

协议书

甲方：北京光华荣昌汽车部件有限公司（以下简称“甲方”）

乙方：克劳斯玛菲机械（中国）有限公司（以下简称“乙方”）

鉴于：光华荣昌斯洛伐克项目 315814 设备（以下简称“项目”）由乙方关联公司德国的 KraussMaffei Technologies GmbH（以下简称“KMT”）负责制造并提供。

由于光华荣昌斯洛伐克工厂在当地尚未完成注册，导致暂时无法直接与 KMT 签订合同及支付预付款以启动项目。为了确保后续光华荣昌斯洛伐克工厂与 KMT 合同（以下简称“本约合同”）的签订以及项目能够按时交付，双方同意采取以下临时措施。

经友好协商，甲乙双方就光华荣昌斯洛伐克项目设备采购事宜达成如下协议：

一、预付款支付

1. 本约合同总金额为 9,225,000 元人民币（不含税），甲方同意在本协议签订后 5 天内，通过银行转账的方式向乙方支付一笔预付款，金额为本约合同下总金额的 30%（金额：2,767,500 元人民币），作为启动项目的前提条件。

2. 乙方在收到上述预付款后，应在 3 天内书面通知 KMT 开始启动项目相关的制造和准备工作。

3. 本协议约定欧元与人名币汇率 1: 7.5 。

二、权利义务

1. 甲方应按第一条第 1 款的约定向乙方支付预付款。

2. 光华荣昌斯洛伐克工厂应在本协议生效后 3 个月内完成注册并具备签订合同、支付资质，在具备上述资质后 5 天内，与 KMT 签订本约合同。甲方应督促光华荣昌斯洛伐克工厂的注册及相应资质的完备，并积极促成后续本约合同的签订。如因非甲方原因导致无法按时完成光华荣昌斯洛伐克工厂的注册（如行政审批等原因），经甲方提前书面告知乙方，可以相应延长光华荣昌斯洛伐克工厂的注册时间，但最长不得超过本协议生效后 6 个月。

3. 乙方应按照第一条第 2 款的约定及时通知 KMT 启动项目，且乙方不参与项目的制造及交付。

4. 乙方在收到 KMT 关于收到光华荣昌斯洛伐克工厂已支付本约合同预付款的确认通知后 15 天内将甲方支付的预付款原路退还至甲方账户。

5. 预付款退还后，本协议自动解除，甲乙双方在本协议下的权利义务终止。

三、保密条款



双方应对本协议内容及因履行本协议而获取的对方商业秘密严格保密，未经对方书面同意，不得向任何第三方披露。双方在本协议项下的保密义务长期有效，不因本协议的终止或解除而失效。

四、违约责任

1. 如光华荣昌斯洛伐克工厂未能在第二条第 1 款约定的时间内与 KMT 签订本约合同，或因甲方原因导致项目无法继续进行，甲方需提前通知乙方，乙方有权不退还预付款且甲方需承担由此产生的所有费用（包含 KMT 由于提前生产而产生的实际费用）和责任。
2. 如乙方在收到预付款后未按时通知 KMT 启动项目致使合同根本目的不能实现的，应承担相应的违约责任。应承担由此造成的直接损失。导致项目延迟的，应当赔偿甲方及光华荣昌斯洛伐克工厂因此受到的损失。


五、争议解决

因本协议引起的或与本协议有关的任何争议，双方应首先通过友好协商解决；协商不成时，任何一方均可向原告所在地的人民法院提起诉讼。本协议的订立、解释、执行及争议解决均适用中华人民共和国法律。

六、其他

本协议一式两份，甲乙双方各执一份，具有同等法律效力。本协议自双方签字盖章之日起成立，甲方实际支付本协议第一条第 1 款的预付款之日起生效。

甲方（盖章）：北京光华荣昌汽车部件有限公司

法定代表人/授权代表（签字）：

日期：____年__月__日



乙方（盖章）：克劳斯玛菲机械（中国）有限公司

法定代表人/授权代表（签字）：

日期：2025年2月8日



Process data:工艺参数

dosing line 计量组份	material type 原料类型	mixing ratio 混合比例	dosing temperature 计量泵原料温度	viscosity at 25 °C mPa.s 25 °C 时粘度	density in g/cm ³ 密度
1	Iso1.1&1.2	30-80	26±2 °C	200	1,23
2 Yes	Iso2.1&2.2	30-80	26±2 °C	200	1,23
3	Polyol 1.1&1.2	100	28±2 °C	3000	1,02
4 yes	Polyol 2.1&2.2	100	28±2 °C	6000	1,02

All conflicting data must be provided prior to issuance of an order. If changes are required by the customer after receipt of order, KraussMaffei will perform these changes only if technically possible and able to perform within the customer allowed time frame. Customer agrees to pay for any cost impact to KraussMaffei for changes required by written release. KraussMaffei reserves the right to request additional technical data at any time without cost by customer.

The customer is responsible to the correctness of process engineering data and samples.

在下达订单前全部的有疑问的数据需由用户提出。收到订单后如果用户单方面提出新的要求，如果技术上可以实现并在用户允许的的时间内 KM 将执行，用户需同意支付对应的额外费用。如果用户无额外成本，任何时候 KM 有权要求附加技术数据的权利。

用户对提供的工艺工程参数和样品负责。

1.2.3 2 **Day tank Isocyanate** Iso 原料罐

62.410-027 2 **Raw Material Tank MDG 500**
double-walled and insulated, without agitator, prepared for level probes and heating cartridge
max. pressure/ effect. cap.: max. 4,0 bar / 500 l
heating (double) jacket: max. 3,0 bar
temperature range: +10 up to +80°C
vacuum: no
insulated: yes
material: steel

Corresponds to the current pressure vessel EC directives
原料罐 MDG 500

夹套和保温，不包括搅拌器，预留

液位探头和加热管安装位

最大压力/有效容积: 4 bar/ 500 l

加热（双层）夹套: 最大压力 3 bar,

耐温范围: +10° C 最高温度+80° C

真空: 无

保温: 有

材料: 钢

符合欧盟压力容器许可证规程

62.409-013 2 **Completion**
for a raw material tank type MDG 500 DW
底盘
用于一个 500 升料罐

