

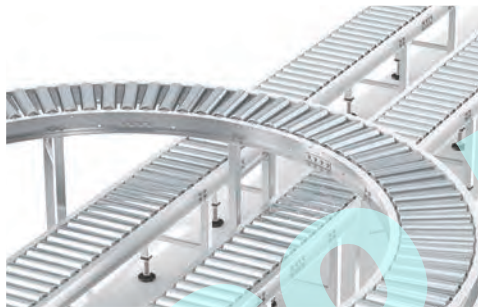


SINCE 1916

TSUBACO

TECHNICAL INFORMATION





The Solutions Company

As society undergoes further developments in IT and globalization, industrial markets are changing dramatically and their needs are becoming ever more diverse and sophisticated. At Tsubakimoto Kogyo ("Tsubaco"), we meet these market changes by offering our customers tailored solutions delivered through a unique network that we have built up over the years. We boldly and consistently take on challenges in cutting-edge technologies, while aiming for an organic fusion of hardware, software, and humanware. All so we can bring new value to our industry as a bridge between people and technology.

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1 General-Purpose and Heavy-Duty Drive Chains (Tsubakimoto Chain)



2 Small-Size Lube-Free Conveyor Chain (Tsubakimoto Chain)



3 Plastic Top Chain (Tsubaki Yamakyu Chain)



4 Pin Gear Drive Unit (Tsubakimoto Chain)



5 Rubber Belt and Timing Pulley (Tsubakimoto Chain)



6 Cableveyor (Tsubakimoto Chain)



7 Couplings (Tsubaki E&M)

Chains and Belts

Drive Chains

General-Purpose and Heavy-Duty Drive Chains 1	Tsubakimoto Chain
Lube-Free Drive Chain	Tsubakimoto Chain
Corrosion-Resistant Drive Chain	Tsubakimoto Chain
Silent Chain	Enuma Chain Mfg

Conveyor Chains

Small- and Large-Size General-Purpose Conveyor Chains	Tsubakimoto Chain
Small-Size Lube-Free Conveyor Chain 2	Tsubakimoto Chain
Small- and Large-Size Corrosion-Resistant Conveyor Chains	Tsubakimoto Chain
Indexing Conveyor Chain	Tsubakimoto Chain
Free Flow Chain	Tsubakimoto Chain
Large-Size Conveyor Chain for Heavy Loads (Bearing Roller Conveyor Chain)	Tsubakimoto Chain
Plastic Top Chain 3	Tsubaki Yamakyu Chain
Stainless Steel Top Chain	Tsubakimoto Chain
Intralox (Plastic Chain)	Intralox LLC

Sprocket Wheels

Sprocket for Drive Chain	Tsubakimoto Chain
Sprockets for Small- and Large-Size Conveyor Chains	Tsubakimoto Chain
Sprocket for Top Chain	Tsubakimoto Chain
Pin Gear Drive Unit 4	Tsubakimoto Chain

Transmission Belts and Pulleys

Rubber Belt and Timing Pulley 5	Tsubakimoto Chain
Extremultus	Forbo Siegling Japan

Conveyor Belts

Transilon	Forbo Siegling Japan
Urethane Belt	Poval Kogyo

Short-Link Chains

Short-Link Chain	Teisa
Short-Link Chain	Showa Kikai Shoji

Hose and Cable Carrier Systems

Cableveyor 6	Tsubakimoto Chain
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Couplings and Universal Joints

Non-Backlash Couplings

Coupling 7	Tsubaki E&M
Form-Flex Coupling	Daido Precision Industries
Arpex Coupling	Siemens Japan

Flexible Couplings

Echt-Flex Coupling	Tsubaki E&M
Jaw-Flex Coupling	Tsubaki E&M
Oldham Coupling	Tsubaki E&M
Roller Chain Coupling	Tsubaki E&M
Gear Coupling	Seisa Gear
Gear Coupling	Kyushu Hasec
Gear Coupling	CMD

Others

Power Rigid Coupling	Tsubaki E&M
Schmidt Coupling	Nippon Piston Ring
Drum Coupling	Malmedie

Fluid Couplings

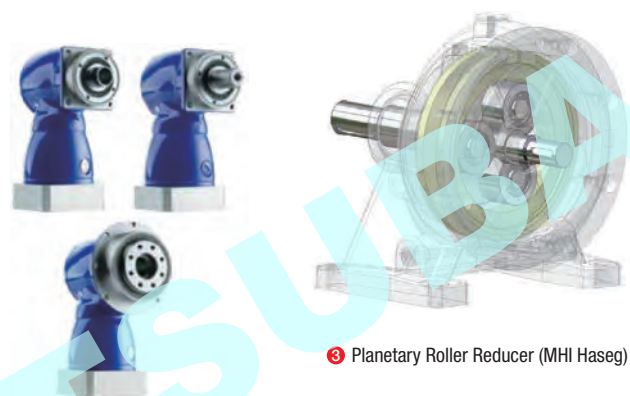
Fluid Coupling	Shinko Engineering
Fluid Coupling	Siemens Japan

Universal Joints

Universal Joint	Kyowa
Universal Joint	Nakamura Jico

Keyless Fastenings

Power-Lock	Tsubaki E&M
Shrink Disk	Stüwe



Reducers, Variable Speed Drives and Gears

Helical Gear Reducers

Helical Power Drive 1	Tsubaki E&M
Helical Shaft Mounted Reducer	Tsubaki E&M
Helical Gear Reducer	Sumitomo Heavy Industries
Paramax Reducer	Sumitomo Heavy Industries
Helical Gear Reducer	SEW-Eurodrive
Flender Helical Gear Reducer	Siemens Japan

Worm Gear Reducers

Worm Power Drive 2	Tsubaki E&M
Troi Drive	Tsubaki E&M
Worm Gear Reducer, Double-Lead Worm Gear	MHI Haseg
Hedcon Worm Gear	Sumitomo Heavy Industries
Specially Designed Worm, Double-Lead Worm	CMD
Helical Worm Reducer	SEW-Eurodrive
High-Efficiency V-Drive	Wittenstein

Non-Backlash Gear Reducers

Precision Planetary Reducer	Tsubaki E&M
Planetary Roller Reducer 3	MHI Haseg
MC Drive	Sumitomo Heavy Industries
F Series Cyclo	Sumitomo Heavy Industries
RV Gear Reducer	Nabtesco

Planetary Gear Reducers

Planetary Gear Reducer	Ishibashi Manufacturing
Compower Gear Reducer	Seisa Gear
Planetary Gear Reducer	Matex
MRP Planetary Gear Reducer	Mitsui Miike Machinery
Planetary Gear Reducer 4	Sumitomo Heavy Industries
High-Precision Planetary Gear Reducer	Wittenstein

Bevel Gears

Miter Gearbox	Tsubaki E&M
Buddy Box	Sumitomo Heavy Industries
Helical Bevel Reducer	SEW-Eurodrive
Bevel Gear Reducer	Wittenstein

Hypoid Gear Reducers

Hypoid Gear Reducer	Tsubaki E&M
Hyponic Gear Reducer	Sumitomo Heavy Industries
High-Precision Standardized Shaft Reducer 5	Wittenstein

Reducers and Variable Speed Drives

Disco Variable Speed Drive	Tsubaki E&M
Beier Variable Speed Drive	Sumitomo Heavy Industries
PIV	Brevini

Large/Special Reducers

Large/Special Reducers	Ishibashi Manufacturing
Large/Special Reducers	Seisa Gear
Bogiflex Drive	CMD
Large/Special Reducers	Formosa Plastics Heavy Industries
Flender Large/Special Reducers	Siemens Japan

High-Speed Gear Drives

Mitsubishi High-Precision High-Speed Gear Drive	MHI Haseg
High-Speed Gear Drive	Ishibashi Manufacturing
High-Speed Gear Drive	Seisa Gear
High-Speed Gear Drive	Ikeda Gear Mill
High-Speed Gear Drive	Formosa Plastics Heavy Industries

Gears

Spiral Bevel Gear	MHI Haseg
Axle Assembly High-Precision Gear	Asano Gear
Various Gears	Kyouiku Gear Mfg
Various Gears	KHK Kohara Gear Industry
Helical Gear, Bevel Gear	Daiwa Gear Manufacturing
Grinding Rack and Pinion	Nagata Tekko
Gleason Spiral Bevel Gear	Nippon Gear
Klingelberg Spiral Bevel Gear 6	ATA Gears
Various Large Grinding Gears	Formosa Plastics Heavy Industries

Others

Ball Reducer	Kamo Seiko
Magfun Non-Contact Transmission Device	Prospine



MECHANICAL

Actuators

Linear

Ball Screw, Ball Way ¹
 Rack and Pinion System ²
 TCG Runner and Pinion ³
 Movopart
 Roller Screw
 LM Guide ⁴

Tsubaki Nakashima
 Wittenstein
 Kamo Seiko
 Sinfonia Technology
 Tsubaki Nakashima
 OME Technology

Screw Jacks

Lini Power Jack ⁵
 Screw Jack

Tsubaki E&M
 Nippon Gear

Electric Cylinders

Power Cylinder
 Lift Master
 Micro Electric Cylinder
 Small Electric Cylinder

Tsubaki E&M
 Tsubaki E&M
 Suzuki Seimitsukikai
 Dyadic Systems

Pneumatic Equipment

Pneumatic Equipment
 Pneumatic Equipment
 Air Motor
 Nabco Pneumatic Equipment
 Pneumatic Equipment
 Air Chuck
 Pneumatic Equipment

Konan Electric
 Koganei
 Akasaka Diesels
 Nabtesco
 CKD
 NKE
 SMC

Hydraulic Equipment

Orbit Motor
 Valve
 Hydraulic Equipment

Eaton
 Parker Hannifin Japan
 Yuken Kogyo

Others

Zip Chain Actuator ⁶

Tsubakimoto Chain

Clutches and Brakes

Mechanical

Cam Clutch
 Mechanical Clutch

Tsubaki E&M
 Banno-Seiki

Electromagnetic

Electromagnetic Clutch and Brake
 Electromagnetic Clutch and Brake

Sinfonia Technology
 Minebea

Powder

Powder Clutch and Brake
 Powder Clutch and Brake

Sinfonia Technology
 Mitsubishi Electric

Air

Air Clutch and Brake
 Air Clutch and Brake

Asahi Seiko
 Japan Fawick

Hydraulic

STL (Torque Limiter)

Shinko Engineering

Magnetic

Perma-Torque

Koshin Seikoshio

Others

Disc Brake

Ican



¹ Ball Screw, Ball Way (Tsubaki Nakashima)



² Rack and Pinion System (Wittenstein)



³ TCG Runner and Pinion (Kamo Seiko)



⁴ LM Guide (OME Technology)



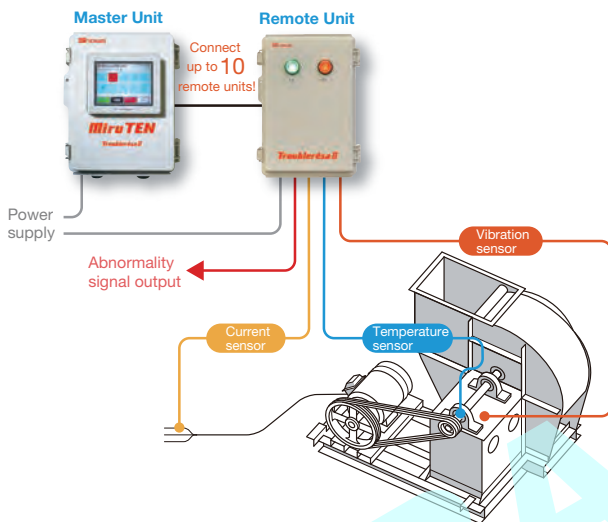
⁵ Lini Power Jack (Tsubaki E&M)



⁶ Zip Chain Actuator (Tsubakimoto Chain)



① Overload Protection (Tsubaki E&M)



② Blower/Rotating Machine Monitoring System (Showa Denki)



③ Leveling Block (Kurashiki Kako)



④ Stone Surface Plate (Tsubakimoto Kogyo)

Other Apparatus and Maintenance

Overload Protection

Mechanical

Torque Limiter ①
Shock Guard ①
Torque Keeper ①

Tsubaki E&M
Tsubaki E&M
Tsubaki E&M

Electric

Shock Relay ①
Shock Monitor ①

Tsubaki E&M
Tsubaki E&M

Power Sources

Power Source for Lighting
Outer Power Source
UPS, Engine Generator

Kyoto Denkiki
Nakamura Electric Mfg
Daiichi Components

System Inspection

Blower/Rotating Machine Monitoring System ②

Showa Denki

Bearings

Pillow Block
Pillow Block Bearing
Large Bearing

Asahi Seiko
AB SKF
Schaeffler Japan

Lubrication and Rust Prevention

Centralized Lubricator
Centralized Lubricator
Oil Lubricator
Oil Lubricator

IHI Compressor and Machinery
Daikin Lubrication Products & Engineering
Nanshin Kiko
Futec Origin

Seals

Mechanical Seal
Oil Seal

Flowserve Japan
NOK

Indexing Drives

Indexing Drive
Indexing Unit

Tsubaki Yamakyu Chain
CKD

Shock Absorbers

Shock Damper

Tsubaki E&M

Bellows

Bellows
Bellows

Jabara
Nippon Jabara Kogyo

Plastic Pallets and Containers

Stainless Container
Large Plastic Product/Plastic Container Pallet

Nitto Kinzoku Kogyo
Sanko

Inspection Doors

One-Touch Inspection Door

Tsubakimoto Bulk Systems

Functional Plastic Products

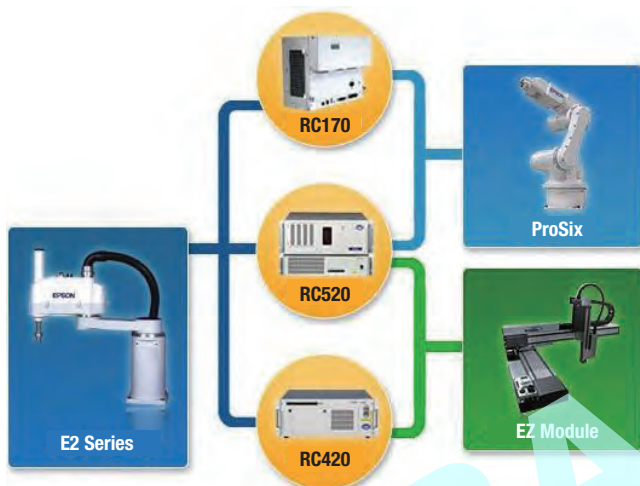
Engineering Plastic
Plastic Plate
Carbon Fiber Composite
Anti-Vibration Rubber
Ceramic
Spunbond
Leveling Block ③
Stone Surface Plate ④

