



User manual

用户手册



NANOGUN-MX and GNM 6080 NANOGUN-MX 和 GNM 6080 versions LR - HR LR - HR 型号

SAS SAMES Technologies. 13 Chemin de Malacher - Inovallée - CS 70086 - 38243 Meylan Cedex France Tel. 33 (0)4 76 41 60 60 - Fax. 33 (0)4 76 41 60 90 - www.sames.com

SAS SAMES Technologies 13 Chemin de Malacher - Inovallée - CS70086 - 38243 Meylan Cedex France 电话 33 (0)4 76 41 60 60 - 传真 33 (0)4 76 41 60 90 - 网址: www.sames.com

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Training Department: Tel.: 33

(0)4 76 41 60 04

培训部电话: 33 (0)4 76 41 60 04

E-mail : formation-client@sames.com

邮箱: formation-client@sames.com

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Index revision: A 索引版本: A	2	7115
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NANOGUN-MX and GNM 6080

NANOGUN-MX 和 GNM 6080

versions LR - HR

LR - HR型号

1. Product identification	5
1. 产品标识	5
1.1. Version identification	5
1.1. 版本标识	5
1.1.1. On the gun barrel	5
1.1.1. 枪身标志	5
1.1.2. On the lower part of the gun handle	5
1.1.2. 把手下端标志	5
1.2. GNM 6080 control module	6
1.2. GNM 6080 控制模块	6
2. Health and safety guidelines	7
2. 健康和安全管理指南	7
2.1. Regulations	7
2.1. 法规	7
2.2. Installation rules	7
2.2. 安装规程	7
2.3. Rules of use	8
2.3. 使用规则	8
2.4. Maintenance rules	9
2.4. 维修规程	9
2.4.1. Products used	10
2.4.1. 使用物品	10
3. Description of spray gun and GNM 6080 control module	11
3. 喷枪说明和GNM 6080控制模块	11
3.1. Functions available based on this gun	11
3.1. 喷枪功能	11
3.2. GNM 6080 control module	12
3.2. GNM 6080 控制模块	12
4. Technical characteristics	14
4. 技术特点	14
4.1. General characteristics of the guns	14
4.1. 喷枪性能	14
4.2. Characteristics of the GNM 6080	16
4.2. GNM 6080性能	16
4.3. Characteristics of the compressed air	16
4.3. 压缩空气性能	16
5. Operations	17
5. 操作规程	17

6. Specific tooling	18
6. 特殊工具	18
6.1. Use of the multipurpose wrench	20
6.1. 多功能用途扳手的使用	20
7. Installation	21
7. 安装	21
8. Use	22
8. 使用	22
8.1. Recommendations regarding the paint to use.....	22
8.1. 涂料使用建议	22
8.1.1. Viscosity	22
8.1.1. 粘度	22
8.1.2. Resistivity	22
8.1.2. 电阻率	22
8.1.3. Flash point	22
8.1.3. 闪点	22
8.2. Spraying rules.....	23
8.2. 喷雾要领	23
9. Examples of poor equipment use.....	24
9. 设备使用不当的案例	24
10. Maintenance	25
10. 维修	25
10.1. Summary table of preventive maintenance.....	25
10.1. 预防性维护规程汇总表	25
10.2. Electro-pneumatic coupling.....	26
10.2. 电一气耦合.....	26
10.3. Paint hoses	27
10.3. 涂料软管.....	27
10.3.1. Paint hose - Version QD (HR)	27
10.3.1. 涂料软管—QD (HR)型号	27
10.3.2. LR paint hose.....	28
10.3.2. LR涂料软管.....	28
10.4. Spraying head assembly	29
10.4. 喷枪枪头组件	29
10.5. Barrel	30
10.5. 枪筒.....	30
10.6. Paint nozzle needle.....	31
10.6. 喷嘴和枪针.....	31
10.7. Switch	32
10.7. 开关.....	32

10.8. Trigger	32
10.8. 扳机	32
10.9. Air valve	33
10.9. 空气阀	33
10.9.1. Repairing the air valve	34
10.9.1. 空气阀的维修	34
10.10. Fastening hook	35
10.10. 固定挂钩	35
10.11. High-voltage cascade	36
10.11. 高压级联连接	36
10.12. Barrel	37
10.12. 枪筒	37
10.13. Handle	38
10.13. 把手	38
10.14. Electrical diagrams	39
10.14. 电气图	39
10.14.1. GNM 6080 / NANOGUN-MX connection cable	39
10.14.1. GNM 6080 / NANOGUN-MX接口电线	39
10.14.2. GNM 6080 trigger cable	39
10.14.2. GNM 6080扳机电线	39
11. Cleaning	40
11. 清洁	40
11.1. Cleaning of the product circuit	40
11.1. 清洁产品电路	40
11.2. Cleaning of the gun	40
11.2. 喷枪清洁	40
11.3. Elimination of wastes	40
11.3. 废弃物处理	40
11.4. Dismantling and Recycling	41
11.4. 拆卸和回收	41
11.4.1. NANOGUN-MX	41
11.4.1. NANOGUN-MX	41
11.4.2. GNM 6080	43
11.4.2. GNM 6080	43
12. Common malfunctions and repairs	44
12. 常见问题与维修	44
13. Spare parts	46
13. 备品备件	46
13.1. NANOGUN-MX guns for both high resistivity (HR) and low resistivity (LR) solvent-based paints	46
13.1. 适用于高电阻 (HR) 和低电阻 (LR) 溶剂型涂料的NANOGUN-MX 喷枪	46
13.1.1. The nozzles as an option	49
13.1.1. 可选喷嘴	49
13.1.2. Fitted air cap ring	49
13.1.2. 定制空气帽垫圈	49
13.2. NANOGUN-MX gun	50

13.2. NANOGUN-MX喷枪	50
13.3. Equipped seat casing	53
13.3. 底座套.....	53
13.4. Equipped adapter	53
13.4. 转接器.....	53
13.5. Equipped barrel	54
13.5. 枪筒.....	54
13.6. Equipped air valve and air valve Nut.....	55
13.6. 空气阀和空气阀螺母	55
13.7. Equipped needle.....	56
13.7. 枪针.....	56
13.8. Electro-pneumatic couplings	56
13.8. 电一气耦合.....	56
13.9. Paint hoses	57
13.9. 涂料软管.....	57
13.9.1. For NANOGUN-MX HR guns	57
13.9.1. NANOGUN-MX HR 喷枪用	57
13.9.2. For NANOGUN-MX LR guns.....	57
13.9.2. NANOGUN-MX LR 喷枪用.....	57
13.10. Nanogun MX seal kit	58
13.10. Nanogun MX 密封套件	58
13.11. GNM 6080 control module	59
13.11. GNM 6080 控制模块	59
13.12. Options for NANOGUN-MX guns	60
13.12. NANOGUN-MX 喷枪可选模块.....	60
13.13. Appendices.....	61
13.13. 附件.....	61
13.13.1. Hose protection casing	61
13.13.1. 软管保护套	61
13.13.2. Gun protection cover	61
13.13.2. 喷枪保护罩	61
13.13.3. Warning sign	61
13.13.3. 警告标志	61
13.13.4. Safety relief valve	61
13.13.4. 安全减压阀	61
14. The various versions	62
14. 各种型号	62
14.1. Equipment	62
14.1. 设备	62
14.2. Configurations	63
14.2. 配置.....	63

1. Product identification

产品标识

The NANOGUN-MX gun markings will allow differentiating between the 120-bar and the 200-bar model configuration.

NANOGUN-MX 喷枪可在 120bar 和 200bar 之间调节。

1.1 Version identification

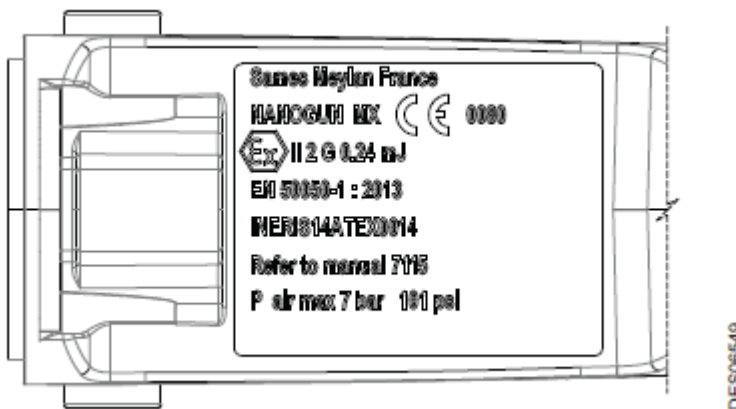
1.1 版本标识

1.1.1 On the gun barrel

1.1.1 枪筒

The marking on the barrel is the same across the entire NANOGUN-MX line.

NANOGUN-MX 全系列喷枪的枪筒上标注统一标识。

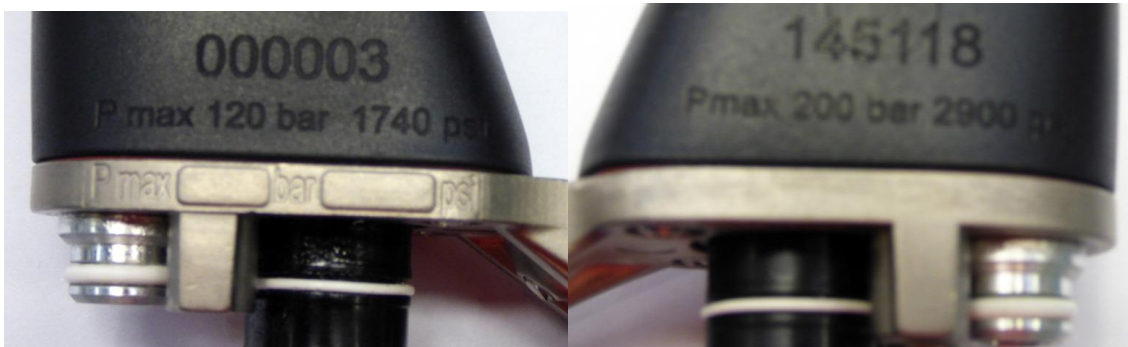


1.1.2. On the lower part of the gun handle

1.1.2. 把手下端标志

Serial no.

序列号



This marking combines, under a single number, the configurations of guns operating at the same level of pressure generation.

该标识位于数字下方，由喷枪在同等工作压力水平下的规格组成。

Pressure generated	工作压力	NANOGUN-MX
120 bar	120 bar	JP-LR; JP-HR JP-LR; JP-HR
200 bar	200 bar	JP-LR; JP-HR JP-LR; JP-HR

1.2. GNM 6080 control module

1.2. GNM 6080 控制模块

The **GNM 6080** control module has been installed outside of the “ATEX” zone. According to ATEX Directive definition, it is considered “accessory hardware”.

GNM 6080 控制模块安装在“ATEX”区域。根据定义，ATEX 属于“五金配件”

Markings

标识



CE marking

CE 标

Example: * 2014: Year of manufacturing 2

例如：*2014：生产年份

6: Week number

26: 第 26 周生产

123: nth generator built during week 26.

123: 第 26 周生产的第 123 件发电机。

WARNING : The Nanogun equipment are all compliant with the operational safety standard (i.e. Standard EN13849, level SIL 1); maintaining this level of safety requires periodic inspections of the equipment, at least once every 5 years or 15,000 hours of operations (whichever comes first). This control step pertains to each of the electrical and electronic components as well as to the set of very specific program(s); you should contact your subsidiary, distributor or regular Sames Technologies representative, who will inform you of the appropriate steps to take.

警告：Nanogun 设备完全符合生产安全标准（例如 EN13849 标准，等级 SIL 1）；要维持这一安全等级，需要每 5 年或每 15000 工作小时进行设备定期检查（取两者中时间较短的）。这一管控环节适合各电子电气组件和特定程序；应联系您的子公司、经销商或 Sames Technologies 联系代表，了解检查步骤。

2. Health and safety guidelines

2. 健康和安全指南

WARNING : This equipment may be hazardous if it is not used, disassembled and reassembled in accordance with the rules indicated in this manual and in any applicable Euro- pean Standard or national safety regulations.

警告：在违反本手册操作规范以及任意适用欧洲标准或国家安全规则的情况下使用、拆卸和组装本设备，将可能造成安全隐患。

The warning sign summarising the safety rules (procedures and precautions) of the present user's manual must be placed in a visible location within the zone of the coating product spraying station.

囊括最新用户手册所示的安全规则（规程和防范）的警告标识必须放置在涂料喷漆站区域内的显眼位置。

WARNING : The good working order of this equipment is only under warranty provided use of original spare parts distributed by "SAMES Technologies" companies.

警告：必须使用由“SAMES Technologies”公司销售的原装备件才能确保该设备的正常运转。

2.1 Regulations

2.1 法规

The **NANOGUN-MX** gun must always be used under the set of conditions required by current standards and rules as regards the application of paints and varnishes (see the Standards and Directive EN 50.053 Directive, Part 1 ISO 12100, EN 1953 and 99/92/CE).

NANOGUN-MX 喷枪的使用条件必须符合现行涂料和清漆应用法规标准（详见 EN 50.053 指令第一部分 ISO 12100、EN 1953 标准和 99/92/CE 指令）。

In **Canada**, the installation must comply with the Code "C22.1 Canadian Electrical Code, Part I, Safety Standard for Electrical Installations".

在加拿大使用时，该设备必须符合法规“《C22.1 加拿大电气设备安全条例》第一部分《电气装置安全标准》”的要求。

In the **United States**, the installation must comply with the Code "NFPA 70: National Electrical Code".

在美国使用时，该设备必须符合法规“NFPA 70：国家电气设备安全条例”的要求。

The **NANOGUN-MX** gun has been designed to operate within a 2nd-degree pollution environment, as defined according to the Standard IEC-664-1.

NANOGUN-MX 喷枪可用于 2 级污染环境中，污染等级界定参考 IEC-664-1 标准。

2nd-degree pollution: Under normal use conditions, only non-conductive type pollution arises. On a temporary basis, conduction caused by condensation may arise.

2 级污染：正常使用时仅出现非导电性污染。但需要考虑到由凝露造成短时的导电性。

WARNING : Before using the NANOGUN-MX gun, be sure that all operators:

警告：使用设备之前，确保所有操作员满足如下标准：

- have received preliminary training by the **Sames Technologies companies**, or by the Distributors they have certified for this purpose.

已接受 Sames Technologies 公司或具有相关资格的经销商进行的前期培训。

- have read and understood the user's manual as well as all installation and use rules listed below. **It is incumbent upon the Operators' Workshop Manager to ensure and verify that all operators have read and understood the user's manuals relative to peripheral electrical devices present within the**

spraying perimeter.

已经阅读并理解本用户手册所述内容，以及如下所有关于安装和操作规范。 公司车间主任应确认并核实所有操作员已阅读并理解本用户手册中关于喷涂工艺外围电气设备的内容。

2.2 Installation rules

2.2 安装规程

- The hand-held electrostatic projection equipment can only be used in designated projection spots in accordance with Standard EN 12215 or under equivalent ventilation conditions.
该手持静电喷射设备的使用场所必须符合 EN 12215 标准或在同等通风条件下使用。
- Install the control module **away from any explosive zone**.
在远离易爆区域的地点安装控制模块。
- Servo-control the control module start-up to the “on” position of the booth’s suction fan.
喷房抽风机的“启动”按钮采用伺服控制。
- Correctly connect the control module to the installation’s ground terminal.
正确连接控制模块与设备电面插头。
- Connect both the pump and paint (or solvent) tank to one of the installation’s ground terminals.
将泵和涂料（溶剂）罐与设备电面插头之一相连接。
- Connect to the ground all metal parts of the installation (paint pumps, containers, stools, spin coat- ers, etc.) positioned within three meters of the gun.
将设备的所有金属部件（涂料泵、罐、台、匀胶机等）进行接地，并安装在距离喷枪 3 米以内的地方。
- Keep the spray zone clean and free of all unnecessary components.
保持喷涂区域干净，清除不必要的部件。
- The floor where the operator works must be antistatic (either unclad concrete flooring or a metal grating). Never cover the floor with an insulating covering. In potentially explosive locations, the floor assemblies must be antistatic, in accordance with Standard EN 61340-4-1.
操作员工作的地面必须是抗静电材料（裸混凝土地板或金属栅板）。禁止在地面上覆盖绝缘层。根据 EN 61340-4-1 标准规定，具有爆炸隐患的场所中，地板必须具有抗静电的功能。

- The use inside the booth of an uncovered flame, any incandescent object, a device or object capable of generating sparks other than the gun is strictly prohibited.
喷房中严禁使用明火、任何白炽光源，以及可产生火花的设备或物品（除喷枪以外）。
It is also prohibited to store in the vicinity of the booth or in front of the doors flammable products or containers in which such products had been stored.
喷房附近和门口禁止存放易燃物品或存有易燃物的容器。
- The jars and cans containing paint or solvent must be systematically closed after use.
储存涂料或溶剂的瓶罐必须在使用后统一关紧。
- The paint feed pump used must be rated with a maximum 1:1 ratio, and the pump's air supply must be equipped with a safety relief valve to limit pressure to a maximum value of 6.5 bar.
涂料供应泵的额定压力比不得超过 1: 1，泵的输气管必须安装安全阀，将气压控制在 6.5 bar 以下。
- **Inside the explosive zone**, it is prohibited to use electrical or non-electrical equipment that has not been certified, like electrical extension cables, surge protector power bars, switches, etc.
易爆区域内禁止使用未经认可的电气或非电气设备，如延长电线、浪涌保护器、开关等。

2.3 Rules of use

2.3 使用规则

- Verify the extraction ventilation system efficiency on a daily basis.
每日检查通风系统的工作效率。
- Once a week, verify the adequate operations of the ventilation system servo controls.
每周检查通风系统的伺服控制情况。
- Before starting to spray, be sure the gun contains a nozzle and an air cap, and moreover verify that the air cap ring has been perfectly clamped.
开始喷涂前，确保喷枪上已安装喷嘴和空气帽，并检查空气帽垫圈是否完全夹紧。
- Correctly ground all metal parts of the booth, along with the parts to be painted. The resistance relative to the ground must be less than or equal to 1MΩ (for a 500-V voltage measurement). This resistance must be regularly checked and, in any case, at least once a week.
将喷房中的所有金属部件以及待加工件进行正确接地。接地电阻不得超过 1MΩ（500V 电压测量）。必须定期测量接地电阻，至少每周一次。
- The operator must wear antistatic shoes in accordance with Standard EN 61340-4-3 and moreover hold the **NANOGUN-MX** gun either with a bare hand or with antistatic gloves or gloves modified so as to establish a direct contact between the handle and his/her hand. The shoes intended to be worn by the operator must be compliant with Standard ISO 20344. The measured insulation resistance must not exceed 100MΩ
根据 EN 61340-4-3 标准规定，操作人员必须穿戴防静电鞋，用来把持 NANOGUN-MX 喷枪的手无需戴手套，也可戴上防静电手套或可直接接触到手部的特殊手套。操作人员所穿的工作鞋必须符合 ISO 20344 标准的要求。测量到的绝缘电阻不得超过 100MΩ。
- The protective clothing intended to be worn, including gloves, must be compliant with Standard EN 1149-5. The measured insulation resistance must not exceed 100MΩ
操作人员所穿戴的手套等衣物，必须符合 EN 1149-5 标准的要求。测量到的绝缘电阻不得超过 100MΩ。
- The operator must also wear ear defenders when using the guns
操作人员在使用喷枪时还必须配戴护耳设备。
NANOGUN-MX (see § 4 page 14).
NANOGUN-MX (请参见§ 4 第 14 页)。
- Ensure that anyone entering the spray zone is wearing the antistatic shoes or has been grounded by any other means.
确保进入喷涂区的每个人都穿好防静电鞋或做好接地措施。
- Never throw or intentionally allow the electrostatic gun to fall. A gun drop could damage the high-voltage generator. After a fall, it is advised to verify the good working order of the gun outside of the zone before its subsequent reuse.
禁止投掷或故意使静电喷枪掉落。喷枪掉落可能会造成高压发电机的损坏。喷枪掉落，建议再次使用前在区域外检查喷枪是否能够正常运行。
- Never point the gun in the direction of another person.

