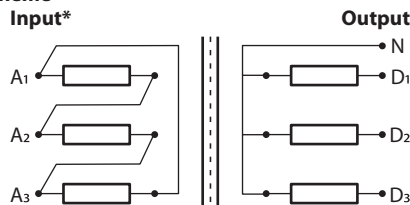


| CONTENT | PAGE |
|--|------|
| 1. Operating principle | 1 |
| 2. Main characteristics | 1 |
| 3. Range / electrical characteristics..... | 1 |
| 4. Mechanicals characteristics..... | 2 |
| 5. Handling / lifting operation..... | 3 |
| 6. Protections | 3 |
| 7. Additional characteristics..... | 3 |

1. OPERATING PRINCIPLE

Sample are intended to supply general electric devices and realize functional insulation with main network (change of neutral network system).

Principle scheme



* With adjustment taps $\pm 5\%$ from 50kVA included

2. MAIN CHARACTERISTICS

- Dry type air cooled transformer.
- Single phase 50 - 60 Hz Class 1.
- Insulation and heating: Class H.
- Insulation voltage:
 - 3000 V between windings,
 - 3000 V between windings and earth,
- Ambient temperature: 40 °C.

2.1 Conformities

- Conformity to IEC 60076-11 standard.
- CE marking.
- CEM compatibility.

2.2 Transformer's protection

La transformers can be protected by aM type fuse or D type mcb on primary side.

Transformers can be protected by gG type fuse or C type mcb on secondary side.

2.3 Casing

2.3.1 Enclosed IP 21 - IK 08

- RAL 7035.
- Information: name-plaque on cover with:
 - reference number,
 - voltages and currents,
 - standard,
 - currents,
 - rating,
 - standard,
 - frequency,
 - Ucc.

2.3.2 Connection

Terminal blocs (cage system) or busbar and eyelet.

3. RANGE / ELECTRICAL CHARACTERISTICS

- Primary 400 V, delta connection,
- Secondary 230 V, star connection, neutral out.
- Electrostatic shield between primary and secondary windings, earthed connected by construction.

| Cats. Nos. | Rating (kVA) | Losses | | Voltage drop | Efficiency at reference T° cos φ = 1 (%) | Ucc (%) | Primary terminals | | Secondary terminals | |
|------------|--------------|--------------------|---------------------------------------|--------------|---|---------|--------------------|----------|---------------------|----------|
| | | No load losses (W) | Due to load losses at reference T°(W) | | | | (mm ²) | eyelet Ø | (mm ²) | eyelet Ø |
| 0 425 45 | 6.3 | 108 | 265 | 4.3 | 94.4 | 4.1 | 10 | | 10 | |
| 0 425 46 | 10 | 188 | 408 | 3.9 | 94.4 | 4.0 | 10 | | 10 | |
| 0 425 47 | 16 | 236 | 686 | 4.5 | 94.5 | 4.4 | 35 | | 35 | |
| 1 425 48 | 25 | 210 | 808 | 3.1 | 96.1 | 3.6 | 35 | | 35 | |
| 1 425 49 | 40 | 330 | 1191 | 2.8 | 96.4 | 3.6 | 35 | | 70 | 10 |
| 1 425 36 | 50 | 491 | 2341 | 4.7 | 94.7 | 5.5 | 35 | 8 | 70 | 10 |
| 1 425 37 | 63 | 559 | 2312 | 3.7 | 95.7 | 5.4 | 35 | 8 | 120 | 10 |
| 1 425 38 | 80 | 665 | 2189 | 3.2 | 96.2 | 5.0 | 70 | 10 | 120 | 10 |
| 1 425 39 | 100 | 843 | 2527 | 2.7 | 96.4 | 3.9 | 120 | 10 | 120 | 10 |

- Primary 400 V, delta connection,
- Secondary 400 V, star connection, neutral out.
- Electrostatic shield between primary and secondary windings, earthed connected by construction.

