

**FORM 1:  
MAX CURRENT OF INPUT/OUTPUT CABLE**

**Form 1A: Size 20 - 160kVA**

| Size [kVA]              | 20 | 30 | 40  | 50  | 60  | 80  | 100 | 120 | 160 |
|-------------------------|----|----|-----|-----|-----|-----|-----|-----|-----|
| Rectifier input Phase R | 47 | 66 | 93  | 109 | 127 | 171 | 217 | 249 | 336 |
| Rectifier input Phase S | 47 | 66 | 93  | 109 | 127 | 171 | 217 | 249 | 336 |
| Rectifier input Phase T | 47 | 66 | 93  | 109 | 127 | 171 | 217 | 249 | 336 |
| Reserve input Neutral   | 48 | 74 | 96  | 122 | 144 | 192 | 240 | 288 | 383 |
| Reserve input Phase R   | 32 | 49 | 64  | 81  | 96  | 128 | 160 | 192 | 255 |
| Reserve input Phase S   | 32 | 49 | 64  | 81  | 96  | 128 | 160 | 192 | 255 |
| Reserve input Phase T   | 32 | 49 | 64  | 81  | 96  | 128 | 160 | 192 | 255 |
| Output Neutral          | 48 | 74 | 96  | 122 | 144 | 192 | 240 | 288 | 383 |
| Output Phase R          | 32 | 49 | 64  | 81  | 96  | 128 | 160 | 192 | 255 |
| Output Phase S          | 32 | 49 | 64  | 81  | 96  | 128 | 160 | 192 | 255 |
| Output Phase T          | 32 | 49 | 64  | 81  | 96  | 128 | 160 | 192 | 255 |
| + Battery               | 52 | 78 | 103 | 129 | 154 | 205 | 257 | 308 | 410 |
| - Battery               | 52 | 78 | 103 | 129 | 154 | 205 | 257 | 308 | 410 |

**Form 1B: Size 200 - 1000kVA**

| Size [kVA]              | 200 | 250 | 300 | 400 | 500  | 600  | 800  | 1000 |
|-------------------------|-----|-----|-----|-----|------|------|------|------|
| Rectifier input Phase R | 407 | 509 | 633 | 800 | 1020 | 1238 | 1627 | 1966 |
| Rectifier input Phase S | 407 | 509 | 633 | 800 | 1020 | 1238 | 1627 | 1966 |
| Rectifier input Phase T | 407 | 509 | 633 | 800 | 1020 | 1238 | 1627 | 1966 |
| Reserve input Neutral   | 477 | 597 | 717 | 954 | 1193 | 1431 | 1907 | 2384 |
| Reserve input Phase R   | 318 | 398 | 478 | 636 | 795  | 954  | 1271 | 1589 |
| Reserve input Phase S   | 318 | 398 | 478 | 636 | 795  | 954  | 1271 | 1589 |
| Reserve input Phase T   | 318 | 398 | 478 | 636 | 795  | 954  | 1271 | 1589 |
| Output Neutral          | 477 | 597 | 717 | 954 | 1193 | 1431 | 1907 | 2384 |
| Output Phase R          | 318 | 398 | 478 | 636 | 795  | 954  | 1271 | 1589 |
| Output Phase S          | 318 | 398 | 478 | 636 | 795  | 954  | 1271 | 1589 |
| Output Phase T          | 318 | 398 | 478 | 636 | 795  | 954  | 1271 | 1589 |
| + Battery               | 513 | 644 | 636 | 841 | 1048 | 1250 | 1660 | 2075 |
| - Battery               | 513 | 644 | 636 | 841 | 1048 | 1250 | 1660 | 2075 |

## FORM 2: RECTIFIER INPUT TECHNICAL DATA

### 2a: RECTIFIER INPUT TECHNICAL DATA 20-80kVA 6-PULSE

| Size  | kVA        | 20       | 30       | 40       | 50       | 60       | 80       |
|---|------------|----------|----------|----------|----------|----------|----------|
| 1) Nominal input voltage 3Ph (Note 1)                         | Vca        | 400      | 400      | 400      | 400      | 400      | 400      |
| 2a) Tolerance on voltage (Float charge):                      |            |          |          |          |          |          |          |
| - Pb Battery  | %          | -13 +15  | -13 +15  | -13 +15  | -13 +15  | -13 +15  | -13 +15  |
| - Sealed Pb Battery   | %          | -13 +15  | -13 +15  | -13 +15  | -13 +15  | -13 +15  | -13 +15  |
| 2b) Tolerance on voltage (Without battery discharge) :        | %          | -20      | -20      | -20      | -20      | -20      | -20      |
| 3) Nominal frequency (Note 2)                                 | Hz         | 50       | 50       | 50       | 50       | 50       | 50       |
| 4) Frequency range  | Hz         | 45÷65    | 45÷65    | 45÷65    | 45÷65    | 45÷65    | 45÷65    |
| 5) Nominal input power @ Battery on float, without PFC        | kVA        | 22       | 33       | 43       | 54       | 64       | 84       |
| 6) Medium power factor @ 400, nominal load (Note 3)           | cos $\phi$ | 0,9      | 0,9      | 0,9      | 0,9      | 0,9      | 0,9      |
| 7) Max input power @ Battery on recharge, without PFC         | kVA        | 29       | 40       | 57       | 68       | 79       | 106      |
| 8) Max input current @ 400V, without PFC, battery on recharge | Aac        | 42       | 58       | 83       | 99       | 115      | 153      |
| 9a) Time before Start-Up (Option: selectable)                 | s          | 0,10, 20 | 0,10, 20 | 0,10, 20 | 0,10, 20 | 0,10, 20 | 0,10, 20 |
| 9b) Start-Up time   | s          | 10-30    | 10-30    | 10-30    | 10-30    | 10-30    | 10-30    |
| 10) Efficiency  | %          | 96,0     | 95,8     | 95,8     | 95,7     | 95,8     | 97,0     |
| 11) THD   | %          | 28       | 28       | 28       | 28       | 28       | 28       |

Note 1: 380Vac - 415Vac: Option

Note 2: 60Hz: Option

Note 3: PFC option (otherwise 0,83)

## FORM 2: RECTIFIER INPUT TECHNICAL DATA

### 2b: RECTIFIER INPUT TECHNICAL DATA 20-80kVA 12-PULSE

| Size  | kVA   | 20       | 30       | 40       | 50       | 60       | 80       |
|---|-------|----------|----------|----------|----------|----------|----------|
| 1) Nominal input voltage 3Ph (Note 1)                         | Vca   | 400      | 400      | 400      | 400      | 400      | 400      |
| 2a) Tolerance on voltage (Float charge):                      |       |          |          |          |          |          |          |
| - Pb Battery  | %     | -13 +15  | -13 +15  | -13 +15  | -13 +15  | -13 +15  | -13 +15  |
| - Sealed Pb Battery   | %     | -13 +15  | -13 +15  | -13 +15  | -13 +15  | -13 +15  | -13 +15  |
| 2b) Tolerance on voltage (Without battery discharge) :        | %     | -20      | -20      | -20      | -20      | -20      | -20      |
| 3) Nominal frequency (Note 2)                                 | Hz    | 50       | 50       | 50       | 50       | 50       | 50       |
| 4) Frequency range  | Hz    | 45÷65    | 45÷65    | 45÷65    | 45÷65    | 45÷65    | 45÷65    |
| 5) Nominal input power @ Battery on float, without PFC        | kVA   | 22       | 33       | 44       | 54       | 65       | 86       |
| 6) Medium power factor @ 400, nominal load (Note 3)           | cos ø | 0,9      | 0,9      | 0,9      | 0,9      | 0,9      | 0,9      |
| 7) Max input power @ Battery on recharge, without PFC         | kVA   | 29       | 41       | 58       | 68       | 79       | 107      |
| 8) Max input current @ 400V, without PFC, battery on recharge | Aac   | 42       | 60       | 84       | 99       | 115      | 155      |
| 9a) Time before Start-Up (Option: selectable)                 | s     | 0,10, 20 | 0,10, 20 | 0,10, 20 | 0,10, 20 | 0,10, 20 | 0,10, 20 |
| 9b) Start-Up time   | s     | 10-30    | 10-30    | 10-30    | 10-30    | 10-30    | 10-30    |
| 10) Efficiency  | %     | 94,7     | 94,6     | 94,6     | 95,5     | 95,5     | 95,5     |
| 11) THD (Note 4)  | %     | 7        | 7        | 7        | 7        | 7        | 7        |

