Detailed Bill of Materials

Apex TV Enclosures | Model ATE-55 (55") | Version 3.0 - Front-Breathing Design

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			APEX-BZ-55	1	$12.00	$12.00	

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
	Front Bezel Frame	6063-T5 Aluminum 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

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
1.2.1	Laminated Glass Panel	4mm + PVB + 4mm low-iron tempered 1270 × 750mm, polished edges	APEX-GL-55	1	$55.00	$55.00	Qingdao Tsing Glass
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
1.2.4	Anti-Fog Coating	Hydrophilic coating, interior surface Prevents condensation droplets, v3.0 requirement	AF-HYDRO-INT	1	$10.00	$10.00	Applied by glass supplier
					Subtotal - Glass Assembly	**$148.00**	
1.3 Seals & Gaskets (IP55 Grade)							
1.3.1	Main Door Gasket	EPDM continuous channel gasket,	EPDM-CH-1215-HD	5m	$2.20/m	$11.00	Hebei Shengtong Rubber

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
		higher-durometer, UV stable, closed-cell 12 × 15mm profile with frame channel, ~4.2m length, IP55 rated					
1.3.2	Glass Seal Gasket	Silicone U-channel, for glass edge 6mm glass channel, ~4m length	`SIL-U8-BK`	5m	$0.80/m	$4.00	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
1.3.5	Filter Drawer Gasket	EPDM frame seal for gasketed filter drawer 8 × 10mm profile, ~1.2m length, IP55 seal	`EPDM-FD-0810`	1.5m	$1.50/m	$2.25	Hebei Shengtong Rubber

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
				Subtotal - Seals & Gaskets (IP55)		$32.75	

2. Thermal Management System

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
2.1 Fans							
2.1.1	Slim Exhaust Fan (Top Bezel)	60mm × 60mm × 15mm, PWM, IP67 12V, 0.12A, 17CFM each (~70CFM total + convection), <25dBA, SSO2 bearing	NF-A6x15-PWM	4	$16.00	$64.00	Noctua
2.1.2	Alternative: Delta Slim Fan	60mm × 15mm, PWM, IP68 12V, 0.15A, 20CFM each, <28dBA	AFB0612VHC-F00	4	$10.00	$40.00	Sunon
2.1.3	Fan Mounting Grommets	Silicone anti-vibration, for 60mm Reduces noise transmission	NA-SAV2-60	16	$0.40	$6.40	Noctua
2.1.4	IP55 Double-Layer Intake Labyrinth	IP55-rated **double-layer labyrinth** with drip edges	VENT-IP55-DL-150	4	$12.00	$48.00	Dongguan Weipu Connector

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
		UV-stable ABS, dual 45° louvers, 150×150mm, IEC 60529 jet tested					
2.1.5	IP55 Exhaust Deflector + Rain Cowl	Aluminum exhaust deflector with **75mm overhang + secondary lip**, IP55 rated Double-layer louvers, 316 SS insect mesh, powder coated	APEX-DEFL-IP55-75	1	$18.00	$18.00	Custom fabrication
			Subtotal - Fans + IP55 Ventilation			$136.40	
2.2 Filtration							
2.2.1	Intake Filter Frame	ABS plastic, magnetic or clip-in Tool-free removal	APEX-FILT-FR	2	$3.00	$6.00	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							

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
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	Alarm Buzzer	12V piezo buzzer, 85dB For thermal alarm	BZ-12V-85DB	1	$0.50	$0.50	Generic
					Subtotal - Control System	**$19.30**	

3. Electrical System

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
3.1 Power Distribution							
3.1.1		C14 inlet with fuse holder,	IEC-C14-FS	1	$3.50	$3.50	

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
	IEC Power Inlet	10A Panel mount, with switch					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 85-264VAC input, Class II	LRS-35-12	1	$8.00	$8.00	Mean Well
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	3G1.0mm², heat resistant	H05VV-F-3G1.0	2m	$0.80/m	$1.60	Generic

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
		(105°C) Black, ~2m per unit					
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	Adhesive Cable Mounts	3M VHB high-temp For cable management	3M-VHB-CM	10	$0.15	$1.50	3M
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 washers TV mounting	`M6-15-A4-KIT`	8	$0.25	$2.00	Jiaxing Haina Fastener
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							

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
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	Padlock Hasps	Weldable hasp plate, 316 SS 10mm shackle hole	`HASP-316-10`	2	$1.50	$3.00	Generic
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				1	$28.00	$28.00	

