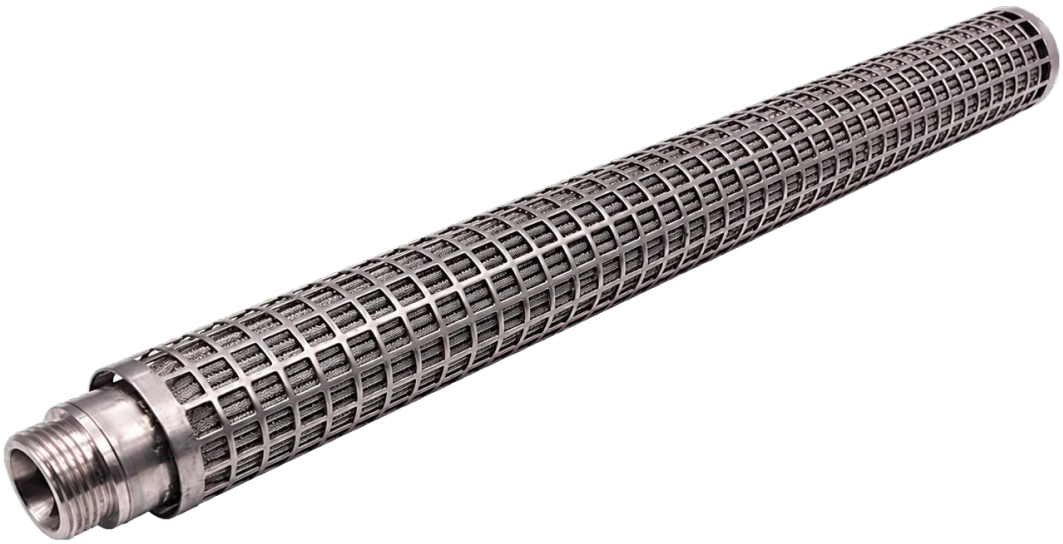
JV PROFESSIONAL TEXTILE SOLUTIONS

POLYMER MELT CANDLE FILTERS

ENGINEERED ALL METAL FILTRATION FOR HIGH VISCOSITY POLYMER PROCESSING



Representative pleated candle element with protective support cage

DESIGNED TO SUPPORT

Stable melt cleanliness, controlled pressure development and protection of downstream equipment.

TYPICAL POLYMERS: PET | rPET | PA6 | PA66 | PP | SPECIALITY POLYMERS

TECHNICAL SELECTION

Media type, filtration rating, element geometry and connection are selected from the actual polymer, contamination, throughput and pressure profile.

MELT CLEANLINESS

Precision filtration protects process stability and yarn quality

Candle elements remove hard particles and deformable contaminants from high viscosity polymer streams before critical downstream processing.

All-metal pleated element for application-specific melt filtration

CUSTOMER VALUE

01 CAPTURE CONTAMINATION: Retain carbonised particles, metal oxides, agglomerates, undissolved polymer and gel-type contamination.

