



Outdoor Cabinets

Outdoor Cabinets



The assembly of a modern and universal access system based on outdoor BKT Elektronik distribution cabinets is possible thanks to the application of cutting - edge solutions in compliance with Polish as well as international telecommunication standards.

Outdoor cabinets constitute a protection of passive and active devices mounted inside in every weather condition. Double-wall structure protects against heat, cold, rain, snow, as well as not permitted access. Due to its IK10 impact rating, the structure also protects against mechanical damage. Their ingress protection has been rated to IP55. The cabinets are made of 2 mm aluminum sheet and are coated with outdoor paint. They are estimated to be usable for 30 years as a result of tests conducted in an independent research lab.

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External and internal tight cabinets, heating and cooling systems

Protection of equipment against changeable weather conditions and against acts of vandalism and theft is a very important issue. External and internal cabinets are fitted both in generally available places and places with an adverse effect and must provide protection for the equipment inside.

BKT cabinets are designed and made to meet all relevant requirements for cabinets to be placed inside and on the outside of buildings.

Requirements to be met by external casing are contained in the following standards:

- Series of environmental tests for environmental conditions as per PN-ETSI EN 300 019-1-4, class 4.1 for cold tests Ae - PN-EN 60068-2-1:2007 and dry heat Be - PN-EN 60068-2-2:2007, Be sample.
- Simulated solar radiation at ground level and guidance for solar radiation testing – PN-EN 60068-2-5;
- Acoustic tests - PN-EN-ISO 11200;
- Vibration tests - PN-EN 60068-2-6;
- Mechanical resistance tests – PN-EN 60439-5;
- IP rating (degree of protection) – PN-EN 60529.

Cabinets are made to standards specified in the following certificates:

- ISO 9001:2008
- ISO 14001:2004
- EN ISO 15085-2
- EN ISO 3834-2

Application of EU standards compliant procedures in the making of the structures as reflected in ISO certificates results in the external casing having a long life of up to 30 years as confirmed by the independent Testing Laboratory.

IP55 external distribution cabinets

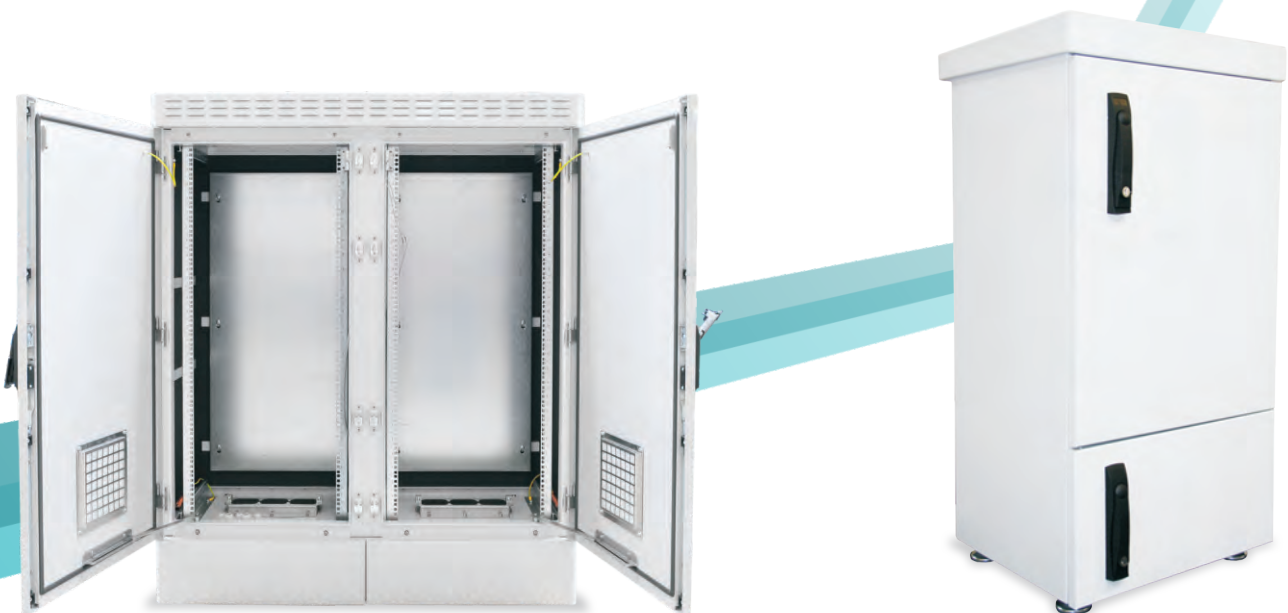
The changeable environmental conditions affecting adversely the electronics require that casing manufacturers use corrosion resistant materials and ensure appropriate rating (IP55) providing protection against dust or liquid penetration, unauthorised entry or mechanical damage (IK10).

