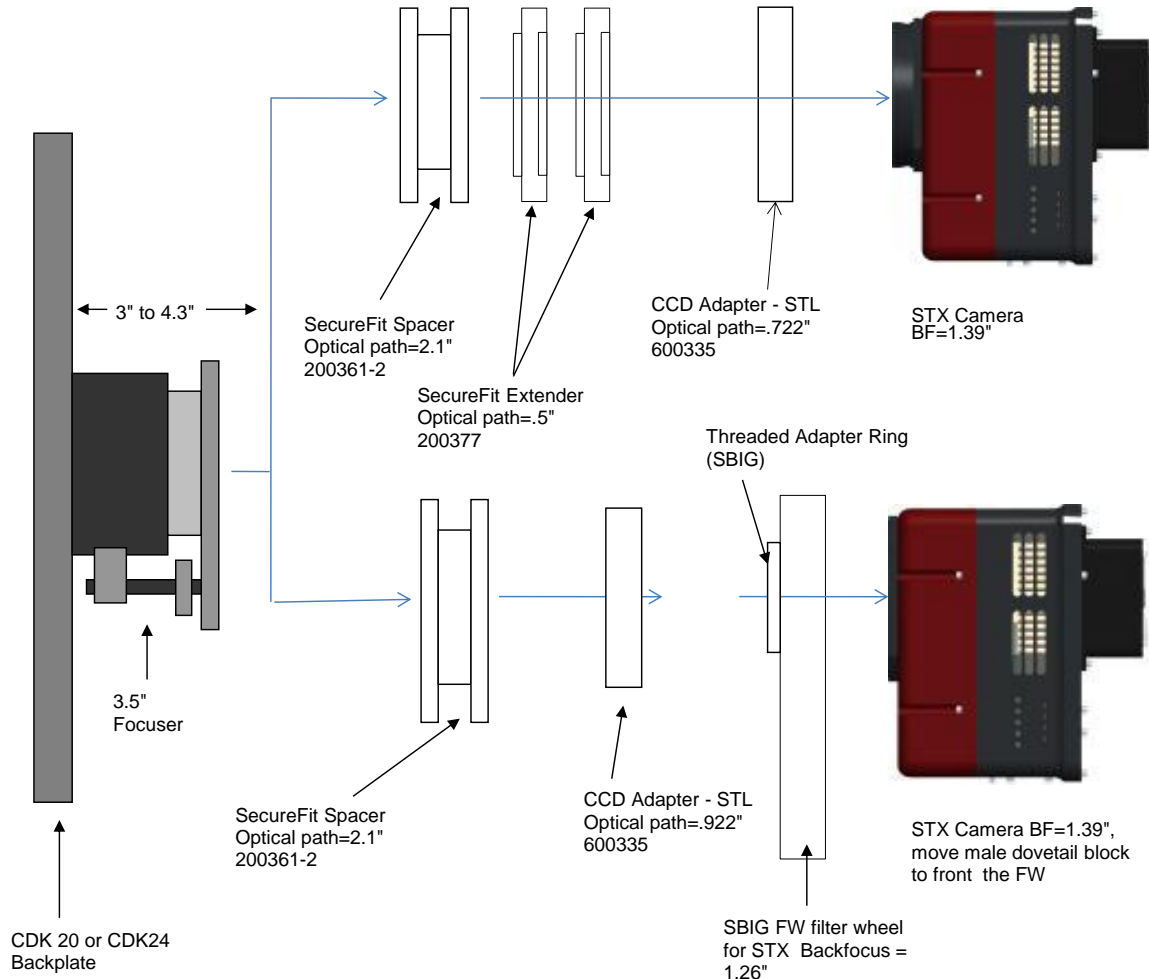


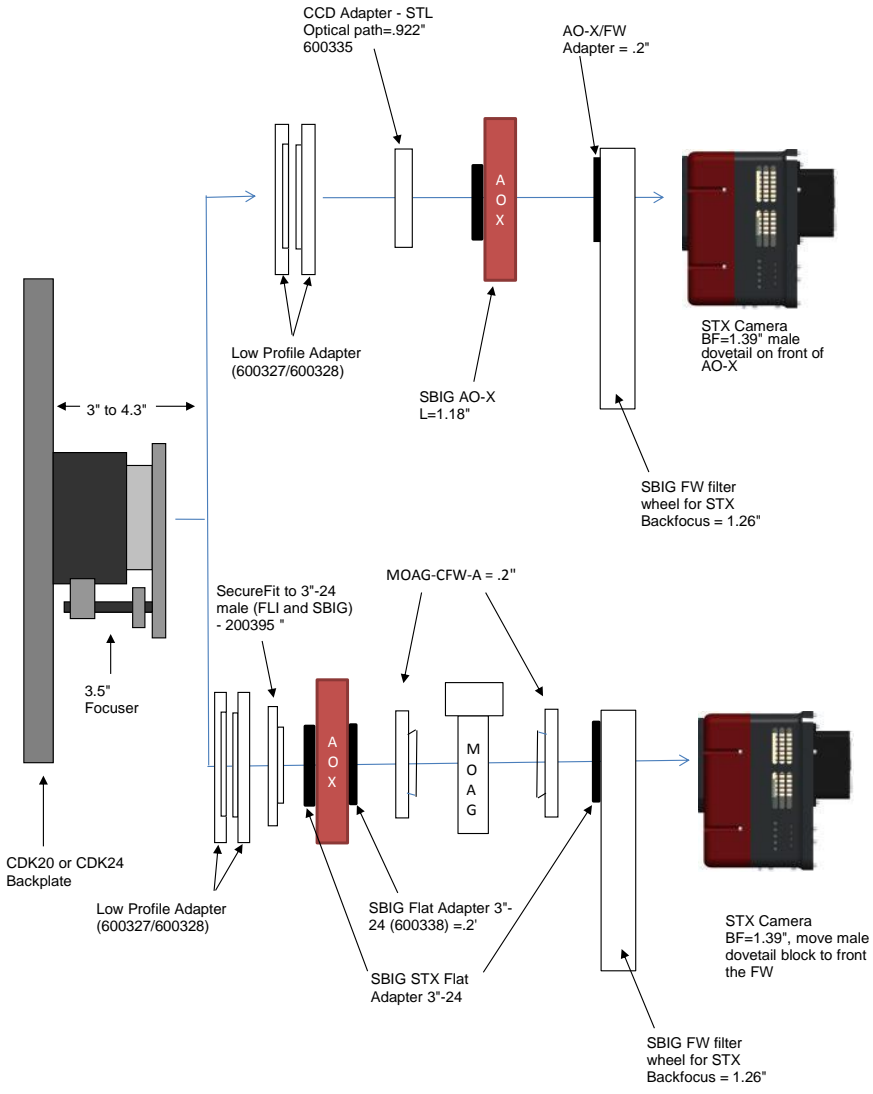
PLANEWAVE INSTRUMENTS
CDK 20 and 24 SPACERS FOR STX CAMERAS



| STX | | 8.81 remaining BF |
|-------------------------------------------------|-------|-------------------|
| Focuser racked in | 3 | 5.81 |
| Focuser position (0-1.3") | 0.598 | 5.212 |
| CCD Spacer 2.1 - 200361-2 | 2.1 | 3.112 |
| CCD SecureFit Extender - 200377 | 0.5 | 2.612 |
| CCD SecureFit Extender - 200377 | 0.5 | 2.112 |
| CCD Adapter STX - 600335 | 0.722 | 1.39 |
| STX Back Focus w/threaded adapter ring attached | 1.39 | 0 |

| STX w/ FW | | 8.81 remaining BF |
|-----------------------------------------------|-------|-------------------|
| Focuser racked in | 3 | 5.81 |
| Focuser position (0-1.3") | 0.138 | 5.672 |
| CCD Spacer 2.1 - 200361-2 | 2.1 | 3.572 |
| CCD Adapter STX - 600335 | 0.922 | 2.65 |
| Filter Wheel w/threaded adapter ring attached | 1.26 | 1.39 |
| STX Camera | 1.39 | 0 |

