



Miljøforbedrende
fordele



Støjsvag
process



Forlænger
værktøjets levetid

SPOT KØLER, MINI KØLER OG KOLDLUFT PISTOL FRA EXAIR

Spotkøling

Ved at benytte spotkøling kan man effektivt køle på overflader, hvor uønsket varme opstår. Det kan eksempelvis være ved fræsning, boring, slibning og drejning med videre. Samtidig blæses spåner og andre urenheder bort.

At bibeholde en lav temperatur under bearbejdning gør processen lettere og forlænger værktøjets levetid.

Koldluft-pistol

En ny løsning til et gammelt problem. Opvarmningen ved tør maskinbearbejdning reducerer værktøjets levetid og maskinens værdi. Koldluft-pistolen producerer en strøm af ren kold luft på 28° under lufforsynings temperaturen. Processen er støjsvag og der er ingen bevægelige dele at slide op. Den kolde luft fjerner den dannede varme og er med til at forlænge værktøjets levetid samt øge produktiviteten ved maskinbearbejdning, når der ikke kan/må bruges køle-/smøremidler. Kølepistolen er en alternativ til dyre kølesystemer.

Adjustable Spot Cooler

Cold air to -30°F (-34°C) from your compressed air supply for spot cooling!



What Is The Adjustable Spot Cooler?

A low cost, reliable, maintenance free solution to a variety of industrial spot cooling problems. With the turn of a knob, you can select the temperature best suited to your application.

The Adjustable Spot Cooler provides a precise temperature setting from -30°F (-34°C) to room temperature.

The Adjustable Spot Cooler incorporates a vortex tube that converts an ordinary supply of compressed air into cold air.

- It can produce temperatures from -30° to +70°F (-34° to +21°C)
- Parts included for flow rates of 15, 25, and 30 SCFM (425, 708 and 850 SLPM). 25 SCFM (708 SLPM) generator is factory installed.
- It can produce refrigeration up to 2,000 Btu/hr. (504 Kcal/hr.)

A swivel magnetic base provides easy mounting and portability. Flexible tubing that holds its position directs the cold air. No moving parts or CFC's assures maintenance free operation.

Why The Adjustable Spot Cooler?

The Adjustable Spot Cooler is quiet (less than 75 dBA), easily set with a thermometer and holds the temperature setting. It's ideal for applications where mist or liquid cooling can not be used due to part contamination or cost. Tolerances, product finish and production rates can improve dramatically.

The Adjustable Spot Cooler is available with either a single point or dual point hose kit. The single point system (Model 3825) is recommended for cooling a small surface like solder joints, hot melts or drilled plastics. The dual point system (Model 3925) is recommended when heat is generated over a larger surface area.

Applications

- Adjusting thermostats
- Cooling solder
- Cooling machined plastics
- Setting hot melts
- Cooling welding horns
- Cooling molded plastics
- Electronic component cooling
- Cooling gas samples
- Cooling environmental chambers

Advantages

- No moving parts
- No electricity or chemicals
- Small, lightweight
- Low cost
- Maintenance free
- Instant cold air
- Quiet - less than 75 dBA
- Swivel magnetic base
- Interchangeable generators



PVC hose is cooled at the exit of an extruder so it can be coiled immediately.

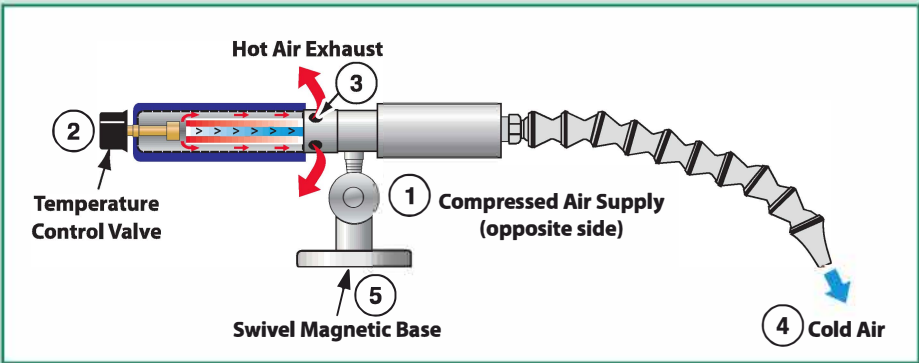


The Adjustable Spot Cooler replaces flood coolant and eliminates hours of cleanup on a cast iron machining operation.



