Molded Waterproof Transducers

Features

- High reliability, thanks to TOKIN's own molding technology, including solid urethane rubber molding and baked neoprene rubber.
- Excellent noise characteristics.
- Wide range of frequencies and molding materials available.

Outline

Transducers that can withstand salt water and underwater pressures are used to generate ultrasonic signals for fish finders, sonar equipment, depth gauges, and Doppler-effect velocity and current meters.

TOKIN's molded transducers are highly reliable, even in the face of severe underwater conditions. Completely waterproof, they offer excellent mechanical strength and temperature characteristics, thanks in part to their unique TOKIN design and technology. By using a variety of different materials for our molded transducers, we can offer a large variety of frequency, input, and directivity characteristics.

Markings

Product models are classified as shown in the following example:

T GM 60-50 A-10 LA

- LA: Cable type L: Chloroprene, LA: Vinyl
- 10: Cable length (m)
- A: No. of transducers included A: 3, B: 2
- 50: Resonant frequency (kHz)
- 60: Transducer outside diameter (mm)
- GM: Molding material GM: Rubber molding, MM: Metal molding, BM: Plastic molding
- T: Transducer material T: VPT, N: NPM, X: VBX

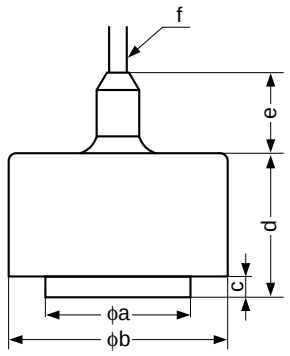
Specifications of Standard Models

Table 2-6

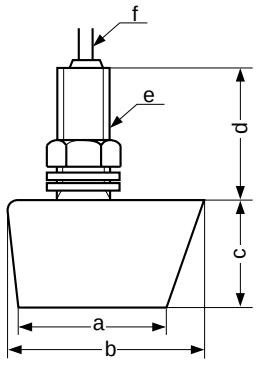
Model	Resonant Frequency (kHz)	Impedance (Ω) at Resonance	Static Capacitance (pF)	Insulation Resistance (MΩ)	Directivity	Shape
TGM60-40-10L	40± 0.5	150 ~ 400	7500±15%	500 and over	50˚	A
TGM60-45-10L	45± 0.5	150 ~ 400	7500±15%	500 and over	45˚	A
TGM60-50-10L	50± 1.0	150 ~ 350	8000±15%	500 and over	44˚	A
TGM42-75-10L	75± 1.5	200 ~ 600	3400±15%	500 and over	36˚	A
TGM80-75-12L	75± 2.0	300 ~ 800	2500±20%	500 and over	20˚	A
TGM100-100-15L	100± 5.0	200 ~ 400	4500±20%	500 and over	12˚	A
TGM50-200-10L	200± 5.0	100 ~ 400	2400±15%	500 and over	11˚	A
TGM80-200-20L	200± 6.0	50 ~ 200	5500±15%	500 and over	7˚	A
TGM100-200-20L	200± 6.0	30 ~ 100	7500±15%	500 and over	6˚	A
TMM60-50-10LA	50± 1.0	100 ~ 300	8000±15%	500 and over	44˚	B
TMM50-200-10LA	200± 5.0	200 ~ 400	2500±20%	500 and over	11˚	B
NMM40-50-8L	50± 2.0	100 ~ 300	2600±20%	500 and over	60˚	B
NMM50-118-8L	118± 5.0	140 ~ 260	2300±20%	500 and over	17˚	B
NMM40-200-8L	200± 6.0	150 ~ 250	2600±20%	500 and over	12˚	B
TGM60-50A-15L	50± 1.0	50 ~ 150	23000±20%	500 and over	12˚×44˚	E
TGM50-200A-15L	200± 5.0	70 ~ 150	5500±20%	500 and over	5˚×11˚	E
TGM60-50B-12L	50± 1.0	100 ~ 300	15000±20%	500 and over	13˚×44˚	D
TGM46-68B-12L	68± 1.5	50 ~ 200	12700±20%	500 and over	11˚×38˚	D
TGM42-75B-12L	75± 1.5	50 ~ 200	9000±20%	500 and over	11˚×36˚	D
TGM50-200B-12L	200± 5.0	150 ~ 400	4300±20%	500 and over	11˚	D

