

Universal Enclosures

More than 50 years protecting your equipment

Selected offer 2010



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Schneider Electric Universal Enclosures

The specialist in sealed equipment

> History

Schneider Electric Universal Enclosures is based on two historical companies and brands created in 1958, Himel with origins in Spain, and Sarel with origins in France. These two companies have developed more than 50 years experience as leading specialists in the design, manufacturing and marketing of enclosure systems that manage installation and protection of automation and electrical devices while ensuring protection and safety in all types of environmental conditions.

Sarel & Himel are the roots of Schneider Electric Universal Enclosures.

55000 m²
Industrial
sites

1300 employees
Dedicated to
developing,
manufacturing and
delivering products for
your needs.



3 Material Solutions

Steel

Stainles-steel

Plastic Polyester

> A permanent customer focus

From users and purchasing advisers, to distributors and those involved in implementation, Schneider Electric integrates their expectations into its global business approach through:

Products >

Equipment and materials adapted to all circumstances, whatever the configurations or applications, with all the guarantees of quality, reliability, speed and ease of use.

Services >

Customise products to your requirements and respond to specific needs with the greatest flexibility, efficiency and the highest levels of quality.

With this approach, Schneider Electric contributes to its customers competitiveness.



Helping you make the most of your energy



The choice of a worldwide leader

Command of five industrial lines of work

To efficiently meet the needs of professionals in the field of electricity, automation, electronics, VDI and telecom networks, Schneider Electric Universal Enclosures guarantees through its Quality Assurance processes, control of the industrial lines of work required for manufacturing our products.

Distributed over four sites, covering a total surface of 55000 m² the industrial activities take place in different workshops. Each workshop houses specialised production lines, with functions and equipment for specific production, dedicated to:

- Sheet-steel metalwork.
- Stainless-steel metalwork.
- Injection and extrusion of plastics.
- Hot press-moulding of SMC polyester.
- Logistics.

> Quality Assurance to meet customer needs

Our Total Quality approach covers all the stages of product design, manufacturing, ordering and delivery. We take our customers' needs as the focus point of our entire process, from new product development to product delivery from our logistics centres.

This quality is reflected in the ISO 9001 certifications for design, manufacturing and distribution of products and by the ISO 14001 certification for environmental protection.



ISO 9001 &
ISO 14001
Certified



Schneider Electric Universal Enclosures

Our ranges, solutions for each application

> Spacial

Metal enclosures and boxes

From our small boxes to large suitable floor-standing enclosures, with the Spacial range you can find the perfect fit for your applications. Our extensive range of easy-to-use accessories helps you save time during your projects.

Select between steel or stainless steel to better suit the installation environment. In our stainless-steel offer you can find the optimal solution where cleanliness is required, or for highly corrosive environments.



> Thalassa

Insulating enclosures

Working in harsh environments can, without the right protection, expose your installation to chemical or aggressive substances. Developed to efficiently protect it; our Thalassa offer, from boxes to floor-standing enclosures, made in fibreglass-reinforced polyester, resists in hard conditions and outdoor applications.

Our Thalassa industrial boxes in ABS or polycarbonate are strong, easy to install and designed to be used in highly demanding environments.



> ClimaSys

Thermal management

Preserving and keeping the right temperature inside your enclosure is vital for maximising the lifetime of your installed devices. With our Climasys offer you can find the right solution, be it Ventilation, Cooling or Heating, including control units for temperature, humidity and much more.



> CaSys

Networking and server applications

A complete range for cabling local networks designed to support every networking and server application. From boxes in small dimensions up to large racks for the industrial market, we have the right solution and size, including enclosure kits helping you to install it in reduced spaces such as server rooms.



This catalogue presents a selected offer from the above ranges.

Industry and Infrastructure Offer

A material for every environment

> Steel

Indoor non-clean industrial environment

The industrial environment in mechanical plants is especially demanding as regards the protection of electric and electronic components against dust, splashing with oil and impacts. This environment therefore requires a range that is suited to the applications and easy to implement.

- **Universal range**, for industry.
- **E.M.C. range**, against electromagnetic disturbances (treated with Aluzinc).
- **Range of ATEX enclosures**, for potentially explosive atmospheres.



> Solution:

The Spacial range in steel (wall-mounting, monobloc and suitable floor-standing enclosures).

> 304L - 316L stainless steel.

Demanding industrial environment

Food and beverage, pharmaceutical, petrochemical and infrastructure industries are particularly demanding in terms of hygiene and resistance to corrosion. With two grades of stainless steel:

- **304L stainless steel:**
Resistance to corrosion and cleanability (often used in food production environments).
- **316L stainless steel, also known as "marine stainless steel":**
Very high resistance to corrosion (saline or chlorinated environment).
- **Range of ATEX enclosures**, for potentially explosive atmospheres.



> Solution:

The Spacial range in stainless steel (wall-mounting, monobloc and suitable floor-standing enclosures).

> Insulating glass-fiber reinforced polyester and plastic materials (ABS, polycarbonate)

Severe infrastructures and industrial environments

Outdoor infrastructures and electrical installations are exposed to direct sunlight, rain, saline mist, extreme temperatures, oil splashes, chemical and corrosive agents, and are in contact with the public.

- **Universal range**, for industry.
- **Range of ATEX enclosures**, for potentially explosive atmospheres.



> Solution:

The Thalassa range (boxes, wall-mounting and floor-standing enclosures).

This catalogue presents a selected offer from the above ranges.

Spacial Steel

Boxes

From 74 x 74 mm
To 500 x 300 mm



S44 Industrial boxes IP 66
S57 Screw fixed cover boxes IP 66
S24 Safety boxes IP 55
SDB Derivation boxes

Wall-mounting enclosures

From 300 x 200 mm
To 1200 x 1000 mm



CRN Wall-mounting steel

- S3DB Terminal enclosures
- S3DBFL Terminal enclosures with FL21 cut-out
- S3DM Distribution modular enclosures
- VDM 19" enclosures
- S3DEX Potentially explosive atmospheres
- S3HF Electromagnetic compatibility
- S3CM Human-machine dialogue

Floor-standing enclosures

From 500 x 500 mm
To 2200 x 1600 mm



SM Floor-standing compact

SF Floor-standing suitable

- Compartmentalised application
- PC rack
- Electronic application
- Power distribution
- Prisma Plus application
- Automobile application

Control desks

From 1000 x 600 mm
To 1400 x 1600 mm



SD Control desk

SDF With console and desk

ClimaSys

Thermal management



CV-CA
Ventilation/Airing



CE Exchangers



CU Cooling Units

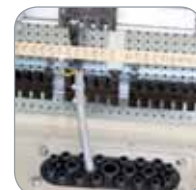
Accessories



Mounting



Power distribution



Cable management

This catalogue presents a selected offer from the above panorama.

Spacial Stainless-steel

Thalassa Insulating materials

- PLS** Insulating modular boxes
- TBP** Polycarbonate industrial boxes
- TBS** ABS industrial boxes



S3X Wall-mounting
S3XEX Potentially explosive atmospheres



PLM Wall-mounting polyester
PLMEX Potentially explosive atmospheres



SMX Floor-standing monobloc
• PC Rack
SFX Floor-standing suitable



PLA Floor-standing polyester enclosures
PLD Floor-standing DIN polyester enclosures



SDX Control desk



CR Resistance Heaters



CC Thermal Control



ProClima 5.0 Thermal software



Lighting & sockets



Door accessories



Earthing

This catalogue presents a selected offer from the above panorama.

Selection tools



> www.schneider-electric.com

Our international site allows you to access all the Schneider Electric products in just two clicks with direct links to:

- A complete library of technical documents, catalogues, FAQs brochures, etc.
- Certificates.
- 2D & 3D drawings.
- Selection Guides from the e-catalogue.
- Product discovery sites.



You may also find illustrated overviews, news to which you can subscribe, a list of country contacts and more useful information.

Our software suite

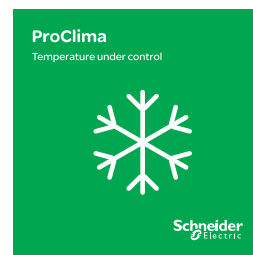
> Spacial.pro

Spacial.pro allows you to make switchboard proposals based on the standard Spacial offer. A full project with several sets of switchboards is quoted in minutes, with automatic creation of the Bill of Material and 2D drawings for front/side views.



> ProClima

Calculate the right choice for your thermal management requirements, according to the environment and the electrical/electronic devices installed inside the enclosure.



> Spacial.ref Thalassa.ref

These digital rules allow you to select the best components from the current extensive product range without the risk of any mistakes, since product and accessory selection take place automatically, saving you time and money.



The key points for defining your enclosure

Environment		Pages
Indoor or outdoor use?		6/5
Type of atmosphere: normal, salt mist, corrosive (which products?).		6/5
Is a canopy required? (Y/N).		2/21, 3/21
Type of material desired (Steel / Stainless steel / Polyester / Thermoplastic).		2/2
Technical Definition		
IP ____ IK ____		6/4
Height (H) × Width (W) × Depth (D)		1/4, 2/4, 3/4
Installation: on the wall by fixing lugs, or on a post or on the floor.		2/19, 2/20, 3/16
DOOR / COVER		
Transparent (glazed door, window, etc.) – choice of window.		2/4, 3/4, 4/14
Type of lock (to be specified).		2/22-2/24, 3/23
Electrical continuity by earthing leads (to be specified).		4/16
Cable-management accessories on the door.		4/12
Maintenance accessories (door retainer, door switch, etc.).		3/22, 4/15
BODY		
Cable entry (cable-gland plate).		2/18, 3/19
Cable entry (cable gland) and cable support.		4/12
MOUNTING		
Mounting plate type (plain/micro-perforated/aluminium uprights) or Modular chassis.		4/2-4/6, 4/10
Step slide for depth adjustment of mounting plate.		4/4
Cross rails (universal, quick or heavy load) to creat fixing at any point inside a floor standing-enclosure.		4/8
THERMAL		
Ventilation grilles, forced ventilation, resistance heater, thermostat.		5/1
LOGISTICS AND HANDLING		
Eyebolts.		3/20
Delivery location, delivery method, unloading method		



1

Industrial boxes

Thalassa TBS - TBP Insulating industrial boxes



Thalassa TBP: Industrial boxes in polycarbonate (UL)

1/2

Thalassa TBS: Industrial boxes in ABS

Selection guide and dimensions

1/4

Accessories

1/5

Your industrial boxes IP 66, IK 07 and IK 08, ideal in any conditions!

1

Easy to install
3 methods of fixing the box to its support

Easy to use
Only one tool is required: a flat screwdriver

Smart
Fixing studs on the cover that all have the same diameter. Only one type of screw is used

Sealed
IP 66 for all the ranges

Robustness
Up to IK 08

Light and resistant
Boxes weighing only some dozens of grams can withstand impacts of several kilograms

Safe
Type II protection against electric shocks

Aesthetics
Rounded design intended to maximise robustness and sealing

Modular
Simple and logical range of widths, heights and depths

Multifunction
Wide range of options for cable entries and internal equipment



Thermoplastic industrial boxes

Introduction



General features

- Large range of dimensions (H, W, D).
- Locks from box size of 116 × 116 × 62 mm:
 - Cover locking by 4 plastic captive screws with coarse thread outside the sealed area.
 - Plumbable lock.
- Locks from box size of 138 × 93 × 72 mm:
- The 4 “legs” of the cover ensure its robustness and perfect support during customisation operations.
- Adaptable hinges on all the 20-mm covers (page 1/5).

Materials

- ABS boxes:
 - IK 07 (2J) according to IEC 62262.
 - Glow wire resistance: 650 °C according to IEC 60695-2-11.
 - Usage temperature: –25 °C...+60 °C.
 - Installation temperature: –15 °C...+40 °C.
- Polycarbonate boxes:
 - IK 08 (5J) according to IEC 62262.
 - Glow wire resistance: 960 °C.
 - Usage temperature: –25 °C...+80 °C.
 - Installation temperature: –15 °C...+60 °C.
 - Certified according to UL 508A.
 - Self-extinguishing according to UL 94 V0.

Fixing the box

- Outside the sealed sensitive volume by the 4 chimneys in the corners from box size of 138 × 93 × 72 mm.
- Through the rear of the box by 2 or 4 elongated holes to be perforated.
- With fixing lugs (ref. **NSYAEFTB**).

Equipment installation

- Studs for fixing the equipment in the body and the cover of the box by means of a Ø 4-mm self-tapping screw (ref. **NSYAMFSTB**, screw Ø 4 × 10 mm with Pozidriv and slotted head).
- Option of installing rails, plates (page 1/7) or other types of supports (card, etc.).

Technical features

- IP 66 according to IEC 60529.
- NEMA 4.4X according to Nema 250.
- Class II according to IEC 61140.
- Colour:
 - Body: RAL 7035 grey.
 - Cover: RAL 7035 grey.
- Insulating, halogen-free plastic materials.
- Resistance to chemical and atmospheric agents: see technical appendices.

Thermal dissipation

- Use a suitable calculation method according to IEC 60890.
- Anti-condensation valves available as an accessory, prevent the build-up of moisture inside the box.

Certifications

- IEC 62208 certified by TÜV.
- SEMKO, DEMKO.
- UL: polycarbonate range.
- Product Environmental Profile.

Choose the material according to the environment

- ABS for conventional applications (IK 07) with the usual constraints.
- Polycarbonate for enhanced impact resistance and for outdoor applications or applications directly exposed to UV.
- Polycarbonate certified UL.



ABS or polycarbonate boxes with low cover

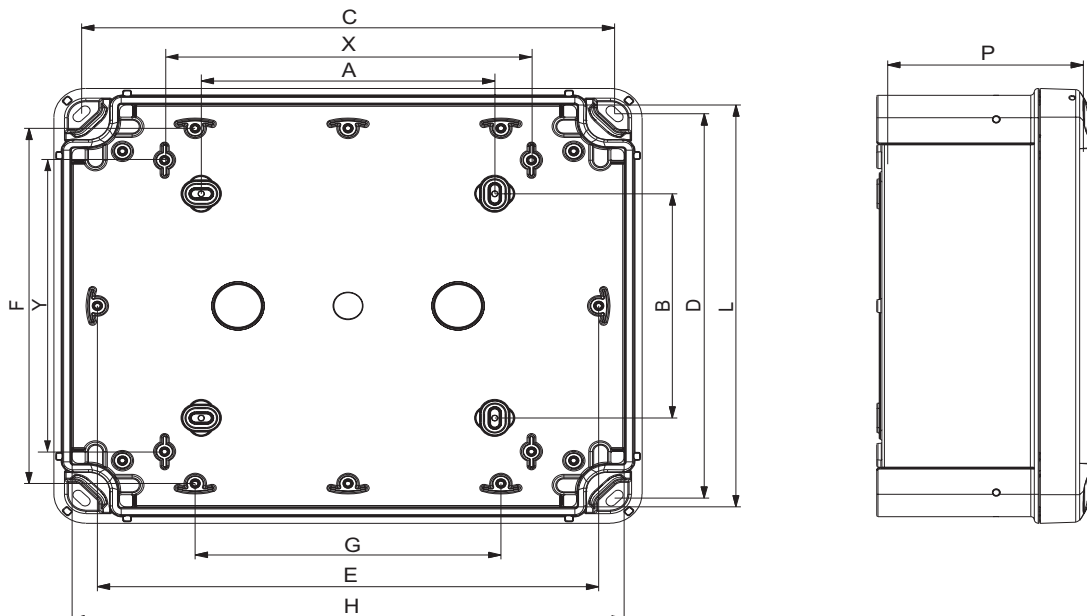
- IP 66 - NEMA 4.4X.
- IK 07 (ABS) - IK 08 (PC).
- RAL 7035 grey.
- Boxes 54 to 128 mm deep with 10- to 20-mm covers.
- Opaque cover.
- Hinges: as accessories and only for the 20-mm covers.

Overall external dimensions (mm)			Overall internal dimensions (mm)			Body (mm)	Cover (mm)	Minor pack.	Cover screw	ABS boxes IP 66 - IK 07	PC-UL boxes IP 66 - IK 08
Height	Width	Depth	Height	Width	Depth						
116	116	62	105	105	55	45	10	5	Plastic	NSYTBS11116	NSYTBP11116
164	121	87	150	105	80	60	20	2	Plastic	NSYTBS16128	NSYTBP16128
192	121	87	175	105	80	60	20	2	Plastic	NSYTBS19128	NSYTBP19128
192	164	87	175	150	80	60	20	1	Plastic	NSYTBS19168	NSYTBP19168
241	194	87	225	175	80	60	20	1	Plastic	NSYTBS24198	NSYTBP24198
291	241	128	275	225	120	100	20	1	Plastic	NSYTBS292412	NSYTBP292412
341	291	128	325	275	120	100	20	1	Plastic	NSYTBS342912	NSYTBP342912

For box dimensions 125 × 80 × 65 to 325 × 275 × 160 (internal dimensions)

Internal dimensions (mm)			Fixing of the box (mm) (marking on the outside)				Fixing of accessories (mm) (marking on the inside)					Box reference base	
H	L	P	A	B	C	D	E	F	G	X	Y		
105	105	55	50	-	-	-	87	87	-	-	-	NSYTBS11116	NSYTBP11116
150	105	80	50	-	141	98	130	87	-	95	-	NSYTBS16128	NSYTBP16128
175	105	80	100	-	170	98	158.5	87	-	136	-	NSYTBS19128	NSYTBP19128
175	150	80	100	100	170	141	158.5	130	-	136	65	NSYTBS19168	NSYTBP19168
225	175	80	120	100	218	171.5	205	158.5	125	150	130	NSYTBS24198	NSYTBP24198
275	225	120	200	120	268.5	218.5	255	205	125	221	161	NSYTBS292412	NSYTBP292412
325	275	120	200	200	319	269	305	255	125	250	210	NSYTBS342912	NSYTBP342912

H: Height
L: Width
P: Depth



Composition accessories

Cover accessories

1



Set of 2 hinges

- These hinges maintain IP 66.
- The hinges can be adapted to all covers.
- The hinge allows the lid to open fully to 200°.
- Maximum admissible load on the hinged cover 10 kg / m².
- The hinges (2 per set) are delivered with the fixings and instructions required for installation.

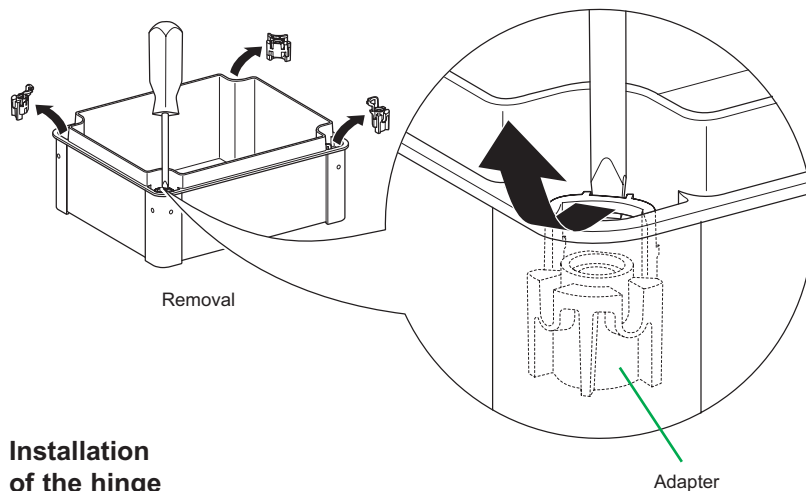
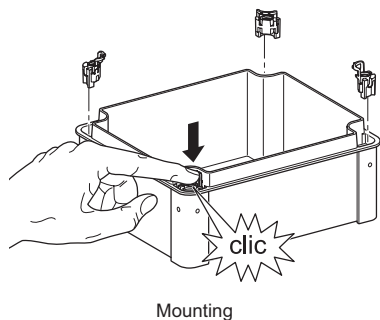
Name	Minor pack.	Height of the lid (mm)
		20
Set of 2 hinges	1	NSYAEDH20TB

Practical

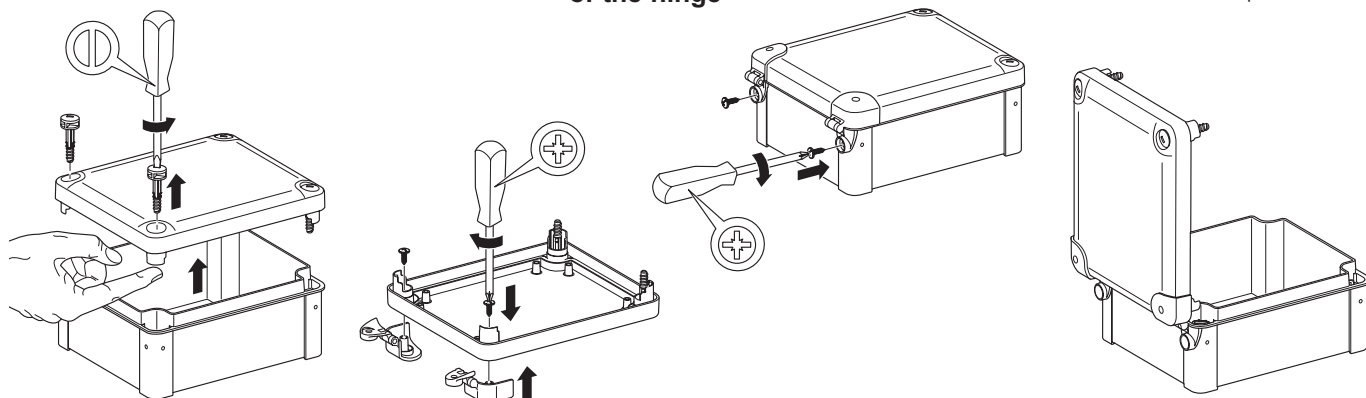
- The hinge allows an opening angle > 200°.
- The hinge does not require any machining and is installed easily even with the box already equipped.



Use of cover adapter clips



Installation of the hinge



Composition accessories

Fixing accessories. Natural ventilation

1

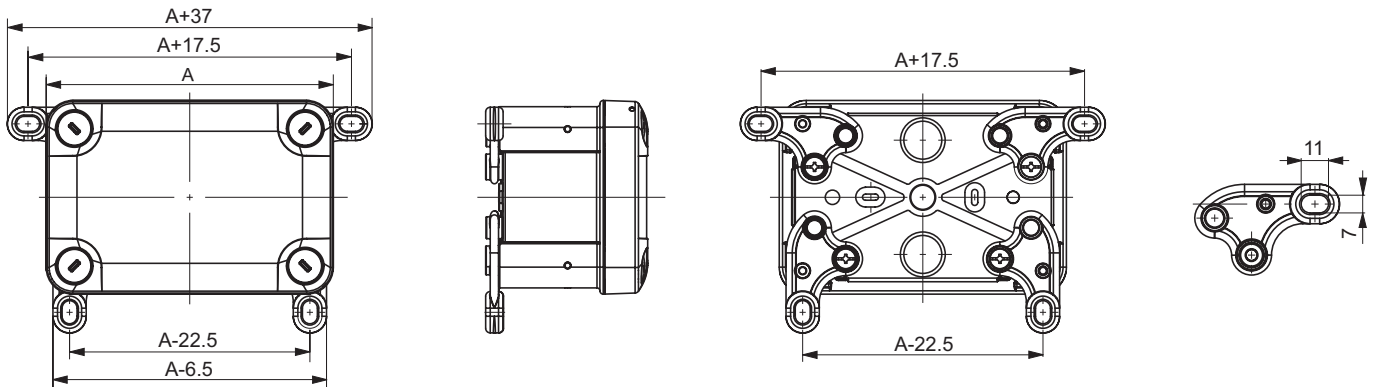


Set of four fixing lugs

- They maintain IP 66.
- Option of vertical or horizontal installation.
- Kit made up of 4 legs + screws.
- Installation by a single screw at the last moment, with the box closed and equipped.
- Loading capacity on the body: 30 kg/m², on the cover: 10 kg/m².

Description	Minor pack.	Reference
Set of 4 fixing lugs	1	NSYAEFTB

Fixing lugs (internal dimensions)



Sealed anti-condensation valve

- Controls the pressure to avoid condensation following an internal temperature increase.
- Maintains IP 68.
- Material: PA6-V2, acrylic co-polymer membrane, water and oil repellent.
- Usage temperature: -40...+105 °C.

Drill Ø	Permeability (1)	Pressure difference (2)	Minor pack.	Reference
M12	16 litres/h	ΔP < 1 bar	10	NSYCAG12LPH1

(1) Air flow under ΔP = 0.7 bar.
 (2) Condition for IP 68.

Applications

- Protection of equipment for luminaires, industrial control, transportation, pumps, etc.

Mounting accessories

Installation accessories

1

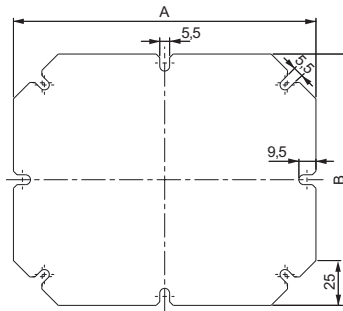


Galvanised-steel plate.

Mounting plates

- Mounting plates made from galvanised-steel (thickness: 1.5 mm). Plates supplied without screws.
- Fixing by means of \varnothing 4-mm self-tapping screws, Pozidrive and slotted head, ref. **NSYAMFSTB**.

Box (mm)		Mounting plate			Minor pack.
Height	Width	Steel	Dimensions (mm)		
			A	B	
192	164	NSYAMP1916TB	168.5	140	1
241	194	NSYAMP2419TB	215	168.5	1
291	241	NSYAMP2924TB	265	215	1
341	291	NSYAMP3429TB	315	265	1
Pack of 100 screws \varnothing 4 × 10 mm		NSYAMFSTB	-	-	1



Box with two
35 × 7.5-mm rails

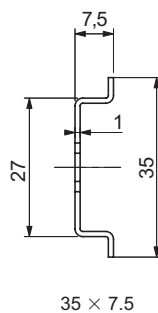
Rails

Smart

- A 15 × 5-mm rail is provided for the compact terminal blocks.
- To raise the rail, use stand-offs ref. **NSYAMFET154TB**, **NSYAMFET204TB**, **NSYAMFET304TB** and the screw **NSYAMFESTB**.

Rails

- Symmetric DIN rails (35 × 7.5 mm). Supplied without screws.
- Fixing of the rails with \varnothing 4-mm self-tapping screws, (not included), Pozidrive and slotted head, ref. **NSYAMFSTB**.



35 × 7.5



35 × 7.5 mm

For boxes with height or width		
(mm)	Ref.	Minor pack.
105	NSYAMRD11357TB	10
150	NSYAMRD16357TB	10
175	NSYAMRD19357TB	10
225	NSYAMRD24357TB	10
275	NSYAMRD29357TB	10
325	NSYAMRD34357TB	10

2

Wall-mounting enclosures

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Steel

Spacial CRN Steel wall-mounting enclosures	2/6
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Stainless-steel

Spacial S3X Stainless-steel wall-mounting enclosures	2/9
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Dimensions	2/11
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Insulating

Thalassa PLM Wall-mounting enclosures in polyester	2/12
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Dimensions	2/15
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Accessories	2/16
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Wall-mounting enclosures

2

> Mounting & cabling systems

for setting devices and managing cabling

> Thermal management

for controlling the internal temperature & hygrometry of the enclosure

Spacial CRN

Steel enclosures



3 Material Solutions

Steel

Stainles-steel

Plastic Polyester

Time saving & easy to equip

...with integrated cable-gland plate and direct installation of the mounting plate.

Spacial CRN is designed to protect your equipment in any indoor installation with a **harsh & dirty environment**, such as:

- > Machines
- > Manufacturing plants
- > Logistics centers, etc

Whatever the installation environment you can select the material according to your needs: Steel, Stainless-steel or Polyester. Our enclosures share the same sizes and most of the mounting, cabling and installation accessories... To make your selection easier and your mounting safer!



Machines



Industry

+ Simple to choose,
simple to order
and simple to use!

Spacial S3X

Stainless-steel enclosures



Durable & hygienic

...using highly corrosion-resistant material with a perfect finishing, to reduce the risk of contamination.

Spacial S3X is commonly used in:

- > **Food & Beverage** and **pharmaceutical industries**, where the ability to clean hard water is required to prevent the growth of bacteria.
- > The **Oil & Gas** industries, for its chemical resistance.



Food & Beverage



Oil and Gas

Thalassa PLM

Polyester enclosures



Safety & low maintenance

...thanks to its long-lasting and completely insulated material construction (Class II).

Thalassa PLM offers excellent performance in:

- > **Outdoor applications**, such as road & train infrastructures, airports, harbors; including saline environments.
- > A good choice for harsh environments with **acid or alkaline exposure** where non-corrosive materials are required.



Desalination



Airport




Wall-mounting enclosure Selection guide










2



Dimensions			Spacial CRN steel enclosure without mounting plate		Spacial S3X stainless steel 304L without mounting plate	Thalassa PLM polyester enclosures without mounting plate		● ● ●	● ● ●	● ● ●	
H	W	D	With plain door	With glazed door	With plain door	With plain door	With glazed door	Plain Metal Mounting plate	Microperforated Mounting plate	Aluminum upright*	
250	200	150	NSYCRN252150	-	-	-	-	NSYMM2520	-	-	
300	250	150	NSYCRN325150	-	NSYS3X302515	NSYPLM3025	-	NSYMM3025	-	NSYMDVR3	
300	250	200	NSYCRN325200	-	-	-	-	NSYMM3025	-	NSYMDVR3	
300	300	150	NSYCRN33150	-	NSYS3X3315	-	-	NSYMM33	NSYMF33	NSYMDVR3	
400	300	150	NSYCRN43150	-	NSYS3X4315	-	-	NSYMM43	NSYMF43	NSYMDVR4	
400	300	200	NSYCRN43200	-	NSYS3X4320	NSYPLM43	-	NSYMM43	NSYMF43	NSYMDVR4	
400	400	200	NSYCRN44200	-	NSYS3X4420	-	-	NSYMM44	NSYMF44	NSYMDVR4	
500	400	150	NSYCRN54150	-	-	-	-	NSYMM54	NSYMF54	NSYMDVR5	
500	400	200	NSYCRN54200	-	NSYS3X5420	NSYPLM54	-	NSYMM54	NSYMF54	NSYMDVR5	
600	400	200	NSYCRN64200	-	NSYS3X6420	-	-	NSYMM64	NSYMF64	NSYMDVR6	
600	400	250	NSYCRN64250	NSYCRN64250T	-	NSYPLM64	NSYPLM64T	NSYMM64	NSYMF64	NSYMDVR6	
600	500	200	NSYCRN65200	-	-	-	-	NSYMM65	NSYMF65	NSYMDVR6	
600	600	250	NSYCRN66250	-	NSYS3X6625	-	-	NSYMM66	NSYMF66	NSYMDVR6	
700	500	200	NSYCRN75200	-	-	-	-	NSYMM75	NSYMF75	NSYMDVR7	
700	500	250	NSYCRN75250	NSYCRN75250T	NSYS3X7525	-	-	NSYMM75	NSYMF75	NSYMDVR7	
700	500	300	-	-	-	NSYPLM75	NSYPLM75T	NSYMM75	NSYMF75	NSYMDVR7	
800	600	200	NSYCRN86200	-	-	-	-	NSYMM86	NSYMF86	NSYMDVR8	
800	600	250	NSYCRN86250	-	NSYS3X8625	-	-	NSYMM86	NSYMF86	NSYMDVR8	
800	600	300	NSYCRN86300	NSYCRN86300T	-	NSYPLM86	NSYPLM86T	NSYMM86	NSYMF86	NSYMDVR8	
800	800	300	NSYCRN88300	-	NSYS3X8830	-	-	NSYMM88	NSYMF88	NSYMDVR8	
1000	800	250	NSYCRN108250	-	-	-	-	NSYMM108	NSYMF108	NSYMDVR10	
1000	800	300	NSYCRN108300	NSYCRN108300T	NSYS3X10830	-	-	NSYMM108	NSYMF108	NSYMDVR10	
1000	800	350	-	-	-	NSYPLM108	NSYPLM108T	NSYMM108	NSYMF108	NSYMDVR10	


*NSYAMCSF needed for mounting the Aluminium uprights.


