
1 Injection Molding Machine Type KM 2700/55000 MX
including additional, special items and services

Hydraulic-mechanical 2-platen clamping system with 4 pressure pads and 4 locking devices on moving platen.

PV-closed loop control for the injection unit

MC6 control based on industrial PC with real-time Ethernet technology.
BluePower - weekly timer & eco assistant

Basic equipment:

- Electronic coding of the plasticiser (ZE 21.80)
- Data logging (logbook) (ZE 89.6702)
- Start-up circuit (ZE 89.70)
- Quality monitoring package (ZE 89.751)
- Cycle time analysis (ZE 89.76)
- Cycle recording on internal storage (ZE 89.765)
- Interface for connection of standard USB-keyboard (ZE 89.7991)
- Graph display of set and actual profiles (ZE 89.8039)
- Maintenance schedule (ZE 89.807)

Plasticising unit(s)

1 Thermoplast - Standard

Plasticising size	55000
Screw diameter	220 mm
Nozzle radius	19.05 mm
Nozzle bore	12.7 mm

Additional / special items for base machine and injection unit 1: SP55000

Pos. No.	Number	Description
02.50	1	Wedge type anti-vibration pads
02.5003	1	Shim plates, 1 set, for wedge type pads for machine levelling on uneven foundation
02.505	1	Horizontal stops for fixing the machine in longitudinal axis on the foundation, attached to the machine bed of the clamp unit
03.00	1	Oil drip tray beneath mold area between the machine bed support beams.
07.12	1	Electric screw motor: For independent plasticizing during mold opening and closing. For parallel plasticizing we recommend a shut-off nozzle. Note: Technical data not identical with the standard machine! (Instead of std. hydro-motor) (Not retrofittable) (Not possible with ZE 07.13, ZE 07.15, ZE 07.21 and ZE 07.22)
32.02	1	Cylindrical valve type shut-off nozzle HSVS, hydraulically operated, US design. Original machine equipment with hydraulic/electrical control. (Delivery instead of ZE 32.00)
40.511	1	Pneumatic valve 1 on moving platen non-op side for blow function (1 off 5/2 directional valve with 1 solenoid). Selectable control via stroke/time or time/time. Output air volume manually adjustable via 1 throttle valve.

Pos. No.	Number	Description
		Connection via hose plug connector. Output port 1/4" for 10 mm hose outer diameter. (With ZE 40.511 fitted ZE 40.512 is not possible)
40.712	1	Pneumatic cascade control, 6-fold for hotrunner (coldrunner) needle valves (6 off 5/2 directional valves with 2 solenoids each). Connection via hose plug connector on fixed platen, non-op side. (Prerequisite ZE 40.902 up to ZE 40.9xx)
40.752	1	Maintenance unit for the treatment of oil free compressed air, consisting of: - shut-off valve (manual) with pressure relief - pressure adjustment valve (manual) incl. pressure gauge and air filter - pressure switch for electric monitoring - shut-off valve (electric) with pressure relief (Prerequisite for ZE 40.5xx, ZE 40.70, ZE 40.71, ZE 40.71xx, ZE 40.77, ZE 42.4x, ZE 49.05 and ZE 72.4xx)
40.912	1	Electric interface 6-fold on fixed platen (FWAP) for cascade control, selectable on screen for pneumatic or hydraulic valves. Function: The activation of needle valve open or close may be either stroke-dependent or time-dependent. The needle valves can be opened and closed twice each during injection as well as during holding pressure. Open valves can be closed time delayed after end of holding pressure. Monitoring function for at least one opened needle nozzle. During set-up mode the nozzles may be operated manually.
45.65	1	Mold fixing platens according to SPI (fixed and moving platens) up to KM 1600 MX: threads 1"-8 UNC-2B from KM 2000 MX:

Pos. No.	Number	Description
		threads 1 1/4"-7 UNC-2B - Centering ring on fixed platen 5" (127 mm) - Cover on moving platen with central diameter 30 mm
Addition to Pos. No. 45.65	1	Centering ring to be 6" = 152.4 mm for Fixed platen
45.721	1	Mechanical robot interface according to EUROMAP 18 on fixed platen
45.7212	1	Additional threaded holes for mechanical interface according to EUROMAP 18 (ZE 45.721) for attaching a KM-Automation robot to fixed platen (operator side and non-op side) (Prerequisite for IR series)
49.04	1	Mechanical preparation for future retrofitting of a mechanical progressive drop-in bar
50.30	1	Hydraulically actuated ejector plate including tapped holes and clearance holes in the moving platen for the ejector bolts (pattern according to SPI) up to KM 1600 MX: threads 1"-8 UNC-2B from KM 2000 MX: threads 1 1/4"-7 UNC-2B (Not retrofittable)
54.35	1	Hydr. operated safety gate on operator's side
59.201	1	Tie bar retraction system for tie bar on operator side, top. Drive cylinders of clamping unit with changed position (fixed on operator side bottom and non-op side top) The tie bar will be retracted in the direction of the injection unit. (Not possible in connection with ZE 59.2xx)
63.65	1	Internal oil filtration in the bypass of the cooling pump. Filter change only when machine is switched off.
64.50	1	Level sensor for oil drip tray monitoring

Pos. No.	Number	Description
65.01	1	Increased oil cooler for water intake temperature of max. 36 °C with a min. delta-P = 2.0 bar between water inlet and outlet
65.15	1	NPT- connections for machine cooling water
65.551	1	Pressure gauge with hydraulic selector switch on operator side, for service purposes, displaying alternatively: - system pressure (pump pressure) - injection pressure / holding pressure - hydro motor pressure
71.01	1	Injection/compression sequence: Coining stroke and speed adjustable via VDU Function: - mold closing up to an adjustable compression stroke position max. 21 mm: KM 850 MX to KM 1000 MX max. 26 mm: KM 1150 MX to KM 1600 MX max. 36 mm: KM 2000 MX to KM 2300 MX max. 41 mm: KM 2700 MX to KM 3200 MX max. 51 mm: KM 4000 MX - injection - closing/compression stroke - holding pressure
72.31	1	Hydr. core pull system 1-fold on moving platen (BWAP), non-op side. Speed and pressure adjustable via VDU. Socket pinout acc. to KM standard (up to core 2 acc. to EUROMAP 13 (HAN 16 A)). 4/3 directional valve with 2 solenoids and blocked center position, fitting sizes (internal thread): 1/2 inch from KM 850 to KM 1150 3/4 inch from KM 1300 to KM 4000 For prop. valve control (pressure and speed) for hydr. core pulls, separate for moving platen (BWAP) and fixed platen (FWAP) ZE 72.56 is required. (Only possible in connection with ZE 72.55, ZE 72.56 or ZE 72.57)
72.36	1	Hydr. core pull system 1-fold on

Pos. No.	Number	Description
		fixed platen (FWAP), non-op side. Speed and pressure adjustable via VDU. Socket pinout acc. to KM standard (up to core 2 acc. to EUROMAP 13 (HAN 16 A)). 4/3 directional valve with 2 solenoids and blocked center position, fitting sizes (internal thread): 1/2 inch from KM 850 to KM 1150 3/4 inch from KM 1300 to KM 4000 For prop. valve control (pressure and speed) for hydr. core pulls, separate for moving platen (BWAP) and fixed platen (FWAP) ZE 72.56 is required. (Only possible in connection with ZE 72.55, ZE 72.56 or ZE 72.57)
72.55	1	Hydraulic ejector and hydraulic cores on moving platen as well as hydraulic cores on fixed platen are supplied in parallel by one common pump during opening and closing movement of the clamp unit. Core pulls and ejectors can be set into a defined operation state sequentially by pressure and quantity call.
72.61	1	Pressure maintaining function for hydr. core circuits via the hydr. system during opening and closing movements of the mold. Important: if pressure maintaining function is required during plasticizing (hydr. or electric screw drive) ZE 72.60 is required.
89.07	1	Cold slug ejection
89.2001	1	Cooling fan for control cabinet
89.238	1	Grid type of the power supply: TN-C or TN-C-S or TN-S system (3 ph grids with separate neutral or neutral together with ground) (Not possible in connection with ZE 89.2381)
89.2471	1	Nominal Input Voltage 460 V / 60 Hz without neutral. Suitable for nominal voltage 480 V (acc. to ANSI C84.1-2006) For mold hotrunner heaters with