External distribution cabinets are made of aluminium sheet metal with standard RAL7035 coating; they have a double wall (air insulation) ensuring free air flow in the space.

BKT external cabinets come as a standard with:

- 3 - or 4 - point locking system (bolting), depending on the height;
- Transitional spacer base with a height of 50 mm as a middle point between the underground base and the cabinet;
- Cable glands at the cabinet bottom;
- Vertical assembly sections;
- Assembly panel in DASZ - P models;
- Earth strip;
- Assembly holders on the roof;
- Door opening stop

There are two BKT external cabinet families depending on the type of fabrication.



IP55 external distribution cabinets



Cooling of cabinet via 6-ventilator ventilation panel.



Heating of cabinet via heater with thermo ventilator.



IP55 external distribution cabinets

DASZ-P

DASZ-P – first cabinet group: cabinets with internal cabinet chamber made by edge bending and welding and subsequent addition of internal lining to provide a double wall structure.

Available models:

Name	Width (mm)	Depth (mm)	Height (mm)	IP degree	Index RAL7035
19"-21" external cabinet BKT 15U (one-chamber with assembly panel, single-leaf doors)	850	450	900	IP55	11048515.2VZ
19"-21" external cabinet BKT 22U (one-chamber with assembly panel, single-leaf doors)	850	450	1200	IP55	11048522.2VZ
19"-21" external cabinet BKT 22U (double-chamber with assembly panels, double-leaf doors)	1650	450	1200	IP55	11061622.2VZ



DASZ-AL – second cabinet group: cabinets fabricated by first making an aluminium section frame and then adding double wall external linings

Available models:

Name	Width (mm)	Depth (mm)	Height (mm)	IP degree	Index RAL7035
19" - 21" external cabinet BKT 22U (double-chamber, front - rear double-leaf doors, aluminium section)	1300	850	1300	IP55	11041285.1VZ
19" - 21" external cabinet BKT 22U (single-chamber, single - leaf doors, aluminium section)	850	850	1300	IP55	11048856.1VZ
19" - 21" external cabinet BKT 42U (single-chamber, single - leaf doors, aluminium section)	850	850	2100	IP55	11088542.2VZ

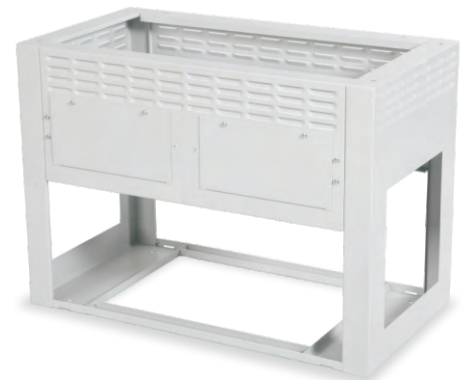


Mounting external cabinets for DASZ – AL and DASZ – P

For permanent seating of an external cabinet, BKT offers bases for each type of cabinet. Bases are made of electroplated (hot dip zinc coating) sheet metal and are coated with external paint RAL7035.

