Pipe Support TKL Specification

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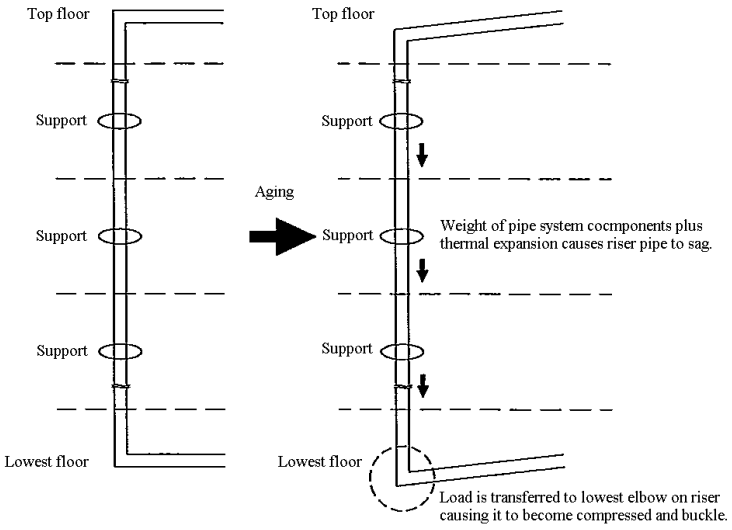
Technical Division

1. What is Stress Relieving Bracket PIPELOCK.

■ Conventional Installation



- Conventionally supported vertical riser application

(1) Installation with vinyl chloride coated vertical band
If copper pipe is directly supported with vinyl chloride coated vertical band, the temperature rise of gas pipe may cause vinyl chloride coating melt. Thermal expansion and contraction cause the load to transfer to lowest elbow on riser causing it to become compressed and buckle.

(2) Installation with U bolt etc.
If copper pipe is secured by U bolt etc. suppressing insulation, deformation and distortion of the insulation may occur across the ages.
Thermal expansion and contraction cause the load to transfer to lowest elbow on riser causing it to become compressed and buckle.

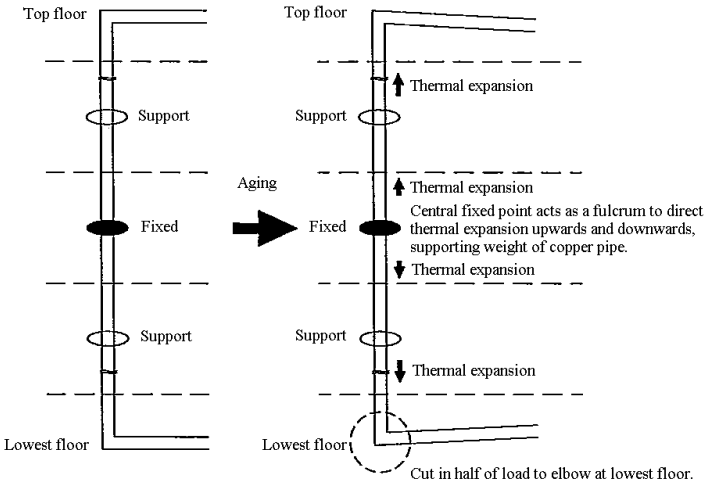
- "PIPELOCK" is stress relieving bracket / clamp system for vertical riser pipes in A/C system, supporting weight of copper pipe and reducing load on elbow at lowest floor by 50%.

2. Features

- **Reduces gravity loading on vertical riser**
Unlike a conventionally supported vertical riser installation, PIPELOCK is brazed to the vertical copper riser and reduces the loading created by the weight of the pipe system.

- **Reduces extra stress on vertical riser due to thermal expansion by 50%**
In conventional installations, the lowest elbow of the pipe system carries the full load of the pipe itself plus the extra stresses imposed by thermal expansion. Installing PIPELOCK in the center of the vertical riser reduces the load created by the system components as well as the thermal expansion by 50%.
PIPELOCK requires less space than the conventional provision for thermal expansion and contraction at rise and fall outlet from fulcrum (flexible expansion pipe (expansion loop, expansion offset)).

■ Typical Installation with PIPELOCK



- **Can be applied after installation of pipe system**
Because the pipe support ferrule is split, PIPELOCK can easily be fitted onto the riser and adjusted after the pipe system has been installed.

- **Temporary fixing**
Tab on pipe support allows temporary fixing to facilitate brazing without slippage.

- **Easily adjustable**
Slotted holes on wall bracket allow for precise adjustments.

