

**I/A Series<sup>®</sup>**  
**Multivariable Transmitters**  
—  
**Model IMV31 Density-Compensated Level Transmitter**  
—  
**with**  
**HART Communication Protocol**  
—  
**Style A**

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.

MODEL CODE

Description	Model
Multivariable Transmitter	IMV31
<b>Electronics Versions and Output Signal</b>	
Intelligent; Digital HART and 4 to 20 mA dc (Version -T)	-T
<b>Structure Code - Process Covers, Sensor Material, and Sensor Fill Fluid</b>	
With Traditional Structure	
<b>Covers</b>	
<b>Sensor</b>	
<b>Fill Fluid</b>	
316 ss	22
316 ss	23
316 ss	26
316 ss	27
Hastelloy C	46
Hastelloy C	47
<b>Span Limits - Differential Pressure (DP) Measurement</b>	
<b>kPa</b>	
<b>inH<sub>2</sub>O</b>	
<b>mbar</b>	
<b>Available with (a)</b>	
0.75 and 7.5	A
0.5 and 50	B
2.5 and 210	C
<b>Span Limits - Absolute Pressure (AP) Measurement (Absolute Measured; Gauge Calculated)</b>	
<b>MPa</b>	
<b>psi</b>	
<b>bar or kg/cm</b>	
<b>Available with (a)</b>	
0.02 and 2.1	D
0.07 and 3.5	G
0.21 and 10	E
0.42 and 20	H
<b>Process Connector Type (Material Same as Process Cover Material)</b>	
None, Covers tapped for 1/4 NPT	0
1/4 NPT (Not Available with Structure Codes 46 and 47 - Hastelloy C Process Covers)	1
1/2 NPT	2
Rc 1/4 (Not Available with Structure Codes 46 and 47) - Hastelloy C Process Covers	3
Rc 1/2	4
1/2 Schedule 80 Welding Neck (Not Available with Structure Codes 46 and 47 - Hastelloy C Process Covers)	6
<b>Conduit Connection and Housing Material</b>	
1/2 NPT Connection, Aluminum Housing	1
PG 13.5 Connection, Aluminum Housing (Available with Electrical Safety Codes E, D, M, and N only)	2
1/2 NPT Connection, 316 ss Housing	3
PG 13.5 Connection, 316 ss Housing (Available with Electrical Safety Codes E, D, M, and N only)	4
M20 Connection, Aluminum Housing (Available with Electrical Safety Codes E, D, M, and N only)	5
M20 Connection, 316 ss Housing (Available with Electrical Safety Codes E, D, M, and N only)	6
<b>Electrical Safety</b>	
ATEX II 1 GD, EEx ia IIC, Zone 0; or II 1/2 GD, EEx ib IIC, Zone 0/Zone 1	E
ATEX II 2 GD, EEx d IIC, Zone 1 (b)	D
ATEX II 3 GD, EEx nL IIC, Zone 2	N
ATEX Multiple Certifications; with Electronics Version -T only (includes ATEX Codes E, D, and N) (b) (See Electrical Safety Specifications section for <u>user marking</u> )	M
CSA Certified Division 1 intrinsically safe, explosionproof, dust-ignitionproof, and Division 2, Classes I, II, and III. Also zone certified Ex ia IIC and Ex nA IIC.	C
CSA Zone Certified Ex d IIC; and all certifications of Code C above (b).	B
FM approved Division 1 intrinsically safe, explosionproof, dust-ignitionproof, and nonincendive, Division 2, Classes I, II, and III. Also zone approved intrinsically safe AEx ia IIC.	F
FM approved AEx d IIC; and also all approvals of Code F above (b).	G
IECEx flameproof; Ex d IIC	V

MODEL CODE

MODEL CODE (Continued)

