



Drying of Blood Hemoglobin & Plasma

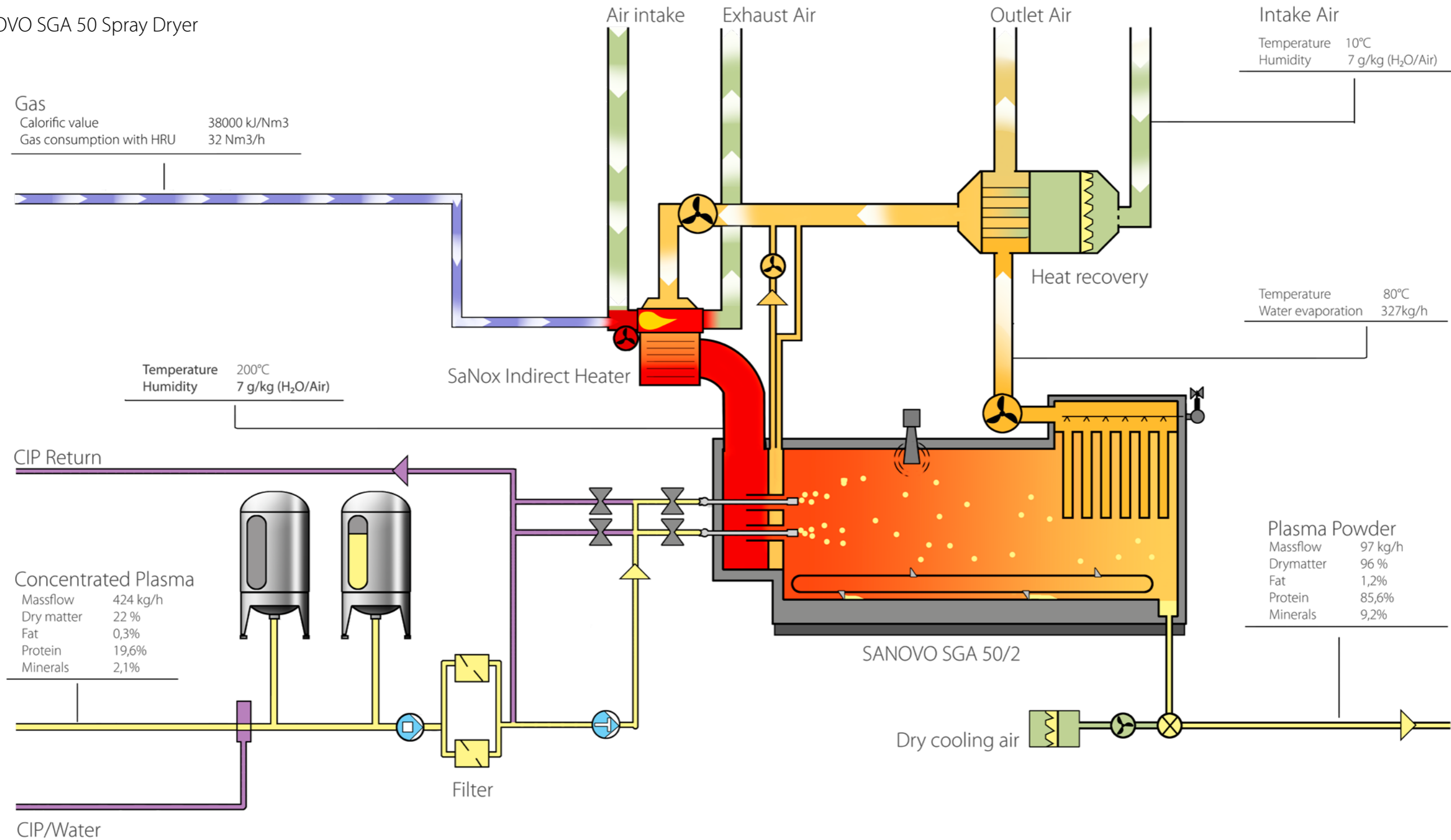
SANOVO Spray Dryer technology combines
high performance with gentle air drying
for your benefit

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Mass Balance Blood Plasma

Example SANOVO SGA 50 Spray Dryer



Capacity Spray Dryers

SANOVO Dryer	Max slaughter house volume*	Typical slaughter house volume**	Max feed kg / hour	Max evaporated water kg / hour	Powder out kg / hour	Gas consumption Nm ³ / hour	Consumption Electric load, kW
	Number of pigs/hour	Number of pigs/hour					
SGA 25/1	312	250	214	165	49	17	18
SGA 50/2	635	550	435	335	100	33	30
SGA 100/4	1.300	1.100	890	686	204	66	93
SGA 225/9	2.970	2.600	2.035	1.568	466	148	130
SGA 300/12	3.960	3.500	2.713	2.091	622	198	156

*3,2 kg blood/pig and 22 % dry matter in concentrate.

