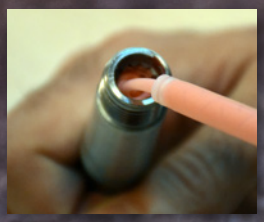
sylvac

Experts in connected metrology !

3D DIMENSIONAL IMPRESSION

PLASTIFORM®







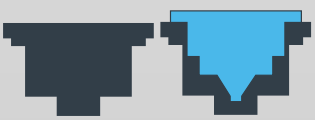




PLASTIFORM

PLASTIFORM®, high precision replicating material for the industry.

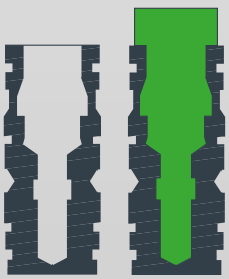
Discover the PLASTIFORM® products that allow to control precisely unattainable or hard to access surfaces, too large, too heavy or too fragile to be handled parts, thanks to impression taking.



Internal forms



External forms



Complex forms

Sylvac SA - Chemin du Closalet 16, 1023 Crissier (CH)
Tél. +41 21 637 67 57 - Email. info@sylvac.ch - Web. www.sylvac.ch

PLASTIFORM® PRODUCTS

DESCRIPTION

PLASTIFORM® products are made up of two components that solidify upon contact (mixing ratio 1:1). While curing, they imitate all details of the surface on which they are applied with a very high precision : dimensions, forms, texture, surface finish...







The products exist in different versions and consistencies :

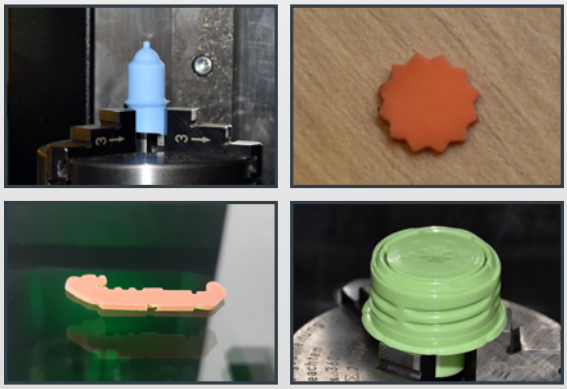
- Liquid products (SRL)
- Cement product (SRC)
- Dough products (SRD)

They allow to obtain flexible, semi-flexible, rigid, or semi-rigid impressions.

APPLICATIONS

PLASTIFORM® products allow to perform :

- Internal complex forms control
- Internal simple forms control
- External complex forms control
- External simple forms control
- Roughness control Ra
- Visual surface finish control
- Protection, masking, seal
- Fix, clamp, add strength to parts



DIMENSIONAL IMPRESSION

The PLASTIFORM® polymer compounds have unique technical features :

- Virtually no shrinkage
- Micron accuracy
- Shape-retention memory
- No adhesion, no residue
- Environmentally friendly
- Dimensional stability
- Resistance

PLASTIFORM® PRODUCTS

MAIN CHARACTERISTICS

Each PLASTIFORM® has two main characteristics :

- The initial consistency **1**
- The final hardness **2**

1 The initial consistency

Liquid (SRL)	Cement (SRC)	Dough (SRD)
recommanded for the internal forms	recommanded for the external forms	recommanded for the external forms
total or sectorial impression	**sectorial impression**	**sectorial impression**

2 The final hardness

Flexible	Semi-flexible	Semi-Rigid / Rigid
recommanded for complex forms	recommanded for simple forms	recommanded for simple forms
with removal constraint	**with low removal constraint**	**without removal constraint**

This wide range of products enables PLASTIFORM® to provide solutions for a lot of different applications. According to your needs, you may choose a PLASTIFORM® with the suitable initial consistency and final hardness.

