How to choose the right enclosure

There is always a solution!

At Fibox we have over 40 years of expertise and innovation, in the highest quality design and manufacturing of enclosures to protect electrical components and systems.

We offer over 1,000 enclosure variations.
No matter the conditions your components must withstand, or how well they need to fit the surrounding design and architecture, we have just the right enclosure for you. Size, functionality, durability, safety, aesthetics or sheer ruggedness – our enclosures provide the answer, whether your need is large or small. All Fibox enclosures can be customized to meet the exact requirements of your application.

Which enclosure should you choose?
Choosing the right enclosures depends on several factors, especially the environment and your application. In the following pages you will find information which will help you in the process of choosing the right enclosure and ensure that your innovations get the protection they deserve.

We are ready to assist you
Please do not hesitate to contact us, if you have any questions.

Fibox is represented all over the world and ready to assist you where ever you are: Contact our local Fibox consultant

What is required of an enclosure

Protection against:
- Safety for Man
- Moisture & Dirt
- Arcing & Sparks

Resistance to:
- Mechanical impact
- UV light (for outdoor installation)
- Ambient temperature
- Chemicals
- Fire

The right cabinet to the right job

The right cabinet to the right job depends on many factors such as:

- Environment
- Application
- Protection

Choose the right material

The most common plastic materials

PVC, PolyVinyl Chloride

- Low Price
- Bad temperature characteristics
- Medium-good chemical resistance
- UV-resistant
- Very toxic by fire
- Vinyl flooring, sewers and Signs

PS, PolyStyrene

- Low Price
- Bad temperature characteristics
- Limited chemical resistance
- Bad resistance against UV light
- Poor fire behavior
- Disposable items, packaging and toys

ABS, Acrylonitrile Butadiene Styrene

- Fairly low price
- Good temperature characteristics
- Moderate chemical resistance
- Bad resistant against UV light
- Poor fire properties
- Furniture, office equipment and furnishings, Refrigerators & Freezers

PC, PolyCarbonate

- Medium price level
- Very good temperature characteristics
- Good chemical resistance
- UV-resistance very good
- Very good fire behavior
- Visors, headlights and impact-resistant housings

GRP, fiberGlass Reinforced Polyester

- Relatively high price
- Very good temperature characteristics
- Good chemical resistance
- UV-resistance very good
- Various fire characteristics depending on the variant
- Boats and skies

Choose the right material

The most common metal materials

FE, Painted sheet steel

- Low Price
- Good durability
- Very good temperature characteristics
- Very high impact strength
- Good chemical resistance but sensitive to water & moist if dented seal is broken

SS, Stainless steel

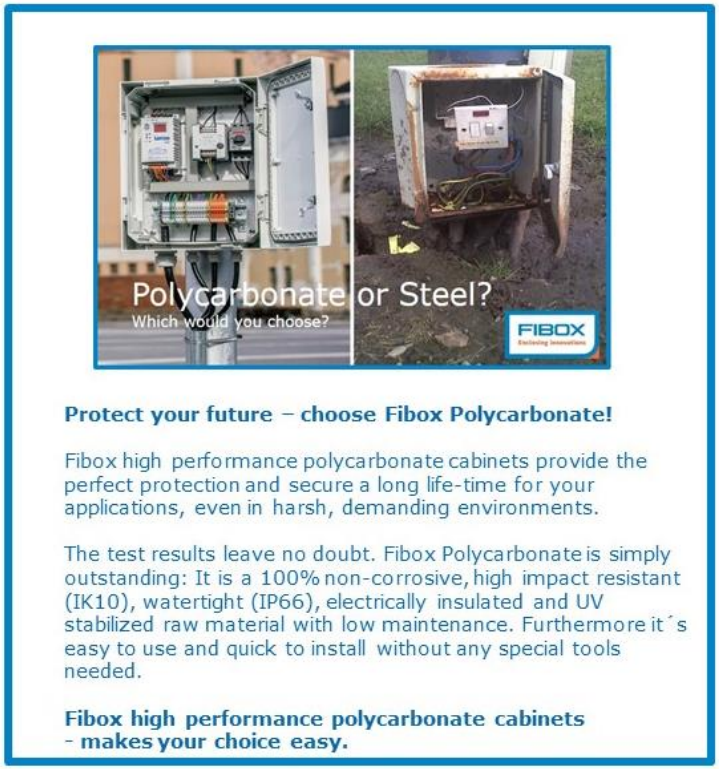
- Very high price
- Good durability
- Very good temperature characteristics
- Very high impact strength
- Very good chemical resistance but sensitive to water & moist if dented seal is broken

