

Dry-type Amorphous core Transformer

Insulation class H

Clears the standard values of the Revised Act on the Rational Use of Energy

Significantly reduces standby power

Adopted amorphous iron core



Amorphous dry-type transformers, in particular, significantly reduce no-load losses (standby power).

Transformers have two types of electrical losses: "load loss" and "no-load loss". Load loss is the loss that occurs due to the load applied to the transformer when electricity is used. No-load loss (standby power) is the loss that always occurs in the state of receiving electricity. Transformers are used for long periods of time. If the no-load loss (standby power) is suppressed, it will result in significant energy savings and CO₂ emissions reduction.

Specification

| | | | |
|-------------------------|---|--|--|
| Cooling system | Dry-type self-cooling system | | |
| Normal usage conditions | For indoor use, ambient temperature -5 to 40°C (daily average below 35°C, yearly average below 20°C) above altitude 1000m or less | | |
| Applicable standard | JEC-2200(2014) transformer & JEM-1310(2001)Dry-type transformer, rise limit and winding standard temperature (Insulation Class H) | | |
| Insulation class | H | | |

| Number of phases | Single-phase | Three-phase | Three-phase / Two-phase (Scott) |
|-----------------------|--|-------------|--|
| Frequency [Hz] | 50 or 60 | | |
| Primary voltage [V] | F440-R420-400 (50Hz) F460-R440-420 (60Hz) | | 210 (100kVA or less) 420 (More than 100kVA/50Hz) 440 (More than 100kVA/60Hz) |
| Secondary voltage [V] | 210-105 | 210 | 210-105×2 Circuits |
| Connection | Single-phase three-wire system | △-△ | ⊥-⊥ |
| Capacity [kVA] | | 30 | |
| | | 50 | |
| | | 75 | |
| | | 100 | |
| | | 150 | |
| | | 200 | |
| | | 300 | |

Standard parts

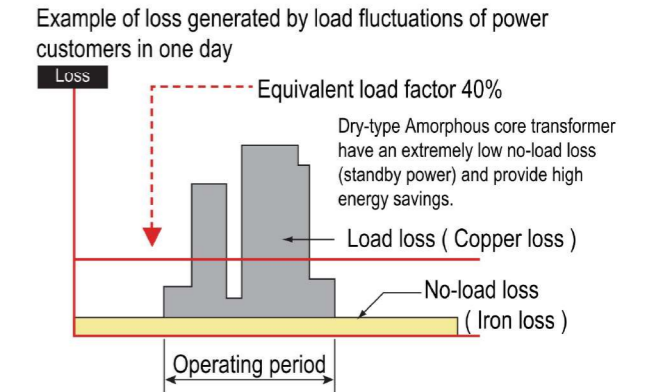
- Name plate
- Earth terminal
- Hazard warning label

Optional items

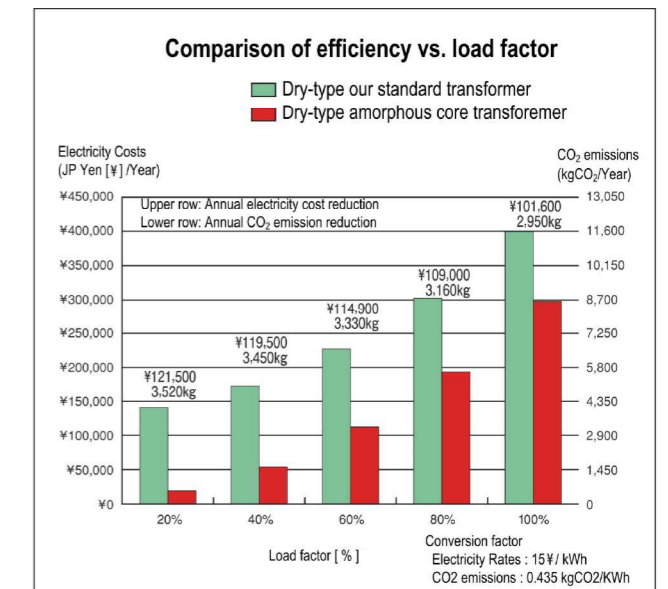
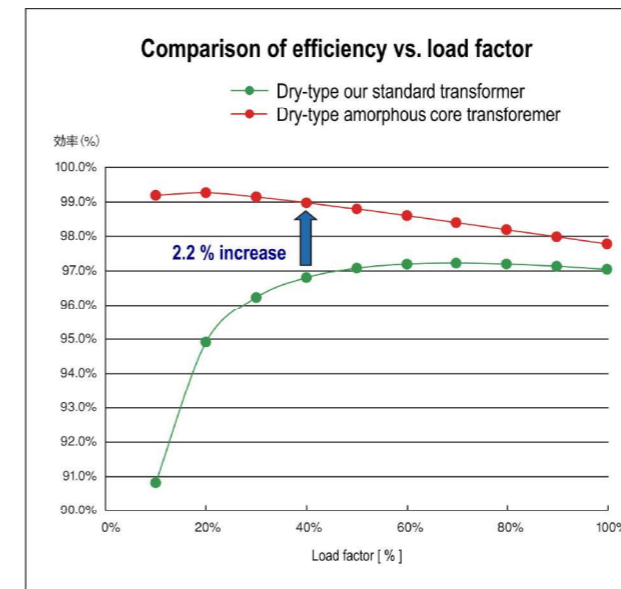
- Wheels
 - Dial thermometer
 - Contact prevention plate
 - Anti-vibration rubber
 - Indoor Case
- Standard color : Munsell 5Y7/1 (semi gloss coating)

