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1. INTRODUCTION 简介

1.1. General notes 设备概述

Identification data
标识数据

Machine type:
机器类型

Valeo MSCL assembly line

Model No:
产品型号

Order No:
订单号

RCS-C11046-08

To be entered by
customer

Inventory No.:
库存号

Location:
位置

Manufacturer's address
厂商地址

Name of company:
公司名称

Ruhlamat
Automation Technologies (Suzhou) Co., Ltd.
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Document data
文件资料

Document No. of
operating manual:
操作手册文件号

001

Version
版本

01

Edition:
修订时间

2012-2

1.2. Purpose of the Document 文件用途

This operating manual shall be used to make the owner familiar with the machine's

此操作手册旨在使机器的所有者熟悉设备的

- mode of operation, 操作模式
- operation, 操作方法
- safety hints and 安全提示
- maintenance 故障维修

1.3. Storage 文件存放



Important

**Keep this operating manual near the machine!
It should be always at hand!**

请将操作手册放于设备旁边，以便随时查阅。

2. BASIC SAFETY NOTES 安全指示

This section of the operating manual includes important hints to safely operate the machine.

操作手册的这节内容包含安全运行设备的重要指示。

2.1. Obligation and Liability 责任和义务

Observe the hints given in the operating manual:

遵守操作手册中的提示

Knowledge of the basic safety hints and safety regulations is a basic condition for safe handling and trouble-free operation of the machine. Thus this operating manual, particularly the safety hints should be followed by all persons working at the machine. In addition, the accident prevention rules and regulations applicable at the place of use should be followed.

掌握基本的安全指示和规则是安全和正确操作设备的根本条件。因此所有人员在作业时必须遵守操作手册，尤其是其中的安全指示。此外还须遵守场所作业安全防护规则与规定。

Risks when handling the machine:

设备操作时的风险

This machine has been rebuilt according to the original work status. However, risks may occur for the health and life of the operator or third parties or damage to the machine and other property during operation.

此机器是根据原始工况再制造的。但在操作过程中也可能会对操作人员的生命健康，第三方利益，机器设备，以及其他财产造成威胁和损害。

2.1.1. Warranty and Liability 保证和义务

Our “General Terms and Conditions of Sale and Delivery” shall be applicable in any case which will be provided to the owner on signing the contract at the latest version.

在签订最新版本的合同后我方提供的“销售运输一般条款和条件”在任何情况下都适用。

No warranty and liability claims for injury and property damage will be accepted if due to one or more of the following causes:

当发生以下一种或多种情况而导致伤害和财产损失时，我方概不负责：

Use of the machine for purposes other than the intended
用于其它不相关的目的

Improper mounting, start-up, operation and maintenance of the machine
对机器不当的装配、启动、操作和保养

Operation of the machine with defective safety devices and safeguards which have not been attached properly and which are out of function
使用有连接缺陷的安全设施和失效的安全装置

Non-observance of the hints given in the operating manual for transport, erection, start-up, operation and maintenance of the machine
未遵照操作手册中的指示对机器进行运输、装配、启动、操作和保养

Unauthorised structural modification to the machine, improper supervision of parts of the machine which are subject to wear
未经许可对机器做结构性整改和对易损件的不合理监管

Improper repair work
不合理的修理工作

Disasters due to external effect and Force Majeure
外力和不可抗力影响下引起的灾难

2.2. Safety Symbols 安全符号

The operating manual includes important safety hints. For these symbols and signal words are used, the meaning of which is described here:

此操作手册包含了重要的安全指示，下面就列出这些安全符号的使用和说明方法：



Danger !

Immediately threatened danger to the life and health of persons.

表示很快就会有**威胁**生命和健康的**危险**出现。

Non-compliance with these hints will result in serious damage to health up to injuries dangerous to life.

不遵守安全指示会导致对健康的严重损害甚至**威胁**生命



Warning!

Warning for possible damage to health and/or considerable property.

表示对潜在或可计的健康财产的**损失**做出警告

Non-compliance with these hints may result in serious damage to health and property.

不遵守安全指示会导致对健康的严重损害甚至**威胁**生命



Caution

This symbol means a potential dangerous situation.

