MsS TYPES

Ring MsS (Figure 5) – For cylinders with outer diameter (OD) of 3 inches or less

Part Number	A (inch)	Cylinder Diameter (inch)	Center Frequency Wavelength (inch)
_R_ _05	0.52	0.1 – 0.5	1, 2, 4
_R_ _10	1.02	0.6 – 1.0	1, 2, 4
_R_ _15	1.52	1.1 – 1.5	1, 2, 4
_R_ _20	2.02	1.6 – 2.0	1, 2, 4
_R_ _30	3.02	2.1 – 3.0	1, 2, 4

_R_ _05: The first underline indicates dual(D)- or single(S)- ring MsS, the second one indicates transmitter (T) or receiver (R), and the third one indicates the wavelength in units of 1 inch at the center frequency of the sensor.

Example: DRT215 --- Dual-ring transmitter with the center frequency wavelength of 2 inches for use on 1.1- to 1.5-inch-diameter cylinder.

EXAMPLE OF WAVELENGTH AND CORRESPONDING CENTER FREQUENCY OF GUIDED WAVE

Wavelength (inch)	Nominal Center Frequency (kHz) in 2.875-Inch-OD, 0.203-Inch-Wall Steel Tube			Nominal Center Frequency (kHz) in 1-Inch-Diameter Steel Rod		
	L(0,1)	L(0,2)	T(0,1)	L(0,1)	L(0,2)	T(0,1)
1	119	206	128	107	130	128
2	-	107	64	55	-	64
4	-	53	32	42	-	32

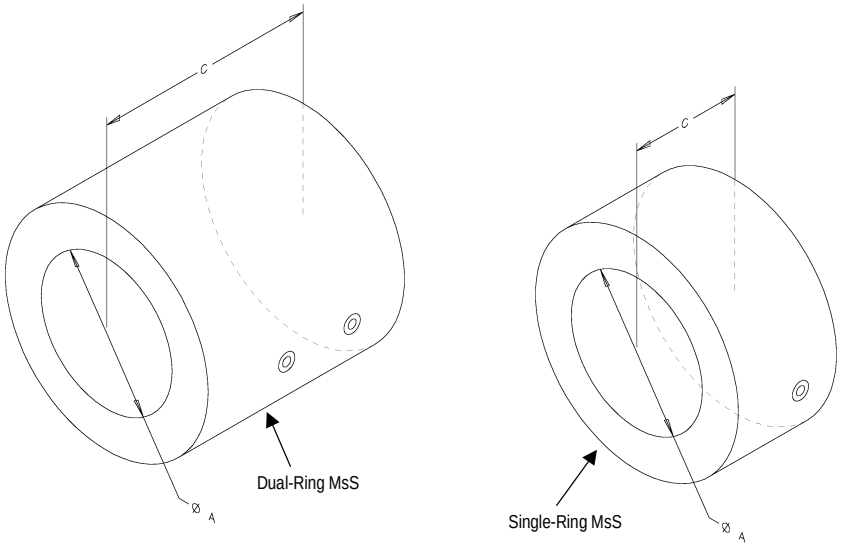

Figure 5. Ring MsS

MsS Adapter and Ribbon Coil (Figure 6) – For cylinders with OD larger than 3 inches

Part Number	Center Frequency Wavelengths (inch)
_A_ _	1.64, 3.34, 6.65

_A_ _: The first underline indicates dual (D)- or single (S)-adaptor, the second one indicates transmitter (T) or receiver (R), and the third one indicates the wavelength in units of 1/100 inch at the center frequency of the sensor.

Example: SAT164 --- Single-adaptor transmitter with the center frequency wavelength of 1.64 inches.

EXAMPLE OF WAVELENGTH AND CORRESPONDING CENTER FREQUENCY OF GUIDED WAVE

Wavelength (inch)	Nominal Center Frequency (kHz) in 18-Inch-OD, 0.25-Inch-Wall Steel Pipe	
	L(0,2)	T(0,1)
1.64	128	78
3.34	64	38
6.65	32	19

Ribbon Coils for Adaptor

RC__ __: The first underline indicates the outer diameter of cylinder to be tested, and the second one indicates for use with single (S) or dual (D) adaptor.

Example: RC08D --- Ribbon coil for 8-inch-OD and for dual adaptor.

