

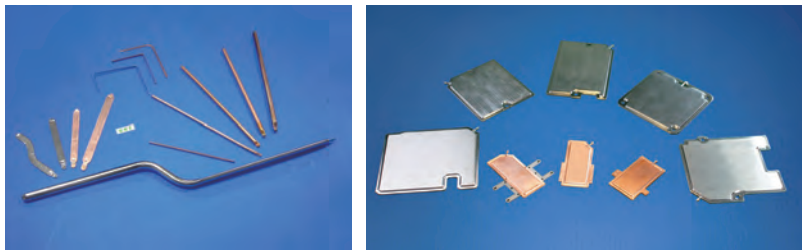


Thermal Management Device

导热/散热装置

In recent years, as the data amount handled in various fields has dramatically increased, and the amount of data stored in the cloud will increase explosively as it becomes a 5G (5th generation) environment. The speed of CPUs and electronic circuits has risen accordingly. Now, they are facing with heat generation problems. Through the collaboration with CCI, Nidec are proposing the thermal solutions that combine motors and thermal technology for our customers in world wide.

近年来，在各个领域中处理的数据量急剧增加，并且随着5G（第五代移动通信系统）环境的形成，存储在云中的数据量将爆炸性地增加。其结果，CPU和电路的运转将变得更快且产生发热问题。Nidec通过与CCI合作，为广大客户提供将电机产品和散热技术相结合的散热解决方案。



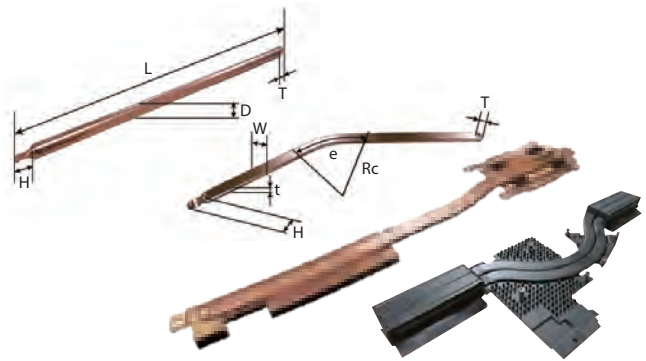
Heat Pipe / Module

散热管/模组

NIDEC CHAUN-CHOUNG TECHNOLOGY CORP.-P53

Heat pipe is high efficient thermal conduct component utilizing the latent heat of evaporation and condensation. It can be customized based on the application.

使用蒸发和冷凝潜热的高效传热组件。还可以根据实际机器的形状提供定制。



Vapor Chamber / Module

均热板/模组

NIDEC CHAUN-CHOUNG TECHNOLOGY CORP.-P53

The heat transfer principle is the same as heat pipes, but it can be thinner and spreads the heat flatly. Thus, in even limited space such as inside of smart phone, high efficient thermal transfer can be realized.

传热原理与热管相同，但可更薄且可在整面上传递热量。即使在智能手机内的狭小空间内，也可以进行有效的热传递。



Heat-Sink / Module

散热片/模组

NIDEC CHAUN-CHOUNG TECHNOLOGY CORP.-P53

Heat sink is a component which moves heat with a metal plate or copper tube and cools itself with a heat radiation fin or fan. Thermal design can be optimized based on application.

用金属板或铜管移动热量并用散热片或风扇进行冷却的组件。可以与实际机器相匹配实现最佳散热设计。



Liquid Cooling System

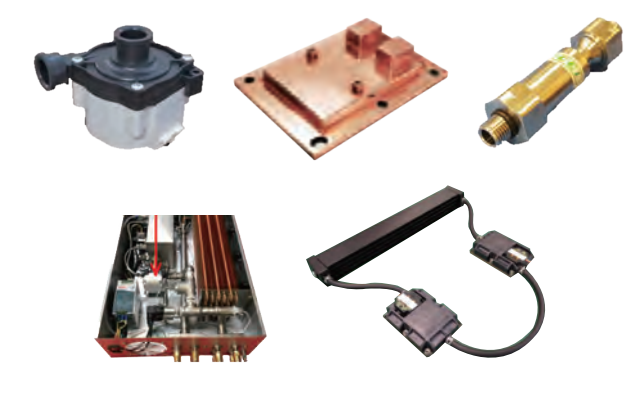
液体冷却系统

NIDEC SANKYO CORP.-P42

NIDEC CHAUN-CHOUNG TECHNOLOGY CORP.-P53

This is a cooling system for high heating elements which air cooling is not sufficient. In consideration of the thermal design of the entire rack, Nidec is proposing an entire cooling system that combines the optimal components (heat sink, pump, fan, etc.).