61.41750	2	Agitator for an MDG 500, with slip ring seal 搅拌器 带滑环密封
62.401-015	2	Automatic filling for a component, consisting of: - check valve - down pipe - two-way directional valve with pneumatic actuating drive - potential-free contact for filling pump, without filling pump 自动补料功能: 用于一个组份, 包括: -单向阀 -原料管 -带气动执行器的两位方向阀, -与加料泵连接的无源触点接口, 不包括补料泵
62.401-022	2	Manual Switching in addition to the automatic filling 手动开关 用于自动上料
62.401-022 (s)		at return line to replace, clean and flush more efficient 在回路上换料、清洁和冲洗更高效
62.401-019	2	Position Detection for a check valve, directional valve or something like that consisting of two limit switches for position monitoring 位置检测 用于三位阀 2个限位开关用于阀的位置状态监控
62.408-001	2	Fill level monitoring for a "super Max" function on a raw material tank 液位监控 用于一个料罐“最高液位”监控功能
62.408-012	2	Fill level sensor on the raw material tank with four oscillating level probes - Min. material level = Switching off - Low level = Refilling on - High level = Refilling off - Max. level = Switching off 原料罐的液位监测传感器 4个振荡液位开关安装在料罐上 - 最低位 = 关闭停机 - 下位 = 补料打开 - 上位 = 补料关闭 - 最高位 = 关闭停机
62.900-104	4	Heating cartridge suitable for a raw material tank with a volume of 500 litres 加热单元 适于安装在 500L 原料罐上
62.002-044	4	Control, electrical for one day tank heating cartridge 电气控制 用于一个料罐加热控制

62.900-033	2	Tempering valve for temperature control with cooling or heating water with an on / off function 止回阀
61.11331	2	Raw Material Tank Pallet made of steel. For a raw material container type MDG 500 料罐托盘 钢制，用于 500 升料罐
1.2.4	2	Day tank Polyol Poly 原料罐
62.410-027	2	Raw Material Tank MDG 500 double-walled and insulated, without agitator, prepared for level probes and heating cartridge max. pressure/ effect. cap.: max. 4,0 bar / 500 l heating (double) jacket: max. 3,0 bar temperature range: +10 up to +80°C vacuum: no insulated: yes material: steel Corresponds to the current pressure vessel EC directives 原料罐 MDG 500 夹套和保温，不包括搅拌器，预留 液位探头和加热管安装位 最大压力/有效容积: 4 bar/ 500 l 加热（双层）夹套: 最大压力 3 bar, 耐温范围: +10° C 最高温度+80° C 真空: 无 保温: 有 材料: 钢 符合欧盟压力容器许可证规程
62.409-013	2	Completion for a raw material tank type MDG 500 DW 底盘用于一个 500 升料罐
61.41750	2	Agitator for an MDG 500, with slip ring seal 搅拌器 带滑环密封
62.401-015	2	Automatic filling for a component, consisting of: - check valve - down pipe - two-way directional valve with pneumatic actuating drive - potential-free contact for filling pump, without filling pump 自动补料功能: 用于一个组份，包括: -单向阀 -原料管 -带气动执行器的两位方向阀, -与加料泵连接的无源触点接口，不包括补料泵
62.401-022	2	Manual Switching in addition to the automatic filling 手动开关 用于自动上料

62.401-022 (s)		at return line to replace, clean and flush more efficient 在回路上换料、清洁和冲洗更高效
62.401-019	2	Position Detection for a check valve, directional valve or something like that consisting of two limit switches for position monitoring 位置检测 用于三位阀 2个限位开关用于阀的位置状态监控
62.408-001	2	Fill level monitoring for a "super Max" function on a raw material tank 液位监控 用于一个料罐“最高液位”监控功能
62.408-012	2	SK: 此为超高液位报警检测 Fill level sensor on the raw material tank with four oscillating level probes - Min. material level = Switching off - Low level = Refilling on - High level = Refilling off - Max. level = Switching off 原料罐的液位监测传感器 4个振荡液位开关安装在料罐上 - 最低位 = 关闭停机 - 下位 = 补料打开 - 上位 = 补料关闭 - 最高位 = 关闭停机
62.900-104	4	Heating cartridge suitable for a raw material tank with a volume of 500 litres 加热单元 适于安装在 500L 原料罐上
62.002-044	4	SK: 每个加热单元功率 3kw, 每个 500L 料罐配备 2 个加热单元; Control, electrical for one day tank heating cartridge 电气控制 用于一个料罐加热控制
62.900-033	2	Tempering valve for temperature control with cooling or heating water with an on / off function 止回阀
61.11331	2	Raw Material Tank Pallet made of steel. For a raw material container type MDG 500 料罐托盘 钢制, 用于 500 升料罐
1.2.8	4	Dosing line Isocyanate 1-2 Iso 1-2 计量系统
62.171-01	4	Suction Line with an edge filter (motorized cleanable) for a nominal flow rate of 16 l/min 进料管线低压过滤器 用于 16 l/min 计量泵带 安装边缘过滤器 (电机清洁)
62.972-342	4	Circulating- Feed Pump gear pump with a flow rate of about of 20 l/min - pump and motor carrier with magnetic coupling Suitable for reactive systems without abrasive fillers

62.172-002	4	Overflow Line for a high-pressure pump operating together with an upstream filling pump. For a flow rate of 16-40 L/min
62.002-066	4	Control, electrical for one feed pump
62.720-003	4	Plate Heat Exchanger for installation in the suction line, in the return line or bypass. Adequate for reactive systems
62.002-064	4	Control, electrical with controller for one heat exchanger on the suction side
62.146-047	4	High-pressure metering unit 16 l/min basically consisting of a high pressure metering pump for a nominal volumetric flow rate of 16 l/min at 1450 rpm with the following features: Axial piston pump: open circuit Displacement: 12 cm ³ hand wheel adjustment: left or right pressure measurement in the suction- and in the high pressure line with all necessary safety- and vent valves pump and motor carrier with magnetic coupling Suitable for reactive systems without abrasive fillers 高压计量泵 16 l/min 1450rpm 时流量 16L/min 轴向柱塞泵 开路模式 可变流量: 12 cm ³ 手轮调整: 左侧或右侧 泵和马达采用磁性联轴节 适合加工聚氨酯的组份不含耐磨填料
62.150-192	4	Metering Pump Drive 16 l/min with a rotational speed for metering pumps with a nominal flow rate of 16 l/min 计量泵的驱动 16 l/min 旋转驱动
62.150-949	4	用于流量 16 l/min 计量泵 Frequency converter for continuously adjustable of an metering pump drive with a nominal flow rate of 16 l/min 变频器
62.001-305	4	用于 16 l/min 的计量泵 Control, electrical frequency converter for one metering pump drive 电气控制
61.7720001	4	用于一台计量泵的变频器 Flow Regulator for tempering media with sight tube and regulator valve. The display of the flow rate operates according to the variable area principle 水流量调节 用于水媒体带可视管和调节阀 采用可变面积原理显示水流量

