

Flexim Clamp-on Ultrasonic Transducers for FLUXUS G7**

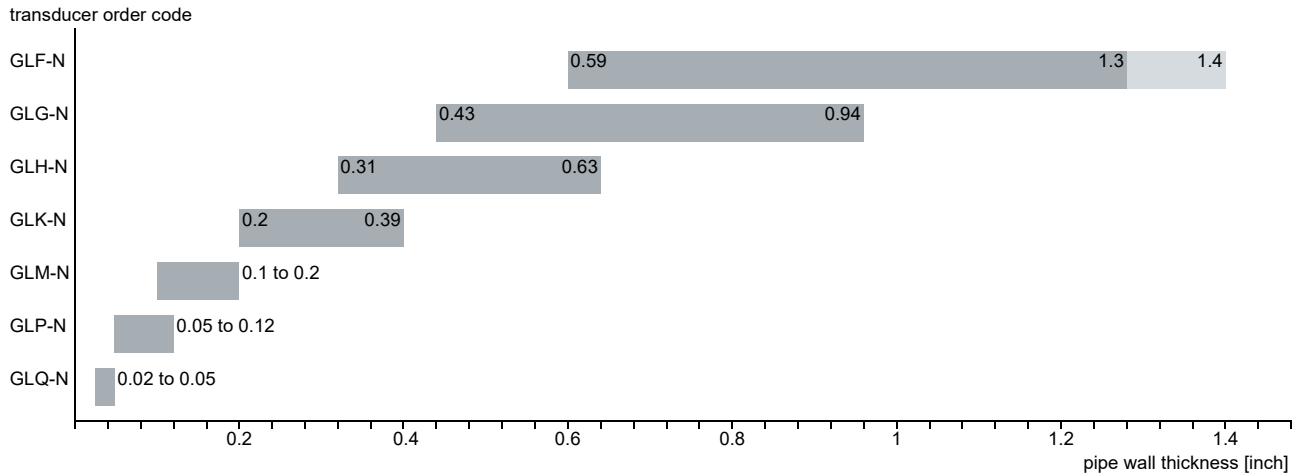


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Transducer selection

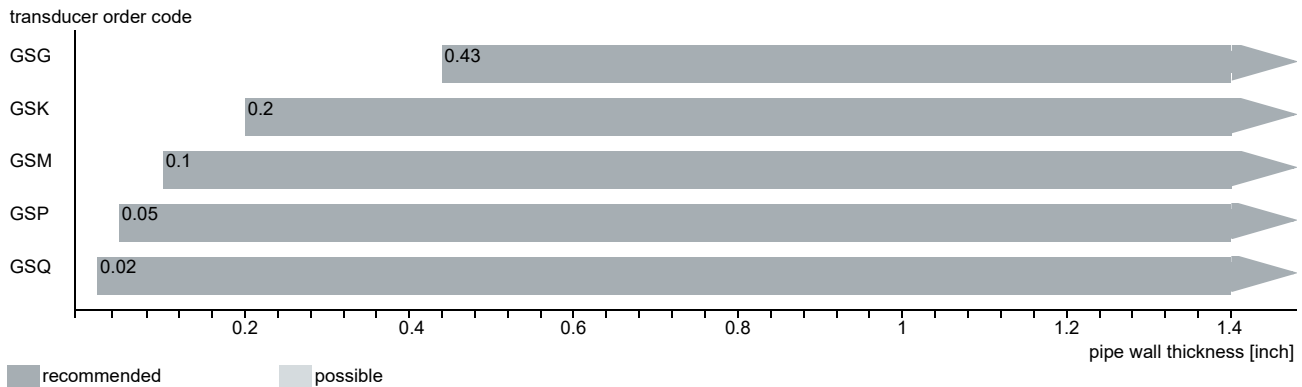
Step 1a

Select Lamb wave transducers:



Step 1b

If the pipe wall thickness is not in the range of the Lamb wave transducers, select a shear wave transducer:

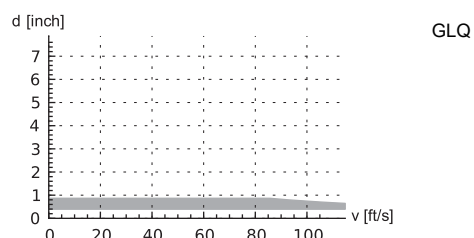
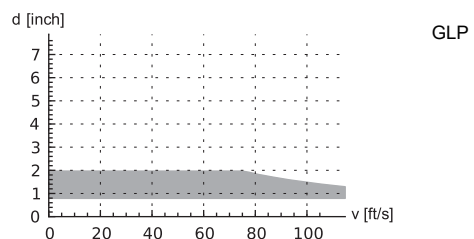
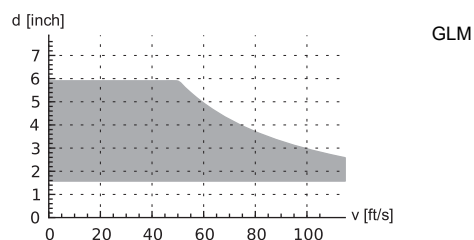
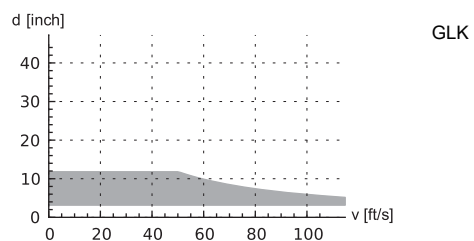
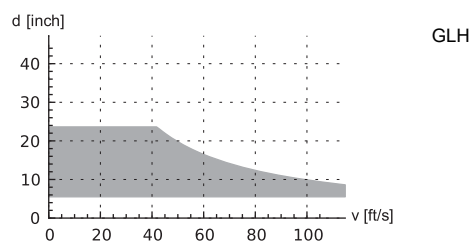
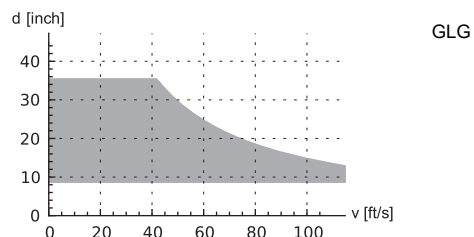
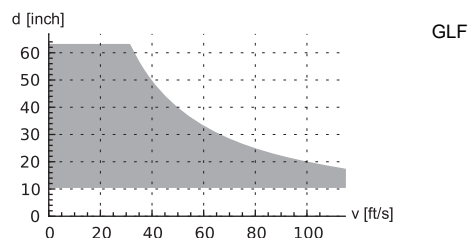
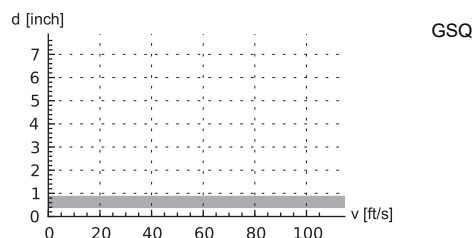
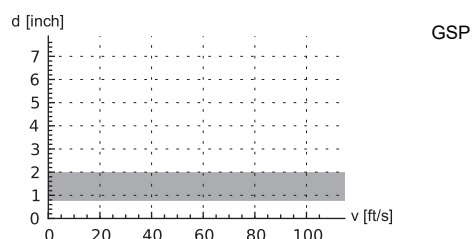
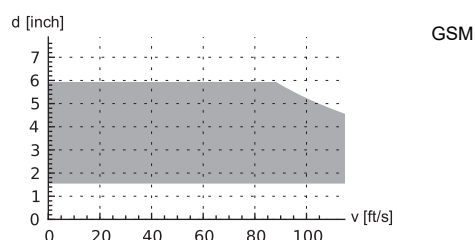
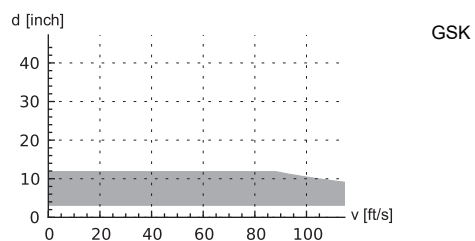
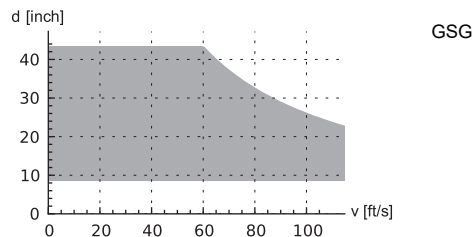


Step 2

inner pipe diameter d dependent on the flow velocity v of the fluid in the pipe

The transducers are selected from the characteristics (see next page). Lamb wave transducers are selected from the left column, shear wave transducers from the right column.

Lamb wave transducers: If the values d and v are not in the range, the diagonal arrangement with 1 sound path may be used, i.e. the same characteristics can be used with doubling the inner pipe diameter. If the values are still not in the range, shear waves transducers regarding the pipe wall thickness have to be selected in step 1b.

