

Introduction Sumitomo Electric Interconnect Products (Hong Kong) Ltd.

住友电工 电子事业部

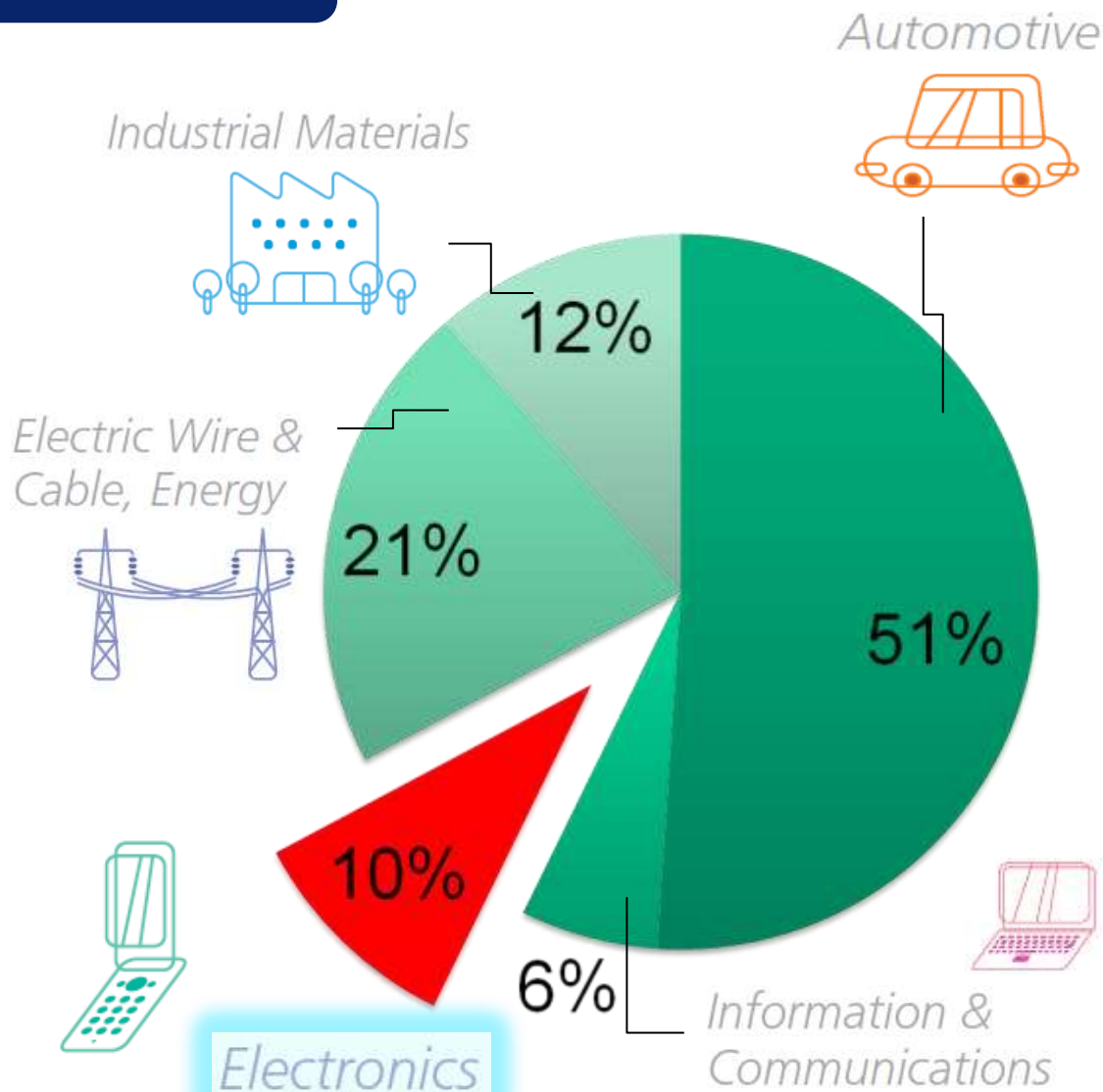
Confidential

住友电工

2,822
Billion JPY

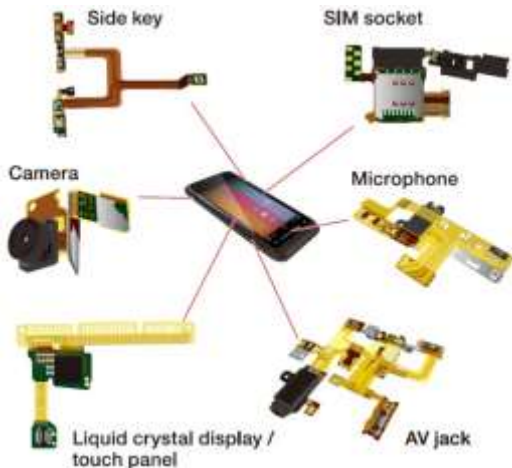
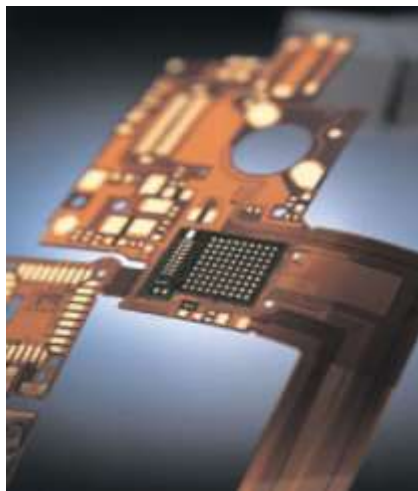
电子事业部

292
Billion JPY



(As of FY2014)

Supporting advancement in the functions and performance of electronics



SUMITUBE®



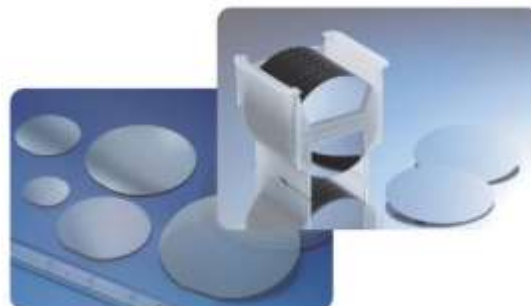
Polyimide Tube Rollers



Flexible Printed Circuits (FPC)