1. Applications

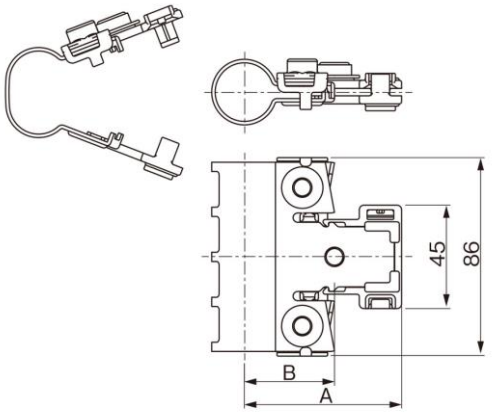
These Specifications applies to Pipe Support TKL.

2. Product Specifications

The following describes the product specifications.

(1) Pipe Support (without brazing)

Dimensions



Unit: mm

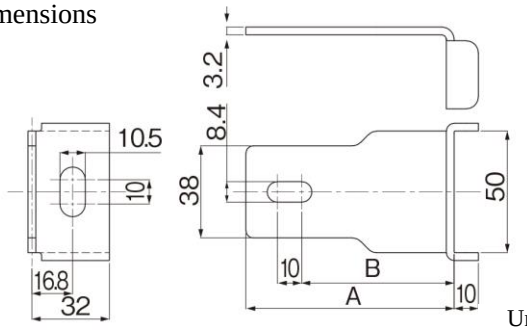
Models	Compatible pipe sizes	A	B
TKL-3K	φ9.52	59	30
TKL-4K	φ12.70	61	32
TKL-5K	φ15.88	63	34
TKL-6K	φ19.05	65	36
TKL-7K	φ22.22	66	37
TKL-8K	φ25.40	68	39
TKL-9K	φ28.58	70	41
TKL-10K	φ31.75	72	43
TKL-11K	φ34.92	73	44
TKL-12K	φ38.10	75	46
TKL-13K	φ41.28	77	48
TKL-14K	φ44.45	78	49

● - Material: Main body: Fixation band: SUS304
Nut fixation plates: PP
Hex nuts M8 (3 pieces): SUS
Hex bolts: M8 x 23L (3 pieces) SUS

(2) Base bracket

- Base bracket

Dimensions



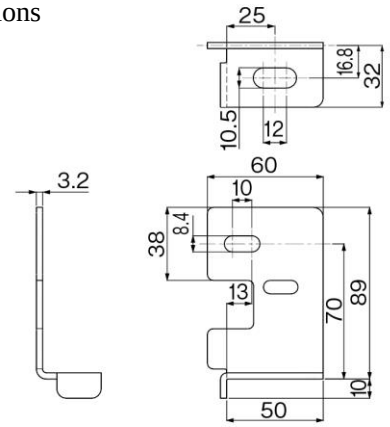
Unit: mm

Models	A	B
TKL-B60	66	43
TKL-B70	76	53
TKL-B80	86	63
TKL-B90	96	73
TKL-B100	106	83

- Material: Highly corrosion-resistant hot-dip galvanized steel sheets (Cation electrodeposition coating + acrylic paint)

- Base bracket (top mounting)

Dimensions

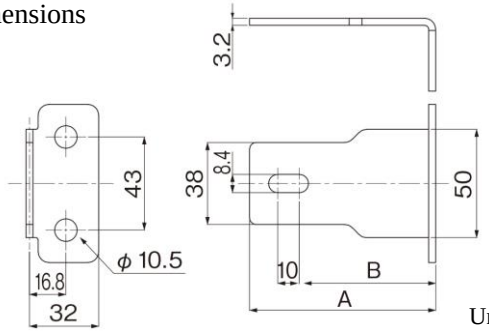


Unit: mm

- Model: KL-U00
- Material: Highly corrosion-resistant hot-dip galvanized steel sheets (Cation electrodeposition coating + acrylic paint)

- Base bracket (wall-mounting)

