Features of the Solidaire processing system

- Thin Layer Processing
- High Heat Transfer Coefficient
- Maximum Drying Efficiency
- Product Versatility
- Application Versatility
- Wide Residence Time Range
- Mechanical Simplicity

Products processed

Polymers

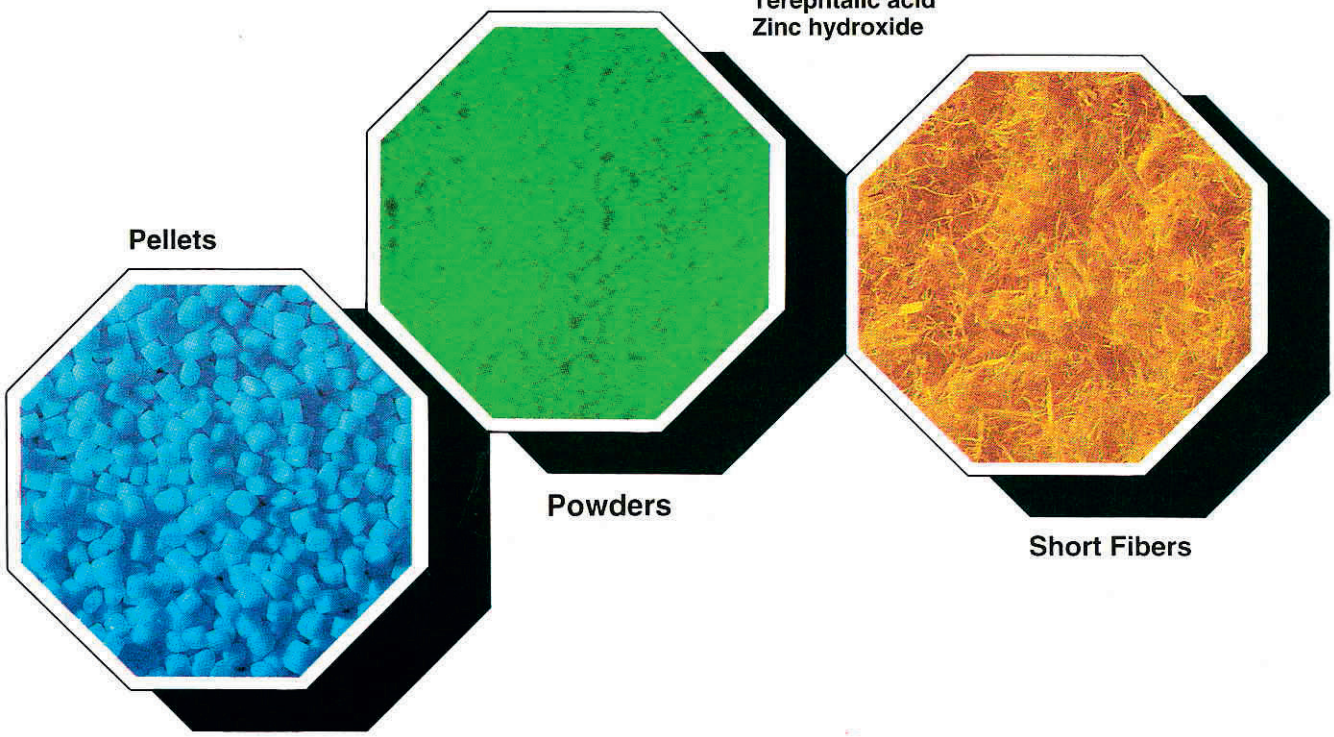
ABS
Acetal resin
Butadiene styrene latex
Cellulose acetate
Carboxymethylcellulose
Polycarbonate
Polyester
Polyethylene
Polypropylene
Polyvinyl acetate
Polyvinyl chloride

Chemicals

Acids, organic
Agricultural chemicals
Ammonium diurinate
Ammonium nitrate
Charcoal
Detergent intermediates
Diatomaceous earth
Gypsum
Isophtalic acid
Magnesium dioxide
Magnesium phosphate
Terephtalic acid
Zinc hydroxide

