WÜRTH

# WÜRTH IS QUALITY EVERYWHERE AND EVERY TIME

# INTRODUCTION

- **Würth International Trading (Shanghai)** performs the central purchasing function for the Würth Group. We offer a variety of products including chemicals, work protection, automotive equipment, lighting, material treatment, power tools, hand tools, fasteners, measuring tools, furniture fittings and much more. The active supply chain consists of over 400 suppliers.

- **THE GOAL** of our quality assurance department & lab is to assess the quality of the products, ensure they fit the customer and market requirement, and to confirm that the products are compliant with local regulation.

- Our quality team consists of 10 quality engineers which have an average of **15 YEARS OF EXPERIENCE** within the Würth Group. The collective experience of our quality engineers allows Würth International Shanghai to be experts on a wide range of high quality products and categories.

- Using a 2 million Euro investment, **THE QUALITY ASSURANCE LAB** of Würth International Shanghai was established in 1997. The original function was the testing of fasteners, but as time went on testing capabilities increased for work protection with tests such as abrasion level as well as cut, tear, and puncture resistance. We also perform chemical tests - Determination of chromium(VI) on leather gloves. For work lighting, we can test the life cycle of the products as well as how many lumens the bulb/LED is producing. For material treatment, we can perform life cycle testing for cutting and grinding discs as well as many other test in other fields. Our main strategy is to do in house testing of key characteristics to avoid the time consuming and expensive process of 3rd party testing.

The management of the quality assurance department & lab is ISO 9001:2015 certified. Additionally, our lab is a participant in the Round Robin test (ref. to ISO 17025) led by AWKG every year.

- **THE MISSION** of the quality assurance department slightly changed in the year 2019. The tasks of SQEs (Supplier Quality Engineer) have increased from simple pre-shipment inspections to audits and supplier development. SQE activities now include supplier audits and development. **THE FOCUS** has shifted to the assessment of production quality and capability of our suppliers. The Würth academy is a strong supporter and offers SQE training which helps us improve our personal ability. The training also allows us to be competent in quality activities and maintain the quality standards of the Würth Group.

In this brochure, we want to provide an overview of the people and instruments with whom we are working with in the following areas:

- Supplier Audit and Qualification
- Supplier quality development
- Pre-shipment inspection (PSI)
- In-production Quality control (IPQC)
- Laboratory testing
- Quality complaint handling & judgement

We live up to the "Würth is Quality - Everywhere and every time" statement. We take the initiative to provide **ALL-ROUND** quality support to the Würth Group and its customers.

Sincerely,

**Steven Xu**

# CONTENT

# QUALITY MANAGEMENT OF WÜRTH INTERNATIONAL TRADING (SHANGHAI)

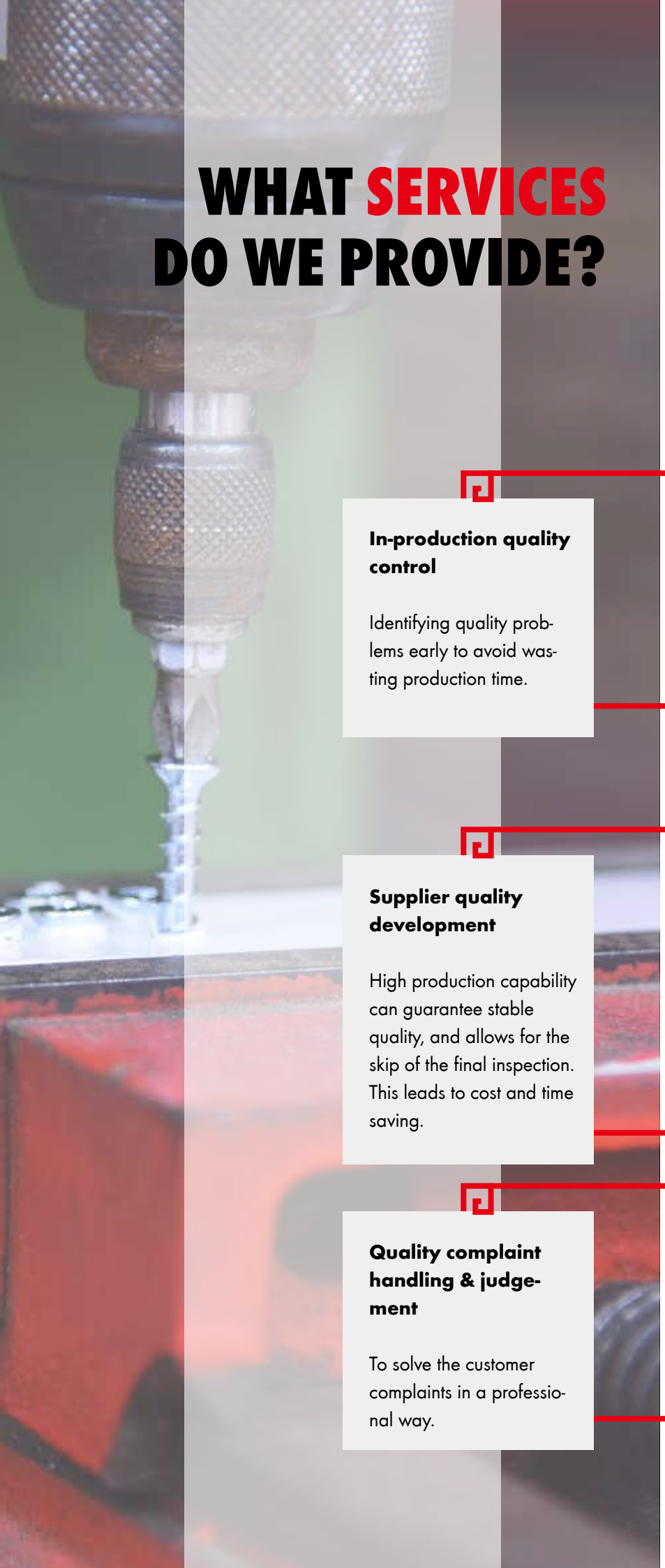
When the company was established in 1995, it was decided to have our quality management system certified in accordance with DIN EN ISO 9001 by the third party institution TÜV SÜD certification agency. TÜV SÜD provides internationally-accredited, independent product testing services in accordance with international standards.

