

A decorative graphic consisting of several overlapping, wavy, teal-colored shapes that resemble stylized leaves or fabric folds, positioned behind the main title text.

IMPORTANCE OF NOZZLE WEAR AND ALIGNMENT ON SPRAY PERFORMANCE

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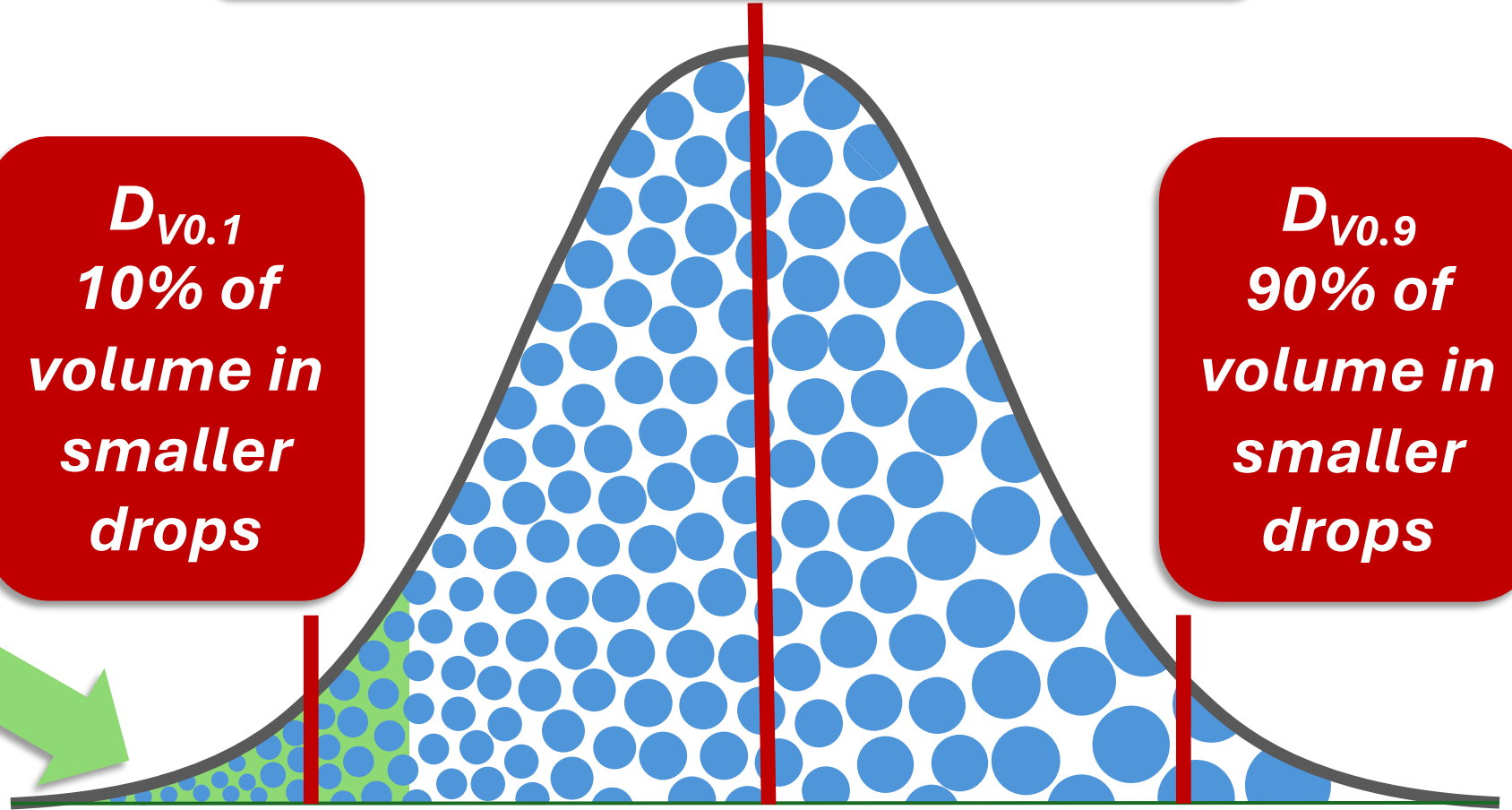
Droplet Size Lightning Review

$D_{V0.5}$ or VMD
50% of volume in smaller drops

$D_{V0.1}$
10% of
volume in
smaller
drops

$D_{V0.9}$
90% of
volume in
smaller
drops

% Spray
volume in
drops of 200
microns or less



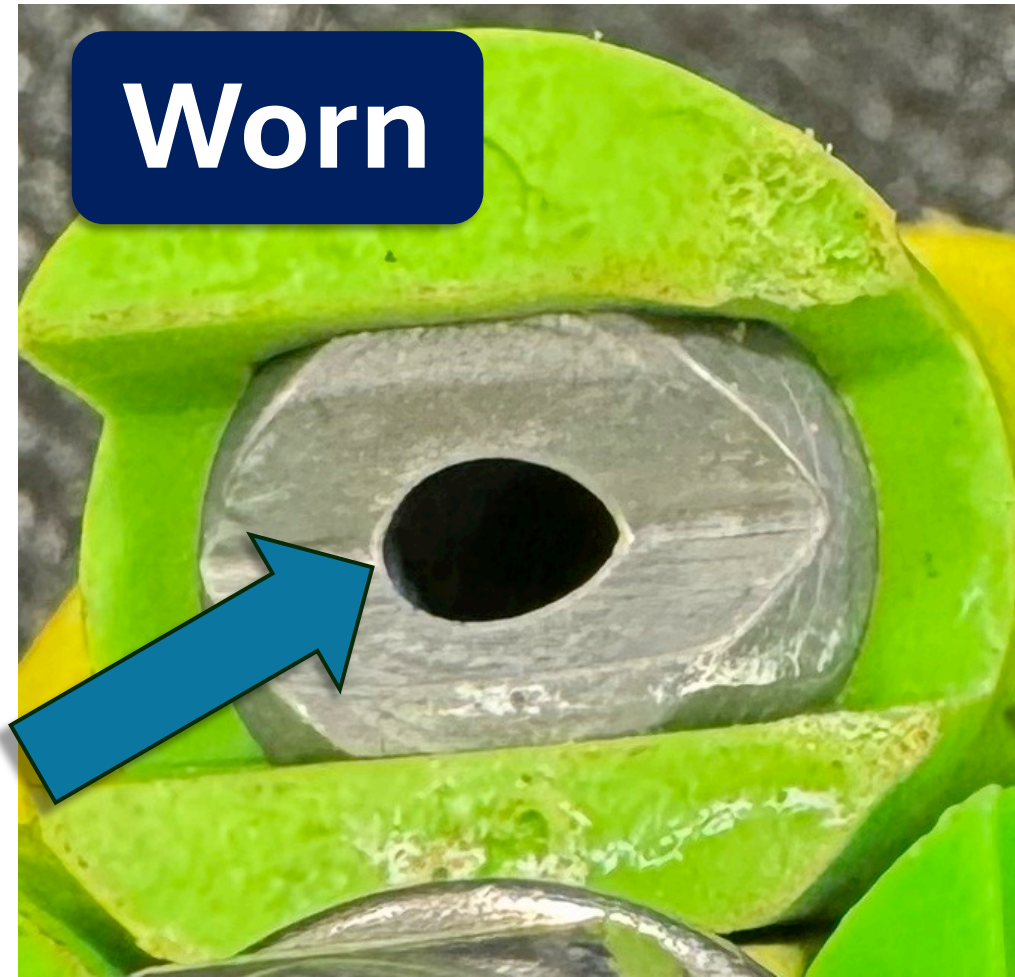
Nozzle Wear

Changes:

- Orifice shape and size
- Spray geometry

These change:

- Flow rate
- Droplet Size



Received several worn 4015 tips

Worn vs New *Flowrates* @ 40 psi

New

1.5

Worn 1

1.52

Worn 2

1.55

Worn 1

Worn 2

New



Worn vs New
VMD @ 140 mph

New

420

Worn 1

421

Worn 2

428



Worn vs New

$\% < 100 \mu\text{m}$ @ 140 mph

New

2.5

Worn 1

2.4

Worn 2

2.3

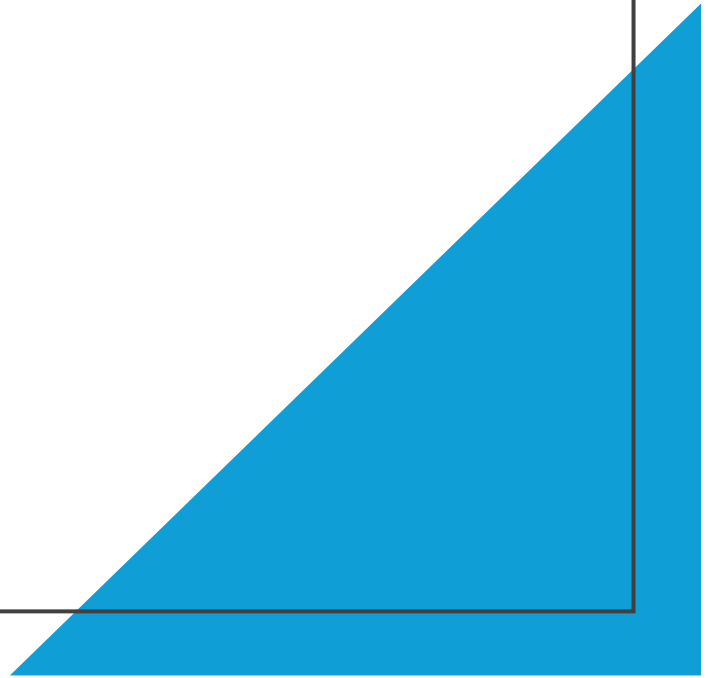
Worn 2

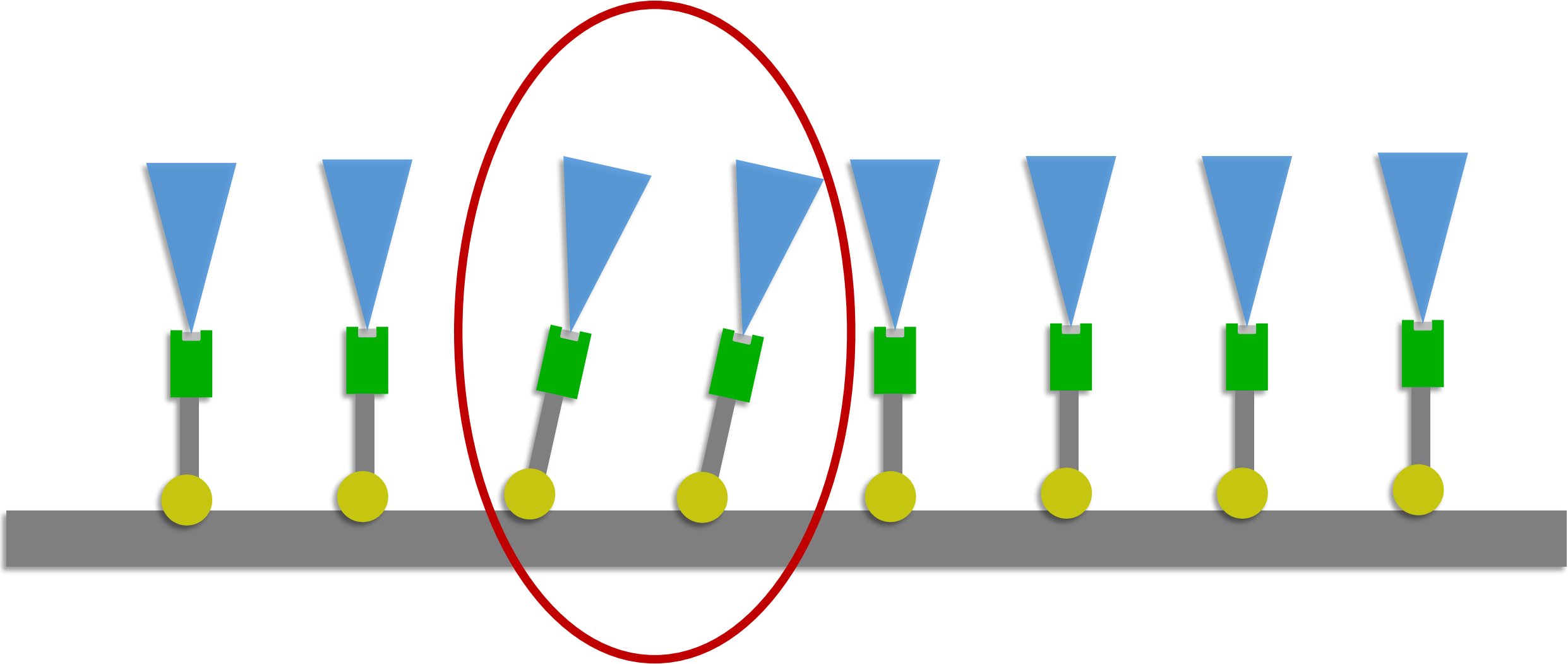
New

Worn 1



Nozzle Alignment





Boom Alignment

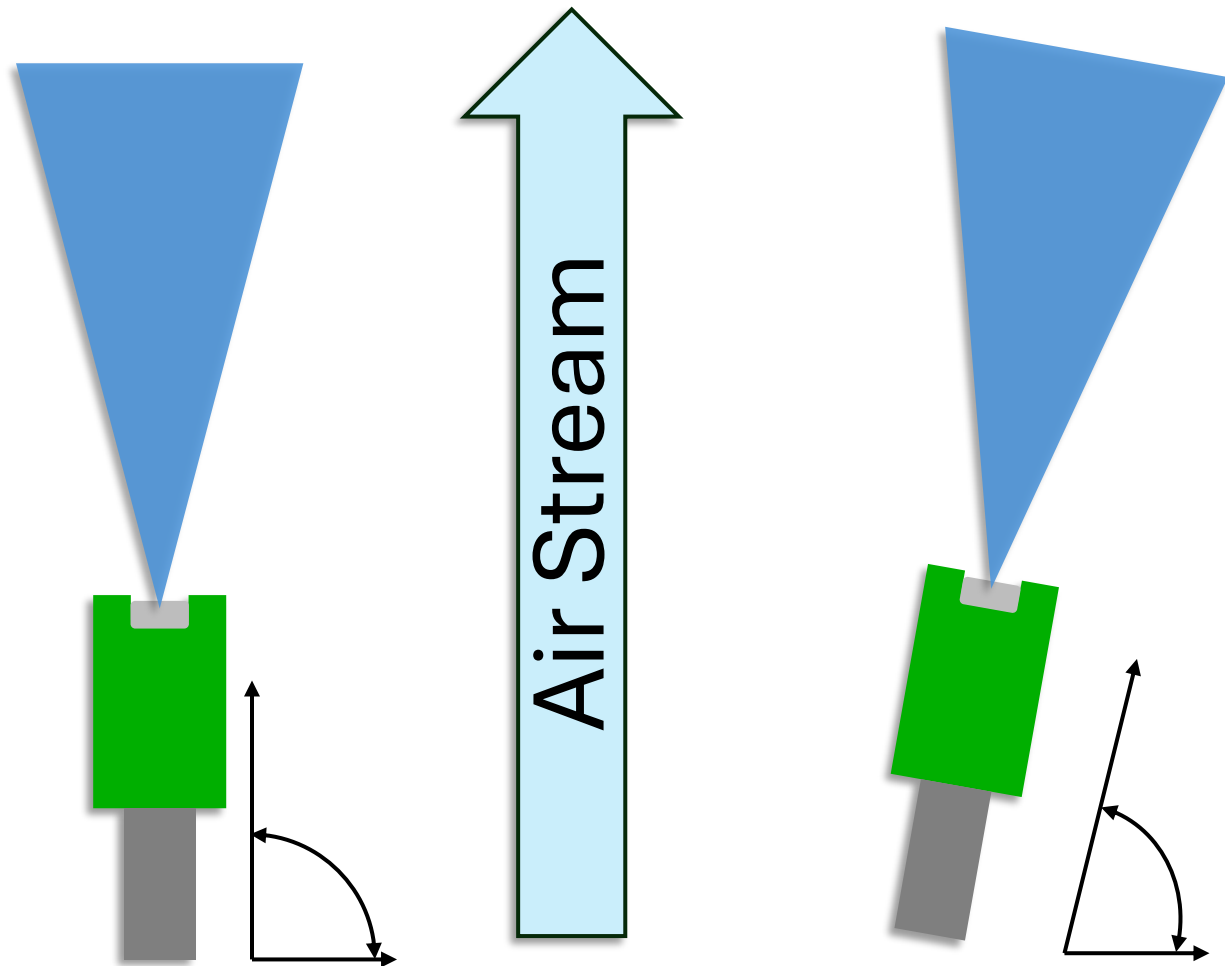
40 psi and 140 mph – Water Only

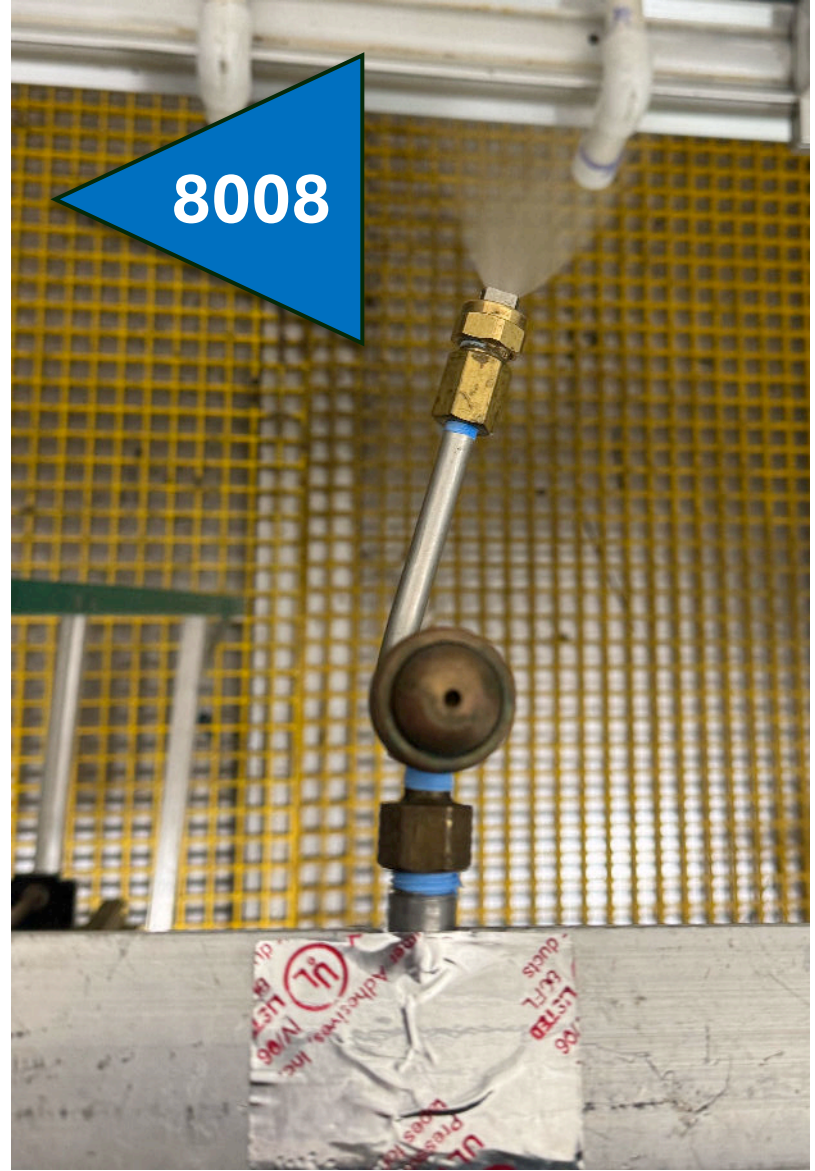
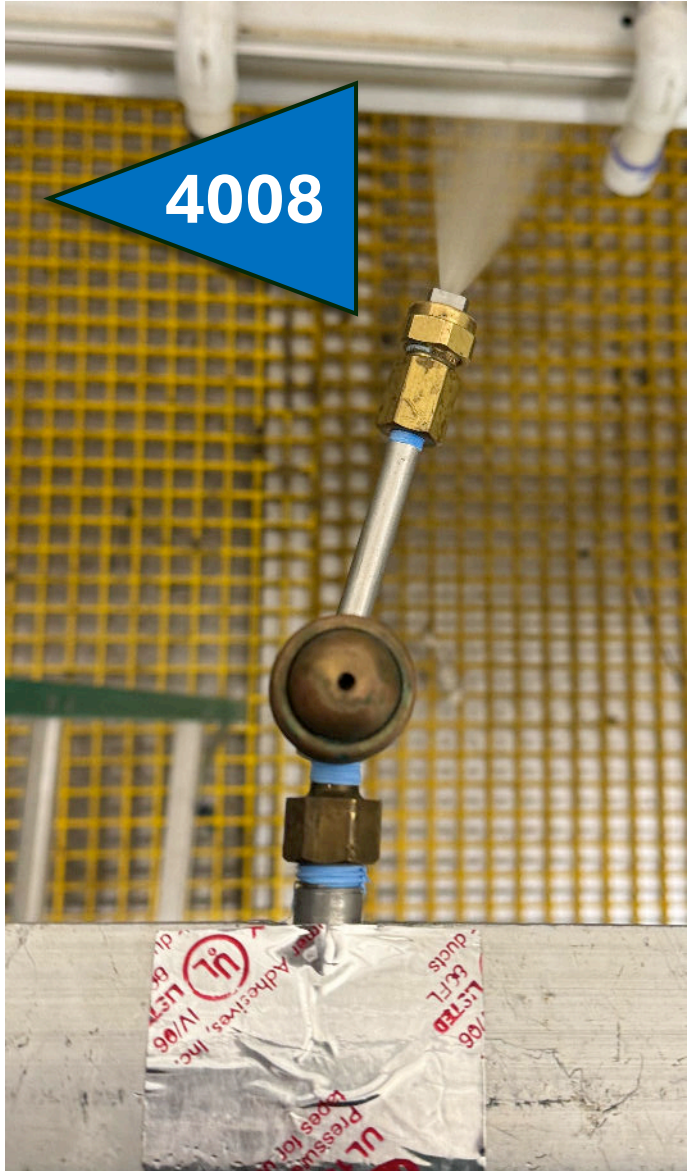
Nozzles

