



# PROJECT STEEL

*Engineering excellence in conveyors  
and complete transport systems*



## Steel Structures / Chutes



Website



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## Steel structures

Design and fabrication of steel structures by Project Steel deliver durable, functional components that form the framework of diverse industrial and infrastructure facilities.

In our work, we account for the specifics of each industry as well as the client's individual requirements. On this basis, we deliver structures in accordance with the supplied technical documentation or develop complete designs from first principles.

A critical part of this process is the precise selection of materials and joining techniques to ensure adequate load-bearing capacity and safety.



Fig. 1 Fabrication of structural components for the mounting and integration of feeders and vibrating screens.

## Project Steel - Standards

We operate an advanced in-house manufacturing facility, enabling the delivery of even the most demanding projects.

During design, we strictly comply with applicable standards and prioritise rapid execution and adherence to the agreed budget.

Project Steel standards applied to every order:

- Finite Element (FEM) strength analyses and optimisations for efficiency and safety
- Prefabrication of steel structures in our own production facility
- 3D modelling and technical documentation in professional CAD environments
- CNC machining, bending, MIG/MAG/TIG welding, and plasma/oxy-fuel cutting
- Use of high-grade steels and protective coatings (hot-dip galvanising, powder coating)
- Production of series and one-off components in accordance with stringent standards
- Engineering support and continuous contact with a dedicated Project Manager at every project stage
- Transparent, detailed technical documentation and commercial proposals



Fig. 2 One stage in manufacturing a load-bearing steel structure cut component.

## Selected projects

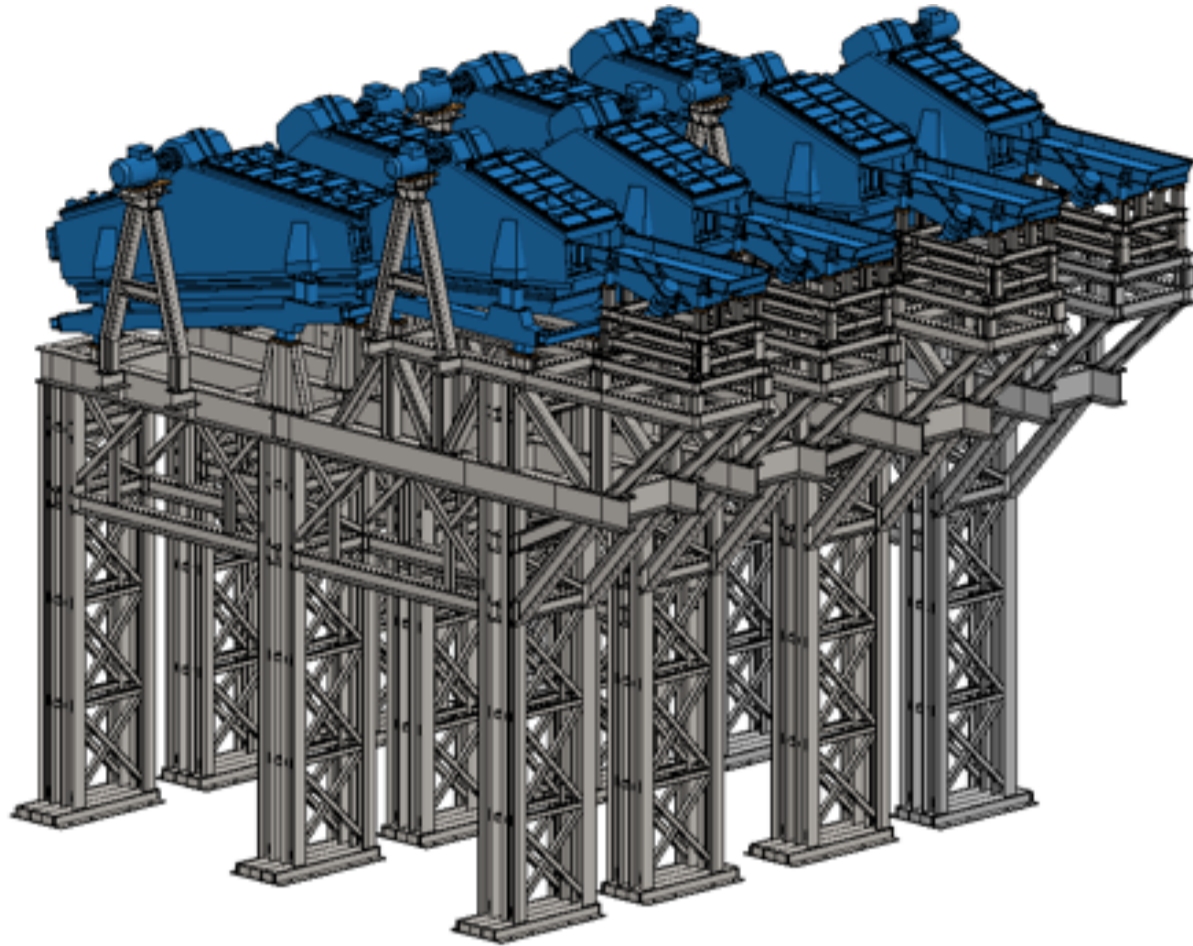


Fig. 3 Designed enclosure structure for feeders and vibrating screens - left-side view

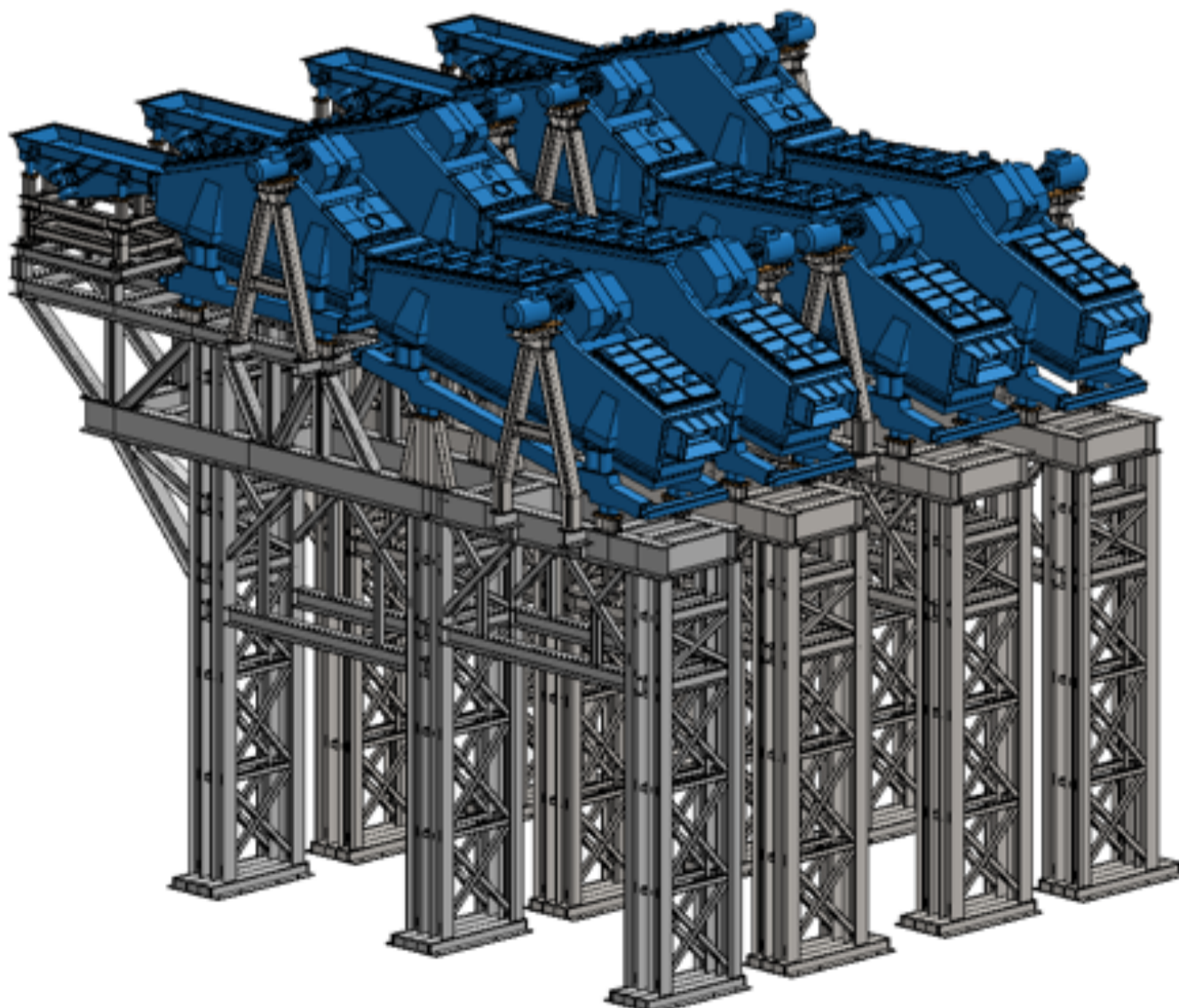


Fig. 4 Designed enclosure structure for feeders and vibrating screens - right-side view

