

ColorTech fittings are furnished with a powder coated finish to enhance the appearance of the fitting and to protect against corrosion. Unlike competing brands, ColorTech fittings may be ordered in any one of six standard finish colors. This range of colors assures that the lab fittings will enhance the design scheme and aesthetics of the lab environment.

The coating materials used for ColorTech finishes are specially formulated for use on these products. In general, coating material is a blend of epoxy and polyurethane. This hybrid blend assures that the finished coating will have an optimum combination of chemical resistance, mar and abrasion resistance, and resistance to fading under ultraviolet (UV) light.

### Standard ColorTech Finishes:

- **White**
- **Gray**
- **Tan**
- **Polished Chrome with Clear Epoxy**  
Clear epoxy coating applied over a polished chrome plated surface. Finish has a bright chrome appearance with enhanced chemical resistance.

- **Satin Nickel with Clear Epoxy**  
Brushed nickel plated surface with clear epoxy coating. The brushed finish has the appearance of stainless steel, with enhanced chemical resistance and concealing fingerprints, watermarks, dust and dirt.
- **Satin Chrome with Clear Epoxy**  
Brushed chrome plated surface with clear epoxy coating. The brushed finish is similar to stainless steel except brighter, with enhanced chemical resistance and concealing fingerprints, watermarks, dust and dirt.



White



Gray



Tan



Polished Chrome with Clear Epoxy



Satin Nickel with Clear Epoxy



Satin Chrome with Clear Epoxy

**Note:** Fittings with ColorTech white powder coat finish are available at published prices for ColorTech-BT fixtures and are stocked at worldwide locations. Fittings with gray and tan powder coat finishes must be factory ordered and thus may have a slightly longer lead-time. Fittings with Polished Clear, Satin Nickel Clear and Satin Chrome Clear finishes must be factory ordered, have a longer lead-time and command a modest up-charge in price.

# Specifications for ColorTech Finishes

## Performance Requirements For ColorTech Finishes:

All ColorTech finishes meet the following performance tests and requirements:

### 1. Chemical Resistance.

Finish shall meet the following tests for chemical resistance:

- a. Fume Test. Suspend coated samples in a container at least 6 cubic foot capacity, approximately 12" above open beakers, each containing 100 cc of 70% nitric acid, 94% sulfuric acid and 35% hydrochloric acid respectively. After exposure to these fumes for 150 hours, the finish on the samples shall show no discoloration, disintegration or other defects.
- b. Direct Application Test. Subject coated samples to the direct action of the reagents and solvents listed below at a temperature of 25 degrees C dropping from a burette at the rate of 60 drops per minute for ten minutes. Finish on the samples shall not rupture, though slight discoloration or temporary softening is permissible.

Acetic Acid (98%)	Kerosene
Acetone	Lactic Acid (10%)
Ammonium Hydroxide (28%)	Methanol
Amyl Acetate	Methyl Alcohol
Amyl Alcohol	Methyl Ethyl Ketone
Benzene	Methylene Chloride
Butyl Alcohol	Mineral Oil
Calcium Hypochlorite	Monochlor Benzene
Carbon Disulfide	N-Hexane
Carbon Tetrachloride	Naphthalene
Chloroform	Nitric Acid (70%)
Chromic Trioxide Acid	Perchloric Acid (70%)
Cresol	Phenol
Crude Oil	Phosphoric Acid (75%)
Dioxane	Sea Water
Distilled Water	Silver Nitrate (30%)
Ether	Sodium Bichromate (Saturated)
Ethyl Acetate	Sodium Carbonate (10%)
Ethyl Alcohol	Sodium Chloride (20%)
Ethyl Ether	Sodium Hydroxide (50%)
Formaldehyde (37%)	Sodium Hypochlorite
Formic Acid (90%)	Sodium Sulfide
Gasoline	Sulfuric Acid (87%)
Glacial Acetic Acid (99.5%)	Toluene
Glycerine	Trichlorethylene
Hydrochloric Acid (38%)	Turpentine
Hydrofluoric Acid (48%)	Urea (Saturated)
Hydrogen Peroxide (5%)	Xylene
Isopropyl Alcohol	Zinc Chloride (Saturated)

2. **Mar and Abrasion Resistance.** Finishes shall have pencil hardness of 2H-4H with adhesion substantial enough to withstand both direct and reverse impacts of 160 inch pounds. Finish shall have excellent mar resistance and be capable of withstanding scuffing, marring and other ordinary wear.
3. **Repairability.** Finish shall be capable of surface repair in the event that a fitting is scratched or a surface rupture occurs. The service fitting manufacturer shall have available an air-drying aerosol coating, specially formulated to match the existing finish color, which may be applied in the field to repair coated surfaces.