Asahi Kasei Chemicals
Sumitomo Bakelite
Toho Tenax
Naigai Rubber Industry
Nippon Tungsten
Asahi Kasei Fibers
Kurashiki Kako
Tsubakimoto Kogyo

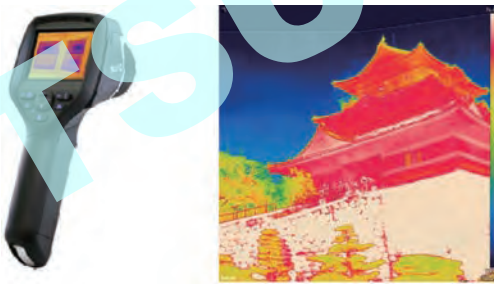
CONTROLLERS



① Sequencer (Mitsubishi Electric)



② Robot Controller (Seiko Epson)



③ Thermovision (Flir Systems Japan)



④ Displacement Sensor (Optex FA)

Motion Control

PLCs

Sequencer ①
Programmable Logic Controller

Mitsubishi Electric
Sharp Manufacturing Systems

Inverters

Inverter
Inverter (large-size)

Mitsubishi Electric
Toyo Denki Seizo

Multiaxial Controllers

Motion Controller
Robot Controller ②
Robot Controller

Mitsubishi Electric
Seiko Epson
Waco Giken

Power Supply Units

Lighting Power Supply
Outdoor Power Supply

Kyoto Deniki
Nakamura Electric Mfg

Touch Panels

Graphic Operation Terminal
Panel Computer
Pro-Face
LCD Display

Mitsubishi Electric
Contec
Digital Electronics
Patlite

Software Development and Development Support Systems

Takaoka Toko
Andor System Support
Nissin Systems

Sensing, Inspection, Instrumentation

Image Processing

In-Sight Vision Sensor
Stinger Thermal Image Processing
Image Processing Board Unit
Image Processing Engineering
Image Processing Unit (measuring, testing, positioning)

Cognex
Kawaso Electric Industrial
Takaoka Toko
Hikari
Fast

Temperature

Radiation Thermometer, Wafer-Monitor
Thermal Controller, System Accessories
Non-Contact Thermometer
Thermovision ③

Kawaso Electric Industrial
Fenwal Controls of Japan
Senterch
Flir Systems Japan

Linear Encoders

Precision Scale
Non-Contact Stroke Sensor
Digital Gauge, Magnescale
Micropulse Linearscale
Linear Encoder

Mitsubishi Heavy Industries
MTS Sensor Technology
Magnescale
B & Plus
Renishaw

Rotary Encoders

Absocoder
Encoder, Rotary Instrumentation
RC Encoder
Elevator Encoder

NSD
Heidenhain
Nippon Gear
Unitec

Meters and Instrumentation

Flow Meter
Mass Flow Controller
Level Meter, Level Switch
Vibrometer, Vibration Monitor
Instrumentation System
Meters for Food Industry
Various Small-Capacity Weighing Systems
Load Cell and Weighing System
Strain Gauge Transducer
Load Cell Application System Engineering
Displacement Sensor, Photoelectric Sensor ④

Nitto Seiko
Brooks Instrument
Kansai Automation
Showa Sokki
Ishida
Yamato Scale
Takemoto Denki
JFE Advantech
TEAC
Unipulse
Optex FA



DRIVES



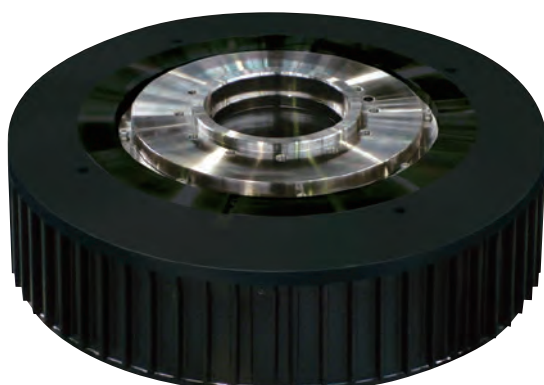
① Water-Cooled Motor (ELIN Motoren)



② AC Servo Motor (Mitsubishi Electric)



③ Direct-Drive Servo Motor (Nikki Denso)



④ High-Torque DD Motor (Sinfonia Technology)

Motors and Geared Motors

Standard Motors

General-Purpose Motor	Mitsubishi Electric
General-Purpose Motor	Leroy Somer

High-Efficiency Motors

Mitsubishi Electric
Leroy Somer
Hyosung

Small-Size Motors

Micro Coreless Motor	Citizen Micro
DC Micro Motor	Fuji Micro
Small-Size Motor	Bosch

Geared Motors

Gear Motor	Tsubaki E&M
Hypoid Motor	Tsubaki E&M
Croise Motor	Tsubaki E&M
Geared Motor	Mitsubishi Electric
Planetary Geared Motor	Seisa Gear
Cyclo Geared Motor	Sumitomo Heavy Industries
Astero Geared Motor	Sumitomo Heavy Industries
Small-Size Geared Motor	Panasonic
Geared Motor	SEW-Eurodrive

Other Motors

Hydraulic Motor	Mitsubishi Heavy Industries
Air Motor	San-Ei Seiki Seisakusho
Special Motor for Industrial Use	Sanso Electric
Spindle Motor	Shin-Oh Electric
Permanent Magnet Motor, DC Motor	Toyo Denki Seizo
DC Brushless Motor	Unitec
Brushless Motor for Industrial Use	Panasonic
Water-Cooled Motor ①	ELIN Motoren

Servos (Rotary/DD)

Servo Motors

AC Servo Motor ②	Mitsubishi Electric
AC Servo Motor	Daichi Components
AC Servo Motor	Panasonic
AC Servo Motor	Waco Giken
Servo Motor for AGV	Takaoka Toko
Micro AC Servo Motor	Citizen Chiba Precision
Direct-Drive Servo Motor ③	Nikki Denso
DC Servo Motor	Unitec

Direct-Drive Motors

High-Torque DD Motor ④	Sinfonia Technology
Direct-Drive Actuator	CKD

Linear Servos

Servos

Linear Servo	Mitsubishi Electric
High-Torque Linear Motor	Sinfonia Technology
AC Linear Motor with/without Core	Sodick
Linear Servo System	Nikki Denso



FA EQUIPMENT

Material Handling

Bulk Material Handling Apparatus

Bucket Elevator	Tsubakimoto Bulk Systems
Chip Conveyor ¹	Tsubakimoto Mayfran
Belt Conveyor	KYC Machine Industry
Magnet Conveyor	Sanshin Kinzoku Kogyo
Batching Plant	Nikko
Conveyor	Hightech Seiko
Powder Separator	Hosokawa Micron
Powder Handling Apparatus	Tokai Powdex

¹ Chip Conveyor
(Tsubakimoto Mayfran)



Conveyors

O-Carry Unit	Tsubakimoto Chain
Auto-Run, Free Curve	Tsubakimoto Chain
Net Conveyor	Kansai Wire Netting
Spiral Conveyor	Neosys
Conveyor	Fuji Yusoki Kogyo

² Zip Chain Lifter
(Tsubakimoto Chain)



Roller/Belt Conveyors

Conveyor	Okura Yusoki
Conveyor	Sanki Engineering
Conveyor	Central Conveyor
Conveyor	Terauchi
Conveyor	Makitech Japan
Conveyor	Maruyasu Kikai
Conveyor	Interroll

Unit Handling and Lifters

Zip Chain Lifter ²	Tsubakimoto Chain
Raku Raku Hand Balancer	Aikoku Alpha
Special Dolly	Osaka Sharyo
Table Lifter	Kawahara
Lifter	Kitagawa Seiki
Chain Hoist	Kito
Rail Dolly	Katsuyama Kikai
Lifter	Sugiyasu
Chain Hoist	Elephant Chain Block
Crane	Toyo Hoist
Balman Balancer	Toyo Koken
Table Lifter	Nippon Kiki Kogyo
Crane	Nippon Hoist
Hand-Propelled Crane	Bright Engineering
Balancer, Pallet Hanger	Miyake Industrial
Lifter	Meikikou
Lifter	Omni Yoshida
Wheel Block System ³	Kito

³ Wheel Block System (Kito)



Unit Storage

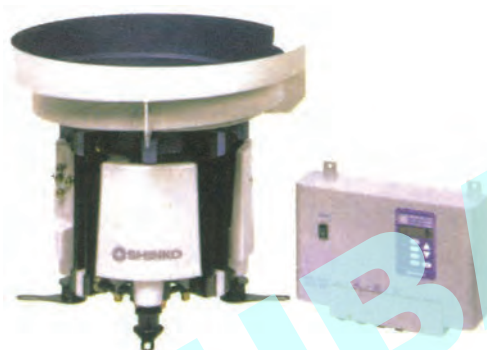
Power Column, Pack-U-Veyor	Tsubakimoto Chain
Solid Stocker	Kitagawa Seiki
Electric Moving Rack	Mitsubishi Nichiyu Forklift
Electric Mobile Rack	Sanshin Metal Working
Automated Warehouse	Seibu Electric & Machinery
Automated Warehouse	Toyota Industries
Automated Warehouse	Nippon Filing
Automated Warehouse ⁴	Murata Machinery

⁴ Automated Warehouse (Murata Machinery)





① SCARA Robot (Seiko Epson)



② Parts Feeder (Sinfonia Technology)



③ Ionizer (TRINC)



④ Cable Reel (Endo Kogyo)

Factory Automation

Modules

Alignment Stage	Nikki Denso
Alignment Stage	Hephaist Seiko
Single-Axial Robot	Yamaha Motor

Robots

Vertical Multi-Articulated Robot	Kawasaki Heavy Industries
SCARA Robot ①	Seiko Epson
Robot	Mitsubishi Electric
Clean Robot	JEL

AGVs

Battery Charger	Washion Kyoritsu Keiki
AGV	Nippon Sharyo
AGV	UniCarriers
AGV	Sugiyasu
AGV Kit	Takaoka Toko
AGV	Shin-Tomoe Electric Manufacturing

Parts Feeders

Parts Feeder ②	Sinfonia Technology
Parts Feeder	Murata SK

Others

Static Electricity Removal

Non-Spark Ionizer ③	Achilles
	TRINC

Laser Marking

Laser Marker	Amada Miyachi
Cable Reel ④	Endo Kogyo
Cable Reel	Suzaki Casting and Engineering

Sling Equipment

Balancer	Endo Kogyo
Winch	Sanyo Seiki
Winch	Maxpull Machinery & Engineering
Nylon Sling	Tamura Sougyou
Sling Chain	Tsunada Chain & Clamp

Feeders

Circle Feeder	Tsubakimoto Bulk Systems
Table Feeder	Funken Powtechs

Rotary Valves

Rotary Valve	Fluid Engineering
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Rollers

Power Moller	Itoh Denki
Rubber Roller	Katsura Roller Mfg
Carrier Roller	JRC

Ball Casters

Freebear	Freebear
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UV Radiators

UV Radiator System	GS Yuasa
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ENVIRONMENTAL EQUIPMENT



1 Eutec (Asahi Kasei Fibers)



2 Blower (Showa Denki)



3 Water-Lubricated Screw Compressor (IHI)



4 Deodorization Equipment (Kondoh Industries)

Water

Pumps

Pump	Teral
Pump	Ebara
Pump	Tsurumi Manufacturing
Monoflex Pump	Nikkiso Eiko
Gorman-Rupp Pump	Nikkiso Eiko
AH Series Adony Metering Pump	Nikkiso Eiko

Mixers

Agitator	Nippon Gear
Hydro-Wheel Impeller for Energy Savings	Nippon Gear
Agitator, Disperser	Primix

Oil Water Separation

Eutec 1	Asahi Kasei Fibers
Oil Water Separator	NAC Feeding

Solid-Fluid Separation

Centrifugal Separator	IHI
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Ionized Water Producers

Ionized Water Producer	IHI
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Sewage Treatment

Bioreactor Water Treatment Equipment	Hitachi Zosen
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Filters

Fluid Filter	Roki Techno
Fluid Filter	Asahi Kasei Fibers

Ball Valves

Ball Valve	Hisaka Works
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Atmosphere

Blowers

Roots Blower	Anlet
Roots Blower	Taiko Kikai Industries
Roots Blower	Ito Engineering
Large-Size Blower	Tsubaki Nakashima
Blower	Teral
Blower	Murakami Mfg
Blower 2	Showa Denki
Small-Size Blower	Fulta

Compressors

Screw Compressor	Atlas Copco
Water-Lubricated Screw Compressor 3	IHI
Z Screw Compressor	Mitsui Seiki Kogyo

Vacuum Pumps

Vacuum Pump	Shinko Seiki
Vacuum Pump	Ulvac

Ozone Sterilizers

Ozone Sterilizer Equipment	IHI Shibaura Machinery
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Sterilizers

Alcohol Sterilizer	Shinko Sangyo
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Deodorization

Deodorization Equipment	Chugai Ro
Deodorization Equipment 4	Kondoh Industries
Deodorization Equipment	Takuma
Regenerative Catalytic Oxidizer	Miura Chemical Equipment
Bio Deodorization Equipment	Kyowa Kako
Micro-Gas-Turbine VOC System	Toyota Turbine and Systems

Filters

Air Filter	Dynic
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① Bucket Elevator
(Tsubakimoto Bulk Systems)



② Solar Power Generation Equipment (Kyocera Solar)



③ Cogeneration Equipment (Tess Engineering)



④ Wind Power Generator
(Sinfonia Technology)

Garbage and Recycling

Bulk Handling Conveyors

Flow Conveyor	Tsubakimoto Bulk Systems
Bucket Elevator ①	Tsubakimoto Bulk Systems
Chip Conveyor	Tsubakimoto Mayfran
Linear/Vibrating Conveyor	Sinfonia Technology
Apron Conveyor	Ishihara Industrial

