SPECIFICATIONS

FOR DEFINITION, IDENTIFICATION AND USE

C-MIX PLUS
150 ml, 300 ml and 380 ml

Chemical sealant for hollow masonry
For PERFORATED-SLEEVE, SATELIS and ID-ALL systems

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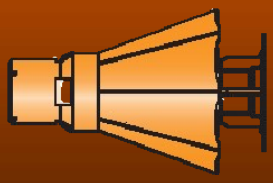

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SOCOTEC

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1 - DESCRIPTION

1.1 - Chemical sealant system - program

Components	Type
Cartridges	C-MIX PLUS 150-ml cartridge (grey)
	C-MIX PLUS 300-ml cartridge (grey)
	C-MIX PLUS 300-ml cartridge (stone)
	C-MIX PLUS 380-ml cartridge (grey)
	C-MIX PLUS 380-ml cartridge (stone)
Injection system	M150-300 Injection gun for **C-MIX PLUS 150-ml and 300-ml** cartridges M345 Injection gun For **C-MIX PLUS 150-ml and 300-ml** cartridges M380-410 Injection gun for **C-MIX PLUS 380-ml** cartridges P380-410 compressed air gun for **C-MIX PLUS 380-ml** cartridges EGI 380-410 electric gun for **C-MIX PLUS 380-ml** cartridges
Perforated-sleeve system + studs	Male stud M8x100 Male stud M10x100 Male stud M12x100 Female stud M8x58 Female stud M10x58 Female stud M12x75 Plastic perforated sleeve 15x85 Plastic perforated sleeve 15x130 Plastic perforated sleeve 20x85
SATELIS system + studs	SATELIS G M8 SATELIS G M10 SATELIS G M12 SATELIS DF M6 SATELIS DF M8 SATELIS DF M10
ID-ALL system	Kit: 1 C-MIX-PLUS 300-ml cartridge + 8 ID-ALL + 2 ID-ALL nozzles
	Kit: 4 C-MIX PLUS 380-ml cartridges + 40 ID-ALL + 8 ID-ALL nozzles
Accessories	Cleaning blower
Injection nozzles	150-300-345-380-410 nozzle
	ID-ALL nozzle delivered with the kit

1.2 - Description of components

1.2.1 - Definition of C-MIX PLUS resin

1.2.1.1 - SPIT C-MIX PLUS cartridges: composition

150-ml and 380-ml cartridges:

The C-MIX PLUS resin consists of two components contained in a single-piece, two-cylinder (cylinders are concentric) cartridge:

. The large-diameter cylinder contains the polyester styrene-free resin.
. The small cylinder contains the hardener.

300-ml cartridge:

The C-MIX PLUS resin consists of two components contained in a two-pouch cartridge:

. The larger pouch contains the polyester styrene-free resin.
. The smaller pouch contains the hardener.

1.2.1.2 - Storage conditions

The cartridges must be stored at between +5°C and 35°C.

1.2.1.3 - Marking

The expiration date is affixed to the cartridge in the following format: DD MM YY.

1.2.2 - Injection tools

M380-410 injection gun for C-MIX PLUS 380-ml cartridge

- This tool, which consists of a base and steel mechanism, has a very ergonomic handle with an 18:1 ratio.
- The pistons have a dual guide.
- The locking tab at the back is used to instantly suppress piston pressure.

EGI 380-410 electric injection gun for C-MIX PLUS 380-ml cartridge

- This self-powered injection tool consists of a metal cradle and a knob for adjusting the injection rate.
- It is used with a 12V 2Ah battery

M345 gun for C-MIX PLUS 150-ml and 300-ml cartridge

- This tool consists of a reinforced metal cradle.
- Increased thrust of 250 kg reduces the effort needed for injection.

M150-300 gun for C-MIX PLUS 150-ml and 300-ml cartridges

- This tool consists of a unitized plastic cradle.
- Its 125 kg thrust makes it possible to inject C-MIX PLUS 150-ml and 300-ml cartridges.

1.2.3 - Injection nozzles

1.2.3.1 – Nozzle for PERFORATED-SLEEVE and SATELIS systems

150-200-300-345-380-410 nozzle.

There is a single nozzle model for all C-MIX PLUS cartridges.

1.2.3.2 – Nozzle for ID-ALL systems

The ID-ALL injection nozzle is designed for high-quality injection via the ID-ALL system.

