

General Specifications

Model TW Bulb Wells

GS 06P01F03-00E

Model TW bulb wells are used with filled thermal systems. For element protection from corrosive and high pressure processes, these are available in a wide variety of styles and materials. Use of bulb wells permits removal of temperature measuring elements without process shutdown.

STANDARD SPECIFICATIONS

Compatible Filled Thermal Element:

Type T1A and Type T3B elements.

Materials:

JIS SUS 304, SUS 316 or SUS 316L stainless steel.

Constructions:

Plain or lagging, flanged or threaded, drawn (with welded end) or drilled, or straight or tapered. For possible combinations of above constructions, refer to dimensions.

Insertion Length (U):

Model TW1: 100 to 600 mm.

Model TW3: 200 to 600 mm.

Process Connection:

Threaded Type—

Model TW1: JIS R3/4, R1, 3/4 NPT or 1 NPT, whichever specified.

Model TW3: JIS R1, R1-1/2, 1 NPT or 1-1/2 NPT, whichever specified.

Flanged Type—

Models TW1 and TW3: Nominal 20, 25, 40 or 50 mm

JIS 10, 20 or 40K (or 3/4, 1, 1-1/2 or 2 inches ANSI class 150, 300 or 600) for head diameters of 35 mm.

Nominal 25, 40 or 50 mm JIS 10, 20 or 40K (or 1, 1-1/2 or 2 inches ANSI class 150, 300 or 600) for head diameters of 42 mm.

Max. Working Pressure

Process Connection Type		Max. Working Temperature	Max. Working Pressure
Threaded Type	TW1	550 °C *1	10 MPa {100 kgf/cm ² }
	TW3	≦ 100 °C	10 MPa {100 kgf/cm ² }
		101 to 200 °C	8.4 MPa {85 kgf/cm ² }
		201 to 300 °C	7.0 MPa {70 kgf/cm ² }
		301 to 425 °C	6.0 MPa {60 kgf/cm ² }
		426 to 550 °C	5.5 MPa {55 kgf/cm ² }
Flanged Type		Refer to JIS B2201 or ANSI B165	

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* 1: JIS SUS 316L: ≤ 425 °C.

Example: TW1-PFS-M27-3J-10K20-15-300

*1: The following flange sizes are also available:
Nominal 40 mm (1-1/2 inches): Suffix code: 40
Nominal 50 mm (2 inches): Suffix code: 50
To order either of these flanges, specify its suffix codes in the same position used for the standard flange suffix codes.

Note: For permissible combination of suffix codes, refer to "Dimension" section.

Note: ⚠ Users must consider the characteristics of selected wetted parts material and the influence of process fluids. The use of inappropriate materials can result in the leakage of corrosive process fluids and cause injury to personnel and/or damage to plant facilities. It is also possible that the instrument itself can be damaged and that fragments from the instrument can contaminate the user's process fluids.

Be very careful with highly corrosive process fluids such as hydrochloric acid, sulfuric acid, hydrogen sulfide, sodium hypochlorite, and high-temperature steam (150 °C [302 °F] or above). Contact Yokogawa for detailed information of the wetted parts material.

