

MW05

Magnetic Liquid Level Gauge

Dual chamber level system K-TEK Products



Introduction

This specification guide provides the following information:

- How to order MagWave - See page 3
- How to order Guided Wave Radar - See page 19
- MW05 Switch and Transmitter Accessories - See page 25
- MW05 Custom Configuration Examples - See page 26
- Quotation request - MW05 Dual Chamber - See page 27

For the latest version of this configuration guide, visit abb.com/level.

To request a quotation for a *MagWave* Dual Chamber Level System:

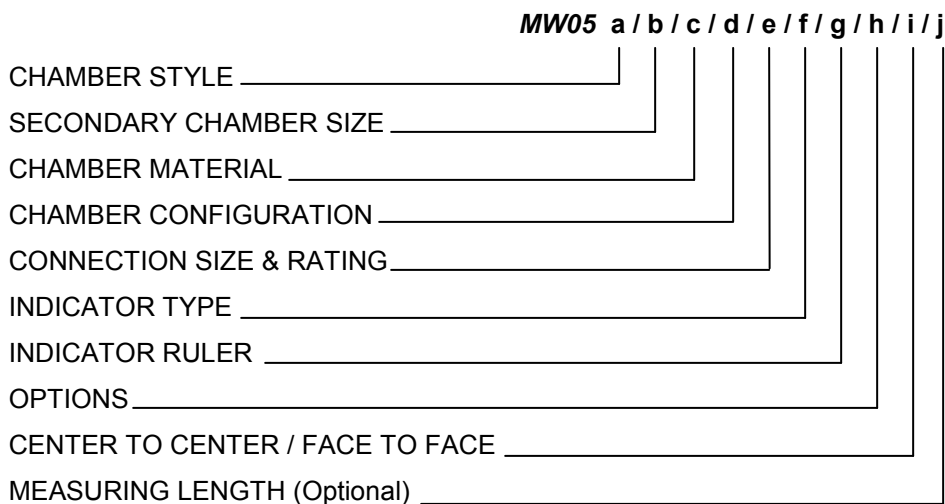
1. Complete the Quotation Request Form on pages 27 and 28
or
2. Use this Configuration Guide to Select a Model Number and provide additional information such as process pressure, temperature, and specific gravity.

Submit Request to ABB via e-mail to sales@ktekcorp.com or via fax to +1.225.673.2525.

MW05 Dual Chamber Level System

Model Number Format

Example: MW0501/A/SS6/W2FEFEB2/WR21/S1G/B/X/48”



How to Order:

Page

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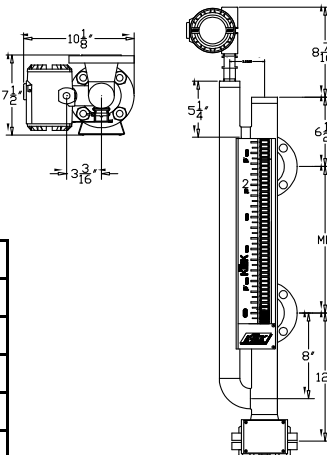
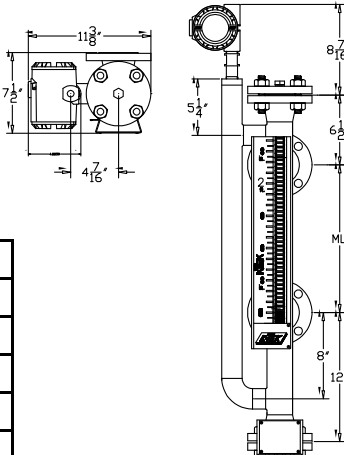
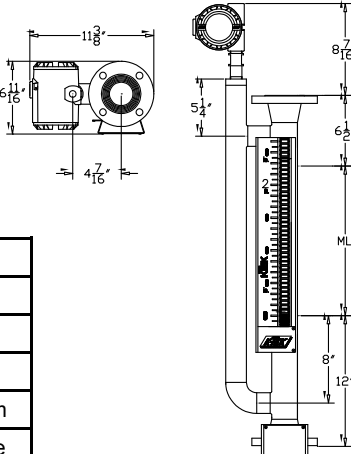
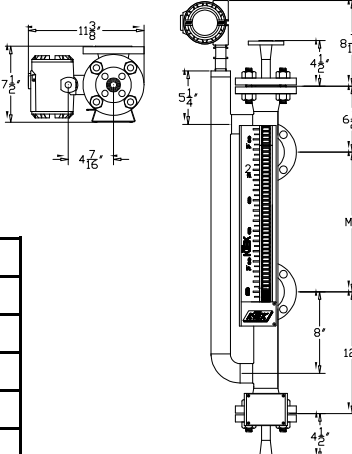
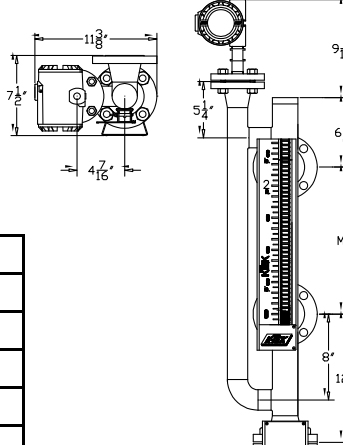
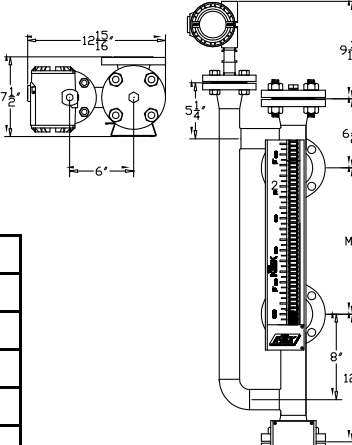
a/ Select Chamber Style

All dimensions in the drawings below are based on a 2" MLG chamber with 2" process connections, a 1.5" Secondary Chamber, and 150 lb flanges.

Many chamber styles feature the same MLG connection configuration with different Secondary Chamber connections and locations. The chamber style selected shall be changed to accommodate the appropriate GWR transmitter.