REMOVAL CONSTRAINT

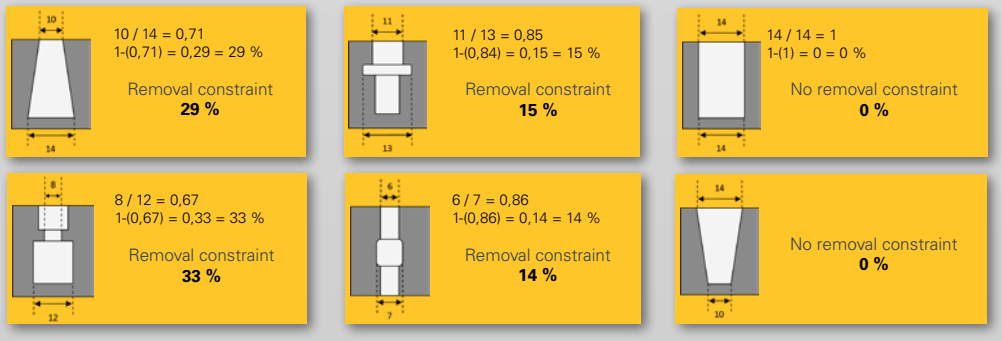
When making a replica casting, some internal complex forms can make it difficult to remove the impression from the mould : groove, thread, undercuts, internal angle. It is called a removal constraint (or backdraft).

It's calculated with the following formula :

$$1 - \left[\frac{\text{Minimum dimension of the extraction hole}}{\text{Maximum internal dimension}} \right] = \text{Removal constraint (in \%)}$$

When this percentage is higher than 0%, you have to choose a flexible or semi-flexible product, that can be misshaped during its removal. When this percentage is 0%, there is no removal constraint. You can use a Semi-Rigid or Rigid product.

Examples :



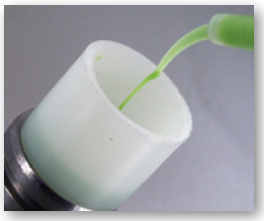
HOW TO CHOOSE YOUR PLASTIFORM®

The choice of the appropriate PLASTIFORM® is usually made on the Initial Consistency - Final hardness combination.

CHOOSE THE INITIAL CONSISTENCY

Liquid products

With a liquid consistency, these products are «self-placing» and can be poured easily, even in very small details (thread, small bore...). They are recommended for internal total impressions, and for applications requiring flowing material.



SRL2 | SRL3 V | SRL5 | SRL8

Cement products

Non-flowing, these products are used for sectorial impressions (internal or external), and can be applied on vertical or overhead surfaces.



SRC3 | SRC8 Ra | SRC10

Technical dough products

With a «modeling clay» consistency, these products are mixed and applied by hand, to create external or internal sectorial impressions.



SRD6 | SRD7 | SRD9

Re-Form

Small rigid balls to heat, these products produce very rigid impression. The resin is reusable at will.



SRF

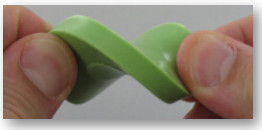
HOW TO CHOOSE YOUR PLASTIFORM®

CHOOSE THE FINAL HARDNESS

Flexible impressions

They accept a strong removal constraint [1] (up to 40%). The impression can be misshaped and stretched to be removed from its mould, then it will nevertheless invariably return to its original shape.





How to control the impression :
Non-Contact Measurement (optical control, profile projector, laser scan…)

SRL2 | SRL3 V | SRC3

1) When making a replica casting, some internal complex forms can make it difficult to remove the impression from the mould : groove, thread, undercuts, internal angle. It is called a removal constraint (see details on page 3.)

Semi-flexible impressions

They accept a low removal constraint (up to 20%). The impression can be slightly misshaped to be removed from its mould, and return to its original shape.



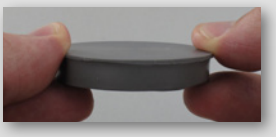


How to control the impression :
Non-Contact Measurement (optical control, profile projector, laser scan…) with the help of the Twin Blade Cutter.

SRL5 | SRD6 | SRD7

Semi-rigid and rigid impressions

They do not accept any removal constraint, because of their rigidity.



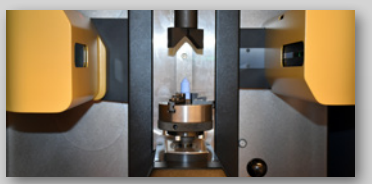


How to control the impression :
Contact or Non-Contact Measurement (caliper, micrometer, optical control, profile projector, laser scan…).

