

GAZ[®]

lomain[™]
NEXT GENERATION
OF BATTERIES

Extreme low maintenance Ni-Cd batteries
Baterías Ni-Cd de extremado bajo mantenimiento

Made in Germany



EnerSys[®]
Power/Full Solutions

Extreme low maintenance Ni-Cd batteries Baterías Ni-Cd de extremado bajo mantenimiento

... stands for less water
... significa poca agua

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

¡Menos es más!

Menos consumo de agua

> Intervalos de rellenado más **largos**

Menos mantenimiento

> **Más** economía

Menos pérdidas de capacidad en aplicaciones de alta temperatura y durante el envejecimiento

> **Más** resistencia

Menos tiempos de recarga

> **Más** seguridad

Menos costes de servicio

> **Más** economía eficacia

GAZ®

lomain™
NEXT GENERATION
OF BATTERIES

LESS WATER



SINGLE CELL CONSTRUCTION

Construcción de las celdas individuales

Low pressure flame arresting vent

Válvula de baja presión – resistente a las llamas

GAZ® safety terminal

Redundant leak protection minimizes carbonate formation.

Polo de seguridad GAZ®

La doble junta minimiza la carbonatación.

Electrode edge

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

Lámina de electrodo

Con perno de polo atornillado o soldado. Asegura una elevada estabilidad mecánica.

Electrode frame

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

Marco de electrodos

Constituido de la lámina de electrodo y las barretas laterales. Cierra las placas y sirve como derivación de corriente.

Horizontal pockets

Formed by perforated steel strips containing the active material.

Placas de bolsas horizontales

Una cinta de acero perforada envuelve la masa activa.

Fleece separator

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

Separador de placas

Un separador de placas especial aísla las placas y promueve la recombinación interna.



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.

Baterías Ni-Cd *lomain*[™] GAZ[®] de extremado bajo mantenimiento

lomain[™] aúna la experiencia de 100 años en el proyecto y la fabricación en construcciones basadas en placas de bolsas con el completo concepto de batería *lomain*[™] GAZ[®]. Esto conduce a la vida útil extremadamente larga de las celdas Ni-Cd GAZ[®] junto a un mínimo de costes de mantenimiento. Las baterías de esta serie se adaptan especialmente para aplicaciones que deban ser absolutamente seguras contra averías y requieran un mínimo de mantenimiento.

Concepto de baterías *lomain*[™] GAZ[®]

Debido a su diseño especial de celda individual y el sistema de ventilación regulado por válvula, durante los 20 años de vida útil apenas es necesaria la recarga de agua. Las celdas *lomain*[™] están equipadas con una válvula de baja presión resistente a las llamas la cual hace posible la recarga de agua en caso necesario. Con un coeficiente de recombinación de hasta 90 %, independientemente de la tensión de carga y la temperatura ambiente, *lomain*[™] reduce de manera óptima los de mantenimiento.

lomain[™] Mejor capacidad de carga a elevadas temperaturas

Mediante inversiones en el perfeccionamiento del concepto de batería *lomain*[™] la serie de baterías *lomain*[™] ha podido ser mejorada considerablemente. Adicionalmente se han continuado mejorando todos los datos de prestaciones en el rango de alta temperatura, lo que conduce a una excelente capacidad de carga, incluso en cargas de una etapa con tensión constante. Especialmente las baterías de la serie KGM ... P pueden ser recargadas en sólo 15 horas con carga de tensión constante de una etapa de 1,43 V/celda y una limitación de la corriente de carga de 0,1 I_A hasta un 90 % de su capacidad nominal.

Rango de temperatura de aplicación

Las baterías de esta serie se emplean por regla general para temperaturas de servicio entre 0 °C y 40 °C, no obstante pueden soportar fluctuaciones de temperatura temporales en un rango de - 50 °C a + 70 °C.

Sistema de gestión de calidad

El sistema de gestión de calidad de nuestra empresa está certificado ya desde 1993. Estrictos controles de calidad, el empleo de materiales de alta calidad, el permanente perfeccionamiento de los procesos de producción y servicio y finalmente la excelente asistencia técnica para nuestros clientes respaldan la historia y filosofía de nuestra empresa. Así se cumplen todas las normas internacionales importantes incluyendo IEC 62259, ISO 9001 e ISO 14001.





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

This GAZ[®] *lomain*[™] cell type combines the well-proven Ni-Cd pocket plate design and the features of the GAZ[®] *lomain*[™] 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.