1.2.4 - Fixing elements for the PERFORATED-SLEEVE system and studs

1.2.4.1 - Definition and components

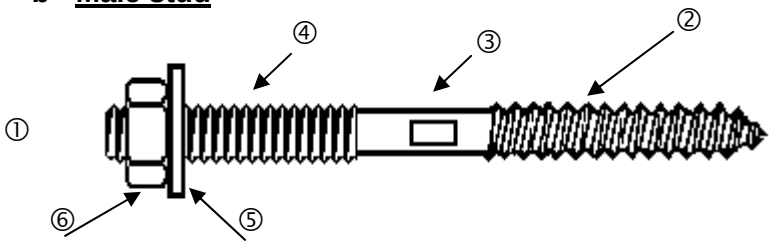
This fixing system entails injecting SPIT C-MIX PLUS resin into a perforated sleeve, into which a male or female stud will then be inserted.

a - Perforated sleeve

The perforations in the sleeve allow even distribution of the resin around the fixing element to ensure the hollow material's best possible attachment to walls.

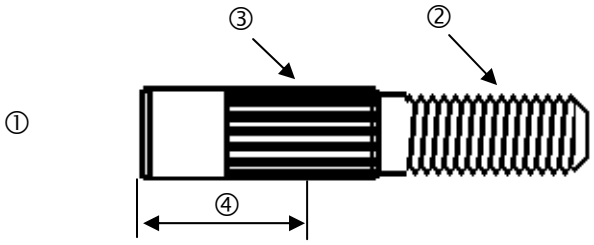
The perforated sleeve is made of plastic, for use with all fixing elements required.

b - Male stud



- The male stud ①, made of electro-zinc coated steel, includes a threaded section ②, which improves torque resistance.
- The center section ③.
-The other threaded end ④ acts as a threaded stud for the final attachment, and will accommodate the washer ⑤ and nut ⑥.

c - Female stud



- The female stud ① is made of electro-zinc-coated steel.
- The wide-pitch threaded section ② helps improve hold within the resin.
- The socket has a knurled exterior ③ that provides torque resistance during tightening and a useful tapping depth ④, which is 2.5 X the socket's tapping diameter.

1.2.4.2 - Designation

a - Perforated sleeve

The perforated sleeves in the C-MIX PLUS product line are designated via:

- The name: “PERFORATED SLEEVE.”
- A materials code: “PLAST” for plastic perforated sleeves.
- Their dimensions: “diameter x length.”

Example:

“PERFORATED SLEEVE PLAST 15x85” indicates a plastic perforated sleeve that is 15 mm in diameter and 85 mm in length.

b - Male stud and female stud

The studs in the C-MIX PLUS product line are designated via:

- The name: “male stud” or “female stud.”
- A code: M (as in metric), followed by a figure that represents the stud’s thread or tapping diameter and length.

Examples:

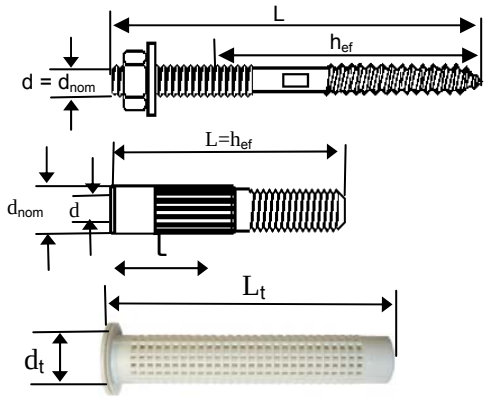
“Male stud M8x100” indicates a threaded stud with an 8-mm thread diameter and 100 mm in length.

1.2.4.3 – Dimensions (mm) of the PERFORATED-SLEEVE system and studs

	Studs							**Plastic perforated sleeves**	
Designation	Code	d	l_2	h_{ef} (1)	t_{fix} (1)	L	d_{nom}	$d_t x L_t$	Code
Male stud M8x100	061650	8	-	75	17	100	8	15x85	557070
Male stud M10x100	061660	10	-	75	15	100	10		
Male stud M12x100	061670	12	-	75	7.5	100	12	20x85	557090
Female stud M8x58	061740	8	20	58	-	58	12	20x85	557090
Female stud M10x58	061750	10	23	58	-	58	12		
Female stud M12x75	061760	12	30	75	-	75	12		
Threaded stud M8x170 (2)	-	8	-	130	25	170	8	15x130	557080

(1) The anchor depths and thicknesses of the part being mounted indicated in this table are given for the use of male studs with metal perforated sleeves.
5 mm should be subtracted from the thickness of the part being mounted and 5 mm should be added to the anchor depth when plastic perforated sleeves are used.

(2) Standard threaded stud M8x170, class 5.8 minimum.