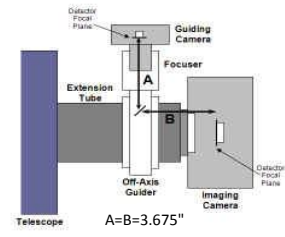
PLANEWAVE INSTRUMENTS
CDK20 SPACERS FOR STX CAMERAS



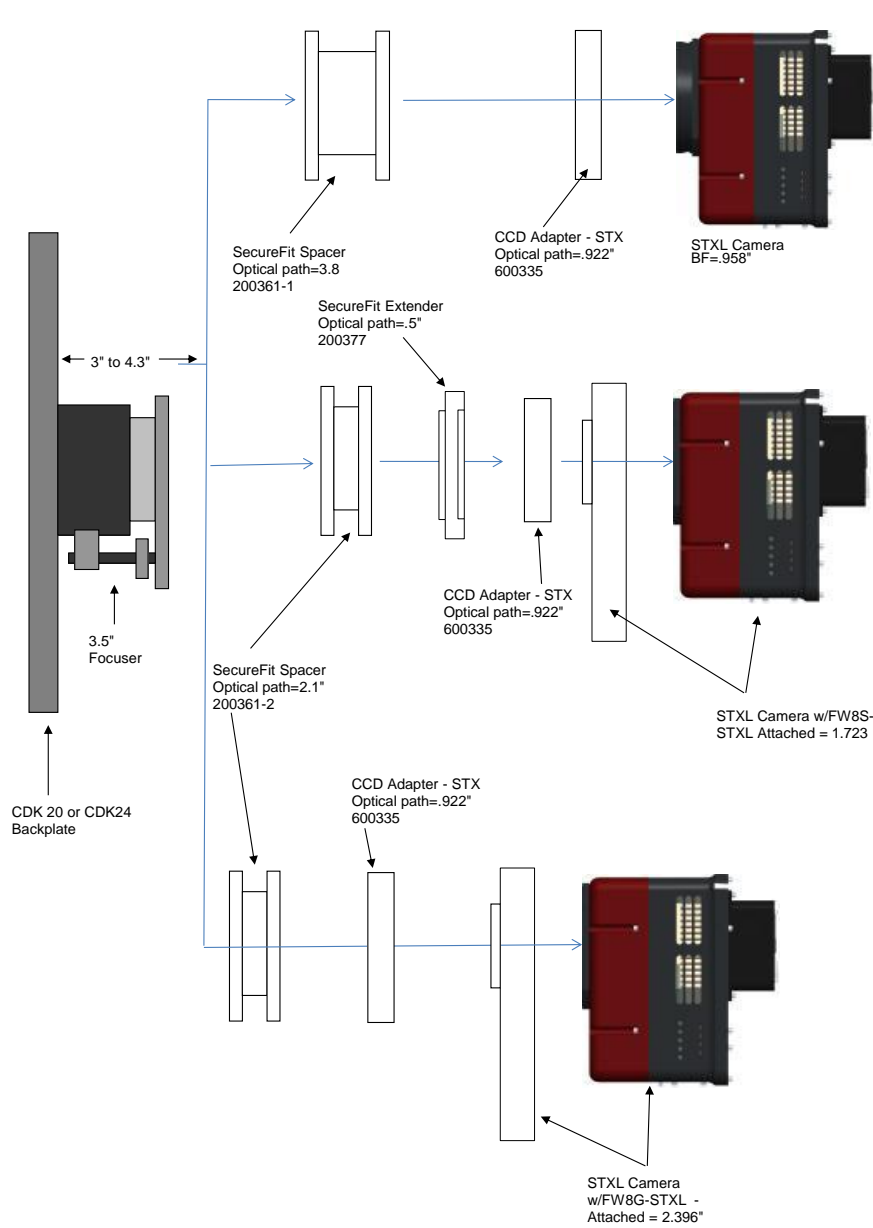
| STX camera, AO-X, CFW | 8.81 remaining BF | |
|-----------------------------------------|-------------------|-------|
| Focuser racked in | 3 | 5.81 |
| Focuser position (0-1.3") | 0.158 | 5.652 |
| Low Profile Adapters = .5" (600327/328) | 0.5 | 5.152 |
| CCD SecureFit to STL - 600335 | 0.922 | 4.23 |
| AO-X (w/ threaded adapter attached) | 1.38 | 2.85 |
| AO-X to FW adapter (SBIG) | 0.2 | 2.65 |
| SBIG Filter Wheel (w/.2" adapter) | 1.26 | 1.39 |
| STX Back Focus | 1.39 | 0 |

**This configuration will not reach focus with the CDK20 but can work on the CDK24 with custom adapter*

| STX camera and MMOAG | 8.81 remaining BF | |
|---------------------------------------------------|-------------------|-------|
| Focuser racked in | 3 | 5.81 |
| Focuser position (0-1.3") | 0 | 5.81 |
| Low profile adapters- 600327/328 | 0.5 | 5.31 |
| SecureFit to 3"-24 male (FLI and SBIG) - 200395-3 | 0.25 | 5.06 |
| STX Flat adapter 3"-24 Female -600337 | 0.2 | 4.86 |
| AO-X | 1.18 | 3.68 |
| STX Flat adapter 3"-24 Female -600338 | 0.2 | 3.48 |
| MOAG-CWF-A | 0.2 | 3.28 |
| AstroDon part - MMOAG | 1.25 | 2.03 |
| MOAG-CWF-A | 0.2 | 1.83 |
| STX Flat adapter 3"-24 Female -600337 | 0.2 | 1.63 |
| Filter Wheel, FW8 | 1.26 | 0.37 |
| SLX Back Focus | 1.39 | -1.02 |



PLANEWAVE INSTRUMENTS
CDK 20 & 24 SPACERS FOR STXL CAMERAS



| STXL | | | 8.81 remaining BF |
|----------------------------|-------|--|-------------------|
| Focuser (200340) racked in | 3 | | 5.81 |
| Focuser position (0-1.3") | 0.33 | | 5.48 |
| CCD Spacer 2.1 - 200361-1 | 3.8 | | 1.68 |
| CCD Adapter STX - 600335 | 0.722 | | 0.958 |
| STXL Camera | 0.958 | | 0 |

| STXL w/IRF90 | | | 8.81 remaining BF |
|---------------------------------|-------|--|-------------------|
| Focuser (600180) racked in | 3.5 | | 5.31 |
| Focuser position (0-1.3") | 0.33 | | 4.98 |
| CCD Spacer 2.1 - 200361-2 | 2.1 | | 2.88 |
| CCD SecureFit Extender - 200377 | 0.5 | | 2.38 |
| CCD SecureFit Extender - 200377 | 0.5 | | 1.88 |
| CCD Adapter STX - 600335 | 0.922 | | 0.958 |
| STXL Camera | 0.958 | | 0 |

