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Астана (7172)727-132
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
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Киров (8332)68-02-04
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Красноярск (391)204-63-61
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Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
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Новокузнецк (3843)20-46-81
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Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
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Пермь (342)205-81-47
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Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

Киргизия (996)312-96-26-47
Россия (495)268-04-70
Казахстан (772)734-952-31

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Технические характеристики на никель-кадмиевые батареи серии KPL, KPM, KPH

KPL/KPM/KPH Ni-Cd batteries
Meeting industry's power back-up needs

Make your long term partner

has been a trusted battery partner for the world's leading industrial players for over 100 years, with a range of well proven solutions that deliver secure energy for stationary applications.

Saft's products are designed to meet the reliability, safety and security challenges of today's industrial landscape where they provide power back-up, starting power and bulk energy storage.

Saft's commitment to research and development and innovative engineering ensures that our nickel-cadmium (Ni-Cd) batteries offer the very latest in design, quality and industrial process technology. They also come with comprehensive through-life service support, from initial consultancy to volume delivery, including training, maintenance and expert technical back-up.

Urja batteries: flexible solutions for a wide range of industrial applications

Urja Ni-Cd batteries are used in power plants, power transmission and distribution substations, Oil & gas onshore & offshore platforms, refineries, metro and rail infrastructure and industries, airports & building infrastructure – locations where it is absolutely critical to have batteries that will work when they should, even under extreme operating conditions.

Delivering long life and requiring minimal maintenance, there is no better solution for installations where the risk of failure is unacceptable, as in:

- UPS systems
- emergency lighting
- process control
- telecommunications
- offshore oil and gas
- gas pipelines
- railway signalling
- security systems

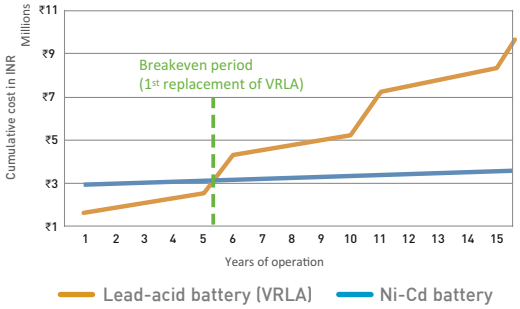
Instant starting power

Cranking up an emergency generator or switching on heaters, pumps or other equipment requires batteries that are very reliable, offer high discharge capabilities and function properly in extreme temperatures. batteries recover their voltage instantaneously, making them the ideal choice for starting application.

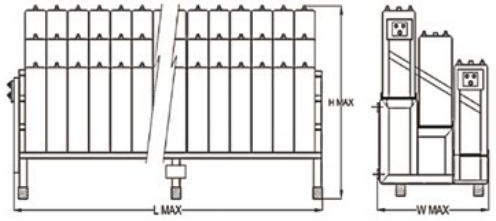
Features	Benefits
Low maintenance	Water top-up frequency is only once every 30-36 months depending on the type of application during lifetime even at + 40°C
Fast-charging ability	Minimal downtime and maximum availability. Over 80% can be recharged within 10 Hrs. through minimum 1.45 Vpc constant potential charging.
Long operational life of over 20 years at + 25°C	No need of controlled temperature. Even 16 years. lifetime at + 35°C
Proven Ni-Cd electrochemistry with no corrosion	No risk of sudden death or open circuit like Lead-Acid batteries
Total Reliability	Less site visits and maintenance needed. Low Total Cost of Ownership (TCO)
Safe operation in a wide temperature range, - 20 to + 40°C Tolerates extreme temperatures - 50°C to + 70°C for short duration	No need for temperature-controlled environment avoiding Air Conditioner-related costs Can be used in harsh environments
KPL, KPM, KPH batteries are the latest development of pocket plate Ni-Cd technology	Cells can be stored empty and discharged several, which can help customers for convenient project planning
Builds on the experience of existing valve-regulated Ni-Cd range	Reliable Design for long service life
Standard Rack design	racks have a modular design and are compatible with all our stationary battery cells. These are easy-to-use, robust, and chemical-resistant. Their light, compact structure makes them easy to store, move transport and install.