61.71110	4	<p>Pressure measuring device a pressure sensor with a digital display, max. 50 bar, up to +80°C component temperature 压力测量设备 一个压力探头带数显, max. 50 bar, 高达+80°C组份温度</p>
61.71110 (s)		<p>low pressure sensor, installed upstream the pump group – minimal pressure alarm 低压传感器, 安装在计量泵前行管路上-最小压力报警</p>
61.71111	4	<p>Pressure measuring device a pressure sensor with a digital display, max. 400 bar, up to +80°C component temperature 压力测量设备 一个压力探头带数显, max. 400 bar, 高达+80°C组份温度</p>
61.71111 (s)		<ul style="list-style-type: none"> • high pressure sensor, installed downstream the pump group • max pressure to be defined by supplier - as fixed value in the PLC control <p>高压传感器, 安装在计量泵前行管路上 最大压力由供应商定义-在 PLC 控制中设定一个固定值</p>
62.710-004	4	<p>Temperature sensor high pressure resistant 温度传感器 耐高压</p>
62.002-051	4	<p>Monitoring for a temperature sensor 监控 用于一个温度传感器</p>
61.7231	4	<p>High Pressure Filter twice, manually switchable - mesh size: 0,025 mm consisting of: - two filters and - two 3-way valves (2(S) linked together by a shaft 高压过滤器 双联, 手动切换 滤网尺寸 0,025 mm 组成: -双过滤器和 -双3通阀(2(S)通过一根轴相连</p>
62.730-005	4	<p>Volumetric flow meter gear counter: VC 1.0 viscosity range (mPa*s): 20 - 3000 measuring range (l/min): 80 - 5,0 体积式流量计 齿数计: VC 1.0 粘度范围 (mPas): 20 - 3000 测量范围 (l/min): 80 - 5,0</p>

62.730-046	4	<p>Manual testing for a nominal volumetric flow rate with 16 l/min. Two valves operated by a collective actuating shaft, one check valve is placed in the discharge line 手动测试 用于 16L/min 计量泵 由 1 个公共轴通过 2 个阀门进行手动测试 在排料管上安装 1 个单向阀</p>
62.791-153	24	<p>Meter component pipework for one component in feed- and return line with nominal volumetric flow rates from 16 to 40 l/min 组份硬管 用于 16 to 40 l/min 的一个组份</p>
62.791-105	24	<p>Meter pipe insulation for one component in the feed and return line, with nominal flow rates from 8 to 40 l/min. Suitable for process temperatures up to 39°C 每米管道保温层 用于 8 to 40 l/min 的一个组份 适于工艺温度达到 39°C</p>
1.2.9	4	<p>Dosing line Polyol 1-2 Poly1-2 计量系统</p>
62.171-021	4	<p>Suction line with an edge filter (manual cleanable) for a nominal flow rate of 40 l/min 进料管线低压过滤器 用于 40 l/min 计量泵带 安装边缘过滤器 (手动清洁)</p>
62.972-347	4	<p>Circulating- feed pump Screw-spindle pump with a flow rate of about 40 l/min - pump and motor carrier with magnetic coupling Suitable for reactive systems without abrasive fillers 低压供料泵 40l/min 螺杆泵 -泵和马达采用磁性联轴节 适合组份不含填料的聚氨酯反应系统</p>
62.002-066	4	<p>Control, electrical for one feed pump 电气控制 用于一台喂料泵</p>
62.720-002	4	<p>Plate heat exchanger for installation in the suction line, in the return line or bypass. Adequate for reactive systems 板式热交换器 安装在进料、回料或旁路上 适于聚氨酯原料反应系统</p>
62.720-002 (s)		<p>Feed line 供料管路上</p>
62.002-064	4	<p>Control, electrical with controller for one heat exchanger on the suction side 电气控制 用于控制供料管路上的一台热交换器</p>

- 62.146-049 4 **High-pressure metering unit**
 basically consisting of a high pressure metering pump for a nominal volumetric flow rate of 40 l/min at 1450 rpm with the following features:
 Axial piston pump: open circuit
 Displacement: 28 cm³
 hand wheel adjustment: left or right
 pressure measurement in the suction- and in the high pressure line
 with all necessary safety- and vent valves
 pump and motor carrier with magnetic coupling
 Suitable for reactive systems without abrasive fillers
 高压计量泵 40 l/min
 1450rpm 时流量 40L/min
 轴向柱塞泵 开路模式
 可变流量: 28 cm³
 手轮调整: 左侧或右侧
 配置泵前、后压力检测和安全、排气阀
 泵和马达采用磁性联轴节
 适合加工聚氨酯的组份不含耐磨填料
- 62.150-414 4 **Metering Pump Drive 40 l/min**
 with a with a rotational speed for metering pumps with a nominal flow rate of 40 l/min
 计量泵的驱动 40 l/min
 旋转驱动
 用于流量 40 l/min 计量泵
- 62.150-957 4 **Frequency converter**
 for continuously adjustable of an metering pump drive with a nominal flow rate of 40 l/min
 变频器
 用于 40 l/min 的计量泵连续无极调速
- 62.001-305 4 **Control, electrical**
 frequency converter for one metering pump drive
 电气控制
- 61.7720001 4 **Flow Regulator**
 for tempering media with sight tube and regulator valve.
 The display of the flow rate operates according to the variable area principle
 水流量调节
 用于水媒体带可视管和调节阀
 采用可变面积原理显示水流量
- 61.71110 4 **Pressure measuring device**
 a pressure sensor with a digital display, max. 50 bar, up to +80°C component temperature
 压力测量设备
 一个压力探头带数显, max. 50 bar, 高达+80°C 组份温度
- 61.71110 (s) low pressure sensor, installed upstream the pump group - minimal pressure alarm
 低压传感器, 安装在计量泵前行管路上-最小压力报警