- 8008
- 4008
- 2508
- 0008

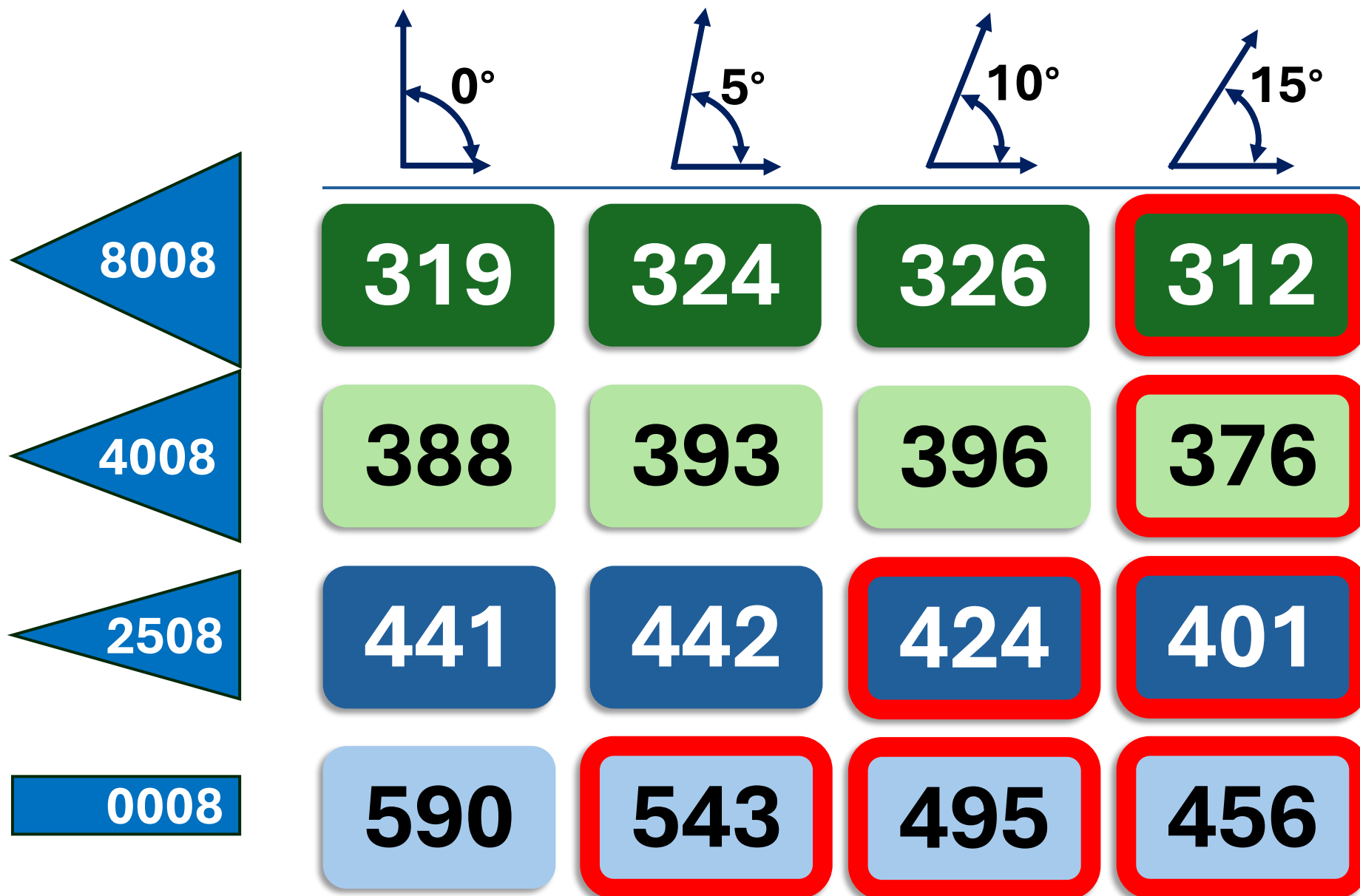
Alignment

- 0°
- 5°
- 10°
- 15°





Alignment Effects - *VMD*



Alignment Effects - %Vol < 100 μ m

The diagram illustrates the effect of alignment angle on volume percentage for different particle sizes. The alignment angle is shown by a blue arrow pointing from a vertical reference line to the right. The angles are 0°, 5°, 10°, and 15°. The volume percentage is shown in a grid of colored boxes. The colors of the boxes are: 8008 (dark green), 4008 (light green), 2508 (dark blue), and 0008 (light blue). The values in the boxes are: 8008 (4.2, 4.0, 3.8, 4.3), 4008 (2.2, 2.1, 2.2, 2.8), 2508 (1.4, 1.5, 1.8, 2.5), and 0008 (1.1, 1.2, 1.5, 1.8). The values 4.3, 2.8, 1.5, 1.8, 1.5, and 1.8 are highlighted with a red border.

	0°	5°	10°	15°
8008	4.2	4.0	3.8	4.3
4008	2.2	2.1	2.2	2.8
2508	1.4	1.5	1.8	2.5
0008	1.1	1.2	1.5	1.8

