



HAARSLEV™

Processing Technology

RENDERING SOLUTIONS

Products brochure

ABOUT HAARSLEV

Haarslev manufactures processing equipment for customers in the meat, pet food, fish, oil, environmental protection and biofuel industries worldwide.

MASTER YOUR PROCESS

If you are in the rendering industry – whatever type of material your specialty is – process is always key. Your process determines your yield, the quality of your end products, the level of investment, and in the end your costs.

Haarslev offers you true business partnership, addressing all of your challenges at the same time. Together with our technologies, knowhow and business expertise, we help you find – or create – solutions that fit into every step of your production process. Together, we master your process.



**MEAT
RENDERING**



**POULTRY
RENDERING**



**COMPLIMENTARY
PROCESS APPLICATION**

www.haarslev.com

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BINS & SILOS



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RUGGED, LEAK-PROOF BINS FOR USE WITH
THE COUNTLESS DIFFERENT FUNCTIONS
INVOLVED IN PROCESSING MEAT, POULTRY
OR FISH BY-PRODUCTS

No matter what kinds of meat, poultry or fish by-products you process, you will always need simple, rugged bins for moving, parking and storing everything from raw material and other inputs to your finished output.

They're a big help in the practicalities of process management, providing you with a low-tech buffer between individual processing lines and pieces of equipment, and helping ensure good flows and maximum flexibility.

Haarslev bins and silos are tough and durable, designed to prevent leaks and ensure compliance with appropriate hygiene standards.

They're engineered to order from standard components, and can be delivered flat-packed for easy, inexpensive transport.

BENEFITS

- Engineered to order, for your specific needs and requirements
- Easy to move and transfer contents from one process to another
- Robust and leak-proof
- Easy compliance with appropriate hygiene standards
- More effective process management

WIDE RANGE OF CONFIGURATIONS

Haarslev bins and storage solutions give you plenty of choices. A wide range of sizes are available, from small charging/dosing bins to large reception hoppers, storage bins and silos with capacities of 150–200 m³. Different versions are available made of stainless steel, mild steel or combinations of both.

The individual designs and configurations depend on the kind of material you process and need to move, and on what your material will be used for downstream.

- Hydraulic lids
- Drain section
- Load cell systems
- Leveling screw
- Steam jacket with insulation



Meal bins



Raw material pit



Storage silo



Buffer bin

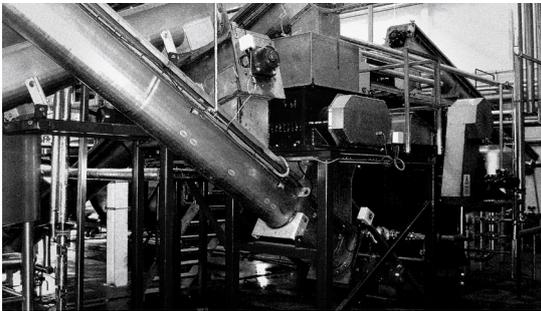
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SCREW CONVEYOR



The Haarslev Screw Conveyor is specially designed to help you move material from one step to the next in your processing setup, coping easily with often-considerable height differences by operating reliably with an incline of as much as 30 degrees. This helps ensure processing continuity and higher overall outputs, by eliminating bottlenecks and “weak links” between the efficiency of individual processes.

“

VERSATILE, RELIABLE AND HYGIENIC WAY TO MOVE MATERIAL FROM ONE PROCESS STEP TO THE NEXT.

These screw conveyors are available in stainless steel, mild steel, or a combination of the two, depending on the amounts and the type of material you need to move, as well as hygienic needs. 230, 300, 400, 500 and 600 mm screw diameters are available as standard.

These units are also available in both easy-clean and hygienic versions - the latter made entirely of stainless steel, with a self-supporting screw feed and no wear plates.

APPLICABLE FOR:



- Wet or dry rendering processes
- Slaughterhouses
- Pet food processing
- Fish meal processing
- Feather processing
- Pre-heating
- Cooling by means of air or water
- Straining fats or water
- Dosing

BENEFITS

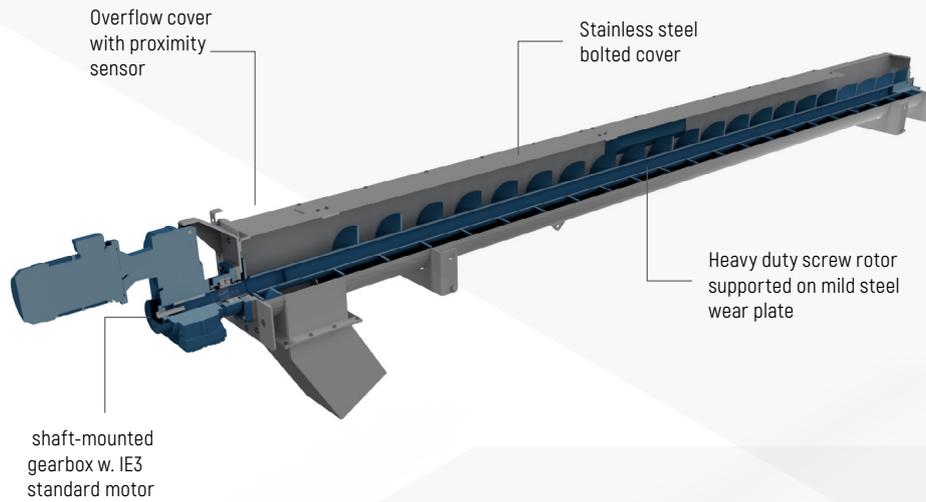
- Versatile screw conveyor that can be used in many places
- Reliable transport of material from one process to the next
- Ensures processing continuity
- Large-capacity units that support high processing output

SCREW CONVEYORS

UNIVERSAL

HAARSLEV'S UNIVERSAL SCREW CONVEYOR,
DESIGNED FOR STANDARD PROCESSING SETUPS

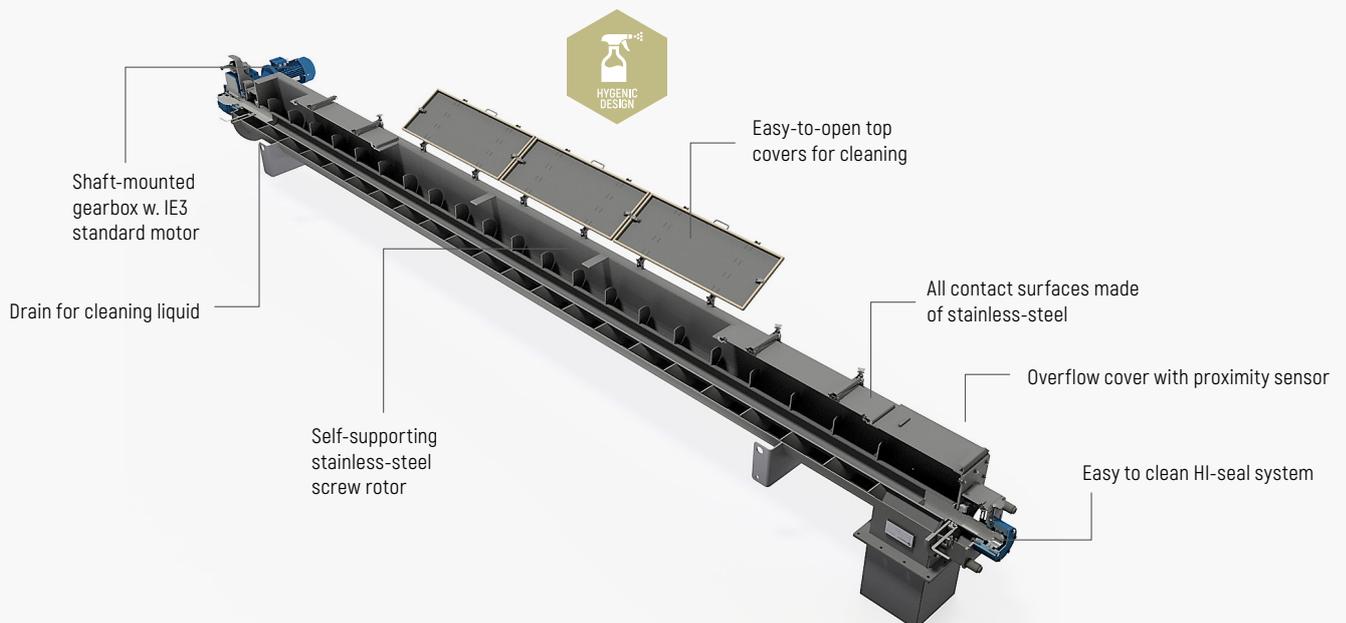
Applicable for complete carcasses, raw feather,
bones & waste food



HYGIENIC

HAARSLEV'S HYGIENIC SCREW CONVEYOR,
DESIGNED FOR HYGIENIC PROCESSING OF MATERIAL

Applicable for pre-broken & fine crushed,
soft product and meal



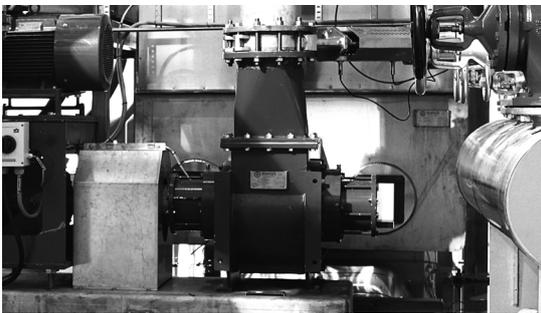
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LAMELLA PUMP



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RELIABLE, HIGH-CAPACITY PUMPS FOR TRANSFERRING MEAT, FISH OR POULTRY MATERIAL, EVEN IF IT CONTAINS LIMITED LIQUID AND LARGE PARTICLES.

If you need to move liquids containing large particles from one point to another – even over distances of as much as 200 meters – the Haarslev Lamella Pump is ideal. These uncomplicated, extremely robust units are widely accepted as the “gold standard” for pumping meat, fish and poultry material.

This type of positive-displacement sliding vane pump is specifically designed to transfer flows that contain large particles, such as pre-broken animal by-products, pet food or fish, with as little as 20% liquid in the flow. It is ideal for filling all types of cookers and other processing equipment in a closed system that ensures good hygiene and limits odor issues.

Even though these pumps have high capacities, they use very little energy compared with traditional conveying systems. There are four different versions and three different sizes, configured with the infeed on the side or top. They use the same standardized components for maximum reliability and effective spare parts backup.



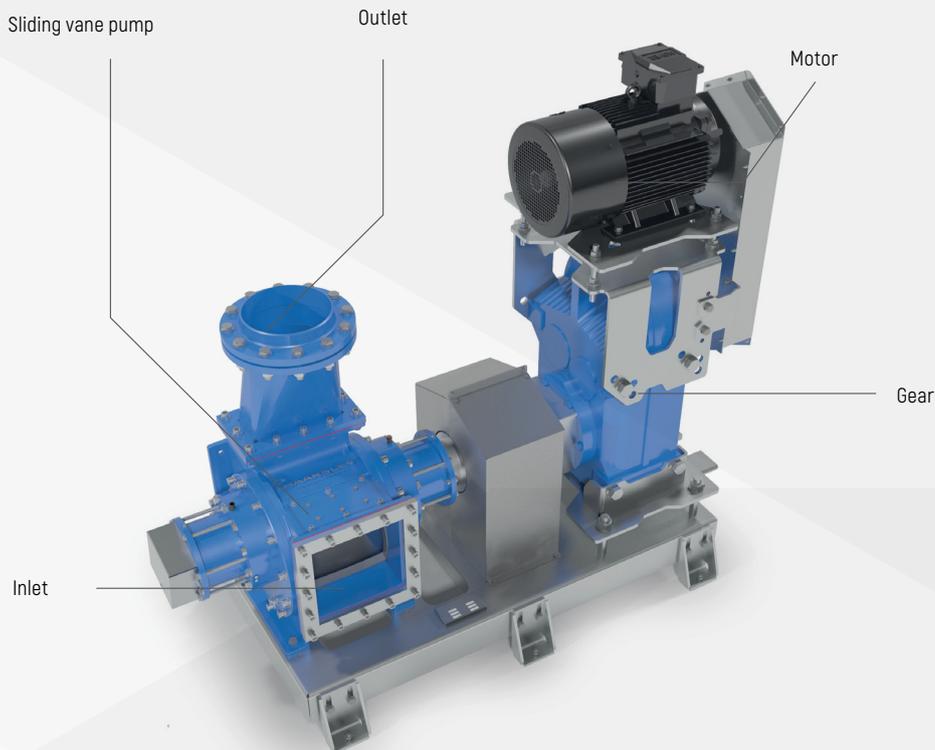
APPLICABLE FOR:

- Fish processing
- Wet and dry rendering
- Pet food production
- Poultry offal (except feathers)

BENEFITS

- Takes up very little space – can be mounted virtually anywhere
- You can use the same equipment in many different places in your processing setup
- Easy to maintain good hygiene standards, because of fully enclosed material transfer
- Extremely reliable – copes well with large chunks of input material, or even metal contamination in the input flow

RAW AND COOKED ANIMAL AND FISH BY-PRODUCTS IN WET AND DRY RENDERING, AND FOR PET FOOD



FILLING COOKERS AND OTHER PROCESSING EQUIPMENT, IN A CLOSED SYSTEM

TYPE	MAX. CAPACITY (theoretical)		MAX. CAPACITY (theoretical at $\rho=800\text{kg/m}^3$)		MAX. SPEED	DISPLACEMENT (theoretical)		TORQUE		SOLID PARTICLE HANDLING		MIN. RECOM- MENDED PIPE CONNECTION (outlet) DN/NW	NET WEIGHT			
													Bare shaft pump		Pump unit (incl. motor and gear)	
	m ³ /h	ft ³ /h	t/h	lb/h	rpm	L/rev	ft ³ /rev	Nm	ft/lb	mm	inch	mm	kg	lb	kg	lb
HM35	105	3,700	84	185,000	70	25	1	7,000	5,200	85	3	250	614	1,355	1,950	4,300
HM45	270	9,500	216	476,000	60	75	2.5	15,000	11,100	135	5	350	1,039	2,290	2,900	6,395

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METAL DETECTORS



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EFFECTIVE REMOVAL OF ANY METAL FOREIGN OBJECTS FROM RAW OR COOKED MEAT, POULTRY AND FISH.

Haarslev metal detectors effectively remove a wide range of metal items from raw or cooked material, using a detector head with adjustable sensitivity. This can be used to trigger a separation device, or to stop the flow of material.

Any pieces of metal and metal residues – whether ferrous metals or stainless steel – are efficiently separated mechanically, with only a minimum of material being ejected with them, thus keeping waste to a minimum. Manual removal may be necessary in some processing setups.

Haarslev metal detectors can be used in a wide variety of places and processing streams. You pick the technology and the configuration best suited to your particular inputs, flows and processing configurations.

Haarslev experts are on call to help you quickly and painlessly integrate a metal detector setup into your particular processing requirements and equipment configurations.

Three distinct types of Haarslev metal detectors are available.

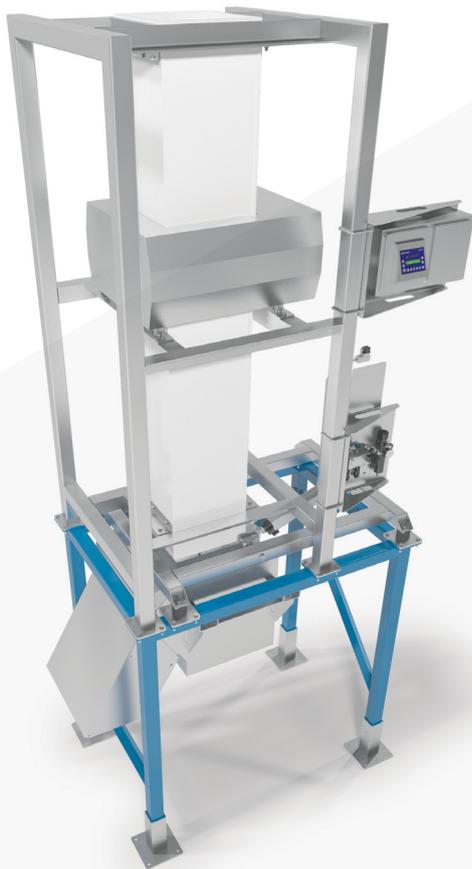
BELT CONVEYOR WITH METAL DETECTOR

The belt conveyor is configured to order and available in stainless or mild steel. A deflector can be mounted at the end of the conveyor, or metal can be removed manually.



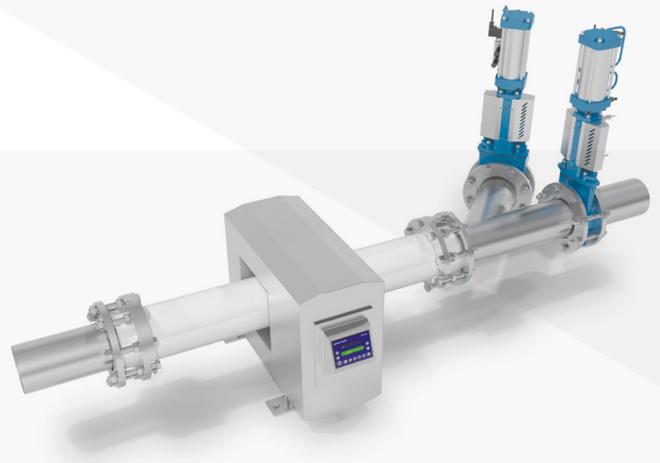
VERTICAL METAL DETECTOR

The vertical metal detector system is configured to order and built on a single frame and delivered as a single unit. It is available in stainless or mild steel. This type of Haarslev vertical metal detector is fully automatic, and detects any metal present when the material falls through a non-ferrous pipe. A pneumatically operated diverter then removes any metal items present.



IN-LINE PIPE METAL DETECTOR

The pipe metal detector is a clean, closed system that takes up a minimum of space. This kind of system requires a constant flow of material in the piping system.



APPLICABLE FOR:

Haarslev provides systems that detect and extract metallic foreign objects from

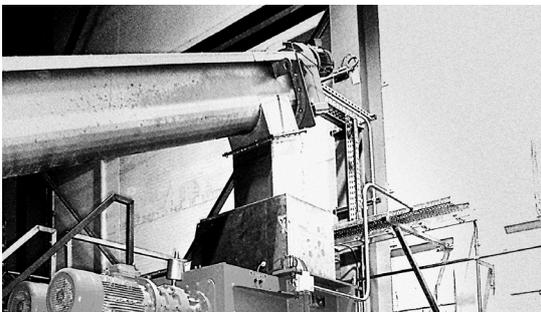
- Red meat
- Poultry
- Feathers
- Fish



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PRE-BREAKER



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FOR BREAKING DOWN WHOLE CARCASSES, OFFAL AND BONES FROM MEAT AND POULTRY SLAUGHTERHOUSES INTO SMALLER SIZES.

The Haarslev Pre-breaker is particularly rugged and hardwearing, designed for breaking down complete carcasses as well as all types of offal and bones from meat and poultry slaughterhouses, so they can be used more effectively in rendering processes, and in accordance with relevant legislation.



APPLICABLE FOR:

- First stage after material bins
- Installed upstream from crushers, fine crushers, etc.
- In any kind of rendering processes

Pre-breakers are used for the initial breaking down of input material to particles over 30 mm in size. They are ideal as a first stage prior to crushers, enabling you to align these initial steps with overall efficiency requirements for your process, based on particle size.

The low-speed breaker shaft makes sure the unit can deal with any foreign objects (such as metal) in the input material. Single-shaft and twin-shaft configurations are available. You can select motor size and breaker shaft speed based on the amount of material you need to break down, and the output capacity you require. This helps keep operating costs down.

BENEFITS

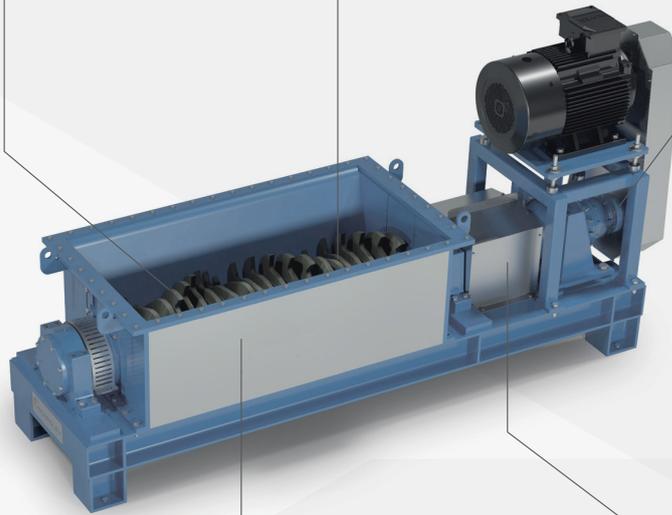
- Smaller, consistently sized particles help ensure easier and more efficient heating/cooking downstream in your processes
- Rugged and reliable to make sure your breaking operations continue with a minimum of interruption
- Stands up well to any trapped metal or foreign objects that might be in the input material
- Easy replacement of the knife shaft unit, with minimal disturbance to your processing operations
- Easy maintenance plus quick and easy parts replacement help you maximize uptime and productivity

**WHOLE CARCASSES,
OFFAL AND BONES ENTERING
YOUR PLANT**

Material is ground against stationary anvil

Slow-rotating breaker shaft fitted with hard-faced knives

Shaft fitted into heavy-duty spherical rollers that can withstand radial and axial impacts of as much as 80 tons



Drop-in sectional body makes it easy to replace parts quickly

Electronic rotation sensor automatically shuts off the motor if large foreign objects are encountered

**MORE EFFECTIVE COOKING PROCESSES BECAUSE
THE PARTICLES OF MATERIAL ARE SMALLER
AND MORE CONSISTENT**

TYPE	CAPACITY (t/h)/(lb/h)		ANVIL GAP (mm)	DIMENSIONS* (mm)/(ft-inch)						POWER (kW)/(hp)		TORQUE (kNm)/(ft-lb)		WEIGHT (kg)/(lb)	
				Length (L)		Width (W)		Height (H)							
PB 15	10 - 30	22,046 - 66,138	48	3,215	12' 2"	1,290	4' 3"	1,730	6' 1"	22 - 55	30-75	20	14,751	7,000	15,432
PB 15 HD	14 - 30	30,864 - 66,138	48	3,215	12' 2"	1,290	4' 3"	1,730	6' 1"	45 - 75	60-100	25	18,439	7,500	16,534
PB 15 FZ	14 - 30	30,864 - 66,138	48	3,215	12' 2"	1,290	4' 3"	1,730	6' 1"	45 - 75	60-100	25	18,439	7,500	16,534
PB 15 TWIN	20 - 50	66,138 - 132,277	80	3,850	13' 9"	1,800	5' 11"	1,800	5' 11"	2x45 - 2x75	2 x 60 + 2 x 100	25	18,439	11,500	25,353
PB 22/44	15 - 50	33,069 - 110,231	46	4,185	13' 9"	1,300	4' 6"	1,800	5' 11"	30-75	40-100	17	12,538	9,000	19,841
PB 22/44 HD	15 - 35	33,069 - 77,161	46	4,185	13' 9"	1,300	4' 6"	1,800	5' 11"	45 - 75	60-100	25	18,439	9,000	19,841

* All statements of dimensions are approximate.

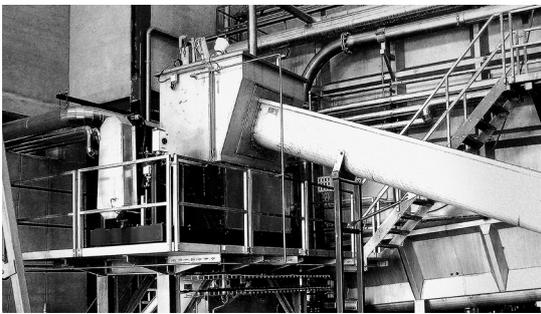
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CRUSHER



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FOR BREAKING DOWN OFFAL AND BONES FROM MEAT AND POULTRY SLAUGHTERHOUSES INTO SMALLER SIZES.

The Haarslev Crusher is particularly rugged and hardwearing, designed for breaking down all types of offal and bones from meat and poultry slaughterhouses, so they can be used more effectively in rendering processes, and in accordance with relevant legislation.



APPLICABLE FOR:

- First stage after material bins
- Ensures legislation compliance
- In any kind of rendering processes

Crushers are used for the breaking down of input material into particles of less than 30 mm in size. They enable you to align overall efficiency requirements for your process, based on particle size.

The low-speed crusher shaft makes sure the unit can deal with any foreign objects (such as metal) in the input material. Single-shaft and twin-shaft configurations are available. You can select motor size and crusher shaft speed based on the amount of material you need to break down, and the output capacity you require. This helps keep operating costs down.

BENEFITS

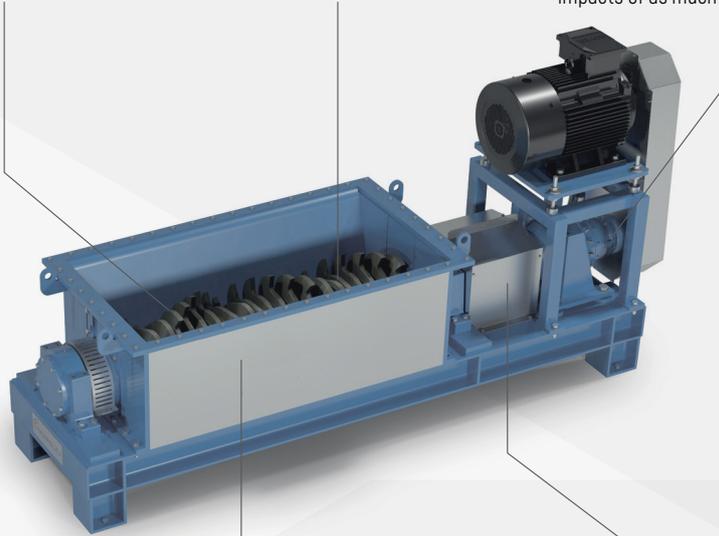
- Smaller, consistently sized particles help ensure easier and more efficient heating/cooking downstream in your processes
- Rugged and reliable to make sure your breaking operations continue with a minimum of interruption
- Stands up well to any trapped metal or foreign objects that might be in the input material
- Easy replacement of the knife shaft unit, with minimal disturbance to your processing operations
- Easy maintenance plus quick and easy parts replacement help you maximize uptime and productivity

OFFAL AND BONES ENTERING YOUR PLANT

Material is ground against stationary anvil

Slow-rotating breaker shaft fitted with hard-faced knives

Shaft fitted into heavy-duty spherical rollers that can withstand radial and axial impacts of as much as 80 tons



Drop-in sectional body makes it easy to replace parts quickly

Electronic rotation sensor automatically shuts off the motor if large foreign objects are encountered

MORE EFFECTIVE COOKING PROCESSES BECAUSE THE PARTICLES OF MATERIAL ARE SMALLER AND MORE CONSISTENT

TYPE	CAPACITY (t/h)/(lb/h)		ANVIL GAP (mm)	DIMENSIONS (mm)*(in)						POWER (kW)/(hp)		TORQUE (kNm)/(ft-lb)		WEIGHT (kg)/(lb)	
				Length (L)		Height (H)		Width (W)							
PB 10/20	6-8	13,000 -18,000	30	2,500	92	1,750	41	1,050	69	37	50	7.8	6,000	3,200	7,055
PB 22/66	10-25	22,000 - 55,000	30	3,650	144	1,650	41	1,030	65	55	75	10	7,000	4,700	10,360
PB 30/60	12-50	26,000 - 66,000	25	4,185	165	1,800	51	1,300	71	22-75	30-100	15	11,000	9,000	19,840
PB 30/60 HD	12-30	26,000 -110,000	25	4,185	165	1,800	51	1,300	71	45-75	60-100	25	18,000	9,000	19,840

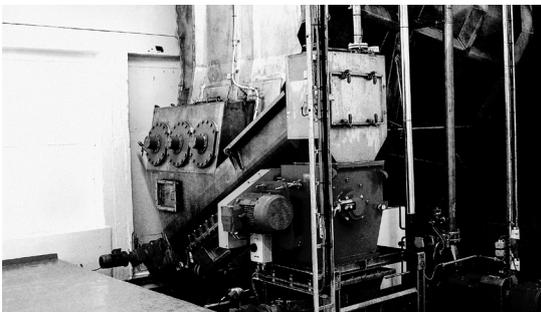
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HIGH-SPEED CRUSHER



The Haarslev High-speed Crusher enables you to effectively, continuously crush almost any kind of animal or fish by-products, hard or soft. Models are available for production flows of 2-25 tons/hour (or more).

