



Mn-Zn

Large Size Ferrite Cores for High Power

E series

EC
EIC
EE
EI


REMINDERS FOR USING THESE PRODUCTS

Please be sure to read this manual thoroughly before using the products.

The products listed on this catalog are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.

The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.

When using the products for specific purposes, please first make confirmations in areas such as safety, reliability, and quality.

Please understand that we are not in a position to be held responsible for any damage or the like caused by any use exceeding the range or conditions of this specification sheet or by any use in the specific applications.

- | | |
|---|--|
| (1) Aerospace/Aviation equipment | (8) Public information-processing equipment |
| (2) Transportation equipment (electric trains, ships, etc.) | (9) Military equipment |
| (3) Medical equipment | (10) Electric heating apparatus, burning equipment |
| (4) Power-generation control equipment | (11) Disaster prevention/crime prevention equipment |
| (5) Atomic energy-related equipment | (12) Safety equipment |
| (6) Seabed equipment | (13) Other applications that are not considered general-purpose applications |
| (7) Transportation control equipment | |

When using this product in general-purpose standard applications, you are kindly requested to take into consideration securing protection circuit/equipment or providing backup circuits, etc to ensure higher safety.

Large Size Ferrite Cores for High Power

Product compatible with RoHS directive
Halogen-free

Overview of the E Series

FEATURES

- Large size cores for transformers with large power outputs.
- Can also be used in reactors.

APPLICATION

- Large size industrial equipment, transformers for consumer equipment
- Reactors


PART NUMBER CONSTRUCTION

| Material | Core shape | Width | Thickness | Inside Diameter |
|----------|------------|-------|-----------|-----------------|
| PE22 | EC | 70 | 69 | 16 |
| PC40 | EIC | 90 | 90 | 30 |
| | EE | 80 | 101 | 19 |
| | EI | 120 | 46 | 20 |
| | | | 55 | 31N |
| | | | 65 | |
| | | | 91 | |
| | | | 76 | |
| | | | 56 | |
| | | | 108 | |
| | | | 64 | |

RANGE OF USE AND STORAGE TEMPERATURE

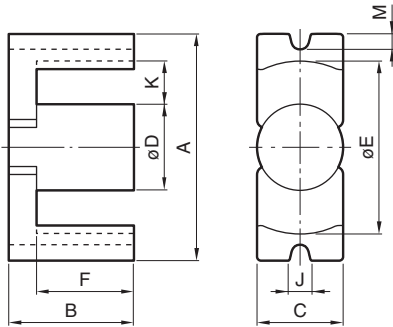
| Temperature range | |
|----------------------------|--------------------------|
| Operating temperature (°C) | Storage temperature (°C) |
| -30 to +105 | -30 to +85 |

- RoHS Directive Compliant Product: See the following for more details. <https://product.tdk.com/info/en/environment/rohs/index.html>
- Halogen-free: Indicates that Cl content is less than 900ppm, Br content is less than 900ppm, and that the total Cl and Br content is less than 1500ppm.

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Mn-Zn EC Cores

SHAPES AND DIMENSIONS



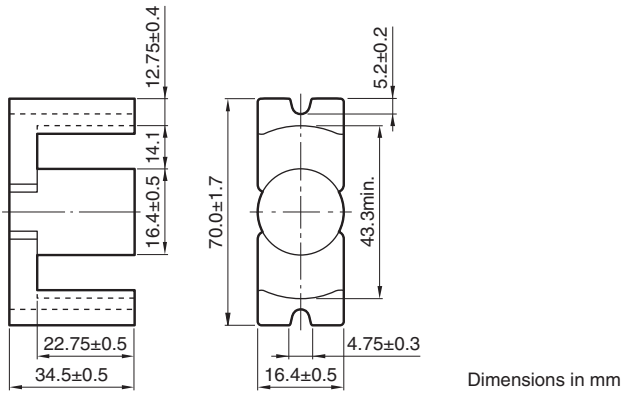
| | | | | | | |
|-----------------|-------------------|--------------|---|------------------|---|------------------------|
| PE22 | EC | 70 | x | 69 | x | 16 |
| Material | Core shape | Width | | Thickness | | Inside Diameter |

| Part No. | Dimensions (mm) | | | | | | | | | | | |
|--|-----------------|-----------|----------|----------|----------|----------|-----|------|---------|------|------------------------|--|
| | A | B×2 | C | øD | øE | F×2 | M | J | R | K | K×2F(mm ²) | |
| PE22 EC70×69×16 PC40 EC70×69×16 | 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 | |
| PE22 EC90×90×30 PC40 EC90×90×30 | 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 | |
| PE22 EC120×101×30 PC40 EC120×101×30 | 120.0±2.0 | 101.0±1.3 | 30.0±1.0 | 30.0±1.0 | 93.3min. | 71.0±1.0 | 5.5 | 6.03 | 1.5max. | 32.5 | 2307 | |

| Part No. | Effective parameter | | | | | | | Electrical characteristics AL-value (nH/N ²) 1kHz 0.4A/m 23°C |
|--|---------------------------------------|---|--|--|---|---------------------------|----------------------|---|
| | Core factor | | Effective cross-sectional area A _e (mm ²) | Effective magnetic path length ℓ _e (mm) | Effective core volume V _e (mm ³) | Weigh(approx.) (g) | AL-value | |
| | C ₁ (mm ⁻¹) | C ₂ ×10 ⁻² (mm ⁻³) | | | | | | |
| PE22 EC70×69×16 PC40 EC70×69×16 | 0.5138891 | 0.18322 | 280 | 144 | 40420 | 250 250 | 3910±25% 4845±25% | |
| PE22 EC90×90×30 PC40 EC90×90×30 | 0.3533380 | 0.05648 | 626 | 221 | 138270 | 635 635 | 5925±25% 7415±25% | |
| PE22 EC120×101×30 PC40 EC120×101×30 | 0.3300745 | 0.04278 | 772 | 255 | 196490 | 986 986 | 6395±25% 8025±25% | |

Mn-Zn EC series **Part No.: PE22 EC70X69X16**

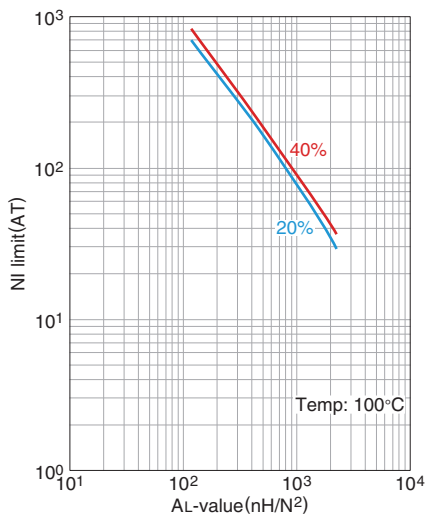
■ SHAPES AND DIMENSIONS



| Effective parameter | | | | | | | | Electrical characteristics | |
|------------------------------|---|--------------------------------|--------------------------------|-----------------------------|----------------------------------|------------------------------------|--------------------------------|----------------------------|--|
| Core factor | | Effective magnetic path length | Effective cross-sectional area | Effective core volume | Cross-sectional center pole area | Minimum cross-sectional area | Winding cross-sectional area | Weigh (approx.) | AL-value |
| C_1 (mm ⁻¹) | $C_2 \times 10^{-2}$ (mm ⁻³) | l_e (mm) | A_e (mm ²) | V_e (mm ³) | A_c (mm ²) | $A_{min.}^*$ (mm ²) | A_{cw} (mm ²) | (g) | (nH/N ²) 1kHz 0.4A/m 23°C |
| 0.5138891 | 0.18322 | 144 | 280 | 40420 | 211 | 211C* | 642 | 250 | 3910±25% |

