MILNOR

30015T_, V_; 30022H_, T_, V_
36021, 36026, 42026, 42030V_
MWR_

PELLERIN MILNOR CORPORATION
POST OFFICE BOX 400, KENNER, LOUISIANA 70063-0400, U.S.A.
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Safety Guide—

Rigid Washer Extractors

PELLERIN MILNOR CORPORATION  POST OFFICE BOX 400, KENNER, LOUISIANA 70063 - 0400, U.S.A.
Applicable Milnor® products by model number:

- 30015T5E 30015T5X 30015T6X 30015V7J 30015V8Z 30015VRJ 30022T5E
- 30022T5X 30022T6X 30022V8Z 30022VRJ 36021V5Z 36021V7Z 36026V5Z
- 36026V7Z 42026V6Z 42030V6Z MWR12E5 MWR12J5 MWR12X5 MWR16E5
- MWR16J5 MWR16X5 MWR18E4 MWR18J6 MWR18X4 MWR18X6 MWR27E5
- MWR27J5 MWR27X5
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1. General Safety Requirements—Vital Information for Management Personnel

Incorrect installation, neglected preventive maintenance, abuse, and/or improper repairs, or changes to the machine can cause unsafe operation and personal injuries, such as multiple fractures, amputations, or death. The owner or his selected representative (owner/user) is responsible for understanding and ensuring the proper operation and maintenance of the machine. The owner/user must familiarize himself with the contents of all machine instruction manuals. The owner/user should direct any questions about these instructions to a Milnor® dealer or the Milnor® Service department.

Most regulatory authorities (including OSHA in the USA and CE in Europe) hold the owner/user ultimately responsible for maintaining a safe working environment. Therefore, the owner/user must do or ensure the following:

- recognize all foreseeable safety hazards within his facility and take actions to protect his personnel, equipment, and facility;
- work equipment is suitable, properly adapted, can be used without risks to health or safety, and is adequately maintained;
- where specific hazards are likely to be involved, access to the equipment is restricted to those employees given the task of using it;
- only specifically designated workers carry out repairs, modifications, maintenance, or servicing;
- information, instruction, and training is provided;
- workers and/or their representatives are consulted.

Work equipment must comply with the requirements listed below. The owner/user must verify that installation and maintenance of equipment is performed in such a way as to support these requirements:

- control devices must be visible, identifiable, and marked; be located outside dangerous zones; and not give rise to a hazard due to unintentional operation;
- control systems must be safe and breakdown/damage must not result in danger;
- work equipment is to be stabilized;
- protection against rupture or disintegration of work equipment;
- guarding, to prevent access to danger zones or to stop movements of dangerous parts before the danger zones are reached. Guards to be robust; not give rise to any additional hazards; not be easily removed or rendered inoperative; situated at a sufficient distance from the danger zone; not restrict view of operating cycle; allow fitting, replacing, or maintenance by restricting access to relevant area and without removal of guard/protection device;
- suitable lighting for working and maintenance areas;
- maintenance to be possible when work equipment is shut down. If not possible, then protection measures to be carried out outside danger zones;
- work equipment must be appropriate for preventing the risk of fire or overheating; discharges of gas, dust, liquid, vapor, other substances; explosion of the equipment or substances in it.

1.1. Laundry Facility

Provide a supporting floor that is strong and rigid enough to support—with a reasonable safety factor and without undue or objectionable deflection—the weight of the fully loaded machine and the forces transmitted by it during operation. Provide sufficient clearance for machine movement.
Provide any safety guards, fences, restraints, devices, and verbal and/or posted restrictions necessary to prevent personnel, machines, or other moving machinery from accessing the machine or its path. Provide adequate ventilation to carry away heat and vapors. Ensure service connections to installed machines meet local and national safety standards, especially regarding the electrical disconnect (see the National Electric Code). Prominently post safety information, including signs showing the source of electrical disconnect.

1.2. Personnel
Inform personnel about hazard avoidance and the importance of care and common sense. Provide personnel with the safety and operating instructions that apply to them. Verify that personnel use proper safety and operating procedures. Verify that personnel understand and abide by the warnings on the machine and precautions in the instruction manuals.

