

EXPERT-TÜNKERS MONORAIL- / DUORAIL- LIFT SHUTTLE SYSTEMS

EMR | DER | DECEMBER 2022



Monorail-Lift-Shuttle- Systems

2. Transport Principle

The EXPERT-TÜNKERS Monorail Lift Shuttle Systems transports several parts simultaneously, in a harmonic, shock-free motion from station to station. All parts are lifted at the same time, transferred horizontally and are accurately placed in the next station. The part pick up (soft touch) occurs at $V = 0 \text{ ms}^{-1}$.

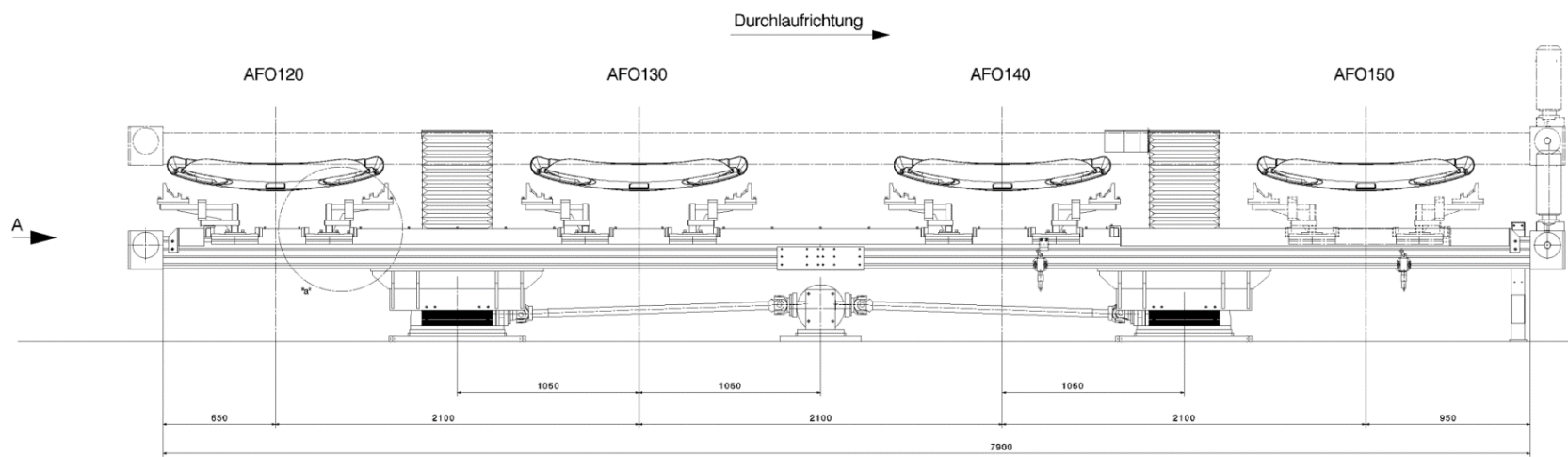
Monorail-Lift-Shuttle- Systems

1. Basics

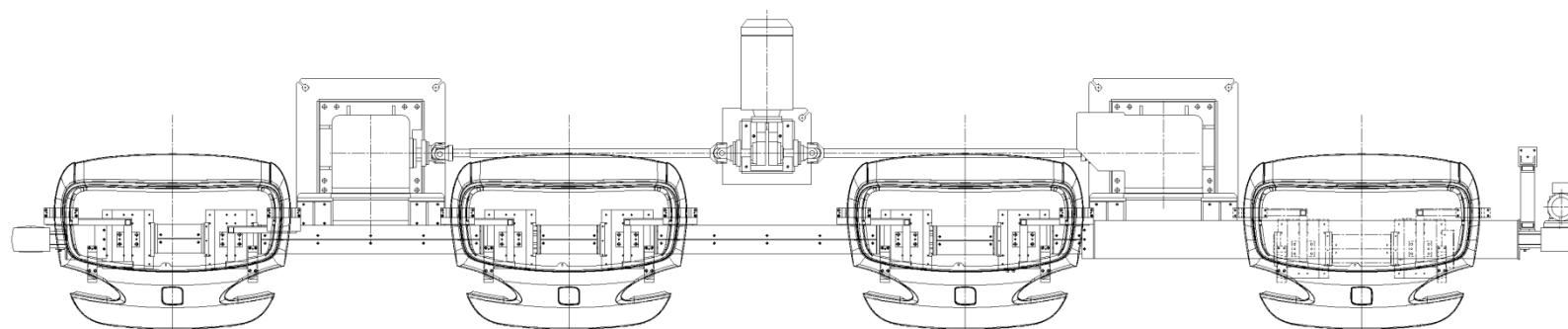
The EXPERT-TÜNKERS Rail Lift Shuttle Systems were developed after extensive studies of the market requirements.

