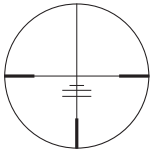
Abdeckmaße

cm / 100 m

Bei **höchster Vergrößerung**

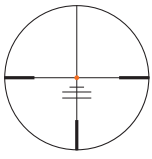
4A-300



Balken-dicke	Faden-stärke	Balkenöffnung		Punkt
		horizontal	vertikal	
2,5	0,5	70	35	–

Abstand d. Windfäden	1. Faden	2. Faden	3. Faden
vertikal	7,67	11,67	16,67
horizontal nach links oder rechts	5,75	11,5	11,5
Windfadenstärke	0,5	0,5	0,5

4A-300-I



Balken-dicke	Faden-stärke	Balkenöffnung		Punkt
		horizontal	vertikal	
2,5	0,5	70	35	1,4

Abstand d. Windfäden	1. Faden	2. Faden	3. Faden
vertikal	7,67	11,67	16,67
horizontal nach links oder rechts	5,75	11,5	11,5
Windfadenstärke	0,5	0,5	0,5

Alle Angaben sind typische Werte.

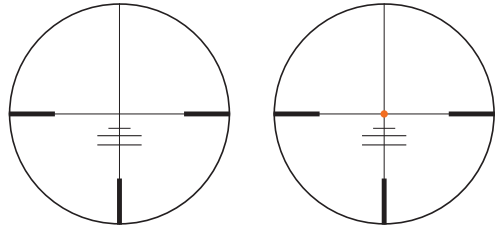
Änderungen in Ausführung und Lieferung sind vorbehalten.

BA-670/5, 07/2008

With your purchase of the 4A-300 reticle you have opted for a precision aiming system, which stands out in everyday hunting due to its clearly arranged appearance and ease of handling. The 4A-300-I version is additionally equipped with an illuminated dot in the centre of the crosshairs. The reticle is mounted in the second image plane and does not, therefore, increase in size itself when the image is magnified.
The 4A-300 reticle is based on a conventional 4A reticle and may of course also be used exclusively as such. However, the three additional range marker bars below the centre dot provide a valuable additional benefit which extends the reticle's functional scope: It is possible to fire sure shots at 300 metres with almost all popular calibres.

In the event that there is no electronic range finder handy, the reticle also functions as a rough distance estimator.

Fig. 1: 4A-300 and 4A-300-I Reticles



Sure shots at 300 metres

Hunting rifle cartridges are divided into three or four performance groups:

– rapid calibre, the impact point of which with a shot which is 1-3 cm high/100 m is 17-29 cm low at 300 m (average value: 23 cm).

– standard calibre, the impact point of which with a shot which is 3-5 cm high/100 m is between 29 and 41 cm low at 300 m (average value: 35 cm).
– intermediate range, the impact point of which with a shot which is 4-6 cm high/100 m is between 39 and 46 cm low at 300 m (average value: 42.5 cm).
– slow calibre, the impact point of which with a shot which is 4-6 cm high/100 m is between 44 and 56 cm low at 300 m (average value: 50 cm).

Table 1:

Shooting distance	100 m	200 m	300 m
Rapid calibre	+1 to +3 cm	-1 to -3 cm	-17 to -29 cm
Standard calibre	+3 to +5 cm	-2 to -5 cm	-29 to -41 cm
Intermediate range	+4 to +6 cm	-4 to -6 cm	-39 to -46 cm
Slow calibre	+4 to +6 cm	≥ - 6 cm	-44 to -56 cm

The horizontal bars below the centre of the reticle correspond to the average impact points of the performance groups referred to above at 300 metres:

– the top short bar for the rapid performance group (-23/300 m).
– the middle bar for the standard performance group (-35/300 m).
– the centre between the long bars for the intermediate range (-42.5/300 m).
– the bottom bar for the slow performance group (-50/300 m).

The calibres of a group deviate no more than six centimetres from the respective average value in their drop height which is acceptable for an obligatory flank shot at 300 metres.

In addition to the calibre and its filling, the weapon used also affects the bullet's flight path. As a result, with short-barrelled weapons in particular, it may be that the bullet drop of a standard calibre falls into the performance group of the slow calibre.