Physical Characteristics

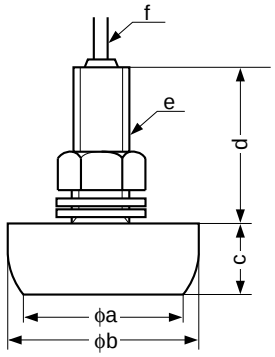
Type A



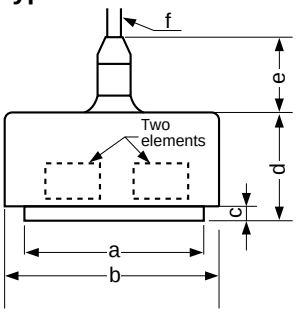
Type B



Type C



Type D



Type E

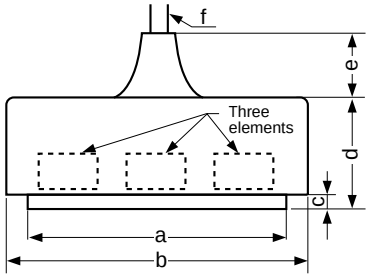
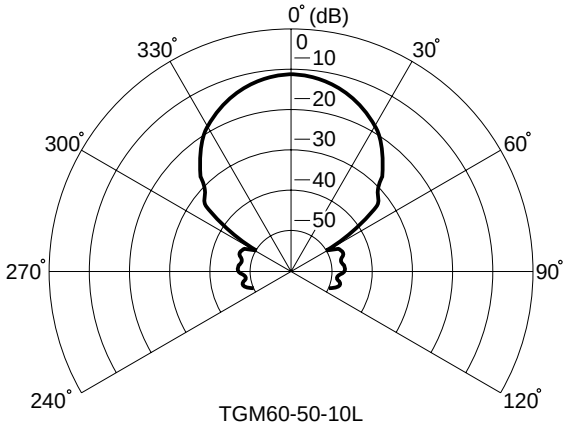


Fig. 2-7. Shape and Construction

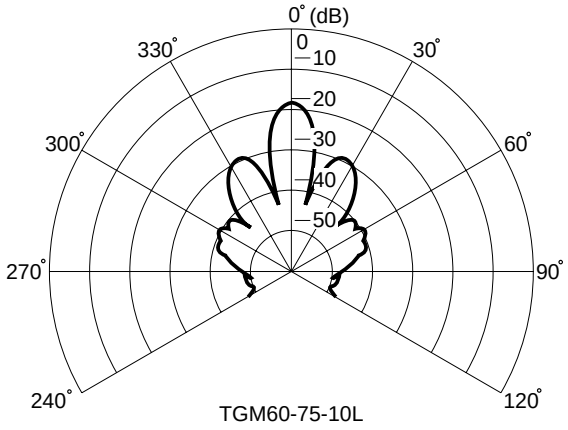
Table 2-7

Model	Dimensions					f (cable)	Shape
	a	b	c	d	e		
TGM60-40-10L	69.5	89.5	5.0	78.0	60.0	ϕ 11, two-core shield captire cable (chloroprene)	A
TGM60-45-10L	69.5	89.5	5.0	78.0	60.0		
TGM60-50-10L	69.5	89.5	5.0	60.0	60.0		
TGM42-75-10L	47.8	61.0	4.0	43.0	27.0		
TGM80-75-12L	104.0	120.0	5.0	65.0	30.0		
TGM100-100-15L	120.0	130.0	4.0	55.0	40.0		
TGM50-200-10L	69.5	89.0	5.0	60.0	60.0		
TGM80-200-20L	100.0	120.0	7.0	45.0	30.0		
TGM100-200-20L	124.0	140.0	7.0	45.0	30.0		
TMM60-50-10LA	70	80	56	120	W • 1.11d/ inch	ϕ 7, two-core shield captire cable (vinyl)	B
TMM50-200-10LA							
NMM40-50-8L	66	80	27	120	M • 18 P2.5	ϕ 5, two-core shield captire cable (vinyl)	B
NMM50-118-8L							
NMM40-200-8L							
TGM60-50A-15L	206.0	226.0	7.0	160.0	60.0	ϕ 11, two-core shield captire cable (chloroprene)	E
TGM50-200A-15L							
TGM60-50B-12L	140.0	160.0	5.0	60	50.0	ϕ 11, two-core shield captire cable (chloroprene)	D
TGM46-68B-12L							
TGM42-75B-12L							
TGM50-200B-12L							

