

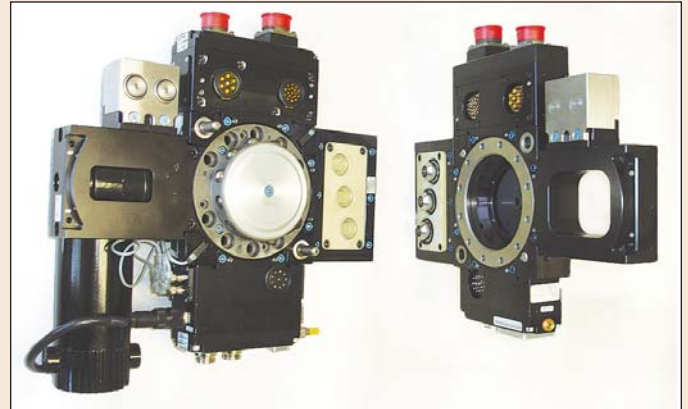
# Electric Tool Changer for Heavy Automation

## Product Description

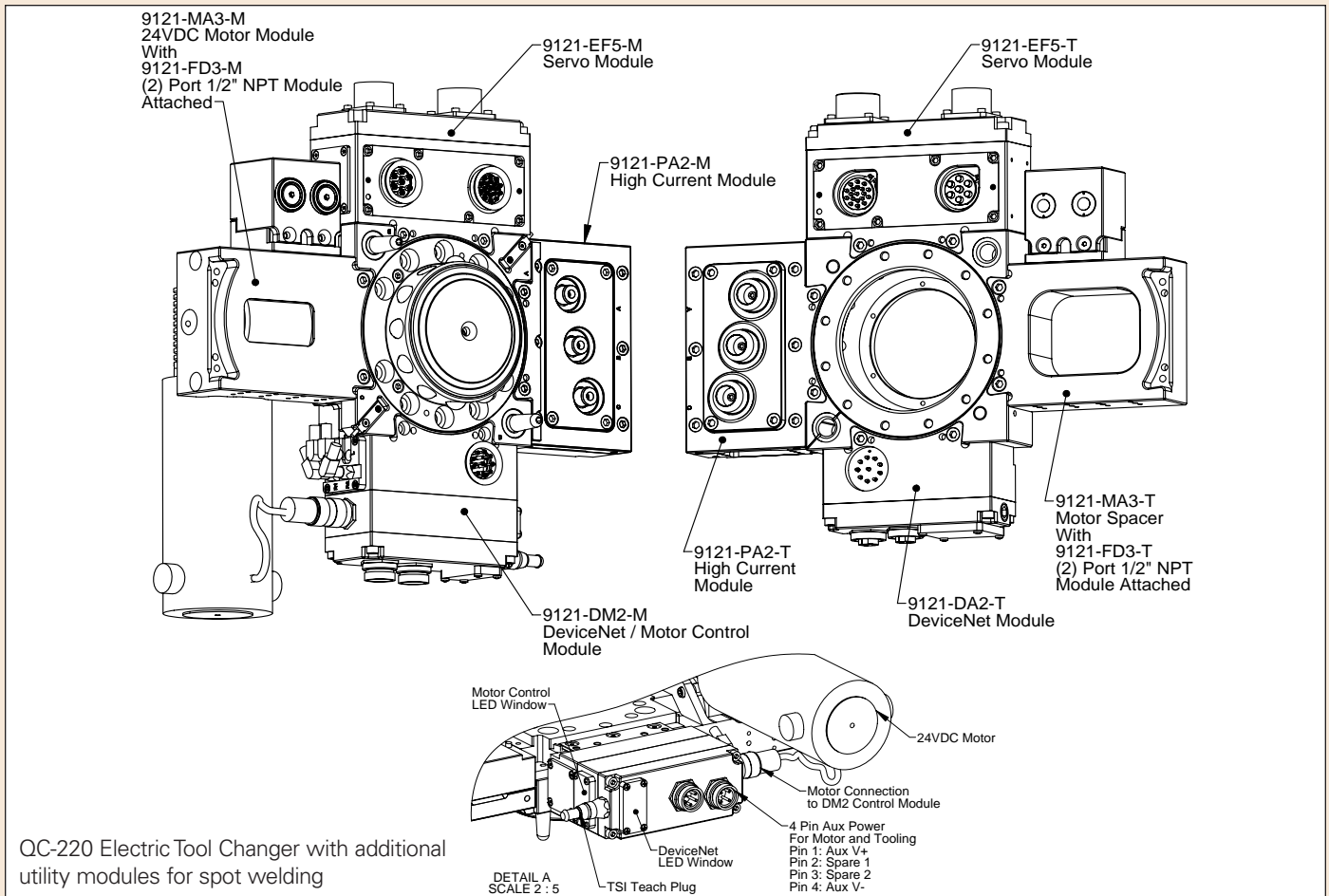
The Electrically-Actuated Tool Changer from ATI (patents pending) was designed for heavy-duty applications where air supply is either not available or not desired. The low-voltage, low-current inputs allow for easy integration into electric body shops. Virtually the same size as the existing QC-210 series pneumatic version, this electric version Master, mates with pre-existing QC-210 Tool side plates. The Electric Tool Changer also features up to five accessory module mounting flats for demanding material handling or servo welding applications.