Available models:

Name	Width (mm)	Depth (mm)	Height (mm)	Index RAL7035
BKT underground base	850	450	600	11130000.2VZ
BKT underground base	1650	450	600	11130001.2VZ
BKT underground base	850	850	600	110A4101
BKT underground base	1300	850	600	11140001.2VZ



Heating and cooling systems for external distribution cabinets for DASZ – AL and DASZ – P

Available models:

Name	Index
Heating and cooling device for BKT DASZ-AL 850 x 850 cabinets (2 x fan, 1 x heater 400W, 1 x feeder 48VDC, 1 x heating and cooling thermostat)	110A9201
Heating and cooling device for BKT DASZ-P 850 x 450 cabinets (2 x fan, 1 x heater 400W, 1 x feeder 48VDC, 1 x heating and cooling thermostat)	110A9202
Heating and venting device for BKT DASZ-AL 850 x 850 cabinets (2 x fan, 1 x heater 400W, 1 x feeder 48VDC, 1 x heating and cooling thermostat)	110A9203

Environmental conditions have a significant effect on the working of the equipment fitted inside the cabinet. For cabinet heating when cold and cooling down to a safe temperature, i.e. working temperature, when hot, depending on the total power loss, BKT provides heating and cooling systems or venting and air conditioning systems and heaters equipped with a thermal fan.

Index: 110A9300



Fan with a filter BKT RAL7032 PFP08KR230BE-110

Index: 10352125



Thermostat BKT TRT-10A230VAC-NO, -10°C/+80°C for fans

Index: 10352119



Thermostat BKT TRT-10A230V-NC, -10°C/+80°C for heaters

Index: 10352167



Hydrotherm BKT ETF 012 (6A, 250V-NC, 0°C/60°C)

Index: 10352148



Heater BKT 400 CSL-028-400W/230VAC

Heating and cooling systems for external distribution cabinets for DASZ – AL and DASZ – P

Available models:

Name	Width (mm)	Depth (mm)	Height (mm)	Weight (kg)	Cooling power (W)	Noise level (dB)	Index
Air conditioner BKT EMO04 (230V, 50-60Hz, 380W) IP54 - side	285	180	460	17	380	60	110A9100
Air conditioner BKT EMO06 (230V, 50-60Hz, 640W) IP54 - side	316	212	606	21	640	65	110A9101
Air conditioner BKT EMO08 (230V, 50-60Hz, 820W) IP54 - side	348	215	783	27	820	65	110A9103
Air conditioner BKT EMO10 (230V, 50-60Hz, 1000W) IP54 - side	348	215	783	28	1000	65	110A9105
Air conditioner BKT EMO12 (230V, 50-60Hz, 1250W) IP54 - side	405	237	999	38	1250	65	110A9107
Air conditioner BKT EMO16 (230V, 50-60Hz, 1600W) IP54 - side	405	237	999	40	1600	65	110A9109
Air conditioner BKT EMO20 (230V, 50-60Hz, 2000W) IP54 - side	406	237	999	52	2000	65	110A9111
Air conditioner BKT EMO30 (230V, 50-60Hz, 2900W) IP54 - side	500	336	1270	80	2900	70	110A9113
Air conditioner BKT EMO40 (230V, 50-60Hz, 3850W) IP54 - side	500	336	1270	82	3850	70	110A9115
Air conditioner BKT EMO60 (400V, 3~50Hz, 5800W) IP54 - side	600	380	2000	150	5800	72	110A9117
Air conditioner BKT EMO80 (400V, 3~50Hz, 7600W) IP54 - side	800	380	2000	160	7600	75	110A9119
Air conditioner BKTEM0A0 (400V, 3~50Hz, 9400W) IP54 - side	800	380	2000	180	9400	77	110A9121

Working temperature range for external air conditioners: -20°C - 55°C, air conditioners available in RAL7035



Internal industrial cabinets IP55, accessories

BKT-IP55

Working conditions of the equipment require that casing manufacturers meet the stringent technical and utility requirements. BKT internal industrial cabinets with a rating of IP55 are designed to provide effective protection for the equipment inside. On many occasions, cabinets are placed in areas with high dust content or production halls with adverse ambient conditions affecting directly the electronics. Where air conditioning or fire extinguishing system cannot be provided, e.g. in historic buildings, BKT internal industrial cabinets, rating IP55, are a perfect solution. Their rating of IP55 makes it possible to fit air conditioners and fire fighting devices, providing ideal protection for the equipment inside the cabinet and an economical solution per customers' requirements.

