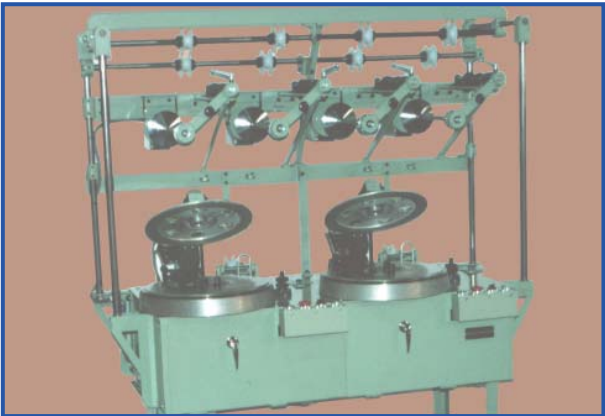


# Bobbin winding machines

The Model B-2E and B-3E bobbin winding machines are designed for the high speed loading of bobbins for Amita Model GTA net machines. Capable of loading all types of twines and monofilaments, these winders substantially improve bobbin handling operations.



Model B-2E bobbin winder for the Model GTA type 50-10.



Model B-2E bobbin winder for the Model GTA type 25-20, shown with optional overhead loading device for feed twine spools of less than 260mm in diameter.

## MAJOR FEATURES

- Precision engineered for long service.
- Bobbins do not expand during loading.
- Constant tension is maintained throughout loading.
- Service points are easily accessed for quick maintenance.

Type		2E	3E
Turnheads		2	3
Applicable net machine	AMITA	GTA	
Applicable twine range		Refer to net machine specifications.	
Speed (1st-step)	rpm	80 (50Hz), 96 (60Hz)	
(2nd-step)	rpm	126 (50Hz), 156 (60Hz)	
(3rd-step)	rpm	179 (50Hz), 214 (60Hz)	
Main motor	kW	2 x 0.2	3 x 0.2
Auxiliary motor	kW	2 x 0.2	3 x 0.2

Notes: 1] Individual design for each bobbin diameter.  
2] All specifications are subject to change without notice.



Model GTA type 50-10 shown.

MODEL GTA  
Second Generation

GTA Legendary  
Machine



For further information on Amita products and services, please contact the manufacturer directly at the following address:  
**AMITA COMPANY** Toyohashi, Japan  
Telephone: 81-532-65-2222 Facsimile: 81-532-65-2220 InterNet email: sales@gta.amita.co.jp



# Model GTA

20mm to 50mm pitch  
nylon and polyethylene twine

Our 2<sup>nd</sup> generation Model GTA net machine was masterfully designed to obtain greater levels of:

**Stability! Flexibility! Ease of use!**

Our Model GTA net machines have been designed to knit netting of heavy grade polyethylene or nylon twine for use to make trawling nets. Heavy-duty materials and components are used throughout the Model GTA to insure the required strength for knitting heavy netting. Furthermore, various measures were taken to eliminate vibrations during operation. With its large bobbin capacity, machine operation downtime for bobbin replacement is shortened, resulting in higher operating efficiency and productivity.

The design of our 2<sup>nd</sup> generation Model GTA net machines incorporate net manufacturers’ operational suggestions, resulting in machines that are easier than ever to operate and possess increased mechanical strength. Additionally, the twine range of the 2<sup>nd</sup> generation Model GTA is more comprehensive and flexible than earlier models.

All major parts have been expertly crafted through the use of the latest technology making them highly durable. Amita has much experience in this type of manufacturing process. Something that our competitors cannot claim. The primary design is monitored with the aid of a Computer Aided Design (CAD) system. A Computer Numerical Control (CNC) machine is used to finish the initial process of manufacturing.

With this type of technology Amita is able to continue to evolve with the demands of the netting industry to produce ever better machines. In fact, recently our Model GTA net machines with weft bobbins of 500mm diameter were redesigned for increased stability and durability when knitting very heavy and stiff twines across their entire width.