The Adjustable Spot Cooler maintains critical tolerances on machined plastic parts.

How The Adjustable Spot Cooler Works



The Adjustable Spot Cooler incorporates a vortex tube to convert an ordinary supply of compressed air (1) into two low pressure streams, one hot and one cold. (For complete information on vortex tube operation, see page 160.) With the turn of a knob, the **temperature control valve** (2) allows some hot air to flow through a muffling sleeve and out the **hot air exhaust** (3). The opposite end provides a cold airstream (4) that is muffled and discharged through the flexible hose, which directs it to the point of use. The **swivel magnetic base** (5) provides easy mounting and portability.

Specifications

Pressure Supply		Air Consumption		Sound Level
PSIG	BAR	SCFM	SLPM	dB(A)
100	6.9	15	425	72
100	6.9	25*	708	73
100	6.9	30	850	74

* 25 SCFM (708 SLPM) generator is factory installed

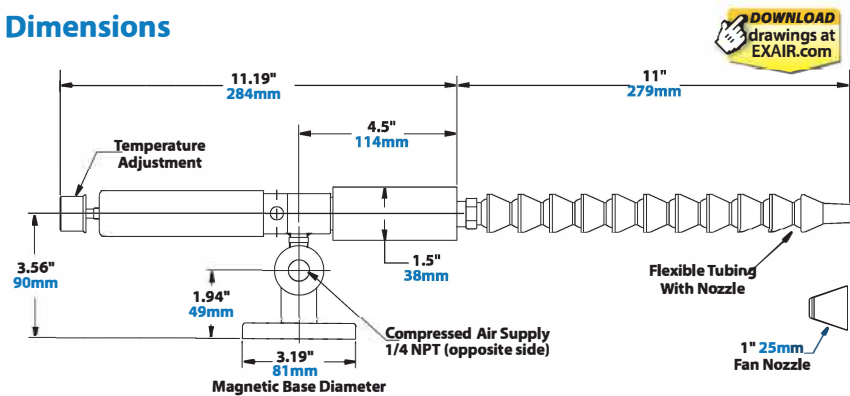


The Model 3825 Adjustable Spot Cooler can produce temperatures from -30° to +70°F (-34° to +21°C).



Electronic components stay cool during a soldering operation.

Dimensions



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Adjusting the Spot Cooler

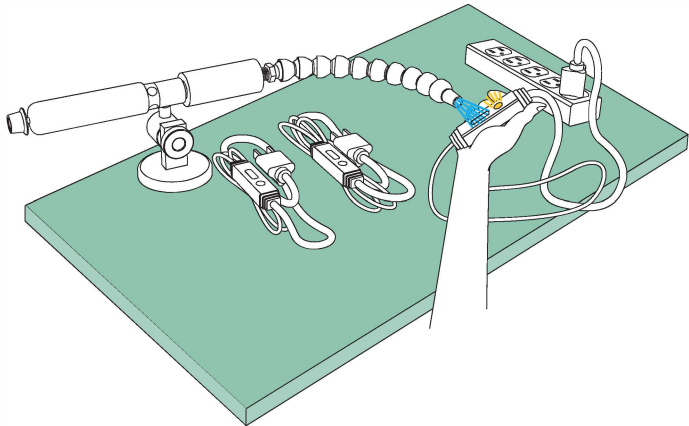
The Adjustable Spot Cooler System can produce a full range of airflows and temperatures as determined by the knob setting and a small internal part called a generator. The generators control the SCFM (SLPM) of air consumption and are easily interchangeable.

The Adjustable Spot Cooler has a 25 SCFM (708 SLPM) generator installed that produces up to 1,700 Btu/hr. (429 Kcal/hr.). If less cooling is desired, the 15 SCFM (425 SLPM) generator which delivers 1,000 Btu/hr. (252 Kcal/hr.) can be installed. If more cooling is needed, the 30 SCFM (850 SLPM) generator can be installed for up to 2,000 Btu/hr. (504 Kcal/hr.).