## Product Highlights

- 24VDC electric motor drives the locking mechanism.
- On-board motor controls.
- Integrated Lock/Unlock sensing for safety.
- Mounts directly to most 200 kg robots.
- Compatible with existing QC-210 series Tool side.
- No-Touch locking technology allows up to 3 mm plate separation when locking.
- Ready sensors (2) detect when the Tool plate is within 1.5 mm of the Master plate, signaling ready-to-lock.
- Patented Fail-Safe locking mechanism.
- Unique twin-lead-screw drive transmits motor torque to safely lock the Tool Changer.
- All locking parts are made of R<sub>C</sub>58 stainless steel.



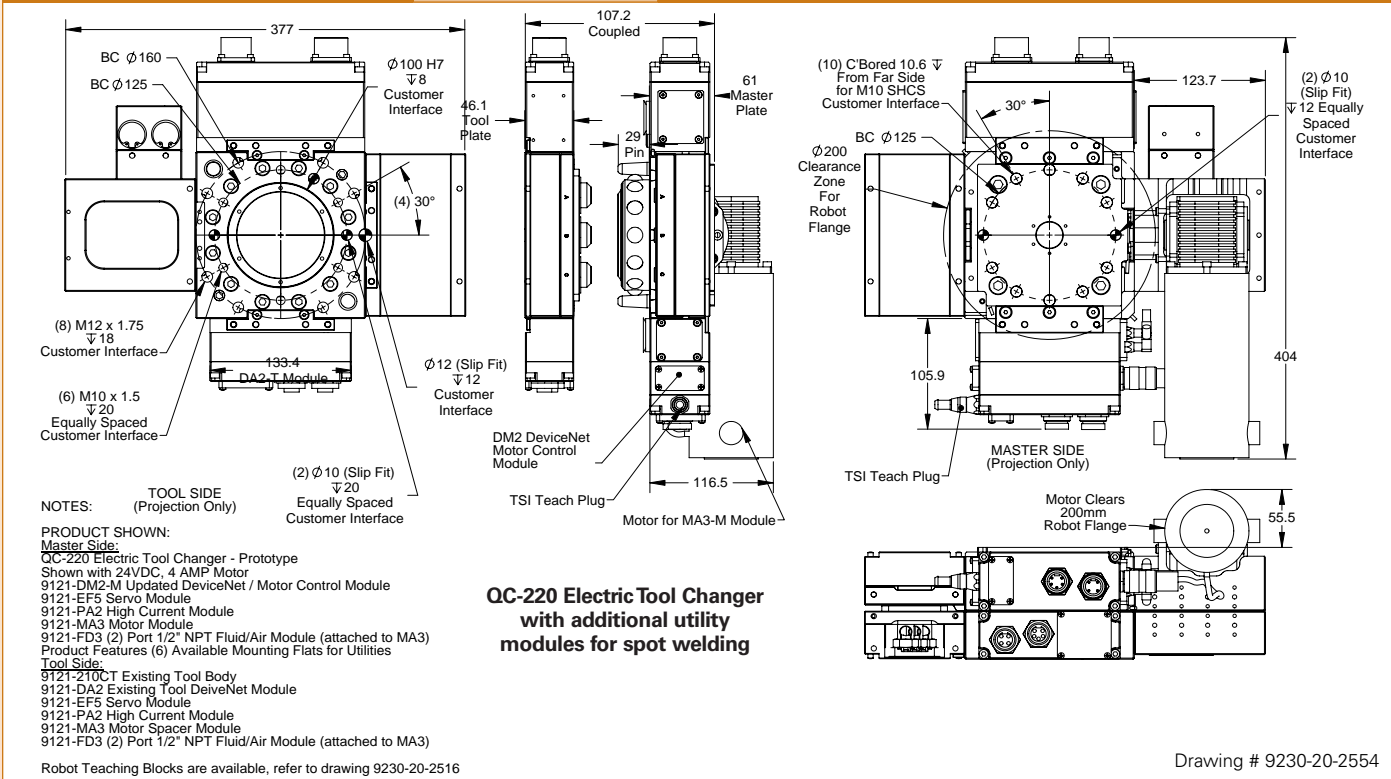
QC-220 Electric Tool Changer shown with additional utility modules for spot welding



