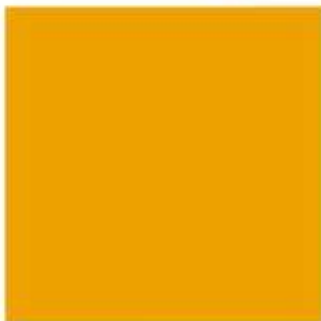




autocraft

freko
Technik für die Automobilindustrie



IATF 16949
 ISO 9001



ISO 14001



ISO 45001



CNAS L5763

**Manufacturer of high tensile
 automotive fasteners**

Shanghai Autocraft Co., Ltd.
Freko GmbH (ATC German Office)

Company Profile



- Set up in Year 2005, supplying OEMs like Caterpillar & Volvo car directly since 2009
- Total area 88,000 m² with around 600 employees
- Produces high strength fasteners for engines, automotive, construction equipment and electrified vehicles, monthly capacity 6000 tons.
- Most equipment made by Taiwanese, West European, US and Japanese machine manufacturers.
- Process includes wire drawing, tooling making, cold heading, thread rolling, heat treatment, secondary operations, surface treatment, sorting and packaging, all done in-house.
- Registered to ISO9001, IATF16949, ISO14001, ISO45001 and ISO17025

Major Customers



Autocraft Advantages



Excellent supplier awards from Caterpillar, Komatsu, Sany, Würth, Bossard, JAC, SAGW...



All production processes vertically integrated in-house to facilitate the uniform control of each production process.



High performance machines from the US, Europe, Taiwan, Korea & Japan ensure manufacturing and inspection capabilities.



State-of-the-art equipment for in-process inspection and automated sorting.



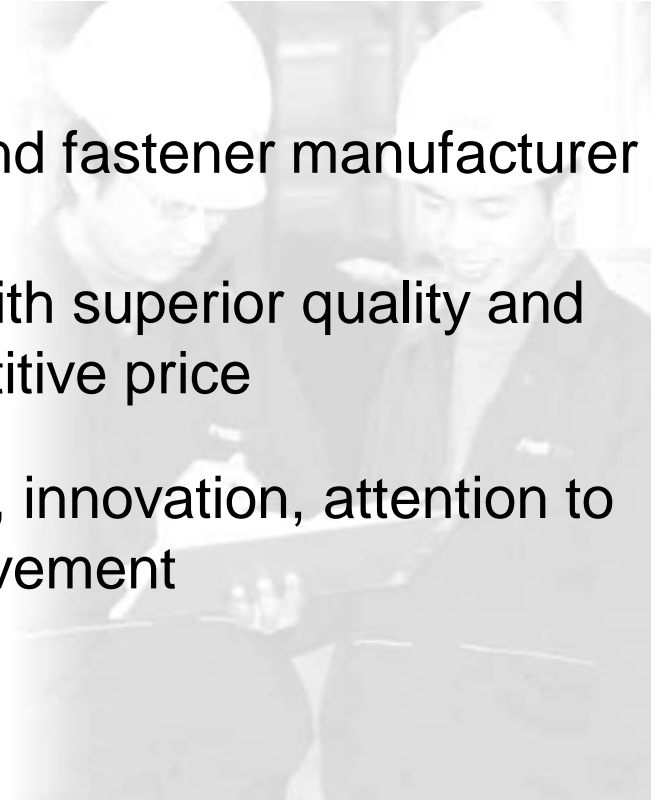
Integrated information systems of TC, APS, ERP, MES help to coordinate all manufacturing operations and step up efficiency



Automated storage & retrieval system help to move, store and fetch tooling, work-in-process, and packed finished parts more efficiently and ensures FIFO

Business Philosophy

- Vision** To be a world-class, high-end fastener manufacturer
- Mission** To provide our customers with superior quality and 100% satisfaction at competitive price
- Values** Customer focus, team work, innovation, attention to details and continual improvement



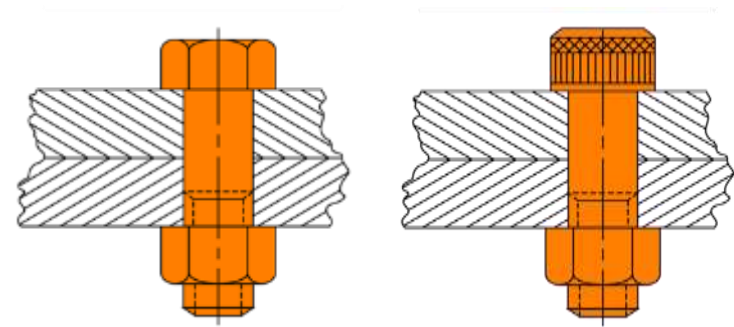
Main Products

Applications

for engines, battery packs, chassis, automotive bodies, etc.

