

BREUER) MOTOREN



The 1020 kW Variable Frequency Drive

dkswa72UM/4-4

operating manual
information sheet
software documentation

version 4
version 1

ZHANGJIAKOU COAL MINING

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|

documentation

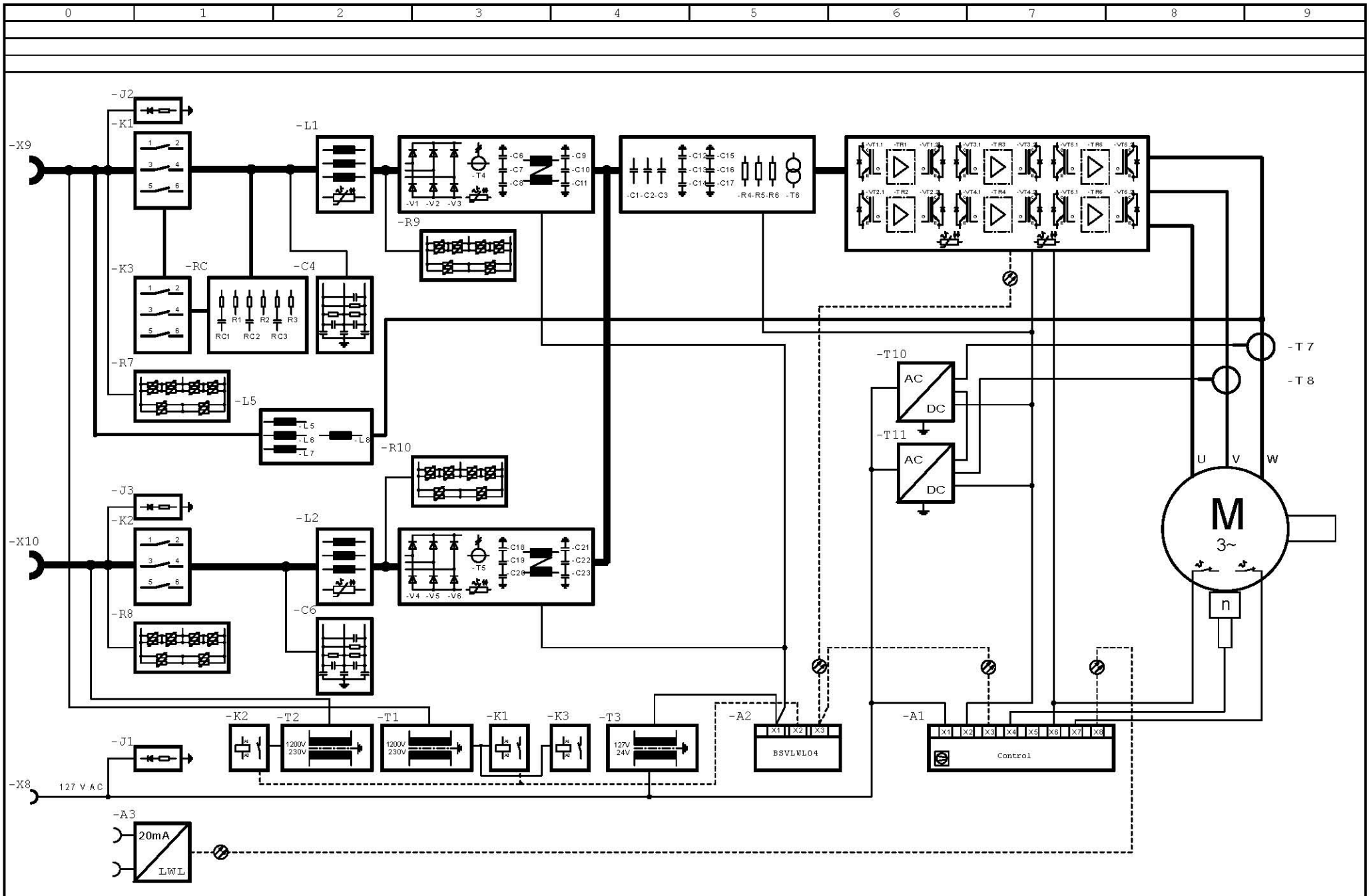
project :

customer-no.:

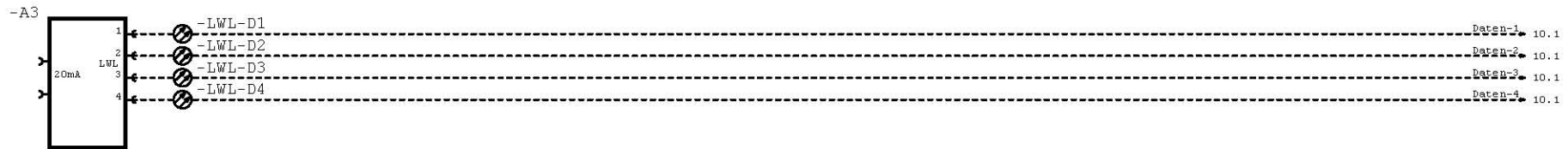
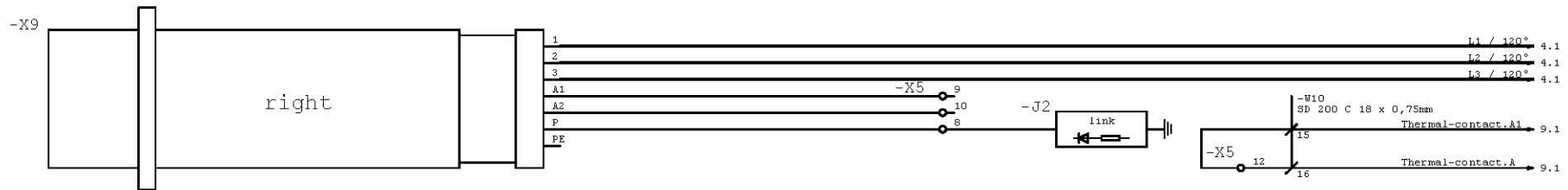
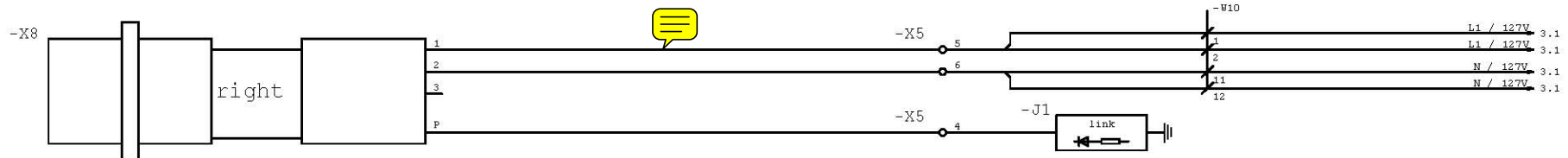
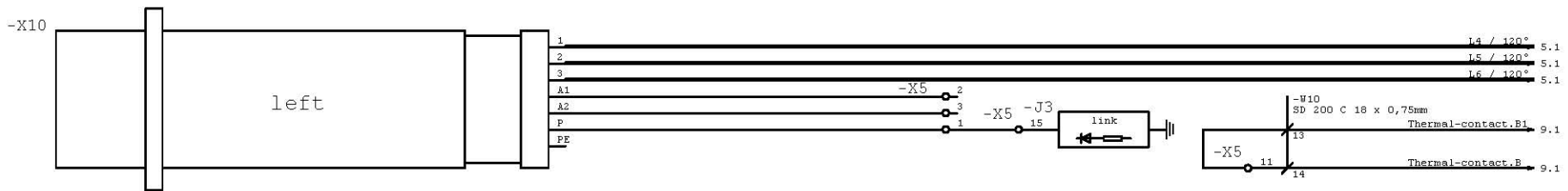
ZHANGJIAKOU COAL MINING

VFD motor dksWa72UM/4-4;1020kW

| | | | | | | | | | | |
|-------|--------|------|------|--------|------------|--------------------------------|---|---------------|---------------------|----------|
| | | | | date | 16.04.2012 | ZHANGJIAKOU COAL MINING |  <small>competence since 1877</small> | customer-no.: | = | |
| | | | | worker | Wieczorek | VFD motor dksWa72UM/4-4;1020kW | | | + | |
| | | | | check | Hellinger | | | equipment: | drawing-no. | sheet 1 |
| state | change | date | name | norm | root | create for | cover sheet | dksWa72UM/4-4 | 072-1016767-09-04 E | of 1 sh. |

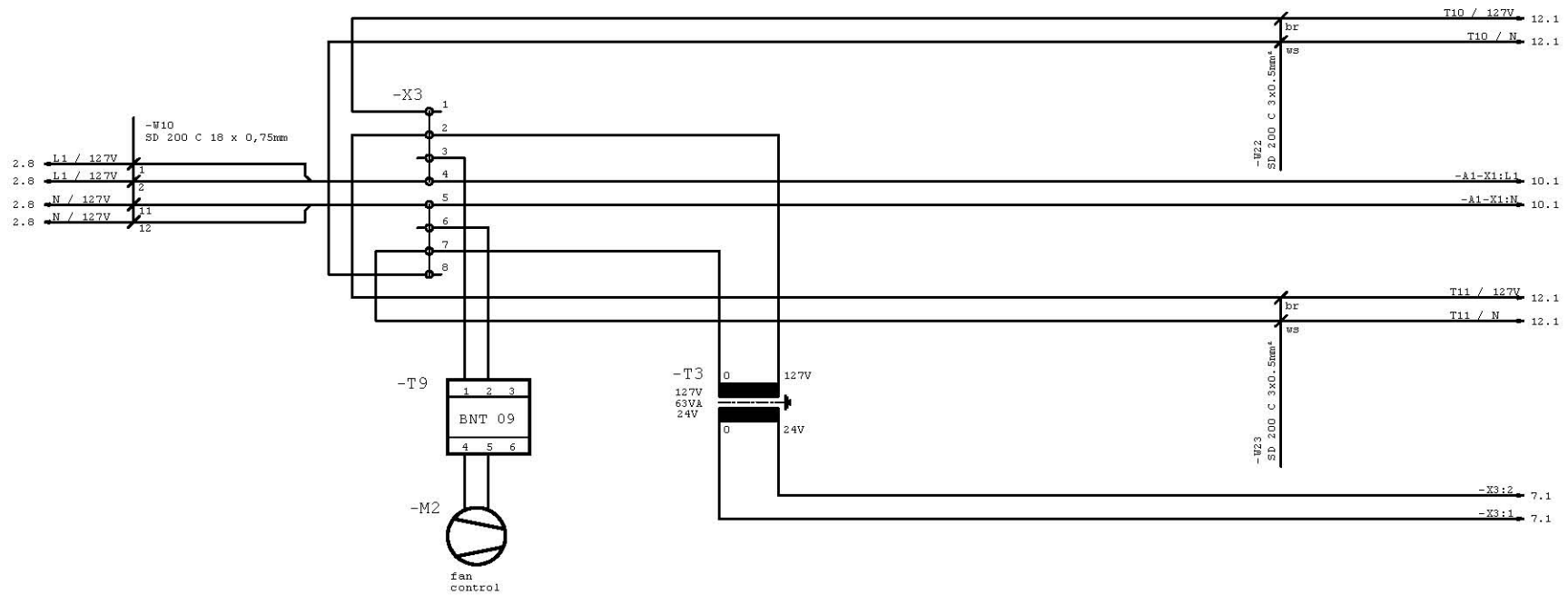


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|-------|--------|------|------|------|--------|------------|--------------------------------|--|-----------------------|--|--------|-----------------------------------|--|-----------|
| | | | | | date | 16.04.2012 | ZHANGJIAKOU COAL MINING | | BreuerMotoren | | layout | customer-no.: | | = |
| | | | | | worker | Wieczorek | VFD motor dksWa72UM/4-4:1020kW | | competence since 1977 | | | equipment: | | + |
| | | | | | check | Hellinger | | | | | | drawing-no.: | | sheet 1 |
| state | change | date | name | norm | root | create for | | | | | | dksWa72UM/4-4 072-1016767-09-04 E | | of 12 sh. |