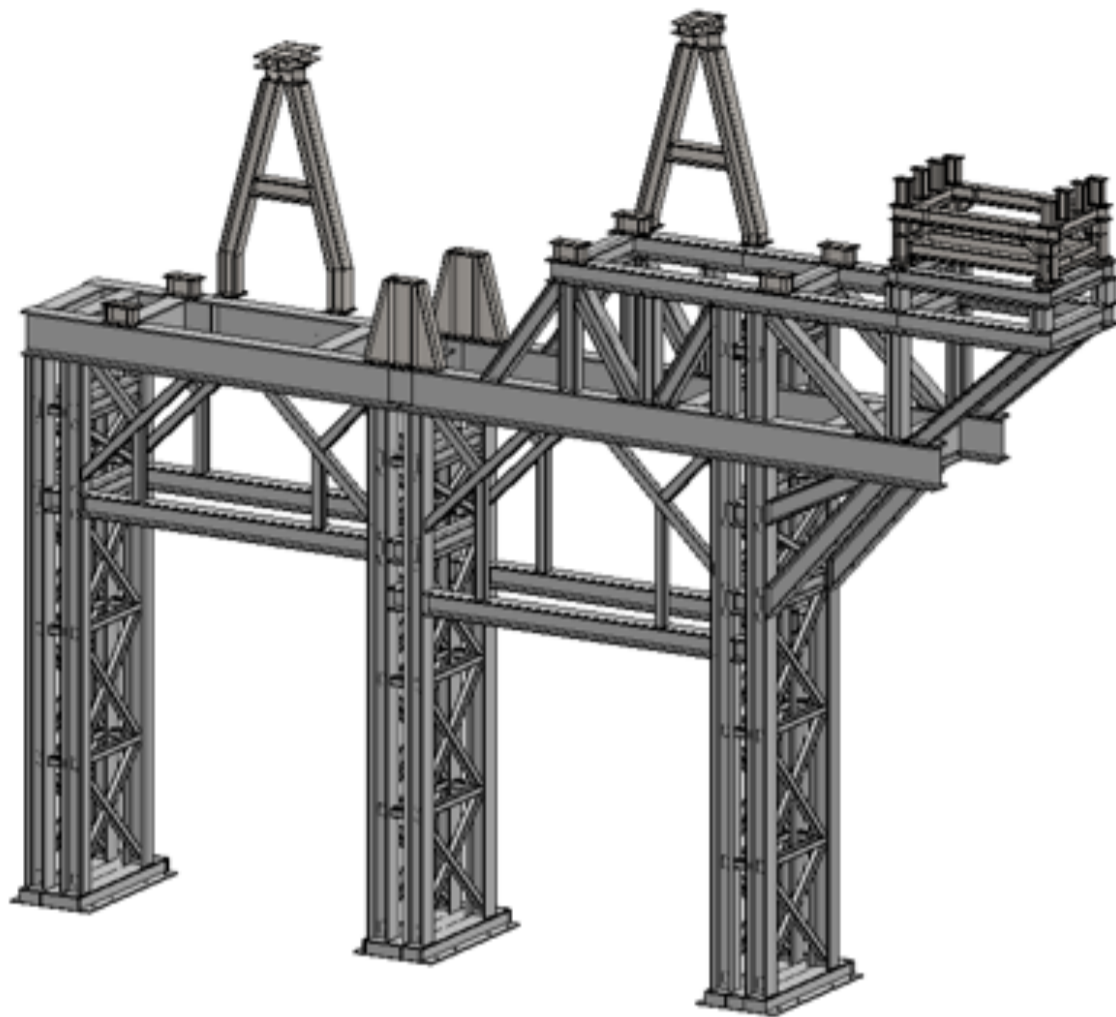


Fig. 5 View of a single section of the designed enclosure structure for feeders and vibrating screens.

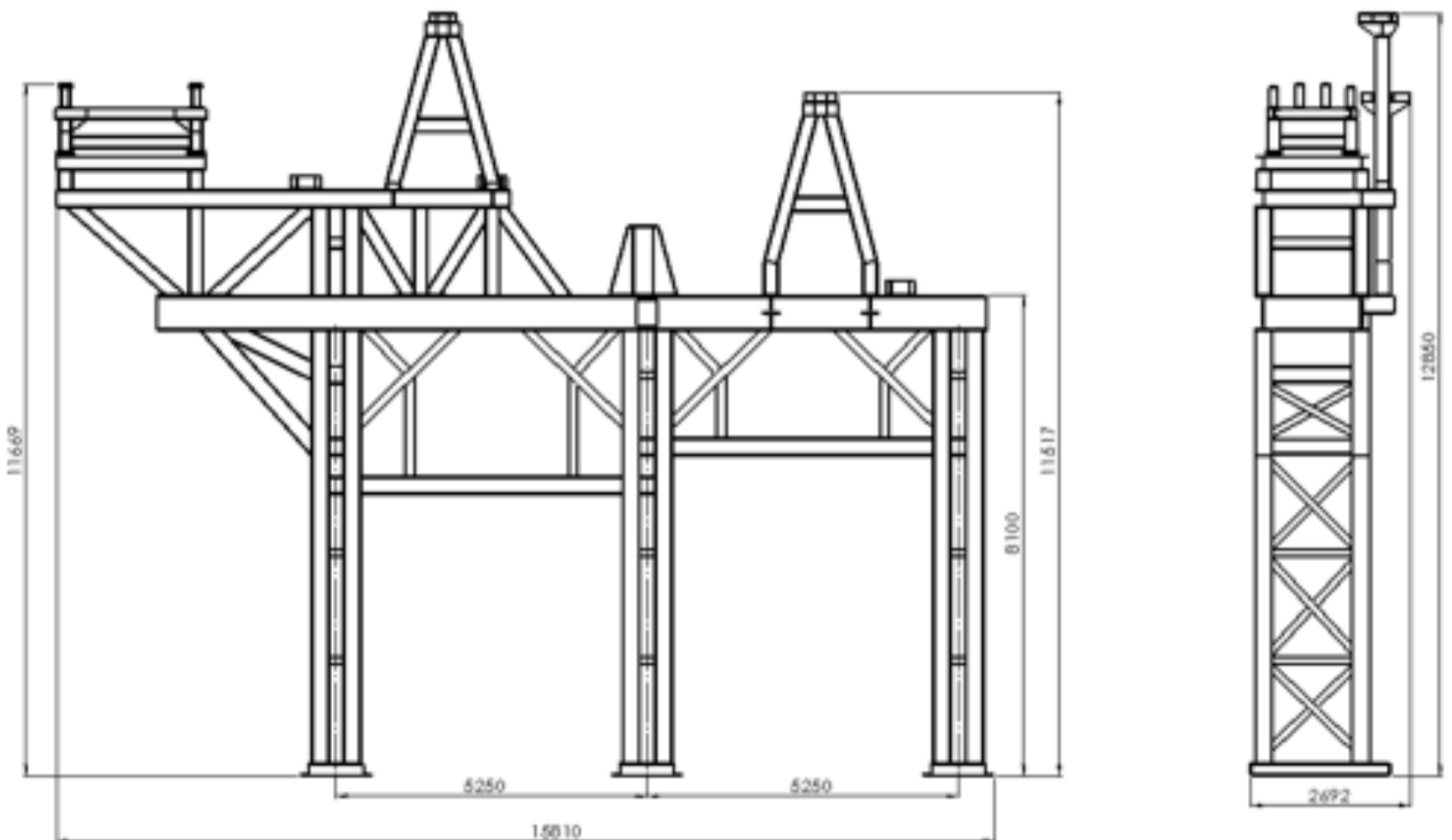


Fig. 6 View of a single section of the designed enclosure structure for feeders and vibrating screens - overall envelope dimensions (GA/plan view).