Serie de baterías GAZ[®] *lomain*[™] KGL ... P

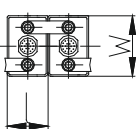
Las celdas de batería Ni-Cd GAZ[®] *lomain*[™] de esta serie reúne la acreditada construcción de placas de bolsas con el nuevo concepto de baterías *lomain*[™] GAZ[®]..Las baterías de esta serie han sido desarrolladas especialmente para corrientes de descarga reducidas durante una duración de descarga relativamente larga. El tiempo de descarga recomendado para la serie de baterías KGL ... P es de 1 a 100 horas.

Áreas de aplicación

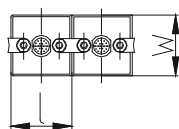
Instalaciones SAI, iluminación de seguridad, control de procesos, telecomunicaciones, centrales eléctricas y estaciones de conmutación, refinerías de petróleo y gas, aplicación en el área ferroviaria.

Battery Layout

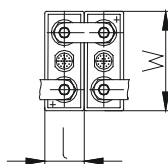
KGL 12 P – KGL 35 P



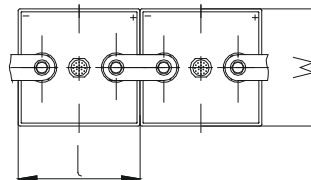
KGL 45 P – KGL 60 P



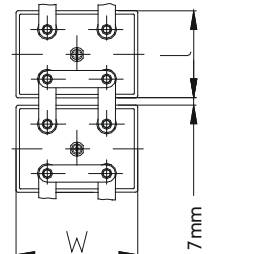
KGL 70 P – KGL 275 P (M 8)



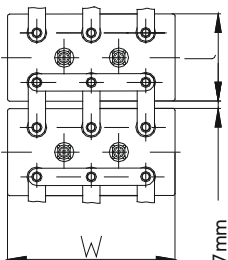
KGL 300 P – KGL 440 P (M 10)



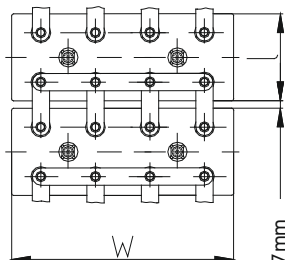
KGL 500 P – KGL 645 P (M 10)



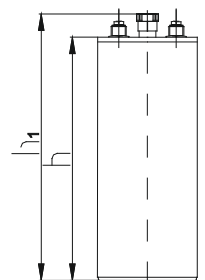
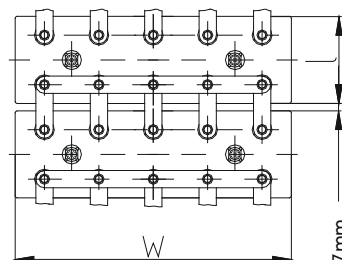
KGL 665 P – KGL 835 P (M 10)



KGL 890 P – KGL 1110 P (M 10)



KGL 1260 P – KGL 1570 P (M 10)



Technical Specifications / Datos técnicos característicos

Cell type Tipo de celda	Nominal Capacity C ₅ [Ah] at 1.00 V Capacidad nominal C ₅ [Ah] en 1,00 V	Dimensions / Dimensiones [mm]				Terminals / Polos		Total Weight / Peso total [kg]
		l	w	h	h ₁	Type / Tipo M = Nut / Tuerca S = Screw / Tornillo	Size / Tamaño	
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 / *Capacidad de dimensionamiento de acuerdo a IEC 62259, punto 3.3

Final discharge voltage per cell / Límite de descarga / elemento

1.15 V

Cell type / Tipo de celda	Discharge current / Corriente de descarga [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 / Límite de descarga / elemento

1.10 V

Cell type / Tipo de celda	Discharge current / Corriente de descarga [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 / Límite de descarga / elemento

1.05 V

Cell type / Tipo de celda	Discharge current / Corriente de descarga [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	28.80	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 / Límite de descarga / elemento

1.00 V

Cell type / Tipo de celda	Discharge current / Corriente de descarga [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</														

Battery range *lomain*[™] KGM ... P
Serie de baterías *lomain*[™] KGM ... P



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[®] Serie de baterías *lomain*[™] KGM ... P

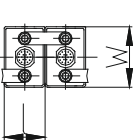
Las celdas de batería Ni-Cd GAZ[®] de esta serie ofrecen todas las ventajas de la acreditada construcción de placas de bolsas así como el concepto mejorado de baterías GAZ[®] *lomain*[™]. Las baterías de esta serie encuentran aplicación especialmente en „cargas mixtas“ con elevadas y bajas corrientes de descarga. El tiempo de descarga recomendado para la serie de baterías KGM ... P es de 30 a 120 minutos.

Áreas de aplicación

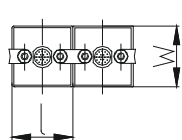
Instalaciones SAI, iluminación de seguridad, control de procesos, telecomunicaciones, centrales eléctricas y estaciones de conmutación, refinerías de petróleo y gas, aplicación en el área ferroviaria.