表示对潜在的**危险**状况做出警告

Non-compliance with these hints may result in minor injuries or property damage.

不遵守安全指示会造成轻伤和财产损失

2.3. Other Symbols 其他符号



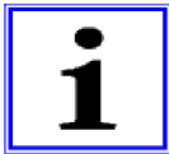
Important!

This symbol gives important hints for the proper handling of the machine.

这一符号对正确操作机器提出了**重要指示**。

Non-compliance with these hints may result in failures of the machine or its surroundings.

不遵守指示可能导致机器和周遭的破坏。



Hint

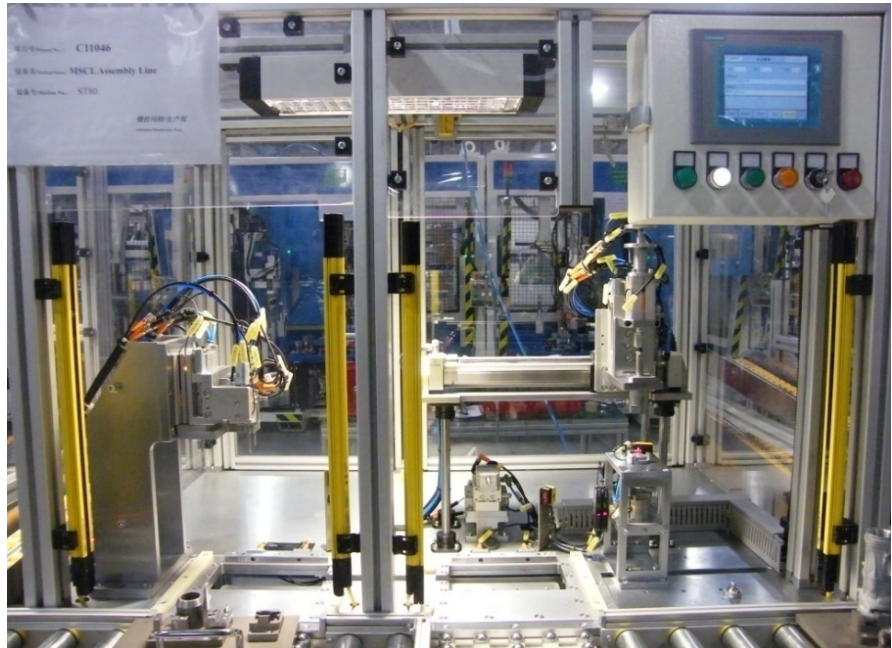
This symbol gives hints for use and particularly useful information.

这一符号对使用机器给出有用的信息。

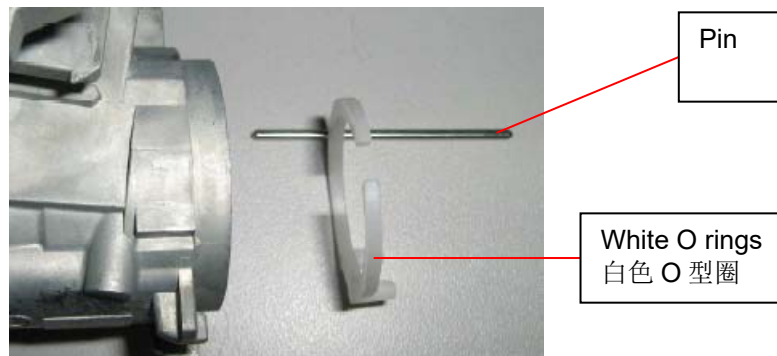
It intends to be able to make optimum use of the machine.

旨在最优化的使用机器。

2.4. Identification of C11046 C11046 的识别



2.5. Application for the Purpose Intended 针对性的应用



This workstation is designed for inserting bar, Used for into white o-rings, Pin, and omissions detection. It is the 8th workstation in this MSCL assembly line.

此工位是以线性原理为基础而设计的，用于装入白色 O 型圈、Pin 及漏装检测。这是 MSCL 装配线的第八个工作站。

2.6. Safeguards 安全保障

All safeguards must be attached and function properly prior to each start of the machine.