Note 1: 380Vac - 415Vac: Option

Note 2: 60Hz: Option

Note 3: PFC option (otherwise 0,83)

Note 4: Option (otherwise 9%)

## FORM 2: RECTIFIER INPUT TECHNICAL DATA

### 2c: RECTIFIER INPUT TECHNICAL DATA 100-200kVA 6-PULSE

| Size  | kVA   | 100      | 120      | 160      | 200      |
|---|-------|----------|----------|----------|----------|
| 1) Nominal input voltage 3Ph (Note 1)                         | Vca   | 400      | 400      | 400      | 400      |
| 2a) Tolerance on voltage (Float charge):                      |       |          |          |          |          |
| - Pb Battery  | %     | -13 +15  | -13 +15  | -13 +15  | -13 +15  |
| - Sealed Pb Battery   | %     | -13 +15  | -13 +15  | -13 +15  | -13 +15  |
| 2b) Tolerance on voltage (Without battery discharge) :        | %     | -20      | -20      | -20      | -20      |
| 3) Nominal frequency (Note 2)                                 | Hz    | 50       | 50       | 50       | 50       |
| 4) Frequency range  | Hz    | 45÷65    | 45÷65    | 45÷65    | 45÷65    |
| 5) Nominal input power @ Battery on float, without PFC        | kVA   | 106      | 125      | 167      | 208      |
| 6) Medium power factor @ 400, nominal load (Note 3)           | cos ø | 0,9      | 0,9      | 0,9      | 0,9      |
| 7) Max input power @ Battery on recharge, without PFC         | kVA   | 134      | 154      | 209      | 252      |
| 8) Max input current @ 400V, without PFC, battery on recharge | Aac   | 194      | 223      | 302      | 364      |
| 9a) Time before Start-Up (Option: selectable)                 | s     | 0,10, 20 | 0,10, 20 | 0,10, 20 | 0,10, 20 |
| 9b) Start-Up time   | s     | 10-30    | 10-30    | 10-30    | 10-30    |
| 10) Efficiency  | %     | 96,7     | 98,3     | 98,1     | 98,0     |
| 11) THD   | %     | 28       | 28       | 28       | 28       |

Note 1: 380Vac - 415Vac: Option

Note 2: 60Hz: Option

Note 3: PFC option (otherwise 0,83)

## FORM 2: RECTIFIER INPUT TECHNICAL DATA

### 2d: RECTIFIER INPUT TECHNICAL DATA 100-200kVA 12-PULSE

| Size  | kVA   | 100      | 120      | 160      | 200      |
|---|-------|----------|----------|----------|----------|
| 1) Nominal input voltage 3Ph (Note 1)                         | Vca   | 400      | 400      | 400      | 400      |
| 2a) Tolerance on voltage (Float charge):                      |       |          |          |          |          |
| - Pb Battery  | %     | -13 +15  | -13 +15  | -13 +15  | -13 +15  |
| - Sealed Pb Battery   | %     | -13 +15  | -13 +15  | -13 +15  | -13 +15  |
| 2b) Tolerance on voltage (Without battery discharge) :        | %     | -20      | -20      | -20      | -20      |
| 3) Nominal frequency (Note 2)                                 | Hz    | 50       | 50       | 50       | 50       |
| 4) Frequency range  | Hz    | 45÷65    | 45÷65    | 45÷65    | 45÷65    |
| 5) Nominal input power @ Battery on float, without PFC        | kVA   | 107      | 126      | 169      | 211      |
| 6) Medium power factor @ 400, nominal load (Note 3)           | cos ø | 0,9      | 0,9      | 0,9      | 0,9      |
| 7) Max input power @ Battery on recharge, without PFC         | kVA   | 136      | 156      | 211      | 256      |
| 8) Max input current @ 400V, without PFC, battery on recharge | Aac   | 197      | 226      | 305      | 370      |
| 9a) Time before Start-Up (Option: selectable)                 | s     | 0,10, 20 | 0,10, 20 | 0,10, 20 | 0,10, 20 |
| 9b) Start-Up time   | s     | 10-30    | 10-30    | 10-30    | 10-30    |
| 10) Efficiency  | %     | 95,5     | 97,0     | 96,9     | 96,7     |
| 11) THD (Note 4)  | %     | 7        | 7        | 7        | 7        |

Note 1: 380Vac - 415Vac: Option

Note 2: 60Hz: Option

Note 3: PFC option (otherwise 0,83)

Note 4: Option (otherwise 9%)

## FORM 2: RECTIFIER INPUT TECHNICAL DATA

### 2e: RECTIFIER INPUT TECHNICAL DATA 250-1000kVA 12-PULSE

| Size  | kVA   | 250      | 300      | 400      | 500      | 600      | 800      | 1000     |
|---|-------|----------|----------|----------|----------|----------|----------|----------|
| 1) Nominal input voltage 3Ph (Note 1)                         | Vca   | 400      | 400      | 400      | 400      | 400      | 400      | 400      |
| 2a) Tolerance on voltage (Float charge):                      |       |          |          |          |          |          |          |          |
| - Pb Battery  | %     | -13 +15  | -15 +15  | -15 +15  | -15 +15  | -15 +15  | -15 +15  | -15 +15  |
| - Sealed Pb Battery   | %     | -13 +15  | -15 +15  | -15 +15  | -15 +15  | -15 +15  | -15 +15  | -15 +15  |
| 2b) Tolerance on voltage (Without battery discharge) :        | %     | -20      | -20      | -20      | -20      | -20      | -20      | -20      |
| 3) Nominal frequency (Note 2)                                 | Hz    | 50       | 50       | 50       | 50       | 50       | 50       | 50       |
| 4) Frequency range  | Hz    | 45÷65    | 45÷65    | 45÷65    | 45÷65    | 45÷65    | 45÷65    | 45÷65    |
| 5) Nominal input power @ Battery on float, without PFC        | kVA   | 263      | 315      | 415      | 516      | 615      | 816      | 1020     |
| 6) Medium power factor @ 400, nominal load (Note 3)           | cos ø | 0,9      | 0,9      | 0,9      | 0,9      | 0,9      | 0,9      | 0,9      |
| 7) Max input power @ Battery on recharge, without PFC         | kVA   | 320      | 398      | 503      | 642      | 779      | 1024     | 1238     |
| 8) Max input current @ 400V, without PFC, battery on recharge | Aac   | 462      | 575      | 727      | 927      | 1125     | 1479     | 1787     |
| 9a) Time before Start-Up (Option: selectable)                 | s     | 0,10, 20 | 0,10, 20 | 0,10, 20 | 0,10, 20 | 0,10, 20 | 0,10, 20 | 0,10, 20 |
| 9b) Start-Up time   | s     | 10-30    | 10-30    | 10-30    | 10-30    | 10-30    | 10-30    | 10-30    |
| 10) Efficiency  | %     | 97,4     | 97,4     | 97,7     | 97,9     | 97,9     | 97,9     | 97,9     |
| 11) THD (Note 4)  | %     | 7        | 7        | 7        | 7        | 7        | 7        | 7        |

Note 1: 380Vac - 415Vac: Option

Note 2: 60Hz: Option

Note 3: PFC option (otherwise 0,83)

Note 4: Option (otherwise 9%)