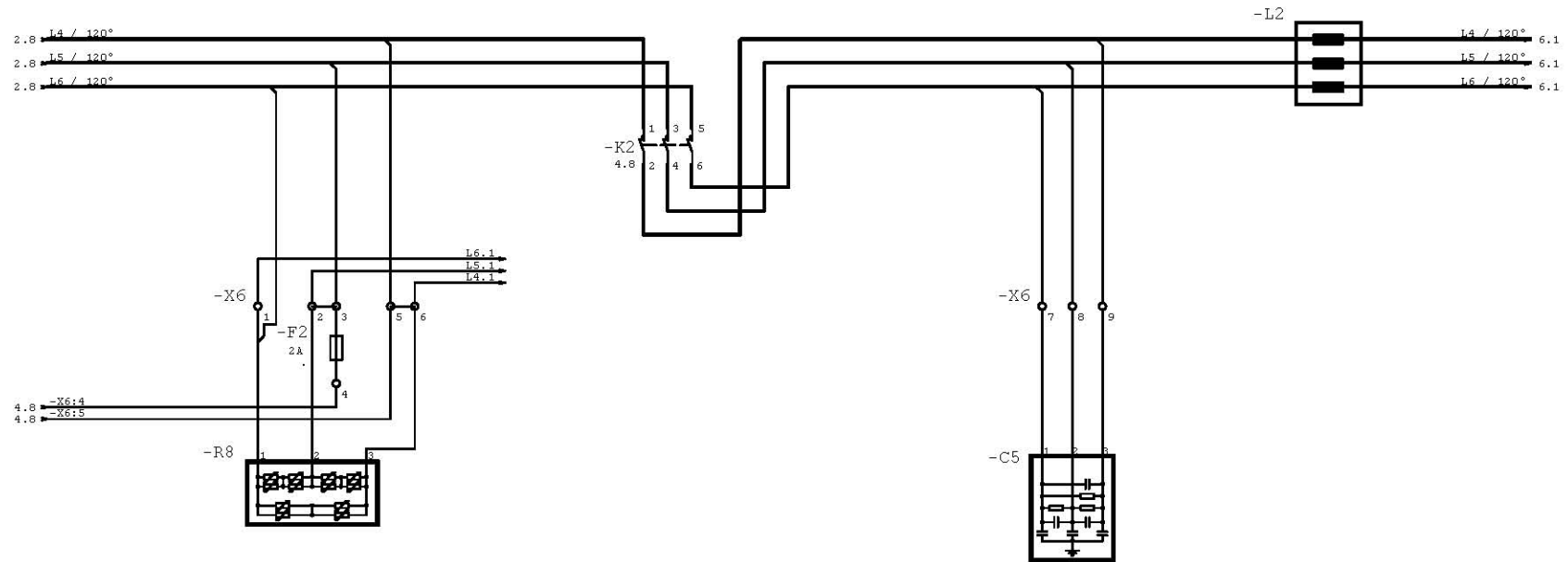
-X5 7

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|-------|--------|--------|------|------------|--------------------------------|------------|---|-----------------|-----------------------------------|---------------|-----------|---------|
| | | date | | 16.04.2012 | ZHANGJIAKOU COAL MINING | | Breuer Motoren competence since 1877 | Power connector | | customer-no.: | | = |
| | | worker | | Wieczorek | VFD motor dksWa72UM/4-4:1020kW | | | | | equipment: | | + |
| | | check | | Hellinger | | | | | | drawing-no.: | | sheet 2 |
| state | change | date | name | norm | root | create for | wiring diagram | | dksWa72UM/4-4 072-1016767-09-04 E | | of 12 sh. | |

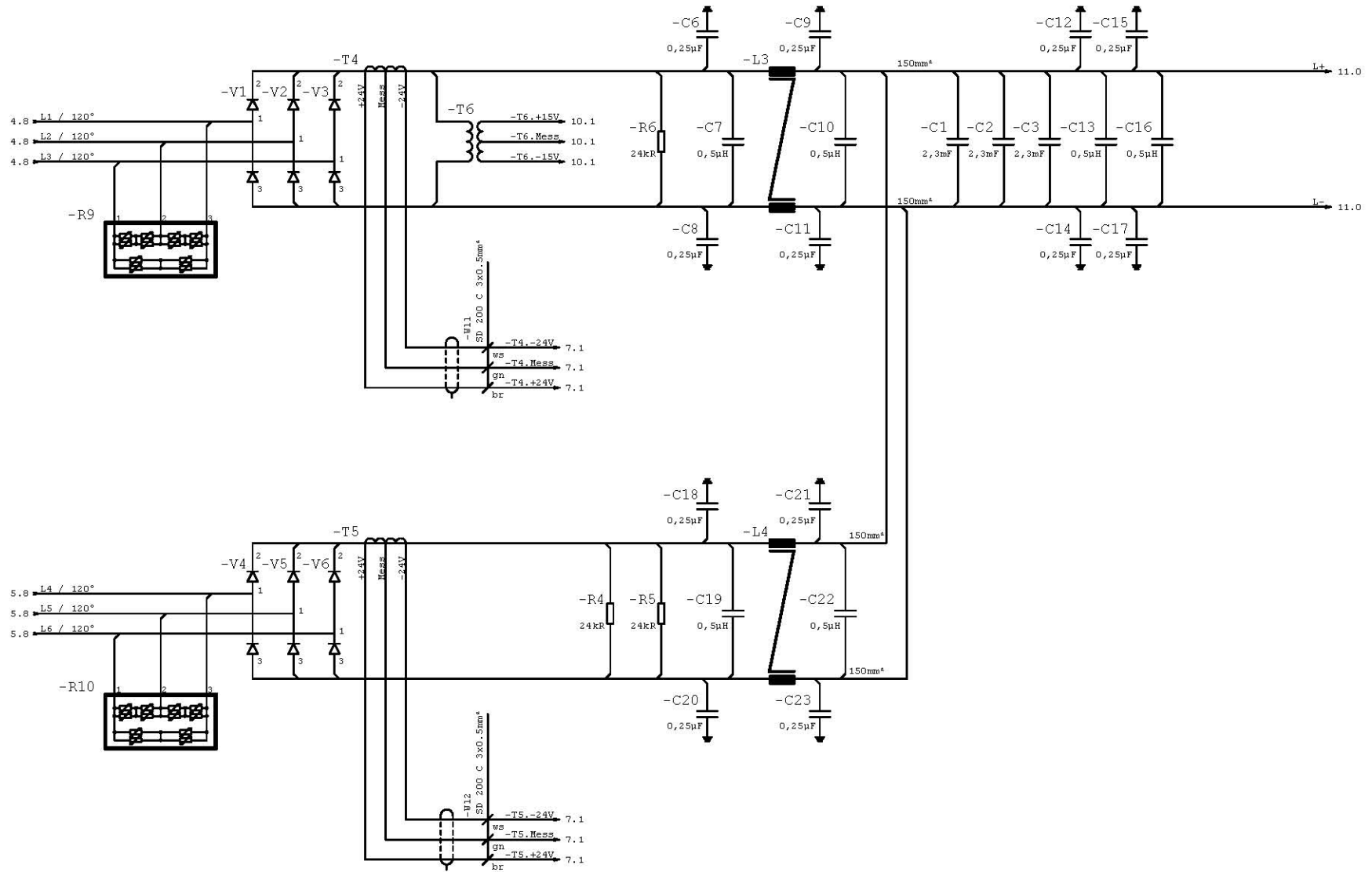


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|--------|------------|--------------------------------|-----------------------|----------------|------|---------------|-----------|
| date | 16.04.2012 | ZHANGJIAKOU COAL MINING | | | | customer-no.: | = |
| worker | Wieczorek | VFD motor dksWa72UM/4-4:1020kW | Breuer Motoren | power supply | | equipment: | + |
| check | Hellinger | | competence since 1977 | wiring diagram | | drawing-no.: | |
| state | change | date | name | norm | root | create for | sheet 3 |
| | | | | | | | of 12 sh. |

customer-no.: =
 equipment: dksWa72UM/4-4 drawing-no.: 072-1016767-09-04 E sheet 3 of 12 sh.



| | | | | | | | | |
|--------|------------|--------------------------------|------------|--|---------------|---------------------|----------------|-----------|
| date | 16.04.2012 | ZHANGJIAKOU COAL MINING | | Breuer Motoren <small>competence since 1877</small> | Power circuit | customer-no.: | = | |
| worker | Wieczorek | VFD motor dksWa72UM/4-4:1020kW | | | equipment: | drawing-no.: | + | |
| check | Hellinger | root | create for | | dksWa72UM/4-4 | 072-1016767-09-04 E | sheet 5 | |
| state | change | date | name | norm | root | create for | wiring diagram | of 12 sh. |

