EC Series

EC CORE
CORE SHAPES AND DIMENSIONS/CHARACTERISTICS
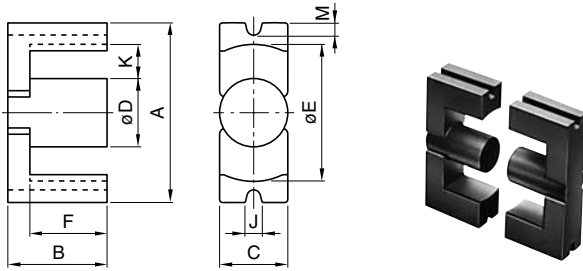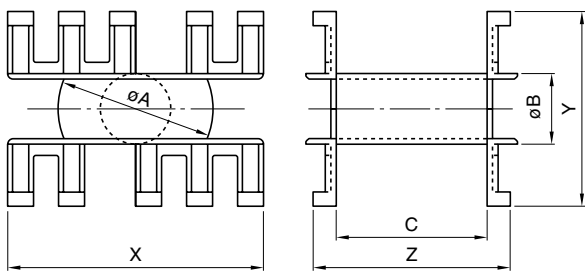

PRODUCT IDENTIFICATION

PE22	EC	90	×	90	×	30
(1)	(2)	(3)		(4)		(5)

(1) Material name
(2) Shape
(3) Dimension A
(4) Dimension B×2
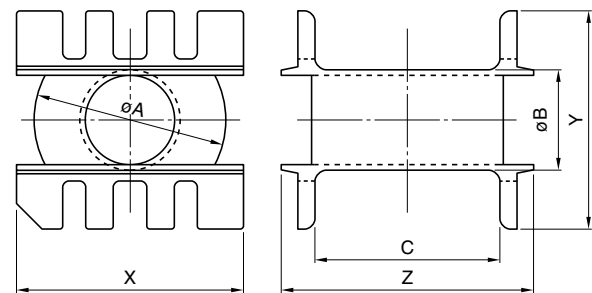(5) Dimension C

EC CORE BOBBIN
FOR EC70

Bobbin is optional parts.

FOR EC90, 120

Bobbin is optional parts.

Part No.		A_L*(nH/N²) ±25%	Dimensions (mm)										
			A	B×2	C	øD	øE	F×2	M	J	R	K	K×2F(mm²)
PE22	EC70×69×16	3910											
PC40	EC70×69×16	4845	70.0±1.7	69.0±1.0	16.4±0.5	16.4±0.5	43.3min.	45.5±1.0	5.2	4.75	1max.	14.1	639
PE90	EC70×69×16	4634											
PE22	EC90×90×30	5925											
PC40	EC90×90×30	7415	90.0±1.8	90.0±1.3	30.0±1.0	30.0±1.0	68.5min.	71.0±1.0	5.5	6.0	1max.	20.0	1420
PE90	EC90×90×30	7093											
PE22	EC120×101×30	6395											
PC40	EC120×101×30	8025	120.0±2.0	101.0±1.3	30.0±1.0	30.0±1.0	93.3min.	71.0±1.0	5.5	6.0	1.5max.	32.5	2307
PE90	EC120×101×30	7676											

* Measuring condition: T=23°C, f=1kHz, H_m=0.4A/m

Part No.		Core factor					Weight (g)
		C_1(mm⁻¹)	C_2×10⁻²(mm⁻³)	A_e(mm²)	ℓ_e(mm)	V_e(mm³)	
PE22	EC70×69×16						250
PC40	EC70×69×16	0.5138891	0.18322	280	144	40420	250
PE90	EC70×69×16						255
PE22	EC90×90×30						635
PC40	EC90×90×30	0.3533380	0.05648	626	221	138270	635
PE90	EC90×90×30						648
PE22	EC120×101×30						986
PC40	EC120×101×30	0.3300745	0.04278	772	255	196490	986
PE90	EC120×101×30						1007