1.3. Safety Devices
Ensure that no one eliminates or disables any safety device on the machine or in the facility. Do not allow machine to be used with any missing guard, cover, panel or door. Service any failing or malfunctioning device before operating the machine.

1.4. Hazard Information
Important information on hazards is provided on the machine safety placards, in the Safety Guide, and throughout the other machine manuals. **Placards must be kept clean so that the information is not obscured. They must be replaced immediately if lost or damaged. The Safety Guide and other machine manuals must be available at all times to the appropriate personnel.** See the machine service manual for safety placard part numbers. Contact the Milnor Parts department for replacement placards or manuals.

1.5. Maintenance
Ensure the machine is inspected and serviced in accordance with the norms of good practice and with the preventive maintenance schedule. Replace belts, pulleys, brake shoes/disks, clutch plates/tires, rollers, seals, alignment guides, etc. before they are severely worn. Immediately investigate any evidence of impending failure and make needed repairs (e.g., cylinder, shell, or frame cracks; drive components such as motors, gear boxes, bearings, etc., whining, grinding, smoking, or becoming abnormally hot; bending or cracking of cylinder, shell, frame, etc.; leaking seals, hoses, valves, etc.) Do not permit service or maintenance by unqualified personnel.

— End of BIUUUS04 —
2. Internal Electrical and Mechanical Hazards

2.1. Safety Placards—Internal Electrical and Mechanical Hazards

One or more safety placards on the machine, similar to the following, alert personnel to hazards inside the machine and in electrical enclosures.

Figure 1: Internal Electrical and Mechanical Hazards

Figure 2: Internal Electrical and Mechanical Hazards

2.2. Safety Alert Messages—Internal Electrical and Mechanical Hazards

The following are instructions about hazards inside the machine and in electrical enclosures.

WARNING 1: Electrocution and Electrical Burn Hazards—Contact with electric power can kill or seriously injure you. Electric power is present inside the cabinetry unless the main machine power disconnect is off.

• Do not unlock or open electric box doors.
• Do not remove guards, covers, or panels.
• Do not reach into the machine housing or frame.
• Keep yourself and others off of machine.
• Know the location of the main machine disconnect and use it in an emergency to remove...
Internal Electrical and Mechanical Hazards

all electric power from the machine.

WARNING 2: Entangle and Crush Hazards—Contact with moving components normally isolated by guards, covers, and panels, can entangle and crush your limbs. These components move automatically.

• Do not remove guards, covers, or panels.
• Do not reach into the machine housing or frame.
• Keep yourself and others off of machine.
• Know the location of all emergency stop switches, pull cords, and/or kick plates and use them in an emergency to stop machine motion.

— End of BIUUUS21 —
3. Cylinder and Processing Hazards


One or more safety placards on the machine, similar to the following, alert personnel to hazards related to the cylinder and laundering process.

Figure 3: Cylinder and Processing Hazards
3.2. Safety Alert Messages—Cylinder and Processing Hazards

The following are instructions about hazards related to the cylinder and laundering process.

**DANGER 3: Entangle and Sever Hazards**—Contact with goods being processed can cause the goods to wrap around your body or limbs and dismember you. The goods are normally isolated by the locked cylinder door.

- Do not attempt to open the door or reach into the cylinder until the cylinder is stopped.
- Do not touch goods inside or hanging partially outside the turning cylinder.
- Do not operate the machine with a malfunctioning door interlock.
- Know the location of all emergency stop switches, pull cords, and/or kick plates and use them in an emergency to stop machine motion.
- Know the location of the main machine disconnect and use it in an emergency to remove all electric power from the machine.

**WARNING 4: Crush Hazards**—Contact with the turning cylinder can crush your limbs. The cylinder will repel any object you try to stop it with, possibly causing the object to strike or stab you. The turning cylinder is normally isolated by the locked cylinder door.

- Do not attempt to open the door or reach into the cylinder until the cylinder is stopped.
- Do not place any object in the turning cylinder.
- Do not operate the machine with a malfunctioning door interlock.

**WARNING 5: Confined Space Hazards**—Confinement in the cylinder can kill or injure you. Hazards include but are not limited to panic, burns, poisoning, suffocation, heat prostration, biological contamination, electrocution, and crushing.