* The symbol followed A min. value shows minimum cross-sectional area part.
 L is outer pole part, B is the back part.
 ○ Calculated output power (forward converter mode): 1.1kW (100kHz)

NI limit vs. AL-value



The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

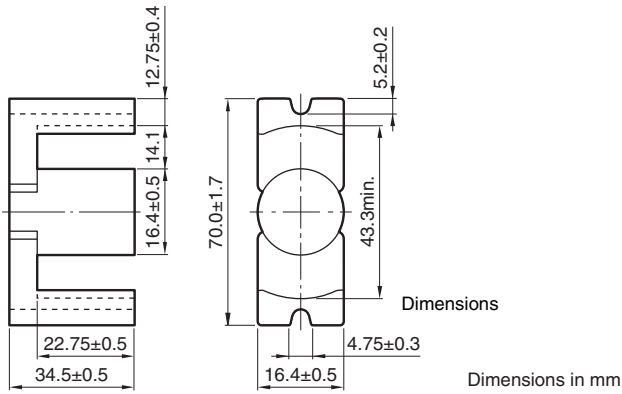
AL-value vs. Air gap length



Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn EC series **Part No.: PC40 EC70X69X16**

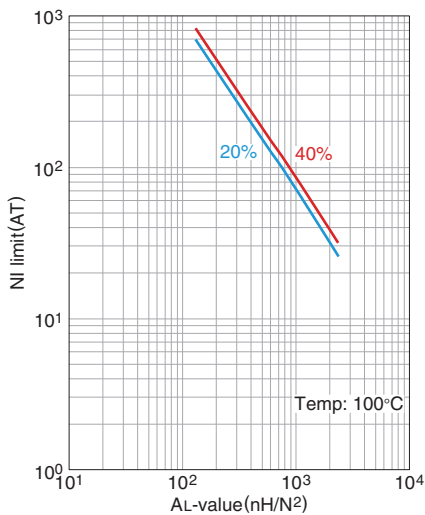
■ SHAPES AND DIMENSIONS



| Effective parameter | | | | | | | | | Electrical characteristics |
|------------------------------|---|--------------------------------|--------------------------------|-----------------------------|----------------------------------|------------------------------------|--------------------------------|------------------|--|
| Core factor | | Effective magnetic path length | Effective cross-sectional area | Effective core volume | Cross-sectional center pole area | Minimum cross-sectional area | Winding cross-sectional area | Weight (approx.) | AL-value |
| C_1 (mm ⁻¹) | $C_2 \times 10^{-2}$ (mm ⁻³) | l_e (mm) | A_e (mm ²) | V_e (mm ³) | A_c (mm ²) | $A_{min.}^*$ (mm ²) | A_{cw} (mm ²) | (g) | (nH/N ²) 1kHz 0.4A/m 23°C |
| 0.5138891 | 0.18322 | 144 | 280 | 40420 | 211 | 211C* | 642 | 250 | 4845±25% |

* The symbol followed A min. value shows minimum cross-sectional area part.
 L is outer pole part, B is the back part.
 ○ Calculated output power (forward converter mode): 1.2kW (100kHz)


NI limit vs. AL-value



The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

AL-value vs. Air gap length



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Mn-Zn EC series **Part No.: PE22 EC90X90X30**

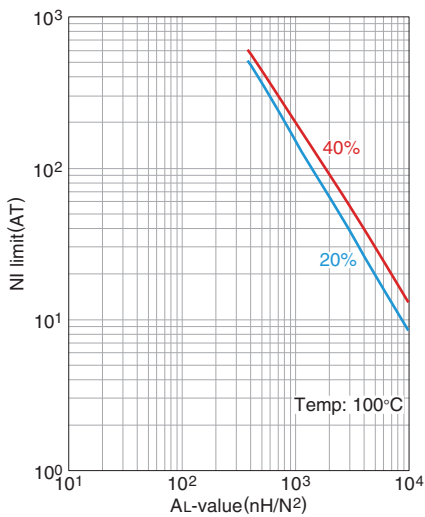
■ SHAPES AND DIMENSIONS



| Effective parameter | | | | | | | | Electrical characteristics | |
|---------------------------------------|---|--------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|-------------------------------|---------------------------------------|----------------------------|--|
| Core factor | | Effective magnetic path length | Effective cross-sectional area | Effective core volume | Cross-sectional center pole area | Minimum cross-sectional area | Winding cross-sectional area | Weigh (approx.) | AL-value |
| C ₁ (mm ⁻¹) | C ₂ ×10 ⁻² (mm ⁻³) | ℓ _e (mm) | A _e (mm ²) | V _e (mm ³) | A _c (mm ²) | A min.* (mm ²) | A _{cw} (mm ²) | (g) | (nH/N ²) 1kHz 0.4A/m 23°C |
| 0.3533380 | 0.05648 | 221 | 626 | 138270 | 707 | 570B* | 1420 | 635 | 5925±25% |

* 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.
 ○ Calculated output power (forward converter mode): 3.2kW (100kHz)

NI limit vs. AL-value



The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

AL-value vs. Air gap length



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use.
 Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn EC series **Part No.: PC40 EC90X90X30**

■ SHAPES AND DIMENSIONS



| Effective parameter | | | | | | | | | Electrical characteristics |
|---------------------------------------|---|--------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|-------------------------------|---------------------------------------|------------------|--|
| Core factor | | Effective magnetic path length | Effective cross-sectional area | Effective core volume | Cross-sectional center pole area | Minimum cross-sectional area | Winding cross-sectional area | Weight (approx.) | AL-value |
| C ₁ (mm ⁻¹) | C ₂ ×10 ⁻² (mm ⁻³) | ℓ _e (mm) | A _e (mm ²) | V _e (mm ³) | A _c (mm ²) | A min.* (mm ²) | A _{cw} (mm ²) | (g) | (nH/N ²) 1kHz 0.4A/m 23°C |
| 0.3533380 | 0.05648 | 221 | 626 | 138270 | 707 | 570B* | 1420 | 635 | 7415±25% |

* 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.
 ○ Calculated output power (forward converter mode): 3.4kW (100kHz)

NI limit vs. AL-value



The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

AL-value vs. Air gap length



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use.
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Mn-Zn EC series **Part No.: PE22 EC120X101X30**

■ SHAPES AND DIMENSIONS



| Effective parameter | | | | | | | | | Electrical characteristics |
|------------------------------|---|--------------------------------|--------------------------------|-----------------------------|----------------------------------|------------------------------------|--------------------------------|------------------|--|
| Core factor | | Effective magnetic path length | Effective cross-sectional area | Effective core volume | Cross-sectional center pole area | Minimum cross-sectional area | Winding cross-sectional area | Weight (approx.) | AL-value |
| C_1 (mm ⁻¹) | $C_2 \times 10^{-2}$ (mm ⁻³) | l_e (mm) | A_e (mm ²) | V_e (mm ³) | A_c (mm ²) | $A_{min.}^*$ (mm ²) | A_{cw} (mm ²) | (g) | (nH/N ²) 1kHz 0.4A/m 23°C |
| 0.3300745 | 0.04278 | 255 | 773 | 196490 | 707 | 707C* | 2307 | 986 | 6395±25% |