Secondary Chambers with cap connections require Code "P" for Step 10-*j* of the GWR model selection.
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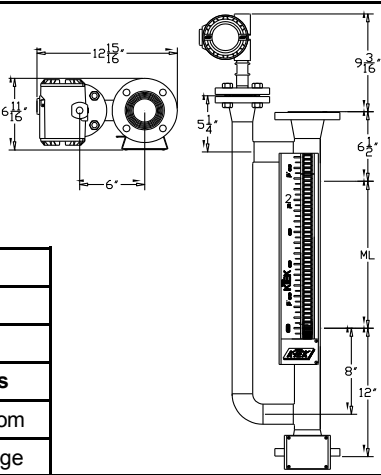
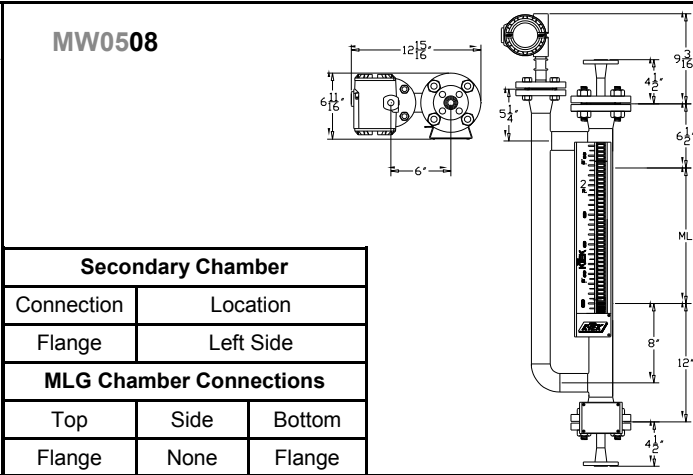
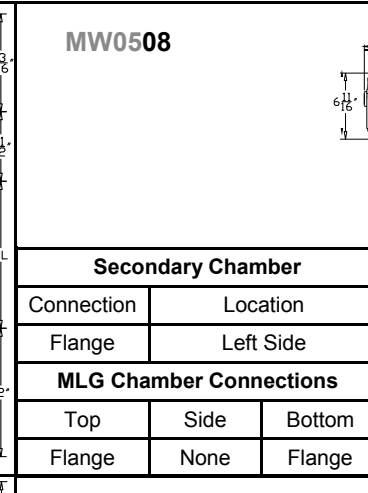
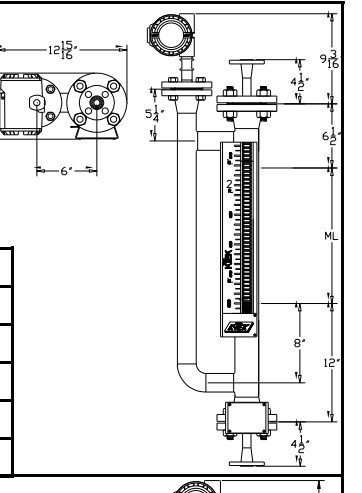
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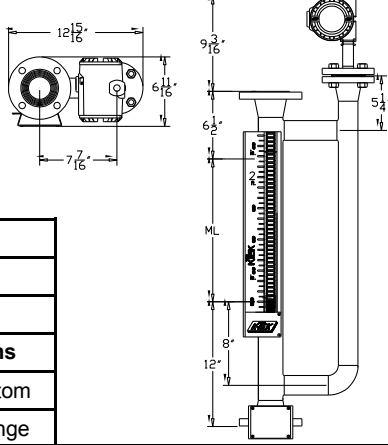
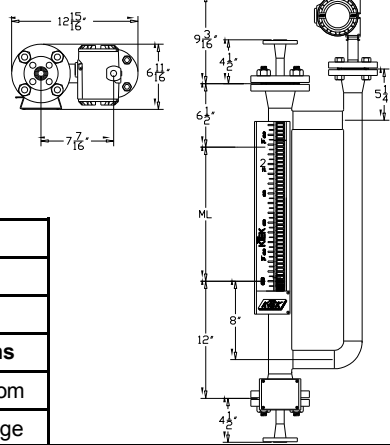
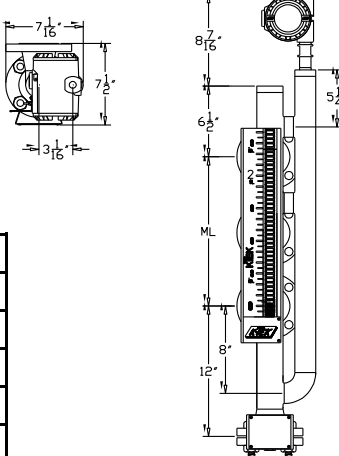
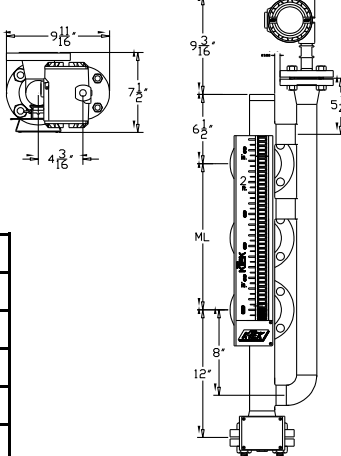
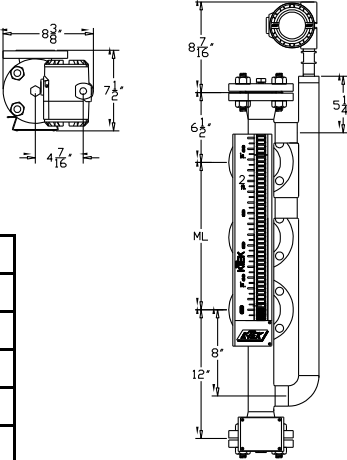
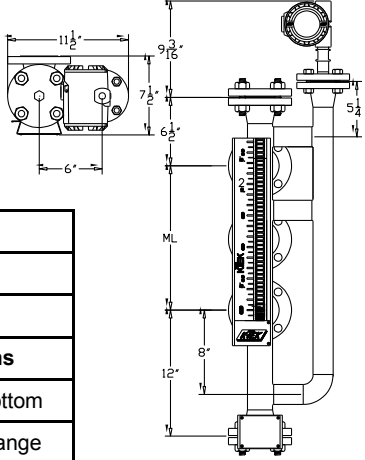
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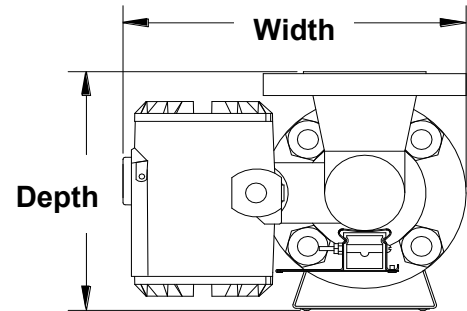
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<p>MW0519</p>  <table border="1"> <thead> <tr> <th colspan="3">Secondary Chamber</th> </tr> <tr> <th>Connection</th> <th colspan="2">Location</th> </tr> </thead> <tbody> <tr> <td>Flange</td> <td colspan="2">Right Side</td> </tr> <tr> <th colspan="3">MLG Chamber Connections</th> </tr> <tr> <td>Top</td> <td>Side</td> <td>Bottom</td> </tr> <tr> <td>Flange</td> <td>None</td> <td>Flange</td> </tr> </tbody> </table>	Secondary Chamber			Connection	Location		Flange	Right Side		MLG Chamber Connections			Top	Side	Bottom	Flange	None	Flange	<p>MW0520</p>  <table border="1"> <thead> <tr> <th colspan="3">Secondary Chamber</th> </tr> <tr> <th>Connection</th> <th colspan="2">Location</th> </tr> </thead> <tbody> <tr> <td>Flange</td> <td colspan="2">Right Side</td> </tr> <tr> <th colspan="3">MLG Chamber Connections</th> </tr> <tr> <td>Top</td> <td>Side</td> <td>Bottom</td> </tr> <tr> <td>Flange</td> <td>None</td> <td>Flange</td> </tr> </tbody> </table>	Secondary Chamber			Connection	Location		Flange	Right Side		MLG Chamber Connections			Top	Side	Bottom	Flange	None	Flange
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Additional Dimensional Information

The *MagWave* footprint dimensions will vary depending on the chamber configuration, flange size, flange rating and Guided Wave Radar coupler type. The table below provides the basic footprint dimensions for each configuration using a 2 inch float chamber with 2 inch ANSI process connections, a 1-1/2 inch Secondary Chamber with a C1 radar coupler type.

Consult the Factory regarding DIN and other flange types.

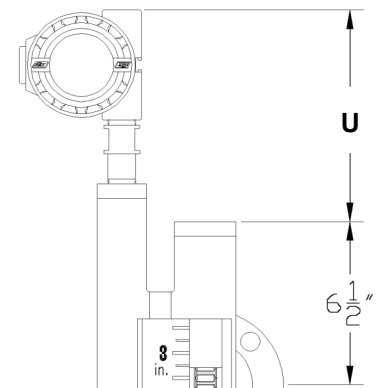


MagWave Chamber Style	FLANGE RATINGS							
	150#		300#		600#		900# / 1500#	
	Width	Depth	Width	Depth	Width	Depth	Width	Depth
MW0501	10 1/8"	7 1/2"	10 3/8"	8 1/16"	10 3/8"	8 3/16"	11 3/8"	10 5/16"
MW0502	11 3/8"	7 1/2"	11 7/8"	8 1/16"	11 7/8"	8 3/16"	13 7/8"	10 5/16"
MW0503	11 3/8"	6 11/16"	11 7/8"	7 3/8"	11 7/8"	7 1/4"	13 7/8"	9 3/8"
MW0504	11 3/8"	6 11/16"	11 7/8"	7 3/8"	11 7/8"	7 1/4"	13 7/8"	9 3/8"
MW0505	11 3/8"	7 1/2"	11 7/8"	8 1/16"	11 7/8"	8 3/16"	13 7/8"	10 5/16"
MW0506	12 15/16"	7 1/2"	14"	8 1/16"	14"	8 3/16"	16 7/16"	10 5/16"
MW0507	12 15/16"	6 11/16"	14"	7 1/4"	14"	7 1/4"	16 7/16"	9 3/8"
MW0508	12 15/16"	6 11/16"	14"	7 1/4"	14"	7 1/4"	16 7/16"	9 3/8"
MW0509	10 1/8"	7 1/2"	10 3/8"	8 1/16"	10 3/8"	8 3/16"	11 3/8"	10 5/16"
MW0510	11 3/8"	7 1/2"	11 7/8"	8 1/16"	11 7/8"	8 3/16"	13 7/8"	10 5/16"
MW0511	11 3/8"	7 1/2"	11 7/8"	8 1/16"	11 7/8"	8 3/16"	13 7/8"	10 5/16"
MW0512	12 15/16"	7 1/2"	14"	8 1/16"	14"	8 3/16"	16 7/16"	10 5/16"
MW0513	7 1/16"	7 1/2"	7 5/16"	8 1/16"	7 5/16"	8 3/16"	11 3/8"	10 5/16"
MW0514	8 3/8"	7 1/2"	8 7/8"	8 1/16"	8 7/8"	8 3/16"	10 7/8"	10 5/16"
MW0515	11 3/8"	6 11/16"	11 7/8"	7 3/8"	11 7/8"	7 1/4"	13 7/8"	9 3/8"
MW0516	10 1/8"	7 1/2"	10 1/2"	8 1/16"	10 1/2"	8 3/16"	12"	10 5/16"
MW0517	9 11/16"	7 1/2"	11 1/16"	8 1/16"	11 1/16"	8 3/16"	12 15/16"	10 5/16"
MW0518	11 1/2"	7 1/2"	13 1/8"	8 1/16"	13 1/8"	8 3/16"	16"	10 5/16"
MW0519	12 15/16"	6 11/16"	14"	7 1/4"	14"	7 1/4"	16 7/16"	9 3/8"
MW0520	12 15/16"	6 11/16"	14"	7 1/4"	14"	7 1/4"	16 7/16"	9 3/8"
MW0521	7 1/16"	7 1/2"	7 5/16"	8 1/16"	7 5/16"	8 3/16"	11 3/8"	10 5/16"
MW0522	9 11/16"	7 1/2"	11 1/16"	8 1/16"	11 1/16"	8 3/16"	12 15/16"	10 5/16"
MW0523	8 3/8"	7 1/2"	8 7/8"	8 1/16"	8 7/8"	8 3/16"	10 7/8"	10 5/16"
MW0524	11 1/2"	7 1/2"	13 1/8"	8 1/16"	13 1/8"	8 3/16"	16"	10 5/16"
CUSTOM	CONSULT FACTORY							

Additional Dimensional Information

GWR transmitters equipped with the H6 high temperature extension option (GWR Step 7- /g page 23) will increase the "U" dimensions from the previous pages by 6 inches.