L: total stud length

L_t: total perforated-sleeve length

d_{nom}: external diameter

d: thread diameter

h_{ef} : anchor depth

t_{fix}: thickness of part being mounted

l_2: useful tapped length

1.2.4.4 - Material

Components	Material	f_{uk} min N/mm²	f_{yk} 0.2 min N/mm²	A%
Male stud	Zinc-coated steel S300Pb (11 S Mn Pb 37) EN 10 087	520-660	420	6 to 7
Female stud	Zinc-coated steel S300Pb (11 S Mn Pb 37) EN 10 087	520-660	420	6 to 7
Nut	Zinc-coated steel 6 or 8 E 25-400-0 and E25-400-1	-	-	-
Washer	Zinc-coated steel E24 or equivalent NFE 25513	-	-	-
Perforated sleeve	Plastic	-	-	-

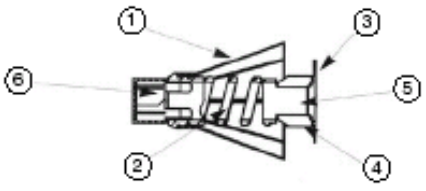
1.2.5 - Fixing elements for the SATELIS system and studs

1.2.5.1 - Definition and components

This fixing system entails injecting the SPIT C-MIX PLUS resin into the SATELIS casing into which a male or female stud will be inserted.

a - SATELIS

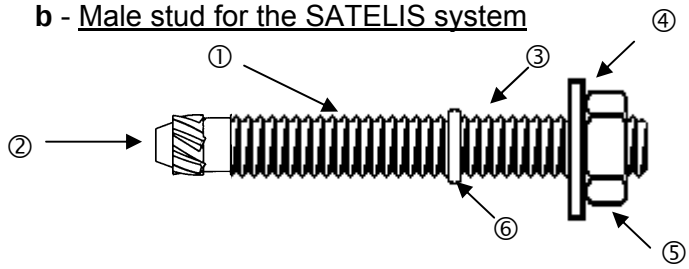
The SATELIS unit consists of a factory-assembled casing (orange) and spring section (white).



- The eight fins (1) form a cone that becomes a back-pressure surface by pushing the resin back against the wall.
- The spring system (2) allows the SATELIS unit to be adapted to any wall thickness and presses it against the wall. The spring is then compressed until the support flange (3) rests against the wall. The SPIT marking is imprinted on this flange.

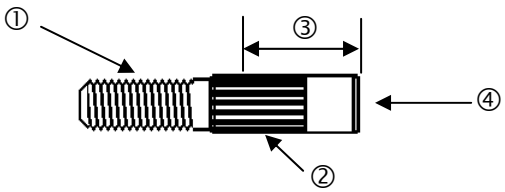
- The anchor is centered in the support material with the help of the ribs (4).
- The stud is centered in the SATELIS unit via the groove (5) and ribs (6).

b - Male stud for the SATELIS system



- The threaded element (1) made of electro-zinc-coated steel includes a helical etching section (2) for the M8 and M10 dimensions and a bevelled section for the M12 dimension for improved torque resistance.
-The other threaded end (3) acts as a threaded stud for the final attachment, and will accommodate the washer (4) and nut (5).
- The centering ring (6) acts as an optimum anchor-depth marker and helps with the perpendicular positioning in relation to the material.

c - Female socket for the SATELIS system



- The female socket is made of electro-zinc-coated steel.
- The wide-pitch threaded section (1) helps to improve hold within the resin.
- The socket has a knurled exterior (2) that provides torque resistance during installation and a useful tapping depth (3), which is 2.5 X the socket's tapping diameter.
- The centering ring (4) ensures perfect positioning of the socket.

1.2.5.2 - Designation

The various SATELIS anchors in the product line are designated via:

- The name: "SATELIS."
- A code that indicates male stud or female socket, i.e. G or DF respectively.
- A code: M (as in metric) followed by a figure that represents the thread diameter of the stud or socket.

Examples:

"SATELIS G M8" indicates a male stud with an 8-mm thread diameter.
"SATELIS DF M10" indicates a female stud with a 10-mm tapping diameter.

1.2.5.3 – Dimensions (mm) of the SATELIS system and studs

		SATELIS		Male stud				Female socket			
Designation	Code	Ls	d_{nom}	d	t_{fix}	h_{ef}	L	d	ℓ_2	d_{nom}	L=h_{ef}
SATELIS G M8	062300	60	20	8	10	60	80	-	-	-	-
SATELIS G M10	062310			10	18		90	-	-	-	-
SATELIS G M12	062320			12	25		100	-	-	-	-
SATELIS DF M6	062340			-	-	-	-	6	15	12	58
SATELIS DF M8	062350			-	-	-	-	8	20		
SATELIS DF M10	062360			-	-	-	-	10	23		

