

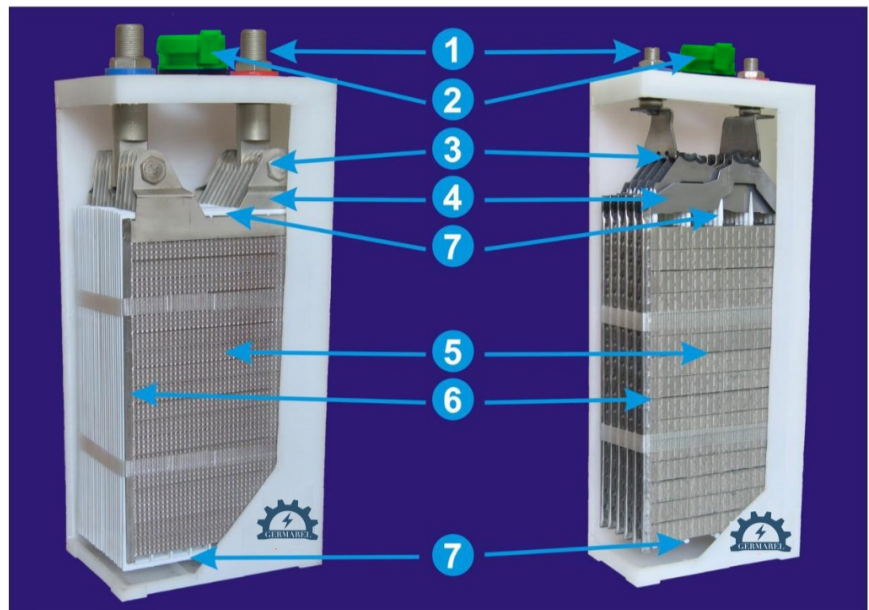
KPL220P Series NiCd 220Ah



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CONSTRUCTION:

Alkaline nickel-cadmium cell consists of pocket plate positive oxide-nickel and negative cadmium electrodes, divided by plastic separators, which provide stable spark gap and free circulation of electrolyte.



- 1. Terminal** - provides the current takeoff and cell connection.
- 2. Plug** - provides convenient electrolyte filling, free gas outlet during charging, and excludes electrolyte splashing and its aerosol steams.
- 3. Electrode connection** - connects the electrodes and provides the current transfer from electrodes to terminal.
- 4. Contact banks** - are welded to electrode and provide the current takeoff from the electrodes.
- 5. Electrode** - consists of horizontally located pocket plates, contains active material enclosed in steel perforated strip.
- 6. Rib** - provide electrode rigidity and current transfer to the contact banks.
- 7. Frame separator** - divides positive and negative electrodes, provides free circulation of electrolyte between the electrodes.

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Electrolyte requirements:

Electrolyte is a water solution of potassium hydroxide GOST 9285-78 of superior grade with density $(1200 \pm 10) \text{ kg/m}^3$, $(1,19 - 1,21 \text{ g/cm}^3)$ with addition of lithium hydroxide GOST 8595-83 in amounts of $(20 \pm 1) \text{ g/l}$. At the electrolyte temperature less than $-30 \text{ }^\circ\text{C}$ use electrolyte with density $1,26 - 1,28 \text{ g/cm}^3$ without addition of lithium hydroxide.

General characteristics:

- Batteries are supplied in the form of separate cells or battery blocks with compounds;
- Nominal voltage of cell is 1,2V, the block voltage depends on the number of the cells in the block (2,4 V; 3,6 V; 4,8 V; 6,0 V; 7,2 V; 8,4 V; 9,6 V; 10,8 V; 12,0 V);
- Cells and batteries provide full operation after storage during three months within the whole working temperature range without charge when putting into operation, under condition, that battery was charged and powered off before placing in storage;
- Cells and batteries ensure operation after six months storage, under condition, that battery was charged and powered off before placing in storage, battery should be charged before starting operation;
- Criterion of cells limiting state is a lowering of available capacity to less than 60 % of nominal capacity;

After completion of operation, Germarel accept cells for recycling together with electrolyte.



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ALKALINE NICKEL-CADMIUM CELLS OF KPL TYPE AND BLOCKS OF THEM

Cells of KPL type are alkaline cells with pocket plate electrodes and comply with international standard IEC 60623.

APPLICATIONS:

- Back-up power for cellular base stations, wire automatic telephone systems and other telecommunication objects;
- Signaling systems; emergency lighting and electrical power supply;
- Solar and wind power objects;
- Oil and gas complex (recovery, transportation and refining);
- Electric power objects (generation and distribution);
- Power systems of navigation marks;
- Underground;
- Passenger railway carriages;
- Electric locomotives and electric trains;
- Urban electric transport;
- Sea and river ships.

It's possible to develop and supply battery blocks with the different number of cell and individual layout according to customer's technical requirements.