02 STABILISE THE MELT: Controlled retention supports a cleaner and more uniform polymer stream.

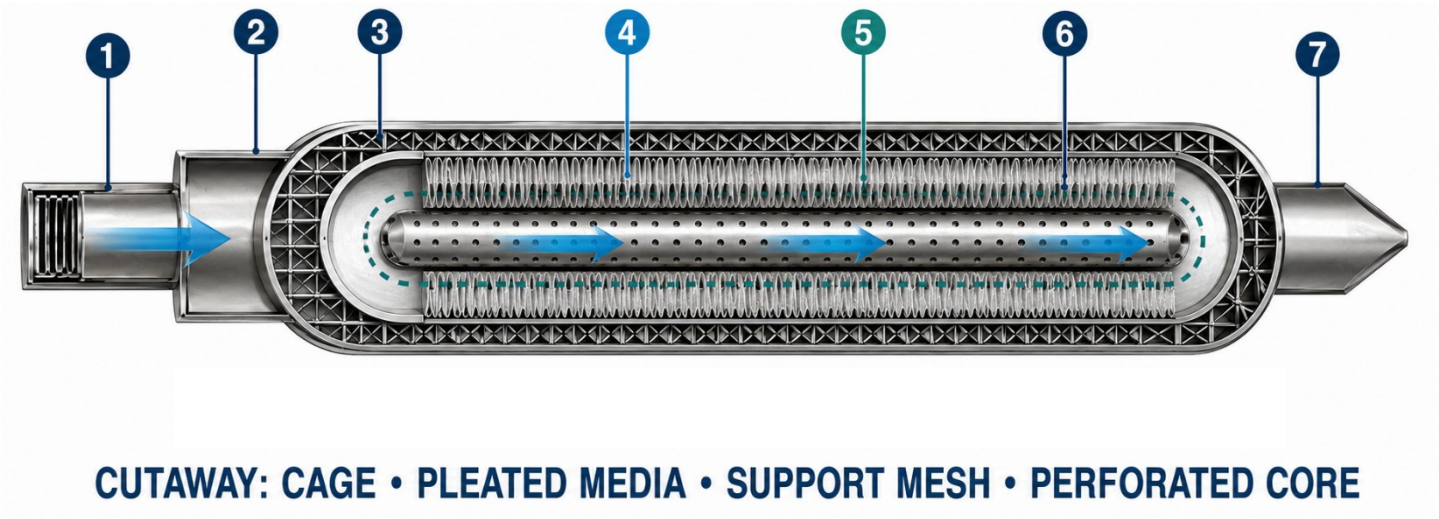
03 PROTECT DOWNSTREAM QUALITY: Reduce visible defects, filament breaks and unplanned interruptions associated with contamination.

04 SUPPORT CRITICAL DUTIES: All-metal construction is suited to fibre, film, resin and other high-temperature polymer services.

ELEMENT ARCHITECTURE

Engineered for filtration area, strength and controlled reuse

Supported multi-pleat media increases effective filtration area while the welded support structure maintains the flow path under pressure and cleaning cycles.



Representative element architecture; the approved drawing governs the supplied construction

NO.	COMPONENT	ENGINEERING FUNCTION
1	**Connection / Adaptor**	Matches the housing interface and transfers filtered melt to the outlet.
2	**Welded End Fitting**	Seals the media assembly and maintains mechanical integrity.
3	**Outer Guard Or Support Cage**	Protects the pleats during handling, operation and reverse cleaning.
4	**Pleated Filtration Medium**	Provides the required retention mechanism and effective area.
5	**Drainage / Support Mesh**	Supports the filtration medium and maintains flow channels.
6	**Perforated Inner Core**	Resists differential pressure and conveys the filtered polymer.
7	**Closed End / Flow Guide**	Reduces low-flow volume where included in the

NO.	COMPONENT	ENGINEERING FUNCTION
		approved design.