Pos. No.	Number	Description
		220 V / 230 V a separate transformer or an additional supply is required.
89.260	1	Separate connection for heaters and power circuit (6-pole main switch)
Addition to Pos. No. 89.260	1	UVV - protective measure Lockout - Tagout Execution by KM: Master / slave main switch CX Only applicable for machines of the CX series. Prerequisite ZE89.26/260 Own power switch (slave) for clamp drives, lockable with up to 3 padlocks in off position. Feasibility depending on scope of equipment. Consultation with the electric department required. Not possible for PX series
89.5292	1	APCplus - Adaptive Process Control plus Functions: Controlling and monitoring of plastic melt volume incl. gauging of flow and recording of closing characteristics of the back flow valve. Considering the selected plastics/ fillers/filler degree. Automatic adjustment of - cascade opening and closing points - switch over point - holding pressure. Selectable learning mode (number of learning cycles, usable with position, melt pressure, mold cavity pressure and time switch-over) APCplus is recommended for: - acceleration of start-up processes - prevention of flashing as well as not filled mold parts - increase of quality for process/ product.
89.5310	1	1 additional temperature zone for nozzle heater 110 V, incl. transformer (Only possible with ZE 89.247x) (Not possible in connection with ZE 89.299)

Pos. No.	Number	Description
Addition to Pos. No. 89.5310	1	to be used for nozzle shut off as delivered.
89.5902	1	Signal interface for handling unit acc. to EUROMAP 67 incl. reject signal and power socket 32 A (type Harting HAN 6 HSB or compatible connector). For movements of the handling unit during mold opening ZE 89.5915 is additionally required. (Not possible in connection with ZE 89.5901 or LR integration) (Prerequisite for IR series)
Addition to Pos. No. 89.5902	1	Contrary to ZE, power supply via HAN K4/4 connector with double locking lever and 40A fuse protection. (Socket insert 09 38 008 2701)
89.6702	1	Data logging (logbook) for continuous recording and retrospective display (max. 20,000 events) of: - changes of machine parameters - Alarm messages / acknowledgements - On/off of the machine control incl. date, time and current cycle as well as recording of the password (standard) resp. chip card (prerequisite ZE 89.6712x) Analysis of the entries via export function on USB flash drive.
89.6781	1	Stabilized power supply unit (24 V) for machine control
89.70	1	Start-up circuit: switch over from start-up to production values for plasticizing stroke, injection pressure, holding pressure, back pressure, heating time, etc. depending on cycles.
89.751	1	Quality monitoring package: Process monitoring (actual cycle values and integrals) by setting of tolerances, actual value display and recording. Documentation printable.
89.76	1	Cycle time analysis: Display of the individual times and the total time of the last actual cycle and

