



Tool Automation

# MagnaTran™ Series 70 (FPD Robot)

Flat Panel Display Robots for Vacuum Process Applications

## Features

- Compact, direct drive technology with no dynamic seals, drive belts, or cables
- Integral, DSP based control electronics
- Patented Time Optimal Trajectory™ motion control
- PASIV™ programmable access safety zones
- End effectors designed for large substrate sizes from 370 x 470mm up to 750 x 950mm
- Optional uninterruptable power supply
- Minimum vibration
- Minimum Particle Contamination
- High Vacuum compatible design
- CE Compliant
- Handheld Control Display Module (CDM) for teaching and testing

## Benefits

- State-of-the-art cluster tool compatible
- Lower cost of ownership with 10 Million MCBF reliability
- Easy setup, maintenance, and customization
- Minimized footprint that fits your process application
- Substrate and equipment safety through a controlled stop and recovery from power failure
- Limits travel of robot arm to user programmable zones
- Very High speeds with passive substrate support

## Build your vacuum process solutions with Brooks Automation components. Choose from a family of drives, arm sets and end effectors designed for FPD.

The **Mag70** drive provides a platform to extend the utilization of the Mag60 armsets and end effectors. This drive is configured with a 50mm Z stroke and can handle substrates up to 650 x 830mm.

The **Mag74** drive was developed for larger substrate applications with more robust armsets. It provides the same 50mm Z stroke, but an additional shaft allows longer extensions of heavier payloads without affecting trajectory envelope requirements.

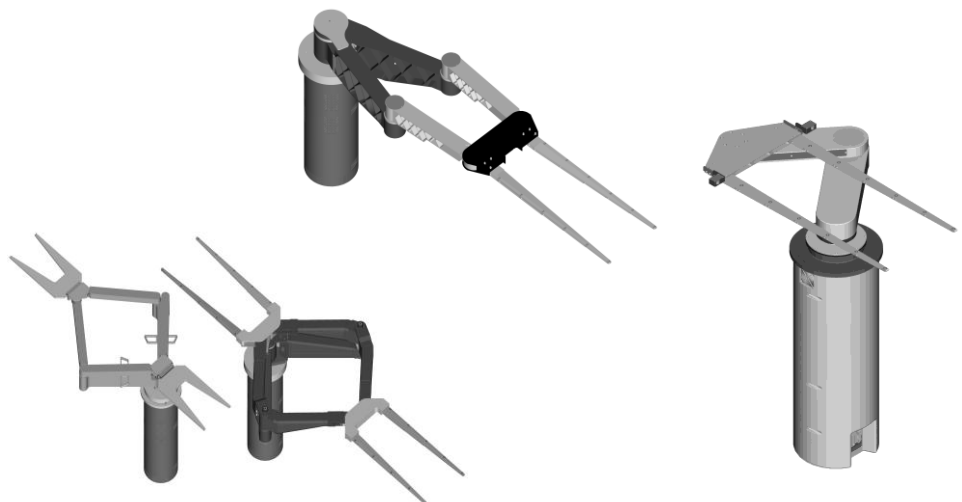
The **Mag77** drive solves the need for a larger Z stroke with 300mm of travel, however, it's increased length requires more space below the transfer module.

The **2Link** armset brings a cost effective solution to a small containment application. Arm droop due to link lengths, wrist stiffness, and substrate mass result in a slightly larger trajectory envelope than the other style armsets. Extension distances for this arm style are currently 1.25m and 1.5m.

The **Wide Wrist Frogleg** armset answers the call for larger substrates and improved motion control with only a minimal impact on containment size. The arm's increased stiffness provides reduced droop at extensions up to 2.0m.

**BiSymmetrik** armsets are the solution when the process calls for transferring two substrates between steps. A welded tubular design employed to reduce mass and retain stiffness has provided a 2.17m extension with a total droop of less than 8mm. This solution will affect containment size.

**End effectors** can be supplied as a single piece or two piece solution with custom designing always available. The physical design and material of the end effectors, as well as the substrate supports, all contribute to the motion control and placement repeatability.



Mag 70, 74 and 77 Drives with BiSymmetrik™, FrogLeg™ and 2 Link (SCARA Type) Arms

# MagnaTran 70 Series

Technical Specifications and Part Numbers

## Specifications:

### Substrate Sizes:

370 x 470mm to 750 x 950mm

### Axes of Motion:

3 Axis of motion (R,  $\theta$ , and Z)

### Repeatability:

R (Radial) Axis: 0.1mm ( $3\sigma$ )  
 $\theta$  (Rotational) Axis: 0.003° ( $3\sigma$ )  
 Z (Vertical) Axis: 0.1mm ( $3\sigma$ )

### Mounting Options:

Top  
 Bottom (Optional)

### Max Temperature:

Drive: 80°C exposure  
 Arm/End Effector: 120°C operating

### Base Vacuum:

$10^{-7}$  Torr

### Leak Rate:

$<1 \times 10^{-9}$  std. cc/sec He

### Facility Power:

180-240VAC, 50-60Hz, 20A

### Drive Power:

48VDC at 40A

### Controls Interface:

RS-232/422 Serial (switch selectable)  
 Hand Held Control Module through serial port  
 Miscellaneous parallel I/O (22 in / 20 Outputs  
 High Side, Low Side, MX I/O)  
 Additional RS-232 port for peripheral devices

## Part Numbers:

### Mag70 Drive:

002-3700-02 (Top Mount, 50mm Z)  
 002-3700-03 (Bottom Mount, 50mm Z)

### Mag74 Drive:

002-3700-07 (Top Mount, LSIO, 50mm Z)  
 002-3700-53 (Top Mount, HSIO, 50mm Z)

### Mag77 Drive:

002-3280-01 (Top Mount, 300mm Z)

### BiSymmetrik Arm:

001-5870-32 (Mag70 / 1.8m ext.)  
 001-5870-34 (Mag70 / 1.94m ext.)  
 003-6680-01 (Mag74 / 2.17m ext.)

### Wide Wrist Frogleg Arm:

002-8194-03 (Mag74 / 1.97m ext.)

### 2Link Arm:

002-8000-01 (Mag77 / 1.5m ext.)  
 002-8000-02 (Mag77 / 1.25m ext.)

### End Effectors:

002-2134-02 (Mag70, BiSym., 370x470mm)  
 002-2134-01 (Mag70, BiSym., 550x650mm to  
 600x700mm)  
 002-2135-02 (Mag70, BiSym., 400x500 to 580 x  
 650mm)  
 002-2135-01 (Mag70, BiSym., 500 x 650mm)  
 002-9303-01 (Mag74, Frogleg, 730 x 920mm)  
 003-6679-01 (Mag74, BiSym., 750 x 950mm)  
 002-8020-04 (Mag77, 2Link, 550 x 650mm)  
 002-8020-07 (Mag77, 2Link, 680 x 880 to 750 x  
 950mm)

*For more information on end effectors for your process or any other aspect of your flat panel application, contact: marketing@brooks.com*



Intelligence in Automation™

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