

Series WF

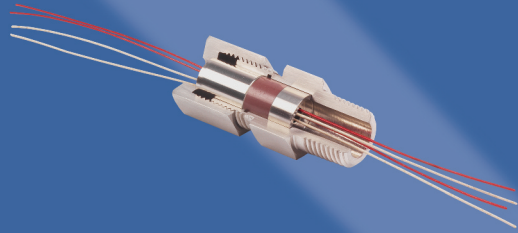
For multiple wires & probes

When multiple wires must pass through a pressure boundary, series WF feedthroughs can provide an efficient seal without recourse to epoxies or other non-adjustable fixture methods.

Different types of these assemblies may be specified according to the type of element required to pass through the feedthrough. Series WF assemblies cater for up to 12 bare or insulated wires – sizes from 24AWG (0.2mm²) to 8AWG (approx. 8.8mm²).

Insulators within WF feedthrough assemblies protect bare wires and provide additional isolation for Kapton[®] insulated power wires. These are rated 55A @ 600Vdc/850Vac max. Feedthroughs with power wires can be supplied as complete assemblies, ready for installation, with wires cut to specified lengths.

WF feedthroughs can also accommodate up to 12, small diameter sensor elements that must be electrically isolated from each other.



Series WFS shown

- ATEX / IECEx Approved to Ex II 2 GD, Ex d IIC Gb / Ex e IIC Gb, Ex ta IIIC Da
- Seal on Kapton[®] insulated copper or thermocouple wires – type WFS
- Seal on bare wires carrying instrumentation voltages – type WFR
- Seal on small diameter sheathed sensors, max. 3.2mm dia. – type WFP
- Pressure range: Vacuum to 700 bar*
- Temperature range: -60°C to +200°C*
- Stainless steel body (316L), cap, internal follower and seat
- Choice of 3 sealant materials
- Individual wires can be replaced without complete disassembly
- Reusable fitting – sealant and internal components replaceable

* dependent on sealant and fitting selected

Order Code examples:

WFS — 1/4" BSPT — 24K[†] — 4 — V — EX

WFR — 3/4" BSPT — 14AWG — 12 — T — EX

WFP — 1/2" BSPT — 1.0 — 8 — G — EX

Feedthrough Type Process Connection Element Size No. of Elements Sealant

WFS - for Kapton[®] insulated wires

WFR - for multiple bare wires

WFP - for isolated multiple probes

G -Graffite™¹
T -PTFE
V -Viton[®]

Series WFS Kapton [®] insulated wires ¹ Sealants	Process Connection BSPT (Conical Gas / DIN 2999 'R' thread) or NPT ²															
	1/8"			1/4"			1/2"			3/4"						
	No. of elements	T	V	No. of elements	G	T	V	No. of elements	G	T	V	No. of elements	G	T	V	
wire size AWG	<small>The highlighted areas indicate the available element sizes for each feedthrough body size. The maximum pressure rating (in bar) is shown for each sealant material according to element size.³</small>															
24 Cu or T/C	2, 4	350	700	2, 4	550	300	500									
20 Cu or T/C								2, 4	700	250	450	6, 8	12	550	250	350
18 Cu																
16 Cu																
10 Cu												2, 4				
8 Cu												3				

Note: Maximum operating temperature of Series WFS assemblies is 200°C.

¹ Series WFS feedthroughs are supplied with Kapton[®] insulated copper or thermocouple-material wire to specified lengths, if required. The wires are fitted in the feedthrough, both ends of each wire, or thermocouple pair, are identified with numbered markers and the feedthrough is torqued ready for installation.

Current ratings for Kapton[®] insulated copper wire:

Wire size (AWG)	24	20	18	16	10	8
Max. current rating (A) at 440°F 600V ac / 850V dc max.	5	9	13	17	40	55

To specify the wire length, add (Y mm. / Z mm.) to the order code after the type of sealant specified. Y mm. is the length of wire required on the cap side of the feedthrough. Z mm. is the length of wire required on the process side of the feedthrough. Both dimensions to the nearest 100mm.

Example: WFS - 3/4" NPT - 20Cu - 12 - T (1200mm (Y) / 2200mm (Z)) - EX.

If this information is omitted from the order code, feedthroughs will be supplied untorqued without wires.

When constructing the order code for the number of wires, it is essential to verify that the total number of wires specified equals the possible number of wires for the size of feedthrough required, remembering that each thermocouple material pair is two wires. e.g., WFS - 1/4" NPT - 24K - 4 - V (etc.) calls for two pairs (4 wires) 24AWG type K thermocouple material wire. Series WFS assemblies can also be made with a combination of single copper wires and thermocouple pairs. Contact TC Ltd. for further details.

Series WFR Bare wires	Series WFP Multiple sensors	Process Connection BSPT (Conical Gas / DIN 2999 'R' thread) or NPT ²														
		1/8"			1/4"			1/2"			3/4"					
		No. of elements	T	V	No. of elements	T	V	No. of elements	T	V	No. of elements	T	V			
Wire size (AWG)	Element sizes dia (mm)	<small>The highlighted areas indicate the available element sizes for each feedthrough body size. The maximum pressure rating (in bar) is shown for each sealant material according to element size.³</small>														
24	0.5															
20	0.8															
18	1.0	2, 4	350	700	2, 4	300	500	2, 3	4, 6	8	250	450				
14	1.5							2, 4					6, 8, 12			
8	3.0												2, 4	250	350	
	3.2															

¹ Graffite™ sealants are not available for all WFR and WFP feedthroughs, nor WFS feedthroughs with 1/8" process connection.

² Other types of process connection available, see back cover

³ The pressure ratings shown for each type of sealant are qualified at 20°C. With an increase in temperature, a reduction in the maximum pressure rating can be expected. Contact TC Ltd. for further details.

⁴ For Graffite & PTFE sealants - wires must be suitably clamped close to the installation to maintain Ex approval

See page 10 for dimensions.