Lamb wave transducer¹**shear wave transducer¹**

¹ inner pipe diameter and max. flow velocity for a typical application with natural gas, nitrogen, oxygen in reflect arrangement with 2 sound paths (Lamb wave transducers)/1 sound path (shear wave transducers)

Step 3

min. fluid pressure

Lamb wave transducer			
transducer or- der code	fluid pressure ¹ [psi]		
	metal pipe		plastic pipe
	min.	min. extended	min.
GLF	218	145	15
GLG	218	145	15
GLH	218	145	15
GLK	218 (d > 4.7 inch) 145 (d < 4.7 inch)	145 (d > 4.7 inch) 44 (d < 4.7 inch)	15
GLM	145 (d > 2.4 inch) 73 (d < 2.4 inch)	44 (d < 2.4 inch)	15
GLP	145 (d > 1.4 inch) 73 (d < 1.4 inch)	44 (d < 1.4 inch)	15
GLQ	145 (d > 0.59 inch) 73 (d < 0.59 inch)	44 (d < 0.59 inch)	15

shear wave transducer			
transducer or- der code	fluid pressure ¹ [psi]		
	metal pipe		plastic pipe
	min.	min. extended	min.
GSG	435	290	15
GSK	435	290	15
GSM	435	290	15
GSP	435	290	15
GSQ	435	290	15

¹ depending on the application, typical absolute value for natural gas, nitrogen, compressed air

d = inner pipe diameter

Example

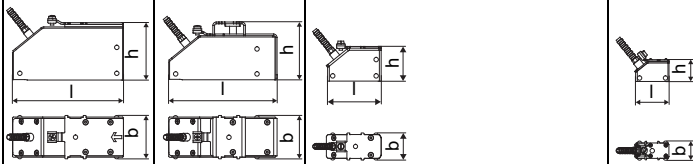


step					
1	pipe wall thickness	inch	0.56	0.34	1.5
	selected transducer		GLG or GLH	GLH or GLK	GS
2	inner pipe diameter	inch	22.9	3.8	5.6
	max. flow velocity	ft/s	49	98	98
	selected transducer		GLG	GLK	GSK
3	min. fluid pressure	psi	290	218	580
	selected transducer		GLG	GLK	GSK

Transducer order code

1, 2	3	4	5 to 7	8, 9	10, 11	12 to 14	no. of character					
transducer	transducer frequency	-	ambient temperature	explosion protection	-	certification	connection system	-	cable length	/	option	description
GS												set of ultrasonic flow transducers for Gas Measurement, shear wave
GL												set of ultrasonic flow transducers for Gas Measurement, Lamb wave
	F											0.15 MHz
	G											0.2 MHz
	H											0.3 MHz
	K											0.5 MHz
	M											1 MHz
	P											2 MHz
	Q											4 MHz
		L										low temperature range
		N										normal temperature range
		E										extended temperature range
		S										higher temperatures
			NNN									not explosion-proof
			A2N									ATEX zone 2/IECEx zone 2
			A1N									ATEX zone 1/IECEx zone 1
			F2N									FM Class I Div. 2
				**								
					T1							with stripped cable ends
						***						in m
							H68					degree of protection IP68

Technical data

Shear wave transducers (FM Class I Div. 2, T1)

order code		GSG-N***-**T1	GSK-N***-**T1	GSM-N***-**T1	GSP-N***-**T1	GSQ-N***-**T1
technical type		G(DL)G1N53	G(DL)K1N53	G(DL)M2N53	G(DL)P2N53	G(DL)Q2N53
transducer frequency	MHz	0.2	0.5	1	2	4
fluid pressure ¹						
min. extended	psi	metal pipe: 290				
min.	psi	metal pipe: 435, plastic pipe: 15				
inner pipe diameter d ²						
min. extended	inch	7.1	2.4	1.2	0.59	0.28
min. recommended	inch	8.7	3.1	1.6	0.79	0.39
max. recommended	inch	35.4	11.8	5.9	2	0.87
max. extended	inch	43.3	14.2	7.1	2.4	1.2
pipe wall thickness						
min.	inch	0.43	0.2	0.1	0.05	0.02
material						
housing		PEEK with stainless steel cover 316L				
contact surface		PEEK				
degree of protection		IP66		IP66/IP67		
transducer cable						
type		1699				
length	ft	16		13	9	
dimensions						
length l	inch	5.1	4.98	2.52	1.57	
width b	inch	2.01	2.01	1.26	0.87	
height h	inch	2.64	2.66	1.59	1	
dimensional drawing						
weight (without cable)	lb	1	0.79	0.15	0.04	
pipe surface temperature	°F	-40 to +266				
ambient temperature	°F	-40 to +266				
temperature compensation		x				
explosion protection						
• ATEX/IECEx						
order code		GSG-NA2*-**T1	GSK-NA2*-**T1	GSM-NA2*-**T1	GSP-NA2*-**T1	GSQ-NA2*-**T1
pipe surface temperature (Ex)	°C	gas: -55 to +190 dust: -55 to +180				
marking		CE 0637  Ex nA IIC T6...T3 Gc Ex tb IIIC T80 °C...T185 °C Db				
certification		IBExU10ATEX1163 X, IECEx IBE 12.0005X				
• FM						
order code		GSG-NF2*-**T1	GSK-NF2*-**T1	GSM-NF2*-**T1	GSP-NF2*-**T1	GSQ-NF2*-**T1
pipe surface temperature (Ex)	°F	-40 to +257		-40 to +374		
degree of protection		IP66				
marking		 NI/Cl. I,II,III/Div. 2 / GP A,B,C,D,E,F,G/ Temp. Codes dwg 3860				

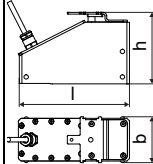
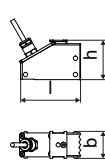

¹ depending on the application, typical absolute value for natural gas, nitrogen, compressed air

² shear wave transducer:

typical values for natural gas, nitrogen, oxygen; pipe diameters for other fluids on request

inner pipe diameter max. recommended/max. extended: in reflect arrangement and for a flow velocity of 49 ft/s

Shear wave transducers (zone 2 - nonEx, T1, IP68)

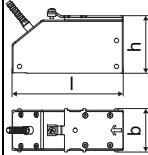
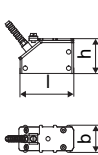
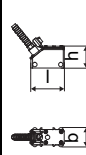

order code		GSG-L***-T1/H68	GSK-L***-T1/H68	GSM-L***-T1/H68	GSP-L***-T1/H68
technical type		GDG1LI8	GDK1LI8	GDM2LI8	GDP2LI8
transducer frequency	MHz	0.2	0.5	1	2
fluid pressure ¹					
min. extended	psi	metal pipe: 290			
min.	psi	metal pipe: 435, plastic pipe: 15			
inner pipe diameter d ²					
min. extended	inch	7.1	2.4	1.2	0.59
min. recommended	inch	8.7	3.1	1.6	0.79
max. recommended	inch	35.4	11.8	5.9	2
max. extended	inch	43.3	14.2	7.1	2.4
pipe wall thickness					
min.	inch	0.43	0.2	0.1	0.05
material					
housing		PEEK with stainless steel cover 316Ti			
contact surface		PEEK			
degree of protection		IP68 ³			
transducer cable					
type		2550			
length	ft	39			
dimensions					
length l	inch	5.12		2.76	
width b	inch	2.13		1.26	
height h	inch	3.29		1.81	
dimensional drawing					
weight (without cable)	lb	0.95		0.19	
pipe surface temperature	°F	-40 to +212			
ambient temperature	°F	-40 to +212			
temperature compensation		x			
explosion protection					
• ATEX/IECEx					
order code		GSG-LA2N-T1/H68	GSK-LA2N-T1/H68	GSM-LA2N-T1/H68	GSP-LA2N-T1/H68
pipe surface temperature (Ex)	°C	gas: -40 to +90 dust: -40 to +80			
marking		CE 0637  II 3G II 2D Ex nA IIC T6...T5 Gc Ex tb IIIC T80 °C...T85 °C Db			
certification		IBExU10ATEX1163 X, IECEx IBE 12.0005X			

¹ depending on the application, typical absolute value for natural gas, nitrogen, compressed air

² shear wave transducer:
typical values for natural gas, nitrogen, oxygen; pipe diameters for other fluids on request
inner pipe diameter max. recommended/max. extended: in reflect arrangement and for a flow velocity of 49 ft/s

³ test conditions: 3 months/29 psi (65 ft)/36 °F

Shear wave transducers (FM Class I Div. 2 - nonEx, T1, extended temperature range)

order code		GSG-E***-**T1	GSK-E***-**T1	GSM-E***-**T1	GSP-E***-**T1	GSQ-E***-**T1
technical type		G(DL)G1E53	G(DL)K1E53	G(DL)M2E53	G(DL)P2E53	G(DL)Q2E53
transducer frequency	MHz	0.2	0.5	1	2	4
fluid pressure ¹						
min. extended	psi	metal pipe: 290		metal pipe: 290		
min.	psi	metal pipe: 435, plastic pipe: 15		metal pipe: 435, plastic pipe: 15		
inner pipe diameter d ²						
min. extended	inch	7.1	2.4	1.2	0.59	0.28
min. recommended	inch	8.7	3.1	1.6	0.79	0.39
max. recommended	inch	35.4	11.8	5.9	2	0.87
max. extended	inch	43.3	14.2	7.1	2.4	1.2
pipe wall thickness						
min.	inch	0.43	0.2	0.1	0.05	0.02
material						
housing		PPSU with stainless steel cover 316L		PI with stainless steel cover 316L		
contact surface		PPSU		PI		
degree of protection		IP66		IP66/IP67		
transducer cable						
type		1699		6111		
length	ft	16		13		9
dimensions						
length l	inch	5.1		2.52		1.57
width b	inch	2.01		1.26		0.87
height h	inch	2.64		1.59		1
dimensional drawing						
weight (without cable)	lb	1.8		0.15		0.04
pipe surface temperature	°F	-40 to +356		-22 to +464 ³		-22 to +392
ambient temperature	°F	-40 to +356		-22 to +104 -22 to +140 ⁴ -22 to +392 ⁵		-22 to +392
temperature compensation		x		x		
explosion protection						
• ATEX/IECEx						
order code		-	-	GSM-EA2*-**T1	GSP-EA2*-**T1	GSQ-EA2*-**T1
pipe surface temperature (Ex)	°C	-	-	gas: -45 to +235 dust: -45 to +225		
marking		-	-	CE 0637 Ex II 3G II 2D Ex nA IIC T6...T2 Gc Ex tb IIIA T80 °C...T230 °C Db		
certification		-	-	IBExU10ATEX1163 X, IECEx IBE 12.0005X		
• FM						
order code		GSG-EF2*-**T1	GSK-EF2*-**T1	GSM-EF2*-**T1	GSP-EF2*-**T1	GSQ-EF2*-**T1
pipe surface temperature (Ex)	°F	-40 to +329		-40 to +455		
degree of protection		IP66				
marking		 NI/Cl. I,II,III/Div. 2 / GP A,B,C,D,E,F,G/ Temp. Codes dwg 3860				

