



Fahrenwash

Hand-wash quality at home, for cars that never go through a car wash.

Saro Ivo Posa

October 2026

fahrenwash.com





Collector cars deserve a hand wash, close to home

“I own a youngtimer collector car, and it never goes through an automatic car wash. I wash it by hand in a self-service wash bay, with high-pressure water and soap. The problem: wash bays are not in the city centre, and in Munich there are only a handful of them. Every wash means a drive across town. That is where the idea for Fahrenwash came from.”

Saro Ivo Posa · Founder, Fahrenwash

Who Fahrenwash is for

- **Owners of collector, youngtimer, classic and sports cars** who only wash by hand.
- **Their own property** with space for a Fahrenwash garage.
- **A premium budget.** Fahrenwash is a luxury product.
- **Owners of an existing display garage,** through a retrofit kit.

PROBLEM 1

Car washes are a no-go

Brushes leave swirl marks and scratches. Owners of collector cars avoid them and wash by hand.

PROBLEM 2

Wash bays are rare and far away

Self-service bays with high pressure and soap sit outside the city centre. Munich has only a handful.

PROBLEM 3

The car already lives at home

It stands in a garage on the owner's property most of the time. That is where the wash should happen.

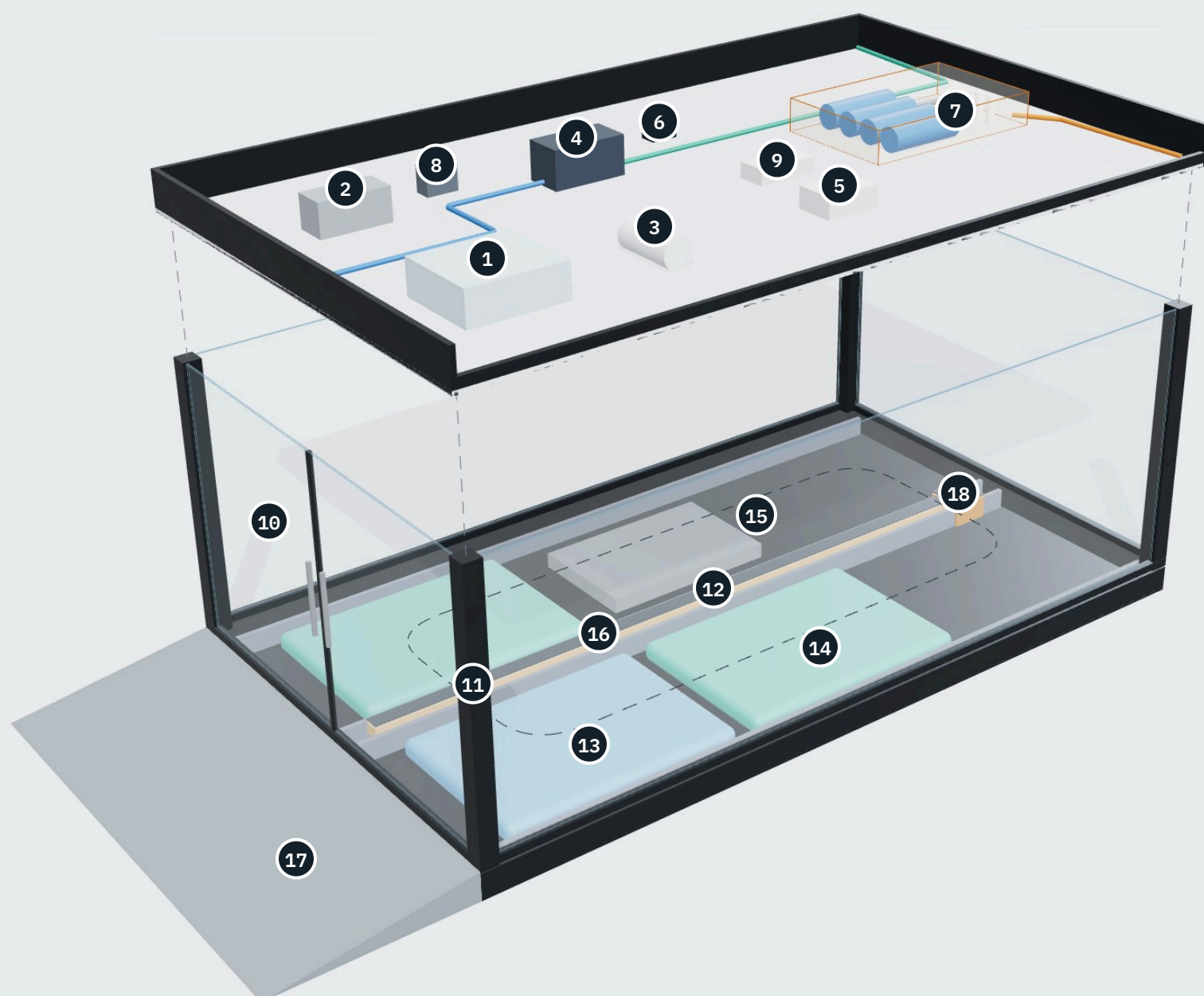
THE SOLUTION

Fahrenwash brings the wash bay into the garage: high-pressure water and soap, touchless, a closed water loop and drying, right where the car parks.



The Fahrenwash garage in 3D

Top: the finished garage with the car inside. Bottom: a cutaway with the ceiling module lifted and the floor deck shown see-through, so every component is visible.



CEILING MODULE • SHOWN LIFTED

- 1 Ceiling dehumidifier, no outdoor unit
- 2 Air-knife dryer
- 3 Extraction fan
- 4 High-pressure pump
- 5 Controls
- 6 Grey-water lift pump
- 7 Removable filter cassette
- 8 Compact compressor, tankless
- 9 Instant water heater

GARAGE

- 10 Glass walls with double door
- 11 Corner pillars, carrying all pipes and cables
- 12 Car position

