



# Compact Processing Plant

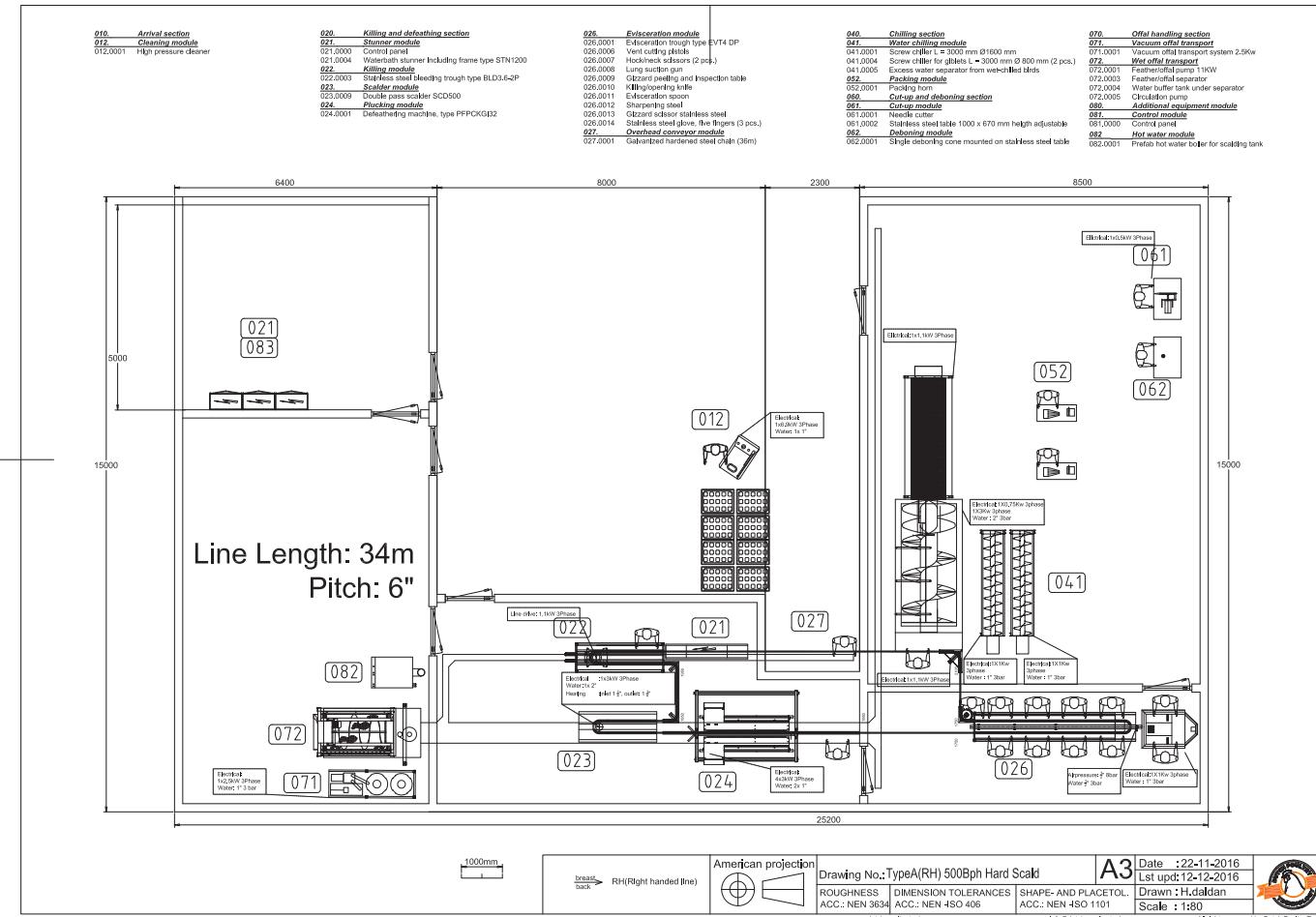
## 500 - 2000 birds per hour



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ARRIVAL | KILLING AND PLUCKING | EVISCERATION | CHILLING | WEIGHING | CUT-UP | FILLETING & DEBONING | PACKING

# 500 birds per hour



A compact setup for processing up to 500 birds per hour.