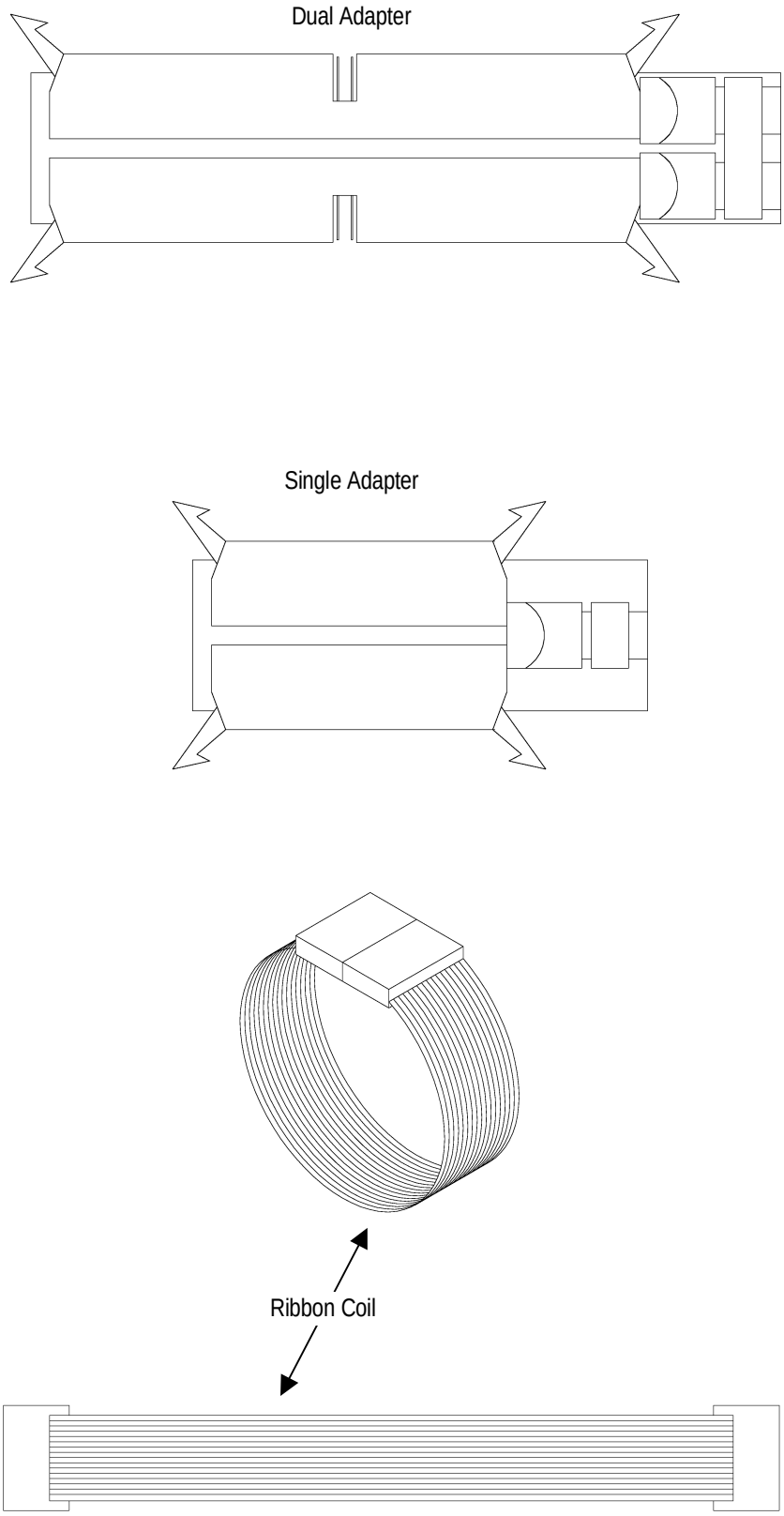

Figure 6. MsS adapter and ribbon coil

Plate MsS (Figure 7)

Part Number	Length (inch)	Center Frequency Wavelengths (inch)	
		Single-Plate MsS	Dual-Plate MsS (inch)
_P_ _02	2	1.36, 2.47, 4	1, 2, 4
_P_ _04	4	1.36, 2.47, 4	1, 2, 4
_P_ _06	6	1.36, 2.47, 4	1, 2, 4
_P_ _08	8	1.36, 2.47, 4	1, 2, 4
_P_ _10	10	1.36, 2.47, 4	1, 2, 4

_P_ _02: The first underline indicates dual (D)- or single (S)- plate MsS, the second one indicates transmitter (T) or receiver (R), and the third one indicates the center frequency wavelength in units of 1/100 inch.

Example: DPR15204 --- Dual-plate receiver with the center frequency wavelength of 1.52 inches and the sensor length of 4 inches.

