



 **VATMAK[®]**
WIRE & CABLE MACHINERY

RS ENGINEERING
www.vatmak.com



ENERGY EFFICIENCY AT VATMAK

Design your future economically and sustainably; Vatmak's perfectly harmonized energy efficiency concept includes all stages of your value creation process. Our energy saving services provide instant improvements in the energy efficiency of machine systems.



RS ENGINEERING COMPETENCE

We make your work easier every day. Just rely on our engineering experience and get in touch.



SAFETY AT VATMAK

We continuously reduce risks by considering preventive measures. Our safety-oriented machinery equipment and automation technology guarantee safe workplace by complying with the European Union machinery directive (EC) as possible.



MORE THAN THE PRODUCT

We offer services for all machines, including after-sales services, for high system availability and reliable processes, with no downtime.



Vatan Makina was established and provides service in Denizli, within the borders of Turkey, in order to present its knowledge and experience in copper wire and cable manufacturing to local and global markets.

With our expert staff, we manufacture industrial applications, standard type and customized type machines with our experience to serve in the copper wire and cable industry by using advanced technology manufacturing machines and modern measuring equipment.

The command control systems and software of all our machines, which are produced by using the latest technology, are carried out by the expert engineer team we work with.

In accordance with the requirements of the age, VATMAK takes its place in domestic and international fairs with its constantly renewed and increased product range. Vatmak proves that it is an international company by increasing its domestic and foreign sales targets every year.

With our CE certified products, ISO 9001 quality management system, ISO 10002 Customer Satisfaction Management System, ISO 45001 occupational health and safety management system, VATMAK never compromises on engineering and quality in the entire process from the manufacturing stage to the delivery of our products to the customer, and VATMAK service and product quality at the highest possible level.



For more information:
www.vatmak.com





DOUBLE TWIST BUNCHING MACHINE

Double twist bunching machine is a useful and talented machine equipped with the latest technology that can offer maximum production in a short time with its ability to twist at high speeds, less scrap output and energy efficiency.

The double twist bunching machine has the ability to work for 24 hours when operated with vatmak pay offs or high standard pay offs.

Double twist bunching machine, (7, 19, 37) can be used for stranding multiwire flexible coppers and hard copper, aluminum, aluminum alloys. It can also be used for laying banded or tapeless insulated cables to produce sector-shaped cables from copper and aluminum.

VATMAK manufactures double twist bunching machines with state-of-the-art equipment that can operate continuously at high speeds for 630 coil diameters and 800 coil diameters.

MACHINE TYPE	Bobbin Size (mm)	Line Speed (m/min)	Geared Speed (twist/min)	Cross Section (mm ²)
DTB 630	630x475mm	0-300 m/min	7000 tpm	0,09-6mm ²
DTB 800	800x600mm	0-300 m/min	5000 tpm	0,2-16mm ²

ADVANTAGES AT A GLANCE

Compact design;

- **WIRE TENSION CONTROL MECHANISM**

- **ANTI-VIBRATION BEARING DESIGN**

Low vibration and less heating in operation so less breakdown,

- **SMART BOW DESIGN**

Less friction path and lower wire friction, high speed and less resistance change

Smaller bow turning diameter allows you to running higher rpm at same linear bow speed

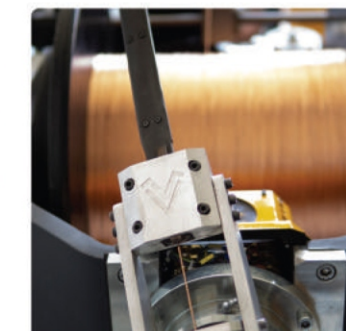
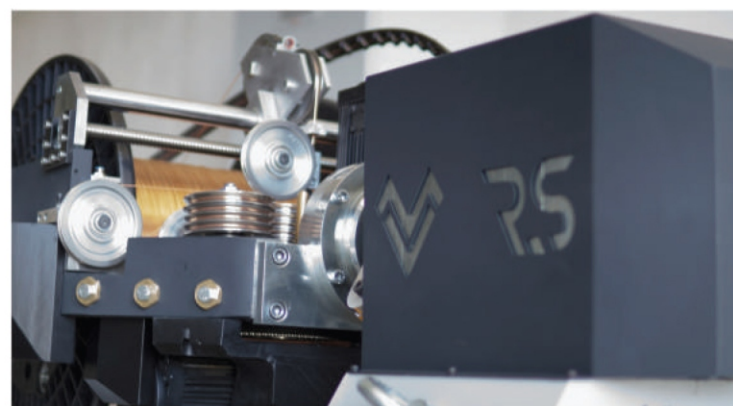
- **SENSITIVE OPERATING SYSTEM WITH ENCODER AND TENSION CONTROL**

Error-free winding with smart traverse position controlling

- **USER-FRIENDLY WIRE-PASS**

Easier wire drawing and reduction in wire turn

And in total the machine designing and high efficiency motors provide you with 10 kw energy consumption at



