



Lineside lifters

In the warehouse and the yard, the forklift truck epitomises handling flexibility. When it comes to **production lines**, however, lift trucks are often assumed to be too unwieldy to be of much use.

But is this really the case? **eureka** finds out...

by Robin Meczes

On the face of it, production lines are no place for forklift trucks because production lines of all sorts usually share one key characteristic: a lack of spare space.

Since it clearly makes sense for a production line to take up as little room as possible – both in order to minimise unnecessary travel distance between different parts of the production process and to fit as much production capacity as possible into a building of any given size - there's often barely enough room for production line workers to get close to the action. Add to that the need to store vital parts, consumables or other supplies close to the line itself, often in the two to three metres immediately adjacent to it, and you have a recipe for some very cramped conditions indeed.

The idea of sacrificing some of this precious space for a lift truck of some kind tends, therefore, to fly in the face of reason. And it's not just the dimensions of the truck itself

that are the critical factor – there's also the question of the manoeuvring space a lift truck inevitably needs.

As a result, there are many production situations in which equipment other than lift trucks tends to be used for handling both on and around the line, such as floor-mounted or overhead conveyors, cranes, wheeled trolleys and even automated guided vehicles (AGVs).

These alternatives are all well and good where the goods being handled and the speed and throughput of the line truly lend themselves to such handling methods. Individual small or lightweight parts on trays or in plastic bins or those that need moving at high speeds, for instance, are a perfect candidate for some form of conveyor; heavier items that need moving from one production station to another without any reorientation of the product might be better served by an AGV system or a manual trolley.

In many instances, however, the use of forklifts on the production line is all but essential. Good examples include the automotive industry, the white goods sector and the foundry business - all characterised by their requirement for constant handling of heavy products and components which, combined with what are often more spacious production lines to begin with, makes them well suited to lift truck usage.

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It can still make sense, however, to use lift trucks on lines where smaller or lighter goods are being handled, simply for the operational flexibility they provide. Standard forklifts can handle a very wide variety of unit loads including pallets, stillages, pallet boxes and intermediate bulk containers (IBCs). When

used in conjunction with the many special attachments on the market, meanwhile, they can also handle individual, non-standard shapes such as reels, barrels, pipes, tubes, bricks, blocks and even sheets of glass (for more on lift truck attachments, see page 8). As well as straightforward horizontal and vertical movements, meanwhile, forklifts with the right attachment can also be used to incline or invert their load. And unlike some other handling methods, trucks can also handle everything from a few kilogrammes to several tonnes without problem.

This versatility, in itself, makes the lift truck an excellent choice for many production line handling applications. But on top of all this, lift trucks offer an even greater benefit compared to most other handling options – powered, free movement.

Here, there and everywhere

The advantages of the lift truck's free-ranging capabilities are threefold. First, it means that they can take on a wide variety of production-related jobs, including:

- Bringing supplies of parts, components, consumables and packaging to the line.
- Removing waste packaging from supplies used in the production process.
- Transferring products from one part of the line to another or to and from separate processes.
- Moving finished or semi-finished goods to and from storage facilities.

Second, the use of lift trucks means that any changes to the production line layout – a relocation to another part of the building, for instance, or the extension of an existing production line to take in extra processes - are easy to accommodate. Altering the layout of a floor-mounted or overhead conveyor system can take weeks; but altering the start point and destination of a lift truck is as easy as issuing proper instructions to its driver.

The third advantage to using lift trucks in production is the ease with which more or less handling muscle can be brought to bear with little or no notice. Bringing additional lift trucks into an operation is much simpler than, say, adding an extra 50m of floor-mounted conveyor or another AGV route (and quite apart from any physical complications, both of these alternatives may also require the reprogramming of a central computer system). Disposing of lift trucks when they are no longer needed is equally straightforward, whether by selling them on as secondhand equipment (try doing that with an AGV operation where the guidance system is buried in your floor), returning unused contract hire trucks to →

Main image:
Forklifts are widely used within automotive manufacturing, where heavy production components are common.
1. An electric counterbalanced truck brings components to a car production line. (Image courtesy of PSA).



Key considerations

Before deciding to employ lift trucks on or around a production line, users should ask themselves a number of key questions. These include:

The product:

Is a forklift or power pallet your only option for handling the product or do you absolutely need the free-ranging capability of a lift truck?

If not, what are the pros and cons of a truck versus the alternatives in terms of cost, labour, speed of operation and overall flexibility?

Forklift strategy:

How many trucks will you need on the production line?

What kind will suit your operation best?

What power sources are most appropriate?

Do you have the right skills in place in your workforce?

How dependent will the running of your production line be on the trucks and what will you do if a critical lift truck goes down?

Health and safety:

Have you really got room for the trucks to operate in?

