

# Scope

## Model Comparison

with Specifications | 3-16x | \$300-500

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Link on GTA: .....

Link on AGN: .....

Link on AGW: .....

### Features Considered

- **Price:** Between \$300 and \$500 (though there are some that fall slightly outside of that range). The price noted was the cheapest I found clicking the first 20 links. The price range has been chosen to obtain a certain level of glass quality and mechanical precision, without breaking the bank. Scopes of any price range can be bought for much less during special offers from [www.DVOR.com](http://www.DVOR.com). Buying a used scope, especially from trusted people at gun forums, is another way to cut down on the price.
- **Warranty:** Life = life time warranty | 10y = 10 years warranty | OOwn = warranty only for the original owner | Unlmt = unlimited warranty | Anyb. = warranty for any owner (e.g., if you bought it used) | NoRec. = no receipt (proof of purchase) required | Rec. = receipt (proof of purchase) required
- **Bottom end magnification:** 3x or less, 4x is still kind of OK | there are a few with 2x  
Factors for a decision: Unless you are planning on using the parallax for range-finding in field target competitions (need 24x minimum magnification at the top end, and rather 32x or 40x), it seems best to first determine the bottom end – and the top end will then adapt to it.  
The bottom end should provide a sufficiently wide field of view (FoV) for the type of shooting you plan on doing. Unhurried target shooting at predetermined ranges does not require much of a FoV. But a wider FoV for rapid target acquisition is required when shooting in low light conditions, hunting at close-range (10y) or for moving prey, or for a walking hunt where you could surprise prey really close by.  
For a comparison of the field of view and magnification ranges, cf.:  
<https://www.gatewaytoairguns.org/GTA/index.php?topic=150721>
- **Top end magnification:** 16x, 18x or more, 14x is still OK | there are a few with 20x or 30x  
Factors for a decision: Unless you are planning on using the parallax for range-finding in field target competitions (which requires 24x, and rather 32x or 40x), a 16x magnification is sufficient to hit targets at very long ranges (I keep reading of PB shooting out to 500 and 1000 yards with 14x or 16x). Parallax ranging beyond 55y requires a range finder anyhow.  
Of course, there is a difference between the magnification needed to *hit* a target at long range X, and the magnification to *see if you have hit* the paper target. For the latter the following helps: more magnification helps, good glass, good eyesight, a target card with not much black to obscure the hits, or reactive targets.
- **Objective diameter:** 50mm or more. Reason: For a magnification of 18x the exit pupil is already small at the diameter (2.8mm), thus the shooter has to position his/her eye almost perfectly. For a 14x the exit pupil is 3.6mm, but with a 44mm it would be 3.1mm. The smaller

the objective diameter, the less tolerance there is for the shooter for eye placement.

- **Exit pupil:** should not be too small, Bob Sterne recommends 3 mm, and 2 mm is marginal. This relates directly to the eye box, the small area where your eye has to be in order to see the full scope image. [Calculation: objective lens diameter / magnification = exit pupil]
- **Turret adjustment range:** 60 MOA (18 MIL) seems to me an absolute minimum, but 80 MOA (24 MIL) would be already much better: This is important if (a) the gun is a drooper, and (b) for dialing the elevation turret for long range (for 100y with heavy pellets we still need adjustable scope mounts, even with 70 MOA)
- **The reticle** – to be useful for holdovers – should have plenty of horizontal and vertical hash lines/ dots, for windage and elevation hold offs: in the table sufficient dots are indicated by “D” = “Dots”. Quicker holdovers can be made if the hash lines/ dots are numbered: in the table this is abbreviated with N = “Numbers”.
- **MIL/MIL or MOA/MOA:** For a follow-up shots after a sighter shot – *both* turrets and reticle should “speak” the same language, either both “speak” MOA, or MIL (MRAD); mixing makes no sense. Discrepancies are indicated in the table with ≠
- **FFP or SFP:** First focal plane (FFP) – or – second focal plane (SFP). Factors for a decision: FFP is only important for shooting with hold-overs – with FFP the shooter has to memorize *only one* set of holdovers\* or print *only one* dope chart [\*scope holdovers paired to distances for a certain pellet and power]. Unhurried target shooting does not require a FFP, as holdovers can be calculated with time. Sometimes an FFP at max. magnification obscures tiny targets.
- **Field of view (FoV):** The larger the FoV the easier the target acquisition (cf. the discussion of the bottom end magnification).
- **Calibration of the turret clicks:** how much does the reticle move for 1 click (at 100y)
- **Amount of clicks per one turret revolution:** uneven numbers like 6 mils, or 14 moa, are not helpful when making large adjustments of two or more revolutions; an additional helpful feature that some have is a *turret turn counter*
- **Tube diameter 30mm only:** not 1", nor 33mm, 34mm, etc.: A larger tube diameter usually allows for a larger turret adjustment range: All on the list have it.
- **Illuminated reticle:** for dark woods, low light, and night hunting helpful (✓ | NO | ✓– [=both])
- **Weight:** (I ask myself: How important is it that my gun-scope combo is light? Have I ever complained on a hunting trip that the can of soda I was carrying weighted 14oz instead of 10? Were those 4oz difference really that important?)
- **Minimum parallax adjustment distance:** from 10/11y or less on to infinity: All on the list have it.
- **Side parallax adjustment** (vs. *front* parallax adjustment): It's much more convenient to operate, especially when shooting offhanded. All on the list have it.
- **Exposed turrets:** Allows the turret settings (the numbers) to be visible from behind the gun at all times, and the turrets can be changed without taking off caps and screws. Scopes with capped turrets seem to *not* have been made to be clicked/ dialed without re-zeroing them: All on the list have exposed turrets.
- **Turrets with zero reset:** All on the list have it.
- **Not considered in this table** – sorry, maybe you can supply the information if a scope is suitable for spring-powered and/or magnum spring-powered airguns...?

