

PRODUCT CATALOGUE

Lomain Single Cell Ni-Cd Battery Range



GAZ ENERGY

140 years of excellence

Throughout our rich history, GAZ Geräte-und Akkumulatorenwerk Zwickau has always been at the forefront of technological development. Today we rank among the leading suppliers of industrial Ni-Cd batteries and energy storage solutions based on Li-ion batteries.

We develop and manufacture Ni-Cd cells of highest quality, pushing the boundaries of this proven chemistry with innovative design features. Delivering customized battery solutions to customers around the world, our battery systems serve as backup power sources for critical equipment in industries ranging from oil and gas, energy and communications to transportation and other infrastructure.

European quality without compromise

GAZ ENERGY Lomain Range cells are built with uncompromised quality and workmanship in accordance to IEC 62259 standards and EU battery regulations. And not only to meet but exceed the performance requirements specified in the standard. Special non-woven, needled inert fabric separators ensures high permeability to facilitate gas recombination and the same time absorb enough amount of electrolyte (even through capillary effect when the cell electrolyte goes below Minimum level) for sufficient ion exchange among electrodes. These features in combination with a low-pressure operated, flame-arresting vent plugs ensures ultra-low or no maintenance during its service life in normal operations.



Superb performance and reliability with minimal maintenance

The unique design of GAZ ENERGY Lomain cells is optimized for ultra-low maintenance requirements, yet without any compromise in performance or other qualities. Firstly, the cells have a large reserve of electrolyte, which extends topping up intervals. Cell poles have a dual seal to prevent electrolyte carbonization, while a special felt separator improves the recombination of gases released during charging. Its highly absorptive capacity also enables the electrolyte reserves to be utilized as efficiently as possible. Other innovations include optimized electrode design and a valve-regulated venting system which eliminates the need to replenish water during the cell's designed lifespan and under normal operating conditions.

Together, these features make GAZ ENERGY Lomain cells a truly unique design which takes the proven Ni-Cd chemistry to another level. Not just in reliability and Total Cost of Ownership, but in a whole range of aspects, GAZ ENERGY Lomain cells far exceed industry standards, making them the first choice for the most demanding applications in energy or power backup even in extreme environments and remote locations.



Typical applications include

- UPS systems
- Emergency lighting
- Input power conditioning for critical processes
- Communication systems
- O&G on-shore, off-shore rigs
- O&G pipelines and refineries
- Trackside applications incl. railway signaling
- Security and alarm systems

GAZ ENERGY Lomain range of batteries offers

- Less maintenance costs
- Better recharge efficiency even at lower constant voltage boost charging
- More durability and safety thanks to its low-pressure valve operated flame arresting vent



Single cell construction

Low pressure valve regulated

Flame arresting vent plug

GAZ ENERGY safety terminal

Redundant leak protection minimizes carbonate formation

Electrode edge

Connected to terminal by bolting or welding providing high mechanical stability

Fleece separator

Special fleece separator insulates the plates and improves the internal recombination

GAZ ENERGY single cell design

Weld above the electrolyte level eliminates risk of faulty on the side and on the bottom of the cell

Electrode frame

Consisting of electrode edge and side bars. Seals the plates and works as a current collector

Horizontal pockets

Formed by perforated steel strips containing the active material



KGL and KGM ranges of the Lomain battery

GAZ ENERGY Ni-Cd Lomain cells build upon the proven pocket plate electrodes design that make GAZ ENERGY batteries the storage of choice for critical applications where failure is not an option. However, the Lomain range takes it even farther in terms of maximum service life and the lowest possible Total Cost of Ownership. Its outstanding features make the GAZ ENERGY Lomain range one of, if not the most reliable and advanced Ni-Cd battery on the market.

	KGL	KGM
Capacity Steps	96	110
Capacity Range	10–1775 Ah	11–1380 Ah
Design and Performance	Thicker plate design for a low discharge rate of >3 h	Plate thickness optimized for medium, mixed or high discharge rates
Maintenance	Requiring zero or maximum one water top-up in 20+ years of designed service life	

General advantages of Pocket-Plate technology

- Robust all-steel electrodes insensitive to seismic vibration
- Short-term High rate of power discharge for mixed load
- Reliable for 20+ years
- Large electrolyte reserve reduces the need of top-up and thus optimizing the maintenance costs
- Comparable Lower internal resistance, higher charge acceptance even at low voltage charging
- No risk of sudden failure or thermal runaway
- No electrode corrosion or passivation in cells
- Better available capacity utilization even at lower temperature compared to other electrochemistries
- Tolerant to accidental over-charge and over-discharge
- No electrolyte stratification required
- Exceptional Total Cost-of-Ownership (TCO)
- Visible electrolyte level through translucent container
- No memory effect unlike with sealed cylindrical cell

The optimal solution for any application

The KGL and KGM variants are designed to enhance their respective advantages. The choice between low and medium mixed load with momentary high discharge rates makes it easy to select the ideal battery for every usage.

Unique Features of GAZ ENERGY Lomain Ni-Cd cells

- Single cell design for all rated capacities are housed in unique mono-block plastic containers that has seamless, non-welded surface on all side walls and bottom of cell containe.
- All GAZ ENERGY cell containers are produced as one unit from a single injection molding. This ensures that liquid electrolyte inside the cell can never be stagnantly in contact with any plastic welded area.
- This ability prevent any chance of leakage of electrolyte and corresponding fire hazard in entire service life of GAZ ENERGY cells and minimizing handling and environmental hazards.
- More available capacity steps – More flexibility, in selection of sized battery for any applications.
- The extended range of GAZ ENERGY Lomain KGL reaches a new highest single cell capacity of 1775 Ah.
- Harmonized active mass distribution ratio among electrodes ensures the standardized Quality in production, minimizing Quality deviations and reduce production loses.
- Increased rechargeability, Faster recharge ensures maximum availability and system reliability.

GAZ ENERGY Lomain KGL Battery Range

GAZ ENERGY Lomain KGL cell type has been designed for low rates of discharge over long periods, i.e. the current is relatively low in comparison with the total stored energy. The discharges can generally be infrequent and the ideal discharge duration for the KGL range would be above 3 hours application.