Improved energy efficiency by reducing no-load loss (standby power)

The "load factor" is used as the basis for examining the energy loss of a transformer. Since transformer operating hours vary in a complex manner, the daily load curves are separated by unit hours. We use the equivalent load factor, which looks like a staircase bar graph. In the example on the right, the average load factor is 40%, which shows that it is important to reduce losses (no-load losses) during low load factor hours. Amorphous dry-type transformers have an extremely low no-load loss, resulting in significant energy savings. They are earth-friendly transformers that reduce carbon dioxide (CO₂) emissions from transformer power consumption.



Example of comparison of characteristics between Dry-type amorphous core transformer and our standard product [3Φ 50Hz 100kVA Insulation class H]



Insulation class H Dry-type amorphous core transformer Characteristics table (load factor 40%)

Single-phase three-wire

| Capacity (kVA) | Frequency (Hz) | Load loss (W) | No-load loss (W) | Total loss (W) | ※Standard values (W) | Efficiency (%) |
|----------------|----------------|---------------|------------------|----------------|----------------------|----------------|
| 30 | 50 | 148 | 22 | 170 | 217 | 98.6 |
| | 60 | 149 | 25 | 174 | 218 | 98.6 |
| 50 | 50 | 203 | 32 | 235 | 302 | 98.8 |
| | 60 | 190 | 35 | 225 | 303 | 98.9 |
| 75 | 50 | 295 | 46 | 341 | 392 | 98.9 |
| | 60 | 286 | 51 | 337 | 394 | 98.9 |
| 100 | 50 | 374 | 54 | 428 | 473 | 98.9 |
| | 60 | 358 | 61 | 419 | 474 | 99.0 |
| 150 | 50 | 529 | 71 | 600 | 615 | 99.0 |
| | 60 | 476 | 80 | 556 | 616 | 99.1 |
| 200 | 50 | 649 | 88 | 737 | 740 | 99.1 |
| | 60 | 639 | 88 | 727 | 741 | 99.1 |
| 300 | 50 | 816 | 125 | 941 | 963 | 99.2 |
| | 60 | 822 | 125 | 947 | 962 | 99.2 |

Three-phase

| Capacity (kVA) | Frequency (Hz) | Load loss (W) | No-load loss (W) | Total loss (W) | ※Standard values (W) | Efficiency (%) |
|----------------|----------------|---------------|------------------|----------------|----------------------|----------------|
| 30 | 50 | 142 | 30 | 172 | 296 | 98.6 |
| | 60 | 125 | 33 | 158 | 297 | 98.7 |
| 50 | 50 | 206 | 42 | 248 | 408 | 98.8 |
| | 60 | 194 | 47 | 241 | 412 | 98.8 |
| 75 | 50 | 276 | 55 | 331 | 526 | 98.9 |
| | 60 | 249 | 60 | 309 | 534 | 99.0 |
| 100 | 50 | 374 | 65 | 439 | 630 | 98.9 |
| | 60 | 353 | 71 | 424 | 643 | 99.0 |
| 150 | 50 | 581 | 99 | 680 | 812 | 98.9 |
| | 60 | 550 | 107 | 657 | 834 | 98.9 |
| 200 | 50 | 680 | 124 | 804 | 972 | 99.0 |
| | 60 | 643 | 140 | 783 | 1000 | 99.0 |
| 300 | 50 | 1072 | 152 | 1224 | 1250 | 99.0 |
| | 60 | 1014 | 171 | 1185 | 1300 | 99.0 |

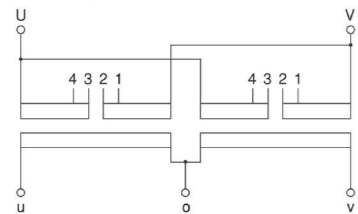
※The energy consumption efficiency of a transformer is basically expressed in terms of total losses at the load factor (40%). For high-voltage distribution transformers (oil-filled and molded), target values for energy consumption efficiency have been calculated for each model as Top Runner Standard values. (JEM 1500-2014, JEM 1501-2014). Although our insulation class H dry-type amorphous core transformers are not Top Runner target models, they meet the standard values as quasi-standard specifications for Top Runner transformers.

