

Chemifit™ Series

# Chemifit™ CSE Series



B-CSE-01E



SUS316

# Chemifit™ CSE Series

Threaded fitting for clean air, pure water and chemical liquids

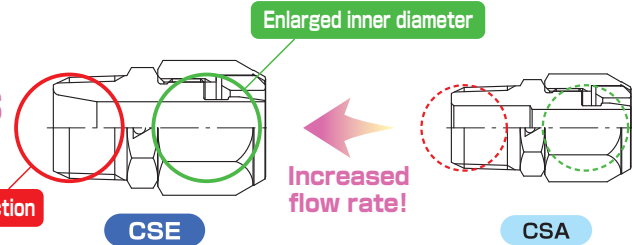


## Features

### Improved flow characteristics

Comparison with CSA Series

Tapered shape in the end section



### High sealing performance

Nitta's unique sealing mechanism achieves high durability against degradation of sealing performance due to cold-hot cycle.

### No need for additional tightening of nut

The structure with less stress relaxation ensures high sealing performance for a long period of time and the nut does not need to be re-tightened at maintenance.

### Oil-free manufacturing

Assembled after cleaning each part in a clean room.

### Highly improved workability for attaching and detaching the tube

The integrated fitting body includes an insert as well as the assembly nut includes a sleeve.

### Highly smooth inner surface and R sphere surface processing on elbow crossing

The surface roughness is below Ra3.2. The corner of the elbow is sphere surface processed, which reduces liquid and detergent remains.

### Uniform workability for connecting tube

Tube connection is completed when the assembly nut reaches the fitting body. No need for torque control or special tools.

### No rotation of tube when the tube is attached

A sleeve inside the assembly nut can rotate. Hence the inserted tube does not rotate together.

CSE		CSA	
	Effective cross-sectional area (mm <sup>2</sup> )		Effective cross-sectional area (mm <sup>2</sup> )
CSE-C12×9-R3/8	53	CSA-C12×9-R3/8	41
CSE-L12×9-R3/8	44	CSA-L12×9-R3/8	35.5

#### Operating fluid, working temperature range

Air (clean air) : -65°C~+260°C  
Water (pure water) : 0°C~+100°C

⚠ Contact us for various chemical liquids.

#### Pressure condition

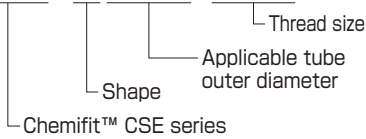
Maximum working pressure : 5.0MPa  
Negative pressure performance : -101.294kPa

#### Handling instructions

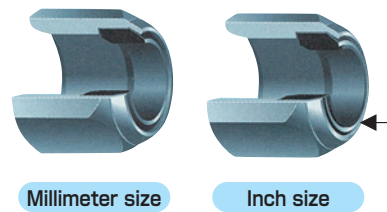
- ⚠ **Caution** When the working conditions of tubes and fittings differ, use them under the lower specified conditions.
- ⚠ **Caution** When water is used as the operating fluid, do not allow it to freeze.
- ⚠ **Caution** Do not bend the pipe sharply near the tube insertion port of the fitting. Keep the tube straight for twice as long as the tube diameter from the insertion port.
- ⚠ See page6 for the common handling instructions for tube fittings.

#### Product number example

**CSE-C6×4-R1/4**



#### Distinction of millimeter/inch sizes



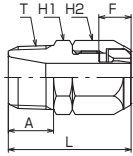
The inch size type has a boss at the sleeve end to distinguish from millimeter size type.

#### Applicable tube

Polyolefine resin tube PL · PN	Fluorocarbon resin tube TA	Polyurethane tube U2 · U1 · U5	Flexible fluorocarbon resin bilayer tube TES	Polybutene tube PB	Antistatic tube UE	Polyurethane processed tube UC · USC · UMC · UML

※1... Combined use of U2, U1, U5, TES, PB, UE or polyurethane processed tube and Chemifit™ CSE series mixes general and clean type performances. When using them in a clean environment, pay attention to the clean level that could be lowered.

