



Process Engineering  
Division

Niro Pharma Systems

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# Buck Systems Intermediate Bulk Containers



OSD/800.04

# The Buck IBC

IBCs are widely used within the pharmaceutical manufacturing process as storage, transport and blending vessels. Increasingly, with the introduction of in-container blending, IBCs are being used as process vessels for blending applications

The Buck IBC is more than just a container. With technologies such as the Blending Prism™, the Vibroflow™ discharge device and the world leading Buck® high-containment Split Butterfly Valve, common issues such as difficult to blend materials, poor flowing product, and handling potent materials – all faced by pharmaceutical manufacturers – are met and addressed.

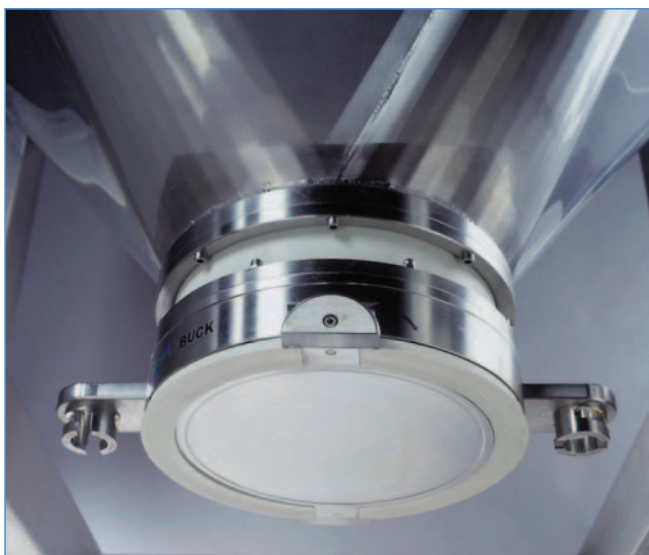
## Quality

The Buck IBC is designed specifically for the Pharmaceutical and Healthcare industries. With product contact parts constructed from 316L stainless steel, a range of finishes are available for the internal and external surfaces of the IBCs. Modern construction techniques ensure accurate manufacturing tolerances are met with repeatable dimensional accuracy.

## Containment Valves

One important feature of the Buck IBC is its world leading High Containment Split Butterfly Valve. The Buck® Docking System is the market leading split butterfly valve, and the 'C' Passive Valve is fitted as standard to the outlet on the Buck IBC. With the 'HC' and the 'TC' Valves offering further improved containment levels, a range of containment valves is available to suit all applications.

The valves can be fitted to the inlet of the IBC for contained filling, or an invertible design of the IBC allows filling through the outlet valve.



For more details on the Buck® Split Butterfly Valve, please refer to the Docking Station datasheet

## Vibroflow™

An important feature of any IBC System is its ability to discharge product from the IBC in a reliable and repeatable manner. In an age where containment of a product and operator safety is of major importance, it is not acceptable for operators to intervene and open the IBC to overcome blockages from the IBC.

The Vibroflow™ was designed to meet these needs. It is now a proven discharge technology, having been thoroughly tested by leading pharmaceutical manufacturers and installed successfully in a number of Primary API plants, as well as Secondary pharmaceutical plants.



The Vibroflow™ is mounted within the IBC between the outlet flange of the IBC and Passive Valve. By applying vibration to the valve, low frequency vibration is applied into the centre of the product bed, destroying the 'Keystone' of the bridging product. The spiral design sends vibrations sideways through the product bed, promoting mass flow of product. The vibration is applied externally from the Active Valve, so there are no working mechanisms within the process flow.

Another benefit of the Vibroflow™ is its ability to overcome the build up of vacuum within the IBC, which can be an issue for larger volume IBCs. The Vibroflow™ allows air to percolate through the powder bed and into the top section of the IBC. This overcomes the build up of vacuum without the need to vent the IBC from the top, which compromises the containment of the IBC.

The Vibroflow™ is a modular design, therefore it only needs to be fitted to IBCs where the process demands it.

## Prism™

The Prism™ has been developed to aid and improve blending of more difficult materials. The Prism™ adds low shear mixing to the rotating IBC, adding to the turbulence of the tumbling product and improving the time to homogeneously blend products.

When the IBC is loaded into the blender, the Prism™ is orientated at right angles to the rotation axis. As the IBC is rotated, the product is divided up by the Prism™, and product is forced outwards to the corners of the IBC.

The Prism™ is of particular benefit in dry blend processes, where IBC Blending is the key process step. For Dry Blending, or Direct Compression products, the powders can be more cohesive and have poorer flow properties. Dry powders take noticeably longer to blend in comparison to free flowing granular materials (for example the dispersion of magnesium stearate into a granulated batch) which blend easily and within a relatively short period of time.

The Prism™ is fully welded into the container body, and can be fully cleaned in place with the Buck Systems' Wash Station.