## FORM 3: RECTIFIER OUTPUT AND BATTERY TECHNICAL DATA

### 3a: RECTIFIER OUTPUT: 20/80kVA

| SIZE   | kVA             | 20                      | 30      | 40      | 50      | 60      | 80      |
|--|-----------------|-------------------------|---------|---------|---------|---------|---------|
| 1a) Output Voltage (Stationary Battery)  |                 |                         |         |         |         |         |         |
| - Float  | V <sub>cc</sub> | 436                     | 436     | 436     | 436     | 436     | 436     |
| - Boost  | V <sub>cc</sub> | 475                     | 475     | 475     | 475     | 475     | 475     |
| 1b) Output Voltage (Sealed Battery)  |                 |                         |         |         |         |         |         |
| - Float  | V <sub>cc</sub> | 446                     | 446     | 446     | 446     | 446     | 446     |
| 1c) Output Voltage (Without Battery discharge)   | V <sub>cc</sub> | 396                     | 396     | 396     | 396     | 396     | 396     |
| 2) DC Voltage Range  | %               | 330-500                 | 330-500 | 330-500 | 330-500 | 330-500 | 330-500 |
| 3) Voltage regulation in steady state condition for 100% load variation and/or input voltage | %               | ±1                      | ±1      | ±1      | ±1      | ±1      | ±1      |
| 4) Voltage ripple (V <sub>rms</sub> /V <sub>b</sub> x 100)                                   | %               | <1                      | <1      | <1      | <1      | <1      | <1      |
| 5) Nominal current   | Acc             | 41                      | 61      | 81      | 100     | 120     | 160     |
| 6) Max output rectifier current  | Acc             | 51                      | 71      | 101     | 120     | 140     | 190     |
| 7a) Max battery charging current @ inverter full load  | Acc             | 10                      | 10      | 20      | 20      | 20      | 30      |
| 7b) Max battery charging current   | Acc             | 46                      | 64      | 91      | 108     | 126     | 171     |
| 8) Battery charging current range:   |                 |                         |         |         |         |         |         |
| - min  | Acc             | 2                       | 2       | 5       | 5       | 5       | 5       |
| - max  | Acc             | 46                      | 64      | 91      | 108     | 126     | 171     |
| 9) Battery charging method   |                 | DIN41773                |         |         |         |         |         |
| 10) Maximum time to recharge battery   |                 | 360,720,1440, 2880 min. |         |         |         |         |         |

### BATTERY

| SIZE                                     | kVA             | 20           | 30  | 40  | 50  | 60  | 80  |
|--|-----------------|--------------|-----|-----|-----|-----|-----|
| 1) Recommended N° of Pb cells            | N°              | 198          | 198 | 198 | 198 | 198 | 198 |
| 2) Nominal voltage                       | V <sub>cc</sub> | 396          | 396 | 396 | 396 | 396 | 396 |
| 3) Float voltage                         | V <sub>cc</sub> | 446          | 446 | 446 | 446 | 446 | 446 |
| 4) N° of Ni-Cd cells                     | N°              | Contact SIEL |     |     |     |     |     |
| 5) End of discharge voltage (Pb Battery) | V <sub>cc</sub> | 330          | 330 | 330 | 330 | 330 | 330 |
| 6) End of discharge current              | Acc             | 52           | 78  | 103 | 129 | 154 | 205 |

## FORM 3: RECTIFIER OUTPUT AND BATTERY TECHNICAL DATA

### 3b: RECTIFIER OUTPUT: 100-200kVA

| SIZE   | kVA             | 100                     | 120     | 160     | 200     |
|--|-----------------|-------------------------|---------|---------|---------|
| 1a) Output Voltage (Stationary Battery)  |                 |                         |         |         |         |
| - Float  | V <sub>cc</sub> | 436                     | 436     | 436     | 436     |
| - Boost  | V <sub>cc</sub> | 475                     | 475     | 475     | 475     |
| 1b) Output Voltage (Sealed Battery)  |                 |                         |         |         |         |
| - Float  | V <sub>cc</sub> | 446                     | 446     | 446     | 446     |
| 1c) Output Voltage (Without Battery discharge)   | V <sub>cc</sub> | 396                     | 396     | 396     | 396     |
| 2) DC Voltage Range  | V <sub>cc</sub> | 330-500                 | 330-500 | 330-500 | 330-500 |
| 3) Voltage regulation in steady state condition for 100% load variation and/or input voltage | %               | ±1                      | ±1      | ±1      | ±1      |
| 4) Voltage ripple (V <sub>rms</sub> /V <sub>b</sub> x 100)                                   | %               | <1                      | <1      | <1      | <1      |
| 5) Nominal current   | Acc             | 200                     | 240     | 320     | 399     |
| 6) Max output rectifier current  | Acc             | 240                     | 280     | 380     | 459     |
| 7a) Max battery charging current @ inverter full load  | Acc             | 40                      | 40      | 60      | 60      |
| 7b) Max battery charging current   | Acc             | 216                     | 252     | 342     | 414     |
| 8) Battery charging current range:   |                 |                         |         |         |         |
| - min  | Acc             | 5                       | 5       | 5       | 5       |
| - max  | Acc             | 216                     | 252     | 342     | 414     |
| 9) Battery charging method   |                 | DIN41773                |         |         |         |
| 10) Maximum time to recharge battery   |                 | 360,720,1440, 2880 min. |         |         |         |

### BATTERY

| SIZE                                     | kVA             | 100          | 120 | 160 | 200 |
|--|-----------------|--------------|-----|-----|-----|
| 1) Recommended N° of Pb cells            | N°              | 198          | 198 | 198 | 198 |
| 2) Nominal voltage                       | V <sub>cc</sub> | 396          | 396 | 396 | 396 |
| 3) Float voltage                         | V <sub>cc</sub> | 446          | 446 | 446 | 446 |
| 4) N° of Ni-Cd cells                     | N°              | Contact SIEL |     |     |     |
| 5) End of discharge voltage (Pb Battery) | V <sub>cc</sub> | 330          | 330 | 330 | 330 |
| 6) End of discharge current              | Acc             | 257          | 308 | 410 | 513 |

## FORM 3: RECTIFIER OUTPUT AND BATTERY TECHNICAL DATA

### 3c: RECTIFIER OUTPUT: 250-1000kVA 12 PULSE

| SIZE   | kVA             | 250                     | 300     | 400     | 500     | 600     | 800     | 1000    |
|--|-----------------|-------------------------|---------|---------|---------|---------|---------|---------|
| 1a) Output Voltage (Stationary Battery)  |                 |                         |         |         |         |         |         |         |
| - Float  | V <sub>cc</sub> | 436                     | 528     | 528     | 528     | 528     | 528     | 528     |
| - Boost  | V <sub>cc</sub> | 475                     | 576     | 576     | 576     | 576     | 576     | 576     |
| 1b) Output Voltage (Sealed Battery)  |                 |                         |         |         |         |         |         |         |
| - Float  | V <sub>cc</sub> | 446                     | 540     | 540     | 540     | 540     | 540     | 540     |
| 1c) Output Voltage (Without Battery discharge)   | V <sub>cc</sub> | 396                     | 480     | 480     | 480     | 480     | 480     | 480     |
| 2) DC Voltage Range  | %               | 330-500                 | 400-580 | 400-580 | 400-580 | 400-580 | 400-580 | 400-580 |
| 3) Voltage regulation in steady state condition for 100% load variation and/or input voltage | %               | ±1                      | ±1      | ±1      | ±1      | ±1      | ±1      | ±1      |
| 4) Voltage ripple (V <sub>rms</sub> /V <sub>b</sub> x 100)                                   | %               | <1                      | <1      | <1      | <1      | <1      | <1      | <1      |
| 5) Nominal current   | Acc             | 500                     | 495     | 655     | 815     | 972     | 1290    | 1612    |
| 6) Max output rectifier current  | Acc             | 580                     | 595     | 755     | 965     | 1172    | 1540    | 1862    |
| 7a) Max battery charging current @ inverter full load  | Acc             | 80                      | 100     | 100     | 150     | 200     | 250     | 250     |
| 7b) Max battery charging current   | Acc             | 522                     | 536     | 680     | 869     | 1055    | 1386    | 1676    |
| 8) Battery charging current range:   |                 |                         |         |         |         |         |         |         |
| - min  | Acc             | 10                      | 10      | 10      | 30      | 30      | 30      | 30      |
| - max  | Acc             | 522                     | 536     | 680     | 869     | 1055    | 1386    | 1676    |
| 9) Battery charging method   |                 | DIN41773                |         |         |         |         |         |         |
| 10) Maximum time to recharge battery   |                 | 360,720,1440, 2880 min. |         |         |         |         |         |         |

