Bliss OP><FLO™ **Air Cooler**

The “Simple Excellence” of the OP><FLO™ Air Cooler is in its highly efficient design, which produces a uniformly cooled product with a low operating and installation cost compared to other conventional type coolers.



The circular solution to counterflow cooling

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OP><FLO™ Air Cooler **Theory**

Circular design allows for uniform cooling.



Simple Excellence

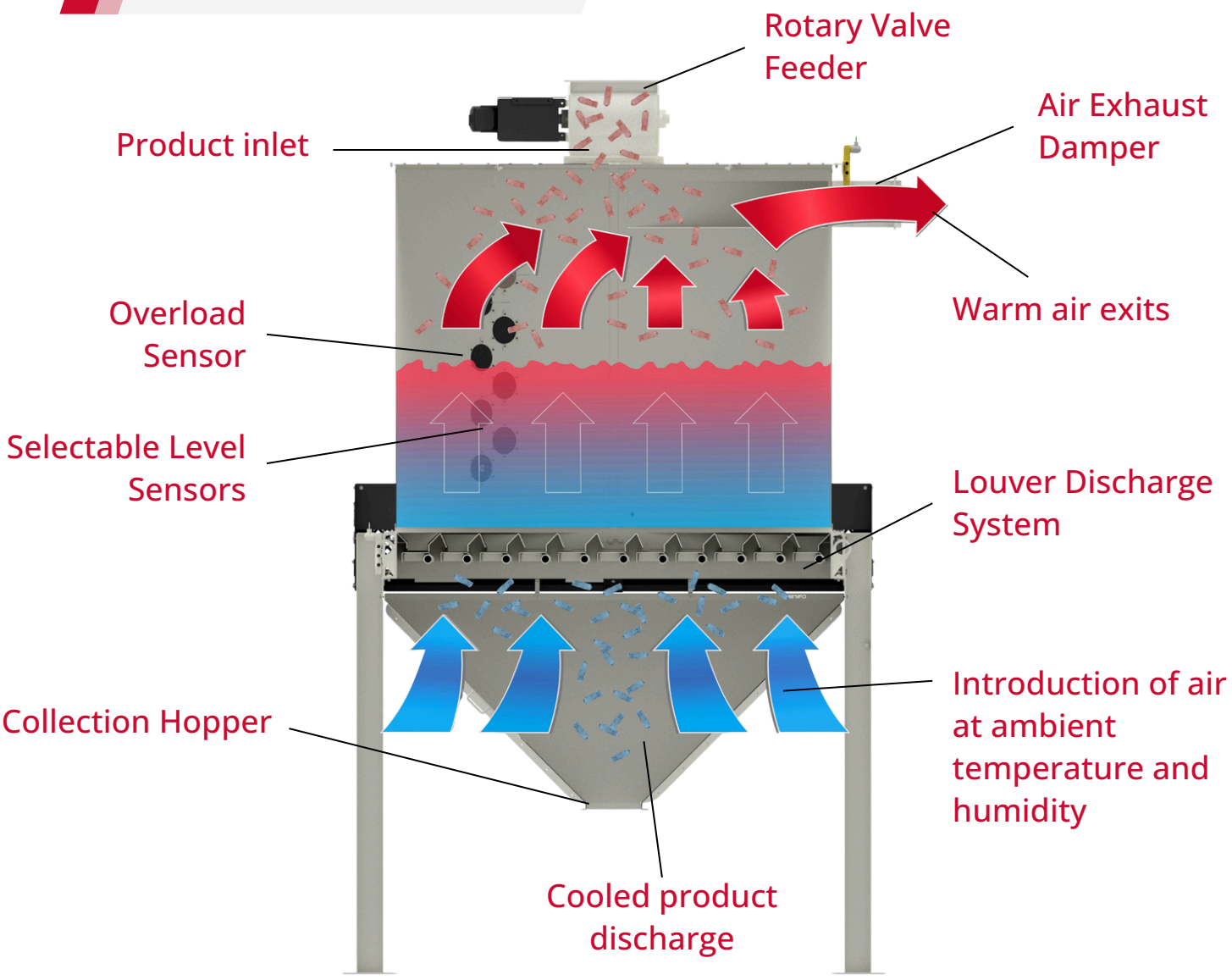
Bliss Coolers are available in our field-proven circular cooling chamber design, the industry's leading technology. The circular design enables product to be evenly distributed throughout the unit, increasing cooling uniformity. The round design eliminates all poorly filled corners. A distinct advantage of this cooling process is the compact “footprint”, or base size. Most system installations encounter limited space situations and the minimal “footprint” with the OP><FLO™ Air Cooler provide invaluable versatility in system design.

