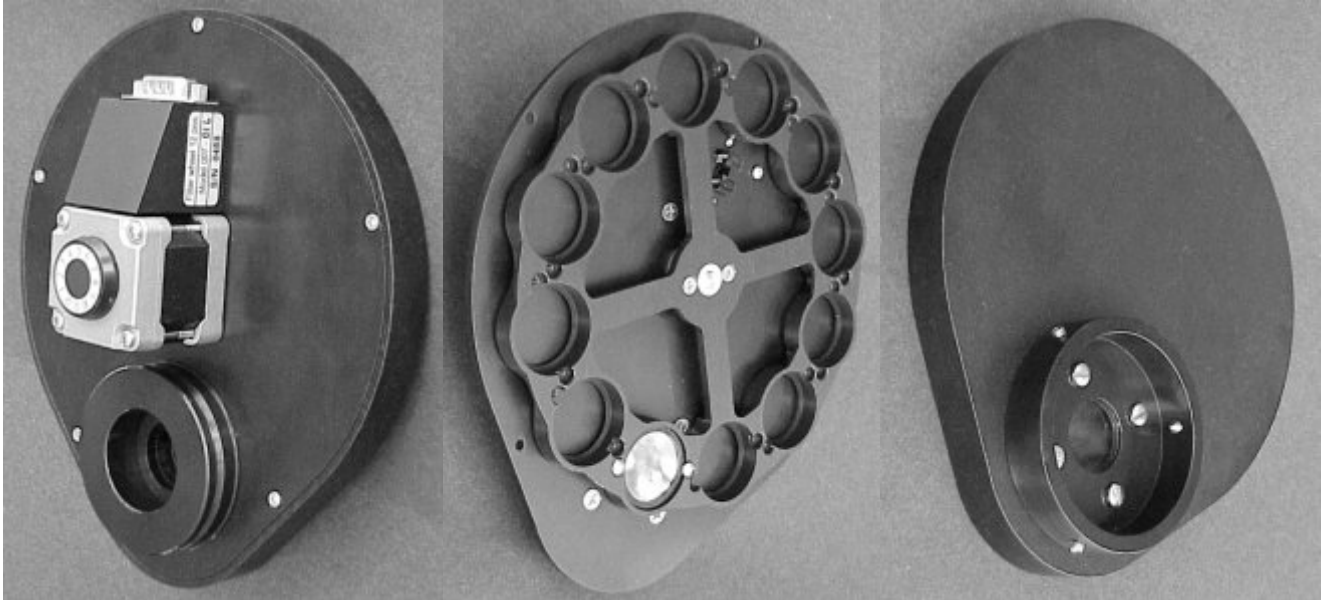


TOFRA, Inc. (Tools for Research Automation)

microscope automation ♦ filter wheels ♦ focus drives and limits ♦ scanning stages ♦ RGB LED light sources

Filter Wheels for Fluorescence



The filter wheel is designed primarily for changing filters in the epiillumination light path. On some microscopes it could be also mounted in the transillumination light path. The filter wheel provides fast computer controlled or manual switching of filters. It can accommodate either 12 filters, 1 inch in diameter, or 10 filters, 32 mm in diameter. The filters could be up to 5 mm in thickness (modification for thicker filters could be ordered). Infra-red blocking filter can be installed on the side facing the light source.

The wheel can be used as part of automated microscope systems. It has a simple, cost-effective and highly reliable construction. The wheel is compact in size. It is 17mm thick, maximum outside dimension of the housing is 180 mm. The case is made of 1/8" aluminum and is very rigid. Current active filter number is displayed and a knob for manual filter positioning is available on the front panel.

The key feature of the design is direct drive. Filter wheel is mounted directly on the motor shaft. A high resolution stepping motor with 200 steps per revolution is used to rotate the filter wheel. The motor can be driven with a variety of stepping or microstepping controllers. An optical switch is used to home the wheel after power up or as needed.

Time required to switch between filters depends on the type of controller and on the weight of filters. With the IM4831 microstepping controller from Intelligent Motion Systems (Marlborough, CT) powered by a 12V power supply and a fully loaded 12-position wheel, the fastest switch time between the adjacent filters is 200 milliseconds. The switch time depends on [parameters of the wheel controller](#). If faster switch time is needed or for heavy filters the wheel can be ordered with an [extra long motor](#).

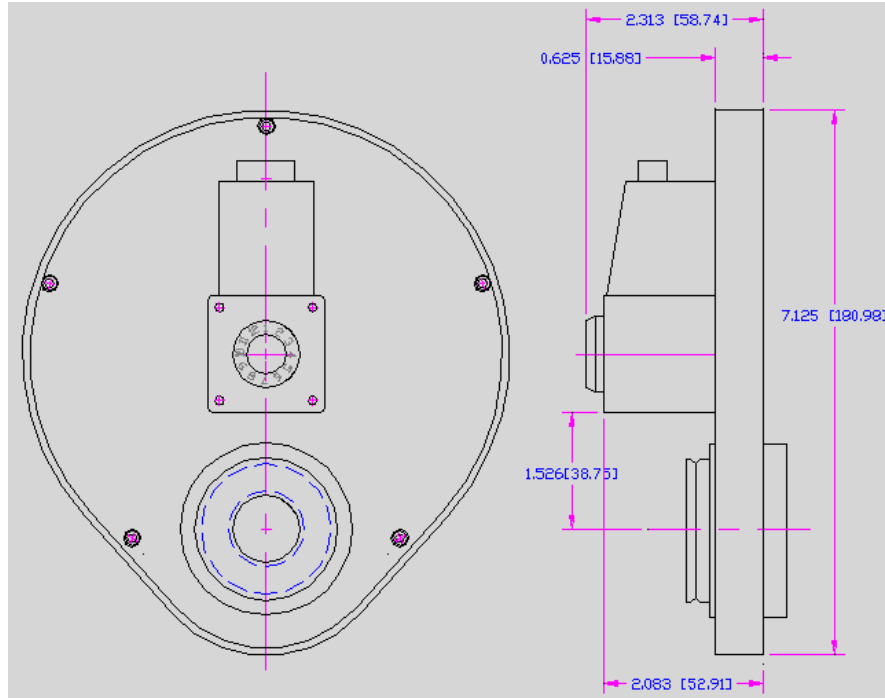
Mounting adapters are provided for the major microscope brands.