Examples:

Fig. 2:

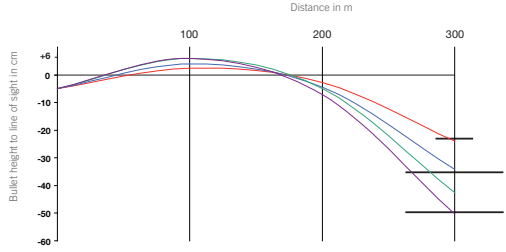


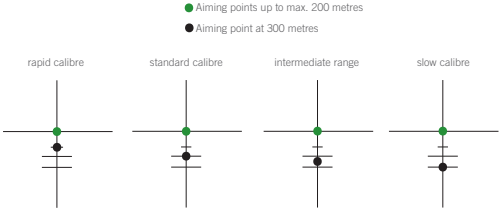
Table 2:

Calibre	Calibre Filling	Line of sight height	100 m	200 m	300 m
8x68S	11.7 g KS, RWS	-5 cm	+2.4 cm	-2.7 cm	-23.9 cm
.30-06	11.7 g HMK, RWS	-5 cm	+3.9 cm	-4.4 cm	-34.1 cm
9.3x74R	16.7 g HMK, RWS	-5 cm	+5.9 cm	-4.9 cm	-42.5 cm
.416 Rigby	25.9 g Swift-A, Norma	-5 cm	+5.9 cm	-7.1 cm	-50.3 cm

Aiming points

At a distance of 300 metres the target is aimed at using the appropriate aiming point. Up to 200 metres aim is always taken using the reticle centre for rapid and standard calibres. With light fillings this may also apply for slow calibres. With heavy fillings, however, the range at which aim may be taken using the reticle centre may be reduced by up to 170 metres. With distances between 200 (or above 170) and 300 metres, aim is taken between the reticle centre and the aiming point for 300 metres.

Fig. 3: Aiming points according to calibre group



The main advantage of the reticle is that the marksman only has to memorise one aiming point in the reticle – and that is the aiming point for shots at approx. 300 metres.

As the reticle is located in the second image plane and as a result does not increase in size as the target is magnified, the use described here only functions if the rifle scope is set to its maximum magnification. Choosing the maximum magnification will be the rule anyway for long-range shots beyond the 200 metre limit. Naturally, the reticle centre is not affected by this; it always remains the same regardless of the magnification.

Procedure for Zeroing In

When zeroing in, allowance is made for the individual effect of the weapon used on the flight path of the bullets fired. It is not sufficient to use standard tables as the basis.

Version 1:
Zeroing in on the shooting range/shooting district

First of all zero the weapon at 100 metres using the high shot corresponding to the calibre (between +1.5 and +6 cm). Then shoot a group at 300 metres using the aiming point intended for the calibre group. Depending on the position of the hits, the high shot at 100 metres is adjusted up or down such that the average impact point at 300 metres coincides as far as possible with the relevant bar or intermediate dot. The deviation is then no more than six centimetres – in most cases, however, it is less. It is advisable subsequently to shoot again at 200 metres to verify the impact point at this distance.

Version 2:
Determination using the SWAROVSKI OPTIK ballistic programme

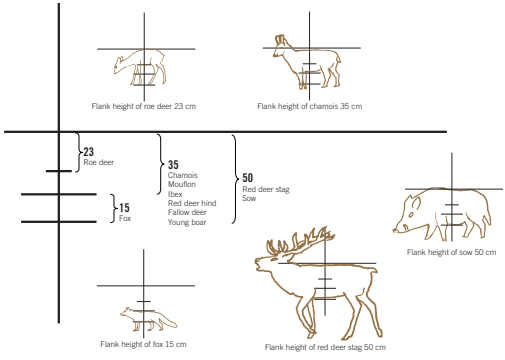
In order to allow for the effect of your own weapon, the bullet speed at least must be measured when shooting with this weapon (e.g. velocity 0). In addition to the speed one must also know the height of the sight line (= distance of the sight line to the bore axis) as well as a realistic indication of the ballistic coefficient.
The flight path is calculated using the SWAROVSKI OPTIK ballistic programme (available at **WWW.SWAROVSKI OPTIK.COM**). Then the impact points for the relevant distances are determined. Using this method too, the point of impact at 300 metres is also aligned with the corresponding aiming point in the reticle by adjusting the appropriate high shot at 100 metres.

Distance Estimator Function

This additional function is based on the knowledge that the average torso heights of the most important types of game coincide roughly with the average bullet drop heights of the calibre groups at 300 metres: the flank height of roe deer is approx. 23 cm, whilst for chamois, mouflon, ibex, young wild boar and female red deer it is approx. 35 cm. The flank of red deer and sow is around
50 cm high. Unlike distance estimation methods where the body length is used as the basis, distance estimation with the 4A-300 reticle functions independently of the angle at which the animal is standing in relation to the observer.

