OPERATING AND MAINTENANCE MANUAL

XF510Cr/Sr/Dr

INTEGRABLE MARKING HEAD
NUMERICALLY CONTROLLED

MARKING BY SCRIBING

Ref. DCD01/3074 - XF510Cr-Sr-Dr_en_C - Last updated: 03/2011

Table of contents

1. Unpacking

Depending on the order, the machine is packed on its own or with a Control Unit.

Contents of the box:

- machine: XF510Cr/Sr/Dr
- 1 test plate for the machine
- 1 technical document on CD ROM

If ordering a pack:

- Control Unit: UC500
- power cable
- 1 air filter

Additional accessories if ordered:

- 1 CCU/Marking head connecting cord
- 1 (or several) styli
- 1 RS232 connecting cable
- marking program + 1 CD-ROM with user manual

2. Identification of the marking equipment

The marking equipment is identified by:

- 1 identification plate on the marking head
- 1 identification plate on the Control Unit

Have the model and serial number of the equipment available when contacting Technifor.

3. Power

- power supply: 115 V AC - 230 V AC - 50/60 Hz
- power: 120 VA
- compressed air supply: operating pressure: 1 Bar (14.504 PSI) to 8 Bar (116.03 PSI)
- pneumatic cylindrical female connection 1/4" gas

4. Regulation observance

Manufacturer, GravoTech Marking SAS - 56 avenue Jean Jaurès BP 80015 - 10604 LA CHAPELLE SAINT LUC - France (head office) declares:

■ Declaration of compliance CE

CE marking on the equipment attests the observance of the following European directives:

- Directive 2006/95/EC of the European Parliament and of the Council of 12 December 2006 on the harmonisation of the laws of the Member States relating to electrical equipment designed for use within certain voltage limits.
- Directive 2004/108/EC of the European Parliament and of the Council of 15 December 2004 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.

■ Declaration of incorporation

The equipment will not be in service before the machine in which it is to be incorporated is declared conform to the norm 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on the harmonisation of the laws of the Member States relating to machinery.

■ Declaration of compliance to other directives

Equipment is compliant with the following European directives:

- amended Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 restricting the use of some dangerous substances present in electrical and electronical equipment (RoHS).
- amended Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment (WEEE).

Waste Electronic and Electrical Equipment

This symbol indicates that once this equipment has reached the end of its useful life, it must not be disposed of with non-sorted municipal waste, in accordance with European Directive 2002/96/EC.

The equipment must be disposed of at an appropriate collection point for processing, sorting, and recycling of Waste Electronic and Electrical Equipment (WEEE).

The elements which compose Waste Electronic and Electrical Equipment (WEEE) may contain substances which have harmful effects on the environment or on human health.

By following these instructions, you are helping the environment, contributing to the preservation of our natural resources, and protecting human health.

■ Declaration of compliance to norms

The equipment is compliant with the following norms:

- Standard NF EN 61000-6-2 of January 2006 concerning electromagnetic compatibility (EMC) - Part 6-2: generic standards- Immunity for industrial environments.
- Standard NF EN 61000-6-4 of March 2007 concerning electromagnetic compatibility (EMC) - Part 6-4: generic standards- Standard on emissions for industrial environments.

	**The modification or transformation of this equipment, adaptation and accessory installation unrecommended by Technifor, integration, piloting by a command device, connection to an external peripheral, modify this equipment's characteristics and therefore void the compliance with the applicable EU directives. These modifications void Technifor's liability. In this case, the machine and equipment installer is responsible for the final work station's compliance.**

5. Work station safety

To ensure security and productivity, read this manual before starting-up the equipment.

Instructions for use and warranty limitations
This equipment is designed to mark material using Technifor scribing styli only. Any other use, or the use of styli other than those provided by Technifor is not recommended. Technifor will not be held responsible for the results.

- This marking equipment is designed to function at a room temperature between 5 ^{0}C (41 ^{0}F) to 45 ^{0}C (113 ^{0}F).
- Do not use this marking equipment in an explosive environment.
- This marking equipment is not designed to operate in damp premises.
- Grounding must be done according to the regulations in effect to ensure the safety of the personnel. The connection to the single phase power supply is made with a standard, 3 pin plug with grounding. It must be equipped with an adequately calibrated 30 mA differential cut-off and protection device.
- Never hold with your hands the part to mark: clamp the part mechanically. Locking during marking must be strong and stable considering the vibrations and force during marking. If the part moves, the point may be damaged, thus making it unusable.
- Never unplug a cable while the Control Unit is turned on.
- Never lubricate the X-Y carriage guiding rails. They must remain clean.
- Do not remove the machine's casing: risk of electric shock.
- The compressed air system must meet all standards.
- Use only clean, dry, non-lubricated air.
- Never connect the machine to a pneumatic circuit containing air pressure higher than 8 Bar (116.03 PSI).
- The air exhaust from the stylus can project metal dust or chips, if necessary wear safety glasses.
- When the machine is used on a column without an exterior protection system, mount mobile shutters or protective boot.

	**At the time of disposal, wearing personal protective equipment (PPE) is recommended to dismantle the mechanical elements of the machine. Some guiding elements are to be dismantled when hot and may release toxic fumes.**

	• **When marking or doing test marking, the stylus must always hit a part. If it strikes only air, these are the risks:** **- mechanical deterioration of moving parts** **- void of the manufacturer's guarantee** • **During marking, do not place fingers or objects in the area reserved for stylus movement. Keep hands away from the marking area. In the event of non-observance of this indication, the stylus can create a crush injury.** • **Turn off the machine before beginning any cleaning, maintenance or repair procedure.**

Technifor will not be held responsible for injuries resulting from disregard for the above operating instructions or other general safety rules applicable to the use of this equipment. Furthermore, disregard for the instructions will void the warranty.

1. Description of the machine

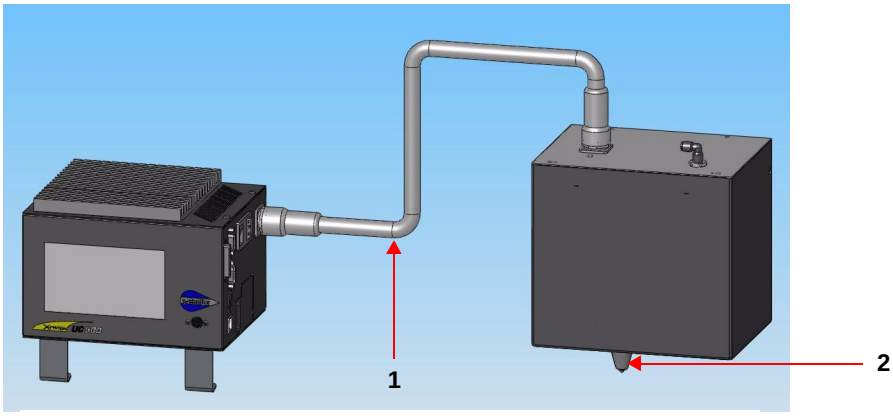
The XF510Cr/Sr/Dr is a numerically controlled scribing marking machine.

Integrated in a special machine or on a production line, this compact head is the ideal solution for marking parts of various shapes and sizes, whether flat or curved.

It is integrated on a mounting plate with M6 fixing screws and two positioning holes (Ø 8E8).

This machine works by moving the stylus along the X and Y axes of a grid.

The Control Unit uses its internal software to process the marking commands. This combination of technologies allows for rapid marking of alphanumeric characters and logos.



Control Unit: UC500 *XF510r marking head*

1 : Head/CCU connecting cable
2 : Stylus

2. Technical specifications

- NA0 - NA1 - NA1 LG 100 - N2 - NA2 scribing styli

	Pressure (Bar)							
Stylus to be used	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
NA0	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NA1 - NA1 LG 100	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
N2 - NA2	Yes	Yes	Yes	Yes	Yes	No	No	No

Note: these values are approximative. They may vary slightly depending on the part's material.

- Fonts available:
  - continuous action (standard)
  - dot by dot (optional)
  - size: from 0.5 mm (0.02 in) to 44.9 mm (1.768 in) with increments of 0.1 mm (5/1000 in)
  - characters: those included in the basic multilingual diagram of the Unicode standard (ISO 10646)

Note: the small character sizes are incompatible with the bigger styli.