FLOOR • 20–25 CM, DECK SHOWN SEE-THROUGH

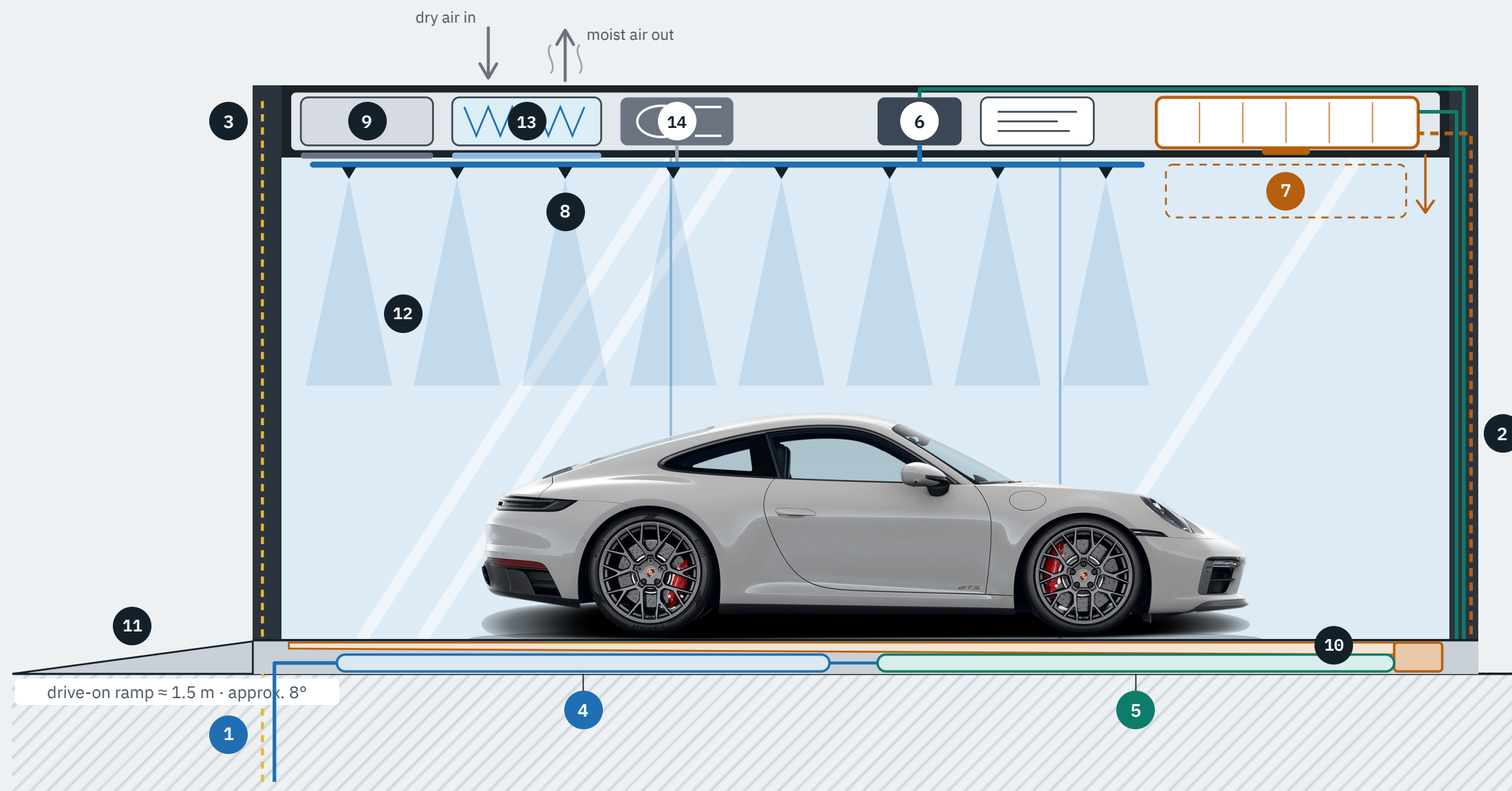
- 13 Fresh water bladder
- 14 Recycled water bladders
- 15 Pipe manifold
- 16 Centre channel, floor falls to it
- 17 Drive-on ramp, approx. 8°
- 18 Rear sump with grit trap

No external units. Every device sits in the ceiling module, the pillars or the floor. Concept render from a simplified 3D model, based on a display garage of about 6.15 × 3.66 × 2.64 m.



The Fahrenwash garage washes and dries your car

The Fahrenwash garage keeps its clean showroom look. Water is stored in flexible bladders in the 20–25 cm floor. High-pressure pump, compressor, filter, dryer and dehumidifier sit in the ceiling. Every pipe and cable runs inside the corner pillars.



COMPONENTS

1 • Fresh water supply

The only water connection, via a front pillar.

2 • Corner pillars

All pipes, cables and air ducts run inside them.

3 • Slim ceiling module

Machines only, no water stored up here.

4 • Fresh water bladder

Flexible tank in the floor, for the final rinse.

5 • Recycled water bladders

Flexible tanks in the floor, for rinse and foam.

6 • High-pressure pump

Feeds the fine-mist nozzles; also lifts grey water.

7 • Removable filter cassette

Drops down through a hatch, swapped as one unit.

8 • High-pressure fine-mist nozzles

Fine spray cleans with far less water. No contact.

9 • Air-knife dryer

Blows the water off the car after the rinse.

10 • Centre drainage channel

Floor falls 1.5–2 % to one grated channel; rear sump with grit trap.

11 • Drive-on ramp

Long, shallow ramp up to the floor for low cars.

12 • Glass on all sides

The Fahrenwash garage keeps its showroom look.

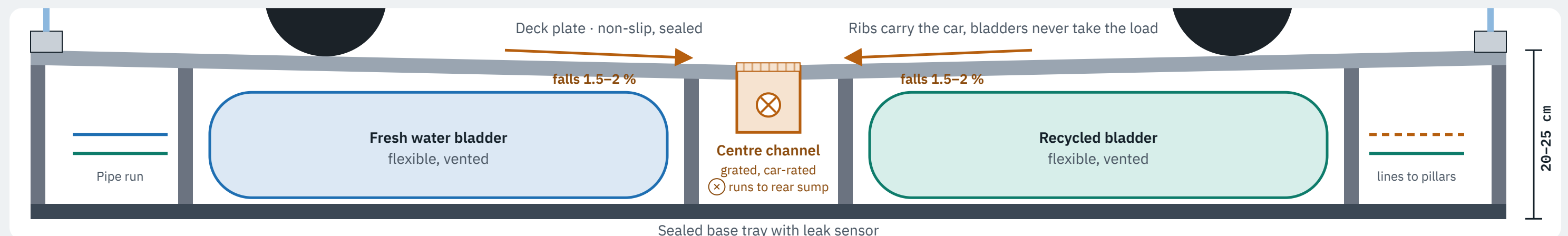
13 • Dehumidifier & extraction

Pulls moist air out after washing and keeps humidity low all year, with no outdoor unit.

14 • Compressor

Compressed air for atomising nozzles, foam and drying.