DIN EN ISO 9001:2015 uses an approach which incorporates the Plan-Do-Check-Act (PDCA) cycle and risk-based thinking. Our process-oriented quality management system help us integrate departments. This allows us work together to avoid conflicts, increase efficiency, ensure good employee satisfaction, and win more customer satisfaction. Using risk as a starting point for all areas reduces the chances of our company making a mistake.

The important elements of this system include the following:

- Determining customer satisfaction
- Evaluating effectiveness by the company management
- Continual improvement of the processes using internal audits
- Ensuring production quality through systematic and consistent testing
- Fair evaluation of suppliers
- Efficient complaint processing for monitoring of our products on the market
- Initiative for continual improvement of work routines to increase customer satisfaction

**Contact:**
**Steven Xu**
**T (+86) 21 3849 9566 Ext. 1290**
**Steven.Xu@wurth-international.com.cn**



# WHAT SERVICES DO WE PROVIDE?

**Supplier audit & qualification**

To have a stable and sustainable supply chain from the start.

**In-production quality control**

Identifying quality problems early to avoid wasting production time.

**Pre-shipment Inspection**

Avoiding high cost which would result if the end customer found the defects in the quality of the products.

**Supplier quality development**

High production capability can guarantee stable quality, and allows for the skip of the final inspection. This leads to cost and time saving.

**Laboratory Testing**

To have an effective understanding of Würth product, through extensive internal testing with professorial equipment. This provide cost saving for the group.

**Quality complaint handling & judgement**

To solve the customer complaints in a professional way.

# SUPPLIER AUDIT AND QUALIFICATION

As one of the purchasing companies, a stable supply chain is the basis for providing high level products and services. Therefore, the entry of each new supplier is based on a satisfactory result of the supplier audit which is carried out by our trained auditor.

We work closely with our mother company Adolf Würth GmbH & Co. KG (AWKG)'s key audit team. We follow their standardized questionnaires which allows us to share information and combine our knowledge about the Group's Supplier Base.
In addition, we also actively participate in QCC (Quality Competence Center) meetings of the group to share knowledge, academic exchanges and unify actions.

# REMOTE SOLUTION FOR SUPPLIER AUDIT

**A remote audit is an auditing form where activities are performed from a location that is different from the auditee´s. It is conducted with the support of third-party companies who can provide suitable software and hardware.**
**This is a different approach to the traditional on-site audit activities and it offers various benefits, such as audit options for areas that are difficult to reach due to travel restrictions or political reasons. Furthermore, a remote audit significantly shortens the planning time, as no travel is needed.**


**Remote solutions will also be of great help to companies in other application areas, such as:**

- **Train new auditors**
  Allows multiple participants to enter the remote auditing room to understand and learn the entire process of auditing. Videos can also be used as training material afterwards.