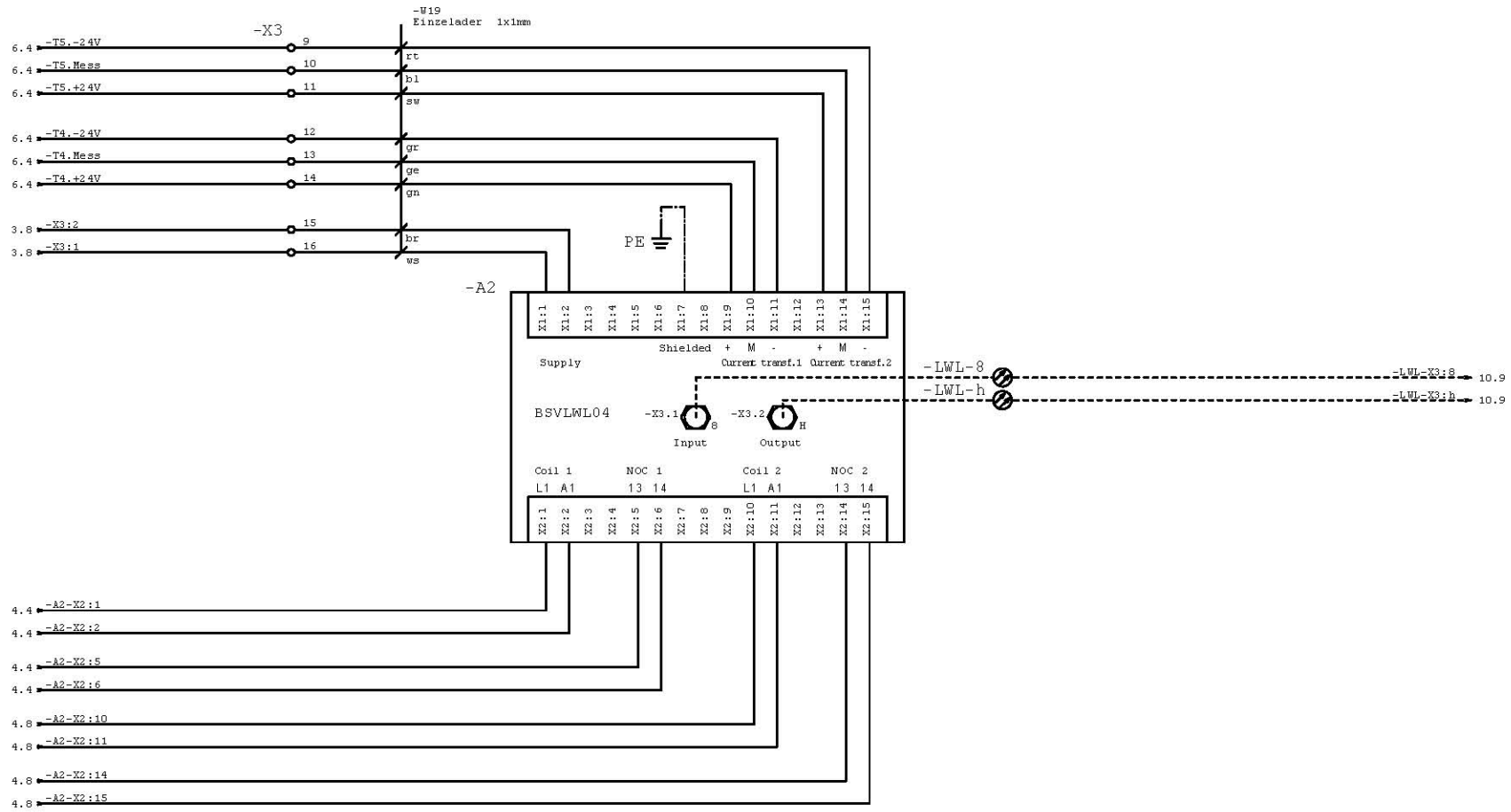


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|-------|--------|------|------|--------|------------|--------------------------------|--|--|--|---------------------|-----------|
| | | | | date | 16.04.2012 | ZHANGJIAKOU COAL MINING | | | | customer-no.: | = |
| | | | | worker | Wieczorek | VFD motor dksWa72UM/4-4;1020kW | | | | | + |
| | | | | check | Hellinger | | | | | equipment: | sheet 6 |
| state | change | date | name | norm | root | create for | | | | drawing-no: | of 12 sh. |
| | | | | | | | | | | 072-1016767-09-04 E | |

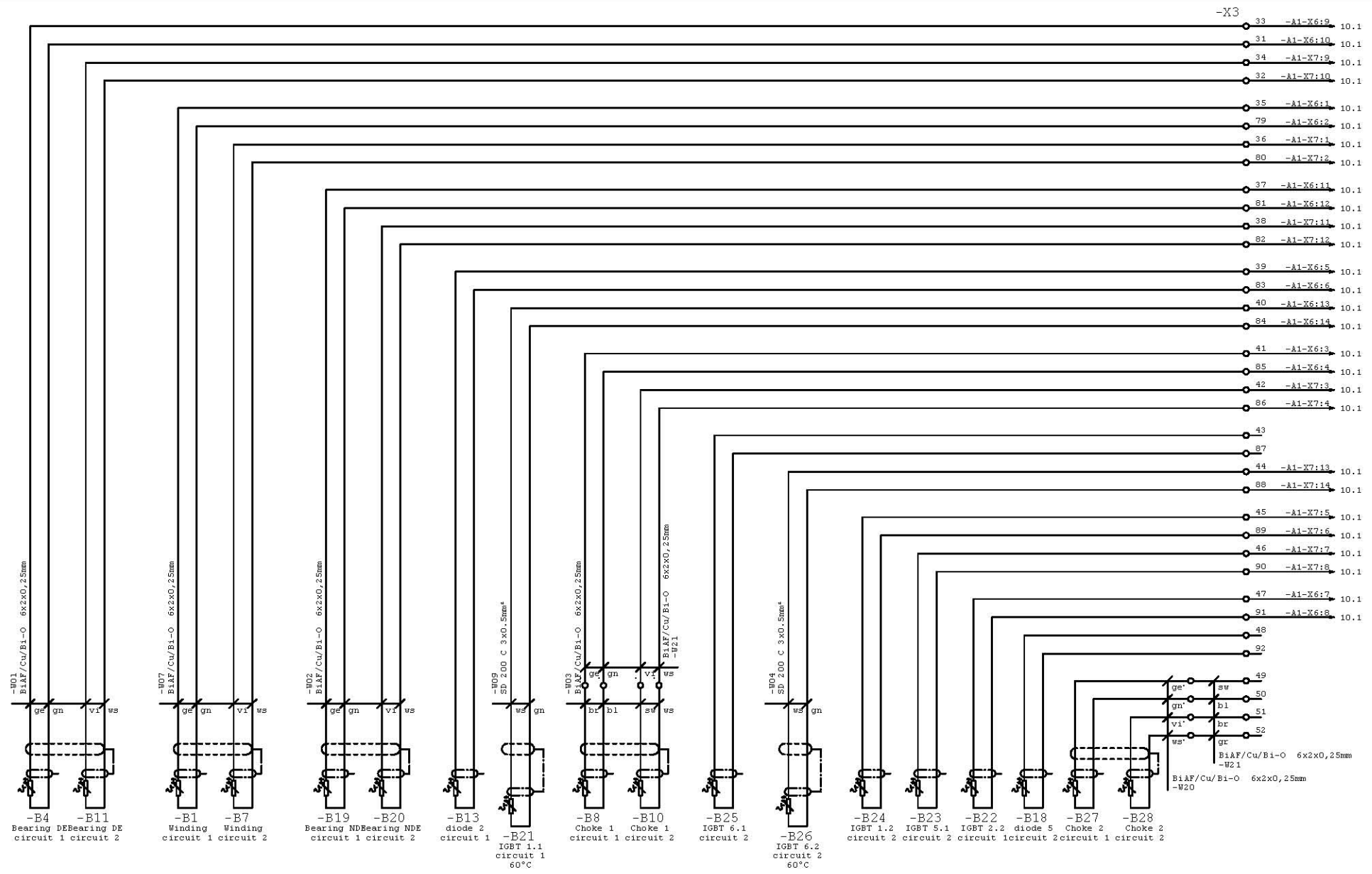


d.c. link

wiring diagram

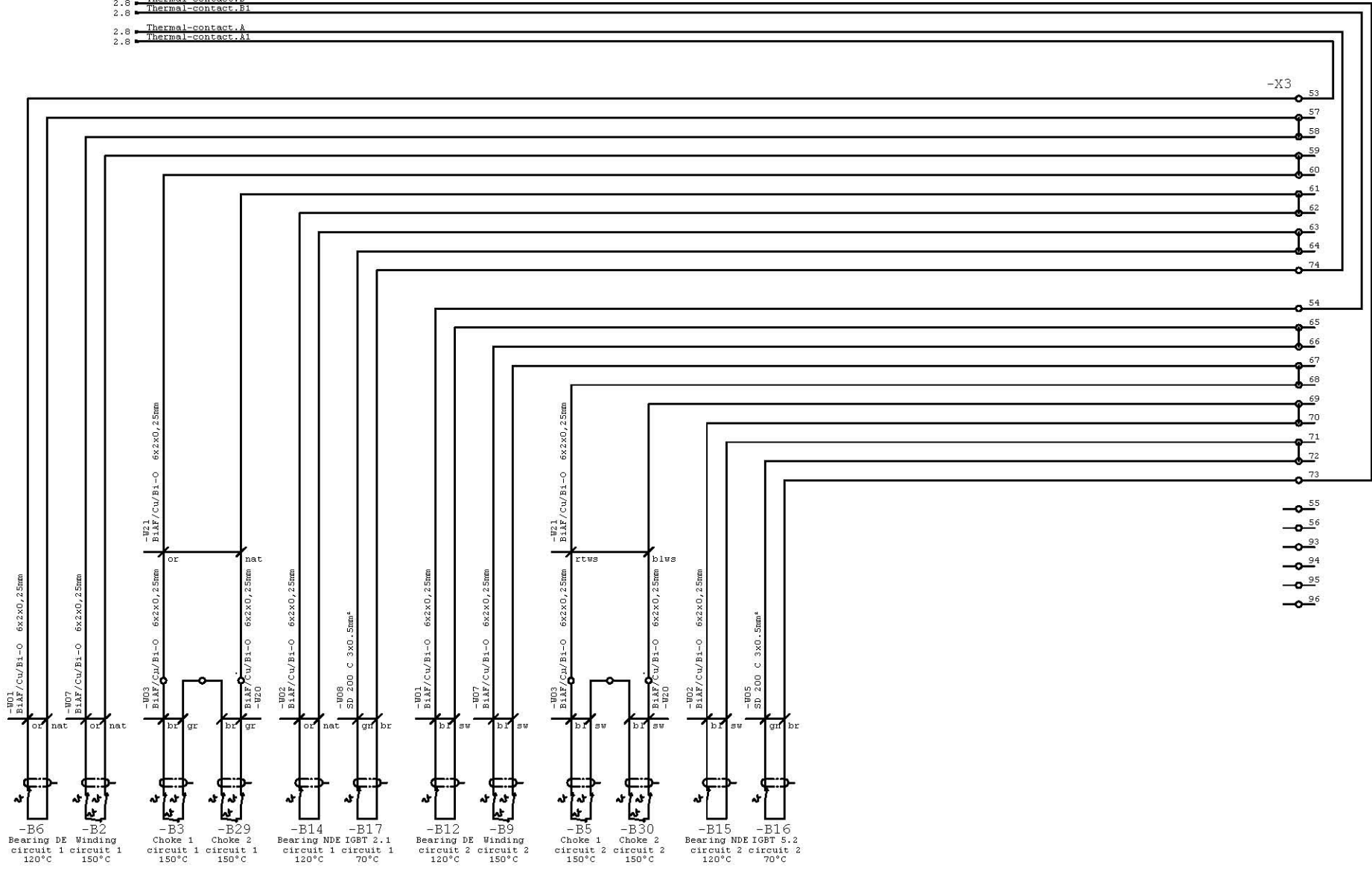


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|-------|--------|--------|------|------------|--------------------------------|------------|---|--|----------------|--|---------------|--|---------------------|--|-----------|
| | | date | | 16.04.2012 | ZHANGJIAKOU COAL MINING | | BreuerMotoren <small>competence since 1877</small> | | Control | | customer-no.: | | = | | |
| | | worker | | Wieczorek | VFD motor dksWa72UM/4-4:1020kW | | | | BSVLWL04 | | equipment: | | drawing-no.: | | sheet 7 |
| | | check | | Hellinger | | | | | wiring diagram | | dksWa72UM/4-4 | | 072-1016767-09-04 E | | of 12 sh. |
| state | change | date | name | norm | root | create for | | | | | | | | | |