MODEL AND SUFFIX CODES

Model	Suffix Codes	Description
TW1		Bulb Well for T1A element.
TW3		Bulb Well for T3B element.
	-P	Plain type.
	-L	Lagging type.
	T	Threaded type.
	F	Flanged type.
	S	Straight.
	T	Tapered.
	-M	Drawn with welded end (threaded or flanged).
	-K	Drilled (flanged type).
	-P	Drilled (threaded type).
	27	JIS SUS 304.
	32	JIS SUS 316.
	33	JIS SUS 316L.
		<u>Element Mounting Thread (Internal)</u>
	-00	Direct connection with Jam Nut.
	-2J	JIS Rc 1/2 (connection with bushing).
	-3J	JIS Rc 3/4 (connection with bushing).
	-4J	JIS Rc 1 (connection with bushing).
		<u>Process Connection (Threaded)</u>
	-03J	JIS R 3/4 (for Model TW1).
	-04J	JIS R 1 (for Models TW1 or TW3).
	-06J	JIS R 1-1/2 (for Model TW3).
		<u>Process Connection (Flanged)</u>
	-10K (150) ..	JIS 10K (ANSI Class 150) flange.
	-20K (300) ..	JIS 20K (ANSI Class 300) flange.
	-40K (600) ..	JIS 40K (ANSI Class 600) flange.
		<u>Flange Size (flanged type only) *1</u>
	N	For threaded type.
	20	Nominal 20 mm (3/4 inch).
	25	Nominal 25 mm (1 inch).
		<u>Tube Outer Diameter</u>
	-15 ..	Straight 15 mm (for Model TW1).
	-28 ..	Straight 28 mm (for Model TW3).
	-TP ..	Tapered, standard diameter $\phi D_1=15$ mm, $\phi D_2=22$ mm (for Model TW1 only)
	☐	Specify insertion length in mm; ☐ mm

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DIMENSIONS**Model TW1 Threaded Type (For T1A Elements)**

Construction	Plain Type (-P)	Lagging Type (-L)																				
Straight Drawn Well with Welded End (TS-M)	TW1-PTS-M <table><tr><td>A</td><td>1-18NS</td><td>Rc1/2, 1/2NPT</td><td>Rc3/4, 3/4NPT</td></tr><tr><td>B</td><td>20</td><td colspan="2">25</td></tr></table>	A	1-18NS	Rc1/2, 1/2NPT	Rc3/4, 3/4NPT	B	20	25		TW1-LTS-M <table><tr><td>A</td><td>1-18NS</td><td>Rc1/2, 1/2NPT</td><td>Rc3/4, 3/4NPT</td></tr><tr><td>B</td><td>20</td><td colspan="2">25</td></tr></table>	A	1-18NS	Rc1/2, 1/2NPT	Rc3/4, 3/4NPT	B	20	25					
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Straight Drilled Well (TS-P)	TW1-PTS-P <table><tr><td>A</td><td>1-18NS</td><td>Rc1/2, 1/2NPT</td><td>Rc3/4, 3/4NPT</td></tr><tr><td>B</td><td>20</td><td colspan="2">25</td></tr></table>	A	1-18NS	Rc1/2, 1/2NPT	Rc3/4, 3/4NPT	B	20	25		TW1-LTS-P <table><tr><td>A</td><td>1-18UNS</td><td>Rc1/2, 1/2NPT</td><td>Rc3/4, 3/4NPT</td></tr><tr><td>B</td><td>20</td><td colspan="2">25</td></tr></table>	A	1-18UNS	Rc1/2, 1/2NPT	Rc3/4, 3/4NPT	B	20	25					
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Tapered Drilled Well (TT-P)	TW1-PTT-P <table><tr><td>A</td><td>1-18NS</td><td>Rc1/2, 1/2NPT</td><td>Rc3/4, 3/4NPT</td><td>Rc1, 1NPT</td></tr><tr><td>B</td><td colspan="3">20</td><td>25</td></tr></table>	A	1-18NS	Rc1/2, 1/2NPT	Rc3/4, 3/4NPT	Rc1, 1NPT	B	20			25	TW1-LTT-P <table><tr><td>A</td><td>1-8UNS</td><td>Rc1/2, 1/2NPT</td><td>Rc3/4, 3/4NPT</td></tr><tr><td>B</td><td>20</td><td colspan="2">25</td></tr></table>	A	1-8UNS	Rc1/2, 1/2NPT	Rc3/4, 3/4NPT	B	20	25			
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B	20			30																		