| Cats. Nos. | Rating (kVA) | Losses | | Voltage drop | Efficiency at reference T° cos φ = 1 (%) | Ucc (%) | Primary terminals | | Secondary terminals | |
|-------------------------|--------------|--------------------|---------------------------------------|--------------|---|---------|--------------------|----------|---------------------|----------|
| | | No load losses (W) | Due to load losses at reference T°(W) | | | | (mm ²) | eyelet Ø | (mm ²) | eyelet Ø |
| 0 428 25 | 6.3 | 108 | 281 | 4.3 | 94.1 | 4.3 | 10 | | 10 | |
| 0 428 26 | 10 | 188 | 383 | 3.8 | 94.6 | 3.7 | 10 | | 10 | |
| 0 428 27 | 16 | 256 | 506 | 3.0 | 95.4 | 3.2 | 35 | | 35 | |
| 1 428 28 | 25 | 210 | 859 | 3.3 | 95.9 | 3.7 | 35 | | 35 | |
| 1 428 29 | 40 | 330 | 1220 | 2.9 | 96.4 | 3.6 | 35 | | 35 | |
| 1 428 30 | 50 | 491 | 2341 | 4.7 | 94.7 | 5.5 | 35 | 8 | 35 | 8 |
| 1 428 31 | 63 | 559 | 2312 | 3.7 | 95.7 | 5.4 | 35 | 8 | 35 | 8 |
| 1 428 32 | 80 | 665 | 2189 | 3.2 | 96.2 | 4.2 | 70 | 10 | 70 | 10 |
| 1 428 33 | 100 | 843 | 2527 | 2.9 | 96.4 | 3.9 | 120 | 10 | 70 | 10 |
| 1 428 34 | 125 | 860 | 3350 | 2.7 | 96.8 | 3.3 | 120 | 10 | 120 | 10 |
| 1 428 35 ⁽¹⁾ | 160 | 860 | 4075 | 2.6 | 97.0 | 3.7 | 150 | 11 | 150 | 11 |
| 1 428 36 ⁽²⁾ | 200 | 967 | 4953 | 2.5 | 97.1 | 4.3 | 200 | 13 | 200 | 13 |
| 1 428 37 ⁽²⁾ | 250 | 967 | 6660 | 2.7 | 97.0 | 5.8 | 200 | 15 | 200 | 15 |
| 1 428 38 ⁽³⁾ | 315 | 1129 | 6326 | 2.0 | 97.7 | 4.6 | 250 | 4x11 | 250 | 4x11 |
| 1 428 39 ⁽⁴⁾ | 400 | 1578 | 7466 | 1.9 | 97.8 | 3.9 | 315 | 4x11 | 315 | 4x11 |

(1) Dimensions primary and secondary terminals: 30 x 5 mm Aluminium

(2) Dimensions primary and secondary terminals: 40 x 5 mm Aluminium

(3) Dimensions primary and secondary terminals: 50 x 5 mm Aluminium

(4) Dimensions primary and secondary terminals: 63 x 5 mm Aluminium

Three phases separating transformer

Cats. Nos.: 0 425 45/46/47 - 0 428 25/26/27
 1 425 36/37/38/39/48/49
 1 428 28/29/30/31/32/33/34/35/36/37/38/39

3. RANGE / ELECTRICAL CHARACTERISTICS (continued)

Downgrading of the power according to the ambient temperature:
 T° amb = 40 °C - Transformer rated power
 T° amb = 50 °C - Max 85 % of the rated power
 T° amb = 60 °C - Max 75 % of the rated power
 T° amb = 70 °C - Max 65 % of the rated power
 Ex : with T° amb 70 °C, transformer reference 1 428 33 will have to be loaded only with 65 kVA maximum

0 425 45/46/47 - 1 425 48/49

| | | | | | | | |
|-------------------------|----|----|---------------------|----|----|----|---|
| N | D1 | D2 | D3 | A1 | A2 | A3 | ⏚ |
| Output | | | Input | | | | |
| D1-D2-D3: 3 x 230 V + N | | | A1-A2-A3: 3 x 400 V | | | | |

0 428 25/26/27 - 1 428 28/29

| | | | | | | | |
|-------------------------|----|----|---------------------|----|----|----|---|
| N | D1 | D2 | D3 | A1 | A2 | A3 | ⏚ |
| Output | | | Input | | | | |
| D1-D2-D3: 3 x 400 V + N | | | A1-A2-A3: 3 x 400 V | | | | |