These compact, high-speed crushers rotate at approx. 300 rpm, and are ideal for producing finer, more consistent outputs from your crushing operations.

They provide a relatively inexpensive solution, with low operating costs, for processing setups when any metal or foreign objects have been removed prior to crushing. They are valued for dependable operation, a minimum of maintenance and a long service life.

“

STRAIGHTFORWARD, HIGH-SPEED
CRUSHER FOR ALL KINDS OF HARD OR
SOFT ANIMAL OR FISH BY-PRODUCTS.



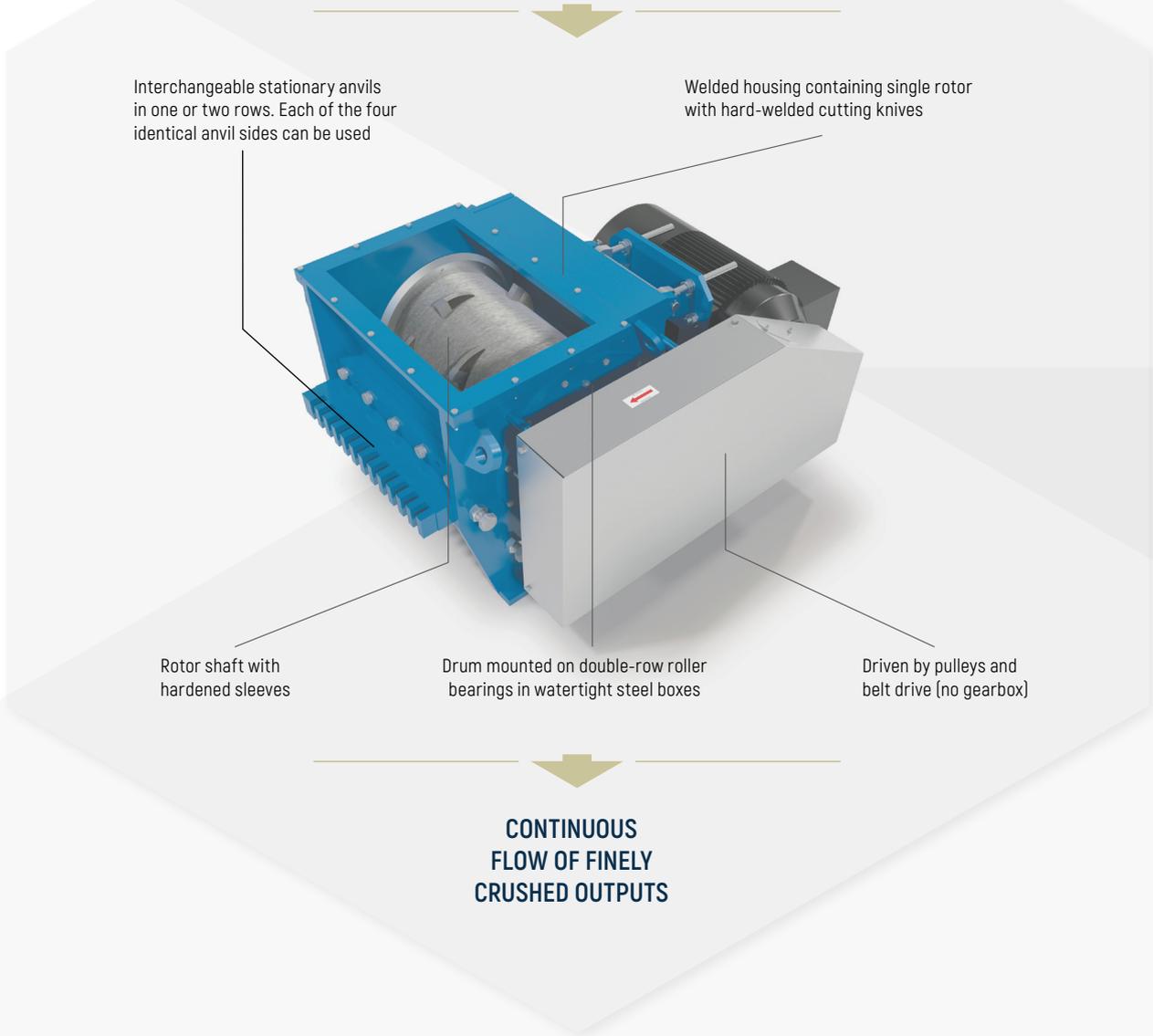
APPLICABLE FOR:

- Drying free-flowing/non-sticky inputs
- Drying blood meal
- Drying operations in feather rendering setups
- Drying operations in fish meal plants, where oil content is removed before drying

BENEFITS

- Compact unit that's easy to install
- Dependable crushing operations at relatively low cost
- No gearbox – less maintenance

**ANIMAL OR FISH BY-PRODUCTS
(HARD OR SOFT)**



TYPE	CAPACITY (t/h)/(th.lbs/h)		ANVIL GAP (mm)/(inch)		POWER (kW)/(HP)		WEIGHT (kg)/(lbs)		DIMENSIONS (mm)*/(inch)							
									Height (H)	Length (L)	Inlet		Outlet			
TCR 20	5-8	11-18	30	1.2	15-30	20-40	1,400	3,086	900	35	1,450	57	464 x 461	18 x 18	610 x 461	24 x 18
TCR 40-1/2	8-17	18-37	30	1.2	37-55	50-75	2,200	5,070	900	35	1,750	69	706 x 465	28 x 18	706 x 462	28 x 18
TCR 75-1/2	15-27	33-60	30	1.2	75-110	100-150	3,850	9,259	1,300	51	1,950	59	924 x 656	36 x 26	924 x 593	36 x 23

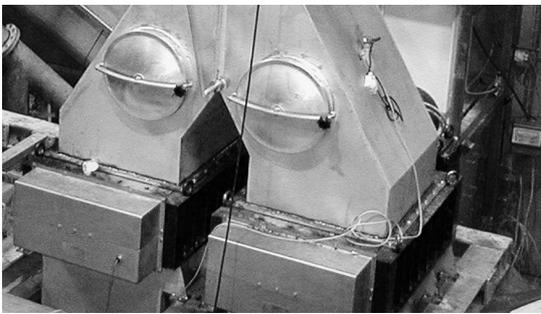
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FINE CRUSHER



Smaller, more consistent particle sizes are an effective path to better efficiency in a wide range of meat and poultry processing setups. Smaller particles make heating processes more cost-effective and energy-efficient, making Haarslev Fine Crushers a valuable addition to processing lines that focus on operating costs.

“
FOR REDUCING THE SIZE OF
PARTICLES IN ALL KINDS OF MEAT
AND POULTRY BY-PRODUCTS, OR
DELUMPING FEATHERS.

The rugged, reliable Haarslev Fine Crusher cuts down pre-broken meat and poultry by-products to particle sizes of 13 mm, with throughputs of as much as 18 tons/hour.

You can also use these units for separating lumped-together feathers.



APPLICABLE FOR:

- Continuous feather processing, including hydrolysis
- Reducing the size of particles of meat and poultry by-products for use in low-temperature wet rendering

BENEFITS

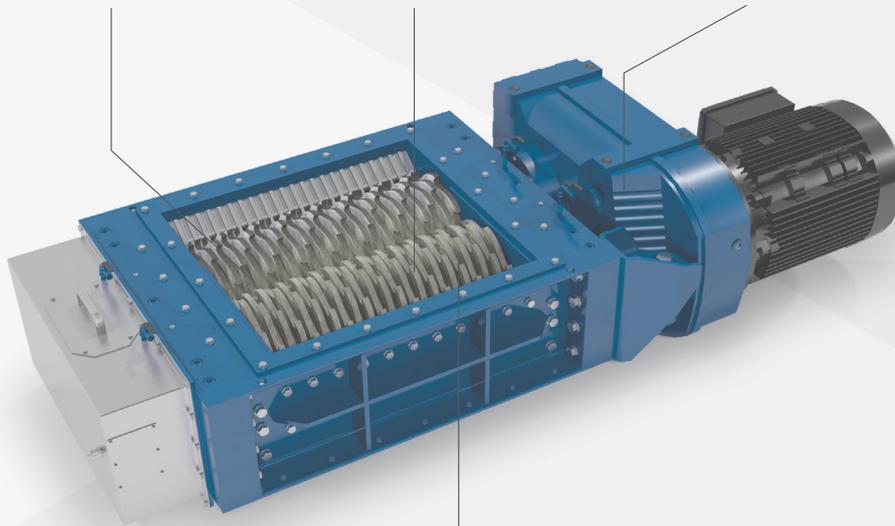
- High reliability that ensures uninterrupted operation
- Small clearance between knives, for good cutting performance
- Close-spaced cutting knives mean the input material is cut, rather than being ripped apart
- Easy to replace cutting blades and ensure maximum uptime

**MEAT AND POULTRY
BY-PRODUCTS, OR FEATHERS**

Surface-ground knives for durability and effective cutting

Parallel counter-rotating shafts fitted with replaceable cutting blades

Heavy-duty motor drives one shaft directly, with gears connecting the two rotating shafts



Can be fitted with cutting blades of different sizes

**MORE EFFECTIVE DOWNSTREAM PROCESSES
BECAUSE THE MATERIAL PARTICLES ARE
SMALLER AND MORE CONSISTENT**

TYPE	CAPACITY (t/h)/(th. lb/h)		ANVIL GAP (mm)/(inch)		DIMENSIONS (mm)*/(inch)						MOTOR POWER (kW)/(hp)		SHIPPING WEIGHT (kg)/(lbs)	
					Length (L)		Height (H)		Width (W)					
FC23/37	10 - 18	22 - 40	23	0.9	2,762	109	660	26	1,030	41	45	60	3,500	7,716
FC18/47	10 - 18	22 - 40	18	0.7	2,762	109	660	26	1,030	41	45	60	3,500	7,716
FC13/65	3 - 15	7 - 33	13	0.5	2,762	109	660	26	1,030	41	45	60	3,500	7,716

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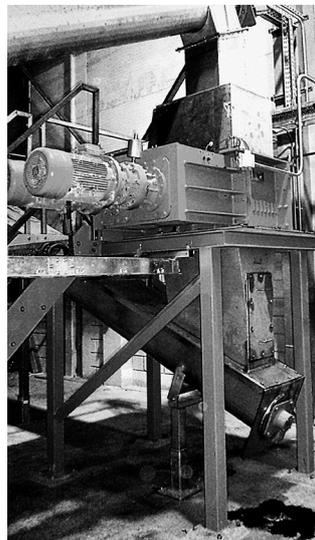
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ROLLER CRUSHER



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MAKES SURE PARTICLES OF COOKED ANIMAL BY-PRODUCTS HAVE A CONSISTENT SIZE BEFORE THEY'RE SENT FOR FAT SEPARATION IN DRY RENDERING PROCESSES.



APPLICABLE FOR:

- Upstream from fat separation in dry rendering processes
- Upstream from fat screw presses, as a protective measure

The Haarslev Roller Crusher makes sure particles of cooked animal by-products have a consistent size before they are sent for fat separation in dry rendering processes. A roller crusher is particularly effective in breaking down the biggest particles of bone, because bone is relatively brittle and therefore easier to crush. Any particles in the greaves exiting the roller crusher unit have been reduced to a maximum size of about 25 mm.

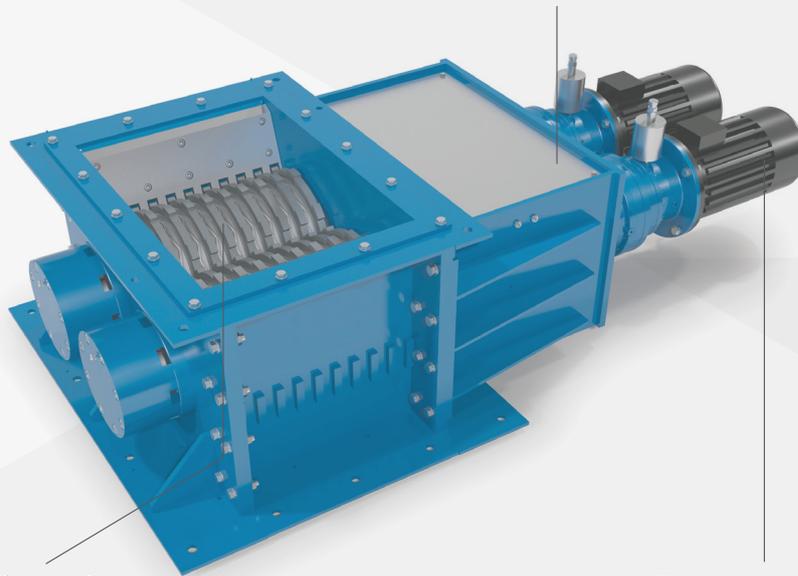
Another big practical advantage is that any larger pieces of metal that might be present are caught in this roller crusher, instead of damaging the fat screw presses elsewhere in your processes.

BENEFITS

- Less wear on downstream screw presses because bone particles are smaller
- Lower maintenance costs for fat screw presses
- Long service life because key components are made of wear-resistant steel

COOKED ANIMAL BY-PRODUCTS

Electronic rotation monitoring to protect drive unit should any blockages occur



Rotating knives made of wear-resistant steel to ensure long service life

Motors and gears as one unit, for greater reliability

FAT SCREW EQUIPMENT

TYPE	CAPACITY (t/h)/(lb/h)		ANVIL GAP (mm)/(hp)		MOTOR POWER (kW)/(hp)		INLET DIMENSION* (mm)/(hp)		OUTLET DIMENSION* (mm)/(inch)		WEIGHT (kg)/(lb)	
RC 10	5-12	1,000	20-25	1	2 x 75	2 x 10	520 x 736	20.5 x 29	520 x 736	20.5 x 29	1,800	3,968

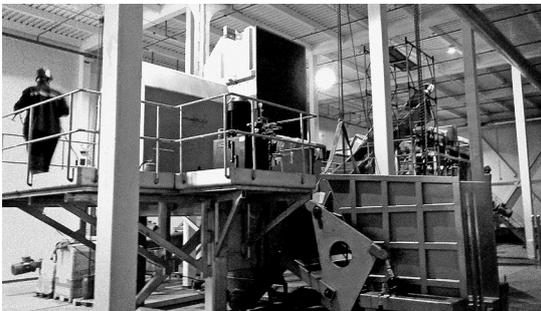
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FROZEN BLOCK CRUSHER



“

CRUSHES LARGE BLOCKS OF FROZEN BONE-FREE MEAT AND POULTRY BY-PRODUCTS, OFFCUTS AND TRIMMINGS.

The Haarslev Frozen Block Crusher is ideal for effectively and reliably crushing blocks of frozen meat and poultry by-products, offcuts and trimmings of all kinds. Such blocks often come from vertical plate freezers, and the material is usually destined for use in pet food.



APPLICABLE FOR:

- Wherever blocks of frozen meat and poultry by-products enter a processing plant
- Upstream from metal detectors, batching silos, etc.
- Preliminary processing before use of grinding equipment

These large crushers are available in two configurations. The single-shaft unit can crush up to 15 tons/hour of individual frozen blocks, while the double-shaft unit is best for crushing whole pallets of frozen blocks, with an output of 50 tons/hour or more.

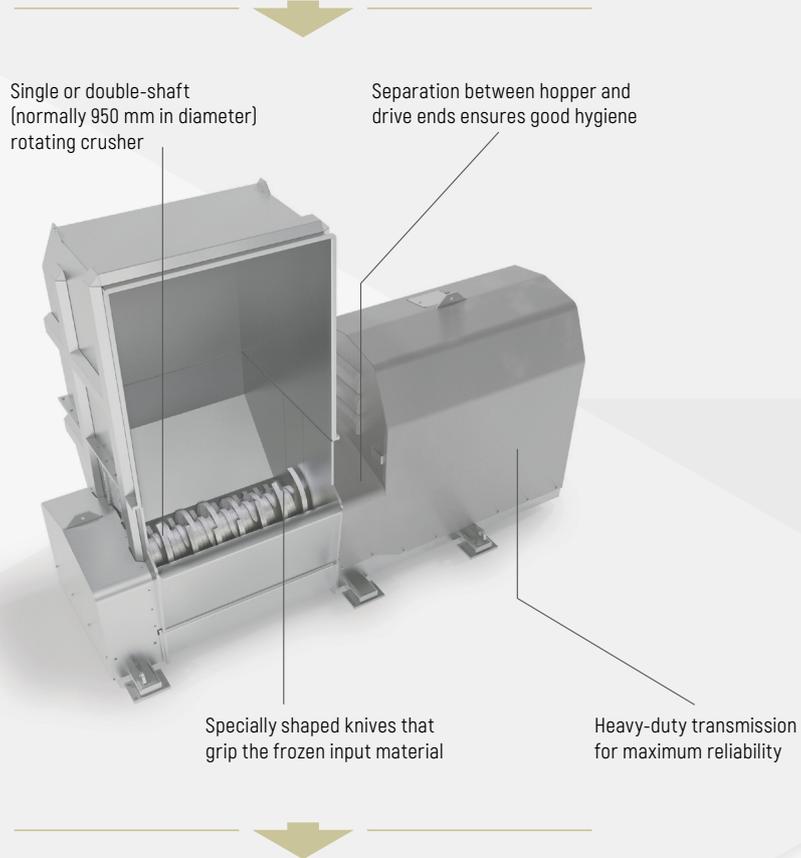
Both block crusher types feature knives specially shaped to grip the frozen input material, for effective crushing. This ensures outputs consisting of fist-sized pieces – ideal for efficient grinding further along in your process.

Haarslev Frozen Block Crushers can be combined with a wide range of hoppers, mounting frames, feed systems, discharge systems and other ancillary equipment.

BENEFITS

- Rugged and reliable to ensure uninterrupted operation
- Effective crushing of large quantities of frozen material
- Easy to keep clean and maintain

**BLOCKS OF FROZEN BONE-FREE
MEAT AND POULTRY BY-PRODUCTS,
OFFCUTS AND TRIMMINGS**



**INPUTS FOR
PET FOOD, ETC.**

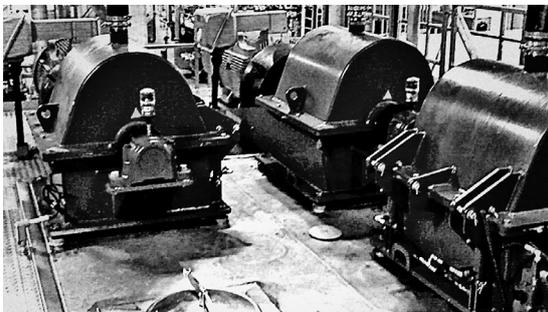
TYPE	CAPACITY (t/h) / [lb/h]		ANVIL GAP (mm) / [inch]		MOTOR POWER (kW) / [hp]		WEIGHT (kg) / [lb]	
FZ 600	7.5 - 10	22,046	40	1.6"	55	75	7,000	15,432
FZ 750	12 - 14	30,864	60	2.4"	75	100	10,000	22,046
FZ 750 HD	12 - 14	30,864	60	2.4"	110	150	13,000	28,660
FZ 750 TWIN	50	11,0231	95	3.7"	2 x 75	2 x 100	17,000	37,478

We reserve the right to alter the specifications at any time without prior notice.



HAARSLEV™
Processing Technology

WET MILL



The Haarslev Wet Mill is designed for crushing and grinding large volumes of wet poultry or red meat.

This type of hammer mill equipment is usually part of a complete Haarslev fluidizer system, used for sizing coarse “wet” inputs into a meat slurry consisting of small particles that can be cooked quickly, with only a short retention time. Tallow can be pumped in from the fluidizer system to ensure the most efficient flow.

Everything that doesn’t pass through the screen is continually recirculated for further grinding – until it can. This ensures a consistent output, which is ideal for the efficiency of your downstream evaporation processes.

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FOR CRUSHING AND
GRINDING POULTRY OR RED
MEAT RAW MATERIALS.



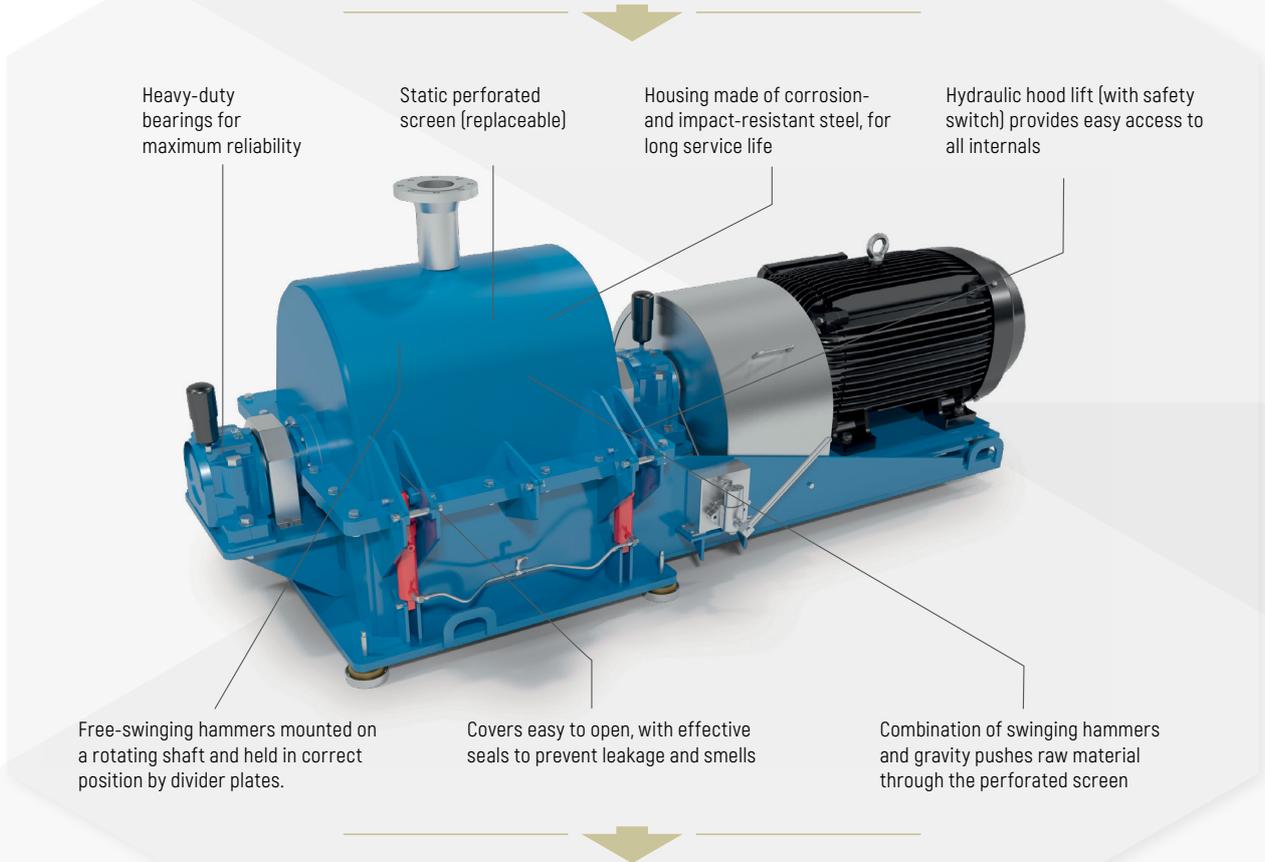
APPLICABLE FOR:

- Turning “wet” poultry or meat raw materials into a slurry
- As part of a fluidizer system
- Preparation for efficient evaporation processes

BENEFITS

- Continual recirculation ensures outputs with consistent particle size
- Ruggedly engineered for maximum reliability and minimal maintenance
- Easy to swap out wearing parts, for maximum uptime and long service life

**PRE-BREAKER AND
APPROPRIATE METAL
DETECTOR EQUIPMENT**



**CONSISTENT SLURRY
SUITABLE FOR
DOWNSTREAM EVAPORATION**

TYPE	ROTOR LENGTH (mm)/(inch)		HAMMER	POWER (kW)/(hp)		MOTOR (rpm)	WEIGHT (kg)/(lb)	
HWM 44	711	28	2 or 4 per row 44/92 units	150 kW	200	1,800	3,100	6,835

We reserve the right to alter the specifications at any time without prior notice.



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Processing Technology

PUMP-FED GRINDER



The Haarslev Pump-fed Grinder performs particularly well with softer viscous, pumpable inputs. The connected feed pump ensures a consistent flow rate that helps eliminate slippage. The consistent flow also ensures clean cutting of the material passing through the grinder, and outputs in best possible condition.

You can figure these high-capacity grinder units in many different ways as part of a fluidizer system for sizing viscous animal by-products – with feeds by pump alone, by mixer with pump, by silo with pump, etc.

“

HIGH-CAPACITY PUMP-FED
GRINDER FOR REDUCING PARTICLE
SIZE IN RELATIVELY, SOFT
VISCIOUS ANIMAL BY-PRODUCTS.