- Do not attempt unauthorized servicing, repairs, or modification.
WARNING 6: Explosion and Fire Hazards—Flammable substances can explode or ignite in the cylinder, drain trough, or sewer. The machine is designed for washing with water, not any other solvent. Processing can cause solvent-containing goods to give off flammable vapors.

- Do not use flammable solvents in processing.
- Do not process goods containing flammable substances. Consult with your local fire department/public safety office and all insurance providers.

— End of BIUUUS23 —
4. Safety Alert Messages—Unsafe Conditions

4.1. Damage and Malfunction Hazards

4.1.1. Hazards Resulting from Inoperative Safety Devices

DANGER 7: Entangle and Sever Hazards—Cylinder door interlock—Operating the machine with a malfunctioning door interlock can permit opening the door when the cylinder is turning and/or starting the cycle with the door open, exposing the turning cylinder.

• Do not operate the machine with any evidence of damage or malfunction.

WARNING 8: Multiple Hazards—Operating the machine with an inoperative safety device can kill or injure personnel, damage or destroy the machine, damage property, and/or void the warranty.

• Do not tamper with or disable any safety device or operate the machine with a malfunctioning safety device. Request authorized service.

WARNING 9: Electrocution and Electrical Burn Hazards—Electric box doors—Operating the machine with any electric box door unlocked can expose high voltage conductors inside the box.

• Do not unlock or open electric box doors.

WARNING 10: Entangle and Crush Hazards—Guards, covers, and panels—Operating the machine with any guard, cover, or panel removed exposes moving components.

• Do not remove guards, covers, or panels.

4.1.2. Hazards Resulting from Damaged Mechanical Devices

WARNING 11: Multiple Hazards—Operating a damaged machine can kill or injure personnel, further damage or destroy the machine, damage property, and/or void the warranty.

• Do not operate a damaged or malfunctioning machine. Request authorized service.

WARNING 12: Explosion Hazards—Cylinder—A damaged cylinder can rip apart during extraction, puncturing the shell and discharging metal fragments at high speed.

• Do not operate the machine with any evidence of damage or malfunction.

WARNING 13: Explosion Hazards—Clutch and speed switch (multiple motor machines)—A damaged clutch or speed switch can permit the low speed motor to engage during extract. This will over-speed the motor and pulleys and can cause them to rip apart, discharging metal fragments at high speed.

• Stop the machine immediately if any of these conditions occur: • abnormal whining sound during extract • skidding sound as extract ends • clutches remain engaged or re-engage during extract
4.2. Careless Use Hazards

4.2.1. Careless Operation Hazards—Vital Information for Operator Personnel (see also operator hazards throughout manual)

**WARNING 14: Multiple Hazards**—Careless operator actions can kill or injure personnel, damage or destroy the machine, damage property, and/or void the warranty.

- Do not tamper with or disable any safety device or operate the machine with a malfunctioning safety device. Request authorized service.
- Do not operate a damaged or malfunctioning machine. Request authorized service.
- Do not attempt unauthorized servicing, repairs, or modification.
- Do not use the machine in any manner contrary to the factory instructions.
- Use the machine only for its customary and intended purpose.
- Understand the consequences of operating manually.

4.2.2. Careless Servicing Hazards—Vital Information for Service Personnel (see also service hazards throughout manuals)

**WARNING 15: Electrocution and Electrical Burn Hazards**—Contact with electric power can kill or seriously injure you. Electric power is present inside the cabinetry unless the main machine power disconnect is off.

- Do not service the machine unless qualified and authorized. You must clearly understand the hazards and how to avoid them.
- Abide by the current OSHA lockout/tagout standard when lockout/tagout is called for in the service instructions. Outside the USA, abide by the OSHA standard in the absence of any other overriding standard.

**WARNING 16: Entangle and Crush Hazards**—Contact with moving components normally isolated by guards, covers, and panels, can entangle and crush your limbs. These components move automatically.

- Do not service the machine unless qualified and authorized. You must clearly understand the hazards and how to avoid them.
- Abide by the current OSHA lockout/tagout standard when lockout/tagout is called for in the service instructions. Outside the USA, abide by the OSHA standard in the absence of any other overriding standard.

**WARNING 17: Confined Space Hazards**—Confinement in the cylinder can kill or injure you. Hazards include but are not limited to panic, burns, poisoning, suffocation, heat prostration, biological contamination, electrocution, and crushing.