SRL8 | SRC8 Ra | SRC10 | SRD9



Part control with Visio

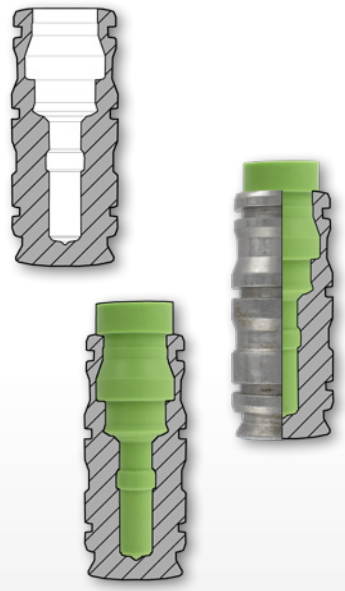


Part control with SCAN

DIMENSIONAL CONTROL

INTERNAL COMPLEX FORMS

With some of the PLASTIFORM® products, it is now possible to easily inspect and measure internal complex features (thread, thread root, groove, radius…), by creating an internal complete impression.



It is recommended to choose a PLASTIFORM® combining the following characteristics :

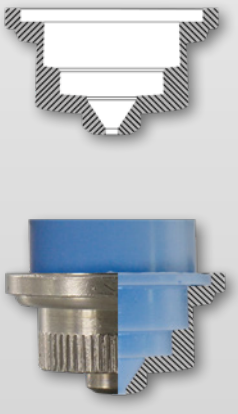
- Liquid initial consistency
  These self-placing compounds will completely fill the internal form of the part, even the finest details.

- Flexible or semi-flexible final hardness
  The replica can be misshaped to be easily removed from the mould.

SRL2

INTERNAL SIMPLE FORMS

When no undercuts or complex shapes are present inside the part (no removal constraint), it is possible to choose a more rigid product, as the impression does not have to be misshaped to be removed.



It is recommended to choose a PLASTIFORM® combining the following characteristics :

- Liquid initial consistency
  These self-placing compounds will completely fill the internal form of the part.

- Semi-flexible, semi-rigid or rigid final hardness
  Easier to measure than soft impressions, especially because they can be «sliced» using the Twin Blade Cutter.

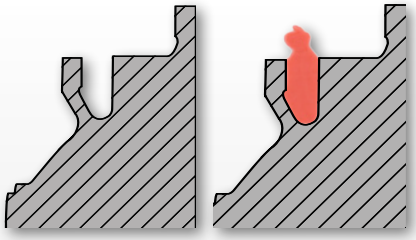
SRL5 SRL8

PLASTIFORM® makes it simple to control inaccessible or hard-to-reach internal features, and prevents destructive testings.

DIMENSIONAL CONTROL

EXTERNAL COMPLEX FORMS





PLASTIFORM® has developed less liquid products, more suitable for taking a sectorial replica cast of external complex forms (T-slots, grooves, notches...).

It is recommended to choose a PLASTIFORM® combining the following characteristics :

- Cement or dough initial consistency
  They do not flow, and can be applied easily on vertical or overhead surfaces.

- Flexible or semi-flexible final hardness
  The replica can be misshaped to be easily removed from the mould.

Thanks to the PLASTIFORM® Twin Blade Cutter, it is possible to create a cross section of the impression to control the features, for example with an optical machine Sylvac-Visio.

SRD6 SRC3

EXTERNAL SIMPLE FORMS





When no undercuts or complex shapes are present in the part (very low removal constraint), it is possible to choose a more rigid product, as the impression does not have to be misshaped to be removed.

It is recommended to choose a PLASTIFORM® combining the following characteristics :

- Cement or dough initial consistency
  They do not flow, and can be applied easily on vertical or overhead surfaces.

- Semi-rigid or rigid final hardness
  Easier to measure than soft impressions, especially because they can be «sliced» using the Twin Blade Cutter.

