RCF PRECISION

# CD2530T3

## Professional Compression Driver

The RCF Precision family of professional compression drivers is the result of a two year R&D project with the goal of creating new levels of professional audio performance standards. This project led to advancements and improvements in all the key areas of driver technology and high tolerance manufacturing processes.

### Diaphragm Assembly

The CD2530T3 is a high performance 2.5-inch diaphragm compression driver with a 1.4 inch exit throat featuring several state of the art technologies. The diaphragm and suspension are precision formed from .05 mm (.002 in.) thick pure titanium. The suspension is based on an innovative design using progressive parabolic semi circles. The sections of the suspension offer a consistent suspension modulus with a variable, altering profile. This drastically reduces distortion eliminating resonance points and assists in controlling suspension breakup modes. The rear magnetic plate where the diaphragm assembly is located, possesses specially designed CNC machined ventilation slots that eliminate standing waves, turbulence and distortion created by the movement of the suspension. At the point where the titanium suspension is bonded to the assembly ring, a special dampening adhesive has been applied in order to further reduce and eliminate distortion creating resonances. The diaphragm assembly has been designed with easy field service in mind as it can be removed and replaced within minutes.

### Direct Drive™ Voice Coil Assembly

The voice coil assembly is designed using a high strength, high temperature Nomex® voice coil former, rectangular profile copper clad aluminum wire and assembled using advanced, specially formulated adhesives. Proprietary curing processes ensure optimal assembly strength and safe operation even under extreme thermal conditions. The top of the former is bent and bonded directly to the edge of the titanium diaphragm resulting in a Direct Drive™ configuration. Direct Drive™ guarantees optimal transfer of energy between the voice coil and the dome assembly providing smoother, extended frequency response beyond 10 kHz, reducing break up modes and lowering distortion. This assembly delivers high power handling along with excellent mechanical and thermal properties that make the compression driver exceedingly reliable and robust.

### Magnetic Circuit

The CD2530T3's ceramic magnetic circuit design delivers the highest magnetic field strength achievable in the voice coil gap providing the required force to precisely control the dome assembly's moving mass. A thin copper ring is precision pressed on to the pole piece in order to modify and lower the inductance characteristics of the magnetic circuit and voice coil providing a controlled extension of the acoustic frequency response. RCF Precision has provided cooling fins on the rear of the aluminum diaphragm assembly cover that creates a heat dissipating surface area for the driver's magnetic circuit. This assists in lowering circuit temperature, improves the driver's power compression characteristics and increases output.

### Phase Plug

The CD2530T3 features a 3-slot, optimized geometry, aluminum phase plug design. Extensive computer assisted mathematical modeling and testing has resulted in a phase plug geometry that provides balanced acoustic performance by controlling and lowering air distortion and maximizing output. This permits the use of a lower phase plug slot compression ratio that generates substantially lower distortion artifacts. The result is high output with smooth acoustic frequency response and low harmonic distortion artifacts.

### Product Features:

- 2.5-inch Diaphragm, 1.4-inch Exit Throat/ Pure Titanium Compression Driver
- Direct Drive™ Nomex® Voice Coil Assembly
- 3-slot precision machined aluminum, optimized geometry phase plug
- Aluminum rear covers featuring an advanced vented fin heat dissipation design
- Copper Inductance Ring for extended response
- Vented, damped, low distortion, variable profile suspension system
- Extended linear frequency response, low distortion and high power handling
- 120 watt Continuous program power handling
- Frequency range: 500Hz – 20kHz

### Mechanical Design

Connection of speaker cables is improved through the design of push buttons capable of easily accepting large diameter cables effortlessly. The compression driver's front plate is designed to dissipate heat when mounted on aluminum horn assemblies or plate adaptors. The CD2530T3 is constructed using precision CNC machined components with strict adherence to proprietary assembly methods and stringent tolerances. Each driver is thoroughly tested for frequency response, impedance and distortion with DSP enabled digital testing equipment. The result is a robust device capable of withstanding the rigors of modern, portable loudspeaker system applications.

