

## Cartridge/Armtube Combination List



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Find the recommended armtube for a cartridge in the table below. If a cartridge is not listed, use the formula at the end of this document, or contact Mørch using the email address above.

### PRECISION and 12" armtubes

PRECISION/red and 12"/red can be used where the table recommends "red" or "green".

PRECISION/blue and 12"/blue can be used where the table recommends "blue".

The "yellow" armtube has been discontinued, as there was only a small difference in effective mass between "red" and "yellow".

Manufacturer	Model	Weight (g)	Recommended armtube
Acoustic Signature	Challenger	8.3	red (green)
Ace		8.8	red (green)
Air Tight	PC-1	12.0	red (green)
	PC-3	13.5	red (green)
Allerts		10.0	red
Allmic	Arrow Ultra	12.0	red
ART	1000	11.0	red
Audio Note	Soara	11.0	blue
	IO	11.0	red
	IO II	18.0	green (red)
Audio Technika	AT-F5/OCC	5.0	blue
	AT-OC5	8.0	red
	AT-OC7/OC9	7.8	red
	AT-33 PTG/II		blue
	AT-95E	5.7	blue
	AT-ART 1	8.5	red
	ART 1	9.5	red
Audioquest	MC-5	6.0	red
Bang & Olufsen	MMC 1	1.6	green (red)
Benz-Empire	MC-1000	7.5	red
Benz-Micro	Ebony	10.7	red
	MC-2/3	7.5	red
	Reference	8.6	red (green)
	H 2.0	8.6	red (green)
	Glider	5.6	red
	MC-Gold/Silver	5.7	red
	Ruby	8.2	green (red)
	Ruby 2	9.6	red (green)
	Ruby 3	14.0	red (green)
	LP	10.7	red (green)
	LP-S	16.4	red (green)
	L2, M2, H2, Ref2	9.0	red (green)
	Ace	8.8	red (green)
	ACEL	8.8	red
	Wood SL	9.0	red
Brinckmann	EMT-ti	11.0	red (green)
Cardas	Myrtle Heart	9.1	red
	Myrtle Silver Heart	9.5	red
Cartridge	Music Maker III	6.2	red
Clearaudio	Gamma S	10.0	PREC/red
	Accurate		green (red)

	Concerto	4.0	blue
	Concerto V2	7.0	red
	DaVinci	7.0	PREC/red
	DaVinci V2	7.0	red
	Goldfinger Statement	16.0	green (red)
	Sigma	4.5	blue
	Signature	12.0	green (red)
	Stradivari	4.4	red
	Stradivari V2	7.0	red
	Insider	12.0	green (red)
	Victory	8.0	red (green)
	Talissmann V2	10.8	red
	Titanium V2	9.0	red
Crown Jewel	Special Edition	8.0	red
Decca	Super Gold	6.7	PREC/blue
	Jubilee	10.0	red (green)
	London Jubilee	6.7	blue
Denon	DL-1000 A	6.0	green (red)
	DL-103	8.5	blue
	DL-103 D	7.5	red
	DL-110	4.8	red
	DL-304	7.0	red (green)
	DL-S1	7.0	red (green)
Dynavector	17 D2 Mk II	5.3	red
	23RS Mk II	5.3	PREC/red
	XX-1+ XX-1L	12.0	PREC/red
	XX-2 Mk II	8.9	red (green)
	DRT XV-1s	12.6	green (red)
	DV-20X H/L	8.6	red
	DV-10X5	6.6	red
	TE/KAITORA	9.8	red (green)
EAT	Yosegi	6.0	red
EMT	HSD 6	12.0	green (red)
	JSD 5	11.0	blue
	JSD 6	11.0	blue
Empire	MC-1000	7.5	red
	MC-Silver	5.7	red
Garrot	P-77	5.8	red
Glanz	10 LX	4.8	blue
Goldring	Eroica	5.5	blue
	Electro 2	9.0	red
	1042	6.3	blue
Grado	All SIGNATURE models	5.0	red (green)
	Ref.	6.0	red (green)
	Reference Master	6.5	red (green)
Grado	Statement Sonato	6.5	red (green)
van den Hul	Frog	8.2	red (green)
	Grashopper	12.2	PREC/red
	Grashopper IV GLA	8.6	red (green)
	Grashopper V	8.6	red (green)
	MC 10	7.5	PREC/red
	MC 1 B		blue
	MM-1/2	6.5	red (green)
	Colibrie	6.0	red (green)
	Colibrie XCP		red (green)
	Myabi	12.3	red (green)
	Black Beauty SPX	8.5	red (green)
	Colibrie XQW	6.0	red (blue)
Ikeda	9 EMPL	15.7	red
	9TS	10.0	red
	Kai	11.5	red
Kiseki	PurpleHeart Boron	7.5	blue
	PurpleHeart Sapphire	7.5	blue
	Blue Gold Spot	11.4	red
	Miltek Aurora	9.6	blue