SRC8 Ra SRC10 SRD7 SRD9

ROUGHNESS CONTROL Ra

INDIRECT CONTROL OF THE Ra

Some rigid products in the PLASTIFORM® range can be used for Indirect Roughness Control Ra.

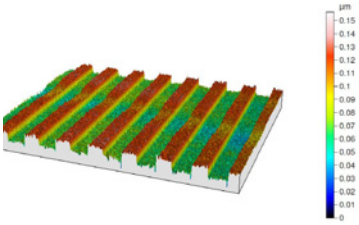
When the surface Ra is ≥ 0,4 µm, the roughness can be measured directly on the cast using a surface meter, and the result is faithful to the original.

For a lower roughness, other inspection methods can be used, including laser metrology and interferometry.

Impossible to reach features are no longer a problem, thanks to PLASTIFORM® impressions, which guarantees a virtually identical replica.

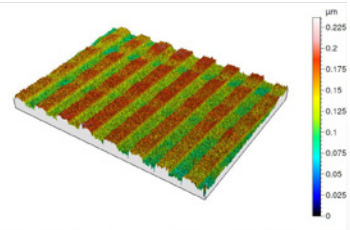
SRC8 Ra

0,025 µm roughness standard



Ra = 0,02602 µm

R.G.X. PLASTIFORM® replica



Ra = 0,02635 µm [2]

2) Test conducted by the CETIM metrology laboratory, Nantes (F)

VISUAL SURFACE FINISH CONTROL

VISUAL SURFACE FINISH CONTROL

The SRL3V has been specially developed for visual surface finish inspection.

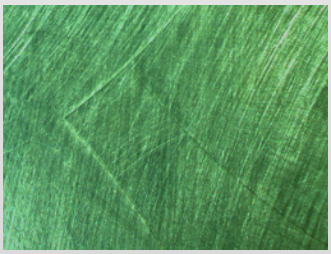
Used by mould makers and polishers, the product accurately imitates all details, surface defects (tool marks, damages, fractures, pitting, striations...) and surface shape (flatness, waviness, curvature...).

The shiny black colour and the material properties ensure higher quality images, which are easier to visually inspect than the original surface.

This process is also used for controlling inaccessible areas.

SRL3 V

Original surface. Magnification x20



Replica. Magnification x20



PROTECTION - MASKING - SEAL

CREATE CUSTOM PROTECTIONS

Custom seal



Custom protection cap



PLASTIFORM® products can be used to protect or mask certain areas of a part during surface treatment, including :

- Sandblasing
- Painting
- Chemical and heat treatment
- Polishing
- Coating process : anodizing, chrome plasting...

Because the casts are very durable and resistant, they can be re-used several times without being affected. Once cured, the PLASTIFORM® is impervious to most liquids. It can therefore be used to create custom-made seals.

SRL2 SRL5

FIX - CLAMP - STRENGTH TO PARTS

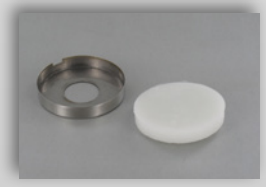
CREATE A CUSTOM CLAMPING SYSTEM

Custom-made fixation



Mechanical reinforcement





Positioning and clamping a fragile or complex part are two basic operations in most manufacturing industries.

