VESSEL
Let us think.

Bits & Sockets presentation
Bits presentation Summary

- Introduction: History
- Bits Technology:
  - Configuration
  - Material
  - Heat treatment
  - Screw fitting
- Engineering Facilities
- Special Bits: Special inquiry form
- Manufacturing Capacities
- Logistics capacities
- SKU
- Applications
Introduction

Since 1916, VESSEL has been a Japanese leading manufacturing company of screwdrivers and bits.

1916
VESSEL factory founded
Hand screwdrivers production started

1933
VESSEL trademark registered

1954
Industrial bits production started

1961
Invented double-ended bits first in the world
and started the production and sales

1970
Enhanced the product line of industrial bits for professional use in the production and/or the assembly lines during Japan’s Rapid Economic Growth

2000
Launched problem-solving bits such as Torxian Bits and sockets

2010
Enhanced the product line of precision bits for the screw tightening in the small electronic devices and/or the precision instrument industries
Bits Technology: Configuration

Tips:
- ISO and JIS/JCIS Cross Recessed Standards
- Torx®, Torx Plus® licences

Drives:
- Wing Shank Ø4mm
- DIN Standards
Bits Technology: Differences between two standards

JIS No. 0  Japanese Industrial Standards (JISB4633)

Cross section X-X

Cross section Y-Y

JCIS No. 0  Japan International Cooperation System (JCIS9-70)

Cross section X-X

Cross section Y-Y
Bits Technology: Material

⇒ High Grade Materials

- Usage of each Metal Characteristics:
  - Carbon
  - Silicon
  - Magnesium
  - Nickel
  - Chrome
  - Vanadium
  - Molybdenum
  - And Many More!
Bits Technology: Heat treatment

⇒ Best Heat Treatment

- Hardness Large Role: **Durability** of the product
- Wear & Shock Resistance

![Heat treatment robot]

Unsurpassed Competitive Advantage in VESSEL Bits & Sockets Range

<table>
<thead>
<tr>
<th>HEAT TREATMENT CLASS</th>
<th>SCREWS TO BE FASTENED</th>
<th>TYPE OF FIELD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>X</strong> HIGHEST</td>
<td>PRECISION SCREWS, AUTOMATIC MOUNTING SCREWS, CONNECTING SCREWS</td>
<td>ASSEMBLY OF PRECISE EQUIPMENT, AUTOMATIC MACHINE SCREWING OF LIGHT ELECTRICAL APPLIANCE, HOUSING</td>
</tr>
<tr>
<td><strong>H</strong> HIGH</td>
<td>WOOD SCREWS, MACHINE SCREWS, SELF-TAPPING SCREWS, SELF-DRILLING SCREWS</td>
<td>ASSEMBLY OF LIGHT ELECTRICAL APPLIANCE &amp; AUDIO EQUIPMENT, BUILDING &amp; WOODWORKING</td>
</tr>
<tr>
<td><strong>G</strong> STANDARD</td>
<td>TAPPING SCREWS, MACHINE SCREWS</td>
<td>ASSEMBLY OF CAR, MACHINE PARTS &amp; WINDOW DOOR SASHES</td>
</tr>
</tbody>
</table>

VESSEL Standard

**VESSEL EUROPE - Bits & Sockets Presentation**
Bits Technology: Surface treatment

⇒ Surface Treatment

- Eliminate impurities from milling process
- Shot-Blast finish as Standard (“shiny metallic color”)
- Oil Bath preventing product corrosion
Bits Technology: Screw Fitting
Engineering expertise and testing facilities

- Microscope
- Contour Measuring Instruments
- Torque Testing
- Cam-out testing
- Automated Thread Fastening Machine
Special Bit Inquiries

All the required information to manufacture your suitable solution
Operator:
- Manual
- Automation Installed

Bit:
- Dimensions required:
  - Length: .......
  - Diameter: .......
  - Recess Diameter: .......
  - Recess Length: .......
  - Special (need drawing or samples)

Screw:
- Samples if available

General Purpose of the bits?
- General Information about the application:
- General Information about the environment (industry line, cleanroom, ...):

Tool:
- Fastening Mechanism:
  - Direct
  - Impact
  - Impulse
  - Controlled
- Fastening Torque: ........
- Fastening Speed: ........
- Drive specifications:
  - ¼” Hex
  - 3mm Hex
  - 8mm Hex
  - 11mm Hex
  - Screw Shank: ............
  - Special (need drawing of tools or bits / or samples)

Material:
- Samples if available
Manufacturing Capacities

24-hour unmanned operation with manufacturing systems for cutting-edge technology

- “Milling” process (Vs Forged)
- Continuous investments in best cutting machines
- In-House development
- Years of know-How in precision technologies
Logistics capacities
SKU

Industrial Bits

Product of Japan

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Applications

⇒ Precision Bits:

- Computers
- Acoustic Equipment
- Optical Equipment
- Office Automation (OA) Equipment
Applications

⇒ Power Bits:

- Construction
- Automotive Industry
- Wood Work
- DIY
- Other Industries