

# **Couplings and Fittings for Plastic Tubing**

Colder Products Company is the world's largest supplier of plastic quick disconnect couplings and has been designing and manufacturing innovative connector solutions since 1978. Our broad range of products can be found in thousands of applications and is sold through a global distribution network with local delivery on six continents.

Used in a wide range of machinery, devices and processes, innovative coupling and connection technologies from Colder allow flexible tubing to be quickly and safely connected and disconnected. Colder offers more than 7,000 standard product line items in addition to developing custom-designed couplings. Our large engineering staff is also available for custom consultation and development using the latest in modeling and prototype capabilities. Colder can be relied upon to provide reliable, secure and leak-free connections for even the most challenging fluid and air management needs.

#### Industrial

• Broad offering of couplings for analytical instrumentation, printing and ink management, engine systems, biohazard detection equipment, electronic cooling and portable hydration systems.

#### Life Sciences

- Reusable and disposable connections in medical devices such as blood pressure monitoring, surgical, dialysis, and patient therapy devices.
- Single-use connections for media transfer in feeding, harvesting and sampling applications.

#### **Chemical Handling**

- Chemically resistant couplings and closed-loop dispensing systems used in semiconductor, pharmaceutical, agricultural, carwash, laundry, and fragrance chemical production.
- Fitments, closures, and couplings for bag-in-box and rigid containers found in cleaning, soap and detergent, and bulk ink applications.

### **NEW!** Catalog

This 112 page specifying resource details more than 7,000 of our products, including the newest product lines and additions. The new catalog combines our full product offering across all markets into one concise resource for virtually every fluid or air handling application, complete with fittings and accessories.



### Where to Buy

Find your local distributor by visiting www.colder.com or call Colder's Customer Service at 1-800-444-2474 or 651-645-0091. You can also send an e-mail to info@colder.com.

# Quality

Quality is a key component of Colder's success. We are an ISO9001:2000 certified company and our clean room meets ISO Class 7 standards.

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# The Colder Advantage

- World's largest supplier of plastic quick disconnect couplings
- Global distribution network enables local delivery on six continents
- Comprehensive product line; more than 7,000 standard items available plus thousands of custom solutions
- 50% of our professional staff is comprised of degreed engineers and other engineering staff
- Extensive modeling capabilities, prototype equipment, an expansive test lab, thousands of solutions

# How to Choose the Right Connector

#### Introduction

With so many connection options, it can often be an overwhelming task to decide which connector is best suited for an application. By understanding your application requirements and selecting the correct connection type, you will have better performance and sealing results.

#### Assessing the Application

Understanding your application is the key to proper selection of a connection. Use the following checklist to simplify your selection.

Flow	What is your required flow and pressure drop? Be sure to allow for the effect of shutoff valves and tubing connections on your calculations.
Tubing	What size tubing, both inner and outer diameter, are you using? Double check media compatibility.
Media	The viscosity and corrosiveness of the fluid going through the connection needs to be considered. Make sure the media is chemically compatible with ALL coupling materials - including the seals or "O-rings."
Temperature	Know your minimum and maximum temperature range. Standard temperature tolerances range from -40° F to 200° F depending on connection material.
Pressure	What is the maximum pressure your connection will need to withstand during operation? Quick disconnects rated to 250 psi will handle most low pressure applications.
Tubing Connections	<b>Type:</b> Hose barb, compression fittings, and push-to-connect are the most common termination styles. <b>Size:</b> You will need to know ID for hose barbs, OD for push-in-fittings, and tube ID and OD for compression.
Shutoff Options	Do you need automatic or integral shutoff valves? Shutoff options are single, double and non-spill.
Mounting Options	How is the connection going to be configured into your application? Common mounting options include pipe thread, panel mount, in-line or elbow.
Special Requirements	Sterilization, NSF listed, USP Class VI approved materials, special packaging, color coding, keying, lot traceability, etc.