GWR transmitters equipped with the C8 or C9 coupler option (GWR Step 4 - /d page 21) will increase the "U" dimensions from the previous pages by 20 inches.



b/ Select Secondary Chamber Size

The **MagWave** system features two individual, close coupled chambers with extruded connections between the chambers and to the process connections. The Magnetic Level Gauge chamber size and wall thickness will be determined by the specific gravity and pressure specifications of the process. The Secondary Chamber has a standard size of 1-1/2 inch pipe to allow the best performance of the Guided Wave Radar, however, an alternate size may be selected from the option codes below.

For example, **“/A”** would be entered for a 1-1/2 inch chamber.

Code Part 1	
Secondary Chamber Size	
A (Std)	1-1/2 inch
B	2 inch
C	2-1/2 inch
D	3 inch
E	4 inch

- Notes: 1. If necessary, the size of the Secondary Chamber will be changed to accommodate the process pressure.
 2. **MagWave** Systems may have an AT100 Magnetostrictive Transmitter installed in the Secondary Chamber. The Secondary Chamber size will be determined by the process pressure and size of the float used. The minimum Secondary Chamber size for an AT100 is 2 inch.

Model Number Selection: Step 3

c/ Select Chamber Material

Choose a material type from the list below that will be compatible with the process fluid and specifications. The Magnetic Level Gauge and Secondary Chamber will be constructed of this material. Chamber materials must be non-magnetic. If specified flanges or process connections may be made of Carbon Steel (CST) or Duplex Stainless Steel (DUP).

Code	Description	Code	Description
SS1	321 SS	TI	Titanium (Grade 2)
SS4	304 / 304L SS	A20	Alloy 20
SS6	316 / 316L SS	IN600	Incoloy 600
SS7	317 / 317L SS	IN625	Incoloy 625
SS9	904L SS	IN800	Incoloy 800
HSC	Hastelloy C-276	IN825	Incoloy 825
HSB	Hastelloy B-3	ALU	Aluminum
TN4	Teflon “S” Coated 304/304L SS (Float Chamber Only) ¹		
TN42	Teflon “S” Coated 304/304L SS (Both Chambers) ^{1,2}		
TN6	Teflon “S” Coated 316/316L SS (Float Chamber Only) ¹		
TN62	Teflon “S” Coated 316/316L SS (Both Chambers) ^{1,2}		

- Notes:**
 1: To minimize friction for optimal float travel - max. temp = 425°F. Maximum chamber length 18ft.
 2: Secondary Chamber requires a flanged connection.

d/ Select Chamber Configuration

Option Codes

Description of Option Codes	
B0	Blind Flange with Float Stop Spring and Mating Slip-On Flange
B1	B0 with FNPT ² ; 1/2" FNPT standard
B2	B0 with Plug ⁵ ; 1/2" Standard
B3	B0 with Socket Weld Coupling
B4	B0 with FNPT Coupling
B5	B0 with Nipple, for Socket Welding (Flat end)
B6	B0 with Nipple, for Butt Welding (37.5° Beveled end)
B7	B0 with Nipple, MNPT
B9	B0 with Reducing Spool Piece and Flange ⁷
B10	B0 with Socket Weld Bore ³ ; 1/2" SW standard
C0	FNPT Coupling
C0E	FNPT Coupling ^{4,6}
C0L	Thread-o-let ⁸
C1	Socket Weld Coupling
C1L	Sock-o-let ⁸
C2	C0 with plug
D0	Blind Flange with Float Stop Spring and Mating Weld Neck Flange
D1	D0 with FNPT ² ; 1/2" FNPT standard
D2	D0 with Plug ⁵ ; 1/2" standard
D3	D0 with Socket Weld Coupling
D4	D0 with FNPT Coupling
D5	D0 with Nipple, for Socket Welding (Flat end)
D6	D0 with Nipple, for Butt Welding (37.5° Beveled end)
D7	D0 with Nipple, MNPT
D9	D0 with Reducing Spool and Flange ⁷
D10	D0 with Socket Weld Bore ³ ; 1/2" SW Standard
FE	Weld Neck Flange ^{4,6}
F0	Weld Neck Flange ¹
F0E	FE with pipe between chamber and Weld Neck Flange ^{4,6}
F1	Weld Neck Flange with Weld-o-let ⁸
F2	Weld Neck Flange with Weld-o-let and Concentric Reducer ⁸
F3E	Weld Neck Flange with Concentric Reducer ^{4,6}
F3	Weld Neck Flange with Concentric Reducer
GE	Slip-On Flange ^{4,6}
G	Slip-On Flange ¹
G1	Slip-On Flange with Weld-o-let and Pipe Nipple ⁸
G3E	Slip-on Flange with Concentric Reducer ^{4,6}
L	Stub End with Loose (Lap Joint) Flange
LE	Stub End with Loose (Lap Joint) Flange ^{4,6}
L4	Stub End with Loose (Lap Joint) Flange and Butt Weld Tee
N0E	Branch Nipple for Socket Weld (Flat end) ^{4,6}
N0	Branch Nipple for Socket Weld (Flat end)
N2E	Branch Nipple for Butt Welding (37.5° Beveled end) ^{4,6}
N2	Branch Nipple for Butt Welding (37.5° Beveled end)
N3E	MNPT Branch Nipple ^{4,6}
N3	MNPT Branch Nipple
N6	Weld-o-let ⁸
S0	Screwed Pipe Cap with Float Stop Spring ⁸
S1	S0 with FNPT ² ; 1/2" FNPT Standard ⁸
S2	S0 with Plug ⁸
SW	Socket Weld Flange ¹
SWE	Socket Weld Flange ^{4,6}
T0	Butt Welded Dome Pipe Cap
T2	T0 with FNPT Coupling and Plug
T3	T0 with Socket Weld Coupling
T4	T0 with FNPT Coupling
T5	T0 with Nipple, for Socket Welding (Flat end)
T6	T0 with Nipple, for Butt Welding (37.5° Beveled end)
T7	T0 with Nipple, MNPT
T9	T0 with Nipple and Flange ⁷
W0	Welded Flat Pipe Cap with Float Stop Spring
W1	W0 with FNPT ² ; 1/2" FNPT standard
W2	W0 with Plug ⁵ ; 1/2" Standard
W3	W0 with Socket Weld Coupling
W4	W0 with FNPT Coupling
W5	W0 with Nipple, for Socket Welding (Flat end)
W6	W0 with Nipple, for Butt Welding (37.5° Beveled end)
W7	W0 with Nipple, MNPT
W9	W0 with Nipple and Flange ⁷
W10	W0 with Socket Weld Bore ³ ; 1/2" SW Standard
X	No Connection

Notes: 1: When a Weld Neck Flange (F0) or a Fixed Flange (G), (SW) option is a process connection on either end of the chamber as shown in the configuration tables these will be provided with a float stop bar or disk and spring to keep the float confined in the chamber.

2: 1/2" FNPT Standard; Optional FN7 (3/4") or FN1 (1"). Specify after option "D".

3: 1/2" SW Standard; Optional SW7 (3/4"). Specify after option "D".

4: "E" Suffix implies connection to chamber via Extruded Outlet. Extruded outlet can be utilized as follows

	<u>FLANGES & NIPPLES</u>	<u>COUPLING SIZES</u>
Stainless Steel:	Sch. 10 chambers with 1", 1-1/2" & 2" connections Sch. 40 chambers with 1", 1-1/2" & 2" connections ⁶	3/4", 1", 1-1/4" 1-1/4"
Alloy20:	Sch. 10 chambers with 1-1/2" & 2" connections	1-1/4"
Hastelloy:	Sch. 10 chambers with 1-1/2" & 2" connections	1-1/4"

5: 1/2" plug Standard; see Table 2 (Page 14) for additional sizes.

6: Cannot extrude SCH 40 seamless pipe.

7: Select B9, D9, T9 or W9 when flange connections are smaller than the chamber size at either the top and / or bottom of MW05.

8: Minimum Schedule 40 Chamber.

d/ Select Chamber Configuration

The Chamber Style selected in Step 1 determines the basic orientation of the MagWave level system. This Step will specify the actual process and end connections of the Primary MagWave chamber.

To begin selecting the Chamber Configuration select the top connection code from the chart below.

Example: /W2-----/

If the Chamber Style does not match the Chamber Configuration, the Chamber Style which closely matches the Chamber Configuration will be used.