Controlling the Cold Air

The Adjustable Spot Cooler gives instant cold air when filtered compressed air is supplied to it. Cycling on and off is a good way to save air. For on and off control, use a Model 9012 Manual Shutoff Valve. To turn the Adjustable Spot Cooler on with the machine, the Model 9020 Solenoid Valve may be used and wired through the machine control switch. The EFC electronic flow control shown on page 7 can also be used.

Testing Heat Tape Thermostats



The Problem: A manufacturer of electrical heat tapes had a problem testing thermostats for accuracy. The heat tape is supposed to switch on when the outdoor temperature dips below 40°F to prevent pipes from freezing or ice from building up on a roof's edge. The liquid-tight thermostat of every tape had to be dipped into a bowl of ice water (thermometer checked at 36°F (2°C)) to make

sure the indicator light came on and the tape got warm. Summertime heat caused the water to heat up so quickly that more time was spent regulating the water temperature than testing thermostats.

The Solution: The water bath was replaced with a **Model 3825 Adjustable Spot Cooler**. Once set to their desired temperature of 36°F (2°C), it provided a stable temperature all day long without adjustment. Drying each heat tape was no longer required and testing was over in seconds.

Comment: The Adjustable Spot Cooler paid for itself in no time as a result of the increased productivity. In this case, **the company used the included 15 SCFM (425 SLPM) generator which minimized the compressed air use, costing only 23 cents per hour of continuous use!** When testing thermostats, cooling machined plastics, setting hot melts or controlling tolerances, the Adjustable Spot Cooler is the best choice.

Adjustable Spot Cooler Systems



Model 3825 Adjustable Spot Cooler System includes the Adjustable Spot Cooler, single point hose kit with cone and fan nozzle, swivel magnetic base, filter separator, 15 and 30 SCFM (425 and 850 SLPM) generators. (25 SCFM/708 SLPM generator installed.)



Model 3925 Adjustable Spot Cooler System includes the Adjustable Spot Cooler, dual point hose kit with cone and fan nozzles, swivel magnetic base, filter separator, 15 and 30 SCFM (425 and 850 SLPM) generators. (25 SCFM/708 SLPM generator installed.)

(Adjustable Spot Cooler with dual point hose kit is recommended when heat is generated over a larger surface area.)

Accessories and Components	
Model #	Description
5901	Single Point Hose Kit (Included with 3825)
5902	Dual Point Hose Kit (Included with 3925)
9001	Auto Drain Filter Separator, 3/8 NPT, 65 SCFM (1,841 SLPM) (Included with 3825 and 3925)
9005	Oil Removal Filter, 3/8 NPT, 15-37 SCFM (425-1,048 SLPM)
9012	Manual Shutoff Valve, 1/4 NPT
9020	Solenoid Valve, 120V, 50/60Hz, 1/4 NPT, 40 SCFM (1,133 SLPM)

GO GREEN

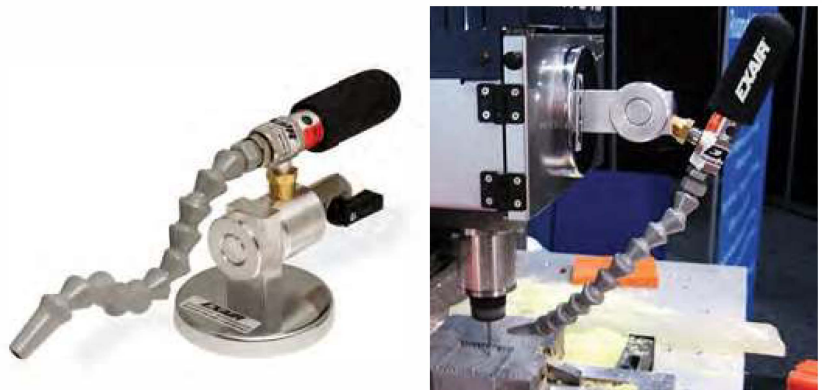
SAVE MONEY

Order EXAIR's EFC™ electronic flow control to minimize compressed air use. See page 7 for details.