## Clean in Place

An important feature of any containment system is the prevention of operator intervention. All Buck Systems IBCs are designed to be Cleaned in Place within the Buck Systems Wash Station. The Passive Valves are a hygienic design and are mounted on the inlet and outlet of the IBC in a manner that prevents any ingress of dust. Naturally, both the Prism™ and the Vibroflow™ have been designed to allow full CIP.

## TECHNICAL DETAILS

SIZE	1	2	3	4	5
Footprint (mm)	525 x 620	725 x 840	960 x 1125	1125 x 1325	1350 x 1590
Max Volume (Liters)	150	300	600	2000	3000
Min Volume (Liters)	75	200	400	700	1200
Min Volume <i>Bottle in a Frame</i> (Liters)	25	50	50	100	100
<b>Outlet Valve</b>					
Valve Size (mm)	100	150	200	250	300
Buck 'C' Passive	•	•	•	•	•
Buck 'HC' Passive	o	o	o	o	o
Buck 'TC' Passive	o	o*	o	–	–
<i>*100mm diameter TC Valve</i>					
<b>Inlet</b>					
Manway Size (mm)	300	300	460	460	460
Spun lid with clampband and seal	•	•	•	•	•
Plate lid with hygienic seal and Buck 'C' Passive	o	o	o	o	o
Plate lid with hygienic seal and Buck 'HC' Passive	o	o	o	o	o
<b>Handling</b>					
Pallet Guides	•	•	•	•	•
Blending Clamping Features	–	–	–	o	o
Post Hoist Pick-up Features	•	•	o	o	o
Skid Feet for conveyor handling	–	–	o	o	o
Invertible Design	o	o	o	o	–
<b>Blending</b>					
Prism	o	o	o	o	o
NIR Window	o	o	o	o	o
<b>Discharge</b>					
Vibroflow	o	o	o	o	o
Vibrator Pocket	o	o	o	o	o
<b>Identification</b>					
Card Holder	o	o	o	o	o
Etching	o	o	o	o	o
Barcode Plate	o	o	o	o	o
<b>Container Bottle Internal Finish</b>					
<i>"Natural 2B cold rolled finish (&lt;0.5µm Ra), welds ground back to parent metal and strip polished to a 0.5µm Ra or better finish"</i>	•	•	•	•	•
<i>"Mirror 2P finish (&lt;0.2µm Ra), welds ground back to parent metal and strip polished to a 0.2µm Ra or better finish"</i>	o	o	o	o	o
<i>As above + electropolishing</i>	o	o	o	o	o
<b>Container Bottle External Finish</b>					
<i>"Natural 2B cold rolled finish (&lt;0.5µm Ra), welds as laid, and chemically cleaned and strip polished"</i>	•	•	•	•	•
<i>"Natural 2B cold rolled finish (&lt;0.2µm Ra), welds ground back to parent metal, chemically cleaned and strip polish"</i>	o	o	o	o	o
<i>"Satin brush finish (&lt;0.5µm Ra), welds ground back to parent metal, chemically cleaned and strip polish"</i>	o	o	o	o	o

• standard   o optional   – not available

## TECHNICAL DETAILS

SIZE	1	2	3	4	5
<b>Legs and Base Frame Finish</b>					
0.5 - 1.0 µm Ra	•	•	•	•	•
<b>Materials of Constructions</b>					
Product Contact Areas	BS EN 10088-2 1.4404 (AISI 316L) Stainless Steel				
Non-Product Contact Areas	BS EN 10088-2 1.4301 (AISI 304) Stainless Steel				
Seals and Gaskets	FDA approved EPDM / Silicone				

• standard    ○ optional    – not available

## FEATURES AND BENEFITS CHECKLIST!

- Range of containers from 25L up to 3000L
- 316L Product contact parts
- 304 Non-Product contact parts
- FDA approved seals and gaskets
- < 0.5 RA finish for product contact parts
- Mirror internal finish
- Electro-polished internal finish
- External welds ground flush
- Design for safe and easy handling using low lift pallet trucks
- Buck® 'C' Valve outlet valve
- Optional Buck® 'HC' and 'TC' Outlet Valves
- Spun lid and clampband inlet
- Plate Lid with 'C' and 'HC' Inlet Valves
- Invertible single valve design
- Standard
- Optional
- Vibroflow™ Discharge Technology
- Prism™ Blending Technology
- Nylon non marking feet
- Skid feet for conveyor handling
- Designed to be Cleaned in Place
- Validation Documentation and full material traceability in accordance to GAMP

## Niro Pharma Systems

AEROMATIC  
BUCK  
COLLETTE  
COURTOY  
FIELDER  
NICA  
NIRO

*Niro Pharma Systems unites the technologies of Aeromatic, Buck, Collette, Courtoy, Fielder, Nica and Niro to supply advanced processing solutions for solid dosage forms to the pharmaceutical industry.*

### Buck Systems

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