MATERIAL INTEGRITY

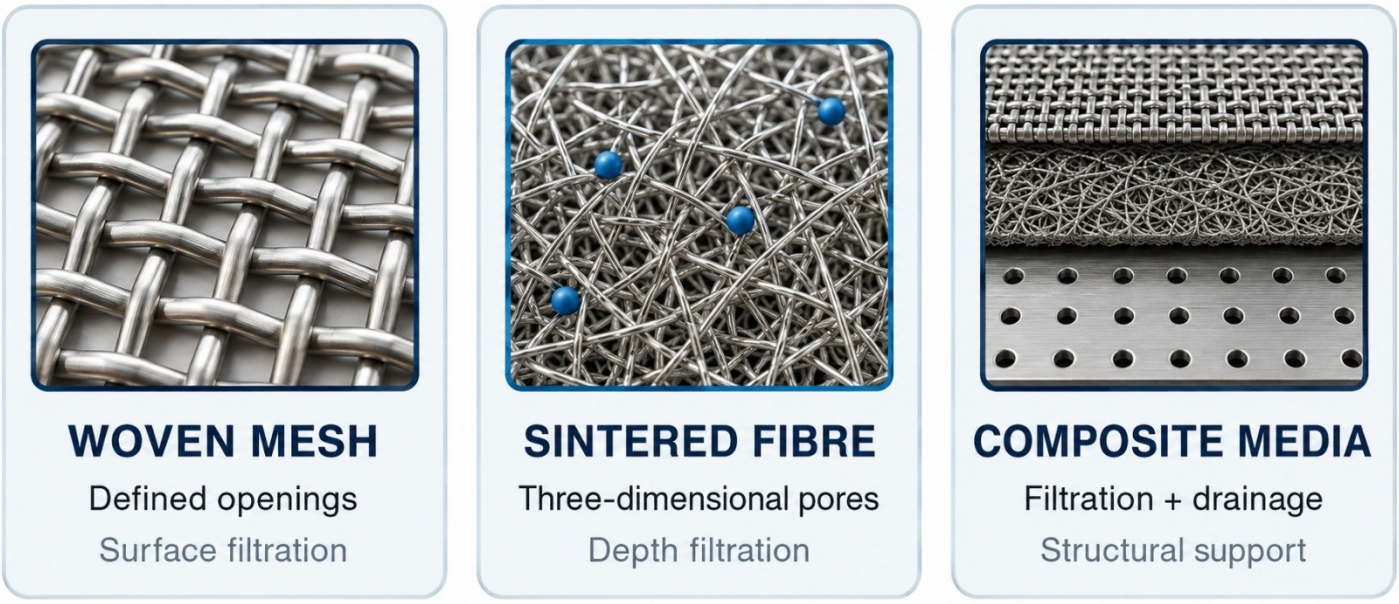
All-metal construction avoids fibre or binder shedding into the polymer stream.

FILTRATION MEDIA SELECTION

Match the retention mechanism to the contamination profile

Micron rating alone is not a complete specification. Media structure, permeability, support, effective area and cleanability must suit the actual process.

MEDIA OPTION	FILTRATION MECHANISM	BEST-SUITED DUTY	OPERATING VALUE
Woven Stainless Steel Mesh	Predominantly surface filtration with defined woven openings.	Hard particles, lower contaminant loading and coarser filtration.	Good permeability, narrow pore distribution and comparatively straightforward cleaning.
Sintered Stainless Steel Fibre	Three dimensional depth filtration through a bonded porous fibre network.	Hard particles and deformable gel-type contamination.	High porosity and dirt holding with resistance to temperature, differential pressure and repeated cleaning.
Supported Composite Construction	Application-specific combination of filtration, drainage and structural layers.	Processes requiring a balance of gel control, strength and permeability.	Maintains pleat stability and distributes flow through the available area.



Media structures are selected against contamination, pressure-drop and cleaning requirements

SELECTION PRINCIPLE

Use the coarsest rating that achieves the required melt cleanliness and quality while maintaining acceptable initial pressure drop and on-stream life.

EFFECT ON FILAMENT QUALITY

Filtration improves consistency more than it changes the nominal set point

A correctly selected candle filter helps prevent local flow restrictions and contamination-related weak points. Average yarn properties remain governed mainly by polymer quality, metering, temperature, quenching, spinning speed and drawing.

QUALITY PARAMETER	EXPECTED FILTRATION EFFECT	IMPORTANT PROCESS LIMIT
Linear Density / Decitex - Denier	Supports lower filament-to-filament and along length variation by reducing capillary restriction and unstable contaminant passage.	Average linear density is primarily set by actual mass flow and take-up speed.
Tenacity	Reduces contaminant-related weak points and supports more consistent minimum strength and tenacity CV.	Mean tenacity remains strongly dependent on polymer molecular weight, orientation and draw.
Elongation	Supports a narrower elongation distribution through more uniform filament formation and drawing response.	The direction of the mean change is process-dependent.
Evenness / Uster Cv%	Fewer transient restrictions, partial blockages and contaminant events can reduce thick-thin variation.	Pump, quench and winding stability must also be controlled.
Shrinkage And Dye Uptake	More uniform filament formation supports more consistent orientation, shrinkage and dye response.	Thermal history and drawing conditions remain decisive.

