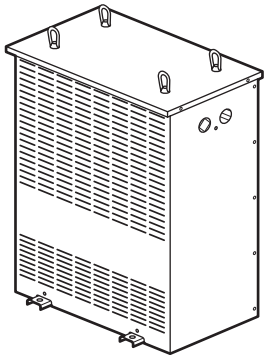
Three phases separating transformer

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



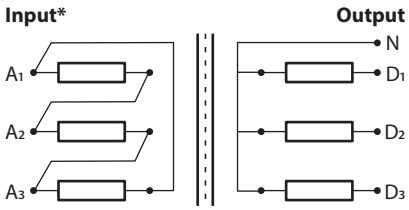
CONTENT **PAGE**

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 ± 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,
- Ambiant temperature: 40 °C.

■ 2.1 Conformities

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

■ 2.2 Transformer's protection

La pTransformers 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°	Ucc (%)	Primary terminals		Secondary terminals	
		No load losses (W)	Due to load losses at reference T°(W)	cos fi = 1 (%)			(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°	Ucc (%)	Primary terminals		Secondary terminals	
		No load losses (W)	Due to load losses at reference T°(W)	cos fi = 1 (%)			(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	4.9	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

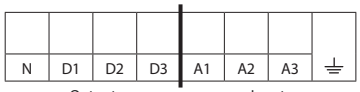
(1) Dimensions primary and secondary terminals: 30 x 5 mm Aluminium
(2) Dimensions primary and secondary terminals: 40 x 5 mm Aluminium
(3) Dimensions primary and secondary terminals: 50 x 5 mm Aluminium
(4) Dimensions primary and secondary terminals: 63 x 5 mm Aluminium

3. RANGE / ELECTRICAL CHARACTERISTICS (continued)

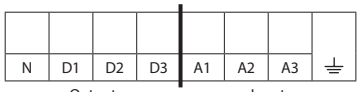
Downgrading of the power according to the ambient temperature:
T° amb = 40 °C - Transformer rated power
T° amb = 50 °C - Max 85 % of the rated power
T° amb = 60 °C - Max 75 % of the rated power
T° amb = 70 °C - Max 65 % of the rated power

Ex : with T° amb 70 °C, transformer reference 1 428 33 will have to be loaded only with 65 kVA maximum

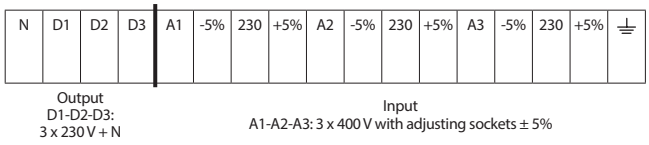
0 425 45/46/47 - 1 425 48/49



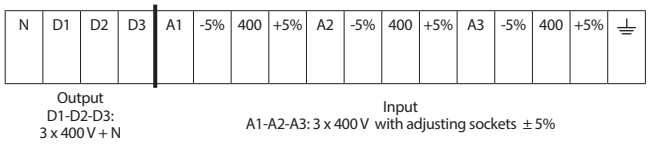
0 428 25/26/27 - 1 428 28/29



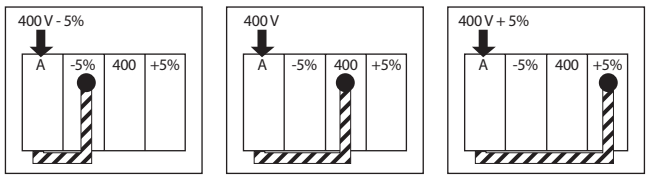
1 425 36/37/38/39



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

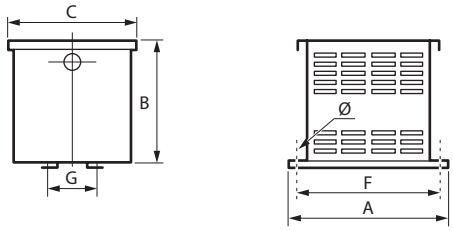


On reference with adjustment taps on primary, the coupling is made with cables in the following way:



4. MECHANICALS CHARACTERISTICS

■ 4.1 From 6,3 kVA to 40 kVA



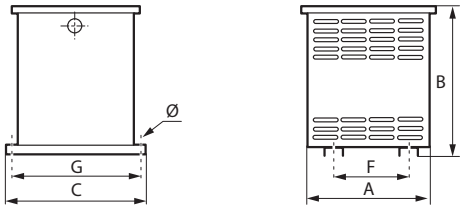
4.1.1 400 V / 230 V range

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

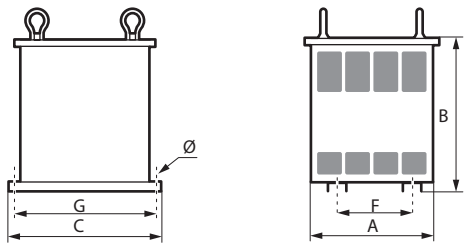
Cats. Nos	Rating (kVA)	Dimensions (mm)			Fixing (mm)			Weight (kg)
		A	B	C	F	G	Ø	
1 425 36	50	670	700	610	400	580	12	247
1 425 37	63	670	700	610	400	580	12	271
1 425 38	80	670	800	740	400	687	16	330
1 425 39	100	670	800	740	400	687	16	401

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

4. MECHANICALS CHARACTERISTICS (continued)

■ 4.3 From 200 kVA to 400 kVA



4.3.1 400 V / 400 V range

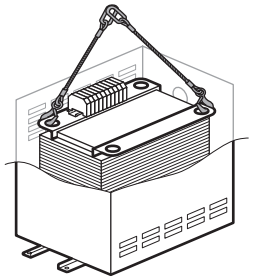
Cats. Nos	Rating (kVA)	Dimensions (mm)			Fixing (mm)			Weight (kg)
		A	B	C	F	G	Ø	
1 428 36(1)	200	1280	1140	990	630	940	20	656
1 428 37(1)	250	1280	1140	990	630	940	20	699
1 428 38(1)	315	1280	1140	990	630	940	20	818
1 428 39(1)	400	1280	1140	990	630	940	20	1070

(1) Dimensions include external lifting eyes.

5. HANDLING / LIFTING OPERATION

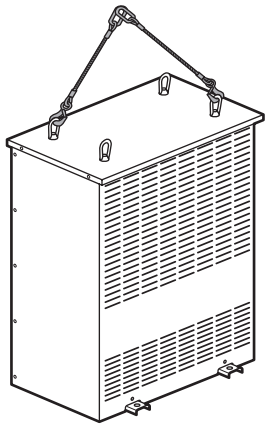
■ 5.1 From 6,3 kVA to 160 kVA

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		++