

## Coriolis Mass Flow and Density Meters CFS20 Series Mass Flowtubes for Standard and 3-A Sanitary Applications Style B

Give instrument Model Code when ordering.  
\*Parts preceded by an asterisk are recommended spare parts.  
See Recommended Spare Parts Summary section for quantities.

TO ORDER PARTS, CALL 1-866-746-6477.

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by Schneider Electric

MODEL CODE - FLOWTUBES WITH FLANGED END CONNECTIONS

Description	Model
CFS20 Series Mass Flowtubes (a)	CFS20
<b>Nominal Flowtube and Flange Size</b>	
40 mm (1 1/2 in)	-15
80 mm (3 in)	-30
<b>Flowtube Wetted Material</b>	
AISI Type 316L Stainless Steel (316L ss); with Size Code -30 only	S
Nickel alloy; (equivalent to Hastelloy® C-22) with Size Code -15 only	H
<b>End Connections</b>	
ANSI, Class 150 Flange	C
ANSI, Class 300 Flange	D
ANSI, Class 600 Flange	E
EN 1092, PN 40 Flange	F
EN 1092, PN 100 Flange	J
<b>Electrical Safety (See Electrical Safety Specifications Section)</b>	
ATEX, II 2 G, EEx ib, IIB; T2–T6 (b)	MMM
ATEX, II 3 G, EEx nA, II; T3–T6 (b)	LLL
CSA, Nonincendive for use in Class I, Division 2, Hazardous Locations (b)	CNN
FM, Intrinsically Safe, Class I, Division 1, Groups C and D (b)	FBB
FM, Nonincendive for Class I, Division 2, Groups A, B, C, and D (b)	FNN
No Electrical Certifications/Approvals, CFT50 (b)	ZZZ
CSA/CSAus Division 1/Zone 0 Intrinsically Safe (c)	CAA
CSA/CSAus Division 2/Zone 2 Non-Incendive (c)	CCN
FM Division 1/Zone 0 Intrinsically Safe (c)	FAA
FM Division 2/Zone 2 Non-Incendive (c)	FFN
ATEX Intrinsic safe Ex ia/ic (c)	AAA
ATEX Non Sparking Zone 2 Ex nA (c)	ANN
IECEX Intrinsic safe Ex ia/ic (c)	EAA
IECEX Non Sparking Zone 2 Ex nA (c)	ENN
EAC Intrinsic Safe Ex ia/ic (c)	RAA
EAC Non Sparking Zone 2 Ex nA (c)	RNN
INMETRO Intrinsic Safe Ex ia/ic (c)	BAA
INMETRO Non Sparking Zone 2 Ex nA (c)	BNN
KOSHA Non Sparking Zone 2 Ex nA (c)	KNN
No Electrical Certifications/Approvals, CFT51 (c)	YYY
<b>Optional Selections</b>	
Bidirectional Flow Calibration (Standard Factory Calibration is one direction)	-B
Cryogenic Applications for Temperatures below -130°C (-202°F) (d)	-C
Calibrated for use with a CFT50/CFT51 Transmitter (Default Calibration) (e)	-E
Calibrated for use with a CFT10 or CFT15 Transmitter (e)	-F
Dual Calibrations, for use with a CFT10, CFT15, CFT50, or CFT51 Transmitter (e)	-G
Material Certification of Process Wetted Metal (Conforms to EN 10204 3.1 Equivalent to Cert D)	-M
Tamperproof sealing for Terminal Block Cover (f)	-S
Weights and Measures Custody Transfer/NTEP	-T
▶ Includes Tamperproof Sealing Option -S	
▶ Must be combined with CFT50/CFT51 Transmitter Option -T	
▶ Calibration Option -E must also be specified	
Weights and Measures Industry Canada Approvals (c)	-D
▶ Includes Tamperproof Sealing Option -S	
▶ Must be combined with CFT51 Transmitter Option -D	
▶ Calibration Option -E must also be specified	
Radiography of Pressure Retaining Welds (A copy of the Q.A. report is provided) (g)	-X
Example: CFS20-15SCFBB-BX; CFS20-30SFCNN-E	