Wall fixing lugs (x4)		
	Steel	NSYPFCR
	Stainless steel	NSYPFCX
	Polyester	NSYPFPLM


Fixing		
	M6 nut for PLM direct fixing	NSYTCSPML
	Self tapping screw for microperforated mounting plate	NSYS13M5HS
	Hexagonal screw M6 x 12 for alum. Upright	NSYS12M6H
	Hexagonal screw M6 x 16 for alum. Upright	NSYS16M6H
	Hexagonal screw M6 x 18 for alum. Upright	NSYS18M6H
	M6 Nut for alum. upright	NSYNM6

Door accessories		
	Door cable trunking support for Ø 22 mm (x10) devices	NSYSPCP
	Plastic document pocket A4, d = 20mm	NSYDPA4
	Plastic document pocket A4, d = 40mm	NSYDPA44
	Plastic window 248 x 235 x 13	NSYVA2736M
	Plastic window 78 x 95 x 15	NSYVA274M

Lighting		
	Neon light Magnetic or mechanic fixing	NSYLAC75
	Door contact CRN/S3X	NSYINLCRN

FL21 Cable entry plates		
	7 entries plate	NSYAECPFLT7
	25 entries plate	NSYAECPFLT25
	35 entries plate	NSYAECPFLT35

IP67 Cable entries		
	M12	IMT36179
	M16	IMT36180
	M20	IMT36181
	M25	IMT36182
	M32	IMT36183
	M40	IMT36184
M50	IMT36185	

Drainage of condensation water		
	Water evacuation PLM device	NSYVEA9

Wall-mounting enclosure Selection guide



	Canopy CRN	Canopy S3X	Adjustment bracket CRN/S3X	Adjustment bracket PLM	Post fixing CRN/S3X	Post fixing PLM	Modular chassis	Gland plate CRN	FL21 Gland plate CRN
	-	-	-	-	-	-	-	NSYTLCRNO	-
NSYTJ2515	-	NSYTX2515	-	-	-	-	-	NSYTLCRNA	-
-	-	-	NSYSDCR200	-	-	-	-	NSYTLCRNB	-
NSYTJ3015	-	NSYTX3015	-	-	NSYSFPSC300	-	-	NSYTLCRNC	NSYTFL21CRNC
NSYTJ3015	-	NSYTX3015	-	-	NSYSFPSC300	-	-	NSYTLCRNB	-
NSYTJ3020	-	NSYTX3020	NSYSDCR200	NSYSDPLM200	NSYSFPSC300	NSYSFP300	-	NSYTLCRNC	NSYTFL21CRNC
NSYTJ4020	-	NSYTX4020	NSYSDCR200	-	NSYSFPSC400	-	-	NSYTLCRNB	-
-	-	-	-	-	NSYSFPSC400	-	-	NSYTLCRNC	NSYTFL21CRNC
NSYTJ4020	-	NSYTX4020	NSYSDCR200	NSYSDPLM200	NSYSFPSC400	NSYSFP400	-	NSYTLCRNB	-
NSYTJ4020	-	NSYTX4020	NSYSDCR200	-	NSYSFPSC400	-	-	NSYTLCRNC	NSYTFL21CRNC
NSYTJ4025	-	-	NSYSDCR250	NSYSDPLM250	NSYSFPSC400	NSYSFP400	NSYDLA48P	NSYTLCRNB	-
-	-	-	NSYSDCR200	-	NSYSFPSC500	-	-	NSYTLCRNC	NSYTFL21CRNC
NSYTJ6025	-	NSYTX6025	NSYSDCR250	-	NSYSFPSC600	-	-	NSYTLCRND	NSYTFL21CRND
-	-	-	NSYSDCR200	-	NSYSFPSC500	-	-	NSYTLCRNB	-
NSYTJ5025	-	NSYTX5025	NSYSDCR250	-	NSYSFPSC500	-	NSYDLA88	NSYTLCRNC	NSYTFL21CRNC
-	-	-	-	NSYSDPLM300	-	NSYSFP500	NSYDLA88	NSYTLCRND	NSYTFL21CRND
-	-	NSYSDCR200	-	-	NSYSFPSC600	-	-	NSYTLCRNC	NSYTFL21CRNC
NSYTJ6025	-	NSYTX6025	NSYSDCR250	-	NSYSFPSC600	-	-	NSYTLCRNB	-
NSYTJ6030	-	-	NSYSDCR300	NSYSDPLM300	NSYSFPSC600	NSYSFP600	NSYDLA112	NSYTLCRNC	NSYTFL21CRNC
NSYTJ8030	-	NSYTX8030	NSYSDCR300	-	NSYSFPSC800	-	-	NSYTLCRND	NSYTFL21CRND
-	-	-	NSYSDCR250	-	NSYSFPSC800	-	-	NSYTLCRNC	NSYTFL21CRNC
NSYTJ8030	-	NSYTX8030	NSYSDCR300	-	NSYSFPSC800	-	NSYDLA234	NSYTLCRNB	-
-	-	-	-	NSYSDPLM350	-	-	NSYDLA234	NSYTLCRNC	NSYTFL21CRNC
-	-	-	-	-	-	-	-	-	-

Earthing	
	Earthing lead 160, sec. 6 mm² NSYEL166D8
	Earthing lead L350, sec. 25 mm² NSYEL3525D8
	Earthing strip 87 connection points NSYECB1M153
	2 earthing strip supports NSYEDCOS
	2 earthing strip + rail supports NSYEDCOC

Locks and Inserts	
	for Spacial CRN see page 2/22
	for Spacial S3X see page 2/23
	for Thalassa PLM see page 2/24

Ventilation		
Filter Fans	230V	115V
85 m³/hour; 125 × 125 mm	NSYCVF85M230PF	NSYCVF85M115PF
165 m³/hour; 223 × 223 mm	NSYCVF165M230PF	NSYCVF165M115PF
300 m³/hour; 223 × 223 mm	NSYCVF300M230PF	NSYCVF300M115PF
560 m³/hour; 291 × 291 mm	NSYCVF560M230PF	NSYCVF560M115PF
850 m³/hour; 291 × 291 mm	NSYCVF850M230PF	NSYCVF850M115PF
Outlet grilles	RAL 7035	RAL 7032 cover
Grille 125 × 125 mm	NSYCAG125LPF	NSYCAG125LPC
Grille 223 × 223 mm	NSYCAG223LPF	NSYCAG223LPC
Grille 291 × 291 mm	NSYCAG291LPF	NSYCAG291LPC
IP 55 Protection cover	Alu zinc	Stainless steel
For 125 × 125 mm	NSYCAP125LXF	NSYCAP125LXF
For 223 × 223 mm	NSYCAP223LXF	NSYCAP223LXF
Heating		
Resistance Heaters	110-250V	
20W	NSYCR20WU2	
55W	NSYCR55WU2	
90W	NSYCR100WU2	
Control		
Mechanical	110-250V	
Thermostat (NC contact)	NSYCCOTHC	
Thermostat (NO contact)	NSYCCOTHO	
Electronic	230V	115V
Electronic thermostat	NSYCCOTH230VID	NSYCCOTH120VID
Electronic hygrotherms	NSYCCOHT230VID	NSYCCOHT120VID
Electronic hygrostat	NSYCCOHT230VID	

Spacial CRN wall-mounting steel enclosures suitable for any application

2

Time Lasting

- Industrial welding process.
- Epoxy-polyester painting.
- Foamed-in polyurethane gasket.

All of the above guarantees quality, water and dust tightness for years.

Water and Dust Tightness

Front folded gutter prevents the entry of water, oil or liquids, ensuring IP66 protection.

Safety

For people:

- Two welded M6 × 15 earth studs welded to the back and one M6 × 15 stud on the door.

For your installation:

- Water and dust tightness IP66.
- Ruggedness IK10 to protect your component from external impact
- Hidden hinges to prevent the removal of the door.



Convenient

- Large embedded cable-entry plate with a neoprene seal, flush with the back of the enclosure.
- Direct fixing or using the brackets fixed from outside.

Smart

Welded door-reinforcement profile allowing the fixing of equipment in models from 500 mm high.

Practical

4 welded M8 × 15 back studs shouldered 10 mm for direct installation of mounting plate.

Sealed

Glazed tempered-glass door and fully water and dust tight, maintaining IP 66 and IK 08 protection.



New aesthetics

- Enclosure in light grey RAL 7035
- Black lock to fit all your applications.

Wall-mounting steel enclosures

Introduction



Technical characteristics

- 21 dimensions for this metal monobloc construction suite of enclosures with sides made from a single folded section. Back piece joined to the sides using a special profile forming a protected sealed area. Both externally and internally painted with texturised RAL 7035 grey epoxy-polyester resin.
- Given their strength, metal enclosures are particularly well suited to indoor areas where they may experience impacts.
- Selection guide: Page 2/4.

Description

- IP 66 for one-door enclosures according to IEC 60529.
- IK 10 for plain door according to IEC 62262.
- IK 08 for glazed door according to IEC 62262.

Body

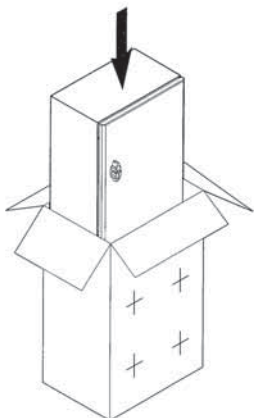
- 4 holes for direct fixing.
- Wall-fixing drill holes sealed with plastic plugs to ensure the degree of protection (supplied as standard).
- Wall-fixing bracket fixed from outside (brackets to be ordered separately).
- Direct cable entry.
- Built-in cable-entry plate, flush with the back of the enclosure (without foamed-in gasket to facilitate machining).
- Insulated cable entries with knock-outs, available as an accessory.
- Easy to equip with 4 welded back studs shouldered 10 mm.

Door

- Monobloc construction with a punched metal door (not welded).
- 3-mm standard double-bar lock as standard. See page 2/22.
- Foamed-in polyurethane gasket on the doors to guarantee water and dust tightness for many years.
- Easily reversible door, fixed with two or three invisible hinges allowing the door to open to 120°.
- Reinforcement on plain doors with perforated door profiles for equipment fixing from models NSYCRN54150.
- Metal hinges - Easily reversible door.
- Welded earth studs on door and body.
- Delivered with a reusable packaging and technical instructions.

Certificates

- Compliance with European enclosure standard 62208.
- UL, CUL.
- NEMA 4 for single-door enclosure according to NEMA 250.
- NEMA 12, 12K and 13 for double-door enclosure according to NEMA 250.
- RoHS compliance.



Delivered in reusable and ecological packaging.
Technical instruction sheet included.

A Enclosure height
 B Enclosure width
 C Enclosure depth

Fig. 1

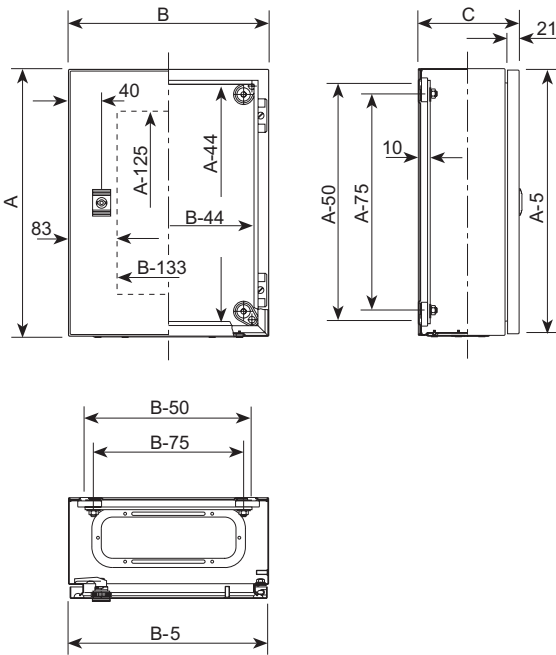
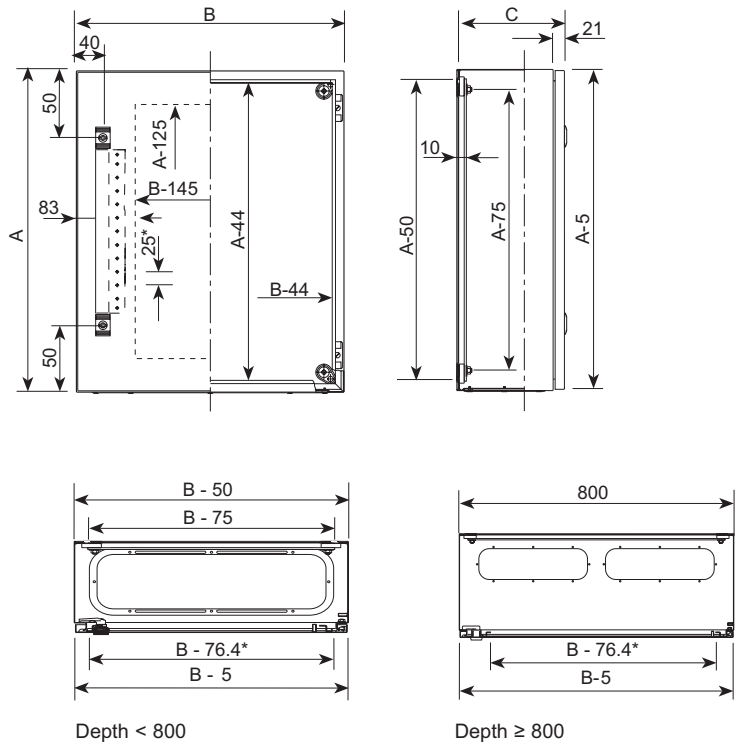
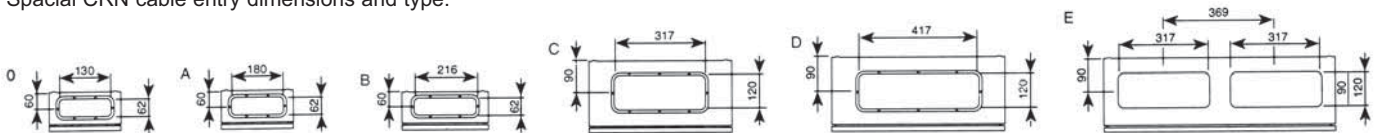


Fig. 2



Spacial CRN cable entry dimensions and type:



None of the T glazed-door enclosures have door-reinforcement profiles.



Our DXF diagrams and technical instruction sheets can be downloaded from our websites.

Stainless-steel wall-mounting enclosures

Convenience and time saving

- Vertical reinforcement perforated profiles, which make it easier to equip the door.
- Reversible door opening to 120°.
- Easy installation directly on the machine thanks to the 4 rear drill holes.
- 304 stainless-steel wall-fixing lugs.

Finishes

- AISI 304L stainless steel, with Scotch Brite® brushed finish.

Compatibility with the other ranges

- Stainless-steel accessories: canopy, wall-fixing lugs.
- Compatible with the accessories of the Spacial CRN offer: mounting plate, modular chassis and step slides.



Robustness and durability

- IK 10 resistance to external mechanical impacts.
- Door reinforcement frame or profile.
- Stainless-steel hinges.

Sealing

- Protection rating of IP 66 (IEC 60529): complete protection against dust and water sprays.
- Polyurethane gasket.
- Gutter-shaped front profile.

304L stainless-steel wall-mounting enclosure

Introduction

Technical features

These enclosures have been specially designed for the chemical, oil and food and beverage industries, among others, which are particularly demanding in terms of hygiene and resistance to corrosion.

- AISI 304L stainless steel, with Scotch-Brite® brushed finish with plain door.
- Protection rating of IP 66 according to IEC 60529.
- Resistance to external mechanical impacts:
 - IK 10.
- Thickness: 1.5 mm.
- Single-piece body (cross-shaped structure). Gutter-shaped front profile.
- Easy to equip with 4 welded back studs shouldered 10 mm.
- 2 cut-out vertical profiles on the door (from a height of 600 mm), with drill holes with a diameter of 4.25 mm and a pitch of 25 mm for installing accessories.
- Door strengthening frame (for a height of 1000 mm), cross-section of 20 mm × 15 mm, with drill holes with a diameter of 5 mm and a pitch of 25 mm.
- Standard lock with 3-mm double-bar lock (chrome-plated zamak).
- 2 locking points for heights of more than 500 mm.
- Stainless-steel hinges screwed to the body of the enclosure. They make it easier to remove and invert the door. Opening angle: 120°.
- Polyurethane gasket.
- M6 × 16 screws on the door and on the body, allowing equipotential connection between the earth connections (on request).
- 4 holes for fixing to the wall directly or with the help of mounting lugs (on request), blocked by sealing plugs.

Certifications

- IEC 62208.
- UL 508A.
- CAN/CSA 22.



Stainless-steel wall-mounting enclosures

Dimensions

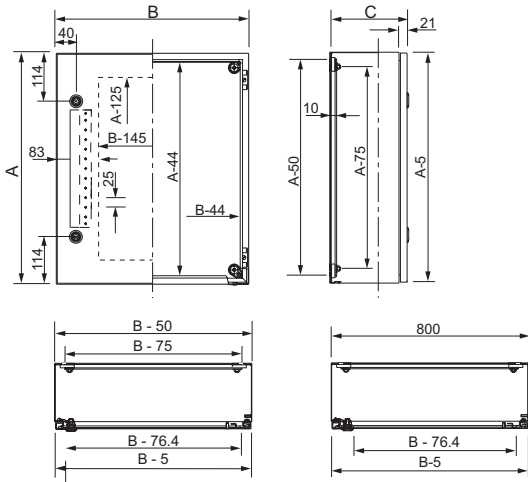


FIG. 2

External dimensions (mm)			Fig.
A	B	C	
300	250	150	1
300	300	150	1
400	300	150	1
400	300	200	1
400	400	200	1
500	400	200	2*
600	400	200	2
600	600	250	2
700	500	250	2
800	600	250	2
800	800	300	2
1000	800	300	3

*Without door reinforcement.

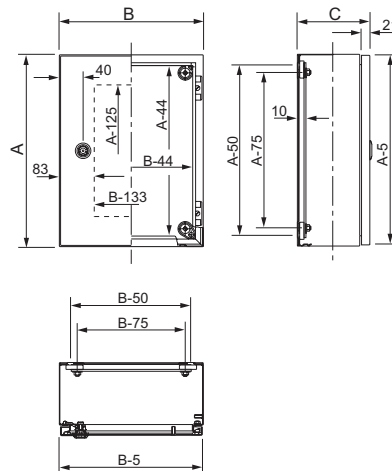


FIG. 1

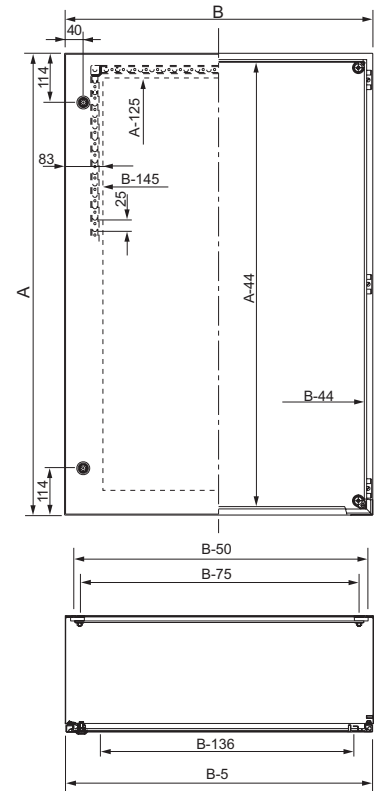


FIG. 3

Polyester wall-mounting enclosures

2

Service life
High resistance to corrosion in harsh environments, maintaining its mechanical properties and insulation.

Protection

- IP 66.
- Polyurethane seal.
- Built-in canopy.
- Lock outside sealed area.

Choice

- 7 sizes.
- Plain or glazed door.

Easy

- Door easily reversible by turning it over.
- Opening to 120° or 180°.
- Easy machining with no corrosion.
- Lightness.



Smart

- Notches for easy fixing of DIN rails.
- Grid pattern on the rear of the door for marking the machining operations.

Customisation

- Configured: machining and accessories.
- Specific: non-standard colour and accessories.

Safety

- Full insulation (to produce class II units).
- Mechanical strength.
- No risk to the public.

Applications

- Industry or infrastructures in harsh environments.
- Indoor or outdoor installation.
- Accessories for modular distribution.

General characteristics of the Thalassa PLM wall-mounting enclosures:

- Indoor or outdoor use.
- 7 sizes of polyester wall-mounting enclosures.
- Monobloc body including the canopies (seal protection), except for wall-mounting enclosure ref. **NSYPLM3025**.
- Doors with polyurethane gasket.
- 2 types of doors.
 - Plain.
 - Glazed.
- Reversible door opening direction by turning the enclosure over.
- Degree of protection IP 66 according to standard IEC 60529.
- Impact resistance IK 10 for the plain doors and surfaces and IK 08 for the glazed doors of the polyester versions, according to standard IEC 62262.
- Many accessories in common with the range of Spacial steel wall-mounting enclosures.

Properties of glass-fiber reinforced polyester

The wall-mounting enclosures are made from polyester reinforced with fibreglass, moulded by hot compression, RAL 7032 colour.

This material:

- Is insulating: several kV per mm.
- Withstands cold and heat in the range of $-50\text{ }^{\circ}\text{C} \dots +150\text{ }^{\circ}\text{C}$.
- Does not soften under intense heat (ball resistance at $+150\text{ }^{\circ}\text{C}$).
- Is self-extinguishing (does not propagate fire): HB40 classification and self-extinguishing in several seconds during the glow-wire test at $960\text{ }^{\circ}\text{C}$ –30 sec.
- Does not contain halogens.
- Releases little smoke and no toxic smoke in the event of combustion.
- Is light.
- Can be machined easily.
- Is corrosion-resistant: no rusting, and can withstand many chemical agents.
- Can resist bad weather.

Characteristics of the production process

The components of the enclosure (body and doors) are moulded by hot compression: the parts have an excellent finish on both sides and can include bosses for accommodating inserts and accessories for mounting or cable-management.

Certificate of conformity with enclosure standard IEC 62208 for:

IP, IK, resistance to heat and fire, insulation 5000 V, resistance to bad weather and corrosion and resistance to internal loads (150 kg/m^2) and loads on the door (30 kg/m^2).

UL certification and NEMA classification 4x and 13 for the polyester wall-mounting enclosures

Total insulation to produce class II units according to IEC 61439-1

Complies with the RoHS directive

Polyester wall-mounting enclosures IP 66

Introduction



Technical characteristics for enclosure size 308 × 255 mm

- Monobloc wall-mounting enclosure made from polyester reinforced with fibreglass, moulded by hot compression, RAL 7032 grey colour.
- Degree of protection IP 66 according to IEC 60529.
- Resistance to external mechanical impacts:
 - Plain door enclosures IK 10 (20 joules) according to IEC 62262.
- Closes with two 3-mm double-bar locks.
- Door opening angle: 120°.
- Fixing of rear accessories on 4 M8 × 18 studs.
- Grid pattern with a pitch of 50 mm on the back of the door.

Technical characteristics for enclosure with height > 400 mm

- Monobloc wall-mounting enclosure made from polyester reinforced with fibreglass, moulded by hot compression, RAL 7032 grey colour.
- Version with transparent tempered-glass door.
- Degree of protection IP 66 according to IEC 60529.
- Resistance to external mechanical impacts:
 - Plain door enclosures IK 10 (20 joules).
 - Glazed door enclosures IK 08 (5 joules) according to IEC 62262.
- Locking device outside the sealed area, guaranteeing the tightness of IP 66 over time.
- Locking system:
 - Enclosure height ≤ 847 mm: 2 locks with double-bar insert.
 - Enclosure height 1056 mm: 1 lock with double-bar insert and 4-point closure.
- Door opening angle: 180°.
- Bosses for accessory-fixing inserts: M6 inside the enclosure, M5 in the door for enclosure heights of 430 and 530 mm, M6 in the door for enclosure heights ≥ 647 mm.
- Fixing of rear accessories on 4 M8 studs, included in the standard supply.
- Direct fixing of horizontal rails, with plastic nuts, ref. **NSYTCSPLM**, to be installed in the notches on the rear of the body, with a pitch of 25 mm.
- Grid pattern with a pitch of 25 mm on the back of the door.



Built-in canopy protecting the door and the sealing gasket.
Two double-bar 3-mm locks outside the sealed zone.

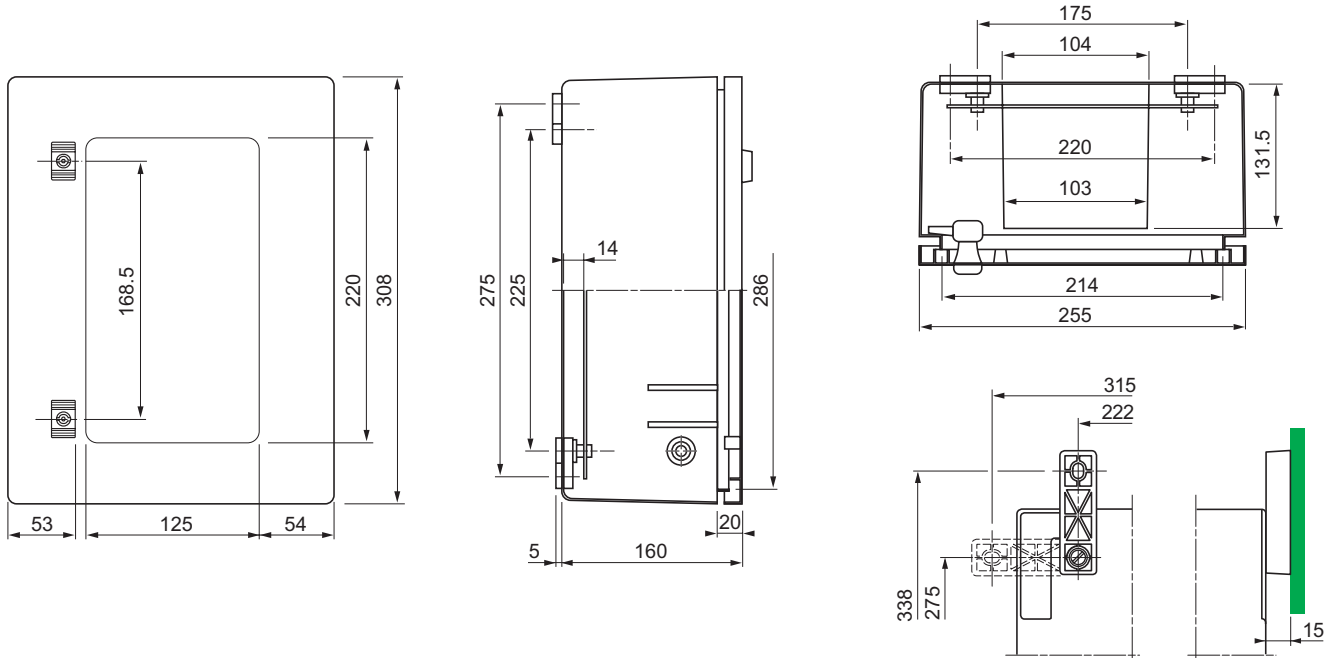


Polyamide hinge pin, easily removable and captive.

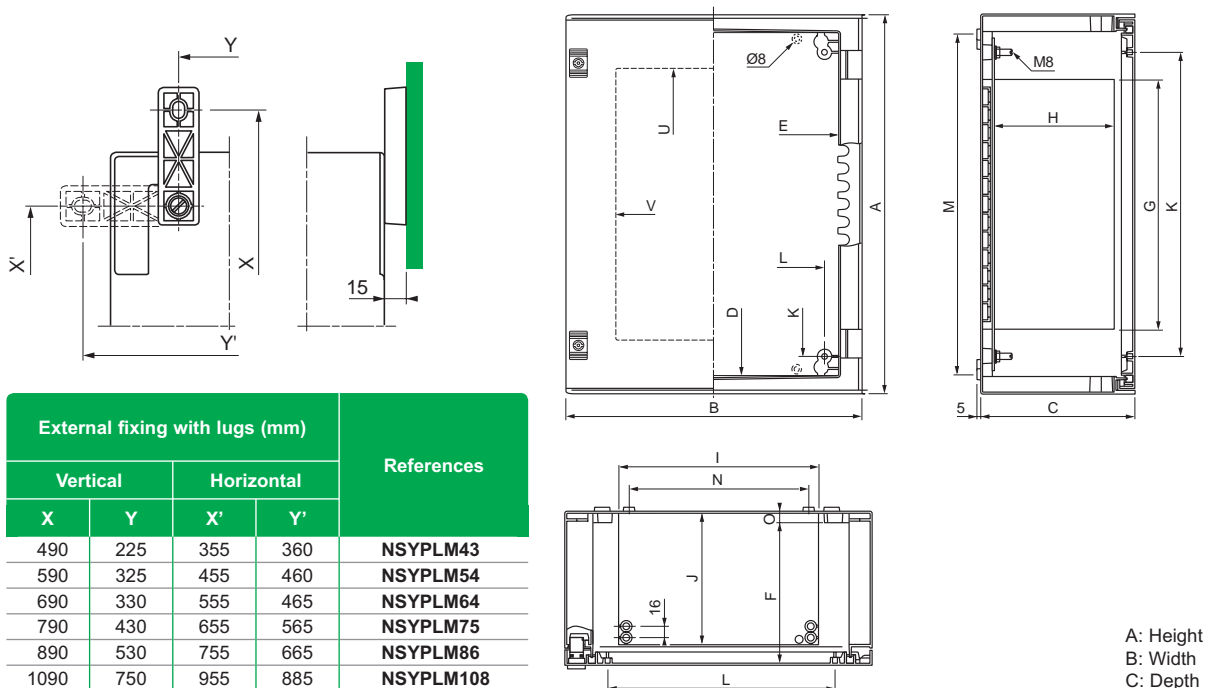
Polyester wall-mounting enclosures IP 66

Dimensions

Dimensions for enclosure size 308 × 255 mm



Dimensions for enclosures with height > 400 mm



External fixing with lugs (mm)				References
Vertical		Horizontal		
X	Y	X'	Y'	
490	225	355	360	NSYPLM43
590	325	455	460	NSYPLM54
690	330	555	465	NSYPLM64
790	430	655	565	NSYPLM75
890	530	755	665	NSYPLM86
1090	750	955	885	NSYPLM108

Dimensions (mm)										Bottom screw and door bosses (mm)		Internal fixing (m)			Glazed door (mm)		References
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	U	V	
430	330	200	380	260	181	247	150	179	168	325	225	375	150	13	-	-	NSYPLM43
530	430	200	480	360	181	347	150	279	168	425	325	475	250	13	-	-	NSYPLM54
647	436	250	580	360	228	388	192	279	212	525	325	575	250	13	473	294	NSYPLM64
747	536	300	680	460	278	487	241	379	261	325	425	675	350	15	573	394	NSYPLM75
847	636	300	780	560	278	587	241	479	261	725	525	775	450	15	673	494	NSYPLM86
1056	852	350	980	760	327	775	280	680	300	925	725	975	650	15	854	661	NSYPLM108

Accessory solutions

A wide range of accessories for your installation

Automatism



Electrical Distribution



Mounting



Thermal management



Completed by our cable-entry and cable-management accessories



> Composition

- 1** Wall fixing
page 2/19
- 2** Floor-standing
(consult for availability)
- 3** Roof
pages 2/21, 3/21
- 4** Viewing, page 4/14
Earthing, page 4/16

> Cable installation and management

- 5** Installation
pages 4/2, 4/6, 4/10
- 6** Cable entries
pages 2/18, 4/13
- 7** Cable management
page 4/12
- 8** Thermal management
page 5/1

Cable management

Cable entries for Spacial CRN

2

Standard cable-gland plate

- Made from steel painted RAL 7035. Included as a standard with the Spacial CRN enclosure.
- Fixing with screws.

