# Smart Material Flow -
# Intralogistic solutions for your production

## Large potential - even for small production units

Small lot sizes and high material consumption increase the pressure on the production flow. Up to 40% of resources are still being allocated to non-value-adding activities.

Imagine a production unit in which people, machines, forklift trucks and storage systems are integrated into one standard production process system. All transport operations are efficiently coordinated. For all manual operations, workers receive the right information at the right time. Does that sound like a hope for the distant future? It's easier than you think: With efficient factory flow solutions from TRUMPF, you can streamline your production processes and increase productivity across the board.

## Reduce throughput times and part costs

How about a digital view of your production facility including all the components and storage locations? On this basis, you can plan and control your entire manufacturing process systematically. Logistics specialists and production planners benefit from an unprecedented transparency on the shop floor. They quickly and easily identify inefficient processes. Workers devote themselves to complex tasks and do not have to waste time on material handling and administrative tasks. As a result, your throughput times and part costs go down.

TRUMPF

## Increased sales thanks to digitalized material flow

Transparency and improved processes make your production unit more efficient overall. All machines, processes, software, system interfaces and above all your employees, play an important role in achieving this. Harmonize everything with solutions from TRUMPF.

| Hardware | Software | Services |
|---|---|---|
| ▪ Manual / automated storage systems and storage areas<br>▪ AGVS (automated guided vehicle system) in collaboration with co-operation partners<br>▪ Defined material transfer locations<br>  ▪ Docking stations<br>  ▪ Machines and storage interfaces | ▪ Warehouse management for manual and automatic warehouses<br>▪ Transport control system<br>▪ Interface to<br>  ▪ Automated guided vehicles<br>  ▪ WMS and ERP systems<br>▪ Applications for the office and mobile devices on the shopfloor. | ▪ Customer and project-specific:<br>  ▪ Material flow analysis<br>  ▪ Material flow consultation<br>  ▪ Material flow planning<br>  ▪ Material flow simulation<br>  ▪ Installation & start-up<br>  ▪ Initial production assistance |

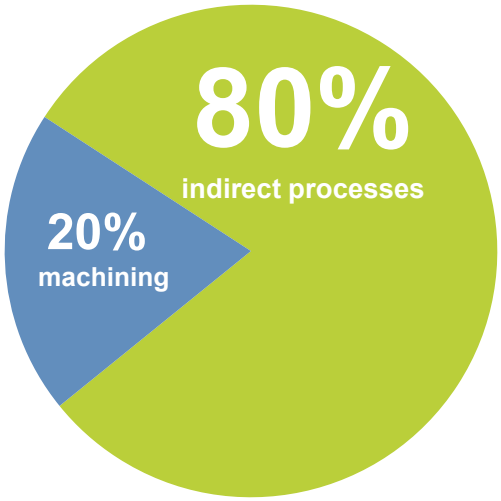
## Up with utilization, down with part costs

To remain competitive in the long term, productivity and efficiency are important metrics on your shop floor. Goods receipt, production preparation, goods flow, store management and the actual production must interlock with the fine precision of clockwork. Unplanned additional effort lowers production flow and overall utilization. As a result, parts costs soar and make it difficult to calculate reliably.

Solutions for digitalizing your material flow ensure visibility throughout your shop floor. Simple and unambiguous postings of materials and orders in combination with clearly defined storage locations form the basis for this. Apps and connected hardware minimize your administrative posting effort. This means that order and material flow run synchronously. Changes in the production plan automatically lead to a reprioritizing of the transport sequence on your shop floor.

