



Uni-Cage[®] FILTER- COLLECTORS

THE
Young
INDUSTRIES, INC.

Member
IGCI
Industrial Gas Cleaning Institute, Inc.

Young Industries: a trusted supplier to most of the major companies of the world.

Always one of the great innovators in the process field, YOUNG serves industry with a broad range of products for Air Pollution Control, Mixing, Size Reduction, and Pneumatic Conveying Equipment.

Within these pages, you will find what it is that makes YOUNG's UNI-CAGE Filters an advantage to any industry.

Pulse Jet Operation is the heart of the automatic self-cleaning system in UNI-CAGE Filters.

Dust laden air enters the filter housing and is deflected downward by the inlet baffle. As the air slows down, the heavier particles drop to the bottom of the hopper; the lighter particles are carried upward by the airstream into the bag area.

The air passes through the filter tubes, which consist of a filter bag supported by a reinforced wire cage. After its cleansing, the air enters the clean air plenum and is exhausted from the unit.

Dust that has agglomerated on the exterior filter surface is removed automatically. The cleaning cycle is controlled by a solid-state timer that progressively energizes the valves that introduce pulses of high pressure air into the filter bags through a header system located in the clean air plenum. Nozzles on the air headers are located over the top of each bag and direct the bursts of compressed air into the bags, setting up a pneumatic shock wave within the bag, causing the bag to flex. And the accumulated dust drops into the hopper.

The cleaning cycle is a continuous, row by row progression, allowing those bags that are not in the cleaning mode to continue filtering the airstream.

High Efficiency is assured. YOUNG Filters use the best industrial filter felts available, providing high filtration efficiency even when filtering materials containing sub-micron particles.

Low Installation Cost: To simplify field assembly, UNI-CAGE Filters are shipped with air headers prepped and wired. Small units are shipped with headers assembled to the filter. Threaded connections for differential pressure gauges are provided on all units.

Options:

- 1. Construction Materials:** Standard construction is of carbon steel. Stainless steel and special alloys are available to meet special process applications.
- 2. Paint.** All external carbon steel surfaces are primed before receiving a finish of Hammertone Blue Enamel. Units can be painted inside and out with a variety of finishes to meet customer specifications.
- 3. OSHA.** Access ladders, safety cages, platforms, and top perimeter railings are available.
- 4. Explosion Venting** can be provided for all style units.
- 5. Venturies.** Drop in venturi inserts are available for UNI-CAGE Tube Assemblies upon request.
- 6. Two-piece Filter Tube Frames,** consisting of a snap together filter bag support, are available for low headroom applications.

UNI-CAGE External Bag Replacement, an outstanding feature of our units, was pioneered by YOUNG. It is the single most significant development in bag house design. The advantages of this design are startling:

- 1. There is no need to enter the dusty bag house:** All bag maintenance is performed from the clean air side.
- 2. Bag inspection is fast and simple:** Dust on interior of bag assemblies pinpoints a defective bag.
- 3. Fast and easy bag replacement:** Loosen tube sheet clamps securing filter tubes, lift out cage assembly, slip off old bag and replace with new, reinstall filter tube assembly and tighten clamps.
- 4. No parts can be lost:** The flanged filter cage and flanged bag cannot pass through the tube sheet opening. Clamps remain attached to the tube sheet.

5. No elastomer seals: The gasket is part of the filter bag. There is no elastomer to fail from chemical or heat attack.

6. Compact design: No lost space for internal access to filter bags.

These are a few of the reasons that explain why the UNI-CAGE design not only simplifies bag replacement, but encourages preventive maintenance.

Unitized Filter Tube Construction. The filter bag has an attached cloth flange with a metal retaining ring sewn into its outer edge. When secured by the cage clamps, the ring of the filter cage compresses the cloth flange and a positive seal is formed.

Single Seal Design is another unique feature of UNI-CAGE. The single sealing area is located in the service side of the tube sheet. One-piece design eliminates the need for clamps, springs, or hangers to attach the bag cage. Tube assemblies are installed from the top of the tube sheet.

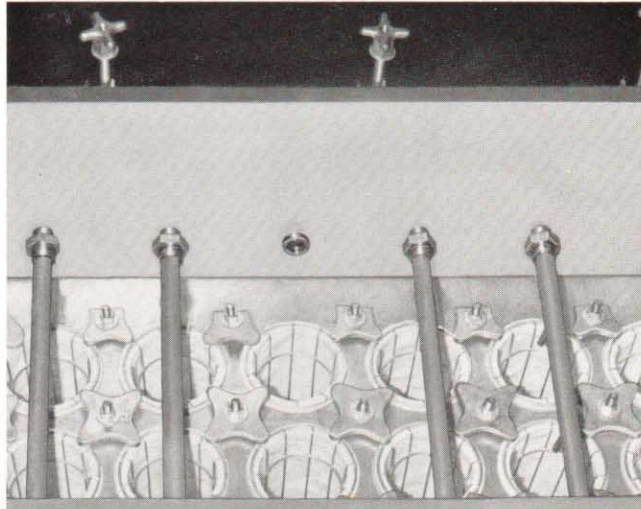
How to Select the Right Filter. Selection of the best filter-collector for a given application is based on many factors: material particle size and shape, agglomeration tendencies, weight and flow-ability, system gas temperatures and make-up, material loading, operating pressure or vacuum, and other operating conditions.

But in addition to evaluating all the factors and conditions of the material to be filtered, it is necessary to incorporate a certain amount of judgment and experience.