禁止将喷枪对准有人的地方。

- **Verify the gun at least once a week.**
至少每周对喷枪进行检查。
- **Refrain from using the equipment in the following cases:**
如出现以下情况，请勿使用设备：
 - 1 **If an air leak is observed around the gun when the trigger is released;**
松开扳机后察觉到喷枪周围有空气泄漏；
 - 2 **If the gun's electrical connector is not being securely held in place by means of the two safety screws;**
喷枪的电接头未用两颗螺丝钉进行固定。
 - 3 **If the gun barrel and handle show signs of a shock capable of altering the seal on the gun's internal parts.**
枪筒和把手上出现震动，足以影响喷枪内部零件的密封效果。
- **The manual electrostatic projection device can only be operated if it is in perfect condition. Any damaged equipment must be immediately removed from active service and repaired.**
该人工静电喷射设备必须在完好无损的情况下才可使用。若出现任何损坏，必须立即停止使用进行维修。
Worn parts must be immediately replaced.
磨损零件必须立即更换。
- **Only use paints whose flash point is at least 15°C higher than room temperature.**
必须使用闪点高于室温 15°C 以上的涂料。
- **Closely follow use guidelines for the paints and solvents being applied (e.g. wear a mask).**
完全按照涂料和溶剂应用指南进行操作（例如，佩戴面罩）。
- **Close and purge both the air and paint inlet prior to any extended equipment downtime.**
长时间停机前，应清洗并关闭空气和涂料的入口。
- **Verify the good working order of the paint hose prior to any equipment start-up.**
设备启动前，检查涂料软管是否工作正常。
- **The electro-pneumatic link connector, secured by means of two screws, **MUST NEVER BE DISCONNECTED WHILE IN AN EXPLOSIVE ATMOSPHERE.****
电-气接头由两颗螺丝钉固定，并且禁止在爆炸性气体环境下断开接头。
- **Use of the equipment must imperatively cease if any of the following elements barrel, handle, electro-pneumatic connector, air cap or air cap ring is damaged.**
若枪筒、把手、电气接头、空气帽或空气帽垫圈出现损坏，应立即停止使用。

2.4 Maintenance rules

2.4 维修规程

- Regularly maintain and repair the electrostatic projection equipment according to the instructions contained in this user's manual.
按照本用户手册的说明定期维护和修理静电喷射设备。
- Only use metal containers to hold the cleaning liquids and connect to ground according to a safe procedure.
清洁液必须用金属容器储存，并按照安全规程做好接地措施。
- Before any maintenance procedure:
任何维修程序前，应做好以下几点：
 - 1 Turn off the control module.
关闭控制模块。
 - 2 Verify that the air and paint circuits are no longer pressurised.
确定空气和涂料循环系统不再处于增压状态。
 - 3 Bleed the paint circuit.
将涂料循环系统排尽。
 - 4 All energy sources must be locked out.
必须锁定关闭所有电源。
- Clean the gun either in their dedicated spots with mechanical ventilation or by using cleaning liquids with a flash point at least 15°C higher than ambient temperature.
在装有机械通风设备的指定地点，或使用闪点高于室温 15°C 以上的清洁剂进行喷枪清洁工作。
- Opt to use non-flammable cleaning products.
选择使用不易燃的清洁剂产品。
- Do not restore electrical power supply as long as the air cap and nozzle have not been correctly remounted onto the gun.
空气帽和喷嘴未正确装回枪身前不得重启电源。
- Never soak or immerse the gun in the solvent. The operator is able, as needed, to use a cloth soaking in solvent in order to clean the gun and then immediately dry it to avoid solvent from entering the gun.
禁止用溶剂浸湿喷枪，或将喷枪没入中溶剂。如有需要，操作人员可将浸有溶剂的清洁布来清洁枪身，并立即擦干，以免溶剂进入喷枪内部。

WARNING : Never spray solvent when the control module is turned on and/or when the switch placed at the back of the gun is in the "I" position.

警告： 禁止在控制模块开启和/枪身后部开关位于“I”时喷射溶剂。

WARNING : Shutting off the compressed air supply line does not prohibit triggering high voltage should the trigger be activated.

警告： 关闭压缩空气供应线路，不能保证扣压扳机后不产生高压。

The operator must have been trained by a Sames Technologies company or else by the Distributors it has certified for this purpose, in order to carry out the **NANOGUN-MX** gun maintenance operations.
为了进行 NANOGUN-M 喷枪的维修操作，操作人员必须经过 Sames Technologies 公司或具有相关资格的经销商进行的培训。

WARNING : It is strictly prohibited to use solvents derived from halogenated hydrocarbons as well

as products containing these solvents in the presence of aluminium or zinc. Failure to comply with these guidelines exposes the user to the risks of explosion.

警告： 严禁使用以卤代烃为原料制备的溶剂，以及同时含有卤代烃和铝/锌的产品。未遵守以上说明可能会给操作人员带来爆炸隐患。

2.4.1 Products used

2.4.1 使用物品

Given the diversity of products used and the impossibility to inventory the characteristics of these products, Sames Technologies cannot be held liable for:

考虑到使用产品的多样性，无法一一列举产品特性，因此 Sames Technologies 对以下情形不负责任：

- for any incompatibility in the materials of products used whenever they come into contact with the materials listed below:

直接接触以下材料时出现的不相容性：

- **Stainless steel**
不锈钢
- **Fluoro-Ethylene-Propylene (FEP)**
氟化乙烯丙烯共聚物 (FEP)
- **Polyamide Imide (PAI)**
聚酰胺酰亚胺 (PAI)
- **Polyoxymethylene (POM)**
聚甲醛(POM)
- **Tungsten carbide and tungsten**
碳化钨和钨
- **PTFE elastomer**
聚四氟乙烯弹性体 (PTFE)
- **Polypropylene**
聚丙烯
- **IXEF**
IXEF
- **Glass fibre**
玻璃纤维
- **Ceramic**
陶瓷
- **Aluminium**
铝
- **Titanium**
钛
- **PEEK**
聚醚醚酮 (PEEK)
- **PEHD and PEBD**
PEHD 和 PEBD
- **Chemically inert rubber**
惰性橡胶
- **Risks related to the use of these products on both personnel and the environment.**
若使用以上产品，可能会对操作人员及环境均产生危害。
- **Wear, misalignment, equipment or machine malfunction as well as subpar quality of the application caused by use of these products.**
使用这些产品，可能导致零件磨损、偏移、设备或机器故障，以及操作效果欠佳。

3. Description of spray gun and GNM 6080 control module

喷枪说明和 GNM 6080 控制模块

The **NANOGUN-MX** guns are intended to spray paint or varnish, whose resistivity exceeds 0.5 MΩ.cm, to the exclusion of all other paints.

NANOGUN-MX 喷枪适用于电阻率超过 0.5 MΩ.cm 的涂料和清漆的喷涂，其它涂料不得使用。

The LR configurations may also spray water-soluble paints or varnishes provided they have been fitted with the appropriate product feeding systems. The use of any other type of paint is excluded.

LR 规格的喷枪还可用于喷射水溶性涂料或清漆，前提是有这些产品适用的进料系统。不得使用其它类型的涂料。

The **NANOGUN-MX** guns will be connected to the **GNM 6080** control module.

NANOGUN-MX 喷枪将与 GNM 6080 控制模块相连接。

The versions of the **NANOGUN-MX** line are distinct by the base, the paint hose and the allowable product pressure.

NANOGUN-MX 系列不同型号的产品区别在于底座、涂料软管和适用的工作压力范围。

	Characteristics 特性
NANOGUN-MX 120 7.5 NANOGUN-MX 120 7.5	Flat spray - 120 bar hose 7.5 m 扁平雾流 - 120 bar hose 7.5 m
NANOGUN-MX 120 15 NANOGUN-MX 120 15	Flat spray - 120 bar hose 15 m 扁平雾流 - 120 bar hose 15 m
NANOGUN-MX 120 30 NANOGUN-MX 120 30	Flat spray - 120 bar hose 30 m 扁平雾流 - 120 bar hose 30 m
NANOGUN-MX 200 7.5 NANOGUN-MX 200 7.5	Flat spray - 200 bar hose 7.5 m 扁平雾流 - 200 bar hose 7.5 m
NANOGUN-MX 200 15 NANOGUN-MX 200 15	Flat spray - 200 bar hose 15 m 扁平雾流 - 200 bar hose 15 m
NANOGUN-MX 200 30 NANOGUN-MX 200 30	Flat spray - 200 bar hose 30 m 扁平雾流 - 200 bar hose 30 m

3.1 Functions available based on this gun

3.1 喷枪功能



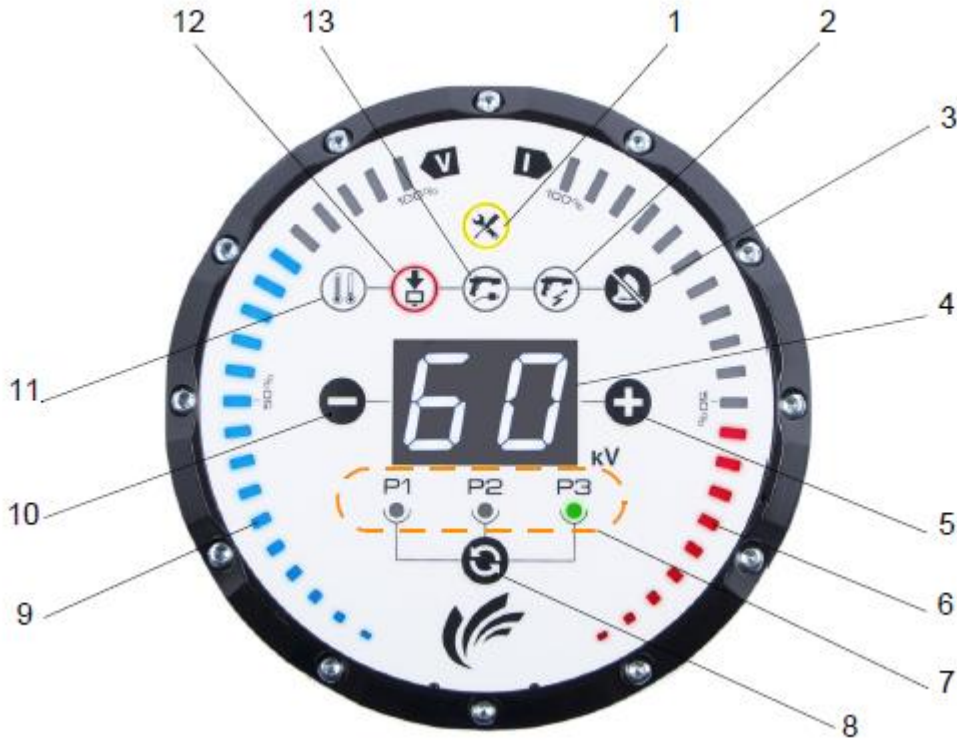
- The switch (Rep. 1) allows turning on or off the high voltage supply.
开关（1）， 可用于开关高压电源。
When this switch is placed in position " I ", activating the trigger turns on the high voltage.
当这一开关置于" I "时， 扣压扳机即启动高压电源。
When this switch is placed in position " 0 ", activating the trigger does not turn on the high voltage.
当这一开关置于" 0 "时， 扣压扳机时不会启动高压电源。
- **The detented knob in back of the gun (Rep. 2) must always be held in place (clockwise); it does not influence the paint flow rate.**
枪身后部的旋钮（2）必须旋紧（顺时针）； 它不会影响涂料的流速。
- The side detented knob (Rep. 3) serves to adjust the spray dimension. Its action will become even weaker as product pressure rises.
枪身侧面的旋钮（3） 可用于调节喷射面积。 随着工作压力上升， 扭转该旋钮的难度增加。

3.2 GNM 6080 control module

3.2 GNM 6080 控制模块

The **GNM 6080** control module serves to display the use parameters along with their settings.

GNM 6080 控制模块可用来显示使用参数以及喷枪的设置。



Front side of the GNM 6080 control module

GNM 6080 控制模块正面

1	Maintenance indicator light 指示灯维护
2	High voltage default indicator light 默认高压指示灯
3	Acknowledgement of defaults 确定默认参数
4	Display of the voltage set point 显示电压设置水平
5	Increase of the voltage set point 上调电压设置水平
6	Bar graph of current consumption 现阶段消耗量柱状图
7	Active, preset memory indicator lights 现用参数组/预设参数组指示灯
8	Selection of the active memory 选择现用参数组
9	Voltage bar graph 电压柱状图
10	Decrease in the voltage set point 下调电压设置水平
11	Temperature default indicator light 默认温度指示灯
12	Generator default indicator light 默认静电发生器指示灯
13	Low-voltage cable default indicator light 默认低压电线指示灯



Temperature default: The temperature default forces the indicator lights (Rep. 11 and 12). Once the temperature drops below the minimum, the temperature indicator light (Rep. 11) shuts off, and the operator has the option of deleting the default by pressing the “Default Acknowledgement” button (Rep. 3). **默认温度:** 达到默认温度, 指示灯亮起 (11 和 12)。一旦温度低于默认

温度: 达到默认温度, 指示灯亮起 (11 和 311) 一旦温度低于默认

范围，温度指示灯（11）熄灭，这时操作人员可按下“默认值确认”键，选择删除默认参数。 3).



Generator default: This default combines all internal generator defaults. If it is impossible to acknowledge this default, the problem would require a service call by the repairs department, please contact Sames Technologies. **默认静电发生器：**这套默认值包括了所有内部静电发生器的默认参数。无法进行默认参数的确认，必须由维修部门人员上门服务。请联系 Sames Technologies。



Low-voltage connection default: The generator fails to detect or no longer detects the presence of the gun. After shutting off the power supply, verify the gun/generator connection. **默认低压连接:** 静电发生器无法探测到喷枪的存在, 或停止探测。关闭电源后, 检查枪身/静电发生器接口是否连接正常。



High-voltage default: Defaults specific to gun operations related to the high voltage: **默认高压连接:** 专用于高压操作的默认参数。

- Generator service start-up with the trigger activated. 扣压扳机即启动发机动。
- Demand for a abrupt current surge during high-voltage operations. 高压操作中需要电流冲击。
- Defective operations of the high-voltage cascade. 高压级联连接的防范操作。



Maintenance indicator light: This indicator light turns on (orange) once the trigger has been pulled 800,000 times or after 1,000 hours of gun operations ([see § 10.1 page 25](#)).

维护指示灯: 扣压扳机次数达到 **80** 万次, 或喷枪工作时间超过 **1000** 小时后, 该指示灯亮起 (橙色)。请参见第 25 页 § 10.1

This indicator light in the on position notifies that the gun is in need of a maintenance visit. No specific maintenance on the GNM 6080 module.

该指示灯可用作喷枪维护提醒。GNM 6080 模块无需特别维护。

The generator is capable of managing up to 20 different guns. 静电发生器可同时为 20 支不同的喷枪供应电能。



Side face of the GNM 6080 control module
GNM 6080 控制模块侧面

12	Gun cable connector 喷枪电线接口
13	Connector for external cabling 外部电线接口
14	On/off switch 开关键
15	Power supply 电源

16	Ground connector 接地口
17	Pressure balancing membrane 压力平衡膜
18	Diagnostic outlet (mini USB type) 诊断接口 (mini USB)

4 Technical characteristics

4 技术特点

4.1 General characteristics of the guns

4.1 喷枪性能

	120	200
Type of spray 喷雾类型	Flat 扁平	
Original nozzle assembled 装上原装喷嘴	09	
Maximum incoming paint pressure 最大涂料进入压力	120 bar 120 bar	200 bar 200 bar
Incoming compressed air pressure 压缩空气输入压力	6 bar ± 1 bar 6 bar ± 1 bar	
Min/max ambient temperature 最低/最高环境温度	0°C - 40°C 0°C ~ 40°C	
Maximum water flow rate 最大液料流量	See table below 见下表	
Spray width at 25 cm 喷雾宽度 25cm	See table below 见下表	
Air flow rate, in Nm ³ /h 空气流量 Nm ³ /h	10.3 - 25.2	
Acoustic pressure 声压	90 dB(A) 90 分贝(A)	
AFNOR Cup No. 4 suggested paint viscosity AFNOR 粘度杯 No. 4 表示涂料粘度	20 s to 120 s 20 s - 120 s	
Space requirements 空间需求	305 x 220 x 52	305 x 220 x 52
Mass (without either the hose or the cable) 重量 (不含软管和电线)	595 g 595 g	
Output voltage 输出电压	60 kV maximum [+0 kV; -1.5 kV] (adjustable on GNM 6080) 最高电压 60 kV [+0 kV; -1.5 kV] (可在 GNM 6080 上调节)	
Output current 输出电流	80 A maximum 最大电流 80 A	
Output current in a short-circuit 短路输出电流	< 20 A < 20 A	
Input voltage of the high-voltage cascade 高压级联连接的输入电压	45 V AC maximum 最高电压 45 V AC	
Input current of the high-voltage cascade 高压级联连接的输入电流	300 mA maximum 最大电流 300 mA	
Air coupling 空气耦合	1/4 NPS - F	1/4 NPS - F
Paint coupling 涂料耦合	1/2 JIC - F	1/2 JIC - F
Paint resistivity 涂料电阻	10 MΩ cm < < 500 MΩ cm Version QD (high resistivity) 10 MΩ cm < < 500 MΩ cm QD 型 (高电阻) 0.5 MΩ cm < 500 MΩ cm (low resistivity) 0.5 MΩ cm < 500 MΩ cm (低电阻)	
Electrical functions available on the gun 喷枪上可用的电气功能	High-voltage On / Off switch 高压开关	
Electrical / pneumatic connector 电/气接口	The electro-pneumatic connector, secured by means of two screws. 电-气接头, 两颗螺丝钉固定。 MUST NEVER BE DISCONNECTED IN AN EXPLOSIVE ATMOSPHERE 严禁在爆炸性气体环境下断开接头。	
Maximum operating altitude 最大工作海拔高度	2,000 m 2,000 米	
Maximum relative humidity of 80% for 31°C 下最大工作相对湿度 80%, 然后随着温度上升呈线性下降, 40°C 下最大工作相对湿度降至 50%。 temperatures of up to 31°C, then linear decrease until 50% relative humidity at 40°C	Maximum of 80% without condensation 无凝露的情况下, 最大工作相对湿度可达 80%	
Surface temperature 表面温度	T6 T6	
Protection index 保护指数	IP 54 IP 54	

Transport / Storage 运输/存放			
Time spent in storage 存放时间		Max. 2 years 最长 2 年	
Min/max storage temperature 最低/最高存放温度		-10°C + 45°C	-10°C + 45°C
Humidity 湿度		95% without condensation 无凝露的情况下为 95%	
Min. pressure 最低压力		750 mbar	750 mbar
Exposure to UV rays 暴露于紫外光照射下		Stored out of direct light 避免光线直射	
Exposure to ionising radiation 暴露于电离辐射		Not accepted 不接受	

Gauge 尺寸	Flow rate (in cc/min) 流量(in cc/min)			Width, in 宽度 (cm) cm 厘米
	at 70 bar 70 bar	at 120 bar 120 bar	at 200 bar 200 bar	
04-11	220	290	380	25
04-13	220	290	380	29
06-09	330	430	570	21
06-11	330	430	570	25
06-13	330	430	570	29
06-15	330	430	570	33
09-09	450	590	770	21
09-11	450	590	770	25
09-13	450	590	770	29
09-15	450	590	770	33
12-11	600	790	1030	25
12-13	600	790	1030	29
12-15	600	790	1030	33
14-09	720	940	1230	21
14-11	720	940	1230	25
14-13	720	940	1230	29
14-15	720	940	1230	33
14-17	720	940	1230	37

WARNING : The flow rate measurements were conducted with water.

警告：流量参数是以水为介质 测量出来的。

The width of the impact is measured at a distance of 25 cm (10 inches).

喷射宽度是距离待加工物 25cm (10 英寸) 时测量出来。

4.2 Characteristics of the GNM 6080

4.2 GNM 6080 性能

Category II installation (in accordance with Standard EN61010-1).

第 II 类装置 (根据 EN 61010-1 标准)。

General 一般特性	
Mass 质量	1.7 kg 1.7 kg
Space requirements 空间需求	Diameter: 168 mm 直径: 168mm
	Height: 91 mm 高度: 91mm
Operating temperature 工作温度	0 - 40°C 0 - 40°C
GNM 6080 input GNM 6080 输入	
Voltage 电压	88 - 264 V AC 88 - 264 V AC
Frequency 频度	50 - 60 Hz 50 - 60 Hz
Maximum current 最大电流	0.25 A 0.25 A
Maximum power 最大功率	25 V.A 25 V.A
GNM 6080 output GNM 6080 输出	
Voltage 电压	40 V RMS 40 V RMS
Current 电流	200 mA RMS 200 mA RMS

WARNING : The GNM 6080 automatically adapts to the power supply voltage.