确保每次启动前所有安全设施都连接和运行正常。

Safeguards should be removed only

安全设施只有在

- on standstill, and
停止状态
- when secured against re-connection of the machine.
和确保不再使用后方可移除。

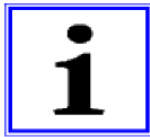
Automatically functioning safety switches must not be prevented from responding by unauthorised measures.

不得擅自拆除自动安全开关

2.7. Training of Personnel 人员培训

Only trained and instructed personnel are allowed to work at the machine.

只有专门进行过培训和指导的人员才可操作机器。



Hint

The responsibility of the personal for operation, re-equipment and maintenance shall be stipulated clearly

对人员的操作，装配和维修工作的职责必须规定清楚

The operator has to be informed on the power supply line to the equipment and its disconnection options.

操作人员必须熟悉设备的供电线路和断电功能。

2.8. Safety Measures for Normal Operation 正常操作的安全措施

The machine should be operated only with all safeguards functioning properly.

机器仅在所有安全措施运行正常情况下操作。

Check the machine for visible damage and proper functioning of the safeguards and the **EMERGENCY OFF** buttons at least once a day.

每天至少要对机器进行一次有无损害，安全措施和紧急停止按钮运行正常的检查。

It's essential to immediately switch off the machine when safety deficiencies occur.

如发生下列安全隐患，紧急停止机器是至关重要的

- Failure of the **EMERGENCY OFF** button
紧急停止按钮失效
- Damage to important machine and plant parts
重要机器和部件受到损害
- Damage to electrical installations, lines, insulation

电线装置、线路和电气绝缘件受到损害

2.9. Structural Modifications at the Standard Unit 标准单元的结构性修改

- No modification, attachment or re-construction shall be made to the machine without the prior consent of the manufacturer. This shall also be applicable to welding work at supporting components.

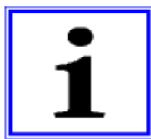
制造方同意，严禁对设备进行修改、加装和改造。此情况同样适用于配件类的焊接工作。

- Any reconstruction measure shall be subject to the written approval of Ruhlmat (Suzhou) Co., Ltd.

任何结构再造工作都需得到儒拉玛特公司的书面许可。

- Defective machine components must be replaced immediately. Use original spare and wearing parts only.

及时更换缺损零部件。注意只能使用原装部件和易损件。



Hint

For that parts supplied from third parties no guarantee can be granted that they have been designed and produced according to the load requirements and safety standards.

第三方提供的部件并不能保证其是否根据负荷要求和安全标准而进行设计和生产。

2.10. Cleaning the Machine and Waste Disposal 机器清洁和废品处理

Handle and dispose the used substances and materials properly, in particular

合理处理使用过的物品和材料，尤其是

- When working at the lubrication system and devices, and
在运行润滑系统和设备时
- when using solvents for cleaning.

和在使用溶剂清洁设备时。

3. PACKING AND TRANSPORT 包装和运输

3.1. Packing 包装

- Put workstation at an appropriate transport pallet that corresponds to the weight, and secure it against sliding and tilting by eyebolts. Cover each table from dirt and moisture by PVC foil. Then house it completely.

把工位放在合适的运输托盘上，托盘承重且使用有眼螺栓确保其不会移动和倾斜。再用塑料薄膜包装以防尘防潮最后封装。

- Remove all components and subassemblies that are not permanently attached to the final test workstation, wrap them in plastic foil, and pack them in separate and closed shipping containers.

拆下所有装夹件和其它可更换部件，用塑料薄膜包装，再独立分装进封闭的集装箱。

- Sub-assemblies which can be demounted, such as monitor, keypad, and the like are packed separately in a stable box at the pallet and secured against damage.

诸如监视器和键盘之类的部件应分装在托盘上的固定盒子里，并确保不会受损。

- The winders are also mounted at a pallet and are to be secured against sliding. For transport the operating panel is in tilted-in position. 络筒机同样需置于托盘上，并保证其不会移动。运输时板时应保持倾斜。

- When moving or transporting by a fork lift truck or lifting car, attach these means in the centre of gravity (centre) of the machine.

当使用叉车和吊车来移动和运输时，在机器上附上这些说明。

3.2. Transport 运输

Transfer the workstation and all of its separately packed associated components, in a closed vehicle or closed shipping container only. Each components of this machine should remain horizontal at all times during transport.