VATMAK 630 DOUBLE TWIST BUNCHING MACHINE

Experienced values of Strand Cross Section and Practical Max. Number Of Twists

... 0,35 mm² mit s = 6200 S/min

... 0,50 mm² mit s = 6200 S/min

... 0,75 mm² mit s = 6200 S/min

... 1,00 mm² mit s = 6000 S/min

... 2,50 mm² mit s = 4200 S/min

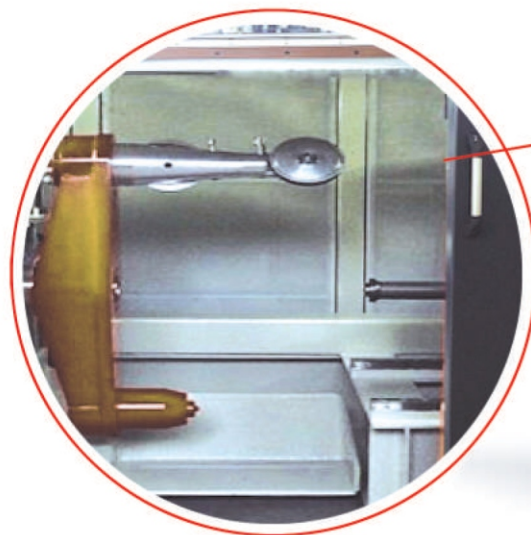
... 4,00 mm² mit s = 3300 S/min

... 6,00 mm² mit s = 2200 S/min

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SINGLE TWIST BUNCHING MACHINE

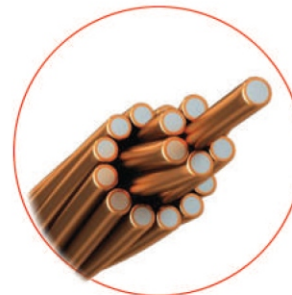
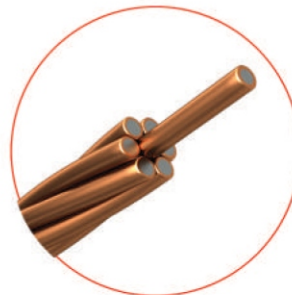


Sectors : Renewable Energy, Aerospace, Control Cables, Communication, Mining, Automotive, Oil&Gas, Ship/Marine Cables

Applications: Copper and Aluminum Wire, Telephone Cables, Elevator Cables, Audio&Video Cables, Battery Cables, Ethernet Cables, Harness Cables, High Temperature Cables, Home Appliance Wire and Cables, LV Cables, Signal and Safety Cables, Wire and Cable Stranding

ADVANTAGES AT A GLANCE

- Highly speed of production
- Clarified cable path
- Winding tension control
- Backtwist or driven type pay-off
- Lay length accuracy



The single twisting machine is a machine with high performance and high manufacturing capability, which is in high demand in the cable manufacturing sector.

The single twisting machine is used to strand or laying up flexible concentric insulated cables or with tapes.

Single twisting machine is preferred in the production of cables suitable for Aerospace, Automotive, Communication, Control Cables, Mining, Oil & Gas, Renewable Energy, Ship/Marine Cables industries.

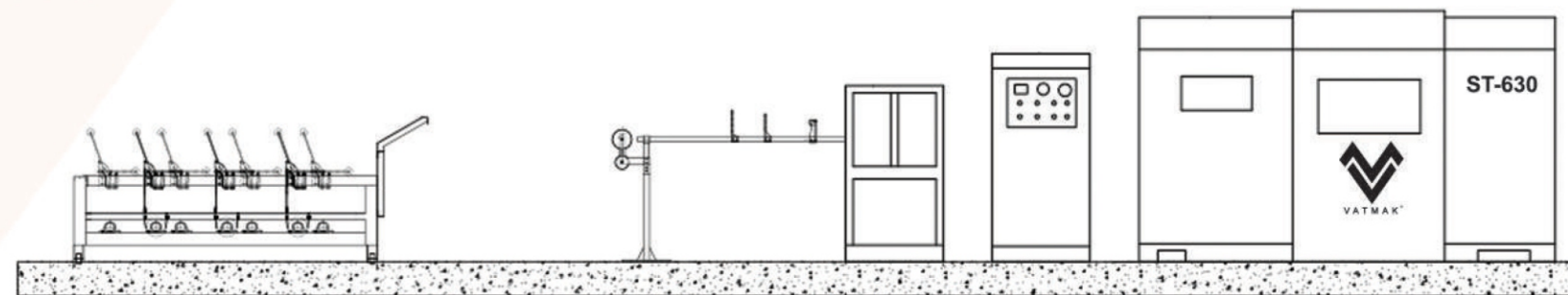
The single twisting machine is also used for screening and armouring with steel or copper wires.

Single twisting machine is a useful and talented machine equipped with the latest technology that can offer maximum production in a short time with its ability to twist at high speeds, less scrap output and energy efficiency.

The single twisting machine has the ability to work for 24 hours when operated with vatmak pay offs or high standard pay offs.

They can also operate as backtwist pay-off to produce multi-passes strands.