Surprises

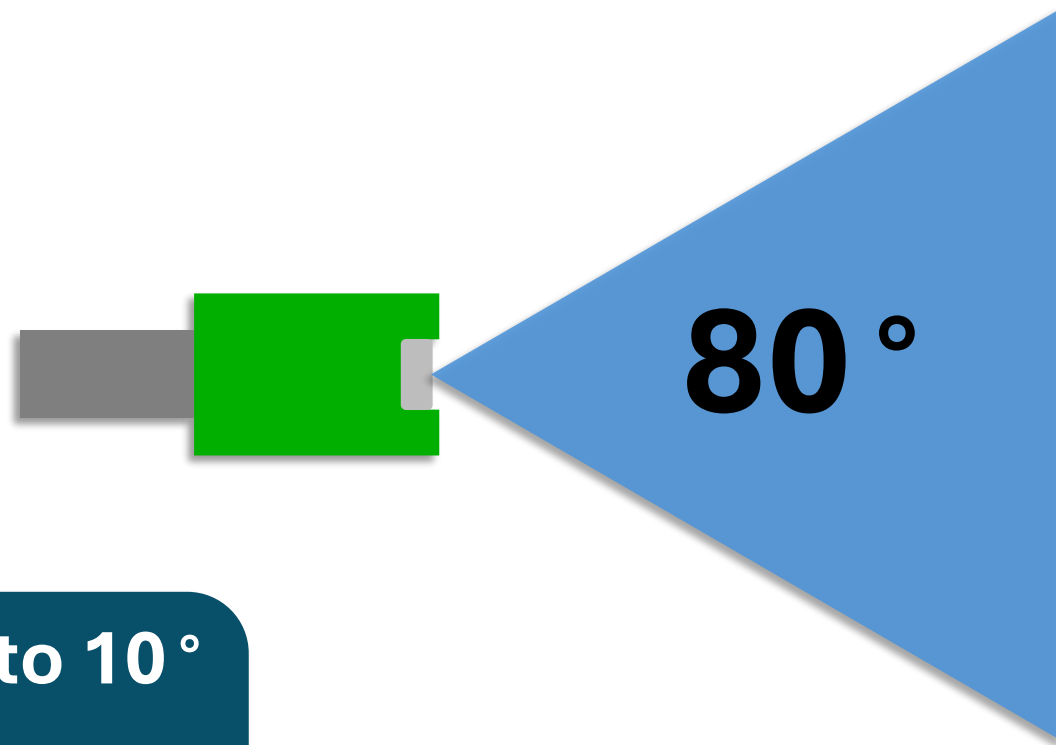
Flat Fans - 0° to 10°

VMD↑

%Fines↓



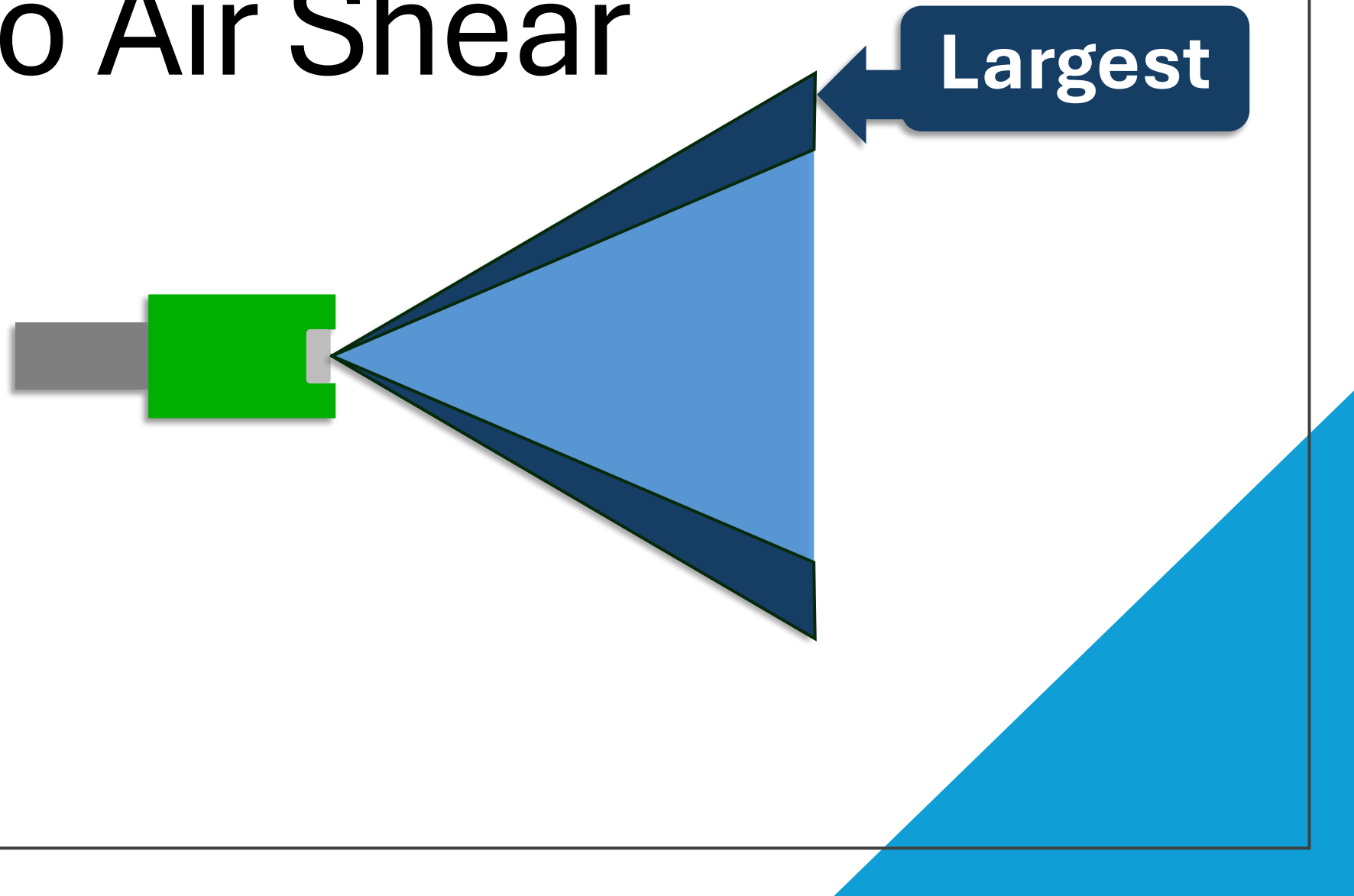
Why?