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### **Material Options**

The type of media flowing through a connection can affect the strength, surface appearance, color, and performance of the connection. Some guidelines for the different types of material:

### Thermoplastics

Acetal	Strong, lightweight and economical, and is used for a wide variety of chemical and mechanical components. Acetal offers high strength and rigidity over a broad temperature range, low wear, toughness and resistance to repeated use.
ABS	Economical medical-grade thermoplastic that withstands gamma and e-beam sterilization. It is commonly used in medical devices. ABS is an amorphous material with good physical properties and high resistance to chemical attack.
Polyamide (Nylon)	Very resistant to wear and abrasion, good mechanical properties even at elevated temperatures, low permeability to gases, and good chemical resistance.
Polysulfone	Rigid material with excellent strength, good chemical resistance, withstands repeated sterilization, and higher temperatures than other thermoplastics. Its high hydrolytic stability allows its use in medical applications requiring autoclave and steam sterilization.
Polycarbonate	Resistant to some chemicals, withstands sterilization and is transparent. It is commonly used in medical devices and offers impact resistance, outstanding dimensional stability and good optical properties.
Polypropylene	Excellent general purpose resin that is highly resistant to chemical attack from solvents and chemicals in harsh environments. In general, polypropylene is resistant to environmental stress cracking, and it can be exposed to challenging environments.
Polyethylene	Low-cost, chemically resistant thermoplastic. It is opaque, and can withstand reasonably high temperature. Polyethylene, unlike polypropylene, cannot withstand normally required autoclaving conditions.
<b>PEEK</b> (Polyetheretherketon)	Highly temperature resistant, engineered thermoplastic with excellent chemical and fatigue resistance. It exhibits superior mechanical and electrical properties.
<b>PPS</b> (Polyethylene Sulfide)	Broadest resistance to chemicals for its market as an advanced engineering plastic. (PEEK and PTFE have better resistance, but are not considered engineering resins.)

#### **Fluoropolymers**

PVDF	Tough engineering thermoplastic with a balance of physical and chemical properties that qualify it for high performance in a wide range of applications. It is mechanically strong and tough, has good ductility, and has a broad, useful temperature range.
PTFE	Chemically resistant to all chemicals and solvents with the exception of some molten metals, molten sodium hydroxide, elemental fluorine, and certain fluorinating agents. PTFE offers chemical resistance and stability at high temperature.

www.colder.com for more product information.

Don't forget:

you can always visit

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Chrome-plated Brass	Rugged metallic material with an attractive appearance, chrome-plated brass is excellent for higher pressure and temperature.
Die-cast Zinc	Durable and lightweight (about 20% less than comparable brass) material that withstands high pressure and temperature.
Aluminum	Lightweight metal with an available hard anodized finish for durability. Aluminum is non-toxic, non-magnetic and non-sparking and is known for its high strength to weight ratio.

#### **O-Ring Selection**

Selecting the correct o-ring material can offer you better chemical resistance while others can offer better heat resistance or cold flexibility within your application. Some guidelines for the different types of o-rings:

Buna-N	A common material for o-rings with a temperature range of -30° to 250° F.
FKM	Well known for its outstanding resistance to heat, oxidation, weathering, and ozone. The temperature range is -15° to 400° F.
EPDM	Ethylene-propylene-diene rubber (EPDM, also sometimes referred to as EPR) is a chemically resistant family of compounds. Colder uses high quality peroxide cured EPDMs that provide exceptional resistance to temperatures with a wide range of chemicals.
FFKM (Chemraz®, Simriz®, Kalrez®)	Broadest range of chemical resistance of any elastomeric material, combining the resilience and sealing force of an elastomer with chemical resistance approaching that of PTFE.
PFA & FEP Encapsulated Seals	Encapsulated seals combine the resiliency of the elastomer with the superior chemical resistance of the fluoropolymer to achieve a seal that is lower cost than a pure fluoroelastomer FFKM seal.
Food-grade	Commonly used when food, beverages or potable water is going through the coupling.
Silicone	Seals have good temperature resistance. The temperature range is -70° to 400° with special compounds that can reach 175° to 450° F. Silicone can also be supplied with Class VI requirements for life sciences applications.