Appearance of KPL type cells



KPL20P
KPL45P



KPL60P
KPL70P



KPL100P
KPL110P
KPL125P



KPL140P
KPL160P
KPL180P



KPL200P
KPL220P
KPL250P
KPL275P

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Cells of KPL Type

| Cell type | IEC 60623 designation | Nominal capacity, C5 | Cell dimensions, mm | | | Cell weight, kg | | Terminals |
|-----------|-----------------------|----------------------|---------------------|------|-----|------------------|---------------------|-----------|
| | | | W | L | H | with electrolyte | without electrolyte | |
| KPL20P | KL20P | 20 | 113 | 59 | 240 | 2,2 | 1,3 | M5 |
| KPL45P | KL45P | 45 | 113 | 59 | 240 | 2,5 | 1,8 | M5 |
| KPL45 | KL45 | 45 | 107 | 55 | 216 | 2,8 | 2,2 | M5 |
| KPL60 | KL60 | 60 | 130 | 47 | 352 | 4,46 | 3,5 | M10 |
| KPL60P | KL60P | 60 | 127 | 62,5 | 282 | 3,8 | 2,95 | M14 |
| KPL65 | KL65 | 65 | 130 | 47 | 352 | 4,46 | 3,5 | M10 |
| KPL70P | KL70P | 70 | 127 | 62,5 | 282 | 3,8 | 2,95 | M14 |
| KPL100P | KL100P | 100 | 137 | 78 | 360 | 5,7 | 4,0 | M10 |
| KPL110P | KL110P | 110 | 137 | 78 | 360 | 6,1 | 4,3 | M10 |
| KPL125P | KL125P | 125 | 137 | 78 | 360 | 6,1 | 4,3 | M10 |
| KPL140P | KL140P | 140 | 137 | 113 | 327 | 8,3 | 6,1 | M16 |
| KPL160P | KL160P | 160 | 137 | 113 | 327 | 8,5 | 6,5 | M16 |
| KPL180P | KL180P | 180 | 137 | 113 | 327 | 8,5 | 6,5 | M16 |
| KPL200P | KL200P | 200 | 171 | 118 | 370 | 11,4 | 7,6 | M20 |
| KPL220P | KL220P | 220 | 171 | 118 | 370 | 11,6 | 8,0 | M20 |
| KPL250P | KL250P | 250 | 171 | 118 | 370 | 12,0 | 8,6 | M20 |
| KPL275P | KL275P | 275 | 171 | 118 | 370 | 12,0 | 8,6 | M20 |
| KPL300P | KL300P | 300 | 172 | 119 | 405 | 13,6 | 10,4 | M20 |
| KPL320P | KL320P | 320 | 172 | 119 | 405 | 14,0 | 11,0 | M20 |
| KPL340P | KL340P | 340 | 172 | 119 | 405 | 14,0 | 11,0 | M20 |
| KPL375P | KL375P | 375 | 171 | 174 | 370 | 17,9 | 13,6 | M20 |
| KPL400P | KL400P | 400 | 171 | 174 | 370 | 18,3 | 14,1 | M20 |
| KPL420P | KL420P | 420 | 169 | 174 | 405 | 18,3 | 14,1 | 2×M16 |
| KPL450P | KL450P | 450 | 169 | 174 | 405 | 19,0 | 15,5 | 2×M16 |
| KPL500P | KL500P | 500 | 169 | 174 | 405 | 20,0 | 15,8 | 2×M16 |

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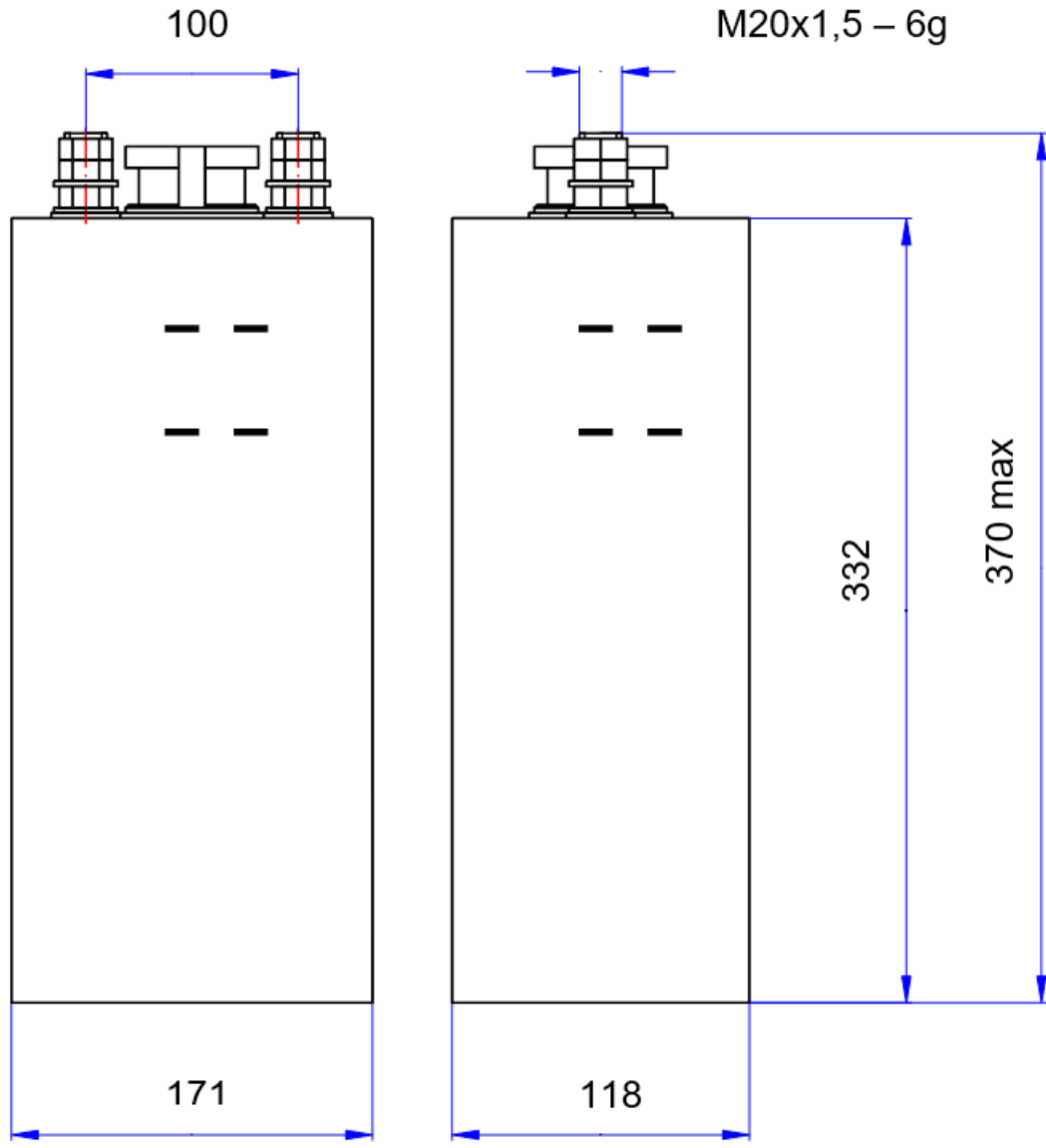
Blocks Dimensions

