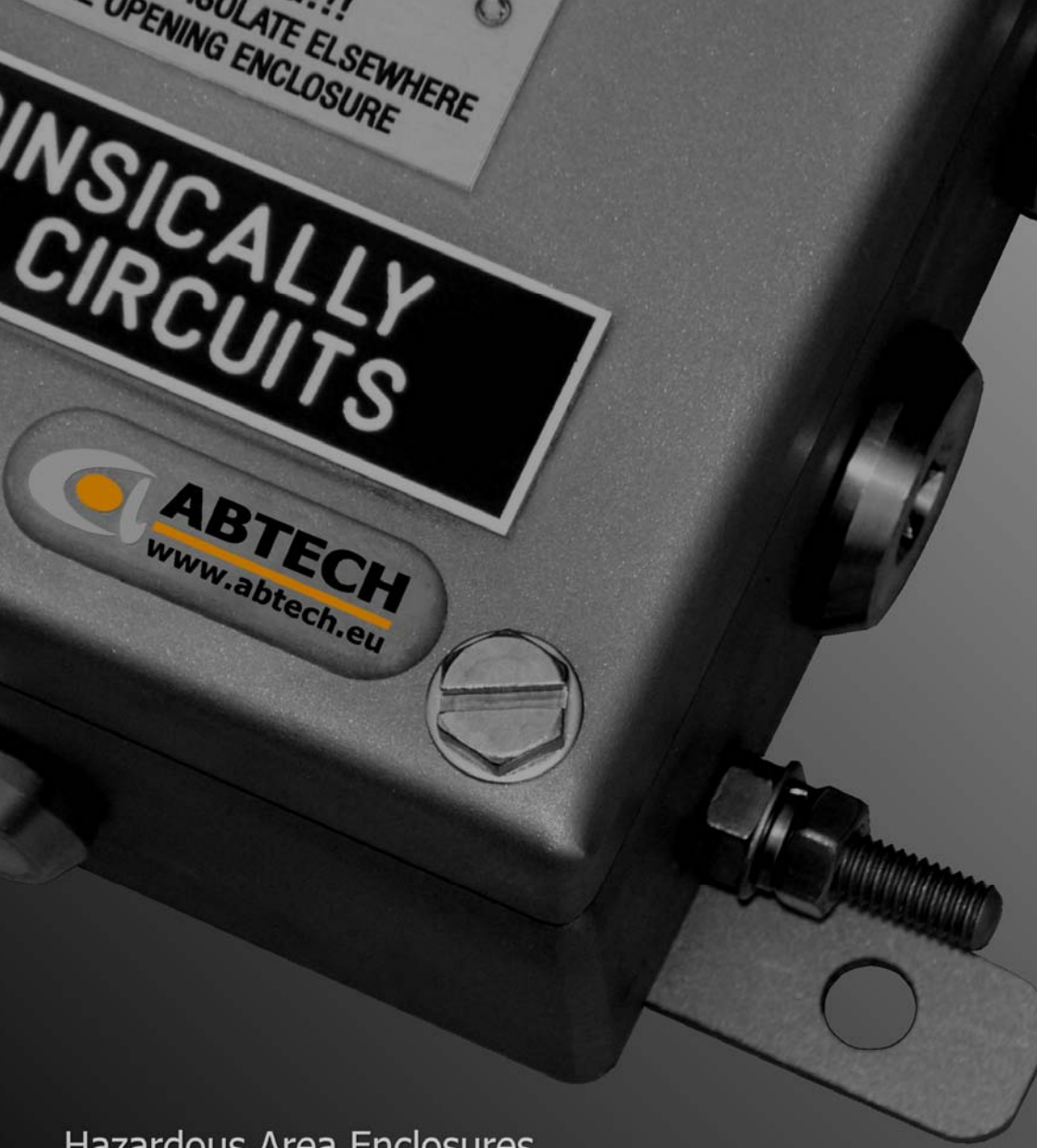


Hazardous Area Enclosures

High Voltage Junction Boxes

Special Purpose Enclosures

Electrical Enclosures

Cable Glands and Adaptors

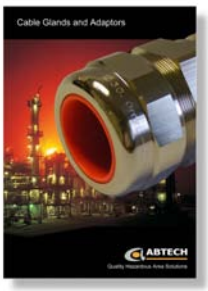
How to Contact Abtech



If you require any additional information regarding our products, please contact us at one of the listed locations. Alternatively, our website includes detailed product information along with the ability to download certificates, software and drawings.

