

Sinusoidal output filter for frequency inverters

- 2.5 to 610A current ratings
- Reduction of parasitic motor noise
- Improvement of system efficiency
- Reduction of eddy current losses
- Nennströme von 2.5 bis 610A
- Reduzierung der Motorgeräusche
- Verbesserung des System-Wirkungsgrads
- Reduktion der Wirbelstromverluste
- Courants de service de 2.5 à 610A
- Pour la réduction des bruits de moteur
- Amélioration du rendement du système
- Pour la réduction des pertes par courant de circulation

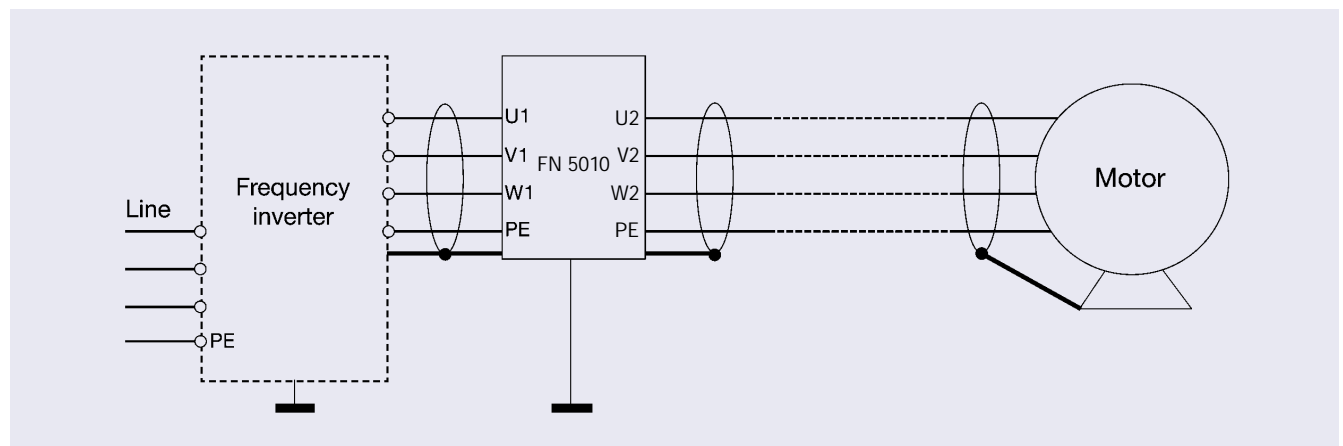


Technical specifications

| | |
|------------------------------|--|
| Maximum operating voltage: | 400VAC @ 40°C / 690VAC @ 40°C |
| Current ratings: | 2.5 to 610A @ 40°C |
| Motor frequency: | up to ~70Hz |
| Switching frequency: | f_{min} 4kHz to f_{max} 16kHz |
| High potential test voltage: | P → E 3000VAC for ~3 sec (factory test) P → P 3000VAC for ~3 sec (factory test) |
| Protection category: | IP00 |
| Insulation class: | T40/F (155°C) |
| Temperature range: | -25°C to +85°C (derating necessary above 40°C!) |
| Max. cable lengths: | 400m shielded 300m unshielded |

Electrical schematic

The filter converts pulse width modulated output voltages to sinusoidal voltages at the motor. Therefore, the service life of the motor will be increased significant.



Specifications and dimensions

FN 5010-Series (400VAC)