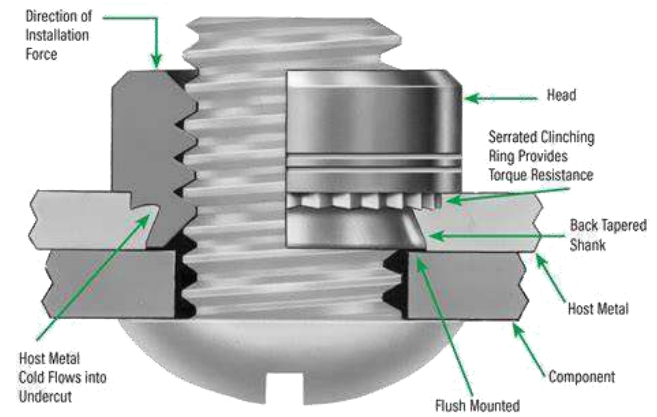
Bolts, screws, SEMs

Class 4.8-14.9, Grade 5,
Cold heading M3-M33, max length 350mm
bigger and longer sizes by hot forging



Nuts

Class 4-10, size M3-M22 by cold forming
Bigger sizes by hot forging up to M48
Hex nuts, hex flange nuts, nuts with washers
Lock nuts, slotted nuts, dome nuts, weld nuts,
Clinch nuts, rivet nuts

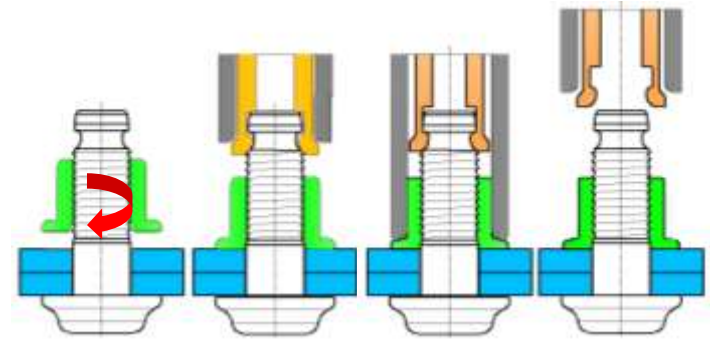


Main Products

Ring Groove Swage Locking fasteners

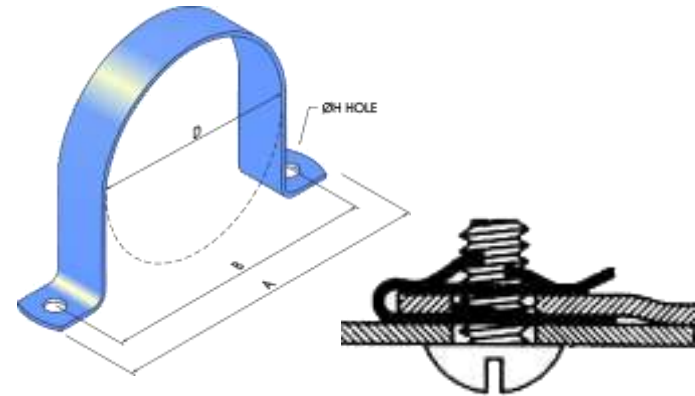
Class 8.8 and 10.9, size 8mm-25mm

Grade 5 and 8, size 1/4" -1"