61.71111	4	<p>Pressure measuring device a pressure sensor with a digital display, max. 400 bar, up to +80°C component temperature 压力测量设备 一个压力探头带数显, max. 400 bar, 高达+80°C组份温度</p>
61.71111 (s)		<ul style="list-style-type: none"> • high pressure sensor, installed downstream the pump group • max pressure to be defined by supplier - as fixed value in the PLC control <p>高压传感器, 安装在计量泵下行管路上 最大压力由供应商定义-在 PLC 控制中设定一个固定值</p>
62.710-004	4	<p>Temperature sensor high pressure resistant 温度传感器 耐高压</p>
62.002-051	4	<p>Monitoring for a temperature sensor 监控 用于一个温度传感器</p>
62.730-008	4	<p>Volumetric flow meter gear counter: VC 3.0 viscosity range (mPa*s): 20 - 3000 measuring range (l/min): 116 - 12 体积式流量计 齿数计: VC 3.0 粘度范围 (mPas): 20 - 3000 测量范围 (l/min): 116 - 12</p>
62.730-036	4	<p>Manual testing for a nominal volumetric flow rate with 40 l/min. Two valves operated by a collective actuating shaft, one check valve is placed in the discharge line 手动测试 用于 40L/min 计量泵 由 1 个公共轴通过 2 个阀门进行手动测试 在排料管上安装 1 个单向阀</p>
62.791-153	24	<p>Meter component pipework for one component in feed- and return line with nominal volumetric flow rates from 16 to 40 l/min 组份硬管 用于 16 to 40 l/min 的一个组份</p>
62.791-105	24	<p>Meter pipe insulation for one component in the feed and return line, with nominal flow rates from 8 to 40 l/min. Suitable for process temperatures up to 39°C 每米管道保温层 用于 8 to 40 l/min 的一个组份 适于工艺温度达到 39°C</p>

1.2.12	1	Machine frame 机架
61.11310	4	Base frame for the series RimStar Modular with two pump streams with a volumetric flow from 4 to 40 l/min 机架 RimStar Modular 系列发泡机 适于搭载 2 台泵和 4 到 40l/min 流量计,
62.002-043	4	Plug Connection between day tank and machine frame 连接插头 用于料罐和机架之间
61.11332	4	Intermediate frame for the series RimStar Modular For base frame with two pump metering streams 中间连接架 用于 RimStar Modular 系列发泡机 用于带 2 台计量泵的底盘
61.7720001	2	Flow Regulator for tempering media with sight tube and regulator valve. The display of the flow rate operates according to the variable area principle 水流量调节 用于水媒体带可视管和调节阀 采用可变面积原理显示水流量
61.6116	2	Mixing head hydraulic for mixing heads with fast successive shot frequency with proportional technology - Tank capacity: 250 l - Feed pump: 40 l/min, 200 bar (S3) / 165 bar (S1) - Pressure accumulator: 20 l - Switchable high pressure filter - Min./ max. oil level control - Bypass stream filtration and cooling with a flow rate of 60 l/min at max. 20 bar - Additional pressure reducer 混合头液压 用于混合头快速连续浇注带比例技术 - 油箱容量: 250 l - 油泵: 40 l/ min., 200 bar(S3) / 165 bar (S1) - 压力蓄能器: 20L -可切换高压过滤器 -最低/最高油位控制 -旁路油过滤和冷却, 在最大压力 20 bar 时流量 60 l/min -附加减压器
62.710-001	4	Pressure display digital dual display of two components pressures 压力显示 双通道数显用于 2 个组份
62.791-988	4	Mounting pedestal for pipework, cable duct and so on 支架 用于硬管、电缆桥架

62.791-014	12	Meter hydraulic pipework pressure and return hydraulic line incl. assembly material without installation 液压硬管 包括出油、回油管, 含材料不含安装
62.791-016	12	Power and control cable without installation 电力和控制电缆 不含安装
62.791-995	12	Meter cable duct with cover, without installation 电缆桥架 带盖子, 不含安装
1.2.14	2	Mixing head 混合头系统
61.8353	2	Transfer mixing head MK 16/25 ULP - 4K - G Throughput per component: 50 - 310 g/s (4000 mPa*s) Throughput per component: 50 - 530 g/s (1000 mPa*s) output rate, MR=1/1: 250 - 800 g/s (laminar) discharge tube length: 80 mm discharge tube diameter: 40 mm 混合头 MK 16/25 ULP - 4K - G 液压弹簧喷针喷嘴 浇注量, 组份流量: 50 - 310 g/s (4000 mPa*s) 组份流量: 50 - 530 g/s (1000 mPa*s) 层流状输出流量, MR=1/1: 250 - 800 g/s (laminar) 射料管长度: 80 mm 射料管直径: 40 mm
61.8353 (s)		Please note:备注: - min. shot time: 0.5sec - cleaning stroke time: 1.2sec - switchover time between 2 components: 1.5sec - 最短浇注时间 0.5s - 清枪时间 1.2s - 组份切换时间 1.5s
62.832-101	4	Proximity switch inductive proximity switch at the mixing head 接近开关 混合头上的感应式接近开关

62.621-061	2	<p>Control block for a mixing head proportional technology - 2x proportional valves NG 10 - pressure accumulator - pressure display - shut off cocks 控制模块 用于混合头比例技术 -2 个比例控制阀 NG10 -压力蓄能器 -压力显示 -关断阀</p>
61.7930001	2	<p>Mixing head holder with control box 混合头托架 带控制箱</p>
61.8614	8	<p>Hydraulic spring loaded pressure adjustment at the 10/15 transfer mixing head or bigger 预紧弹簧组份压力调节 用于 10/15 型或更大规格混合头</p>
62.621-060	2	<p>Control block for the hydraulic control of 4 nozzles 控制块 用于 4 个喷嘴的液压控制</p>
62.002-046	8	<p>Control, electrical for one nozzle or a bypass valve at the mixing-head 电气控制 用于混合头上的一个喷嘴或旁路阀</p>
62.832-003	8	<p>LP recirculation low pressure recirculation in the bypass consisting of: - 1 seating valves with pressure setting and gauge - 2 ball valves - piping 低压循环 旁路低压循环包括: 1 套座阀带压力设定和压力表 -2 个球阀 -硬管</p>
62.621-060	2	<p>Control block for the hydraulic control of 4 nozzles 控制模块 用于液压控制 4 个喷嘴</p>
61.8821	2	<p>Mixing head cleaner swivel arm - table diameter: 400 mm - table height: 1200 mm 混合头清洁转盘 -转盘直径: 400mm -转盘高度: 1200mm</p>