BKT Internal industrial cabinets, rating IP55, are equipped with the following components as a standard:

- Front and rear doors, glazed or of solid sheet metal;
- One side wall;
- 2 sets of adjustable 19" or 21" vertical assembly sections;
- Caps for cable glands on the bottom of the cabinet;
- 4-point door locking system with a handle and a lock cylinder

Design of BKT IP55 external industrial cabinets:

- Frame made of aluminium sections;
- Covering made of sheet metal with a thickness of 2 mm;
- Polyurethane sealing on the lining, doors and roof;
- RAL7035

Available models:

Name	Width (mm)	Depth (mm)	Height (mm)	Index RAL7035
Industrial cabinet BKT IP55 19" 32U (front and rear doors, sheet metal-glass, aluminium section) without one wall	800	800	1535	110A2300
Industrial cabinet BKT IP55 19" 32U (front and rear doors, sheet metal, aluminium section) without one wall	800	800	1535	110A2301
Industrial cabinet BKT IP55 19" 42U (front and rear doors, sheet metal-glass, aluminium section) without one wall	800	1000	1980	110A2400
Industrial cabinet BKT IP55 19" 42U (front and rear doors, sheet metal, aluminium section) without one wall	800	1000	1980	110A2401



Internal industrial cabinets IP55, accessories

BKT internal industrial cabinets come as a standard without one wall. It results from special needs of our customers who in many cases require walls with special reinforcement and holes intended for air conditioner fixing and the cooling of the equipment inside. Walls on which an air conditioner is to be fixed are made to individual orders depending on the cabinet type. If the customer requires a cabinet without an air conditioner, the wall must be ordered separately.

We also provide all necessary assembly elements which ideally match BKT external industrial cabinets.

Bases with a retractable BKT counterweight guarantee good routing of the cables into the cabinet on the bottom side, as well as ensuring cabinet stability during installation and maintenance of subassemblies.

Panels with BKT glands can be used in place of standard caps provided on the bottom and ensure sufficient tightness for cables with various dimensions.

Available models:

Name	Index
Side wall for industrial cabinet BKT 32U 800/800/1535 (W/D/H) RAL7035 with assembly bolts	110A5210
Side wall for industrial cabinet BKT 42U 800/1000/1980 (W/D/H) RAL7035 with assembly bolts	110A5201
Base for industrial cabinet BKT 800/800/100 (W/D/H) with a retractable counterweight RAL7035	110A4300
Base for industrial cabinet BKT 800/1000/100 (W/D/H) with a retractable counterweight RAL7035	110A4301

Index: 110A5502



Panel with glands BKT 15 x PG7, 12 x PG9 for industrial cabinets

Index: 110A5503



Panel with glands BKT 10 x PG7 for industrial cabinets



Heating and cooling systems for internal industrial cabinets

As cabinets are installed in various places and with different equipment fitted inside, stable ambient conditions inside the cabinet must be ensured. For this purpose, we offer systems for heating and cooling the inside of the cabinet. The heating system consists of heaters with air flow controlled with a thermostat or hygrostat; cooling is performed with air conditioners. Air conditioners are to be selected taking into account the power of equipment fitted inside the cabinet. Make sure that the power of an air conditioner is not more than 20% of the total power of the equipment provided inside the cabinet.

Available models:

Index: 110A9300



Fan with a filter BKT RAL7032 FPF08KR230BE-110

Index: 10352125



Thermostat BKT TRT-10A230VAC-NO, -10°C/+80°C for fans

Index: 10352119



Thermostat BKT TRT-10A230V-NC, -10°C/+80°C for heaters

Index: 10352167



Electronic hygotherrm BKT ETF 012 (6A,250V-NC, 0°C/60°C)

Index: 10352148



Heater BKT 400 CSL-028-400W/230VAC

Heating and cooling systems for internal industrial cabinets

Air conditioners are part of a precision cooling system. Appropriate power of an air conditioner compared to the total power loss of the equipment inside the cabinet will ensure trouble-free operation and an optimum temperature of 35°C inside the cabinet (default setting).