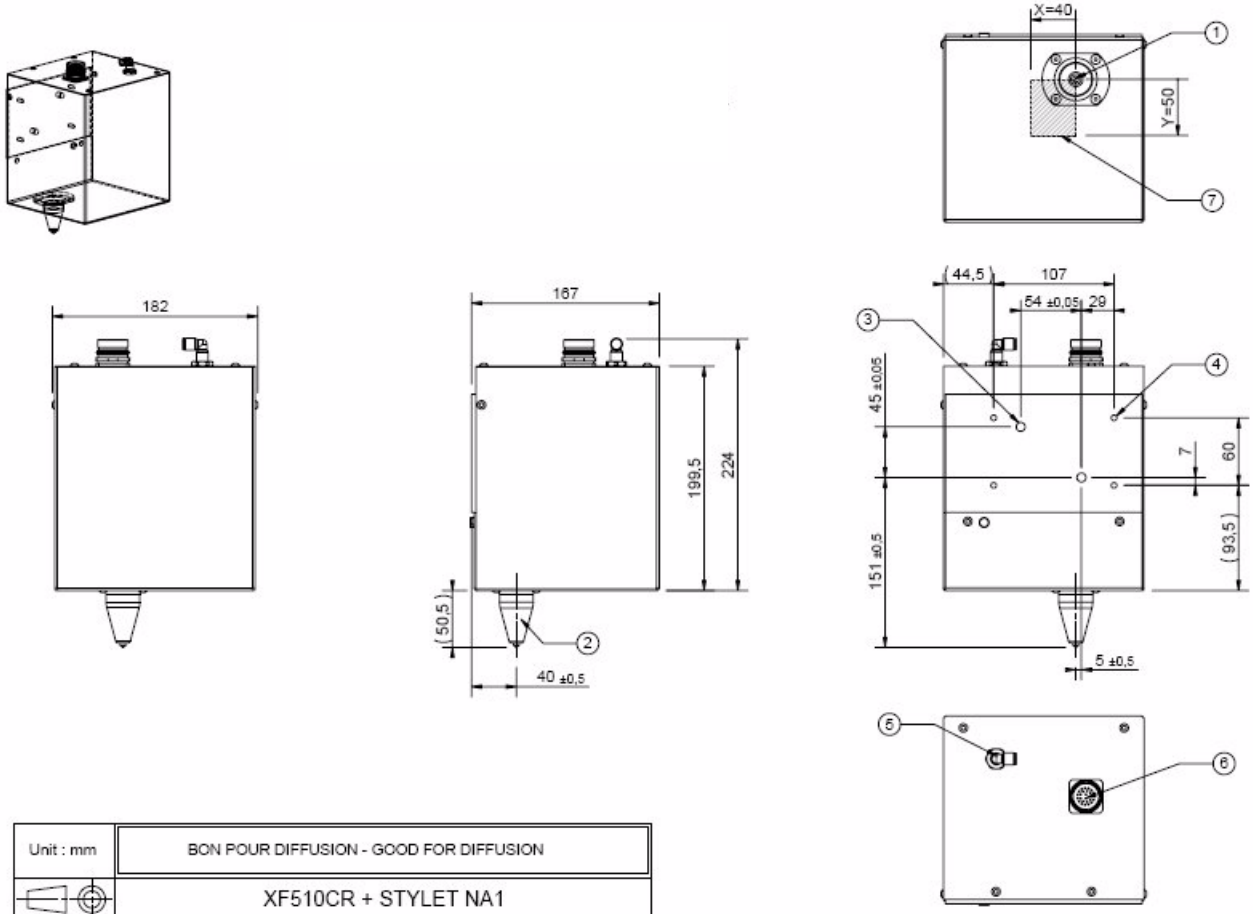
- Dates, counters, batch numbers, shift codes, logos...

3. Physical characteristics

	XF510Cr	XF510Sr	XF510Dr
Length	182 mm (7.165 in)	222 mm (8.74 in)	302 mm (11.89 in)
Width	167 mm (6.575 in)	167 mm (6.575 in)	167 mm (6.575 in)
Height	224 mm (8.819 in)	224 mm (8.819 in)	224 mm (8.819 in)
Weight	9 kg (19.842 lb)	10 kg (22.046 lb)	11.5 kg (25.353 lb)
Marking area	40 mm (1.575 in) x 50 mm (1.969 in)	80 mm (3.15 in) x 50 mm (1.969 in)	160 mm (6.299 in) x 50 mm (1.969 in)

4. Dimensional drawings

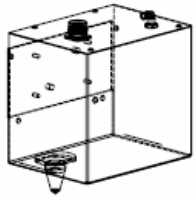
■ **XF510Cr**

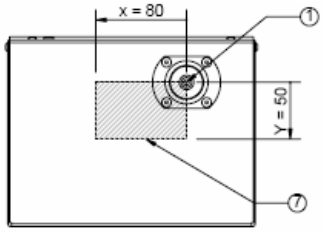


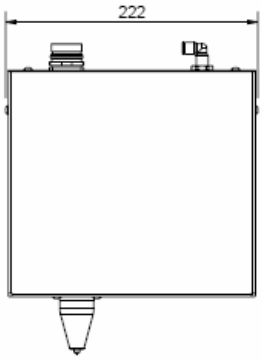
Unit : mm	BON POUR DIFFUSION - GOOD FOR DIFFUSION			
	XF510CR + STYLET NA1			
dpe	12/02/2008	TEC00334	B	

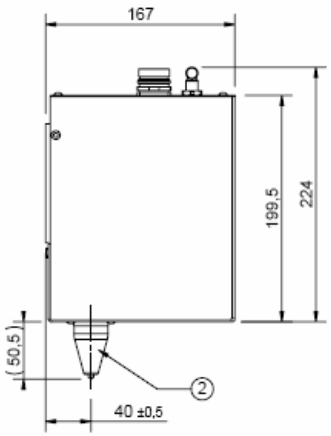
1 : Origin
2 : Stylus NA1
3 : Head positioning: 2 Ø8E8 (max. depth 8 mm (0.315 in))
4 : Head attachment: 4 M6 (max. depth 8 mm (0.315 in))
5 : Pneumatic connection for Ø4x6 tube
6 : Electrical connector
7 : Marking area: 40 mm (1.575 in) x 50 mm (1.969 in)