Total Cost of Ownership

Total Cost of Ownership (TCO) for typical transmission application at 35°C



Rack



KPL/KPM/KPH Ni-Cd batteries
Solution for all kinds of industry

Urja has developed the KPL, KPM and KPH ranges of Ni-Cd batteries to offer the optimum, flexible solution for all stationary applications. The choice of low rate discharge, medium and high-discharge types make it easy to select the ideal battery, based on the required discharge time and end of discharge voltage.

KPL

KPL has the thickest plates and is designed for applications where the battery is required to provide:

- a reliable source of energy over long discharge periods
- a current that is relatively low in comparison with the total stored energy
- discharges are generally infrequent

KPL is typically used in power back-up and bulk energy storage applications.

KPM

KPM is designed for applications where the batteries are usually required to sustain:

- electrical loads between 30 minutes and 3 hours
- "mixed" loads which involve high and low discharge rates
- frequent or infrequent discharges

KPM type is typically used in power back-up applications.

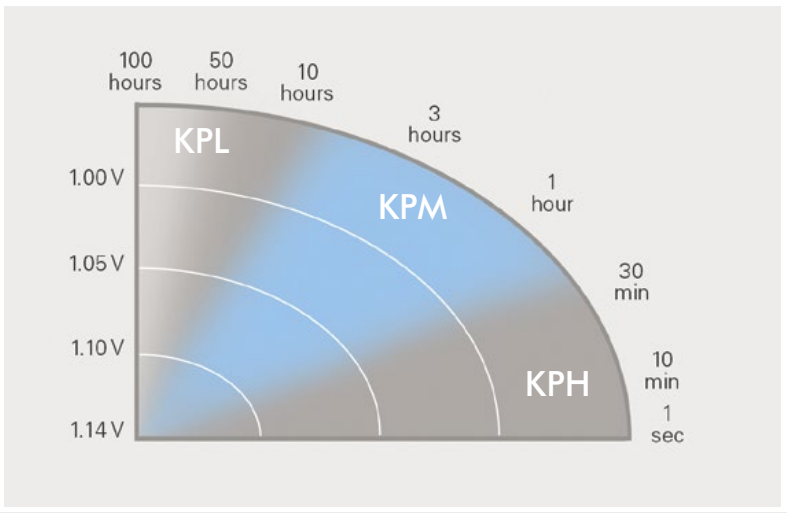
KPH

KPH uses very thin plates and is designed for applications demanding:

- a relatively high current over short periods
- usually less than 1 hour duration
- frequent or infrequent discharges

KPH type is typically used in starting and power back-up applications.

		Intercity & urban transport	Electricity, gas, water production & distribution	Offshore & onshore petrochemical refineries	Chemical, mining steel metal works	Commercial & public building	Hospitals, X rays equipment	Radio satellite, cable, cellular base & repeater stations	Substations & signalling	Traffic control
KPL	Power back-up Bulk energy storage		●	●		●	●	●		●
KPM	Power back-up	●	●	●	●		●	●	●	●
KPH	Starting Power back-up	●	●	●	●	●		●	●	



KPL/KPM/KPH Ni-Cd batteries
Main benefits

Performance in temperature extremes

Nickel-cadmium plates are completely reliable, with no risk of thermal runaway or sudden death. Generally operating between temperatures of – 20°C to + 50°C, they can tolerate extremes of – 50°C to + 70°C for short periods of operations.

Trouble-free long cycle life

Urja Ni-Cd battery's unique electrochemistry enables to regularly withstand any depth of discharge.

Following a deep discharge, the battery is designed to recharge very quickly and economically, using standard single or dual-level charging equipment.

