SYSTEMMAG®

Systèmes brevetés

Attaches & fermetures magnétiques

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SYSTEMMAG® SAS
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Since it was founded in 2000, SYSTEMMAG® has developed, manufactured and marketed high-performance, innovative magnetic fastening and closure systems that rely on the use of small articulated magnets and magnetic zippers. These new products are the result of three internationally-patented inventions, which have already received a number of technological innovation awards in contests organised by the ANVAR (the French agency for innovation) and the French Ministry of Research.

SYSTEMMAG®'s products are innovative alternatives to traditional fastening systems, such as buttons, clips, zips, velcro and laces. Their ease of use, the speed with which they can be fitted, their adjustability and the wide variety of possible configurations mean that these products are both practical and able to adapt to multiple applications in fields as varied as help for the disabled, ready-to-wear clothes, shoes, luggage or industry.

As a supplier to a number of well-established companies, SYSTEMMAG® has concentrated primarily on the quality of its products, so as to best cater for its customers' expectation. Our products have been designed to meet the constraints of everyday use, such as machine washing. In addition, they are OEKO-TEX-certified, so that users can be sure that they contain no substances that are harmful or allergic to humans.

SYSTEMMAG® relies on a versatile and reactive team with the capacity to adapt the products according to its customers' requirements. Its know-how and experience enable it to assist each customer throughout the process of developing the finished, magnet-equipped product, in other words, assembling prototypes and making the optimal choice of product, as well as ensuring its integration into the customer's production lines. The company also has its own internal Research and Development department.

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MAGNETS & MAGNETISM

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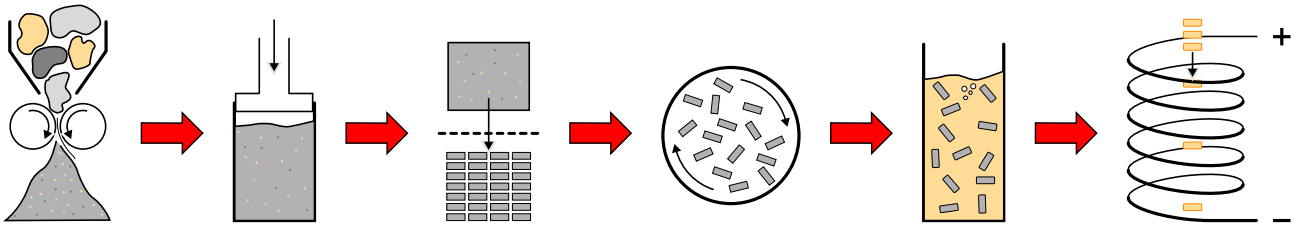
Permanent magnets and Rare earth

Our systems use a new generation of rare-earth magnets of the Neodymium-Iron-Boron (NdFeB) type. These ultra-powerful magnetic ceramics first saw the light of day at the beginning of the 1980s. These magnets are known as permanent magnets, because the material has been subjected to a magnetic field that it has absorbed and is able to retain (this is known as the material's residual magnetism). The use of rare earth makes it possible to obtain magnets that are much more powerful than traditional magnets (5 to 10 times more powerful depending on the grade used), but also much more costly.
Our magnets are treated against corrosion and oxidation using a galvanic coating of passivated zinc, which gives them good resistance to outdoor conditions, in particular humidity and saline mist (sea water). **Another advantage of this coating is that it uses no substances that might be damaging to humans. In addition, our products are OEKO-TEX-certified, which guarantees that no noxious substances are present.**
Our magnets retain their characteristics up to temperatures of 90°C (up to 200°C for someone, for request). Machine washing is therefore possible, even at high temperatures.

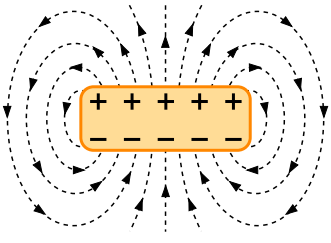
Manufacturing the magnets

The first stage involves producing an alloy of the different materials that go to constitute the magnet, by crushing and grinding the materials until a fine powder is obtained. This powder is then compressed and fritted to form a large rough block, which is wet-cut into small blocks of the required size using a diamond-edged saw. These small blocks are passed through a rotating "drum", so as to round their sides (and to remove sharp edges), and then galvanised in a special zinc bath.
The final stage involves magnetising the blocks until they are saturated. During this stage, the blocks are placed inside a coil that generates an extremely strong magnetic field. Our magnets are magnetised axially, i.e., the magnetic field passes through the face.



Magnetism

A magnet has a north pole (positive) and a south pole (negative). Two poles of the same type repel each other, while two of the same type are mutually attracted. These magnetic fields can also attract other elements that contain iron (for example, steel).
From a medical point of view, the magnetic fields produced by permanent magnets have no known negative effects. Some forms of medicine, known as "natural" or experimental, use magnetism to treat certain illnesses. These "cures" are however not recognised by traditional medicine.

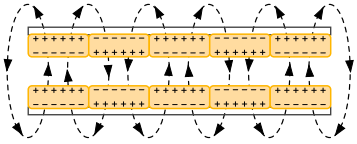


Field lines (or forces)

We carried out our own study on the impact of our magnets on individuals who wear pacemakers. This study, which lasted 3 years and was headed by Professor FRANK under the supervision of the CCPPRB* of the Pitié-Salpêtrière hospital in Paris, looked at 177 patients and 8 different models of pacemaker. The results indicated that no undesirable effects were produced. However, as a cautionary measure, we would discourage such individuals from using our products. Other studies are currently in progress.
Lastly, we should point out that our magnets have a strong magnetic pull from close range, but that their effective range is only a few millimetres, which goes further to limiting their impact.

**Consultative Committees for the Protection of Persons Participating in Biomedical Research*

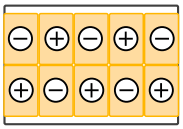
MAGNET BLOCKS



Magnetic fields of a fastener

SYSTEMMAG®'S products are equipped with articulated Magnet Blocks (MB) comprised of small magnets placed end to end and assembled with a flexible elastomer binder. This configuration makes it possible to alternate the polarities, giving the fastener a power 8 to 10 times greater than that of a larger single magnet (of the same volume).

A fastener is obtained by combining two compatible MBs (each negative-pole magnet (-) opposite a positive-pole magnet (+) and vice versa). The number of magnets per MB is one of the main parameters when determining the closing power. During integration into the product to be equipped, the MBs are inserted into a pouch made from fabric (or another material) or a special housing, so as to affix them to each part to be assembled and to protect them).



Magnet blocks
Alternate polarities

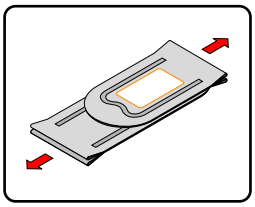
The choice of fabric is the second key parameter that determines the closing power. The thinner and more "grippy" it is, the stronger the fastener will be. The choice of material influences the longevity of the fastener's mechanical resistance to wear. In addition, in the case of an adjustable fastener, the length of the pouch (or housing) will determine the fastener's adjustment range.

SYSTEMMAG®'s products are broken down into two families :

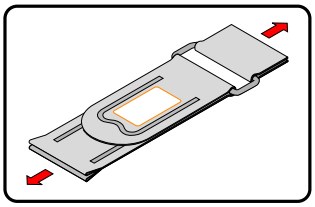
- Magnet Strips, available in two widths, which are designed to be cut up and incorporated into the products to be equipped.
- "Ready-to-stitch" products, which combine polyamide (PA) fabric and Magnet Blocks (except for Straight Sheaths). The fabric used to cover the active face of the magnets has been specially developed to combine closing power and mechanical resistance (tearing, abrasion).

SHEATHS : adjustable single fastener

This is a fastener comprised of two compatible Magnet Blocks and, depending on the application, either both are fixed, or one is fixed and the other adjustable, or both are adjustable. These fasteners can either be attached together directly or comprise a buckle and a loop (better tensile strength).



Direct fastener



Fastener with buckle

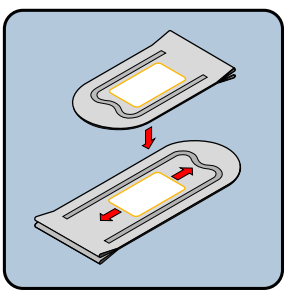
Closing a fastener:

1-Adjustment: position the Magnet Block in its pouch according to the tightness required.

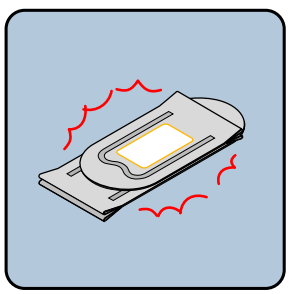
2-Closing: bring together the two MB-equipped parts to be assembled. They will position themselves and attract each other automatically.

3-Opening: pull away the upper part. The magnets detach themselves easily, one after the other (peeling motion).

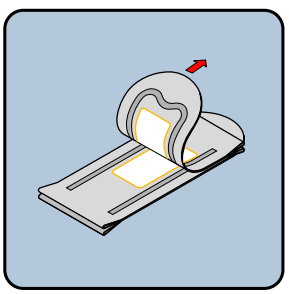
4-Pulling up : good pulling up movement strength (tensile strain).



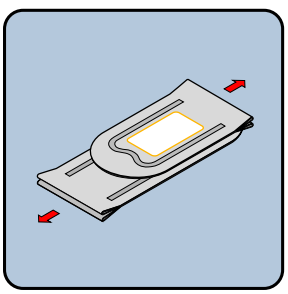
Adjustment



Closing



Opening



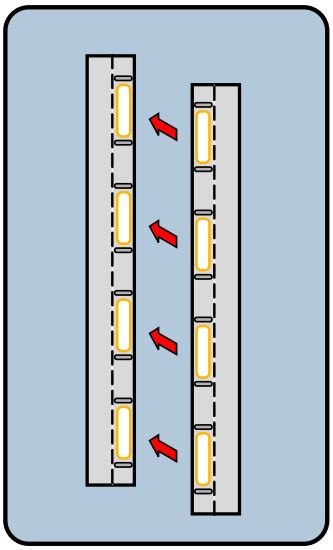
Pulling up

ZIPS: long multi-point fastener

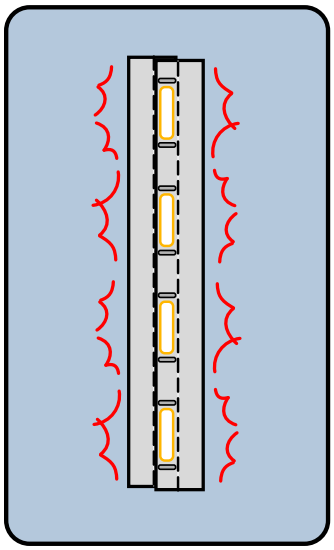
This is a fastener comprised of a series of magnets or of compatible Magnet Blocks arranged along the length of the parts to be assembled.

- **C, CD, GC & GD Zips** are manufactured from single magnets, the spacing of which is determined by the customer according to the application and to the necessary force.
- **CE & GE Zips** are equiped with magnet blocks and can be modified according to customer requirements.

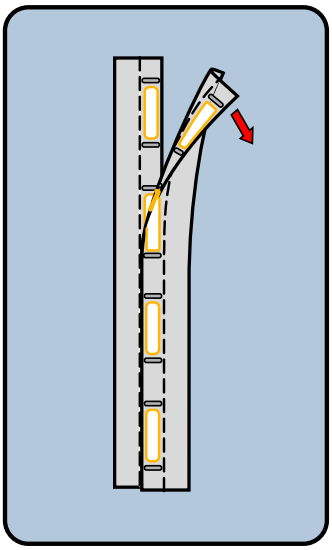
Numerous configurations of long fastener are possible, in particular by varying the size and spacing of the MBs (reinforcing the resistance at the points subjected to the highest stresses). It is also possible to have several single adjustable fasteners and thus to obtain variable geometry fastening.
If the customer so wishes, we can study the feasibility of specific "ready-to-stitch" products and then mass produce them.



Bringing together the parts to be assembled



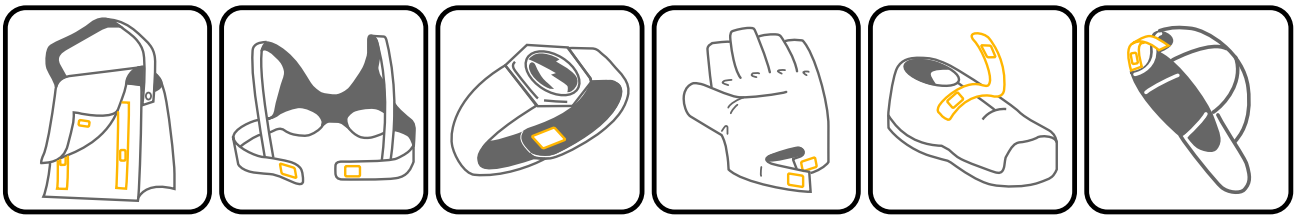
Closing the fastener



Opening the fastener

MAIN FIELDS OF APPLICATION

- **Clothing**: trousers, jackets, skirts, dresses, etc.
- **Shoes**: sports, children's, town shoes, etc.
- **Accessories**: caps, watches, belts, etc.
- **Lingerie**: bras, briefs, corsets, suspender belts, etc.
- **Luggage**: handbags, document cases, travel cases, back packs, etc.
- **Medical**: orthoses and prostheses, slippers and clothes for the disabled, straps
- **Military**: combat wear, tents, accessories
- **Industry**: brackets, conveyor belts, clamping of parts, door closure systems



ADVANTAGES

- **Precise adjustment** of the fastener: movement of the Magnet Block inside the sheath, very precise adjustment, the customer is free to choose the adjustment range according to requirements.

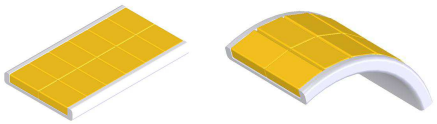
- **Closing power** : a different number of magnets can be used depending on the required fastener resistance, a high level of strength can be obtained (100 kg or more)

- **Great longevity**: permanent magnets whose useful life is estimated at more than 20 years, good resistance to outdoor conditions (water, snow, sand, etc.), can be used between -50°C and +90°C

- **Ease of use**: the fastener positions itself (thanks to the alternate polarities) and closes automatically when the two parts are brought together (proximity of the two magnetic fields). Our fasteners are easy to open and close with one hand. A very desirable characteristic, especially for:
  - children: dressing and undressing alone
  - the elderly or people with reduced mobility (e.g.: difficulty gripping, arthritis)
  - the disabled or victims of accidents (e.g.: arm immobilised)

- **Closing and opening speed**: time savings (e.g.: military applications, shows, theatre plays)

- **Flexibility**: the fact that the small magnets are articulated and the presence of an elastic binder allow the fastener to adapt to complex shapes such as that of the human body



- **Sound and tactile effects** when closed (reassuring), feeling of quality, impression of luxury

- **Fun, innovative and high-tech** : a new approach to the notion of closing or fastening of clothes and accessories.

- **Cold** : the colder of the room temperature it is and the stronger the fastener will be (you win 5% each 10°C less from 20°C (reference temperature for tests). So, for example, you win 15% at -10°C for a mountain application).

- **Innovation** : SYSTEMMAG®'s products are protected by three international patents, which ensure effective legal protection against counterfeiting.

- **Standards** : our products are certified to OEKO-TEX Standard 100, class 2, an internationally recognised label in the field of personal protection from undesirable substances. This is a guarantee to the consumer that the products can come into contact with the skin without causing adverse effects, in particular the risk of irritation, allergic reactions, etc. They have been tested and certified by internationally renowned laboratories, thus guaranteeing your safety. For example, our magnets contain no nickel, a substance that is often used in coatings.

- **Versatility** : the option of using our products in a multitude of applications in highly varied sectors of activity. Many usage configurations are possible.

- **Development** : SYSTEMMAG® has invested and continues to invest a great deal in Research and Development, in order to develop new products or improve existing products. It took eight years of research to perfect the product, as it exists today. We always endeavour to fulfil your needs and can develop specific products that best cater for your expectations.

Research unit : R&D and Industrialization

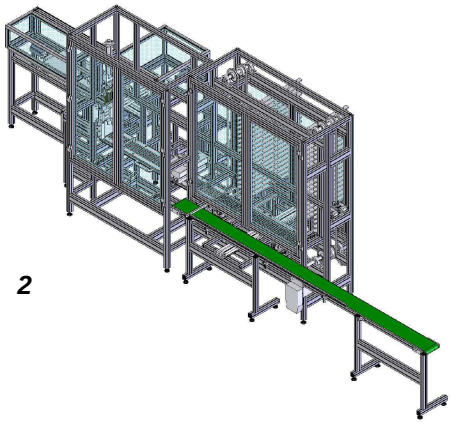
In order to satisfy its customer's needs fully, SYSTEMMAG includes a research unit, whose two main missions are :

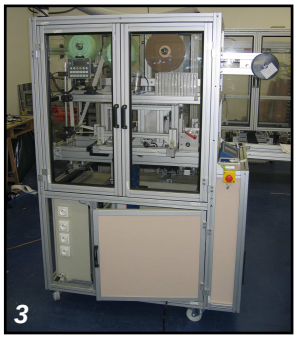
- ***Research and Development of new products***

This unit is in charge of the design of new products and the enrichment of the existing range, in order to provide its clients with always innovative products. This service also helps the clients regarding technical advice, prototype setting and design of specific products, for the best possible answer to their needs and expectations.

- ***Manufacturing***

This unit is in charge of the design and the assembly of specific machines for the products' manufacturing. According to our will to keep the production in France and because of the specificity of our products, we chose to design our tools ourselves, thus ensuring flexibility, delays and quality of the delivered product. Moreover, our industrial expertise is available to our clients to help them integrate our products in their production chains, would it require modification of existing machines or creation of new ones.





Examples of realization

1. Machine for cuting up magnets strips into magnets blocks with useful length.

2. CAD modelling of the machine to produce magnets strips

3. Machine for making zips and sheaths (cut and heat sealed by ultrasound)

Patents and industrial protection

In order to protect its products and its ideas, SYSTEMMAG follows an industrial protection policy, supported by regular patenting. These international patents ensure the purchasers and the users protection against imitations and counterfeits of magnetic systems. To this day, SYSTEMMAG own three patents :

- **Patent 1** : named *"Device for fastening or adjusting parts of a garment, shoe or other accessory"*, applied in 1998, claims, among others, the fastening using sliding magnets. Also describes numerous examples of use.
- **Patent 2** : applied 2002, this patent, named *"Device for fastening or adjusting parts of a garment or underwear such as brassieres"*, describes the principle of alternate polarities and displays numerous examples of use and implementation.
- **Patent 3** : this last patent, applied in 2006, protects the *"device and production process of a magnetic fastening system"*, i.e. everything concerning magnetic zippers, from the general principle to the process.

What is the Oeko-Tex norm ?

In order to satisfy its clients' requirements regarding normalization, SYSTEMMAG and its provider came up to developing a composition and a specific coating of its magnets. Thus, the product meets with common international commerce norms, notably the OEKO-TEX Standard 100 label certification.

Oeko-Tex Standard 100 is an international system of control and certification for raw, semi finished and finished textile products, at every stage of the process. It guarantees a level of unwanted substances inferior to those harmful to the human body. This label is an international guarantee of quality for the product, delivered by ASQUAL and IFTH in France, according to tests on numerous noxious substances, including regulated and forbidden substances, hazardous chemical products as well as parameters introduced as a precaution regarding health.

Some examples of criteria taken in account by Oeko-Tex during those tests :

- o forbidden azoïc, carcinogen and allergen colorants,
- o pesticides and herbicides,
- o heavy metals and nickel,
- o colour holding and pH of the aqueous extract,
- o organic-volatile compound,
- o smell.