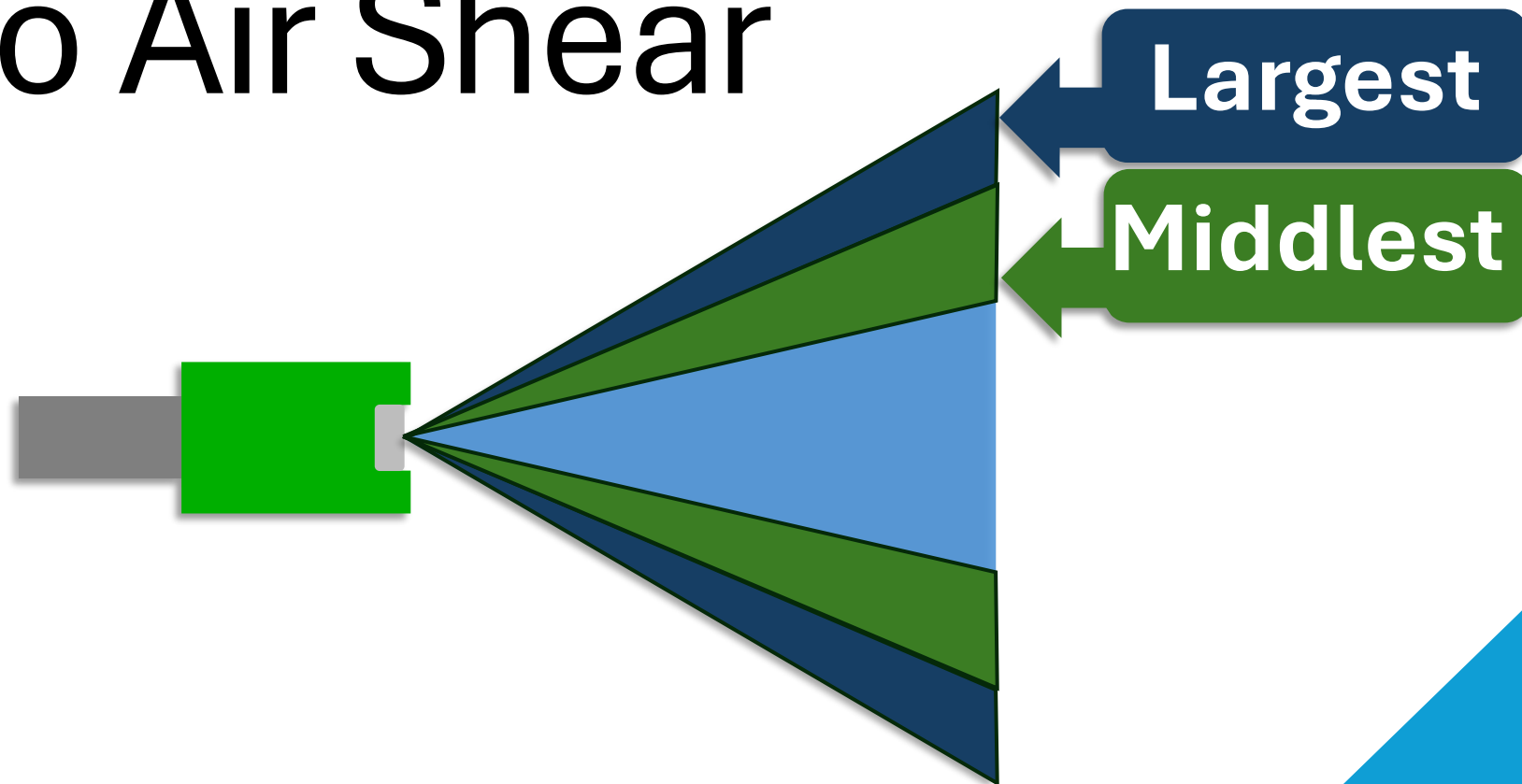
Flat Fans - 0° to 10°

- VMD↑
- %Fines↓

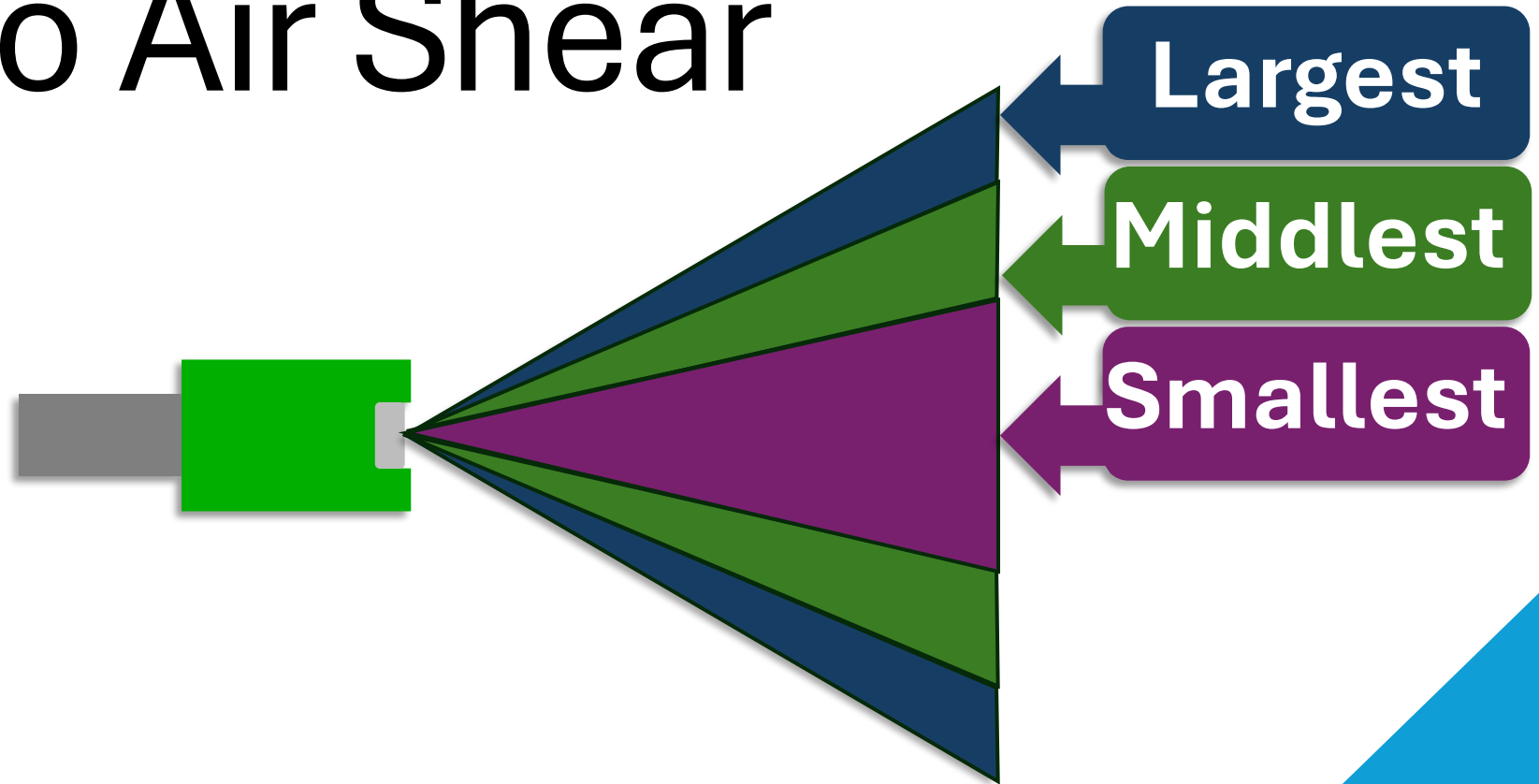
With No Air Shear



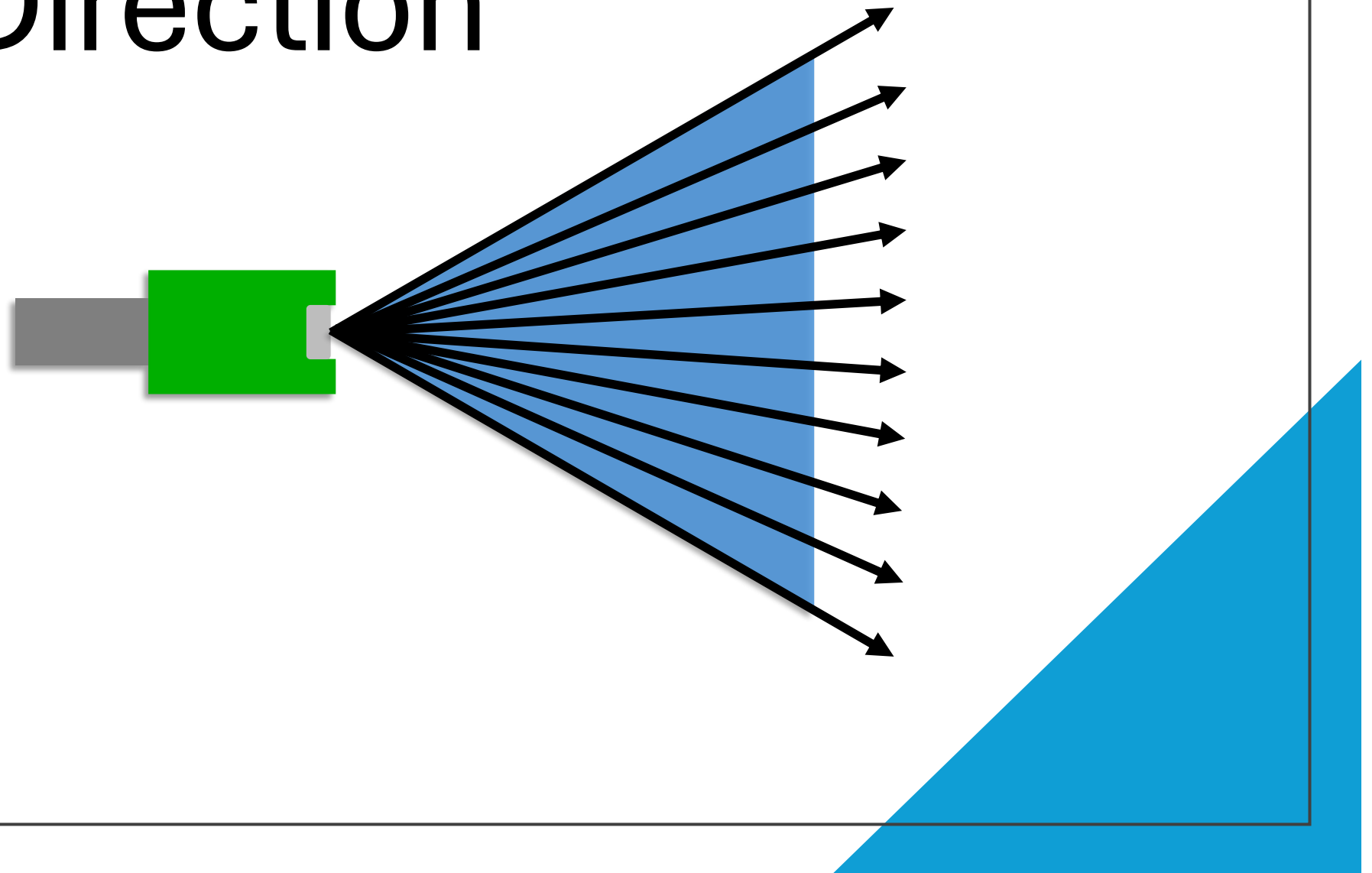
