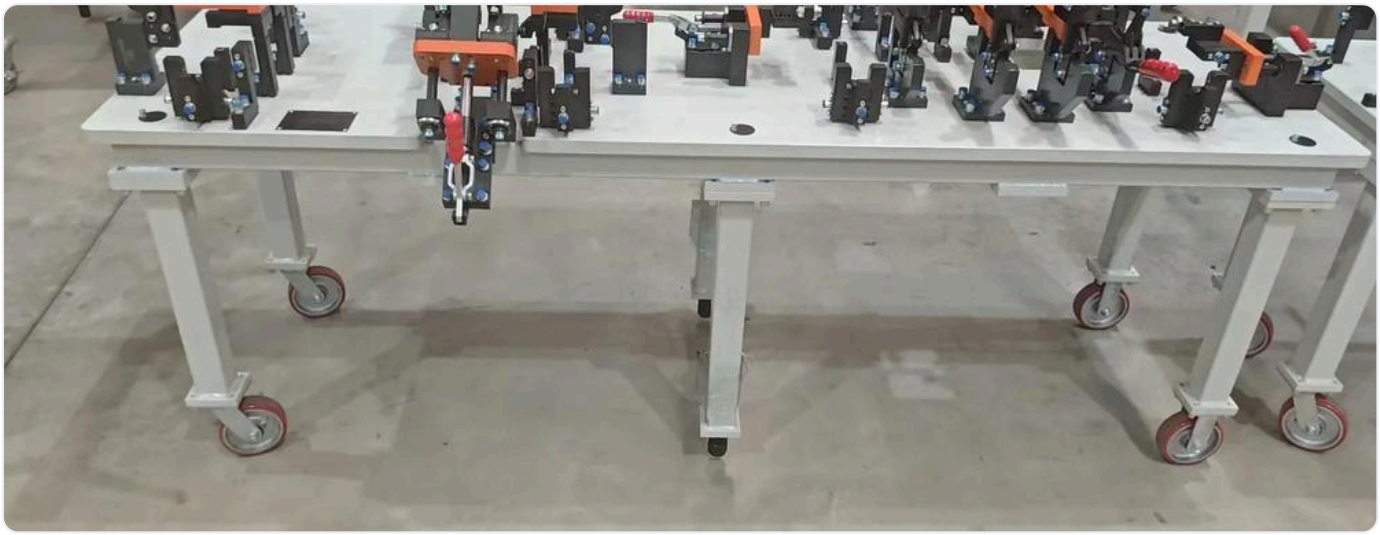
Technical proposal — BIW tooling package for a compact car body

Sample document · anonymised · issued to show what our proposal contains



A station fixture: machined locators and pneumatic clamps on a welded base.

This is a sample, not an offer. The structure, the tables and the wording are what you receive on a real project. The quantities are a worked example based on a delivered package and carry no customer identity. Values that depend on your body and your plant are marked **to be verified** rather than guessed.

Document	Content
1. Requirement as understood	The inputs we worked from, and what is still missing.
2. Scope split	Who supplies what, line by line, agreed before the price.
3. Station list and fixture schedule	Every station, how many fixture sets, manual or robot-loaded.
4. Station design and control	How a station is built, clamped, sequenced and made safe.
5. Quality plan	What is measured, with what, and against which criteria.
6. Schedule	From contract to production, with the inspection round in China.
7. Deliverables and export	Documentation, packing, shipping and site work.
8. Commercial framework	Milestones, terms and what turns this into a quotation.

1.1 Inputs received

Input	Received	Note
Body 3D data	STEP, 42 parts	Sub-assemblies of engine compartment, floor, rear frame, body-side and closures.
Weld-spot and seam information	Partial	Spot layout received; seam and adhesive paths **to be verified**.
Station split	Proposed by us	Twenty stations, see section 3; open to your process planning.
Rate	10 JPH, one shift	Two-shift capability kept in the layout.
Models on the line	1 now, 2 later	Switchable locators foreseen on eight stations.
Existing equipment	Arc-welding robots, positioners, welding sets, fume extraction, fencing	Brand and controller noted; station control designed to that interface.
Building	Shop drawing received	Clear height and crane capacity confirmed; floor loading **to be verified**.
Required delivery	Month stated	Schedule in section 6 is built backwards from it.

1.2 What we still need

- Datum (RPS) scheme and the tolerances each sub-assembly has to hold.
- Plant standards for pneumatics, electrics, safety and labelling, if they exist.
- Confirmation of which stations must accept the second model, and when.
- Floor loading and anchor conditions for the framing station.

> Nothing in this proposal is priced until section 2 is agreed. The scope split, not the unit rate, is what decides the cost of a body-shop package.

2.1 Who supplies what

Proposed split for this package. The “Either” rows are decided with you; on this example they stay with the plant, which is what makes a tooling-only package possible.