- a. IMPORTANT: The flowtube is not supplied with cable for transmitter interconnection. Standard cable can be ordered separately. See Cable Model Code for ordering information.
- b. Applies to tubes used with CFT50 only.
- c. Applies to tubes used with CFT51 only.
- d. Electrical Safety Code FBB cannot be applied on Flowtube Size -30 (3 in) when the Cryogenic Option is selected.
- e. Specify one of either -E, -F, or -G Calibration Options only.
- f. Option -S not available with Electrical Safety Codes MMM and LLL.
- g. Per ASME Section V Boiler/Pressure Vessel Code, Nondestructive.



**MODEL CODE - CABLE (RECOMMENDED)**

Description	Model
<b>Cable Insulation Material (a)</b>	
PVC-Insulated Cable, -20 to +80°C (-4 to +176°F) Ambient Temperature	KFS1
FEP-Insulated Cable, -40 to +85°C (-40 to +185°F) Ambient Temperature	KFS2
<b>Cable Length - Feet or Meters</b>	
20 feet	
100 feet	-F0020
200 feet	-F0100
500 feet	-F0200
750 feet	-F0500
1000 feet	-F0750
	-F1000
6 meters	
30 meters	-M006
60 meters	-M030
150 meters	-M060
225 meters	-M150
300 meters	-M225
	-M300
Examples: KFS1-F0200 = 200 feet of PVC Cable; KFS2-M006 = 6 meters of FEP Cable	

a. See "CABLE SPECIFICATIONS".

**CABLE SPECIFICATIONS**

**PVC Cable**

Six twisted pairs of PVC-insulated, 22 AWG stranded, tinned, copper wire. Each pair has an aluminum-polyester shield with drain wire. Cable has a chrome-PVC outer jacket with ambient temperature limits of -20 to +80°C (-4 to +176°F). One end of cable is dressed and ready for connection to transmitter. Voltage rating is 30 V ac.

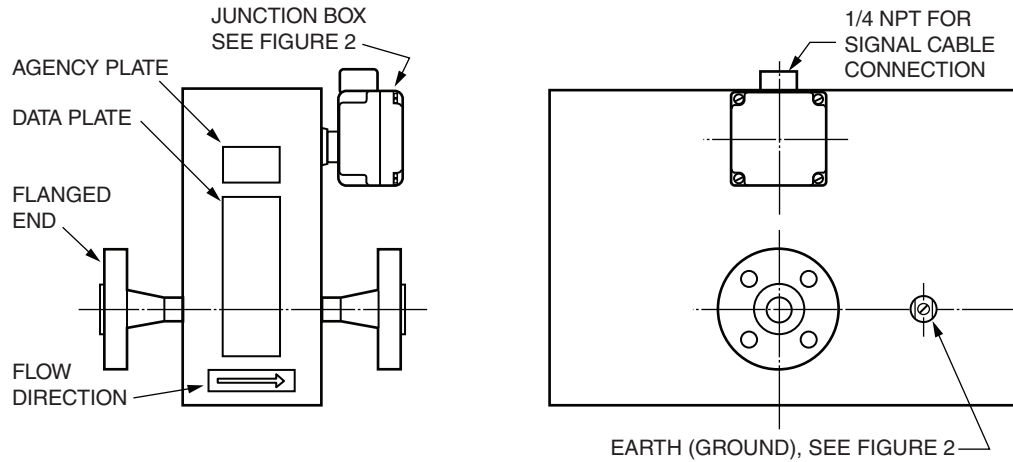
**FEP Cable**

Six twisted pairs of FEP-insulated 22 AWG stranded, tinned, copper wire. Each pair has an aluminum-polyester shield with drain wire. Cable has an FEP outer jacket with ambient temperature limits of -40 to +85°C (-40 to +185°F). One end of cable is dressed and ready for connection to transmitter. Voltage rating is 30 V ac.