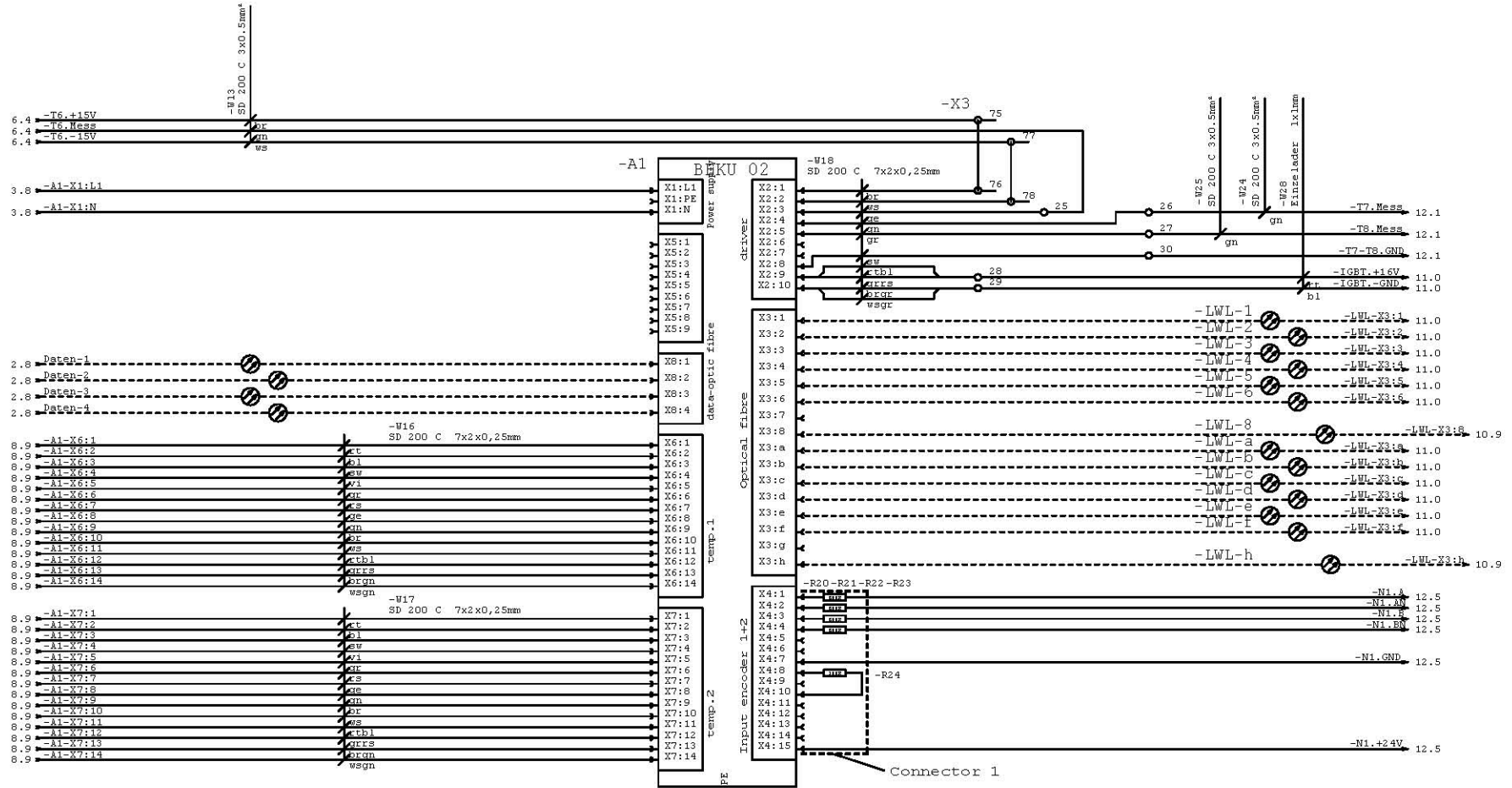


| | | | | | | | | | | | | | | |
|-------|--------|------|------|--------|------------|--------------------------------|--|-----------------------|--|--------------|---------------------|---------------|-----------|---------|
| | | | | date | 16.04.2012 | ZHANGJIAKOU COAL MINING | | Breuer Motoren | | monitoring | | customer-no.: | | = |
| | | | | worker | Wieczorek | VFD motor dksWa72UM/4-4:1020kW | | competence since 1977 | | PT 100 - PTC | | equipment: | | + |
| | | | | check | Hellinger | | | | | drawing-no.: | | dksWa72UM/4-4 | | sheet 8 |
| state | change | date | name | norm | root | create for | | | | | 072-1016767-09-04 E | | of 12 sh. | |

2.8 Thermal-contact.B
 2.8 Thermal-contact.B1
 2.8 Thermal-contact.A
 2.8 Thermal-contact.A1

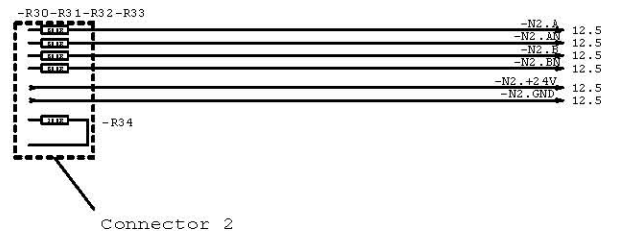


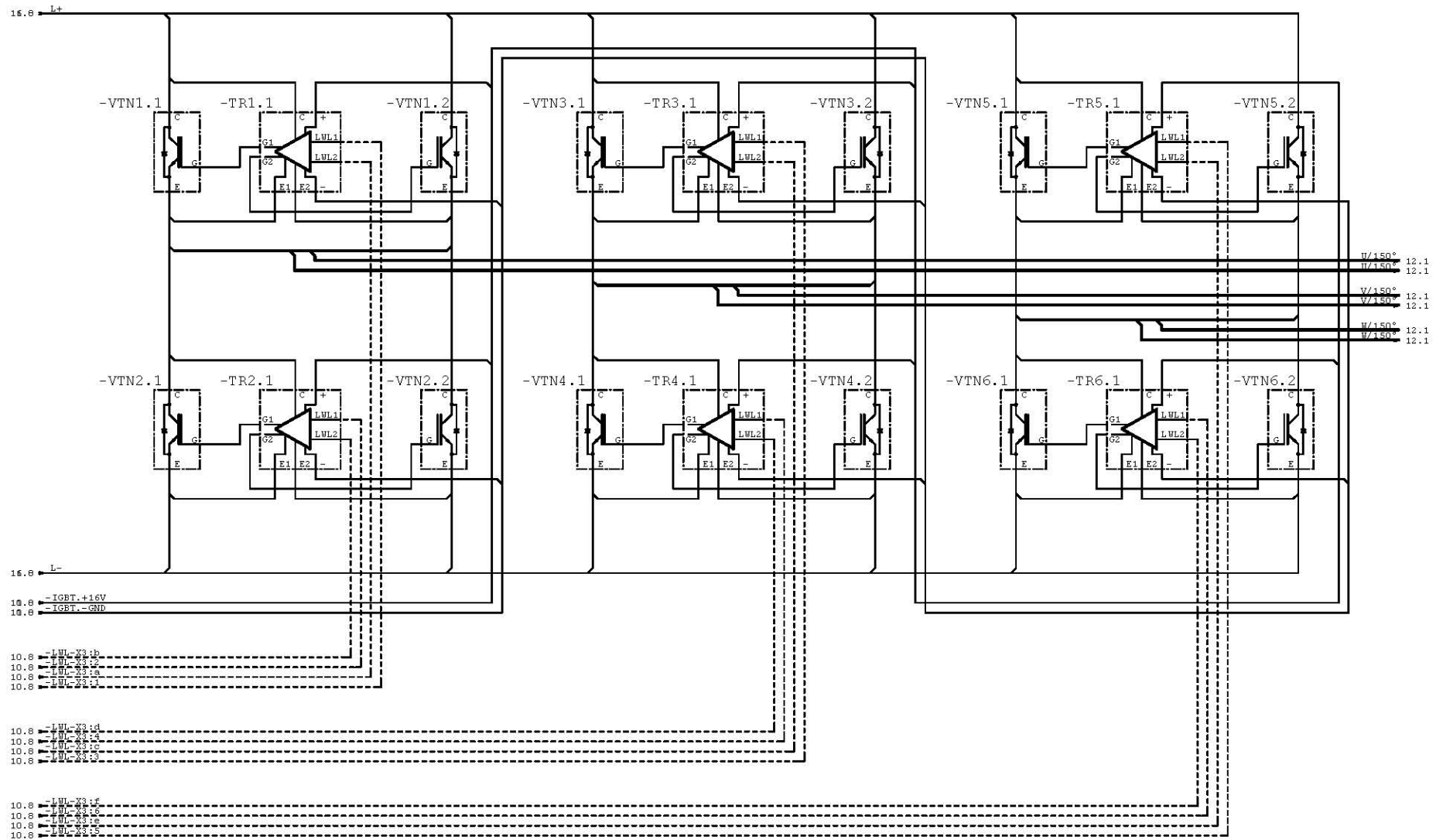
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|-------|--------|------|------|--------|------------|--------------------------------|------------|--|--|----------------|--|--------------|---------------------|---------|
| | | | | date | 16.04.2012 | ZHANGJIAKOU COAL MINING | | Breuer Motoren <small>competence since 1877</small> | | customer-no.: | | = | | |
| | | | | worker | Wieczorek | VFD motor dksWa72UM/4-4:1020kW | | | | equipment: | | drawing-no.: | 072-1016767-09-04 E | sheet 9 |
| | | | | check | Hellinger | root | | | | wiring diagram | | | of 12 sh. | |
| state | change | date | name | norm | | | create for | | | | | | | |