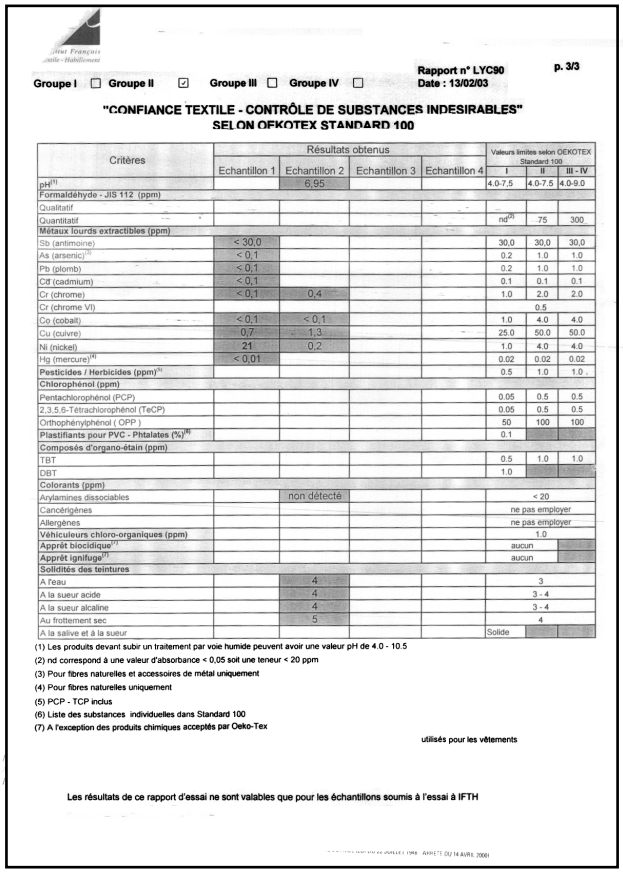
Certificates


CERTIFICAT

ASQUAL

CONFIANCE TEXTILE Contrôle de substances indésirables d'après Oeko-Tex Standard 100

ASQUAL CQ 722/1 IFTH, LYON


Rapport n° LYC90 p. 3/3
Date : 13/02/03

Groupe I ☐ Groupe II ☑ Groupe III ☐ Groupe IV ☐

"CONFIANCE TEXTILE - CONTRÔLE DE SUBSTANCES INDESIRABLES" SELON OEKOTEX STANDARD 100

Critères	Résultats obtenus				Valeurs limites selon OEKOTEX Standard 100		
	Echantillon 1	Echantillon 2	Echantillon 3	Echantillon 4	I	II	III - IV
pH[1]		6,95			4.0-7.5	4.0-7.5	4.0-9.0
Formaldéhyde - JIS 112 (ppm)							
Qualitatif					-	-	-
Quantitatif					nd[2]	75	300
Métaux lourds extractibles (ppm)							
Sb (antimoine)	< 30,0				30,0	30,0	30,0
As (arsenic)[3]	< 0,1				0.2	1.0	1.0
Pb (plomb)	< 0,1				0.2	1.0	1.0
Cd (cadmium)	< 0,1				0.1	0.1	0.1
Cr (chrome)	< 0,1	0,4			1.0	2.0	2.0
Cr (chrome VI)						0.5	
Co (cobalt)	< 0,1	< 0,1			1.0	4.0	4.0
Cu (cuivre)	0,7	1,3			25.0	50.0	50.0
Ni (nickel)	21	0,2			1.0	4.0	4.0
Hg (mercure)[4]	< 0,01				0.02	0.02	0.02
Pesticides / Herbicides (ppm)[5]					0.5	1.0	1.0
Chlorophénol (ppm)							
Pentachlorophénol (PCP)					0.05	0.5	0.5
2,3,5,6-Tétrachlorophénol (TeCP)					0.05	0.5	0.5
Orthophénylphénol (OPP)					50	100	100
Plastifiants pour PVC - Phtalates (%)[6]					0.1		
Composés d'organo-étain (ppm)							
TBT					0.5	1.0	1.0
DBT					1.0		
Colorants (ppm)							
Arylamines dissociables		non détecté			< 20		
Cancérigènes					ne pas employer		
Allergènes					ne pas employer		
Véhiculeurs chloro-organiques (ppm)					1.0		
Apprêt biocidique[7]					aucun		
Apprêt ignifuge[7]					aucun		
Solidités des teintures							
A l'eau		4			3		
A la sueur acide		4			3 - 4		
A la sueur alcaline		4			3 - 4		
Au frottement sec		5			4		
A la salive et à la sueur					Solide		

(1) Les produits devant subir un traitement par voie humide peuvent avoir une valeur pH de 4.0 - 10.5
(2) nd correspond à une valeur d'absorbance < 0,05 soit une teneur < 20 ppm
(3) Pour fibres naturelles et accessoires de métal uniquement
(4) Pour fibres naturelles uniquement
(5) PCP - TCP inclus
(6) Liste des substances individuelles dans Standard 100
(7) A l'exception des produits chimiques acceptés par Oeko-Tex

utilisés pour les vêtements

Les résultats de ce rapport d'essai ne sont valables que pour les échantillons soumis à l'essai à IFTH

APPLICATIONS & Examples

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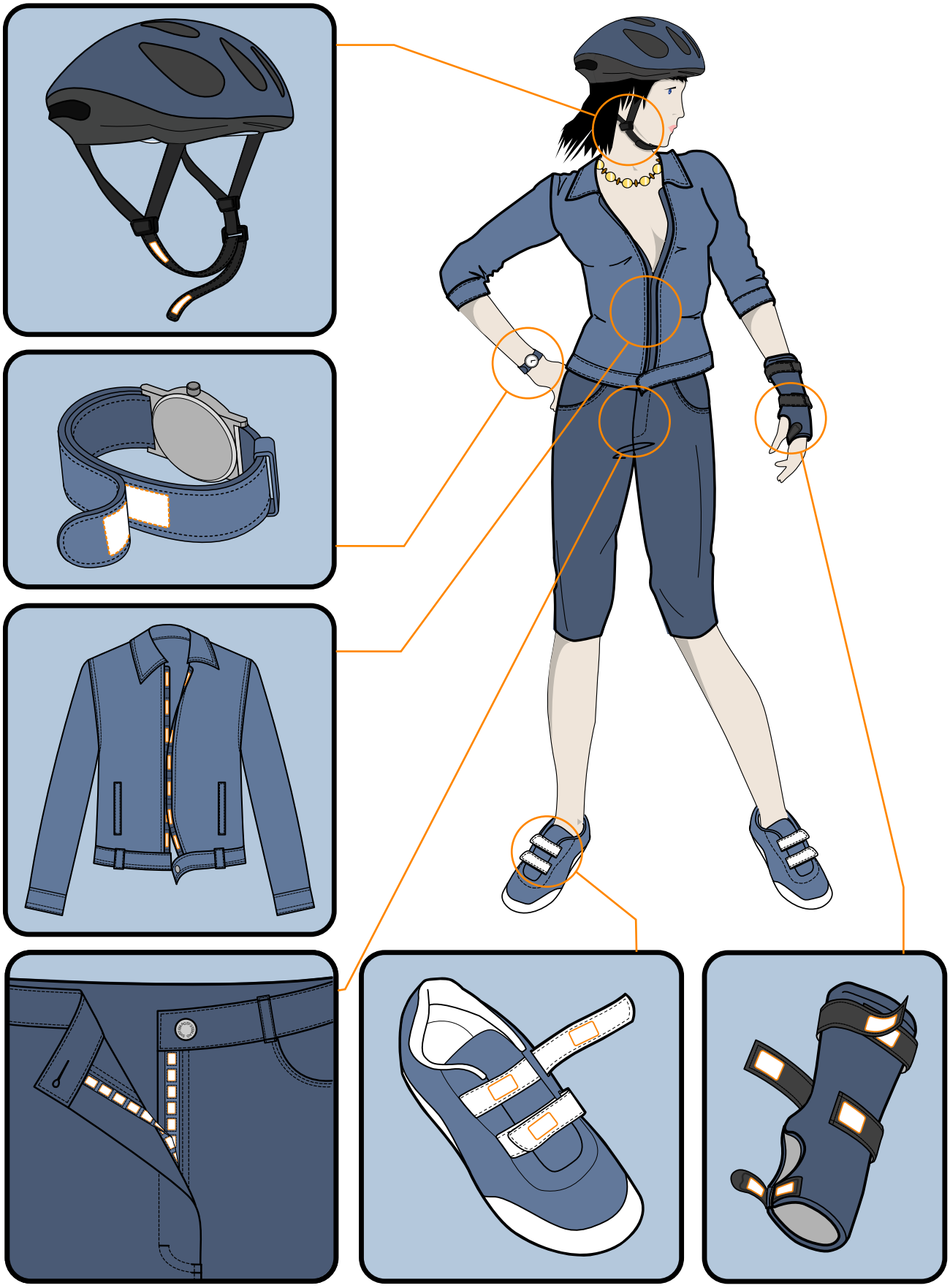
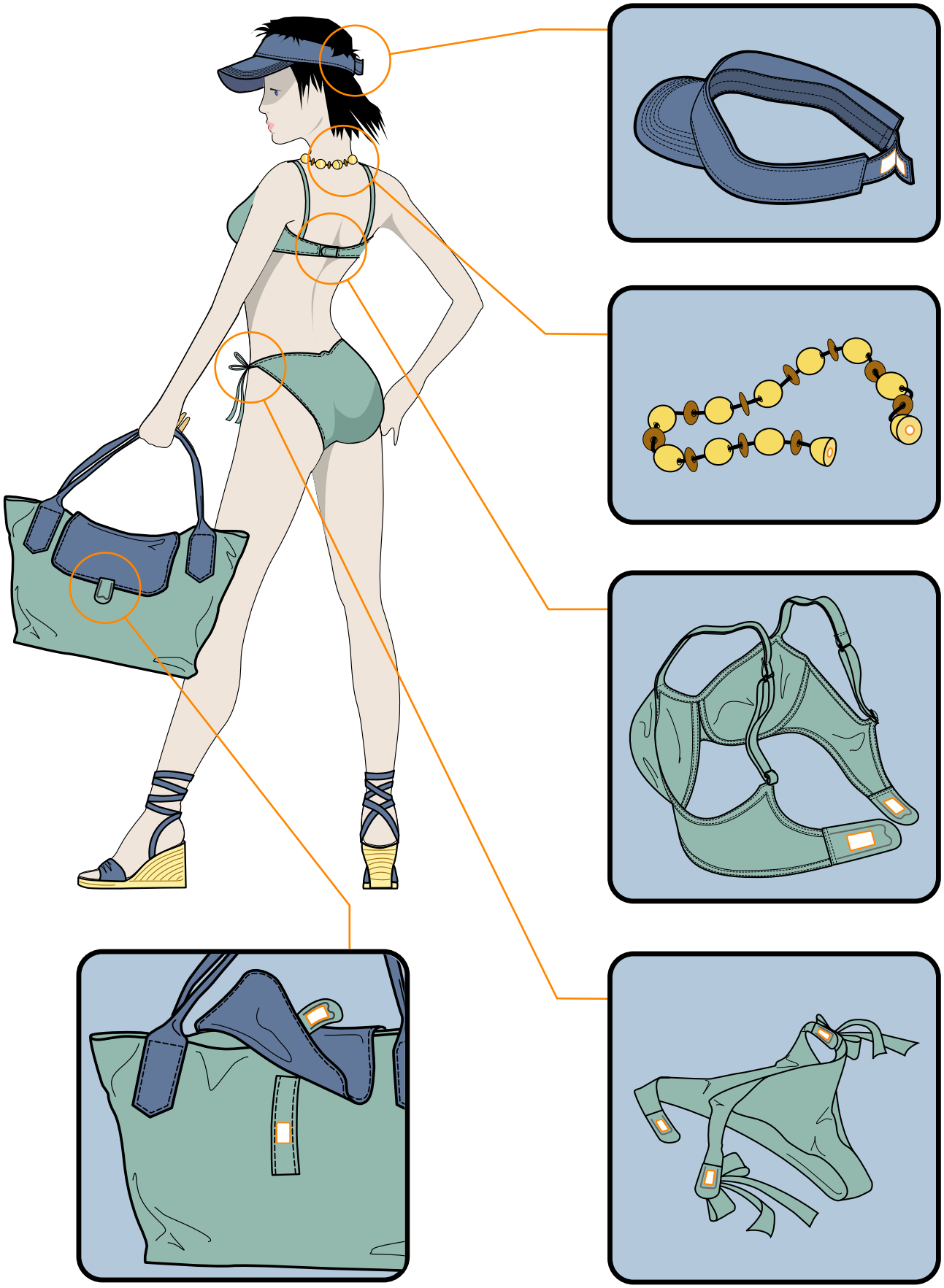


APPLICATIONS & Examples



APPLICATIONS & Examples

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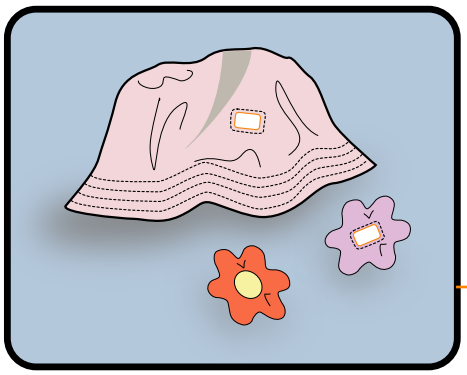
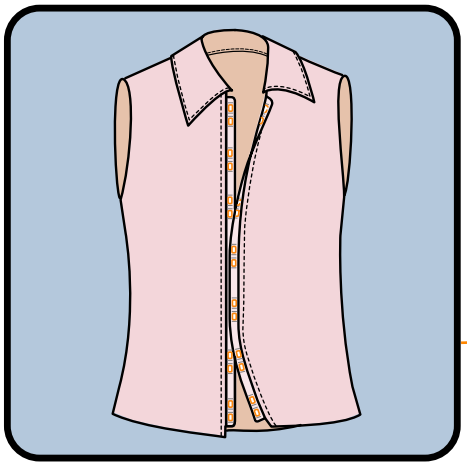
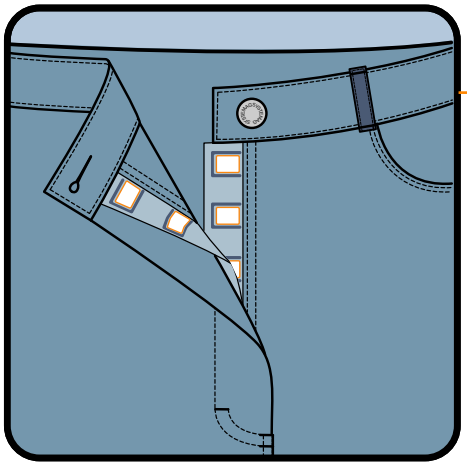
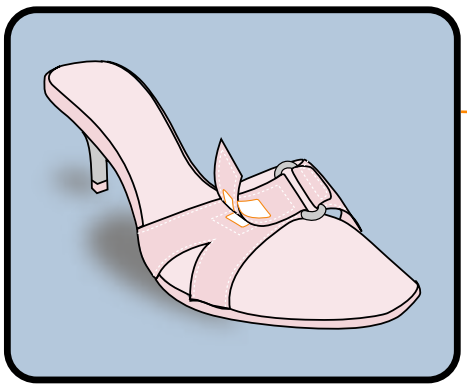
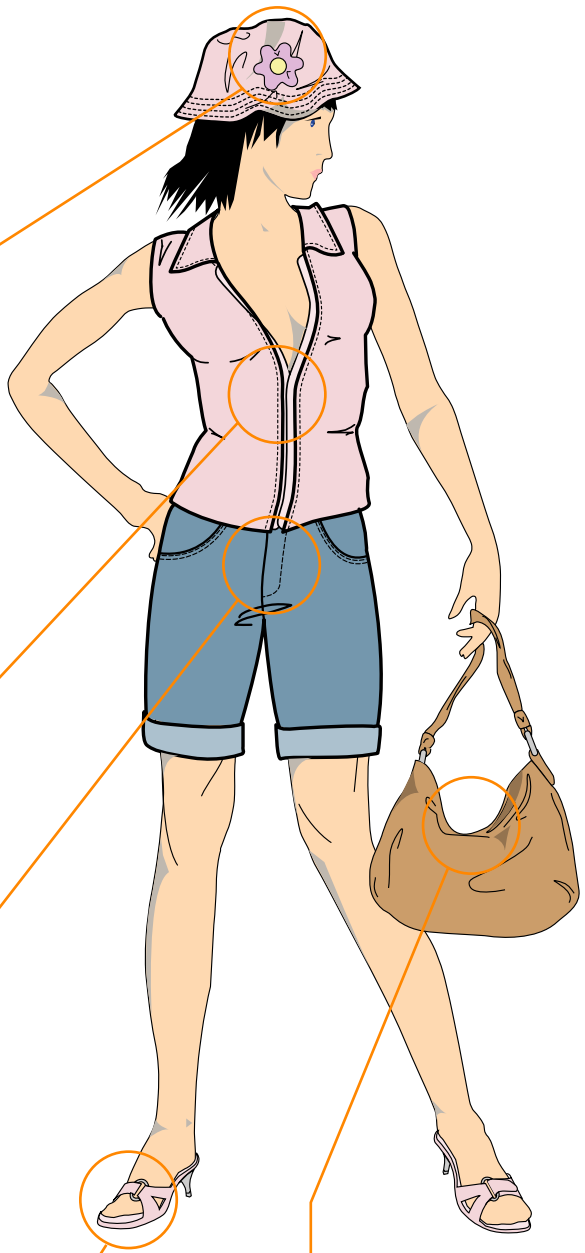
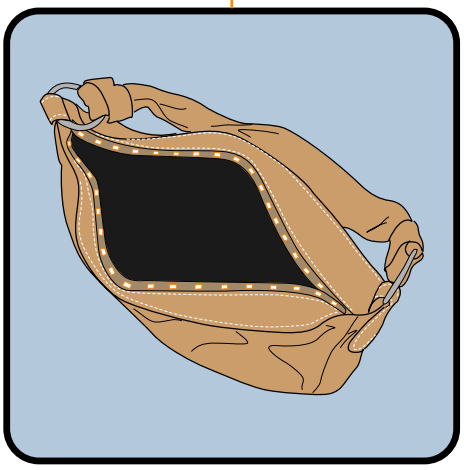