| Specifications   | Values                               | Comments   |
|--|--------------------------------------|--|
| Suggested Payload Limit  | 496 lbs (225 kg)                     | Higher payloads possible with a lower moment.  |
| Locking Force  | 7000 lbs (31,150 N)                  | Axial holding force.   |
| Static Moment Capacity (X & Y)   | 16,000 in-lb (1808 Nm)               | Higher dynamic moment possible depending on module selection.  |
| Static Moment Capacity (Z)   | 20,000 in-lb (2260 Nm)               | (Torsion) Higher dynamic moment possible depending on module selection. Failure test exceeded 100,000 in-lb (11,300 Nm) moment.                            |
| Positional Repeatability (X,Y, & Z)                                      | 0.0006 in (0.015 mm)                 | Repeatability tested at rated load at over one million cycles.   |
| Weight (when coupled) (no accessory modules)                             | 26.8 lbs (12.2 kg)                   | Master: 13.0 lbs (5.9 kg), Motor Module: 7.4 lbs (3.4 kg)  |
| Stack height when locked   | 4.21 in (107 mm)                     | Stack height for 125 mm ISO pattern  |
| Body size (no modules)   | 6.3 x 6.3 in (160 x 160 mm)          | Size of body prior to module mounting.   |
| Maximum allowable distance between Master and Tool plates before locking | 0.1 in (2.5 mm)                      | Normal recommended locking distance. Locking distance varies depending on module selection, payload, motor torque, etc.                                    |
| Sensor Information, signal name  | L/U/RTL (Lock/Unlock/R1 and R2)      | Lock/Unlock sensors (2) integrated into the body of the Tool Changer (2) Ready Sensors, 180 degrees apart, afford easier teaching for the robot programmer |
| Rated Voltage  | 24VDC                                | Motor supply voltage   |
| Rated Current  | 4A max.                              | Current draw will vary depending on, locking distance, payload, etc.   |
| Time to Lock/Unlock  | 1 second                             | May vary depending on locking distance, payload, etc.  |
| Tool Changer operating temperature                                       | -12° C to -70° C (10.4° F to 158° F) |  |

ATI reserves the right to change these specifications.

ATI INDUSTRIAL AUTOMATION      www.ati-ia.com      ELECTRIC QC-220 SERIES      9121-220AM-0-0-0-SL



**QC-220 Electric Tool Changer with additional utility modules for spot welding**

**NOTES:** (TOOL SIDE Projection Only)

**PRODUCT SHOWN:**  
Master Side:  
QC-220 Electric Tool Changer - Prototype  
Shown with 24VDC, 4 AMP Motor  
9121-DM2-M Updated DeviceNet / Motor Control Module  
9121-EFS Servo Module  
9121-PA2 High Current Module  
9121-MA3 Motor Module  
9121-MA3 Motor Module  
9121-FD3 (2) Port 1/2" NPT Fluid/Air Module (attached to MA3)  
Product Features (6) Available Mounting Flats for Utilities  
Tool Side:  
9121-210CT Existing Tool Body  
9121-DA2 Existing Tool DriveNet Module  
9121-EFS Servo Module  
9121-PA2 High Current Module  
9121-MA3 Motor Spacer Module  
9121-FD3 (2) Port 1/2" NPT Fluid/Air Module (attached to MA3)

Robot Teaching Blocks are available, refer to drawing 9230-20-2516

Drawing # 9230-20-2554