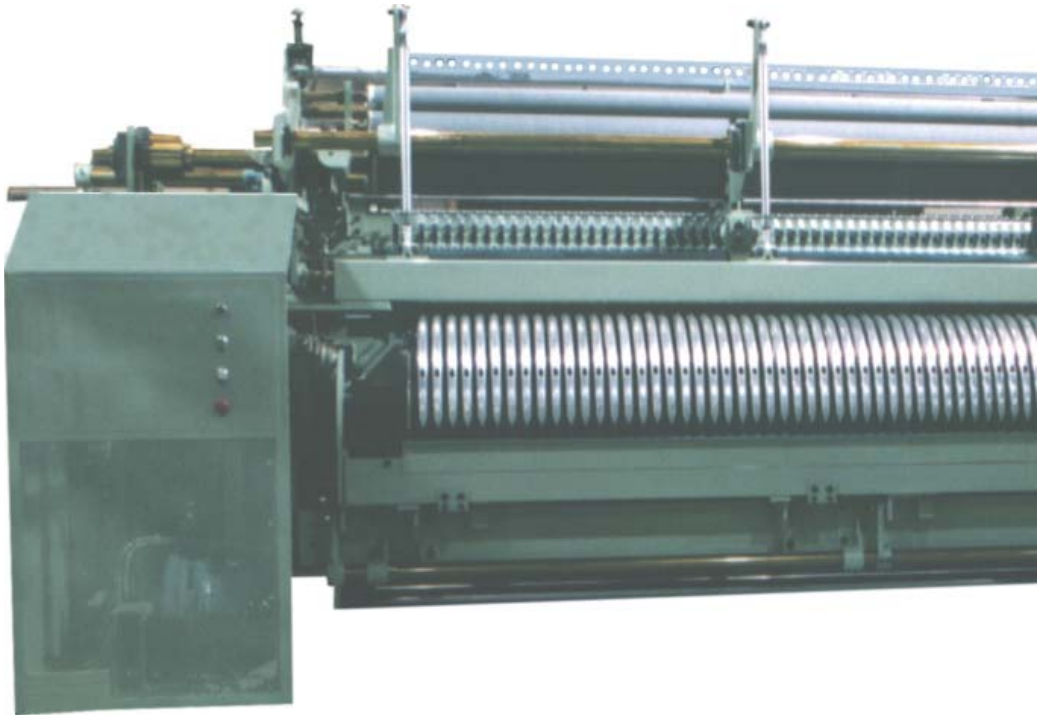
The GTA series of net machines is only one example of Amita’s commitment to excellence. We are sure that you will agree. Please contact us for more details or on how you can invest in one of these machines for yourself.

Amita is more than net machines. Amita can provide machines for every stage of net manufacturing. Furthermore, we can even supply you with a general plan regarding factory layout, and a wealth of information as it relates to the world’s net manufacturing industry.

**NEW 30mm pitch GTA capable of both  
SINGLE and DOUBLE knot now available!**

## Easy adjustment

- control touch panel
  - mesh size
  - automatic marker
  - auto warp supply adjustment system
- hydraulic pump
  - knot tightening brake
  - warp roller brake
  - lefting warp roller
- end cover automatic stop



## Specifications

MODEL GTA Net Machine						
Type		20 - 25	22 - 20	25 - 20	25 - 20L	
Number of shuttles		250	235	208	208	
Pitch	mm	20	22	25	25	
Diameter of bobbin	mm	400	400	400	500	
Applicable twine range						
P.E. twine (single)	denier/ply	380/12 ~ 380/54	380/12 ~ 380/75	380/12 ~ 380/87	380/21 ~ 380/102	
P.E. braided cord single	mm dia.	1.0 ~ 3.0	1.5 ~ 3.8	1.5 ~ 4.0	1.5 ~ 4.0	
P.E. braided cord double	mm dia.	0.7 ~ 2.0	1.0 ~ 2.8	1.0 ~ 3.0	1.3 ~ 3.0	
nylon twine (single)	denier/ply	210/24 ~ 210/108	210/24 ~ 210/144	210/30 ~ 210/228	210/45 ~ 210/210	
nylon braided cord single	mm dia.	1.0 ~ 3.0	1.5 ~ 3.8	1.5 ~ 4.5	1.5 ~ 4.5	
nylon braided cord double	mm dia.	0.7 ~ 2.0	1.0 ~ 2.8	1.0 ~ 3.5	1.0 ~ 3.5	
Mesh range (knot to knot)	mm	16 ~ unlimited	18 ~ unlimited	20 ~ unlimited	20 ~ unlimited	
Looming speed	rpm			up to 11		
Knot configuration				Single		
Main drive motor	kW			1 x 7.5		
Mesh forwarding motor (AC servo)	kW			1 x 3.7		
Hydraulic pump motor	kW			1 x 0.75		
Dimensions (l x w x h)	mm		8,080 x 3,505 x 2,237			
Weight net	kg		15,000			
gross	kg		17,000			
Export packing size	m³		50.8			

Type		30 - 10	30 - 10D	30 - 10L	30 - 17	
Number of shuttles		106	106	106	170	
Pitch	mm		30			
Diameter of bobbin	mm	400			500	
Applicable twine range						
P.E. twine (single)	denier/ply	380/24 ~ 380/210	380/18 ~ 380/180	380/24~380/210	380/30 ~ 380/210	
P.E. braided cord single	mm dia.	1.8 ~ 6.0	1.5 ~ 4.5	1.8 ~ 6.0	1.8 ~ 6.0	
P.E. braided cord double	mm dia.	1.3 ~ 5.0	1.0 ~ 4.0	1.3 ~ 5.0	1.3 ~ 5.0	
nylon twine (single)	denier/ply	210/45 ~ 210/450	210/30 ~ 210/450	210/45 ~ 210/450	210/45 ~ 210/450	
nylon braided cord single	mm dia.	1.8 ~ 6.0	1.5 ~ 5.0	1.8 ~ 6.0	1.8 ~ 6.0	
nylon braided cord double	mm dia.	1.3 ~ 5.0	1.0 ~ 4.0	1.3 ~ 5.0	1.3 ~ 5.0	
Mesh range (knot to knot)	mm			25 ~ unlimited		
Looming speed	rpm	up to 13	up to 13.5(S)/up to 12(D)	up to 13	up to 11	
Knot configuration		Single	Single / Double		Single	
Main drive motor	kW	1 x 3.7	1 x 5.5		1 x 5.5	
Mesh forwarding motor (AC servo)	kW			1 x 3.7		
Hydraulic pump motor	kW			1 x 0.75		
Dimensions (l x w x h)	l x w x h mm		6,060 x 3,505 x 2,074		8,080 x 3,555 x 2,237	
Weight net	kg		11,000		15,000	
gross	kg		13,000		17,000	
Export packing size	m³		40		50.8	