| Filter | Current rating [A] | Induct. Cap. | | Weight | | | Dimensions | | | | | | | Connections | Drawing | |
|----------------|-------------------------|--------------|------------------|--------|------------------|------|------------|-----|-----|-------------|-----|-----|-------|-------------|----------------|----|
| | | L [mH] | C [μ F] | Total | Copper [kg] | Alu. | A | B | B1 | C [mm] | D | E | F | | | G* |
| FN 5010-2.5-99 | 2.5 | 22.4 | 1.5 | 2.6 | 0.68 | - | 125 | 65 | 110 | 180 | 100 | 45 | 5x8 | 2.5 | Terminal block | D1 |
| FN 5010-3.5-99 | 3.5 | 16 | 1.5 | 2.6 | 1.05 | - | 125 | 65 | 110 | 180 | 100 | 45 | 5x8 | 2.5 | Terminal block | D1 |
| FN 5010-4.5-99 | 4.5 | 11 | 1.5 | 3.0 | 1.1 | - | 125 | 75 | 110 | 180 | 100 | 55 | 5x8 | 2.5 | Terminal block | D1 |
| FN 5010-6.5-99 | 6.5 | 8.4 | 1.5 | 5.4 | 2.1 | - | 155 | 80 | 118 | 205 | 130 | 55 | 8x12 | 4 | Terminal block | D1 |
| FN 5010-8-99 | 8 | 7.2 | 1.5 | 6.6 | 2.2 | - | 155 | 95 | 118 | 205 | 130 | 70 | 8x12 | 4 | Terminal block | D1 |
| FN 5010-10-99 | 10 | 4.2 | 1.5 | 6.6 | 2.6 | - | 155 | 95 | 118 | 205 | 130 | 70 | 8x12 | 4 | Terminal block | D1 |
| FN 5010-13-99 | 13 | 4.2 | 1.5 | 7.3 | 3.2 | - | 190 | 100 | 125 | 230 | 170 | 58 | 8x12 | 4 | Terminal block | D1 |
| FN 5010-18-99 | 18 | 3.5 | 1.5 | 11.5 | 3.6 | - | 190 | 120 | 125 | 230 | 170 | 78 | 8x12 | 10 | Terminal block | D1 |
| FN 5010-24-99 | 24 | 2.4 | 1.5 | 14 | 5 | - | 210 | 125 | 135 | 260 | 175 | 85 | 8x12 | 10 | Terminal block | D1 |
| FN 5010-32-99 | 32 | 2 | 2 | 16 | 6.8 | - | 210 | 135 | 135 | 260 | 175 | 95 | 8x12 | 10 | Terminal block | D1 |
| FN 5010-42-99 | 42 | 1.58 | 7 | 22 | 7.4 | - | 230 | 140 | 150 | 285 | 180 | 122 | 8x12 | 10 | Terminal block | D1 |
| FN 5010-48-99 | 48 | 1.5 | 4 | 28 | 8.8 | - | 240 | 210 | < B | 290 | 190 | 125 | 8x12 | 10 | Terminal block | D2 |
| FN 5010-60-99 | 60 | 1.1 | 4 | 35 | 10.9 | - | 240 | 220 | < B | 290 | 190 | 135 | 8x12 | 16 | Terminal block | D2 |
| FN 5010-75-99 | 75 | 0.9 | 4 | 42 | 11.5 | - | 300 | 210 | < B | 345 | 240 | 134 | 11x15 | 35 | Terminal block | D2 |
| FN 5010-90-99 | 90 | 0.8 | 5 | 46 | 12.8 | - | 300 | 215 | < B | 345 | 240 | 139 | 11x15 | 35 | Terminal block | D2 |
| FN 5010-110-99 | 110 | 0.7 | 5 | 58 | 13 | - | 300 | 237 | < B | 345 | 240 | 161 | 11x15 | 50 | Terminal block | D2 |
| FN 5010-150-99 | 150 | 0.5 | 7 | 75 | 14.8 | - | 420 | 217 | < B | 470 | 370 | 142 | 11x15 | 50 | Terminal block | D2 |
| FN 5010-180-99 | 180 | 0.4 | 10 | 88 | 1.4 | 10.9 | 420 | 235 | < B | 470 | 370 | 157 | 11x15 | 11 | Copper bar | D3 |
| FN 5010-210-99 | 210 | 0.4 | 10 | 115 | 2.1 | 11.2 | 420 | 260 | < B | 470 | 370 | 182 | 11x15 | 11 | Copper bar | D3 |
| FN 5010-270-99 | 270 | 0.3 | 12 | 150 | 2.1 | 14 | 420 | 295 | < B | 470 | 370 | 217 | 11x15 | 11 | Copper bar | D3 |
| FN 5010-325-99 | 325 | 0.3 | 12 | 194 | 5.2 | 21 | 480 | 310 | < B | 580 | 430 | 234 | 13x18 | 11 | Copper bar | D3 |
| FN 5010-410-99 | 410 | 0.2 | 18 | 206 | 5.2 | 23.8 | 480 | 310 | < B | 580 | 430 | 234 | 13x18 | 11 | Copper bar | D3 |
| FN 5010-480-99 | 480 | 0.185 | 20 | 255 | 6.5 | 28 | 500 | 340 | < B | 670 | 430 | 238 | 13x18 | 11 | Copper bar | D3 |
| FN 5010-510-99 | 510 | 0.17 | 20 | 290 | 6.5 | 32 | 500 | 370 | < B | 670 | 430 | 248 | 13x18 | 11 | Copper bar | D3 |
| FN 5010-610-99 | 610 | 0.14 | 25 | 330 | 7.7 | 37.5 | 500 | 370 | < B | 670 | 430 | 268 | 13x18 | 11 | Copper bar | D3 |