EC CORE BOBBIN

Part No.	Dimensions (mm)							Cross-sectional winding area A_w(mm²)	Average winding length ℓ_w(mm)	Weight (g)	Material
	øA	øB	C	X	Y	Z	t*				
BEC70	42.5±0.5	19.3±0.3	41.5±2.5	70.0±1.5	56.0±1.5	57.0±2.0	1.13	471.4	98	19.0	PBT
BEC90	67.0±0.7	35.0±0.5	65.0±3.0	79.5±0.5	76.0±1.0	89.5±2.5	1.7	1047	162	82.0	PBT

* Bobbin minimum thickness

• All specifications are subject to change without notice.

EC70X69X16
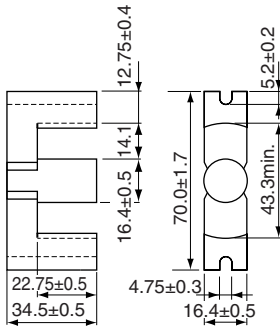
Parameter

Core constant	C_1	mm^{-1}	0.5138891
	$C_2 \times 10^{-2}$	mm^{-3}	0.18322
Effective magnetic path length	ℓ_e	mm	144
Effective cross-sectional area	A_e	mm^2	280
Effective core volume	V_e	mm^3	40420
Cross-sectional center leg area	A_c	mm^2	211
Minimum cross-sectional area	Amin.*	mm^2	211C*
Winding cross-sectional area	A_{cw}	mm^2	642
Weight(approx.)		g	250

* The symbol followed A min. value shows minimum cross-sectional area part.
   C is center pole part, L is outer pole part, B is the back part.

| Part No.	AL-value*(nH/N^2)	Calculated output power(kW) (forward converter mode)
PE22 EC70X69X16	3910±25%	1.1(100kHz)
PC40 EC70X69X16	4845±25%	1.2(100kHz)

* AL-value: T=23°C, f=1kHz, Hm=0.4A/m

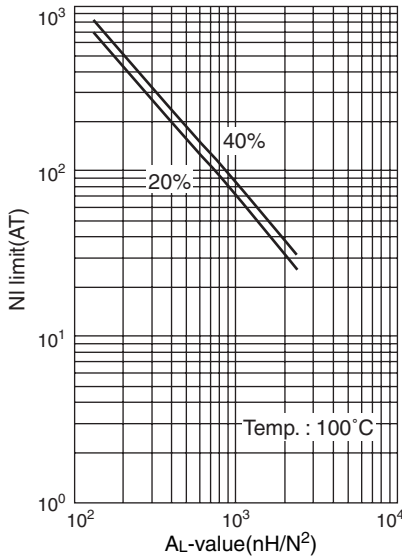### NI limit vs. AL-value for PE22 EC70X69X16
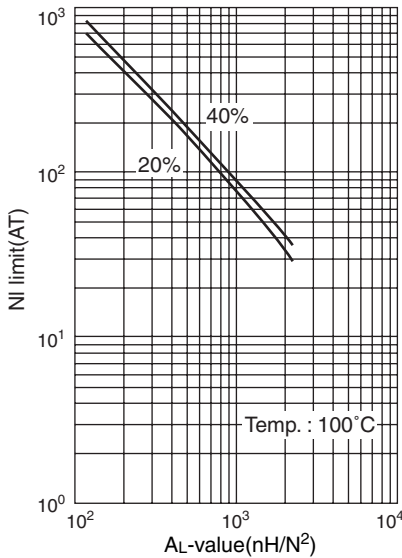
When applied magnetic field providing NI to a setting core for arbitrary AL-value, show each NI value when decreased 20% and 40% from initial AL-value.
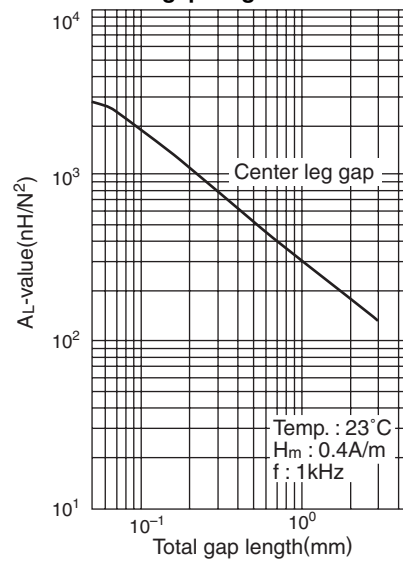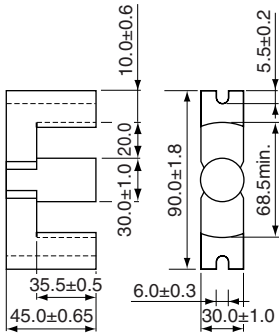
AL-value vs. Air gap length for PE22 EC70X69X16
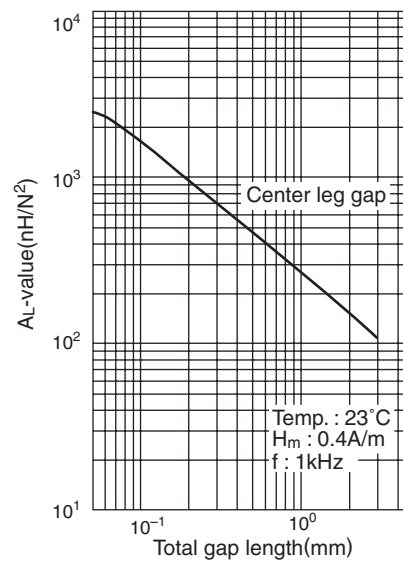
NI limit vs. AL-value for PC40 EC70X69X16