Food and Pharmaceuticals

Artificial sweeteners
Coagulated blood
Coffee grounds
Fish protein
Food mixes
Food seasonings
Grain products
Starch products
Tobacco
Vitamins



Process Technologies for Tomorrow

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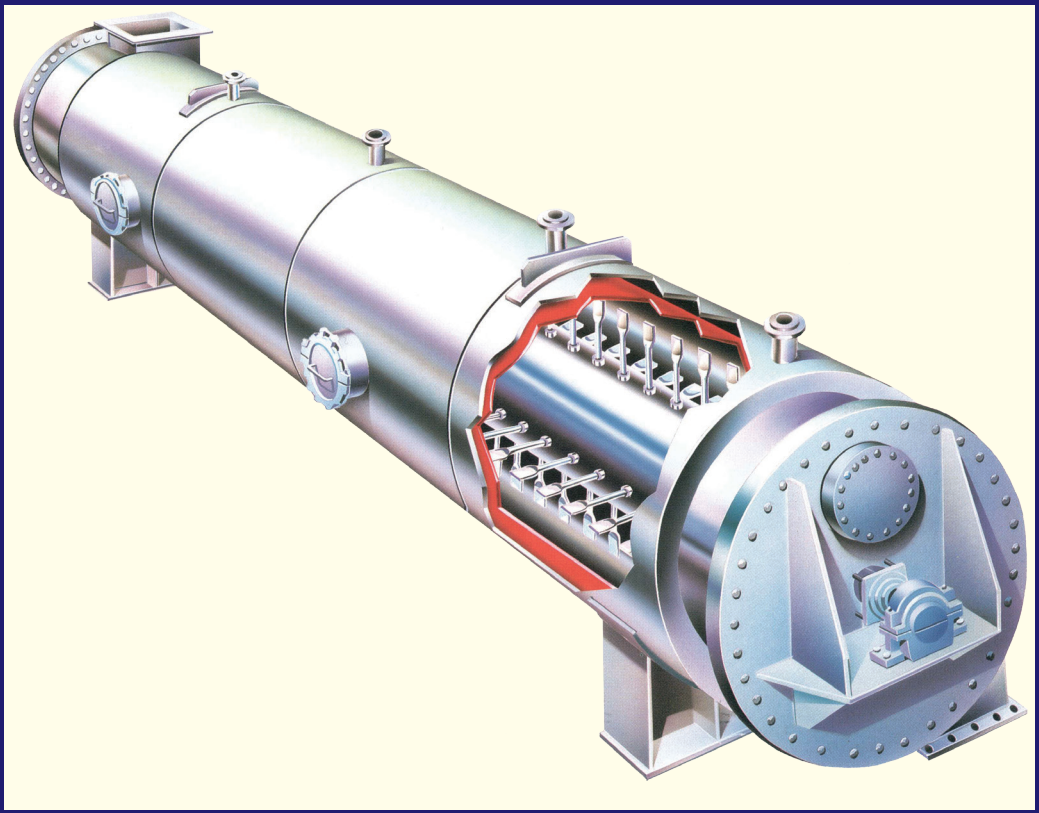
4th. Aug 19, 2016 (Made by HOSOKAWA MICRON CORP.)

HOSOKAWA/MICRON
Solidaire SJ



Process Technologies for Tomorrow

HOSOKAWA MICRON CORPORATION

Solidaire drying system with indirect and direct heat exchange

The Bepex Solidaire is a highly versatile rotor and paddle design for use in continuous drying, heating, cooling, reacting and crystallizing applications. The unit is capable of high heat transfer, high agitation and adjustable short-to-medium residence times. Free-flowing solids, slurries and gels can all be processed using the Solidaire, as well as wet cakes from filters and centrifuges. Even heat-sensitive materials can be dried.

The basic unit

Essentially, the Solidaire consists of a horizontal mechanical agitator rotating wthin a cylindrical housing. The housing is equipped with a heat transfer jacket which may be constructed for steam or liquid heat transfer media. Jacket operating pressures up to 10,5 bar (g) (150 psig) are typical. The housing can be designed to operate above or below atmospheric pressure. Attached to the agitator are a large number of narrow, flat, adjustable-pitch paddles which sweep close to the inner surface of the cylindrical housing. Paddle arrangement and agitator tip speed combine to move material in a thin, annular spiral from inlet to discharge along the housing's inner shell. The result-maximum heat transfer efficiency.