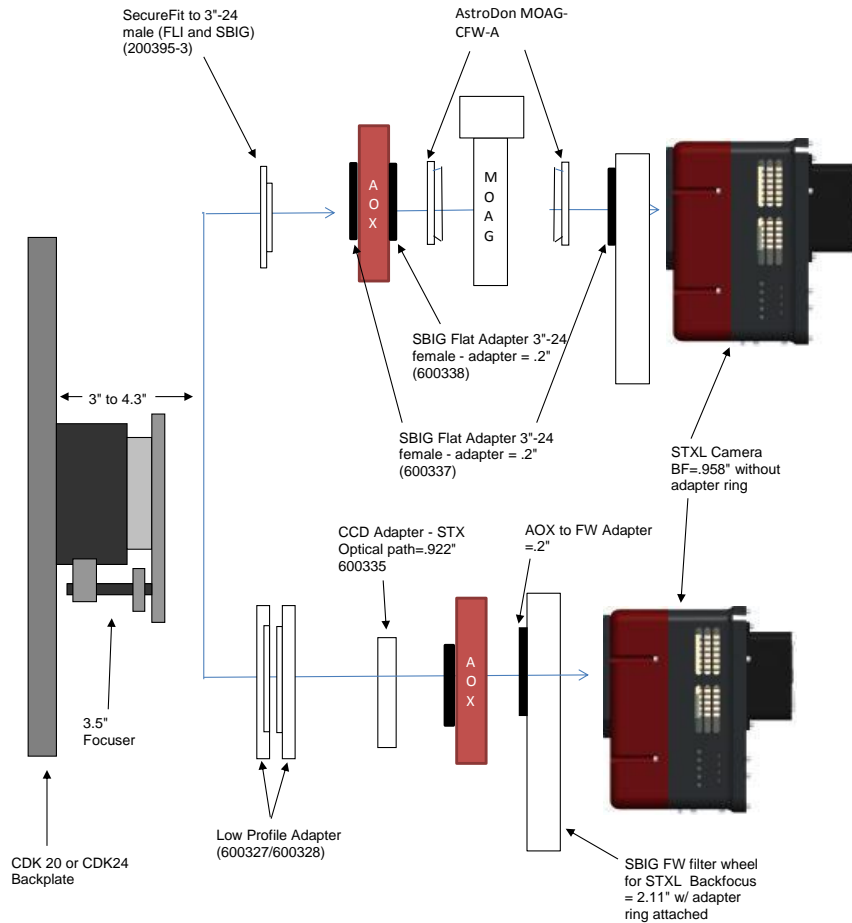
| STXL w/ Standard FW | | | 8.81 remaining BF |
|----------------------------------|-------|--|-------------------|
| Focuser (200340) racked in | 3 | | 5.81 |
| Focuser position (0-1.3") | 0.565 | | 5.245 |
| CCD Spacer 2.1 - 200361-2 | 2.1 | | 3.145 |
| CCD SecureFit Extender - 200377 | 0.5 | | 2.645 |
| CCD Adapter STX - 600335 | 0.922 | | 1.723 |
| STXL Camera w/FW8S-STXL Attached | 1.723 | | 0 |

| STXL w/ Standard FW & IRF90 | | | 8.81 remaining BF |
|----------------------------------|-------|--|-------------------|
| Focuser (600180) racked in | 3.5 | | 5.31 |
| Focuser position (0-1.3") | 0.565 | | 4.745 |
| CCD Spacer 2.1 - 200361-2 | 2.1 | | 2.645 |
| CCD Adapter STX - 600335 | 0.922 | | 1.723 |
| STXL Camera w/FW8S-STXL Attached | 1.723 | | 0 |

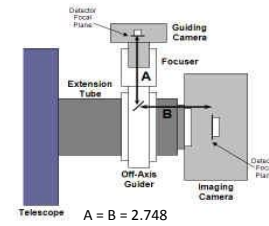
| STXL w/ Self Guiding FW | | | 8.81 remaining BF |
|----------------------------------|-------|--|-------------------|
| Focuser (200340) racked in | 3 | | 5.81 |
| Focuser position (0-1.3") | 0.392 | | 5.418 |
| SecureFit CCD Spacer - 200361-2 | 2.1 | | 3.318 |
| CCD Adapter STX - 600335 | 0.922 | | 2.396 |
| STXL Camera w/FW8G-STXL Attached | 2.396 | | 0 |

| STXL w/ Self Guiding FW & IRF90 | | | 8.81 remaining BF |
|------------------------------------------------|-------|--|-------------------|
| Focuser (600180) racked in | 3.5 | | 5.31 |
| Focuser position (0-1.3") | 0.492 | | 4.818 |
| Low Profile SecureFit adapters (600327/600328) | 0.5 | | 4.318 |
| CCD SecureFit Extender - 200377 | 0.5 | | 3.818 |
| CCD SecureFit Extender - 200377 | 0.5 | | 3.318 |
| CCD Adapter STX - 600335 | 0.922 | | 2.396 |
| STXL Camera w/FW8G-STXL Attached | 2.396 | | 0 |

PLANEWAVE INSTRUMENTS
CDK20/24 SPACERS FOR STXL CAMERAS & AO-X

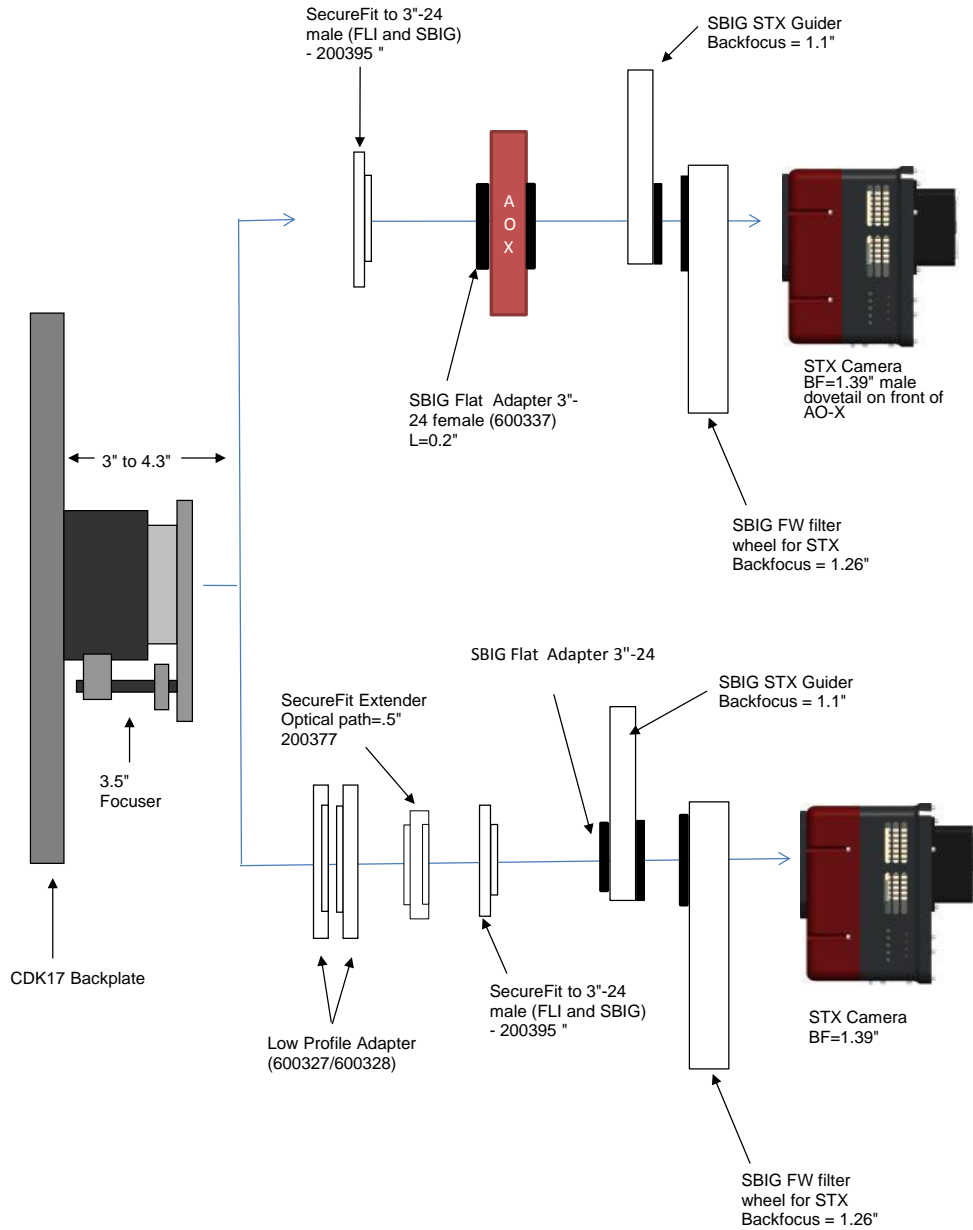


| STXL camera and MMOAG &FW8S-STXL | | 8.81 remaining BF |
|---------------------------------------------------|--------------|-------------------|
| Focuser racked in | 3 | 5.81 |
| Focuser position (0-1.3") | 0.407 | 5.403 |
| SecureFit to 3"-24 male (FLI and SBIG) - 200395-3 | 0.25 | 5.153 |
| SBIG Flat Adapter - 3"-24 female - 600337 | 0.2 | 4.953 |
| AO-X | 1.18 | 3.773 |
| SBIG Flat Adapter -600338 | 0.2 | 3.573 |
| AstroDon MOAG-CFW-A | 0.2 | 3.373 |
| AstroDon- MMOAG | 1.25 | 2.123 |
| AstroDon MOAG-CFW-A | 0.2 | 1.923 |
| SBIG Flat Adapter - 600337 | 0.2 | 1.723 |
| STXL w/filter wheel FW8S-STXL | 1.723 | 0 |