62.710-018	4	Pressure measuring device Two pressure sensors with a digital display, suitable for medium temperatures above 60°C 压力检测装置 2个压力传感器带一只数显表 适于介质温度最高+60°C
62.710-004	8	Temperature sensor high pressure resistant, installed in the pipeline 温度传感器 耐高温, 安装在硬管上
62.002-051	8	Monitoring for a temperature sensor 监控 用于一个温度传感器
62.742-801	2	Control box pedestal for one mixing head operation panel 控制箱支架 用于一只混合头操作板

64.955-053 2

Robot

brand: FANUC type R-2000IC/210F-30B-A-PL
工业机器人型号 **FANUC**
品牌型号: R-2000IC/210F-30B-A-PL

Mechanics:

six axes industrial robot
max. range: 2655 mm
handling capacity: 210 kg
extra load on upper arm (axis 3): up to 50 kg
extra load on frame of axis 1: 550 kg
max. weight is a function of total load / weight

机械载重:

六轴工业机器人
基座单元用于一般应用
最大工作范围: 2655 毫米
载荷能力: 210 公斤
额外负载上臂(轴 3): 50 公斤
额外负载在轴 1 支架上 : 550 公斤

Control cabinet and electricity:

robot controller: 30iB
built-in control panel
programming-handheld unit with 6,5" touchscreen and 10 m connecting cable
connecting cable between robot and control cabinet: 10 m

控制柜和电力:

机器人控制器 30 iB
内置控制面板
编程操作单元 6.5"触摸屏和 10 米连接电缆
10 米连接电缆用于机器人和控制柜之间的连接
机器人轨迹程序存储数量≥999

Interface:

1x USB port
Hartingplug (64 pin) connection to the KM- control cabinet to wire the
safety-instrumented function

接口:

1 x USB 端口
Harting 插头(64 针)连接 KM 控制柜和机器人安全
操作面板

Other matters:

1 batch of documentation (language according to information of KM)

其他事项:

1 批文档(英文 KM 资料)

64.955-002 2

Base Plate

Robot fixing plate for robot

底座

用于一台机器人的固定

61.958-082	1	<p>Robot Piping Robot piping for 2x 4 components and rubber cord suspension for dual-hardness foaming-lines with two 4 component mixing heads, mounted on platform, length compensation of the component hoses by rubber cord suspension, hose lines with protective covers (splash guard) for components and hydraulic supply, mixing head control valves mounted on robot axis #3, mixing head support with tubing, rotary couplings for polyol components. 机器上的管路 用于双四组份混合头发泡生产线，机器人上的软管用橡胶绳悬挂，用于长度补偿，安装在平台上； 软管带防护罩（飞溅罩），用于组份和液压软管 混合头控制阀安装在机器人 3#轴上 混合头由硬管支撑 旋转接头用于 Poly 组份</p>
64.955-070	2	<p>Profinet Interface profinet slave card, brand: FANUC Profinet 接口 Profinet 从站卡，品牌：发那科</p>
64.955-018	2	<p>ASCII Programm Loader ASCII 码程序装载 Robot option: ASCII Programm Loader brand: FANUC ASCII Programm Loader</p>
64.955-070	2	<p>Menu Utility Software 应用软件菜单 robot option: menu utility software brand: FANUC menu utility software</p>
64.955-067	2	<p>Collision Guard Pack 防撞安全包 Robot option: collision guard pack brand: FANUC Collision Guard Pack (HSCD) Software collision detektion without sensors</p>
64.955-037	2	<p>Motion Package 运动包 Robot option: motion package brand: FANUC motion package</p>
64.955-015	2	<p>Linetracking Kit, Robot with Encoder Robot option: linetrackingkit, WITH sensor brand: FANUC one Fanuc sensor ist inkludet</p>

64.955-068	2	<p>Level converter Robot option: level converter brand: FANUC 电平转换</p> <p>level converter</p>																
62.002-110	2	<p>Interface for one external installation with ProfiNet-interface (KraussMaffei-Standard) 电气接口 用于外部通讯 Profinet 接口 (KM 标准)</p>																
62.002-029	2	<p>Robot first commissioning set up run off a robot at KraussMaffei Technologies 机器人在 KM 首次调试</p>																
1.2.15	1	<p>Periphery 外围辅助设备</p>																
62.900-204	1	<p>Automatic air drier Complete purification package with heatless absorption drier, pre-, after filter and condensation drain</p> <table border="0"> <tr> <td>- Volume flow</td> <td>35 m³/h</td> </tr> <tr> <td>- operating pressure</td> <td>4 - 16 bar</td> </tr> <tr> <td>- dew-point pressure</td> <td>- 40° C</td> </tr> <tr> <td>- power consumption</td> <td>approx. 4 W</td> </tr> </table> <p>自动空气干燥机 带完整的无热净化包 吸附干燥器, 进、出气过滤器和冷凝排水</p> <table border="0"> <tr> <td>- 体积流量:</td> <td>35 m³/h</td> </tr> <tr> <td>- 工作压力</td> <td>4 - 16 bar</td> </tr> <tr> <td>- 露点压力</td> <td>- 40 °C</td> </tr> <tr> <td>- 能耗</td> <td>约 4W</td> </tr> </table>	- Volume flow	35 m³/h	- operating pressure	4 - 16 bar	- dew-point pressure	- 40° C	- power consumption	approx. 4 W	- 体积流量:	35 m³/h	- 工作压力	4 - 16 bar	- 露点压力	- 40 °C	- 能耗	约 4W
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- 露点压力	- 40 °C																	
- 能耗	约 4W																	
62.002-021	1	<p>Electric Socket for automatic air dryer 电气插座 用于一台空气干燥器</p>																
62.020-001	1	<p>Mounting Panel for a plug connection for power supply of an air dryer</p>																
62.002-022	2	<p>Electric Socket for one compressor cooling unit SK: each compressor cooling unit 15KW</p>																