Type		40-10	40-12	45-10	50 - 10	
Number of shuttles		106	128	110	104	
Pitch	mm	40	40	45	50	
Diameter of bobbin	mm			500		
Applicable twine range						
P.E. twine (single)	denier/ply	380/30 ~ 380/378		400d/60 ~ 400d/360	380/93 ~ 380/681	
P.E. braided cord single	mm dia.	2.0 ~ 7.5		3.5 ~ 8.0	3.5 ~ 10.0	
P.E. braided cord double	mm dia.	1.5 ~ 6.0		2.0 ~ 6.0	2.0 ~ 6.5	
nylon twine (single)	denier/ply	210/60 ~ 210/750		210d/120 ~ 1,125	210/210 ~ 210/1,600	
nylon braided cord single	mm dia.	2.0 ~ 7.5		3.5 ~ 8.0	3.5 ~ 10.0	
nylon braided cord double	mm dia.	1.5 ~ 6.0		2.0 ~ 6.0	2.0 ~ 7.5	
Mesh range (knot to knot)	mm	33 ~ unlimited		36 ~ unlimited	45 ~ unlimited	
Looming speed	rpm	up to 11		up to 10	up to 9	
Knot configuration				single		
Main drive motor	kW			1 x 7.5		
Mesh forwarding motor (AC servo)	kW			1 x 3.7		
Hydraulic pump motor	kW			1 x 0.75		
Dimensions (l x w x h)	l x w x h mm	7,480 x 3,555 x 2,237	8,080 x 3,555 x 2,237			
Weight net	kg			15,000		
gross	kg			17,000		
Export packing size	m³			50.8		

○ P.E. and nylon twine ranges depict unknotted warp twine.  
○ Creel pin arrangement is at buyer's request.

H27.7

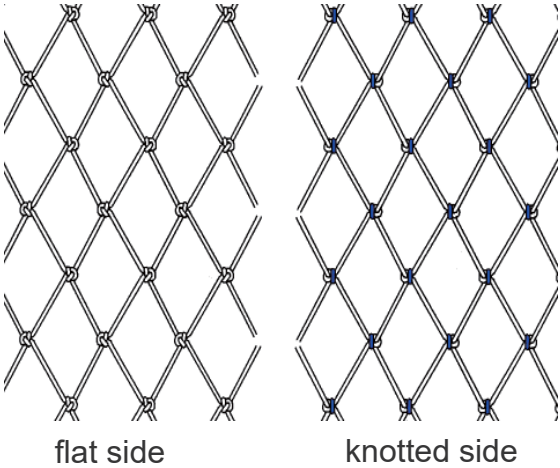
Notes: 1] Minimum mesh size carries in relation to the operating speed and twine diameter. 2] P.E. and nylon twine ranges depict unknotted warp twine. 3] Looming speed varies in relation to mesh size and twine diameter. 4] Power supply is determined at the request of the buyer. 5] Machine weights and export packing size are estimates. 6] Creel pin arrangement is at buyer's request. 7] All specifications are subject to change without notice.



# Optional equipment

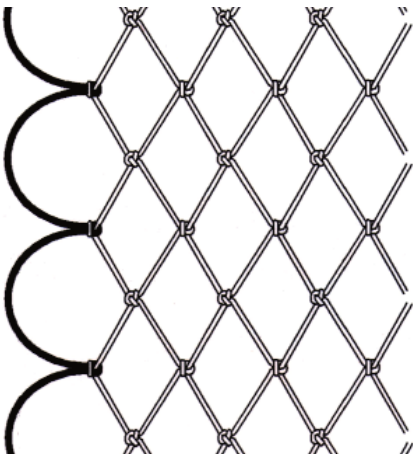
## Untwisted mesh device:

This device produces netting sheets that are flat on one side. Switching between knitting standard mesh and untwisted mesh is easily done by changing the reed driving cam and the upper hook rotating cam. Model GTA net machines can be designed to knit untwisted mesh, standard mesh, or both types.