- left or right turning line (above layout is a right turning line)
- total line length of 34 meters with a shackle pitch of 6 inches
- minimum required floor space for total processing setup 25 \* 15 meters

Please refer to the legend above the layout for a detailed equipment list and descriptions.

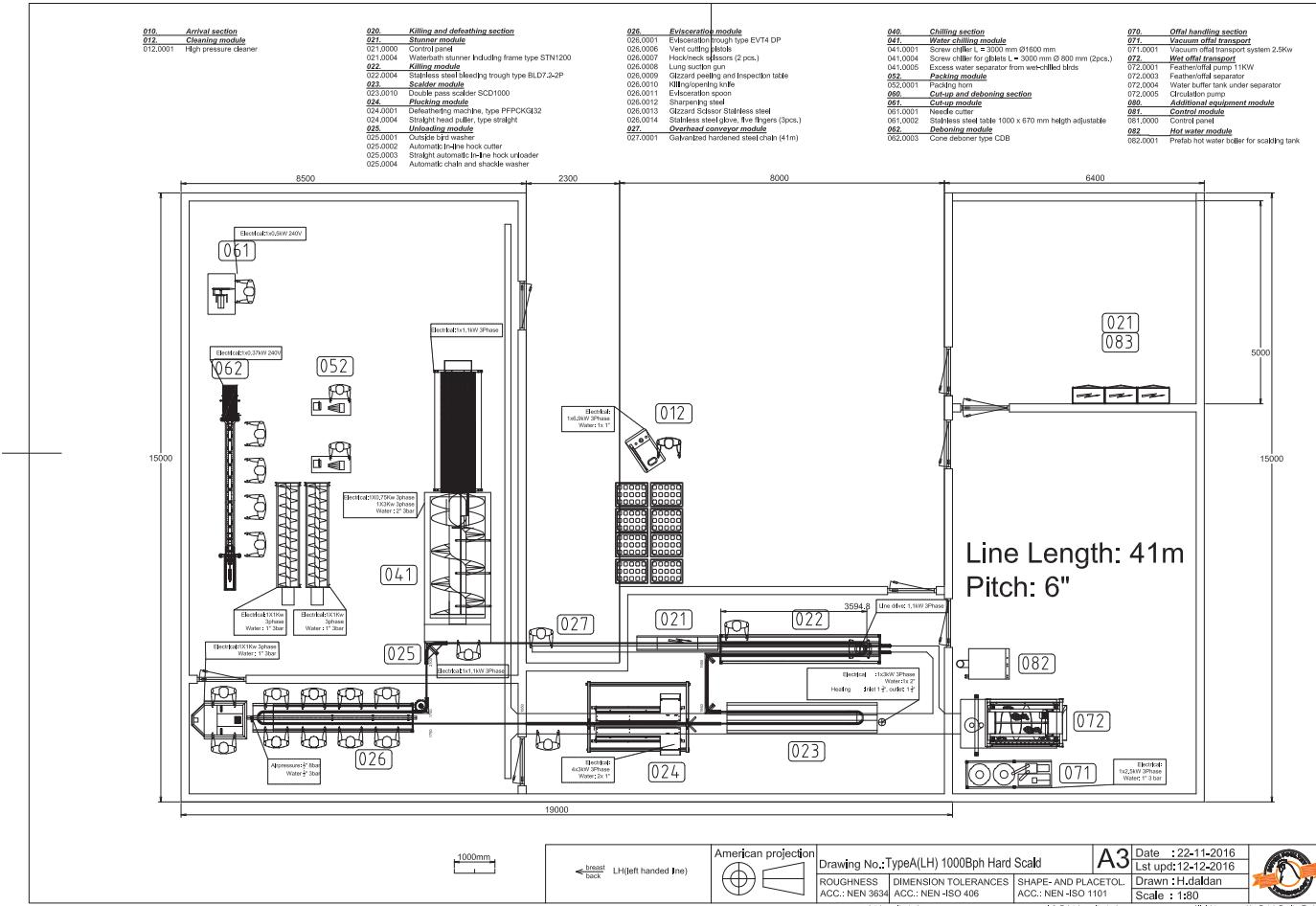
The layout is a commercial representation of a complete poultry processing plant. The design is completely optimized to be as compact and efficient as possible. The design is ideally suited for a greenfield project. Existing buildings might require additional engineering.