Mini Cooler™

Cool small parts and tools with clean, cold air!

Prevent burning, melting or breakage!



What Is The Mini Cooler?

A proven way to reduce downtime and increase productivity on a variety of operations involving small parts where heat is a problem. EXAIR's Mini Cooler produces a stream of 20°F (-7°C) cold air to prevent heat build-up. **The Mini Cooler is particularly effective on high speed operations to prevent burning, melting and heat related breakage.** Operation is quiet (76 dBA) and there are no moving parts to wear out.



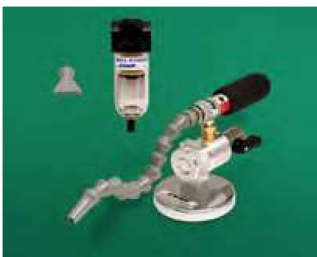
Applications

- Small tool cooling
- Needle cooling
- Blade cooling
- Lens grinding

Advantages

- Low cost
- Increases production rates
- Improves tolerances
- Quiet, compact

Mini Cooler Systems



Model 3808 Mini Cooler System (one cold outlet)

Includes Mini Cooler, Single Point Hose Kit, Swivel Magnetic Base, Manual Drain Filter Separator and Mounting Bracket.



Model 3308 Mini Cooler System (two cold outlets)

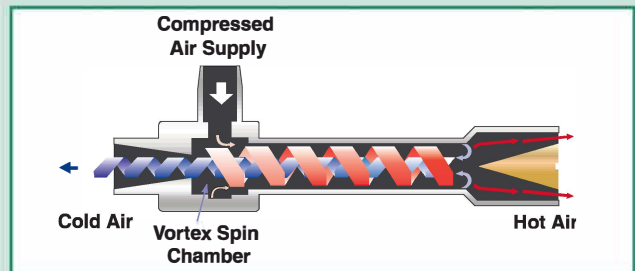
includes Mini Cooler, Dual Point Hose Kit, Swivel Magnetic Base, Manual Drain Filter Separator and Mounting Bracket.

Mini Cooler Specifications

Air Consumption		Temperature Out		Sound @ 3' (914mm)	
SCFM	SLPM	°F	°C	dBA	INLET
8	227	20	-7	76	1/4 NPT

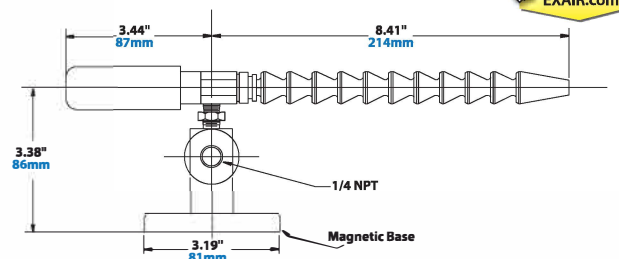
Supply air at 100 PSIG (6.9 BAR) & 70°F (21°C)

How The Mini Cooler Works



The Mini Cooler incorporates a vortex tube to convert a small amount of compressed air into two low pressure streams, one moving within the other in opposite directions (see page 160). The two airstreams exchange heat, producing cold air from one end of the tube and hot air from the other. A flexible hose directs the cold airstream at the surface to be cooled.

Dimensions



Mini Cooler

Model #	Description
3808	Mini Cooler System (one cold outlet) includes the Mini Cooler, swivel magnetic base, mini single point hose kit and manual drain filter
3308	Mini Cooler System (two cold outlets) includes the Mini Cooler, swivel magnetic base, mini dual point hose kit and manual drain filter



Accessories

Model #	Description
5904	Mini Cooler Single Point Hose Kit (Included with 3808)
5905	Mini Cooler Dual Point Hose Kit (Included with 3308)
9003	Manual Drain Filter Separator, 1/4 NPT (Included with 3808 and 3308)
9012	Manual Shutoff Valve, 1/4 NPT
9027	Oil Removal Filter, 1/4 NPT, 24 SCFM (680 SLPM)

Cold Gun Aircoolant System™



Replace messy mist systems - improve dry machining with clean, cold air!