Description	Model
<b>Optional Selections (d)</b>	
Refer to descriptions that follow.	
<b>Mounting Bracket Set</b>	
Painted Steel Bracket with Plated Steel Bolts	-M1
Stainless Steel Bracket with Stainless Steel Bolts	-M2
<b>Digital Indicator with Pushbuttons</b>	
Digital Indicator, Pushbuttons, and Window Cover	-L1
<b>DIN 19213 Construction used with Process Connector Code "0" and 316 ss Process Covers Only (e)</b>	
<b>Process Cover</b>	
<b>Cover</b>	
<b>Type</b>	
<b>Screw</b>	
<b>Material</b>	
<b>Connector Screw</b>	
<b>Size</b>	
<b>Material</b>	
Single Ended	-
Double Ended (f)	Steel
(Blind Kidney Flange on back)	
Single Ended	-
Double Ended (f)	Steel
(Blind Kidney Flange on back)	
Single Ended	-
Double Ended (f)	316 ss
(Blind Kidney Flange on back)	
Single Ended	-
Double Ended (f)	17-4 ss
(Blind Kidney Flange on back)	
Single Ended	-
Double Ended (f)	7/16
(Blind Kidney Flange on back)	
Single Ended	-
Double Ended (f)	7/16 (by User)
(Blind Kidney Flange on back)	
Single Ended	-
Double Ended (f)	7/16
(Blind Kidney Flange on back)	
Single Ended	-
Double Ended (f)	316 ss
(Blind Kidney Flange on back)	
Single Ended	-
Double Ended (f)	17-4 ss
(Blind Kidney Flange on back)	
Single Ended	-
Double Ended (f)	7/16
(Blind Kidney Flange on back)	
Single Ended	-
Double Ended (f)	7/16
(Blind Kidney Flange on back)	
Single Ended	-
Double Ended (f)	7/16
(Blind Kidney Flange on back)	
Single Ended	-
Double Ended (f)	7/16
(Blind Kidney Flange on back)	
<b>Cleaning and Preparation</b>	
Unit Degreased - for Silicone Filled Sensors Only	-X1
(Not for Oxygen/Chlorine/Other Fluids that may react with Silicone)	
Cleaned and Prepared for Oxygen Service - for Fluorinert Filled Sensors Only	-X2
Cleaned and Prepared for Chlorine Service - for Fluorinert Filled Sensors Only (g)	-X3
<b>Bolting for Process Covers/Connectors (h)</b>	
316 ss Bolts and Nuts	-B1
17-4 ss Bolts and Nuts (g)	-B2
B7M Bolts and Nuts (m)	-B3
<b>Conduit Connectors</b>	
Hawke-Type 1/2 PT Cable Gland for use with Conduit Connection Codes 1 and 3 (j)	-A1
M20 Conduit Thread Adapter for use with Conduit Connection Codes 1 and 3 (j)	-A3
<b>Electronics Housing Features</b>	
Custody Transfer Lock and Seal	-Z2
<b>Custom Factory Configuration</b>	
Full Factory Configuration (Requires Completion of Multivariable Configuration Wizard before entering order (n))	-C2
<b>Tubing Connectors (k)</b>	
316 ss, Connecting 6 mm Tubing to 1/4 NPT Process Connector	-E3
316 ss, Connecting 12 mm Tubing to 1/2 NPT Process Connector	-E4
<b>Instruction Books (Common MI, Brochure, and Full Documentation Set on CD-ROM is Standard)</b>	
Without Instruction Book and CD; Only "Getting Started" brochure is supplied	-K1
Full Instruction Book in Paper; Only Traditional Paper Instruction Book with all MIs, PLs, DPs, etc. provided	-K4

**MODEL CODE (Cont.)**

<b>Description</b>	<b>Model</b>
<b>Optional Selections (Cont) (d)</b>	
<b>Miscellaneous Optional Selections</b>	
Low Temperature Operative Limit of Electronics Housing Extended down to -50°C (-58°F) (I)	-J
Supplemental Customer Tag (Stainless Steel Tag wired onto Transmitter)	-T
Vent Screw in Side of Each Process Cover (Not Available with DIN 19213 Construction)	-V

- (a) See table below for allowable combinations of DP and AP Span Limit Codes.
- (b) A cover lock is provided as standard construction with Electrical Safety Codes D, B, G, and M.
- (c) Includes intrinsic safety, explosionproof, and Division 2.
- (d) Refer to PSS 2A-1Z9 E for additional optional features and accessories not listed in Model Code.
- (e) Mounting Bracket Set options (-M1 and -M2) and Vent Screw Option -V are not available.
- (f) Temperature limits derated to 0 and 60°C (32 and 140°F) for DIN Options -D2, -D4, -D6, and -D8.
- (g) When -X3 is specified, the standard bolting is replaced with 17-4 ss bolts and nuts. Therefore, there is no need to specify Option -B2 when selecting the Chlorine Service Option -X3.
- (h) Not available with DIN 19213 Construction options. For stainless steel bolting with DIN 19213, specify -D5, -D6, -D7, or -D8.
- (j) Not available with PG13.5 or M20 Housing Connections. Also not available with Electrical Safety Codes C and F.
- (k) Tubing connectors not available with Process Connector Codes 3, 4, and 6 (R<sub>c</sub> and Weld Neck types).
- (l) Option -J not available with Structure Codes 23, 27, and 47, or DIN Construction Codes D2, D4, D6, or D8.
- (m) Selection of Option -B3 normally requires selection of AS Reference MR-01.
- (n) If Option -C2 is not selected, a standard default configuration will be provided. The user will then need the model PCMV to completely configure the transmitter for liquid level applications.