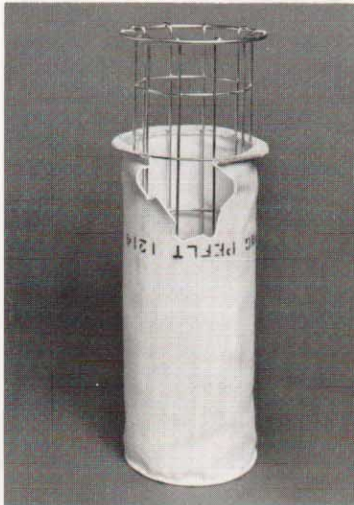
Chances of using filters that are too large are slight, but space limitations and equipment costs necessitate the selection of a unit that will operate efficiently without an extravagant amount of filter medium.

The most economical choice for any application can be made from YOUNG Industries' complete line of filter models and sizes. The Ratio Selection Table (p. 19) gives recommendations for acceptable air to cloth ratios based on typical conditions and the presumed use of a YOUNG UNI-CAGE Pulse Jet filter. The samplings shown are based on average conditions and may have to change to match actual conditions.

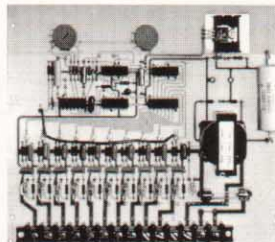
A comparison of filter bag materials and their qualities can be found on page 19.



Easily Accessible Filter Tube Sheet

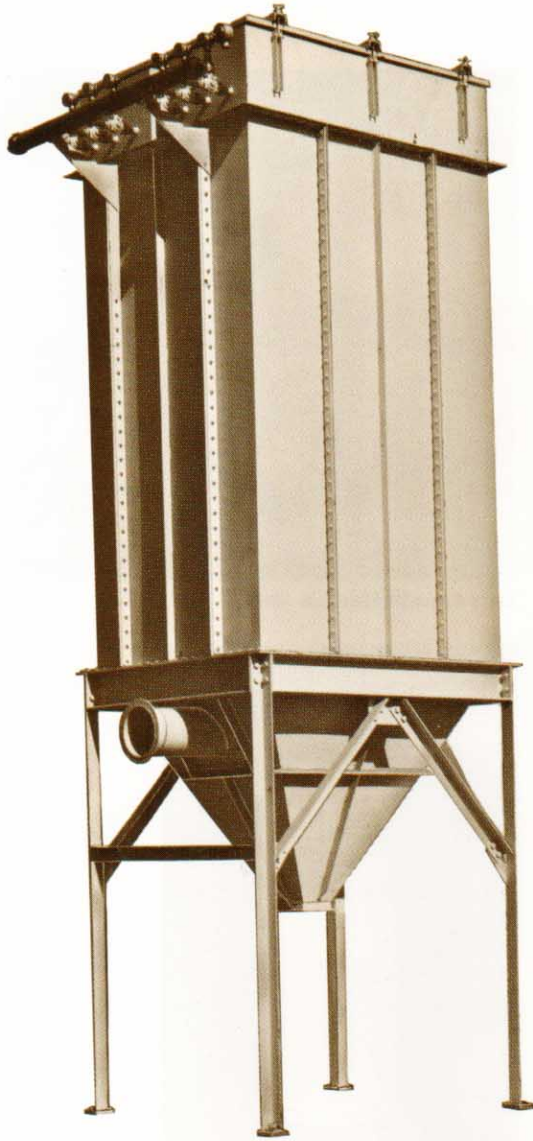


Unitized Filter Tube Construction



Solid-State Timer. A continuous-duty, solid-state timer with Nema IV dust and weatherproof enclosure is standard on all UNI-CAGE Filter Collectors. The timer is easily adjusted to any operating condition: air blast can be regulated between 50 and 500 milliseconds of duration, and off time is variable between 2 and 24 seconds. Timers are shipped separately and can be located to suit individual requirements.

Style 1A



UNI-CAGE Style 1A Square, all-welded filter-collectors and bin vents are factory assembled, compact units designed for today's strict dust control and product recovery requirements.

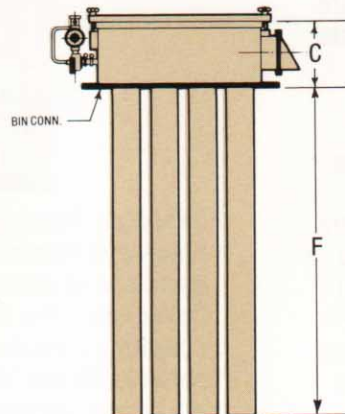
STANDARD FEATURES:

- **Heavy-gauge construction** – 14 ga. housing and plenum, 14 ga. hoppers, 10 ga. tube sheets.
- **All-welded housing and hoppers** – extra rugged.
- **Top bag removal** – service from clean air side.
- **Eliminates internal grids** – They are unnecessary. Bags and maintenance personnel cannot fall into bins.
- **Shop assembled** – minimizes field labor.
- **Housings designed for 17" W.G.** positive or negative pressure.

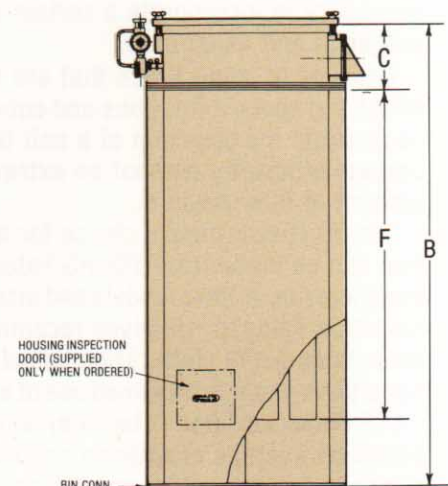
Bin Vents in Style 1A offer a compact all-welded housing with the same top bag removal system. Units are shipped factory assembled. Installation requires only insertion of UNI-CAGE filter tube assemblies and connection of air and electrical sources. There are two basic arrangements.

Arrangement No. 1: Flanged clean air plenum only. Filter tubes projecting into bin.