The cable-gland plate for Spacial CRN is fixed by screws and guarantees water and dust tightness.

- It is flattened with the body.
- It is delivered with a separate seal: it allows easy cut-outs with no risk of damaging the seal and can be easily repainted.



For enclosure dimensions		To be coupled with entry	References
Width	Depth		
200	150	0	NSYTLCRNO
250	150/200	A	NSYTLCRNA
300	150/300	B	NSYTLCRNB
400/500	150	B	NSYTLCRNB
400	200/250	C	NSYTLCRNC
500/600	200/250/300	D	NSYTLCRND
800	200/250/300	E*	NSYTLCRNC

* Enclosure with 2 entries.

Cable-gland plate with FL21 cut-outs

- Made from steel painted with RAL 7035.
- Fixing with screws.

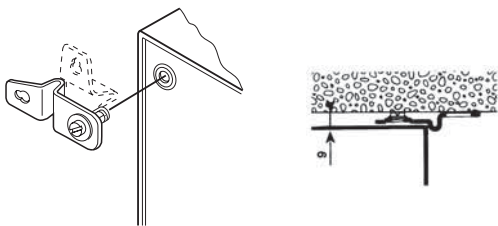


For enclosure dimensions		To be coupled with entry	References
Width	Depth		
400	200/250	C	NSYTF21CRNC
500/600	200/250/300	D	NSYTF21CRND
800	200/250/300	E*	NSYTF21CRNC

* Enclosure with 2 entries

Composition accessories

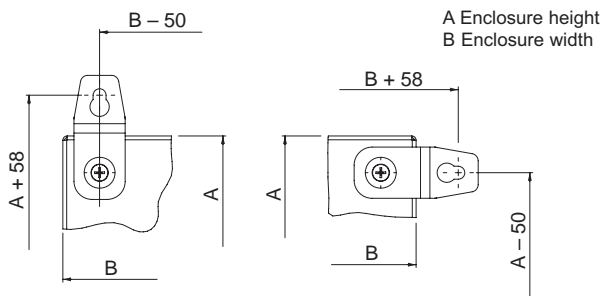
Fixing accessories



Wall-fixing lugs for Spacial CRN enclosures

- Made from passivated zinc-coated steel.
- They are fixed from the outside and can be positioned vertically or horizontally indistinctly.
- Maximum load: horizontally 180 kg vertically 350 kg.
- Not included in the standard supply.

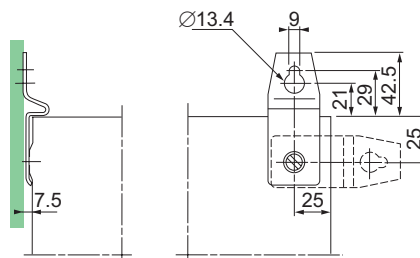
Description	Reference
4 wall-fixing lugs in steel	NSYPFCR



Wall-fixing lugs for Spacial S3X enclosures

- Set of four 304 stainless-steel wall-fixing lugs.
- Mounting of the wall-fixing lugs in horizontal or vertical position.
- Fixing from the outside.
- Maximum load: horizontal 180 kg and vertical 350 kg.

Stainless-steel type	Reference
304	NSYPFCX



Wall-fixing lugs for Thalassa PLM enclosures

- Set of 4 wall-fixing lugs.
- Mounted directly on the enclosure, either in horizontal position or in vertical position.
- Delivered with fixings.
- Acceptable load of 300 kg in vertical position and 100 kg in horizontal position.

Material	References
Polyester	NSYPFPLM

The enclosures can be mounted directly on the walls. The seals and caps supplied as standard with the enclosure guarantee that it maintains its degrees of protection and insulation.

Composition accessories

Fixing accessories

2

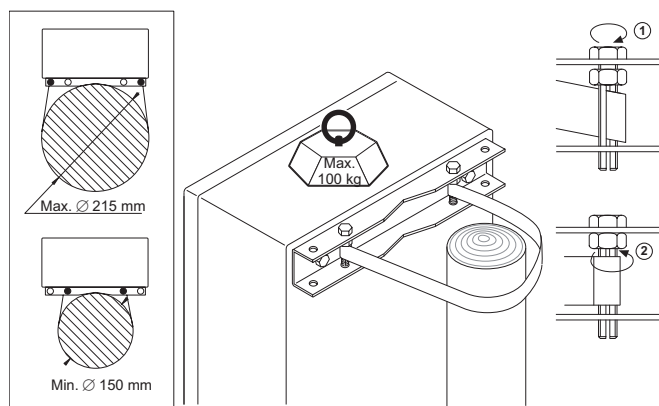
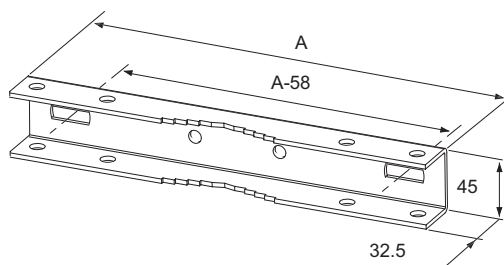


Post-fixing device for Spacial wall-mounting enclosure

For indoor installations on posts with a maximum circumference of 675 mm (minimum diameter 150 mm and maximum diameter 215 mm).

- Material: galvanised steel.
- Rail fixed to the inserts in the rear of the enclosure with 8-mm screws.
- Maximum load: 100 kg.
- They allow the mounting of protection canopies.
- For steel enclosures with widths of 300, 400, 500, 600 and 800 mm.

Description	A (mm)	Reference
Post-fixing for enclosure with W 300 mm	295	NSYSFPSC30
Post-fixing for enclosure with W 400 mm	395	NSYSFPSC40
Post-fixing for enclosure with W 500 mm	495	NSYSFPSC50
Post-fixing for enclosure with W 600 mm	595	NSYSFPSC60
Post-fixing for enclosure with W 800 mm	795	NSYSFPSC80



Post-fixing device for Thalassa PLM enclosures

- For outdoor installations on a post with a maximum circumference of 675 mm, Ø 215 mm.
- Material: galvanised steel.
- Supply of the rail, the strips and the fixings.
Maximum load: 100 kg.

For wall-mounting enclosure	References
NSYPLM43	NSYSFP300
NSYPLM54 and NSYPLM64	NSYSFP400
NSYPLM75	NSYSFP500
NSYPLM86	NSYSFP600

Composition accessories

Hoisting accessories

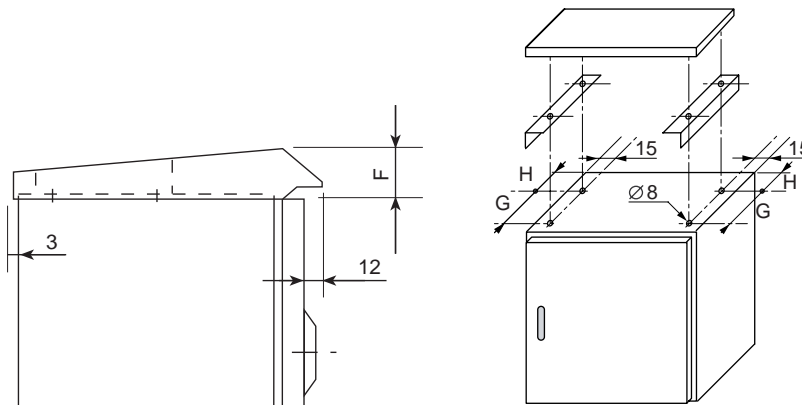


Canopy for Spacial CRN enclosure

Direct fixing to the body of the enclosure by 4 M6 screws.

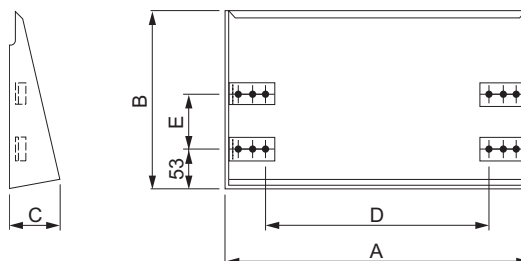
- Material: sheet steel made from painted galvanised steel, structured finish, epoxy-polyester powder, RAL 7035 grey colour.
- Delivered with the fixings required for installation.
- To be used for all outdoor installations.

Enclosures (mm)		Dimensions (mm)			Canopy reference
Width	Depth	F	G	H	
250	150	36	75	23	NSYTJ2515
300	150	36	75	23	NSYTJ3015
300	200	36	130	23	NSYTJ3020
400	200	36	130	23	NSYTJ4020
400	250	42	150	48	NSYTJ4025
500	250	42	150	48	NSYTJ5025
600	250	42	150	48	NSYTJ6025
600	300	42	200	48	NSYTJ6030
800	300	42	200	48	NSYTJ8030



Canopy for Spacial S3X enclosures

- Direct fixing to the body of the enclosure.
- 304L stainless-steel sheet, 1.5 mm thick, Scotch-Brite® brushed finish.
- Delivered with the fixings required for installation.





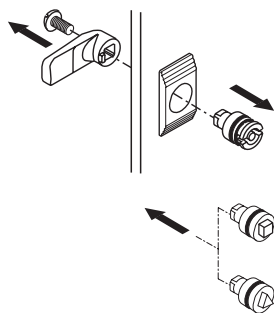
For wall-mounting enclosures (mm)		Dimensions (mm)					Canopy reference
Width	Depth	A	B	C	D	E	
250	150	205	183	51	120	-	NSYTX2515
300	150	305	183	51	220	-	NSYTX3015
300	200	305	233	51	220	70	NSYTX3020
400	200	405	233	70	320	70	NSYTX4020
500	250	505	283	70	420	120	NSYTX5025
600	250	605	283	70	520	120	NSYTX6025
800	300	805	333	70	720	170	NSYTX8030



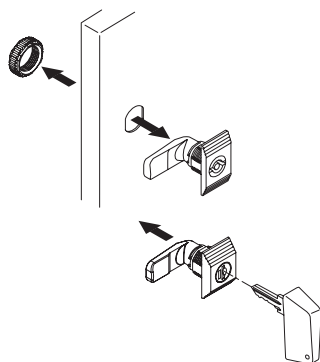
Lock for Spacial CRN enclosure

3-mm Ø standard double-bar lock.
By fixing the wing nut to the lock, the double-bar lock becomes a handle lock.

- Operation using:
 - Wing key 
 - Key (according to DIN 43668) 



Insert change.

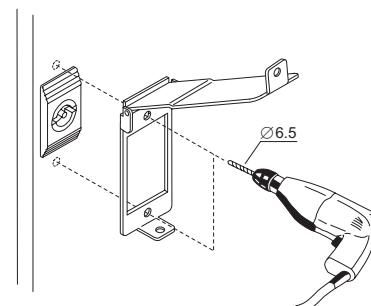


Lock change.

Type of insert	Insert reference
With one □ 7-mm square lock	NSYTC7CRN
*Order the key separately.	
Complete manual handle lock, operated with key 405	NSYCL405CRN
Stainless-steel padlock	NSYKPLM



NSYKPLM. Ø 8 mm.



NSYKPLM padlock assembly.

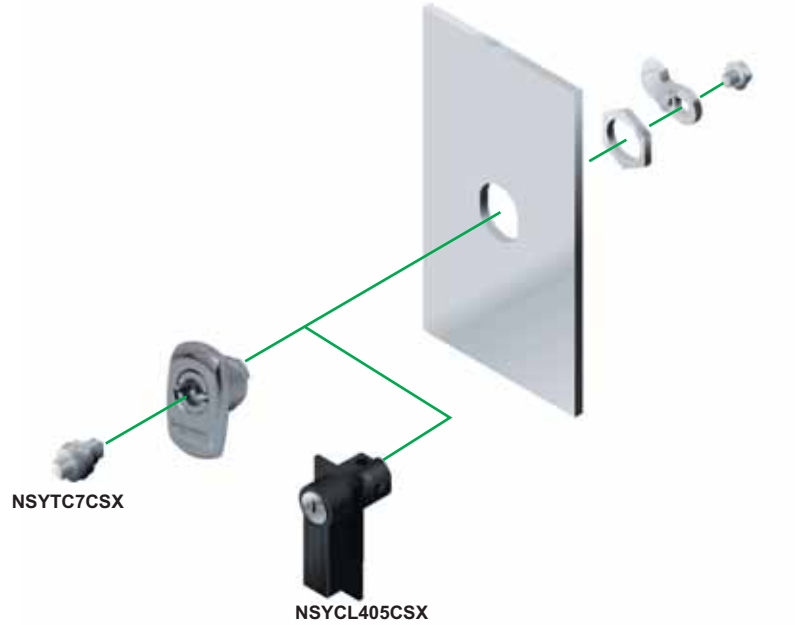
Composition accessories

Locking system

Lock for Spacial S3X enclosure

- 3-mm double-bar chrome-plated zamak lock as standard lock.
- Protection rating: IP 66.

Standard escutcheon
3-mm double-bar lock (standard - chrome-plated zamak)



2

Description	Material	Reference
7-mm square insert	100 % stainless steel	NSYTC7CSX
405 handle lock	Polyamide	NSYCL405CSX

Composition accessories

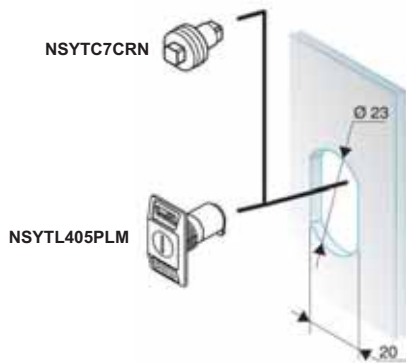
Locking system

Locks for Thalassa PLM enclosures with $H \leq 847$ mm

- The polyester enclosures up to 847 mm high are delivered as standard with.
 - 2 locks with double-bar insert.
- Double-bar insert is placed in a rectangular escutcheon.
- A plastic key, enabling the opening of the double-bar insert, is included in the standard supply. This key can be fixed to the double-bar system to remain on the enclosure and be used as a handle.



2



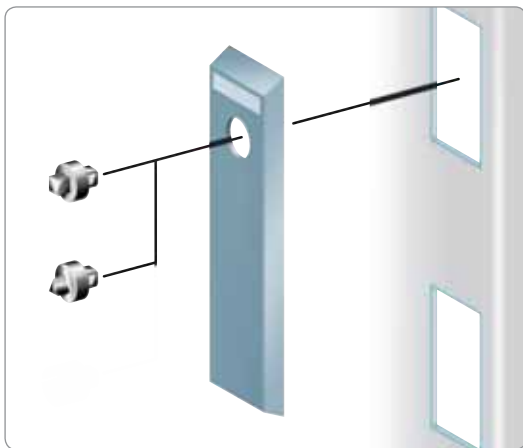
Options to transform the locks with double-bar inserts

- Changing the shape inserts for locks with keys according to the following table:

Name	References
7-mm male square	NSYTC7CRN
Lock and key 405	NSYTL405PLM

Locks for Thalassa PLM enclosures NSYPLM108/T

- Enclosures delivered as standard with 5-mm double-bar insert.
- Insert placed in a long rectangular escutcheon, activates a 4-point closure system.



Options to transform the insert

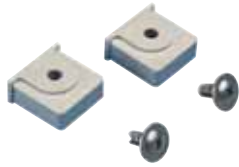
- The standard insert can be replaced with other shape inserts, according to the following table:

Name	References
7-mm male square	NSYTC7PL



Padlocking accessories

- Padlocking system, ref. **NSYKPLM**, positioned around the rectangular escutcheon of the enclosures with a height of ≤ 847 mm to block access to the lock; for a $\varnothing 9$ mm padlock.



Plastic nuts for rail fixing

- They slide directly into the notches, with a pitch of 25 mm, which are located on the rear of the enclosures, except enclosure ref. **NSYPLM3025**. They allow direct fixing of symmetrical DIN rails by self-tapping screws.
- To be ordered in multiples of 20.

Name	References
Plastic nut with self-tapping screw	NSYTCSPLM



NSYCAG35LP

Ventilation louvres

- They can be positioned inside the wall-mounting enclosures with heights of 430 to 846 mm, allowing ventilation through the channels of the enclosure.
- The IP on the rear of the enclosures is IP 44.
- To be ordered in multiples of 2.



Name	Reference
Ventilation louvres	NSYCAG35LP

Ventilation louvres, airing devices with filters, fans and thermal adjustment accessories, see ClimaSys section.



NSYVEA9

Water drain plug

- For drainage of condensation water.
- It is placed in the Ø 9 mm housing at the bottom of the enclosure.
- IP 55.
- To be ordered in multiples of 10.

Name	Reference
Water drain plug	NSYVEA9

3

Steel floor-standing enclosures

Introduction	3/2
Selection guide	3/4



Spacial SF Steel floor-standing suitable enclosures	3/6
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Dimensions	3/9
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Spacial SM Steel floor-standing compact enclosures	3/10
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Dimensions	3/13
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Accessories	3/14
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Floor-standing enclosures

Spacial SF

Enclosures adapted to your needs

Spacial SF is the most versatile suitable enclosure on the market, designed to remove limitations, regardless of what your project is.



3



Time

Reduce your assembly time

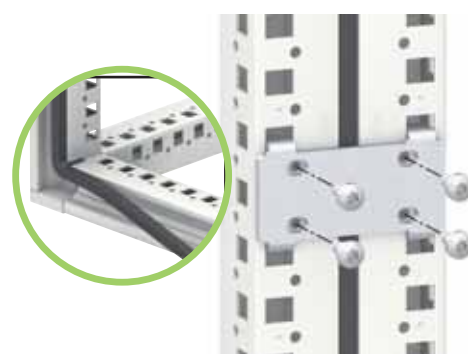
- Thanks to the panels with captive screws.
- Using Torx M6 self-tapping screws for the accessories that are fixed to the structure, without need for nuts.
- The threaded holes in the plinth allow fixing to the structure without the need for cage nuts. Safe and quick.
- New ergonomic design of quick cross-rails.
- With numerous accessories for easier installation and cable management.

Coupling enclosures is easier now

- The gasket installation surface is flat and the coupling accessories are easy to attach.

Functional aesthetics

- The panels, perfectly integrated in the structure, give the enclosure a unique appeal and keep its nominal dimensions to optimise installation space, thus avoiding unpleasant surprises.



Spacial SM

The quickest and safest compact solution

Spacial SM is the compact solution.
A robust enclosure ready to assemble.
In addition, it has the widest dimensional
range on the market.



3



Versatility

Maximum modularity

With Spacial SF you can combine doors and panels in any position and opening direction and have all kinds of configurations (U, T, L, etc.).

Optimal accessibility

Since you can assemble side and rear doors, you have unlimited access to the inside of the enclosure, no matter how small the space in which it is installed.



Efficiency

The most robust enclosures on the market...

Thanks to their innovative profile, the Spacial SF suitable enclosures can bear loads of up to 1000 kg without deformation. If you need a compact and ready-to-assemble enclosure, Spacial SM is the solution.

...that will help you become more efficient, day by day





All the Spacial SF enclosures, once coupled, are easy to transport with a pallet truck.

Water and dust tightness (IP 55) is ensured thanks to the panels built into the structure and the double protection barrier obtained when coupling two enclosures.



Spacial SF and SM

3

Nominal dimensions (mm)			No. of doors	Spacial SF			
				Plain door Without mounting plate	Transparent door Without mounting plate	Side panels (fixing from the outside)	Cable-gland plate 1 entry
Height	Width	Depth					
1800	400	400	1	NSYSF18440	-	NSY2SP184	NSYEC441
1800	400	600	1	NSYSF18460	-	NSY2SP186	NSYEC461
1800	600	400	1	NSYSF18640	-	NSY2SP184	NSYEC641
1800	600	600	1	NSYSF18660	-	NSY2SP186	NSYEC661
1800	800	400	1	NSYSF18840	-	NSY2SP184	NSYEC841
1800	800	600	1	NSYSF18860	-	NSY2SP186	NSYEC861
1800	1000	400	2	NSYSF1810402D	-	NSY2SP184	NSYEC1041
1800	1000	600	2	NSYSF1810602D	-	NSY2SP186	NSYEC1061
2000	300	600	1	NSYSF20360	-	NSY2SP206	NSYEC361
2000	400	400	1	NSYSF20440	-	NSY2SP204	NSYEC441
2000	400	600	1	NSYSF20460	-	NSY2SP206	NSYEC461
2000	400	800	1	NSYSF20480	-	NSY2SP208	NSYEC481
2000	600	400	1	NSYSF20640	NSYSF20640T	NSY2SP204	NSYEC641
2000	600	600	1	NSYSF20660	-	NSY2SP206	NSYEC661
2000	600	800	1	NSYSF20680	-	NSY2SP208	NSYEC681
2000	800	400	1	NSYSF20840	NSYSF20840T	NSY2SP204	NSYEC841
2000	800	600	1	NSYSF20860	NSYSF20860T	NSY2SP206	NSYEC861
2000	800	800	1	NSYSF20880	NSYSF20880T	NSY2SP208	NSYEC881
2000	1000	400	1	-	NSYSF201040T	NSY2SP204	NSYEC1041
2000	1000	400	2	NSYSF2010402D	-	NSY2SP204	NSYEC1041
2000	1000	600	1	-	NSYSF201060T	NSY2SP206	NSYEC1061
2000	1000	600	2	NSYSF2010602D	-	NSY2SP206	NSYEC1061
2000	1000	800	1	NSYSF201080	-	NSY2SP208	NSYEC1081

Coupling kit



Cross rails

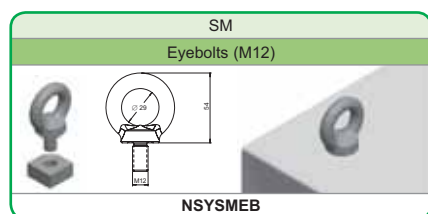
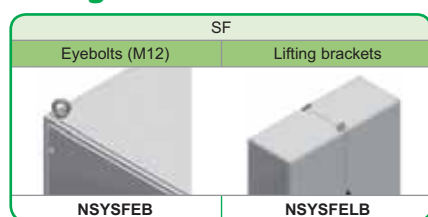
Nominal dimensions (mm)	Universal	Quick-fixing
	40 mm (1 row)	
400	NSYSUCR4040	NSYSQCR4040
500	NSYSUCR4050	NSYSQCR4050
600	NSYSUCR4060	NSYSQCR4060
800	NSYSUCR4080	NSYSQCR4080
1000	NSYSUCR40100	NSYSQCR40100
1200	NSYSUCR40120	NSYSQCR40120
1400	NSYSUCR40140	-
1600	NSYSUCR40160	-
1800	NSYSUCR40180	-
2000	NSYSUCR40200	-
2200	NSYSUCR40220	-

Rails for heavy loads

Nominal dimensions (mm)	Reference
Depth	
600	NSYHLCR60
800	NSYHLCR80

> Adjustable on the sides with a pitch of 25 mm





Lifting elements







> Advantage:

The eyebolts screwed directly into the vertical axis of the upright contribute greatly to robustness during transport.

Earthing

	Earthing lead 160, sec.6 ²	NSYEL166D8
	Earthing lead L350, sec.25 ²	NSYEL3525D8
	Earthing strip connec points 87	NSYECB1M153
	2 earthing collec+rail supports	NSYEDCOC

Fixing elements

Fixing element		Supply (units)	Reference
	M6 caged nut	50	NSYCNFM6
	M8 caged nut	50	NSYCNFM8
	M6 × 12 mm	100	NSYS12M6H
	M6 × 16 mm	100	NSYS16M6H
	M6 × 18 mm	100	NSYS18M6H
	M8 × 16 mm	100	NSYS16M8H
	M8 × 20 mm	100	NSYS20M8H
	Torx T30 M6 × 16 mm screw ¹	100	NSYST30M6
	Torx T40 M8 × 16 mm screw ¹	100	NSYST40M8
	Torx T30 M6 × 12 mm self-tapping screw ¹	100	NSYST30M6S

¹ Screw without washer.

	Spacial SM			Accessories SF/SM		
	Plain door	Vertical adaptation profiles	Horizontal adaptation profiles	Mounting plate	Plinth height 100 mm	
					Front kit	Side panels
	Without mounting plate					
	-	-	-	-	NSYSPF4100	NSYSPS4100
	-	-	-	-	NSYSPF4100	NSYSPS6100
	NSYSM18640	NSYSMVR18	NSYSMHR6	NSYMP186	NSYSPF6100	NSYSPS4100
	-	-	-	NSYMP186	NSYSPF6100	NSYSPS6100
	NSYSM18840	NSYSMVR18	NSYSMHR8	NSYMP188	NSYSPF8100	NSYSPS4100
	NSYSM18860	NSYSMVR18	NSYSMHR8	NSYMP188	NSYSPF8100	NSYSPS6100
	NSYSM1810402D	NSYSMVR18	NSYSMHR10	NSYMP1810	NSYSPF10100	NSYSPS4100
	-	-	-	NSYMP1810	NSYSPF10100	NSYSPS6100
	-	-	-	-	NSYSPF3100	NSYSPS6100
	-	-	-	-	NSYSPF4100	NSYSPS4100
	-	-	-	-	NSYSPF4100	NSYSPS6100
	-	-	-	-	NSYSPF4100	NSYSPS8100
	NSYSM20640	NSYSMVR20	NSYSMHR6	NSYMP206	NSYSPF6100	NSYSPS4100
	-	-	-	NSYMP206	NSYSPF6100	NSYSPS6100
	-	-	-	NSYMP206	NSYSPF6100	NSYSPS8100
	NSYSM20840	NSYSMVR20	NSYSMHR8	NSYMP208	NSYSPF8100	NSYSPS4100
	NSYSM20860	NSYSMVR20	NSYSMHR8	NSYMP208	NSYSPF8100	NSYSPS6100
	-	-	-	NSYMP208	NSYSPF8100	NSYSPS8100
	-	-	-	NSYMP2010	NSYSPF10100	NSYSPS4100
	NSYSM2010402D	NSYSMVR20	NSYSMHR10	NSYMP2010	NSYSPF10100	NSYSPS4100
	-	-	-	NSYMP2010	NSYSPF10100	NSYSPS6100
	-	-	-	NSYMP2010	NSYSPF10100	NSYSPS6100
	-	-	-	NSYMP2010	NSYSPF10100	NSYSPS8100

Locks

Handle for shape inserts and cylindrical barrels ¹	Padlock locking
NSYSFHS1	NSYBLKH123

¹ Handle supplied with all the Spacial SF and Spacial SM enclosures. Does not include the insert when it is ordered as an accessory.

Door accessories

180° hinge



Reference: **NSYSH180**

Door switch



Reference SF: **NSYDCM20**
Reference SM: **NSYMDCM20**

- > M20 cable entry adapted for cable-gland seal.
- > Open + closed contact, 10 A/500 V.