- 3D CATIA V5 models for Simultaneous Engineering projects for early and efficient integration into the plant layout
- High operational availability through proven EXPERT-TÜNKERS technology
- Optimized transport times
- Nearly maintenance free /extremely long MTBF (mean time between failures)
- Standardized and optimized components
- Economically advantageous solutions

Application Example Rear Hood



Side View



Top View

Low-Duty Monorail

4 stations

170 kg customer load

Vertical stroke = 500 mm

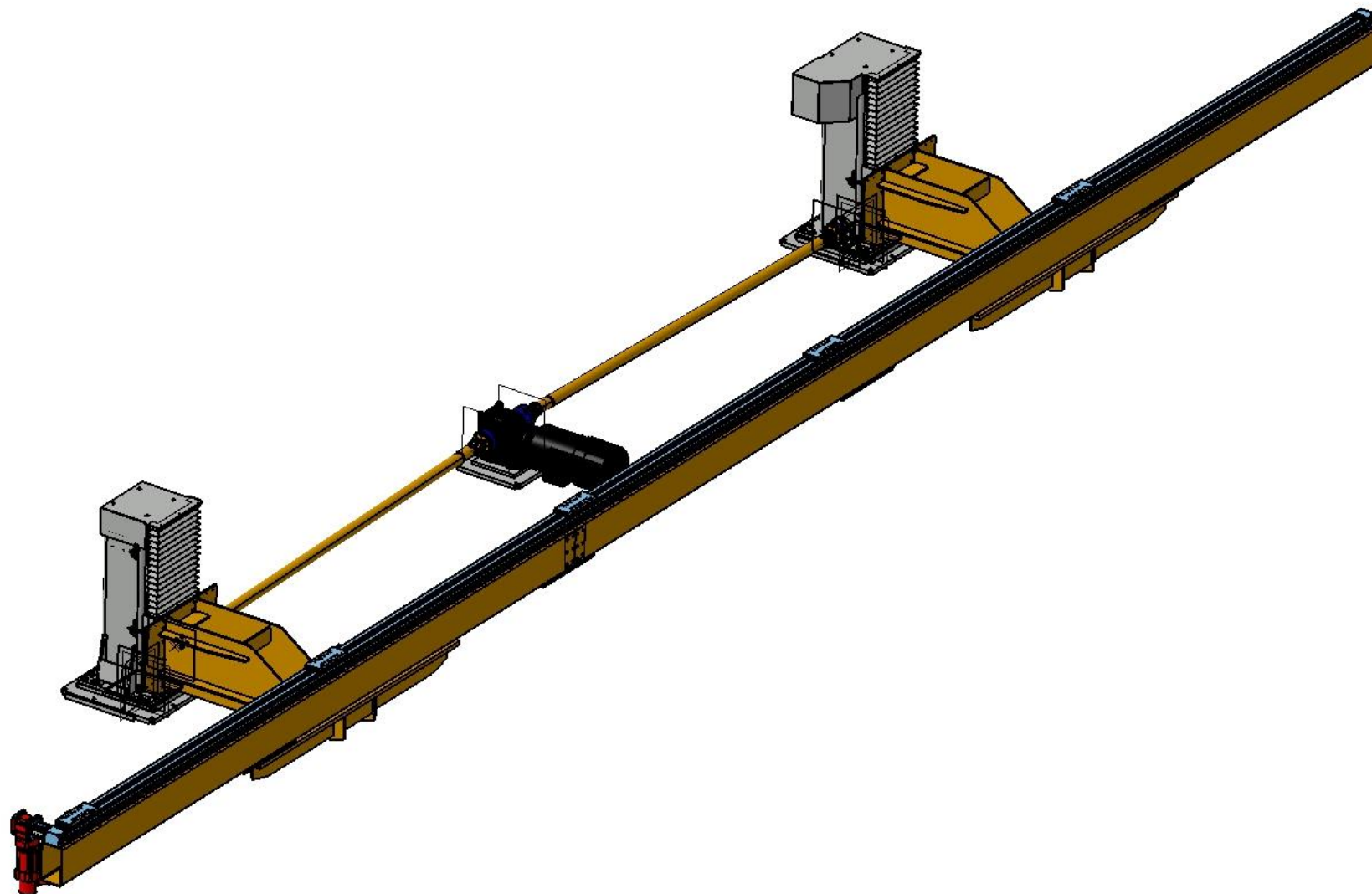
Vertical stroke time = 2 sec

Horizontal stroke = 1,500 mm

Horizontal stroke time = 3 sec

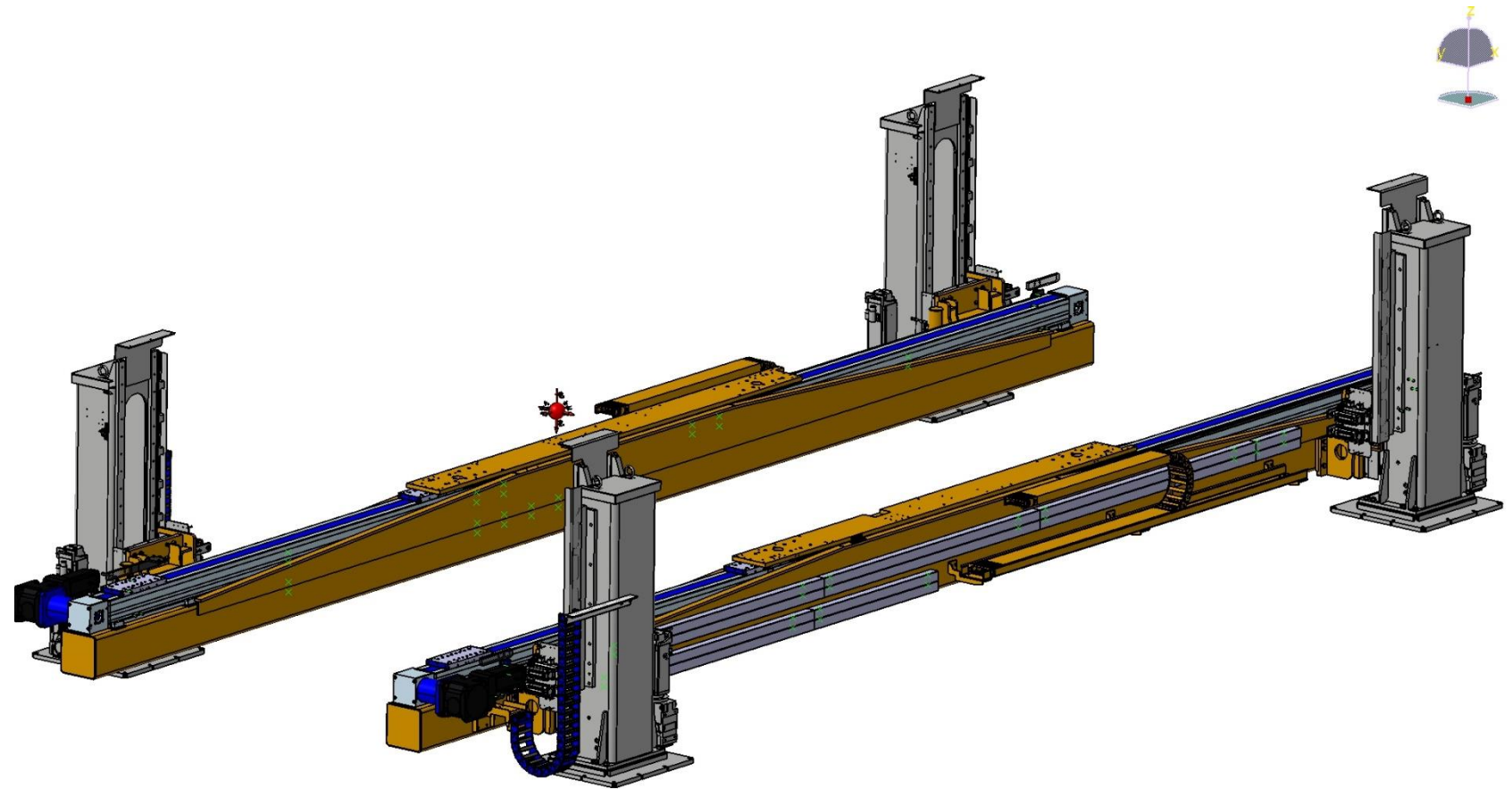
Total length = 4,490 mm

(other loads/times possible)



Heavy-Duty Monorail

2 monorails in synchronous mode
2 stations with overhang
2,000 kg customer load