## Product Features: Water Fittings

ColorTech-BT water fittings are engineered for superior performance and durability. Fittings meet the requirements of BS5412 "Low-Resistance Single Taps and Combination Tap Assemblies".

ColorTech-BT fittings are available with a wide range of optional features to meet the needs of any lab user. Listed below are the key options available on these products:

### Gooseneck Dimensions

Standard spread is 6 inches (152mm). Also available in 4 inch (102mm), 8 inch (203mm), 9 inch (229mm), 10 inch (254mm) and 12 inch (305mm) inch spreads. Other spreads and special heights are made to order.

### Gooseneck Construction

Single taps have rigid or convertible rigid/swing construction, as ordered. Mixer taps have convertible rigid/swing construction.

### Handle

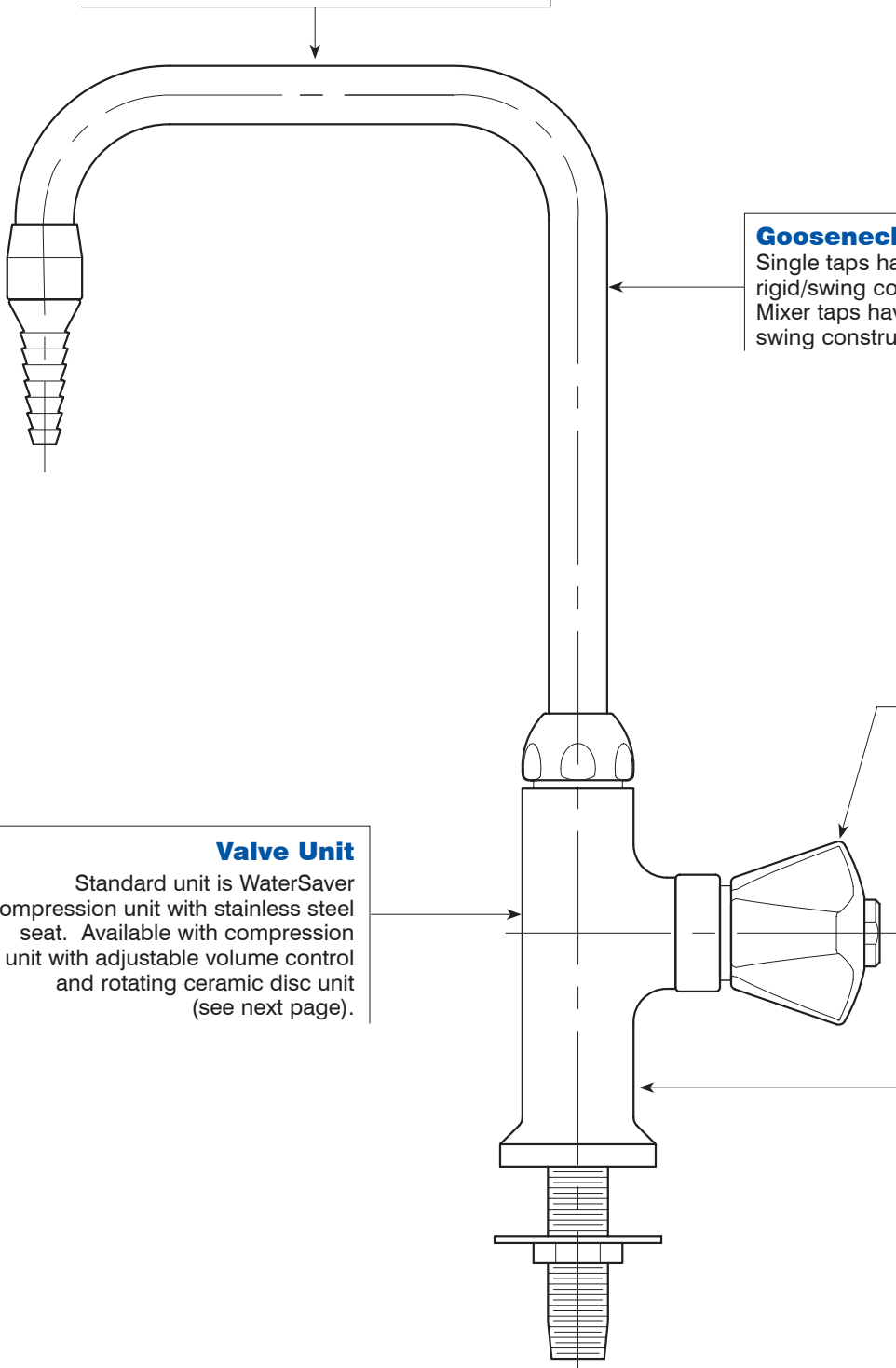
Standard handle is molded nylon color coded per DIN 12290. Optional handle is diecast aluminum with powder coated finish (add prefix "M").