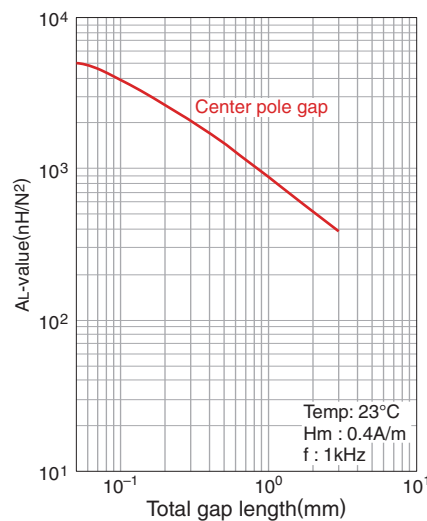
* The symbol followed A min. value shows minimum cross-sectional area part.
 C is center pole part, L is outer pole part, B is the back part.
 ○ Calculated output power (forward converter mode): 4.3kW (100kHz)

NI limit vs. AL-value



The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

AL-value vs. Air gap length



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use.
 Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn EC series **Part No.: PC40 EC120X101X30**

■ SHAPES AND DIMENSIONS



| Effective parameter | | | | | | | | | Electrical characteristics |
|------------------------------|---|--------------------------------|--------------------------------|-----------------------------|----------------------------------|-----------------------------------|--------------------------------|------------------|--|
| Core factor | | Effective magnetic path length | Effective cross-sectional area | Effective core volume | Cross-sectional center pole area | Minimum cross-sectional area | Winding cross-sectional area | Weight (approx.) | AL-value |
| C_1 (mm ⁻¹) | $C_2 \times 10^{-2}$ (mm ⁻³) | l_e (mm) | A_e (mm ²) | V_e (mm ³) | A_c (mm ²) | $A_{min.*}$ (mm ²) | A_{cw} (mm ²) | (g) | (nH/N ²) 1kHz 0.4A/m 23°C |
| 0.3300745 | 0.04278 | 255 | 773 | 196490 | 707 | 707C* | 2307 | 986 | 8025±25% |

* 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.

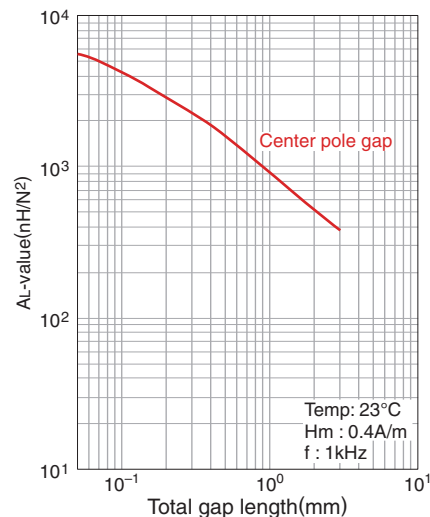
○ Calculated output power (forward converter mode): 4.5kW (100kHz)

NI limit vs. AL-value



The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

AL-value vs. Air gap length



Mn-Zn EIC Cores



SHAPES AND DIMENSIONS



| | | | | | | |
|----------|------------|-------|---|-----------|---|-----------------|
| PE22 | EC | 70 | × | 69 | × | 16 |
| Material | Core shape | Width | | Thickness | | Inside Diameter |

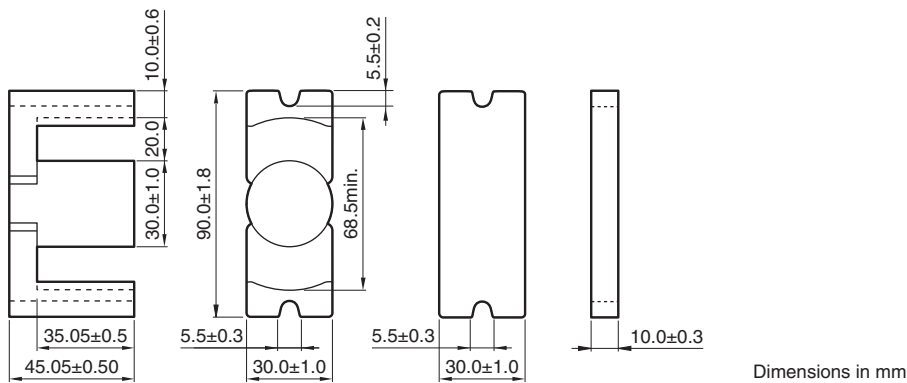
| Part No. | Dimensions (mm) | | | | | | | | | | |
|--|-----------------|-----------|----------|----------|----------|-----------|-----------|-----|------|------|--|
| | A | B+I | C | ϕD | ϕE | F | I | M | J | K | |
| PE22 EIC70×46×16 PC40 EIC70×46×16 | 70.0±1.7 | 46.25±1.0 | 16.4±0.5 | 16.4±0.5 | 43.3min. | 22.75±0.5 | 11.75±0.5 | 5.2 | 4.75 | 14.1 | |
| PE22 EIC90×55×30 PC40 EIC90×55×30 | 90.0±1.8 | 55.0±1.0 | 30.0±1.0 | 30.0±1.0 | 68.5min. | 35.5±0.5 | 10.0±0.35 | 5.5 | 6.0 | 20.0 | |
| PE22 EIC120×65×30 PC40 EIC120×65×30 | 120.0±2.0 | 65.5±1.3 | 30.0±1.0 | 30.0±1.0 | 93.3min. | 35.5±0.5 | 15.0±0.65 | 5.5 | 6.0 | 32.5 | |

| Part No. | Effective parameter | | | | | | | Electrical characteristics AL-value (nH/N ²) 1kHz 0.4A/m 23°C |
|--|------------------------------|---|---|--|--|------------------------|-----------------------|--|
| | Core factor | | Effective cross-sectional area A_e (mm ²) | Effective magnetic path length ℓ_e (mm) | Effective core volume V_e (mm ³) | Weigh (approx.) (g) | | |
| | C_1 (mm ⁻¹) | $C_2 \times 10^{-2}$ (mm ⁻³) | | | | | | |
| PE22 EIC70×46×16 PC40 EIC70×46×16 | 0.3479 | 0.1173 | 297 | 103 | 30601 | 188 188 | 5550±25% 6810±25% | |
| PE22 EIC90×55×30 PC40 EIC90×55×30 | 0.2422 | 0.0388 | 624 | 151 | 94432 | 469 469 | 8350±25% 10365±25% | |
| PE22 EIC120×65×30 PC40 EIC120×65×30 | 0.2319 | 0.0292 | 794 | 184 | 146310 | 747 747 | 8890±25% 11085±25% | |

⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use.
Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn EIC series **Part No.: PE22 EIC90X55X30**

■ SHAPES AND DIMENSIONS



| Effective parameter | | | | | | | | | Electrical characteristics |
|-------------------------------|--|--------------------------------|--------------------------------|----------------------------|----------------------------------|--|--------------------------------------|------------------|---|
| Core factor | | Effective magnetic path length | Effective cross-sectional area | Effective core volume | Cross-sectional center pole area | Minimum cross-sectional area | Winding cross-sectional area | Weight (approx.) | AL-value |
| C_1 (mm^{-1}) | $C_2 \times 10^{-2}$ (mm^{-3}) | l_e (mm) | A_e (mm^2) | V_e (mm^3) | A_c (mm^2) | $A_{\text{min.}}$ (mm^2) | A_{cw} (mm^2) | (g) | (nH/N^2) 1kHz 0.4A/m 23°C |
| 0.2422 | 0.0388 | 151 | 624 | 94432 | 707 | 586B* | 710 | 469 | 8350±25% |

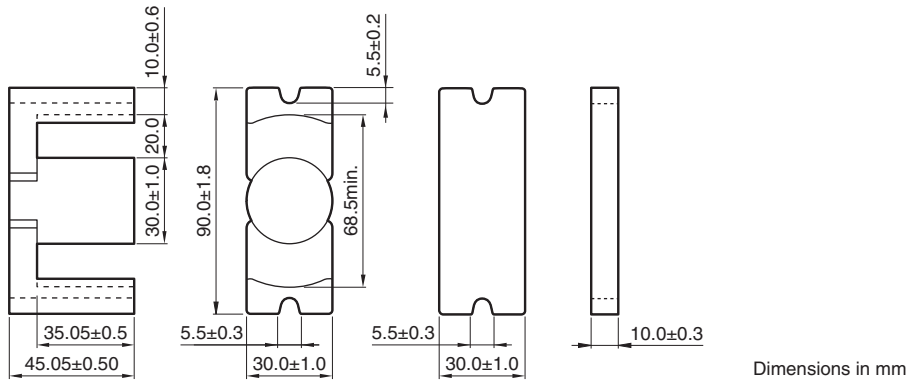
* The symbol followed A min. value shows minimum cross-sectional area part.