FLOOR DETAIL • CROSS-SECTION ACROSS THE GARAGE • 20–25 CM BUILD-UP



— Fresh / pressurised — Grey water — Recycled — Power & data

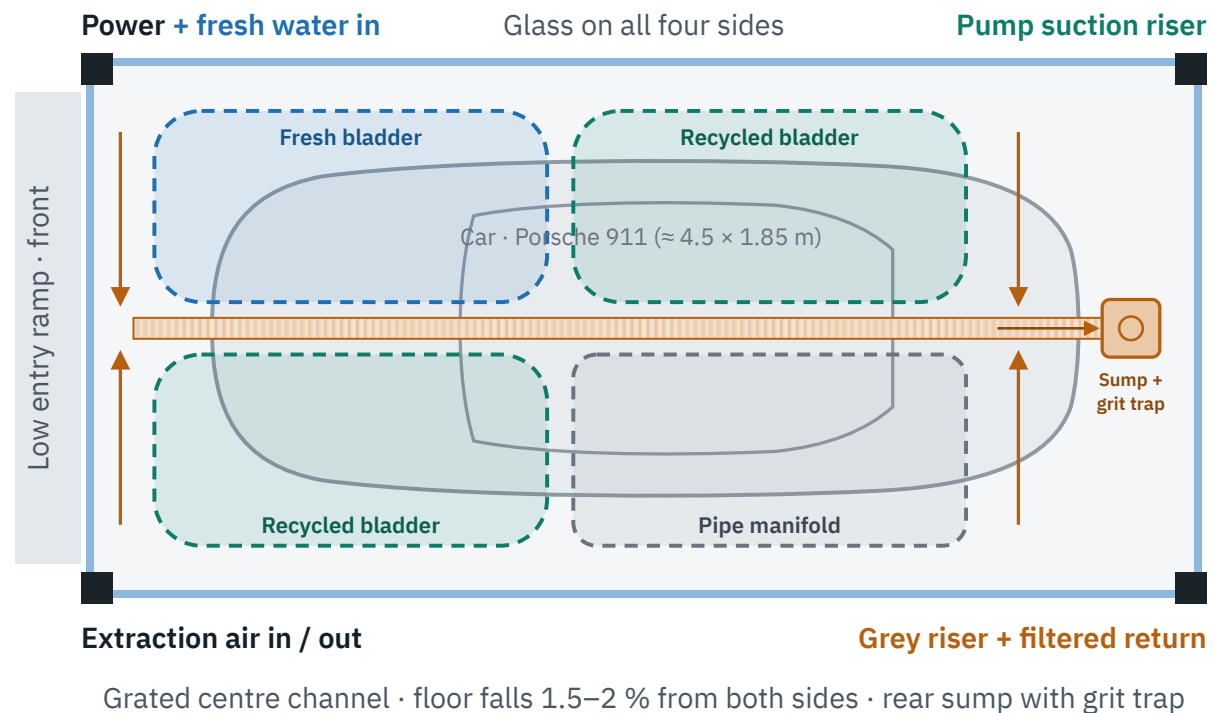
SCHEMATIC • NOT TO SCALE



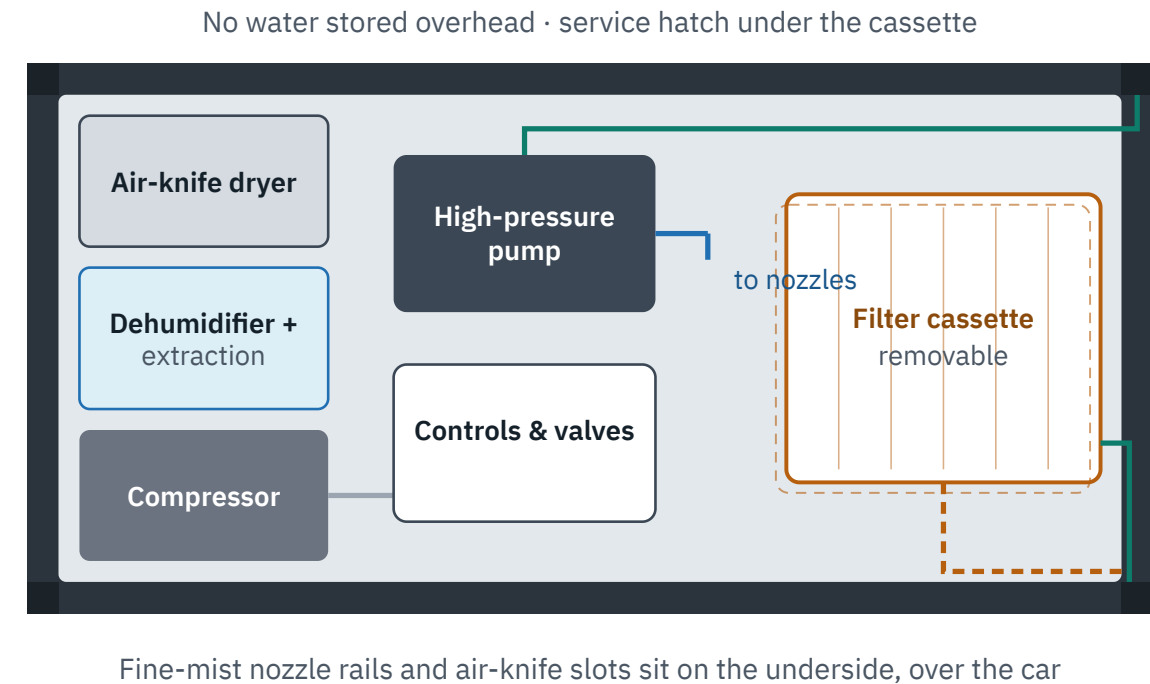
Glass all round, water below, machines above

The 20–25 cm floor falls from both sides to one grated centre channel and holds the flexible water bladders either side of it. High-pressure pump, compressor, filter, dryer and dehumidifier sit in a slim ceiling module; the four corner pillars carry everything between them.

A • FLOOR PLAN



B • CEILING MODULE (SEEN FROM ABOVE)



Fahrenwash garage, unchanged look

The Fahrenwash garage keeps its frame, glass panels and proportions. The wash system is invisible until it runs.

Pillars as service ducts

Each pillar has its own job: power, fresh water, grey-water riser, extraction air. Access panels on the inside face.

Water stored in the floor

Flexible bladders lie between load-bearing ribs in the 20–25 cm floor. A long, shallow ramp keeps entry easy for low cars.