警告： GNM 6080 可自动适应电源电压。

4.3 Characteristics of the compressed air

4.3 压缩空气性能

Required characteristics of the compressed air supply according to Standard NF ISO 8573-1

压缩空气供应要求 (根据 NF ISO 8573-1 标准)

Characteristics 特性	Value 参数值
Maximum dew point at 6 bar (87 psi) 压力在 6 bar(87 psi)下的露点	Category 4, i.e. +3°C (37° F) 第 4 类, 即 +3°C (37° F)
Maximum particle size distribution of the solid pollutants 排放物质	Category 3, i.e. 5 m 第 3 类, 即 5 m
Maximum oil concentration 最大油脂含量	Category 1, i.e. 0.01mg / m ³ * 第 1 类, 即 0.01mg / m ³ *
Maximum concentration of solid pollutants 固态污染物的最大浓度	5 mg / m ³ * 5 mg / m ³ *

(*): The values are given for a temperature of 20°C (68°F) at atmospheric pressure.

(*) : 该数值的测定条件为温度 20°C(68°F)和常压

5 Operations

5 操作规程

Pressing the trigger serves to delay the order to open the air valve, then activation of the high voltage, and lastly the paint nozzle needle. The high-voltage order may be inhibited by shifting the gun switch.

扣压扳机的作用是，先延迟开启空气阀，再启动高压电流，最后是涂料喷嘴针阀。可通过喷枪开关换档来取消高压启动

The **NANOGUN-MX** gun is equipped with a magnetic sensor that detects the trigger position. This sensor serves to activate the high-voltage power supply once the air valve returns to a value lying between 1 and 1.8 mm.

NANOGUN-MX 喷枪装有磁性传感器，可探测扳机位置。该传感器的作用是，在空气阀回到 1-1.8 mm 范围内即可激活高压电源。

- The button located in back of the gun does not serve to adjust the paint flow rate; nonetheless, it is possible to adjust it by modifying the nozzle gauge and/or the incoming product pressure.

枪身后部的按钮不具有调节涂料流量的功能；但可通过改变喷嘴尺寸和/或进料压力来调节。

- The side button serves to adjust the jet dimension within a range that narrows as the product pressure increases.

侧面按钮的功能是调节喷射面积，喷射形状随产品压力上升而变窄。

- Clamped screw: large impact.

旋紧：冲击力大

- Loosened screw: reduced impact.

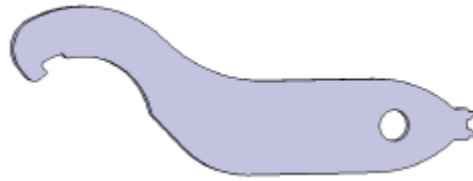
旋松：冲击力减小

- In order to modify the jet dimension, it is necessary to change the nozzle.

如需调整喷射面积，应调节旋钮。

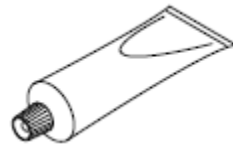
6 Specific tooling

6 特殊工具



DES06505

Part Number 零件号	Designation 名称	Qty 数量	Sales unit 单品包装
900012843	Multipurpose wrench 多功能扳手	1	1



DES00685

Part Number 零件号	Designation 名称	Qty 数量	Sales unit 单品包装
H1GMIN017 H1GMIN017	White Vaseline (100 ml) 白色凡士林 (100ml)	1	1
H1GSYN037 H1GSYN037	Red dielectric grease for the high-voltage cascade and red dielectric grease for the high-voltage cascade and nozzle needle channel (100 g) 喷嘴针阀 (100g)	1	1



Part Number 零件号	Designation 名称	Qty 数量	Sales unit 单品包装
900010160	Cartridge and air valve assembly tool 滤芯和空气阀总成工具	1	1



Part Number 零件号	Designation 名称	Qty 数量	Sales unit 单品包装
240000301	Seal extractor tool 密封件取出工具	1	1



Part Number 零件号	Designation 名称	Qty 数量	Sales unit 单品包装
129400923	Air cap cleaning brush 空气帽清洁刷	1	10



Part Number 零件号	Designation 名称	Qty 数量	Sales unit 单品包装
000094000	Unplugging needles for gauges 04 through 09 04-09 号的拔除针	1	1 box (12) 1 盒 (12 根)
000094002	Unplugging needles for gauges above 09 09 号以上的拔除针	1	1 box (12) 1 盒 (12 根)

Other necessary tools and accessories:

其余必要的工具及配件:

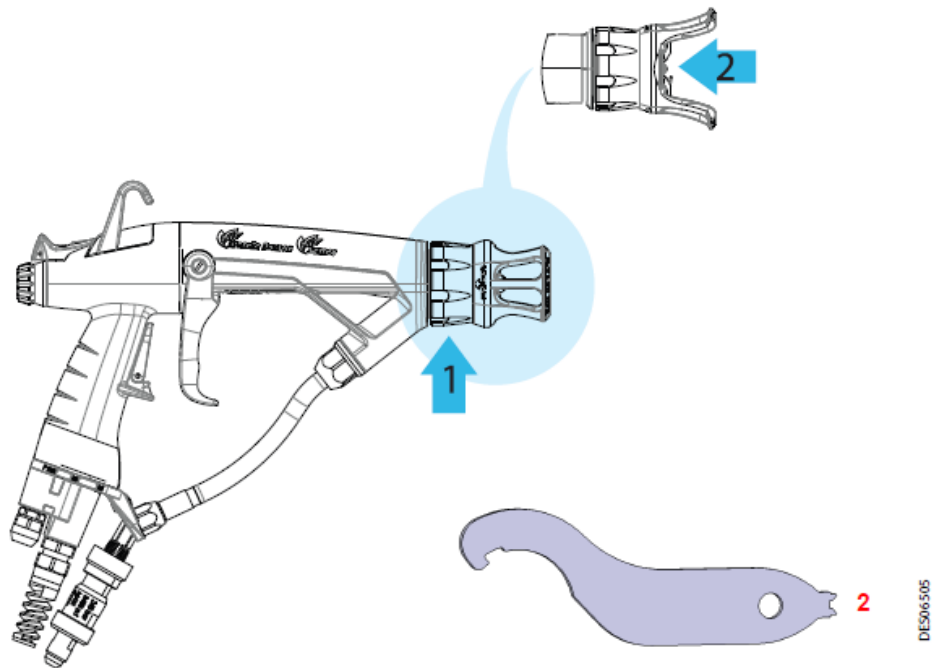
It is recommended to possess the tools listed below to install and maintain the product.

以下是该产品安装和维护的建议配置工具。

- Flat-head screwdriver (2.5 x 75; 4 x 100, 5, 5 x 100)
平头螺丝刀 (2.5 x 75; 4 x 100, 5, 5 x 100)
- Crosspoint screwdriver(0 x 75; 2 x 125)
十字螺丝刀 (0 x 75; 2 x 125)
- Allen wrenches (3 - 6 mm)
内六角扳手 (3 - 6 mm)
- Torque wrench 1 to 5 Nm (R.304DA Facom) (Ref. Sames: 240000095)
扭力扳手 1 - 5 Nm (R.304DA Facom) (参考 Sames: 240000095) Sames: 240000095)
- Flat wrenches (5 - 5.5 - 15 - 17 - 18 - 21 - 24 - 27)
平头扳手 (5 - 5.5 - 15 - 17 - 18 - 21 - 24 - 27)
- Pipe wrench (4 - 13)
管扳钳 (4 - 13)
- Flat pliers
平嘴钳
- Cutting pliers.
剪线钳

6.1 Use of the multipurpose wrench

6.1 多功能用途扳手的使用



1 : Clamping of the air cap ring.

1: 扭紧空气幅垫圈

2 : Extraction of the head nozzle.

2: 取出枪头喷嘴

7. Installation

7. 安装

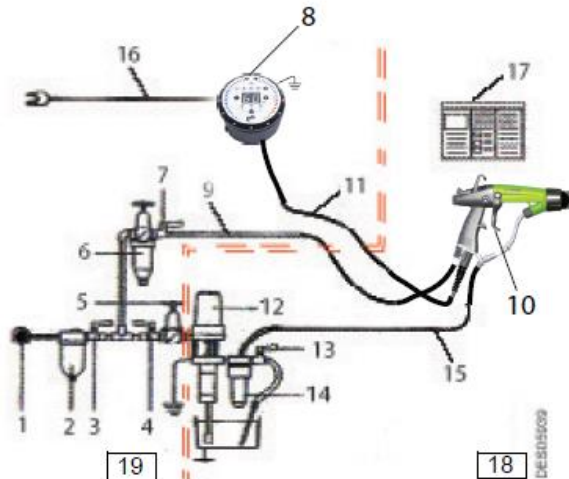
WARNING : Before proceeding with any operation, please refer to the installation rules ([see § 2.2 page 7](#)).

警告： 进行任何操作之前，请参考安装规则 ([详见第 7 页 § 2.2](#))。

With a piston pump for all versions

所有枪型都配有活塞泵。

1	Overall air supply 整体进气
2	Air cleaner 空气净化器
3	Primary air valve 主要空气阀
4	Pump air shut-off valve 空气切断阀
5	Pump air expansion valve 空气膨胀阀
6	Spray air cleaner / expansion valve 喷射空气净化器/膨胀阀
7	Spray air valve 喷射空气阀
8	GNM 6080 control module GNM 6080 控制模块
9	Gun air intake hose 喷枪进气软管
10	NANOGUN-MX gun NANOGUN-MX 喷枪
11	Low-voltage electrical power supply 低压电源 cable 线
12	Pump compliant with the ATEX Directive for explosive atmospheres 符合 ATEX 指令关于爆炸性气体环境要求的泵
13	Dump valve 排放阀
14	Product filter 产品过滤器
15	Product supply hose 产品输送软管
16	Power supply cable (220 V + ground) 输电线 (220 V + 接地) or (115 V + ground) 或 (115 V + 接地)
17	Warning sign 警告标志
18	Explosive zone 易爆区域
19	Non-explosive zone 非易爆区域



The paint supply must be installed within a ventilated zone.

涂料供应系统必须安装在通风区域内。

The paint tank as well as the pump must absolutely be grounded. The dump hose end must be immersed in the paint.

涂料罐和涂料泵必须接地。排放管的端头必须没入涂料中。

WARNING : The paint supply pump:

警告： 涂料输送泵必须满足以下要求：

- must feature a maximum ratio of 19:1 for the 120-bar version and of 30:1 for the 200-bar version;

120 bar 枪型最大输送比例为 19: 1, 200bar 枪型最大输送比例为 30: 1;

- and the pump's air inflow must be equipped with a safety relief valve to limit pressure to a maximum value of 6.5 bar.

输送泵的进气端必须安装安全阀, 将压力控制在 6.5 bar 以下。

8 Use

8 使用

8.1 Recommendations regarding the paint to use

8.1 涂料使用建议

Generally speaking, all paints and varnishes used with the conventional pneumatic guns are typically used with the NANOGUN-MX gun as well. The dyes contained in the paint must be less than 5 μ m.

一般来说，所有用于传统气动喷枪的涂料和清漆均可用于 NANOGUN-MX 喷枪。涂料中的颜料含量必须低于 5 μ m。

8.1.1 Viscosity

8.1.1 粘度

The best results are obtained with a viscosity that extends from 25 to 90 seconds, as measured with the AFNOR Cup no. 4. Nonetheless, some paints with a lower or higher viscosity (e.g. 120 seconds or more) may be projected as well.

粘度（AFNOR no.4 粘度杯测定）在 25-90 秒时可取得最佳效果。 4. 尽管如此，该产品也可用于喷射粘度更低或更高（例如 120 秒及以上）的涂料。 120 seconds or more) may be projected as well.

8.1.2 Resistivity

8.1.2 电阻率

Use a paint whose resistivity is adapted to the NANOGUN-MX gun version that you own. The optimal resistivity range lies between 0.5 and 500 M Ω .cm. Weak resistivity yields a good electrostatic covering, yet may cause returns on the operator in the event of insufficient booth ventilation.

使用一种电阻率适用于您拥有的 NANOGUN-MX 喷枪的涂料。最佳电阻率范围在 0.5-500M Ω .cm。电阻率低有利于静电电场的产生，但如果喷房通风不良，可能导致喷射出的液体溅回到操作人员身上。

A much weaker resistivity level (e.g. 0.1 M Ω .cm) will short-circuit the high-voltage cascade and, consequently, remove all electrostatic covering. A high resistivity (e.g. 1000 M Ω .cm), will greatly reduce the electrostatic covering. The SAMES resistance meter

更低的电阻率水平（例如 0.1 M Ω .cm）会导致高压级联连接短路，从而失去静电电场。高电阻率（例如 1000 M Ω .cm），则将大大降低静电电场力。SAMES 电阻仪“AP 1000”可以简单方便地控制涂料的电阻率。

"AP 1000" provides for easy control of paint resistivity.

8.1.3 Flash point

8.1.3 闪点

Only use paints whose flash point is at least 15°C higher than room temperature.

必须使用闪点高于室温 15°C 以上的涂料。

8.2 Spraying rules

8.2 喷雾要领

Regardless of the type of nozzle, the quality of spraying depends on both the supply pressure and the product viscosity: as viscosity increases, pressure must also rise, yet the final outcome is also influenced by the product's proportions of heavy solvent / light solvent.

无论使用哪种喷嘴，喷涂的质量都取决于喷射压力和产品粘度：压力必须随着粘度上升而增加。然而最终喷涂效果还与产品与重质溶剂 / 轻质溶剂的比例有关。

A few key points:

几个重点：

- Viscosity: 40 sec CA4: minimum product pressure of 70 bar.
粘度：40 sec CA4: 产品最低液压 70 bar。
- Viscosity: 60 sec CA4: minimum product pressure of 90 bar.
粘度：60 sec CA4: 产品最低液压 90 bar。
- Viscosity: 90 sec CA4: minimum product pressure of 130 bar.
粘度：90 sec CA4: 产品最低液压 130 bar。

The addition of more air serves to reduce the impact width by 25% at a 120-bar pressure; moreover, the higher the product pressure, the smaller the influence being exerted by the additional air. In order to limit the production of overspray, it is recommended to never exceed an air pressure of 4 bar.

混入更多空气，可以在 120bar 的压力下降低冲击力达 25%；此外，产品压力越大，增加进气量带来影响越小。为了控制过喷，建议空气压力不要超过 4 bar。

Using the nozzles with small impact width (XX-09 or 11), whenever the additional air is open, the jet is practically round.

使用宽度较窄的喷嘴（XX-09 or 11）时，无论何时增加进气量，喷射形状基本都是圆形。

Table of impact widths in water at a gun/part distance of 25 cm (closed to any additional air).

喷枪/工件距离在 25cm（接近增加进气量）时的喷射宽度表（以水为喷射物）

Nozzles 喷嘴	Impact width 喷射宽度
06-09	21 cm 21 cm
09-09	
12-09	
14-09	
04-11	25 cm 25 cm
06-11	
09-11	
12-11	
14-11	
04-13	29 cm 29 cm
06-13	
09-13	
12-13	
14-13	

06-15	33 cm 33 cm
09-15	
12-15	
14-15	
14-17	37 cm 37 cm

9. Examples of poor equipment use

9. 设备使用不当的案例

The non-exhaustive list below indicates the primary cases of poor paint spraying equipment use.

以下举例说明喷涂设备使用不当的主要情形。

WARNING : Sames Technologies would like to recall therefore that it is essential to comply with the prescriptions listed below.

警告：Sames Technologies 提醒用户，一定要遵守以下规则。

It is prohibited to install the control module in an explosive atmosphere. 禁止在易爆环境中安装控制模块。
It is prohibited to perform excessive and repeated traction on the paint and air hose or on the electrical cable connecting the gun. 禁止过度 and 不断拉扯涂料软管、空气管或喷枪电线。
It is prohibited to disconnect the gun's electrical coupling in an explosive atmosphere. 禁止在易爆环境下开喷枪的电气接口。
It is prohibited to leave the hoses and electrical cable in a space where vehicles circulate, preventing the risk of them being crushed or severed. 禁止将软管和电线放置在运载工具通过的地方，以免软管和电线变形或开裂。
It is prohibited to spray a liquid other than paint or varnish using the NANOGUN-MX model. 禁止用 NANOGUN-MX 枪型喷洒除涂料或清漆以外的液体。
It is prohibited to leave the gun or subject it to mechanical shocks. 禁止将让喷枪承受机械冲击。
It is prohibited to leave the gun on the floor. 禁止将喷枪放在地面上。
It is prohibited to use the gun in order to handle or displace the parts to be painted. 禁止使用喷枪触碰或挪动待喷工件。
It is prohibited to let the gun soak in a solvent or spray it with solvent. 禁止将喷枪浸泡在溶剂中，或向喷枪表面喷洒溶剂。
It is prohibited to spray solvent without first having turned off the control module and/or shut down the high voltage at the level of the gun. 禁止在关闭控制模块和/或停机之前喷洒溶剂。 喷枪高压
It is essential to connect the control module ground terminal to the paint insulation ground terminal. 将控制模块的地面插头和涂料绝缘地面插头连接在一起是非常重要的。
It is essential to clamp both safety screws on the electrical coupling. 将电气接口上的两颗安全螺丝钉拧紧是非常重要的。

10. Maintenance

10. 维修

10.1 Summary table of preventive maintenance

10.1 预防性维护规程汇总表

To be carried out when the maintenance indicator light on the GNM 6080 turns on.

GNM 6080 维护指示灯亮起后应采取的步骤。

Subassembly 组件	Designation 名称	Reference 引用文件	Quantity 数量	Minimum 最短 replacement period 更换 周期
Seat casing 底座套	O-ring - chemically inert O型圈 - 化学惰性	J3STKL046 J3STKL046	1	3 months 3 个月
	O-ring - chemically inert O型圈 - 化学惰性	J3STKL075 J3STKL075	1	3 months 3 个月
Adapter 适配器	Flat seal 平面密封	900014821	1	6 months 6 个月
	O-ring - FEP Viton O型圈 - FEP Viton	J2FENV288 J2FENV288	1	12 months 12 个月
Barrel 枪筒	Seal cartridge 密封衬套	910015881	1	6 months or 6个月或 500,000 handling operations(*) 50 万次操作(*)
	O-ring (Seal cartridge) O型圈 (密封衬套)	J3STKL005 J3STKL005	1	3 months 3 个月
	O-ring - chemically inert O型圈 - 化学惰性	J3STKL014 J3STKL014	1	6 months 6 个月
	O-ring - FEP Viton O型圈 - FEP Viton	J2FENV435 J2FENV435	1	12 months 12 个月
	O-ring - chemically inert O型圈 - 化学惰性	J3STKL078 J3STKL078	2	12 months 12 个月
	O-ring - chemically inert O型圈 - 化学惰性	J3STKL032 J3STKL032	1	12 months 12 个月
	O-ring - chemically inert O型圈 - 化学惰性	J3STKL019 J3STKL019	1	12 months 12 个月
Handle 把手	O-ring (electrical connector) O 型圈 (电气接头)	160000041	1	12 months 12 个月
	O-ring (handle base) O型圈 (把 手底座)	160000067	1	12 months 12 个月
	O-ring (air nipple) O型圈 (空气 接头)	J2FTCF018 J2FTCF018	1	12 months 12 个月
		J3STKL018 J3STKL018	1	12 months 12 个月

Air valve 空气阀	O-ring - chemically inert (exterior valve) (与 EV311096 溶胶阀一同使用) O 型圈 - 化学惰性 (外阀)	J3STKL005 J3STKL005	1	12 months 12 个月
	O-ring - chemically inert (interior valve) O 型圈 - 化学惰性 (内阀)	J3STKL032 J3STKL032	1	12 months 12 个月
	Sealing ring 密封环	900010256	1	12 months 12 个月
Nozzle 喷嘴	Sieve or flat seal depending on the gauge 根据尺寸选择滤网或平面密封	129609901 or 900012793 或 900012793	1	When changing the nozzle or every month 喷嘴或每月更换空气帽垫圈时
Air cap ring 气帽	O-ring - FEP Viton O 型圈 - FEP Viton	160000170	1	12 months 12 个月

WARNING : (*) Once either of these two time periods has elapse

警告：(*)两个时间段中取较短的。

WARNING : Prior to any maintenance operation carried out on the gun, please refer to the health

警告：进行任何喷枪维护操作之前，请参考健康安全说明（详见每 7 页 § 2）：

and safety instructions ([see § 2 page 7](#)):

及安全区域 [see § 2 page 7](#)):

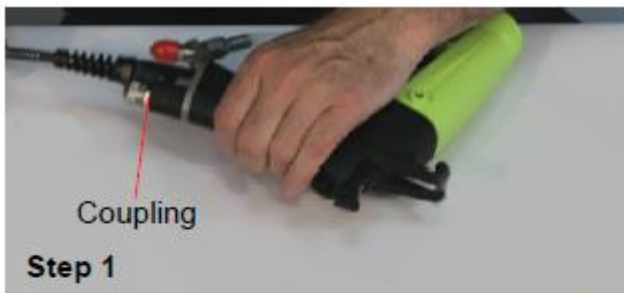
- **Disconnect the control module.**
断开控制模块。
- **Check that the air and paint circuits are no longer pressurised.**
检查空气和涂料循环系统是否不再处于加压状态。
- **Dump the paint circuit.**
将涂料循环系统排尽。

10.2. Electro-pneumatic coupling

10.2. 电—气耦合

- **Step 1:** Unscrew the 7/10 air hose coupling nut using a 16 flat wrench (not mandatory for Step 3) **第 1 步：用 16 号平头扳手拧松 7/10 空气软管接头螺母（对于第 3 步来说不必要）**
- **Step 2:** Disassemble the low-voltage cable using a 3 Allen wrench, unscrew the two captive screws of the electro-pneumatic coupling. **第 2 步：用 3 号内六角扳手拆走低压电线，拧松电气耦合上的螺丝钉。**
- **Step 3:** Disconnect the electro-pneumatic coupling **Step 3 第 3 步**

by pulling on it. 第 3 步：拉断电气耦合



10.3. Paint hoses It is not necessary to remove the electro-pneumatic coupling ([see § 10.2 page 26](#)) to complete these operations.