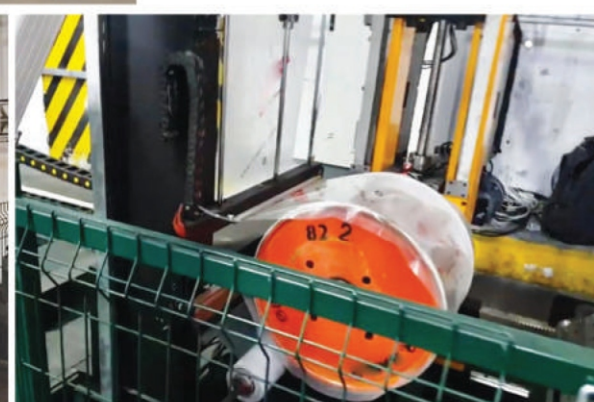
MACHINE TYPE	630	800
PAY OFF BOBBIN DIAMETER	630x475mm	800x600mm
TAKE-UP BOBBIN DIAMETER	630mm	800mm
APPLICABLE WIRE DIAMETER	0.6-3.0mm	0.6-3.0mm
MAX. LAY-UP DIAMETER	12mm	16mm
TWISTING PITCH	20mm-200mm	30mm-300mm
NUMBER OF ROTATE	1200r/Min	1000r/Min
TAKE-UP TENSION	Pneumatic	
TRAVERSING DISTANCE	2mm-12mm	3mm-20mm
TWISTING DIRECTION	S / Z	
WRAPPING TYPE	Centre/Side Wrapping	





SPOOL SHRINK PACKAGING THE AUTOMATIC MACHINE LINE

The Spool Shrink Packaging Machine Line usually used for packing spools to be shipped overseas. This machine has been developed for wire and cable manufacturers. This process aims to highlight the quality. This is the last part of wire and cable production.



HIGH EFFICIENCY FOR PROCESS

In 40 seconds / 1 spool can be controlled and packaged automatically.

LOW LABOR COST FOR PROCESS

According to line working automatically, the process is completing with fewer employees.

TECHNICAL SPECIFICATIONS

Machine Line	: Fully Automatic
Operator Needs	: Only 1 staff
Usable Roller Dimensions	: Ø400 – Ø 560 – Ø630 or Ø800 (Automatic recognition)
Spool Types	: Wooden – plastic – steel (Automatic recognition)
Maximum Weight	: 650kg or 1300kg (Automatically define the weight of spool)
Working Capacity	: 40 sec. cycle (machine cycle time excluding system confirmations waiting times)
Nyloning	: Fully automatic
Shrinking	: Electric Oven / Gas Oven / Gas Burner
Silica Gel Bonding	: Automatic (optional)
Label Sticking	: Automatic (Optional)
Entry Stock Area	: 4 Reel Capacity Stock Area (changeable)
Exit Stock Area	: 4 Reel Capacity Stock Area(changeable)
Shrink Nylon Dimensions	: 400mm – 600mm (changeable)
Plc Control	: Siemens S7-1500 Series
Integrated Operations	: SAP etc

HOW DOES IT WORKS ?

- Spool packaging line is manufactured to operate fully automatically.
- The spools are left to the spools stock area by forklift.
- The system will automatically recognize Ø400, Ø560, Ø630 or Ø800 plastic, steel and wooden spools. No selection will be made by the operator.
- The spool is taken from the stock area with the carrier robot and brought to the first station for visual control and weighing.
- After the visual control and weighing process, the appropriate/inappropriate selection will be made by the operator. (If desired, selection can be made physically next to the spool or from the control screen on the operator's desk.)
- The inappropriate spool will be left in the inappropriate product area.
- The suitable spool for packaging is carrying to the packing station by the robotic arm.
- The spool, which is wrapped with cardboard manually or automatically, has become suitable for packaging.
- The spool, which is wrapped with nylon at the packaging station, is taken by the robot arm and left in the shrink oven.
- The spool which is wrapped around with nylon, it is shaped by heat in the shrink oven and becomes the final product.
- The spool that comes out of the shrink oven is taken by the robot arm, It can be labeling automatically or manually according to the need and then left on the stock area or on the pallet and is now ready for shipment.
- If an operator or forklift enters the machine line controlled by beam curtains and sensors, the relevant part will stop and the operation will continue from where it left off when the danger disappears.
- In case of insufficient feeding and discharging in the system and the nylon, cardboard, label or silica gel reserve is exhausted, the system will automatically stop and a warning will appear on the error screen.



