3M Purification
Product Brochure

Betapure™ AU Cartridges & Capsules
Rigid Filter Media

- Precise Contaminant Removal
- Improved Effluent Quality
- Reduced Operating Costs
Betapure AU Series filter cartridges and capsules set the standard for filtration performance. Offering more grades with absolute removal ratings than competitive filters, the controlled pore size of the Betapure AU filter matrix allow for absolute distinction between cartridge grades to provide the most accurate and consistent filtration.

The patented Betapure AU Series filter provides:

- Precise Contaminant Removal
- Consistent Effluent Quality
- Superior On-stream Service Life

Betapure AU filters, available in 18 distinct grades with absolute ratings from 2 to 190 microns to tailor the exact selection of performance characteristics for the greatest filtration economy by providing distinct removal cut-off points by particle size. Proprietary Betapure AU filter manufacturing combines advanced incoming material quality assurance, exacting in-process controls and extensive final product testing and verification. The result is a filter product that provides consistent filtration lot-to-lot, filter-to-filter.

Applications

Coating
- Magnetic Media
- High Quality Paint
- Film Coatings
- Resins
- Ink

Electronics
- Pre RO
- Water Slurries
- Ceramic Slurries
- Chemical Mechanical Polishing
- Cathode Ray Tube Production
- Disc Clearing

General Industrial
- Desalination
- Plating
- Machine Tool Coolant
- Process Water

Chemical/Petrochemical
- Process Water
- Pre RO
- Amines
- Fine Chemicals
- MTBE

Food & Beverage
- Bottled Water
- Pre RO
- Blend Water
- Wash Water

Pharmaceutical
- Water
- Solvents and Chemicals
- Pre RO

Features and Benefits

Absolute ratings
- Consistent and reproducible contaminant removal.
- To meet demanding filtration quality standards in today’s market, absolute ratings will provide product consistency and product yields.

Rigid structure
- Eliminates cartridge by-pass and unloading to provide consistent filtration from start to finish.
- The rigid filter structure retains consistent pore size even under severe process conditions. Changes such as those caused by pump fluctuations, stopping and restarting the system, or high differential pressure will have minimal, if any effect on product consistency.

Depth filtration
- Excellent removal of deformable contaminants for consistent effluent.
- Depth filtration removes deformable contaminants to reduce or totally eliminate rework or product quality rejection.

Patented gasket design
- Eliminates by-pass from poor or damaged seals.
- Critical to any filtration process is the elimination of filter by-pass. A patented closed cell polyethylene foam gasket ensures proper cartridge sealing when using knife-edge housing system.

Lower pressure drop
- Provides long service life while using smaller filter housings.
- Minimising flow restriction dramatically reduces filtration cost. Lower pressure drops mean increased filter life, product throughput and permit the use of fewer filters to achieve a given flow vs. differential pressure.

Available in standard cartridge and disposable capsules
- Wide range of filter sizes allows more appropriate filter sizing for batch and continuous processes.
- Filters appropriately sized for a specific application reduces total filtration costs including purchase, installation and disposal.
Performance Construction for Precision Filtration

The Rigid Construction Advantage

Betapure AU filter manufacturing utilises state-of-the-art technology to produce a clear, rigid, filter structure with consistent and reproducible filtration characteristics. The filter matrix is constructed using long bi-component fibres, each fibre having an inner core and an outer sheath (see picture at the right). Betapure AU filters are available in two bi-component fibre structures, polypropylene/polyethylene or polyester/co-polyester, to provide the greatest range of process compatibility.

The bi-component fibres of the filter matrix are thermally bonded by utilising the difference in melt temperatures of the two fibre components. Heating the matrix to the melt temperature of the polyethylene sheath, but below that of the polypropylene core, causes the fibre-to-fibre bond at every contact point. The high degree of fibre-to-fibre bonding provides a rigid structure that eliminates the need for a core support and any possibility of media migration.