Pos. No.	Number	Description
		a selectable reference cycle. Graph display of the sequential and parallel times.
89.765	1	Cycle recording: Recording of actual process values for each cycle on an internal storage device. Export function to printer or data storage device in Excel compatible format.
89.7991	1	Interface for connection of a standard alphanumeric USB-keyboard for free text entry
89.80363	1	TFT color screen (21,5", pivot, glass surface) with multi touch screen functions for setting pages and machine operation. Set point entry and simultaneous operation of machine keys is possible. In addition to the machine keys individual machine movements can be carried out during set-up mode via the operating device SlideX. Haptic touch like 2-finger zoom and swiping is included. Additional functions like extended actual value column, free configurable graphic machine programming via process diagram with system control. Free choice of favorites and extended MC6 system control via intelligent machine operation keyboard. Capacitive touch design. (Limited operation wearing gloves). Improved contrast and less sensitive to scratches and chemicals.
89.8039	1	Graph display of set and actual profiles for injection speed, injection pressure, holding pressure, back pressure and screw rpm.
89.807	1	Maintenance schedule: According to machine strain (working hours and cycle time) automatic calculation of maintenance intervals, signalled on VDU with alarm when due.
89.810	1	PV-closed loop control for injection speed, holding pressure and back pressure as well as switch over to

Pos. No.	Number	Description
		holding pressure by hydraulic pressure.
89.8191	1	Additional language German for VDU (selectable on screen)
89.829	1	First language American - VDU American - operating manual American - machine plates American
89.9688	1	redBox, Hardware and software package for remote access by the KraussMaffei service hotline to the machine control system for fault diagnosis. Certificate as smartcard for a highly secure VPN connection, integrated firewall.
89.96891	1	KraussMaffei smartCube High performance industrial PC with integrated OPC UA interface. Connectivity required for current and future digital lifecycle services.
89.9693	1	CIMI-Interface 1 for the monitoring of the injection process: Interface for the connection of an external computer system (e.g. KISTLER Dataflow), monitoring only of the injection process via selected process parameters. The external computer and software is not included in our scope of supply as well as the signals for mold cavity pressure, mold cavity wall temperature and melt temperature. These signals are optionally available against surcharge. (Not possible with ZE 89.523)
96.401	1	Machine painting, structural gloss paint - machine 1 color RAL 9002 grey white - clamp bed RAL 7037 grey - cladding RAL 9002 grey white and KM blue - safety doors RAL 9002 grey white

Pos. No.	Number	Description
97.040	1	UVV for the USA: Safety standards acc to US regulations ANSI / SPI B151.1 resp. ANSI / SPI B151.29: Differing electrical safety regulations and country specific pressure accumulator acceptance test (Not possible together with ZE 97.00 or ZE 97.050)
100	1	Like 89.59181: Operator keys for the basic functions of handling units; integrated in control panel of machine control. Key assignment: - move in basic/zero position - operation with robot - fully automatic mode - setting mode - stop - fast / slow - emergency stop acknowledged Potential-free signal transfer. Relay for potential separation in IMM.
101	1	BluePower - Servo pump drive Servo motor pump drive system for outstanding energy efficient operation of the machine, including a separate oil filter and oil cooling circuit integrated in the machine base. Requirement - Sp 55000 MX - ZE 07.12 Not possible with: - PPS01.10 to PPS01.80 Note: Technical data not identical with the standard machine!
102	1	Special Mould cooling * Main connection point (2x IN, 2x OUT) (1x circuit per machine platen) * with 4" near fixed platen NOS. * Hoses/ Pipes: * Supply MP/NOS: 4x 2 inch (2 circuits) * Supply MP/OS: 4x 2 inch (2 circuits)