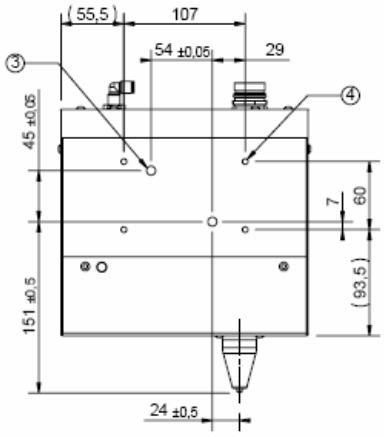
■ **XF510Sr**

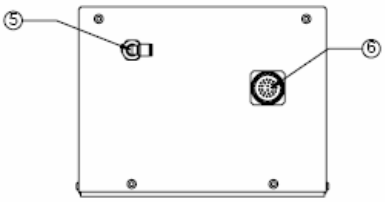








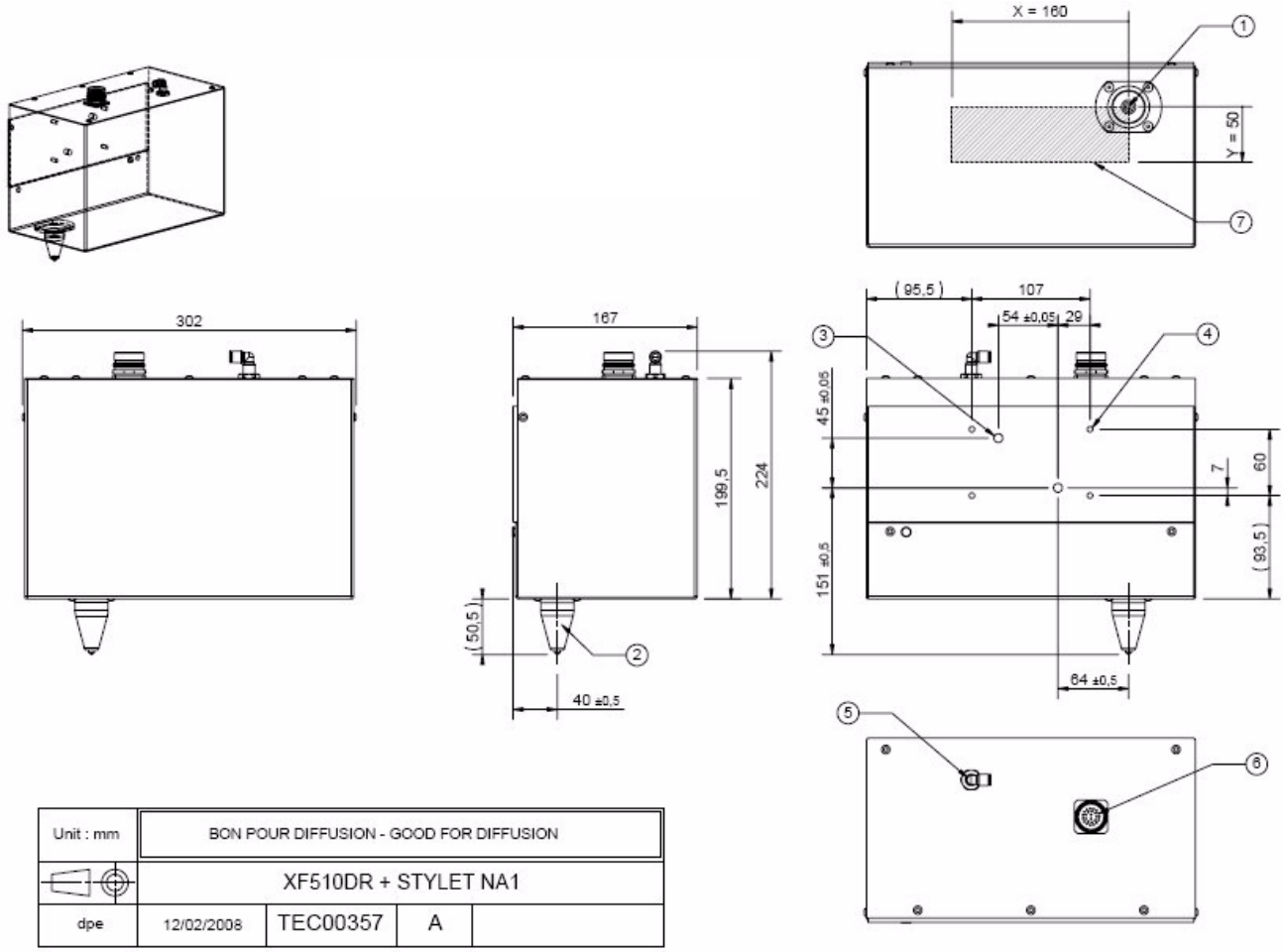




Unit : mm	BON POUR DIFFUSION - GOOD FOR DIFFUSION			
	XF510SR + STYLET NA1			
dpe	12/02/2008	TEC00331	D	

1 : Origin
2 : Stylus NA1
3 : Head positioning: 2 Ø8E8 (max. depth 8 mm (0.315 in))
4 : Head attachment: 4 M6 (max. depth 8 mm (0.315 in))
5 : Pneumatic connection for Ø4x6 tube
6 : Electrical connector
7 : Marking area: 80 mm (3.15 in) x 50 mm (1.969 in)

■ **XF510Dr**



Unit : mm	BON POUR DIFFUSION - GOOD FOR DIFFUSION			
	XF510DR + STYLET NA1			
dpe	12/02/2008	TEC00357	A	

1 : Origin
2 : Stylus NA1
3 : Head positioning: 2 Ø8E8 (max. depth 8 mm (0.315 in))
4 : Head attachment: 4 M6 (max. depth 8 mm (0.315 in))
5 : Pneumatic connection for Ø4x6 tube
6 : Electrical connector
7 : Marking area: 160 mm (6.299 in) x 50 mm (1.969 in)

5. List of accessories available upon request

The accessories mentioned below are available upon request.

Height adjustment device

Ref.: 52871	• The CHR 312 height adjustment system is used to adjust the marking head height within a range of +/- 22.5 mm (0.886 in). • Positioned between the marking head and the support to which the head is attached.	

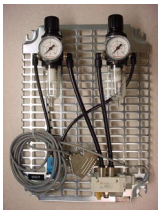
Protective boot

XF510Cr: Ref.: 52879 **XF510Sr:** Ref.: 52875 **XF510Dr:** Option not available	• Used to protect a marking system installed in a polluted environment (dust, oil...).	

Mobile protective shutters

XF510Cr: Ref.: 52880 **XF510Sr:** Ref.: 52876 **XF510Dr:** Ref.: 52881	• Protects the head from solid particles larger than 1 mm (0.039 in), and in certain conditions, from spattering of liquid (N/A for stylus pointing up).	

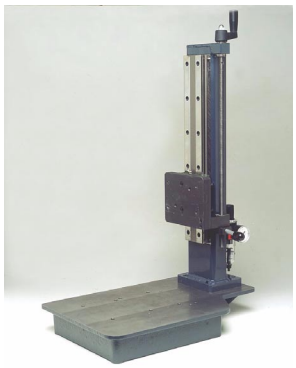
DataMatrix kit

Ref.: 52877	• Used to manage different pressures between scribing and marking of a DataMatrix code.	

90° adapter

Ref.: 52874	• Used to obtain an elbow output of the electric connector.	

Column stand

XF510Cr: Ref.: 58886 **XF510Sr:** Ref.: 52866 **XF510Dr:** Ref.: 58887	• Marking machine support with height adjustment range of 333 mm (13.11 in). • For the safety of the operator, the column base is sold only with the protective shutter option. • May lead to a loss of marking quality (gap). • Cast iron table supports standard accessories or specific tooling. • A graduated ruler along the column indicates the Z axis position of the marking head.	

Standard air filter

Ref.: 64994	• This filter comes equipped with a pressure gauge for regulating air pressure. It eliminates impurities in the compressed air system and reduces soiling of the solenoid valves and stylus. • Use of this filter is mandatory if the air contains particles (dust...) of greater than 40 µm.	

Start cycle foot pedal

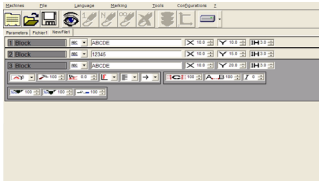
Ref.: 52712	• Office footswitch: A simple touch of the pedal will launch a marking "n" times, leaving the operator with both hands free. The foot pedal is not designed to stop marking.	
Ref.: 52713	• Industrial footswitch: Same use as described above. This foot pedal is especially designed for industrial work environments or for high rate production.	

Button box for start cycle/emergency stop

Ref.: 52717	• The green button is used to launch marking (same function as the foot pedal). • The red button is used to stop either a single marking in progress or a series of markings before it reaches the end.	

	**After pushing the emergency stop button, the green button cannot be used to restart marking. In this case, use the keyboard.**

T500W standard marking program

Ref.: 52656 Ref.: 52657	• Developed in a Windows environment, this program combines all the capabilities and user-friendliness of a PC. • Exists with a USB or parallel protection key.	