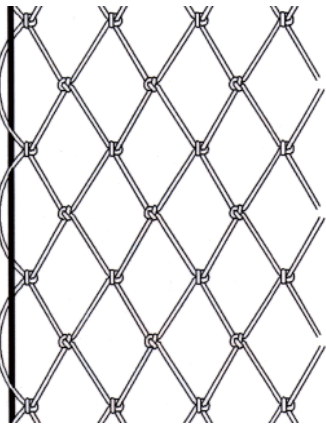
## Large selvage mesh device:

Selvage meshes are uniformly produced slightly larger than normal mesh size. This facilitates the joining of netted sheets. Twine supply is adjustable.



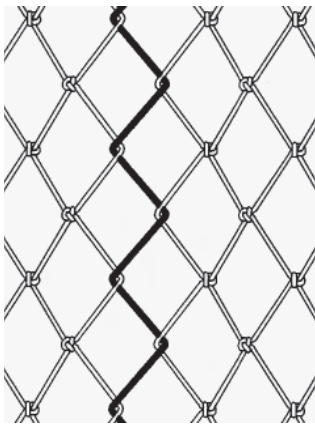
## Selvage twiner:

This device passes a twine through selvage meshes. This twine is used as guide for passing a steel bar through the selvage meshes prior to stretching.



## Net splitting device:

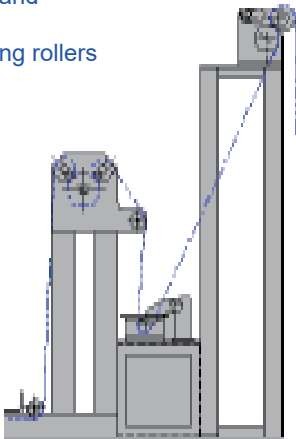
At locations where the netting sheet is to be separated, knot formation is avoided by passing the warp twine through a hole in the reed that is lower than the usual holes. With this system the warp twine does not reach the upper hook to form a knot.



## Resining system:

Sheets of netting are treated with resin as they flow out of the machine, insuring that the knots remain tight and uniform prior to stretching.

- 1 Net forwarding stand
- 2 Resining system
- 3 High net forwarding rollers



## High net forwarding rollers:

This device, see below and left, allows for the convenient handling of bulky netting after resin treatment.

## Take-up tension roller:

This device, located just prior to the net forwarding rollers, provides constant and uniform tension. Ideal for slippery or heavy twines.

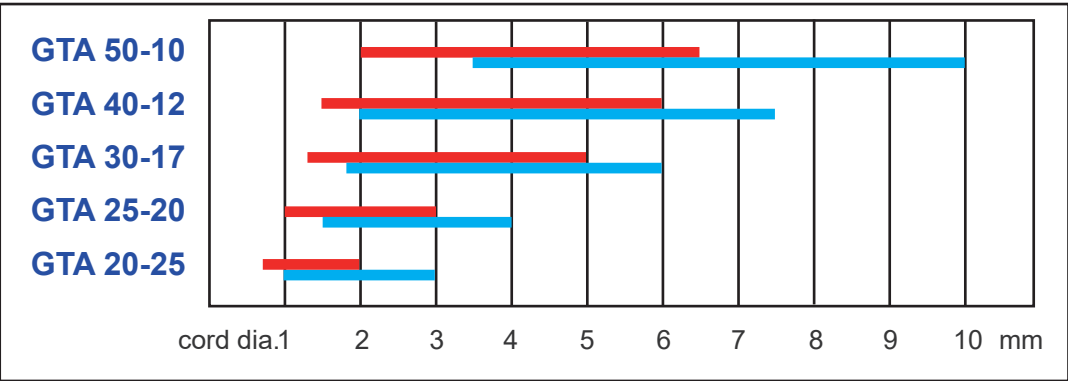
## Other devices

may be offered to meet your specific needs if requested.