¹ depending on the application, typical absolute value for natural gas, nitrogen, compressed air² shear wave transducer:typical values for natural gas, nitrogen, oxygen; pipe diameters for other fluids on request
inner pipe diameter max. recommended/max. extended: in reflect arrangement and for a flow velocity of 49 ft/s³ > +200 °C/+392 °F:

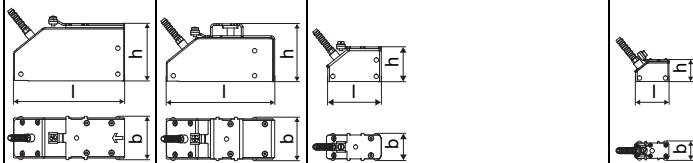

nonEx: quick release clasps and tension straps or Variotix L

Ex: Variotix L, ambient temperature max. +40 °C/+104 °F

observe the insulation instruction

⁴ nonEx: pipe surface temperature +200...+232 °C/+392...+450 °F: quick release clasps and tension straps⁵ nonEx: pipe surface temperature max. +200 °C/+392 °F

Shear wave transducers (zone 1, T1)

order code		GSG-N*1*-*T1		GSK-N*1*-*T1		GSM-N*1*-*T1		GSP-N*1*-*T1		GSQ-N*1*-*T1	
technical type		G(DL)G1N81		G(DL)K1N81		G(DL)M2N81		G(DL)P2N81		G(DL)Q2N81	
transducer frequency	MHz	0.2		0.5		1		2		4	
fluid pressure ¹											
min. extended	psi	metal pipe: 290									
min.	psi	metal pipe: 435, plastic pipe: 15									
inner pipe diameter d ²											
min. extended	inch	7.1		2.4		1.2		0.59		0.28	
min. recommended	inch	8.7		3.1		1.6		0.79		0.39	
max. recommended	inch	35.4		11.8		5.9		2		0.87	
max. extended	inch	43.3		14.2		7.1		2.4		1.2	
pipe wall thickness											
min.	inch	0.43		0.2		0.1		0.05		0.02	
material											
housing		PEEK with stainless steel cover 316L									
contact surface		PEEK									
degree of protection		IP66					IP66/IP67				
transducer cable											
type		1699									
length	ft	16					13			9	
dimensions											
length l	inch	5.1		4.98		2.52		1.57			
width b	inch	2.01		2.01		1.26		0.87			
height h	inch	2.64		2.66		1.59		1			
dimensional drawing											
weight (without cable)	lb	1		0.79		0.15		0.04			
pipe surface temperature	°F	-40 to +266									
ambient temperature	°F	-40 to +266									
temperature compensation		x									
explosion protection											
• ATEX/IECEx											
order code		GSG-NA1*-*T1		GSK-NA1*-*T1		GSM-NA1*-*T1		GSP-NA1*-*T1		GSQ-NA1*-*T1	
pipe surface temperature (Ex)	°C	-55 to +180									
marking		CE 0637  II2G II2D Ex q IIC T6...T3 Gb Ex tb IIIC T80 °C...T185 °C Db									
certification		IBExU07ATEX1168 X, IECEx IBE 08.0007X									

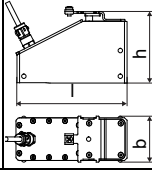
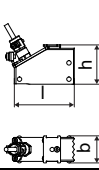

¹ depending on the application, typical absolute value for natural gas, nitrogen, compressed air

² shear wave transducer:

typical values for natural gas, nitrogen, oxygen; pipe diameters for other fluids on request

inner pipe diameter max. recommended/max. extended: in reflect arrangement and for a flow velocity of 49 ft/s

Shear wave transducers (zone 1, T1, IP68)

order code		GSG-L*1*-**T1/ H68	GSK-L*1*-**T1/ H68	GSM-L*1*-**T1/ H68	GSP-L*1*-**T1/ H68
technical type		GDG1LI1	GDK1LI1	GDM2LI1	GDP2LI1
transducer frequency	MHz	0.2	0.5	1	2
fluid pressure ¹					
min. extended	psi	metal pipe: 290			
min.	psi	metal pipe: 435, plastic pipe: 15			
inner pipe diameter d ²					
min. extended	inch	7.1	2.4	1.2	0.59
min. recommended	inch	8.7	3.1	1.6	0.79
max. recommended	inch	35.4	11.8	5.9	2
max. extended	inch	43.3	14.2	7.1	2.4
pipe wall thickness					
min.	inch	0.43	0.2	0.1	0.05
material					
housing		PEEK with stainless steel cover 316Ti			
contact surface		PEEK			
degree of protection		IP68 ³			
transducer cable					
type		2550			
length	ft	39			
dimensions					
length l	inch	5.12		2.76	
width b	inch	2.13		1.26	
height h	inch	3.29		1.81	
dimensional drawing					
weight (without cable)	lb	0.95		0.19	
pipe surface temperature	°F	-40 to +176			
ambient temperature	°F	-40 to +176			
temperature compensation		x			
explosion protection					
• ATEX/IECEx					
order code		GSG-LA1*-**T1/ H68	GSK-LA1*-**T1/ H68	GSM-LA1*-**T1/ H68	GSP-LA1*-**T1/ H68
pipe surface temperature (Ex)	°C	-40 to +80			
marking		CE0637  II2G II2D Ex q IIC T6...T5 Gb Ex tb IIIC T80 °C...T85 °C Db			
certification		IBExU07ATEX1168 X, IECEx IBE 08.0007X			

¹ depending on the application, typical absolute value for natural gas, nitrogen, compressed air

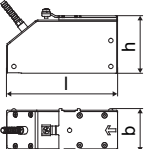
² shear wave transducer:

typical values for natural gas, nitrogen, oxygen; pipe diameters for other fluids on request

inner pipe diameter max. recommended/max. extended: in reflect arrangement and for a flow velocity of 49 ft/s

³ test conditions: 3 months/29 psi (65 ft)/36 °F

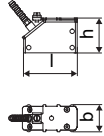
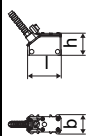

Shear wave transducers (zone 1, T1, extended temperature range)

order code		GSG-E*1*-**T1	GSK-E*1*-**T1
technical type		G(DL)G1E83	G(DL)K1E83
transducer frequency	MHz	0.2	0.5
fluid pressure ¹			
min. extended	psi	metal pipe: 290	
min.	psi	metal pipe: 435, plastic pipe: 15	
inner pipe diameter d ²			
min. extended	inch	7.1	2.4
min. recommended	inch	8.7	3.1
max. recommended	inch	35.4	11.8
max. extended	inch	43.3	14.2
pipe wall thickness			
min.	inch	0.43	0.2
material			
housing		PPSU with stainless steel cover 316L	
contact surface		PPSU	
degree of protection		IP66	
transducer cable			
type		1699	
length	ft	16	
dimensions			
length l	inch	5.1	
width b	inch	2.01	
height h	inch	2.64	
dimensional drawing			
weight (without cable)	lb	1.8	
pipe surface temperature	°F	-40 to +311	
ambient temperature	°F	-40 to +311	
temperature compensation		x	
explosion protection			
• ATEX/IECEx			
order code		GSG-EA1*~**T1	GSK-EA1*~**T1
pipe surface temperature (Ex)	°C	-50 to +155	
marking		CE 0637 Ex II2G II2D Ex q IIC T6...T3 Gb Ex tb IIIC T80 °C...T160 °C Db	
certification		IBExU07ATEX1168 X, IECEx IBE 08.0007X	

¹ depending on the application, typical absolute value for natural gas, nitrogen, compressed air

² shear wave transducer:
 typical values for natural gas, nitrogen, oxygen; pipe diameters for other fluids on request
 inner pipe diameter max. recommended/max. extended: in reflect arrangement and for a flow velocity of 49 ft/s