- Do not enter the cylinder until it has been thoroughly purged, flushed, drained, cooled, and immobilized.

— End of BIUUUS14 —
中国的
警告: The information contained in this manual has been provided by Pellerin Milnor Corporation in the **English version only**. Milnor has tried to obtain a quality translation, but makes no claims, promises, or guarantees about the accuracy, completeness, or adequacy of the information contained in the non-English version.

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适用的 Milnor® 产品型号:

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### 通用安全守则—对管理人员十分重要的信息

安装不正确、忽视定期的维护保养、未获授权及/或不正确的维修，以及改装机器均可能导致机器安全事故及人身伤害，如骨折、截肢、甚或死亡。机器的所有者或其指定代表必须了解机器并确保对机器进行正确使用和维护。所有者/使用者必须熟知机器使用说明书的内容。如果对说明书有任何疑问，应当咨询深圳中施或者Milnor®的维保部门。

大多数政府当局制定的法规，如美国的OSHA和欧洲的CE标准，规定机器的所有者/使用者对提供安全的工作环境负有主要责任。因此，机器所有者/使用者必须做到或者确保达到以下：

- **对于厂房及设备的安全隐患进行识别并采取预防措施，保证员工、设备及设施的安全。**
- **设备适宜并安装正确，使用时对健康或安全无害，并进行定期的维护保养；**
- **如果可能有一定的危险性，只有操作人员允许靠近并使用设备；**
- **只有特别指定的员工可以对设备进行维修、改动或维护保养；**
- **提供信息、操作指引以及培训；**
- **征询工人及/或工人代表的意见。**

所运行的设备必须与以下要求相符。设备所有者/使用者必须确保设备的安装和维护足以满足这些要求：

- **控制系统必须可见，可识别并有标记；放置于危险区域之外；不会导致无意操作引发事故；**
- **控制系统必须安全，发生故障或损坏时不会产生危险；**
- **设备运行稳定；**
- **保护工作设备，避免其开裂；**
- **采用防护装置：防止任何人员进入危险区域，或进入危险区域之前必须停止危险部件的运行。防护装置必须结实并不易移动或拆除，不会产生二次危险；远离危险区有足够的距离；不影响运转角度；不进入危险区域、无需拆除防护装置即可进行安装、更换零件或维修保养；**
- **工作和维保区有适当的照明；**
- **设备关闭后可以进行维护。如不然，则必须在危险区外实施保护措施；**
- **设备必须保持良好的状况，避免火险或过热；不会因排放气体、粉尘、液体、蒸汽及其它物质产生风险；不会因设备本身或内含物质产生爆炸危险。**

#### 1.1 洗衣房设施

地基必须稳固坚硬—达到一定的安全系数并相对水平—承受机器满载时的重量和机器运转时传送的作用力。预留足够的空间以便移动机器。提供必需的安全防护装置、防护栏、口头和书面的说明书，限制和防止工作人员、机器、其他移动器械靠近机器及通道。提供适当的排风口以保证流通空气带走热量和水蒸汽。确保机器的安装维修符合地区及国家安全标准，尤其是电路断开。张贴明显的安全警告，包括切断电源的指示标志。
1.2. 工作人员
告知相关工作人员如何避免危险，提醒他们保持警觉、谨防疏漏。为工作人员提供相关的安全和操作说明。核实工作人员是否使用了正确安全和操作程序，是否明白及严格遵守机器上标识的和说明书里指示的安全警告及预防条款。

1.3. 安全装置
确保机器或厂房内没有任何安全装置漏装或失效。在机器缺少任何防护装置，顶盖、面板或筒体门时，禁止使用机器。修理好机器上所有故障后才能运行机器。

1.4. 危险信息
关于机器危险的重要信息在机器的安全警示牌、安全指南和其他机器说明书里有说明。安全警示牌必须保持清洁，防止上面的信息模糊。安全警示遗失或损坏后要立刻更换。机器的安全指南及其它说明书必须随时可供相关工作人员查阅。查阅机器的维修保养说明书来获取安全警示的零件编号。如需更换安全警示牌或说明书，请联系我们。