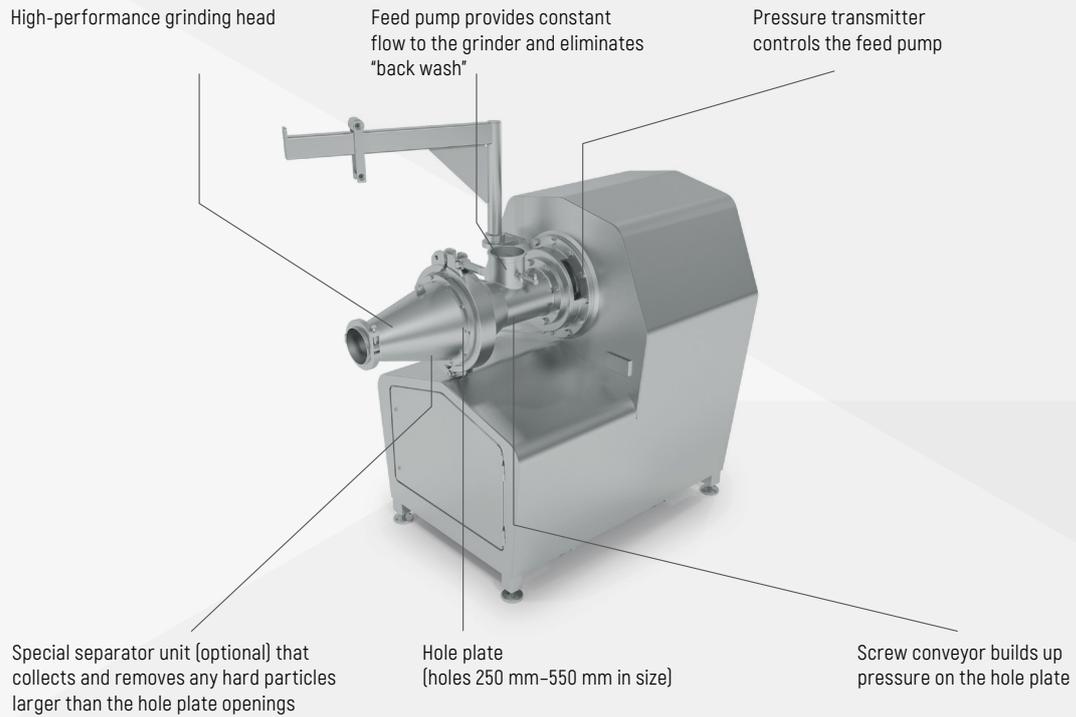
APPLICABLE FOR:

- Wet rendering plants
- Pet food plants
- Fat melting plants

BENEFITS

- Performs well with sloppy, viscous inputs, with excellent particle definition and clean cutting
- Consistent flow rates, with good control of particle size and minimum temperature increase
- Self-regulating feed pump ensures outputs in best possible condition
- Consistent operating pressure results in less wear on knives and hole plates

VISCOUS, PUMPABLE ANIMAL BY-PRODUCTS



COOKING, HEATING AND COAGULATING PROCESSES

TYPE	HOLE PLATE DIAMETER (mm)	CAPACITY (kg/h)/(lb/h)		DIMENSIONS (mm)*/(ft-inch)					
				Length (L)		Height (H)		Width (W)	
HF250P	Ø250	2,000 - 3,500	4,410-7,715	1,600	5' 3"	1,450	4' 10"	1,100	3' 8"
HF300P	Ø300	3,000 - 6,500	6,615-14,330	1,700	5' 7"	1,700	5' 7"	1,200	4'
HF400P	Ø400	5,000 - 12,500	11,025-26,455	1,800	5' 11"	1,850	6' 1"	1,250	4' 2"
HF550P	Ø550	10,000 - 25,000	22,045-55,115	2,700	8' 11"	2,600	8' 7"	1,350	4' 6"

* All statements of dimensions are approximate.

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HAARSLEV™
Processing Technology

HOPPER-FED GRINDER



“

SIMPLE, GRAVITY-FED GRINDER FOR ALL KINDS OF ANIMAL BY-PRODUCTS, MAINLY COARSER OR FROZEN.

Haarslev Hopper-fed Grinders are reliable, larger-capacity units that are ideal for grinding fine or coarse, fresh or frozen animal by-products, prior to further processing in which consistent particle size helps increase efficiency.

However, they are very versatile, and can be used for many different kinds of inputs. A built-in screw conveyor maintains pressure inside the grinder, helping make sure of outputs with a consistent particle size.



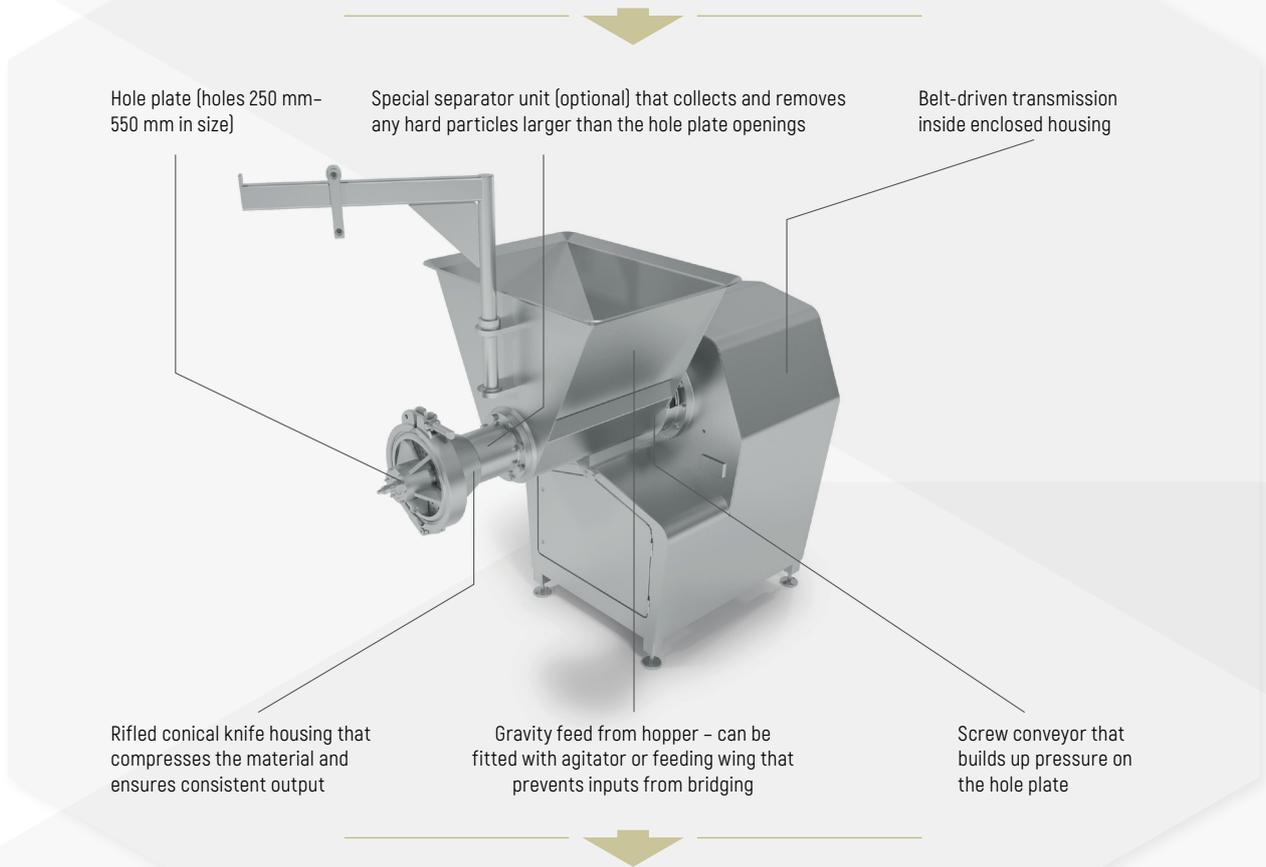
APPLICABLE FOR:

- After pre-breaker or frozen block crusher
- Wet rendering plants
- Pet food plants
- Fat melting plants

BENEFITS

- Conical knife housing ensures a consistent output
- Materials and surfaces have an edible-grade finish, and are easy to keep clean
- Well-engineered drive unit for low-noise operation
- Low operating costs and long-term reliability

HARD AND/OR FROZEN ANIMAL BY-PRODUCTS



COOKING, HEATING AND COAGULATING PROCESSES

TYPE	HOLE PLATE DIAMETER (mm)	CAPACITY (kg/h)/(lb/h)		DIMENSIONS (mm) [*] /(ft-inch) [*]					
				Length (L)		Height (H)		Width (W)	
HF250H	Ø250	2,500 - 4,500	5,510-9,920	2,200	7' 3"	1,600	5' 3"	1,100	3' 8"
HF300H	Ø300	4,000 - 7,000	8,820-15,430	2,400	7' 11"	1,900	6' 3"	1,200	4'
HF400H	Ø400	8,000 - 12,000	17,635-26,455	3,100	10' 3"	2,000	6' 7"	1,250	4' 2"
HF550H	Ø550	12,000 - 25,000	26,455-33,070	3,300	10' 10"	2,600	8' 7"	1,350	4' 6"

** All statements of dimensions are approximate.*

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HAARSLEV™

Processing Technology

HORIZONTAL HYDROLYZER



This breaks down the cellular structure of the feathers, and makes the fibers disintegrate and dissolve.

Supplied as a complete, ready-to-install unit with all the necessary instruments and valves, this hydrolyzer is inexpensive to operate and has only a few moving parts.

“

**EASY-TO-OPERATE HYDROLYZER
FOR PROCESSING WET FEATHERS
INTO FEED MEAL.**

Solidly engineered, these units are also extremely reliable, so you can be sure of an uninterrupted supply of hydrolyzed feathers to your drying operations.

If you have a supply of wet feathers you want to process into higher-value feed meal, the Haarslev Horizontal Hydrolyzer is the most advanced, easy-to-operate way to do it, by injecting both direct and indirect steam into a heavily compressed plug of feathers.

BENEFITS

- Manpower savings and high output because of continuous, automated operation
- Outputs of consistent quality and specification, helping make your downstream drying processes more effective
- Uses very little steam, keeping your operating costs down
- Effective safeguards against plug feed loss
- Fully assembled, easy to install
- Can feed directly into a dryer



APPLICABLE FOR:

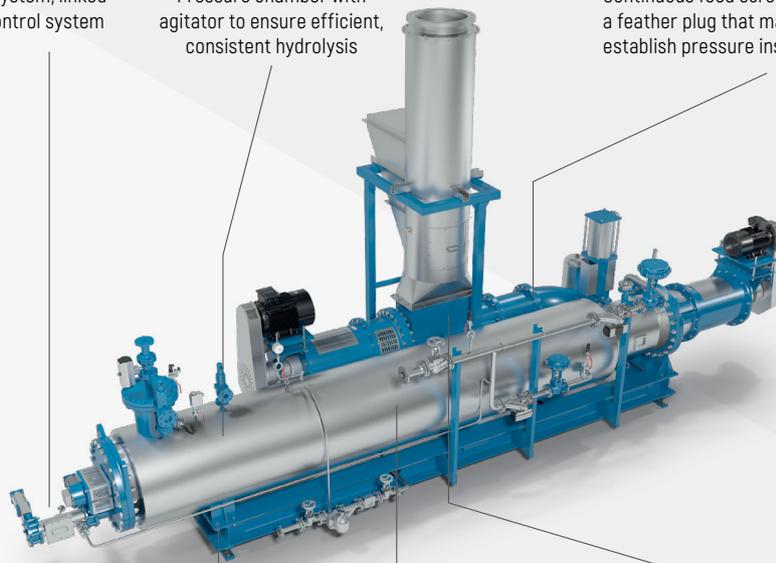
- Poultry rendering plants
- Specialist operations that involve feather processing

**RELATIVELY FRESH, WET FEATHERS
OF VIRTUALLY ANY QUALITY/
SPECIFICATIONS AND IN ANY
CONDITION**

Discharge valve system, linked to the process control system

Pressure chamber with agitator to ensure efficient, consistent hydrolysis

Continuous feed screw that establishes a feather plug that makes it possible to establish pressure inside the hydrolyzer



Load cell ensures most effective fill level and maximum throughput

Steam jacket that heats the feather plug to break down the cellular structure of the feathers

Drain that removes excess water from the raw feathers

**FEATHER HYDROLYZATE THAT CAN
BE FED DIRECTLY INTO A DRYER AS
PART OF PROCESSING INTO ANIMAL
OR AQUATIC FEED**

TYPE	CAPACITY* (t/h)/(lb/h)		DIMENSIONS (mm)**/(inch)**						WEIGHT (mt)/(lb)		POWER, FEEDER (kW)/(hp)		POWER, HYDROLYZER (kW)/(hp)	
			Length (L)		Height (H)		Width (W)							
CFH-50	5.0	11023	9,250	364	3,100	104	2,600	102	15	33,000	37	50	18.5	25
CFH-75	7.5	16534	10,250	404	3,200	126	2,650	104	16	35,000	45	60	22	30
CFH-120	12.0	26455	10,950	431	3,450	136	3,000	118	18	40,000	55	75	30	40

* Capacity at 70% moisture

** All statements of dimensions are approximate.

We reserve the right to alter the specifications at any time without prior notice.



HAARSLEV™

Processing Technology

VERTICAL HYDROLYZER



If you need to process feathers or hog hair into a high-quality feed meal that contains a minimum of indigestible proteins, the Haarslev Vertical Hydrolyzer is an extremely effective way to do it.

The fibers disintegrate when pressure-cooked at high temperatures under controlled conditions. Full control and the right balance between pressure and retention times – with your input material only very briefly exposed to high temperatures – help you achieve feed outputs of the quality you require. These units are available with processed raw material capacities up to 10 metric tons per hour. After hydrolysis, your raw material can be dewatered effectively using a screw press or decanter centrifuge, and then dried.

“

EFFICIENT HYDROLYSIS OF POULTRY FEATHERS OR HOG HAIR, WITH FULL CONTROL OF PROCESS CONDITIONS IN ORDER TO ENSURE BETTER-QUALITY OUTPUT.



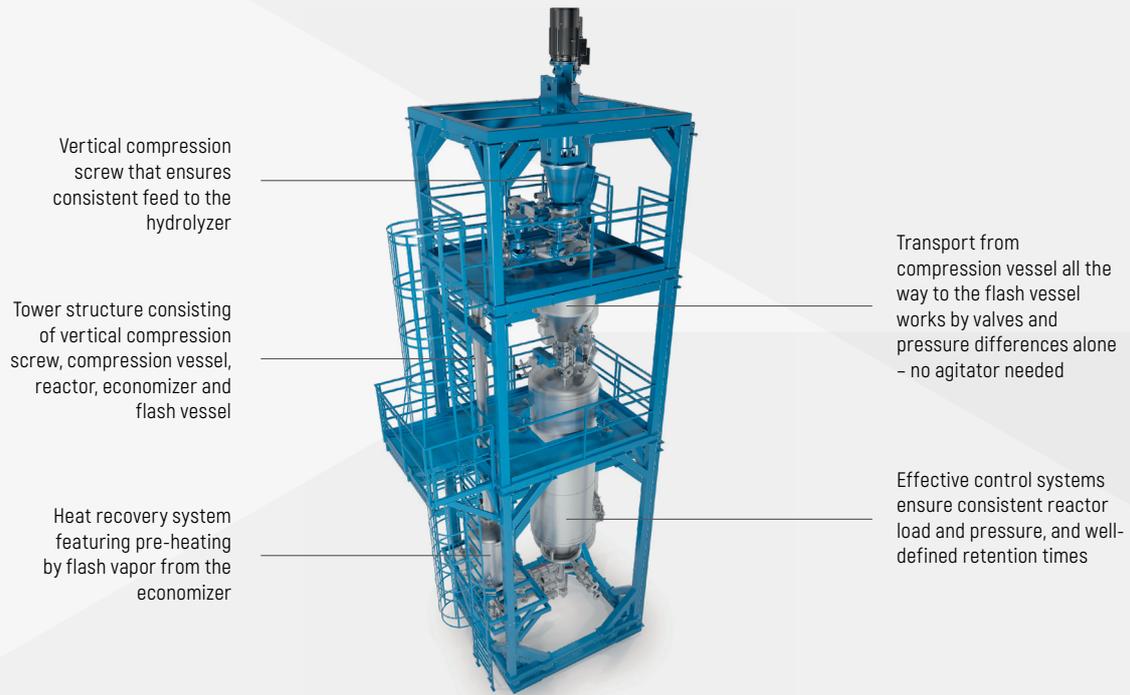
APPLICABLE FOR:

- Independent rendering operations
- Poultry rendering plants
- Specialist operations involving feathers or hog hair

BENEFITS

- Processing effectiveness unaffected by variations in input specs
- Operates with direct high-pressure steam supply and short retention time
- Direct steam supply does away with heating surfaces, eliminating the risk of input material scorching
- No rotating or moving parts – very reliable and only minimal maintenance required
- Flash vapor released from the hydrolyzed material is re-used for pre-heating
- Effective heat recovery system reduces energy consumption and operating costs
- Advanced instrumentation and control systems ensure high product quality

FEATHERS OR HOG HAIR OF VIRTUALLY ANY QUALITY/ SPECIFICATIONS AND IN ANY CONDITION



HYDROLYSIS UNDER PRESSURE TO MAKE FIBERS IN THE INPUT MATERIAL DISINTEGRATE, READY FOR MECHANICAL DEWATERING USING A SCREW PRESS OR DECANTER CENTRIFUGE

TYPE	NOMINAL CAPACITY* (t/h)/(lb/h)		COMPRESSED AIR (Nm ³ /h)/(ft ³ /h)		STEAM SUPPLY		DIMENSIONS**					
					kg/lb OF RAW MATERIAL		Height (m)/(inch)		Weight (t)/(lbs)		Volume (m ³)/(ft ³)	
100	up to 10	22,046	35	2,119	0.3	0.7	10.7	42	16.5	28,660	86	3,037

* Capacity at 70% moisture

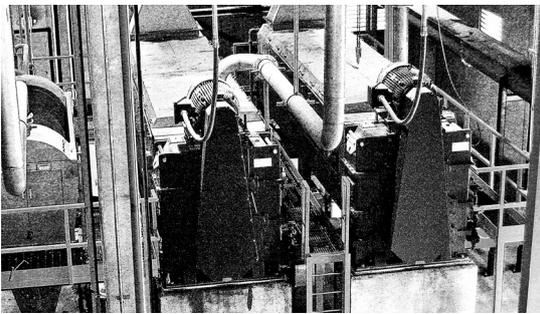
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HAARSLEV™
Processing Technology

TWIN-SCREW PRESS



A Haarslev Twin-screw Press is ideal for extracting liquid from cooked fish or meat as part of wet rendering processes. These units provide you with an effective way to remove water from the fats and solids content in cooked fish or meat. This then helps you improve the overall efficiency of subsequent processing and paves the way to significant energy savings.



APPLICABLE FOR:

- Haarslev twin-screw presses are often used to extract liquid from cooked fish or meat as part of low-temperature wet rendering processes.
- They are also ideal as the first stage in mechanical dewatering processes, before the material enters a centrifugal decanter centrifuge.
- They can also be used in high-capacity feather plants.

These presses consist of two intermeshing, counter-rotating screws enclosed by a strainer shell and surrounded by a cover. There are bi-conical and cylindrical options, consisting of a conical shaft with either conical or cylindrical flights.

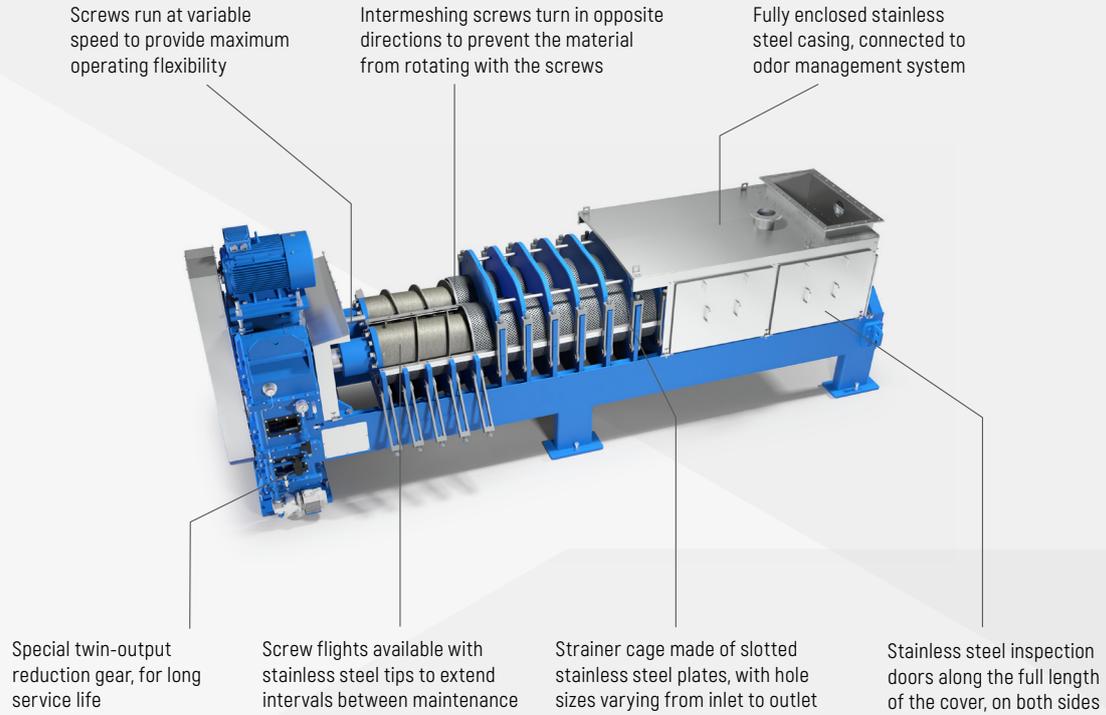
In both types, the flights of one screw reach almost into the core of the other screw, providing high compression and minimum slip and a more consistent press cake with a low content of both moisture and oil/fat.

Haarslev twin-screw presses are ideal as a reliable, slow-rotating (3 rpm) alternative to decanter centrifuges (3600 rpm). You can set the screws to turn at varying speeds to provide the flexibility you need to handle different raw materials and input volumes. For example, bi-conical configurations are better for use with soft fish. Bi-conical versions also provide higher liquid removal capabilities for any given rpm, compared to cylindrical presses.

BENEFITS

- Higher solids content in press cake than with decanter centrifuges
- Easy to operate and monitor using advanced control system
- Easy to connect to odor control system, to minimize impacts
- Exceptional service life
- Easy to refurbish when they finally wear out

COAGULATOR/ PRE-COOKER/COOKER



DRYER EQUIPMENT MECHANICAL DEWATERING USING DECANTER CENTRIFUGES

TYPE	NOMINAL CAPACITY* (t/h)	DIMENSIONS**(mm)/(inch)						SHIPPING WEIGHT (mt)/(th.lb)		INSTALLED POWER (kW)/(hp)	
		Length (L)		Height (H)		Width (W)					
TP 24	2.5	4,400	147	1,250	41	1,030	47	3.0	8	11	15
MS 35	5	5,460	95	1,800	26	1,300	21	7.0	15	18.5	25
MS 41	13	4,600	174	2,000	63	1,500	42	9.5	21	37	50
MS 49	18	5,700	224	2,400	71	1,950	59	15.5	35	55	75
MS 56	25	6,700	260	2,500	75	1,870	57	23.0	51	75	100
MS 64	40	7,400	291	2,800	85	2,100	68	31.0	70	110	150
RS 64	50	8,350	328	2,800	85	2,100	68	34.0	75	132	200
XS 88F	60	8,400	326	2,850	126	2,165	85	46.0	101	132	200

* Depending on e.g. material composition and density

**All statements of dimensions are approximate

We reserve the right to alter the specifications at any time without prior notice.



HAARSLEV™
Processing Technology

BATCH COOKER



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BATCH COOKER SETUP FOR PRESSURE COOKING, HYDROLYSIS OR DRYING A WIDE RANGE OF ANIMAL AND POULTRY BY-PRODUCTS.

Making sure there is no water left in the input material is crucial prior to fat separation. This makes an effective cooker vital for any batch-based dry rendering process to operate profitably.



APPLICABLE FOR:

- As part of high-temperature dry rendering lines in meat or poultry processing plants
- Poultry rendering operations involving hydrolysis of the feathers
- Straightforward, smaller-capacity batch cooking operations (less than 3 metric tons/hour)
- Pressure cooking animal by-products containing wool or hair into pet food

The Haarslev Batch Cooker is a straightforward, quick-to-install unit that you can bring on line quickly for the cooking, pressure cooking, hydrolysis or drying of an exceptional range of animal and poultry by-products. These include mixed meat offal and bones, poultry offal and wet feathers.

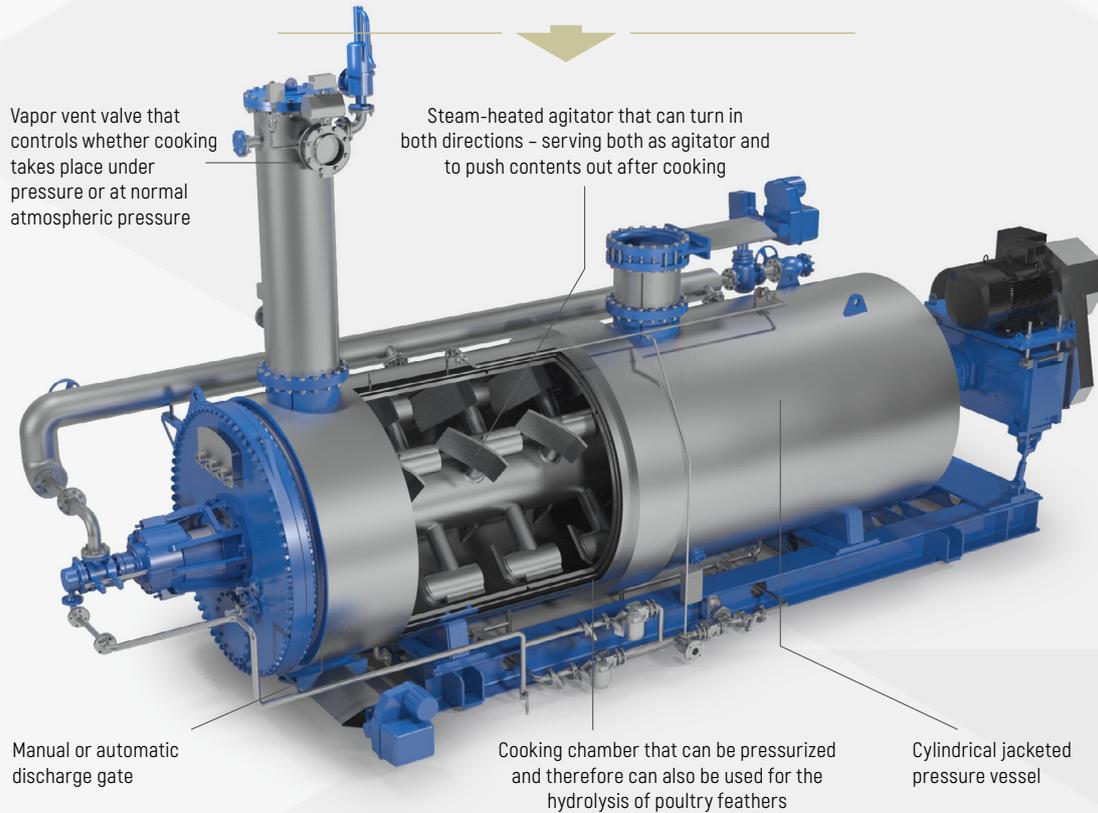
It can operate at the 133°C temperatures important for sterilization, and is ideal for smaller-batch processing of particularly large particles (up to 50mm) – which helps cut back on pre-cooking crushing requirements.

