

Beam Expander

We manufacture a variety of laser beam expanders to suit most laser types, from small waveguide lasers up to multi-kilowatt industrial lasers. There is also a modular range for experimental and laboratory purposes.

The most common type of beam expander is derived from the Galilean telescope which usually has one negative input lens and one positive output lens, as shown in the following figure. The input lens presents a virtual beam focus at the output. For low expansion ratios (1.3-20×), the Galilean telescope is most often employed due to its simplicity, small package size, and low cost.

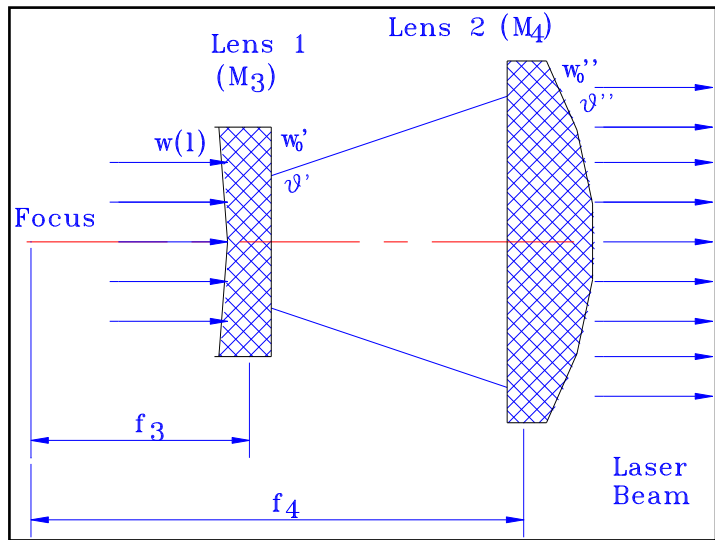
As shown in right figure, the lens M_3 focuses the laser beam onto the front focus plane and the new beam waist ω'_0 and divergence angle θ' can be represented as

$$\omega'_0 = \frac{f_3 \lambda}{\pi \omega(l)} \quad (1)$$

and

$$\theta' = \frac{2\lambda}{\pi \omega'_0} \quad (2)$$

$$\omega(l) = \omega_0 \sqrt{1 + \left(\frac{l\lambda}{\pi \omega_0^2} \right)^2} \quad (3)$$



where $\omega(l)$ is the radius of the beam entering the lens M_3 , l is the distance between the lens M_3 and the beam waist ω_0 from the laser generator, and f_3 is the focal length of the lens M_3 .

Since ω'_0 lies on the back focus plane of the lens M_4 with a longer focal length, f_4 , the Gaussian beam with a beam waist ω'_0 will be collimated by the beam expander. The collimation ratio of the beam expander for a Gaussian beam is as follows

$$T = \frac{\theta}{\theta''} = T_1 \sqrt{1 + \left(\frac{l\lambda}{\pi \omega_0^2} \right)^2} \quad (4)$$

where $T_1 = f_4/f_3$. The beam waist ω''_0 and divergence angle θ'' after the beam expander are

$$\omega''_0 = \frac{\lambda}{\pi \omega'_0} f_4 \quad (5)$$

and

$$\theta'' = \frac{\theta}{T} \quad (6)$$

Substituting Equation (1) into Equation (5), the following expression can be obtained

$$\omega''_0 = T_1 \omega(l) \quad (7)$$

From Equations (4)-(7), it is concluded that the beam expansion ratio and the collimation ratio for a Gaussian beam depend not only on the specifications of the beam expander, but also on the laser beam parameters as well as the positions of the optical lenses.

The function of a beam expander is to reduce the divergence angle of laser beams and thus make the focused beam diameter smaller.

The specifications of the lenses used in the beam expanders are

- Material: BK7 fine annealed, ZnSe or GaAs (depending on laser wavelength)
- Diameter: ± 0.1 mm
- Thickness: ± 0.1 mm
- Flatness: $\lambda/4$
- Surface Quality: 60-40 scratch-dig
- Coating: HR dielectric coatings $R > 99\%$

STS series:



STJ series:



Part number description: STx-xxx-yy-zz

STx --- STx series beam expanders

xxxx----- laser wavelength: 10.6 means 10.6um, 532 means 532nm, 633 means 633nm.

yy ----- expansion ratio in times

zz ----- Maximum outside diameter (mm)

For any specialized applications, please feel free to contact us for more information.