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
	Full-Motion Articulating Arm	Dual-arm mount, 500mm extension ±90° swivel, +5°/-15° tilt, 50kg rated	MOUNT-FM-50KG				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
				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		EPE foam corner	FOAM-55-SET	1	$4.00	$4.00	

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
	Foam Corners	protectors Custom molded, set of 4					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
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**	

6. Included Accessories

#	Component	Specification	Part Number	Qty	Unit Cost	Total	Supplier
6.1 Remote Control & Accessories							
6.1.1	IR Extender System	IR receiver + emitter kit, passes remote signals through glass 38kHz, 10m range, adhesive mount, includes 5m cable	IR-EXT-38K	1	$15.00	$15.00	Shenzhen Hualitong
6.1.2	Glass Cleaning Kit	Microfiber cloth (2×) + AR-safe cleaning solution (250ml) Non-ammonia formula, safe for AR coating	CLEAN-KIT-AR	1	$8.00	$8.00	Generic / Branded
6.1.3	Quick Start Card	Laminated A5 card with QR code to video tutorials Weatherproof, can be stored in enclosure	QS-CARD	1	$0.50	$0.50	Local printing
			Subtotal - Included Accessories			$23.50	

7. Optional Accessories (Not Included)

#	Component	Specification	Part Number	Cost	Retail	Notes
7.1	Soundbar Mounting Bracket	Universal soundbar bracket, mounts below enclosure Adjustable width 600-1200mm, 10kg capacity, 316 SS	`SB-BRKT-UNI`	$25.00	$75 / AED 275	Upsell for audio bundle
7.2	Extended Warranty (3yr)	Extends standard 2-year warranty to 3 years Parts + labor coverage	`WARR-3YR`	$0	$150 / AED 550	Pure margin
7.3	Extended Warranty (5yr)	Extends standard 2-year warranty to 5 years Parts + labor coverage	`WARR-5YR`	$0	$300 / AED 1,100	Pure margin
7.4	Replacement Filter Pack (4×)	MERV 8 replacement filters, 1-year supply Same as included filters	`FILT-PACK-4`	$8.00	$25 / AED 90	Recurring revenue

#	Component	Specification	Part Number	Cost	Retail	Notes
7.5	Anti-Glare Screen Film	Matte anti-glare film for extreme sun locations Reduces reflections in direct sunlight, removable	`AG-FILM-55`	$35.00	$100 / AED 365	For west-facing installs

Cost Summary - ATE-55

Category	Subtotal (USD)
1.1 Frame & Panels	$88.00
1.2 Glass Assembly (incl. anti-fog coating)	$148.00
1.3 Seals & Gaskets (IP54)	$28.50
2.1 Fans + IP54 Ventilation (3× Delta AFB1412HH-A)	$114.40
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
4.2 Door Hardware & Security	$45.20
4.3 Mounting System	$38.80

Category	Subtotal (USD)
5. Packaging & Docs	$17.00
6. Included Accessories (IR Extender, Cleaning Kit)	$23.50
BOM Total (Materials Only)	**$662.13**
Assembly Labor (4-5 hours @ $15/hr)	$75.00
QC / Testing (incl. IP55 water jet test)	$25.00
Factory Overhead (utilities, admin)	$20.00
Factory Cost (before margin)	**$782.13**
Factory Margin (~15%)	$117.87
FOB Price (ex-factory)	**~$900**

Volume Pricing Expectations (FOB):
- **Prototype (1-5 units):** ~$1,100-1,200/unit (includes NRE, setup costs)
- **Initial orders (10-25 units):** ~$950/unit
- **Volume (50+ units):** ~$850/unit (bulk materials, efficiency)
- **High volume (200+ units):** ~$750/unit (negotiable)

Margin Impact at AED 10,500 Retail (~$2,860 USD):
- FOB $900 + Shipping/Duty $100 = $1,000 landed → $1,860 gross margin (65%)
- FOB $1,200 (prototype) + $150 = $1,350 landed → $1,510 gross margin (53%)

Included: IR extender (remote control through glass), cleaning kit, quick-start card. **IP55 features:** Double-layer labyrinth baffles, 75mm exhaust deflector with secondary lip, gasketed filter drawer.

Apex TV Enclosures | Detailed BOM v5.2.2 (IP55 Recess-Compatible) | December 2025