

**ramé-hart instrument co.**  
**Guide to Dispensing Needles (2/2011)**

| Gauge | Standard Type 304 SS (p/n 100-10-12-xx) | Inverted Type 304 SS (p/n 100-10-13-xx) | Disposable 304 SS (p/n 100-10-15-xx) | Outside Diameter (OD)* | Inside Diameter (ID)* | Wall Thickness* | Plastic Taper Tip (p/n 100-10-16-xx) | Plastic Taper Tip Original ID | PTFE Teflon (p/n 100-10-17-xx) | PTFE OD*     | PTFE ID*     |
|-------|---|---|--------------------------------------|------------------------|-----------------------|-----------------|--------------------------------------|-------------------------------|--------------------------------|--------------|--------------|
| 8     | ✓                                       |   |                                      | 0.165                  | 0.135                 | 0.0150          |                                      |                               |                                |              |              |
| 9     | ✓                                       |   |                                      | 0.148                  | 0.118                 | 0.0150          |                                      |                               |                                |              |              |
| 10    | ✓                                       | ✓                                       |                                      | 0.134                  | 0.106                 | 0.0140          |                                      |                               |                                |              |              |
| 11    | ✓                                       | ✓                                       |                                      | 0.120                  | 0.094                 | 0.0130          |                                      |                               |                                |              |              |
| 12    | ✓                                       | ✓                                       |                                      | 0.109                  | 0.085                 | 0.0120          |                                      |                               |                                |              |              |
| 13    | ✓                                       | ✓                                       |                                      | 0.095                  | 0.071                 | 0.0120          |                                      |                               |                                |              |              |
| 14    | ✓                                       | ✓                                       | SO                                   | 0.083                  | 0.063                 | 0.0100          | SO                                   | 0.063                         | ✓                              | 0.082        | 0.066        |
| 15    | ✓                                       |   | SO                                   | 0.072                  | 0.054                 | 0.0090          |                                      |                               |                                |              |              |
| 16    | ✓                                       | ✓                                       | SO                                   | 0.065                  | 0.047                 | 0.0090          | SO                                   | 0.048                         | ✓                              | 0.065        | 0.053        |
| 17    | ✓                                       |   |                                      | 0.058                  | 0.042                 | 0.0080          |                                      |                               |                                |              |              |
| 18    | ✓                                       | ✓                                       | SO                                   | 0.049                  | 0.033                 | 0.0080          | SO                                   | 0.034                         | ✓                              | 0.054        | 0.042        |
| 19    | ✓                                       | ✓                                       | SO                                   | 0.042                  | 0.027                 | 0.0075          |                                      |                               |                                |              |              |
| 20    | ✓                                       | ✓                                       | SO                                   | 0.035                  | 0.023                 | 0.0060          | SO                                   | 0.024                         | ✓                              | 0.046        | 0.034        |
| 21    | ✓                                       | ✓                                       | SO                                   | 0.032                  | 0.020                 | 0.0060          |                                      |                               |                                |              |              |
| 22    | ✓                                       | ✓                                       | ✓                                    | <b>0.028</b>           | <b>0.016</b>          | <b>0.0060</b>   | ✓                                    |                               | ✓                              | <b>0.040</b> | <b>0.028</b> |
| 23    | ✓                                       | ✓                                       | SO                                   | 0.025                  | 0.013                 | 0.0060          |                                      |                               |                                |              |              |
| 24    | ✓                                       | ✓                                       |                                      | 0.022                  | 0.012                 | 0.0050          | SO                                   | 0.013                         |                                |              |              |
| 25    | ✓                                       | ✓                                       | SO                                   | 0.020                  | 0.010                 | 0.0050          |                                      |                               |                                |              |              |
| 26    | ✓                                       | ✓                                       | SO                                   | 0.018                  | 0.010                 | 0.0040          |                                      |                               |                                |              |              |
| 27    | ✓                                       |   | SO                                   | 0.016                  | 0.008                 | 0.0040          |                                      |                               |                                |              |              |
| 28    | ✓                                       | ✓                                       |                                      | 0.014                  | 0.007                 | 0.0035          |                                      |                               |                                |              |              |
| 29    | ✓                                       |   |                                      | 0.013                  | 0.007                 | 0.0030          |                                      |                               |                                |              |              |
| 30    | ✓                                       |   |                                      | 0.0120                 | 0.0055                | 0.0033          |                                      |                               |                                |              |              |
| 31    | SO                                      |   |                                      | 0.0100                 | 0.0045                | 0.0025          |                                      |                               |                                |              |              |
| 32    | ✓                                       |   |                                      | 0.0090                 | 0.0035                | 0.0028          |                                      |                               |                                |              |              |
| 33    | ✓                                       |   |                                      | 0.0080                 | 0.0035                | 0.0023          |                                      |                               |                                |              |              |

Key: ✓, in stock; SO, Special Order (3-5 days); 22 gauge is standard size; \*dimensions in inches

**Standard Type 304 Stainless Steel Needle p/n 100-10-12-xx** replace xx with actual gauge; 22g is standard size; available in all gauges from 08 to 33; all sizes are kept in stock except 31g, 2" long.

**Inverted Type 304 Stainless Steel Needle p/n 100-10-13-xx** replace xx with actual gauge; 22g is standard size; available in most gauges from 10 to 28, see chart for stock sizes, for captive bubble, inverted pendant drop, sessile and other liquid/liquid studies with environmental fixture/chamber.

**Disposable Type 304 Stainless Steel Needle p/n 100-10-15-xx** replace xx with actual gauge; 22 gauge is standard and in stock (other sizes, see chart, 2-3 days), 1.5" long

**Plastic Taper Tip p/n 100-10-17-xx** replace xx with actual gauge, see chart for sizes; 22g is standard size and kept in stock; other sizes 2-3 days, tip can be cut to increase dia, 1.25" long

**PTFE Teflon Needle p/n 100-10-17-xx** replace xx with gauge, available in 14, 16, 18, 20, and 22 gauge, 22g is standard size, PTFE is flexible and can be cut to length.

**Note** All needles above use Luer Lock and will work on the ramé-hart Microsyringe p/n 100-10-20; with adapter p/n 100-22-37, above needles can be used w/ ramé-hart Automated Dispensing System.