The Op-Flo Principle

The Op-Flo (Opposite Flow) or Counterflow process is the refined technology of exposing processed product to an upward moving stream of ambient airflow. As the air rises through the product, it is warmed, increasing the moisture carrying capability of the air. The product just entering at the top of the cooling chamber is exposed to the warmest air available within the cooler—minimizing temperature shock. The product exiting the bottom of the unit is cooled to within 5-10° of the ambient air temperature. The product and air have “opposite flows”. The gradual heat transfer greatly enhances the product quality and reduces stressing and fines.

OP><FLO™ Air Cooler **Theory**

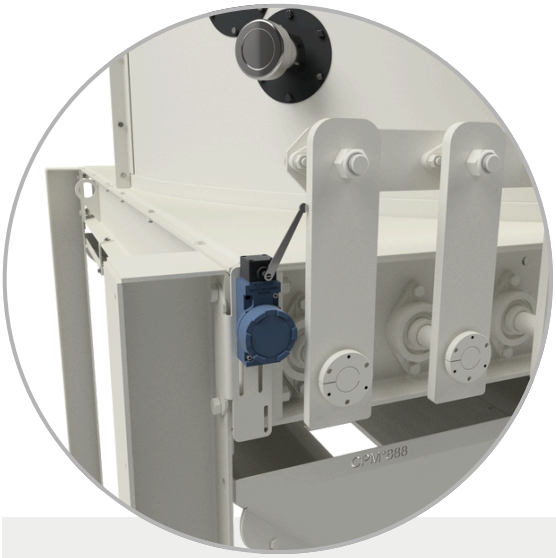
PARTS & AIRFLOW

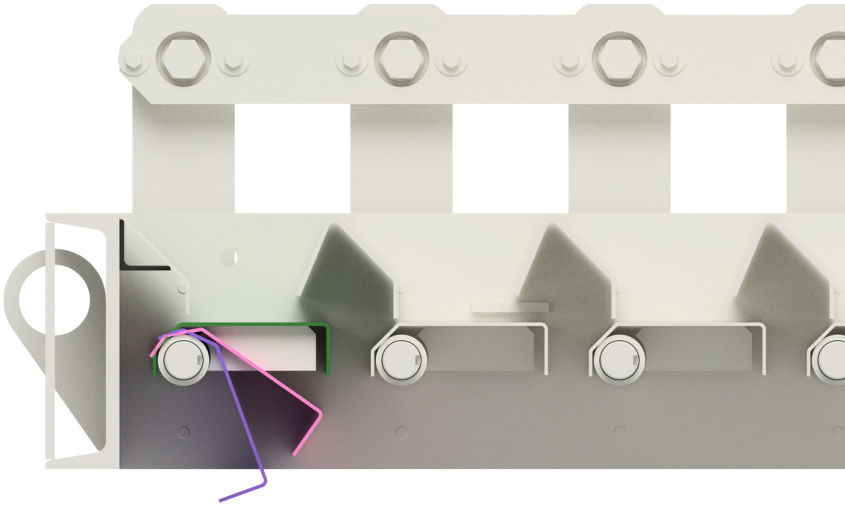


Electric and Air Operated

The OP><FLO™ Air Cooler can be used in a number of product applications, including the following: pet food, fish food, livestock feed pellets, soy collets, meat and bone meal, wood pellets, plastic, dried fruit, berries and flaked grains. The Dryer/Cooler is used in applications requiring high moisture removal. Products differ in size and shape from granular meals to pellets and chips.

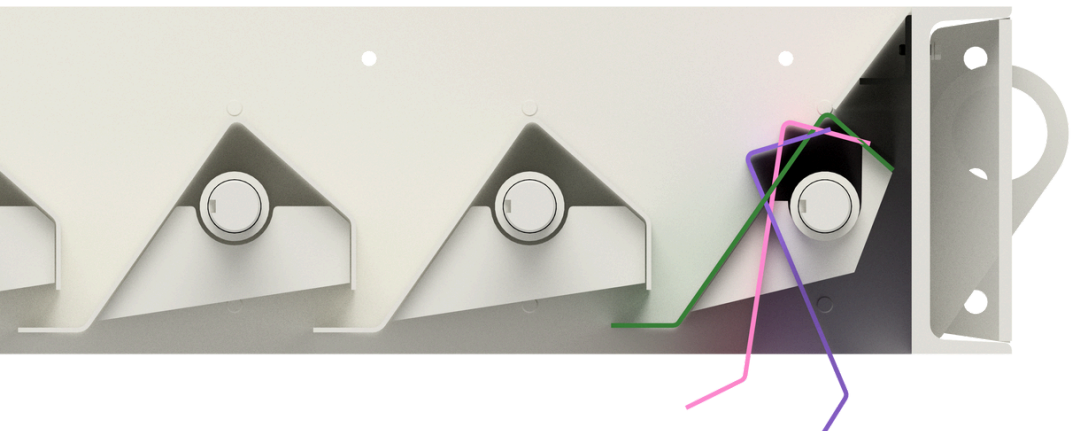
OP><FLO™ Air Cooler **Quality Features**





