

THE EXPERT IN "PARTS MANAGEMENT SYSTEMS" Airveying Systems

MAC Automation currently offers two different Air Conveying Systems, which safely transport small plastic parts collected in a custom hopper under an IMM (Injection Molding Machine), through flexible or hard wall piping to the desired destination(s), where they are decelerated and presented to any Manual or Automatic Box, Bag or Tote Fill System.

The first is a **Positive Pressure Conveyor (PPC)**, which uses high pressure ambient air to effectively "blow" the parts and is recommended when compressed air is not consistently available.

The second is a **Vacuum Pressure Conveyor (VPC)**, which utilizes a line vacuum to create negative pressure used to "pull" the parts and requires compressed air.

Both systems are illustrated in the MAC Automation Fall 2001 Catalog on Pages 4 & 5 as a Quick Change Rail System (QCRS) interchangeable component. Both systems will require a QCRS, which will mount directly under the press, normally 300 Ton capacity and less.

These systems are designed specifically for the plastics industry and are typically used in cellular manufacturing applications with a total line run of 30 feet or less. Sizing of system is directly related to part weight, shape, total distance of the run, etc. In order to provide a specific quote, MAC will require parts for testing, a schematic of the proposed run, detailing horizontal sections and vertical rises, as well as required or desired radii for turns.

VPC- Vacuum Pressure Airveyor

This Air Conveying System utilizes a line vacuum with a compressed air line attached. The line vacuum creates a forward moving air stream. This type of accelerating device can also be used in series to move fairly long distances. There are three different models offered. Material of construction is Aluminum or 304 Stainless Steel. Diameters available are: 2", 3" & 4". The diameter required is dependent on the part size and volume moving through the air stream. The line vacuums are rated at 80 PSIG, but we normally find that for most manufacturing cellular distances and light weight parts with good shapes, that 40 PSIG is closer to the usable average. VPC model numbers include the air control kit (containing filter/regulator/5' of hose and fittings)

Model	Material	Dia.	SCFM @ 80 PSIG	Inches of H ₂ O
VPC01	Al or SS	2"	45.0	-28.5
VPC02	Al or SS	3"	68.5	-14.7
VPC03	Al or SS	4"	80.2	-11.5

AVAILABLE OPTION: An air operated solenoid valve is available to turn the compressed air on or shut it off in between molding cycle. This is suggested on machines that use long cycle times.

Model	Signal Voltage
VPCSV01	24 VDC signal
VPCSV02	110 VAC signal
VPCSV03	Dry Contact (Normally Open)



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PPC—Positive Pressure Airveyor

Model	Motor Size	Electrical	Tubing
PPC01	1/3 Hp	115/230 1 phase	4" or 6"
PPC02	1 Hp	115/230 1 phase	4" or 6"
PPC03	1-1/2 Hp	230/460 3 phase	4" or 6"
PPC04	3 Hp	230/460 3 phase	4" or 6"

This Air Conveying System uses a high pressure direct drive blower. The radial blade wheels are available in sizes 8-15/16 to 12-1/2". Motor sizes available are 1/3 HP, 1 HP, 3 HP and electrical requirements vary from 115/230 1 phase to 230/460 3 phase, depending on the motor selected. Throat control gates are used to control air-flow and are included along with a safety intake grate over the blower. Filtered sound enclosures are an available option. Four standard models are available or consult the factory for additional sizes.



Quick Change Mounting Packages

The quick change mounting packages consist of pre-engineered kits of proprietary extruded aluminum and stainless steel components. These kits are designed to provide a simple and effective method of supporting the hoppers and other pieces of equipment from the frame of the customer's Injection Molding Machine. MAC Automation currently offers two different size kits designed for the end user to custom fit.

QCRA1: Quick Change Rail Attachment. This package includes (1) 84" length of 1.5" square extrusion, (1) 84" length of a proprietary "J" shaped extrusion, (4) stainless steel mounting brackets, (4) tensioning knobs with threaded studs and miscellaneous mounting hardware. This kit number is designed for a press up to 36" deep. End-user is to cut to fit for each separate application. Please note that a minimum of 3" of extrusion should protrude out on each side of press for proper mounting hardware spacing.