Item	In this proposal	Notes
Welding and assembly fixtures	LIVESPOWER	Every station fixture, shared base plates, hangers and marking.
Robots	Plant (proposed)	Keep the brand your plant already runs, or we supply Chinese robots with the line.
Welding equipment	Plant (proposed)	Spot guns, transformers, arc sets, stud units, sealing pumps — yours or supplied by us.
Positioners and robot bases	Plant (proposed)	Supplied by us unless the plant has them.
Steel structure and platforms	LIVESPOWER	Fixture bases, gates, platforms, hoist tracks where they are in scope.
Conveying between stations	Plant (proposed)	Roller bed and skid, friction, EMS or manual hangers, depending on the rate.
Safety fencing and light curtains	Plant (proposed)	Supplied to the plant’s standard, or by the plant.
Line control and PLC	LIVESPOWER	Station control, safety circuit, HMI, ANDON interface.
Utilities to the cell	Plant	Power, compressed air, water and extraction to the connection points we mark.
Civil works and foundations	Plant	Floor loading, pits and anchor points, to our foundation drawings.
Export packing and shipping	LIVESPOWER	Packing list, container loading plan, export documents, freight to the agreed term.
Installation and commissioning	Shared	Plant supplies cranes, riggers and electricians; we supply the supervision, robot teaching and tuning.

> **Effect of this split.** No robots, welding sets, positioners, fume extraction or fencing are bought. The package is the tooling, the hangers, the base plates and the station control — and the interface to the robots you already run.

3.1 Stations

Worked example: twenty stations, fifty-four fixture sets, six of them robot-loaded. Your own station split replaces this table as soon as it is issued.

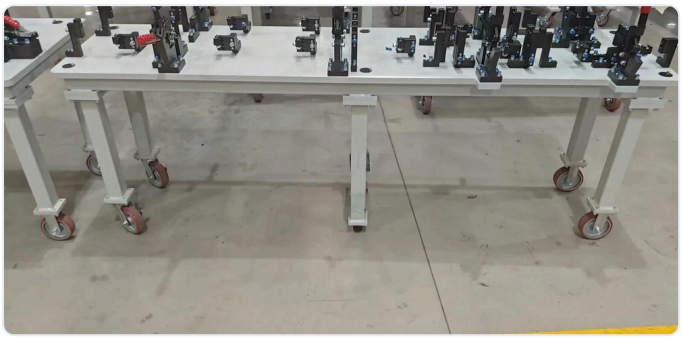
Station	Sub-assembly	Fixture sets	Loading	Notes
SB01	Nut welding	1	Manual	—
SB02	Engine compartment sub-assembly OP10 / support beams	3	Manual	Shared base plate
SB03	Engine compartment sub-assembly OP20–OP30	2	Robot-loaded	Control conversion
SB04	Engine compartment sub-assembly OP40–OP50	2	Manual	—
SB05	Engine compartment assembly OP10–OP20	2	Robot-loaded	Hanger
SB06	Middle floor sub-assembly OP10–OP30	3	Manual	—
SB07	Middle floor sub-assembly OP40–OP50	2	Robot-loaded	Hanger
SB08	Rear frame cross-members and sub-assembly OP10–OP30	6	Manual	Shared base plates
SB09	Rear frame assembly OP10–OP30	3	Robot-loaded	Hanger
SB10	Threshold side members LH / RH	2	Manual	Shared base plate
SB11	Underbody OP10 / OP20	2	Manual rotary	3 hangers
SB12–SB20	Body-side, closures, roof cross-members, main framing	26	Mixed	Framing gate at MB10

3.2 Tooling types in this package

Type	What it does
Assembly and welding stand	The workhorse: a welded and machined frame carrying NC blocks, clamps and pins that hold the panels in position while they are joined.
Robot welding fixture	The same, arranged so a robot can reach every joint — clamp positions, cable routing and the safety interface are part of the design.
Shared base plate	A machined base carrying two or more fixtures, so small sub-assemblies share one floor position and one set of datums.
Hanging jig and hanger	Carries a sub-assembly between stations on a hoist or monorail; the plant normally supplies the hoist, track and steel structure.
Rotary and turnover fixture	Manual or powered, so one operator can weld both sides without re-fixturing.
Hemming tooling	Roller or table hemming for doors, hood, tailgate and wheel arches.

4.1 How a station is built

A welded and stress-relieved steel frame, machined on a gantry centre, carrying NC blocks, locators, pins and clamps positioned from your datum scheme. Small sub-assemblies share a machined base plate so they occupy one floor position and one set of datums.



Finished station fixture, pre-assembled before packing.



Station fixture on its frame, assembled for inspection.