Select List/ Connection diagram

Single-phase (Single-phase three-wire)

| Capacity (kVA) | Freq. (Hz) | External dimension (mm) | | | Panel dimension (mm) | | | Terminal size | | Total mass (kg) |
|----------------|------------|-------------------------|-----|------|----------------------|-----|-----|---------------|----------|-----------------|
| | | W | D | H | XS | YS | DS | Pri. | Sec. | |
| 30 | 50 | 350 | 410 | 610 | 175 | 350 | φ15 | M6 | M10 | 150 |
| | 60 | 350 | 410 | 610 | 175 | 350 | φ15 | M6 | M10 | 140 |
| 50 | 50 | 410 | 425 | 670 | 205 | 350 | φ15 | M8 | M10 | 205 |
| | 60 | 410 | 420 | 670 | 205 | 350 | φ15 | M8 | M10 | 200 |
| 75 | 50 | 490 | 465 | 750 | 215 | 395 | φ15 | M10 | M12 | 280 |
| | 60 | 490 | 460 | 750 | 215 | 395 | φ15 | M10 | M12 | 265 |
| 100 | 50 | 490 | 485 | 950 | 215 | 395 | φ15 | M10 | Fig. A | 350 |
| | 60 | 490 | 480 | 950 | 215 | 395 | φ15 | M10 | Fig. A | 330 |
| 150 | 50 | 610 | 550 | 980 | 305 | 440 | φ15 | M12 | Fig. A | 490 |
| | 60 | 610 | 550 | 980 | 305 | 440 | φ15 | M12 | Fig. A | 450 |
| 200 | 50 | 630 | 575 | 1125 | 315 | 440 | φ15 | Fig. A | Fig. B-D | 570 |
| | 60 | 630 | 570 | 1125 | 315 | 440 | φ15 | Fig. A | Fig. B-D | 540 |
| 300 | 50 | 710 | 605 | 1285 | 355 | 460 | φ20 | Fig. A | Fig. C-E | 810 |
| | 60 | 710 | 600 | 1285 | 355 | 460 | φ20 | Fig. A | Fig. C-E | 750 |

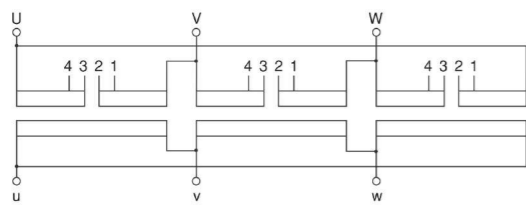
Connection diagram



Three-phase (Δ-Δ connection)