Head/CCU connecting cable standard version

Ref.: 52845	3 m (9.842 ft) Head/CCU connecting cable	
Ref.: 52846	6 m (19.685 ft) Head/CCU connecting cable	
Ref.:52847	10 m (32.808 ft) Head/CCU connecting cable	
Ref.: 52848	15 m (49.212 ft) Head/CCU connecting cable	

Head/CCU connecting cable robotic version

Ref.: 52853	3 m (9.842 ft) Head/CCU connecting cable	
Ref.: 52854	6 m (19.685 ft) Head/CCU connecting cable	
Ref.: 52855	10 m (32.808 ft) Head/CCU connecting cable	
Ref.: 52856	15 m (49.212 ft) Head/CCU connecting cable	

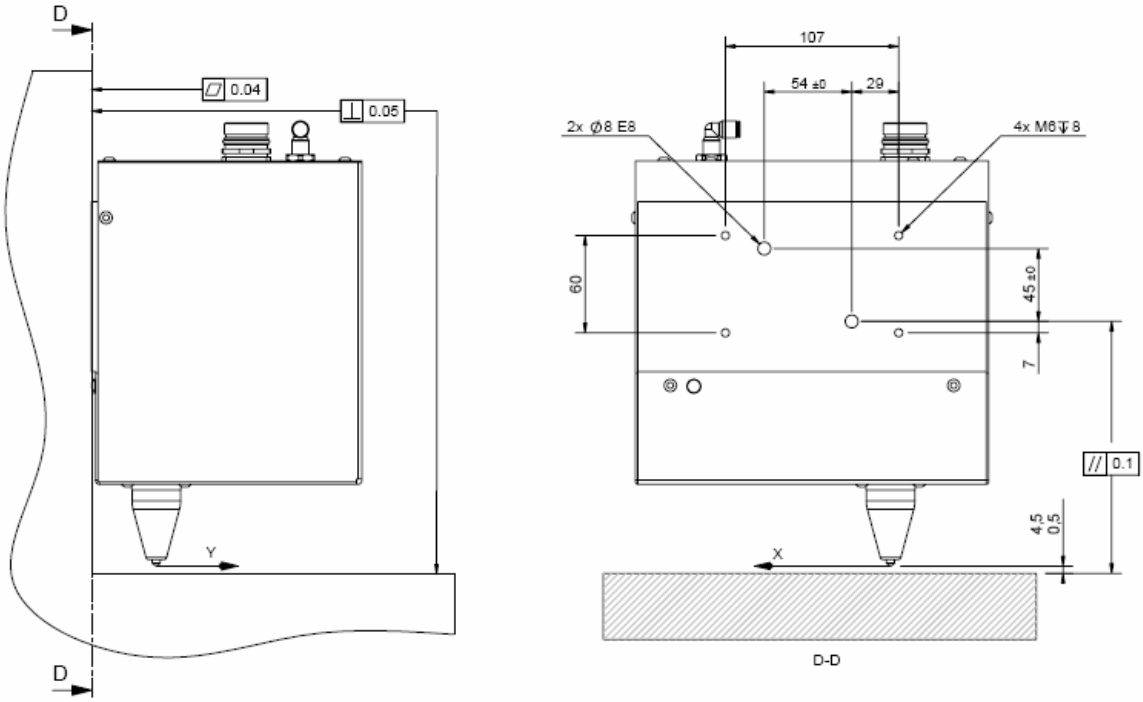
1. Installation

■ Mounting

Attach the XF510Cr/Sr/Dr integrable marking head to a support using 4 M6 bolts.

The screws must penetrate 8 mm (0.315 in) [0 +2 mm] deep into the casing (risk of blocking the X carriage if the screws are too long, risk of stipping the threads if they are too short).

Torque is 8.3 Nm (6.119 lb ft) maximum (class 8.8 screw).



Unit : mm	BON POUR DIFFUSION - GOOD FOR DIFFUSION			
	TOLERANCE GEOMETRIQUE			
dpe	14/02/2008	TEC00358	A	

Only the back side of the XF510Cr/Sr/Dr integrable head should be attached for mounting.

To obtain a uniform mark over the whole marking surface, mount the head so that it is parallel to the surface to be marked.

For alignment, there are positioning holes Ø 8E8 for Ø 8 mm (0.315 in) pin.

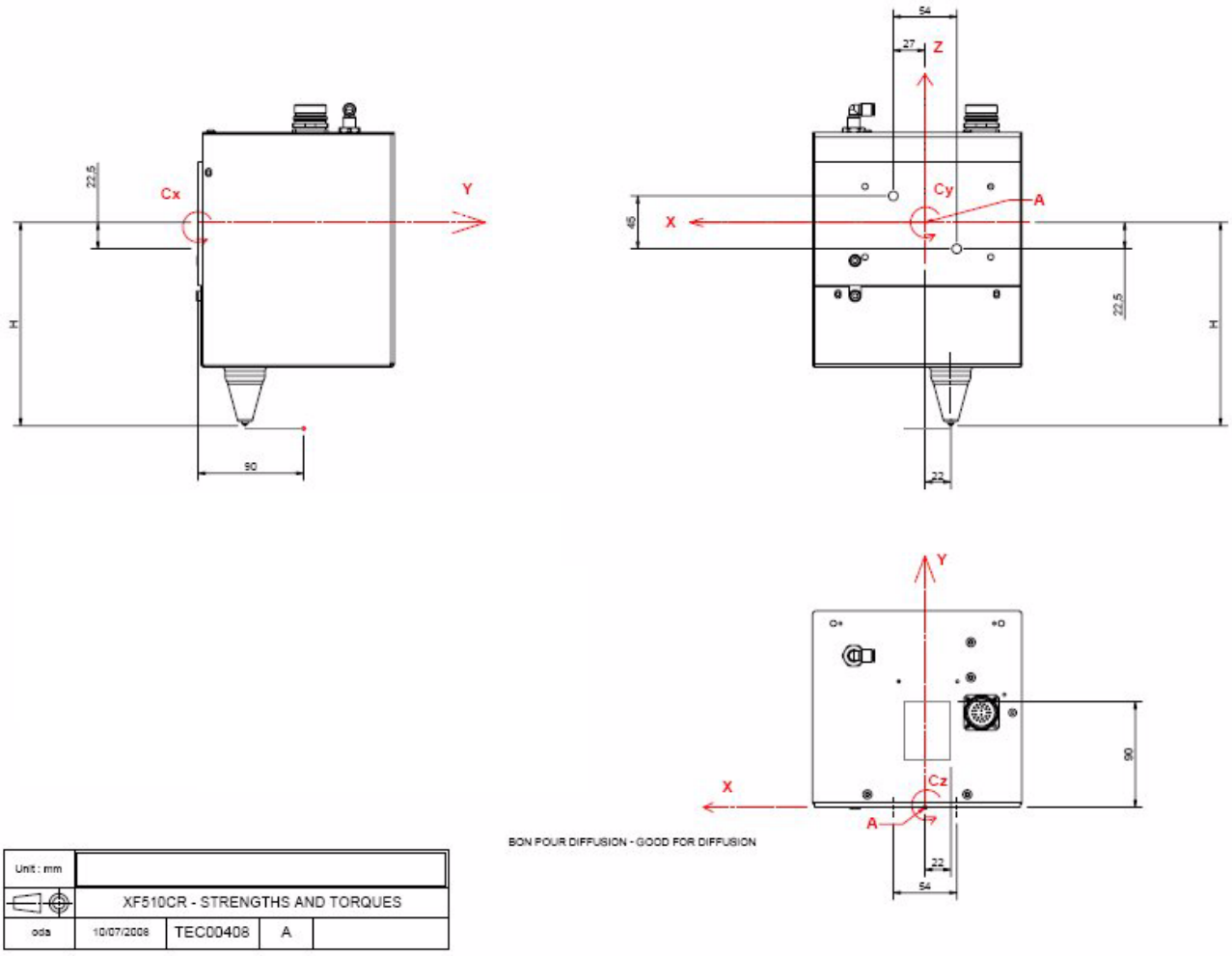
When positioning the head vertically, leave a 5 mm (0.197 in) space to facilitate disassembly or vertical adjustment of the stylus.

To facilitate adjustment, Technifor can provide a height adjustment system.

■ Effort exerted on the mounting plate

- **XF510Cr**

The effort exerted on the mechanics during the marking procedure is transferred to the plate.