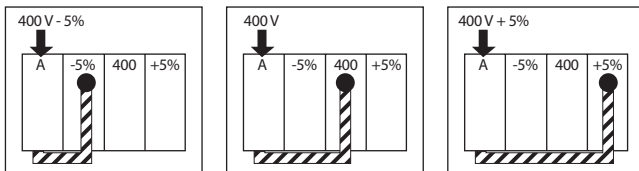
1 425 36/37/38/39

| | | | | | | | | | | | | | | | | |
|-------------------------|----|----|---|----|-----|-----|-----|----|-----|-----|-----|----|-----|-----|-----|---|
| N | D1 | D2 | D3 | A1 | -5% | 230 | +5% | A2 | -5% | 230 | +5% | A3 | -5% | 230 | +5% | ⏚ |
| Output | | | Input | | | | | | | | | | | | | |
| D1-D2-D3: 3 x 230 V + N | | | A1-A2-A3: 3 x 400 V with adjusting sockets ± 5% | | | | | | | | | | | | | |

1 428 30/31/32/33/34/35/36/37/38/39

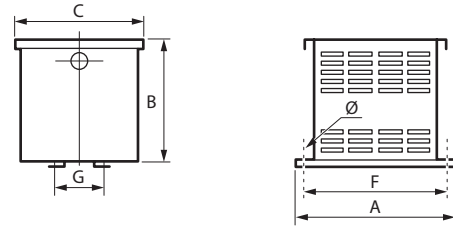
| | | | | | | | | | | | | | | | | |
|-------------------------|----|----|---|----|-----|-----|-----|----|-----|-----|-----|----|-----|-----|-----|---|
| N | D1 | D2 | D3 | A1 | -5% | 400 | +5% | A2 | -5% | 400 | +5% | A3 | -5% | 400 | +5% | ⏚ |
| Output | | | Input | | | | | | | | | | | | | |
| D1-D2-D3: 3 x 400 V + N | | | A1-A2-A3: 3 x 400 V with adjusting sockets ± 5% | | | | | | | | | | | | | |

On reference with adjustment taps on primary, the coupling is made with cables in the following way:



4. MECHANICAL CHARACTERISTICS

4.1 From 6,3 kVA to 40 kVA



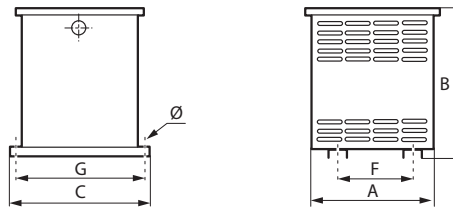
4.1.1 400 V / 230 V range

| Cats. Nos | Rating (kVA) | Dimensions (mm) | | | Fixing (mm) | | | Weight (kg) |
|-----------|--------------|-----------------|-----|-----|-------------|-----|----|-------------|
| | | A | B | C | F | G | Ø | |
| 0 425 45 | 6.3 | 420 | 390 | 310 | 400 | 126 | 9 | 58 |
| 0 425 46 | 10 | 470 | 410 | 310 | 450 | 146 | 9 | 81.2 |
| 0 425 47 | 16 | 530 | 460 | 380 | 510 | 136 | 9 | 110.5 |
| 1 425 48 | 25 | 590 | 650 | 500 | 570 | 166 | 11 | 127 |
| 1 425 49 | 40 | 590 | 650 | 500 | 570 | 176 | 11 | 172 |

4.1.2 400 V / 400 V range

| Cats. Nos | Rating (kVA) | Dimensions (mm) | | | Fixing (mm) | | | Weight (kg) |
|-----------|--------------|-----------------|-----|-----|-------------|-----|----|-------------|
| | | A | B | C | F | G | Ø | |
| 0 428 25 | 6.3 | 420 | 390 | 310 | 400 | 126 | 9 | 58 |
| 0 428 26 | 10 | 470 | 410 | 310 | 450 | 146 | 9 | 82.3 |
| 0 428 27 | 16 | 530 | 460 | 380 | 510 | 146 | 9 | 115 |
| 1 428 28 | 25 | 590 | 650 | 500 | 570 | 166 | 11 | 126 |
| 1 428 29 | 40 | 590 | 650 | 500 | 570 | 176 | 11 | 174 |