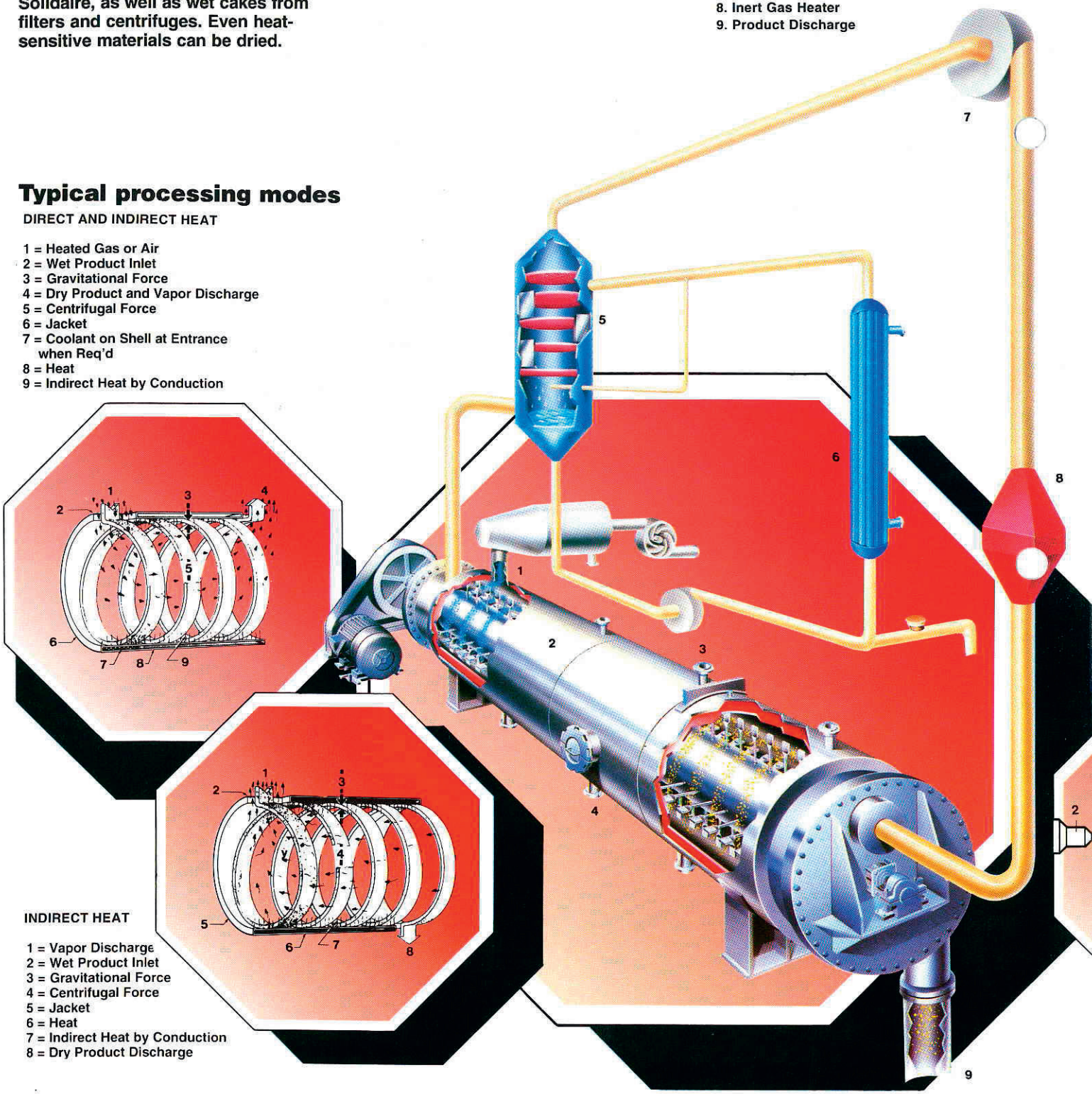
Solidaire drying system for evaporation of solvents with indirect heat and inert gas recycle.