C is center pole part, L is outer pole part, B is the back part.

○ Calculated output power (forward converter mode): 1.8kW (100kHz)

Mn-Zn EIC series **Part No.: PC40 EIC90X55X30**

■ SHAPES AND DIMENSIONS



| Effective parameter | | | | | | | | | Electrical characteristics |
|------------------------------|---|--------------------------------|--------------------------------|-----------------------------|----------------------------------|------------------------------------|--------------------------------|------------------|--|
| Core factor | | Effective magnetic path length | Effective cross-sectional area | Effective core volume | Cross-sectional center pole area | Minimum cross-sectional area | Winding cross-sectional area | Weight (approx.) | AL-value |
| C_1 (mm ⁻¹) | $C_2 \times 10^{-2}$ (mm ⁻³) | l_e (mm) | A_e (mm ²) | V_e (mm ³) | A_c (mm ²) | $A_{min.}^*$ (mm ²) | A_{cw} (mm ²) | (g) | (nH/N ²) 1kHz 0.4A/m 23°C |
| 0.2422 | 0.0388 | 151 | 624 | 94432 | 707 | 586B* | 710 | 469 | 10365±25% |

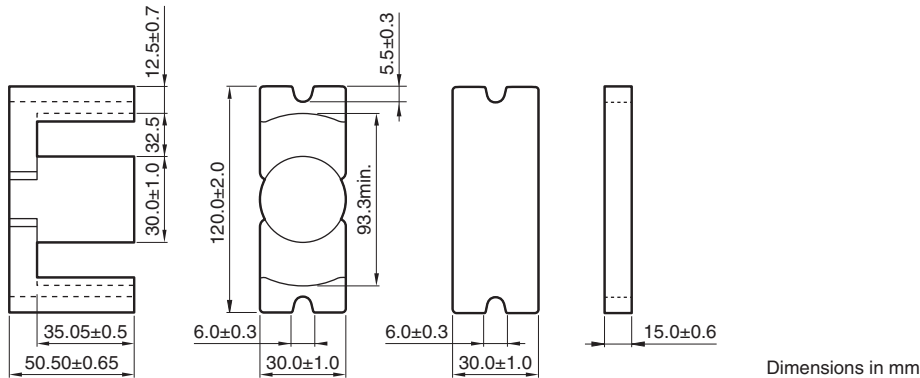
* The symbol followed A min. value shows minimum cross-sectional area part.

C is center pole part, L is outer pole part, B is the back part.

○ Calculated output power (forward converter mode): 1.9kW (100kHz)

Mn-Zn EIC series **Part No.: PE22 EIC120X65X30**

■ SHAPES AND DIMENSIONS



| Effective parameter | | | | | | | | | Electrical characteristics |
|-------------------------------|--|--------------------------------|--------------------------------|----------------------------|----------------------------------|--|--------------------------------------|------------------|---|
| Core factor | | Effective magnetic path length | Effective cross-sectional area | Effective core volume | Cross-sectional center pole area | Minimum cross-sectional area | Winding cross-sectional area | Weight (approx.) | AL-value |
| C_1 (mm^{-1}) | $C_2 \times 10^{-2}$ (mm^{-3}) | l_e (mm) | A_e (mm^2) | V_e (mm^3) | A_c (mm^2) | $A_{\text{min.}}$ (mm^2) | A_{cw} (mm^2) | (g) | (nH/N^2) 1kHz 0.4A/m 23°C |
| 0.2319 | 0.0292 | 184 | 794 | 146310 | 707 | 707C* | 1154 | 747 | 8890±25% |

* 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.

• Available customize core like this. Please specify when ordering.

○ Calculated output power (forward converter mode): 2.8kW (100kHz)

Mn-Zn EIC series **Part No.: PC40 EIC120X65X30**

■ SHAPES AND DIMENSIONS



| Effective parameter | | | | | | | | | Electrical characteristics |
|------------------------------|---|--------------------------------|--------------------------------|-----------------------------|----------------------------------|------------------------------------|--------------------------------|------------------|--|
| Core factor | | Effective magnetic path length | Effective cross-sectional area | Effective core volume | Cross-sectional center pole area | Minimum cross-sectional area | Winding cross-sectional area | Weight (approx.) | AL-value |
| C_1 (mm ⁻¹) | $C_2 \times 10^{-2}$ (mm ⁻³) | l_e (mm) | A_e (mm ²) | V_e (mm ³) | A_c (mm ²) | $A_{min.}^*$ (mm ²) | A_{cw} (mm ²) | (g) | (nH/N ²) 1kHz 0.4A/m 23°C |
| 0.2319 | 0.0292 | 184 | 794 | 146310 | 707 | 707C* | 1154 | 747 | 11085±25% |

* 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.

• Available customize core like this. Please specify when ordering.

○ Calculated output power (forward converter mode): 2.9kW (100kHz)

Mn-Zn EE Cores



SHAPES AND DIMENSIONS



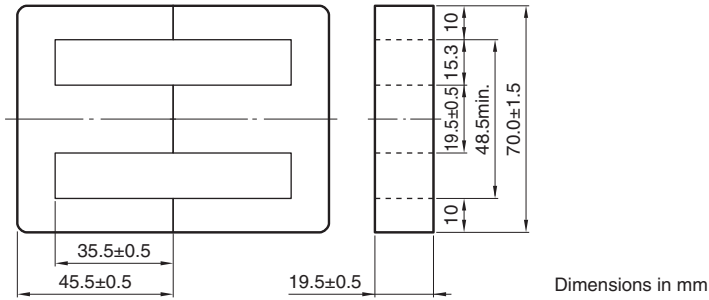
| | | | | | | |
|-----------------|-------------------|--------------|---|------------------|---|------------------------|
| PE22 | EE | 70 | × | 91 | × | 19 |
| Material | Core shape | Width | | Thickness | | Inside Diameter |