### Valve Unit

Standard unit is WaterSaver compression unit with stainless steel seat. Available with compression unit with adjustable volume control and rotating ceramic disc unit (see next page).

### FlowStop

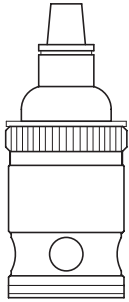
FlowStop isolation valve is available on most fittings (add prefix "FS"). FlowStop may be used to shut off water supply for maintenance and to regulate volume of flow.



## Product Features: Water Fittings

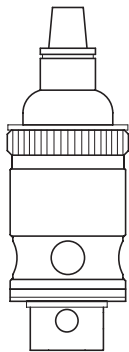
ColorTech-BT water fittings are available with a choice of three valve cartridges. All three cartridges are dimensionally identical and therefore completely interchangeable.

Valve cartridges are completely self-contained and include all working components of the valve mechanism. No wearing components are separate from the valve unit. The valve or tap body itself is thus not subject to wear, making it virtually everlasting. Replacement of the cartridge instantly produces a “new” valve or tap.



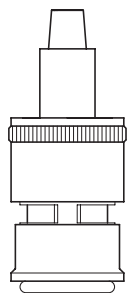
### Compression Unit

- Cartridge is completely self-contained, incorporating all components subject to wear. Valve or tap body will never wear out.
- Molded TFE stem packing seals valve stem. Packing prevents leakage over hundreds of thousands of cycles. Adjustable packing nut permits take-up of wear.
- Cartridge has outer serrations to lock into valve body. Unit cannot turn or move in tap, even with wrist blade handles.
- Valve seat is stainless steel. Ultra-hard seating surface provides durable service in even the harshest water conditions. Seat will outperform brass or other materials.
- Manual and self-closing valve units are interchangeable. Field conversion can be accomplished in seconds.



### Compression Unit with Adjustable Volume Control

- Same construction features as compression unit (stainless steel seat, TFE stem packing, etc.).
- Adjustable volume control can be adjusted to regulate size of inlet port of valve. Volume control may be used to compensate for high water pressure and conserve water.

