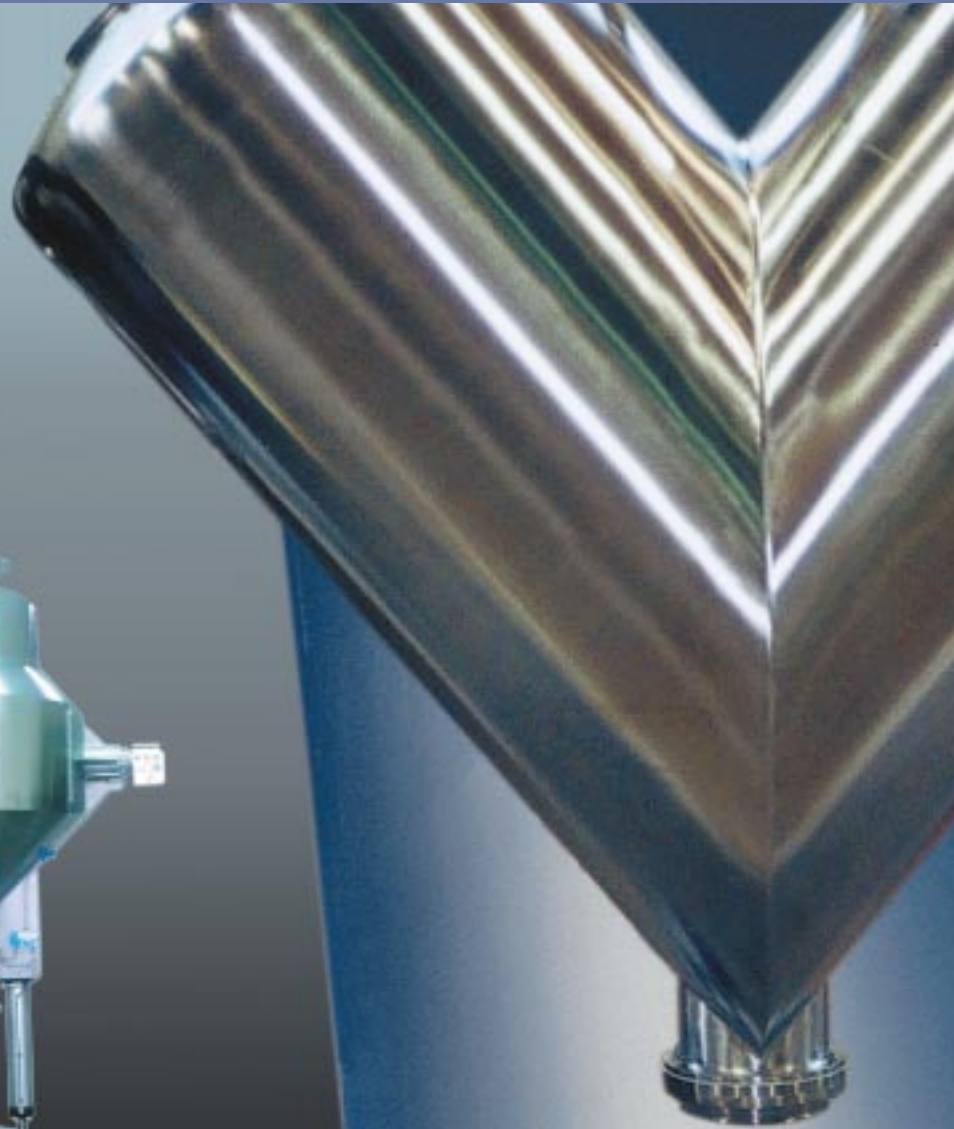


A&M Products

Conical Blender

V-Shell Blender



A & M PROCESS EQUIPMENT LTD.

V-Shell Blender:

Ultra Sanitary stainless steel construction provides easy-to-clean, fully enclosed dust-tight drives

From gentle blending to intensive mixing, A&M V-Shell Blenders uniformly displace materials for a complete blending of products via the intermeshing action of two inclined cylinders attached together in the form of a "V". This results in precise blending with short mix cycles. Tumble blending is most suited to products of uniform product size and density, and where requirements for fast, thorough cleaning are desirable in sanitary applications.