Application of center frequency wavelength: The nominal center frequencies for wavelength of 1mm in 1-mm-thick steel plate are as follows:

EXAMPLE OF WAVELENGTH AND CORRESPONDING CENTER FREQUENCY OF GUIDED WAVE

Wavelength (inch)	Nominal Center Frequency (kHz) in 0.25-Inch-Thick Steel Plate		
	S0	A0	SH0
1	201	126	128
1.36	153	88	94
2	106	54	64
2.47	85	40	52
4	54	19	32

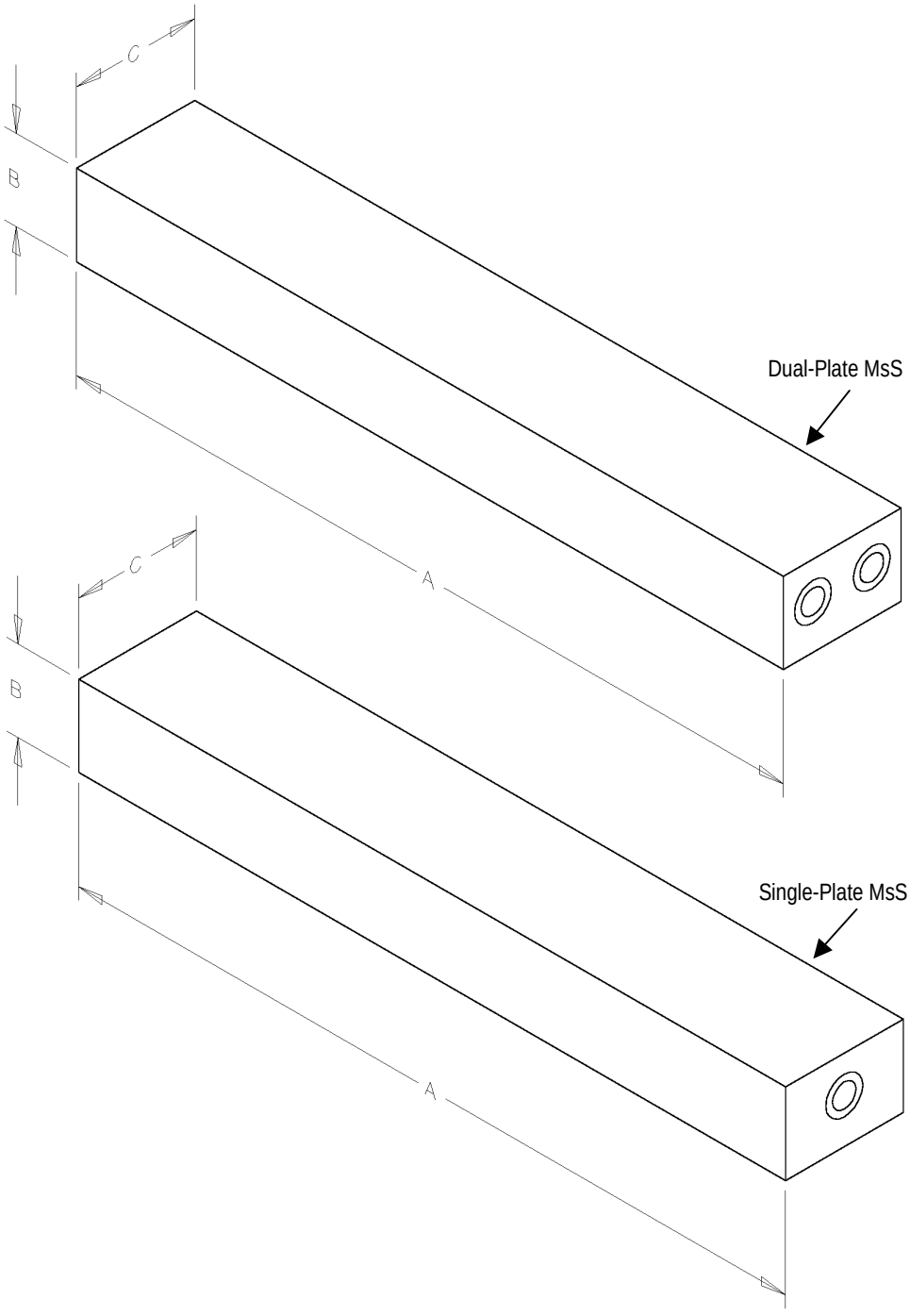

Figure 7. Plate MsS

EXAMPLE OF GUIDED WAVE MODE DISPERSION CURVES

1. Dispersion curve for pipes and tubes
    (a) Longitudinal mode–icon
    (b) Torsional mode–icon
2. Dispersion curve for rods
    (a) Longitudinal mode–icon
    (b) Torsional mode–icon
3. Dispersion curve for plates
    (a) Symmetric and asymmetric Lamb wave and shear-horizontal wave–icon