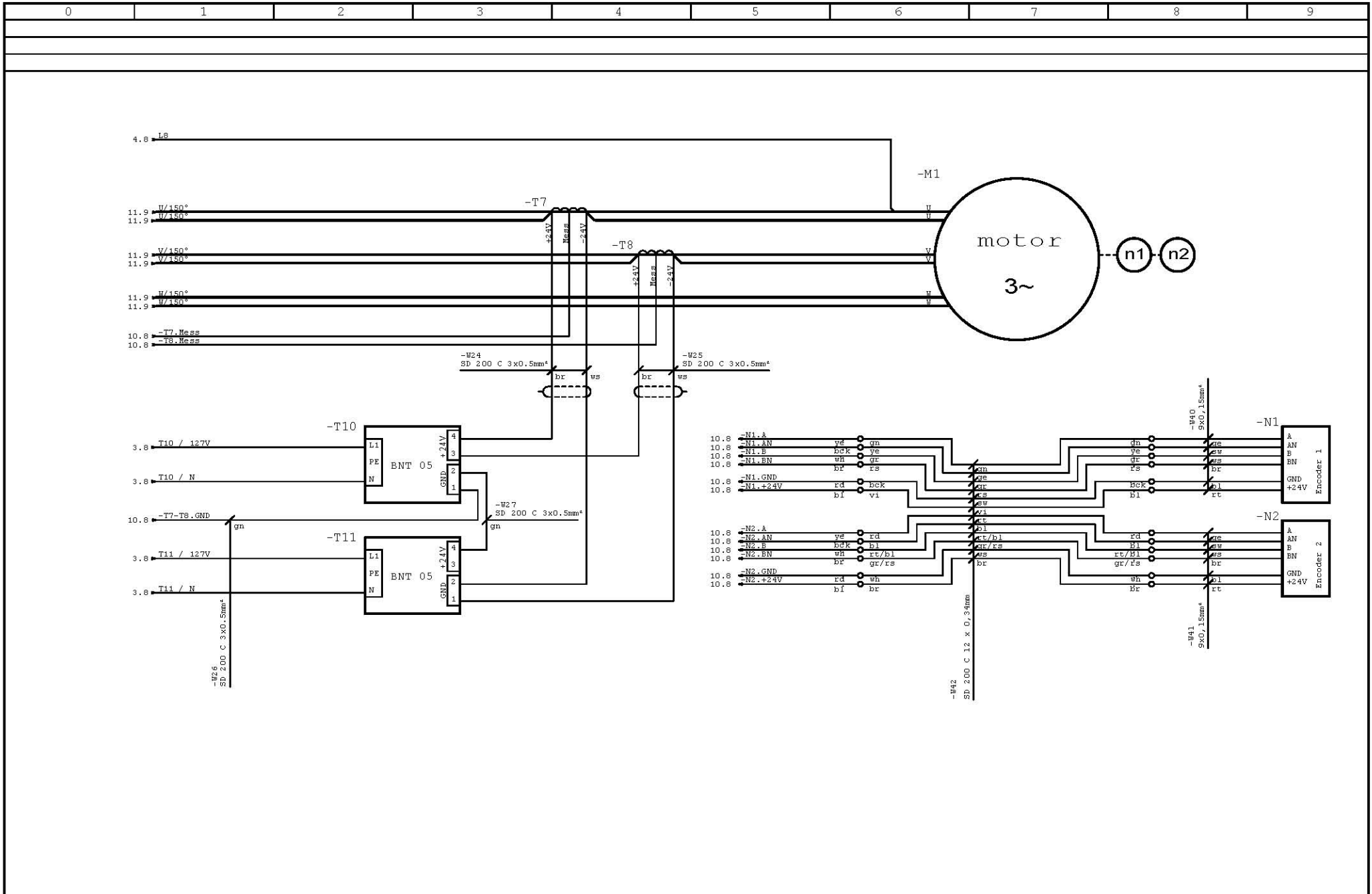
| temp.1 | | |
|----------------|--------------------------|-------------|
| Terminal block | name | temp-sensor |
| -X6: 1 - 2 | = PT100 winding | -B1 |
| -X6: 3 - 4 | = PT100 choke | -B8 |
| -X6: 5 - 6 | = PT100 Diode (-V3) | -B13 |
| -X6: 7 - 8 | = PT100 IGBT (-VT2.2) | -B22 |
| -X6: 9 - 10 | = PT100 bearing DE | -B4 |
| -X6: 11 - 12 | = PT100 bearing NDE | -B19 |
| -X6: 13 - 14 | = PTC 60°C IGBT (-VT1.1) | -B21 |

| temp.2 | | |
|----------------|--------------------------|-------------|
| Terminal block | name | temp-sensor |
| -X7: 1 - 2 | = PT100 winding | -B7 |
| -X7: 3 - 4 | = PT100 choke | -B10 |
| -X7: 5 - 6 | = PT100 IGBT (-VT1.2) | -B24 |
| -X7: 7 - 8 | = PT100 IGBT (-VT5.1) | -B23 |
| -X7: 9 - 10 | = PT100 bearing DE | -B11 |
| -X7: 11 - 12 | = PT100 bearing NDE | -B20 |
| -X7: 13 - 14 | = PTC 60°C IGBT (-VT6.2) | -B26 |

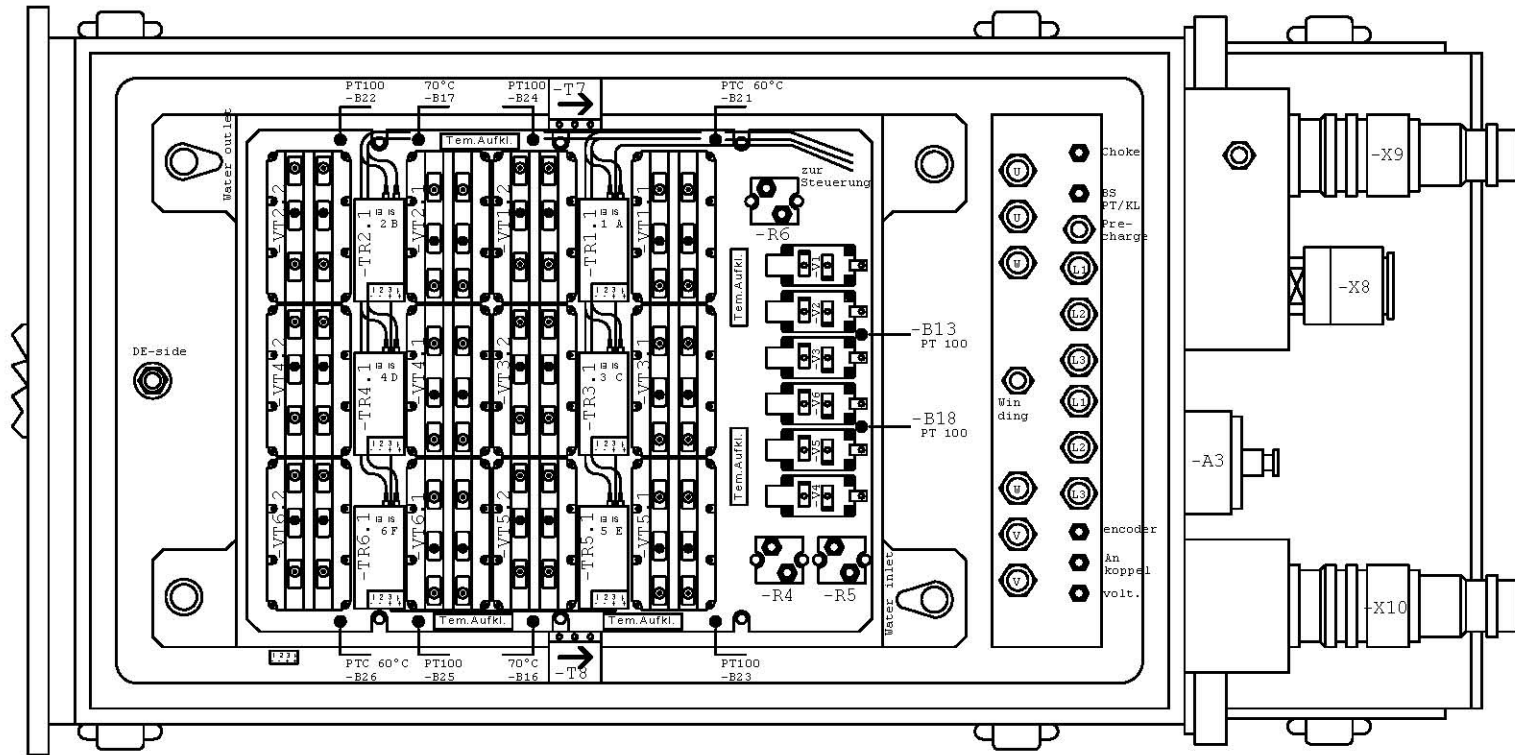




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|-------|--------|------------------|------|--------------------------------|------|---|--|----------------|--|--------------------------|-----------|
| | | date 16.04.2012 | | ZHANGJIAKOU COAL MINING | | BreuerMotoren <small>competence since 1877</small> | | Control | | customer-no.: = | |
| | | worker Wieczorek | | VFD motor dksWa72UM/4-4:1020kW | | | | IGBT | | equipment: dksWa72UM/4-4 | |
| | | check Hellinger | | | | | | wiring diagram | | sheet 11 | |
| state | change | date | name | norm | root | create for | | | | | of 12 sh. |