- **Customer complaint handling**
  For some product quality complaints, two-way communication is used to understand the problems encountered by customers, understand their applications, and provide solutions.

- **New product introduction, technical support**
  Provide online support and explanation for the introduction of new products or when customers need help.

# IN-PRODUCTION QUALITY CONTROL (IPQC)

For orders that have very strict delivery deadlines, such as orders for the promotional season, missing delivery dates may result in cancelled orders and huge losses.
Therefore, for such case it is necessary to control not only the quality via pre-shipment inspection but also the delivery time via in-production quality control (IPQC).

When the supplier's internal production order is completed - our inspector formulates an IPQC plan. The inspector goes to the factory several times to inspect semi-finished products and parts at key production steps. They continue to monitor the production process to ensure product quality and that the product will be delivered on time.

# PRE-SHIPMENT INSPECTION (PSI)

Pre-shipment inspection is an important quality control function mainly used for new suppliers and suppliers with high quality risks. Our inspectors go to the factory to evaluate samples by themselves after mass production is finished.
The inspector then carries out the inspection according to product standards and product compliance. All nonconforming goods are rejected.

Through this process, we can prevent the non-conforming goods from being delivered to customers in order to avoid additional losses.
Additionally, we provide this pre-shipment inspection services to other companies in the group. Our team can cover most of products range the group has.

# SUPPLIER QUALITY DEVELOPMENT

The goal of the supplier development is to ensure the product and process quality, environmental obligations, and the overall quality management of our suppliers which have to meet our high standards. We strive for long-term cooperation with our partners and reduction in nonconformity cost. We carry out the following supplier development activities; follow-up of supply audits, trouble shooting of quality complaints, and new product development.

Our main activities include helping the supplier improve their production process capability, creating a sufficient traceability system, and advising on risk minimization. Product quality comes from planning and production, not from inspection. Through effective supplier development activities, we can reduce the frequency of our own final inspections efforts.

# ALL ROUND SUPPORT

Würth's high demand for quality is stressed at the very beginning of the supply chain. In addition to product and service quality, Würth also stresses the reliability of delivery time. We offer flexible reactions to product deviations, resource efficiency and sustainability, as well as cooperate with social responsibility.

# SUPPLIER QUALITY DEVELOPMENT WITH GAMI SUPPORT

**Since 2012, Würth has been conducting projects together with Global Advanced Manufacturing Institute (GAMI). More than 15 suppliers have joined the activities which consist of trainings, workshops, round tables and expert groups. These activities help to increase the supplier's knowledge and capacity, which in turn contributes to an extraordinary supply chain quality.**

ResQ RESOURCE EFFICIENCY

**(2012-2015)**

SUSTAIN

**(2015 - 2018)**

ProTalent

**(2018 - 2021)**

**ResQ:**
Development and Qualification of the Chinese Supply Chain in Resource Efficiency.

- Material Efficiency
- Energy Efficiency
- Green Logistics
- Recycling
- Quality management

**Sustain:**
Improvement of Corporate Social Responsibility and Sustainability of Chinese Suppliers.

- Social Compliance
- Technical Compliance
- Labor Practices
- Lean Management

**ProTalent:**
Training of Chinese Engineers according to the standard of "German Engineering.

- Production Planning and Information Management
- Shop Floor Management
- Traceability
- Industry 4.0

**GAMI offers a broad portfolio of research and industry projects, as well as further education programs. GAMI also deals with classic topics such as sourcing and localization, supplier development or quality management, while also focusing on current developments such as Industry 4.0 or Artificial Intelligence.**

**GAMI in China was founded by the WBK Institute of Production Science of Karlsruhe Institute of Technology. They provide advanced methods and concepts to reach operational excellence.**

### 5S Implementation Guideline

5S is the name of a workplace organization methodology that uses a list of five Japanese words, which are **Seiri, Seiton, Seiso, Seiketsu and Shitsuke**. The list describes how to organize a workspace for efficiency and effectiveness by identifying and storing the items used, maintaining the area and items, and sustaining the new order.

### Pareto Diagram Tool

A Pareto Diagram is a graph that indicates the frequency of defects, as well as their cumulative impact. Pareto Diagrams are useful **to find the defects** and to prioritize in order to realize the greatest overall improvement.

### Ishikawa Diagram Format

Ishikawa diagrams, also called fishbone diagrams, are causal diagrams that show the **potential causes of a specific event**. In a manufacturing setting, these are often displayed according to the 5 M (Man, Machine, Material, Method, Measurement).

### FMEA Excel Tool

Failure Modes and Effects Analysis (FMEA) is a systematic, **proactive method for evaluating a process** to identify where and how it might fail. FMEA used to assess the relative impact of different failures, in order to identify the parts of the process that are most in need of change.

