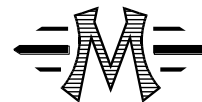


Cartridge/Armtube Combination List



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PREC./red can be used for "green", "red" and "yellow". PREC./blue for "blue".
There is only a small difference in effective mass between "red" and "yellow".
For 12" armtubes "red" should be used also for "green" and "yellow".

| Manufacturer | Model | Weight (g) | Recommended armtube |
|--------------------|----------------------|------------|---------------------|
| Acoustic Signature | Challenger | 8.3 | green (red) |
| Ace | | 8.8 | green-red |
| Air Tight | PC-1 | 12.0 | red/green |
| | PC-3 | 13.5 | green (red) |
| Allerts | | 10.0 | red or yellow |
| Audio Note | Soara | 11.0 | blue-PREC/blue |
| | IO | 11.0 | PREC./red-red |
| | IO II | 18.0 | green |
| Audio Technika | AT-F5/OCC | 5.0 | blue-PREC/blue |
| | AT-OC5 | 8.0 | red |
| | AT-OC7/OC9 | 7.8 | yellow-red |
| | AT-33 PTG/II | | blue |
| | AT-95E | 5.7 | blue-PREC/blue |
| | AT-ART 1 | 8.5 | red |
| | ART 1 | 9.5 | red |
| Audioquest | MC-5 | 6.0 | yellow-red |
| Bang & Olufsen | MMC 1 | 1.6 | green |
| Benz-Empire | MC-1000 | 7.5 | yellow-red-PREC/red |
| Benz-Micro | Ebony | 10.7 | red |
| | MC-2/3 | 7.5 | yellow-red-PREC/red |
| | Reference | 8.6 | green-red-PREC/red |
| | H 2.0 | 8.6 | green-red-PREC/red |
| | Glider | 5.6 | yellow-red-PREC/red |
| | MC-Gold/Silver | 5.7 | yellow-red |
| | Ruby | 8.2 | PREC. Red/green |
| | Ruby 2 | 9.6 | red or green |
| | Ruby 3 | 14.0 | green (red) |
| | LP | 10.7 | green (red) |
| | LP-S | 16.4 | green (red) |
| | L2, M2, H2, Ref2 | 9.0 | green/red |
| | Ace | 8.8 | red/green |
| | ACEL | 8.8 | red |
| Cardas | Myrtle Heart | 9.1 | red |
| | Myrtle Silver Heart | 9.5 | red |
| Cartridge | Music Maker III | 6.2 | red |
| Clearaudio | Gamma S / Insider | 10.0 | Precision/red |
| | Accurate | | green |
| | Concerto | 4.0 | yellow/blue |
| | DaVinci | 7.0 | PREC/red |
| | Goldfinger Statement | 17.0 | green/red |
| | Sigma | 4.5 | blue |
| | Signature | 12.0 | green |
| | Stradivari | 4.4 | yellow-red |
| | Insider | 12.0 | green |
| | Victory | 8.0 | red/green |
| Crown Jewel | Special Edition | 8.0 | yellow-red |
| Decca | Super Gold | 6.7 | PREC/blue |
| | Jubilee | 10.0 | green/red |
| | London Jubilee | 6.7 | blue-PREC/blue |
| Denon | DL-1000 A | 6.0 | green |
| | DL-103 D | 7.5 | yellow-red |
| | DL-110 | 4.8 | yellow-red |
| | DL-304 | 7.0 | green (red) |
| | DL-S1 | 7.0 | green-red |
| Dynavector | 17 D2 Mk II | 5.3 | red-PREC/red |

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|--------------|----------------------|------|-----------------------|
| | 23RS Mk II | 5.3 | yellow-PREC/red |
| | XX-1+ XX-1L | 12.0 | PREC/red |
| | XX-2 Mk II | 8.9 | red-green |
| | DRT XV-15 | 12.6 | green (red) |
| | DV-20X H/L | 8.6 | red |
| | DV-10X5 | 6.6 | yellow-red |
| | TE/KAITORA | 9.8 | green (red) |
| EMT | HSD 6 | 12.0 | green-PREC/red |
| | JSD 5 | 11.0 | blue |
| | JSD 6 | 11.0 | blue |
| Empire | MC-1000 | 7.5 | yellow-red-PREC/red |
| | MC-Silver | 5.7 | yellow-red |
| Garrot | P-77 | 5.8 | red |
| Glanz | 10 LX | 4.8 | blue-PREC/blue |
| Goldring | Eroica | 5.5 | blue-PREC/blue |
| | Electro 2 | 9.0 | red |
| | MM 042 | 6.3 | green (red) |
| Grado | All SIGNATURE models | 5.0 | red-green |
| | Ref. | 6.0 | green (red) |
| | Reference Master | 6.5 | green (red) |
| Grado | Statement Sonato | 6.5 | green-red |
| v.d.Hul | Frog | 8.2 | green (red) |
| | Grashopper | 12.2 | PREC/red |
| | Grashopper IV GLA | 8.6 | green/red |
| | Grashopper V | 8.6 | green/red |
| | MC 10 | 7.5 | yellow-PREC/red |
| | MC 1 B | | blue-PREC/blue |
| | MM-1/2 | 6.5 | green (red) |
| | Colibrie | 6.0 | green-red |
| | Colibrie XCP | | green (red) |
| | Myabi | 12.3 | green (red) |
| | Black Beauty SPX | 8.5 | green (red) |
| Kiseki | Purplehart | 7.5 | blue-PREC/blue |
| | Purplehart Sapphire | 7.5 | blue-PREC/blue/yellow |
| | Blue Gold Spot | 11.4 | yellow |
| | Miltek Aurora | 9.6 | blue-PREC/blue |
| Koetsu | BLACK | 9.5 | PREC/blue-blue |
| | EMC 1B | 9.0 | PREC/blue-blue |
| | Urushi | 11.5 | red |
| | Onyx | 12.0 | red |
| | Rosewood | 9.5 | green-red |
| | Rosewood Signature | 9.0 | blue |
| Lyra | Argo | 4.6 | yellow-red |
| | Clavis | 11.0 | red-PREC/red |
| | Dorian | 6.4 | yellow-red |
| | Kleos | 8.8 | red |
| | Lydian Beta Blue | 8.0 | yellow/PREC/blue |
| | Helicon | 8.0 | green |
| Linn | K 9 | | yellow-PREC/blue |
| Madrigal | Carnegie One | 6.5 | yellow-red |
| | Carnegie Two | 9.0 | yellow-red |
| Miyajima | Shilabe | 10.4 | PREC/red |
| | Waza | 9.0 | PREC/blue |
| Monster | Alpha 1 | 6.5 | yellow-red |
| | Alpha 2 | 6.8 | red |
| | Alpha Genesis 1000 | | yellow-red |
| | Alpha Signance 2000 | 4.2 | yellow-red |
| My Sonic Lab | Eminent | 9.0 | yellow-red |
| Mørch | DACAPO | 6.8 | yellow-PREC/red |
| Ortofon | Cadenza | 10.7 | green/red |
| | Jubilee | 10.5 | green/red |
| | MC 1 Turbo | 4.1 | blue |
| | MC 15 Super II | 7.0 | red-yellow |
| | MC 20 Super II | 10.0 | green-red |

