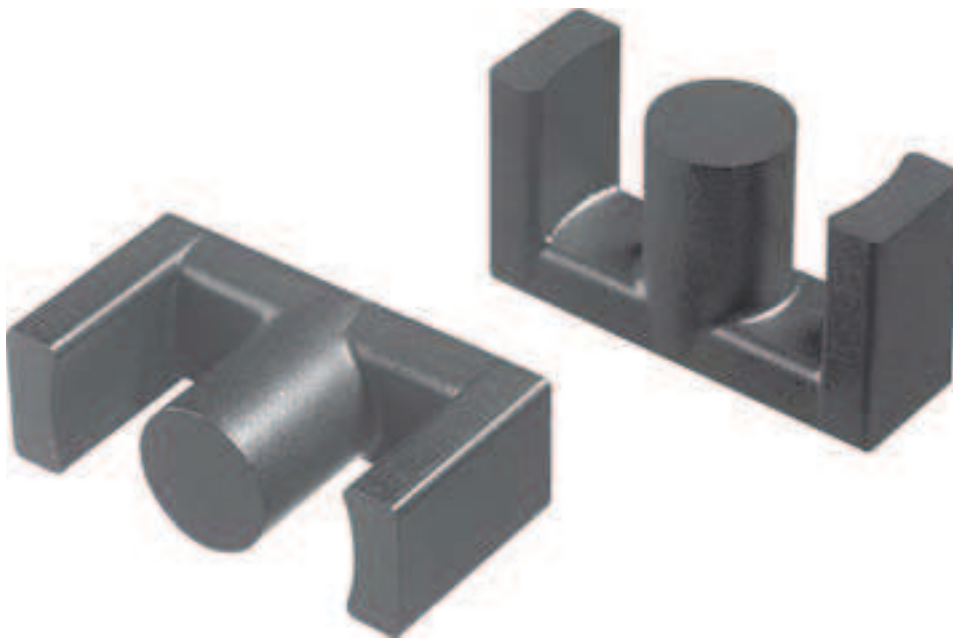




MFP105

Soft Ferrites

ER cores

PRODUCT OVERVIEW AND
TYPE NUMBER STRUCTURE

Product overview ER cores

CORE TYPE	V_e (mm ³)	A_e (mm ²)	MASS (g)
ER28/14/11	5260	81.4	14
ER28/17/11	6140	81.4	16
ER35/21/11	9710	107	23
ER35W/21/11	9548	103	27
ER40/22/13	14600	149	37
ER42/22/16	19200	194	50
ER42/22/15	16800	170	42
ER48/21/21	25500	255	64
ER48/18/18	20300	231	51
ER54/18/18	23000	250	61

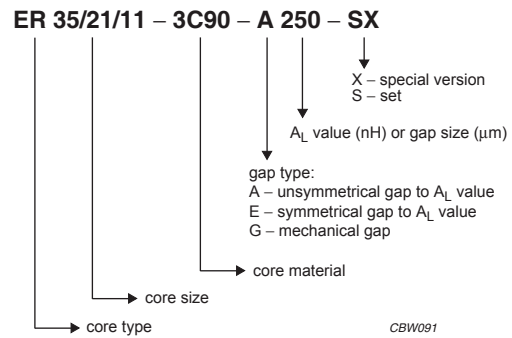


Fig.1 Type number structure for cores.

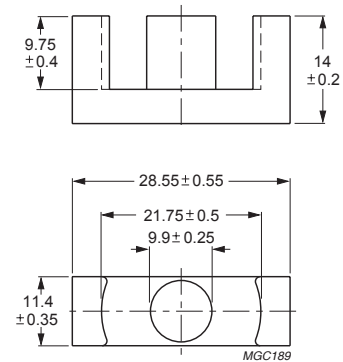
ER cores

ER28/14/11

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.786	mm^{-1}
V_e	effective volume	5260	mm^3
l_e	effective length	64.0	mm
A_e	effective area	81.4	mm^2
$A_{\min}$	minimum area	77.0	mm^2
m	mass of core half	≈ 14	g



Dimensions in mm.

Fig.1 ER28/14/11 core half.