工位和所有分装部件都只用封闭的交通工具或集装箱运输。运输过程中时刻保持机器部件水平。



Caution

The machine will be erected and commissioned by the fitters of ruhlamat. The customers shall make the arrangements that the milling machine is provide at the place of installation and the media connections are available.

儒拉玛特公司会派装配工进行安装和调试。客户需安排当地的铣床和其它连接工具的供应。

3.3. Safety Regulations 安全条例

For transporting and moving the machine follow the regulations and notes of the manufacturers of the lifting and transport equipment.

在运输和移动设备时遵守吊装运输制造商的规章与说明。

4. DESCRIPTION OF THE MACHINE 机器的描述

4.1. Machine Equipment 机器设备

Standard accessories:

标准附件:

- Operating instructions
操作说明书
- Pneumatic diagrams
气动图
- Wearing and spare parts list
易损件和备件清单
- Conformity statement
一致声明
- Manual and technical documents from suppliers
供应商提供的手册和技术文件
- Electrical documents (software and hardware)
电子文档（软件和硬件）
- Wiring diagram (print version and floppy disc version)
线路图（电子版和打印版）

4.2. Installing Mechanical Components of the System 系统机械部件的安装

Install the system on a firm, level base. Use a spirit level and the system's adjustable feet to accurately level the system.

在结实且水平的地面安装系统设备。使用水平仪和高度可调底脚精确调节系统的水平。

When installing the system, make certain that both the system and all items of optional auxiliary equipment supplied with it are readily accessible from all sides, and that there is nothing that will hinder a smooth flow of materials to, from, and through the system and all items of optional auxiliary equipment.

在安装设备时，确保设备及所有提供的辅助设施四面畅通，同时保证物料和所有可选的辅助设备畅通进出系统。

Install a shutoff valve on the compressed-air supply line at a convenient location close to the system. Set the required supply pressure using the pressure regulators of the maintenance unit.

在系统压缩空气供应管道的适当位置安装一个总阀。通过保养单元的压力调节器调节供应压力。

Installing the electrical hardware component

安装电气系统。

Connect the electrical system to the electrical supply line. All connections should comply with applicable national, state, and local electrical codes.
 电气系统接通电源，所有电器连接必须符合当地电气标准。

4.3. Technical Data 技术资料

4.3.1. General Data 设备数据

Dimensions 尺寸	L x B x H 长 x 宽 x 高	1300L*800W*1800
Ambient conditions 周围的环境	Temperature 温度 Relative humidity 相对湿度 Condensation 冷凝	7 °C – 45 °C 80 % or less Non-condensing atmosphere
Lighting conditions 灯光状态	Illumination level 照明状态	2 500lux or less, with no direct sunlight striking the system
Other conditions 其他状态	EMC Air purity 空气纯度	In conformity with the CE-standard Comparable to that in offices
Cycle time 循环时间		15s
System uptime 系统运行时间		≥ 90 %

4.3.2. Power Supply 动力供给

Electricity 电力	Mains voltage 主要电压	220 V AC
	Control voltage 电压	24 V DC
	Frequency 频率	50 Hz
	Power rating 电源等级	Approx. 1 KVA
Pneumatic 气动	Degree of protection 保护等级	IP 44
	Compressed-air lines 主气压	7.5 bars or more
	Compressed-air consumption 耗气量	7.5 bars at 4500l/min
Vacuum 真空负压		
System controller 系统器		

5. OPERATION AND FUNCTION 操作和功能

5.1. Mechanic function 设备功能

Workstation8 mainly i Used for into white o-rings, Pin, and leaks
installs detection