With No Air Shear



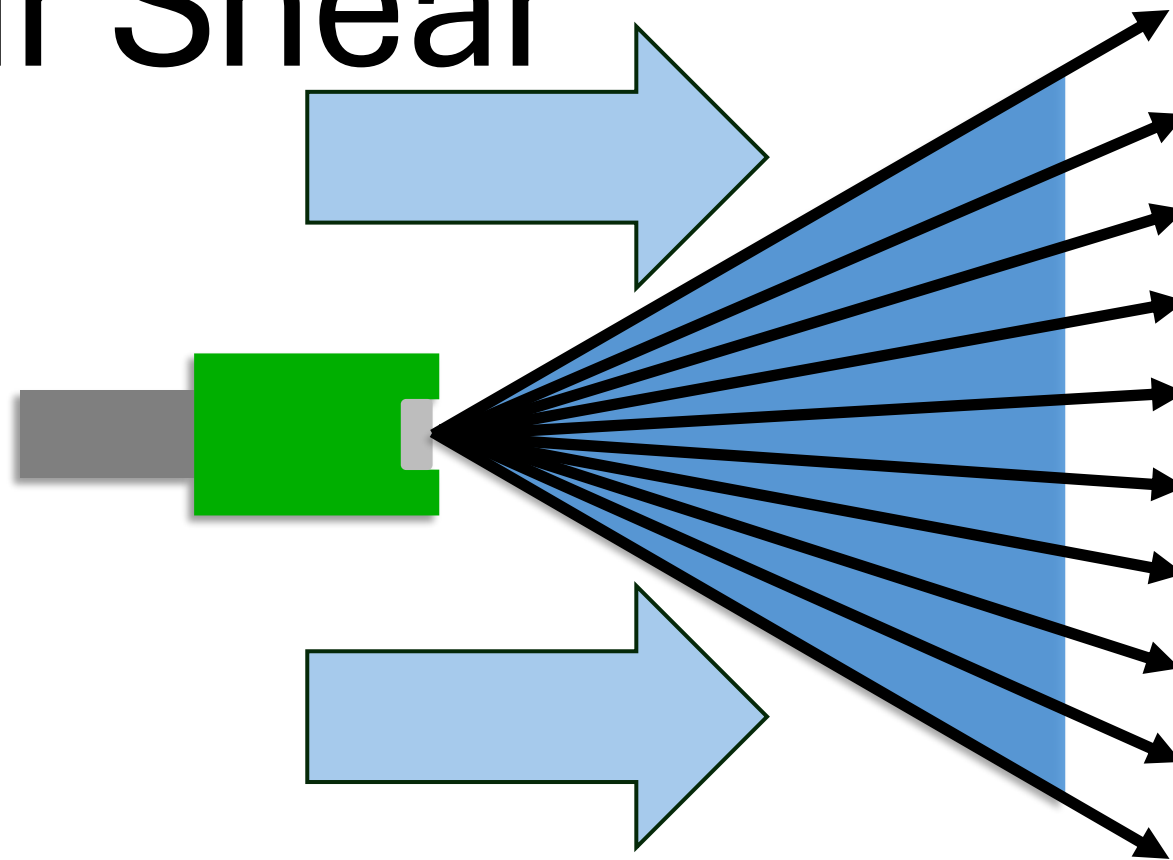
With No Air Shear



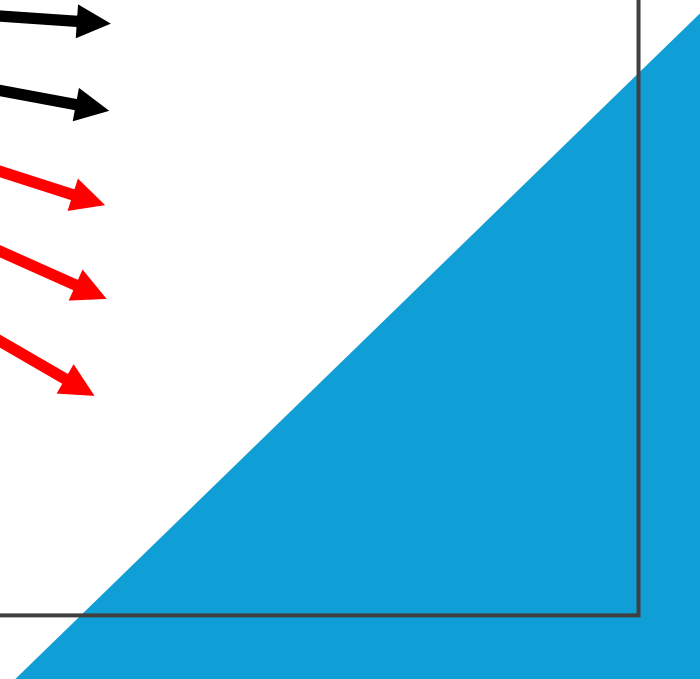
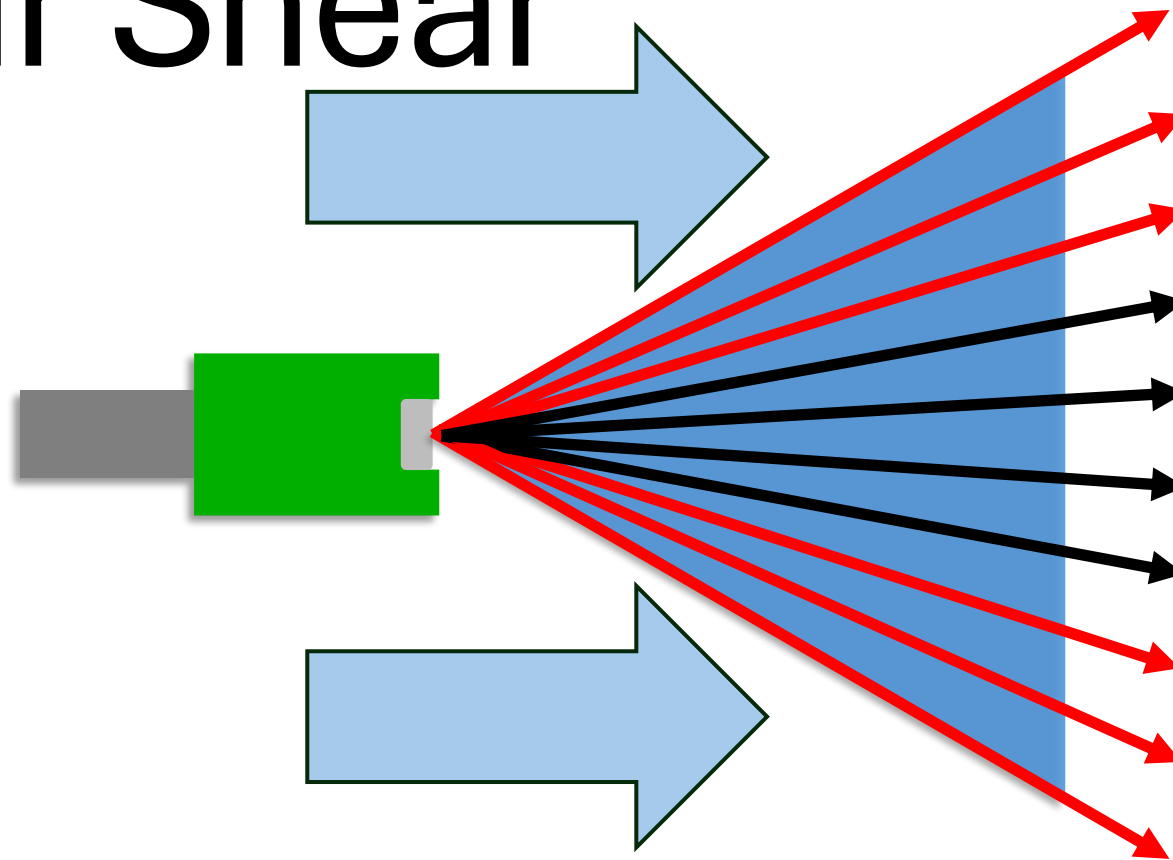
Spray Direction