Core halves

Clamping force for A_L measurements, 40 ± 20 N. Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$2900 \pm 25\%$	≈ 1800	≈ 0	ER28/14/11-3C90
3C94	$2900 \pm 25\%$	≈ 1800	≈ 0	ER28/14/11-3C94

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; B = 200 mT; T = 100 °C	f = 100 kHz; B = 100 mT; T = 100 °C	f = 100 kHz; B = 200 mT; T = 100 °C
3C90	≥ 320	≤ 0.63	≤ 0.67	—
3C94	≥ 320	—	≤ 0.5	≤ 3.2

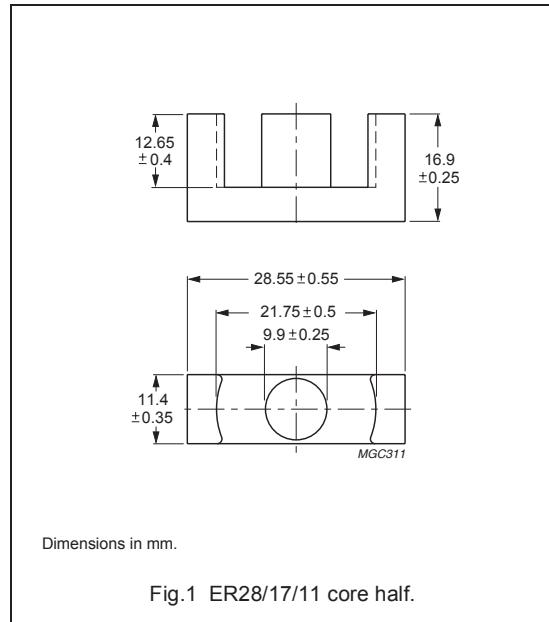
ER cores

ER28/17/11

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.928	mm^{-1}
V_e	effective volume	6 140	mm^3
l_e	effective length	75.5	mm
A_e	effective area	81.4	mm^2
$A_{\min}$	minimum area	77.0	mm^2
m	mass of core half	≈ 16	g



Core halves

Clamping force for A_L measurements, 40 ± 20 N. Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$2500 \pm 25\%$	≈ 1900	≈ 0	ER28/17/11-3C90
3C94	$2500 \pm 25\%$	≈ 1900	≈ 0	ER28/17/11-3C94

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; B = 200 mT; T = 100 °C	f = 100 kHz; B = 100 mT; T = 100 °C	f = 100 kHz; B = 200 mT; T = 100 °C
3C90	≥ 320	≤ 0.74	≤ 0.77	—
3C94	≥ 320	—	≤ 0.58	≤ 3.7

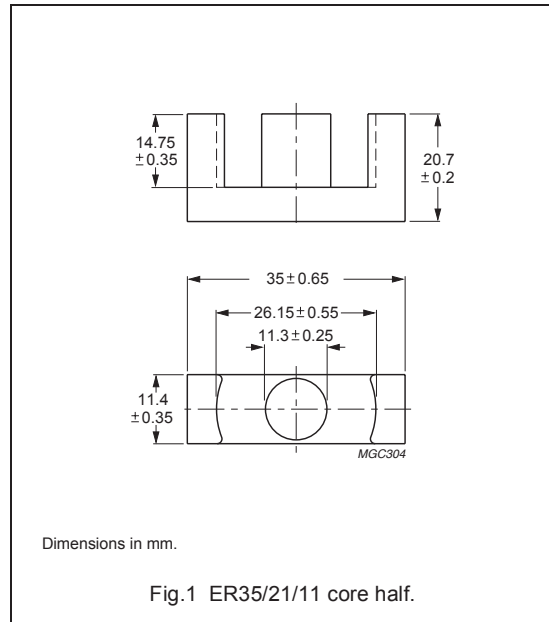
ER cores

ER35/21/11

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.849	mm^{-1}
V_e	effective volume	9710	mm^3
l_e	effective length	90.8	mm
A_e	effective area	107	mm^2
$A_{\min}$	minimum area	100	mm^2
m	mass of core half	≈ 23	g



Core halves

Clamping force for A_L measurements, 40 ± 20 N. Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$2800 \pm 25\%$	≈ 1900	≈ 0	ER35/21/11-3C90
3C94	$2800 \pm 25\%$	≈ 1900	≈ 0	ER35/21/11-3C94

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; B = 200 mT; T = 100 °C	f = 100 kHz; B = 100 mT; T = 100 °C	f = 100 kHz; B = 200 mT; T = 100 °C
3C90	≥ 320	≤ 1.2	≤ 1.3	—
3C94	≥ 320	—	≤ 0.95	≤ 5.8