Contact Us you need more information about chemical compatibility. please call our Customer Service sta at 800-44 651-645-0091

#### **How Colder Can Help**

Pressure, temperature, chemical type and concentration as well as operating environment can affect the performance of a connection. If you need further help in determining chemical compatibility, Colder's technical staff can answer any questions and provide product samples to test in your own application conditions.

### The Right Number of Barbs

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There are many things that work together

to determine the quality of the connection between a hose barb and the tubing it connects. The sharpness of the barb, surface finish and the barb angle all contribute to the overall quality of the

connection. Failing to optimize these technical aspects will result in a



poor connection, regardless of the number of hose barbs used.

Colder offers a variety of different hose barb styles and connection options for tubing ranging from 1/16" to 3/4" ID.



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### **PRODUCT LINE OVERVIEW**

All couplings are shown connected and in actual size unless otherwise noted. For all available terminations and configurations see Colder's NEW catalog or visit www.colder.com.

LEGEND

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Straight-Through Single Double Non-Spill Shutoff Shutoff

General Purpose Couplings	DESCRIPTION	
IdentiQuik® RFID available	SMC & SMF1: Twist-to-connect design provides reliable and secure alternative to luer-type connections. Material: Acetal, polypropylene, ABS, chrome-plated brass Tubing ID Sizes: 1/16" to 1/8" (1.6mm to 3.2mm) → + ← ↔ + ←	
	<b>PMC:</b> Features one-hand connection and disconnection and integral terminations; easier to use than ball-and-sleeve designs. Material: Acetal Tubing ID Sizes: 1/16" to 1/4" (1.6mm to 6.4mm) $\rightarrow + \leftarrow  \bigcirc + \leftarrow  \bigcirc + \leftarrow \bigcirc$	
IdentiQuik RFID available	<b>PMC12:</b> Offered with a variety of configurations and chemical resistance for demanding applications; gamma sterilizable. <b>Material:</b> Polypropylene <b>Tubing ID Sizes:</b> $1/16"$ to $1/4"$ (1.6mm to 6.4mm) $\rightarrow + \leftarrow - + \leftarrow + \leftarrow + \leftarrow + \leftarrow + \leftarrow +$	
	MC: Durable and able to withstand higher pressure and temperature; easy one-hand connection and disconnection. Material: Chrome-plated brass Tubing ID Sizes: $1/8"$ to $1/4"$ (3.2mm to 6.4mm) $\rightarrow + \leftarrow + \bigcirc + \leftarrow + \bigcirc$	
	NS2: Twist-to-connect design features non-spill valves designed to provide fast, safe and virtually leak-free fluid line connections. Material: Glass-filled polypropylene Tubing ID Sizes: 1/8" to 1/4" (3.2mm to 6.4mm)	
El Contraction de la contracti	<b>PLC:</b> Widest selection of sizes and configurations offered; resistant to most mild chemical solutions. Material: Acetal Tubing ID Sizes: $1/4$ " to $3/8$ " (6.4mm to 9.5mm) $\rightarrow + \leftarrow  \bigcirc + \leftarrow  \bigcirc + \leftarrow \bigcirc$	
IdentiQuik RFID available	<b>PLC12:</b> Materials of construction offer broad chemical resistance for demanding applications; gamma sterilizable. <b>Material:</b> Polypropylene <b>Tubing ID Sizes:</b> $1/4$ " to $3/8$ " (6.4mm to 9.5mm) $\rightarrow + \leftarrow + \bigcirc + \leftarrow + \bigcirc$	
	LC: Durable and able to withstand higher pressure and temperature; easy one-hand connection and disconnection. Material: Chrome-plated brass Tubing ID Sizes: $1/4"$ to $3/8"$ (6.4mm to 9.5mm) $\rightarrow + \leftarrow + $	

