

Detailed Bill of Materials

Apex TV Enclosures | Model ATE-55 (55") | Version 2.0

Note: This BOM is for the ATE-55 (55") model. Quantities and some components vary by size. All prices are estimated FOB China and subject to volume negotiation.

1. Enclosure Structure

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
1.1 Frame & Panels							
1.1.1	Main Frame Assembly	5052-H32 Aluminum, 2.0mm, CNC bent, powder coated External: 1320 × 800 × 120mm	APEX-FR-55	1	\$35.00	\$35.00	Shenzhen Runze Metal
1.1.2	Back Panel	5052-H32 Aluminum, 2.0mm, with fan cutouts, hinged 1280 × 760mm, pre-drilled VESA	APEX-BP-55	1	\$22.00	\$22.00	Shenzhen Runze Metal
1.1.3	Front Bezel Frame	6063-T5 Aluminum	APEX-BZ-55	1	\$12.00	\$12.00	

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
		extrusion, 15mm face, powder coated Mitered corners, glass retention channel					Guangdong Weiye Aluminum
1.1.4	Internal Baffle	1.5mm Aluminum, directs airflow across TV Full width, 50mm height	APEX-BF-55	1	\$4.00	\$4.00	Included with frame
1.1.5	VESA Mount Plate	3.0mm Steel, powder coated, universal adjustable Supports 200×200 to 400×400	APEX-VESA-U	1	\$8.00	\$8.00	Ningbo Highstar
1.1.6	Gas Struts (pair)	100N force, 250mm stroke, stainless For rear panel hinged access	GS-100N-250	2	\$3.50	\$7.00	Changzhou Juteng
Subtotal - Frame & Panels						\$88.00	
1.2 Glass Assembly							
1.2.1	Laminated Glass Panel	4mm + PVB + 4mm low-	APEX-GL-55	1	\$55.00	\$55.00	Qingdao Tsing Glass

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
		iron tempered 1270 x 750mm, polished edges					
1.2.2	AR Coating	Anti-reflective coating, both sides <1% reflectance	AR-COAT-2S	1	\$18.00	\$18.00	Applied by glass supplier
1.2.3	IR Rejection Film	Infrared rejection window film 90% IR block, applied to inner surface	3M-PR90	1	\$65.00	\$65.00	3M Prestige 90 Series
Subtotal - Glass Assembly							\$138.00

1.3 Seals & Gaskets (IP66 Grade)

1.3.1	Main Door Gasket	EPDM continuous channel gasket, UV stable, closed-cell 12 x 15mm profile with frame channel, ~4.2m length, IP66 rated	EPDM-CH-1215-BK	5m	\$1.80/m	\$9.00	Hebei Shengtong Rubber
1.3.2	Glass Seal Gasket	Silicone U-channel, for	SIL-U8-BK	5m	\$0.80/m	\$4.00	

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
		glass edge 8mm glass channel, ~4m length					Hebei Shengtong Rubber
1.3.3	Cable Glands IP68	M20 thread, 316 stainless body 6-12mm cable range	CG-M20- SS316	3	\$2.50	\$7.50	Yueqing Langir Electric
1.3.4	ePTFE Breather Vent	Pressure equalization membrane M12, IP68, prevents condensation	GORE-PMF100	2	\$4.00	\$8.00	Gore Protective Vents
Subtotal - Seals & Gaskets (IP66)					\$28.50		

2. Thermal Management System

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
2.1 Fans							
2.1.1	Main Cooling Fan	140mm x 140mm x 25mm, PWM, IP67 12V, 0.15A, 140CFM, <25dBA, SSO2 bearing	NF-A14-iPPC-3000	4	\$28.00	\$112.00	Noctua
2.1.2				4	\$18.00	\$72.00	Sunon

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
	Alternative: Sunon Fan	140mm MagLev, PWM, IP68 12V, 0.18A, 130CFM, <28dBA	MF14025V1-1000U-A99				
2.1.3	Fan Mounting Grommets	Silicone anti-vibration, for 140mm Reduces noise transmission	NA-SAV4	16	\$0.50	\$8.00	Noctua
2.1.4	IP66 Intake Labyrinth Grille	IP66-rated labyrinth vent with internal baffles UV-stable ABS, downward louvers, 150×150mm, IEC 60529 tested	VENT-IP66-150	4	\$8.00	\$32.00	Donggu Weipu Connect
2.1.5	IP66 Rain Cowl / Hood	Aluminum exhaust cowl with labyrinth exit, IP66 rated 40mm overhang, 316 SS insect mesh, powder coated	APEX-COWL-IP66	1	\$12.00	\$12.00	Custom fabrication
Subtotal - Fans + IP66 Ventilation (Noctua option)						\$164.00	