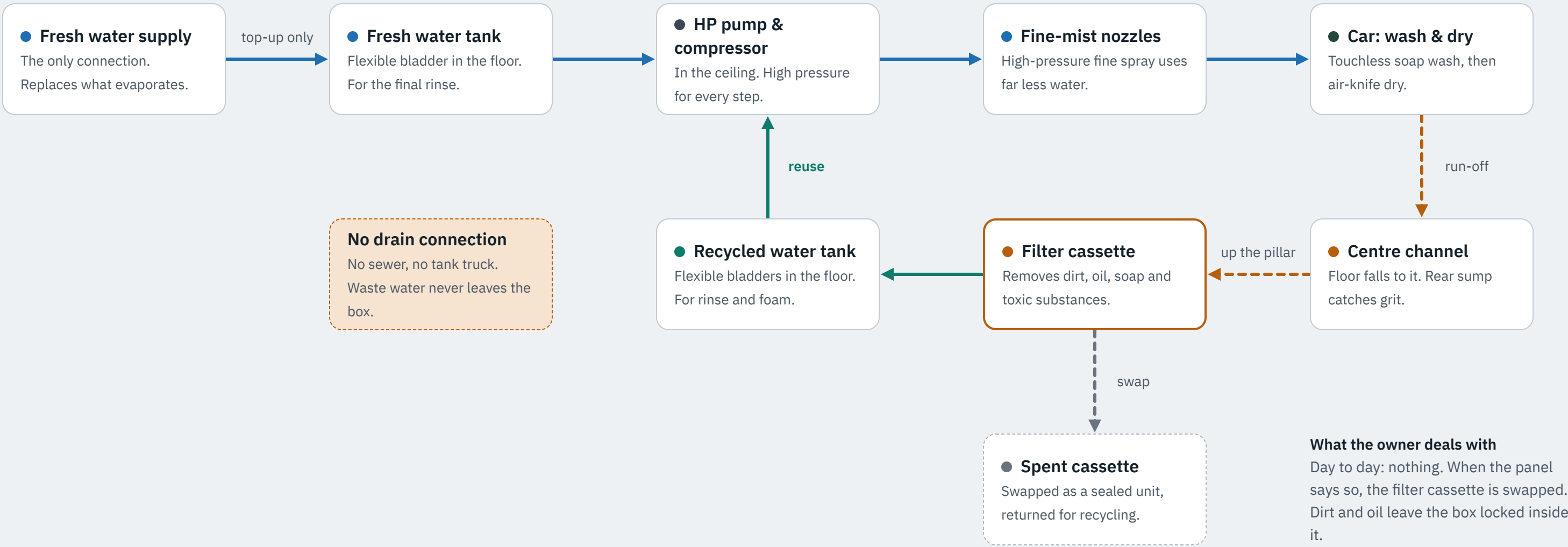
Glass sealed at the base

Panels sit in a raised, sealed rail so spray water stays inside and runs back to the centre channel.



Fresh water in, nothing out. Every drop is filtered and reused.

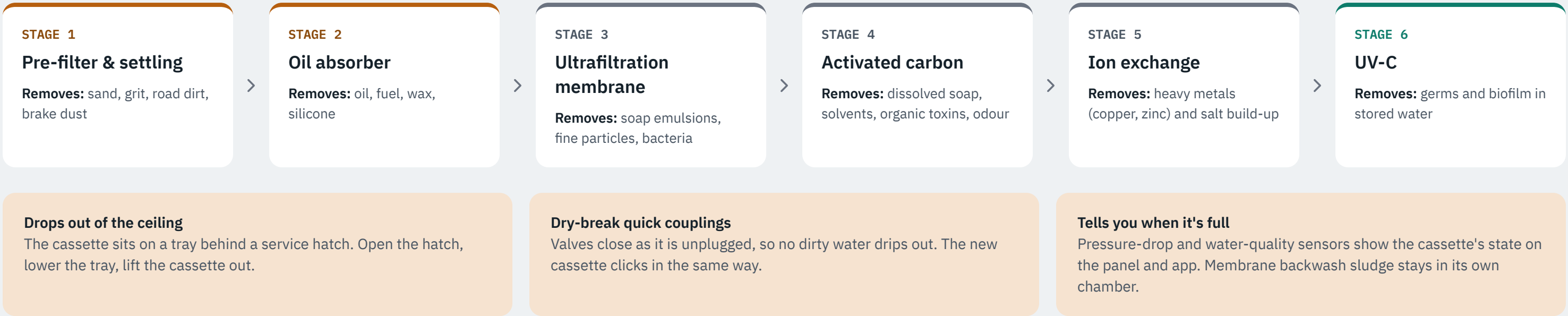
The box has one connection: fresh water. Used water is collected in the floor, lifted up a corner pillar, cleaned in the ceiling filter cassette and stored back in the floor bladders for the next wash.





One removable cassette cleans the water completely

Six stages in one housing, in this order. Whatever they catch (grit, oil, soap, toxic substances) stays inside the cassette and leaves the box with it.

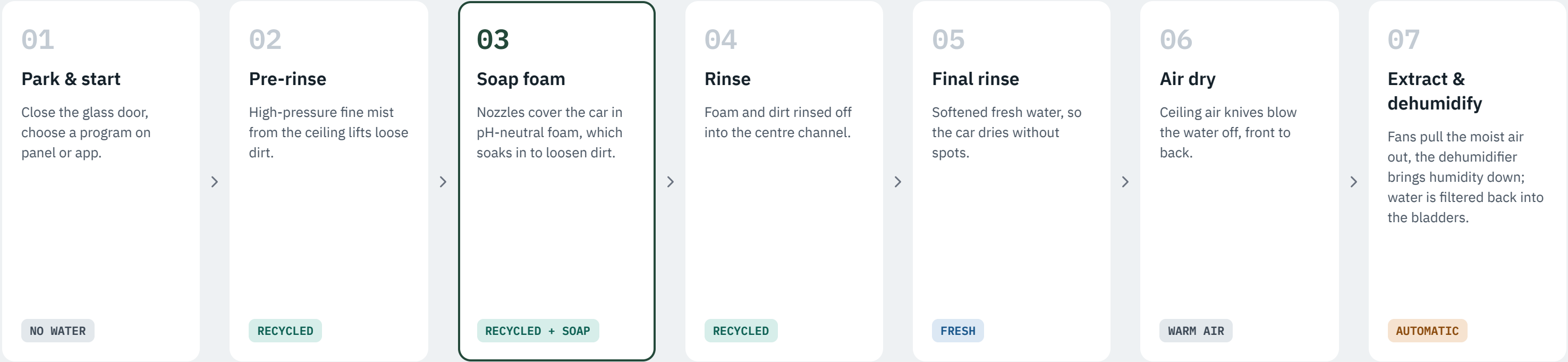


FLOOR & CEILING · FIRST ASSUMPTIONS TO VALIDATE	
Water per wash with high-pressure fine-mist nozzles	≈ 60–100 L
Floor build-up (deck, ribs, bladders, tray)	20–25 cm
Recycled bladders (2 cells, ≈ 12–15 cm filled)	≈ 200 L
Fresh bladder (1 cell)	≈ 80 L
Nozzle pressure (paint-safe, set per step)	[TBD] bar
Cassette swap interval	[TO TEST] washes

ENGINEERING CHECKPOINTS
Bladders under the car. Ribs carry the wheel loads; bladders lie loose between them, vented, in food-grade material, in a sealed tray with leak sensor.
Leaks over the car. Only pipes and the cassette are overhead now; a drip tray with leak sensor still sits under them.
Pump and compressor. On vibration mounts with sound insulation; the pressure is paint-safe and set per program step.
Humidity out. Extraction fans pull moist air out after every wash; the ceiling dehumidifier then holds humidity at storage level all year, keeping glass clear and the car safe.
Reliable drainage. The floor falls 1.5–2 % from both sides to one grated centre channel between the wheel tracks. A rear sump with grit trap keeps sand out of the pump and is emptied when the car is out.
Closed loop over time. Conductivity sensor watches dissolved salts; ion exchange and soft fresh top-up keep them in check.
Approvals. No discharge helps a lot, but check spent-cassette handling and electrics in a wet zone with the authorities.