## Connector



### ● mm size

Part No.	Tube O.D. × I.D. (mm)	T Thread size (R)	L (mm)	A (mm)	F Insertion length (mm)	H <sub>1</sub> (mm)	H <sub>2</sub> (mm)	Min.I.D. (mm)
CSE-C4×2-R1/8	4×2	R1/8	23	8	5.5	10	10	1.5
CSE-C4×2-R1/4	4×2	R1/4	26	11	5.5	14	10	1.5
CSE-C6×4-R1/8	6×4	R1/8	25.5	8	7	12	12	3.5
CSE-C6×4-R1/4	6×4	R1/4	28.5	11	7	14	12	3.5
CSE-C6×4-R3/8	6×4	R3/8	29.5	12	7	17	12	3.5
☆ CSE-C8×5-R1/8	8×5	R1/8	27	8	7.5	14	14	4.5
☆ CSE-C8×5-R1/4	8×5	R1/4	30	11	7.5	14	14	4.5
☆ CSE-C8×5-R3/8	8×5	R3/8	31	12	7.5	17	14	4.5
CSE-C8×6-R1/8	8×6	R1/8	27	8	7.5	14	14	5.5
CSE-C8×6-R1/4	8×6	R1/4	30	11	7.5	14	14	5.5
CSE-C8×6-R3/8	8×6	R3/8	31	12	7.5	17	14	5.5
CSE-C8×6-R1/2	8×6	R1/2	34	15	7.5	22	14	5.5
CSE-C10×6.5-R1/4	10×6.5	R1/4	31.5	11	8.5	17	17	6
CSE-C10×8-R1/4	10×8	R1/4	31.5	11	8.5	17	17	7.5
CSE-C10×8-R3/8	10×8	R3/8	32.5	12	8.5	17	17	7.5
CSE-C10×8-R1/2	10×8	R1/2	35.5	15	8.5	22	17	7.5
☆ CSE-C12×8-R1/4	12×8	R1/4	33.5	11	10	17	19	7.5
CSE-C12×9-R1/4	12×9	R1/4	33.5	11	10	17	19	8
CSE-C12×9-R3/8	12×9	R3/8	34.5	12	10	17	19	8.5
CSE-C12×9-R1/2	12×9	R1/2	37.5	15	10	22	19	8.5
CSE-C12×10-R1/4	12×10	R1/4	32.5	11	10	17	19	8
CSE-C12×10-R3/8	12×10	R3/8	33.5	12	10	17	19	9.5
CSE-C12×10-R1/2	12×10	R1/2	36.5	15	10	22	19	9.5
☆ CSE-C19×16-R1/2	19×16	R1/2	42.5	15	12.5	27	27	12
☆ CSE-C19×16-R3/4	19×16	R3/4	44.5	17	12.5	29	27	15

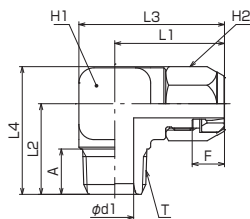
☆ Made to order

### ● inch size

Part No.	Tube O.D. × I.D. (mm)	T Thread size (R)	L (mm)	A (mm)	F Insertion length (mm)	H <sub>1</sub> (mm)	H <sub>2</sub> (mm)	Min.I.D. (mm)
CSE-C1/4-R1/8	6.35×4.57	R1/8	25	8	7	12	12	4
CSE-C1/4-R1/4	6.35×4.57	R1/4	28	11	7	14	12	4
☆ CSE-C1/4-R3/8	6.35×4.57	R3/8	29	12	7	17	12	4
CSE-C3/8-R1/4	9.53×6.99	R1/4	32	11	9	17	17	6.5
CSE-C3/8-R3/8	9.53×6.99	R3/8	33	12	9	17	17	6.5
☆ CSE-C3/8-R1/2	9.53×6.99	R1/2	36	15	9	22	17	6.5
☆ CSE-C1/2-R1/4	12.70×9.56	R1/4	35	11	10.5	19	22	8
CSE-C1/2-R3/8	12.70×9.56	R3/8	36	12	10.5	19	22	9
CSE-C1/2-R1/2	12.70×9.56	R1/2	39	15	10.5	22	22	9