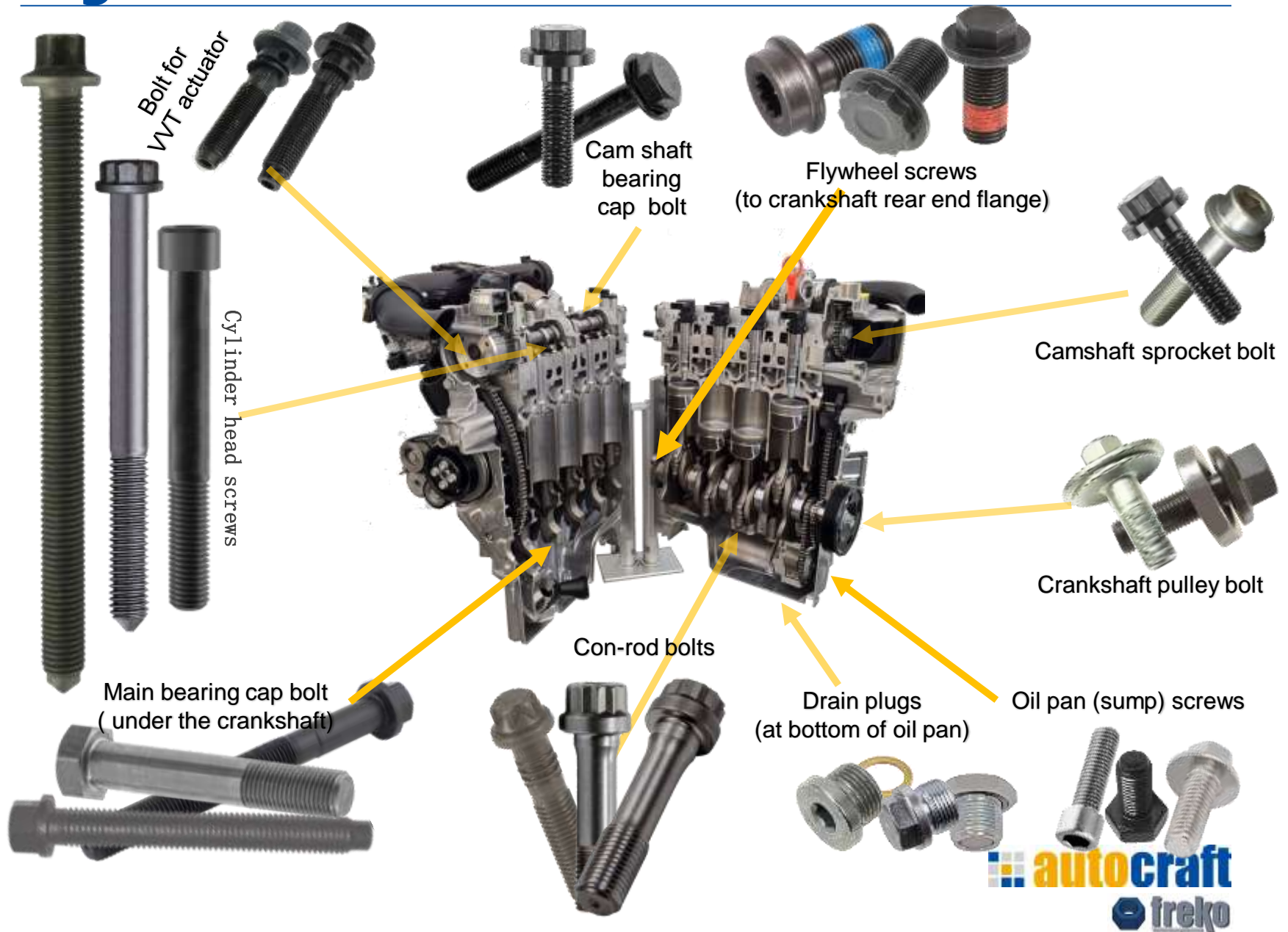


Stamped parts

Flat washers, spring helical lock washers, hose/tubing/wire clips, expansion/core/freeze plugs for engines, spring retainer clips...



Engine Fasteners



Products by applications

Critical Engine Fasteners & New Energy Battery Pack Fasteners

Autocraft manufactures connecting rod bolts, cylinder head screws, flywheel screws, crankshaft pulley screws and main bearing cap screws. Threads are rolled after heat treatment to ensure the strength and accuracy of threads.

We manufacture high temperature screws as well for turbo charger, exhaust manifold and catalyst connections.

We produce banjo bolts and pipe plugs for oil replenishment and draining.