| Part No. | Dimensions (mm) | | | | | | | | | | |
|--|-----------------|-----------|----------|----------|----------|----------|----------|---------|------|------------------------|--|
| | A | 2B | C | D | E | 2F | H | R | K | K×2F(mm ²) | |
| PE22 EE70×91×19 PC40 EE70×91×19 | 70.0±1.5 | 91.0±1.0 | 19.5±0.5 | 19.5±0.5 | 48.5min. | 71.0±1.0 | 10.0±0.5 | 0 | 15.3 | 1086 | |
| PE22 EE80×76×20 PC40 EE80×76×20 | 80.0±1.5 | 76.0±1.0 | 20.0±0.5 | 20.0±0.5 | 58.5min. | 55.0±0.8 | 10.0±0.5 | 0.5max. | 20.0 | 1100 | |
| PE22 EE90×56×16 PC40 EE90×56×16 | 90.0±2.0 | 56.4±1.0 | 16.5±0.5 | 25.0±1.0 | 63.0min. | 30.4±1.0 | 12.5±0.5 | 0.5max. | 20.0 | 608 | |
| PE22 EE70×108×31N PC40 EE70×108×31N | 70.0±1.5 | 108.0±1.0 | 31.6±0.5 | 22.2±0.5 | 46.3min. | 85.6±1.0 | 11.1±0.5 | 2.0max. | 12.8 | 1096 | |

| Part No. | Effective parameter | | | | | | | Electrical characteristics AL-value (nH/N ²) 1kHz 0.4A/m 23°C |
|--|---------------------------------------|---|--|--|---|------------------------|----------------------|--|
| | Core factor | | Effective cross-sectional area A _e (mm ²) | Effective magnetic path length l _e (mm) | Effective core volume V _e (mm ³) | Weigh (approx.) (g) | AL-value | |
| | C ₁ (mm ⁻¹) | C ₂ ×10 ⁻² (mm ⁻³) | | | | | | |
| PE22 EE70×91×19 PC40 EE70×91×19 | 0.52779 | 0.13669 | 386 | 204 | 78690 | 394 394 | 3930±25% 4910±25% | |
| PE22 EE80×76×20 PC40 EE80×76×20 | 0.44878 | 0.11058 | 406 | 182 | 73910 | 372 372 | 4590±25% 5720±25% | |
| PE22 EE90×56×16 PC40 EE90×56×16 | 0.33583 | 0.08009 | 419 | 141 | 59050 | 306 306 | 5960±25% 7380±25% | |
| PE22 EE70×108×31N PC40 EE70×108×31N | 0.32992 | 0.04695 | 703 | 232 | 162900 | 815 815 | 6360±25% 7970±25% | |

Mn-Zn EE series **Part No.: PE22 EE70X91X19**

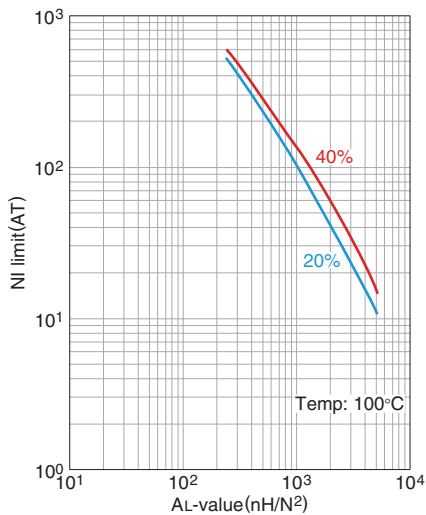
■ SHAPES AND DIMENSIONS



| Effective parameter | | | | | | | | | Electrical characteristics |
|---------------------------------------|---|--------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|-------------------------------|---------------------------------------|-----------------|--|
| Core factor | | Effective magnetic path length | Effective cross-sectional area | Effective core volume | Cross-sectional center pole area | Minimum cross-sectional area | Winding cross-sectional area | Weigh (approx.) | AL-value |
| C ₁ (mm ⁻¹) | C ₂ ×10 ⁻² (mm ⁻³) | ℓ _e (mm) | A _e (mm ²) | V _e (mm ³) | A _c (mm ²) | A min.* (mm ²) | A _{cw} (mm ²) | (g) | (nH/N ²) 1kHz 0.4A/m 23°C |
| 0.5278 | 0.1367 | 204 | 386 | 78690 | 380 | 380C* | 1086 | 394 | 3930±25% |

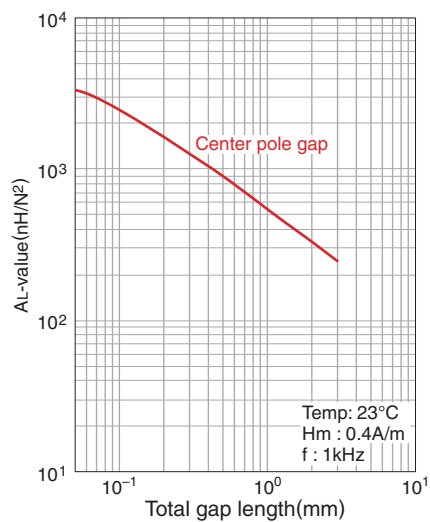
* The symbol followed A min. value shows minimum cross-sectional area part.
 C is center pole part, L is outer pole part, B is the back part.
 ○ Calculated output power (forward converter mode): 1.4kW (100kHz)

NI limit vs. AL-value



The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

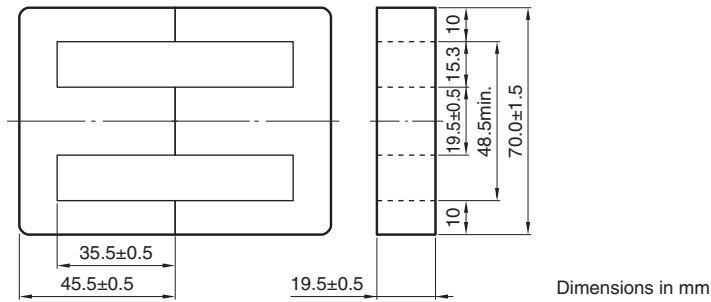
AL-value vs. Air gap length



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use.
 Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn EE series **Part No.: PC40 EE70X91X19**

■ SHAPES AND DIMENSIONS



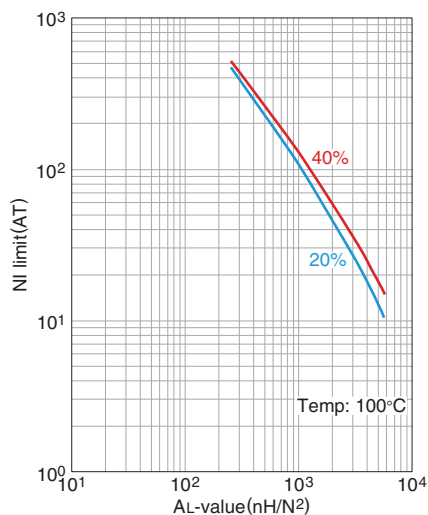
| Effective parameter | | | | | | | | | Electrical characteristics |
|------------------------------|---|--------------------------------|--------------------------------|-----------------------------|----------------------------------|------------------------------------|--------------------------------|-----------------|--|
| Core factor | | Effective magnetic path length | Effective cross-sectional area | Effective core volume | Cross-sectional center pole area | Minimum cross-sectional area | Winding cross-sectional area | Weigh (approx.) | AL-value |
| C_1 (mm ⁻¹) | $C_2 \times 10^{-2}$ (mm ⁻³) | ℓ_e (mm) | A_e (mm ²) | V_e (mm ³) | A_c (mm ²) | $A_{min.}^*$ (mm ²) | A_{cw} (mm ²) | (g) | (nH/N ²) 1kHz 0.4A/m 23°C |
| 0.5278 | 0.1367 | 204 | 386 | 78690 | 380 | 380C* | 1086 | 394 | 4910±25% |

* 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.

