

The Anderson Expander-Extruder-Cooker™



ANDERSON
INTERNATIONAL CORP



An ISO 9001:2008 with Design
Certified Company

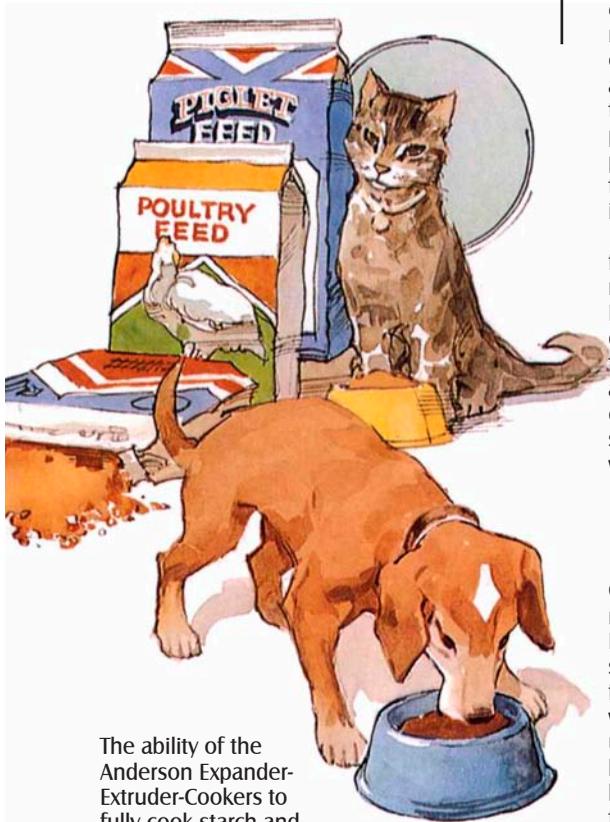
The Anderson Expander-Extruder-Cooker™

The "All-in-One" Machine

Whether you process Animal Feeds, Petfoods or Aquatic Feeds, the Anderson Expander-Extruder-Cooker will provide the quality of product at the most cost effective means.

Animal Feeds/Pet Foods

Anderson Expander-Extruder-Cookers have been used in the Animal Feeds and Petfood Industries for over thirty-five years producing nutritious and highly digestible feed rations for poultry, pigs, livestock, dogs and cats. The product ranges from cooking full fat soy to eliminate the urease activity and trypsin inhibitors for poultry and piglet feeds to producing full formulated and die shaped dog and cat foods. Whether the products require a simple cooking application or the processing of complex formulated and shaped products our extruder units provide the flexibility necessary to manufacture the full range of products.



The ability of the Anderson Expander-Extruder-Cookers to fully cook starch and protein ingredients provides the Feed and Pet-food industries with a value added product. Feed rations become more digestible, and the natural capability of cooked starches and proteins to act as binders holds the formulations together so that precise control of various shapes and sizes are achievable.

Today, new applications are arising for feed mill extrusion use. As an example, castor meal has traditionally

been used as a fertilizer due to its toxic nature. By processing the meal through our Expander-Extruder-Cooker with a minute ration of neutralizing ingredient the product has been fully converted to animal feed grade use, a value added product with broader applications.

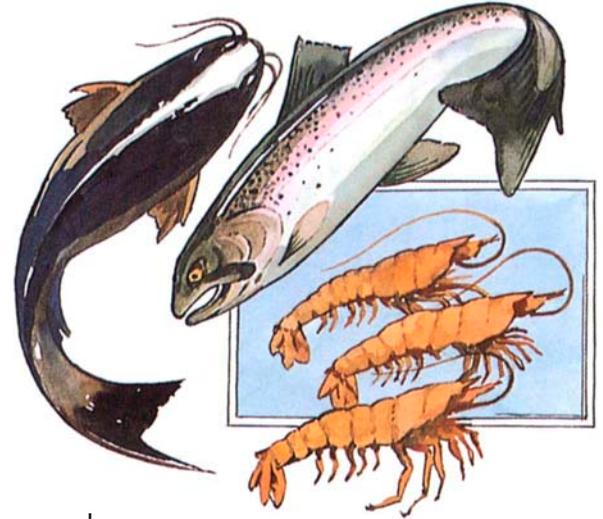
Aquatic Feeds

Commercial raising of fish for human consumption has grown rapidly over the past several years and this has presented the feed industry with new opportunities for the manufacture of specialty fish feeds. Many of the extrusion techniques practiced in the manufacture of feeds for other animals can be applied toward the production of aquatic feeds. Anderson's unique extruder design, incorporating the ability to process continuously with flexibility, has proven to be an efficient and cost effective means to cook and form raw feed ingredients into specialized feed products.