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General Purpose Couplings	DESCRIPTION
	<b>ZLC:</b> Durable and economic solution for meeting price expectations in high volume; interchangeable with many existing Colder coupling series. Material: Die-cast zinc Tubing ID Sizes: $1/4$ " to $3/8$ " (6.4mm to 9.5mm) $\rightarrow + \leftarrow  \bigcirc + \leftarrow \bigcirc$
	APC: Features plastic thumb latch, fewer moving parts, and a smooth contoured design to deliver ease-of-use and excellent flow Material: Acetal Tubing ID Sizes: 1/4" to 3/8" (6.4mm to 9.5mm)
	EFC12: High efficiency valve design provides high flow capability; bulkhead panel mount option facilitates tight seals against tank walls and drums. Material: Polypropylene Tubing ID Sizes: 1/4" and 3/8" (6.4mm and 9.5mm) 
	NS4: Non-spill design coupling that virtually eliminates spills, minimizes downtime, and enhances operator safety. Material: Glass-filled polypropylene, ABS Tubing ID Sizes: 1/8" to 3/8" (3.2mm to 9.5mm)
o of der contraction of the second seco	NS6: Durable, yet lightweight construction that features non-spill valves and is compatible with many chemicals. Material: Glass-filled polypropylene Tubing ID Sizes: 3/8" to 1/2" (9.5mm to 12.7mm) ↔
	NSH: Pressure-balanced non-spill design with 100% metal-free, spring-free flow path. Material: Glass-filled polypropylene Tubing ID Sizes: 3/8" to 3/4" (9.5mm to 19.0mm)



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**RPN:** Clip-free design for rack and panel systems; molded valve construction provides high flow and virtually no spillage. **Material:** Anodized aluminum **Termination:** SAE-06, 9/16-18 UNF-2A threads

**LEGEND** 

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Double

Shutoff

Single

Shutoff

**HFC12:** Efficient valve design leads to high flow and exceptionally low spillage; shrouded thumb latch is easy to

HFC35 & 57: Withstands harsh environments and is

Material: Polysulfone (white), UV polysulfone (black) Tubing ID Sizes: 3/8" to 3/4" (9.5mm to 19.0mm)

harmful rays without affecting performance.

offered with or without UV-resistant materials to withstand

**FFC35:** Features non-valved and unobstructed flow path to

Tubing ID Sizes: 3/8" to 3/4" (9.5mm to 19.0mm)

Straight-Through

DESCRIPTION

grip and simple to operate.

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increase flow and minimize turbulence.

Tubing ID Sizes: 3/4" (19.0mm)

Material: Polysulfone

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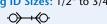
Material: Polypropylene

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Non-Spill

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FL: Highest flow, lowest pressure drop valved couplings to eliminate leak points and shorten completed assemblies. Material: Aluminum Tubing ID Sizes: 1/2" to 3/4" (12.7mm to 19.0mm)



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### **Specialty Products**

#### DESCRIPTION

**Tentube™:** Allows connection and disconnection of up to ten lines with one slide latch; tubing orientation ensured by physical keying.

Material: Acetal, polypropylene Tubing ID Sizes: 1/16" to 1/8" (1.6mm to 3.2mm)





Sixtube<sup>™</sup>: Snap-in panel mount design and flexibility to connect and disconnect six separate lines with or without valves.

Material: Acetal, polypropylene Tubing ID Sizes: 1/16" to 1/8" (1.6mm to 3.2mm)  $+ \leftarrow \rightarrow + \leftarrow$  $\rightarrow$ 

Twin Tube<sup>™</sup>: One easy-to-use quick disconnect for two separate non-valved flow paths. Material: Acetal, ABS Tubing ID Sizes: 1/16" to 1/8" (1.6mm to 3.2mm)  $\rightarrow \leftarrow$ 

Multi-Mount: Connects three to five lines at once; keyed to prevent mismatched connections. Material: Acetal, chrome-plated brass Tubing ID Sizes: 1/8" to 3/8" (3.2mm to 9.5mm)  $\rightarrow \leftarrow \rightarrow \leftarrow \rightarrow \leftarrow$ 



Not to scale.



Keyed, Color-Coded Brass: Provides foolproof connections and non-interchangeable lines; three keyed and color-coded options. Material: Chrome-plated brass Tubing ID Sizes: 1/8" to 1/4" (3.2mm to 6.4mm)  $\rightarrow \leftarrow \rightarrow \leftarrow$ 

Fittings & Accessories: Offering includes a variety of ancillary components from fittings and luers to PTF nuts and dust caps.