| STXL w/ Self Guiding FW | | 8.81 remaining BF |
|-----------------------------------------------|-------------|-------------------|
| Focuser racked in | 3 | 5.81 |
| Focuser position (0-1.3") | 0.41 | 5.4 |
| Low Profile Adapters = .5" (600327/328) | 0.5 | 4.9 |
| CCD Adapter STX - 600335 | 0.922 | 3.978 |
| AOX w/SBIG Threaded Adapter attached | 1.38 | 2.598 |
| AOX to FW Adapter (SBIG) | 0.2 | 2.398 |
| Filter Wheel w/threaded adapter ring attached | 1.44 | 0.958 |
| STXL Back Focus | 0.958 | 0 |

PLANEWAVE INSTRUMENTS
CDK20 SPACERS FOR STX CAMERAS with STX Guider

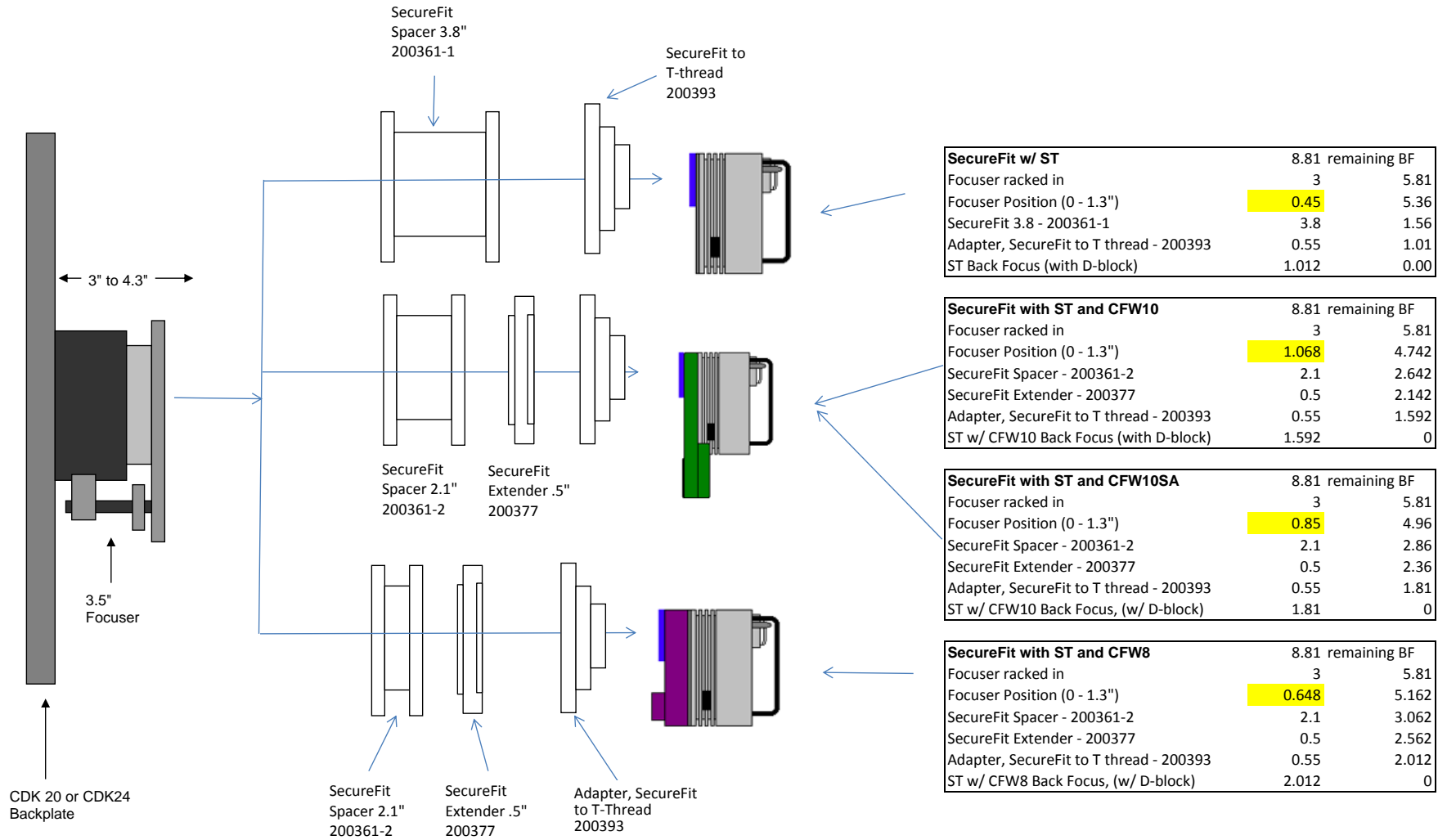


| STX camera, AO-X, CFW, STX Guider | | 8.81 remaining BF |
|-----------------------------------|------|-------------------|
| Focuser racked in | 3 | 5.81 |
| Focuser position (0-1.3") | 0.23 | 5.58 |
| CCD SecureFit 3-24 - 200395-3 | 0.25 | 5.33 |
| SBIG Flat adaptet 3"-24 - 600337 | 0.2 | 5.13 |
| AO-X | 1.18 | 3.95 |
| AO-X to FW adapter (SBIG) | 0.2 | 3.75 |
| STX Guider | 1.1 | 2.65 |
| SBIG Filter Wheel | 1.26 | 1.39 |
| STX Back Focus | 1.39 | 0 |

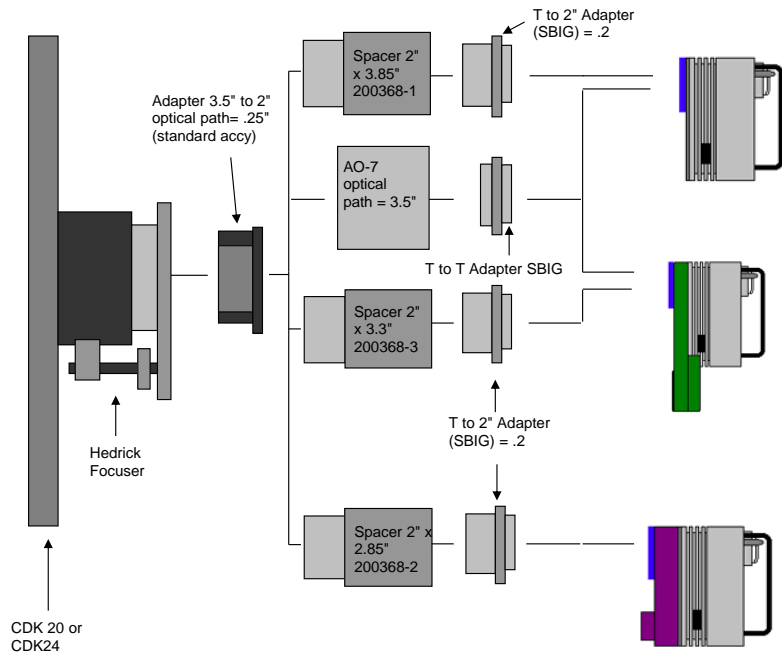
| STX camera, CFW, STX Guider | | 8.81 remaining BF |
|---------------------------------------------------|------|-------------------|
| Focuser racked in | 3 | 5.81 |
| Focuser position (0-1.3") | 0.56 | 5.25 |
| Low Profile Adapters = .5" (600327/328) | 0.5 | 4.75 |
| CCD SecureFit Extender - 200377 | 0.5 | 4.25 |
| SecureFit to 3"-24 male (FLI and SBIG) - 200395-3 | 0.25 | 4 |
| SBIG Flat Adapter (3"-24 female) - 600337 | 0.25 | 3.75 |
| STX Guider | 1.1 | 2.65 |
| SBIG Filter Wheel | 1.26 | 1.39 |
| STX Back Focus | 1.39 | 0 |

