



TECHNICAL BULLETIN - #30 **BLOWER MARKETS BY INDUSTRY AND APPLICATION**

BY INDUSTRY

The following list is only a sampling of applications in which M-D blowers and vacuum pumps have been used.

ABRASIVES - pneumatic conveying; vacuum pick-up of sand for blasting.

ACETYLENE PLANTS - pneumatic conveying of carbide lime; pumping acetylene gas from generators to chemical process or storage.

AIRCRAFT - instrument and ground control cooling; air leakage test supply for cabin coolers; carburetor testing; engine overhaul check; ground testing of pneumatic auxiliaries; air agitation of plating tanks, cleaning and pickling tanks; air leakage testing of fuselages; altitude chamber testing of instruments.

AIR & GAS SEPARATION PLANTS - Air blowers for VSA, oxygen blowers.

ALUMINUM - pneumatic conveying of bauxite powder from barge to storage; separating aluminum and sand particles by flotation on air.

AQUARIUMS - aeration.

ASPHALT REFINING - oxidation by aeration.

AUTO WASHING - air blasting for drying.

BAGS - vacuum folding of paper bags; opening folded bags; vacuum pick-up of flaps on envelopes for filling; air supply for bulk material in bag filling.

BAKERIES - pneumatic conveying in plant and from trucks to storage bins.

BANKS - pneumatic tubes to move paper and money.

BEARING MANUFACTURE - conveying steel chips; heat transfer furnaces.

BREWERIES - conveying malt and grain; bottle and can drying; suction pick-up of bottles and cans for packaging; pumping CO₂ for carbonation; vacuum drying of grain.

BUILDINGS, INFLATABLE - inflating synthetic rubber buildings for warehouses, shelter, etc.

CANDY - pneumatic conveying of sugar, flour, and other ingredients.

CARBON DIOXIDE - pumping CO₂ gas for making dry ice.



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CARBON BLACK - pneumatic conveying and bagging; combustion air.

CARPET CLEANING - trucks to clean residences and buildings.

CEMENT - air supply to homogenize bulk cement going into storage bins; fluidizing cement for conveying in batch plant; conveying from truck to storage bins; air slide for bulk cement transport trucks; conveying ready-mixed concrete batch plant to trucks.

CENTRAL & PORTABLE VACUUM SYSTEMS - Industry - cleaning materials around plants.

CHEMICAL INDUSTRY - see separate technical bulletin (No. 17) for applications .

CLOTHING - inflating fabric bag form for shirt pressing; vacuum drying.

COAL - rock dusting in shafts, tunnel roofs and walls; air sampling; coal washing; tunnel ventilation; vacuum priming water pumps; dust collection from roof bolt drilling; vacuum drying of coal slurry; coke blowing on vacuum filters; vacuum filtration for refuse from coal washers.

CONTAINERS - vacuum pick-up of bottles and cans.

CONVEYING - pneumatic, vacuum, or combinations for materials such as:
sands feeds cement salts coal cereal
fly ash gypsum bauxite flour grains sugar
starch carbon black

Transfer materials from railroad cars, trucks, ships to vats, hoppers, bins.

CREOSOTING PLANTS - air evacuation in vacuum chambers.

CUPS - conveying products through tubes to packaging point.

CURTAINS, AIR - furnaces; heat treating.

CUSHIONS - air cushions or glides by blowing air to facilitate easy movement of flat pieces.

DAIRIES - pressuring tanks or trucks; evaporation of drying milk; aeration of milk wastes; gentle aeration in bulk storage to prevent butter fat separation; vacuum for milking machines.

DISTILLERIES - liquor moving, pneumatic conveying of grains; emptying aging barrels.



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DROP FORGING - scale blowing from forges.

DUST COLLECTION - cleaning bags filters; bag filtration.

ENGINES - air scavenging; supercharging; air testing.

FARMING - drying; conveying; spraying; soil pasteurization.

FISH - aeration of fish tanks; transport trucks, and ponds; prevention of ice formation on ponds; removal of eggs from fish' agitation of washing tanks.