Dimensions



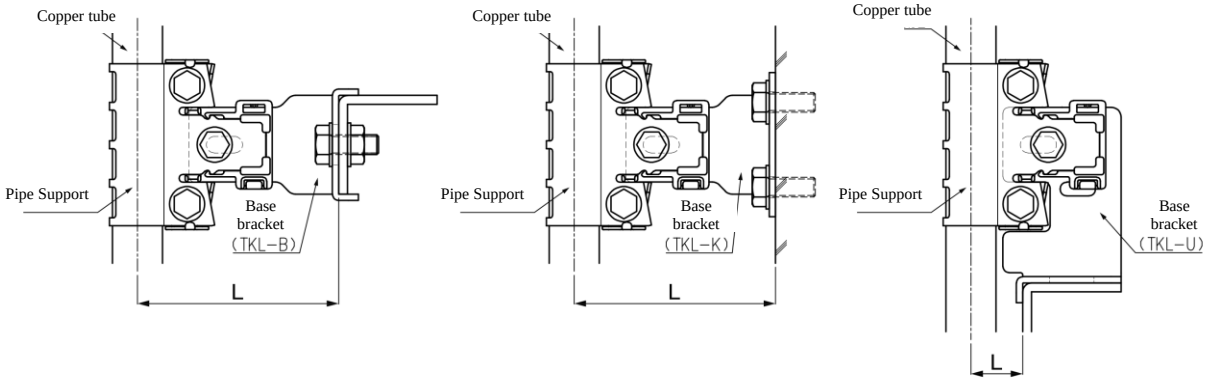
Unit: mm

Models	A	B
TKL-B60	66	43
TKL-B70	76	53
TKL-B80	86	63
TKL-B90	86	73
TKL-B100	106	83

- Material: Highly corrosion-resistant hot-dip galvanized steel sheets (Cation electrodeposition coating + acrylic paint)

* Selecting a base bracket (TKL-B, TK-K, TKL-U)

With reference to the table below, identify the distance L (the distance between the center of copper tube and the mounting frame), and select a base bracket.
(When the distance L (between the center of copper tube and the mounting frame) is within the range shown in the table, the mounting position can be adjusted with the elongated hole of the base bracket)



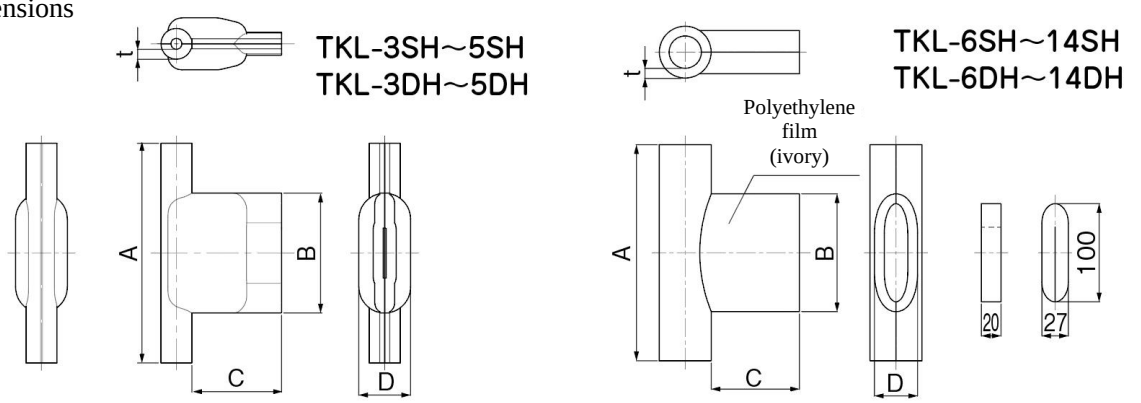
TKL-B **TK-K** **TKL-U**

Distance L between the center of copper tube and the mounting frame (wall) (mm)

Models	TK-B60 TK-K60	TK-B70 TK-K70	TK-B80 TK-K80	TK-B90 TK-K90	TK-B100 TK-K100	TKL-U00 Insulation cover TKL-SH	TKL-U00 Insulation cover TKL-DH
TK-3K	73 ~ 83	~ 93	~ 103	~ 113	~ 123	17 ~ 27	27
TK- 4K	75 ~ 85	~ 95	~ 105	~ 115	~ 125	19 ~ 29	29
TK- 5K	77 ~ 87	~ 97	~ 107	~ 117	~ 127	21 ~ 31	31
TK- 6K	79 ~ 89	~ 99	~ 109	~ 119	~ 129	23 ~ 33	33
TK- 7K	80 ~ 90	~ 100	~ 110	~ 120	~ 130	24 ~ 34	34
TK- 8K	82 ~ 92	~ 102	~ 112	~ 122	~ 132	26 ~ 36	36
TK- 9K	84 ~ 94	~ 104	~ 114	~ 124	~ 134	28 ~ 38	38
TK-10K	86 ~ 96	~ 106	~ 116	~ 126	~ 136	30 ~ 40	40
TK-11K	87 ~ 97	~ 107	~ 117	~ 127	~ 137	31 ~ 41	41
TK-12K	89 ~ 99	~ 109	~ 119	~ 129	~ 139	33 ~ 43	43
TK-13K	91 ~ 101	~ 111	~ 121	~ 131	~ 141	35 ~ 45	45
TK-14K	92 ~ 102	~ 112	~ 122	~ 132	~ 142	36 ~ 46	46