6,000 kg total load
Vertical stroke = up to 1,100 mm
Vertical stroke time = 3.0 – 7.5 sec
Horizontal stroke = 5,500 mm
Horizontal transfer time = 10 - 18 sec
Total length = 9,200 mm
(other loads/times possible)

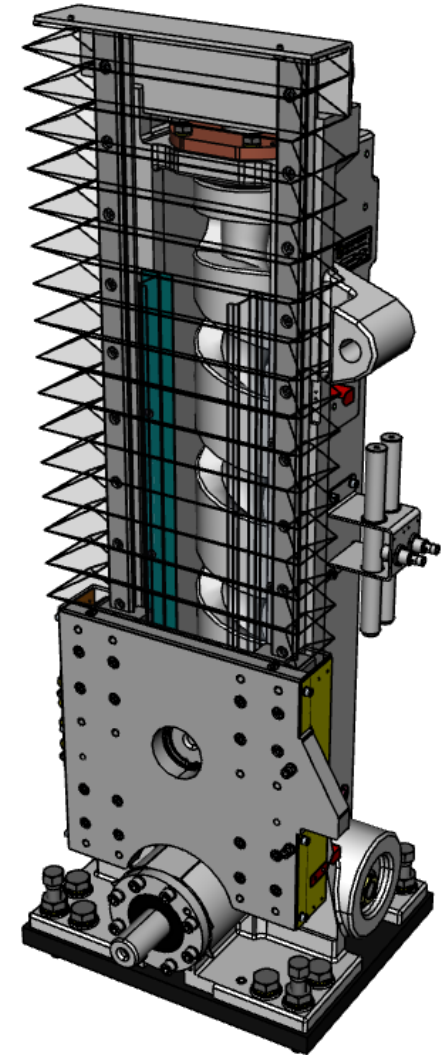


Vertical Drive

The vertical movement of the EXPERT-TÜNKERS Monorail Lift Shuttle System is generated by two or more EXPERT-TÜNKERS standard lifters.