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## Elbow



### ● mm size

Part No.	Tube O.D. × I.D. (mm)	T Thread size (R)	L <sub>1</sub> (mm)	L <sub>2</sub> (mm)	L <sub>3</sub> (mm)	L <sub>4</sub> (mm)	A (mm)	F Insertion length (mm)	H <sub>1</sub> (mm)	H <sub>2</sub> (mm)	d <sub>1</sub> (mm)	Min.I.D. (mm)
CSE-L6×4-R1/8	6×4	R1/8	23.5	17	30.5	24	8	7	14	12	6	3.5
CSE-L6×4-R1/4	6×4	R1/4	23.5	20	30.5	27	11	7	14	12	8	3.5
CSE-L6×4-R3/8	6×4	R3/8	26	24	35.5	33.5	12	7	19	12	10	3.5
☆ CSE-L8×5-R1/4	8×5	R1/4	25	20	32	28	11	7.5	14	14	8	4.5
CSE-L8×6-R1/8	8×6	R1/8	25	18	32	26	8	7.5	14	14	6	5.5
CSE-L8×6-R1/4	8×6	R1/4	25	20	32	29	11	7.5	14	14	8	5.5
CSE-L8×6-R3/8	8×6	R3/8	27.5	24	37	33.5	12	7.5	19	14	10	5.5
☆ CSE-L8×6-R1/2	8×6	R1/2	29	27	40	38	15	7.5	22	14	12	5.5
CSE-L10×8-R1/4	10×8	R1/4	29	23	38.5	33	11	8.5	19	17	8	7.5
CSE-L10×8-R3/8	10×8	R3/8	29	24	38.5	34	12	8.5	19	17	10	7.5
CSE-L10×8-R1/2	10×8	R1/2	30.5	27	41.5	37	15	8.5	22	17	12	7.5
☆ CSE-L12×8-R1/4	12×8	R1/4	31	23	40.5	34	11	10	19	19	8	7.5
☆ CSE-L12×8-R1/2	12×8	R1/2	32.5	27	43.5	38	15	10	22	19	12	7.5
CSE-L12×9-R1/4	12×9	R1/4	31	23	40.5	34	11	10	19	19	8	8
CSE-L12×9-R3/8	12×9	R3/8	31	24	40.5	35	12	10	19	19	10	8.5
CSE-L12×9-R1/2	12×9	R1/2	32.5	27	43.5	38	15	10	22	19	12	8.5
CSE-L12×10-R1/4	12×10	R1/4	31	23	40.5	34	11	10	19	19	8	8
CSE-L12×10-R3/8	12×10	R3/8	31	24	40.5	35	12	10	19	19	10	9.5
CSE-L12×10-R1/2	12×10	R1/2	32.5	27	43.5	38	15	10	22	19	12	9.5
☆ CSE-L19×16-R3/8	19×16	R3/8	37.5	27.5	50.5	43	12	12.5	26	19	10	10
☆ CSE-L19×16-R1/2	19×16	R1/2	37.5	30.5	50.5	46	15	12.5	26	27	12	12
☆ CSE-L19×16-R3/4	19×16	R3/4	38.8	34	53.5	49.5	17	12.5	29	27	16	15

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### ● inch size

Part No.	Tube O.D. × I.D. (mm)	T Thread size (R)	L <sub>1</sub> (mm)	L <sub>2</sub> (mm)	L <sub>3</sub> (mm)	L <sub>4</sub> (mm)	A (mm)	F Insertion length (mm)	H <sub>1</sub> (mm)	H <sub>2</sub> (mm)	d <sub>1</sub> (mm)	Min.I.D. (mm)
CSE-L1/4-R1/8	6.35×4.57	R1/8	23.5	17	30.5	24	8	7	14	12	6	4
CSE-L1/4-R1/4	6.35×4.57	R1/4	23.5	20	30.5	27	11	7	14	12	8	4
☆ CSE-L1/4-R3/8	6.35×4.57	R3/8	25.5	24	35	33.5	12	7	19	12	10	4
CSE-L3/8-R1/4	9.53×6.99	R1/4	29	23	38.5	33	11	9	19	17	8	6.5
CSE-L3/8-R3/8	9.53×6.99	R3/8	29	24	38.5	34	12	9	19	17	10	6.5
☆ CSE-L3/8-R1/2	9.53×6.99	R1/2	31	27	42	38	15	9	22	17	12	6.5
☆ CSE-L1/2-R1/4	12.70×9.56	R1/4	31.5	26	41	35.5	11	10.5	19	22	8	8
CSE-L1/2-R3/8	12.70×9.56	R3/8	32	27	41.5	40	12	10.5	19	22	10	9
CSE-L1/2-R1/2	12.70×9.56	R1/2	33.5	27.5	44.5	40	15	10.5	22	22	12	9