QUALITY PARAMETER	EXPECTED FILTRATION EFFECT	IMPORTANT PROCESS LIMIT
Defects And Line Stability	Fewer gels, slubs, broken filaments, spin breaks, fuzz and downstream interruptions.	An excessively fine or overloaded element can create high pressure and shorten service life.

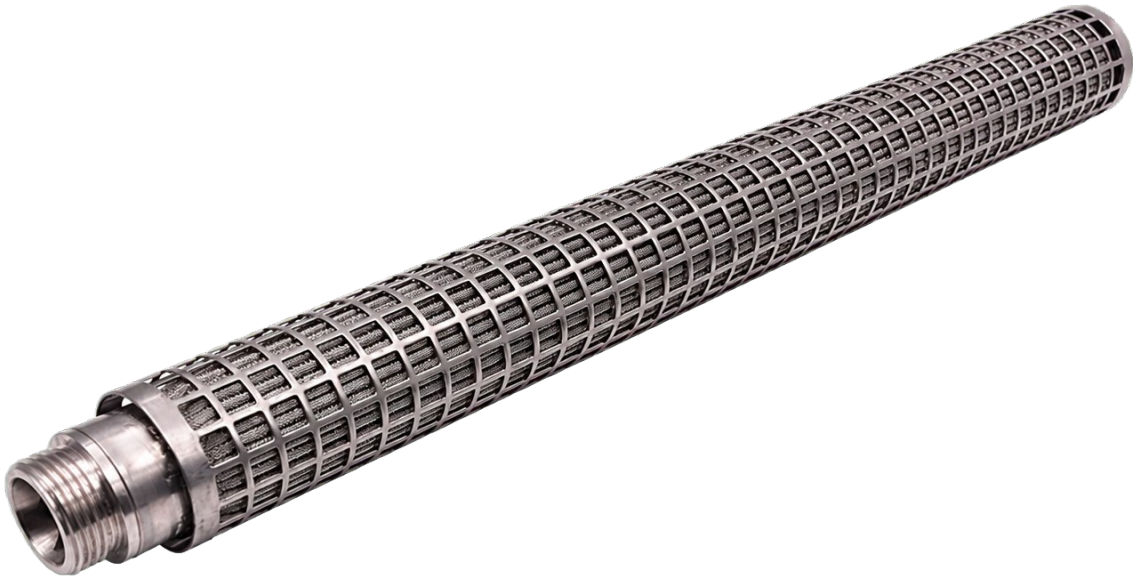
DIAGNOSTIC INDICATION

Stable total linear density with poor single filament uniformity points toward local distribution, contamination or downstream capillary restriction rather than the metering set point.

DESIGN LIMITS AND PRESSURE CONTROL

Confirm every rating against the approved element design

The media, pleat pack, support core, welds, dimensions, end fitting and cleaning history jointly determine the allowable operating envelope.



Representative protected candle element

REPRESENTATIVE PUBLISHED VALUE	BASIS FOR USE
300 °C Typical Working Temperature	Confirm polymer temperature, alloy, dwell time and cleaning history.
30 Mpa Typical Line / Housing Pressure	This is not the same as differential pressure across the element.
Up To 10 Mpa Maximum Differential Pressure	Final limit must be certified for the exact element construction.
16.9 To 41 Mg/Cm² Reported Dirt Holding Capacity	Manufacturer published range; test method and media grade must be stated for comparison.