Thunderbolt Cables



Compound Semiconductors
(Gallium Arsenide / Gallium Nitride / Indium Phosphide)

Ni Alloy Wires for Engine Spark Plugs



SUMI-CARD®

Company Profile of SEPH

confidential

Name	Sumitomo Electric Interconnect Products (HK) Ltd.
Established	SEP 1995
Representative	Kazuto OGAWA (Managing Director)
Authorized Capital	HKD 648,000,000
Paid-in Capital	HKD 648,000,000
Employees	68 (as of JAN/2017)
Main Business	Selling and marketing of SEI Group's Product
Products	Wire (UL/Irrax/AVX Wire) and Cable (High-speed), CBA (MFCX), FFC, Tubes, FPC, Poreflon, Sumiflon, Magnesium Alloy, RGB Laser module, etc.
Sales office	SEPH-Taiwan, SSE-Shanghai/Shenzhen/ Beijing

SEPH Handling Products

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Heat Resistance (ARX9, AVX)



ARX9



AVX



Medical harness

MFCX Harness



VR Cable



Thunderbolt™



SumiCard™

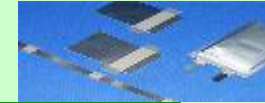


P0.5/Shield/HF



Steering Cable

Tab Lead



HF & Irrax™



LVCY



Shielded Wire

Cable Assembly

FFC/Tab Lead

Flexible HV



Wires & Cables

SEPH Products

FPC

New Products

Sumiflon

Sumitube

SumiTube™

HDD FPC

FPC SMT

Poreflon™
Module



Air-vent



Sumiflon

Mg Alloy



RGB Laser



Polyimide
tube
Roller



Irrax Tube



Irrax Sleeve



Mobile
Phone
FPC

Sumitomo Electric

用『两个字』描述一下 SEPH 是销售什么的公司？

连接

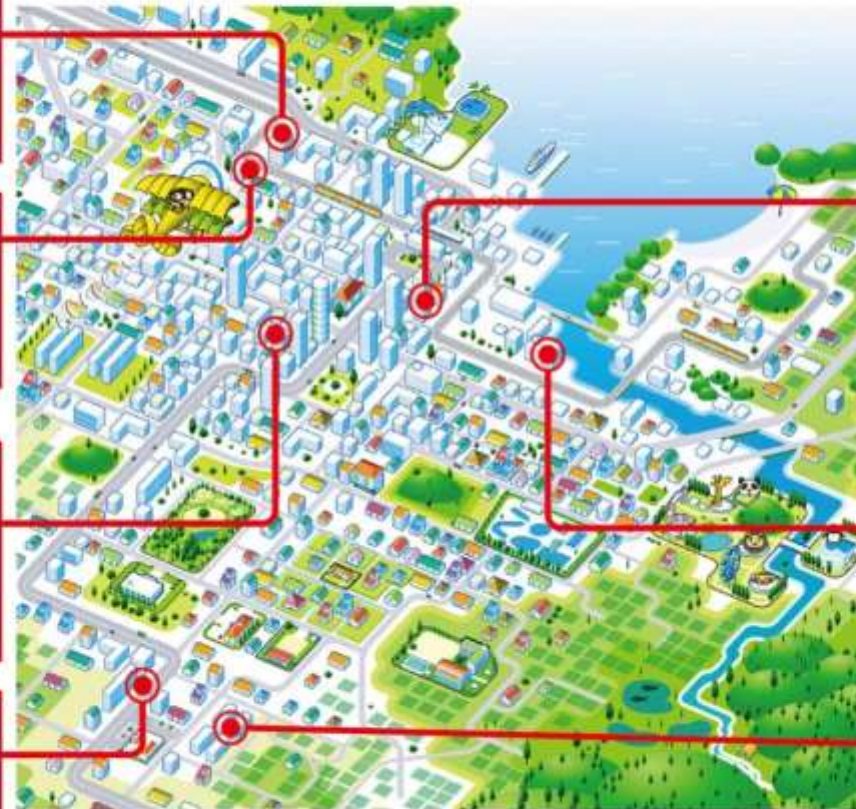
Connection

哪里会用到『连接』 — 我们的市场和客户

Confidential

インフラ&産業機器 / 产业基盘及产业机器

総合配線材メーカーとしての素材開発力を活かし、新しい社会インフラに対するソリューションを提供
作为综合配线材生产厂商发挥素材开发力,提供针对社会新产业基盘的解决方案。



哪里会用到『连接』 — 我们的市场和客户

Confidential

デジタル家電 / 数码家电

機器、使用部位に応じて最適形状、高機能、高信頼性の配線材ソリューションを提供
针对机器, 使用部位等的高嵌合度, 高机能, 高信赖性的特点提供配线材方案。



High Speed FFC
TYPE III -SS



LCD TV



Digital Camera



Micro Flex Coaxial
Harness



Copy Machine



Portable Game



Touch Pad FPC Assy



200°C Heat Resistant Wire



Game Box



FFC

哪里会用到『连接』— 我们的市场和客户

モバイル&周辺機器 / 移动终端及周边产品

筐体の薄型化・軽量化・高密度化、信号高速化に対応する最適配線材 / モジュール化技術を提供
针对框体的薄型化, 轻量化, 高密度化, 信号高速化提供最适合配线材 / 模块化技术



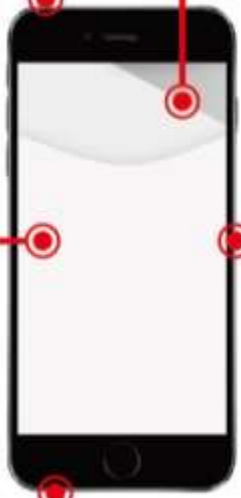
Micro Flex Coaxial Harness



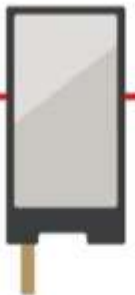
Tab Lead (For Battery)