**Allowable Combinations of DP and AP Span Limit Codes**

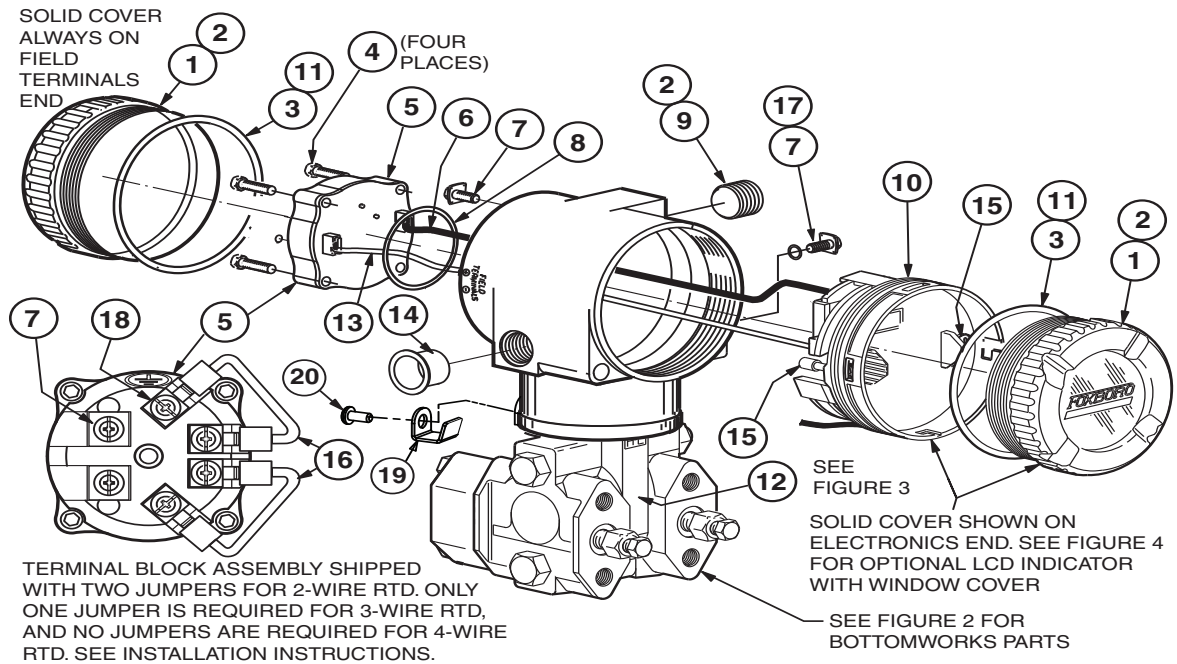
<b>Span Code DP and AP</b>	<b>Sensor URL (DP and AP)</b>				<b>Maximum Static and Maximum Working Pressure</b>		<b>Maximum Overrange Pressure</b>	
	<b>DP</b>	<b>AP</b>	<b>DP</b>	<b>AP</b>	<b>MPaa</b>	<b>psia</b>	<b>MPaa</b>	<b>psia</b>
A and G	30 inH <sub>2</sub> O	500 psia	7.5 kPa	3.4 MPaa	3.4	500	5	750
B and D	200 inH <sub>2</sub> O	300 psia	50 kPa	2.1 MPaa	2.1	300	3.1	450
B and E	200 inH <sub>2</sub> O	1500 psia (a)	50 kPa	10 MPaa (a)	10	1500 (a)	15	2250 (b)
B and H	200 inH <sub>2</sub> O	3000 psia (a)	50 kPa	20 MPaa (a)	20	3000 (a)	30	4500 (b)
C and D	840 inH <sub>2</sub> O	300 psia	210 kPa	2.1 MPaa	2.1	300	3.1	450
C and E	840 inH <sub>2</sub> O	1500 psia (a)	210 kPa	10 MPaa (a)	10	1500 (a)	15	2250 (b)
C and H	840 inH <sub>2</sub> O	3000 psia (a)	210 kPa	20 MPaa (a)	20	3000 (a)	30	4500 (b)

- (a) For non-boiler applications, maximum working pressure is not to exceed 6.9 MPaa (1000 psia).
- (b) For non-boiler applications, maximum overrange pressure is not to exceed 10.3 MPaa (1500 psia).

PARTS

PARTS

Figure 1. TRANSMITTER ASSEMBLY – TOPWORKS



Item	Part No.	Qty.	Part Name
1	Below	2	Cover, Solid (see Figure 4 for Window Cover with Indicator Option)
	D0162AP		Aluminum Cover
	D0162VD		Stainless Steel Cover
2	X0118CC	1	Grease, Lubriplate (1-3/4 ounce tube)
*3	X0201FC	2	O-Ring, Cover
4	Below	4	Screw, Socket Head, 0.138-32 x 0.750
	X0133UW		Steel Screw - used with Aluminum Housing
	X0133VP		Stainless Steel Screw - used with 316 ss Housing
5	D0149FL	1	Terminal Block Assembly
6	P0177JE	1	Cable Assembly, Power
7	D0162VJ	4	Screw Assembly, Earth (Ground), 0.164-32 x 0.375
8	X0144KR	1	O-Ring, Terminal Block Assembly
9	Below	1	Pipe Plug for Unused Conduit Connection
	B0139CA		Pipe Plug, Aluminum (1/2 NPT) – see WARNING below
	B0139SK		Pipe Plug, 316 ss (1/2 NPT) – see WARNING below

**WARNING**

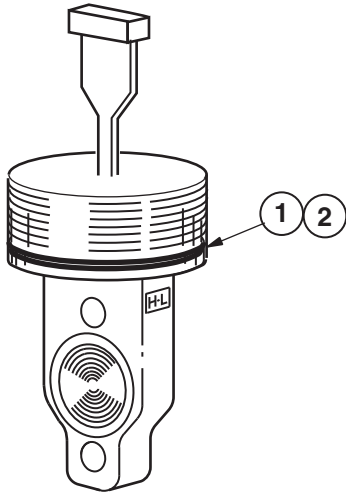
To maintain IP66 (IEC 529) and NEMA 4X protection, unused conduit opening must be plugged. In addition, the threaded housing covers must be installed.

Item	Part No.	Qty.	Part Name
*10	D0197FB	1	Electronics Module; Digital HART and 4 to 20 mA (Version -T)
11	0048130	A/R	Grease, Silicone (150 gram Tube)
*12	Tables 1 to 4	1	Replacement Sensor Assembly - See Note below
13	P0178BQ	1	Cable Assembly, RTD
14	S0102BT	1	Plug, Poly (Remove Prior to Transmitter Installation)
15	Below	2	Screw, Captive, Pan Head, 0.138-32 x 0.615
	D0162VM		Steel Screw - used with Aluminum Housing
	D0166CY		316 ss Screw - used with 316 ss Housing
16	B0300CL	2	Jumper Assembly, Terminal Block (Shown for 2-wire RTD)
17	X0173YA	1	Washer for External Ground, 0.196 ID, 0.383 OD
18	X0100CC	4	Screw Assembly, Terminal, 0.138-32 x 0.310 long
19	D0197PS	1	Clip, Retention
20	X0174EK	1	Screw, Button Head; 0.164-32 x 0.250 long

— NOTE —

The sensor assembly configuration varies with fill fluid, wetted part material, and maximum span. Refer to Figure 2 and Tables 1 to 4 in Replacement Sensor Assembly section that follows for part numbers of these various configurations.

