

GAZ[®]

lomain[™]
NEXT GENERATION
OF BATTERIES

Extreme low maintenance Ni-Cd batteries
Extrem wartungsarme Ni-Cd Batterien

Made in Germany



EnerSys[®]
Power/Full Solutions

Extreme low maintenance Ni-Cd batteries Extrem wartungsarme Ni-Cd Batterien

... stands for less water
... bedeutet wenig Wasser

Less is more!

- LESS** water consumption
 - > **LONGER** topping up interval
- LESS** maintenance costs
 - > **MORE** costs savings
- LESS** performance loss at high temperatures and during aging
 - > **MORE** durability
- LESS** recharge time
 - > **MORE** safety
- LESS** life cycle costs
 - > **MORE** cost effectiveness

Weniger ist mehr!

- WENIGER** Wasserverbrauch
 - > **LÄNGERE** Auffüllintervalle
- WENIGER** Wartung
 - > **MEHR** Kostenersparnis
- WENIGER** Kapazitätsverluste bei Hochtemperaturanwendungen und während der Alterung
 - > **MEHR** Beständigkeit
- WENIGER** Zeit zur Wiederaufladung
 - > **MEHR** Sicherheit
- WENIGER** Lebenszykluskosten
 - > **MEHR** Kosteneffizienz

GAZ®

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SINGLE CELL CONSTRUCTION

Konstruktion der Einzelzellen

Low pressure flame arresting vent

Niederdruckventil – flammenhemmend

GAZ® safety terminal

Redundant leak protection minimizes carbonate formation.

GAZ® Sicherheitspol

Zweifachdichtung minimiert Karbonatisierung.

Electrode edge

Connected to terminal by screwing or welding providing high mechanical stability.

Elektrodenfahne

Mit Polbolzen verschraubt oder verschweißt. Stellt hohe mechanische Stabilität sicher.

Electrode frame

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

Elektrodenrahmen

Bestehend aus Elektrodenfahne und Seitenstegen. Verschließt die Platten und dient der Stromableitung.

Horizontal pockets

Formed by perforated steel strips containing the active material.

Horizontale Taschenplatten

Perforiertes Stahlband umschließt die Aktivmasse.

Fleece separator

Special fleece separator insulates the plates and improves the internal recombination.

Vliesseparator

Spezieller Vliesseparator isoliert die Platten und fördert die interne Rekombination.



GAZ® Ni-Cd battery range *lomain™*

Extreme low maintenance

Based on more than 100 years of experience in design and manufacturing, *lomain™* combines the well-proven GAZ® Ni-Cd pocket plate construction with the new GAZ® *lomain™* battery concept. *lomain™* batteries provide an exceptionally long lifetime and reduce maintenance requirements to a minimum. It is the ideal solution for applications requiring absolute reliability with the minimum of routine maintenance.

GAZ® *lomain™* battery concept

lomain™ batteries provide a 20 year service lifetime. The special single cell design and the valve regulated venting system eliminate the need for topping-up during a normal service life. *lomain™* cells are equipped with a low pressure flame arresting vent, permitting the topping-up of water if required. With a recombination rate of up to 90 %, depending on the float voltage and ambient conditions, *lomain™* batteries lead the market in low maintenance standards.

GAZ® *lomain™* improved chargeability at high temperatures

By a further developed technology *lomain™* next generation of batteries has been significantly improved. *lomain™* next generation of batteries is perfectly suited for high temperature applications with minimized maintenance requirements. It shows an excellent chargeability at elevated temperatures at a single step voltage charge. The range of batteries KGM ... P can be recharged to over 90 % of their nominal capacity within only 15 hours with a constant voltage charge of 1.43 V/cell and a current limitation of 0.1 I_A.

Temperature performance

The continuous operational temperature of *lomain™* batteries ranges from 0 °C to + 40 °C. Short term temperature fluctuations from - 50 °C to +70 °C can be tolerated.

Quality Management System

The quality management system of our company has been certified since 1993. Strict quality controls, the use of high quality materials, the steady development of production processes and ultimately an uncompromising level of service to our customers exemplify the company history and philosophy. All major International standards are met, including IEC 62259, ISO 9001 and ISO 14001.

GAZ® *lomain™*

Extrem wartungsarme Ni-Cd Batterien

lomain™ vereint die auf 100-jähriger Erfahrung in Konstruktion und Herstellung basierende Taschenplattenkonstruktion mit dem neuen GAZ® *lomain™* Batteriekonzept. Dies führt zu der von GAZ® Ni-Cd Zellen bekannten extrem langen Lebensdauer gepaart mit einem Minimum an Wartungskosten. Batterien dieser Baureihe eignen sich besonders für Anwendungen, die absolut ausfallsicher sein müssen und ein Minimum an Wartung beanspruchen.

GAZ® *lomain™* Batteriekonzept

Durch ein spezielles Einzelzellendesign und das ventilregulierte Entlüftungssystem ist während der 20-jährigen Lebensdauer kaum noch das Auffüllen von Wasser erforderlich. *lomain™* Zellen sind mit einem flammenhemmenden Niederdruckventil ausgestattet, welches bei Bedarf Wasserauffüllen möglich macht. Mit einer Rekombinationsrate von bis zu 90 %, abhängig von der Ladespannung und Umgebungstemperatur, reduziert *lomain™* die Wartungskosten optimal.

GAZ® *lomain™* Verbesserte Ladbarkeit bei hohen Temperaturen

Durch Investitionen in die Weiterentwicklung des *lomain™* Batteriekonzeptes konnte die *lomain™* – Baureihe wesentlich verbessert werden. Zusätzlich wurden die Leistungsdaten für hohe Temperaturen weiter verbessert, was zu einer exzellenten Ladbarkeit selbst bei einstufiger Konstantspannungsladung führt. Speziell die Batterien der Baureihe KGM ... P können in nur 15 Stunden mit einstufiger Konstantspannungsladung von 1,43 V/Zelle und einer Begrenzung des Ladestromes von 0,1 I_A auf bis zu 90 % ihrer Nennkapazität wieder aufgeladen werden.

Temperatureinsatzbereich

Batterien dieser Baureihe werden in der Regel für Betriebstemperaturen zwischen 0 °C und +40 °C eingesetzt, vertragen aber kurzzeitige Temperaturschwankungen in einem Bereich von -50 °C bis +70 °C.

Qualitätsmanagementsystem

Das Qualitätsmanagementsystem unseres Hauses ist bereits seit 1993 zertifiziert. Strenge Qualitätskontrollen, die Verwendung hochwertiger Materialien, die stetige Weiterentwicklung der Produktions- und Betriebsprozesse und schließlich der exzellente Service für unsere Kunden stehen für unsere Firmengeschichte und Philosophie. So werden alle wichtigen internationalen Normen einschließlich IEC 62259, ISO 9001 und ISO 14001 erfüllt.





GAZ® *lomain*TM battery range KGL ... P

This GAZ® *lomain*TM cell type combines the well-proven Ni-Cd pocket plate design and the features of the GAZ® *lomain*TM battery concept. It is used for low rates of discharge over long periods (e.g. the current is relatively low in comparison to the total stored energy). The discharges can generally be infrequent and the recommended discharge time for the range of batteries KGL ... P is 1 hour to 100 hours.

Field of application

UPS systems, emergency lighting, process control, telecommunication, power and substations, oil and gas refineries, railroad signalling.

Batteriebaureihe GAZ® *lomain*TM KGL ... P

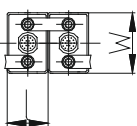
Diese GAZ® *lomain*TM Ni-Cd Batteriezelle vereint die bewährte Taschenplattenkonstruktion mit allen Vorteilen des neuen GAZ® *lomain*TM Batteriekonzeptes. Batterien dieser Baureihe sind speziell für niedrige Entladeströme während relativ langer Entladedauer entwickelt worden. Die empfohlene Entladezeit für die KGL ... P Baureihe beträgt 1 Stunde bis zu 100 Stunden.

Anwendungsbereiche

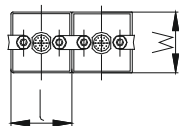
USV-Anlagen, Sicherheitsbeleuchtung, Prozesssteuerung, Telekommunikation, Kraftwerke und Schaltstationen, Öl- und Gasraffinerien, Einsatz im Bahnbereich.