Furthermore, this solidly engineered, well-proven cooker can operate under pressures of up to 5 bar, ensuring your processing setup complies with the 2009/2011 EU Animal By-products Directive and can even process inputs containing hair, wool or feathers, for use in pet food. Cooking under pressure means any required sterilization can take place at temperatures down to 70–80°C.

BENEFITS

- Simple, rugged equipment for effective cooking and drying in batches – pressurized if required
- Very versatile – ideal for heating and drying a wide range of animal and poultry by-products
- Delivered pre-configured with all necessary valves, instruments, steam trap system, safety valve and insulation as standard
- Effective control of temperature, pressure and retention time ensures best-quality output

**ANY KIND OF RELATIVELY GOOD
QUALITY ANIMAL OR POULTRY
BY-PRODUCTS THAT CANNOT JUSTIFY A
CONTINUOUS PROCESSING SETUP**



**DRIED MATERIAL FOR ANIMAL
FEED OR PET FOOD, READY
FOR FAT SEPARATION**

TYPE	DIMENSIONS* (mm)/(ft-inch)						DESIGN PRESSURE JACKET AND ROTOR** (bar)/(psi)		DESIGN PRESSURE COOKER** (bar)/(psi)		HEATING SURFACE (m ²)/(ft ²)		POWER (kW)/(hp)		WEIGHT (kg)/(lbs)	
	Length (L)		Height (H)		Width (W)											
BC5000	5,335	17' 7"	2,070	5' 4"	1,625	6' 10"	10	145	5	72,5	25	265	37	50	12,000	26455
BC6500	6,365	20' 11"	2,070	5' 4"	1,625	6' 10"	10	145	5	72,5	33	349	45	60	13,000	28660
BC8500	7,235	27' 7"	2,305	5' 10"	2,110	7' 7"	10	145	5	72,5	41	437	55	75	19,000	41887
BC10000	8,320	27' 4"	2,305	6' 11"	2,110	7' 7"	10	145	5	72,5	49	523	75	100	25,000	55115
BC12500	9,180	27' 4"	2,520	6' 11"	2,470	7' 7"	10	145	5	72,5	57	611	90	100	29,000	63933
BC16000	9,525	31' 3"	2,700	8' 8"	2,730	9'	10	145	5	72,5	65	693	110	150	35,000	77161
BC20000	9,525	31' 9"	2,700	10' 1"	2,730	9' 7"	10	145	5	72,5	71	758	132	200	40,000	88184

* All statements of dimensions are approximate.

** Based on PED approval.

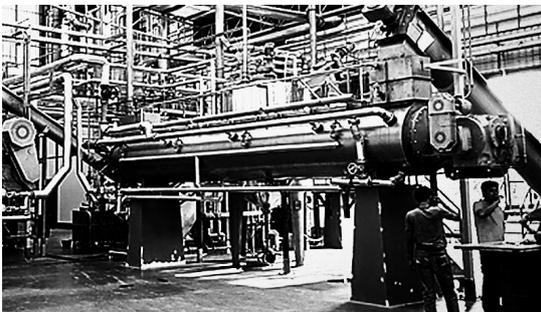
We reserve the right to alter the specifications at any time without prior notice.



HAARSLEV™

Processing Technology

SCREW COOKER



Rugged, energy-efficient Haarslev screw cookers are ideal for processing setups where inputs vary in both quality and composition, with a bare minimum of pre-cooking preparation. You can choose throughputs from 2 to 50 metric tons per hour, and the modulating valve for the steam supply makes it easy to process even small volumes if and when needed.

“

STRAIGHTFORWARD, LARGE-CAPACITY STEAM-HEATED UNIT AS PART OF PRODUCING HIGH-VALUE MEAL BY COOKING A WIDE RANGE OF INPUTS WITH FLUCTUATING QUALITY.

These are straightforward, heavy-duty units in which the steam-heated screw rotor and flights mounted on it distribute heat evenly while the rotor gently moves the material through the cooker. This only involves a minimum of mechanical agitation, which provides better quality outputs, using as little energy as possible.



APPLICABLE FOR:

- Sea or land-based fish meal plants
- Poultry rendering plants

BENEFITS

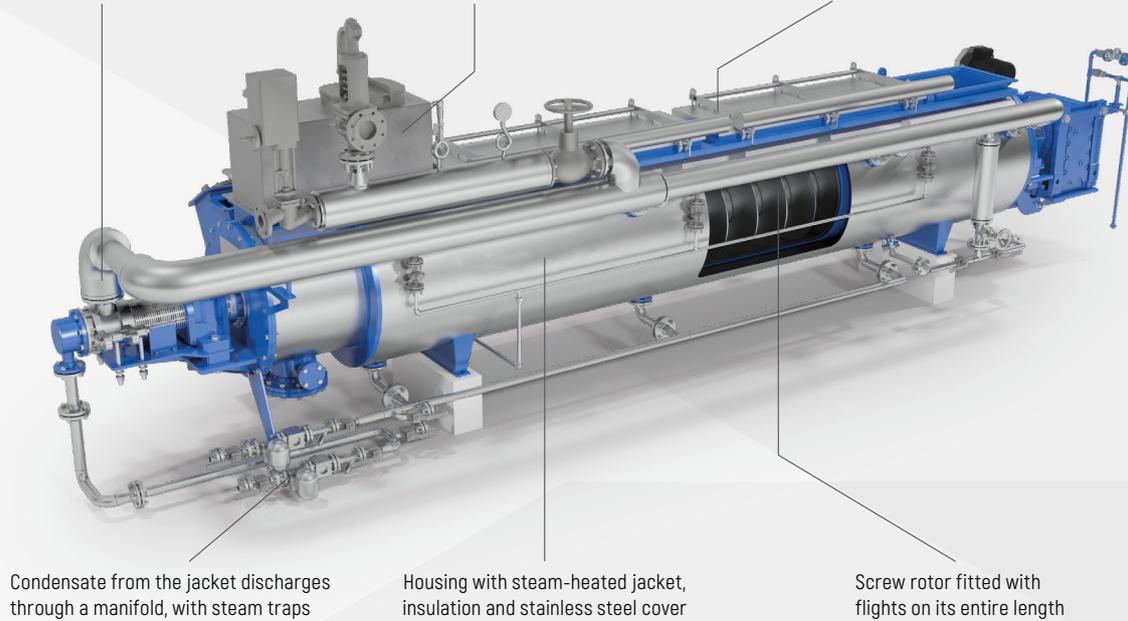
- Energy-efficient, with maximum throughput per dollar
- Easy cleaning using standard high-pressure equipment
- Easy inspection of the cooked material at outlet end
- Good basis for more effective solids/liquid separation in downstream presses and decanter centrifuges

**CONTINUOUS FEED OF FRESH FISH
OR POULTRY RAW
MATERIAL OF VIRTUALLY ANY
KIND, ENTERING COLD**

Steam-heated screw rotor moves material through the cooker

Modulating valve for adjusting steam pressure

Hinged hatches for easy inspection and cleaning



Condensate from the jacket discharges through a manifold, with steam traps

Housing with steam-heated jacket, insulation and stainless steel cover

Screw rotor fitted with flights on its entire length

**COOKED MATERIAL EXITS
HOT, READY FOR MECHANICAL
SEPARATION INTO SOLIDS AND
LIQUIDS**

TYPE	MIN. RECOMMENDED CAPACITY (kg/h)/(lb/h)		MAX. RECOMMENDED CAPACITY (kg/h)/(lb/h)		DIMENSIONS* (mm)/(inch)						WEIGHT (t)/(lb)	
					Length (L)		Height (H)		Width (W)			
SFC 0605	3,500	7,716	4,500	9,920	6,600	262	1,000	41	1,200	47	4	9
SFC 0806	7,000	15,432	8,500	18,739	8,250	325	1,900	73	1,900	73	10	26
SFC 0808	9,500	20,943	12,000	26,455	10,210	402	1,900	73	1,900	73	14	31
SFC 1108	15,000	33,069	19,000	41,887	10,750	429	2,300	93	2,400	87	18	44
SFC 1110	20,000	44,092	25,000	55,115	12,580	504	2,300	93	2,400	87	23	51
SFC 1112	24,000	52,910	30,000	66,138	14,800	585	2,300	93	2,400	87	27	60
SFC 1310	23,000	50,706	29,000	63,933	13,020	514	2,450	96	2,350	87	32	71
SFC 1312	28,000	61,729	35,000	77,161	15,020	593	2,450	96	2,350	87	35	79
SFC 1314	33,000	72,752	41,000	90,389	17,020	671	2,450	96	2,350	87	40	88
SFC 1612	38,000	83,775	48,000	105,821	15,100	596	2,900	163	2,750	94	41	88
SFC 1614	45,000	99,207	56,000	123,458	17,100	675	2,900	136	2,750	94	48	104
SFC 1616	52,000	114,640	65,000	143,300	19,100	754	2,900	136	2,750	94	55	121

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HAARSLEV™
Processing Technology

DISC DRYER



FOR CONTINUOUS DRYING OF
DE-FATTED FISH, ANIMAL OR
POULTRY BY-PRODUCTS.

A Haarslev Disc Dryer is the ideal solution for removing as much water as possible, as gently as possible, from coarser fish, animal or poultry by-products with a low fat content.



APPLICABLE FOR:

Haarslev disc dryers are ideal for drying products that include:

- Defatted animal by-products such as meat and bone
- Defatted fish by-products
- Hydrolyzed feathers
- Mechanically dewatered blood

Designed to use steam pressures of up to 10 bar, these dryers have become the solution of choice for coarser inputs featuring lower fat levels, because they make use of the natural fatty content in the material.

These sturdy, reliable units are built around a rotor consisting of a central shaft fitted with multiple steam-heated discs. These apply indirect heat over a very large area, in a compact design that quickly and effectively removes the evaporated water vapor. This means as much heat as possible gets transferred to the material in the dryer.

The dried material is discharged at the bottom, using a screw conveyor fitted with variable-speed drive. This can be adjusted independently of the dryer itself, providing maximum flexibility. Vacuum drying configurations are also available to provide exceptional end-product quality.

BENEFITS

- Relatively large heating surface provides exceptional evaporation in a compact design
- Good control of load level inside the dryer, making sure the rotating discs transfer heat as efficiently as possible
- Effective heat transfer because condensate is removed quickly
- Full control of drying processes enables you to boost yield and product quality
- Exceptional reliability and long service life thanks to cool-running, oil-lubricated bearings

**RELATIVELY HOMOGENOUS,
GRANULAR FISH, ANIMAL OR
POULTRY BY-PRODUCTS WITH
A LOW FAT CONTENT**

Full-length vapor dome reduces carry-over and separates solids from the evaporated water vapor

Scraper bars prevent material accumulating between the discs

Steam-heated, double-wall discs (featuring fewer exposed welds than any other design)

Removable covers provide easy inspection, cleaning and adjustment

Paddles on the edges of the discs agitate the material and move it through the dryer towards the discharge outlet

Material dried by direct contact with these discs, which are welded onto a rotating shaft

Discharge screw conveyor fitted with variable-speed drive ensures positive discharge

**DRIED FISH OR ANIMAL
PROTEIN MATERIAL,
READY FOR COOLING
AND MILLING**

TYPE	HEATING SURFACE (m ² / ft ²)		STEAM JACKET (m ² / ft ²)		POWER* (kW)/(hp)		DIMENSIONS(mm)/ft-inch							
							Length (L)		Width (W)		Height (H)		Weight** (t)/(lb)	
1228	60	646	8	80	30	40	7,750	25' 5"	2,050	6' 9"	2,600	8' 7"	22	49
1242	90	969	12	131	45	60	9,700	31' 10"	2,050	6' 9"	2,600	8' 7"	26	57
1537	110	1,184	13	142	45	60	9,050	29' 9"	2,200	7' 7"	3,200	10' 5"	30	66
1542	125	1,400	14	153	45	60	9,750	31' 12"	2,200	7' 7"	3,200	10' 5"	31	68
1551	150	1,615	19	204	55	75	11,100	36' 2"	2,200	7' 7"	3,200	10' 5"	37	82
1850	215	2,314	24	258	75	100	11,100	36' 2"	2,560	8' 5"	3,500	11' 5"	52	115
2050	260	2,799	26	279	75	100	11,300	38' 4"	2,800	9' 2"	3,650	12'	59	130
2064	320	3,444	34	312	90	125	13,250	43' 6"	2,800	9' 2"	3,650	12'	68	150
2264	375	4,036	37	363	110	150	14,000	45' 12"	3,000	9' 11"	3,850	12' 6"	79	174
2550	400	4,306	31	306	110	150	12,200	41' 5"	3,300	10' 10"	4,150	13' 6"	84	185
2564	515	5,543	40	392	132	200	14,150	46' 6"	3,300	11' 9"	4,150	13' 6"	99	218
2578	595	6,405	49	527	160	250	16,150	52' 11"	3,300	11' 9"	4,150	13' 6"	120	265
2864	650	7,000	47	505	160	250	14,150	46' 6"	3,600	11' 9"	4,500	14' 8"	116	300
2878	730	7,900	58	624	200	250	16,150	52' 11"	3,600	11' 9"	4,500	14' 8"	135	350

*Depending on application

**Based on 10 mm. discs and without vacuum

We reserve the right to alter the specifications at any time without prior notice.



HAARSLEV™
Processing Technology

DISC COOKER



FOR CONTINUOUS COOKING
OF ANIMAL AND
POULTRY BY-PRODUCTS.

A Haarslev Disc Cooker is the ideal solution for removing as much water as possible, as gently as possible, from animal or poultry by-products with a relatively high fat content. Designed to use steam pressures of up to 10 bar, these cookers are the preferred choice for coarser inputs.



APPLICABLE FOR:

- Haarslev disc cookers are designed to serve as the heart of continuous high-temperature wet rendering plants for meat and poultry, where the oil is removed after cooking.

They are good at dealing with animal by-products with fluctuating dry/wet specifications, prior to downstream fat separation and tallow polishing. Additional tallow can be added, if necessary for greater cooking efficiency.

These sturdy, reliable units are built around a rotor consisting of a central shaft fitted with multiple steam-heated discs. These apply indirect heat over a very large area, in a compact design that quickly and effectively removes the evaporated water vapor. This means as much heat as possible gets transferred to the material in the cooker.

The dried material is discharged at the bottom, using a screw conveyor fitted with variable-speed drive. This can be adjusted independently of the cooker itself, providing maximum flexibility.

BENEFITS

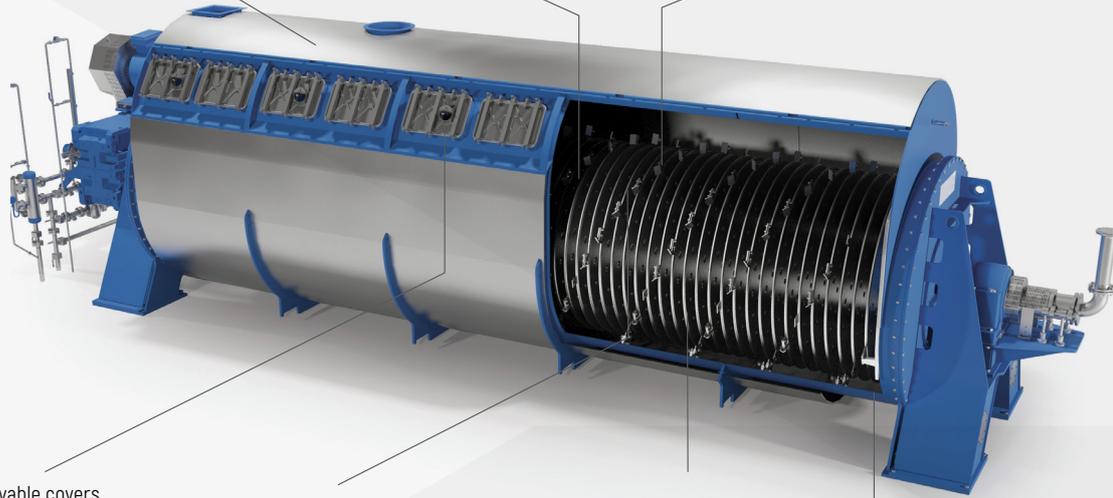
- Relatively large heating surface provides exceptional evaporation within a compact footprint
- Counterflow of steam and by-product inputs ensures high thermal efficiency
- Good control of load level inside the cooker, so that the rotating discs transfer heat as efficiently as possible
- Effective heat transfer because condensate is removed quickly
- Full control of drying processes enables you to boost yield and product quality
- Exceptional reliability and long service life thanks to cool-running, oil-lubricated bearings

**ANIMAL OR POULTRY
BY-PRODUCTS WITH
A RELATIVELY HIGH
FAT CONTENT**

Full-length vapor dome reduces carry-over and separates solids from the evaporated water vapor

Scraper bars prevent material accumulating between the discs

Steam-heated, double-wall discs (featuring fewer exposed welds than any other design)



Removable covers provide easy inspection, cleaning and adjustment

Paddles on the edges of the discs agitate the material and move it through the dryer towards the discharge outlet

Material dried by direct contact with these discs, which are welded onto a rotating shaft

Discharge screw conveyor fitted with variable-speed drive ensures positive discharge

**DRIED ANIMAL OR POULTRY
PROTEIN MATERIAL,
READY FOR COOLING
AND MILLING.**

TYPE	HEATING SURFACE (m ²)/(ft ²)		POWER (kW)/(hp)		DIMENSIONS*							
					Length (L) (mm)/(ft-inch)		Width (W) (mm)/(ft-inch)		Height (H) (mm)/(ft-inch)		Weight (t)/(lb)	
1551	150	1,614	55	100	11,100	36' 2"	2,200	7' 7"	3,200	9' 5"	37	97,003
1850	215	2,314	75	125	11,100	36' 2"	2,560	8' 5"	3,500	11' 2"	52	12,7867
2050	260	2,798	75	125	11,300	37' 1"	2,800	9' 2"	3,650	12'	59	15,8732
2064	320	3,444	90	200	13,250	43' 6"	2,800	9' 2"	3,650	12'	68	18,7392
2264	375	4,036	110	250	14,000	46'	3,000	9' 11"	3,850	12' 8"	79	22,4871
2550	400	4,305	110	250	12,200	40'	3,300	10' 10"	4,150	13' 8"	84	18,5188
2564	515	5,543	132	250	14,150	46' 6"	3,300	10' 10"	4,150	13' 8"	99	21,8257
2578	595	6,404	160	300	16,150	52' 11"	3,300	10' 10"	4,150	13' 8"	120	26,4554

* All statements of dimensions are approximate.

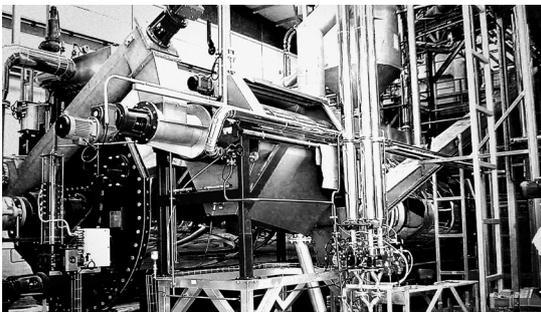
We reserve the right to alter the specifications at any time without prior notice.



HAARSLEV™

Processing Technology

CONTINUOUS COOKER



“

STRAIGHTFORWARD, CONTINUOUS COOKER FOR REMOVING WATER FROM ANIMAL BY-PRODUCTS SUCH AS MEAT, BONE AND FAT.

If cooking animal by-products such as meat, bone and fat is part of your processing setup, a steam-heated Haarslev Continuous Cooker can help you improve both operating efficiency and profit margins from such inputs.



APPLICABLE FOR:

- Cooking finely crushed, relatively homogenous animal by-products as part of wet rendering processes
- Continuous cooking of meat, bone and fat in dry rendering processes for poultry or meat

Designed to use steam pressures of up to 10 bar, this straightforward, easy-to-operate cooker is ideal for removing water in continuous processing setups, ensuring fats and solids outputs that are both consistent and homogenous. They provide evaporation capacities from 1,300 kg/hour up to 14,000 kg/hour. And you can easily adjust cooking temperatures to match the specifics of your particular processing requirements and the raw material specifications you have available.

Your inputs enter at the bottom of the cooker and discharge at the top, forcing the fat and bone through the cooker. Tallow is pumped in to keep the material flowing through the cooker, and is continually recirculated for maximum thermal efficiency. A sophisticated automatic level control system regulates the input flows to prevent any cooking inefficiencies associated with under- or overfilling.

BENEFITS

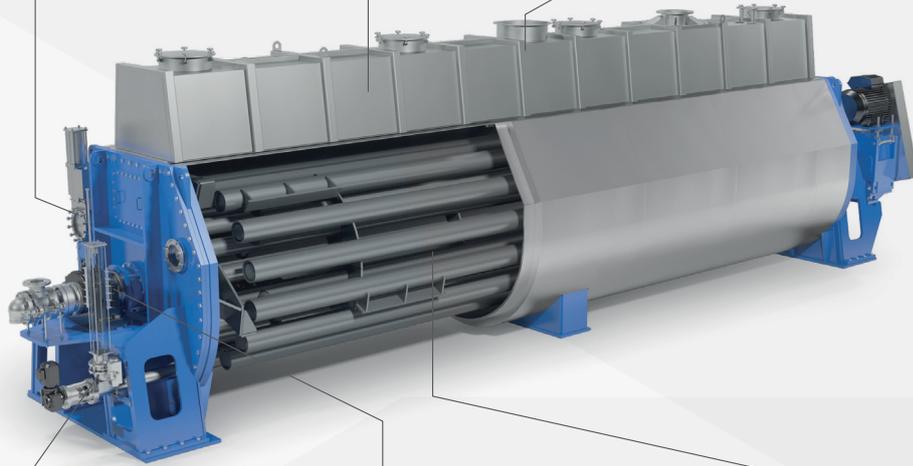
- Low upfront purchasing costs, helping keep capital expenditure down
- Low operating costs resulting from uncomplicated design, ease of operation and solidly engineered durability
- Greater cooking capacity (higher SER) per unit of heating area than any other type of cooker
- High evaporation rate (more than 35 kg per m²/hour per unit of heating area)
- Consistent cooking results, optimized by automatic temperature and level control

**FINELY CRUSHED, RELATIVELY
HOMOGENOUS ANIMAL BY-PRODUCTS
SUCH AS MEAT, BONE AND FAT**

Discharge system that helps prevent blockages and any resulting service disruption

Full-length vapor dome that protects against carry-over and provides easy service access

Cyclone can be fitted to remove any particles from the evaporated water before they are returned into the cooker



Level and temperature control and differential pressure transmitter, to recirculate tallow and ensure optimized cooking

Entire carbon steel shaft assembly rotates to ensure effective thermal transfer

Steam-heated multi-tube shaft rotating inside U-shaped casing provides large heating surface

**MOSTLY GREAVES (MIXTURE OF PROTEINS AND FATS WITH THE
WATER CONTENT REMOVED) PROTEIN MEALS, FATS AND
SOLIDS, DRIED AND COOKED READY FOR
DOWNSTREAM SEPARATION**

TYPE	POWER (kW)/(hp)		WEIGHT (kg)/(lb)		EVAPORATION* (kg/h)/ [lb/h]		DIMENSIONS (mm)**/ [ft-inch]					
							Length (L)		Height (H)		Width (W)	
CC0400-US	37	50	16,000	35,237	1,300	3,000	7,400	24' 3"	2,500	8' 3"	1,600	7'
CC0600-US	45	60	19,000	41,887	2,000	4,552	8,500	28'	2,500	8' 3"	1,600	7'
CC0900-US	55	75	32,000	70,547	3,000	6,713	10,100	33' 5"	3,100	10' 4"	2,100	8' 3"
CC1200-US	75	100	38,000	83,775	4,000	8,410	12,000	40'	3,100	10' 4"	2,100	8' 4"
CC1800-US	90	125	55,000	127,867	6,000	14,043	12,700	41' 8"	3,500	11' 6"	2,400	9'
CC2400-US	132	200	73,000	160,937	8,000	18,055	13,400	45' 10"	4,300	14' 2"	3,000	11' 4"
CC3200-US	160	250	112,000	246,917	10,000	22,299	15,800	53' 10"	4,300	14' 2"	3,000	11' 4"
CC4400-US	200	300	134,000	295,419	14,000	30,864	14,600	47' 11"	5,100	16' 9"	3,300	11' 8"

* Evaporation with steam at 10 bar.

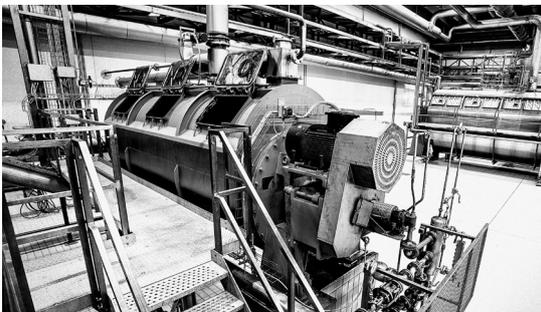
** All statements of dimensions are approximate.

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HAARSLEV™
Processing Technology

COIL DRYER



The Haarslev Coil Dryer is the ideal solution for the continuous drying of free-flowing, semi-dry, low-fat, inputs that include fish meal, blood and feathers.

This design uses the same housing and end plates as Haarslev disc dryers, but with rotating steam-heated coils to dry the material passing through. These coils result in flow patterns that are different from disc dryers, and with less weight for any given steam pressure.

This dryer is ideal for use in producing high-protein meal of good quality, for greater revenue. It is also available in a vacuum dryer configuration.

“
FOR CONTINUOUS DRYING OF LOW-FAT,
NON-STICKY PRODUCTS SUCH AS FISH
MEAL, BLOOD AND FEATHERS.