TOFRA, Inc. (Tools for Research Automation)

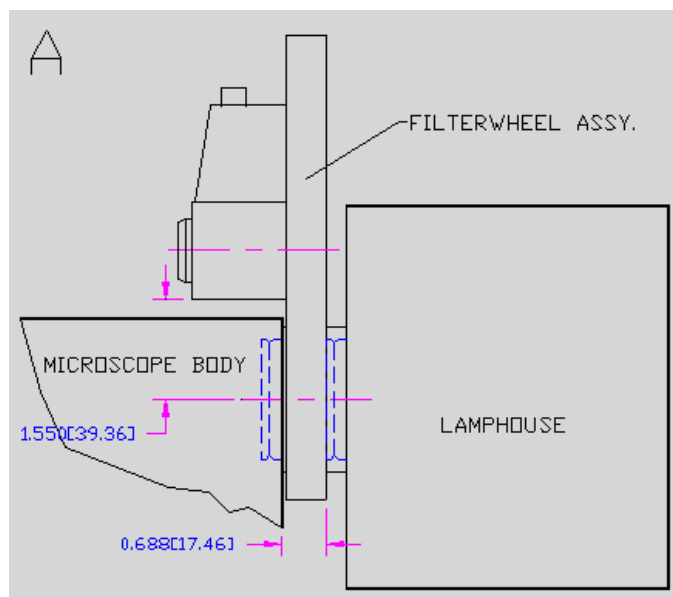
microscope automation ♦ filter wheels ♦ focus drives and limits ♦ scanning stages ♦ RGB LED light sources

Main Filter Wheel Dimensions

Dimensions are in: inches [millimeters]



Mounting



For some microscopes an extender is used with the front adapter to prevent interference of the motor with the microscope body. The length of extenders is reflected in the third column of the table below.

TOFRA, Inc. (Tools for Research Automation)

microscope automation ♦ filter wheels ♦ focus drives and limits ♦ scanning stages ♦ RGB LED light sources

Ordering information for filter wheels (DD is filter diameter: 25mm or 32mm)

Part number	Description	Increase in optical path	2008 Price (USD)
007-00-DD	Filter Wheel without mounting adapters	17 mm	1000.
007-01-DD	Filter Wheel for Olympus BX-60, BX50, and BX-40	33 mm	1100.
007-02-DD	Filter Wheel for Zeiss AxioSkop/Plan-1	33 mm	1100.
007-03-DD	Filter Wheel for Nikon Microphot	40 mm	1100. (1)
007-04-DD	Filter Wheel for Leica DML	65 mm	1100.
007-05-DD	Filter Wheel for Olympus BH-2	30 mm	1100.
007-06-DD	Filter Wheel for Zeiss AxioPlan-2	46 mm	1100.
007-07-DD	Filter Wheel for Nikon Optiphot-1	34 mm	1100. (2)
007-08-DD	Filter Wheel for Leica DMR	65 mm	1100.
007-09-DD	Filter Wheel for Nikon Optiphot-2	34 mm	1100. (2)
007-10-DD	Filter Wheel for Nikon Eclipse E-600 and E-800	34 mm	1100. (2)
007-11-DD	Filter Wheel for Olympus AX-70	46 mm	1100.
007-12-DD	Filter Wheel for Leica Diaplan/Aristoplan	55 mm	1100. (3)
007-13-DD	Filter Wheel for Zeiss AxioPhot-2	46 mm	1100.
007-14-DD	Filter Wheel for Zeiss AxioSkop-2	33 mm	1100.
007-15-DD	Filter Wheel for Olympus BX-51 and BX-61	33 mm	1100. (4)
007-16-DD	Filter Wheel for Olympus IX-70	55 mm	1100.
007-17-DD	Filter Wheel for Nikon TE300 and TE200	34 mm	1100. (2)
007-18-DD	Filter Wheel for Nikon TE2000	34 mm	1100. (2)
007-19-DD	Filter Wheel for Nikon 80i	50 mm	1100. (2)
007-20-DD	Filter Wheel for Motic	50 mm	1100.
007-21-DD	Filter Wheel for Zeiss AxioImager	53 mm	1100.
007-22-DD	Filter Wheel for KOZO Inverted	17 mm	1250.
007-70-DD	Filter Wheel for Fiber Optic Illumination 12 pos.	N/A	1100.
007-71-DD	Filter Wheel for Fiber Optic Illumination 7 pos.	N/A	1100.
007-99	Cable		60.

The following additional charges are for the parts that must be ordered from microscope manufacturers.

(1) - for quick disconnect add \$300.

(2) - for quick disconnect add \$90

(3) - add \$250

(4) - for replacement collar add \$150

Specifications and prices are subject to change without notice. Delivery 4-6 weeks ARO.