Al, Aluminium

- Relative high price
- Good durability
- Very good temperature characteristics
- Very high impact strength
- Good chemical resistance

Fibox Polycarbonate

- shows excellent results and protects your future



Protect your future – choose Fibox Polycarbonate!

Fibox high performance polycarbonate cabinets provide the perfect protection and secure a long life-time for your applications, even in harsh, demanding environments.

The test results leave no doubt. Fibox Polycarbonate is simply outstanding: It is a 100% non-corrosive, high impact resistant (IK10), watertight (IP66), electrically insulated and UV stabilized raw material with low maintenance. Furthermore it´s easy to use and quick to install without any special tools needed.

Fibox high performance polycarbonate cabinets - makes your choice easy.

Read more on www.fibox.com

Excellent Test Results

Fibox Creates an Enclosure that Becomes Stronger Over Time.

Fibox is specialized in enclosures which protects components even in very harsh and demanding environments. The enclosures are made of a special Polycarbonate material which has proven excellent performance:

- 100% corrosion-free
- Watertight: High IP rating: IP66
- Very high impact resistance: IK10
- Excellent Insulating properties: 1500VDC
- Good UV resistance: UV stabilized raw material – UL 508 (UL 746C)
- Flammability rating according to UL 94-5VA
- Good resistance to chemical attack
- Easy to customize with normal tools
- Low maintenace
- Light weight

25 years in direct sun without getting "wrinkles"

Fibox polycarbonate enclosures recently took part in an independent ISO 4892-2 (accelerated weathering test) study alongside other polycarbonate and fiberglass enclosure materials. The test objective was to determine UV performance and material behavior under hard harsh outdoor UV conditions in accelerated aging test.

Utilizing a xenon arc lamp Fibox's enclosure materials were bombarded with high intensity UV light for over 5,000 hours simulating 25 years' worth of direct sunlight exposure. The results demonstrated that the Fibox polycarbonate out performed both the fiberglass and other polycarbonat materials in the test.

www.fibox.com

The Fibox polycarbonate did not delaminate, as Fiberglass did after a few simulated years. In fact the Fibox polycarbonate not only maintained its durability but became even stronger as the UV exposure increased. This increased strength coupled with a low colour change as the UV exposure progressed only confirmed what many of our clients have related to us, that the enclosure is outliving the internal components.

Clients reuse Fibox enclosures and save money

One telco client recently completed swapping out the Generation 1 electronics for their next generation design while maintaining the existing enclosures in the field. This reuse policy saved the client the cost not only on the enclosure and pole-mounting accessories, but also saved them the shipping costs of enclosures.

Using an enclosure from Fibox you can have confidence that your products will be housed in the most resilient enclosure on the market. Easily allowing updates as you upgrade components throughout the years as your technology advances.

Fibox manufactures and distribute a wide range of UL listed, NEMA 4X polycarbonate enclosures designed for harsh and hostile environments, including the new popular ARCA serie.

Fibox is ready to help you, where ever you are and what ever challange.

Fibox have sales offices in 16 countries.

Find your local Fibox representative here.
ARCA presentation video

Fibox finds a solution to your challenges

A "powder fertiliser" plant in charters towers, Queensland in the middle of nowhere, process a very fine diatomaceous-earth product and make fertiliser for Indonesia.

The fine powder causes issues with normal enclosure seals with the Stainless and Mild Steel enclosure, not closing tight enough. They are currently replacing all their LCS units with ARCA enclosure from Fibox.

www.fibox.com

Why Polycarbonate?

