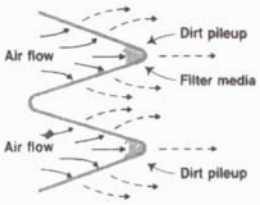
TRI DIM
FILTER CORPORATION

TRI-PLEAT™
EXTENDED SURFACE AIR FILTERS

- Radial Pleat Design
- Long Service Life
- Completely Disposable
- Higher Efficiency
- Rugged Construction
- Wide Range of Sizes

TRI-PLEAT™ EXTENDED SURFACE PLEATED PANEL FILTERS

PRINCIPLE OF FILTRATION



Every **Tri-Pleat**™ filter operates on the strainer principle of filtration, utilizing specially designed radial pleats, shaped and spaced on pre-determined centers. This controlled spacing promotes diffusion of air pressures over the entire pleated surface. The least resistance is initially in the bottom of the pleat, where contaminants are filtered out. As contaminants build up and the filter becomes loaded, resistance at the bottom of the pleat increases and air flow gradually moves up the side walls of the pleat, ensuring usage of all available media.

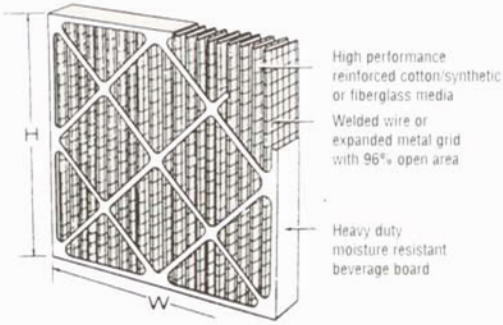
Because of velocity and inertial forces, larger contaminants in the air stream are unable to change direction as the air flow moves up the sidewalls of the pleat and lodge in the bottom of the pleat, while finer microscopic particles are trapped on the sidewalls.

Increased media loft (created by particulate build up) is achieved as dirty air angles through the pleat sides. The result is increased efficiency.

APPLICATIONS

Tri-Pleat™ filters are designed for use in a wide variety of commercial, industrial and residential installations. **Tri-Pleat**™ filters can be used in systems with filter face velocities up to 625 feet per minute.

- The 4" ES filter is especially well suited for variable air volume systems because of its rigid construction and large media area.
- The 2" ES filter is designed for use in side access filter housings with 2" channels, or in built up banks.
- The 1" ES filter is designed for use in residential or commercial applications where the package unit has a 1" channel.
- **Tri-Pleat**™ filters are excellent primary filters to prevent dust buildup on heating and cooling coils.
- **Tri-Pleat**™ filters are widely used as pre-filters to extend the life of higher efficiency, more costly final filters.
- **Tri-Pleat**™ filters are directly interchangeable with disposable panel filters, media pads in frames, or permanent filters used in built-up filter banks and side access systems. No modifications are necessary to frames or latches.



TRI-PLEAT™ MODELS AVAILABLE

MODEL ES40E
ECONOMY GRADE FILTERS

Tri-Pleat™, model ES40E filters are designed for applications where frequent changes are necessary due to high concentration of contaminants. The **Tri-Pleat**™ model ES40E filter utilizes the same frame and construction as **Tri-Pleat**™ ES40L and ES40M but with less media. The **Tri-Pleat**™ ES40E filter is used extensively in the asbestos abatement industry. The **Tri-Pleat**™ ES40E filter is only available in 2" standard sizes.

MODEL ES40L
STANDARD GRADE FILTERS

Tri-Pleat™, model ES40L filters are designed for use in HVAC systems, in commercial and industrial applications that operate up to 625 FPM. The **Tri-Pleat**™ ES40L filter offers extra-heavy duty construction, radial pleat design, long service life, and is available in a wide range of standard and special sizes.

MODEL ES40M
HIGH-CAPACITY FILTERS

Tri-Pleat™, model ES40M filters are designed for use in HVAC systems in commercial and industrial applications that operate up to 625 FPM. The **Tri-Pleat**™ ES40M filter offers extra-heavy duty construction, radial pleat design, long service life, and is available in a wide range of standard and special sizes. The **Tri-Pleat**™ model ES40M filter offers particular economies (long service life) in variable air volume systems, as a result of its high media content and low initial resistance.

MODEL ES60L AND ES60M
HIGH-EFFICIENCY — STANDARD & HIGH CAPACITY GRADE FILTERS

Tri-Pleat™ model ES60L & ES60M filters utilize the same construction as model ES40L & ES40M filters but are offered with an exclusive 45-50% ASHRAE grade ultra fine fiberglass media. **Tri-Pleat**™ model ES60L & ES60M filters are used extensively in applications as the primary filter when higher efficiency is desirable, or for greater protection of more costly high efficiency final filters. **Tri-Pleat**™ model ES60L and ES60M filters offer extra-heavy duty construction, radial pleat design, long service life, and are available in a wide range of standard and special sizes.