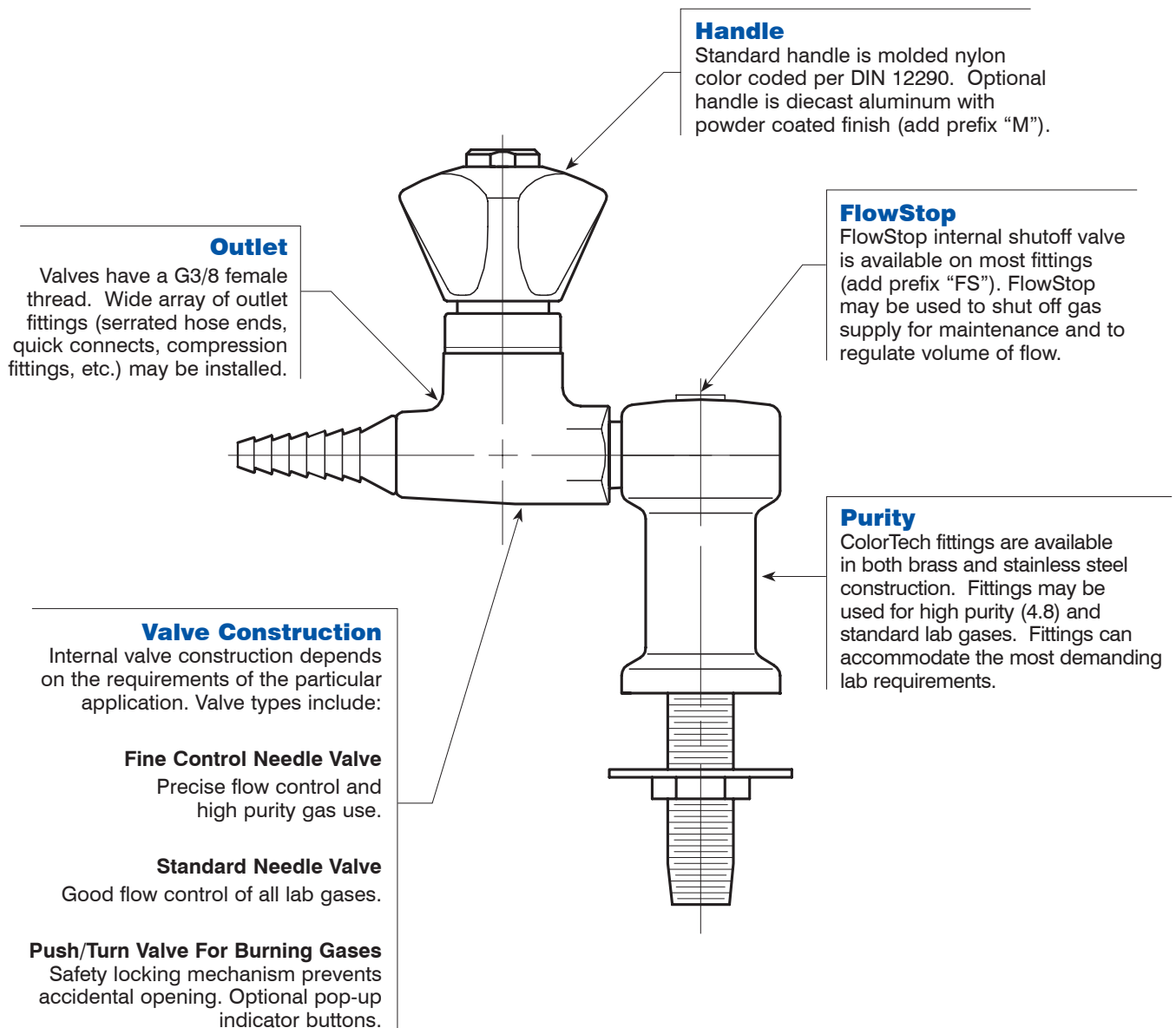


### Ceramic Disc Unit

- Cartridge is completely self-contained, incorporating all components subject to wear. Valve or tap body will never wear out.
- Rotating ceramic discs control flow of water. Discs are ultra-hard and self-lubricating for durable service.
- 180 degree rotation from closed to open to permit metering of flow. Available with optional 90 degree rotation for use with wrist blade handle.
- Wear-resistant thrust washer is low friction for smooth opening and closing of valve.
- Internal baffles reduce noise as water flows through valve.

## Product Features: Valves for Gases

The ColorTech product range incorporates a wide variety of valves for laboratory gas services. Lab planners and users can select the valve best suited for any particular application. Key features and options of these valves are as follows:



## Product Features: Valves for Gases

ColorTech-BT needle valves utilize a stainless steel floating needle that closes against a stainless steel seat. The stainless-against-stainless closure provides precise metering (with no "spongy" or "sticky" feel) and everlasting service. As the valve is used, the needle and seat form a matched fit. Valves perform over hundreds of thousands of cycles without ever replacing the internal components.

