



Selecting the Correct Size Swab For Cleaning the Sensor in a Digital Interchangeable Lens Camera

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FIRST – A HISTORY LESSON

The early digital SLR cameras (DSLR) were built using 35mm film camera bodies with APS-C sized sensors. i.e. the cameras had 35mm sized shutters (36x24mm) with sensors measuring 23x16mm approximately. The first Sensor Swab manufactured was sized at 20mm. It was 20mm, so that when cleaning (from left to right), the 20mm width would overlap the 16mm width of the sensor, ensuring that cleaning covered the entire width of the sensor, plus a bit, to allow some 'wobble' from the person cleaning.

As DSLR technology developed, the manufacturers developed purely digital bodies, rather than rely on film bodies. These newer bodies were fitted with smaller shutters that reflected the smaller APS-C sized sensors they were using. No doubt smaller shutters were less costly too!

Because a smaller shutter was being used it was found that the 20mm swab would not fit through the open shutter gap to reach the sensor surface below. Thus a new, 17mm swab was developed that was narrow enough to fit through the shutter gap. So now we had a Type 1 Swab (the original 20mm one) and a Type 2 swab (the new 17mm narrow one). It is important to realise that the new swab was narrower, not because the sensor changed size, but because the shutter changed size. Later, when the technology and costs allowed the production of full frame 35mm sensors, it became necessary to introduce a third swab. The 24mm wide Type 3.

From a sensor cleaning perspective, the history of DSLR development teaches us that it is the shutter size that is the most important factor in selecting the correct size swab, not just sensor size.

SENSOR SIZES

Generally, there are 5 sizes of sensors in use in the photographic market:

- One Inch (13.2x8.8mm)
- 4/3 (17x13mm)
- APS-C (23x16mm)
- APS-H (28x19)
- Full-Frame (36x24mm)
- Medium Format (44x33mm)

One inch and Medium Format are rare in the market and Photographic Solutions have no swabs for these cameras. For medium format cameras with removable backs, E-Wipes are the recommended product for sensor cleaning.

SWAB SIZES

Since it is not feasible to purchase every camera released, to determine the correct swab size, we use the following rules:

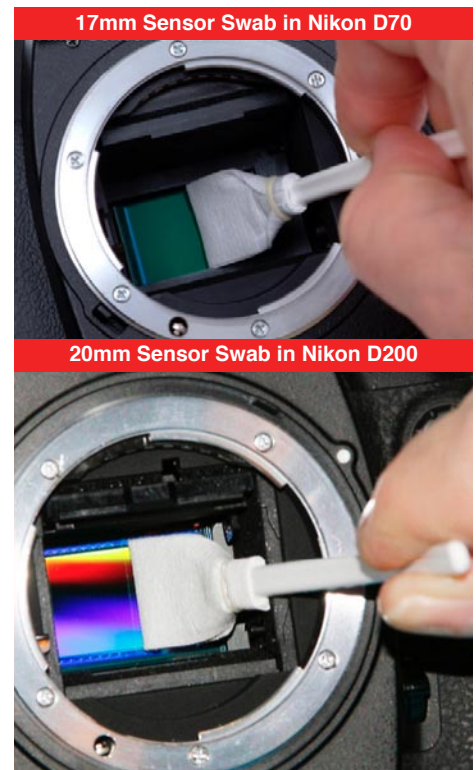
- 4/3 (& Micro 4/3) – Use Type 2 17mm
- APS-C – Use Type 2 17mm
- APS-H – Use Type 1 20mm
- Full Frame – Use Type 3 24mm

These rules work for most cameras. But sometimes, the rules should be broken for a more effective cleaning experience.

A very old camera with a 35mm shutter and APS-C sensor should use a Type 1 (20mm) as per the history section above. You could use a 17mm Type 2 on these cameras, but a slight deviation ('wobble') when cleaning, might result in the swab missing a part of the sensor because the swab is the same width as the sensor.

Some modern DSLR cameras with APS-C sensors, have an APS-H sized shutters installed. So, while you could use a 17mm Type 2, as above, these cameras are best cleaned with a Type 1 20mm swab.

The image shows a 17mm Type 2 swab cleaning a Nikon D70. The swab is physically guided along the sensor by the tight edges of the open



shutter aperture. The right side shows a 20mm Type 1 cleaning a Nikon D200. The D200 camera has the same size sensor as the D70 but a much larger shutter aperture. Here the wider 200mm Type 1 produces a much better clean.

Generally, we recommend cleaning sensors using a left to right action. But in some cases, it is quite acceptable to use an up down action. Thus you could clean a 4/3 sensor with a 17mm Type 2 swab using, or with a 20mm Type 1 using up and down. This is true of movie cameras where the 'Super 35' sensor can be cleaned with a Type 3 swab going up and down.

We use the simple rules above, when matching swab sizes to each new camera release. If our subsequent experiences **actually cleaning a camera** determine that a different swab should be used, then we amend our recommendations. ♦

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