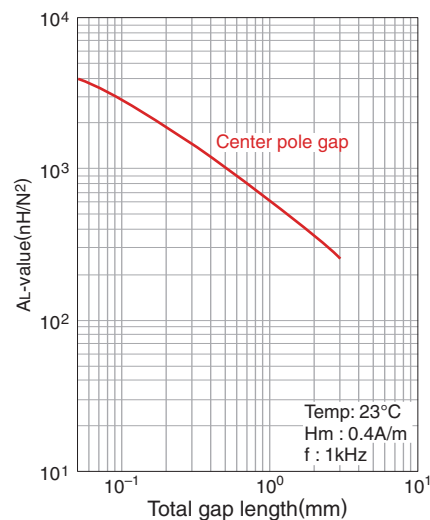
○ Calculated output power (forward converter mode): 1.6kW (100kHz)

NI limit vs. AL-value



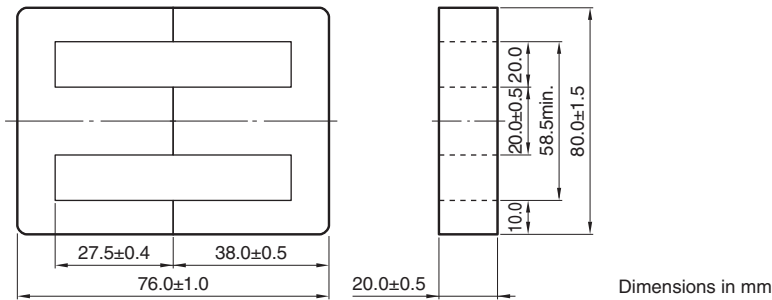
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

AL-value vs. Air gap length



Mn-Zn EE series **Part No.: PE22 EE80X76X20**

■ SHAPES AND DIMENSIONS



Dimensions in mm

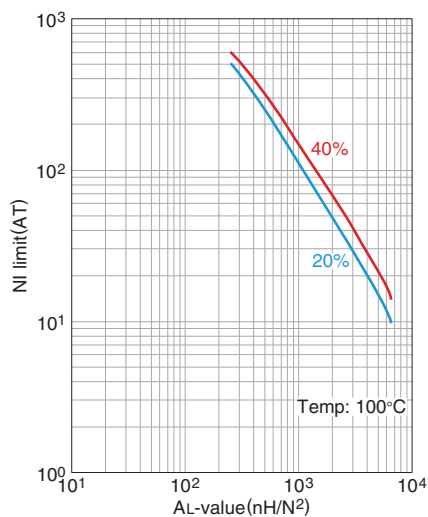
| Effective parameter | | | | | | | | | Electrical characteristics |
|------------------------------|---|--------------------------------|--------------------------------|-----------------------------|----------------------------------|------------------------------------|--------------------------------|-----------------|--|
| Core factor | | Effective magnetic path length | Effective cross-sectional area | Effective core volume | Cross-sectional center pole area | Minimum cross-sectional area | Winding cross-sectional area | Weigh (approx.) | AL-value |
| C_1 (mm ⁻¹) | $C_2 \times 10^{-2}$ (mm ⁻³) | ℓ_e (mm) | A_e (mm ²) | V_e (mm ³) | A_c (mm ²) | $A_{min.}^*$ (mm ²) | A_{cw} (mm ²) | (g) | (nH/N ²) 1kHz 0.4A/m 23°C |
| 0.44878 | 0.1106 | 182 | 406 | 73910 | 400 | 400LC* | 1100 | 372 | 4590±25% |

* 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.

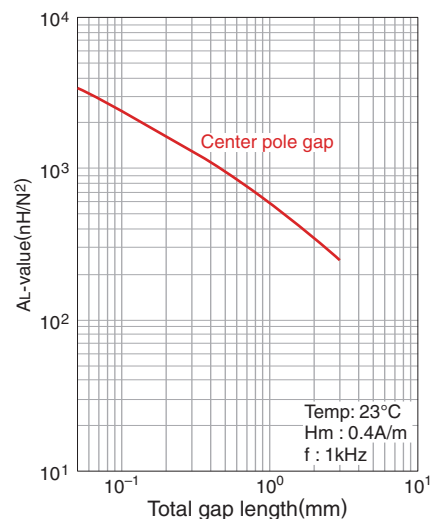
○ Calculated output power (forward converter mode): 1.4kW (100kHz)

NI limit vs. AL-value



The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

AL-value vs. Air gap length



Mn-Zn EE series Part No.: PC40 EE80X76X20

SHAPES AND DIMENSIONS



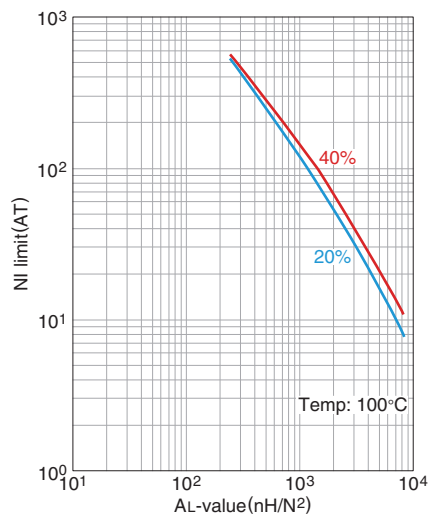
| Effective parameter | | | | | | | | | Electrical characteristics |
|---------------------------------------|---|--------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|-------------------------------|---------------------------------------|-----------------|--|
| Core factor | | Effective magnetic path length | Effective cross-sectional area | Effective core volume | Cross-sectional center pole area | Minimum cross-sectional area | Winding cross-sectional area | Weigh (approx.) | AL-value |
| C ₁ (mm ⁻¹) | C ₂ ×10 ⁻² (mm ⁻³) | ℓ _e (mm) | A _e (mm ²) | V _e (mm ³) | A _c (mm ²) | A min.* (mm ²) | A _{cw} (mm ²) | (g) | (nH/N ²) 1kHz 0.4A/m 23°C |
| 0.44878 | 0.1106 | 182 | 406 | 73910 | 400 | 400LC* | 1100 | 372 | 5720±25% |

* 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.

○ Calculated output power (forward converter mode): 1.5kW (100kHz)

NI limit vs. AL-value



The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

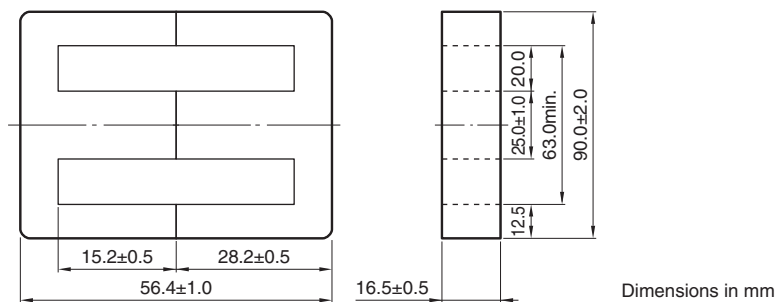
AL-value vs. Air gap length



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Mn-Zn EE series Part No.: PE22 EE90X56X16

SHAPES AND DIMENSIONS



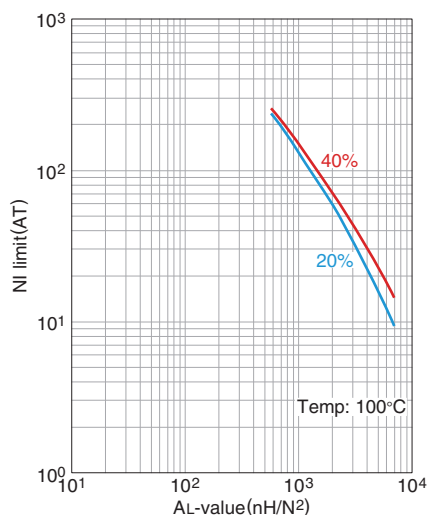
| Effective parameter | | | | | | | | | Electrical characteristics |
|---------------------------------------|---|--------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|-------------------------------|---------------------------------------|-----------------|--|
| Core factor | | Effective magnetic path length | Effective cross-sectional area | Effective core volume | Cross-sectional center pole area | Minimum cross-sectional area | Winding cross-sectional area | Weigh (approx.) | AL-value |
| C ₁ (mm ⁻¹) | C ₂ ×10 ⁻² (mm ⁻³) | ℓ _e (mm) | A _e (mm ²) | V _e (mm ³) | A _c (mm ²) | A min.* (mm ²) | A _{cw} (mm ²) | (g) | (nH/N ²) 1kHz 0.4A/m 23°C |
| 0.33583 | 0.0801 | 144 | 419 | 59050 | 413 | 413LC* | 608 | 306 | 5960±25% |

* 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.