2.2 Filtration

2.2.1			APEX-FILT-FR	2	\$3.00	\$6.00	
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#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
	Intake Filter Frame	ABS plastic, magnetic or clip-in Tool-free removal					Custom molding
2.2.2	Filter Media	Automotive-grade pleated polyester 40PPI, washable, 150×150×10mm	AF-150-40PPI	4	\$2.00	\$8.00	Dongguan Filter Tech
Subtotal - Filtration							\$14.00

2.3 Control System

2.3.1	PWM Fan Controller Board	MCU-based, 4-channel PWM output 12V input, temp sensor inputs, failsafe logic	APEX-CTRL-V1	1	\$15.00	\$15.00	Custom PCB (see control spec)
2.3.2	Temperature Sensor - Internal	DS18B20 digital, waterproof probe -55°C to +125°C, ±0.5°C accuracy	DS18B20-WP	2	\$1.50	\$3.00	Maxim Generic
2.3.3	Temperature Sensor - Exhaust	NTC 10K thermistor, ring terminal For exhaust air monitoring	NTC-10K-3950	1	\$0.80	\$0.80	Shenzhen Ampron
2.3.4		12V piezo buzzer, 85dB	BZ-12V-85DB	1	\$0.50	\$0.50	Generic

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
	Alarm Buzzer	For thermal alarm					
Subtotal - Control System						\$19.30	

3. Electrical System

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
3.1 Power Distribution							
3.1.1	IEC Power Inlet	C14 inlet with fuse holder, 10A Panel mount, with switch	IEC-C14-FS	1	\$3.50	\$3.50	Yueqing Daier
3.1.2	Fuse	5×20mm glass, 3A slow-blow Spare included	F-3A-250V-SB	2	\$0.10	\$0.20	Generic
3.1.3	Surge Protector MOV	275V MOV varistor Line-neutral, line-earth	MOV-275V-14D	2	\$0.50	\$1.00	Generic
3.1.4	Terminal Block	DIN rail, 3-position, 10A L, N, E distribution	TB-3P-10A	1	\$2.00	\$2.00	Phoenix Contact / Generic
3.1.5	DC Power Supply	Mean Well or equiv, 12V 3A, enclosed	LRS-35-12	1	\$8.00	\$8.00	Mean Well

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
		85-264VAC input, Class II					
3.1.6	Accessory Outlet	UK 3-pin socket (Type G), 13A Panel mount, for media player etc.	UK-13A-PM	1	\$3.00	\$3.00	Generic

Subtotal - Power Distribution **\$17.70**

3.2 Wiring & Connectors

3.2.1	Mains Cable	3G1.0mm ² , heat resistant (105°C) Black, ~2m per unit	H05VV- F-3G1.0	2m	\$0.80/ m	\$1.60	Generic
3.2.2	DC Fan Cable	4-wire PWM, 22AWG, shielded ~1m per fan	PWM-4W-22AWG	3m	\$0.50/ m	\$1.50	Generic
3.2.3	Fan Connector	4-pin PWM header, male + female Standard PC fan connector	FAN-4P-MF	4	\$0.30	\$1.20	Generic
3.2.4	Cable Ties	Nylon, UV resistant, 150mm Black	CT-150-UV	20	\$0.02	\$0.40	Generic
3.2.5		3M VHB high-temp	3M-VHB-CM	10	\$0.15	\$1.50	3M

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
	Adhesive Cable Mounts	For cable management					
3.2.6	Earth Bonding Strap	Tinned copper braid, 10mm Panel to frame bonding	EB-10-TC	2	\$0.50	\$1.00	Generic
Subtotal - Wiring & Connectors						\$7.20	

4. Hardware & Fasteners

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
4.1 Fasteners (316 Stainless)							
4.1.1	Frame Screws	M4 × 10mm pan head, A4-316 External frame assembly	M4-10-PH-A4	40	\$0.08	\$3.20	Jiaxing Haina Fastener
4.1.2	Back Panel Screws	M5 × 12mm cap head, A4-316 Captive screws preferred	M5-12-CH-A4	12	\$0.12	\$1.44	Jiaxing Haina Fastener
4.1.3	VESA Screws	M6 × 15mm, A4-316 with	M6-15-A4-KIT	8	\$0.25	\$2.00	Jiaxing Haina Fastener