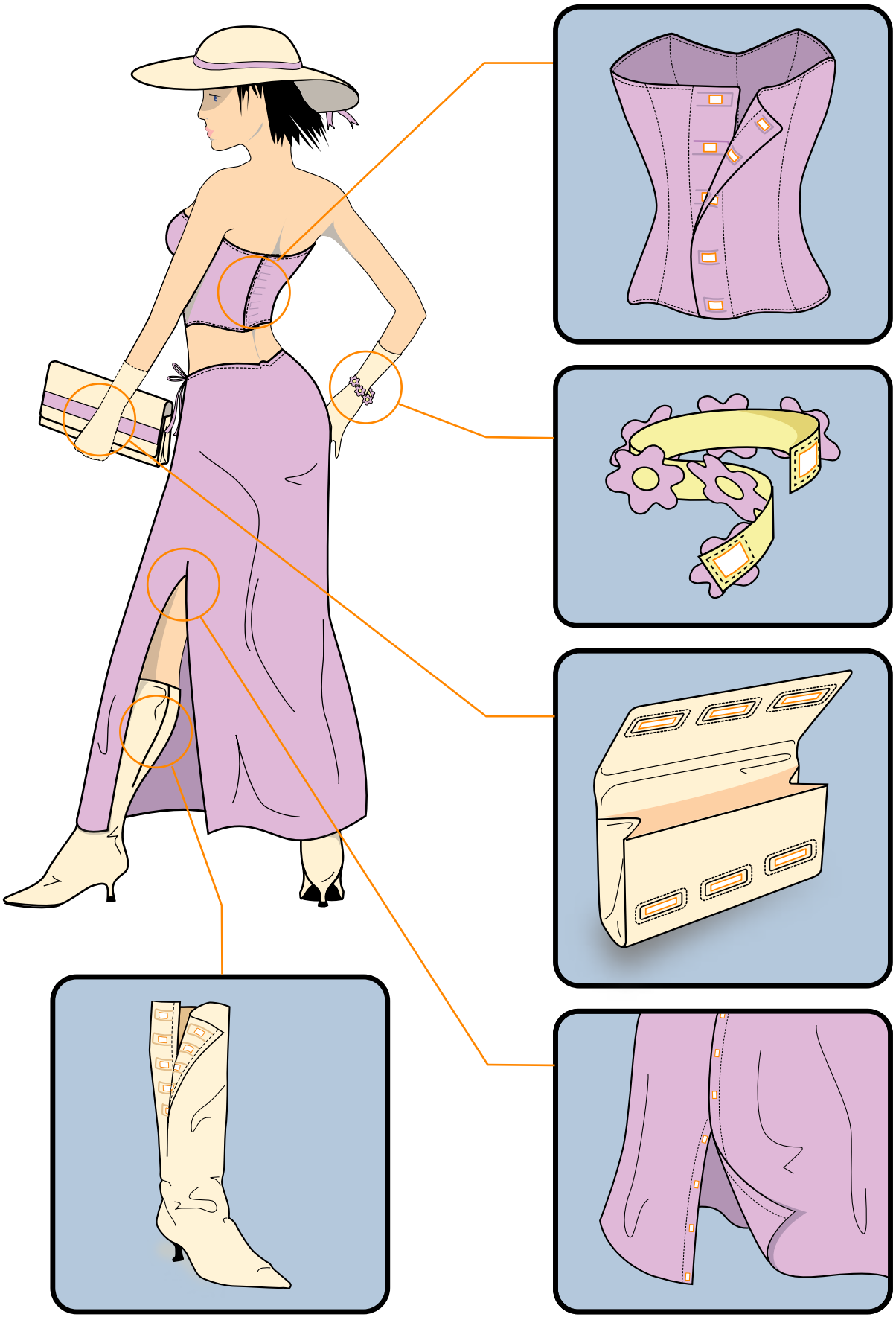








APPLICATIONS & Examples



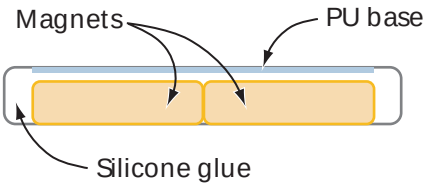
MAGNET STRIPS

SYSTEMMAG Systèmes brevetés
Attaches & fermetures magnétiques

Definition

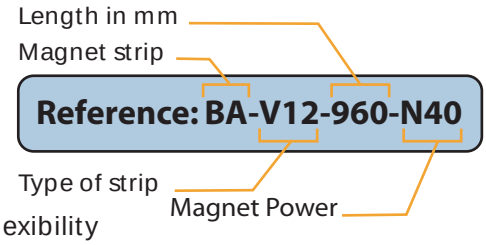
Small, ultra-powerful magnetic ceramics placed end to end, in one or two rows, and stuck to a PU base using a silicone glue specifically suited to our requirements. These strips can be cut by the user according to their needs.

There are 4 versions of the strips, each with a different width, making it possible to adapt our product as best as possible in terms of the space occupied and the power required for the application.



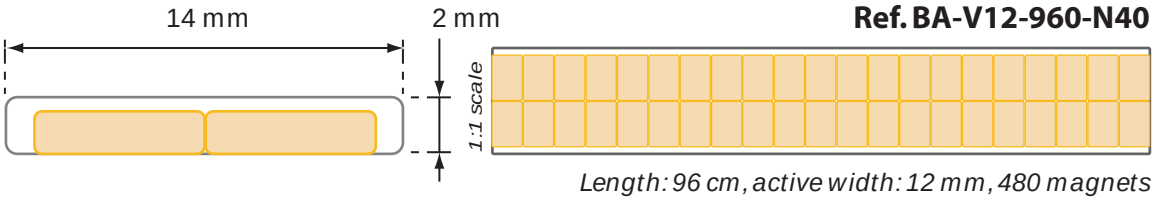
Composition

Magnets: permanent magnetic ceramics made from Rare Earth (Neodymium-Iron-Boron), dimensions: 6x4x1.5 mm, passivated zinc galvanisation (anti-corrosion coating)
Binder: silicone-based glue
Base: strip of Polyurethane film (PU base)



Characteristics:
- High stretch factor, enabling high product flexibility
- Operating temperature: -50°C to +100°C
- Very high resistance to humidity and immersion (washing machine)
- Our magnets do not trigger airport scanners (very low iron content)

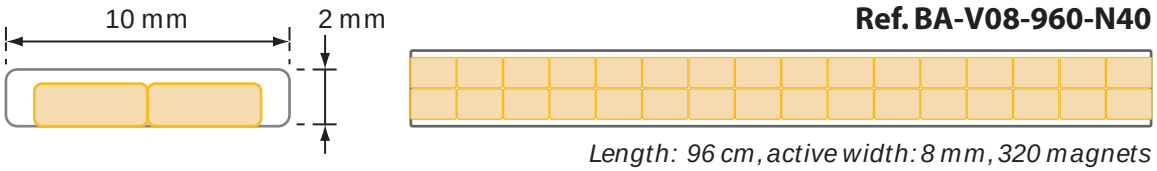
V12



Ref. BA-V12-960-N40

Length: 96 cm, active width: 12 mm, 480 magnets

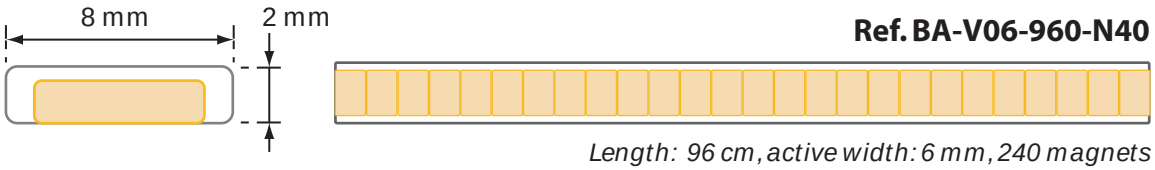
V08



Ref. BA-V08-960-N40

Length: 96 cm, active width: 8 mm, 320 magnets

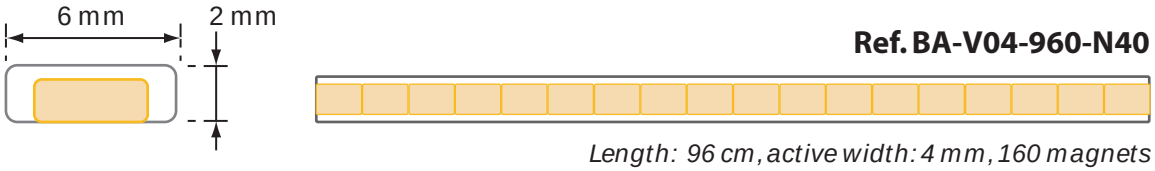
V06



Ref. BA-V06-960-N40

Length: 96 cm, active width: 6 mm, 240 magnets

V04



Ref. BA-V04-960-N40

Length: 96 cm, active width: 4 mm, 160 magnets

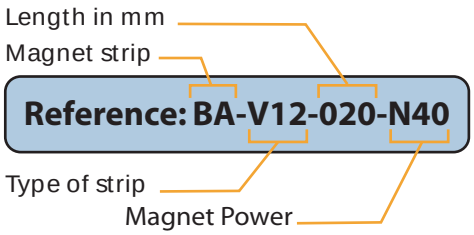
NB: *the unevenness that can sometimes be observed on the side of the strip is caused by an air bubble that forms during drying. This phenomenon has no effect on the quality and operation of the product.*

For specific requests (different dimensions, number of rows, type of magnet, choice of coating, etc.), contact us.

MAGNET BLOCKS

Definition

Pieces of magnet strip where the type of strip selected (V12, V08, V06 or V04) and the length (or the number of magnets) determine the fastening power. A fastener is comprised of compatible Magnet Blocks. The term "Magnet Block" is abbreviated to MB (or BA in French).

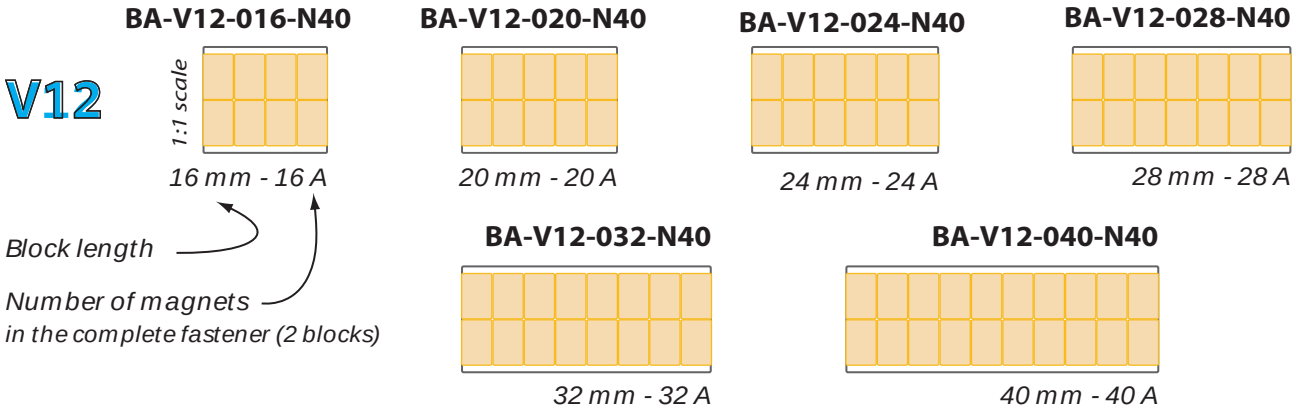


Composition

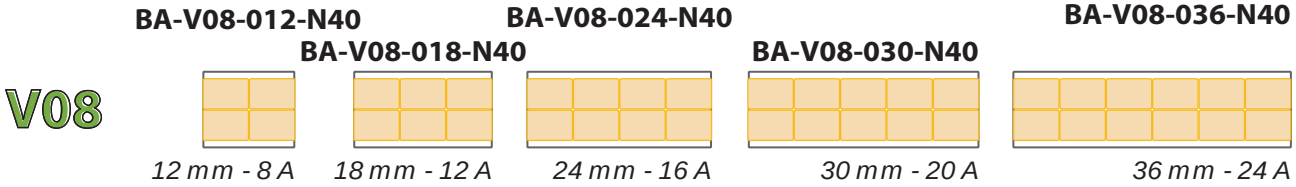
Components and characteristics are identical to those of the magnet strips

Delivery configuration: set of 2 Magnet Blocks (tolerance of +/- 0,3%, constant number of magnets)
Minimum order: 5 sets, volume discounts as of 500 sets

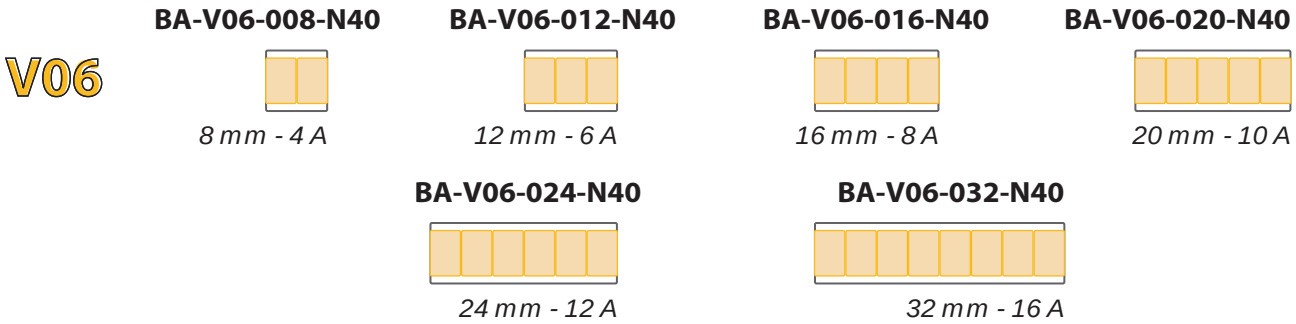
V12



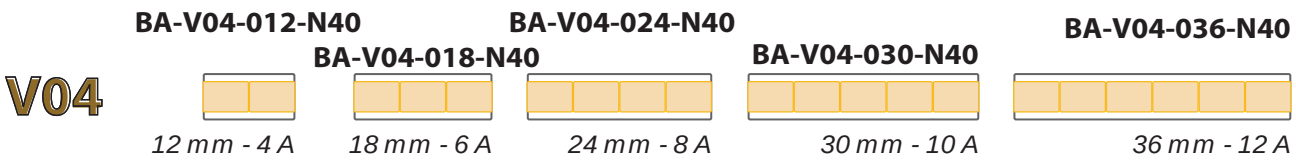
V08



V06



V04



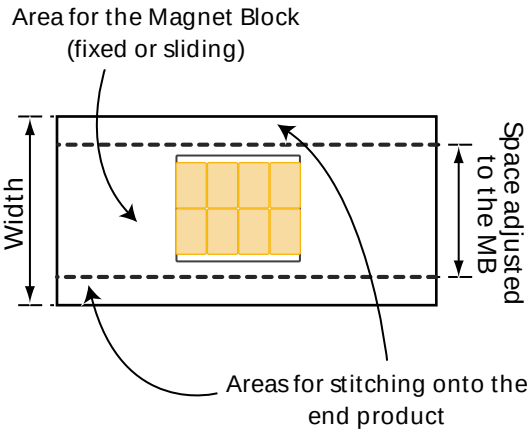
For specific requests, in particular different lengths, contact us.

STRAIGHT SHEATHS (FD)

SYSTEMMAG
Systèmes brevetés
Attaches & fermetures magnétiques

Definition

Fabric pouches, hot cut, with a double seam or weld at the centre intended to house a Magnet Block (V12, V08, V06 or V04). The space between the two seams is dimensioned according to the Magnet Block required. These sheaths are manufactured as a continuous strip, to be cut and stitched by the user depending on the end product's requirements (desired adjustment range, application). These sheaths, "ready to stitch", are offered in a number of widths and are intended to make the work of sewing easier together of the finish product. The magnet blocks are sold and inserted separately.

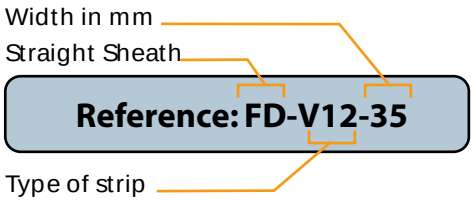


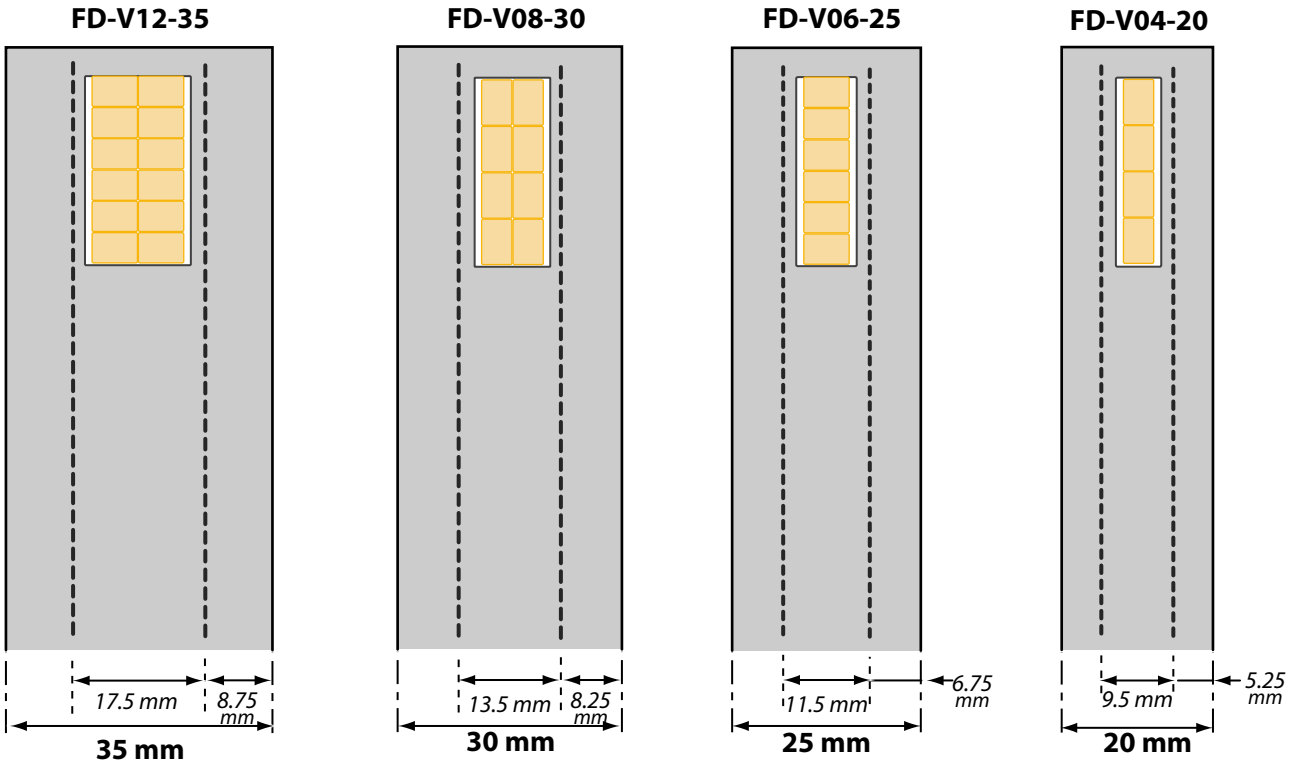
Composition

Sheaths : 100% polyamide fabric (PA)

Colours: - standard : Black & White

Delivery configuration: in rolls, by the metre, without magnets





For other widths, contact us.

SHAPED SHEATHS

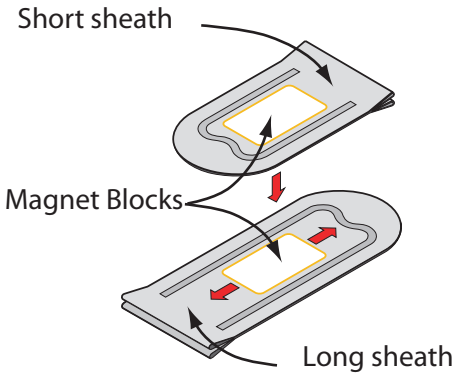
General Points

Definition

Fabric pouches, cut out using ultrasound, on which an imprint, heat sealed also using ultrasound, provide a housing for a Magnet Block. These are sized according to the Magnet Block to be used and the adjustment range required.

There are 4 standard models of sheath developed for applications in the field of lingerie, in particular the fastening of bras. However, these sheaths can be used for many other applications. In addition, we can quickly develop new models should our customers require it.

Shaped Sheaths are delivered in sets of two pouches, equipped with magnet blocks and ready to be fitted onto the end product. Traditionally, a set is comprised of a long sheath, in which the Magnet Block can slide for subsequent adjustment of the fastener, and a short sheath, in which the Magnet Block remains fixed.