What Is The Cold Gun Aircoolant System?



A new solution to an old problem. Heat build up on dry machining operations reduces tool life and machining rates. The Cold Gun Aircoolant System produces a stream of **clean, cold air at 50°F (28°C) below supply air temperature. Operation is quiet and there are no moving parts to wear out.** It will remove heat to prolong tool life and increase productivity on machining operations when liquid coolants cannot be used.

The Cold Gun is also an alternative to expensive mist systems. It eliminates the costs associated with the purchase and disposal of cutting fluids and worker related health problems from breathing airborne coolants or slipping on wet floors.

EXAIR's Cold Gun is non-adjustable to prevent freeze-up during use. Cold airflow and temperature drop are factory set to optimize the gun's cooling capability.



The Model 5215 Cold Gun keeps the part cool to the touch and prevents discoloration.



Cold air eliminates heat cracking of the carbide tool during sharpening.



The Model 5315 Cold Gun cools a two flute 3/8" carbide cutter on a CNC, increasing tool life by 50%.

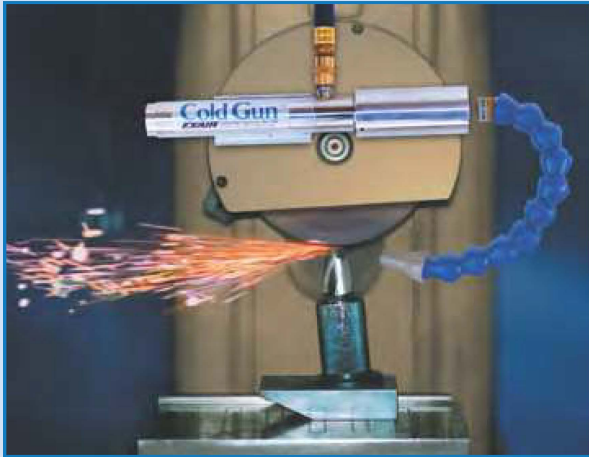
Applications

- Tool sharpening
- Drill and cutter grinding
- Routing
- Plunge and form grinding
- Milling
- Surface grinding
- Drilling
- Tire grinding
- Band sawing
- Plastic machining
- Laser cutting
- Chill rolls
- Setting hot melt adhesives

Advantages

- Improves production rates
- Prevents burning
- Extends tool life - reduces breakage
- Improves tolerance control
- Prevents smearing of metal or plastics
- Finished part is dry
- Eliminates wheel loading
- Low cost
- Compact, lightweight, portable
- No moving parts - maintenance free
- Quiet
- No coolant cost
- No electricity

Applications



Model 5215 Cold Gun System

Tool Grinding

Cold air eliminates heat cracking of carbide and tool edge burning during grinding and sharpening operations. Increased tool life between regrinds is the result.



Model 5215 Cold Gun System

Milling & Drilling

Fly cutters up to 460mm in diameter have been cooled with the Cold Gun. Dissipating heat with cold air extends tool life, increases speeds and feeds, and improves finishes.



Model 5315 Cold Gun System

Chill Roll

Cooling a roll with 20°F (-7°C) air keeps the material on the surface from bunching up, jamming or tearing. The metal surface transfers the cold temperature to the product.

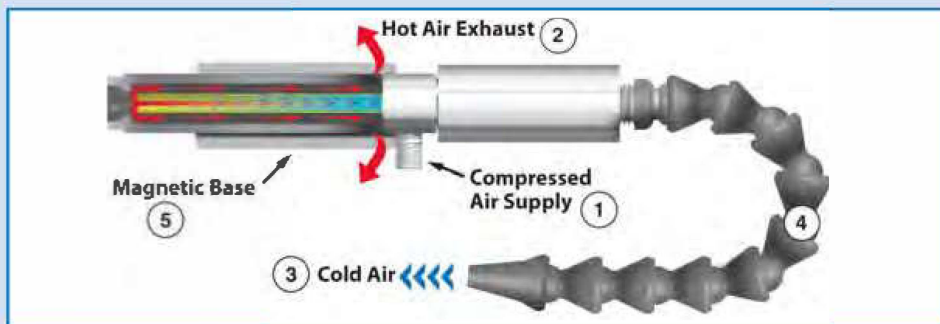


Model 5230 High Power Cold Gun System

Laser Cutting

Cold air cools a laser cut part so it can be handled seconds later. The High Power Cold Gun has twice the cooling capacity of the standard Cold Gun, cooling the part in less time.