Shear wave transducers (zone 1, T1, extended temperature range)

order code		GSM-E*1*-*T1	GSP-E*1*-*T1	GSQ-E*1*-*T1
technical type		G(DL)M2E85	G(DL)P2E85	G(DL)Q2E85
transducer frequency	MHz	1	2	4
fluid pressure ¹				
min. extended	psi	metal pipe: 290		
min.	psi	metal pipe: 435, plastic pipe: 15		
inner pipe diameter d ²				
min. extended	inch	1.2	0.59	0.28
min. recommended	inch	1.6	0.79	0.39
max. recommended	inch	5.9	2	0.87
max. extended	inch	7.1	2.4	1.2
pipe wall thickness				
min.	inch	0.1	0.05	0.02
material				
housing		PI with stainless steel cover 316L		
contact surface		PI		
degree of protection		IP66/IP67		
transducer cable				
type		6111		
length	ft	13		9
dimensions				
length l	inch	2.52		1.57
width b	inch	1.26		0.87
height h	inch	1.59		1
dimensional drawing				
weight (without cable)	lb	0.15		0.04
pipe surface temperature	°F	-22 to +437 ³		-22 to +392
ambient temperature	°F	-22 to +104 -22 to +392 ⁴		-22 to +392
temperature compensation		x		
explosion protection				
• ATEX/IECEx				
order code		GSM-EA1*-*T1	GSP-EA1*-*T1	GSQ-EA1*-*T1
pipe surface temperature (Ex)	°C	-45 to +225		
marking		CE 0637  II2G II2D Ex q IIC T6...T2 Gb Ex tb IIIA T80 °C...T230 °C Db		
certification		IBExU07ATEX1168 X, IECEx IBE 08.0007X		

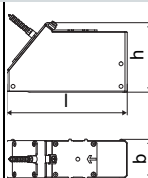
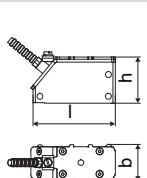
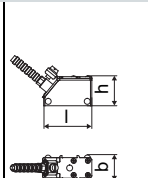

¹ depending on the application, typical absolute value for natural gas, nitrogen, compressed air

² shear wave transducer:
typical values for natural gas, nitrogen, oxygen; pipe diameters for other fluids on request
inner pipe diameter max. recommended/max. extended: in reflect arrangement and for a flow velocity of 49 ft/s

³ > +200 °C/+392 °F:
Variofix L
observe the insulation instruction
ambient temperature max. +40 °C/+104 °F

⁴ pipe surface temperature max. +200 °C/+392 °F

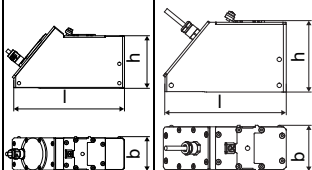
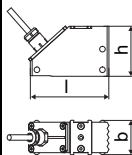
Lamb wave transducers (zone 2 - FM Class I Div. 2 - nonEx, T1)

order code		GLF-N***-**T1	GLG-N***-**T1	GLH-N***-**T1	GLK-N***-**T1	GLM-N***-**T1	GLP-N***-**T1	GLQ-N***-**T1
technical type		G(RT)F1N53	G(RT)G1N53	G(RT)H1N53	G(RT)K1N53	G(RT)M1N53	G(RT)P1N53	G(RT)Q1N53
transducer frequency	MHz	0.15	0.2	0.3	0.5	1	2	4
fluid pressure ¹								
min. extended	psi	metal pipe: 145			metal pipe: 145 (d > 4.7 inch) 44 (d < 4.7 inch)	metal pipe: 44 (d < 2.4 inch)	metal pipe: 44 (d < 1.4 inch)	metal pipe: 44 (d < 0.59 inch)
min.	psi	metal pipe: 218 plastic pipe: 15			metal pipe: 218 (d > 4.7 inch) 145 (d < 4.7 inch) plastic pipe: 15	metal pipe: 145 (d > 2.4 inch) 73 (d < 2.4 inch) plastic pipe: 15	metal pipe: 145 (d > 1.4 inch) 73 (d < 1.4 inch) plastic pipe: 15	metal pipe: 145 (d > 0.59 inch) 73 (d < 0.59 inch) plastic pipe: 15
inner pipe diameter d ²								
min. extended	inch	8.7	7.1	4.3	2.4	1.2	0.59	0.28
min. recommended	inch	10.6	8.7	5.5	3.1	1.6	0.79	0.39
max. recommended	inch	47.2	35.4	23.6	11.8	5.9	2	0.87
max. extended	inch	63	55.1	39.4	14.2	7.1	2.4	1.2
pipe wall thickness								
min.	inch	0.59	0.43	0.31	0.2	0.1	0.05	0.02
max.	inch	1.3	0.94	0.63	0.39	0.2	0.12	0.05
max. extended	inch	1.4	-	-	-	-	-	-
material								
housing		PPSU with stain- less steel cover 316Ti	PPSU with stainless steel cover 316L					
contact surface		PPSU						
degree of protection		IP66/IP67	IP66					
transducer cable								
type		1699						
length	ft	16				13		9
dimensions								
length l	inch	6.42	5.06				2.91	1.65
width b	inch	2.13	2.01				1.26	0.87
height h	inch	3.59	2.66				1.59	1
dimensional drawing								
weight (without cable)	lb	2.1	1				0.17	0.04
pipe surface temperature	°F	-40 to +266						
ambient temperature	°F	-40 to +266						
temperature compensation		x						
explosion protection								
• ATEX/IECEx								
order code		GLF-NA2*-**T1	GLG-NA2*-**T1	GLH-NA2*-**T1	GLK-NA2*-**T1	GLM-NA2*-**T1	GLP-NA2*-**T1	GLQ-NA2*-**T1
pipe surface temperature (Ex)	°C	gas: -50 to +165 dust: -50 to +155						
marking		CE 0637 Ex II 3G II 2D Ex nA IIC T6...T3 Gc Ex tb IIIA T80 °C...T160 °C Db		CE 0637 Ex II 3G II 2D Ex nA IIC T6...T3 Gc Ex tb IIIC T80 °C...T160 °C Db				
certification		IBExU10ATEX1163 X, IECEx IBE 12.0005X						
• FM								
order code		GLF-NF2*-**T1	GLG-NF2*-**T1	GLH-NF2*-**T1	GLK-NF2*-**T1	GLM-NF2*-**T1	GLP-NF2*-**T1	GLQ-NF2*-**T1
pipe surface temperature (Ex)	°F	-40 to +329						
degree of protection		IP66						
marking		 NI/CI. I,II,III/Div. 2 / GP A,B,C,D,E,F,G/ Temp. Codes dwg 3860						

¹ depending on the application, typical absolute value for natural gas, nitrogen, compressed air

² Lamb wave transducer:
 typical values for natural gas, nitrogen, oxygen; pipe diameters for other fluids on request
 inner pipe diameter max. recommended: in reflect arrangement (diagonal arrangement) and for a flow velocity of 49 ft/s (98 ft/s)
 inner pipe diameter max. extended: in reflect arrangement (diagonal arrangement) and for a flow velocity of 39 ft/s (82 ft/s)

Lamb wave transducers (zone 2 - nonEx, T1, IP68)

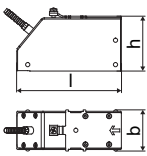
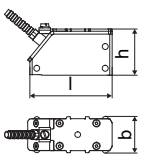

order code		GLF-L***-**T1/ H68	GLG-L***-**T1/ H68	GLH-L***-**T1/ H68	GLK-L***-**T1/ H68	GLM-L***-**T1/ H68	GLP-L***-**T1/ H68
technical type		GRF1LI8	GRG1LI8	GRH1LI8	GRK1LI8	GRM1LI8	GRP1LI8
transducer frequency	MHz	0.15	0.2	0.3	0.5	1	2
fluid pressure ¹							
min. extended	psi	metal pipe: 145			metal pipe: 145 (d > 4.7 inch) 44 (d < 4.7 inch)	metal pipe: 44 (d < 2.4 inch)	metal pipe: 44 (d < 1.4 inch)
min.	psi	metal pipe: 218 plastic pipe: 15			metal pipe: 218 (d > 4.7 inch) 145 (d < 4.7 inch) plastic pipe: 15	metal pipe: 145 (d > 2.4 inch) 73 (d < 2.4 inch) plastic pipe: 15	metal pipe: 145 (d > 1.4 inch) 73 (d < 1.4 inch) plastic pipe: 15
inner pipe diameter d ²							
min. extended	inch	8.7	7.1	4.3	2.4	1.2	0.59
min. recommended	inch	10.6	8.7	5.5	3.1	1.6	0.79
max. recommended	inch	47.2	35.4	23.6	11.8	5.9	2
max. extended	inch	63	55.1	39.4	14.2	7.1	2.4
pipe wall thickness							
min.	inch	0.59	0.43	0.31	0.2	0.1	0.05
max.	inch	1.3	0.94	0.63	0.39	0.2	0.12
max. extended	inch	1.4	-	-	-	-	-
material							
housing		PPSU with stainless steel cover 316Ti					
contact surface		PPSU					
degree of protection		IP68 ³					
transducer cable							
type		2550					
length	ft	39					
dimensions							
length l	inch	6.81	5.65			2.87	
width b	inch	2.13	2.13			1.24	
height h	inch	3.6	3.29			1.81	
dimensional drawing							
weight (without cable)	lb	3	1.4			0.21	
pipe surface temperature	°F	-40 to +212					
ambient temperature	°F	-40 to +212					
temperature compensation		x					
explosion protection							
• ATEX/IECEx							
order code		GLF-LA2N-**T1/ H68	GLG-LA2N-**T1/ H68	GLH-LA2N-**T1/ H68	GLK-LA2N-**T1/ H68	GLM-LA2N-**T1/ H68	GLP-LA2N-**T1/ H68
pipe surface temperature (Ex)	°C	gas: -40 to +90 dust: -40 to +80					
marking		CE0637 Ex II3G II2D Ex nA IIC T6...T5 Gc Ex tb IIIC T80 °C...T85 °C Db					
certification		IBExU10ATEX1163 X, IECEx IBE 12.0005X					