Other Products Available from Abtech...

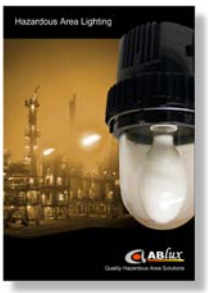
Cable Glands and Adaptors



A range of cable glands, adaptors, reducers and stopping plugs manufactured from brass and suitable for use in hazardous area Zone 1 and Zone 2.

Please see the Glands Section of this catalogue on page 208.

Hazardous Area Lighting



A range of hazardous area lighting products from Ablux (an Abtech Group company). The product line includes various floodlights and luminaires suitable for both Zone 1 and Zone 2 areas hazardous areas along with associated specialist lighting components. Ablux are also able to provide custom lighting solutions designed to the customer's specifications.

ABlux

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Saudi Arabia	

www.abtech.eu

Since the first ABTECH sheet steel enclosure was manufactured in the 1970's the company has never lost sight of it's goal, to become a leading supplier of quality electrical enclosures and junction boxes suitable for both industrial and hazardous area markets. This we believe has been achieved through innovation, market leading design, rigorous testing and adherence to quality.



In recent years ABTECH have extended their range of enclosures to cope with ever increasing customer demands for unique solutions to their problems. These solutions include high current connection boxes (up to 3000Amps), high temperature junction boxes (up to 950°C for 3 hours) and IP68 enclosures (up to 120ft depth).

ABTECH rose to the challenge when the Channel Tunnel was being constructed and produced over 12,500 junction boxes and emergency lighting actuators to the most exacting of standards. With the emphasis on reliability and safety, ABTECH designed a solution that more than met the rigorous specification laid down by Eurotunnel.



The new millennium has seen ABTECH once more expanding their range of products and services to help their customers cope with the need to meet ever changing international standards.

In addition to fulfilling the requirements of the ATEX legislation, the majority of ABTECH products also comply with the IEC Ex scheme and are certified for use in Category 2 (Zone 1) and Category 3 (Zone 2) areas for both gas and dust hazards.



ABTECH operate in the global market place as the nature of the Oil & Gas & Petrochemical industry demands and to meet this requirement ABTECH operate at an International level. With the headquarters based in Sheffield, UK and factories and offices in USA, Germany, Netherlands, South Korea and Singapore and a network of agents covering over 40 countries worldwide, ABTECH have the coverage to manage any project. Indeed over the last 25 years, ABTECH have been involved in many projects throughout the world. Please refer to our Major Projects List in the Appendix section of this catalogue.



ABTECH also manufacture restricted breathing enclosures (EEx'nR') which are capable of housing sparking and hot components and are suitable for use in Zone 2 areas and can often be a cost effective alternative to flameproof enclosures (EEx'd').

The durability of our products is measured in decades. Whether the product is for an industrial or hazardous area application, ABTECH place the utmost importance on quality as would be expected from a leading manufacturer. The success of the company has been built on this dedication to total quality control and with over 30 years history of supply to the leading oil & gas companies throughout the world it is a policy that has been proven to work.

With approvals such as BS EN ISO 9001:2000, certification to British, European and International standards and approvals from certifying authorities in the UK, USA, Canada and Russia, the company's commitment to quality ensures that safety is never compromised.



Technical support at ABTECH begins long before the order is placed. Our dedicated sales staff based at our regional offices can offer advice on enclosure type, terminal selection, cable entry placement and any other requirements that might dictate the eventual selection. Technical assistance is also available at any time during the order process or indeed after the equipment is installed and ABTECH staff will be only too happy to help with any questions you may have.

The ABTECH range of products are suitable for both industrial and hazardous area applications.