Composition

Magnet Blocks

Sheaths: 100% polyamide fabric*

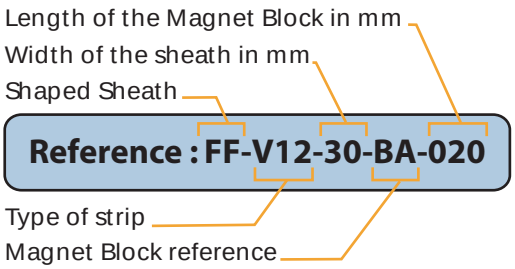
** optimised fabric that combines the power of the fastener with good mechanical characteristics (especially resistance to wear).*

Colours: - standard: Black & White

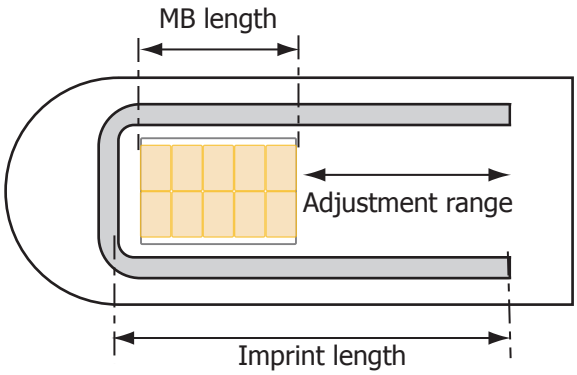
Materials: - standard: 100% polyamide fabric (PA)

Delivery configuration: set of 2 sheaths fitted with Magnet Blocks

Minimum order: 5 sets, volume discounts for 500 sets or more



Sheath dimensioning



Calculating the adjustment range of a fastener

Adjustment range = Imprint length - MB length

The adjustment range of standard pouches depends on the size of the Magnet Block (MB) selected

Average adjustment range: 30 mm

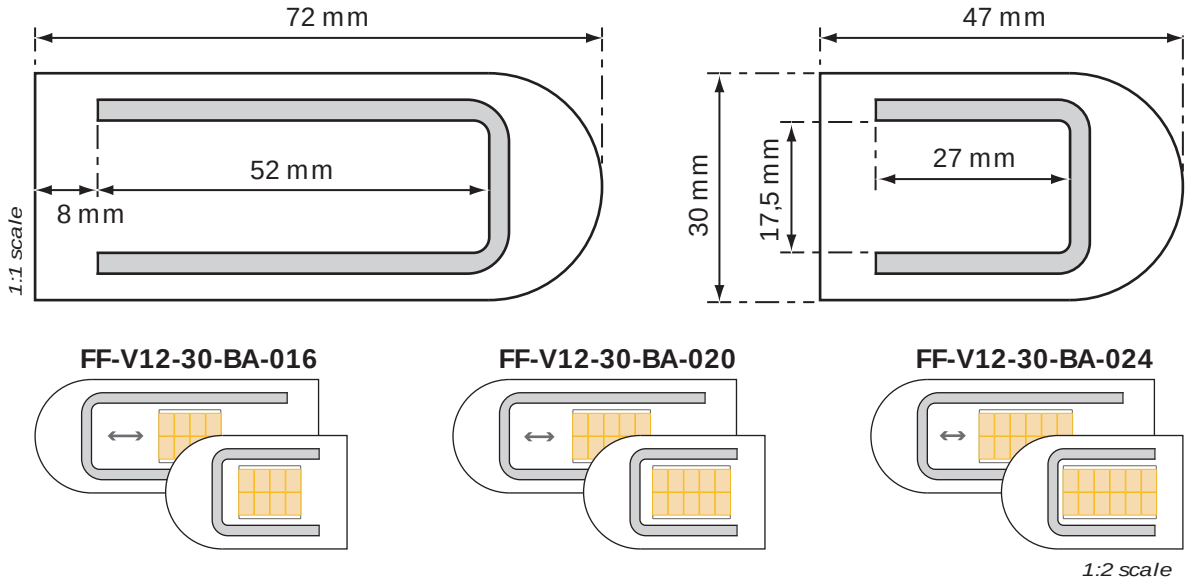
Nota : To determinate a Magnet Block in comparison with the wanted power of the fastening, look at Dimensioning.

SHAPED SHEATHS

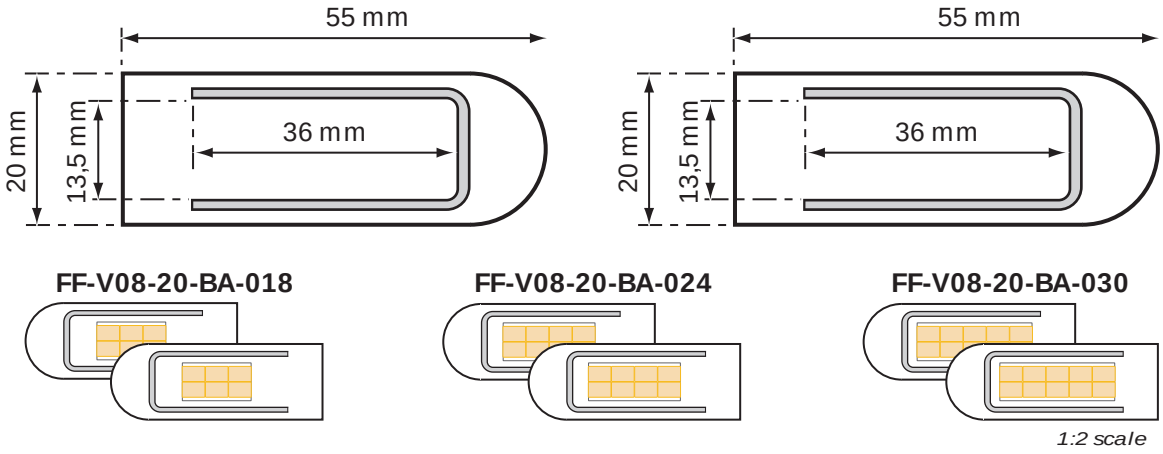
Standard Applications

SYSTEMMAG® Systèmes brevetés
Attaches & fermetures magnétiques

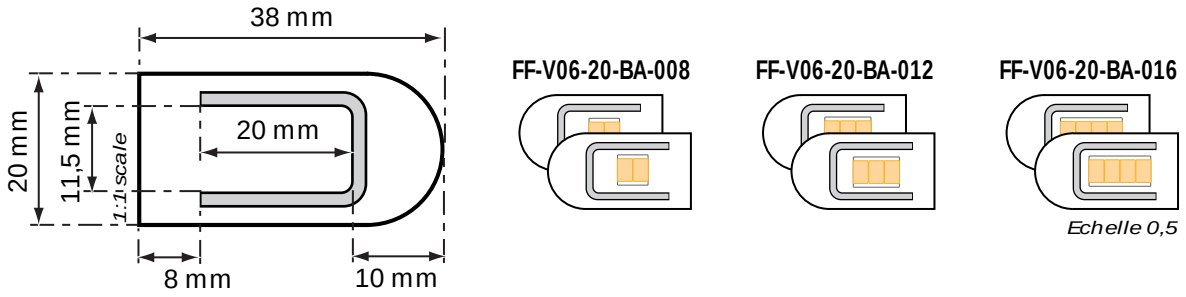
FF-V12-30 mm



FF-V08-20 mm



FF-V06-20 mm



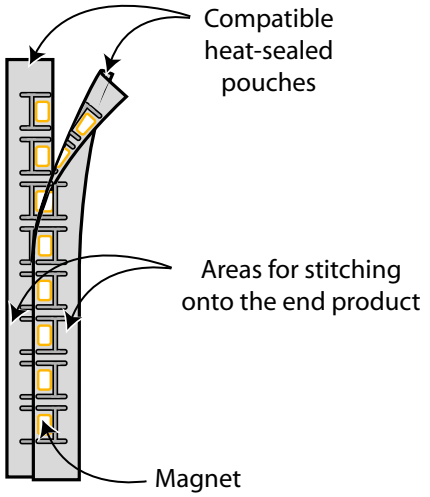
If you have a specific request, in particular regarding other shapes or lengths, contact us.

C ZIPS

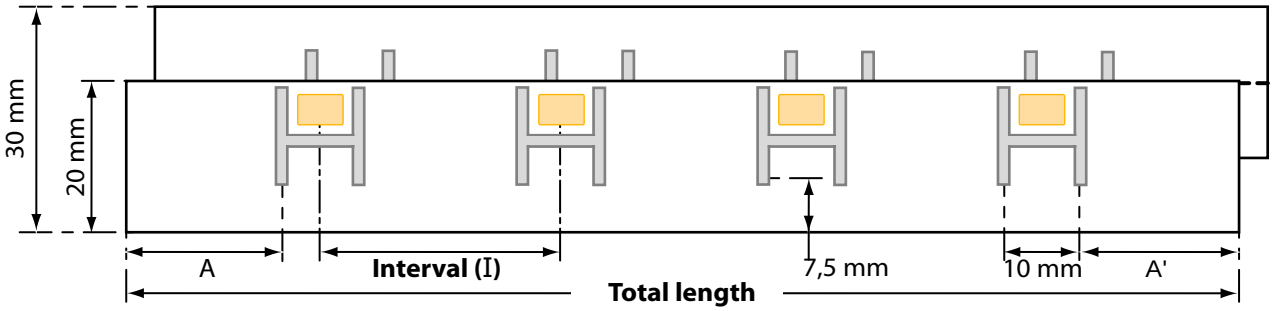
General Points

SYSTEMMAG Systèmes brevetés
Attaches & fermetures magnétiques

Definition



Long, ready-to-stitch fabric pouches that can replace traditional zip fasteners or velcro strips, and on which a series of imprints, heat sealed by ultrasound, house single magnets (not bonded with silicone glue). The heat-sealed imprints are regularly spaced along the fabric strip and the fastener is closed by bringing together the two compatible pouches. The zip is equipped with a lip on each side and the magnets are held in place inside a pouch heat sealed by ultrasound. The interval I between two fastening points varies depending on how the fastener is used. Most the interval will be short and most the force of the closing will be strong.
This type of **"custom"** zip can be used as a shirt buttonhole, with a fastening point every 8 cm, for example, as well as a fly for trousers or skirtwith an interval of 3 or 5 cm, or on a corset with one magnet each centimeter.
The C zip is delivered by the metre in a roll, or precut to the desired length. For samples (standard), this zipper is proposed with an interval each centimeter, between 1 to 10 cm. For special application, we can make others intervals.

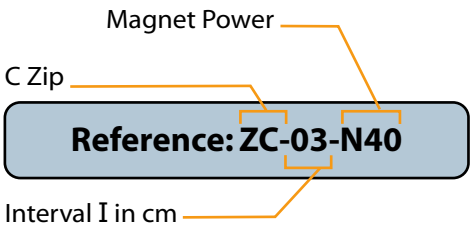


Lengths A and A' very depending on the number of fastening points and the total length. By default, lengths A and A' are equal.

Composition

Magnets: Nd-Fe-B Rare Earth magnetic ceramics, passivated zinc galvanisation.
Pouches: 100% polyamide fabric (PA)

Colours: - standard: Black & White



Delivery configuration: complete zip in the length required or by the metre, equipped with magnets.

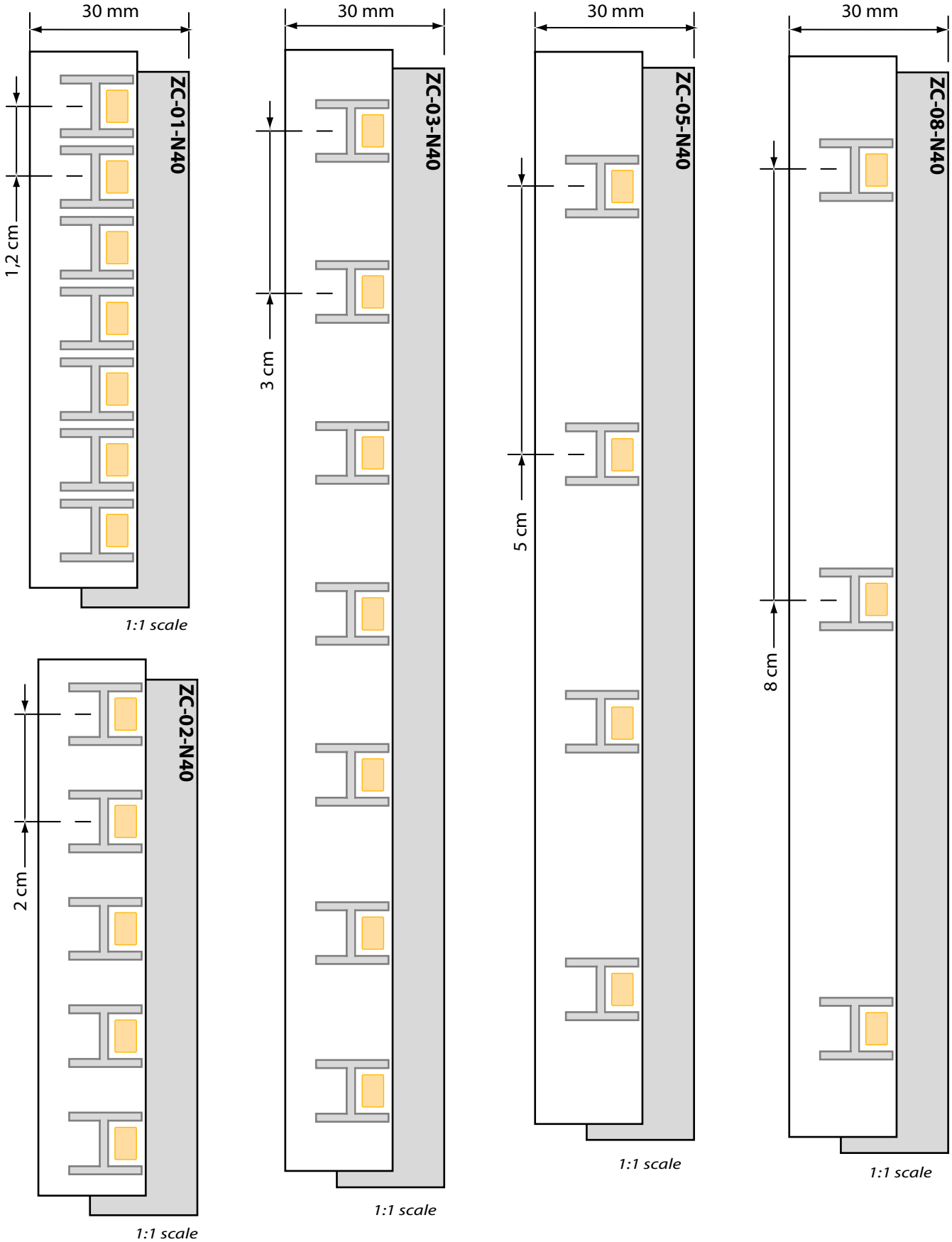
Minimum order: 1 meter

To find out the feasibility and cost of your applications, contact us

SYSTEMMAG
Systèmes brevetés
Attaches & fermetures magnétiques

C ZIPS

Examples of applications



The examples above are available in stock for sampling purposes (by the metre only)

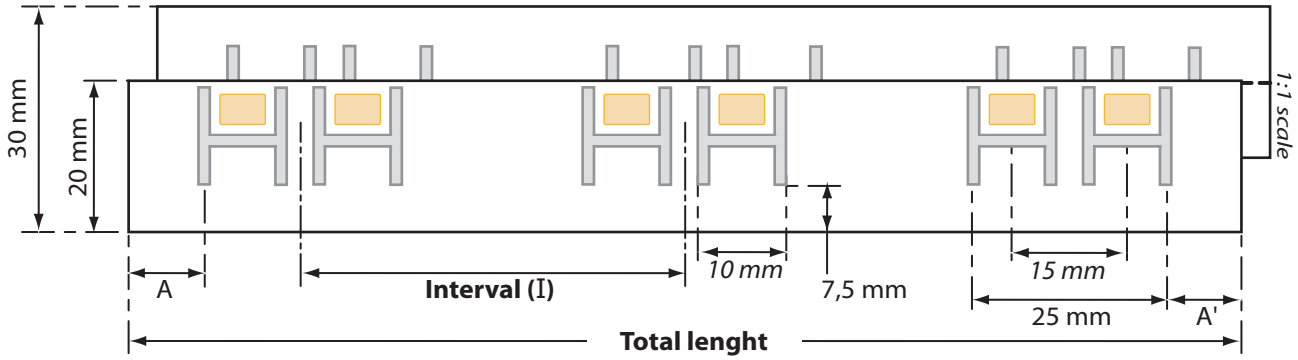
To find out the feasibility and cost of your applications, contact us

ZCD ZIPS

SYSTEMMAG® Systèmes brevetés
Attaches & fermetures magnétiques

Definition

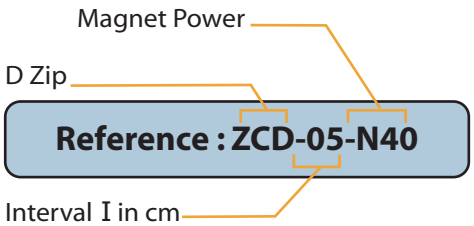
Long, ready-to-stitch fabric pouches. A variant of the C zip with **two single magnets at each fastening point**. The interval I between two fastening points is adjustable depending on how the fastener is used. This type of "custom" zip is more resistant than the C zip and has applications in the fastening of shaped shirts, for example, with a double fastening point every 8 cm.
The CD zip is delivered by the metre in a roll, or precut to the desired length.



Lengths A and A' very depending on the number of fastening points and the total length. By default, lengths A and A' are equal.

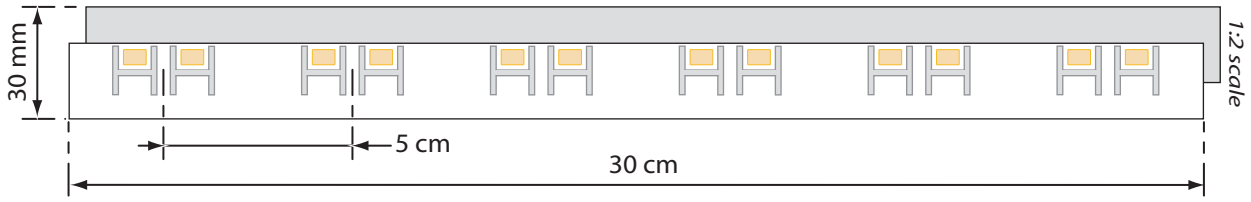
Composition

Magnets: standard
Pouches: 100% polyamide fabric (PA)
Colours: Black & White
Delivery configuration: by the metre, equipped with magnets.
Minimum order: 1 meter

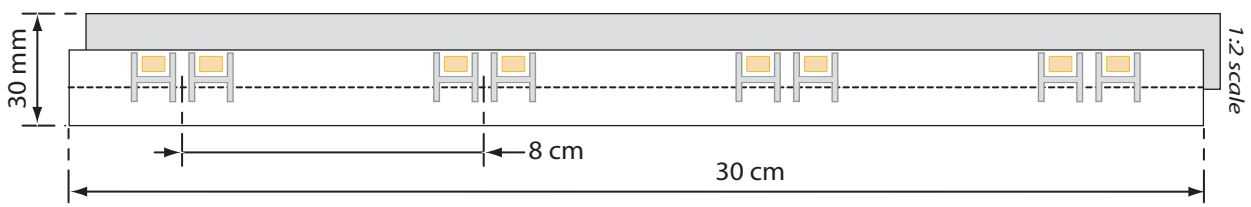


Examples

ZCD-05-N40



ZCD-08-N40



The examples above are available in stock for sampling purposes (by the metre only)

To find out the feasibility and cost of your applications, contact us

ZCE ZIPS

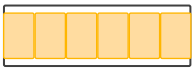
General Points

Definition

Long, ready-to-stitch fabric pouches that use the same principle as the A zips, but whose ultrasound heat-sealed imprints house Magnet Blocks. The fastener is closed by bringing together the two compatible pouches. What marks the E zip out is that **the interval I between the two fastening points can be varied**, and that **the type of magnet strip can be chosen** (the length of the block remains 24 mm). This type of "custom" zip makes it possible to optimise a fastening system according to the power required. With regard to C and CD zips, The CE zip is designed for applications that require more direct force, such as the fastening of coats or jackets. The CE zip is delivered by the metre in a roll, or precut to the desired length. For samples, we purpose zips with standard intervals of 3, 5 and 8 cm, but other value are possible for specific requests.