For applications requiring dispersion of minor ingredients, and/or breaking up materials, which tend to form agglomerates, the blender can be equipped with a solids intensifier bar (beater or pin type), which is designed for ease of removal.

For incorporation of liquids, the intensifier bar shaft is hollow, and equipped with a feed tube to dispense liquid between the beater bar discs in a finely atomized spray throughout the mix.

Batch working capacities range from 1 cubic foot to 150 cubic feet. For products having poor flow properties, a shell design having a 70° angle is available upon request.

Convertible models are available for the customer who does not have an immediate requirement for use of an agitator but has the possibility for future applications. This design includes a pre-machined blender idler shaft to accept bearing, seal assembly, and insertion of the agitator assembly. The idler shaft hub ends are supplied with stainless steel caps and a motor base plate is installed on the support frame for future installation of the agitator drive. At the time of conversion, the agitator assembly complete with bearing and seal assemblies, motor, V-belt drive, and guard are furnished for installation without disrupting the equipment.



V-Shell Blender



Conical Blender with Automated Drum Loading System

Conical Blenders

Ultra Sanitary for gentle, homogenous blending

The folding, spreading, and cascading action of the A&M Conical Blender provides a rapid, homogeneous blending of dry and semi dry materials. The end over end revolving action, moving materials in and out of a restricted area results in a thorough inter-meshing of the products into a uniform mix. When required A&M Conical Blenders can be equipped with a solids intensifier bar for disintegrating lumps or

agglomerates and for dispersing minor ingredients. With the addition of a rotary union and liquid feed tube, the agitator assembly can incorporate minute quantities of finely dispersed mist through the agitator discs into the product mix. For dispersion of viscous liquids, special spray nozzle assemblies can be fitted enabling precise control of droplet size with independent control of the solids intensifier bar.

Batch working capacities range from 1 cubic foot to 250 cubic feet based on fill level of 55% of total volume. Each blender design is customized to suit the customer's specific requirements.

For improved blend uniformity, special designs incorporating internal deflector cones, or angled shell bodies are available upon request. Convertible models as described for the V-shell blender are also available.

Automated Drum Loading System

Both A&M V-Shell and Conical Blenders can be furnished with a PLC controlled, automated drum loading system. With one full revolution of the blender, the entire contents of a product container (fiber, plastic or stainless steel drum) can be transferred into the blender and back into drums after mixing, in a dust-free operation. This system eliminates costly mezzanine platforms, and other feed systems which require special docking mechanisms that create risk of spillage.

During loading, the operator simply rolls the drum onto the roller conveyor, raises the lift cylinders to squeeze the drum against the valve discharge flange seal, and initiates the load cycle. The blender slowly rotates one revolution while automatically opening and closing the valve, and stopping at the zero position. The empty drum is lowered, and replaced with a full container to repeat the cycle until all contents are charged.

During discharging, an empty drum is positioned on the roller conveyor and sealed against the valve discharge flange seal. The operator opens/closes the valve to fill the drum, lowers the drum, and replaces with an empty drum to repeat the cycle until all contents have been discharged.

Standard design features of the ADL system include:

- PLC controlled, fully automatic load and discharge functions.
- Operator station supplied in NEMA 4X stainless steel, watertight construction with "Touch Screen" operator interface display incorporating blend timers.
- All stainless steel roller conveyor and instrumentation tubing.
- Adjustable positioning cams with proximity sensors.
- Pneumatic controls supplied in NEMA 4X stainless steel, watertight construction, pre-mounted to blender frame (or for remote mounting, as desired). Contains all pneumatic valves with pushbutton control for raising/lowering lift cylinders, and opening/closing discharge valve. Operator is removed from the lift platform area for safe operation.
- Sanitary butterfly discharge valve is clamped to the blender outlet for quick disassembly and with quick release design for ease of cleaning and maintenance. Valve flange seal can be customized to suit the customer's product container.
- FDA approved drum flange seal can be easily removed from machined valve flange.
- Special PLC programming with safety interlocks for optimum operator safety.
- Shaft-mounted gear motor installed via shrink disc coupler eliminates maintenance of traditional gear drive. Speed regulation via AC variable frequency