### BATTERY

| SIZE                                     | kVA             | 250             | 300    | 400    | 500    | 600    | 800    | 1000 |
|--|-----------------|-----------------|--------|--------|--------|--------|--------|------|
| 1) Recommended N° of Pb cells            | N°              | 198             | 240    | 240    | 240    | 240    | 240    | 240  |
|  |                 |                 | Note 1 | Note 1 | Note 1 | Nota 1 | Nota 1 |      |
| 2) Nominal voltage                       | V <sub>cc</sub> | 396             | 480    | 480    | 480    | 480    | 480    | 480  |
| 3) Tensione di Tampone                   | V <sub>cc</sub> | 446             | 540    | 540    | 540    | 540    | 540    | 540  |
| 4) N° of Ni-Cd cells                     | N°              | Contattare SIEL |        |        |        |        |        |      |
| 5) End of discharge voltage (Pb Battery) | V <sub>cc</sub> | 330             | 400    | 400    | 400    | 400    | 400    | 400  |
| 6) End of discharge current              | Acc             | 644             | 636    | 841    | 1048   | 1250   | 1660   | 2075 |

Note 1: 198 el. Battery also available; contact Siel SpA

## FORM 4: INVERTER INPUT TECHNICAL DATA

### 4a: INVERTER INPUT: 20/100kVA

| SIZE                                       | kVA | 20      | 30      | 40      | 50      | 60      | 80      |
|--|-----|---------|---------|---------|---------|---------|---------|
| 1) Nominal voltage                         | Vcc | 446     | 446     | 446     | 446     | 446     | 446     |
| 2) DC Voltage range                        | Vcc | 330÷500 | 330÷500 | 330÷500 | 330÷500 | 330÷500 | 330÷500 |
| 3) Pre-alarm end discharge voltage         | Vcc | 350     | 350     | 350     | 350     | 350     | 350     |
| 4) DC current at nominal voltage           | Acc | 39      | 58      | 77      | 95      | 114     | 152     |
| 5) Max DC current at end discharge voltage | Acc | 52      | 78      | 103     | 129     | 154     | 205     |

### 4b :INVERTER INPUT: 100/200kVA

| SIZE                                       | kVA | 100     | 120     | 160     | 200     |
|--|-----|---------|---------|---------|---------|
| 1) Nominal voltage                         | Vcc | 446     | 446     | 446     | 446     |
| 2) DC Voltage range                        | Vcc | 330÷500 | 330÷500 | 330÷500 | 330÷500 |
| 3) Pre-alarm end discharge voltage         | Vcc | 350     | 350     | 350     | 350     |
| 4) DC current at nominal voltage           | Acc | 190     | 228     | 304     | 380     |
| 5) Max DC current at end discharge voltage | Acc | 257     | 308     | 410     | 513     |

### 4c: INVERTER INPUT: 250/1000kVA

| SIZE                                       | kVA | 250     | 300     | 400     | 500     | 600     | 800     | 1000    |
|--|-----|---------|---------|---------|---------|---------|---------|---------|
| 1) Nominal voltage                         | Vcc | 446     | 540     | 540     | 540     | 540     | 540     | 540     |
| 2) DC Voltage range                        | Vcc | 330÷500 | 400-580 | 400-580 | 400-580 | 400-580 | 400-580 | 400-580 |
| 3) Pre-alarm end discharge voltage         | Vcc | 350     | 430     | 430     | 430     | 430     | 430     | 430     |
| 4) DC current at nominal voltage           | Acc | 476     | 471     | 623     | 776     | 925     | 1228    | 1535    |
| 5) Max DC current at end discharge voltage | Acc | 644     | 636     | 841     | 1048    | 1250    | 1660    | 2075    |

## FORM 5: INVERTER OUTPUT TECHNICAL DATA

### 5a: INVERTER OUTPUT: 20/80kVA

| SIZE   | kVA       | 20            | 30            | 40            | 50            | 60            | 80            |
|--|-----------|---------------|---------------|---------------|---------------|---------------|---------------|
| 1) Nominal Power @P.F. 0.8 (Inductive)   | kVA       | 20            | 30            | 40            | 50            | 60            | 80            |
| 2) Nominal Voltage (Note 1)  | V         | 400           | 400           | 400           | 400           | 400           | 400           |
| 3) Setting range of output voltage   | %         | >± 5          | >± 5          | >± 5          | >± 5          | >± 5          | >± 5          |
| 4) Output Voltage Wave Shape   |           | Sinusoidale   |               |               |               |               |               |
| 5a) THD @ Linear full Load   | %         | 1Typ<br><2max | 1Typ<br><2max | 1Typ<br><2max | 1Typ<br><2max | 1Typ<br><2max | 1Typ<br><2max |
| 5b) THD @ Non linear full Load (Note 3)  | %         | <5            | <5            | <5            | <5            | <5            | <5            |
| 6) Voltage stability in steady state condition for input DC variation and/or 100% load variation | %         | <± 1          | <± 1          | <± 1          | <± 1          | <± 1          | <± 1          |
| 7) Voltage stability in dynamic condition for 100% load step variation                           | %         | <± 5          | <± 5          | <± 5          | <± 5          | <± 5          | <± 5          |
| 8) Tempo di ripristino entro ±1%   | ms        | <20           | <20           | <20           | <20           | <20           | <20           |
| 9) Nominal output current @ 400Vac, 0.8 P.F.   | A         | 29            | 44            | 58            | 73            | 87            | 116           |
| 10) Overload @ 400Vac, 0.8 P.F.  | %Pn x 20' | 125           | 125           | 125           | 125           | 125           | 125           |
|  | %Pn x 90" | 150           | 150           | 150           | 150           | 150           | 150           |
| 10a) 3-Phase Short circuit current (<5s) (Note 2)  | %         | 180           | 180           | 180           | 180           | 180           | 180           |
| 10b) 1-Phase Short circuit current (<5s) (Note2)   | %         | 220           | 220           | 220           | 220           | 220           | 220           |
| 11) Voltage simmetry @ balanced load   | %         | <1 (0,5Typ)   | <1 (0,5Typ)   | <1 (0,5Typ)   | <1 (0,5Typ)   | <1 (0,5Typ)   | <1 (0,5Typ)   |
| 12) Voltage simmetry @ 100% unbalanced load  | %         | <2 (1 Typ)    | <2 (1 Typ)    | <2 (1 Typ)    | <2 (1 Typ)    | <2 (1 Typ)    | <2 (1 Typ)    |
| 13) Phase angle precision  |           |               |               |               |               |               |               |
| - balanced load  | %         | 120° ±1°      | 120° ±1°      | 120° ±1°      | 120° ±1°      | 120° ±1°      | 120° ±1°      |
| - 100% unbalanced load   | %         | 120° ±1°      | 120° ±1°      | 120° ±1°      | 120° ±1°      | 120° ±1°      | 120° ±1°      |
| 14) Output frequency (Note1)   | Hz        | 50            | 50            | 50            | 50            | 50            | 50            |
| 15) Output frequency precision:  |           |               |               |               |               |               |               |
| - free running (internal quartz oscillator)  | %         | ± 0,05        | ± 0,05        | ± 0,05        | ± 0,05        | ± 0,05        | ± 0,05        |
| - sincronized to mains (selectable)  | %         | ±1 o ±4       | ±1 o ±4       | ±1 o ±4       | ±1 o ±4       | ±1 o ±4       | ±1 o ±4       |
| - frequency slew-rate  | Hz/s      | 0,1           | 0,1           | 0,1           | 0,1           | 0,1           | 0,1           |
| 16) Inverter efficiency @ full nominal load  | %         | 94,4          | 94,8          | 95,1          | 95,3          | 95,3          | 95,3          |