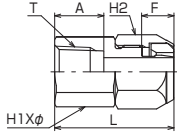
☆ Made to order

## Female Connector



### ● mm size

Part No.	Tube O.D. × I.D. (mm)	T Thread size (Rc)	L (mm)	A (mm)	F Insertion length (mm)	H <sub>2</sub> (mm)	H <sub>1</sub> × φ (mm)	Min.I.D. (mm)
CSE-FC6×4-R1/8	6×4	Rc1/8	24.5	8.7	7	12	14×15.4	3.5
CSE-FC8×6-R1/4	8×6	Rc1/4	30	13	7.5	14	17×18.5	5.5
CSE-FC10×8-R1/4	10×8	Rc1/4	31.5	13	8.5	17	17×18.5	7.5



## Union Connector



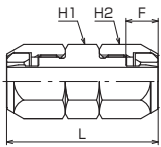
### ● mm size

Part No.	Tube O.D. × I.D. (mm)	L (mm)	F Insertion length (mm)	H <sub>1</sub> (mm)	H <sub>2</sub> (mm)	Min.I.D. (mm)
CSE-UC6×4	6×4	32	7	12	12	3.5
☆ CSE-UC8×5	8×5	36	7.5	14	14	4.5
CSE-UC8×6	8×6	36	7.5	14	14	5.5
CSE-UC10×8	10×8	40	8.5	17	17	7.5
CSE-UC12×9	12×9	45	10	19	19	8.5
CSE-UC12×10	12×10	45	10	19	19	9.5

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### ● inch size

Part No.	Tube O.D. × I.D. (mm)	L (mm)	F Insertion length (mm)	H <sub>1</sub> (mm)	H <sub>2</sub> (mm)	Min.I.D. (mm)
CSE-UC1/4	6.35×4.57	32	7	12	12	4
CSE-UC3/8	9.53×6.99	40	9	17	17	6.5
CSE-UC1/2	12.70×9.56	48	10.5	19	22	9



## Union Tee



### ● mm size

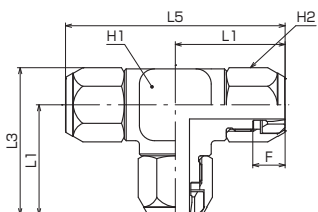
Part No.	Tube O.D. × I.D. (mm)	L <sub>1</sub> (mm)	L <sub>3</sub> (mm)	L <sub>5</sub> (mm)	F Insertion length (mm)	H <sub>1</sub> (mm)	H <sub>2</sub> (mm)	Min.I.D. (mm)
CSE-UT6×4	6×4	23.5	30.5	47	7	14	12	3.5
☆ CSE-UT8×5	8×5	25	33	50	7.5	14	14	4.5
CSE-UT8×6	8×6	25	33	50	7.5	14	14	5.5
CSE-UT10×8	10×8	29	39	58	8.5	19	17	7.5
CSE-UT12×9	12×9	31	42	62	10	19	19	8.5
☆ CSE-UT12×10	12×10	31	42	62	10	19	19	9.5

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### ● inch size

Part No.	Tube O.D. × I.D. (mm)	L <sub>1</sub> (mm)	L <sub>3</sub> (mm)	L <sub>5</sub> (mm)	F Insertion length (mm)	H <sub>1</sub> (mm)	H <sub>2</sub> (mm)	Min.I.D. (mm)
☆ CSE-UT1/4	6.35×4.57	23.5	30	47	7	14	12	4
☆ CSE-UT3/8	9.53×6.99	29	39	58	9	19	17	6.5
CSE-UT1/2	12.70×9.56	33.5	46	67	10.5	22	22	9