| STX camera, CFW, STX Guider w/ IRF90 | | 8.81 remaining BF |
|---------------------------------------------------|------|-------------------|
| IRF 90 racked in | 3.5 | 5.31 |
| Focuser position (0-1.3") | 0.56 | 4.75 |
| Low Profile Adapters = .5" (600327/328) | 0.5 | 4.25 |
| SecureFit to 3"-24 male (FLI and SBIG) - 200395-3 | 0.25 | 4 |
| SBIG Flat Adapter (3"-24 female) - 600337 | 0.25 | 3.75 |
| STX Guider | 1.1 | 2.65 |
| SBIG Filter Wheel | 1.26 | 1.39 |
| STX Back Focus | 1.39 | 0 |

PLANEWAVE INSTRUMENTS
CDK20&24 SECUREFIT CCD SPACERS FOR ST CAMERAS



PLANEWAVE INSTRUMENTS
CDK20 & 24 SECUREFIT CCD SPACERS FOR ST CAMERAS



| ST Camera, no filter wheel | | | 8.81 remaining BF |
|-----------------------------------------|-------|-------|-------------------|
| Focuser racked in | 3 | 5.81 | |
| Focuser Position (0 - 1.3") | 0.498 | 5.312 | |
| Adapter, 3 to 2 (standard acy) | 0.25 | 5.062 | |
| CCD 2" Spacer x 3.85" - 200368-1 | 3.85 | 1.212 | |
| T to 2 Adapter (SBIG) | 0.2 | 1.012 | |
| ST Back Focus (with D-Block) | 1.012 | 0 | |

| ST Camera with CFW10 w/ D-Block | | | 8.81 remaining BF |
|----------------------------------------|-------|-------|-------------------|
| Focuser racked in | 3 | 5.81 | |
| Focuser Position (0 - 1.3") | 0.468 | 5.342 | |
| Adapter, 3 to 2 (standard acy) | 0.25 | 5.092 | |
| CCD 2" SPACER x 3.3" - 200368-3 | 3.3 | 1.792 | |
| T to 2 Adapter (SBIG) | 0.2 | 1.592 | |
| ST Back Focus (with D-Block) | 1.592 | 0 | |

| ST Camera with CFW8 w/ D-Block | | | 8.81 remaining BF |
|-----------------------------------------|-------|-------|-------------------|
| Focuser racked in | 3 | 5.81 | |
| Focuser Position (0 - 1.3") | 0.498 | 5.312 | |
| Adapter, 3 to 2 (standard acy) | 0.25 | 5.062 | |
| CCD 2" SPACER x 2.85" - 200368-2 | 2.85 | 2.212 | |
| T to 2 Adapter (SBIG) | 0.2 | 2.012 | |
| ST Back Focus (with D-Block) | 2.012 | 0 | |

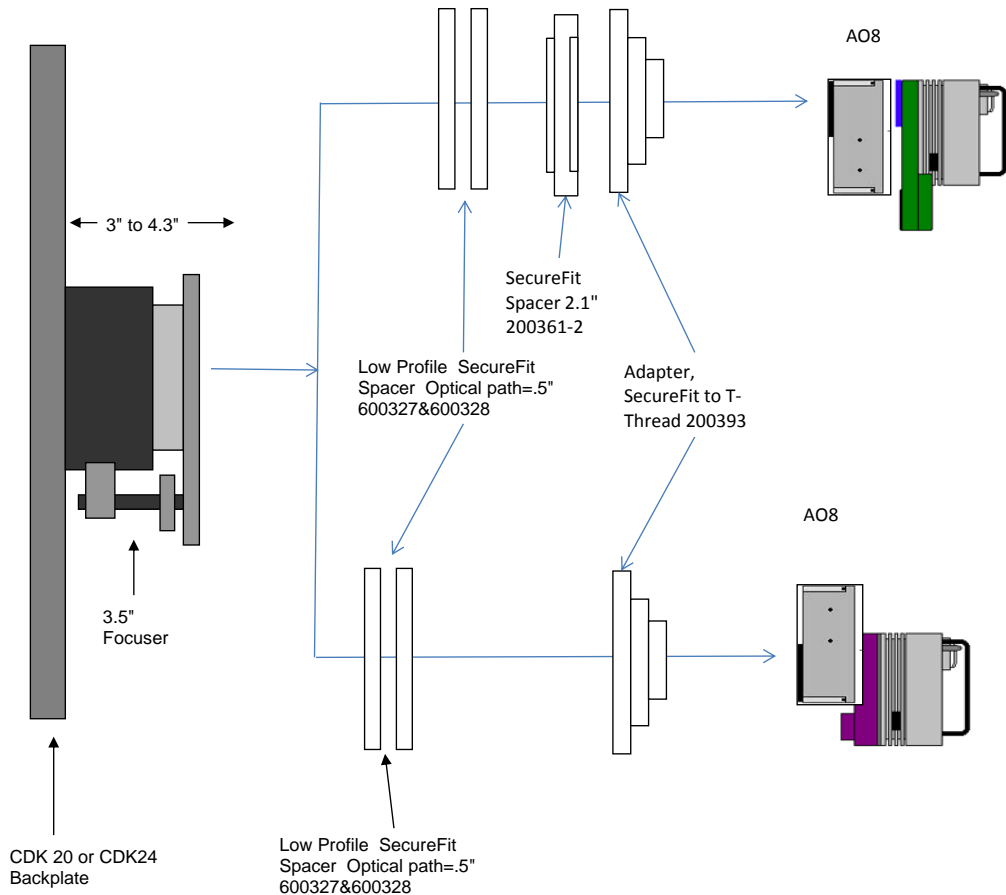
| ST Camera + AO-7 | | | 8.81 remaining BF |
|-----------------------------|------|------|-------------------|
| Focuser racked in | 3 | 5.81 | |
| Focuser Position (0 - 1.3") | 0.85 | 4.96 | |
| Adapter, 3 to 2 | 0.25 | 4.71 | |
| T to T Adapter (SBIG) | 0.2 | 4.51 | |
| ST + AO-7 backfocus | 4.51 | 0 | |

| ST + CFW10 + AO-7 | | | 8.81 remaining BF |
|-----------------------------|------|------|-------------------|
| Focuser racked in | 3 | 5.81 | |
| Focuser Position (0 - 1.3") | 0.27 | 5.54 | |
| Adapter, 3 to 2 | 0.25 | 5.29 | |
| T to T Adapter (SBIG) | 0.2 | 5.09 | |
| ST + AO-7 backfocus | 5.09 | 0 | |

DOES NOT HAVE ENOUGH BACK FOCUS

| ST + CFW8 + AO-7 | | | 8.81 remaining BF |
|-----------------------------|------|-------|-------------------|
| Focuser racked in | 3 | 5.81 | |
| Focuser Position (0 - 1.3") | 0 | 5.81 | |
| Adapter, 3 to 2 | 0.25 | 5.56 | |
| T to 2 Adapter (SBIG) | 0.2 | 5.36 | |
| ST + AO-7 backfocus | 5.51 | -0.15 | |