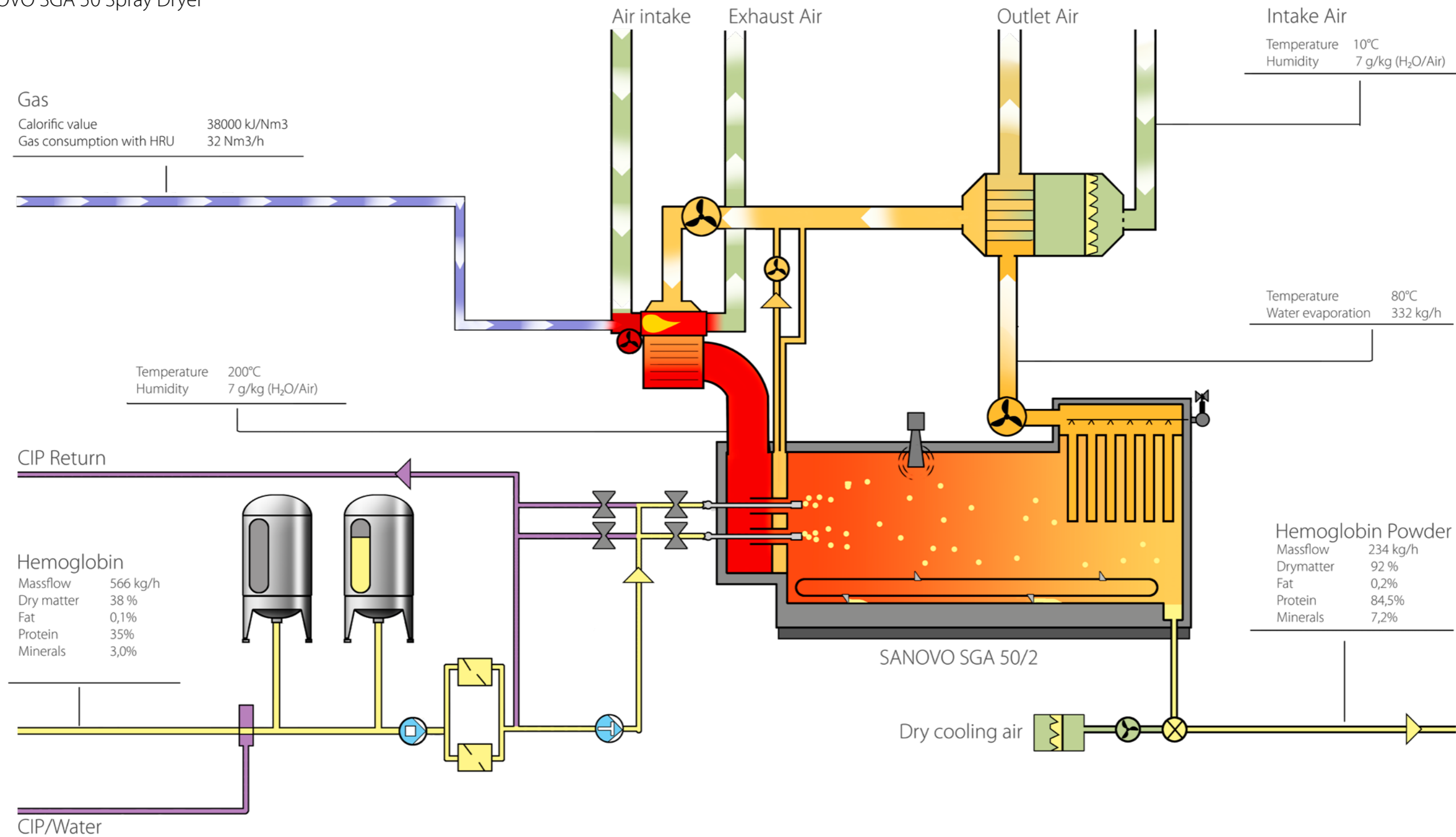
** Number of pigs to match typical blood processing lines from Alfa Laval. To secure proper operation the plasma must be buffered up in a storage tank.