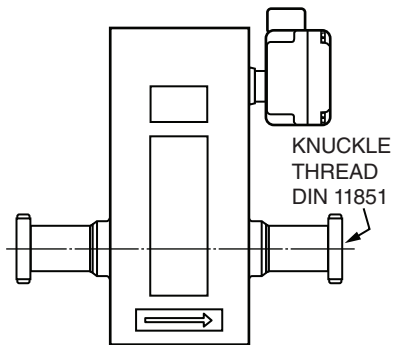
## PARTS

Figure 1. Flowtube Assemblies

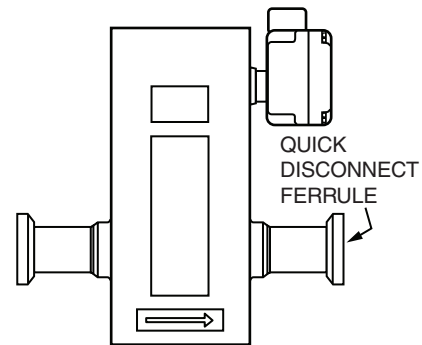
END CONNECTION CODES C, D, E, F, AND J  
 FLANGED END FLOWTUBES, 40 AND 80 mm (1 1/2 AND 3 in) SIZES



END CONNECTION CODE N  
 SANITARY FLOWTUBE,  
 80 mm (3 in) SIZE ONLY



END CONNECTION CODE P  
 SANITARY FLOWTUBE,  
 80 mm (3 in) SIZE ONLY



## — NOTE —

Flowtube assemblies (other than the junction box and external earth/ground parts - see Figure 2) cannot be disassembled, and must be replaced in their entirety. To replace a flowtube, refer to the Model Number on the data plate. The model number, in addition to process flow data, is required for a proper direct replacement of the flowtube. Contact Global Customer Support if you have questions.