- 62.900-035 1 **Media supply**
for one metering unit consisting of:
- cooling water ring line, inlet ¾" and return 1"
- rigid piping and hoses between the client interface
(max. 3 meters) and the utilities (day tank, heat exchanger, Temp. unit or
chiller)
- Compressed air ring line ¾"
- between the client interface (max. 3 meters) and the metering unit
介质供应
用于一套计量单元包括:
-冷却水环形管, 出水管 ¾" 和回水管 1"
-与用户接口的硬管和软管
(最长 3m) 和公共接口 (料罐、热交换器, 模温机或冷水机)
-压缩空气环形管 ¾"
-用户和发泡机之间的接口 (最长 3 米)
- 62.900-032 16 **Meter ring line**
to the cooling water supply, mainly consisting of:
- galvanized supply and return line, insulated
- rigid piping, hoses to the utilities
- pipe support and pillars
冷水干管
用于冷水供应, 主要包括:
-镀锌进、出水管, 隔热
-硬管、软管连接到公共部分
-硬管支撑和柱子
- 62.791-995 16 **Meter cable duct**
with cover, without installation
电缆桥架
带盖子, 不含安装
- 62.791-988 5 **Mounting pedestal**
for pipework, cable duct and so on
支撑架
用于硬管, 电缆桥架等
- 62.791-016 16 **Meter Power and Control Cable**
for installation purpose
- 1.2.16 1 **Control cabinet 电气控制柜**

- 62.001-010 1 **Control cabinet**
for the pump nominal sizes 4, 8, 16, 29, 40 and 80 with a Siemens control, without operating panel for:
- 2 day tanks
- 1 mixing head
- automatic filling
- cooling water regulation
and the display of:
- 2 volumetric streams, 1 mixing ratio
(available in combination with additional volumetric flow meters)
- 2 pressures (A and B)
- 2 temperatures at the day tanks
- dosing times (foaming programs)
电气控制柜
控制规格在 4, 8, 16, 29, 40 and 80 之间的泵, 包括 Siemens 控制系统, 不含操作面板:
- 2 原料罐
- 1 个混合头
- 自动补料
- 冷水的调节
以及显示器显示:
- 2 种组份的体积流量, 组份混合比例
(需额外安装体积式流量计)
- 2 个压力值 (A 和 B)
- 2 个 原料罐的温度值
- 计量时间 (发泡程序)
- 62.001-303 3 **Control, electrical**
for two additional component lines with volumetric flows from 4 to 80 l/min and with two day tank
电气控制
用于对 2 个附加组份和流量计的控制
组份流量从 4 - 80 l/min 和 2 个料罐的控制
- 62.002-024 1 **Air Condition Unit**
for a control cabinet or control desk
空调
用于一个控制柜
- 62.002-071 3 **Air Condition Unit**
for a control cabinet or control desk
空调
用于一个控制柜

62.002-104	1	<p>Operator panel TP 2200 Comfort Touch Panel with 22" WideScreen TFT Display - logging of shot data in max. 20 shot files - max. 32 languages online - logging of shot data possible via printout (USB) - oscilloscope function - switchover to enlarge the flow rate and pressure display 人机操作界面 TP 2200 Comfort 触摸板 22"宽触屏 TFT 显示 -20 个生产班次记录 -最多 32 中语言在线 -通过打印口 (USB) 接口导出浇注数据 -示波器功能 -流量和压力显示可放大</p>
	1	<p>600 pouring programs with individual flow rates, ratio and tolerance set points for every program (flow rates and pressure) 600 个浇注程序 每个发泡程序 (流量和压力) 独立的流量, 比例和容差设定点</p>
62.001-438	1	<p>Movable terminal for one operating unit 移动终端 用于一个操作界面</p>
62.002-076	1	<p>Piece Industrial Wire for the connection from the cabinet or desk to the mobile-operator terminal (10 meter Standard connection)</p>
62.002-004	1	<p>Remote maintenance Spatially separated access (via Internet) for maintenance and repair purposes. Without remote maintenance contract only valid during the warranty time 远程维修系统 通过因特网在保修期内免费使用</p>
62.002-110	1	<p>Interface for one external installation with ProfiNet-interface (KraussMaffei-Standard) 电气接口 Profinet (KM 标准接口)</p>
62.002-075	20	<p>meter interface wire for a Interface with a special configuration 通信电缆 用于组态接口</p>
1.2.17	1	<p>Miscellaneous 杂项</p>
62.998-003	1	<p>Painting 油漆</p>

62.998-003 (s)	1	<p>in KraussMaffei standard colouring Maschine: RAL 9002 grey white Control cabinet (Wet Side): RAL 9002 grey white Tank, Polyol: RAL 9006 white aluminium Tank, Isocyanat: RAL 9006 white aluminium KM 标准颜色设备油漆 主机: RAL 9002 灰白色 控制柜: RAL 9002 灰白色 聚醚料罐: RAL 9006 铝白色 异氰酸酯料罐: RAL 9006 铝白色</p>
62.999-018	1	<p>Documentation Electronic documentation (PDF-format) in English language consisting of: Operation instruction, operation manual control Spare part list, layout, electric circuit plan, hydraulic plan, flow sheet, Documentation of the components of the facility Day tank pressure certificate Electronic Spare Parts Catalogue: - Easy parts identification with linked/hotspotted position numbers - integrated pictures supporting easy parts identification - Layout and flow diagram linked and hotspotted with assembly groups and part lists - part lists with clear structure and corresponding drawings - easy to use search and printing functionality - licenced for multi-user installation 资料 英文和中文电子版 (PDF 格式), 包括: - 操作说明、操作手册、备件清单、电路图、液压图, 流程图, - 设备部件的资料 - 料罐压力容器证书 - 电子版备件目录英文, 带链接/热点位置编号功能, 易于查找和打印备件信息 - PDF 格式光盘资料 全部数据装在 USB 上, 适于多用户安装 维保手册、故障对应表、易损件使用说明书</p>
62.999-018 (s)		<p>SK: The screen language is in Englisch / Slovakian/Chinese Spare parts lists in English Additionally 1x Documentation in Slovakian 特别说明: 屏显英文/斯洛伐克语和中文 备件英文</p>
62.999-014	2	<p>附件 1 套斯洛伐克语资料 Documentation Documentation, printed and filed 文件资料 文件资料, 打印和归档</p>
62.999-001	1	<p>EC Unit Verification as per EC Pressure Equipment Directive 2014/68/EC EC 认证 依据欧盟压力设备指令 2014/68/EC 标准</p>