Total reliability for a low Total Cost of Ownership

The Ni-Cd battery is the most cost-efficient solution to back-up critical equipment:

- No downtime
- No replacement costs
- Ease of installation
- Minimal maintenance
- 20+ years' operating life

Easy storage and installation

Urja Ni-Cd batteries are quick and easy to install as original equipment and may be stored in a discharged state under recommended conditions.
On installation a simple bolted connector enables the cells to be rapidly connected and commissioned.

batteries are designed in full compliance, with safety and environmental standards

Electrical and performances

- Certified IEC 60623 – Secondary cells and batteries containing alkaline or other non-acid electrolytes - Vented nickel-cadmium prismatic rechargeable single cells.

Safety

- Complies with EN 50272-2/ IEC 62485-2 - Safety requirements for secondary batteries and battery installations - Part 2: Stationary batteries - The protective covers for terminals and connectors, the insulated cables are compliant with IP2 level protection against electrical shocks according to safety standard.
- Complies with UL 1989 - Section 7: Flame arrester vent cap tests - UL standard for safety for standby batteries.

Quality

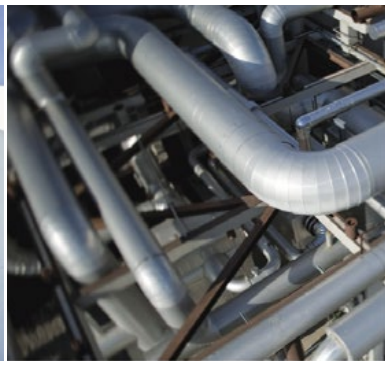
- ISO 9001
- world class continuous program

Environment & Recycling

- Recyclable
- RoHS – Although batteries and accumulators are not within the scope of the RoHS directive, India has taken voluntary measures to make sure that the substances forbidden by RoHS are not present in the battery, except for the electro-chemical core.

KPL/KPM/KPH Ni-Cd batteries
Technical Characteristics





Nominal voltage: 1.2 V/cell rated (nominal) capacity

The rated Capacity C_5 (as per IEC 60623) is defined as available ampere-hours (Ah) at 5 hours discharge rate at an end voltage of 1.0 V/cell an ambient temperature + 20°C.

Internal Resistance of Cells at +20°C and fully charged condition at the beginning-of-Life:

- **KPL**: 0.25 x 1/C_5 ohms
- **KPM**: 0.15 x 1/C_5 ohms
- **KPH**: 0.07 x 1/C_5 ohms

Maximum Short-Circuit Current from Cells at +20°C and fully charged condition at the Beginning-of-Life:

- **KPL**: 10 x C_5 Amps
- **KPM**: 15 x C_5 Amps
- **KPH**: 23 x C_5 Amps

KPL, KPM and KPH batteries can withstand short circuit current without damage.

Charging characteristics

Batteries can be charged in:

- **constant voltage mode with load connected**
- **or constant current or declining current mode when load is isolated from battery**

High rate or over charge will not damage the battery.
Minimum float charging current:
2 mA per Ah.

- **Constant voltage mode:**

For continuous parallel operation:

- Float voltage: 1.40 - 1.42 V/cell for KPL, KPM & KPH
- Boost Voltage:

- **KPL**: 1.47 - 1.70 V/cell
- **KPM**: 1.46 - 1.70 V/cell
- **KPH**: 1.45 - 1.70 V/cell

A higher voltage will reduce the charge duration and increase the efficiency of recharging but may increase water consumption.

Single stage charging (without boost):

- **KPL**: 1.47 - 1.50 V/cell
- **KPM**: 1.46 - 1.49 V/cell
- **KPH**: 1.45 - 1.48 V/cell

For Engine starting application:

- Recommended charging voltage: 1.50 - 1.55 V/cell.