¹ depending on the application, typical absolute value for natural gas, nitrogen, compressed air

² Lamb wave transducer:
 typical values for natural gas, nitrogen, oxygen; pipe diameters for other fluids on request
 inner pipe diameter max. recommended: in reflect arrangement (diagonal arrangement) and for a flow velocity of 49 ft/s (98 ft/s)
 inner pipe diameter max. extended: in reflect arrangement (diagonal arrangement) and for a flow velocity of 39 ft/s (82 ft/s)

³ test conditions: 3 months/29 psi (65 ft)/36 °F

Lamb wave transducers (zone 2 - FM Class I Div. 2 - nonEx, T1, higher temperatures)

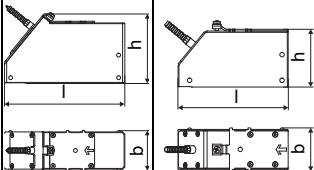
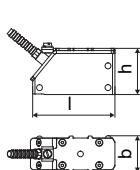
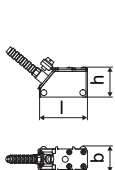
order code		GLG-S***-**T1	GLH-S***-**T1	GLK-S***-**T1	GLM-S***-**T1	GLP-S***-**T1
technical type		G(RT)G1S53	G(RT)H1S53	G(RT)K1S53	G(RT)M1S53	G(RT)P1S53
transducer frequency	MHz	0.2	0.3	0.5	1	2
fluid pressure ¹						
min. extended	psi	metal pipe: 145		metal pipe: 145 (d > 4.7 inch) 44 (d < 4.7 inch)	metal pipe: 44 (d < 2.4 inch)	metal pipe: 44 (d < 1.4 inch)
min.	psi	metal pipe: 218 plastic pipe: 15		metal pipe: 218 (d > 4.7 inch) 145 (d < 4.7 inch) plastic pipe: 15	metal pipe: 145 (d > 2.4 inch) 73 (d < 2.4 inch) plastic pipe: 15	metal pipe: 145 (d > 1.4 inch) 73 (d < 1.4 inch) plastic pipe: 15
inner pipe diameter d ²						
min. extended	inch	7.1	4.3	2.4	1.2	0.59
min. recommended	inch	8.7	5.5	3.1	1.6	0.79
max. recommended	inch	35.4	23.6	11.8	5.9	2
max. extended	inch	55.1	39.4	14.2	7.1	2.4
pipe wall thickness						
min.	inch	0.42	0.28	0.17	0.08	0.04
max.	inch	0.93	0.62	0.37	0.19	0.09
material						
housing		PPSU with stainless steel cover 316Ti				
contact surface		PPSU				
degree of protection		IP66				
transducer cable						
type		1699				
length	ft	16				13
dimensions						
length l	inch	5.06			2.91	
width b	inch	2.01			1.3	
height h	inch	2.66			1.59	
dimensional drawing						
weight (without cable)	lb	1.8			0.35	
storing temperature	°F	-40 to +329				
operating temperature	°F	212 to 356				
warm-up time	h	3			1	
temperature compensation		x				
explosion protection						
• ATEX/IECEx						
order code		GLG-SA2*-**T1	GLH-SA2*-**T1	GLK-SA2*-**T1	GLM-SA2*-**T1	-
pipe surface temperature (Ex)	°C	gas: -50 to +165 dust: -50 to +155				
marking		CE0637 Ex II3G II2D Ex nA IIC T6...T3 Gc Ex tb IIIC T80 °C...T160 °C Db				
certification		IBExU10ATEX1163 X, IECEx IBE 12.0005X				
• FM						
order code		GLG-SF2*-**T1	GLH-SF2*-**T1	GLK-SF2*-**T1	GLM-SF2*-**T1	-
pipe surface temperature (Ex)	°F	-40 to +329				
degree of protection		IP66				
marking		 NI/CI. I,II,III/Div. 2 / GP A,B,C,D,E,F,G/ Temp. Codes dwg 3860				

completely thermally insulated transducer installation necessary

¹ depending on the application, typical absolute value for natural gas, nitrogen, compressed air

² Lamb wave transducer:
 typical values for natural gas, nitrogen, oxygen; pipe diameters for other fluids on request
 inner pipe diameter max. recommended: in reflect arrangement (diagonal arrangement) and for a flow velocity of 49 ft/s (98 ft/s)
 inner pipe diameter max. extended: in reflect arrangement (diagonal arrangement) and for a flow velocity of 39 ft/s (82 ft/s)

Lamb wave transducers (zone 1, T1)

order code			GLF-N*1*-*T1	GLG-N*1*-*T1	GLH-N*1*-*T1	GLK-N*1*-*T1	GLM-N*1*-*T1	GLP-N*1*-*T1	GLQ-N*1*-*T1
technical type			G(RT)F1N83	G(RT)G1N83	G(RT)H1N83	G(RT)K1N83	G(RT)M1N83	G(RT)P1N83	G(RT)Q1N83
transducer frequency	MHz	0.15	0.2	0.3	0.5	1	2	4	
fluid pressure ¹									
min. extended	psi	metal pipe: 145				metal pipe: 145 (d > 4.7 inch) 44 (d < 4.7 inch)	metal pipe: 44 (d < 2.4 inch)	metal pipe: 44 (d < 1.4 inch)	metal pipe: 44 (d < 0.59 inch)
min.	psi	metal pipe: 218 plastic pipe: 15				metal pipe: 218 (d > 4.7 inch) 145 (d < 4.7 inch) plastic pipe: 15	metal pipe: 145 (d > 2.4 inch) 73 (d < 2.4 inch) plastic pipe: 15	metal pipe: 145 (d > 1.4 inch) 73 (d < 1.4 inch) plastic pipe: 15	metal pipe: 145 (d > 0.59 inch) 73 (d < 0.59 inch) plastic pipe: 15
inner pipe diameter d ²									
min. extended	inch	8.7	7.1	4.3	2.4	1.2	0.59	0.28	
min. recommended	inch	10.6	8.7	5.5	3.1	1.6	0.79	0.39	
max. recommended	inch	47.2	35.4	23.6	11.8	5.9	2	0.87	
max. extended	inch	63	55.1	39.4	14.2	7.1	2.4	1.2	
pipe wall thickness									
min.	inch	0.59	0.43	0.31	0.2	0.1	0.05	0.02	
max.	inch	1.3	0.94	0.63	0.39	0.2	0.12	0.05	
max. extended	inch	1.4	-	-	-	-	-	-	
material									
housing	PPSU with stainless steel cover 316L, 316Ti					PPSU with stainless steel cover 316L			
contact surface	PPSU								
degree of protection	IP66/IP67		IP66						
transducer cable									
type	1699								
length	ft	16				13		9	
dimensions									
length l	inch	6.42	5.06				2.91	1.65	
width b	inch	2.13	2.01				1.26	0.87	
height h	inch	3.59	2.66				1.59	1	
dimensional drawing									
weight (without cable)	lb	2.1	1				0.17	0.04	
pipe surface temperature	°F	-40 to +266							
ambient temperature	°F	-40 to +266							
temperature compensation		x							
explosion protection									
• ATEX/IECEx									
order code		GLF-NA1N-*T1	GLG-NA1N-*T1	GLH-NA1N-*T1	GLK-NA1N-*T1	GLM-NA1N-*T1	GLP-NA1N-*T1	GLQ-NA1N-*T1	
pipe surface temperature (Ex)	°C	-50 to +155							
marking		CE0637 Ex II2G II2D Ex q IIC T6...T3 Gb Ex tb IIIA T80 °C...T160 °C Db							
certification		IBExU07ATEX1168 X, IECEx IBE 08.0007X							

¹ depending on the application, typical absolute value for natural gas, nitrogen, compressed air

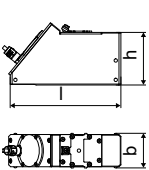
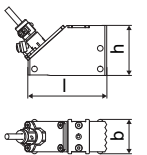
² Lamb wave transducer:

typical values for natural gas, nitrogen, oxygen; pipe diameters for other fluids on request

inner pipe diameter max. recommended: in reflect arrangement (diagonal arrangement) and for a flow velocity of 49 ft/s (98 ft/s)

inner pipe diameter max. extended: in reflect arrangement (diagonal arrangement) and for a flow velocity of 39 ft/s (82 ft/s)