L: Total stud length

L_s: SATELIS length at rest

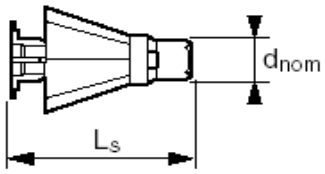
d_{nom}: External diameter

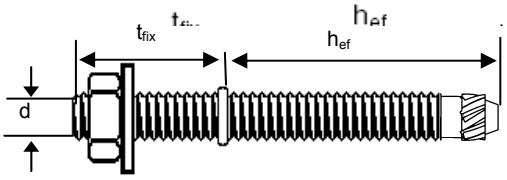
d: Thread diameter

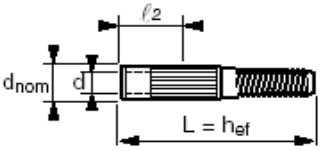
h_{ef}: Anchor depth

t_{fix}: Thickness of part being mounted

ℓ_2: Useful tapped length







1.2.5.4 - Material

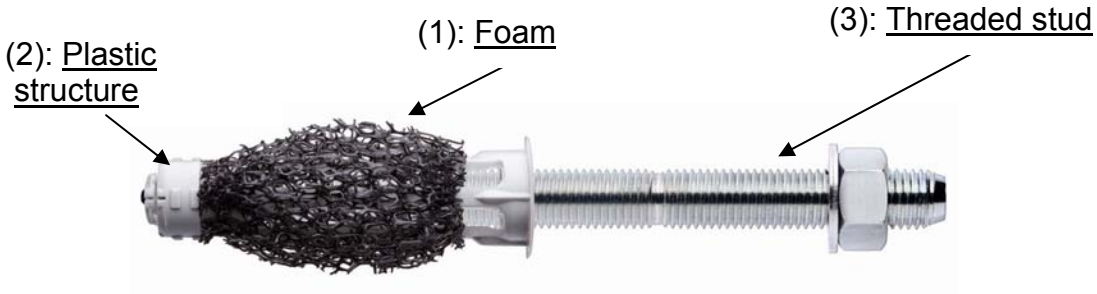
Components	Material	f_{uk} min N/mm²	f_{yk} 0.2 min N/mm²	A%
Male stud	Zinc-coated steel S300Pb (11 S Mn Pb 37) EN 10 087	520-660	420	6 to 7
Female stud	Zinc-coated steel S300Pb (11 S Mn Pb 37) EN 10 087	520-660	420	6 to 7
Nut	Zinc-coated steel 6 or 8 E 25-400-0 and E25-400-1	-	-	-
Washer	Zinc-coated steel E24 or equivalent NFE 25513	-	-	-
SATELIS casing	Polypropylene	-	-	-
SATELIS spring sleeve	Polyacetal	-	-	-
SATELIS thrust washer	High-density polyethylene	-	-	-

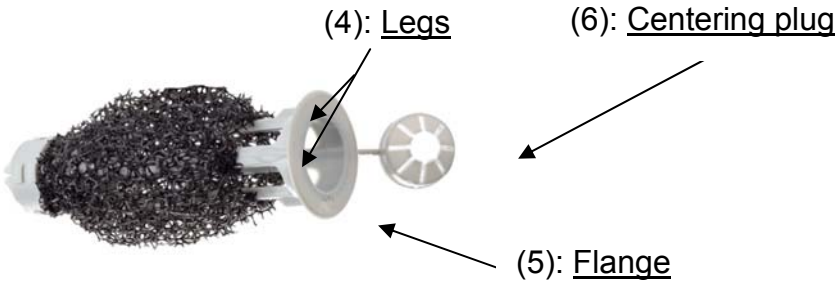
1.2.6 - Fixing elements for the ID-ALL system

1.2.6.1 - Definition and components

a - The ID-ALL system

This fixing system entails injecting the SPIT C-MIX PLUS resin into the ID-ALL system, which consists of a foam (1) held by a plastic structure (2) into which a threaded stud will be inserted (3).





The cells of the foam allow an even distribution of the resin around the fixing element in order to form a cone, which ensures the best possible attachment to the walls of the hollow material.

The foam allows the ID-ALL system to adapt to any shape of hollow material and works both in hollow sections and in masonry construction joints.

The plastic structure consists of four legs (4), a flange (5) and a centering plug (6), which allow the threaded stud to be perfectly centered. The SPIT marking is imprinted on the flange.

b - M8 and M10 threaded studs

The ID-ALL system is used with standard M8 and M10 threaded studs, a nut and a washer.

The threaded studs must be made of zinc-coated steel, of class 5.6 minimum in accordance with ISO standard 898, with minimum 5-μm zinc coating.

Steel nuts of class 6 minimum according to En 20898-2.