Note1: On demand: 380Vac, 415Vac, 60Hz

Note2: In accordance with EN62040-1 (EN50091-1) (on demand up to 10s)

Note3: In accordance with EN62040-3 (EN50091-3)

## FORM 5: INVERTER OUTPUT TECHNICAL DATA

### 5b: INVERTER OUTPUT: 100/200kVA

| SIZE   | kVA         | 100           | 120           | 160           | 200           |
|--|-------------|---------------|---------------|---------------|---------------|
| 1) Nominal Power @P.F. 0.8 (Inductive)   | kVA         | 100           | 120           | 160           | 200           |
| 2) Nominal Voltage (Note 1)  | V           | 400           | 400           | 400           | 400           |
| 3) Setting range of output voltage   | %           | >± 5          | >± 5          | >± 5          | >± 5          |
| 4) Output Voltage Wave Shape   | Sinusoidale |               |               |               |               |
| 5a) THD @ Linear full Load   | %           | 1Typ<br><2max | 1Typ<br><2max | 1Typ<br><2max | 1Typ<br><2max |
| 5b) THD @ Non linear full Load (Note 3)  | %           | <5            | <5            | <5            | <5            |
| 6) Voltage stability in steady state condition for input DC variation and/or 100% load variation | %           | <± 1          | <± 1          | <± 1          | <± 1          |
| 7) Voltage stability in dynamic condition for 100% load step variation                           | %           | <± 5          | <± 5          | <± 5          | <± 5          |
| 8) Tempo di ripristino entro ±1%   | ms          | <20           | <20           | <20           | <20           |
| 9) Nominal output current @ 400Vac, 0.8 P.F.   | A           | 145           | 174           | 231           | 289           |
| 10) Overload @ 400Vac, 0.8 P.F.  | %Pn x 20'   | 125           | 125           | 125           | 125           |
|  | %Pn x 90"   | 150           | 150           | 150           | 150           |
| 10a) 3-Phase Short circuit current (<5s) (Note 2)  | %           | 180           | 180           | 180           | 180           |
| 10b) 1-Phase Short circuit current (<5s) (Note2)   | %           | 220           | 220           | 220           | 220           |
| 11) Voltage simmetry @ balanced load   | %           | <1 (0,5Typ)   | <1 (0,5Typ)   | <1 (0,5Typ)   | <1 (0,5Typ)   |
| 12) Voltage simmetry @ 100% unbalanced load  | %           | <2 (1 Typ)    | <2 (1 Typ)    | <2 (1 Typ)    | <2 (1 Typ)    |
| 13) Phase angle precision  | °           | 120° ±1°      | 120° ±1°      | 120° ±1°      | 120° ±1°      |
| - balanced load  | °           | 120° ±1°      | 120° ±1°      | 120° ±1°      | 120° ±1°      |
| - 100% unbalanced load   | °           | 120° ±1°      | 120° ±1°      | 120° ±1°      | 120° ±1°      |
| 14) Output frequency (Note1)   | Hz          | 50            | 50            | 50            | 50            |
| 15) Output frequency precision:  |             |               |               |               |               |
| - free running (internal quartz oscillator)  | %           | ± 0,05        | ± 0,05        | ± 0,05        | ± 0,05        |
| - synchronized to mains (selectable)   | %           | ±1 o ±4       | ±1 o ±4       | ±1 o ±4       | ±1 o ±4       |
| - frequency slew-rate  | Hz/s        | 0,1           | 0,1           | 0,1           | 0,1           |
| 16) Inverter efficiency @ full nominal load  | %           | 95,3          | 95,3          | 95,3          | 95,3          |

Note1: On demand: 380Vac, 415Vac, 60Hz

Note2: In accordance with EN62040-1 (EN50091-1) (on demand up to 10s)

Note3: In accordance with EN62040-3 (EN50091-3)

## FORM 5: INVERTER OUTPUT TECHNICAL DATA

### 5c: INVERTER OUTPUT: 250-1000kVA

| SIZE   | kVA       | 250         | 300         | 400         | 500         | 600         | 800         | 1000        |
|--|-----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1) Nominal Power @P.F. 0.8 (Inductive)   | kVA       | 250         | 300         | 400         | 500         | 600         | 800         | 1000        |
| 2) Nominal Voltage (Note 1)  | V         | 400         | 400         | 400         | 400         | 400         | 400         | 400         |
| 3) Setting range of output voltage   | %         | >± 5        | >± 5        | >± 5        | >± 5        | >± 5        | >± 5        | >± 5        |
| 4) Output Voltage Wave Shape   |           | Sinusoidale |             |             |             |             |             |             |
| 5a) THD @ Linear full Load   | %         | 1Typ <2max  | 1Typ <2max  | 1Typ <2max  | 1Typ <2max  | 1Typ <2max  | 1Typ <2max  | 1Typ <2max  |
| 5b) THD @ Non linear full Load (Note 3)  | %         | <4          | <4          | <4          | <4          | <4          | <4          | <4          |
| 6) Voltage stability in steady state condition for input DC variation and/or 100% load variation | %         | <± 1        | <± 1        | <± 1        | <± 1        | <± 1        | <± 1        | <± 1        |
| 7) Voltage stability in dynamic condition for 100% load step variation                           | %         | <± 5        | <± 5        | <± 5        | <± 5        | <± 5        | <± 5        | <± 5        |
| 8) Tempo di ripristino entro ±1%   | ms        | <20         | <20         | <20         | <20         | <20         | <20         | <20         |
| 9) Nominal output current @ 400Vac, 0.8 P.F.   | A         | 361         | 434         | 578         | 722         | 867         | 1155        | 1444        |
| 10) Overload @ 400Vac, 0.8 P.F.  | %Pn x 20' | 125         | 125         | 125         | 125         | 125         | 125         | 125         |
|  | %Pn x 90" | 150         | 150         | 150         | 150         | 150         | 150         | 150         |
| 10a) 3-Phase Short circuit current (<5s) (Note 2)  | %         | 180         | 180         | 180         | 180         | 180         | 180         | 180         |
| 10b) 1-Phase Short circuit current (<5s) (Note2)   | %         | 220         | 220         | 220         | 220         | 220         | 220         | 220         |
| 11) Voltage symmetry @ balanced load   | %         | <1 (0,5Typ) | <1 (0,5Typ) | <1 (0,5Typ) | <1 (0,5Typ) | <1 (0,5Typ) | <1 (0,5Typ) | <1 (0,5Typ) |
| 12) Voltage symmetry @ 100% unbalanced load  | %         | <2 (1 Typ)  | <2 (1 Typ)  | <2 (1 Typ)  | <2 (1 Typ)  | <2 (1 Typ)  | <2 (1 Typ)  | <2 (1 Typ)  |
| 13) Phase angle precision  |           |             |             |             |             |             |             |             |
| - balanced load  | %         | 120° ±1°    | 120° ±1°    | 120° ±1°    | 120° ±1°    | 120° ±1°    | 120° ±1°    | 120° ±1°    |
| - 100% unbalanced load   | %         | 120° ±1°    | 120° ±1°    | 120° ±1°    | 120° ±1°    | 120° ±1°    | 120° ±1°    | 120° ±1°    |
| 14) Output frequency (Note1)   | Hz        | 50          | 50          | 50          | 50          | 50          | 50          | 50          |
| 15) Output frequency precision:  |           |             |             |             |             |             |             |             |
| - free running (internal quartz oscillator)  | %         | ± 0,05      | ± 0,05      | ± 0,05      | ± 0,05      | ± 0,05      | ± 0,05      | ± 0,05      |
| - sincronized to mains (selectable)  | %         | ±1 o ±4     | ±1 o ±4     | ±1 o ±4     | ±1 o ±4     | ±1 o ±4     | ±1 o ±4     | ±1 o ±4     |
| - frequency slew-rate  | Hz/s      | 0,1         | 0,1         | 0,1         | 0,1         | 0,1         | 0,1         | 0,1         |
| 16) Inverter efficiency @ full nominal load  | %         | 95,0        | 95,2        | 96,0        | 96,2        | 96,8        | 97,2        | 97,2        |