Wavelength 1850 – 1980nm

Model	Wavelength (nm)	Type	Magnification	Material	Clear aperture (mm)	Max. exit diameter (mm)	Max. outside diameter (mm)	Length (mm)	Thread	Motorised
STS-1850-1.5-65	1850 - 1980	fix	1.5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1850-2-65	1850 - 1980	fix	2	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1850-2.5-65	1850 - 1980	fix	2.5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1850-3-65	1850 - 1980	fix	3	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1850-4-65	1850 - 1980	fix	4	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1850-5-65	1850 - 1980	fix	5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1850-6-65	1850 - 1980	fix	6	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1850-7-65	1850 - 1980	fix	7	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1850-8-65	1850 - 1980	fix	8	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1850-9-65	1850 - 1980	fix	9	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1850-10-65	1850 - 1980	fix	10	fs	6	31	65	85.1	M30x1	divergency motorised
STS-1850-12-65	1850 - 1980	fix	12	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1850-1.5-46	1850 - 1980	fix	1.5	fs	8	31	46	85	M30x1	not motorised
STS-1850-2-46	1850 - 1980	fix	2	fs	8	31	46	85	M30x1	not motorised
STS-1850-2.5-46	1850 - 1980	fix	2.5	fs	8	31	46	85	M30x1	not motorised
STS-1850-3-46	1850 - 1980	fix	3	fs	8	31	46	85	M30x1	not motorised
STS-1850-4-46	1850 - 1980	fix	4	fs	8	31	46	85	M30x1	not motorised
STS-1850-5-46	1850 - 1980	fix	5	fs	8	31	46	85	M30x1	not motorised
STS-1850-6-46	1850 - 1980	fix	6	fs	8	31	46	85	M30x1	not motorised
STS-1850-7-46	1850 - 1980	fix	7	fs	8	31	46	85	M30x1	not motorised
STS-1850-8-46	1850 - 1980	fix	8	fs	8	31	46	85	M30x1	not motorised
STS-1850-9-46	1850 - 1980	fix	9	fs	8	31	46	85	M30x1	not motorised
STS-1850-10-46	1850 - 1980	fix	10	fs	6	31	46	85	M30x1	not motorised
STS-1850-12-46	1850 - 1980	fix	12	fs	8	31	46	85	M30x1	not motorised
STS-1850-1.0 - 3.0-47	1850 - 1980	zoom	1.0 - 3.0	fs	10.5	20	47	85.2	C-mount	not motorised
STS-1850-1.0 - 3.0-47	1850 - 1980	zoom	1.0 - 3.0	fs	10.5	20	47	82.5	M30x1	not motorised

Wavelength 1550nm

Model	Wavelength (nm)	Type	Magnification	Material	Clear aperture (mm)	Max. exit diameter (mm)	Max. outside diameter (mm)	Length (mm)	Thread	Motorised
STS-1550-1.5-65	1550	fix	1.5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1550-2-65	1550	fix	2	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1550-2.5-65	1550	fix	2.5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1550-3-65	1550	fix	3	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1550-4-65	1550	fix	4	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1550-5-65	1550	fix	5	fs	8	31	65	85.1	M30x1	divergency motorised

STS-1550-6-65	1550	fix	6	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1550-7-65	1550	fix	7	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1550-8-65	1550	fix	8	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1550-9-65	1550	fix	9	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1550-10-65	1550	fix	10	fs	6	31	65	85.1	M30x1	divergency motorised
STS-1550-12-65	1550	fix	12	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1550-1.5-46	1550	fix	1.5	fs	8	31	46	85	M30x1	not motorised
STS-1550-2-46	1550	fix	2	fs	8	31	46	85	M30x1	not motorised
STS-1550-2.5-46	1550	fix	2.5	fs	8	31	46	85	M30x1	not motorised
STS-1550-3-46	1550	fix	3	fs	8	31	46	85	M30x1	not motorised
STS-1550-4-46	1550	fix	4	fs	8	31	46	85	M30x1	not motorised
STS-1550-5-46	1550	fix	5	fs	8	31	46	85	M30x1	not motorised
STS-1550-6-46	1550	fix	6	fs	8	31	46	85	M30x1	not motorised
STS-1550-7-46	1550	fix	7	fs	8	31	46	85	M30x1	not motorised
STS-1550-8-46	1550	fix	8	fs	8	31	46	85	M30x1	not motorised
STS-1550-9-46	1550	fix	9	fs	8	31	46	85	M30x1	not motorised
STS-1550-10-46	1550	fix	10	fs	6	31	46	85	M30x1	not motorised
STS-1550-12-46	1550	fix	12	fs	8	31	46	85	M30x1	not motorised
STS-1550-1.0 - 3.0-47	1550	zoom	1.0 - 3.0	fs	10.5	20	47	85.2	C-mount	not motorised
STS-1550-1.0 - 3.0-47	1550	zoom	1.0 - 3.0	fs	10.5	20	47	85.2	M30x1	not motorised