62.999-002	1	Risk and hazard analysis for metering units 风险和危险分析 用于发泡机
2	1	Assembling, commissioning and technical instruction 安装, 调试和技术说明
62.999-764	1	Measurement DGUV 3 Measurement DGUV 3 within an assembly at customer's site DGUV3 测试
3	1	Transport and Packaging - DAP , Slovakia 运输和包装-DAP 斯洛伐克
4	1	Assembling, commissioning and technical instruction 安装, 调试和技术说明
4.1	1	2 weeks line start up, production support and Introduction (in sum included) 2周启动运行, 生产支持和介绍说明 (包含在报价中)
4.2	1	Assembling and commissioning (in sum included) 安装和调试 (包含在报价中)

Further with Spare parts' package as below: 还包含备件包如下:

Item 序号	Spare Part No. 备件号码	Part Name 备件名称	Function 功能	Qty 数量
1	20586805	MK 16/25 ULP - 4K - G	混合头 MK 16/25 ULP - 4K - G	1
2	4627812	NOZZLE 2.0 - HV type 喷嘴 for Poly	POLY 喷针喷嘴	8
3	4627809	NOZZLE, 1.4 - HV type 喷嘴 for Iso	ISO 喷针喷嘴	4
4	725060	Ring,O	O 型圈	40
5	4638247	Proximity switch	接近开关用于混合头	4
6	6451242	VALVE,DIRECTIONAL-CONTROL, SOLENOID	清洁杆电磁阀	2
7	6451067	VALVE,DIRECTIONAL-CONTROL,SOLENOID	换向电磁阀 (控制混合头喷嘴 以及回流阀)	2
8	20270784	FEELER,TEMPERATURE	混合头料温探头	2

9	4803062	INSERT,FILTER	回油过滤器滤芯	2
10	4805856	TEMPERATURE LIMITER 0-100° 1-POLE	料罐温度传感器	1
11	20541119	LEVEL SWITCH	料量传感器	1
12	6445725	VALVE,SOLENOID	热交换器电磁阀	1
13	4831781	INSERT,FILTER	POLY 初式过滤器	2
14	4657872	COUPLING,MAGNETIC MAGNETKUPPLUNG PUMPE 28CCM - BG160	计量泵磁联	1
15	4773833	METERING PUMP KM-HPP-28OLHW-M1	计量泵组	1
16	4642059	INSERT,FILTER (200M)	ISO 初式过滤器	2
17	4774709	METERING PUMP KM-HPP-12OLHW-M1	ISO 计量泵	1
18	4657869	COUPLING,MAGNETIC MAGNETKUPPLUNG MINEX PUMPE 12 CCM	计量泵磁联	1
19	4641559	INSERT,FILTER	ISO 高压过滤器滤芯	2

Basic technical data 基本技术数据

Electric 电力

Operating voltage AC (V)	400
Frequency (Hz)	50-60
Phases	3
Control voltage DC (V)	24
工作电压 AC (V) 380	
频率 (Hz) 50	
三相电	
控制电压 DC (V) 24	

Performances 安装工作

Installation on Foundation	制作安装地基 不包含
Separate Invoice Foundation	单独为制作安装地基开发票 不包含
Unloading with KraussMaffei	克劳斯马菲负责客户工厂卸货 不包含
Mounting	安装定位 包含
Separate Invoice Mounting	单独为安装定位开发票 不包含
Start-up/ Instruction	启动设备/培训 包含
Separate Invoice Start up	单独为启动设备开发票 不包含
Training	培训 不包含
Separate Invoice Training	单独为培训开发票 不包含
Pre-acceptance at KraussMaffei	KraussMaffei 预验收 包含
Acceptance	终验收 包含
Spare Part Offer	备件报价 不包含
Spare Part Package	备件包 不包含

In case that installation, commissioning or acceptance is delayed for reasons not caused by KraussMaffei, the acceptance shall be deemed to have been duly performed within one month counted from the date KraussMaffei gives notice to the customer of its readiness to perform the acceptance procedure.

如果安装、调试或验收因非 KraussMaffei 原因而延迟，则验收应视为在 KraussMaffei 通知客户其准备好执行验收程序之日起一个月内正式执行。

Miscellaneous 杂项

Operating Instructions	English
Spare part list	English
Marking	Symbol
Colour	KraussMaffei standard
Packing	KM Standard
Warranty	12 months
Number of shots	1000000
Warranty condition	With ready for operation handover
英文 备件清单	
设备标记符号	
颜色 克劳斯马菲标准	
包装 适合海运的包装	
保修 12 个月	
保修注料保修次数 1000000	
起始时间，设备具备移交标准	

