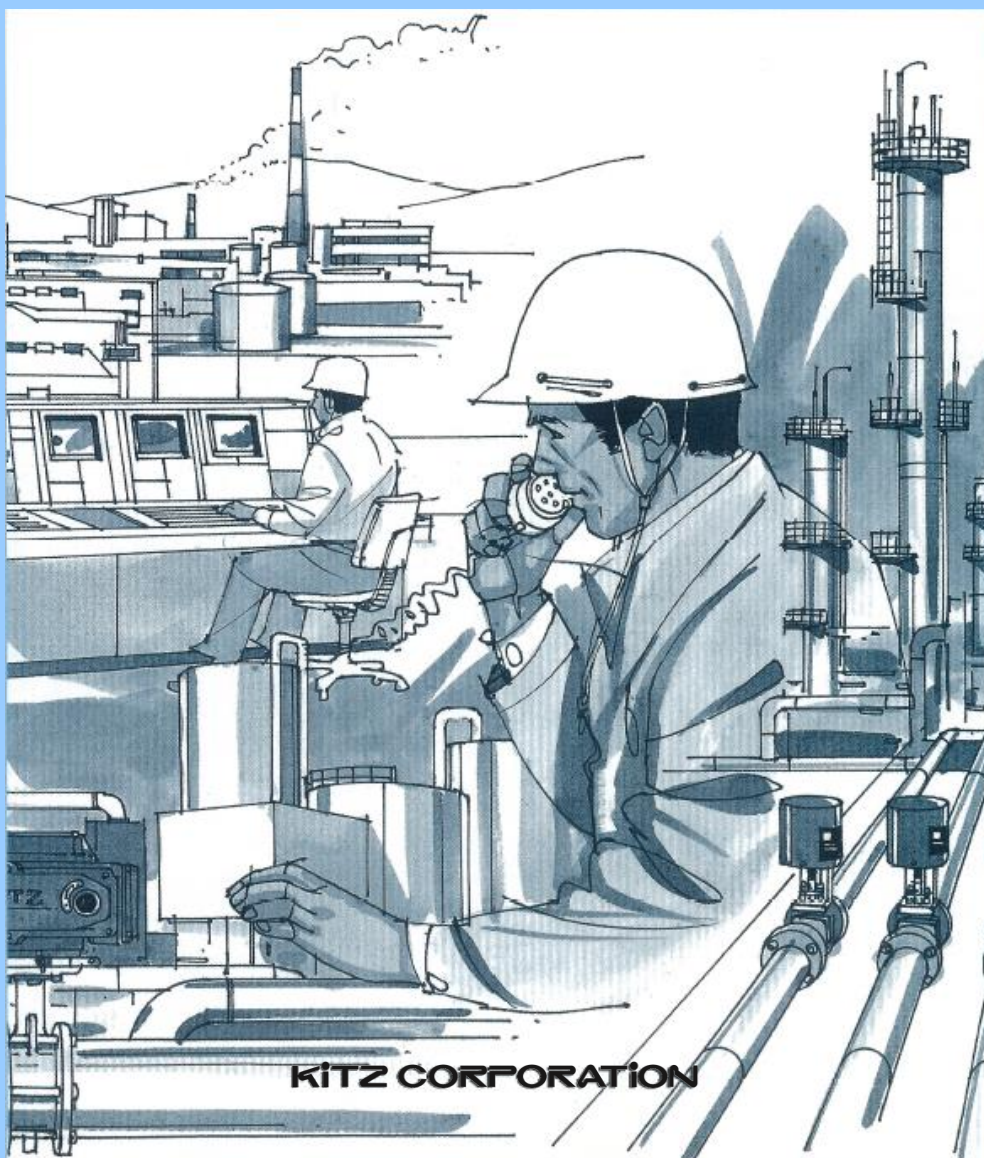


CE

Guide to Users of KITZ CE Marked Products



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Introduction

Effective May 29, 2002, compliance with the Pressure Equipment Directive (PED below) 2014/68/EU and 97/23/EC is mandatory for PED listed pressure equipment (including valves) used in countries of the European Union. Manufacturers, prior to supplying their products to EU countries, are subject PED Requirement, as a condition of certification and authorization for manufacture and sale of CE marked products.

We, KITZ Corporation and subsidiary companies, have been properly approved and authorized by a notified body to provide customers within EU countries with valve products conforming to all PED requirements.

There are **two types** of CE marked products that we provide customers:

Type 1: Designed and manufactured in accordance with the specifications required by customers for their specific service conditions.