Option Code Detail Top Connections						
B0 	B1 	B2 	B3 	B4 	B5 	B6
B7 	B9 	B10 	D0 	D1 	D2 	D3
D4 	D5 	D6 	D7 	D9 	D10 	F0
G 	S0 	S1 	S2 	T0 	T2 	T3
T4 	T5 	T6 	T7 	T9 	W0 	W1
W2 	W3 	W4 	W5 	W6 	W7 	W9
W10 						

d/ Select Chamber Configuration












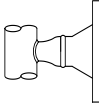
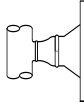



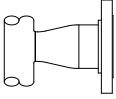










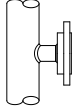


Continue selecting the Chamber Configuration by selecting the Primary Chamber side (process) connections from the chart below.

Example: /W2FEFE-----/

For Chamber Styles with more than 2 side connections, enter the code for each connection or enter the code with a multiplier:

Example: /W2FEFEFE----/ or /W23FE-----/

If the Chamber Style does not match the Chamber Configuration, the Chamber Style which closely matches the Chamber Configuration will be used.

Option Code Detail Side Connections						
C0 	C0E 	C0L 	C1 	C1L 	C2 	FE 
F0 	F0E 	F1 	F2 	F3 	F3E 	GE 
G 	G1 	G3E 	LE 	L 	L4 	N0E 
NO 	N2E 	N2 	N3E 	N3 	N6 	SW 
SWE 	X 					

d/ Select Chamber Configuration

To complete the Chamber Configuration code, select the code for the bottom connection form the chart below.

Example: /W2FEFEB2/

If the Chamber Style does not match the Chamber Configuration, the Chamber Style which closely matches the Chamber Configuration will be used.

Option Code Detail Bottom Connections						
B0 	B1 	B2 	B3 	B4 	B5 	B6
B7 	B9 	B10 	D0 	D1 	D2 	D3
D4 	D5 	D6 	D7 	D9 	D10 	F0
G 	S0 	S1 	S2 	T0 	T2 	T3
T4 	T5 	T6 	T7 	T9 OR 	W0 	W1
W2 	W3 	W4 	W5 	W6 	W7 	W9 OR
W10 						

e/ Select Connection Size & Rating

Flanged Connections											
Size		Pressure Rating		TYPE							
				Lap Joint	Slip-On				Socket Weld		Weld Neck
Size	Pressure Rating	Raised Face	RTJ		Tongue & Groove	Male / Female	Raised Face	Raised Face	RTJ	Tongue & Groove	Male / Female
1/2"	150#	L51	SR51	SJ51	ST51	SM51	SWR51	WR51	WJ51	WT51	WM51
	300#	L53	SR53	SJ53	ST53	SM53	SWR53	WR53	WJ53	WT53	WM53
	600#	L56	SR56	SJ56	ST56	SM56	SWR56	WR56	WJ56	WT56	WM56
	1500#	L515	SR515	SJ515	ST515	SM515	SWR515	WR515	WJ515	WT515	WM515
3/4"	150#	L71	SR71	SJ71	ST71	SM71	SWR71	WR71	WJ71	WT71	WM71
	300#	L73	SR73	SJ73	ST73	SM73	SWR73	WR73	WJ73	WT73	WM73
	600#	L76	SR76	SJ76	ST76	SM76	SWR76	WR76	WJ76	WT76	WM76
	1500#	L715	SR715	SJ715	ST715	SM715	SWR715	WR715	WJ715	WT715	WM715
1"	150#	L11	SR11	SJ11	ST11	SM11	SWR11	WR11	WJ11	WT11	WM11
	300#	L13	SR13	SJ13	ST13	SM13	SWR13	WR13	WJ13	WT13	WM13
	600#	L16	SR16	SJ16	ST16	SM16	SWR16	WR16	WJ16	WT16	WM16
	1500#	L115	SR115	SJ115	ST115	SM115	SWR115	WR115	WJ115	WT115	WM115
1-1/2"	150#	L151	SR151	SJ151	ST151	SM151	SWR151	WR151	WJ151	WT151	WM151
	300#	L153	SR153	SJ153	ST153	SM153	SWR153	WR153	WJ153	WT153	WM153
	600#	L156	SR156	SJ156	ST156	SM156	SWR156	WR156	WJ156	WT156	WM156
	1500#	L1515	SR1515	SJ1515	ST1515	SM1515	SWR1515	WR1515	WJ1515	WT1515	WM1515
2"	150#	L21	SR21	SJ21	ST21	SM21	SWR21	WR21	WJ21	WT21	WM21
	300#	L23	SR23	SJ23	ST23	SM23	SWR23	WR23	WJ23	WT23	WM23
	600#	L26	SR26	SJ26	ST26	SM26	SWR26	WR26	WJ26	WT26	WM26
	1500#	L215	SR215	SJ215	ST215	SM215	SWR215	WR215	WJ215	WT215	WM215
2-1/2"	150#	L251	SR251	SJ251	ST251	SM251	SWR251	WR251	WJ251	WT251	WM251
	300#	L253	SR253	SJ253	ST253	SM253	SWR253	WR253	WJ253	WT253	WM253
	600#	L256	SR256	SJ256	ST256	SM256	SWR256	WR256	WJ256	WT256	WM256
	1500#	L2515	SR2515	SJ2515	ST2515	SM2515	SWR2515	WR2515	WJ2515	WT2515	WM2515
3"	150#	L31	SR31	SJ31	ST31	SM31	SWR31	WR31	WJ31	WT31	WM31
	300#	L33	SR33	SJ33	ST33	SM33	SWR33	WR33	WJ33	WT33	WM33
	600#	L36	SR36	SJ36	ST36	SM36	SWR36	WR36	WJ36	WT36	WM36
	900#	L39	SR39	SJ39	ST39	SM39	SWR39	WR39	WJ39	WT39	WM39
	1500#	L315	SR315	SJ315	ST315	SM315	SWR315	WR315	WJ315	WT315	WM315
4"	150#	L41	SR41	SJ41	ST41	SM41	SWR41	WR41	WJ41	WT41	WM41
	300#	L43	SR43	SJ43	ST43	SM43	SWR43	WR43	WJ43	WT43	WM43

Notes:

- 1: Extruded Outlets are full bore up to a maximum of 2" See note 4 on page 10.
- 2: 1/2" to 2 1/2" flanges use 1500# if 900# is specified.
- 3: Flanges are standard ANSI. Other flanges, such as DIN, are also available.
- 4: For flange material different from Chamber material enter code from Step 3 - c/, then flange code (CST-SR21).

Nipples (Sch. 40 Std)			Plugs (1/2" Std)		Threaded Couplings			Screw-On Caps		
1/2"	Sch. 40	N54	1/2"	P5	1/2"	3000#	C53	2"	3000#	S23
	Sch. 80	N58	3/4"	P7	3/4"	3000#	C73	2-1/2"	3000#	S253
	Sch. 160	N51	1"	P1	1"	3000#	C13	3"	3000#	S33
3/4"	Sch. 40	N74	2"	P2	Socket Weld Couplings			4"	3000#	S43
	Sch. 80	N78	3"	P3				1/2"	3000#	SC53
	Sch. 160	N71	4"	P4	3/4"	3000#	SC73			
	1"	Sch. 40	N14	6"	P6	1"	3000#	SC13		
1.5"	Sch. 80	N18								
	Sch. 160	N11								
	Sch. 40	N154								
Sch. 80	N158									
Sch. 160	N151									

Sock-o-lets				Thread-o-lets					
1/2"	3000#	S05		1/2"	3000#	T053	1/2"	6000#	T056
3/4"	3000#	S07		3/4"	3000#	T073	3/4"	6000#	T076
1"	3000#	S10		1"	3000#	T103	1"	6000#	T106
1-1/2"	3000#	S15		1-1/2"	3000#	T153	1-1/2"	6000#	T156
2"	3000#	S20		2"	3000#	T203	2"	6000#	T206

e/ Select Connection Size & Rating

CLASS 150 FLANGE PRESSURE RATINGS (PSI) PER ASME B16.5-2003						
Process Temperature	A105 C. STEEL	A182 304 SS	A182 316 SS	A182 304L SS 316L SS	B462 ALLOY 20	B564 625 C276
-20 to 100 °F	285	275	275	230	290	290
200 °F	260	230	235	195	260	260
300 °F	230	205	215	175	230	230
400 °F	200	190	195	160	200	200
500 °F	170	170	170	150	170	170
600 °F	140	140	140	140	140	140
650 °F	125	125	125	125	125	125
700 °F	110	110	110	110	110	110
750 °F	95	95	95	95	95	95
800 °F	80	80	80	80	80	80
850 °F	65	65	65	65		65
900 °F	50	50	50			50
950 °F	35	35	35			35
1000 °F	20	20	20			20