Antenna FPC



Smartphone



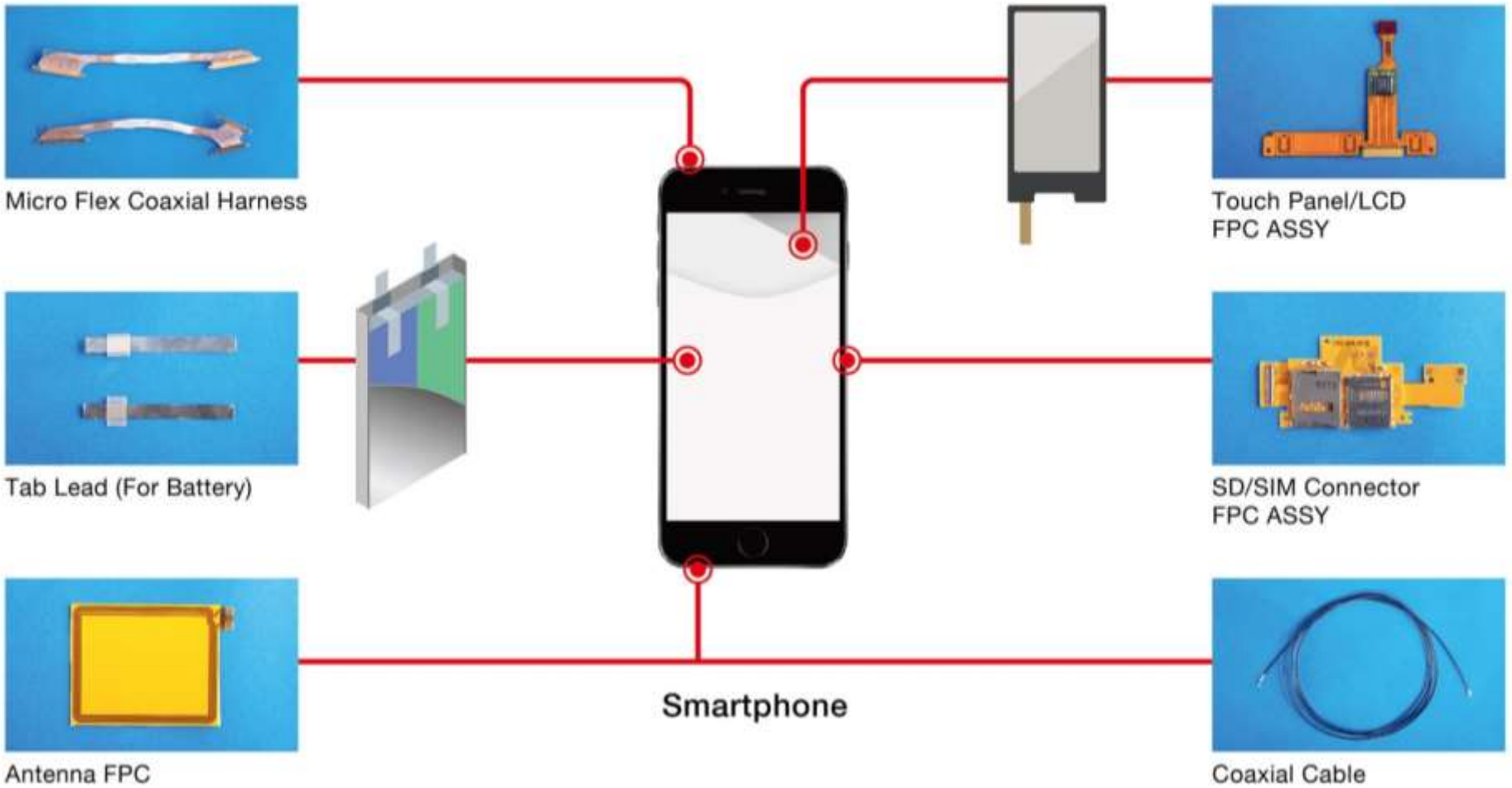
Touch Panel/LCD FPC ASSY



SD/SIM Connector FPC ASSY



Coaxial Cable



哪里会用到『连接』 — 我们的市场和客户

モバイル&周辺機器 / 移动终端及周辺产品

筐体の薄型化・軽量化・高密度化、信号高速化に対応する最適配線材 / モジュール化技術を提供
针对框体的薄型化,轻量化,高密度化,信号高速化提供最合适配线材 / 模块化技术