Battery Layout

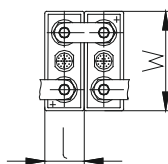
KGL 12 P – KGL 35 P



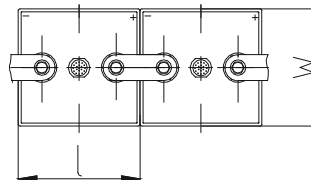
KGL 45 P – KGL 60 P



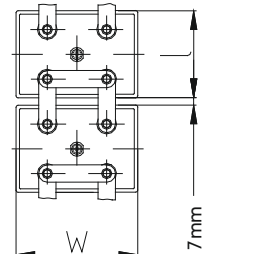
KGL 70 P – KGL 275 P (M 8)



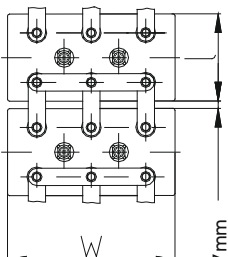
KGL 300 P – KGL 440 P (M 10)



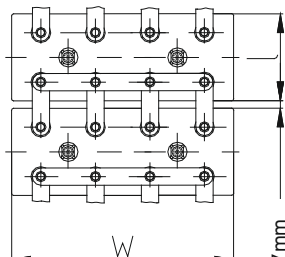
KGL 500 P – KGL 645 P (M 10)



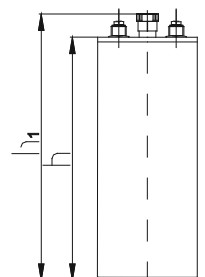
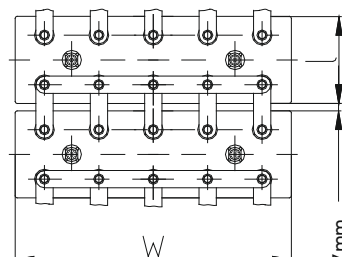
KGL 665 P – KGL 835 P (M 10)



KGL 890 P – KGL 1110 P (M 10)



KGL 1260 P – KGL 1570 P (M 10)



Technical Specifications / Technische Kenndaten

Cell type Zelltyp	Nominal Capacity C ₅ [Ah] at 1.00 V Nennkapazität C ₅ [Ah] bei 1,00 V	Dimensions / Abmessungen [mm]				Terminals / Pole		Total Weight / Gesamtgewicht [kg]
		l	w	h	h ₁	Type / Art M = Nut / Mutter S = Screw / Schraube	Size / Größe	
KGL 12 P	12	46	85	167	193	M	2 x M 10	1.0
KGL 20 P	20	46	85	237	263	M	2 x M 10	1.4
KGL 25 P	25	46	85	237	263	M	2 x M 10	1.5
KGL 35 P	35	46	85	237	263	M	2 x M 10	1.6
KGL 45 P	45	85	85	237	263	M	2 x M 10	2.7
KGL 50 P	50	85	85	237	263	M	2 x M 10	2.8
KGL 60 P	60	85	85	237	263	M	2 x M 10	2.9
KGL 70 P	70	53	134	364	394	S	2 x M 8	4.9
KGL 80 P	80	53	134	364	394	S	2 x M 8	5.0
KGL 100 P	100	69	134	364	394	S	2 x M 8	6.0
KGL 120 P	120	69	134	364	394	S	2 x M 8	6.3
KGL 135 P	135	70	164	364	394	S	2 x M 8	7.7
KGL 155 P	155	70	164	364	394	S	2 x M 8	7.8
KGL 175 P	175	108	164	364	394	S	2 x M 8	10.4
KGL 205 P	205	108	164	364	394	S	2 x M 8	10.8
KGL 225 P	225	108	164	364	394	S	2 x M 8	11.1
KGL 245 P	245	108	164	364	394	S	2 x M 8	11.6
KGL 275 P	275	108	164	364	394	S	2 x M 8	12.2
KGL 300 P	300	164	158	364	394	S	2 x M 10	16.2
KGL 330 P	330	164	158	364	394	S	2 x M 10	16.5
KGL 350 P	350	164	158	364	394	S	2 x M 10	17.0
KGL 375 P	375	164	158	364	394	S	2 x M 10	17.5
KGL 390 P	390	164	158	364	394	S	2 x M 10	18.0
KGL 420 P	420	164	158	364	394	S	2 x M 10	18.5
KGL 440 P	440	164	158	364	394	S	2 x M 10	18.9
KGL 500 P	500	176	246	382	410	S	4 x M 10	27.3
KGL 555 P	555	176	246	382	410	S	4 x M 10	28.3
KGL 585 P	585	176	246	382	410	S	4 x M 10	28.7
KGL 610 P	610	176	246	382	410	S	4 x M 10	29.3
KGL 645 P	645	176	246	382	410	S	4 x M 10	29.8
KGL 665 P	665	176	368	382	420	S	6 x M 10	40.7
KGL 705 P	705	176	368	382	420	S	6 x M 10	41.4
KGL 750 P	750	176	368	382	420	S	6 x M 10	41.9
KGL 795 P	795	176	368	382	420	S	6 x M 10	42.6
KGL 835 P	835	176	368	382	420	S	6 x M 10	43.1
KGL 890 P	890	176	448	382	420	S	8 x M 10	49.2
KGL 990 P	990	176	448	382	420	S	8 x M 10	53.7
KGL 1110 P	1110	176	448	382	420	S	8 x M 10	56.0
KGL 1260 P	1260	176	558	382	420	S	10 x M 10	63.8
KGL 1320 P	1320	176	558	382	420	S	10 x M 10	65.8
KGL 1390 P	1390	176	558	382	420	S	10 x M 10	67.8
KGL 1460 P	1460	176	558	382	420	S	10 x M 10	69.4
KGL 1570 P	1570	176	558	382	420	S	10 x M 10	70.6

* rated capacity acc. to IEC 62259, point 3.3 / Bemessungskapazität entsprechend IEC 62259, Punkt 3.3

Final discharge voltage per cell / Entladeschlussspannung pro Zelle

1.15 V

Cell type / Zelltyp	Discharge current / Entladestrom [A]														
	5 min	10 min	20 min	30 min	1 h	1.5 h	2 h	3 h	4 h	5 h	6 h	7 h	8 h	9 h	10 h
KGL 12 P	6.00	5.70	5.30	5.10	4.30	3.71	3.26	2.62	2.33	2.20	1.85	1.60	1.42	1.27	1.16
KGL 20 P	9.80	9.30	8.60	8.30	7.10	6.10	5.40	4.28	3.80	3.60	3.03	2.62	2.32	2.08	1.89
KGL 25 P	13.10	12.40	11.50	11.10	9.40	8.10	7.10	5.71	4.78	4.52	3.80	3.29	2.91	2.61	2.37
KGL 35 P	16.40	15.50	14.40	13.90	11.70	10.10	8.90	7.10	6.40	6.00	5.05	4.37	3.86	3.47	3.15
KGL 45 P	23.10	20.70	19.20	18.50	15.60	13.50	11.80	9.50	8.50	8.00	6.73	5.83	5.15	4.62	4.20
KGL 50 P	30.30	27.20	25.20	24.30	20.00	17.70	15.60	12.40	9.80	9.10	7.66	6.63	5.86	5.26	4.78
KGL 60 P	38.00	34.00	31.00	30.00	24.30	21.90	19.40	15.10	12.10	10.80	9.09	7.87	6.95	6.24	5.67
KGL 70 P	38.00	37.00	35.00	34.00	27.00	23.40	21.00	16.30	13.80	12.80	10.80	9.30	8.20	7.40	6.70
KGL 80 P	44.00	43.00	40.00	39.00	31.00	27.10	24.20	18.80	15.60	14.50	12.20	10.60	9.30	8.40	7.60
KGL 100 P	53.00	51.00	49.00	46.00	37.00	32.50	29.10	22.50	19.20	17.70	14.90	12.90	11.40	10.20	9.30
KGL 120 P	65.00	63.00	59.00	57.00	46.00	39.70	35.60	27.50	23.50	21.80	18.30	15.90	14.00	12.60	11.40
KGL 135 P	74.00	67.00	65.00	64.00	50.00	44.00	39.20	32.40	26.70	24.50	20.60	17.90	15.80	14.20	12.90
KGL 155 P	82.00	76.00	71.00	66.00	56.00	49.00	43.90	36.20	30.70	28.20	23.70	20.50	18.20	16.30	14.80
KGL 175 P	94.00	86.00	81.00	75.00	65.00	56.00	50.00	41.40	34.60	31.80	26.80	23.20	20.50	18.40	16.70
KGL 205 P	108.00	100.00	94.00	87.00	75.00	65.00	58.00	47.90	40.60	37.30	31.40	27.20	24.00	21.60	19.60
KGL 225 P	120.00	111.00	104.00	97.00	82.00	72.00	64.00	53.00	44.50	40.90	34.40	29.80	26.30	23.60	21.50
KGL 245 P	127.00	117.00	110.00	102.00	87.00	79.00	70.00	55.00	48.50	44.50	37.50	32.40	28.60	25.70	23.40
KGL 275 P	140.00	130.00	122.00	113.00	97.00	87.00	78.00	61.00	54.40	50.00	42.10	36.40	32.20	28.90	26.30
KGL 300 P	152.00	140.00	131.00	122.00	105.00	94.00	84.00	66.00	59.50	54.60	46.00	39.80	35.10	31.50	28.70
KGL 330 P	174.00	164.00	153.00	145.00	124.00	114.00	99.00	77.00	65.60	60.00	50.50	43.70	38.60	34.70	31.50
KGL 350 P	186.00	175.00	162.00	155.00	133.00	122.00	106.00	82.00	69.50	63.60	53.50	46.30	40.90	36.70	33.40
KGL 375 P	197.00	186.00	173.00	165.00	141.00	130.00	112.00	87.00	74.50	68.20	57.40	49.70	43.90	39.40	35.80
KGL 390 P	206.00	194.00	181.00	171.00	147.00	136.00	117.00	91.00	77.50	70.90	59.70	51.70	45.60	41.00	37.20
KGL 420 P	221.00	208.00	194.00	184.00	157.00	145.00	125.00	97.00	83.50	76.40	64.30	55.70	49.20	44.10	40.10
KGL 440 P	227.00	213.00	198.00	189.00	162.00	149.00	128.00	102.00	87.40	80.00	67.30	58.30	51.50	46.20	42.00
KGL 500 P	337.00	306.00	277.00	248.00	205.00	192.00	180.00	135.00	107.00	90.00	76.00	66.00	58.00	52.00	47.00
KGL 555 P	374.00	340.00	308.00	276.00	228.00	213.00	200.00	150.00	119.00	100.00	84.00	73.00	64.00	58.00	52.00
KGL 585 P	394.00	358.00	324.00	290.00	239.00	224.00	210.00	158.00	125.00	105.00	88.00	77.00	68.00	61.00	55.00
KGL 610 P	412.00	374.00	339.00	303.00	251.00	235.00	220.00	165.00	131.00	110.00	93.00	81.00	71.00	64.00	57.00
KGL 645 P	434.00	394.00	357.00	320.00	264.00	247.00	232.00	174.00	138.00	116.00	97.00	84.00	75.00	67.00	61.00
KGL 665 P	449.00	408.00	369.00	331.00	273.00	256.00	240.00	180.00	143.00	120.00	101.00	87.00	77.00	69.00	63.00
KGL 705 P	475.00	431.00	390.00	349.00	289.00	270.00	254.00	190.00	151.00	127.00	107.00	92.00	82.00	73.00	66.00
KGL 750 P	506.00	459.00	416.00	372.00	308.00	288.00	270.00	203.00	161.00	135.00	114.00	98.00	87.00	78.00	71.00
KGL 795 P	535.00	486.00	440.00	394.00	325.00	305.00	286.00	214.00	170.00	143.00	120.00	104.00	92.00	82.00	75.00
KGL 835 P	562.00	510.00	462.00	413.00	342.00	320.00	300.00	225.00	178.00	150.00	126.00	109.00	97.00	87.00	79.00
KGL 890 P	599.00	544.00	492.00	441.00	364.00	341.00	320.00	240.00	190.00	160.00	134.00	117.00	103.00	92.00	84.00
KGL 990 P	667.00	605.00	548.00	491.00	405.00	380.00	356.00	267.00	212.00	178.00	150.00	130.00	115.00	103.00	93.00
KGL 1110 P	749.00	680.00	616.00	551.00	456.00	427.00	400.00	300.00	238.00	200.00	168.00	146.00	129.00	116.00	105.00
KGL 1260 P	848.00	771.00	697.00	625.00	516.00	483.00	453.00	340.00	269.00	227.00	190.00	165.00	146.00	131.00	119.00
KGL 1320 P	889.00	807.00	730.00	654.00	540.00	506.00	475.00	356.00	282.00	237.00	199.00	173.00	153.00	137.00	124.00
KGL 1390 P	936.00	850.00	769.00	689.00	569.00	533.00	500.00	375.00	297.00	250.00	210.00	182.00	161.00	144.00	131.00
KGL 1460 P	983.00	893.00	808.00	724.00	598.00	560.00	525.00	394.00	312.00	263.00	221.00	191.00	169.00	151.00	138.00
KGL 1570 P	1057.00	960.00	869.00	778.00	643.00	602.00	565.00	424.00	335.00	282.00	237.00	206.00	182.00	163.00	148.00