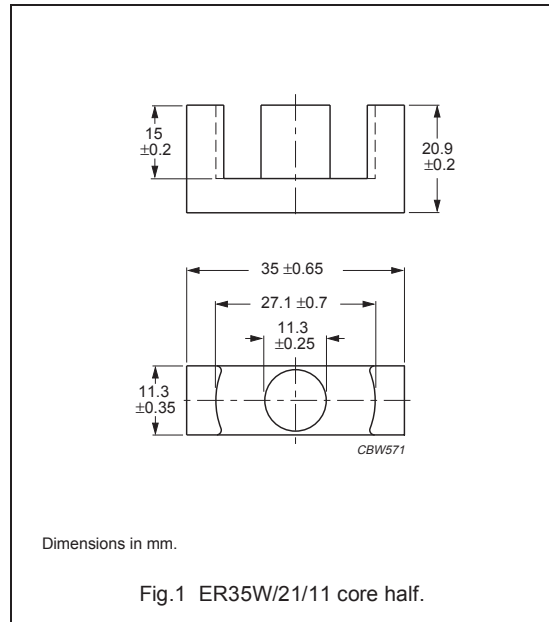
ER cores

ER35W/21/11

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.900	mm^{-1}
V_e	effective volume	9548	mm^3
l_e	effective length	92.7	mm
A_e	effective area	103	mm^2
$A_{\min}$	minimum area	100	mm^2
m	mass of core half	≈ 27	g



Core halves

Clamping force for A_L measurements, 40 ± 20 N. Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$3000 \pm 25\%$	≈ 2150	≈ 0	ER35W/21/11-3C90
3C94	$3000 \pm 25\%$	≈ 2150	≈ 0	ER35W/21/11-3C94

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; B = 200 mT; T = 100 °C	f = 100 kHz; B = 100 mT; T = 100 °C	f = 100 kHz; B = 200 mT; T = 100 °C
3C90	≥ 320	≤ 1.2	≤ 1.3	—
3C94	≥ 320	—	≤ 1.0	≤ 5.7

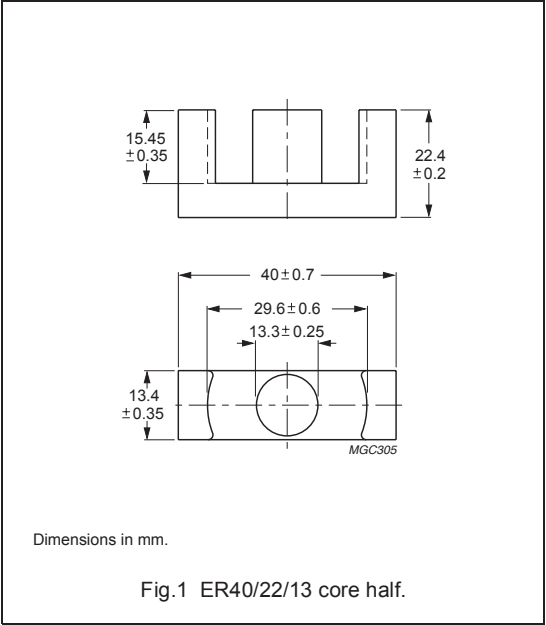
ER cores

ER40/22/13

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.658	mm^{-1}
V_e	effective volume	14600	mm^3
l_e	effective length	98.0	mm
A_e	effective area	149	mm^2
$A_{\min}$	minimum area	139	mm^2
m	mass of core half	≈ 37	g



Core halves

Clamping force for A_L measurements, 50 ± 20 N. Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$3600 \pm 25\%$	≈ 1900	≈ 0	ER40/22/13-3C90
3C94	$3600 \pm 25\%$	≈ 1900	≈ 0	ER40/22/13-3C94

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; B = 200 mT; T = 100 °C	f = 100 kHz; B = 100 mT; T = 100 °C	f = 100 kHz; B = 200 mT; T = 100 °C
3C90	≥ 320	≤ 1.8	≤ 1.9	—
3C94	≥ 320	—	≤ 1.45	≤ 8.7

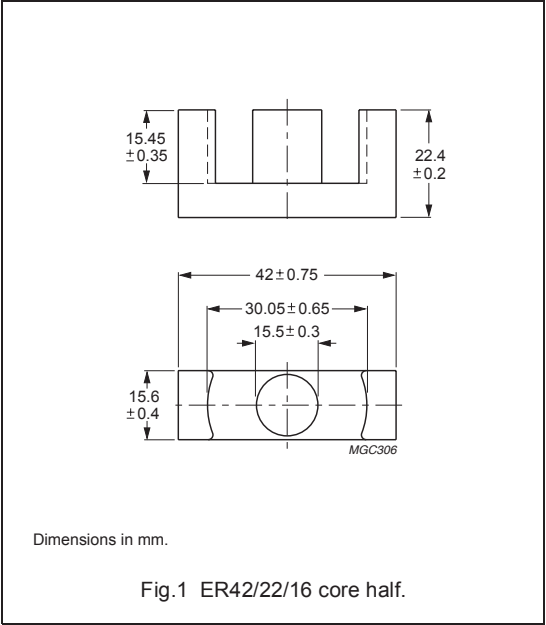
ER cores

ER42/22/16

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.509	mm^{-1}
V_e	effective volume	19200	mm^3
l_e	effective length	98.8	mm
A_e	effective area	194	mm^2
$A_{\min}$	minimum area	189	mm^2
m	mass of core half	≈ 50	g