10.3. 涂料软管 断开电气耦合不属于必要步骤（见第 26 页§ 10.2 ）。

10.3.1. Paint hose - Version QD (HR)

10.3.1. 涂料软管—QD (HR)型号

- **Step 1:** On the handle side, unscrew the coupling using a 15 flat wrench. **第 1 步:** 用 15 号平头扳手拧松把手上的接头。
- **Step 2:** Remove the paint hose from the base. **第 2 步:** 将涂料软管从底座上移开。
- **Step 3:** Using a 21 flat wrench, unscrew the upper nut on the paint hose, and then finish the unscrewing manually while holding the lower nut. **第 3 步:** 用 21 号平头扳手拧松涂料软管上端的螺母，再握住下端螺母继续拧松。
- **Step 4:** Verify the presence of the O-ring on the paint nut. Verifier the presence of this O-ring (P/N # J3STKL028) and the anti-extrusion ring (P/N # 910013398) on the paint hose. In the event both the O-ring and ring need to be removed, they **must be** replaced by new ones. **第 4 步:** 检查涂料管螺母上的 O 型圈是否还在。确定涂料管上的 O 型圈 (P/N # J3STKL028) 和挡圈(P/N # 910013398) 存在。如果 O 型圈和挡圈都需要取出，则必须用新的零件替换。

For the reassembly step, proceed in the reverse order. Screw the upper nut on the paint hose until reaching its stop point.



将涂料软管上端的螺母拧紧。

10.3.2. LR paint hose

10.3.2. LR 涂料软管

- **Step 1:** Unscrew the locknut of the stuffing box using a 27 flat wrench, remove the stuffing box from the bracket. **第 1 步:** 用 28 号平头扳手拧松填料函上的防松螺母，从支架上移走填料函。
- **Step 2:** With a 21 flat wrench, unscrew the upper nut on the paint hose. Unscrew the nut while turning the hose. **第 2 步:** 用 21 号平头扳手拧松涂料软管上端的螺母。一边拧松一边扭转软管。

Step1 第 1 步

Step2 第 2 步



For the reassembly step, screw the upper nut on the paint hose until reaching its stop point. Position the locknut of the stuffing box below the bracket, with the stuffing box above in the hexagonal imprint. Clamp the

locknut of the stuffing box onto the bracket.

重新安装时，拧紧涂料软管上端的螺母。 找到支架下方的填料函防松螺母，上方填料函为六边形。将填料函和支架之间的防松螺母拧紧。

10.4. Spraying head assembly

10.4. 喷枪枪头组件

- **Step 1:** With the multipurpose wrench (P/N # 900012843), unscrew the air cap ring. **第 1 步:** 用多功能扳手 (P/N # 900012843) 拧松空气帽垫圈。 **Step1 第 1 步**
- **Step 2:** Extract the head nozzle using the multi-purpose wrench. **第 2 步:** 用多功能扳手取出枪头喷嘴。 **Step2 第 2 步**
Do not use your fingers.
不要用手指。

If necessary, replace the head seal.

必要时，更换密封圈。



For the reassembly step, proceed in the reverse order.
以相反的步骤进行安装。

10.5. Barrel

10.5. 枪筒

- **Step 1:** Unscrew the seat casing using a 13-mm pipe wrench.
第 1 步：用 13mm 的管扳钳拧松底座套。

Then remove it.
然后移开。

Should the O-rings and anti-extrusion rings located in front and back of the nozzle require replacement, remove them using a screwdriver, position the new rings and new seals in place while double checking their correct location and after coating them first with Vaseline.

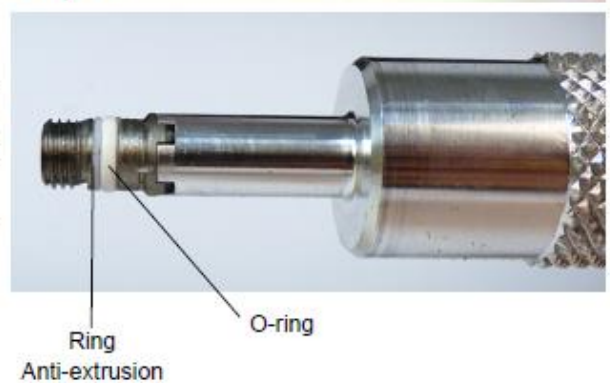
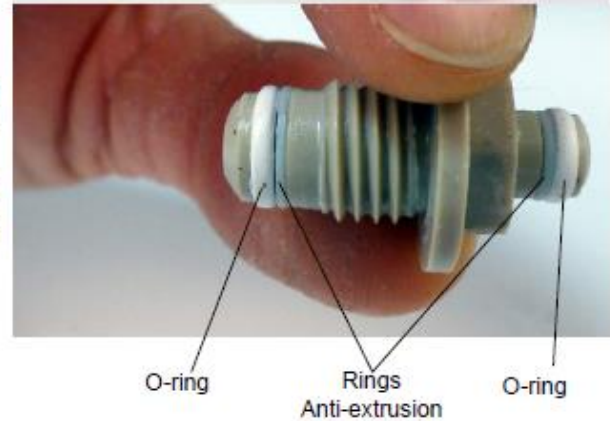
若安装在喷嘴前、后方的 O 型圈和挡圈需要更换，那么先用螺丝刀取出旧零件，再放置好新的垫圈和密封圈，再次检查位置是否正确，然后先将凡士林涂抹在上面。

- **Step 2: Seal cartridge:** Unscrew the cartridge using the tool (P/N # 900010160).
第 2 号：密封衬套：用工具拧松衬套 (P/N # 900010160)。

Should the ring and external seal require replacement, remove them using a screwdriver, position the new ring and new seal in place while double checking their correct location.

如果垫圈和外部密封需要更换，则先用螺丝刀取出旧零件，再放置好新的垫圈和密封圈，然后再次检查位置是否正确。

Note: The lip seals located inside the cartridge cannot be changed. 注意：衬套内侧的唇封不可更换。



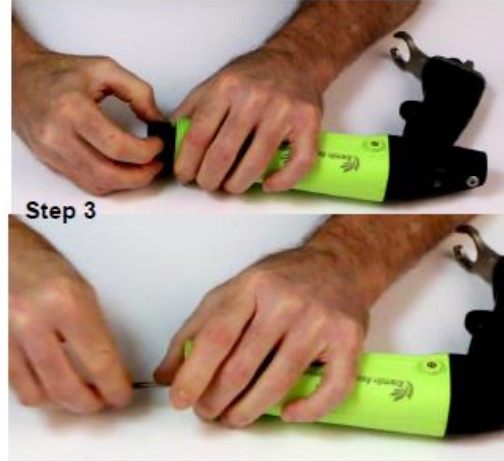
- **Step 3:** Manually remove the adapter equipped with its joint and high-voltage resistance by its spring and pulling on it.

第 3 步：通过提拉移走适配器。

WARNING : Be careful not to damage the resistance during its extraction.

警告： 当心取出过程中不要损坏电阻率。

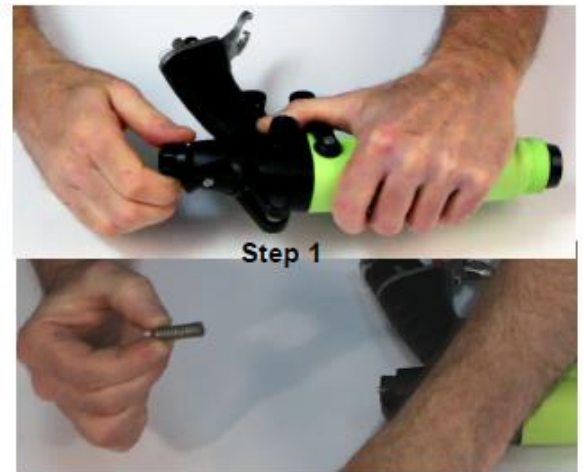
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10.6. Paint nozzle needle

10.6. 喷嘴和枪针

- **Step 1:** Unscrew the paint nozzle needle in back of the gun, recover the spring.
第 1 步：拧松喷枪后部的涂料喷嘴针阀，重新装好弹簧。
- **Step 2:** Press on the trigger and pull it manually towards the back of the paint nozzle needle.
第 2 步：扣压扳机，向涂料喷嘴针阀后方拉动。



WARNING : After every 4 or 5 reassemblies, add some red within the open channel in the barrel.

警告： 每进行 4 或 5 次重新组装后，在枪身的开 H1GSYN037) 。



10.7. Switch

10.7. 开关

- **Step 1:** With a 5.5-mm screwdriver, unscrew the washer head screw. Pull the switch lever upward.
第 1 步: 用 5.5mm 的螺丝刀拧松垫圈的圆头螺钉。向上拉动开关。
- **Step 2:** Replace the O-ring (see § 13.2 page 50). Insert the new switch into its housing. Coat the retaining screw with LOCTITE low strength thread lock and then clamp the screw so that the switch shows slight resistance.
第 2 步: 更换 O 型圈(详见第 50 页 § 13.2)。将新的开关嵌入外壳中。将剩下的螺丝钉涂上乐泰低强度螺丝胶水,再拧紧螺丝钉,这样一来开关具有些许阻力。



10.8. Trigger 10.8. 扳机

- **Step 1:** Using a screwdriver, unscrew the two washer head screws and remove both sides of the trigger.
第 1 步: 使用螺丝刀拧松两个垫圈圆头螺钉,然后移走扳机两侧。

Reassembly of the trigger:

重新组装扳机:

- Insert one of the trigger sides onto its shoulder and then slide the other side into its housing.
将扳机的一侧插回,然后再将另一侧滑入外壳中。



10.9. Air valve

10.9. 空气阀

- **Step 1:** Disassemble the paint nozzle needle (see § 10.6 page 31).
第 1 步：拆开涂料喷嘴针阀（详见第 31 页 10.6）。
- **Step 2:** Unscrew the air valve stop nut using an 18 flat wrench.
第 2 步：用 18 号平头扳手拧松空气阀上的防松螺母。

Point the gun barrel upwards and recover the spring and air valve. Should the parts not fall, tap in the palm of your hand 将枪身竖直朝上，装回弹簧和空气阀。如果零件不掉落，用手掌拍打。

or use the paint nozzle needle to withdraw the air valve. 或使用涂料喷嘴针阀来取出空气阀。



10.9.1 Repairing the air valve

10.9.1 空气阀的维修

Three levels of maintenance are indeed possible:

存在以下三种可能的维护等级：

- **Level 1:** Standard level of maintenance since the air valve body is not subject to any friction or wear.
等级 1：标准等级，空气阀未出现任何摩擦或磨损。
- **Level 2:** Corrective level, to be performed in case the valve body has deteriorated.
等级 2：修复等级，当空气阀外壳出现变形时。
- **Level 3:** Exceptional level, to only be performed in case the magnet gets lost or broken.
等级 3：特殊等级，仅当磁铁外壳已经遗失或损坏时。

Level 1: Replacement of the three o-rings

(P/N # J3STKL032 inner ring, J3STKL005 outer ring and 900010256 conical seal.

等级 1：更换三个 O 型圈 (P/N # J3STKL032 内圈，J3STKL005 外圈，900010256 锥形密封圈)。

- For all three seals, extract the former one in taking care not to damage the air valve body (they may however be destroyed).
对于三个密封圈来说，取出旧垫圈时需要注意，不要损坏空气阀（有可能会完全毁坏）。
- The conical seal must be pushed down into its locking mechanism on the valve body in being sure not to alter its conic range.
锥形密封圈必须下压至空气阀上的锁紧机构，以确保不会改变锥形面。

Level 2: If the air valve body (black part) has damaged.

等级 2：如果空气阀本身（黑色部分）未出现损坏。

- Manually extract or insert an M4 screw into the aluminium ring (activating the locking mechanism), pull along the axis of the part, remove the magnet in paying attention to identify its direction (silver-plated / black sides). 人为取出或将 M4 螺丝钉插入铝环中（激活锁紧机构），沿着零件的轴线拉动，取



出磁铁，注意辨别磁铁的方向（镀银/黑色）。

- Raise the magnet in the right direction ([see § 10.9.1.1 page 35](#)) and lock the ring into the valve body by pushing firmly with your finger.

调整正确的磁铁方向，举起磁铁（详见第 35 页§ 10.9.1.1），然后用手指推动垫圈，将其锁入空气阀中。

Once the gun has been completely reassembled, inspect the high-voltage activation and shut- down. If the high-voltage is permanently activated or does not turn off: verify the magnet direction.

喷枪完全重装好后，检查高压开启和关闭功能。如果高压模式无法关闭或无法开启，则确认磁铁方向是否装反。

Level 3: If the magnet is broken or lost.

等级 3: 如果磁铁损坏或遗失。

- Replace the complete air valve (P/N # 910015405) ([see § 10.9 page 33](#)).

Before using the gun, inspect the high-voltage on and off switches.

更换整个空气阀 (P/N # 910015405)([详见第 33 页 § 10.9](#))。使用喷枪前，检查高压开启和关闭功能。

If the high-voltage is permanently activated, disassemble the handle and remove one of the washers that serve to adjust the reed sensor position; proceed step by step without removing multiple washers at a time. 如果高压模式无法关闭，则拆开把手，取出其中一个用于调整磁环感应器位置的垫圈；一步步进行，一次不要取出多个垫圈。

If the high-voltage does not activate, don't disassemble the handle and instead add a washer to adjust the reed sensor position; proceed step-by-step without adding multiple washers at the same time.

如果高压模式无法开启，则不要拆把手，而是添加一个垫圈，用于调整磁环感应器位置；一步步进行，一次不要增加多个垫圈。

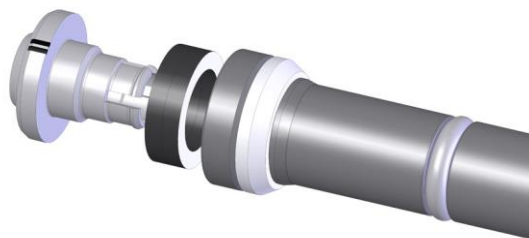
WARNING : Various washer thicknesses may be installed, always begin by adding or removing the thinnest.

警告：可安装不同厚度的垫圈，一定要先添加或取出最薄的垫圈。

10.9.1.1 Magnet assembly direction

磁铁组装方向

- **Case no. 1:** For guns of type 1 (see serial no.). Back stop without a marking, the silver-plated side of the magnet must make contact with the shoulder of the back stop.
案例编号： 1： 1号枪型（见系列编号）。后挡没有标识，磁铁镀银的一端必须与后挡肩部直接接触。
- **Case No. 2:** For guns of type 2 (see serial no.). Back stop with markings, the black side of the magnet must make contact with the shoulder of the back stop.
案例编号： 2： 2号枪型（见系列编号）。后挡没有标识，磁铁黑色的一端必须与后挡肩部直接接触。



- **Fastening hook 固定挂钩**
- Place the switch in the "I" position. Using a 5.5-mm screwdriver, unscrew the washer head screw and remove the hook by pulling

upward. 将开关置于“I” 的位置。用 5.5mm 的螺丝刀拧松垫圈螺丝，再向上提拉挂钩，卸下。

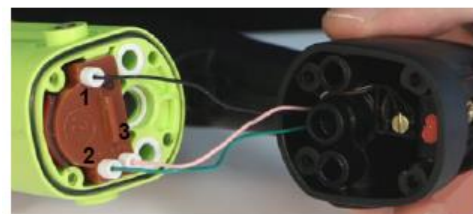


10.11. High-voltage cascade

10.11. 高压级联连接

- **Step 1:** Remove the trigger [see § 10.8 page 32](#), and remove the paint nozzle needle.
第 1 步：卸下扳机，见第 32 页 § 10.8，再取出涂料喷嘴针阀。

- **Step 2:** Unscrew the 4 screws using a 2-mm crosspoint screwdriver while holding the barrel on the handle. Note: Each time a screw is disassembled, replace the fibre washers as well (P/N # J4BRND039). 第 2 步：握住枪身，用 2mm 十字螺丝刀拧松 4 个螺丝钉。注意：每卸下一个螺丝钉的同时，更换纤维垫圈 (P/N # J4BRND039)。
- **Step 3:** Manually unscrew or by using a small flat pliers the three cascade connection wires, then carefully pull the contacts towards the back. 第 3 步：人工卸下或用小号的平嘴钳卸下三个级联连接电线，然后小心将连接线向后拉动。
- **Step 4:** Unscrew the high-voltage contact in front of the barrel with a flat screwdriver. Extract the cascade. 第 4 步：用平头螺丝刀卸下枪身正面的高压连接线。取出级联连接。



WARNING : Be mindful of the colours used (terminal 1: black; terminal 2: green; terminal 3: pink).

警告： 注意使用的颜色（插头 1：黑色；插头 2：绿色；插头 3：粉红色）。

For the reassembly step, proceed in the reverse order.

以相反的步骤进行安装。

Replace the high-voltage cascade. **Coat the cascade with some red dielectric grease**

更换高压级联。在级联连接上涂上一些红色的绝缘脂

(P/N # H1GSYN037) and then place it in its housing.

(P/N # H1GSYN037)，然后在外壳内进行更换。

Push the cascade until its stop in the barrel. Connect the three wires and clamp all three. Verify the condition of the O-rings, replace them as needed.

朝枪身内部推动级联连接，直到推不动为止。连接这三条电线，并拧紧。检查 O 型圈的情况，如有需要进行更换。

10.12. Barrel

10.12. 枪筒

- **Step 1:** Remove the trigger [see § 10.8 page 32](#), and the paint nozzle needle.
第 1 步：卸下扳机，见第 32 页 § 10.8，再取出涂料喷嘴针阀。
- **Step 2:** Unscrew the four screws used to fasten the barrel onto the handle.
第 2 步：卸下用来连接固定枪筒和把手的 4 颗螺丝钉。
- **Step 3:** Manually unscrew or by using a small flat pliers the three cascade connection wires, then carefully pull the contacts towards the back.
第 3 步：人工卸下或用小号的平嘴钳卸下三个级联连接电线，然后小心将接连线向后拉动。

- **Step 4: Replacement of the O-rings of both air channels and the air valve (step 3: not required):** Remove and replace the three O-rings. 第 4 步：更换 O 型圈通风道和空气阀（第 3 步：不必要）：卸下并更换三个 O 型圈。
- **Step 5: Replacement of the barrel/handle O-rings (step 3: mandatory):** Remove and replace the O-ring. This joint is to be replaced every year. 第 5 步：更换枪筒/把手的 O 型圈（第 3 步：必要）：卸下并更换三个 O 型圈。该连接处需要每年进行更换。
- **Step 6: Replacement of a o-ring in back of the nozzle needle:** Remove and replace the O-ring. 第 6 步：更换喷嘴针阀后部的 O 型圈：卸下并更换三个 O 型圈。



WARNING : Coat the O-rings with a fine layer of Vaseline before setting them into place.
警告：安装 O 型圈之前，在上面抹上薄薄一层凡士林。

For the reassembly step, proceed in the reverse order.