Constant current mode:

- Normal charging: 0.2 C_5 A for 8 hours
- Recommended for quick charging: 0.4 C_5 A for 2.5 hours followed by 0.2 C_5 A for 2.5 hours

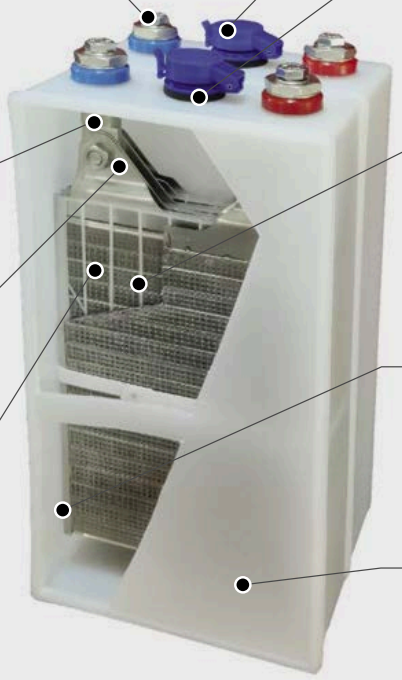
KPL/KPM/KPH Ni-Cd batteries
Construction Features

Terminal Pole Bolt with Protective cover
• Nickel plated bolted connection for easy installation & maintenance.
• Terminals marked with polarity indicators
• PP protective cover on terminals shall prevents external short-circuits in line with safety standards EN 50272-2 and IEC 60485-2 with IP2 level (not shown in this image)

Terminal Pole
• Nickel plated terminal pole to eliminate risk of corrosion

Plate Group Bus
• Connects the plate tabs with the terminal post. Plate tabs and terminal posts are bolted to the plate group bus

Electrodes
• Proven Urja Nickel-Cadmium Pocket plate electrodes with horizontal pockets of double-perforated steel strips



Flip open type vent cap

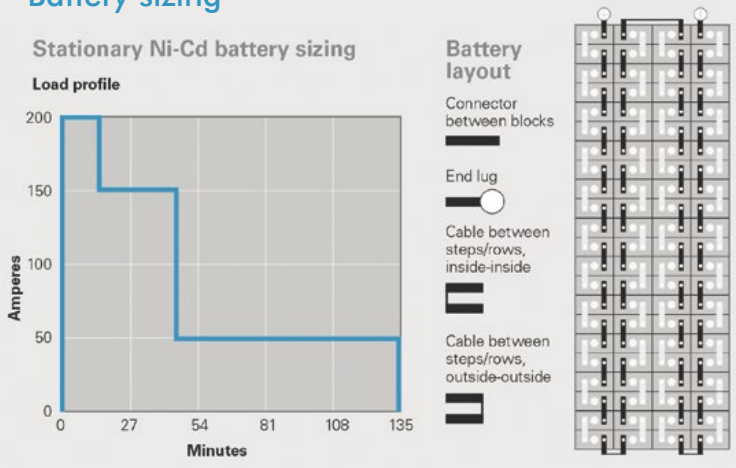
Removable flame arresting vent
• KP Series vents are fitted with Flame Arresting Disks, while they allow release of excess gas from the cell

Separators
• These separate the electrodes and insulate the electrode frames from each other. This special type of separator improves the internal recombination

Plate Frames
• Seals the plate pockets and serves as a current collector. Sides of these plate frames are insulated to reduce the risk of short-circuit

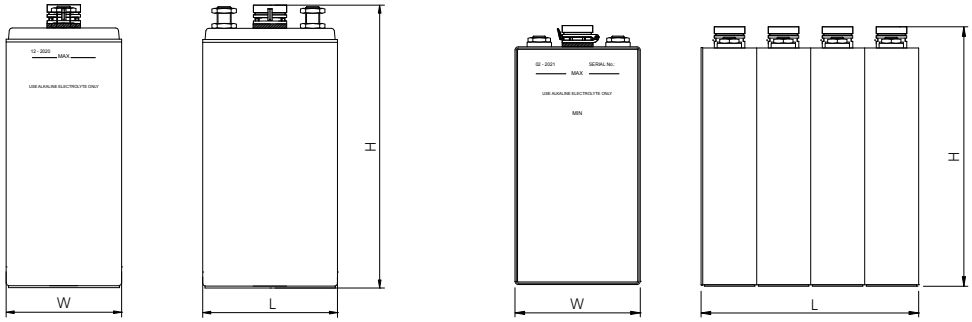
Containers
• Made of tough polypropylene. Lids are thermally welded to eliminate leakage
• Block concept: up to 6 cells