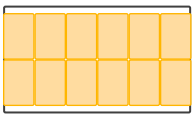
BA-V04-024-N40

BA-V06-024-N40

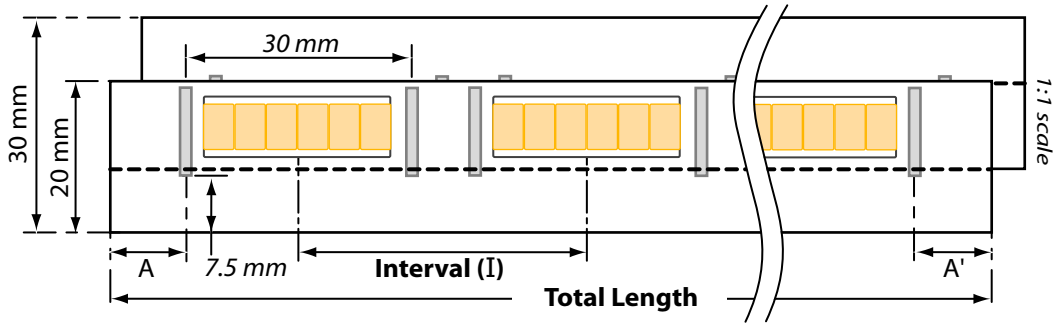


BA-V08-024-N40

BA-V12-024-N40



Choice of Magnet



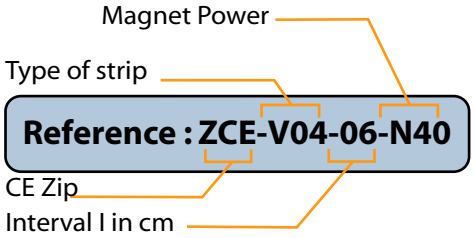
Lengths A et A' vary depending on the interval I and the total length. By default, lengths A et A' are equal.

Composition

Magnet Blocks: see p.14 & 15
Pouches: 100% polyamide fabric (PA)

Colours: - standard: Black & White

Materials: upon request: other PA fabrics, transparent & colourable PU film, other heat-sealable materials.



Delivery configuration: complete zip in the length required or by the m, equipped with Magnet Blocks.
Minimum order: 1 meter

Examples of standard lenghts

For ZCE with interval of 5 cm		**10 cm** *(2x2 MB)*	**15 cm** *(2x3 MB)*	**20 cm** *(2x4 MB)*
25 cm *(2x5 MB)*	**30 cm** *(2x6 MB)*	**35 cm** *(2x7 MB)*	**40 cm** *(2x8 MB)*	**45 cm** *(2x9 MB)*
50 cm *(2x10 MB)*	**55 cm** *(2x11 MB)*	**60 cm** *(2x12 MB)*	**65 cm** *(2x13 MB)*	**70 cm** *(2x14 MB)*
75 cm *(2x15 MB)*	**80 cm** *(2x16 MB)*	**By the metre** *(2x20 MB per metre)*		

To find out the feasibility and cost of your applications, contact us

CE ZIPS

Examples of standard applications

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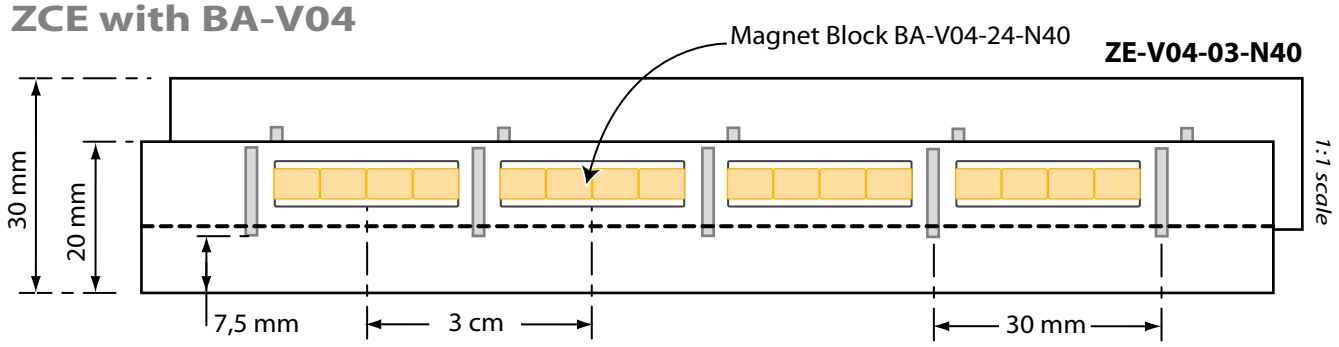
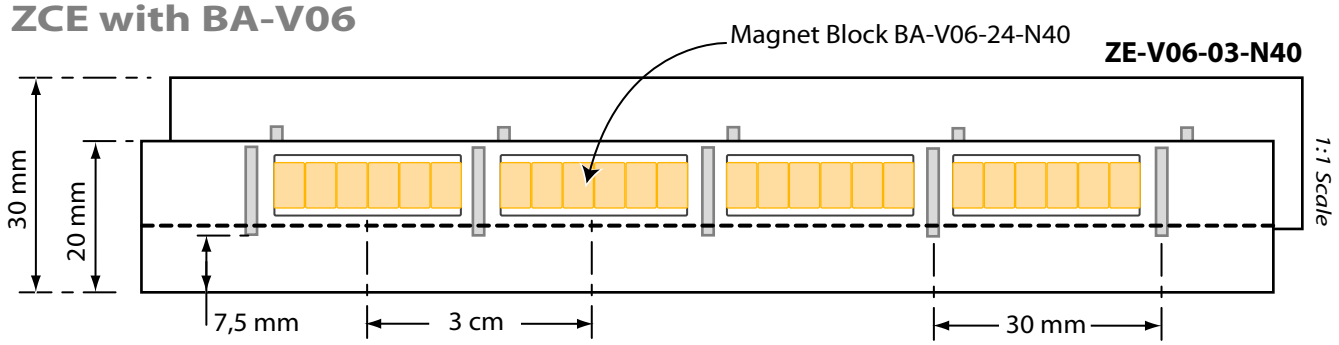
Attaches & fermetures magnétiques

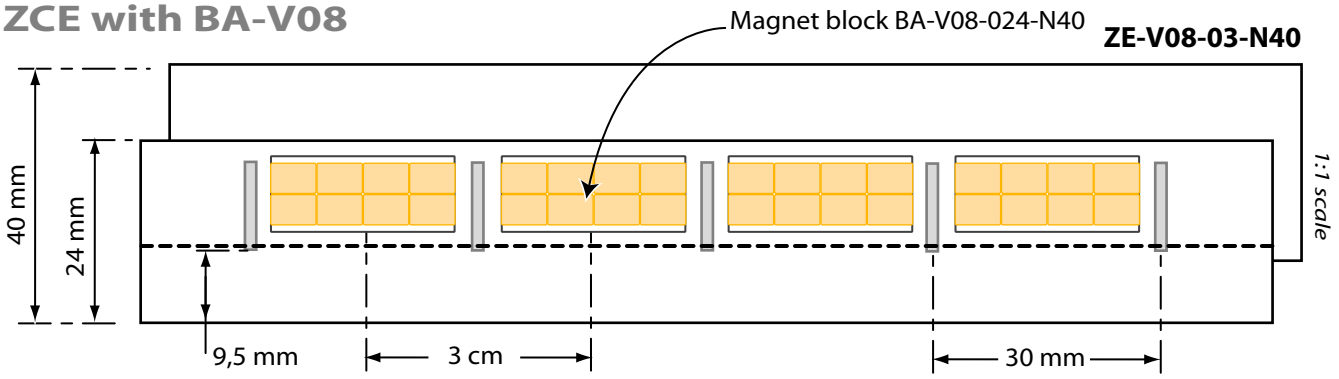
ZCE with BA-V04



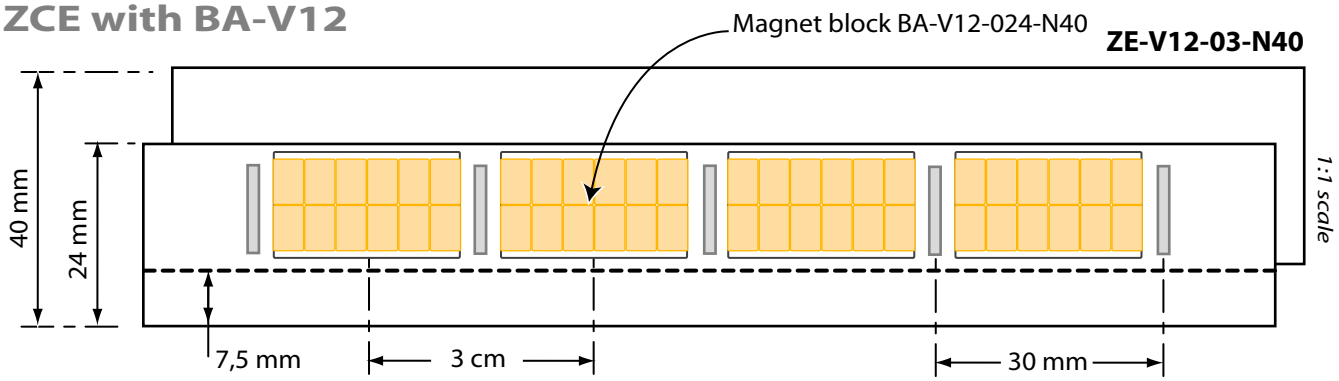
ZCE with BA-V06



ZCE with BA-V08



ZCE with BA-V12

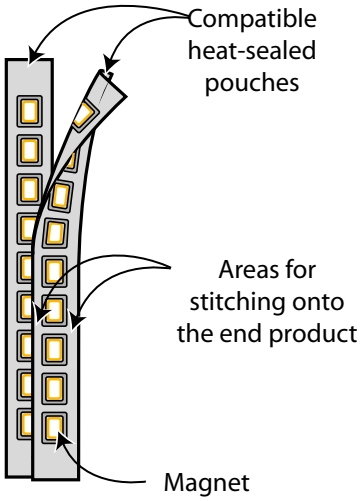


G ZIPS

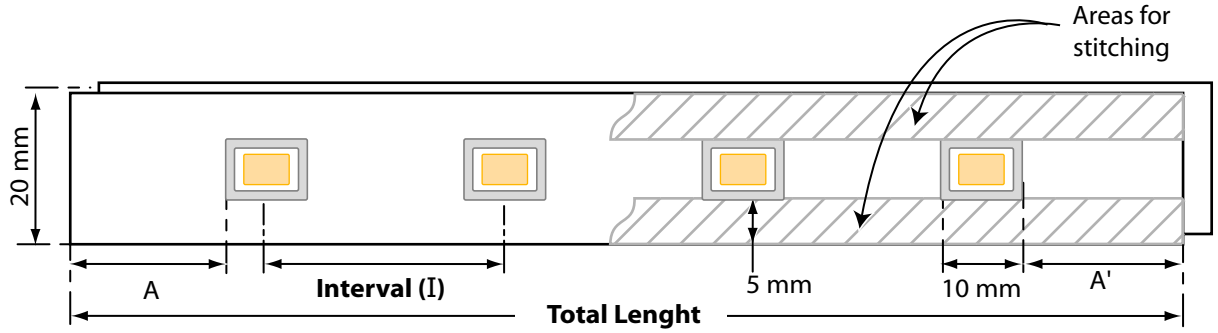
General Points

SYSTEMMAG Systèmes brevetés
Attaches & fermetures magnétiques

Definition



Long, ready-to-stitch fabric pouches, similare to previous zips, but with **centred** heat sealed by ultrasound, house single magnets or magnet blocks. With this configuration, it's possible to stitch on both sides of magnets and to have a flat assembling of zips on the product. The heat-sealed imprints are regularly spaced along the fabric strip and the fastener is closed by bringing together the two compatible pouches. The zip is equipped with a lip on each side and the magnets are held in place inside a pouch heat sealed by ultrasound. The interval I between two fastening points varies depending on how the fastener is used. Most the interval will be short and most the force of the closing will be strong. On the other hand, to adjust the power of the fastener, you can choose to use single magnets (ZG and ZGD) or magnet blocks (ZGE, different sizes).
This type of **"custom"** zip can be used for several applications as to have a shared and interchangeable part you can remove (for example shoulder straps).
The C zip is delivered by the metre in a roll, or precut to the desired length. For samples (standard), this zipper is proposed with an interval each centimeter, between 1 to 10 cm. For special application, we can make others intervals.

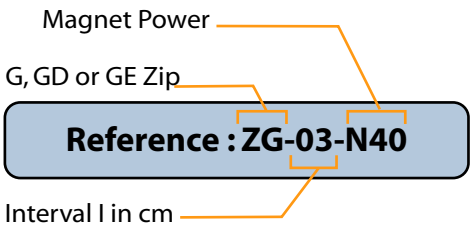


Lengths A and A' very depending on the number of fastening points and the total length. By default, lengths A and A' are equal.

Composition

Magnets: Nd-Fe-B Rare Earth magnetic ceramics, passivated zinc galvanisation.
Pouches: 100% polyamide fabric (PA)

Colours: - standard: Black & White



Delivery configuration: complete zip in the length required or by the metre, equipped with magnets.

Minimum order: 1 meter

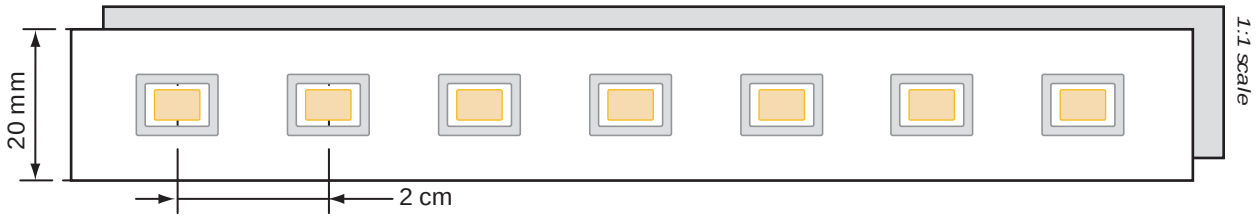
To find out the feasibility and cost of your applications, contact us

G ZIPS

Examples of standard applications

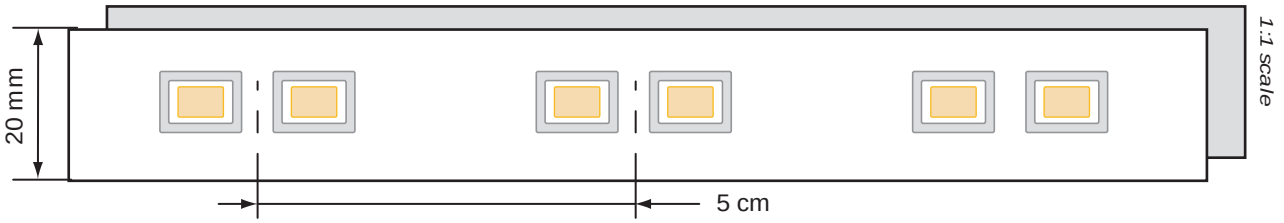
ZG Model

ZG-02-N40

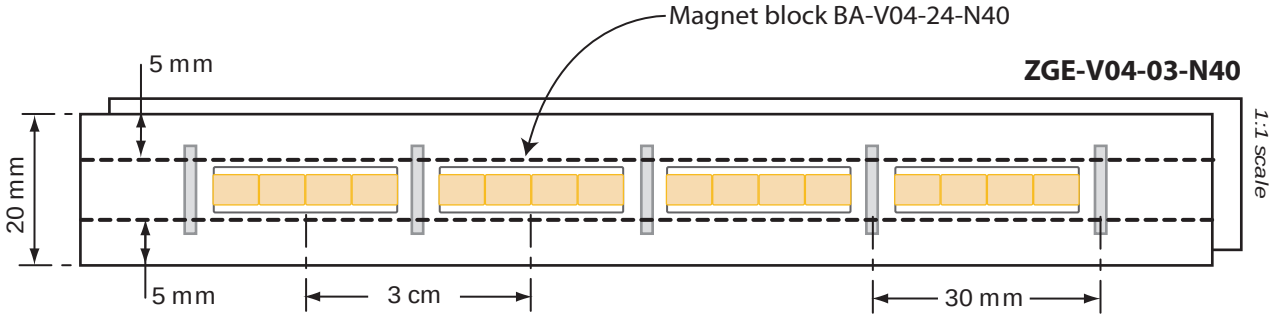


ZGD Model

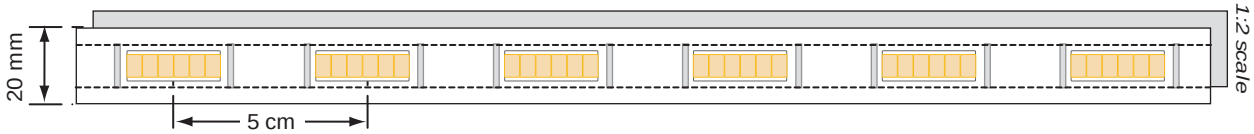
ZGD-02-05-N40



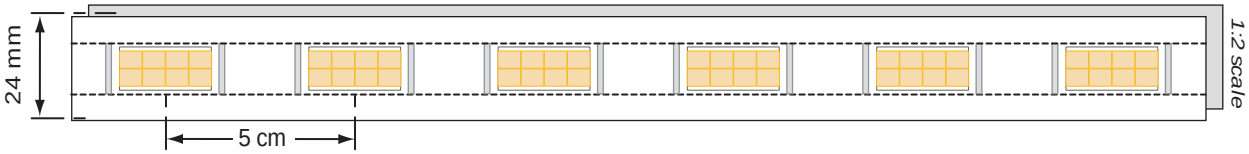
ZGE Model



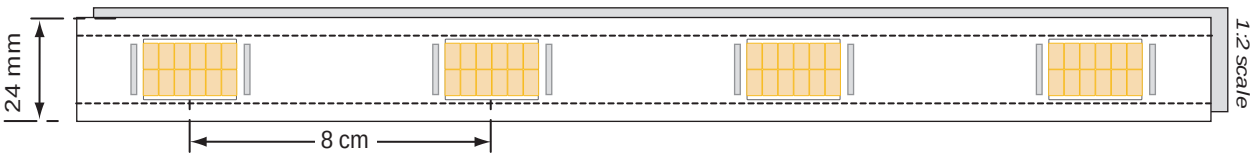
ZGE-V06-05-N40



ZGE-V08-05-N40



ZGE-V12-08-N40



The examples above are available in stock for sampling purposes (by the metre only)

To find out the feasibility and cost of your applications, contact us

INSTRUCTIONS FOR USE

Magnet Strips and Blocks

SYSTEMMAG® Systèmes brevetés
Attaches & fermetures magnétiques

MAGNET STRIPS AND BLOCKS

UNPACKING THE STRIPS

1- Open the package, taking care to hold it the right way up.