Wavelength 1030 – 1090nm

Model	Wavelength (nm)	Type	Magnification	Material	Clear aperture (mm)	Max. exit diameter (mm)	Max. outside diameter (mm)	Length (mm)	Thread	Motorised
STS-1030-1.1-77	1030 - 1090	fix	1.1	fs	25.5	50	77	84	M30x1	not motorised
STS-1030-1.2-77	1030 - 1090	fix	1.2	fs	25.5	50	77	84	M30x1	not motorised
STS-1030-1.8-77	1030 - 1090	fix	1.8	fs	25.5	50	77	84	M30x1	not motorised
STS-1030-1.5-77	1030 - 1090	fix	1.5	fs	25.5	50	77	84	M30x1	not motorised
STS-1030-2-77	1030 - 1090	fix	2	fs	24	50	77	120.2	M30x1	not motorised
STS-1030-2.5-77	1030 - 1090	fix	2.5	fs	25.5	50	77	138.4	M30x1	not motorised
STS-1030-3-77	1030 - 1090	fix	3	fs	25.5	50	77	150.2	M30x1	not motorised
STS-1030-4-77	1030 - 1090	fix	4	fs	24	50	77	249	M30x1	not motorised
STS-1030-4-77	1030 - 1090	fix	4	fs	14	50	77	100.9	M30x1	not motorised
STS-1030-5-77	1030 - 1090	fix	5	fs	10	50	77	104.5	M30x1	not motorised
STS-1030-6-77	1030 - 1090	fix	6	fs	10	50	77	104.5	M30x1	not motorised
STS-1030-0.8-46	1030 - 1090	fix	0.8	fs	12	20	46	85	M30x1	not motorised
STS-1030-1.2-46	1030 - 1090	fix	1.2	fs	12	28	46	85	M30x1	not motorised
STS-1030-0.8-46	1030 - 1090	fix	0.8	fs	12	12	46	44.7	M30x1	not motorised
STS-1030-1-46	1030 - 1090	fix	1	fs	12	14	46	44.7	M30x1	not motorised
STS-1030-1.2-46	1030 - 1090	fix	1.2	fs	12	26	46	44.7	M30x1	not motorised
STS-1030-1.5-46	1030 - 1090	fix	1.5	fs	12	26	46	44.7	M30x1	not motorised
STS-1030-2-46	1030 - 1090	fix	2	fs	12	26	46	44.7	M30x1	not motorised
STS-1030-2.5-46	1030 - 1090	fix	2.5	fs	11	26	46	44.7	M30x1	not motorised
STS-1030-3-46	1030 - 1090	fix	3	fs	8	26	46	44.7	M30x1	not motorised
STS-1030-4-46	1030 - 1090	fix	4	fs	8	20	46	44.7	M30x1	not motorised
STS-1030-1.5-65	1030 - 1090	fix	1.5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1030-2-65	1030 - 1090	fix	2	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1030-2.5-65	1030 - 1090	fix	2.5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1030-3-65	1030 - 1090	fix	3	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1030-4-65	1030 - 1090	fix	4	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1030-5-65	1030 - 1090	fix	5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1030-6-65	1030 - 1090	fix	6	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1030-7-65	1030 - 1090	fix	7	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1030-8-65	1030 - 1090	fix	8	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1030-9-65	1030 - 1090	fix	9	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1030-10-65	1030 - 1090	fix	10	fs	6	31	65	85.1	M30x1	divergency motorised
STS-1030-12-65	1030 - 1090	fix	12	fs	8	31	65	85.1	M30x1	divergency motorised
STS-1030-15-65	1030 - 1090	fix	15	fs	6	31	65	85.1	M30x1	divergency motorised
STS-1030-20-65	1030 - 1090	fix	20	fs	5	31	65	86.4	M30x1	divergency motorised

