



THE BEST PRACTICE GUIDE TO:

Valve Tagging

A Graphic Products Library Resource

DuraLabel® 

877.534.5157 | DuraLabel.com | GraphicProducts.com



DuraLabel[®]

Pipe Marking & Valve Tags

Call Today for your pipe marking, valve tag, and safety labeling needs! We have the printers, supplies, and tools needed to effectively bring your facility up to code with today's standards.

Pipe Markers

Premium Vinyl Tapes available in 1/2" to 9" widths in more than 30 colors and 100s of specialty order colors making it ideal for color-coding.

Pipe Grabber[™] Sleeves

Pipe Grabber Sleeves provide a clean surface for labeling dirty, oily, or rusty pipes. Just print a label, apply it to the sleeve, then place the sleeve around the pipe.

Valve Tags

Inexpensive custom valve tags are fast and easy to create. Our valve tags are extremely durable and long-lasting for a uniform and professional appearance throughout your entire facility.

DuraTag[™] (Tag Stock)

This heavy-duty UV-stabilized material is resistant to tears, moisture, chemicals, and extreme cold, making it ideal for indoor and outdoor use. Assorted colors and sizes available.



877.534.5157

DuraLabel.com



DuraLabel 

CONTENTS

Contents of the Best Practice Guide to Valve Tagging by Graphic Products, Inc.



4 How do you know what each pipe contains and what the emergency response crew needs to know?



11 Use printable DuraTag™ tag stock to easily and efficiently mark valves.

INTRODUCTION.....pg **2**
Learn what kind of information belongs on a valve tag.

TOOLS.....pg **3**
Find out what you need to get started in your valve-tagging project.

FACILITY EVALUATION.....pg **4**
What to look for when planning your valve-tagging project.

VALVE TAG CREATION.....pg **5**
What kind of information goes on a valve tag? Learn about the possibilities:

- What information should be included on valve tags?
- Standard Abbreviations
- What type of lettering should be used?
- Should valve tags be one-sided or two-sided?
- What color should a valve tag be?
- What material should be used to make valve tags?
- Example of valve tag creation

VALVE TAG PLACEMENT.....pg **12**
How and where to properly attach a valve tag.

VALVE TAG MAINTENANCE.....pg **13**
Conduct periodic inspections to ensure tags are present and legible.



Please feel free to share this with someone else who could use it.

Thank you!

The information presented in this guide was obtained from sources whom we deem reliable; Graphic Products, Inc. has made every effort to ensure this information is correct. However, we do not guarantee accuracy or completeness. Graphic Products, Inc. makes no representations or warranties of any kind, express or implied. Information in this guide is subject to change without notice. Except as expressly provided for in writing, the liability of Graphic Products, Inc. arising from the use of this guide is specifically excluded and Graphic Products, Inc. disclaims all warranties and any liability for damages of any kind and any liability, whether in contract, tort under statute or otherwise, for any injury, damage or loss whatsoever. No reliance should be placed on information contained in, implied by or inferred from this guide. Users of this guide should verify all information with ANSI and OSHA sources directly.

INTRODUCTION

The following pages provide basic instructions for valve tag design, printing and placement. These recommended practices will help improve facility efficiency and increase safety through visual communication.

Valve tag placement is not explicitly required by the American Society of Mechanical Engineers (ASME) or the American National Standards Institute (ANSI). What both governing bodies require is the proper marking of a piping system. Valves are a part of a piping system and the standard is generally interpreted to mean that valves must also be properly labeled.

Since valves rarely have flat surfaces appropriate for applying labels, a label is typically applied to a tag that is then attached to the valve.

Tags should be made of a material appropriate for the application. In most cases a rigid material is best, as it provides an easy-to-read flat surface. However, in some cases, such as when a large amount of information needs to be included on the tag, a flexible tag stock material

works better. In both cases a material able to withstand the environment must be selected, and in the case of rigid valve tags, the material must provide a surface that promotes label adhesion. This guide will provide recommendations for appropriate materials.

Valve tags pack a lot of information into a little space. For example, valve tags should be color coded to identify the type of material flowing through the valve. Information on the tag identifies the valve by number and may provide more information about the pipe contents. In addition, RTK labels may be included, as well as operating instructions and contact information. Barcodes can be included for electronic identification of valves, and for use during inspections and as a part of Lockout/Tagout procedures.



Valve tags play a vital role in safety. They can provide information for emergency responders and save lives of on-site workers.