Figure 2. REPLACEMENT SENSOR ASSEMBLY

**⚠ WARNING**

Failure to install the proper Housing Neck O-Ring (Item 1) for CSA-labeled products violates ANSI/ISA 12.27.01

Item	Part No.	Qty.	Part Name
*1	Below	1	O-Ring, Housing Neck
	X0201LY		O-Ring, Standard
	X0144KW		O-Ring for use with CSA Certifications only; see WARNING
2	X0118CC	A/R	Lubricant

Table 1. 316L Sensor; Silicone Oil Fill; 316 ss Process Cover

Part Number	Reference Model Code	Maximum Span	
		Differential Pressure	Absolute Pressure
D0179KB	IMV31-T22AG	7.5 kPa (30 inH <sub>2</sub> O)	3.4 MPa (500 psi)
D0179KG	IMV31-T22BD	50 kPa (200 inH <sub>2</sub> O)	2.1 MPa (300 psi)
D0179KM	IMV31-T22BE	50 kPa (200 inH <sub>2</sub> O)	10 MPa (1500 psi) (a)
D0186LE	IMV31-T22BH	50 kPa (200 inH <sub>2</sub> O)	20 MPa (3000 psi) (a)
D0179KS	IMV31-T22CD	210 kPa (840 inH <sub>2</sub> O)	2.1 MPa (300 psi)
D0179KX	IMV31-T22CE	210 kPa (840 inH <sub>2</sub> O)	10 MPa (1500 psi) (a)
D0186LJ	IMV31-T22CH	210 kPa (840 inH <sub>2</sub> O)	20 MPa (3000 psi) (a)

(a) For non-boiler applications, maximum working pressure is not to exceed 6.9 MPaa (1000 psia).

Table 2. 316L Sensor; Fluorinert Oil Fill; 316 ss Process Cover

Part Number	Reference Model Code	Maximum Span	
		Differential Pressure	Absolute Pressure
D0179LT	IMV31-T23AG	7.5 kPa (30 inH <sub>2</sub> O)	3.4 MPa (500 psi)
D0179LX	IMV31-T23BD	50 kPa (200 inH <sub>2</sub> O)	2.1 MPa (300 psi)
D0179MB	IMV31-T23BE	50 kPa (200 inH <sub>2</sub> O)	10 MPa (1500 psi) (a)
D0186LL	IMV31-T23BH	50 kPa (200 inH <sub>2</sub> O)	20 MPa (3000 psi) (a)
D0179MF	IMV31-T23CD	210 kPa (840 inH <sub>2</sub> O)	2.1 MPa (300 psi)
D0179MK	IMV31-T23CE	210 kPa (840 inH <sub>2</sub> O)	10 MPa (1500 psi) (a)
D0186LQ	IMV31-T23CH	210 kPa (840 inH <sub>2</sub> O)	20 MPa (3000 psi) (a)

(a) For non-boiler applications, maximum working pressure is not to exceed 6.9 MPaa (1000 psia).

Table 3. Hastelloy C Sensor; Silicone Oil Fill; 316 ss Process Cover

Part Number	Reference Model Code	Maximum Span	
		Differential Pressure	Absolute Pressure
D0179KD	IMV31-T26AG	7.5 kPa (30 inH <sub>2</sub> O)	3.4 MPa (500 psi)
D0179KJ	IMV31-T26BD	50 kPa (200 inH <sub>2</sub> O)	2.1 MPa (300 psi)
D0179KP	IMV31-T26BE	50 kPa (200 inH <sub>2</sub> O)	10 MPa (1500 psi) (a)
D0186LF	IMV31-T26BH	50 kPa (200 inH <sub>2</sub> O)	20 MPa (3000 psi) (a)
D0179KU	IMV31-T26CD	210 kPa (840 inH <sub>2</sub> O)	2.1 MPa (300 psi)
D0179KZ	IMV31-T26CE	210 kPa (840 inH <sub>2</sub> O)	10 MPa (1500 psi) (a)
D0186LK	IMV31-T26CH	210 kPa (840 inH <sub>2</sub> O)	20 MPa (3000 psi) (a)

(a) For non-boiler applications, maximum working pressure is not to exceed 6.9 MPaa (1000 psia).

Table 4. Hastelloy C Sensor; Fluorinert Oil Fill; 316 ss Process Cover

Part Number	Reference Model Code	Maximum Span	
		Differential Pressure	Absolute Pressure
D0179LV	IMV31-T27AG	7.5 kPa (30 inH <sub>2</sub> O)	3.4 MPa (500 psi)
D0179LZ	IMV31-T27BD	50 kPa (200 inH <sub>2</sub> O)	2.1 MPa (300 psi)
D0179MD	IMV31-T27BE	50 kPa (200 inH <sub>2</sub> O)	10 MPa (1500 psi) (a)
D0186LM	IMV31-T27BH	50 kPa (200 inH <sub>2</sub> O)	20 MPa (3000 psi) (a)
D0179MH	IMV31-T27CD	210 kPa (840 inH <sub>2</sub> O)	2.1 MPa (300 psi)
D0179MM	IMV31-T27CE	210 kPa (840 inH <sub>2</sub> O)	10 MPa (1500 psi) (a)
D0186LR	IMV31-T27CH	210 kPa (840 inH <sub>2</sub> O)	20 MPa (3000 psi) (a)

(a) For non-boiler applications, maximum working pressure is not to exceed 6.9 MPaa (1000 psia).

