

## Parvus Pilot Spray Drying Systems

For spray drying operations, KSS provides RELCO® Parvus™ pilot dryer systems for a range of applications. From trial batches and small-scale production, the Parvus pilot spray dryers offer full flexibility to develop powder properties that are scalable and can easily be implemented with other pilot technology or create data to be used for full-scale production planning.

The **Parvus Nomad** spray dryer is a single-stage, small-scale dryer designed for 2 – 10 kg (4 – 22 lb) of water evaporation. This versatile and mobile unit is based off of our RELCO U-Dryer technology in which the concentrate is fed to the top of the dryer into a vertical air distribution system (neck). The drying air enters concurrent to the concentrate and is atomized by nozzles. Powder is discharged in the bottom into a cyclone to separate the fines and final powder product.

The **Parvus Multi-Stage** spray dryer incorporates a wide body design with a high-efficiency cyclone, optional external fluid bed, and optional baghouse collection. Agglomeration is achieved by conveying the fines from the cyclone back to the top of the dryer and passing them through the liquid spray zone. This larger pilot unit, designed for up to 25 kg (55 lb) of water evaporation capacity, is highly customizable with additional features to meet specific customer requirements.

### FEATURES & BENEFITS

- Full flexibility to develop powder properties
- Scalable to full-size production
- Suitable for a variety of applications
- Multiple customizable options
- Pre-assembled for quick and easy commissioning
- Available to rent or purchase
- Designed and constructed to meet hygienic standards with easy cleanability

Parvus Nomad pilot spray dryer



Feature	Parvus™ Nomad	Parvus Multi-Stage
System Footprint	3539mm L x 1628mm W x 3889mm H 11' 5" L x 5' 3" W x 12' 7" H	Base system: 3200mm L x 2300mm W x 8000mm H 10' 5" L x 7' 5" W x 26' H Fully expanded: 6550mm L x 2300mm W x 9073mm H 21' 4" L x 7' 5" W x 29' 7" H
<b>Feed</b>		
Balance tanks for product and water	X	X
Stainless steel dosing pump	X	X
RELCO atomization system with 2 fluid nozzles	X	X
CIP cleaning for nozzle		X
<b>Air Delivery System for Drying</b>		
Stainless steel electric air heater, temperature sensors	X	X
Air filtration system	X	X
Air exhaust fan with frequency inverter	X	X
Air supply fan with frequency inverter		X
Set of ducts and transitions for equipment interconnection	X	X
Set of sanitary and industrial valves	X	X
Set of field instruments i.e. temperature and pressure transmitters	X	X
Hot air duct for drying air intake	X	X
<b>Drying System</b>		
RELCO vertical air distributor "neck" air inlet	X	X
"Neck" cooling ring	X	X
Drying chamber type "U-Tube"	X	X
Drying chamber type "Top Exhaust"		O
Insulation materials	X	X
Inspection door	X	X
Explosion vent		X
Pneumatic vibrators	X	X
External fluid bed		O
Cyclone	X	X
Collection bowls for final powder product	X	X
Exhaust stack	X	X
Fines return system		O
Baghouse (non-CIPable)		O
Skid-mounted	X	X
Product preheater	O	O
MCC + control panel	X	X
<b>Additional</b>		
Deluge system		X
Over pressure venting (OPV)	X	X

X: Included, O: Optional



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