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DIMENSIONS

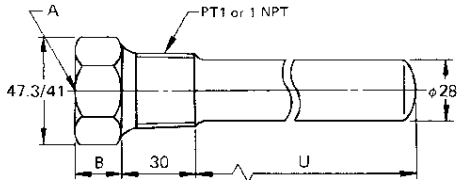
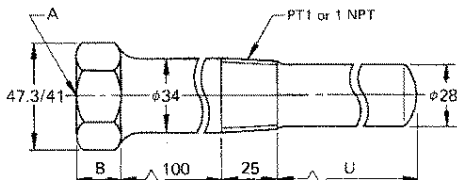
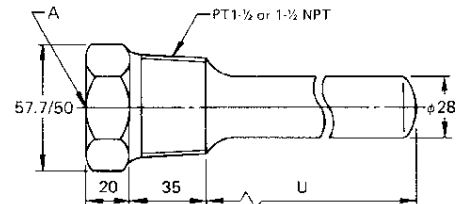
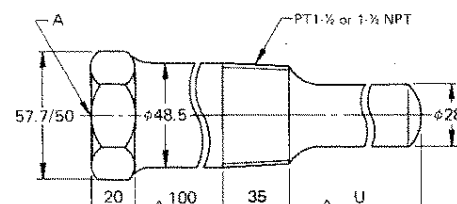
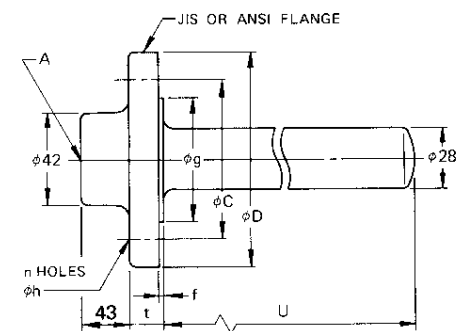
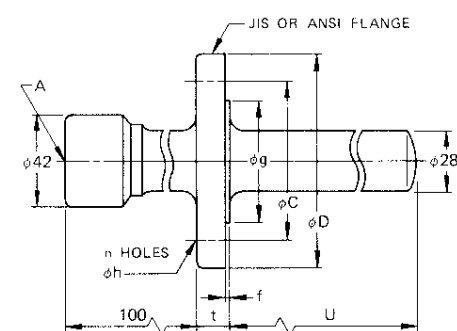
Model TW1 Flanged Type (For T1A Elements)

Construction	Plain Type (-P)	Lagging Type (-L)																				
Straight Drawn Well with Welded End (FS-M)	TW1-PFS-M <table><tr><td>A</td><td>1-18NS</td><td>Rc1/2, 1/2NPT</td><td>Rc3/4, 3/4NPT</td><td>Rc1, 1NPT</td></tr><tr><td>B</td><td colspan="3">φ35</td><td>φ42</td></tr></table>	A	1-18NS	Rc1/2, 1/2NPT	Rc3/4, 3/4NPT	Rc1, 1NPT	B	φ35			φ42	TW1-LFS-M <table><tr><td>A</td><td>1-18NS</td><td>Rc1/2, 1/2NPT</td><td>Rc3/4, 3/4NPT</td><td>Rc1, 1NPT</td></tr><tr><td>B</td><td colspan="3">φ35</td><td>φ42</td></tr></table>	A	1-18NS	Rc1/2, 1/2NPT	Rc3/4, 3/4NPT	Rc1, 1NPT	B	φ35			φ42
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B	φ35			φ42																		
Straight Drilled Well (FS-K)	TW1-PFS-K <table><tr><td>A</td><td>1-18NS</td><td>Rc1/2, 1/2NPT</td><td>Rc3/4, 3/4NPT</td><td>Rc1, 1NPT</td></tr><tr><td>B</td><td colspan="3">φ35</td><td>φ42</td></tr></table>	A	1-18NS	Rc1/2, 1/2NPT	Rc3/4, 3/4NPT	Rc1, 1NPT	B	φ35			φ42	TW1-LFS-K <table><tr><td>A</td><td>1-18NS</td><td>Rc1/2, 1/2NPT</td><td>Rc3/4, 3/4NPT</td><td>Rc1, 1NPT</td></tr><tr><td>B</td><td colspan="3">φ35</td><td>φ42</td></tr></table>	A	1-18NS	Rc1/2, 1/2NPT	Rc3/4, 3/4NPT	Rc1, 1NPT	B	φ35			φ42
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B	φ35			φ42																		
Tapered Drilled Well (FT-K)	TW1-PFT-K <table><tr><td>A</td><td>1-18NS</td><td>Rc1/2, 1/2NPT</td><td>Rc3/4, 3/4NPT</td><td>Rc1, 1NPT</td></tr><tr><td>B</td><td colspan="3">φ35</td><td>φ42</td></tr></table>	A	1-18NS	Rc1/2, 1/2NPT	Rc3/4, 3/4NPT	Rc1, 1NPT	B	φ35			φ42	TW1-LFT-K <table><tr><td>A</td><td>1-18NS</td><td>Rc1/2, 1/2NPT</td><td>Rc3/4, 3/4NPT</td><td>Rc1, 1NPT</td></tr><tr><td>B</td><td colspan="3">φ35</td><td>φ42</td></tr></table>	A	1-18NS	Rc1/2, 1/2NPT	Rc3/4, 3/4NPT	Rc1, 1NPT	B	φ35			φ42
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B	φ35			φ42																		