The nominal C₅ capacity as per IEC 62259 of KGL range batteries is based on the available ampere hours (Ah) at a discharge rate of 5 hours to an end-of-discharge voltage 1.00 V per cell at 20 ± 5 °C.

Nominal voltage per cell
1.20 V per cell

Discharging conditions
The discharge performances as well as the nominal capacities C₅ given in this brochure are only valid for fully charged cells in accordance with IEC 62259.

Charging Recommendation – KGL Range

A. Constant Voltage Recommendation for Stand-by Application

Boost Mode
Boost Voltage: 1.45–1.47 V/cell
Boost Current Limit: 0.1 I_L A dc

 **NOTE:** Higher Boost voltage will improve the charge-ability and charge duration but increase electrolysis and water consumption and affect the operation of low-pres- sure gas vent plugs. If a higher voltage and/or current limit is set features of lomain cells are affected.

Float Mode
Float Voltage: 1.40–1.42 V/cell
Float Current: 1 to 2 mA/Ah cell capacity

Delay for switch from Boost to Float:
Boost Current ramped < 0.004 I_L A

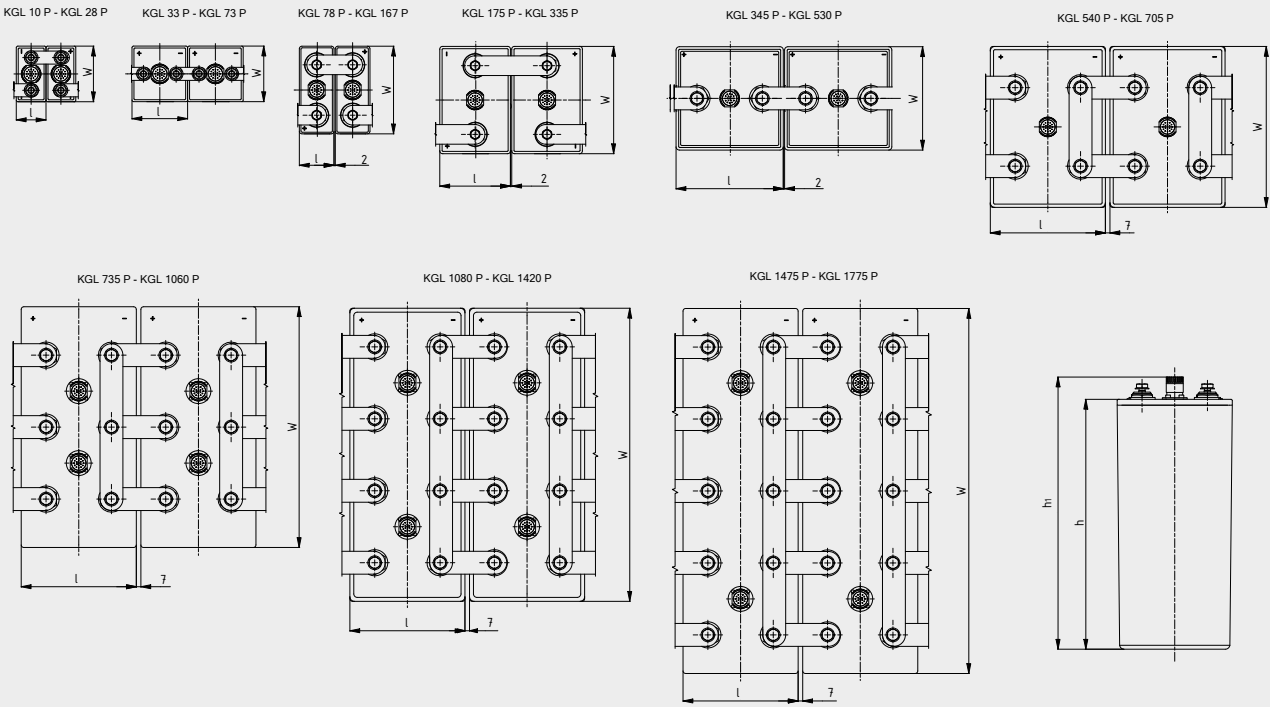
Single level Charging
1.43–1.44 V/cell

Single level charging may increase the refilling rate or recharge time with operating conditions.

B. Constant Current mode

Charging for IEC-62259 Capacity Test
Constant Current: 0.1 I_L A dc for 16 h
Voltage Limit: No Limiting or >1.70 Vpc
Charging Temperature: 20 ± 5 °C

Fast Rechargeability
Fast rechargeability of GAZ ENERGY Lomain cells after a power failure, can be 80 ± 5% of the rated capacity in 9 h to 10 h at 1.47 ± 0.01 Vpc with 0.1 I_L A current limit in standard operat- ing conditions at 20 °C to ensure optimum emergency backup power availability in an event of unpredictable mains failure of critical applications.