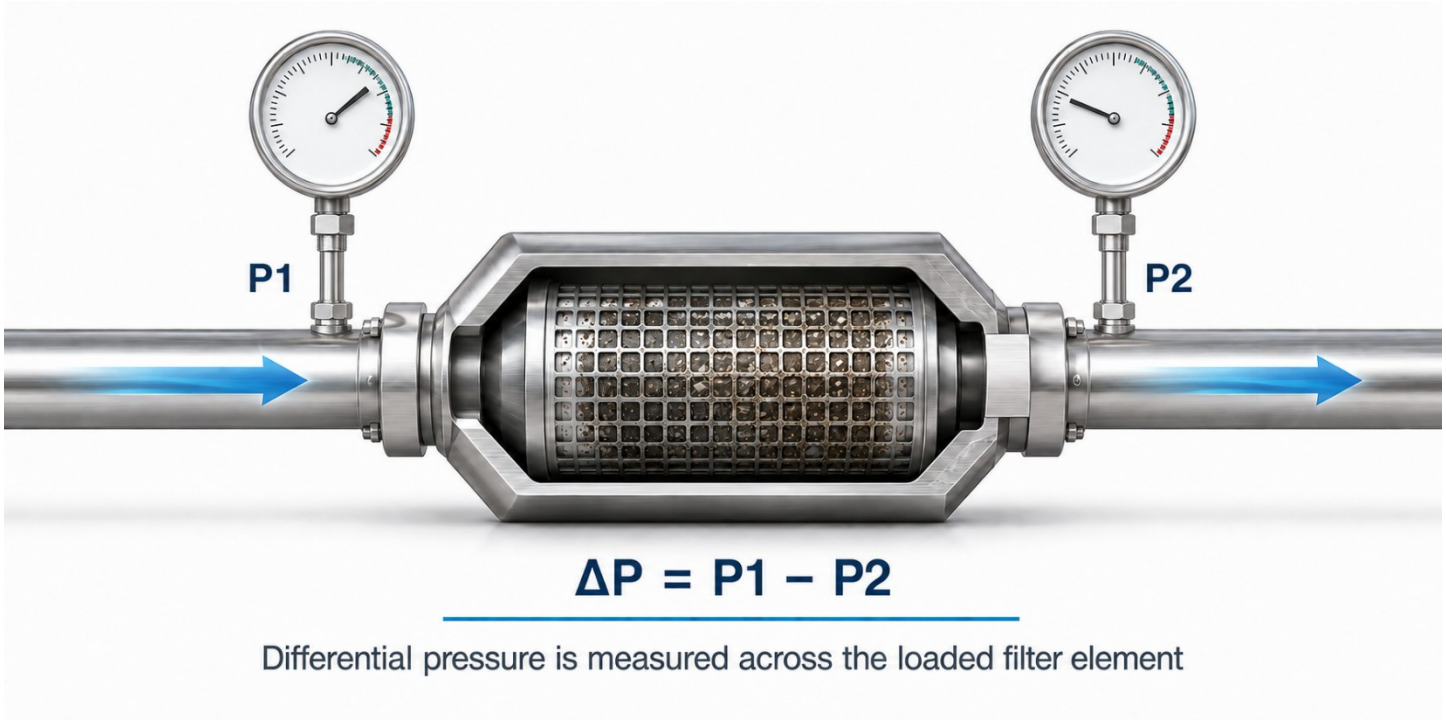
SOURCE BASIS

Representative manufacturer-published values for the element family. They are not universal ratings; the approved JV quotation, drawing and technical data sheet govern the supplied element.

PRESSURE TERMINOLOGY

Use pressure terms consistently

Line pressure and differential pressure describe different loads. The approved element design and the measured pressure across the element must both remain within their stated limits.



Representative pressure measurement across a candle filter element

PRESSURE TERMS

WORKING PRESSURE

The line or housing pressure acting on the element assembly.

DIFFERENTIAL PRESSURE

Upstream pressure minus downstream pressure across the loaded element; this is the critical structural and terminal operating limit.