Fibox Polycarbonate - High Performance

Securing Innovations with long life-time

- No Corrosion - 100% corrosion-free
- High ingress protection - Watertight – IP66
- High impact resistance - Robust and rigid design – IK10
- Electrically insultated – 1500VDC
- UV stabilized raw material – UL 508 (UL 746C)
- Flammability rating according to UL 94-5VA
- Easy to customize

Polycarbonate gives us an opportunity to Make Difficult Easy in a smart way not possible in the steel world

The benefits of Polycarbonate

No corrosion in Plastic enclosures

- Polycarbonate enclosures will last for decades without any corrosion
- Need a minimum of maintenance
- Less functional problems
- In steel enclosures rust protection coating can be destroyed easily

Electrical insulation

- Plastic material is non-conductive
- Safe to man and operation
- Total electrical insulation
- Components run "colder" inside plastic vs steel in direct sunlight

Plastic maintains it's shape even after a hard impact

- Plastic enclosures are hard (IK08 to IK10)
- Components protected even with very hard blows
- Excellent protection against vandalism

The benefits of Polycarbonate

Plastic is easy to customize

- No complicated tools are needed to make holes
- Easy to make changes in the field
- Worked surface does not rust afterwards

Plastic is UV and Chemical resistant

- Added UV protection and chemical resistance compounds in raw material
- Strength stays also outdoors
- Suitable for harsh and demanding environments

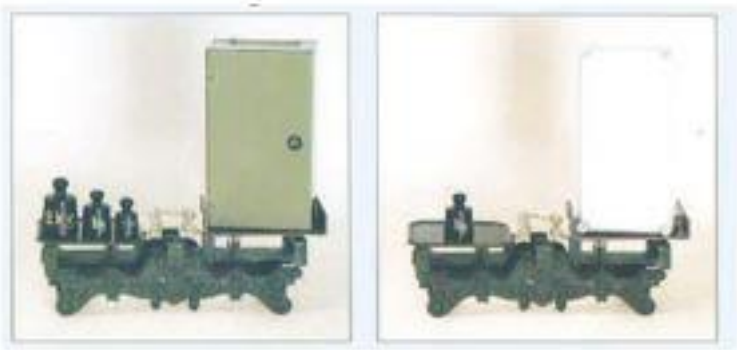
Plastic does not prevent radio signals from penetrating

- Antennas can be placed inside the plastic enclosure
- Hiding the antenna creates less interest from unwanted people
- Less maintenance, more reliable

The benefits of Polycarbonate

Plastic needs a minimum of maintenance
- Suitable for both outdoors and indoors
- Design looks good throughout the whole lifespan

Plastic material weigh less
- Plastic enclosure weighs about half of a similar steel enclosure
- Easy to lift and install
- Saves transport costs



Applications using Polycarbonate

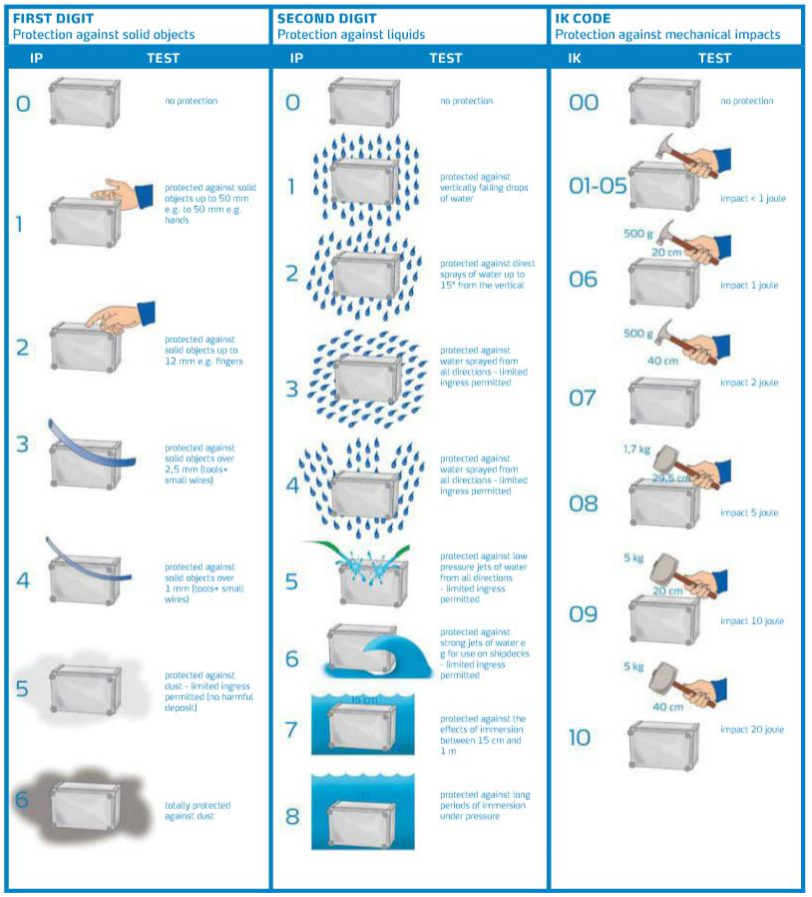
- OEM panels
- Domestic DIN-rail enclosures
- Pump controls
- Marine applications
- Smart grid applications
- Heavy industries
- Steel mills
- Petrochemical plants
- Temporary connections
- Public services
- Traffic signalisation
- Telecom
- Water and Waste
- Control units
- Infra structure
- And many more……