Type 2: Designed, manufactured, considering general service conditions, and stocked at our distributors and wholesalers, for customer's occasional off-the-shelf selection for their specific service conditions.

In case of **Type 1**, we can provide customers with optimum products designed and manufactured to comply with their specific requirements. However, in case of **Type 2**, it is possible that some products are not suitable for such specific service conditions, since they are designed, manufactured and stocked at our distributors and wholesalers for general purpose applications (KITZ general purpose valves below).

Therefore, customers are responsible, in case of **Type 2**, for selecting proper products in accordance with their own specific service conditions.

For reference purpose, we draw your attention here to what needs to be carefully considered when selecting valve products for longer and safer use. Please contact KITZ Corporation or its authorized distributors, if you need further information about your selection of KITZ products.

Note: Unless otherwise specified, this guide applies to KITZ gate, globe, check, ball and butterfly valves of all materials which are available from KITZ Corporation and its subsidiary companies.

1. Service Fluid Characteristics

1.1 Application to Dangerous and Harmful Fluid

For servicing the following kinds of fluid, as specified in PED Article 13 Section 1(a), use of products shall be limited to only those marked Fluid Group 1 on affixed CE labels/nameplates.

Group 1 consisting of substances and mixtures, as defined in points (7) and (8) of Article 2 of Regulation (EC) No 1272/2008, that are classified as hazardous in accordance with the following physical or health hazard classes laid down in Parts 2 and 3 of Annex I to that Regulation:

- (i) unstable explosives (ii) flammable gases (iii) oxidising gases (iv) flammable liquids
- (v) flammable liquids (vi) flammable solids (vii) self-reactive substances and mixtures
- (viii) pyrophoric liquids (ix) pyrophoric solids
- (x) substances and mixtures which in contact with water emit flammable gases
- (xi) oxidising liquids (xii) oxidising solids (xiii) organic peroxides (xiv) acute oral toxicity
- (xv) acute dermal toxicity (xvi) acute inhalation toxicity (xvii) specific target organ toxicity - single exposure

WARNING	For any of the above kinds of fluid, do not use products which are marked Fluid Group 2.
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CAUTION	Also select products in accordance with applicable laws, regulations, safety standards and engineering standards, where legally, or contractually required to do so.
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1.2 Fluid Characteristics Not Recommended for Use of KITZ General Purpose Valves

For the following kinds of fluid, standard trim and sealing materials of KITZ general purpose valves are not suitable, and resultant fluid leakage may cause danger or harm to servicing personnel and contaminate the environment. It is recommended to advise us or our authorized distributors for technical advice in advance, if you intend to use KITZ general purpose valves to service any one of these kinds of fluid.

- ① Fluid which chemically reacts with air or water (e.g. ammonia)
- ② Fluid which chemically reacts with oil or grease (e.g. oxygen)

CAUTION	KITZ general purpose valves shall not be used for the fluid which chemically reacts with pure oxygen or oil to cause spontaneous combustion. Oil-free treated products marked Fluid Group 1 must be used instead for such applications.
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- ③ Inherently high leaking fluid (e.g. hydrogen)
- ④ Wet H₂S
- ⑤ High pressure, high temperature gaseous fluid.
- ⑥ Slurry or solid fluid

Ensure, at all times, that the valve shell, trim and sealing materials are properly selected for the specific service conditions when you buy and use KITZ general purpose valves. Shell and trim materials of our industrial valves are indicated on the nameplates, while detailed material information is provided in our product catalogs. Improper selection of these materials may cause corrosion of valve internals or deterioration of material strength, and result in fluid leakage, functional failure and a reduced product life cycle. Accordingly, upon request, we are ready to provide customers with valve material corrosion resistance data for their referenced information.

2.1 General

The mechanical strength of main pressure bearing parts of KITZ general purpose valves are designed and manufactured for safe application to the maximum pressure allowable under the service temperature specified in the pressure-temperature rating of a relevant valve design standard.

2. Pressure, Temperature and Flow Condition of Line Fluid

One problem for these valves is that structural design and selection of sealing components are intended for use in the service conditions, which are rather common, universal and typical in the field. This may limit application of these valves to some specific service pressures, temperatures and fluid flow conditions. Users of KITZ general purpose valves are thus recommended to pay a careful attention to the following remarks when make an off-the-shelf selection of these valves at our distributors.

2.2 Selection of valves provided with non-metallic components

Regardless of the nominal design pressure indicated often on the valve bodies, application of valves using non-metallic components such as seats, packing rings and gaskets is often restricted, depending on actual service conditions, because of inherent properties of such component materials. Typical examples are:

(1) Valves with PTFE seats and sealing materials

(2) Valves with rubber seats and sealing materials

Ensure that on-site process service pressure and temperature should never exceed the range specified in our product catalogs. The maximum service pressure and temperature are also indicated on CE labels/nameplates.