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# 1000 birds per hour



**A compact setup for processing up to 1000 birds per hour.**

- left or right turning line (above layout is a right turning line)
- total line length of 41 meters with a shackle pitch of 6 inches
- minimum required floor space for total processing setup 25 \* 15 meters

Please refer to the legend above the layout for a detailed equipment list and descriptions.

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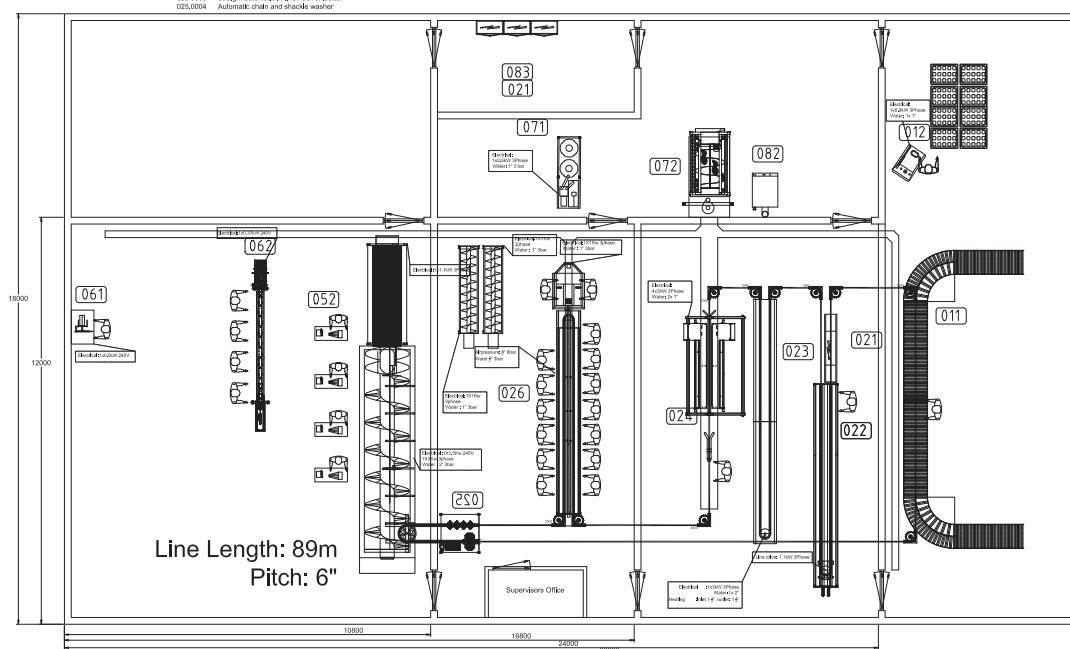


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**2000 birds per hour**

010	Arrived section	000	Killing and disinfecting section	026	Evaporation module	040	Chilling section	076	Off loading section
011	Transport module	021	Summer module	026,0001	Evaporation trough type EVTF 60 DP	041	Water chilling module	077	Vacuum off transport
011,0001	Roller track straight L=1000mm	021,00000	Control panel	026,0002	Evaporation trough type EVTF 60 DP	041,0002	Screw (screw L = 600mm x 0.900 mm)	077,0001	Vacuum offl. system transport 7.5kW
012	Transport module	021,00001	Introducing frame type STN1200	026,0003	Heads hock (2 pieces)	041,0003	Screw (screw L = 380mm x 2.800 mm (2-pcs.))	077,0002	Feathering module
012,0001	Cleaning module	022	Washing module	026,0005	Overhead conveyor belt	041,0005	Excess water separator	077,0003	Feathering pump 11kW
012,0002	Washing module	022,00005	Shank head washing trough type BLD12-2P	026,0010	Overhead conveyor belt (2-pcs.)	042,0001	Feathering head under separator	077,0004	Feathering separator
012,0003	Washing module	022,00010	Shank head washing trough type BLD12-2P	026,0015	Overhead conveyor belt	042,0002	Feathering head under separator	077,0005	Overhead conveyor module
012,0004	Washing module	023,00011	Double pass scissor SC2000	026,0020	Overhead conveyor belt (4-pcs.)	043,0001	Cupping module	077,0006	Overhead conveyor module
012,0005	Washing module	023,00012	Double pass scissor SC2000	026,0025	Overhead conveyor module	043,0002	Stainless steel tank	077,0007	Control panel
012,0006	Washing module	024,00002	Strait head, type PPFCKG840	026,0030	Overhead conveyor module	046,0001	Stainless steel tank 1000 x 670 mm height adjustable	081,00001	Control panel
012,0007	Washing module	024,00004	Strait head, type straight	027	Overhead conveyor module	046,0002	Decomposing module	082,00001	Hot water module
012,0008	Washing module	024,00005	Strait head, type PPFCKG840	027,0001	Galvanized hardened steel chain (8mm)	046,0003	Com. Reservoir York C0B	082,00002	Preheated water cooler for scissor tank
012,0009	Washing module	025,00001	Outfall belt (2 pieces)						
012,0010	Washing module	025,00002	Autoclave (1 piece)						
012,0011	Washing module	025,00003	Autoclave (1 piece) with hook under						