KGL Single Cell Range

Technical Specifications

KGL Type Models	IEC-62259 Capacity	Cell Dimensions [Tolerance ±2 mm]				Connection Type	Nr. Of Terminals	Type of Terminals	Electrolyte Volume	Filled Cell Weight	Internal Resistance
In Plastic Containers	5 h rate [C ₅]	l	w	h	h _l	M = Nut	Poles/Cell	Connector	Approx. [± 5%]	Approx. [± 5%]	IR at 100% SoC
	[Ah]	mm	mm	mm	mm	S = Screw	[Nr.]	Type	[L]	[Kg]	[mΩ]
KGL 10 P	10	46	85	237	261	M	2	M10	0,47	1,20	29,54
KGL 16 P	16	46	85	237	261	M	2	M10	0,43	1,31	18,82
KGL 20 P	20	46	85	237	261	M	2	M10	0,41	1,37	15,13
KGL 25 P	25	46	85	237	261	M	2	M10	0,38	1,45	12,23
KGL 28 P	28	46	85	237	261	M	2	M10	0,36	1,51	10,04
KGL 33 P	33	85	85	237	261	M	2	M10	0,87	2,31	8,34
KGL 38 P	38	85	85	237	261	M	2	M10	0,85	2,38	8,15
KGL 43 P	43	85	85	237	261	M	2	M10	0,82	2,48	6,62
KGL 47 P	47	85	85	237	261	M	2	M10	0,79	2,57	6,30
KGL 52 P	52	85	85	237	261	M	2	M10	0,77	2,63	5,59
KGL 57 P	57	85	85	237	261	M	2	M10	0,74	2,73	5,37
KGL 62 P	62	85	85	237	261	M	2	M10	0,71	2,80	4,80
KGL 67 P	67	85	85	237	261	M	2	M10	0,68	2,89	4,60
KGL 73 P	73	85	85	237	261	M	2	M10	0,65	2,97	3,76
KGL 78 P	78	53	134	364	394	S	2	M8	1,28	4,27	3,64
KGL 84 P	84	53	134	364	394	S	2	M8	1,25	4,34	3,29
KGL 93 P	93	53	134	364	394	S	2	M8	1,12	5,00	3,20
KGL 100 P	100	53	134	364	394	S	2	M8	1,09	5,09	2,74
KGL 105 P	105	53	134	364	394	S	2	M8	1,14	4,67	2,87
KGL 111 P	111	53	134	364	394	S	2	M8	1,10	4,75	2,45
KGL 116 P	116	69	134	364	394	S	2	M8	1,58	6,17	2,61
KGL 124 P	124	69	134	364	394	S	2	M8	1,54	6,28	2,38
KGL 132 P	132	69	134	364	394	S	2	M8	1,61	5,91	2,12
KGL 140 P	140	69	134	364	394	S	2	M8	1,57	6,02	2,12
KGL 147 P	147	69	134	364	394	S	2	M8	1,41	6,71	2,05
KGL 157 P	157	69	134	364	394	S	2	M8	1,47	6,37	1,75
KGL 167 P	167	69	134	364	394	S	2	M8	1,42	6,49	1,83
KGL 175 P	175	108	164	364	394	S	2	M8	3,70	9,53	1,59
KGL 187 P	187	108	164	364	394	S	2	M8	3,41	10,13	1,62
KGL 198 P	198	108	164	364	394	S	2	M8	3,56	9,94	1,54
KGL 205 P	205	108	164	364	394	S	2	M8	3,31	10,47	1,48
KGL 210 P	210	108	164	364	394	S	2	M8	3,51	10,10	1,47
KGL 222 P	222	108	164	364	394	S	2	M8	3,25	10,6	1,38
KGL 235 P	235	108	164	364	394	S	2	M8	3,39	10,5	1,17
KGL 245 P	245	108	164	364	394	S	2	M8	3,32	10,7	1,25
KGL 250 P	250	108	164	364	394	S	2	M8	3,08	11,2	1,21
KGL 260 P	260	108	164	364	394	S	2	M8	2,99	11,5	1,18
KGL 265 P	265	108	164	364	394	S	2	M8	3,21	11,0	1,03
KGL 280 P	280	108	164	364	394	S	2	M8	3,13	11,2	1,08
KGL 295 P	295	108	164	364	394	S	2	M8	2,84	12,0	0,98
KGL 300 P	300	108	164	364	394	S	2	M8	3,03	11,6	0,90
KGL 315 P	315	108	164	364	394	S	2	M8	2,74	12,2	0,89
KGL 320 P	320	108	164	364	394	S	2	M8	2,95	11,8	0,96
KGL 335 P	335	108	164	364	394	S	2	M8	2,85	12,1	0,87
KGL 345 P	345	164	158	364	394	S	2	M10	4,83	15,9	0,87
KGL 355 P	355	164	158	364	394	S	2	M10	4,77	16,1	0,82
KGL 365 P	365	164	158	364	394	S	2	M10	5,04	16,4	0,80
KGL 375 P	375	164	158	364	394	S	2	M10	4,66	16,4	0,75

* All dimensions and weights stated are subject to usual manufacturing tolerances. The right is reserved to make any alterations without prior notice.

KGL Single Cell Range

Technical Specifications

KGL Type Models	IEC-62259 Capacity	Cell Dimensions [Tolerance ±2 mm]				Connection Type	Nr. Of Terminals	Type of Terminals	Electrolyte Volume	Filled Cell Weight	Internal Resistance
In Plastic Containers	5 h rate [C ₅]	l	w	h	h _l	M = Nut	Poles/Cell	Connector	Approx. [± 5%]	Approx. [± 5%]	IR at 100% SoC
	[Ah]	mm	mm	mm	mm	S = Screw	[Nr.]	Type	[L]	[Kg]	[mΩ]
KGL 385 P	385	164	158	364	394	S	2	M10	4,61	16,6	0,76
KGL 395 P	395	164	158	364	394	S	2	M10	4,94	16,6	0,76
KGL 405 P	405	164	158	364	394	S	2	M10	4,86	16,9	0,75
KGL 410 P	410	164	158	364	394	S	2	M10	4,50	16,9	0,73
KGL 415 P	415	164	158	364	394	S	2	M10	4,46	17,1	0,72
KGL 425 P	425	164	158	364	394	S	2	M10	4,75	17,2	0,65
KGL 435 P	435	164	158	364	394	S	2	M10	4,68	17,5	0,68
KGL 440 P	440	164	158	364	394	S	2	M10	4,33	17,4	0,68
KGL 445 P	445	164	158	364	394	S	2	M10	4,30	17,6	0,61
KGL 455 P	455	164	158	364	394	S	2	M10	4,56	17,8	0,60
KGL 465 P	465	164	158	364	394	S	2	M10	4,50	18,0	0,60
KGL 475 P	475	164	158	364	394	S	2	M10	4,16	18,0	0,58
KGL 490 P	490	164	158	364	394	S	2	M10	4,38	18,4	0,56
KGL 505 P	505	164	158	364	394	S	2	M10	4,33	18,6	0,54
KGL 530 P	530	164	158	364	394	S	2	M10	4,20	18,9	0,54
KGL 540 P	540	176	246	382	408	S	4	M10	8,46	26,7	0,50
KGL 565 P	565	176	246	382	408	S	4	M10	8,31	27,1	0,49
KGL 585 P	585	176	246	382	408	S	4	M10	8,15	27,9	0,50
KGL 600 P	600	176	246	382	408	S	4	M10	8,10	27,8	0,47
KGL 625 P	625	176	246	382	408	S	4	M10	7,97	28,4	0,46
KGL 645 P	645	176	246	382	408	S	4	M10	7,94	28,3	0,42
KGL 670 P	670	176	246	382	408	S	4	M10	7,75	28,9	0,41
KGL 705 P	705	176	246	382	408	S	4	M10	7,56	29,4	0,43
KGL 735 P	735	176	368	382	421	S	6	M10	13,2	39,2	0,39
KGL 755 P	755	176	368	382	421	S	6	M10	13,2	39,6	0,39
KGL 790 P	790	176	368	382	421	S	6	M10	12,9	40,5	0,37
KGL 800 P	800	176	368	382	421	S	6	M10	12,9	40,3	0,34
KGL 850 P	850	176	368	382	421	S	6	M10	12,7	40,9	0,34
KGL 875 P	875	176	368	382	421	S	6	M10	12,4	42,0	0,34
KGL 900 P	900	176	368	382	421	S	6	M10	12,4	42,0	0,32
KGL 935 P	935	176	368	382	421	S	6	M10	12,2	42,8	0,32
KGL 960 P	960	176	368	382	421	S	6	M10	12,1	42,6	0,30
KGL 1010 P	1010	176	368	382	421	S	6	M10	11,8	43,6	0,30
KGL 1060 P	1060	176	368	382	421	S	6	M10	11,5	44,3	0,26
KGL 1080 P	1080	176	448	382	421	S	8	M10	15,2	51,4	0,28
KGL 1130 P	1130	176	448	382	421	S	8	M10	14,9	52,2	0,24
KGL 1175 P	1175	176	448	382	421	S	8	M10	14,6	53,7	0,25
KGL 1200 P	1200	176	448	382	421	S	8	M10	14,5	53,6	0,23
KGL 1250 P	1250	176	448	382	421	S	8	M10	14,3	54,7	0,22
KGL 1275 P	1275	176	448	382	421	S	8	M10	14,2	54,5	0,24
KGL 1330 P	1330	176	448	382	421	S	8	M10	13,8	55,8	0,20
KGL 1420 P	1420	176	448	382	421	S	8	M10	13,4	56,8	0,21
KGL 1475 P	1475	176	558	382	421	S	10	M10	18,3	66,5	0,19
KGL 1515 P	1515	176	558	382	421	S	10	M10	18,2	66,4	0,20
KGL 1575 P	1575	176	558	382	421	S	10	M10	17,9	67,8	0,19
KGL 1605 P	1605	176	558	382	421	S	10	M10	17,8	67,5	0,19
KGL 1675 P	1675	176	558	382	421	S	10	M10	17,3	69,1	0,17
KGL 1775 P	1775	176	558	382	421	S	10	M10	16,8	70,4	0,16