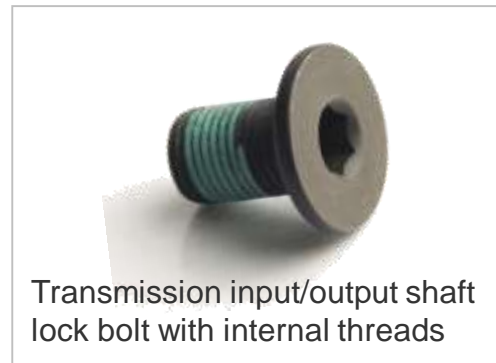
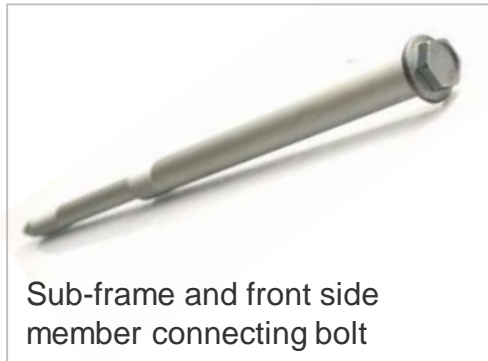
We produce screws for battery packs, fuel cell batteries and so on.



Products by applications

Chassis Fasteners

Autocraft produces chassis fasteners for major automotive OEMs. They are used to fasten transmission, driving shaft, final drive and differentials, axles, wheel hubs, braking systems, steering systems & suspension systems.



Products by applications

Chassis Fasteners – wheel bolts and nuts

We produce wheel bolts and nuts with high quality medium carbon alloy steels.



Press fitting knurls under head are produced with patent tooling to avoid laps or cracks.

Products by applications

Welding screws and nuts

Autocraft produces welding fasteners for projection, spot and girth welding, etc. Low carbon steel are used in most cases for better weld-ability. Property class is usually 8.8 and surface coating includes zinc plating, copper plating and plain oiled.



Products by applications

Body and Interior Fasteners

We produce fasteners for automotive bumpers, fenders, trunk, doors, instrument console, seats, etc. High quality low or medium carbon steels are used. Production process include cold heading, thread rolling, heat treating, etc. Different kinds of anti-loosening technologies are used, such as spring washers, chemical or nylon patching, etc. Mathread/Matpoint lead-in thread technology is also used.



Licensed Products

Autocraft is licensed for the following patents and brand names:

Taptite family screws:
Taptite II, Taptite 2000,
Powerlok, Taptite Pro...

Remform, Remform II,
Remform F, Remform HS...

MAThread, MATpoint...

Torx and Torx Plus...



Automotive nuts

Autocraft produces different types of nuts M5 thru M24, including nuts with captive washer, pull rivet nuts, nuts with external threads, square nuts, hex nuts, hex flange nuts, nylon insert lock nuts, all-metal lock nuts, weld nuts, etc.

Production process includes wire processing → cold forming → thread tapping → (quenching and tempering) → surface finishing → automatic sorting...



Swage lock rivets & Self-owned patents

Groove ring swage locking rivets/pins/bolts

Groove ring fastener joints eliminate transverse allowance & are self-locking and fatigue resistant. We have our own innovative designs.



Self-owned Patent Technologies

Autocraft has 50 patented technologies. We developed a locking thread design, easy to manufacture & install, with uniform locking force.

To better meet chassis fastening demand, we developed a new pilot point that scrapes paint off.

Our innovative knurling tooling avoids knurling laps and cracks, ensuring high wheel stud quality.



Fasteners for construction & mining equipment

Shanghai Autocraft is an excellent fastener supplier of Caterpillar, Komatsu & SANY for construction, mining & port machinery.