Figure 2. Junction Box and Earth (Ground) Assemblies

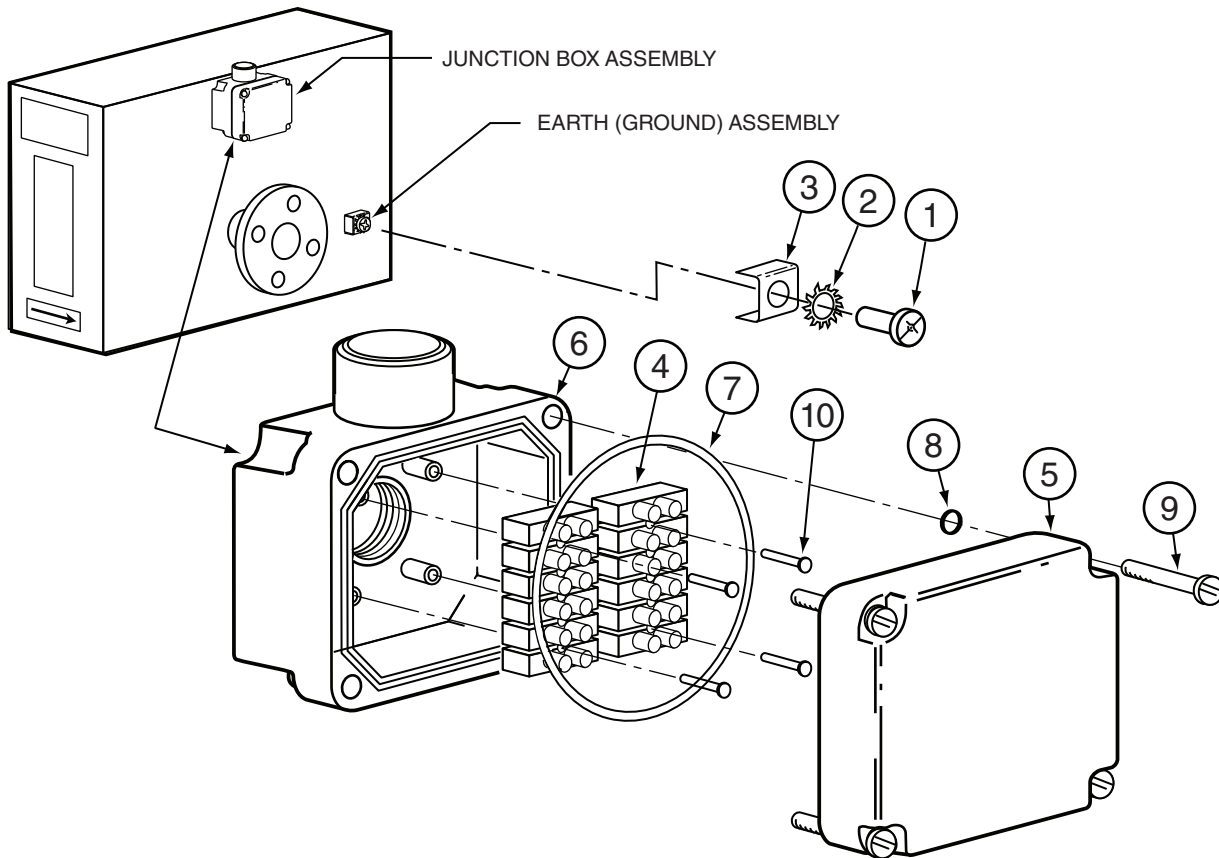


Table 1. Parts for Figure 2

Item	Part No.	Qty.	Part Name
1	X0124FY	1	Screw, Pan Head, Slotted, 0.164-32 x 0.312
2	X0143SB	1	Washer, Ext. Tooth, 0.164
3	C0141ZX	1	Clamp, Earth (Ground)
4	X0175NK	2	Terminal Block (6 pos)
5	G0117HU	1	Cover, Junction Box
6	G0117DD	1	Junction Box (without cover)
*7	G0117DG	1	Gasket, Tubular, Silicone
8	C0127CM	4	O-Ring (Screw Retainer), Buna-N
9	X0173UY	4	Screw, Pan Head, 0.164-32 x 1.00
10	X0119NN	4	Screw, Pan Head, Cross Recessed, 0.086-56 x 0.50

— NOTES —

- 1 See Figure 3 for Junction Box Extension Kit.
- 2 See Figure 4 for Junction Box with Tamperproof Sealing (-S), Weights and Measures Custody Transfer (-T), and Weights and Measures Industry Canada Approval (-D) options.

Figure 3. Junction Box Extension Kit

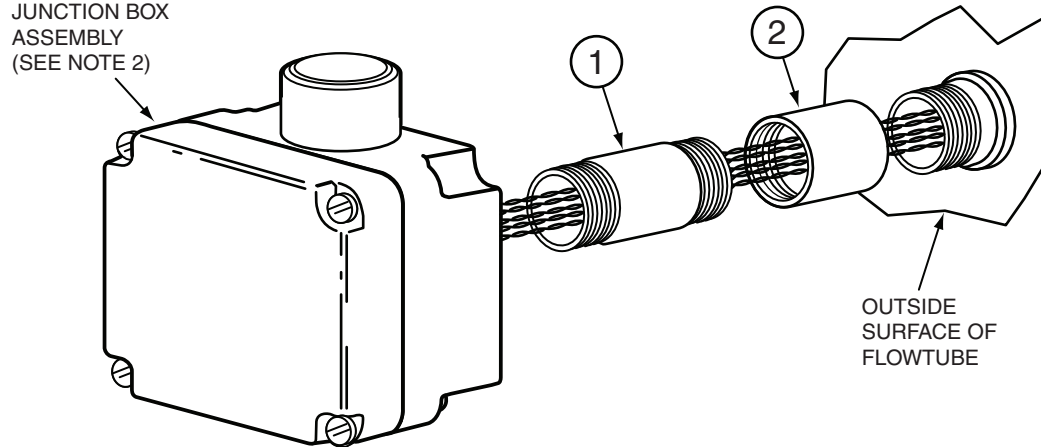


Table 2. Parts for Figure 3

Item	Part No.	Qty.	Part Name
1	X0178HC	1	Coupling, 304 ss, 3/4 NPT
2	X0178HD	1	Nipple, 304 ss, 3/4 NPT x 2.5

**⚠ CAUTION**

It is not recommend to use the junction box extension without the addition of a steam jacket or flowtube insulation.