2.3 Care of Extraordinary Pressure Rise

Ensure selection and used of valves of an appropriate pressure class for services where the valve internal pressure may extraordinarily rise due to the following causes:

- | | | |
|-----------------------|---------------------------------------|--------------------------|
| (a) Heating | (b) Exothermic reaction | (c) Endothermic reaction |
| (d) Explosion | (e) Fire | (f) Supply fault |
| (g) Blocked discharge | (h) Blow back from upstream equipment | |

2.4 Vacuum and Underground Service

(1) Vacuum service

Our valves are designed and constructed to have sufficient strength for vacuum service.

However, stem seals of general purpose valves are designed only to resist the valve internal pressure and leakage is likely to occur through stem seals in case of vacuum service. We recommend use of the valves specifically designed for vacuum service for this application.

(2) Underground service

Our valves are designed and constructed to have sufficient strength for underground service.

However, besides operation and maintenance difficulty, electric or galvanic corrosion and bacterial corrosion are inherent problems. Sufficient and adequate care must be taken beforehand to inhibit or prevent such type corrosions occurring on this kind of installation.

2.5 Care of Extreme Temperature Conditions

For the following service environments, valves must be selected with an adequate margin for the service temperature ranges, to minimize the problems encountered with:

- (a) Overheating, blockage by scale, distortion and creep caused by high temperature fluid
- (b) Failure of neighboring accessories or components and distortion caused by high temperature environment
- (c) Joule Thompson effect and its resultant leakage and destruction caused by low temperature fluid and environment
- (d) Temperature rise caused by heat impact and its resultant material destruction and valve malfunction
- (e) Material fatigue and destruction caused by repetitive heating.
- (f) Valve operational failure caused by frozen lubricant and/or water in low temperature environment
- (g) In case of hydrostatic piping systems, damage of valves and pipes caused by frozen line water under rapidly reduced environmental temperature

2.6 Cavity Pressure Relief Provision

An extraordinary increase of the fluid pressure trapped within the valve body cavity may be caused by the line fluid temperature or the atmospheric temperature and result in damage of valve internals.

A provision for relief of excessive cavity pressure must be included in customers' valve specifications, if there is such a concern. For standard provision of cavity pressure relief for KITZ ball valves, refer to the details given in our product catalogs.

2.7 Fluid Flow

If types and specifications of valves are not properly selected to satisfy service conditions of line fluid flow, the following troubles may occur. Selection of proper valves by advising service condition details to manufactures and distributors in advance is customers' responsibility for the ultimate performance of valves.

It is also important that customers take immediate remedial actions to solve problems, if they occur on-site.

- (a) Pitching, generation of disturbing noise or water-hammering caused by the condition of fluid passage
- (b) Chattering, hunting or vibration caused by pulsating flow
- (c) Abrasion, damage or overheating caused by excessive or insufficient flow volume, or extreme change of flow volume
- (d) Abrasion of valves at flow passing or turbulent area caused by extreme pressure drop or cavitations
- (e) Erosional wear
- (f) Vibration or fatigue destruction of valve internal parts caused by high flow velocity
- (g) Flow obstruction caused by fluid blockage
- (h) Operation failure or wear caused by fluid residue stuck within the valve interior

2.8 Post-piping Pressure Test

(1) Pneumatic pressure test

Take care of safety issues such as visual inspection of tightened boltings and external leakage at each stage of pressure increment, when air or nitrogen gas is used as testing media.



WARNING

Do not over pressurize valves for testing, thereby exceeding the maximum allowable pressures specified. External leakage of high pressure gas will cause serious harm and damage to the personnel and test equipment.

(2) Hydrostatic pressure test

When testing, ensure use of clean water containing no solids such as sand or other foreign objects, which accumulate in piping and may cause trouble to valves and test equipment. Chlorine concentration in the water shall be less than 100ppm (or less than that legally or contractually specified), when testing austenitic stainless steel and nickel based alloy valves. High chlorine content in the test media may cause corrosion.

(3) Valve application for installation as piping ends or pressure gates

All valve types shall not be installed for use as piping ends or pressure gates.



WARNING

Do not install valves for pipe end service, which may cause the external leakage. In such a case, blank flange or cover shall be securely fitted to the valve end flange to prevent leakage.

KITZ general purpose valves are not designed for the functions and features listed below. Ensure, in case of need of such functions and features, that you contact KITZ or its authorized distributors beforehand, advising all details of your technical requirements.