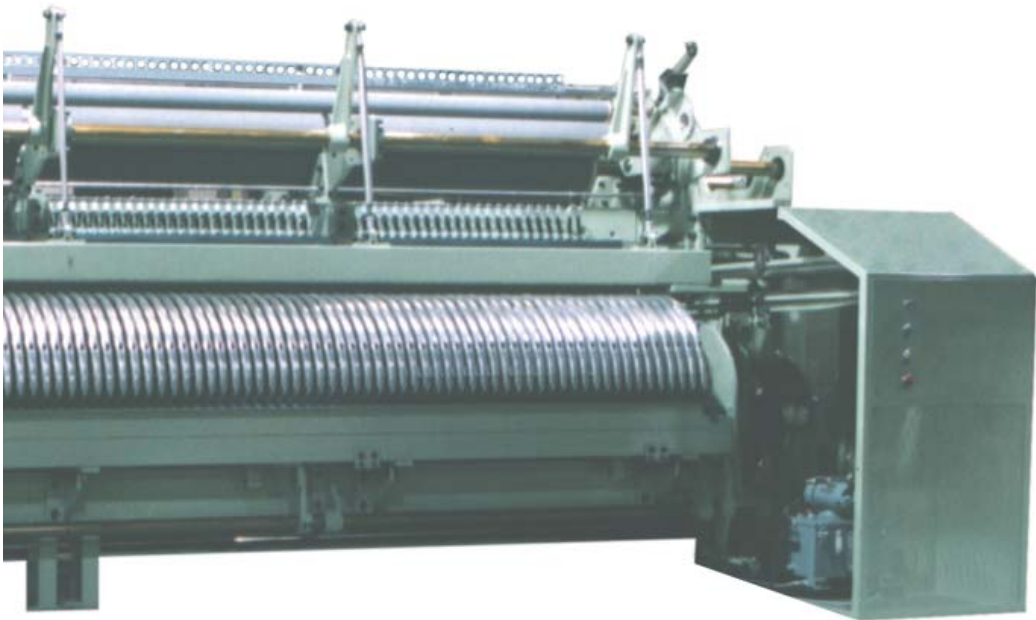
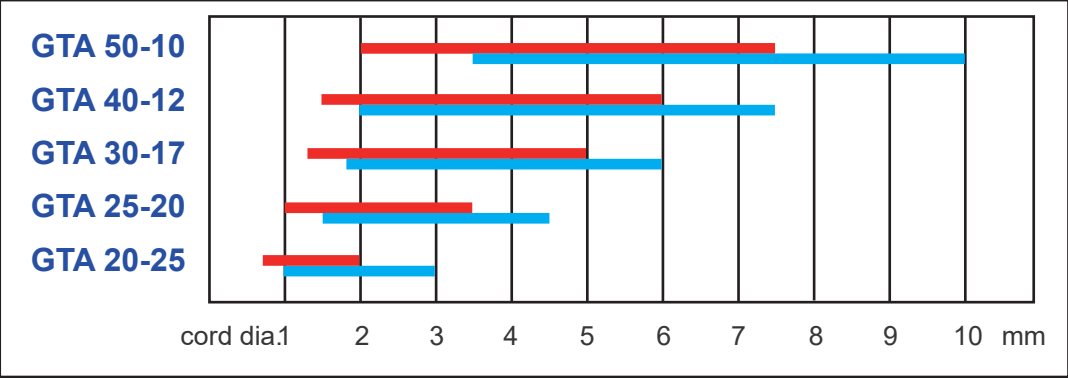


# Twine Range

## PE braided cord (Red = double cord, Blue = single cord):



## Nylon braided cord (Red = double cord, Blue = single cord):



## High productivity

- 2-axis servo motor system
- large bobbin diameter
- single / double twine
- open-type shuttle

## Low vibration

- frame structure
- lower hook frame
- knot tightening pipe
- shuttle support

Model GTA type 50-10 shown.

# Advanced net forwarding system



All of the net machine's vital functions can be monitored at one control panel.



The quick response of the servo motor insures optimal performance.



Amita Model GTA net machines employ a Computer Numerical Control (CNC) servo motor system for the mesh forwarding device; the most important segment in deciding the net machine's performance.

After more than ten years experience in use and improvements of this system, the current servo motor system has been modified to have the specific performance required by net machines.

Amita's servo system can skillfully respond to the sophisticated development of resistant load that is characteristic with net machines. Under normal operation, it is completely trouble-free and reliable. The current system does not employ a battery nor a fan making it more durable than earlier models.

Digital input, via a keyboard, determines the exact mesh size.

Instant setting of accurate mesh size eliminates the production loss normally associated with the conventional trial runs necessary to obtain correct mesh size.

High-torque, quick-response AC servo motor controls the mesh-forwarding function & main motor drive.

AC motor is brushless and maintenance free. Its quick response insures optimal performance.

Automatic marking system.

When knitting reaches the appointed pre-set count, two or three distinct "marking" meshes, either larger or smaller than normal size, are knit automatically. Afterwards, the counter resets and begins counting again.

Independent operation of the net forwarding system.

Allows the bulky knot, caused by the joining of warp lines, to pass through the rollers, reed holes, and hooks without incident.

The servo motor systems also have the benefit of an RS 232C CPU interface.

Using an RS 232C cable to connect an IBM based computer to the servo motor system greatly simplifies the process of entering, reviewing and changing the program parameters controlling the servo motor's function. Furthermore, the RS 232C interface makes it possible to download the entire ROM program in ASCII format. The program can then be sent to our main office via Internet email (or facsimile) allowing our computer specialists to review it line-by-line. As a result, we can provide you with quicker and more thorough technical support.