1. Feed inlet
2. Solidaire Dryer
3. Heating Media In
4. Heating Media Out
5. Scrubber Condenser
6. Pump-around Cooler
7. Recirculating Fan
8. Inert Gas Heater
9. Product Discharge

Typical processing modes

DIRECT AND INDIRECT HEAT

1 = Heated Gas or Air
2 = Wet Product Inlet
3 = Gravitational Force
4 = Dry Product and Vapor Discharge
5 = Centrifugal Force
6 = Jacket
7 = Coolant on Shell at Entrance when Req'd
8 = Heat
9 = Indirect Heat by Conduction



INDIRECT HEAT

1 = Vapor Discharge
2 = Wet Product Inlet
3 = Gravitational Force
4 = Centrifugal Force
5 = Jacket
6 = Heat
7 = Indirect Heat by Conduction
8 = Dry Product Discharge

Wide residence time range/high heat transfer coefficients

Residence times in the Solidaire can be varied from seconds to approximately 20 minutes by adjusting paddle pitch or by changing rotor speed.

High paddle tip speed (10-20 m/sec) creates turbulence in a thin material layer, breaking up agglomerates and continually exposing new surfaces. Increased heat and mass transfer are the result, with heat transfer coefficients on the order of 100-500 Kcal/m2/hr/°C."