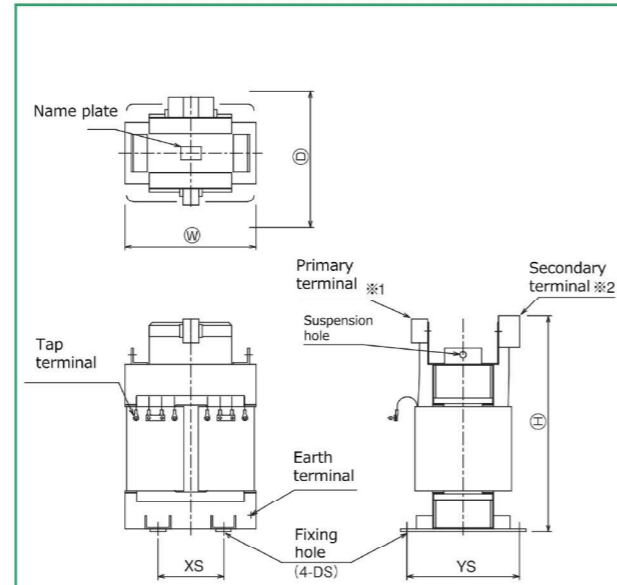
| Capacity (kVA) | Freq. (Hz) | External dimension (mm) | | | Panel dimension (mm) | | | Terminal size | | Total mass (kg) |
|----------------|------------|-------------------------|-----|------|----------------------|-----|-----|---------------|--------|-----------------|
| | | W | D | H | XS | YS | DS | Pri. | Sec. | |
| 30 | 50 | 495 | 370 | 605 | 330 | 325 | φ15 | M6 | M8 | 175 |
| | 60 | 495 | 370 | 605 | 330 | 325 | φ15 | M6 | M8 | 165 |
| 50 | 50 | 585 | 415 | 630 | 390 | 350 | φ15 | M8 | M10 | 260 |
| | 60 | 585 | 410 | 630 | 390 | 350 | φ15 | M8 | M10 | 245 |
| 75 | 50 | 615 | 425 | 705 | 410 | 350 | φ15 | M8 | M10 | 340 |
| | 60 | 615 | 420 | 705 | 410 | 350 | φ15 | M8 | M10 | 325 |
| 100 | 50 | 615 | 425 | 845 | 410 | 350 | φ15 | M10 | M12 | 420 |
| | 60 | 615 | 420 | 845 | 410 | 350 | φ15 | M10 | M12 | 395 |
| 150 | 50 | 700 | 480 | 995 | 465 | 440 | φ15 | M10 | Fig. A | 560 |
| | 60 | 700 | 480 | 995 | 465 | 440 | φ15 | M10 | Fig. A | 530 |
| 200 | 50 | 760 | 480 | 1085 | 505 | 440 | φ15 | M12 | Fig. A | 720 |
| | 60 | 760 | 480 | 1085 | 505 | 440 | φ15 | M12 | Fig. A | 680 |
| 300 | 50 | 1120 | 570 | 1125 | 745 | 450 | φ20 | Fig. A | Fig. A | 970 |
| | 60 | 1120 | 560 | 1125 | 745 | 450 | φ20 | Fig. A | Fig. A | 900 |

Connection diagram



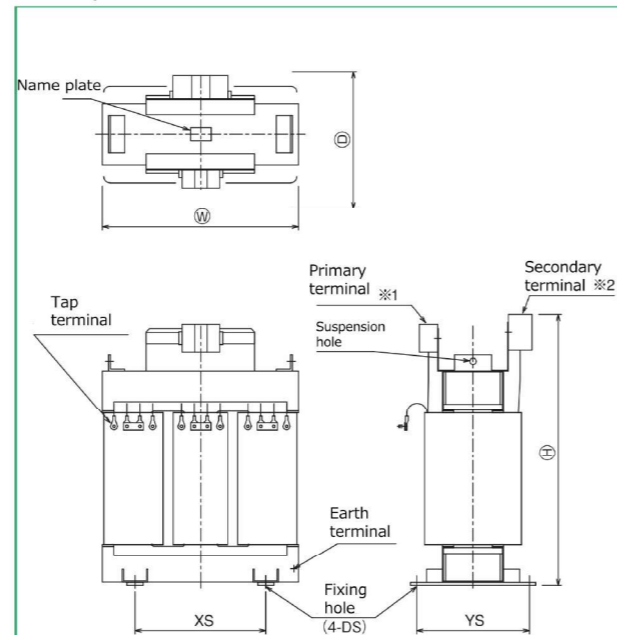
Outline drawing

Single-phase 30~300kVA



※1: For 200kVA or more, the primary terminal is a copper bar.
 ※2: For 100kVA or more, the secondary terminal is a copper bar.

Three-phase 30~300kVA



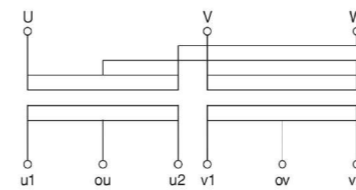
※1: For 300kVA or more, the primary terminal is a copper bar.
 ※2: For 150kVA or more, the secondary terminal is a copper bar.

Select List/ Connection diagram

Three-phase / Two-phase (Scott connection)

