

## PHT Sanitary Ultrafiltration Spiral-Wound Element: **MT (PES 5kDa)**

### Synder Filtration's PHT Series of Ultrafiltration

Elements offer exceptional physical and chemical durability, in the same wide range of MWCO's as our standard UF elements. Contact us today to learn more about our complete line of membrane products and services.

### RECOMMENDED OPERATING PARAMETERS

| Operating Parameters           |              |
|--------------------------------|--------------|
| Maximum Temperature            | 60°C (140°F) |
| pH Range @ Max Temperature     | 2-10         |
| pH Range @ Ambient Temperature | 2-10.5       |

| Pressure                              | PSI | Bar |
|---------------------------------------|-----|-----|
| Max Inlet Pressure                    | 120 | 8.3 |
| Min Outlet Pressure                   | 10  | 0.7 |
| Max Differential Pressure per Element | 18  | 1.2 |
| Max Permeate Backpressure             | 5   | 0.3 |

**Note:** Soft start on boost pumps required to minimize pressure/flow shocks to elements.

| Cleaning Parameters                     |              |
|-----------------------------------------|--------------|
| Maximum Temperature (Short term <30min) | 85°C (185°F) |
| pH Range @ Max Temperature              | 2-11         |
| pH Range @ Ambient Temperature          | 2-12.5       |

| Chlorine                                    | Norm ppm | Max ppm |
|---------------------------------------------|----------|---------|
| Free Chlorine During Operation              | 0        | <0.1    |
| Chlorine During CIP at pH10.8-11.0 and 50°C | 150      | 180     |

**Note:** Maximum chlorine exposure for all elements is 30 minutes per day at pH and temperature conditions listed above.

| Dairy Product Total Solids Limits | Feed Spacer (in mils) |    |    |    |
|-----------------------------------|-----------------------|----|----|----|
|                                   | 31                    | 46 | 65 | 80 |
| Sweet Whey Max. T.S.              | 15                    | 25 | 28 | 30 |
| Acid Whey Max. T.S.               | 15                    | 24 | 26 | 28 |
| Skim Milk Max. T.S.               | 14                    | 24 | 26 | 28 |
| Whole Milk Max. T.S.              | 15                    | 30 | 33 | 35 |

**Note:** Trials should be made to determine temperature and viscosity effects.

### PHT SERIES BENEFITS

- Conforms to 3-A, FDA, and USDA sanitary standards
- Elimination of chlorine during CIP with hot sanitation
- High resistance to pH, temperature, & fouling
- Customizable dimensions for unique housings



### COMMON APPLICATIONS

- Whey protein concentrate & isolate production
- Enzyme concentration

### CONTACT US



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## ELEMENT DIMENSIONS

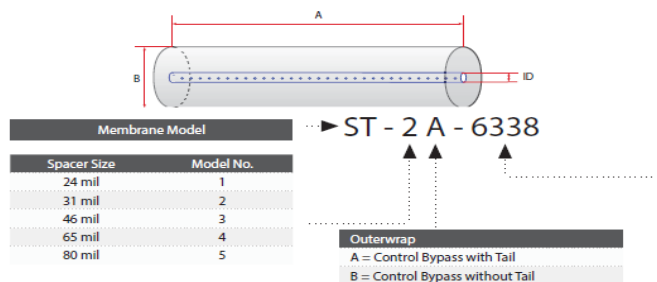
| Element | Model No. | Diameter (B) in | Length (A) in | P.W.T. ID |
|---------|-----------|-----------------|---------------|-----------|
| 1.8"    | 1812F     | 1.8             | 12            | 0.63      |
|         | 2519      | 2.5             | 19.25         | 0.63      |
| 2.5"    | 2540F     | 2.5             | 40            | 0.63      |
|         | 2540M*    | 2.5             | 38            | 0.75      |
|         | 3838      | 3.8             | 38            | 0.83      |
| 3.8"    | 3838.75   | 3.8             | 38.75         | 0.83      |
|         | 3850      | 3.8             | 50            | 0.83      |
|         | 3938.75   | 4.0             | 38.75         | 0.63      |
|         | 4333      | 4.3             | 33            | 0.83      |
|         | 4335      | 4.3             | 35            | 0.83      |
| 4.3"    | 4335.5    | 4.3             | 35.5          | 0.83      |
|         | 4336      | 4.3             | 36            | 0.83      |
|         | 4338      | 4.3             | 38            | 0.83      |
| 5.8"    | 5838      | 5.8             | 38            | 1.14      |
|         | 6338      | 6.3             | 38            | 1.14      |
| 6.3"    | 6324      | 6.3             | 24            | 1.14      |
|         | 6438      | 6.4             | 38            | 1.14      |
| 6.4"    | 6424      | 6.4             | 24            | 1.14      |
|         | 7838      | 7.8             | 38            | 1.14      |
| 7.8"    | 7824      | 7.8             | 24            | 1.14      |
|         | 8038      | 8.0             | 38            | 1.14      |
|         | 8040      | 8.0             | 40            | 1.14      |
| 8"      | 8238      | 8.2             | 38            | 1.14      |
|         | 8240      | 8.2             | 40            | 1.14      |
|         | 8338      | 8.3             | 38            | 1.14      |
|         | 8340      | 8.3             | 40            | 1.14      |
| 9.8"    | 9838      | 9.8             | 38            | 1.14      |
| 10"     | 10338     | 10.3            | 38            | 1.14      |