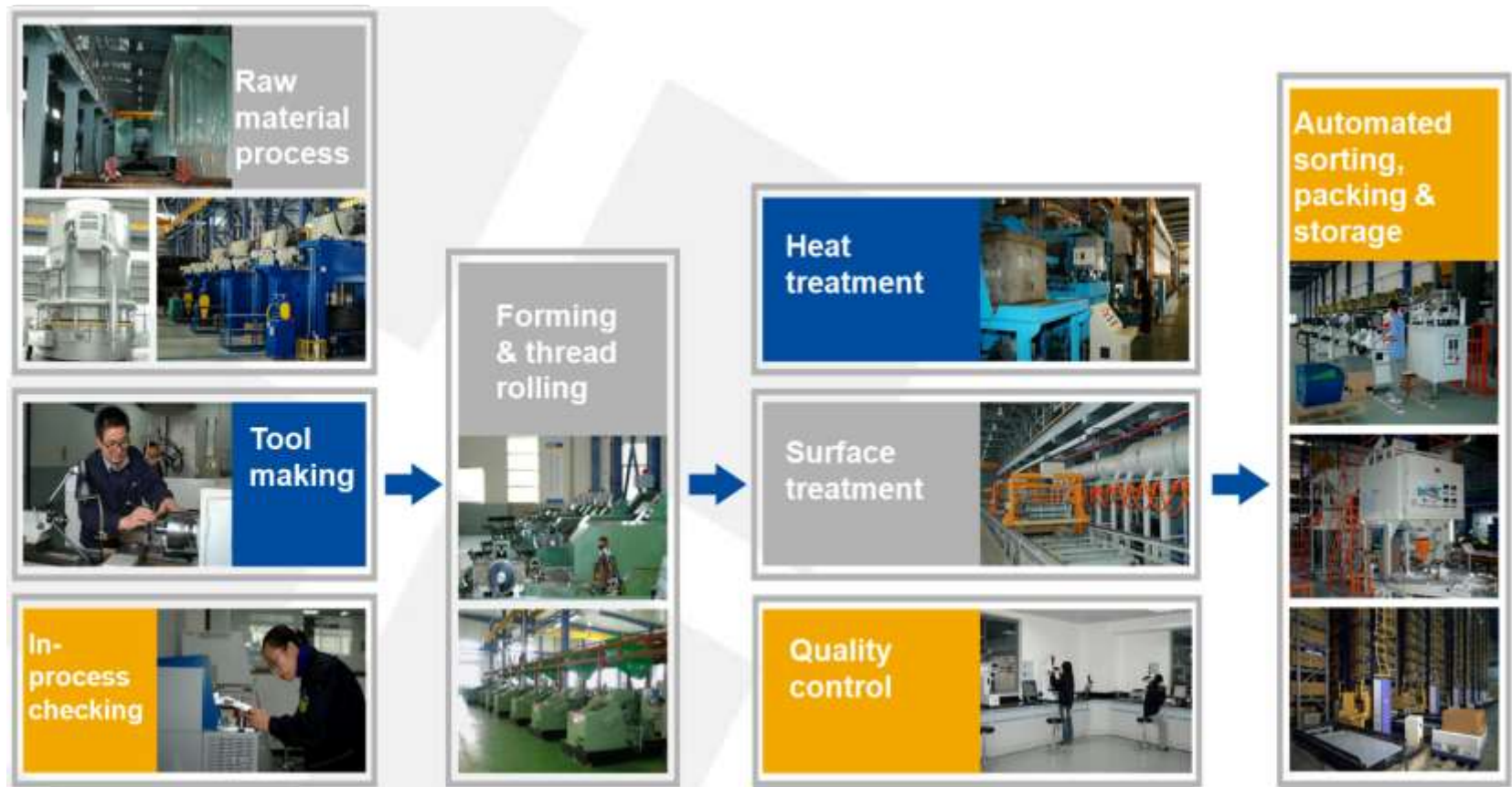
Our fasteners in this area cover bolts, screws, nuts, washers, clips and clamps. They are used for engine, undercarriage, slow bearing system, hydraulic systems, driver cab, etc. We can produce ultra high strength screws class 13.9 & 14.9.

Our cold heading sizes reach M33, maximum length is 350mm. We have warm forging machines for bolts up to M48X500. We have magnetic powder flaw detection machines and eddy current inspection devices for warm-forged parts. We have induction hardening machines for track shoe bolts.