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DIMENSIONS

Model TW3 (For T3B Elements)

Construction	Plain Type (-P)	Lagging Type (-L)																
Threaded Straight Drilled Well (TS-P)	TW3-PTS-P  <table><tr><td>A</td><td>1 1/4-18NEF</td><td>Rc3/4, 3/4NPT</td><td>Rc1, 1NPT</td></tr><tr><td>B</td><td>20</td><td>30</td><td>30</td></tr></table>	A	1 1/4-18NEF	Rc3/4, 3/4NPT	Rc1, 1NPT	B	20	30	30	TW3-LTS-P  <table><tr><td>A</td><td>1 1/4-18NEF</td><td>Rc1/2, 1/2NPT</td><td>Rc1, 1NPT</td></tr><tr><td>B</td><td>20</td><td>30</td><td>30</td></tr></table>	A	1 1/4-18NEF	Rc1/2, 1/2NPT	Rc1, 1NPT	B	20	30	30
	A	1 1/4-18NEF	Rc3/4, 3/4NPT	Rc1, 1NPT														
B	20	30	30															
A	1 1/4-18NEF	Rc1/2, 1/2NPT	Rc1, 1NPT															
B	20	30	30															
Threaded Straight Drilled Well (TS-P)	TW3-PTS-P  <table><tr><td>A</td><td>1 1/4-18NEF</td><td>Rc3/4, 3/4NPT</td><td>Rc1, 1NPT</td></tr></table>	A	1 1/4-18NEF	Rc3/4, 3/4NPT	Rc1, 1NPT	TW3-LTS-P  <table><tr><td>A</td><td>1 1/4-18NEF</td><td>Rc3/4, 3/4NPT</td><td>Rc1, 1NPT</td></tr></table>	A	1 1/4-18NEF	Rc3/4, 3/4NPT	Rc1, 1NPT								
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Flanged Straight Drilled Well (FS-K)	TW3-PFS-K  <table><tr><td>A</td><td>1 1/4-18NEF</td><td>Rc3/4, 3/4NPT</td><td>Rc1, 1NPT</td></tr></table>	A	1 1/4-18NEF	Rc3/4, 3/4NPT	Rc1, 1NPT	TW3-LFS-K  <table><tr><td>A</td><td>1 1/4-18NEF</td><td>Rc1</td></tr></table>	A	1 1/4-18NEF	Rc1									
	A	1 1/4-18NEF	Rc3/4, 3/4NPT	Rc1, 1NPT														
A	1 1/4-18NEF	Rc1																

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