

JIS

JAPANESE INDUSTRIAL STANDARD

Symbols for Piping Drawings of Chemical Plants

JIS Z 8209—1988

Translated and Published

by

Japanese Standards Association

In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

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Symbols for Piping Drawings of Chemical Plants

Z 8209-1988

1. Scope

This Japanese Industrial Standard specifies the drawings of piping drawings of chemical plants and symbols to be used therein.

2. Definitions

For the purposes of this Standard, the following definitions apply, and others are in accordance with JIS Z 8114.

- (1) hidden pipes Pippings of the parts which are hidden by appliances, frames and others in the piping drawings.
- (2) trace pipings The generic term of a piping which is heated by using the heating media of steam, warm water and the like for preventing the increase of viscosity or solidification of the liquid in pipes, hereinafter referred to as the "traced pipe", and the piping for heating media which has been held by that piping, hereinafter referred to as the "trace pipe".
- (3) overlapped pipes In the case where pipes have been viewed along a plane including pipings which are in parallel, the plural number of pipings which are invisible other than the pipe of this side or hard to be seen.

3. Drawing of Piping Drawings

3.1 The projection method shall be an orthographic projection or isometric projection.

Remark: When an isometric drawing is described by an isometric projection, where the inscription of the graphical symbol in an actual length is difficult, the lengths on respective co-ordinates are not necessarily be actual lengths, with considering the sizes of pipe diameter and drawing.

3.2 Symbols for piping drawings indicating the pipes and other piping parts shall be as given in 4.

Applicable Standards:

JIS Z 8114-Glossary of Drawing Terms

JIS Z 8204-Instrumentation Symbols

JIS Z 8205-Graphical Symbols for Piping

- Remarks 1. The division in use of the thickness of lines showing pipes shall be clearly given in the drawings.
2. The types of lines, in the case where the piping parts, other than pipes, of already established and predetermined for enlargement are required to indicate, shall be in accordance with the prescriptions of 4.1, as appropriate.
3. The graphic symbols of type 1 and type 2 shall be used properly, considering the scales of pipe diameters and drawings. However, in the same piping system, the graphic symbols of type 1 and type 2 shall not be mixed.
4. The centre line shall be a thin chain line, however, a thin continuous line may also be used.

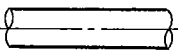
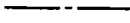
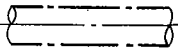
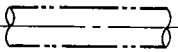
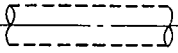
3.3 The symbols other than symbols for piping drawings to be used in piping drawings shall be as given in 5.

4. Symbols for Piping Drawings

4.1 Pipes

4.1.1 General Piping The graphic symbols of general pipings shall be as given in Table 1.

Table 1. Graphic Symbols of General Piping

Type	For orthographic projection drawings		For isometric drawing	Indication of section	
	Type 1	Type 2		Type 1	Type 2
Newly established pipe					
Already established pipe					
Pre-determined pipe for enlargement					
Hidden pipe				—	

4.1.2 Trace Piping The graphic symbols, in the case where it is particularly required to indicate that these are the trace pipings, shall be as given in Table 2.

Table 2. Graphic Symbols of Trace Pipings

Type	For orthographic projection drawings		For isometric drawing	Indication of section	
	Type 1	Type 2		Type 1	Type 2
Newly established pipe					
Already established pipe					
Pre-determined pipe for enlargement					
Hidden pipe				—	

4.1.3 Double Pipe The graphic symbols, in the case where it is particularly required to indicate that these are double pipes, shall be as given in Table 3.

Table 3. Graphic Symbols of Double Pipes

Type	For orthographic projection drawings		For isometric drawing	Indication of section	
	Type 1	Type 2		Type 1	Type 2
Newly established pipe					
Already established pipe					
Pre-determined pipe for enlargement					
Hidden pipe				—	

4.1.4 Pipes for Keeping Hot and Pipes for Keeping Cold Generally the graphic symbols given in 4.1.1, 4.1.2 and 4.1.3 shall be described, and keeping hot and keeping cold are not illustrated. However, in the case where it is particularly required to indicate the sections, these shall be as given in Table 4.

Furthermore, in the case where double pipes are processed with keeping hot and keeping cold, and of which sections are particularly required to indicate, for indications of sections thereof, triple circles, which have been described by thin continuous line, chain line and chain double-dashed line respectively on the outside of the graphic symbols of sections of 4.1.3, showing for keeping hot and keeping cold, according to respective types of pipes of newly established, already established and predetermined for enlargement, shall be used.