CLEAN PRESSURE DROP

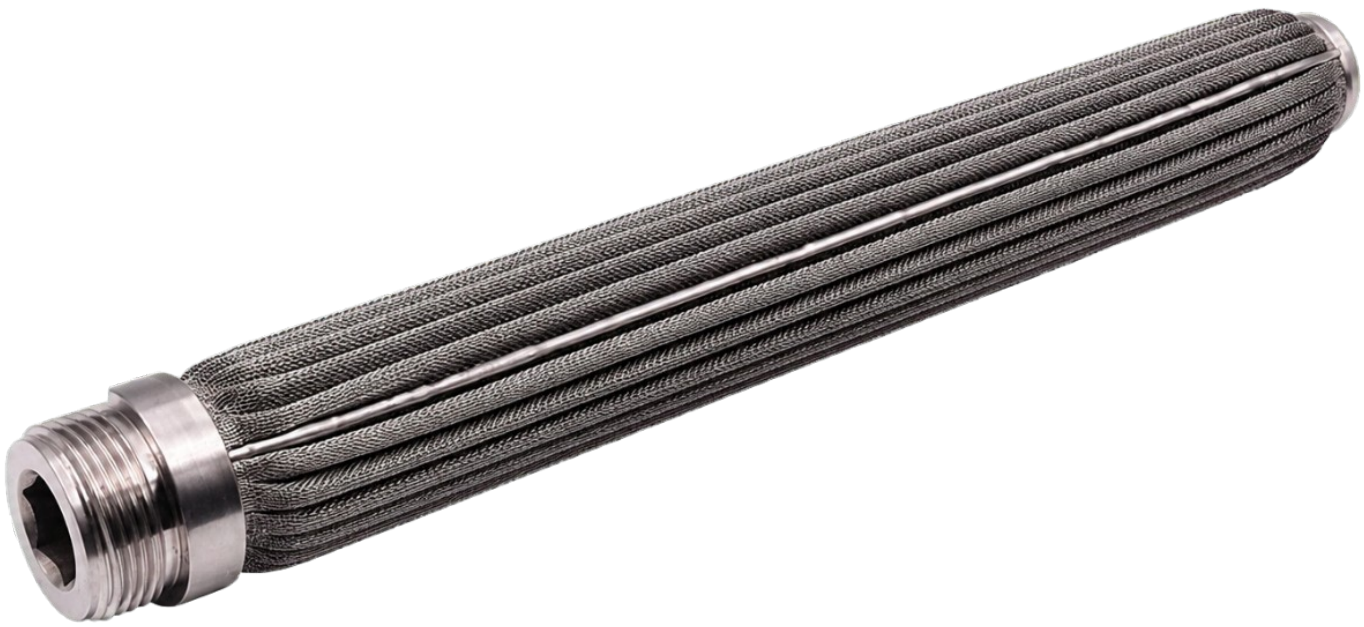
The initial resistance at stabilised throughput, melt temperature and viscosity; use it as the baseline for monitoring pressure rise.

APPLICATIONS AND CONFIGURATIONS

Adapt the media, geometry and interface to the process duty

Standard and custom candle elements can be configured for polymer fibre, film, resin and other high-viscosity services, subject to complete design review.

APPLICATION	TYPICAL CONTAMINATION / REQUIREMENT	SELECTION EMPHASIS
PET AND rPET FIBRE	Carbonised polymer, gels, oxides and recycled-feed variability.	Gel retention, low pressure rise and stable on-stream life.
PA6 / PA66 FILAMENT	Thermal sensitivity, gels and hard particles.	Low residence volume, compatible alloy and controlled differential pressure.
PP FIBRE AND NONWOVENS	Additive agglomerates, char and solid contamination.	Required rating, throughput per element and cleanability.
FILM AND RESIN FINISHING	Visible defects, gels and final-product appearance.	Fine retention, uniform flow and integrity verification.



Representative pleated construction without an outer support cage

CONNECTIONS AND MOUNTING

Confirm the complete element interface

Connection names are only a starting point. The sealing arrangement, insertion length, flow direction and removal feature must match the approved housing drawing or verified reference sample.

**Quick-interface codes are representative options and must be dimensionally confirmed*

DRAWING CONTROL

Connection code alone is insufficient. Confirm sealing diameter, O-ring material, insertion length, flow direction, effective length, outside diameter and removal feature.