Advantages of the EXPERT-TÜNKERS standard lifters:

- Proven cam / cam follower drive
- Harmonic, shock-free drive movement
- Part pick up (soft touch) at $V = 0$ m/min.
- Low power requirements
- Precise, mechanically locked end positions

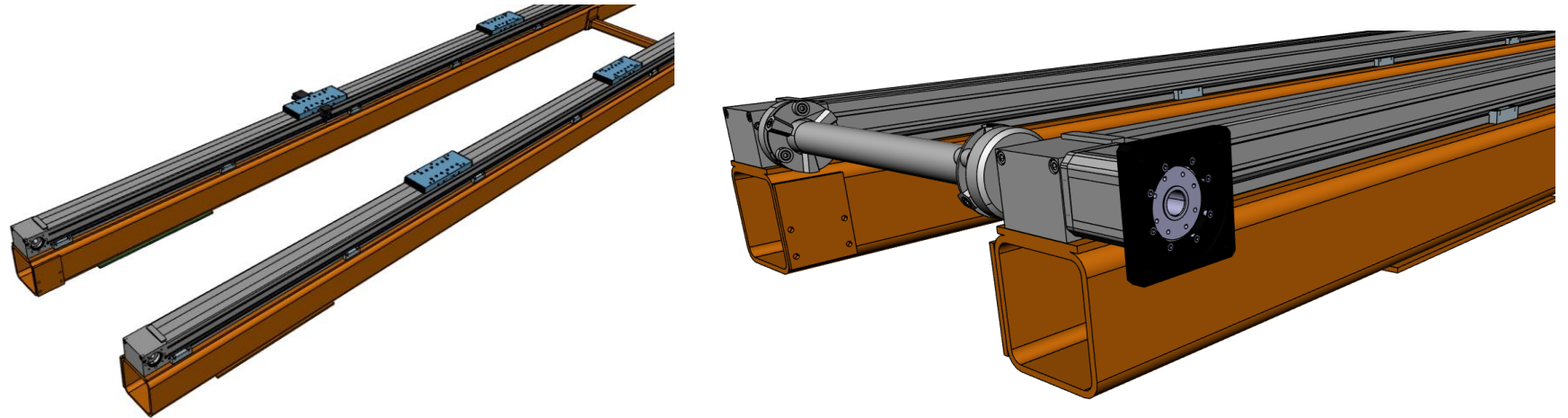


Horizontal Drive

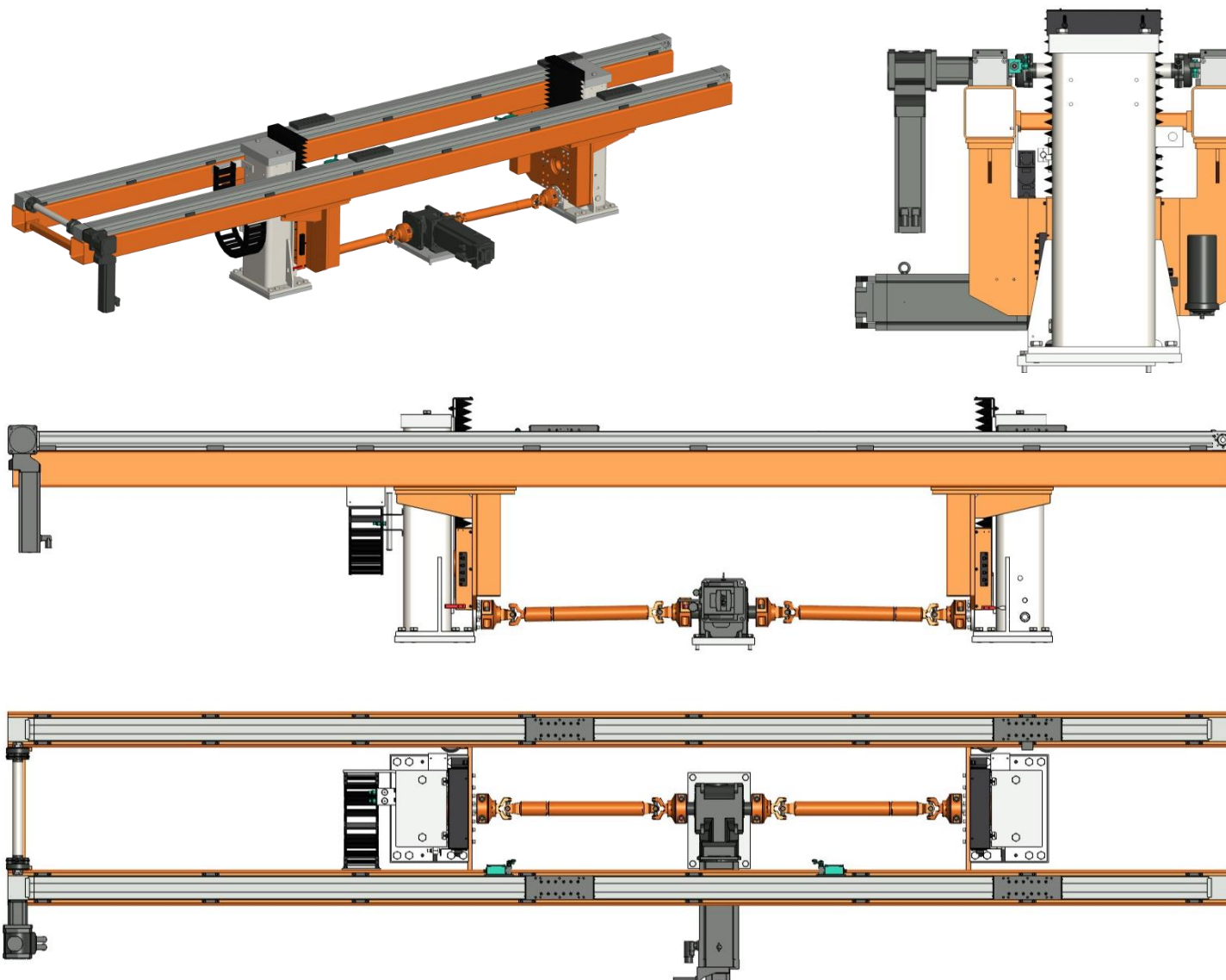
The horizontal movement is generated by an electromechanical linear axis.