Short-Link Chain Conveyors

Short-Link Chain Conveyor	Teisa
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Vibratory Equipment

Vibratory Equipment	Sinfonia Technology
Vibratory Equipment	Ishihara Industrial
Vibrating Screen	Kinki Industrial

Magnetic Separators

Magnetic Separator	Osaka Magnet Roll
Magnetic Separator	Nippon Magnetics

Crushers

Crusher	Sugiyasu
Crusher	Endo Kogyo
Crusher	Kinki Industrial
Crusher	Horai

Dust Collectors

Dust Collector	Sintokogio
Dust Collector	Amano
Dust Collector	Hosokawa Micron

Compactors

Compactor	Kuroda
Compactor	Shinmaywa Industries
Compacting/Packing Equipment	Kamacho Scale

Biomass Processing Equipment

Biomass Processing Equipment	Shinko Engineering
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Wind Separators

Wind Separator	Kinki Industrial
Wind Gravity Separator	Harada

Waste Fluid/Sludge Drying Equipment

Waste Fluid Dryer	Nishimura Works
Evaporating Concentrator	Sasakura Engineering

Energy Savings

Solar Power Generators

Solar Power Generation Equipment ②	Kyocera Solar
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Biomass Power Generators

Biomass Gas Cogeneration Equipment	Chugai Ro
Biomass Power Plant	Takuma

Cogeneration Equipment

Cogeneration Equipment ③	Tess Engineering
Cogeneration Equipment	Kawasaki Heavy Industries
Cogeneration Equipment	Shinko Engineering
Cogeneration Equipment	Mitsubishi Heavy Industries
Waste Power Plant	Takuma

Wind Power Generators

Wind Power Generator	Mitsubishi Heavy Industries
Wind Power Generator	IHI
Wind Power Generator ④	Sinfonia Technology

Others

Solar Dome	Kaetsu Yoko
Ceramic Metal Halide Lamp	GS Yuasa

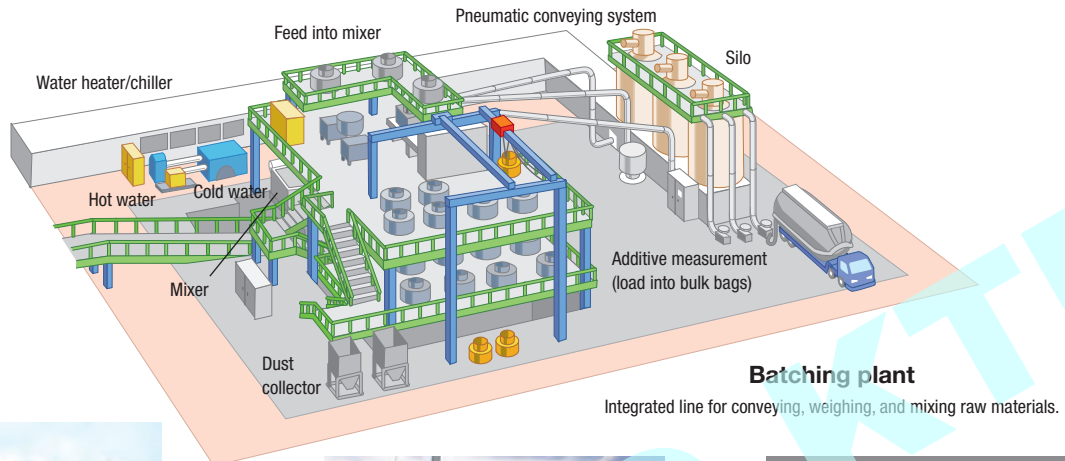
Acoustics

Soundproofing and Sound Deadening

Soundproofing/Sound Deadening Equipment	Sasakura Engineering
Soundproofing/Sound Deadening Equipment	Showon Giken
Sound Absorption Material	Shinko Wire
Active Noise Control System	TOA

Housing Materials, Ceramics

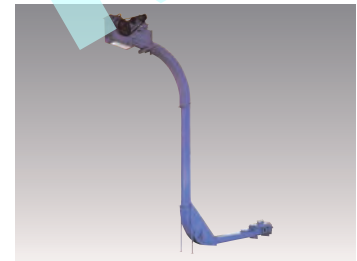
Raw Materials



Silo for bulk materials
Stores raw material unloaded from a bulk truck.



Pneumatic conveying system
Suction and pressure types are available to match the application.

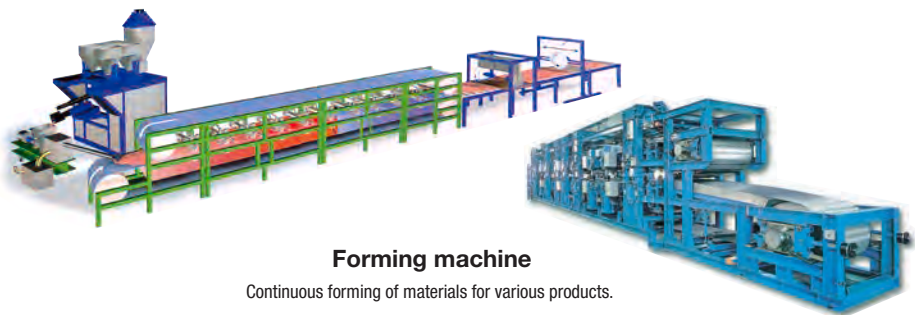


Raw material conveyor
Bucket, flight, and other types are available to match the application.

Forming



Roll-forming machine
Punches slits and length-measuring holes in a coil of sheet metal, which is then cut to length.



Forming machine
Continuous forming of materials for various products.

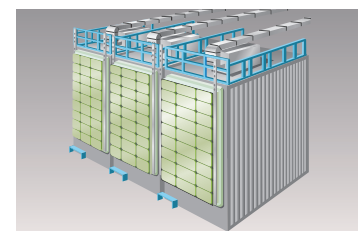
Processing, Calcination



Exterior-wall cutting machine
Cuts exterior walls, rebar included. Comes with dust collector.



Autoclave
Vacuum designs are also available.



Oven
Drying with continuous or batch ovens.

Contributing to the Production of Environment-Friendly Next-Generation Housing

Tsubaco is responding to growing demand for smart houses and airtight, highly insulated eco-friendly housing. We support the production of environment-friendly next-generation housing through our diverse technologies.

Conveyance, Assembly, Inspection



Unit turnover machine
Turns over frames and panels.



Unit conveyor
Conveys components in the housing unit assembly line.

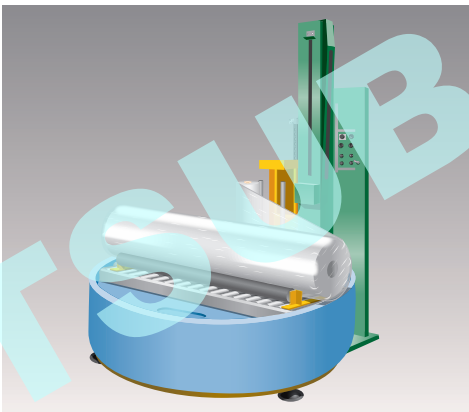


Robotic handling
A robot with traveling axes depalletizes and conveys boards, and another robot affixes boards to the housing units.

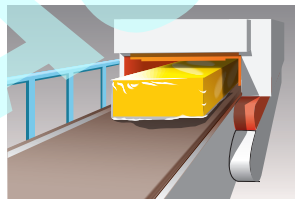


Board inspection machine
Checks for surface flaws, printing on the underside, and warping.

Packing



Roll stretch wrapper
Unlike a shrink wrapper, this machine does not require a shrink tunnel.



Shrink wrapper
Can wrap items on four or six sides.



Exterior wall board packing line
Integrated line for accumulation, stacking, packing, palletizing, and other processes.

Vertical stretch wrapper

Bundles and wraps items such as long objects and sheets on all sides. There are no bands to dig into wrapped items, and users can reduce packaging costs.

Other Equipment and Systems Delivered

Housing Construction Materials

- Equipment for cutting pillars, beams, and joists
- Panel processing and assembly equipment (interior walls, insulation, flooring, partitions, bathroom modules, cutting, stacking, calcination, conveying, painting, drying, packing, shipping)
- Unit assembly equipment (picking, nailing, gluing)
- Equipment for packing construction materials
- Equipment for grinding and conveying raw materials

Housing Facilities

- Septic tanks, bathtubs (forming press peripheral equipment, drilling, assembly, inspection)
- PVC pipe fittings (cutting, heating/cooling, inspection, packing)
- Sanitaryware (forming, calcination, glazing, inspection, judging, storage)

Others

- Equipment for receiving and compounding raw materials
- Raw material handling equipment
- Image processing equipment
- Construction waste recycling equipment

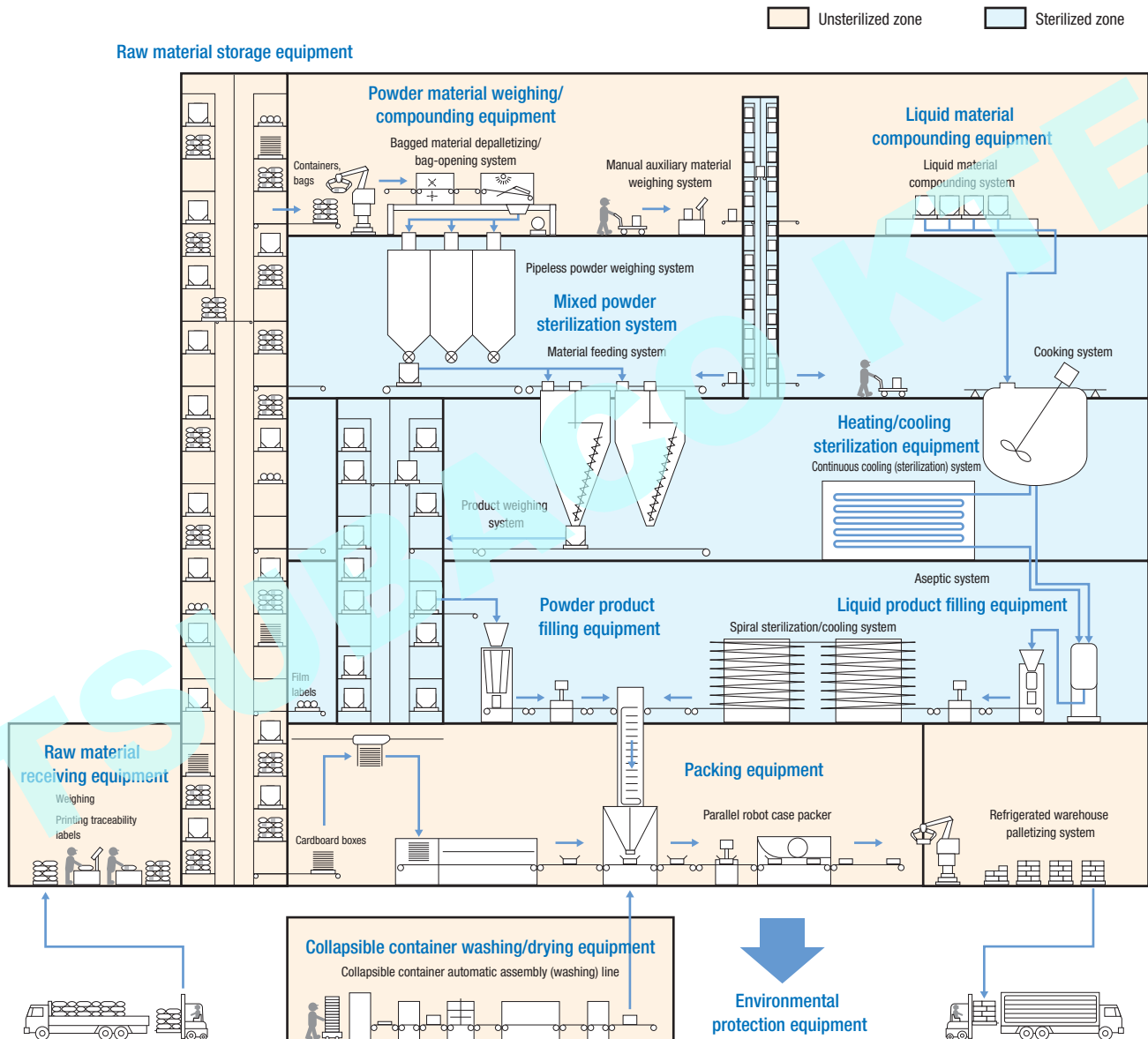
- Tile packing equipment
- Ceramic compounding equipment
- Glass material compounding equipment
- Ceiling insulation production equipment
- Tatami production equipment
- Component processing equipment (forming, drilling, cutting)
- PVC pipe packing equipment
- Tile production equipment
- Aluminum material packing equipment
- Nailers
- Packaging line
- Vacuum coaters



Food

System Flowchart

We offer optimal solutions for addressing various problems in the food-production process by taking in know-how from different types of industry.



Systems Delivered

- Confectionary production line
- Packaging line
- Canned food production line
- Frozen noodle production line
- Frozen bread dough production line
- Frozen food production line
- Various packing equipment
- Robotic picking line
- Ready-to-eat food production line
- Sauce production line
- Retort-pouched food production line
- Image inspection equipment
- Sterilization/cooling equipment
- Instant noodle storage unit

Creating the Future of Food through the Power of Engineering

Harnessing its comprehensive strengths as a trading company, Tsubaco offers a range of production-line engineering solutions, from designing plants to setting up production lines. By supporting production systems for diverse food-related areas, we are pioneering new possibilities for the industry.

Integrated Engineering

From the construction of new production lines to the conversion, renewal, and augmentation of existing lines, we offer system solutions from a customer's perspective.