Final discharge voltage per cell / Entladeschlussspannung pro Zelle

1.10 V

Cell type / Zelltyp	Discharge current / Entladestrom [A]														
	5 min	10 min	20 min	30 min	1 h	1.5 h	2 h	3 h	4 h	5 h	6 h	7 h	8 h	9 h	10 h
KGL 12 P	8.80	7.80	6.90	6.60	5.50	4.53	3.93	3.02	2.56	2.33	1.95	1.68	1.47	1.32	1.19
KGL 20 P	14.30	12.70	11.30	10.70	9.00	7.40	6.40	4.90	4.19	3.82	3.20	2.75	2.42	2.16	1.95
KGL 25 P	19.10	17.00	15.00	14.30	12.00	9.90	8.60	6.60	5.28	4.81	4.02	3.46	3.04	2.71	2.45
KGL 35 P	23.90	21.20	18.80	17.90	15.00	12.40	10.70	8.20	6.98	6.36	5.32	4.58	4.02	3.59	3.24
KGL 45 P	29.10	26.40	24.60	23.20	19.90	16.40	14.40	11.00	9.30	8.48	7.09	6.11	5.36	4.79	4.32
KGL 50 P	38.20	34.70	32.30	30.50	24.50	20.90	18.10	13.80	10.90	9.50	7.95	6.84	6.01	5.36	4.85
KGL 60 P	47.00	43.00	40.00	38.00	29.00	25.40	21.80	16.60	13.10	11.30	9.45	8.14	7.15	6.38	5.76
KGL 70 P	53.00	50.00	47.00	44.00	34.90	28.90	25.30	18.70	15.30	13.60	11.38	9.79	8.60	7.68	6.94
KGL 80 P	62.00	58.00	54.00	51.00	41.00	33.40	29.20	21.50	17.30	15.40	12.88	11.09	9.74	8.69	7.85
KGL 100 P	74.00	70.00	66.00	61.00	48.00	40.00	35.00	25.80	21.00	18.80	15.73	13.54	11.89	10.61	9.59
KGL 120 P	90.00	86.00	80.00	75.00	60.00	49.00	42.90	31.60	25.90	23.10	19.33	16.63	14.61	13.04	11.78
KGL 135 P	96.00	89.00	86.00	80.00	64.00	55.00	47.80	36.20	29.20	25.80	21.60	18.60	16.30	14.60	13.20
KGL 155 P	107.00	99.00	96.00	89.00	75.00	62.00	53.50	40.60	33.50	29.60	24.80	21.30	18.70	16.70	15.10
KGL 175 P	123.00	113.00	110.00	103.00	86.00	71.00	61.20	46.40	37.80	33.40	27.90	24.00	21.10	18.90	17.00
KGL 205 P	143.00	131.00	126.00	118.00	99.00	82.00	70.00	53.70	44.30	39.20	32.80	28.20	24.80	22.10	20.00
KGL 225 P	158.00	145.00	140.00	131.00	110.00	91.00	78.00	59.50	48.60	43.00	36.00	31.00	27.20	24.30	21.90
KGL 245 P	166.00	153.00	147.00	139.00	116.00	99.00	86.00	63.90	52.40	46.80	39.20	33.70	29.60	26.40	23.90
KGL 275 P	185.00	170.00	164.00	153.00	128.00	111.00	96.00	71.00	58.70	52.60	44.00	37.90	33.30	29.70	26.80
KGL 300 P	200.00	184.00	177.00	166.00	139.00	119.00	103.00	76.70	64.20	57.40	48.00	41.30	36.30	32.40	29.30
KGL 330 P	234.00	215.00	208.00	190.00	160.00	143.00	117.00	85.80	70.60	63.00	52.70	45.40	39.80	35.60	32.10
KGL 350 P	249.00	229.00	222.00	203.00	170.00	152.00	125.00	92.00	75.10	66.80	55.90	48.10	42.30	37.70	34.10
KGL 375 P	265.00	243.00	236.00	216.00	181.00	162.00	133.00	97.00	80.20	71.60	59.90	51.60	45.30	40.40	36.50
KGL 390 P	277.00	254.00	246.00	226.00	189.00	170.00	138.00	102.00	83.40	74.50	62.30	53.60	47.10	42.10	38.00
KGL 420 P	296.00	272.00	263.00	241.00	202.00	181.00	149.00	109.00	89.80	80.20	67.10	57.70	50.70	45.30	40.90
KGL 440 P	304.00	279.00	270.00	248.00	207.00	186.00	152.00	114.00	94.10	84.00	70.30	60.50	53.10	47.40	42.80
KGL 500 P	443.00	400.00	369.00	337.00	272.00	238.00	203.00	149.00	115.00	94.50	79				