Technical advantages of the linear axis:

- Freely programmable stroke = flexibility
- Drive with a servo gear motor = flexible speed
- Large aluminum profile with high durability
- Solid roller clusters mounted on integrated and jerk free steel inserts
- Low maintenance due to lifetime lubricated and sealed rollers
- Tooth belt protected by weld spatter resistant cover



Application Example Duorail – Front Door



Low-Duty Duo Rail Shuttle Short Version

2 Stations

Customer load 170 kg

Vertical stroke = 450 mm

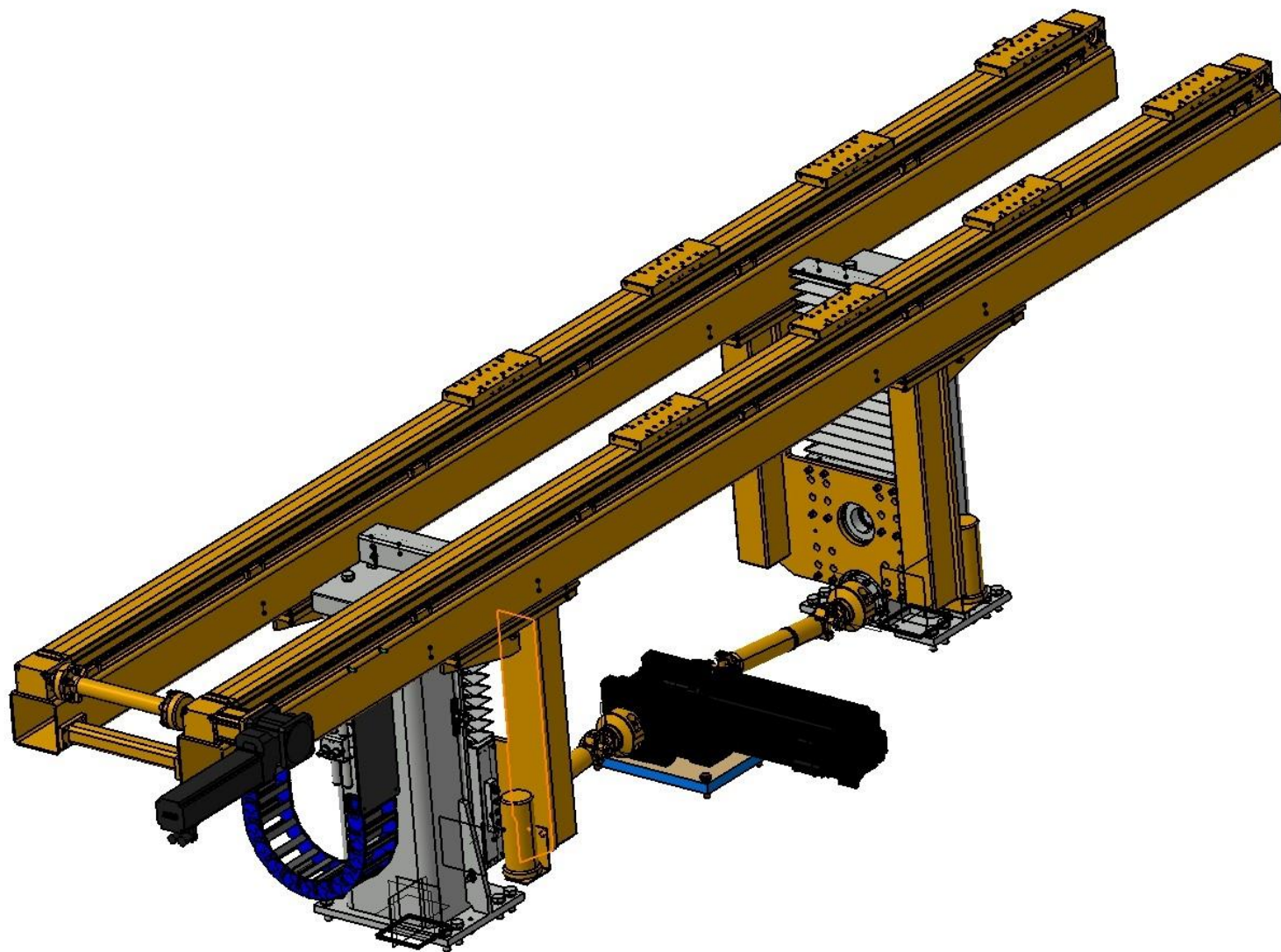
Vertical stroke timer = 2 sec

Horizontal pitch = 1,500 mm

Horizontal transfer time = 3 sec

Overall length = 4,490 mm

(other loads/times possible)