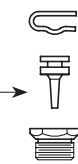
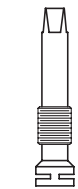
Fine control needle valves provide precise flow control of all laboratory gases, including high purity (99.998% pure) gases. They are used where precision metering of flow and higher working pressures are involved. Valves are individually tested at 375 PSI (26 bar) nitrogen pressure and are rated for use at pressures up to 250 PSI (17 bar). Standard needle valves are individually tested at 225 (16 bar) PSI nitrogen pressure and are rated for use at pressures up to 150 PSI (10 bar).

### Fine Control Needle Valves

Valves are available in both brass and Type 316 all-stainless steel construction.

Valves are specially cleaned, lubricated and packaged for high purity gas service.

Floating stainless steel needle with long taper self-centers on valve seat. As the valve is used, the needle and seat form a matched fit, making the valve easier to open and close. The valve actually "improves with age."



Molded TFE stem packing with adjustable packing nut. Packing seals valve stem into body. Adjustable nut permits take-up of wear, assuring maintenance-free service.

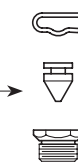
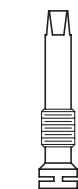
Ultra-fine stem threads for micro-control. Valve goes from closed to fully open in 6 full revolutions of the handle. **Valve is capable of delivering one bubble of nitrogen gas at a time.**

Replaceable stainless steel seat threads into valve body.

### Needle Valves

Where used for oxygen and other pure gases, valves may be specially cleaned, lubricated and packaged to maintain the purity of the media.

Floating stainless steel needle self-centers on valve seat. As the valve is used, the needle and seat form a matched fit, making the valve easier to open and close. The valve actually "improves with age."



Molded TFE stem packing with adjustable packing nut. Packing seals valve stem into body. Adjustable nut permits take-up of wear, assuring maintenance-free service.

Fine stem threads for good metering of flow. Valve goes from closed to fully open in 2 full revolutions of the handle.

Replaceable stainless steel seat threads into valve body.

## Valve Selection Guide

This catalog presents a variety of valves that may be used for non-burning laboratory gas services (such as compressed air, vacuum, nitrogen, helium, argon, oxygen, etc.). The selection of a particular type of valve for any given application depends on a variety of factors, including the working pressure of the service, the degree of metering or control

desired and the characteristics (including the corrosiveness) of the gas. The table below contains a description of the various types of valves that may be used for laboratory non-burning gas service. This guide can serve as a reference point in selecting the valve that is best suited for a particular application.

Valve Type	Fine Control Needle Valve	Standard Needle Valve	Small Needle Valve
Models	CT2870, CT3170, etc.	CT2880, CT3180, etc.	CT4150
Construction	Needle Point	Needle Point	Needle Point
Control	Precise Metering	Good Metering	Limited Metering
Material	Brass or St Steel	Brass	Brass
Test Pressure	375 PSI NIT (26 bar)	225 PSI NIT (16 bar)	125 PSI NIT (8 bar)
Maximum Working Pressure	250 PSI (17 bar)	150 PSI (10 bar)	75 PSI (5 bar)
Use with Pressure Regulator	Yes	No	No
Cleaned for High Purity Gas	Standard	When Ordered	When Ordered
Gas Compatibility by Service (Symbol):			
Air (AIR)	Yes	Yes	Yes
Acetylene (C <sub>2</sub> H <sub>2</sub> )	Yes (St Stl only; 15 PSI max)	No	No
Ammonia	Yes (St Stl only)	No	No
Argon (AR)	Yes	Yes	Yes
Butane (BUT)	Yes	Yes	Yes
Carbon Dioxide (CO <sub>2</sub> )	Yes	Yes	Yes
Carbon Monoxide (CO)	Yes	Yes	Yes
Compressed Air (CA)	Yes	Yes	Yes
Cylinder Gas (CYL GAS)	Yes	Yes	Yes
Helium (HE)	Yes	Yes	Yes
High Vacuum (HI VAC)	Yes	Yes	Yes
Hydrogen (HYD)	Yes	Yes	Yes
Nitrogen (NIT)	Yes	Yes	Yes
Oxygen (OXY)	Yes	Yes (Specially Clean)	Yes (Specially Clean)
Special Gas (SG)	Yes	Yes	Yes
Sulphur Dioxide (SO <sub>2</sub> )	Yes	Yes	Yes
Vacuum (VAC)	Yes	Yes	Yes