Manufacturing Process

Streamlined production process: Raw material processing —> Forming —> Thread rolling —> Heat treat —> Surface treat —> Automated sorting —> Packaging



Wire Processing

- **Hydrogen atmosphere high convection bell type annealing furnaces (imported from EU)**

Even distribution of atmosphere & heat

Effective protection of wire from decarburization



- **Wire drawing machines (imported from Taiwan)**

Circular oil pump lubrication of drive system

Dynamic fluid tooling case
High drawing efficiency



Cold Heading

- **5D5P Header**
(from the US)
high precision and efficiency
- **4D4P high speed header**
extra long type
(from Korea)
max bolt diameter 33mm
max bolt length 350mm
- **6 workstation formers**
(part formers, nut formers)



Thread Tapping & Punch Press

Automatic progressive punch presses



Washer mounting machines for SEMS and for nuts with captive washers



Nut thread tapping machines

Heat Treatment

Continuous mesh belt furnace (imported)

Automated PLC control system
DX gas blackening to avoid
damage of thread by drying
with integrated *dephosphorization*



High frequency induction heating & hardening machines



Surface Treatment

- Imported phosphating line, acid zinc plating line, alkaline zinc/zinc nickel plating line (imported)

PLC control

Trivalent chromium conversion
American, Japanese and EU
Chemicals approved by OEMs

- Hydrogen De-embrittlement continuous line and batch furnaces



Surface Treatment

- Zinc and aluminum flake coating lines and shot blast machines

We have Magni, Dörken and Zintek licenses.



Surface Treatment

- **Micro-encapsulated chemical and nylon patch coating lines**

ND593S/1193S
Precote30/80/85

ND ST-3
Precote 5

3M 2353/2510

Nylon patch



Automated Sorting

- Automated sorters with laser, eddy current & vision cameras; 7 imported from USA, 20 home made, total 27 sorting machines

Scope of detection:
dimensional deviations,
thread defects,
foreign parts,
head cracks,
shank cracks,
foreign object inclusions...



High Bay Automated Storage & Retrieval System

Automated storing & retrieving
for each production process;
Barcode scanning for storing
in & fetching out;
Storing capacity 40000 tons;
First in first out;
High retrieval efficiency;
Built by Komatsu Shanghai