Concretizing client demands

Clarify client demands by formulating a basic plan

Integrated engineering

Production lines, production control systems, environmental and resource-saving measures

Realizing client demands

Build a plant in line with the basic plan

Cost control

Reduce investment amount through rigorous appraisals

New factory construction



Aichi Prefecture, Japan

Basic plan



Floor plan



Ibaraki Prefecture, Japan

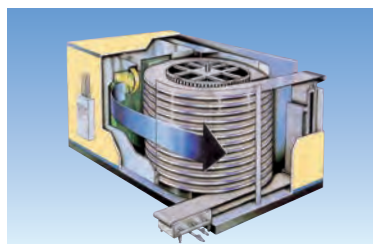


Sanitation areas

Equipment and Systems Delivered



Accumulation storage unit



Freezer



Raw material conveyor system



Image inspection equipment



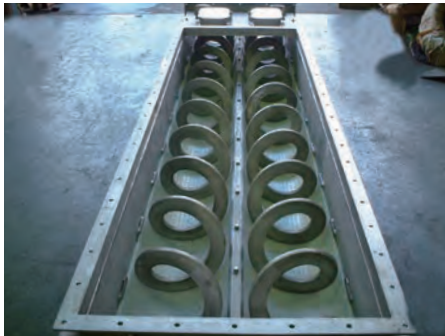
Parallel link robot case packer



Paper, Newspapers

Papermaking

Powder Conveying Equipment



Shaftless screw conveyor



Powder receiving, storage, and discharge equipment

Paper Roll and Sheet Conveying Equipment



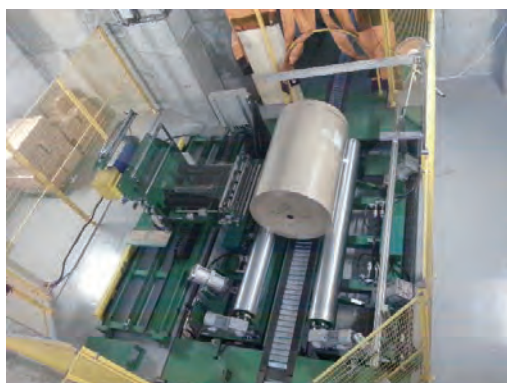
Paper roll conveying equipment



Upender tray conveyor

Equipment and Systems Delivered

- Sheet conveyor
- Forklift AGV
- Large AGV
- Production control system
- Robotic surface IJP
- Vertical conveyor



Film wrapping equipment



IJP labeler

A System Integrator Supporting the Mass Media

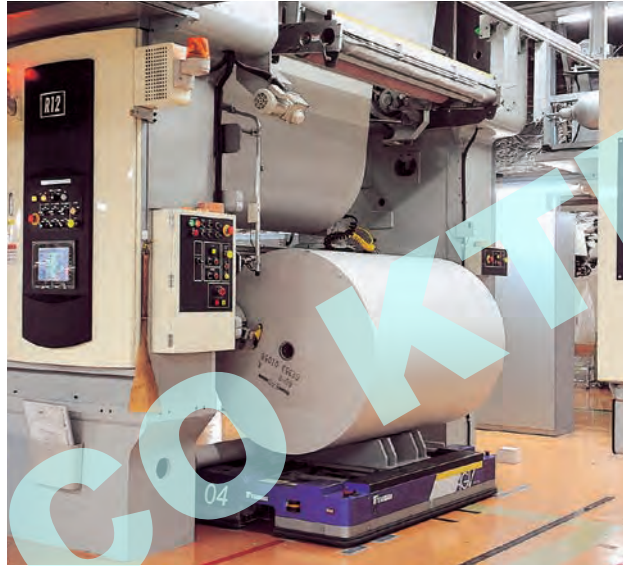
Tsubaco is a system integrator that offers solutions to all kinds of needs in the papermaking and newspaper-printing industries, with our eyes set on the future of information transmission.

Newspapers

Paper Roll Storage and Conveying Equipment



Vertical paper roll storage system



Paper roll conveying AGV (with lifter)

Equipment and Systems Delivered

- Inclined paper roll storage system
- Automatic unpacking system
- Automatic dolly
- Paper roll/paper bundle management CPU



Auto Dolly Super paper roll conveying AGV

Newspaper Bundle Sorting Equipment



Quick-Sort sorter



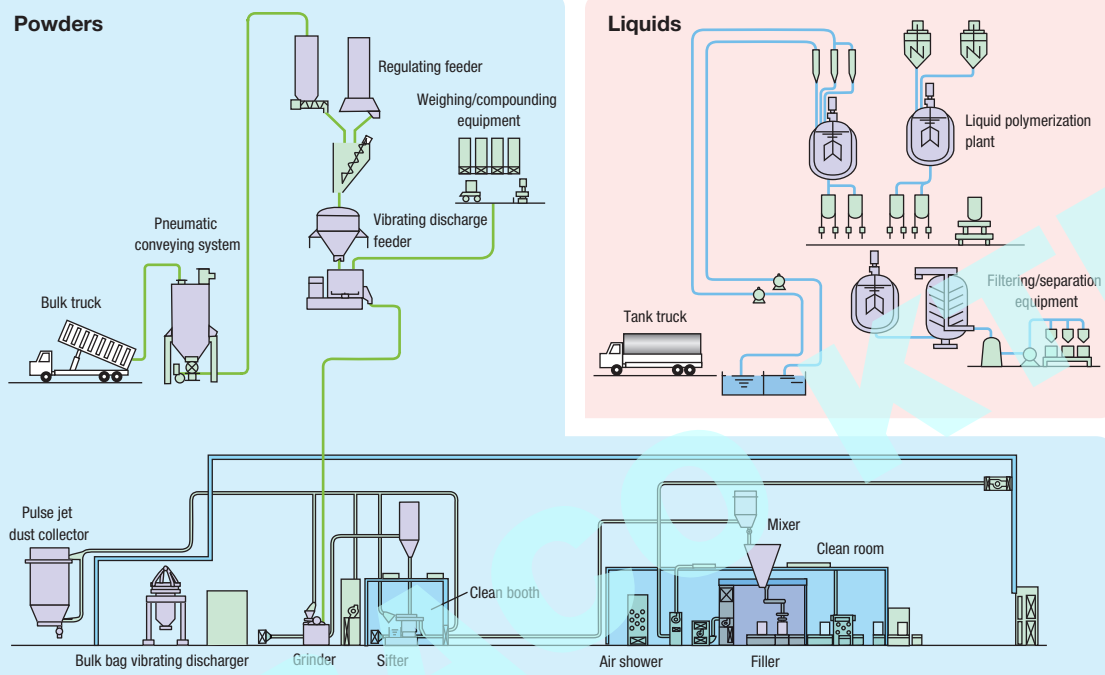
Lini-Sort linear-drive sorter



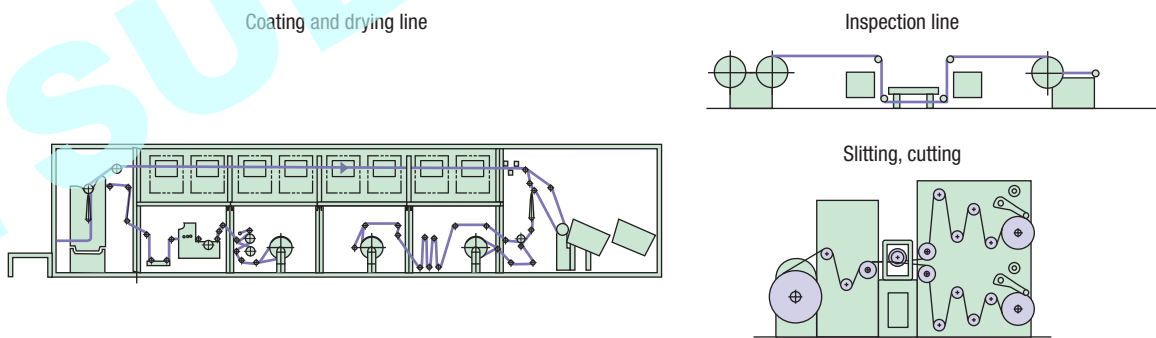
Chemicals, Film

System Flowchart

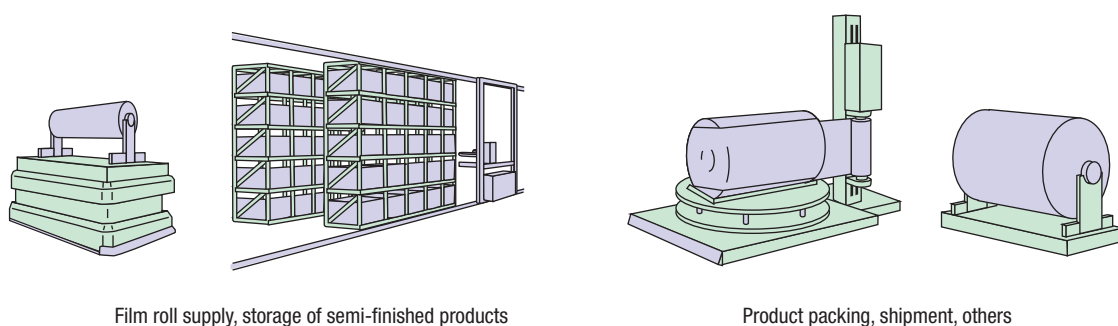
Raw Material Equipment



Production and Processing Equipment



Material Handling Equipment



Total Solutions from Production Facilities to Shipment

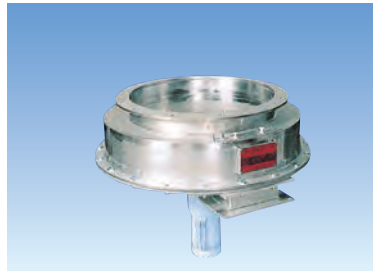
Tsubaco offers optimal facilities and equipment for all processes, including those in raw material plants and manufacturing and processing lines, as well as in the storage and supply of film rolls, the packing of finished products, and shipping.

Equipment and Systems Delivered

Raw Material Equipment



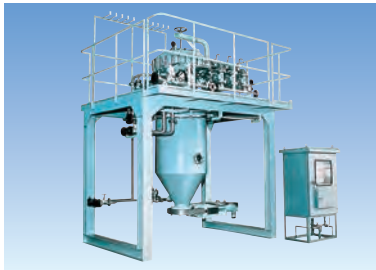
Pneumatic conveying system



Regulating feeder (Circle Feeder)



Liquid polymerization plant



Filtering/separation equipment



Bulk bag vibrating discharger



Weighing/
compounding equipment



Vibrating discharge feeder

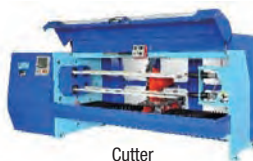
Production and Processing Equipment



Clean coater/dryer



Slitter



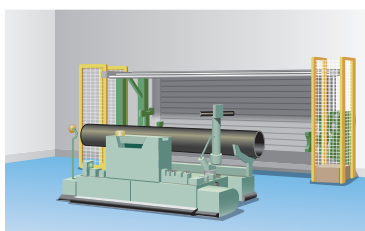
Cutter



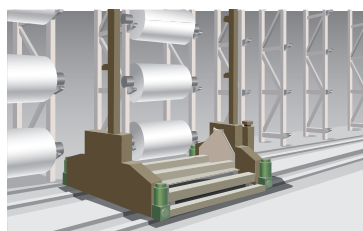
Rubber baler



Material Handling Equipment



Automatic guided vehicle



Film roll storage unit



Film roll packing



Roll core stand

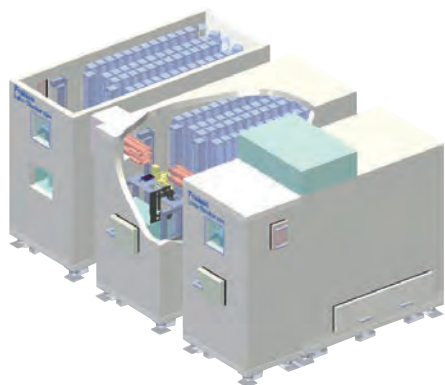


Automatic
4-way sealer



Medicine, Medical Care

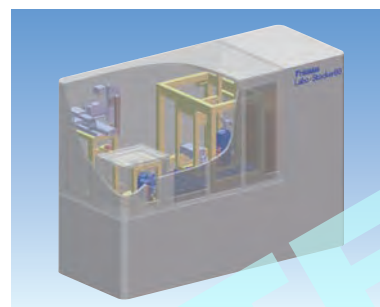
Ultra-Low-Temperature Sample Storage Units



–20°C Labo Stocker Mini
(illustration shows three units connected)



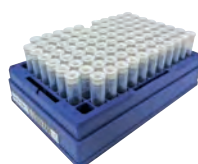
–150°C automated storage system



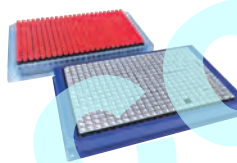
–80°C automated storage system



24 jacket tubes



96 storage tubes



384 storage tubes

Equipment and Systems Delivered

- Compound library storage system
- Ultra-low-temperature specimen storage system
- DNA storage system
- Microtube marking equipment
- Consumables (tube racks, labels, vials, special trays)

Research Equipment



Robotic handling equipment



Dispenser



Dehumidifying booth



Label printer



Analytical balance



High-speed centrifuge



Capper/decapper

Equipment and Systems Delivered

- Dispenser, dispensing system
- Sample management label printer system
- Robotic handling
- Powder weighing system
- Capper/decapper
- Plate sealing equipment
- Centrifuge
- Various dehumidifying booths and refrigerators

Supporting the Advancement of the Life Sciences with High-Performance Equipment

Tsubaco offers a variety of high-performance systems that range from ultra-low-temperature sample storage units for research institutes to equipment used in production lines. We support the advancement of medicine and medical care by responding to diverse needs in experimentation and manufacturing.