CLASS 300 FLANGE PRESSURE RATINGS (PSI) PER ASME B16.5-2003						
Process Temperature	A105 C. STEEL	A182 304 SS	A182 316 SS	A182 304L SS 316L SS	B462 ALLOY 20	B564 625 C276
-20 to 100 °F	740	720	720	600	750	750
200 °F	680	600	620	510	740	750
300 °F	655	540	560	455	710	730
400 °F	635	495	515	420	680	700
500 °F	605	465	480	395	655	665
600 °F	570	440	450	370	605	605
650 °F	550	430	440	365	590	590
700 °F	530	420	435	360	570	570
750 °F	505	415	425	355	530	530
800 °F	410	405	420	345	510	510
850 °F	320	395	420	340		485
900 °F	230	390	415			450
950 °F	135	380	385			385
1000 °F	85	355	365			365

CLASS 600 FLANGE PRESSURE RATINGS (PSI) PER ASME B16.5-2003						
Process Temperature	A105 C. STEEL	A182 304 SS	A182 316 SS	A182 304L SS 316L SS	B462 ALLOY 20	B564 625 C276
-20 to 100 °F	1480	1440	1440	1200	1500	1500
200 °F	1360	1200	1240	1020	1485	1500
300 °F	1310	1075	1120	910	1420	1455
400 °F	1265	995	1025	840	1365	1395
500 °F	1205	930	955	785	1310	1330
600 °F	1135	885	900	745	1210	1210
650 °F	1100	865	885	730	1175	1175
700 °F	1060	845	870	720	1135	1135
750 °F	1015	825	855	705	1065	1065
800 °F	825	810	845	690	1015	1015
850 °F	640	790	835	675		975
900 °F	460	780	830			900
950 °F	275	765	775			775
1000 °F	170	710	725			725

/f Select Indicator Type

Code	Description
S1P	Fluorescent Shuttle w/ Permanently Sealed Lexan Tube (200°F/93°C max) ¹
S1G	Fluorescent Shuttle w/ Hermetically Sealed Glass Tube (350°F/176°C max) ¹
S2G	High Temp (Red) Shuttle w/ Hermetically Sealed Glass Tube (1000°F/538°C max) ¹
M1P	Yellow/Black MBG w/ Permanently Sealed Lexan Tube (200°F/93°C max) ²
M2P	Red/White MBG w/ Permanently Sealed Lexan Tube (200°F/93°C max) ²
M1G	Yellow/Black MBG w/ Hermetically Sealed Glass Tube (650°F/343°C max) ^{3,6}
M2G	Red/White MBG w/ Hermetically Sealed Glass Tube (650°F/343°C max) ^{3,6}
CM1A	Yellow/Black MBG w/ Lexan Frost Extension for -100°F/-73°C min (2" thick insulation) ^{4,5}
CM2A	Red/White MBG w/ Lexan Frost Extension for -100°F/-73°C min (2" thick insulation) ^{4,5}
X	None
Notes:	1: Not available when a transmitter is used for total & interface level combined. 2: Add "H" to the indicator type to include insulation pad behind the indicator and raise maximum temperature to (300°F / 149 °C) 3: Add "HS" to the indicator type to include insulation pad and TempKoat™ behind the indicator and raise maximum temperature to (1000°F / 538°C) 4: Cryogenic unit indicator types are not field accessible. 5: Minimum process temperature limited by the Guided Wave Radar to -60°F/-51°C 6: MagWave maximum process temperature limited by the Guided Wave Radar to 800°F/ 427°C

Model Number Selection: Step 7

/g Select Indicator Ruler

Code	Description
N	No indicator housing or scale (must select "X" for Indicator Type)
A	No scale
B	SS scale marked in ft / inches w/ 1/2" divisions (from 0 to 48 ft. standard ³)
C	SS scale marked in meters/centimeters w/ 1 cm divisions ¹
D	SS scale marked in running inches w/ 1/2" divisions ²
E	SS scale marked in running inches w/ 1/8" divisions ²
F	Custom SS scale (% , gallons, liters, etc.)
G	Custom plastic scale (% , gallons, liters, etc.) 200°F (93°C) max with no insulation
H	Dual scale; specify types
Notes:	1: Standard rulers begin with 0 cm but can be specified from -100 cm to 10 meters. 2: Standard rulers begin with 0 inches but can be specified from: 1/2" divisions: -48" to 216" 1/8" divisions: -48" to 144" 3: Custom rulers available (Consult Factory - Choose /F or /G).

/h Select Options

Code	Description
X	None
IH1	High Temp. Insulation; Chamber Only; 1/2" thick; 250°F max (121°C)
IH1D	High Temp. Insulation; Chamber & Vent / Drain Flanges; 1/2" thick; 250°F max (121°C)
IH2	High Temp. Insulation; Chamber Only; 1" thick; 500°F max (260°C)
IH2D	High Temp. Insulation; Chamber & Vent / Drain Flanges; 1" thick; 500°F max (260°C)
IH3	High Temp. Insulation; Chamber Only; 2" thick; 900°F max ^{1,5} (482°C)
IH3D	High Temp. Insulation; Chamber & Vent / Drain Flanges; 2" thick; 900°F max ^{1,5} (482°C)
IL1	Cryogenic Insulation; 2" thick; single layer; -100°F minimum ⁴ (-73°C)
TT1	Steam Trace Tubing
ET1xx	Electric Tracing; Class I, Div. 2, Gp BCD; 221°F max (105°C); fixed setpoint control ^{2,3}
ET2x	Electric Tracing; Class I, Div. 2, Gp BCD; 400°F max (204°C); adjustable setpoint control ²
ET3x	Electric Tracing; Class I, Div. 1, Gp CD; 800°F max (427°C); adjustable setpoint control ²
IV	Isolation (to process) Valves (Specify valve manufacturer & model)
DV	Drain Valves (Specify valve manufacturer & model)
VV	Vent Valves (Specify valve manufacturer & model)
RD	Switch Mount Rod
G	Gussets on process connections
GR	Oversized chamber with guide rods for flashing
S	Special (Consult factory and provide description)
Notes:	<ol style="list-style-type: none"> Insulation is 1" thick when a level transmitter and / or level switch is used regardless of maximum temperature Specify power supply 1) 110, 2) 220, 3) 277 & 4) 440 VAC (ex. ET21= ET2 for 110VAC) Specify setpoint A) 35°, B) 45°, C) 60°, D) 90° or E) 185°F (1.7°, 7.2°, 15.6°, 32.2°, or 85°C) (ex. ET11A = ET1 for 110VAC with a setpoint at 35°F) Minimum process temperature limited by the Guided Wave Radar to -60°F (-51°C) Maximum process temperature limited by the Guided Wave Radar to 800°F (427°C), 635°F (335°C) for steam service. Requires 6 inch (150mm) centers between chambers.

/i/j Select Center to Center / Measuring Length

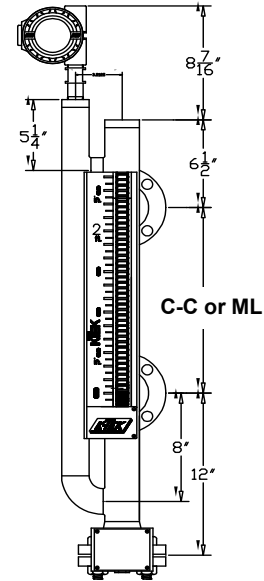
Enter the Center to Center dimension of the process connections in inches or mm. This will also be the Measuring Length (ML) of the MW05 and the Guided Wave Radar Transmitter.

MW0501/A/SS6/W2FEFEB2/WR21/S1G/B/X/48"

Maximum Center to Center length 40 ft / 12.2 m.

If a Measuring Length other than the Center to Center dimension is required, enter the Measuring Length as the next entry of the model number (/j.)

MW0501/A/SS6/W2FEFEB2/WR21/S1G/B/X/48"/36"



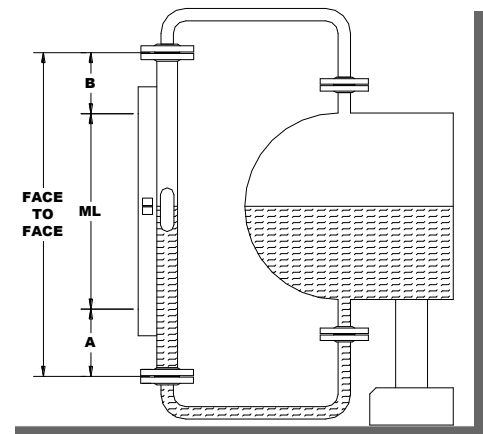
For MagWave Configurations with Top and Bottom process connections, enter the Face-to-Face dimension followed by the Measuring Length.

MW0507/A/SS6/GXXG/SR21/S1G/B/X/48"/29.5"

Typical "A" dimension = 12 inches
 Typical "B" dimension = 6.5 inches

If the Measuring length is uncertain enter "ML" for the last entry.