**A compact setup for processing up to 2000 birds per hour.**

- left or right turning line (above layout is a right turning line)
- total line length of 89 meters with a shackle pitch of 6 inches
- minimum required floor space for total processing setup  $30 * 18$  meters

Please refer to the legend above the layout for a detailed equipment list and descriptions.

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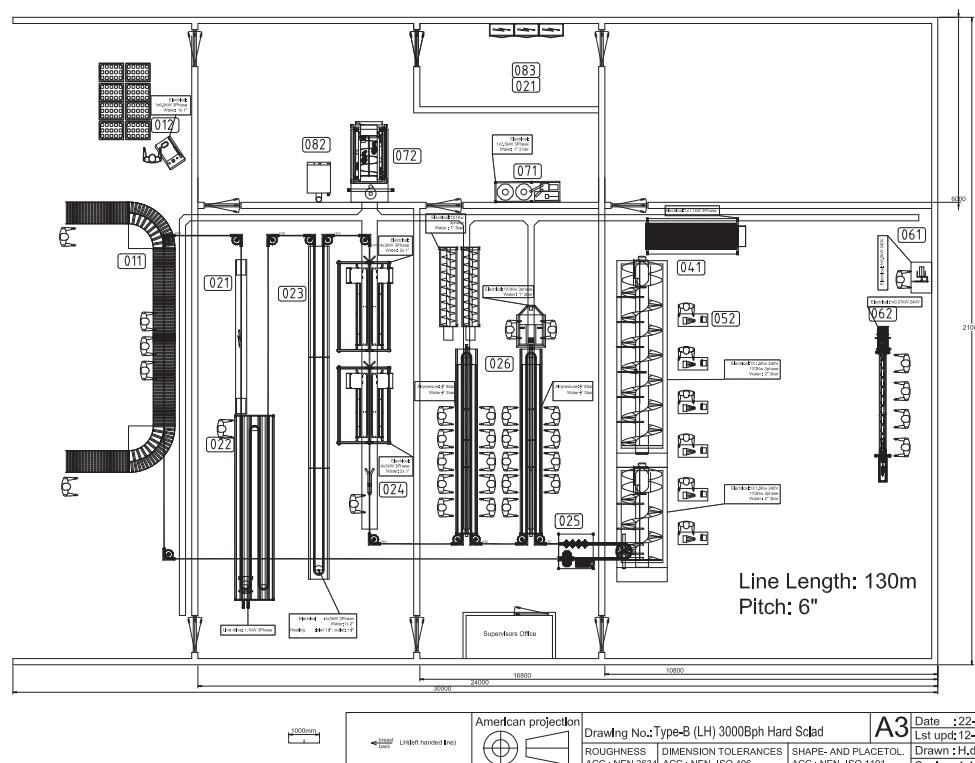


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## ARRIVAL | KILLING AND PLUCKING | EVISCERATION | CHILLING | WEIGHING | CUT-UP | FILLETING & DEBONING | PACKING