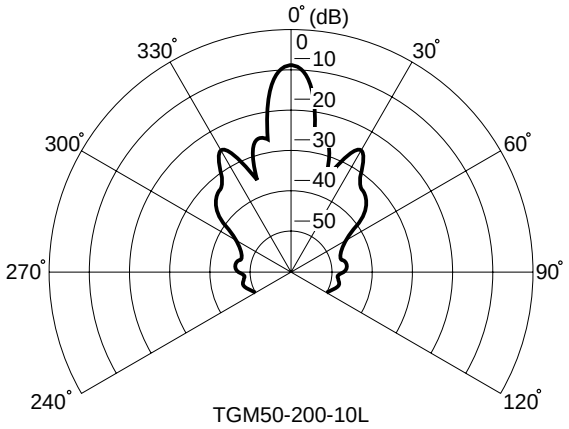
Typical Directivity Patterns (1)



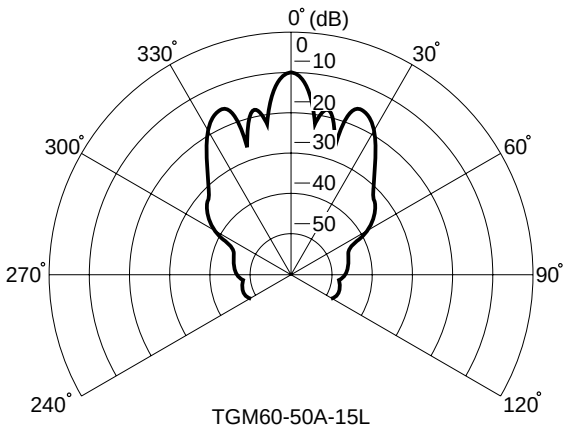
TGM60-50-10L



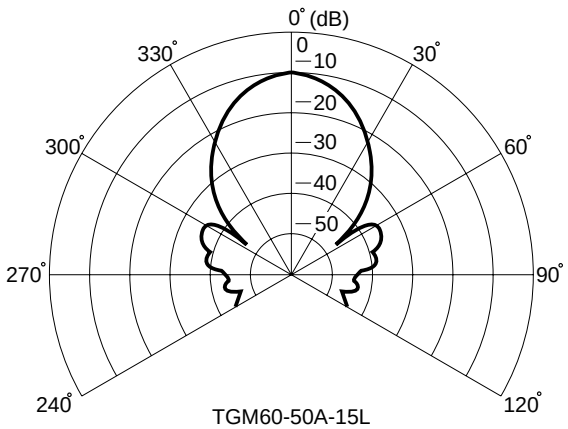
TGM60-75-10L



TGM50-200-10L

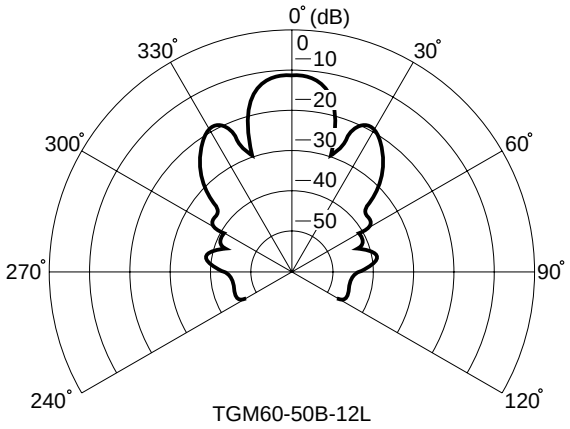


TGM60-50A-15L

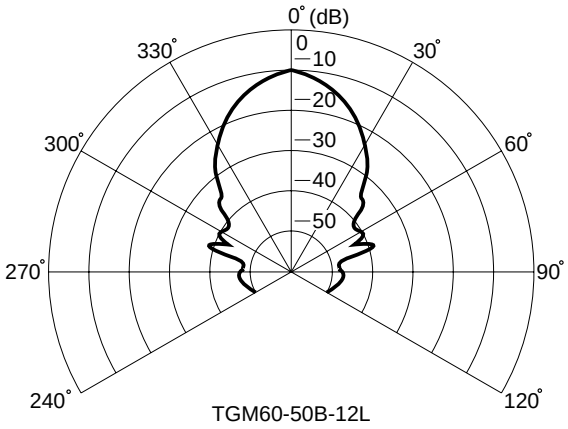


TGM60-50A-15L