Optional Features



● Solids Pin Bars



● Liquid-Solids Intensifier Bar



● Manway Cover



● Electrical Controls



● Discharge Valve

Agitator Systems: Many applications require internal agitators to de-agglomerate soft, friable lumps during solids-solids blending, to disperse minor dry ingredients, to disperse liquids during wet granulation, and to blend large batches quickly. As standard, A&M agitators are cantilevered design providing ease of maintenance and disassembly, and are dynamically balanced at optimum operating speed.

- **A) Solids Pin Bars** offer slow speed (1700 FPM) de-agglomeration of soft lumps and for blending minor additives.
- **B) High Speed Beater Bar** (3300 FPM) breaks down harder agglomerates, produces more uniform blends of formulations with minor ingredients, and is suitable for applications for dispersing such products as pigments in cosmetics.
- **C) For Liquid-Solids Formulations**, the shaft of the high speed beater bar is hollow, and mating beater discs are assembled to the beater bars using an outer feed tube assembly, which is machined to provide uniform distribution of liquid to either beater. Beater discs are spaced apart using stainless steel shim washers (typically 0.010" thick) to create a fine mist of liquid droplets exiting from the circumference of the beater disc. Liquids enter the hollow shaft via a rotary union connected to a suitable pump.
- **D) Optional designs** incorporating manifolded spray nozzles installed above the standard high speed beater bar are available for applications requiring more strict control of liquid droplet size.

● **Manway Cover:** Our standard manway cover is a flat, removable design with over-center pivot bar and swing bolt latch.

Optional vented covers, cover with sanitary tube adapters for pneumatic loading, CIP spray nozzles, and covers with ports having silicone containment caps, or sanitary valves to interface with external feed systems are available, customized to each installation.

● **Electrical Controls:** Standard control packages are available in NEMA 4 and NEMA 7,9 enclosures, as well as special "X-purged" NEMA 4X stainless steel designs for Division 1 Hazardous area classification.

For automated control (eg. where delay timers are required to auto start agitator), customized designs equipped with PLC and operator interface displays with printout capability can be furnished. Blenders over 30 cu ft working capacity are typically supplied with variable frequency drives to eliminate shock loading during startup/braking and for accurate positioning.

● **Discharge Valve:** All A&M Tumble Blenders are fitted with a highly polished, stainless steel, butterfly valve ("Coira" or equal) clamped to the discharge flange, and equipped with a 50 mm high welded discharge spigot for bag attachment. Valves are manually actuated, and optionally air actuated. This design provides quick release for cleaning and maintenance. Optional "Quick Clean" versions are available so that the entire valve can be disassembled without tools.

For sticky or poor flowing materials, optional spherical disc valves are available.

Positioning System: With the addition of a positioning shaft cam and sensor, our PLC control system will automatically return the blender to 0° discharge position at the end of each blend cycle, and/or position the discharge in the UP position for overhead loading.

Vessel Finish: To ensure GMP requirements are met standard shell design includes continuous welds with all internal surfaces ground smooth to a No. 4 finish (150-180 grit, Ra = 20-35 micro inch), while external surfaces are ground smooth to a "Buff" finish (100-120 grit, Ra = 50-60 micro inch). Mirror and electropolished internal finishes are available at extra cost.