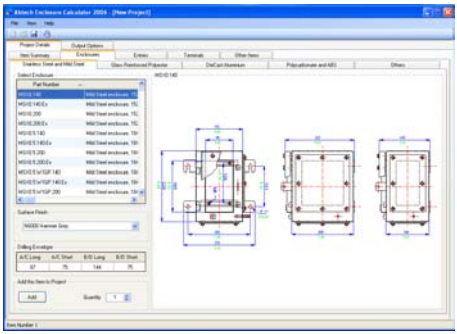
Enclosures manufactured in stainless steel, mild steel, glass reinforced polyester, aluminum, polycarbonate and ABS are suitable for a wide range of industrial and OEM applications and we have the facilities to modify the standard enclosure to meet the customer's requirements.

These services include machining, painting, silk screen printing and electro-polishing. We are also able to mould any of the plastic range of enclosures in a wide range of colours (subject to minimum order quantity).

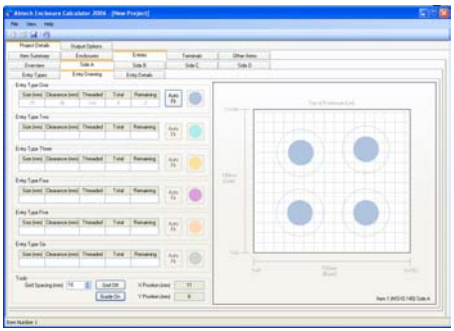


ABTECH Enclosure Calculator

One of the most difficult and time consuming steps in the selection of a suitable enclosure to meet your particular requirements is trying to calculate if the size chosen will accommodate the terminals and cable entries you require. At ABTECH we have, for many years, been using our Enclosure Calculation software which was designed specifically for use with our enclosures.

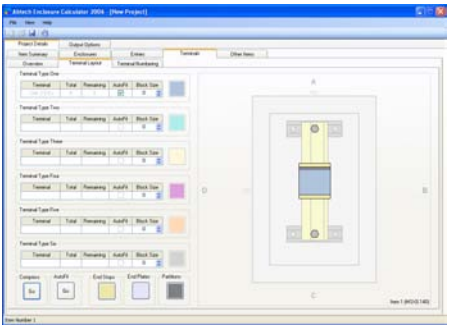


Some years ago we decided to make this program available to all our customers, free of charge, and this has been a tremendous success. The software allows users to easily design complex arrangements of entries and generates a drawing which ABTECH can subsequently use for manufacturing purposes.

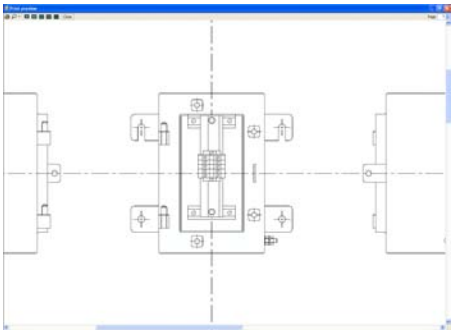


The program also incorporates a terminal calculation program which lets you see at a glance whether or not the desired number of terminals can be accommodated within your chosen enclosure and as with the Entry Calculator will print a drawing of your finished design.

The software greatly simplifies the enclosure design process. The latest version will also produce general arrangement drawings which can printed or emailed as required.



The program can be used on any Windows based PC and is simple to install and use. It includes a comprehensive help menu to allow users to start using the software immediately without the need of expert tuition. The ABTECH Enclosure Calculator CD can be obtained by contacting our sales desk or for immediate download from our website at www.abtech.eu



Contents

Stainless Steel and Mild Steel Enclosures 8
SX and MSX

Glass Reinforced Polyester Enclosures 42
BPG and BPGC

Assembled GRP Junction Boxes 82
BPGA

Die-Cast Aluminium Enclosures 88
ZAG and ZAGR

High Voltage Enclosures 132
MJB, DPJB, HVJB, LR and Busbar

Fire Rated Enclosures 148
SX and BPG

Polycarbonate and ABS Enclosures 152
ZP, ZPS and ZPT

Other Enclosure Products 196
GRN8, BPC/SXC Control Stations and Submersible Enclosures