Door retainer



	SF	SM
Mechanical stop, 105° opening	NSYSFMDR	NSYSMDR

Thermal management

	Ventilation		
	Filter Fans	230V	230V
	85m³/hour; 125 × 125 mm	NSYCVF85M230PF	NSYCVF85M115PF
	165m³/hour; 223 × 223 mm	NSYCVF165M230PF	NSYCVF165M115P
	300m³/hour; 223 × 223 mm	NSYCVF300M230PF	NSYCVF300M115P
	560m³/hour; 291 × 291 mm	NSYCVF560M230PF	NSYCVF560M115PF
	850m³/hour; 291 × 291 mm	NSYCVF850M230PF	NSYCVF850M115PF
	Outlet grilles	RAL 7035	RAL 7032 cover
	Grille 125 × 125 mm	NSYCAG125LPF	NSYCAG125LPC
	Grille 223 × 223 mm	NSYCAG223LPF	NSYCAG223LPC
	Grille 291 × 291 mm	NSYCAG291LPF	NSYCAG291LPC
	IP55 Protection cover	Alu zinc	Stainless steel
	For 125 × 125 mm	NSYCAP125LXF	NSYCAP125LXF
	For 223 × 223 mm	NSYCAP223LXF	NSYCAP223LXF
	Heating		
	Resistance Heaters	110-250V	
	20W	NSYCR20WU2	
	55W	NSYCR55WU2	
	90W	NSYCR100WU2	
	Control		
	Mechanical	110-250V	
	Thermostat (NC contact)	NSYCCOTHC	
	Thermostat (NO contact)	NSYCCOTHO	
	Electronic	230V	115V
	Electronic thermostat	NSYCCOTH230VID	NSYCCOTH120VID
	Electronic hygrotherms	NSYCCOHYT230VID	NSYCCOHYT120VID
	Electronic hygrostat	NSYCCOHY230VID	

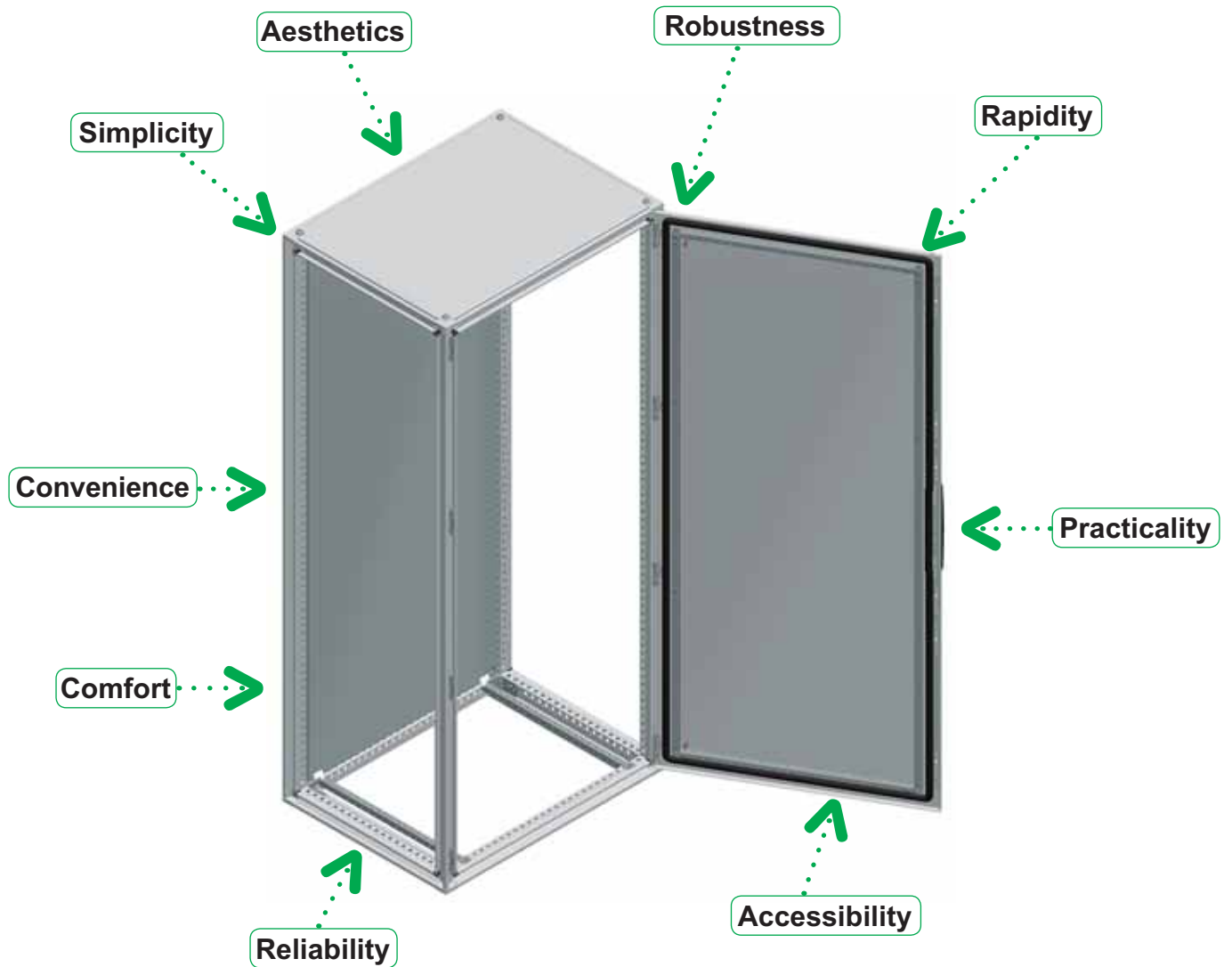
Lighting

	Neon light Magnetic or mechanic fixing	NSYLAC75
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Suitable metal enclosures

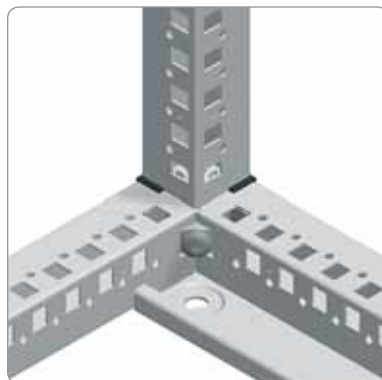
Overview

3



Robustness:

Structure formed from a single 1.5-mm galvanised-steel section, with a high moment of inertia. Vertical uprights joined with top and bottom frames, screwed together with connections of sintered steel. Panels built into the structure.

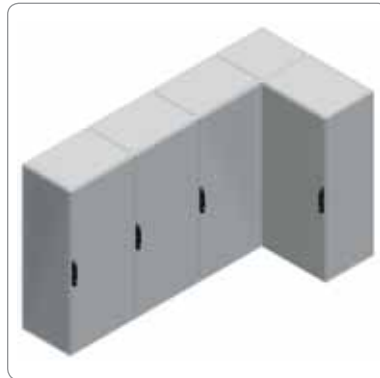


Suitable metal enclosures

Overview

Simplicity:

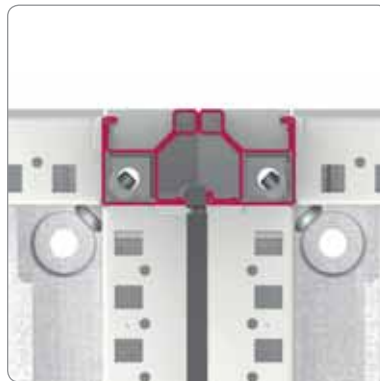
The new design allows enclosures to be coupled in any direction, adapting to all installation surfaces.



Reliability:

The design of the profile creates a double protective barrier against the entry of water and dust when coupling two enclosures.

The first barrier is the metal connection of the sections, and the second barrier is the EPDM gasket that guarantees the sealing.



Comfort:

Handle with robust design for easily activating the locking system, allowing the installation of any shape insert and any cylindrical combination key.

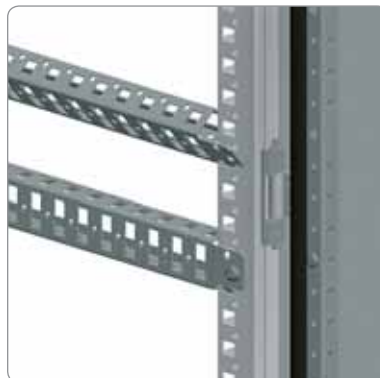
Panels with captive screws for easier assembly and dismantling.



Rapidity:

The double system of cut-outs on the structure allows most accessories to be installed using self-tapping TORX T30 M6 screws or nuts.

Clip-on quick-fixing cross rails, fixed with self-tapping screws.



Suitable metal enclosures

Overview



Front door and rear panel, with or without IP 55 galvanised mounting plate

Basic composition

- Structure: Top and bottom frame, vertical uprights.
- Front door, two versions:
 - Plain door with reinforcement frame.
 - Transparent Securit® glass door.
- The double doors are overlapping, with system for fixing the left door.
- Rear panel screwed on with captive screws.
- Removable roof.
- Standard locking system with handle and 5-mm double-bar insert.
- 4 support brackets for the mounting plate.
- Sliding rail for the mounting plate.
- Supply with or without galvanised mounting plate depending on the reference.
- Further options:
 - Cross rails.
 - Plinths.
 - Cable-gland plates.

Certifications

- BV, DNV, UL and CUL*.
- *1 Door.- 1, 12, 12K
- *2 Doors.- 1, 12, 12K

Easy installation

- The **Spacial SF** suitable metal enclosure is made up of: 4 uprights and 2 frames, top and bottom. Thanks to its use of a single, laser-welded, galvanised-steel structure, the enclosure has great robustness. The structure has cut-outs with a pitch of 25 mm for fixing accessories, using the same type of screw throughout the entire structure.
- The structure of the enclosure allows the integration of panels, thus obtaining the same nominal length (or size) with or without panels.
- Allows several enclosures to be coupled with full versatility. Offers the possibility of creating any desired shape of coupled enclosures, plus the possibility of installing doors on any side of the enclosure. The coupling surface between enclosures offers a double protective barrier against the entry of water and/or dust.
- The panels are made up of:
 - Sheet-steel door, painted with epoxy-polyester resin, textured RAL 7035 grey,
 - Sheet-steel rear and side panels painted with epoxy-polyester resin, textured RAL 7035 grey, double folded to increase the rigidity and fixed with captive screws that simplify assembly and dismantling.
 - Individual plinths or plinths for sets, painted with epoxy-polyester resin, RAL 7022 grey, greatly simplifying cable management.
- A broad range of accessories offered for the production of:
 - Plates for automatisms.
 - Cross rails.
 - Cable management.
 - etc.
- Degree of protection IP 55 according to IEC 60529.
- Resistance to mechanical impacts: IK 10 according to IEC 62262 (IK 08 for the transparent doors).

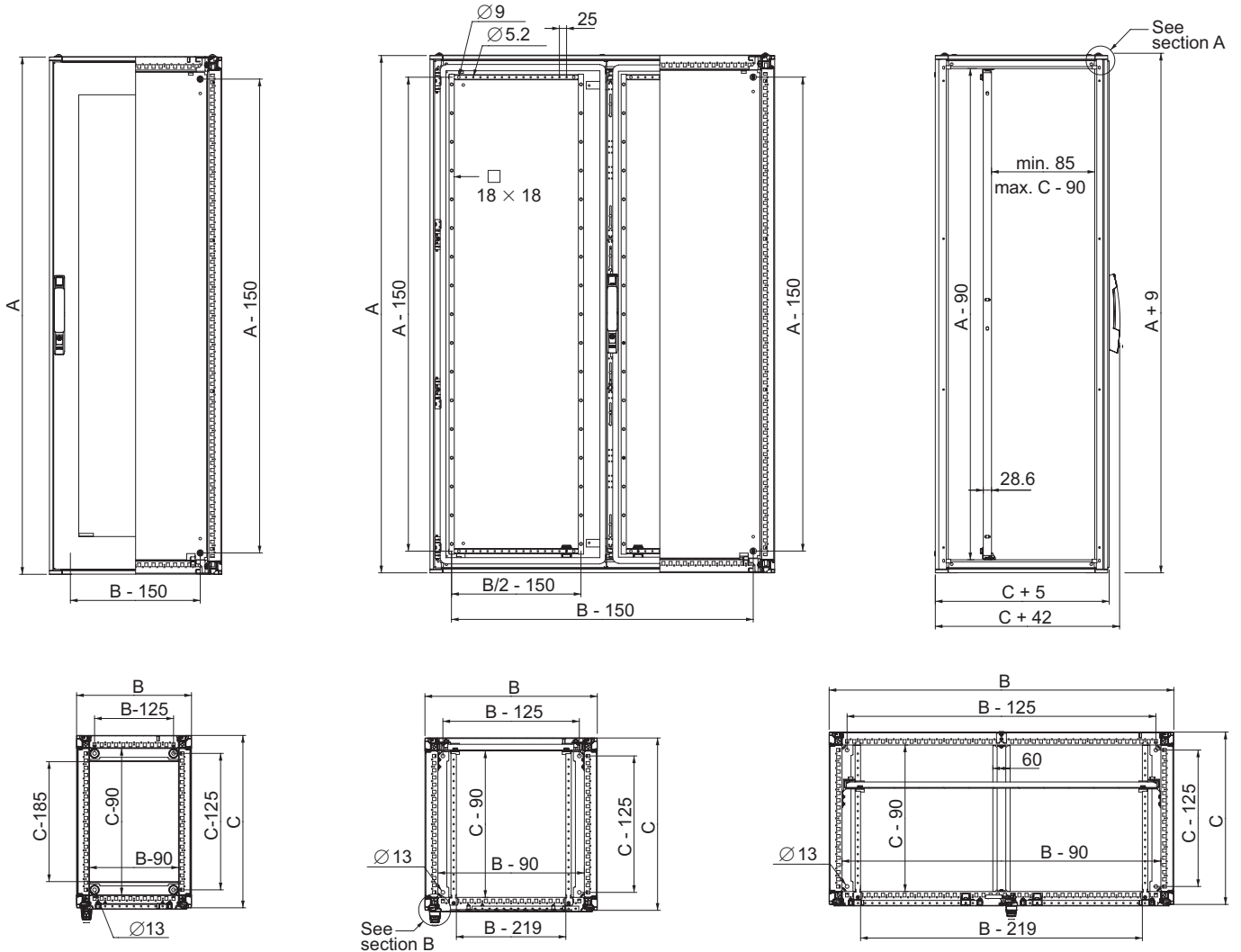
Locking system

- New design, modern appearance, ergonomic, robust, complying with numerous specifications:
 - Combination keys.
 - Shape inserts.
 - Padlock locking.

Suitable metal enclosures

Dimensions

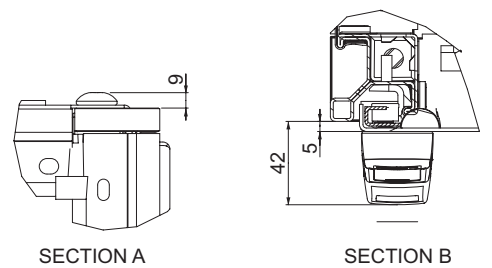
Dimensions



Enclosure widths 300 and 400 mm.

Enclosure widths 600, 800 and 1000 mm.

Enclosure widths 1200 and 1600 mm.



Compact metal enclosures

Overview

3

Convenience



Robustness



Comfort



Practicality



Protection



Robustness:

Body made as a single piece with welded rear panel.
Front part forming a rigid frame with welded corners.

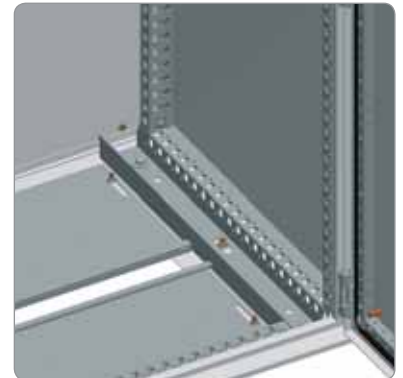


Compact metal enclosures

Overview

Practicality:

Two door rails, which can be height-adjustable and used for fixing cables.
 The adaptation profile installed in the front of the enclosure and the universal 40-mm cross rail (1 row) in the rear provide the same fixing points as the suitable enclosure.



Protection:

IP guaranteed by the rigidity of the enclosure, the expanded-polyurethane sealing gasket of the enclosure and the subsequent welding. Double-door enclosures with inner lock on the left door.



Comfort:

Handle with sturdy design for easily activating the locking system, allowing the installation of any shape insert and any cylindrical combination key. Easily interchangeable insert with one click.



Compact metal enclosures

Overview



Front door and rear panel, with or without galvanised mounting plate IP 55

Basic composition

- Structure: body made from sheet steel, welded rear panel, with the front forming a rigid frame with welded corners.
- Plain front door with reinforcement frame.
- The double doors are overlapping, with system for fixing the left door.
- Welded rear panel.
- Standard locking system with handle and 5-mm double-bar insert.
- 4 support brackets for the mounting plate.
- Cable-gland plate in 2 parts.
- Supply with or without galvanised mounting plate depending on the reference.
- Options:
 - Cross rails.
 - Plinths.

Certifications

- BV, DNV, UL* and CUL.
- *1 Door: 1, 2, 3, 3R, 4, 5, 12, 12K and 13
- *2 Doors: 1, 12, 12K

Easy installation

- The **Spacial SM** compact metal enclosure is made up of a compact body, welded rear panel and front part forming a rigid frame with its corners welded. 4 deep supports, 2 at the top and 2 at the bottom, for adjusting the equipment fixing bracket with a pitch of 25 mm.
- Sheet-steel door, painted with epoxy-polyester resin in textured RAL7035 grey. Reinforcement frame made up of two perforated uprights with a pitch of 25 mm and two door rails (height-adjustable), which can be used for fixing cables. Vertical profiles for the enclosures with a height of 1200 mm.
- 4 zamak hinges and 4 locking points for the enclosures, with heights from 1200 to 2000 mm.
- Cable-gland plate in two parts with sealing gasket cross-section of 3 × 10 mm:
- A broad range of accessories offered for the production of:
 - Plates for automatisms.
 - Cross rail mounting systems.
 - Cable management.
 - etc.
- Degree of protection IP 55 according to IEC 60529.
- Resistance to mechanical impacts: IK 10 according to IEC 62262.

Locking system

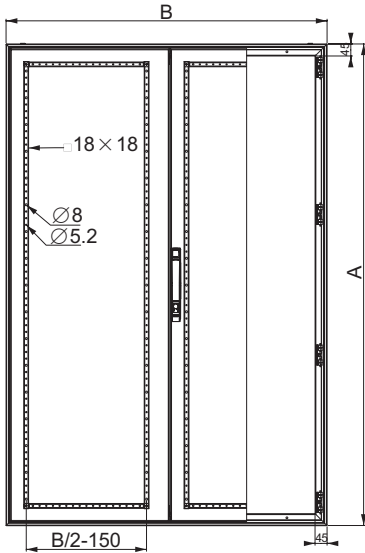
- New design, modern appearance, ergonomic, sturdy, complying with numerous specifications:
 - Combination keys.
 - Shape inserts.
 - Padlock locking.

3

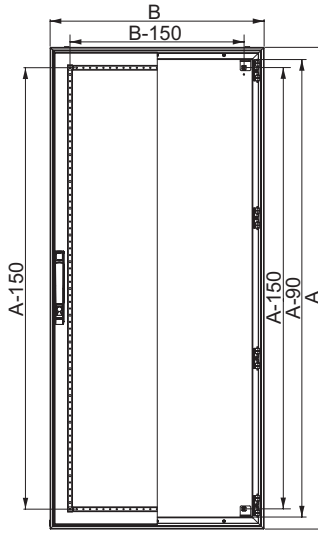
Compact metal enclosures

Dimensions

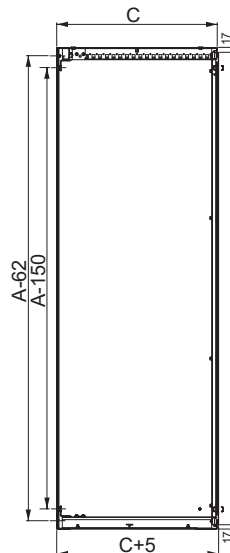
Dimensions



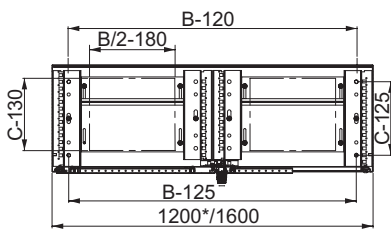
Double door



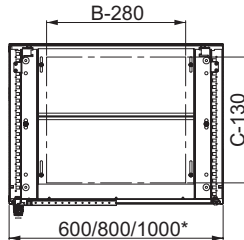
Single plain door



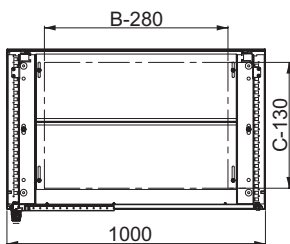
Transparent single door



* Models with a width of 1200 mm:
- without top/bottom adjustment rails in central position



* Model with a width of 1000 mm,
single door:
NSYSM181040P/NSYSM181040



A: Height in mm
B: Width in mm
C: Depth in mm

Composition accessories

Panels



Side panels

External fixing

- Set of 2 side panels fixed from the outside of the enclosure.
- Captive screws.
- Material: steel.
- Finish: painted with epoxy-polyester resin, textured RAL 7035 grey.



Supply: 2 side panels fixed from the outside and fixing elements.

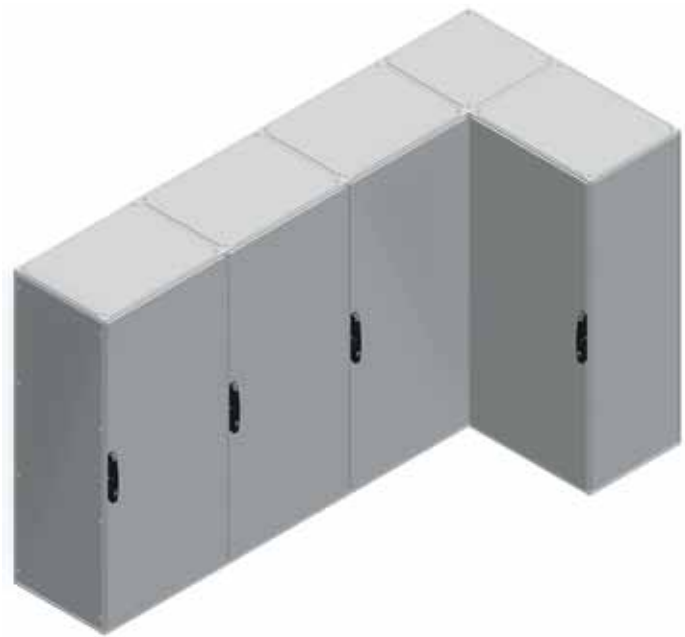
Nominal dimensions (mm)		Reference
Height	Depth	
1800	400	NSY2SP184
	600	NSY2SP186
2000	400	NSY2SP204
	600	NSY2SP206
	800	NSY2SP208

Composition accessories

Enclosure suites

Combination examples with Spacial SF

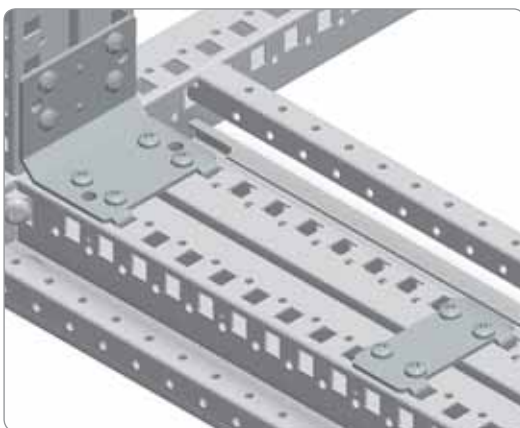
The construction design of the enclosures is based on forming sets of enclosures. Thanks to the speed and ease with which enclosures can be coupled in the width and depth directions, and the elements created especially to facilitate joining and transporting them, we can provide the best solution for every electric installation. The connecting parts are fixed to the enclosures using self-tapping M6 screws, although if necessary they can be installed using M6 and M8 caged nuts **NSYCNFM6, NSYCNFM8**.



3


> **Advantage:**

Multiple assembly options, adapting to all needs.



Standard coupling kit

- Used for joining enclosures side-to-side or depthwise.
- Fixing from the inside of the enclosures.
- Degree of protection: IP55.
- Material:
 - Flat connectors and brackets: zinc-coated steel.
 - Sealing gasket: EPDM.

 Supply: 4 brackets, 2 flat connectors, sealing gasket and fixing elements.

Reference
NSYSFBK



Composition accessories

Floor

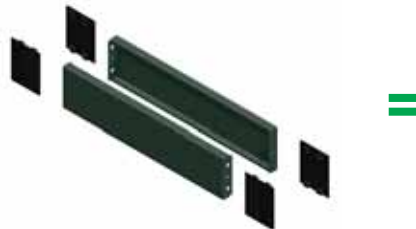
Front and rear kit



Plinth height 100 mm

Plinth in kit form

Side panels



Complete plinth



3

The complete plinth consists of two elements, one is the front and rear kit, determined by the length of the enclosure, and the other consists of the side panels, which determine the depth of the enclosure.
The number of side panels required is decided according to the desired plinth combination.

> **Advantage:**

- Robust design.
- The modular plinth system makes it possible to reduce the number of references in stock.

Possibility of joining plinths

- 1 The surfaces between corners are always in contact.
They are joined by an M8 screw and nut, not included in the standard supply.

> **Advantage:**

- Longitudinally free space for passing cables.
- Greater rigidity of the resultant assembly unit.

- 2 By side panels, the M6 screws and caged nuts, not included in the standard supply, reference **NSYSPM6** and reference **NSYCN9M625**, which can be mounted above and/or below.

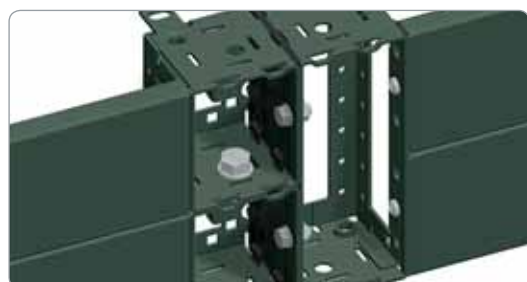
> **Advantage:**

- Improves rigidity in the depthwise direction during transport.

- 3 Vertical plinth assembly by means of M12 screws and nuts, not included in the standard supply.

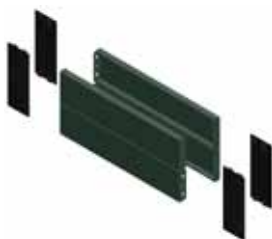
> **Advantage:**

- The two heights of corners can be combined.



Composition accessories

Floor



Front plinth

- The front and rear of the plinth consists of 4 corners with 2 or 4 panels.
- Material: folded sheet steel, corner with a thickness of 2.5 mm.
- Finish: painted with epoxy-polyester resin, RAL 7022 grey.
- Degree of protection: IP30 of the complete plinth.
- Resistance to external mechanical impacts: IK 10.
- Maximum load: 1300 kg.
- Model height: 100 mm.



Supply:

- **Height 100 mm:** 4 corners, 2 panels (front and rear), 4 corner covers and fixing elements.

Nominal dimensions (mm)		Reference
Width	100 mm	
300	NSYSPF3100	
400	NSYSPF4100	
600	NSYSPF6100	
800	NSYSPF8100	
1000	NSYSPF10100	
1200	NSYSPF12100	
1600	NSYSPF16100	

Plinth side panels

- They are fixed to the corner of the plinth by 2 fixing screws.
- Material: folded sheet steel.
- Finish: painted with epoxy-polyester resin, RAL 7022 grey.
- Degree of protection: IP30 of the complete plinth.
- Resistance to external mechanical impacts: IK 10.
- Model height: 100 mm.



Supply:

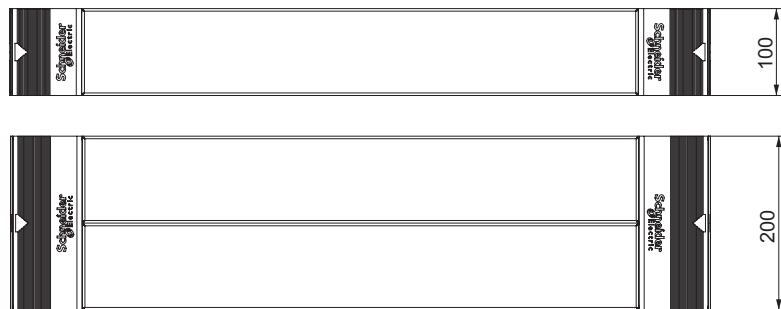
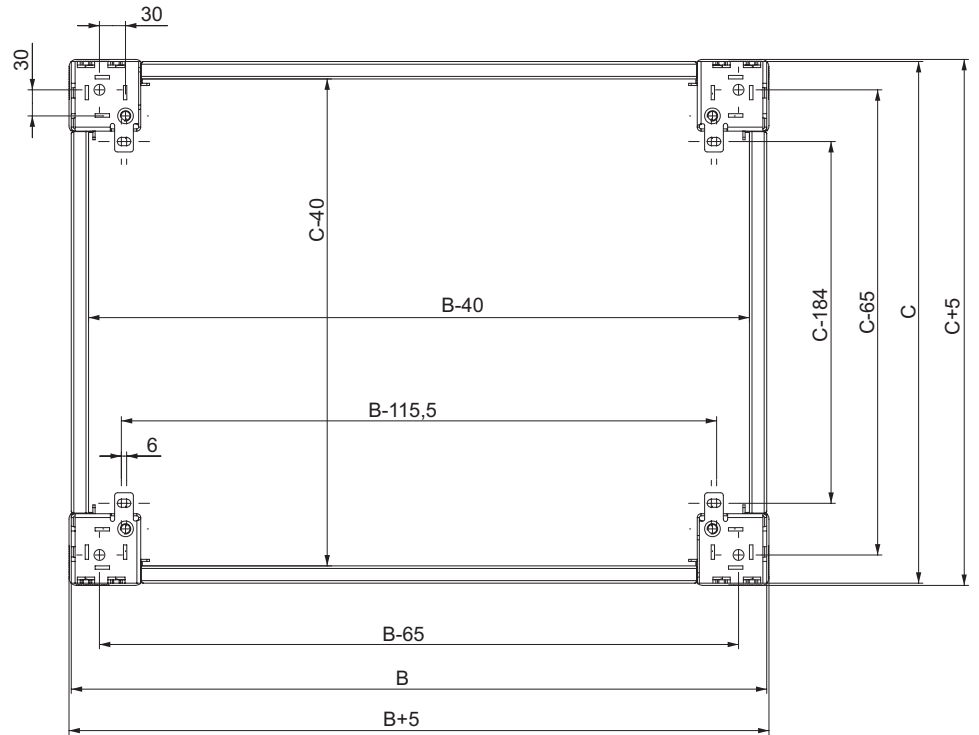
- **Height 100 mm:** 2 side panels, 4 corner covers and fixing elements.

Nominal dimensions (mm)		Reference
Depth	100 mm	
300	NSYSPS3100	
400	NSYSPS4100	
500	NSYSPS5100	
600	NSYSPS6100	
800	NSYSPS8100	

Composition accessories

Floor


General layout of the plinth



Screws and nuts for internal fixing of the plinth panels

- Optional fixings for the panels with M6 screws and caged nuts.
- According to the position of the caged nut, the panels can be made tamper-proof. By accessing the screw, only from the inside of the enclosure.
- Valid for all types of panels.

Screws and nuts for internal fixing of plinth panels		
Description	Supply (units)	Reference
Torx T30 M6 × 10 screws	50	NSYSMP6
M6 caged nuts	100	NSYCN9M625


 Reference by unit. Order by multiples of 50 (Torx screws) and 100 (Caged nuts).

