S2 ENGINEERING SERVICES

RCVD solutions

rotary cone vacuum dryers

Design Features

Single or Double pedestal
Up to 5,000 Litre capacity
Direct hollow shaft drive mechanism
Fully automated operation to cGAMP

Operational Benefits

Minimum attrition of product media
Highly efficient low temperature drying
Easy charging, discharging and cleaning
Practical solvent recovery

STANDARD SG GROUP

Turnkey Process Equipment Solutions for demanding industry sectors:

Pharmaceutical | Bulk Drugs | Chemical | Food | Beverage | Nuclear | Petrochemical
API | Biotechnologies | Agrochemicals | Fine Chemicals | Life Sciences | Healthcare

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Our RCVD Technology

S2 Engineering provide full turnkey solutions for Rotary Cone Vacuum Dryers (RCVD's) from design and manufacture to assembly, installation and commissioning. Our solutions provide equipment versatility and space saving benefits which reduce a plants capital and operating costs.

The S2 Engineering Rotary Cone Vacuum Dryer (RCVD) is completely jacketed for optimum dryer efficiency. Heat transfer fluid, typically hot water, steam or vapour, is circulated around the conical jacket for even product drying through conduction. S2 can supply the Thermal Control Unit for this purpose, where required (see supply options overleaf).

As the dryer rotates, given the shape of the vessel, the entire product batch is thoroughly mixed and high speed dried. This blending and inter-folding process maintains uniform temperatures and eliminates any probability of product re-condensation due to cold spots.

S2 then use a high vacuum to draw off any remaining moisture while the product is in motion and thereafter the batch is easily discharged and cleaned given the conical shape of the vessel.

RCVD's provide a range of operational benefits making them an ideal dryer for batch production in small laboratories or research and development plants. Industry sectors which use S2 Engineering RCVD's include;

- Pharmaceuticals,
- Dyes/dye intermediates,
- Inorganic chemicals,
- Temperature sensitive materials,
- Plastics,
- Agrochemicals,
- Organic chemicals

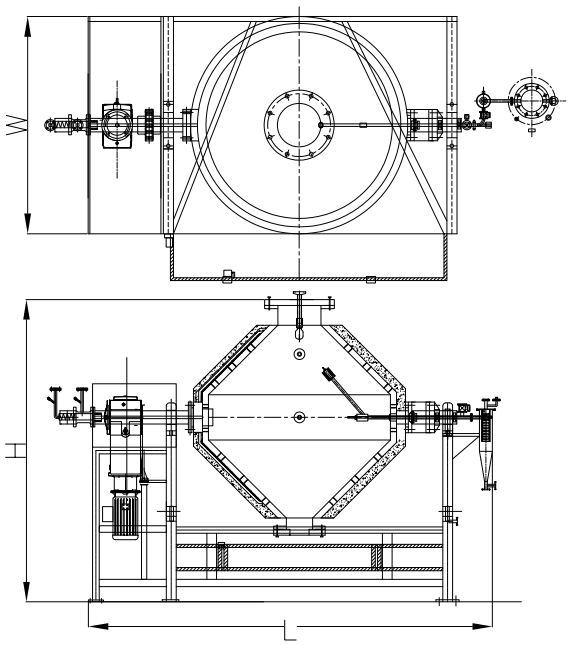
Client Value-Adding Benefits

Design Feature	Customer Benefit
1. cGMP & cGAMP equipment design and construction	• Thorough equipment cleaning; clean/steam/wash in place (CIP/SIP/WIP)
2. Highly efficient drying with integrated heating system	• Gentle, efficient drying is ideal for sensitive powders/products
3. PLC control based automation	• Full operational versatility: ideal for multi-product, batch production plants
4. Modular powder transfer systems (charging / discharging)	• Provides more reliable and safe material handling solution.
5. Integrated Barrier Isolator discharge system for solvent recovery system in a controlled operator safe environment	• Turnkey solution from single source supplier facilitates the smooth operation of all technologies in synergy which results in improved productivity & efficiency.