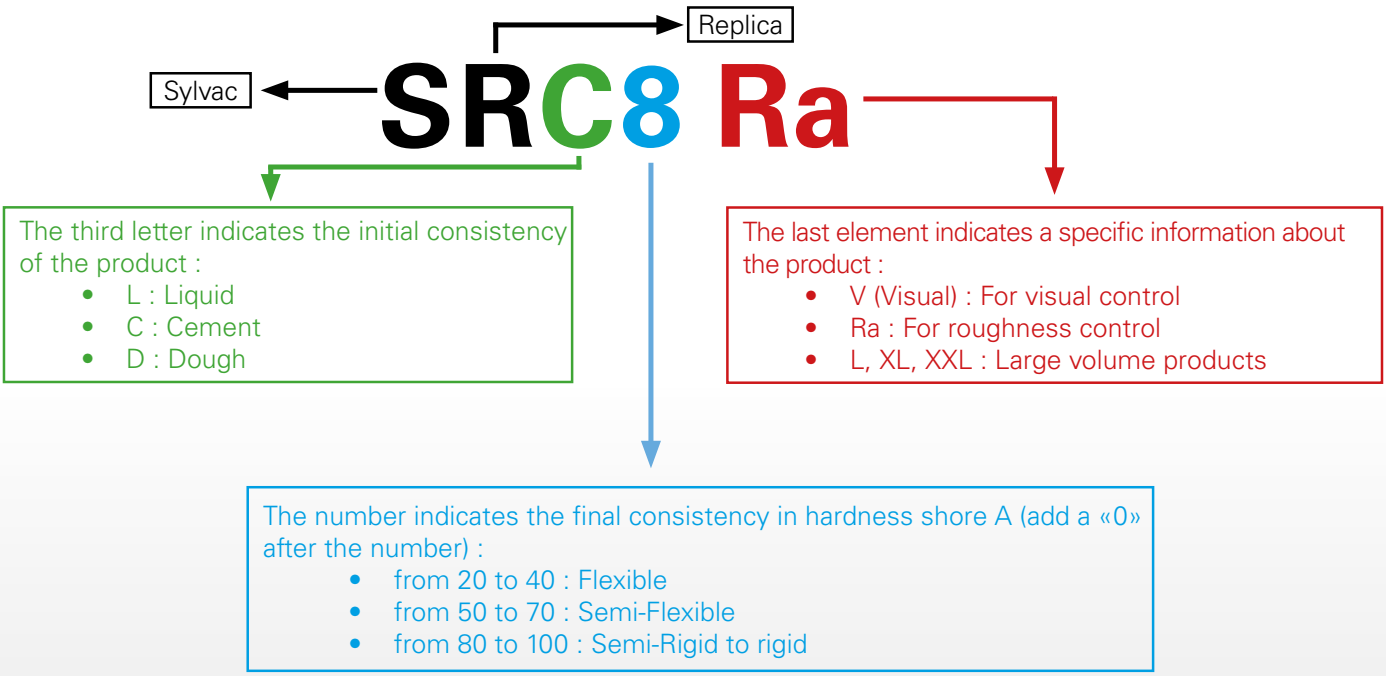
Some PLASTIFORM® products, and more particularly the Re-FORM (infinitely re-usable thermoforming resin), enable these to be achieved easily and efficiently, by providing alternative solutions.

- Create a custom-made fixing platform
- Protect a part from clamping jaws
- Add strength to a fragile part

SRD7 SRF

PLASTIFORM® PRODUCTS

HOW TO UNDERSTAND THE PLASTIFORM® PRODUCTS DESIGNATION



Examples :

SRL2 : Liquid product, print 20 shore A (flexible)
SRC8 Ra : Pasty product (cement), print 80 shore A (semi-rigid), adapted for roughness control Ra
SRD7 : Putty product (dough), print 70 shore A (semi-flexible)

LIQUID PRODUCTS (SRL)

Type	Reference	Color	Description
SRL2	928.2001		2 Cartridges 50ml + 12 Standard Nozzles + 3 Tips
	928.2002		8 Cartridges 50ml + 48 Standard Nozzles + 6 Tips
SRL3V Visual	928.2005		2 Cartridges 50ml + 12 Standard Nozzles + 3 Tips
	928.2006		8 Cartridges 50ml + 48 Standard Nozzles + 6 Tips
SRL5	928.2101		2 Cartridges 50ml + 12 Standard Nozzles + 3 Tips
	928.2102		8 Cartridges 50ml + 48 Standard Nozzles + 6 Tips
SRL8	928.2105		2 Cartridges 50ml + 12 Standard Nozzles + 3 Tips
	928.2106		8 Cartridges 50ml + 48 Standard Nozzles + 6 Tips



PLASTIFORM® PRODUCTS

CEMENT PRODUCTS (SRC)