Cable Glands, Adaptors and Reducers 208
ASG and AAG Glands
ABAD Adaptors
ABRE Reducers

Appendix 222
Technical Information
Gland Clearances
Abtech Project List
Index


ABTECH
Type : SXC
SIRA07 ATEX1252 UI 440V
0518
Ex ed IIC T4

Other Products

Other Products

GRN Junction Boxes

BPC Control Stations

SXC Control Stations

Submersible Enclosures

GRN Enclosures

The ABTECH GRN8 enclosure has been designed as a cost-effective junction box for use in hazardous areas. There are a number of terminal and entry configurations available, resulting in a highly versatile enclosure which is suitable for a wide variety of installations. The enclosure is manufactured in a UL approved UV stabilised polycarbonate and is available as a pre-assembled terminal box or as an empty enclosure for OEM applications.



It can be supplied with the option of a terminal rail, an internal chassis plate or directly mounted terminals for cables up to 4 sq mm.

The GRN8 is a competitive product for lower risk applications in both safe and hazardous areas. It is designed to operate within the ambient temperature range of - 20°C to + 40°C (-4°F to 104°F) but for non hazardous application the upper ambient temperature range can be extended to 120°C (248°F). As well as being UV stable, polycarbonate is resistant to a wide variety of chemicals. The use of silicone rubber lid gasket and 316 stainless steel lid fixings ensures that the chemical resistance of the GRN8 is not compromised.

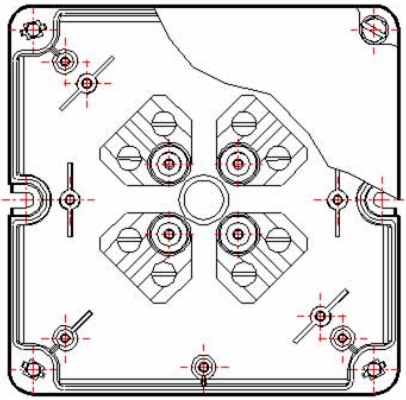
Earthing can be accomplished by various means. The provision of an internal/external earth/ground stud is optional or one of the terminals can be dedicated to earthing / grounding functions.

Additionally, there is the facility to mount an earth bar inside the box which can be used to terminate and connect as many earthing wires as there are cable entries. This method is useful for the equi-potential bonding of metal cable glands and an additional equi-potential wire can be linked to the internal/external earth stud to facilitate a positive connection to the 'plant dirty' earthing system. The earth bar can alternatively be used as a clean earth for instrumentation as it can be electrically isolated from the dirty earth.



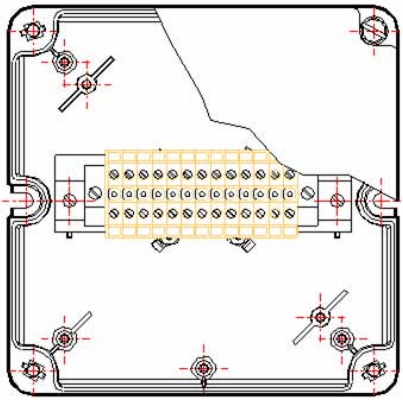
The GRN8 is ATEX certified for use in Zone 1 hazardous areas EEx'e' to BS EN 50019:2000 for Zone 1 and Zone 2 applications, BS EN 50281-1 for Zone 21 and Zone 22 applications and EEx'nA' to BS EN 50021 for Zone 2 applications.