这是一种空气冷却不能满足需要时的用于高发热元件的冷却系统。我们基于整个机架的热设计，将最佳组件（散热器/泵/风扇等）组合，提供冷却系统整体方案。



Tactile Devices

触觉设备

WONDER SENSE

WONDER SENSE is a generic brand name of Nidec tactile technology. WONDER SENSE是尼得科的触觉技术的总商标。

Our Tactile devices creates realistic sense of touch on devices such as smartphones, smart watches and PC with its excellent vibration characteristics. We provide wide variations of devices for design flexibility of our customers.

本公司提供通过振动构建触感，振动性能优良且设计灵活的各种触觉设备。因其触觉效果佳而被众多智能手机、PC、智能手表所采用。



Physical Surfaces

物理表面



Physical Bump

物理凸起



Physical Hole

物理凹陷

Virtual Surfaces

虚拟表面



Virtual Bump

虚拟凸起



Virtual Hole

虚拟凹陷

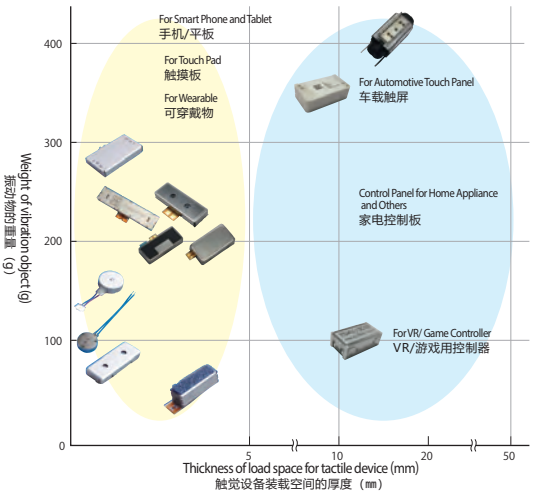
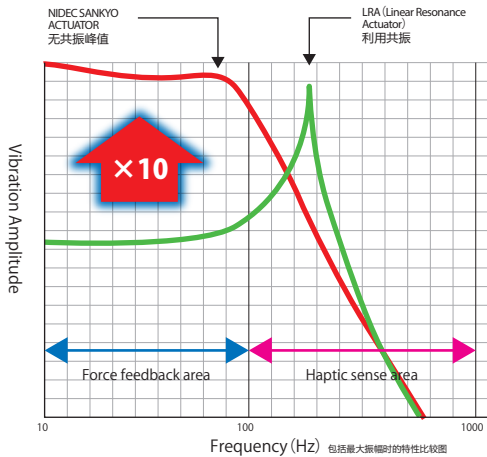
A wide range of product line up

丰富的产品阵容

NIDEC SANKYO CORP.-P42 NIDEC COPAL CORP.-P45

Nidec group can provide tactile for a wide range of devices used such as;
•Wearable, Smart phone and tablets, which requires "delicate sense"
•Touch panel for automotive
•VR/Game and others which require large feedback.

日本电产集团具有丰富的产品阵容，既可用于可穿戴设备，手机或平板电脑等具有细微感应的产品，也可满足车载触屏，VR/游戏等需要反馈较多的产品。



Name of Product 品名	Smart Phone / Wearable 智能手机/可穿戴设备															Game / Panel 游戏/面板		
	Sprinter A	Sprinter D	Sprinter X	Sprinter α	Sprinter β	Sprinter γ	Sprinter Z0825A	Sprinter Z	Sprinter Z1040	HPD	TDA112C07	J0000K21	CA3	CA7-VH5	CA7-VH9	TDA113C08	TDA111C12	SPEAR
																		
Size 尺寸	2.5t×6.0w 25.0L	3.0t×7.0w 20.0L	2.6t×6.0w 16.0L	3.0t×11.3w 20.0L	3.1t×7.4w 16.8L	3.8t×8.0w 15.0L	φ8.0×H2.5	3.5t×4.0w 12.0L	φ10×4t	φ8.0×H2.5	6.4t×14.6w 24.8L	2.0t×8.0w 15.0L	φ3.0×H10.7	φ6.55×H5.0	φ6.55×H8.8	10.3t×16.1w 30.4L	12.8t×23w 42L	15t×15.0w 35L
Frequency (F0) 频率 (F0)	150Hz	180Hz	190Hz	175Hz	200Hz	150Hz	240Hz	230Hz	170Hz	235Hz	1Hz~1KHz (No resonance)	190Hz	190Hz	170Hz	150Hz	1Hz~1KHz (No resonance)	120Hz	150Hz
Amount of Vibration 振动力 (100g)	2.4Grms	2.4Grms	1.6Grms	5.0Grms	2.5Grms	2.5Grms	1.0Grms	1.4Grms	2.2Grms	1.2Grms	0.27Grms (100Hz)	2.5Grms	0.125Grms	0.35Grms	0.625Grms	0.9Grms (120Hz)	4Grms	10Grms