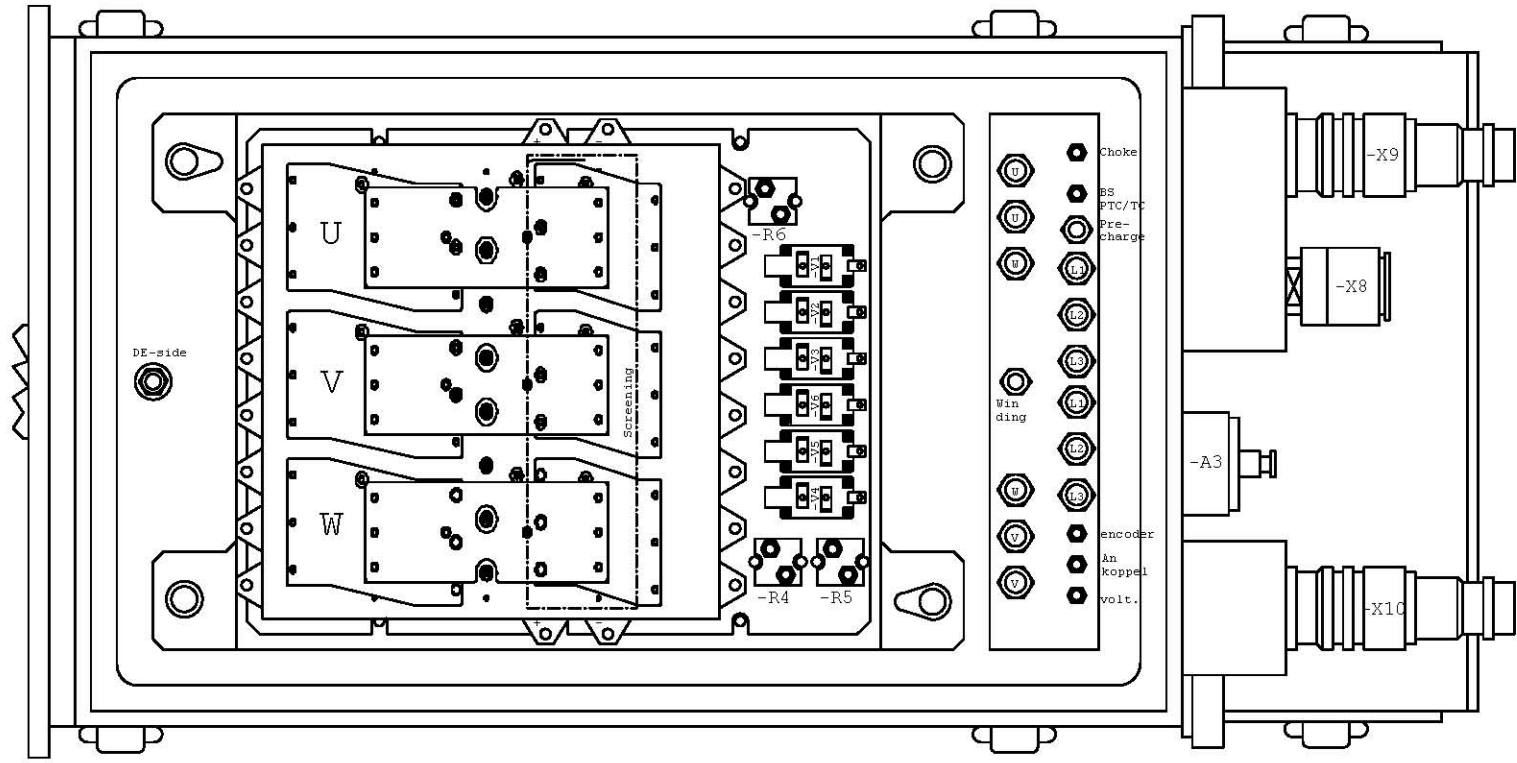
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|--------|------------|--------------------------------|------------|--|-------------------------|---------------|--------------|---------------------|----------|
| date | 16.04.2012 | ZHANGJIAKOU COAL MINING | | BreuerMotoren competence since 1877 | Current measur. encoder | customer-no.: | = | | |
| worker | Wieczorek | VFD motor dksWa72UM/4-4:1020kW | | | | equipment: | drawing-no.: | + | |
| check | Hellinger | root | create for | | | dksWa72UM/4-4 | | 072-1016767-09-04 E | sheet 12 |
| state | change | date | name | norm | | | | of 12 sh. | |



| | | | | | | |
|--------|------------|--------------------------------|------------|---|---------------|----------|
| date | 16.04.2012 | ZHANGJIAKOU COAL MINING | | Breuer Motoren competence since 1877 | customer-no.: | = |
| worker | Wieczorek | VFD motor dksWa72UM/4-4;1020kW | | | equipment: | + |
| check | Hellinger | root | create for | | drawing-no.: | sheet 1 |
| state | change | date | name | norm | drawn | of 7 sh. |

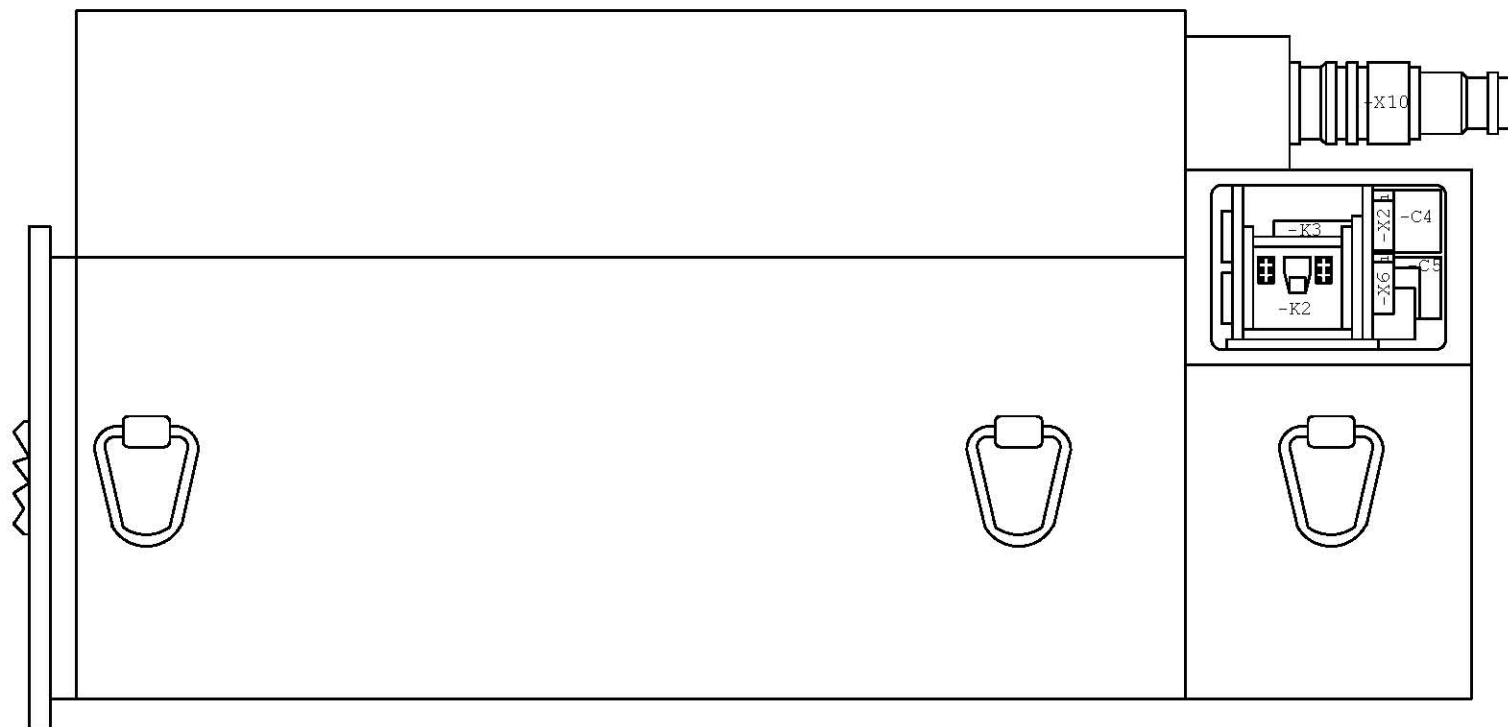
schematic diagram

072-1016767-09-04 E



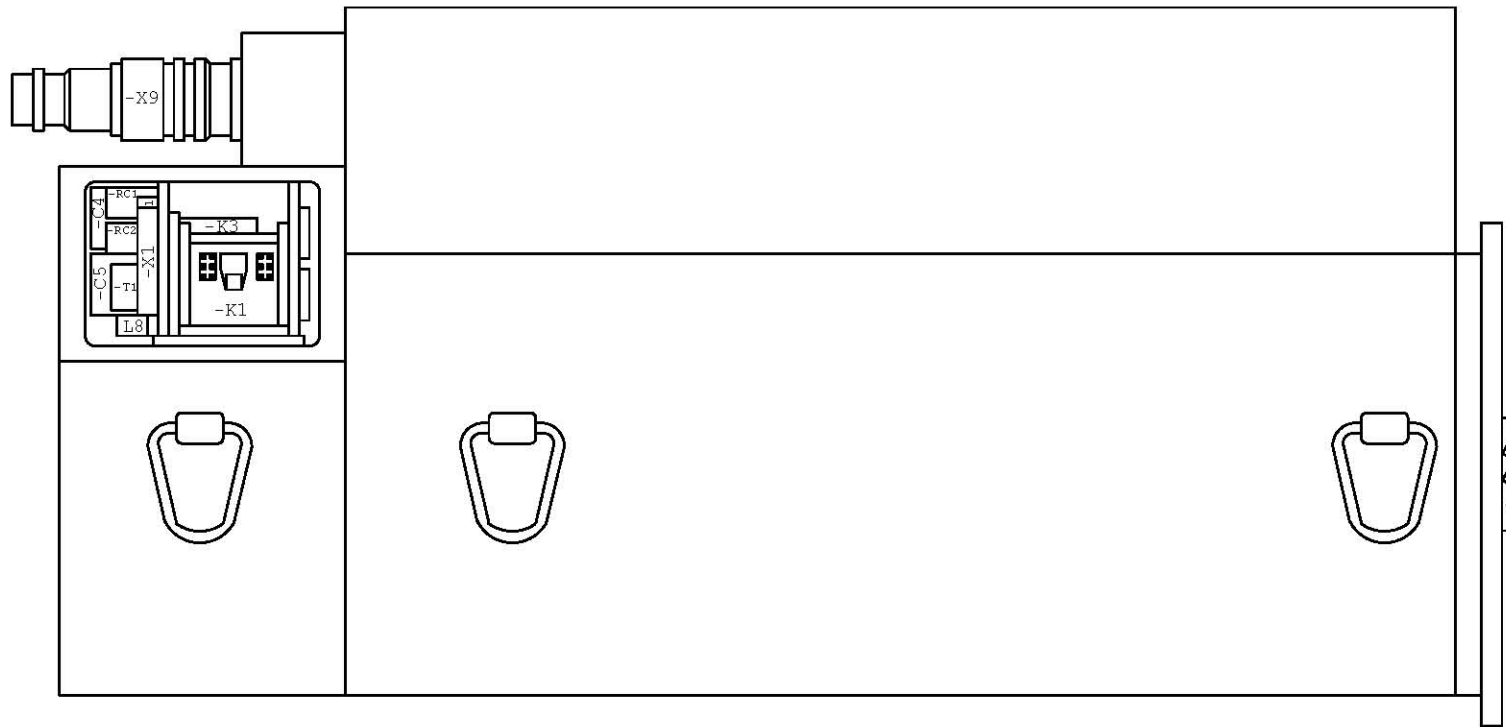
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|-------|--------|------|------|--------|------------|--------------------------------|--|---------------|---------------------|----------|
| | | | | date | 16.04.2012 | ZHANGJIAKOU COAL MINING |  competence since 1877 | customer-no.: | = | |
| | | | | worker | Wieczorek | VFD motor dksWa72UM/4-4;1020kW | | | + | |
| | | | | check | Hellinger | | | | | |
| state | change | date | name | norm | root | create for | | equipment: | drawing-no: | sheet 2 |
| | | | | | | | | dksWa72UM/4-4 | 072-1016767-09-04 E | of 7 sh. |