Park, press start: the box washes with soap and dries the car



Between washes: the dehumidifier keeps the garage at storage humidity all year. **Optional for purists:** the program can pause after step 3 for a mitt hand wash.



Off-the-shelf parts from EU shops: what fits where

Checked against a Fahrengold FG-01 (≈ 6.15 m × 3.66 m, 2.64 m high) with a 20–25 cm floor, a ceiling module of up to 300 mm and the corner pillars. All shops are in the EU; prices in € incl. VAT as listed in October 2026, plus shipping. Verify before ordering.

Ceiling module · fits

Every device: pump (lying flat, tight), compressor, ceiling dehumidifier (260 mm), fan, dryer, filters laid horizontally, UV, transfer pump, controls. Needs ~300 mm depth, which leaves ≈ 2.0 m clear height.

Floor · adapt

The centre channel fits (55 mm); the rear sump is 300 mm deep and needs a recess in the slab or a shallow custom sump. Standard 200 L bladders are 250 mm high when full: fill to ~150 mm or order custom low-profile bladders.

Pillars · check

Pipes and cables fit. A 160 mm extraction duct needs ≥ 170 mm inside the pillar. Otherwise vent through the roof.

Nothing outside

A tankless compact compressor and a ceiling dehumidifier without outdoor unit keep every device inside the structure. Slim slot vents in the ceiling fascia let warm air out.

#	COMPONENT	PRODUCT	SIZE (MM)	LOCATION	FIT	PRICE (€)	SUPPLIER WEBSITE
1	High-pressure pump	Kärcher HD 6/15 M St · stationary, wall-mount, 150 bar, 560 l/h, 230 V	290 × 300 × 565	Ceiling, lying flat	Tight · module ≥ 300 mm	859.00	shop.rahmsdorf.com (DE) · datasheet
2	Compressor	Oil-free piston compressor PI-120C · tankless, 8 bar, 56 l/min, 62 dB(A)	240 × 134 × 198	Ceiling, on vibration mounts	Fits	808.85	www.esska.de (DE)
3	Ceiling dehumidifier	Fral DRC C33 NA · condensing, 25 l/day, 300 m³/h, no outdoor unit; condensate feeds the recycled tank	740 × 260 × 652	Ceiling	Fits	2,130.10	www.fieberitz.de (DE)
4	Humidity extraction fan	S&P TD-500/150-160 Silent 3V · in-line, 550 m³/h, 27 dB(A)	Ø 221 × 484	Ceiling + duct	Fits	321.02	lueftungsversand.de (DE)
5	Air dryer blower	Bigboi BlowR Mini Plus · twin motor 2 × 1,400 W, warm filtered air, feeds air knives	530 × 245 × 240	Ceiling	Fits	304.83*	www.nonpaints.com (NL)
6	Filter housings (stages 1, 2, 4, 5)	Big Blue 20", 1" · 2-stage set, ×2 sets: pre-filter, oil absorber, carbon, ion exchange	Ø 189 × 590 each	Ceiling cassette	Fits laid horizontally	137.44 per set	www.kaufland.at (AT) · sizes
7	UF membrane (stage 3)	Ultrafiltration cartridge 0.01 µm, capillary membrane (several in parallel for wash flow)	Ø 56 × 220	Ceiling cassette	Fits	18.90 each	www.kaufland.de (DE)
8	UV-C (stage 6)	PureWave UV steriliser 25 W · 1.8 m³/h, Philips lamp	Ø 55 × 600	Ceiling cassette	Fits	249.90 RRP*	www.manomano.de (DE)
9	Grey-water lift pump	Shurflo Classic · 12 V, 7 l/min, self-priming to 2.5 m (plus 230/12 V supply)	210 × 129 × 114	Ceiling	Fits	99.95	www.reimo.com (DE)
10	Controller	Siemens LOGO! 8 · 6ED1052-1FB08-0BA1, Ethernet, web server	72 wide · DIN rail	Ceiling control box	Fits	201.98	www.voelkner.de (DE)
11	Water bladders (×3)	Plastimo flexible tank 200 L · food-safe PVC, nylon cover	1850 × 750 × 250 (full)	Floor	Adapt · fill to ~150 mm or custom	186.90 each	awn.de (DE) · size
12	Centre drainage channel (~5 m)	ACO Self Euroline 60 · polymer concrete, car-rated, removable grate	1000 × 98 clear × 55 high	Floor deck, centre	Fits	37.09 per metre	www.baustoffshop.de (DE)
12b	Rear sump	ACO Self Euroline 2.0 inlet box, 500 mm, with silt bucket and galvanised grate	512 × 118 × 300	Floor, rear end	Adapt · 300 mm deep	152.90	www.baustoffshop.de (DE)
13	High-pressure nozzles (×16)	Flat-fan nozzle 25°, size 045, ¼" male thread (other sizes available)	small	Ceiling rails	Fits	16.24 each excl. VAT	www.heupel-shop.de (DE)
14	Pillar routing	160 mm extraction duct, ½–1" pipes, power and data cables	duct Ø 160	Pillars	Check · pillar ≥ 170 mm inside	n/a	Fahrengold spec needed

Estimated material cost: ≈ €6,500 incl. VAT

All figures are estimated material costs, not quotes. Based on the quantities above (2 UF cartridges, 3 bladders, 5 m centre channel and rear sump, 16 nozzles). Not included: shipping, pipes and fittings, wiring, the ceiling module frame, the custom filter cassette housing, filter cartridges, leak sensors and installation.