Lamb wave transducers (zone 1, T1, IP68)

order code		GLF-L*1*-**T1/ H68	GLG-L*1*-**T1/ H68	GLH-L*1*-**T1/ H68	GLK-L*1*-**T1/ H68	GLM-L*1*-**T1/ H68	GLP-L*1*-**T1/ H68
technical type		GRF1LI3	GRG1LI3	GRH1LI3	GRK1LI3	GRM1LI3	GRP1LI3
transducer frequency	MHz	0.15	0.2	0.3	0.5	1	2
fluid pressure ¹							
min. extended	psi	metal pipe: 145	metal pipe: 145		metal pipe: 145 (d > 4.7 inch) 44 (d < 4.7 inch)	metal pipe: 44 (d < 2.4 inch)	metal pipe: 44 (d < 1.4 inch)
min.	psi	metal pipe: 218 plastic pipe: 15	metal pipe: 218 plastic pipe: 15		metal pipe: 218 (d > 4.7 inch) 145 (d < 4.7 inch) plastic pipe: 15	metal pipe: 145 (d > 2.4 inch) 73 (d < 2.4 inch) plastic pipe: 15	metal pipe: 145 (d > 1.4 inch) 73 (d < 1.4 inch) plastic pipe: 15
inner pipe diameter d ²							
min. extended	inch	8.7	7.1	4.3	2.4	1.2	0.59
min. recommended	inch	10.6	8.7	5.5	3.1	1.6	0.79
max. recommended	inch	47.2	35.4	23.6	11.8	5.9	2
max. extended	inch	63	55.1	39.4	14.2	7.1	2.4
pipe wall thickness							
min.	inch	0.59	0.43	0.31	0.2	0.1	0.05
max.	inch	1.3	0.94	0.63	0.39	0.2	0.12
max. extended	inch	1.4	-	-	-	-	-
material							
housing		PPSU with stain- less steel cover 316Ti	PPSU with stainless steel cover 316Ti				
contact surface		PPSU	PPSU				
degree of protection		IP68 ³	IP68 ³				
transducer cable							
type		2550	2550				
length	ft	39	39				
dimensions							
length l	inch	6.81	5.65				2.877
width b	inch	2.13	2.13				1.24
height h	inch	3.6	3.29				1.81
dimensional drawing							
weight (without cable)	lb	3	1.4				0.21
pipe surface temperature	°F	-40 to +176	-40 to +176				
ambient temperature	°F	-40 to +176	-40 to +176				
temperature compensation		x	x				
explosion protection							
• ATEX/IECEx							
order code		GLF-LA1N-**T1/ H68	GLG-LA1N-**T1/ H68	GLH-LA1N-**T1/ H68	GLK-LA1N-**T1/ H68	GLM-LA1N-**T1/ H68	GLP-LA1N-**T1/ H68
pipe surface temperature (Ex)	°C	-40 to +80					
marking		CE0637 Ex II2G II2D Ex q IIC T6...T5 Gb Ex tb IIIC T80 °C...T85 °C Db					
certification		IBExU07ATEX1168 X, IECEx IBE 08.0007X					

¹ depending on the application, typical absolute value for natural gas, nitrogen, compressed air

² Lamb wave transducer:

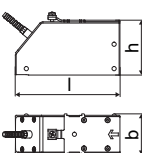
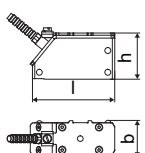
typical values for natural gas, nitrogen, oxygen; pipe diameters for other fluids on request

inner pipe diameter max. recommended: in reflect arrangement (diagonal arrangement) and for a flow velocity of 49 ft/s (98 ft/s)

inner pipe diameter max. extended: in reflect arrangement (diagonal arrangement) and for a flow velocity of 39 ft/s (82 ft/s)

³ test conditions: 3 months/29 psi (65 ft)/36 °F

Lamb wave transducers (zone 1, higher temperatures, T1)

order code		GLG-S*1N-**T1	GLH-S*1N-**T1	GLK-S*1N-**T1	GLM-S*1N-**T1
technical type		G(RT)G1S83	G(RT)H1S83	G(RT)K1S83	G(RT)M1S83
transducer frequency	MHz	0.2	0.3	0.5	1
fluid pressure ¹					
min. extended	psi	metal pipe: 145		metal pipe: 145 (d > 4.7 inch) 44 (d < 4.7 inch)	metal pipe: 44 (d < 2.4 inch)
min.	psi	metal pipe: 218 plastic pipe: 15		metal pipe: 218 (d > 4.7 inch) 145 (d < 4.7 inch) plastic pipe: 15	metal pipe: 145 (d > 2.4 inch) 73 (d < 2.4 inch) plastic pipe: 15
inner pipe diameter d ²					
min. extended	inch	7.1	4.3	2.4	1.2
min. recommended	inch	8.7	5.5	3.1	1.6
max. recommended	inch	35.4	23.6	11.8	5.9
max. extended	inch	55.1	39.4	14.2	7.1
pipe wall thickness					
min.	inch	0.42	0.28	0.17	0.08
max.	inch	0.93	0.62	0.37	0.19
material					
housing		PPSU with stainless steel cover 316Ti			
contact surface		PPSU			
degree of protection		IP66			
transducer cable					
type		1699			
length	ft	16			13
dimensions					
length l	inch	5.06			2.91
width b	inch	2.01			1.3
height h	inch	2.66			1.59
dimensional drawing					
weight (without cable)	lb	1.8			0.35
storing temperature	°F	-40 to +311			
operating temperature	°F	212 to 311			
warm-up time	h	3			1
temperature compensation		x			
explosion protection					
• ATEX/IECEx					
order code		GLG-SA1N-**T1	GLH-SA1N-**T1	GLK-SA1N-**T1	GLM-SA1N-**T1
pipe surface temperature (Ex)	°C	-50 to +155			
marking		CE0637 Ex II2G II2D Ex q IIC T6...T3 Gb Ex tb IIIC T80 °C...T160 °C Db			
certification		IBExU07ATEX1168 X, IECEx IBE 08.0007X			

completely thermally insulated transducer installation necessary

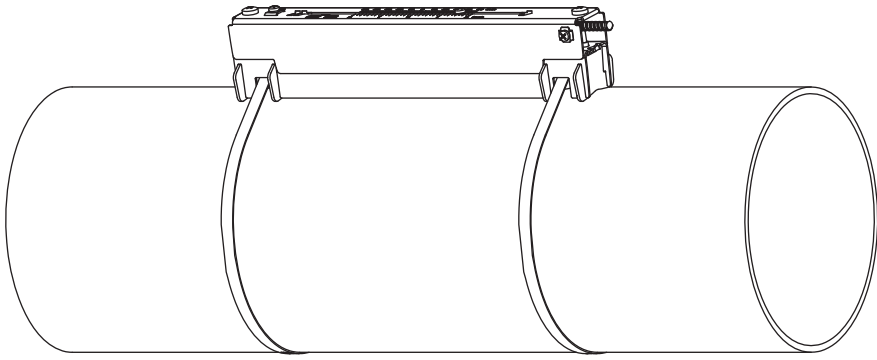
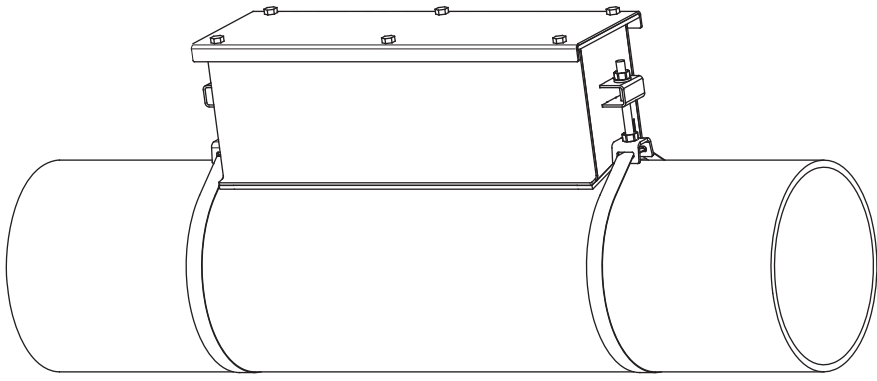
¹ depending on the application, typical absolute value for natural gas, nitrogen, compressed air

² Lamb wave transducer:
 typical values for natural gas, nitrogen, oxygen; pipe diameters for other fluids on request
 inner pipe diameter max. recommended: in reflect arrangement (diagonal arrangement) and for a flow velocity of 49 ft/s (98 ft/s)
 inner pipe diameter max. extended: in reflect arrangement (diagonal arrangement) and for a flow velocity of 39 ft/s (82 ft/s)

Transducer mounting fixture

Order code

1, 2	3	4	5	6	7 to 10	no. of character				
transducer mounting fixture	transducer	-	measurement arrangement	size	-	fixation	outer pipe diameter	/	option	description
VL										Variofix L
PL										PermaLok
	F									transducers with transducer frequency F
	G									transducers with transducer frequency G
	H									transducers with transducer frequency H
	K									transducers with transducer frequency K
	M									transducers with transducer frequency M
	P									transducers with transducer frequency P
	Q									transducers with transducer frequency Q
		D								reflect arrangement or diagonal arrangement/direct mode
		R								reflect arrangement
			S							small
			M							medium
			L							large
				S						tension straps
				D						solid band straps
				E						epoxy mount
				N						without fixation
					SBK1					0.5 to 2.5 inch
					SBK2					3 to 6 inch
					SBK3					8 to 10 inch
					SBK4					12 to 18 inch
					SBK5					20 to 36 inch
					SBK6					42 to 100 inch
					SSK1					0.5 to 2.5 inch
					SSK2					3 to 6 inch
					SSK3					8 to 10 inch
					SSK4					12 to 18 inch
					SSK5					20 to 36 inch
					T360					1.57 to 14.2 inch
								H68		for transducers with degree of protection IP68