1.5. 维护保养
确保按照例行标准及定期维保计划对机器进行检修保养。在皮带、皮带轮、轴、轴套和密封压盖等零件严重损坏前就要及时更换。一旦发现明显的问题，必须及时查明原因，并进行必要的修理。（例如：滚筒、筒体、框架破裂；转动元件如电机、传动组件、轴承等磨损、弯曲、冒烟、过热；滚筒、筒体、轴承壳体弯曲破裂；密封胶条、进水管和进水阀等漏水漏气。）不允许没有维修资格的人员对机器进行维修保养。

--- 完 BIUUS04 ---
2. 机器内部电及机械危险

2.1. 安全警示牌—机器内部电及机械危险 [文件 BIUUUS15]

贴在机器上的一张或者多张安全警示，类似于下面图示：提示员工注意机器内的危险及电气箱内的危险。

图 1: 机器内部电及机械危险

图 2: 机器内部电及机械危险

2.2. 安全公告—机器内部电及机械危险 [文件 BIUUUS11]

贴在机器上的一张或者多张安全张贴，类似于下图：提示职员注意机器内的危险及电器箱内的危险。

警告 1: 电死或电灼伤危险—
触电可致死或致重伤。如果机器总电源没有切断，电气箱内仍然有电。
• 不要打开电气箱的锁或门。
• 不要挪开防护装置，护罩，面板。
• 不要将手伸入机器内或框架内。
• 自己及他人不要接近机器。
• 知道机器总电源的位置，以便遇到紧急情况时切断电源。

警告 2: 肢体缠住及碾压危险—
运转的零部件通常有防护栏、盖板，和面板隔离开。接触可能会使肢体被缠住或碾压。
一些零部件通常是自动运转的。
• 不要挪开防护装置，如罩、面板。
• 不要将手伸入机器内或框架内。
• 自己及他人不要接近机器。
• 知道紧急断闸开关、拉绳和/或踢板的具体位置，在关键时刻能用来停止机器转动。

——完 BIUUUS21 ——
3. 滚筒转动过程中发生危险

3.1. 安全警示牌—滚筒转动过程中发生危险 [文件 BIUUUS17]
贴在机器上的一张或者多张安全警示，类似于下面图示：提示员工注意滚筒及洗涤过程中的危险。

图 3: 滚筒转动过程中发生危险
滚筒转动过程中发生危险

图 4: 滚筒转动过程中发生危险

以下是介绍的是一些关于滚筒和洗涤过程可能出现的危险。

### 危险 3: 肢体被缠住及切断的危险
接触到这些在洗涤中的衣物，将可能导致你身体或四肢被卷住或分解。通常，衣物都会被筒体门隔离开来。
- 滚筒停止转动之前，不要试图打开筒体门或将手伸进滚筒内。
- 滚筒正在转动时，不要接触其里面的衣物，也不要将部分衣物悬挂在其外部。
- 机器门锁有故障后，不要操作机器。
- 知道紧急断闸开关、拉绳和/或踢板的具体位置，关键时刻能用来停止机器转动。
- 知道机器总电源的位置，以便遇到紧急情况时切断电源。

### 警告 4: 压伤风险
与旋转筒体的接触可能会压伤你的肢体。筒体会击退任何一件试图用来阻止其转动的物体，可能会导致此物体击伤/刺伤身体。旋转的筒体通常是由锁紧的筒体门隔离开来的。
- 滚筒停止转动之前，不要试图打开筒体门或将手伸进滚筒内。
- 不要于旋转滚筒上，放置任何物体。
- 机器门锁有故障后，不要操作机器。