The Betapure AU Series filter ensures that the unwanted particles are removed because:

- The rigid structure maintains its porosity throughout the filter life.
- The depth structure removes more difficult deformable contaminants.

With 18 distinct grades with absolute ratings from 2 to 190 microns to permit the exact filter performance selection, Betapure AU filters provide the greatest filtration economy available.

Enhanced Effluent Consistency

The sole purpose of filtration is to remove contaminants or materials that compromise product quality throughout the entire service life of the filter. A non-rigid filter’s pore structure changes as the system differential pressure increases. The result is changing filtration efficiency and inconsistent performance during the filter service life. This can only be corrected by a filter that retains its pore structure. Betapure AU Series filters are manufactured with precise control of the filter porosity coupled with the rigid Betapure AU structure to maintain its porosity throughout its service life. The result is consistent filtrate quality that is reproducible time after time, week after week, year after year.

Removal Ratings

3M Purification uses a Multiple Parameter Characterisation (MPC) that, unlike single point evaluations, determines a removal rating over a range of particle sizes (multi-value) and the filter’s service life (multi-point). The parameters measured include particle counts, turbidimetric efficiencies and removal efficiencies.

### Table 1: Polyolefin Betapure AU Ratings

<table>
<thead>
<tr>
<th>Grade</th>
<th>Rating (μm)</th>
<th>Grade</th>
<th>Rating (μm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absolute</td>
<td>Nominal</td>
<td>Absolute</td>
</tr>
<tr>
<td>Z13 - 020</td>
<td>2</td>
<td>0.2</td>
<td>B11</td>
</tr>
<tr>
<td>Z13 - 030</td>
<td>3</td>
<td>0.3</td>
<td>C11</td>
</tr>
<tr>
<td>Z13 - 050</td>
<td>5</td>
<td>0.5</td>
<td>E11</td>
</tr>
<tr>
<td>Z11 - 060</td>
<td>6</td>
<td>0.6</td>
<td>G11</td>
</tr>
<tr>
<td>Z11 - 070</td>
<td>7</td>
<td>0.7</td>
<td>L11</td>
</tr>
<tr>
<td>Z11 - 080</td>
<td>8</td>
<td>0.8</td>
<td>Q11</td>
</tr>
<tr>
<td>Z11 - 100</td>
<td>10</td>
<td>0.9</td>
<td>V11</td>
</tr>
<tr>
<td>Z11 - 120</td>
<td>12</td>
<td>1</td>
<td>W11</td>
</tr>
<tr>
<td>Z11 - 150</td>
<td>15</td>
<td>3</td>
<td>X11</td>
</tr>
</tbody>
</table>

### Table 2: Polyester Betapure AU Ratings

<table>
<thead>
<tr>
<th>Grade</th>
<th>Rating (μm)</th>
<th>Grade</th>
<th>Rating (μm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absolute</td>
<td>Nominal</td>
<td></td>
</tr>
<tr>
<td>A12</td>
<td>8</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>B12</td>
<td>20</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>C12</td>
<td>30</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>E12</td>
<td>40</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>G12</td>
<td>70</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>
Comparing Filtration Characteristics

The unique structure of the Betapure AU Series cartridge provides filtration characteristics that are more consistent than competitive filter cartridges. The following curves show the filtration characteristics of the Betapure AU Series cartridge compared to other polyolefin cartridges and typical polypropylene melt-blown and string-wound cartridges of equivalent removal rating.

Scientific Applications Support Services (SASS)

The cornerstone of 3M Purification’s philosophy is service to customers, not only in product quality and prompt delivery, but also in validation, application support and the sharing of scientific information.

3M Purification’s Scientific Applications Support Services (SASS) works closely with customers to solve difficult filtration challenges and to recommend the most efficient, economical filter systems. SASS specialists can perform on-site testing and utilise filtration applications expertise to partner with customers. 3M Purification resolves filtration problems promptly and efficiently in a cost-effective, confidential manner with a commercial support group consisting of 3M Purification’s in-house customer service staff, application specialists, and engineering services. 3M Purification’s broad distributor base and sales offices provide worldwide customer service, local inventory and field support in virtually every major centre of manufacturing.

