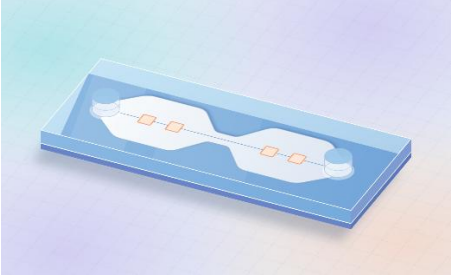
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Choosing Your Extensional Chip

A quick guide to the EA20, EB20, EC20 and EE20 chips and the sample ranges they cover

Extensional viscosity testing of customer samples is available! Ask us to measure your own fluid.



Viscosity
How "thick" your sample is, measured in cP (centipoise). Water is about 1 cP; honey is roughly 2,000 to 10,000 cP.

Extension rate
How quickly your sample is stretched as it flows through the chip, measured in sec^{-1}.

The Chip Options at a Glance

***m*-VROC II** 2.5 mL syringe, 1X pump	**Extensional viscosity measurement range**		**Best for**
	Sample shear viscosity	**Extension rate**	
EA20	~6 to 130 cP	~23 to 1,700 sec^{-1}	Low-viscosity fluids. Lowest extension rates at a given shear viscosity.
EB20	~11 to 480 cP	~23 to 3,200 sec^{-1}	Low-viscosity fluids. Higher extension rates than EA20 at a given shear viscosity.
EC20	~24 to 2,300 cP	~23 to 6,900 sec^{-1}	Low- to moderate-viscosity fluids. Higher extension rates than EB20 at a given shear viscosity.
EE20	~70 to 20,000 cP	~23 to 13,500 sec^{-1}	Broadest viscosity span. Highest extension rates at a given shear viscosity, up to the m-VROC II maximum.

Ranges are for extensional viscosity measurements with the 2.5 mL syringe and a 1X pump m-VROC II.

Values are approximate and intended as a guide.

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***m*-VROC II** 100 µL syringe, 1X pump	**Extensional viscosity measurement range**		**Best for**
	Sample shear viscosity	**Extension rate**	
EA20	~10 to 3,400 cP	~1 to 540 sec^{-1}	Low-viscosity fluids. Lowest extension rates at a given shear viscosity.
EB20	~20 to 12,000 cP	~1 to 540 sec^{-1}	Low- to moderate-viscosity fluids. Higher extension rates than EA20 at a given shear viscosity.
EC20	~100 to 25,000 cP	~2 to 540 sec^{-1}	Moderate- to high-viscosity fluids. Higher extension rates than EB20 at a given shear viscosity.
EE20	~870 to 25,000 cP	~20 to 540 sec^{-1}	High-viscosity fluids. Highest extension rates at a given shear viscosity.

Ranges are for extensional viscosity measurements with the 100 µL syringe and a 1X pump m-VROC II.

Values are approximate and intended as a guide.

VROC initium 1++	**Extensional viscosity measurement range**		**Best for**
	Sample shear viscosity	**Extension rate**	
EA20	~10 to 2,000 cP	~1.6 to 540 sec^{-1}	Lowest rates at a given viscosity.
EB20	~20 to 2,000 cP	~5.5 to 540 sec^{-1}	Higher rates at a given viscosity, compared to EA20 chip.
EC20	~100 to 2,000 cP	~26 to 540 sec^{-1}	Higher rates at a given viscosity, compared to EB20 chip.
EE20	~870 to 2,000 cP	~230 to 540 sec^{-1}	Higher rates at a given viscosity, compared to EC20 chip.

Values are approximate and intended as a guide.