Whether you are manufacturing fish feed for fingerling, mature fish, or farm raised shrimp, the Anderson Expander-Extruder-Cooker's unique "All-in-One" design allows for the flexibility needed to produce fish feeds of the floating and sinking varieties. And the thorough control of cooking provides for the water stability necessary for both salt and fresh water conditions.

Process Description

The Anderson Expander-Extruder-Cooker is the "All-in-One" machine. Dry material is fed directly into the Expander-Extruder-Cooker by means of a variable speed feeder which maintains a constant feed rate. The dry feed is mixed with water injected directly into the barrel. The unique interrupted worm flight design blends the material and water into a homogeneous mass. Heat is put into the material by the frictional work of the screw against the material. Cooking takes place as the product is conveyed down the barrel. Steam is then injected to complete the cooking action and when necessary, adjust the moisture content. A wide variety of end product sizes and shapes are possible through a choice of die plates and cutters.



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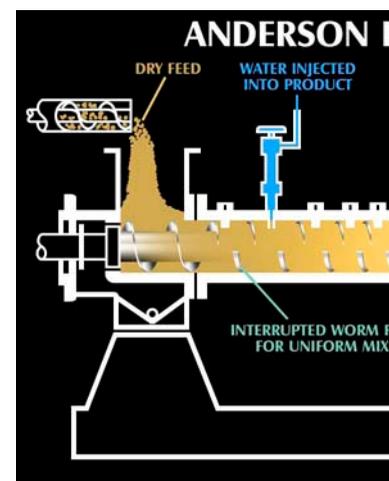
Provides the Feed Processor with a multitude of features that assure manufacturing feed products to exacting needs while controlling today's high cost of operations. And here is just how!

Various Shapes and Sizes

With numerous die insert shapes and sizes and Anderson's high quality variable speed cutter assembly, it is possible to produce a large number of extruder products to meet your exacting requirements.

Simplicity of Process

The Anderson Expander-Extruder-Cooker is unique in that it does not require separate pretreatment vessels to produce a fully cooked and shaped product. This is made possible by



our special configuration of shaft design, employing discontinuous worm flights. Individual worm sections are interrupted by replaceable breaker screws protruding from the inner wall of the extrusion barrel, thus permitting a high shear mixing action which rapidly blends water and steam into the feed material. The feed is augered directly into the inlet spout of the extrusion barrel where it is blended directly with injected water and steam to elevate moisture and temperature levels as desired.

Product Quality

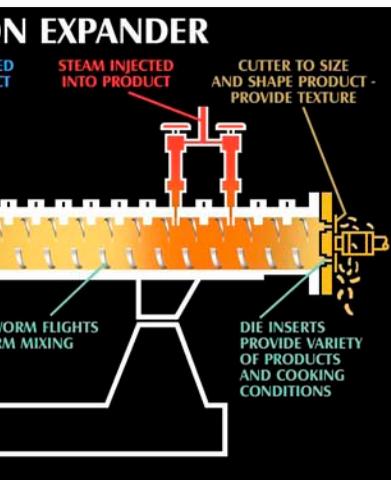
The key to product quality in the Anderson Expander-Extruder-Cooker is our injection valves. Anderson incorporates both a manual and an automatic steam injection system. With the use of a pneumatically operated injection valve, thermocouple and controller, an operator can field adjust to control either barrel uniform temperature or main motor load uniformity.

Simplicity of Control

The Anderson Expander-Extruder-Cooker's unique design allows for simplicity of control through the operation of our precision steam injection valves and control of restriction with our die inserts. A high temperature cook can be achieved by the reduction of total number of die inserts or by a different die insert design. If a low temperature cook is desired an increase in total number of dies or an increase in die size will provide this. Our machinery design eliminates the need for cones, tapers, and/or internal locks to achieve controlled cooking conditions.

Mechanical Simplicity

The Anderson Expander-Extruder-Cooker is a rugged, heavy duty machine and yet of uniquely simple design. There are no bearings within the barrel; the shaft is free floating to the discharge end. The process material acts as the bearing. The last few worm flights are hardfaced, and a hardened liner is inserted in that area of the barrel to minimize wear.