### VSM Guidelines

Value-stream mapping (VSM), visualizes the material and information flow in a company. It is a **lean-management method for analyzing** the current state and designing a future state for the series of events that take a product or service from the beginning of the specific process until it reaches the customer.

### Cost Benefit Analysis for Machine Maintenance

With the help of **cost benefit analysis**, it can be determined which of the different maintenance strategies, namely corrective, preventive, risk-based and condition-based maintenance, should be conducted for which asset.

### Customized Rapid Plant Assessment Tool

The Rapid Plant Assessment (RPA) process is a manufacturing plant assessment tool which is used **for quickly assessing a plant's performance** from a lean, operational perspective. These results give plant leaders an accurate gauge of the plant's strengths and weaknesses, and initiates a process to determine where further analysis or improvements should be made. The analysis can also serve as a benchmark from which to start measurable, lean process improvements.

### Std. 8D Report

The 8D methodology uses a structured **eight-step approach to problem solving**. The objective is to face the problem and discover the weaknesses in the management systems that permitted the problem to occur in the first place. The output of an 8D process is an 8D report. The steps in 8D Report are also called "disciplines," hence the name 8D Report.

### Quick Changeover Data Collection Sheet

Quick changeover is critical to any company wishing to implement One-Piece-Flow and eliminate waste. Therefore it is important to eliminate non-essential operations, to externalize as many changeover steps as possible, simplify the internal processes, and measure the effects based on the collected data **to increase the system output efficiency**.

### Pairwise Comparison for Supplier Selection

Pairwise comparison generally is any process of comparing entities in pairs to judge which of each entity is preferred, or has a greater amount of some quantitative property. In the supplier selection process, it is often used to **identify the supplier** which matches best to the necessary requirements of a manufacturing company.

# QUALITY COMPLAINT HANDLING & JUDGEMENT

For all product quality related complaints, information and samples from customers will be transmitted to the quality department. Our quality department will analyze the samples using our own laboratory or an external laboratory. The quality team will make complaint judgement and issue a complaint report. The team actively participates in customer communication and supports the customer service to resolve complaints reasonably.

All our customer complaints are documented and processed through SAP.
Every justified complaint activates our Supplier Quality Development (SQD), and in some cases may activate the continuous production-improvement process of the product manager.

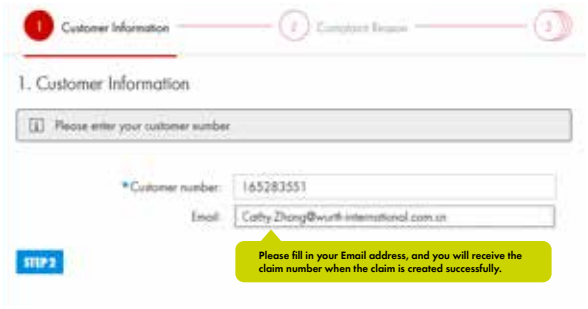
# QUICK GUIDE CUSTOMER COMPLAINT PORTAL UI5

**Website:** https://fl.witglobal.net/#ZComplaint-create

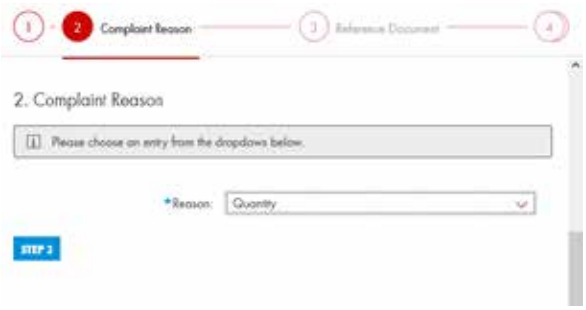
Through the new SAP/WS1 complaint portal, users can either via PC or smartphone register a complaint to Würth International Trading (Shanghai) Co., Ltd. or Würth International Trading (Singapore) Pte,. Ltd. in 5 simple steps.