Approximative forces and couplings exerted on the head's fastening, brought to point A, without taking into account the forces and couplings due to the machine's weight, depending on the integration's position (for this calculation: consider the center of gravity as being at the center of the machine's volume)

Efforts given for an operating pressure of 6 Bar (87.023 PSI) (when pressure varies, apply the rule of proportionality)

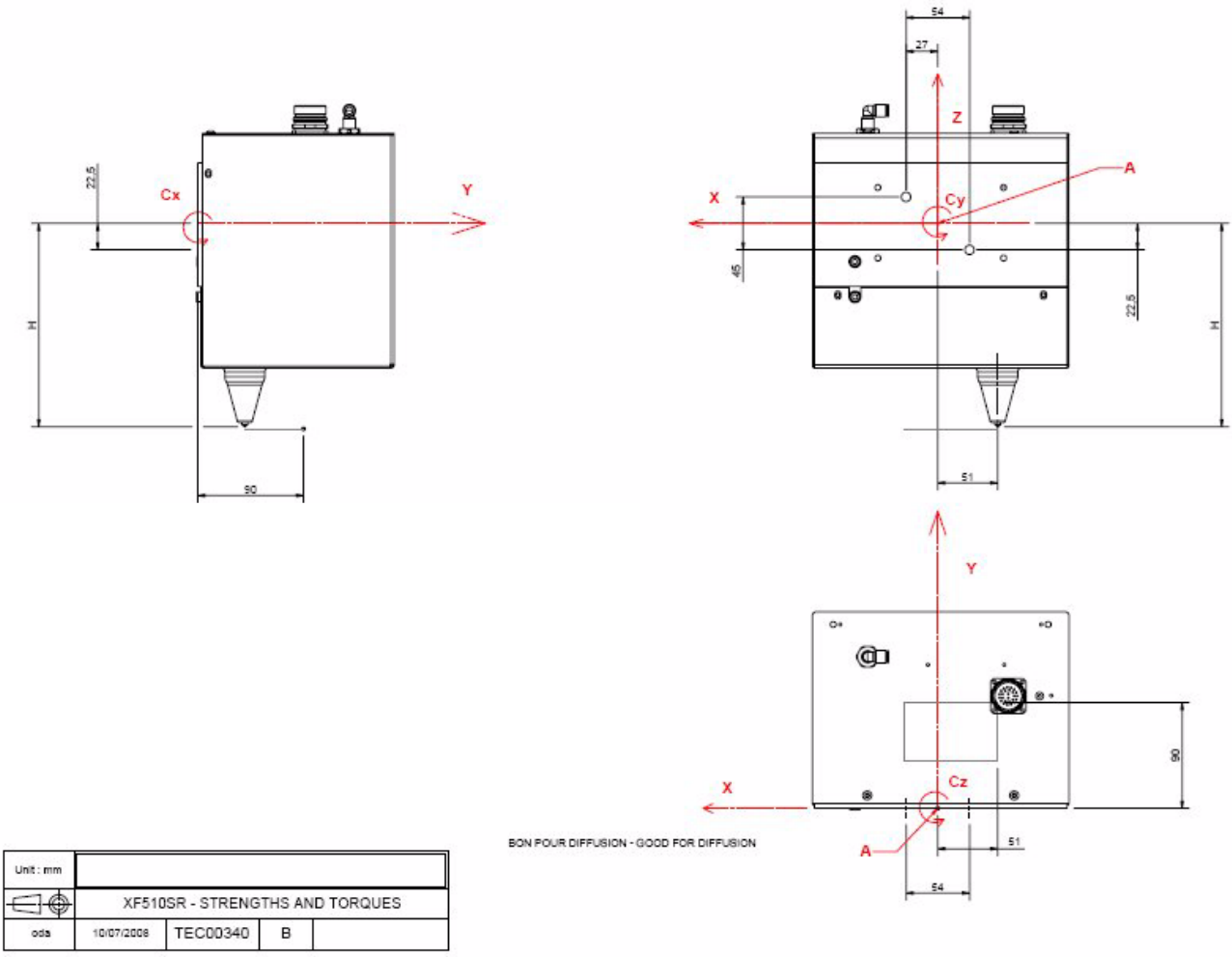
	Stylus				
	NA0	**NA1**	**NA1 LG 100**	**N2**	**NA2**
Fx = Fy (daN)	± 8.0	± 18.8	± 18.8	± 36.9	± 36.9
Fz (daN)	8.0	18.8	18.8	36.9	36.9
Cy max (daN.m)	1.5	3.7	4.5	6.6	7.2
Cy min (daN.m)	-1.2	-2.8	-3.7	-5.0	-5.6
Cx max (daN.m)	2.1	4.9	5.8	9.1	9.7
Cx min (daN.m)	-0.7	-1.6	-2.4	-2.4	-3.0
Cz (daN.m)	± 0.9	± 2.1	± 2.1	± 4.1	± 4.1

Approximative forces exerted on the part to mark

	Stylus				
	NA0	**NA1**	**NA1 LG 100**	**N2**	**NA2**
Fx = Fy (daN)	± 8.0	± 18.8	± 18.8	± 36.9	± 36.9
Fz (daN)	-8.0	-18.8	-18.8	-36.9	-36.9

- **XF510Sr**

The effort exerted on the mechanics during the marking procedure is transferred to the plate.



Approximative forces and couplings exerted on the head's fastening, brought to point A, without taking into account the forces and couplings due to the machine's weight, depending on the integration's position (for this calculation: consider the center of gravity as being at the center of the machine's volume)

Efforts given for an operating pressure of 6 Bar (87.023 PSI) (when pressure varies, apply the rule of proportionality)

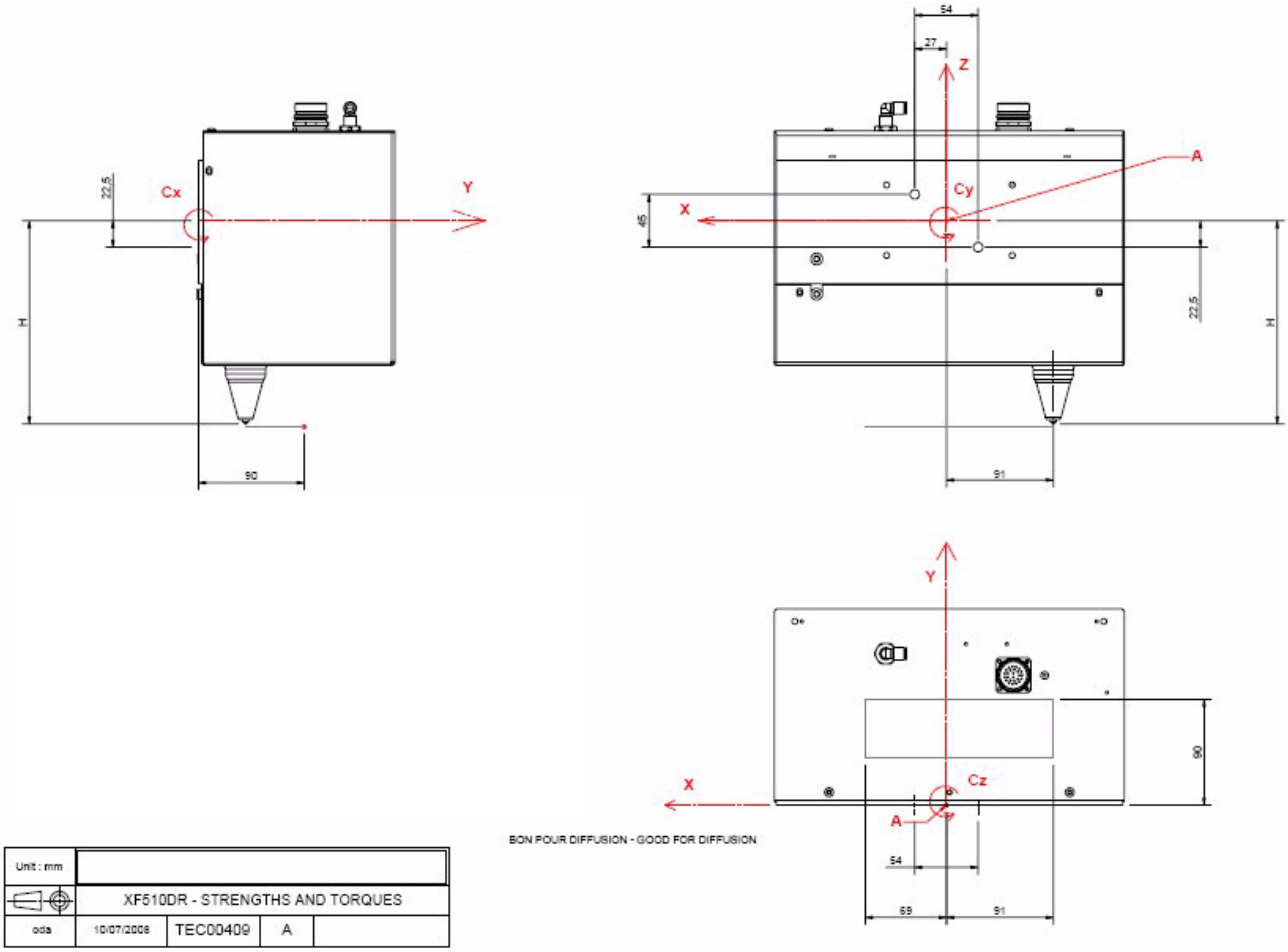
	Stylus				
	NA0	**NA1**	**NA1 LG 100**	**N2**	**NA2**
Fx = Fy (daN)	± 8.0	± 18.8	± 18.8	± 36.9	± 36.9
Fz (daN)	8.0	18.8	18.8	36.9	36.9
Cy max (daN.m)	1.8	4.2	5.1	7.6	8.3
Cy min (daN.m)	-1.0	-2.3	-3.1	-3.9	-4.5
Cx max (daN.m)	2.1	4.9	5.8	9.1	9.7
Cx min (daN.m)	-0.7	-1.6	-2.4	-2.4	-3.0
Cz (daN.m)	± 1.1	± 2.7	± 2.7	± 5.2	± 5.2