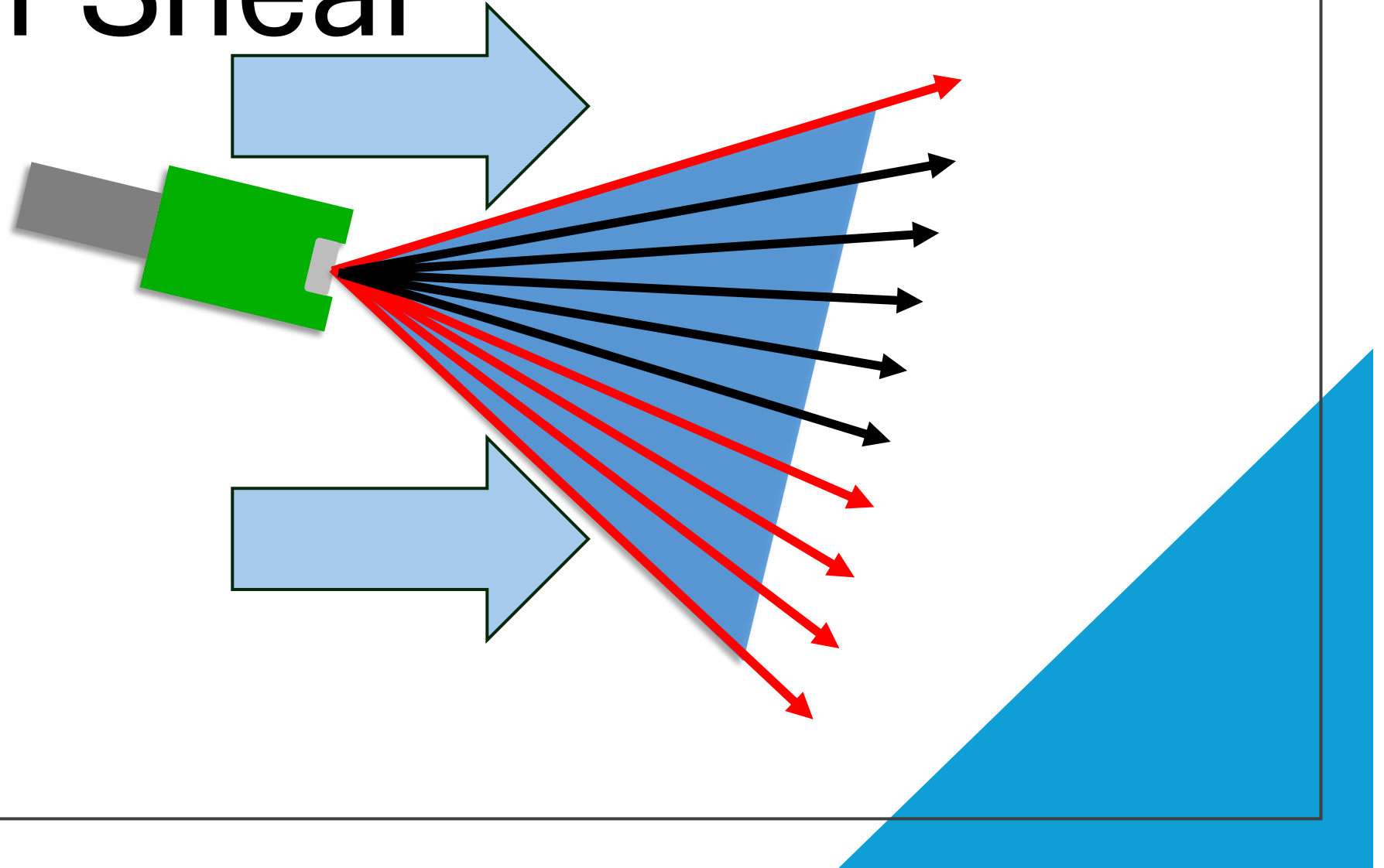
With Air Shear



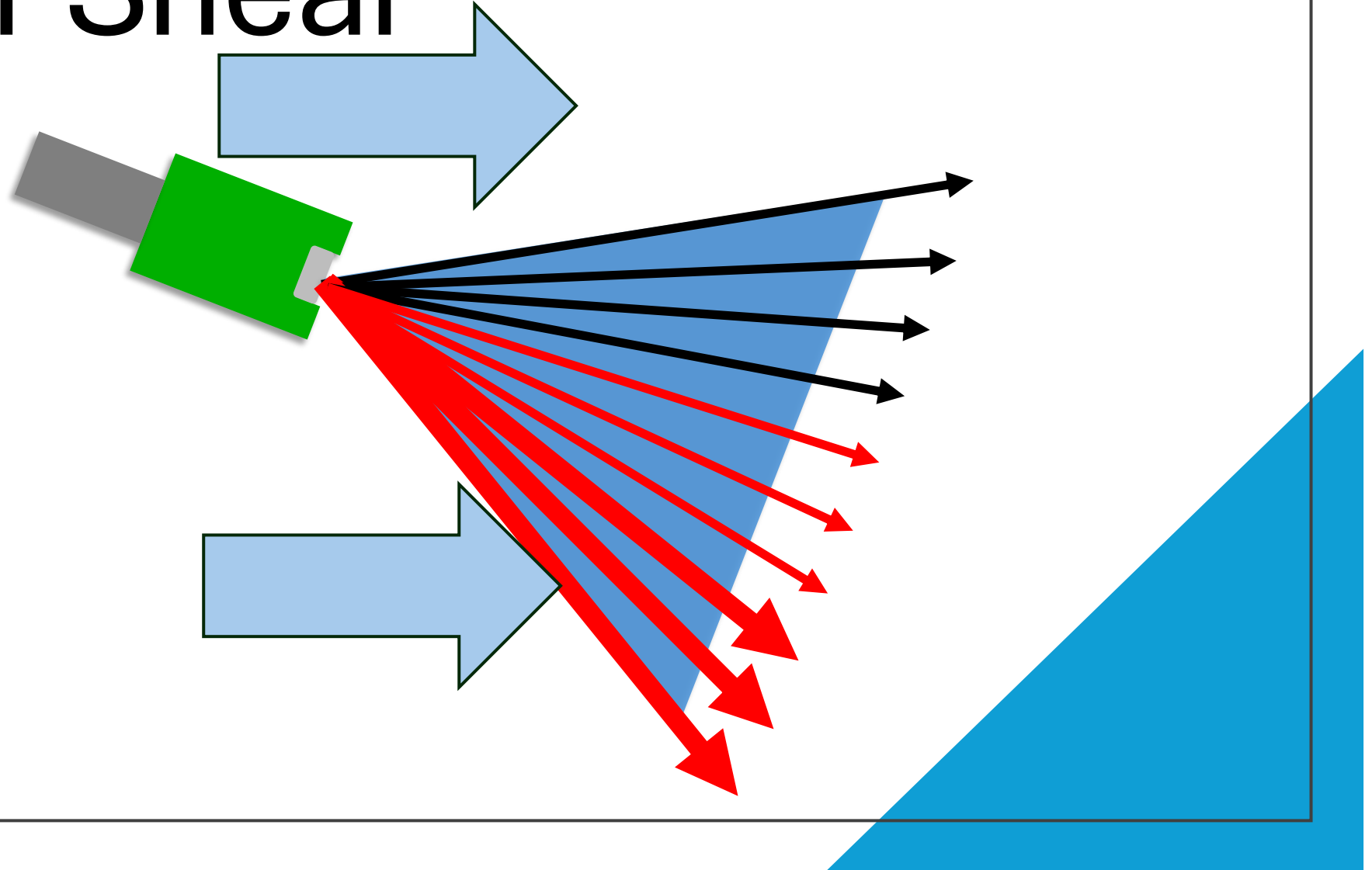
With Air Shear



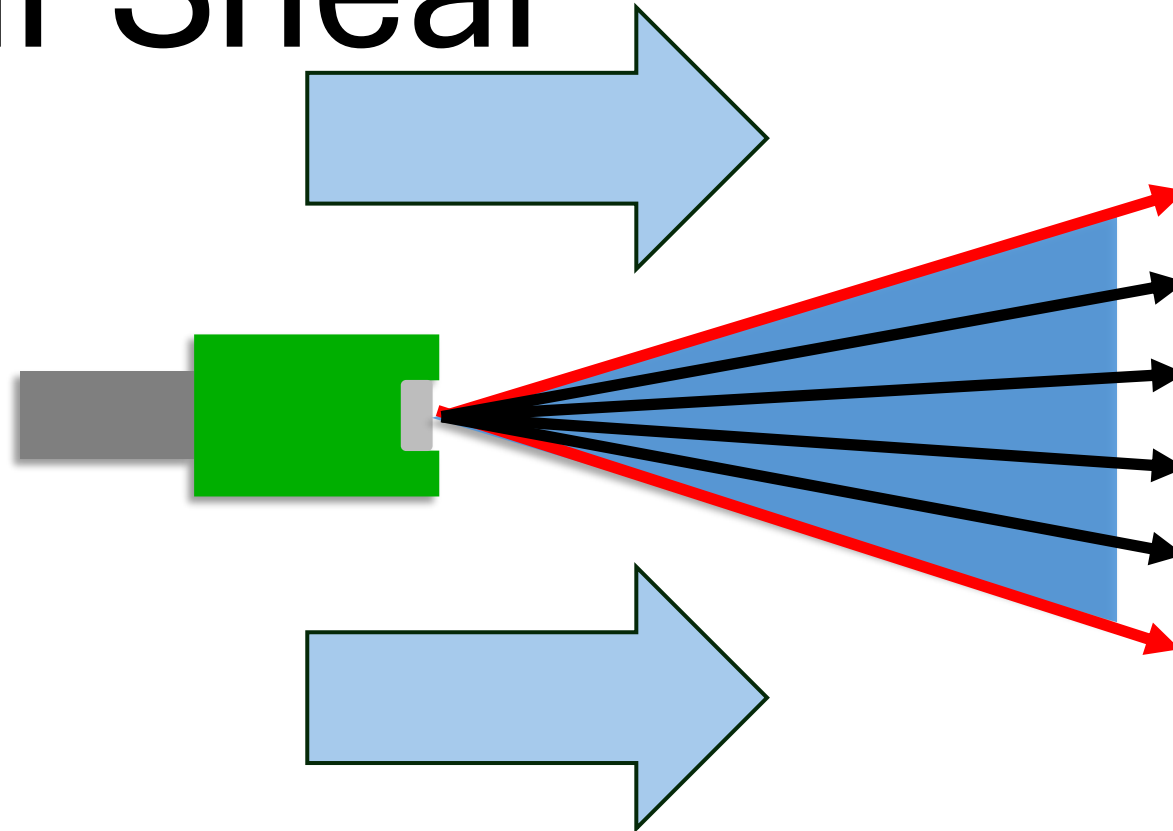
With Air Shear



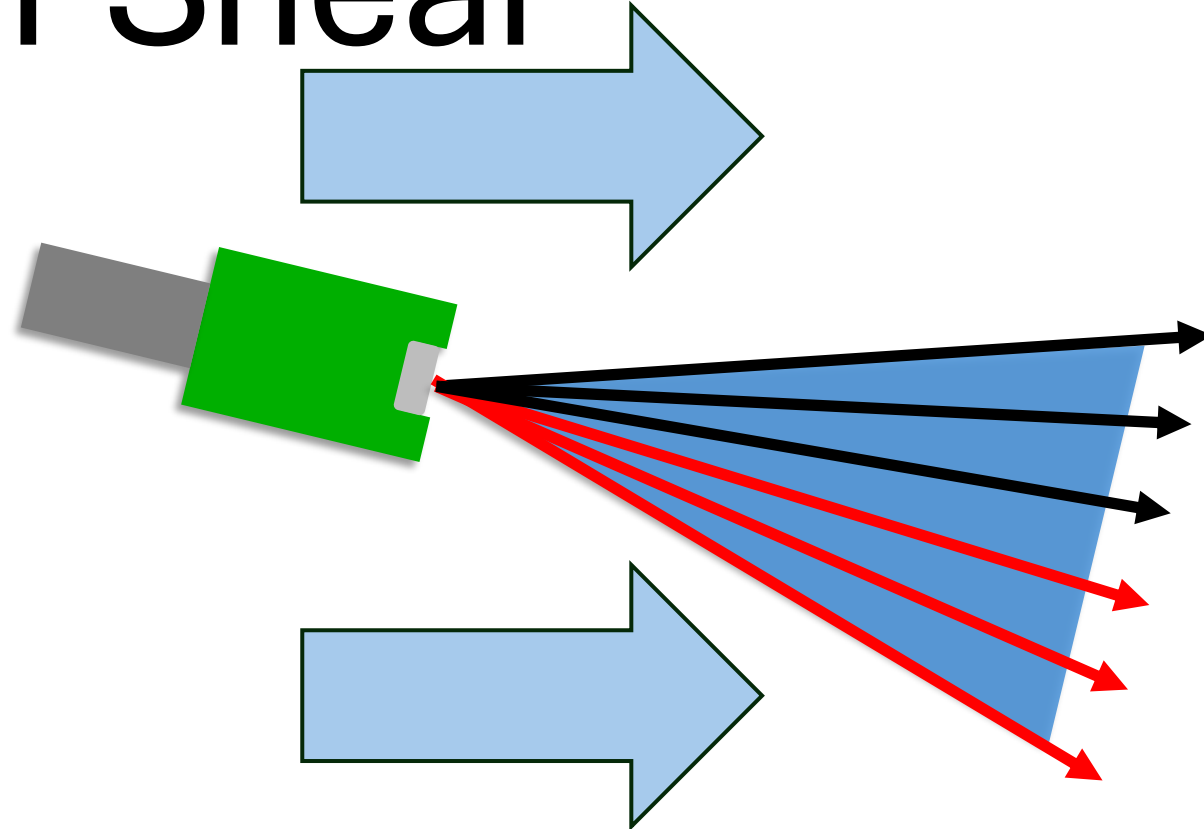
With Air Shear



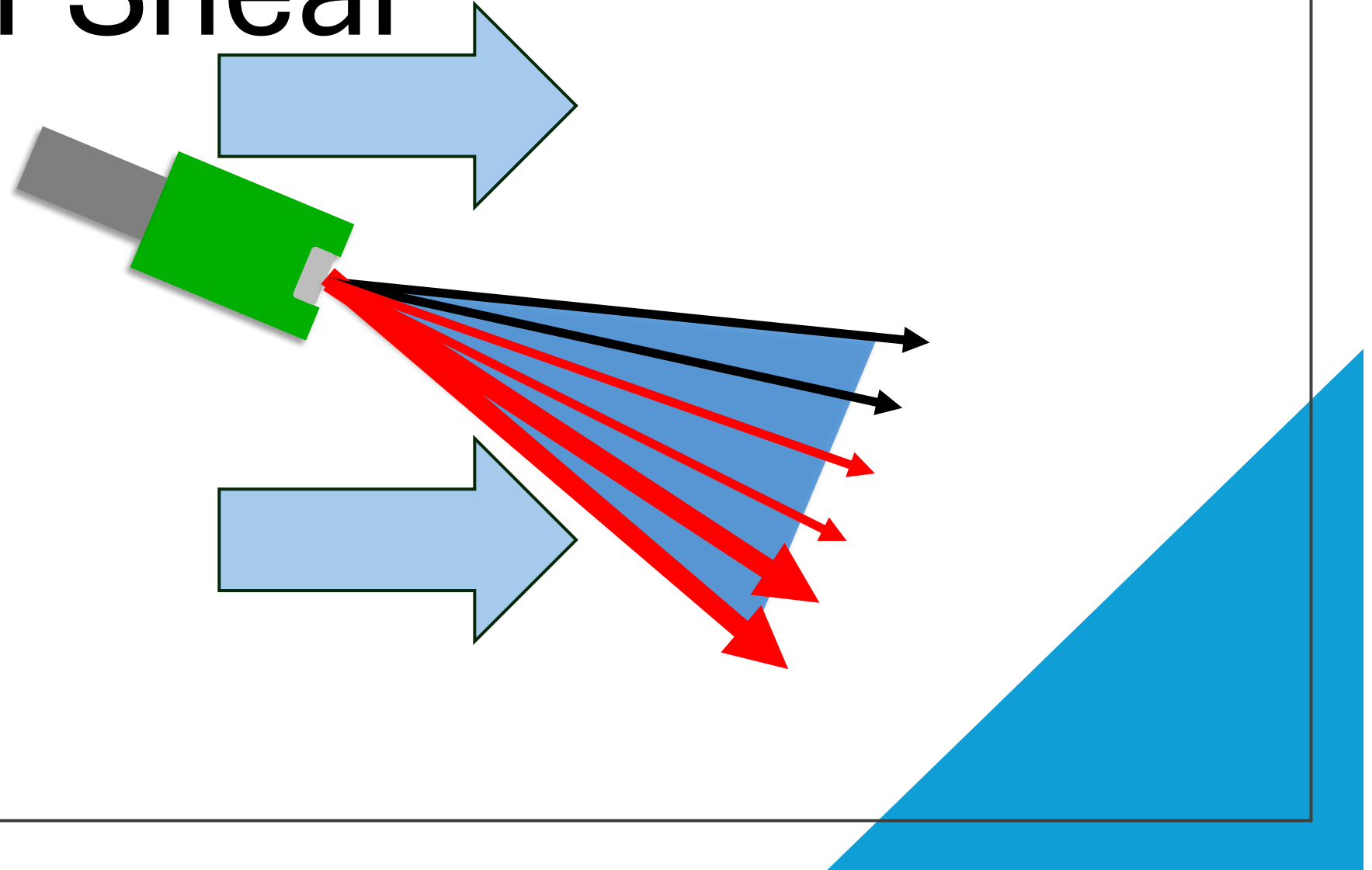
With Air Shear



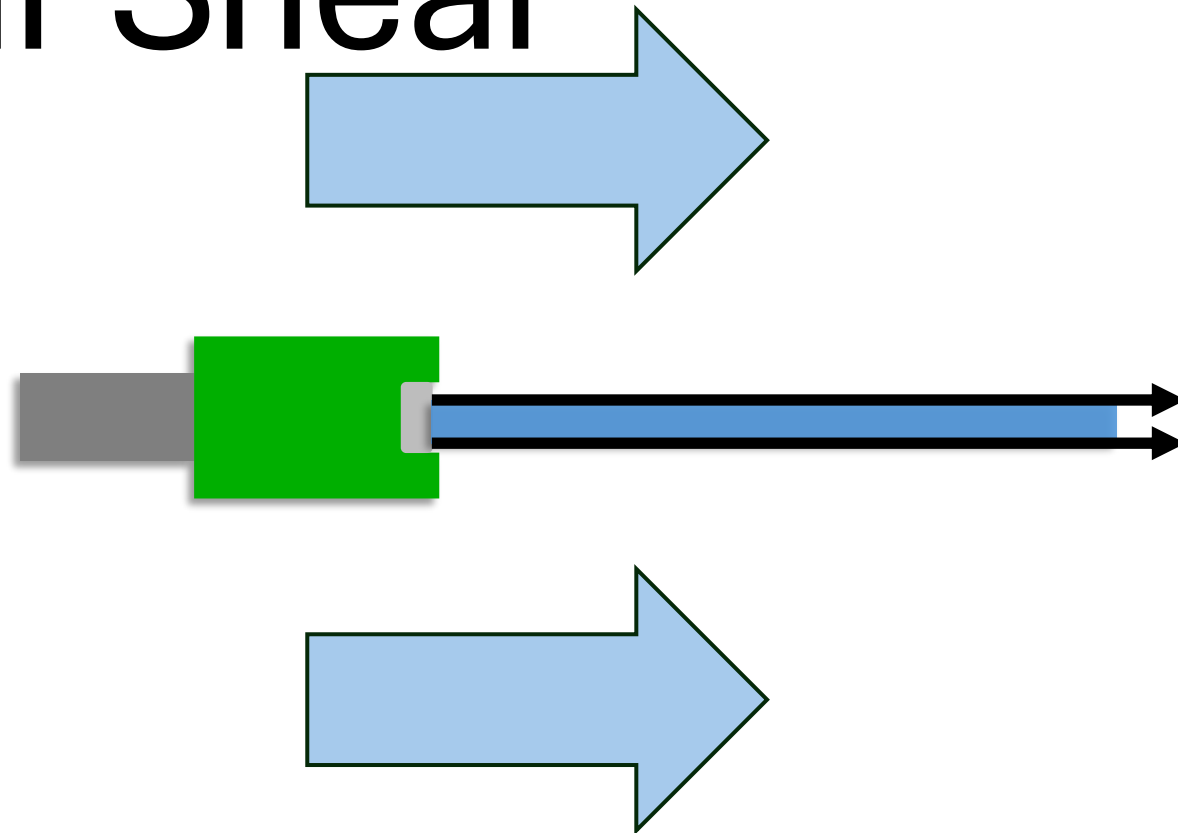