Final discharge voltage per cell / Entladeschlussspannung pro Zelle

1.05 V

Cell type / Zelltyp	Discharge current / Entladestrom [A]														
	5 min	10 min	20 min	30 min	1 h	1.5 h	2 h	3 h	4 h	5 h	6 h	7 h	8 h	9 h	10 h
KGL 12 P	11.00	10.30	9.00	8.10	6.40	5.33	4.42	3.22	2.67	2.38	1.99	1.71	1.50	1.33	1.20
KGL 20 P	18.10	16.80	14.60	13.20	10.50	8.70	7.20	5.27	4.33	3.89	3.25	2.79	2.45	2.18	1.96
KGL 25 P	24.20	22.30	19.50	17.60	13.90	11.60	9.70	7.03	5.50	4.90	4.09	3.51	3.08	2.74	2.47
KGL 35 P	30.20	27.90	24.40	22.10	17.40	14.50	12.10	8.80	7.27	6.48	5.41	4.65	4.07	3.63	3.27
KGL 45 P	36.90	33.00	29.50	27.70	23.30	19.50	16.00	11.70	9.70	8.64	7.21	6.20	5.43	4.84	4.36
KGL 50 P	48.50	43.30	38.80	36.40	28.20	23.50	19.70	14.50	11.20	9.90	8.27	7.10	6.22	5.54	5.00
KGL 60 P	60.00	54.00	48.00	45.00	33.00	28.40	23.40	17.40	13.70	11.90	9.94	8.53	7.48	6.66	6.01
KGL 70 P	64.00	60.00	56.00	52.00	40.00	33.20	26.90	19.40	15.70	13.90	11.61	9.97	8.74	7.78	7.02
KGL 80 P	74.00	69.00	64.00	61.00	47.00	38.30	31.10	22.40	17.80	15.70	13.11	11.26	9.87	8.79	7.93
KGL 100 P	89.00	83.00	78.00	72.00	55.00	46.00	37.30	26.90	21.70	19.20	16.03	13.77	12.07	10.75	9.70
KGL 120 P	108.00	101.00	94.00	89.00	68.00	56.00	45.60	32.80	26.70	23.60	19.71	16.92	14.84	13.22	11.92
KGL 135 P	116.00	106.00	102.00	95.00	76.00	64.00	52.00	37.70	30.10	26.40	22.04	18.93	16.60	14.78	13.33
KGL 155 P	136.00	125.00	120.00	112.00	89.00	72.00	58.30	42.30	34.50	30.30	25.30	21.73	19.05	16.97	15.30
KGL 175 P	155.00	143.00	138.00	128.00	102.00	82.00	66.60	48.30	39.00	34.20	28.56	24.53	21.50	19.15	17.27
KGL 205 P	179.00	166.00	159.00	148.00	118.00	95.00	77.00	55.80	45.80	40.10	33.50	29.80	25.20	22.50	20.30
KGL 225 P	199.00	184.00	176.00	164.00	131.00	106.00	85.00	61.90	50.10	44.00	36.70	31.60	27.70	24.60	22.20
KGL 245 P	209.00	194.00	186.00	173.00	138.00	116.00	93.00	67.90	54.60	47.90	40.00	34.40	30.10	26.80	24.20
KGL 275 P	233.00	215.00	206.00	192.00	153.00	129.00	104.00	75.40	61.20	53.80	44.90	38.60	33.80	30.10	27.20
KGL 300 P	251.00	232.00	222.00	207.00	166.00	139.00	113.00	81.00	66.90	58.70	49.00	42.10	36.90	32.90	29.60
KGL 330 P	283.00	265.00	252.00	233.00	190.00	160.00	124.00	88.00	72.00	64.50	53.90	46.30	40.60	36.10	32.60
KGL 350 P	302.00	282.00	269.00	248.00	202.00	170.00	132.00	93.00	76.80	68.40	57.10	49.10	43.00	38.30	34.50
KGL 375 P	320.00	300.00	286.00	264.00	215.00	181.00	141.00	100.00	81.80	73.30	61.20	52.60	46.10	41.00	37.00
KGL 390 P	335.00	314.00	298.00	276.00	224.00	189.00	147.00	104.00	85.00	76.20	63.60	54.60	47.90	42.70	38.50
KGL 420 P	358.00	335.00	319.00	295.00	241.00	202.00	157.00	112.00	91.60	82.10	68.60	58.90	51.60	46.00	41.50
KGL 440 P	368.00	344.00	328.00	303.00	247.00	208.00	161.00	117.00	96.90	86.00	71.80	61.70	54.10	48.20	43.40
KGL 500 P	558.00	506.00	464.00	421.00	320.00	269.00	218.00	156.00	120.00	99.00	82.70	71.00	62.20	55.40	50.00
KGL 555 P	620.00	562.00	516.00	468.00	356.00	299.00	242.00	173.00	133.00	110.00	91.90	78.90	69.10	61.60	55.60
KGL 585 P	652.00	592.00	542.00	492.00	374.00	314.00	255.00	182.00	141.00	116.00	96.60	83.00	72.80	64.80	58.50
KGL 610 P	682.00	618.00	567.00	515.00	391.00	329.00	266.00	191.00	146.00	121.00	101.10	86.80	76.00	67.70	61.10
KGL 645 P	719.00	652.00	598.00	542.00	413.00	347.00	281.00	201.00	155.00	128.00	106.50	91.50	80.20	71.50	64.50
KGL 665 P	744.00	675.00	619.00	561.00	427.00	359.00	291.00	208.00	161.00	132.00	110.20	94.70	83.00	73.90	66.70
KGL 705 P	786.00	713.00	654.00	593.00	451.00	379.00	307.00	220.00	170.00	139.00	116.50	100.00	87.70	78.10	70.40
KGL 750 P	837.00	759.00	696.00	632.00	480.00	404.00	327.00	234.00	181.00	149.00	124.40	106.90	93.70	83.40	75.20
KGL 795 P	887.00	804.00	737.00	669.00	508.00	427.00	347.00	248.00	192.00	157.00	131.30	112.80	98.90	88.10	79.40
KGL 835 P	930.00	843.00	773.00	702.00	533.00	448.00	363.00	260.00	201.00	165.00	137.80	118.30	103.70	92.40	83.30
KGL 890 P	992.00	900.00	825.00	748.00	569.00	478.00	388.00	277.00	214.00	176.00	147.00	126.30	110.70	98.60	88.90
KGL 990 P	1104.00	1001.00	918.00	833.00	633.00	532.00	432.00	308.00	239.00	196.00	163.50	140.50	123.10	109.70	98.90
KGL 1110 P	1240.00	1124.00	1031.00	936.00	711.00	598.00	484.00	347.00	268.00	220.00	183.70	157.80	138.30	123.20	111.10
KGL 1260 P	1405.00	1275.00	1168.00	1060.00	806.00	677.00	549.00	393.00	304.00	249.00	208.10	178.80	156.70	139.60	125.90
KGL 1320 P	1472.00	1335.00	1224.00	1110.00	844.00	709.00	575.00	411.00	318.00	261.00	218.00	187.30	164.20	146.20	131.90
KGL 1390 P	1550.00	1406.00	1289.00	1169.00	889.00	747.00	606.00	433.00	335.00	275.00	229.60	197.20	172.90	154.00	138.90
KGL 1460 P	1628.00	1477.00	1354.00	1228.00	934.00	785.00	637.00	455.00	352.00	289.00	241.20	207.10	181.60	161.80	145.90
KGL 1570 P	1751.00	1588.00	1456.00	1320.00	1004.00	844.00	684.00	489.00	378.00	311.00	259.30	222.70	195.30	173.90	156.90

Final discharge voltage per cell / Entladeschlussspannung pro Zelle

1.00 V

Cell type / Zelltyp	Discharge current / Entladestrom [A]														
	5 min	10 min	20 min	30 min	1 h	1.5 h	2 h	3 h	4 h	5 h	6 h	7 h	8 h	9 h	10 h
KGL 12 P	12.70	12.20	10.80	9.70	7.30	5.80	4.68	3.39	2.73	2.40	2.00	1.72	1.51	1.34	1.21
KGL 20 P	20.80	19.90	17.70	16.20	12.30	9.50	7.70	5.54	4.56	4.00	3.34	2.87	2.52	2.24	2.02
KGL 25 P	27.80	26.50	23.60	21.60	16.50	12.60	10.20	7.39	5.69	5.00	4.18	3.59	3.14	2.80	2.53
KGL 35 P	34.70	33.20	29.50	27.10	20.70	15.80	12.80	9.24	7.97	7.00	5.85	5.02	4.40	3.92	3.54
KGL 45 P	41.60	38.60	34.00	32.90	27.50	21.10	17.10	12.32	10.25	9.00	7.52	6.45	5.66	5.04	4.55
KGL 50 P	54.50	50.70	43.80	40.90	32.10	26.20	20.90	14.90	11.50	10.00	8.35	7.17	6.29	5.60	5.05
KGL 60 P	68.00	63.00	54.00	49.60	37.80	31.30	24.60	17.60	13.80	12.00	10.02	8.61	7.55	6.72	6.06
KGL 70 P	74.00	70.00	64.00	61.00	46.00	35.20	28.20	20.00	16.00	14.00	11.69	10.04	8.80	7.84	7.07
KGL 80 P	85.00	80.00	74.00	70.00	53.00	40.60	32.50	23.10	18.20	16.00	13.36	11.47	10.06	8.96	8.08
KGL 100 P	101.00	96.00	89.00	84.00	63.00	48.70	39.00	27.70	22.70	20.00	16.70	14.34	12.58	11.20	10.10
KGL 120 P	124.00	118.00	109.00	103.00	77.00	59.50	47.60	33.90	27.30	24.00	20.04	17.21	15.09	13.44	12.12
KGL 135 P	137.00	129.00	121.00	114.00	86.00	68.00	53.70	38.50	30.80	27.00	22.55	19.36	16.98	15.12	13.64
KGL 155 P	161.00	151.00	142.00	134.00	102.00	77.00	60.10	43.10	35.30	31.00	25.89	22.23	19.49	17.36	15.66
KGL 175 P	185.00	173.00	162.00	153.00	116.00	87.00	69.00	49.30	39.90	35.00	29.23	25.10	22.01	19.60	17.68
KGL 205 P	213.00	200.00	188.00	178.00	134.00	101.00	79.00	57.00	46.70	41.00	34.20	29.40	25.80	23.00	20.70
KGL 225 P	236.00	222.00	208.00	197.00	149.00	112.00	88.00	63.10	51.30	45.00	37.60	32.30	28.30	25.20	22.70
KGL 245 P	249.00	234.00	219.00	207.00	158.00	124.00	97.00	69.30	55.80	49.00	40.90	35.10	30.80	27.40	24.70
KGL 275 P	277.00	260.00	243.00	230.00	174.00	138.00	107.00	77.00	62.30	55.00	45.90	39.40	34.60	30.80	27.80
KGL 300 P	299.00	281.00	263.00	248.00	190.00	148.00	116.00	83.20	68.30	60.00	50.10	43.00	37.70	33.60	30.30
KGL 330 P	345.00	317.00	296.00	275.00	213.00	162.00	127.00	89.90	74.10	66.00	55.10	47.30	41.50	37.00	33.30
KGL 350 P	368.00	339.00	316.00	294.00	227.00	172.00	135.00	96.00	78.80	70.00	58.50	50.20	44.00	39.20	35.40
KGL 375 P	391.00	360.00	335.00	312.00	241.00	183.00	143.00	102.00	84.20	75.00	62.60	53.80	47.20	42.00	37.90
KGL 390 P	408.00	376.00	350.00	326.00	252.00	191.00	150.00	106.00	87.60	78.00	65.10	55.90	49.00	43.70	39.40
KGL 420 P	437.00	402.00	375.00	349.00	269.00	205.00	160.00	113.00	94.30	84.00	70.10	60.20	52.80	47.00	42.40
KGL 440 P	449.00	413.00	385.00	358.00	276.00	210.00	165.00	120.00	98.80	88.00	73.50	63.10	55.30	49.30	44.40
KGL 500 P	664.00														