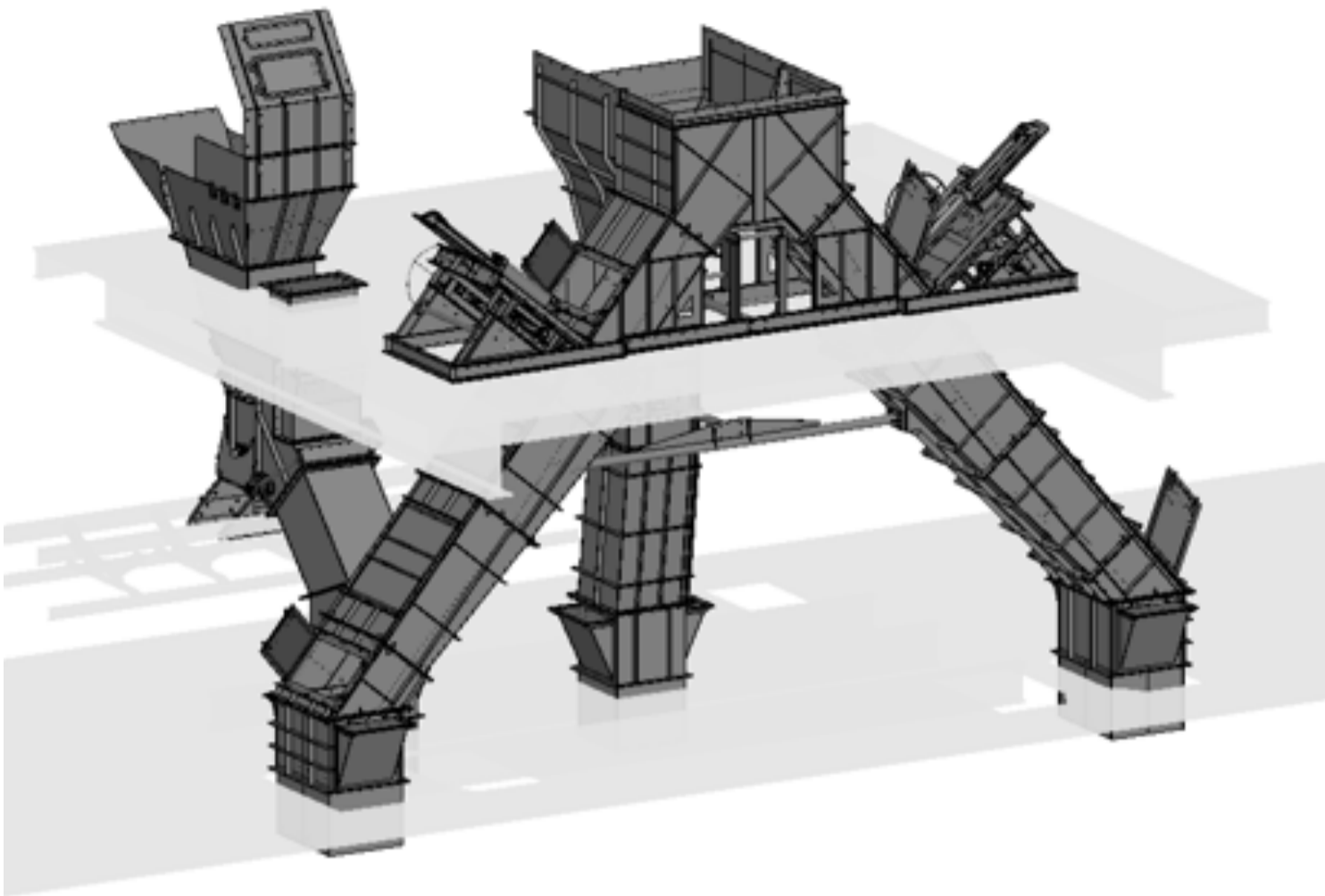


Fig. 7 Three-way transfer chute (3+2) design - left-side view.

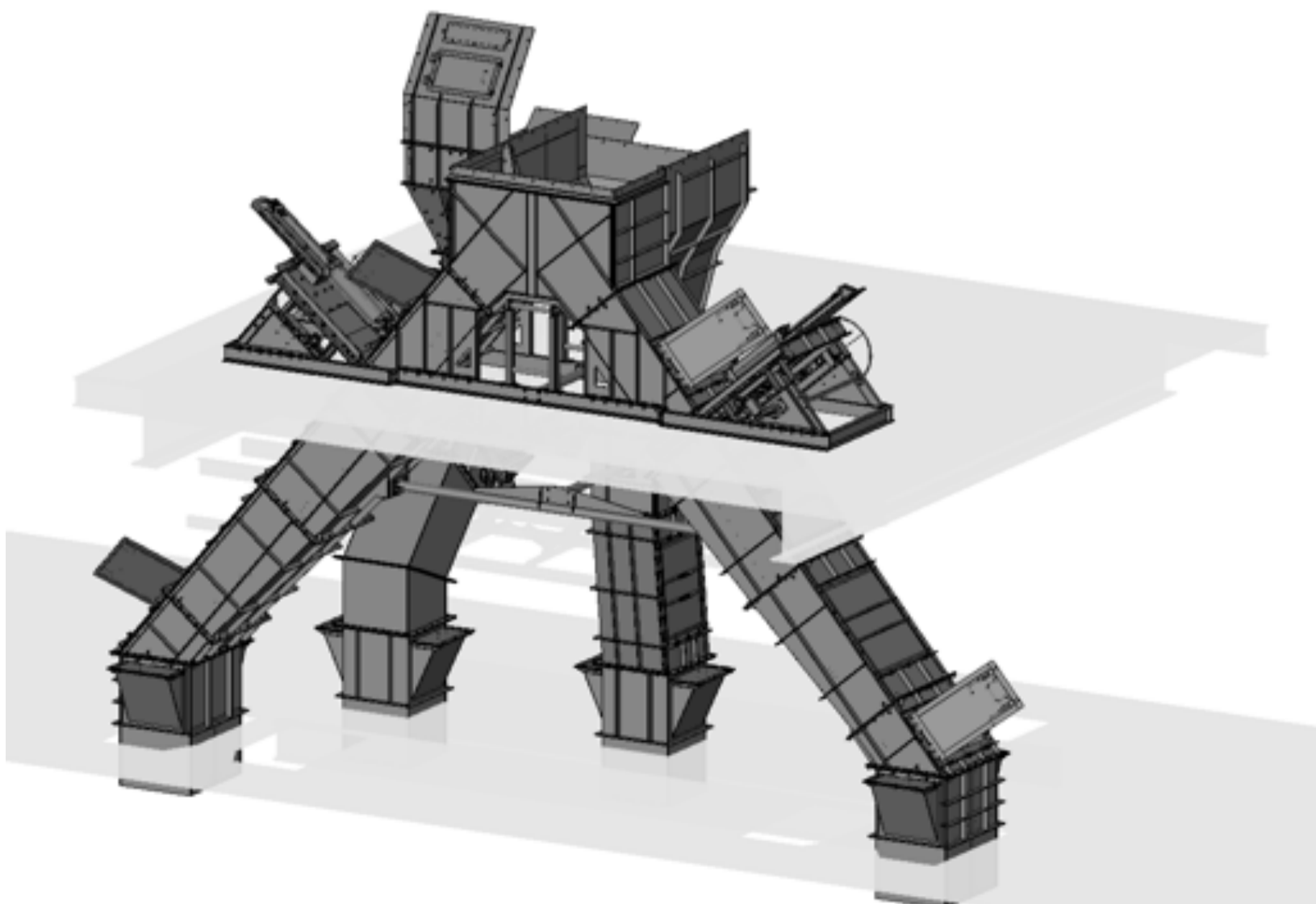


Fig. 8 Three-way transfer chute (3+2) design - right-side view.