# Highlights

## Bobbin Size



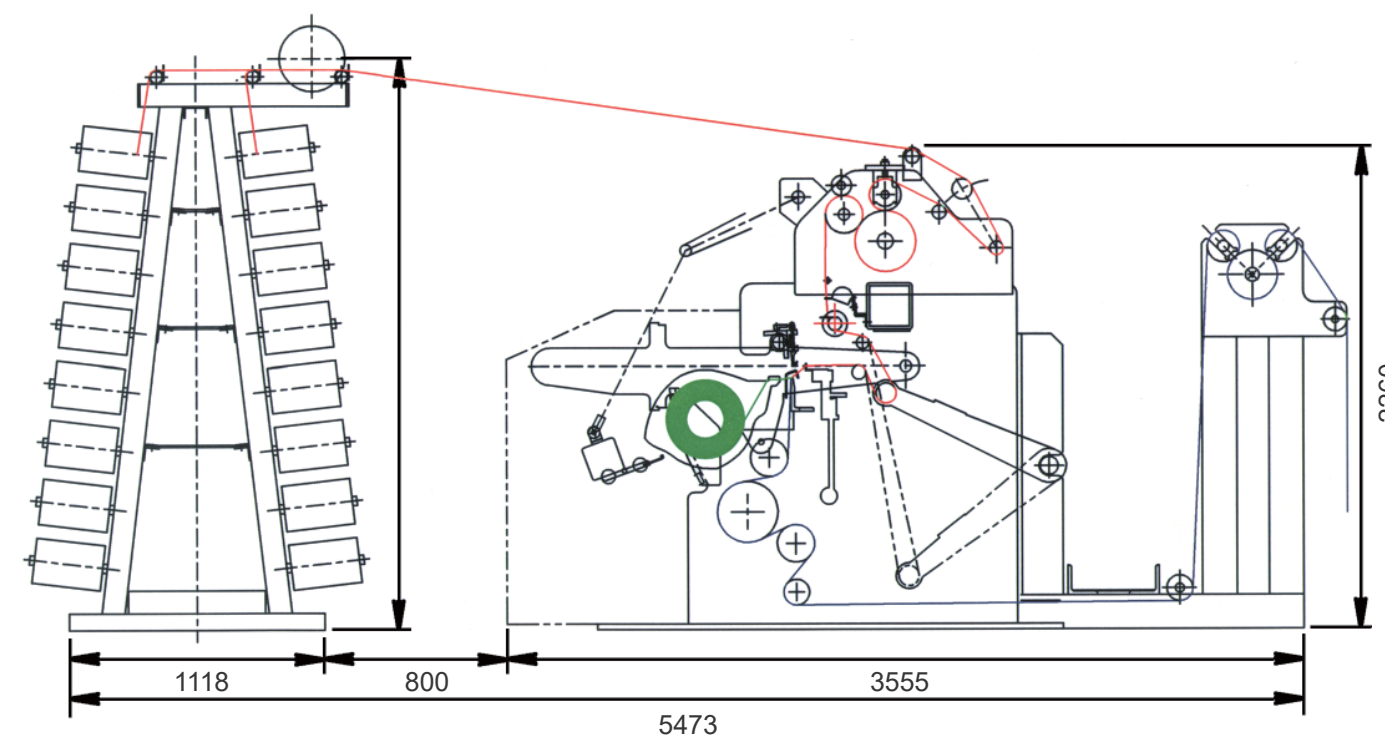
## Shuttle(OPTION)

The shuttles on our Model GTA have been computer designed to insure optimal performance. Only the highest-grade materials are used in the production of these two piece shuttles (for 500mm dia. bobbin). As a result, their life span is comparable to traditional one piece shuttles.



## Cross section

Cross section of Model GTA showing path of twine and netting: **WARP**, **WEFT**, **NETTING**





# Highlights

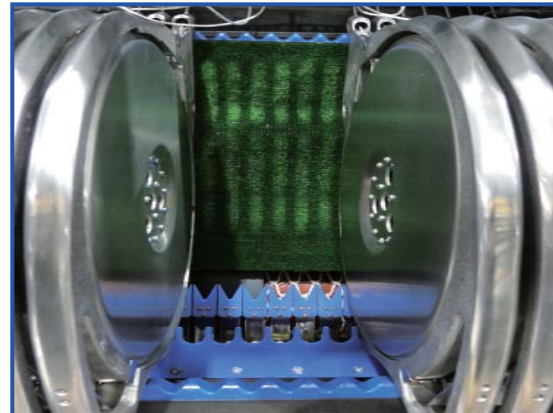
## Twine separator

The twine separator insures the twine pulled by the lower hook travels along both sides of the shuttle. This device can avoid the formation of skipped mesh in netting. Special surface treatment is applied to the stainless steel (JIS #SUS304) twine separator for high durability.



## Shuttle support

Shuttles are supported at two additional locations for better stability in positioning. The shuttle support swings, facilitating twine passage by reducing friction.



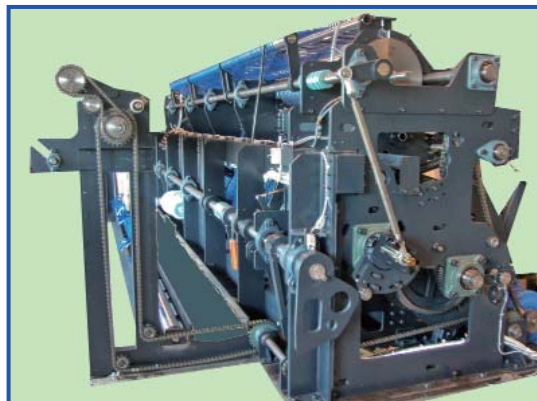
## Knot tightening brake

The knot tightening brake uses two large discs to generate a very powerful braking force. The strength of the knot tightening brake is easily adjusted, and its wide range of force insures quality netting regardless of the twine being knit.



