

# Safety door invention prevents IS operator accidents

Rolf Themann\* discusses an IS safety door solution which helps ensure operator safety during the forming process.



▲ GPS's IS machine on display at glasstec 2016.

Interested visitors to glasstec 2016 had the opportunity to see the latest innovations from German IS machine and component manufacturer GPS at its exhibition stand. They were all showcased on a 12-section IS machine that GPS had set up at the exhibition centre in Düsseldorf. The installation of the 40-tonne machine was the most effective way to demonstrate the GPS innovations. The company presented six recently-patented inventions at the trade fair: a gob delivery system, a safety door, a system for automatic mould lubrication, a shear spraying system, a servo Plunger and a deadplate cooling unit. These new subsystems optimise glass production processes and are practical in terms of

how they are mounted and operated, as the trade fair visitors discovered.

## Minimising risk

Working at a glass production plant isn't without its hazards. Despite all the regulations and safety precautions, accidents do occasionally happen, sometimes because employees simply don't abide by the rules. For example, the machine operators aren't permitted to lubricate the blank moulds and cavities of an IS machine while the glass gobs are loaded into the sections. Yet some of them choose to ignore that rule and lubricate without stopping the gob falling into the sections, which sometimes results in burns and injuries. This is possible

because many glass manufacturers still only use conventional covers over the blank moulds and the machine's moving parts. These covers don't provide any protection against objects falling out of the machine, nor do they prevent the operator from accessing the section while the machine is running.

New IS machines have vertical doors that slide up and down to protect the operator and reduce accidents. Many of these doors cannot be replaced or removed quickly. They also take up a comparatively large area in front of the blank moulds and sometimes the distance between the operator and the

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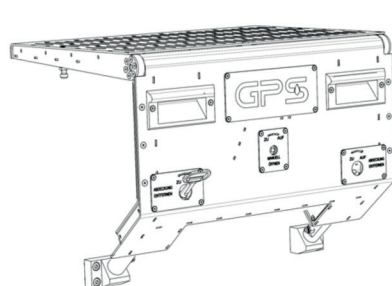
parts and forms is lengthened by several centimetres as a result. This means the machine operator often has to stretch to lubricate and exchange the parts. This increases the strain on their back, makes them more prone to back injury and has a detrimental effect on overall health.

### A smart solution

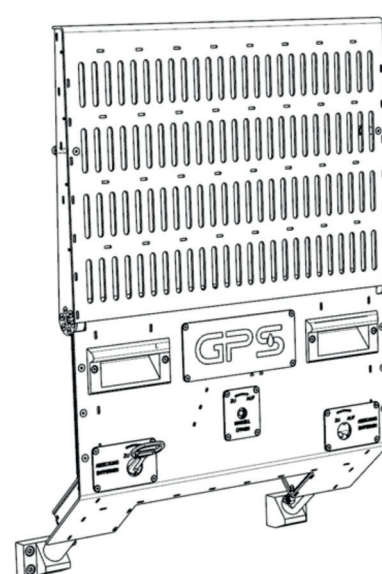
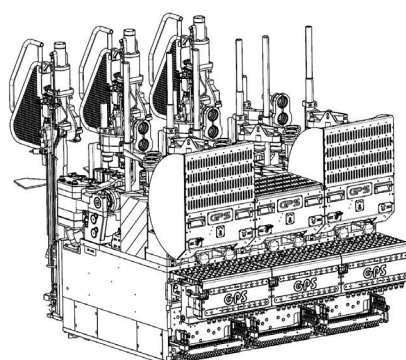
GPS and its safety door innovation solve the problem. The safety door was designed by GPS in Essen, Germany and is mounted in a way that makes it safer, reduces space requirements and improves ergonomics. The lower part of the door is vertically affixed to the section with screws, like today's standard covers, but the upper part is affixed to the lower part with hinges. This makes it possible to gently raise it and close off the section so that the machine operator is protected. Or it can be lowered so that the machine section is accessible for blank mould lubrication or other similar activities. This design reduces the workspace requirements of personnel at the machine. It is also ergonomic because it minimises the risk of overstretching and damaging the back and facilitates smooth workflows.

The GPS safety door combines several advantages. It automatically protects the operator from objects falling out of the section and prevents negligent operation, such as the operator reaching into a section while the machine is running. Yet the safety door takes up no more space than a conventional cover. If the employee wants to lubricate the blank moulds, all he has to do is press a button on the overhead beam to stop the gob loading. This also sends a signal to the machine control unit instructing it to open or rotate down the safety door on the blank mould side. The safety door is fitted with valves for pneumatic operation, so the operator never has to touch it or use physical force to move it. After performing lubrication or other work, the operator can switch on the gob again by pressing the same button on the overhead beam a second time and the glass is fed to the section again. The safety door slides up and blocks direct access to the blank mould side.

If extensive retrofitting or job change of an IS machine is necessary, the safety door is removed in a few steps with a safety key. This provides the machine operator with space to change the mould holders or implement major repairs to an IS machine section. The safety door can

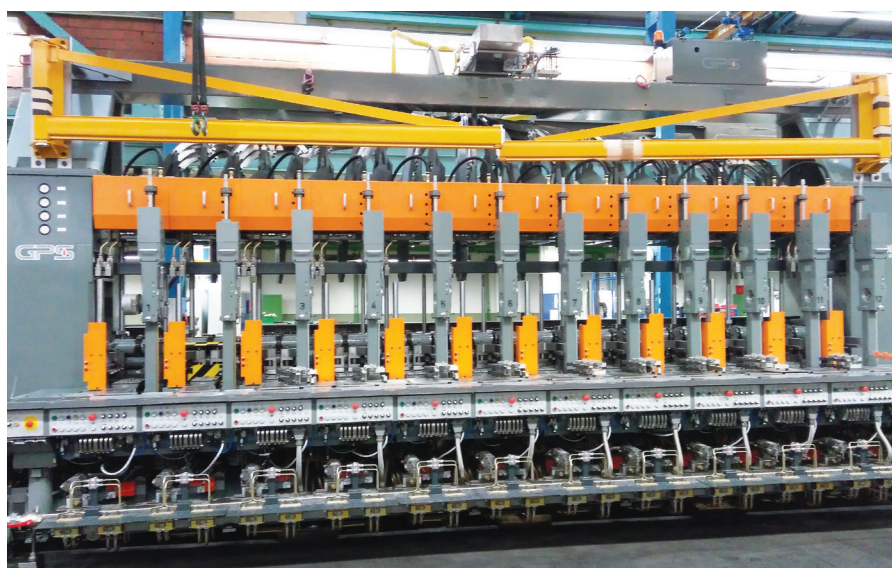


▲ Fig 1. A schematic diagram of a safety door with integrated, hinged top part and manual release for fast removal.



▲ Fig 2. A schematic diagram of the safety door in the closed position. It protects the operator because it is impossible for him to act negligently by reaching into the section.

▲ Fig 3. A schematic diagram of several IS machine sections with open and closed safety doors on the blank mould side.



▲ GPS's 12-section, 40-tonne IS machine.

also be removed with a special key in a Quick Change Lock Out Take Out (LOTO) process.

### Modernisation

GPS's invention demonstrates that high safety standards and optimum accident protection does not necessarily entail major investment. Glass manufacturers with older IS machines can retrofit them with a new safety door. The door is also compatible with many standard models

of other makes. The retrofit is a quick and simple process. It allows the glassworks to prevent practically all accidents on the blank mould side of running machines and makes a key contribution to production machine safety in the container glass industry. ■

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