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Dec. 17, 2018

			Magn. → FoV	Obj. → Eye Box				Turrets				Reticle					
Brand: Series	Price \$	Warranty	Magnification	FoV <sup>100y</sup> (ft)	Obj. Dia (mm)	Exit Pupil (mm) → Eyebow	IR	Elv. Adjustment Range (in MOA)	Clicks (inch / mil)	1 T. Turn =	Turrets in:	Reticle in:	FFP? (First Focal Plane)	Enough Dots, No's	1" or 30 mm	Weight (oz) (g)	Misc. + Reviewers' "Comments"
UTG: UMOA Reticle (the 9-Dot-TRE Reticle has MOA turrets ≠ MIL Reticle)	200	Life	2-16	44.5-6.3	44	22-2.7	✓	???	1/4"	16? moa	MOA	MOA	SFP	D, N	30	22.6	
UTG: Mil-Dot: Mil-Dot Bubble Leveler:	230 240	Life	4-16	24.4-6.8	56	14-3.5	✓	???	1/8"	16? moa	MOA	≠MIL	SFP	D	30	27.4 31.7	Bubble-Level
Discovery: 30mm SFP series	198	3y	3-15	40.3-8.2	50		✓	60	0.1mil	6 mil	MIL	MIL	SFP	D, N	30	27.8	
Discovery: HD/34mm series	312	3y	3-18	36.7-6.1	50		✓	50 w/ 34 mm tube	0.1 mil	6 mil	MIL	MIL	FFP	D, N	34	26.4 750	ø34mm Tube!
Nikko Stirling: C-More X10	410	Life, Own	2-20	47.0-4.7	44	22-2.2 <sup>calc</sup>	✓	60	1/4"		MOA≠	≠MIL	SFP	D	30	25.7 <sup>730</sup>	
MTC: Viper Pro	640	Life <sup>30d</sup> Own Rec.	3-18	?	50		✓	73	1/4"	14 moa	MOA≠ Customizable	≠MIL	SFP	D	30	30.4 862	Cstmzbl Turrets "low quality glass" Magnifier Cap
MTC: Viper Pro Tactical	590	Life <sup>30d</sup> Own	3-18	?	50		✓	73	1/4"	14 moa	MOA≠	≠MIL	SFP	D	30	25.6 725	not customizable, "low quality glass"
Nikko Stirling: C-More X10	507	Life, Own	3-30	31.0-3.1	56		✓	50	1/8"		MOA≠	≠MIL	SFP	D	30	34.2 <sup>670</sup>	
Nikko Stirling: Diamond Long Range		Life, Own	4-16	32.1-8.0	50		✓	60	1/4"		MOA	Weird!	SFP	Uneven	30		
Konus (UK): F30	415	Life, Details?	4-16	23.1-6.5	52	12.5-3.1	✓	67	0.1 mil		MOA	Weird!	FFP	Uneven	30	27.5	Large Parallax T. Bubble Level
Hawke: Airmax 30 SF AMR IR	400	Life, Own	4-16	23.0-6.5	50	13-3.0	✓ -	85	1/4"		MOA	≠MIL	SFP	D	30	27.5	
Discovery: ED series	360	Life <sup>(for ED)</sup>	4-16		50	10.0-3.1	NO	80	0.1mil	6 mil	MIL	MIL	FFP	D, N	30	22.0	
Aeon: AO Classic, Trajectory Ret. Carefully select the Reticle!	237	Life, Unitd.	3-18	34-5.6	50		N O	100	1/4"	15 moa	MIL	Depends	SFP	Depends	30	26.0	
Aztec: Emerald	400	Life, Anyb?	3-18	40.1-4.2 = Error in the Catalog	50		N O	???	1/4"	15 moa	MOA	MOA	SFP	D	30	24.3 690	
TAC Vector: Taurus FFP	400	5y	3-18	32.9-5.8	50		✓	60	0.1 mil	6 mil	MIL	MIL	FFP	D, N	30	26.5 750	Parallax says 15y- [=13.6m]
Athlon: Midas BTR *special prices, reg. much higher	250* 350*	Life, Anyb NoRec	2.5-15	41.8-6.8	50		✓	60	0.1 mil	6mil 15 moa	Both MIL or MOA	Both MIL or MOA	SFP (Reticle calibrated @ 15x)	D, N	30	26.0	
Sightron: S-TAC MIL Reticle = IRMH	745	Life	2.5-17.5	41.9-6.1	56		✓ -	77	0.1 mil	5 mil	Both MIL or MOA	Both MIL or MOA	SFP	D	30	30.6 870	Small (stubby) Parallax Turret T Turn Counter
Hawke: Sidewinder FFP [≠ SF!]	480	Life, Own	4-16	23-6.5	50	13-3.0	✓	83	0.1 mil	6 mil	MIL	MIL	FFP	D	30	28.6 <sup>810</sup>	
Discovery: ED series	382	Life <sup>(for ED)</sup>	3-15		50	15.0-3.0	✓	86	0.1mil	6 mil	MIL	MIL	FFP	D, N	30	30.3	
Falcon: S18i FFP	380 423 <sup>toUS</sup> 464 <sup>Ebay</sup>	10y, Own	3-18	42.6-7.2	50	16.7-2.8 calc.	✓	90	0.1 mil	10 mil	MIL	MIL	FFP	D, N	30	31.0 880	T Turn Counter
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