Approximative forces exerted on the part to mark

	Stylus				
	NA0	**NA1**	**NA1 LG 100**	**N2**	**NA2**
Fx = Fy (daN)	± 8.0	± 18.8	± 18.8	± 36.9	± 36.9
Fz (daN)	-8.0	-18.8	-18.8	-36.9	-36.9

- **XF510Dr**

The effort exerted on the mechanics during the marking procedure is transferred to the plate.



Approximative forces and couplings exerted on the head's fastening, brought to point A, without taking into account the forces and couplings due to the machine's weight, depending on the integration's position (for this calculation: consider the center of gravity as being at the center of the machine's volume)

Efforts given for an operating pressure of 6 Bar (87.023 PSI) (when pressure varies, apply the rule of proportionality)

	Stylus				
	NA0	**NA1**	**NA1 LG 100**	**N2**	**NA2**
Fx = Fy (daN)	± 8.0	± 18.8	± 18.8	± 36.9	± 36.9
Fz (daN)	8.0	18.8	18.8	36.9	36.9
Cy max (daN.m)	2.1	5.0	5.8	9.1	9.7
Cy min (daN.m)	-0.6	-1.5	-2.4	-2.4	-3.0
Cx max (daN.m)	2.1	4.9	5.8	9.1	9.7
Cx min (daN.m)	-0.7	-1.6	-2.4	-2.4	-3.0
Cz (daN.m)	± 1.4	± 3.4	± 3.4	± 6.7	± 6.7

Approximative forces exerted on the part to mark

	Stylus				
	NA0	**NA1**	**NA1 LG 100**	**N2**	**NA2**
Fx = Fy (daN)	± 8.0	± 18.8	± 18.8	± 36.9	± 36.9
Fz (daN)	-8.0	-18.8	-18.8	-36.9	-36.9

■ Efforts exerted on the part

The axial effort of the stylus on the part depends on the stylus type and on the operating pressure.

	Pressure (Bar)							
	1	2	3	4	5	6	7	8
Stylus to be used	**Force (daN)**							
NA0	1.3	2.7	4.0	5.3	6.6	8.0	9.3	10.6
NA1 - NA1 LG 100	3.1	6.3	9.4	12.6	15.7	18.8	22.0	
N2 - NA2	6.2	12.3	18.5	24.6	30.8			

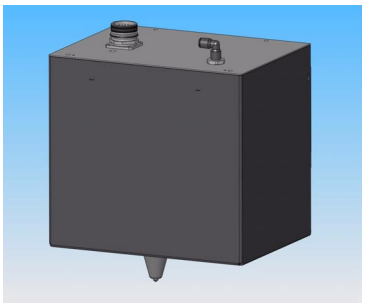
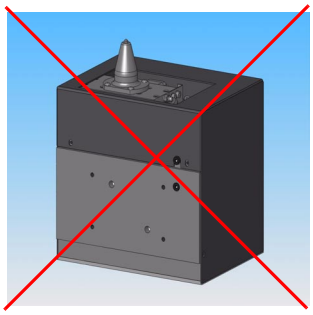
The lateral efforts transmitted via the stylus on the part to mark depend on the material.

For typical steels, lateral effort in X-Y is equal to the axial effort.

These values are used to dimension the clamping of the part in relation with the desired safety coefficient.

Poor clamping may allow the part to move and the stylus point to break.

■ Possible integration and operating positions for the XF510Cr/Sr/Dr

<table>
<tr>
<td>Stylus vertical pointing down
  </td>
<td>Stylus vertical pointing up
 
Position impossible
Risk of particles penetrating inside the head.
Choose a version with protective boot.</td>
</tr>
<tr>
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 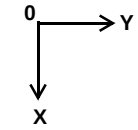
 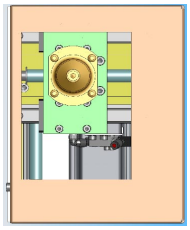
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 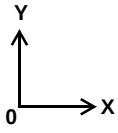
 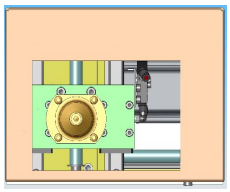
Top view</td>
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 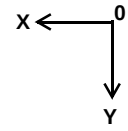
 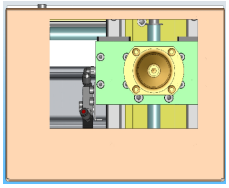
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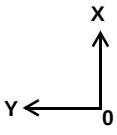
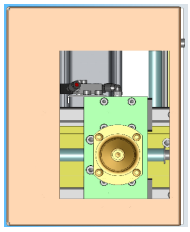
 
 
Top view</td>
</tr>
<tr>
<td>Note

If the stylus falls below the sensors when power is turned off in the 1 or 3 position, the origin will be reset at the first marking, and there will be no problem with a shifting of the origin.</td>
<td>

If the stylus falls below the sensors when power is turned off in the 2 or 4 position, the origin will be reset at the first marking, and there will be no problem with a shifting of the origin.</td>
</tr>
</table>

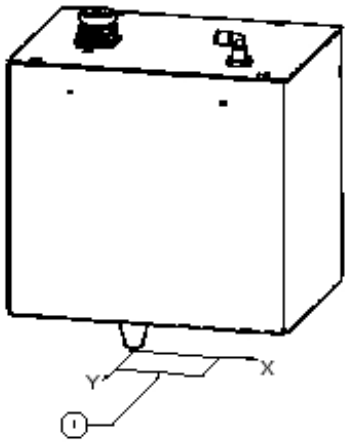
2. Coordinate system

The coordinate system used in our machines is shown in the following diagram.

The Z axis is the vertical position. This axis is used to manually adjust the height of the stylus for marking parts of different sizes.

When a marking cycle is launched, the stylus always begins at the origin point and returns to the origin at the end of the cycle.

Coordinate system



1 : XF510Cr: marking area: 40 mm (1.575 in) x 50 mm (1.969 in)
2 : XF510Sr: marking area: 80 mm (3.15 in) x 50 mm (1.969 in)
3 : XF510Dr: Marking area: 160 mm (6.299 in) x 50 mm (1.969 in)

3. Compressed air supply

Connect the compressed air supply, located near the work station, to the air regulator filter inlet.

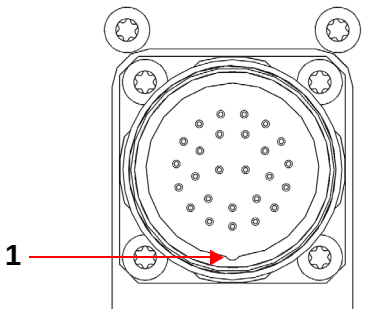
No tools are needed to connect and disconnect the air tubes. To make the connection, insert the Ø 6 mm (0.236 in) tube into the connector until it stops. To disconnect the tube from the air supply, press the clamping ring and pull the tube out of the connector.