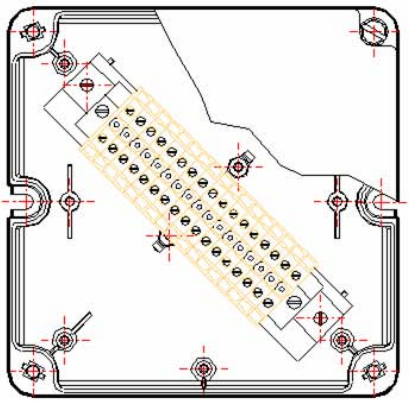
GRN8-1

Up to 8 post / mantle type EEx'e' terminals
(up to 2 x 4mm² conductors per terminal)
Star configuration



GRN8-2

Up to 13 screw/clamp type EEx'e' terminals
(for conductors up to 2.5mm²)
See table on page 200 for other terminal types
Horizontal / Vertical configuration



GRN8-3

Up to 17 screw/clamp type EEx'e' terminals
(for conductors up to 2.5mm²)
See table on page 200 for other terminal types
Diagonal configuration

GRN8 Range

Polycarbonate Junction Boxes

IP65

Application
Industrial and Hazardous areas

Protection Degree
IP65

Certification
ATEX EEx e T6 (Zone 1 & Zone 2) to BS EN 50019
ATEX EEx e T85°C (Zone 1 & Zone 2) to BS EN 50281-1-1

Material
Moulded Polycarbonate (Black)

Temperature Rating
Standard: -40º to 80º C (-40º to 176º F)
Option: -40º to 120º C (-48º to 248º F)
ATEX Certified Version
-20º to 40º C (-4°F to 104°F)

Power Rating
10.0W



Terminal Populations (Maximum Number of Rails = 1)

Weidmuller	
BK4 (4 way)	3
BK6 (6 way)	2
BK12 (12 way)	1
MK 6/4	2
MK 6/6	1
SAK 2.5	17
SAK 4	17
SAK 6N	14
SAK 10	11
SAK 16	9
SAK 35	5
WDU 2.5	20
WDU 4	17
WDU 6	14
WDU 10	11
WDU 16	9

Entrelec	
MA2.5/5	21
M4/6	17
M6/8	14
M10/10	11
M16/12	9
M35/16	6

Phoenix	
G5\4 (4 way)	3
G5\6 (6 way)	2
G5\12 (12 way)	1
UK 3N	21
UK 5N	17
UK 10N	11
UK 16N	9
UK 35N	7

Drilling Envelope Dimensions (mm)