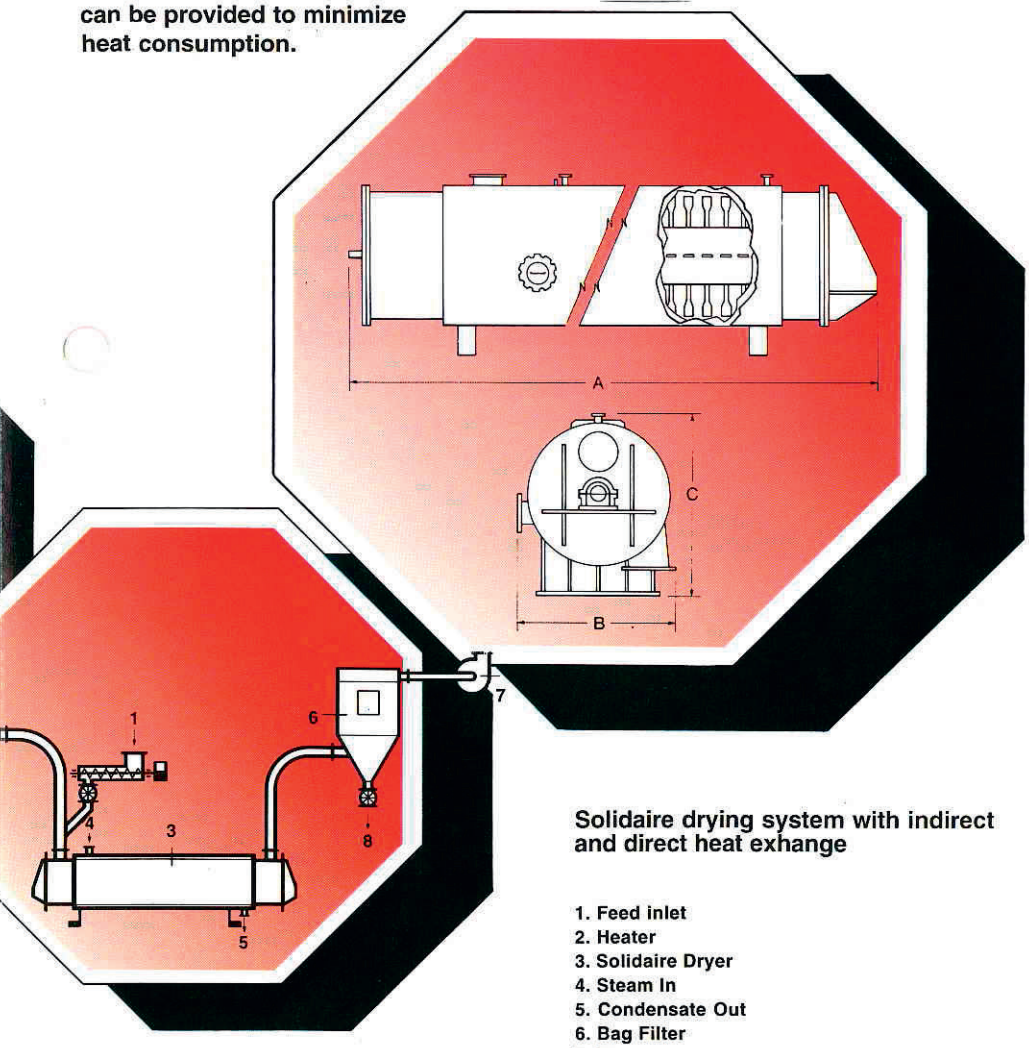
Three operating modes

The Solidaire operates in three basic heat-source modes. Heat can be transferred indirectly through the cylindrical housing wall by conduction, or direct heat transfer can be achieved by convection, using a gas flow as the heat source. Various combinations of direct and indirect heat provide a third method. Either indirect heat or a combination of direct and indirect heat can be provided to minimize heat consumption.

Specifications Solidaire®

Model no.	Jacket area	Cross section area	kW		rpm		Approximate dimensions in mm		
Ø - L	m²	m²	min.	max.	min.	max.	A	B	C
200- 1.25	0.7	0.03	2.2	4	350	1520	2700	350	450
250- 1.80	1.4	0.04	3.0	7.5	400	1050	2900	400	500
400- 3.00	3.7	0.10	5.0	11	250	660	4200	550	700
630- 3.15	6.4	0.21	7.5	37	170	460	4900	1000	1000
630- 4.00	7.8	0.21	7.5	37	170	460	5800	1000	1000
630- 5.00	9.1	0.21	7.5	37	170	460	6800	1000	1000
800- 4.00	9.7	0.36	11.0	55	144	360	5800	1250	1200
800- 5.00	11.1	0.36	11.0	55	144	360	6800	1250	1200
800- 6.30	13.9	0.36	11.0	55	144	360	8100	1250	1200
1000- 5.00	13.4	0.52	15.0	75	130	310	7000	1500	1540
1000- 6.00	16.1	0.52	15.0	75	130	310	8000	1500	1450
1000- 7.10	19.0	0.52	15.0	75	130	310	9100	1500	1450
1120- 5.00	15.8	0.68	22.0	75	100	280	7000	1600	1550
1120- 6.00	19.0	0.68	22.0	75	100	280	8000	1600	1550
1120- 8.00	25.2	0.68	22.0	75	100	280	10000	1600	1550
1250- 9.00	34.0	0.71	22.0	90	100	260	11300	1700	1700
1400-10.00	43.0	0.93	30.0	110	90	240	13000	1850	1900
1600-11.20	54.0	1.18	45.0	132	75	200	14000	2000	2100
1800-11.20	66.0	1.70	45.0	160	65	175	14000	2300	2400
1800-14.00	78.0	1.70	45.0	160	65	175	16200	2300	2400
2240-15.00	107.0	2.30	55.0	200	50	100	17700	2600	2700

Note: Based on carbon steel construction and 5 bar (g) design rotor and jacket.
Figures may vary slightly for other materials and design pressures.



Solidaire drying system with indirect and direct heat exhange

1. Feed inlet
2. Heater
3. Solidaire Dryer
4. Steam In
5. Condensate Out
6. Bag Filter
7. Fan
8. Product Discharge

Mechanical simplicity

With fixed heat transfer surfaces and outboard bearings and seals, the Solidaire requires minimal maintenance when compared to other indirect dryers.

Optional configurations

Depending upon your individual needs, we can help you set up a variety of processing arrangements using various combinations of heaters, condensers, cooling systems, fans and filters. To determine the Solidaire configuration best suited for your particular product, we maintain test units at our laboratory to test heat transfer and drying characteristics. These characteristics, together with other influencing factors, are evaluated to ascertain the required system for your product. We also have rental units available for pilot testing at customer plants.