2 - Pull out the top tray, keeping it **flat**.

Extract the trays, one by one, as and when the strips are required.
Put any unfinished trays away after use and shut the box to prevent deposits of metallic dust and other particles on the magnets.

3 - Lay the tray down on a **clean and clear** work surface.

Clean the work surface with a weak solvent (isopropyl alcohol for example) and remove any ferromagnetic objects (metallic) that may hinder the handling of the strips.

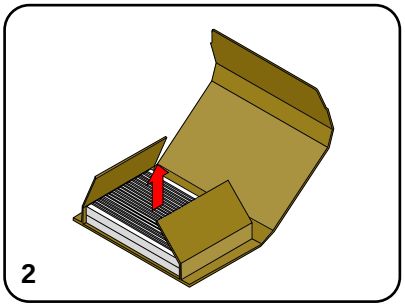
***Remark**: it is possible to clean dust and other small metallic particles off the surface using a magnetic bar (see photo).*

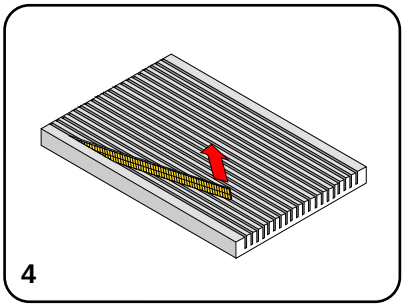
4 - Remove the strips **one by one** starting from the point at which the foam begins (groove in front of you) and lifting each strip by one of its ends.

5- Handle the strip **carefully**, taking care not to let it fold together (keep it as straight as possible).

When the magnets are not confined in a pouch, they are hard to pull apart and the product may become damaged.

6- Lay the strip down flat, with the magnet side visible (active face pointing upwards).


2


4


Magnetic bar

CUTTING UP MAGNET BLOCKS

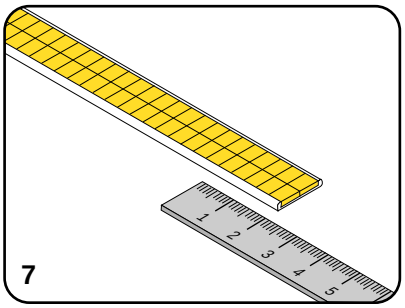
7- Measure the length you need according to the desired fastener resistance (or count the number of magnets).

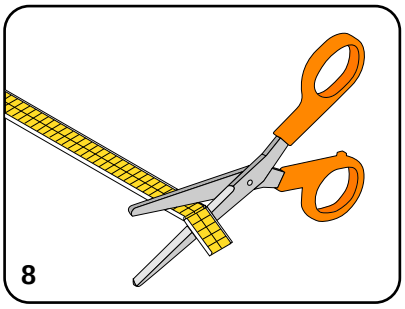
8- Cut the Magnet Block to the size required using a pair of **scissors** or a craft knife, while gently folding the strip to allow the blade to pass.

Firmly hold the cutting tool and the strip during this operation: the blade will be attracted by the magnets when it approaches them.
Place the cutting tools at a sufficient distance from the magnets after use to prevent accidents.

9- Cut out two **identical** Magnet Blocks (same type of strip, same length and same number of magnets) to create a fastener.

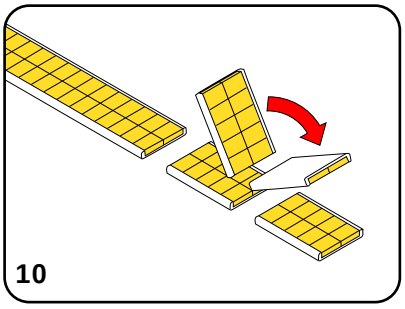
Place the Magnet Blocks you have cut up at a sufficient distance apart so that they do not attract each other accidentally on the work surface.
Always lay down the Magnet Blocks you have cut up in the same way and in pairs, to facilitate their insertion.
Replace the unused section of strip and Magnet Blocks onto the grooved tray.


7


8

INSERTION

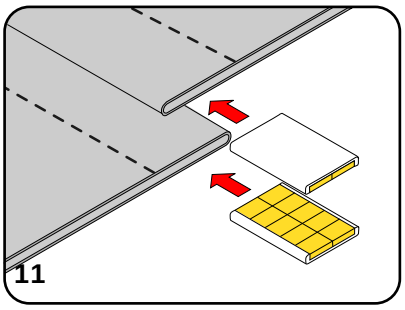
10- Prepare the parts to be assembled for insertion of the magnets either by creating **housings** that will accept the Magnet Blocks, leaving one side open for insertion, or determine the locations that will allow both Blocks to be adequately positioned.


10

11- Insert each Magnet Block into the two parts to be assembled, ensuring that:

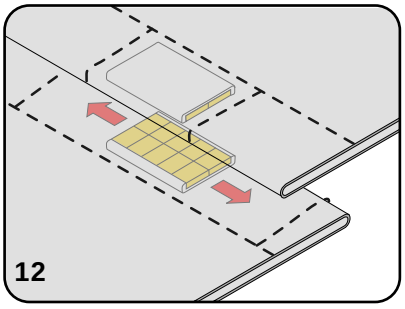
- the active faces (magnet side visible) are **face to face**.
- two **compatible** magnet blocks are used.

All the magnets must attract each other (there must be no offsetting)
Two consecutive Magnet Blocks are always compatible when one turns the second over onto the first (see figure).
To avoid any incompatibilities between Magnet Blocks, it is recommended that the direction be checked by simulating fastening before they are affixed permanently.


11

***Remark**: two magnets attract each other if the polarity of the face of the first magnet is the opposite of that of the second magnet it is placed face to face with. A small accessory allows the polarities of magnets to be determined (see Photo).*

12- Affix the Magnet Blocks onto each part to be assembled (usually by closing the pre-stitched housing or by stitching around the


12

Polarity detector

ADVICE

The fastening power of a fastener varies as a function of the distance between the active faces of the Magnet Blocks. The greater this distance (known as the "air gap"), the more this fastening power decreases (see graph p.28). We therefore advise you to use a thin fabric to cover the magnets.
On the other hand, the mechanical resistance and behaviour of the fabric are crucial factors for the fastener's lifetime. With certain fabrics there is a risk of stretching or tearing.

The fabric we use on our ready-to-stitch products has been optimised for use with our magnets. It has been validated using various mechanical and chemical tests (traction, aging, washing, wear, ultrasound welding and dying tests, among others).

For adjustable fasteners, the spacing between the two seams (which form the slider) must be dimensioned fairly precisely, so as to:

- prevent the Magnet Blocks from turning over inside the pouch,
- allow the Magnet Block to move without forcing (to avoid damaging the fabric or the Magnet Block),
- maintain the correct adjustment when opened and closed.

Depending on the fabric used, we recommend adding 3 or 4 mm to the width of the Magnet Block.

To prevent or minimise interaction between the magnets and the parts of the sewing machine, certain modifications can be carried out:
- use a PTFE (Teflon) presser foot, on one side only (to stitch as close as possible to the magnets)
- replace the ferromagnetic parts (steel) in direct contact with the magnets with non-ferromagnetic parts (plastic, aluminium, certain stainless steels, etc.).

READY-TO-STITCH PRODUCTS

SHAPED SHEATHS

Stitch or weld each sheath to the parts to be assembled (use the lips on each side if necessary). Correctly position the fine fabric inside the fastener (active face of the magnets).

STRAIGHT SHEATHS

1- Cut the required length from the roll (Foresee the sliding area)

2- Stitch the pouch onto the finished product keeping the opening to introduce the magnets block.

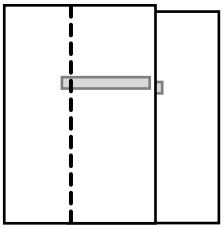
3- Insert the Magnet Blocks you have cut, ensuring that the active face is correctly positioned (on the fabric side between magnets) and that you have two compatible Magnet Blocks when the fastener is closed

Advice

To prevent the fabric from fraying, we advise that you either cut the sheath with a hot blade, or fold the ends of the sheath when it is being fitted.
Do not stitch in the central area so as not to hinder the movement of the Magnet Blocks when it is subsequently adjusted.
Choose the width of the sheath as a function of the space required for stitching.

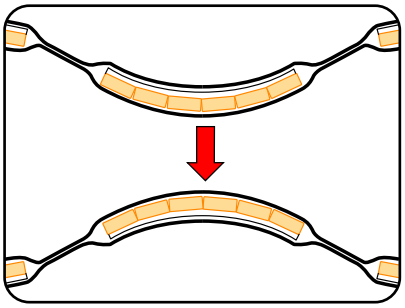
ZIPS

These are fitted to clothes in the same way as a traditional zip fastener. The lips on either side can be used if necessary. Check that the active faces are correctly positioned and that the Magnet Blocks are compatible (no offsetting).
During assembly, the most attractive part (the side with the neatest weld) should be at the front of the product to be equipped (visible side).



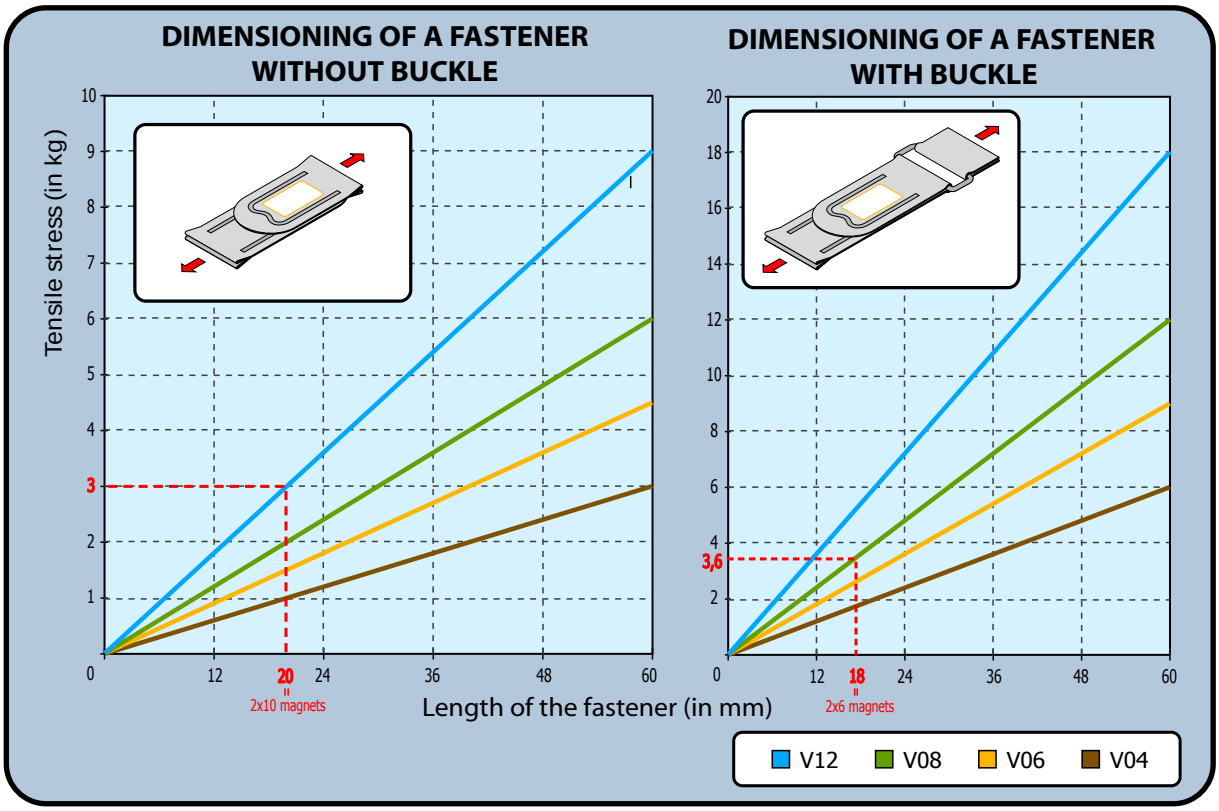
Advice

To determine which is the active face, gently fold the magnet block. When the active face is on top, folding is easy and you can feel the articulation of the small magnets. In the other direction, folding is more difficult.
To facilitate stitching, and to prevent any errors, it is recommended that you check the assembly direction before stitching the second part of the zip (for prototypes and at the beginning of production runs). Regular checks should be performed when production begins.

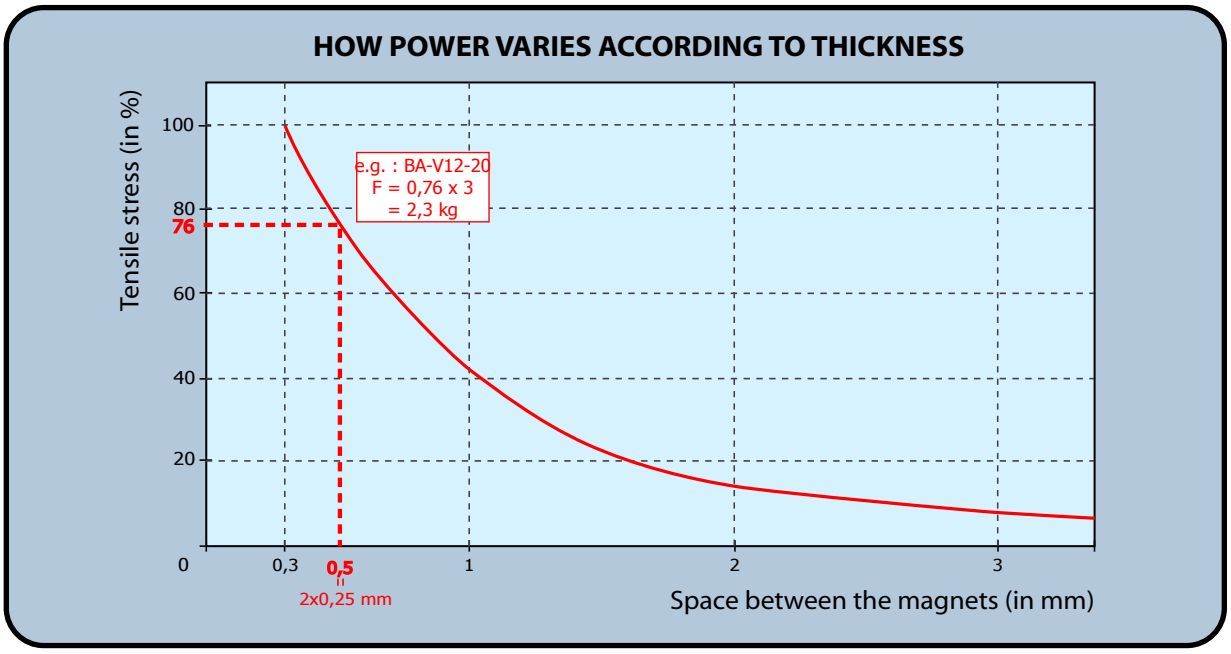


Caution: if the magnet blocks are upside down or offset, the fastener will still close but its resistance will be significantly reduced.

he graphs below were produced during traction tests performed on shaped sheaths manufactured with our fabric. The results may differ when using other materials



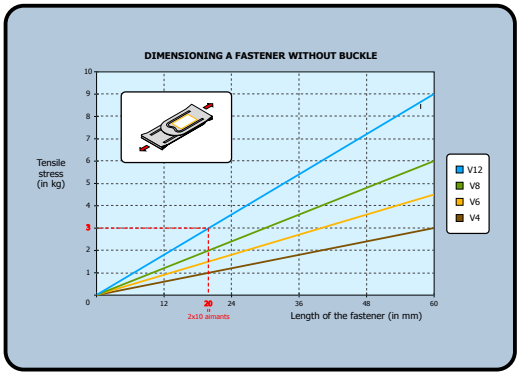
These graphs make it possible to dimension a magnet block (length and type of strip). By using a fastener with a buckle and loop, the tensile strength can be doubled.



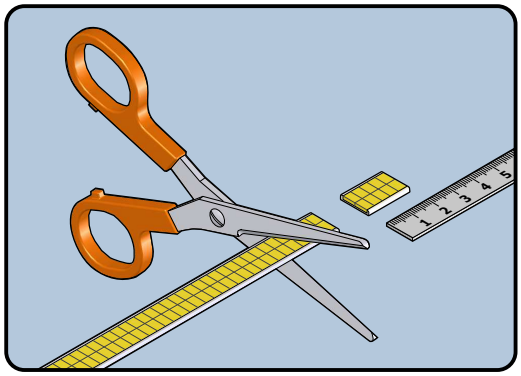
This graph shows the influence of the fabric's thickness on the tensile strength of the fastener. However, other parameters come into play when dimensioning a fastener, in particular the grip of the fabric (friction coefficient) and its incorporation into the product to be equipped.