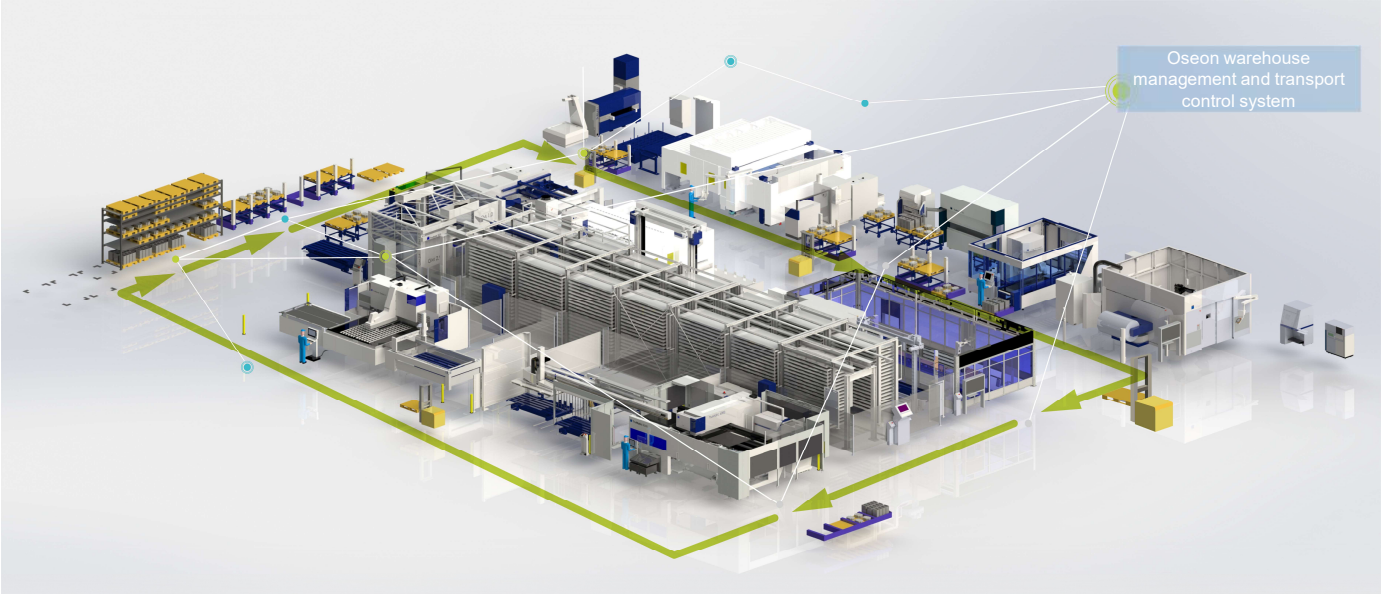

## Relieve shopfloor workers, reduce non-productive times

Digital tracking of material movement minimizes your organizational time and effort – and frees up valuable resources. Because you have optimized and standardized your processes, you can use these resources directly for productive activities on the shop floor.
For even more efficiency, TRUMPF offers a modular system consisting of hardware, software solutions and services. This allows you to transport goods as autonomously as possible from the storage system to dispatch, throughout your entire sheet metal process chain: the start towards your Smart Factory.



# Modular solutions prepare the optimal path for you

Whether you are running a largely manual metalworking shop, or a fully-networked smart factory, TRUMPF's material flow solutions simplify your daily tasks. Start simply: By gradually digitalizing your manual storage surfaces, you can map your material flow and optimize it step-by-step.




| TRUMPF machine tools and laser machines | Manual workstations and non-TRUMPF machines | Manual storage systems and storage areas | Automated storage systems |
|---|---|---|---|

Automatically provided status information of machines and storage systems represents only part of production in many production plants. That's why TRUMPF offers easy ways to digitally acknowledge operations and material movement at any workplace. Machines from other manufacturers as well as ERP systems can also be integrated.