Low-Duty Duo Rail Long

3 Stations

Customer load 600 kg/station

Vertical stroke = 600 mm

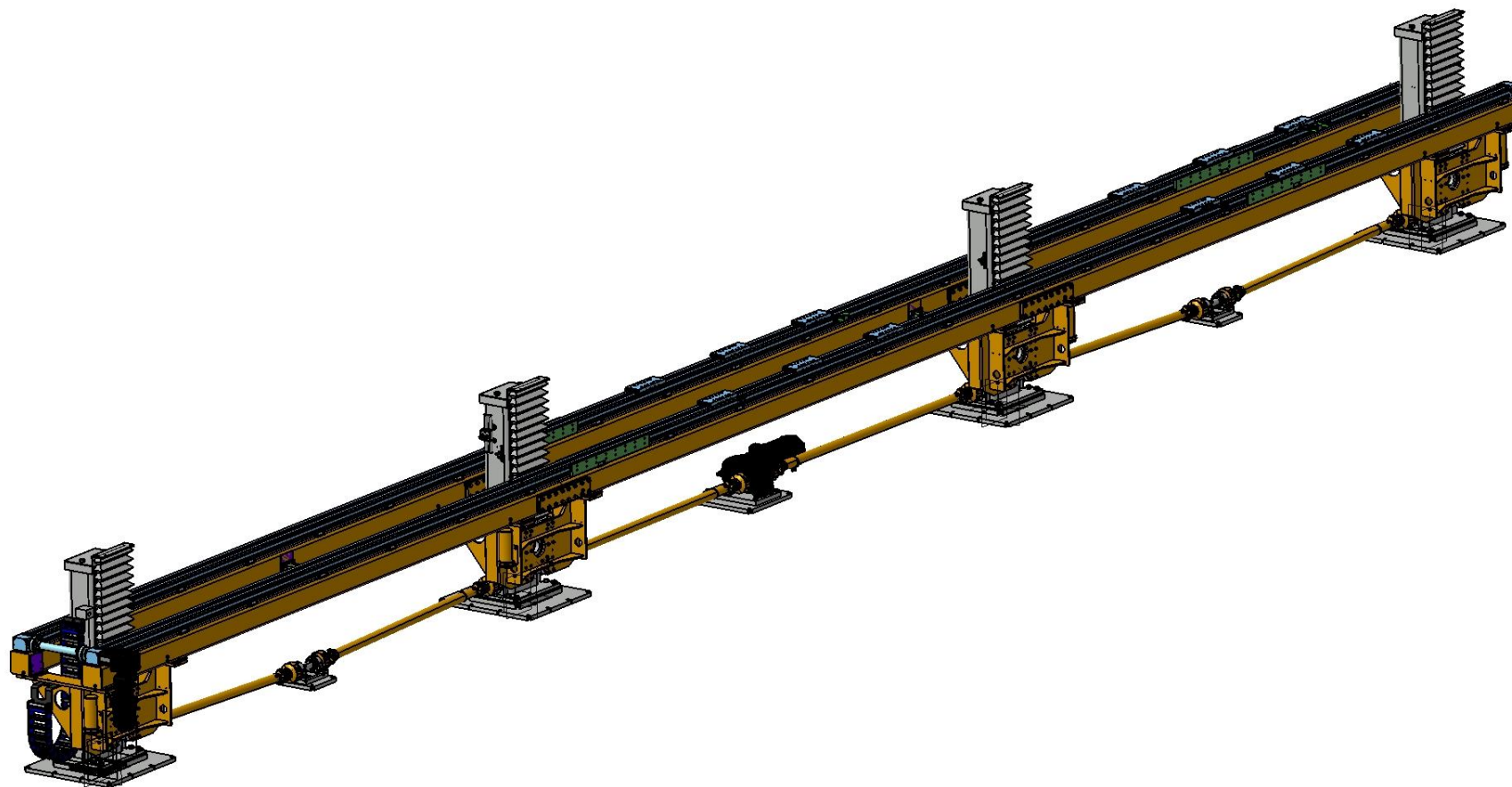
Vertical stroke timer = 3 sec

Horizontal pitch = 5,750 mm

Horizontal transfer time = 5 sec

Overall length = 14,700 mm

(other loads/times possible)



Application Example



Technical Data

Technical Data

| | |
|-----------------------------------|--------------------------------------------|
| Number of stations: | 3 to 10 stations |
| Total length: | max. 28,000 mm |
| Horizontal stroke: | freely selectable |
| Horizontal stroke: | 500 – 5,750 mm |
| Horizontal stroke time (Example): | 1,500 mm in 2.0 sec |
| Vertical stroke: | 250 - 1300 mm |
| Vertical stroke time: | 600 mm in 2.0 sec |
| Height in down position | 500 mm from floor to upper edge tooling |

Cycle times may vary depending on customer loads and strokes

References

- Audi Ingolstadt (Germany)
- Audi Neckarsulm (Germany)
- Audi Changchun (China)
- Audi Győr (Hungary)
- Audi San José Chiapa (Mexico)
- Seat Martorell (Spain)
- Volkswagen Taubaté (Brazil)
- Volkswagen Anchieta (Brazil)
- Skoda Mladá Boleslav (Czech Republic)
- GM Hummer MEVSM St. Clair, MI (USA)
- Arrival (UK)
- Minth (Poland)

Thank you for your
attention

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