## Net forwarding roller

Net forwarding tension is made even and stronger by using a larger diameter net forwarding roller. Covering material has been changed providing a better result. Shown with **optional** take-up system with roller weight, ideal for heavier twines.



## Upper hook

Specifically constructed to insure the most suitable shape and design, these hooks are made of chromium-molybdenum steel (JIS #SCM435) using the lost wax casting method insuring long life.



## Lower hook

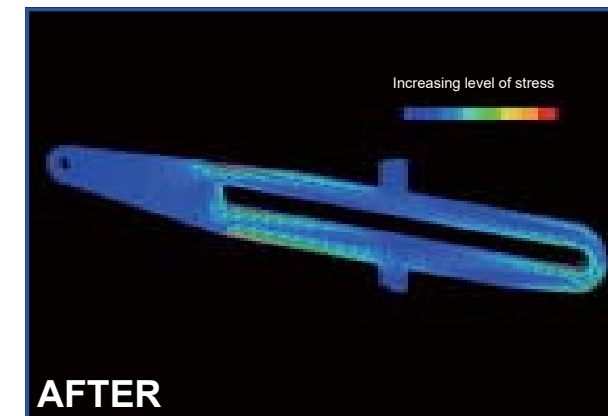
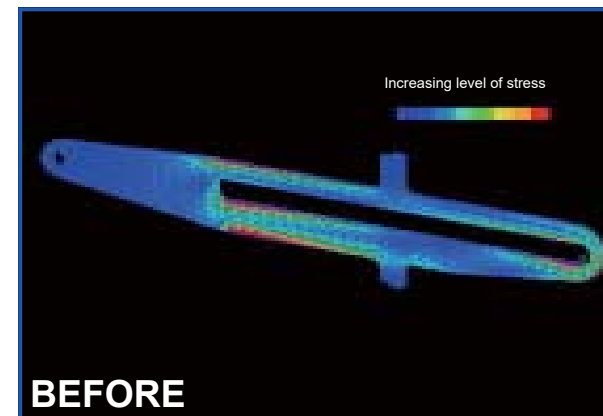
Lower hooks are made of drill rod steel (JIS #SK2) to insure high durability.



# Technology highlights

## Finite element method analysis

The 2<sup>nd</sup> generation Model GTA net machines take advantage of 'finite element method' analysis to review components for structural integrity prior to production. After being designed using the most advanced CAD software, drawings undergo analysis for stress and weakness. Improvements to the original design are then made to minimize points of stress to insure smooth and proper function of all components. The life-span of components is also enhanced.



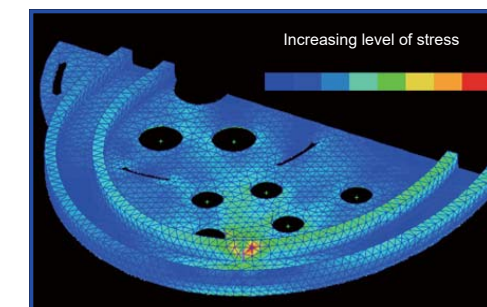
## Cams

To resist the increased levels of stress associated with such large net machines, all the cams of our Model GTA have been made from nodular cast iron (JIS FCD500) containing spherical carbon, which is twice as strong as ordinary cast iron. In addition, all cam surfaces are hardened using a thermal treatment. Therefore, very high durability is achieved.

Tensile strength: 50kgf/mm<sup>2</sup>  
Hardness: more than 50 (rockwell hardness)  
Surface finishing: machine grinding

Every cam is designed using the most advanced Computer Aided Design (CAD) software available to insure the optimal size and shape to minimize the driving load. Afterwards 'finite element method analysis' software is used to check the structural integrity of the components prior to production. The use of various software, in the designing stage, insures that original concepts are improved upon to minimize points of stress and guarantees smooth and proper function of all components. The life-span of components is also enhanced.

Computer controlled machines are then used in the manufacturing process to insure the highest levels of craftsmanship. Components are complete only after their surfaces have been ground, polished and smoothed. All cams, located inside the main frame, are divided into two sections allowing for easy adjustment and replacement.

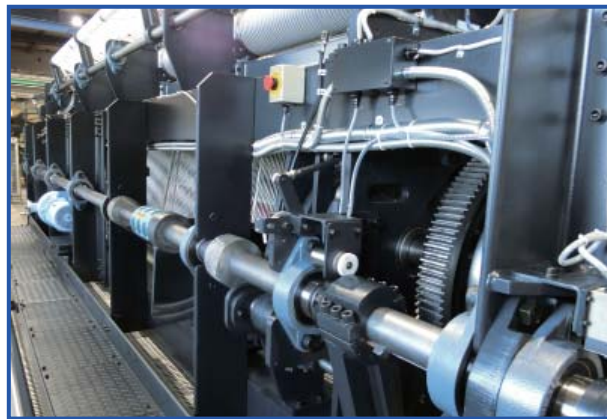




## Simple operation

### Solid construction

Model GTA net machines are designed for knitting heavy duty netting. The most important characteristics of this type of net machine are strength and durability. These basic requirements are satisfied by a sophisticated design, the careful selection of materials, and the precise manufacture of components. The end result is the highest quality net machines, assembled by skillful technicians.