以相反的步骤进行安装。

10.13. Handle

10.13. 把手

- **Step 1:** Separate the barrel from the handle.
第 1 步：分离枪筒和把手。
- **Step 2:** Gun handle base Unscrew the air nipple using a 16 Allen wrench. Replace the seals every 12 months. 第 2 步：把手底座用 16 号内六角扳手卸下空气接头。每 12 个月更换一次密封圈。
- **Step 3:** Unscrew the two screws (K35 x 14) with a 2 crosspoint screwdriver. Upon each screw removal, replace the fibre washers. 第 3 步：用十字螺丝刀卸下 2 颗螺丝钉 (K35 x 14)。每卸下一个螺丝钉，就要更换纤维垫圈。
- **Step 4:** Raise the base in order to gain access to the handle base seal. Replace this seal every 12 months. 第 4 步：举起底座，找到把手底座密封圈。每 12 个月更换一次密封圈。
- **Step 5** Remove the electrical connector by pushing it to a point where the base exits. Replace the connector joint every 12 months. 第 5 步 推动电气接头直到底座端头，然后卸下。每 12 个月更换一次电气接头。
- **Step 6** Replacement of the base: unscrew the ground wire screw using a 0 crosspoint screwdriver, remove it and replace it. 第 6 步 更换底座：用 0 号十字螺丝刀卸下地线固定螺丝钉，然后进行更换。



For the reassembly step, proceed in the reverse order. Replace the pin of the connector in the base polarising slot and re-screw the ground connection.

以相反的步骤进行安装。 更换底座极化槽上的接头定位销，然后重新拧紧地面接头。

Coat the air nipple seals with dielectric grease.

在空气接头的密封圈上涂上绝缘脂。

Clamp the air nipple with 1.5 N.m of torque. Clamp the two screws (K35 x 14) with a 1.3 N.m clamping torque.

用 1.5 N.m 扭力扳手拧紧空气接头。 用 1.3 N.m 扭力扳手拧紧 2 个螺丝钉 (K35 x 14)。

10.14 Electrical diagrams

10.14 电气图

10.14.1 GNM 6080 / NANOGUN-MX connection cable

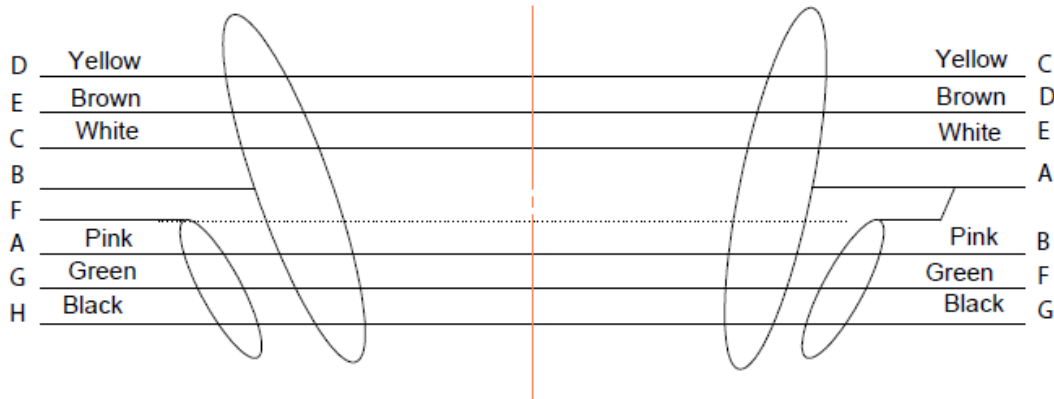
10.14.1 GNM 6080 / NANOGUN-MX 接口电线

Output on the GNM 6080 side

GNM 6080 上的输出

Output on the NANOGUN-MX side

NANOGUN-MX 上的输出



D D	Yellow 黄色	Yellow 黄色	C C
E E	Brown 棕色	Brown 棕色	D D
C C	White 白色	White 白色	E E
B B			A A
F F			
A A	Pink 粉色	Pink 粉色	B B
G G	Green 绿色	Green 绿色	F F
H H	Black 黑色	Black 黑色	G G

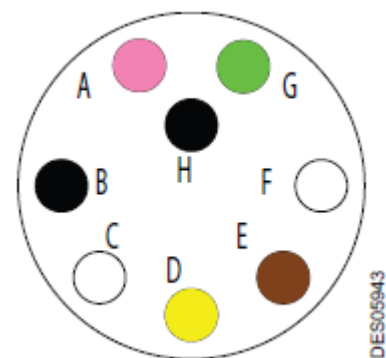
10.14.2. GNM 6080 trigger cable

10.14.2. GNM 6080 扳机电线

Output on the GNM 6080 side

GNM 6080 上的输出

A A	Pink 粉色	Primary transformer HVU 3 主要变压器
B B	Shield 屏蔽装置	Shield 屏蔽装置
C C	White 白色	REED sensor (trigger) 磁环感应器 (扳机)
D D	Yellow 黄色	Dallas chip 达拉斯芯片
E E	Brown 棕色	0 V joint chip / reed 0 V 连接芯片/磁环
F F		Third-party shield 第三方屏蔽装置
G G	Green 绿色	Primary transformer HVU 2 主要变压器 HVU 2
H H	Black 黑色	Return IHV 1 回流 IHV 1



(*)

Switch open: NANOGUN-MX trigger released

打开: NANOGUN-MX 扳机松开

Switch closed: NANOGUN-MX trigger activated.

关闭: NANOGUN-MX 扳机激活

Characteristics of the dry contact: 0.5 A max / 24 V AC/DC max.

干接点的特性: 0.5 A max / 24 V AC/DC max.

11. Cleaning

11. 清洁

Prior to any maintenance operation carried out on the gun, please refer to the health and safety instructions ([see § 2 page 7](#)).

在进行任意喷枪维护操作之前，请参考健康安全说明（第 7 页 § 2 ）。[see § 2 page 7](#)。

11.1 Cleaning of the product circuit

11.1 清洁产品电路

- Unplug the **GNM 6080** control module.
拔出 GNM 6080 控制模块。
- Install a bucket of solvent instead of a barrel of paint.
安装溶剂罐（不是涂料罐）。
- Open the recirculation valve in order to clean the pump.
打开循环阀，清理泵机。
- Close the recirculation valve and press the trigger until clean solvent exits the gun nozzle.
关闭循环阀，扣压扳机，直到从喷嘴流出的溶剂变得干净为止。

11.2 Cleaning of the gun

11.2 喷枪清洁

The gun must be cleaned immediately after use and at the end of the day.

必须在使用后立即清理喷枪，每天下班前也需要清理喷枪。

In order to proceed with the cleaning steps, follow the instructions listed below:

按照下列步骤进行清理：

WARNING : It is strictly prohibited to immerse the NANOGUN-MX gun into the solvent

警告：严禁将 NANOGUN-MX 喷枪浸没在溶剂中。

WARNING : Use an appropriate solvent: not greasy, with high resistivity and non-chlorinated.

警告：使用合适的溶剂：不油腻，电阻高，非氯代。

- **Step 1:** Unplug the **GNM 6080** control module.
第 1 步：拔出 **GNM 6080** 控制模块。
- **Step 2:** Depressurise the gun's air circuit.
第 2 步：给喷枪的空气循环体系减压。
- **Step 3:** Drain the gun's paint circuit and rinse it using an appropriate solvent ([see § 2.4 page 9](#)).
第 3 步：将喷枪涂料循环系统排尽，然后用合适的溶剂冲洗干净。（详见第 9 页 § 2.4）
- **Step 4:** Depressurise the gun's paint circuit.
第 4 步：给喷枪的涂料循环系统减压。
- **Step 5:** Dry the gun head using a dry soft cloth that remains intact.
第 5 步：用干燥柔软的清洁布擦干枪头。
- **Step 6:** Unscrew the gun's air cap ring, remove the gun air cap ([see § 10.4 page 29](#)).
第 6 步：卸下喷枪的空气帽垫圈，卸下喷枪空气帽（详见第 29 页 § 10.4）。
- **Step 7:** Clean the air cap with a wet brush of solvent and dry the air cap.
第 7 步：用溶剂浸湿的清洁刷清洁空气帽，然后擦干。
- **Step 8:** Raise the air cap and its ring.
第 8 步：举起空气帽和垫圈。

- **Step 9:** Carefully dry the gun with compressed air (head placed downward) before turning the
第 9 步：用压缩空气小心吹干喷枪（枪头朝下），
GNM 6080 control module back on.
然后重新打开 **GNM 6080** 控制模块。

WARNING : Never disassemble the nozzle needle line whenever the paint hose still contains either paint or solvent.

警告：严禁在涂料软管中仍有涂料或溶剂时拆卸喷嘴针阀。

WARNING : During cleaning of the nozzle, aim the spray gun nozzle towards the floor in order to prevent solvent or paint from flowing into the barrel ducts.

警告：在清洁喷嘴过程中，将喷枪喷嘴针阀对准地面，以防溶剂或涂料从导管中流出。

WARNING : After each cleaning cycle, dry using compressed air the supply hose and ducts in order to eliminate all traces of solvent.

警告：每次清洁程序完成后，用压缩空气吹干软管和导管，以清除所有溶剂的痕迹。

11.3 Elimination of wastes

11.3 废弃物处理

The removal, transport and elimination of wastes generated by use of the equipment (used solvent, unused paint, residue, dirty cloths, booth sludge, water from curtains applied in the booth, used dry filters, ventilation air, etc.) must take place in strict compliance with current local regulations.

该设备产生的废弃物（使用过的溶剂、未使用的涂料、废渣、脏布、喷房中的灰尘、喷房水帘中使用的水，使用过的干燥滤网，通风空气等）的搬移、运输和处理。

11.4 Dismantling and Recycling

11.4 拆卸和回收

11.4.1 NANO GUN-MX

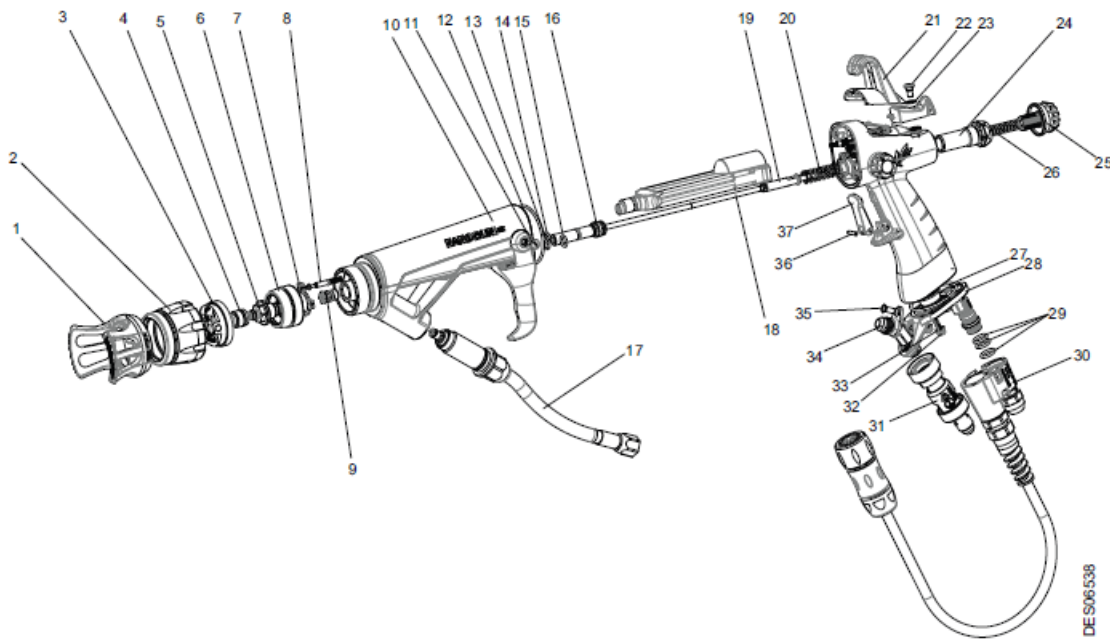
11.4.1 NANO GUN-MX

WARNING : All parts may be contaminated by paint and/or solvent residue.

警告： 所有的工件都有可能受到涂料和/或残留溶剂的污染。

Before proceeding to dismantle the equipment, clean the gun and more specifically the inside of the paint hoses with an appropriate cleaning product and dry them with compressed air.

在拆卸设备前，清理喷枪，其中涂料软管内部要用合适的清洁产品进行清理，然后用压缩空气进行干燥。



Rep. 代表	Material 材质
1	Polypropylene not containing with glass fibre 不含玻璃纤维的聚丙烯
2, 6*	POM C, PTFE, chemically inert rubber POM C、PTFE、惰性橡胶
3	Plastic material containing glass fibre, PTFE, stainless steel 含玻璃纤维的塑料材料、PTFE、不锈钢
4	PEEK, tungsten carbide, PTFE, stainless steel PEEK、钨化碳、PTFE、不锈钢
5*	PEEK, chemically inert rubber, stainless steel PEEK、惰性橡胶、不锈钢
7*	PTFE 聚四氟乙烯 (PTFE)
8*	Brass, agglomerated carbon 黄铜、烧结碳
9*	Stainless steel, chemically inert rubber, PTFE 不锈钢、惰性橡胶、PTFE
10*, 11	Plastic material containing fibre, PEEK 含玻璃纤维的塑料材料、PEEK
23, 12, 13, 14, 15	Chemically inert rubber 惰性橡胶
16	Loaded PEEK, chemically inert rubber, PTFE 填充 PEEK、惰性橡胶、PTFE
17*	Stainless steel, PTFE, polyurethane, aramid, PEEK, chemically inert rubber 橡胶 不锈钢、PTFE、聚氨酯、芳香族聚酰胺、PEEK、惰性橡胶
18*	Plastic material, copper, steel, ceramic, ROH electronic components, 塑料材料、铜、钢、陶瓷、ROH 电子零件
19*	Tungsten, PEEK, stainless steel, aluminium 钨、PEEK、不锈钢、铝

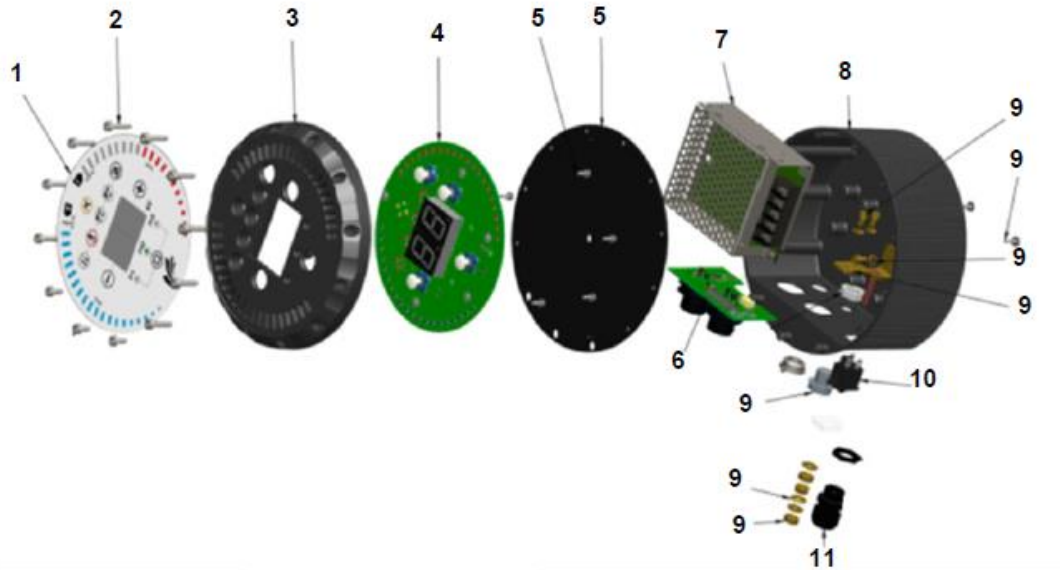
20*, 26*, 22, 31, 32, 34, 35, 36	Stainless steel 不锈钢
21	Plastic material containing fibre 含纤维的塑料材料
24*	Plastic material, chemically inert rubber 塑料材料、惰性橡胶
25*, 28	Aluminium 铝
27, 29	Rubber 橡胶
30	Plastic material containing fibre, copper, stainless steel 含纤维的塑料材料、铜、不锈钢
33	Fibre joint 纤维接头
37	Polyamide not loaded 未填充聚酰胺
Not represented 无	Air hose: PU 空气软管: PU
Not represented 无	Product hose: PTFE - aramid - PU 产品软管: PTFE-芳香族聚酰胺-PU Couplings: Zinc-plated steel or stainless steel Cable gland: plastic material containing fibres 联轴器: 镀锌钢或不锈钢电线密封套: 含纤维的塑料材料

***These parts (5, 6, 7, 8, 9, 10, 11, 17,18, 19, 20, 24, 25, 26) may be fouled due to dielectric grease.**

***这些零件（5, 6, 7, 8, 9, 10, 11, 17,18, 19, 20, 24, 25, 26）可受到绝缘脂的污染。**

11.4.2.GNM 6080

11.4.2.GNM 6080



Rep. 代表	Designation 名称	Material 材质
1	Keyboard / front side* 键盘/正面*	Plastic material 塑料材料
2	Fastening screws front side 固定螺丝钉 正面	Steel 钢
3	Primary card support and front side 主要芯片支持和正面	Aluminium 铝
4	Primary card 主要芯片	Electrical and electronic components, ROH 电气与电子部件, ROH printed circuit 印刷电路
5	Bottom sheet metal and fastening screws 底部金属薄片和固定螺丝钉 螺絲	Steel 钢
6	Connector card 连接芯片	Electrical and electronic components, ROH 电气与电子部件, ROH printed circuit 印刷电路
7	Electrical power supply 电源	Electrical and electronic components, ROH 电气与电子部件, ROH printed circuit 印刷电路
8	Box 盒	Aluminium 铝
9	Fastening accessories 固定配件	Steel and brass 钢和铜
10	Electrical switch 电气开关	ROH electrical component ROH 电气部件
11	Cable gland 电缆密封套	Plastic material 塑料材料
Not represented 无		
12	Power supply cable (not shown) 电源电线 (未显示)	Plastic material and copper 塑料和铜

***Reminder: This part may become fouled by paint residue.**

***提醒: 该零件可能受到残留涂料的污染。**

12. Common malfunctions and repairs

12. 常见问题与维修

Defaults 默认值	Possible Causes 可能原因	Remedies 补偿
Uneven paint flow 不均匀的涂料流	Presence of air in the paint circuit 涂料循环中存在空气	Dump the paint circuit 排尽涂料循环系统
	Paint flow rate too slow 涂料流度过慢	Increase pressure at the pump or pressurised tank. 增压罐。
	Impurities in the circuit 循环中的杂质	Verify the filters, then dump the circuit. 外循环的功能。
	Lack of paint in the paint tank 涂料罐中涂料不足。 涂料箱	Refill paint tank 注满涂料罐
	Paint too viscous 涂料粘度过大	Verify the paint viscosity 检查涂料粘度
The paint is not flowing or only barely flowing upon exiting the gun. 涂料从喷枪喷出之前处于不流动, 或基本不流动的状态	Nozzle clogged 喷嘴堵塞	Clean the nozzle 清理喷嘴
	The nozzle needle does not retract 喷嘴针阀不能回缩	Verify the nozzle needle line 检查喷嘴针阀
	Clogged filters 过滤器堵塞	Clean the filters 清理过滤器
	No pump pressure 无泵机压力	Verify the pump 检查泵机
	Paint too viscous 涂料粘度过大	Verify the paint viscosity 检查涂料粘度
Obstructed paint hose 涂料软管堵塞	Unclog or change the paint hose 疏通或更换涂料软管	
The paint is constantly flowing. 涂料始终处于流动状态。	Foreign body preventing the nozzle needle from closing. 防止喷嘴针阀关闭的外来物	Disassemble the seat casing, clean it along with the seat. Clean the nozzle needle tip 代码是否匹配 清洁喷嘴针尖
	Worn nozzle needle 磨损的喷嘴针阀	Replace needle and, if necessary, the nozzle/tip holder 检查电刷架
	Damaged seat casing 损坏的底座外壳	Change the seat casing 更换底座外壳
The paint exits by the head air holes. 涂料从空气软管中流出。	Damaged cartridge 损坏的衬套	Change the cartridge 更换衬套
	Damaged paint joint 损坏的涂料连接口	Change the seal 更换密封圈
Poor spray 喷雾效果不佳	Nozzle partially clogged 喷嘴部分阻塞	Clean the nozzle 清理喷嘴
	Insufficient paint pressure 涂料压力不够	Increase the paint flow rate 增加涂料流量
	Excessive viscosity 粘度过大	Dilute the paint 稀释涂料
	Lack of air in the spray 喷雾中空气不够	Increase the air pressure 增加空气压力
	Excessive paint flow rate 涂料流量过大	Decrease the paint flow rate 减小涂料流量
	Nozzle damaged or worn 喷嘴损坏或磨损	Change the nozzle 更换喷嘴
Evaporation of solvents too fast 溶剂	Use heavier solvents 使用重质溶剂	

Orange peel effect 桔皮效应	剂挥发过快	
	Paint droplets too large 涂料液滴太大	Increase the spraying distance 增加喷射距离
		Dilute the paint 稀释涂料
		Increase the paint pressure 增大涂料压力
		Reduce the nozzle size 减小喷嘴尺寸
Increase the electrostatic effect 增大静电效应		