GAZ® *lomain™* battery range KGM ... P

The GAZ® KGM ... P type of battery provides all the advantages of the Ni-Cd pocket plate design and adds the features of the GAZ® *lomain™* battery concept. It has been especially designed for "mixed loads" that include a mixture of high and low rates of discharge. It is used for frequent and infrequent discharges and the recommended discharge time is 30 min to 120 min.

Field of application

UPS systems, emergency lighting, process control, telecommunication, power and substations, oil and gas refineries, railroad signalling.

GAZ® Batteriebaureihe *lomain™* KGM ... P

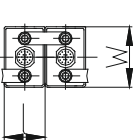
GAZ® Ni-Cd Batteriezellen dieser Baureihe bieten alle Vorteile der bewährten Taschenplattenkonstruktion sowie des verbesserten GAZ® *lomain™* Batteriekonzeptes. Batterien dieser Baureihe finden speziell bei „Mischlasten“ mit hohen und niedrigen Entladeströmen Anwendung. Die empfohlene Entladezeit für die Batteriebaureihe KGM ... P beträgt 30 min bis 120 min.

Anwendungsbereiche

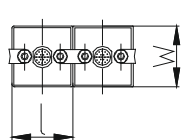
USV-Anlagen, Sicherheitsbeleuchtung, Prozesssteuerung, Telekommunikation, Kraftwerke und Schaltstationen, Öl- und Gasraffinerien, Einsatz im Bahnbereich.

Battery Layout

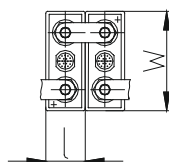
KGM 11 P – KGM 30 P



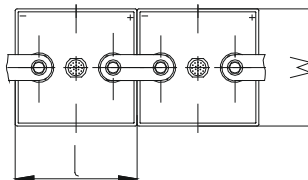
KGM 40 P – KGM 55 P



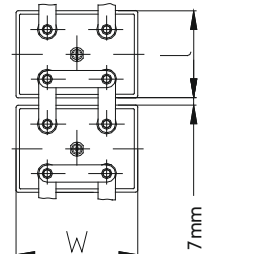
KGM 65 P – KGM 250 P (M 8)



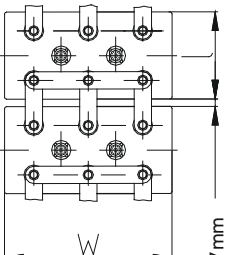
KGM 270 P – KGM 400 P (M 10)



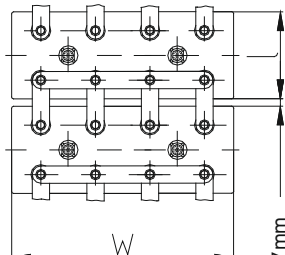
KGM 450 P – KGM 570 P (M 10)



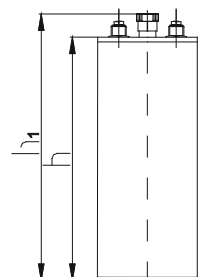
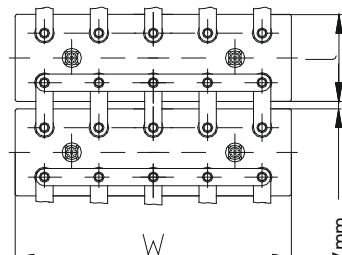
KGM 600 P – KGM 770 P (M 10)



KGM 800 P – KGM 1130 P (M 10)



KGM 1250 P – KGM 1350 P (M 10)



Technical Specifications / Technische Kenndaten

Cell type Zelltyp	Nominal Capacity C ₅ [Ah] at 1.15 V Nennkapazität C ₅ [Ah] bei 1,15 V	Dimensions / Abmessungen [mm]				Terminals / Pole		Total Weight / Gesamtgewicht [kg]
		l	w	h	h ₁	Type / Art M = Nut / Mutter S = Screw / Schraube	Size / Größe	
KGM 11P	11	46	85	167	193	M	2 x M 10	1.0
KGM 18P	18	46	85	237	263	M	2 x M 10	1.5
KGM 24P	24	46	85	237	263	M	2 x M 10	1.6
KGM 30P	30	46	85	237	263	M	2 x M 10	1.7
KGM 40P	40	85	85	237	263	M	2 x M 10	2.7
KGM 48P	48	85	85	237	263	M	2 x M 10	2.8
KGM 55P	55	85	85	237	263	M	2 x M 10	2.9
KGM 65P	65	53	134	364	394	S	2 x M 8	4.9
KGM 75P	75	53	134	364	394	S	2 x M 8	5.0
KGM 90P	90	69	134	364	394	S	2 x M 8	6.0
KGM 110P	110	69	134	364	394	S	2 x M 8	6.3
KGM 125P	125	70	164	364	394	S	2 x M 8	7.7
KGM 140P	140	70	164	364	394	S	2 x M 8	7.8
KGM 160P	160	108	164	364	394	S	2 x M 8	10.4
KGM 185P	185	108	164	364	394	S	2 x M 8	10.8
KGM 205P	205	108	164	364	394	S	2 x M 8	11.1
KGM 225P	225	108	164	364	394	S	2 x M 8	11.6
KGM 250P	250	108	164	364	394	S	2 x M 8	12.2
KGM 270P	270	164	158	364	394	S	2 x M 10	15.8
KGM 300P	300	164	158	364	394	S	2 x M 10	16.5
KGM 320P	320	164	158	364	394	S	2 x M 10	17.0
KGM 340P	340	164	158	364	394	S	2 x M 10	17.5
KGM 355P	355	164	158	364	394	S	2 x M 10	18.0
KGM 380P	380	164	158	364	394	S	2 x M 10	18.5
KGM 400P	400	164	158	364	394	S	2 x M 10	18.9
KGM 450P	450	176	246	382	410	S	4 x M 10	27.3
KGM 470P	470	176	246	382	410	S	4 x M 10	27.8
KGM 500P	500	176	246	382	410	S	4 x M 10	28.3
KGM 520P	520	176	246	382	410	S	4 x M 10	28.9
KGM 550P	550	176	246	382	410	S	4 x M 10	29.3
KGM 570P	570	176	246	382	410	S	4 x M 10	29.7
KGM 600P	600	176	368	382	420	S	6 x M 10	40.7
KGM 630P	630	176	368	382	420	S	6 x M 10	41.2
KGM 675P	675	176	368	382	420	S	6 x M 10	41.9
KGM 690P	690	176	368	382	420	S	6 x M 10	42.3
KGM 750P	750	176	368	382	420	S	6 x M 10	43.1
KGM 770P	770	176	368	382	420	S	6 x M 10	43.8
KGM 800P	800	176	448	382	420	S	8 x M 10	49.1
KGM 850P	850	176	448	382	420	S	8 x M 10	51.4
KGM 950P	950	176	448	382	420	S	8 x M 10	53.7
KGM 1000P	1000	176	448	382	420	S	8 x M 10	57.6
KGM 1030P	1030	176	448	382	420	S	8 x M 10	58.9
KGM 1130P	1130	176	448	382	420	S	8 x M 10	61.9
KGM 1250P	1250	176	558	382	420	S	10 x M 10	68.9
KGM 1350P	1350	176	558	382	420	S	10 x M10	70.1