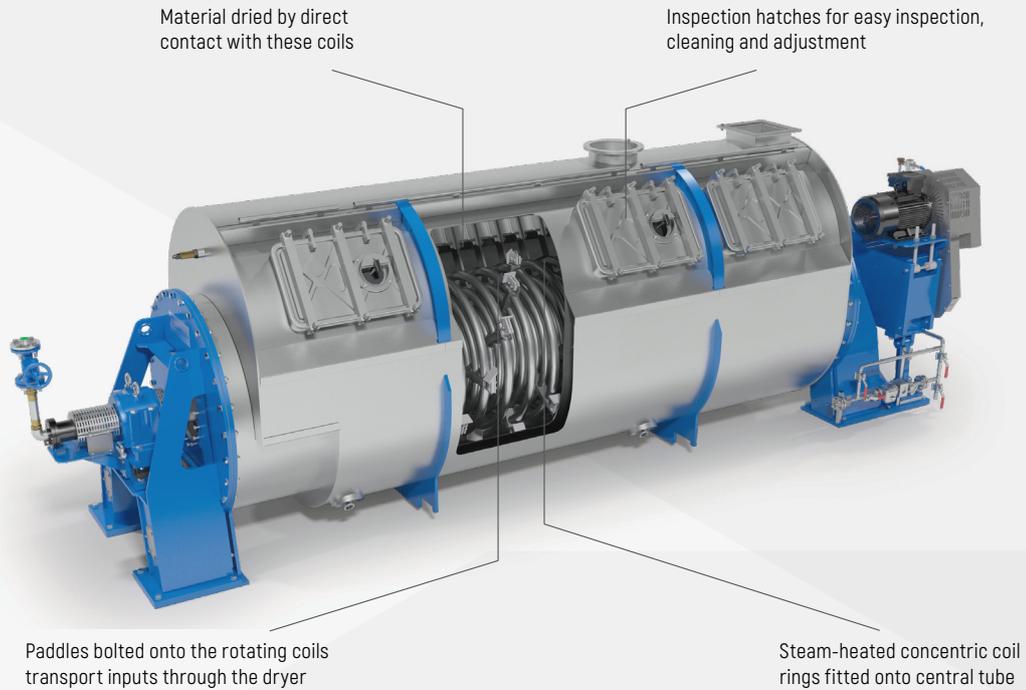
APPLICABLE FOR:

- Drying free-flowing/non-sticky inputs
- Drying blood meal
- Drying operations in feather rendering setups
- Drying operations in fish meal plants, where oil content is removed before drying

BENEFITS

- Easy to control and adjust temperature, moisture content and flow rate
- Well-regulated product flow and constant retention time ensure consistent output specifications
- Uses less material for any given pressure – lighter than corresponding disc dryers

**FREE-FLOWING, SEMI-DRY,
LOW-FAT MATERIAL FOR
DRYING – USUALLY MECHANICALLY
DEWATERED FIRST**



**DRIED, LOW-FAT
MEAL PRODUCT READY
FOR MILLING**

TYPE	HEATING SURFACE (m ²)/ (ft ²)		PRESSURE (bar)/(psi)		DIMENSIONS (mm)* / [ft-inch]					
					Length (L)		Height (H)		Width (W)	
HCD 40	40	409	07 - 10	145	6,750	22' 22"	2,160	7' 2"	1,570	5' 2"
HCD 60	60	645	07 - 10	145	7,100	23' 4"	2,360	7' 9"	1,770	5' 10"
HCD 80	80	828	07 - 10	145	7,650	25' 2"	2,500	8' 3"	2,050	6' 9"
HCD 100	100	1076	07 - 10	145	10,200	99' 99"	2,600	8' 7"	2,050	6' 9"
HCD 125	125	1345	07 - 10	145	10,550	34' 8"	2,890	9' 6"	2,290	7' 7"
HCD 170	170	1840	07 - 10	145	9,700	31' 10"	3,475	11' 5"	2,560	8' 5"
HCD 210	210	2260	07 - 10	145	11,700	31' 10"	3,475	11' 5"	2,560	8' 5"
HCD 260	260	2809	07 - 10	145	11,830	38' 5"	3,650	12'	2,790	9' 2"
HCD 320	320	3347	07 - 10	145	12,150	38' 10"	3,850	12' 8"	3,000	9' 11"
HCD 380	380	4111	07 - 10	145	13,400	39' 11"	3,850	12' 8"	3,000	9' 11"
HCD 405	405	4359	07 - 10	145	13,400	44'	4,110	13' 6"	3,300	10' 10"
HCD 475	475	512	07 - 10	145	14,650	48' 1"	4,110	13' 6"	3,300	10' 10"

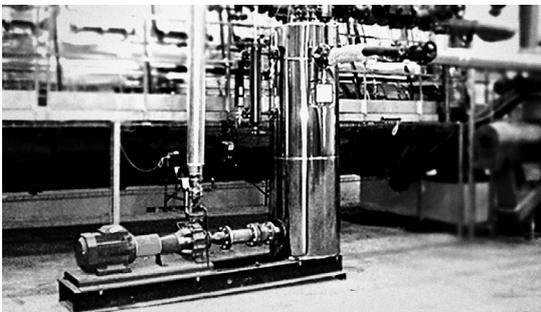
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HAARSLEV™
Processing Technology

STEAM CONDENSATE RETURN SYSTEM



“

SAVE ENERGY AND WATER BY KEEPING STEAM CONDENSATE FROM COOKERS AND DISC DRYERS UNDER PRESSURE.

In many processing setups, it's quite normal to send the pressurized condensate from disc dryers and continuous and/or batch cookers back to the feed-water tank of a boiler system.



APPLICABLE FOR:

- Fish and meat rendering plants
- Any setup linking cookers and dryers on the one hand, and steam boilers on the other

If nothing is done, the flow simply de-pressurizes (flashing), resulting in a significant loss of temperature and pressure, as well as venting water to the atmosphere.

Instead, the Haarslev Steam Condensate Return System sends such steam condensate directly to the boiler – still under pressure – by means of a special feed tank.

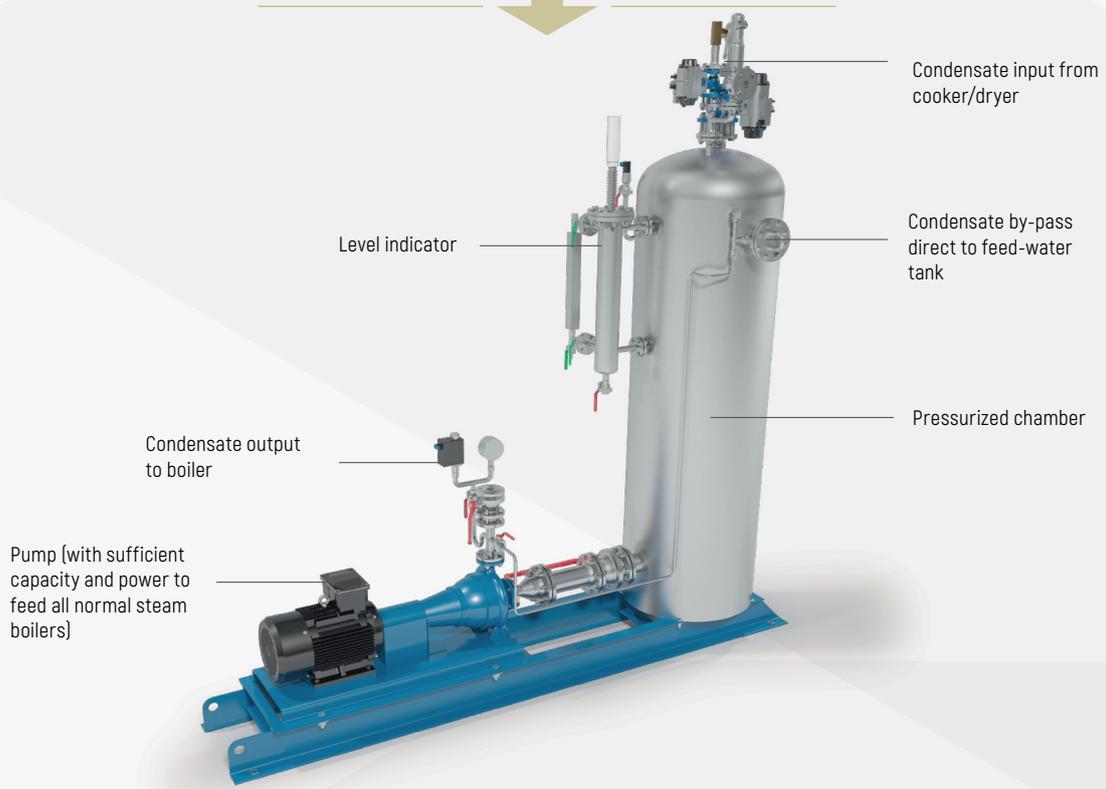
This nearly eliminates the energy losses, and means your boiler setup doesn't use as much fuel and water. You also get better boiler performance, because the water temperature inside the boiler no longer fluctuates as much. Maintaining pressure means you can save as much as 15% on your steam production costs.

The system is easy to install in any existing steam/condensate/steam boiler setup, and provides significant reductions in your operating costs by eliminating steam pressure and water losses between the connected cooking or drying equipment and the boiler.

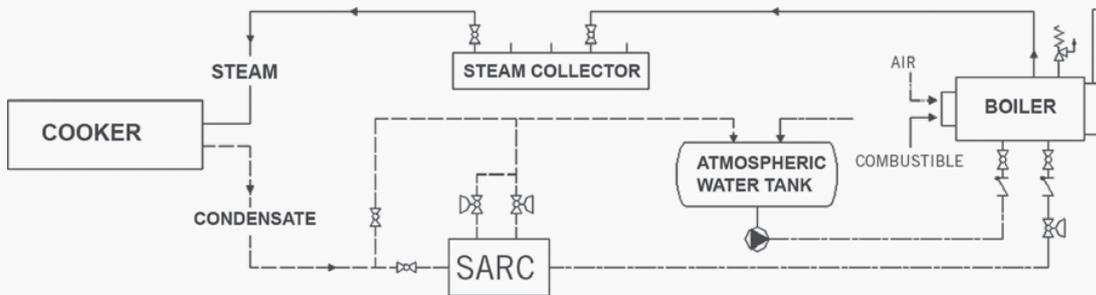
BENEFITS

- Save approx. 15% on steam production costs
- No water losses between cookers/dryers and boiler
- No blow-offs from the feed water tank
- Major savings on water, and on chemicals used for water softening
- Better boiler performance, and greater overall energy efficiency

**PRESSURIZED CONDENSATE FROM
DISC DRYERS AND CONTINUOUS AND/
OR BATCH COOKERS**



**BOILERS FOR PRODUCING STEAM
FOR COOKING/DRYING AND OTHER
PURPOSES**



TYPE	DIMENSIONS* (mm)/(ft-inch)						POWER (kW)/(hp)		WEIGHT (kg)/(lb)	
	Length (L)		Height (H)		Width (W)					
SARC	2,840	9' 4"	3,020	9' 11"	1,090	3' 7"	15	20	1,100	2,425

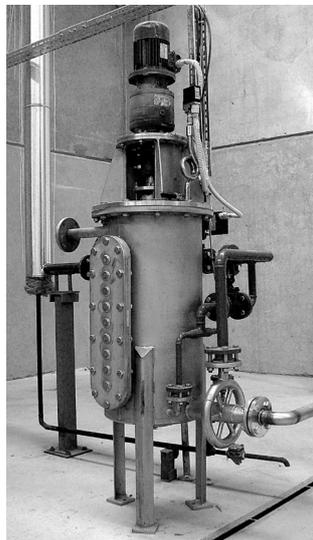
* All statements of dimensions are approximate.



HAARSLEV™

Processing Technology

CONTINUOUS BLOOD COAGULATOR



This is a simple, durable setup that helps boost the effectiveness of a wide range of animal and poultry blood treatment processes by making the solids component coagulate so it's easier to remove the water content.

It's ideal for heating animal and poultry blood inputs with a relatively low proportion of solids. Heating by direct steam injection makes sure there's no burning or accumulation of deposits, and the blood coagulates effectively and under full control.

The Haarslev Continuous Blood Coagulator is specially designed for controlling how animal blood is heated and made to coagulate, using a carefully monitored flow of steam and a temperature probe in the product outlet.

“
USING STEAM INJECTION TO
CONSISTENTLY AND COST-
EFFECTIVELY HEAT AND COAGULATE
ANIMAL AND POULTRY BLOOD, PRIOR
TO MECHANICAL SEPARATION.



APPLICABLE FOR:

Blood processing and protein recovery in

- Plants that process red meat
- Plants that process poultry
- Specialist blood and protein recovery operations

BENEFITS

- Simple, durable and cost-effective
- Blood heats and coagulates evenly under controlled conditions
- Steam valve and control sensor ensure low operating costs
- Continuous operation that boosts the effectiveness of downstream operations
- Close to maintenance-free

RAW ANIMAL AND POULTRY BLOOD (PREFERABLY FILTERED) WITH A RELATIVELY LOW PROPORTION OF SOLIDS

Modulating valve that supplies steam at set, consistent pressure

Specially designed agitator makes sure the heated blood coagulates evenly

Temperature probe regulates the steam inlet system to maintain ideal conditions for coagulation

Manifold where steam is injected to heat the blood

COAGULATED BLOOD THAT IS EASIER TO DRY AND/OR CONGEALED BLOOD FOR DOWNSTREAM MECHANICAL DEWATERING

TYPE	POWER (kW)/(hp)		WEIGHT (kg)/(lb)		DIAMETER (mm)/(ft)		CAPACITY (l/h)/(lb/h)		DIMENSIONS (mm)* / [ft-inch]			
									Height (H)		Width (W)	
CBC 30	0.75	1	400	881	400	16	Up to 3,000	6613	2,050	6' 9"	790	2' 8"
CBC 65	1.1	1.5	1,000	2,204	400	16	Up to 6,500	14330	2,425	8'	960	3' 2"

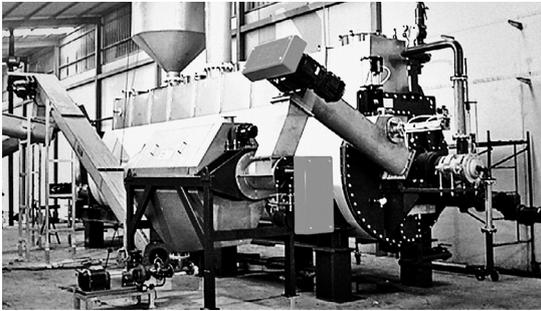
* All statements of dimensions are approximate.

We reserve the right to alter the specifications at any time without prior notice.



HAARSLEV™
Processing Technology

ROTATIVE FAT DRAINER



“

FOR SEPARATING FATS FROM SOLIDS IN COOKED GREAVES OR FAT AND SLUDGE FROM SCREW PRESSES.

The Haarslev Rotative Fat Drainer provides an effective way for your operation to continuously separate the fat and solids components from cooked greaves, or from screw presses.



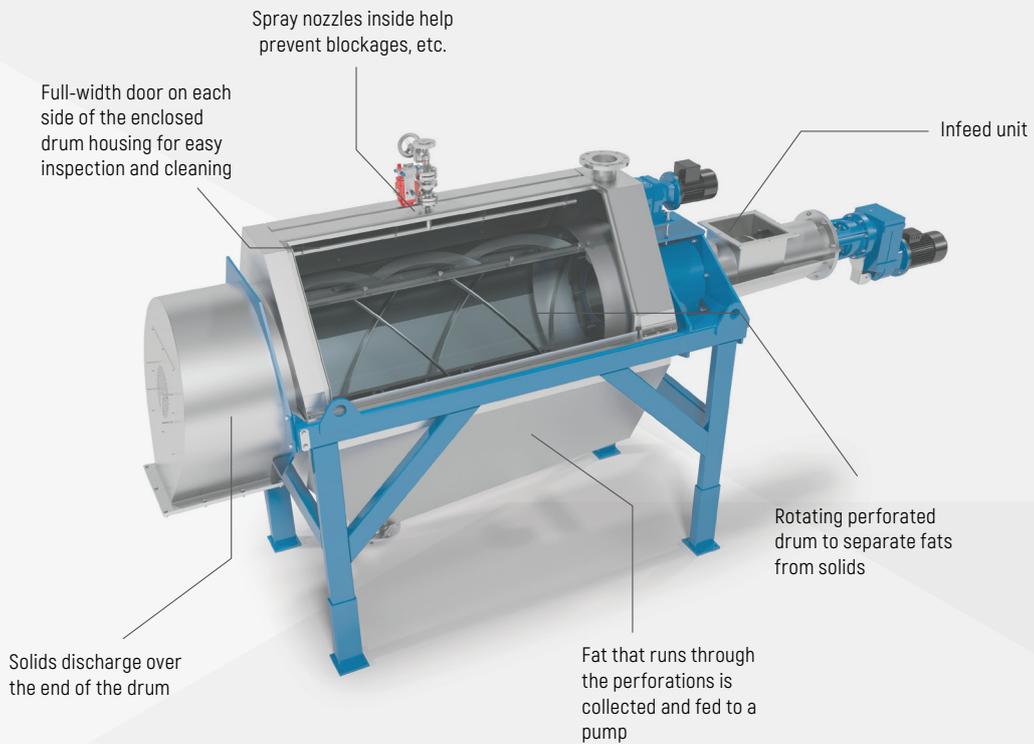
APPLICABLE FOR:

- Specifically for use in dry rendering processes
- Straining material with relatively higher solids content and relatively less liquid

BENEFITS

- Reliable, low-tech way to separate fats from solids
- Spray nozzles inside help prevent blockages, etc.
- Easy inspection and cleaning

FROM DRYING SECTION



SCREW PRESSES

TYPE	DIMENSIONS* (mm)/(inch)						WEIGHT (kg)/(lb)		DIAMETER (mm)/(inch)		INLET CAPACITY (t/h)/ (th. lb/h)		PRODUCT INLET (mm)/(inch)		PRODUCT OUTLET (mm)/(inch)		POWER INSTALLED FOR SEPARATOR (kW)/(hp)		POWER INSTALLED FOR SCREW CONVEYOR (kW)/(hp)	
	Length (L)		Height (H)		Width (W)															
TR050	3,900	154	2,200	87	1,050	41	1,000	2,200	550	22	1-4	2-9	270 x 270	11 x 11	700 x 206	28 x 8	0.37	0.50	1.5	2
TR080	4,800	173	2,450	96	1,300	51	1,800	4,000	800	31	5-8	11-18	320 x 320	13 x 13	470 x 340	19 x 13	0.75	1	3	5
TR130	6,360	250	2,850	112	1,300	51	2,850	6,300	800	31	8-10	18-22	320 x 320	13 x 13	470 x 340	19 x 13	1.5	2	3	5

* All statements of dimensions are approximate.

We reserve the right to alter the specifications at any time without prior notice.



HAARSLEV™
Processing Technology

DRY VIBRATING SCREEN



“

EASY REMOVAL OF FOREIGN MATTER FROM ALL KINDS OF POULTRY MEAL.

The Haarslev Dry Vibrating Screen helps you maintain the purity and commercial value of virtually all kinds of poultry meal by removing any foreign matter that might be present, such as rubber, metal and plastic from plucking operations and equipment.



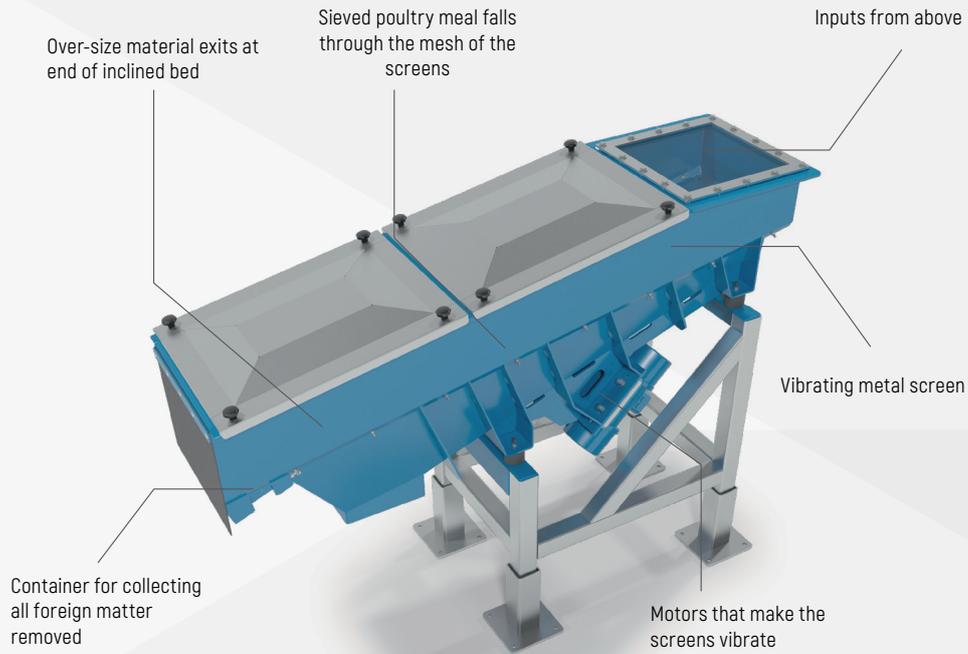
APPLICABLE FOR:

- Poultry and feather meal processing setups
- Downstream from chicken feather plucking tunnels

BENEFITS

- Effective removal of foreign matter, for more reliable product quality
- Gentle product handling
- Compact, space-saving design
- Low installation and maintenance costs

MEAL DRYER EQUIPMENT



HAMMER MILL AND/OR BAGGING STATIONS

TYPE	CAPACITY (kg/h)/(lbs/h)		DIMENSIONS* (mm)/(ft)						MOTOR POWER (kW)/(hp)		WEIGHT (kg)/(lb)	
			Length (L)		Height (H)		Width (W)					
HM-S-1500	1,500	3,300	2,200	55	1,650	64	700	43	2 x 0.95	2 x 1.5	460	1,015

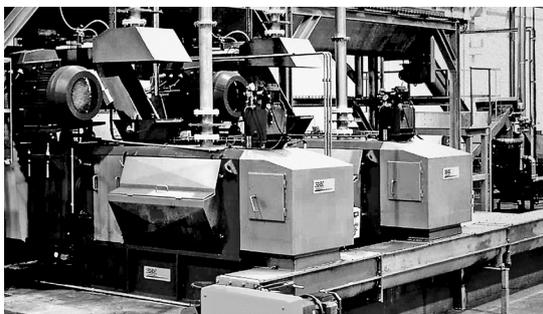
* All statements of dimensions are approximate.

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HAARSLEV™
Processing Technology

FAT SCREW PRESS



The Haarslev Fat Screw Press provides highly effective mechanical extraction of the fat content from cooked and dried animal and poultry by-products, in a continuous flow. This enables you to achieve a hard cake with a low fat content.

As the greaves pass along the single conical screw, the fat is pressed out into the surrounding enclosure, and the greaves are discharged as press cake. The fat (along with any solids – often known as fines) runs into a collector trough, where a screw moves it to the outlet.

These solidly built units are simple but effective, ensuring maximum reliability and low service and maintenance costs. Two different models are currently available:

- Shorter ST model with hydraulically adjustable choke in the outlet
- Longer, high-capacity HM model with fewer moving parts and no choke in the outlet

“

FOR CONTINUOUS
PRESSING OF FAT FROM
COOKED AND DRIED
ANIMAL AND POULTRY BY-
PRODUCTS (OFTEN KNOWN
AS GREAVES).



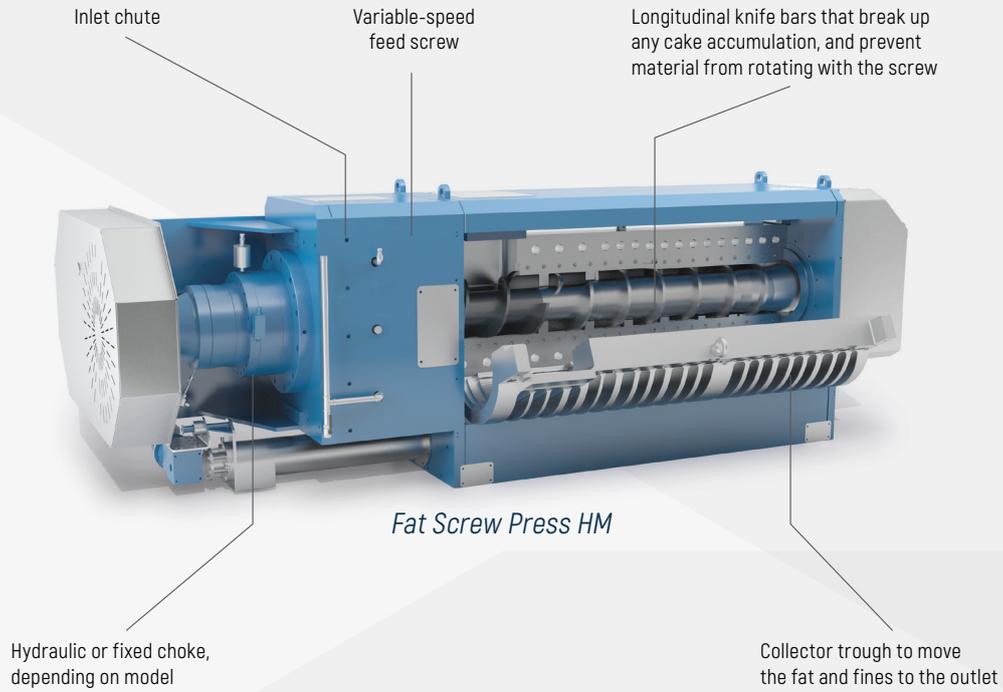
APPLICABLE FOR:

- Haarslev fat screw presses are normally installed as an integral part of a high-temperature dry rendering process.

BENEFITS

- High compression rate ensures efficient continuous fat extraction
- Rugged and reliable equipment, with a long service life
- Low maintenance costs

COOKER



MILLING AND REFINING



TYPE	OUTPUT (CAKE) (kg/h)/(lbs/h)		RESIDUAL FAT IN CAKE (%)	POWER (kW)/(hp)		WEIGHT APPROX. (kg) / (lb)		DIMENSIONS (mm)*/(inch)*					
								Length (L)	Height (H)	Width (W)			
ST 500	280 - 350	600 - 800	9 - 14	22	30	2,300	5,000	2,950	116	1,350	53	1,200	47
ST 1000	560 - 700	1,200 - 1,500	9 - 14	45	60	4,000	9,000	3,170	125	1,720	68	1,600	63
ST 1750	980 - 1260	2,200 - 2,800	9 - 14	75 - 90	100-125	6,400	14,100	3,340	131	2,100	83	2,160	85
ST 2500	1,400 - 1,750	3,000 - 4,000	9 - 14	75 - 90	100-125	6,900	15,200	3,990	157	2,210	87	1,800	71
ST 4500	1,800 - 2,800	5,400 - 6,000	9 - 14	90 - 110 - 132	125 - 150 - 200	10,500	23,200	4,270	168	2,620	103	1,960	77
HM 3000	2,800 - 3,500	6,000 - 7,700	9 - 14	110	150	11,500	25,353	4,800	189	1,600	63	2,000	79
HM6000	5,600 - 6,900	12,000 - 13,000	9 - 14	200	300	22,000	48,502	6,500	256	2,100	83	2,500	98

* All statements of dimensions are approximate.

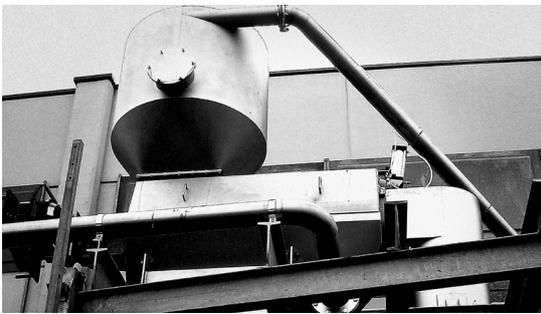
We reserve the right to alter the specifications at any time without prior notice.

FAT SCREW PRESS



HAARSLEV™
Processing Technology

HOG HAIR PRESS



The Haarslev Hog Hair Press enables you to drastically reduce the amount of water in batches of hog hair. This can reduce weight by as much as 50%.