PLANEWAVE INSTRUMENTS
CDK20&24 SECUREFIT CCD SPACERS FOR ST CAMERAS



| SecureFit with ST, CFW10, & AO-8 | | 8.81 remaining BF | |
|---------------------------------------------|-------|-------------------|-------|
| Focuser racked in | 3 | | 5.81 |
| Focuser Position (0 - 1.3") | 0.768 | | 5.042 |
| SecureFit Low Profile - 600327, 600328 | 0.5 | | 4.542 |
| SecureFit Extender - 200377 | 0.5 | | 4.042 |
| Adapter, SecureFit to T thread - 200393 | 0.55 | | 3.492 |
| AO-8, 1.9" of backfocus + .27 for D-block | 2.17 | | 1.322 |
| ST w/ CFW10 Back Focus (w/o D-block) | 1.322 | | 0 |

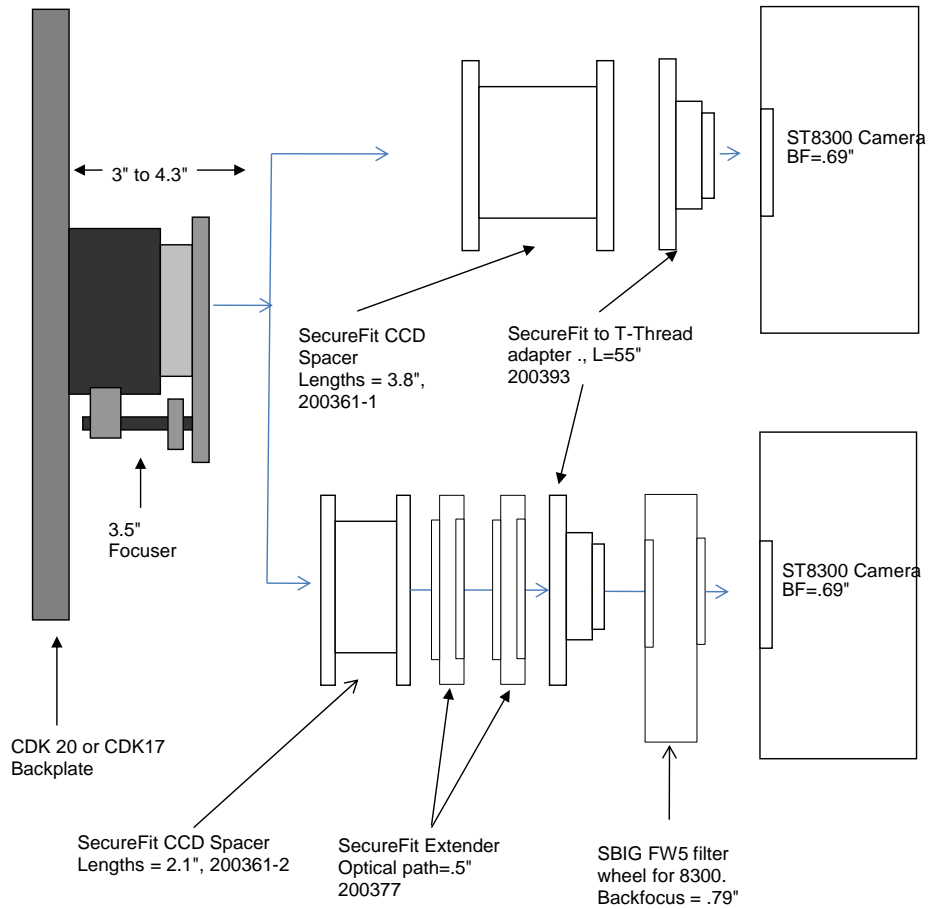
| SecureFit with ST and CFW10SA | | 8.81 remaining BF | |
|-----------------------------------------|------|-------------------|------|
| Focuser racked in | 3 | | 5.81 |
| Focuser Position (0 - 1.3") | 0.85 | | 4.96 |
| SecureFit Spacer - 200361-2 | 2.1 | | 2.86 |
| SecureFit Extender - 200377 | 0.5 | | 2.36 |
| Adapter, SecureFit to T thread - 200393 | 0.55 | | 1.81 |
| ST w/ CFW10 Back Focus, (w/ D-block) | 1.81 | | 0 |

| SecureFit with ST, CFW8, & AO-8 | | 8.81 remaining BF | |
|--------------------------------------------|-------|-------------------|-------|
| Focuser racked in | 3 | | 5.81 |
| Focuser Position (0 - 1.3") | 0.578 | | 5.232 |
| SecureFit Low Profile - 600327, 600328 | 0.5 | | 4.732 |
| Adapter, SecureFit to T thread - 200393 | 0.55 | | 4.182 |
| AO-8, 1.9" of backfocus + .27 for D-block | 2.17 | | 2.012 |
| ST w/ CFW8 Back Focus, (w/ D-block) | 2.012 | | 0 |

PLANEWAVE INSTRUMENTS
CDK20 & 24 SECUREFIT SPACERS FOR STL CAMERAS

Distance to Focuser Mounting Surface

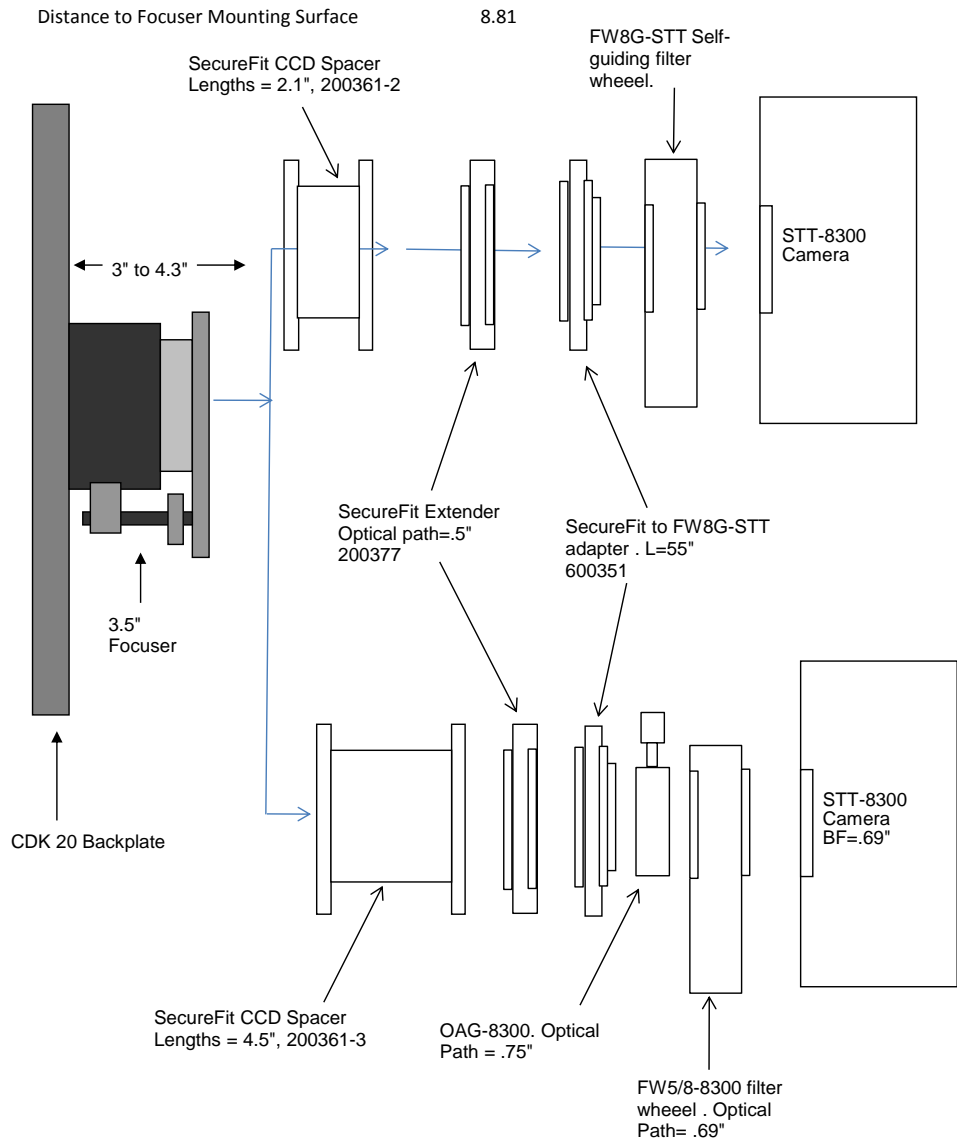
8.81



| | | |
|---------------------------------------|-------------|--------------|
| ST8300 Camera Alone | 8.81 | remaining BF |
| Focuser racked in | 3 | 5.81 |
| Focuser position (0-1.3") | 0.77 | 5.04 |
| CCD Spacer 3.8 - 200361-1 | 3.8 | 1.24 |
| SecureFit to T-Thread - 200393 | 0.55 | 0.69 |
| SLT Back Focus | 0.69 | 0.00 |