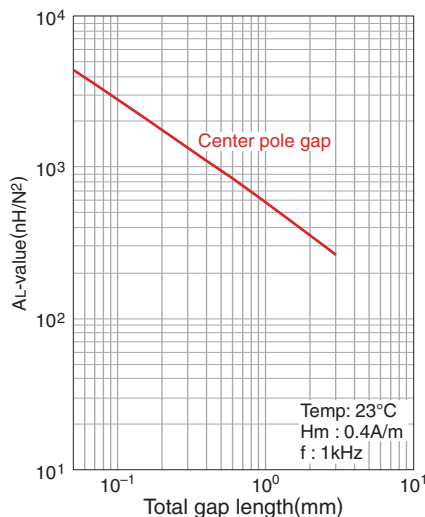
○ Calculated output power (forward converter mode): 1.2kW (100kHz)

NI limit vs. AL-value



The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

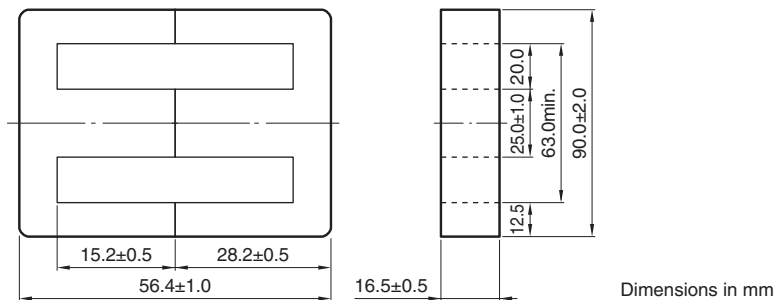
AL-value vs. Air gap length



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Mn-Zn EE series **Part No.: PC40 EE90X56X16**

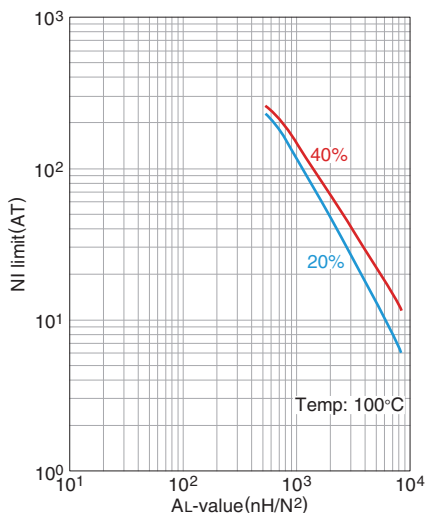
■ SHAPES AND DIMENSIONS



| Effective parameter | | | | | | | | | Electrical characteristics |
|---------------------------------------|---|--------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|-------------------------------|---------------------------------------|-----------------|--|
| Core factor | | Effective magnetic path length | Effective cross-sectional area | Effective core volume | Cross-sectional center pole area | Minimum cross-sectional area | Winding cross-sectional area | Weigh (approx.) | AL-value |
| C ₁ (mm ⁻¹) | C ₂ ×10 ⁻² (mm ⁻³) | ℓ _e (mm) | A _e (mm ²) | V _e (mm ³) | A _c (mm ²) | A min.* (mm ²) | A _{cw} (mm ²) | (g) | (nH/N ²) 1kHz 0.4A/m 23°C |
| 0.33583 | 0.0801 | 141 | 419 | 59050 | 413 | 413LC* | 608 | 306 | 7380±25% |

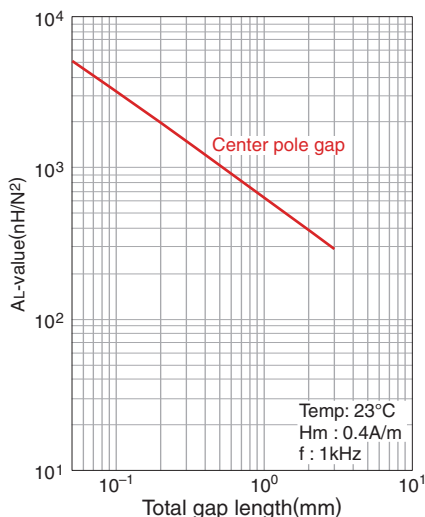
* The symbol followed A min. value shows minimum cross-sectional area part.
 C is center pole part, L is outer pole part, B is the back part.
 ○ Calculated output power (forward converter mode): 1.3kW (100kHz)

NI limit vs. AL-value



The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

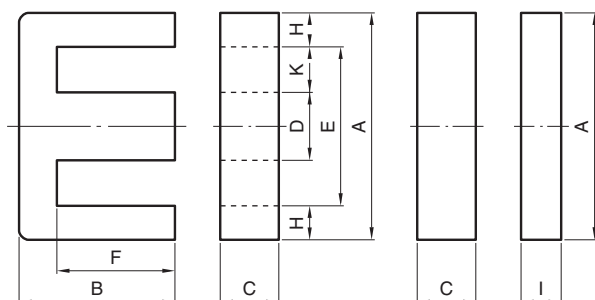
AL-value vs. Air gap length



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Mn-Zn EI Cores

SHAPES AND DIMENSIONS



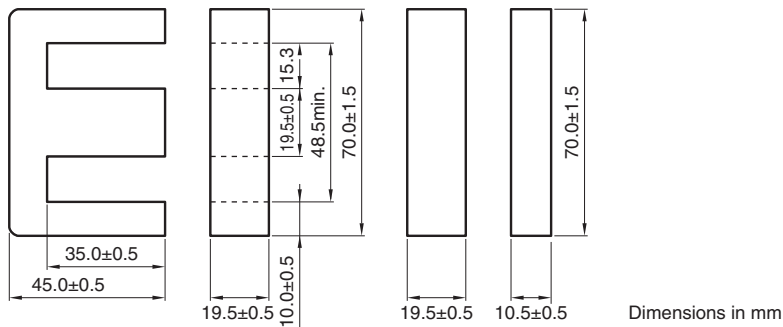
| | | | | | | |
|-----------------|-------------------|--------------|---|------------------|---|------------------------|
| PE22 | EI | 70 | × | 55 | × | 19 |
| Material | Core shape | Width | | Thickness | | Inside Diameter |