These lower weights provide big savings whenever loads of hog hair have to be transported, such as to a rendering plant for additional processing. And less water in the loads of hog hair helps reduce energy costs in any subsequent rendering processes.

“
FOR REMOVING WATER
FROM THE HOG HAIR FROM
SLAUGHTER LINES.



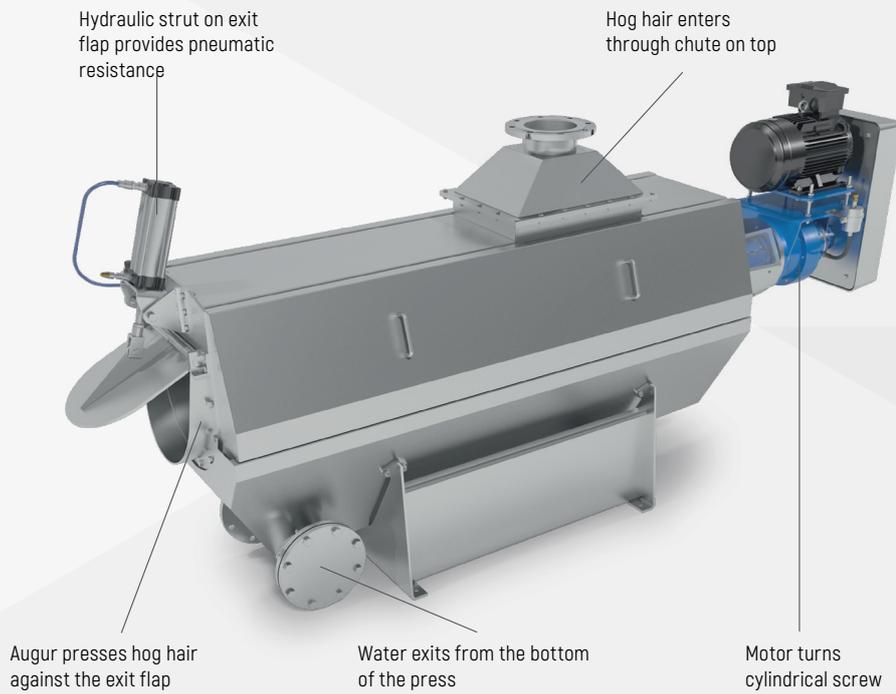
APPLICABLE FOR:

- Haarslev hog hair presses are ideal for installation in slaughterhouses, to make it easier and less expensive to dispose of hog hair or send it on for further processing, in whichever way suits your setup best.
- They are also widely used by independent renderers to deal with incoming loads of wet hog hair.

BENEFITS

- Straightforward, sturdy equipment that you can rely on
- Easy to install in existing processing lines
- Rapid return on investment because of greater efficiency and energy savings (when rendering) or weight savings (when transporting loads of hog hair)
- Fewer problems with odor
- Unaffected by input inconsistencies or foreign objects

**HOG HAIR FROM SLAUGHTER LINES,
WHETHER IN A SLAUGHTERHOUSE OR
AT AN INDEPENDENT RENDERER**



**HYDROLYZERS,
RENDERING PROCESSES
OR DISPOSAL**

TYPE	CAPACITY (l/h)/(gal)		MOTOR POWER (kW)/(hp)		WEIGHT (kg)/(lb)		DIMENSIONS (mm)/(inch)*					
							Length (L)		Height (H)		Width (W)	
HP 325	1,000 - 1,500	260-390	5.5	7.5	900	1,985	2,680	105	1,310	51	700	27
HP 408	1,500 - 2,000	390-520	7.5	10	1,300	2,865	3,300	129	1,720	64	1,100	32

* All statements of dimensions are approximate.

We reserve the right to alter the specifications at any time without prior notice.



HAARSLEV™
Processing Technology

FEATHER PRESS



“

IDEAL FOR REMOVING WATER
FROM CHICKEN, GOOSE AND
TURKEY FEATHERS.

Modern poultry processing operations often use large quantities of water to remove the feathers once plucked or rubbed off. The sturdy Haarslev Feather Press effectively removes water from chicken, goose and turkey feathers, enabling you to achieve a consistent 55% moisture level.

Haarslev feather presses can be installed downstream from a normal feather separator in a slaughterhouse, or can receive feathers plus their transport water straight from a slaughterhouse pumping system. This type of press normally removes about 350 liters of water per 1,000 kg of wet feathers from the feather separator.

Haarslev feather presses provide significant paybacks in the form of energy savings (in rendering operations) and lower transportation and feather removal costs, simply because the feathers weigh much less once the water has been removed.



APPLICABLE FOR:

This is a reliable, cost-effective way to dry the large quantities of feathers resulting from chicken, goose and turkey processing operations.

Haarslev feather presses can also be fitted with:

- Bow strainers fitted with parabolic screens
- Drum screens
- Additional presses working under pressure

BENEFITS

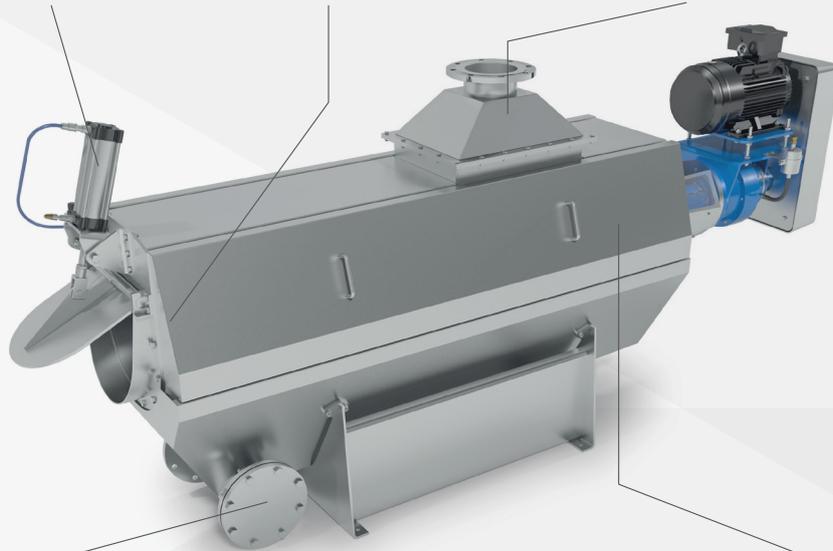
- Straightforward, sturdy equipment that you can rely on
- Savings on feather removal and transport costs
- Savings on rendering and other processing costs
- Avoids problems with feather fat clogging the equipment
- No water left behind in bins or trucks after feather transportation
- Only minimal supervision and maintenance required

**WET FEATHERS FROM THE
SLAUGHTERHOUSE PUMPING SYSTEM
OR FROM AN ORDINARY FEATHER
SEPARATOR**

Hydraulic strut on exit flap provides pneumatic resistance

Cylindrical auger presses feathers against the exit flap

Feathers and water enter through chute in the top of the press



Water squeezed out of the feathers and collected is led away through a pipe at the bottom

Press cage with stainless steel bars that make sure even small feathers are continuously captured, drained and pressed

**HYDROLYZERS,
RENDERING PROCESSES
OR DISPOSAL**

TYPE	CAPACITY								WATER FLOW (m ³ /h)/ (gpm)		WEIGHT (kg)/(lb)		DIMENSIONS (mm) ^{***} /(inch) ^{***}						INSTALLED POWER (kW)/(hp)	
	BROILERS (live weight) (kg/h)/ (lb/hr)		TURKEYS (live weight) (kg/h)/ (lb/hr)		WET BROILER FEATHERS* (kg/h)/ (lb/hr)		WET TURKEY FEATHERS** (kg/h)/ (lb/hr)						LENGTH (L)	HEIGHT (H)	WIDTH (W)					
FP 325W	< 15,000	< 33,000	n/a	n/a	< 1,950	< 4,300	n/a	n/a	30	130	940	1,980	3,000	118	1,310	50	700	26	75	10
FP 408W	< 30,000	< 66,000	< 40,000	< 88,000	< 3,900	< 8,600	< 2,400	< 5,300	60	260	1,400	3,500	3,810	150	1,720	63	1,070	31	15	40
FP 508W	< 48,000	< 105,000	< 65,000	< 143,000	< 6,200	< 13,500	< 4,000	< 8,800	120	520	2,900	5,700	4,200	177	2,100	75	1,200	39	22	40

* Wet broiler feathers are estimated to max. 13% of live weight.

** Wet turkey feathers are estimated to max. 6% live weight.

*** All statements of dimensions are approximate.

We reserve the right to alter the specifications at any time without prior notice.



HAARSLEV™
Processing Technology

FAT FILTRATOR



“
EFFECTIVE REMOVAL OF SOLIDS IN FATTY
SLUDGE FROM SCREW PRESSES.

A compact Haarslev Fat Filtrator removes solids (fines) present in the fatty sludge from the screw presses in your operation, and is often installed upstream from a decanter centrifuge that separates the tallow still further.

The flow of fatty sludge passes through a vibrating screen with a mesh size of 0.7-1.0 mm. The fat passes through, and any solids remain on top. The combination of the angled position and the vibration of the screen transports the solids to the outlet.

You can use screen meshes with particular size holes to deal with fat flows with different specifications.



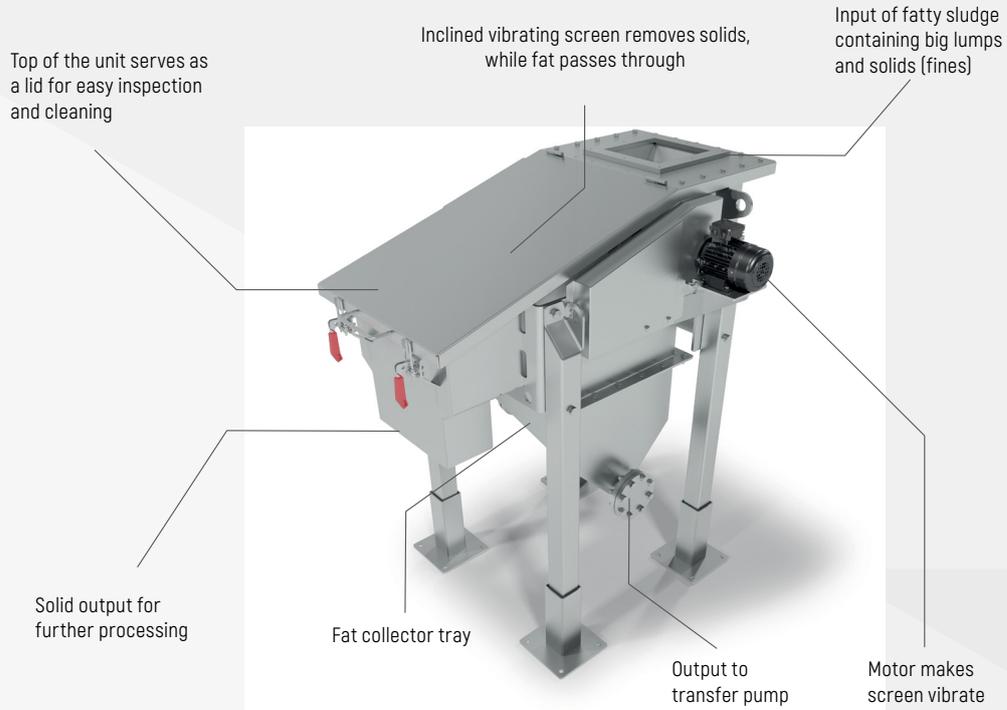
APPLICABLE FOR:

- Haarslev Rendering plants

BENEFITS

- Reduces solids load (and resulting wear) on downstream decanter centrifuges
- Removal of large lumps of solids makes material easier to pump
- Screens easy to change and replace (no tools needed)
- Easy to install even in small spaces
- Easy inspection and cleaning

FATTY SLUDGE IN RENDERING AND OTHER PROCESSING PLANTS



FLOWS OF FAT WITH LOWER SOLIDS CONTENT

TYPE	DIMENSIONS (mm)/(ft-inch)			CAPACITY* (kg/h)/(lb/h)	SCREENING AREA (mm)/(ft-inch)	MOTOR (kW)/(hp)		INLET (mm)/(ft-inch)	
	Length (L)	Height (H)	Width (W)						
HM-S500	1,500 5'	1,700 5' 7"	1,090 3' 8"	200 - 2,000 440-2205	450 x 700 1' 5" x 2' 3"	0.37	0.5	360 x 360	1' 18" x 1' 18"

* The capacity depends on the quality of the material being processed.

We reserve the right to alter the specifications at any time without prior notice.



HAARSLEV™
Processing Technology

TALLOW PUMP



Viscous fats and other similar material aren't easy to pump from one place to another. But Haarslev tallow pumps can help.

The Haarslev Tallow Pump is a centrifugal pump equipped with a feed screw, specially configured to pump animal fat containing a large proportion of smaller, solid particles. This buffer/feed screw is essential for making sure the pump consistently runs at peak efficiency, and is one of the big advantages of using Haarslev tallow pumps.

“
WELL-PROVEN, RELIABLE EQUIPMENT FOR PUMPING VISCOUS ANIMAL FAT.



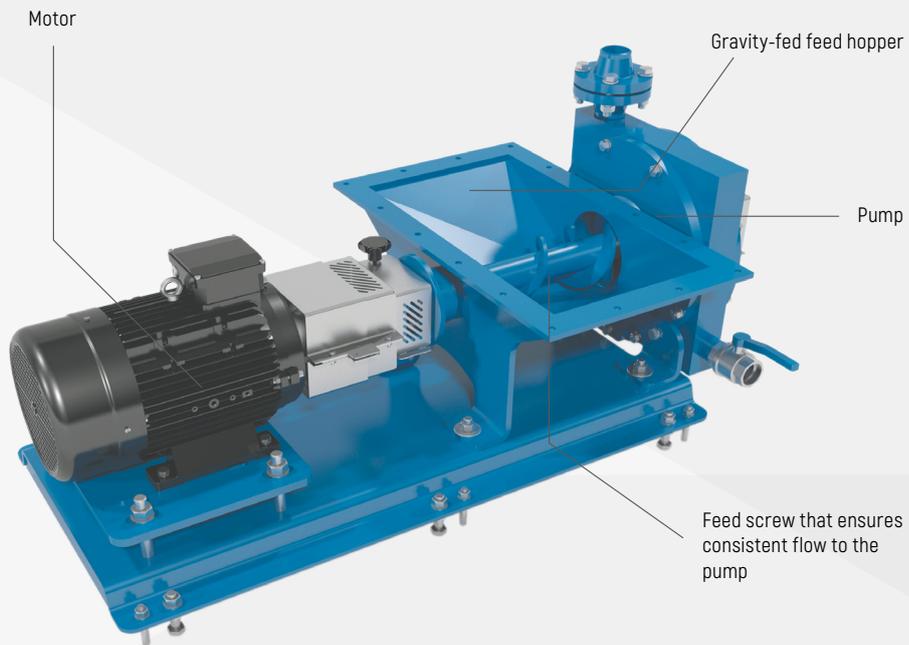
APPLICABLE FOR:

- Fat processing setups
- Tallow treatment

BENEFITS

- Consistent, reliable flow of viscous fat
- Extremely durable and resistant to mechanical wear
- Can pump hot tallow (up to 100°C)
- Low operating costs

ANIMAL FAT ON ITS WAY TO SEPARATION



DECANTER CENTRIFUGE FOR SEPARATING FAT FROM LIQUID

TYPE	PUMP CAPACITY (m ³ /h)/(gpm)		PRESSURE (Bar)/(psi)		SOLID PARTICLE HANDLING (mm)/(inch)		POWER (kW)/(hp)		WEIGHT (kg)/(lb)	
AS 7.5	18	79	2	30	25	1	4	5.5	270	600

We reserve the right to alter the specifications at any time without prior notice.



HAARSLEV™

Processing Technology

CONTINUOUS MEAL COOLER



This sturdy, no-frills cooler enables you to use ambient air to cool a broad range of meal products (usually derived from poultry, fish or meat) after they have passed through a dryer. Cooling helps make the processed cake more brittle, so it's easier to mill.

Importantly, such cooling also enables you to make sure temperatures are kept below 50°C to prevent self-ignition. The cooler is basically a long drum equipped with an agitator mounted in roller bearings on the end plates. This moves the hot meal (usually 90–110°C) through the cooler, while a counterflow of cooler air is drawn through by a centrifugal fan. This cooler air can either be ambient air or air from suitable processes elsewhere in your plant – usually at approx. 20–30°C above ambient temperatures.

Rugged construction, few components and wearing parts make this a reliable, inexpensive way to cool a wide range of meal products.

“

A STRAIGHTFORWARD
CONTINUOUS COOLER FOR
STABILIZING THE TEMPERATURE
OF MEAL PRODUCTS AFTER
DRYING.



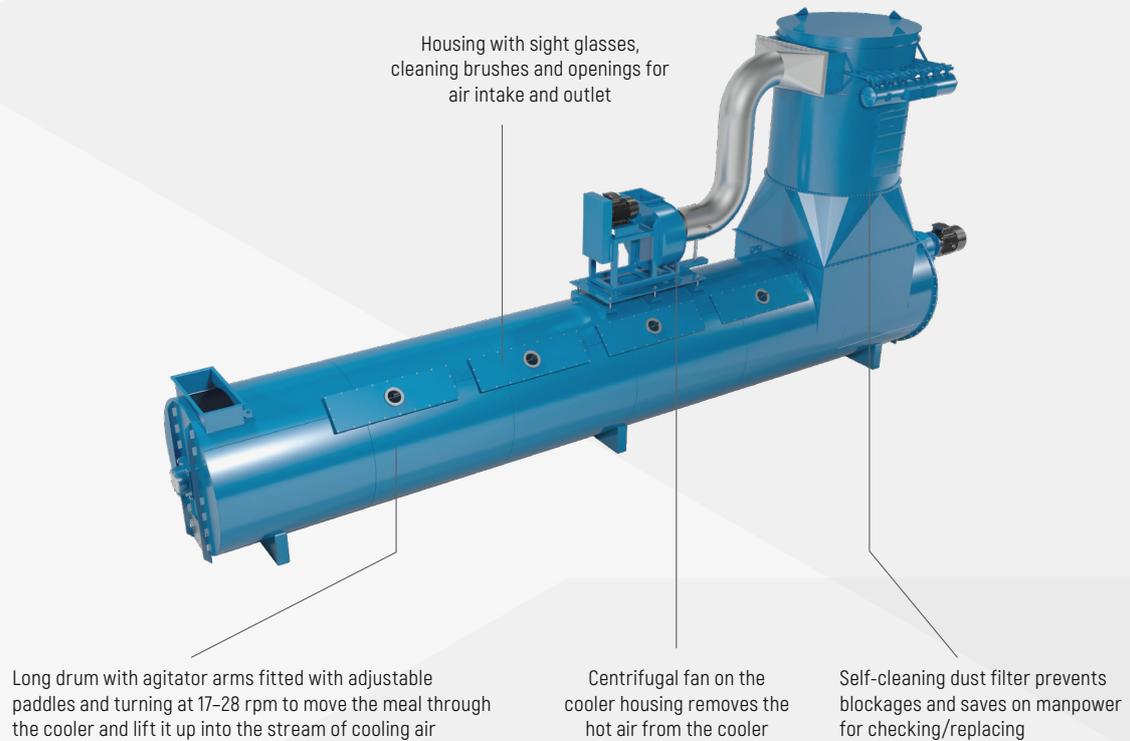
APPLICABLE FOR:

- Cooling press cake in dry rendering processes
- Cooling dry goods in low-temperature wet rendering processes
- Cooling feather meal
- Cooling fish meal

BENEFITS

- Best possible use of thermal inputs because of efficient contact between cooling air and hot meal
- Cooling to your exact specifications – usually approx. 15°C above ambient temperatures
- Few wearing parts and exceptional reliability
- Savings on operating costs and manpower
- Low installation and maintenance costs

**RELATIVELY HOT MEAL
PRODUCTS COMING FROM DRYER
OR EXPELLER PRESS**



**MEAL READY FOR MILLING
(MUCH EASIER WHEN AT LOWER
TEMPERATURES)**

TYPE	DIMENSIONS DxL (m)	NOMINAL CAPACITY * (kg/hr)/ [lb/h]		NOMINAL AIRFLOW [m ³ /h]/ [ft ³ /h]		MOTOR DRIVE/FAN (kW)/[hp]		rpm
CAC906	0.9 x 6.0	800	1,800	1,700	60,034	5.5/2.2	7.5 / 3	35
CAC1207	1.2 x 7.0	1,700	3,800	3,600	127,132	11.0/5.5	15 / 7.5	28
CAC1606	1.6 x 6.5	2,600	5,800	5,450	192,465	15.0/5.5	20 / 7.5	25
CAC1609	1.6 x 9.5	3,350	7,400	7,000	247,202	18.5/11.0	25 / 15	25
CAC2009	2.0 x 9.0	5,250	11,600	11,000	388,461	30.0/15.0	40 / 20	21
CAC2012	2.0 x 12.0	7,000	15,400	15,000	529,720	37.0/18.5	50 / 25	21
CAC2909	2.9 x 9.0	10,500	23,100	22,000	776,923	45.0/37.0	60 / 50	19
CAC2912	2.9 x 12.0	14,500	32,000	31,200	1,101,818	55.0/37.0	75 / 50	19

We reserve the right to alter the specifications at any time without prior notice.



HAARSLEV™
Processing Technology

MILLING PLANT



The Haarslev Milling Plant effectively reduces the size of particles in the not-yet-finished meal after fat extraction, helping you meet customer specifications about particle size.

This is a complete system, featuring a conveyor under the platform on which the hammer mill is mounted, and an extractor fan that draws air through the system, keeping everything cool and evacuating dust to a self-cleaning filter bag.

It is a very efficient solution that uses a much smaller motor than most other comparable systems, running cooler and using less energy.

“
FOR REDUCING THE SIZE OF PARTICLES IN THE FEED MEAL THAT IS THE END RESULT OF MANY RENDERING PROCESSES.



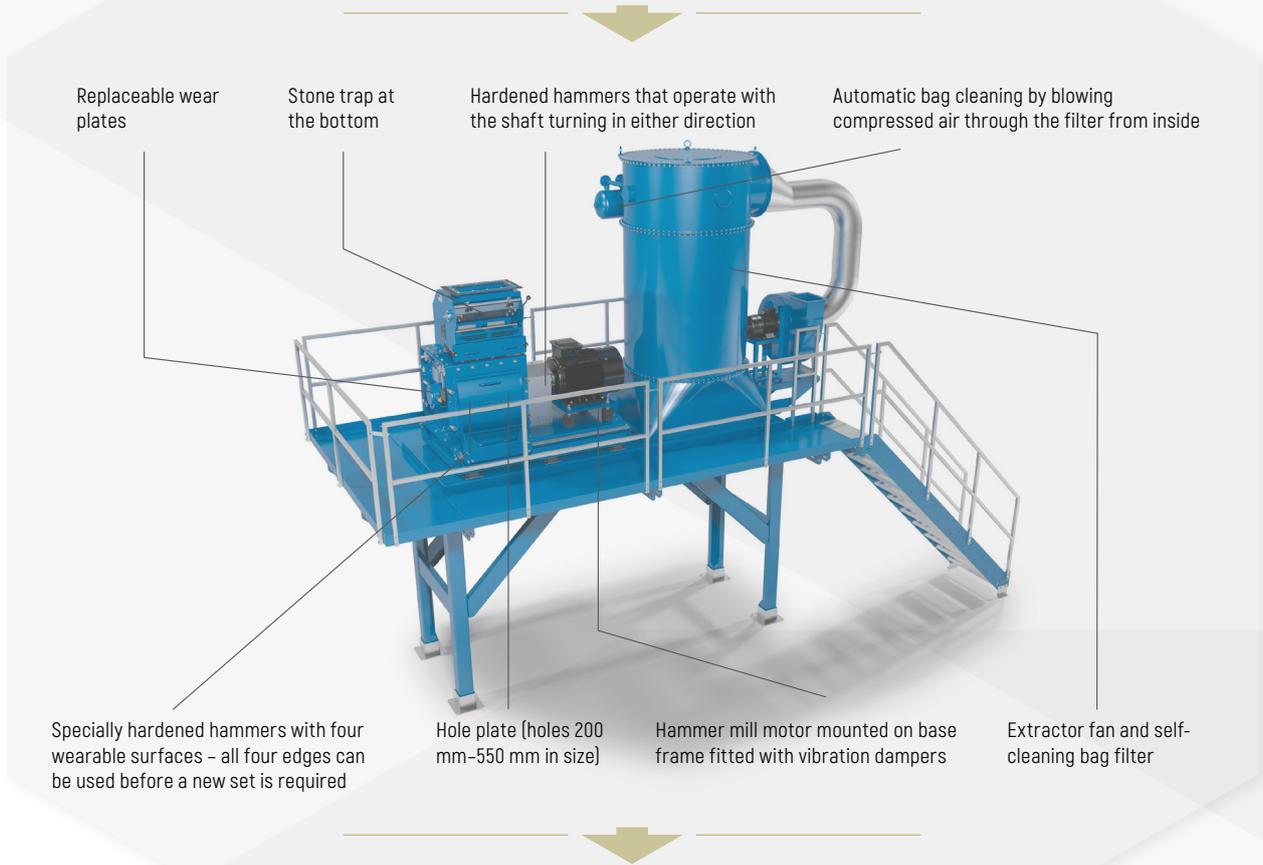
APPLICABLE FOR:

- Complete system for grinding meal that's relatively brittle after drying
- Installed after a dryer in wet rendering processes
- Installed after a press in dry rendering processes

BENEFITS

- High throughput, with low energy consumption
- Cool running that avoids heating the product or the surroundings
- Quiet, cool running helps ensure good working environment
- Automatic cleaning

MEAL (MEAT, FISH, BLOOD, FEATHERS, ETC.) EXITING DRYER (WET RENDERING) OR PRESS (DRY RENDERING)



FLOW OF CONSISTENTLY-SPEC'ED MEAL TO PACKAGING PLANTS, STORAGE SILOS AND BULK LOADING FACILITIES

MODEL	MOTOR SIZE (kW)/(hp)		CAPACITY MEAT AND BONE MEAL* (t/h)/(lb/h)		CAPACITY FISH MEAL** (t/h)/(lb/h)	
HM450	37 - 55	50 - 75	1 - 3	2 - 7	1.5 - 3.5	3.3 - 7.7
HM630	45 - 75	60 - 100	2 - 4	4 - 9	3.5 - 8.0	7.7 - 17.6
HM800	55 - 110	75 - 150	4 - 6	9 - 13	8.0 - 11.0	17.6 - 24.3
HM1000	75 - 160	100 - 250	5 - 10	11 - 22	11.0 - 15.0	24.3 - 33.1

* MBM density is 600 kg/m³; Ø10 mm mesh. Capacity depends on bone content, fat and water content and the press cake temperature.

** Fish meal density is 500 kg/m³; Ø16 mm mesh. The capacity will depend on the the type of fish, the content of water and oil and on the temperature.

We reserve the right to alter the specifications at any time without prior notice.



