

18 KL 1840 SUB

SWETON®



The **SWETON 18 KL 1840 SUB** is a ferrite 18-inch subwoofer tuned for mid-bass impact rather than infra-bass depth. $F_s \approx 42$ Hz, $Q_{ts} \approx 0.607$ and $V_{as} \approx 123$ L let it reach full output from enclosures far smaller than a typical 18-inch sub demands – a 125 L cabinet produces ≈ 129 dB at 63 Hz on 1200 W AES. Exceptionally low mechanical loss (Qms 29.6) keeps the suspension out of the way, so the motor's energy goes into moving air rather than heating rubber.

How it performs:

- Impact band 55–120 Hz – the kick, dhol and bass-guitar fundamental region an audience physically feels.
- Q_{ts} 0.607 with V_{as} 123 L means small boxes genuinely work: 95–130 L tuned 45–49 Hz gives a punchy response with only ≈ 1 dB of passband ripple.
- Peak cone travel is 7.3–8.4 mm of the ± 9 mm X_{max} at full 1200 W AES in the recommended alignments – thermal and mechanical limits are reached together.

- Roll-off above ≈ 120 Hz is smooth, so it blends naturally with 12" or 15" tops without a steep filter.
- Impedance minimum stays above $\approx 5.4 \Omega$; four cabinets can share a 2 Ω -capable channel in large ground stacks.

Applications

- **Compact Sub Cabinets:** the highest output per litre in the KL range – most SPL from the smallest truck pack.
- **Roadshows & Processions:** mid-bass authority that carries in open air, where infra-bass simply dissipates.
- **Kick-Sub / Band-Pass Stacks:** an ideal 60–120 Hz partner above a dedicated infra sub.
- **Mobile DJ & Event Systems:** a light 12.4 kg driver, a small box and a very large perceived punch.

Why Choose the 18 KL 1840 SUB ?

1. **Smallest Box for the Output:** V_{as} 123 L is roughly 40% less than comparable 18-inch subs – a real 95–130 L cabinet, not a wardrobe.
2. **Qms 29.6:** exceptionally low suspension loss, so more amplifier energy becomes acoustic output instead of heat.
3. **Matched Limits:** 8.4 mm peak travel against ± 9 mm X_{max} at rated AES power – nothing left on the table, nothing over-stressed.
4. **Optimized for Indian Conditions:** the 42 Hz F_s puts its natural strength in the 50–110 Hz band, where outdoor cultural events need impact more than infra-bass.
5. **Klippel + CLIO Tested:** T/S parameters measured on a Klippel Analyzer; response verified on CLIO.

Use case	Enclosure (net, after driver/port)	Tuning (Fb)	Crossover (HPF / LPF)	Suggested EQ (parametric)	Notes	DSP Protection (based on AES 1200 W, 8 Ω)
Compact Reflex (max punch, min box)	90–100 L vented	48–50 Hz	HPF 40–42 Hz BW24; LPF 100–120 Hz LR24	-1.5 dB @ 105–125 Hz, $Q \approx 1.0$; -1 dB @ 45–52 Hz, $Q \approx 1.2$ (trim tuning hump)	-3 dB ≈ 52 Hz. Fast and dry. Port area ≥ 300 –335 cm ² . Peak travel 7.3 of 9 mm.	• RMS Limiter Voltage: 98.0 V RMS
Standard Reflex (best balance)	120–130 L vented	45–46 Hz	HPF 37–38 Hz BW24; LPF 95–115 Hz LR24	-1.5 dB @ 100–120 Hz, $Q \approx 1.0$; $+1$ dB @ 50–58 Hz, $Q \approx 0.8$	-3 dB ≈ 45 –48 Hz, -10 dB ≈ 32 –33 Hz. Port area ≥ 380 –395 cm ² . Peak travel 8.4 mm.	• Peak Limiter Voltage: $\approx 1.4 \times 98.0 = 137$ V peak
Extended Reflex (deeper, install)	150–170 L vented	42–44 Hz	HPF 35–36 Hz BW24; LPF 90–110 Hz LR24	-2 dB @ 95–115 Hz, $Q \approx 1.0$	-3 dB ≈ 40 –42 Hz. Port area ≥ 440 –455 cm ² . Peak travel 9.3–9.7 mm – keep the excursion limiter active below 40 Hz.	• Attack/Release: 10–20 ms attack, 100–150 ms release for RMS; 1–3 ms attack, 20–40 ms release for peak.
Array of 4+ (coupled on ground)	125 L reflex each	45–46 Hz	HPF 37–38 Hz BW24; LPF 90–110 Hz LR24	Little to no boost below 60 Hz – array gain covers it; keep only the 100 Hz trim if required	Use delay to steer/arc. Watch coupling lift below 60 Hz.	

SPECIFICATIONS & PARAMETERS

Specifications

Nominal Diameter	458 mm
Nominal Impedance	8 Ω
Nominal Power Handling (AES)	1200 W
Program Power	2400 W
Sensitivity (1W/1m)	95 dB
Frequency Range	40-1500 Hz
Magnet Material	Ferrite
Voice Coil Diameter	99.3 mm
Winding Material	Copper
Former Material	Glass Fibre
Winding Type	In/Out

Mounting Info

Overall Diameter	458 mm
Bolt Circle Diameter	443 mm
Baffle Cutout Diameter	422 mm
Depth	195 mm
Flange and Gasket Thickness	19 mm
Gross Weight	12.40 Kgs

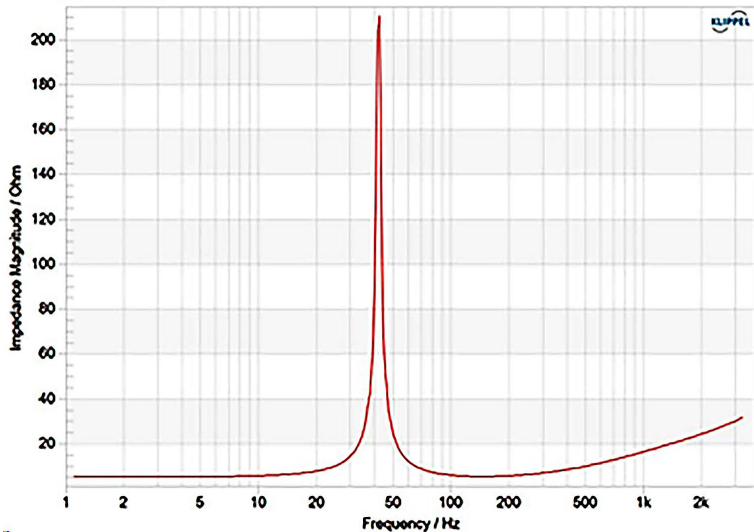
Parameters

Resonant Frequency	Fs	42.0 Hz
DC Resistance	Re	5.36 Ω
Electrical Q	Qes	0.620
Mechanical Q	Qms	29.59
Total Q	Qts	0.607
Compliance Equivalent Volume	Vas	123.34 Ltrs
Peak Diaphragm Displacement Volume	Vd	1.08 Ltrs
Effective Surface Area of Cone	Sd	1194.59 cm ²
Reference Efficiency	η_0	1.41%
Moving Mass including air load	Mms	235.63 gms
Motor Strength	Bl	23.18 T-m
Voice Coil Inductance	Le	1.12 mH
Efficiency Bandwidth Product	EBP	68 Hz
Voice Coil Overhang	Xmax	± 9.00 mm

Recone Kit

Recone Kit Number	REC18KL1840SUB8E
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Magnitude of Electrical Impedance $Z(f)$



On-Axis Frequency Response (CLIO)