STS-1030-1.5-46	1030 - 1090	fix	1.5	fs	8	31	46	85	M30x1	not motorised
STS-1030-2-46	1030 - 1090	fix	2	fs	8	31	46	85	M30x1	not motorised
STS-1030-2.5-46	1030 - 1090	fix	2.5	fs	8	31	46	85	M30x1	not motorised
STS-1030-3-46	1030 - 1090	fix	3	fs	8	31	46	85	M30x1	not motorised
STS-1030-4-46	1030 - 1090	fix	4	fs	8	31	46	85	M30x1	not motorised
STS-1030-5-46	1030 - 1090	fix	5	fs	8	31	46	85	M30x1	not motorised
STS-1030-6-46	1030 - 1090	fix	6	fs	8	31	46	85	M30x1	not motorised
STS-1030-7-46	1030 - 1090	fix	7	fs	8	31	46	85	M30x1	not motorised
STS-1030-8-46	1030 - 1090	fix	8	fs	8	31	46	85	M30x1	not motorised
STS-1030-9-46	1030 - 1090	fix	9	fs	8	31	46	85	M30x1	not motorised
STS-1030-10-46	1030 - 1090	fix	10	fs	6	31	46	85	M30x1	not motorised
STS-1030-12-46	1030 - 1090	fix	12	fs	8	31	46	85	M30x1	not motorised
STS-1030-15-46	1030 - 1090	fix	15	fs	6	31	46	85	M30x1	not motorised
STS-1030-20-46	1030 - 1090	fix	20	fs	5	31	46	85	M30x1	not motorised
STS-1030-1.0 - 8.0-160.0 x 70.5	1030 - 1090	zoom	1.0 - 8.0	fs	9	30	160.0 x 70.5	200.4	---	zoom motorised
STS-1030-1.0 - 8.0-58	1030 - 1090	zoom	1.0 - 8.0	fs	10.3	31	58	162.6	C-mount	not motorised
STS-1030-1.0 - 3.0-47	1030 - 1090	zoom	1.0 - 3.0	fs	10.5	20	47	85.2	C-mount	not motorised
STS-1030-1.0 - 3.0-47	1030 - 1090	zoom	1.0 - 3.0	fs	10.5	20	47	85.2	M30x1	not motorised
STS-1030-1.2 - 3.0-80	1030 - 1090	zoom	1.2 - 3.0	fs	18.5	43	80	230.2	M30x1	not motorised
STS-1030-1.0 - 8.0-58	1030 - 1090	zoom	1.0 - 8.0	fs	10	30	58	162	C-mount	zoom motorised
STS-1030-1.0 - 3.0-47	1030 - 1090	zoom	1.0 - 3.0	fs	10.5	20	47	105.8	C-mount	zoom motorised
STS-1030-1.0 - 3.0-47	1030 - 1090	zoom	1.0 - 3.0	fs	10.5	20	47	85.2	M30x1	zoom motorised

Wavelength 808 – 980nm

Model	Wavelength (nm)	Type	Magnification	Material	Clear aperture (mm)	Max. exit diameter (mm)	Max. outside diameter (mm)	Length (mm)	Thread	Motorised
STS-808-2-65	808 - 980	fix	2	fs	8	31	65	85.1	M30x1	divergency motorised
STS-808-3-65	808 - 980	fix	3	fs	8	31	65	85.1	M30x1	divergency motorised
STS-808-5-65	808 - 980	fix	5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-608-10-65	808 - 980	fix	10	fs	6	31	65	85.1	M30x1	divergency motorised
STS-808-2-46	808 - 980	fix	2	fs	8	31	46	85	M30x1	not motorised
STS-808-3-46	808 - 980	fix	3	fs	8	31	46	85	M30x1	not motorised
STS-808-5-46	808 - 980	fix	5	fs	8	31	46	85	M30x1	not motorised
STS-608-10-46	808 - 980	fix	10	fs	6	31	46	85	M30x1	not motorised