Available models:

Name	Width (mm)	Depth (mm)	Height (mm)	Weight (kg)	Cooling power (W)	Noise level (dB)	Index
Air conditioner BKT EGOS3 (230V, 50-60Hz, 300W) - side	585	125	340	14	300	61	110A9024
Air conditioner BKT EGO04 (230V, 50-60Hz, 380W) - side	285	176	450	17	380	60	110A9000
Air conditioner BKT EGO06 (230V, 50-60Hz, 640W) - side	306	209	605	21	640	65	110A9001
Air conditioner BKT EGO08 (230V, 50-60Hz, 820W) - side	348	213	783	27	820	65	110A9003
Air conditioner BKT EGO10 (230V, 50-60Hz, 1050W) - side	348	213	783	28	1000	65	110A9005
Air conditioner BKT EGO12 (230V, 50-60Hz, 1250W) - side	406	237	1003	38	1250	65	110A9007
Air conditioner BKT EGO16 (230V, 50-60Hz, 1600W) - side	406	237	999	40	1600	65	110A9009
Air conditioner BKT EGO20 (230V, 50-60Hz, 2000W) - side	406	237	1003	52	2000	70	110A9011
Air conditioner BKT EGO30 (230V, 50-60Hz, 2900W) - side	535	335	1265	80	2900	70	110A9013
Air conditioner BKT EGO40 (230V, 50-60Hz, 3850W) - side	535	335	1265	82	3850	70	110A9015
Air conditioner BKT EGO40A (400V, 3~50Hz, 3850W) - side	535	335	1265	85	3850	70	110A9016
Air conditioner BKT EGO60 (400V, 3~50Hz, 5800W) - side	600	380	2000	150	5800	72	110A9017
Air conditioner BKT EGO80 (400V, 3~50Hz, 7600W) - side	800	380	2000	160	7600	75	110A9019
Air conditioner BKT EGOA0 (400V, 3~50Hz, 9400W) - side	800	380	2000	180	10000	77	110A9021
Air conditioner BKT EGOA5 (400V, 3~50Hz, 14800W) - side	800	550	2000	240	14800	67	110A9023

Working temperature range of air conditioners used for internal applications: -20°C – 55°C, air conditioners available in RAL7035



Fire fighting systems in cabinets >IP54

Fire safety in server rooms, technical rooms and cabinets with a rating of >IP45 is of key importance. Current solutions enable efficient global fire extinguishing. However, where fire extinguishing is not possible for technical or financial reasons, local fire extinguishing is the only option. This is done with a special panel placed in the upper section of a 19" server cabinet (or other technical cabinet made suitable for this type of equipment). BKT Master fire extinguishing equipment is a compact device consisting of two subsystems: fire detection and extinguishing control subsystem and the fire extinguishing subsystem. The fire detection and extinguishing control subsystem consists of the fire detection and extinguishing control central unit and optical smoke sensors. The fire extinguishing subsystem consists of an HFC236fa (FE-36) extinguishing gas cylinder equipped with an electric trigger, cylinder pressure drop sensor and a manometer. BKT Master is used for protection of electronics fitted in IP55 external distribution cabinets or in IP55 internal industrial cabinets. For two cabinets joined together on the sides and forming a single structure, a combination of BKT Master and BKT Slave fire extinguishing device is used. BKT Slave may operate only after it has been connected to BKT Master and contains optical smoke sensors and a cylinder with an extinguishing gas (FE-36).