Arrangement No. 2: Flanged housing (no hopper section). Bolts directly to bin connection or, with special transition, can match existing opening.



ARRANGEMENT # 1 WITHOUT TUBE HSG.

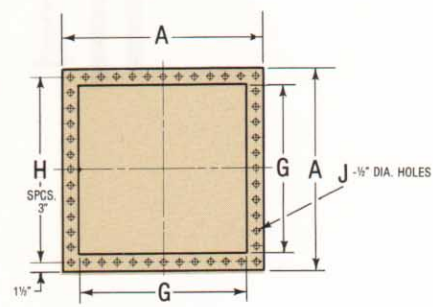
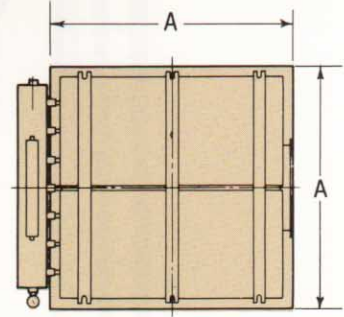
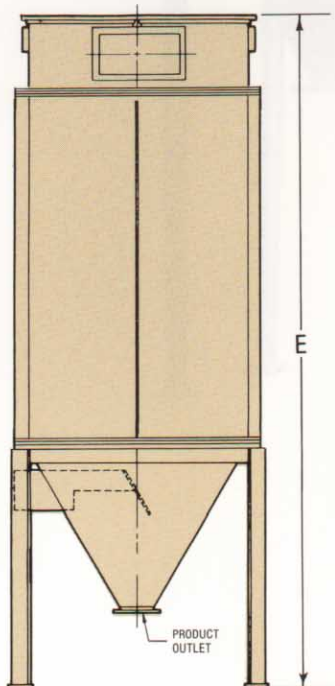
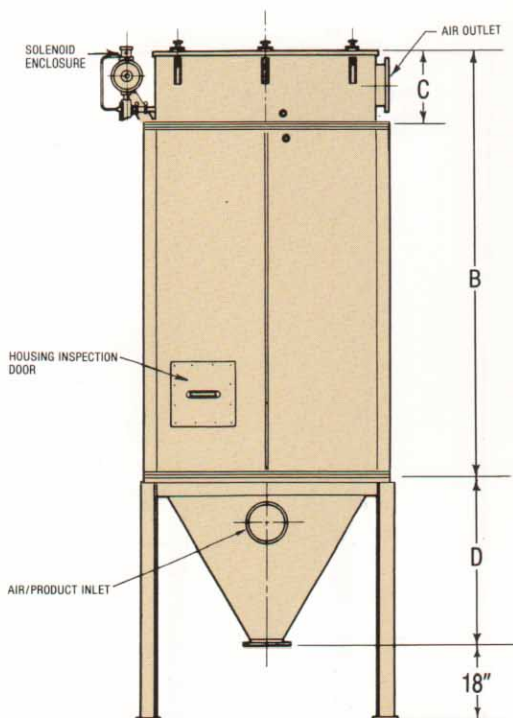


ARRANGEMENT # 2 WITH TUBE HSG.

Square Filters & Bin Vents

Specifications

MODEL	CLOTH AREA (sq. ft.)	NO. TOP DOORS	OVERALL DIMENSIONS									COMPRESSED AIR REQUIRED @ 90 PSIG (SCFM)	FILTER APPROX. WT.	BIN VENT APPROX. WT.
			A	B	C	D	E	F	G	H	J			
VM24-9	23	1	2'6"	3'4"	10"	1'5"	6'3"	2'0"	2'0"	9	36	2	430	180
VM36-9	35	1	2'6"	4'4"	10"	1'5"	3'0"	3'0"	2'0"	9	36	2	465	215
VM48-9	47	1	2'6"	5'4"	10"	1'5"	4'0"	4'0"	2'0"	9	36	2	500	250
VM36-16	62	1	3'0"	4'6"	1'0"	1'10"	7'10"	3'0"	2'6"	11	44	3	605	210
VM48-16	83	1	3'0"	5'6"	1'0"	1'10"	8'10"	4'0"	2'6"	11	44	3	775	380
VM60-16	104	1	3'0"	6'6"	1'0"	1'10"	9'10"	5'0"	2'6"	11	44	3	800	550
VM72-16	125	1	3'0"	7'6"	1'0"	1'10"	10'10"	6'0"	2'6"	11	44	3	825	720
VM48-25	130	1	4'0"	5'6"	1'0"	2'9"	9'9"	4'0"	3'6"	15	60	4	1200	400
VM60-25	163	1	4'0"	6'6"	1'0"	2'9"	10'9"	5'0"	3'6"	15	60	4	1325	460
VM72-25	195	1	4'0"	7'6"	1'0"	2'9"	11'9"	6'0"	3'6"	15	60	4	1450	520
VM96-25	260	1	4'0"	9'9"	1'0"	2'9"	14'0"	8'0"	3'6"	15	60	4	1600	600
VM60-36	234	1	4'6"	6'10½"	1'4½"	3'2"	11'6½"	5'0"	4'0"	17	68	5	1460	440
VM72-36	281	1	4'6"	7'10½"	1'4½"	3'2"	12'6½"	6'0"	4'0"	17	68	5	1550	530
VM96-36	374	1	4'6"	10'1½"	1'4½"	3'2"	14'9½"	8'0"	4'0"	17	68	5	1680	620
VM120-36	468	1	4'6"	12'1½"	1'4½"	3'2"	16'9½"	10'0"	4'0"	17	68	5	1800	700
VM72-49	382	2	5'0"	8'0½"	1'6½"	3'7"	13'1½"	6'0"	4'6"	19	76	15	1870	870
VM96-49	510	2	5'0"	10'3½"	1'6½"	3'7"	15'4½"	8'0"	4'6"	19	76	15	2050	1050
VM120-49	637	2	5'0"	12'3½"	1'6½"	3'7"	17'4½"	10'0"	4'6"	19	76	15	2250	1250
VM96-64	666	2	5'6"	10'3½"	1'6½"	4'0"	15'9½"	8'0"	5'0"	21	84	17	2650	1450
VM120-64	832	2	5'6"	12'3½"	1'6½"	4'0"	17'9½"	10'0"	5'0"	21	84	17	3100	1750
VM144-64	998	2	5'6"	14'3½"	1'6½"	4'0"	19'9½"	12'0"	5'0"	21	84	17	3700	2100
VM96-81	842	2	6'0"	10'3½"	1'6½"	4'5"	16'2½"	8'0"	5'6"	23	132	19	2900	1600
VM120-81	1053	2	6'0"	12'3½"	1'6½"	4'5"	18'2½"	10'0"	5'6"	23	132	19	3250	1950
VM144-81	1264	2	6'0"	14'3½"	1'6½"	4'5"	20'2½"	12'0"	5'6"	23	132	19	3700	2400