- (a) With a damper or anti-slamming device (dashpots or counter weights) for swing check valves
- (b) Erosion resistance for slurry and/or solid fluid
- (c) Lining or coating provided within the valve interior.
- (d) Key lock (**See Note**)
- (e) Water/weather proof provision for valve actuators
- (f) Fire safe provision (**See Note**)
- (g) Anti-static provision (**See Note**)
- (h) Low fugitive emission (**See Note**)
- (i) Special valve exterior coating



Conformity to PED on Service Conditions

(j) Chain wheels

Note: KITZ general purpose gate, globe and check valves are provided with fire safe and anti-static provisions as an inherent design feature. Some of our general purpose ball valves are also provided with fire safe, anti-static and locking provision, as referenced in our product catalogs. Some of our general purpose gate, globe, check and ball valves are provided with low fugitive emission features as detailed in our product catalogs.

1. Facilities and Equipment or Apparatus Where Valves Are Installed

When valves are installed in facilities and equipment or apparatus for any of the following conditions, we recommend that proper actions are taken to minimize resultant negative effects such as excessive load stress, reduced mechanical strength of parts or deterioration of valve materials.

- (a) Excessive mechanical or thermal load such as compression or tension caused by piping systems
- (b) Excessive vibration and dynamic load caused by piping systems
- (c) Danger of explosion or fire
- (d) Excessive heat caused by conduction and radiation
- (e) Excessive heat caused by environmental temperature rise
- (f) Gaseous or corrosive environment which attacks metallic valve materials
- (g) Contact with water or high humidity to cause corrosion and damage of valve materials
- (h) Installation as piping ends

2. Areas or the Environment Where Valves Are Installed

Take proper actions to prevent danger when valves are installed where the following conditions exist.

- (a) Questioned durability of valve materials against snow load or wind freezing
- (b) Mechanical or electrical damage caused by flood
- (c) Valve operation failure or wear caused by dust
- (d) Material deterioration caused by radiation
- (e) Electrical corrosion
- (f) Bacterial corrosion
- (g) Accelerated load when valves are installed on mobile equipment or apparatus to affect mechanical strength of valves

3. Valve Installation on Piping

When installing valves, ensure orientation by properly aligning the correct position, according to each operation manual, understanding the construction mechanism of valves. Improper installation may cause problems such as valve malfunction, mechanical damage or deteriorated sealing performance.

The followings are typical examples of the problem.

- (a) Reverse installation of check valves against flow direction
- (b) Installation of check valves on vertical and oblique piping (Note: Lift check valves provided with springs are acceptable for such piping)
- (c) Reverse installation of globe valves against flow direction
- (d) Reverse installation of gate valves provided with vent hole on the disc against high pressure side.
- (e) Installation of gate, globe, ball, and butterfly valves with the stem positioned downwards on horizontal piping.

Notes for Handling and Operation of Products

1. Installation, Handling, Transportation and Storage of Products

It is recommended that users pay a careful attention to all guidelines and work instructions, according to KITZ valve operation manuals and U.S. Manufactures Standardization Society Standard Practice – MSS SP-92 “Valve User Guide”, to prevent degradation of product performance and reduction of product life cycle. Care should be taken particularly for prevention of the followings:

- (a) Damage of valve parts caused by improper wiring of valves when lifting, particularly, large and heavy valves.
- (b) Damage of piping flanges caused by excessive tightening of flange boltings of, particularly, cast iron valves.
- (c) Functional failure caused by excessive welding heat in cause of mounting butt-welding or socket-welding end valves.
- (d) Degraded seating performance caused by post weld heat treatment of, particularly, small to medium sized valves.
- (e) Damage of valve ends caused by excessive tightening of screwed ends of, particularly, copper alloy valves.
- (f) Functional failure caused by excessive soldering heat in case of soldered copper alloy valves.


2. Operation of Products


It is recommended to ensure proper operation of valves according to KITZ valve operation manuals and MSS SP-92 “Valve User Guide”, after having checked and confirmed that:

- (a) Correct power sources are prepared, if applicable.
- (b) Valves are facilitated for emergency shutdown, if required.
- (c) Corrective actions for operational failure are known to valve operation personnel.

3. Disassembly, Maintenance and Modification of Products

Disassembly and maintenance of products including replacement of trims and sealing components must be carried out according to the instructions given in KITZ valve operation manuals. We recommend that users employ our genuine parts or, at a minimum, the parts recommended by us, so that the design and the ultimate product performance intended by our engineers may not be affected.