**3000 birds per hour**

010	Arrastre secundario	020	Killing and defecating section	030	Extrusion module	040	Water chitting module	050	Offs handling section
011	Arrastre module	021	Stunner module	031	Extrusion chamber type ETVB (P/picu.)	041	Water chitting chamber	051	Vacuum off transport
011/0002	Roller track 90° curve section (2 pds.)	022	Water bath stunner	032	Extrusion chamber type STN4000	042	Screws	052	Water off transport
011/0003	Centralized control	023	Water bath	033	Extrusion chamber type STL2040P	043	Extrusion chamber	053	Water off transport
012/0001	High pressure pump	024	Water bath	034	Extrusion chamber type STL2040P	044	Feathering	054	Water off transport
		025	Water bath	035	Extrusion chamber type STL2040P	045	Feathering module	055	Water off transport
		026	Water bath	036	Extrusion chamber type STL2040P	046	Feathering	056	Water off transport
		027	Water bath	037	Extrusion chamber type STL2040P	047	Feathering	057	Water off transport
		028	Water bath	038	Extrusion chamber type STL2040P	048	Feathering	058	Water off transport
		029	Water bath	039	Extrusion chamber type STL2040P	049	Feathering	059	Water off transport
		030	Water bath	040	Extrusion chamber type STL2040P	050	Feathering	060	Water off transport
		031	Water bath	041	Extrusion chamber type STL2040P	051	Feathering	061	Water off transport
		032	Water bath	042	Extrusion chamber type STL2040P	052	Feathering	062	Water off transport
		033	Water bath	043	Extrusion chamber type STL2040P	053	Feathering	063	Water off transport
		034	Water bath	044	Extrusion chamber type STL2040P	054	Feathering	064	Water off transport
		035	Water bath	045	Extrusion chamber type STL2040P	055	Feathering	065	Water off transport
		036	Water bath	046	Extrusion chamber type STL2040P	056	Feathering	066	Water off transport
		037	Water bath	047	Extrusion chamber type STL2040P	057	Feathering	067	Water off transport
		038	Water bath	048	Extrusion chamber type STL2040P	058	Feathering	068	Water off transport
		039	Water bath	049	Extrusion chamber type STL2040P	059	Feathering	069	Water off transport
		040	Water bath	050	Extrusion chamber type STL2040P	060	Feathering	070	Water off transport
		041	Water bath	051	Extrusion chamber type STL2040P	061	Feathering	071	Water off transport
		042	Water bath	052	Extrusion chamber type STL2040P	062	Feathering	072	Water off transport
		043	Water bath	053	Extrusion chamber type STL2040P	063	Feathering	073	Water off transport
		044	Water bath	054	Extrusion chamber type STL2040P	064	Feathering	074	Water off transport
		045	Water bath	055	Extrusion chamber type STL2040P	065	Feathering	075	Water off transport
		046	Water bath	056	Extrusion chamber type STL2040P	066	Feathering	076	Water off transport
		047	Water bath	057	Extrusion chamber type STL2040P	067	Feathering	077	Water off transport
		048	Water bath	058	Extrusion chamber type STL2040P	068	Feathering	078	Water off transport
		049	Water bath	059	Extrusion chamber type STL2040P	069	Feathering	079	Water off transport
		050	Water bath	060	Extrusion chamber type STL2040P	070	Feathering	080	Water off transport
		051	Water bath	061	Extrusion chamber type STL2040P	071	Feathering	081	Water off transport
		052	Water bath	062	Extrusion chamber type STL2040P	072	Feathering	082	Water off transport
		053	Water bath	063	Extrusion chamber type STL2040P	073	Feathering	083	Water off transport
		054	Water bath	064	Extrusion chamber type STL2040P	074	Feathering	084	Water off transport
		055	Water bath	065	Extrusion chamber type STL2040P	075	Feathering	085	Water off transport
		056	Water bath	066	Extrusion chamber type STL2040P	076	Feathering	086	Water off transport
		057	Water bath	067	Extrusion chamber type STL2040P	077	Feathering	087	Water off transport
		058	Water bath	068	Extrusion chamber type STL2040P	078	Feathering	088	Water off transport
		059	Water bath	069	Extrusion chamber type STL2040P	079	Feathering	089	Water off transport
		060	Water bath	070	Extrusion chamber type STL2040P	080	Feathering	090	Water off transport
		061	Water bath	071	Extrusion chamber type STL2040P	081	Feathering	091	Water off transport
		062	Water bath	072	Extrusion chamber type STL2040P	082	Feathering	092	Water off transport
		063	Water bath	073	Extrusion chamber type STL2040P	083	Feathering	093	Water off transport
		064	Water bath	074	Extrusion chamber type STL2040P	084	Feathering	094	Water off transport
		065	Water bath	075	Extrusion chamber type STL2040P	085	Feathering	095	Water off transport
		066	Water bath	076	Extrusion chamber type STL2040P	086	Feathering	096	Water off transport
		067	Water bath	077	Extrusion chamber type STL2040P	087	Feathering	097	Water off transport
		068	Water bath	078	Extrusion chamber type STL2040P	088	Feathering	098	Water off transport
		069	Water bath	079	Extrusion chamber type STL2040P	089	Feathering	099	Water off transport
		070	Water bath	080	Extrusion chamber type STL2040P	090	Feathering	100	Water off transport
		071	Water bath	081	Extrusion chamber type STL2040P	091	Feathering	101	Water off transport
		072	Water bath	082	Extrusion chamber type STL2040P	092	Feathering	102	Water off transport
		073	Water bath	083	Extrusion chamber type STL2040P	093	Feathering	103	Water off transport
		074	Water bath	084	Extrusion chamber type STL2040P	094	Feathering	104	Water off transport
		075	Water bath	085	Extrusion chamber type STL2040P	095	Feathering	105	Water off transport
		076	Water bath	086	Extrusion chamber type STL2040P	096	Feathering	106	Water off transport
		077	Water bath	087	Extrusion chamber type STL2040P	097	Feathering	107	Water off transport
		078	Water bath	088	Extrusion chamber type STL2040P	098	Feathering	108	Water off transport
		079	Water bath	089	Extrusion chamber type STL2040P	099	Feathering	109	Water off transport
		080	Water bath	090	Extrusion chamber type STL2040P	100	Feathering	110	Water off transport