BKT Master and BKT Slave fire extinguishing devices are used for automatic smoke detection and fire extinguishing in:

- ICT cabinets
- Telecommunication cabinets
- External cabinets
- Electrical control cabinets
- Other technical cabinets equipped with electronic and electrical equipment

The device is a 19" panel, 3U of height, intended to be built in as the highest panel in the cabinet. As it is highly sensitive, the fire extinguishing panel is able to detect fire in a tight cabinet within 10 seconds and initiate the extinguishing process. It is an independent device. Both installation and start up of the fire extinguishing panel is easy to do. BKT Master and BKT slave devices are equipped with cylinders with an HFC 236fa extinguishing agent sufficient to extinguish fire in a cabinet of up to 3 m3. In case of cabinets joined together on the sides, additional Slave panels can be used enabling provision of more gas required for fire extinguishing in larger spaces.

External street distribution cabinets

External street distribution cabinets are used for ICT networks and form an intermediate point between the operator and the subscriber. Such cabinets are intended for inclusion of passive copper and fibre optic elements which do not require specific ambient conditions as is the case with external distribution cabinets.

Standard cabinets are equipped with the following elements:

- Assembly panel
- 19" sections (only model 11150010.1) – width of 580 mm makes it possible to install 19" sections
- Retractable integrated base
- Single - point lock with a cylinder
- Removable doors facilitating assembly

All cabinet made of steel sheet metal with RAL7035 powder coating.

Available models:

Name	Width (mm)	Depth (mm)	Height (mm)	Equipment	Index RAL7035
BKT external street distribution cabinet	480	225	1250	Assembly panel	11150001.1
BKT external street distribution cabinet	580	240	1250	Assembly panel	11150012.1
BKT external street distribution cabinet	580	240	1250	19" section	11150010.1
BKT external street distribution cabinet	780	240	1250	Assembly panel	11150020.1
BKT external street distribution cabinet	930	240	1250	Assembly panel	11150030.1



IP protection

Classification of degrees of protection provided by enclosures (IP code)

Classification of degrees of protection of electrical equipment provided by enclosures according to the standards PN-92/E-08106.

Identical standards:







EN 60529:1991, IEC 529:1989. Also : VDE 0470, DIN 40050, BS 5490:1977

Example of IP code: IP54











First IP number: 5 = protection from unauthorized access with the use of wire , dust protection

Second IP number: 4 = protected against water sprayed from all directions

First IP number

		Protection of device against solid objects	Protection from people's access
0		no protection	no protection
1		diameter > 50 mm	with a hand
2		diameter > 12,5 mm	with a finger
3		diameter > 2,5 mm	with a tool
4		diameter > 1,0 mm	with a wire
5		limited dust protection	with a wire
6		dust protection	with a wire

Second IP number

		Protection of device against liquids
0		no protection
1		protection against vertically falling drops of water
2		protection against falling drops of water up to 15° from the vertical
3		protected against direct sprays of water
4		protection against water sprayed from all directions
5		protected against low pressure jets of water
6		protected against moderate pressure jets of water
7		protected against temporary flooding
8		protected against the effect of immersion
9K		protected against jets of water under pressure 80-100 [bar] up to +80°C according to DIN 400050



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***OUTDOOR TELECOMMUNICATIONS
DISTRIBUTION CABINETS***

MANUFACTURER

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Scope of tests:

Tests in accordance with requirements:

- Environmental testing EN 60068-2-1, Test Ae; EN 60068, EN 60068-2-2 Test Be. The tests are performed under the conditions defined by the standard ETSI EN 300 019-1-4, class 4.1, table 1.
- EN 60068-2-5 Environmental testing - Part 2-5: Tests - Test Sa: Simulated solar radiation at ground level and guidance for solar radiation testing
- ETS 300 753 Equipment Engineering (EE).Acoustic noise emitted by telecommunications equipment
- EN 60439-5 Low-voltage switchgear and control gear assemblies. Particular requirements for assemblies for power distribution in public networks
- EN 60068-2-6 Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)
- EN 60529 Degrees of protection provided by enclosures (IP Code)

Results:

Outdoor telecommunications distribution cabinets meet requirements listed above and comply with parameters decelerated by manufacturer.

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A large teal-colored geometric shape, resembling a triangle or a trapezoid, is positioned in the lower right quadrant of the page. It is bounded by thin, light gray lines that extend from its vertices towards the corners of the page.