How The Cold Gun Works

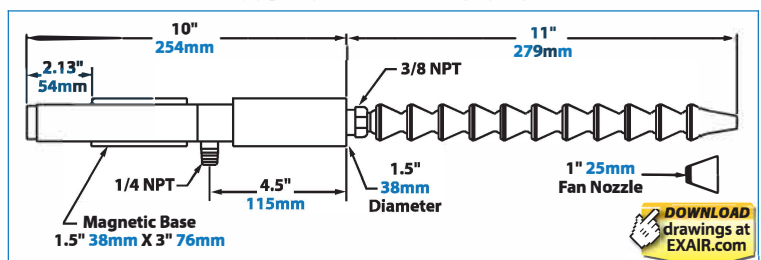


The standard Cold Gun and High Power Cold Gun incorporate a vortex tube to convert an ordinary supply of **compressed air** (1) into two low pressure streams, one hot and one cold. (For complete information on vortex tube operation, see page 160 of this catalog.) The Cold Gun's hot airstream is muffled and discharged through the **hot air exhaust** (2). The **cold air** (3) is muffled and discharged through the **flexible hose** (4), which directs it to the point of use. Easy mounting and portability are provided through the use of an attached **magnetic base** (5).

Specifications

Model #	Pressure Supply		Air Consumption		Sound Level
	PSIG	BAR	SCFM	SLPM	dBA
Cold Gun 5215, 5315	100	6.9	15	425	70
High Power Cold Gun 5230, 5330	100	6.9	30	850	82

Cold Gun Dimensions



DOWNLOAD drawings at EXAIR.com

Controlling the Cold Air

The EXAIR Cold Gun gives **instant cold air** when filtered compressed air is supplied to it. Cycling on and off is a good way to save air. **For on and off control**, use a Model 9012 Manual Shutoff Valve. To turn the Cold Gun on with the machine, the Model 9020 Solenoid Valve may be used and wired through the machine control switch. This method is ideal for hand grinders and drill sharpeners.

The Compressed Air Supply

The Cold Gun is designed to use full line pressure of 80-100 PSIG (5.5-6.9 BAR). Temperature drop and flow are reduced when lower input pressures are applied. The use of clean, filtered air is essential to the operation of the Cold Gun. A filter separator that removes moisture, dirt and other particulates from the compressed air is included with each Cold Gun System. An optional Oil Removal Filter is also available. (See page 186 for details.)

Need More Cooling?

EXAIR's High Power Cold Gun Aircoolant System™ produces twice the airflow of the standard Cold Gun, doubling the cooling capability. It produces cold air at 50°F (28°C) below the supply air temperature so the air is as cold as possible without freezing up. Two systems are available: the Model 5230 High Power Cold Gun with Single Point Hose Kit and Model 5330 High Power Cold Gun with Dual Point Hose Kit.

Selecting The Right Model

Cold Gun Aircoolant Systems are available with either a Single Point or Dual Point Hose Kit.



The Single Point Hose Kit (included with the Model 5215 Cold Gun and Model 5230 High Power Cold Gun) is recommended for applications where a concentrated airflow is needed such as drilling and grinding operations.

The Dual Point Hose Kit (included with the Model 5315 Cold Gun and Model 5330 High Power Cold Gun) is recommended for applications where the heat is generated over a larger surface area such as band sawing, milling, chill rolls and hot melt adhesives.

A Cold Gun System with the Model 5901 Single Point Hose Kit can be easily converted to a "dual point" system with the purchase of the Model 5902 Dual Point Hose Kit.

Purdue University Study Confirms Benefits Of The EXAIR Cold Gun

Tooling costs a lot of money to replace. That's only part of the problem. As the tools wear out, you can expect:

- Slowed production and downtime to change out the tooling
- Poor tolerances and decreased dimensional accuracy due to increased temperature
- Increased cutting force is required (generates more heat and uses more electricity)

If you could just make the tooling last longer, you'd not only cut the tool cost but could increase profits by reducing scrapped parts and downtime.