When applied magnetic field providing NI to a setting core for arbitrary AL-value, show each NI value when decreased 20% and 40% from initial AL-value.

AL-value vs. Air gap length for PC40 EC70X69X16

• All specifications are subject to change without notice.

EC90X90X30

Parameter

Core constant	C_1	mm^{-1}	0.3533380
	$C_2 \times 10^{-2}$	mm^{-3}	0.05648
Effective magnetic path length	ℓ_e	mm	221
Effective cross-sectional area	A_e	mm^2	626
Effective core volume	V_e	mm^3	138270
Cross-sectional center leg area	A_c	mm^2	707
Minimum cross-sectional area	Amin.*	mm^2	570B*
Winding cross-sectional area	A_{cw}	mm^2	1420
Weight(approx.)		g	635

* The symbol followed A min. value shows minimum cross-sectional area part.
  C is center pole part, L is outer pole part, B is the back part.

| Part No.	AL-value*(nH/N^2)	Calculated output power(kW) (forward converter mode)
PE22 EC90X90X30	5925±25%	3.2(100kHz)
PC40 EC90X90X30	7415±25%	3.4(100kHz)

* AL-value: T=23°C, f=1kHz, Hm=0.4A/m

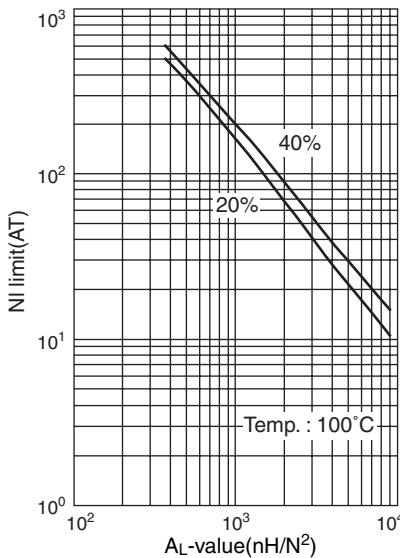### NI limit vs. AL-value for PE22 EC90X90X30
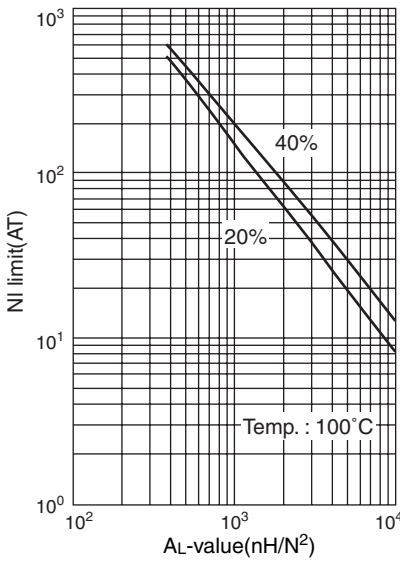
When applied magnetic field providing NI to a setting core for arbitrary AL-value, show each NI value when decreased 20% and 40% from initial AL-value.

AL-value vs. Air gap length for PE22 EC90X90X30
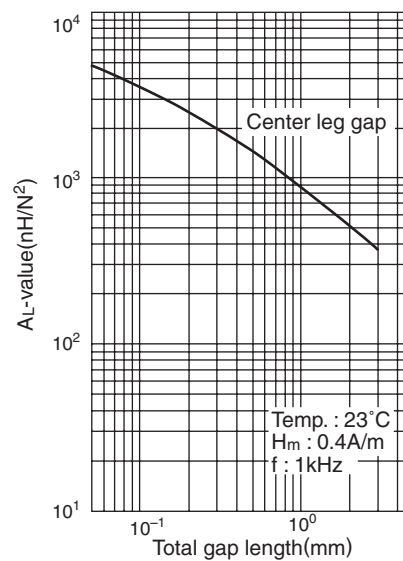
NI limit vs. AL-value for PC40 EC90X90X30

When applied magnetic field providing NI to a setting core for arbitrary AL-value, show each NI value when decreased 20% and 40% from initial AL-value.
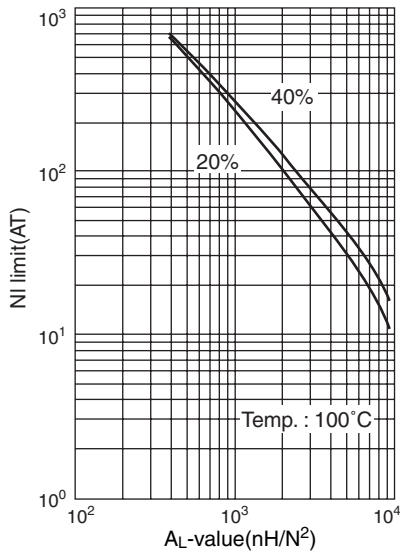
AL-value vs. Air gap length for PC40 EC90X90X30

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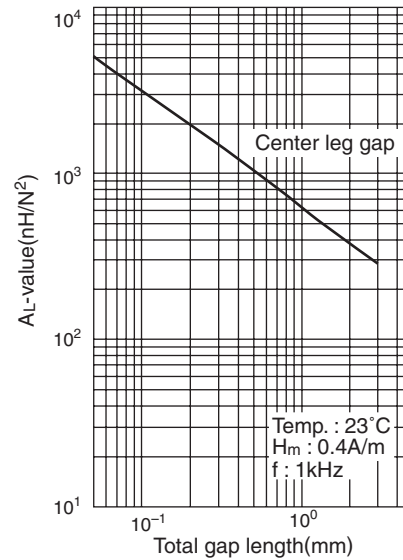
EC120X101X30
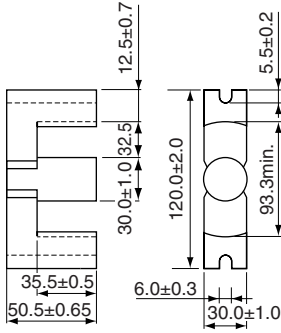
Parameter