Wavelength 515 – 545nm

Model	Wavelength (nm)	Type	Magnification	Material	Clear aperture (mm)	Max. exit diameter (mm)	Max. outside diameter (mm)	Length (mm)	Thread	Motorised
STS-515-0.8-46	515 - 545	fix	0.8	fs	12	12	46	44.7	M30x1	not motorised
STS-515-1-46	515 - 545	fix	1	fs	12	14	46	44.7	M30x1	not motorised
STS-515-1.2-46	515 - 545	fix	1.2	fs	12	26	46	44.7	M30x1	not motorised
STS-515-1.5-46	515 - 545	fix	1.5	fs	12	26	46	44.7	M30x1	not motorised
STS-515-2-46	515 - 545	fix	2	fs	12	26	46	44.7	M30x1	not motorised
STS-515-2.5-46	515 - 545	fix	2.5	fs	11	26	46	44.7	M30x1	not motorised
STS-515-3-46	515 - 545	fix	3	fs	8	26	46	44.7	M30x1	not motorised
STS-515-4-46	515 - 545	fix	4	fs	8	20	46	44.7	M30x1	not motorised
STS-515-1.5-65	515 - 545	fix	1.5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-515-2-65	515 - 545	fix	2	fs	8	31	65	85.1	M30x1	divergency motorised
STS-515-2.5-65	515 - 545	fix	2.5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-515-3-65	515 - 545	fix	3	fs	8	31	65	85.1	M30x1	divergency motorised
STS-515-4-65	515 - 545	fix	4	fs	8	31	65	85.1	M30x1	divergency motorised
STS-515-5-65	515 - 545	fix	5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-515-6-65	515 - 545	fix	6	fs	8	31	65	85.1	M30x1	divergency motorised
STS-515-7-65	515 - 545	fix	7	fs	8	31	65	85.1	M30x1	divergency motorised
STS-515-8-65	515 - 545	fix	8	fs	8	31	65	85.1	M30x1	divergency motorised
STS-515-9-65	515 - 545	fix	9	fs	8	31	65	85.1	M30x1	divergency motorised
STS-515-10-65	515 - 545	fix	10	fs	6	31	65	85.1	M30x1	divergency motorised
STS-515-12-65	515 - 545	fix	12	fs	8	31	65	85.1	M30x1	divergency motorised
STS-515-15-65	515 - 545	fix	15	fs	6	31	65	85.1	M30x1	divergency motorised
STS-515-20-65	515 - 545	fix	20	fs	5	31	65	85.1	M30x1	divergency motorised
STS-515-1.5-46	515 - 545	fix	1.5	fs	8	31	46	85	M30x1	not motorised
STS-515-2-46	515 - 545	fix	2	fs	8	31	46	85	M30x1	not motorised
STS-515-2.5-46	515 - 545	fix	2.5	fs	8	31	46	85	M30x1	not motorised
STS-515-3-46	515 - 545	fix	3	fs	8	31	46	85	M30x1	not motorised
STS-515-4-46	515 - 545	fix	4	fs	8	31	46	85	M30x1	not motorised
STS-515-5-46	515 - 545	fix	5	fs	8	31	46	85	M30x1	not motorised
STS-515-6-46	515 - 545	fix	6	fs	8	31	46	85	M30x1	not motorised
STS-515-7-46	515 - 545	fix	7	fs	8	31	46	85	M30x1	not motorised
STS-515-8-46	515 - 545	fix	8	fs	8	31	46	85	M30x1	not motorised
STS-515-9-46	515 - 545	fix	9	fs	8	31	46	85	M30x1	not motorised
STS-515-10-46	515 - 545	fix	10	fs	6	31	46	85	M30x1	not motorised
STS-515-12-46	515 - 545	fix	12	fs	8	31	46	85	M30x1	not motorised
STS-515-15-46	515 - 545	fix	15	fs	6	31	46	85	M30x1	not motorised

STS-515-20-46	515 - 545	fix	20	fs	5	31	46	85	M30x1	not motorised
STS-515-1.0 - 8.0-160.0 x 70.5	515 - 545	zoom	1.0 - 8.0	fs	9	30	160.0 x 70.5	200.4	---	zoom motorised
STS-515-1.0 - 8.0-58	515 - 545	zoom	1.0 - 8.0	fs	10.3	31	58	162	C-mount	not motorised
STS-515-1.0 - 3.0-47	515 - 545	zoom	1.0 - 3.0	fs	10.5	20	47	85.2	C-mount	not motorised
STS-515-1.0 - 3.0-47	515 - 545	zoom	1.0 - 3.0	fs	10.5	20	47	85.2	M30x1	not motorised
STS-515-1.2 - 3.0-80	515 - 545	zoom	1.2 - 3.0	fs	18.5	43	80	230.2	M30x1	not motorised
STS-515-1.0 - 8.0-58	515 - 545	zoom	1.0 - 8.0	fs	10	30	58	162	C-mount	zoom motorised
STS-515-1.0 - 3.0-47	515 - 545	zoom	1.0 - 3.0	fs	10.5	20	47	105.8	C-mount	zoom motorised
STS-515-1.0 - 3.0-47	515 - 545	zoom	1.0 - 3.0	fs	10.5	20	47	85.2	M30x1	zoom motorised