USE

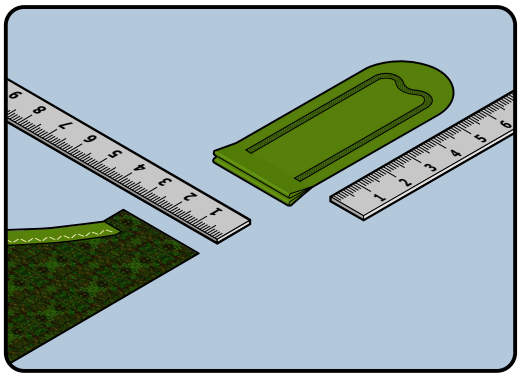
Example: shaped sheath



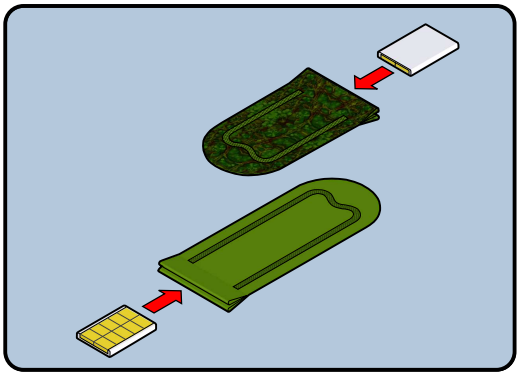
1-Dimension the Magnet Block



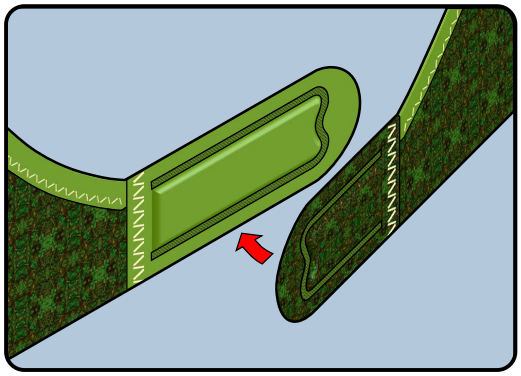
2-Cut out two similar Magnet Blocks*



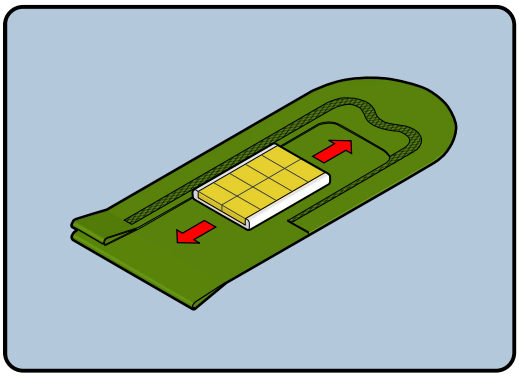
3-Dimension the sheaths



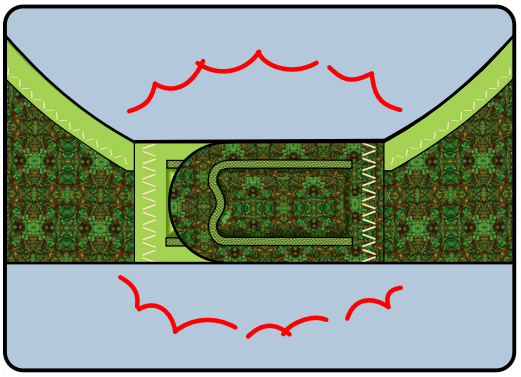
4-Insert the MBs into their sheaths*



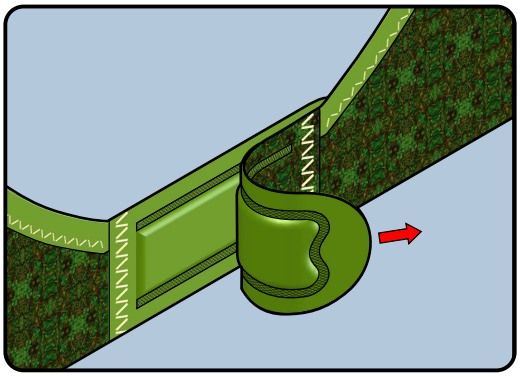
5-Stitch the sheaths onto the parts to be assembled



6-Adjust the position of the MB



7-Shut the fastener

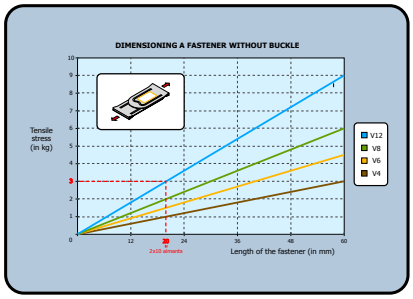


8-Open the fastener

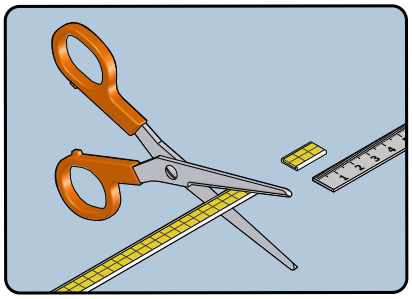
** For shaped sheaths to which magnets have been pre-fitted, these operations are performed by SYSTEM MAG*

USE

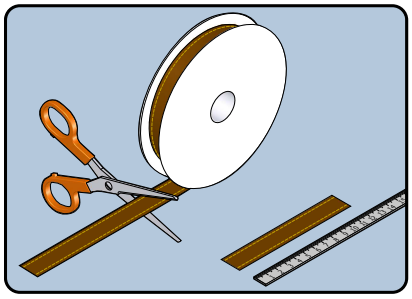
Example: Straight sheaths



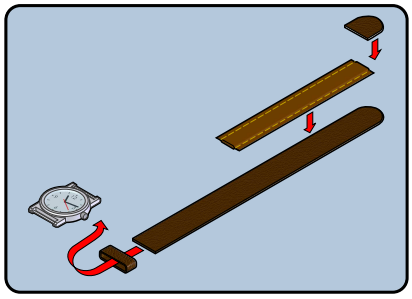
1-Dimension the Magnet Block



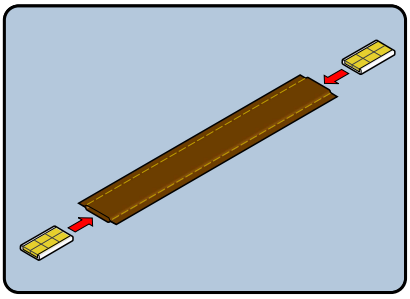
2-Cut out two similar Magnet Blocks



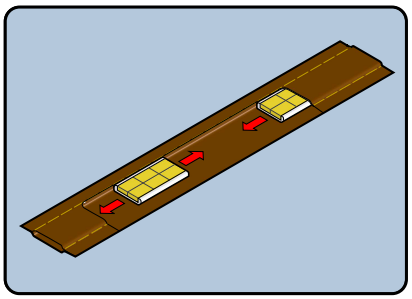
3-Dimension and cut out the sheath



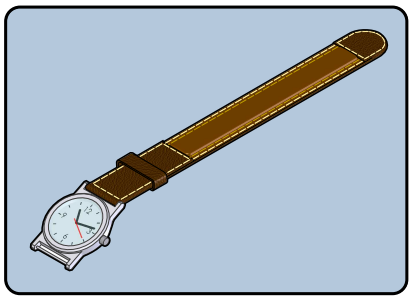
4-Stitch the cut sheath onto the final product (leaving one side open for insertion of the Magnet Block)



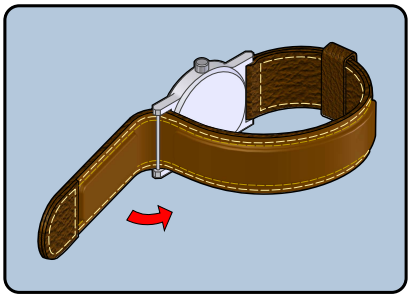
5-Insert the MBs into the sheath



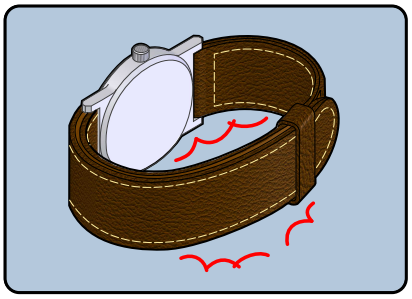
6-Position the MBs in the sheath (fix them if necessary)



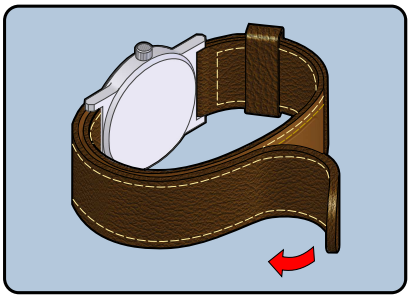
7-Finish the product's assembly



8-Position the product for use



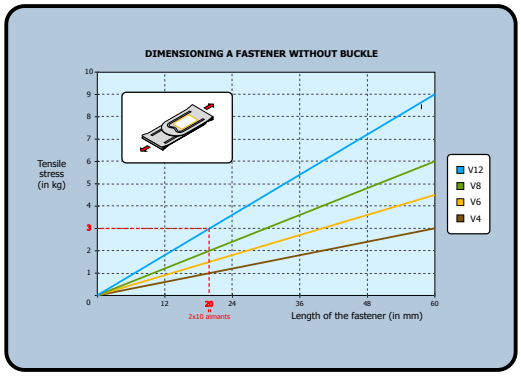
9-Close the fastener



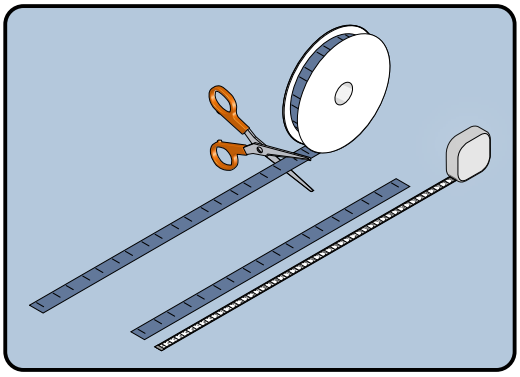
10-Open the fastener

USE

Example : Zips

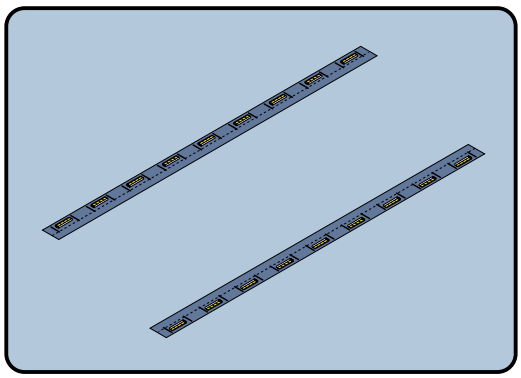


1-Dimension the strength of the zip

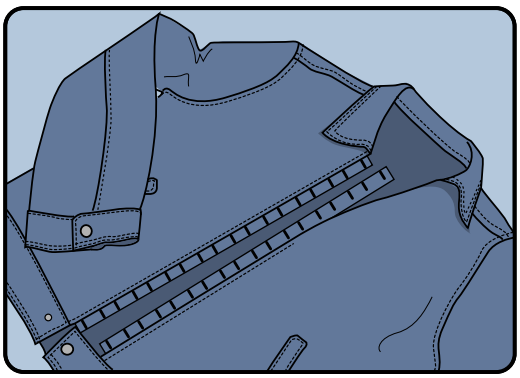


2-Dimension the length of the zip

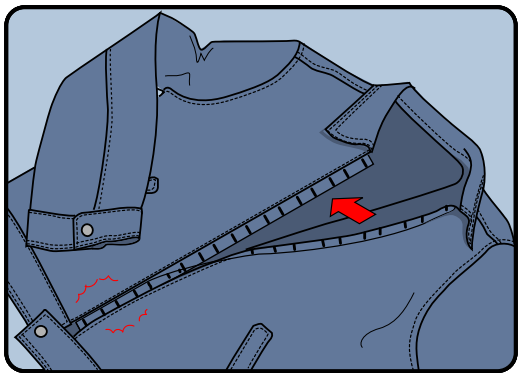
NB: hot cut to prevent fraying



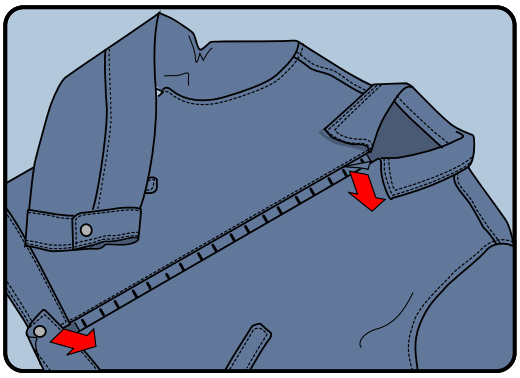
3-Shut the MBs inside their pouches*



4-Stitch the zips onto the parts to be assembled



5-Close the zip



6-Open the zip

RECOMMANDATIONS

Ce produit contient des aimants permanents ultra-puissants ayant un champ magnétique à courte distance (environ 5 mm). Manipuler négligemment ce type d'aimants peut entraîner des risques d'accident ou de détérioration du produit.

CONSEILS D'ENTRETIEN

* Lavable et séchable en machine
* Température maximum : 60°C (BA) - 80°C
* Ne pas repasser les aimants
* Pas de nettoyage à sec *(BA, FF, ZCE, ZGE)*
  Nettoyage à sec autorisé *(ZC, ZCD, ZG&ZGD)*
* Fermer l'attache avant lavage

COMPOSITION

* Aimants Nd-Fe-B, revêtement Zc
* Colle base silicone *(sauf ZC, ZCD, ZG&ZGD)*
* Film polyuréthane (PU) *(sauf ZC, ZCD, ZG&ZGD)*
* Tissus 100% Polyamide (PA) *(sauf BA)*

RECOMMANDATIONS

* Ne pas mettre en contact rapproché les parties magnétiques avec tous supports magnétiques tels que cartes de crédit, cassettes, disquettes et tickets à bande magnétique, ainsi que des appareils électroniques en particulier les stimulateurs cardiaques et autres appareillages médicaux, instruments de mesure et ordinateurs. Ces derniers peuvent être influencés ou endommagés par les champs magnétiques.
* Tenir à bonne distance tous supports ferro-magnétiques notamment ciseaux, couteaux et aiguilles.

This product contains extremely powerful permanent magnets with a short-range magnetic field (around 5 mm). If these magnets are not handled carefully, there is a risk of injury or damage to the product.

CARE INSTRUCTIONS

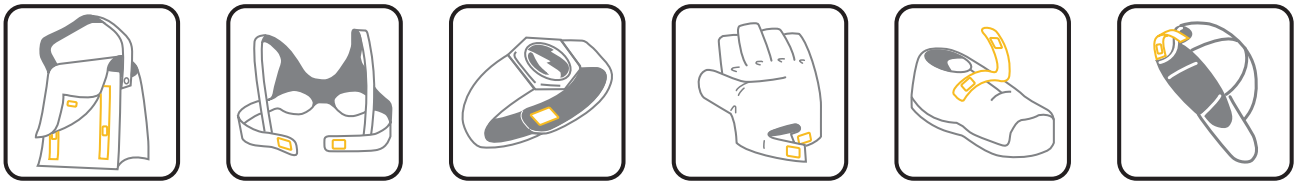
* *Machine-washing and drying*
* *Maximum temperature: 60°C (BA) - 80°C*
* *Do not iron magnets*
* *Do not dry clean (BA, FF, ZCE, ZGE)*
  Dry clean (ZC, ZCD, ZG&ZGD)
* *Shut fastener before washing*

COMPOSITION

* *Nd-Fe-B magnets, Zc coating*
* *Silicone adhesive (except ZC, ZCD, ZG&ZGD)*
* *Polyurethane (PU) film (except ZC, ZCD, ZGC&D)*
* *Polyamide (PA) fabrics (except BA)*

INFORMATION

* *Do not bring magnets into direct contact with any object carrying magnetic data, such as credit cards, magnetic tapes and floppy disks, or with any electronic equipment such as pacemakers and other medical equipment, measuring instruments and computers. These items may be affected or damaged by the extremely powerful magnetic fields.*
* *Keep magnets away from ferromagnetic objects, especially scissors, knives and needles.*

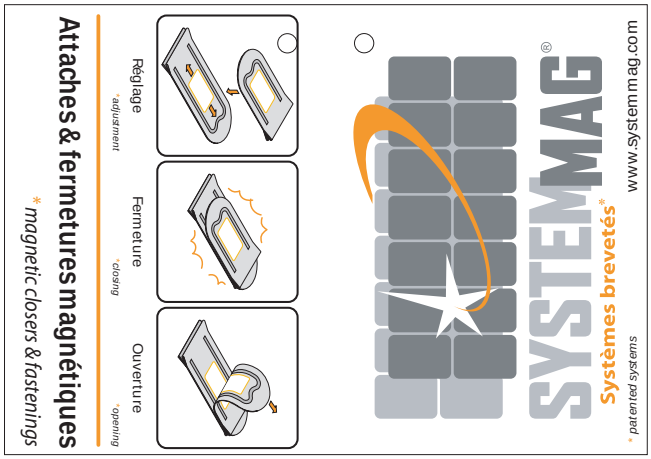


LABELS

Attaches & fermetures magnétiques

It is important to inform consumers about how these new products function, how they should be washed and any mistakes to avoid.
We therefore offer our customers cardboard labels to accompany any products equipped with our magnets when these are sold in stores. Among other information, these labels (which are folded in half) include care instructions and recommendations, in french and in english, for the use of magnetic systems. A hole allows them to be attached to the item for sale.

Products equiped with Magnet Blocks (BA, FF, ZCE, ZGE)



Outside

This product contains extremely powerful permanent magnets with a short distance magnetic field (around 5 mm).

Care instructions

- *Machine-washable and drying*
- *Maximum temperature : 60°C*
- *Do not iron magnets*
- *Do not dry clean*
- *Shuts fastening before washing*

Informations

- **Do not bring into direct contact magnets with any magnetic informations carriers such as credit cards, magnetic tapes and floppy disk, and from any electronic equipments such as pacemakers and others medical equipments, measuring instruments and computers. These items may be affected or damaged by the extremely powerful magnetic fields.**
- **Keep magnets at a distance of any ferromagnetic carriers notably scissors, knifes and needles.**

Ce produit contient des aimants permanents ultra-puissants ayant un champ magnétique à courte distance (environ 5 mm).

Conseils d'entretien

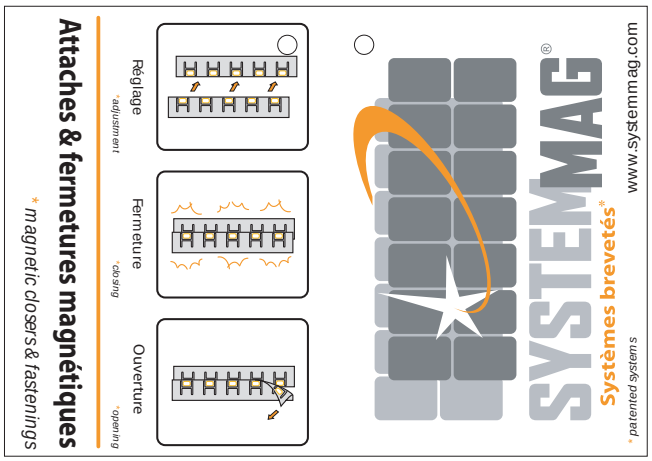
- Lavable et séchable en machine
- Température maximum : 60°C
- Ne pas repasser les aimants
- Pas de nettoyage à sec
- Fermer l'attache avant lavage

Recommandations

- **Ne pas mettre en contact rapproché les parties magnétiques avec tous supports magnétiques tels que cartes de crédit, cassettes, disquettes et tickets à bande magnétique, ainsi que des appareils électroniques (en particulier les stimulateurs cardiaques et autres appareillages médicaux, instruments de mesure et ordinateurs) pouvant être influencés ou endommagés par les champs magnétiques.**
- **Tenir à bonne distance tous supports ferro-magnétiques notamment ciseaux, couteaux et aiguilles.**

Inside

Products equiped with Single Magnets (ZC, ZCD, ZG, ZGD)



Outside

This product contains extremely powerful permanent magnets with a short distance magnetic field (around 5 mm).

Care instructions

- *Machine-washable and drying*
- *Maximum temperature : 80°C*
- *Do not iron magnets*
- *Dry clean*
- *Shuts fastening before washing*

Informations

- **Do not bring into direct contact magnets with any magnetic informations carriers such as credit cards, magnetic tapes and floppy disk, and from any electronic equipments such as pacemakers and others medical equipments, measuring instruments and computers. These items may be affected or damaged by the extremely powerful magnetic fields.**
- **Keep magnets at a distance of any ferromagnetic carriers notably scissors, knifes and needles.**

Ce produit contient des aimants permanents ultra-puissants ayant un champ magnétique à courte distance (environ 5 mm).

Conseils d'entretien

- Lavable et séchable en machine
- Température maximum : 80°C
- Ne pas repasser les aimants
- Nettoyage à sec autorisé
- Fermer l'attache avant lavage

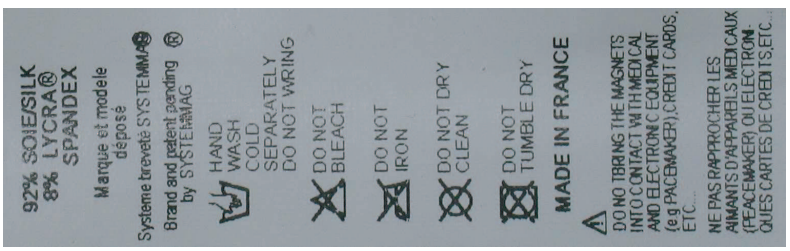
Recommandations

- **Ne pas mettre en contact rapproché les parties magnétiques avec tous supports magnétiques tels que cartes de crédit, cassettes, disquettes et tickets à bande magnétique, ainsi que des appareils électroniques (en particulier les stimulateurs cardiaques et autres appareillages médicaux, instrument de mesure et ordinateurs) pouvant être influencés ou endommagés par les champs magnétiques.**
- **Tenir à bonne distance tous supports ferro-magnétiques notamment ciseaux, couteaux et aiguilles.**

Inside

Customized labels

You can also produce your own labels or add the necessary instructions to the label showing the product's composition.