MW0507/A/SS6/GXXG/SR21/S1G/B/X/48"/ML



Face to Face = A + B + ML

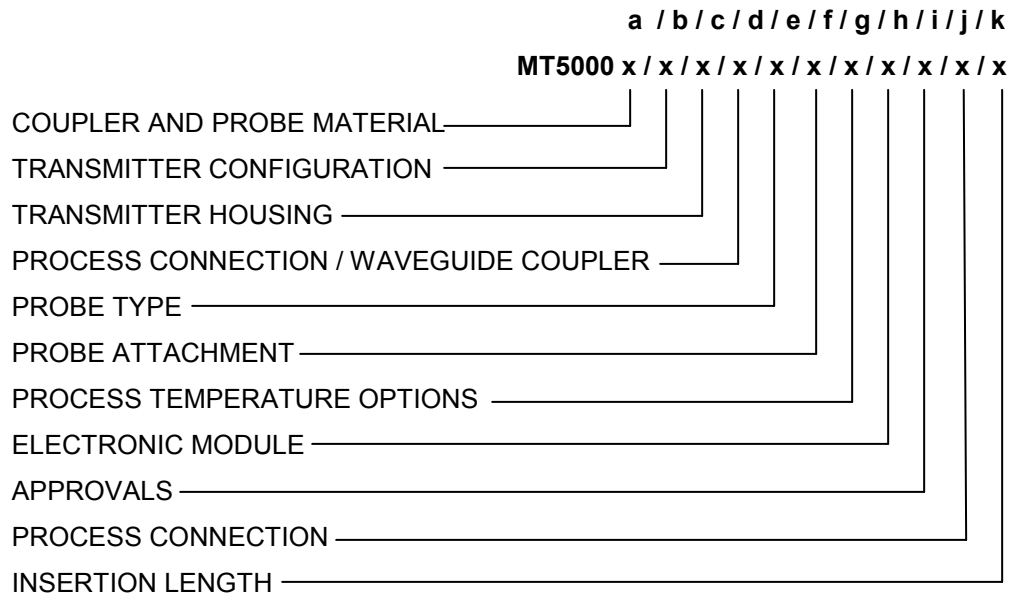
The **MagWave** system features the MT5000 Guided Wave Radar transmitter installed in the Secondary Chamber. Use the following pages to select the model number for the MT5000.

Consult the Factory regarding other transmitter options.

MT5000 Guided Wave Radar Level Transmitter

Model Number Format

Example: MT5000/S6/LW/A/C1V/P11/H0/CW09-S6/M7A/FM/P/48”



How to Order:	Page
Step 1: <i>/a/</i> Select Coupler and Probe Material	20
Step 2: <i>/b/</i> Select Transmitter Configuration	20
Step 3: <i>/c/</i> Select Transmitter Housing	20
Step 4: <i>/d/</i> Select Process Connection / Waveguide Coupler	21
Step 5: <i>/e/</i> Select Probe Type	22
Step 6: <i>/f/</i> Select Probe Attachment	22
Step 7: <i>/g/</i> Select Process Temperature Options	23
Step 8: <i>/h/</i> Select Electronic Module	23
Step 9: <i>/i/</i> Select Approvals	24
Step 10: <i>/j/</i> Select Process Connection	24
Step 11: <i>/k/</i> Select Insertion Length	24

/a Select Coupler and Probe Material

Code	Description
S6	316L Stainless Steel (Std)
HC	Hastelloy C-276 (Rigid Probes Only, P43 probe HSC-270)
HB	Hastelloy B3 (Rigid Probes Only)
MO	Monel
TI	Titanium (Rigid Probes Only)

Model Number Selection: Step 2**/b Select Transmitter Configuration**

Code	Description
L	Local Transmitter (Std)
LW	Local Transmitter with Window Cover (Std)
R	Remote Mounted Electronics with 5 ft. Cable (Dielectric > 35)
RW	Remote Mounted Electronics with Window Cover and 5 ft. Cable (Dielectric > 35)

Model Number Selection: Step 3**/c Select Transmitter Housing**

Code	Description
A	Dual Compartment Aluminum Housing (Std)
S	Dual Compartment 316L Stainless Steel Housing

/d Select Process Connection / Waveguide Coupler

Code		Description
Cxxo	xx	Process Connection & Waveguide Coupler (Table 1A)
	o	Seal Code (no code required for /C8 & /C9) (Table 1C)
	nn	Tri-clamp Size C6 & C7 Sanitary Couplers, NPT for C10 Coupler

TABLE 1A - Process Connection / Waveguide Couplers

Code	Insulator	Process Connection	Seal Options	Pressure Rating	Min. Temp.	Max. Temp.	Probe Options
C1 (Std)	Teflon	3/4" NPT	V, K, E	1500 psi @ 100°F / 103 bar @ 38°C 600 psi @ 400°F / 41 bar @ 204°C	-60°F -50°C	400°F 204°C	P11, P01, PXX
C1H	Teflon	3/4" NPT	V, K, E	3000 psi @ 100°F / 207 bar @ 38°C 1200 psi @ 400°F / 83 bar @ 204°C	-60°F -50°C	400°F 204°C	P11, P01, PXX
C2	Teflon	1.5" NPT	V, K, E	1500 psi @ 100°F / 103 bar @ 38°C 600 psi @ 400°F / 41 bar @ 204°C	-60°F -50°C	400°F 204°C	P12, P02, PXX
C2H	Teflon	1.5" NPT	V, K, E	3000 psi @ 100°F / 207 bar @ 38°C 1200 psi @ 400°F / 83 bar @ 204°C	-60°F -50°C	400°F 204°C	P12, P02, PXX
C8 (316SS only)	Borosilicate Glass	1.5" NPT	Hermetic	5000 psi @ 100°F / 344 bar @ 38°C 1500 psi @ 800°F / 103 bar @ 427°C NOT FOR WATER OR STEAM	-60°F -50°C	800°F 427°C	P11
C9 (316SS only)	Alumina Ceramic	3/4" NPT	Aegis O-Ring	2000 psi @ 635°F / 138 bar @ 335°C HOT WATER OR SATURATED STEAM	-60°F -50°C	635°F 335°C	P11

TABLE 1B - CHAMBER - COUPLER COMPATABILITY

Secondary Chamber											
Size		1-1/2"		2"		2-1/2"		3"		4"	
Connection		Cap	Flange	Cap	Flange	Cap	Flange	Cap	Flange	Cap	Flange
GWR	Coupler	Probe									
	C1,C1H	P01		X		X		X		X	
		P11	X	X	X	X		X		X	
	C2,C2H	P02	X ¹					X		X	
		C8	P11	X ¹	X	X	X	X		X	
P12	X ¹		X	X	X		X		X	X	
C9	P11	X	X	X	X		X				
Notes		X - Denotes an Acceptable Combination X ¹ - Requires 1-1/2" NPT threaded by socket weld coupling									

TABLE 1C - O-RING SEALS

Suffix	Description	Temperature Range
V (Std)	Viton	-15°F - 400°F / -26°C - 204°C
K	Kalrez	-40°F - 400°F / -40°C - 204°C
E	EPDM	-60°F - 250°F / -50°C - 125°C
A	Aegis	-14°F - 572°F / -10°C - 300°C
Refer to the MT5000 Datasheet MT5000-0202-1 for a list of compatible processes.		

/e Select Probe Type

Table 2 - PROBE DESCRIPTIONS

Code	O.D.	Description	Max Length		Probe Materials
			Secondary Chamber Connection		
			Cap	Flange	
P01	0.25"	Rigid	N/A	5ft/1.52m	S6, HC, HB,MO, TI
P11 (Std)	0.19"	Cable	C1,C9 = 7 ft/2.13m C2,C8 = 50ft/15.24m ¹	50ft/15.24m ¹	S6, MO
P02	0.50"	Rigid	1.5" - 2" chamber = 5ft/1.52m 2.5" - 4" chamber = 10ft/3.05m		S6, HC, HB,MO, TI
Custom					
PXX	Consult Factory				
Note:	1: Requires spacers at 5 ft maximum intervals for lengths exceeding 7 ft.				

Model Number Selection: Step 6

/f Select Probe Attachment

Code	Description
X	None
CDyyz-ww	Clamp On Centering Disk (Solid Rod Probes) from Table 3. Note: Rigid probes installed in stilling wells or external chambers require centering disk.
CWyyz-ww	Clamp On Centering Weight (Cable Probes) from Table 3. Note: Cable probes require a centering weight or end fitting to stabilize bottom of cable
E	Eyelet (Cable Probes)

Table 3 - CENTERING DISKS AND WEIGHTS

Secondary Chamber		Probe Type					
		P01		P11		P02	
Size	Conn.	Cap	Flange	Cap	Flange	Cap	Flange
1-1/2"	10		CD15B-%	CW09D-% (Std)		CD15C-%	
	40						
	80						
2"	10		CD20B-%	CW09D-%			
	40		CD15B-%				
	80						
2-1/2"	10		CD20B-%		CW19F-%		CD20C-%
	40						
	80						
3"	10		CD28B-%		CW29F-%		CD28B-%
	40				CW19F-%		
	80						
4"	10		CD38B-%		CW29F-%		CD38B-%
	40						
	80						

% - Denotes material type. Use code from Step 1 - /a.
Refer to Centering Disc and Weight Chart CDW-0202-1 for detailed descriptions

/g Select Process Temperature Options

Code	Description
H0	32 - 250°F / 0 - 121°C
H6	C1 through C7 and C10 couplers: Above 250°F / 121°C or below 32°F / 0°C; Electronics enclosure is extended 6" above process connection. C8 and C9 couplers: Above 500°F / 260°C; Extends electronics enclosure an additional 6 inches above process connection. Refer to Table 1A for maximum and minimum process temperatures.