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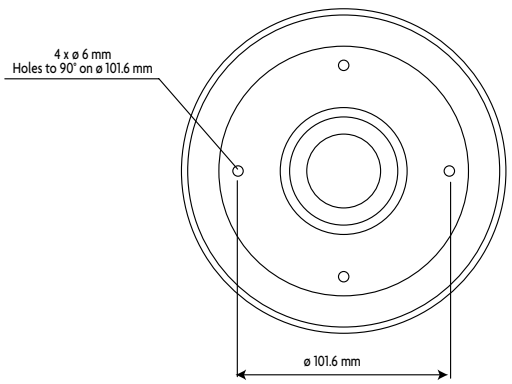


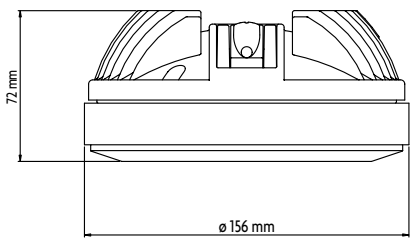


Frequency response curve of the driver measured on-axis at a distance of 1 meter with a 1 watt input signal in an anechoic environment mounted on a horn with a Q of 15.

| MODEL | CD2530T3 | |
|---|---|---|
| **General Specifications** | | |
| Exit Throat Diameter | 35.5/1.4 | mm/inch |
| Rated Impedance | 8 | Ω |
| Power handling capacity [1] | | |
| Continuous Program above 1.2 kHz | 120 | Watts |
| AES above 1.2 kHz | 60 | Watts |
| Sensitivity 1W, 1M on-axis on horn [2] | 109 | dB |
| Frequency Range [3] | 500 Hz - 20kHz | |
| Distortion [4] 2nd harmonic | 3.5 | % |
| 3nd harmonic | 0.3 | % |
| Diaphragm Material | Pure Titanium | |
| Diaphragm Thickness | 0.05/0.0020 | mm/inch |
| Suspension Material | Pure Titanium | |
| Suspension Design | Progressive, Eliptical Alternating Mass | |
| Minimum Impedance | 7.4 Ohms @ 2 kHz | |
| Voice Coil Diameter | 63.7/2.51 | mm/inch |
| Voice Coil Material | Edgewound Aluminium | |
| Voice Coil Former Design and construction material | Direct Drive / Nomex | |
| Number of layers | 1 | |
| Kind of layer | Outside | |
| Electrical polarity | A positive voltage applied on the red terminal produces forward cone motion. | |
| BL Factor | BL 9.4 | T · m |
| Flux Density | 1.8 Tesla (18.000 Gauss) | |
| Phase Plug Design | 3-slot radial | |
| Phase Plug Material | Pure Aluminum | |
| Magnetics | Ceramic | |
| Voice Coil Demodulation | Gap Mounted Copper Ring | |
| **Dimensions** | | |
| Overall Diameter | 156/6.1 | mm/inch |
| Overall Height | 72/2.8 | mm/inch |
| Mounting 4 each 6mm threaded holes 90 deg. apart on | 101.6/4.0 | mm-dia./inch-dia. |
| Net Weight | 4.1/9.0 | Kg/lbs. |
| Shipping Weight | 4.3/9.5 | Kg/lbs. |

Measurements made at 1 meter distance with an input signal whose power is equal to 10% of the driver's rated power mounted on a horn with a Q of 15.

RCF™ PRECISION

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### Notes to Specifications

1. Continuous pink noise power ratings are derived from suggested AES standards sending a pink noise signal having a 6 dB crest factor with a high pass filter set at the specified lower limiting frequency for two hours. Continuous program power is a conservative power rating for reproduction of typical audio program material.
2. Sensitivity measurement is based on pink noise signal with input power of 1 watt and measured at 1 meter from the mouth of a horn with a Q of 15 on axis and averaged between 2 and 5 kHz.
3. Frequency range is defined as the measured frequency response -10dB relative to the rated sensitivity.
4. Distorsion is measured at -10dB from maximum power rating, from lower limiting frequency to 10 kHz