1.2.6.2 - Dimensions (mm) of the ID-ALL system and threaded studs

	ID-ALL		Threaded studs		
Designation	Ls	d_{nom}	d	h_{ef}	Lmini + Tfix
ID-ALL with M8 stud	70	16	8	65	76 + Tfix
ID-ALL with M10 stud			10		78 + Tfix

1.2.6.3 - Material

Components	Material	f_{uk} min N/mm²	f_{yk} 0.2 min N/mm²
Plastic structure	Polyamide 6	-	-
Foam	Polyurethane	-	-
Threaded studs	Class 5.6 minimum	500	300
Nut	Class 6	-	-

2 - OPERATING PRINCIPLES

The C-MIX PLUS system for hollow materials is designed for use with an injectable resin together with a perforated sleeve, a SATELIS casing or ID-ALL foam casing into which a fixing element is inserted.

Thanks to its spring-effect system, the SATELIS casing can be adapted to any wall thickness from 9 to 25 mm and presses against the back of the wall.

Once the sleeve, the SATELIS casing or ID-ALL system is inserted into the drilled hole, the required resin is inserted into the element using an injection tool with a nozzle. When inserted through the nozzle, the two components of the cartridge (polyester resin + hardener) mix together to trigger a chemical reaction that allows the C-MIX PLUS resin to gradually harden. Once the cartridge is injected, a male or female stud is inserted into the element up to the effective anchor depth when a perforated sleeve or SATELIS unit is used; when the Tamfix system is used, a standard threaded stud is inserted.

The resin is then distributed through the system and the fixing element adheres to the walls of the hollow material (see table in §6.2 for the maximum set time).

After full polymerization of the resin, the part can be mounted and the recommended tightening torque can be applied (see table in §6.4).

3 - USAGE FIELD

These specifications describe the use of the C-MIX PLUS system with the following hollow materials:

- Hollow concrete blocks according to NF EN 771-3 and NF EN 771-3/CN, plastered or unplastered.
- Hollow baked-clay bricks according to NF EN 771-1 and NF EN 771-1/CN, plastered or unplastered.

For use on other hollow support materials, onsite tests should be performed and the results analyzed according to the "Recommendations for use by construction professionals regarding performance of anchor tests onsite (or at the construction site)" prepared by the Anchors technical committee of CISMA (the French construction, infrastructure, steel and materials-handling union) in March 2007.

4 - USAGE EXAMPLES

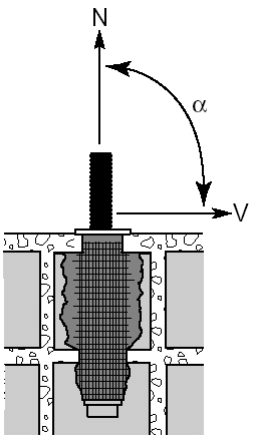
- Signs
- Electrical panels
- Radiators
- Joist hangers
- Ventilation and air-conditioning ducts
- Guardrail infilling
- Metal ladders
- Scaffolding
- Handrails
- Bracing for posts and pipes
- Movable partitions
- Kitchen fixtures
- Awnings
- Decorations
- Etc.

5 - STRUCTURE DESIGN

The representative of the project owner or engineering and design department is responsible for ensuring that the support structure is capable of supporting the loads added by the anchors, and should make any necessary provisions for their transfer, such as in the case of groups of anchors.

5.1 - Mechanical stress

5.1.1 - Point of application and load direction



N: axial or tensile load ($0 \leq \alpha < 60°$)

V: transverse or shear load ($60° \leq \alpha \leq 90°$)

The angle α is always defined in relation to the axis of the anchor and therefore characterizes the load direction.

The load applied to an anchor is defined by its intensity and its direction (angle α). Depending on angle α, reference should be made to one of the following two tables to ensure that the intensity of this load is less than or equal to the load indicated in the corresponding table.

5.1.2 - Types of load

Loads can be static or dynamic, and applied permanently or occasionally.

5.2 - Allowable loads

5.2.1 - Allowable load calculation

The maximum (unweighted) tensile and shear loads correspond to a minimum safety factor of 4 taken from the minimum value of the series of tests (failure of the support material or failure of the fixing-element steel).
A final maximum load corresponding to a maximum (unweighted) load multiplied by 1.33 may be used for calculations of limit states.