MODEL ES60M U.L. CLASS I

The **Tri-Pleat**™ model ES60M, U.L. Class I filter is U.L.approved and listed. Testing was performed in accordance with UL Standard 900. The model ES60M UL Class I filter utilizes a heavy duty galvanized steel frame, ultra fine fiberglass media, backed by an expanded metal or welded wire support grid and a woven glass scrim backing bonded to the air leaving side. An extra V-bar support on the air leaving side ensures media support at elevated temperatures. **Tri-Pleat**™ model ES60M Class I filters are available in standard size 2" and 4" thick filters only.

TRI-PLEAT TYPE HT PLEATED PANEL FILTERS

"Tri-Pleat Type HT filters" are designed to provide 60% ASHRAE efficiency while operating at sustained temperatures up to 500°F. "Tri-Pleat Type HT filters" are manufactured with an aluminum frame, and an expanded aluminum face grill and cross braces on the air leaving side. The fiberglass media is laminated between an aluminum expanded metal support on the air entering side and a fine mesh aluminum screen on the air leaving side. "Tri-Pleat Type HT filters" are only available in standard 2" sizes.

SUGGESTED SPECIFICATIONS

Air filters shall be medium efficiency, pleated disposable type. Each filter shall consist of a non-woven cotton/synthetic (ES40) or ultra fine fiberglass (ES60) fiber media, media support and enclosing frame.

DESIGN & CONSTRUCTION FILTER MEDIA

Tri-Pleat™ filters are constructed of high-performance reinforced medias. The media are available in two specifications to meet rigid performance requirements.

- Type ES40 — Blue cotton/synthetic reinforced fibers, with an ASHRAE 52 efficiency of 25-30%.
- Type ES60 — Yellow fiberglass reinforced fibers with an ASHRAE 52 efficiency of 45-50%. A special reinforced fiberglass media is used in construction of the Tri-Dim™ model ES60, U.L. Class I filter.

MEDIA SUPPORT GRID/PLEAT DESIGN

The media is supported by an expanded metal (designated by E) or welded wire (designated by W) grid with 96% open area. The media is bonded to the wire grid to ensure pleat stability throughout the service life of the filter. This unique radial pleat design allows total media usage, ensuring high dust holding capacity and long service life.

ENCLOSING FRAME

The enclosing frame shall be constructed of a rigid 28 point die cut beverage board with diagonal support members bonded to the air entering and leaving sides of the media pack to ensure pleat stability. The filter pack shall be bonded to the periphery of the enclosing frame, eliminating the possibility of dirty air bypass. UL Class I frames will be constructed from 24 gauge galvanized steel.

HOLDING FRAMES

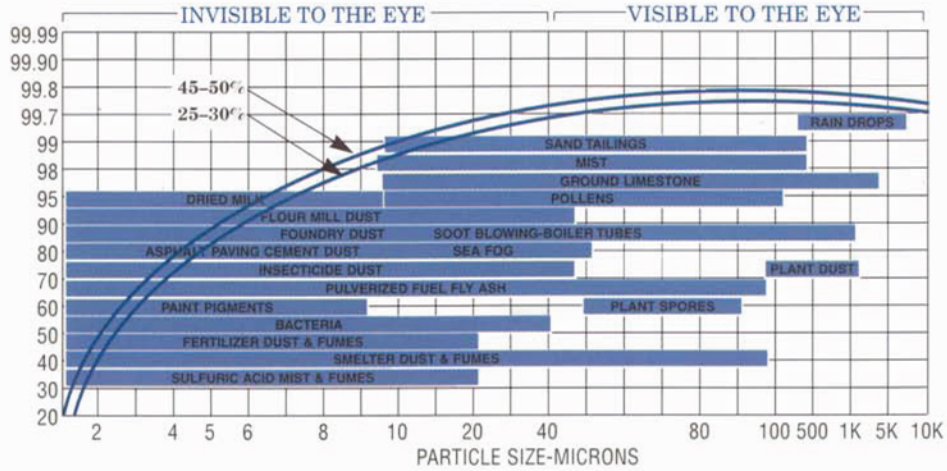
Holding frames shall be TML, factory fabricated of 16 gauge galvanized steel and shall be equipped with a gasket and two spring type positive sealing fasteners. Fasteners must be capable of being installed or removed without the use of tools.

SPARE FILTERS

Three complete sets of filters shall be supplied: one for use during construction, and one for use during testing and balancing. The third set of filters shall be supplied as spares.

UNDERWRITER'S LABORATORIES INC. LISTING

Tri-Pleat™ model ES40 and ES60 filters are UL Class II approved and listed. **Tri-Pleat**™ model ES60 Class I filters are UL Class I approved and listed. Testing was performed according to U.L. Standard 900.