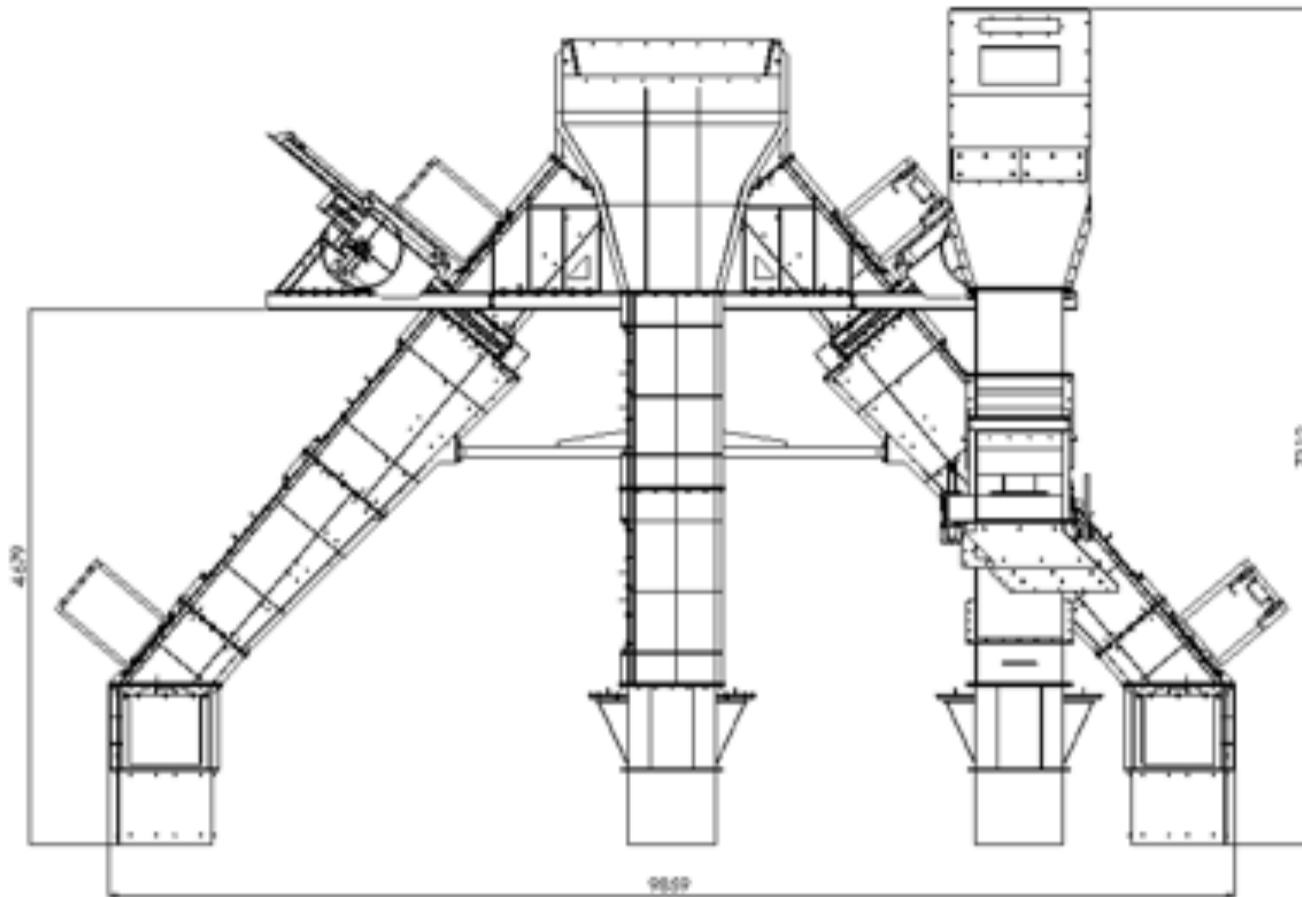


Fig. 9 Three-way transfer chute (3+2) - overall envelope dimensions, selected side view.

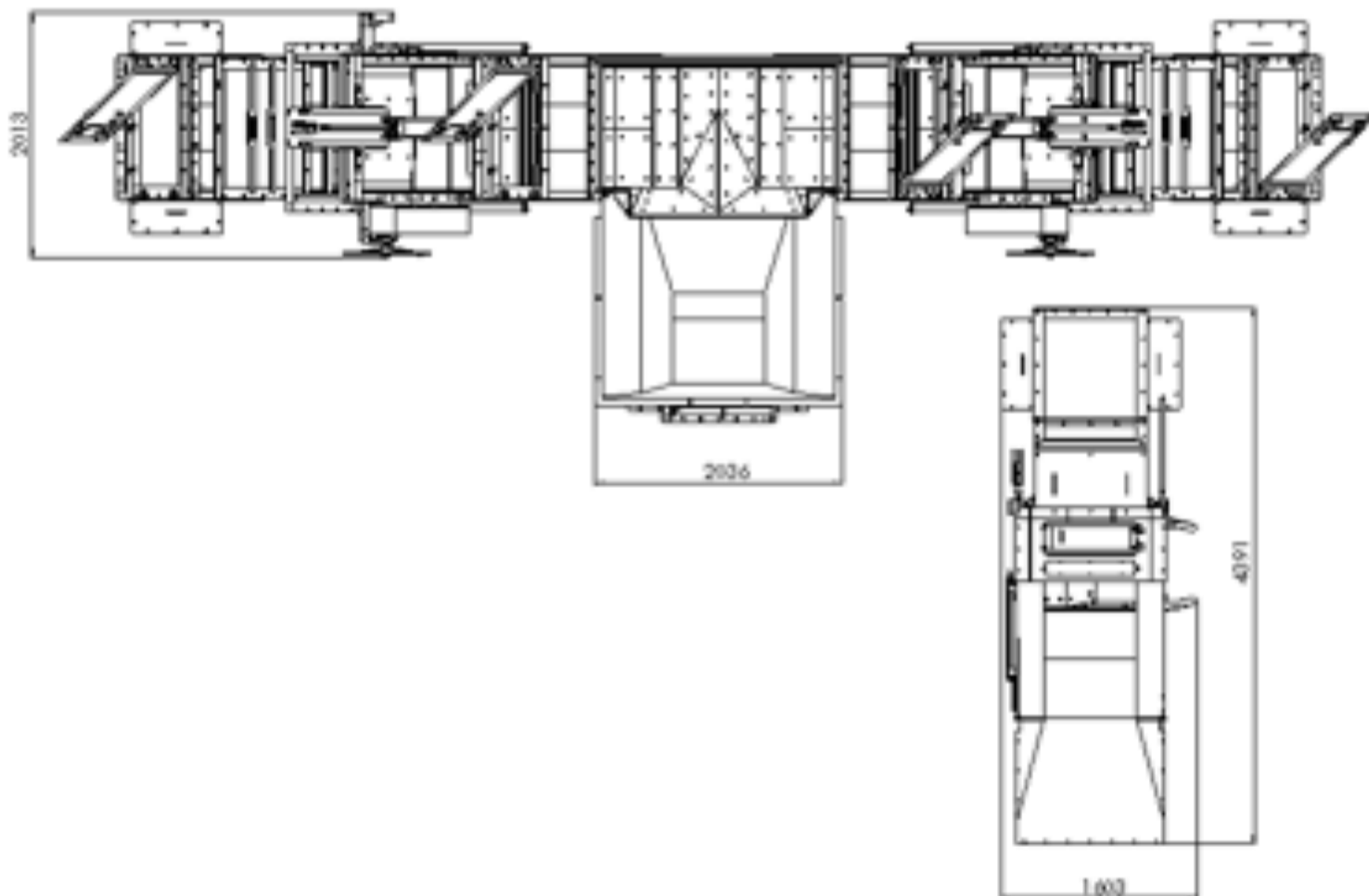


Fig. 10 Three-way transfer chute (3+2) - overall envelope dimensions, selected side view.

Vibrating feeders are used to convey bulk materials (e.g., aggregates, ore, coal) over relatively short distances. The vibrating action of the trough induces motion of the bulk material, advancing it to the next handling unit (e.g., crusher, screen, or belt conveyor). Our feeders are successfully applied for dosing and evenly feeding large volumes of material.

Vibrating screens are used to separate material into size fractions. Depending on the required cut size, they are fitted with screens/decks that are set into vibration. In this way, material is classified in quarries, gravel pits, recycling facilities, and aggregate plants.