* All dimensions and weights stated are subject to usual manufacturing tolerances. The right is reserved to make any alterations without prior notice.

GAZ ENERGY Lomain KGM Battery Range

GAZ ENERGY Lomain range KGM cell type has been optimally designed for mixed load applications where these cells are capable of delivering variable high and also low rate discharges with economical battery capacity sizing. The discharges can generally be infrequent and the ideal discharge time for the KGM range is between 30 minutes till 3 hours but can perform for shorter duration even 1 minute discharge applications.

The nominal C₅ capacity of KGM range cells is based on the available ampere hours (Ah) at a discharge rate of 5 hours to a final End-of-Discharge (EOD) voltage of 1.00 V per cell (as per IEC 62259) and comply equivalent reference capacity performance till 1.15 V per cell EOD (as per DIN 40771) at 20 ± 5 °C.

Nominal voltage per cell
1.20 V per cell

Discharging conditions
The discharge performances as well as the nominal capacities C₅ given in this brochure are only valid for fully charged cells in accordance with IEC 62259.

Charging Recommendation - KGM Range

A. Constant Voltage Recommendation for Stand-by Application

Boost Mode
Boost Voltage: 1.44–1.46 V/cell
Boost Current Limit: 0.1 I_L A dc

NOTE: Higher Boost voltage will improve the chargeability and recharge duration but increase electrolysis and water consumption and affect the operation of low-pressure gas vent plugs. If a higher voltage and/or current limit is set features of lomain cells are affected.

Float Mode
Float Voltage: 1.40–1.42 V/cell
Float Current: 1 to 2 mA/Ah cell capacity