Defaults 默认值	Possible Causes 可能原因	Remedies 补偿	
Running / dripping paint 流动/滴落的涂料	Evaporation of solvents too slow 溶剂挥发过慢	Use more lightweight solvents 使用更轻质的溶剂	
	Speed of application too slow 喷射速度过慢	Slow the paint flow rate 减少涂料流量 Decrease the electrostatic effect 减小静电效应	
Paint spray poorly distributed 涂料喷雾分布不均匀	Excessive paint flow rate 涂料流量过大	Decrease the paint flow rate 减小涂料流量	
	Nozzle too thick 喷嘴太厚	Increase the air pressure 增加空气压力 Use a smaller and thinner nozzle 使用更小、更薄的喷嘴	
	Viscosity of the paint excessive 涂料粘度过大	Dilute the paint 稀释涂料	
	Air orifices partially blocked 气孔部分阻塞	Clean the spraying head 清理喷头	
Little electrostatic effect 静电效应太小	Absence of high voltage 电压太小	See indication on the control module 详见控制模块的说明。 module 模块	
	Insufficient high voltage 高压不足	Increase the high voltage 增加高压	
	Distance too great between spraying head and part 喷头和工件距离太大	Control the NANOGUN-MX output voltage 电压	Control the NANOGUN-MX output voltage 电压
		Spray at a distance lying between 200 and 300 mm 200-300mm	Spray at a distance lying between 200 and 300 mm 200-300mm
	Part not grounded 部件未接地	Clean the hooks. Verify the grounding of parts and the conveyor 零部件名称	
	Excessive ventilation 通风过度	Reduce the booth's suction flow rate, while respecting current regulations 在遵守现行规则的前提下减小喷房的抽风速度	
	Spraying pressure too high 喷射压力过高	Reduce the spraying pressure of the product and/or air 产品的建议和重要信息	
	Excessive paint flow rate 涂料流量过大	Reduce the paint flow rate 减小涂料流量	
	Excessive product resistivity 产品电阻过大	Reduce the product resistivity so that <math>< 500\text{M}\Omega\cdot\text{cm}</math> 至小于 500MΩ.cm	
	Generator short-circuit: 静电发生器短路: -通过外部 - by the exterior - 阳极;	Clean the gun exterior using a non-conductive solvent (电阻率 > 15 MΩ.cm) 清洁枪身外壳	Clean the gun exterior using a non-conductive solvent (电阻率 > 15 MΩ.cm)
Take a new cover, one that's clean and dry 满足干湿清洁要求		Take a new cover, one that's clean and dry 满足干湿清洁要求	
Generator short-circuit: 静电发生器短路: -通过外部 - by the nozzle needle line —通过喷嘴针阀	Change both the cartridge and the nozzle needle 喷嘴	Change both the cartridge and the nozzle needle 喷嘴	

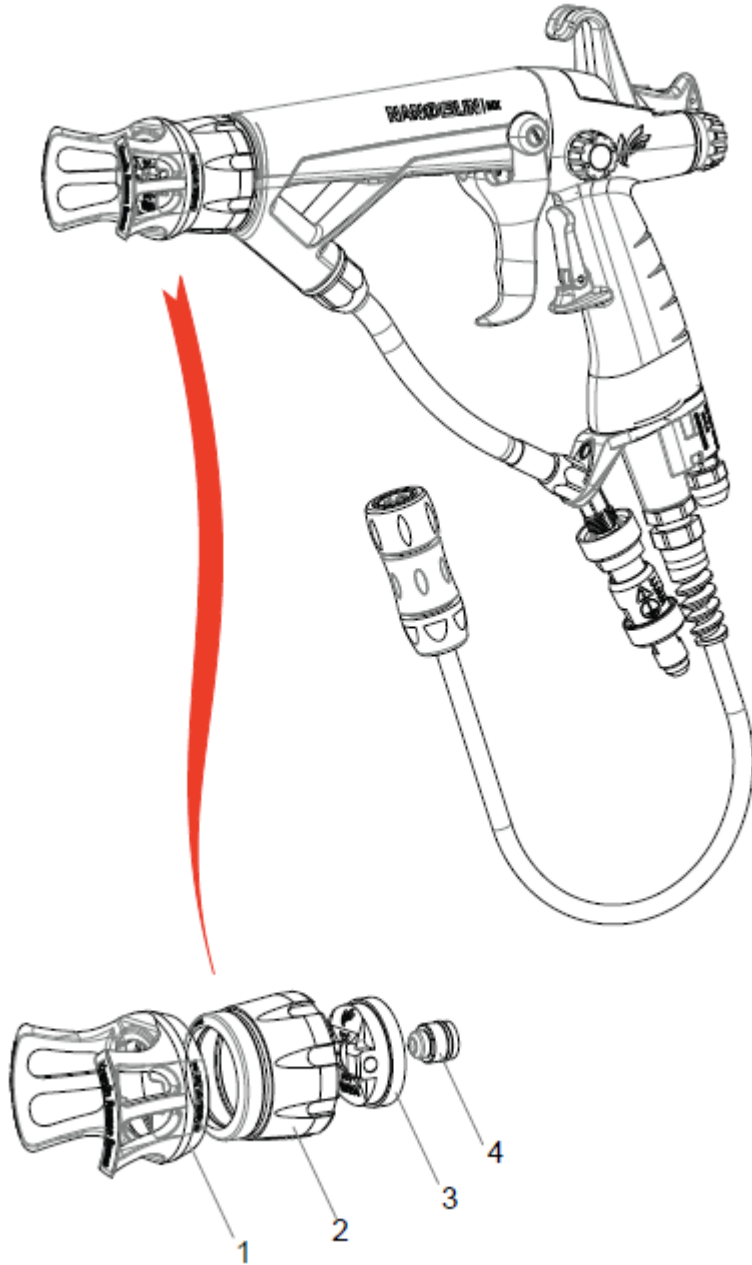
	Generator short-circuit: 静电发生器短路: -通过外部 - by the air channel —通过风道	Clean the air channels in the barrel 清 理枪筒中的风道
	Generator short-circuit: 静电发生器短路: -通过外部 - by the product hose —通过产品软管	Verify product resistivity based on 根据枪型检查产品电阻率 the gun model version
The operator has felt 操作人员触碰部件时察觉到漏电 electrical discharges when touching the part.	Part not grounded or poorly grounded 部件未接地或接地 不良	Verify the ground connections. The 检查接地接口 联邦快递公司博客 user must wear gloves and conductive shoes, in accordance with Standards EN 61340-4-3 and ISO20344. 用户必须按照 61340-4-3 标准和 ISO20344 的要求 穿戴手套和导电鞋

13. Spare parts

13. 备品备件

13.1 NANOGUN-MX guns for both high resistivity (HR) and low resistivity (LR) solvent-based paints

13.1 适用于高电阻（HR）和低电阻（LR）溶剂型涂料的 NANOGUN-MX 喷枪



DES06809

For the various options: [see § 13.12 page 60.](#)

关于其它选择: [请参见§ 13.12 第 60 页](#)

Item 项 目	Part Number 零件号	Description 描述	Qty 数 量	Sales 销售 unit 单位	Spare parts 备品备件 level (*) 等级 (*)
	910021070	NANOGUN-MX 120 bar HR JP with nozzle 09- NANOGUN-MX 120 bar HR JP, 配喷嘴 09- 091	1	1	-
	-	NANOGUN-MX gun (see § 13.2 page 50) NANOGUN-MX 喷枪(请参见 § 13.2 第 50 页)	-	-	-
1	900013829	Duckbill (included in Rep. 2) 鸭嘴件 (含在 2 中) 2)	1	1	3
2	910019358	Air cap ring (see § 13.1.2 page 49) 空气帽垫 圈 (请参见第 49 页 § 13.1.2)	1	1	1
3	130001435	Air cap 空气帽	1	1	3
4	130001420	Nozzle (see § 13.1.1 page 49) 喷嘴 (请参见 § 13.1.1 第 49 页)	1	1	1
Not shown 未显示					
	050123306	Adapter M1/2 JIC - F3/8NPS paint hose 适配器 M1/2 JIC- F3/8NPS 涂料软管	1	1	3

Item 项 目	Part Number 零件号	Description 描述	Qty 数 量	Sales 销售 unit 单 品 包 装	Spare parts 备品备件 level (*) 等级 (*)
	910021071-075	NANOGUN-MX 120 bars LR JP with nozzle 09- 091 and paint hose 7.5 m NANOGUN-MX 120 bars LR JP, 配 09- 091 喷嘴 和 7.5 m 涂料软管	1	1	-
	-	NANOGUN-MX gun (see § 13.2 page 50) NANOGUN-MX 喷枪(请参见 § 13.2 第 50 页)	-	-	-
1	900013829	Duckbill (included in Rep. 2) 鸭嘴件 (含在 2 中) 2)	1	1	3
2	910019358	Air cap ring (see § 13.1.2 page 49) 空气帽垫 圈 (请参见第 49 页 § 13.1.2)	1	1	1
3	130001435	Air cap 空气帽	1	1	3
4	130001420	Nozzle (see § 13.1.1 page 49) 喷嘴 (请参见 § 13.1.1 第 49 页)	1	1	1
Not shown 未显示					
	050123306	Adapter M1/2 JIC - F3/8NPS paint hose 适配 器 M1/2 JIC- F3/8NPS 涂料软管	1	1	3

Item 项 目	Part Number 零件号	Description 描述	Qty 数 量	Sales 销售 unit 单 位	Spare parts 备品备件 level (*) 等级 (*)
	910021071-150	NANOGUN-MX 120 bars LR JP with nozzle 09- NANOGUN-MX 120 bars LR JP, 配 09-091 091 and paint hose 15 m 喷嘴和 15 m 涂料软管	1	1	-

	-	NANOGUN-MX gun (see § 13.2 page 50) NANOGUN-MX 喷枪 (请参见 § 13.2 第 50 页)	-	-	-
1	900013829	Duckbill (included in Rep. 2) 鸭嘴件 (含在 2 中) 2)	1	1	3
2	910019358	Air cap ring (see § 13.1.2 page 49) 空气帽垫圈 (请参见第 49 页 § 13.1.2)	1	1	1
3	130001435	Air cap 空气帽	1	1	3
4	130001420	Nozzle (see § 13.1.1 page 49) 喷嘴 (请参见 §13.1.1 第 49 页)	1	1	1
Not shown 未显示					
	050123306	Adapter M1/2 JIC - F3/8NPS paint hose 适配器 M1/2 JIC- F3/8NPS 涂料软管	1	1	3

Item 项 目	Part Number 零件号	Description 描述	Qty 数 量	Sales 销售 unit 单位	Spare parts 备品备件 level (*) 等级 (*)
	910021071-300	NANOGUN-MX 120 bars LR JP with nozzle 09- NANOGUN-MX 120 bars LR JP, 配 09-091 091 and paint hose 30 m 091 和 30 m 涂料软管	1	1	-
	-	NANOGUN-MX gun (see § 13.2 page 50) NANOGUN-MX 喷枪 (请参见 § 13.2 第 50 页)	-	-	-
1	900013829	Duckbill (included in Rep. 2) 鸭嘴件 (含在 2 中) 2)	1	1	3
2	910019358	Air cap ring (see § 13.1.2 page 49) 空气帽垫圈 (请参见第 49 页 § 13.1.2)	1	1	1
3	130001435	Air cap 空气帽	1	1	3
4	130001420	Nozzle (see § 13.1.1 page 49) 喷嘴 (请参见 §13.1.1 第 49 页)	1	1	1
Not shown 未显示					
	050123306	Adapter M1/2 JIC - F3/8NPS paint hose 适配器 M1/2 JIC- F3/8NPS 涂料软管	1	1	3

Item 项 目	Part Number 零件号	Description 描述	Qty 数 量	Sales 销 售 unit 单 位	Spare parts 备 品 备 件 level (*) 等级 (*)
	910021076	NANOGUN-MX 200 bars HR JP with nozzle09- NANOGUN-MX 200 bars HR JP 配喷嘴 09- 091	1	1	-
	-	NANOGUN-MX gun (see § 13.2 page 50) NANOGUN-MX 喷枪(请参见 § 13.2 第 50 页)	-	-	-
1	900013829	Duckbill (included in Rep. 2) 鸭嘴件 (含在 2 中) 2)	1	1	3
2	910019358	Air cap ring (see § 13.1.2 page 49) 空气帽垫 圈 (请参见第 49 页 § 13.1.2)	1	1	1
3	130001435	Air cap 空气帽	1	1	3
4	130001420	Nozzle (see § 13.1.1 page 49) 喷嘴 (请参见 §13.1.1 第 49 页)	1	1	1
Not shown 未显示					
	050123306	Adapter M1/2 JIC - F3/8NPS paint hose 适配 器 M1/2 JIC- F3/8NPS 涂料软管	1	1	3

Item 项 目	Part Number 零件号	Description 描述	Qty 数 量	Sales 销 售 unit 单 品 包 装	Spare parts 备 品 等 级 level (*) 备 件 等 级 (*)
	910021077-075	NANOGUN-MX 200 bars LR JP with nozzle09- 091 and paint hose 7.5 m NANOGUN-MX 200 bars LR JP, 配 09- 091 喷嘴和 7.5 m 涂料软管	1	1	-
	-	NANOGUN-MX gun (see § 13.2 page 50) NANOGUN-MX 喷枪(请参见 § 13.2 第 50 页)	-	-	-
1	900013829	Duckbill (included in Rep. 2) 鸭嘴件 (含在 2 中) 2)	1	1	3
2	910019358	Air cap ring (see § 13.1.2 page 49) 空气帽垫 圈 (请参见第 49 页 § 13.1.2)	1	1	1
3	130001435	Air cap 空气帽	1	1	3
4	130001420	Nozzle (see § 13.1.1 page 49) 喷嘴 (请参见 §13.1.1 第 49 页)	1	1	1
Not shown 未显示					
	050123306	Adapter M1/2 JIC - F3/8NPS paint hose 适配 器 M1/2 JIC- F3/8NPS 涂料软管	1	1	3

Item 项 目	Part Number 零件号	Description 描述	Qty 数 量	Sales 销 售 unit 单 位	Spare parts 备 品 备 件 level (*) 等级 (*)
	910021077-150	NANOGUN-MX 200 bars LR JP with nozzle09- NANOGUN-MX 200 bars LR JP 配喷嘴 09- 091 and paint hose 15 m 喷嘴和 15 m 涂料软管	1	1	-
	-	NANOGUN-MX gun (see § 13.2 page 50) NANOGUN-MX 喷枪(请参见 § 13.2 第 50 页)	-	-	-
1	900013829	Duckbill (included in Rep. 2) 鸭嘴件 (含在 2 中) 2)	1	1	3
2	910019358	Air cap ring (see § 13.1.2 page 49) 空气帽垫 圈 (请参见第 49 页 § 13.1.2)	1	1	1

3	130001435	Air cap 空气帽	1	1	3
4	130001420	Nozzle (see § 13.1.1 page 49) 喷嘴 (请参见 §13.1.1 第 49 页)	1	1	1
Not shown 未显示					
	050123306	Adapter M1/2 JIC - F3/8NPS paint hose 适配器 M1/2 JIC- F3/8NPS 涂料软管	1	1	3

Item 项 目	Part Number 零件号	Description 描述	Qty 数 量	Sales 销售 unit 单位	Spare parts 备品备件 level (*) 等级 (*)
	910021077-300	NANOGUN-MX 200 bars LR JP with nozzle 09- NANOGUN-MX 200 bars LR JP 配喷嘴 09- 091 and paint hose 30 m 091 和 30 m 涂料软管	1	1	-
	-	NANOGUN-MX gun (see § 13.2 page 50) NANOGUN-MX 喷枪(请参见 § 13.2 第 50 页)	-	-	-
1	900013829	Duckbill (included in Rep. 2) 鸭嘴件 (含在 2 中) 2)	1	1	3
2	910019358	Air cap ring (see § 13.1.2 page 49) 空气帽垫圈 (请参见第 49 页 § 13.1.2)	1	1	1
3	130001435	Air cap 空气帽	1	1	3
4	130001420	Nozzle (see § 13.1.1 page 49) 喷嘴 (请参见 §13.1.1 第 49 页)	1	1	1
Not shown 未显示					
	050123306	Adapter M1/2 JIC - F3/8NPS paint hose 适配器 M1/2 JIC- F3/8NPS 涂料软管	1	1	3

(*) Level 1: Standard preventive maintenance.

(*) 1 级: 标准预防性维护

Level 2: Corrective maintenance.

2 级: 修复性维护

Level 3: Exceptional maintenance.

3 级: 特殊维护

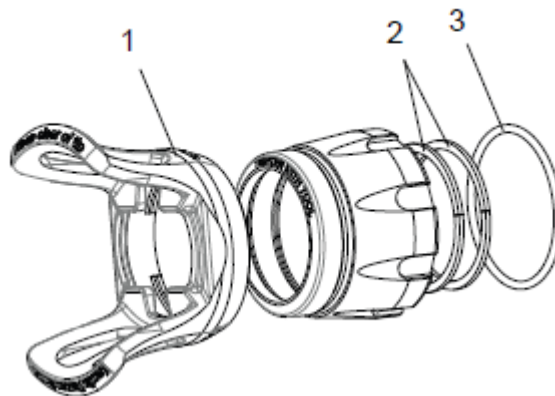
13.1.1 The nozzles as an option

13.1.1 可选喷嘴

Part Number 零件号	Description 描述	Quantity 数量
130001414	Nozzle MX04.111 MX04.111 喷嘴	Option 选项
130001415	Nozzle MX04.131 MX04.131 喷嘴	Option 选项
130001416	Nozzle MX06.091 MX06.091 喷嘴	Option 选项
130001417	Nozzle MX06.111 MX06.111 喷嘴	Option 选项
130001418	Nozzle MX06.131 MX06.131 喷嘴	Option 选项
130001419	Nozzle MX06.151 MX06.151 喷嘴	Option 选项
130001420	Nozzle MX09.091 MX09.091 喷嘴	1
130001421	Nozzle MX09.111 MX09.111 喷嘴	Option 选项
130001422	Nozzle MX09.131 MX09.131 喷嘴	Option 选项
130001423	Nozzle MX09.151 MX09.151 喷嘴	Option 选项
130001424	Nozzle MX12.091 MX12.091 喷嘴	Option 选项
130001425	Nozzle MX12.111 MX12.111 喷嘴	Option 选项
130001426	Nozzle MX12.131 MX12.131 喷嘴	Option 选项
130001427	Nozzle MX12.151 MX12.151 喷嘴	Option 选项
130001428	Nozzle MX14.091 MX14.091 喷嘴	Option 选项
130001429	Nozzle MX14.111 MX14.111 喷嘴	Option 选项
130001430	Nozzle MX14.131 MX14.131 喷嘴	Option 选项
130001431	Nozzle MX14.151 MX14.151 喷嘴	Option 选项
130001432	Nozzle MX14.171 MX14.171 喷嘴	Option 选项
130001433	Nozzle MX18.111 MX18.111 喷嘴	Option 选项
129609901	Sieve no. 4 筛号 4	10
900012793	Sealant washer 密封垫圈	10

13.1.2 Fitted air cap ring

13.1.2 定制空气帽垫圈



Item 项目	Part Number 零件号	Description 描述	Qty 数量	Sales unit 销售单位	Spare parts level (*) 备品备件等级 (*)
	910019358	Fitted air cap ring 定制空气帽垫圈	1	1	1
1	900013829	Duckbill 鸭嘴件	1	1	3
2	900010164	PTFE flat seal PTFE 平面密封件	2	1	1
3	160000170	FEP/FKM seal FEP/FKM 密封件	1	1	1

(*)

Level 1: Standard preventive maintenance.