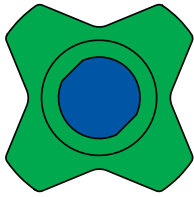
### Notes:

1. WaterSaver Faucet Co. offers a wide selection of valves for use with laboratory gases. The selection of any particular valve for any given application depends upon many factors, including the working pressure of the gas, the degree of metering or control desired, and the characteristics (including the corrosiveness) of the gas. This Valve Selection Guide is presented to assist in selecting the most appropriate valve for an application. However, care must be taken in selecting valves for gas service, and WaterSaver cannot be responsible for the results obtained from using any particular valve in any particular application. In particular, reference must be made to applicable plumbing and piping codes, life safety standards and project specifications when selecting valves.

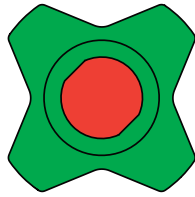
2. For gases not specifically listed here, please consult with factory.

# Color Coding and Indexing

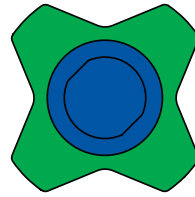
## Water



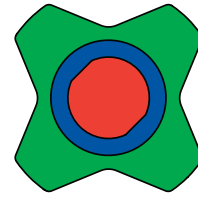
Drinking Water, Cold



Drinking Water, Hot



Cooling Water, Supply



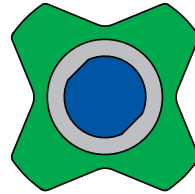
Cooling Water, Return



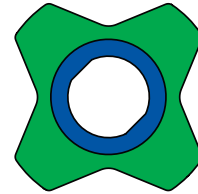
Industrial/Process Water, Cold



Industrial/Process Water, Hot

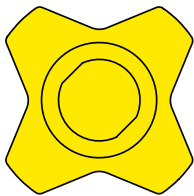


Deminerlized Water, Cold

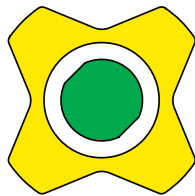


Pure Water, Cold

## Burning Gases



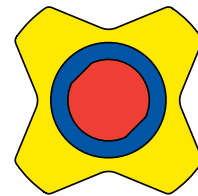
Town Gas



Acetylene



Methane



Propane

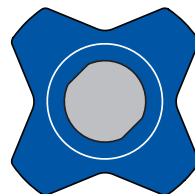
## Non-Burning Gases



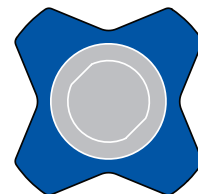
Breathing Air



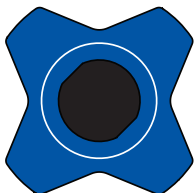
Compressed Air



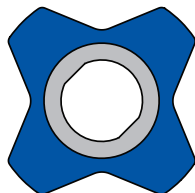
High Pressure Air



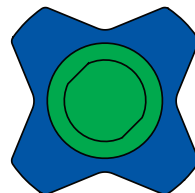
Argon



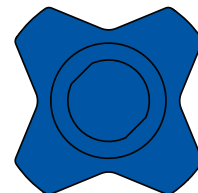
Carbon Dioxide



Helium

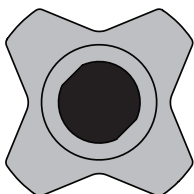


Nitrogen

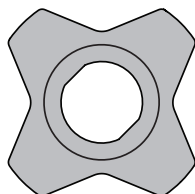


Oxygen

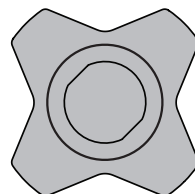
## Vacuum and Other Services



Vacuum



High Vacuum



Low Vacuum



Spare Gases

# Color Coding and Indexing

ColorTech-BT fittings are furnished with handles that are color coded per DIN Standard 12920:1995.

