



Digiscoping with the TLS APO 43, TLS APO 30 and TLS APO 23

Spotting Scopes using the TLS APO 43 -

43 mm lens for Full Frame (FX) sensor cameras plus APS and Micro 4/3 sensor cameras

Scope Eyepiece Mag.	Full Frame equiv in mm.	95 scope f/stop	85 scope f/stop	80 scope f/stop	65 scope f/stop	Crop Sensor APS (1.5x)
20x	860	NA	NA	f/10.8	f/13	1290
25x	1075	NA	12.6	f/13.5	f/16	1612
30x	1290	13.6	15	f/16	f/20	1935
35x	1505	16	18	f/19	f/23	2258
40x	1720	18	20	f/21	f/26	2580
45x	1935	20	23	24	f/30	2903
50x	2150	23	25	f/27	f/33	3225
55x	2365	25	28	f/30	f/36	3548
60x	2580	27	30	f/32	f/40	3870
65x	2795	29	NA	NA	NA	4193
70x	3010	32	NA	NA	NA	4515

Using the 1.7x Magnification Extender (ME) with the TLS APO 43

Scope Eyepiece Mag.	With ME x 1.7	Full Frame equiv. in mm.
NA	NA	NA
25x	43x	1849
30x	51x	2193
35x	60x	2580
40x	68x	2924
45x	76x	3268
50x	85x	3655
55x	94x	4042
60x	102x	4386
65x	110x	4730
70x	120x	5160

Spotting Scopes using the TLS APO 30 -

30 mm lens for APS and Micro 4/3 sensor cameras

Scope Eyepiece Mag.	Full Frame equiv in mm.	95 scope f/stop	85 scope f/stop	80 scope f/stop	65 scope f/stop	Crop Sensor APS (1.5x)
20x	600	NA	NA	f/7.5	f/9.2	900
25x	750	NA	f/8.8	f/9.4	f/11.5	1125
30x	900	f/9.5	f/10.6	f/11.3	f/13.8	1350
35x	1050	f/11	f/12.3	f/13	f/16	1575
40x	1200	f/12.6	f/14.1	f/15	f/18.5	1800
45x	1350	f/14.2	f/16	f/16	f/20	2025
50x	1500	f/15.8	f/17.6	f/17	f/23	2250
55x	1650	f/17.4	f/19.4	f/21	f/25	2475
60x	1800	f/19	f/21	f/23	f/27	2700
65x	1950	f/20.5	NA	NA	NA	2925
70x	2100	f/22	NA	NA	NA	3150

Using the 1.7x Magnification Extender (ME) with the TLS APO 30

Scope Eyepiece Mag.	With ME x 1.7	Full Frame equiv. in mm.
NA	NA	NA
25x	43x	1290
30x	51x	1530
35x	60x	1800
40x	68x	2040
45x	76x	2280
50x	85x	2550
55x	94x	2820
60x	102x	3060
65x	110x	3300
70x	120x	3600

Spotting Scopes using the TLS APO 23 -

23 mm lens for Micro 4/3 and 1-inch sensor cameras

Scope Eyepiece Mag.	Full Frame equiv. in mm.	95 scope f/stop	85 scope f/stop	80 scope f/stop	65 scope f/stop	Crop Sensor equivalent M4/3 (2.0x)
20x	460	NA	NA	f/5.8	f/7.1	920
25x	575	NA	f/6.7	f/7.2	f/8.8	1050
30x	690	f/7.3	f/8.1	f/8.6	f/10.6	1380
35x	805	f/8.5	f/9.5	f/10	f/12.4	1610
40x	920	f/9.7	f/10.8	f/11.5	f/14.2	1840
45x	1035	f/10.9	f/12.2	f/13	f/16.0	2070
50x	1150	f/12.0	f/13.5	f/14.4	f/17.7	2300
55x	1265	f/13.3	f/14.9	f/15.8	f/19.5	2530
60x	1380	f/14.9	16.2	17.3	f/21	2760
65x	1495	15.7	NA	NA	NA	2990
70x	1610	f/17	NA	NA	NA	3220

Using the 1.7x Magnification Extender (ME) with the TLS APO 23

Scope Eyepiece Mag.	With ME x 1.7	Full Frame equiv. in mm.
NA	NA	NA
25x	43x	989
30x	51x	1173
35x	60x	1380
40x	68x	1564
45x	76x	1748
50x	85x	1955
55x	94x	2162
60x	102x	2346
65x	110x	2530
70x	120x	2760

For more information / detailed explanations, please call or e-mail:

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COMPARISON CHART— DIGITAL CAMERA SENSOR SIZE VS. TLS APO



SWAROVSKI
OPTIK

Distance to bird box — 100 feet. SWAROVSKI OPTIK STX 95 spotting scope. All taken at 30x setting

FX
Full-Frame
Sensor 1x

TLS APO 43—1290 mm



1x Focal Length 1290 mm

TLS APO 30—900 mm



1x Focal Length 900 mm

TLS APO 23—690 mm



1x Focal Length 690 mm

APS
Crop-Sensor
1.5x or 1.6x



1.5x Equivalent Focal Length 1935 mm



1.5x Equivalent Focal Length 1350 mm



1.5x Equivalent Focal Length 1035 mm

Micro 4/3
Crop-Sensor
2x



2x Equivalent Focal Length 2580 mm



2x Equivalent Focal Length 1800 mm



2x Equivalent Focal Length 1380 mm

Red Border shows optimized combination of TLS APO vs. Sensor Size