Composition accessories

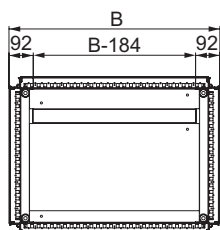
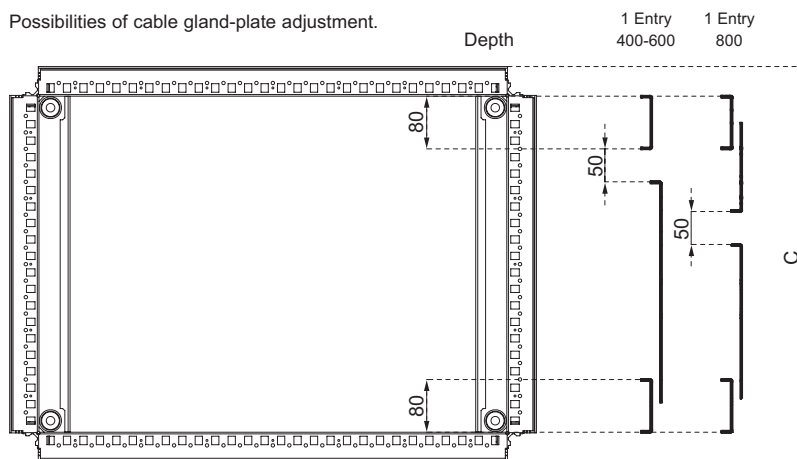
Cable entry

Cable-gland plate with 1 entry

- Plates with 1 cable entry from the bottom of the enclosure.
- Material: galvanised steel.
- Thicknesses: 1.5 mm.
- Fixing by C-shaped clip, fixed with screws, providing electrical continuity through the clip.
- Each plate has 2 drill holes with an 8-mm diameter, covered with a plug, for cases in which earthing needs to be performed by an earthing cable or braid (elements not supplied).
- Facilitates the entry of cables thanks to a longitudinal opening.

 Supply: plate with 1 entry; self-extinguishing polyurethane adhesive gasket with cross-section of 15 × 25 mm (guarantees good sealing) and fixing elements.

Possibilities of cable gland-plate adjustment.



Enclosures of 600, 800 and 1000 mm width.



Nominal SF dimensions (mm)		Reference
Width (B)	Depth (C)	With 1 entry
600	400	NSYEC641
600	600	NSYEC661
600	800	NSYEC681
800	400	NSYEC841
800	600	NSYEC861
800	800	NSYEC881
1000	400	NSYEC1041
1000	600	NSYEC1061
1000	800	NSYEC1081

Composition accessories

Lifting systems

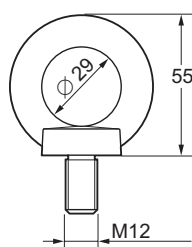


Eyebolts

- **Spacial SF:** Set of M12 lifting eyebolts, which screw directly into the structure of the enclosure, in the axis of the uprights.
- **Spacial SM:** Set of M12 lifting eyebolts, fixed to the enclosure by fixing nuts.
- Material: galvanised cast steel.
- Maximum load: 340 kg per eyebolt.

Supply: 4 eyebolts.

For enclosure	Reference
Spacial SF	NSYSFEB
Spacial SM	NSYSMEB



> Advantage:

Eyebolts screwed directly into the vertical axis of the upright contribute greatly to robustness during transport.

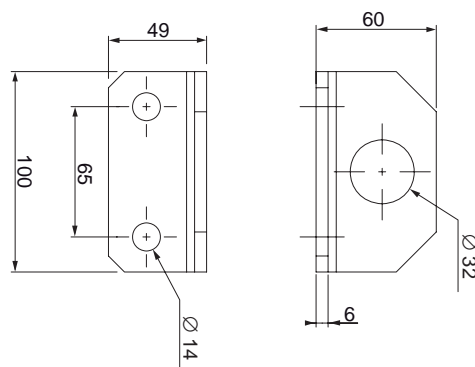


Lifting brackets for Spacial SF

- Set of lifting and transport brackets, fixed to the structure between two coupled enclosures, in the axis of the uprights.
- Material: zinc-coated steel.
- Maximum load: see lifting and transport table.

Supply: 4 brackets and fixing elements (M12 screws).

Reference
NSYSFELB



Lifting instructions

Eyebolts				Lifting brackets			
Angle	P ≤ (kg)	P ≤ (kg)	P ≤ (kg)	P ≤ (kg)	P ≤ (kg)	P ≤ (kg)	X ≤ 75 mm P ≤ (kg)
45°	1160	580	-	1100	2800	-	-
60°	830	415	-	-	2800	-	1100
90°	480	240	1360	-	1100	3000	-
120°	257	-	-	-	-	-	-

Composition accessories

Roof



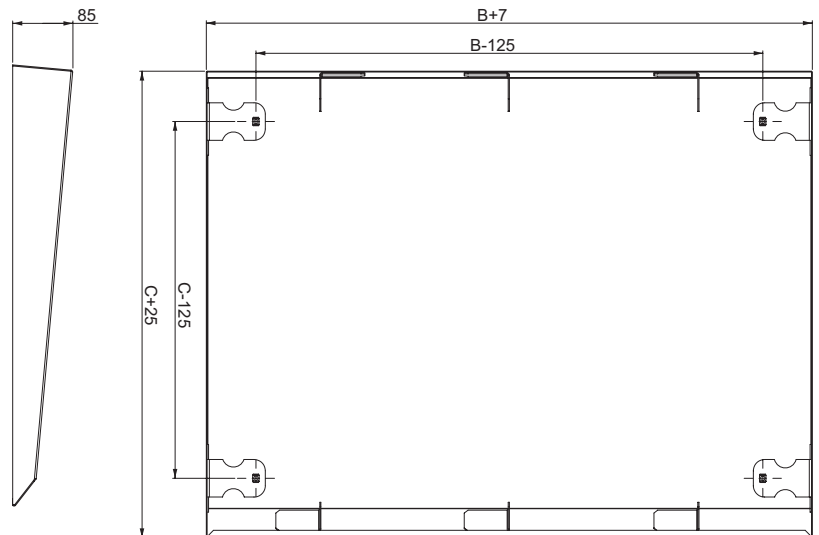
Canopy

- Provides excellent protection against splashes from rainwater.
- Highly recommended for outdoor applications.
- **Spacial SF**: fixing by drill holes to be made in the roof of the enclosure.
- **Spacial SM**: fixing by drill holes already made in the roof.
- Material: galvanised steel.
- Finish: painted with polyester-epoxy resin, RAL 7035 grey.
- Not compatible with the simultaneous use of lifting elements.



Supply: one canopy, drilling template and fixing elements.

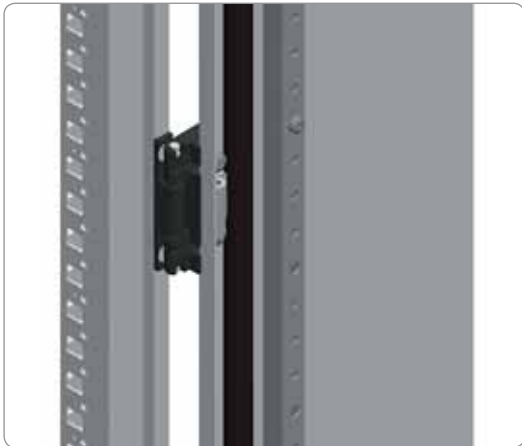
Nominal dimensions (mm)		Reference
Width (B)	Depth (C)	
800	400	NSYSC840



Composition accessories

Door and door accessories

3



180° hinge

- Hinge with opening of 180°.
- Intended to replace the 120° hinges installed as standard.
- They are compatible with the transparent door and can be installed even with enclosure suites.
- Material: aluminium and zamak.
- Maximum load: 60 kg on the door.
- Finish: painted RAL 9005 black.



Supply: 4 hinges, template for making the drill holes and fixing elements.

Model	Reference
RAL 9005 black	NSYSH180



Door retainer

- Mechanical door stop with 105° opening limit.
- It is fixed directly to the front frame of the enclosure and to the reinforcement frame of the door.
- It can be installed on doors that open both to the right and to the left.

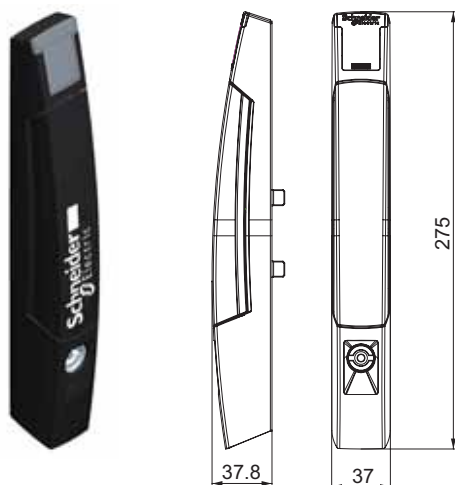


Supply: door stop and fixing elements.

Door retainer model	Reference	For enclosures
Mechanical	NSYSFMDR	Spacial SF
	NSYSMDR	Spacial SM

Composition accessories

Locking system



Handle for shape inserts and cylindrical barrels

- Handle lock allowing the door to be opened: with a single movement.
- Standard handle for the entire range of **Spacial SF** and **Spacial SM** enclosures; does not include the insert when ordered as an accessory.
- Easy and quick installation of inserts without needing screws.
- Allows the installation of shape inserts and cylindrical barrels.
- The symmetric design of the locking system makes it easy to change the opening direction of the door, right/left. Easy fixing by means of screws.
- Space reserved for enclosure identification, 21 × 27 mm, protected by a label frame.
- Material:
 - Handle: polyamide 6 with 30% fibreglass, RAL 9005 black.
 - Label frame: polycarbonate.
- UV resistant.
- Fire resistance: 650 °C.
- Resistance to external mechanical impacts: IK10.




Supply: standard handle and fixing elements (insert not included).



> **Advantage:**
Easy opening.

Reference

NSYSFHS1

Shape inserts and cylindrical barrels

Shape inserts	Reference
 <p>7-mm square insert</p>	NSYINS71

Cylindrical barrels	Reference
 <p>405E key lock</p>	NSYIN405E1
 <p>1242E key lock</p>	NSYIN1242E1

Padlock locking

- Padlock locking system, for installation in all the handles of the **Spacial SF** and **Spacial SM** enclosures.
- Bolt with 7.5-mm drill hole.



Supply: one cut-out handle, bolt for padlock and bolt fixing screw.

Reference

NSYBLKH123



4

Accessories



Mounting

4/2



Power distribution

4/10



Cable management

4/12



Door accessories

4/14



Door switches & Lighting

4/15



Earthing accessories

4/16

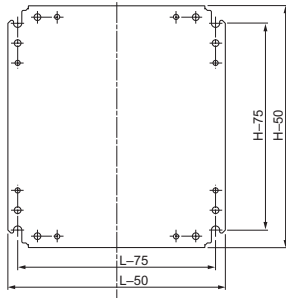
Mounting

Installation accessories



Metal

For ranges
CRN, S3X, PLM



Mounting plate with sliding supports.

Plain mounting plates

- Galvanised-steel mounting plates.



Supply: 1 mounting plate and fixing elements.

For floor-standing enclosure (mm)		Height (mm)	Width (mm)	Surface (dm ²)	Maximum load (kg)	Weight (kg)	Reference
Height	Width						Metal
250	200	215	150	3.2	40	0.5	NSYMM2520
300	250	250	200	5	60	0.7	NSYMM3025
300	300	250	250	6.3	60	0.9	NSYMM33
400	300	350	250	8.8	60	1.25	NSYMM43
400	400	350	350	12.3	60	1.7	NSYMM44
500	400	450	350	15.8	90	2.2	NSYMM54
600	400	550	350	19.3	90	2.70	NSYMM64
600	500	550	450	24.8	90	3.6	NSYMM65
600	600	550	550	30.3	135	4.4	NSYMM66
700	500	650	450	29.3	135	4.25	NSYMM75
800	600	750	550	41.3	135	8.1	NSYMM86
800	800	750	750	56.3	150	11	NSYMM88
1000	800	950	750	71.3	150	13.9	NSYMM108

4



See also
the accessories



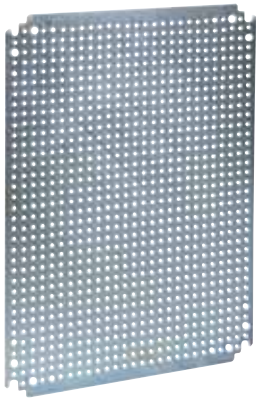
Step slides
page 4/4



Earthing accessories
page 4/16

Mounting


Installation accessories

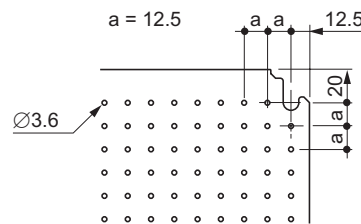


For ranges
CRN, S3X, PLM

Microperforated mounting plate

- Galvanised-steel microperforated mounting plates.
- They considerably reduce the products installation time thanks to the holes prepared to receive the self-tapping screws.
- Holes with \varnothing 3.6 mm in steps of 12.5 mm.

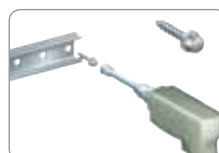
 Supply: 1 mounting plate and fixing elements.



For enclosures		Height (mm)	Width (mm)	Surface (dm ²)	Maximum load (kg)	Weight (kg)	Reference
Height (mm)	Width (mm)						
300	300	265	250	6.6	60	0.95	NSYMF33
400	300	350	250	9.3	60	1.35	NSYMF43
400	400	365	350	12.8	60	1.85	NSYMF44
500	400	465	350	16.3	90	2.40	NSYMF54
600	400	550	365	20.1	90	2.95	NSYMF64
600	500	550	450	24.5	90	3.60	NSYMF65
600	600	565	550	31.1	135	4.55	NSYMF66
700	500	665	450	29.9	135	4.40	NSYMF75
800	600	765	550	42.1	135	7.70	NSYMF86
800	800	765	750	57.4	150	10.55	NSYMF88
1000	800	965	750	91.7	150	13.30	NSYMF108



See also
the accessories



Self-tapping screws
ref. NSYS13M5HS

Mounting

Installation accessories

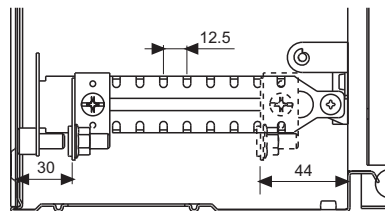


Step slides for mounting plate

Set of 4 supports intended for installation in enclosures with depths of 200, 250, 300 and 400 mm. The rail allows the depth of the plate and other accessories to be adjusted in steps of 12.5 mm.

 Supply: 4 sliding supports.

For enclosure depth (mm)	Reference
200	NSYSDCR200
250	NSYSDCR250
300	NSYSDCR300



[For ranges
CRN, S3X]

4



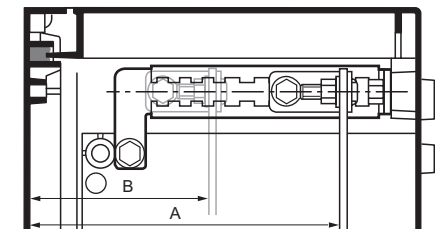
Step slides

For depth adjustment of the mounting plate

- Kit including 4 step slides with brackets, allowing depth adjustment with a pitch of 12.5 mm, and the fixings required for the installation.
- Material: galvanised steel.
- Incompatible with the modular distribution chassis.

For wall-mounting enclosure Depth (mm)	Depth adjustment		References
	Dimension A (mm)	Dimension B (mm)	
200	156	94	NSYDPLM200
250	200	100	NSYDPLM250
300	250	100	NSYDPLM300
350	306	106	NSYDPLM350

[For ranges
PLM]



Mounting

Installation accessories

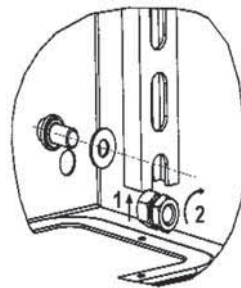
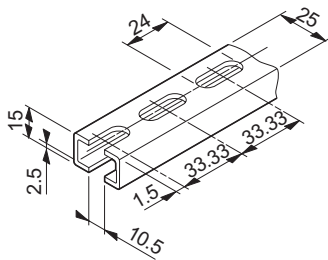


Aluminium vertical rails

- Fixing in the enclosure with M8 nuts, ref. **NSYAMCSF** (batch of 4 adapters to be ordered separately).
- Material: aluminium (length: 1200 mm, in steel).

Height	Material	Reference	Composition
300	Aluminium	NSYMDVR3	10
400	Aluminium	NSYMDVR4	10
500	Aluminium	NSYMDVR5	10
600	Aluminium	NSYMDVR6	10
700	Aluminium	NSYMDVR7	10
800	Aluminium	NSYMDVR8	10
1000	Aluminium	NSYMDVR10	10

[For ranges
CRN, PLM, S3X]



DIN mounting plate adapter
Ref. **NSYAMCSF**



Screw with slotted hexagonal head and captive washer

Type	Reference				
	10 mm	12 mm	16 mm	18 mm	Nut
M6	-	NSYS12M6H	-	NSYS18M6H	NSYNM6

Mounting

Installation accessories



[For ranges SF, SM]

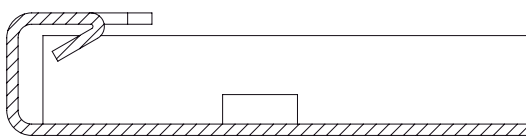
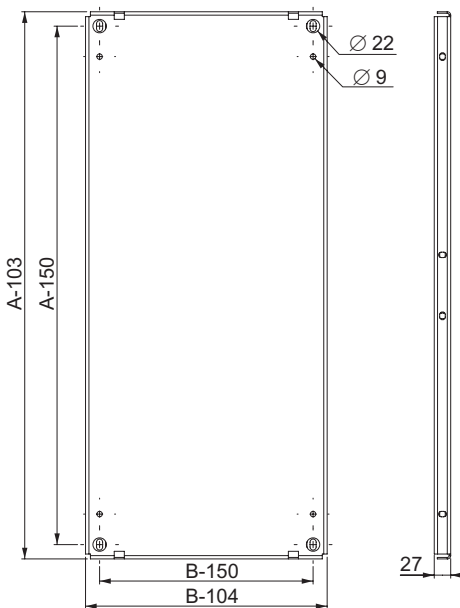
Mounting plate

- Plate provided with reinforcement flange around the entire perimeter. The vertical edges are provided with a triple fold, to prevent finger cuts.
- Depth adjustable with a pitch of 25 mm, provided with plastic shoe for easier sliding.
- Once the plate is fixed, in advanced position, the sliding shoe can be easily removed, to increase the available plate surface.
- Material: galvanised steel.
- Maximum load: 600 kg in the back of the enclosure and 500 kg in the intermediate position.



Supply: one mounting plate and sliding shoes.

Nominal dimensions (mm)		Reference
Height (A)	Width (B)	
1800	600	NSYMP186
	800	NSYMP188
	1000	NSYMP1810
2000	600	NSYMP206
	800	NSYMP208
	1000	NSYMP2010

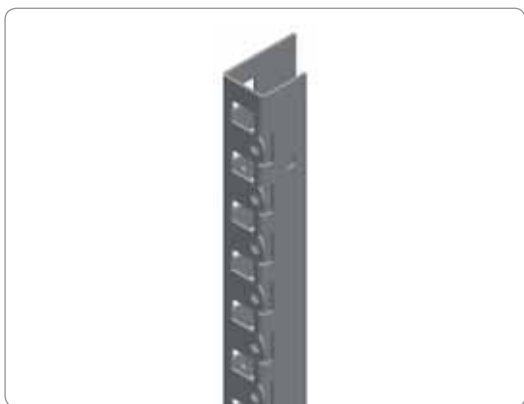


> Advantage:

The triple fold of the vertical edges of the mounting plate contributes to increasing the latter's rigidity and increases handling safety by preventing finger cuts.


Mounting

Installation accessories

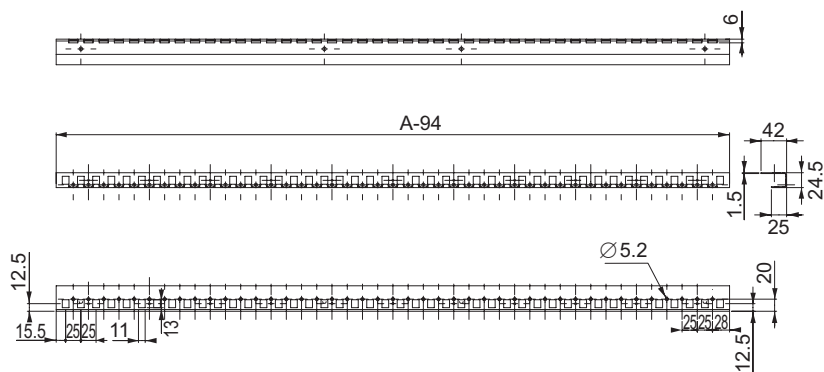
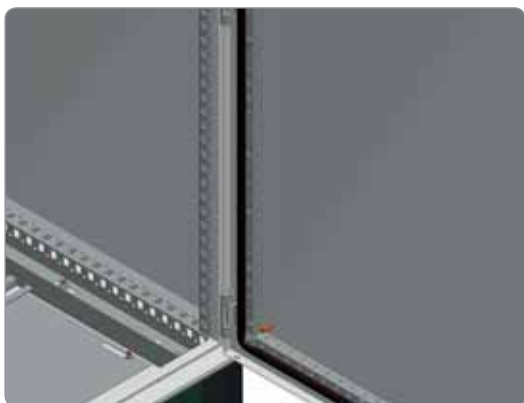


Vertical adaptation profiles for Spacial SM

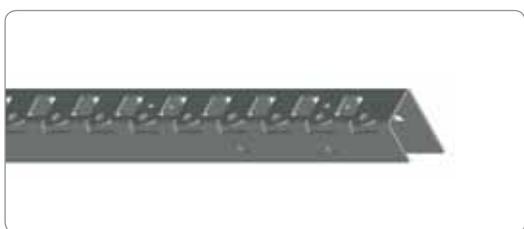
- The vertical adaptation profiles provide fixing points at the entrance to the enclosure.
- Fixing on the screws of the hinge and catches of the lock.
- Allows the depthwise fixing of cross rails, etc.
- Material: steel.
- Thickness: 1.5 mm.
- Finish: zinc-coated.

 Supply: 2 vertical adaptation profiles and fixing screws.

Nominal height (mm) (A)	Reference
1800	NSYSMVR18
2000	NSYSMVR20



4

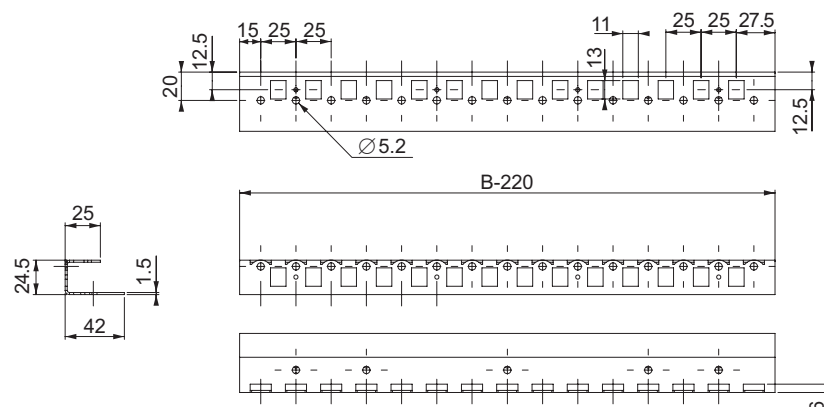
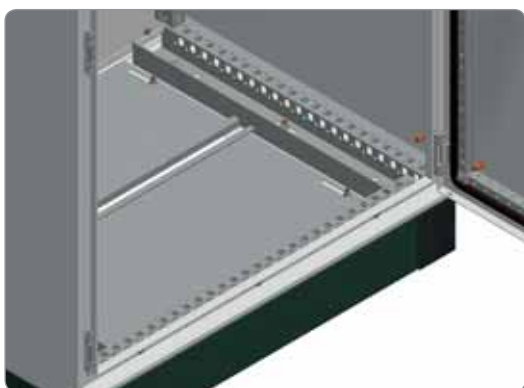


Horizontal adaptation profiles for Spacial SM

- The horizontal adaptation profiles provide fixing points at the entrance to the enclosure.
- Material: steel.
- Thickness: 1.5 mm.
- Finish: zinc-coated.

 Supply: 2 horizontal adaptation profiles and fixing screws.

Nominal width (mm) (B)	Reference
600	NSYSMHR6
800	NSYSMHR8
1000	NSYSMHR10




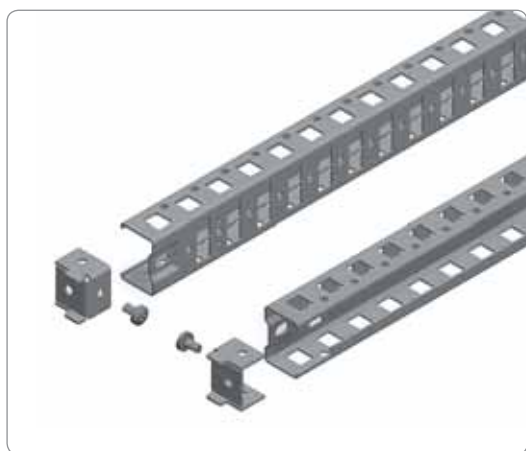
[For ranges SM]

[For ranges SF, SM]

Universal cross rails

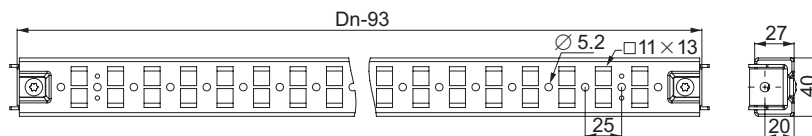
- Cross rail, width 40mm (1 row), perforated with a pitch of 25 mm for the formation of structures inside the enclosure.
- They allow the performance of any type of assembly, as well as the adjustment of the depth of the various types of installation systems (partial plates, 19" racks, etc.).
- Material: zinc-coated steel.
- Thickness: 1.5 mm.

 Supply: two universal cross rails, four supports for universal cross rails and fixing elements.



Nominal dimensions	Maximum load	Reference
Height/Width/Depth (mm)	(kg) by rail	40 mm (1 row)
400	60	NSYSUCR4040
500	60	NSYSUCR4050
600	50	NSYSUCR4060
800	40	NSYSUCR4080
1000	30	NSYSUCR40100
1200	20	NSYSUCR40120
1800	(1)	NSYSUCR40180
2000	(1)	NSYSUCR40200

(1) For vertical assembly only.




> Advantage:

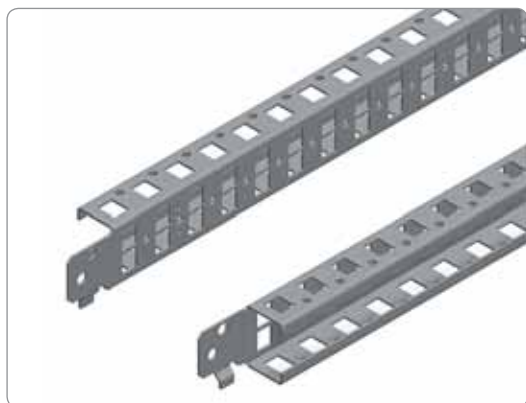
The universal cross rails allow any type of installation to be performed.

[For ranges SF, SM]

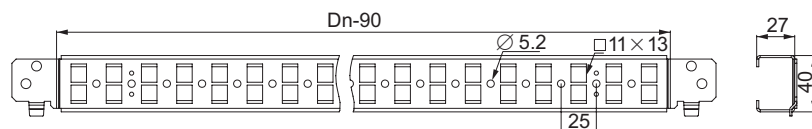
Quick-fixing cross rails

- Quick-fixing cross rail, width 40mm (1 row), perforated with a pitch of 25 mm (\varnothing 5.2 mm).
- Adjustable with a pitch of 25 mm.
- **Spacial SF:** they are fixed directly to the structure, quickly and safely. Clip-on plus screwing.
- **Spacial SM:** cross rails for depthwise fixing by means of adaptation profiles and 40 mm universal cross rails (1 row), or between cross rails in any other position.
- Material: zinc-coated steel.

 Supply: two quick-fixing cross rails and fixing elements.



Nominal dimensions	Maximum load	Reference
Height/Width/Depth	(kg) by rail	40 mm (1 row)
400	60	NSYSQCR4040
500	60	NSYSQCR4050
600	50	NSYSQCR4060
800	40	NSYSQCR4080
1000	30	NSYSQCR40100
1200	20	NSYSQCR40120





[For ranges SF]

Rails for heavy loads

- They can be mounted with a cable-gland plate or with a previously mounted mounting plate.
- Laterally adjustable with a pitch of 25 mm.
- Elongated holes, for adjusting the centre-to-centre distance of the switchgear.
- Material: galvanised steel.
- Thickness: 4 mm.







Supply: 2 rails for heavy loads and fixing elements.

Nominal dimensions (mm)	Maximum load (kg)	Reference
Depth		
600	500	NSYHLCR60
800	475	NSYHLCR80

Fixing elements

- **Caged nuts:** they are installed in the rectangular cut-outs of the structure and the cross rails.
- **Screw with washer:** they make assembly easier in difficult-access locations.
- **Metric Torx screw:** to fix on the caged and/or removable nuts.
- **Torx self-tapping screw:** to fix on the structure or on the cross rails.

Fixing element	Supply (units)	Reference	
	M6 caged nut	50	NSYCNFM6
	M8 caged nut	50	NSYCNFM8
	M6 × 12 mm	100	NSYS12M6H
	M6 × 16 mm	100	NSYS16M6H
	M6 × 18 mm	100	NSYS18M6H
	M8 × 16 mm	100	NSYS16M8H
	M8 × 20 mm	100	NSYS20M8H
	Torx T30 M6 × 16 mm screw (1)	100	NSYST30M6
	Torx T40 M8 × 16 mm screw (1)	100	NSYST40M8
	Torx T30 M6 × 12 mm self-tapping screw (1)	100	NSYST30M6S

(1) Screw without washer.



Reference by unit. Order by multiples of 50 (nuts) or 100 (screws).

Power distribution

Modular distribution



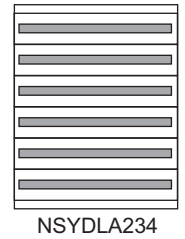
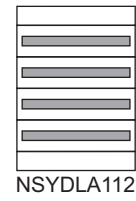
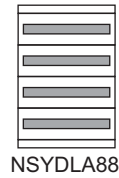
Technical characteristics

Dinimel DLA modular chassis

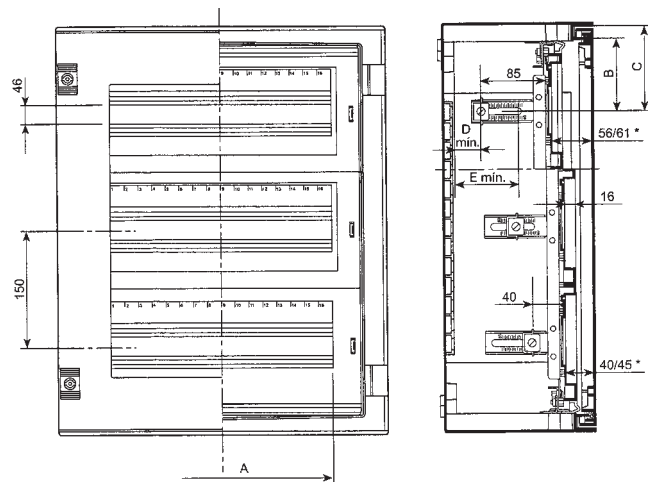
- Front panels and finish covers, made from self-extinguishing insulating material RAL 7032 colour. Rigid galvanised-steel structure, for the installation of modular devices.
- Open front panels with 35-mm DIN rail and plain front panels with mounting plate, according to the model.
- Quick installation with no fixings.
- Shoulder height adjustable from 40 to 85 mm.
- System for standard circuit marking.
- Incompatible with the internal doors and the step slides.
- Neutral / earth strip: $2 \times 16 \text{ mm}^2 + 5 \times 6 \text{ mm}^2$.