Pos. No.	Number	Description
		* Supply FP/NOS: 2x 2 inch (1 circuits) * Supply FP/OS: 2x 2 inch (1 circuits) * * * Moving plate/ NOS water connection* ever circuit with 2 inlets and 2 * outlets 1 1/2" * Moving plate/ OS water connection ever * circuit with 2 inlets and 2 outlets 1 * 1/2" * Fixed plate/NOS water connection ever * circuit with 2 inlets and 2 outlets 1 * 1/2" * Fixed plate/ OS water connection ever * circuit with 2 inlets and 2 outlets 1 * 1/2" * * All connection in each circuit (inlet * and outlet) with manual ball-type stop * valves and * towards mold with 1 1/2" NPT malethread * Air line connection with ball valves * for blow out of water lines. * * For water temperatures 85°C max. * * Max. flow rate is 136 l/min (1 1/2 inch * piping) assumed the velocity of flow is 2 m/s * Max. flow rate is 243 l/min (2 inch piping) assumed the velocity of flow is 2 m/s * The customer gets the Water * cooling-drawings for confirmation
105	1	Clamping dimension min. mold height: 600mm (-300mm) max. mold height: 2000mm (± 0mm) daylight: 3600mm (-300mm) stroke: 3000mm (± 0mm) Reduced mold weight on moving platen. Must be calculated in case of order
109	1	Material, transport and energy surcharge for selected products due to sharp rise in raw material prices
110	1	MX - redesign machine safety housing

Pos. No.	Number	Description
		relocation access door.
		Customer has requested to keep original design of access door location on operator side.

Additional / special items for plasticising unit 1: SP55000

Pos. No.	Number	Description
21.10	1	Technically executed just like a HPS-B plasticising unit
21.80	1	Electronic coding of the plasticizer. For automatic identification of the technical data and of the max operating parameters: screw diameter, temperature, inj.-pressure, screw rpm, plasticizing torque.

Additional / special items for robot:

Pos. No.	Number	Description
R61.1252	1	KraussMaffei Industrial Robot Type: IR 1200 R3900-2 K S/K (KUKA KR 120 R3900-2 K) - shelf-type robot mounted on the fixed platen - discharge to non-op side of IMM - max. payload 120 kg - max. reach 3904 mm - repeatability +/- 0,05 mm - power supply 400 V, 32 A, 50 Hz - maintenance free three phase servo motors - position measuring with absolute encoder - all axes equipped with brakes
Addition to Pos. No. R61.1252	1	Attention, important notice: Discharge on the Non-operators side Important notices regarding the IMM: Tie bar retraction system for tie bar on operator side, top. Drive cylinders of clamping unit with changed position (fixed on operator side bottom and non-op side top) The tie bar will be retracted in the direction of the injection unit. Clamping dimension min. mold height: 600mm (-300mm) max. mold height: 2000mm (± 0mm) daylight: 3600mm (-300mm) stroke: 3000mm (± 0mm).
R61.1401	1	Mechanical interface according to EUROMAP 18
R61.1406	1	Mounting bracket for installation of robot on the fixed platen with EUROMAP 18 pattern and additional drilling pattern extension
Addition to Pos. No. R61.1406	1	Mounting bracket for floor mounted application to be quoted in a separate position
R61.1801	1	Base package for industrial robot consisting of: - KR C5 control, main electrical cabinet - additional electrical cabinet incl. siemens control with safety systems and operator panel

Pos. No.	Number	Description
		- data set and program selection - password and user management - language switching - trouble shooting - interface robot - IMM according to EUROMAP 67 incl. Connection cable - holder for handheld pendant - first commissioning and basic adjustment of robot - basic program "demolding of parts" without article - drive to home position
R61.2950	1	Energy supply axis A1 to axis A3: - bus cable - air supply - plug-in connector for control cables
R61.2952	1	Energy supply axis A3 to axis A6: - bus cable - air supply (Only with ZE R61.2950)
R61.2956	1	Gripper interface module (GIM) - pneumatic initial stroke, 100 mm - 1 pneumatic valve for compressed air circuit - 1 venturi circuit for vacuum - plug-in connector for EOAT (gripper) interface: EPS20/38 (20x pneumatic, 38x electrical), robot side - dead weight: 34 kg (reduction of max. load) - extension of the operating range (Only with ZE R61.2952) (Not possible with ZE R61.2954)
R61.2971	1	Software package (KUKA SafeOperation) incl. reference switch and interfaces for KUKA robots, consisting of: - safe monitoring of a specific area of the cell - safe monitoring of Cartesian specific speeds - safe monitoring of the axis specific speeds - safe operation stop - cooperation of robot and operator / occupational safety between man and machine.
		Attention: In order to design safety configuration