FN 5010HV-Series (690VAC)

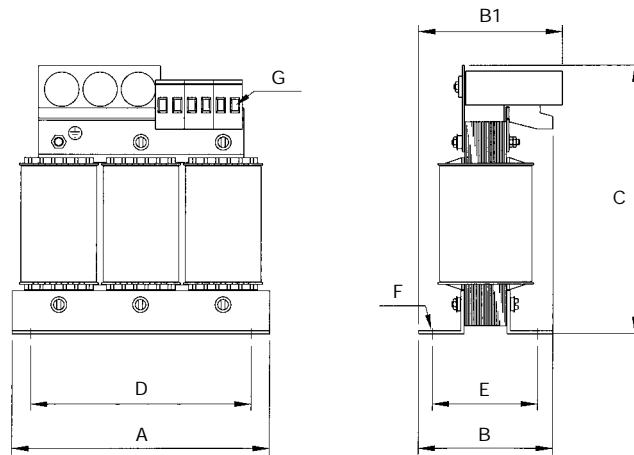
| Filter | Current rating [A] | Induct. Cap. | | Weight | | | Dimensions | | | | | | | Connections | Drawing | |
|------------------|-------------------------|--------------|------------------|--------|------------------|------|------------|-----|-----|-------------|-----|-----|-------|-------------|----------------|----|
| | | L [mH] | C [μ F] | Total | Copper [kg] | Alu. | A | B | B1 | C [mm] | D | E | F | | | G* |
| FN 5010HV-2.5-99 | 2.5 | 61 | 1.5 | 5.8 | 0.86 | - | 155 | 95 | 118 | 205 | 130 | 70 | 8x12 | 2.5 | Terminal block | D1 |
| FN 5010HV-3.5-99 | 3.5 | 43.5 | 1.5 | 6.6 | 1.55 | - | 155 | 95 | 118 | 205 | 130 | 70 | 8x12 | 2.5 | Terminal block | D1 |
| FN 5010HV-4.5-99 | 4.5 | 33.5 | 1.5 | 7.5 | 2.4 | - | 155 | 95 | 118 | 205 | 130 | 70 | 8x12 | 2.5 | Terminal block | D1 |
| FN 5010HV-6.5-99 | 6.5 | 23.5 | 1.5 | 11.2 | 3.95 | - | 190 | 110 | 125 | 230 | 170 | 68 | 8x12 | 4 | Terminal block | D1 |
| FN 5010HV-8-99 | 8 | 19 | 1.5 | 13.3 | 4.35 | - | 190 | 120 | 125 | 230 | 170 | 78 | 8x12 | 4 | Terminal block | D1 |
| FN 5010HV-10-99 | 10 | 15.2 | 1.5 | 15.8 | 5.7 | - | 210 | 125 | 135 | 260 | 175 | 85 | 8x12 | 4 | Terminal block | D1 |
| FN 5010HV-13-99 | 13 | 11.7 | 1.5 | 18.9 | 6 | - | 210 | 135 | 135 | 260 | 175 | 95 | 8x12 | 4 | Terminal block | D1 |
| FN 5010HV-18-99 | 18 | 8.4 | 1.5 | 27.2 | 9.5 | - | 230 | 160 | < B | 290 | 180 | 122 | 8x12 | 10 | Terminal block | D1 |
| FN 5010HV-24-99 | 24 | 6.3 | 2.2 | 29.7 | 11 | - | 230 | 160 | < B | 290 | 180 | 122 | 8x12 | 10 | Terminal block | D1 |
| FN 5010HV-32-99 | 32 | 4.7 | 2.2 | 46.5 | 15.7 | - | 300 | 215 | < B | 345 | 240 | 135 | 11x15 | 10 | Terminal block | D1 |
| FN 5010HV-42-99 | 42 | 3.6 | 4.7 | 53.6 | 16.4 | - | 300 | 232 | < B | 345 | 240 | 152 | 11x15 | 10 | Terminal block | D1 |
| FN 5010HV-48-99 | 48 | 3.1 | 4.7 | 66 | 16.9 | - | 360 | 235 | < B | 420 | 310 | 136 | 11x15 | 10 | Terminal block | D2 |
| FN 5010HV-60-99 | 60 | 2.5 | 4.7 | 70.7 | 17.4 | - | 360 | 241 | < B | 420 | 310 | 142 | 11x15 | 16 | Terminal block | D2 |
| FN 5010HV-75-99 | 75 | 2 | 5.6 | 78 | 19.6 | - | 360 | 261 | < B | 420 | 310 | 157 | 11x15 | 35 | Terminal block | D2 |
| FN 5010HV-90-99 | 90 | 1.75 | 5.6 | 94.7 | 25.2 | - | 420 | 228 | < B | 470 | 370 | 153 | 11x15 | 35 | Terminal block | D2 |
| FN 5010HV-110-99 | 110 | 1.38 | 10 | 112 | 27.8 | - | 420 | 248 | < B | 470 | 370 | 173 | 11x15 | 50 | Terminal block | D2 |
| FN 5010HV-150-99 | 150 | 1 | 10 | 152 | 29.6 | - | 420 | 288 | < B | 470 | 370 | 213 | 11x15 | 50 | Terminal block | D2 |
| FN 5010HV-180-99 | 180 | 0.85 | 12 | 181 | 2.3 | 17.8 | 480 | 350 | < B | 470 | 430 | 258 | 13x18 | 11 | Copper bar | D3 |
| FN 5010HV-210-99 | 210 | 0.73 | 18 | 200 | 3.4 | 19.6 | 480 | 340 | < B | 580 | 430 | 248 | 13x18 | 11 | Copper bar | D3 |
| FN 5010HV-270-99 | 270 | 0.56 | 18 | 210 | 3.4 | 26.6 | 480 | 340 | < B | 580 | 430 | 248 | 13x18 | 11 | Copper bar | D3 |
| FN 5010HV-325-99 | 325 | 0.47 | 22 | 232 | 4.9 | 35 | 480 | 350 | < B | 580 | 430 | 258 | 13x18 | 11 | Copper bar | D3 |
| FN 5010HV-410-99 | 410 | 0.37 | 28 | 277 | 6.3 | 47.6 | 480 | 350 | < B | 690 | 430 | 258 | 13x18 | 11 | Copper bar | D3 |
| FN 5010HV-480-99 | 480 | 0.32 | 36 | 289 | 8.4 | 49.7 | 480 | 360 | < B | 690 | 430 | 268 | 13x18 | 11 | Copper bar | D3 |
| FN 5010HV-510-99 | 510 | 0.3 | 36 | 303 | 8.4 | 51.4 | 480 | 370 | < B | 690 | 430 | 278 | 13x18 | 11 | Copper bar | D3 |
| FN 5010HV-610-99 | 610 | 0.25 | 44 | 335 | 13 | 53.9 | 480 | 360 | < B | 790 | 430 | 268 | 13x18 | 11 | Copper bar | D3 |