Betapure AU Series Filter

Note that the Betapure AU filter exhibits excellent filtration capability during its service life. This is evident by the close proximity of the curves to one another. From start to finish, the filter performance does not vary. The rigid Betapure AU filter structure resists deformation, particle unloading or filter by-pass and provides consistently high particle removal efficiency.

Other Polyolefin Bi-component Filters

Other bi-component filters may look like Betapure AU Series cartridges, but they can’t match the performance. Note that immediately after the filter is put into service, the efficiency drops but then recovers to the initial efficiency. The inconsistent efficiency exhibited during the service life is reflected in poor effluent and is not reliable enough to satisfy the demand for exceptional product quality.

How these tests were conducted…

3M Purification uses a Multiple Parameter Characterisation (MPC) that, unlike single point evaluations, determines a removal rating over a range of particle sizes (multi-value) and the filter’s service life (multi-point). The parameters measured include particle counts, turbidimetric efficiencies and removal efficiencies.

<table>
<thead>
<tr>
<th>Conditions of Test:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow:</td>
</tr>
<tr>
<td>Fluid:</td>
</tr>
</tbody>
</table>
Filtration Advantage – Rigid Construction

Flow Characteristics
Betapure AU Series exhibits superior flow characteristics for the same removal rating as other polyolefin fibre based cartridges.

The curve shows that at a given flow rate the pressure drop across Betapure AU Series is considerably lower than competitive products.

The benefits of lower pressure drops are:
• Longer cartridge life
• Higher throughputs
• Smaller housing requirements
• Lower overall costs

Chemical Compatibility
Betapure AU Series filters are composed of bi-component fibres, either polypropylene/polyethylene or polyester, both offering broad chemical compatibility. Note that compatibility is always a function of exposure time, operating temperature and chemical concentration. If compatibility is in question, 3M Purification recommends that the filter be tested. For more general information about Betapure AU Series filter chemical compatibility, contact your local distributor.

Regulatory Compliance
Standard Betapure AU Series filters (polypropylene/polyethylene) comply with FDA regulation CFR 21. Betapure AU filters have also been USP XXI Class VI (Safety Test for Plastics) tested and have been deemed suitable for pharmaceutical application. Detailed information about application compatibility and samples for testing are available by contacting your local 3M Purification representative.
Disposal
Betapure AU Series filters can be incinerated, shredded or crushed after to reduce the overall disposal costs. For more information about Betapure AU disposal, ask your local 3M Puri filtration distributor.

Cartridge Configurations
All Betapure AU Series cartridges are available in continuous multiple lengths up to 60” (1524 mm) long, with various end treatments to fit your current housing (see ordering guide).

Table 3: Betapure AU Series Cartridge Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length * (nominal)</td>
<td>9&quot; ¾ to 60&quot; (248 mm to 1524 mm)</td>
</tr>
<tr>
<td>Inside Diameter (nominal)</td>
<td>25.4 mm</td>
</tr>
<tr>
<td>Outside Diameter (nominal)</td>
<td>63.5 mm</td>
</tr>
<tr>
<td>* Other sizes available on request, consult factory</td>
<td></td>
</tr>
</tbody>
</table>

Special Configurations
Betapure AU is available in special configurations upon request. The length, inside and outside diameters can be modified for your specific needs. Consult your local 3M Purification distributors for more information.