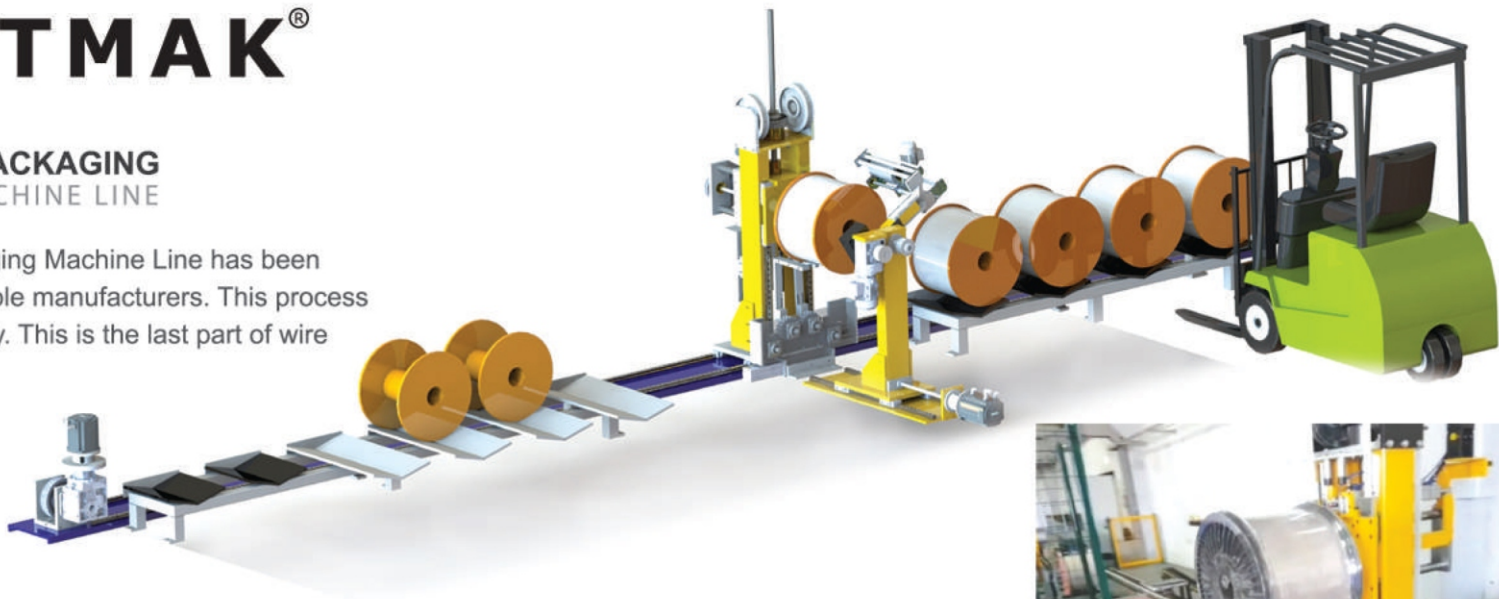
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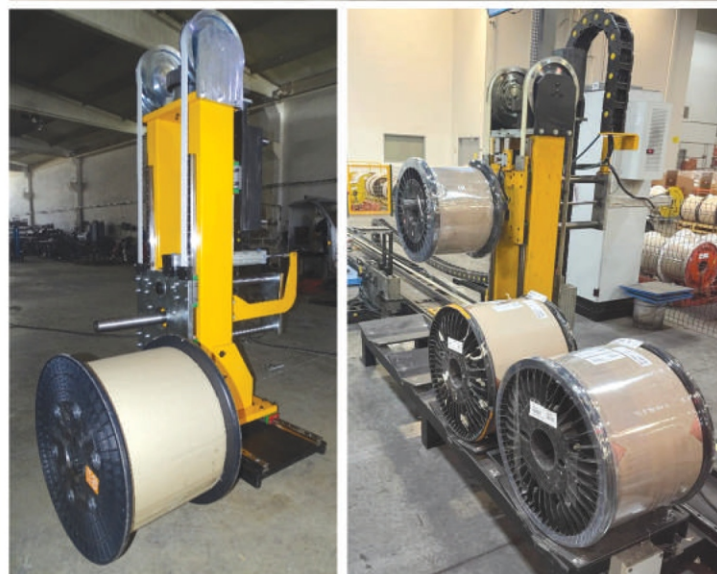
SPOOL STRETCH PACKAGING THE AUTOMATIC MACHINE LINE

The Spool Stretch Packaging Machine Line has been developed for wire and cable manufacturers. This process aims to highlight the quality. This is the last part of wire and cable production.



TECHNICAL SPECIFICATIONS

Machine Line	: Fully Automatically
Operator Needs	: Only 1 staff
Usable Roller Dimensions	: Ø400 – Ø 560 – Ø630 or Ø800 (Automatic recognition)
Spool Types	: Wooden – plastic – steel (Automatic recognition)
Maximum Weight	: 650kg or 1300kg (Automatically define the weight of spool)
Appropriate/inappropriate	: Full Automatically separates suitable or non-suitable spools
Working Capacity	: 40 sec. cycle (machine cycle time excluding systemfirmations waiting times)
Stretching	: Fully automatic
Label Sticking	: Automatic (Optional)
Entry Stock Area	: 4 Reel Capacity Stock Area (Changeable)
Exit Stock Area	: 4 Reel Capacity Stock Area (Changeable)
Shrink Nylon Dimensions	: 400mm – 600mm (Changeable)
Plc Control	: Siemens S7-1500 Series
Integrated Operations	: SAP etc.



HOW DOES IT WORKS ?

- Spool packaging line is manufactured to operate fully automatically.
- The spools are left to the reel stock area by forklift.
- The system will automatically recognize Ø400, Ø560, Ø630 or Ø800 plastic, steel and wooden spools. No selection will be made by the operator.
- The spools is taken from the stock area with the carrier robot and brought to the first station for visual control and weighing.
- After the visual control and weighing process, the appropriate/inappropriate selection will be made by the operator. (If desired, selection can be made physically next to the spool or from the control screen on the operator's desk.)
- The inappropriate spool will be left in the inappropriate product area.
- The suitable spool for packaging is carrying to the packing station by the robotic arm.
- The spool, which is wrapped with cardboard manually or automatically, has become suitable for packaging.
- The spool, which comes to the packaging station with the robot arm, is automatically wrapped with stretch and becomes the final product.
- The spool can be labeled automatically or manually according to the needs and then spool is left in the stock area or on the pallet and is now ready for shipment.
- If an operator or forklift enters the machine line controlled by beam curtains and sensors, the relevant part will stop and the operation will continue from where it left off when the danger disappears.
- In case of insufficient feeding and discharging in the system and the nylon, cardboard, label or silica gel reserve is exhausted, the system will automatically stop and a warning will appear on the error screen.