4.2 From 50 kVA to 160 kVA



4.2.1 400 V / 230 V range

| Cats. Nos | Rating (kVA) | Dimensions (mm) | | | Fixing (mm) | | | Weight (kg) |
|-----------|--------------|-----------------|-----|-----|-------------|-----|----|-------------|
| | | A | B | C | F | G | Ø | |
| 1 425 36 | 50 | 670 | 700 | 610 | 400 | 580 | 12 | 247 |
| 1 425 37 | 63 | 670 | 700 | 610 | 400 | 580 | 12 | 271 |
| 1 425 38 | 80 | 670 | 800 | 740 | 400 | 687 | 16 | 330 |
| 1 425 39 | 100 | 670 | 800 | 740 | 400 | 687 | 16 | 401 |

4.2.2 400 V / 400 V range

| Cats. Nos | Rating (kVA) | Dimensions (mm) | | | Fixing (mm) | | | Weight (kg) |
|-----------|--------------|-----------------|-----|-----|-------------|-----|----|-------------|
| | | A | B | C | F | G | Ø | |
| 1 428 30 | 50 | 670 | 700 | 610 | 400 | 580 | 12 | 247 |
| 1 428 31 | 63 | 670 | 700 | 610 | 400 | 580 | 12 | 271 |
| 1 428 32 | 80 | 670 | 800 | 740 | 400 | 687 | 16 | 336 |
| 1 428 33 | 100 | 670 | 800 | 740 | 400 | 687 | 16 | 407 |
| 1 428 34 | 125 | 820 | 940 | 880 | 500 | 820 | 16 | 457 |
| 1 428 35 | 160 | 820 | 940 | 880 | 500 | 820 | 16 | 475 |

Three phases separating transformer

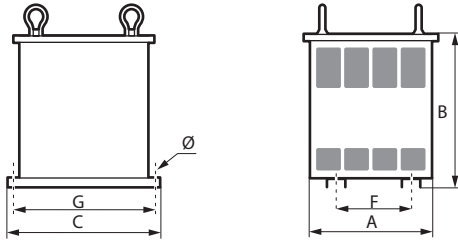
Cats. Nos.: 0 425 45/46/47 - 0 428 25/26/27

1 425 36/37/38/39/48/49

1 428 28/29/30/31/32/33/34/35/36/37/38/39

4. MECHANICAL CHARACTERISTICS (continued)

4.3 From 200 kVA to 400 kVA



4.3.1 400 V / 400 V range

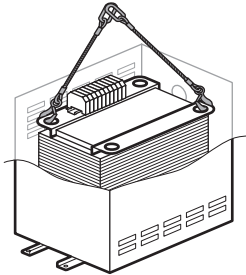
| Cats. Nos | Rating (kVA) | Dimensions (mm) | | | Fixing (mm) | | | Weight (kg) |
|-------------------------|--------------|-----------------|------|-----|-------------|-----|----|-------------|
| | | A | B | C | F | G | Ø | |
| 1 428 36 ⁽¹⁾ | 200 | 1280 | 1140 | 990 | 630 | 940 | 20 | 656 |
| 1 428 37 ⁽¹⁾ | 250 | 1280 | 1140 | 990 | 630 | 940 | 20 | 699 |
| 1 428 38 ⁽¹⁾ | 315 | 1280 | 1140 | 990 | 630 | 940 | 20 | 818 |
| 1 428 39 ⁽¹⁾ | 400 | 1280 | 1140 | 990 | 630 | 940 | 20 | 1070 |

(1) Dimensions include external lifting eyes.

5. HANDLING / LIFTING OPERATION

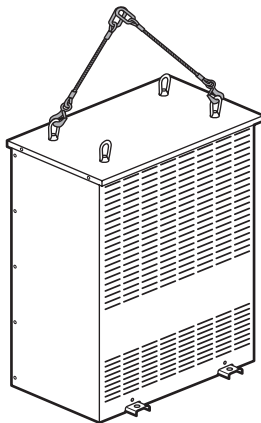
5.1 From 6,3 kVA to 160 kVA

Lifting holes on upper fitting devices, cover opened.