Production Line Equipment



Suction pneumatic conveying system



Filter (leaf filter)



Vacuum box dryer



In-process traverser



Container washer



Liquid storage facility



Container conveyor



Various robots



FlexLink conveyor

Equipment and Systems Delivered

- Powder pneumatic conveying/weighing system
- Filtration/separation equipment
- Vacuum dryer
- Mixer/grinder
- Liquid storage/conveying facility
- Various product conveying systems
- Container/receptacle washer
- Small-box conveying/sealing/stamping equipment
- Equipment for inspecting exteriors and printed labels
- Packing and palletizing line
- Pallet washer
- Medical equipment automatic assembly system
- Medicine coater

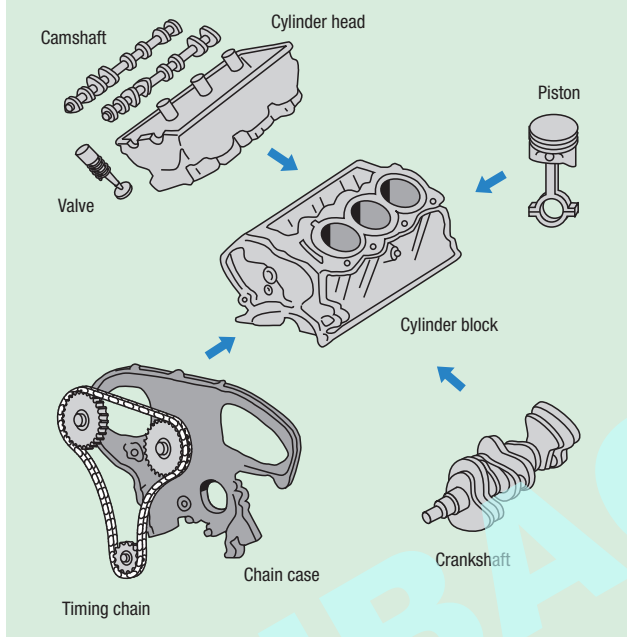


Automobiles 1

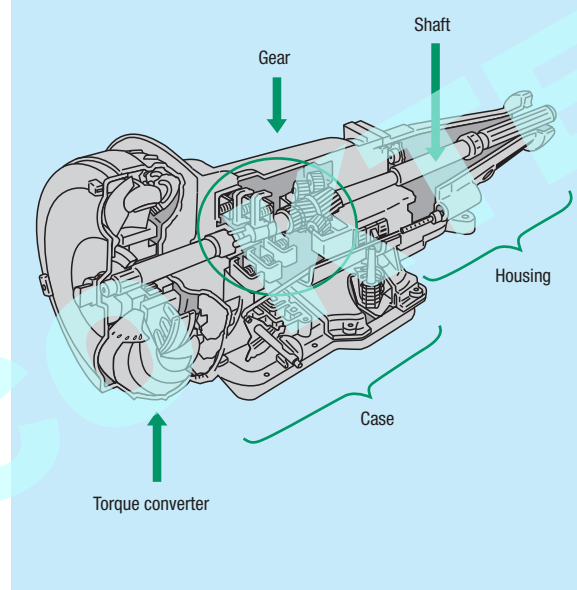
Main Components Made on Unit Production Lines

We provide conveying and automatic assembly equipment for various engine and transmission components.

Engine Machining and Assembly Line



Transmission Machining and Assembly Line



Equipment and Systems Delivered

Engine

- Forging material feeding/extracting equipment
- Casting material feeding equipment
- Conveyor for use between casting processes
- Foundry sand conveyor
- Pouring equipment
- Abrasive blasting equipment
- Impregnation equipment
- Cylinder head/block machining line
- Crankshaft machining line
- Connecting rod machining line
- Camshaft machining line
- Cleaner
- Chip conveyor
- Coolant processing equipment
- Palletizer/depalletizer
- Burr remover
- Automated warehouse
- Engine assembly line
- Cylinder head sub-assembly line
- Sealant application equipment
- Screw fastener
- Component assembly equipment
- Image inspection system
- Press fitting machine
- Leak tester
- Test bench
- Motoring bench
- Marking press
- Gantry loader
- AGV

Transmission

- Impregnation equipment
- Case/housing machining line
- Valve body machining line
- Shaft machining line
- Gear machining line
- Cleaner
- Electron beam welding equipment
- Parts supply equipment
- Parts assembly equipment
- In-process conveyor
- Robot for loading/unloading machining parts
- Marking press
- Scratch/dent inspection equipment
- Measuring device
- Shipping equipment

Electrical Components

- Battery conveying pressurized magazine
- Battery conveyor
- Battery inspection equipment
- Battery coating/drying line
- HV motor assembly line
- Motor parts insertion equipment
- Assembly jig pallet
- Inverter assembly line
- Injector assembly equipment
- ECU assembly equipment
- Substrate mounting equipment
- Valve lifter assembly line
- Powder fine-dispersion equipment
- Powder particle agglomeration equipment
- Millimeter wave inspection equipment

Responding to the Evolution of Automobiles with High-Quality Unit Production Equipment

Tsubaco's automobile business is evolving in tandem with developments in the automotive industry such as hybrid vehicles and electric vehicles. We provide a variety of equipment for manufacturing units such as drivetrains and electrical components.

Equipment and Systems Delivered

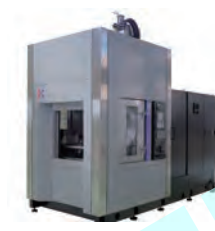
Engine



Cylinder head conveyor line



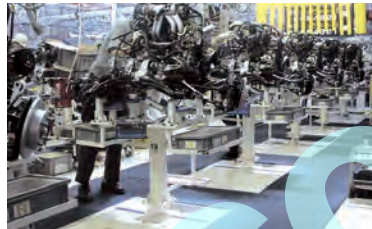
Cylinder head AGV system



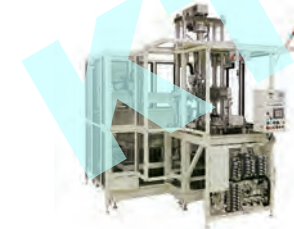
High-pressure washer



Gantry loader



Friction conveyor



Press fitting machine

Transmission



AGV



In-process conveyor



Assembly line conveyor



Parts inspection equipment



Parts assembly machine



Electron beam welding equipment

Electrical Components



Inverter assembly line



Battery inspection equipment



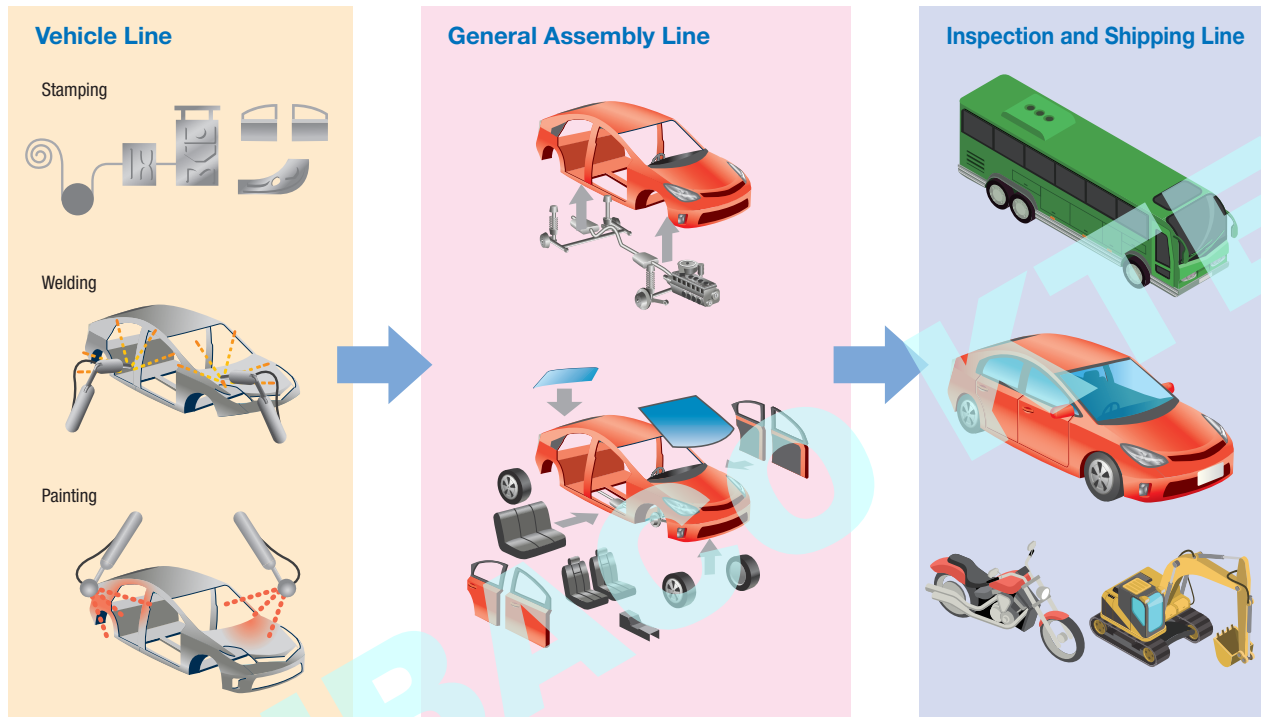
Injector assembly equipment



Automobiles 2

Vehicle Factory Flowchart

We provide various FA systems for a wide range of processes ranging from stamping and assembly to shipment.



Equipment and Systems Delivered

Stamping

- Material supply equipment
- Conveyor between stamping presses
- Soundproofing box for stamping presses
- Scrap conveyor
- Pneumatic scrap conveying system
- Bale conveyor

Welding

- Welding robot
- Laser beam welding system
- Body part conveyor
- Frame welding conveyor
- White body storage

Painting

- Pretreatment electrodeposition coating system
- Hybrid painting system
- Inverted painting system
- Painting robot
- Bumper painting system

Assembly, Inspection

- Main assembly line
- Door sub-assembly line
- Seat supply line
- Tire/wheel conveyor
- Engine sub-assembly line
- Rear suspension sub-assembly line
- Urethane/primer coating equipment
- Suspension tightening equipment
- Parts mounting equipment
- Zip chain lifter
- Resin worker conveyor
- Slat conveyor
- Shower tester line
- Shower booth
- Image inspection system

Large Vehicles, Construction Machinery

- Scrap conveyor
- Frame welding line
- Frame transfer equipment
- Turnover device
- Pretreatment electrodeposition coating system
- Painting booth
- Vehicle traction conveyor
- Engine painting line
- Engine assembly line
- Frame transfer/turnover device
- Assembly slat conveyor
- Carburetor assembly line
- Diesel engine test bench
- Motorcycle assembly line

Vehicle Components

- Cation electrodeposition coating line
- Seat forming line
- Seat assembly/delivery line
- Tire assembly line
- Harness assembly equipment
- Gas tank welding line
- Resin gas tank forming line
- Catalyst production line
- Laser transmitter for airbags
- Glass conveying equipment
- Radiator assembly line
- Kneading machine
- Lamp assembly equipment
- Seatbelt assembly equipment
- Parts inspection equipment

Building Stable and Highly Efficient Production Lines for Vehicle Factories

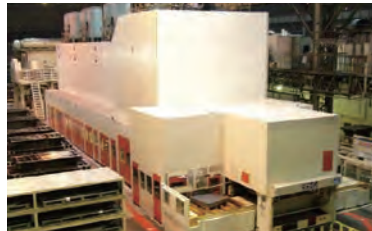
Tsubaco provides state-of-the-art equipment and systems that support automotive production lines. Our diverse lineup meets the needs for everything from passenger cars and large buses to construction machinery and motorcycles.

Equipment and Systems Delivered

Stamping, Welding



Scrap conveyor



Soundproofing box



Welding robot



Laser beam welding machine



Friction conveyor for parts



Frame welding conveyor

Painting



Hybrid painting system



Electrodeposition line



Bumper conveyor

Assembly



Zip chain lifter



Suspension tightening equipment



Worker conveyor



Main assembly line



Door sub-assembly line



Painting system

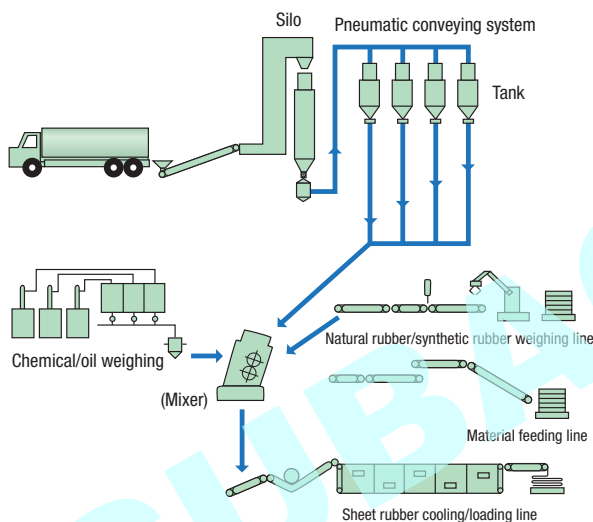
Tires, Rubber

Tsubaco Conveyors Effectively Streamline Production Lines

Tsubaco can build an integrated system that covers everything from receiving raw materials to manufacturing to product shipment. We can meet various needs in all sorts of tire production lines.