Table 5. Hastelloy C Sensor; Silicone Oil Fill; Hastelloy C Process Cover

Part Number	Reference Model Code	Maximum Span	
		Differential Pressure	Absolute Pressure
D0179KD	IMV31-T46AG	7.5 kPa (30 inH <sub>2</sub> O)	3.4 MPa (500 psi)
D0179KJ	IMV31-T46BD	50 kPa (200 inH <sub>2</sub> O)	2.1 MPa (300 psi)
D0179KP	IMV31-T46BE	50 kPa (200 inH <sub>2</sub> O)	10 MPa (1500 psi) (a)
D0186LF	IMV31-T46BH	50 kPa (200 inH <sub>2</sub> O)	20 MPa (3000 psi) (a)
D0179KU	IMV31-T46CD	210 kPa (840 inH <sub>2</sub> O)	2.1 MPa (300 psi)
D0179KZ	IMV31-T46CE	210 kPa (840 inH <sub>2</sub> O)	10 MPa (1500 psi) (a)
D0186LK	IMV31-T46CH	210 kPa (840 inH <sub>2</sub> O)	20 MPa (3000 psi) (a)

(a) For non-boiler applications, maximum working pressure is not to exceed 6.9 MPaa (1000 psia).

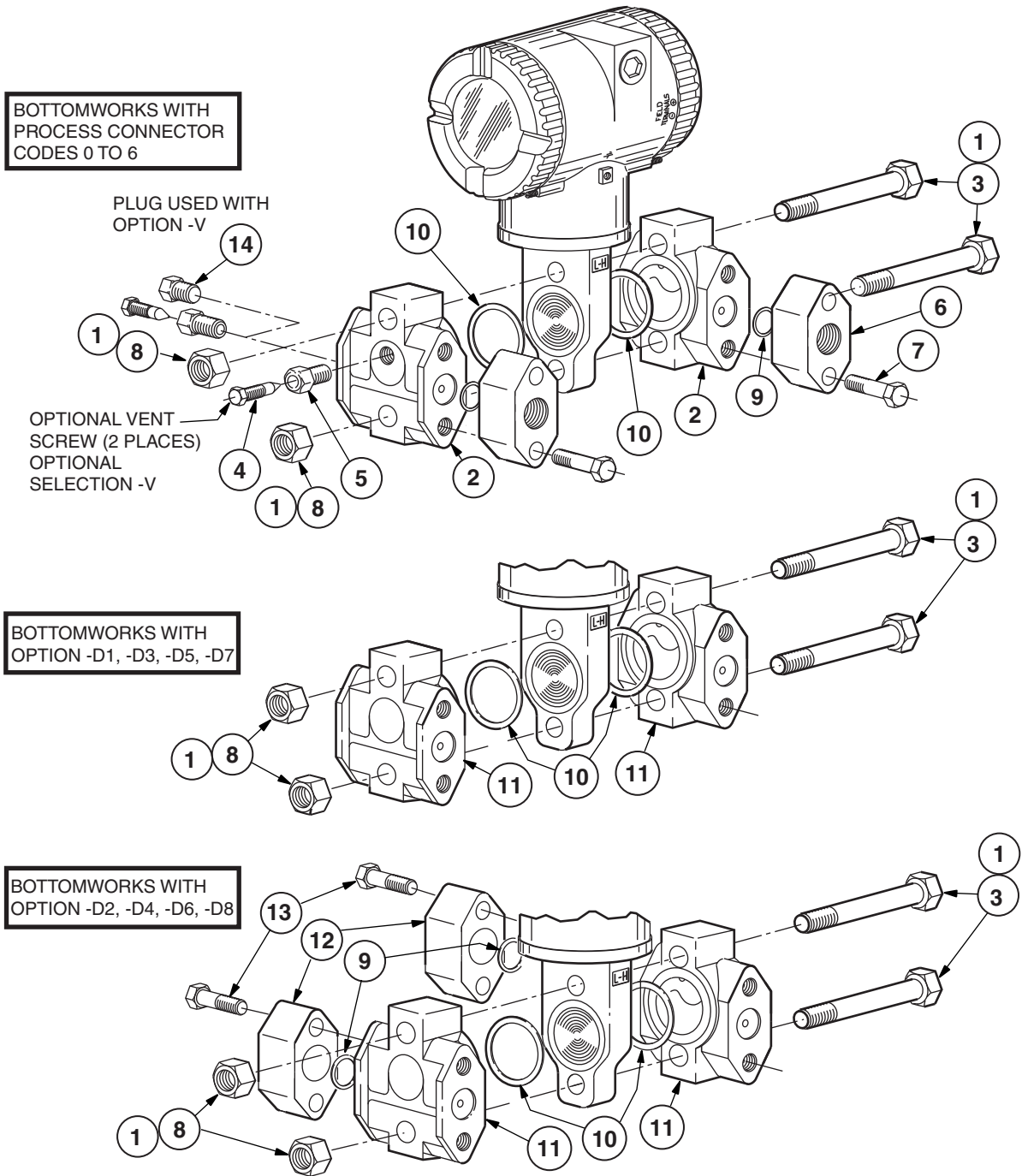
Table 6. Hastelloy C Sensor; Fluorinert Oil Fill; Hastelloy C Process Cover