General comments 基本信息

- Once an order has been received from the client, he will make power, compressed air and water available at points to be defined on the layout by KraussMaffei.
- on site constructions works concerning walls and roof must be finished prior installation
- Water quality to meet KraussMaffei standard (on request).
- The number, position and dimensions of transition points will be specified and fixed on the layout by KraussMaffei.
- Energies must be made available by the client at the above-mentioned transition points by the start of assembly at the latest.
- Water inlet temperature should be 14°C. +/- 1°C (return line pressureless)
- Dry compressed air for the air-dryers supplying day tanks with overlay pressure must be made available at a moisture content of less than 3 g /m³
- The client is responsible for supplying the necessary raw materials, as well as auxiliary materials, hydraulic oil and suchlike substances.
- Smooth, on-schedule progress of the assembly work is only possible with unrestricted site-access.
- The ambient temperature at site and during operation is required between 18° up to 30°C and common humidity without draft
- The shop floor of the site on which the plant will be installed must be level and dirt-free.
- Concrete should be at least of a quality conforming to C25/30.
- Minimum drilling depth 200 mm, for accommodating M 20 grouting / rag-bolts.
- Plant screening against possibly existing interference (e.g. EMC) and site protection from zones exposed to fire risks are the client's responsibility.
- Client puts himself under obligation, to insure to his own account the KraussMaffei supplied volume of material against fire, water and other damage, this insurance to be in force from the date of delivery onwards.
- KraussMaffei reserves the right for alterations / improvements serving technical progresses and the plant's production safety / reliability.
- Transportation, packaging and handling guideline at <https://www.kraussmaffei.com/imm-de/allgemeine-geschaeftsbedingungen.html>
- 一旦收到客户的订单，将在 KraussMaffei 在布局图上确定的地点提供电力、压缩空气和水。
- 与墙壁和屋顶有关的现场施工工程必须在安装前完成
- 水质符合 KraussMaffei 标准（根据要求）。
- 过渡点的数量、位置和尺寸将由 KraussMaffei 指定并固定在布局图上。
- 客户必须最迟在组装开始前在上述过渡点提供能源。
- 进水温度应为 14° C. +/- 1° C（回流管无压）
- 必须在含水量小于 3 g/m³ 的情况下，为空气干燥器提供干燥压缩空气，该空气干燥器向具有覆盖压力的日用罐供应
- 客户负责提供必要的原材料、辅助材料、液压油等物质。
- 只有在无限制进入现场的情况下，装配工作才能顺利、如期进行。
- 现场和运行期间的环境温度要求在 18° 至 30° C 和无气流的普通湿度之间
- 设备安装现场的车间地面必须平整、无污垢。
- 混凝土质量至少应符合 C25/30。
- 最小钻孔深度 200 mm，用于容纳 M 20 灌浆/棘螺栓。
- 针对可能存在的干扰（如 EMC）进行工厂筛选，并保护现场免受火灾风险区域的影响，这是客户的责任。
- 客户有义务为 KraussMaffei 提供的大量材料投保，以防火灾、水和其他损坏，该保险自交付之日起生效。
- KraussMaffei 保留更改/改进服务于技术进步和工厂生产安全/可靠性的权利。
- 运输、包装和搬运指南 <https://www.kraussmaffei.com/imm-de/allgemeine-geschaeftsbedingungen.html>

Quotations exclusions 报价未包含的部分

Not included in the scope of supply from KraussMaffei are all items and services which are not specifically described in the quotation such as:

- Earth moving, bricklaying and concreting work, buildings, foundations, possibly required pits and mezzanines, if not described in main quotation
- Operator platforms with railings for the manual workstations
- Moulds and their installation in mould carriers, if not described in main quotation
- Quick change system for mould clamping, if not described in main quotation
- Valves, valve functions, thermostats on moulds
- Simulator desks for operating moulds and mold carriers, heat balancing units and equipment for mould heating/cooling, if not described in main quotation
- Hot / cold insulations, if not expressly described.
- Fire protection equipment
- Plant lighting
- All supply and return lines up to the KraussMaffei deliver scope, e.g. power connections, dry air for KraussMaffei air dryers and water for heat balancing
- Lubricants, auxiliary and raw materials, such as Polyol; Isocyanate; Activator; release agent, greases and oils (including hydraulic oil for hydraulic power pack and mixing head hydraulics).
- Acceptance / official approval of the safety equipment by the relevant Trade Union / Local Authority
- Replacement and wearing parts kits (could be specified separately)
- Insurance of the KraussMaffei delivery content against damage of any kind, whilst on site during installation and commissioning, up to the date of acceptance, accept any damage has been caused and verified by Shanghai KraussMaffei Machinery Co.,Ltd..
- Optimisation of: articles, robot pouring program and / or processing parameters
- Optimisation of the plant, that exceeds the specific quoted performance criteria
- Support or brackets for extraction hoods and ducts (could be quoted separately based on a detailed facility layout)
- Quick release couplings for ring line, if not described in main quotation
- Lifting Equipment (forklift, crane), if not described in main quotation
- Moving/Transport of the scope of supply from the delivery vehicle to the final place, if not described in main quotation
- For sea and air transport the nitrogen pressure for the hydraulic accumulators (bladder-, piston-, membrane- or metal bellows accumulator), which are filled with pre-charge pressure (nitrogen), will be released at the factory. This is done while disassembling the system. The refilling of the pressure accumulator will be done on site with nitrogen provided by the customer.

不包括在 KraussMaffei 供货范围内的所有项目和服务，这些项目和服务在报价单中没有具体说明，例如：


- 土方工程、砌砖和混凝土工程、建筑物、基础、可能需要的坑和夹层（如果主报价中未说明）
- 手动工作站用带栏杆的操作员平台
- 模具及其在模具托架中的安装，如果主报价中未说明
- 快速更换模具夹紧系统，如果主报价中未说明
- 阀门、阀门功能、模具上的恒温器
- 用于操作模具和模具托架的模拟台、用于模具加热/冷却的热平衡装置和设备（如果主报价中未说明）
- 热/冷绝缘，如未明确说明。
- 消防设备
- 工厂照明
- KraussMaffei 交付范围内的所有供应和回流管线，例如电源连接、KraussMaffei 空气干燥器的干燥空气和热平衡用水
- 润滑剂、辅助材料和原材料，如多元醇；异氰酸酯；活化剂；脱模剂、润滑脂和油（包括用于液压

动力组和混合头液压的液压油)。

- 相关工会/地方当局对安全设备的验收/正式批准
- 替换件和易损件套件(可单独指定)
- 为 KraussMaffei 交付内容投保任何类型的损坏,在现场安装和调试期间,直到验收日期为止,接受 Shanghai KraussMaffei Machinery Co.,Ltd.造成的任何损坏。
- 优化:物品、机器人浇注程序和/或加工参数
- 设备优化,超过特定的引用性能标准
- 抽气罩和管道的支架(可根据详细的设施布局单独报价)
- 如果主报价中没有说明,用于环形管线的快速释放联轴器
- 起重设备(叉车、起重机),如果主报价中没有说明
- 如果主报价中没有说明,则将供货范围从交货车辆移动/运输到最终地点
- 对于海运和空运,充有预充压力(氮气)的液压蓄能器(气囊蓄能器、活塞蓄能器、薄膜蓄能器或金属波纹管蓄能器)的氮气压力将在工厂释放。这是在拆解系统时完成的。使用客户提供的氮气在现场重新加注蓄能器。

[Signature Page / 签字页]


甲方(盖章):北京光华荣昌汽车部件有限公司

法定代表人/授权代表(签字):  高雁宇

日期: ___年___月___日



乙方(盖章):克劳斯玛菲机械(中国)有限公司

法定代表人/授权代表(签字):  陈辉

日期:2025年2月8日