Model Number Selection: Step 8

/h Select Electronic Module



Code	Description
X	None
M7A	One Level, Graphic Display, 4-20 mA Output, HART Add Suffix "M" for MODBUS (not Intrinsically Safe) Add Suffix "F" for Foundation Fieldbus

Table 4 - Guidelines for Interface Level Measurement

In order to properly detect the level of interface between two liquids using the **MT5100**, the following rules must be adhered to:

1. One of the following probe and mounting configurations must be used:
 - a. Single rigid rod or flexible cable mounted in a stilling well, external chamber, or existing displacer.*
 - b. Dual rigid rod, dual flexible cable or Tri-Tape
 - c. Coaxial probe mounted into tank, external chamber, or displacer

* *This is the preferred mounting configuration to reduce the chance of fouling.*
2. Emulsion layers will affect the detection of an interface level. An emulsion layer may negate an interface level indication completely. The **MT5100** will read an interface level in the presence of a 2 inch emulsion.
3. The minimum upper fluid thickness must be 4 inches when emulsion is present, and 0 inches with a clean interface.
4. The upper fluid dielectric constant must be greater than 1.6 and less than 5.
5. The interface level indication is a calculated value based partially upon the dielectric of the upper fluid. The upper fluid dielectric must remain constant for consistency / accuracy in the interface level indication.
6. The lower fluid dielectric constant must not be less than 15.
7. If the application is a flooded condition (sensor completely submerged in process), it must remain completely flooded.
8. In a non-flooded condition, the upper fluid must not be allowed to enter the upper un-measurable zone. The upper un-measurable zone is typically located within the mounting nozzle of the vessel.

If the required interface application does not fall within the above mentioned parameters, please consult the factory for an alternate technology, such as a Magnetostrictive, or RF Capacitance.

/i Select Approvals

Code	Description
X	None
FM	Factory Mutual Research Corp. (FM) and Canadian Standards Association (CSA)
GR	Gost - Russia (M7AM option not Intrinsically Safe)
CEX	ATEX Flameproof
CEI	ATEX I.S.
IEI	International Electromechanical Commission I.S.
IEX	International Electromechanical Commission Flameproof
UKR	Ukraine SEPRO



Factory Mutual Research Corporation
 XP-IS / I / 1 / ABCD / T6 Ta = 77°C
 DIP / II, III / 1 / EFG / T6 Ta = 77°C
 IS / I / 1 / ABCD / T4 Ta = 77°C - ELE1034
 NI / I / 2 / ABCD / T4 Ta = 77°C
 S / II, III / 2 / FG / T4 Ta = 77°C
 ANI / I / 2 / ABCD / T4 - ELE1034
 Type 4X



Canadian Standards Association
 XP CL 1, DIV 1, GP ABCD; CL 2, DIV 1, GP EFG; CL 3 - T6
 CL 1, DIV 2, GP ABCD; CL 2, DIV 2, GP EFG - T5
 IS CL 1, DIV 1, GP CD; CL 2, DIV 1, GP EFG - T4
 - when installed per ELE1034
 Type 4X



GOST Russian, GOST Kazakhstan
 1Exd[ia]IIC T6, 0ExialIB T6, IP67



UKRSEPRO
 1ExdialICT6; 0ExialIBT4



IEC International Electromechanical Commission

IECEx ITS 08.0036X

II 1/2 G/D
 Ex ia IIB T4 (-40°C ≤ Tamb ≤ 66°C)
 Ex iaD 20/21 IP6X T80°C (-40°C ≤ 66°C)

IECEx ITS 08.0037X

Ex ia d IIC T4
 Ex iaD tD 20/A21 IP6X T80°C



ATEX

ITS 08ATEX25865X

II 1/2 G/D
 Ex ia IIB T4 (-40°C ≤ Tamb ≤ 66°C)
 Ex iaD 20/21 IP6X T80°C (-40°C Tamb ≤ 66°C)

ITS08 ATEX15870X

II 1/2 G/D Ex ia d IIC T6
 Ex tD 20/A21 IP6X T80°C

Model Number Selection: Step 10

/j Select Process Connection

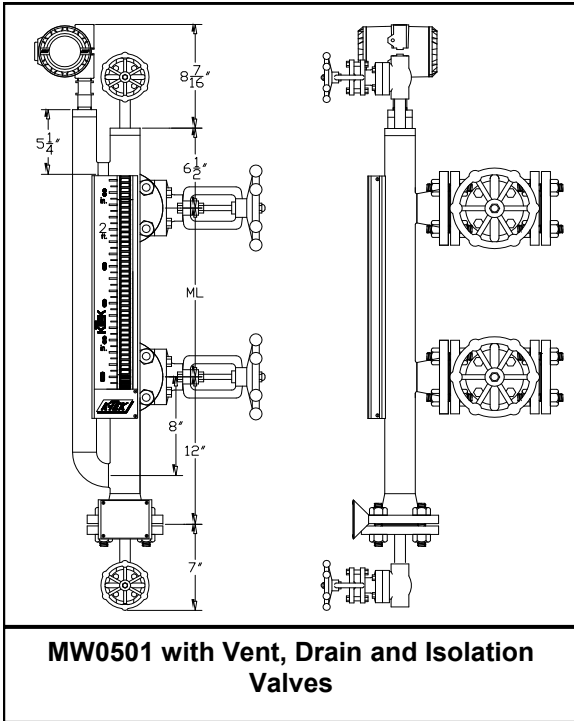
Code	Chamber Connection	Description
P	Cap	Standard as shown on Probe Process Connection Table (Table 1A)
FL	Flange	Loose flange or plug for use with probe NPT threads. Type, material and rating will match MW05.
WP	Flange	Welded process connection. Type, material and rating will match MW05.

Model Number Selection: Step 11

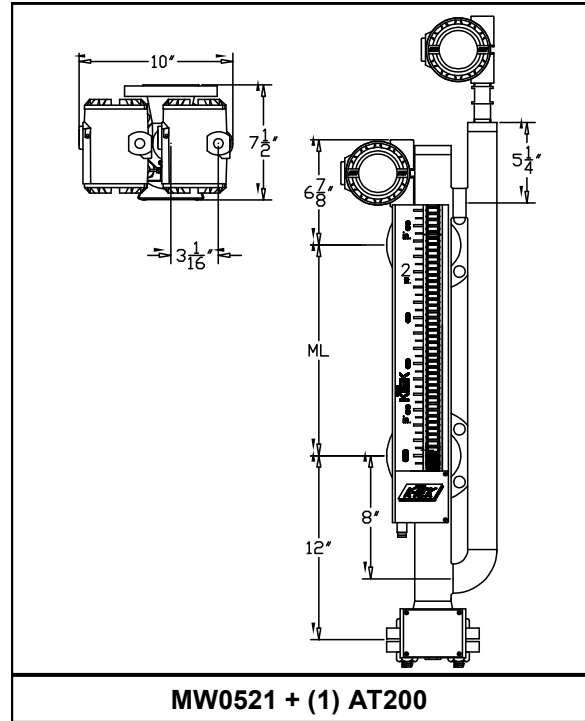
/k Select Insertion Length

Code	Description
L	Actual Insertion Length will be determined by MW05 configuration, connection type, size and rating. For quote purposes use the formula $L = ML + 15 \text{ in.}$, or $L = ML + 380 \text{ mm.}$

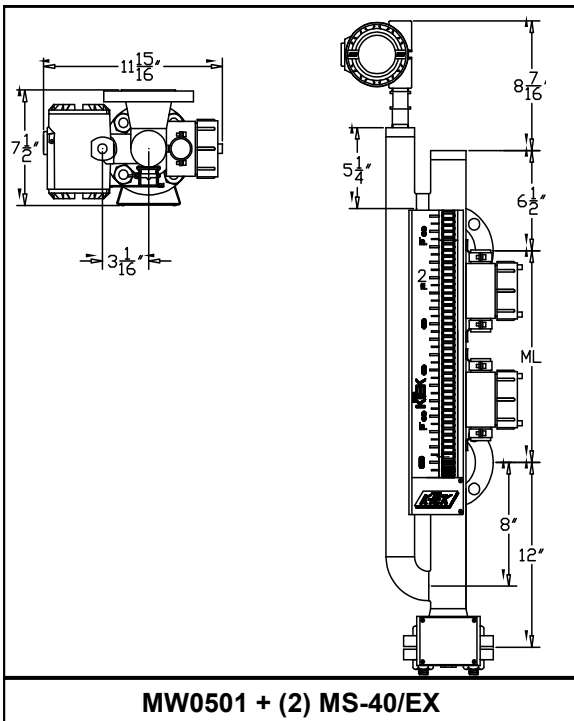
Other Transmitter and Switch Accessories:	
Magnetostrictive Level Transmitters	
AT100	Refer to AT100-0202-1 Data Sheet for Ordering Information
AT200	Refer to AT200-0202-1 Data Sheet for Ordering Information
AT500	Refer to AT500-0202-1 Data Sheet for Ordering Information
AT600	Refer to AT600-0202-1 Data Sheet for Ordering Information
Capacitance Level Transmitter	
A38	Refer to A38-0202-1 Data Sheet for Ordering Information
Magnetic Level Gauge Switches	
MS30	Refer to MS30-0202-1 Data Sheet for Ordering Information
MS40	Refer to MS40-0202-1 Data Sheet for Ordering Information
MS41	Refer to MS41-0202-1 Data Sheet for Ordering Information
PS35	Refer to PS35-0202-1 Data Sheet for Ordering Information
PS45	Refer to PS45-0202-1 Data Sheet for Ordering Information
Vibrating Level Switch	
RS80	Refer to RS80-0202-1 Data Sheet for Ordering Information
RS85	Refer to RS85-0202-1 Data Sheet for Ordering Information
Thermal Dispersion Switch	
TX	Refer to TX-0202-1 Data Sheet for Ordering Information
Capacitance Switch	
KCAP400	Refer to KCAP400-0202-1 Data Sheet for Ordering Information
All Data Sheets are available on the ABB website at www.abb.com/level	