Table 4. Graphic Symbols of Pipes for Keeping Hot and Keeping Cold

Type	For orthographic projection drawings		For isometric drawing	Indication of section	
	Type 1	Type 2		Type 1	Type 2
Newly established pipe	—				
Already established pipe	—				
Pre-determined pipe for enlargement	—				
Hidden pipe	—			—	

4.1.5 Fundamental Types of Piping Joints In the drawings using the type 1, the fundamental types of graphic symbols indicating butt welding, slip-on welding and screwing, among the piping joint methods, shall be as given in Table 5.

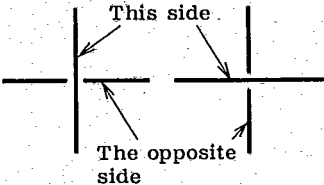
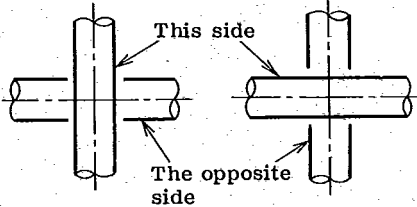
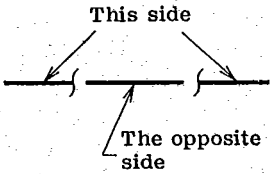
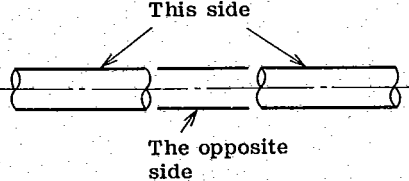
Further, the illustrations of other joint methods by unions and flanges shall respectively be as given in 4.2 (8) and 4.3.

Table 5. Fundamental Types of Pipe Joints

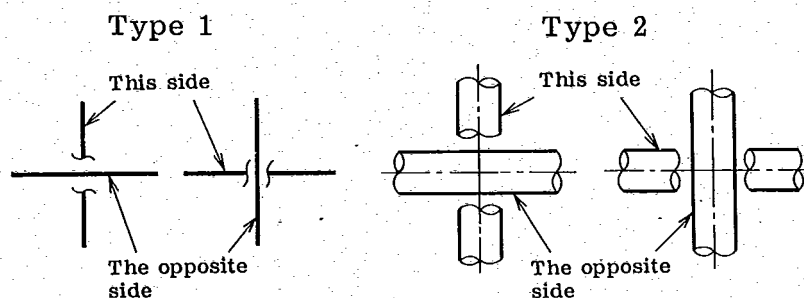
Joining method	Graphic symbol
Butt welding	
Slip-on welding and screwing	

4.1.6 Crossings of Pippings The graphic symbols, in the case where pippings are crossing or running in parallel without jointing, shall be as given in Table 6.

Table 6. Crossings of Pipings

Type	For orthographic projection drawings	
	Type 1	Type 2
Crossing ⁽¹⁾ pipes		
Duplicated pipes		

Note (1) In the case where it is intended particularly to indicate the pipe of the opposite side at the crossing part, the following method may also be used.



4.2 Pipe Joints The graphic symbols of pipe joints shall be as given in the following:

(1) Elbows The graphic symbols of elbows shall be as given in Table 7.

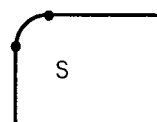
Table 7. Graphic Symbols of Elbows⁽²⁾⁽³⁾

Type		Butt welding type		Slip-on welding type and screwed type	
		Plan	Isometric drawing	Plan	Isometric drawing
			Elevation		Elevation
90° Long	Type 1				
	Type 2			—	
45° Long	Type 1				
	Type 2			—	
Mitre bend :				—	

Notes ⁽²⁾ In the case of the elbows of the other angles than 90° and 45°, it should preferably be attached with the indications of angles.

⁽³⁾ In the case of a short elbow, a letter symbol S shall be attached.

Example:



- (2) Tees The graphic symbols of tees shall be as given in Table 8.

Table 8. Graphic Symbols of Tees

Type	Butt welding type		Slip-on welding type and screwed type	
	Plan	Isometric drawing	Plan	Isometric drawing
	Elevation		Elevation	
Type 1				
Type 2				

- (3) Caps The graphic symbols of caps shall be as given in Table 9.

Table 9. Graphic Symbols of Caps

Type	Butt welding type		Slip-on welding type and screwed type	
	Plan	Isometric drawing	Plan	Isometric drawing
	Elevation		Elevation	
Type 1				
		—		—
Type 2				
		—		