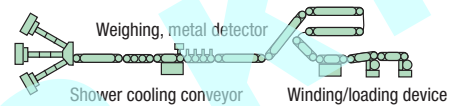
System Flowchart

1 Feeding Raw Materials, Mixing

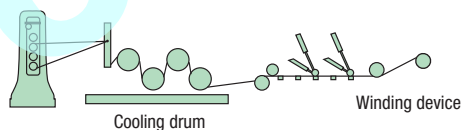


2 Material Processing

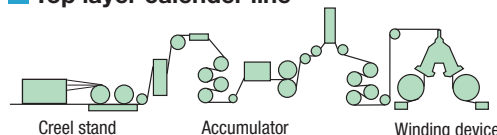
Material extrusion line



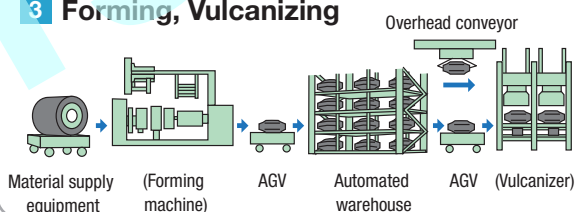
Sheet calender line



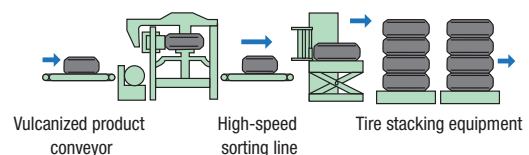
Top layer calender line



3 Forming, Vulcanizing



4 Finishing



Equipment and Systems Delivered

Feeding Raw Materials, Mixing

- Carbon bulk handling
 - Storage tank
 - Pneumatic conveying system
 - Bucket conveyor
 - Dust collector
- Chemical/oil weighing
 - Automatic bagging equipment
 - Bulk bag handling
- Synthetic/natural rubber cutting/weighing line
- Sheet rubber supply equipment
- Sheet rubber cooling line

Material Processing

- Material extrusion line
- Sheet calender line
- Top layer calender line
- Sidewall extrusion line
- Rubber roll handling
 - Roll storage unit
 - AGV
 - Automated warehouse

Forming, Vulcanizing

- Material supply equipment
 - AGV
 - Automated warehouse
- Tire supply dolly
- Overhead conveyor

Finishing

- Vulcanized product conveyor
- High-speed automatic sorting line (barcodes, image processing)
- Automated storage (tire stacking equipment)
- Shipping line conveyor

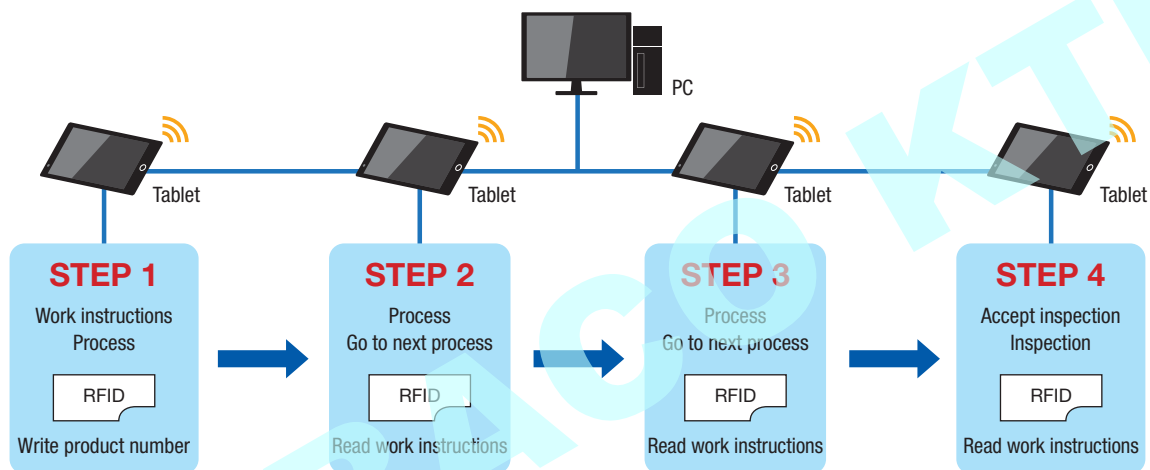


Information Systems

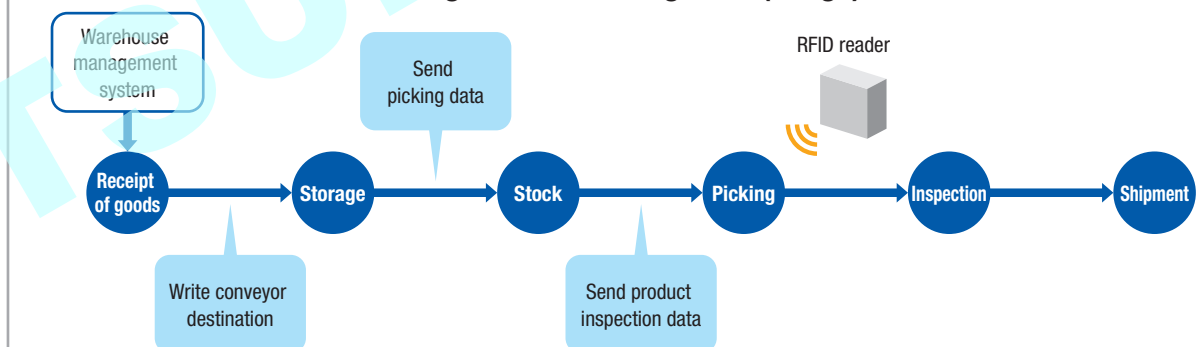
Optimal Solutions That Make the Most of IT Infrastructure

Tsubaco offers optimal solutions that make the most of hardware and software so that customers can streamline production control and logistics operations.

Example of Production System Using RFID



Logistics Line Using RFID (Image)



Equipment and Systems Delivered

Production Control System

- Food production control (batch)
- Process control
- Production control POP
- Press machine operational control
- SCADA (supervisory control and data acquisition)

Production/Logistics Support System

- Warehousing support
- Delivery truck timetable
- Inventory control
- Web production monitoring

Inspection/Instrumentation System

- Space station control training
- Real-time instrumentation control
- Load monitoring
- Stamp marking/reading
- Vehicle license plate reading
- Vehicle assembly line control
- Various inspection equipment

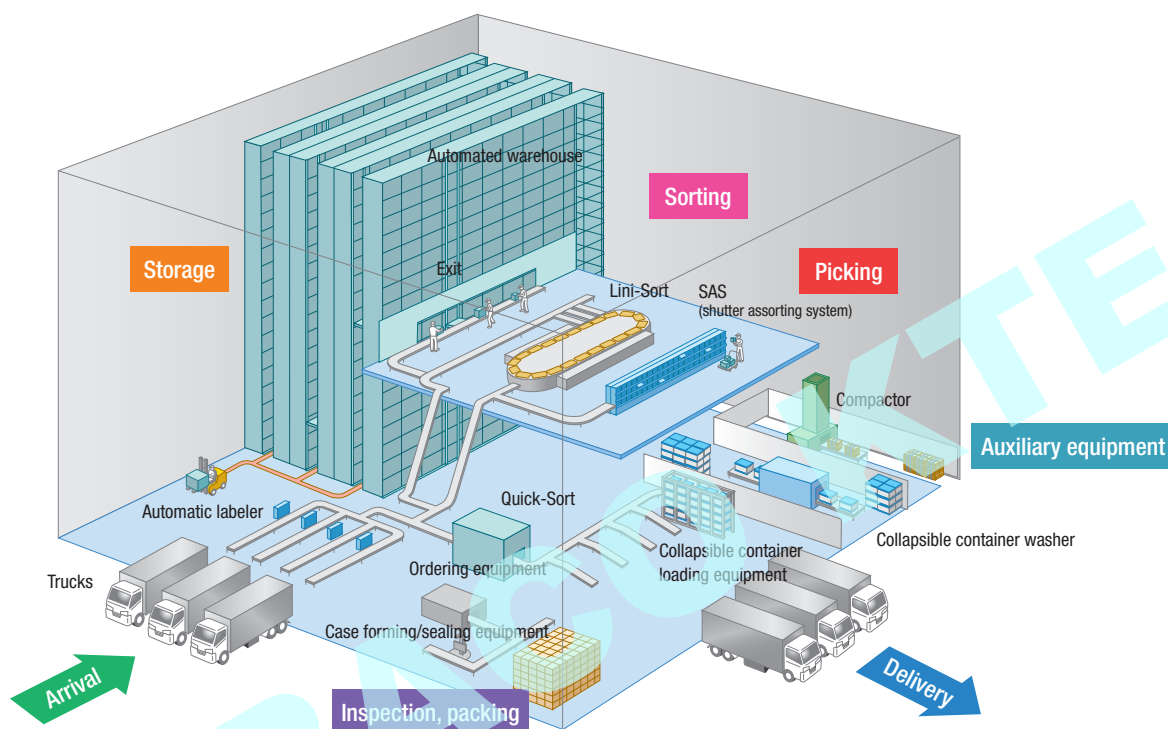
Factory Monitoring System

- Drainage facility remote monitoring
- Electricity monitoring
- Factory utility monitoring
- Audio, alarms, announcements
- Personal identification, security



Logistics

System Diagram



Equipment and Systems Delivered

- Household goods piece/case sorting system
- Cosmetics piece/case sorting system
- Medical product piece/case sorting system
- Toy piece sorting system
- Sundries piece sorting system
- Sports apparel/equipment sorting system
- Groceries picking/sorting system
- Volume retailer picking/sorting system
- Product delivery picking/sorting system by store and category
- Mail order picking/sorting system
- DIY store sorting system
- Ad insert packing/sorting system

- Publication sorting system
- Courier service sorting system for irregular-shaped parcels
- Apparel: folded product sorting system
- Apparel: clothes-on-hanger sorting system
- Sorting system for volume electronics retailers
- Maintenance parts storage/picking system
- Collapsible container ordering/loading system
- Door-to-door delivery flyer collator
- Bank/insurance bond storage system
- Postal piece/case sorting system
- Parcel storage/sorting system
- High-speed newspaper bundle sorting system

- Packaged food weighing/sorting system
- Non-refrigerated food storage/sorting system
- Frozen/refrigerated food storage/sorting system
- Case/shipping box washing/drying system
- Cased product depalletizing/palletizing system
- Collapsible container sorting/stacking system
- RFID sorting system
- Waste cardboard box conveying/compression system
- Forklift operational support system
- General fittings picking/sorting assistance system
- Voice picking system

Auxiliary Equipment



Compactor

Automatically compresses and binds waste cardboard boxes.



Collapsible container washer/dryer

Washing improves the quality of reusable shipping cases.

Others

- Various labelers
- Automatic reader (BCR, OCR)
- Collator
- Metal detector
- RFID system

Building Logistics Systems That Generate an Ideal Flow

Tsubaco brings together the optimal equipment and facilities that meet customer needs—based on know-how and a proven track record—to provide state-of-the-art logistics solutions.

Products Handled by Tsubaco

Arrival



Arrival inspection cart

The cart's tubes allow the cart to be configured to various shapes to meet special needs.



Automatic labeler

This unit reads ITF barcodes and automatically applies labels.

Storage



Automated warehouse

Automatically stores and delivers pallets and cases. Includes multiple earthquake-resistance features.



Ordering equipment

Automatically puts in order shipping cases according to specific conditions.

Picking



Multi sorter

An automated bucket warehouse and picking station combined into one.



SAS (shutter assorting system)

Automated shutters on the shelves improve sorting accuracy and productivity.

Sorting



Leaf sorter

Space-efficient sorting of mail and other thin items.



Lini-Sort linear-drive sorter

Handles diverse items.

Inspection, Packing



Inspection equipment

Handles various traceability items (e.g. inspects envelope windows, flaps, and weight).



Case forming/sealing equipment

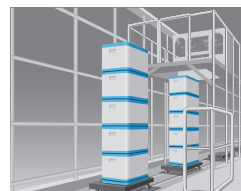
Automatically configures and seals shipping of cardboard boxes.

Delivery



Quick-Sort sorter

Handles cased products in various shapes, both regular and irregular.



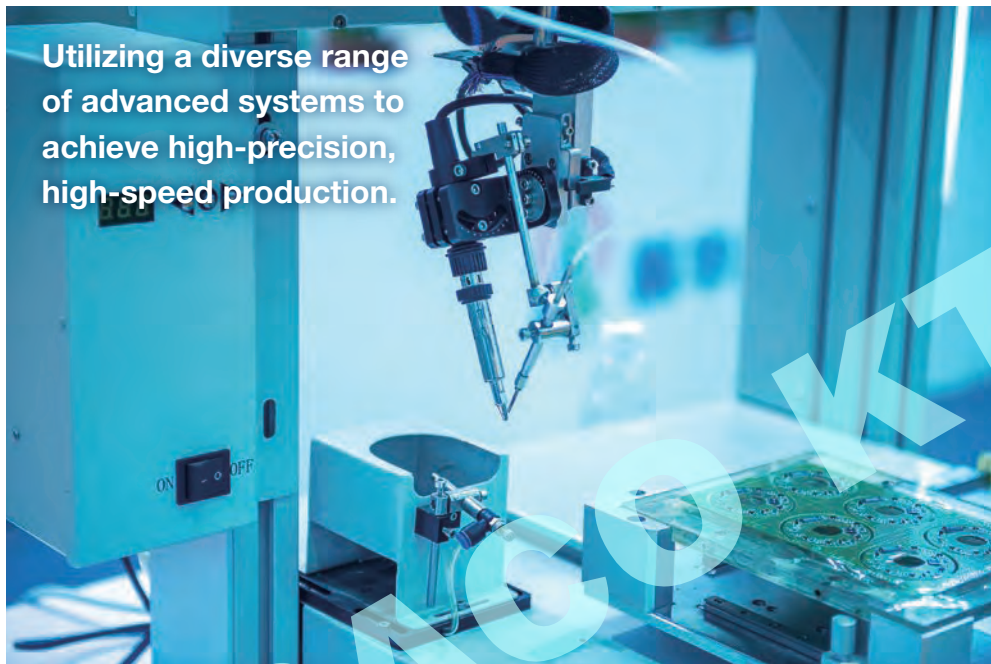
Collapsible container loading equipment

Automatically loads collapsible containers onto dollies.



Precision Machinery, Assembly Systems

Precision Inspection Systems



Utilizing a diverse range of advanced systems to achieve high-precision, high-speed production.



Automobile parts inspection equipment



Metal chip image inspection equipment



Electronic component inspection/sorting equipment



Electronic component inspection/mounting equipment



Automatic assembly line for precision machinery



Bonding equipment

Equipment and Systems Delivered

- Automatic counter
- OPC drum inspection equipment
- Lens inspection equipment
- Film surface inspection equipment
- Other sorting and inspection equipment for precision components
- Equipment for checking thickness, distortion, and warping of steel sheets
- Inspection equipment for each process in the assembly line
- Automatic assembly line for precision machinery
- Welding inspection line
- Non-destructive testing equipment

Contributing to Diverse Fields with Advanced Systems Focused on the Future of Factory Automation

Tsubaco provides advanced systems for various fields that demand special environments such as clean rooms. We contribute to improving quality through fast, high-precision technology.

Assembly Robotic Systems



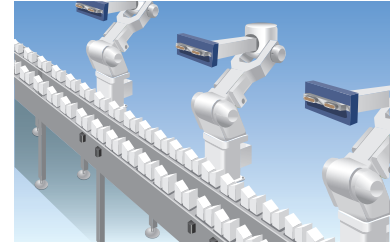
Doing complex work precisely
and automatically while
securing worker safety.