HIGH EFFICIENCY FOR PROCESS

In 40 seconds / 1 spool can be controlled and packaged automatically.

LOW LABOR COST FOR PROCESS

According to line working automatically, the process is completing with fewer employees.

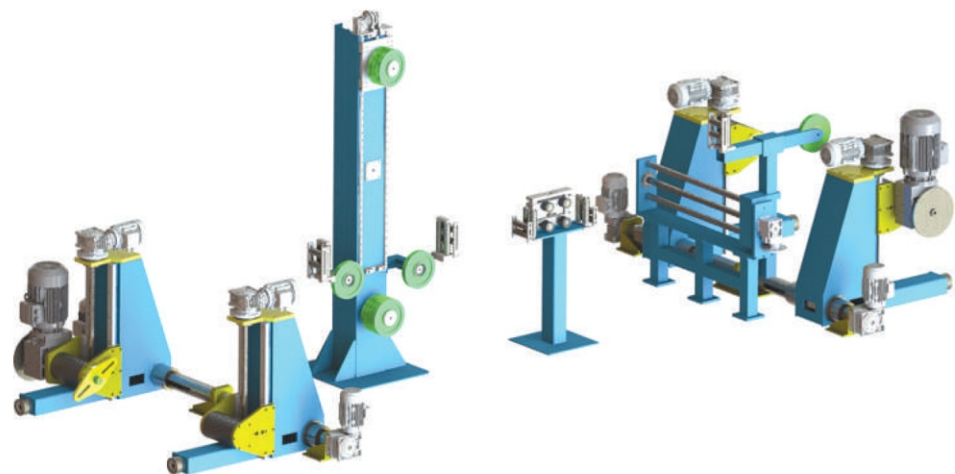


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REWINDING MACHINE LINE

The cable or wire rewinding/transfer machine line is designed for winding in regular shapes in accordance with the needs of our customers at the desired quantity and desired spool diameter without loss of time.



Rewinding machine lines are mostly used in the winding process of light-weighted wire, cable, tube and similar materials. The simplest line assembly consists of just an emitter and collector; however, with many optional features, versatile quality control can be provided in the cable. Pay off control is done by a dancer, while take up is equipped with a traveling mechanism. Both assemblies have digital speed controls, AC drive and digital frequency converter.

With its fast acceleration/deceleration feature, it allows controlled winding with sensitive tension at maximum efficiency.

- PLC control
- Material length measurement
- Reliable traverse mechanism
- Forward / reverse work



TECHNICAL SPECIFICATIONS

- Traverse width 500mm to 2500mm can be connected to the spool
- 400m/1min operating speed
- It is able to transfer in Ø2mm- Ø30mm range
- Adjusted wire tension is kept constant until reel is fully loaded

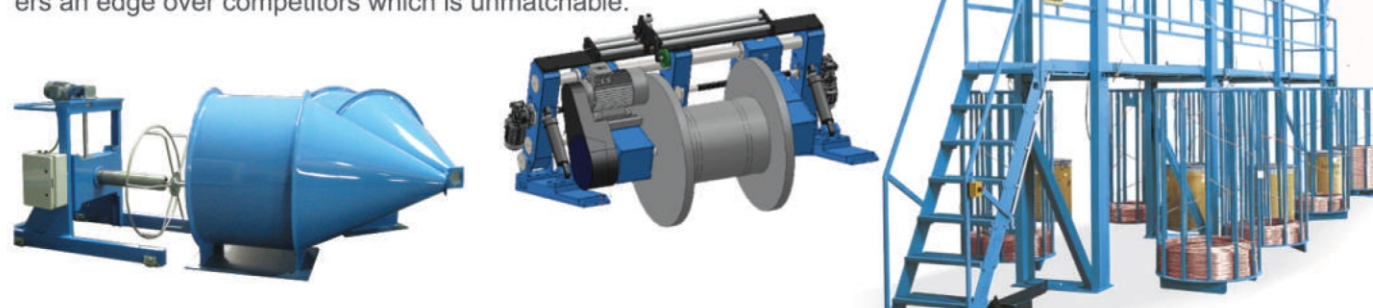


PAY OFF AND TAKE UP MACHINES

Vatmak offers Take Ups & Pay Offs from reel size of 400mm to 4500mm (40Tons.); and speed from 30mpm to 1000mpm. Each one fits to the customer requirement and their budget. The wide range includes

- Flyer Pay Offs,
- Driven Pay Offs,
- Pneumatic Loading Pay Offs,
- Motorized Pay Offs
- Multi Motorized Pay Offs
- Passive Pay Offs
- Portal Pay Offs & Take Ups,
- Dual Take Ups,
- Hydraulic Lifting Pay Offs & Take Ups,
- Gantry Type Pay Offs & Take Ups
- Column Type Pay Offs & Take Ups.
- Double Spooler
- High Speed Spooler
- Double Take Up

Vatmak Take Up's & Pay Off's are available in AC Servo motors and Drives with PLC system. Vatmak produce new generation of Take up's & Pay Off's which is less in weight, high in speed and precision and almost maintenance free which gives our Customers an edge over competitors which is unmatched.



