Project/Bachelor/Master Thesis

Amount and complexity of the subject will be adjusted to the kind of student‘s thesis!

Subject:

Trolley Conveyors – Steel Wheel or Roller Guided Systems

Trolley Conveyors are established as a niche product in public transport, especially in Germany and Japan. The most well known system is probably the Wuppertal Suspension Monorail. Here the guidance is realized by using a steel wheel with two flanges rolling over a steel rail. Also the weight support as well as the drive/brake function are realized that way. Systems like the H-Bahn in Dortmund and Düsseldorf use separate support and guiding wheels with solid rubber or pneumatic tires.

Roller guided systems have either the disadvantage of a digital guiding function, when the running gear is only guided when touching one vertical guide rail because of the gauge clearance or they have a high abrasive wear of the wheels when these are fixed on both sides to the running edges of the rail.

A further disadvantage of the roller guided system is the „bumpy“ track which allows only low speeds and moderate vibration comfort. The suspension monorail however has an operating speed of 60 km/h and good comfort features. A possible disadvantage for the steel wheel/rail system might be the noise.

The task is to make a detailed study on the technology of the running gears of H-Bahn and the suspension railway and compare them with each other. Also other trolley conveyor systems should be taken into account.

Furthermore the research should include the possible advantages which a construction similar to a H-Bahn with a suspension monorail running gear would have in comparison with both existing systems. The economic aspects (positive/negative) should also be considered.

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