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**LEGEND** 

 $\rightarrow \overleftarrow{} \leftrightarrow \rightarrow \overleftarrow{} \rightarrow \overleftarrow{}$ Straight-Through Single Shutoff

Double Non-Spill Shutoff

Life Sciences - Medical & Bioprocessing	DESCRIPTION	
	SMC: Twist-to-connect design manufactured and packaged in a clean room. Material: Medical-grade polycarbonate Tubing ID Sizes: $1/16"$ to $1/8"$ (1.6mm to 3.2mm) +	
	MPC: Easy-to-use and secure connection for critical fluid applications; includes pressure sealing caps and plugs and optional locking sleeves. Material: Medical-grade ABS, polycarbonate, and polysulfone Tubing ID Sizes: 1/4" to 3/8" (6.4mm to 9.5mm) ->	
	MPX: Features thin tapered barb to minimize dead space between tubing and coupling; reduces turbulence and area for particle entrapment. Material: Medical-grade polycarbonate, and polysulfone Tubing ID Sizes: 3/8" to 1/2" (9.5mm to 12.7mm) -> Manufactured in Colder's ISO Class 7 certified clean room.	
Note: Mates with MPC polycarbonate and polysulfone bodies and polysulfone bodies and polycarbonate and polysulfone bodies and polysulfone bodies and polysulfone caps.	SaniQuik <sup>™</sup> : Integral sanitary termination attaches to hard-plumbed systems with tri-clover clamps; permits quick and easy connection to single-use bag systems, manifolds or tube sets. Material: 316L stainless steel Termination Sizes: 3/4" and 1 1/2" sanitary → →	
	Sanitary: Attaches directly to popular 3/4" mini and 1" maxi size sanitary connections, eliminating the need for cumbersome adapters or tubing assemblies. Material: Medical-grade polysulfone Termination Sizes: 3/4" and 1" sanitary → + ← Manufactured in Colder's ISO Class 7 certified clean room.	

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Material: Natural, virgin polypropylene and PVDF **Tubing Sizes:** 1/4" to 1/2" flare; 3/8" and 3/4" NPT

certified clean room.

Double

Shutoff

Manufactured in Colder's ISO Class 7

Single

Shutoff

ChemQuik<sup>®</sup> CQH06/CQV06: All plastic design for

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ChemQuik CQGO6: Spring-free and metal-free flow path for high flow capacity and non-spill, high purity connections.

Manufactured in Colder's ISO Class 7 certified clean room.

ChemQuik Dual Containment System: Flare nuts and panel mount fittings that facilitate double

UDC: Provides closed connection to bag-in-box packaging

**Puncture Seal:** Provides closed connection to Hedwin

Material: Polypropylene (coupling) and polyethylene (cap) Tubing ID Sizes: 1/4" to 3/8" (6.4mm to 9.5mm)

**NSF Food Grade:** Colder manufactures many products specifically for the Food & Beverage marketplace under the

criteria of NSF/ANSI Standard 169 (formerly C-2).

Material: Acetal, polypropylene, chrome-plated brass,

Material: Polypropylene (coupling) and acetal (cap) Tubing ID Sizes: 1/4" to 3/8" (6.4mm to 9.5mm)

Cubitainer<sup>®</sup> bag-in-box container systems.

containment of critical chemical lines. Material: Natural, virgin polypropylene

with 38mm threaded necks.

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polyethylene, and polysulfone Tubing ID Sizes: 1/8" to 3/4"

Material: Natural, virgin polypropylene Tubing Sizes: 3/8" to 3/4" flare; 3/8" to 3/4" NPT

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ultra-pure media and high chemical resistance.