FIBOX
Enclosing innovations

Classifications

What does IP 67 and IK10 mean?

Approximate IP equivalents in parentheses	
Nema	
1	Indoor use primarily to provide a degree of protection against contact with the enclosed equipment and against a limited amount of falling dirt. (IP30)
2	Indoor use to provide a degree of protection against limited amounts of falling water and dirt. (IP31)
3	Outdoor use to provide a degree of protection against wind blown dust, rain, and sleet; undamaged by the formation of ice on the enclosure. (IP64)
3R	Outdoor use to provide a degree of protection against falling rain and sleet: undamaged by the formation of ice on the enclosure. (IP32)
3S	Outdoor use to provide a degree of protection against windblown dust, rain and sleet; external mechanisms remain operable while ice laden.
4	Indoor or outdoor use to provide a degree of protection against splashing water, windblown dust and rain, hose directed water; undamaged by the formation of ice on the enclosure. (IP66)
4X	Indoor or outdoor use to provide a degree of protection against splashing water, windblown dust and rain, hose directed water; undamaged by the formation of ice on the enclosure, resists corrosion. (IP66)
6	Indoor or outdoor use to provide a degree of protection against the entry of water during temporary submersion at a limited depth; undamaged by the formation of ice on the enclosure.
6P	Indoor and outdoor use to provide a degree of protection against the entry of water during prolonged submersion at a limited depth.
11	Indoor use to provide by oil immersion a degree of protection of the enclosed equipment against the corrosive effects of corrosive liquids and gases.
12, 12K	Indoor use to provide a degree of protection against dust, falling dirt and dripping non-corrosive liquids. (IP65)
13	Indoor use to provide a degree of protection against dust and spraying of water, oil and non-corrosive coolants. (IP65)



Fibox Enclosures

We have a solution

- Choose between more than 1000 high standard enclosures
- Materials for all purposes indoor/outdoor and even harsh, demanding environments
- Many different sizes
- Huge accessory programme

ARCA

ALU

Solid

EK

Piccolo

TEMPO

Euronord III

MNX

Quick

Cardmaster

CAB

Euronord

FIBOX
Enclosing innovations

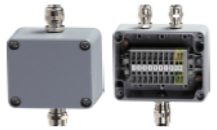
Which product range?