5.2.2 - Maximum (unweighted) tensile loads (daN)

Type of anchor / Materials	**Perforated-sleeve system 15x85/20x85** with Male studs M8/M10/M12 Female studs(1) M8/M10/M12	**Perforated-sleeve system 15x130** with Threaded stud M8x170
Unplastered hollow concrete blocks type B40 according to NF EN 771-3	90	90
Plastered hollow concrete blocks(2) type B40 according to NF EN 771-3	160	100
Unplastered hollow baked-clay bricks type RC40 according to NF EN 771-1	60	60
Plastered hollow baked-clay bricks(2) type RC40 according to NF EN 771-1	100	60

Type of anchor / Materials	**SATELIS** system with Male studs M8/M10/M12 Female studs (1) M6/M8/M10
Unplastered hollow concrete blocks type B40 according to NF EN 771-3	110
Plastered hollow concrete blocks(2) type B40 according to NF EN 771-3	190
Unplastered hollow baked-clay bricks type RC40 according to NF EN 771-1	50
Plastered hollow baked-clay bricks(2) type RC40 according to NF EN 771-1	115

(1): Maximum loads given for screws of class 5.6 minimum.
(2): Traditional plaster according to DTU 26.1.

Dimensions / Materials	**ID-ALL** system with Threaded studs M8 / M10
Unplastered hollow concrete blocks type B40 according to NF EN 771-3	100
Unplastered hollow baked-clay bricks type Monomur according to NF EN 771-1	50

5.2.3 - Maximum (unweighted) shear loads (daN)

Type of anchor / Materials	**Perforated-sleeve** system with Male studs M8/M10/M12 Female studs (1) M8/M10/M12 Threaded stud M8x170
Unplastered hollow concrete blocks type B40 according to NF EN 771-3	180
Plastered hollow concrete blocks(2) type B40 according to NF EN 771-3	200
Unplastered hollow baked-clay bricks type RC40 according to NF EN 771-1	130
Plastered hollow baked-clay bricks(2) type RC40 according to NF EN 771-1	200

Type of anchor / Materials	**SATELIS** system with male studs M8/M10/M12 Female studs (1) M6/M8/M10		
	M6	M8	M10 M12
Unplastered hollow concrete blocks type B40 according to NF EN 771-3	155	240	265
Plastered hollow concrete blocks(2) type B40 according to NF EN 771-3	155	240	310
Unplastered hollow baked-clay bricks type RC40 according to NF EN 771-1	155	155	155
Plastered hollow baked-clay bricks(2) type RC40 according to NF EN 771-1	155	215	215

(1): Maximum loads given for screws of class 5.6 minimum.
(2): Traditional plaster according to DTU 26.1.

Dimensions / Materials	**ID-ALL** system with threaded studs M8	**ID-ALL** system with threaded studs M10
Unplastered hollow concrete blocks type B40 according to NF EN 771-3	150	175
Unplastered hollow baked-clay bricks type Monomur according to NF EN 771-1		

NOTE: These values were established based on tests in which the material was perforated using rotation/percussion for hollow concrete blocks and plastered hollow bricks and rotation only for unplastered hollow bricks.

5.3 - Temperature resistance

Temperatures ranging from -40° to 80°C over a limited period of time have no significant impact on maximum loads.

6 - USAGE CONDITIONS

6.1 - Quantity of resin per sealant

The resin quantities indicated below are mandatory and determine the sealant's resistance. The volume of resin injected is measured by the number of times the gun is pressed. (For information purposes, the movement of the piston in cm is indicated.)

Fixing elements with / Type of cartridge	**Perforated sleeve 15x85**	**Perforated sleeve 20x85 SATELIS**	**Perforated sleeve 15x130**	**ID All**
M150/300 gun for SPIT C-MIX PLUS 150 ml and 300 ml	**3** gun presses (1 to 1.5 cm)	**4** gun presses (1.5 to 2 cm)	**6** gun presses (1.5 to 2 cm)	**5** gun presses (1.5 to 2 cm)
M345 gun for SPIT C-MIX PLUS 150 ml and 300 ml	**5** gun presses (1.5 to 2 cm)	**8** gun presses (1 to 2 cm)	**10** gun presses (1.5 to 2 cm)	**5** gun presses (1.5 to 2 cm)
M380-410 gun for SPIT CMIX PLUS 380 ml	**3** gun presses (1 cm)	**4** gun presses (1.5 cm)	**6** gun presses (2 to 2.5 cm)	**5** gun presses (1.5 to 2 cm)

For guns defined in §1.1 and §1.2.2.

6.2 - Wait time before adding load

The setting time is based on ambient temperature:

	150-ml & 380-ml cartridge		300-ml cartridge	
Ambient temperature (°C)	Max. set time (min.)	Wait time before adding load (min.)	Max. setting time (min.)	Wait time before adding load (min.)
35°C	-	-	2 min.	20 min.
30°C	2 min.	20 min.	4 min.	25 min.
20°C	4 min.	25 min.	6 min.	45 min.
10°C	10 min.	40 min.	15 min.	80 min.
5°C	17 min.	55 min.	25 min.	120 min.