## Control transport efficiently

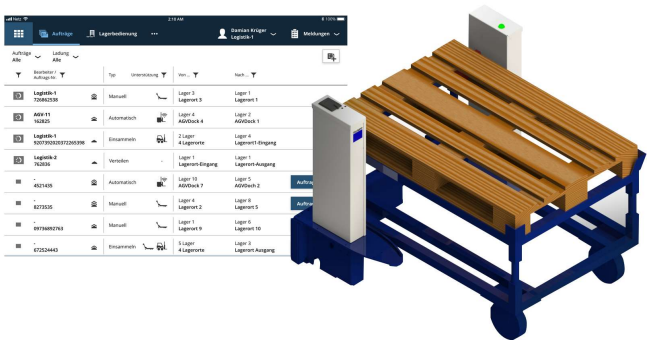
You know the orders which are pending, important and particularly important. You load machines coupled with a large-scale storage system fully automatically. But what do you do if there is no physical automation or direct storage connection?

Simple: You use a TRUMPF docking station and the Oseon transport control system. The docking station is a central hub and automatically records material movement with the parking or removal of a pallet. It is both a source of information for inbound and outbound material movement and a short-term storage location in the immediate area of various workstations.

Oseon informs shop floor staff exactly when which order should be picked up, stored or taken to a specific workstation. The software is based on existing order data from the production plan. It automatically generates transport processes from A to B and forwards them to workers or automated guided vehicle systems.

## Automated booking

Docking stations are not the only places where order and material data is automatically booked. TRUMPF machine tools are also capable of this. If necessary, you can upgrade this functionality with tools such as Production Support  This way you keep your machinery up-to-date and also integrate existing machines.



Oseon Logistics and TRUMPF docking station

## Automated guided vehicles enable autonomous material flow

Until a few years ago, a self-organized material transport system on the shop floor was for most of us, still science fiction. Today it is innovative and tomorrow it will just be normal. Equipped with sensors for precise and safe navigation, automated guided vehicle system (AGVs) become part of the material flow. They take over the fully or semi-automated loading and unloading of production machines, the intermediate storage of semi-finished products or raw materials in the store and the transport of finished parts to shipping.

Good to know: With the Oseon transport control system you can also pilot mobile units like AGVs and coordinate your complete production flow in this way.

The interface for transport control is open and not manufacturer-specific. Project-related cooperation with individual customer partners is possible.

## Standard workflows for transport orders

The check-in and check-out of raw material on a machine must be acknowledged in every working production facility. Thanks to standardized processes, autonomous systems take over such processes. However, you can intervene manually at any time, for example to insert a rush order (which the system also directly records).

To ensure that you get an overall solution for your smart material flow, we co-operate closely with selected partners, e.g. AGV manufacturers. In this way, not only do you gain from excellent sheet metal processing processes, but your production flow also works at maximum efficiency. We provide you with individual support along the way - after all, no two production facilities are same.

## Do your own potential check

By simply answering these simple questions, you can quickly see where you have latent development potential to move towards your Smart Factory. You can perform a detailed analysis online on our Smart Factory web special:

http://trumpf.com/s/smart-factory

| Typical optimization potential challenges | | |
|---|---|---|
| **This is how my production unit runs** | **Yes** | **No** |
| Is there a lack of transparency with a lot of time spent looking for things? | ☐ | ☐ |
| Are material storage and storage locations digitalized throughout? | ☐ | ☐ |
| Is there are systematic procedure for material transport? | ☐ | ☐ |
| Do plant workers spend a lot of time dealing with logistics and administration? | ☐ | ☐ |
| Is there a system for buffer and intermediate storage? | ☐ | ☐ |
| Are there large distances between stations? | ☐ | ☐ |
| Do changes in the production plan disturb your factory flow? | ☐ | ☐ |

Visit our Website with further information:
www.trumpf.com/s/smart-material-flow

TRUMPF Werkzeugmaschinen SE + Co. KG
Johann-Maus-Straße 2· 71254 Ditzingen · Telephone +49 (0) 7156 303-0 · Fax +49 (0) 7156 303-30309
Email info@trumpf.com · Homepage www.trumpf.com
TW251co, 08/2022