LED Assy FFC



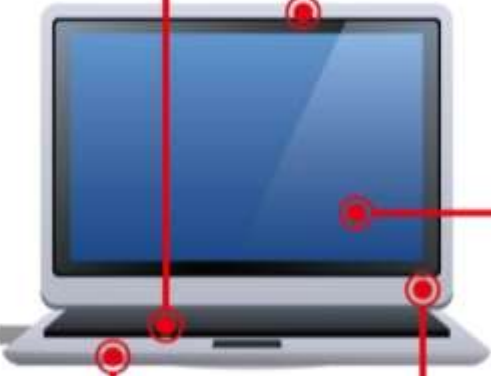
Mg Alloy



TypeC Harness



Smartphone



PC/Tablet



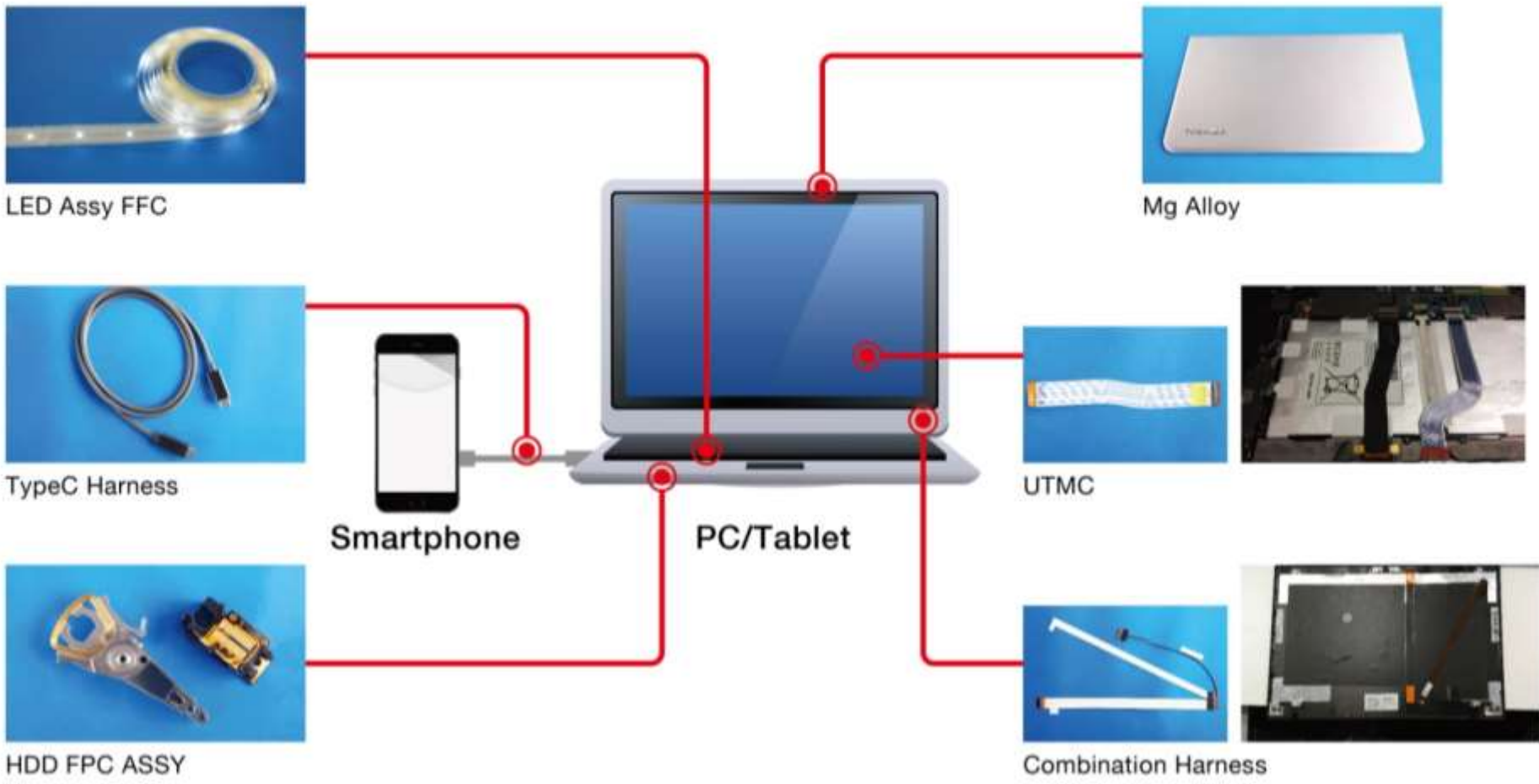
UTMC



HDD FPC ASSY



Combination Harness



哪里会用到『连接』— 我们的市场和客户

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自動車・鉄道車両・航空機分野

機械的強度、長期耐熱性、省スペース / 軽量化等のニーズにトータルソリューションを提供
针对机械的高强度, 长期耐热性, 节省空间 / 轻量化等需求提供整合解决方案。



