The circular solution to counterflow cooling.
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.

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 the OP>FLO cooling process is the compact “footprint”, or base size. Most system installations encounter limited space situations and the minimal “footprint” with OP>FLO coolers provide invaluable versatility in system design.

The “Simple Excellence” of the OP>FLO 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.
Heavy-duty fixed grid floor is the field proven, low maintenance solution. Full or live action discharge floors available.

**Electric motors or air cylinders** are used to regulate air exhaust and operate discharge louvers.

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

Optional air exhaust damper enables outward airflow to be regulated for greater cooling control.

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

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

Conveniently located door provides excellent access to interior.

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

Capacities of 1-105 TPH available.

Louver discharge system provides complete cleanout with minimal number of moving parts.

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

Typical Installation

Complete Air Systems available upon request.

NOTE: Every Cooling Operation is benefited by minimizing the length of air piping.
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.

Rotary Valve Feeder

The rotary valve feeder supplies an even-flow of product to the cooling chamber. Optional powered leveler is available.

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.

Electric and Air Operated

The OP>FLO Cooler can be used in a number of product applications including: 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.

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.
### SPECIFICATIONS

#### BLISS INDUSTRIAL MODEL COOLERS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>ROW NUMBER</th>
<th>PRODUCT BED DEPTH (40&quot;)</th>
<th>VOLUME (FT³)</th>
<th>WEIGHT (LBS)</th>
<th>LEG HEIGHT</th>
<th>LEG CENTER TO CENTER (IN)</th>
<th>FOOTPRINT (IN)</th>
<th>FEEDER OUTLET (IN)</th>
<th>EXHAUST HEIGHT (IN)</th>
<th>OUTLET HEIGHT (IN)</th>
<th>HOPPER HEIGHT (IN)</th>
<th>HOPPER CENTER TO CENTER (IN)</th>
<th>LEG CENTER (IN)</th>
<th>PLAN HEIGHT (IN)</th>
<th>PLAN LENGTH (IN)</th>
<th>HOPPER CENTER TO CENTER (IN)</th>
<th>LEG CENTER (IN)</th>
<th>TOP VIEW</th>
<th>LEAD CENTER (IN)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### ACCESS GUARD

- Double Drive with Guard is standard on models 13 row and larger (not illustrated above).
- Optional damper on exhaust.
- Additional legs and cross braces on models 18 row and larger (not illustrated above).

#### Additional Notes:

1. Dimensions in inches, subject to change without notice.
2. Standard 45° hopper.
3. Guard length changes for electric drive cooler, reference top view, add 2" to the left side.
4. Product levelers available on models 9 row and larger (not illustrated above).
5. Double drive with guard is standard on models 13 row and larger (not illustrated above).
6. 14 x 12 feeder on 8 row and smaller, 14 x 18 feeder on 9 row and larger.

**Impacting Industries Worldwide.**

Bliss Industries LLC
PO. Box 910 • Ponca City, Oklahoma U.S.A. 74602
Phone (580) 765-7778 • Fax (580) 762-0111
Toll Free 1-800-569-7787

Internet: http://www.bliss-industries.com
E-mail: sales@bliss-industries.com

BAC 53161/4/12 Printed in U.S.A.