 0	E55/28/21-3C95
3F3	100 $\pm$ 5% <sup>(1)</sup>	$\approx$ 28	$\approx$ 8740	E55/28/21-3F3-E100
	160 $\pm$ 5% <sup>(1)</sup>	$\approx$ 45	$\approx$ 4560	E55/28/21-3F3-E160
	250 $\pm$ 5% <sup>(1)</sup>	$\approx$ 70	$\approx$ 2500	E55/28/21-3F3-E250
	315 $\pm$ 5% <sup>(1)</sup>	$\approx$ 88	$\approx$ 1840	E55/28/21-3F3-E315
	400 $\pm$ 8% <sup>(1)</sup>	$\approx$ 112	$\approx$ 1360	E55/28/21-3F3-E400
	630 $\pm$ 10% <sup>(1)</sup>	$\approx$ 176	$\approx$ 780	E55/28/21-3F3-E630
	5700 $\pm$ 25%	$\approx$ 1590	$\approx$ 0	E55/28/21-3F3

**Note**

1. Measured in combination with an equal gapped core half.

**Properties of core sets under power conditions**

GRADE	B (mT) at	CORE LOSS (W) at				
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; $\hat{B}$ = 200 mT; T = 100 °C	f = 100 kHz; $\hat{B}$ = 100 mT; T = 100 °C	f = 100 kHz; $\hat{B}$ = 200 mT; T = 25 °C	f = 100 kHz; $\hat{B}$ = 200 mT; T = 100 °C	f = 400 kHz; $\hat{B}$ = 50 mT; T = 100 °C
3C81	$\geq$ 320	$\leq$ 9.0	–	–	–	–
3C90	$\geq$ 320	$\leq$ 4.8	$\leq$ 5.9	–	–	–
3C91	$\geq$ 320	–	$\leq$ 3.5 <sup>(1)</sup>	–	$\leq$ 20 <sup>(1)</sup>	–
3C92	$\geq$ 370	–	$\leq$ 3.8	–	$\leq$ 27	–
3C94	$\geq$ 320	–	$\leq$ 3.8	–	$\leq$ 27	–
3C95	$\geq$ 320	–	–	$\leq$ 27.7	$\leq$ 26.4	–
3F3	$\geq$ 320	–	$\leq$ 5.6	–	–	$\leq$ 10