Battery sizing



(fig 1)

KPL/KPM/KPH Ni-Cd batteries
Physical properties



L Range

Performance for fully charged cells
Available Amperes at + 20°C **Final voltage: 1.00 V/cell**

Cell Type	Rated C_5 capacity to 1.0V	Cell overall dimensions			Filled Cell Weight (+/- 3.0%)	Approx. Electrolyte Volume	Terminals
		L (mm)	W (mm)	H (mm)	Kg	(Litres)	
KPL11P	11	46	87	272	1.7	0.7	M10
KPL18P	18				1.8	0.6	
KPL25P	25				1.9	0.5	
KPL32P	32	86	87	272	2.9	1.1	M10
KPL39P	39				3.0	1.0	
KPL45P	45				3.0	0.9	
KPL52P	52				3.2	0.8	
KPL58P	58				3.4	0.8	
KPL69P	69	58	139	401	5.5	1.9	M20
KPL75P	75				5.5	1.8	
KPL80P	80				5.5	1.7	
KPL88P	88				5.7	1.6	
KPL94P	94				5.9	1.6	
KPL100P	100				5.9	1.5	
KPL106P	106				5.9	1.5	
KPL115P	115	75	139	401	6.9	1.9	M20
KPL125P	125				7.2	1.8	
KPL135P	135				7.3	1.7	
KPL145P	145				7.4	1.6	
KPL155P	155	103	165	401	10.4	3.7	M20
KPL165P	165				10.6	3.6	
KPL177P	177				10.7	3.5	
KPL191P	191				10.8	3.3	
KPL205P	205				10.9	3.2	
KPL216P	216				11.4	3.1	
KPL230P	230				11.6	3.0	
KPL240P	240	128	165	401	14.3	4.2	2xM20
KPL256P	256				14.5	4.1	
KPL265P	265				14.9	4.0	
KPL275P	275				15.0	4.0	
KPL282P	282				15.1	3.9	
KPL290P	290				15.6	3.8	
KPL310P	310				15.7	3.6	
KPL324P	324	156	165	401	16.3	4.8	2xM20
KPL335P	335				18.0	4.8	
KPL365P	365				18.5	4.6	
KPL375P	375				18.5	4.6	
KPL385P	385				18.6	4.4	
KPL390P	390				19.1	4.4	



L Range

Performance for fully charged cells
Available Amperes at + 20°C **Final voltage: 1.00 V/cell**

