

## MBRAUN Whitepaper: Dispenser

### GUIDLINE DISPENSER SELECTION

When describing a dispensing solution one of the most important characteristics of a fluid or paste to consider is the material's viscosity. Even in case formal numerical determination is missing or unknown, descriptions of flow properties such as %similar to water+, %honey-like+ or %comparable to grease+ are an indication and help to define the appropriate dispenser setup.

Furthermore the part or product to which the material will be applied has to be understood. Characteristics such as geometrical dimensions, material, surface properties and eventually required pre- and post-treatment processes should be outlined as they can be crucial for the entire dispensing process.

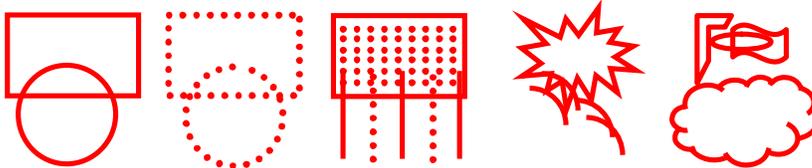
With these basic conditions in mind the tables and figures below can help give meaning to the material properties provided in the literature or accompanying data sheet.

#### Viscosity Table

Reference Liquid	Typical viscosity at 20°C (cP)
Water	1
Kerosene	10
Maple Syrup	200
Caster Oil	1.100
Honey	2.200
Chocolate Syrup	18.000
Peanut Butter	200.000
Silicone	1.200.000

#### Dispensing Pattern

Any combination of dots, lines and circles like those shown in the illustration below can be dispensed. Based on the desired pattern a variety of techniques are such as programmable or dedicated X-Y-Z systems, perimeter nozzles, jetting valves or simply pressure/time dispensers are available. A verbal description, sketch, technical drawing or even a sample showing the specific pattern or bead and its location are useful to determine the most efficient dispenser setup.



#### Questionnaire

In order to identify the most appropriate dispensing solution for an assembly process certain basic information has to be obtained for consideration. To help with this process MBraun offers the following questionnaire as a guideline.

Basic questions to identify a dispensing solution

- 1) What kind of material has to be dispensed (liquid, paste, gel, suspension?)
- 2) What is the viscosity of the material?
- 3) Does heat influence the viscosity by means of increasing the material's flowing tendency?
- 4) Is the material stable? Does it change in viscosity over its expected working life time?
- 5) Does the material contain suspended solids such as spacers?

- 6) Does the material to be dispensed require heating or cooling to be properly dispensed?
- 7) Is there any preferred dispensing method (pressure/time, positive displacement, jetting)?
- 8) How does the desired dispensing pattern look like?
- 9) What material volumes shall be dispensed?
- 10) What tact time in terms of dispensing cycles per minute is needed?
- 11) How will the part being handled be transferred to and from the dispense station (manually, by robot)?
- 12) How is the material packaged (syringe, tank, bottle) and in what size?
- 13) Are pre- and post-treatment processes to the product required before the material can be dispensed?
- 14) What geometrical dimensions does the product have?
- 15) What material is the product made of?