BIN CONNECTION

Style D



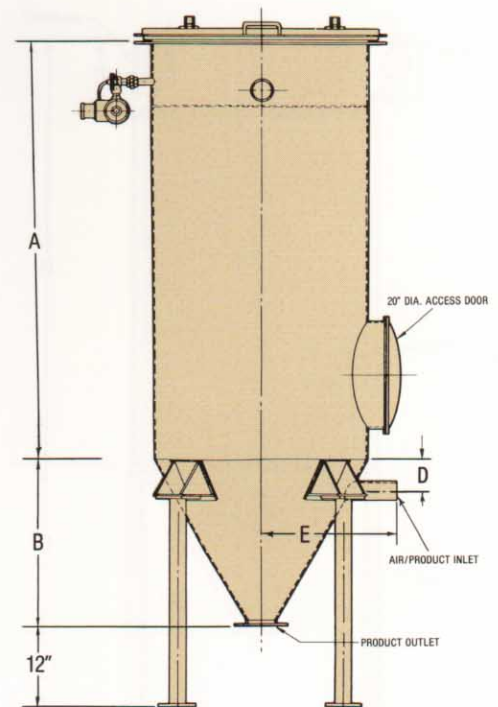
The Style D Filter-Collector is designed for applications requiring a compact unit of extra strength. The cylindrical housing design in standard 10 gauge steel is rated to 125" W.G. Higher pressure or ASME code-stamped units are available on request.

All units incorporate external top bag removal to minimize down-time. A standard inlet baffle eliminates bag abrasion.

Style D bin vents are available in two basic arrangements.

Arrangement No. 1: Clean air plenum only. Filter tube assemblies extend into bin. Plenum is flanged for easy mounting.

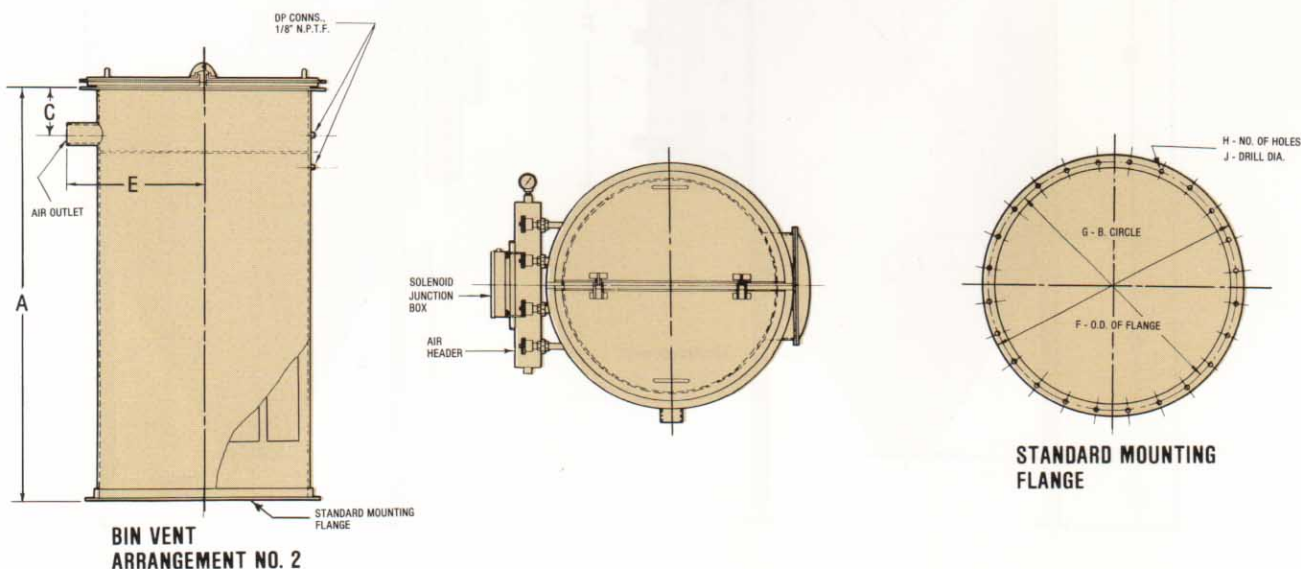
Arrangement No. 2: Flanged housing (no hopper section). Bolts directly to bin or, with special transition, can match existing opening.