TOOLS

The recommended tools and equipment involved with this labeling project include:

- Schematic of facility's pipe system, with valve locations identified.
- Computer with Windows 2000 Operating System or above. (Use the Mobile Print Station™ 150 XL or a laptop if portability is needed.)
 - Word processing software or DuraSuite™ Labeling Software.
 - DuraLabel PRO library of symbols, templates, and examples.
- DuraLabel Label and Sign Printer¹ (DuraLabel.com)
- DuraLabel Premium Vinyl Tapes in appropriate colors. Tape size depends on the size of the valve tag. As an option: white or clear vinyl tape may be used on the appropriate color rigid valve tag.
- Black and white DuraLabel Premium Ribbon.
- Rigid valve tags (match valve tag color to label color.)
- Application-specific supplies if necessary.
 - DuraTag™ tag stock in appropriate colors. Flexible stock is an option when applications don't require rigid valves tags.
 - Hole punch to make attachment location.
- Steel wire, plastic ties, chain, or cord for attaching tags to valves.



DuraLabel labeling tools and printers are ideal for marking valve tags, pipes, printing safety labels and more.

¹ Although other industrial quality printers may be used, the DuraLabel PRO is a popular high productivity thermal transfer printer proven to make effective, long-lasting valve tags. The descriptions given in this guide use the DuraLabel PRO.

FACILITY EVALUATION

As defined by the ASME A13.1 – 2007 standard, piping systems should be labeled to identify contents. A “pipe” is a conduit used to convey, distribute, mix, separate, discharge, meter, control, or snub fluid flows. A pipe system is piping of any kind, including valves. Thus this standard also applies to labeling valves.

When evaluating the labeling of valves in your facility, be sure to document:

- Existing valve tags
 - Are they still legible? (Damaged, deteriorated, etc.)
 - Are they accurate? (Name, flow, label color)
- Valves with missing tags
- New equipment
 - Identify new pipes or valves
 - Identify changes to other systems that may have resulted from the installation of the new equipment
 - Inspect the other systems to ensure valves are properly labeled
- Areas where maintenance was recently performed for damaged or missing valve tags
- Traffic areas



These valves don't provide critical valve and pipe information due to missing tags.

Although the ASME/ANSI standards suggests labeling all pipes, **it is required** for pipes, and thus valves, to be labeled in the following situations:

- pipe contents could affect procedures during emergency situations
- pipe contents are hazardous
- direction of flow is unknown
- destination of contents is unknown
- flow requires redirection for maintenance
- one or more valves must be shut off for maintenance

In conducting your inspection, use a pipe schematic and piping drawings to plan your inspection. Be sure to

consult your facility's pipe schematics to ensure accurate labeling of contents.

Valves may be labeled with the same self-adhesive materials used to label pipes.

Valve tags should be used if:

- surface area cannot accommodate the label size
- congested area results in obstructed view
- labels cannot adhere to surface
- labels frequently change or are in cycles or rotations
- labels cannot conform to uneven surface
- surface has a temperature higher than 160 °F



Inspections help save lives and create order by identifying valves which need to be appropriately labeled.

VALVE TAG CREATION

What Information Should Be Included on Valve Tags?

Since there is no defined standard for valve labeling, there is flexibility as to what type of information can be put on a valve tag. Use what best fits the work area, facility, or company standards.

At a minimum, a valve tag should include the valve identifier and a description of what the valve does. The valve identifier may also be represented by a barcode and/or alphanumerical characters. Because of limited space the description may use abbreviations.

Many valve tags often have the following:

- pipe contents
- valve identifier
- barcode
- serial number
- valve function
- valve's normal position
- valve actuator type
- Right-To-Know information



The DuraLabel PRO 300 is a great way to customize and print valve tag labels on demand and at an economical price.

Choose
DuraLabel 



...because signs aren't for buildings,
they're for people.



CALL TODAY
877.534.5157

DuraLabel.com

Standard Abbreviations

The following are abbreviations you may see used on valve tags. When a definition includes a slash, the abbreviation has two meanings.