Worth knowing

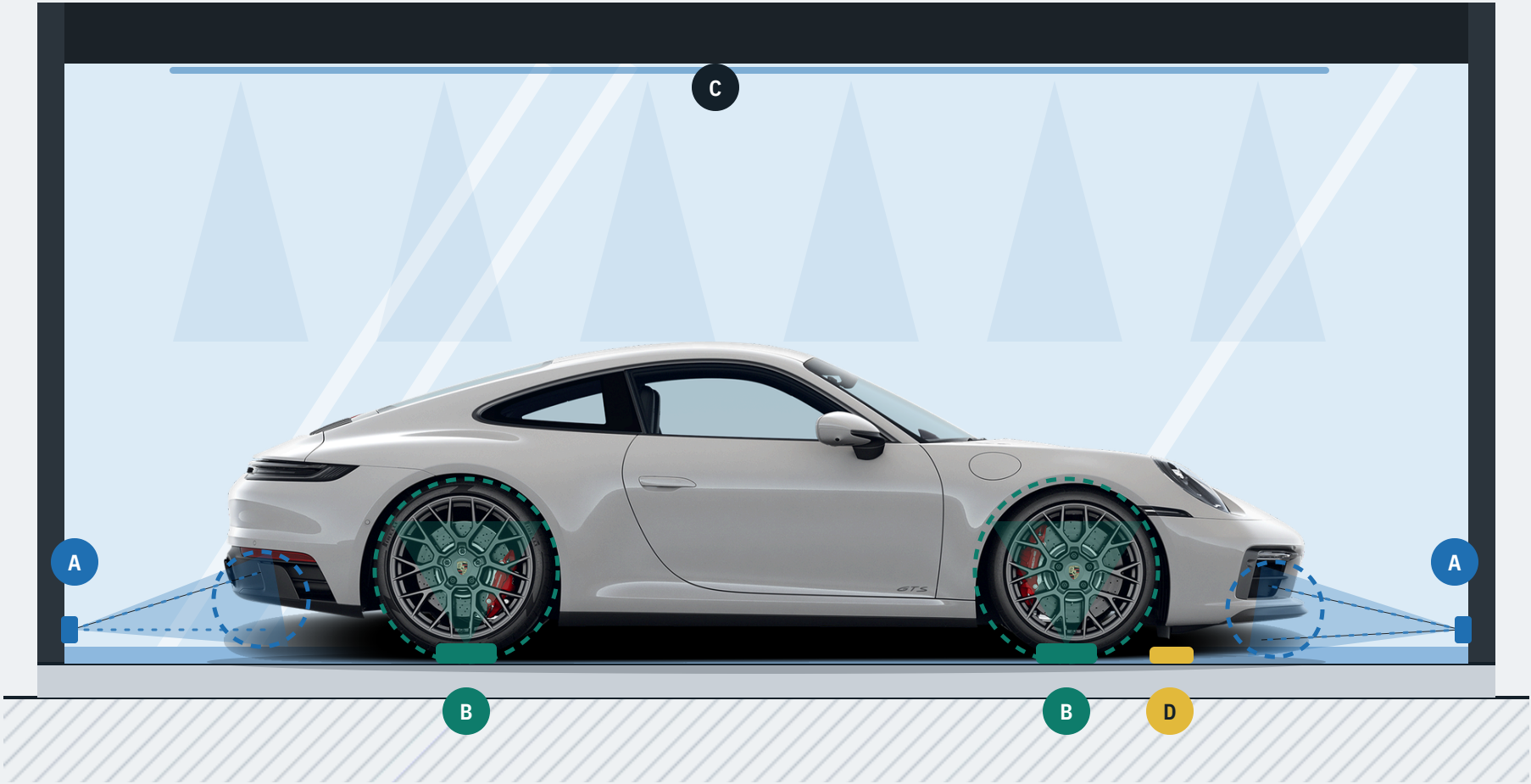
Heating and cooling, if wanted, can come from the FG-01's own climate option. Ask Fahrengold how it integrates. *Item 5 is rated 240 V and currently shown as back soon; item 8's shop price is displayed inconsistently, so confirm both before ordering.



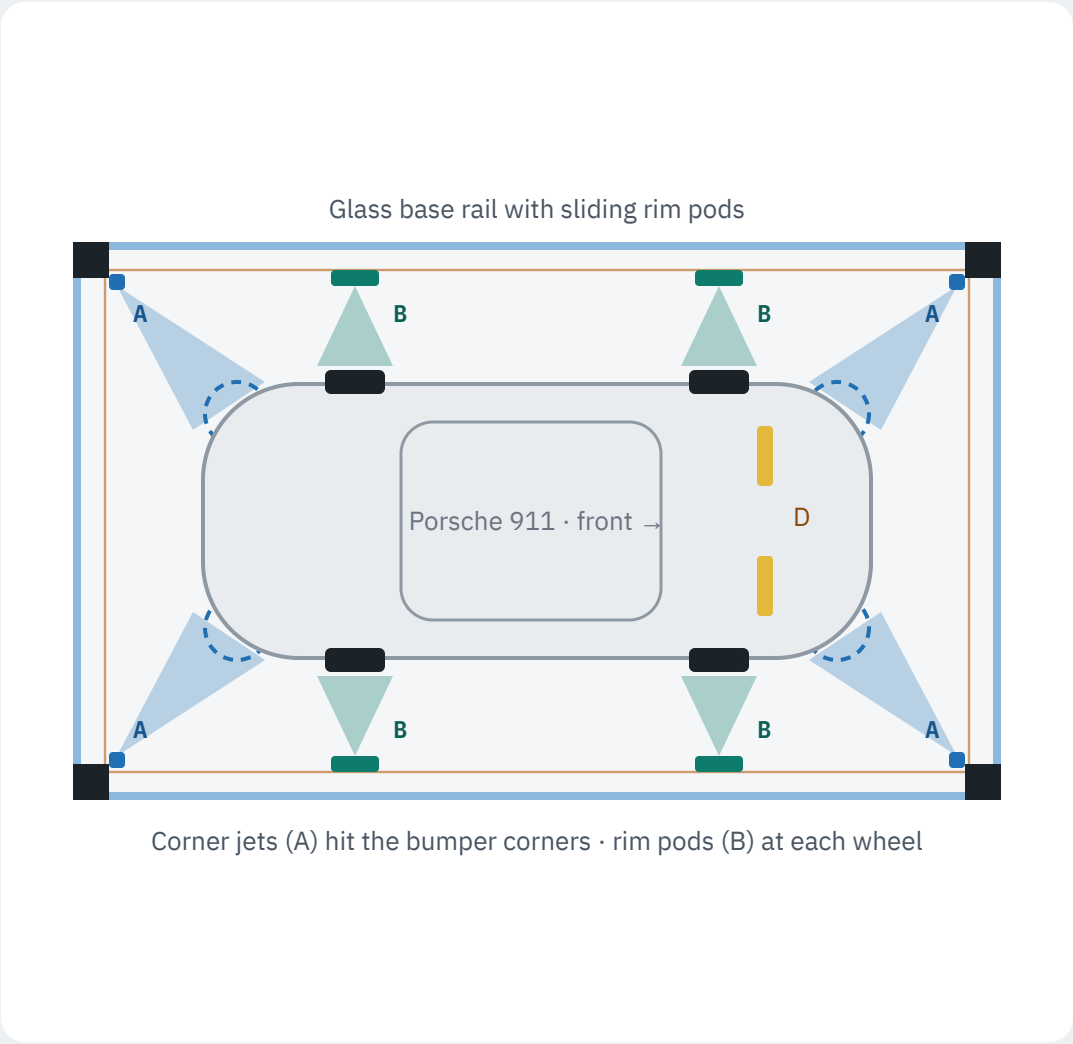
Fahrenwash Plus: low-level jets for the lower body and the rims

Ceiling nozzles struggle to reach the bumper corners and the wheels. Fahrenwash Plus adds high-pressure nozzles in the base of each corner pillar and a nozzle pod beside every wheel. Same box, same pump, same closed water loop.

A • SIDE VIEW



B • FLOOR PLAN • NOZZLE POSITIONS



A • Corner jets (×4)

High-pressure nozzles in the base of each corner pillar, aimed diagonally at the nearest bumper corner: front left, front right, rear left, rear right. Fed through the pillar that already carries the pipes.