6.3 - Installation data

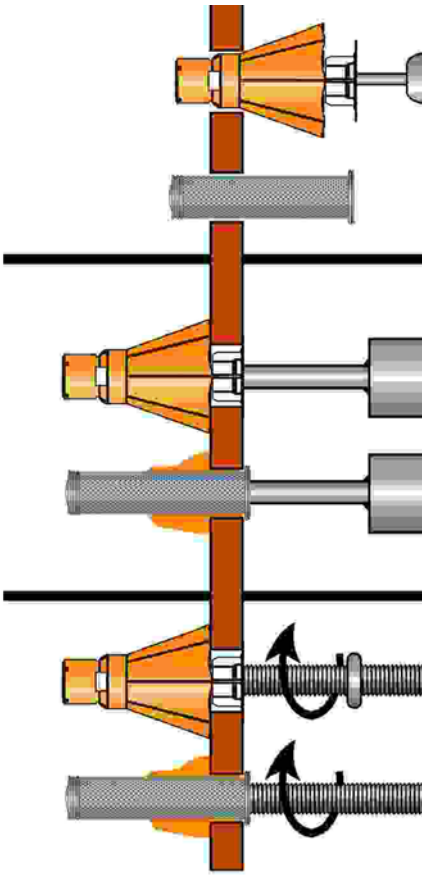
The material should be perforated:

- Using **rotation/percussion** for unplastered and plastered hollow concrete blocks and plastered hollow bricks.
- Using **rotation only** for unplastered hollow bricks.

Drill a hole based on the sleeve used, according to the following table of dimensions.

	Perforation diam. d_0 (mm)	Perforation depth h_0 (mm)
Plastic perforated sleeve 15x130	15	135
Plastic perforated sleeve 15x85	15	90
Plastic perforated sleeve 20x85	20	90
SATELIS	20	80
ID-ALL	16	70

Installation method for PERFORATED-SLEEVE and SATELIS systems



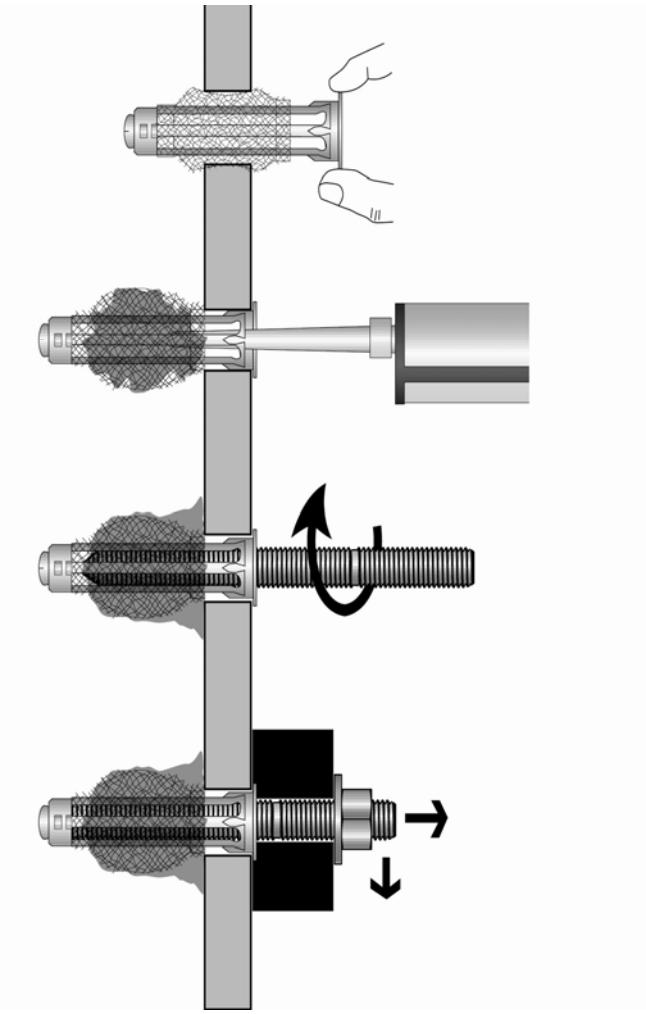
■ Manually position the sleeve or SATELIS in the hole until the flange presses against the exterior wall of the masonry. For the SATELIS, use the spring effect in order to have it press against the inner side of the wall.

■ After inserting the nozzle onto the cartridge, inject the resin according to the quantity in cm indicated in §6.1.

■ Using rotation, insert the selected stud (male or female). Male studs will be pushed to the end of the sleeve and female studs will be pushed in until the centering ring is lodged into the flange of the perforated sleeve or SATELIS casing.