S2 RCVD Dimensional Data

MODEL NO:	GROSS VOLUME (Ltrs)	WORKING VOLUME (Ltrs)	OVERALL DIMENSIONS (Ltrs)			Motor HP	APPROX. WEIGHT (Kg's)
			L	W	H		
S2E-RCVD-100	100	60	1400	1250	1800	2	750
S2E-RCVD-200	200	120	1750	1500	1900	3	1100
S2E-RCVD-300	300	180	1750	1500	2100	3	1300
S2E-RCVD-500	500	300	2200	1750	2100	5	1400
S2E-RCVD-1000	1000	600	3400	2100	2600	7.5	2250
S2E-RCVD-1500	1500	900	3400	2100	2575	7.5	2800
S2E-RCVD-2000	2000	1200	3800	2300	2850	10	3500
S2E-RCVD-3000	3000	1800	4550	2300	3000	10	4300
S2E-RCVD-5000	5000	3000	5000	2500	3500	15	5500

All sizes in (mm). We reserve the right to change the specifications at any time. If in Doubt, please ask.



S2 RCVD Technical Data

- **Design:** ASME Sec.VIII, Division-I, Latest Edition.
- **Construction:** cGMP & cGAMP
- **Main Dimensions:** See size chart above. Bespoke designs are made to suit specific client applications
- **Flange Drilling:** ANSI - B 16.6, #150
- **Capacity:** Typically supplied to 5,000 Litres although larger models can be designed to suit client requirements.
- **Operating Pressure:** 0-6 barg (0-90 psig)
- **Operating Temperature:** up to 200 Deg C (390 Deg F)
- **Filtration:** n/a
- **Standard Configuration:** Single Pedestal: 300 - 1,000 Litres, Double Pedestal: 1,000 - 5,000 Litres
- **Material of Construction:** 316L Stainless Steel is the default supply standard. Optional materials include SS 316 Ti, SS 904L, Duplex, Titanium and Alloy C22.

High chemical resistant coatings can be applied on the wetted components of the S2 RCVD. Options include Glass Lining (Enamel) and Stancoat. Please see our website for full details.

S2 Engineering RCVD: 2,000 Litres, 316 S/S in Double Pedestal configuration with integral interlocked safety guarding

S2 RCVD Supply Options

S2's RCVD range is designed around a modular concept therefore can be easily customised to suit specific client application requirements. Some of the more standardised supply options are listed below;

Cone Design
- Asymmetric cone design

Pedestal Design
- Single Pedestal – Cantilever design (space saving)
- Double Pedestal – Full shaft support (preferred)

Agitation Design
- Agitator bars for high intensity mixing

Instrumentation & Electrics
- Full instrumentation pack for control room operation
- Load cells for in-cycle material weighing before discharge of product
- Variable speed drive electric motor for reduced equipment energy consumption and “ramp-in / gentle” mix startup

Solvent Recovery System
- The S2 Solvent recovery system comprises of a Condenser, at least one Receiver and a vacuum system

Supporting Systems
- Standalone Thermal Control Unit (TCU) to manage and supply the thermal heating and cooling fluid for the heating jacket (where plant services is not available)
- Operator gantry and staircase
- Material loading / Vacuum transfer charging system (Material Handling)
- Standalone Hot Water Washing Systems - CIP, SIP, WIP
- Controlled / automatic discharge system.

Safety & Regulatory Compliance
- ATEX rated (explosion proof) electrics to any standard
- Bespoke guarding systems & laser beam guarding
- Integral Charge / Discharge Barrier Isolator fully enclosing the equipment with operator 1/2 Suit Internal access
- CE and PED compliance (for European shipments)

For bespoke RCVD supply configuration, please contact our technical sales support team.

Above: Single Fluid Heating & Cooling System to accurately manage the temperature of the RCVD jacket.

Left: Asymmetric rotary cone design

Above: Operator 1/2 Suit Barrier Isolator (internal working) where the dryer equipment is fully enclosed

ENGINEERING SERVICES

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