| | | |
|------------------------------------------|-------------|--------------|
| ST8300 Camera FW8 or FW5 for 8300 | 8.81 | remaining BF |
| Focuser racked in | 3 | 5.81 |
| Focuser position (0-1.3") | 0.68 | 5.13 |
| CCD Spacer 3.8 - 200361-2 | 2.1 | 3.03 |
| CCD SecureFit Extender - 200377 | 0.5 | 2.53 |
| CCD SecureFit Extender - 200377 | 0.5 | 2.03 |
| SecureFit to T-Thread - 200393 | 0.55 | 1.48 |
| FW5 or 8 for 8300, Back Focus=.79" | 0.79 | 0.69 |
| SLT Back Focus | 0.69 | 0 |

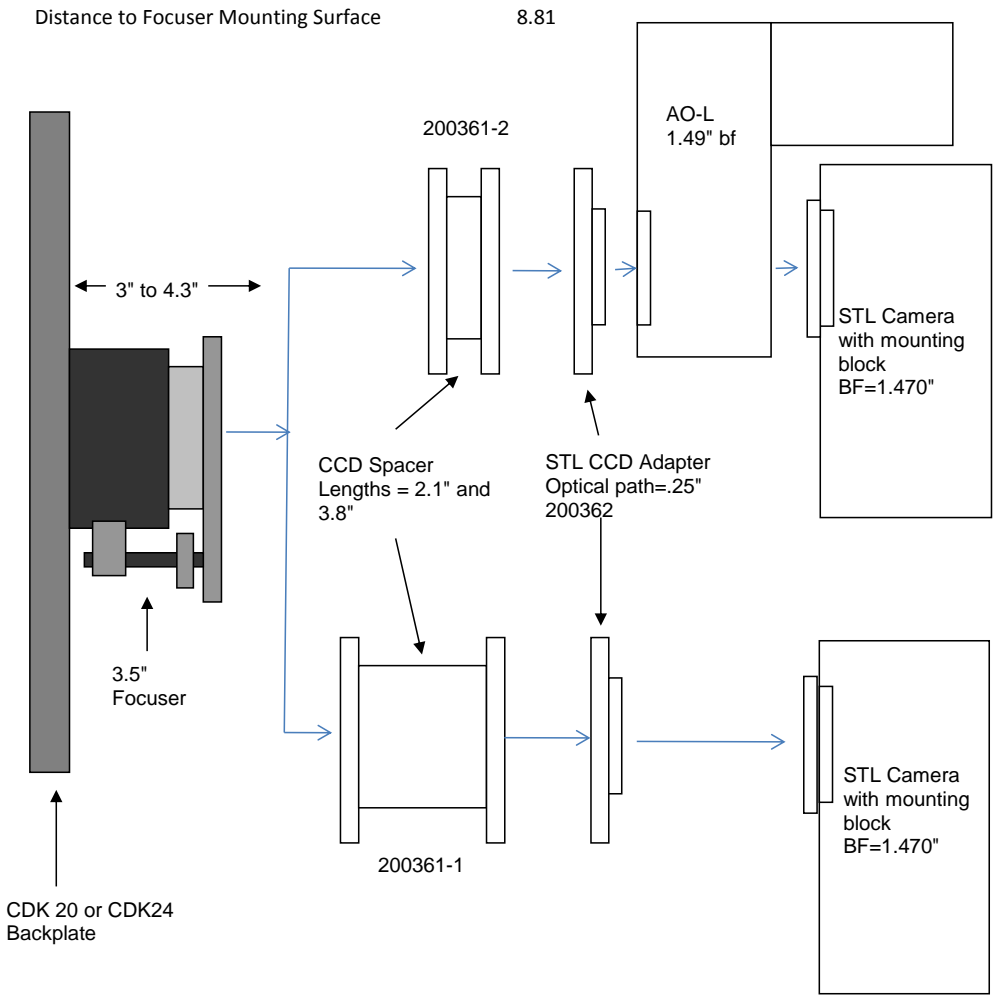
PLANEWAVE INSTRUMENTS
CDK20/24 SECUREFIT SPACERS FOR STT CAMERAS



| | | |
|----------------------------------------------------|--------------|--------------|
| STT8300 Camera w/ Self Guiding Filter Wheel | 8.81 | remaining BF |
| Focuser racked in | 3 | 5.81 |
| Focuser position (0-1.3") | 0.532 | 5.278 |
| SecureFit Spacer 2.1- 200361-2 | 2.1 | 3.178 |
| CCD SecureFit Extender - 200377 | 0.5 | 2.678 |
| SecureFit to FW8G-STT - 600351 | 0.55 | 2.128 |
| FW8G-SST attached to STT-8300 Camera | 2.128 | 0 |

| | | |
|-----------------------------------------------|-------------|--------------|
| STT8300 Camera w/Filter Wheel, OAG8300 | 8.81 | remaining BF |
| Focuser racked in | 3 | 5.81 |
| Focuser position (0-1.3") | 0.43 | 5.38 |
| SecureFit Spacer 3.8- 200361-1 | 2.1 | 3.28 |
| CCD SecureFit Extender - 200377 | 0.5 | 2.78 |
| SecureFit to FW8G-STT - 600351 | 0.55 | 2.23 |
| OAG-8300 | 0.75 | 1.48 |
| FW5-8300 / FW8-8300 | 0.79 | 0.69 |
| STT-8300 Camera | 0.69 | 0 |