B • Rim pods (×4, 2 nozzles each)

Flush stainless pods in the sealed glass base rail, level with each wheel. Two angled jets clean the rim face, spokes and wheel arch. Pods slide in a track to match the car's wheelbase.

C • Ceiling nozzles (as before)

Roof, bonnet, glass and upper sides. The zones run one after another, so the existing high-pressure pump (560 l/h) is enough. Each zone gets its own valve.

D • Wheel stop

Positions the car so the wheels stop exactly in front of the rim pods. New program step after the foam: "lower body & rims", before the main rinse.

#	ADD-ON PART	PRODUCT	QTY	PRICE (€)	SUPPLIER WEBSITE
P1	High-pressure nozzles	Flat-fan nozzle 25°, size 045, ¼" male thread (4 corner + 8 rim)	12	16.24 each excl. VAT	www.heupel-shop.de (DE)
P2	Zone valves	High-pressure 2/2-way solenoid valve, stainless, 230 V (ceiling · corners · rims)	3	on request	www.buschjostventile.de (DE)
P3	Wheel stop	Wiltec rubber wheel stop 47.5 × 12 × 8 cm, screw-fixed (listing says 2×, check quantity)	1 pack	130.99	www.manomano.de (DE)
P4	Rim pods + base-rail track	Stainless pod housing, flush with the glass rail, sliding mount	4	custom part · quote	metal fabricator
P5	High-pressure lines	¼" stainless tube or HP hose in pillars and base rail	≈ 20 m	quote	installer

Estimated add-on material cost: ≈ €363 incl. VAT (nozzles + wheel stop), plus valves, pods and lines on quote. Low jets aim down and inward; the sealed base rail sends all spray back to the centre channel.



Fahrenwash Plus: complete parts list

Everything in the base Fahrenwash (page 9) plus the low-level corner jets, rim pods and wheel stop (page 10). EU shops, prices in € incl. VAT as listed in October 2026, plus shipping. Verify before ordering.

#	COMPONENT	PRODUCT	QTY	LOCATION	UNIT PRICE (€)	LINE TOTAL (€)	SUPPLIER WEBSITE
BASE FAHRENWASH							
1	High-pressure pump	Kärcher HD 6/15 M St · 150 bar, 560 l/h, 230 V	1	Ceiling	859.00	859.00	shop.rahmsdorf.com (DE)
2	Compressor	Oil-free piston compressor PI-120C · tankless, 8 bar, 56 l/min	1	Ceiling	808.85	808.85	www.esska.de (DE)
3	Ceiling dehumidifier	Fral DRC C33 NA · condensing, 25 l/day, no outdoor unit	1	Ceiling	2,130.10	2,130.10	www.fieberitz.de (DE)
4	Humidity extraction fan	S&P TD-500/150-160 Silent 3V · 550 m³/h	1	Ceiling + duct	321.02	321.02	lueftungsversand.de (DE)
5	Air dryer blower	Bigboi BlowR Mini Plus · 2 × 1,400 W*	1	Ceiling	304.83	304.83	www.nonpaints.com (NL)
6	Filter housings	Big Blue 20", 1" · 2-stage set (stages 1, 2, 4, 5)	2 sets	Ceiling cassette	137.44	274.88	www.kaufland.at (AT)
7	UF membrane	Ultrafiltration cartridge 0.01 µm (stage 3)	2	Ceiling cassette	18.90	37.80	www.kaufland.de (DE)
8	UV-C	PureWave UV steriliser 25 W (stage 6)*	1	Ceiling cassette	249.90 RRP	249.90	www.manomano.de (DE)
9	Grey-water lift pump	Shurflo Classic · 12 V, 7 l/min, self-priming	1	Ceiling	99.95	99.95	www.reimo.com (DE)
10	Controller	Siemens LOGO! 8 · 6ED1052-1FB08-0BA1	1	Ceiling control box	201.98	201.98	www.voelkner.de (DE)
11	Water bladders	Plastimo flexible tank 200 L	3	Floor	186.90	560.70	awn.de (DE)
12	Centre drainage channel	ACO Self Euroline 60, 1 m elements	5 m	Floor deck, centre	37.09 / m	185.45	www.baustoffshop.de (DE)
12b	Rear sump	ACO Self Euroline 2.0 inlet box with silt bucket, galvanised grate	1	Floor, rear end	152.90	152.90	www.baustoffshop.de (DE)
13	Ceiling nozzles	Flat-fan HP nozzle 25°, 045, ¼" male	16	Ceiling rails	16.24 excl. VAT	309.21	www.heupel-shop.de (DE)
14	Pillar routing	160 mm duct, ½–1" pipes, cables	n/a	Pillars	quote	n/a	installer
PLUS ADD-ONS							
P1	Low-level HP nozzles	Same nozzle as item 13 · 4 bumper-corner jets + 8 rim jets	12	Pillar bases + rim pods	16.24 excl. VAT	231.91	www.heupel-shop.de (DE)
P2	Zone valves	High-pressure 2/2-way solenoid valve, stainless, 230 V	3	Ceiling	on request	n/a	www.buschjostventile.de (DE)
P3	Wheel stop	Wiltec rubber wheel stop 47.5 × 12 × 8 cm (check pack quantity)	1 pack	Floor, front wheels	130.99	130.99	www.manomano.de (DE)
P4	Rim pods + rail track	Stainless pod housing, flush in glass base rail, sliding	4	Glass base rail	quote	n/a	metal fabricator
P5	High-pressure lines	¼" stainless tube or HP hose	≈ 20 m	Pillars + base rail	quote	n/a	installer

Base Fahrenwash

€6,497

Plus add-ons

+ €363

Fahrenwash Plus, estimated material cost incl. VAT

≈ €6,860

All figures are estimated material costs, not quotes. Ancillary materials are estimated on page 13. Not included here: shipping, zone valves, rim pods, high-pressure lines, pillar routing, ceiling module frame, filter cassette housing, filter cartridges, leak sensors and installation. *Item 5 is rated 240 V and shown as back soon; item 8's shop price is displayed inconsistently, so confirm both before ordering.



What makes Fahrenwash safe, better and ready for market

These additions apply to Fahrenwash and Fahrenwash Plus. Safety items are required before the box can be sold; the rest raise wash quality, protect the showcase look and build the business around the product.

1 · Safety · required

- **Person detection:** safety radar stops all jets if anyone is inside.
- **Door interlock:** glass door locks while a program runs; no wash with the door open.
- **Emergency stops** built into a pillar, inside and outside.
- **Approvals:** CE marking under the EU Machinery Regulation, wet-room electrics (VDE), backflow preventer per DIN EN 1717.