Sinusoidal output filters with customized specifications available on request.

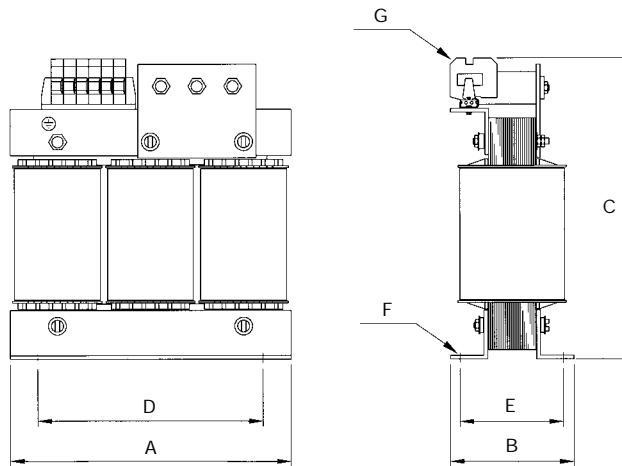
*All versions with terminal blocks: dimension G in [mm²]

All versions with copper bars: dimension G in [mm]

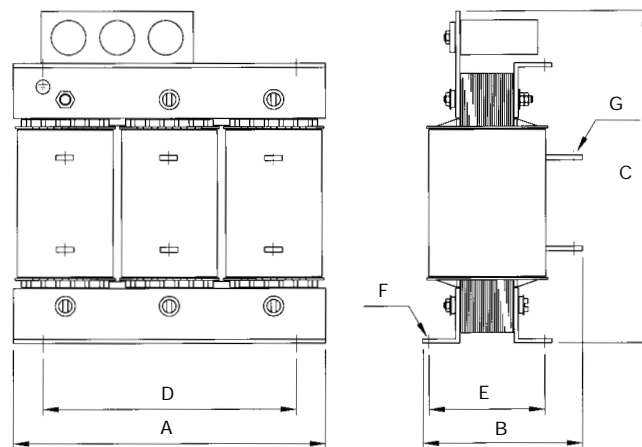
Drawing D1



Drawing D2



Drawing D3



All dimensions are approximate in mm; 1 inch = 25.4 mm

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