(3) Insulation cover

Dimensions



Unit: mm

● Material: Polyethylene foam with the foaming factor of 30

- Insulation material thickness: 10-mm type

Models	Compatible product models	Insulation thickness t	A	B	C	D
TKL-3SH	TK-3K	10	220	120	90	52
TKL-4SH	TK- 4K	10	220	120	90	52
TKL-5SH	TK- 5K	10	220	120	90	52
TKL-6SH	TK- 6K	10	220	120	90	44
TKL-7SH	TK- 7K	10	220	120	90	44
TKL-8SH	TK- 8K	10	220	120	90	44
TKL-9SH	TK- 9K	10	220	120	90	44
TKL-10SH	TK-10K	10	220	120	90	44
TKL-11SH	TK-11K	10	220	120	90	44
TKL-12SH	TK-12K	10	220	120	90	44
TKL-13SH	TK-13K	10	220	120	90	44
TKL-14SH	TK-14K	10	220	120	90	44

- Insulation material thickness: 20-mm type

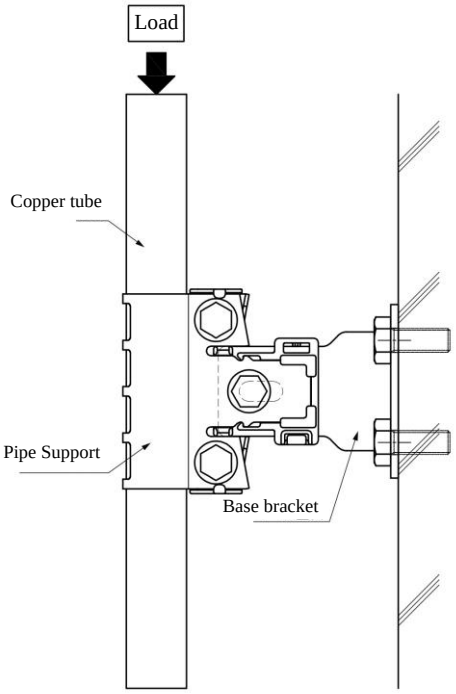
Models	Compatible product models	Insulation thickness t	A	B	C	D
TKL-3DH	TK-3K	20	240	140	80	72
TKL-4DH	TK- 4K	20	240	140	80	72
TKL-5DH	TK- 5K	20	240	140	80	72
TKL-6DH	TK- 6K	20	240	140	80	64
TKL-7DH	TK- 7K	20	240	140	80	64
TKL-8DH	TK- 8K	20	240	140	80	64
TKL-9DH	TK- 9K	20	240	140	80	64
TKL-10DH	TK-10K	20	240	140	80	64
TKL-11DH	TK-11K	20	240	140	80	64
TKL-12DH	TK-12K	20	240	140	80	64
TKL-13DH	TK-13K	20	240	140	80	64
TKL-14DH	TK-14K	20	240	140	80	64

3. Load capacity

The following describes the product load capacity.

Load capacity

Models	[kg]	[N]
TKL-3K	127	1245
TKL-4K	133	1304
TKL-5K	145	1421
TKL-6K	154	1510
TKL-7K	167	1642
TKL-8K	184	1804
TKL-9K	204	2002
TKL-10K	224	2201
TKL-11K	246	2414
TKL-12K	270	2650
TKL-13K	296	2907
TKL-14K	324	3179



Note: The load capacity indicates the load that the test piece is capable of supporting the copper tube when load is given to that test piece.

[Reference] Weight of vertical piping

Copper tube outer diameter	Copper tube wall thickness (mm)	Insulation material thickness (mm)	Weight of insulated copper tube (kg/10m)	Copper tube wall thickness (mm)	Insulation material thickness (mm)	Weight of insulated copper tube (kg/10m)
φ9.52	0.80	10	3.1	0.80	20	3.6
φ12.70	0.80	10	3.9	0.80	20	4.4
φ15.88	1.00	10	5.5	1.00	20	6.0
φ19.09	1.00	10	6.4	1.05	20	7.2
φ22.22	1.00	10	7.4	1.20	20	9.0
φ25.40	1.00	10	8.3	1.35	20	11.2
φ28.58	1.00	10	9.3	1.55	20	13.9
φ31.75	1.10	10	11.1	1.70	20	16.6
φ34.92	1.10	10	12.1	1.85	20	19.5
φ38.10	1.15	10	13.7	2.00	20	22.7
φ41.28	1.20	10	15.3	2.15	20	26.2
φ44.45	1.25	10	17.1	2.30	20	29.9

Note 1: The weight of insulated copper tube shown above is calculated based on a theoretical value and not a measured value.

Note 2: The weight of insulated copper tube shown above is the total weight including copper tube, insulation material, refrigerant and control cables (CVV 1.25 mm^2 x 2C).

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