Core halves

Clamping force for A_L measurements, 50 ± 20 N. Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$4600 \pm 25\%$	≈ 1900	≈ 0	ER42/22/16-3C90
3C94	$4600 \pm 25\%$	≈ 1900	≈ 0	ER42/22/16-3C94

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; B̂ = 200 mT; T = 100 °C	f = 100 kHz; B̂ = 100 mT; T = 100 °C	f = 100 kHz; B̂ = 200 mT; T = 100 °C
3C90	≥ 320	≤ 2.3	≤ 2.4	—
3C94	≥ 320	—	≤ 1.8	≤ 11

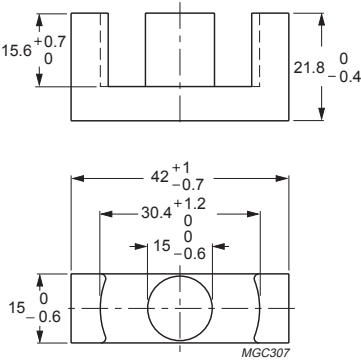
ER cores

ER42/22/15

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.582	mm^{-1}
V_e	effective volume	16800	mm^3
l_e	effective length	99.0	mm
A_e	effective area	170	mm^2
$A_{\min}$	minimum area	170	mm^2
m	mass of core half	≈ 42	g



Dimensions in mm.

Fig.1 ER42/22/15 core half.

Core halves

Clamping force for A_L measurements, 40 ± 20 N. Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$4000 \pm 25\%$	≈ 1900	≈ 0	ER42/22/15-3C90
3C94	$4000 \pm 25\%$	≈ 1900	≈ 0	ER42/22/15-3C94

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; B̂ = 200 mT; T = 100 °C	f = 100 kHz; B̂ = 100 mT; T = 100 °C	f = 100 kHz; B̂ = 200 mT; T = 100 °C
3C90	≥ 320	≤ 2.0	≤ 2.1	—
3C94	≥ 320	—	≤ 1.6	≤ 9.0

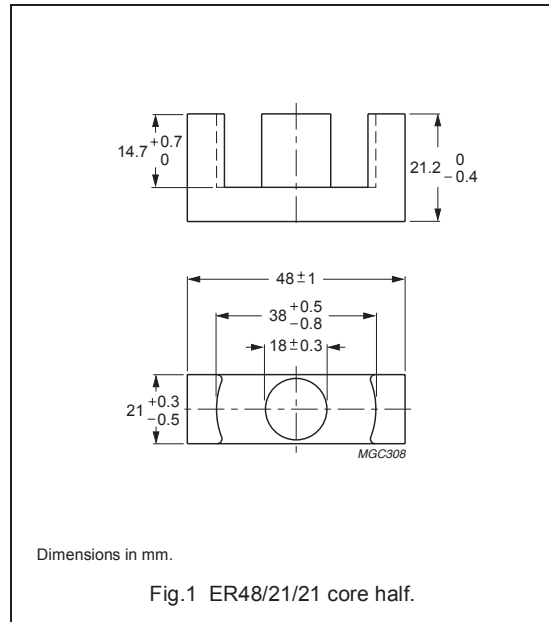
ER cores

ER48/21/21

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.392	mm^{-1}
V_e	effective volume	25500	mm^3
l_e	effective length	100	mm
A_e	effective area	255	mm^2
$A_{\min}$	minimum area	248	mm^2
m	mass of core half	≈ 64	g



Core halves

Clamping force for A_L measurements, 50 ± 20 N. Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$5700 \pm 25\%$	≈ 1900	≈ 0	ER48/21/21-3C90
3C94	$5700 \pm 25\%$	≈ 1900	≈ 0	ER48/21/21-3C94

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 = 100 °C
3C90	≥ 320	≤ 3.1	≤ 3.3	—
3C94	≥ 320	—	≤ 2.6	≤ 15