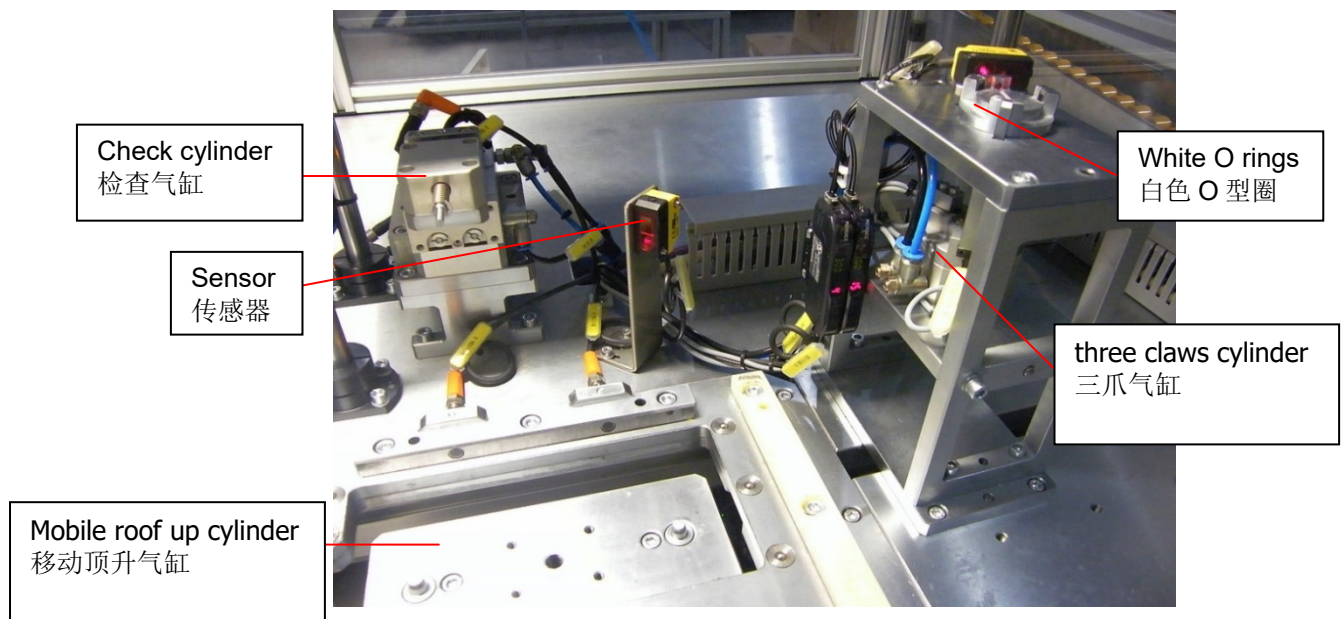
此工作站主要是用于装入白色 O 型圈、Pin 及漏装检测。

5.2. Operation and control 操作和

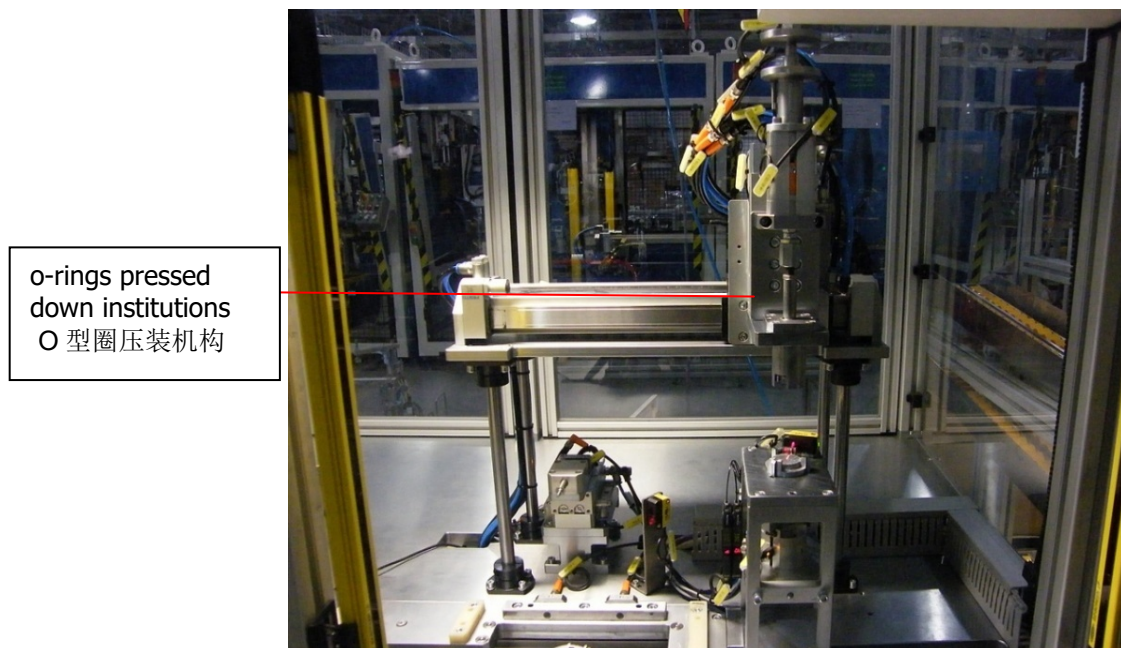
5.2.1. Workstation8 第八站

Work steps:

- **Step1** The operating personnel to white o-rings into the fixture on the left, then put in housing Pin, then will push the tray fixture to mobile roof up cylinders position.
操作人员先将白色 O 型圈放入左边的夹具中，再将 Pin 放入 housing 中，然后将托盘夹具推入至移动顶升汽缸位置。

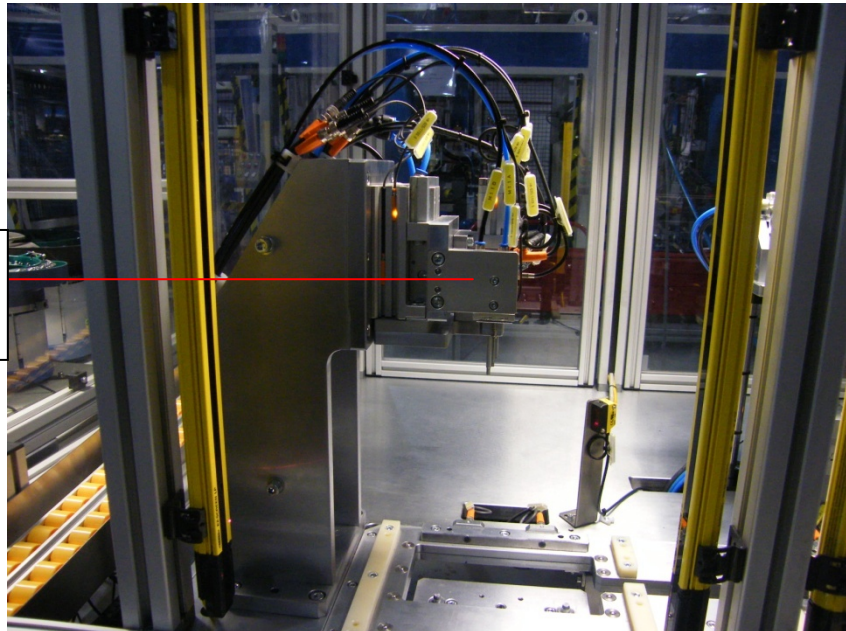


- Step2** Press the start switch, Mobile roof up cylinder rise, will tray fixture jacked up push the cylinder check, check Pin for leaks installs, three claws cylinder closed, make white o-rings smaller , O-rings being connected institutions down in place, three claws cylinder open , o-rings being connected institutions rise, or so cylinder move, the o-rings pressed down institutions a white o-rings into housing inside 。
 按启动开关，移动顶升气缸上升，将托盘夹具顶起，检查气缸向前顶，检查 Pin 有无漏装，三爪气缸闭合，使白色 O 型圈变小，O 型圈压装机构下降到位，三爪气缸打开，O 型圈压装机构上升，左右气缸移动，O 型圈压装机构下降，将白色 O 型圈装入 housing 内。



- **Step3** O-rings being connected institutions reset, and mobile roof up and left tray fixture will cylinder into leaks installs for detecting position
O 型圈压装机构复位，移动顶升气缸并向左将托盘夹具带入，漏装待检测位置。

omissions detection
institutions
漏装检测机构



- **Step4** Omissions detection institutions drop, detection Pin, spring, white o-rings have short-shipped, detection OK, Omissions detection institutions reset, and mobile roof up and move to the left down cylinder initial position, the operator will tray to the next fixture out work station.
漏装检测机构下降，检测 Pin，弹簧，白色 O 型圈有无漏装，检测 OK 后，漏装检测机构复位，移动顶升气缸下降并移动至左边初始位置，操作人员将托盘夹具拉出至下一工位。

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