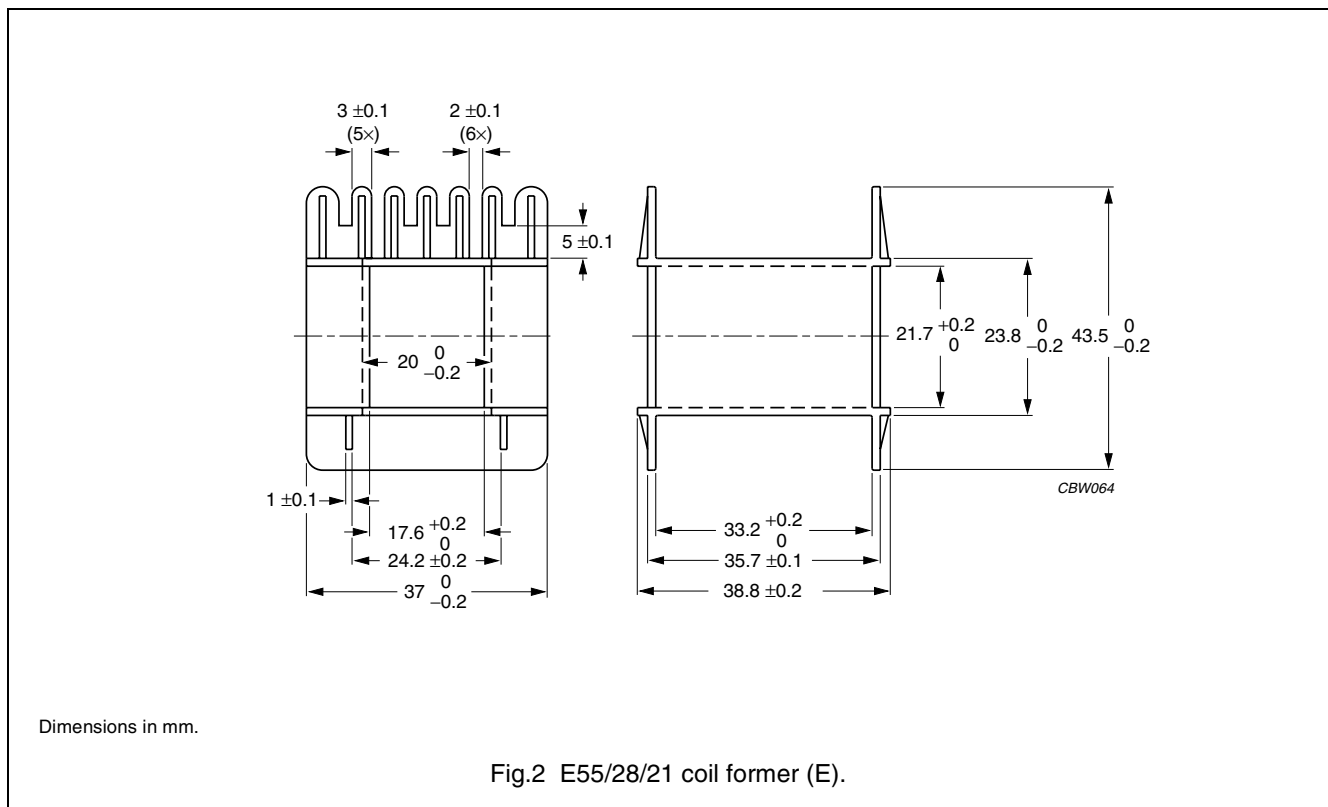
**Note**

1. Measured at 60 °C.

**COIL FORMERS**

**General data for E55/28/21 coil former without pins**

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94-HB"; UL file number E41613(M)
Maximum operating temperature	130 °C, "IEC 60085", class B

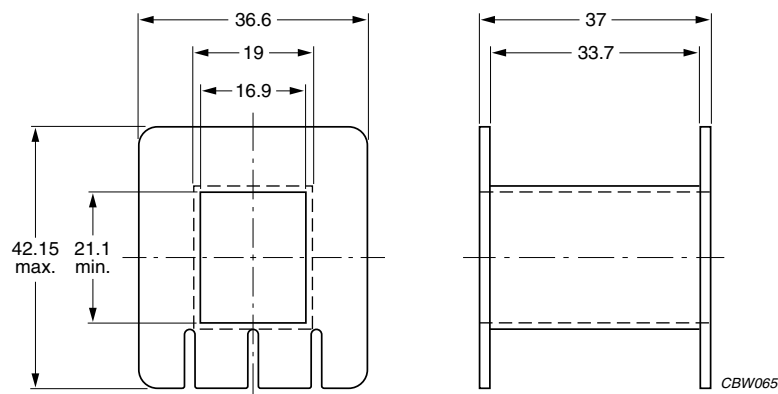


**Winding data and area product for E55/28/21 coil former without pins (E)**

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm <sup>2</sup> )	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	AREA PRODUCT Ae x Aw (mm <sup>4</sup> )	TYPE NUMBER
1	250	33.2	116	88250	CP-E55/28/21-1S

**General data for E55/28/21 coil former without pins (A)**

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94-HB"; UL file number E41938(M)
Maximum operating temperature	130 °C, "IEC 60085", class B



Dimensions in mm.

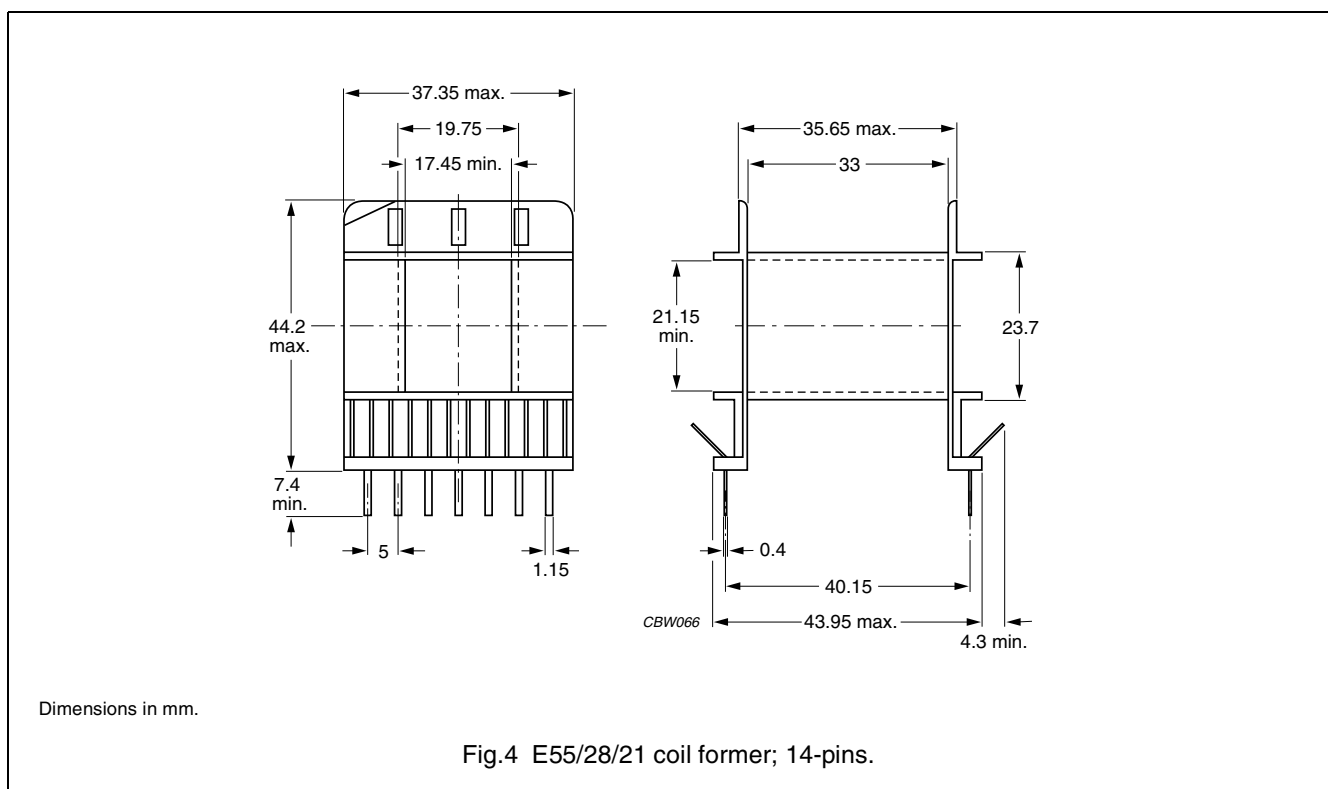
Fig.3 E55/28/21 coil former (A).