1 级：标准预防性维护

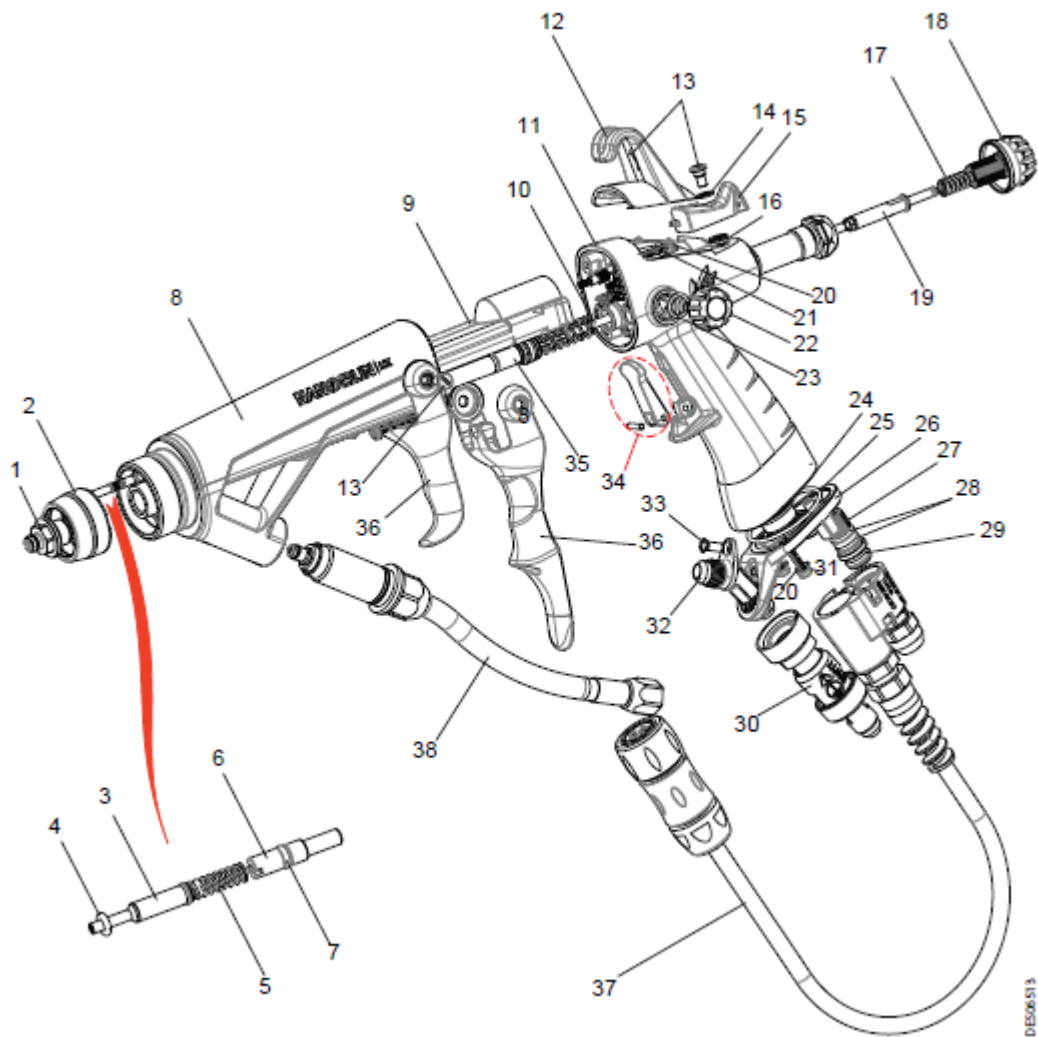
Level 2: Corrective maintenance.

2 级：修复性维护

Level 3: Exceptional maintenance.

3 级：特殊维护

13.2NANOGUN-MX gun
 13.2NANOGUN-MX 喷枪



D15506-513

Item 项 目	Part Number 零件号	Description 描述	Qty 数量	Sales unit 单 品包 装	Spare 备用件 parts level (* 备用 件等级 (*))
	-	NANOGUN-MX gun NANOGUN-MX 喷枪	-	-	-
1	910019359	Fitted seat casing (see § 13.3 page 53) 专用底座外壳 (参见§13.3 第 53 页)	1	1	1
2	910019360	Nanogun MX fitted adapter Nanogun MX 专用适配器 (see § 13.4 page 53) (请参见§13.4 第 53 页)	1	1	3
3	910015934	Fitted high-voltage contact (included in 专用高压接点 (包含在 3 内) item 8) 8)	1	1	2
4	J3STKL014 J3S TKL014	Chemically inert O-ring (included in item 3) 惰性 O 型圈 (包含在 3 内)	1	1	2
5	900014787	Spring (included in item 3) 弹簧 (包含在 3 内)	1	1	1
6	910019356	High-voltage contact screw (included in 高压接触螺钉 (包含在 item 8) 8)	1	1	1
7	J2FTDF014 J2F TDF014	O-ring (included in item 6) O 型圈 (包含在 6 内)	1	1	1
8	910019514	Equipped barrel (see § 13.5 page 54) 枪筒 请参见§ 13.5 第 54 页	1	1	3
9	910015508	Equipped high-voltage cascade 高压级联 连接	1	1	3
10	910019508	Fitted needle (see § 13.7 page 56) 专用针 (请参见§13.7 第 56 页)	1	1	1
11	910022672	Fitted NANOGUN-MX handle 120 bar 专用 NANOGUN-MX 把手 120 bar	1	1	3
	910022679	Fitted NANOGUN-MX handle 200 bar 专用 NANOGUN-MX 把手 200 bar	1	1	3
12	900010239	Fastening hook 固定挂钩	1	1	3
13	900010385	C M4 curved washer head screw C M4 曲线 形垫圈螺钉	4	1	3
14	900013808	PTFE flat washer (included in item 15) PTFE 平垫圈 (包含在 15 内)	1	1	2
15	910018204	On/off handle with o-ring and magnet 含 O 型圈和磁铁的开/关把手 (included in item11) (包含在 11 中)	1	1	3
16	J3STKL005 J3S TKL005	Chemically inert O-ring (included in item 15) 惰性 O 型圈 (包含在 15 内)	1	1	1
17	900010266	Paint spring 120 bar 涂料弹簧 120bar	1	1	1
	900010267	Paint spring 200 bar 涂料弹簧 200 bar	1	1	1
18	900010240	Knurl back of paint 涂料	1	1	3
19	900010882	High-pressure paint stop 高压涂料关闭装置	1	1	3
20	250000036	Handle / barrel fastening screw 把手/枪筒固 定螺丝	4	1	3
21	J4BRND039 J4 BRND039	Fibre joint for fastening screw 固定螺丝的纤 维连接	6	1	3
22	910014166	Fitted additional air settings button 增大进气设置按钮 (included in item11) (包含在 11 中)	1	1	3
23	J2FTDF121 J2F TDF121	Black FKM O-ring (included in item 22) 黑色 FKM O 型圈 (包含在 22 中)	1	1	1
24	160000041	Gray chemically inert seal (included in item 灰色惰性密封圈 (包括在	1	1	1

		11)			
25	160000067	Red FKM seal (included in item11) 红色 FKM 密封圈 (包含在 11 中)	1	1	1
26	900010013	HR gun base HR 喷枪底座	1	1	3
	900010009	LR gun base LR 喷枪底座	1	1	3
27	910006118	Fitted air nipple 专用空气接头	1	1	2
28	J2FTCF018 J2F TCF018	Black FKM O-ring (included in item 27) 黑色 FKM O 型圈 (包含在 27 中)	2	1	1
29	J3STKL018 J3S TKL018	White chemically inert O-ring 白色惰性 O 型圈 (included in item 27) (包含在 27 中)	1	1	1

30	F6RLUF171 F6 RLUF171	Rotating air coupling 旋转空气连接头	option 选项	1	3
31	250000037	Base-handle fastening screw 底座-把手固定 螺丝钉	2	1	3
32	900010605	55° elbow 55°弯头	1	1	3
33	250000214	Elbow fastening screw 弯头紧固螺钉	1	1	3
34	910022663	Trigger / pin lock assembly 扳手/定位销固 定总成	1	1	3
35	910018203	Fitted air valve (see § 13.6 page 55) 专用空 气阀 (请参见§13.6 第 55 页)	1	1	3
36	900010237	Trigger 扳机	1	1	3
	900014446	4-finger trigger 4-手指扳机	1 option 选项	1	3
37	910015869-XXX 910015869-XX X	Electro-pneumatic coupling 电一气耦合 (see § 13.8 page 56) (请参见§13.8 第 56 页)	1	1	3
38	910020147	Equipped HR product hose 4 HR 产品 软管 4	1	1	2

(*)

Level 1: Standard preventive maintenance.

1 级: 标准预防性维护

Level 2: Corrective maintenance.

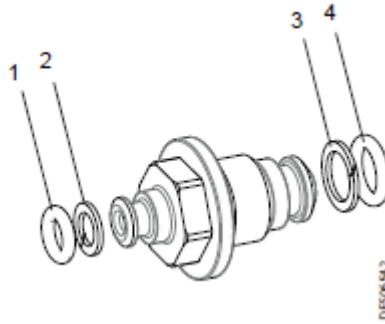
2 级: 修复性维护

Level 3: Exceptional maintenance.

3 级: 特殊维护

13.3 Equipped seat casing

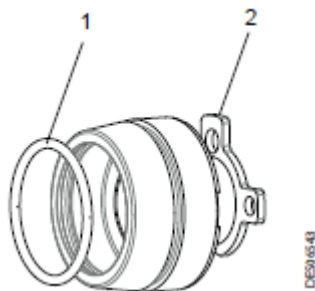
13.3 底座套



Item 项目	Part Number 零件号	Description 描述	Qty 数量	单 品 包 装	备 用 件 (*) 备 用 件 等 级 (*)
	910019359	Equipped seat casing 底座套	1	1	1
1	J3STKL046 J3STKL046	O-ring - chemically inert O型圈 - 化学惰性	1	1	1
2	900013368	Anti-extrusion ring 挡圈	1	1	1
3	900012300	Anti-extrusion ring 挡圈	1	1	1
4	J3STKL075 J3STKL075	O-ring - chemically inert O型圈 - 化学惰性	1	1	1

13.4 Equipped adapter

13.4 转接器



Item 项目	Part Number 零件号	Description 描述	Qty 数量	Sales unit 单 品 包 装	Spar e parts level (*) 备 件 等 级
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					(*)
	910019360	Equipped adapter 转接器	1	1	3
1	J2FENV288 J2FENV288	O-ring - FEP FKM O型圈—FEP FKM	1	1	1
2	900014821	Flat seal 平面密封	1	1	1

(*)

Level 1: Standard preventive maintenance.

1 级：标准预防性维护

Level 2: Corrective maintenance.

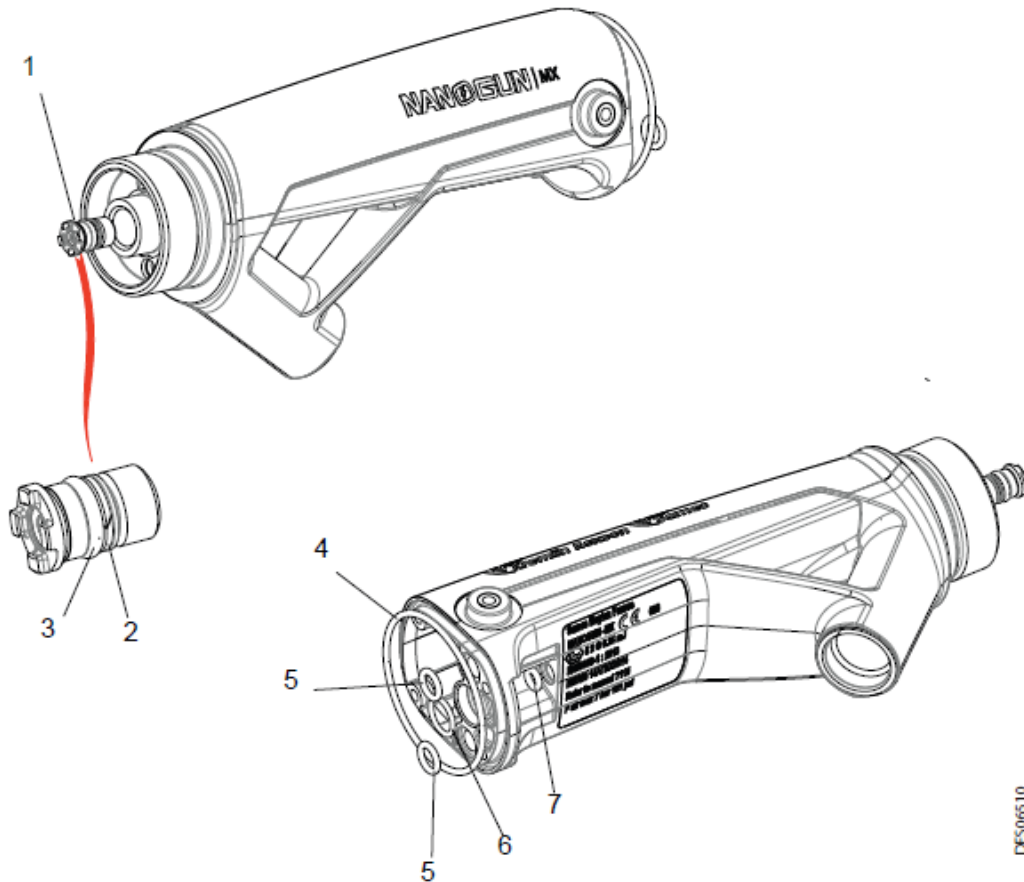
2 级：修复性维护

Level 3: Exceptional maintenance.

3 级：特殊维护

13.5 Equipped barrel

13.5 枪筒



DES006510

Item 项目	Part Number 零件号	Description 描述	Qty 数量	Sales unit 单 品包 装	Spar e parts level (*) 备 件 等 级 (*)
	910019514	Equipped barrel 枪筒	1	1	3
1	910015881	Seal cartridge 密封衬套	1	1	1
2	900012782	Anti-extrusion ring (included in Rep. 1) 防挤压环 (包括在 Rep. 1)	1	1	1
3	J3STKL005 J3STKL005	O-ring - chemically inert (included in Rep. 1) O型圈 - 惰性 (包含在 1)	1	1	1
4	J2FENV435 J2FENV435	O-ring - FEP Viton O型圈 - FEP Viton	1	1	1
5	J3STKL078 J3STKL078	O-ring - chemically inert O型圈 - 化学惰性	2	1	1
6	J3STKL019 J3STKL019	O-ring - chemically inert O型圈 - 化学惰性	1	1	1
7	J3STKL032 J3STKL032	O-ring - chemically inert O型圈 - 化学惰性	1	1	1

(*)

Level 1: Standard preventive maintenance.

1 级：标准预防性维护

Level 2: Corrective maintenance.

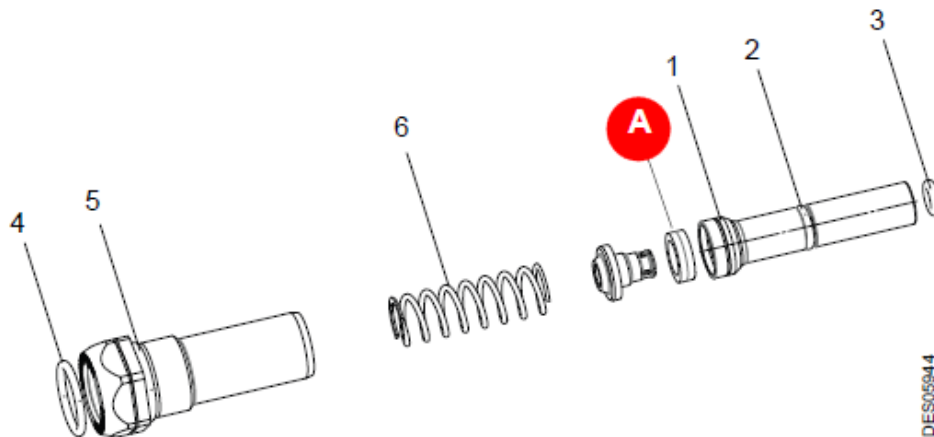
2 级：修复性维护

Level 3: Exceptional maintenance.

3 级：特殊维护

13.6 Equipped air valve and air valve Nut

13.6 空气阀和空气阀螺母



Item 项目	Part Number 零件号	Description 描述	Qty 数量	Sales 销售 unit 单位	Spare parts 备品备件 level (*) 等级 (*)
	910018203	Equipped air valve 空气阀	1	1	3
1	900010256	Sealing ring 密封环	1	1	1
2	J3STKL005 J3STKL005	O-ring - chemically inert (exterior valve) O型圈 - 惰性 (外阀)	1	1	1
3	J3STKL032 J3STKL032	O-ring - chemically inert (interior valve) O型圈 - 化学惰性 (内阀)	1	1	1
	910015922	Equipped air valve nut 空气阀螺母	1	1	3
4	J2FTDF155 J2FTDF155	Black FKM O-ring 黑色 FKM O型圈	1	1	1
5	J2FTDF160 J2FTDF160	Black FKM O-ring 黑色 FKM O型圈	1	1	1
6	900009024	Air spring 空气弹簧	1	1	1

(*)

Level 1: Standard preventive maintenance.

1 级：标准预防性维护

Level 2: Corrective maintenance.

2 级：修复性维护

Level 3: Exceptional maintenance.

3 级：特殊维护

WARNING : Recover the magnet on the former air valve in order to retain the same trigger values.

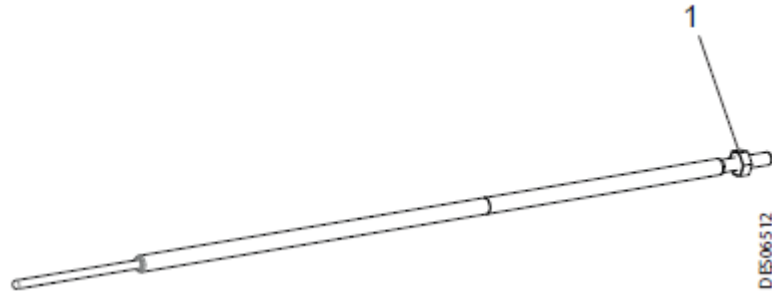
警告：在前空气阀中装回磁铁，保留扳机参数。

In case the magnet is lost, contact Sames Technologies.

如果磁铁遗失，请联系 Sames Technologies。

13.7 Equipped needle

13.7 枪针



Item 项 目	Part Number 零件号	Description 描述	Qty 数 量	Sales unit 单 品 包 装	Spare parts level (*) 备件等级 (*)
	910019508	Equipped needle 枪针	1	1	1
1	X7CEHU003 X7CEHU003	H M3 U brass nut H M3 U 黄铜螺母	1	1	3

(*)

Level 1: Standard preventive maintenance.

1 级：标准预防性维护

Level 2: Corrective maintenance.

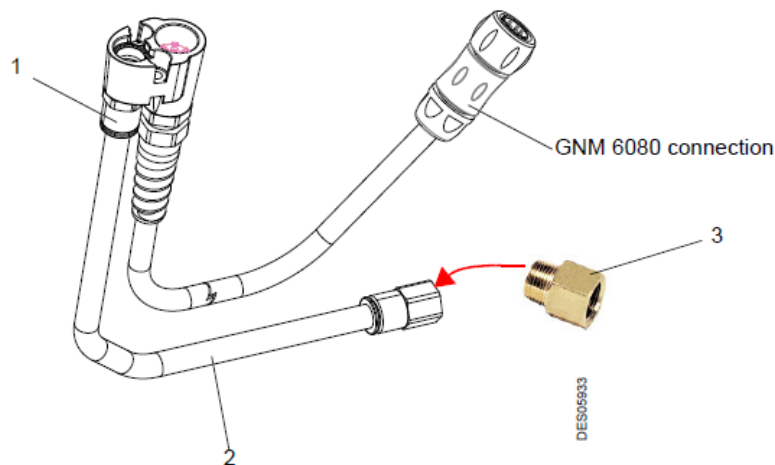
2 级：修复性维护

Level 3: Exceptional maintenance.