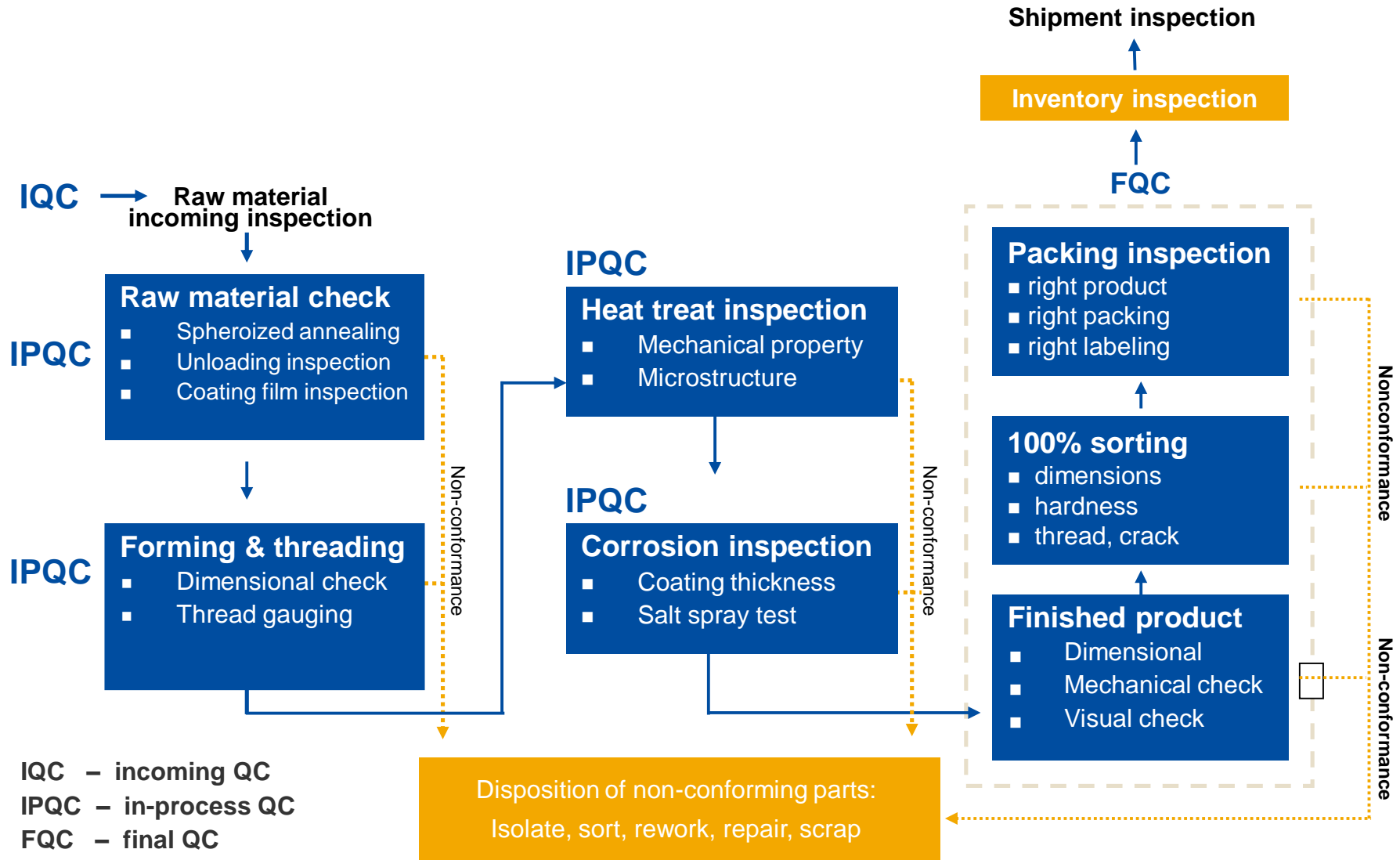


Quality Assurance - System

- Certified to IATF16949, we have set up an effective quality system



Quality Assurance - Inspection Flow



- accredited to ISO/IEC17025
- passed GM GP-10 accreditation
- passed Shanghai Automotive Group accreditation



- Dimensional & contour measurement
- Chemical composition analysis
- Hardness test
- Metallographic analysis
- Tensile test
- High frequency fatigue test
- Impact toughness test
- Torque, tension & friction test
- Salt spray test
- Coating/plating thickness test
- Form and position measurement