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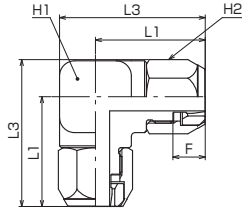
## Union Elbow



### ● mm size

Part No.	Tube O.D. x I.D. (mm)	L <sub>1</sub> (mm)	L <sub>3</sub> (mm)	F Insertion length (mm)	H <sub>1</sub> (mm)	H <sub>2</sub> (mm)	Min.I.D. (mm)
CSE-UL6×4	6×4	23.5	30.5	7	14	12	3.5
CSE-UL8×6	8×6	25	33	7.5	14	14	5.5
CSE-UL10×8	10×8	29	39	8.5	19	17	7.5
CSE-UL12×9	12×9	31	42	10	19	19	8.5
☆ CSE-UL12×10	12×10	31	42	10	19	19	9.5
☆ CSE-UL19×16	19×16	38.8	54.5	12.3	26	27	15

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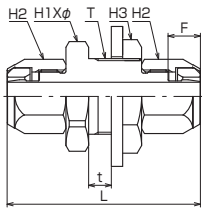
## Panel Touch Connector



### ● mm size

Part No.	Tube O.D. x I.D. (mm)	L (mm)	F Insertion length (mm)	H <sub>2</sub> (mm)	H <sub>3</sub> (mm)	T Thread size (M)	t (mm)	Washer thickness (mm)	Washer O.D. (mm)	H <sub>1</sub> × φ (mm)	Min.I.D. (mm)
CSE-UCT6×4	6×4	46	7	12	21	M15×1	6	3	28	21×23	3.5
☆ CSE-UCT8×5	8×5	48	7.5	14	22	M17×1	6	3	30	22×24	4.5
CSE-UCT8×6	8×6	48	7.5	14	22	M17×1	6	3	30	22×24.5	5.5
CSE-UCT10×8	10×8	51	8.5	17	26	M20×1	6	3	37	26×29	7.5
CSE-UCT12×9	12×9	55.5	10	19	27	M22×1	5.5	3	37	27×30	8.5
☆ CSE-UCT12×10	12×10	54.5	10	19	27	M22×1	5.5	3	37	27×30	9.5

☆ Made to order



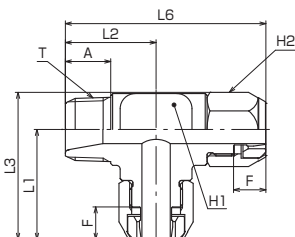
## Service Tee



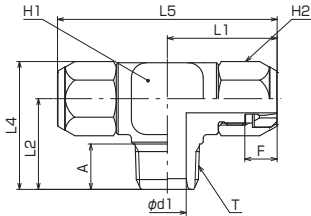
### ● mm size

Part No.	Tube O.D. x I.D. (mm)	T Thread size (M)	L <sub>1</sub> (mm)	L <sub>2</sub> (mm)	L <sub>3</sub> (mm)	L <sub>6</sub> (mm)	A (mm)	F Insertion length (mm)	H <sub>1</sub> (mm)	H <sub>2</sub> (mm)	Min.I.D. (mm)
☆ CSE-ST6×4-R1/8	6×4	R1/8	24	17	31	41	8	7	14	12	3.5
☆ CSE-ST6×4-R1/4	6×4	R1/4	24	20.5	31	44.5	11	7	14	12	3.5
☆ CSE-ST8×6-R1/4	8×6	R1/4	25	20.5	33	45.5	11	7.5	14	14	5.5
☆ CSE-ST10×8-R3/8	10×8	R3/8	29	24	39	53	12	8.5	19	17	7.5
☆ CSE-ST12×9-R1/2	12×9	R1/2	33	30	46	63	15	10	26	19	8.5
☆ CSE-ST12×10-R1/2	12×10	R1/2	32.5	30	45.5	62.5	15	10	26	19	9.5