FLUID BED COMBUSTION - fluidizing air into boilers for cleaner combustion.

FLOUR - fluidizing for conveying.

FOOD PROCESSING - freeze drying; evacuation of air from bottle or can filling machine; agitation; pneumatic conveying.

FOUNDRIES - Central Vacuum--sand removing; Pneumatic Conveying--dust collection.

FUEL CELLS - pumping methane through cell to generate electricity.

GAS MIXING - proportioning gases in chemical processes.

GAS AND OIL FIELDS - field repressurization from exhaust gases of gas engines.

GLASS - pneumatic conveying; vacuum holding of sheet glass for transfer; evacuation of test chamber; vacuum filtration from grinding and cutting particles; air cooling sheets and molds; blowing water from glass sheets' cooling and tempering air for curved windshields leaving molds.

GRAIN - pneumatic conveying; air drying; air circulation; supplying air for fermentation.

GYPSUM BOARD - pneumatic conveying of bulk gypsum; vacuum for board machine; vacuum lifting of boards for transfer.

HYDROGEN - collection and movement of gas from electrolysis process.

ICE - aeration of lakes and ponds for protection against freezing; agitation by bubbling water in marinas, dams, bridges, etc. where freezing may cause damage; aeration of harbors to keep open for navigation; aeration of freezing tanks in ice plants to draw off impurities and to provide clearer cakes of ice; conveying crushed ice into ice bunkers on boats, ships, trucks, and railroad cars.



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INSULATION - blowing insulation into walls.

IRON FOUNDRIES - combustion air; boosting distribution gas pressure; pneumatic conveying and collecting.

IRON ORE PROCESSING - vacuum filtering to dry iron ore for pelletizing; cake blowing; combustion air for pelletizing furnaces and for drying wet ore; pneumatic conveying; flotation air; cooling pellets; cooling bearings on pelletizing furnaces.

LASER - industrial units for gas re-circulation in laser.

LAUNDRY - shirt pressing machines; vacuum drying of clothing.

LEAD - combustion air for lead melting furnace.

MACHINERY MANUFACTURING - vacuum for holding material in place for surface planing and grinding; vacuum on chucks for holding material in place; dust collection; machines to suck out oil and coolants for filtering and replacement.

NEON SIGNS - gas pressure boosting for torches and ribbon burners.

NON-FERROUS METALS - aeration of slurry.

OIL REFINERIES - asphalt blowing; fly ash conveying; liquid transfer by air pressure; vacuum flashing; pneumatic conveying.

ORE PROCESSING - NON-FERROUS - copper converters; flotation for separating copper sulfides from waste; vacuum filtration; cake blowing; combustion air.

PACKING PLANTS - pneumatic conveying; agitation.

PAPER MILLS - paper machine vacuum; head box pressurization; pneumatic conveying; waste treatment aeration; paper folding; vacuum pick-up of sheets; air glide or cushion for moving heavy loads on flat surfaces; vacuum cleaning/conditioning of felts; roll heading for wrapping; black liquor recovery; paper pick-up of large paper rolls.

PARTICLE BOARD MFG. - vacuum to pick-up sheets; pneumatic conveying.

PHARMACEUTICALS - Conveying--many process applications.

PHOTO PROCESSING - holding photos for drying; blowing water off wet film.



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PLASTICS - blowing granules into molding machine; inert gas conveying to prevent contamination of polyurethane; hopper drying of material going to machines; hopper filling; pneumatic conveying.

PNEUMATIC CONVEYING - all types of dry fluid material.

PLATE GLASS - vacuum suction to handle large sheets of plate glass.

PLATING - agitation; moisture blowing and drying.

POULTRY - vacuum removal of entrails agitation water in washing tanks; removal of egg from shells; pick-up of eggs for packing in cartons.

POWER GENERATION - fly ash handling--environmental systems; vacuum systems.

PUMPS, CENTRIFUGAL - vacuum priming to lift water into pump.

PRINTING - paper folding machine; control air glide between rolls; collating; mat drying; vacuum pick-up of sheets.

PULP MILLS - chip conveying; combustion air; vacuum filtration; pulp drying; black liquor recovery.