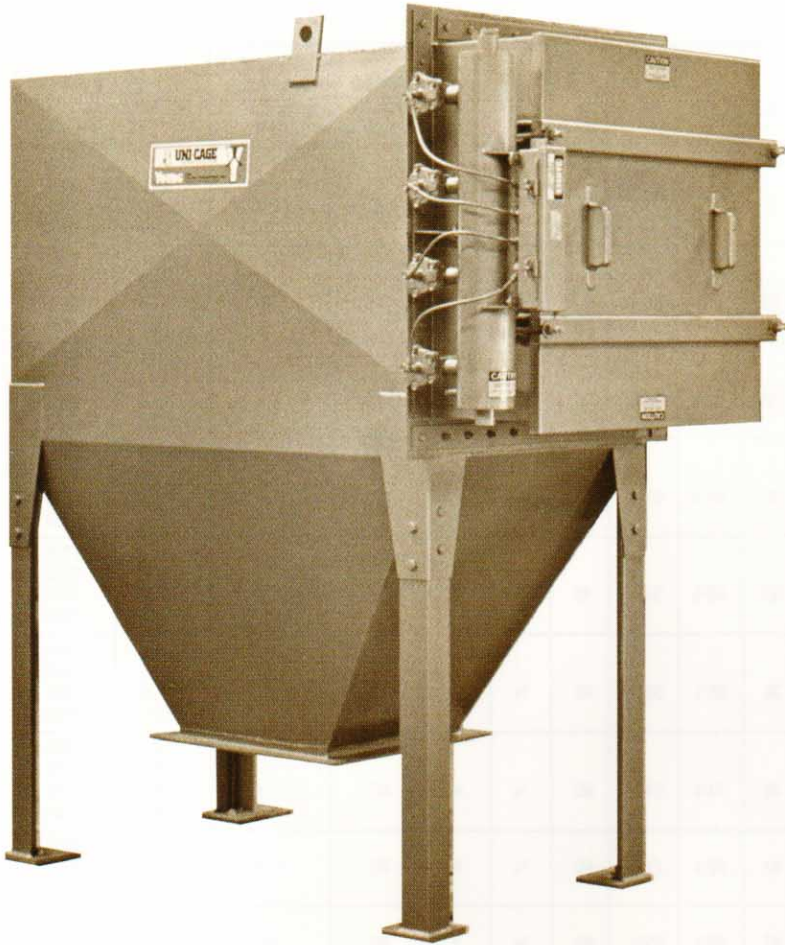
Cylindrical Collectors and Bin Vents

Specifications

MODEL	HSG. DIA.	CLOTH AREA SQ. FT.	MAX. IN. O.D.	MAX. OUT. O.D.	A	B	C	D	E	F	G	H	J	NO. OF TOP DRS.	DESIGN PRESS. INS. W.C.	COMPRESSED AIR REQ'D. @ 90 P.S.I.G. SCFM	FILTER APPROX. WT. LBS.	BIN VENT APPROX. WT. LBS.
VC 24-9 VC 36-9 VC 48-9 VC 60-9	32	23 35 47 56	5	6	36 48 60 72	24	5½	5	22	38¾	35¾	32	¾	1	125	2.0	700 800 950 1100	500 550 600 650
VC 24-12 VC 36-12 VC 48-12 VC 60-12	34	31 47 62 78	7	8	38 50 62 74	25	6½	6	23	40¾	37¾	32	¾	1	125	2.0	900 1050 1200 1350	725 800 875 950
VC 48-16 VC 60-16 VC 72-16 VC 96-16	40	83 104 125 166	8	9	63 75 87 111	31	7	6	26	46¾	43¾	36	¾	2	125	4.4	1300 1475 1650 1825	1225 1300 1375 1450
VC 48-24 VC 60-24 VC 72-24 VC 96-24	48	125 156 187 250	10	11	65 77 89 113	38	8	7	30	54¾	51¾	36	¾	2	125	4.4	1400 1600 1800 2000	1350 1450 1550 1650
VC 60-32 VC 72-32 VC 96-32 VC 120-32	54	208 250 333 416	11	12	78 90 114 138	43	9	7	33	60¾	57¾	48	¾	2	125	6.6	1750 2000 2250 2500	1700 1850 1975 2100
VC 60-38 VC 72-38 VC 96-38 VC 120-38	60	247 296 395 494	12	14	81 93 117 141	48	10	8	36	66¾	63¾	48	¾	2	80	6.6	2100 2400 2700 3000	1900 2100 2300 2500
VC 60-52 VC 72-52 VC 96-52 VC 120-52	68	338 406 541 672	14	15	83 95 119 143	55	11	9	40	74¾	71¾	60	¾	4	80	17.6	2800 3200 3600 4000	2600 2900 3200 3500
VC 72-60 VC 96-60 VC 120-60	74	468 624 780	15	17	95 119 143	60	13	9	43	80¾	77¾	60	¾	4	80	17.6	4100 4550 5000	3600 4000 4400
VC 72-76 VC 96-76 VC 120-76	82	593 790 988	17	14x20	95 119 143	67	13	10	47	88¾	85¾	60	¾	4	80	22	5000 5500 6000	4300 4800 5300
VC 72-88 VC 96-88 VC 120-88	88	686 915 1144	18	14x23	95 119 143	72	13	11	50	94¾	91¾	80	¾	4	80	22	5800 6400 7000	5100 5700 6300
VC 96-112 VC 120-112 VC 144-112	96	1165 1456 1747	20	14x30	119 143 167	79	13	12	54	102¾	99¾	80	¾	4	60	44	6800 7500 8200	6100 6900 7500
VC 96-148 VC 120-148 VC 144-148	108	1539 1924 2309	22	14x40	119 143 167	90	13	13	60	114¾	111¾	80	¾	4	60	52	8000 8800 9600	7400 8100 8800



