

# Components

## Speaker Technology

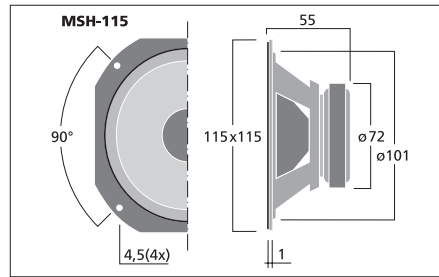
### MSH-115

Order No. 10.1840

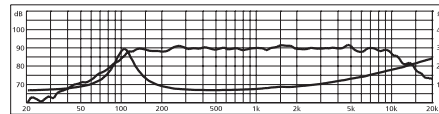


#### Hi-fi midrange speaker, 50 W, 8 Ω

- High-end technology matching the SPH-... series
- Coated special cone
- Dust cap with high damping
- Extra flat basket (no need to recessed installation)
- Top linearity
- Perfect mass-drive ratio
- Wide bandwidth
- Hi-fi for highest requirements



MSH-115 (10.1840)



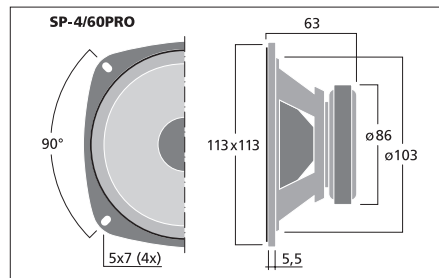
### SP-4/60PRO

Order No. 10.1600

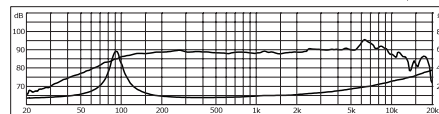


#### PA midrange speaker, 30 W, 8 Ω

- 10 cm (4") PA midrange speaker
- Midrange speaker from the L-RAY/1000
- Very linear and wide frequency range
- Excellent sound and dynamic characteristics
- Very low crossover frequency at subwoofer systems possible due to a great linear excursion for a midrange system
- Ideally suited for small PA systems, column speakers and also as a hi-fi midrange speaker



SP-4/60PRO (10.1600)



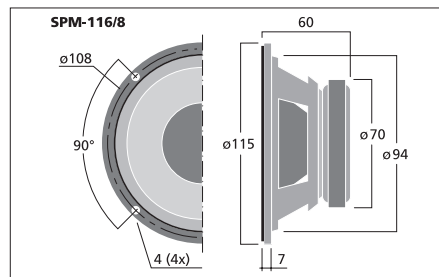
### SPM-116/8

Order No. 10.5360

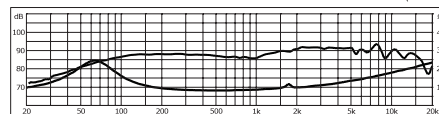


#### Hi-fi bass-midrange speaker, 40 W, 8 Ω

- Excellent replacement speaker of the same quality as from the original equipment manufacturer
- Low-resonance paper cone
- Long-term stable rubber surround
- Also very well-suited for use as a full range speaker



SPM-116/8 (10.5360)



Model	MSH-115	SP-4/60PRO	SPM-116/8
Impedance (Z)	8 Ω	8 Ω	8 Ω
Frequency range	f <sub>x</sub> -10,000 Hz	f <sub>3</sub> -10,000 Hz	f <sub>3</sub> -18,000 Hz
Resonant frequency (f <sub>s</sub> )	85 Hz	92 Hz	75 Hz
Power rating (RMS)	50 W	30 W	40 W
Peak music power output (MAX)	120 W	60 W	80 W
Sensitivity	89 dB/W/m	90 dB/W/m	87 dB/W/m
Suspension compl. (C <sub>ms</sub> )	0.8 mm/N	0.47 mm/N	0.98 mm/N
Moving mass (M <sub>ms</sub> )	4.5 g	6.3 g	3.8 g
Mech. Q factor (Q <sub>ms</sub> )	1.98	5.35	1.9
Electr. Q factor (Q <sub>es</sub> )	0.55	0.67	0.81
Total Q factor (Q <sub>ts</sub> )	0.43	0.60	0.57
Equivalent volume (V <sub>as</sub> )	4 l	3,04 l	4.5 l
DC resistance (R <sub>e</sub> )	6.3 Ω	6.76 Ω	7.2 Ω
Voice coil diameter	Ø 25 mm	Ø 25 mm	Ø 20.5 mm
Voice coil former	aluminium	Kapton	aluminium
Linear excursion (X <sub>MAX</sub> )	± 1.5 mm	± 2.3 mm	± 1.5 mm
Eff. cone area (S <sub>d</sub> )	55 cm <sup>2</sup>	68 cm <sup>2</sup>	57 cm <sup>2</sup>
Mounting cutout	Ø 101 mm	Ø 103 mm	Ø 94 mm
Dimensions	115 x 115 x 55 mm	113 x 113 x 63 mm	Ø 115 mm x 60 mm
Weight	0.56 kg	0.9 kg	0.557 kg