Set forth below is a complete list of services, handle colors and symbols prescribed by DIN 12920:

Service Symbol	Handle Color	Ring Color	Index Color	Symbol (per DIN Standard)	Symbol (per UK Practice)
<b>Water</b>					
Cooling Water, Supply	Green	Blue	Blue	WKV	CWS
Cooling Water, Return	Green	Blue	Red	WKR	CWR
Demineralized Water, Cold	Green	Grey	Blue	WEK	DW
Demineralized Water, Hot	Green	Grey	Red	WEW	
Distilled Water	Green	White	White	WDE	DI
Drinking Water, Cold	Green	Green	Blue	WTK	CW
Drinking Water, Hot	Green	Green	Red	WTW	HW
Fresh Water, Cold	Green	White	Blue	WFK	
Fresh Water, Hot	Green	White	Red	WFW	
Industrial or Process Water, Cold	Green	Yellow	Blue	WBK	ICW
Industrial or Process Water, Hot	Green	Yellow	Red	WBW	IHW
Irrigation Water	Green	Green	Yellow	WBE	
Pure Water, Cold	Green	Blue	White	WRK	PW
Pure Water, Hot	Green	Red	White	WRW	
Steam	Green	Red	Red	WDW	STM
Steam Condensate	Green	Red	Blue	WDK	
Surface Water, Cold	Green	Black	Blue	WOK	
Surface Water, Hot	Green	Black	Red	WOW	
Well Water	Green	Yellow	Yellow	WBR	
<b>Burning Gases</b>					
Town Gas	Yellow	Yellow	Yellow	G	GAS
Acetylene	Yellow	White	Green	C2H2	C2H2
Butane	Yellow	Blue	Blue	C4H10	
Butylene	Yellow	Black	Blue	C4H8	
Ethylene	Yellow	Black	Green	C2H4	C2H4
Methane	Yellow	Blue	Yellow	CH4	CH4
Propane	Yellow	Blue	Red	C3H8	PRO
Propane/Butane	Yellow	Red	Yellow	LPG (cylinder)	
Propylene	Yellow	Black	Red	C3H6	C3H6
Argon/Methane	Red	Yellow	Grey	AR CH4	
Deuterium	Red	Red	White	D2	
Hydrogen	Red	Red	Red	H2	H2
Hydrogen/Helium	Red	Red	Grey	H2 HE	H2/HE
Hydrogen/Nitrogen	Red	Red	Green	H4N2	H2/N2
Silan	Red	Red	Black	SIH4	
<b>Non-Burning Gases</b>					
Air, Breathing	Blue	Blue	White	LA	B AIR
Air, Compressed	Blue	Blue	Yellow	LD	AIR
Air, High Pressure	Blue	Blue	Grey	LP	HP AIR
Air, Sint. 80/20	Blue	Blue	Green	LS	
Argon	Blue	Grey	Grey	AR	AR
Carbogen	Blue	Black	Blue	CB CO2+O2	
Carbon Dioxide	Blue	Blue	Black	CO2	CO2
Helium	Blue	Grey	White	HE	HE
Krypton	Blue	Grey	Yellow	KR	
Neon	Blue	Grey	Black	NE	
Nitrogen	Blue	Green	Green	N2	N2
Nitrogen Monoxide	Blue	Green	Blue	N2O	
Oxygen	Blue	Blue	Blue	O2	O2
Xenon	Blue	Grey	Red	XE	
<b>Toxic Gases</b>					
Ammonia	Black	Green	Red	NH3	
Arsin	Black	Red	Black	ASH3	
Carbon Monoxide	Black	Blue	Black	CO	
Chloride	Black	White	White	CL2	
Hydrochloric Acid	Black	Red	White	HCL	
Hydrogen Sulphide	Black	Red	Yellow	H2S	
Nitrogen Dioxide	Black	Green	Blue	NO2	
Phosfine	Black	Red	Grey	PH3	
Phosgene	Black	Black	White	COCL2	
Sulphurous Acid	Black	Blue	Yellow	SO2	
<b>Vacuum and Others</b>					
Vacuum	Grey	Grey	Black	V	VAC
Vacuum, High	Grey	Grey	White	VH	HV
Vacuum, Low	Grey	Grey	Grey	VF	LV
Acetone	White	Red	Grey	C3H6O	
Formaldehyde Solution	White	Red	Green	CH2O	
Methanol	White	Red	Blue	CH4O	
Perchloric Acid	White	White	Red	HClO4	
Propanol	White	Red	Yellow	C3H8O	
Trichloroethylene	White	Red	White	C2HCL3	

# Design and Installation Guidelines

To assist laboratory designers, equipment specifiers and installers, WaterSaver has developed the following guidelines for laying out and installing its products. These guidelines are intended to be advisory only. Local building and plumbing codes, requirements for handicapped accessibility, local field conditions and other factors may require deviation from these guidelines.