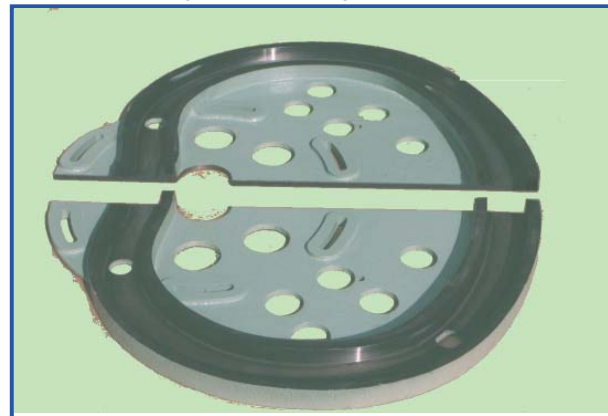
### Drive shaft

The drive shaft is supported with two additional flange units. This improvement insures less deflection and vibration of the drive shaft.



### Casting parts

The strength of all cast parts including cams, lower hook stroke lever, and knot tightening lever is much improved. Nodular graphite cast iron (JIS #FCD500) having a tensile strength of higher than 50 kgf/mm<sup>2</sup> is used to make these parts. All cast parts undergo an annealing process.



Please refer to the previous section titled *Cams* for more information.

### Lower hook frame

Hanging rods support the lower hook frame. This system results in much less deflection of the frame without increasing its weight for greater rigidity. The life of the cams driving the lower hooks is prolonged.



### Lower hook rail

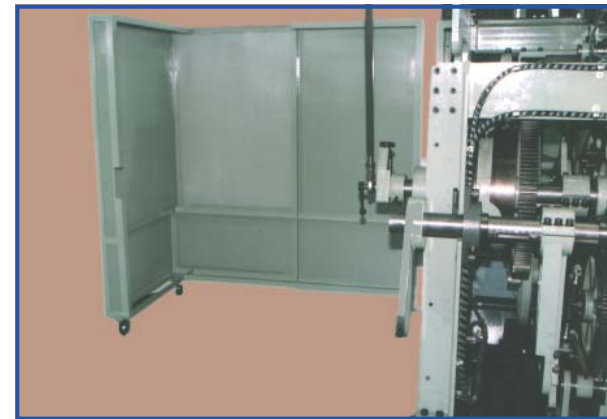
The lower hook rails of our Model GTA net machines with weft bobbins of 500mm have been reinforced, using a center rib running their entire lengths. This modification provides the necessary strength and rigidity required for proper performance.



## Accurate adjustment

### Sliding end covers

End covers are designed to open wide and have casters, which provide easy movement. The sliding covers are convenient for inspection and maintenance of the net machine.



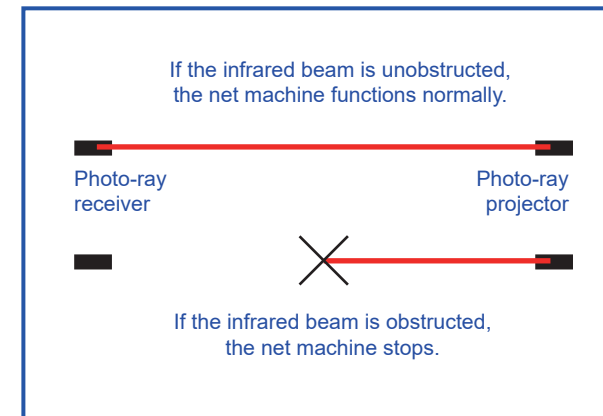
### Auto-stop for warp

The auto-stop system is changed from the mechanical contact method to the photo-ray method for more reliable functioning. When the breakage, loosening or tightening of individual twines are detected, the net machine stops.



### Safety equipment

A photo-ray system is installed that stops the machine when an operator happens to come too close to the lower hook frame in motion. This is a precautionary measure for the prevention of human injury.



### Hydraulic pump

Only Amita Model GTA's employ a hydraulic pump. The hydraulic system controls vital functions such as the knot tightening brake. However, through using cylinders a variety of functions can be added. For example the warp rollers, shown below, can be lifted with no manual effort.



### Warp Dropper

You can produce a wider selection of heavy duty netting from either single twine or double twines.



### Reed Driving Cams

Reed driving cams are provided at both ends of our Model GTA net machines with weft bobbins of 500mm. The double cam mechanism insures that the reed moves smoothly and accurately in all directions.