Will they be operating close to sensitive production equipment that might easily be damaged by a minor collision or a spillage of truck fluids?

Will the trucks pose any particular risks to your employees' safety, for example in terms of collisions, emissions, or leaking of slippery or corrosive substances?

Production process:

Will the presence of lift trucks make your operation faster or slower?

Might forklifts necessitate an unwelcome change in the order or layout of your production processes?

Could they damage the production area itself in some way – the floor, for example?

And does the production process pose any special threat to the handling equipment?



→ your supplier or simply redeploying them elsewhere in your operation – in your warehouse or yard, for example.

Investing in handling equipment that can be used in so many different ways and is so easily moved or redeployed clearly helps to maximise operational flexibility and protect your initial financial outlay.

Which truck is right?

It's vital, however, that you don't choose lift trucks for production line applications based purely on this – the trucks also have to be the right solution for the job and choosing the right truck for a production line environment is obviously a key matter, especially where you have different handling requirements at different points of the production process. In an automotive environment, for instance, you might use a reach truck on the main production line, a small counterbalanced truck in the trim shop and a pallet truck on the finishing line.

Where space – or lack of it – is the overriding factor, larger trucks, like standard counterbalanced and reach trucks, will often be unsuitable for lineside activities. Having said that, the high load capacities many counterbalanced trucks come with and the reach truck's unique ability to move a load forwards or backwards while itself remaining stationary can both be critical factors in many production environments. Reach trucks also generally come with three, rather than four wheels, which makes them highly manoeuvrable, and three-wheel counterbalance units are also available which are generally both more compact and more manoeuvrable than equivalent four-wheelers.

Smaller trucks, of course, are usually much more at home in the production environment, particularly stacker and powered pallet trucks. These require even less room for manoeuvre and so permit an operator to place a load

wherever they want – counterbalanced and reach truck drivers often have to place a load wherever they can, something that can lead to double handling. Smaller trucks also typically offer better visibility from the operator's point of view and may cause less wear and tear to floors than larger, heavier units.

The sort of truck you ultimately employ will obviously depend on the precise nature of the handling application, of course, not least on whether the truck will be used for horizontal or vertical movements, or a combination of the two – there's not really much point in using a reach truck if it's just to move pallets along the floor and a pedestrian powered pallet truck alone doesn't do much good if you need to lift a load up to waist height once you get it to the line.

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You also need to bear in mind the travel distances involved. Pedestrian trucks may be smaller and more manoeuvrable than ride-on units, but if the job involves constantly whizzing back and forth to a storage facility to fetch fresh supplies every 10 minutes, ride-on units are likely to be the more sensible option. Conversely, if all you are doing is moving a given component three metres further down a production line once every half-hour, neither speed nor operator comfort are likely to be the overriding considerations.

Avoiding safety hazards

One area where lift trucks are potentially at a disadvantage in production environments compared to other, fixed-line handling options

is safety. Unless your production line is fully automated, using lift trucks to keep it supplied with the products it needs or to keep goods moving along the line itself inevitably means bringing trucks into the same area as pedestrians – an especially risky business in the confined areas typically associated with most production lines. Clearly, a proper risk assessment is needed to identify and minimise the potential for accidents.

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There are other safety considerations with lift trucks in production, too, including the risk of the truck contaminating other products in some way – food production lines are among the best examples of this, with oil, grease, tyre rubber or hydraulic fluid from the truck all posing a potentially serious contamination problem. In other production environments, meanwhile, the danger is the other way around, with the production environment itself or substances used in it posing a particular danger to forklifts – high-temperature environments and those involving volatile gases or corrosive chemicals are good examples. There are usually ways around such problems, however, both in terms of the initial truck specification and the way the truck is subsequently serviced and maintained.

Advice on exactly what kind of truck is best suited to any particular operation and on any special maintenance considerations or modifications it may require isn't hard to come by, fortunately. Reputable lift truck dealers will always ask about the use to which you intend to put a lift truck, rather than simply taking your cash, and they will also be able to recommend any necessary truck modifications or maintenance disciplines that should apply. Users can be confident in their advice, too, since no sensible truck supplier will want to supply you with a forklift that doesn't do the job properly or can't stand up to the environment it's going to find itself in – especially if you're contract hiring the machine from them and they're going to be responsible for looking after it and then taking it back at the end of the contract.

Following their advice means that, contrary to first appearances, it's actually both easy and practical to deploy lift trucks on a production line – and to enjoy the massive flexibility the forklift offers in this environment over other production line handling techniques. ■

2. Lift trucks are often employed in production areas to keep lineside storage zones well stocked. (Image courtesy of PSA).
3. In most production environments, space is usually at a premium. (Image copyright Getty Images).

4. Unlike fixed-line handling options, the lift truck can go almost anywhere – a useful feature in many production environments. (Image courtesy of PSA).