Part Number	Reference Model Code	Maximum Span	
		Differential Pressure	Absolute Pressure
D0179LV	IMV31-T47AG	7.5 kPa (30 inH <sub>2</sub> O)	3.4 MPa (500 psi)
D0179LZ	IMV31-T47BD	50 kPa (200 inH <sub>2</sub> O)	2.1 MPa (300 psi)
D0179MD	IMV31-T47BE	50 kPa (200 inH <sub>2</sub> O)	10 MPa (1500 psi) (a)
D0186LM	IMV31-T47BH	50 kPa (200 inH <sub>2</sub> O)	20 MPa (3000 psi) (a)
D0179MH	IMV31-T47CD	210 kPa (840 inH <sub>2</sub> O)	2.1 MPa (300 psi)
D0179MM	IMV31-T47CE	210 kPa (840 inH <sub>2</sub> O)	10 MPa (1500 psi) (a)
D0186LR	IMV31-T47CH	210 kPa (840 inH <sub>2</sub> O)	20 MPa (3000 psi) (a)

(a) For non-boiler applications, maximum working pressure is not to exceed 6.9 MPaa (1000 psia).



Figure 3. TRANSMITTER ASSEMBLY – BOTTOMWORKS



Item	Part No.	Qty.	Part Name
1	X0118CC	A/R	Grease, Lubriplate (1-3/4 ounce tube)
2	Below	2	Cover, Process (see Note 1)
	D0161NA		316 ss
	D0161NC		Hastelloy C
2	Below	2	Side Vent Cover for use with Process Connection Codes 0-6 (Note 1)
	D0161NE		316 ss
	D0161NG		Hastelloy C
3	Below	2	Screw, Hex Head, 0.500-13 x 3.5
	X0173RP		2H (ASTM A193, Gr. B7 [std])
	X0173UK		ASTM A193, Gr. B7M (Option -B3)
	X0173TQ		316 ss (ASTM F593, Group 2) (Options -B1, -D5, -D6)
	X0173TD		17-4 ss (ASTM A564, Type 630) (Options -B2, -D7, -D8)
*4	Below	2	Vent Screw
	B0138MJ		316 ss
	D0175PQ		Hastelloy C (see Note 1)
*5	Below	2	Vent Plug (see Note 2)
	D0161QT		316 ss
	D0175PP		Hastelloy C (see Note 1)
6	Table 7	2	Process Connectors (see Table 7 below)
7	Below	4	Screw, Hex Head, 0.438-20 x 1.5 (for threaded connectors, Codes 1-4)
	X0100MN		ASTM A193 Gr. B7 (std)
	X0171VP		ASTM A193, Gr. B7M (Option -B3)
	N1205RQ		316 ss (Options -B1, -D5, -D6)
	X0118AX		17-4 Stainless Steel (Options -B2, -D7, -D8)
7	Below	4	Screw, Hex Head, 0.438-20 x 1.0 (for weld neck connectors, Code 6)
	X0100NT		ASTM A193, Gr. B7 (std)
	X0171VN		ASTM A193, Gr. B7M (Option -B3)
	X0173TP		316 ss (Option -B1)
	X0118AY		17-4 Stainless Steel (Option -B2)

## PARTS

Table 7. Item 6, Process Connector Part Numbers

Process Connector Code	Process Connector Description	Used with Following Process Connector and Cover Material	
		Stainless Steel	Hastelloy C
1 (a)	Tapped for 1/4 NPT	N0141XT	Note (a)
2	Tapped for 1/2 NPT	N0141XN	B0139JW
3 (a)	Tapped for Rc 1/4	B0139BD	Note (a)
4	Tapped for Rc 1/2	B0139BG	B0139JV
6 (a)	1/2 Schedule 80 Weld Neck	N0141XR	Note (a)

(a) Process Connector Codes 1, 3, and 6 are not available with Hastelloy C material.

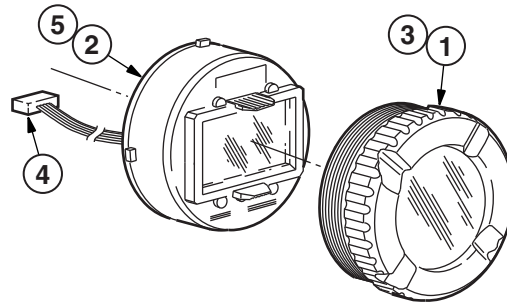
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— NOTE —