Pos. No.	Number	Description
		it is mandatory for the customer to provide gripper data.
R61.3002	1	Safety package for guarding fence according to DIN EN ISO 10218-1: switch, acknowledge button, door contact, safety (panic) unlock, emergency stop switch. If ordered without safety guard ZE R61.3101 or ZE R61.3111 only components will be delivered. (Only with ZE R61.3010)
R61.3010	1	Preparation of control for connection of a safety package including connection cables with plug-ins (HAN 25 D)
R61.3101	1	Safety guard with metal grid insert incl. 1 safety door mesh size: 100 x 20 mm (Only with ZE R61.3002)
Addition to Pos. No. R61.3101	1	Execution of reach-in protection for a required outlet height on the conveyor belt >120mm (according to DIN EN ISO 13857, Safety of machinery): The reach-in protection is guaranteed by additional safety guard elements on the side of the belt (1.5msafety distance to the danger point required). Minimum conveyor belt height according to the guideline = 1000mm --> the theoretical outlet height of approx. 1000mm can be guaranteed in this way. Scope: - Additional safety guard elements (height ca. 2500mm) - Additional posts [SO.6015] ----- Modification of the safety guard in order to allow the conveyor belt to discharge parts toward the clamp end area of the machine.
R61.3510	1	Maintenance unit for compressed-air conditioning:

Pos. No.	Number	Description
		- pressure control valve - filter - blocking valve
R61.3512	3	Additional pneumatic valve for compressed air circuit - 5/3 directional valve with two solenoids (Only with ZE R61.2954 or ZE R61.2956)
R61.3651	3	Additional vacuum circuit (Venturi). Vacuum monitoring via vacuum switch with digital actual value display and adjustable limit value. (Only with ZE R61.2954 or ZE R61.2956) (Not possible with ZE R61.3655)
R61.4012	1	Extension cable 10 m for programming pendant
R61.4020	1	Programming pendant (smartPAD) TFT color display with touch function for setting pages and robot operation. - HotPlug compatible - USB interface - 3-stage enabling switch - emergency stop switch - 10 m connection cable
Addition to Pos. No. R61.4020	1	Mobile panel "BELUGA" to operate the system. Basic functions: - Manual mode - Automatic mode - Drive to home position - Start - Automatic mode pause - Fast / slow - Acknowledgement - Emergency stop - Including cable and socket - Cable length 20m - Including preparation of control cabinet Note when used with industrial robots: If additionally the option for integration into IMM (5-basic functions) is present, there must be 1 interface each installed at the

Pos. No.	Number	Description
		automation. Switch of control IMM/Beluga via button "S1". Note in combination with linear robots: The standard interface R31.4224 is overbuilt and can no longer no longer be retrofitted. [SO.0562]
R61.4223	2	Interface for connection of additional devices. - 8 digital inputs (24V DC) - 8 digital outputs (24V DC, potential-free) - connection cable with plug-in connector and mating plug Connection of safety signals (emergency stop, safety door protection) is not possible.
R61.4224	1	Interface for connection of additional devices incl. safety signal - 8 digital inputs (24V DC) - 8 digital outputs (24V DC, potential-free) - connection cable with plug-in connector and mating plug. Suitable for safety signals e.g. 2-channel emergency stop 2-channel safety door protection. Not suitable for communication of automation systems with individual safety analysis.
Addition to Pos. No. R61.4224	1	To be used for:
R61.4805	1	- Additional Handheld (Beluga) Transformer for power supply without neutral or system voltages other than nominal voltage.
R61.5001	1	Control cabinet preparation for connection of conveyor belt Interface signals: - activation belt cycle forward - belt electric 1 - belt electric 2 Connection cable with plug-in connector