Operating pressure: 1 Bar (14.504 PSI) to 8 Bar (116.03 PSI)

4. Connection of the marking head to the CCU

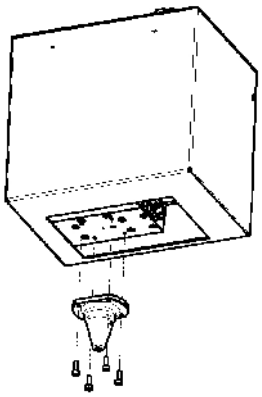
Connect the marking head to the CCU with the appropriate connecting cable. Tighten the connector all the way without bending the pins.

1 : Positioning pin



⚠	**Once all the elements of this marking equipment have been turned on, the screen should display the name of the machine connected to the UC. If this is not the case, contact the distributor immediately.**

5. Mounting the stylus



Mounting the stylus

■ Adjusting the height of the stylus

Adjust the optimum operating distance of the stylus according to the part to be marked.
This distance is between 0.5 mm (0.02 in) and 3 mm (0.118 in).

Remarks

If a stylus is set too high, it doesn't mark because the point doesn't touch the plate consistently while tracing the characters.

6. Definition of operating distances of a stylus

See styli manual.

7. Using the T05 program

Refer to the user manual for the T05 program.

Preventive maintenance

The maintenance operations listed here are intended as a guideline, and should be implemented upon reception of the material. In a highly polluted environment, these operations may need to be performed more frequently.

Unplug the power supply plug before beginning any cleaning or maintenance operation.

Do not apply oil or grease to any element of the stylus or marking head.

Never use pliers to tighten the stylus.

Operating pressure: 1 Bar (14.504 PSI) to 8 Bar (116.03 PSI)

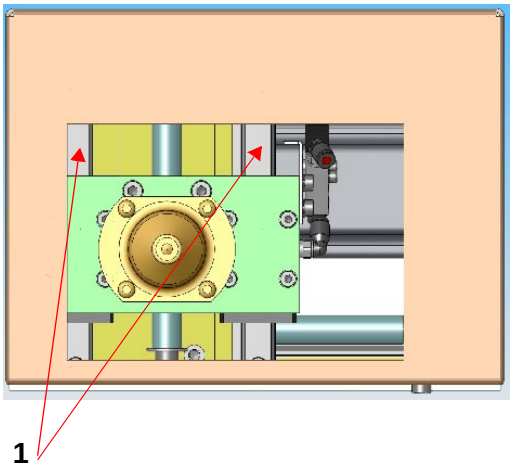
The air must be clean and dry.

Check the compressed air system regularly. Based on the level of contamination, establish a schedule for cleaning or replacement.

1. Every week

- Empty the air filter in order to eliminate dust or liquid which may be present in the system. Clean, dry, non-lubricated air will reduce the build-up of grease in the solenoid valves. This will ensure optimal functioning and reliability of the stylus.

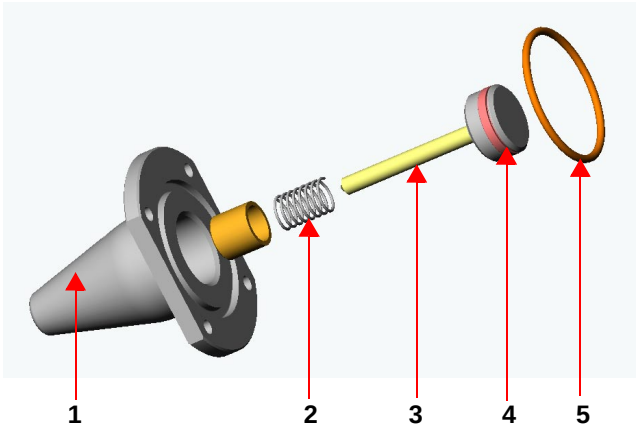
XF510Cr/Sr/Dr - Top view



1 : Guide rails

2. Every month

- Dismantle the stylus.
- Check the condition of the stylus, then clean it thoroughly.
- Clean the point with a dry cloth.
- If the point's radius is too deformed (wider marking, more burrs on the part marked), replace the point with a new one.



1 : Body
2 : Spring
3 : Point
4 : Piston seal
5 : O-ring

3. Every year

Have the marking head serviced by Technifor.

This operation includes:

- complete dismantling of the machine
- cleaning of the mechanical elements
- replacement of the rails and guide bearings
- replacement of the solenoid valves
- verification of the condition of the motors and the belt
- reassembly and adjustment of mechanical elements
- debugging of the head in an enclosure
- marking tests

This maintenance list was established based on a marking frequency of:

- 520 000 cycles per year (7 800 000 characters per year)
- 15 characters 3 mm (0.118 in) high per cycle
- 8 continuous working hours on steel strength 50 DaN/mm^2 (72518.869 lb/in^2)

During servicing of the marking head, Technifor can provide identical rental equipment so that production is not interrupted.

Contact your distributor to schedule an appointment for servicing. This "tune-up" does not take a long time.

Please give the item codes with your order to speed processing.

1. Wearing parts

Standard styli

- point only
- repair kit stylus (seal + spring + washer)

The scribing stylus points cannot be sharpened.

Styli:

Reference	Description
Ref.: 53034	Carbide scribing stylus NA02 110° with radius 0.2 mm (0.008 in)
Ref.: 53035	Diamond scribing stylus NDA02 110° with radius 0.2 mm (0.008 in)
Ref.: 53036	Carbide scribing stylus NA07 110° with radius 0.7 mm (0.028 in)
Ref.: 53039	Carbide scribing stylus NA12 110° with radius 0.2 mm (0.008 in)
Ref.: 53038	Scribing stylus NA12 110° LG 100 mm (3.937 in) carbide with radius 0.2 mm (0.008 in)
Ref.: 53040	Diamond scribing stylus NDA12 110° with radius 0.2 mm (0.008 in)
Ref.: 53037	Carbide scribing stylus NA17 110° with radius 0.7 mm (0.028 in)
Ref.: 53032	Carbide scribing stylus N22 110° with radius 0.2 mm (0.008 in)
Ref.: 53033	Diamond scribing stylus ND22 110° with radius 0.2 mm (0.008 in)
Ref.: 56073	Carbide scribing stylus NA22 110° with radius 0.2 mm (0.008 in)

Repair kits:

Reference	Description
Ref.: 57989	Repair kit (o-ring /spring) for NA0 stylus
Ref.: 57482	Repair kit (o-ring /spring) for NA1 stylus
Ref.: 55876	Repair kit (o-ring /spring) for N2-NA22 stylus

Points:

Reference	Description
Ref.: 53005	RNA02 carbide point 110° LG 52 mm (2.047 in) R=0.2 mm (0.008 in) for scribing stylus NA02
Ref.: 53006	RNDA02 diamond point 110° LG 52 mm (2.047 in) R=0.2 mm (0.008 in) for scribing stylus NA02
Ref.: 53007	RNA07 carbide point 110° LG 52 mm (2.047 in) R=0.7 mm (0.028 in) for scribing stylus NA07
Ref.: 53008	RNA12 carbide point 110° LG 52 mm (2.047 in) R=0.2 mm (0.008 in) for scribing stylus NA12
Ref.: 53011	RNA12 carbide point 110° LG 100 mm (3.937 in) R=0.2 mm (0.008 in) for scribing stylus NA12
Ref.: 53009	RNDA12 diamond point 110° LG 52 mm (2.047 in) R=0.2 mm (0.008 in) for scribing stylus NA12
Ref.: 53010	RNA17 carbide point 110° LG 52 mm (2.047 in) R=0.7 mm (0.028 in) for scribing stylus NA17
Ref.: 53003	RN22 carbide point 110° LG 33 mm (1.299 in) R=0.2 mm (0.008 in) for scribing stylus N22
Ref.: 53004	RND22 diamond point 110° LG 33 mm (1.299 in) R=0.2 mm (0.008 in) for scribing stylus N22
Ref.: 56072	RNA22 carbide point 110° LG 52 mm (2.047 in) R=0.2 mm (0.008 in) for scribing stylus NA22

2. Spare parts

■ XF510Cr/Sr/Dr

Reference	Description
Ref.: 54899	Detector unit (X Or Y)
Ref.: 54898	Quick solenoid valve
Ref.: 64994	Air filter

■ XF510Cr

Reference	Description
Ref.: 52879	Protective boot
Ref.: 52880	Mobile protective shutters
Ref.: 64769	Head casing with decals
Ref.: 52240	Internal wiring harness

■ XF510Sr

Reference	Description
Ref.: 52875	Protective boot
Ref.: 52876	Mobile protective shutters
Ref.: 66767	Head casing with decals
Ref.: 52242	Internal wiring harness

■ XF510Dr

Reference	Description
Ref.: 52881	Mobile protective shutters
Ref.: 66780	Head casing with decals
Ref.: 52241	Internal wiring harness

1. Test code

■ Measurement method

The measurements were taken according to the regulations of standard ISO 12001: 1996.