<p>Variofix L (VL)</p> 	<p>material: stainless steel 316Ti, 316L, 17-7PH inner length: VL(GHK): 13.7 inch, option H68: 14.5 inch VL(MP): 9.2 inch VLQ: 6.9 inch dimensions: VL(GHK): 16.65 x 3.54 x 3.66 inch option H68: 17.44 x 3.7 x 4.13 inch VL(MP): 12.17 x 2.24 x 2.48 inch VLQ: 9.72 x 1.69 x 1.85 inch</p>
<p>PermaLok (PL)</p> 	<p>material: stainless steel 316 dimensions: PL(GHK)-RL: 19.25 x 3.9 x 3.95 inch PL(GHK)-DS: 13.25 x 3.85 x 3.95 inch PL(MP): 25.25 x 3.08 x 3.15 inch PLQ: 13.37 x 2.68 x 2.4 inch weight: PL(GHK)-RL: 6 lb PL(GHK)-DS: 4.2 lb PL(MP): 6.6 lb PLQ: 2.8 lb</p>

Coupling materials for transducers

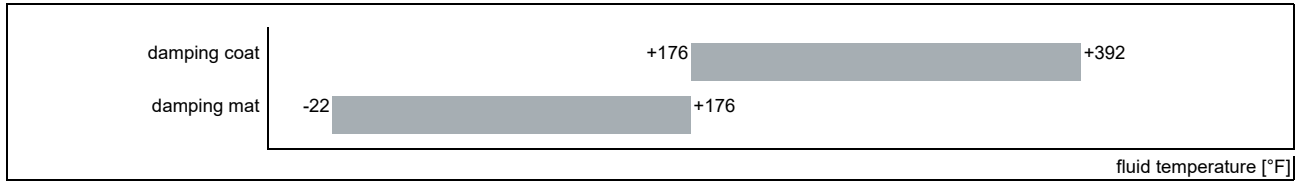
	normal temperature range (4th character of transducer order code = N)		extended temperature range higher temperatures (4th character of transducer order code = E, S)		
	< 212 °F	< 266 °F	< 356 °F	< 392 °F	392 to 464 °F
< 24 h	coupling compound type N or coupling pad type VT	coupling compound type type N or E or coupling pad type VT	coupling compound type E or coupling pad type VT	coupling compound type E or coupling pad type VT	coupling compound type H or coupling pad type TF
long time measurement	coupling pad type VT	coupling pad type VT	coupling pad type VT	coupling pad type VT	coupling pad type TF

Technical data

type	ambient temperature °F	remark
coupling compound type N	-22 to +266	
coupling compound type E	-22 to +392	
coupling compound type H	-22 to +482	
coupling pad type VT	14 to +392	fluid temperature 392 °F: min. 2 years
coupling pad type TF	392 to 464	

Damping material (optional)

Damping material will be used for the gas measurement to reduce acoustic noise influences on the measurement.



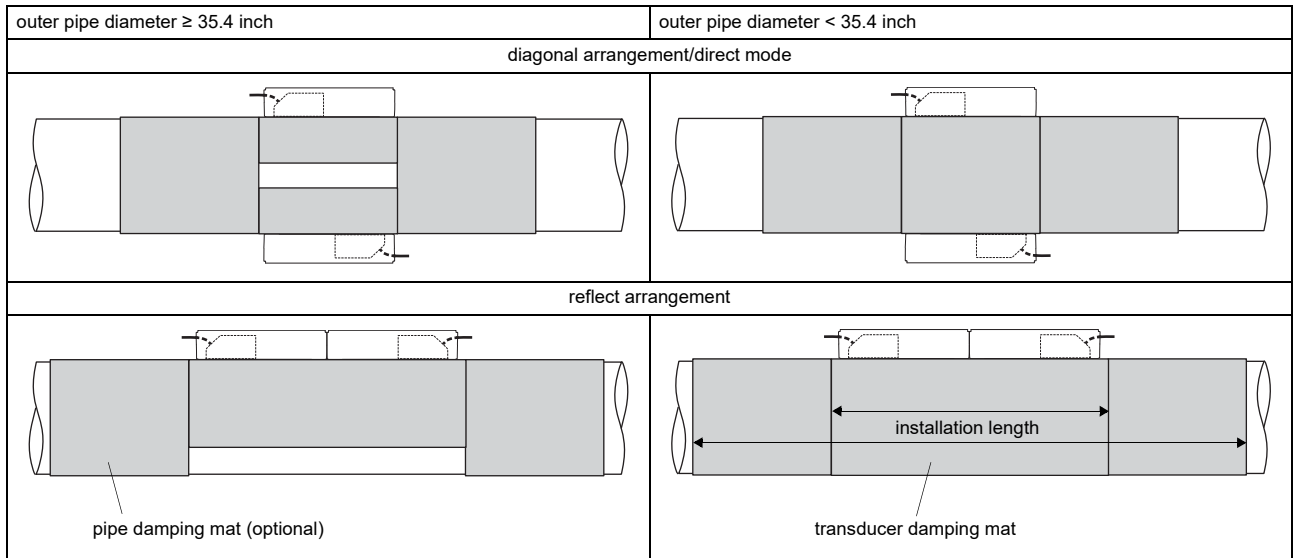
Damping mats

transducer damping mat

Transducer damping mats will be installed below the transducers.

pipe damping mat

Pipe damping mats will be installed if the sound propagation is disturbed at reflection points (e.g., flange, weld). Depending on the noise, the pipe damping mats will be installed at one or both sides of the transducer damping mat. If the local conditions are unknown, pipe damping mats should be installed.



Technical data

type		E30R4	E30R3
item number		992080-11	992080-10
width	inch	8.9	2
thickness	inch	0.03	
length (per roll)	ft	32	
weight	lb/ft ²	2.2	
ambient temperature	°F	-22 to +176	
properties		self-adhesive	

Dimensioning

transducer		damping mat							
transducer mounting fixture	order code	type	number of layers	transducer damping mat			transducer damping mat + 2x pipe damping mat		
				max. installation length [inch]	number of rolls ¹		max. installation length [inch]	number of rolls ¹	
					standard ²	extended ²		standard	extended
VarioFix L									
VLG	GLG	E30R4	3	35	4	4	72	9	12
	GSG		3		4	4		9	10
VLH	GLH		2		2	3		4	7
VLK	GLK		1		1	1		2	2
	GSK		1		1	1		2	2
VLG-**-****/H68	GLG	E30R4	3	36	5	5	75.2	10	13
	GSG		3		5	5		10	11
VLH-**-****/H68	GLH		2		2	3		5	7
VLK-**-****/H68	GLK		1		1	1		2	2
	GSK		1		1	1		2	2
VLM	GLM	E30R3	1	26	1	1	53.5	2	2
	GSM		1		1	2		2	
VLP	GLP		1		1	1		1	1
	GSP		1		1	1		1	1
VLQ	GLQ	E30R3	1	21.3	1	1	44.1	1	1
	GSQ		1		1	1		1	

¹ calculation on the base of:

- max. installation length (installation of one transducer mounting fixture per transducer in reflect arrangement) and
- max. recommended pipe diameter (standard) or max. extended pipe diameter (extended)

² calculation of the number of rolls when both transducers are mounted in one transducer mounting fixture (reflect arrangement) or in diagonal arrangement/
direct mode: number of rolls/2 and round up to the nearest integer

Damping coat

For high temperatures it is recommended to apply the damping coat onto the pipe.

Technical data

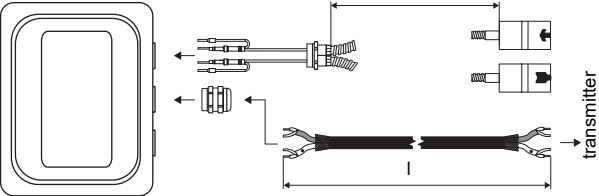
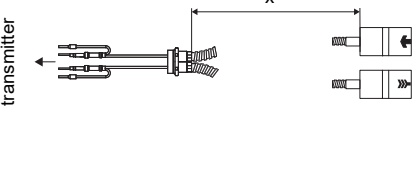
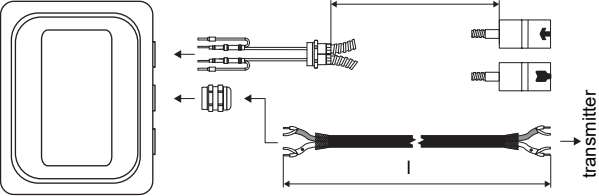
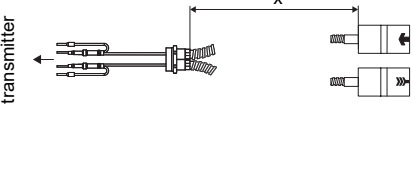
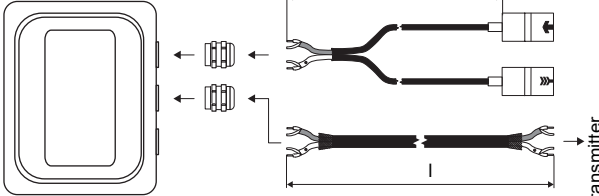
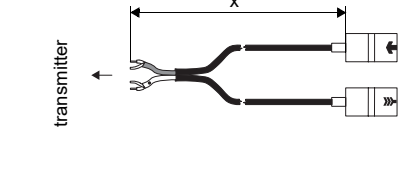
material		multipolymeric matrix/inorganic ceramic coating
packing drum	gal	1
properties		heat-resistant, inert

Observe installation instructions (TI_DampingCoat).