☆ Made to order



## Tee



### mm size

Part No.	Tube O.D. x I.D. (mm)	T Thread size (R)	L <sub>1</sub> (mm)	L <sub>2</sub> (mm)	L <sub>4</sub> (mm)	L <sub>5</sub> (mm)	A (mm)	F Insertion length (mm)	H <sub>1</sub> (mm)	H <sub>2</sub> (mm)	d <sub>1</sub> (mm)	Min.I.D. (mm)
☆ CSE-T6×4-R1/8	6×4	R1/8	23.5	17	24	47	8	7	14	12	6	3.5
☆ CSE-T6×4-R1/4	6×4	R1/4	23.5	20	27	47	11	7	14	12	8	3.5
☆ CSE-T6×4-R3/8	6×4	R3/8	26	24	33.5	52	12	7	19	12	10	3.5
☆ CSE-T8×6-R1/8	8×6	R1/8	25	18	26	50	8	7.5	14	14	6	5.5
☆ CSE-T8×6-R1/4	8×6	R1/4	25	20	29	50	11	7.5	14	14	8	5.5
☆ CSE-T8×6-R3/8	8×6	R3/8	27.5	24	33.5	55	12	7.5	19	14	10	5.5
☆ CSE-T8×6-R1/2	8×6	R1/2	29	27	38	58	15	7.5	22	14	12	5.5
☆ CSE-T10×8-R1/4	10×8	R1/4	29	23	33	58	11	8.5	19	17	8	7.5
☆ CSE-T10×8-R3/8	10×8	R3/8	29	24	34	58	12	8.5	19	17	10	7.5
☆ CSE-T10×8-R1/2	10×8	R1/2	30.5	27	38	61	15	8.5	22	17	12	7.5
☆ CSE-T12×9-R1/4	12×9	R1/4	31	23	34	62	11	10	19	19	8	8
☆ CSE-T12×9-R3/8	12×9	R3/8	31	24	35	62	12	10	19	19	10	8.5
☆ CSE-T12×9-R1/2	12×9	R1/2	32.5	27	38	65	15	10	22	19	12	8.5
☆ CSE-T12×10-R1/4	12×10	R1/4	31	23	34	62	11	9	19	19	8	8
☆ CSE-T12×10-R3/8	12×10	R3/8	31	24	35	62	12	9	19	19	10	9.5
☆ CSE-T12×10-R1/2	12×10	R1/2	32.5	27	38	65	15	9	22	19	12	9.5

☆ Made to order

### inch size

Part No.	Tube O.D. x I.D. (mm)	T Thread size (R)	L <sub>1</sub> (mm)	L <sub>2</sub> (mm)	L <sub>4</sub> (mm)	L <sub>5</sub> (mm)	A (mm)	F Insertion length (mm)	H <sub>1</sub> (mm)	H <sub>2</sub> (mm)	d <sub>1</sub> (mm)	Min.I.D. (mm)
☆ CSE-T1/4-R1/8	6.35×4.57	R1/8	23.5	17	24	47	8	7	14	12	6	4
☆ CSE-T1/4-R1/4	6.35×4.57	R1/4	23.5	20	27	47	11	7	14	12	8	4
☆ CSE-T1/4-R3/8	6.35×4.57	R3/8	25.5	24	33.5	51	12	7	19	12	10	4
☆ CSE-T3/8-R1/4	9.53×6.99	R1/4	29	23	33	58	11	9	19	17	8	6.5
☆ CSE-T3/8-R3/8	9.53×6.99	R3/8	29	24	34	58	12	9	19	17	10	6.5
☆ CSE-T3/8-R1/2	9.53×6.99	R1/2	31	27	38	62	15	9	22	17	12	6.5
☆ CSE-T1/2-R1/4	12.70×9.56	R1/4	31.5	26	35.5	63	11	10.5	19	22	8	8
☆ CSE-T1/2-R3/8	12.70×9.56	R3/8	32	27	40	64	12	10.5	19	22	10	9
☆ CSE-T1/2-R1/2	12.70×9.56	R1/2	33.5	27.5	40	67	15	10.5	22	22	12	9

☆ Made to order

# Chemifit™ CSE Series

## Handling instructions for fitting products



### Safety Note

This Safety Note provides indications on the correct use of the product in order to prevent harm to people and property. The indications are classified into three categories, "danger", "warning", and "caution", depending on the level of potential harm due to improper use. Each category contains important instructions on safety that should be followed in addition to the latest ISO 4414<sup>(※1)</sup>, JIS B 8370<sup>(※2)</sup>, ISO 4413<sup>(※3)</sup>, and JIS B 8361<sup>(※4)</sup>.