Angle Sensor FPC



Pressure Sensor FPC



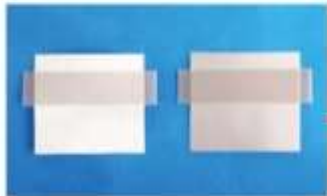
Audio/Navi FFC



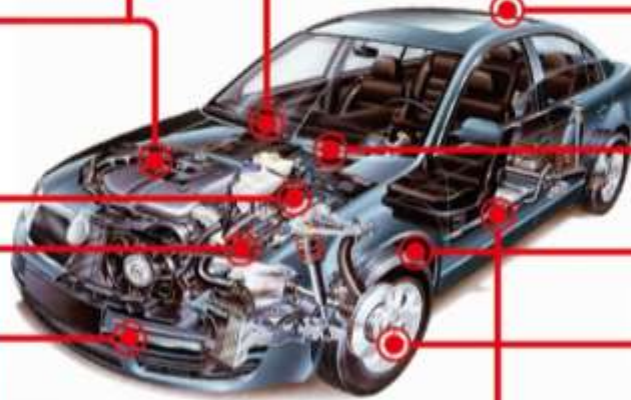
USB Harness



Coaxial Cable



Tab Lead



Sumitube 02



Millimeter Wave Radar FPC/FFC



EV/HEV High Voltage Wire



Irrax Tape VZL



Wheel Speed Sensor Cable



Sumitube SA3

哪里会用到『连接』— 我们的市场和客户

自動車・鉄道車両・航空機分野

日・米・欧での実績を活かした配線部材でソリューションを提供
通过发挥日,美,欧的产品实绩提供配线部材的解决方案。



Flexible Wire for railway vehicle



Sumi TAG



Sumitube STS



Irrax Sleeve SNHM



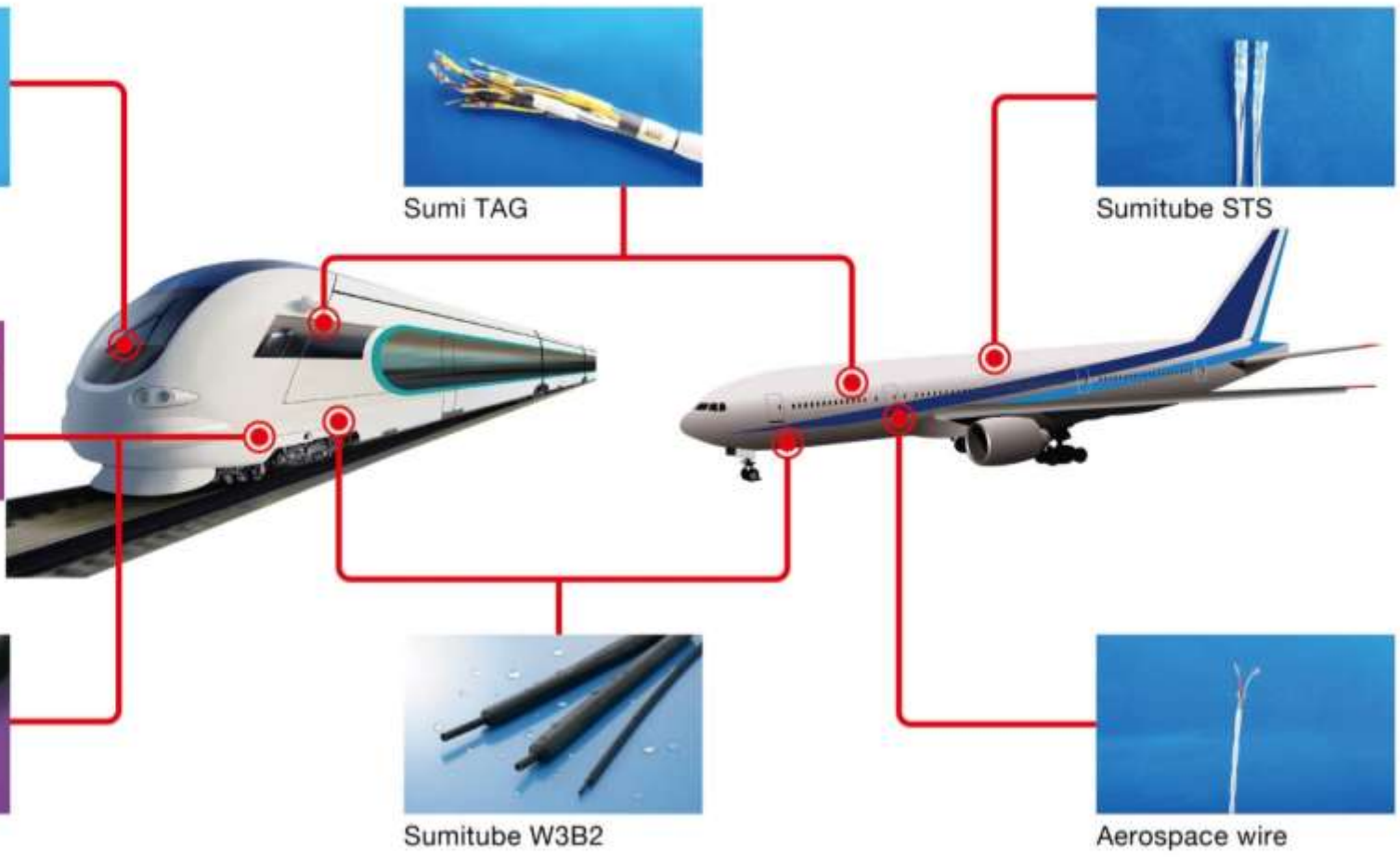
Irrax Tube NHR



Sumitube W3B2



Aerospace wire



住友电工电子事业部 — 我们的『连接』产品



绝缘电线

缠绕屏蔽线

同轴电缆

汽车电线、仪器电线

信息仪器电线

扁平化组件产品
(FFC、极耳等)

Thunderbolt 电缆

柔性印刷电路 (FPC)