## Hole Sizing

ColorTech-BT fixtures are furnished with standard size inlet shanks that penetrate the deck or wall surface. Minimum acceptable hole sizes for these shanks are listed below. We recommend using the minimum acceptable hole size to accommodate the mounting shank. This will minimize the possibility of lateral movement of the fixture and provide as large a surface as possible for the locknut and lockwasher to secure against.

Shank Diameter	Minimum Hole Size
Fittings with G1/2 Mounting Shank	7/8" (22mm)
Fittings with 1-3/16" Mounting Shank (ex: BT4400 series mixer taps)	1-1/4" (32mm)
Fittings with 1" IPS Mounting Shank (ex: BTEW1020)	1-3/8" (35mm)

## Pipe Sizing and Material

Requirements for the size and material of supply piping are generally covered by local plumbing codes. Reference should be made to such codes when laying out piping for service fixtures and safety equipment. Pipe sizing is also affected by the number of fixtures or outlets installed on a run. However, typical piping standards for single fixtures and outlets are as follows:

Service	Piping Material	Minimum Pipe Size
Gas	Black Iron	3/8"
Air/Vacuum	Copper	3/8"
Special Gases	Copper/Stainless Steel	3/8"
Steam	Black Iron	3/8"
Water	Copper	3/8"
Distilled, Deionized and Ultra-Pure Water	PVC/Polypropylene/PVDF	1/2"
Emergency Showers	Copper	1"
Eye, Eye/Face Wash and Drench Hose Units	Copper	1/2"
Safety Stations	Copper	1-1/4"

## Installation Procedures

Installing Colortech-BT laboratory taps, valves and safety equipment requires the use of common plumbing installation techniques. Observing the following guidelines will help to assure trouble-free installation:

- 1. Thoroughly clean and flush supply lines prior to installing taps and valves.** Pipe shavings, scale, tape and other debris can be carried through a pipe and into a tap or valve when the system is activated. This debris can damage valve components and interfere with the proper operation of the tap or valve.
- 2.** When placing a tap or valve on a laboratory countertop or wall, secure the fitting using the lockwasher and locknut. Tighten the locknut sufficiently to secure the fitting to the counter or wall. Do not overtighten.
- 3.** Most ColorTech fittings are furnished with G inlet threads in accordance with ISO 228-1. Since a pressure-tight joint is not made on the thread, there should be no need to use pipe or thread sealant. If sealant is used, do not apply the sealant in a way that will permit it to enter into the tap or valve.
- 4.** Observe the maximum test and working pressures for taps and valves. Testing or using a valve at pressures for which it is not designed can result in leakage or failure. Refer to the "Valve Selection Guide" for information on maximum test and working pressures.
- 5.** Do not use valves for services and applications for which they are not intended. For example:
  - Valves for oxygen and other pure gas service must be specially cleaned, lubricated and packed. Valves which have not been specially cleaned are not acceptable.
  - Needle valves should be used for non-burning gas services only. They are not suitable for water or steam services.
  - Valves for acetylene, ammonia and other corrosive gases must be all-stainless steel.
- 6.** Use caution when applying a wrench or other tool to the exterior of a tap or valve. Failure to do so can result in damage to the finish on the outer surfaces of the taps or valve.
- 7.** Every Colortech-BT tap and valve is fully assembled (i.e. the gooseneck is installed into the tap body, the outlet fitting is installed into the gooseneck, valves are installed in the turret base, etc.). Full assembly enables us to inspect and test the fitting as a complete assembly. Fittings are tagged when testing is complete. If a fitting is received without an inspection tag, please contact the factory.
- 8.** Clean ColorTech-BT fittings using only a soft cloth and soapy water. Do not use abrasives, detergents or other cleaners which can damage the finish on the fitting. In particular, do not use any solvent in or near a faucet or valve. Solvents can remove the lubricants used in the valve mechanism.