1. Metallic process wetted material conforming to NACE Standard MR-01-75.
  2. For simplified calibration, install F0101ES screw for up to 0.7 MPa (100 psi).
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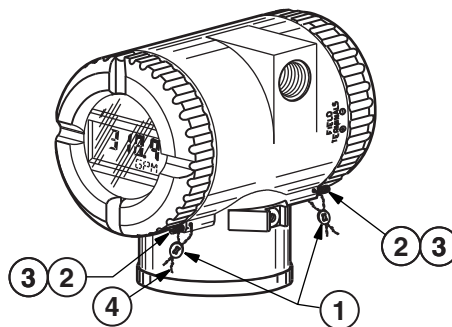
Item	Part No.	Qty.	Part Name
8	Below	2	Nut, 0.500-13
	X0173RN		2H, (ASTM A193, Gr. B7 [std])
	X0173UL		ASTM A194, Gr. 2HM (Option –B3)
	X0173TR		316 ss (ASTM F594, Group 2) (Option –B1, –D5, –D6)
	X0173UJ		17-4 ss (ASTM F594, Group 2) (Option –B2, –D7, –D8)
*9	D0114RB	2	Gasket, ptfе
*10	D0161QQ	2	Gasket, Process Cover, Glass-filled ptfе
11	Below		Cover, 316 ss
	D0161NK	1	Single-ended process connection M10 (Option –D1, High Side)
	D0161NJ	1	Single-ended process connection M10 (Option –D1, Low Side)
	D0161NM	1	Single-ended process connection 7/16 (Options –D3, –D5, –D7, High Side)
	D0161NL	1	Single-ended process connection 7/16 (Options –D3, –D5, –D7, Low Side)
	D0161NN	2	Double-ended process connection M10 (Option –D2)
	D0161NA	2	Double-ended process connection 7/16 (Options –D4, –D6, –D8)
12	D0153RK	2	Kidney Flange, Blind, 316 ss, (for double-ended process cover) (Options –D2, –D4, –D6, –D8)
13	Below	4	Screw, Hex Head, steel, for blind kidney flange
	X0173MJ		M10 x 1.5 x 40 mm, for Option –D2
	X0100MN		0.437-20 x 1.5 in, for Options –D4, –D6, and –D8
14	Below	2	Pipe Plug, Hex Head, 1/4 NPT
	D0161LU		316 ss
	D0161LW		Hastelloy C

Figure 4. OPTIONAL LIQUID CRYSTAL DISPLAY (LCD) INDICATOR ASSEMBLY  
Optional Selection -L1



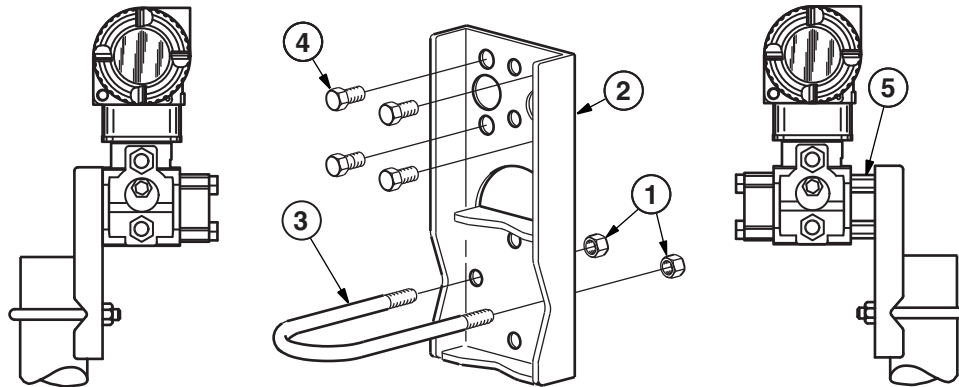
Item	Part No.	Qty.	Part Name
1	Below	1	Cover Assembly with Window – used with LCD Indicator
	D0162LH		Aluminum Cover Assembly
	D0162VH		Stainless Steel Cover Assembly
*2	D0162LQ	1	Module Assembly, LCD Indicator
3	X0118CC	A/R	Grease, Lubriplate (1-3/4 ounce tube)
4	P0177HB	1	Cable Assembly, LCD Indicator
5	0048130	A/R	Grease, Silicone

Figure 5. OPTIONAL CUSTODY TRANSFER LOCK AND SEAL  
Optional Selection -Z2



Item	Part No.	Qty.	Part Name
1	S001806	2	Lead Seal
2	D0162WM	2	Screw, Lock, 0.164-32
3	X0118CC	A/R	Grease, Lubriplate (1-3/4 ounce tube)
4	S001807	A/R	Sealing Wire

Figure 6. OPTIONAL PIPE MOUNTING BRACKET SETS  
Optional Selection –M1 or –M2 and OPTIONAL STANDOFF KITS



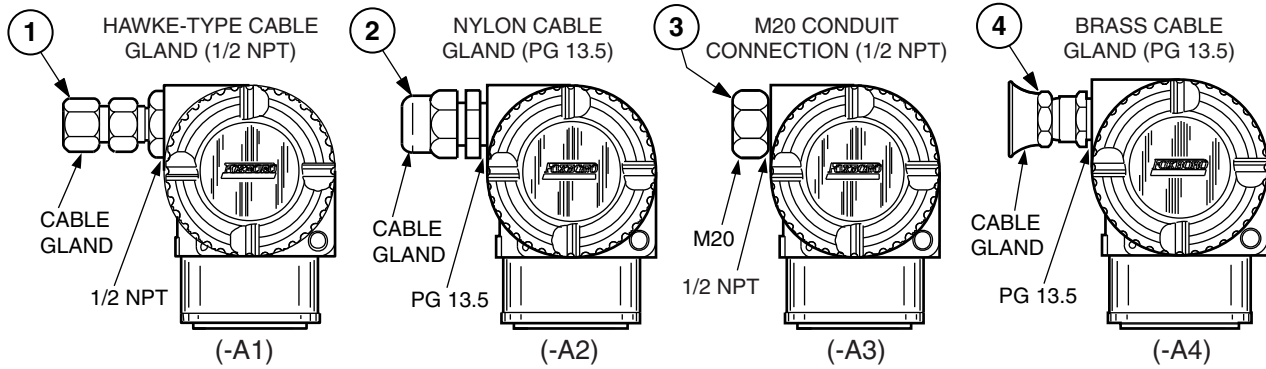
**Optional Selection –M1 (Painted Steel)**

