

Bronica SQ focusing distance, extension tubes and close-up lenses

Definitely the best half-length portrait SQ lens is the PS 180/4.5, mainly because it has a minimum focusing distance of 1 meter which is useful to get tight head/shoulder frame. Incidentally this lens is very rare to find and still expensive.

Instead S 150/3.5, PS 150/4.0 and S-PS 200/4.5 crop of lenses are easier to find and cheaper. The issue with these lenses is the minimum focusing distance which is too large for tight head/shoulder portrait, It is 1,5 m (5 feet) for 150 mm lenses and 2,5 m (more than 8 feet) for 200 mm lenses.

In order to overcome this limitation two remedies exist:

- Close-up lenses – Close-up lenses reduce the minimum focusing distance. A weak diopter lens (around 0.5 diopter) should be used, better if a 2 elements achromatic lens to reduce chromatic aberrations. Finally it has to come with 67 mm thread. The best is the Pentax T226 but it is hard to find and expensive.

The close-up lenses require none or very small (1/3 stop) exposure compensation.

The table below illustrates the minimum focusing distances using close-up lenses .

Manufacturer	Lens	d1 (m)	D	d2 (cm)
Bronica	CLU-1	1,5	1	60,00
Pentax	T132	1,5	0,76	70,09
Pentax	T226	1,5	0,44	90,36
-	-	1,5	0,5	85,71

The formula used is $d2=1/(D+1/d1)$

Where:

d2 = new minimum focusing distance

d1 = original minimum focusing distance

D = lens diopter strength

Zenzanon S/PS 150mm minimum focusing distance is 1,5 m (150 cm), with a Pentax T226 close-up lens the minimum will be 0,9 m (90 cm).

Zenzanon S/PS 200mm minimum focusing distance is 2,5 m (250 cm), with a Pentax T226 close-up lens the minimum will be 1,19 m (119 cm).

- Extension tubes – There are two different extension tubes for SQ: the 18 mm S-18 and the 36 mm S-36. Tables below illustrate the characteristics of the tubes. For every lens there are two rows. The first specifies the characteristics when the lens is focused at infinity, the second when it is focused at minimum distance, i.e. for 150 mm lens with S-18 tube, when focused at infinity the focusing distance will be around 157 cm and the exposure must be corrected by a 1.36 factor (around a 1/3 stop), instead when the lens is focused to its closed position, the focusing distance will be around 94 cm and the exposure factor will become 1,79. The extension tubes don't introduce any optical aberration but a loss on the lens speed. Extension tubes are prone to lockup with lens, for more information refer to the Edwin Leong's page:

http://www.camerahobby.com/Photo-Bronica_Tips.htm

S-18 AUTO EXTENSION TUBES

Lenses	Magnification	Area Covered (cm)	Focusing Distance (cm)	Exposure Factor
40mm	0.43	12.8x12.8	25.1	1.44
	0.60	9.3x9.3	23.2	1.62
50mm	0.36	15.6x15.6	30.0	1.42
	0.50	11.1x11.1	26.6	1.62
65mm	0.28	20.1x20.1	41.1	1.35
	0.43	13.0x13.0	33.8	1.57
80mm	0.22	25.6x25.6	56.0	1.41
	0.35	15.9x15.9	42.7	1.70
110mm	0.17	33.4x33.4	86.9	1.34
	0.42	13.3x13.3	50.7	1.95
150mm	0.12	46.3x46.3	156.7	1.36
	0.25	22.5x22.5	94.4	1.79
200mm	0.09	60.2x60.2	256.0	1.38
	0.19	29.7x29.7	150.7	1.83
250mm	0.07	75.7x75.7	390.5	1.31
	0.17	31.8x31.8	199.8	1.80

S-36 AUTO EXTENSION TUBES

Lenses	Magnification	Area Covered (cm)	Focusing Distance (cm)	Exposure Factor
40mm	0.87	6.4x6.4	22.1	1.95
	1.03	5.4x5.4	22.0	2.17
50mm	0.71	7.8x7.8	24.7	1.92
	0.86	6.5x6.5	24.2	2.15
65mm	0.55	10.0x10.0	31.2	1.76
	0.70	7.9x7.9	29.7	2.00
80mm	0.43	12.8x12.8	38.7	1.90
	0.57	9.8x9.8	35.3	2.23
110mm	0.33	16.7x16.7	56.3	1.73
	0.58	9.5x9.5	45.1	2.41
150mm	0.24	23.2x23.2	96.0	1.77
	0.37	15.2x15.2	76.3	2.26
200mm	0.18	30.1x30.1	152.1	1.82
	0.28	19.9x19.9	118.1	2.33
250mm	0.15	37.8x37.8	225.5	1.66
	0.25	22.4x22.4	160.0	2.21

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