

# MICRO NEEDLE ON/OFF VALVES

**SGE Micro needle valves for pressure to 100 atmospheres or vacuum to  $10^{-9}$  torr.**

## ABOUT YOUR VALVE

1. The MSVT can be used as either a two or three port valve. This is because the 1/16" base connector can be fitted with either a 1/16" S/Steel flow line or alternatively plugged with the GVF/000 no-hole 1/16" ferrule.
2. When supplied, the 1/16" base connector is fitted with a short length of S/Steel tubing (19) and a 1/16" graphitised vespel ferrule (20).
3. Your valve will provide you with On/Off control for vacuums to  $10^{-9}$  torr or pressures up to 100 atmospheres.
4. Each valve is fitted with a torque limiting control knob which prevents overtightening of the needle and subsequent damage to the seat.
5. The stem (15) and body (16) of the valve can be heated to 300°C. However, the control assembly should be located outside the hot zone and not heated over 100°C.
6. Standard stem lengths are 75mm and 100mm which is the distance from the sidearm to the bulkhead locknut (10).

## INSTALLATION AND MAINTENANCE

1. Turn off all flows before installing the valve or when replacing parts.
2. Loosen control knob (1) and unscrew (12) from (14).
3. Remove washer (10) and locknut (11).

4. The exposed thread (12) can then be placed through a 4mm hole in an instrument or bracket.

5. Re-fit locknut (11) and washer (10) and reassemble by connecting nut (14) to thread (12).

## VESPEL SEAT (17) REPLACEMENT

1. Unwind control knob (1) a few turns.
2. Remove 1/16" flow line (19) by unscrewing male nut (21). If seat (17), bobbin (18) and ferrule (20) remain lodged inside body (16) they can be removed by first unscrewing assembly (12) from (14) and then withdrawing valve needle. Then insert wire tool into tube (13). A gentle prod will remove all three components.
3. Insert new vespel seat (17) in body (16) followed by bobbin (18).
4. Place ferrule (20) onto 1/16" line and reconnect using male nut (21). Alternatively fit a GVF/000 no-hole ferrule if this port is to be shut off.
5. Reconnect (12) into (14).

## PTFE SEAL (8) REPLACEMENT

Two spare seals are provided in the unlikely event replacement is required. The seal is simply a small PTFE tube 1.6mm O.D. x 1mm I.D. x 2mm long and is located inside valve body (11). The method for replacement is as follows:

Unwind the control knob (1) to the extremity of thread on assembly (3).

Unscrew assembly (3) and withdraw thrust tube (5) and compression spring (4).

Remove seal (8) with wire tool provided.

Place new seal into top of male thread (9) and push into place with thrust tube (7). The shorter length beneath the stop (6) on the thrust tube should be pushed into the valve body and when the thrust tube touches the seal the stop should be a nominal 2mm above the face of the male thread (9).

Place compression spring (4) onto other exposed (longer) end (5) of the thrust tube.

Thread needle (2) into thrust tube and tighten assembly (3).

Reset control knob.

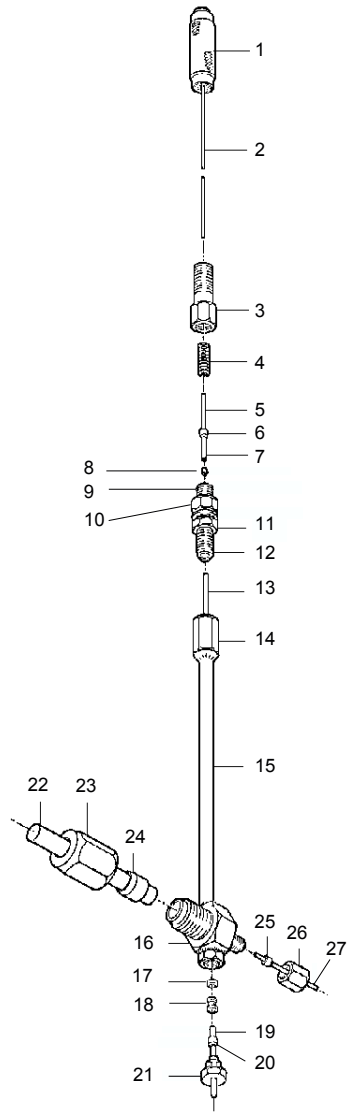
### PACKING LIST

MSVT 4/16

| Qty | Code      | Part No | Description                         |
|-----|-----------|---------|-------------------------------------|
| 1   | MSVT      | -       | Valve                               |
| 1   | GVF/4     | 072667  | 1/4" Vespel Ferrules, (pkt of 2)    |
| 1   | GVF/16/16 | 072657  | 1/16" Vespel Ferrules, (pkt of 5)   |
| 1   | GVF/000   | 072661  | No-hole Vespel Ferrules, (pkt of 2) |
| 1   | -         | 123687  | PTFE Seals, (pkt of 2)              |
| 1   | VSV-5     | 123680  | Valve Seat                          |
| 1   | -         | 1236101 | Seat Remover Tool                   |

MSVT 4/8

| Qty | Code    | Part No | Description                         |
|-----|---------|---------|-------------------------------------|
| 1   | MVST    | -       | Valve                               |
| 1   | GVF/4   | 072667  | 1/4" Vespel Ferrules, (pkt of 2)    |
| 1   | GVF/8   | 072655  | 1/8" Vespel Ferrules, (pkt of 2)    |
| 1   | GVF/16  | 072657  | 1/16" Vespel Ferrules, (pkt of 2)   |
| 1   | GVF/000 | 072661  | No-hole Vespel Ferrules, (pkt of 2) |
| 1   | -       | 123687  | PTFE Seals, (pkt of 2)              |
| 1   | VSV-5   | 123680  | Valve Seat                          |
| 1   | -       | 1236101 | Seat Remover Tool                   |



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