ABED	Aux. Building Equip. Drains
ABEDT	Aux. Building Equip. Drain Tank
ABFD	Aux. Building Floor Drain
ABFDT	Aux. Building Floor Drain Train
ACB	Air Circuit Breaker
ACK	Acknowledge
ACT	Actuate
ADJ	Adjust
AFW	Auxiliary Feedwater
ALM	Alarm
AMB	Ambient
ANAL	Analyzer
AO(V)	Air Operated (Valve)
AVG	Average
BA	Boric Acid
BAR	Bar Graph
BAT	Boric Acid Tank / Battery
BD	Blow Down
BIST	Bistable
BIT	Boron Injection Tank
BKR	Breaker
BL	Black Liquid
BOP	Balance of Plant
BTM	Bottom
BTU	British Thermal Unit
BUP	Backup
C	Centigrade (aka. Celsius)
C/CB	Condensate/Cond. Booster
C1M	Cumulative One Minute
CAB	Cabinet
CAL	Calibration/Calorie
CAUS	Cause
CCW	Component Cooling Water/Closed Cooling Water
CD	Condensate
CDB	Condensate Booster
CDT	Chemical Drain Tank
CHAM	Chamber
CHAN	Channel
CHNG	Change
CHRG	Charging
CJB	Cold Junction Box
CKT	Circuit
CL	Cold Leg
CLNG	Cooling
CMPT	Computed

CNMT	Containment
COM	Common
COMP	Component
CONC	Concentration
COND	Condenser/Condensate
CONDTY	Conductivity
CONT	Controller
CONT ROD	Control Rod
CONTR	Control
COR	Correction
CORR	Correlation
COUNT	Count
CPM	Counts Per Minute
CPU	Central Processing Unit
CPUS	Central Processing Units
CR	Control Room
CRB	Chemical Recovery Boiler
CROM	Control Rod Drive Mechanism
CS	Containment Spray
CSR	Cable Spreading Room
CST	Condensate Storage Tank
CW	Circulating Water
CWP	Circulating Water Pump
CYL	Cylinder
D/G	Diesel Generator
DEG	Degrees
DEMIN	Demineralizer
DET	Detector
DEV	Deviation
DIV	Division
DO	Diesel Fuel Oil
DOT	Dirty Oil Tank
DSCH	Discharge
DT	Delta Temperature
ECCS	Emergency Core Cooling System
EDT	Equipment Drain Tank
EFCT	Effect
EFLNT	Effluent
EHC	Electro Hydraulic Control
ELEC	Electrical
EQ	Equipment
EQUIP	Equipment
ES	Extraction Steam
ESF	Engineered Safety Feature
ESS	Essential Service

VALVE TAG CREATION

EXH	Exhaust/Exhauster
EXPANS	Expansion
EXTR	Extracted Extractor/Extraction
F	Fahrenheit
FCV	Flow Control Valve
FD	Forced Draft
FH	Fuel Handling
FLW	Flow
FO	Fuel Oil
FREQ	Frequency
FRNT	Front
FW	Feed Water
GOV	Governor
GPM	Gallons Per Minute
GRP	Group
GSC	Gland Steam Condenser
GV	Governor Valve
HG(A)	Mercury (absolute)
HGHT	Height
HIDP	High Differential Pressure
HL	Hot Leg
HOV	Hydraulic Operated Valve
HP	High Pressure
HR(S)	Hour
HRSG	Heat Recovery Steam Generator
HT RT	Heat Rate
HTNG	Heating
HU/CD	Heatup/Cooldown
HUT	Hold up Tank
HYD	Hydraulic
I/P	Current to Pressure
I/V	Current to Voltage
IA	Instrument Air
ID	Identification/Inside Diameter
INBO	Inboard
INC	Increase
INF	Influent
INIT	Initial
INL	Inlet
INSERTIN	Insertion
INST	Instrument/Instantaneous
INT	Internal
INTERM	Intermediate
IOD	Iodine
ISOL	Isolation
JUNCT	Junction

K	Kilo
LNG	Long/Liquified Natural Gas
LO FLW	Low Flow
M/G	Motor Generator Sets
MAINT	Maintenance
MAX	Maximum
MCR	Main Control Room
MFP	Main Feed Pump
MIN	Minutes/Minimum
MOIST	Moisture
MPH	Miles Per Hour
MPS	Miles Per Second
MS	Main Steam/Moisture Separator
MSIV	Main Steam Isolation Valve
MSR	Moisture Separator Reheater
MTR	Motor
MU	Makeup
MVBL	Moveable
NAOH	Sodium Hydroxide
NAR	Narrow
NAR RNG	Narrow Range
NBL	Noble
NEG	Negative
NEUT	Neutron
NIS	Nuclear Instrumentation System
NR	Narrow Range
NUC	Nuclear
OG	Off-Gas
OOS	Out of Service
OP	Over Pressure
OPER	Operator/Operating
OT	Over Temperature
OT-OP	Over Temp-Over Pressure
OUT	Output
OUTBD	Outboard
OUTLT	Outlet
OVERLD	Overload
OVERTEMP	Over Temperature
OVERPWR	Overpower
PART	Partial
PARTIC	Particulate
PCT	Percent
PCV	Pressure Control Valve
PENET	Penetration
PMG	Permanent Magnet Generator
PNEU	Pneumatic