Delay for switch from Boost to Float:
Boost Current ramped < 0.004 I_L A

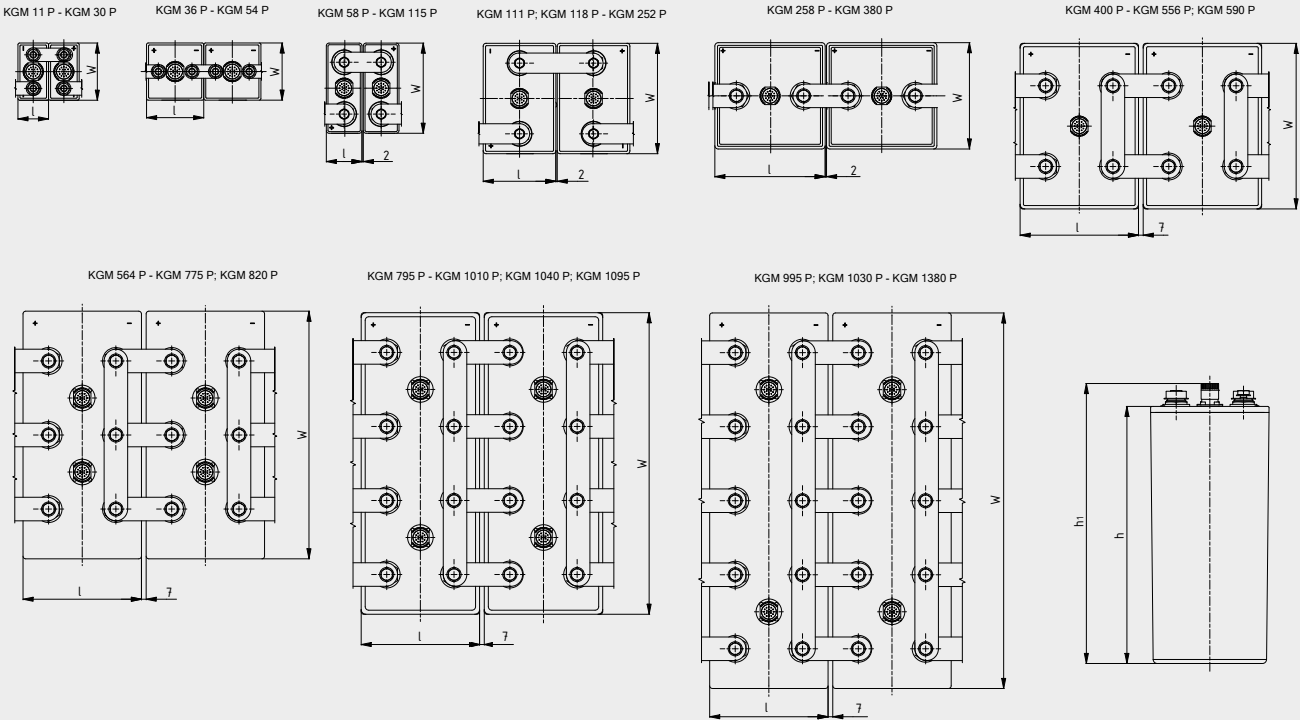
Single level Charging
1.42–1.44 V/cell

Single level charging may increase the refilling rate or recharge time with operating conditions.

B. Constant Current mode

Charging for IEC-62259 Capacity Test
Constant Current: 0.1 I_L A dc for 16 h
Voltage Limit: No Limiting or >1.70 Vpc
Charging Temperature: 20 ± 5 °C

Fast Rechargeability
Fast rechargeability of GAZ ENERGY Lomain cells after a power failure, can be 85 ± 5% of the rated capacity in 8 h to 9 h at 1.46 ± 0.01 Vpc with 0.1 I_L A current limit in standard operating conditions at 20 °C to ensure optimum emergency backup power availability in an event of unpredictable mains failure of critical applications.



KGM Single Cell Range

Technical Specifications

KGM Type Models	IEC-62259 Capacity	DIN-40771 Capacity	Cell Dimensions [Tolerance ±2 mm]				Connection Type	Nr. Of Terminals	Type of Terminals	Electrolyte Volume	Filled Cell Weight	Internal Resistance
In Plastic Containers	5 h rate [C ₅] EOD = 1.00 V	5 h rate [C ₅] EOD = 1.15 V	l	w	h	h ₁	M = Nut	Poles/Cell	Connector	Approx. [± 5%]	Approx. [± 5%]	IR at 100% SoC
	[Ah]	[Ah]	mm	mm	mm	mm	S = Screw	[Nr.]	Type	[L]	[Kg]	[mΩ]
KGM 11 P	11	10	46	85	237	261	M	2	M10	0,44	1,32	14,89
KGM 16 P	16	14	46	85	237	261	M	2	M10	0,37	1,43	10,18
KGM 18 P	18	16	46	85	237	261	M	2	M10	0,36	1,45	9,07
KGM 24 P	24	22	46	85	237	261	M	2	M10	0,28	1,57	6,75
KGM 30 P	30	27	46	85	237	261	M	2	M10	0,20	1,69	5,42
KGM 36 P	36	33	85	85	237	261	M	2	M10	0,74	2,64	4,55
KGM 42 P	42	38	85	85	237	261	M	2	M10	0,66	2,76	3,90
KGM 48 P	48	43	85	85	237	261	M	2	M10	0,59	2,88	3,35
KGM 54 P	54	49	85	85	237	261	M	2	M10	0,51	3,00	2,97
KGM 58 P	58	52	53	134	364	394	S	2	M8	1,15	4,73	2,79
KGM 62 P	62	56	53	134	364	394	S	2	M8	1,18	4,75	2,62
KGM 66 P	66	60	53	134	364	394	S	2	M8	1,15	4,81	2,43
KGM 73 P	73	66	53	134	364	394	S	2	M8	0,97	4,98	2,23
KGM 78 P	78	70	53	134	364	394	S	2	M8	1,00	5,01	2,09
KGM 83 P	83	75	53	134	364	394	S	2	M8	0,96	5,08	1,94
KGM 88 P	88	80	69	134	364	394	S	2	M8	1,47	6,10	1,85
KGM 93 P	93	84	69	134	364	394	S	2	M8	1,52	6,19	1,74
KGM 98 P	98	89	69	134	364	394	S	2	M8	1,47	6,26	1,67
KGM 102 P	102	92	69	134	364	394	S	2	M8	1,30	6,36	1,59
KGM 108 P	108	98	69	134	364	394	S	2	M8	1,33	6,46	1,53
KGM 111 P	111	100	70	164	364	394	S	2	M8	1,77	7,02	1,48
KGM 115 P	115	104	69	134	364	394	S	2	M8	1,28	6,54	1,41
KGM 118 P	118	107	70	164	364	394	S	2	M8	1,83	7,60	1,37
KGM 125 P	125	113	70	164	364	394	S	2	M8	1,77	7,93	1,31
KGM 130 P	130	117	70	164	364	394	S	2	M8	1,56	7,87	1,25
KGM 138 P	138	125	70	164	364	394	S	2	M8	1,59	8,00	1,18
KGM 145 P	145	131	70	164	364	394	S	2	M8	1,53	8,11	1,12
KGM 150 P	150	136	108	164	364	394	S	2	M8	3,31	10,5	1,09
KGM 155 P	155	140	108	164	364	394	S	2	M8	3,17	10,7	1,03
KGM 160 P	160	145	108	164	364	394	S	2	M8	3,42	10,8	1,01
KGM 168 P	168	152	108	164	364	394	S	2	M8	3,35	10,9	0,98
KGM 175 P	175	158	108	164	364	394	S	2	M8	2,96	11,1	0,92
KGM 180 P	180	163	108	164	364	394	S	2	M8	3,19	11,2	0,89
KGM 186 P	186	168	108	164	364	394	S	2	M8	2,87	11,2	0,89
KGM 190 P	190	172	108	164	364	394	S	2	M8	3,11	11,3	0,85
KGM 194 P	194	175	108	164	364	394	S	2	M8	2,75	11,4	0,83
KGM 200 P	200	181	108	164	364	394	S	2	M8	2,95	11,5	0,81
KGM 205 P	205	185	108	164	364	394	S	2	M8	2,65	11,6	0,80
KGM 210 P	210	190	108	164	364	394	S	2	M8	2,87	11,7	0,78
KGM 220 P	220	199	108	164	364	394	S	2	M8	2,72	11,9	0,74
KGM 225 P	225	203	108	164	364	394	S	2	M8	2,44	11,9	0,73
KGM 231 P	231	209	108	164	364	394	S	2	M8	2,62	12,0	0,69
KGM 240 P	240	217	108	164	364	394	S	2	M8	2,49	12,2	0,69
KGM 252 P	252	228	108	164	364	394	S	2	M8	2,38	12,4	0,65
KGM 258 P	258	233	164	158	364	394	S	2	M10	4,97	16,4	0,63
KGM 264 P	264	239	164	158	364	394	S	2	M10	4,50	16,4	0,62