Example 1:
Determine the initial pressure drop for water flowing at 30 litre/min per 30" (C11) 30 μm cartridge.
Fluid = Water (1 centipoise)
Flow = 30 litre/min
Flow per 10" cartridge = 30 : 3 = 10 litre/min
Specific pressure drop from column 3 of Table 4 = 2.18 mbar / litre per min
Calculate: 2.18 x 10 = 21.8 mbar

Example 2:
Determine the oil flow rate at an initial pressure drop of 140 mbar per 10" (E11) 40 μm cartridge.
Fluid = 100 centipoises oil
Initial differential pressure = 140 mbar
Specific pressure drop from column 3 of Table 4 = 0.89 mbar / litre per min
Multiply psi/gpm x viscosity in centipoises = 0.89 x 100 = 89
Calculate: 140 mbar/89 (mbar/litre per min) = 1.57 l/min

How to determine Cartridge Flow Rates/Pressure Drop Sizing
Betapure AU exhibits superior flow characteristics for the same micron rating compared to other fibre based cartridges. This allows for longer cartridge life, higher throughput and smaller housing requirements. Table 4 provides flow information for Betapure AU filters in aqueous fluids.

The specific pressure drop values (mbar/ litre per min) per 10" cartridge at 1 centipoise are provided for each filter grade. For fluids other than water, multiply the specific pressure drop value by the viscosity in centipoises. The specific pressure drop values may be effectively used when three of the four variables (viscosity, flow, differential pressure and cartridge grade) are set.
Betapure™
AU Series
Depth Filter Cartridges & Capsules

Filter Systems
3M Purification manufactures a full line of Betapure AU compatible filter housings and a wide variety of industrial filter media to meet most application requirements. Housing models are available for both air and liquid applications in a wide range of construction materials, from plastics to PED Cat. IV and ATEX compliant 316L stainless steel, to suit a variety of application needs. For more information about 3M Purification filter housings and other filter media, consult your local 3M Purification distributor.

Betapure AU Series Capsules
The Betapure AU Series capsule is a polypropylene encapsulated filter that eliminates the need for a separate filter vessel. Available in a wide range of configurations (see ordering guide) including sanitary flange and hose barb connections, the 2.5” and 5” capsules are ideal for small batch and filter test applications. The following are typical water flow rates for Betapure AU capsules with 1 ½” sanitary flange connections. Other end connections will affect maximum flow rates, see table below. Consult factory representative for flow rates using optional end connections or visit www.3MPurification.com.

Flow Rates for 5” Capsules with 1 ½” Sanitary Flanges at 20 °C

<table>
<thead>
<tr>
<th>Fluid Flow (litres/min)</th>
<th>Differential Pressure (mbar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>34</td>
</tr>
<tr>
<td>3.8</td>
<td>52</td>
</tr>
<tr>
<td>7.6</td>
<td>70</td>
</tr>
<tr>
<td>11.4</td>
<td>88</td>
</tr>
<tr>
<td>15.1</td>
<td>106</td>
</tr>
<tr>
<td>18.9</td>
<td>124</td>
</tr>
<tr>
<td>22.7</td>
<td>142</td>
</tr>
</tbody>
</table>

Flow Rates for 2.5” Capsules with 1 ½” Sanitary Flanges at 20 °C

<table>
<thead>
<tr>
<th>Fluid Flow (litres/min)</th>
<th>Differential Pressure (mbar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>34</td>
</tr>
<tr>
<td>3.8</td>
<td>52</td>
</tr>
<tr>
<td>7.6</td>
<td>70</td>
</tr>
<tr>
<td>11.4</td>
<td>88</td>
</tr>
<tr>
<td>15.1</td>
<td>106</td>
</tr>
<tr>
<td>18.9</td>
<td>124</td>
</tr>
<tr>
<td>22.7</td>
<td>142</td>
</tr>
</tbody>
</table>

Betapure AU Capsule
Max. Recommended Flow by Configuration

<table>
<thead>
<tr>
<th>End Connection</th>
<th>Maximum Recommended Flow Rate (litre/min)</th>
<th>Housing Pressure Loss (mbar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ½” Sanitary Flange</td>
<td>22.7 l/min</td>
<td>69 mbar</td>
</tr>
<tr>
<td>½” Hose barb</td>
<td>11.4 l/min</td>
<td>103 mbar</td>
</tr>
<tr>
<td>¼” MNPT</td>
<td>5.7 l/min</td>
<td>165 mbar</td>
</tr>
</tbody>
</table>