**A compact setup for processing up to 3000 birds per hour.**

- left or right turning line (above layout is a right turning line)
- total line length of 130 meters with a shackle pitch of 6 inches
- minimum required floor space for total processing setup  $30 * 21$  meters

Please refer to the legend above the layout for a detailed equipment list and descriptions.

The layout is a commercial representation of a complete poultry processing plant. The design is completely optimized to be as compact and efficient as possible. The design is ideally suited for a greenfield project. Existing buildings might require additional engineering.



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# Compact Poultry Processing Solutions

Around the globe poultry processing is booming. With rising population numbers and wealth, comes a bigger demand for animal protein. This is coupled with a growing need and desire to shift from traditional local methods to modern processing techniques to ensure a safe and hygienic way to process poultry. Dutch Poultry Technology from The Netherlands has developed low-cost processing solutions for:

- new, green-field processing plants;
- automating specific production sections in existing plants;
- increasing worker productivity and/or reduce labor.

Dutch Poultry Technology is specialized in the design, manufacturing and installation of cost-effective, reliable, easy to install and operate poultry processing solutions for processing 500 – 6000 birds per hour. Our low-cost semi- and full automatic processing solutions are based on proven technology and 30+ years of automatic processing experience. Lean engineering and manufacturing greatly reduce production, installation and operation costs. Based on extensive experience, we have developed our own efficient and economical poultry processing machines, specifically developed for the starter-to-middle capacity market .





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## Overview



If you're thinking of starting up a new plant, or running a completely manual operation, the first things you need are:

- overhead conveyor to transport your product
- a waterbath stunner
- a scalding machine
- and a plucking machine

Generally you would still need personnel for hanging, killing and evisceration. Compared to completely manual processing this already allows for greater production per hour with less personnel as well as obtaining a better product quality.



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# Arrival / Live Bird Handling

## Overhead conveyor



The backbone of each and every poultry processing plant is the overhead conveyor, which transports birds through each production section in the plant. It will deliver products at a constant speed, meaning a manageable and predictable product flow.

An overhead conveyor is made from galvanized or stainless steel, chain, plastic (synthetic) trolleys and shackles which carry the product. Generally a track in the form of a T is used, hence the name T-track.

## Hanging



In most countries, live birds are delivered in crates. The crates are placed on a roller track conveyor and staff members will hang the birds in the shackles.