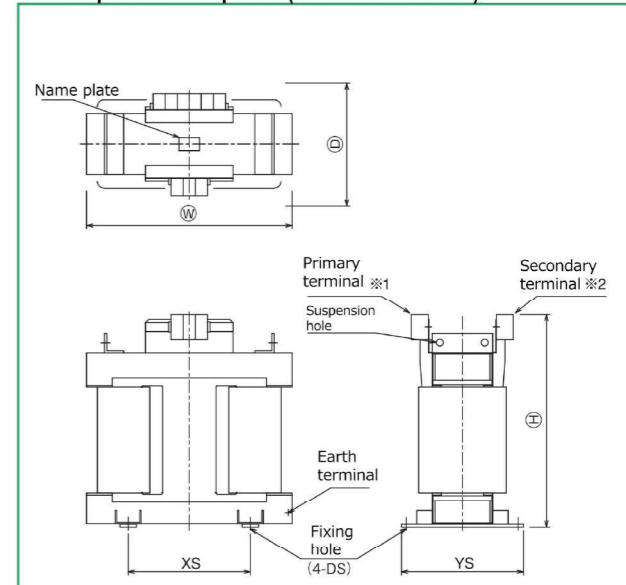
| Capacity (kVA) | Freq. (Hz) | External dimension (mm) | | | Panel dimension (mm) | | | Terminal size | | Total mass (kg) |
|----------------|------------|-------------------------|-----|------|----------------------|-----|-----|---------------|--------|-----------------|
| | | W | D | H | XS | YS | DS | Pri. | Sec. | |
| 30 | 50 | 660 | 370 | 575 | 415 | 325 | φ15 | M8 | M8 | 225 |
| | 60 | 660 | 370 | 575 | 415 | 325 | φ15 | M8 | M8 | 210 |
| 50 | 50 | 700 | 390 | 680 | 445 | 350 | φ15 | M10 | M10 | 340 |
| | 60 | 700 | 390 | 680 | 445 | 350 | φ15 | M10 | M10 | 320 |
| 75 | 50 | 700 | 440 | 760 | 445 | 395 | φ15 | M10 | M10 | 460 |
| | 60 | 700 | 440 | 760 | 445 | 395 | φ15 | M10 | M10 | 440 |
| 100 | 50 | 800 | 480 | 825 | 475 | 435 | φ15 | M10 | M10 | 560 |
| | 60 | 800 | 480 | 825 | 475 | 435 | φ15 | M10 | M10 | 540 |
| 150 | 50 | 895 | 480 | 980 | 575 | 440 | φ15 | M10 | M12 | 760 |
| | 60 | 895 | 480 | 980 | 575 | 440 | φ15 | M10 | M12 | 740 |
| 200 | 50 | 1095 | 580 | 1040 | 685 | 450 | φ20 | M12 | Fig. A | 900 |
| | 60 | 1095 | 580 | 1040 | 685 | 450 | φ20 | M12 | Fig. A | 890 |
| 300 | 50 | 1135 | 595 | 1265 | 715 | 460 | φ20 | Fig. A | Fig. A | 1200 |
| | 60 | 1135 | 595 | 1265 | 715 | 460 | φ20 | Fig. A | Fig. A | 1150 |

Connection diagram



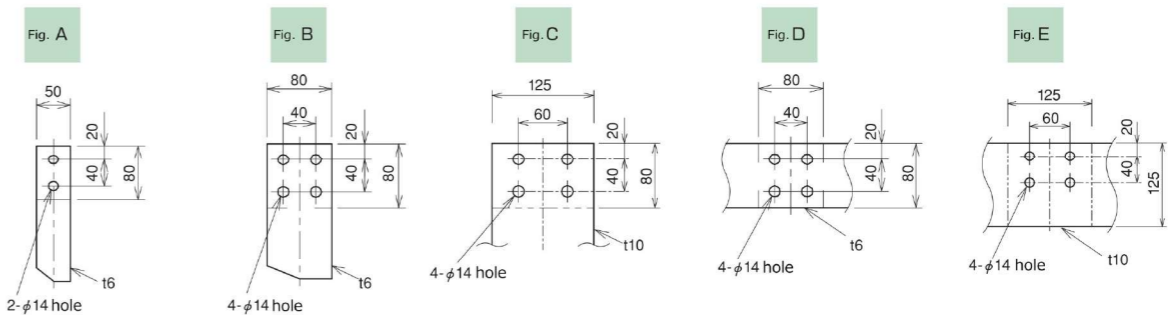
Outline drawing

Three-phase / Two-phase (Scott connection) 30~300kVA



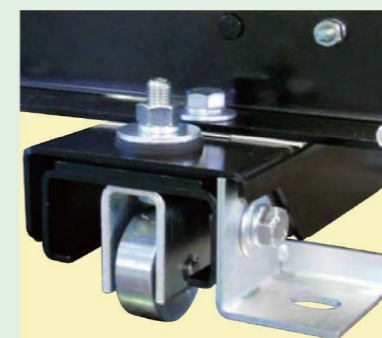
※1: For 300kVA or more, the primary terminal is a copper bar.
 ※2: For 200kVA or more, the secondary terminal is a copper bar.

Terminal size



Optional items

Wheels



Dial thermometer



The dial thermometer directly measures and displays coil temperature.
 The temperature-sensing part is directly embedded in a low-voltage coil, providing excellent temperature accuracy and response.

Protective case