Note1: On demand: 380Vac, 415Vac, 60Hz

Note2: In accordance with EN62040-1 (EN50091-1) (on demand up to 10s)

Note3: In accordance with EN62040-3 (EN50091-3)

## FORM 6: STATIC SWITCH TECHNICAL DATA

### 6a: Static Switch 20/80kVA

| SIZE  |                 | 20      | 30      | 40      | 50      | 60      | 80      |
|---|-----------------|---------|---------|---------|---------|---------|---------|
| 1) Nominal Power  | kVA             | 20      | 30      | 40      | 50      | 60      | 80      |
| 2) Input/Output Voltage (Note1)   | V               | 400     | 400     | 400     | 400     | 400     | 400     |
| 3) Acceptance range of Mains Voltage<br>(low and high threshold are adjustable<br>between 3% and 50%) | %               | +10/-10 | +10/-10 | +10/-10 | +10/-10 | +10/-10 | +10/-10 |
| 4) Input/Output frequency (Note1)   | Hz              | 50      | 50      | 50      | 50      | 50      | 50      |
| 5) Power Overload:  |                 |         |         |         |         |         |         |
| - 30'   | %I <sub>N</sub> | 150     | 150     | 150     | 150     | 150     | 150     |
| - 90s   | %I <sub>N</sub> | 300     | 300     | 300     | 300     | 300     | 300     |
| - 5s  | %I <sub>N</sub> | 500     | 500     | 500     | 500     | 500     | 500     |
| - 2s  | %I <sub>N</sub> | 680     | 680     | 680     | 680     | 680     | 680     |
| - 1s  | %I <sub>N</sub> | 700     | 700     | 700     | 700     | 700     | 700     |
| - 500ms   | %I <sub>N</sub> | 800     | 800     | 800     | 800     | 800     | 800     |
| - 200ms   | %I <sub>N</sub> | 900     | 900     | 900     | 900     | 900     | 900     |
| - 100ms   | %I <sub>N</sub> | 1000    | 1000    | 1000    | 1000    | 1000    | 1000    |
| - 50ms  | %I <sub>N</sub> | 1100    | 1100    | 1100    | 1100    | 1100    | 1100    |
| - 20ms  | %I <sub>N</sub> | 1200    | 1200    | 1200    | 1200    | 1200    | 1200    |
| - 10ms  | %I <sub>N</sub> | 1400    | 1400    | 1400    | 1400    | 1400    | 1400    |
| - 3ms   | %I <sub>N</sub> | 1500    | 1500    | 1500    | 1500    | 1500    | 1500    |
| 6) Transfer time:   |                 |         |         |         |         |         |         |
| - FROM INVERTER TO RESERVE  |                 |         |         |         |         |         |         |
| a) inverter fault   | ms              | 0,9     | 0,9     | 0,9     | 0,9     | 0,9     | 0,9     |
| b) inverter overload or manual control  | ms              | 0       | 0       | 0       | 0       | 0       | 0       |
| - FROM RESERVE TO INVERTER  | ms              | 0       | 0       | 0       | 0       | 0       | 0       |
| 7) Efficiency @ full load   | %               | 99,2    | 99,2    | 99,2    | 99,3    | 99,3    | 99,3    |

Note 1: On demand 380Vac, 415Vac, 60Hz

## FORM 6: STATIC SWITCH TECHNICAL DATA

### 6b: Static Switch 100/200kVA

| SIZE  |                 | 100     | 120     | 160     | 200     |
|---|-----------------|---------|---------|---------|---------|
| 1) Nominal Power  | kVA             | 100     | 120     | 160     | 200     |
| 2) Input/Output Voltage (Note1)   | V               | 400     | 400     | 400     | 400     |
| 3) Acceptance range of Mains Voltage<br>(low and high threshold are adjustable<br>between 3% and 50%) | %               | +10/-10 | +10/-10 | +10/-10 | +10/-10 |
| 4) Input/Output frequency (Note1)   | Hz              | 50      | 50      | 50      | 50      |
| 5) Power Overload:  |                 |         |         |         |         |
| - 30'   | %I <sub>N</sub> | 150     | 150     | 150     | 150     |
| - 90s   | %I <sub>N</sub> | 300     | 300     | 300     | 300     |
| - 5s  | %I <sub>N</sub> | 500     | 500     | 500     | 500     |
| - 2s  | %I <sub>N</sub> | 680     | 680     | 680     | 680     |
| - 1s  | %I <sub>N</sub> | 700     | 700     | 700     | 700     |
| - 500ms   | %I <sub>N</sub> | 800     | 800     | 800     | 800     |
| - 200ms   | %I <sub>N</sub> | 900     | 900     | 900     | 900     |
| - 100ms   | %I <sub>N</sub> | 1000    | 1000    | 1000    | 1000    |
| - 50ms  | %I <sub>N</sub> | 1100    | 1100    | 1100    | 1100    |
| - 20ms  | %I <sub>N</sub> | 1200    | 1200    | 1200    | 1200    |
| - 10ms  | %I <sub>N</sub> | 1400    | 1400    | 1400    | 1400    |
| - 3ms   | %I <sub>N</sub> | 1500    | 1500    | 1500    | 1500    |
| 6) Transfer time:   |                 |         |         |         |         |
| - FROM INVERTER TO RESERVE  |                 |         |         |         |         |
| a) inverter fault   | ms              | 0,9     | 0,9     | 0,9     | 0,9     |
| b) inverter overload or manual control  | ms              | 0       | 0       | 0       | 0       |
| - FROM RESERVE TO INVERTER  | ms              | 0       | 0       | 0       | 0       |
| 7) Efficiency @ full load   | %               | 99,3    | 99,3    | 99,3    | 99,3    |