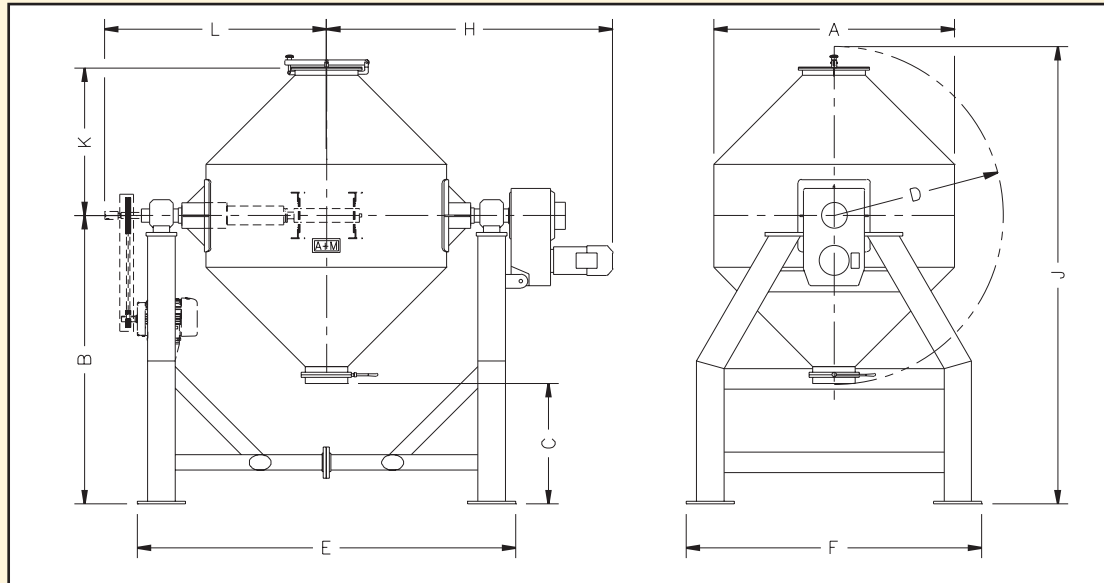
Rugged tubular support frames are glass beaded, stainless steel having continuous welds. Polished surfaces and ground welds are optionally available.

Conical and V-Shell Blenders

Design Specifications

CONICAL BLENDER

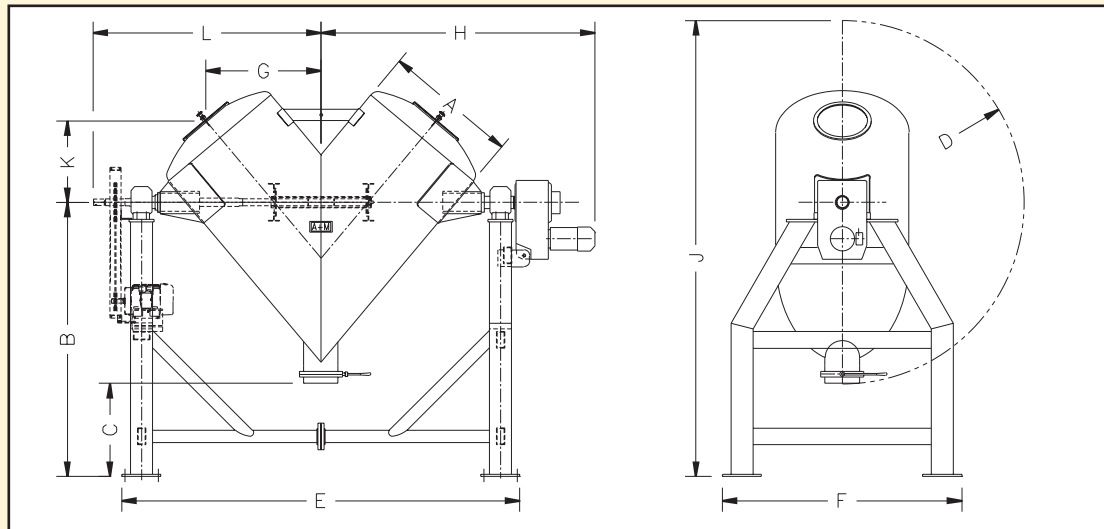
- * DIMENSIONS SUBJECT TO CERTIFICATION BY A&M PROCESS EQUIPMENT
- ** DIMENSIONS APPLIES TO MODELS EQUIPPED WITH INTENSIFIER BAR.
- *** FOR 1 TO 5 CUBIC FOOT SIZES REFER TO OUR PORTABLE BLENDER BROCHURE