\*1" permeate tube extensions (0.75" OD)

## RECOMMENDED ELEMENT CROSS FLOW RATE

| Element |                    | 24  | 31  | 46  | 65  | 80  |
|---------|--------------------|-----|-----|-----|-----|-----|
| 1.8"    | m <sup>3</sup> /hr | 1   | 1   | 1   | 2   | 2   |
|         | gpm                | 4   | 5   | 6   | 7   | 7   |
| 2.5"    | m <sup>3</sup> /hr | 2   | 2   | 3   | 3   | 3   |
|         | gpm                | 9   | 10  | 11  | 12  | 13  |
| 3.8"    | m <sup>3</sup> /hr | 5   | 6   | 7   | 8   | 8   |
|         | gpm                | 22  | 25  | 29  | 33  | 35  |
| 4.3"    | m <sup>3</sup> /hr | 6   | 7   | 9   | 10  | 10  |
|         | gpm                | 29  | 32  | 38  | 44  | 46  |
| 5.8"    | m <sup>3</sup> /hr | 12  | 13  | 16  | 18  | 19  |
|         | gpm                | 51  | 59  | 69  | 78  | 83  |
| 6.3"    | m <sup>3</sup> /hr | 15  | 17  | 20  | 22  | 24  |
|         | gpm                | 65  | 74  | 88  | 99  | 105 |
| 8"      | m <sup>3</sup> /hr | 21  | 24  | 29  | 33  | 35  |
|         | gpm                | 94  | 107 | 128 | 143 | 154 |
| 10"     | m <sup>3</sup> /hr | 42  | 48  | 57  | 64  | 68  |
|         | gpm                | 184 | 213 | 250 | 283 | 299 |

The recommended cross flow rate will be subject to differential pressure limitations and specific applications. Please consult Synder Filtration if additional information is needed.



## MEMBRANE AREA (SQ. FT.)

| Element | Model No. | 24  | 31  | 46  | 65  | 80  |
|---------|-----------|-----|-----|-----|-----|-----|
| 1.8"    | 1812F     | N/A | 3.6 | N/A | N/A | N/A |
|         | 2519      | 15  | 13  | 10  | N/A | N/A |
| 2.5"    | 2540F     | 34  | 29  | 22  | N/A | N/A |
|         | 2540M     | 35  | 30  | 23  | N/A | N/A |
|         | 3838      | 85  | 72  | 58  | 46  | 38  |
| 3.8"    | 3838.75   | 86  | 74  | 59  | 47  | 39  |
|         | 3850      | 100 | 84  | 70  | 52  | 46  |
|         | 3938.75   | 102 | 89  | 69  | 53  | 47  |
|         | 4333      | 99  | 86  | 66  | 53  | 44  |
|         | 4335      | 105 | 91  | 71  | 56  | 47  |
| 4.3"    | 4335.5    | 107 | 93  | 72  | 57  | 48  |
|         | 4336      | 108 | 94  | 73  | 58  | 49  |
|         | 4338      | 115 | 100 | 77  | 62  | 52  |
| 5.8"    | 5838      | 210 | 184 | 147 | 114 | 96  |
|         | 6324      | 150 | 134 | 107 | 83  | 70  |
| 6.3"    | 6338      | 246 | 220 | 176 | 136 | 115 |
|         | 6424      | 157 | 140 | 112 | 83  | 74  |
| 6.4"    | 6438      | 258 | 230 | 184 | 136 | 122 |
|         | 7824      | 242 | 210 | 166 | 132 | 110 |
| 7.8"    | 7838      | 396 | 344 | 273 | 216 | 180 |
|         | 8038      | 414 | 368 | 287 | 225 | 189 |
|         | 8040      | 414 | 368 | 287 | 225 | 189 |
| 8"      | 8238      | 441 | 384 | 302 | 238 | 201 |
|         | 8240      | 441 | 384 | 302 | 238 | 201 |
|         | 8338      | 450 | 400 | 311 | 245 | 207 |
|         | 8340      | 450 | 400 | 311 | 245 | 207 |
| 9.8"    | 9838      | N/A | 564 | 440 | 351 | 296 |
| 10"     | 10338     | N/A | 620 | 492 | 386 | 326 |