Note 1: On demand 380Vac, 415Vac, 60Hz

## FORM 6: STATIC SWITCH TECHNICAL DATA

### 6c: Static Switch 250-1000kVA

| SIZE  |                 | 250     | 300     | 400     | 500     | 600     | 800     | 1000    |
|---|-----------------|---------|---------|---------|---------|---------|---------|---------|
| 1) Nominal Power  | kVA             | 250     | 300     | 400     | 500     | 600     | 800     | 1000    |
| 2) Input/Output Voltage (Note1)   | V               | 400     | 400     | 400     | 400     | 400     | 400     | 400     |
| 3) Acceptance range of Mains Voltage (low and high threshold are adjustable between 3% and 50%) | %               | +10/-10 | +10/-10 | +10/-10 | +10/-10 | +10/-10 | +10/-10 | +10/-10 |
| 4) Input/Output frequency (Note1)   | Hz              | 50      | 50      | 50      | 50      | 50      | 50      | 50      |
| 5) Power Overload:  |                 |         |         |         |         |         |         |         |
| - 30'   | %I <sub>N</sub> | 150     | 150     | 150     | 150     | 150     | 150     | 150     |
| - 90s   | %I <sub>N</sub> | 300     | 300     | 300     | 300     | 300     | 300     | 300     |
| - 5s  | %I <sub>N</sub> | 500     | 500     | 500     | 500     | 500     | 500     | 500     |
| - 2s  | %I <sub>N</sub> | 680     | 680     | 680     | 680     | 680     | 680     | 680     |
| - 1s  | %I <sub>N</sub> | 700     | 700     | 700     | 700     | 700     | 700     | 700     |
| - 500ms   | %I <sub>N</sub> | 800     | 800     | 800     | 800     | 800     | 800     | 800     |
| - 200ms   | %I <sub>N</sub> | 900     | 900     | 900     | 900     | 900     | 900     | 900     |
| - 100ms   | %I <sub>N</sub> | 1000    | 1000    | 1000    | 1000    | 1000    | 1000    | 1000    |
| - 50ms  | %I <sub>N</sub> | 1100    | 1100    | 1100    | 1100    | 1100    | 1100    | 1100    |
| - 20ms  | %I <sub>N</sub> | 1200    | 1200    | 1200    | 1200    | 1200    | 1200    | 1200    |
| - 10ms  | %I <sub>N</sub> | 1400    | 1400    | 1400    | 1400    | 1400    | 1400    | 1400    |
| - 3ms   | %I <sub>N</sub> | 1500    | 1500    | 1500    | 1500    | 1500    | 1500    | 1500    |
| 6) Transfer time:   |                 |         |         |         |         |         |         |         |
| - FROM INVERTER TO RESERVE  |                 |         |         |         |         |         |         |         |
| a) inverter fault   | ms              | 0,9     | 0,9     | 0,9     | 0,9     | 0,9     | 0,9     | 0,9     |
| b) inverter overload or manual control  | ms              | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| - FROM RESERVE TO INVERTER  | ms              | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| 7) Efficiency @ full load   | %               | 99,2    | 99,2    | 99,2    | 99,3    | 99,3    | 99,3    | 99,3    |

Note 1: On demand 380Vac, 415Vac, 60Hz

## FORM 7: SYSTEM DATA

7a: 20/80kVA

| SIZE   |                   | 20       | 30       | 40       | 50       | 60       | 80       |
|--|-------------------|----------|----------|----------|----------|----------|----------|
| 1a) AC/AC Efficiency (6-pulse)                       |                   |          |          |          |          |          |          |
| - 100% nominal load                                  | %                 | 89,89    | 90,1     | 90,41    | 90,53    | 90,66    | 91,82    |
| - 75% nominal load                                   | %                 | 90,5     | 90,65    | 90,75    | 90,88    | 91,01    | 91,99    |
| - 50% nominal load                                   | %                 | 90,08    | 90,12    | 90,2     | 90,34    | 90,49    | 91,66    |
| - 25% nominal load                                   | %                 | 85,84    | 85,86    | 86,01    | 86,62    | 87,24    | 88,57    |
| 2a) Maximum Heat dissipation @ Full Load (6 pulse)   | kW                | 1,8      | 2,6      | 3,4      | 4,2      | 4,9      | 5,7      |
| 1b) Rendimento CA/CA (Dodecafase)                    |                   |          |          |          |          |          |          |
| - 100% Carico nominale                               | %                 | 88,72    | 88,93    | 89,23    | 90,36    | 90,36    | 90,37    |
| - 75% Carico nominale                                | %                 | 89,32    | 89,47    | 89,57    | 90,20    | 90,69    | 91,41    |
| - 50% Carico nominale                                | %                 | 88,91    | 88,95    | 89,03    | 89,30    | 89,84    | 90,03    |
| - 25% Carico nominale                                | %                 | 84,72    | 84,74    | 84,89    | 86,63    | 87,28    | 87,93    |
| 2b) Massima dissipazione a pieno carico (Dodecafase) | kW                | 2,0      | 3,0      | 3,9      | 4,3      | 5,1      | 6,8      |
| 3) Noise @ 1 metre as per ISO3746                    | dBA               | 60       | 60       | 60       | 60       | 60       | 60       |
| 4) Air Flow  | m <sup>3</sup> /h | 1200     | 1200     | 1200     | 1200     | 1200     | 1200     |
| 5) Operating Temperature                             | °C                | 0 ÷ 40   | 0 ÷ 40   | 0 ÷ 40   | 0 ÷ 40   | 0 ÷ 40   | 0 ÷ 40   |
| 6) Storage Temperature                               | °C                | -20 / 70 | -20 / 70 | -20 / 70 | -20 / 70 | -20 / 70 | -20 / 70 |
| 7) Maximum relative humidity (non condensing):       |                   |          |          |          |          |          |          |
| (@ 40°C)   | %                 | 60       | 60       | 60       | 60       | 60       | 60       |
| (@ 25°C)   | %                 | 90       | 90       | 90       | 90       | 90       | 90       |
| 8) Elevation without derating                        | m                 | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |
| 9) Power derating over 1000m each 1000m              | %                 | 5        |          |          |          |          |          |

7b: 100/200kVA

| SIZE   |                   | 100      | 120      | 160      | 200      |
|--|-------------------|----------|----------|----------|----------|
| 1a) AC/AC Efficiency (6pulse)                  |                   |          |          |          |          |
| - 100% nominal load                            | %                 | 91,53    | 93,03    | 92,87    | 93,48    |
| - 75% nominal load                             | %                 | 92,78    | 92,63    | 93,40    | 93,21    |
| - 50% nominal load                             | %                 | 91,25    | 91,25    | 91,86    | 93,05    |
| - 25% nominal load                             | %                 | 89,65    | 87,28    | 87,74    | 89,22    |
| 2a) Maximum Heat dissipation @ Full Load       | kW                | 7,4      | 7,2      | 9,8      | 11,2     |
| 1b) AC/AC Efficiency (12pulse)                 |                   |          |          |          |          |
| - 100% nominal load                            | %                 | 90,34    | 91,82    | 91,66    | 92,26    |
| - 75% nominal load                             | %                 | 91,57    | 91,43    | 92,19    | 92,00    |
| - 50% nominal load                             | %                 | 90,06    | 90,06    | 90,67    | 91,84    |
| - 25% nominal load                             | %                 | 88,48    | 86,15    | 86,60    | 88,06    |
| 2b) Maximum Heat dissipation @ Full Load       | kW                | 8,6      | 8,6      | 11,6     | 13,4     |
| 3) Noise @ 1 metre as per ISO3746              | dBA               | 60       | 60       | 60       | 60       |
| 4) Air Flow                                    | m <sup>3</sup> /h | 1200     | 2000     | 3200     | 3200     |
| 5) Operating Temperature                       | °C                | 0 ÷ 40   | 0 ÷ 40   | 0 ÷ 40   | 0 ÷ 40   |
| 6) Storage Temperature                         | °C                | -20 / 70 | -20 / 70 | -20 / 70 | -20 / 70 |
| 7) Maximum relative humidity (non condensing): |                   |          |          |          |          |
| (@ 40°C)                                       | %                 | 60       | 60       | 60       | 60       |
| (@ 25°C)                                       | %                 | 90       | 90       | 90       | 90       |
| 8) Elevation without derating                  | m                 | 1000     | 1000     | 1000     | 1000     |
| 9) Power derating over 1000m each 1000m        | %                 | 5        |          |          |          |