PRODUCT INFORMATION

(1) Standard Sizes

(2) Nominal Size	Actual Size Width	Actual Size Height	Actual Size Depth	Rated Air Flow Capacity (SCFM) 300 FPM	500 FPM	625 FPM	ES40M Gross Media Area	ES40L Gross Media Area	ES60M Gross Media Area	ES60L Gross Media Area	ES40E Gross Media Area
10x20x1	9.375	19.375	.75	420	700	–	3.5	2.1	3.5	2.1	–
12x24x1	11.375	23.375	.75	600	1000	–	4.3	3.1	4.3	3.1	–
14x20x1	13.375	19.375	.75	600	1000	–	4.2	3.1	4.2	3.1	–
14x25x1	13.375	24.375	.75	730	1220	–	5.2	3.4	5.2	3.4	–
15x20x1	14.375	19.375	.75	625	1040	–	4.7	3.2	4.7	3.2	–
16x20x1	15.375	19.375	.75	660	110	–	4.8	3.3	4.8	3.3	–
16x25x1	15.375	24.375	.75	850	1400	–	6.1	4.2	6.1	4.2	–
20x20x1	19.375	19.375	.75	850	1400	–	6.0	4.2	6.0	4.2	–
20x25x1	19.375	24.375	.75	1050	1750	–	7.6	5.3	7.6	5.3	–
24x24x1	23.375	23.375	.75	1200	2000	–	8.9	6.1	8.9	6.1	–
10x20x2	9.375	19.375	1.75	420	700	875	6.9	4.6	6.9	4.6	–
12x24x2	11.375	23.375	1.75	600	1000	1250	8.5	6.0	8.5	6.0	4.0
14x20x2	13.375	19.375	1.75	600	1000	1250	8.9	5.8	8.9	5.8	–
14x25x2	13.375	24.375	1.75	730	1220	1525	11.2	7.5	11.2	7.5	–
15x20x2	14.375	19.375	1.75	625	1040	1300	9.6	6.2	9.6	6.2	–
16x20x2	15.375	19.375	1.75	660	1100	1375	10.0	6.6	10.0	6.6	4.4
16x25x2	15.375	24.375	1.75	850	1400	1750	12.6	8.3	12.6	8.3	5.5
18x24x2	17.375	23.375	1.75	900	1500	1875	13.1	8.5	13.1	8.5	–
18x25x2	17.375	24.375	1.75	940	1560	1950	13.5	8.9	13.5	8.9	–
20x20x2	19.375	19.375	1.75	850	1400	1750	12.6	8.3	12.6	8.3	5.5
20x24x2	19.375	23.375	1.75	1000	1650	2100	14.9	9.7	14.9	9.7	–
20x25x2	19.375	24.375	1.75	1050	1750	2190	15.3	10.0	15.3	10.0	–
24x24x2	23.375	23.375	1.75	1200	2000	2500	17.6	12.0	17.6	12.0	8.8
12x24x4	11.375	23.375	3.625	600	1000	1250	13.8	11.1	13.8	11.1	–
16x20x4	15.375	19.375	3.625	660	1100	1375	15.6	11.8	15.6	11.8	–
16x25x4	15.375	24.375	3.625	850	1400	1750	19.0	15.0	19.0	15.0	–
18x24x4	17.375	23.375	3.625	900	1500	1875	20.6	16.6	20.6	16.6	–
20x20x4	19.375	19.375	3.625	850	1400	1750	19.0	15.0	19.0	15.0	–
20x24x4	19.375	23.375	3.625	1000	1650	2100	23.0	19.0	23.0	19.0	–
20x25x4	19.375	24.375	3.625	1050	1750	2190	23.5	19.4	23.5	19.4	–
24x24x4	23.375	23.375	3.625	1200	2000	2500	27.5	22.2	27.5	22.2	–
25x29x4	24.5	28.5	3.625	1520	2500	3125	35.0	27.0	35.0	27.0	–

PERFORMANCE DATA

	(3) Rated Initial Resistance (Inches W.G.) 300 FPM	500 FPM	625 FPM	(4) Recommended Final Resistance	Rated Avg. Eff.	Continuous Operating Temp. Degrees ° F
Tri-Pleat ES40M						
1"	.20	.38	NR	1.0"	25–30%	200
2"	.18	.28	.32	1.0"	25–30%	200
4"	.18	.26	.30	1.0"	25–30%	200
Tri-Pleat ES40L						
1"	.22	.40	NR	1.0"	25–30%	200
2"	.16	.28	.34	1.0"	25–30%	200
4"	.18	.26	.32	1.0"	25–30%	200
Tri-Pleat ES60M						
1"	.25	.43	NR	1.0"	45–50%	200
2"	.21	.33	.37	1.0"	45–50%	200
4"	.23	.31	.35	1.0"	45–50%	200
Tri-Pleat ES60L						
1"	.27	.45	NR	1.0"	45–50%	200
2"	.21	.33	.39	1.0"	45–50%	200
4"	.23	.31	.37	1.0"	45–50%	200
Tri-Pleat ES40E						
2"	.25	.35	NR	1.0"	25–30%	200
Tri-Pleat ES60 Class I						
2"	.21	.33	.39	1.25"	45–50%	350
4"	.23	.31	.35	1.25"	45–50%	350

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