Pos. No.	Number	Description
		Type: HAN 25 D Delivery incl. protective circuit for conveyor belt drive (integrated in additional electrical cabinet of robot). Power connector with connection cable and plug-in connector type: HAN 6 E
R61.5202	1	Electric 1 and 2 for conveyor belt Electric 1: "conveyor empty" button light barrier with adjustable bracket incl. reflector (belt full) Electric 2: Monitoring "discharge position open"
R61.7001	1	CE-conformity declaration / declaration of incorporation For delivery of robots and IMM, KraussMaffei declares the CE-conformity of the facility provided all necessary components (safety devices) are included in the scope of supply. Attention: In the case that not all necessary safety devices are included in the scope of supply, a declaration of incorporation is included.
R61.7101	1	USA edition Robot control cabinet according to ANSI / RIA with control cabinet lock with activated main switch, emergency stop switch and mode of operation switch on control cabinet. Additional control cabinet and interfaces with cables according to UL and labeled individually.
R61.8191	1	Additional language German for VDU (selectable on screen)
R61.829	1	First language American - VDU American - operating manual American - machine plates American
R61.8802	1	Painting of robot

Pos. No.	Number	Description
		KUKA orange
R61.8821	1	Painting of robot foot RAL 9005 jet black
R61.8831	1	Painting of mounting bracket RAL 9002 gray white
R61.8851	1	Painting of safety guard, frame/grid RAL 9005 jet black
R61.8861	1	Painting of safety guard posts RAL 9002 gray white
R61.8872	1	Painting of main control cabinet Door: RAL 7035 light gray Housing: RAL 7011 iron gray
R61.8881	1	Standard painting of additional control cabinet RAL 7035 light grey
R61.9830	1	Instruction manual and technical documentation (1 each) in a binder Instruction manual in the ordered country language (first language of control) - safety instructions for robot - robot manual - manufacturer's declaration in German - technical documentation in German and English - drawings and bill of materials of components - circuit diagram and bill of materials - pneumatic layouts and bill of materials - documentation from suppliers, optional
300	1	R61.1406 - Mounting bracket for installation of robot on the fixed platen with EUROMAP 18 pattern and additional drilling pattern extension. Note: Ceiling height = 24ft (7315.20mm) Bridge height = 18ft (5486.40mm) Distance between the floor and the extended robot movement downwards should be 1088mm or less (similar to previous orders 38630020 and 38630021).

Pos. No.	Number	Description
305	1	Control concept "integrated" Basic functions to operate handling devices, integrated in operator panel of MC6 control (IMM) Functions: - Manual / automatic mode - Drive to home position - Automatic mode pause - Fast / slow Precondition is option (ZE) 89.59181 of the IMM. [SO.3046]
307	1	R61.4810 - Nominal voltage for robot 400 V, 50/60 Hz, N, PE
-318	1	IMM Nominal Input Voltage: 460 V / 60 Hz / 3 Ph without Neutral conductor
308	1	At time of creating this quote, no RFQ was available. Execution of system per KMA standard. Our quote is leading document regarding technical and commercial specifications.
310	1	R61.3011 - 2x Preparation of control for connection of a safety light curtain including connection cables with plug-ins (HAN 25 D)
-311	1	Similar to orders 38630020/38630021
312	1	Demolding EOAT with sprue separation for article "Air Conditioned Pad", 1-cavity mold for up to 6x different 1-cavity molds, consisting of: - Aluminum base frame - Base plate for quick change system - Suction cups - Sprue grippers and sprue cutters - Pneumatic / electrical components - Sensors - Mounting material Important: The customer is responsible for sending