■ After the resin hardens (see §6.2), install the item being mounted and tighten to the recommended torque (see §6.4).

Installation method for ID-ALL system



■ Manually position the ID-ALL system in the hole until the flange presses against the exterior wall of the masonry. Close the centering plug.

■ After inserting the nozzle onto the cartridge, push the nozzle all the way in and inject the resin by pressing the gun five times (§6.1).

■ Using rotation, insert the M8 or M10 threaded stud all the way in.

■ After the resin hardens (see §6.2), install the item being mounted and tighten to the recommended torque (see §6.3).

6.4 - Recommended tightening torque

	Male studs			Female sockets			
	M8	M10	M12	M6	M8	M10	M12
Tightening torque in *Nm* with **perforated sleeve**	5	8	8	-	5	8	8
Tightening torque in *NM* with **SATELIS**	10	20	20	8	10	20	-

	Threaded studs	
	M8	M10
Tightening torque in *Nm* with **ID-ALL** system	6 Nm	8 Nm

Sealant control

The satisfactory quality of the sealant can be ensured individually or statistically by applying the tightening torque from the above table, after the resin has hardened, using a torque wrench.

6.5 - Use of female studs

The screws used must be class 5.6 minimum and the screwing length inside the stud must be more than 1 X the tapping diameter and at most equal to the useful tapping length l_2 (Dimensions § 1.2.4.3).

7 - PRODUCTION AND SELF-CHECK

The entire C-MIX PLUS system (i.e. the resin, perforated sleeves, SATELIS systems and studs) is manufactured according to a monitoring plan that ensures consistent quality. The C-MIX PLUS 150 ml and 380 ml cartridges are manufactured at the Bourg-les-Valence plant and the C-MIX PLUS 300 ml cartridges are manufactured at another production site.

The monitoring plan covers the materials used, cartridge loading, geometric dimensions, coverings and finished products. In addition, tests are routinely conducted at our laboratories.

Together with the production drawings, the plan is filed with SOCOTEC, which can verify its implementation at any time. Each box bears an identification number, which refers to the production run.

We are also committed to notifying SOCOTEC of any changes concerning the C-MIX PLUS sealant system.

External monitoring is provided by SOCOTEC.

8 - VALIDITY

As of this document's creation date, SOCOTEC approval is valid until 30 November 2013.

APPENDIX 1: Resistance of C-MIX PLUS resin to chemical agents

Chemical substances	Concentration %	Resistance
Ethyl acetate	100	(-)
Acetone	10	(-)
Acetone	100	(-)
Acetic acid	50-75	(-)
Acetic acid	0-50	(-)
Hydrochloric acid	37	(-)
Hydrochloric acid	25	(-)
Hydrochloric acid	15	(-)
Hydrochloric and organic acid		(-)
Citric acid	0-100	(-)
Formic acid	50	(-)
Formic acid	10	(-)
Lactic acid	0-100	(-)
Nitric acid	2-15	(-)
Nitric acid	50	(-)
Phosphoric acid	80	(-)
Concentrated phosphoric acid	100	(-)
Phosphoric acid, steam and condensed		
Sulphuric acid	0-100	(-)
Ethyl alcohol (ethanol)	10	(-)
Ammonia, dry gas	0-100	(-)
Ammonia, liquefied	0-100	(-)
Aniline	0-100	(-)
Benzene	100	(-)
Sodium carbonate	10	(-)
Diesel fuel	0-100	(-)
Sodium chloride	0-100	(-)
Bromine water	5	
Chlorine water	0-100	(-)
Seawater	0-100	(-)
Deionized water	0-100	(-)
Demineralized water		(-)
Leaded or unleaded gasoline	100	(-)
Turpentine		
Ethanolamine	100	(-)
Ethylene glycol	0-100	(-)
Fuel oil	100	(-)
Heptane	100	(-)
Hexane	100	
Heavy oil (for engines)	100	(-)
Ammonium hydroxide (ammonia)	5	(-)
Sodium hydroxide (caustic soda)	1	(-)
Methyl isobutyl ketone	100	(-)
Ozone	Conc < 4 ppm in water	
Phenol	>=5	(-)
Carbon tetrachloride	100	(-)
Trichloroethylene		(-)
Xylene	0-100	(-)

- ***Resistant*** (+): The samples in contact with the substance show no visible damage such as cracks, corroded surfaces, broken corners or significant expansion.
- ***Not resistant*** (-) Use not recommended. The samples in contact with the substance were damaged.
- ***Sensitive*** (o): Use with caution regarding exposure, usage field and stress applied. The samples in contact with the substance show slight corrosion of the material.