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Home > Topics > Bioprocessing > In-Plant Logistics Planning Mundane but Critical



Bioprocessing Insights

In-Plant Logistics Planning Mundane but Critical

By Gareth John Macdonald - April 28, 2020 0

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Planning how to move bioprocessing systems in a manufacturing facility is essential, says an industry expert.

Drug firms have always needed to reposition technology on the factory floor. In traditional stainless-steel facilities, equipment is moved for cleaning between each batch, and in modern multi-use plants bioprocessing production rooms are reconfigured between runs.

Despite this in-plant logistics is often only an afterthought during facility design, according to Mark Sitcoske, CEO of single-use technology supplier High Purity New England.

“Investments are being made constantly to innovate equipment, but the mundane task of moving it gets less attention until the equipment hits the floor and someone needs to move



moving it gets less attention until the equipment hits the floor and someone needs to move it," he says. "Establishing a problem at this stage is less than ideal, and quite stressful."

There are also significant cost implications associated with poor logistics planning, adds Sitoske.



"How much does a workplace injury cost? How much is the vessel worth when full of media? How congested are hallways, and would allowing a single person to do the job of a few save time? How much does your column cost? What is the anxiety of balancing an industrial column on a pallet jack and starting to lift?" he continues.

"There are so many potential costs of getting this wrong, and also getting it right. What happens to your suite when reconfiguring is made easy? What if you could park and shuffle five bioprocess containment totes like a valet driver at a sporting event?"

Limitations

Choosing the right technology is key to an effective in-plant logistics plan. For example, a pallet jack is common for containment totes and other palletized materials not on dollies, he explains.

"Pallet jacks are made in stainless and seen in a majority of production plants," Sitoske points out.

"They are limited in maneuverability, and larger equipment is often balanced on the forks. While common, the margin for an accident increases when pallet jacks are used off label. The max load rating on pallet jacks varies by manufacturer."

Another common approach is to attach wheels to bioprocessing systems. Various tugs are available to move wheel mounted equipment, says Sitoske, citing the MasterMover range as an example.

"MasterMover pedestrian tugs take advantage of this secure connection to move immense weight—up to 26,000lbs—in a safe controlled way. The dual accelerator allows the operator to move at a speed they deem safe," he explains. "They are loaded with safety features including an anti-crush button, bleeper, and horn ensures there are no accidental tipping, crashes or bumps. The same force generated to move the equipment acts as a brake as well. Releasing the accelerator will bring the tug and load to a safe and immediate stop. The load does not leave the ground, so anyone can operate it."

Facility knowledge

Logistics planning is particularly critical for multi-product facilities, according to Sitoske.

"The drive to be more flexible, driven by advanced technologies increases the need for rapid reconfiguration, increasing handling demand. Figuring out the 'how we move it' piece before FAT [facility acceptance test] is done will only help a more seamless facility integration," he says, noting that ballroom facilities employing scaleout rather than scaleup strategies are a good example.

"Scaling out instead of up doesn't eliminate media handling issues. Scaling out just means more stuff in a tight space," he continues. "Figuring the fluid alone in a 500L bioreactor weighs over 1000lbs, steering, moving and handling must be an exact science to prevent dings in walls and back injuries."



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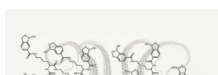
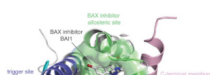
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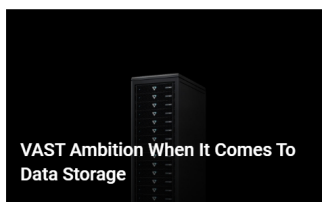
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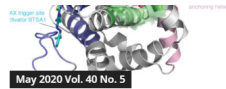
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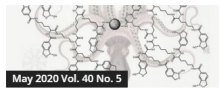
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