QCRA2: Quick Change Rail Attachment: This package includes (1) 108" length of 1.5" square extrusion, (1) 108" length of a proprietary "J" shaped extrusion, (4) stainless steel mounting brackets, (4) tensioning knobs with threaded studs and miscellaneous mounting hardware. This kit number is designed for a press up to 48" deep. End-user is to cut to fit for each separate application. Please note that a minimum of 3" of extrusion should protrude out on each side of press for proper mounting hardware spacing.



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Quick Change Hopper Assembly

The Quick Change Hopper Assemblies are designed to hang from the Quick Change Rail Attachments (QCRA) above. Their purpose is to funnel the plastic parts upon ejection into the Take-Off Assembly described below, which will then funnel the parts into the air conveyor. MAC Automation currently offers three different sizes of Hopper Assemblies. The hoppers are constructed of 304 Stainless Steel. *Independent support stands are available if hanging hopper from the press is not possible or desirable.*

Model	Dimensions (LxWxH)
QCHA01	16" x 14" x 9.8"
QCHA02	20" x 16" x 9.8"
QCHA03	24" x 18" x 9.8"



The independent support stand is available for applications in which the Quick Change Hopper Assembly must be located along side the press instead of under the machine. This may be due to restricted elevations or other equipment interference. The unit is constructed from a combination of extruded aluminum and mild steel, painted metallic silver. There are three different stand sizes to accommodate the three corresponding Quick Change Hopper Assemblies (Q.C.H.A's).

Model	Dimensions	Max Height	Min Height
ISS01	19" x 17"	TBD"	TBD"
ISS02	23" x 19"	TBD"	TBD"
ISS03	27" x 21"	TBD"	TBD"



Airveyor Tubing

Butyrate tube – Clear hard wall tube constructed from butyrate material, diameters available are 4" and 6" diameters. Straight lengths and radius bends available – please consult factory.

Flex tube – Opaque flexible tubes, diameters available are 2.0" 3.0" & 4.0" – please consult factory.

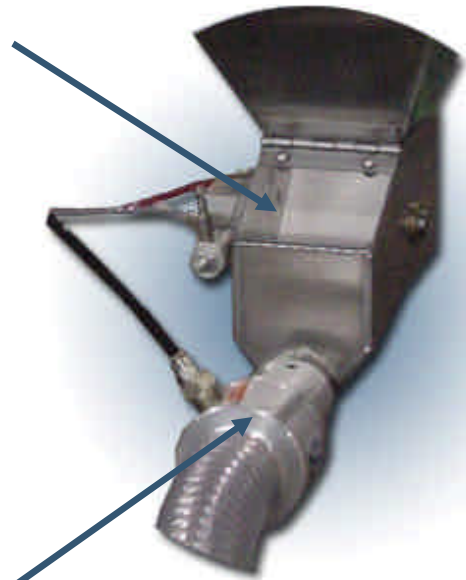


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Quick Change Diverter and Take-Off Assembly

The Quick Change Diverter Assembly (QCDA), is designed to mount between the Quick Change Hopper and Take-Off Assemblies. Its purpose is to reject the “bad” shots as determined by the IMM or process controlling system. A pneumatic actuator will flip an internal tray to evacuate the bad shot out the opposite side of the Take-Off Assembly tube. The diverter tray is constructed of 304 Stainless Steel. The appropriately sized QCDA will include (1) Ready-to-Mount Air Control Kit consisting of a filter regulator, gauge and electrical solenoid valve controlled by a N.O. dry contact, 110 VAC or a 24 VDC signal voltage.

Model	Dia.	Airveyor System
QCTOA01	2"	VPC
QCTOA02	3"	VPC
QCTOA03	4"	VPC
QCTOA04	4"	PPC
QCTOA05	6"	PPC



The Quick Change Take-Off Assembly is designed to connect via standard hardware from the Quick Change Hopper Assembly. Their purpose is to deliver the plastic parts into the air conveyor. MAC Automation currently offers two different sizes for the PPC and three different sizes for the VPC. The assemblies are constructed of a 304 Stainless Steel.

