PRO Scientific Inc.
99 Willenbrock Road, Oxford, Connecticut 06478, USA
Phone: (203) 267-4600 Fax: (203) 267-4606
sales@proscientific.com, www.proscientific.com

Contents

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Effects of the Diameter of the PRO Quick Connect Generator Probe

MAX RPM

As the diameter of the PRO Quick Connect Generator Probe increases the maximum achievable RPM for that motor unit will decrease due to the increase in weight and strain on the motor unit.

The same is true as the length of the generator probe increases.

Therefore, a 59mm probes puts more strain on the PRO400DSEL motor compared to the 43mm probe which puts more strain on the PRO400DSEL motor unit compared to a 37mm probes which puts more strain on the PRO400DSEL motor compared to a 30mm probe.

Therefore, the maximum achievable RPM will be greater for the 30mm probe compared to the 37mm probe, 43mm probes and 59mm probe

- It is important to note that the volume of material, placement of the probe within the container as well as viscosity of the sample will affect the RPM

Approximate max RPMs on the PRO400DSEL for the following probes are as follows:

10mm 25,500 rpm (sample tested 100ml in 200ml beaker)

20mm 22,000 rpm (sample tested 1L in a 1.5L container)

30mm 17,500 rpm (sample tested 15L in a 19L bucket)

- It is important to note that the volume of material, placement of the probe within the container as well as viscosity of the sample will affect the RPM

Volume

All generator probes are capable of processing 30L, however the efficiency and effective nature of homogenization will be impacted depending upon the diameter size.

RPM:

As the strain of a larger generator probe is placed on the motor unit, the max rpm will decrease exponentially. Therefore, 30L of sample will be homogenized at a slower RPM with a 37mm compared to running the same volume with a 20mm or 30mm probe.

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Shear:

Each generator probe has a unique shearing ability. Therefore, at the same rpm a 20mm, 30mm probe will homogenize differently.

i.e.

@ 10,000 rpm

20mm shear rate - 273877777.8

30mm shear rate - 98689475.89

37mm shear rate - 101290322.6

43mm shear rate - 123799283.2

59mm shear rate - 177213403.9

In the above example, you will see that 37mm has a higher shear rate compared to the 30mm probe, therefore it does not need to run as fast to produce similar results

Please contact PRO Scientific for complete shear number information.

Homogenization time

As the strain increases on the motor unit based on

- Volume
- Container configuration
- Viscosity of sample
- Airflow
- Generator diameter
- Generator length
- Use of deflector head or not

the length of time that the motor unit can be run is affected. Therefore, it is difficult to quantify an exact time that is needed for your homogenization.

Furthermore, it is important to note that since each PRO Quick Connect Generator Probe produces different shear numbers, they do not all need to run at the same time and speed to produce results.

Excessive homogenization is often not necessary or encouraged.

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Once homogenization is complete it should be stopped to prevent introducing unwanted heat into the motor unit and sample. 106°F is the recommended max temp for the motor unit.

Homogenizer temperature

Once again, when homogenization is complete it should be stopped to prevent introducing unwanted heat into the motor unit and sample. 106°F is the recommended max temp for the motor unit.

Cooldown time in-between samples

- If taxing the motor unit to its maximum capacity, a three minute run at 15,000 rpm WITHOUT probe attached is recommended in-between samples to allow the motor to cool off

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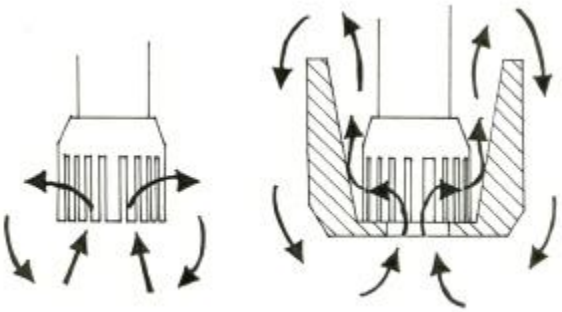
PRO Deflector Head

Accessories for PRO Homogenizer Generator Probes

Enhance Sample Movement for Improved Homogenization

PRO Scientific deflector heads are specifically designed to enhance the homogenization of larger volume and higher viscosity materials such as creams, lotions, oils, gels and much more.



Product Description:

PRO Scientific deflector heads are specifically designed to enhance the homogenization of larger volume and higher viscosity materials.

The deflector head design creates vertical movement of heavy materials which would otherwise stand stagnant, and promotes increased flow on larger volume samples. When processing viscous materials, such as creams and lotions, the PRO deflector head forces materials from the generator tip up its tapered walls, creating increased vertical movement of the entire sample. The material is then repeatedly cycled back down to the bottom of the container and up through the deflector head until a homogeneous mixture is achieved.

PRO deflector heads mount easily on PRO generators. Deflector heads are available in acetyl resin and stainless steel, and fit generators 20 mm in diameter and larger.

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Attachment instructions:

1. Loosen all three screws on the deflector so that the PRO Quick Connect Generator can be centered within the deflector head.
2. Sit the bottom of the generator probe at the bottom of the deflector head.
    a. The generator will not protrude from the bottom of the deflector head
3. Take turns tightening each screw so that the generator probe stays centered within the deflector head

HOMOGENIZATION TIP

To facilitate homogenization of viscous material please make sure to do the following:

1. Also begin homogenizing at a slow speed. Gradually increase your speed to stay in control of your sample
2. Move the container and/or generator probe around during homogenization to facilitate homogenization

Homogenizer Accessory Cleaning

1. Immediately after you have finished working with the generator, the generator and deflector head must be cleaned so that the substance residues do not stick to the rotor and stator and allow small bacterial cultures to form in undesirable places.
2. For this purpose, the generator with deflector head still attached should be run in a solvent, which dissolves the substance residue and does not harm the components. The rotor and stator are cleaned as the solvent is pumped through the generator.
3. Please ensure that all cleaning processes are compatible with 316SS and PTFE and your appropriate deflector head material (303 stainless steel or acetyl resin).

Any questions, please contact PRO Scientific service department, at

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02-20000D	Deflector Head for 20mm Generator - Acetal Resin
02-20000S	Deflector Head for 20mm Generator - Stainless Steel
02-30000D	Deflector Head for 30mm Generator - Acetal Resin
02-30000S	Deflector Head for 30mm Generator - Stainless Steel
02-37000D	Deflector Head for 37mm Generator - Acetal Resin
02-37000S	Deflector Head for 37mm Generator - Stainless Steel
02-43000D	Deflector Head for 43mm Generator - Acetal Resin
02-43000S	Deflector Head for 43mm Generator - Stainless Steel
02-59000D	Deflector Head for 59mm Generator - Acetal Resin
02-59000S	Deflector Head for 59mm Generator - Stainless Steel