* rated capacity acc. to IEC 62259, point 3.3 / Bemessungskapazität entsprechend IEC 62259, Punkt 3.3

Final discharge voltage per cell / Entladeschlussspannung pro Zelle

1.15 V

Cell type / Zelltyp	Discharge current / Entladestrom [A]													
	5 min	10 min	20 min	30 min	1 h	1.5 h	2 h	3 h	5 h	6 h	7 h	8 h	9 h	10 h
KGM 11P	7.70	7.10	6.40	6.00	4.90	4.17	3.61	2.80	2.20	1.85	1.60	1.42	1.27	1.16
KGM 18P	12.60	11.70	10.40	9.80	8.10	6.80	5.95	4.59	3.60	3.03	2.62	2.32	2.08	1.89
KGM 24P	16.80	15.60	13.90	13.10	10.70	9.14	7.90	6.12	4.80	4.04	3.50	3.09	2.77	2.52
KGM 30P	21.00	19.50	17.40	16.40	13.40	11.40	9.80	7.60	6.00	5.05	4.37	3.86	3.47	3.15
KGM 40P	29.60	26.10	23.20	21.80	17.80	15.20	13.10	10.20	8.00	6.73	5.83	5.15	4.62	4.20
KGM 48P	38.80	34.20	30.40	28.70	22.80	19.90	17.30	13.20	9.60	8.08	6.99	6.18	5.55	5.04
KGM 55P	48.00	42.30	37.60	35.40	27.70	24.60	21.50	16.20	11.00	9.26	8.01	7.08	6.36	5.78
KGM 65P	49.00	46.20	42.50	39.70	31.00	26.30	23.30	17.40	13.00	10.90	9.50	8.40	7.50	6.80
KGM 75P	56.60	53.90	48.30	45.50	35.90	30.40	26.80	20.10	15.00	12.60	10.90	9.70	8.70	7.90
KGM 90P	68.20	64.50	58.90	54.20	42.70	36.50	32.30	24.10	18.00	15.20	13.10	11.60	10.40	9.50
KGM 110P	83.50	78.90	71.40	66.80	52.40	44.60	39.40	29.50	22.00	18.50	16.00	14.20	12.70	11.60
KGM 125P	94.10	84.70	78.20	75.50	57.20	49.60	43.40	34.70	25.00	21.00	18.20	16.10	14.40	13.10
KGM 140P	104.60	95.20	85.90	78.40	64.00	55.40	48.70	38.80	28.00	23.60	20.40	18.00	16.20	14.70
KGM 160P	120.00	108.70	97.50	89.10	73.70	63.20	55.60	44.40	32.00	26.90	23.30	20.60	18.50	16.80
KGM 185P	138.20	126.00	112.90	102.60	85.40	72.90	64.40	51.30	37.00	31.10	27.00	23.80	21.40	19.40
KGM 205P	153.60	139.50	125.50	114.20	94.10	80.70	71.20	56.80	41.00	34.50	29.90	26.40	23.70	21.50
KGM 225P	162.20	147.20	132.20	120.00	98.90	88.50	78.00	58.80	45.00	37.90	32.80	29.00	26.00	23.60
KGM 250P	179.50	163.50	146.70	133.60	110.60	98.20	86.80	65.40	50.00	42.10	36.40	32.20	28.90	26.30
KGM 270P	193.90	176.00	158.30	144.20	119.30	105.90	93.60	70.60	54.00	45.50	39.30	34.80	31.20	28.40
KGM 300P	222.70	206.80	184.30	171.30	141.60	128.30	109.20	82.30	60.00	50.50	43.70	38.60	34.70	31.50
KGM 320P	238.10	220.30	195.90	183.00	151.30	137.10	117.00	87.80	64.00	53.90	46.60	41.20	37.00	33.60
KGM 340P	252.50	233.80	208.40	194.60	161.00	145.80	123.80	93.30	68.00	57.20	49.50	43.80	39.30	35.70
KGM 355P	264.00	244.30	218.10	202.30	167.80	152.60	129.70	97.00	71.00	59.80	51.70	45.70	41.00	37.30
KGM 380P	282.20	261.70	233.50	216.80	179.50	163.30	138.50	103.90	76.00	64.00	55.40	48.90	43.90	39.90
KGM 400P	289.90	268.40	239.30	222.60	184.30	167.20	142.40	109.80	80.00	67.30	58.30	51.50	46.20	42.00
KGM 450P	324.00	294.00	267.00	240.00	199.00	187.00	176.00	132.00	90.00	76.00	66.00	58.00	52.00	47.00
KGM 470P	338.00	308.00	279.00	251.00	208.00	195.00	183.00	138.00	94.00	79.00	68.00	61.00	54.00	49.00
KGM 500P	359.00	327.00	297.00	267.00	221.00	207.00	195.00	147.00	100.00	84.00	73.00	64.00	58.00	52.00
KGM 520P	374.00	340.00	309.00	277.00	230.00	215.00	203.00	153.00	104.00	87.00	76.00	67.00	60.00	54.00
KGM 550P	396.00	360.00	327.00	293.00	243.00	228.00	215.00	162.00	110.00	93.00	81.00	71.00	64.00	57.00
KGM 570P	410.00	373.00	338.00	304.00	252.00	236.00	223.00	168.00	114.00	96.00	83.00	73.00	66.00	60.00
KGM 600P	431.00	392.00	356.00	320.00	265.00	249.00	234.00	176.00	120.00	101.00	87.00	77.00	69.00	63.00
KGM 630P	453.00	412.00	374.00	336.00	278.00	261.00	246.00	185.00	126.00	106.00	92.00	81.00	73.00	66.00
KGM 675P	486.00	442.00	401.00	360.00	299.00	280.00	263.00	199.00	135.00	114.00	98.00	87.00	78.00	71.00
KGM 690P	496.00	452.00	410.00	368.00	305.00	286.00	269.00	203.00	138.00	116.00	100.00	89.00	79.00	72.00
KGM 750P	540.00	491.00	446.00	400.00	332.00	311.00	293.00	221.00	150.00	126.00	109.00	97.00	87.00	79.00
KGM 770P	554.00	504.00	457.00	411.00	340.00	319.00	301.00	227.00	154.00	129.00	112.00	99.00	89.00	81.00
KGM 800P	575.00	524.00	475.00	427.00	353.00	332.00	312.00	236.00	160.00	134.00	116.00	103.00	92.00	84.00
KGM 850P	611.00	556.00	505.00	454.00	375.00	352.00	332.00	250.00	170.00	143.00	124.00	109.00	98.00	89.00
KGM 950P	683.00	622.00	564.00	507.00	420.00	394.00	371.00	280.00	190.00	160.00	138.00	122.00	109.00	100.00
KGM 1000P	719.00	654.00	594.00	533.00	442.00	415.00	390.00	294.00	200.00	168.00	146.00	129.00	116.00	105.00
KGM 1030P	741.00	674.00	611.00	550.00	455.00	427.00	402.00	303.00	206.00	173.00	150.00	133.00	119.00	108.00
KGM 1130P	813.00	739.00	671.00	603.00	499.00	468.00	441.00	333.00	226.00	190.00	165.00	146.00	130.00	118.00
KGM 1250P	899.00	818.00	742.00	667.00	552.00	518.00	488.00	368.00	250.00	210.00	182.00	161.00	144.00	131.00
KGM 1350P	971.00	883.00	801.00	720.00	596.00	559.00	527.00	397.00	270.00	227.00	197.00	174.00	156.00	141.00