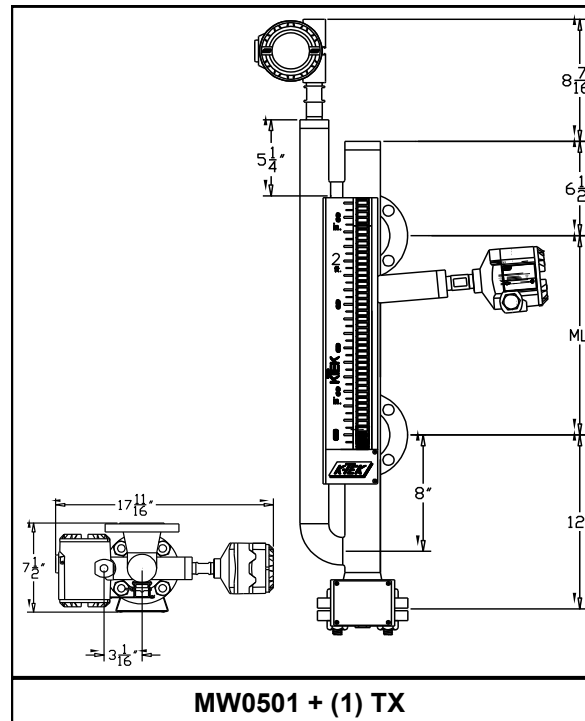
- ABB can include customer specified valves as part of the MagWave configuration
- Simplified Installation



- Adding an AT200 to the MagWave system provides 2 independent 4-20mA outputs
- Redundant Level Measurement



- Adding magnetically actuated switches to the MagWave system provides additional control points
- Hi-Low Alarms
- Pump Control



- Thermal Dispersion or Vibrating Fork switches add functionality independent of the GWR transmitter and magnetic float
- Independent Level Alarm

QUOTATION REQUEST - MW05-Dual Chamber

Tel: (1) 225-673-6100 / 800-735-5835 E-mail: sales@ktekcorp.com
 Fax: (1) 225-673-2525

Rep. Firm: _____ Phone #: _____ E-mail: _____	Contact: _____ Fax #: _____
Customer: _____ Phone #: _____ E-mail: _____	Contact: _____ Fax: _____

Process Conditions:

Qty: _____ **MW05** Application for (circle one): Total Level Interface Level ¹ Total & Interface ¹

Operating Sp. Gravity: _____ Min. Sp. Gravity: _____ Second Specific Gravity (Interface): _____

Fluid(s): _____ (If Water: Steam Service? Y / N)

Operating Temp _____ Max Temp _____ Operating Press _____ Max Press _____

Dielectric Constant: Upper Fluid _____ Lower Fluid _____

Note 1: Both fluids must meet specific dielectric requirements for interface measurement. Refer to page 23 Table 4.

MLG Chamber & Float Details:

Chamber Material _____ Float Material _____ Flange Material _____

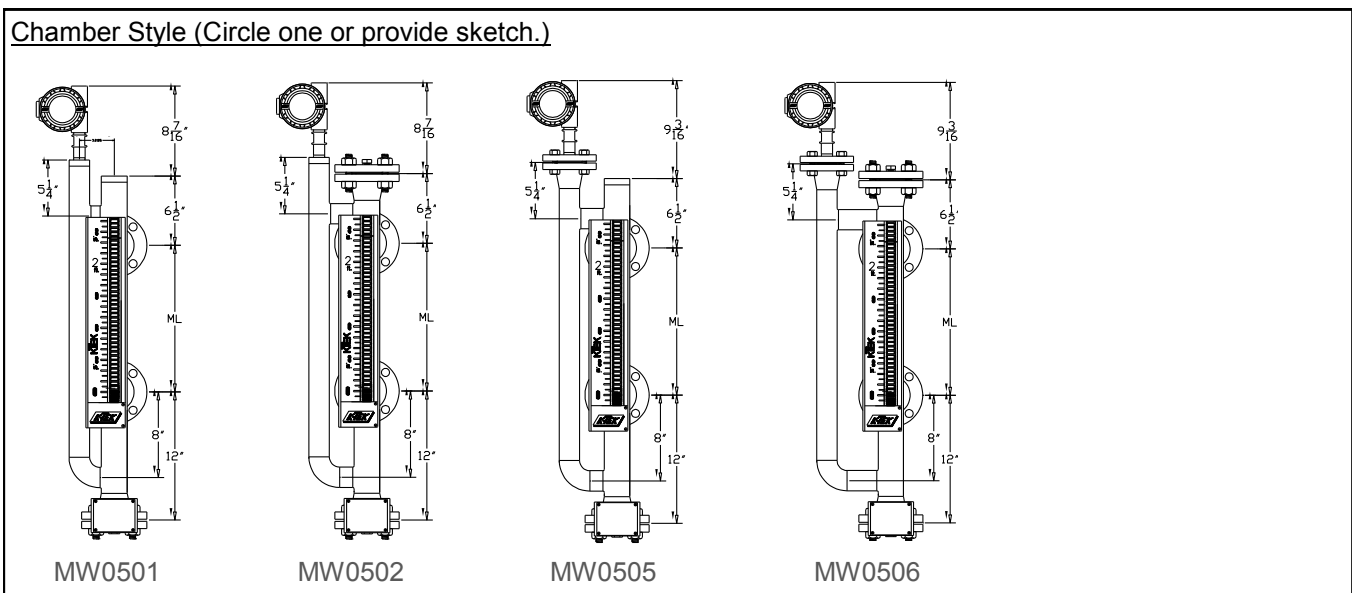
Process Connection Type: _____ Size _____ Rating _____

Center to Center/Measuring Length _____ Vent/Drain Type & Size _____

Indicator Details: Shuttle Yellow/Black MBG Red/White MBG

Scale: Ft/In M/cm Running In. (1/2" Div.) Running In. (1/8" Div.) Custom

Special Requirements _____



Second Chamber Details:	
Chamber Size: <input type="checkbox"/> 1-1/2" (Std) <input type="checkbox"/> 2" <input type="checkbox"/> 2 - 1/2" <input type="checkbox"/> 3" <input type="checkbox"/> 4"	Orientation: (optional) <u>Secondary Chamber</u> (A) B C <u>Indicator</u> A (B) C <u>Switch(es)</u> A B (C)

Guided Wave Radar Details		
Housing: <input type="checkbox"/> Aluminum <input type="checkbox"/> SS Window: <input type="checkbox"/> Yes <input type="checkbox"/> No	Connection: <input type="checkbox"/> Threaded <input type="checkbox"/> Welded	Probe: <input type="checkbox"/> Cable <input type="checkbox"/> Rigid Rod
Communication: <input type="checkbox"/> None <input type="checkbox"/> HART <input type="checkbox"/> Honeywell DE <input type="checkbox"/> Foundation Fieldbus	Approval: <input type="checkbox"/> FM/CSA <input type="checkbox"/> ATEX I.S <input type="checkbox"/> ATEX Flameproof <input type="checkbox"/> Gost Russia <input type="checkbox"/> IEC I.S. <input type="checkbox"/> IEC Flameproof <input type="checkbox"/> Ukraine SEPRO	
Other Transmitter: <input type="checkbox"/> AT100 <input type="checkbox"/> A38		Details: _____

Additional Accessories if Required (circle all that apply):

Chamber Insulation	Electric Heat Tracing	Steam Trace Tubing	Vent, Drain, Or Isolation Valves	Special Process Connection (Specify)	Magnetic Particle Traps	Switches (Specify)	Transmitter AT200 or other (CF)
-----------------------	-----------------------------	--------------------------	--	---	-------------------------------	-----------------------	--

For Office Use Only		
Quote Number: _____	Completed By: _____	Date: _____
MW05 P/N: _____		
Transmitter Part Number: _____		
Option #1: _____	\$ _____ ea.	Option #3: _____
Option #2: _____	\$ _____ ea.	Option #4: _____
Additional Notes or Comments: _____		

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