Dimensions (mm)					Distribution rows				Enclosures dimensions (mm)		References
A	B	C	D min.	E min.	No. of rows	Support rail		No. of plates	Height	Width	
						Amount	Number of 18-mm modules				
286	140	170	80	130	3	3	48	–	600	400	NSYDLA48P
395	115	145	129	179	4	4	86	–	700	500	NSYDLA88
504	165	195	129	179	4	4	112	–	800	600	NSYDLA112
704	115	146	170	220	6	6	234	–	1000	800	NSYDLA234

[For ranges
CRN, S3X, PLM]



Dimensions (mm)



* Models NSYDLA48P, 88 and 112.

Power distribution

Modular distribution



Plain front panels for Dinimel DLA chassis

- Front panel made from RAL 7032 self-extinguishing insulating material for non-modular device protection, on one row.
- To be ordered in multiples of 2.

For installing on the chassis	Width (mm)	References
NSYDLA48 and NSYDLA48P	356	NSYCTL400DLA
NSYDLA66 and NSYDLA88	456	NSYCTL500DLA
NSYDLA84 and NSYDLA112	555	NSYCTL600DLA
NSYDLA234	755	NSYCTL800DLA



Blanking plate

Blanking plate made from fire-proof insulating material, for full or partial covering of the circuit-breaker windows; it can easily be cut to the required size.

Length (mm)	N° of modules	Reference
72	4	NSYATP72G

Cable management

Cable entries



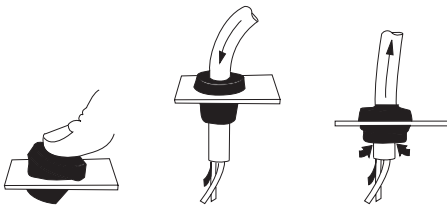
IP 67 quick cable entries

- IP 67.
- Material: EPDM plastic.
- Suitable for walls from 1 to 4 mm (0.5 to 2 mm for ref. **IMT36179**).
- Quick installation with no tools.
- Installation direction: the conical part is inside the box.

ISO	Ø of drill hole	Cable Ø (mm)	Minor pack.	Reference
M12	12.5	3 - 5	50	IMT36179
M16	16	5 - 7	50	IMT36180
M20	20.3	7 - 10	50	IMT36181
M25	25.3	10 - 14	50	IMT36182
M32	32.4	14 - 20	50	IMT36183
M40	40.7	20 - 26	25	IMT36184
M50	50.7	26 - 35	25	IMT36185

Application

- Push the cable entry into the hole. The conical part must be inserted into the box.
- Prepare and loosen the cable entry with a screwdriver. Pass the cable through the cable entry.
- Pull the cable back slightly to fix it in place. The installation is complete.



4



Ø 22-mm cable-duct support

- Installed on the door of the wall-mounting or floor-standing enclosure associated with Ø 22-mm elements.
- Material: treated steel.



Supply: 10 units.

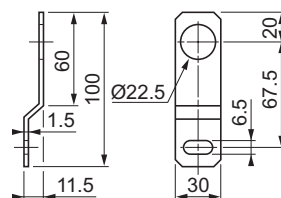


Reference by unit. Order by multiples of 10 (10, 20, 30...).

Reference

NSYSPCP

For ranges
SF, SM, CRN, PLM,
S3X



Cable management

Cable entries

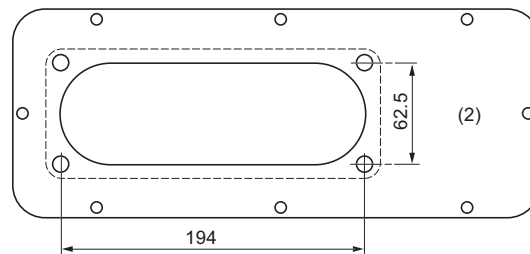
FL21-type membranes for IP 65 cable-entry plate

Number of cable entries	Diameter of the cable entry (Ø mm)											Reference
	5-7	6-10	8-12	8-16	10-14	12-18	14-20	17-32	20-26	24-54	30-60	
7				4						2	1	NSYAECPLT7
25	4		4		12		4		1			NSYAECPLT25
35		2	14		16	2		1				NSYAECPLT35

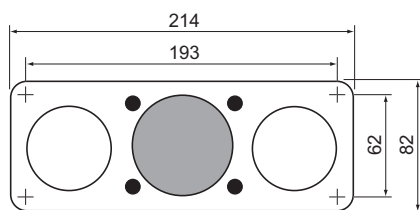


Sealed cable entries made from insulating material (fire resistance: V0 according to UL 94).

- Guarantees a degree of protection of IP 65.
- Dark grey colour.
- Installation on pre-cut plates (page 2/18).
- 3 models: 7 to 35 cable entries.

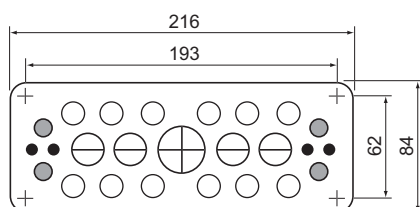


Features of the membranes



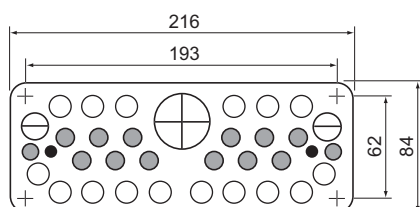
NSYAECPLT7

Symbol	For cable Ø	No. of entries
●	8-16	4
○	24-54	2
⊕	30-60	1



NSYAECPLT25

Symbol	For cable Ø	No. of entries
●	5-7	4
●	8-12	4
○	10-14	12
⊖	14-20	4
⊕	20-26	1



NSYAECPLT35


Symbol	For cable Ø	No. of entries
●	6-10	2
●	8-12	14
○	10-14	16
⊖	12-18	2
⊕	17-32	1

Door accessories

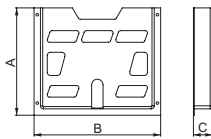


Plastic document pocket

- Fixing by adhesive tape.
- Formats: A5 and A4.
- Material: polystyrene (PS), RAL-7035 grey.

 Supply: 1 plastic document pocket.

Document format (mm)	A	B	C	Reference
A4	234	278	22	NSYDPA4
A4	234	278	40	NSYDPA44



4



Fig. 1

Window for modular equipment, IP 65

They provide viewing and access to the inside of the enclosure while keeping the IP 65 protection degree. Made from transparent polycarbonate.


 Supply: 1 window.



Fig. 2

N.° of modules	Fig. n.°	A	B	C		Reference
				Low cover	High cover	Low cover
4	1	78	95	15	25	NSYVA274M
36*	2	248	235	13	-	NSYVA2736M

* In rows of 12 modules mounted vertically.

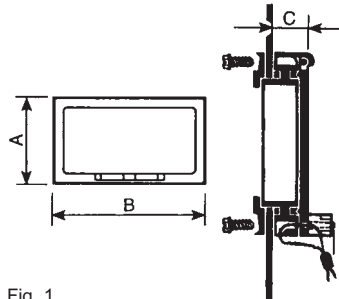


Fig. 1

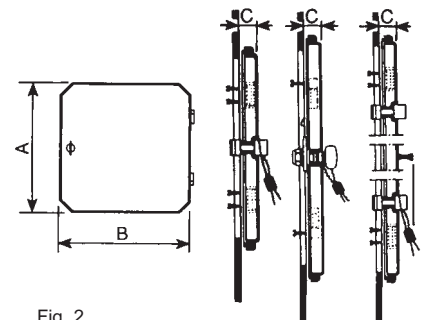



Fig. 2

Door switches & Lighting



Door switch for floor-standing enclosures

- The switch is fixed to the structure of the enclosure.
- Drilled M20 cable entry for cable gland.
- NC + NO contact, 10 A/500 V.

 Supply: 1 door switch and fixing elements.

Reference	For ranges
NSYDCM20	SF
NSYMDCM20	SM



Door switch for wall-mounting enclosures

- Switch/commutator unit equipped with support and fixings for direct fixing to the enclosure.
- Can be used to control lighting, air-conditioning units, etc.
- It is not compatible with installing the 19" swing rack and the internal door.
- NC + NO contact, 10 A/500 V.

 Supply: 1 door switch and fixing elements.

[For ranges
CRN, S3X]

Reference
NSYINLCRN



Neon lamp

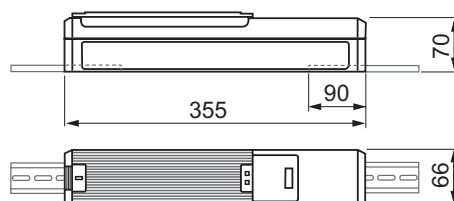
- Compact neon lamp, low consumption with switch and power socket.
- Magnetic fixing* or on a 35 mm DIN rail (non supply).
- Delivered with a protective glass.

* It is impossible to fix it magnetically in stainless steel enclosures.

Luminosity	Power consumption	Voltage	Reference
900 Lm	11 W	220/50 Hz	NSYLAC75

Technical characteristics

- Service life: 5000 h.
- Switch: Integrated.
- Connection: 3-pole screw connector 2.5 mm² (torque 0.5 Nm max.).
- Casing: Plastic light grey.
- Dimensions: 355 × 65 × 70 mm.
- Weight: Aprox. 1.0 kg.
- Fitting position: Variable.
- Operating/Storage temperature: -20 to +50 °C (-4 to +122 °F) / -45 to +70 °C (-49 to +158 °F).





Earthing accessories



Earthing leads

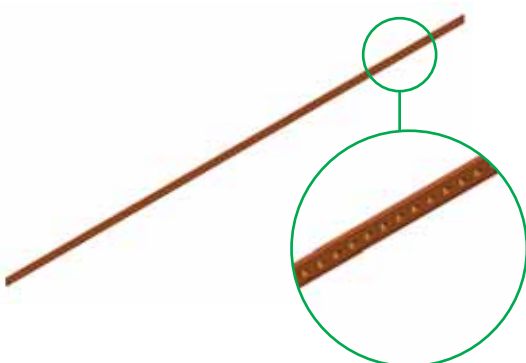
- They make it easier to set up a safe earth connection, with perfect contact, with optimised length.
- Material: brass and copper alloy terminal, green and yellow PVC insulating sheath.

 Supply: ten earthing leads (nuts and washers not included).

 Reference by unit. Order by multiples of 10 (10, 20, 30...).


Length (mm)	Cross-section (mm ²)	Hole Ø (mm)	Reference
160	6	8.3	NSYEL166D8
350	25	8.3	NSYEL3525D8

4



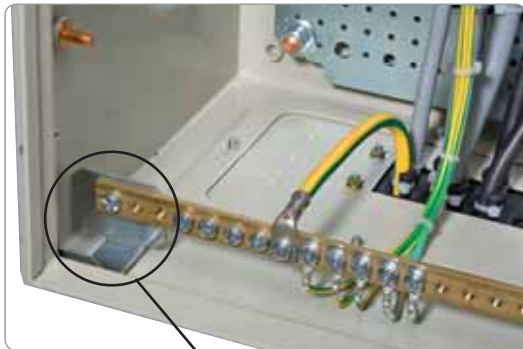
Earthing strip

- Perforated brass bar, 15 × 3 mm.
- Length of 1 m.
- 87 connection points, M5 thread.

 Supply: earthing strip and fixing elements.

Reference
NSYECB1M153

Earthing accessories



NSYEDCOS

[For ranges S3X, CRN]

Fixing lugs for the earthing strip

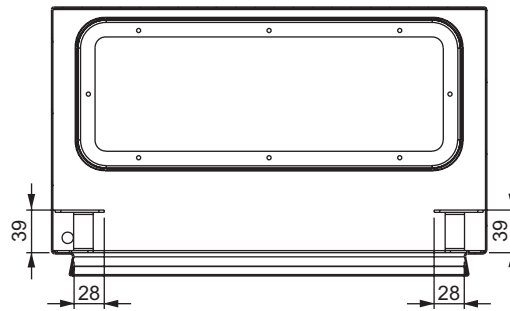
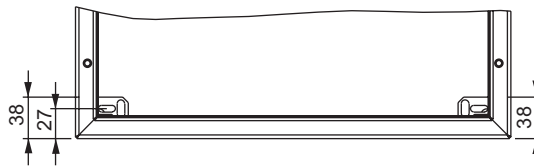
- They allow the mounting of an earthing strip or a DIN rail at the top and bottom of an enclosure.
- Fixing on holes made in the gutter of the enclosure.
- Mounting incompatible with certain accessories. Please consult us.



Composition: 2 lugs and fixings.

Reference

NSYEDCOS



Combined fixing lugs for the earthing strip

- They allow the mounting of an earthing strip at the bottom of the enclosure and a DIN rail.
- Tilted to 30°.
- Earthing strip, ref. NSYECB1M153.



Composition: 2 fixing lugs and fixing elements.

Reference

NSYEDCOC

5

Thermal management system

ClimaSys

5/2



ClimaSys CV-CA Ventilation and Airing systems

5/8



ClimaSys CR Resistance Heaters

5/18



ClimaSys CC Thermal Control

5/21

Thermal management system

Thermal conditioning of electric and electronic switchboards: a need



What is thermal control?

Technological evolution

The miniaturisation of components, the generalisation of electronics and the appearance of new electronically powered products have made temperature management into a growing need which must necessarily be considered when designing electrical and/or electronic switchboards.

What are the advantages of efficient thermal management?

Thermal management of electrical switchboards is a major factor for industrial maintenance.

Many risks are incurred by not having a suitable thermal solution, which can affect the service life of the components and the performance of the facilities to the extent of causing a halt in production.

The service life of the components also depends on the temperature and humidity conditions inside the enclosure. The ideal values range from +25 to +35 °C for the temperature and 40 to 60 % for the relative humidity (RH).

Cooling, heating, controlling

For the same reasons as the IP protection ratings, equipment installed in enclosures requires suitable thermal protection.

Various solutions to these problems have been put forward. They will be chosen according to environmental conditions, the type of components in the electrical switchboard, etc.

In certain cases, it is sufficient to oversize the enclosure, use fans or air-air exchangers, etc. In other cases, where the ambient temperature is higher, it becomes necessary to install air-water exchangers or cooling units.

A solution for each need

We provide a complete Thermal offer to secure your installations.

- | | |
|-------------|---|
| Cooling | <ol style="list-style-type: none"> 1. Forced ventilation systems 2. Air-air exchangers 3. Air-water exchangers 4. Cooling units |
| Heating | <ol style="list-style-type: none"> 5. Resistance heaters |
| Controlling | <ol style="list-style-type: none"> 6. Thermal control accessories |
| Calculating | <ol style="list-style-type: none"> 7. New ProClima 5.0 software |

Risks

Risks associated with the lack of thermal control



Random breakdowns and production halts result in heavy losses

Thermal control of enclosures extends the service life of the components and reduces their breakdown rate.

Reduction of the service life of the components

The service life of the components is considerably reduced if the temperature and humidity in enclosures are not controlled. Repeated sudden variations speed up the aging process.

Example

Batteries – Accumulators

Manufacturers recommend installing batteries in environments where the controlled temperature is 15 °C...25 °C.

Cold slows down the battery charging and discharging cycles. Heat increases the evaporation of water in the electrolyte and speeds up the oxidation of the plates. Using batteries at temperatures above the recommended value therefore reduces their service life.



Sudden production halt

The appearance of hot spots increases the breakdown rate and endangers the production process.

Example

Electronic equipment

Most electronic industrial control systems are equipped with axial fans for their own thermal control. A failure of the fan can lead to a production halt.

Reduced service life of the fan is one consequence of the enclosure heating up. 24 V DC axial fan.

Temperature range: -20...+70 °C.

Service life at 20 °C (L10 at 20 °C): 50000 h.

Service life at 60 °C (L10 at 20 °C): 20000 h.



The service life of the equipment can drop from 50000 h to only 20000 h.

The internal temperature increases with a high degree of IP

In aggressive atmospheres: dust, humidity, chemical agents, high temperatures, etc., the equipment is installed in industrial enclosures (IP 54) in order to protect it from the external environment. Nevertheless, it causes a reheating phenomenon which, if left unchecked, will be responsible in the short term for a halt in the operation of the components.

Example

Variable speed drives

A variable speed drive controlling a 45 kW (60 HP) motor is programmed to work at temperatures ranging up to 50 °C or 60 °C.

The power dissipated by this variable speed drive inside the enclosure can reach 1360 W.

This contribution of heat inside the enclosure will cause the top temperature to rise to 60 °C and probably cause a halt in production.



Our solution

Our new thermal offer includes a large range of solutions, suitable for all situations, from installing a ventilation system to exchangers or even a cooling unit.







Do not hesitate to contact us to find out the best thermal solution for your installation.

Choose the solution

How to select the best temperature control auxiliary?









5

System	Airing	Ventilating	Air-air exchanger
	Natural convection causes the temperature to drop inside the enclosure. Simple solutions for this case include installing grilles (without filter) or lifting the top.	Fans with filters are designed to evacuate a large amount of heat economically.	Air-air exchangers are equipped with an aluminium exchange cassette which separates the internal and external air circuits and prevents the entry of dust.
When should it be used?	This solution can only be used when the power to be dissipated is low, in an environment with small amounts of dust.	When larger amounts of heat need to be evacuated in a polluted environment.	The air-air exchangers are used in highly polluted environments or when it is necessary to evacuate large amounts of heat while guaranteeing the independence of the internal and external air circuits.
Ta: Ambient temperature Td: Desired temperature	 Ta < Td	 Ta < Td	 Ta < Td
The internal and external air circuits must be independent.	NO	NO	YES
Advantages	<ul style="list-style-type: none"> • Economic solution. • No maintenance. • Quick and easy installation. 	<ul style="list-style-type: none"> • Economic solution. • Easy maintenance. • Quick and easy installation. • Even temperature inside the enclosure. • High protection rating: IP 54 or IP 55. 	<ul style="list-style-type: none"> • The internal and external air circuits are independent. • Easy maintenance. • High protection rating: IP 54.
Disadvantages	<ul style="list-style-type: none"> • Small amount of heat evacuated. • Reduction of the IP protection rating. • Entry of dust particles. 	<ul style="list-style-type: none"> • The temperature inside the enclosure is always higher than the external temperature. • The internal and external air circuits are in contact. • Maintenance required: filter replacement. 	<ul style="list-style-type: none"> • The temperature inside the enclosure is always higher than the external temperature.
Solutions	 Ventilation devices	 Fans and outlet grilles	 Air-air exchangers

This catalogue presents a selected offer from the above panorama.



Air-water exchanger	Cooling	Heating
<p>Air-water exchangers reduce the temperature inside the enclosure by means of a water-cooled exchange cassette.</p> <p>Temperature control inside the enclosure is performed by a thermostat which opens and closes an electro-valve.</p>	<p>Air-conditioning device providing efficient cooling of the enclosure, regardless of the outside air, and prevention against hot spots.</p>	<p>The resistance heaters prevent the formation of condensation and guarantee the ideal temperature for the correct operation of the electronic components.</p>
<p>The air-water exchangers are used to evacuate large amounts of heat. They require a cold-water circuit with stable temperature and flow rate.</p> <p>They are specially recommended in difficult, highly polluted environments where there is no external air circuit.</p>	<p>The cooling units can be used in the harshest environments, where the temperature can reach up to 55 °C.</p> <p>These devices control the temperature inside the enclosure and include an alarm function for signalling operational anomalies.</p>	<p>The resistance heaters are used to reheat the electrical switchboard when the ambient temperature is too low or to prevent the formation of condensation.</p>
 <p>Ta > Td</p>	 <p>Ta > Td</p>	 <p>Ta < Td</p>
<p style="text-align: center;">YES</p>	<p style="text-align: center;">YES</p>	
<ul style="list-style-type: none"> • The temperature inside the enclosure does not depend on the external temperature. • The internal and external air circuits are independent. • Security device against possible leaks. 	<ul style="list-style-type: none"> • Even temperature inside the enclosure. • High protection rating: IP 54. • Use of an environmentally friendly gas. 	<ul style="list-style-type: none"> • Small dimensions. • Equipped with a PTC-type heating system, which stabilises the surface temperature of the aluminium profile. • Available in two versions: insulated with low surface temperature or in aluminium when the surface temperature is limited to 75 °C. • The fan-equipped resistances guarantee an even temperature inside the enclosure.
<ul style="list-style-type: none"> • A cold-water supply source is required. • Specific pumping installation. 	<ul style="list-style-type: none"> • Installation of a drain is recommended. • Maintenance required: filter replacement. 	
 <p>Air-water exchangers</p>	 <p>Cooling units</p>	 <p>Resistance heaters</p>

This catalogue presents a selected offer from the above panorama.

Choose the solution

A thermal solution for every environment



Ventilation systems with filters

Specially recommended for installations in which:

- The ambient temperature is lower than the desired temperature inside the enclosure.
- A high protection rating is required: IP 54 or IP 55.
- The surrounding environment is relatively clean, allowing air to enter the enclosure.

Large range of solutions

- 42 possible combinations.
- Colours: RAL 7035 as standard, with the option of changing to RAL 7032 (with replacement grille **NSYCAG●●●LPC**).
- 38 to 850 m³/h.
- According to 5 input voltages:
AC: 400/440 V, 230 V, 115 V (50/60 Hz),
DC: 48 V and 24 V.
- Broad range of accessories (filters, IP 55 EMC covers, antivandalism kit).

5



Air-air exchangers

Specially recommended for installations in which:

- The ambient temperature is lower than the desired temperature inside the enclosure.
- A high protection rating is required: IP 54 or IP 55.
- The outside environment is highly polluted.

Large range of solutions

- 4 models.
- Two installation versions: top-mounting model and side-mounting model.
- Cooling power from 15 to 70 W/°K .
- According to the input voltage: 230 V (50/60 Hz).



Air-water exchangers

Specially recommended for installations in which:

- The ambient temperature is higher than the desired temperature inside the enclosure.
- The outside environment is corrosive, the internal and external air circuits are independent.
- The outside environment is highly polluted, the temperature is controlled by cold water without requiring the use of an external air circuit.
- It is necessary to extract the heat from the enclosure to the outside of the building.

Large range of solutions

- 3 models.
- Two installation versions: top-mounting model and side-mounting model.
- Cooling power of 2100 W and 3150 W.
- According to the input voltage: 230 V (50/60 Hz).

This catalogue presents a selected offer from the above ranges.

Choose the solution



Cooling units

They control the temperature inside the enclosure in order to guarantee the correct operation of the components, regardless of the outside temperature, by separating the internal and external air circuits and reducing the humidity of the enclosure.

Large range of solutions

- 32 models.
- Two versions: top-mounting model and side-mounting model.
- Cooling power from 240 to 4000 W.
- Two control versions: electronic and mechanical.
- According to the input voltage: 230 V (50/60 Hz);
3 × 400/440 V (50/60 Hz); 115 V (50/60 Hz).
- Three installation types: surface, flush and partial flush (SLIM version).
- RAL 7035 and stainless steel.



Resistance heaters

With a double objective:

- To prevent the formation of condensation inside the enclosure.
- To reheat the electrical switchboard when the temperature is too low for the components to operate correctly.

Large range of solutions

- 30 models.
- Insulated or aluminium versions.
- Versions with natural convection or fan.
- Cooling power from 10 to 550 W.
- According to the input voltage: 12 V to 450 V AC/DC.



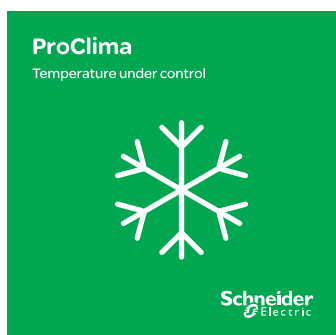
Thermal control

Thermostats control the temperature inside the enclosure and send a signal when certain defined values are exceeded:

- Maximum value (cooling action).
- Minimum value (reheating action).

Large range of solutions

- 15 models.
- Temperature control: adjustable thermostats; single or double.
- Relative humidity control: adjustable hygrometer.
- Temperature and relative humidity control: adjustable hygrometer.



Calculation assistance: ProClima

We offer our customers and users a software application to help them select thermal accessories.

The programme draws up a heat balance and defines the best ventilation or cooling solution for the inside of the enclosure.

Ventilation systems

Introduction



Large range of fans

Flow rate efficiency, high protection rating, quick installation and easier maintenance to secure all the applications.



Optimised flow rate: average increase of 50%

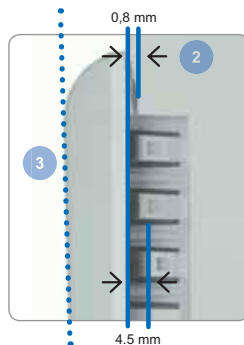
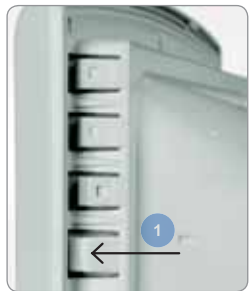
Maximum use of surface

The outlet grille maximises the air circulation.

Minimum loss of pressure

Improved air flow. The corners of the walls, the variable tilt of the slats, the fixing distance of the motor and the dimensions of the device have been studied to guarantee better aerodynamics and a smaller loss of pressure.

5



High protection rating: IP 54 as standard

Fixing guide (1)

An exclusive new mechanism (patented) is used to centre the body of the fan on the wall of the enclosure. This system corrects machining faults. In addition, it facilitates the correct operation of the fixing "clips".

Multi-thickness fixing clips (2)

This exclusive device (patented) guarantees easy and reliable fixing of the ventilation system on walls with a thickness of 0.8 to 4.5 mm, with no fixings. It guarantees perfect compression of the seal around the outline of the cut-out. The seal between the grille and the wall is guaranteed for all the materials: steel, stainless steel, polyester, aluminium, etc.

Inclined profile of the grille (3)

- This innovating profile helps protect the filter against vertical spraying:
 - Each slat is protected by the slat above it.
 - The external dimensions remain small.



IP 54-55

A patented system allows the evacuation of water absorbed by the filter, in particular during high-pressure spraying.



Easy installation

Quick installation

- Safe, reliable fixing with the assisted fixing device and the system of multi-thickness fixing clips.
- Fixing also possible using screws.
- Easy to invert.
- To operate as extractors, all the motors can be inverted by simply removing four screws.



Easy maintenance

Quick filter replacement

Quick, easy and safe replacement of the filter installed in the fan, even during operation.



Quality of the components

Selection of the motors

Improved flow rate and longer service life.
Large range of input voltages available on all the motors delivered as standard, with alternating 50/60 Hz or direct current.



Selection of plastic materials

ASA / PC material chosen to manufacture the ventilation system:

- Improved resistance (longer service life) to UV.
- Excellent mechanical operation.
- Standard grille colours: RAL 7035.

Other colours are available on demand (contact us).

ASA / PC plastic material, self-extinguishing according to standard UL94 V0.



Ventilation offer

With homologation UL available.



**ENVIRONMENTALLY
FRIENDLY**

Environment

- Recyclable plastic materials and filters.
- Motors according to the RoHS directive.
- Lower power consumption for improved air flow.




This catalogue presents a selected offer from the above ranges.

Ventilation system

Selection guide

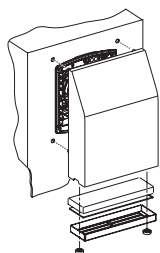
Ventilation systems with filters



	Fan flow rate (m³/h)			Voltage	Dimensions (mm)		Reference		
	Free with filter	With 1 outlet grille	With 2 outlet grilles		Total (external)	Cut-out	Fan with filter	Outlet grille	Colour kit
	50 Hz	50 Hz	50 Hz				RAL 7035		
 IP 54	85	63	71	230 V	170 × 150	125 × 125	NSYCVF85M230PF	NSYCAG125LPF	NSYCAG125LPC
	79	65	73	115 V			NSYCVF85M115PF		
 IP 54	165	153	161	230 V	268 × 248	223 × 223	NSYCVF165M230PF	NSYCAG223LPF	NSYCAG223LPC
	164	153	161	115 V			NSYCVF165M115PF		
	302	260	268	230 V			NSYCVF300M230PF		
	302	263	271	115 V			NSYCVF300M115PF		
 IP 54	562	473	481	230 V	336 × 316	291 × 291	NSYCVF560M230PF	NSYCAG291LPF	NSYCAG291LPC
	582	485	494	115 V			NSYCVF560M115PF		
	838	718	728	230 V			NSYCVF850M230PF		
	983	843	854	115 V			NSYCVF850M115PF		

5

Sealing cover IP 55



Dimensions (mm)		Cover reference	
External	Cut-out	Aluzinc RAL 7035	Stainless steel 304
240 × 180 × 60	125 × 125	NSYCAP125LZF	NSYCAP125LXF
350 × 305 × 80	223 × 223	NSYCAP223LZF	NSYCAP223LXF

Ventilation systems

Forced ventilation 85 m³/h



General characteristics

- The fans comprise an axial motor, a protective housing on the front and rear surfaces and a filter designed to retain dust particles.
- This filter can be replaced during operation without risk of contact with the rotating element.
- The cut-out template supplied with the device avoids the need for marking and protects the surface of the enclosure during handling.
- RAL 7035 grey in the standard offer with the possibility to change to RAL 7032 by means of a replacement grille.

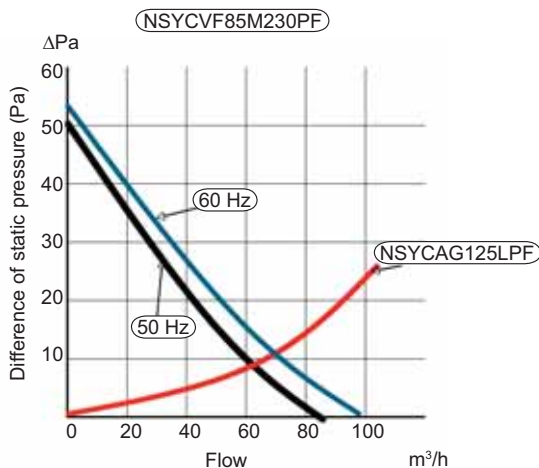
Conditions of use

- The outside temperature (Te) must be 5 °C lower than the desired temperature (Ts) inside the enclosure.
- The filters that equip the fans must be cleaned and replaced regularly.
- The surrounding environment must be relatively clean and overfrequent filter replacement should be avoided.
- Bear in mind the pressure losses caused by the outlet element (grille with filter, ventilation louvre or simple opening) when determining the fan flow rate.