This allows for long service life with no clogging or burning of process material often experienced on bearing surfaces.

There are two medium sized outboard bearings for the main worm shaft on all of our models. There are two small bearings in the cutter heads for our machines. This simplicity of design reduces maintenance time and costs.

In addition, the main worm shaft is assembled of individual worms which reduces repair costs by permitting the central shaft to be a non-wearing part. The other wearing parts are hardened liners within the barrel, breaker screws, injection valves, die inserts, knife blades, and bearings, all of which are easily replaced.

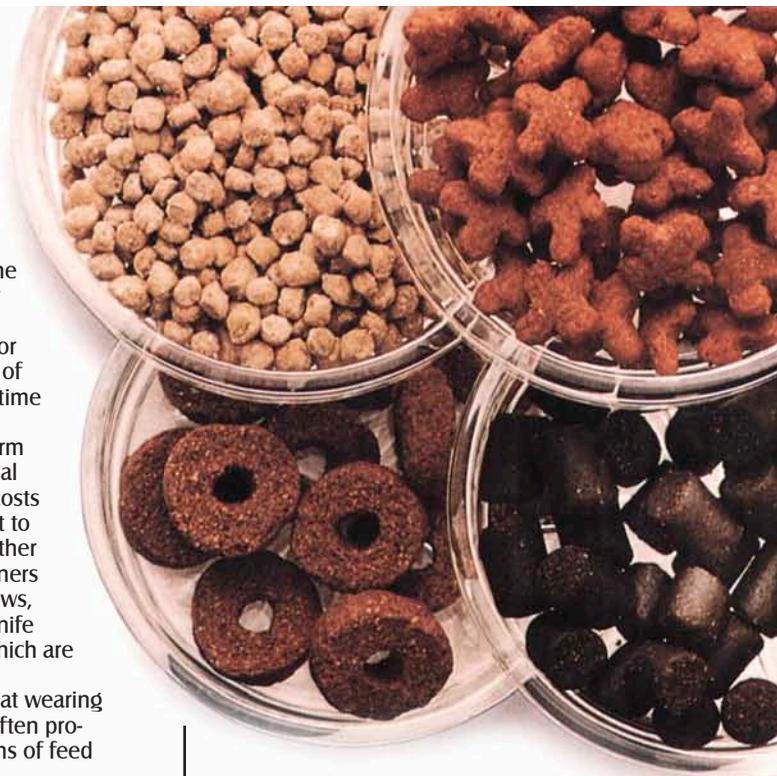
Experience has shown that wearing parts of the extrusion barrel often process from 10,000 to 30,000 tons of feed material between overhauls.

Economical Advantages of the Anderson Expander-Extruder-Cooker

Due to our experience in the feed industries we know that the machinery must pay for itself more rapidly than in most industries. Thus the return on investment for our Expander-Extruder-Cooker is approximately three times faster than our competition.

By employing the process material as the internal support for the main worm shaft, there are less mechanical bearings to service. The main worm shaft itself is assembled with individual worm flights which are easily replaced, thus lowering maintenance costs.

Finally, the Anderson Expander-Extruder-Cooker is not only less expensive to operate and keep in good repair than other extruders, but it also represents a lower initial capital investment because of its simplicity of design.