Wavelength 405nm

Model	Wavelength (nm)	Type	Magnification	Material	Clear aperture (mm)	Max. exit diameter (mm)	Max. outside diameter (mm)	Length (mm)	Thread	Motorised
STS-405-1.5-65	405	fix	1.5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-405-2-65	405	fix	2	fs	8	31	65	85.1	M30x1	divergency motorised
STS-405-3-65	405	fix	3	fs	8	31	65	85.1	M30x1	divergency motorised
STS-405-5-65	405	fix	5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-405-7-65	405	fix	7	fs	8	31	65	85.1	M30x1	divergency motorised
STS-405-10-65	405	fix	10	fs	6	31	65	85.1	M30x1	divergency motorised
STS-405-20-65	405	fix	20	fs	5	31	65	85.1	M30x1	divergency motorised
STS-405-1.5-46	405	fix	1.5	fs	8	31	46	85	M30x1	not motorised
STS-405-2-46	405	fix	2	fs	8	31	46	85	M30x1	not motorised
STS-405-3-46	405	fix	3	fs	8	31	46	85	M30x1	not motorised
STS-405-5-46	405	fix	5	fs	8	31	46	85	M30x1	not motorised
STS-405-7-46	405	fix	7	fs	8	31	46	85	M30x1	not motorised
STS-405-10-46	405	fix	10	fs	6	31	46	85	M30x1	not motorised
STS-405-20-46	405	fix	20	fs	5	31	46	85	M30x1	not motorised

Wavelength 343 – 355nm

Model	Wavelength (nm)	Type	Magnification	Material	Clear aperture (mm)	Max. exit diameter (mm)	Max. outside diameter (mm)	Length (mm)	Thread	Motorised
STS-355-0.8-46	355	fix	0.8	fs	12	12	46	44.7	M30x1	not motorised
STS-343-0.8-46	343 - 355	fix	0.8	fs	12	12	46	44.7	M30x1	not motorised
STS-343-1-46	343 - 355	fix	1	fs	12	14	46	44.7	M30x1	not motorised
STS-355-1.2-46	355	fix	1.2	fs	12	26	46	44.7	M30x1	not motorised
STS-343-1.2-46	343 - 355	fix	1.2	fs	12	26	46	44.7	M30x1	not motorised
STS-355-1.5-46	355	fix	1.5	fs	12	26	46	44.7	M30x1	not motorised
STS-343-1.5-46	343 - 355	fix	1.5	fs	12	26	46	44.7	M30x1	not motorised