Choose the right product range for your application

Product Group	Control or power/ distribution cabinet	Power distribution board	Small power distribution board	Terminal Box	Control unit	Junction Box	Electronics/ Instrumentation
ARCA IEC	x		x		x		
CAB PC/ABS/P/PX	x						
Street Cabinets	x						
MNX				x			x
EK		x	x				
Solid			x	x	x		
Euronord				x			x
ALU				x	x		x
Cardmaster							x
Quick			x		x		
Piccolo					x		
Tempo						x	
EX				x			

Popular enclosures for specific markets

Device Manufacturers	**MNX, Piccolo Euronord, Euronord III Cardmaster, Solid, ARCA**
Equipment Manufacturers	**MNX, Euronord PC, AL Terminal_boxes, Solid, EK, CAB P, ARCA**
Infrastructure	**Solid, Solid FSH Cab P, ARCA**
Panel Builders	**EK, ARCA**
Installation	**MNX, EK, ARCA Tempo, Cable Glands**



ARCA IEC

High performance cabinet

Superior performance and security in most demanding environments. Easy to use. Quick to install. All this is driven by innovation and market driven product development. ARCA is a non corrosive and cost effective alternative to sheet steel cabinets being installed in harsh and demanding environments. In a nutshell, ARCA has all the features of steel but benefits of high grade thermoplastic.

PC: **IP 66; IK 10**
IP 65; IK 08 (W-versions)

Dimensions: 200 x 300 x 150 mm – 800 x 600 x 300 mm.

Non corrosive

Patent pending hinge design

Robust corner design

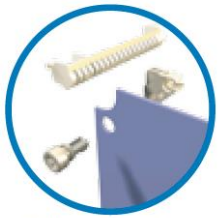
CAB

Withstands sudden impacts

If you need major impact resistance, then CAB may be the cabinet for you. Think of the harshest and most demanding environments – CAB will not let you down. It will resist weathering and take the knocks better than steel. A wide selection is available.

GRP (CAB PX): IP 65; IK 10 (grey door)
GRP (CAB P): IP 66; IK 10 (grey door)
PC: IP 65; IK 08
ABS: IP 65; IK 08

CAB PC/ABS dimensions: 150 x 150 x 110 mm – 600 x 400 x 220 mm.
CAB P dimensions: 315 x 215 x 170 mm – 1035 x 835 x 300 mm.
CAB PX dimensions: 500 x 500 x 320 mm – 1250 x 1000 x 320 mm.



Adjustable depth for front panel

Latch & lock

PX models; multiple closing options

Street Cabinet

Protection on the streets

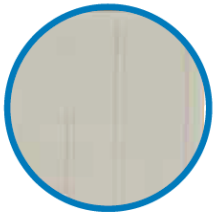
This streetwise range is designed to foil both the elements and street vandalism. Inside the multi-environment cabinet, your equipment will be shielded by a graffiti-repellent casing that also resists impacts and penetration. Street Cabinet is easy and quick to install, with numerous sizes and accessories.

P: **IP 44; IK 10**

Dimensions: 420 x 265 x 250 mm – 1125 x 1445 x 320 mm.

Integrated ventilation to avoid condensation

Several locking options



Corrugated surface

MNX

Offers huge options

This range offers over 260 versions. Choose MNX if you have a large product family that needs to be housed in matching enclosures with the minimum of fuss, no matter the environment or installation height. For the protection of electrical and electronic components of all kinds.

PC: **IP 66/67; IK 08**
ABS: **IP 66/67; IK 07**

Dimensions: 100 x 100 x 35 mm – 360 x 255 x 152 mm.

Hinged inner panel

Recess area for membrane keypads

PCM versions: knock-outs moulded in place for easy wiring

FIBOX
Enclosing innovations

EK

For modular flexibility

Because EK enclosures are fully modular, this range stretches to fit, from a single module to extensive enclosure panels. EK comes in a large size range, with various depths and a host of accessories.

PC: **IP 66/67; IK 08 (side surface); IK 09 (front surface)**

Dimensions: 190 x 190 x 130 mm – 760 x 560 x 250 mm.

Modular structure for larger enclosure panels

Wide accessory selection

Extension frame multiplies usage options

Solid

Solid protection

Solid is the superb all-rounder, both in and out of doors. If you need general protection, in everyday environments, Solid may be the all-purpose solution you are seeking for electronic and electrical components.

PC: **IP 66/67; IK 08 (side surface), IK 09 (front surface)**
ABS: **IP 66/67; IK 08**

Dimensions: 188 x 188 x 130 mm – 760 x 560 x 250 mm.