Measurement equipment used:

- 01dB - Stell integrated sonometer, SIP 95 S, # 20394
- Cal 01 calibrator, # 40141

Material used for marking:

- type XF510Sr machine mounted on a column stand + magnetic plate clamp
- one electronic command unit: UC500

The marking is carried out using a NA1 stylus on a steel plate with dimensions of 110 mm (4.331 in) x 110 mm (4.331 in) x 3 mm (0.118 in) clamped to a base support. A new plate is used for each test.

■ Definition of the microphone position

The microphone is placed at:

- position 1: 0.5 m (1.64 ft) facing the machine and 1.2 m (3.937 ft) from the ground
- position 2: 0.5 m (1.64 ft) facing the machine and 1.6 m (5.249 ft) from the ground
- Position 3: 1 m (3.281 ft) facing the machine and 1.6 m (5.249 ft) from the ground

■ Test conditions

- Marking speed: 100%
- Movement speed: 100%
- Compressed air system pressure: 3 Bar (43.511 PSI)
- Marking quality: 100%
- Stroke force: 100%
- Marking of 1 line(s) of 10 character(s) 5 mm (0.197 in) high

2. Noise emission information

The values given below represent the noise emitted by the machine during marking. When the machine is in use, the values mentioned are independent from the total noise level to which the operator is exposed, since the actual noise level will vary depending on the operator's environment.

Position	L_{Aeq} (L_{Aeq} = "equivalent" average sound level measured using the A-weighting)	L_{pc} (L_{pc} = peak acoustic pressure level)
1	78 dB(A)	88 dB(C)
2	74 dB(A)	85.5 dB(C)
3	71 dB(A)	80 dB(C)

When marking resonant parts (metallic, hollow, thin), wear hearing protection for sound levels L_{Aeq} > 85 dB(A) or L_{pc} > 137 dB(C).

Similar results for XF510Cr/Dr machines.

To contact the GravoTech Group

www.technifor.com

FRANCE GravoTech Marking SAS 114, quai du Rhône 01708 MIRIBEL Cedex Tel.: 33 (0)4 78 55 85 85 Fax: 33 (0)4 78 55 22 94 E-mail: tf@technifor.com	U.S.A. GravoTech Inc. 9800-J Southern Pine Boulevard CHARLOTTE, NC 28273 Tel.: (1) 704 525 5230 Fax: (1) 704 525 5240 E-mail: tfinc@usa.technifor.com	ENGLAND Gravograph UK Ltd Unit 3 Trojan Business Centre Tachbrook Park Estate LEAMINGTON SPA CV34V 6RH Warwickshire Tel.: (44) 19 26 88 44 22 Fax: (44) 19 26 88 31 05 E-mail: sales@ltd.technifor.com
SPAIN Technifor Marcadores Industriales SL C/ Sant Iscle, 29 bajos B 08031 BARCELONA Tel.: (34) 93 407 07 51 Fax: (34) 93 407 17 26 E-mail: tfsl@sl.technifor.com	GERMANY GravoTech GmbH Am Gansacker 3a 79224 UMKIRCH Tel.: (49) 76 65 / 50 07-0 Fax: (49) 76 65 / 61 36 E-mail: tfgmbh@gmbh.technifor.com	ITALY GravoTech Italia Srl Via Rivera, 138 10040 ALMESE (TO) Tel.: (39) 011 935 27 14 Fax: (39) 011 934 59 42 E-mail: info@technifor.it
BENELUX Gravograph Benelux Molenberglei 16 2627 SCHELLE Tel.: (32) 3 880 6200 Fax: (32) 3 888 1997 E-mail: info@gravograph.be	AUSTRIA GravoTech GmbH Gewerbepark 4 3202 HOFSTETTEN Tel.: (43) 27 23 78 568 Fax: (43) 27 23 78 562 E-mail: sales@gravograph.at	SWITZERLAND Gravograph Switzerland Champ Olivier 2 Ch 3280 MORAT Tel.: (41) 26 678 7200 Fax: (41) 26 678 7222 E-mail: sales@gravograph.com.ch
POLAND GravoTech Sp. z o.o. ul. Kobierzycka 20 PL 52-315 WROCŁAW Tel.: (48) 71 796 04 01 Fax: (48) 71 796 04 02 E-mail: infopl@technifor.com	SWEDEN GravoTech Nordrad AB Vretenborgsvägen, 28 SE-126 30 HÄGERSTEN Tel.: (46) 8 658 15 60 Fax: (46) 8 658 15 64 E-mail: info@gravotech.se	TURKEY GravoTech STI Turkey Atiye Hanım Sokak No. 2 34752 İÇERENKÖY / İSTANBUL Tel: (90) 216 577 64 54 Fax: (90) 216 574 56 02 E-mail: info@tr.gravotech.com
CHINA GravoTech Engraving Equipment Co. Ltd N. 3388 Humin Road, Minhang District SHANGHAI 201108 Tel.: (86) 21 / 51 59 18 28 Fax: (86) 21 / 51 59 18 23 E-mail: sales-cn@cn.gravotech.com	MALAYSIA GravoTech Sdn Bhd No. 29, Jalan Puteri 5/10 Bandar Puteri 47100 PUCHONG, SELANGOR Tel.: (60) 3 80 685512 & 80 683512 Fax: (60) 3 80 612513 E-mail: sales@gravograph.com.my	JAPAN GravoTech KK 1-25 Takahata-Cho NISHINOMIYA-SHI HYOGO 663-8202 Tel.: (81) 798 63 7325 Fax: (81) 798 63 6280 E-mail: tfkk@jp.technifor.com
SINGAPORE Gravograph Singapore Pte Ltd #06-09 8 @ Tradehub 21 8 Boon Lay Way 609964 SINGAPORE Tel.: ((65) 6316 1512 Fax: (65) 6316 1513 E-mail: sales@gravograph.com.sg	SOUTH KOREA GravoTech Ltd #304-2, Hanshin IT Tower 2, 60-18, Gasan-dong Geumcheon-gu 153-801 SEOUL Tel.: (82) 2 2025 3791 Fax: (82) 2 2025 3793 E-mail: sales@kr.gravotech.com	INDIA GravoTech Engineering PVT Ltd Gat No 2323/1, "Reality Warehousing" Nagar Road PUNE WAGHOLI 412 207 Tel.: (91) 20 / 41030000 Fax: (91) 20 / 41030010 E-mail: infotechnifor@in.gravotech.com
AUSTRALIA Gravograph Australia Unit 3, 7-11 South Street RYDALMERE N.S.W. 2116 Tel.: (61) 29 684 2400 Fax: (61) 29 684 2500 E-mail: sales@gravograph.com.au	MEXICO GravoTech S. DE R.L DE C.V Leibnitz No 276 Col. Anzures Del. Miguel Hidalgo C.P. 11598 MEXICO Tel.: (52) 55 5357-2766 / 67 Fax: (52) 55 5357-2765 E-mail: nparizon@gravograph-newhermes.com	BRAZIL Technifor Pictor Ltda Av. Dr. Luis Arrobas Martins, 98 04781-000 - SAO PAULO SP Tel.: (55) 11 5541 74 93 Fax: (55) 11 5541 74 93 E-mail: vendas@ltda.technifor.com