HAARSLEV™

Processing Technology

RECUPERATIVE THERMAL OXIDIZER



“

ELIMINATE ODOR PROBLEMS STEMMING FROM RENDERING AND PROCESSING MEAT AND FISH BY-PRODUCTS – AND OTHER INDUSTRIAL PROCESSES.

You can quickly and effectively get rid of virtually all unpleasant odors in the gases and vapors from your rendering plant by exposing them to very high temperatures in combination with the presence of oxygen. This triggers an oxidation reaction that transforms the problematic complex organic solvents into simple, easy-to-dispose-of mixture of mainly CO₂ and H₂O.

This provides you with an energy-efficient way to ensure compliance with increasingly stringent environmental requirements. Another big upside is that energy from the oxidized hot gases is recovered using a steam boiler that generates large quantities of valuable steam for use elsewhere in your rendering plant or in other processing equipment.



APPLICABLE FOR:

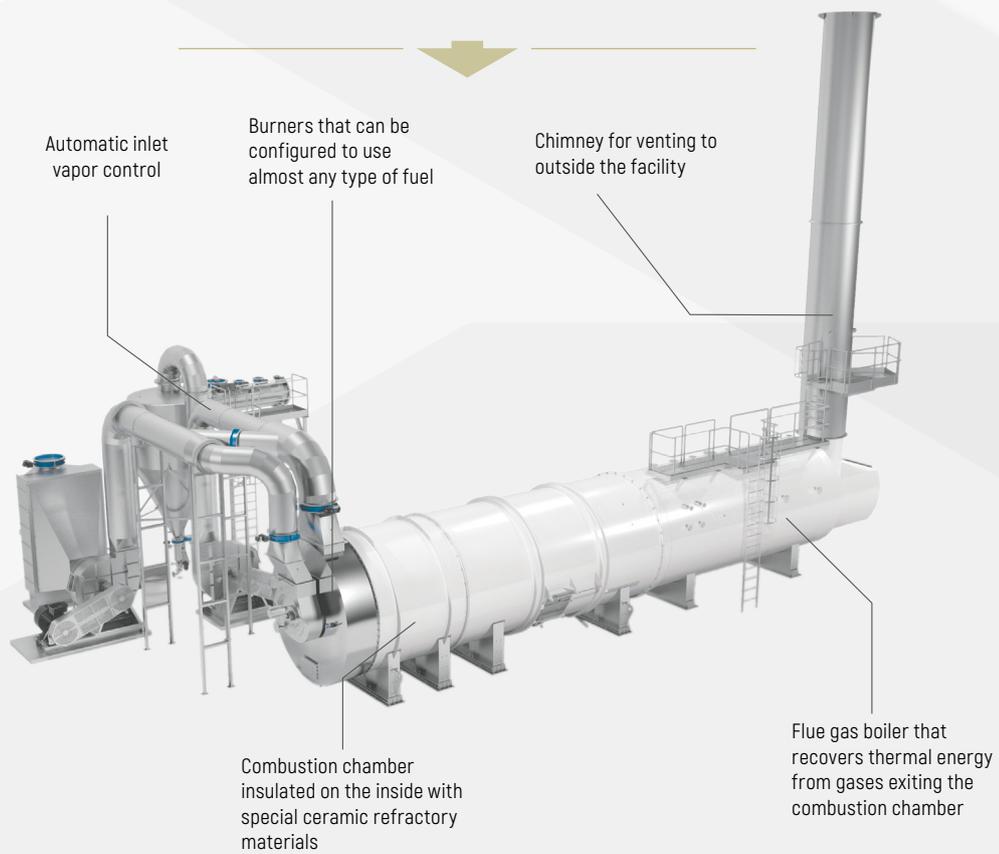
This recuperative thermal oxidizer system purifies gaseous effluents that include:

- Vapors from cookers and dryers used in processing meat and fish by-products
- Air contaminated by VOCs from rendering processes
- Non-condensable gases coming from vapor condensation

BENEFITS

- Widely accepted as the best-available (BAT) technology for combating odors from rendering plants
- Effective recovery of energy from the oxidized hot gases
- Ideal for all rendering plants where large quantities of steam are needed
- Very short start-up time ensures maximum operational flexibility

GASEOUS EFFLUENTS AND PROCESSING VAPORS FROM RENDERING OPERATIONS



**BETTER THAN 99% ODOR
REDUCTION IN OUTGOING GASES**

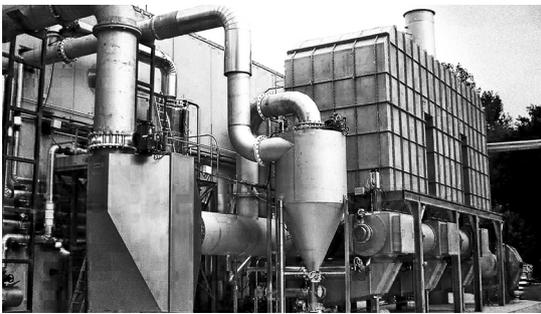
We reserve the right to alter the specifications at any time without prior notice.



HAARSLEV™

Processing Technology

REGENERATIVE THERMAL OXIDIZER



“

TO COMBAT VOC-RELATED ODOR PROBLEMS WHEN RENDERING AND PROCESSING MEAT AND FISH BY-PRODUCTS – AND IN OTHER INDUSTRIAL PROCESSES.

According to the EU Environmental Protection Agency, this is the best-available technology (BAT) for combating unpleasant odors in gaseous air flows from cookers and dryers used in rendering processes.



APPLICABLE FOR:

- Eliminating VOC-related odors from process air used in rendering operations
- Purifying vapors from cookers and dryers in rendering plants
- Treatment of non-condensable gases coming from vapors condensation

A Haarslev Regenerative Thermal Oxidizer guarantees minimum 98% odor reduction at the same time as ensuring the highest possible thermal efficiency.

This regenerative thermal oxidizer system is built around a high temperature oxidation process that inputs gaseous effluents with a complex and variable composition of odor causing compounds to be broken down into simple, easy-to-manage mixture of gases mainly composed of CO₂ and H₂O, while using as little energy as possible.

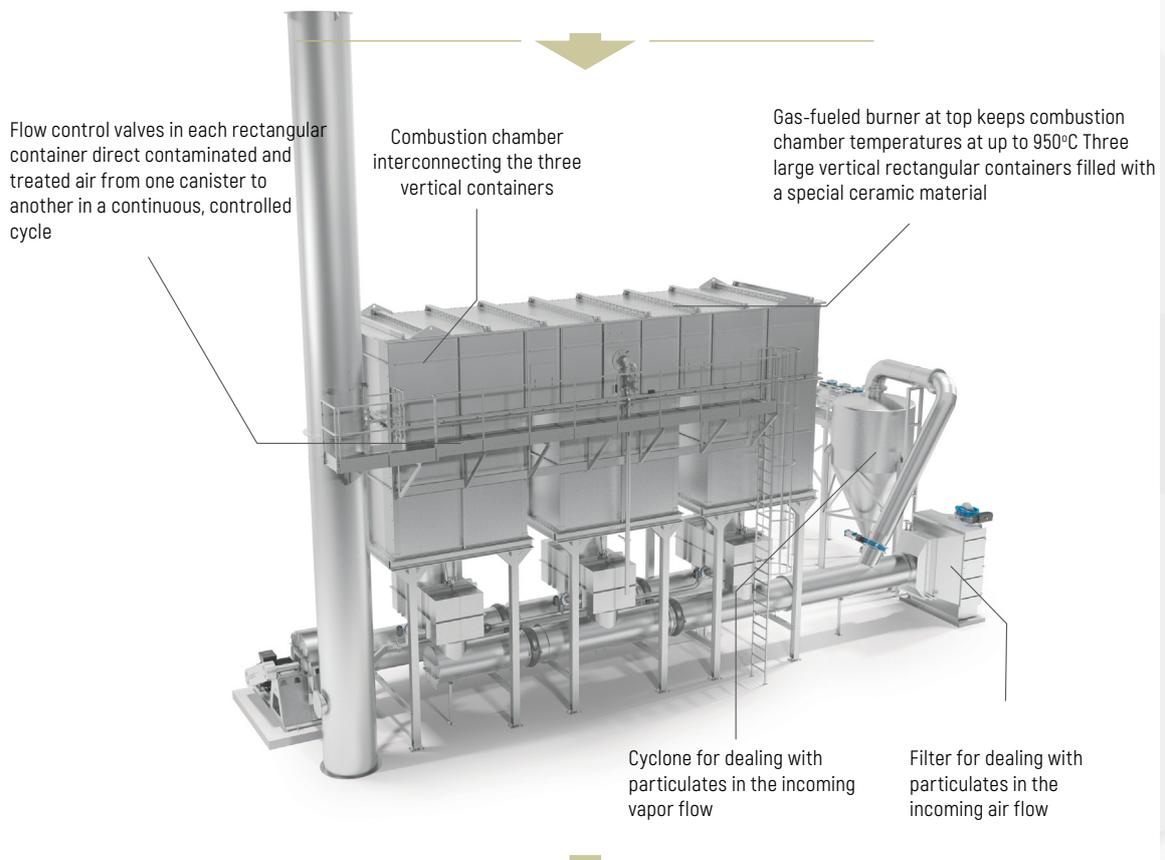
The exceptional energy-efficiency of this system stems from the fact that a substantial proportion of the thermal energy needed for the oxidation process is continually transferred to – or recovered from – the special ceramic material inside the three large vertical rectangular sections.

Haarslev is the only manufacturer that builds both rendering and thermal oxidation systems, ensuring customers the best possible integration and streamlining of these two key technologies and systems.

BENEFITS

- Most effective odor-reduction technology currently available for use with bioproduct processes
- Easy front-end control
- Most thermally efficient recovery of energy from the hot gases resulting from the oxidation process

SMELLY, GASEOUS EFFLUENTS FROM MEAT AND FISH TREATMENT PROCESSES



>98% ODOR REDUCTION IN OUTGOING AIR

We reserve the right to alter the specifications at any time without prior notice.



HAARSLEV™

Processing Technology

FALLING-FILM EVAPORATOR



The most widely used Haarslev evaporators use the falling-film principle to concentrate these liquids, drawing thermal energy from the dryer in order to bring the liquid up to temperatures at which the water content evaporates. This means you can achieve higher concentrations at lower cost, and also recover the dissolved higher-protein solids to boost yields in your meal production setup.

“

USE SURPLUS HEAT OR STEAM (OR A COMBINATION OF THE TWO) TO CONCENTRATE LIQUIDS FROM MEAT, FISH OR POULTRY BY-PRODUCTS, AS PART OF YOUR DRY RENDERING PROCESS.

Haarslev evaporators are an integral part of an effective dry rendering setup, playing a big role in improving the overall efficiency of the downstream cooking process by evaporating the water content of stick water.

In Haarslev evaporation systems, you can install these evaporators in multiple effects, reducing operating costs by using the vapor produced in one effect to provide heating in the subsequent evaporator. This means the temperature difference per effect falls (and thermal efficiency increases) as the number of stages increases – a three-effect evaporator uses about one-third as much steam as a single-effect unit.

Haarslev evaporators are available in four distinct configurations, based on different technologies. These can be combined to meet your particular processing requirements. You can (for example) use a steam-heated evaporator as a finisher to boost capacity from an evaporator setup fuelled by waste heat.

Waste-heat falling-film evaporator

uses waste heat from a dryer as a heat source, often re-using steam in multiple stages for maximum thermal efficiency

Steam-heated falling-film evaporator

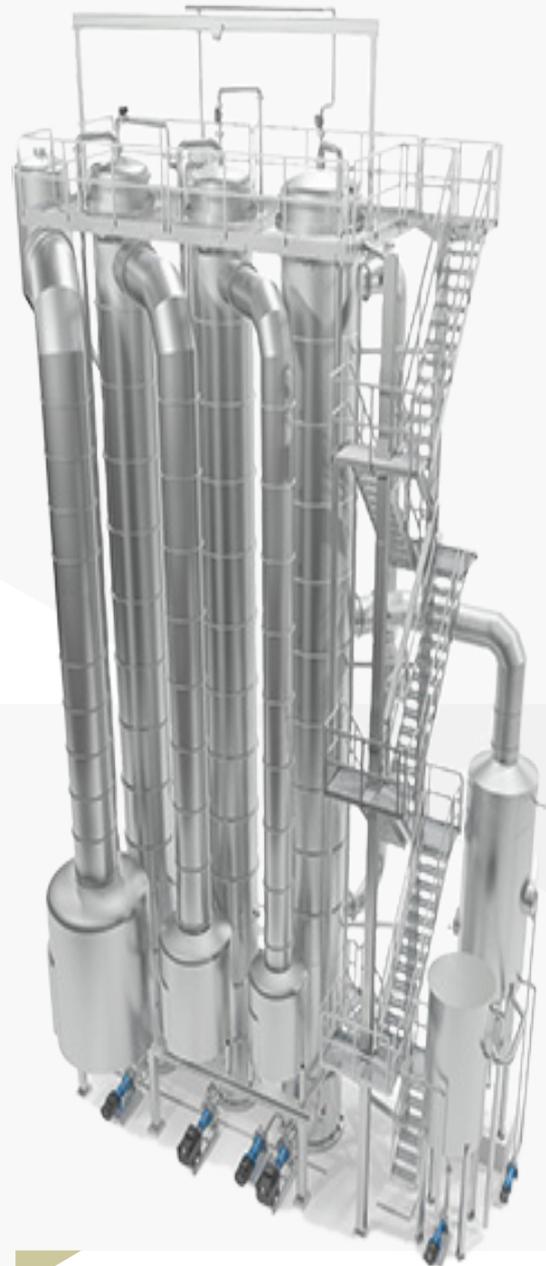
uses live steam as the heat source, enabling you to achieve higher concentrations. Can also be installed as a finisher after multiple evaporator effects, to boost concentration capacity. Haarslev can also provide two other technology setups to meet specific requirements.

Forced-circulation flash evaporator

in which the liquid to be concentrated is pumped from the bottom to entirely fill the evaporator chamber, before it flashes off into a separate chamber

Heat pump evaporator or Mechanical vapor recompression evaporator

ideal if no waste heat is available or the vapor flow is unsuitable – or if you can source electricity at very low cost



APPLICABLE FOR:

- Different pressing operations used in dry rendering processes result in solid and liquid components. The liquid usually contains both dissolved and suspended solids, and the latter are removed mechanically with a three-phase decanter centrifuge, leaving behind stick water that usually contains 4–6% solids. The dissolved solids contain higher levels of protein, so recovering these enables you to increase the protein content in the end-product meal.
- An effective evaporator can help you concentrate these up to about 30% solids, so that the material can be circulated back to the dryer for effective recovery.

BENEFITS

- Relatively inexpensive concentration solution, with high yields
- 50–60% savings on steam/fuel requirements (compared with ordinary dry rendering systems)
- Straightforward, rugged design that's very dependable
- Short retention time ensures quick start-up and shutdown
- Easy to operate
- Easy to clean



HAARSLEV™

Processing Technology

SHELL & TUBE HEAT EXCHANGER



“

FOR CONDENSING VAPORS FROM COOKERS AND DRYERS USED IN MEAT RENDERING AND FISH MEAL PLANTS, USING LIQUID AS THE COOLING MEDIUM.

The many types of cookers and dryers used in meat rendering and fish meal plants produce large quantities of hot gases and vapors that can be hard to deal with or dispose of responsibly.



APPLICABLE FOR:

- After cookers or dryers in meat rendering and fish meal plants
- In conjunction with an air-cooled condenser for exceptionally effective heat recovery

Haarslev shell & tube heat exchangers quickly and effectively bring these vapors into an easy-to-handle liquid form, using only a minimum of energy – for pumps to circulate the cooling water.

This setup draws the vapor out of such cookers and dryers, because energy always flows to the coldest point. This makes it easy to separate the non-condensable gases (VOCs), leaving just condensed water as effluent.

You can also use the thermal transfer capabilities of these units to recover waste heat and/or valuable thermal energy to heat wash-down water or to reduce operating costs elsewhere in your plant.

This shell & tube heat exchanger's design is ideal for installations with sufficient space for large equipment,

BENEFITS

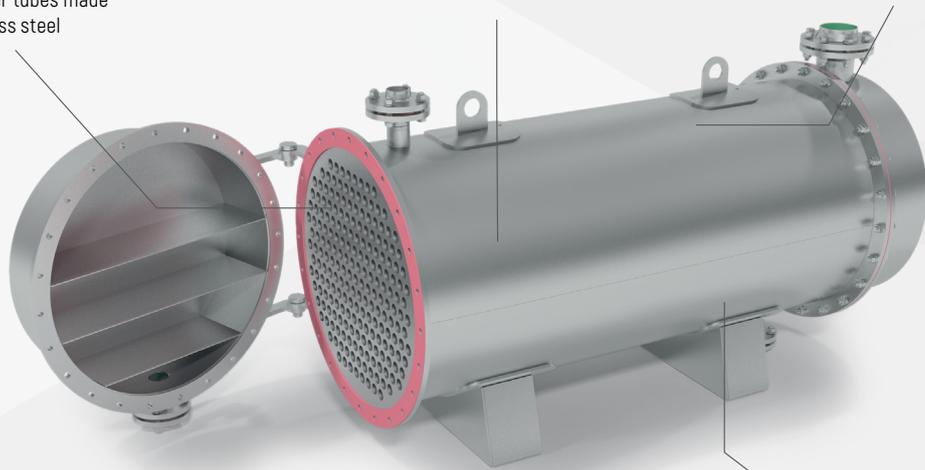
- Cost-effective combination of odor reduction and energy recovery
- No need for costly equipment to generate vacuum for condensing operations
- No worries about heat exchanger fouling, and easy to CIP
- Available in vertical or horizontal configurations, for maximum installation flexibility

**HOT GASES AND VAPORS FROM
COOKERS AND DRYERS**

Hot process vapors
flow through 38-mm
condenser tubes made
of stainless steel

Cooling water passes over the outer surface
of the tubes in a counterflow arrangement

Non-condensable
gases led away to
further air treatment



Temperature differences
makes gases and vapors
condense into liquid form
for pumping away

**NON-CONDENSABLE GASES (AND
CONDENSED WATER VAPOR (OR
OTHER LIQUID CONDENSATE)**

AIR-COOLED CONDENSER



“
FOR CONDENSING PROCESS
VAPORS USING AIR AS
COOLING MEDIUM

APPLICABLE FOR:



- After cookers or dryers in plants processing meat or fish by-products
- May be combined with a shell and tube condenser for efficient heat recovery, i.e. hot water generation

Air-cooled condensers are used to condense steam or vapors by using ambient air as cooling medium. In Haarslev's plants, aircooled condensers are typically used for condensation of vapors originating from cooking and drying processes.

The vapors enter at the top of the front chamber and are then distributed to the inside of a large number of finned tubes. Multiple axial fans force ambient air across the finned tube bundle, which efficiently cools the vapors in the tubes and makes them condense. After the first pass through the condenser, the condensate and the non-condensable gases are redirected for a second pass through the condenser. At nominal conditions, the condensate can be cooled to a temperature of fifteen degrees above ambient air temperature. Finally, the condensate and non-condensable gases leave the condenser at the lower side of the front chamber.

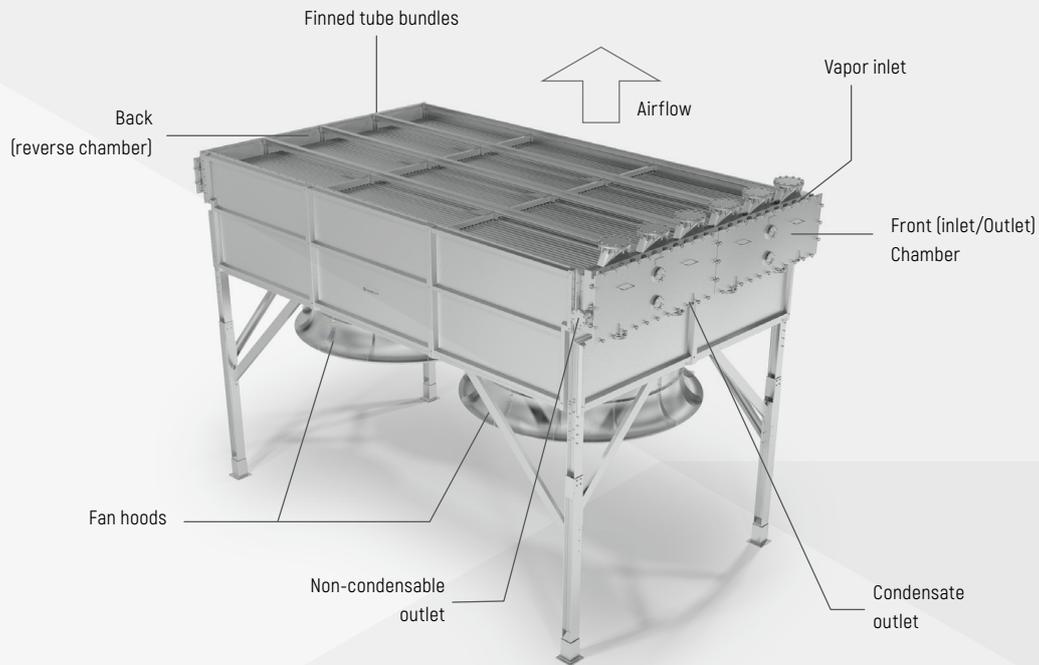
BENEFITS

- Low-noise solution that is easy to mount outside a building
 - on the roof, for example
- No water consumption
- Low-maintenance reliability
- Low operating costs
- Automated operation available to maximize energy-efficiency

OPTIONS

- Low-noise fans are available for all ACC-models
- Standard material for all parts in contact with vapor/condensate is EN 1.4301 (AISI 304). EN 1.4401 (AISI 316) is optional.
- Louvers can be ordered if requested

**STEAM OR VAPORS FROM
COOKERS AND DRYERS**



**NON-CONDENSABLE GASES AND
CONDENSED WATER VAPOR (OR
OTHER LIQUID CONDENSATE)**

TECHNICAL SPECIFICATIONS

TYPE	CONDENSING CAPACITY* [kg/h]/ [lb/h]		DIMENSIONS (mm)/(Ft/inch)						POWER/MOTOR [kW]/[hp]		WEIGHT [kg]/[lb]	
			Length (L)		Width (W)		Height (H)					
ACC2000	2,100	4,651	5,600	18' 5"	2,600	8' 7"	5,900	19' 5"	2 x 11	2 x 15	4,800	10,582
ACC3000	3,400	7,517	8,100	26' 7"	2,600	8' 7"	5,900	19' 5"	3 x 7.5	3 x 10	7,200	15,873
ACC5000	5,000	11,089	8,100	26' 7"	3,700	12' 2"	5,800	19' 1"	2 x 15	2 x 20	10,800	23,809
ACC7000	7,100	15,652	8,100	26' 7"	4,800	15' 9"	5,800	19' 1"	2 x 30	2 x 40	14,400	31,746
ACC9000	9,200	20,282	10,600	34' 10"	4,800	15' 9"	4,300	19' 5"	2 x 37	2 x 50	19,100	42,108
ACC12000	11,700	25,794	10,600	34' 10"	5,900	19' 5"	4,300	19' 5"	2 x 45	2 x 60	23,900	52,690

¹ Nominal condensation capacity is defined at the following conditions:

Tube side pressure: 0 bar(g)

Vapor moisture content: 10 kg vapo/kg dry air (corresponding to a dewpoint of approx. 95°C at 0 bar(g))

Ambient air temperature: 30°C

Altitude: Sea level

At nominal conditions the condensate is cooled down to 45°C.



HAARSLEV™
Processing Technology

AIR WASHER



“

MAKE SURE AIR FLOWS FROM YOUR RENDERING OPERATIONS HAVE THE RIGHT LEVELS OF HUMIDITY, AND IMPURITIES ARE REMOVED



APPLICABLE FOR:

- Rendering plants

The compact Haarslev Air Washer enables you to control the levels of moisture in air flows from your rendering operations and to rinse out impurities such as solid particles and dust.

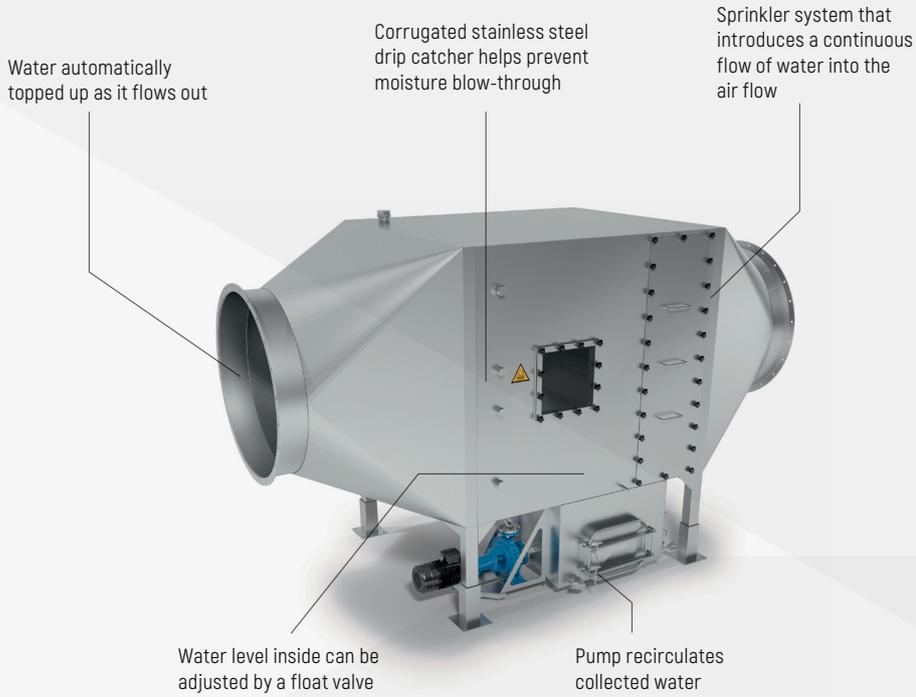
The big payoff, however, stems from effective filter bed performance because the flow of air passing over the bed can be kept at saturation point. This prevents the organic material and micro-organisms in the filter bed drying out, and makes it possible to remove odors efficiently.

Air washers are normally installed as part of a complete system, as the end of a suction line. The whole unit is made of stainless steel to protect against corrosion and ensure low maintenance, and can be installed outdoors if required.

BENEFITS

- Removes impurities such as particles and dust from any flow of air
- Compact unit that can be placed just about anywhere – even close to a wall, or outdoors
- Prevents organic material in the filter bed drying out, ensuring reliable, consistent odor reduction
- Easy access to the equipment and fittings from the front

FLOWS OF AIR FROM ANY AREA IN MEAT AND FISH RENDERING AND OTHER PROCESSING PLANTS



ODOR-FREE AIR

TYPE	CAPACITY (m ³ /h)/[ft ³ /h]		DIMENSION (mm)*/[ft-Inch]						PUMP (kW)/ [hp]	
			Length (L)		Height (H)		Width (W)			
AW 10	10,000	353147	2,600	8' 7"	1,655	3' 9"	1,135	5' 6"	3.0	5
AW 25	25,000	882867	3,000	9' 11"	2,300	5' 5"	1,640	7' 7"	3.0	5
AW 50	50,000	1765735	4,500	14' 10"	2,760	7' 3"	2,190	9' 1"	4.0	5
AW 75	75,000	2648602	5,000	16' 5"	3,240	8' 8"	2,620	10' 8"	5.5	7.5
AW 100	100,000	3531470	5,190	17' 1"	3,600	9' 10"	2,975	11' 10"	7.5	10

* All statements of dimensions are approximate.