**User name:** WN number
**Passcode:** RSA token password or WGS password, if connected with Würth Global Network (WGN)

**Step1:** Fill in the customer number and contact Email, and then click button "Step2"

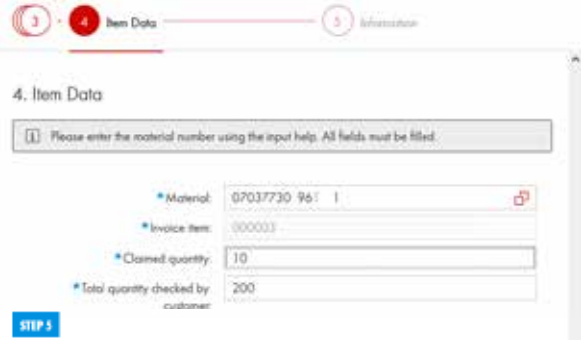



**Step2:** Choose the complaint reason, and then click button "Step3"

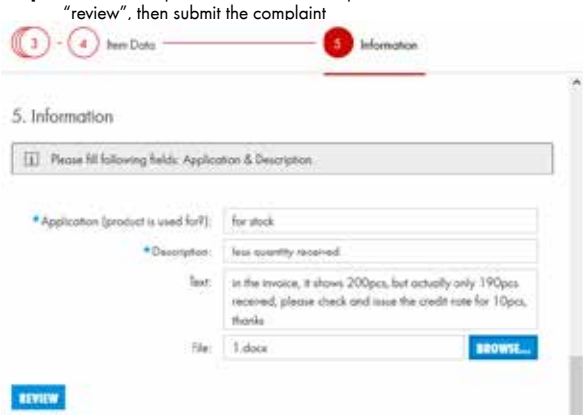


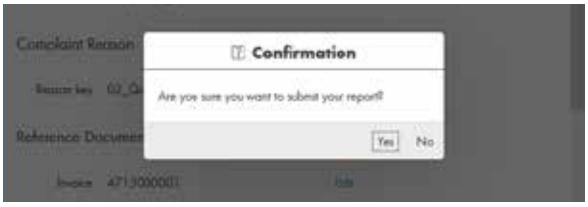

**Step3:** Fill in the invoice number, press "Enter" and click button "Step4"


**Step4:** Select the material number and fill in the complaint quantity, and then click button "Step5"




**Step5:** Give the complaint details, attach the picture and click button "review", then submit the complaint




If you have any question about the complaint portal, please contact the responsible customer service officer. Thanks.

# ALL-ROUND
# SUPPORT

## ALL ROUND SUPPORT

Along with the quantitative and qualitative growth of Würth, supplier development activities are continuously developed according to the expectations of its customers.

# LABORATORY TESTING

The task of the laboratory is to provide testing services, mainly for pre-shipment inspection, complaints, market investigation, and internal development of innovative products. The lab works very closely with the product manager, and accompanies the development of projects through practice-oriented test and determination of product requirement.

Our laboratory, established in 1997, is now fully equipped to test fasteners, gloves, auto bulbs, cutting/grinding disc, HSS drills, Furniture fittings and so on.

**Contact person:**

**Molly Wang**
**T (+86) 21 3849 9566 Ext. 1298**
**Molly.Wang@wurth-international.com.cn**

# LABORATORY EQUIPMENT

| Category | Product | Testing capability | Machine ID |
|---|---|---|---|
| **Material Treatment** | Cutting disc | Cutting performance ( G fact , Z fact ) - PA-02-210 | 001 |
| | | Axial run out - ISO 13942-8.2 | |
| | Grinding disc | Grinding performance ( G fact, Z fact ) - PA-02-310 | 002 |
| | | Axial run out - ISO 13942-8.2 | |
| | HSS drill | Geometrical check - DIN1414-1/2 | 003 |
| | | Hardness - HV/DIN 50133 | 004 |
| | | Material analysis (spectrometry) | 005 |
| | | Drill hole quality - PA01-113 | |
| **Hand Tools** | All varieties | Material analysis (spectrometry) | 005 |
| | | Hardness test Rockwell (HRC) | 006 |
| | | Metallographic test | 007 |
| **PPE** | Protective glove | Abrasion resistance - EN388 chapter 6.1 | 008 |
| | | Blade cut resistance - EN388 chapter 6.2 | 009 |
| | | Tear resistance - EN388 chapter 6.4 | 010 |
| | | Puncture resistance - EN388 chapter 6.5 | 010 |
| | Leather glove | Chemical determination of chromium(VI) - ISO 17075-1 | |
| **Chemical** | Silicon | Determination of the stability of sealants - PA51-001 | |
| | | Skin formation time - PA51-002 | |
| | | Curing time - PA51-003 | |
| | | Non-sag test - PA51-004 | |
| | | Adhesion test - PA51-005 | |
| | Aerosol | Pressure (bar) | |
| **Electronical** | Bulb | Colour temperature / Tc | 011A |
| | | Luminous flux / ∅ | 011A |
| | Auto bulb H1/H4/H7... | Life time test TC / B3 - IEC60810 | 011B |
| | Lithium battery product | Charge & discharge test | |