PORV	Power Operated Relief Valve
POS	Positive
POT	Potentiometer
PPB	Parts per Billion
PPM	Parts per Million
PR58	Process Radiation Monitor 58
PREAMP	Preamplifiers
PRG	Purge
PRI	Primary
PROC	Process
PRT	Pressurizer Relief Tank
PS	Power Supply
PSI	Lbs Per Square Inch
PSIA	Lbs Per Square Inch Absolute
PSIG	Lbs Per Inch Gauge
PSIO	Lbs Per Square Inch Differential
PT	Point
PTL	Pull-To-Lock
PUL	Pulverizer
PW	Primary Water
PWR RNG	Power Range
PRV	Pressure Relief Valve
PZR	Pressurizer Relief Tank
RC	Reactor Coolant
RCDT	Reactor Coolant Drain Tank
RCFC	Reactor Containment Fan Cooler
RCL	Reactor Coolant Loop
RCS	Reactor Coolant System
RDT	Reheater Drain Tank
RECOMB	Recombiner
REGEN	Regenerative
REL	Relative
RESID	Residual
RH	Residual Heat
RHR	Residual Heat Removal
RHT	Reheat
RLY	Relay
RNG	Range/Running
ROC	Rate of Change
RTD	Resistance Temp. Detector
RTN	Return
RVLIS	Reactor Vessel Level Indication System
RW	Radwaste
RWST	Refueling Water Storage Tank
S/G	Steam Generator
SA	Service Air

SB	Service Building
SEC	Second
SEL	Select
SEP	Separator
SERV	Service
SFP	Service Fuel Pump
SGTR	Steam Generator Tube Rupture
SI	Safety Injection
SPEC	Specification
STDY	Steady
STNBY	Standby
STOR	Storage
SUPPR	Suppressed
SUPRESS	Suppression
SW	Service Water / Switch
SWST	Secondary Water Storage Tank
T/C	Thermocouples
TAMB	Temperature Ambient
TAVG	Average Temperature
TB	Turbine Building / Terminal Box / Block
TC	Cold Leg Temperature
TCV	Temperature Control Valve
TD	Turbine Drain
TG	Turbine Generator
THER	Thermal
THRT	Throttle
THST	Thrust
TREP	Reference Temperature
TRNA	Train A (B, C, etc.)
TRNSNT	Transient
TRP	Trip
TTD	Terminal Temp. Difference
TURBS	Turbines
UNCONT	Uncontrolled
VAC	Vacuum
VALS	Values
VAP	Vapor
VAR	Variance
VCT	Volume Control Tank
VIB	Vibration
VNT	Vent
VOL	Volume
WR	Wide Range
XFR	Transfer
XMTR	Transmitter

What Type Of Lettering Should Be Used?

Although common practice is to use all capital letters, for best legibility use a combination of upper and lower case for long text, such as a description. This also saves space allowing more information to be printed on the valve tag. Typically an Arial or Verdana font (sans-serif font) should be used. These plain-looking fonts are easier to read.



Should Valve Tags Be One-Sided or Two-Sided?

Because a valve tag can move, valve tags are typically made with the same information on both sides of the tag. This allows the tag to be read from any angle. However, some facilities include Right-to-Know information on the backside of the tag.

What Color Should A Valve Tag Be?

The valve tag color should follow pipe marking color standards.

What Material Should Be Used To Make Valve Tags?

There are two options: rigid valve tags and flexible tag stock.

A rigid valve tag is made by applying a vinyl label to a rigid plastic backing producing a durable, rugged tag. Two of the most common valve tag sizes are: 2.25" x 3.75" and 3.375" x 4.75".

A flexible valve tag is made by using a material such as DuraTag™ tag stock. DuraTag tag stock comes on a continuous roll and can be printed just like vinyl tape. The advantage is that the tag can be made to whatever size is needed, providing sufficient room for whatever information needs to be on the tag.



Table 1 Valve Tag Colors - Pipe Colors²

Fluid Service	Background Color	Letter Color
Fire Quenching Fluids	Red	White
Toxic and Corrosive Fluids	Orange	Black
Flammable Fluids	Yellow	Black
Combustible Fluids	Brown	White
Potable, Cooling, Boiler Feed, and other water	Green	White
Compressed Air	Blue	White

² Valve tags should use the same color code as pipe marking to aid in quick identification of the contents. Although pipe markers are required to follow the color scheme in **Table 1**, valve tags do not require this marking to be compliant. These are only recommendations. In addition, your insurer may require different valve tag color-coding requirements.