Betapure AU Capsule - Materials of Construction

| All Betapure AU Series Filter Media | Bi-component polypropylene/ polyethylene fibres |
| Z11 Filter Media | Includes a polypropylene insert |
| Z13 Filter Media | Includes a glass paper insert |
| Capsule Body | Polypropylene |
| Vent/Drain O-rings | See ordering guide |

Betapure AU Series filter capsule ordering guide

<table>
<thead>
<tr>
<th>Type</th>
<th>Grade * Absolute rating (μm)</th>
<th>Configuration</th>
<th>Nominal length</th>
<th>End connections</th>
<th>Vent O-ring option</th>
<th>Packaging Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>AU</td>
<td>Betapure AU</td>
<td>Z13020 = 2 μm</td>
<td>C = Capsule</td>
<td>01 = 2.5’ 02 = 5”</td>
<td>A = 1 ½’ sanitary flange</td>
<td>A = Silicone (MVQ)**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z13030 = 3 μm</td>
<td></td>
<td></td>
<td>B = ½” hose barb (14 mm)</td>
<td>B = Fluorocarbon (FPM)**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z13050 = 5 μm</td>
<td></td>
<td></td>
<td>C = ¼” MNPT</td>
<td>C = Ethylene Propylene (EPOM)**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z11060 = 6 μm</td>
<td></td>
<td></td>
<td>D = ⅜” FNPT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z11070 = 7 μm</td>
<td></td>
<td></td>
<td>E = ¼” - ⅜” - ⅝” tapered hose barb</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z11080 = 8 μm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z11100 = 10 μm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z111120 = 12 μm</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z11150 = 15 μm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B11 = 20 μm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>C11 = 30 μm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>E11 = 40 μm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>G11 = 70 μm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>L11 = 90 μm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q11 = 100 μm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>V11 = 140 μm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>W11 = 160 μm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>X11 = 190 μm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example: AU Z13050 C 01 A A 03
* Grades Z13020 through Z13050 employ a glass paper insert
** ISO Designation

Example: AU Z13050 C 01 A A 03
* Grades Z13020 through Z13050 employ a glass paper insert
** ISO Designation
### Betapure AU Series

**Depth Filter Cartridges & Capsules**

#### Polyester Betapure AU cartridge ordering guide

<table>
<thead>
<tr>
<th>Cartridge Type</th>
<th>Cartridge Length*</th>
<th>Grade / Micron rating Absolute (Nominal)</th>
<th>Betapure AU Media</th>
<th>End Modification</th>
<th>Flat Gasket or O-ring material</th>
</tr>
</thead>
<tbody>
<tr>
<td>AU = Betapure AU</td>
<td>09 = 9 ⅛”</td>
<td>B = 20 μm abs (6 μm)</td>
<td>11 = Polyester</td>
<td>A = Millipore</td>
<td>A = Silicone (MVQ)**</td>
</tr>
<tr>
<td></td>
<td>10 = 10”</td>
<td>C = 30 μm abs (10 μm)</td>
<td>B = Code 7 Bayonet Lock</td>
<td>B = Fluorocarbon (FPM)**</td>
<td>B = Fluorocarbon (FPM)**</td>
</tr>
<tr>
<td></td>
<td>19 = 19 ⅝”</td>
<td>D = 40 μm abs (20 μm)</td>
<td>C = Code 8 double O-ring</td>
<td>C = Ethylene Prop. (EPDM)**</td>
<td>C = Ethylene Prop. (EPDM)**</td>
</tr>
<tr>
<td></td>
<td>20 = 20”</td>
<td>E = 70 μm abs (30 μm)</td>
<td>D = DOE with hard cap (Length = 10” nominal)</td>
<td>D = Nitrile (NBR)**</td>
<td>D = Nitrile (NBR)**</td>
</tr>
<tr>
<td></td>
<td>29 = 29 ⅛”</td>
<td>F = 100 μm abs (75 μm)</td>
<td>E = DOE with hard cap (Length = 9 ⅛” nominal)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30 = 30”</td>
<td>G = 140 μm abs (100 μm)</td>
<td>F = Code 3 Double O-ring flat cap</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>39 = 39”</td>
<td>W = 160 μm abs (150 μm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>40 = 40”</td>
<td>X = 190 μm abs (175 μm)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* other lengths on request ** ISO Designation ***require D or E end modification