### 警告 5: 被夹挤于滚筒内的危险
被夹挤在滚筒内可能将你致重伤或致死。危险不仅限于，惊慌，烧伤，中毒，窒息，热晕，生物污染，电死，碾死。
- 没有授权之前请不要擅自维修或改装机器。

### 警告 6: 爆炸及火灾危险
易燃物质在滚筒、排水管或下水道中可引起爆炸或燃烧。机器设计是用水洗，不可使用其他溶剂，如果使用其他溶剂，洗涤时可使含有溶剂的布草挥发出易燃蒸汽。
- 洗涤过程中，不要用易燃溶剂。
滚筒转动过程中发生危险

- 不要洗涤含易燃物质的布草，咨询当地的消防部门/公安局及保险公司。

—完 BIUUUS23 —
4. 安全公告——其它不安全的情况

4.1. 机器损坏及故障危险

4.1.1. 安全装置不工作导致的危险

危险7: 肢体被缠住及切断的危险——筒体门锁——
门锁有故障的机器，在运行和/或开始运行过程中导致筒体门被打开，而使旋转中的滚筒暴露出来。

• 不要操作有明显损坏或故障的机器

警告8: 多样化危险——
当安全保险装置失效时操作机器，可能使员工致死或受伤、损坏或损毁机器、破坏财物和/或使保修失效。

• 请不要损坏任何安全装置，安全装置出现故障时不可操作机器。寻求授权经销商的服务。

警告9: 电死或电灼伤危险——电气箱门——
当电气箱门没锁上就操作机器时，会使电气箱内部的高压元件暴露出来，这样就造成触电致死或致伤。

• 不要打开电气箱的锁或门。

警告10: 肢体缠住及碾压危险——防护栏、护罩和面板——
在有护栏、护罩或面板隔开机器旋转部件的情况下才能操作机器。

• 不要挪开防护装置，护罩，面板。

4.1.2. 受损的机械设备引发的危险

警告11: 多样化危险——
当安全保险装置失效时操作机器，会使员工致死或受伤、损坏或损毁机器、破坏财物和/或使保修失效

• 不要操作已损坏或有故障的机器，需经获得授权的人员进行维修。

警告12: 爆炸危险——滚筒——
受损的滚筒在旋转过程中能出现裂分，刺破筒体，在高速旋转中还会甩出金属碎片。

• 不要操作有明显损坏或故障的机器

警告13: 爆炸危险——离合器及速度控制档(对于多电机的机器)——
离合器或速度控制开关损坏时，可能引起低速电机在高速甩干过程中运转，从而引起电机及皮带轮速度过载，导致它们分裂，金属碎片高速甩出。

• 有以下情况发生的立刻停止机器: • 甩干过程中听到反常的尖锐声• 甩干结时听到拽拽声• 甩干过程中，离合器保持运作或重新运作
安全公告—其它不安全的情况

4.2. 粗心使用引发的危险

4.2.1. 粗心操作引发危险—
对操作员工至关重要的信息（参阅整本说明书中提到的操作者危险）

警告 [14]: 多样化危险—
由操作者的粗心行为可能导致人员死伤，损坏或损毁机器，破坏财物，和/或保修失效。

• 请不要损坏任何安全装置，安全装置出现故障时不可操作机器。寻求授权经销商的服务。
• 不要操作已损坏或有故障的机器，需经获得授权的人员进行维修。
• 没有授权之前请不要擅自维修或改装机器。
• 不要以与工厂说明相反的方式使用机器。
• 仅按既定用途使用机器。
• 清楚操作说明书的重要性。

4.2.2. 粗心维护引发危险—
对维保员工至关重要的信息（查阅整本说明书中提到的维修危险）

警告 [15]: 电死或电灼伤危险—
触电可致死或致重伤。如果机器总电源没有切断，电气箱内仍然有电。

• 只有经过资格确认及授权的人员才可对机器进行维修。你必须清楚所有危险及懂得如何避免这些危险。
• 遵循通用OSHA标准，当维修说明文件里要求停止机器工作才进行时。在美国境外，如果没有要求遵循其他更重要的标准时，则遵循OSHA标准。

警告 [16]: 肢体缠住及碾压危险—
运转的零部件通常有防护栏、盖板，和面板隔离开。接触可能会使肢体被缠住或碾压。这些零部件通常是自动运转的。

• 只有经过资格确认及授权的人员才可对机器进行维修。你必须清楚所有危险及懂得如何避免这些危险。
• 遵循通用OSHA标准，当维修说明文件里要求停止机器工作才进行时。在美国境外，如果没有要求遵循其他更重要的标准时，则遵循OSHA标准。

警告 [17]: 被夹挤于滚筒内的危险—
被夹挤在滚筒内可能将你致重伤或致死。危险不仅限于，惊慌，烧伤，中毒，窒息，热晕，生物污染，电死，碾死。
• 滚筒没有彻底清洗，冲刷，排干，冷却和固定不动之前，不要进入。