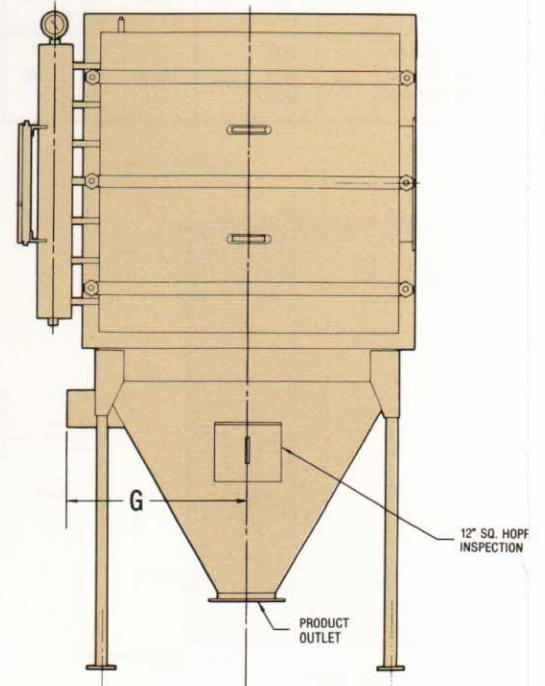
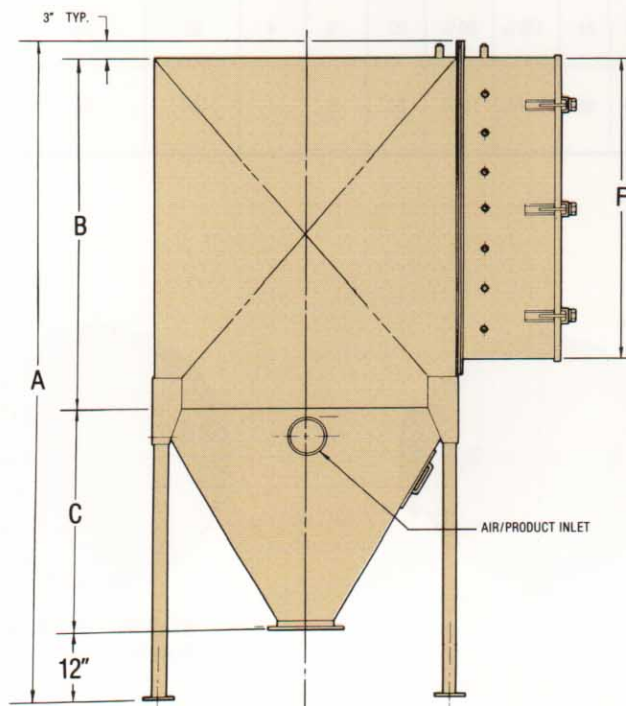
Style HM



YOUNG'S Style HM (Horizontal Modular) Filters are low in height and ideal for installation where limited headroom is a factor. No overhead clearance is required. A side access door is provided, allowing easy service of horizontal bags. The unique design eliminates the necessity for access ladders and perimeter railings in most installations.

Ideal for dust control and product collection, filters are designed for continuous duty and high efficiency. There are no internal moving parts.

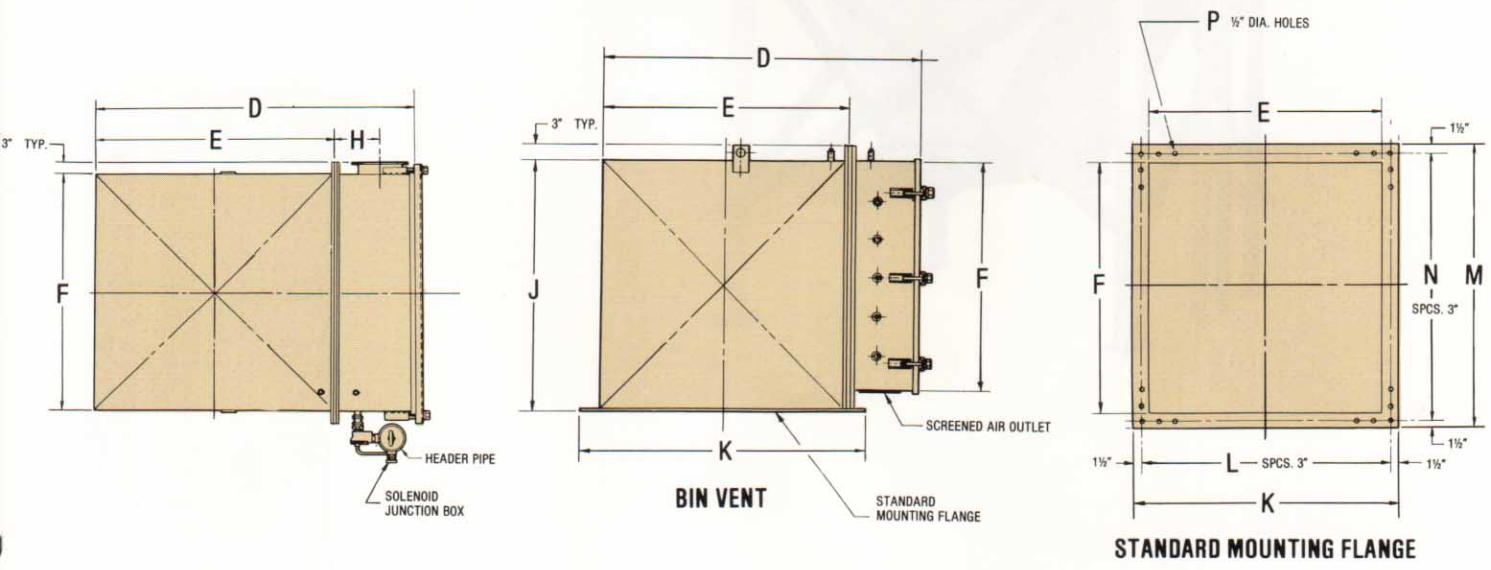
Units are shipped fully assembled. Installation requires only insertion of "Uni-Cage" Filter Tube Assemblies, and connection of air and electrical sources.