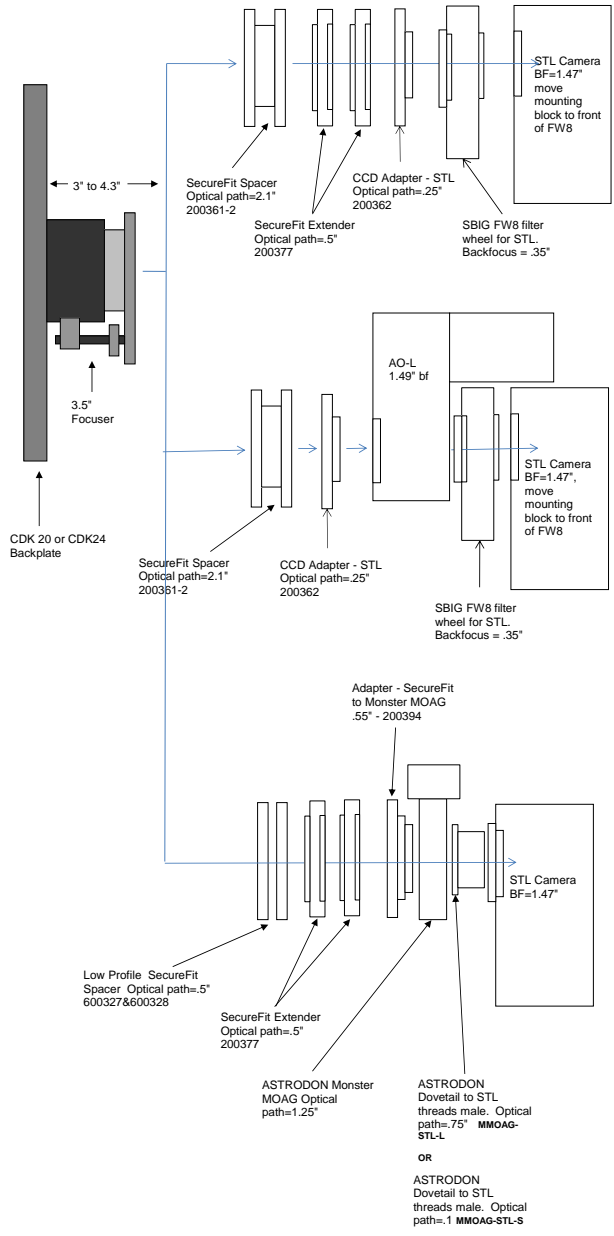
PLANEWAVE INSTRUMENTS
CDK20, 24 SECUREFIT SPACERS FOR STL CAMERAS



| STL and AO-L | | 8.81 remaining BF |
|---------------------------|------|-------------------|
| Focuser racked in | 3 | 5.81 |
| Focuser position (0-1.3") | 0.5 | 5.31 |
| CCD Spacer 2.1 - 200361-2 | 2.1 | 3.21 |
| CCD Adapter STL - 200362 | 0.25 | 2.96 |
| AO-L | 1.49 | 1.47 |
| STL Back Focus | 1.47 | 0 |

| STL Camera Alone | | 8.81 remaining BF |
|---------------------------|------|-------------------|
| Focuser racked in | 3 | 5.81 |
| Focuser position (0-1.3") | 0.29 | 5.52 |
| CCD Spacer 3.8 - 200361-1 | 3.8 | 1.72 |
| CCD Adapter STL - 200362 | 0.25 | 1.47 |
| SLT Back Focus | 1.47 | 0 |

PLANEWAVE INSTRUMENTS
CDK 20, AND 24 SPACERS FOR STL CAMERAS



| STL w/ FW8 | | 8.81 remaining BF |
|---------------------------------|------|-------------------|
| Focuser racked in | 3 | 5.81 |
| Focuser position (0-1.3") | 0.64 | 5.17 |
| CCD Spacer 2.1 - 200361-2 | 2.1 | 3.07 |
| CCD SecureFit Extender - 200377 | 0.5 | 2.57 |
| CCD SecureFit Extender - 200377 | 0.5 | 2.07 |
| CCD Adapter STL - 200362 | 0.25 | 1.82 |
| FW8 | 0.35 | 1.47 |
| SLT Back Focus | 1.47 | 0 |

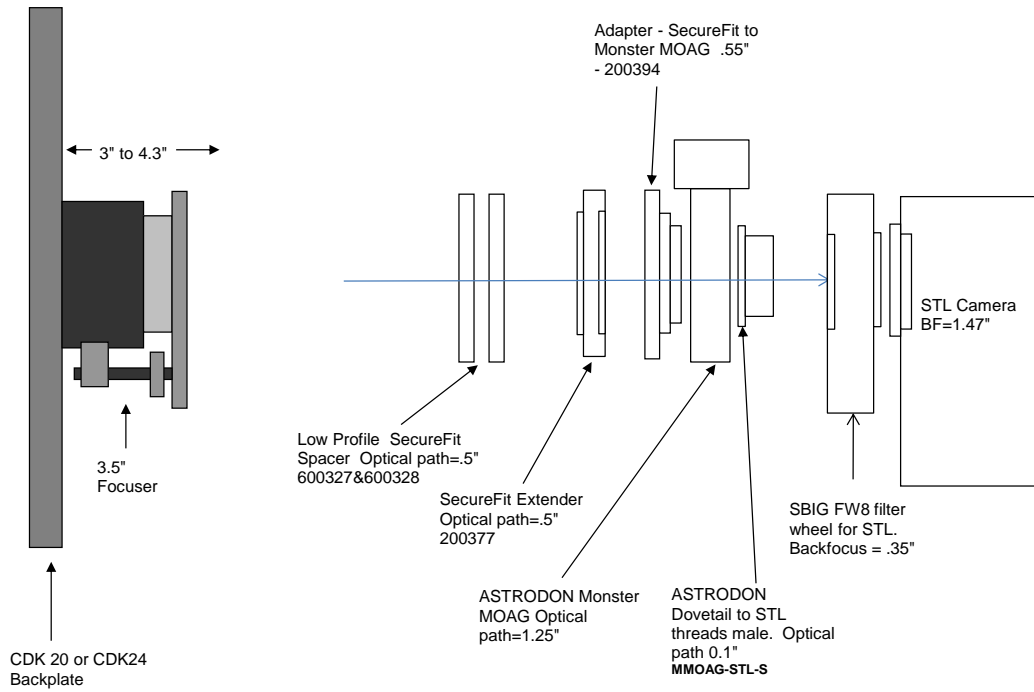
| STL w/ FW8 and AO-L | | 8.81 remaining BF |
|---------------------------|------|-------------------|
| Focuser racked in | 3 | 5.81 |
| Focuser position (0-1.3") | 0.15 | 5.66 |
| CCD Spacer 2.1 - 200361-2 | 2.1 | 3.56 |
| CCD Adapter STL - 200362 | 0.25 | 3.31 |
| AO-L | 1.49 | 1.82 |
| FW8 | 0.35 | 1.47 |
| SLT Back Focus | 1.47 | 0 |

| STL camera and MMOAG | | 8.81 remaining BF |
|------------------------------------------------|------|-------------------|
| Focuser racked in | 3 | 5.81 |
| Focuser position (0-1.3") | 0 | 5.81 |
| LowProfile SecureFit Spacer - 0.5", 600327&328 | 0.5 | 5.31 |
| SecureFit 1/2" Spacer - 200377 | 0.5 | 4.81 |
| CCD SecureFit to MMOAG - 200394 | 0.55 | 4.26 |
| Monster MOAG | 1.25 | 3.01 |
| AstroDon part - MMOAG-STL-L | 0.75 | 2.26 |
| SLT Back Focus | 1.47 | 0.79 |

| STL camera and MMOAG | | 8.81 remaining BF |
|------------------------------------------------|------|-------------------|
| Focuser racked in | 3 | 5.81 |
| Focuser position (0-1.3") | 0.59 | 5.22 |
| LowProfile SecureFit Spacer - 0.5", 600327&328 | 0.5 | 4.72 |
| SecureFit 1/2" Spacer - 200377 | 0.5 | 4.22 |
| SecureFit 1/2" Spacer - 200377 | 0.5 | 3.72 |
| CCD SecureFit to MMOAG - 200394 | 0.55 | 3.17 |
| Monster MOAG | 1.25 | 1.92 |
| AstroDon part - MMOAG-STL-S | 0.1 | 1.82 |
| FW8 | 0.35 | 1.47 |
| SLT Back Focus | 1.47 | 0 |

OR
ASTRODON
Dovetail to STL
threads male. Optical
path=1 MMOAG-STL-S

PLANEWAVE INSTRUMENTS
CDK 20 AND 24 SPACERS FOR STL CAMERAS



| STL camera and MMOAG | | 8.81 remaining BF |
|---------------------------------------------------|------|-------------------|
| Focuser racked in | 3 | 5.81 |
| Focuser position (0-1.3") | 0.59 | 5.22 |
| LowProfile SecureFit Spacer - 0.5", 600327&600328 | 0.5 | 4.72 |
| SecureFit 1/2" Spacer - 200377 | 0.5 | 4.22 |
| SecureFit 1/2" Spacer - 200377 | 0.5 | 3.72 |
| CCD SecureFit to MMOAG - 200394 | 0.55 | 3.17 |
| AstroDon part - MMOAG | 1.25 | 1.92 |
| AstroDon part - MMOAG-STL-S | 0.1 | 1.82 |
| Filter Wheel, FW8 | 0.35 | 1.47 |
| SLT Back Focus | 1.47 | 0 |