### Optional / on request - Steel Structure Specifications

Parameter	Unit	Standard	Option
Execution Class (EXC)	-	EXC2	EXC3/EXC4
Material	-	S355	S235/S460, SS304/316
Bolts	-	EN 15048 8.8	EN 14399 10.9 (HV)
Welding	-	ISO 3834-2	NDT extended (UT/RT)
Coating (protecting)	[ $\mu\text{m}$ ]	C4-H 240 $\mu\text{m}$	C5-M 320/galvanisig ISO 1461 / duplex
Surface preparation	-	Sa 2.5	Sa 3
Live load	kN/m <sup>2</sup>	2.5	5.0
Guards	-	ISO 14122	Mesh, panels, safety gates
Tolerances	-	EN 1090-2	-
CE	-	DoP + CE nameplate	-

Table 1. Made-to-order steel structure specifications

#### Key benefits

- Up to 40% faster installation thanks to prefabrication and unambiguous piece-marking
- High environmental durability (C5-M / hot-dip galvanising) and low maintenance
- Safe access in compliance with ISO 14122 (stairs, guardrails, self-closing gates)
- Full compliance and material traceability (EN 10204 3.1)

## Curved transfer chutes

We manufacture high-grade modular curved transfer chutes with controlled material trajectory for capacities of 5–3,000 t/h. To match the operating environment and conveyed material, we can supply chutes with an S355 body and bolt-in wear liners (materials: AR, CCO, rubber, UHMW-PE).

Furthermore, to suit client requirements, we design low-dust configurations with DN160–DN250 dust extraction nozzles, inspection doors, and ATEX Zone 21/22 versions (where required). We apply C5-M anticorrosion paint systems or hot-dip galvanising.

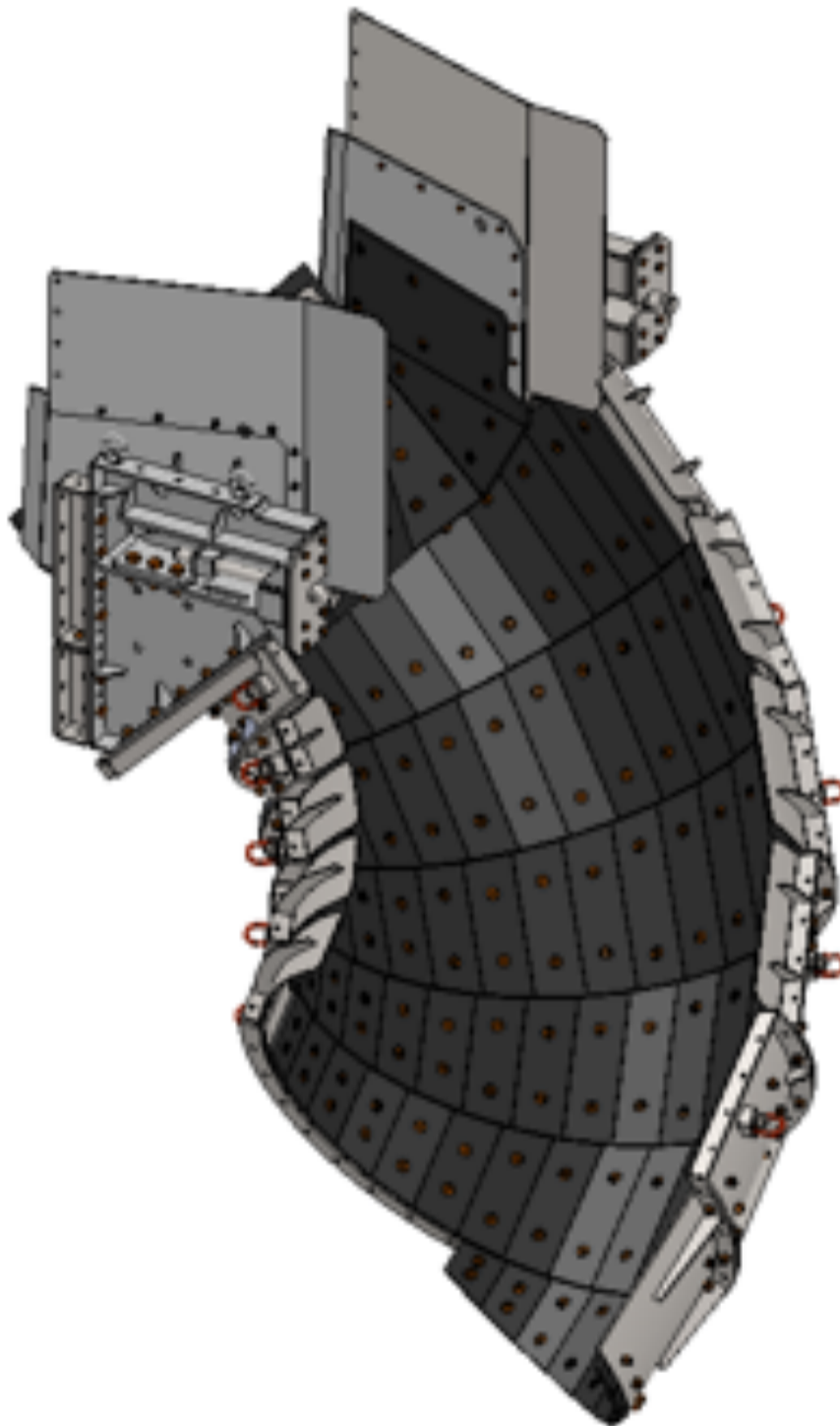


Fig. 11 Sample project from our references - curved transfer chute.

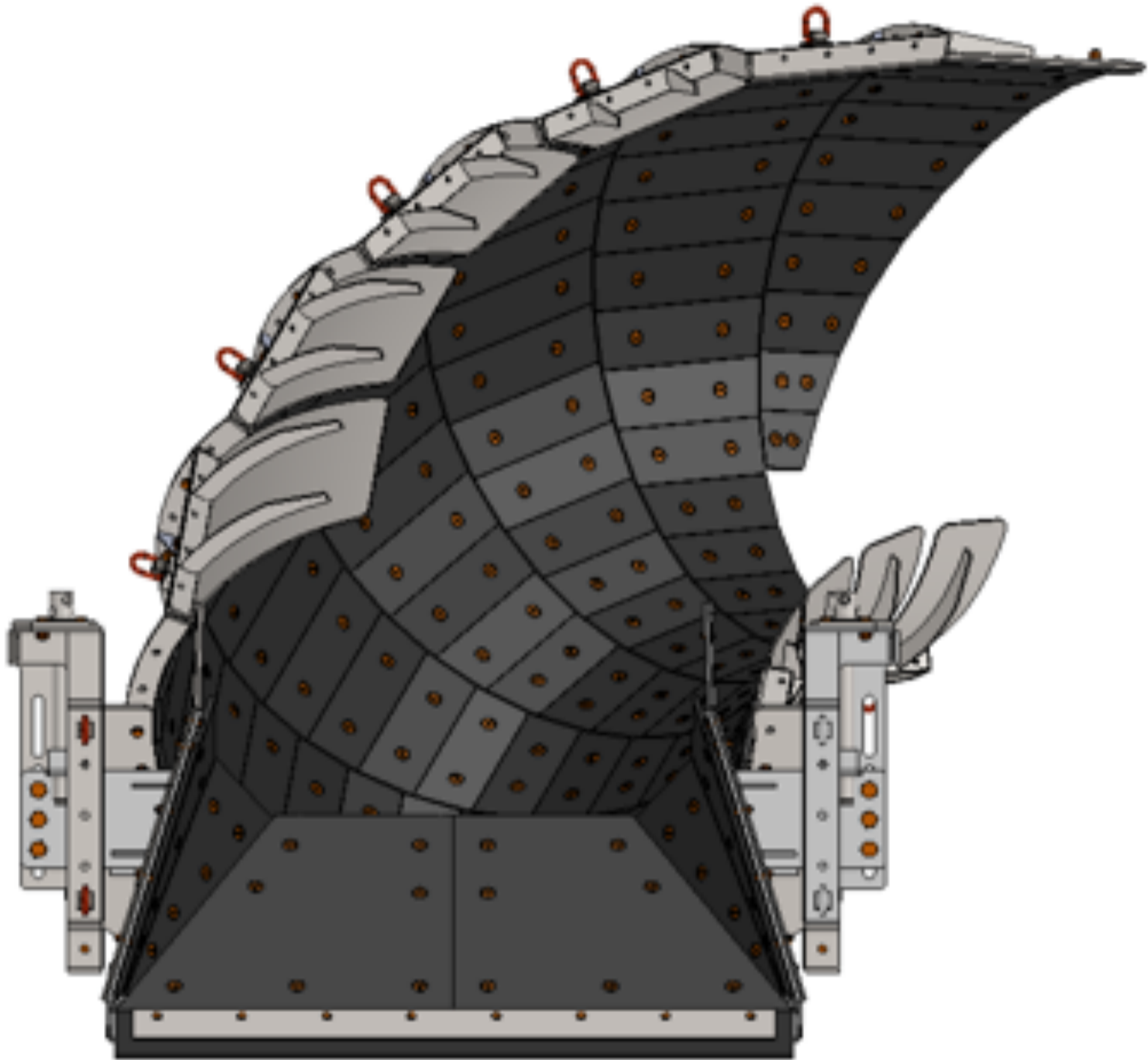


Fig. 12 Sample project from our references - curved transfer chute.