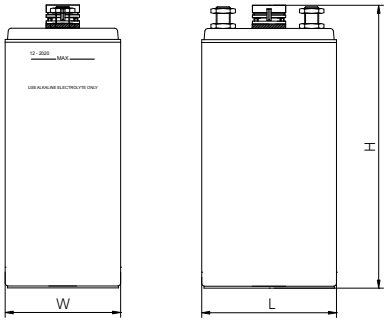
Cell Type	Rated C5 capacity to 1.0V	Cell overall dimensions			Filled Cell Weight (+/- 3.0%)	Approx. Electrolyte Volume	Terminals
		L (mm)	W (mm)	H (mm)	Kg	(Litres)	
KPL400P	400	176	195	405	21.0	6.0	2xM10
KPL425P	425				21.6	6.0	
KPL432P	432				21.6	5.9	
KPL445P	445				22.0	5.8	
KPL457P	457				22.2	5.8	
KPL472P	472				22.8	5.7	
KPL485P	485				22.8	5.7	
KPL490P	490				23.0	5.6	
KPL500P	500				23.3	5.6	
KPL515P	515				23.3	5.6	
KPL540P	540	261	195	405	29.7	9.3	3xM10
KPL575P	575				30.5	9.3	
KPL595P	595				31.8	9.0	
KPL620P	620				32.2	9.2	
KPL635P	635				32.3	9.0	
KPL650P	650				33.0	8.7	
KPL670P	670				32.9	8.7	
KPL685P	685				33.1	8.7	
KPL700P	700				33.3	8.6	
KPL730P	730				33.8	8.4	
KPL740P	740				34.0	8.4	
KPL775P	775				34.9	8.4	
KPL785P	785				34.9	8.4	
KPL800P	800	345	195	405	41.8	12.0	4xM10
KPL815P	815				41.9	12.0	
KPL830P	830				42.5	12.0	
KPL850P	850				43.0	12.0	
KPL873P	873				43.3	11.8	
KPL895P	895				43.7	11.6	
KPL915P	915				44.1	11.6	
KPL956P	956				47.4	11.4	
KPL970P	970				47.5	11.2	
KPL1000P	1000				46.5	11.2	
KPL1030P	1030				46.0	11.2	
KPL1043P	1043				49.7	11.2	
KPL1060P	1060	430	195	405	53.3	15.0	5xM10
KPL1090P	1090				47.6	14.8	
KPL1100P	1100				54.0	14.8	
KPL1120P	1120				54.6	14.5	
KPL1145P	1145				55.1	14.5	
KPL1195P	1195				56.4	14.0	
KPL1220P	1220				56.2	14.0	
KPL1285P	1285				58.0	14.0	
KPL1350P	1350	515	195	405	65.5	17.4	6xM10
KPL1370P	1370				66.1	17.4	
KPL1460P	1460				67.4	16.8	
KPL1550P	1550				69.3	16.8	
KPL1645P	1645				70.4	16.4	
KPL1700P	1700				72.0	15.6	

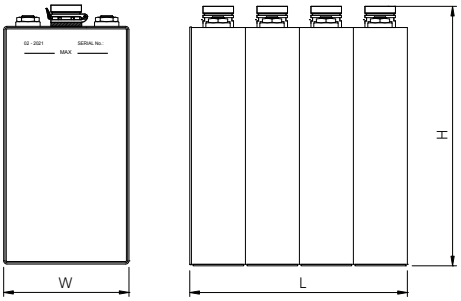
KPL/KPM/KPH Ni-Cd batteries
Physical properties

M Range

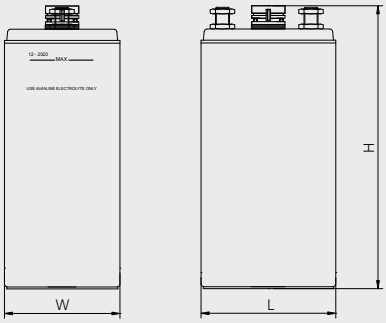
Performance for fully charged cells
Available Amperes at + 20°C **Final voltage: 1.00 V/cell**