| Category | Product | Testing capability | Machine ID |
|---|---|---|---|
| **Auto** | Lashing belt | Textile webbings 1LC - EN 12195 | 012 |
| | | Complete web lashing 1.25LC - EN 12195 | 012 |
| | | Complete web lashing 2LC - EN 12195 | 012 |
| | | Textile webbings 3LC - EN 12195 | 012 |
| | Cable tie | Locking holding force - PA06-120 | 010 |
| | | Low temperature bend behavior | |
| | Balance weight | Shear force testing - PA07-300 | 013 |
| **Promo** | All varieties | Cooperative design compliance check | |
| **Fastener** | All varieties | Salt spray test - ISO 9227 | 014 |
| | | Material analysis (spectrometry) | 005 |
| | | Coating thickness test (X-Ray Method) | 015 |
| | | Hardness test Rockwell (HRC) | 006 |
| | | Hardness test Vickers (HV0.3/5/1/10/20) | 004 |
| | | Case hardening depth test (HV0.3) | 004 |
| | | Radioactivity measuring | |
| | Anchor | Pull-out test | 016 |
| | Bolt | Tensile strength for full-size bolts and screws M6 - M27 | 017 |
| | | Tensile strength under wedge loading of full-size bolts | 017 |
| | | Percentage elongation after fracture for bolts and screws M5 - M27 | 017 |
| | | Decarburization test - Microscopic method / Hardness method | |
| | Nut | Proof load test M6 - M27 | 017 |
| | Screw | Drill speed test for self drilling screws ST 3.5 – 4.8 | 018, 019 |
| | | Breaking torque test up to 150 Nm - PA04-101 | 020 |
| | | Bending angle test - PA04-103 | 020 |
| | | Screw-in-torque - PA04-400 | |
| **Furniture** | Slide drawer | Life test of slider drawer DIN EN 15338 | 021 |
| | Hinge | Life test of Euro hinge DIN EN 15570 | 022 |

# LABORATORY EQUIPMENT

## 001

**Automatic cutting disc test machine**

**Testing Item:**
G value( Performance factor) and Z value (Speed factor) of resin cutting wheel

**Testing Range:**
Test resin cutting wheel: diameter 100 mm - 180 mm

**Testing Method:**
PA 02-210
Time spent on each knife cut
Diameter before cutting and diameter after cutting for each knife cut

## 002

**Automatic grinding disc test machine**

**Testing Item:**
G value (Performance factor) and Z value (Speed factor) of resin grinding wheel

**Testing Range:**
Test resin grinding wheel: diameter 100 mm - 180 mm

**Testing Method:**
Set the test time to 6 minutes per round
PA02-310

# 003

**Microscope-quick vision**

**Testing item:**
Linear length, radians, angle

**Testing Range:**
Table size 400 mm x 280 mm
X coordinate stroke 0-250 mm display equivalent 0.001
Y coordinate stroke 0-150 mm display equivalent 0.001
Z coordinate stroke 0-100 mm (focusing stroke 80 mm)
Measurement accuracy E1XY = (1.5+3L/1000) μm
E1Z = (1.5+4L/1000) μm


# 004

**Vickers hardness test machine**

**Testing Item:**
Vickers hardness

**Testing Range:**
HV0.3/HV0.5/HV1/HV3/HV5/HV10/ HV20

**Technical Data:**
Objective lens:
10x with ring spacer
50x with ring spacer

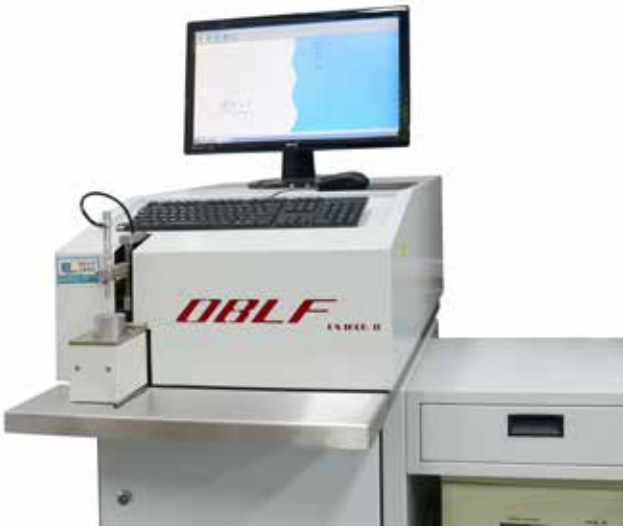
005

**Spectrometer**

**Testing Item:** Materials analysis

**Testing Range:**
4 types of metal materials:
Low-carbon steel
Carbon steel
Stainless steel
High speed steel and tool steel