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KGM Single Cell Range

Technical Specifications

KGM Type Models	IEC-62259 Capacity	DIN-40771 Capacity	Cell Dimensions [Tolerance ±2 mm]				Connection Type	Nr. Of Terminals	Type of Terminals	Electrolyte Volume	Filled Cell Weight	Internal Resistance
In Plastic Containers	5 h rate [C ₅] EOD = 1.00 V	5 h rate [C ₅] EOD = 1,15 V	l	w	h	hl	M = Nut	Poles/Cell	Connector	Approx. [± 5%]	Approx. [± 5%]	IR at 100% SoC
	[Ah]	[Ah]	mm	mm	mm	mm	S = Screw	[Nr.]	Type	[L]	[Kg]	[mΩ]
KGM 274 P	274	248	164	158	364	394	S	2	M10	4,85	16,6	0,60
KGM 281 P	281	254	164	158	364	394	S	2	M10	4,37	16,7	0,58
KGM 294 P	294	266	164	158	364	394	S	2	M10	4,61	17,0	0,55
KGM 300 P	300	271	164	158	364	394	S	2	M10	4,16	16,7	0,53
KGM 316 P	316	286	164	158	364	394	S	2	M10	4,37	17,3	0,52
KGM 335 P	335	303	164	158	364	394	S	2	M10	3,65	17,7	0,48
KGM 340 P	340	307	164	158	364	394	S	2	M10	4,04	17,8	0,48
KGM 356 P	356	322	164	158	364	394	S	2	M10	3,88	18,5	0,46
KGM 360 P	360	325	164	158	364	394	S	2	M10	3,89	18,1	0,45
KGM 380 P	380	343	164	158	364	394	S	2	M10	3,65	18,5	0,43
KGM 400 P	400	361	176	246	382	408	S	2	M10	8,09	26,9	0,40
KGM 412 P	412	372	176	246	382	408	S	4	M10	8,00	27,2	0,39
KGM 421 P	421	380	176	246	382	408	S	4	M10	7,92	27,1	0,38
KGM 437 P	437	395	176	246	382	408	S	4	M10	7,63	27,5	0,38
KGM 450 P	450	407	176	246	382	408	S	4	M10	7,57	27,9	0,36
KGM 456 P	456	412	176	246	382	408	S	4	M10	7,36	28,4	0,36
KGM 464 P	464	419	176	246	382	408	S	4	M10	7,43	27,8	0,35
KGM 478 P	478	432	176	246	382	408	S	4	M10	7,16	28,2	0,34
KGM 486 P	486	439	176	246	382	408	S	4	M10	7,13	28,8	0,33
KGM 495 P	495	447	176	246	382	408	S	4	M10	6,94	29,0	0,33
KGM 506 P	506	457	176	246	382	408	S	4	M10	6,95	28,6	0,32
KGM 518 P	518	468	176	246	382	408	S	4	M10	6,70	29,2	0,31
KGM 525 P	525	474	176	246	382	408	S	4	M10	6,70	29,3	0,31
KGM 545 P	545	492	176	246	382	408	S	4	M10	6,47	29,6	0,30
KGM 556 P	556	502	176	246	382	408	S	4	M10	6,23	29,9	0,30
KGM 564 P	564	510	176	368	382	421	S	6	M10	12,96	40,5	0,29
KGM 580 P	580	524	176	368	382	421	S	6	M10	12,60	41,1	0,28
KGM 590 P	590	533	176	246	382	408	S	4	M10	5,99	30,3	0,28
KGM 600 P	600	542	176	368	382	421	S	6	M10	12,45	40,9	0,27
KGM 620 P	620	560	176	368	382	421	S	6	M10	12,31	41,6	0,26
KGM 635 P	635	574	176	368	382	421	S	6	M10	12,18	41,4	0,25
KGM 660 P	660	596	176	368	382	421	S	6	M10	11,75	42,1	0,25
KGM 675 P	675	610	176	368	382	421	S	6	M10	11,66	42,5	0,24
KGM 690 P	690	624	176	368	382	421	S	6	M10	11,34	42,9	0,23
KGM 700 P	700	633	176	368	382	421	S	6	M10	11,46	42,5	0,23
KGM 715 P	715	646	176	368	382	421	S	6	M10	11,05	43,0	0,23
KGM 730 P	730	660	176	368	382	421	S	6	M10	11,00	43,5	0,23
KGM 760 P	760	687	176	368	382	421	S	6	M10	10,73	43,6	0,22
KGM 775 P	775	700	176	368	382	421	S	6	M10	10,35	44,1	0,21
KGM 795 P	795	718	176	448	382	421	S	8	M10	14,41	51,6	0,21
KGM 820 P	820	741	176	368	382	421	S	6	M10	10,01	44,7	0,20
KGM 825 P	825	746	176	448	382	421	S	8	M10	14,23	52,5	0,20
KGM 845 P	845	764	176	448	382	421	S	8	M10	14,06	52,3	0,19
KGM 875 P	875	791	176	448	382	421	S	8	M10	13,48	53,2	0,19
KGM 900 P	900	813	176	448	382	421	S	8	M10	13,36	53,7	0,18
KGM 915 P	915	827	176	448	382	421	S	8	M10	12,94	54,3	0,18