布线材料



布线保护套管



电镀，合金线材



半导体



耐磨部件



PTFE材料



镁合金

车载 FPC 的应用

Sensor

- Oil pressure
- Pressure sensor
- Touch sensor



Oil endurance

High temperature

High voltage

Reliability

Design freedom

Easy assembly

- ▷ **connection**
- ▷ **function**
- ▷ **small space**

Flex Rigid

3D forming

White color

- safety equipment
- steering switch
- head up display

Power train

Low ϵr , Low $\tan \delta$ 3D forming

- Li-ion battery
- ECU



Antenna Radar

- Milli-meter wave radar



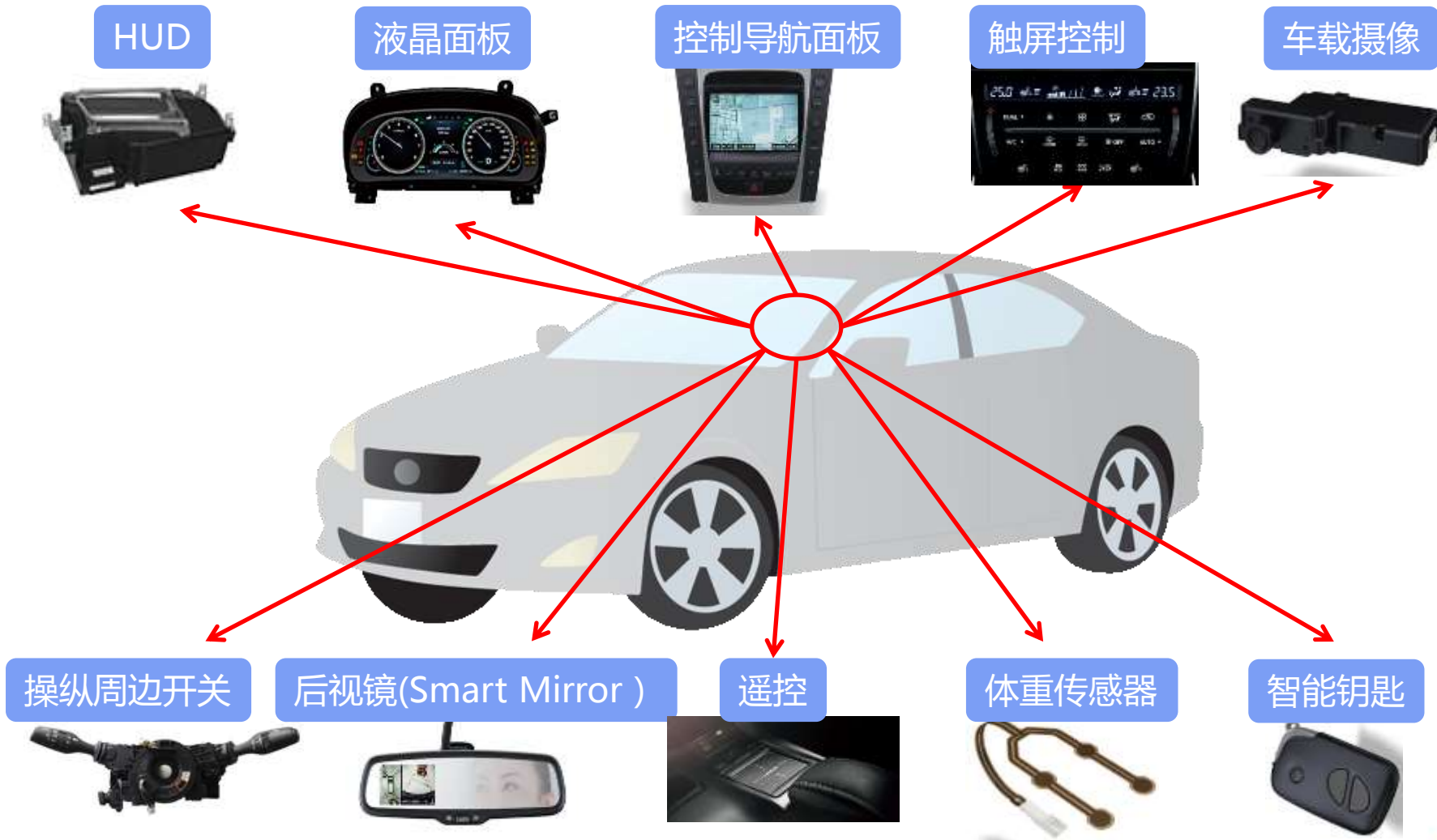
Lighting

- DRL
- Side indicators
- Rear combination



车载 FPC 搭载案例(箱内)

Confidential



车载 FPC 搭载案例(箱外)

传感器(压力传感, 转角传感等)



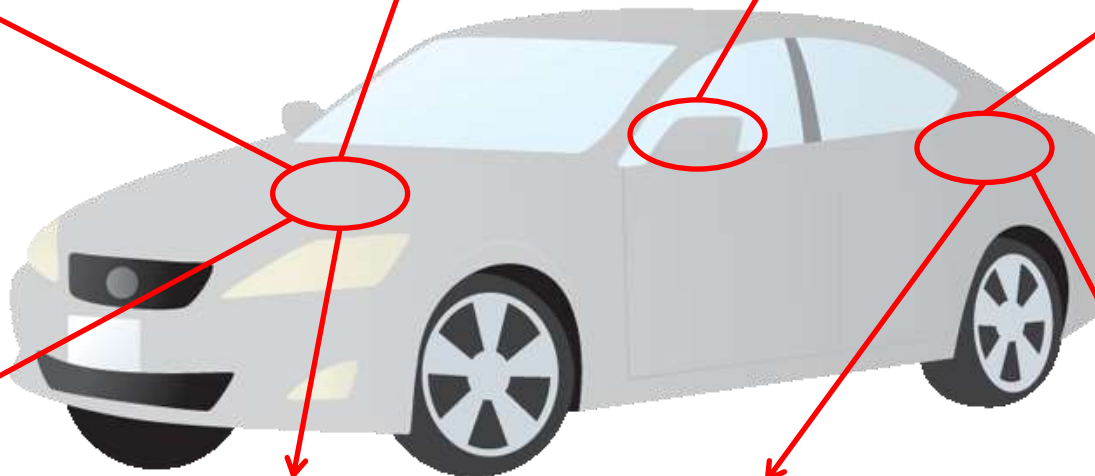
传动装置



侧镜



电池



防冲撞止雷达



装饰灯 (DRL)



变频设备



尾灯



Micro-coax 極細同轴电缆

Confidential

TM MFCX : Micro Flex Coaxial Cable



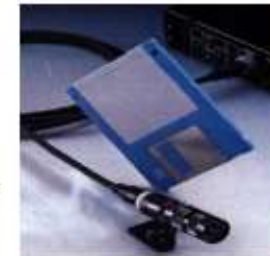
History of Micro-coax Applications

Confidential



Produced since 1984

- Ultrasound Diagnostics
- Medical/Industrial Endoscopes
- Miniature CCD Camera



Produced since 1998

- Notebook PC
- Digital Camera

Produced since 2003

- Mobile Phone

Produced since 2011

- HDMI, Thunderbolt

Produced since 2016

- VR(HDMI+USB), Drone



VR 向极细线束电线

VR HMD的障碍?

目前



只有住友可以解决各位所面临的问题

- 我们拥有**世界上最轻、柔软度最好的**线缆;
- 我们在VR接口端是最大的线缆和线束生产厂家;
- 我们的业务覆盖了日本、美国、欧洲和大中华圈;

极细线缆

一般 VR 线材

-- 都是散线在进行连接.....





VS

住友电工极细 VR
接口线材示例:




Transmission Speed of Various Interfaces


Communication

USB  

Version	Speed
1.0	12 Mbps
1.1	
2.0	480 Mbps
3.0	5 Gbps
3.1 Gen1	
3.1 Gen2	
	10 Gbps


PCI express 

Version	Speed
1.0 (Gen1)	2.5 Gbps
2.0 (Gen2)	5 Gbps
3.0 (Gen3)	8 Gbps
4.0 (Gen4)	10 Gbps


Thunderbolt 

Version	Speed
1	10 Gbps 5 Gbps x 2 lanes
2	20 Gbps 10 Gbps x 2 lanes
3	40 Gbps 20 Gbps x 2 lanes

Display

HDMI 

Version	Speed
1.0	1.65 Gbps / lane 3 lanes(4.95 Gbps) + Clock
1.1	
1.2	
1.2a	3.4 Gbps / lane 3 lanes(10.2 Gbps) + Clock
1.3	
1.3a	
1.4a	6 Gbps / lane 3 lanes(18 Gbps) + Clock
2.0	
2.0a	

DisplayPort 

Version	Speed
1.0	2.7 Gbps / lane
1.2	5.4 Gbps / lane
1.3	8.1 Gbps / lane
1.4a	

Speed required for Display [Gbps]

Number of Pixels	Frame Rate	Sampling		
		8 bit	10 bit	12 bit
2K 1,920 x 1,080	60 Hz	3.0	3.7	4.5
	90 Hz	4.5	5.6	6.7
	120 Hz	6.0	7.5	9.0
4K 3,840 x 2,160	60 Hz	11.9	14.9	17.9
	90 Hz	17.9	22.4	26.9
	120 Hz	23.9	29.9	35.8
8K 7,680 x 4,320	60 Hz	47.8	59.7	71.7
	90 Hz	71.7	89.6	107.5
	120 Hz	95.6	119.4	143.3