STS-355-2-46	355	fix	2	fs	12	26	46	44.7	M30x1	not motorised
STS-343-2-46	343 - 355	fix	2	fs	12	26	46	44.7	M30x1	not motorised
STS-355-2.5-46	355	fix	2.5	fs	11	26	46	44.7	M30x1	not motorised
STS-343-2.5-46	343 - 355	fix	2.5	fs	11	26	46	44.7	M30x1	not motorised
STS-355-3-46	355	fix	3	fs	8	26	46	44.7	M30x1	not motorised
STS-343-3-46	343 - 355	fix	3	fs	8	26	46	44.7	M30x1	not motorised
STS-355-4-46	355	fix	4	fs	8	20	46	44.7	M30x1	not motorised
STS-343-4-46	343 - 355	fix	4	fs	8	20	46	44.7	M30x1	not motorised
STS-355-1.5-65	355	fix	1.5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-343-1.5-65	343 - 355	fix	1.5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-355-2-65	355	fix	2	fs	8	31	65	85.1	M30x1	divergency motorised
STS-343-2-65	343 - 355	fix	2	fs	8	31	65	85.1	M30x1	divergency motorised
STS-355-2.5-65	355	fix	2.5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-343-2.5-65	343 - 355	fix	2.5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-355-3-65	355	fix	3	fs	8	31	65	85.1	M30x1	divergency motorised
STS-343-3-65	343 - 355	fix	3	fs	8	31	65	85.1	M30x1	divergency motorised
STS-355-4-65	355	fix	4	fs	8	31	65	85.1	M30x1	divergency motorised
STS-343-4-65	343 - 355	fix	4	fs	8	31	65	85.1	M30x1	divergency motorised
STS-355-5-65	355	fix	5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-343-5-65	343 - 355	fix	5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-355-6-65	355	fix	6	fs	8	31	65	85.1	M30x1	divergency motorised
STS-343-6-65	343 - 355	fix	6	fs	8	31	65	85.1	M30x1	divergency motorised
STS-355-7-65	355	fix	7	fs	8	31	65	85.1	M30x1	divergency motorised
STS-343-7-65	343 - 355	fix	7	fs	8	31	65	85.1	M30x1	divergency motorised
STS-355-8-65	355	fix	8	fs	8	31	65	85.1	M30x1	divergency motorised
STS-343-8-65	343 - 355	fix	8	fs	8	31	65	85.1	M30x1	divergency motorised
STS-355-9-65	355	fix	9	fs	8	31	65	85.1	M30x1	divergency motorised
STS-343-9-65	343 - 355	fix	9	fs	8	31	65	85.1	M30x1	divergency motorised
STS-355-10-65	355	fix	10	fs	6	31	65	85.1	M30x1	divergency motorised
STS-343-10-65	343 - 355	fix	10	fs	6	31	65	85.1	M30x1	divergency motorised
STS-355-12-65	355	fix	12	fs	8	31	65	85.1	M30x1	divergency motorised
STS-343-12-65	343 - 355	fix	12	fs	8	31	65	85.1	M30x1	divergency motorised
STS-355-15-65	355	fix	15	fs	6	31	65	85.1	M30x1	divergency motorised
STS-343-15-65	343 - 355	fix	15	fs	6	31	65	85.1	M30x1	divergency motorised
STS-355-20-65	355	fix	20	fs	5	31	65	85.1	M30x1	divergency motorised
STS-343-20-65	343 - 355	fix	20	fs	5	31	65	85.1	M30x1	divergency motorised
STS-355-1.5-46	355	fix	1.5	fs	8	31	46	85	M30x1	not motorised
STS-343-1.5-46	343 - 355	fix	1.5	fs	8	31	46	85	M30x1	not motorised
STS-355-2-46	355	fix	2	fs	8	31	46	85	M30x1	not motorised

STS-343-2-46	343 - 355	fix	2	fs	8	31	46	85	M30x1	not motorised
STS-355-2.5-46	355	fix	2.5	fs	8	31	46	85	M30x1	not motorised
STS-343-2.5-46	343 - 355	fix	2.5	fs	8	31	46	85	M30x1	not motorised
STS-355-3-46	355	fix	3	fs	8	31	46	85	M30x1	not motorised
STS-343-3-46	343 - 355	fix	3	fs	8	31	46	85	M30x1	not motorised
STS-355-4-46	355	fix	4	fs	8	31	46	85	M30x1	not motorised
STS-343-4-46	343 - 355	fix	4	fs	8	31	46	85	M30x1	not motorised
STS-355-5-46	355	fix	5	fs	8	31	46	85	M30x1	not motorised
STS-343-5-46	343 - 355	fix	5	fs	8	31	46	85	M30x1	not motorised
STS-355-6-46	355	fix	6	fs	8	31	46	85	M30x1	not motorised
STS-343-6-46	343 - 355	fix	6	fs	8	31	46	85	M30x1	not motorised
STS-355-7-46	355	fix	7	fs	8	31	46	85	M30x1	not motorised
STS-343-7-46	343 - 355	fix	7	fs	8	31	46	85	M30x1	not motorised
STS-355-8-46	355	fix	8	fs	8	31	46	85	M30x1	not motorised
STS-343-8-46	343 - 355	fix	8	fs	8	31	46	85	M30x1	not motorised
STS-355-9-46	355	fix	9	fs	8	31	46	85	M30x1	not motorised
STS-343-9-46	343 - 355	fix	9	fs	8	31	46	85	M30x1	not motorised
STS-355-10-46	355	fix	10	fs	6	31	46	85	M30x1	not motorised
STS-343-10-46	343 - 355	fix	10	fs	6	31	46	85	M30x1	not motorised
STS-355-12-46	355	fix	12	fs	8	31	46	85	M30x1	not motorised
STS-343-12-46	343 - 355	fix	12	fs	8	31	46	85	M30x1	not motorised
STS-355-15-46	355	fix	15	fs	6	31	46	85	M30x1	not motorised
STS-343-15-46	343 - 355	fix	15	fs	6	31	46	85	M30x1	not motorised
STS-355-20-46	355	fix	20	fs	5	31	46	85	M30x1	not motorised
STS-343-20-46	343 - 355	fix	20	fs	5	31	46	85	M30x1	not motorised
STS-355-1.0 - 8.0-160.0 x 70.5	355	zoom	1.0 - 8.0	fs	9	30	160.0 x 70.5	200.4	---	zoom motorised
STS-343-1.0 - 8.0-160.0 x 70.5	343 - 355	zoom	1.0 - 8.0	fs	9	30	160.0 x 70.5	200.4	---	zoom motorised
STS-355-1.0 - 8.0-58	355	zoom	1.0 - 8.0	fs	10.3	31	58	162	C-mount	not motorised
STS-343-1.0 - 8.0-58	343 - 355	zoom	1.0 - 8.0	fs	10.3	31	58	162	C-mount	not motorised
STS-355-1.0 - 3.0-47	355	zoom	1.0 - 3.0	fs	10.5	20	47	85.2	C-mount	not motorised
STS-343-1.0 - 3.0-47	343 - 355	zoom	1.0 - 3.0	fs	10.5	20	47	85.2	C-mount	not motorised
STS-355-1.0 - 3.0-47	355	zoom	1.0 - 3.0	fs	10.5	20	47	85.2	M30x1	not motorised
STS-343-1.0 - 3.0-47	343 - 355	zoom	1.0 - 3.0	fs	10.5	20	47	85.2	M30x1	not motorised
STS-355-1.0 - 8.0-58	355	zoom	1.0 - 8.0	fs	10	30	58	162	C-mount	zoom motorised
STS-343-1.0 - 8.0-58	343 - 355	zoom	1.0 - 8.0	fs	10	30	58	162	C-mount	zoom motorised