(※1) ISO 4414 Pneumatic fluid power ... Recommendations for the application of equipment to transmission and control systems.

(※2) JIS B 8370 Pneumatic System General Rules

(※3) ISO 4413 Hydraulic fluid power ... General rules for the application of equipment to transmission and control systems.

(※4) JIS B 8361 Hydraulic System General Rules



### DANGER

Where inappropriate use of these products may cause death or severe injury and where immediate warning of a dangerous situation is highly required.



### WARNING

Where inappropriate use of these products may cause death or severe injury.



### CAUTION

Where inappropriate use of these products may cause minor injury.



### Before Selection

- ⚠ DANGER**
  - Cannot use for machines or equipment for life support.
  - To use for machines or equipment that require extremely high safety, measures have to be taken to prevent danger in case of pulling out, burst and leakage.
- ⚠ WARNING**
  - Please contact us before using our products under conditions other than those specified in the catalog.
  - Please contact us when using our products for equipment, machines, various types of vehicles, and passenger aircraft, for leisure machines or passenger transport, for medical equipment that would cause human harm in case the specifications are incorrectly followed, and for machines in contact with food or drinking water.



### When Selecting

- ⚠ WARNING**
  - Please check that our products are used under the "use conditions" specified in the catalog.
  - Do not use our products when a caustic or flammable gas is used as the fluid or is in the environment.
- ⚠ CAUTION**
  - Do not use our products in places where excessive vibration or impact may occur.
  - If use conditions differ between tube and fitting, use them under the lower specified conditions.
  - When a chemical is used in fluid or the environment, see "Chemical resistance specification table". Contact us for chemical resistance of plating.



### Installation

- ⚠ WARNING**
  - Fix tubes when installing them in a place where unexpected disconnection of the tube and connector could cause harm to people or property.
- ⚠ CAUTION**
  - Instructions for connecting fittings are given in a separate document. Please read it and follow the instructions to install.
  - Do not throw or drop fittings. The impact may cause internal damage even if no outer damage is found.
  - Because the connection part of the fitting may swell or crack depending on the material, check the strength of the part when connecting.
  - Prevent sharply bending the piping near the tube insertion port of fitting. Keep the tube straight twice as long as the tube diameter from the insertion port.
  - Do not use a fitting with a damaged thread or a damaged tube insertion port. Before reusing a fitting, always check that they are undamaged.
  - Nitta only guarantees products installed by designated companies.
  - Prevent tension when installing tubes.



### Usage

- ⚠ WARNING**
  - Nitta's products should be handled only by designers who have sufficient knowledge of equipment, instruments and systems in which our products are to be installed, or by persons responsible for determining specifications. Test and analysis should be conducted if necessary. The designers or the responsible persons are liable for the performance and the safety of the equipment, instruments and systems.
- ⚠ CAUTION**
  - When water is used as fluid, do not allow it to freeze.
  - Do not touch a tube at pressurization. Improperly treating or touching a tube at pressurization may lead to danger from unexpected breakage or leakage of fluid.
  - Do not touch a tube when the operating fluid is hot. Doing so may cause burns.



### Storage

- ⚠ CAUTION**
  - When storing unused products, make sure to keep them in a box in a clean place in a dust-free environment to prevent dust. When fine particles such as dust enter the inside of fitting products or the connected equipment, they may cause problems.
  - Keep fitting products in a dry place below 40°C avoiding direct sunlight.
  - Do not use fitting products that have been stored for more than one year after production.
  - The packaging of fitting products should be opened just before use.



### Maintenance and Inspection

- ⚠ CAUTION**
  - Before handling or removing Nitta's products, be sure to check the safety by shutting off supply, stopping pressure supply, evacuating pressurized air in the pipe, and terminating the operation of equipment, instruments, and systems.
  - Please be sure to make periodic inspection. Confirm that there is no degradation such as outer damage, corrosion, and abrasion and replace any damaged piping.



### Disposal

- ⚠ CAUTION**
  - Dispose of unnecessary products as industrial waste or have them disposed of by a waste disposal firm.