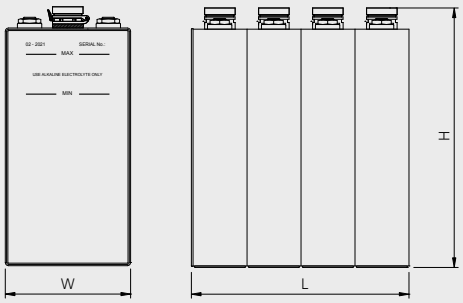
Cell Type	Rated C5 capacity to 1.0V	Cell overall dimensions			Filled Cell Weight (+/- 3.0%)	Approx. Electrolyte Volume	Terminals
		L (mm)	W (mm)	H (mm)	Kg	(Litres)	
KPM 10P	10	46	87	272	1.7	0.7	M10
KPM 16P	16				1.8	0.6	
KPM 20P	20				1.8	0.5	
KPM 25P	25	86	87	272	2.9	1.2	M10
KPM 32P	32				3.0	1.1	
KPM 39P	39				3.2	1.1	
KPM 45P	45				3.3	1.0	
KPM 55P	55	58	139	401	5.0	1.7	M20
KPM 62P	62				5.0	1.6	
KPM 74P	74				5.3	1.5	
KPM 80P	80				5.2	1.4	
KPM 90P	90	75	139	401	6.2	1.9	M20
KPM 95P	95				6.3	1.8	
KPM 100P	100				6.3	1.7	
KPM 105P	105				6.5	1.7	
KPM 112P	112				6.5	1.6	
KPM 120P	120	103	165	401	9.6	1.6	M20
KPM 128P	128				9.6	3.7	
KPM 137P	137				9.7	3.6	
KPM 150P	150				10.0	3.5	
KPM 158P	158				10.1	3.4	
KPM 167P	167				10.2	3.3	
KPM 180P	180				10.3	3.2	
KPM 188P	188				10.7	3.1	
KPM 200P	200				10.8	3.0	
KPM 220P	220	128	165	401	12.7	4.2	2xM20
KPM 240P	240				13.1	4.0	
KPM 250P	250				13.3	3.9	
KPM 260P	260				13.5	3.8	
KPM 280P	280	156	165	401	15.7	5.0	2xM20
KPM 300P	300				16.0	4.8	
KPM 323P	323				16.6	4.6	
KPM 335P	335	176	195	405	19.5	6.2	2xM10
KPM 350P	350				19.8	6.2	
KPM 367P	367				19.9	6.2	
KPM 376P	376				20.9	6.1	
KPM 380P	380				21.0	6.1	
KPM 400P	400				21.2	6.0	
KPM 415P	415				21.2	6.0	
KPM 425P	425				21.9	5.9	
KPM 455P	455				22.3	5.8	
KPM 470P	470	261	195	405	29.3	9.6	3xM10
KPM 490P	490				30.0	9.6	
KPM 505P	505				30.7	9.5	
KPM 520P	520				30.7	9.4	
KPM 535P	535				30.9	9.3	
KPM 565P	565				32.0	9.2	
KPM 575P	575				32.0	9.2	
KPM 600P	600				32.4	9.0	
KPM 635P	635				33.5	8.9	
KPM 650P	650				33.7	8.8	
KPM 680P	680				34.0	8.7	
KPM 690P	690				34.2	8.7	
KPM 700P	700	345	195	405	41.1	12.5	4xM10
KPM 725P	725				42.2	12.4	
KPM 750P	750				43.4	12.3	
KPM 800P	800				44.0	12.0	
KPM 850P	850				45.5	11.8	
KPM 900P	900				46.2	11.6	
KPM 925P	925				46.6	11.4	
KPM 945P	945	430	195	405	55.2	15.3	5xM10
KPM 1000P	1000				56.4	15.0	
KPM 1060P	1060				54.4	14.8	
KPM 1100P	1100				55.4	14.9	
KPM 1130P	1130				55.6	14.5	
KPM 1200P	1200	515	195	405	68.0	18.0	6XM10
KPM 1220P	1220				68.4	18.0	
KPM 1232P	1232				68.6	18.0	
KPM 1285P	1285				71.0	17.8	
KPM 1365P	1365				72.8	17.4	





KPL/KPM/KPH Ni-Cd batteries
Physical properties





H Range

Performance for fully charged cells
Available Amperes at + 20°C Final voltage: 1.00 V/cell