EXTRUSION LINES

HIGH SPEED INSULATION

Wire and Cable Extrusion is a manufacturing process used to shape molten plastic. Different process still existing according to the different compounds requested by the market. The most used process is dedicated to the thermoplastic and thermosetting materials where an Internal machine (barrel) friction and an external heat supply by way of heat resistors are exploited to transform an infeed base material into a finished or semi-finished product, shaping material by forcing it through a die. By the way, another opposite process is available for rubber extrusion with many different vulcanization solutions engineered to heat the insulation after the die trough.

All our wire and cable extrusion solutions are customized to meet specific requirements and needs, we manufacture the following wire and cable extrusion lines:

- Automotive wire insulation,
- Electronic and building wire insulation and sheathing,
- Cable sheathing in tandem with SZ stranding process,
- Photovoltaic wire insulation and sheathing,
- Power cable insulation and sheathing,
- LAN & telephone insulation and sheathing
- Coaxial cables insulation and sheathing
- Aerospace insulation and sheathing
- High temperature lines
- Steel wire and ropes covering

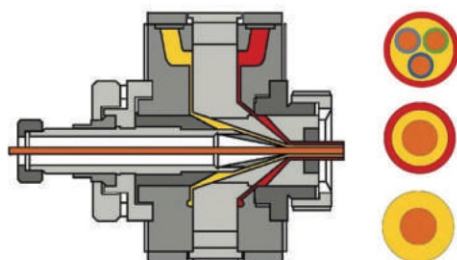
We have a solid experience in the cable extrusion sector and in the wire and cable production in general, so it can easily design and manufacture an innovative cable extrusion solution completely integrated on your existing production line and control system. We also offer you a revolutionary solutions for production increasing due to flexible applications the best extruder output available on the market, scrap and setup time reduction. Our wire and cable extrusion lines are renowned for their high levels of productivity and flexibility, they offer you the most modern and updated software technologies and top quality resistant components. Clients' needs and industry requirements are our focus.

Crosshead Extrusion Process (Wire & Cable Coating)

Crosshead extrusion process is widely used to coat wires and cables with a polymer. The basic procedure includes pulling of the wire / cable to be coated at a uniform rate via a crosshead die, where it is covered with the molten plastic. This extrusion process for coating is used in most wires and cables that find usage in telecommunication and electrical applications along with electronic industry. For more coatings, two extruders can also be used in tandem.

Typical Polymers Used In Wire Coating Applications

There are various polymers that are used in wire coating applications by the crosshead extrusion process. The characteristics of these polymers, which make them ideal for this purpose are their flexibility, electrical properties, ability to withstand abuse, and durability. Typical polymers are as follows: Polyethylene



- * Polyvinylchloride
- * Polyamide
- * Polybutylene terephthalate
- * Thermoplastic elastomers
- * Ethylene propylene copolymers
- * Polypropylene
- * Fluoropolymers



Electric and Electronic Wire Insulation Lines

Machine Type	30	40	50	60	70
Pay Off Type	Active Type	Shaft Type	Double Shaft /Big Shaft/ Shaftless Type		
PayOff Diameter	300/400/500	400/500/630	500/630/800/1250		
Screw Diameter	30	40	50	60	70
Screw Diameter Proportion	26:1	26:1	26:1	26:1	26:1
Screw Speed	10-110rpm	10-100rpm	10-80rpm	10-80rpm	10-80rpm
Output	30kg/h	50kg/h	80kg/h	110kg/h	150kg/h
Host's Power	5	5	10	15	20
Cooling System	Two stage single layer or Double layer water cooling trough				
Max wire accumulation	250mt	200mt	150	150	150
Take up Power	2.2kw	3.7-5.5kw	5.5kw	5.5kw	5.5kw
Linear Speed	Double spool		Dual spool shaft type/single spool shaftless type		

APPLICATION:

Suitable for single layer, dual color, dual layer and three layer extrusion processes for making wires and cables with insulating wire materials such as PVC, LDPE, XLPE,LSHF, NYLON, TPU and TPE

Power Cable Sheathing Lines

Machine Type	90	100	120	150
Pay Off Type	Dual axis/gate type	Dual axis/gate type	Dual axis/gate type	Dual axis/gate type
PayOff Spool Size	630/800/1250	630/800/1250	1600-2000	2500-3150
Screw Diameter	90	100	120	150
L/D Ratio of Screw	25:1	25:1	25:1	25:1
Extrusion Capacity	280kg/hr	350 kg/hr	400 kg/hr	600 kg/hr
Main Unit Power	50hp	70hp	100hp	150hp
Range of Wire Size	Ø3-25mm	Ø5-40mm	Ø50-80	Ø60-120
Cooling Size	Single Layer U Type	Single Layer U Type	Single Layer U Type	Single Layer U Type
Capstan Power	7.5hp	10hp	15hp	20hp
Max Line Speed	200	200	150	100
Take up Size	Dual axis/gate type	Dual axis/gate type	Dual axis/gate type	Dual axis/gate type

APPLICATION:

Production of insulated electrical power cables.

LINE CONFIGURATION:

The line is made up of gate type pay-off, caterpillar tractor, extrusion host, control panel, cooling trough, spark tester, pulling caterpillar and take-up unit. Various accessories can be added like printing machine, diameter controller, PLC and touch screens.