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# Killing and Plucking

## Waterbath stunner

The birds hang in the shackles by their feet. They are led through a water bath stunner with their heads under water. There are two electrodes: one in the bath and one formed by the shackle guide. Together this forms an electrical circuit, the electric current goes through the submerged head and then the rest of the body. Our stunner has been designed to effectively stun each bird to enable a proper and efficient kill cut.



## Bleeding area

After stunning, there can either be manual or automatic killing, depending on for example the desired capacity per hour or religious and cultural requirements. Whatever the kill method, the birds are transported over a V-shaped trough where the birds can bleed out. A special pump is supplied to pump the blood from the trough to a tank.



Generally birds will lose around half of the total amount of blood in 1,5 to 2 minutes of bleeding time. Inadequate bleeding results in a product with a shorter shelf life. However letting birds bleed out too long will cause problems with plucking. A proper bleeding time when processing 2000 birds per hour corresponds to a bleeding line of 10 meters.



# Killing and Plucking

## Scalder

After having bled out, but before plucking, the birds need to be scalded in a hot water bath. Scalding greatly improves the plucking process, because the scalding temperature and length will make feathers come off quicker and easier. For a fresh, non-frozen product a soft scald is needed, whereas for a frozen product a hard scald is required to remove the top skin layer (epidermis) and ensure a good looking product.



Hard scald: 2 minutes at 58 - 60°C will allow for a capacity up to 1000 birds per hour

Medium scald: 2½ minutes at 54 - 56°C will allow for a capacity up to 800 birds per hour

Soft scald: 3 minutes at 50 - 52°C will allow for a capacity up to 650 birds per hour

## Plucker GI-40

The best feather picking results are had when the right scalding set-up is combined with an efficient and economical defeathering machine.

With two height- and width-adjustable plucking banks holding 40 plucker pots in total it's the ideal machine for picking up to 2000 birds per hour. Easy maintenance and widely available parts make this machine a sound investment.



## Head puller

A head puller is installed after the picker to remove the head from each bird.



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# Evisceration

## Manual / semi-automated evisceration

Up to processing 2000 birds per hour, it remains economical to manually eviscerate the birds. This section of the plant can be semi-automated with (air and/or vacuum operated) hand tools to allow for greater processing capacities per hour than when using normal hand tools. Our semi-automatic tools include a weight balancer to drastically reduce tool weight, providing ergonomic benefit as well as an increase in productivity. The set of working tools also includes knives, forks, sharpening steel and stainless steel gloves.



Vent Cutting with a pistol



Manual Evisceration



Neck cutting with an air-powered scissor



Lung removal guns

## Hock cutter / bird unloader

After the evisceration area, a hock cutter and bird unloader are installed to allow the birds to be unloaded in the receiving bin of a screw chiller.



## Pre-chilling and chilling

A water screw chiller is used to cool birds by moving them through chilled water. It is also possible to combine chillers of various lengths in order to pre-chill the product.

Capacity	Chiller length
up to 1000 bph	3 meters
up to 2000 bph	6 meters
up to 3000 bph	9 meters
up to 4000 bph	12 meters



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# Weighing

## Weighing

After chilling, the birds can be transferred to a weighing section. This can be as simple as a table with a weighing scale or more complex with weighing machines either in-line or using special conveyor belts. Birds of different weight classes can then be sorted, bagged and sold according to your (or your customers!) specific requirements and needs.





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# Cut-up and Deboning

## Cut-up

A simple needle cutter machine can already greatly improve productivity and will allow for clean, efficient cuts. The machine is engine-driven, which significantly reduces worker fatigue. This device is perfect for lower capacity plants: one or two machines are enough for smaller poultry processing plants.



## Semi-auto cone line

A cone deboning line is an efficient way to semi-automate the cut-up or deboning process of poultry. Whole birds are placed on cones which are transported along a conveyor. The cones will leave both hands free to work and will allow operators to easily and quickly bone out specific parts of the bird. Various bird species can be processed, depending on cone size.





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# Packing

## Packing

A simple solution for bagging whole birds is to install a packing funnel and tape sealer on a table. The funnel helps to keep open the bags and makes it easier to insert the whole bird, while the tape sealer allows for quick and easy closing of the bag. Ofcourse this process can be semi-automated by using a more advanced air-powered bagger machine. A skilled operator can bag up to 600 birds per hour with an air-powered semi-automatic bird bagger.







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