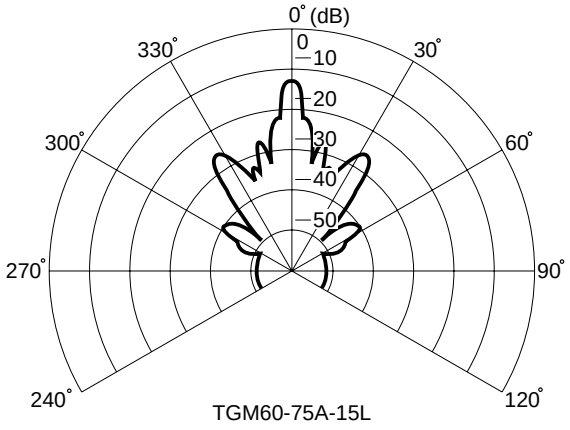
Fig. 2-8. Directvity



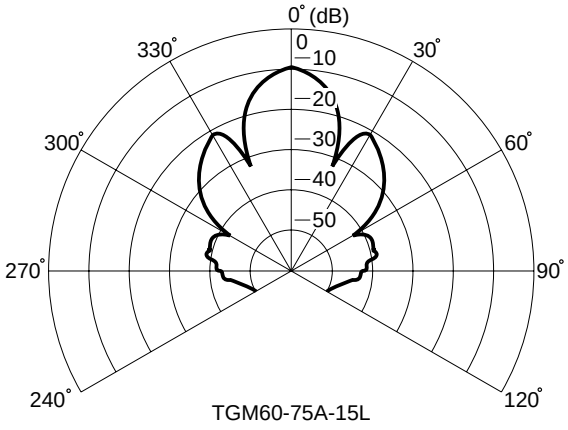
TGM60-50B-12L



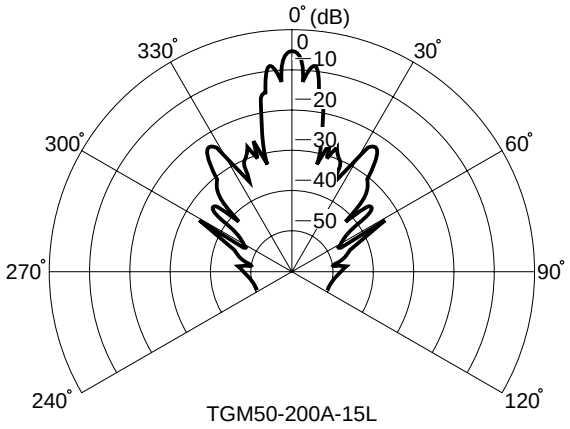
TGM60-50B-12L



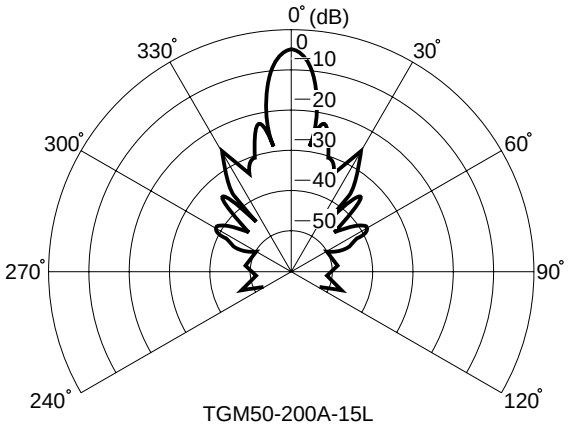
TGM60-75A-15L



TGM60-75A-15L



TGM50-200A-15L



TGM50-200A-15L

Fig. 2-8. Directvity

Typical Directivity Patterns (2)