Louver Discharge System and Fixed Grid Floor

Our Fixed Grid Floor resembles an upside-down “V”. This design carries the weight more efficiently than a horizontal surface. There is little to no weight bearing on the louvers. The louvers resemble a pivoting stairstep that allows product to flow when closed. The discharge system works equally well on 1/8" diameter pellets as it does on 1" diameter x 4" long cubes. The design also allows for complete clean-out at the end of a production run. Once the product leaves the fixed grid floor it flows through a single layer of moveable panels controlling the discharge. Louvers pivot on heavy-duty re-greaseable bearing powered by air cylinders or electric motors.



Full or live action discharge floors available.





Selectable Level Sensors

Bliss Coolers feature automated level sensors that activate when the bed level reaches the preselected depth. Once activated, the sensors operate the louvers allowing product to be released. A “fail-safe” detector is permanently mounted near the top of the cooler for prevention of an overflow if sensors are not set properly.

Optional Air Damper at Cooler Exhaust

The Air Damper is operated by a level sensor in the cooling chamber. The damper is in the closed position at the start and the end of a production run. This keeps the full air flow from shocking, stressing and degrading the product. Also, it allows for complete product clean out.



OP><FLO™ Air Cooler **Summary**



Simple Excellence — Simply Stated

- Low operating cost (50% energy savings)
- Low maintenance
- Low product degradation
- Low condensation in cooling chamber
- Minimal space requirement (per ton of capacity)
- Minimal contamination — total cleanout on louver discharge system
- Low electrical requirement
- 1 HP — S.S. feeder
- 2 HP Leveler
- 1/2 HP or 3/4 HP — Louver discharge system
- Electric and air-operated units available
- Low product shock — stress (tempered evaporation cooling)
- Low profile discharge systems available (custom fabricated to customer's requirements)
- Electric control panels available for operational control and measurement of a wide variety of variables
- Minimal "caking" of sticky product at start-up
- Cooling/drying many products efficiently
- Flow rates adjustable from control room
- Multiple product sizes adjustable from control room
- Multiple sensors for multiple sizes of product
- Rotary valve feeder helps control air distribution
- Proven field testing ensures proper sizing of your cooler
- Capacities 1-105 TPH available
- Low investment and installation cost
- Minimal working parts
- Cooler/dryer units available

OP><FLO™ Air Cooler **Features**



Conveniently located door provides excellent access to interior.

Circular design provides unmatched cooling consistency utilizing 30 to 60 inch product bed depth.



Compact footprint or base sizes are ideal for limited space installations.

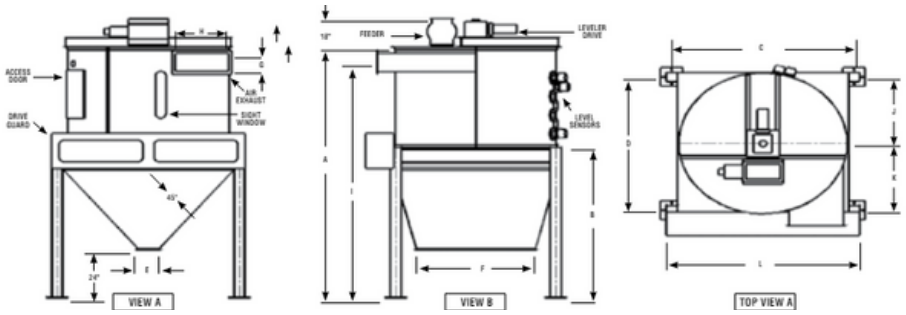
Heavy-duty fixed grid floor is the field proven low maintenance solution. Full or live action discharge floors available.



Rotary valve feeding system and product leveler provide even product distribution for a uniform bed depth.

Sightglass and optional light conveniently located for internal inspection of cooler.