5.2 From 200 kVA to 400 kVA

External lifting eyes.



6. PROTECTIONS

Minimal protection rating for primary supply line on transformer⁽¹⁾.

| Rating | 400 V Tri | | | |
|---------|--------------|----------|------------|----------|
| | aM type fuse | | D type Mcb | |
| 6.3 kVA | 16 A | 0 130 16 | 25 A | 4 080 61 |
| 10 kVA | 20 A | 0 130 20 | 32 A | 4 080 62 |
| 16 kVA | 32 A | 0 140 32 | 50 A | 4 080 64 |
| 25 kVA | 50 A | 0 140 50 | 80 A | 4 095 06 |
| 40 kVA | 63 A | 0 150 63 | 125 A | 4 095 08 |
| 50 kVA | 80 A | 0 150 80 | 160 A | 4 200 07 |
| 63 kVA | 100 A | 0 150 96 | 160 A | 4 200 07 |
| 80 kVA | 160 A | 0 165 55 | 160 A | 4 200 07 |
| 100 kVA | 160 A | 0 165 55 | 160 A | 4 200 07 |
| 125 kVA | 200 A | 0 170 60 | 200 A | 4 202 08 |
| 160 kVA | 250 A | 0 170 65 | 250 A | 4 202 09 |
| 200 kVA | 315 A | 0 175 70 | 320 A | 0 255 22 |
| 250 kVA | 400 A | 0 175 75 | 400 A | 0 255 23 |
| 315 kVA | 500 A | 0 180 75 | 500 A | 4 220 03 |
| 400 kVA | 630 A | 0 180 80 | 630 A | 0 255 24 |

⁽¹⁾ These values are indicative's one for transformers with inrush current value close to 25 In.

Secondary side transformer's protection.

| Rating | 230 V Y+N | | | | 400 V Y+N | | | |
|---------|-----------|----------|---------|----------|-----------|----------|---------|----------|
| | Caliber | Fuse | Caliber | Mcb | Caliber | Fuse | Caliber | Mcb |
| 6.3 kVA | 16 | 0 133 16 | 16 | 4 078 98 | 10 | 0 133 10 | 10 | 4 078 96 |
| 10 kVA | 25 | 0 133 25 | 25 | 4 079 00 | 16 | 0 133 16 | 16 | 4 078 98 |
| 16 kVA | 40 | 0 143 40 | 40 | 4 079 02 | 25 | 0 133 25 | 25 | 4 079 00 |
| 25 kVA | 63 | 0 153 63 | 63 | 4 079 04 | 40 | 0 143 40 | 40 | 4 079 02 |
| 40 kVA | 100 | 0 153 96 | 100 | 4 093 63 | 63 | 0 153 63 | 63 | 4 079 04 |
| 50 kVA | 125 | 0 153 97 | 125 | 4 093 64 | 80 | 0 153 80 | 80 | 4 093 62 |
| 63 kVA | 160 | 0 163 55 | 160 | 4 200 17 | 100 | 0 153 96 | 100 | 4 093 63 |
| 80 kVA | 200 | 0 168 60 | 200 | 4 200 18 | 125 | 0 153 96 | 125 | 4 093 64 |
| 100 kVA | 250 | 0 173 65 | 250 | 4 200 19 | 160 | 0 163 55 | 160 | 4 200 17 |
| 125 kVA | 315 | 0 178 70 | 400 | 0 255 38 | 200 | 0 168 60 | 200 | 4 200 18 |
| 160 kVA | 400 | 0 178 75 | 400 | 0 255 38 | 250 | 0 173 65 | 250 | 4 200 19 |
| 200 kVA | 500 | 0 181 75 | 500 | 0 255 39 | 315 | 0 178 70 | 320 | 0 255 37 |
| 250 kVA | 630 | 0 181 80 | 630 | 0 255 40 | 400 | 0 178 75 | 400 | 0 255 38 |
| 315 kVA | 800 | 0 185 85 | 800 | 0 258 09 | 500 | 0 181 75 | 500 | 4 220 08 |
| 400 kVA | 1000 | 0 185 90 | 1000 | 0 258 10 | 630 | 0 181 80 | 630 | 0 255 40 |