**Measurable elements:**
Fe, C, Si, Mn, P, S, Cr, Ni, Mo, Cu,
Al, Ti, V, Nb, W, Co, B, Pb




006

**Rockwell hardness test machine**

**Testing Item:** Rockwell hardness

**Testing Range:** HRC/HRB/HR30N

**Technical Data:**
Dimensions of Specimen:
Max. height: 250 mm/395 mm (long type)
Max. depth: 150 mm from center of indenter shaft

Total test force: 588N (60kg), 980N (100kg),
1471N (150kg)


007

**Metallographic microscope**

**Testing Item:** Microstructure

**Testing Range:**
Stage Stroke:
X-axis 50 mm x Y-axis 50 mm
Center plate jack diameter: 110 mm

**Technical Data:**
Objective lens:
10x, 50x, 100x, 150x

# 008

**Abrasion testing machine**

**Testing Item:**
Abrasion resistance test

**Testing Range:** Glove

**Testing Method:**
EN388

**Technical Data:**
Weight 9kPa


# 009

**Cut resistant tester**

**Testing Item:**
Blade cut canvas test

**Testing Range:** Glove

**Testing Method:** EN388


**Technical Data:**
Cutting speed of the blade: (8 ± 2) cm/s
Horizontal movement: 50 mm
Blade rotates: 360°
A mass applied to the blade: (5 ± 0,5) N

Blade:
Diameter (45 ± 0,5) mm
Thickness (0,3 ± 0,03) mm
Cutting angle 30° to 35°
HV 700-720

# 010

**Universal tensile test machine 2tons (20kN)**

**Testing Range:**
It's applicable to measure the test load, displacement and deformation by means of tensile and compress.
For bolts M3-M6.
Cable ties, gloves, rivets,etc.

**Technical Data:**
Maximum test load: 20 kN
Grade of accuracy: 0.5
Relative indicate error of test load: within ± 0.5%

# 011 A

**Integrating sphere**

**Testing Item:**
Correlated color temperature
Color rendering index
Luminous flux
Illuminance

**Testing Range:**
Test various visible light sources

**Technical Data:**
AC
Visible light band: 380 nm -780 nm

# 011 B

**Life time test device of bulb**

**Testing Item:**
Life time test of Auto bulb

**Testing Range:**
H1, H4, H5, H7
DC0-30v

**Testing Method:**
IEC60810

**Technical Data:**
3 kinds of bulbs can be tested at the same time, each kind bulb can be tested 21 qty

# 012

**Universal tensile test machine 20tons (200kN)**

**Testing Range:**
It's applicable to measure the test load, displacement and deformation by means of tensile and compress.
For bolts M8-M16.
Lashing belt

**Technical Data:**
Maximum test load: 200 kN
Grade of accuracy: 0.5
Relative indicate error of test load: within ± 0.5%

# 013

**Tensile test machine1000N**

**Testing Item:** Test force

**Testing Range:**
Pull out force test of balance weight

**Technical Data:**
Resolution: 1/1000
Accuracy: 0.1%
Max.1000 N

# 014

**Salt spray chamber**

**Testing Item:** Salt spray test

**Testing Range:**
Product corrosion resistance test

**Testing Method:** DIN EN ISO 9227

**Technical Data:**
Studio temperature range:
35°C - 50°C
Temperature uniformity:
37°C - 55°C
Temperature fluctuation:
+/- 5°C
Spray characteristics:
Tower spray

# 015

**Coating thickness tester**

**Testing Item:** Coating thickness test

**Testing Range:**
For measuring coating thickness and for analyzing materials in the solid state in the element range titanium (Z = 22) to uranium (Z = 92), and for analyzing electroplating sloution for two different metal ion types.

**Technical Data:**
Effective internal dimensions: width = 460 mm, depth = 500 mm, height = 300 mm
Effective distance between X-ray head and stage = max. height of the test piece: upper: 300 mm, mid: 235 mm, lower: 170 mm
Test spot may be recessed up to 90 mm

# 016

**Pull out device**

**Testing Item:** Pull out force of anchor

**Testing Range:**
Anchor M5-M16

**Technical Data:**
Scale from 0 to 100 kN
Unit of reading: 0.06 kN

# 017


**Universal tensile test machine 60tons (600kN)**

**Testing Range:**
It's applicable to measure the test load, displacement and deformation by means of tensile and compress. For bolts M6-M27.