3 级：特殊维护

13.8 Electro-pneumatic couplings

13.8 电一气耦合



Item	Part Number 零件号	Description 描述	Qty 数	Sales unit	Spare parts
Index revision : A索引版本: A		82	7115		

项目			量	单 品包 装	level 备件 等级
	910015869-100	10-m electro-pneumatic coupling 10m 电气耦合	1	1	3
	910015869-200	20-m electro-pneumatic coupling 20m 电气耦合	1	1	3
	910015869-300	30-m electro-pneumatic coupling 30m 电气耦合	1	1	3
1	F6RLUF171 F6RLUF171	Simple male union 简单的外螺纹接管	1	1	3
2	910021087-100	Equipped air hose outer diameter: 10 空气软管外径: 10	10 m 10m	1	1
	910021087-200		20 m 20 m		
	910021087-300		30 m 30 m		
3	F6RLHG362 F6RLHG362	NPT female / BSP male adapter NPT 内螺纹接头/BSP 外螺纹接头	option 选项	1	3

13.9 Paint hoses

13.9 涂料软管

13.9.1 For NANOGUN-MX HR guns

13.9.1 NANOGUN-MX HR 喷枪用



Item 项目	Part Number 零件号	Description 描述	Quantity 数量	Sales 销售 unit 单位	Spare parts 备品备件 level (*) 等 级 (*)
1	910019204-075	Black 7.5-m HR product hose 5 黑色 7.5-m HR 产品软管 5	1	1	1
	910019204-150	Black 15-m HR product hose 5 黑色 15-m HR 产品软管 5	1	1	1
	910019204-300	Black 30-m HR product hose 5 黑色 30-m HR 产品软管 5	1	1	1
2	910020147	Equipped product hose 4 产品软管 4	1	1	2
2a	J3STKL028 J3STKL028	Chemically inert O-ring (included in item 2) 惰性 O 型圈 (包含在 2)	1	1	1
2b	900013398	Anti-extrusion ring (included in item 2) 挡圈 (包含在 2 中)	1	1	1
2c	J2FTDF177 J2FTDF177	Black FKM O-ring (included in item 2) 黑色 FKM O 型圈 (包含在 2 中)	1	1	1

13.9.2 For NANOGUN-MX LR guns

13.9.2 NANOGUN-MX LR 喷枪用



Item 项目	Part Number 零件号	Description 描述	Quantity 数量	Sales 销售 unit 单位	Spare parts 备品备件 level (*) 等 级 (*)
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			量	单位	级 (*)
1	910020165-075	PTFE 7.5-m LR product hose 5 PTFE 7.5-m LR 产品软管	5	1	1
	910020165-150	PTFE 15-m LR product hose 5 PTFE 15-m LR 产品软管	5	1	1
	910020165-300	PTFE 30-m LR product hose 5 PTFE 30-m LR 产品软管	5	1	1
1a	1a J3STKL028 J3STKL028	Chemically inert O-ring 惰性 O 型圈 (included in item 1) (包含在 1 中)	1	1	1
1b	1b 900013398	Anti-extrusion ring (included in item1) 挡圈 (包含在 1 中)	1	1	1
1c	1c J2FTDF177 J2FTDF177	Black FKM O-ring (included in item 1) 黑色 FKM O 型圈 (包含在 1 中)	1	1	1
2	910018292	Stuffing box + nut 填料函+螺母	1	1	2

(*) Level 1: Standard preventive maintenance.

(*) 1 级: 标准预防性维护

Level 2: Corrective maintenance.

2 级: 修复性维护

Level 3: Exceptional maintenance.

3 级: 特殊维护

13.10 Nanogun MX seal kit

13.10 Nanogun MX 密封套件

Part Number 零件号	Designation 名称	Location 位置	Quantity 数量
910022694	Nanogun MX seal kit Nanogun MX 密封套件		1
J3STKL005 J3STKL005	Chemically inert O-ring 惰性 O 型圈	Barrel, air valve, on/off button 枪筒、空气阀、开关 按钮	3
J2FENV435 J2FENV435	FEP/FKM O-ring FEP/FKM O 型圈	Barrel 枪筒	1
J3STKL078 J3STKL078	Chemically inert O-ring 惰性 O 型圈	Barrel 枪筒	2
J3STKL019 J3STKL019	Chemically inert O-ring 惰性 O 型圈	Barrel 枪筒	1
910015881	Seal cartridge 密封衬套	Barrel 枪筒	1
J3STKL032 J3STKL032	Chemically inert O-ring 惰性 O 型圈	Barrel, air valve 枪筒、空气 阀	2
900012782	Anti-extrusion ring 挡圈	Barrel 枪筒	1
160000041	Chemically inert O-ring 惰性 O 型圈	Handle 把手	1
160000067	Red FKM O-ring 红色 FKM O 型圈	Handle 把手	1
J2FTCF018 J2FTCF018	Black FKM O-ring 黑色 FKM O 型圈	Air nipple 空气接头	2
J3STKL018 J3STKL018	Chemically inert O-ring 惰性 O 型圈	Air nipple 空气接头	1
J4BRND039 J4BRND039	Fiber seal 纤维密封圈	Handle-barrel fastening, 把手-枪筒固定件, base-handle fastening 底座- 把手固定件	6
900010256	Sealing ring 密封环	Air valve 空气阀	1
J3STKL075 J3STKL075	Chemically inert O-ring 惰性 O 型圈	Equipped seat casing 底座套	1
900012300	Anti-extrusion ring 挡圈	Equipped seat casing 底座套	1
J3STKL046 J3STKL046	Chemically inert O-ring 惰性 O 型圈	Equipped seat casing 底座套	1
900013368	Anti-extrusion ring 挡圈	Equipped seat casing 底座套	1
900014821	Adapter flat joint 适配器平接头	Equipped adapter 转接器	1
J2FENV288 J2FENV288	FEP/FKM O-ring FEP/FKM O 型圈	Equipped adapter 转接器	1
J3STKL014 J3STKL014	Chemically inert O-ring 惰性 O 型圈	High-voltage contact 高压接 点	1

13.11 GNM 6080 control module

13.11 GNM 6080 控制模块



Item 项目	Part Number 零 件号	Description 描述	Qty 数量	Sales 销售 unit 单位	Spare parts 备品备件 level (*) 等级 (*)
	910017193	GNM 6080 CE control module GNM 6080 CE 控制模块	1	1	3
	910017192	GNM 6080 CSA control module GNM 6080 CSA 控制模块 (only USA and CANADA) (仅在美国和加拿大 使用)	1	1	3
	910005759	GNM 6080 fastening kit GNM 6080 固定套 件	1	1	3
	842635	5-m mass cable, lug D: 6 5-m 电线, lug D: 6	1	1	3

(*)

Level 1: Standard preventive maintenance.

1 级: 标准预防性维护

Level 2: Corrective maintenance.

2 级: 修复性维护

Level 3: Exceptional maintenance.

3 级: 特殊维护

13.12 Options for NANOGUN-MX guns

Online product filter

13.12 NANOGUN-MX 喷枪在线产品过滤器

选择

Designation 名称	Part Number 零件号	Versions 型号
Filter (M / F 1/2 JIC) 过滤器 (M / F 1/2 JIC)	130000322	HR / LR* 120 or 200 bar HR / LR* 120 或 200 bar
Sieve 6 滤网 6	129609908	HR/LR 120 or 200 bar HR/LR 120 或 200 bar

* Reduced filter dimension installed under the gun handle for the HR versions or at the pump out- let for the LR versions (in which case, the pump must be equipped with a M 1/2 JIC output coupling)
HR 型把手下方安装小尺寸的滤网，或 LR 型喷枪在泵机输出口安装(这种情况下，泵机必须安装 M 1/2 JIC 输出接头)

Rotating coupling

旋转接头

Designation 名称	Part Number 零件号	Versions 型号
High-pressure product 高压产品 rotating coupling (M / F 1/2 JIC) 旋转接头 (M / F 1/2 JIC)	129670405	HR (versions 120 and 200 bar) HR (120 和 200 bar 型号)

13.13 Appendices


13.13 附件

13.13.1 Hose protection casing

13.13.1 软管保护套


This casing protects the hoses and cables, thereby guaranteeing flexibility and longevity.

外壳可保护软管和电线，因此灵活性强，使用寿命长。

Description 描述	Part Number 零件号	Sales unit 单品包装
Rilsan hose protection duct with 30 collars Rilsan 软管保护导管，30 圈 	910021086	50-m roll 50-m 卷轴


13.13.2 Gun protection cover

13.13.2 喷枪保护罩

Description 描述	Part Number 零件号	Sales unit 单品包装
Protective cover 防护 	900011711	10


13.13.3 Warning sign

13.13.3 警告标志

Description 描述	Part Number 零件号	Sales unit 单品包装
 Warning sign 警告标志	1407684	1

13.13.4 Safety relief valve

13.13.4 安全减压阀

Description 描述	Part Number 零件号	Sales unit 单品包装
<p>Safety relief valve 6.5 bar 1/4 G 安全阀 6.5 bar 1/4 G</p> 	903080401	1

14. The various versions

14. 各种型号

14.1 Equipment

14.1 设备

Titre最低量	Pistolet NANOGUN MX "Haute Pression" HPistolet NANOGUN MX "Haute Pression" HP		
Title最低量	NANOGUN MX gun type High Pressure" HPNANOGUN MX 喷枪类型高压" HP		
	Pistolet NANOGUN MX CEPistolet NANOGUN MX CE		
N° GUNN° 喷枪	Pistolet NANOGUN MX HP Haute résistivité HRPistolet NANOGUN MX HP Haute résistivité HR		
	NANOGUN MX gun type HP High Resistivity LRNANOGUN MX 喷枪类型 HR 高压 LR		
	CECE		
910021070	Haute résistivité 120 barsHaute résistivité 120 bars		
910021070-075	Haute résistivité 120 barsHaute résistivité 120 bars		
910021070-150	Haute résistivité 120 barsHaute résistivité 120 bars		
910021070-300	Haute résistivité 120 barsHaute résistivité 120 bars		
910021076	Haute résistivité 200 barsHaute résistivité 200 bars		
910021076-075	Haute résistivité 200 barsHaute résistivité 200 bars		
910021076-150	Haute résistivité 200 barsHaute résistivité 200 bars		
910021076-300	Haute résistivité 200 barsHaute résistivité 200 bars		
N° GUNN° 喷枪	Pistolet NANOGUN MX HP Basse résistivité LRPistolet NANOGUN MX HP Basse résistivité LR		
	NANOGUN MX gun type HP Low Resistivity LRNANOGUN MX 喷枪类型 HP 低电阻 LR		
	CECE		
910021071-075	Basse résistivité 120 barsBasse résistivité 120 bars		
910021071-150	Basse résistivité 120 barsBasse résistivité 120 bars		
910021071-300	Basse résistivité 120 barsBasse résistivité 120 bars		
910021077-075	Basse résistivité 200 barsBasse résistivité 200 bars		
910021077-150	Basse résistivité 200 barsBasse résistivité 200 bars		
910021077-300	Basse résistivité 200 barsBasse résistivité 200 bars		
N° GUNN° 喷枪	Equipement NANOGUN MX CENANOGUN MX CE设备	N° GUNN° 喷枪	Equipement NANOGUN MX USNANOGUN MX US设备
	Equipment NANOGUN MX CENANOGUN MX CE设备		Equipment NANOGUN MX USNANOGUN MX US设备
910021113-07	Equipement Nanogun MX HR 120b Ig 7,5 EUNanogun MX HR 120b Ig 7,5 EU设备	910021113-072	Equipement Nanogun MX HR 120b Ig 7,5 USNanogun MX HR 120b Ig 7,5 US设备
910021113-15	Equipement Nanogun MX HR 120b Ig 15 EUNanogun MX HR 120b Ig 15 EU设备	910021113-152	Equipement Nanogun MX HR 120b Ig 15 USNanogun MX HR 120b Ig 15 US设备
910021113-30	Equipement Nanogun MX HR 120b Ig 30 EUNanogun MX HR 120b Ig 30 EU设备	910021113-302	Equipement Nanogun MX HR 120b Ig 30 USNanogun MX HR 120b Ig 30 US设备
910021115-07	Equipement Nanogun MX HR 200b Ig 7,5 EUNanogun MX HR 200b Ig 7,5 EU设备	910021115-072	Equipement Nanogun MX HR 200b Ig 7,5 USNanogun MX HR 200b Ig 7,5 US设备
910021115-15	Equipement Nanogun MX HR 200b Ig 15 EUNanogun MX HR 200b Ig 15 EU设备	910021115-152	Equipement Nanogun MX HR 200b Ig 15 USNanogun MX HR 200b Ig 15 US设备
910021115-30	Equipement Nanogun MX HR 200b Ig 30 EUNanogun MX HR 200b Ig 30 EU设备	910021115-302	Equipement Nanogun MX HR 200b Ig 30 USNanogun MX HR 200b Ig 30 US设备
910021114-07	Equipement Nanogun MX LR 120b Ig 7,5 EUNanogun MX LR 120b Ig 7,5 EU设备	910021114-072	Equipement Nanogun MX LR 120b Ig 7,5 USNanogun MX LR 120b Ig 7,5 US设备
910021114-15	Equipement Nanogun MX LR 120b Ig 15 EUNanogun MX LR 120b Ig 15 EU设备	910021114-152	Equipement Nanogun MX LR 120b Ig 15 USNanogun MX LR 120b Ig 15 US设备
910021114-30	Equipement Nanogun MX LR 120b Ig 30 EUNanogun MX LR 120b Ig 30 EU设备	910021114-302	Equipement Nanogun MX LR 120b Ig 30 USNanogun MX LR 120b Ig 30 US设备
910021116-07	Equipement Nanogun MX LR 200b Ig 7,5 EUNanogun MX LR 200b Ig 7,5 EU设备	910021116-072	Equipement Nanogun MX LR 200b Ig 7,5 USNanogun MX LR 200b Ig 7,5 US设备

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910021116-15	Equipement Nanogun MX LR 200b Ig 15 EU Nanogun MX LR 200b Ig 15 EU 设备	910021116-152	Equipement Nanogun MX LR 200b Ig 15 US Nanogun MX LR 200b Ig 15 US 设备
910021116-30	Equipement Nanogun MX LR 200b Ig 30 EU Nanogun MX LR 200b Ig 30 EU 设备	910021116-302	Equipement Nanogun MX LR 200b Ig 30 US Nanogun MX LR 200b Ig 30 US 设备
N°N°	Module GNM 6080 CE GNM 6080 CE 型号 Control module GNM 6080 CE GNM 6080 CE 控制模块	N°N°	Module GNM 6080 US GNM 6080 US 型号 Control module GNM 6080 US GNM 6080 US 控制模块
910017193	Module de commande GNM 6080 version Europe Module de commande GNM 6080 欧洲版	910017192	Module de commande GNM 6080 version US Module de commande GNM 6080 美国版
N°N°	Liaison électro-pneumatique Liaison électro-pneumatique Electro-pneumatic coupling set 电-气耦合		
910015869-100	Liaison électropneumatique 10m liaison électropneumatique 10m		
910015869-200	Liaison électropneumatique 20m liaison électropneumatique 20m		
910015869-300	Liaison électropneumatique 30m liaison électropneumatique 30m		
N°N°	Tuyau produit Nanogun MX HR Tuyau produit Nanogun MX HR Nanogun MX HR paint hose Nanogun MX HR 涂料软管		
910019204-075	Tuyau produit HR 7,5m noir D: 5 Tuyau produit HR 7,5m noir D: 5		
910019204-150	Tuyau produit HR 15m noir D: 5 Tuyau produit HR 15m noir D: 5		
910019204-300	Tuyau produit HR 30m noir D: 5 Tuyau produit HR 30m noir D: 5		
N°N°	Tuyau produit Nanogun MX LR Tuyau produit Nanogun MX LR Nanogun MX LR paint hose Nanogun MX LR 涂料软管		
910020165-075	Tuyau produit LR PTFE 7,5m D: 5 Tuyau produit LR PTFE 7,5m D:5		
910020165-150	Tuyau produit LR PTFE 15m D: 5 Tuyau produit LR PTFE 15m D:5		
910020165-300	Tuyau produit LR PTFE 30m D: 5 Tuyau produit LR PTFE 30m D:5		

Configuration配置	Part Number零件号	GNM 6080 CEGNM 6080 CE	GNM 6080 US / CSAGNM 6080 US / CSA	Electro-pneumatic coupling 电—气耦合 10m10m	Electro-pneumatic coupling 电—气耦合 20m20m	Electro-pneumatic coupling 电—气耦合 30m30m	HR hoseHR 软管 7,5m7, 5m	HR hoseHR 软管 15m15m	HR hoseHR 软管 30m30m	LR hoseLR 软管 7,5m7, 5m	LR hoseLR 软管 15m15m	LR hoseLR 软管 30m30m	Nozzle喷嘴 09-091
		910017193	910017192	910015869-100	910015869-200	910015869-300	910019204-075	910019204-150	910019204-300	910020165-075	910020165-150	910020165-300	130001420
Spray Guns喷枪													
Sprary Gun HR 120 bars aloneHR 120 bars 仅喷枪	910021070												
Spray Gun HR 120 barsHR 120 bars 喷枪	910021070-075			X×			X×						X×
Spray Gun HR 120 barsHR 120 bars 喷枪	910021070-150				X×			X×					X×
Sparay Gun HR 120 barsHR 120 bars 喷枪	910021070-300					X×			X×				X×
Spray Gun LR 120 barsLR 120 bars 喷枪	910021071-075			X×						X×			X×
Spray Gun LR 120 barsLR 120 bars 喷枪	910021071-150				X×						X×		X×
Spray Gun LR 120 barsLR 120 bars 喷枪	910021071-300					X×						X×	X×
Spray Gun HR 200 bars aloneHR 200 bars 仅喷枪	910021076												X×
Spray Gun HR 200 barsHR 200 bars 喷枪	910021076-075			X×			X×						X×
Spray Gun HR 200 barsHR 200 bars 喷枪	910021076-150				X×			X×					X×
Spray Gun HR 200 barsHR 200 bars 喷枪	910021076-300					X×			X×				X×
Spray Gun LR 200 barsLR 200 bars 喷枪	910021077-075			X×						X×			X×
Spray Gun LR 200 barsLR 200 bars 喷枪	910021077-150				X×						X×		X×
Spray Gun LR 200 barsLR 200 bars 喷枪	910021077-300					X×						X×	X×
Equipments设备名称													
Equipment Nanogun MX HR 120b lg 7.5 EUNanogun MX HR 120b lg 7.5 EU 设备	910021113-07	X×		X×			X×						X×
Equipment Nanogun MX HR 120b lg 15 EUNanogun MX HR 120b lg 15 EU 设备	910021113-15	X×			X×			X×					X×
Equipment Nanogun MX HR 120b lg 30 EUNanogun MX HR 120b lg 30 EU 设备	910021113-30	X×				X×			X×				X×
Equipment Nanogun MX	910021114-07	X×		X×						X×			X×

LR 120b Ig 7.5 EUNanogun MX LR 120b Ig 7.5 EU 设备													
Equipment Nanogun MX LR 120b Ig 15 EUNanogun MX LR 120b Ig 15 EU 设备	910021114-15	X×			X×						X×		X×
Equipment Nanogun MX LR 120b Ig 30 EUNanogun MX LR 120b Ig 30 EU 设备	910021114-30	X×				X×						X×	X×
Equipment Nanogun MX HR 200b Ig 7.5 EUNanogun MX HR 200b Ig 7.5 EU 设备	910021115-07	X×			X×			X×					X×
Equipment Nanogun MX HR 200b Ig 15 EUNanogun MX HR 200b Ig 15 EU 设备	910021115-15	X×				X×			X×				X×
Equipment Nanogun MX HR 200b Ig 30 EUNanogun MX HR 200b Ig 30 EU 设备	910021115-30	X×					X×			X×			X×
Equipment Nanogun MX LR 200b Ig 7.5 EUNanogun MX LR 200b Ig 7.5 EU 设备	910021116-07	X×			X×						X×		X×
Equipment Nanogun MX LR 200b Ig 15 EUNanogun MX LR 200b Ig 15 EU 设备	910021116-15	X×				X×					X×		X×
Equipment Nanogun MX LR 200b Ig 30 EUNanogun MX LR 200b Ig 30 EU 设备	910021116-30	X×					X×					X×	X×
Equipment Nanogun MX HR 120b Ig 7.5 USNanogun MX HR 120b Ig 7.5 US 设备	910021113-072			X×	X×			X×					X×
Equipment Nanogun MX HR 120b Ig 15 USNanogun MX HR 120b Ig 15 US 设备	910021113-152			X×		X×			X×				X×
Equipment Nanogun MX HR 120b Ig 30 USNanogun MX HR 120b Ig 30 US 设备	910021113-302			X×			X×			X×			X×
Equipment Nanogun MX LR 120b Ig 7.5 USNanogun MX LR 120b Ig 7.5 US 设备	910021114-072			X×	X×						X×		X×
Equipment Nanogun MX	910021114-152			X×		X×						X×	X×

LR 120b lg 15 USNanogun MX LR 120b 1g 15 US 设备													
Equipment Nanogun MX LR 120b lg 30 USNanogun MX LR 120b 1g 30 US 设备	910021114-302		X×			X×						X×	X×
Equipment Nanogun MX HR 200b lg 7.5 USNanogun MX HR 200b 1g 7.5 US 设备	910021115-072		X×	X×			X×						X×
Equipment Nanogun MX HR 200b lg 15 USNanogun MX HR 200b 1g 15 US 设备	910021115-152		X×		X×			X×					X×
Equipment Nanogun MX HR 200b lg 30 USNanogun MX HR 200b 1g 30 US 设备	910021115-302		X×			X×			X×				X×
Equipment Nanogun MX LR 200b lg 7.5 USNanogun MX LR 200b 1g 7.5 US 设备	910021116-072		X×	X×						X×			X×
Equipment Nanogun MX LR 200b lg 15 USNanogun MX LR 200b 1g 15 US 设备	910021116-152		X×		X×						X×		X×
Equipment Nanogun MX LR 200b lg 30 USNanogun MX LR 200b 1g 30 US 设备	910021116-302		X×			X×						X×	X×