## TECHNICAL NOTES

For element sizes not listed, please call or email Synder Filtration for details. We can design an element to fit your exact needs – just specify the element outer diameter (OD) or vessel/housing inner diameter (ID), element inner diameter (ID), and length. Elements are also available with or without a controlled bypass tail. Additional feed spacers are also available. Trials should be conducted to determine optimal application conditions.

## ELEMENT DESCRIPTIONS

| Model No. | OD (in.) | L (in.) | ID* (in.) | Weight (lb) | Weight (kg) |
|-----------|----------|---------|-----------|-------------|-------------|
| 1812F     | 1.8      | 12      | 0.63      | 1.0         | 0.5         |
| 2519      | 2.5      | 19.25   | 0.63      | 2           | 0.9         |
| 2540F     | 2.5      | 40      | 0.63      | 4           | 1.8         |
| 2540M*    | 2.5      | 38      | 0.75      | 4           | 1.8         |
| 3838      | 3.8      | 38      | 0.83      | 10          | 4.5         |
| 3838.75   | 3.8      | 38.75   | 0.83      | 10          | 4.5         |
| 3850      | 3.8      | 50      | 0.83      | 13          | 5.9         |
| 3938.75   | 4.0      | 38.75   | 0.63      | 10          | 4.5         |
| 4333      | 4.3      | 33      | 0.83      | 11          | 5.0         |
| 4335      | 4.3      | 35      | 0.83      | 11          | 5.2         |
| 4335.5    | 4.3      | 35.5    | 0.83      | 11          | 5.2         |
| 4336      | 4.3      | 36      | 0.83      | 11          | 5.2         |
| 4338      | 4.3      | 38      | 0.83      | 12          | 5.4         |
| 5838      | 5.8      | 38      | 1.14      | 15          | 7           |
| 6338      | 6.3      | 38      | 1.14      | 16          | 7           |
| 6324      | 6.3      | 24      | 1.14      | 17          | 7.7         |
| 6438      | 6.4      | 38      | 1.14      | 29          | 13.2        |
| 6424      | 6.4      | 24      | 1.14      | 18          | 8.2         |
| 7838      | 7.8      | 38      | 1.14      | 40          | 18.2        |
| 7824      | 7.8      | 24      | 1.14      | 26          | 11.8        |
| 8038      | 8.0      | 38      | 1.14      | 38          | 17.2        |
| 8040      | 8.0      | 40      | 1.14      | 39          | 17.7        |
| 8238      | 8.2      | 38      | 1.14      | 38          | 17.2        |
| 8240      | 8.2      | 40      | 1.14      | 40          | 18          |
| 8338      | 8.3      | 38      | 1.14      | 40          | 18          |
| 8340      | 8.3      | 40      | 1.14      | 40          | 18          |
| 9838      | 9.8      | 38      | 1.14      | 42          | 19.1        |
| 10338     | 10.3     | 38      | 1.14      | 50          | 22.7        |

\*1" permeate tube extensions (0.75" OD)

NOTE: Different diameters are available. Please specify your requirements when ordering. Specifications are subject to change without notice.

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