With Air Shear



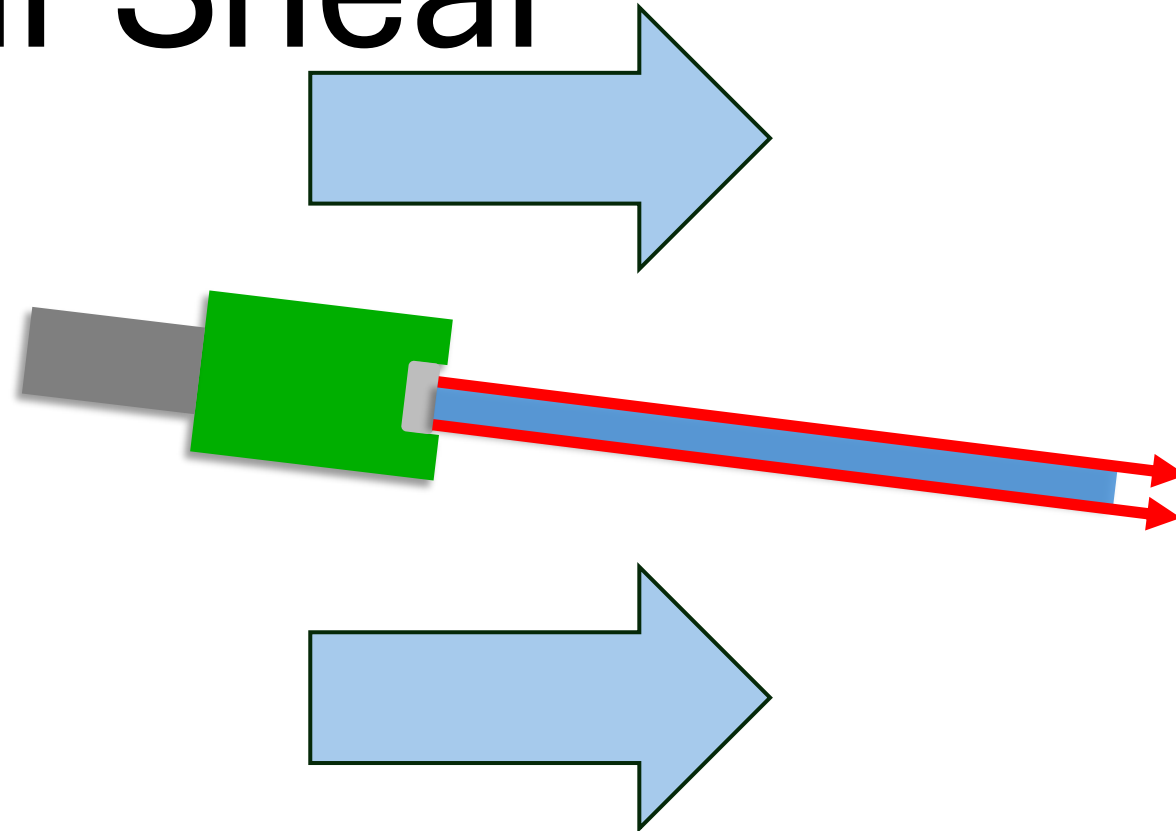
With Air Shear



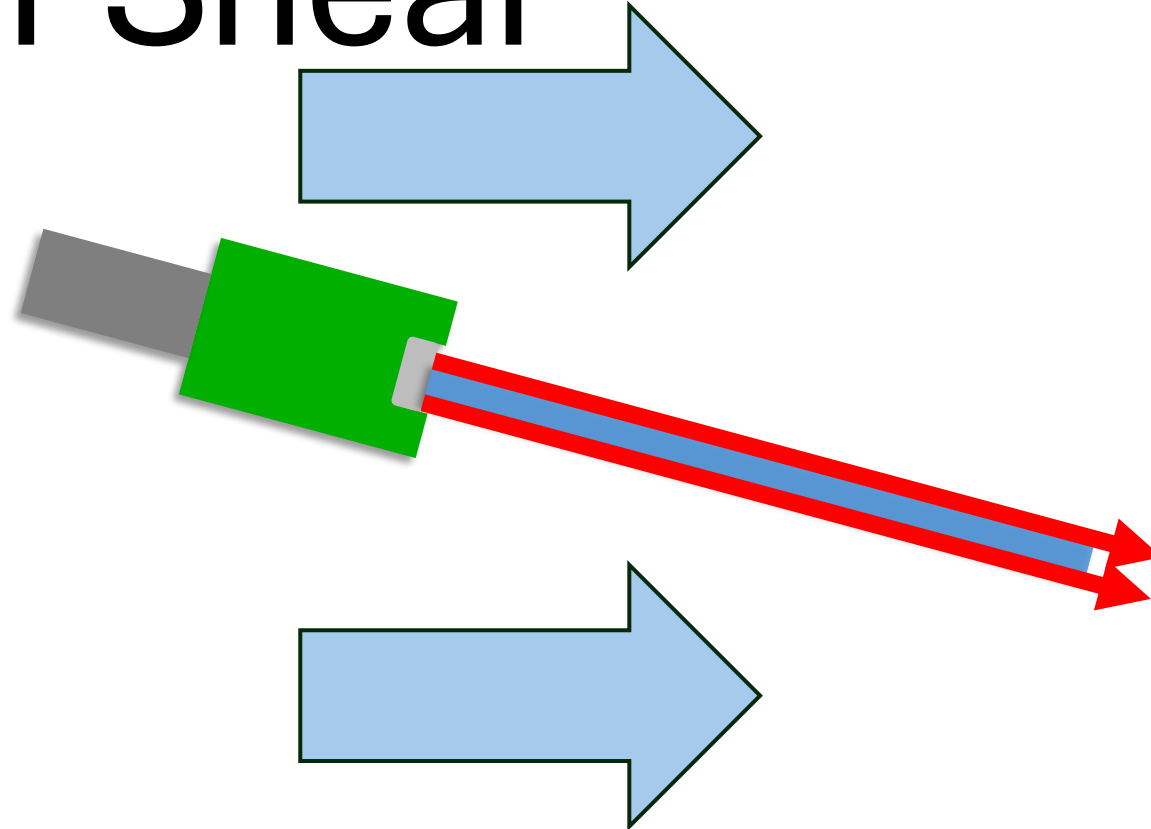
With Air Shear



With Air Shear



With Air Shear



Things to Keep and Eye One

Flow Rates

Higher Flow acts
like larger orifice

Alignment

Narrow Fans
Straight Stream



Email



**Nozzle Models
Download**