| Cell type | Block dimensions, mm | | | | | | | | | | |
|-----------|----------------------|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | W | H | L / L1 | | | | | | | | |
| | | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| KPL20P | 138 | 250 | 148 | 207 | 266 | 325 | 399 | 458 | 517 | 576 | 635 |
| KPL45P | 138 | 250 | 148 | 207 | 266 | 325 | 399 | 458 | 517 | 576 | 635 |
| KPL45 | 145 | 235 | 170 | 235 | 300 | 365 | 445 | 510 | 576 | 640 | 705 |
| KPL60 | 176 | 370 | 148 / 196 | 202 / 250 | 256 / 304 | 310 / 358 | 382 / 430 | 436 / 484 | 490 / 538 | 544 / 592 | 598 / 646 |
| KPL60P | 150 | 295 | 155 | 218 | 280 | 343 | 420 | 483 | 545 | 608 | 670 |
| KPL65 | 176 | 370 | 148 / 196 | 202 / 250 | 256 / 304 | 310 / 358 | 382 / 430 | 436 / 484 | 490 / 538 | 544 / 592 | 598 / 646 |
| KPL70P | 150 | 295 | 155 | 218 | 280 | 343 | 420 | 483 | 545 | 608 | 670 |
| KPL100P | 170 | 370 | 192 / 230 | 270 / 308 | 348 / 386 | 426 / 464 | 522 / 560 | 600 / 638 | 678 / 716 | 756 / 794 | 834 / 872 |
| KPL110P | 170 | 370 | 192 / 230 | 270 / 308 | 348 / 386 | 426 / 464 | 522 / 560 | 600 / 638 | 678 / 716 | 756 / 794 | 834 / 872 |
| KPL125P | 170 | 370 | 192 / 230 | 270 / 308 | 348 / 386 | 426 / 464 | 522 / 560 | 600 / 638 | 678 / 716 | 756 / 794 | 834 / 872 |
| KPL140P | 170 | 338 | 262 | 375 | 488 | 601 | - | - | - | - | - |
| KPL160P | 170 | 338 | 262 | 375 | 488 | 601 | - | - | - | - | - |
| KPL180P | 170 | 338 | 262 | 375 | 488 | 601 | - | - | - | - | - |
| KPL200P | 205 | 384 | 270 | 388 | 506 | 624 | - | - | - | - | - |
| KPL220P | 205 | 384 | 270 | 388 | 506 | 624 | - | - | - | - | - |
| KPL250P | 205 | 384 | 270 | 388 | 506 | 624 | - | - | - | - | - |
| KPL275P | 205 | 384 | 270 | 388 | 506 | 624 | - | - | - | - | - |
| KPL300P | 205 | 419 | 272 | 391 | 510 | 629 | - | - | - | - | - |
| KPL320P | 205 | 419 | 272 | 391 | 510 | 629 | - | - | - | - | - |
| KPL340P | 205 | 419 | 272 | 391 | 510 | 629 | - | - | - | - | - |
| KPL375P | 205 | 380 | 382 / 437 | 556 / 611 | - | - | - | - | - | - | - |
| KPL400P | 205 | 380 | 382 / 437 | 556 / 611 | - | - | - | - | - | - | - |

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