

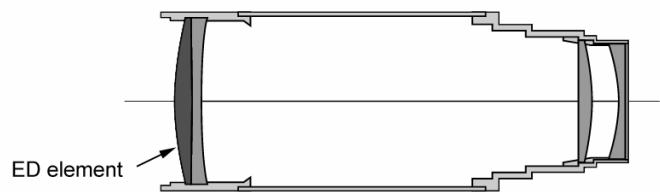
Borg Series 80 ED F4 Focal Reducer



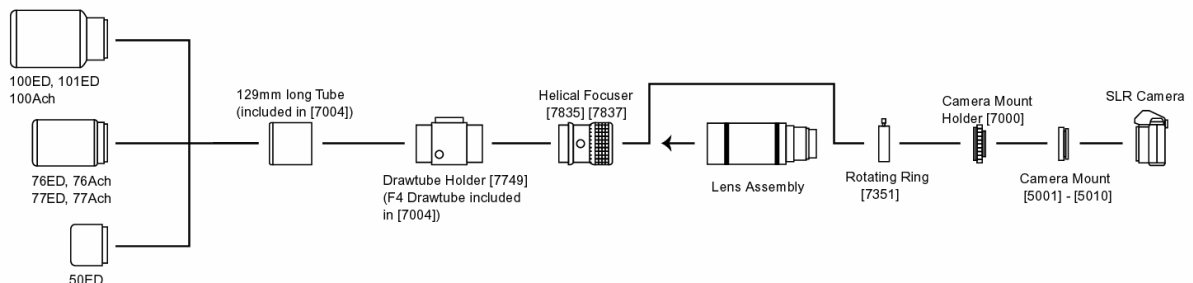
Components:

- Lens assembly
- 129mm tube
- Drawtube
- Spacer rings (5.3mm, 3.7mm, 2.0mm)

The Borg 7004 set is an F4 focal reducer kit for Borg Series 80 scopes (50, 76/77, and 100/101 achromat and ED objectives). Unlike many reducers on the market, which typically degrade the objective's performance, the ED F4 reducer is designed to optimize performance at F4 for modern fine-pixel electronic sensors, while simultaneously performing the focal length reduction and field flattening functions.



The set includes the 4-element (1 ED element) reducer optical assembly, short tube with drawtube, and spacers for optimized setups with different imagers. The optical arrangement is shown above and the system diagram is shown below.



For optimized imaging performance, the correct spacer (provided in the 7004 set) should be used for the imager being utilized as detailed in the configurations listed below:

- Borg 76/77 objective with digital SLRs:
 - 3.7mm spacer + 7351 + 7000 + 5001-5010 + SLRs
- Borg 100/101 objective with digital SLRs:
 - (no spacer) + 7351 + 7000 + 5001-5010 + SLRs
- Borg 76/77 objective with ST7/8/10 & CFW8:
 - 5.3mm spacer + 7351 + 7601 + 7522 + CFW8/STxx
- Borg 100/101 objective with ST7/8/10 & CFW8:
 - 2.0mm spacer + 7351 + 7601 + 7522 + CFW8/STxx
- Borg 76/77 objective with larger than 28mm diagonal sensor:
 - 3.7mm spacer (parts configured depends on camera)
- Borg 100/101 objective with larger than 28mm diagonal sensor:
 - Spacer none. (parts configured depend on camera)

Note: the ideal reducer position should be such that the distance of the surface of rear lens to focal plane is:

- 76/77: 43mm, 100/101: 41mm for sensors smaller than 28mm (diagonal distance).
- 76/77: 36.4mm, 100/101: 44.7mm for sensors larger than 28mm.

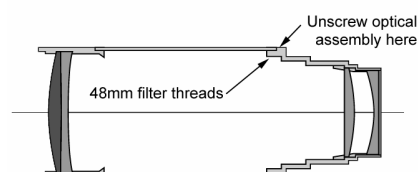
Instructions for Use

Basic Installation

1. Attach the objective assembly to the 129mm tube provided in the 7004 kit.
2. Insert the 7004 kit drawtube into the existing drawtube holder [7749]
3. Connect the drawtube holder to the main tube (129mm tube).
4. Attach the helical focuser [7835 or 7837] to the drawtube.
5. Attach the rotater ring [7351] to the rear of the reducer optical assembly, including a spacer ring as required by the imager setup as detailed above. The rotater ring provides the correct thread interfaces as well as the flexibility to rotate the imaging camera for the desired image composition.
6. Connect the reducer assembly from the previous step to the rear of the focuser to complete the assembly procedure.

Installing a Filter

The Borg ED F4 reducer supports using a 48mm filter in the optical path. To install the filter, unscrew the connection point of the optical assembly at the point indicated in the diagram at right. Next install the filter using the threads indicated and reattach the two sections of the optical assembly.



Adjusting Focus

To adjust focus, with the helical focuser at its middle position, set the rough focus using the drawtube. Once the drawtube is locked in place, adjust the helical focuser for fine focus.