Humanoid robot



Substrate assembly system



Filter production line



Laser processing system



Robotic hemming system



Automatic confection boxing equipment

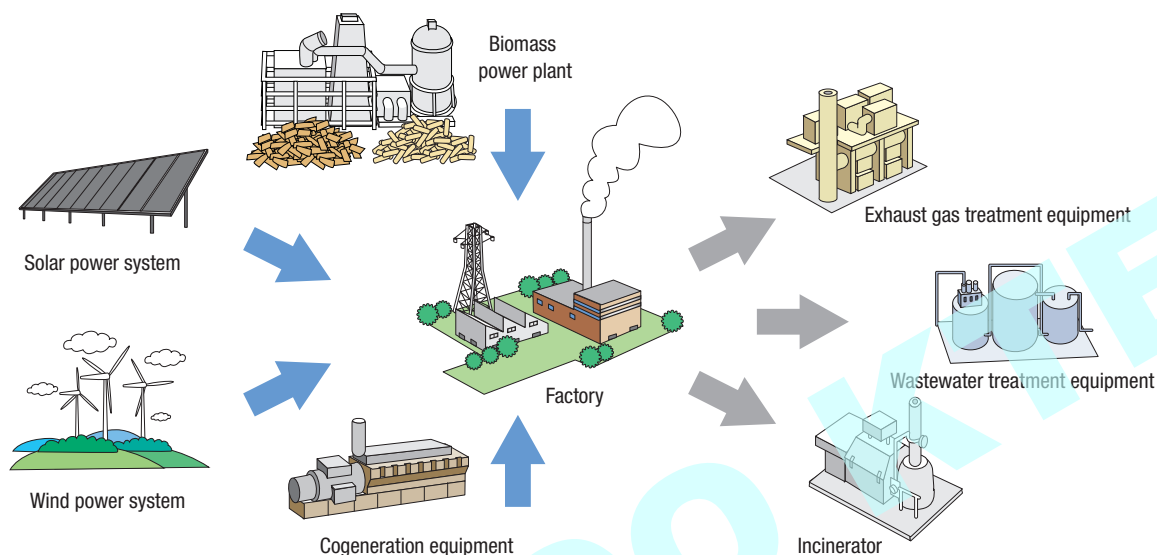
Equipment and Systems Delivered

- Ink tank automatic assembly line
- Cartridge automatic packing line
- LED automatic packing equipment
- Print head automatic assembly line
- Sheet laminator
- OA equipment automatic assembly line
- Glass-handling film-forming equipment
- Parts supply and assembly equipment
- Crystal oscillator assembly equipment
- Parts welding line



Environment Systems

Energy-Saving Factory Infrastructure



Equipment and Systems Delivered



Cogeneration equipment



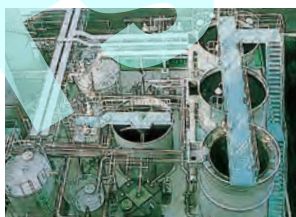
Solar power system



Regenerative thermal oxidizer



Solvent recovery equipment



Bioreactor wastewater treatment equipment



Greywater recycling system



Garbage compactor



Sludge drying system

Clean Energy/ Energy-Saving Equipment

- Solar power system
- Wind power system
- Waste heat boiler
- Cogeneration equipment

Exhaust Gas Treatment Equipment

- Direct-combustion deodorizer
- Regenerative thermal oxidizer
- Activated charcoal solvent recovery equipment
- Various dust collectors

Wastewater/Sewage Treatment Equipment

- Bioreactor wastewater treatment equipment
- Activated sludge wastewater treatment equipment
- Greywater recycling system (filtration)

Recycling Equipment

- Biomass fuel system
- PET bottle recycling equipment
- Construction waste recycling equipment
- Equipment to recycle waste wood into boards
- Medical waste treatment equipment

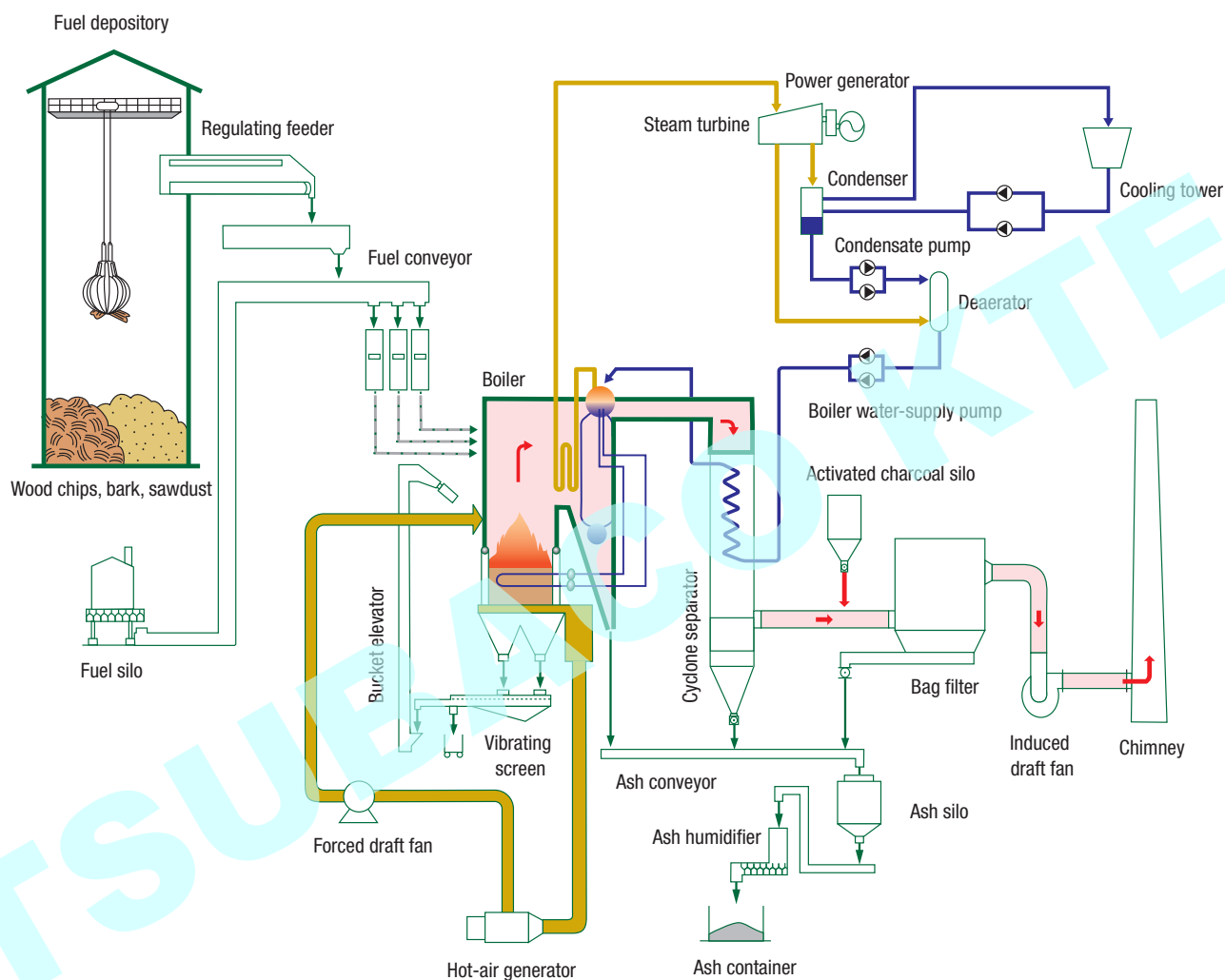
- Scrap tire recycling equipment
- PDP glass recycling equipment
- Straw composter
- Poultry dung carbonization equipment
- Sludge dryer

- Vacuum dryer
- Biogas equipment
- Garbage compactor
- PCB treatment equipment
- Soil improvement system

Aiming for a Harmonious Coexistence between Earth and Humankind through Advanced Knowhow

Tsubaco is addressing environmental and energy problems by bringing together experience and expertise in recycling systems and next-generation energy sources, such as solar and biomass.

Biomass Power Plant



Equipment and Systems Delivered



Fuel supply crane



Dry distillation gasification incinerator



Ash hopper



Noxious gas abatement equipment



Sand circulation equipment

Biomass Power Plant-Related Equipment

- Fuel supply crane
- Fuel regulating feeder
- Sand circulation equipment
- Ash silo

Incinerator Equipment

- Dry distillation gasification incinerator
- Effluent incinerator
- Waste combustion boiler system
- Noxious gas abatement equipment
- Ash treatment equipment
- Ash conveyor
- Waste crane
- Ash crane



Aircraft

Fuselage

A high-quality fuselage ensures comfort in air travel

We deliver a wide variety of equipment used in fuselage-production processes such as stamping, calcination, painting, and assembly.

Equipment and Systems Delivered

- 30-ton fuselage conveying AGV
- 15-ton fuselage conveyor
- Automatic 15-ton fuselage crane
- Automatic electrostatic coating line
- Small-item CFRP laminator
- CFRP stamping equipment



15-ton fuselage frame conveying AGV



100-ton airframe conveying AGV



Scaffolding for fuselage interior rigging



Main Wing

The wings are key to an aircraft

We provide state-of-the-art production and inspection equipment designed to match the respective construction methods for CFRP and duralumin components.

Equipment and Systems Delivered

- High-precision (± 1 mm) 10-ton conveying AGV
- Airframe shipboard container/conveyor
- 8-ton conveying AGV with overhead monorail
- Main wing robotic painting system
- Large booth for painting and drying
- Sanding booth



Friction conveyor for automatic painting



Water-jet cutting machine for CFRP airframe

Supporting the Safety of Air Travel with Advanced Technology

Tsubaco's cutting-edge equipment and tools are used in the production both of CFRP aircraft, which are lightweight and which have cabins with easily controlled humidity levels, and of duralumin aircraft, which have a history of nearly 80 years.

Fin, Fairing

The fin and fairing provide directional stability

We provide optimal automated systems for the painting and assembly of the fin and fairings.



Painting robot, internal pressure automatic control booth



Large airframe painting/drying booth

Equipment and Systems Delivered

- Fluorescent penetrant inspection equipment
- Non-destructive testing equipment (robot-on-rail system)
- Automated overhead conveying system (painting, assembly)
- Robotic painting system
- Assembling lifter
- Surface image inspection system

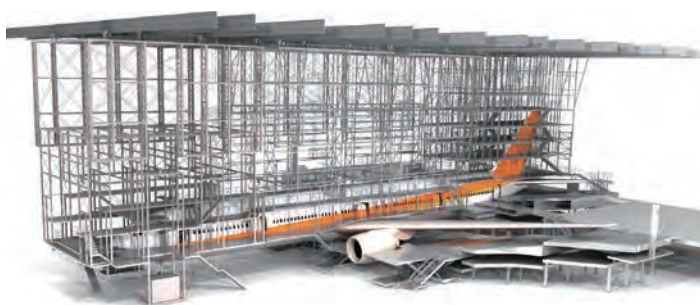


Automatic surface processing equipment, fluorescent penetrant inspection equipment

Auxiliary Equipment

Supporting aircraft maintenance, where safety is always demanded

We provide high-precision equipment that can operate 24 hours a day to ensure impeccable, on-time maintenance.



Airframe maintenance facility

Equipment and Systems Delivered

- Electric lifter for landing gear maintenance
- Hydraulic lifter for wing and fin maintenance
- Lifter AGV for engine maintenance
- Sliding floor to accommodate multiple airframes
- Aerial work platform for painting
- CFRP jigs
- Large invar jigs
- Emergency exit opening/closing chain



Trains, Railways

Undercarriage Maintenance Equipment

We deliver a variety of equipment for inspecting and servicing Shinkansen bullet train undercarriages down to every component.

Equipment and Systems Delivered



Automated warehouse for wheels and axles

The wheels and axles, which are loaded onto special pallets, can be stored or retrieved as needed.



Wheel and axle conveyor

This multifunctional conveyor is designed for ease of operation.



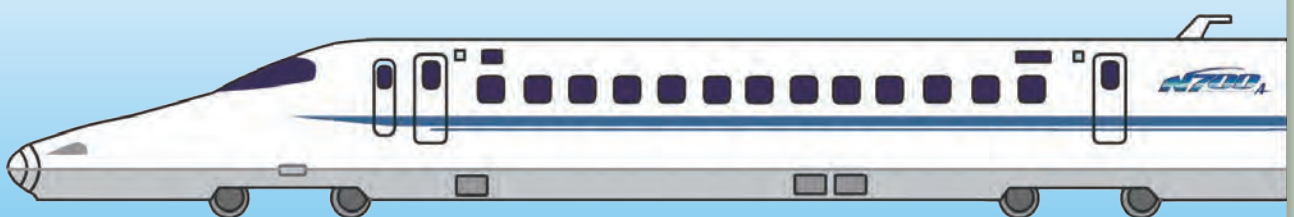
Storage/conveying equipment for wheels and axles

A space-efficient vertical configuration makes effective use of limited space.



Wheel conveying AGV

This AGV can offer layout flexibility to meet user needs.



Tsubaco Technology Supports the Foundation of Railway Engineering

Railway engineering in Japan is said to be among the most advanced in the world. Tsubaco plays an important role in its safety and reliability by providing technical support for bullet train undercarriages, cars, and more.

Car Maintenance Equipment

We deliver all manner of equipment for inspecting and servicing Shinkansen bullet train cars.

Equipment and Systems Delivered



Undercarriage traverser (for temporary undercarriages)

This unit transports the undercarriage to each maintenance procedure.



Undercarriage traverser (for regular undercarriages)

This unit transports the undercarriage to each maintenance procedure.



Roof footboard equipment

This unit automatically controls elevation of the footboard according to the type of car.