Core constant	C_1	mm^{-1}	0.3300745
	$C_2 \times 10^{-2}$	mm^{-3}	0.04278
Effective magnetic path length	ℓ_e	mm	255
Effective cross-sectional area	A_e	mm^2	773
Effective core volume	V_e	mm^3	196490
Cross-sectional center leg area	A_c	mm^2	707
Minimum cross-sectional area	Amin.*	mm^2	707C*
Winding cross-sectional area	A_{cw}	mm^2	2307
Weight(approx.)		g	986

* The symbol followed A min. value shows minimum cross-sectional area part.
  C is center pole part, L is outer pole part, B is the back part.

Part No.	A_L-value*(nH/N^2)	Calculated output power(kW) (forward converter mode)
PE22 EC120X101X30	6395±25%	4.3(100kHz)
PC40 EC120X101X30	8025±25%	4.5(100kHz)

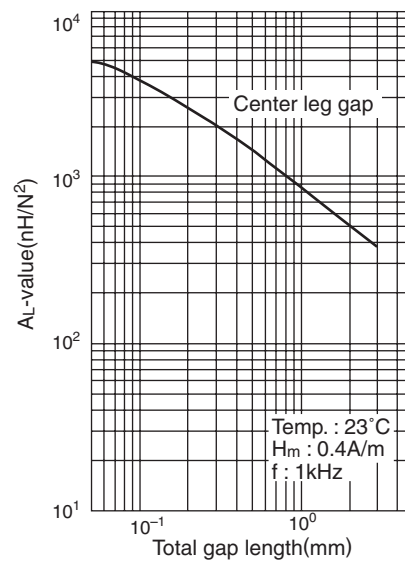* A_L-value: T=23°C, f=1kHz, Hm=0.4A/m

NI limit vs. A_L-value for PE22 EC120X101X30

When applied magnetic field providing NI to a setting core for arbitrary A_L-value, show each NI value when decreased 20% and 40% from initial A_L-value.
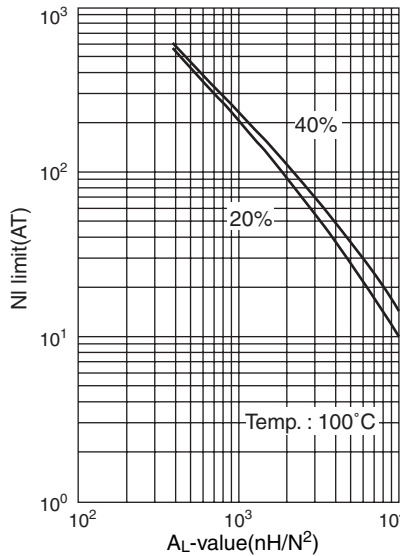
A_L-value vs. Air gap length for PE22 EC120X101X30
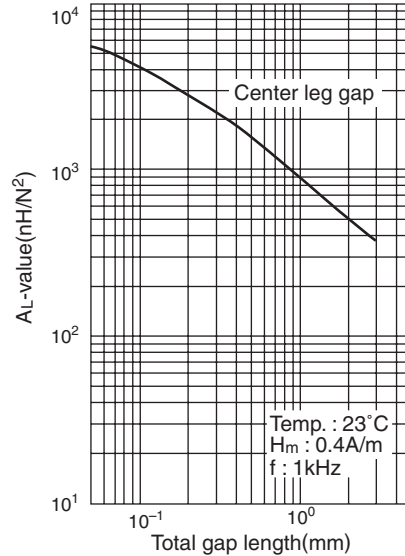

NI limit vs. A_L-value for PC40 EC120X101X30

When applied magnetic field providing NI to a setting core for arbitrary A_L-value, show each NI value when decreased 20% and 40% from initial A_L-value.

A_L-value vs. Air gap length for PC40 EC120X101X30

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