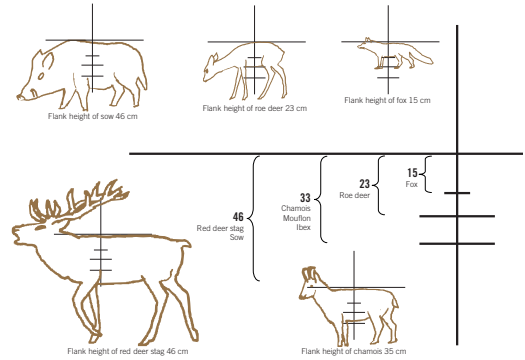
If the flank of a game animal seen through the rifle scope fits into the corresponding gap in the reticle then the animal is approximately 300 metres away. If the flank appears larger or smaller, the animal is respectively less or more than 300 metres away. In addition to the types of game referred to above, it is also possible to estimate the distance of a fox. Its flank height (approx. 15 cm) corresponds to the gap between the bottom two bars which at 300 m lie 35 and 50 cm below the crosshairs.

Fig. 4a: Distance estimation at 300 metres



It is also possible with the 4A-300 reticle to check in respect of the critical distance of 200 metres above which a different aiming point must be selected in each case. At 300 metres the gaps in the reticle are 23, 35 and 50 cm. At a distance of 200 metres, the appropriate conversion results in gaps of 15, 23 and 33 cm. Distance estimation is then carried out as shown in Fig. 4b. In this case: If the flank of the game animal seen through the rifle scope fits exactly into the relevant gap, then the distance is approx. 200 metres. If the flank appears larger or smaller, the animal is respectively less or more than 200 metres away.

Fig. 4b: Distance estimation at 200 metres

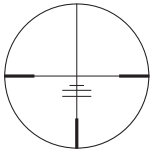


Subtension Dimension

cm / 100 m (in / 100 yds)

At **maximum magnification**

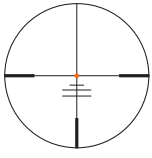
4A-300



Post	Cross-hair	Opening		Point
		horizontal	vertical	
2.5/*0.9*	0.5/*0.18*	70/*25.2*	35/*12.6*	–

Distance of wind posts	1. post	2. post	3. post
vertical	7.67/*2.76*	11.67/*4.20*	16.67/*6.00*
horizontal to the left or to the right	5.75/*2.07*	11.5/*4.14*	11.5/*4.14*
Wind bar thickness	0.5/*0.18*	0.5/*0.18*	0.5/*0.18*

4A-300-I



Post	Cross-hair	Opening		Point
		horizontal	vertical	
2.5/*0.9*	0.5/*0.18*	70/*25.2*	35/*12.6*	1.4/*0.50*

Distance of wind posts	1. post	2. post	3. post
vertical	7.67/*2.76*	11.67/*4.20*	16.67/*6.00*
horizontal to the left or to the right	5.75/*2.07*	11.5/*4.14*	11.5/*4.14*
Wind bar thickness	0.5/*0.18*	0.5/*0.18*	0.5/*0.18*

All data are typical values.

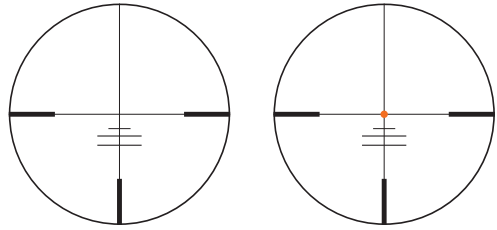
We reserve the right to make changes regarding design and delivery.

BA-670/5, 07/2008

Avec le réticule 4A-300, vous avez opté pour un système de ciblage de précision qui se distinguera par son aspect net et son maniement simple lors de vos séances de chasse. La version 4A-300-I est en outre munie d'un éclairage au milieu de la croisée. Les réticules se trouvent dans le deuxième plan focal et, de ce fait, ils ne peuvent pas induire de grossissement.
Le réticule 4A-300 est basé sur un réticule 4A classique et il peut évidemment être utilisé exclusivement en tant que tel. Les trois barres supplémentaires situées sous le centre du réticule étendent les fonctionnalités en procurant un autre avantage précieux : des tirs en toute sécurité peuvent être assurés jusqu'à 300 mètres avec presque tous les calibres courants.

Si un télémètre électronique n'est pas disponible, le réticule offre en plus une fonctionnalité d'évaluation approximative des distances.

Figure 1 : Réticules 4A-300 et 4A-300-I



Des tirs en toute sécurité jusqu'à 300 mètres

Les étuis de cartouches pour la chasse se divisent en trois ou quatre groupes :

– les calibres très rapides, avec une position du point d'impact à 1-3 cm pour un tir haut/à 100 m, entre 17 et 29 cm à 300 m (valeur moyenne : 23 cm).