Final discharge voltage per cell / Entladeschlussspannung pro Zelle

1.10 V

Cell type / Zelltyp	Discharge current / Entladestrom [A]													
	5 min	10 min	20 min	30 min	1 h	1.5 h	2 h	3 h	5 h	6 h	7 h	8 h	9 h	10 h
KGM 11P	11.20	9.80	8.30	7.70	6.30	5.09	4.36	3.23	2.33	1.95	1.68	1.47	1.32	1.19
KGM 18P	18.30	16.00	13.60	12.70	10.30	8.36	7.12	5.29	3.82	3.20	2.75	2.42	2.16	1.95
KGM 24P	24.40	21.40	18.10	16.80	13.70	11.08	9.56	7.06	5.09	4.26	3.66	3.22	2.87	2.60
KGM 30P	30.50	26.60	22.70	21.10	17.10	13.90	11.90	8.80	6.36	5.32	4.58	4.02	3.59	3.24
KGM 40P	37.20	33.20	29.70	27.40	22.70	18.50	16.00	11.80	8.48	7.09	6.11	5.36	4.79	4.32
KGM 48P	48.90	43.60	39.00	36.00	27.90	23.50	20.10	14.80	10.00	8.37	7.20	6.33	5.64	5.10
KGM 55P	60.50	53.90	48.30	44.50	33.10	28.60	24.20	17.70	11.50	9.62	8.28	7.27	6.49	5.87
KGM 65P	68.20	63.50	56.90	52.30	39.80	32.50	28.10	20.00	13.80	11.55	9.94	8.73	7.79	7.04
KGM 75P	78.70	73.10	65.60	60.00	46.60	37.50	32.40	23.00	15.90	13.30	11.45	10.06	8.97	8.11
KGM 90P	94.10	88.50	79.10	71.60	55.30	45.00	38.80	27.60	19.10	15.98	13.75	12.08	10.78	9.74
KGM 110P	115.20	107.70	96.50	88.10	67.90	55.00	47.50	33.80	23.30	19.49	16.78	14.74	13.15	11.88
KGM 125P	122.90	111.60	103.30	94.90	72.80	62.20	52.90	38.80	26.30	22.00	18.90	16.60	14.80	13.40
KGM 140P	137.30	125.10	115.80	105.50	85.40	70.00	59.30	43.50	29.40	24.60	21.20	18.60	16.60	15.00
KGM 160P	157.40	142.40	132.20	121.00	98.00	79.70	67.80	49.70	33.60	28.10	24.20	21.30	19.00	17.10
KGM 185P	182.40	164.50	152.50	139.40	112.50	92.30	78.00	57.50	38.90	32.50	28.00	24.60	22.00	19.80
KGM 205P	201.60	182.80	168.90	154.90	125.10	102.10	86.80	63.70	43.10	36.10	31.00	27.30	24.30	22.00
KGM 225P	212.20	192.40	177.60	163.60	131.90	111.80	95.60	68.40	47.30	39.60	34.10	29.90	26.70	24.10
KGM 250P	236.20	213.60	197.80	181.00	146.50	124.40	106.30	76.00	52.60	44.00	37.90	33.30	29.70	26.80
KGM 270P	255.40	230.90	213.30	195.50	158.10	134.10	114.10	82.10	56.80	47.50	40.90	35.90	32.10	29.00
KGM 300P	299.50	270.30	250.90	224.60	182.40	160.40	129.70	91.90	63.00	52.70	45.40	39.80	35.60	32.10
KGM 320P	318.70	287.60	267.30	240.10	194.00	171.10	138.50	98.00	67.20	56.20	48.40	42.50	37.90	34.30
KGM 340P	338.90	305.90	284.70	254.60	206.60	181.80	147.20	103.90	71.40	59.70	51.40	45.20	40.30	36.40
KGM 355P	354.20	319.40	297.20	266.20	215.30	190.50	153.10	108.80	74.60	62.40	53.70	47.20	42.10	38.00
KGM 380P	379.20	342.50	317.50	284.60	230.90	203.10	164.80	116.60	79.80	66.80	57.50	50.50	45.00	40.70
KGM 400P	388.80	351.10	326.20	292.30	236.70	209.00	168.70	122.50	84.00	70.30	60.50	53.10	47.40	42.80
KGM 450P	425.00	385.00	356.00	326.00	264.00	231.00	198.00	146.00	94.50	79.10	68.00	59.80	53.30	48.20
KGM 470P	444.00	402.00	372.00	341.00	276.00	241.00	207.00	153.00	98.90	82.70	71.20	62.50	55.80	50.40
KGM 500P	472.00	427.00	396.00	362.00	293.00	257.00	220.00	163.00	105.00	87.90	75.60	66.40		

Final discharge voltage per cell / Entladeschlussspannung pro Zelle

1.05 V

Cell type / Zelltyp	Discharge current / Entladestrom [A]													
	5 min	10 min	20 min	30 min	1 h	1.5 h	2 h	3 h	5 h	6 h	7 h	8 h	9 h	10 h
KGM 11P	14.10	12.90	10.80	9.60	7.30	5.99	4.89	3.45	2.38	1.99	1.71	1.50	1.33	1.20
KGM 18P	23.10	21.10	17.70	15.60	11.90	9.82	8.00	5.64	3.89	3.25	2.79	2.45	2.18	1.96
KGM 24P	30.90	28.10	23.50	20.80	15.90	13.02	10.73	7.53	5.18	4.33	3.71	3.26	2.90	2.62
KGM 30P	38.60	35.10	29.40	26.00	19.90	16.30	13.40	9.40	6.48	5.41	4.65	4.07	3.63	3.27
KGM 40P	47.20	41.50	35.60	32.70	26.60	21.90	17.70	12.50	8.64	7.21	6.20	5.43	4.84	4.36
KGM 48P	62.00	54.40	46.80	43.00	32.20	26.40	21.80	15.60	10.40	8.68	7.46	6.54	5.82	5.25
KGM 55P	76.80	67.30	57.90	53.20	37.80	31.90	25.90	18.60	12.10	10.10	8.68	7.61	6.78	6.11
KGM 65P	81.60	75.00	67.60	62.00	45.60	37.30	29.80	20.80	14.10	11.77	10.11	8.87	7.90	7.12
KGM 75P	94.10	86.60	77.20	71.60	53.40	43.10	34.40	24.00	16.20	13.53	11.62	10.19	9.07	8.18
KGM 90P	113.30	103.90	93.60	85.20	63.10	51.70	41.30	28.80	19.50	16.28	13.98	12.26	10.92	9.85
KGM 110P	138.20	127.00	113.90	104.50	77.60	63.20	50.50	35.20	23.80	19.87	17.07	14.96	13.33	12.02
KGM 125P	147.80	133.70	122.60	112.30	86.30	71.90	57.60	40.40	26.90	22.46	19.29	16.91	15.06	13.58
KGM 140P	173.80	157.80	144.80	132.60	101.90	80.70	64.50	45.30	30.10	25.13	21.59	18.93	16.86	15.20
KGM 160P	198.70	179.90	166.00	151.00	116.40	92.30	73.80	51.70	34.40	28.72	24.67	21.63	19.26	17.37
KGM 185P	229.40	208.80	192.00	174.20	134.80	106.90	85.80	59.80	39.80	33.20	28.50	25.00	22.30	20.10
KGM 205P	254.40	230.90	212.30	193.60	149.40	118.60	94.60	66.20	44.10	36.80	31.60	27.70	24.70	22.30
KGM 225P	267.80	243.40	223.90	204.20	157.10	130.20	103.40	72.70	48.40	40.40	34.70	30.40	27.10	24.40
KGM 250P	297.60	270.30	249.00	226.50	174.60	144.80	115.10	80.80	53.80	44.90	38.60	33.80	30.10	27.20
KGM 270P	321.60	291.50	268.30	244.90	189.20	156.50	124.80	87.20	58.10	48.50	41.70	36.50	32.50	29.30
KGM 300P	361.90	332.90	304.00	274.90	216.30	179.80	137.50	94.10	64.50	53.90	46.30	40.60	36.10	32.60
KGM 320P	385.90	355.00	324.20	293.30	230.90	191.50	146.30	100.00	68.80	57.40	49.30	43.30	38.50	34.70
KGM 340P	409.90	377.10	344.50	311.70	245.40	203.10	156.00	106.80	73.10	61.00	52.40	46.00	40.90	36.90
KGM 355P	428.20	394.40	359.90	325.20	256.10	211.90	162.80	111.70	76.30	63.70	54.70	48.00	42.70	38.50
KGM 380P	457.90	421.40	385.00	348.50	274.50	227.40	173.60	119.60	81.70	68.20	58.60	51.40	45.80	41.30
KGM 400P	470.40	432.90	395.70	357.20	281.30	233.30	178.40	125.40	86.00	71.80	61.70	54.10	48.20	43.40
KGM 450P	536.00	487.00	448.00	408.00	310.00	261.00	213.00	153.00	99.00	82.70	71.00	62.20	55.40	50.00
KGM 470P	559.00	509.00	468.00	426.00	324.00	273.00	222.00	159.00	103.40	86.30	74.10	65.00	57.90	52.20
KGM 500P	595.00	541.00	498.00	453.00	345.00	291.00	236.00	170.00	110.00	91.90	78.90	69.10	61.60	55.60
KGM 520P	619.00	563.00	518.00	471.00	359.00	302.00	246.00	176.00	114.40	95.50	82.00	71.90	64.10	57.80
KGM 550P	655.00	595.00	547.00	499.00	379.00	320.00	259.00	187.00	121.00	101.10	86.80	76.00	67.70	61.10
KGM 570P	679.00	617.00	567.00	516.00	393.00	331.00	269.00	193.00	125.40	104.70	89.90	78.80	70.20	63.30
KGM 600P	714.00	649.00	597.00	543.00	414.00	349.00	284.00	204.00	132.00	110.20	94.70	83.00	73.90	66.70
KGM 630P	750.00	682.00	627.00	571.00	434.00	366.00	298.00	214.00	138.60	115.70	99.40	87.10	77.60	70.00
KGM 675P	804.00	730.00	672.00	612.00	466.00	393.00	319.00	229.00	149.00	124.40	106.90	93.70	83.40	75.20
KGM 690P	821.00	747.00	687.00	625.00	476.00	401.00	326.00	234.00	151.80	126.70	108.90	95.40	85.00	76.70
KGM 750P	893.00	811.00	746.00	680.00	517.00	435.00	354.00	255.00	165.00	137.80	118.30	103.70	92.40	83.30
KGM 770P	917.00	833.00	766.00	697.00	531.00	447.00	364.00	261.00	169.40	141.40	121.50	106.50	94.90	85.60
KGM 800P	952.00	866.00	796.00	724.00	552.00	465.00	378.00	271.00	176.00	146.90	126.20	110.70	98.60	88.90
KGM 850P	1012.00	920.00	846.00	770.00	586.00	494.00	402.00	288.00	187.00	156.10	134.10	117.60	104.70	94.50
KGM 950P	1131.00	1028.00	945.00	860.00	655.00	552.00	449.00	322.00	209.00	174.50	149.90	131.40	117.00	105.60
KGM 1000P	1190.00	1081.00	995.00	906.00	690.00	581.00	472.00	340.00	220.00	183.70	157.80	138.30	123.20	111.10
KGM 1030P	1226.00	1115.00	1025.00	933.00	710.00	598.00	487.00	349.00	226.60	189.20	162.50	142.50	126.90	114.50
KGM 1130P	1345.00	1223.00	1125.00	1023.00	779.00	656.00	534.00	383.00	248.60	207.60	178.30	156.30	139.20	125.60
KGM 1250P	1488.00	1353.00	1244.00	1132.00	862.00	726.00	591.00	424.00	275.00	229.60	197.20	172.90	154.00	138.90
KGM 1350P	1607.00	1461.00	1344.00	1223.00	931.00	784.00	638.00	458.00	297.00	248.00	213.00	186.70	166.30	150.00