Type	Reference	Color	Description
SRC3	928.2109		2 Cartridges 50ml + 12 Standard Nozzles + 3 Tips
	928.2110		8 Cartridges 50ml + 48 Standard Nozzles + 6 Tips
SRC8 Ra	928.2113		2 Cartridges 50ml + 12 Standard Nozzles + 3 Tips
	928.2114		8 Cartridges 50ml + 48 Standard Nozzles + 6 Tips
SRC10	928.2111		2 Cartridges 50ml + 12 Standard Nozzles + 3 Tips
	928.2112		8 Cartridges 50ml + 48 Standard Nozzles + 6 Tips

DOUGH PRODUCTS (SRD)



Type	Reference	Color	Description
SRD6	928.7003		Pack of boxes 900ml (2x450ml)
	928.7004		Small boxes 90ml (2x45ml)
SRD7	928.7005		Pack of boxes 900ml (2x450ml)
	928.7006		Small boxes 90ml (2x45ml)
SRD9	928.7007		Pack of boxes 900ml (2x450ml)
	928.7008		Small boxes 90ml (2x45ml)
SRD KV-AD	928.9001		Pack of boxes 900ml (2x450ml)

LARGE VOLUMES CARTRIDGES (SRL L, XL & XXL)



Type	Reference	Color	Description
SRL2 L	928.3001		1 Cartridge 400ml + 10 Quadro Nozzles
SRL2 XL	928.8001		1 Can 1.7l (2x 850ml)
SRL2 XXL	928.8002		1 Can 10.2l (2x 5.1l)
SRL5 L	928.3003		1 Cartridge 400ml + 10 Quadro Nozzles
SRL5 XL	928.8005		1 Can 1.7l (2x 850ml)
SRL5 XXL	928.8006		1 Can 10.2l (2x 5.1l)
SRL7 L	928.3004		1 Cartridge 400ml + 10 Quadro Nozzles
SRL7 XL	928.8007		1 Can 1.7l (2x 850ml)
SRL7 XXL	928.8008		1 Can 10.2l (2x 5.1l)
SRL8 L	928.3005		1 Cartridge 400ml + 10 Quadro Nozzles
SRL8 XL	928.8009		1 Can 1.7l (2x 850ml)
SRL8 XXL	928.8010		1 Can 10.2l (2x 5.1l)

PLASTIFORM® PRODUCTS

RE-FORM PRODUCTS (SRF)

Type	Reference	Color	Description
SRF	928.4001		1 bag of 500g
	928.4002		1 bag of 1000g



LARGE VOLUMES KITS (SRL KXL)

Type	Reference	Color	Description
Kit SRL2 KXL	928.5001		Kit with 4 Cartridges 400ml + accessories
Kit SRL5 KXL	928.5002		Kit with 4 Cartridges 400ml + accessories
Kit SRL7 KXL	928.5003		Kit with 4 Cartridges 400ml + accessories
Kit SRL8 KXL	928.5004		Kit with 4 Cartridges 400ml + accessories



COMPLETE KIT

Reference	Description
928.6006	Special Kit for SCAN and VISIO



KIT CONTENT 928.6006

1 manual dispensing gun (928.1001)
1 twin blade cutter 60mmx1mm (928.1009)
1 cutting guide for cutter (928.1010)
50 standard mixer injectors
10 standard white nozzle tips
21 rings for mold removal (928.1008)
1 plastin 250g (928.1201)
1 degreaser DN1 400ml (928.1205)
1 Re-form bag (SRF) 500g (928.4001)
2 cartridges SRL2 (928.2001)
2 cartridges SRL5 (928.2101)
2 cartridges SRC3 (928.2109)
1 cartridge SRL8 (928.2105)
1 tube SRD7 2x45ml (928.7006)



Special kit SCAN & VISIO
928.6006

PLASTIFORM® ACCESSORIES

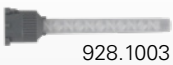
DISPENSING GUNS

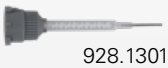

928.1001


928.1207

Reference	Description
928.1001	Manual Dispensing Gun DS53 (for 50 ml cartridges)
928.1002	Pneumatic Dispensing Gun DP50 (for 50 ml cartridges)
928.1207	Manual Dispensing Gun DS 400 (for 400 ml cartridges)
928.1208	Battery Dispensing Gun DB 400 (for 400ml cartridges)
928.1209	Pneumatic Dispensing Gun DS 400 (for 400 ml cartridges)