**— NOTES —**

- 1 The normal clearance between the outside surface of the flowtube and the junction box is a nominal 12.7 mm (1/2 in). In order to adequately accommodate a steam jacket or insulation enveloping the flowtube outside surface, the clearance can be increased to a nominal 102 mm (4 in) by using the junction box extension kit.
- 2 To promote heat dissipation at elevated operating temperatures, maintain a distance of at least 12.7 mm (1/2 in) between the steam jacket or insulation and the surface of the junction box.

Figure 4. Optional Model Code Selections: Tamperproof Sealing (-S); Weights and Measures Custody Transfer (-T); Weights and Measures Industry Canada Approval (-D)

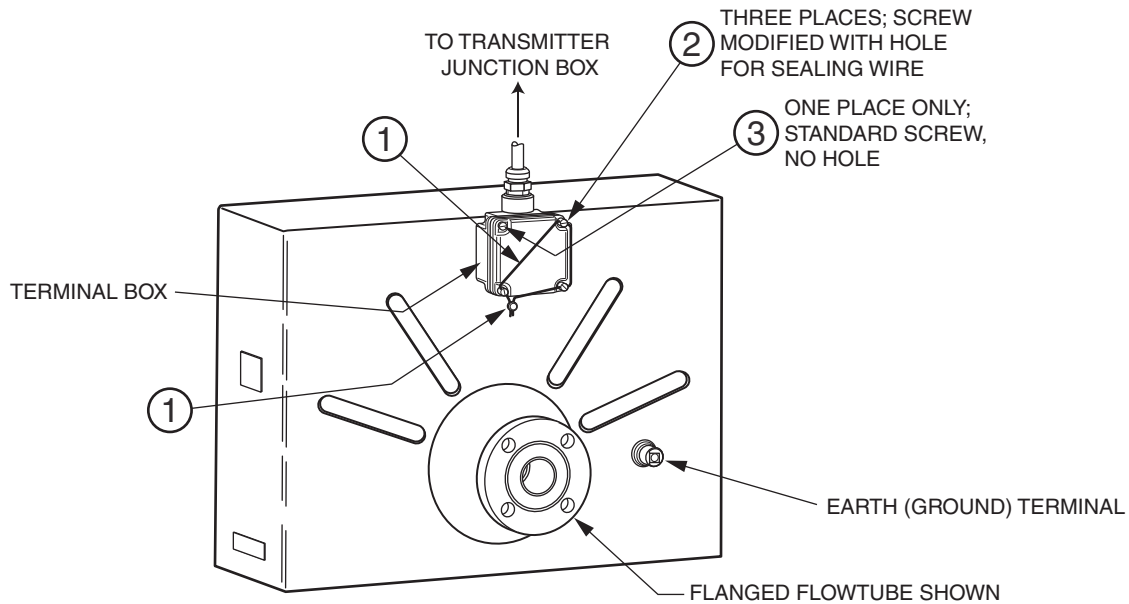


Table 3. Parts for Figure 4

Item	Part No.	Qty.	Part Name
*1	K0152JH	1	Kit, Tamperproof Sealing; includes sealing wire and one lead seal
2	K0152GT	3	Screw, Pan Hd; Modified; 0.164-32; with holes for Sealing Wire
3	X0173UY	1	Screw, Pan Hd; 0.164-32 x 1.0

**RECOMMENDED SPARE PARTS**

Figure Number	Item Number	Part Number	Part Name	Number of Parts Recommended for		
				1 Inst.	5 Inst.	20 Inst.
2	7	G0117DG	Gasket, Tubular, Silicone	1	1	4
4	1	K0152JH (a)	Kit, Tamperproof Sealing	1	5	20

a. The Tamperproof Sealing Kit includes sealing wire and a lead seal.

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