Other Equipment and Systems Delivered

- Car filter cleaning equipment
- Axle spring and bearing cleaning equipment
- Disc brake cleaning equipment
- Overhead conveyor for leveling valve and damper
- Dust collector (wet or dry)
- Wheel lathe chip crusher
- Wheel lathe chip conveyor
- Various traversers, automated warehouses, and AGV

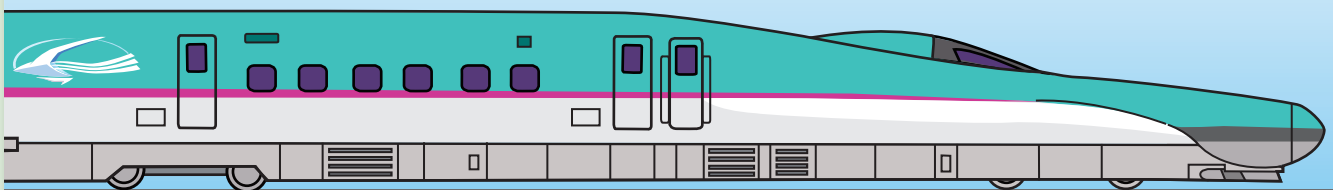


Image-Processing Technology

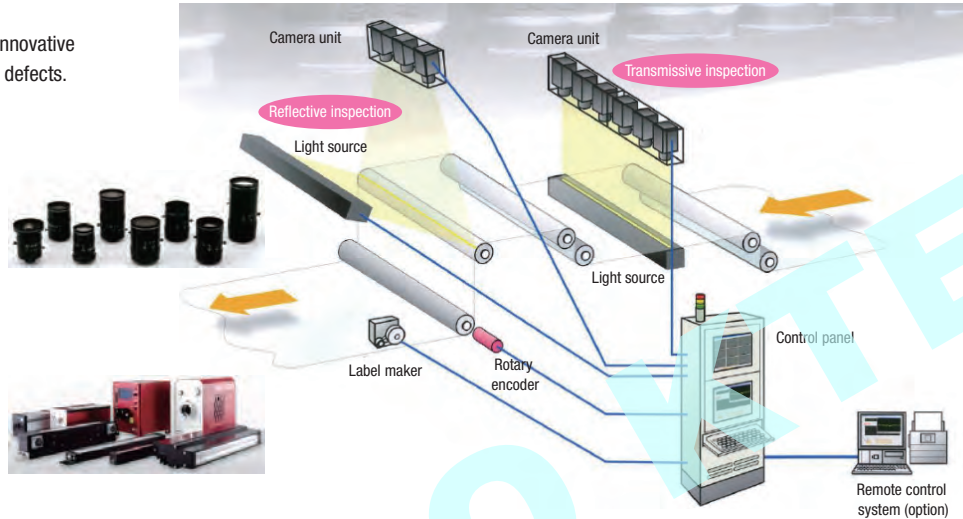
2D Vision Systems

Sheet inspection

An optimized optical system and an innovative algorithm enable superb detection of defects.



CCD optical scanner



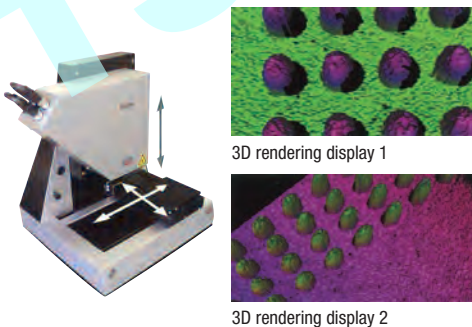
Variety of OCR applications

- Checking printed best-before date for vertical form-fill-seal machines
- Multiple inspection using 3 cameras and 1 controller
- Collating barcode data and printed data
- Checking printed best-before date on cartons



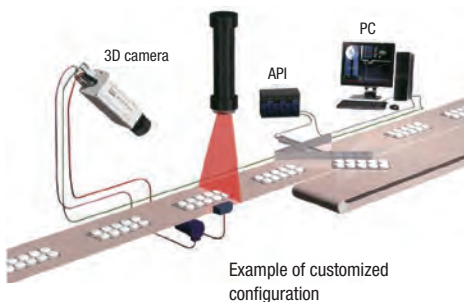
3D Vision Systems

Inspecting form and coplanarity of ball grid arrays



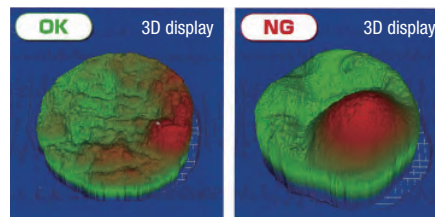
3D rendering display 1

3D rendering display 2



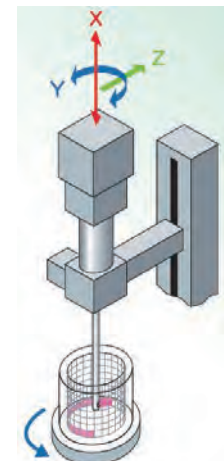
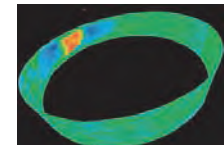
Example of customized configuration

Checking for poor rice cracker puffing



A simple, low-cost system

3D inspection of the inside of a cylinder

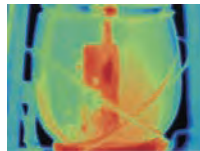


Taking On the Challenge of Going beyond Human Vision

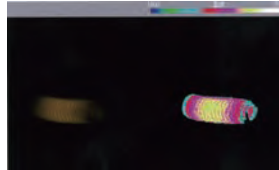
Tsubaco provides image-processing systems that make the most of various sensing technologies, whether 2D or 3D. Our state-of-the-art solutions let you visualize fields that are otherwise invisible to the naked eye.

Thermal Imagery Systems

2-color thermographic system

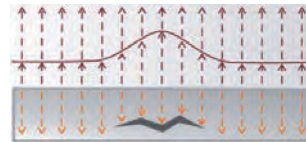


Conventional thermographic image



2-color thermographic image

Active thermography non-destructive testing

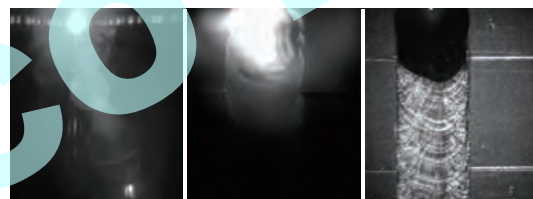
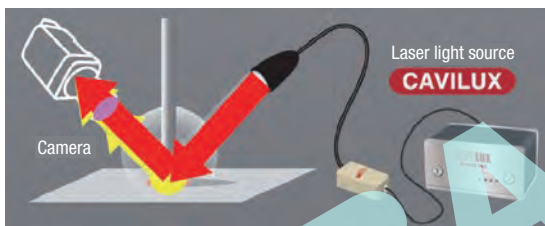


Changes in surface temperature due to thermal excitation



Testing an airframe

Welding visualization system



Conventional imaging

Fitted with band-pass filter

CAVILUX

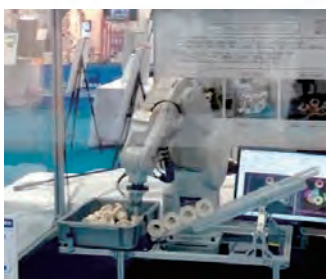
3D Robotic Vision



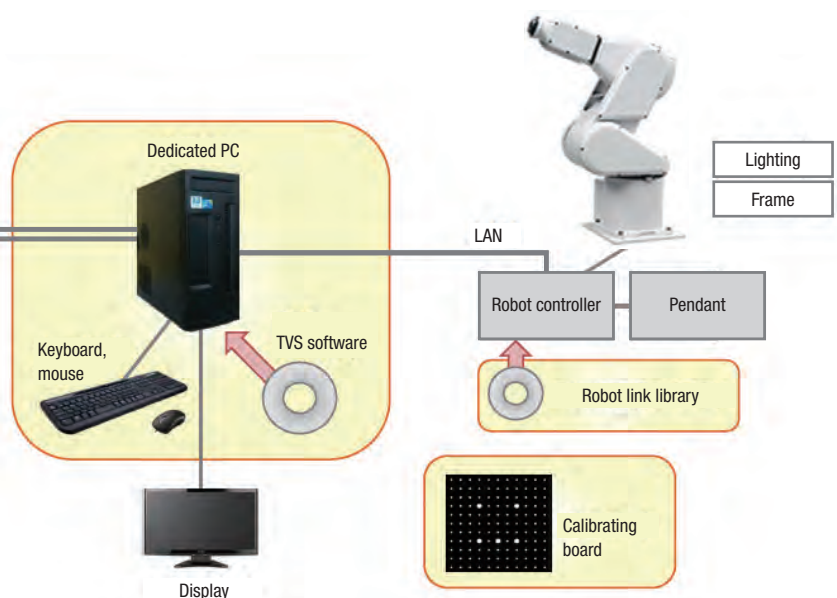
LAN (Category 5e or higher)



Stereo camera



Workpieces are handled precisely





Global Network

Global Network

Tsubaco's system construction is receiving high marks around the world. We currently operate subsidiaries in Korea, China, Hong Kong, Thailand, Singapore, and Indonesia, as well as a representative office in Vietnam. Our worldwide business includes imports and exports to and from Western and Asian countries alike. We are especially active in regions where Japanese companies are expanding their businesses. Here, we help these companies build factories and other facilities by working with the assistance of reputable local partners to provide the optimal equipment and technical services—just like those we provide in Japan.

We remain committed to providing dynamic solutions for customers around the world by making the most of our unique network and advanced know-how.



Business Scheme

Japan + Overseas → Overseas

We build systems for customers' overseas factories by integrating Japan-made equipment with non-Japan-made products.



Japan ← Overseas

We provide customers' factories in Japan with non-Japan-made products that boast quality on a par with Japan-made products.



Tsubaco's Advanced Solutions Span the Globe Borderless

By making the most of our extensive technologies and know-how fostered in diverse fields of industry, we give full support to our customers. This includes setting up business overseas, running global operations, and more.

Equipment and Systems Delivered

- Automotive body painting line
- Automotive welding robot/conveyor line
- Bumper washing/painting line
- Main assembly line
- Trimming/finishing line
- Door sub-assembly line
- Engine machining/assembly line
- Tire production equipment
- Aluminum wheel painting line
- Parts painting conveyor
- Scrap conveyor
- Slat conveyor
- Shower booth
- Painting/drying line
- Air conditioner assembly/inspection line
- Office equipment assembly line
- Insulation film production line
- Grease stock line
- Copper wire production line
- LCD panel production in-process conveyor line
- Hard disk production line
- Centrifuge
- Washer
- Abrasive blasting equipment
- Stamping press and auxiliary equipment
- Housing unit assembly line
- Detergent material receiving/packing/shipping equipment
- Medicine material compounding equipment
- Drum conveyor line
- Adhesive tape production line
- Rubber product production line
- Wig production line
- Frozen food production line
- Laminated pipe furnace
- UF/MF equipment
- Cereal crop conveyor line
- Coal conveyor line
- Cement conveyor line
- Garbage treatment conveyor line
- Power plant ash conveyor line
- Printing plate overhead conveyor line
- Electronic component overhead conveyor line
- Elevator
- Various storage racks
- Automated warehouse



Overhead conveyor



UF module

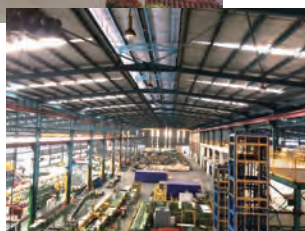


Pallet flow system

Subcontractors



Malaysia



Factory



Shanghai



Factory

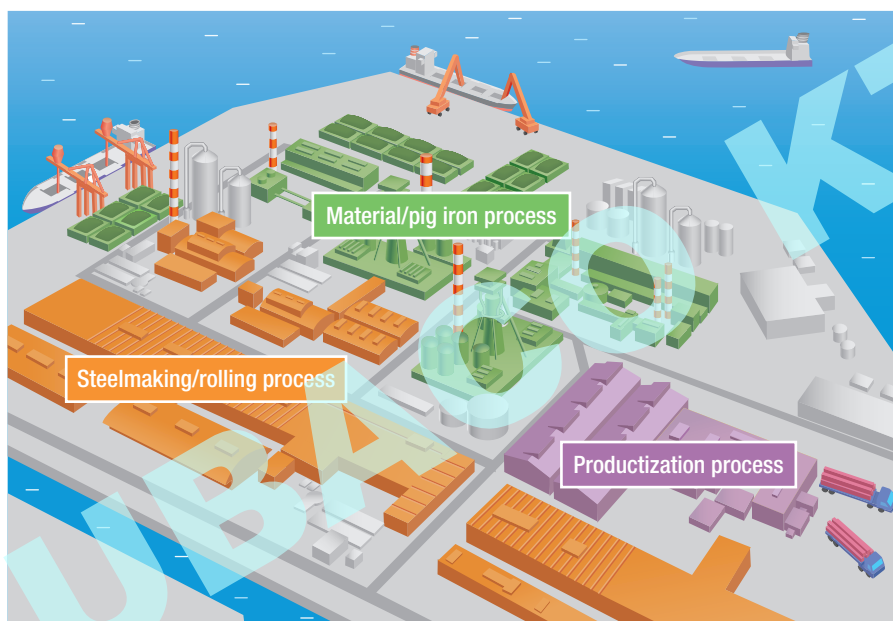


Iron and Steel, Non-Ferrous Metals

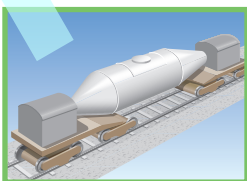
Tsubaco's Conveying Technologies Transport Various Heavy Goods

Tsubaco's conveyor systems support the iron and steelmaking industries in all processes, from transporting raw materials to manufacturing and productization. Our offerings include conveying systems for heavy specialized items and cutting-edge robots that can handle large coils.

Steel Mill



Products Handled by Tsubaco



Torpedo car



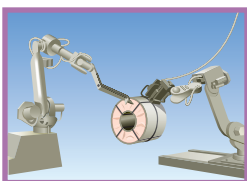
600-ton casting mold conveyor



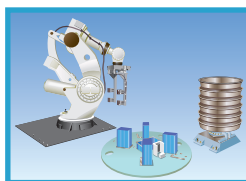
Mill gear for rolling mill



Post-rolling cooling conveyor



Coil banding equipment



Heavy-duty robot



140-ton remote-controlled dolly

Material compounding

- Material supply conveyor
- Rail-guided dolly, tow tractor
- Converter drive equipment
- Blast furnace material feeding equipment

Steelmaking/rolling

- Molten steel carrier car
- Manipulator
- Mill gear for rolling mill
- Pinion stand

Productization

- Coil conveying dolly
- Coil turntable
- Automatic strapping equipment
- Bar conveyor

Other

- Heavy-duty industrial robot
- Shipping inspection line conveyor
- Heavy-duty AGV
- 3D image recognition system

Tsubaco Offices in Japan

Osaka Headquarters (Head Office)

27F MEIJI YASUDA LIFE INSURANCE OSAKA UMEDA BLDG.,
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Global Network

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TSUBACO KTE CO., LTD.

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TSUBACO KOREA CO., LTD.

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Inquiries