OP><FLO™ Air Cooler **Specifications**



COOLER MODEL	BIN DIA.	EST. WEIGHT (LBS)	OVERALL HEIGHT	LEG HEIGHT	LEG CENTER TO CENTER	LEG CENTER TO CENTER	HOPPER OUTLET	HOPPER OUTLET	EXHAUST HEIGHT	EXHAUST WIDTH	EXAUST CNTR. HT.	PLAN LENGTH	PLAN LENGTH	GUARD LENGTH
5-34-4	43-1/2"	1,500	117-1/16"	59"	53"	45"	11"	24"	5"	13-1/2"	110-7/8"	37-1/4"	34-11/16"	57"
5-43-5	43-1/2"	1,600	128-13/16"	59"	53"	45"	11"	24"	6"	13-1/2"	122-1/8"	37-1/4"	34-11/16"	57"
5-52-6	43-1/2"	1,700	139-11/16"	59"	53"	45"	11"	24"	6"	16-1/2"	134"	37-1/4"	35-5/8"	57"
6-49-4	52"	2,000	122-9/16"	63-3/8"	61-1/2"	53-1/2"	11"	32"	6"	16-1/2"	122-9/16"	41-1/2"	38-3/4"	65-1/2"
6-61-5	52"	2,100	134-13/16"	63-3/8"	61-1/2"	53-1/2"	11"	32"	7"	17"	134-	41-1/2"	38-15/16"	65-1/2"
6-74-6	52"	2,200	146-15/16"	63-3/8"	61-1/2"	53-1/2"	11"	32"	7"	20"	139-3/4"	41-1/2"	39-13/16"	65-1/2"
7-67-4	60-1/2"	2,600	128-1/16"	67-5/8"	70"	62"	11"	40"	7"	20"	128-1/16"	45-3/4"	46-1/16"	74"
7-83-5	60-1/2"	2,800	140-9/16"	67-5/8"	70"	62"	11"	40"	7"	22	130-3/8"	45-3/4"	43-11/16"	74"
7-100-6	60-1/2"	3,000	153-5/16"	67-5/8"	70"	62"	11"	40"	8"	24"	145-5/8"	45-3/4"	44-3/16"	74"
8-87-4	69"	3,500	133-9/16"	71-7/8"	78-1/2"	70-1/2"	11"	50"	8"	21"	126"	50"	46-5/16"	82-1/2"
8-108-5	69"	3,700	146-1/16"	71-7/8"	78-1/2"	70-1/2"	11"	50"	8"	26"	138-3/8"	50"	47-15/16"	82-1/2"
8-130-6	69"	3,900	159-3/16"	71-7/8"	78-1/2"	70-1/2"	11"	50"	8"	31"	151-1/2"	50"	48-7/8"	82-1/2"
9-109-4	77-1/2"	4,400	138-13/16"	75"	87"	79"	12"	58"	8"	26"	131-1/4"	54-1/4"	51-1/8"	91"
9-136-5	77-1/2"	4,600	152-1/16"	75"	87"	79"	12"	58"	8"	31"	144-1/2"	54-1/4"	52-1/2"	91"
9-164-6	77-1/2"	4,800	165-5/16"	75"	87"	79"	12"	58"	9"	35"	157-1/4"	54-1/4"	53-1/8"	91"
10-134-4	86"	5,500	144-9/16"	79-1/2"	97-1/2"	85-1/2"	12"	66"	9"	29"	136-3/8"	58-1/2"	55-3/16"	101-1/2"
10-168-5	86"	5,700	158-1/16"	79-1/2"	97-1/2"	85-1/2"	12"	66"	9"	36"	149-7/8"	58-1/2"	56-15/16"	101-1/2"
10-202-6	86"	5,900	170-5/8"	79-1/2"	97-1/2"	85-1/2"	12"	66"	10"	36"	162"	58-1/2"	56-15/16"	101-1/2"
11-162-4	94-1/2"	6,900	150-3/16"	84"	106"	94"	12"	74"	9"	34"	142"	62-3/4"	59-7/8"	112"
11-203-5	94-1/2"	7,200	164-3/16"	84"	106"	94"	12"	74"	10"	39"	155-1/2"	62-3/4"	61-1/16"	112"
11-244-6	94-1/2"	7,500	178-1/16"	84"	106"	94"	12"	74"	12"	39"	168-3/8"	62-3/4"	61-1/16"	112"
12-193-4	103"	8,500	154-3/8"	87"	114-1/2"	102-1/2"	14"	82"	10"	37"	145-7/8"	67"	63-15/16"	120-1/2"
12-241-5	103"	8,800	168-11/16"	87"	114-1/2"	102-1/2"	14"	82"	12"	39"	159-1/4"	67"	64-1/2"	120-1/2"
12-289-6	103"	9,100	182-3/4"	87"	114-1/2"	102-1/2"	14"	82"	12"	45"	173-1/4"	67"	65-5/8"	120-1/2"
13-226-4	111-1/2"	9,600	159-1/2"	91"	123"	111"	14"	90"	12"	38"	150"	71-1/4"	67-3/8"	129"