CLEANING, INSPECTION AND REUSE

A cleanable element must be requalified after each cleaning cycle

Cleaning restores permeability only when the method is compatible with the polymer, media, alloy, welds and contamination. Excessive thermal, chemical or mechanical treatment can damage the element.

Pleated all-metal construction intended for controlled cleaning and reuse

Typical controlled cleaning sequence

1. Remove bulk polymer using an approved thermal or chemical process selected for the polymer and element construction.
2. Clean the media and internal flow paths using qualified reverse-flow, solvent, chemical or ultrasonic steps as appropriate.
3. Neutralise, rinse and dry the element completely without introducing new contamination.
4. Inspect the connection, welds, support cage, pleats and dimensions for deformation or damage.
5. Verify permeability / clean pressure drop and filter integrity before returning the element to service.

POST-CLEANING VERIFICATION

Requalify integrity and flow resistance before reuse

A visually clean element is not necessarily serviceable. Compare each cleaned element with approved dimensional, permeability and integrity acceptance criteria.

POST CLEANING CHECK	PURPOSE
Visual And Dimensional Inspection	Detect damaged pleats, cage deformation, weld defects or interface wear.
Permeability / Flow-Resistance Test	Confirm that polymer and cleaning residue have been adequately removed.
Bubble-Point Or Qualified Bypass-Flow Test	Detect large pores, leaks or breaches that could compromise retention.
Cycle-History Record	Track cleaning count, pressure recovery and any change in integrity values.

IMPORTANT

Do not release an element for reuse solely because it appears visually clean; integrity and flow resistance must remain within the approved acceptance limits.

SELECTION INPUTS

Define the complete application before selecting the candle

Reliable selection requires process, contamination, hydraulic and dimensional data. A nominal micron rating cannot compensate for an unsuitable area, support structure or interface.

INFORMATION CATEGORY	DATA REQUIRED FOR TECHNICAL REVIEW
Polymer	Grade, virgin/recycled content, additives, intrinsic viscosity or melt-viscosity range and thermal sensitivity.
Process Conditions	Normal / maximum temperature, total throughput, number of elements, viscosity and operating cycle.
Contamination	Hard particles, gels, char, oxides, agglomerates, target defect or current quality issue.
Filtration Requirement	Current and required retention rating, media type, effective area and required product quality.
Pressure Profile	Clean inlet/outlet pressure, initial differential pressure, terminal limit and pressure-rise rate.
Housing And Flow	Housing drawing, flow direction, element quantity, spacing, support and any dead-volume constraints.
Element Dimensions	Overall length, effective length, OD, ID/core, end fitting, sealing diameters and tolerances.
Cleaning And Life	Existing cleaning method, cycle count, failure mode, on-stream life and post-cleaning test method.
Reference Evidence	Existing element drawing, sample, photographs, nameplate data and current supplier specification.

MINIMUM DIMENSIONAL CONTROL

Do not manufacture from a product photograph alone. Use an approved drawing or dimensionally verified reference sample.

APPLICATION-SPECIFIC RATING

> Final filtration rating and media choice must balance retained contamination, clean pressure drop, pressure-rise rate and target on-stream life.

PLANT QUALIFICATION

Prove performance against agreed process and quality criteria

A controlled comparison with the existing approved element provides the most reliable basis for routine supply approval.

TRIAL MEASUREMENT	WHAT TO RECORD	DECISION VALUE
Initial Pressure Drop	Stable throughput, melt temperature and viscosity after start-up.	Confirms permeability and hydraulic fit.
Pressure Rise Rate	Differential pressure trend over the agreed operating period.	Indicates contaminant loading and usable on-stream life.
Process Stability	Throughput, temperature, pressure fluctuations and interruptions.	Checks that the element supports normal operation.
Filament / Product Quality	Linear-density CV, tenacity and elongation CV, breaks, defects, colour or film appearance as applicable.	Links filtration performance to saleable quality.
Element Condition	Pleat shape, cage, welds, seals and retained contamination after removal.	Confirms mechanical suitability and failure mode.
Cleaning Recovery	Post-cleaning permeability, integrity result and pressure-drop recovery.	Determines whether repeated use remains economical and safe.