| Part No. | Dimensions (mm) | | | | | | | | | | |
|--------------------------------------|-----------------|----------|----------|----------|----------|----------|----------|----------|---------|------|------------------------|
| | A | B+I | C | D | E | F | H | I | R | K | K×2F(mm ²) |
| PE22 EI70×55×19 PC40 EI70×55×19 | 70.0±1.5 | 55.5±1.0 | 19.5±0.5 | 19.5±0.5 | 48.5min. | 35.0±0.5 | 10.0±0.5 | 10.5±0.5 | 0.5max. | 15.3 | 536 |
| PE22 EI70×64×31N PC40 EI70×64×31N | 70.0±1.5 | 64.4±1.0 | 31.6±0.5 | 22.2±0.5 | 46.3min. | 42.8±0.5 | 11.1±0.5 | 10.4±0.5 | 2.0max. | 12.8 | 548 |

| Part No. | Effective parameter | | | | | | Electrical characteristics AL-value (nH/N ²) 1kHz 0.4A/m 23°C |
|--------------------------------------|---------------------------------------|---|--|--|---|------------------------|--|
| | Core factor | | Effective cross-sectional area A _e (mm ²) | Effective magnetic path length l _e (mm) | Effective core volume V _e (mm ³) | Weigh (approx.) (g) | |
| | C ₁ (mm ⁻¹) | C ₂ ×10 ⁻² (mm ⁻³) | | | | | |
| PE22 EI70×55×19 PC40 EI70×55×19 | 0.33894 | 0.08693 | 390 | 132 | 51520 | 266 266 | 5880±25% 7270±25% |
| PE22 EI70×64×31N PC40 EI70×64×31N | 0.20929 | 0.03010 | 695 | 146 | 101200 | 519 519 | 9585±25% 11885±25% |

Mn-Zn EI series **Part No.: PE22 EI70X55X19**

■ SHAPES AND DIMENSIONS



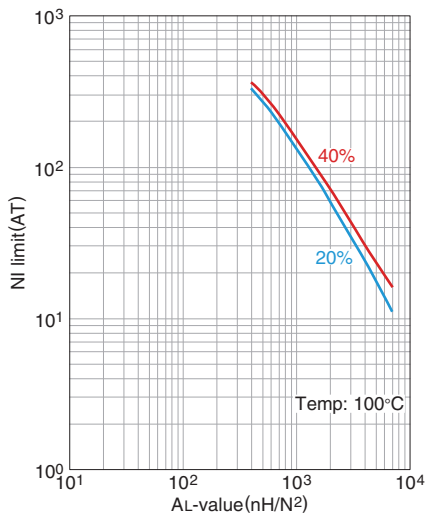
| Effective parameter | | | | | | | | | Electrical characteristics |
|------------------------------|---|--------------------------------|--------------------------------|-----------------------------|----------------------------------|-------------------------------------|--------------------------------|-----------------|--|
| Core factor | | Effective magnetic path length | Effective cross-sectional area | Effective core volume | Cross-sectional center pole area | Minimum cross-sectional area | Winding cross-sectional area | Weigh (approx.) | AL-value |
| C_1 (mm ⁻¹) | $C_2 \times 10^{-2}$ (mm ⁻³) | ℓ_e (mm) | A_e (mm ²) | V_e (mm ³) | A_c (mm ²) | $A_{\min.}^*$ (mm ²) | A_{cw} (mm ²) | (g) | (nH/N ²) 1kHz 0.4A/m 23°C |
| 0.33894 | 0.08693 | 132 | 390 | 51520 | 380 | 380C* | 543 | 266 | 5880±25% |

* 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.

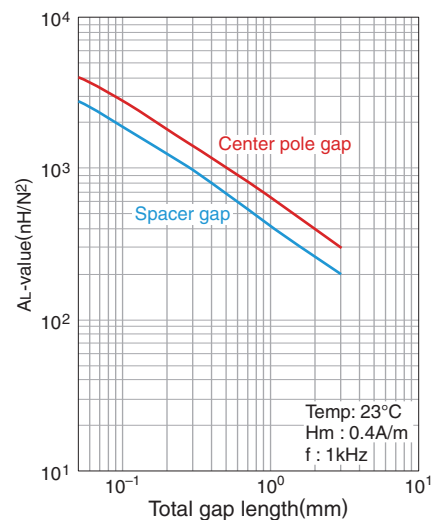
○ Calculated output power (forward converter mode): 1.4kW (100kHz)

NI limit vs. AL-value



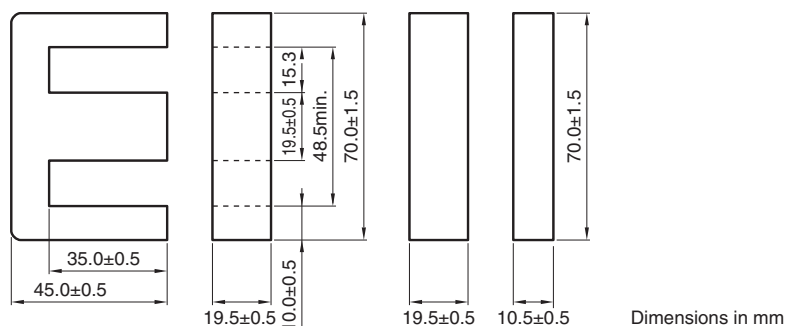
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

AL-value vs. Air gap length



Mn-Zn EI series Part No.: PC40 EI70X55X19

SHAPES AND DIMENSIONS



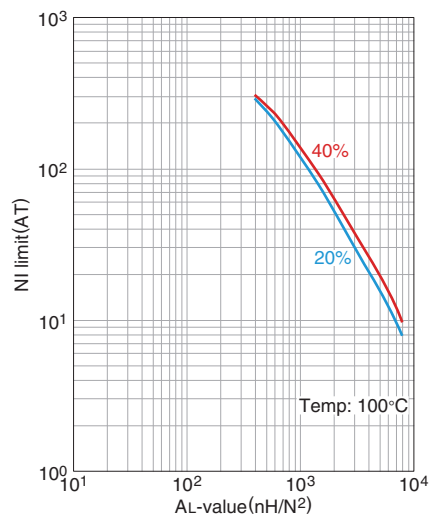
| Effective parameter | | | | | | | | | Electrical characteristics |
|---------------------------------------|---|--------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|-------------------------------|---------------------------------------|-----------------|--|
| Core factor | | Effective magnetic path length | Effective cross-sectional area | Effective core volume | Cross-sectional center pole area | Minimum cross-sectional area | Winding cross-sectional area | Weigh (approx.) | AL-value |
| C ₁ (mm ⁻¹) | C ₂ ×10 ⁻² (mm ⁻³) | ℓ _e (mm) | A _e (mm ²) | V _e (mm ³) | A _c (mm ²) | A min.* (mm ²) | A _{cw} (mm ²) | (g) | (nH/N ²) 1kHz 0.4A/m 23°C |
| 0.33894 | 0.08693 | 132 | 390 | 51520 | 380 | 380C* | 543 | 266 | 7270±25% |

* 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.

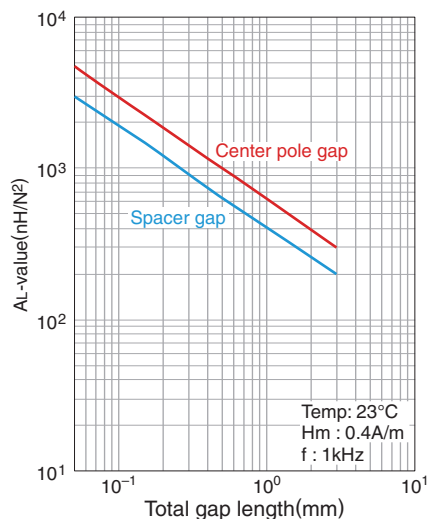
○ Calculated output power (forward converter mode): 1.6kW (100kHz)

NI limit vs. AL-value



The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

AL-value vs. Air gap length



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