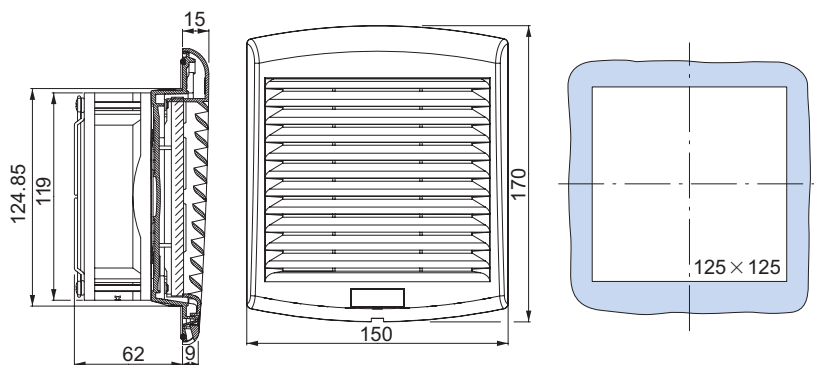
Specifications	Reference	
	NSYCVF85M230PF	NSYCVF85M115PF
Colour: RAL 7035		
Free flow rate with standard filter (m ³ /h)	85 (50 Hz) 98 (60 Hz)	79 (50 Hz) 92 (60 Hz)
Flow rate with 1 outlet grille (m ³ /h)	63 (50 Hz) 72 (60 Hz)	65 (50 Hz) 74 (60 Hz)
Nominal voltage	230 V (50/60 Hz)	115 V (50/60 Hz)
Voltage range	175 V...253 V	75 V...126 V
Absorbed power	17/15 W	16/15 W
Max. intensity (50/60 Hz)	0.121/0.097 A	0.207/0.179 A
Noise level	46/49 dB (A)	
Bearing	Balls	
IP	54	
External dimensions (mm)	170 × 150 × 62	
Cut-out (mm)	125 × 125	
Weight	0.780 kg	
Material	Injected thermoplastic (ASA PC). self-extinguishing according to UL94 V0	
Operating temperature	-20...+60 °C	
Storage temperature	-40...+70 °C	
Max. static pressure (flow rate m ³ /h)	50 Pa	

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Flow curves



Dimensions



Ventilation systems

Forced ventilation 165 m³/h



General characteristics

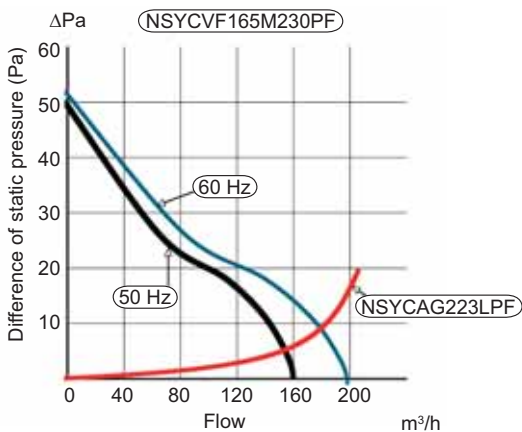
- The fans comprise an axial motor, a protective housing on the front and rear surfaces and a filter designed to retain dust particles.
- This filter can be replaced during operation without risk of contact with the rotating element.
- The cut-out template supplied with the device avoids the need for marking and protects the surface of the enclosure during the handling.
- RAL 7035 grey in the standard offer with the possibility to change to RAL 7032 by means of a replacement grille.

Conditions of use

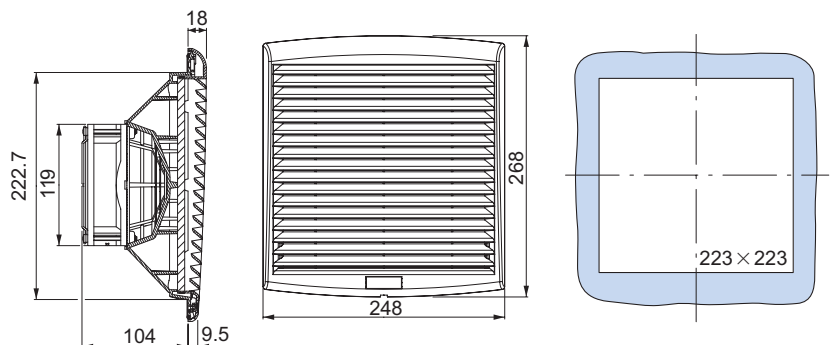
- The outside temperature (Te) must be 5 °C lower than the desired temperature (Ts) inside the enclosure.
- The filters that equip the fans must be cleaned and replaced regularly.
- The surrounding environment must be relatively clean and overfrequent filter replacement should be avoided.
- Bear in mind the pressure losses caused by the outlet element (grille with filter, ventilation louvre or simple opening) when determining the fan flow rate.

Specifications	Reference	
	NSYCVF165M230PF	NSYCVF165M115PF
Colour: RAL 7035		
Free flow rate with filter (m ³ /h)	165 (50 Hz) 193 (60 Hz)	
Flow rate with 1 outlet grille (m ³ /h)	153 (50 Hz) 171 (60 Hz)	
Flow rate with 2 outlet grilles (m ³ /h)	161 (50 Hz) 175 (60 Hz)	
Nominal voltage	230 V (50/60 Hz)	115 V (50/60 Hz)
Voltage range	175 V...253 V	75 V...126 V
Absorbed power	16.3/14.3 W	15.5/14.4 W
Max. intensity (50/60 Hz)	0.12/0.94 A	0.20/0.18 A
Noise level	50/51 dB (A)	
Bearing	Balls	
IP	54	
External dimensions (mm)	268 × 248 × 104	
Cut-out (mm)	223 × 223	
Weight	1140 kg	
Material	Injected thermoplastic (ASA PC), self-extinguishing according to UL94 V0	
Operating temperature	-20...+60 °C	
Storage temperature	-40...+70 °C	
Max. static pressure	50 Pa	

Flow curves



Dimensions



Ventilation systems

Forced ventilation 300 m³/h



General characteristics

- The fans comprise an axial motor, a protective housing on the front and rear surfaces and a filter designed to retain dust particles.
- This filter can be replaced during operation without risk of contact with the rotating element.
- The cut-out template supplied with the device avoids the need for marking and protects the surface of the enclosure during handling.
- RAL 7035 grey in the standard offer with the possibility to change to RAL 7032 by means of a replacement grille

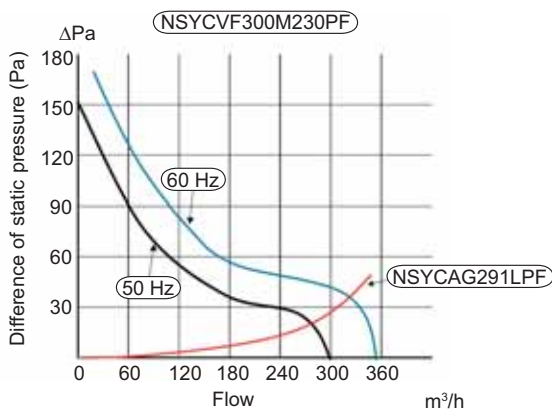
Conditions of use

- The outside temperature (Te) must be 5 °C lower than the desired temperature (Ts) inside the enclosure.
- The filters that equip the fans must be cleaned and replaced regularly.
- The surrounding environment must be relatively clean and overfrequent filter replacement should be avoided.
- Bear in mind the pressure losses caused by the outlet element (grille with filter, ventilation louvre or simple opening) when determining the fan flow rate.

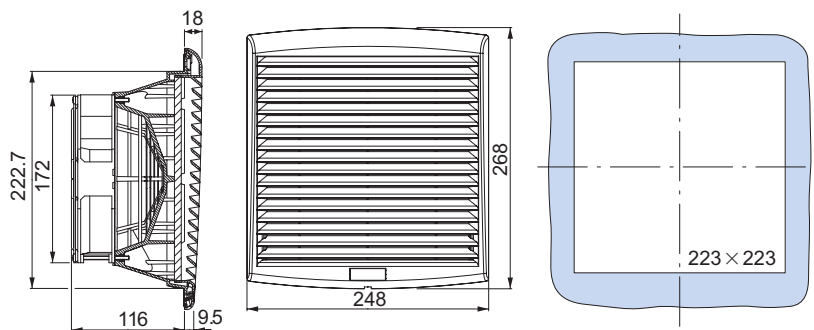
Specifications	Reference	
	Colour: RAL 7035	NSYCVF300M230PF
Free flow rate with filter (m ³ /h)	300 (50 Hz) 350 (60 Hz)	
Flow rate with 1 outlet grille (m ³ /h)	260 (50 Hz) 307 (60 Hz)	
Nominal voltage	230 V (50/60 Hz)	115 V (50/60 Hz)
Voltage range	145 V...253 V	75 V...126 V
Absorbed power	36/37 W	
Max. intensity (50/60 Hz)	0.17/0.16 A	0.35/0.32 A
Noise level	55/56 dB (A)	
Bearing	Balls	
IP	54	
External dimensions (mm)	268 × 248 × 116	
Cut-out (mm)	223 × 223	
Weight	1.3 kg	
Material	Injected thermoplastic (ASA PC), self-extinguishing according to UL94 V0	
Operating temperature	-10...+70 °C	
Storage temperature	-40...+70 °C	
Max. static pressure	158 Pa	

5

Flow curves



Dimensions



Ventilation systems

Forced ventilation 560-850 m³/h



General characteristics

- The fans comprise an axial motor, a protective housing on the front and rear surfaces and a filter designed to retain dust particles.
- This filter can be replaced during operation without risk of contact with the rotating element.
- The cut-out template supplied with the device avoids the need for marking and protects the surface of the enclosure during handling.
- RAL 7035 grey in the standard offer with the possibility to change to RAL 7032 by means of a replacement grille.

Conditions of use:

- The outside temperature (Te) must be 5 °C lower than the desired temperature (Ts) inside the enclosure.
- The filters that equip the fans must be cleaned and replaced regularly.
- The surrounding environment must be relatively clean and overfrequent filter replacement should be avoided.
- Bear in mind the pressure losses caused by the outlet element (grille with filter, ventilation louvre or simple opening) when determining the fan flow rate.

Specifications	Reference			
	NSYCVF560M230PF	NSYCVF560M115PF	NSYCVF850M230PF	NSYCVF850M115PF
Free flow rate with filter (m ³ /h)	562 (50 Hz) 586 (60 Hz)		838 (50 Hz) 803 (60 Hz)	983 (50 Hz) 944 (60 Hz)
Flow rate with 1 outlet grille (m ³ /h)	473 (50 Hz) 477 (60 Hz)		718 (50 Hz) 568 (60 Hz)	843 (50 Hz) 642 (60 Hz)
Nominal voltage	230 V (50/60 Hz)	115 V (50/60 Hz)	230 V (50/60 Hz)	115 V (50/60 Hz)
Voltage range	207 V...244 V	103 V...122 V	207 V...244 V	103 V...122 V
Absorbed power	68/85 W	65/83 W	150/195 W	145/182 W
Max. intensity (50/60 Hz)	0.52/0.370 A	0.60/0.72 A	0.65/0.85 A	1.279/1.6 A
Noise level	59/59 dB (A)		76/75 dB (A)	78/77 dB (A)
Bearing	Balls			
IP	54			
External dimensions (mm)	336 × 316 × 161		336 × 316 × 162	
Cut-out (mm)	291 × 291			
Weight	3.2 kg		4.1 kg	
Material	Injected thermoplastic (ASA PC). self-extinguishing according to UL94 V0			
Operating temperature	-15...+60 °C			
Storage temperature	-40...+70 °C			
Max. static pressure	140 Pa		170 Pa	

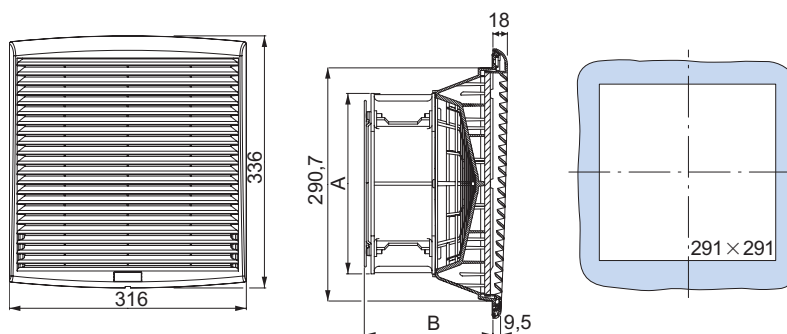
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Ventilation systems

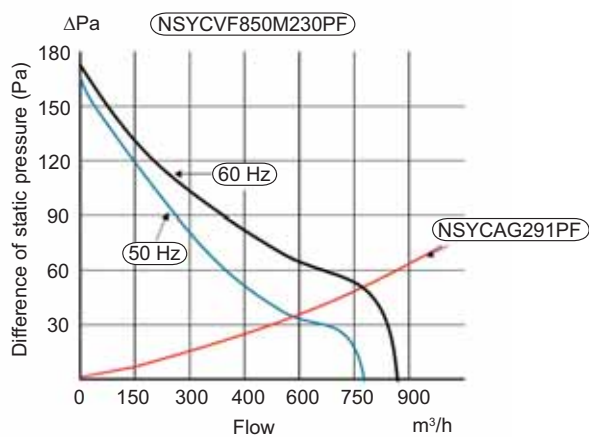
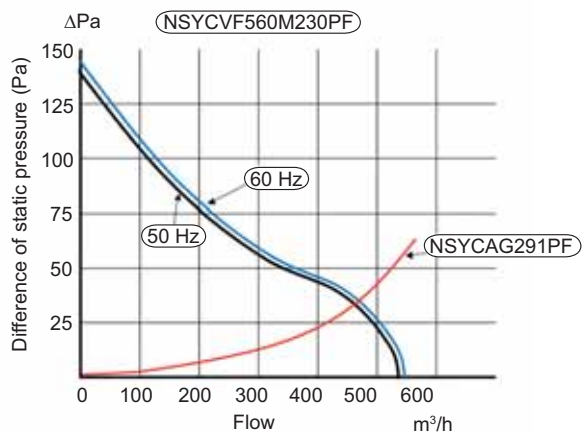
Forced ventilation 560-850 m³/h

Dimensions

A	B	Reference
225	160.5	NSYCVF560M230PF NSYCVF560M115PF
280	162	NSYCVF850M230PF NSYCVF850M115PF



Flow curves





RAL 7035

Outlet grilles

- Delivered with G2 M1 synthetic standard filter.
- Material: Injected thermoplastic (ASA PC), self-extinguishing according to UL94 V0.

Dimensions (mm)		IP	Reference RAL 7035
Total (external)	Cut-out		
170 × 150 × 15	125 × 125	54	NSYCAG125LPP
268 × 248 × 18	223 × 223	54	NSYCAG223LPP
336 × 316 × 18	291 × 291	54	NSYCAG291LPP



RAL 7032

Replacement grilles in RAL 7032

- External part of the grille (for fan or outlet grille) for changing the colour to RAL 7032.

Dimensions (mm) Total (external)	IP	Reference RAL 7032
170 × 150 × 15	54	NSYCAG125LPC
268 × 248 × 18	54	NSYCAG223LPC
336 × 316 × 18	54	NSYCAG291LPC



NSYCAG12LPH•

Filters

Concept	For fans and grilles		Pack.	Reference
	External dimensions (mm)	Cut-out (mm)		
G2 M1 synthetic standard filters	170 × 150	125 × 125	5	NSYCAF125
	268 × 248	223 × 223	5	NSYCAF223
	336 × 316	291 × 291	5	NSYCAF291

Sealed anti-condensation valve

- Controls the pressure to avoid condensation following an internal temperature increase.
- Maintains IP 68.
- Material: PA6-V2, acrylic co-polymer membrane, water and oil repellent.
- Temperature of use: -40...+105 °C.

Cut-out Ø	Permeability (1)	Pressure differ- ence (2)	Minor pack.	Reference
M12	16 litres/h	ΔP < 1 bar	10	NSYCAG12LPH1

(1) Air flow under ΔP = 0.07 bar.

(2) Condition for IP 68.

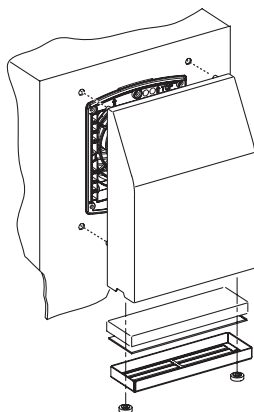


Sealing cover IP 55

- This solution protects the fan or the grille from any direct sprays.
- 2 materials available:
 - Aluzinc for RAL 7035 outdoor applications.
 - Stainless steel 304 for food and beverage applications.
- Protection rating: IP 55.
- Resistance to mechanical impacts: IK 10.
- Double insulation maintained if installed in an insulated enclosure.
- UL certification.
- The cover is placed over the fan or the grille with a filter located at the bottom of the cover to prevent the entry of particles.
- Easy access to the filter: only two screws needed.
- When mounting: remove the external part of the fan or the grille as well as the filter.
- The cover is the preferred solution to guarantee the following:
 - An efficient air flow for cooling.
 - And true IP 55 rating.
- It is necessary to order 1 fan + 1 grille + 2 covers to have a complete system.

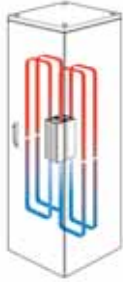
Flow rate (m³/h)* with cover		Dimensions (mm)		Cover reference		Spare filter for cover	Fan reference	Grille reference
Free	With 1 outlet grille	External	Cut-out	Aluzinc RAL 7035	Stainless steel 304	Minor pack. 5 p	RAL 7035	RAL 7035
74	53	240 × 180 × 60	125 × 125	NSYCAP125LZF	NSYCAP125LXF	NSYCAF125L55	NSYCVF85M230PF	NSYCAG125LPP
110	82	350 × 305 × 80	223 × 223	NSYCAP223LZF	NSYCAP223LXF	NSYCAF223L55	NSYCVF165M230PF	NSYCAG223LPP
165	123	350 × 305 × 80	223 × 223	NSYCAP223LZF	NSYCAP223LXF	NSYCAF223L55	NSYCVF300M230PF	NSYCAG223LPP

*The impact on the flow rates of the fans supplied with the other voltages is similar to those provided by the 230 V fans.



Aluminium resistance heaters

Introduction



The resistance heaters prevent the formation of condensation and guarantee the ideal temperature for the correct operation of the electronic components in the enclosure.



Resistance heaters equipped with a PTC-type sensor

The resistance heaters for electrical and electronic enclosures are equipped with PTC-type heating devices (Positive Temperature Coefficient). Thanks to these heaters:

- The surface temperature stabilises at 75 °C when the ambient temperature is -5 °C.
- Power consumption is reduced.

Improved convection

The design of the profile of the resistance heaters produces a "chimney" effect, leading to increased natural convection and maintaining an even temperature inside the enclosure.



Quick fixing

The resistance heaters are fixed by means of fixing clips to a 35-mm DIN rail.



Connection cables

The 20 W heaters are equipped with a $2 \times 0.75 \times 300$ mm power cord.

Selection



Connection terminal boards

Heaters with a power of 55 W or 90 W are equipped with a connection terminal board.

Selection of power levels

3 power levels, from 20 W to 90 W.

Aluminium resistance heaters



General characteristics

- Extruded aluminium body.
- Surface temperature limited to 75 °C when the ambient temperature is -5 °C.
- Heaters equipped with a power cable with a length of 500 mm with silicon insulation, or with a connection terminal block.

Conditions of use

- The heaters must be installed with a thermal controller (see selection table on pages **CC002_2** and **CC002_3**) to control the temperature or the humidity inside the enclosure.
- The enclosure must be sealed to prevent the entry of air from the outside.
- An electrical protection device must be installed on the supply side of the unit.

Aluminium resistance heaters

- Range of resistance heaters from 10 to 400 W, heating the electrical switchboard to prevent the formation of condensation.

Power (W)	Voltage (V)	Connection type		Reference
		Terminal block	Power cord	
20	110-250 AC		•	NSYCR20WU2
55	110-250 AC	•		NSYCR55WU2
90	110-250 AC	•		NSYCR100WU2

Thermal control

Overview



Adjustable thermostats

- NO (blue button) with normally open contact to control the starting of a fan when the temperature exceeds the displayed maximum value.
- NC (red button) with normally closed contact to control the stopping of a resistance heater when the temperature exceeds the displayed value.
- Large range of temperature control.
- Small dimensions.
- Easily accessible terminals.
- High connection power.
- 4 types of fixings (novelty).



Electronic thermostat with LCD screen

- Three thermostats for different input voltages (110-127 V, 220-240 V).
- Operating temperature: 0 °C...+50 °C.
- Simple programming.
- Option of installing an external sensor, ref. **NSYCCAST** for remotely reading the temperature (operating temperature: -30 °C...+80 °C).
- Ventilation and heating function (2 separate relays).
- High switching power.
- Hysteresis: 2 K (+/-0.1 K).
- 7 different operating modes.
- Additional operating mode with 1 external sensor: Reads and compares the internal and external temperatures in order to control the ventilation, heating or the alarm.
- Temperature adjustment range: +5 °C...+50 °C.



Electronic hygrotherms

- Electronic hygrotherms for different input voltages (110-127 V, 220-240 V).
- Operating temperature: 0 °C...+ 50 °C.
- Option of installing an external sensor, ref. **NSYCCAST** for remotely reading the temperature (operating temperature: -30 °C...+80 °C).
- Simple programming.
- 3 different operating modes.
- High switching power.
- T hysteresis: 2 K (+/-0.1 K).
- RH hysteresis: 3%.
- Temperature adjustment range: +5 °C...+50 °C.
- Humidity adjustment range: 20%...80%.



Electronic hygrosat

- Electronic hygrosat for different input voltages (110-240 V).
- Operating temperature: 0 °C...+50 °C.
- Simple programming.
- 2 different operating modes.
- High switching power.
- RH hysteresis: 3%.
- Humidity adjustment range: 20%...80% RH.

Thermostat installation tips:

The thermostat should be installed at the top of the enclosure (the hottest place). See the various operating modes of each thermostat to choose the one that best meets your needs.

Hygrosat installation tips:

The hygrosat should be installed at the bottom of the enclosure. 60% RH is the optimum value in the enclosure.

Thermal control

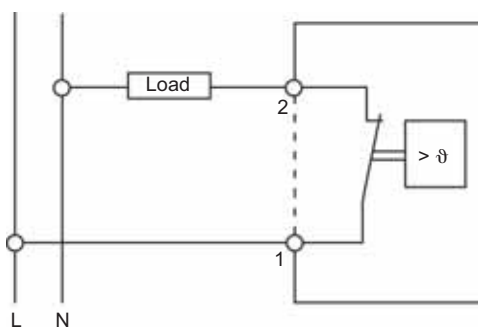
Thermostat with NC contact



- Thermostat with NC contact to control the stopping of a resistance heater when the temperature exceeds the displayed value.
- This considerably lengthens the service life of the resistance heaters since they are used less frequently.
- Protection rating: IP 20.
- PC plastic material, self-extinguishing according to standard UL94 V0.
- Temperature adjustment range: 0...+60 °C
- Connection: four 2.5-mm² terminals.
- Multiple fixing systems.
- UL certification.

Display	Max. command I.	Reference
°C	10 A 250 V	NSYCCOTHC

Technical features	
Sensor element	Bimetal
Contact	NC, forced rupture
Contact resistance	< 10 m Ω
Service life	> 100000 cycles
Switching capacity	250 V AC; 10 A (resistive load) 120 V AC; 15 A (resistive load) 250 V AC/120 V AC 2 A (inductive load cos φ = 0.6) 30 W DC
Connection	Four 2.5-mm ² terminals
Mounting	By clip on 35-mm DIN rail
Enclosure	UL94 V0 plastic, light grey
Dimensions	60 × 33 × 43 mm
Weight	40 g
Mounting position	Indifferent
Operating temperature	-20...+80 °C (-4...+176 °F)
Protection rating	IP 20
Hysteresis	7 °K
Temperature setting range	0...+60 °C



Load = resistance

Thermal control

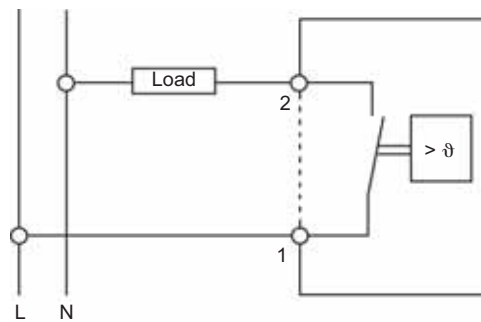
Thermostat with NO contact



- Thermostat with NO contact to control the starting up of a fan when the temperature exceeds the displayed maximum value.
- It can control the temperature inside the enclosure by only starting up the fan when necessary, thus increasing the service life of the fan and reducing the clogging of the filter.
- Protection rating: IP 20.
- PC plastic material, self-extinguishing according to standard UL94 V0.
- Temperature setting range: 0...+60 °C
- Connection: four 2.5-mm² terminals.
- Multiple fixing systems.
- UL certification.

Display	Max. command I.	Reference
°C	10 A 250 V	NSYCCOTH0

Technical features	
Sensor element	Bimetal
Contact	NO, forced rupture
Contact resistance	< 10 m Ω
Service life	> 100000 cycles
Switching capacity	250 V AC; 10 A (resistive load) 120 V AC; 15 A (resistive load) 250 V AC/120 V AC 2 A (inductive load cos φ = 0.6) 30 W DC
Connection	Four 2.5 mm ² terminals
Mounting	Clip on 35-mm DIN rail
Enclosure	UL94 V0 plastic, light grey
Dimensions	60 × 33 × 43 mm
Weight	40 g
Mounting position	Indifferent
Operating temperature	-20...+80 °C (-4...+176 °F)
Protection rating	IP 20
Hysteresis	7 °K
Temperature adjustment	0...+60 °C



Load = fan

Thermal control

Electronic thermostat with LCD screen



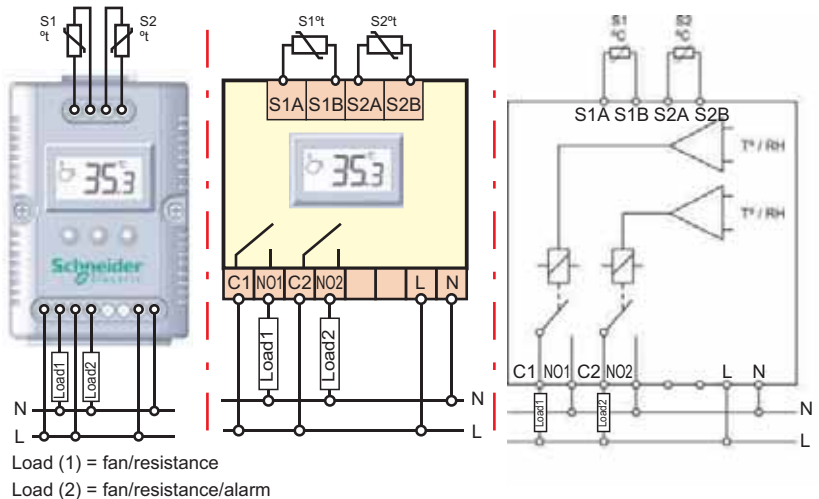
- Electronic temperature controller.
- Input voltages: 110-127 V and 220-240 V.
- Thermostats with 2 independent switching relays (ventilation / heating function).
- Thermostat precision: ± 1.5 °C.
- Option of installing external PTC sensors, ref. **NSYCCAST**, for remote reading (L = 3 m).
- PC plastic material, self-extinguishing according to standard UL94 V0.
- Option of displaying degrees Celsius °C or Fahrenheit °F in the same thermostat.

Display	Voltage	Type of current	Max. command intensity	Reference
°C or °F	110-127 V	AC	8 (5) A 230 V AC / 5 A 30 V DC	NSYCCOTH120VID
	220-240 V			NSYCCOTH230VID

Technical features	
Operating temperature	0 °C...+50 °C
Temperature setting range	+5 °C...+50 °C
Hysteresis	Programmed 2 °K
Internal sensor element	Internal temperature sensor
Connection	2 × 2.5 mm ² (input voltage) + 2 relays (2 × 2.5 mm ² + 2 × 2.5 mm ²)
Contact	Free with zero potential
Mounting	4 different methods: by DIN rail, Spacial SF profile, on VDI cross-rail or on mounting plate
Enclosure	UL94-V0 plastic, light grey
Certification	UL / UR

7 different operating modes in the same thermostat	
1	Ventilation (the addition of an external sensor inhibits the inner sensor and the reading is that of the external sensor) (activate 1st relay)
2	Heating (activate 2nd relay)
3	Ventilation / Heating (2 relays)
4	Double ventilation (2 relays)
5	Double heating (2 relays)
6	Comparison function (1 or 2 external sensors required). Compares the readings from the external sensor and the internal sensor in order to start up a fan or a heating element
7	Readings of max./min. temperature.

The thermostat automatically detects any connected sensors.



Thermal control

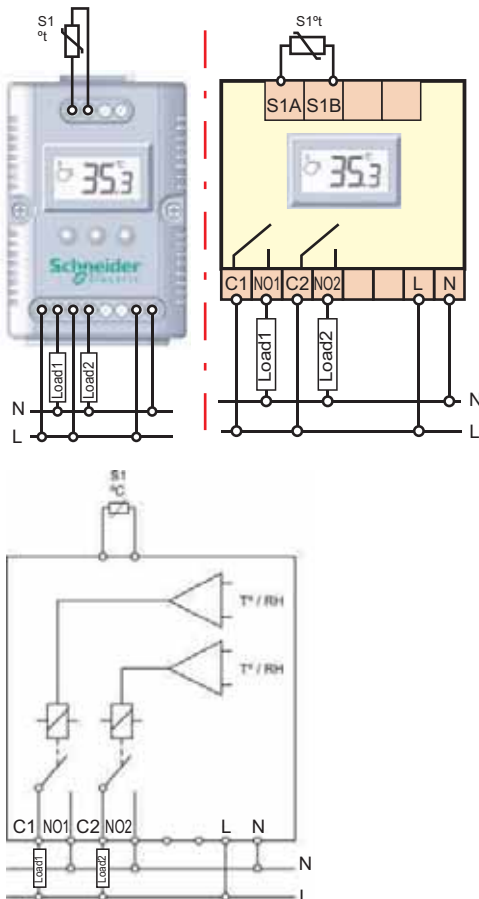
Electronic hygrotherm with LCD screen



- Electronic temperature and humidity controller.
- Input voltages: 110-127 V and 220-240 V.
- Hygrotherm with 2 independent switching relays (ventilation / heating function).
- Thermostat precision: ± 1.5 °C.
- Hygrostat precision: $\pm 5\%$ RH, relative humidity.
- Option of installing external PTC sensors, ref. **NSYCCAST**, for remote reading (L = 3 m).
- PC plastic material, self-extinguishing according to standard UL94 V0.
- Option of displaying the temperature in degrees Celsius °C or Fahrenheit °F.