Genuine Anderson Parts

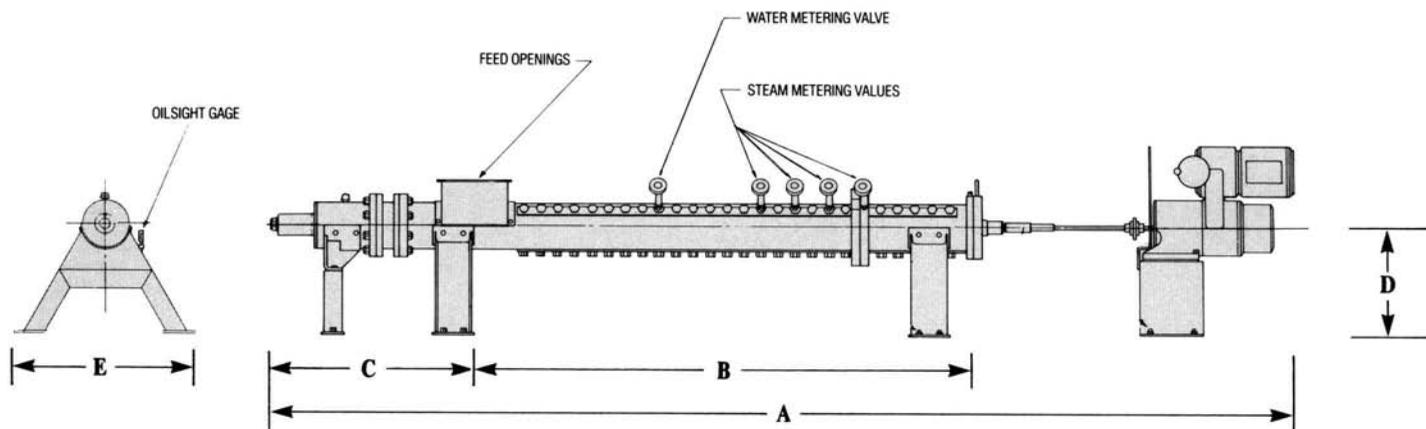
Only Anderson manufactures original Anderson replacement parts. Anderson parts are the only parts to consistently fit Anderson equipment and are backed by a team of mechanical and process engineers. Only Genuine Anderson Parts meet the tolerances and high quality metallurgy necessary to ensure maximum yield and output.

When using Anderson equipment in the feed and foods industries you can depend on original Anderson replacement parts and service to maintain the high levels of productivity and low levels of downtime you've come to expect from Anderson. And, of course, the workmanship on all Anderson parts is fully warranted.

Industry/ Machine Design Experience

Anderson International Corp has entered its second century as a leader in the design and manufacture, installation and operation of machinery for the oil and feed milling industries. Over forty years ago we found that our oil extracting Expeller performed productively as a mechanical cooking device. This resulted in the birth of our Expander-Extruder-Cooker. Since then Anderson has delivered in excess of five hundred units around the world for the processing of such diverse animal feeds as floating and sinking fish feeds, pet foods, full fat soy for poultry and piglet industries, as well as textured vegetable protein and oilseeds. The Anderson Expander-Extruder-Cooker is also used in the Industrial/ Petrochemical Industries for the production of adhesives and binders, and synthetic rubber drying.





Specifications

Model No.	Description	Capacity Range		Horse Power Range	DIMENSIONS				
		lbs/hr	KG/Hr		A	B	C	D	E
AN-304	4½" EEC	200-500	90-227	UP to 25hp	11'-4 3/8"	4' 4½"	3' 0¾"	2' 4"	25½"
AN-305	6" EEC	500-2000	227-909	25hp to 50hp	14' 0½"	7' 0 7/8"	3' 2 7/8"	3' 8"	32"
AN-306	8" EEC	2000-13000	909-5910	75hp to 200hp	18' 9 7/8"	9' 1¾"	3' 7½"	23 5/8"	40"
*AN-307	12"EEC	8000-24000	3632-10910	200hp to 400hp	*31' 7"	*11' 9"	*4' 9"	*30"	*42"

From Raw Feed to Expanded Product Anderson Provides a Whole System

An important part of Anderson service is to supply all types of carefully engineered supplementary equipment necessary for a complete grain expansion process.

The Expander product is dried and, if required, cooled in a self-contained Dryer-Cooler. The units made by several manufac-

turers are designed for either indoor or outdoor installation, and use any common fuel. Other supplementary equipment includes feeders, fat applicators, crushers, grinders, conveyors, boilers, bagging machines, storage bins, etc.; all carefully selected to economically compliment the

Anderson-Extruder-Cooker™ taking into consideration the particular conditions encountered in your operation.

Whether Anderson supplies an entire plant or selected equipment, you can be confident of obtaining a quality engineered system for long life, trouble-free operation.

Other Equipment Manufactured by Anderson For:

The Vegetable Oil Industry

Super Duo™ Expeller® Press
Delta Presses
Cookers and Dryers
72 Tube Rotary Dryers
Cake Coolers
Screening Tanks
Mega Series Expeller® Presses
Solvex™ Series Expanders
Hivex™ Series Expanders

The Rendering Industry

CG & TMI Evaporators
Duo Crax™ Expeller® Presses
Drainage Hoppers
Mega Series Crax™ Presses

Synthetic Rubber and Plastic Polymer Industries

Dewatering Presses
Expander/Dryer®

Feed and Food Industries

Expander-Extruder-Cooker™



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