schematic diagram



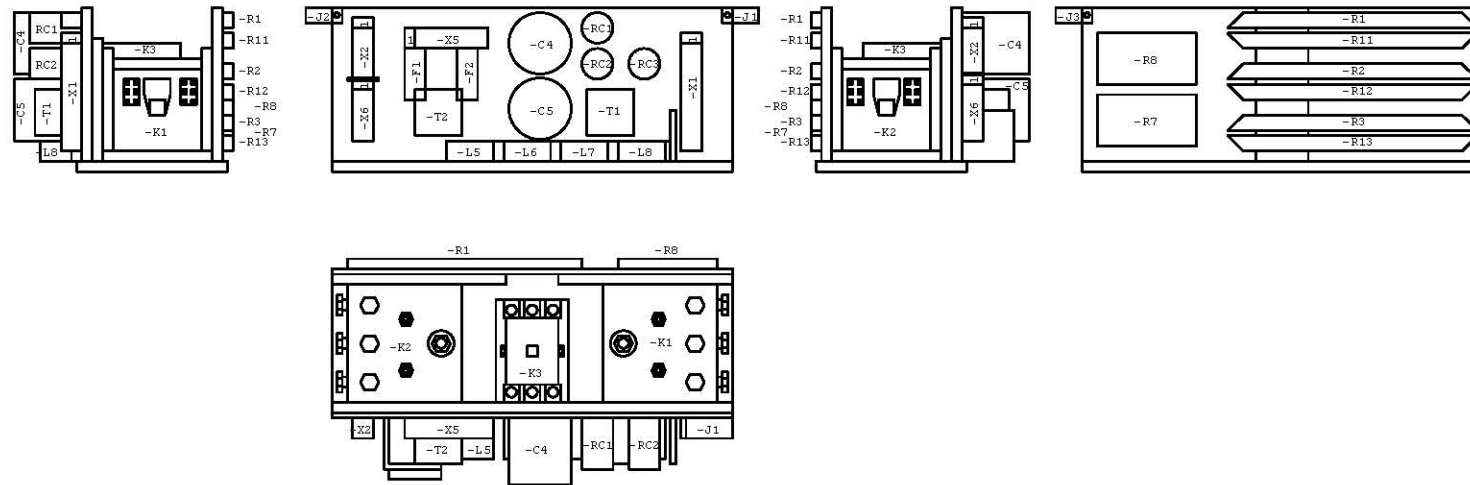
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|-------|--------|------|------|--------|------------|--------------------------------|--|---|---------------|---------------------|----------|
| | | | | date | 16.04.2012 | ZHANGJIAKOU COAL MINING | | | customer-no.: | = | |
| | | | | worker | Wieczorek | VFD motor dksWa72UM/4-4;1020kW | |  <small>competence since 1877</small> | | + | |
| | | | | check | Hellinger | | | | equipment: | drawing-no: | sheet 4 |
| state | change | date | name | norm | root | create for | | | dksWa72UM/4-4 | 072-1016767-09-04 E | of 7 sh. |

schematic diagram



| | | | | | | | | | | | |
|-------|--------|------|------|--------|------------|--------------------------------|---|--|---------------|---------------------|----------|
| | | | | date | 16.04.2012 | ZHANGJIAKOU COAL MINING | | | customer-no.: | = | |
| | | | | worker | Wieczorek | VFD motor dksWa72UM/4-4;1020kW |  | | | + | |
| | | | | check | Hellinger | | | | equipment: | drawing-no: | sheet 5 |
| state | change | date | name | norm | root | create for | | | dksWa72UM/4-4 | 072-1016767-09-04 E | of 7 sh. |

schematic diagram

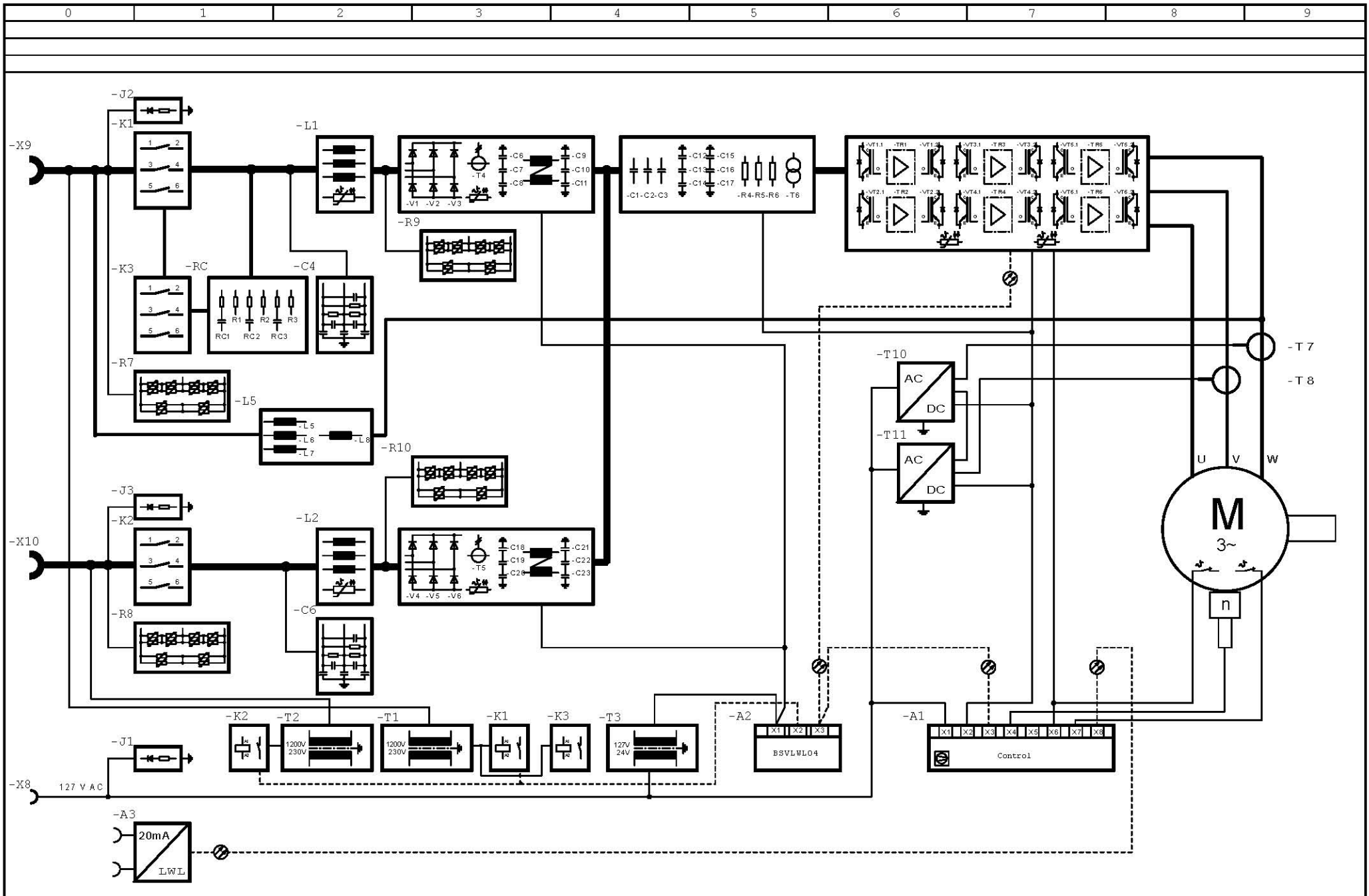


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|-------|--------|------|------|--------|------------|--------------------------------|--|---------------|---------------------|----------|
| | | | | date | 16.04.2012 | ZHANGJIAKOU COAL MINING | <small>competence since 1877</small> | customer-no.: | = | |
| | | | | worker | Wieczorek | VFD motor dksWa72UM/4-4;1020kW | | equipment: | drawing-no.: | sheet 7 |
| | | | | check | Hellinger | | | dksWa72UM/4-4 | 072-1016767-09-04 E | of 7 sh. |
| state | change | date | name | norm | root | create for | schematic diagram | | | |