Wide opening hinges +180° for easy access

Guaranteed long-term ingress protection – no holes required in enclosure

Wide accessory selection

Euronord

Brings interchangeability

Euronord enclosures come in over 170 standard sizes, meaning huge interchangeability with the products you may already have. The latest addition Euronord 3 range incorporates a number of innovative features, for example quick release corrosion resistant cover screws, and recessed middle area of the cover for membrane keyboards and prints.

PC: IP 66/67; IK 07 (side surface), IK 08 (front surface)
ABS: IP 66/67; IK 07
P: IP 66/67; IK 08

Dimensions: 50 x 52 x 40 mm – 360 x 400 x 151 mm.

Quicklock: 1/4 turn cover screw for easy cover removal

Ideal for housing DIN-terminals

Freedom of choice - 3 raw materials + 170 versions

ALU

For the protective lightness of aluminium

Our ALU enclosures can be mounted almost anywhere, so it's just as well they withstand so much! Knocks, bangs, chemicals, temperatures that swing from tropical to frozen, or where EMC protection is an issue – ALU beats the competition in guarding against it all.

High resistance to chemical attack (painted)

EMC shielding

Higher temperature range

ALU: IP 66/67/68; IK 08

Dimensions: 60 x 66 x 46 mm – 310 x 600 x 180 mm.

Cardmaster

Two compartments in one

CARDMASTER is a modern, new design that keeps untidy wiring separate from the equipment you need to use, say, for process monitoring. This neat solution is completely compatible with competitors ranges.

PC: **IP 65; IK 07 (side surface); IK 08 (front surface)**
ABS: **IP 65; IK 07**

Dimensions: 166 x 160 x 80 mm – 390 x 316 x 167 mm.

Easy access

Aluminium front plate

Separate terminal wiring compartment

Quick

For harsh industrial and outdoor environments

These smart, modern enclosures are so-named after their quick-screw covers. They're easy to close and open, but offer good protection against tampering. A large range of accessories is available.

PC: **IP 66/67; IK 08**
ABS: **IP 66/67; IK 08**

Dimensions: 300 x 200 x 170 mm – 600 x 400 x 270 mm.

Quick locking cover screws for fast access to components

Adjustable depth for front panel

Swing door

Piccolo

Protective access

Wherever functions, such as push buttons and sensors, need to see the light of day, Piccolo is the neat solution. It's also modular and adaptable, with a range of sizes and accessories.

PC: **IP 66/67; IK 08**
ABS: **IP 66/67; IK 07**

Dimensions: 110 x 80 x 65 mm – 230 x 140 x 125 mm.

High-quality surface for printing

Designed for push-buttons

Optimised design for terminal blocks

Tempo

Enclosed in seconds!

As its name suggests, Tempo doesn't like to hang around. Need an enclosure that's easy on the pocket and installed in seconds, but still gets the job done? Tempo does all this and still meets high, recognised standards.

Sealing availability for added security

Quick-to-install integral hinge

Multiple wall mounting options

ABS: IP 65; IK 07

Dimensions: 95 x 65 x 60 mm – 344 x 289 x 117 mm.

EX

For hazardous environments

Our EX enclosures will help you to sleep easy, knowing that your components are safe, even in explosive atmospheres, thanks to products tested and certified to meet exacting, international standards. EX enclosures are made of either aluminium, polycarbonate or polyester.

Aluminium dimensions: 81 x 127 x 57 mm – 600 x 310 x 180 mm

Polycarbonate dimensions: 188 x 188 x 130 mm – 558 x 378 x 180 mm

Polyester dimensions: 75 x 80 x 55 mm – 405 x 400 x 120 mm

FIBOX products contributes world-wide

….even where you least expect it

- **The Eiffel Tower**

”The Eiffel Tower light”
20.000 light bulbs

- **Queen Mary**
- **Incheon Bridge**

Industries

- **Energy and Industri**
- **Medical & Healthcare**
- **Smart Lighting**
- **Wearable & Smartwatch**

FIBOX
Enclosing innovations

Further information

Please do not hesitate to contact us, if you have any questions.

Fibox is represented all over the world and we are ready to assist you, where ever you are.

Contact our local Fibox consultant

Visit us on www.fibox.com

Thanks !

Choose the right