	Side A - C	Side B - D
Width	54 (x2)	48 (x2)
Height	75	75

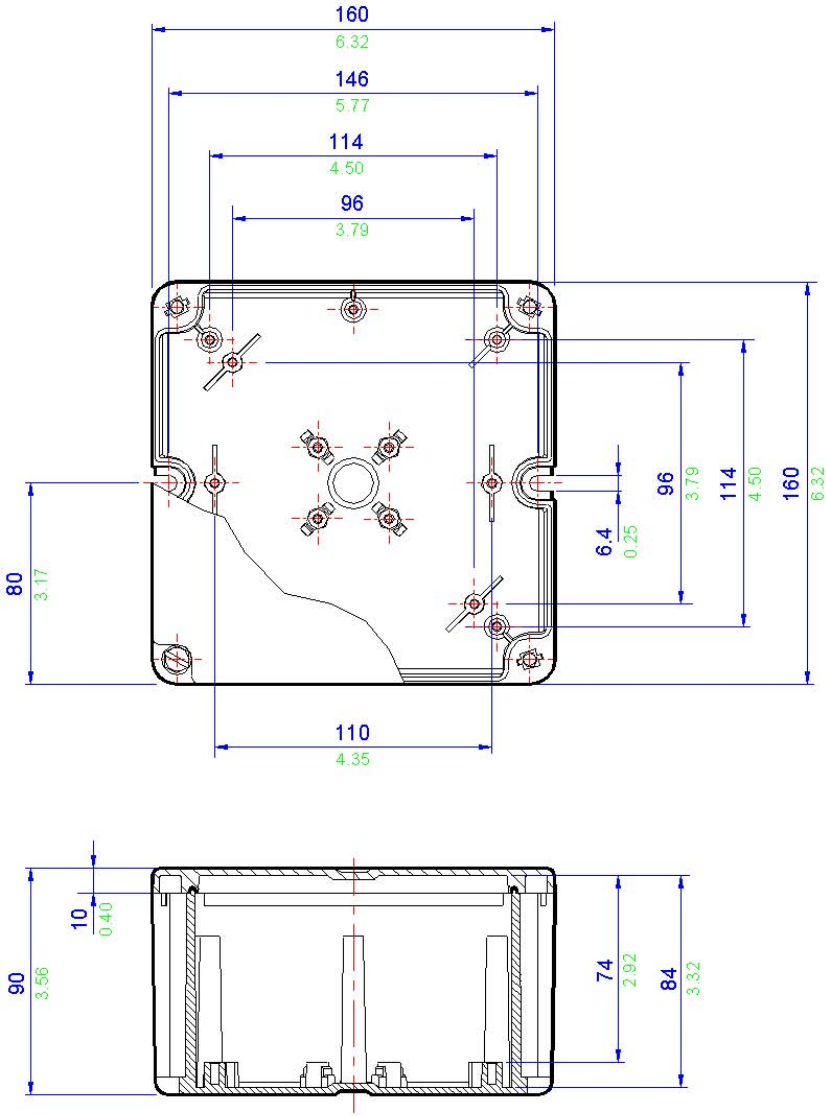
Gland Entry Matrix *

Size	Side A - C	Side B - D
M16	4	4
M20	4	4
M25	2	2
M32	0	2
M40	0	0

* Using standard gland clearances

Specifications

Part Number	Material	Width (mm)	Length (mm)	Depth (mm)	Weight (g)
GRN8-1	Moulded Polycarbonate	160	160	90	500
GRN8-2	Moulded Polycarbonate	160	160	90	500
GRN8-3	Moulded Polycarbonate	160	160	90	500


160
6.32
146
5.77
114
4.50
96
3.79
80
3.17
6.4
0.25
96
3.79
114
4.50
160
6.32
110
4.35
90
3.56
10
0.40
74
2.92
84
3.32

BPC Range

Control Stations

IP66

Application
Industrial and Hazardous areas

Protection Degree
IP66

Certification
ATEX II 2 GD EEx ed IIC T4
IEC Ex

Material
Carbon Loaded Glass Reinforced Polyester (Black)

Temperature Rating
-40º to 80º C (-40º to 176º F)

Maximum Voltage
415V

Maximum Switching Current
6A



Specifications

Part Number	Material	Width (mm)	Length (mm)	Depth (mm)	Weight (g) *
BPC6 xx	Glass Reinforced Polyester	122	120	90	750
BPC7 xx	Glass Reinforced Polyester	220	120	90	1060
BPC8 xx	Glass Reinforced Polyester	160	160	90	1060
BPC9 xx	Glass Reinforced Polyester	260	160	90	1170
BPC10 xx	Glass Reinforced Polyester	360	160	90	2150
BPC11 xx	Glass Reinforced Polyester	560	160	90	3200
BPC12 xx	Glass Reinforced Polyester	255	250	120	3200
BPC13 xx	Glass Reinforced Polyester	400	250	120	3650
BPC14 xx	Glass Reinforced Polyester	600	250	120	5235
BPC15 xx	Glass Reinforced Polyester	400	405	120	5580

* Weight specified is enclosure only. Total weight depends on actuator configuration

Notes

The BPC range of control stations have been designed for use in potentially explosive atmospheres and are suitable for most gas groups including hydrogen. Based on the popular BPGC range of enclosures, they are manufactured from carbon loaded glass reinforced polyester (GRP). This material gives excellent mechanical strength and life expectancy, making these control stations particularly suitable for use in harsh environmental conditions. Additionally, the anti-static properties of the enclosure material make them ideal for use in dust hazard environments. A number of common actuator types can be fitted, including Start, Stop, Emergency Stop and rotary type switches. Tag and individual actuator labels can be fitted as required.

Some typical arrangements of control station size and actuator layouts are shown on the page opposite, however, we are able to supply many other variants as dictated by your required design. Please contact our Sales office for further details.