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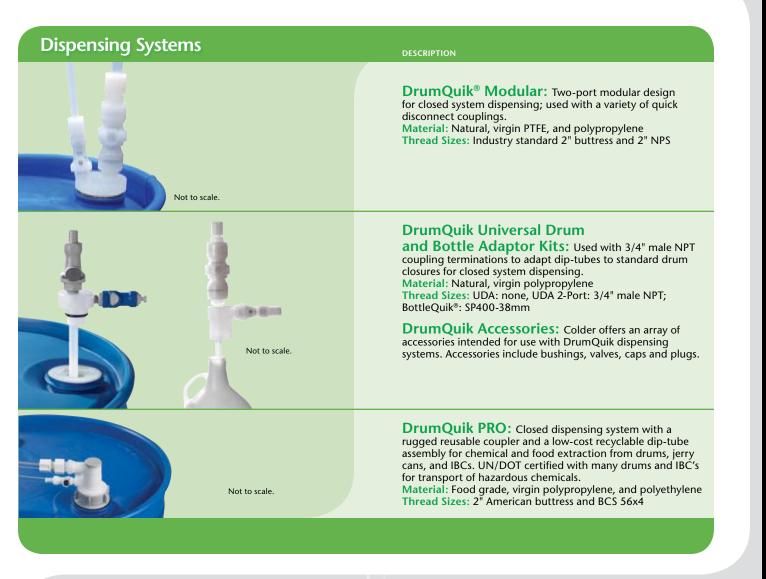
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Non-Spill

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# **Collaborative Design Solutions**

Colder's custom product Design Team has worked with customers around the world to design custom couplings and complete solution designs. Colder works directly with our customer's design engineering team to solve the most difficult fluid and air management problems. Solutions include modified quick disconnect couplings, quick disconnect couplings with RFID or other electronics, manifolds with integrated quick disconnect couplings, plastic components and fittings for fluid delivery, and modular valve designs for air flow.

Colder collaborates with customers to:

- Conceptualize a custom design that adds value
- Evaluate the design integrated with customer's product
- Implement a collaborative solution

Colder uses its solid modeling capabilities, prototype equipment, an expansive test lab, and 29 years of expertise to fill in the gap where you need additional support.

Consider a custom coupling design when:

- A Colder coupling will add value to your product by increasing ease-of-use and reliability.
- Requirements cannot be met by an existing standard Colder quick disconnect coupling.
- Unique applications, budgets or timing warrant your designer's collaboration with Colder's custom coupling Design Team.



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# Smart Connections

The IdentiQuik<sup>®</sup> Series of couplings are Radio Frequency Identification (RFID) enabled couplings used on equipment and in processes to provide solutions for protecting brands, reducing liabilities, and managing inventories. These Smart Connections automatically identify fluid characteristics and capture data from point-of-origin to point of use. In addition, Colder offers Smart Custom Solutions: specialty designs that incorporate RFID and Colder's strong engineering and electronics expertise.

**Benefits of Smart Connections:** 

- · Identify misconnections due to operator error or out-ofsequence connections.
- Protect brands by halting or logging the use of unauthorized fluids.
- Save time by electronically and visually verifying correct usage of liquid media.
- Prolong equipment life by preventing the use of harmful media.
- Minimize health and safety issues by locking out dangerous combinations.

IdentiQuik couplings support RFID tags via 2 RF interfaces: I-Code (made by Philips Semiconductor) and ISO15693 (made by numerous companies). RFID tags, storing up to 64 bytes of data, are encapsulated on coupling inserts. Product identification, date, batch, and lot codes can be automatically transferred from inserts on bags, totes, drums and supply lines to the connecting dispense or fill lines.

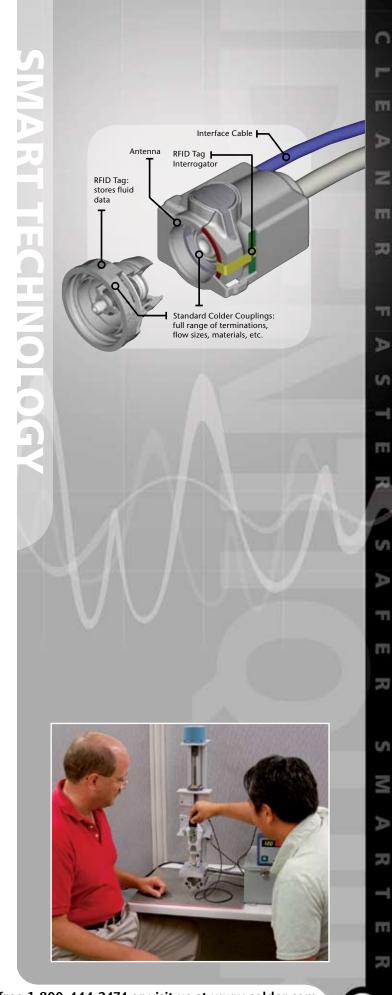
#### Smart coupling features include:

- Inventory level meters
- Medical equipment calibration
- Product protection
- And many more

Smart Connection technology can be applied to virtually any of Colder's standard couplings or used in specialty designs specific to your application. Colder's design team will work with you to find the optimal solution.

Visit www.colder.com to learn more.

Look for fron the product pages to see what parts are currently available with RFID.







# Why Choose a Colder Product?

Colder's proprietary, engineered solutions improve the overall functionality and design of the equipment and processes in which they are used. For users of Colder's advanced coupling technologies the result is cleaner, faster, safer and smarter fluid management.

### **Key Features and Benefits**

- Flexibility: allows quick connection of subassemblies
- Utility: makes equipment replacement and upgrades fast and easy
- Safety: eliminates dangerous and messy spills
- Serviceability: no tools needed to disconnect for maintenance and repairs
- Modularity: allows quick connection of attachments and accessories

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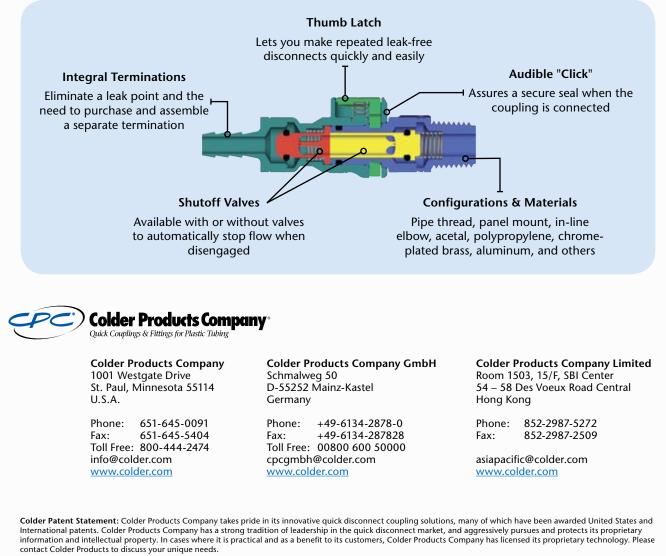
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• Convenience: they're easy to use and economical



CPC Warranty Statement: Colder Products Company warrants its products against defects in workmanship and materials a period of 12 months from the date of sale by Colder Products Company to its initial customer (regardless of any subsequent sale of the products). This warranty is void if the product is misused, altered, tampered with or is installed or used in a manner that is inconsistent with Colder Product Company's written recommendations, specifications and/or instructions, or fails to perform due to normal wear and tear. Colder Products Company does not warrant the suitability of the product for any particular application. Determining product application suitability is solely the customer's responsibility. Colder Products Company is not liable for special, indirect, incidental, consequential or other damages including, but not limited to, loss, damage, personal injury, or any other expense directly or indirectly arising from the use of or inability to use its products either separately or in combination with other products. ALL OTHER WARRANTIES EXPRESS OR IMPLIED, WHETHER ORAL, WRITEN OR IN ANY OTHER FORM, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSIY EXCLUDED.

The sole and exclusive remedy under this warranty is limited, at the option of Colder Products Company, to replacement of the defective product or an account credit in the amount of the original selling price. All allegedly defective Colder Products Company products must be returned prepaid transportation to Colder Products Company, together with information describing the product's application and performance, unless otherwise authorized in writing by Colder Products Company.

WARNING: Due to the wide variety of possible fluid media and operating conditions, unintended consequences may result from the use of this product, all of which are beyond the control of Colder. It is the user's responsibility to carefully determine and test for compatibility for use with their application. All such risks shall be assumed by the buyer.