Data dryer settings (typical values)

Feed temperature: 5 °C
 Inlet air temperature: 200 °C and Humidity: 7 g/kg
 Outlet air relative humidity: 16 % RH and Temperature: 80 °C
 Altitude meter above sea: 200
 Burner: indirect SANOX

Mass Balance Hemoglobin

Example SANOVO SGA 50 Spray Dryer



Capacity Spray Dryers

SANOVO Dryer	Max slaughter house volume* Number of pigs/hour	Max feed kg / hour	Max evaporated water kg / hour	Powder out kg / hour	Gas consumption Nm ³ / hour With heat recovery	Consumption Electric load, kW
SGA 25/1	217	278	163	115	17	18
SGA 50/2	442	566	332	234	33	30
SGA 100/4	905	1.156	679	477	66	93
SGA 225/9	2.068	2.643	1.551	1.092	148	130
SGA 300/12	2.758	3.525	2.092	1.456	198	156

*3,2 kg blood/pig and 38% dry matter in concentrate. To secure proper operation the hemoglobin must be buffered up in a storage tank.

Data dryer settings (typical values)

Feed temperature: 5 °C
 Inlet air temperature: 200 °C and Humidity: 7 g/kg
 Outlet air relative humidity: 16 % RH and Temperature: 80 °C
 Altitude meter above sea: 200
 Burner: indirect SANOX

The SANOVO Gentle Air Spray Dryer

Everything in a Box

The Spray Dryer is designed for a wide range of food products and to produce high quality powders at lowest energy consumption.

The technology is characterized by an improved insulation, hygienic design, simple operation and long running time between cleanings.



Easy start-up and shut down with automatic nozzle control

Automatic nozzle control for start-up / shut down and supervision during operation can be supplied.

Nozzles stems are easy accessible and CIP cleaned in a close loop and can individually be changed/cleaned without interrupting the operation of the dryer.

SANOx indirect heating

Drying air is completely separated from process air in a special designed combustion chamber. This system has 98% heat efficiency compared to direct heating based on natural gas, oil or bio fuel firing.

Low heat loss with sandwich panels

Drying chamber is constructed in a rigid seamless stainless steel sandwich construction with 80 mm / 3.2 inch injected polyurethane foam insulating 2 times better than mineral wool reducing the heat loss.

The drying chamber construction is fastened in one side with a sliding construction which facilitates heat expansion and avoid heat stress.

Minimum powder loss integrated bag filter

Easy and fast change of product without lifting equipment from the top of the drying chamber when changing product or cleaning.

No external powder conveying ducts as the bag filter is integrated in the drying chamber. This minimizes the loss of product and comply with global environmental standards for emissions.

Optimized nozzle geometry

Optimized air flow in the drying chamber ensures a minimum powder build up on walls.

Heat Recovery

Significant saving in the energy consumption obtained by pre-heating of the in-take air by the hot exhaust air from the drying chamber in high efficient tube heat exchanger.

Superior drying condition by unique designed plenum

Process air is distributed through a unique designed plenum for constant air flow over the individual spray nozzles.

Wall (orifice plate) between plenum and drying chamber is cooled with temperate air to minimize scorched (discoloring) particles and solubility or sediment problems.

ATEX Certification

ATEX is the abbreviation for Explosive Atmosphere. As dust can cause explosion at the right conditions, protective systems are a requirement for Spray Dryers. We work according to the EU directive 2014/34.

As the dust filled atmosphere inside the Dryer continuously is explosive and thereby classified as Zone 20 each Spray Dryer is type approved and is supplied with an EU Type Examination certificate according to ATEX directive 2014/34/EC classified for dust group IIIB.

To secure full and constant compliance, SANOVO TECHNOLOGY GROUP is certified according to the ISO 9001/2015 standard and ISO/ EN 80079-34 – Explosive atmospheres, Application of quality management systems for equipment manufacture.

Outside the Box Dryer, there are areas where occasionally dust appears, and these are therefore classified as Zone 22. Only equipment suitable for zone 22 is mounted in these areas.

When presented with a powder product with unknown characteristics by a customer, we can test and determine the explosion characteristics and thereby the safety level needed. By limiting the maximum temperature and other surveillance measures, SANOVO TECHNOLOGY PROCESS keeps staff and the dryer safe during operation.

Dust layers inside the Dryer are minimized by applying our Sonic horn.

Another attribute increasing safety is automatic isolation of the Spray Dryer from any following powder handling system if an explosion should occur. Rotary valves and Quench valves between interconnected vessels effectively isolate the Spray Dryer securing any explosion spreading and limit any damage to adjacent equipment.

The dryer may only be used according to the manufacturer's specifications for the actual dryer. Each dryer is optimised for the actual explosion safety data for the specified powder.

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A global player but close to you

With service and support from the people who know your equipment the best, you can enjoy peace of mind. Our dedicated, worldwide service personnel are always within easy reach and ready to help solve your problems.

The SANOVO Service Team is set up to support you and your organization with technical knowledge in order for you to maximize performance and efficiency.

We offer you:

- Quality spare parts
- On-site services
- Upgraded solutions to improve performance
- Personal log-in to your own Webshop account
- Technical phone support

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