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KGM Single Cell Range

Technical Specifications

KGM Type Models	IEC-62259 Capacity	DIN-40771 Capacity	Cell Dimensions [Tolerance ±2 mm]				Connection Type	Nr. Of Terminals	Type of Terminals	Electrolyte Volume	Filled Cell Weight	Internal Resistance
In Plastic Containers	5 h rate [C ₅] EOD = 1.00 V	5 h rate [C ₅] EOD = 1,15 V	l	w	h	hl	M = Nut	Poles/Cell	Connector	Approx. [± 5%]	Approx. [± 5%]	IR at 100% SoC
	[Ah]	[Ah]	mm	mm	mm	mm	S = Screw	[Nr.]	Type	[L]	[Kg]	[mΩ]
KGM 930 P	930	840	176	448	382	421	S	8	M10	13,09	53,8	0,18
KGM 960 P	960	868	176	448	382	421	S	8	M10	12,55	54,4	0,17
KGM 975 P	975	881	176	448	382	421	S	8	M10	12,49	55,1	0,17
KGM 995 P	995	899	176	558	382	421	S	10	M10	18,09	64,6	0,16
KGM 1010 P	1010	913	176	448	382	421	S	8	M10	12,13	55,1	0,16
KGM 1030 P	1030	931	176	558	382	421	S	10	M10	17,85	65,7	0,16
KGM 1040 P	1040	940	176	448	382	421	S	8	M10	11,62	55,8	0,16
KGM 1060 P	1060	958	176	558	382	421	S	10	M10	17,64	65,4	0,15
KGM 1100 P	1100	994	176	448	382	421	S	8	M10	11,16	56,6	0,15
KGM 1100 P	1100	994	176	558	382	421	S	10	M10	16,92	66,6	0,15
KGM 1130 P	1130	1021	176	558	382	421	S	10	M10	16,77	67,2	0,15
KGM 1145 P	1145	1035	176	558	382	421	S	10	M10	16,25	68,0	0,14
KGM 1165 P	1165	1053	176	558	382	421	S	10	M10	16,44	67,3	0,14
KGM 1200 P	1200	1084	176	558	382	421	S	10	M10	15,75	68,1	0,14
KGM 1225 P	1225	1107	176	558	382	421	S	10	M10	15,68	68,9	0,13
KGM 1270 P	1270	1148	176	558	382	421	S	10	M10	15,23	69,0	0,13
KGM 1300 P	1300	1175	176	558	382	421	S	10	M10	14,59	69,9	0,12
KGM 1380 P	1380	1247	176	558	382	421	S	10	M10	14,02	70,9	0,12

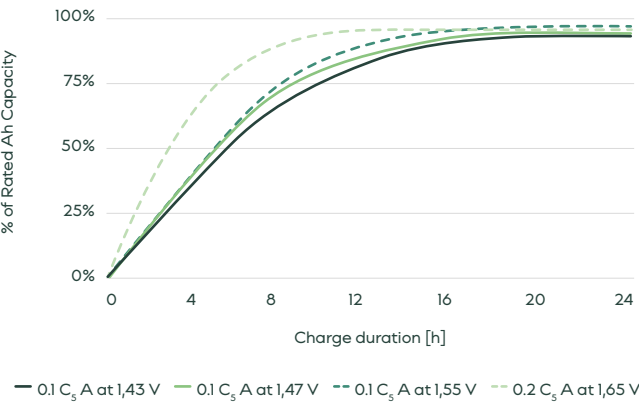
* All dimensions and weights stated are subject to usual manufacturing tolerances. The right is reserved to make any alterations without prior notice.

Superb chargeability

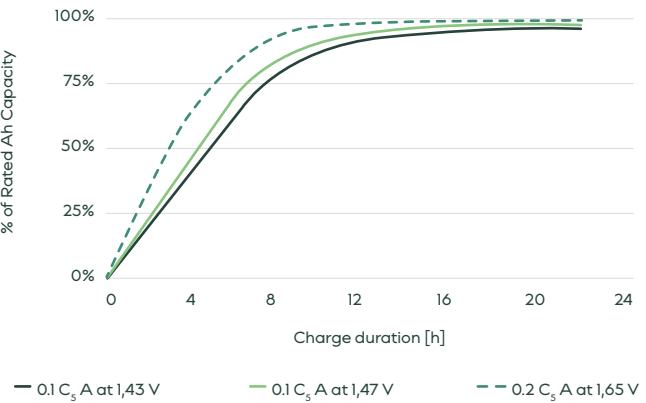
Thanks to their optimal anodic to cathodic active mass ratio, GAZ ENERGY Lomain cells can accept more capacity input with lower constant voltage constant-current charging limit. For their higher constant-current charge ratio for usage with UPS or DC Float cum Boost (FCBC) chargers, Lomain cells can be recharged comparatively faster. See typical chargeability curves of GAZ ENERGY Lomain KGL and KGM Range cells

Lower boost charge voltage reduces the need of electronics components like voltage dropper diodes of UPS and chargers. GAZ ENERGY Lomain can fit perfectly in the voltage window of existing UPS or chargers used for VRLA or other Lead-Acid batteries and therefore can directly replace them without any additional investment in chargers or DC System.

Typical Chargeability of KGL Cells



Typical Chargeability of KGM Cells

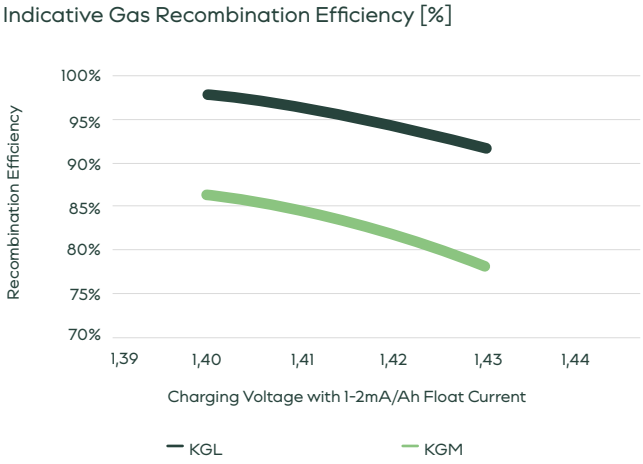


Efficient Gas recombination

The GAZ ENERGY Lomain Range cells works on the oxygen recombination principle and therefore has a much reduced water consumption. Lomain KGL and KGM Range cells - operated in standard conditions and with recommended float voltage, can achieve gas recombination efficiency much more than 70%, as specified in IEC 62259.

GAZ ENERGY Lomain Range cells with special recombination separator and generous reserve electrolyte, reduces the frequency of water topping-up and only a couple of top-up maintenance operation is enough during entire design service life of >20 years.

