

Smallbore / Fullbore Front Sight Ring Size Selection + Rear Aperture Size Selection

By Angus Bell

I have heard every variable and advice over many years of fullbore shooting concerning what front ring size to use, and what rear aperture size is best.

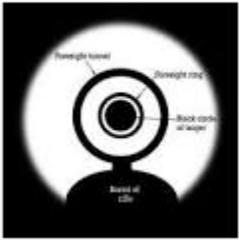
After 30 + years effort in the target shooting sport I think I have the front ring size worked out, but I still need to put more effort into my rear aperture sizing.

Here are some lessons I have learnt that may assist :

FRONT RING SIZE

The aim of the front ring is to align the target in the middle of the front sight, and provide sufficient “white” space around the target to front ring so that you can detect hold movement, but not too much that you cannot ever fire the shot because it never steadies. This is the dilemma.

- 1) You need to select a ring size that shows the target movement, but also is not too small that you cannot hold it steady
- 2) If front ring is too small, it has very little white surround, so whilst it's easy to hold on aim you cannot see any rifle movement. So you get can get wide shots that seemed to be steady and perfect, see example below :



- 3) Then going to the other extreme, if the front ring is too big, it has heaps of white surround, so you can see lots of rifle movement, but then you cannot hold it steady and fire due to all the movement being too easily seen, see example below :



- 4) The correct ring size is a compromise between the two, see some examples below :



I do know some people that use the extremes with great success – but not many, so if it works then stick to it, but these people are in the minority (under 10%), most people are fairly similar and within .1 or .2 of each other.

So what do I use :

I have pretty average ring sizes and I have compared my sizes with many shooters and we're normal ly quite close, and it should be noted that at the close ranges I am "on" target, whereas at longer ranges I "frame" the target – what does this mean ?

"On" target refers to the above sight pictures where the front ring is well inside the target dimensions. "Framing" refers to using a bigger front ring to put the whole target in the front ring with the corners just touching the inside of the ring, this allows me to centre a bigger mass in the ring rather than the smaller black target face, and the edges provide me with better definition than just a moving black blob, I find this important at long ranges with differing light conditions. I have found framing very beneficial at 800 / 900 / 1000 yards distance.

So here are my sizings :

Non Eagle Eye

Eagle Eye (0.5)

Distance	Front Ring Size		Distance	Front Ring Size	
300y	4.0	"On"	300y	7.5	"On"
500y	3.9	"On"	500y	7.4	"On"
600y	3.3	"On"	600y	6.8	"Frame"
700y	3.2	"On"	700y	6.7	"Frame"
800y	3.1	"On"	800y	6.4	"Frame"
900y	3.0	"On"	900y	6.1	"Frame"
1000y	2.9	"On"	1000y	5.8	"Frame"

REAR APERTURE SIZE

My expertise in this area is limited as I have been using the basically same rear apertures for ages now as follows :

When I was Young :

LIGHT	SIZE
Bright Conditions	1.1mm
Dull / Overcast Conditions	1.2mm

Now That I am Old

LIGHT	SIZE
Bright Conditions	0.9mm
Dull / Overcast Conditions	1.0mm

A lot of friends in a similar age group use slightly smaller rear apertures.

An old adage that was described to me was to dial down the rear aperture until it's too dark to see then open it up one notch.

From a technical point of view I do know that the focal length increases as we dial it down and generally people shoot tighter groups when it's darker as against bright sight pictures that often give wide groups.

The aperture is the opening at the rear of the sight that determines how much light travels through the rear sight and falls onto the eye for processing. The size of this aperture's opening is measured in small increments. The low increment numbers reflect a smaller rear peep hole size which results in a smaller or narrower aperture size and therefore a deeper depth of field. Conversely higher numbers correspond to a larger or wider rear aperture size, which results in a shallower depth of field.

Let me know how you go.