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|-----------------|--------------------|------|-----------------|
| | MC 30 Super II | 10.0 | PREC/red-green |
| | MC 30 Supreme | 10.7 | green-PREC/red |
| | MC 2000 Mk II | 9.5 | PREC/red only |
| | MC 3000 Mk II | 9.5 | PREC/red only |
| | MC 7500 | 11.0 | PREC/red-green |
| | MC Windfeld | 13.0 | green-PREC/red |
| | Rohmann | 9.0 | PREC/red-yellow |
| | Rondo Bronze | 10.5 | green (red) |
| | SPU Royal | 12.8 | blue |
| | OM 10-20-30 | 5.0 | green |
| | Kontrapunkt A+B | 10.0 | red-PREC./red |
| Phase Tech | P3G | 11.5 | green (red) |
| Shelter | 501 | 8.1 | red |
| | 901 | 9.1 | red |
| Shelter | S 9000 | 11.0 | red |
| | 7000 | 11.0 | red |
| Shure | M97HE | 6.6 | |
| Shutter | 901 | 9.1 | red |
| Stanton | 881 | 5.8 | green-red |
| | 981 | 5.5 | green (red) |
| Sumiko | Celebration | 7.0 | yellow-red |
| | Black Bird | 9.6 | red/yellow |
| | Blue Point | 6.0 | red |
| | Evo III | 8.3 | yellow-red |
| | Blue Point Special | 9.0 | red/yellow |
| | Pearl | 6.0 | green (red) |
| Supex | SDX-1000 | 4.7 | blue-PREC/blue |
| Transfiguration | Axia | 7.0 | PREC/red-red |
| | Phoenix | 7.8 | PREC/red-green |
| | Orpheus L | 9.0 | PREC/red-red |
| Tsurugi | | 9.0 | PREC/red-yellow |
| Xuzura | KC-REF | 9.0 | blue |
| ZYX | RS 10-20-30 | 4.2 | blue |
| | R 100 | 4.2 | blue |
| | R 1000 Airy 3 | 5.0 | blue |
| | R 1000 Sigma S-X | 5.0 | blue |
| | Universe | 5.0 | blue |

Also the below formula can be used to find which armtube to use for any cartridge.

$$F_{res} = \frac{159}{\sqrt{(M_A + M_{car}) \cdot C}} \text{ Hz}$$

F_{res} is the fundamental resonance of cartridge compliance and the total mass of cartridge and arm. The best armtube is the one that gives a figure of F_{res} =11-12 Hz or as close thereto as possible.

F_{res} can be found by inserting M_A , M_{car} and C into the formula, where M_A is the mass of the arm, M_{car} is the mass of the cartridge and C is the compliance of the cartridge in $\mu\text{m}/\text{mN}$. Should the compliance be stated differently, it is always the first factor to be used (ranging from about 5-40).

The masses of the arms are green= 4 g, red= 6 g, yellow= 8 g and blue= 14 g.

Thus if the cartridge has a weight of 7 g (M_{car}), and the "red" armtube of 6 g (M_A) is used, the total mass of cartridge and arm is 13 g. If above mentioned factor of compliance is 14 (C), then 14 should be multiplied by 13 and the square root extracted. This makes 13.5 which is then divided into 159 and the fundamental resonance (F_{res}) will be 11,8 Hz.

Thus in above example the armtube was ideal. But for instance if the above figure (F_{res}) was too low the same calculation could be made with the "green" armtube, etc.

There is one snag about it. The manufacturers of cartridges do not always state a useful value for C . (It should be started at 10 Hz). Figures of C coming from Japan usually are measured at 100 Hz, so they should be multiplied by 1.5-2. Figures of C coming from USA often are static values, so they should be halved. Most figures of C coming from Europe are OK (stated at 10 Hz)

Also the tracking force could be used, as this usually is a function of the compliance. For instance with a tracking force of 1.9 g the compliance would be around 14. With a cartridge mass of 6 g the "yellow" armtube would do. With a cartridge weight of 10 g (and the same C) the green armtube should be used.