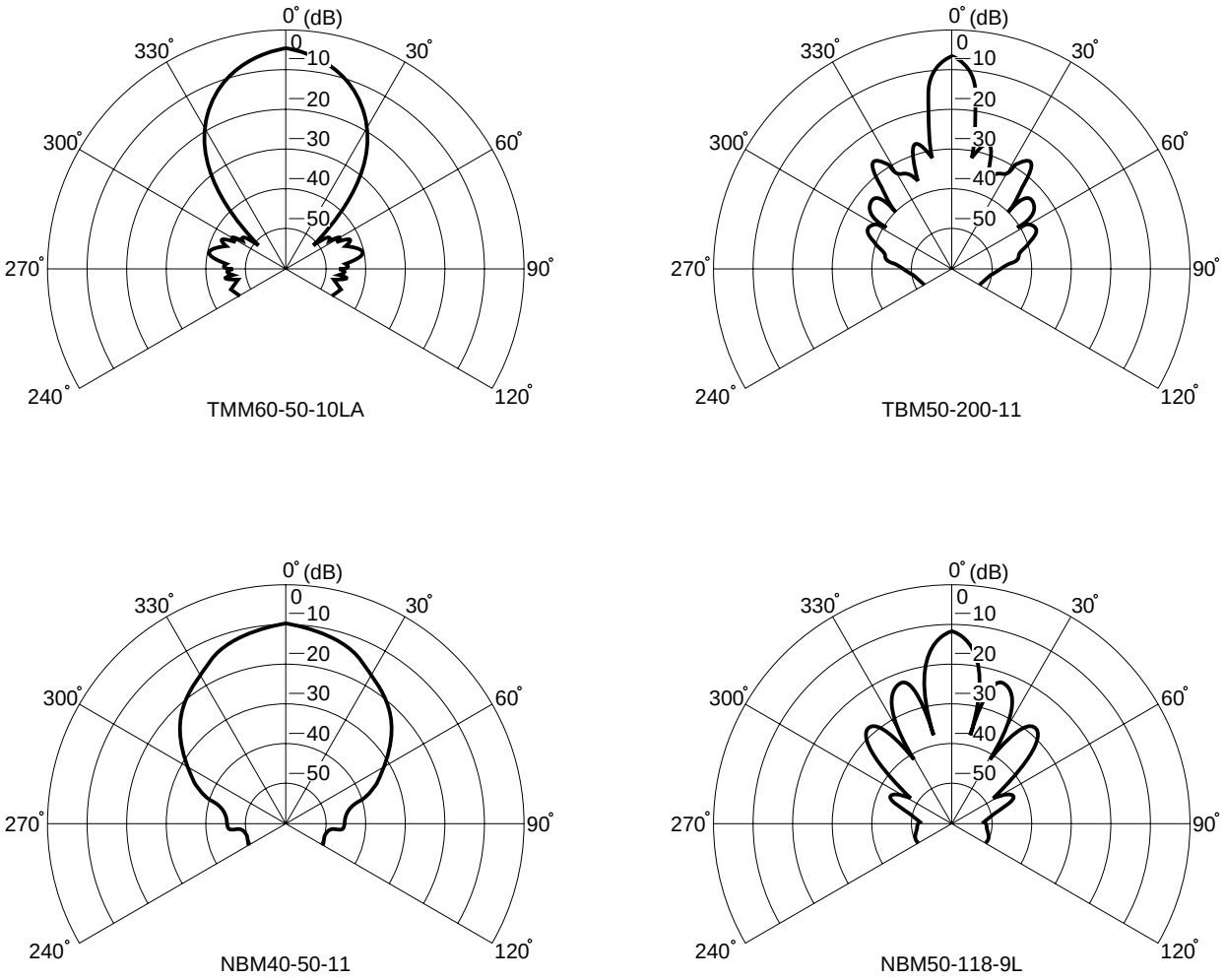


Fig. 2-8. Directivity

Note: Transducers with non-standard shapes and dimensions are also available. For inquiries, see page 34.