**Example:** AU 29 C11 NG

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#### Polyester Betapure AU Z grade cartridge ordering guide

<table>
<thead>
<tr>
<th>Cartridge Type</th>
<th>Cartridge Length*</th>
<th>Grade / Micron rating Absolute (Nominal)</th>
<th>Betapure AU Media</th>
<th>End Modification</th>
<th>Flat Gasket or O-ring material</th>
</tr>
</thead>
<tbody>
<tr>
<td>AU = Betapure AU</td>
<td>09 = 9 ⅛”</td>
<td>A** = 8 μm abs (3 μm)</td>
<td>12 = Polyester</td>
<td>A = Millipore</td>
<td>A = Silicone (MVQ)**</td>
</tr>
<tr>
<td></td>
<td>10 = 10”</td>
<td>B = 20 μm abs (6 μm)</td>
<td></td>
<td>B = Fluorocarbon (FPM)**</td>
<td>B = Fluorocarbon (FPM)**</td>
</tr>
<tr>
<td></td>
<td>19 = 19 ⅝”</td>
<td>C = 30 μm abs (10 μm)</td>
<td></td>
<td>C = Ethylene Prop. (EPDM)**</td>
<td>C = Ethylene Prop. (EPDM)**</td>
</tr>
<tr>
<td></td>
<td>20 = 20”</td>
<td>D = 40 μm abs (20 μm)</td>
<td></td>
<td>D = Nitrile (NBR)**</td>
<td>D = Nitrile (NBR)**</td>
</tr>
<tr>
<td></td>
<td>29 = 29 ⅛”</td>
<td>E = 70 μm abs (30 μm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30 = 30”</td>
<td>G = 160 μm abs (175 μm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>39 = 39”</td>
<td>H = 200 μm abs (215 μm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>40 = 40”</td>
<td>I = 400 μm abs (450 μm)</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

* other lengths on request ** ISO Designation ***require D or E end modification

**Example:** AU 09 B12 NN

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#### Polymer Betapure AU Z grade cartridge ordering guide

<table>
<thead>
<tr>
<th>Cartridge Type</th>
<th>Cartridge Length*</th>
<th>Betapure AU Media</th>
<th>End Modification</th>
<th>Flat Gasket or O-ring material</th>
<th>Absolute Removal rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>AU = Betapure AU</td>
<td>09 = 9 ⅛”</td>
<td>Z13 = Polyolefin/Glass</td>
<td>13 = Polyethylene</td>
<td>Z13 material only</td>
<td>020 = 2 μm abs</td>
</tr>
<tr>
<td></td>
<td>10 = 10”</td>
<td>Z11 = Polyolefin/Polyolefin</td>
<td></td>
<td>033 = 3 μm abs</td>
<td>050 = 5 μm abs</td>
</tr>
<tr>
<td></td>
<td>19 = 19 ⅝”</td>
<td></td>
<td></td>
<td>070 = 7 μm abs</td>
<td>111 material only</td>
</tr>
<tr>
<td></td>
<td>20 = 20”</td>
<td></td>
<td></td>
<td>080 = 8 μm abs</td>
<td>120 = 12 μm abs</td>
</tr>
<tr>
<td></td>
<td>29 = 29 ⅛”</td>
<td></td>
<td></td>
<td>150 = 15 μm abs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30 = 30”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>39 = 39”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>40 = 40”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* other lengths on request ** ISO Designation

**Example:** AU 20 Z11 BB 100

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