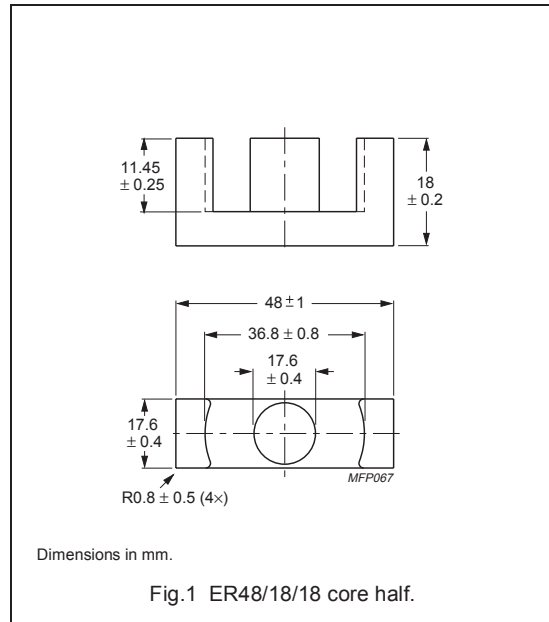
ER cores

ER48/18/18

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.377	mm^{-1}
V_e	effective volume	20300	mm^3
l_e	effective length	87.0	mm
A_e	effective area	231	mm^2
$A_{\min}$	minimum area	221	mm^2
m	mass of core half	≈ 51	g



Core halves

Clamping force for A_L measurements, 50 ± 20 N.

GRADE	A_L (nH)	μ_e	TOTAL AIR GAP (μm)	TYPE NUMBER
3C90	$180 \pm 5\%$	≈ 54	≈ 2500	ER48/18/18-3C90-E180
	$265 \pm 5\%$	≈ 77	≈ 1500	ER48/18/18-3C90-E265
	$309 \pm 5\%$	≈ 93	≈ 1250	ER48/18/18-3C90-E309
	$370 \pm 5\%$	≈ 111	≈ 1000	ER48/18/18-3C90-E370
	$465 \pm 5\%$	≈ 140	≈ 750	ER48/18/18-3C90-E465
	$6400 \pm 25\%$	≈ 1920	≈ 0	ER48/18/18-3C90
3C94	$6400 \pm 25\%$	≈ 1920	≈ 0	ER48/18/18-3C94

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; B = 200 mT; T = 100 °C	f = 100 kHz; B = 100 mT; T = 100 °C	f = 100 kHz; B = 200 mT; T = 100 °C
3C90	≥ 330	≤ 2.4	≤ 2.5	—
3C94	≥ 330	—	≤ 2.1	≤ 12

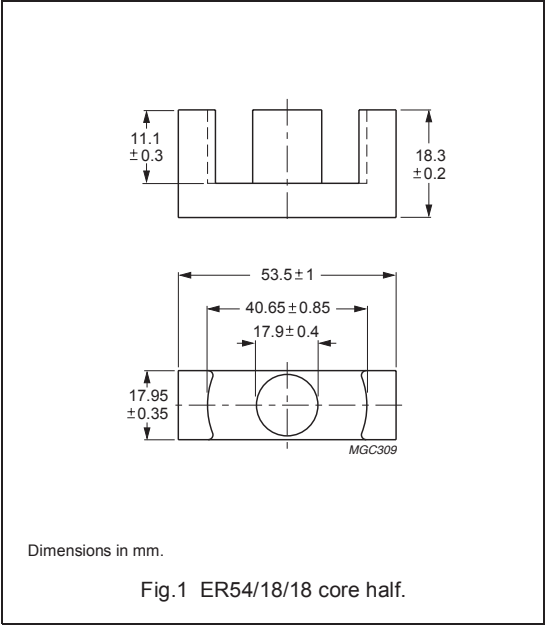
ER cores

ER54/18/18

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.370	mm^{-1}
V_e	effective volume	23000	mm^3
l_e	effective length	91.8	mm
A_e	effective area	250	mm^2
$A_{\min}$	minimum area	240	mm^2
m	mass of core half	≈ 61	g



Core halves

Clamping force for A_L measurements, 50 ± 20 N. Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$6100 \pm 25\%$	≈ 1800	≈ 0	ER54/18/18-3C90
3C94	$6100 \pm 25\%$	≈ 1800	≈ 0	ER54/18/18-3C94

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 = 100 °C
3C90	≥ 320	≤ 2.8	≤ 2.9	—
3C94	≥ 320	—	≤ 2.3	≤ 12.5