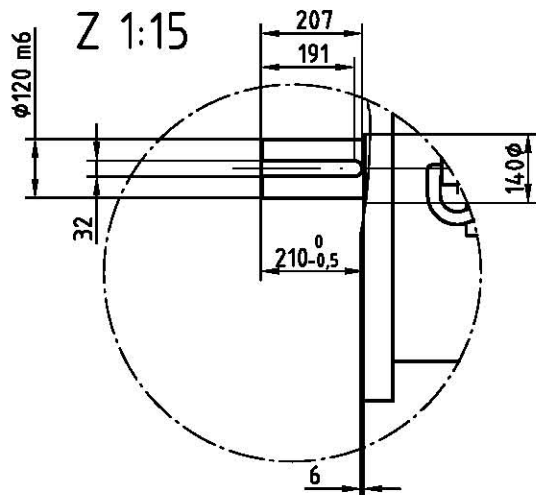
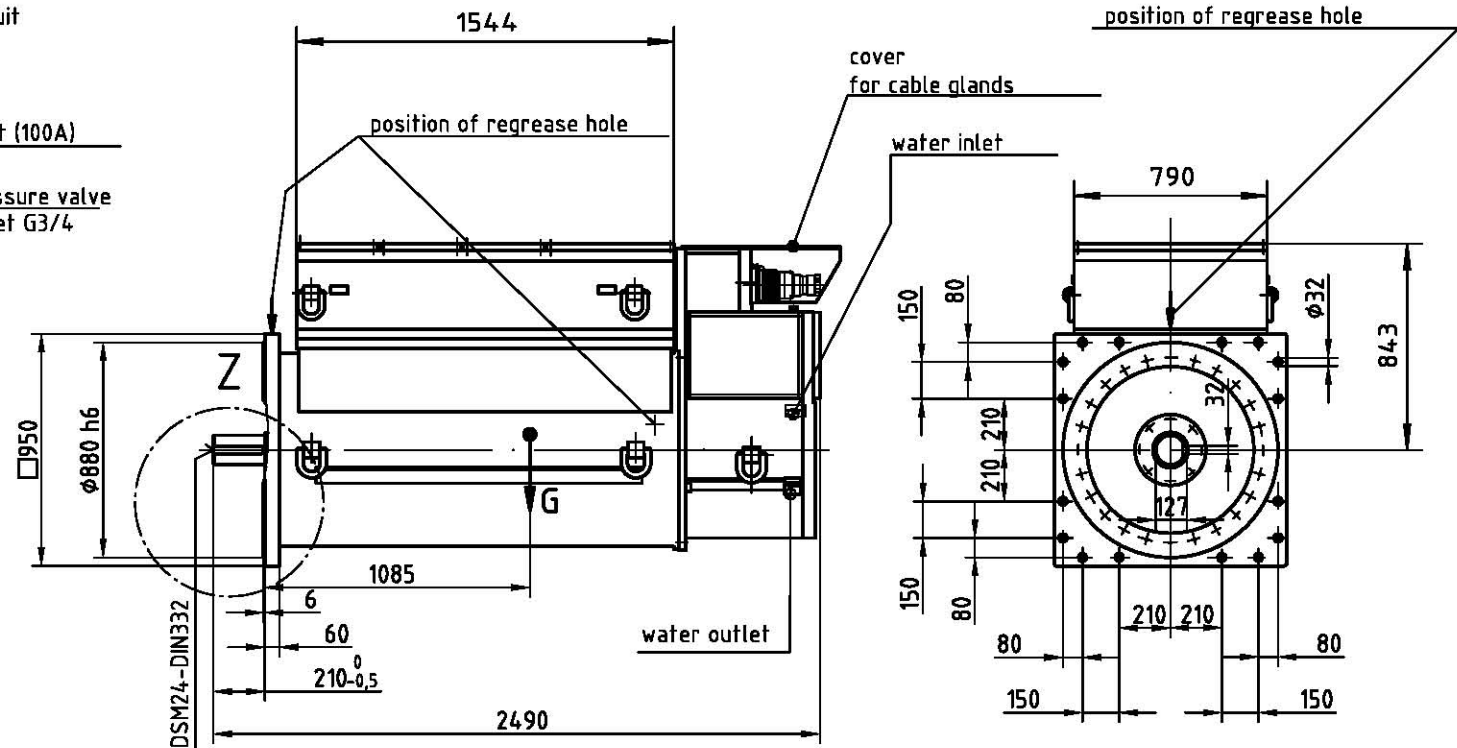
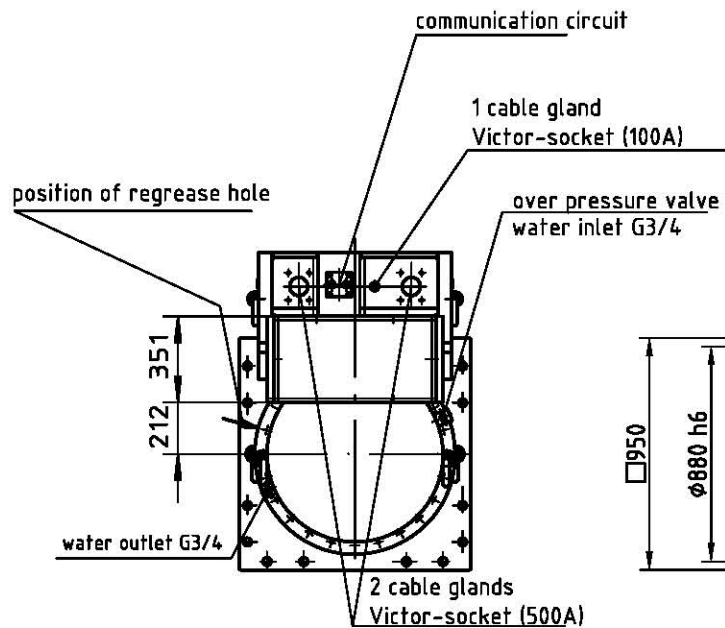
bill of material

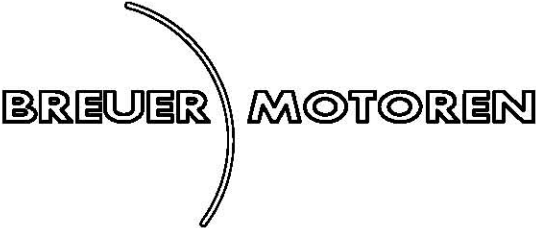
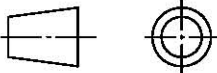
sheet: 1

| ser.no | number | name | PPS / art.-no | name | producer |
|--------|--------|---|---------------|---|----------------|
| 1 | 1 | Control unit BEKU02-127V AC | 1011814 | -A1 | Breuer-Motoren |
| 2 | 1 | Amplifier BSVLWLO4 | 1000245 | -A2 | Breuer-Motoren |
| 3 | 1 | Data flange | 1001199 | -A3 | Breuer-Motoren |
| 4 | 6 | Thermal contact 150°C, triple | 0210705 | -B2, -B3, -B5, -B9, -B29, -B30 | |
| 5 | 4 | Thermal contact 120°C | 0210702 | -B6, -B12, -B14, -B15 | |
| 6 | 2 | Thermal contact 70°C | 0210697 | -B16, -B17 | |
| 7 | 10 | PT 100 | 0210692 | -B1, -B4, -B7, -B8, -B10, -B11 -B19, -B20, -B27, -B28 | |
| 8 | 6 | PT 100 | 0000966 | -B13, -B18, -B22, -B23, -B24 -B25 | |
| 9 | 2 | PTC 60° screened | 0000964 | -B21, -B26 | |
| 10 | 3 | d.c. link capacitor 1,8kV 2,3mF | 1012629 | -C1, -C2, -C3 | |
| 11 | 2 | EMC capacitor XY MKP 3x(470nFX+2nF+2,2nR) | 1003737 | -C4, -C5 | |
| 12 | 12 | EMC capacitor 0,25µF 1KVAC | 0214202 | -C6, -C8, -C9, -C11, -C12, -C14 -C15, -C17, -C18, -C20, -C21 -C23 | |
| 13 | 6 | EMC capacitor 0,5µF 1KVAC | 0214587 | -C7, -C10, -C13, -C16, -C19 -C22 | |
| 14 | 2 | Fuse for BEKZL incl. 2A fuse link | 1012655 | -F1, -F2 | Breuer-Motoren |
| 15 | 3 | End member | 0210710 | -J1, -J2, -J3 | |
| 16 | 2 | Vacuum contactor 400A | 0213894 | -K1, -K2 | |
| 17 | 1 | Contact 7,5kV 230V | 0218980 | -K3 | |
| 18 | 2 | Mains choke 3x0,21mH 400A 1kV | 0224736 | -L1, -L2 | |
| 19 | 2 | Choke 540µH | 0220240 | -L3, -L4 | Breuer-Motoren |
| 20 | 4 | Choke | 0210805 | -L5, -L6, -L7, -L8 | |
| 21 | 1 | Optical fibre harness 72UM BIGBT11 | 0222269 | -LWL-1 | Breuer-Motoren |
| 22 | 4 | Optical fibre Sercos 2,0m FSMA 0°/90° | 0218030 | -LWL-D1, -LWL-D2, -LWL-D3 -LWL-D4 | |
| 23 | 1 | Fan | 1012409 | -M2 | |
| 24 | 2 | Encoder | 1011013 | -N1, -N2 | |
| 25 | 3 | Discharge resistor 600W;24kR | 1011455 | -R4, -R5, -R6 | Breuer-Motoren |
| 26 | 4 | Varistor -03 1140V | 1012989 | -R7, -R8, -R9, -R10 | |
| 27 | 6 | Resistor 60R; 150W | 0221471 | -R1, -R2, -R3, -R11, -R12, -R13 | |
| 28 | 8 | Resistor 680R | 0222931 | -R20, -R21, -R22, -R23, -R30 -R31, -R32, -R33 | |
| 29 | 2 | Resistor 100R | 0217383 | -R24, -R34 | |
| 30 | 3 | EMC cc-element 0,25µF+20R 1KVAC | 0214500 | -RC1, -RC2, -RC3 | |
| 31 | 2 | Transformer 1100V/1200/230V;100VA | 1012652 | -T1, -T2 | |
| 32 | 1 | Transformer 127V/24V;63VA | 1012429 | -T3 | |
| 33 | 2 | Current transformer In=720A Imax=1,15kA | 0214290 | -T4, -T5 | |
| 34 | 1 | Voltage transformer | 1002739 | -T6 | Breuer-Motoren |
| 35 | 2 | Current transformer In=2kA Imax=3,8kA | 0215816 | -T7, -T8 | |
| 36 | 1 | BNT09 | 1012886 | -T9 | Breuer-Motoren |
| 37 | 2 | Power supply BNT05 127VAC/24VDC | 1012631 | -T10, -T11 | Breuer-Motoren |
| 38 | 6 | BIGBT11 IGBT-driver | 1012621 | -TR1.1, -TR2.1, -TR3.1, -TR4.1 -TR5.1, -TR6.1 | Breuer-Motoren |



| | | | | | | | | | | | | | |
|--------|--|------------|--|--------------------------------|--|-----------------------|--|---------------|--|---------------------|--|-----------|--|
| date | | 16.04.2012 | | ZHANGJIAKOU COAL MINING | | Breuer Motoren | | layout | | customer-no.: | | = | |
| worker | | Wieczorek | | VFD motor dksWa72UM/4-4:1020kW | | competence since 1977 | | | | equipment: | | + | |
| check | | Hellinger | | root | | create for | | block diagram | | drawing-no.: | | sheet 1 | |
| state | | change | | date | | name | | norm | | dksWa72UM/4-4 | | of 12 sh. | |
| | | | | | | | | | | 072-1016767-09-04 E | | | |



| | | | | | |
|------------------------|--|--|-----------------|---|-------|
| Code-No.: | | dksWa72UM/4-4 | |  | |
| Material: | | 1020kW, 1140V | | | |
| Scale: 1:30 | | General tolerances as per ISO 2768 m H | | | |
| Signed 22.03.2011 | | Niestrath | | | |
| Date | | Name | |  | |
| Revie. | | | | | |
| A.V. | | | | | |
| Designation | | VFD-motor | | Copyright acc. to DIN 34 | |
| Compass-Nr: ENG-024344 | | | PDF erstellt: 0 | Drawing-No. | Blatt |
| | | | | A072-00-E0-068 | A4 |