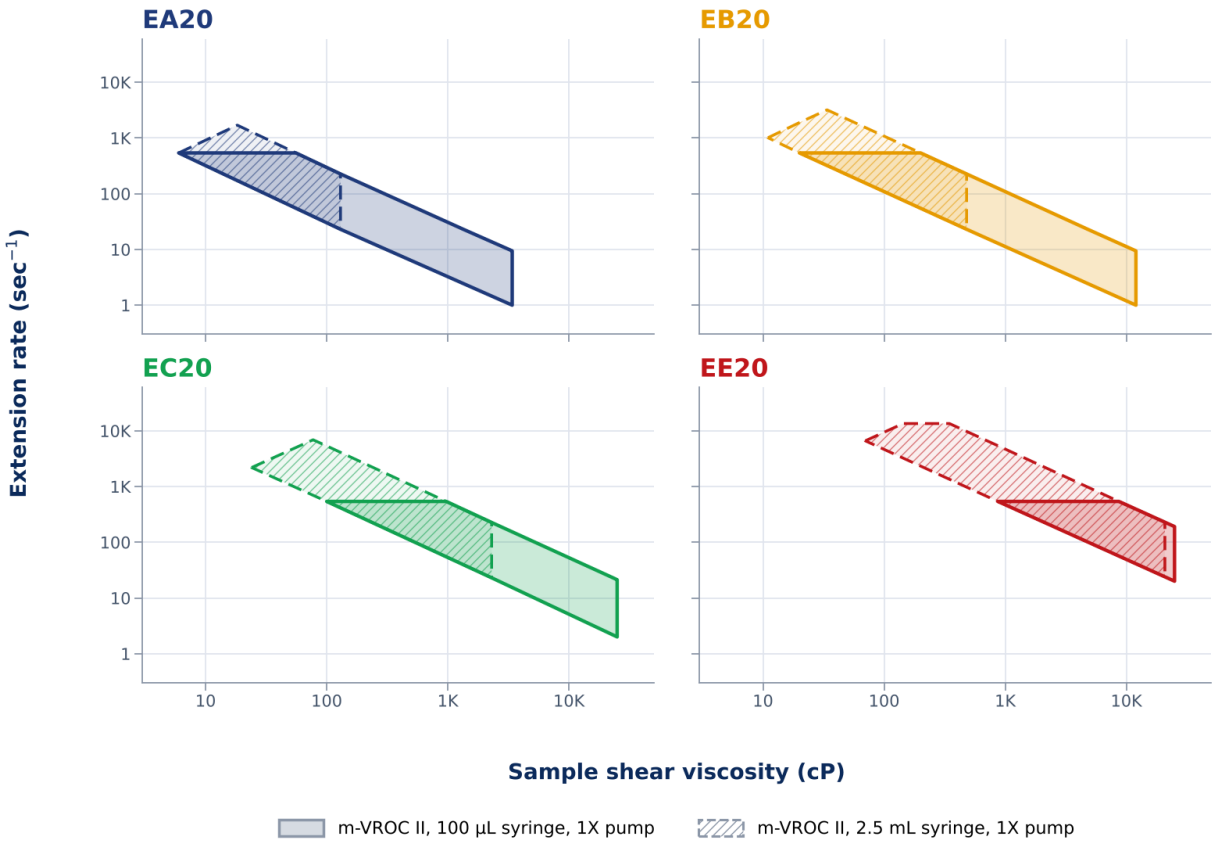
What This Means for Your Sample

m-VROC II Chips	Extension rate range at each sample shear viscosity			
	10 cP	100 cP	1,000 cP	10,000 cP
2.5 mL syringe, 1X pump				
EA20	310 to 940 sec^{-1}	31 to 310 sec^{-1}	*Not available*	*Not available*
EB20	*Not available*	110 to 1,100 sec^{-1}	*Not available*	*Not available*
EC20	*Not available*	520 to 5,200 sec^{-1}	52 to 520 sec^{-1}	*Not available*
EE20	*Not available*	4,700 to 9,400 sec^{-1}	470 to 4,700 sec^{-1}	47 to 470 sec^{-1}
100 µL syringe, 1X pump				
EA20	310 to 540 sec^{-1}	31 to 310 sec^{-1}	3.1 to 31 sec^{-1}	*Not available*
EB20	*Not available*	110 to 540 sec^{-1}	11 to 110 sec^{-1}	1.1 to 11 sec^{-1}
EC20	*Not available*	520 to 540 sec^{-1}	52 to 520 sec^{-1}	5.2 to 52 sec^{-1}
EE20	*Not available*	*Not available*	470 to 540 sec^{-1}	47 to 470 sec^{-1}

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See the Ranges Side by Side

The area enclosed by each chip's lines is the "window" that chip can measure for extensional viscosity. Windows shown are for the m-VROC II.



Not sure which chip fits?

Send us your sample's viscosity and the extension rate(s) you want to test. Our team will recommend the right chip.

Extensional viscosity testing of customer samples is also available, so you can see results on your own fluid before you decide.