Flat Wire/ Ribbon Wire Extrusion Lines

Machine Type	50-26D	70-26D	80-25D
Screw Diameter	Ø50mm	Ø70mm	Ø80mm
Screw Specifications	L/D-26:1-10-100rpm	L/D-26:1-10-80rpm	L/D-26:1-10-70rpm
Extrusion Capacity	80kg/hr	150kg/hr	200kg/hr
Max. Line Speed	200m/min	150m/min	150m/min
Pay off Size	Ø300mm	Ø300mm	Ø300mm
Extruder,capstan,takeup motors	10+3+1,5 kw	20+5+2,2kw	30+7,5+3,7
Max. Cores extrusion	1-16	1-64	1-80

APPLICATION:

Specialized for producing flat multicore cables such as UL2488, 2651, 2678

Characteristics:

Special flat wire machine head, in-line flat wire accumulator, tension controls for uniform core thickness,

Physical Foaming Extrusion Lines

Machine Type	20+35+20	30+65+40	30+80+40
Applied Material	FM-PE,PE	FM-PE,PE	FM-PE,PE
Conductor Dia	Ø0.2-0.8mm	Ø0.5-2.27mm	Ø2.5-3.0mm
Finished Wire	Ø1.5-3.0mm	Ø3-14mm	Ø12-30mm
Power	25kw	45kw	55kw

Suitable for CATV, RG, SYWV, JIS series.

Suitable Material: FM-PE, PE.

Foaming limit : High-pressure nitrogen injection (Max):78%, low pressure nitrogen system (Max): 70%.

Quality control : in-built outer diameter scanner, capacitance examination equipment.

Electronic control : PLC with HMI screen controls

Automotive Wire Insulation Lines

MACHINE TYPE	50+30	60+40
Application	Low smoke zero halogen, PVC, PE, Irradiation PVC, Irradiation polyolefin	
Insulation Wire	0.5mm-1.95mm	0.5mm-1.95mm
Max. Conductor	2.0mm	2.0mm
Max. Insulation	5.0mm	5.0mm
Precise Diameter Control	±0.003mm	±0.003mm
Max.Speed	500m/min	800m/min

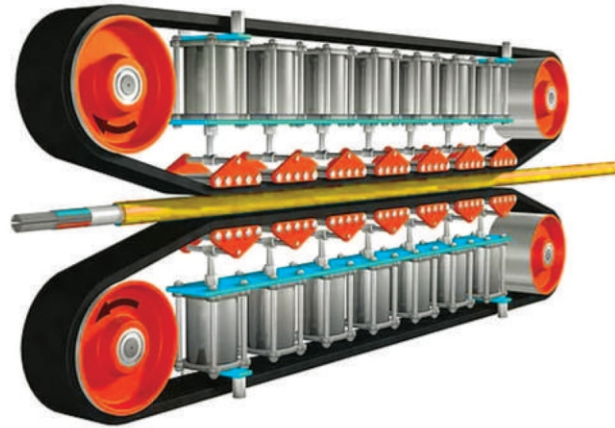
APPLICATION:

For processing of all kinds of international standard AVS and AVSS Automotive wires, Instrumentation cables, Low-voltage audio video cables, PVC Low-voltage wires, electron beam irradiated PE wires etc.



CATERPILLAR AND CAPSTANS

Caterpillar is used to pull cables from the cable production line. The caterpillar consists of two belts that compress and pull the cable under vertical pressure. Caterpillar is designed and manufactured according to the needs of our customers



Usage places :

- Extruder Lines
- Transfer Lines
- Skip Strander Lines
- Planet Strander Lines

Line Speeds:

- 1-250 m / min

Pulling Force:

- 1-4200 kg

Usage:

- Horizontal

- It pulls the cable at the desired tension and speed on the production lines.
- It is designed as a single motor and double reducer and prevents the belts from rotating at different speeds.
- Belt life is extended.
- Adjustable guide rollers are available in the entrance and exit areas, and adjustment can

- It pulls the cable at the desired tension and speed on the production lines.
- It has bidirectional. The cable drafting line direction can be changed from right entry or, if desired, from left entry.
- Belt tension can be adjusted pneumatically at desired pressure.
- With the gear transfer system, the lower and upper rollers are provided to work equally.

Vatmak double capstans guarantee best product quality in high performance lines. Our double capstans work in extruder lines, steel rope stranding lines, skip stranders, planetary stranders are designed with increasingly higher speeds, to produce more efficiently and with higher quality.

Type	Capstan Diameter (mm)	Max. Linear Speed (m/min)	Cable Diameter (mm ²)	Pulling Force (kg-f)
VC400	400 mm	60 m/min	35 mm ²	200 kg-f
VC600	600 mm	60 m/min	70 mm ²	800 kg-f
VC800	800 mm	60 m/min	150 mm ²	2000 kg-f
VC1100	1100 mm	60 m/min	240 mm ²	4000 kg-f
VC1500	1500 mm	60 m/min	400 mm ²	6000 kg-f
VC2000	2000 mm	60 m/min	1000 mm ²	10000 kg-f
VC2500	2500 mm	50 m/min	1600 mm ²	15000 kg-f



CABLE COILING MACHINE FULL AUTOMATICALLY

VATMAK focuses on customizing semi-automatic and full-automatic cable packaging solutions to meet different requirements from different customers. Automatic cable packaging line, can complete a complete package process, from the cable length counting, cable coiling, cable winding and automatic cable packing. Different types of cable coil packaging solution can be provided by using stretch film, PVC and other materials.