Example of a label

SYSTEMMAG®
Systèmes brevetés

Attaches & fermetures magnétiques

GENERAL CONDITIONS OF SALE

DEFINITIONS

SYSTEMMAG : SYSTEMMAG® SAS, 20 rue Bouvier, 75011 PARIS, France
Purchaser: any person who sends an Order to SYSTEMMAG®, whether or not the Order is confirmed and/or delivered by SYSTEMMAG®.
Order: any order for Products sent by the Buyer mentioning the reference number and description of the Product, the quantity in each size and colour, and the unit price exc. VAT on the day of the order.
Product(s): articles marketed and/or distributed by SYSTEMMAG® and manufactured according to the Purchaser's specific requirements.

ARTICLE 1 - SUBJECT AND FIELD OF APPLICATION

Any Order for Products implies unconditional acceptance on the part of the Purchaser and their full and complete adherence to these General Conditions of Sale, which take precedent over any other document produced by the Purchaser, in particular over any general purchasing conditions, unless prior written and express derogation is obtained from SYSTEMMAG®.
These General Conditions of Sale apply to all sales of Products by SYSTEMMAG®, unless an agreement to the contrary has been reached prior to the Order agreed in writing between SYSTEMMAG® and the Purchaser.
Any documents other than these General Conditions of Sale, in particular catalogues, prospectuses, advertisements and user instructions, are for information only and are non-contractual.
Should SYSTEMMAG® fail, under any circumstances whatsoever, to invoke one or more of these General Conditions, this may not be interpreted as constituting renunciation by SYSTEMMAG® of the right to invoke any of these General Conditions in the future.

ARTICLE 2 - ORDERS

Orders received by SYSTEMMAG® are deemed to have been accepted by the latter failing refusal on its part notified to the Purchaser within fifteen (15) days of SYSTEMMAG®'s receipt of the Order. If a delivery is made before expiry of the time limit of fifteen (15) days, this constitutes acceptance.
After a time limit of ten (10) days starting from the date that appears on the Order, the Purchaser can neither cancel nor modify the Order sent to SYSTEMMAG®, even partially. In the event of delivery prior to expiry of the time limit of ten (10) days, said time limit is automatically reduced and the Purchaser can no longer modify the Order, even partially, or cancel it, from the moment SYSTEMMAG® places the Products at its disposal, in accordance with the terms described in ARTICLE 9 - DELIVERY TERMS.
Cancellation of an order, contrary to the provisions of these General Conditions of Sale, renders the full price of the Order payable immediately.
Deliveries are performed as per the quantities ordered by the Purchaser, subject to the usual tolerances that apply in the field. In the event that an incorrect quantity is delivered that is within a 3% margin of error of the quantity ordered, the Purchaser agrees to pay the price of the quantities delivered.
In the event of an act of god that prevents the manufacture of the Products either partially or completely, SYSTEMMAG® reserves the right to cancel the Order without the Purchaser being entitled to any sort of compensation.

ARTICLE 3 - PRICES

SYSTEMMAG®'s prices and special offers are valid for ten (10) days starting from the date on which they were communicated to the Purchaser.
Prices quoted are net, excluding VAT, and based on the SYSTEMMAG® rates in force, not including postage and packing, which remains payable by the Purchaser.

ARTICLE 4 - PAYMENT

SYSTEMMAG's invoices are payable to: SAS SYSTEMMAG®, 20 rue BOUVIER - 75011 PARIS, in accordance with the following terms:
- Payment of 100% of the total price of the Order inc VAT, by return, upon receipt of the proforma invoice
If no payment is forthcoming, SYSTEMMAG® reserves the right not to deliver the Products until the full price has been paid.
Payment is made by cheque (Only French) or bank transfer (cost transfert is dependent on the purchaser).
The Purchaser is in no way entitled to suspend or offset a payment for any reason whatsoever, in particular when a dispute is in progress.

ARTICLE 5 - SAMPLES AND PROTOTYPES

Notwithstanding the provisions of ARTICLE 3 - PRICES and ARTICLE 9 - DELIVERY TERMS, SYSTEMMAG® is obliged to send samples and prototypes to the Purchaser upon receipt of the full amount that appears on the invoice sent to the Purchaser.
However, all risks are transferred to the Purchaser as soon as the samples and/or prototypes are handed over to the carrier.

ARTICLE 6 - DELAY IN PAYMENT AND NONPAYMENT

In the event of a delay in payment or nonpayment within the payment period set out, and in accordance with modified French law no. 92-1442 of 31 December 1992, the amounts due will bear interest by rights at the legal rate in force plus 50 %, without formal notice being required and without this clause affecting the payability of the debt.
Any delay in payment or nonpayment will lead to forfeiture of the payment period.
Any recovery through legal means will lead, by rights and under the Purchaser's responsibility, and by way of a penalty clause added to any other interest or compensation payable, to the payment of compensation equivalent to 15% of the value of the invoices that remain unpaid on their due date, without prejudice to any demands that may be formulated under the terms of article 700 of the New Civil Procedures Code.
The costs incurred by SYSTEMMAG® as a result of a delay in payment or nonpayment, in particular bank, accounting and protest charges, stamp duty, as well as solicitor's and bailiff's fees, must be refunded in full by the Purchaser within fifteen (15) days of receipt of SYSTEMMAG®'s demand, which will be sent by recorded delivery and accompanied by documentary proof justifying the amount demanded by SYSTEMMAG®.

ARTICLE 7 - RESERVATION OF TITLE

In the event that SYSTEMMAG® grants the Purchaser a specific payment period, transfer of ownership of the Products is subject to actual receipt by SYSTEMMAG® of the price in full on the due date.
The term "price" refers to the price invoiced, including the principle, costs and interest.
In the event of non-payment, SYSTEMMAG® can invoke the rights it holds by virtue of this Reservation of Title clause, for any one of its receivables, for the entirety of the Products in the Purchaser's possession, it being assumed that the latter are the Products that have not been paid for, and SYSTEMMAG® may recover them or claim them as compensation for all unpaid invoices, without prejudice to its right to cancel the sales in progress.
The Purchaser may only resell or process Products that have not been paid for as part of its company's day-to-day activities, and can under no circumstances pledge or grant securities on Products that have not been paid for.
In the event of a resale, the Purchaser must immediately pay SYSTEMMAG® the proportion of the price that remains due. In the event of further processing, the Purchaser automatically transfers ownership of the object resulting from the process so as to guarantee SYSTEMMAG®'s rights as set out in the first paragraph of this article.
In the event of nonpayment and without relinquishing any of its rights, SYSTEMMAG® can automatically, and without any other formalities being required, demand that the Products be returned at the cost and risk of the Purchaser .
In the event of bankruptcy or liquidation, the Orders in progress will be automatically cancelled and SYSTEMMAG® reserves the right to claim back the products in stock in the Purchaser's premises.
The provisions above do not affect the transfer to the Purchaser, as of the moment of delivery, of the risks of loss or damage to the Products as well as the damage they may cause.

ARTICLE 8 - DELIVERY TIMES

The delivery times indicated by SYSTEMMAG® are purely for information. Any delays that may result, for example, from the order in which Orders have been received, will not give the Purchaser the right to cancel the sale, to reject the Products or to claim for damages.

ARTICLE 9 - DELIVERY TERMS

Deliveries are made EX WORKS, with the Products being considered as delivered once they have been made available to the Purchaser at the warehouses designated by SYSTEMMAG® for this purpose, and are transported at the Purchaser's risk.
The transfer of risks takes place upon departure from SYSTEMMAG®'s warehouses.
It is the responsibility of the consignee collecting the Products to check that the transport contract is fulfilled and, should this not be the case, to take the measures required to make a claim against the carrier:
1) If packages are missing or if packages arrive damaged, or in the event of any other problem: immediately and clearly inscribe the nature and severity of the damage on the delivery slip upon acceptance.
2) Three days at most after acceptance of the Products transported, send the carrier confirmation of the complaint by recorded delivery, together with reasons, as required subject to foreclosure by article L 133-3 of the French Commercial Code.
These two conditions are both absolutely essential to the establishment of the carrier's responsibility.
Should delivery be delayed by more than forty-eight (48) hours through the fault of the Purchaser, the Purchaser will pay SYSTEMMAG® a sum equivalent to 1% of the value exc. VAT of the uncollected products, per month or fraction of month by which collection is delayed, to cover warehousing and insurance costs.
Failing such payment, the Products will be warehoused at the cost and risk of the Purchaser, and SYSTEMMAG® will not be held liable for any damage suffered by uncollected Products.
The stipulations of this paragraph have no bearing on the Purchaser's obligation to pay for the Order on the due date mentioned on the invoice.

ARTICLE 10 - SUSPENSION OF DELIVERY - ORDER REJECTION

In the event that, having granted the Purchaser a specific payment time, SYSTEMMAG® is not paid on the due date, the latter reserves the right to suspend any delivery in progress or to come until full payment of the amounts due has been made, subject to formal notice being sent by recorded delivery to the Purchaser and failing to prompt a response within twenty-four (24) hours.

ARTICLE 11 - VISIBLE DEFECTS AND MISSING PARTS

Without prejudice to the measures to be taken by the Purchaser vis-à-vis the carrier, as described in ARTICLE 9 - DELIVERY TERMS, in the event of physical defects or missing parts, any complaint relating to the Products delivered can only be accepted by SYSTEMMAG® if it is sent to SYSTEMMAG® by recorded delivery eight (8) days at the most after the Products are delivered or, in the event of a delay through the fault of the Purchaser, after the date SYSTEMMAG® places the Products at their disposal. After this period, no complaint can be made.
In case of unconformable use with recommandations (labels), any guarantee can't be applicable.
The unreserved acceptance of the Products covers all visible defects and/or missing parts.
It is the Purchaser's responsibility to supply proof of the defects or missing parts reported.
If, after inspection, a visible defect or missing part is indeed observed by SYSTEMMAG®, the Purchaser can only request of SYSTEMMAG® that they replace the noncompliant Products and/or supply any missing parts at SYSTEMMAG®'s cost, without it being possible for the Purchaser to claim any sort of compensation or cancel the Order.
Should it not be possible, for any reason whatsoever, to replace the defective Product, SYSTEMMAG® will supply a credit note for an amount equivalent to the price paid by the Purchaser.
On the magnet strips (all BA reference), the lateral edge of adhesive can be partially or completely absent without this affect the quality of gluing magnets on the PU and will not be considered a visible defect.

ARTICLE 12 - HIDDEN DEFECTS

Under the terms of the hidden defects guarantee, SYSTEMMAG® is only required to replace the defective Products and the Purchaser may not claim for damages for any reason whatsoever. SYSTEMMAG® guarantees the Products against hidden defects in accordance with positive law and under the following usage conditions:
- The SYSTEMMAG® guarantee only applies to Products that have become the property of the Purchaser through legal means and applies only to Products manufactured entirely by SYSTEMMAG®. It is not applicable in the event that the Products have been used and made to perform in ways other than those for which they are intended.
- In no way does SYSTEMMAG® guaranteed the results and effectiveness of incorporating the Products into other materials with a view to manufacturing other Products, in which case the Purchaser is personally responsible for this type of use and must carry out all the practical tests required.
- The SYSTEMMAG® guarantee does not cover damage or wear resulting from modification or unusual assembly of the Products, be it abnormal or not. The warranty does not cover the tracks on SYSTEMMAG® products, and/or the customer products, which could result washes made with water more or less ferruginous because SYSTEMMAG ® can not control the ferruginousity water varies according to regions and countries.
- The guarantee only covers hidden defects. As Purchasers are professionals, hidden defects must be understood to mean a manufacturing defect in the Product that renders it unfit for use and which is unlikely to be detected by the Purchaser prior to use. A design flaw is not a hidden defect and the Purchasers are considered to have received all the necessary technical information relating to the Products.
- The guarantee supplied by SYSTEMMAG® does not cover normal magnet wear, or wearing parts such as conveyor belts, sheaths, bases, wearing plates and inlet cones.
The SYSTEMMAG® guarantee is limited to the replacement of defective parts in the shortest time possible. In the event that it is impossible to exchange the defective Product for any reason, SYSTEMMAG® will supply a credit note to the value of the price paid by the Purchaser.
The SYSTEMMAG® guarantee is only valid for the first month of use. It is the Purchaser's responsibility to prove the date on which the Product was first used.
The Products are considered to have been used by the Purchaser two (2) months at the latest after their delivery. SYSTEMMAG®'s guarantee ceases by rights at the end of this three month period, at the latest.
The Purchaser must notify SYSTEMMAG® of the alleged defect twenty (20) days at most after it is discovered. SYSTEMMAG®'s guarantee ceases by rights at the end of this period. It is the Purchaser's responsibility to prove the date on which the defect was discovered.
In all cases, the Products must be returned in accordance with the provisions of ARTICLE 13 - RETURNING THE PRODUCTS.

ARTICLE 13 - RETURNING THE PRODUCTS

Product returns will not be accepted without the prior written approval of SYSTEMMAG®, who will set out the terms of such returns as and when required.
If approval is given, the costs and risks of carriage must be covered by the Purchaser.
Products may not be returned after a period of THREE (3) months beginning on the Product delivery date, in accordance with the provisions of ARTICLES 11 - VISIBLE DEFECTS AND MISSING PARTS and 13 - HIDDEN DEFECTS or, in the event of a delay in delivery through the fault of the Purchaser, beginning on the date SYSTEMMAG® placed the Products at its disposal.

ARTICLE 14 - DANGERS RELATING TO THE USE OF THE PRODUCTS

When rare-earth magnets are used in the manufacture of the Products, SYSTEMMAG® declines all responsibility for any material damage that may be caused by the magnetic field they produce, notably damage to credit cards, audio and video cassettes, floppy disks and electronic devices, in particular pacemakers, hearing aids, measurement and tuning instruments computers and watches.
In all cases, the Purchaser is invited to refer to the user instructions prior to using the Products in any way.

ARTICLE 15 - INTELLECTUAL AND INDUSTRIAL PROPERTY RIGHTS

Any studies, documents, prototypes, pre-production runs, etc. supplied by SYSTEMMAG®, whatever their nature, remain the property of SYSTEMMAG®, which is the sole holder of the corresponding intellectual and industrial property rights, and must be returned to SYSTEMMAG® upon request.
The Purchaser agrees not to use these in any way that may compromise SYSTEMMAG®'s industrial or intellectual property rights, and agrees not to disclose them to a third party.

ARTICLE 16 - BRANDED PRODUCTS

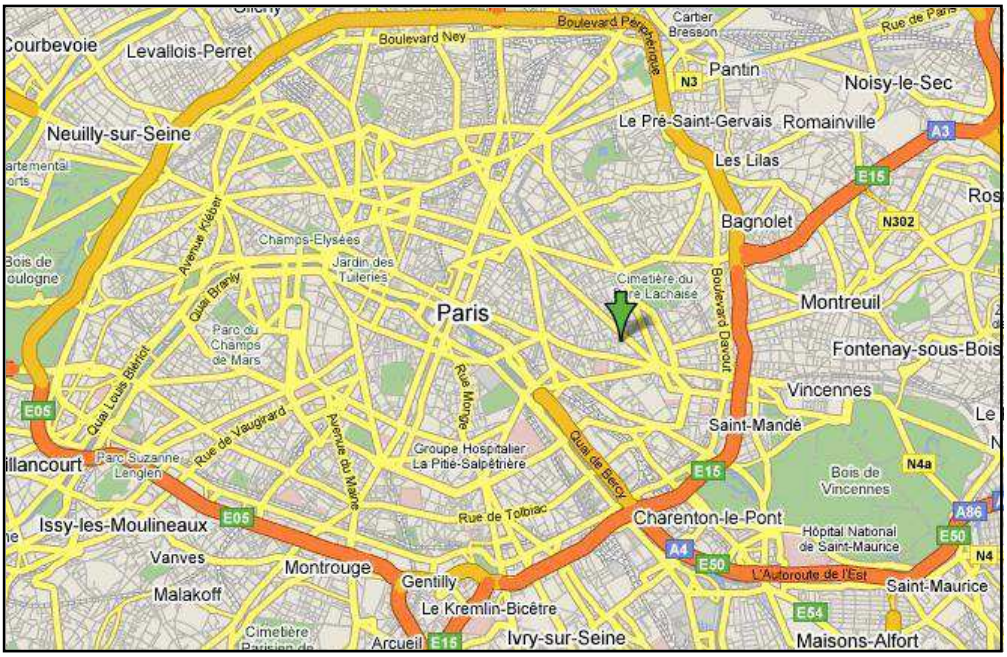
In the event that the Products feature SYSTEMMAG®'s logos, the Purchaser cannot remove or modify these in any way, unless prior written approval has been obtained from SYSTEMMAG®.

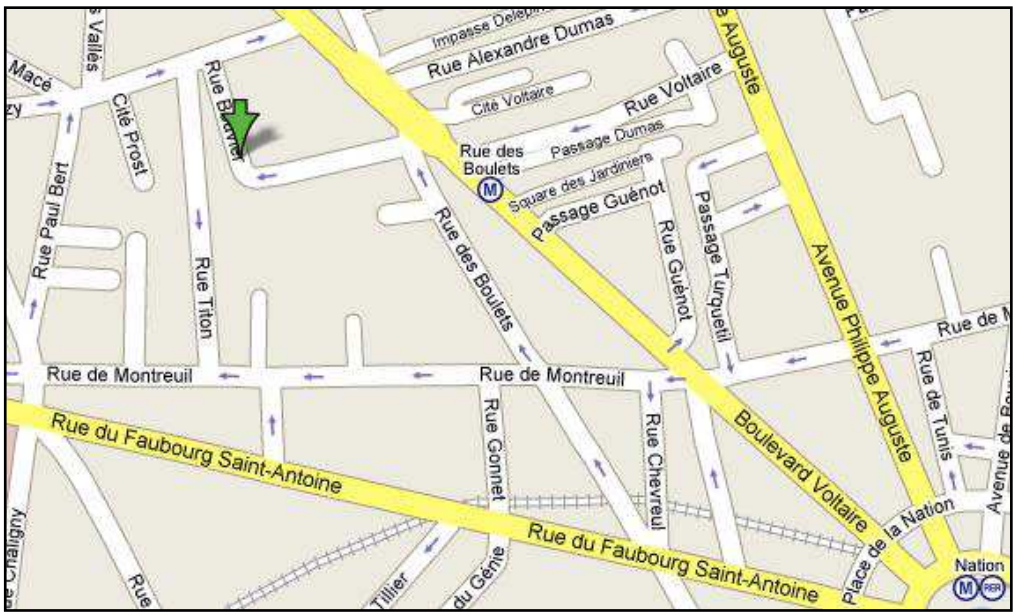
ARTICLE 17 - APPLICABLE LAW

Any questions relating to these General Conditions of Sale and to the sales they cover, and which are not addressed in this document, will be governed by French law exclusive of any other law, and in addition and if required, by the Vienna convention on the international sale of goods.

ARTICLE 18 - ALLOCATION OF JURISDICTION

The Courts of Paris alone will have jurisdiction in the event of disputes that may occur between SYSTEMMAG® and the Purchaser.





- METRO : RUE DES BOULETS (Line 9)
- BUS : STOP BOULETS - MONTREUIL (Line 56)
- PARKING : VISITOR and DELIVERY ACCESS
- COORDINATES GPS : 48° 51' 07.87" N / 2° 23' 12.93" E

SYSTEMMAG SAS

20 rue Bouvier - 75011 PARIS - France

Tél. : 0(033)1 45 08 91 41 - Fax. : 0(033)1 45 08 91 42

E-mail : contact@systemmag.com - Web : www.systemmag.com