2 · Cleaning quality

- **Shampoo dosing** pump and concentrate canister for the foam step.
- **Warm water** from an instant heater for better cleaning, also in winter.
- **Car profiles** in the app (sports car, SUV, classic) set nozzle zones and pressure.
- **Convertible mode** and open-window / open-roof warning.
- **Underbody wash** (optional) against winter road salt.

3 · Showcase look

- **Water-repellent glass coating** on the inside of the glass walls.
- **Glass rinse** with softened water at the end of every program, then fast drying, so no water spots remain.
- **Inspection lighting:** bright IP65 LED bars to check the paint after a wash.

4 · Technical

- **Three-phase supply** or load management: pump, dryer, heater and dehumidifier must not all run at once.
- **Frost protection** for floor bladders and lines (heating cable or drain-down).
- **Noise limits** for residential areas. Dryer and compressor are the loudest parts.
- **Leak sensors** in floor tray and ceiling with push alerts.

5 · Product & business

- **Fahrenwash app:** start a wash, car profiles, humidity log, filter reminders, wash history.
- **Retrofit kit** for existing Fahrengold boxes.
- **Service plan:** filter cassette swaps and a yearly check as a subscription for recurring revenue.

#	ADDITION	PRODUCT	QTY	LOCATION	UNIT PRICE (€)	TOTAL (€)	SUPPLIER WEBSITE
N1	Person detection	Safety radar system (e.g. Leuze LBK), SIL 2 / PL d, stops jets when a person is detected	1	Ceiling corners	on request	n/a	www.leuze.com (DE)
N2	Door interlock	Schmersal AZM201Z-ST2-T-SD2P safety lock with guard locking	1	Glass door	599.28	599.28	www.sparepartsnow.de (DE)
N3	Emergency stop	Eaton M22-PVL30 mushroom button (plus surface housing)	2	Pillar, inside + outside	35.51	71.02	www.voelkner.de (DE)
N4	Shampoo dosing	Dosita MP3 peristaltic dosing pump, 230 V (€71.00 excl. 22 % VAT)	1	Ceiling	86.62	86.62	www.dosita.it (IT)
N5	Warm water	Stiebel Eltron DHB-E 18/21/24 LCD instant heater · 400 V, up to 24 kW, 466 × 225 × 116 mm	1	Ceiling, lying flat	570.31	570.31	www.elektromax24.de (DE)
N6	Leak sensors	Homematic IP water sensor HmIP-SWD-2 (needs access point)	3	Floor tray + ceiling	48.99	146.97	www.billiger.de (DE)
N7	Inspection lighting	LEDVANCE Damp Proof Value 1500 · 50 W, 4000 K, IP65	4	Ceiling module edges	68.13	272.52	www.leuchtmittel-verkauf.de (DE)
N8	Glass coating	Koch-Chemie Nano Glasscoating kit, 250 ml	2	Glass walls, inside	51.11	102.22	www.nonpaints.com (NL)
N9	Underbody wash (optional)	Same HP nozzle as base item 13, in the floor between the bladder cells	6	Floor	16.24 excl. VAT	115.95	www.heupel-shop.de (DE)
N10	App & car profiles	Fahrenwash app on the LOGO! web interface or a small gateway	n/a	Software	development	n/a	n/a
N11	Power & frost	Three-phase connection, load management, heating cable for lines	n/a	Pillars + ceiling	electrician quote	n/a	n/a

Fahrenwash Plus (page 11)
€6,860

Additions on this page
+ €1,965

Main components, estimated material cost incl. VAT
≈ €8,825

All figures are estimated material costs, not quotes. With ancillary materials (cabling, lines, valves, connectors, nozzles) the complete Fahrenwash Plus comes to an estimated €12,500 – 16,200 in materials; see page 13. Still to quote: safety radar, app development, electrics, valves, rim pods, lines and installation. The 24 kW heater needs a 35 A three-phase supply. Size the connection together with the pump, dryer and dehumidifier.



What the materials for Fahrenwash Plus are likely to cost

The bill of materials on pages 9, 11 and 12 lists the main components. A working build also needs ancillary materials: cabling, lines, valves, connectors, nozzles and small parts. This page estimates them and adds them up.

All figures are estimated material costs. Based on EU supplier prices incl. VAT as listed in October 2026 and on typical quantities for one garage. They are not quotes and not a sales price. Actual costs depend on the final design, quantities, suppliers and prices at the time of ordering.

#	ANCILLARY MATERIAL	WHAT IT COVERS	BASIS	ESTIMATE (€)
A1	High-pressure lines & fittings	DN6 250 bar hose or ¼" stainless tube (≈ 30 m), stainless HP fittings, distribution manifold	≈ 30 m + fittings	€450 – 800
A2	Zone valves	High-pressure solenoid valves, 150 bar class, 24 V: ceiling front/rear, corner jets, rim pods, underbody, foam/glass rinse	6 × €200–450	€1,200 – 2,700
A3	Low-pressure water piping	PE/PVC 25 mm pipe for fresh, grey and recycled lines (≈ 40 m), ball and check valves, fill valve, dry-break couplings for bladders and cassette	≈ 40 m + valves	€350 – 650
A4	Drinking-water protection	System separator type BA (EN 1717) and pressure reducer at the fresh-water inlet	e.g. Caleffi 574 ≈ €180	€200 – 300
A5	Extra nozzles & spray parts	Foam injector and foam nozzles, glass-rinse nozzles, air-knife outlets, spare nozzles	set	€150 – 350
A6	Power cabling	NYM-J 5×2.5 / 5×6 mm² for the 400 V loads (≈ 40 m), H07RN-F for wet areas, cable glands, IP65 junction boxes	NYM 5×2.5 ≈ €2.70/m	€250 – 450
A7	Control cabinet & protection	IP65 enclosure, RCD 30 mA, circuit breakers, contactors and relays for pumps and fans, 24 V power supply, terminals	1 cabinet	€450 – 900
A8	Control wiring & sensors	Signal cable, level sensors in the 3 bladders, pressure switch, flow sensor, humidity and temperature sensor	set	€200 – 400
A9	Air ducting	Ø 160 mm extraction duct, air-knife ducting, vent grilles, condensate hose	set	€150 – 300
A10	Mounting & small parts	Vibration mounts, brackets, cable trays, hose clamps, seals	set	€150 – 300
A11	First filter set	Cartridges for stages 1, 2, 4 and 5 plus a spare UF cartridge	set	€120 – 250
Ancillary materials, estimated				≈ €3,670 – 7,400

Main components (pages 9, 11, 12)

€8,825

Ancillary materials (this page)

+ €3,670 – 7,400

Complete Fahrenwash Plus, estimated material cost incl. VAT

≈ €12,500 – 16,200

Not included: installation and labour, the electrician and plumber, the ceiling module frame and custom housings (metal fabrication), rim pods, safety radar, app development, shipping, and the Fahrenwash garage itself. The zone valves are the biggest uncertainty: a simpler valve layout or fewer zones brings the ancillary cost towards the lower end.