**Winding data and area product for E55/28/21 coil former without pins (A)**

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm <sup>2</sup> )	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	AREA PRODUCT Ae x Aw (mm <sup>4</sup> )	TYPE NUMBER
1	277	33.7	113	97800	CP-E55/28/21-1S-A

General data for 14-pins E55/28/21 coil former

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94-HB"; UL file number E41938(M)
Pin material	copper-zinc alloy (CuZn), tin (Sn) plated
Maximum operating temperature	105 °C, "IEC 60085", class A
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B: 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1: 235 °C, 2 s



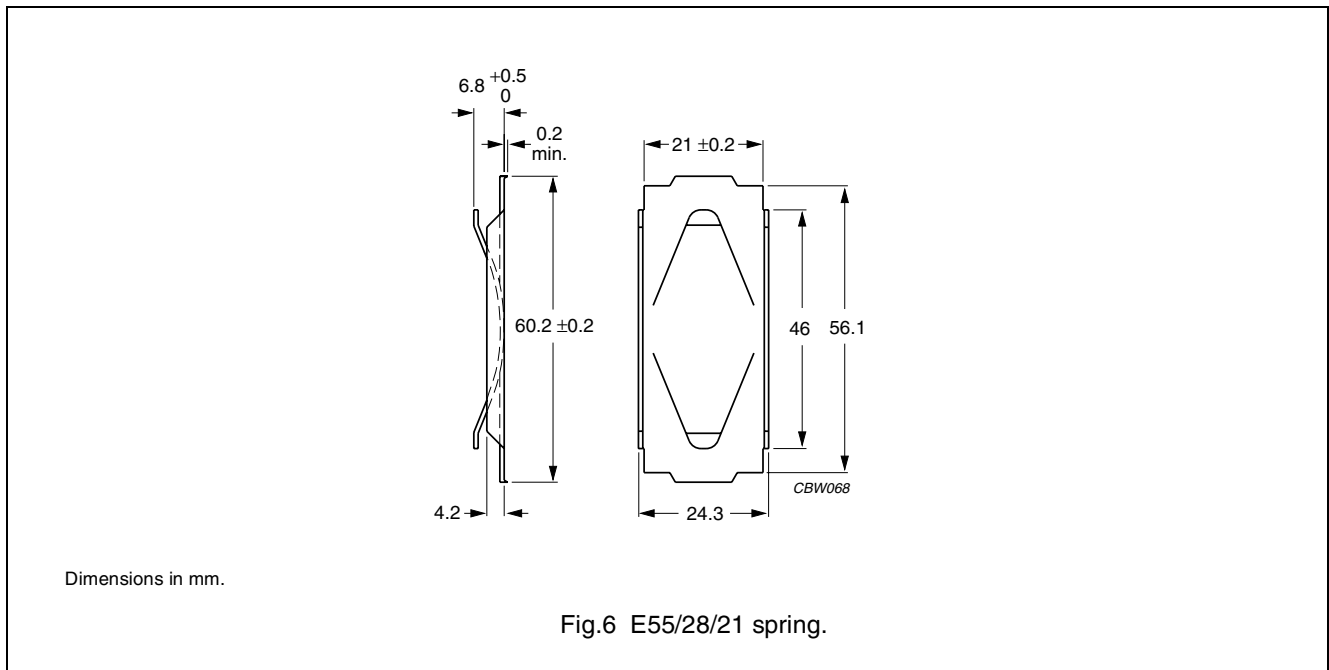
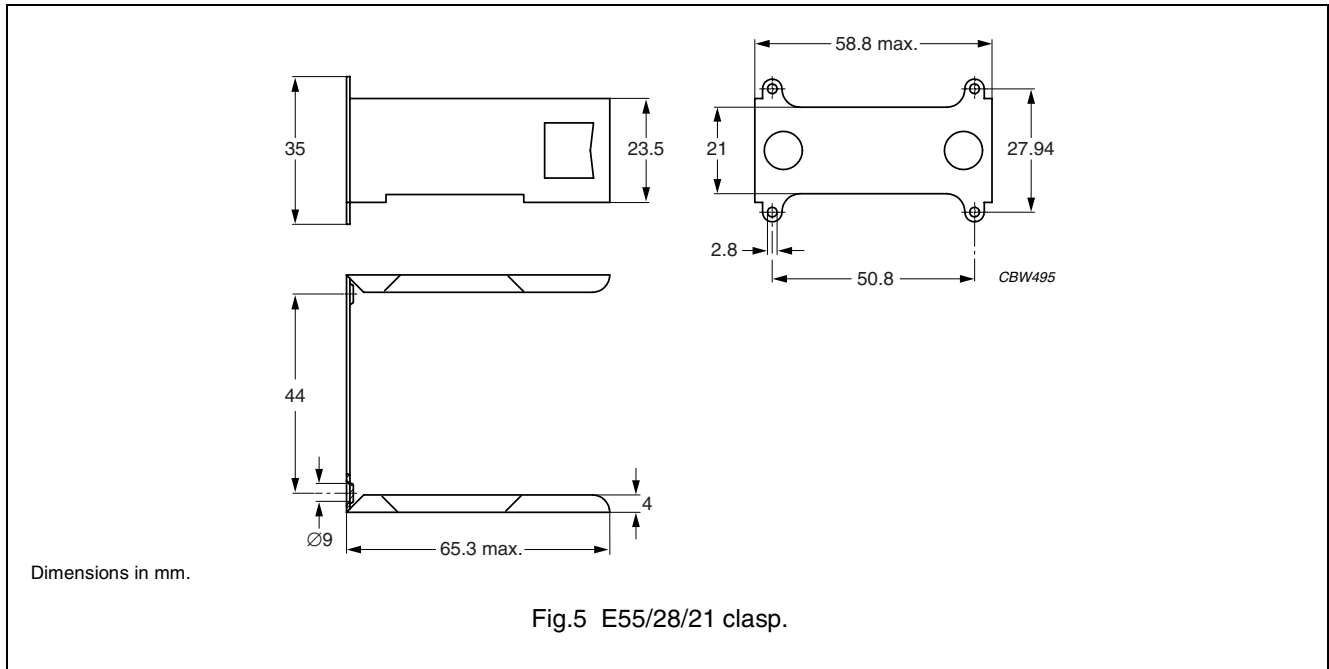
Winding data and area product for 14-pins E55/28/21 coil former

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm <sup>2</sup> )	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	AREA PRODUCT Ae x Aw (mm <sup>4</sup> )	TYPE NUMBER
1	278	33	119	98100	CPH-E55/28/21-1S-14P-Z

**MOUNTING PARTS**

**GENERAL DATA FOR MOUNTING PARTS**

ITEM	REMARKS	FIGURE	TYPE NUMBER
Clasp	steel, zinc (Zn) plated	5	CLA-E55/28/21
Spring	steel, zinc (Zn) plated	6	SPR-E55/28/21






**DATA SHEET STATUS DEFINITIONS**

DATA SHEET STATUS	PRODUCT STATUS	DEFINITIONS
Preliminary specification	Development	This data sheet contains preliminary data. Ferroxcube reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.
Product specification	Production	This data sheet contains final specifications. Ferroxcube reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.

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**PRODUCT STATUS DEFINITIONS**

STATUS	INDICATION	DEFINITION
<b>Prototype</b>		These are products that have been made as development samples for the purposes of technical evaluation only. The data for these types is provisional and is subject to change.
<b>Design-in</b>		These products are recommended for new designs.
<b>Preferred</b>		These products are recommended for use in current designs and are available via our sales channels.
<b>Support</b>		These products are <b>not</b> recommended for new designs and may not be available through all of our sales channels. Customers are advised to check for availability.