Item	Part No.	Qty.	Part Name
–	N0141ZT	–	Mounting Set (Items 1, 2, 3, and 4)
1	0011962	2	Nut, 0.312-18
2	N0141ZW	1	Bracket
3	D0114SM	1	U-Bolt
4	X0100NW	4	Screw, Hex Head, 0.437-20 x 0.625
5	D0170ME	1	Kit with Four Steel Standoffs (Not part of –M1 Option)

**Optional Selection –M2 (Stainless Steel)**

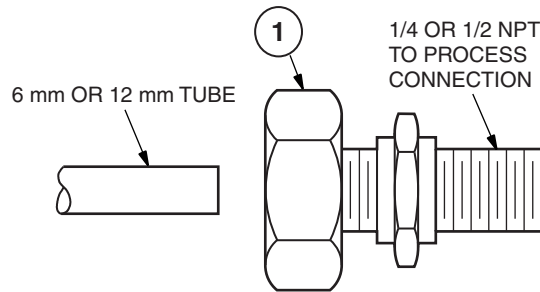
Item	Part No.	Qty.	Part Name
–	N1205YD	–	Mounting Set (Items 1, 2, 3, and 4)
1	Z1217HV	2	Nut, 0.312-18, ss
2	N1205MF	1	Bracket, ss
3	N1205MX	1	U-Bolt, ss
4	P0120RN	4	Screw, Hex Head, ss, 0.437-20 x 0.625
5	D0170MJ	1	Kit with Four 316 ss Standoffs (Not part of –M2 Option)

Figure 7. OPTIONAL CONDUIT CONNECTORS  
Optional Selection -A1, -A2, -A3, or -A4



Item	Part No.	Qty.	Part Name
1	N7141HX	1	Hawke-Type Cable Gland (for 1/2 NPT)
2	X0178GU	1	Nylon Cable Gland (for PG 13.5)
3	N7141DX	1	Metric Conduit Thread Connection, M20/20 mm (for 1/2 NPT)
4	N7141DW	1	Plated Brass Cable Gland (for PG 13.5)

Figure 8. OPTIONAL TUBING CONNECTOR  
Optional Selection -E3 or -E4



Item	Part No.	Qty.	Part Name
1	Below	-	Process Connector
	U7002AS		316 ss, 640 bar (1/4 NPT x 6 mm) Optional Selection -E3
	U7002AP		316 ss, 640 bar (1/2 NPT x 12 mm) Optional Selection -E4

RECOMMENDED SPARE PARTS SUMMARY

Figure Number	Item Number	Part Number	Part Name	Number of Parts Recommended for		
				1 Inst.	5 Inst.	20 Inst.
1	3	X0201FC	O-Ring, Cover	2	4	10
	10	Below D0179FB	Electronics Module Digital HART and 4 to 20 mA (Version -T)	0	1	2
	12 (a)	Below D0179KB D0179KG D0179KM D0186LE D0179KS D0179KX D0186LJ  D0179LT D0179LX D0179MB D0186LL D0179MF D0179MK D0186LQ  D0179KD D0179KJ D0179KP D0186LF D0179KU D0179KZ D0186LK  D0179LV D0179LZ D0179MD D0186LM D0179MH D0179MM D0186LR	Sensor Assembly (Reference Model Code) (a) IMV31-T22AG IMV31-T22BD IMV31-T22BE (b) IMV31-T22BH (b) IMV31-T22CD IMV31-T22CE (b) IMV31-T22CH (b)  IIMV31-T23AG IMV31-T23BD IMV31-T23BE (b) IMV31-T23BH (b) IMV31-T23CD IMV31-T23CE (b) IMV31-T23CH (b)  IMV31-T26AG and IMV31-T46AG IMV31-T26BD and IMV31-T46BD IMV31-T26BE and IMV31-T46BE (b) IMV31-T26BH and IMV31-T46BH (b) IMV31-T26CD and IMV31-T46CD IMV31-T26CE and IMV31-T46CE (b) IMV31-T26CH and IMV31-T46CH (b)  IMV31-T27AG and IMV31-T47AG IMV31-T27BD and IMV31-T47BD IMV31-T27BE and IMV31-T47BE (b) IMV31-T27BH and IMV31-T47BH (b) IMV31-T27CD and IMV31-T47CD IMV31-T27CE and IMV31-T47CE (b) IMV31-T27CH and IMV31-T47CH (b)	0	1	1
2	1	Below X0201LY X0144KW	O-Ring, Housing Neck Standard For use with CSA Certifications only	1	2	4
3	4	Below B0138MJ D0175PQ	Vent Screw 316 ss Hastelloy C	0	2	4
	5	Below D0161QT D0175PP	Vent Plug 316 ss Hastelloy C	0	2	4
	9	D0114RB	Gasket, ptfе	1	2	4
	10	D0161QQ	Gasket, Glass-filled ptfе	2	4	8
4	2	D0162LQ	Module Assembly, LCD Indicator	0	1	1

(a) Also see Figure 2 and associated tables for material specifications and maximum spans for the sensor assemblies.

(b) For non-boiler applications, maximum working pressure is not to exceed 6.9 MPaa (1000 psia).