13-283-5	111-1/2"	10,100	174-1/4"	91"	123"	111"	14"	90"	13"	42"	164-1/8"	71-1/4"	68-9/16"	129"
13-339-6	111-1/2"	10,600	188-3/4"	91"	123"	111"	14"	90"	13"	50"	178-5/8"	71-1/4"	69-15/16"	129"
14-262-4	120"	11,600	164-13/16"	95"	131-1/2"	119-1/2"	14"	100"	12"	48"	155-3/8"	75-1/2"	73-5/16"	137-1/2"
14-327-5	120"	12,100	179-3/4"	95"	131-1/2"	119-1/2"	14"	100"	13"	48"	169-3/4"	75-1/2"	73-5/16"	137-1/2"
14-393-6	120"	12,600	194-1/2"	95"	131-1/2"	119-1/2"	14"	100"	14"	50"	184-1/8"	75-1/2"	73-11/16"	137-1/2"
15-300-4	128-1/2"	13,600	169-3/16"	98"	140"	128"	16"	110"	13"	42"	159"	79-3/4"	78-13/16"	146"
15-375-5	128-1/2"	14,100	184-7/16"	99"	140"	128"	16"	110"	14"	50"	173-1/4"	79-3/4"	81-3/16"	146"
15-450-6	128-1/2"	14,600	199-9/16"	99"	140"	128"	16"	110"	15"	56"	188-3/8"	79-3/4"	82-1/4"	146"
16-341-4	137"	16,100	175-9/16"	103"	148-1/2"	136-1/2"	16"	120"	14"	48"	165"	84"	83-1/4"	154-1/2"
16-427-5	137"	16,600	190-15/16"	103"	148-1/2"	136-1/2"	16"	120"	14"	55"	180-3/8"	84"	85-11/16"	154-1/2"
16-512-6	137"	17,100	206-1/4"	103"	148-1/2"	136-1/2"	16"	120"	16"	62"	194-3/4"	84"	86-11/16"	154-1/2"
17-385-4	145-1/2"	18,600	182-5/16"	107"	157"	145"	16"	126"	15"	50"	171-1/4"	88-1/4"	87-1/2"	163"
17-481-5	145-1/2"	19,100	198-7/16"	107"	157"	145"	16"	126"	16"	58"	186-7/8"	88-1/4"	89-3/4"	163"
17-577-6	145-1/2"	19,600	214-11/16"	107"	157"	145"	16"	126"	18"	62"	202-1/8"	88-1/4"	90-7/16"	163"
18-431-4	154"	21,100	185-5/16"	110"	165-1/2"	153-1/2"	18"	130"	16"	54"	173-3/4"	92-1/2"	95"	171-1/2"
18-539-5	154"	21,600	201-7/16"	110"	165-1/2"	153-1/2"	18"	130"	16"	60"	189-7/8"	92-1/2"	96-5/8"	171-1/2"
18-647-6	154"	22,100	213-11/16"	110"	165-1/2"	153-1/2"	18"	130"	18"	62"	201-1/8"	92-1/2"	97-1/16"	171-1/2"
19-480-4	162-1/2"	22,600	189-5/16"	114"	174"	162"	18"	144"	16"	58"	177-3/4"	96-3/4"	99-3/8"	180"
19-600-5	162-1/2"	23,100	208-3/16"	114"	174"	162"	18"	144"	18"	60"	195-5/8"	96-3/4"	99-15/16"	180"
19-720-6	162-1/2"	23,600	222-3/16"	114"	174"	162"	18"	144"	20"	62"	208-5/8"	96-3/4"	100-7/16"	180"
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20-665-5	171"	24,600	212-3/16"	118"	182-1/2"	170-1/2"	20"	150"	22"	60"	197-5/8"	101"	103-1/8"	188-1/2"
20-798-6	171"	25,100	224-3/16"	118"	182-1/2"	170-1/2"	20"	150"	22"	62"	209-5/8"	101"	103-3/4"	188-1/2"
21-585-4	179-1/2"	26,100	204-3/16"	120"	191"	179"	24"	160"	22"	60"	189-5/8"	105-1/4"	106-3/16"	197"
21-732-5	179-1/2"	26,600	214-3/16"	120"	191"	179"	24"	160"	22"	62"	199-5/8"	105-1/4"	106-7/8"	197"
21-880-6	179-1/2"	27,100	230-3/16"	120"	191"	179"	24"	160"	22"	62"	215-5/8"	105-1/4"	106-7/8"	197"

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