## FORM 7: SYSTEM DATA

7c: 250/1000kVA- 12Pulse

| SIZE   |                   | 250      | 300      | 400      | 500      | 600      | 800      | 1000     |
|--|-------------------|----------|----------|----------|----------|----------|----------|----------|
| 1) AC/AC Efficiency                            |                   |          |          |          |          |          |          |          |
| - 100% nominal load                            | %                 | 91,80    | 92,00    | 93       | 93,5     | 94,1     | 94,5     | 94,5     |
| - 75% nominal load                             | %                 | 92,59    | 92,79    | 93,5     | 94,1     | 94,8     | 94,8     | 94,8     |
| - 50% nominal load                             | %                 | 92,83    | 93,03    | 93       | 93,6     | 94,3     | 94,4     | 94,4     |
| - 25% nominal load                             | %                 | 88,89    | 89,09    | 90       | 90,3     | 91       | 91,2     | 91,2     |
| 2) Maximum Heat dissipation @ Full Load        | kW                | 17,9     | 20,9     | 24,1     | 27,8     | 30,1     | 37,2     | 46,6     |
| 3) Noise @ 1 metre as per ISO3746              | dBA               | 70       | 70       | 70       | 78       | 78       | 78       | 78       |
| 4) Air Flow                                    | m <sup>3</sup> /h | 5500     | 5500     | 10000    | 10000    | 10000    | 10000    | 10000    |
| 5) Operating Temperature                       | °C                | 0 ÷ 40   | 0 ÷ 40   | 0 ÷ 40   | 0 ÷ 40   | 0 ÷ 40   | 0 ÷ 40   | 0 ÷ 40   |
| 6) Storage Temperature                         | °C                | -20 / 70 | -20 / 70 | -20 / 70 | -20 / 70 | -20 / 70 | -20 / 70 | -20 / 70 |
| 7) Maximum relative humidity (non condensing): |                   |          |          |          |          |          |          |          |
| (@ 40°C)                                       | %                 | 60       | 60       | 60       | 60       | 60       | 60       | 60       |
| (@ 25°C)                                       | %                 | 90       | 90       | 90       | 90       | 90       | 90       | 90       |
| 8) Elevation without derating                  | m                 | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |
| 9) Power derating over 1000m each 1000m        | %                 | 5        |          |          |          |          |          |          |

## FORM 8: MECHANICAL DATA

e

### 8a: MECHANICAL DATA 20/100kVA -6Pulse

| SIZE                          |     | 20   | 30   | 40   | 50   | 60   | 80   | 100  |
|-------------------------------|-----|------|------|------|------|------|------|------|
| 1) Mechanical Dimensions:     |     |      |      |      |      |      |      |      |
| - Width                       | mm  | 550  | 550  | 550  | 550  | 550  | 698  | 698  |
| - Depth                       | mm  | 850  | 850  | 850  | 850  | 850  | 866  | 866  |
| - Height                      | mm  | 1055 | 1055 | 1055 | 1055 | 1055 | 1415 | 1415 |
| 2) Weight (Note 1)            |     |      |      |      |      |      |      |      |
|                               | kg  | 250  | 275  | 300  | 340  | 370  | 550  | 680  |
| 3) Protection degree (Note 3) |     |      |      |      |      |      |      |      |
|                               |     | IP21 | IP21 | IP21 | IP21 | IP21 | IP21 | IP21 |
| 4) Colour (RAL scale)         |     |      |      |      |      |      |      |      |
| Frame                         | RAL | 7035 | 7035 | 7035 | 7035 | 7035 | 7035 | 7035 |
| Panels                        | RAL | 7035 | 7035 | 7035 | 7035 | 7035 | 7035 | 7035 |

Note 1: Weight without batteries

Note 2: Double frame

Note 3: IP31 on demand

### 8b: MECHANICAL DATA 20/80kVA -12Pulse

| TAGLIA                        |     | 20   | 30   | 40   | 50   | 60   | 80   |
|-------------------------------|-----|------|------|------|------|------|------|
| 1) Mechanical Dimensions:     |     |      |      |      |      |      |      |
| - Width                       | mm  | 550  | 550  | 550  | 698  | 698  | 698  |
| - Depth                       | mm  | 850  | 850  | 850  | 866  | 866  | 866  |
| - Height                      | mm  | 1055 | 1055 | 1055 | 1415 | 1415 | 1415 |
| 2) Weight (Note 1)            |     |      |      |      |      |      |      |
|                               | kg  | 300  | 320  | 350  | 560  | 620  | 680  |
| 3) Protection degree (Note 3) |     |      |      |      |      |      |      |
|                               |     | IP21 | IP21 | IP21 | IP21 | IP21 | IP21 |
| 4) Colour (RAL scale)         |     |      |      |      |      |      |      |
| Frame                         | RAL | 7035 | 7035 | 7035 | 7035 | 7035 | 7035 |
| Panels                        | RAL | 7035 | 7035 | 7035 | 7035 | 7035 | 7035 |

Note 1: Weight without batteries

Note 2: Double frame

Note 3: IP31 on demand

### 8c: MECHANICAL DATA 120/200kVA -6Pulse

| SIZE                          |     | 120  | 160  | 200  |
|-------------------------------|-----|------|------|------|
| 1) Mechanical Dimensions:     |     |      |      |      |
| - Width                       | mm  | 1100 | 1100 | 1100 |
| - Depth                       | mm  | 800  | 800  | 820  |
| - Height                      | mm  | 1400 | 1400 | 1950 |
| 2) Weight                     |     |      |      |      |
|                               | kg  | 820  | 920  | 980  |
| 3) Protection degree (Note 3) |     |      |      |      |
|                               |     | IP21 | IP21 | IP20 |
| 4) Colour (RAL scale)         |     |      |      |      |
| Frame                         | RAL | 7035 | 7035 | 7035 |
| Panels                        | RAL | 7035 | 7035 | 7035 |

Nota 1: Peso senza batterie

Nota 3: IP31 a richiesta

## FORM 8: MECHANICAL DATA

### 8d: MECHANICAL DATA 100/200kVA -12Pulse

| SIZE                          |     | 100  | 120  | 160  | 200  |
|-------------------------------|-----|------|------|------|------|
| 1) Mechanical Dimensions:     |     |      |      |      |      |
| - Width                       | mm  | 1100 | 1100 | 1100 | 1100 |
| - Depth                       | mm  | 800  | 800  | 820  | 820  |
| - Height                      | mm  | 1400 | 1400 | 1950 | 1950 |
| 2) Weight                     | kg  | 880  | 980  | 1200 | 1400 |
| 3) Protection degree (Note 3) |     | IP21 | IP21 | IP20 | IP20 |
| 4) Colour (RAL scale)         |     |      |      |      |      |
| Frame                         | RAL | 7035 | 7035 | 7035 | 7035 |
| Panels                        | RAL | 7035 | 7035 | 7035 | 7035 |

Nota 1: Peso senza batterie

Nota 3: IP31 a richiesta

### 8e: MECHANICAL DATA 250/1000kVA -12Pulse

| SIZE                          |     | 250  | 300  | 400  | 500               | 600               | 800               | 1000              |
|-------------------------------|-----|------|------|------|-------------------|-------------------|-------------------|-------------------|
| 1) Mechanical Dimensions:     |     |      |      |      |                   |                   |                   |                   |
| - Width                       | mm  | 1500 | 1500 | 1500 | 2x1350<br>(Nota2) | 2x1350<br>(Nota2) | 2x1350<br>(Nota2) | 2x1350<br>(Nota2) |
| - Depth                       | mm  | 1000 | 1000 | 1000 | 1000              | 1000              | 1000              | 1000              |
| - Height                      | mm  | 2000 | 2000 | 2000 | 2000              | 2000              | 2000              | 2000              |
| 2) Weight                     | kg  | 1700 | 1850 | 2100 | 2900              | 3100              | 3900              | 4800              |
| 3) Protection degree (Note 3) |     | IP20 | IP20 | IP20 | IP20              | IP20              | IP20              | IP20              |
| 4) Colour (RAL scale)         |     |      |      |      |                   |                   |                   |                   |
| Frame                         | RAL | 7035 | 7035 | 7035 | 7035              | 7035              | 7035              | 7035              |
| Panels                        | RAL | 7036 | 7036 | 7036 | 7036              | 7036              | 7036              | 7036              |

Note 1: Weight without batteries

Note 2: Double frame

Note 3: IP31 on demand