Display	Voltage	Type of current	Max. command intensity	Reference
°C or °F	110-127 V	AC	8 (5) A 230 V AC / 5 A 30 V DC	NSYCCOHYT120VID
% RH	220-240 V			NSYCCOHYT230VID

Technical features	
Operating temperature	0 °C...+50 °C
Temperature setting range	+5 °C...+50 °C
Humidity setting range	20%...80%
RH hysteresis	3%
Connection	2 × 2.5 mm ² (input voltage) + 2 relays (2 × 2.5 mm ² + 2 × 2.5 mm ²)
Contact	Free with zero potential
Mounting	4 different methods: by DIN rail, Spacial SF profile, on VDI cross-rail or on mounting plate
Enclosure	UL94-V0 plastic, light grey
Certification	UL / UR



Load (1) = fan/resistance
Load (2) = fan/resistance/alarm

Operating modes

Mode 1	Relay 1	Relay 2
Controlled device	Fan	Resistance heater
Measured variables	Temperature	Temp. (T) and humidity (RH)
Control type	Avoid high temperatures	Avoid low temperatures

Mode 2	Relay 1	Relay 2
Controlled device	Resistance heater	Alarm by switching
Measured variables	Control of the dew point	Temperature and humidity
Control type	Avoid high humidity	High humidity or temperature alert

Mode 3	Relay 1	Relay 2
Controlled device	Fan	Resistance heater
Measured variables	External temperature - Internal temperature*	Temperature (T) and humidity (RH)
Control type	Heating by ventilation	Avoid low temperatures

*Comparison mode in relay 2: an external sensor is required for the comparison function (Text - Tint). Example of mode 3: Decides whether the external temperature is favourable and controls the ventilation (Relay 1) or heating (Relay 2). Advantage of mode 3: Energy efficiency. Option of efficiently heating the enclosure by ventilation (using hot external air) before bringing the resistance heater into operation. The thermostat automatically detects any connected sensors.

Thermal control

Electronic hygrostat with LCD screen



- Electronic humidity controller.
- Input voltages: 110-240 V.
- Precision: +/- 5% RH, relative humidity.
- Hygrostat with 2 independent switching relays (ventilation / heating function).
- PC plastic material, self-extinguishing according to standard UL94 V0.
- 2 operating modes for RH %: relative humidity control and dew point control.

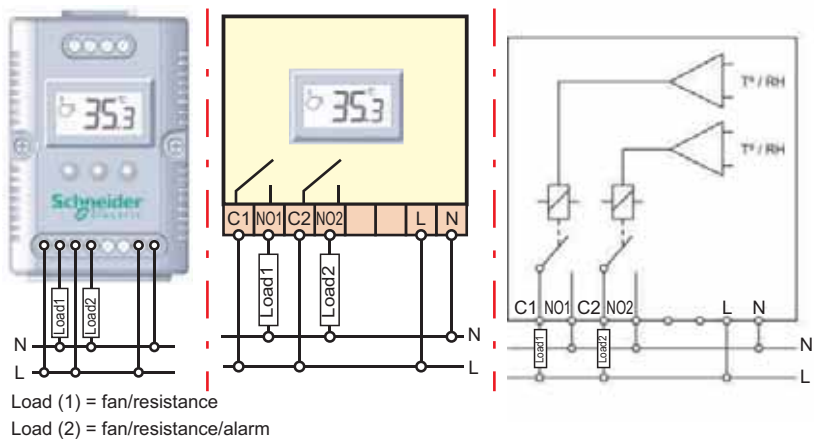
Display	Voltage	Type of current	Max. command intensity	Reference
% RH	110-240 V	AC	8 (5) A 230 V AC / 5 A 30 V DC	NSYCCOYH230VID

Technical features	
Humidity setting range	20%...80%
RH hysteresis	3%
Internal sensor element	Internal humidity sensor
Connection	2 x 2.5 mm ² (input voltage) + 1 relay (2 x 2.5 mm ²)
Contact	Free with zero potential
Mounting	4 different methods: by DIN rail, Spacial SF profile, on VDI cross-rail or on mounting plate
Enclosure	UL94-V0 plastic, light grey
Certification	UL / UR

Operating modes

Mode 1	Relay 1	Relay 2
Controlled device	Resistance	-
Measured variables	Humidity	-
Control type	Dehumidify RH (%)	-

Mode 2	Relay 1	Relay 2
Controlled device	Resistance	Alarm by switching or resistance
Measured variables	Humidity	Humidity
Control type	Dehumidify RH (%)	High humidity warning



5

Thermal control

Temperature sensor



Temperature sensor

PTC external temperature sensor (double insulation)

- Length: 3 metres.
- Several types of fixings (on DIN rail, on Spacial SF profile, on VDI cross-rail, on mounting plate).
- Sensor operation or reading range: -30 °C...+80 °C.
- Protection rating: IP 67.
- Used with Electronic thermostats & hygrotherms. (NSYCCOTH●●●VID & NSYCCOHT●●●VID) for additional temperature readings.

Reference

NSYCCAST



The new quick-fixing systems:

- On 35-mm DIN rail.



- On Spacial upright.



- On cross-rail.



- On mounting plate.

6

Technical annexes

Standard certifications 6/2

Degrees of protection: IK and IP 6/4

NEMA and UL classification 6/6










Material properties 6/8

Enclosure certifications

Product certifications are awarded for enclosures as components.

Range		Aim of the certification				
		International standard for electric power enclosures	Degrees of protection	Standards for industrial equipment and UL classification	Marine environment classification or approval for protection and resistance to vibrations	ATEX
		Standard/Directive				
		IEC 62208	IEC 60529	UL508A and CAN CSA C22-2 no. 14	Rules of certifying bodies	European directive no. 94/9/EC EN 60079-0 and -7 EN 61241-0 and -1
SPACIAL	SF	●		●	● ●	
	SM	●		●	● ●	
	SD		●			
	S3D	●		●	● ● ● ●	● (1)
	CRN	●		●	●	
	S44	●				
	S57	●				
	SFX	●		●		
	SMX	●		●		
	SDX		●			
	S3X	●		●	●	
THALASSA	PLA	●		●	●	● (1)
	PLD	●				
	PLM	●		●	●	● (1)
	PLS	●		●		
	TBS/TBP	●		●		
CLIMASYS	CV			●		

(1) ATEX certifications relate to an adapted part of the range. These ranges are distinguished by their EX endings.

Official certification body								
Bureau Veritas	LCIE (Bureau Veritas)	Bureau Veritas Marine Division	TUV Rheiland Group	Underwriters Laboratories	Laboratorio Oficial J.M. Madariaga	Det Norske Veritas	Germanischer Lloyd	Lloyd's Register
								
●	●	●	●	●	●	●	●	●

International enclosure standard

Standards IEC 62208*



Empty enclosures for low-voltage switchgear and controlgear assemblies. General rules.

Application

For empty enclosures before adding the user's switchgear, in the condition as supplied by the manufacturer.

Field of application

Demands for testing the enclosures to be used as part of the switchgear assemblies for voltages of less than 1000 V alternating current and 1500 V direct current.

Information supplied by the manufacturer

- Commercial trademark of the manufacturer: Schneider Electric.
- Mechanical characteristics, materials, conditions for use.
- Conditions for use:
Ambient air temperature for outdoor installations: -25 to $+40$ °C.
- Atmospheric conditions for outdoor installations: the humidity can temporarily reach 100% at a temperature of 25 °C.
- Transport and storage conditions: from -25 to $+55$ °C; for limited periods not exceeding 24 h: up to $+70$ °C.

* European standard EN 62208 is identical to IEC 62208. European countries publish this standard according to the body in each country (for example BS EN 62208 in the UK).



Standard tests of standard IEC 62208

- Static loads: test $1.25 \times$ maximum admissible load during 1 hour.
- Lifting: applicable to enclosures with lifting accessories.
- Axial loads of metal inserts: 500 N for 10 seconds for M8 inserts.
- IK code: test according to standard IEC 62262 with pendulum impact tester. After testing, the enclosure keeps its IP rating.
- IP rating: test according to standard IEC 60529. Degree of protection against access to dangerous parts and the penetration of solid bodies and against the penetration of water.
- Thermal stability at a temperature of 70 °C: 7 days.
- Resistance to heat: ball test at 70 °C (1).
- Resistance to abnormal heat and to fire: glow wire test according to IEC 60695-2-10 and IEC 60695-2-11 (1).
- Dielectric strength: 5000 V (1).
- Protection circuit continuity (2): resistance not to exceed 0.1 ohm.
- Weather resistance: duration 500 h (cycle: rain 5 minutes + UV lamp 25 minutes).
- Corrosion resistance:
 - For indoor enclosures:
 - 6 cycles of 24 hours of the damp heat test at 40 °C and relative humidity of 95%.
 - 2 cycles of 24 hours of the salt mist test at 35 °C.
 - For outdoor enclosures:
 - 12 cycles of 24 hours of the damp heat test at 40 °C and relative humidity of 95%.
 - 14 cycles of 24 hours of the salt mist test at 35 °C.

Our empty enclosures are marked CE according to the Low-Voltage Directive (LVD). It is the responsibility of the final equipment manufacturer to respect regulations in force.




























(1) Information required for enclosures made from insulating material.

(2) For metal enclosures.

Degrees of protection provided by enclosures

- The degrees of protection provided by the enclosures are defined by standards IEC 60529 (IP) and IEC 62262 (IK).
- Degrees of protection are indicated by the letters IP followed by two characteristic numerals. The numerals show the degree of protection offered by the enclosure against access to dangerous parts, the penetration of solid bodies (1st numeral), and against the penetration of liquids (2nd numeral).
- The protection against external mechanical impact is indicated by the letters IK followed by a characteristic group numeral.

Note: Many EN European standards are harmonised with international IEC standards. This is the case with enclosure protection standards:
 – EN 60529 = IEC 60529.
 – EN 62262 = IEC 62262.

First numeral Protection against solid bodies	IP Second numeral Protection against liquids	IK Mechanical protection
0 No protection 	0 No protection 	0 No protection 
1 Protected against solid bodies larger than 50 mm (e.g.: incidental contact with the hand) 	1 Protected against vertically falling water droplets (condensation) 	01 7,5 cm Impact energy: 0.150 Joules. 
2 Protected against solid bodies larger than 12 mm (e.g.: finger contact) 	2 Protected against water droplets deflected at up to 15° from vertical 	02 10 cm Impact energy: 0.200 Joules. 
3 Protected against solid bodies larger than 2.5 mm (tools, wires) 	3 Protected against rainwater at up to 60° from vertical 	03 17,5 cm Impact energy: 0.350 Joules. 
4 Protected against solid bodies larger than 1 mm (fine tools, small wires) 	4 Protection against water spray from all directions 	04 25 cm Impact energy: 0.500 Joules. 
5 Protected against dust (no harmful deposits) 	5 Protection against low-pressure water jets from all directions 	05 35 cm Impact energy: 0.700 Joules. 
6 Totally dust tight 	6 Protection against powerful water jets from all directions 	06 20 cm Impact energy: 1.00 Joules. 
	7 15 cm max m Protection against the effects of immersion 	07 40 cm Impact energy: 2.00 Joules. 
	8 m Protection against prolonged effects of immersion under pressure 	08 29,5 cm Impact energy: 5.00 Joules. 
		09 20 cm Impact energy: 10.00 Joules. 
		10 40 cm Impact energy: 20.00 Joules. 

Selection according to the IP protection degrees.

The degrees of protection, explained on the preceding page, is an important element when selecting the enclosures.

The following table shows the protection degrees of the enclosures.

Name	Range	IP 40	IP 41	IP 42	IP 43	IP 44	IP 54	IP 55	IP 65	IP 66
Metal industrial boxes	Spacial S44 and S57									●
Metal derivation boxes	Spacial SDB							●		
Steel universal wall-mounting enclosures	Spacial S3D							● (1)		●
	Spacial CRN									●
Steel modular distribution wall-mounting enclosures	Spacial CRNG							● (1)		●
	Spacial S3DM									●
Terminal wall-mounting enclosures	Spacial S3DB									●
EMC steel wall-mounting enclosures	Spacial S3HF							●		
HMI steel wall-mounting enclosures	Spacial S3CM						●			
ATEX steel wall-mounting enclosures	Spacial S3DEX									●
Stainless-steel wall-mounting enclosures	Spacial S3X									●
ATEX stainless-steel wall-mounting enclosures	Spacial S3XEX									●
Steel floor-standing enclosures	Spacial SM							●		
Steel suitable enclosures	Spacial SF							●		
Stainless-steel floor-standing enclosures	Spacial SMX							●		
Stainless-steel suitable enclosures	Spacial SFX							●		
Steel control desks	Spacial SD							●		
Stainless-steel control desks	Spacial SDX							●		
Thermoplastic industrial boxes	Thalassa TBS-TBP									●
Polyester modular boxes	Thalassa PLS								●	
Polyester wall-mounting enclosures	Thalassa PLM									●
ATEX polyester wall-mounting enclosures	Thalassa PLMEX									●
Polyester floor-standing enclosures	Thalassa PLA (2)					●		●	●	
	Thalassa PLD				●			● (3)		

(1) Double door.
 (2) Different IP depending on the version. See introduction in Thalassa PLA section.
 (3) With gasket.

3 Material Solutions

Steel

Stainles-steel

Plastic Polyester

Selection according to the environment

The location of the enclosures and the physical, chemical and climatic conditions to which they are exposed will determine the model to be used.

- Steel enclosures are particularly well suited to indoor use in industrial environments.
- Stainless-steel enclosures are particularly well suited to corrosive environments or areas where specific hygiene demands are applicable.
- Polyester enclosures are particularly well suited to severe corrosive atmospheres, indoors or outdoors.

Enclosures made from insulating materials guarantee total insulation, reducing electric hazards for persons.

The main characteristics of the plastic materials of our enclosures and their chemical strength are given on page 6/8.

Further help for making the selection is given by the NEMA or UL classification of the enclosure, see page 6/6.

Classification of electrical equipment enclosures according to NEMA and UL

NEMA and UL are standardisation bodies, commonly recognised in North America, which have issued classifications of enclosures according to the protection offered in various environments.

These classifications are similar.

The 1st table below summarises this classification, which does not include potentially explosive areas. The detailed recommendations of this classification are given on the next page.

The 2nd table indicates the classification of our enclosures.

These classifications appear in our UL certifications (see Certification technical annex on page 6/2).

Certification according to the UL classification guarantees the corresponding NEMA classification by equivalence.

Environment and protection	Classification												
	1	2	3	3R	3S	4	4X	5	6	6P	12	12K	13
Indoor use	●	●	●	●	●	●	●	●	●	●	●	●	●
Outdoor use			●	●	●	●	●	●	●	●	●	●	●
Incidental contact with the equipment	●	●	●	●	●	●	●	●	●	●	●	●	●
Dirt	●	●	●	●	●	●	●	●	●	●	●	●	●
Drips and gentle splashes of non-corrosive liquids		●	●	●	●	●	●	●	●	●	●	●	●
Rain, frost(*) and snow			●	●	●	●	●		●	●			
Frost (**)					●								
Dust, fibres and particles in suspension			●		●	●	●		●	●	●	●	●
Built-up dust, fibres and particles in suspension			●		●	●	●	●	●	●	●	●	●
Clouds of dust			●		●	●	●		●	●			
Splashes and jets of water						●	●		●	●			
Gentle splashes and leaks of oil or non-corrosive coolants											●	●	●
Drips, splashing and spraying of oil or non-corrosive coolants													●
Corrosive agents							●			●			
Occasional temporary immersion									●	●			
Occasional prolonged immersion										●			

(*) The operation of the external mechanisms is not required when the enclosure is covered with frost.

(**) The operation of the external mechanisms is required when the enclosure is covered with frost.

Enclosures		Type of protection (1)												
		1	2	3	3R	3S	4	4X	5	6	6P	12	12K	13
Steel wall-mounting enclosures	S3D	●	●	● (*)	● (*)		● (*)	● (*)				● (**)	● (**)	● (**)
	CRN	●	● (*)	● (*)	● (*)		● (*)		● (*)			●		●
Stainless-steel wall-mounting enclosures	S3X	●	● (*)	● (*)	● (*)		● (*)	● (*)	● (*)			●	● (**)	● (*)
Steel floor-standing enclosures	SM	●	● (*)	● (*)	● (*)		● (*)		● (*)			●	●	● (*)
Steel suitable enclosures	SF	●										●	●	
Stainless-steel floor-standing enclosures	SMX	●	● (*)	● (*)	● (*)		● (*)	● (*)	● (*)			●	●	● (*)
Stainless-steel suitable enclosures	SFX	●										●	●	
Thermoplastic boxes	TBS/TBP	●		●		●	●	●				●		
Polyester modular boxes	PLS	●	●	●	●	●	●	●				●		●
Polyester wall-mounting enclosures	PLM	●	●	●	●	●	●	●				●		●
Polyester floor-standing enclosures	PLA	●	●	● (*)	● (*)		● (*)	● (*)	● (*)			●		●

(*) 1 door.

(**) 2 doors.

Components		Type of protection (1)												
		1	2	3	3R	3S	4	4X	5	6	6P	12	12K	13
Ventilation system	CV											●	●	
Thermal regulation system	CC											●	●	

(1) In some ranges the classification depends on the model and version. The detailed protection types are indicated in the UL certifications.

Classification of electrical equipment enclosures according to NEMA and UL

The enclosures must protect the equipment against environmental conditions and protect the personnel against the risk of incidental contact with the equipment. The following classifications (Type) are required according to the required uses and prescriptions:

Type	Use	Prescription
1	Indoor use.	The enclosure provides protection for the personnel against incidental contact with the internal equipment and protects said equipment against dirt.
2	Indoor use.	It provides protection for the personnel against incidental contact with the internal equipment and protects said equipment against dirt, drips and gentle splashes of non-corrosive liquids.
3	Indoor and outdoor use.	The enclosure provides protection for the personnel against incidental contact with the internal equipment and protects said equipment against dirt, rain, sleet, snow, windblown and resists the formation of ice on the outside.
3R	Indoor and outdoor use.	The enclosure provides protection for the personnel against incidental contact with the internal equipment and protects said equipment against dirt, rain, sleet, snow and resists the formation of ice on the outside.
3S	Indoor and outdoor use.	The enclosure provides protection for the personnel against incidental contact with the internal equipment and protects said equipment against dirt, rain, sleet, snow and windblown dust. The external mechanism must continue to work even when layers of ice are formed.
4	Indoor and outdoor use.	The enclosure provides protection for the personnel against incidental contact with the internal equipment and protects said equipment against dirt, rain, sleet, snow, windblown dust, splashes and hose-directed water and resists the formation of frost on the outside.
4x	Indoor and outdoor use.	The enclosure provides protection for the personnel against incidental contact with the internal equipment and protects said equipment against dirt, rain, sleet, snow, windblown dust, splashes, hose-directed water and resists corrosion and the formation of ice on the outside.
5	Indoor use.	The enclosure provides protection for the personnel against incidental contact with the internal equipment and protects said equipment against dirt, settling airborne dust, lint, fibres, flyings, drips and gentle splashes of non-corrosive liquids.
6	Indoor and outdoor use.	The enclosure provides protection for the personnel against incidental contact with the internal equipment and protects said equipment against dirt, rain, sleet, snow, hose-directed water, the entry of water during occasional temporary submersion to a limited depth and resists the formation of ice on the outside.
6P	Indoor and outdoor use.	The enclosure provides protection for the personnel against incidental contact with the internal equipment and protects said equipment against dirt, rain, sleet, snow, hose-directed water, the entry of water during prolonged submersion to a limited depth and resists corrosion and the formation of ice on the outside.
12	Indoor use. (without knockouts).	The enclosure provides protection for the personnel against incidental contact with the internal equipment and protects said equipment against dirt, dust, fluff, fibres, particles in suspension, drips and gentle splashes of non-corrosive liquids as well as gentle splashes or leaks of oil and non-corrosive coolants.
12K	Indoor use. (enclosures with pre-routing).	The enclosure provides protection for the personnel against incidental contact with the internal equipment and protects said equipment against dirt, dust, lint, fibres flyings drips and gentle splashes of non-corrosive liquids as well as gentle splashes or leaks of oil and non-corrosive coolants.
13	Indoor use.	The enclosure provides protection for the personnel against incidental contact with the internal equipment and protects said equipment against dirt, dust, lint, fibres flyings and the spraying, splashing, and seepage leaks of water, oil or non-corrosive coolants.

Note: The above recommendations aim to explain the NEMA and UL classifications, but are not the official texts of NEMA or UL. The exact definitions provided by the Organisations are those of standards NEMA 250 and UL 50E.



Properties of the plastic materials

Mechanical, electrical, physical and fire-resistance properties

Plastic materials generally used to manufacture our products:

- ABS.
- Polycarbonate.
- PVC (polyvinyl chloride).
- Bayblend® = PC + ABS.
- Polyester reinforced with fibreglass.
- Altuglas.
- Polypropylene.
- Polystyrene.
- Polyamide 6 and 12.
- SBS.

Specifications	Standards	Units	ABS	Polycarbonate	PVC	Bayblend®	Polyester	SBS
Mechanical properties								
Tensile strength	ISO 257	MPa	44	> 65	45	35	85	5
Tensile strain	ISO 527	%	12	> 110	120 to 150	40	0	600
Impact resistance	ISO 179	kJ/m ²	125	No breakage	25	No breakage	60	No breakage
Notching resistance	ISO 179	kJ/m ²	19	25	20	25	50	-
Electrical properties								
Stress point	IEC 60112	-	-	250-300	> 600	> 550	> 600	-
Surface strength	IEC 60093	ohm	1015	> 1015	> 1013	> 1014	≥1012	> 1013
Dielectric strength	IEC 60243	kV/mm	16.5	> 30	30	24	18-20	20
Specific resistivity	IEC 60093	ohm ² cm	1015	> 1016	≥ 1015	1016	≥ 1012	> 1016
Physical properties								
Softening temperature (Vicat B)	ISO 306	°C	95	145-150	79-80	115	(1)	80
Temperature resistance	-	°C	-40...+90	-50...+125	-20...+65	-35...+90	-50...+150	-40...+120
Water absorption	ISO 62	%	0.2 - 0.45	0.15	< 0.1	0.2	0.2	-
Specific weight	ISO 1183	kg/dm ³	1.04	1.21	1.4	1.12	1.85	0.3 in 24 h
Fire resistance								
Oxygen index	ISO 4589	%	19	26	45-50	22	24.4	18
Glow wire resistance, 2 mm	IEC 60695-2	°C	650	960	960	750	960	750° (1.5 mm)
Glow wire resistance, 3 mm	IEC 60695-2	°C	650	960	960	750	960	NA

(1) No softening of the polyester.

Specifications	Standards	Units	Altuglas	Polypropylene	Polystyrene	Polyamide 6	Polyamide 12
Mechanical properties							
Tensile strength	ISO 257	MPa	30	35	24	40	30
Tensile strain	ISO 527	%	5	400	36	200	300
Impact resistance	ISO 179	kJ/m ²	20	20	63	No breakage	No breakage
Notching resistance	ISO 179	kJ/m ²	3	5	50	31.2	15
Electrical properties							
Stress point	IEC 60112	-	-	-	KB175	KB175	KB180
Surface strength	IEC 60093	ohm	≥ 1014	-	> 1013	1012	5 × 1010
Dielectric strength	IEC 60243	kV/mm	13-15	20	≤ 40	23	55
Specific resistivity	IEC 60093	ohm ² cm	> 1015	> 1016	> 1015	1011	3 × 1011
Physical properties							
Softening temperature (Vicat B)	ISO 306	°C	120-122	75 (vicat A)	79	230	140
Temperature resistance	-	°C	-20...+80	-10...+80	-15...+60	-20...+100	-50...+125
Water absorption	ISO 62	%	< 0.5	0.1 in 24 h	0.1 in 24 h	1.6	1.5
Specific weight	ISO 1183	kg/dm ³	1.18	0.91	1.06	1.14	1.03
Fire resistance							
Oxygen index	ISO 4589	%	18.5	18	18	24	22
Glow wire resistance, 2 mm	IEC 60695-2	°C	-	650	650	750	650
Glow wire resistance, 3 mm	IEC 60695-2	°C	960	650	650	850	650



Properties of the plastic materials

Resistance to chemical agents

The table shows:

- The concentration of the chemical agent in %; sat = saturation.
- The resistance of the material:
 +: Resistant.
 O: Limited resistance.
 -: Not resistant.

Plastic materials generally used to manufacture our products:

- ABS.
- Polycarbonate.
- PVC (polyvinyl chloride).
- Bayblend® = PC + ABS.
- Polyester.
- Altuglas.
- Polypropylene.
- Polystyrene.
- Polyamide 6 and 12.
- SBS.

Resistance to	ABS	Polycarbonate	PVC	Bayblend®	Polyester	Altuglas	Polypropylene	Polystyrene	Polyamide 6	Polyamide 12	SBS
Acetone	-	-	-	-	-	O	100 +	-	100 +	+	+
Hydrochloric acid	15 +	10 +	30 +	20 +	30 +	sat +	10 +	O	10 -	10 +	10 +
Citric acid		10 +	sat +	10 +	100 +	sat +	sat +	+	10 O	+	10 +
Lactic acid	80 +	10 +	90 +	10 -	100 +	20 +	90 +	O	50 O	+	sat +
									90 -	+	
Nitric acid	30 +	10 +	50 +	10 +	20 +	10 +	25/50	O	2 O	-	50 +
		100 -			+	100 -	50		10 -		
Phosphoric acid	85 +	100 +	sat +	+	100 +	10 +	sat +	O	2 O	50 +	+
						95 -			10 -		
Sulphuric acid	50 +	50 +	96 +	30 +	70 +	30 +	96 +	O	3 -	10 +	96 +
		100 -									
Alcohol	O	96 +	96 +	-	50 O	50 O	96 +	+	96 O	96 +	+
Pure aniline	O	-	100 -	-	O	-	100 +		100 O	100 O	
Mineral base (hydroxide)		O	10 +	-	100 +	10 +	50 +	O	10 +	50 O	
									50 O		
Benzene	+	100 -	-	+	-	O	100 O		100 +	+	-
Liquid bromine		100 -	-	-			100 -			100 -	-
Liquid chlorine		-	100 -	-	sat +	-	100 -		100 O	-	50 +
Sea water	+	100 +	100 +	+	100 +	100 +	-	100 +		100 +	sat +
Petrol	+	100 +	100 O	-	100 +	100 O	-	-	100 +	+	-
Ether	-	100 O	100 -	-	100 O	+			100 +	100 +	-
Hexane	O	+	O	O	-		100 +		100 +	100 +	-
Oil and greases	+	100 +	100 +	O	100 +	100 O	100 +	-	+	100 +	-
Aromatic hydrocarbon	O	-	-	-	-	+	-	-	-	+	-
Fuel oil	O	100 O	100 +	-	100 +	100 -	100 +		100 +	100 +	-
Naphthalene			100 O	-	100 +	100 -	100 +		100 +	100 +	
Nitrobenzene	-	-	100 -	-	-	-	100 O		-	O	-
Phenol	-	-	sat O	-	20 O	-	sat +		-	-	10 O
Mineral salts		+	+	+	+	+	+			+	+
Iodine solution		O	-	+		-			+		
Toluene	-	-	100 -	-	+	O	100 O	-	100 +	100 +	-
Trichloroethylene	-	-	100 -	-	-	-	100 O	-	100 -	100 O	-
Urea		sat +	sat +	+			sat +		10 +	sat +	sat O

For other chemical agents, please contact us.

All this information is taken from the best sources and provided for information purposes only, with no commitment on our behalf.

Polyester base coating properties



Product type

Thermosetting polyester resins based powder coating modified by epoxy resins and designed for decoration and to prevent corrosion. The performance of this coating is superior to conventional epoxy powders in terms of: colour stability, temperature resistance and weather resistance. Grey RAL 7035; appearance: structured.

Mechanical properties

Test conditions: steel samples with a thickness of 1 mm. Degreasing using biodegradable surface-active agents. Film thickness: 60 microns.

Bonding (scratching and adhesive tape)	ISO 2409	Class 1
Ericksen stamping	ISO 1520	≥ 7 mm
Direct impact resistance	ISO 6272	> 1 kg/70 cm
Indirect impact resistance	ISO 6272	> 1 kg/20 cm
Bending around conical mandrel	ISO 6860 - ASTM D 522-88	Maximum cracking of 70 mm, without the paint coming loose

Chemical properties

Tests conducted at ambient temperature on phosphated samples covered with a 150 to 200 micron film:

- Film intact.
- Film attacked (blistering, yellowing, loss of gloss).

Number of months		2	4	6	8	10	12
Acid	Acetic 20%	[Blue bar]					
	Sulphuric 30%	[Blue bar]					
	Nitric 30%	[Blue bar]					
	Phosphoric 30%	[Blue bar]					
	Hydrochloric 30%	[Blue bar]					
	Lactic 10%	[Blue bar]					
	Citric 10%	[Blue bar]					
Base	Soda 10%	[Blue bar]					
	Ammonia 10%	[Blue bar]					
Water	Distilled water	[Blue bar]					
	Sea water	[Blue bar]					
	Tap water	[Blue bar]					
	Diluted chloride bleach	[Blue bar]					
Solvents	Petrol	[Blue bar]					
	Higher alcohols	[Blue bar]					
	Aliphatics	[Blue bar]					
	Aromatics	[Blue bar]					
	Ketones-esters	[Blue bar]					
Tri-perchlorethylene	[Blue bar]						

Physical properties

Temperature resistance: -40 °C and 100 hours at +150 °C (colour: white). Gloss retention: good.

Resistance to corrosion

Compliance with standard IEC 62208 for outdoor installations: 288 h of humid heat and 336 h of salt mist.

Polyester base coating properties

Nuclear decontamination

Applicable to colours RAL 7035 and AFNOR A550.
Standard NFT 30901. Percentage of decontamination for contamination by fission products or plutonium. Please consult us for further details.

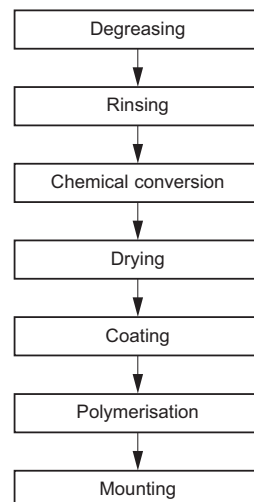
Accelerated aging

Standard IEC 62208: 500h UV according to ISO 4892 (method A) (adherence of the coating with minimum retention of 50% on the grid according to ISO 2409).

Fire behaviour

Class M1 (self-extinguishing material).
Class M0 (for coating on a metal base).

Manufacturing process



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Make the most of your energy

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