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
		washers TV mounting					
4.1.4	Hinge Screws	M4 × 8mm countersunk, A4-316	M4-8-CS-A4	8	\$0.08	\$0.64	Jiaxing Haina Fastener
4.1.5	Nylon Isolation Washers	M4 and M5, for dissimilar metals	NYL-M4M5-KIT	50	\$0.02	\$1.00	Generic
4.1.6	Threaded Inserts	M4 press-fit for aluminum	TI-M4-AL	20	\$0.10	\$2.00	Generic
Subtotal - Fasteners						\$10.28	

4.2 Door Hardware & Security

4.2.1	Concealed Hinges	3-knuckle concealed hinge, 316 SS 110° opening, soft-close	HINGE-316-CC	3	\$4.50	\$13.50	Foshan Lelang Hardware
4.2.2	Compression Latches	Over-center draw latch, 316 SS Adjustable keeper, 200N holding force	LATCH-316-ADJ	4	\$3.80	\$15.20	Ningbo Haishu Xincheng
4.2.3	Tubular Cam Locks	19mm diameter, 316 SS body Keyed alike, 3 keys each	LOCK-TUB-316	2	\$5.50	\$11.00	Ningbo Make Security
4.2.4		Weldable hasp plate,	HASP-316-10	2	\$1.50	\$3.00	Generic

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
	Padlock Hasps	316 SS 10mm shackle hole					
4.2.5	Magnetic Door Catch	Heavy duty magnetic catch, 316 SS Hold-open when servicing TV	MAG-CATCH-SS	1	\$2.50	\$2.50	Generic
Subtotal - Door Hardware						\$45.20	

4.3 Mounting System

4.3.1	Full-Motion Articulating Arm	Dual-arm mount, 500mm extension ±90° swivel, +5°/-15° tilt, 50kg rated	MOUNT-FM-50KG	1	\$28.00	\$28.00	Ningbo Highstar
4.3.2	Wall Plate	Heavy-duty steel wall plate 4mm steel, powder coated	APEX-WP-55	1	\$6.00	\$6.00	Custom fabrication
4.3.3	Wall Anchors	M10 concrete anchors, 316 SS For masonry mounting, 50kg each	M10-CONC-SS	6	\$0.80	\$4.80	Generic

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
Subtotal - Mounting System						\$38.80	

5. Packaging & Documentation

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
5.1	Carton Box	Double-wall corrugated, custom size 1400 × 900 × 200mm	BOX-55-DW	1	\$5.00	\$5.00	Local packaging supplier
5.2	Foam Corners	EPE foam corner protectors Custom molded, set of 4	FOAM-55-SET	1	\$4.00	\$4.00	Local packaging supplier
5.3	Glass Protection	Foam frame + cardboard sheet Front face protection	GP-55	1	\$2.00	\$2.00	Local packaging supplier
5.4	Accessories Box	Small box for hardware kit Contains screws, anchors, manual	ACCBOX-55	1	\$1.00	\$1.00	Local packaging supplier
5.5	Installation Manual	Printed, full color, multi-language EN/AR	MAN-APEX-55	1	\$0.50	\$0.50	Local printing

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
5.6	Clearance Gauge	Plastic template for recess installation Shows minimum clearances	GAUGE-55	1	\$0.50	\$0.50	Custom molding
5.7	Spare Filter	Extra filter included	AF-150-40PPI	2	\$2.00	\$4.00	See 2.2.2
Subtotal - Packaging						\$17.00	

Cost Summary - ATE-55

Category	Subtotal (USD)
1.1 Frame & Panels	\$88.00
1.2 Glass Assembly	\$138.00
1.3 Seals & Gaskets (IP66)	\$28.50
2.1 Fans + IP66 Ventilation (Noctua)	\$164.00
2.2 Filtration	\$14.00
2.3 Control System	\$19.30
3.1 Power Distribution	\$17.70
3.2 Wiring & Connectors	\$7.20
4.1 Fasteners	\$10.28

Category	Subtotal (USD)
4.2 Door Hardware & Security	\$45.20
4.3 Mounting System	\$38.80
5. Packaging & Docs	\$17.00
BOM Total (IP66 Spec)	\$587.98
Assembly Labor (est.)	\$30.00
QC / Testing (incl. IP66 test)	\$15.00
Estimated Unit Cost	\$632.98
Target FOB Price	\$650 - \$720

Volume Pricing Notes (Enhanced Cooling Specification):

- 100 units: ~\$650/unit
- 500 units: ~\$600/unit (8% reduction)
- 1,000 units: ~\$550/unit (15% reduction)

Enhanced cooling (4× fans + 90% IR film) ensures internal temp stays under 35°C to protect consumer TVs (rated 0-35°C). Pricing subject to component availability and exchange rates.