Cell Type	Rated C5 capacity to 1.0V	Cell overall dimensions			Filled Cell Weight (+/- 3.0%)	Approx. Electrolyte Volume	Terminals
		L (mm)	W (mm)	H (mm)	Kg	(Litres)	
KPH 8 P	8	47	87	272	1.6	0.7	M10
KPH 11 P	11				1.6	0.6	
KPH 15 P	15				1.8	0.6	
KPH 19 P	19				1.8	0.5	
KPH 22 P	22				1.9	0.5	
KPH 26 P	26	86	87	272	2.8	1.1	M10
KPH 30 P	30				2.9	1.0	
KPH 35 P	35				3.1	1.0	
KPH 38 P	38				3.2	0.9	
KPH 42 P	42				3.3	0.9	
KPH 46 P	46				3.4	0.8	
KPH 50 P	50	58	139	361	4.7	1.2	M20
KPH 58 P	85				4.9	1.1	
KPH 63P	63	75	139	361	6.3	1.8	M20
KPH 65 P	65				6.3	1.8	
KPH 75 P	75				6.3	1.6	
KPH 85 P	85				6.5	1.4	
KPH 90 P	90				7.9	1.3	
KPH 94 P	94	105	139	361	8.2	2.6	M20
KPH 100 P	100				8.6	2.5	
KPH 111 P	111				8.8	2.3	
KPH 120 P	120				8.7	2.1	
KPH 130 P	130				9.5	2.0	
KPH 140 P	140	103	165	361	10.3	2.9	M20
KPH 148 P	148				10.7	2.8	
KPH 160 P	160	128	165	361	12.9	3.5	2xM20
KPH 170 P	170				13.0	3.2	
KPH 180 P	180				13.3	3.1	
KPH 190 P	190				13.5	3.0	
KPH 200 P	200	156	165	361	15.0	3.9	2xM20
KPH 213 P	213				15 3	3.8	
KPH 225 P	225				15 7	3.7	
KPH 235 P	235				16 2	3.6	
KPH 245 P	245				16 2	3.5	
KPH 250 P	250	176	195	405	21 3	6.6	2xM10
KPH 265 P	265				21 9	6.6	
KPH 275 P	275				21 9	6.4	
KPH 290 P	290				23.0	6.4	
KPH 300 P	300				23.2	6.2	
KPH 315 P	315				23.3	6.2	
KPH 330 P	330				23.4	6.0	
KPH 337 P	337				23.4	6.6	
KPH 353 P	353	261	195	405	31.3	10.2	3xM10
KPH 375 P	375				31.5	9.9	
KPH 390 P	390				32.6	9.9	
KPH 400 P	400				33.2	9.6	
KPH 410 P	410				32.8	9.6	
KPH 430 P	430				34.0	9.6	
KPH 450 P	450				34.2	9.3	
KPH 471 P	471				35.4	9.3	
KPH 491 P	491				35.7	9.0	
KPH 520 P	520	345	195	405	43.3	13.2	4xM10
KPH 530 P	530				44.0	13.0	
KPH 540 P	540				43.8	12.8	
KPH 575 P	575				45.2	12.8	
KPH 590 P	590				46.0	12.6	
KPH 600 P	600				45.7	12.4	
KPH 615 P	615				48.0	12.4	
KPH 630 P	630				47.1	12.4	
KPH 640 P	640				48.0	12.2	
KPH 656 P	656				47.7	12.0	
KPH 670 P	670	430	195	405	54.9	16,2	5xM10
KPH 680 P	680				54.8	16,1	
KPH 691 P	691				54.8	16.0	
KPH 715 P	715				56.5	16.0	
KPH 725 P	725				56.5	16.0	
KPH 755 P	755				56.9	15.5	
KPH 770 P	770				58.5	15.5	
KPH 800 P	800				60.2	15.5	
KPH 825 P	825				59.4	15.0	
KPH 840 P	840				59.5	14.9	
KPH 865 P	865	515	195	405	69.0	19.2	6xM10
KPH 885 P	885				69.1	19.1	
KPH 910 P	910				68.2	18.6	
KPH 927 P	927				68.5	18.6	
KPH 950 P	950				71.9	18.6	
KPH 990 P	990				71.2	18.0	
KPH 1012 P	1012				71.5	18.0	

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