NOZZLES, TIPS AND RINGS


928.1003


928.1301


928.1305


928.1008


928.1202


928.1212

Reference	Description
928.1003	Pack of 48 Standard Grey Mixer Injectors for Cartridges 50ml
928.1004	Pack of 96 Standard Grey Mixer Injectors for Cartridges 50ml
928.1005	Pack of 192 Standard Grey Mixer Injectors for Cartridges 50ml
928.1301	Pack of 10 Needle Mixer Injectors for Cartridges 50ml (for liquid products only)
928.1302	Pack of 50 Needle Mixer Injectors for Cartridges 50ml (for liquid products only)
928.1303	Pack of 100 Needle Mixer Injectors for Cartridges 50ml (for liquid products only)
928.1304	Pack of 200 Needle Mixer Injectors for Cartridges 50ml (for liquid products only)
928.1305	Pack of 50 Quadro Mixer Injectors (length 12.2cm) for Cartridges 400ml
928.1306	Pack of 100 Quadro Mixer Injectors (length 12.2cm) for Cartridges 400ml
928.1210	Pack of 10 Large Mixer Injectors for Cartridges 400ml
928.1211	Pack of 50 Large Mixer Injectors for Cartridges 400ml
928.1212	Box of 4 different Fill'in (avoid air bubbles in blind holes)
928.1008	Pack of 21 Rings for mould removal
928.1202	Pack of 20 White Nozzles Tips (for standard grey mixer injectors)
928.1203	Pack of 50 White Nozzles Tips (for standard grey mixer injectors)
928.1201	Plastin - technical plasticine (250g)

CUTTERS AND CLEANERS


928.1009



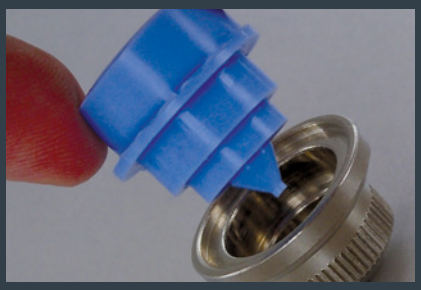
928.1205

Reference	Description
928.1011	Kit Twin Blade Cutter + Support
928.1101	Special Twin Blade Cutter 60mm (0.5mm space between blades)
928.1102	Special Twin Blade Cutter 60mm (2mm space between blades)
928.1103	Special Twin Blade Cutter 100mm (0.5mm space between blades)
928.1104	Special Twin Blade Cutter 100mm (1mm space between blades)
928.1105	Special Twin Blade Cutter 100mm (2mm space between blades)
928.1106	Special Twin Blade Cutter 200mm (0.5mm space between blades)
928.1107	Special Twin Blade Cutter 200mm (1mm space between blades)
928.1108	Special Twin Blade Cutter 200mm (2mm space between blades)
928.1205	Surface Cleaner DN1 400ml (no air shipment!)
928.1206	Surface Cleaner DN1 1l (no air shipment!)