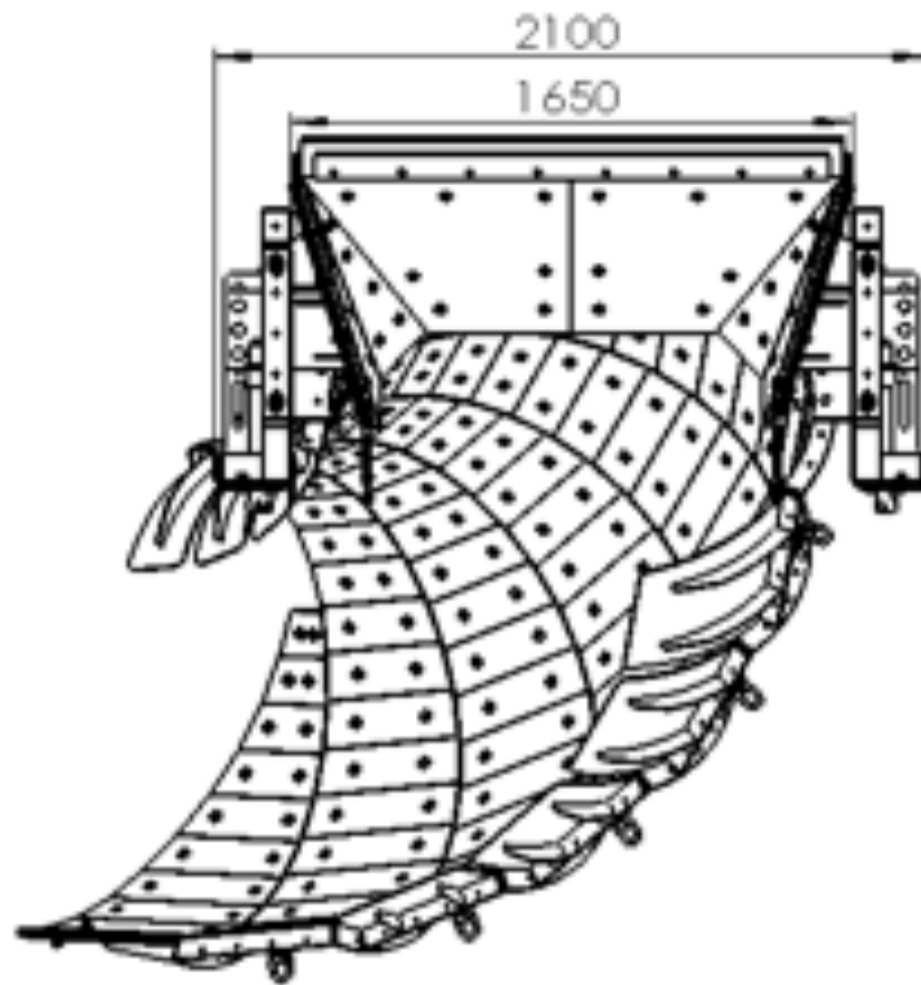


Fig. 13 Sample project from our references - curved teaser chute, overall envelope dimensions (GA view).

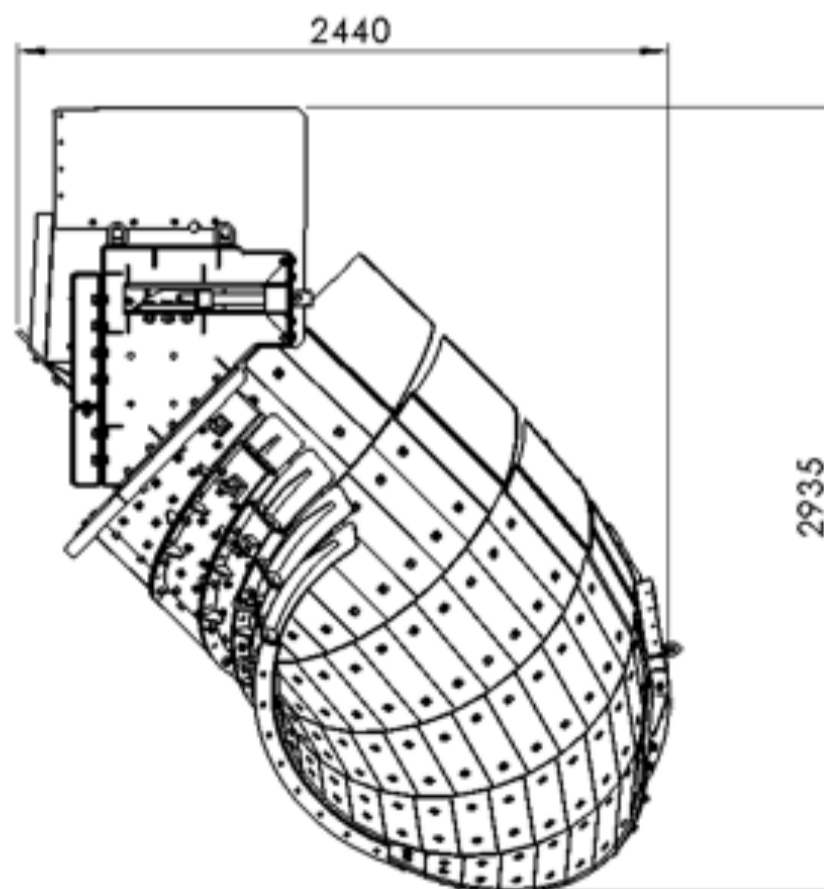


Fig. 14 Sample project from our references - curved teaser chute, overall envelope dimensions (GA view).

## Straight transfer chutes

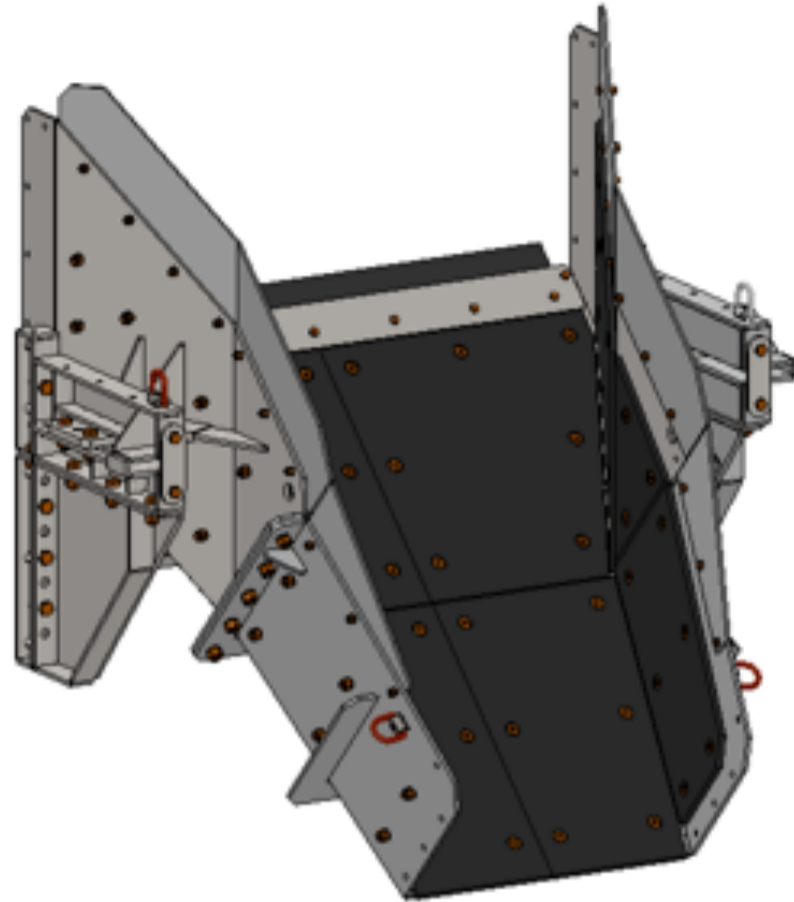


Fig. 15 Representative reference project - straight transfer chute.