The packaging machine can complete a coil package in 15-25 seconds. The ring speed and rotating speed can be adjustable by inverters. In production, it is the most effective equipment connects to production line for automatic packing. Customized design gives an opportunity to save labor cost and space.



Feature

1. Linked to wire production lines or from the pay-off machines of this equipment.
2. Easy to operate using the packing machine's touch screen user interface.
3. Servo motor traversing system produces coils with a smooth surface.
4. The machine will automatically detect faults and sound an alarm.
5. You may input and save various types of coil data in the PLC memory bank.



MODERNIZATION

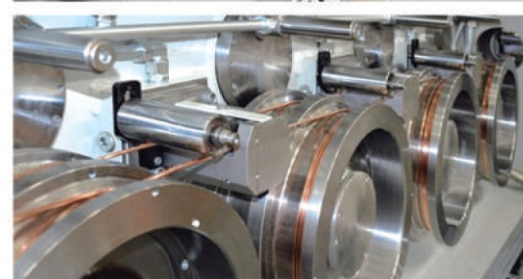
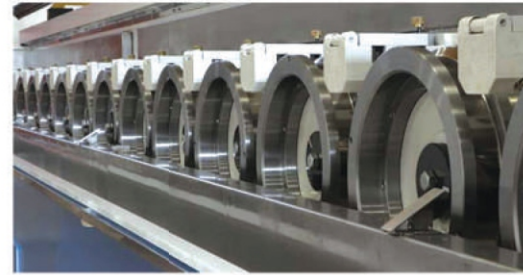
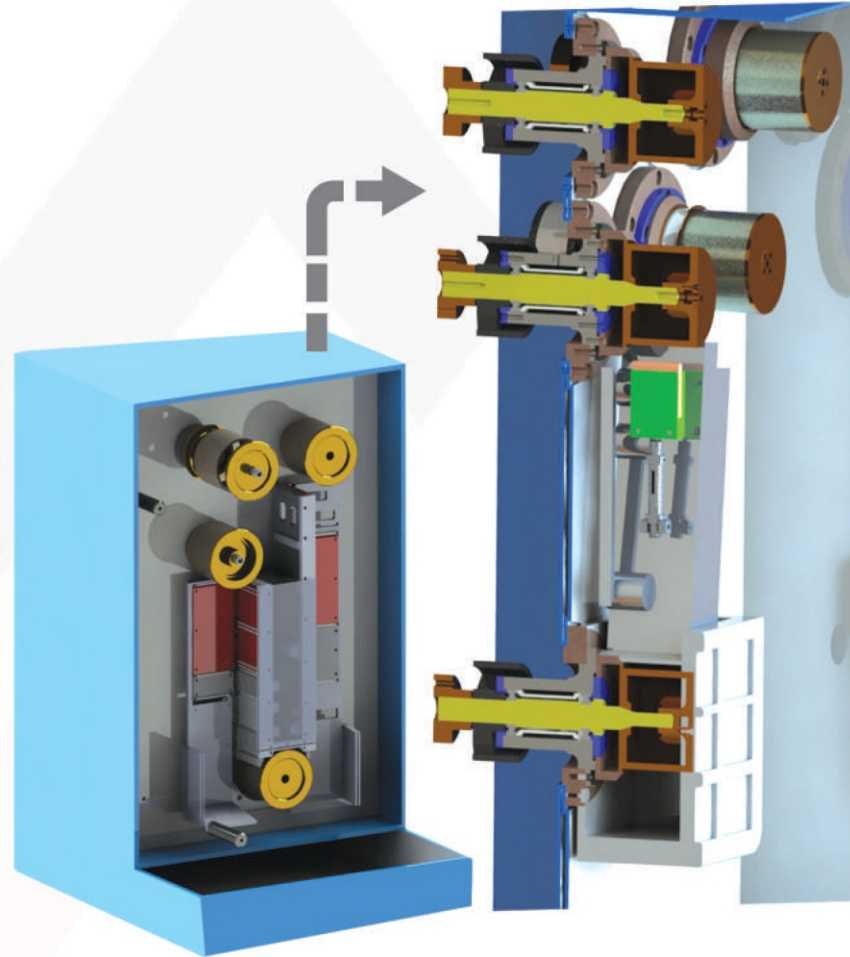
ROD BREAKDOWN LINE
MULTIWIRE DRAWING LINE

MECHANICAL OPERATIONS

- Increase working speed upto machine catalog speeds,
- Production of new design equipment according to need
- Mechanical design changes in annealing as needed
- Production of annealing unit according to the needs
- Maintenance of the whole machine with appropriate technical values and manufacturing and replacement of all damaged parts
- Balancing vibration analysis and measurement alingment with high precision devices.
- Determination and elimination of all the needs that must be done in the machine for quality and speed

AUTOMATED OPERATIONS

- S7 1500 series PLC integration
- Latest version IO modules
- Latest version siemens DC drivers
- Profinet communication system
- Program infrastructure with easy fault tracking
- DC motor modernization
- Square body AC motor replacement
- Automatic traverse system (smooth winding adjustments) (software)





VATMAK

WIRE & CABLE MACHINERY

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RS ENGINEERING



For more information:
www.vatmak.com