Model	Cu. Ft Cap	A	B	C	D	E	F	H	J	K	**L	Discharge Size	Mtr. HP	Bl'nd rpm	Int. Mtr. HP	Max. Den.
ACB100	10	39	63 3/4	36	27 1/4	66	53 3/4	59 3/4	90 1/2	18 1/2	49 1/8	8	2	27	3	80
ACB200	20	49	70	36	34 1/4	78	52	67 1/2	104 1/4	25 1/2	54	8	3	23	5	55
ACB300	30	56	73 1/2	36	37 3/4	95	74	71	111 1/4	30	57 3/4	10	5	23	7 1/2	50
ACB400	40	62	78	36	42	99	74	78 1/2	119 1/2	34 1/4	59 5/8	10	7 1/2	20	7 1/2	100
ACB500	50	66	80 1/2	36	44 3/4	105	74	81	125 1/4	37	62 5/8	10	7 1/2	20	10	70
ACB600	60	70	82 1/2	36	47	109	90	82 3/4	129 1/2	40	64 1/2	12	7 1/2	20	15	60
ACB750	75	76	85 1/2	36	49 7/8	119	90	87 1/2	135 3/8	43	70 5/8	12	7 1/2	16	15	60
ACB1000	100	84	91 7/8	36	55 7/8	127	104	92 3/4	147 3/4	49	74 5/8	12	10	15	20	50
ACB1250	125	90	71 3/4	12	59 7/8	136	104	99	131 5/8	53	77	12	15	14	25	50
ACB1500	150	96	75 3/4	12	63 3/4	142	104	102 1/2	139 1/2	57	80 1/2	12	15	7	25	50

V-SHELL BLENDER

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- ** DIMENSIONS APPLIES TO MODELS EQUIPPED WITH INTENSIFIER BAR.
- *** FOR 1 TO 5 CUBIC FOOT SIZES REFER TO OUR PORTABLE BLENDER BROCHURE



Model	Cu. Ft Cap	A	B	C	D	E	F	G	H	J	K	**L	Discharge Size	Mtr. HP	Bl'nd rpm	Int. Mtr. HP	Max. Den.
ATS100	10	24	71	36	31 3/4	75	54 1/8	21 1/2	52 7/8	102 3/4	16	54 1/2	8	2	20	3	75
ATS200	20	30	78 7/8	36	39 7/8	98	54 1/2	25 1/4	60 3/4	113 3/4	17 1/4	61	8	3	17	5	65
ATS300	30	36	85 7/8	36	47	114 1/2	74	30 7/8	79 5/8	132 7/8	21 1/2	67	10	5	15	7 1/2	55
ATS400	40	40	91	36	52 1/8	123	74	35	84	143	24 1/2	71 1/4	10	5	14	7 1/2	55
ATS500	50	42	91	36	52 1/8	123	74	36 1/4	85 1/2	143	26	73	10	5	14	10	55
ATS600	60	45	96 1/2	36	57 1/2	136	90	39 1/8	95 3/4	154	28	77 1/2	12	7 1/2	20	15	50
ATS750	75	48	100 1/4	36	61 3/8	142 1/2	90	41	100 3/8	161 5/8	28 3/4	81 3/4	12	7 1/2	11	15	50
ATS1000	100	54	107 1/4	36	68 3/8	152 1/4	104	45 5/8	105 3/8	175 5/8	31 7/8	86 3/4	12	7 1/2	8	20	50
ATS1250	125	57	87	12	71 7/8	161 3/4	104	48 3/4	111	159	35 1/4	98 1/4	12	10	8	25	50
ATS1500	150	60	90 1/8	12	75	167 1/2	104	50 5/16	113 5/8	164 5/8	36	91 3/4	12	10	7	25	50

Specialized Blender Designs



Laboratory V-Shell



Portable Conical Blender



Portable V-Shell Blender



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