**Technical Data:**
Maximum test load: 600 kN
Grade of accuracy: 0.5
Relative indicate error of test load: within ± 0.5%

# 018

**Drilling time test device Urban I**

**Testing Item:** Screw-drilling test-unit

**Testing Range:** Würth febos screw

**Testing Method:** PA-04-435

**Technical Data:**
Shaft diameter: 3.5 - 4.8 mm
Head diameter: 7.0 - 9.0 mm
Length: 10.0 - 40.0 mm
Appliance connection: R 1/4“
No-load speed: 4000 RPM


# 019

**Drilling time test device Urban II**

**Testing Item:** Screw-drilling test-unit

**Testing Range:**
Würth assy screw
Würth window screw
Drywall screw

**Testing Method:**
Würth assy screw: PA-04-407
Würth window screw: PA-04-408
Drywall screw: PA-40-402

**Tehnical Data:**
Appliance connection: R 1/4“
No-load speed: 4000 RPM


# 020

**Schatz torque test device**

**Testing Item:**
breaking torque
screw-in torque
bending angle

**Testing Range:**
Chipboard screws
Self - tapping screw
Drywall screw
Fast-construction screws
Screwdrivers

**Technical Data:**
Torque: 0 - 149 NM
Dissolution: 0.1 NM
Turning angle: 0 - 360°
Dissolution: 0.1°

# 021

**Life test device of slide drawer**

**Testing Range:**
Double wall drawer
Undermount slides
Ball bearing slides
Single wall drawer

**Technical Data:**
Nominal length
400 mm and 450 mm

# 022

**Life test device of hinge**

**Testing Range:**
Euro hinge

**Technical Data:**
Opening and closing angle:
Max. 95° to 165°

**"THOUGHT" is NOT said...**

**"SAID" is NOT listened...**

**"LISTENED" is NOT understood...**

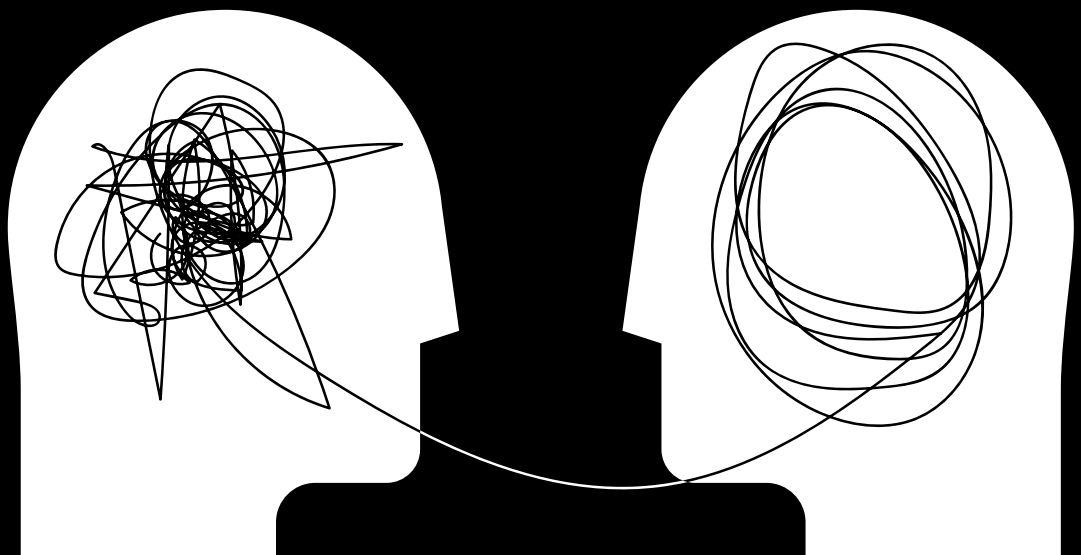
**"UNDERSTOOD" is NOT wanted...**

**"WANTED" is NOT can...**

**"CAN AND WANT" is NOT done...**

**"DONE" is NOT kept up...**

— in anl. Konrad Lorenz (1903-1989), österreichischer Verhaltensforscher, 1973 Nobelpreis



# WÜRTH IS QUALITY

# EVERYWHERE AND EVERY TIME

Würth International Trading (Shanghai) Co., Ltd.
Capital of Leaders – Building 9
Zhangdong Road No. 1387
201203 Shanghai, P. R. China
T +86 21 3849 9566
F +86 21 3849 9560
info@wurth-international.com.cn
www.wurth-international.com.cn


Design Number:
MA-2020-4011-210319 © •




**Shanghai, P.R. China**