Example of Valve Tag Creation (Using the DuraLabel PRO 300)

The following describes label/tag creation using the DuraLabel PRO 300 printer.

You can design the required labels with a familiar word processor, such as Microsoft® Word or OpenOffice.org.

DuraLabel printers can be used to make both rigid and flexible valve tags. Rigid tags can be easily made with this printer by printing on a vinyl supply and applying it to a rigid tag. Flexible tags are printed directly onto a flexible tag stock.

Option 1: Printing DuraLabel Heavy-Duty Valve Tags (Rigid)

DuraLabel Heavy-duty Valve Tags provide superior durability and longevity in outdoor and industrial environments. Because they are rigid, they can be easier to read.

1. Load the DuraLabel printer with the appropriate color and size of labeling tape.
2. Open a compatible word processing program.
3. Set page size to match the label size.
4. Design your valve tag with custom information.
5. Print and apply the label to an appropriate size heavy-duty valve tag.
6. If putting an RTK label on the backside of the tag, print and apply that label.

Option 2: Printing DuraTag™ (Tag Stock)

DuraTag™ tag stock is an extremely durable material that resists tearing, moisture, chemicals, and extreme temperatures. DuraTag comes in 3" and 4" widths and in various colors. Additional sizes are available for other DuraLabel printer models. DuraTag tag stock is flexible and may be directly printed on like vinyl tape.

1. Load the DuraLabel printer with a roll of DuraTag stock as you would vinyl tape.
2. Open your word processing program.
3. Set the page format according to DuraTag width and required tag size.
4. Enter the information you want printed on the tag.
5. Print the tag.
6. Hole-punch the DuraTag to allow the threading of a cord, tie, or cable.



VALVE TAG PLACEMENT

Tags require a cord, zip tie, chain, or cable tie to complete the labeling process. See Table 2 (Cable Length) to determine how long the length of cord or cable should be.

Valve Tag Placement

- Typically valve tags are placed directly on the valve. If the valve is too small or there is no way to attach the tag to the valve body, it may be necessary to attach it to the stem of the hand wheel.
- Never attach valve tags directly onto a hand wheel, valve stem, electric actuator, or hydraulic drive. Tags may interfere with operation. Actuators should be labeled separately.
- Valve tags need to be visible from the point of normal approach.
- Tags should be attached using a secure method such as a steel wire, brass chain, or plastic tie.

Table 2 Cable Length

Wrapping Circumference	Standard Cable Length
Less than 2"	4"
2"	4"
3"	5"
4"	6"
5"	7"
6"	8"
Greater than 6"	Use discretion



Tags should be strategically placed for visibility and not to interfere with operations or maintenance.

VALVE TAG MAINTENANCE

Valve tags need to be properly maintained to ensure legibility and readability. Under normal conditions valve tags will last five to seven years in outdoor locations. Environmental conditions can result in a variance of label life-span.

Valve tags should be inspected on a periodic basis. Replace missing or deteriorated tags at all locations. Any accumulation of debris, grease, oil, or other materials should be cleaned off. DuraLabel supplies are chemical resistant. Solvents and cleaning agents may be used when necessary to clean off dirt, grime, oil, etc.

Set up a schedule to reevaluate on a regular basis. The frequency of inspections will vary depending on the environment within your facility. Refer to the “Facility Evaluation” section of this guide for help.

For more information, please call 877.534.5157 or visit DuraLabel.com.



Tags may become deteriorated over time and will need to be replaced to keep up with safety codes.

DISCLAIMER: This guide is for general purposes only. It is not a substitute for review of applicable standards.
© 2008, 2010, 2013 Graphic Products, Inc. All Rights Reserved.



New 5-year warranty on all DuraLabel printers.
Visit DuraLabel.com/warranty for info.

Shouldn't your label printer be as **INDEPENDENT** as you are?

DuraLabel Toro is an advanced thermal transfer printer. Toro comes complete with an easy to read touchscreen, a full-size keyboard, DuraSuite™ safety compliance software and an optional battery. No network? No power? No problem. Celebrate your visual communication independence with Toro.

DuraLabel 
TORO®

CALL TODAY TO
ORDER YOUR TORO

877.534.5157



DuraLabel.com

DuraLabel 