A long term study on the effect of refrigerated air on tool wear in wood machining was conducted at the Forestry Products Department of Purdue University by Ms. Judith Gisip. The project was under the direction of Dr. Rado Gazo (department professor) and Harold Stewart

(professor at North Carolina State University with 35 years in wood machining research). Wood is brutal on tooling. In metalworking, most of the heat goes away with the machined chip. Wood is an excellent insulator and doesn't conduct the heat away, which keeps it all there at the tool. Temperatures can exceed 1472°F (800°C)!

The extensive tests at Purdue were conducted in a 70°F climate controlled room. They tested (4) 1/2" (12.7mm) two-flute cutters on a CNC router at 16,000 rpm. (22) sheets of 3/4" thick MDF (medium density fiberboard) were fed one at a time, cutting away 1/4" (6mm) depth of cut on each pass. Power consumption of the CNC was recorded (current draw increases as the tool starts to dull). When finished, the surface of the tools was examined using a scanning electron microscope. Machining with the Cold Gun's 20°F air reduced tool wear by over 21% compared to the results with no cooling.

For complete details of the Purdue study, visit our web site at www.exair.com/purdue.htm.



Purdue's CNC router turns (22) 4'x8' sheets into sawdust.



EXAIR's Cold Gun is mounted under the protective guard.



Cold air from EXAIR's Model 5315 Cold Gun System keeps the tooling cool.

How Much Can You Save?

- A 1/2" two flute router bit for wood is approximately \$67.
- The 21% reduction in tool wear when using a Cold Gun is $\$67 \times 0.21 = \mathbf{\$14.07 \text{ savings per bit.}}$
- If you use (1) router bit per working day, the savings is $\$14.07 \times 5 \text{ working days} = \mathbf{\$70.35 \text{ per week} / \$3,658 \text{ per year}}$ For One Bit!

Cold Gun Aircoolant Systems



Model 5215 Cold Gun System (one cold outlet)

includes Cold Gun, Single Point Hose Kit, 3/8" (10mm) Cone Nozzle, 1-1/4" (32mm) Fan Nozzle, Manual Drain Filter Separator.



Model 5315 Cold Gun System (two cold outlets)

includes Cold Gun, Dual Point Hose Kit, (2) 1/4" (6mm) Cone Nozzles, (2) 1" (25mm) Fan Nozzles, Manual Drain Filter Separator.



Model 5230 High Power Cold Gun System (one cold outlet)

includes High Power Cold Gun, Single Point Hose Kit, 3/8" (10mm) Cone Nozzle, 1-1/4" (32mm) Fan Nozzle, Automatic Drain Filter Separator.



Model 5330 High Power Cold Gun System (two cold outlets)

includes High Power Cold Gun, Dual Point Hose Kit, (2) 1/4" (6mm) Cone Nozzles, (2) 1" (25mm) Fan Nozzles, Automatic Drain Filter Separator.

A Dual Point Hose Kit is recommended when heat is generated over a larger surface area.

Accessories and Components

Model #	Description	Model #	Description
5015	Cold Gun Only	9005	Oil Removal Filter, 3/8 NPT, 15-37 SCFM (425-1,048 SLPM)
5030	High Power Cold Gun Only	9012	Manual Shutoff Valve, 1/4 NPT
5901	Single Point Hose Kit (Included with 5215 and 5230)	9020	Solenoid Valve, 120V, 50/60Hz, 1/4 NPT, 40 SCFM (1,133 SLPM)
5902	Dual Point Hose Kit (Included with 5315 and 5330)	9021	Solenoid Valve, 200-240V, 50/60Hz, 1/4 NPT, 40 SCFM (1,133 SLPM)
9003	Manual Drain Filter Separator, 1/4 NPT, 27 SCFM (765 SLPM)	9031	NEMA 4/4X Solenoid Valve, 24VDC, 1/4 NPT, 40 SCFM (1,133 SLPM)