7. ADDITIONAL CHARACTERISTICS

7.1 Calorific potential (Mega Joules)

| 400 V / 230 V range | | 400 V / 400 V range | |
|---------------------|--------------|---------------------|--------------|
| Cats. Nos. | P. Cal. (MJ) | Cats. Nos. | P. Cal. (MJ) |
| 0 425 45 | 420 | 0 428 25 | 420 |
| 0 425 46 | 590 | 0 428 26 | 600 |
| 0 425 47 | 790 | 0 428 27 | 830 |
| 1 425 48 | 1360 | 0 428 28 | 1330 |
| 1 425 49 | 1830 | 0 428 29 | 1820 |
| 1 425 36 | 2660 | 0 428 30 | 2660 |
| 1 425 37 | 3090 | 0 428 31 | 3090 |
| 1 425 38 | 3600 | 0 428 32 | 3600 |
| 1 425 39 | 4320 | 0 428 33 | 4320 |
| | | 0 428 34 | 4480 |
| | | 0 428 35 | 5020 |
| | | 0 428 36 | 6890 |
| | | 0 428 37 | 8260 |
| | | 0 428 38 | 9160 |
| | | 0 428 39 | 11310 |

7. ADDITIONAL CHARACTERISTICS (continued)

7.2 Casing resistance to chemical agents

Resistance to spraying risk under ambient temperature.

++ : Excellent resistance (permanent exposure)

+ : Satisfactory resistance (long-term exposure)

- : Limited resistance (possibility of brief exposure)

-- : Low resistance (exposure should be avoided)

| | | | |
|-------------------------------|---|---------------------|----|
| Aqueous solutions | Cold water | ++ | |
| | Hot water | + | |
| | Vapour | - | |
| | Salt water 5 % | + | |
| | Hydrogen peroxide | - | |
| | Water + washing powder/liquid detergent | + | |
| | Water + surface active agents | + | |
| Alcohols | Ethanol | + | |
| | Methanol | + | |
| | Propanol | + | |
| | Butanol | + | |
| Strong oxidizing acids | Concentrate acetic acid | + | |
| | Nitric acid 5 % | + | |
| | Sulphuric acid 30 % | + | |
| | Hydrochloric acid 30 % | + | |
| | Perchloric acid 70 % | ++ | |
| | Hydrofluoric acid 70 % | -- | |
| | Chromic acid 50 % | - | |
| | Phosphoric acid 30 % | + | |
| Weak acids | Diluted acetic acid < 25 % | + | |
| | Citric acid | ++ | |
| | Lactic acid | ++ | |
| | Formic acid | + | |
| | Uric acid | + | |
| Bases | Ammonia | + | |
| | Sodium hydroxide (soda) | + | |
| | Sodium hypochlorite (bleach 12°) | + | |
| | Potassium hydroxide (potash) | + | |
| Oils and greases | Plant origin | Linseed oil | ++ |
| | | Peanut/Olive oil | ++ |
| | | Castor oil | ++ |
| | | Glycerin | + |
| | Mineral origin | Paraffin (Vaseline) | ++ |
| | | Car engine oil | ++ |
| | | Silicon oils | + |
| | | Cutting oils | ++ |
| Hydraulic oils | ++ | | |
| Hydrocarbons | Lead-free petrol | + | |
| | Gas-oil | ++ | |
| | Kerosene | ++ | |
| | White-spirit | ++ | |
| Chlorinated solvents | Trichloroethylene | -- | |
| | Trichloroethane | - | |
| | Perchloroethylene | -- | |
| | Methylene chloride | -- | |
| | Carbon tetrachloride | -- | |
| | Chloroform | - | |
| Aromatic solvents | Benzene | + | |
| | Toluene | - | |
| | Xylene | + | |
| Aliphatic solvents | Hexane | ++ | |
| | Heptane | ++ | |