Final discharge voltage per cell / Entladeschlussspannung pro Zelle

1.00 V

Cell type / Zelltyp	Discharge current / Entladestrom [A]													
	5 min	10 min	20 min	30 min	1 h	1.5 h	2 h	3 h	5 h	6 h	7 h	8 h	9 h	10 h
KGM 11P	16.20	15.30	13.00	11.40	8.30	6.52	5.19	3.63	2.42	2.02	1.74	1.52	1.36	1.22
KGM 18P	26.60	25.00	21.30	19.20	14.10	10.69	8.48	5.94	3.96	3.31	2.84	2.49	2.22	2.00
KGM 24P	35.50	33.40	28.50	25.60	18.80	14.19	11.31	7.92	5.28	4.41	3.79	3.32	2.96	2.67
KGM 30P	44.40	41.80	35.60	31.90	23.60	17.80	14.10	9.90	6.60	5.51	4.73	4.15	3.70	3.33
KGM 40P	53.20	48.60	41.00	39.90	31.40	23.70	18.90	13.20	8.80	7.35	6.31	5.53	4.93	4.44
KGM 48P	69.80	63.80	52.90	50.60	36.70	29.50	23.10	16.00	10.50	8.77	7.53	6.60	5.88	5.30
KGM 55P	86.40	78.90	64.70	58.60	43.20	35.20	27.20	18.80	12.20	10.19	8.75	7.67	6.83	6.16
KGM 65P	94.10	87.50	77.20	71.60	52.40	39.60	31.20	21.50	14.30	11.94	10.26	8.99	8.01	7.22
KGM 75P	108.50	101.00	89.70	82.30	60.10	45.60	36.00	24.70	16.50	13.78	11.83	10.37	9.24	8.33
KGM 90P	129.60	121.20	107.10	98.70	71.80	54.70	43.20	29.70	19.80	16.53	14.20	12.45	11.09	10.00
KGM 110P	158.40	148.10	131.20	121.00	88.30	66.90	52.70	36.30	24.20	20.21	17.35	15.22	13.55	12.22
KGM 125P	174.70	161.60	145.70	134.60	98.00	76.80	59.50	41.30	27.50	22.96	19.72	17.29	15.40	13.89
KGM 140P	206.40	190.50	171.80	158.80	116.40	86.50	66.60	46.20	30.80	25.72	22.09	19.37	17.25	15.55
KGM 160P	236.20	217.40	195.90	181.00	132.90	98.20	76.10	52.80	35.20	29.39	25.24	22.13	19.71	17.78
KGM 185P	272.60	252.00	226.80	210.10	153.30	113.70	87.80	61.10	40.70	34.00	29.20	25.60	22.80	20.60
KGM 205P	302.40	279.00	250.90	232.30	169.80	126.40	97.50	67.60	45.10	37.70	32.30	28.40	25.30	22.80
KGM 225P	318.70	294.40	264.40	244.90	180.40	139.00	107.30	74.20	49.50	41.30	35.50	31.10	27.70	25.00
KGM 250P	354.20	327.10	293.40	272.00	198.90	154.50	119.00	82.40	55.00	45.90	39.40	34.60	30.80	27.80
KGM 270P	382.10	353.10	317.50	293.30	216.30	166.20	128.70	89.10	59.40	49.60	42.60	37.30	33.30	30.00
KGM 300P	441.60	399.20	357.10	324.30	242.50	181.80	140.40	96.30	66.00	55.10	47.30	41.50	37.00	33.30
KGM 320P	471.40	426.20	381.20	346.50	259.00	193.40	149.20	102.90	70.40	58.80	50.50	44.30	39.40	35.60
KGM 340P	500.20	453.10	404.30	367.80	274.50	206.10	158.90	108.80	74.80	62.50	53.60	47.00	41.90	37.80
KGM 355P	522.20	473.30	422.70	384.30	287.10	214.80	165.80	113.70	78.10	65.20	56.00	49.10	43.70	39.40
KGM 380P	559.70	506.00	452.60	411.40	307.50	230.40	177.50	121.50	83.60	69.80	60.00	52.60	46.80	42.20
KGM 400P	574.10	519.50	464.20	422.00	315.30	236.20	182.30	128.40	88.00	73.50	63.10	55.30	49.30	44.40
KGM 450P	637.00	589.00	528.00	479.00	354.00	289.00	223.00	155.00	99.90	83.40	71.60	62.80	55.90	50.40
KGM 470P	666.00	615.00	551.00	500.00	370.00	302.00	233.00	162.00	104.50	87.30	75.00	65.70	58.50	52.80
KGM 500P	708.00	654.00	587.00	532										

Important Wichtig

The rated capacity C_5 is not the basis for the performance of the batteries. Always take into account that the performance depends on the battery construction, respectively on the different battery ranges. The cell size for specific application should be calculated according to actual recommended practice IEEE 1115 for stationary applications.

The rated capacity C_5 of *lomain*[™] range batteries is based on the available ampere hours (Ah) at a discharge rate of 5 hours to the final discharge voltage which is stated in the technical specification table per cell at $20\text{ °C} \pm 5\text{ °C}$.

Nominal voltage per cell is 1.2 V.

Discharging conditions

The discharge performances as well as the rated capacities C_5 given in this brochure are only valid for fully charged cells in accordance with IEC 62259.

Charging conditions

1. Two step charge

Float: 1.40 – 1.42 V/cell
Boost charge: 1.45 – 1.46 V/cell
Current limitation: 0.1 I_A

2. Single step charge

Standard charge: 1.42 – 1.44 V/cell
Current limitation: 0.1 I_A

Note: A higher charging level is possible, but effects the recombination rate and causes higher water consumption.

Die Nennkapazität C_5 ist keine Bemessungsgrundlage für die Leistung. Die Leistung hängt von der Batteriekonstruktion bzw. von der Typenbaureihe ab. Für die Dimensionierung von stationären Batterieanlagen ist die aktuelle Empfehlung gemäß IEEE 1115 anzuwenden.

Die Bemessungskapazität C_5 der Baureihen *lomain*[™] basiert auf den entnehmbaren Amperestunden (Ah) bei 5-stündiger Entladung und auf den unter „Technischen Kenndaten“ angegebenen Entladeschlussspannungen pro Zelle bei $20\text{ °C} \pm 5\text{ °C}$.

Die Nennspannung pro Zelle beträgt 1,2 V.

Entladeverhalten

Die in unseren Tabellen angegebenen Entladewerte sowie die Nennkapazitäten C_5 beruhen auf ordnungsgemäß geladenen Zellen laut IEC 62259.

Ladebedingungen

1. Zweistufige Ladung

Erhaltungsladung: 1,40 – 1,42 V/Zelle
Starkladung: 1,45 – 1,46 V/Zelle
Strombegrenzung: 0,1 I_A

2. Einstufige Ladung

Standardladung: 1,42 – 1,44 V/Zelle
Strombegrenzung: 0,1 I_A

Wichtig: Eine höhere Ladespannung ist möglich, beeinflusst aber die Rekombinationsrate und führt zu einem höheren Wasserverbrauch als angegeben.

All dimensions and weights stated are subject to usual manufacturing tolerances. Electrical values are approximate.

The right is reserved to make any alterations without prior notice.

Alle Maß- und Gewichtsangaben unterliegen herkömmlichen Fertigungstoleranzen. Die elektrischen Werte sind angenähert. Änderungen sind ohne Anzeigepflicht vorbehalten.

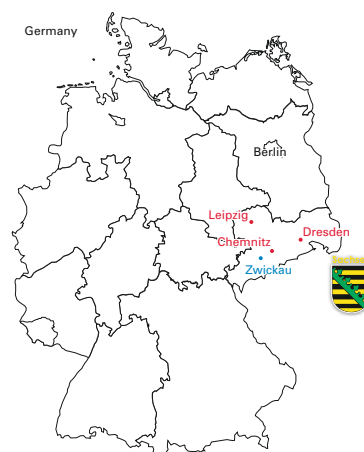


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