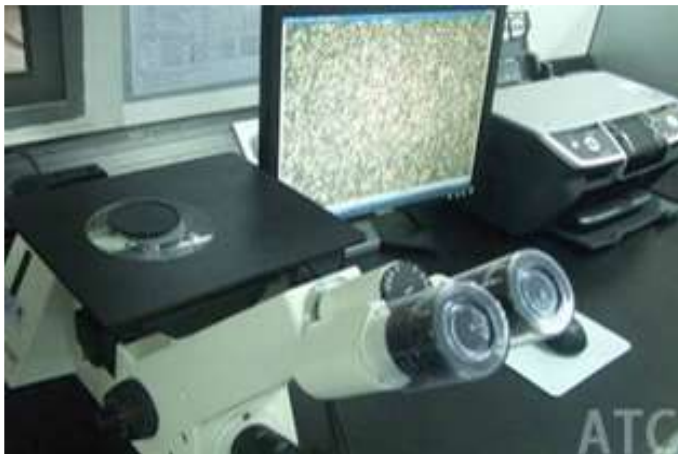
Quality Assurance – Inspection Devices



Vacuum spectrometer from Germany



Japanese FUTURETECH hardness tester



Metallographic microscope from Germany



Contour-graph from Germany

Quality Assurance – Inspection Devices



Dimensional laser lab from USA



US MTS-SANS tensile tester



Swiss made high frequency fatigue tester



Impact toughness tester

Quality Assurance – Inspection Devices



Torque-tension-friction tester from Germany



German X-Ray coating/plating film tester



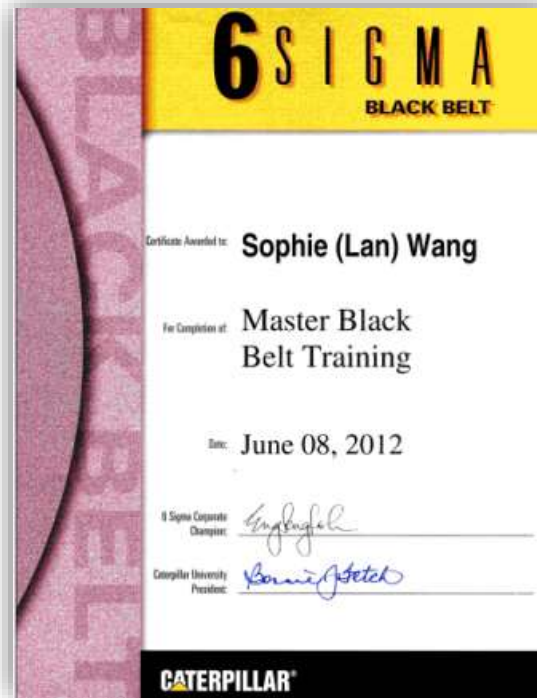
Magnetic particle flaw detector



Salt Spray Test Chamber

Quality Assurance - Six Sigma

- Autocraft practices six sigma to continually improve manufacturing process. We have 2 six sigma master black belts, 9 six sigma black belts.
- We implement CPS (Caterpillar Production System) as well to ensure our production -delivery performance, we have 3 CAT CPS black belts.



Quality Assurance – Other Systems

ISO 14001

Bureau Veritas Certification

Shanghai Autocraft Co., Ltd.
No. 158 Nantu Highway,
Pudong New Area, Shanghai, P.R.China
Unified social credit code: 91310000791518037B

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below:

ISO 14001:2015
Scope of certification

MANUFACTURE AND SALES OF COLD FORMED PARTS, FASTENERS, PROCESSING OF WIRE, HEAT TREATMENT AND SURFACE TREATMENT OF METAL PARTS

Original cycle start date:	14-10-2000
Expiry date of previous cycle:	NA
Certification / Recertification Audit date:	NA
Certification/Recertification Cycle Start Date:	00-06-2021

Subject to the continued satisfactory operation of the organisation's Management System, this certificate expires on: **14-10-2024**

Certificate No.: CN037276 Version: 1 Issue Date: 06-06-2021

Certification Body Address: 20th Floor, 40 Fleet Street, London, E1 1HQ, United Kingdom
Local Office: No. 2, P4, No. 1086, Waima Road, Hongqiao District, Shanghai, China, 200111

Further information regarding the scope and validity of this certificate, and the applicability of the management system requirements, please visit: uk.as or bv.com

Further information how to interpret and manage non-conformances, how this certificate can be withdrawn, and information of the website may be obtained by visiting bv.com or by contacting bv@bv.com



ISO45001/OHSAS 18001

Bureau Veritas Certification

Shanghai Autocraft Co., Ltd.
No. 158 Nantu Highway,
Pudong New Area, Shanghai, P.R.China
Unified social credit code: 91310000791518037B

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below:

ISO 45001:2018
Scope of certification

MANUFACTURE AND SALES OF COLD FORMED PARTS, FASTENERS, PROCESSING OF WIRE, HEAT TREATMENT AND SURFACE TREATMENT OF METAL PARTS

Original cycle start date:	10-08-2018
Expiry date of previous cycle:	NA
Certification / Recertification Audit date:	NA
Certification/Recertification Cycle Start Date:	00-06-2021

Subject to the continued satisfactory operation of the organisation's Management System, this certificate expires on: **00-06-2024**

Certificate No.: CN037279 Version: 1 Issue Date: 06-06-2021

Certification Body Address: 20th Floor, 40 Fleet Street, London, E1 1HQ, United Kingdom
Local Office: No. 2, P4, No. 1086, Waima Road, Hongqiao District, Shanghai, China, 200111

Further information regarding the scope and validity of this certificate, and the applicability of the management system requirements, please visit: uk.as or bv.com

Further information how to interpret and manage non-conformances, how this certificate can be withdrawn, and information of the website may be obtained by visiting bv.com or by contacting bv@bv.com



Quality Assurance - Awards

1. Caterpillar gold supplier, platinum supplier...since year 2012.
2. Komatsu Shangdong Bulldozer Group excellent supplier 2022.
3. JAC Automotive Company Excellent Supplier Award since year 2016.
4. Chang'an Automobile Company Excellent Supplier Award year 2022.
5. Würth Excellent Supplier Award 2017
6. Excellent Quality Award from Shanghai Automotive Gear Works
7. Excellent Supplier of SANY Heavy Machinery Group
8. Excellent and Reliable Supplier Award from Würth Group.
9. Product quality award from Bossard.



THANK YOU!