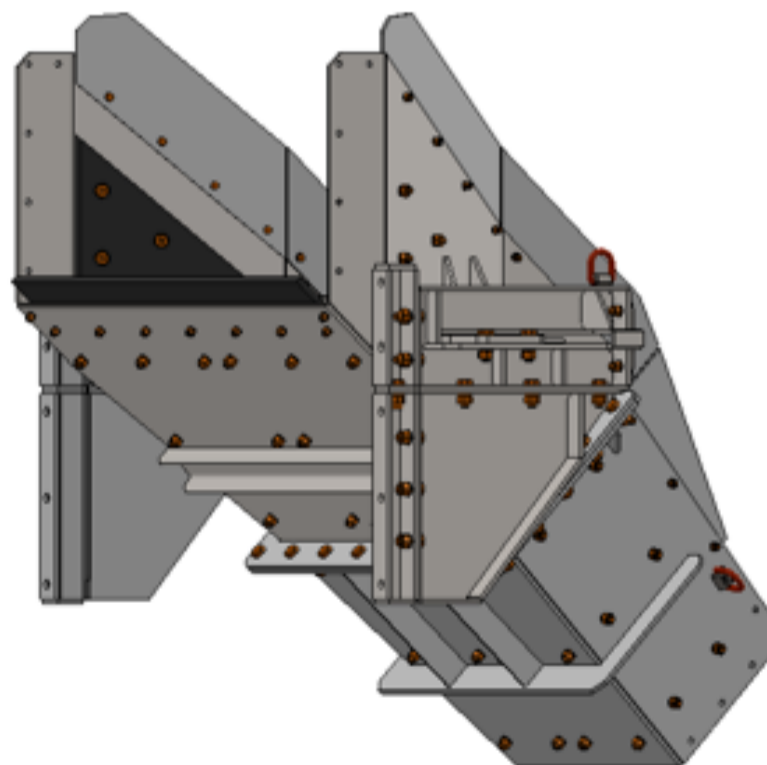


Fig. 16 Representative reference project - straight transfer chute.

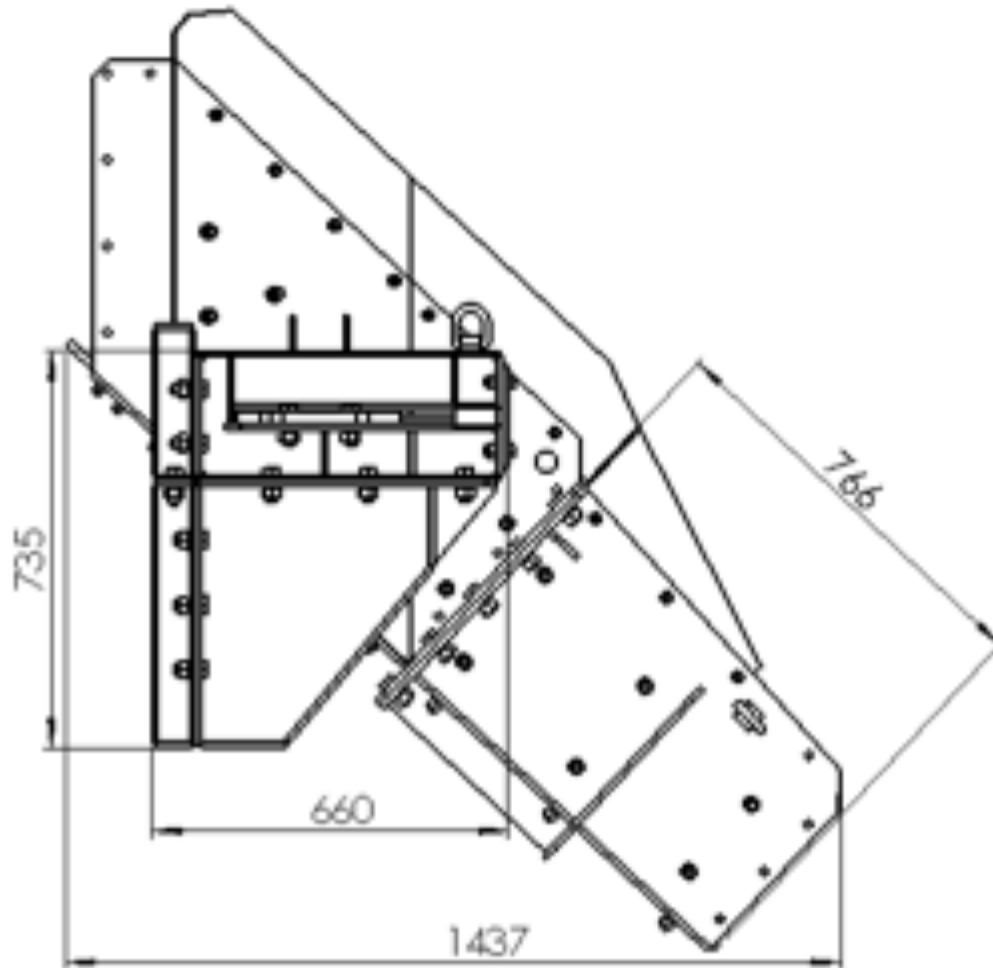


Fig. 17 Representative reference project - straight transfer chute, overall envelope dimensions (GA view)

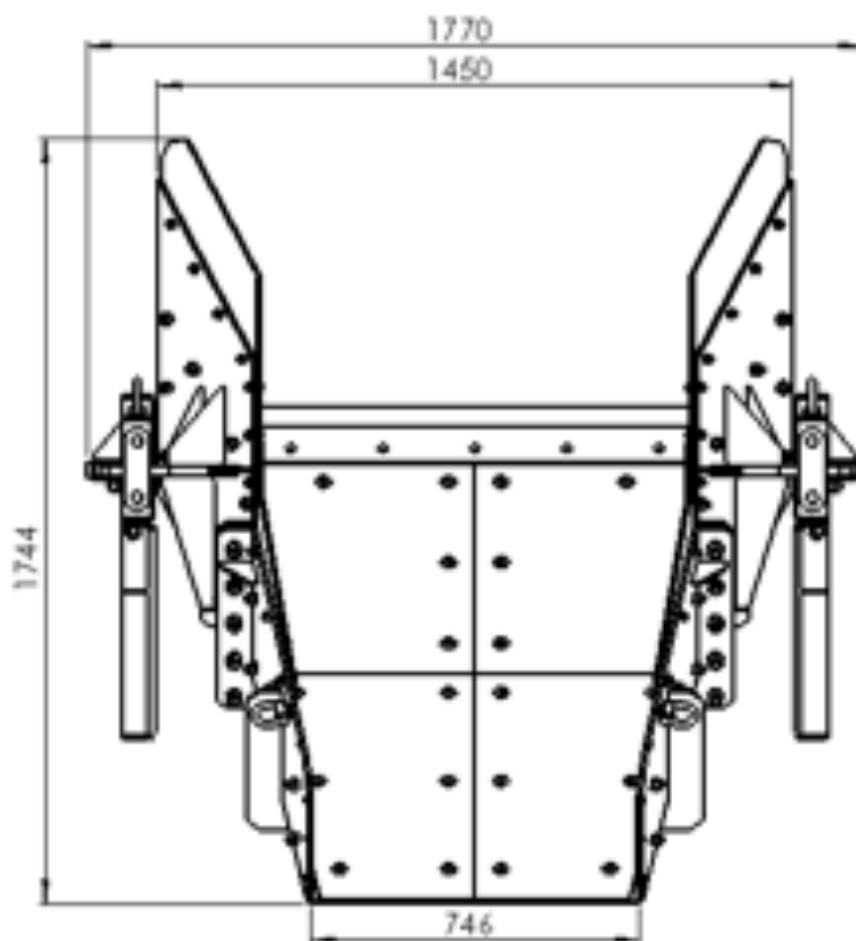


Fig. 18 Representative reference project - straight transfer chute, overall envelope dimensions (GA view)