We reserve the right to alter the specifications at any time without prior notice.



HAARSLEV™

Processing Technology

CHEMICAL SCRUBBER



“

FOR DEALING WITH VOC-RELATED ODOR PROBLEMS WHEN PROCESSING MEAT AND FISH BY-PRODUCTS

The Haarslev Chemical Scrubber is an effective way to deal with odor problems caused by volatile organic compounds (VOCs). Normally sized to treat 6–8 times the volume of air inside a building or other enclosed space, and to repeat this 6–8 times an hour.



APPLICABLE FOR:

- Processing meat and fish by-products
- As a primary chemical washing system in odor reduction
- As an additional oxidation stage, in combination with thermal oxidation

Undesirable odors from rendering operations are mainly the result of degradation of proteins from raw materials producing gases as hydrogen sulfide, ammonia and volatile organic compounds (VOCs) such as amines, mercaptans, aldehydes, ketones, organic sulfides, etc. This results in complex mixtures of odorous effluents in low concentrations.

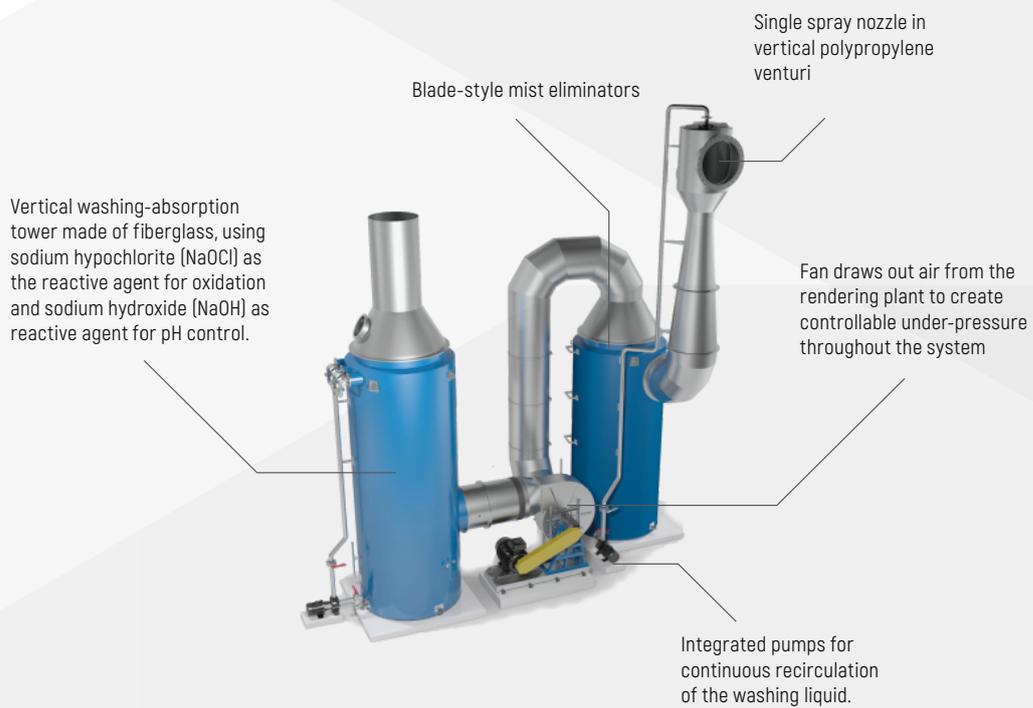
This system uses water and reagents to absorb acidic and basic molecules (such as H₂S and NH₃) and bring about chemical oxidation of the other organic particles. The reagent combinations and equipment configurations are always engineered to order, to deal with the air flow rates and gas compositions in your particular operations.

These systems are available as single or multi-stage setups, with towers made of corrosion-proof. You can also choose between automatic and manual chemical control and monitoring.

BENEFITS

- Small investment enables you to remove odors from large volumes of air
- Controlled process, with low operating costs
- Takes up much less space than a biofilter bed and other possible odor reduction alternatives
- Easy to add to space-constrained facilities – can be installed outdoors
- Very little maintenance required

FLOWS OF AIR FROM ANY AREA IN MEAT AND FISH MEAL PROCESSING PLANTS



**OUTGOING AIR WITH VASTLY
REDUCED ODOR CONCENTRATION**

We reserve the right to alter the specifications at any time without prior notice.



HAARSLEV™
Processing Technology

WASTE FOOD CRUSHER



In many cases – usually because of there being many different types of packaging – it is easier and more cost-effective to crush such material first, rather than sending it directly to a depacker. The shredded material can then be passed through metal detection equipment, before passing on to the depacker setup.

“
BREAKS DOWN PACKAGED FOOD
WASTE BEFORE IT'S SENT FOR ADDITIONAL
SEPARATION AND PROCESSING.

These straightforward crushers feature throughputs of as much as 20 tons/hour, depending on the particular input specs.

The Haarslev Waste Food Crusher is specially designed to help reduce the size of the particles in food returns and packaged food waste, before this is sent on to other depacking or size reduction equipment for further separation into organic and non-organic waste.



APPLICABLE FOR:

- Dealing effectively with supermarket food returns and other packaged food waste
- Before other depacking or size reduction equipment
- Before metal detection and removal equipment for removing smaller metal items

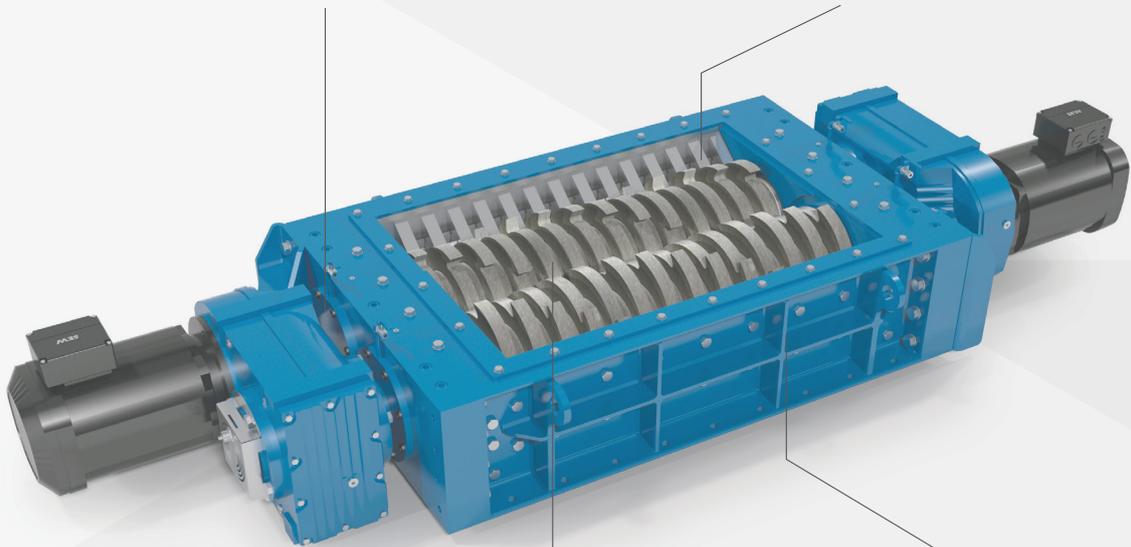
BENEFITS

- Sturdy, reliable and easy to maintain, for maximum uptime
- Maximum reliability, thanks to heavy-duty construction
- Able to deal with foreign objects in the input material
- All parts can be swapped out and replaced easily

PACKAGED FOOD RETURNS AND FOOD WASTE

Low-speed breaker shaft can deal with foreign objects (such as metal) in the input material

Rotation guard prevents larger metal objects from damaging the knives or drive shafts



Two rows of parallel shaft-mounted knives rotate in opposite directions to open bags, cartons and other packaging

Simple welded-structure for cost-effective reliability

CONSISTENT, HOMOGENOUS FEED TO OTHER DEPACKER EQUIPMENT OR METAL SEPARATION DEVICES

TYPE	CAPACITY (t/h)	GAP BETWEEN KNIVES (mm)/(in)		DIMENSIONS (mm)/(in)						MOTOR POWER (kW)/(hp)		SHIPPING WEIGHT LESS MOTOR (kg)/(lb)	
				Length (L)		Height (H)		Width (C)					
WFC	15 - 20	40	1.6	3,417	135	530	41	1,030	21	2 x 15	2 x 20	4,000	8,820

* All statements of dimensions are approximate.

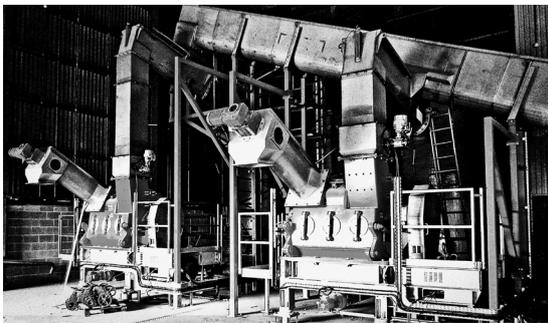
We reserve the right to alter the specifications at any time without prior notice.



HAARSLEV™

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WASTE FOOD DEPACKER



The Haarslev Waste Food Depacker is a hammer mill specially configured for shredding, separating and reducing the size of packaged food waste so it can be used effectively in aerobic as well as anaerobic digestion facilities, such as biogas plants. This provides an excellent alternative to landfill solutions, with the packaging material removed for incineration or other suitable disposal.

“

FOR SEPARATING AND GRINDING
PACKAGED FOOD WASTE TO
SEPARATE IT INTO ORGANIC AND
NON-ORGANIC COMPONENTS.

The output depends on the dry/liquid content in the food waste flow at any given time, but is normally between 10 tons/hour (for dry, packaged food products) and 15 tons/hour (for loose food waste).



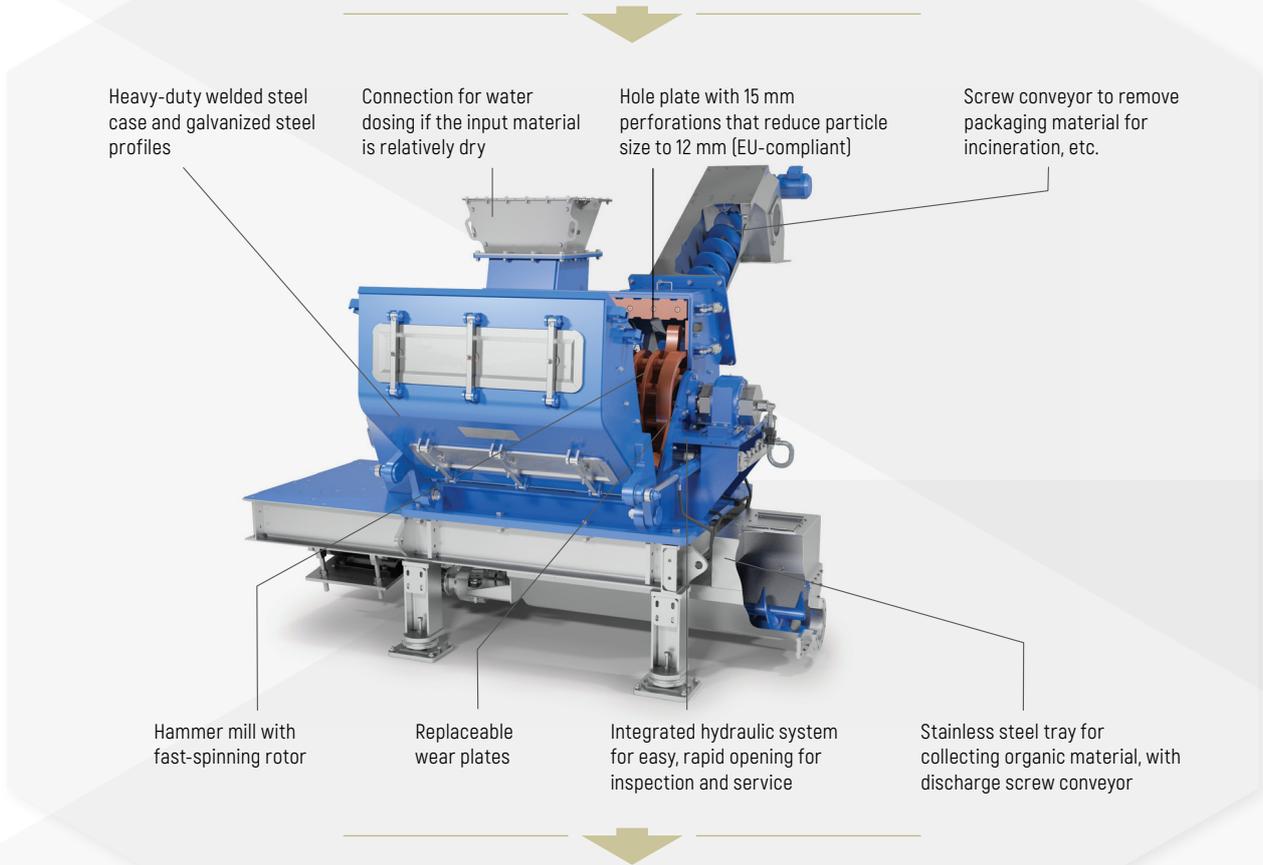
APPLICABLE FOR:

- Rendering plants with logistics setups that enable them to deal with this kind of material
- Biogas plants
- Companies that generate revenue by selling organic slurry

BENEFITS

- Highly versatile – can separate a wide range of packaged food waste
- Effective way to separate organic and non-organic material
- Sturdily engineered for maximum reliability
- Easy inspection and cleaning

**PACKAGED FOOD
RETURNS AND
CATERING/FOOD WASTE**



**PUMPABLE ORGANIC MATERIAL,
WITH PACKAGING
MATERIAL SEPARATED FOR
INCINERATION, ETC.**

TYPE	hp	kW
Main motor	100	75
Organic discharge screw	2	1.5
Solid waste reject screw	5	3.0
Hydraulic pump unit	2	1.5

We reserve the right to alter the specifications at any time without prior notice.



HAARSLEV™
Processing Technology

HAARSLEV AUTOMATION & CONTROL



BETTER CONTROL, BETTER RESULTS



HAARSLEV IS THE WORLD'S LEADING SUPPLIER OF SOLIDLY ENGINEERED SOLUTIONS FOR PROCESSING MEAT, POULTRY AND FISH, AS WELL AS FOR OTHER RELATED INDUSTRIES.

Effective control systems for these solutions help you integrate different specialist setups, and make sure you have better control of processing conditions and product flows. This in turn helps you get even better results, with lower operating costs.

Haarslev processing solutions are available with modular, standards-compliant control systems that make it easy to configure, integrate and commission the equipment on time and on budget.

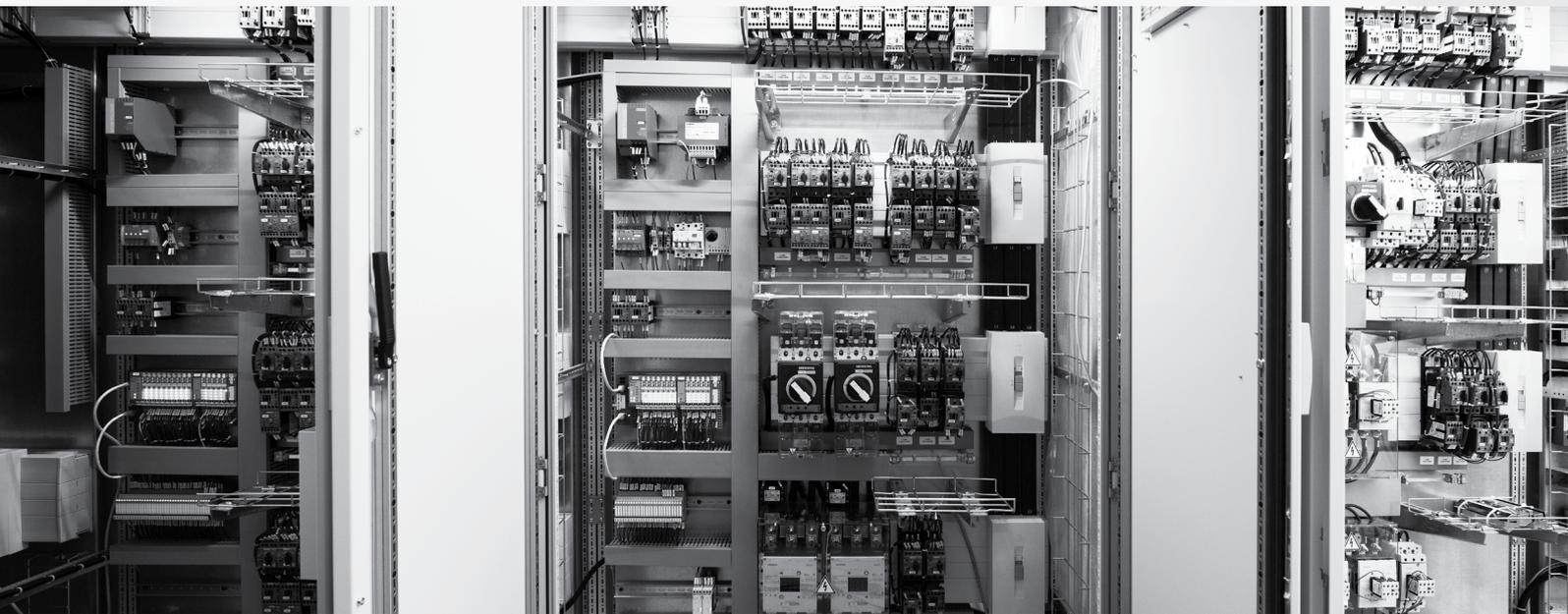


HAARSLEV™
Processing Technology

GET MORE OUT OF WHAT YOU'VE GOT

Haarslev control systems help you raise the efficiency and reliability of any Haarslev processing setup, and make it easier to integrate them into any kind of bigger line.

More – and better – data about what's going on in your processes enables you to improve efficiency and to document the specifications and quality of your outputs, and that they comply with all relevant customer requirements and legislation.



CONTROL PLATFORM

Industry-standard control software provides the ideal shared platform for connecting different parts of your process, and streamlining your processing operations as a whole. We configure Haarslev control systems to your exact processing needs.

CONNECTIVITY COUNTS

The easier it is to coordinate and integrate important operating data from different sources, the quicker and cheaper it is to configure the equipment, optimize your processes, and improve the results you can achieve.

ACCESS TO KNOW-HOW

Haarslev control systems help customers share in all the benefits of Haarslev configuration and processing experience – accumulated worldwide. Our unique know-how is “built in” to each software configuration we deliver.

CAPABILITIES YOU CAN RELY ON

We provide a full spectrum of factory-configured automation and control systems for Haarslev processing equipment, ranging from small and simple to huge and complex. You can rely on tested, standards-compliant Haarslev control systems to work consistently and as intended.

HAARSLEV AUTOMATION & CONTROL

- Control systems link individual items of Haarslev equipment together smoothly and effectively, so customers get more bang for their buck
- Modular, standards-compliant control systems ensure easy equipment configuration and rapid, glitch-free integration of new equipment
- Electronic control and monitoring help prevent unscheduled downtime, eliminate uncertainty and reduce waste
- Effective control systems save time and money on commissioning, operating, maintenance and diagnostics. They also help with energy optimization
- Paving the way to round-the-clock monitoring and support, along with future-compatible remote diagnostics, systems optimization and automated operation



MODULAR RELIABILITY



HAARSLEV PROVIDES A WIDE RANGE OF STANDARDIZED AND/OR CUSTOMIZABLE MODULAR CONTROL SYSTEMS CONFIGURED TO HELP YOUR PROCESSING EQUIPMENT (AND OTHER RELATED SYSTEMS) RUN MORE EFFECTIVELY AND MORE RELIABLY.

These solutions are extensively proven, extremely reliable and comply with relevant risk assessments and all appropriate national and international standards.

MCC AND PLC CONTROL SYSTEMS

Haarslev MCC and PLC control systems feature:

- User-friendly interface via SCADA or HMI
- 24/7 remote online support via VPN connection (if required)
- Data easily available for each customer's Manufacturing Execution System (MES)



WE USE ULTRA-RELIABLE ROCKWELL
AUTOMATION INDUSTRIAL SOFTWARE
AS STANDARD, WITH OTHER
SOFTWARE PLATFORMS, AS AN
ALTERNATIVE UPON REQUEST (MAY
BE SUBJECT TO ADDITIONAL COST).

All control setups from Haarslev Automation & Control are based on standardized, modular units. We configure these to your exact requirements using industry-standard Rockwell Automation Industrial software.

CHECKED, TESTED AND READY

All Haarslev MCC and PLC control systems are assembled, checked and validated before final installation, so customers can bring Haarslev equipment on line quickly and with no unpleasant surprises or compatibility issues.

CONNECTABILITY AND COMPATIBILITY

Haarslev control systems can be seamlessly connected to a vast range of sensors, data inputs, signal providers, control units and electrical panels. Easy configuration makes installation and configuring much quicker, easier and cheaper, so you can bring new capabilities on line fast. We deliver all Haarslev Automation & Control systems with a VPN connection as standard, so your Haarslev processing setup can be linked to the internet whenever your company is ready.

HOW YOU BENEFIT

SINGLE-SOURCE RESPONSIBILITY

Sourcing your control systems from the same global company that helps you configure your processing setup means responsibilities are clear. No overlaps, discrepancies or dropping the ball.

LOWER OPERATING COSTS, BETTER ROI

Effective monitoring and control of how equipment is working and how processes are running goes a long way to help you reduce operating costs and achieve a better return on investment.

KEEPING DOWNTIME TO A MINIMUM

Effective, reliable software monitoring and controlling your processing equipment helps avoid breakdowns, prevent problems and bottlenecks and keep your processes running as intended.

PREDICTIVE MAINTENANCE

Accurate, reliable data about equipment operations and conditions helps you with predictive service and preventive maintenance – and big savings on operating costs and downtime/processing interruptions.

SAFER WORKING CONDITIONS

Properly shielded, standards-compliant control systems significantly reduce accident statistics and improve employee safety. Well-planned installation layouts can also help prevent accidents and breakdowns, and make it easier to react quickly if anything goes wrong.

AVOIDING FALSE ECONOMIES

Locally sourced “DIY” electrical panels may seem cheaper up front – but are rarely as safe and reliable. They’re also unlikely to be future-proof, standards compliant or connectible/compatible with other systems.



HAARSLEV™

Processing Technology

THOROUGHLY TESTED, FULLY RELIABLE

Haarslev control systems are well-proven and thoroughly tested before installation in your plant. This makes for quicker commissioning and greater reliability.

DOCUMENTATION AND COMPLIANCE

Demonstrating compliance with key standards and legislative requirements depends on reliable data and documentation. Haarslev control systems are delivered with the exact documentation you need.

SOLID GUARANTEES, 24/7 SUPPORT

Haarslev guarantees and 24/7 software support help reduce risk and worry, and also help you reduce downtime if anything does happen.







BREAKTHROUGH CAPABILITIES

Processing control has moved a long way beyond on/off switches and a few gauges. With the right setup, you can now often monitor, control and bug-fix key aspects of your processes from a smartphone or tablet anywhere in the world.

Our Automation & Control capabilities pave the way for two-way data flows, remote diagnostics and automatic software updates, as well as round-the-clock monitoring and support services.

Ultimately, they can open the door to process automation, web-linked systems, data mining and Industry 4.0-style data sharing on the Internet of Things.

CORE ADAPTIVE PROCESS CONTROLLERS

FLUCTUATIONS IN CONDITIONS AND INPUT SPECIFICATIONS ARE A WELL-KNOWN CHALLENGE IN PROCESSING OPERATIONS WORLDWIDE.

They result in excessive energy consumption, bottlenecks, fluctuations in output specs and countless other small irregularities that impact efficiency, make it difficult to ensure consistency, and make operations difficult to manage.

CORE adaptive process controllers and the patented CORE software package change all this.



HAARSLEV AUTOMATION & CONTROL SYSTEMS ENABLE YOU TO CONTROL YOUR OPERATIONS EFFECTIVELY AT ANY GIVEN TIME.

CORE ADAPTIVE PROCESS CONTROL CAPABILITIES ENABLE YOU TO AUTOMATICALLY EVEN OUT FLUCTUATING CONDITIONS AND CONTROL YOUR OPERATIONS EVEN BETTER AND MORE EFFICIENTLY OVER TIME.



HAARSLEV™
Processing Technology

CONDITIONS ARE NEVER STATIC

No matter how efficient your new Haarslev processing equipment is when installed – or how effective your control system is – conditions alter over time.

Processing conditions change, inputs vary, ambient conditions fluctuate, staff make small setup alterations, linked-up systems wear, inaccuracies creep in.

CORE software solutions register all these small changes and automatically compensate for them. This stabilizes operating conditions, so you maintain peak performance and maximum efficiency throughout the service life of your Haarslev installation.





HAARSLEV™
Processing Technology

LEARNING TO BECOME MORE EFFICIENT

CORE adaptive process controllers feature advanced software algorithms that learn from what has happened.

These build a data-driven process model that then predicts variations and makes appropriate adjustments. This means you can keep your

processing operations working efficiently, regardless of changing conditions.

And if you make changes in your processing parameters, the CORE controller automatically adapts to these, so your process is always running at peak efficiency.



BENEFITS

CORE software solutions normally enable you to reduce variations in key processes and parameters by as much as 30–70%. This paves the way to more stable operations and a more consistent output, making it much easier to tune your operations to provide better yields, and at lower cost.

These data-driven adaptive process controllers also substantially reduce energy costs, minimize bottlenecks, increase throughput and yield, and help your operation deliver end products of consistently high quality.

RAPID PAYBACK

TURNING ON CORE IMPROVEMENTS DOESN'T INVOLVE ANY DOWNTIME. A SAFE INTERFACE MAKES CORE SOLUTIONS EASY TO INSTALL AND IMPLEMENT, WITH NO DISTURBANCE TO YOUR PRODUCTION SETUP OR PROCESSING ACTIVITIES.



HAARSLEV AND CORE

HAARSLEV INDUSTRIES A/S AND CORE A/S ARE TWO SEPARATE COMPANIES THAT WORK CLOSELY AND SUCCESSFULLY TOGETHER VIA AN EXCLUSIVE PARTNERSHIP.

HAARSLEV OWNS 49% OF THE EQUITY IN CORE A/S.

Contact your Haarslev equipment experts to see whether CORE adaptive process controllers would help add new capabilities to your control system, and how they'd bring you greater processing efficiency and better profit margins.

CORE specialists only engage with projects that enable users to recover their outlay in less than 12 months.



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PROCESS IS POTENTIAL

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