Dimensioning

transducer frequency	number of packing drums		
	outer pipe diameter		
	≤11.8	≤19.7	≤27.6
	inch		
F	1	2	2
G	1	1	2
H	1	1	1
K	1	1	-
M	1	-	-
P	1	-	-
Q	1	-	-

Connection systems

connection system T1		
connection with extension cable	direct connection	transducers technical type
<div>JBP2, JBP3, JB06</div> 		*****53
<div>JB01</div> 		*****8*
<div>JB01, JBP2, JBP3</div> 		*****L *

Cable

transducer cable				
type		1699	2550	6111
weight	lb/ft	0.06	0.02	0.06
ambient temperature	°F	-67 to +392	-40 to +212	-148 to +437
properties			longitudinal watertight	
cable jacket				
material		PTFE	PUR	PFA
outer diameter	inch	0.11	0.2 ±0.01	0.11
thickness	inch	0.01	0.04	0.02
color		brown	gray	white
shield		x	x	x
sheath				
material		stainless steel 304 option OS: 316Ti	-	stainless steel 304 option OS: 316Ti
outer diameter	inch	0.31	-	0.31

extension cable			
type		2615	5245
weight	lb/ft	0.12	0.26
ambient temperature	°F	-22 to +158	-22 to +158
properties		halogen-free fire propagation test according to IEC 60332-1 combustion test according to IEC 60754-2	halogen-free fire propagation test according to IEC 60332-1 combustion test according to IEC 60754-2
cable jacket			
material		PUR	PUR
outer diameter	inch	max. 0.47	max. 0.47
thickness	inch	0.08	0.08
color		black	black
shield		x	x
sheath			
material		-	steel wire braid with copolymer sheath
outer diameter	inch	-	max. 0.61

Cable length

transducer frequency		F, G, H, K		M, P		Q		S	
transducers technical type		x	l	x	l	x	l	x	l
*(DR)***5*	ft	16	≤ 984	13	≤ 984	9	≤ 295	6	≤ 131
*(LT)***5*	ft	29	≤ 984	29	≤ 984	29	≤ 295	-	-
transducers technical type		x	l	x	l	x	l	x	l
*(DR)***8*	ft	16	≤ 984	13	≤ 984	9	≤ 295	-	-
*(LT)***8*	ft	29	≤ 984	29	≤ 984	29	≤ 295	-	-
option H68: ****L*	ft	39	≤ 984	39	≤ 984	-	-	-	-

x = transducer cable length

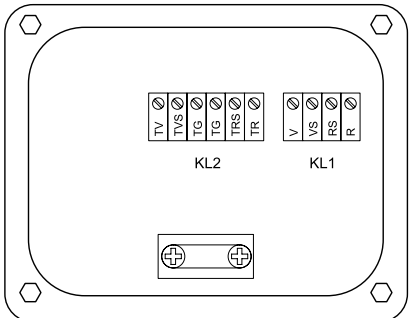
l = max. length of extension cable (depending on the application)

Junction box

Technical data

JB01S4E3M		
weight	lb	2.6 lb
fixation		wall mounting optional: 2" pipe mounting
material		
housing		stainless steel 316L
gasket		silicone
degree of protection		IP66/IP67
ambient temperature °F		-40 to +176
explosion protection		
• ATEX/IECEX		
marking		CE0637 II2G II2D Ex eb mb IIC T6...T4 Gb Ex tb IIIC T100 °C Db Ta -40...+70/80 °C
certification		IBExU06ATEX1161 IECEX IBE 08.0006
type of protection		gas: increased safety decoupling network: encapsulation dust: protection by enclosure

Connection



Transducers

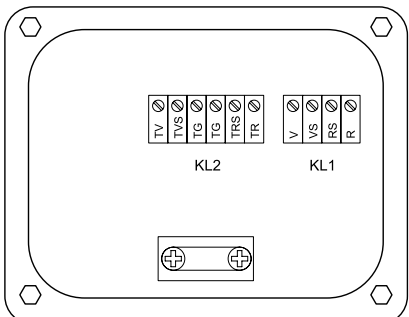
terminal strip	terminal	connection	transducer
KL1	V	signal	↑
	VS	internal shield	
	RS	internal shield	⤴
	R	signal	

Extension cable

terminal strip	terminal	connection
KL2	TV	signal
	TVS	internal shield
	TRS	internal shield
	TR	signal

JBP2, JBP3, JB06		
weight	lb	2.6 lb
fixation		wall mounting optional: 2" pipe mounting
material		
housing		stainless steel 316L
gasket		silicone
degree of protection		JBP2, JBP3: IP66/IP67 JB06: Type 4X, IP66
ambient temperature °F		-40 to +176
explosion protection		
• ATEX/UKCA		
junction box		JBP2
marking		CE UKCA Ex II3G Ex nA IIC T6...T4 Gc II3D Ex tc IIIC T 100 °C Dc -40 ≤ Ta ≤ +70 °C/+80 °C
• FM		
junction box		JB06
certification type		JBC23
marking		FM APPROVED NI/CI, I, II, III/Div. 2 / GP A,B,C,D,E,F,G/ T6 Ta = -40...+60 °C

Connection



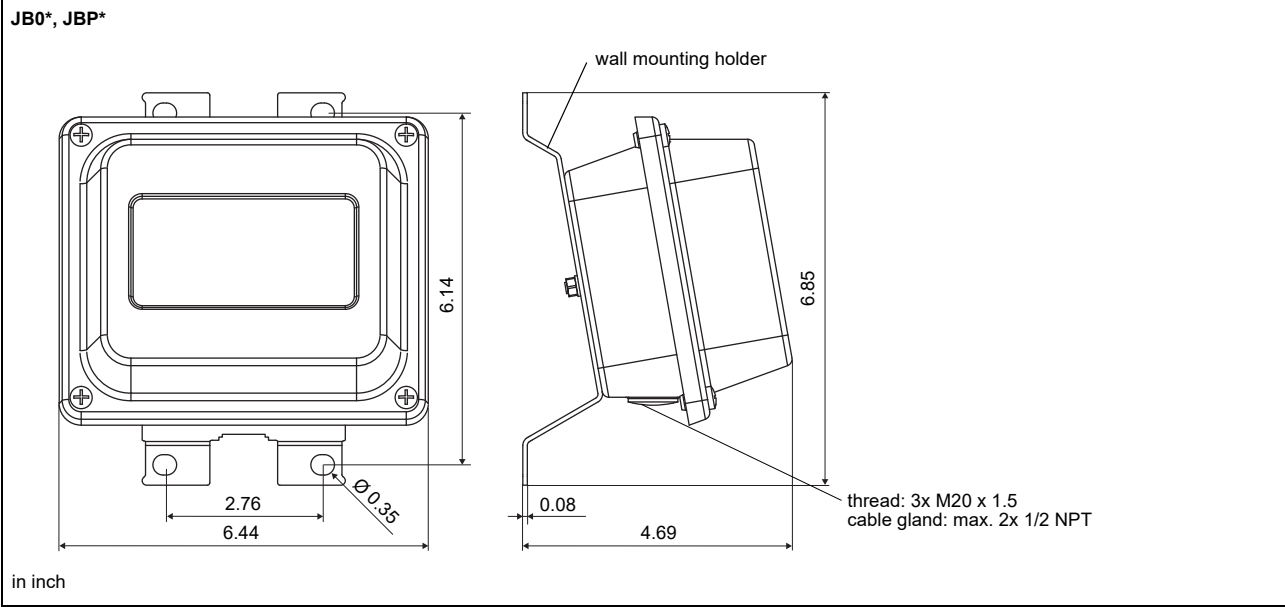
Transducers

terminal strip	terminal	connection	transducer
KL1	V	signal	↑
	VS	internal shield	
	RS	internal shield	⤴
	R	signal	

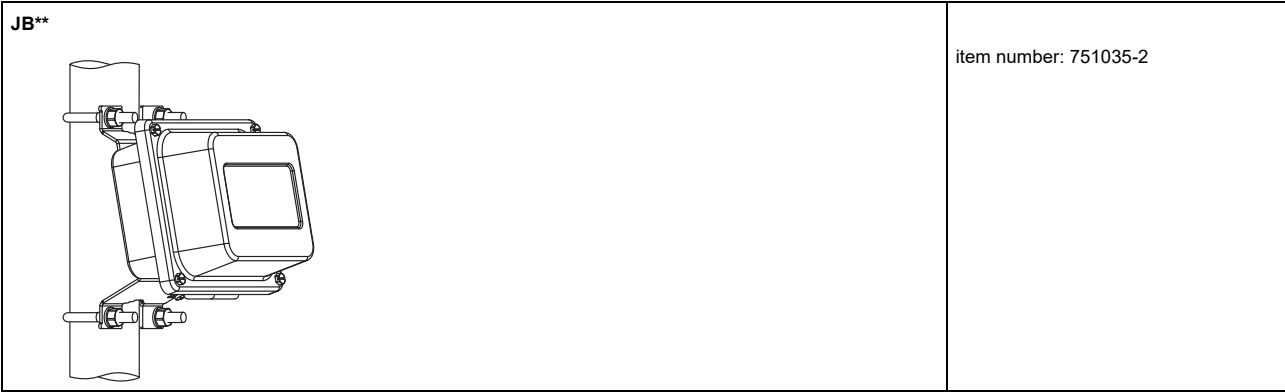
Extension cable

terminal strip	terminal	connection
KL2	TV	signal
	TVS	internal shield
	TRS	internal shield
	TR	signal

Dimensions



2" pipe mounting kit



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