	Blue N.S.	10.0	red
	PurpleHeart N.S.	7.0	blue
Koetsu	BLACK	9.5	blue
	EMC 1B	9.0	blue
	Urushi	11.5	red
	Onyx	12.0	red
	Rosewood	9.5	red (green)
	Rosewood Signature	9.0	blue
	Coralstone	12.5	red
Lyra	Argo	4.6	red
	Clavis	11.0	red
	Dorian	6.4	red
	Kleos	8.8	red
	Lydian Beta Blue	8.0	PREC/blue
	Helicon	8.0	green (red)
	Titan	10.5	red
	Etna	9.2	red
	Delos	7.3	red
Linn	K 9		PREC/blue
Madrigal	Carnegie One	6.5	red
	Carnegie Two	9.0	red
Miyajima	Shilabe	10.4	PREC/red
	Waza	9.0	PREC/blue
	Madake	9.7	blue
Monster	Alpha 1	6.5	red
	Alpha 2	6.8	red
	Alpha Genesis 1000		red
	Alpha Signance 2000	4.2	red
My Sonic Lab	Eminent	9.0	red
Mørch	DACAPO	6.8	PREC/red
Origin Live	Aladdin	10.27	red
Ortofon	Cadenza	10.7	red (green)
	Jubilee	10.5	red (green)
	MC 1 Turbo	4.1	blue
	MC 15 Super II	7.0	red
	MC 20 Super II	10.0	red (green)
	MC 30 Super II	10.0	green (red)
	MC 30 Supreme	10.7	green (red)
	MC 2000 Mk II	9.5	PREC/red only
	MC 3000 Mk II	9.5	PREC/red only
	MC 7500	11.0	green (red)
	MC Windfeld	13.0	green (red)
	Rohmann	9.0	PREC/red
	Rondo Bronze	10.5	red (green)
	SPU Royal	12.8	blue
	OM 10-20-30	5.0	green (red)
	Kontrapunkt A+B	10.0	red
	Anna	16.0	red
	A90	8.0	red
Phase Tech	P3G	11.5	red (green)
Shelter	501	8.1	red
	901	9.1	red
	S 9000	11.0	red
	7000	11.0	red
	5000	11.0	red
	901 III	9.1	red
Shure	M97HE	6.6	red
Shutter	901	9.1	red
Soundsmith	Zephyr MIMC Star	10.25	blue (red)
	Carmen	6.8	red
	Carmen mk. II	6.8	red
	Sussurro	8.79	blue
	Sussurro mk. II	10.25	blue
Stanton	881	5.8	red (green)
	981	5.5	red (green)

Sumiko	Celebration	7.0	red
	Black Bird	9.6	red
	Blue Point	6.0	red
	Evo III	8.3	red
	Blue Point Special	9.0	red
	Pearl	6.0	red (green)
Supex	SDX-1000	4.7	blue
Transfiguration	Axia	7.0	red
	Phoenix	7.8	green (red)
	Orpheus L	9.0	red
	Phoenix S	7.8	red
	Proteus	7.8	red
	Axia S	7.0	red
	KC-REF	9.0	blue
Xuzura	RS 10-20-30	4.2	blue
ZYG	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.

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

$F_{res}$  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  $\mu m/mN$ . 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= 7.5 g and blue= 14 g.

Thus if the cartridge has a weight of 7 g ( $M_{car}$ ), and the "red" armtube of 7.5 g ( $M_A$ ) is used, the total mass of cartridge and arm is 14.5 g. If above mentioned factor of compliance is 14 ( $C$ ), then 14 should be multiplied by 14.5 and the square root extracted. This makes 14.2 which is then divided into 159 and the fundamental resonance ( $F_{res}$ ) will be 11.2 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 stated 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 "red" armtube would do. With a cartridge weight of 10 g (and the same  $C$ ) the green armtube should be used.