Battery Layout

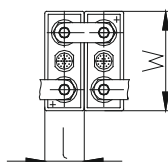
KGM 11 P – KGM 30 P



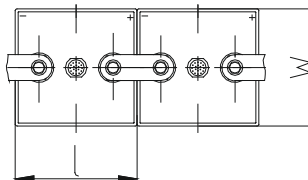
KGM 40 P – KGM 55 P



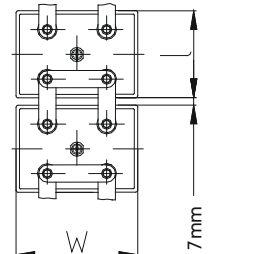
KGM 65 P – KGM 250 P (M 8)



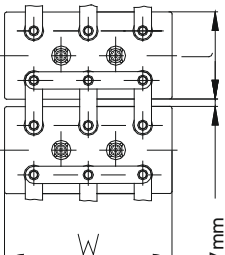
KGM 270 P – KGM 400 P (M 10)



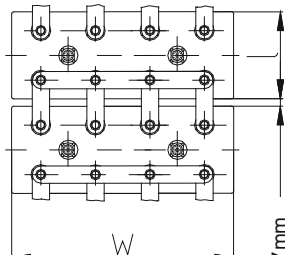
KGM 450 P – KGM 570 P (M 10)



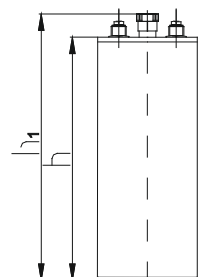
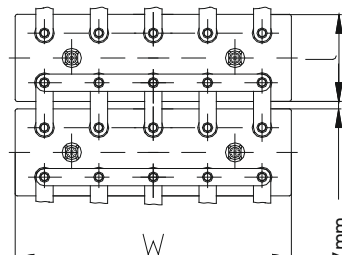
KGM 600 P – KGM 770 P (M 10)



KGM 800 P – KGM 1130 P (M 10)



KGM 1250 P – KGM 1350 P (M 10)



Technical Specifications / Datos técnicos característicos

Cell type Tipo de celda	Nominal Capacity C ₅ [Ah] at 1.00 V Capacidad nominal C ₅ [Ah] en 1,00 V	Dimensions / Dimensiones [mm]				Terminals / Polos		Total Weight / Peso total [kg]
		l	w	h	h ₁	Type / Tipo M = Nut / Tuerca S = Screw / Tornillo	Size / Tamaño	
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 / *Capacidad de dimensionamiento de acuerdo a IEC 62259, punto 3.3

Important Importante

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.

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.

Todas las indicaciones de dimensiones y pesos están sujetas a las tolerancias de fabricación habituales. Los valores eléctricos son aproximados. Modificaciones reservadas sin obligatoriedad de notificación.



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La capacidad nominal C_5 no es una base de dimensionamiento para la potencia. La potencia depende de la construcción de la batería, o bien de la serie de modelos. Para el dimensionamiento de instalaciones estacionarias de baterías se debe aplicar la recomendación actual de acuerdo a IEEE 1115.

La capacidad nominal C_5 de la serie de baterías *lomain*[™] se basa en los amperios/hora (Ah) extraíbles con una descarga de 5 horas y con el límite de descarga por celda a $20\text{ °C} \pm 5\text{ °C}$ indicado bajo „Datos técnicos característicos“.

La tensión nominal por celda es de 1,2 V.

Condiciones de descarga

Los valores de descarga indicados en nuestras tablas así como las capacidades nominales C_5 se basan en celdas cargadas reglamentariamente de acuerdo a IEC 62259.

Condiciones de carga

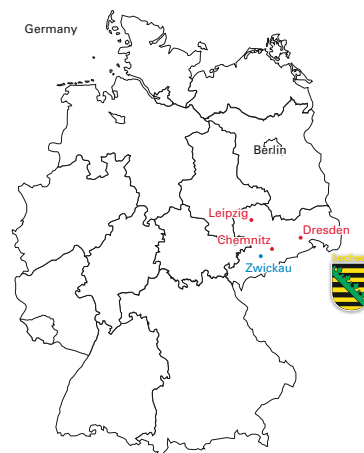
1. Carga en dos etapas

Carga de mantenimiento: 1,40 – 1,42 V/elemento
Carga intensa: 1,45 – 1,46 V/elemento
Limitación de corriente: 0,1 I_A

2. Carga en una etapa

Carga estándar: 1,42 – 1,44 V/elemento
Limitación de corriente: 0,1 I_A

Importante: es posible una tensión de carga más elevada sin embargo influye sobre el coeficiente de recombinación y conduce a un consumo de agua más elevado que el indicado.



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