QUARRIES - dust removal and handling.

REMEDIATION - Soil--vacuum to remove gasoline and chemicals from soil.

ROAD CONSTRUCTION - asphalt paver combustion air; convey cement slurry under sagging pavements, etc.

ROOF VACUUMS - to remove stones on flat roofs for repairs.

SAW MILLS - vacuum and pressure to recover sawdust and transmit to boilers, etc.

SEPTIC TANKS - vacuum cleanout of tanks; pressurizing truck tanks at disposal area.

SEWAGE - aeration in activated sludge plants--industrial, municipal, commercial (hotels/motels/subdivisions/ships, etc.); separation of grit from sewage; grit channel aeration (prevents settling of grit); pneumatic conveying; dewatering sludge on vacuum filters; recirculation of sludge gas; cake blowing; combustion air for incineration.

SEWER VACUUM TRUCKS - to clean sewers.

SLAUGHTER HOUSES - vacuum to remove guts from carcasses.



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STEAM SYSTEMS - increasing saturated steam into superheat off condensers.

STEEL MILLS - blast furnace air supply; combustion air for open hearth furnace; oxygen furnace; Bessemer converter; cupola blowers; coke oven exhausters; fly ash collectors; vacuum filtration; agitation of ferrous sulphate.

SUGAR - pneumatic conveying; aeration of storage bins; vacuum filtration.

TEXTILES - vacuum for drawing fluid through bolts of cloth; pneumatic conveying; drying yarn after dyeing.

TRUCK BLOWER - for loading and unloading dry bulk material on and off dry bulk tank trucks.

TUBE SYSTEMS - pneumatic conveying.

WATER TREATMENT - vapor compression; water distillation; aeration of streams; lime-neutralization aeration; air flocculation for water purification; saline water de-salinization; salt water de-salinization.

WOODWORKING INDUSTRY - furniture - wood products - vacuum sawdust; collection and transport to boilers, etc.

AIR APPLICATIONS

Combustion air for oil burners, gas burners, coke-fired forges, small foundry cupolas in:

Iron & Steel Industries
Food Processing
Chemical Plants
Non-Ferrous Metal Refineries, Smelters & Foundries
Bakeries
Glass, Ceramics, Brick
Oil, Tar & Asphalt Heaters
On Road Machinery
Neon Sign Shops
Drill Bit Forges in Oil Fields & Mining
Pipe, Wrapping Machines

Drying
Air and Sand Blasting
Grain Conditioning in Elevator Storage
Supercharging
Dusting and Spraying



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Washing, Drying, and Cleaning Drums, etc.
Blending and Mixing
Paper Coating (Air Knife)
Air Motors
Sand Filter Regeneration
Dust Blowing
Cake Blowing
Pressurizing Paper Mill Headboxes

Aerating and agitating liquids in:
Waste treatment plant
Water treatment
Electrotyping & engraving
Fish transportation
Oyster washing
Oil blending
Ice manufacture
Chemical processes
Preventing ice formation in power plants, fish ponds, lakes
Flotation
Blending vinegars
Asphalt refining
Food washing

Pneumatic conveying:
Granular materials
Tube systems
Insulation blowing
Liquid transfer
Fluidizing
Pulp conveying
Wood and metal chip conveying
Rock dusting
Flour and powders
Airlides

GAS PUMP APPLICATIONS

Gas Distribution Systems Moving Gas and Vapors in:
Chemical plants
Oil refineries
Food plants
Pharmaceutical plants
Pressure boosting to gas-fired burners



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Natural gas gathering in oil fields
Pumping from low pressure natural gas wells
Boosting sewage gas from digesters
Neon sign shops
Air and gas sampling equipment

VACUUM APPLICATIONS

Industrial and commercial vacuum cleaning
Paper folding machinery
Testing equipment
Garment presses
Bottle and tube filling machines
Drying
Mat formers
Pump priming
Dust collecting

VACUUM BOOSTERS

Vacuum companies who manufacture vacuum pumps. Application to increase capacity and vacuum level of vacuum pumps. All types of vacuum pumps are included.