DP1.4a x 2 lanes

HDMI1.4

照射产品阵容

- **Sumitube[®]** : 薄壁 热收缩套管
- **Irrax[®] Sleeve** : 厚壁 热收缩套管
- **Irrax[®] Tube** : 耐热套管 (非收缩)
- **Irrax[®] Tape** : 胶黏 耐热胶带

产品用途案例

- ◆ 电气绝缘
- ◆ 机械的保护、张力缓和。
- ◆ 防水保护、灌装封口
- ◆ 防腐蚀保护
- ◆ 隔热保护

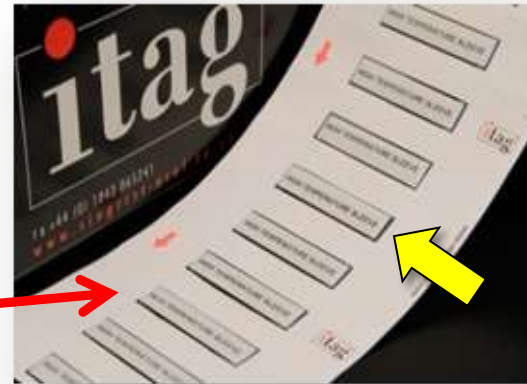


印字产品 SUMITAG

Confidential



- ◆ 在 **SUMITUBE** 上进行印字。
- ◆ 在 套管、标签纸、电缆标签上面也可以印字
- ◆ 印字机，印色带，SumiLabel 软件（打印系统）



套管



便签



标签



SumiTag Product Groups

Printers: Double-sided, single-sided and mini printers available.
 打印机：可提供双面，单面和小型打印机。

Wire Markers 电线标签

Single or Double Sided
单面或双面

- Military Spec. 军事规范
- Zero Halogen 零卤素
- Low Smoke LFH 低烟 LFH
- Diesel Resistant 耐柴油
- High Temperature 高温



Cable Markers 电缆标记

Tie-on for large cables
搭配上大电缆

- Military Spec. 军事规范
- Zero Halogen 零卤素
- Low Smoke LFH 低烟 LFH
- Diesel Resistant 耐柴油
- High Temperature 高温



Panel Markers 面板标记

Adhesive backed
粘合剂背衬

- Commercial Grade 商业级
- Low Smoke LFH 低烟 LFH
- Military Spec. 军事规范。



Applications 用途

Confidential

Anywhere where there is a cable!
在任何地方都會找到電纜！



Aerospace/Aviation

Aircraft, airlines, avionic products, satellite and space.



Military/Defence

Land, sea and air military vehicles/craft, weapon systems, radio communications.



Rail

Mass transit, rolling stock, track and signalling equipment.



Communications

Global carriers, infrastructure equipment, telecom manufacturers and network providers.



Electronics

Component, PCB and control panel manufacturers.



Marine

Commercial, industrial and military vessels.



Medical

Equipment, materials, hospital infrastructure.

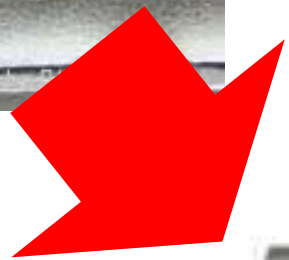


Power/Utilities

Oil & gas, generation and control equipment, offshore renewable energy, water.