## Spiral Chutes



Fig. 19, 20 Representative reference project - Spiral chute

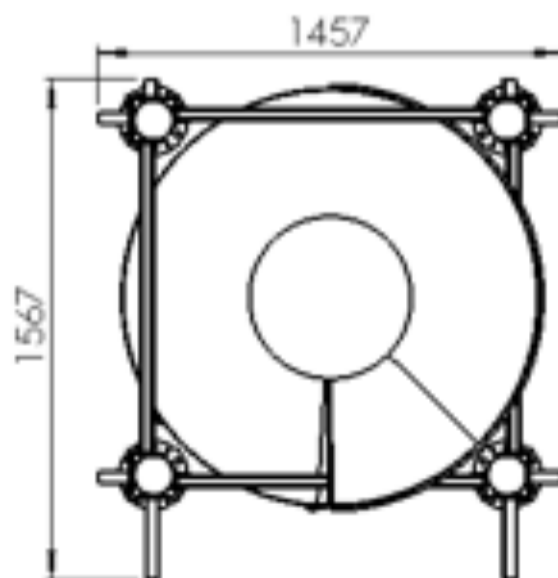


Fig. 21 Representative reference project - Spiral chute - overall envelop dimensions (GA view)

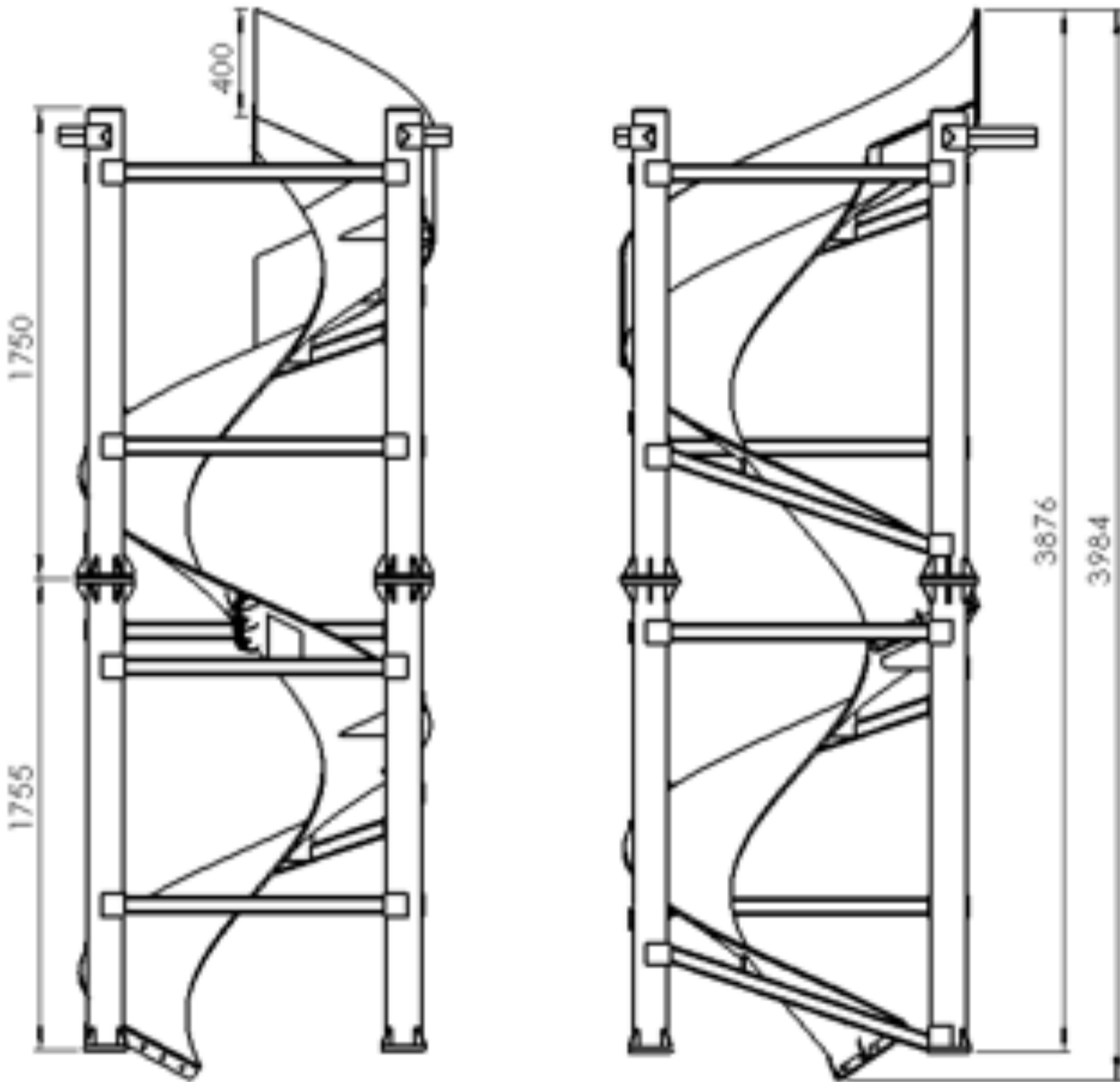


Fig. 22, 23 Representative reference project - Spiral chute - overall envelop dimensions (GA view)

## Optional / On-request - Transfer Chute Specifications

Parameter	Unit	Standard	Option
Throughput	[t/h]	400	50-3000
Bulk density	[t/m <sup>3</sup> ]	1.6	0.6-2.5
Max. lump size	[mm]	120	up to 200
Drop height	[m]	6	1-20
Curve radius	[m]	2.0	1.0-4.0
Segment inclination	[°]	60	45-75
Body material	-	S355	Hardox/SS304/SS316
Wear liners	-	AR 8mm + rubber 10mm	CCO 6+6 / 8+8, UHMW- PE 15mm, ceramics
Joints	-	Bolted flanges	Quick couplings
Aspiration / dust extraction	-	2x DN200	DN160-DN250, service flaps
Inspection window	-	Door up to 2m	Sight Windows, Platforms ISO 14122
Noise	dB(A)	≤80 @1m	≤75 (elastomer liners)
Coat / layer	-	C4-H 240 μm	C5-M 320 μm/galvanised ISO 1461/duplex
ATEX	-	-	Zone 21/22
Material temperature	[°C]	0...60	-20...120
Interface Inlet/Outlet	-	EN equivalents	Skirting, impact bed, "hood & spoon"
Instrumentation / sensors	-	-	"blocked chute" sensor, level, pressure
Weight	kg	850	400-3000
Documentation	-	CE, DTR/O&M/ STEP/ DWG	ITP, FAT 3.1, ATEX

Table 2. Custom transfer chute specifications available on request.

## Key benefits

- Reduced belt and component wear thanks to gentle radii and a “rock box”
- Up to 80% less dust and noise via full enclosure and elastomer liners
- Fast maintenance - flanged segments, bolt-in liners, wear-map approach
- DEM-ready - validation off material trajectory and wear hotspots

## Applications

- Aggregates
- Coal
- Biomass
- Ore
- Shredded scrap
- Grains (cereals)
- Fertilisers

## Variants

- Single-radius curved
- Multi-radius curved
- Spiral / helical
- With “rock-box”
- With energy-absorbing shelves / calming pockets

## Implementation examples

- **Mining sector** — scope: 7 conveyors (400–1600 mm, up to 800 t/h), 5 DEM-ready curved chutes, central dust extraction. **Challenge:** high dust and belt wear at free-fall transfers. **Solution:** spiral chutes with rock-box, VFDs on 4 drives, impact bed + skirting. **Results:** dust –62% at the node (24 h measurement), belt wear –28% (MTBF +9 months), energy use –18% on VFD sections, noise –6 dB(A).
- **Recycling sector** — scope: 180 m of powered roller conveyors, 3 service platforms, scanning system. **Challenge:** Collisions and unplanned stops with variable piece sizes. **Solution:** zoned control, profile sensors, floating guides, ISO 14122 guardrails. **Results:** OEE +11 pp, collision incidents –80%, MTTR –35%.
- **Port / bulk handling** — scope: 120 m conveyor, 3 spiral chutes, belt weigher, metal detector. **Challenge:** dust and noise limits in an urban zone. **Solution:** sealed enclosure, dust extraction, elastomer liners, VFD + soft start. **Results:** fence-line noise –7 dB(A), no PM10 exceedances, energy use –14%.
- **Energy / biomass** — scope: 4 curved chutes (drop 6–12 m), service platforms. **Challenge:** point impacts/erosion and dust at the transfer node. **Solution:** hood & spoon, rock-box, wear-map with inspection windows. **Results:** liner life ×2.3, dust –58%, maintenance downtime –40%.
- **Chemicals / fertilisers** — scope: 6 screws Ø500, 2 drag conveyors 200 t/h, drip trays, earthing. **Challenge:** high corrosivity and caking. **Solution:** SS316 + C5-M coating, jacket heaters on critical sections, UHMW-PE on chutes. **Results:** cleaning downtime –60%, leaks = 0, paint overhaul every 5 years instead of 2.