Pos. No.	Number	Description
		sample parts of ALL 6 possible "Air Conditioned Pad" articles directly to our German facility. Important: It is assumed that all 6x possible molded parts are sufficiently similar so that they can be removed from the IMM with the same demolding EOAT. It is also assumed that the position of the sprues for all 6x possible molded parts will be sufficiently similar to enable sprue separation with the same demolding EOAT. If this does not apply, then 6x different article-specific demolding EOAT with sprue separation will be quoted! Note: The sprues of the molded part will be cut and deposited through a chute going to a box provided by the customer outside the protective housing.
313	1	Crane rail safe Monitoring of all robot axes in lower position Note: Necessary reconstruction and connection cables to crane are not part of the scope of supply. Crane signals "crane not in danger zone" via a potential free contact to the robot.
314	1	Interface package (decentralized bus-connection) for connection of following peripheral units: 64 Digital inputs 64 Digital outputs To be used for: - Wooden Skids Stacker - Banding/Strapping Machine - Wrapping Machine - Part cooling devices - Spare
315	1	Schunk SWA-110 gripper quick change

Pos. No.	Number	Description
		system, gripper part, consisting essentially of: - SWA 110 adapter (150kg payload) - 8x integrated air connectors - 12x additional air connectors via pneumatic module - 2x Electric module 19-fold (30 free for customer) - Cable plug
316	1	Schunk SWK-110, automatic gripper quick change system, robot part, consisting essentially of: - SWK 110 basic unit (150kg payload) - Piston stroke control - 8x integrated air connectors - 12x additional air connectors via 2x pneumatic module - 2x Electric module 19-fold (30 free for customer) - Cable plug - Adapter plate robot - Valve for locking Note: Interface according to KM Standard.
317	1	Conveyor belt length, l = 8000 mm belt width, b = 1400 mm discharge height, h = 1000 mm height adjustment +/- 100 mm guarding (reach-in protection): L = 850 mm 2-layer, smooth nylon PVC belt, temperature resistant up to 60°C gear motor belt speed approx. 0.1 m/sec

General Technical Information:

Except when confirmed otherwise, the following supply requirements and environmental conditions do apply to KM molding machines and KM robots. For any variances special equipment must be agreed on.

Documentations

- 1 set of the short version of the instruction manual in a binder
- 1 USB with the full version of the instruction manual and the complete technical documentation (spare parts – packaging lists, drawings, etc.,)

The short version contains all information which is needed for commissioning and which is stipulated. Detailed information for operation of the machine is only included on the USB.

Machine specific documentation/software: (<http://www.kraussmaffei.com/documentation>)
Key: UO6O8.

Electric

Nominal Input Voltage (V)	460 Volt
Frequency (Hz)	60 Hz
Phases	3
Neutral	N
Socket type	A & B - UL 498/NEMA 5-15 R, 110V /15A, CSA C22.2 Nr.:42

Pneumatics

Pneumatic cascades, core pulls, blow and movement valves have at a max. pressure of 7 bar a flow of about 900l/min.

In case safety guards are omitted the machine or facility may only be operated after it has been determined that the machine or facility complies with the local regulations.
The operator is responsible for the correct set-up of the safety guards.

KM Molding Machine:

Cooling water supply for cooling system

Unless stated differently in the quotation, the oil coolers for the injection molding machine are laid out for cooling water supply at the inlet of max. 31°C and pressure at the connection point of 4-6 bar.

For the functional testing of machines and devices with hydraulic drive systems in the factory, hydraulic oil type Shell Tellus S3 M46 will be used in-house at KraussMaffei.

The hydraulic oil is not included in the scope of supply.

Hydraulic accumulators are supplied with a pressureless nitrogen bubble due to hazardous materials regulations.

For operating fluid specifications, please refer to the respective operating instructions.

Environmental conditions for hydraulic molding machines

min. / max. temperature +5°C to +40°C

min. / max. humidity 0% to 80% r.F.

max. absolute humidity 23,5 g/kg (in dry)

Environmental conditions for electric molding machines:

min. / max. temperature +15°C to +40°C

min. / max. humidity 0% to 80% r.F.

max. absolute humidity 23,5 g/kg (in dry)