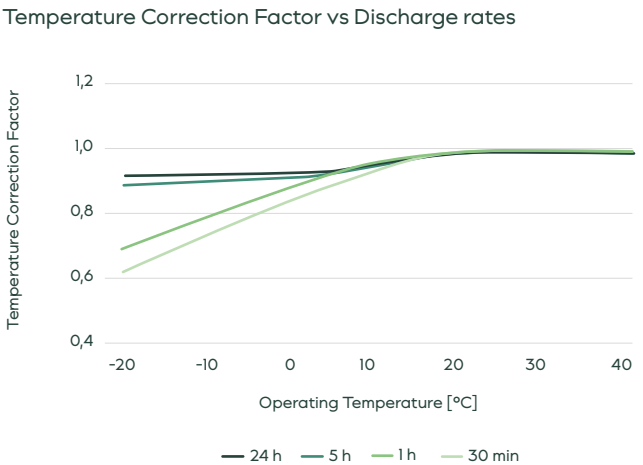
However, the Gas Recombination Efficiency of GAZ ENERGY Lomain cells can largely vary based on cell discharge type, the float charging voltage and current, operating temperature, site altitude etc. and other operating conditions. See indicative curve.



High performing even at extreme temperatures

Capacity utilization of lomain cells at lower operating temperature is far ahead compared to competition and other conventional electrochemistry. Resulting minimal temperature correction factors even for higher end-of-discharge voltages set by typical applications.

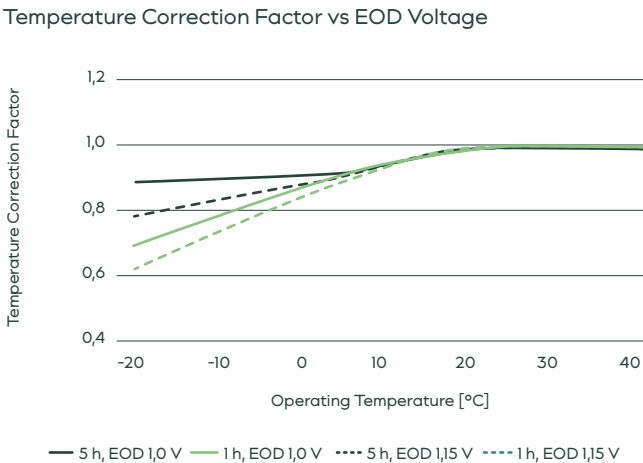
- For the temperature correction factor of GAZ ENERGY Lomain KGL range at different discharge rates and durations, see curve Temperature Correction Factor vs Discharge rates
- Temperature correction factor variation for GAZ ENERGY Lomain KGL range at different End-of-Discharge (EOD) voltages is described in curve Temperature Correction Factor vs EOD Voltage.



Configuration forms

GAZ ENERGY Lomain Ni-Cd cells are shipped only in filled and charged conditions. They can be quickly assembled into different configurations based on site and application requirements, for example:

- In battery racks and cabinets
- Mounted as compact blocks
- In plastic, FRP, or stainless-steel crates, or in customized battery troughs



Design your battery solution

Visit the GAZ ENERGY website for our easy-to-use Ni-Cd battery Calculator, a tool that allows you to quickly estimate or determine which battery configuration, type and size is best suited for your application. It will give you an idea of the battery storage system you need even before you inquire with the GAZ

ENERGY sales department. The on-line battery calculator estimate the sizing in accordance to IEEE-1115, Recommended Practice for Sizing Nickel-Cadmium Batteries for Stationary Applications.

Ni-Cd Calculator

1. Load profile

Through a guided User-Interface, fill in the basic parameters of the required or expected load the batteries will be handling for a specific application.

The online calculator provides flexibility to choose input data for load in form of discharge current [A] or in form of aparent power [kVA] or real power [kW] for the UPS sysem battery calculation suitable to GAZ ENERGY Lomain Range.

2. Cell Quantity

Select or specify the DC system voltage for the application and the number of cells your battery set should contain with regards to their nominal voltage and end-of-discharge or DC system cut-off voltage.

3. Design Data

Input the operating environment for the battery in the applica-tion. Other key requirements can be factored and filtered into the evaluation as well.

Once the battery is calculated, you are one click away to gener-ate and download a complete report in PDF format that consist of battery sizing as per IEEE-1115 and ventilation requirements as per IEC 62485-2 or EN 50272-2.

Current calculator

1. Period

Time

00:00:00

hh:mm:ss

Current

0

amper

+

Time

00:00:00

hh:mm:ss

Current

0

amper

Nominal Battery Voltage

48 V

110 V

220 V

Other

Ambient temperature °C / °F

20

30

Aging factor

1.00

Design margin factor

1.00

In case you require an battery sizing assistance or want to check possibility of further optimization of the sizing to increase the competitiveness, contact our global sales team or partners to create or optimize your sizing needs with our professional complex battery software.

The output will be a recommendation that is not only technologically, but also economically the most favorable.

Our Commitment to the Environment

At GAZ, as one of the leading manufacturer of Ni-Cd batteries for over 140 years, we pay rightful attention to the environmental footprint of our batteries. Proper recycling prevents pollution but also enables the recovery of materials that can be reused. Starting from the optimized design, GAZ ENERGY Ni-Cd batteries are composed of harmonized production elements that make their recycling more efficient and cost-effective without compromising the product performance and design lifetime.

The recycling efficiency reaches nearly 80% of the cell weight, which is higher than the prescribed recycling efficiency of 75% by regulations applicable to Ni-Cd batteries.

All GAZ ENERGY batteries are disposed of with certified long-term partners in compliance to regional regulations. GAZ also provides a recycling testimonial with unique recycling case number for complete traceability.

Regulatory compliance

- **EU Declaration of Conformity** – GAZ confirms and bear the responsibility of self-declaration of conformity of produced Ni-Cd cells according to recently adopted EU Battery Regulation.
- **RoHS** – Even though accumulators are not within the scope of EU's Restriction of Hazardous Substances (RoHS) regulation, GAZ voluntarily declares that the substances restricted by RoHS are not present in our batteries except for their electrochemical core.
- **REACH** – About EU's Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), GAZ voluntarily declares that our Ni-Cd accumulators contain more than 0.1% w/w of Cadmium (Cd) substances depending on delivery status.



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