BPC13 10

Control Elements; (x2) Key Switch, Selector, Start, Illuminated Red Indicator, Emergency Stop. Mounted in BPGC13 Enclosure
(400 x 150 x 120mm). Glands: 2 x M25



BPC7 3

Control Elements;
Key Switch, Start, Emergency Stop
Mounted in BPGC7 Enclosure
(220 x 120 x 90mm)
Glands;
1 x M25



BPC62

Control Elements;
Start, Stop
Mounted in BPGC6 Enclosure
(122 x 120 x 90mm)
Glands;
1 x M25

SXC Range

Control Stations

IP66

Application
Industrial and Hazardous areas

Protection Degree
IP66

Certification
ATEX II 2 GD EEx ed IIC T4
IEC Ex

Material
Stainless steel 316 (1.4404)

Temperature Rating
ATEX II 2 GD EEx ed IIC T4

Maximum Voltage
415V

Maximum Switching Current



Specifications

Part Number	Material	Width (mm)	Length (mm)	Depth (mm)	Weight (g) *
SXC66 xx	Stainless steel 316 (1.4404)	152	152	102	2200
SXC0 xx	Stainless steel 316 (1.4404)	152	229	140	3200
SXC0.5 xx	Stainless steel 316 (1.4404)	184	274	140	5000
SXC1 xx	Stainless steel 316 (1.4404)	234	324	140	6300
SXC1.5 xx	Stainless steel 316 (1.4404)	306	306	140	7300
SXC2 xx	Stainless steel 316 (1.4404)	372	324	140	9500
SXC3 xx	Stainless steel 316 (1.4404)	372	448	140	11300
SXC4 xx	Stainless steel 316 (1.4404)	372	510	140	12700
SXC5 xx	Stainless steel 316 (1.4404)	510	510	140	17000
SXC6 xx	Stainless steel 316 (1.4404)	510	780	140	24000
SXC7 xx	Stainless steel 316 (1.4404)	650	950	140	35000
SXC8 xx	Stainless steel 316 (1.4404)	800	1250	140	40000

* Weight specified is enclosure only. Total weight depends on actuator configuration

Notes

The SXC range of control stations have been designed for use in potentially explosive atmospheres and are suitable for all gas groups including hydrogen. Based on the SX range of enclosures, they are manufactured from high quality 316 stainless steel. This material offers the highest degree of environmental protection and is suitable for even the most arduous of conditions. Additionally, stainless steel prevents the build up of static electricity, making these controls stations ideal for use in dust hazard applications.



SXC3 25

Control Elements; (x5) Key Switch, Start, Selector,
Illuminated Green Indicator, Emergency Stop.
Mounted in SX3 Enclosure
(372 x 448 x 140mm). Glands: 2 x M25



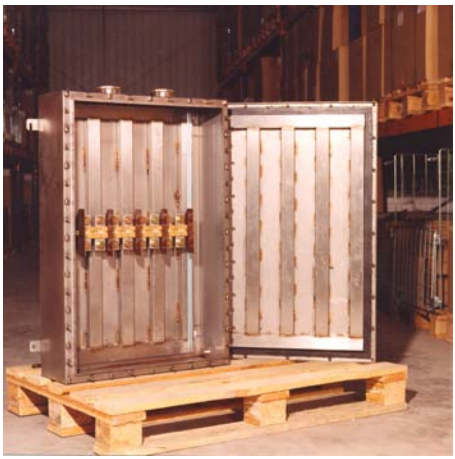
SXC6 2

Control Elements;
Start, Stop
Mounted in SX66 Enclosure
(152 x 152 x 102mm)
Glands;
1 x M25

Submersible Enclosures

By definition, a submersible enclosure is one which provides complete protection to live or moving parts within the enclosure. Such protection being against the ingress of dust (or other contaminants) as well as protection against the ingress of water.

There are two distinct IP rating for submersible enclosures. These are:
IPX7 - submersion in one metre of water for 30 minutes, and IPX8 - submersion depth and duration to be agreed between manufacturer and client. The degree of protection provided is normally specified to a maximum depth for a pre-determined duration and defined frequency of duration for example "up to 20 metres for 72 hours – weekly". IEC 529 - BS 5345 Part 1 relates to IP 68.