**Magnesium alloy
az91D sheet**
**鎂合金
AZ91D板材**



**比其他鎂合金
強 1.5 倍**

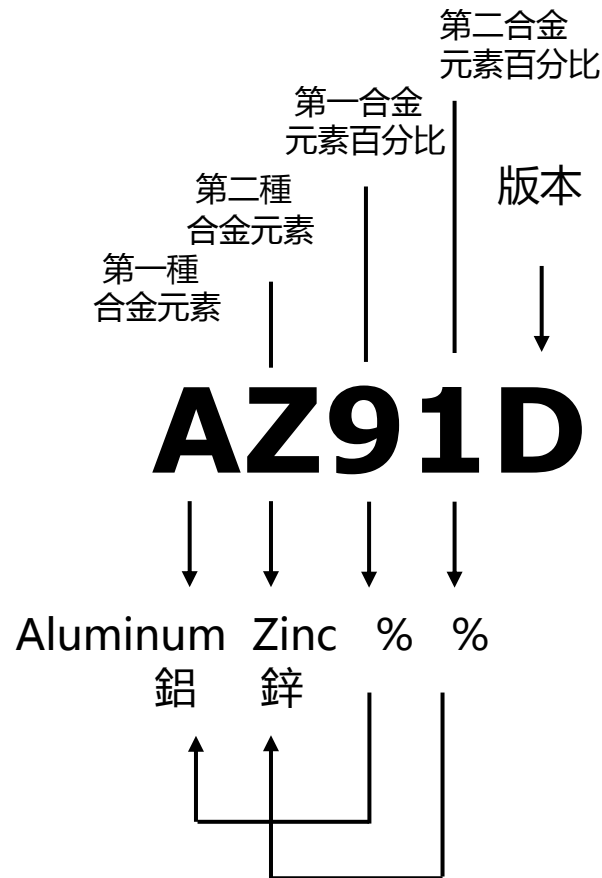


Marking of Magnesium Alloys

鎂合金的標誌

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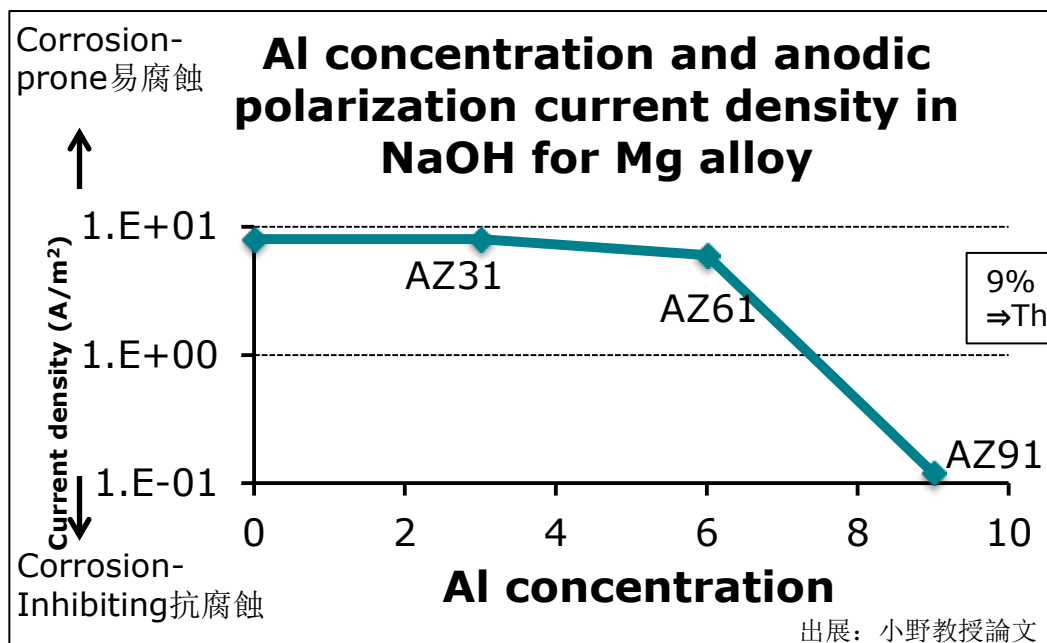
Convention for alloy elements designation
合金元素名稱的標誌慣例



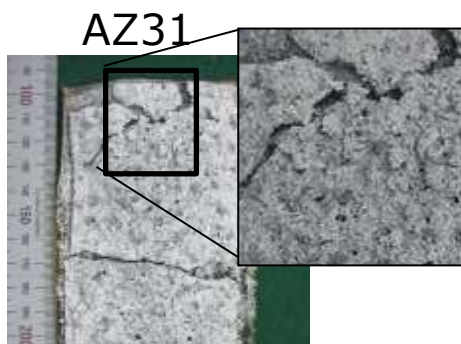
Letter 字母	Alloying Elements 合金元素
A	Aluminum 鋁
C	Copper 銅
E	Rare earth metal 稀土
H	Thorium 鈾
K	Zirconium 鋯
L	Lithium 鋰
M	Manganese 錳
Q	Silver 銀
S	Silicon 矽
Y	Yttrium 鉕
Z	Zinc 鋅

The corrosion resistance of various Mg alloy 各種鎂合金的耐蝕性

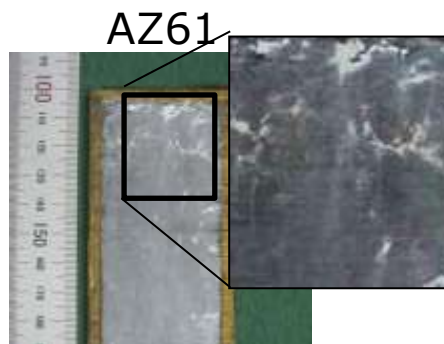
Confidential



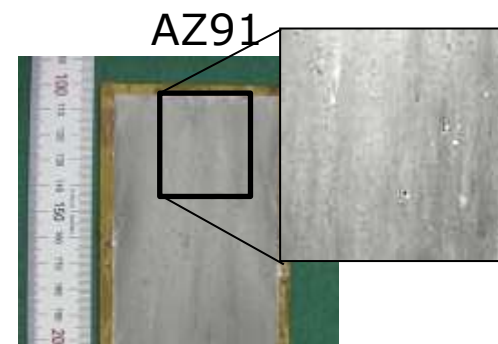
Exterior after 1200hr immersion in 5% NaCl aqueous solution



Intense corrosion of whole surface
強烈的腐蝕 整個表面



Intense local corrosion
局部強烈的腐蝕



Thin oxidation uniformly
均勻的薄氧化反應

Process Flow

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• Mg Sheet Process

Casting

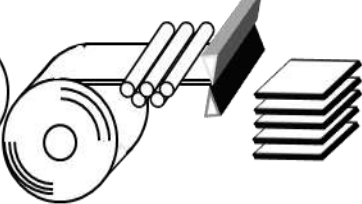
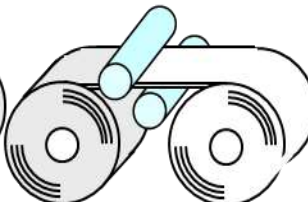
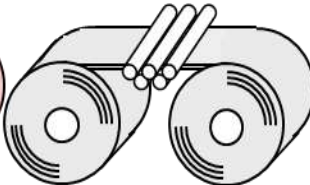
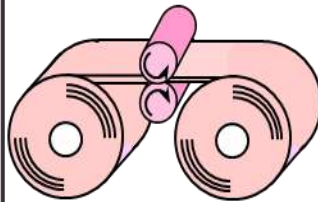
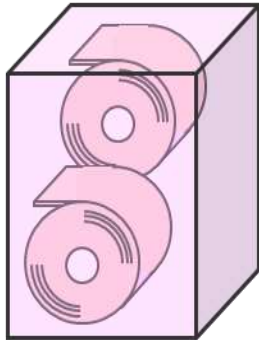
Heating

Rolling

Straightening

Grinding

Cutting

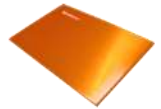
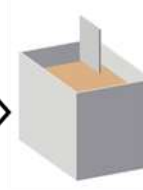
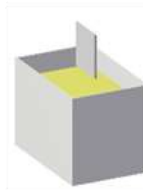
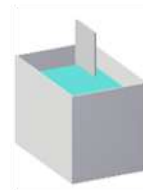
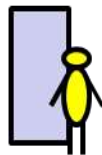
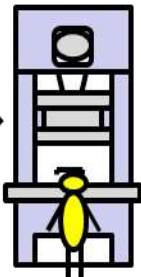
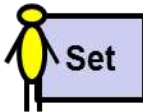


Itami Works , Japan

• Housing Process (Press & ED)

Press

ED(Electro Deposition)



These are what we can handle. 這些我們可以做到。

Confidential