4.2 Clamping and control

Item	Proposed
Clamping	Pneumatic toggle clamps, single-acting where the part allows, with position sensing on the clamps that decide the geometry.
Sequence	Clamp sequence per station on a valve island; interlocked so the robot cannot start before the last clamp confirms.
Operator control	Two-hand start, part-present check, station HMI with fault text in the plant language.
Safety	Station safety circuit to the plant standard; interface to your existing fencing and light curtains.
Robot interface	Hardwired and fieldbus interface to the controller brand already in your shop; signals listed in the I/O schedule.
Marking	Every fixture, base plate and hanger marked with the station code and a serial; matched to the packing list.

> Hangers: nine in this example. The electric hoist, the track and the supporting steel structure stay with the plant, as in section 2.

5.1 What is measured

Stage	Method	Criterion
Incoming material	Certificates and dimensional check of plate and machined blanks	To drawing
After machining	Gantry-centre in-process measurement	To drawing
Key fixtures	Coordinate measuring machine, full dimension, report shipped with the fixture	Locator positions to the tolerance agreed with your datum scheme **to be verified**
Station assembly	Function run: clamp sequence, two-hand start, interlocks	No fault over ten consecutive cycles
Inspection round in China	Joint inspection with your team against this proposal	Signed inspection record — payment milestone
On site	Laser tracker on installation datums	Station set to plant grid **to be verified**

6. Schedule

Stage	Timing	What happens
Contract effective	Week 0	Order or signed contract and technical agreement; proforma invoice issued.
Design freeze	Weeks 1–5	3D design of every fixture against the datum scheme; design review with your engineering; release to manufacture.
Manufacture	Weeks 5–14	Frames welded and stress-relieved, machined, locators and clamps fitted; CMM inspection of key fixtures.
Pre-assembly	Weeks 14–17	Stations assembled in the workshop; station control wired and clamp sequences run.
Inspection round in China	Week 17	Your team inspects and signs off. Payment milestone tied to this sign-off.
Packing and shipping	Weeks 18–19	Packing list, container loading plan, export documents; sea freight on the agreed term.
Installation and commissioning	On arrival	Our engineers set fixtures to datums with a laser tracker, connect the control and tune the sequences.

Timing is a worked example for this scope. The date that moves a body-shop schedule is the design freeze, not the order date.

7.1 Documentation delivered with the package

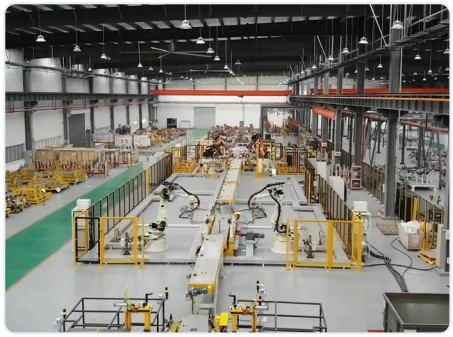
Document	When
3D design of every fixture, released for your review	Before manufacture
Datum and locator schedule per station	With the design
I/O list and station control drawings	With the design
CMM reports for key fixtures	With the shipment
Station operating and maintenance instructions	With the shipment
Mechanical and electrical spare-parts lists	With the shipment
Packing list, crate dimensions and gross weights	Before loading
Container loading plan	Before loading
Commercial invoice, certificate of origin and export documents	At shipment



Lifting spreader supplied for site handling.



Export crates before loading.



Pre-integration before packing.

7.2 Site work

Our engineers attend for installation supervision, setting to datums, station control connection, clamp tuning and hand-over, and stay as long as the project needs. The plant provides cranes, riggers, electricians and the utilities to the connection points marked on the layout. Visas and overseas labour arrangements are organised by us.

8.1 How the package is quoted

Itemised per station — every fixture set is its own line — so scope can be moved out, phased, or compared against your own cost. Prices are never published; the quotation that accompanies a real proposal carries one price per line on EXW, FOB, CIF or DAP terms.

Milestone	Trigger
1	Order or signed contract and technical agreement
2	Design review completed and released to manufacture
3	Inspection round in China completed and signed
4	Delivery preparation complete — inspection record, invoice, packing list
5	Arrival at the agreed destination
6	Installation and commissioning complete
7	Final acceptance

8.2 Who delivers it

WUHU LIVESPOWER GLOBAL LTD contracts and delivers. Manufacturing is subcontracted back to back to our body-shop partner in Wuhu — a body-shop line builder in Wuhu; the company is named and its documents sent once a confidentiality agreement is in place. The customer interface, the commercial package, export documents, freight and the people on your site are ours.

8.3 Turning this into a quotation

- Send the requirement survey — livespower.com/request-quote/biw-body-shop/ — or the equivalent data set.
- Confirm the scope split in section 2, especially the rows marked “Either”.
- Release the datum scheme and tolerances, and the station split if you have one.
- A concept and an itemised quotation come back within one week of a complete set.

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