ABTECH designed their first submersible terminal box over 15 years ago. The IP Rating standard in use at the time was BS5490:1977. This, like its modern replacement BS EN 60529:1992, lists both the test method for ingress protection and the acceptance criteria. In general, the acceptance criteria for water penetration is that the amount of water entering the enclosure, if any, shall be insufficient to interfere with the safety and operation of the equipment inside. However, if the operating requirements include indefinite submersion the only realistic amount of water that can be tolerated is none.

The difficulty in detecting small quantities of water is that water may be present as a vapour, and therefore invisible. In time limited tests water may enter an enclosure in quantities small enough to increase the humidity inside the box, but this would not be apparent using a visual check since it would be invisible. A more objective measurement technique is required.

With the assistance of the University of Sheffield, ABTECH devised a method of detecting very small quantities of water. Two identical enclosures are required, one as a test box and one as a control. A conditioning room is set up in a location with constant humidity. The room must then be equipped with a calibrated high resolution analytical balance. Each box is left open in the same part of the conditioning room, close to the balance for 24 hours to ensure that they are both at the same temperature and both contain air at the same relative humidity. Using the balance one sachet of desiccant is weighed and quickly inserted into each box. The boxes are immediately closed and the lids secured. The weight of the desiccant in each box is recorded. The test box is then subject to the test as agreed with the client or as stated in the current British or international standard. The control box is left in the conditioning room.

When the test is completed the test box is thoroughly dried on the outside and left for several hours, preferably overnight, in a dry place outside of the conditioning room. This ensures that any extraneous water on the outside of the box has evaporated. The test box is then returned to the conditioning room. Both boxes are opened and quickly the desiccant is weighed again. The results are recorded. If no water has entered the test box the increase in weight of each sachet of desiccant will be the same. This is because they have both absorbed all the moisture in the air that was trapped inside the boxes. If any water has entered the test box the desiccant from that box will show a greater increase in weight. It should be noted, however, that it is only possible to measure the amount of water vapour absorbed by the desiccant within the accuracy limits of the balance.

ABTECH have devoted much development effort to the concept of submersible enclosures. Small enclosures are eminently suitable for submersible applications. They are relatively stiff and have little surface area for water pressure to act upon. For shallow depths (less than 1m) submersion is generally achievable using standard off the shelf enclosures e.g. the ABTECH ZAG, BPG and SX ranges of enclosures. However, boxes soon become large enough to require reinforcement. A box of only 300mm cube in 10 metres of water will experience over a tonne of pressure on each of its six sides.

The actual forces that will be experienced need to be calculated and reinforcement needs to be added whilst leaving as much internal volume as possible free for components, even if that means using external reinforcement.

Added to this is the problem of preventing the cover sealing edges from cutting through the gasket, and reinforced boxes can be very heavy so it may also be necessary to include lifting eyes.

Manufacturing must be of the highest quality. It is essential to ensure high quality welding on fabricated boxes, correctly specified for both the static and dynamic loading they may have to withstand. Water under pressure will find the tiniest pin hole and will leak into the box until the air pressure inside is equal to the water pressure outside.

Once the necessary calculations have been completed then rigorous testing must be endured to ensure that the design meets the pre-agreed requirements of enclosure submersion.



Where submersion over elongated periods of time are to be catered for then consideration must also be given to enclosure material. By far the most flexible material available for submersible applications is marine grade 316L stainless steel.

With non-submersible applications, cable entry is usually through a proprietary cable gland which itself will normally qualify for an IP rating similar to that of the enclosure to which it is applied. However, due to the greater pressures present with submersible enclosures, cable entry is normally achieved through welded stainless steel hubs suitably positioned to receive incoming multi-core cables.

As with all enclosure applications reliance is placed on the equipment installer to ensure that proper engineering practices are adhered to in order to ensure that the siting and installation of ABTECH Submersible Enclosures is within agreed conditions.

ABTECH have designed submersible boxes for use in a wide variety of applications ranging from prestige projects such as the underwater lighting in Trafalgar Square to severe applications on the legs of unmanned offshore installations.

If you have a submersible box application, the ABTECH technical staff will be happy to advise further.