Connexion Developments Ltd

Thank you for completing our **Scope 3 / WLCA Information Request Form** , and I understand the level of information the client is now requesting for their Scope 3 and Whole Life Cycle Assessment (WLCA) reporting.

I should clarify at the outset that, as a component manufacturer, our data is provided at a **product and process level**, rather than a fully modelled, third-party-verified Life Cycle Assessment per individual SKU. That said, I can provide the following information for the **PU220D WRAS normally closed brass solenoid valve**, which should assist your client in completing their A1–A5 assessment.

A1–A3: Product Stage – Materials & Manufacturing
Primary construction materials (typical per valve):

- **Valve body:** Brass (CuZn alloy), primary material production
- **Internal components:** Stainless steel (spring/plunger), elastomer seals EPDM as per WRAS specification
- **Coil & electronics:** Copper windings, steel housing, thermoplastic encapsulation

At present, the brass and stainless steel used are sourced via **primary material production**, not closed-loop recycled material. Like most sanitary and valve-grade brass used for WRAS applications, material traceability is to certified foundries rather than closed-loop post-consumer recycling.

Indicative mass per valve (assembled):
Approximately **0.45–0.55 kg per unit** (depending on port size and coil variant).
Manufacturing is carried out at our facility in **Taiwan**, under ISO 9001 certified systems, with electrically powered CNC machining, assembly, and testing operations.

A4: Transport to UK (Indicative, Typical Shipment)
Leg 1 – Factory to Port (Taiwan):

- Mode: Road freight (rigid truck)
- Fuel: Diesel
- Distance: Approx. **60–80 km**
- From: Manufacturing facility, Taiwan
- To: Port of Kaohsiung, Taiwan

Leg 2 – International Freight:

- Mode: **Sea freight (container vessel)**
- Route: Port of Kaohsiung → Port of Felixstowe (or Southampton), UK
- Distance: Approx. **19,000–21,000 km (sea miles equivalent)**
- Transport unit: Standard containerised cargo (shared / consolidated)

Leg 3 – UK Port to Warehouse:

- Mode: Road freight (articulated HGV)
- Fuel: Diesel
- Distance: Approx. **200–250 km**
- From: UK Port
- To: Connexion Developments Ltd, Unit 3 Rainbow Court, Armstrong Way, Yate, Bristol, BS37 5NG, United Kingdom

No air freight is used for these products under normal supply conditions.

A5: Installation Stage
As a passive mechanical component, the PU220D solenoid valve does **not** require special construction processes, site machinery, or consumables beyond standard electrical and mechanical installation by the end user. Any A5 impacts would typically be accounted for within the client's wider system installation model.

Notes & Limitations

- Quantities, distances, and transport modes above are **representative averages** used for environmental reporting, not shipment-specific GPS-tracked data.
- Detailed carbon factors ($kgCO_2e$ per tonne-km, etc.) are normally applied by the **project assessor** using recognised databases (e.g. DEFRA, Ecoinvent).
- If your client requires a **formal Product Carbon Footprint (PCF)** or third-party-verified LCA at SKU level, this would need to be scoped as a separate chargeable exercise.

I hope this provides sufficient clarity for your client's current project and future reporting needs. If they require the information presented in a specific template or spreadsheet format, please let me know and I will do my best to assist.