Horizontal Modular Collectors & Bin Vents

Specifications

MODEL	CLOTH AREA SQ. FT.	NO. OF PLENUM DOORS	A	B	C	D	E	F	G	H	J	K	L	M	N	P	COMPRESSED AIR REQ'D. @ 90 P.S.I.G. SCFM	FILTER APPROX. WT.LBS.	BIN VENT APPROX. WT.LBS.
HM 24-9	23		5'8"		1'8"	3'1"	2'3"												
HM 36-9	35	1	6'7"	2'9"	2'7"	4'1"	3'3"	2'0"	1'6"	4 1/2"	2'3 1/4"	3'9"	14	2'6"	9	46	2	400	325
HM 48-9	47		7'5"		3'5"	5'1"	4'3"					4'9"	18			54		600	450
HM 24-16	42		6'4"		1'10"	3'3"	2'3"												
HM 36-16	62	1	7'0"	3'3"	2'6"	4'3"	3'3"	2'6"	1'9"	7 1/4"	2'9 1/4"	3'9"	14	3'0"	11	50	4.4	500	375
HM 48-16	83		7'10"		3'4"	5'3"	4'3"					4'9"	18			58		700	500
HM 24-25	65		8'1"		2'7"	3'3"	2'3"												
HM 36-25	98		8'1"		2'7"	4'3"	3'3"					3'9"	14			58		700	600
HM 48-25	130	1	8'9"	4'3"	3'3"	5'3"	4'3"	3'6"	2'3"	7 1/4"	3'9 1/4"	4'9"	18	4'0"	15	66	5.5	800	650
HM 60-25	163		9'7"		4'1"	6'3"	5'3"					5'9"	22			74		950	725
HM 72-25	195		10'5"		4'11"	7'3"	6'3"					6'9"	26			82		1150	800
HM 48-36	187		9'3"		3'3"	5'7 1/2"	4'3"												
HM 60-36	234	1	10'1"	4'9"	4'1"	6'7 1/2"	5'3"	4'0"	2'6"	8 1/4"	4'3 1/4"	4'9"	18			70	6.6	900	750
HM 72-36	281		10'11"		4'11"	7'7 1/2"	6'3"					5'9"	22	4'6"	17	78		1050	825
												6'9"	26			86		1200	900
HM 48-49	255		9'9"		3'3"	5'9 1/2"	4'3"												
HM 60-49	319	2	10'5"	5'3"	3'11"	6'9 1/2"	5'3"	4'6"	2'9"	8 1/4"	4'9 1/4"	4'9"	18			74	15.4	1000	825
HM 72-49	382		11'4"		4'10"	7'9 1/2"	6'3"					5'9"	22	5'0"	19	82		1150	900
												6'9"	26			90		1300	1000
HM 48-64	333		10'9"		3'9"	5'9 1/2"	4'3"												
HM 60-64	416	2	10'11"	5'9"	3'11"	6'9 1/2"	5'3"	5'0"	3'0"	8 1/4"	5'3 1/4"	4'9"	18			78	17.6	1100	925
HM 72-64	499		11'10"		4'10"	7'9 1/2"	6'3"					5'9"	22	5'6"	21	86		1250	1000
												6'9"	26			94		1400	1100
HM 48-81	421		11'8"		4'2"	5'9 1/2"	4'3"												
HM 60-81	527	2	11'8"	6'3"	4'2"	6'9 1/2"	5'3"	5'6"	3'3"	8 1/4"	5'9 1/4"	4'9"	18			82	19.8	1200	1025
HM 72-81	632		12'4"		4'10"	7'9 1/2"	6'3"					5'9"	22	6'0"	23	90		1350	1100
												6'9"	26			98		1500	1200



YOUNG's Heavy-Duty Horizontal UNI-CAGE Filter-Collectors have been proven on applications in virtually every processing field. They are widely used with Pneumatic Conveying Systems. Their low headroom requirement and external bag removal are unique.

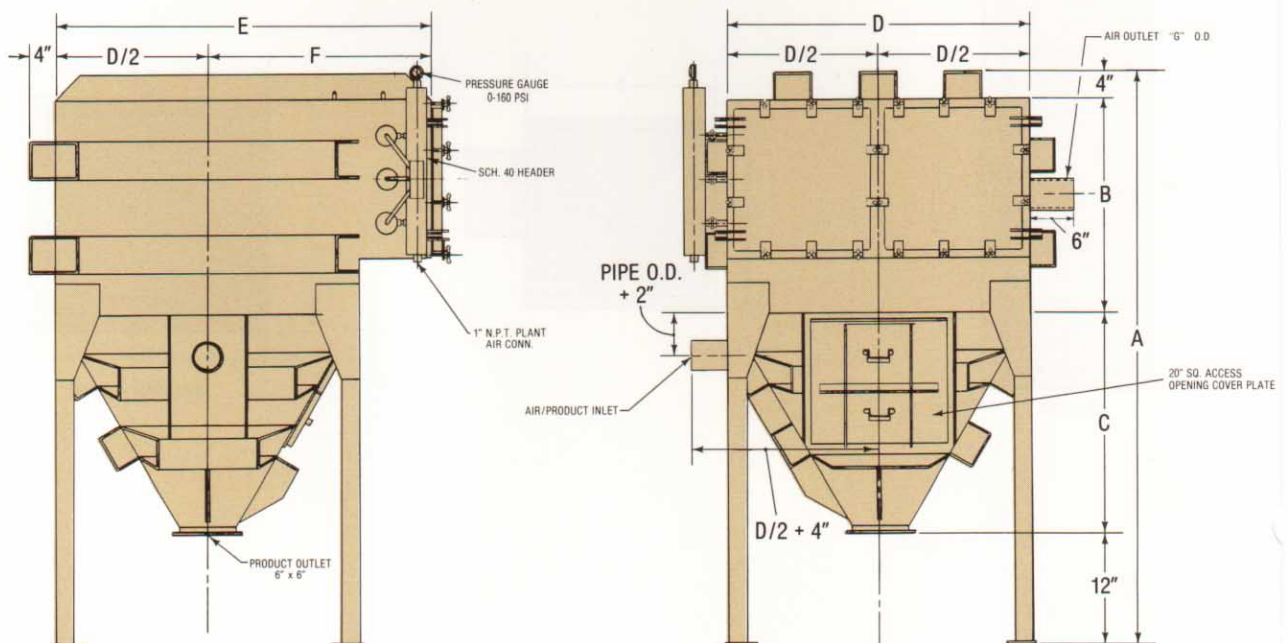
Ideal for product collection, filters are designed for continuous duty and high efficiency. There are no internal moving parts. The units are shipped fully assembled. Installation requires only insertion of "Uni-Cage" Filter Tube Assemblies, and connection of air and electrical sources.