STS-355-1.0 - 3.0-47	355	zoom	1.0 - 3.0	fs	10.5	20	47	105.8	C-mount	zoom motorised
STS-343-1.0 - 3.0-47	343 - 355	zoom	1.0 - 3.0	fs	10.5	20	47	105.8	C-mount	zoom motorised
STS-355-1.0 - 3.0-47	355	zoom	1.0 - 3.0	fs	10.5	20	47	85.2	M30x1	zoom motorised
STS-343-1.0 - 3.0-47	343 - 355	zoom	1.0 - 3.0	fs	10.5	20	47	85.2	M30x1	zoom motorised

Wavelength 266nm

Model	Wavelength (nm)	Type	Magnification	Material	Clear aperture (mm)	Max. exit diameter (mm)	Max. outside diameter (mm)	Length (mm)	Thread	Motorised
STS-266-1.5-65	266	fix	1.5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-266-2-65	266	fix	2	fs	8	31	65	85.1	M30x1	divergency motorised
STS-266-3-65	266	fix	3	fs	8	31	65	85.1	M30x1	divergency motorised
STS-266-5-65	266	fix	5	fs	8	31	65	85.1	M30x1	divergency motorised
STS-266-7-65	266	fix	7	fs	8	31	65	85.1	M30x1	divergency motorised
STS-266-10-65	266	fix	10	fs	6	31	65	85.1	M30x1	divergency motorised
STS-266-1.5-46	266	fix	1.5	fs	8	31	46	85	M30x1	not motorised
STS-266-2-46	266	fix	2	fs	8	31	46	85	M30x1	not motorised
STS-266-3-46	266	fix	3	fs	8	31	46	85	M30x1	not motorised
STS-266-5-46	266	fix	5	fs	8	31	46	85	M30x1	not motorised
STS-266-7-46	266	fix	7	fs	8	31	46	85	M30x1	not motorised
STS-266-10-46	266	fix	10	fs	6	31	46	85	M30x1	not motorised
STS-266-1.0 - 8.0-160.0 x 70.5	266	zoom	1.0 - 8.0	fs	9	30	160.0 x 70.5	200.4	---	zoom motorised
STS-266-1.0 - 8.0-58	266	zoom	1.0 - 8.0	fs	10.3	31	58	162	C-mount	not motorised
STS-266-1.0 - 8.0-58	266	zoom	1.0 - 8.0	fs	10	30	58	162	C-mount	zoom motorised