APPLICATIONS

INTERNAL DIMENSIONAL CONTROL





INTERNAL DIMENSIONAL CONTROL



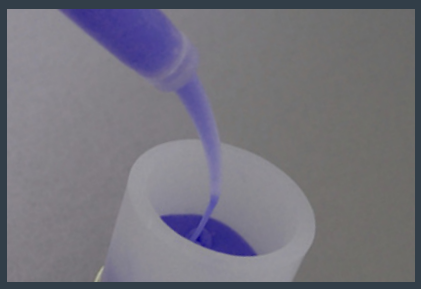


EXTERNAL DIMENSIONAL CONTROL





NON-DESTRUCTIVE CONTROL


CUSTOM PROTECTIVE CAP





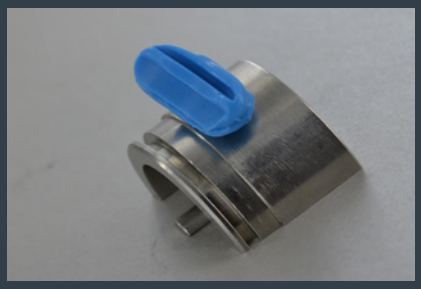
APPLICATIONS

PROFILE CUTTING

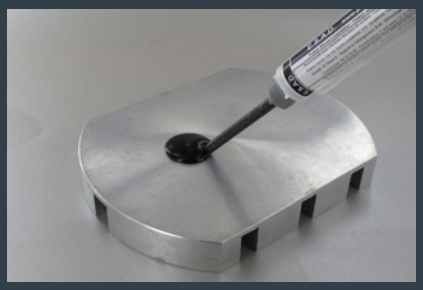





ROUGHNESS CONTROL Ra

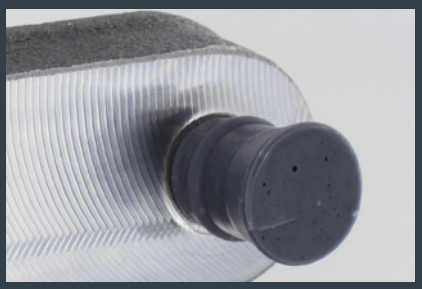

VISUAL SURFACE FINISH CONTROL



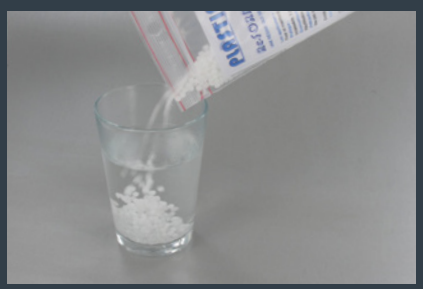


PROTECTION - MASKING - SEAL





FIX - CLAMP - ADD STRENGTH TO PARTS





PRODUCTS SPECIFICATIONS

LIQUID PRODUCTS (SRL)

Type	Color	Initial consistency			Final consistency				Application			Drying time at 20°	Removal constraint	Cut with cutter ?
		L	C	D	F	S-F	S-R	R	I-T	I-P	E-P			
SRL2		X			X				X			±8 minutes	30%	No
SRL3V Visual		X			X				X			±10 minutes	20%	No
SRL5		X				X			X	X		±8 minutes	10%	Yes
SRL8		X						X	X	X		±1 minutes	0%	No

CEMENT PRODUCTS (SRC)

Type	Color	Initial consistency			Final consistency				Application			Drying time at 20°	Removal constraint	Cut with cutter ?
		L	C	D	F	S-F	S-R	R	I-T	I-P	E-P			
SRC3			X		X					X	X	±8 minutes	20%	Yes
SRC8 Ra			X				X			X	X	±6 minutes	0%	No
SRC10			X					X		X	X	±1 minutes	0%	No

DOUGH PRODUCTS (SRD)

Type	Color	Initial consistency			Final consistency				Application			Drying time at 20°	Removal constraint	Cut with cutter ?
		L	C	D	F	S-F	S-R	R	I-T	I-P	E-P			
SRD6				X		X				X	X	±8 minutes	5%	Yes
SRD7				X		X				X	X	±4 minutes	5%	Yes
SRD9				X				X		X	X	±8 minutes	0%	No
SRD KV-AD				X		X				X	X	±6 minutes	5%	Yes

RE-FORM (SRF) PRODUCTS

Type	Color	Initial consistency			Final consistency				Application			Drying time at 20°	Removal constraint	Cut with cutter ?
		L	C	D	F	S-F	S-R	R	I-T	I-P	E-P			
SFR				X*				X	Fix - clamp - strength to parts			depends on volume	-	No

*heated at 60°

L = Liquid / C = Cement / D = Dough
F = Flexible / S-F = Semi-Flexible / S-R = Semi-Rigid / R = Rigid
I-T : Total internal impression / I-P : Partial internal impression / E-P : Partial external impression

PLASTIFORM

Sylvac SA - Chemin du Closalet 16, 1023 Crissier (CH)
Tél. +41 21 637 67 57 - Email. info@sylvac.ch - Web. www.sylvac.ch