 WARNING	<p>When CE marked products are disassembled for maintenance, or modified by purchasers or users, the legitimacy for conformity to PED requirements becomes invalid, and they are not entitled to claim benefits granted by PED and its related laws or regulations. Therefore, when valves are reassembled after maintenance or modified by purchasers or users for resale within EU countries, the procedures specified for re-qualification to PED and its related laws or regulations must be followed. In such a case, we recommend purchasers or users to contact the notified bodies concerned for advice and actual re-qualification works (See Note).</p>
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 CAUTION	<p>KITZ Corporation assumes no liability, nor guarantees the performance, function and safety of even new products, if purchasers or users disassemble products for maintenance including replacement of parts, or for modification of products (See Note).</p>
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Note: The PED legitimacy of products remains valid for the modifications, which are recognized or verified not to disturb the original intended safety of products such as mounting actuators on the mounting pads provided on top of valves according to relevant valve standards. In this example, actuators must have been duly qualified and certified to the relevant EC directives.

4. Items of Marking on Nameplate

4.1 Items of marking on nameplate of Gate valves, Globe valves and Check valves

- (a) Identification of the manufacture
- (b) Address (country of origin)
- (c) Intended use
- (d) Fluid group
- (e) Identification (KITZ product code)
- (f) Nominal pressure
- (g) Nominal size
- (h) Shell material symbol
- (i) Stem material symbol
- (j) Disc seat material symbol
- (k) Body seat material symbol
- (l) The year of manufacture (DATE)
- (m) Valve serial number
- (n) Applicable design standard
- (o) Allowable limit (service temperature)
- (p) CE marking
- (q) NoBo's identification number

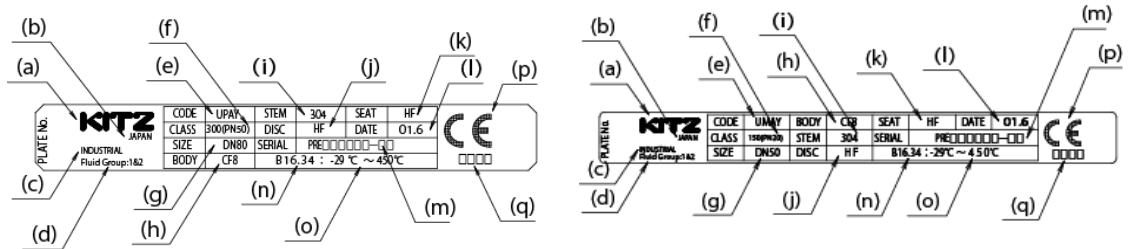


Fig.1 Example of Gate valves, Globe valves and Check valves

4.2 Items of marking on nameplate of Ball valves

- (a) Identification of the manufacture
 - (b) Address (country of origin)
 - (c) Intended use
 - (d) Fluid group
 - (e) Identification (KITZ product code)
 - (f) Stem material symbol
 - (g) Ball material symbol
 - (h) Seat material symbol
 - (i) The year and month of manufacture (DATE)
 - (j) Valve serial number
 - (k) Allowable limit (service temperature)
- Allowable limit of ball valves (service temperature) are limited by a ball seat.
Please check allowable limit of the name plate of each valves.
- (l) CE marking
 - (m) NoBo's identification number

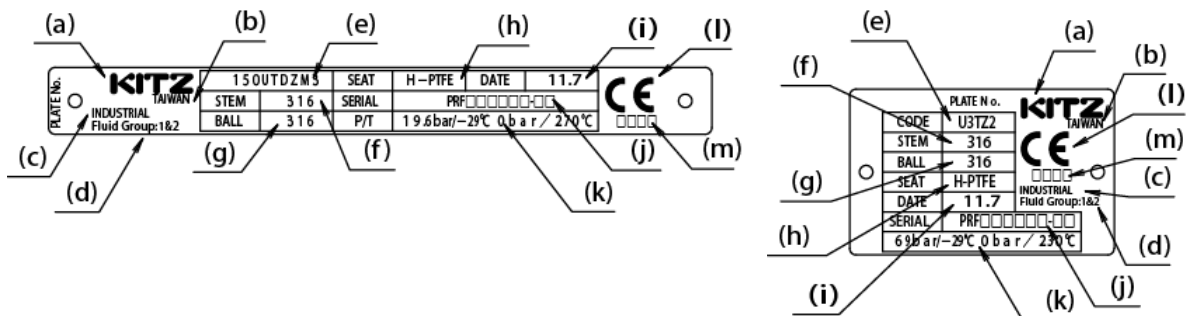


Fig.2 Example of Ball Valve

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