Recommended approval sequence

1. Approve the element drawing, media description, rating method, dimensions and design limits.
2. Agree the trial quantity, operating window, monitoring frequency and terminal differential pressure.
3. Run the trial beside a defined baseline under comparable polymer and process conditions.
4. Review quality, pressure trend, on-stream life, cleanability and total operating cost before routine approval.

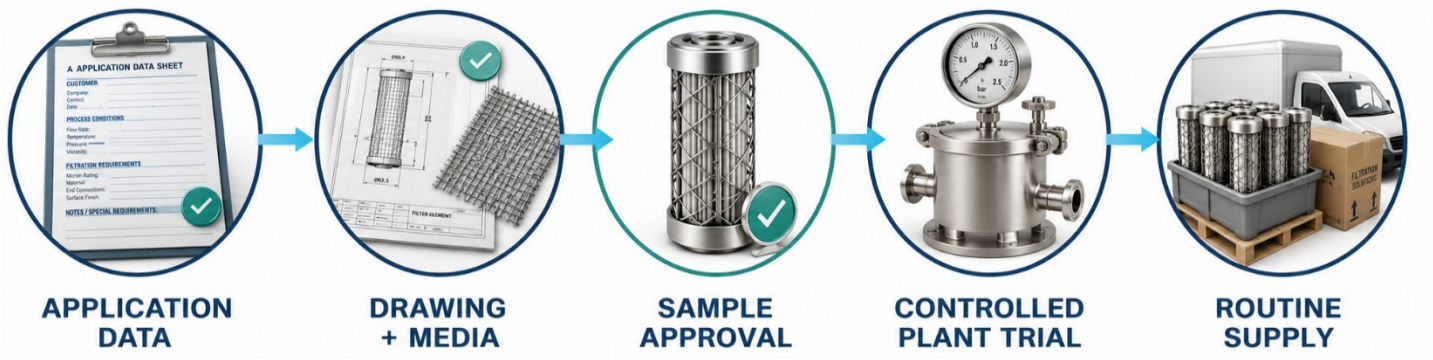
QUALIFICATION PRINCIPLE

> Approve the complete element and process result - not only the nominal micron rating or initial purchase price.

JV APPLICATION SUPPORT

Application-led support from enquiry to controlled supply

JV Professional Textile Solutions coordinates application review, drawing confirmation, sample qualification, commercial support and planned supply for polymer melt filtration projects.



Configurable Element Supply

CONTROL POINT	PROJECT BASIS
Media And Rating	Woven mesh, sintered metal fibre or supported composite; the grade and rating method are confirmed for the application.
Construction	Outer-cage or cage free arrangements, support layers, inner core and flow guide to the approved design.
Materials And Seals	Metallic alloy and sealing materials selected for polymer temperature, chemistry and cleaning method.
Dimensions And Interface	OD, ID (core), effective and overall length, connection and sealing diameters controlled by drawing or verified sample.
Verification	Visual and dimensional inspection, with permeability or integrity testing included where specified.
Documentation	Quotation, approved drawing, product specification and agreed inspection or test records.

JV SUPPORT

Application review, sample and plant-trial planning, documentation, commercial coordination and planned supply support from India.

EVIDENCE BASIS

Manufacturing location, applicable certificates, test methods, inspection records and acceptance criteria are confirmed in the project quotation rather than implied by this brochure.

PRODUCT ENQUIRIES AND TECHNICAL SUPPORT

Contact JV Professional Textile Solutions

Provide the polymer, operating conditions, existing element drawing or sample, required filtration performance and expected quantity for a technical-commercial review.

CONTACT US		
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Enquiry information

For faster selection, include the polymer, throughput per pack, melt temperature, pack drawing, bed depth, screen arrangement, current particle-size blend, initial and terminal pressure, pack life and expected annual consumption.