Model	Signal Voltage
QCDA01	24 VDC signal
QCDA02	110 VAC signal
QCDA03	Dry Contact (Normally Open)

Quick Change Decelerator Assembly

The Decelerator Assembly is designed to receive the parts at the end of the conveyor run. Their purpose is to allow the air pressure/stream to exit out the unit and allow gravity to slow the movement of the parts from a horizontal flow to a vertical flow. This allows the pieces to fall from the decelerator into an awaiting container or other Manual or Automatic Box, Bag or Tote Fill System. The Decelerators are constructed from 304 Stainless Steel with perforations to reduce the air flow by letting the air escape. The top of the Decelerator is a fastened piece. Internal to the decelerator is a curtain(s) to aid in cushioning, while slowing the part velocity. Three sizes are offered with all offered inlet pipe diameter sizes. Inlet sizes 2.0” –4.0” apply to the VPC and inlet sizes 4.0” to 6.0” apply to the PPC only.

Model	Dimensions	Pipe Inlet Size
DCR01-02	10" x 10" x 10"	2"
DCR02-02	14" x 14" x 14"	2"
DCR03-02	18" x 18" x 18"	2"
DCR01-03	10" x 10" x 10"	3"
DCR02-03	14" x 14" x 14"	3"
DCR03-03	18" x 18" x 18"	3"
DCR01-04	10" x 10" x 10"	4"
DCR02-04	14" x 14" x 14"	4"
DCR03-04	18" x 18" x 18"	4"
DCR01-06	10" x 10" x 10"	6"
DCR02-06	14" x 14" x 14"	6"
DCR03-06	18" x 18" x 18"	6"



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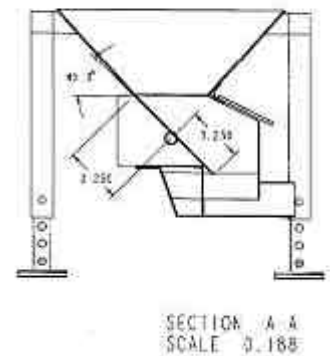
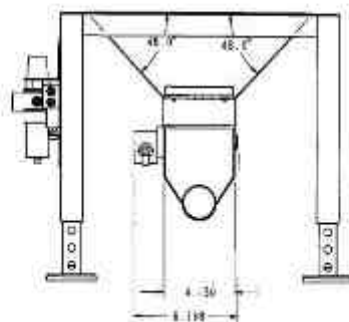
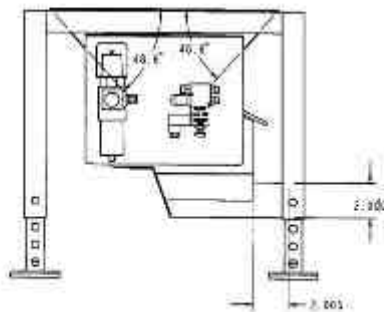
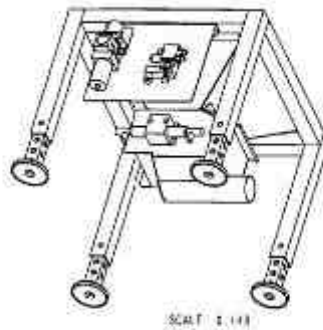
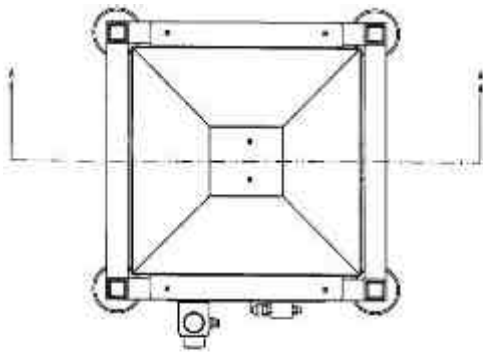
Quick Change Decelerator Support Stand



The Decelerator Support Stand is designed to have the Decelerator Assembly bolt directly to the top, allowing for a free standing unit under which a box, container or tote or other may be placed to receive the parts. The unit is manufactured from mild steel, painted metallic silver. Included on top of the four sided stand is a clear Polycarbonate cover. Adjustable legs allow for easy height adjustment.

Model	Dimensions	Max Height	Min Height
DSS01	14" x 14"	18"	14"
DSS02	20" x 20"	24"	18"
DSS03	26" x 26"	30"	24"

Parts Blowing System



NOTE: The above is an example of a 1st generation parts blowing system. The system as shown is using a separate stand to support the QCHA, QCTOA, QCDA, and the VPC, this was a special design as requested by the end user. This early unit shows more of a one piece design. All subsequent designs are engineered for modularity

NOTE: Please consult MAC Automation for the 2004 pricing of each item.

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