Features:

- **Reinforced all-welded construction** - Units are particularly rugged, designed for 12 PSIG pressure or 12" Hg vacuum.
- **Space saving** - No overhead clearance required; bags are serviced through side access doors on clean air plenum.

Specifications

MODEL	CLOTH AREA (SQ. FT.)	A	B	C	D	E	F	G	COMPRESSED AIR REQUIRED @ 90 PSIG (SCFM)	APPROX. WEIGHT
HW24-8	21	5'4"	2'2"							
HW24-12	31	5'11"	2'9"	1'10"	2'6"	3'2"	1'11"	4"	2.5	500
HW24-16	42	6'6"	3'4"							600
HW36-15	59	6'9"	2'9"							700
HW36-20	78	7'4"	3'4"	2'8"	3'6"	4'2"	2'5"	6"	3.5	900
HW36-25	98	7'11"	3'11"							1000
HW48-21	109	7'8"	2'9"							1100
HW48-28	146	8'3"	3'4"							1200
HW48-35	182	8'10"	3'11"	3'7"	4'6"	5'4"	3'1"	8"	5.0	1350
HW48-42	218	9'5"	4'6"							1500
HW60-36	234	9'1"	3'4"							1650
HW60-45	293	9'8"	3'11"							1550
HW60-54	351	10'3"	4'6"	4'5"	5'6"	6'7"	3'10"	11"	15.0	1700
HW60-63	410	10'10"	5'1"							1850
										2000



RATIO SELECTION TABLE

in CFM of air to Sq. Ft. of filter area

PRODUCT TO BE FILTERED	APPLICATION (Air/Cloth Ratio)		
	Dust Control	Product Collection	Bin Venting
ASBESTOS & FIBROUS	5-7	4-5	6-8
CEMENT	6-8	4-5	8-10
FLY ASH	6-8	3-5	6-8
FLOUR	6-8	4-6	7-9
GRAIN DUST	8-10	6-8	10-12
GYPSUM DUST	7-9	6-8	8-10
LIME DUST	4-6	3-5	6-8
LIME, PEBBLE	5-7	4-6	6-8
ORES & MINERALS	6-8	4-6	7-9
PLASTIC RESINS	8-10	5-7	8-10
PLASTIC PELLETS, FLAKES	8-10	6-8	10-12
PLASTIC FILM	6-8	4-6	8-10
ROCK DUST	6-8	4-6	8-10
SAND	8-10	6-8	10-12
SODA ASH	8-10	6-8	8-10
STEARATE PIGMENTS	4-6	3-5	6-8
TALC	4-6	3-5	6-8
WOOD DUST	9-12	8-10	12-14

FILTER MATERIAL SELECTION

FILTER MATERIAL	TEMPERATURE LIMIT	COMMENTS
Polyester	275°F	The most commonly used synthetic material. Excellent abrasion resistance. Can withstand low concentrations of acids and alkalis. High humidity and exposure to chloride salts or acids below dew point temperature should be avoided.
Polypropylene	200°F	Most resistant to chemical attack of common synthetics. Low moisture absorption and excellent abrasion resistance.
Acrylic (Orlon)	275°F	Good resistance to most acids and solvents. Withstands high heat and high humidity.
Nomex	425°F	High temperature capability. Good abrasion resistance. Fails rapidly in the presence of sulfuric acid.
Teflon	450°F	For high-temperature applications. Excellent cake release. Unaffected by nearly all acids and alkalis.

All "UNI-CAGE" Filters are supplied with 14 oz. Polyester Felt Filter Bags. Other materials and weights are available to meet specific chemical and temperature considerations.

YOUNG INDUSTRIES: Pride and Service History and Insight

YOUNG is an in-depth manufacturer: constructing air pollution and process equipment. We have been designing systems for all types of industrial applications for nearly 30 years.

- rotary valves
- blenders and mixers
- complete pneumatic systems
- attrition mills
- knife cutters
- diverter valves
- sifters
- crushers

Inquiries answered promptly.

WARNING NOTICE

Some machines in this bulletin are shown with guards or covers removed, or partially disassembled for the purpose of illustration. Machines must not be operated with guards, covers, or other protective devices removed or disabled. Machines must not be operated in a partially disassembled condition.

The photographs, illustrations, drawings and descriptions contained in this publication are not intended to depict actual operating conditions or to suggest operating procedures. They are included only for the purpose of portraying the features of the machinery. The manufacturer's installation, operation and maintenance instructions and recommended safety procedures must be expressly followed during installation, operation or maintenance of the equipment.

THE
Young 
INDUSTRIES, INC.
MUNCY, PENNSYLVANIA 17756
TELEPHONE: 717-546-3165
TELEX: 841422