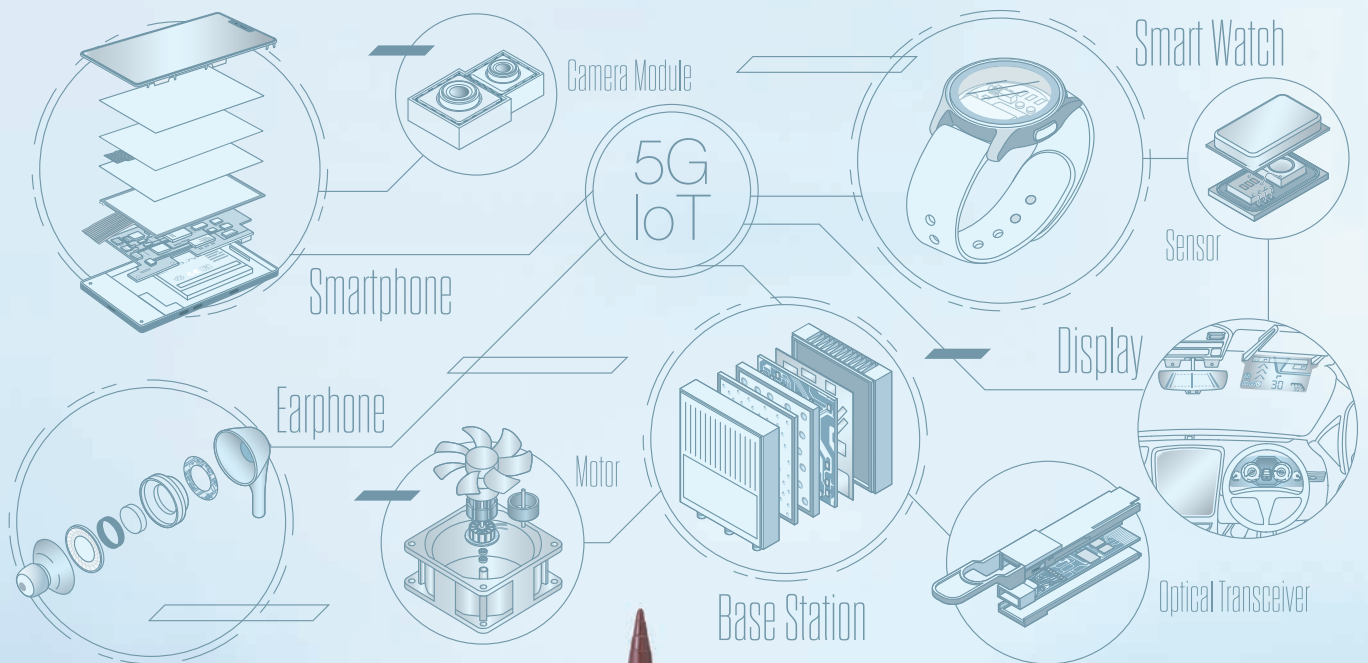


## Electronics related Products Guide



# DC Motor & Induction Motor

As the need for automation and labor saving increases, the number of small motors, which are key to their implementation, is also expected to increase. For the cases that requires high reliability, such as for robots, we can make proposals that are optimized for the operating environment.

## Motor with brush (DC, Universal)

### Commutator

Application	Bonding with shaft
Product	ThreeBond 1357K
Characteristics	1. High heat resistance (High Tg) 2. Fluorescence emission (Camera detectable) 3. Overflow can be UV-cured
Cure condition	Anaerobic curing (added UV curability)
Application	Coil fraying prevention
Product	ThreeBond 2235L
Characteristics	1. High heat resistance (High Tg) 2. Low linear expansion
Cure condition	Heat curing

### Case

Application	Case sealing
Product	ThreeBond 1160 ThreeBond 1226
Characteristics	1. High heat resistance 2. Rubber elasticity
Cure condition	Moisture curing

### Bearing

Application	Case and shaft bonding
Product	ThreeBond 1357K
Characteristics	1. High heat resistance (High Tg) 2. Fluorescence emission (Camera detectable) 3. Overflow can be UV-cured
Cure condition	Anaerobic curing (added UV curability)

### Stator core

Application	Adhesive lamination
Product	ThreeBond 1360F
Characteristics	1. High heat resistance (High Tg) 2. Low viscosity 3. Curing can be accelerated with primer (ThreeBond 1390 series)
Cure condition	Anaerobic curing

### Case

Application	Case sealing and adhesive
Product	ThreeBond 1535 Series
Characteristics	1. Strong adhesion to various materials 2. Rubber elasticity
Cure condition	Moisture curing

### Choke coil

Application	Fixing
Product	ThreeBond 1535 Series
Characteristics	1. Strong adhesion to various materials 2. Rubber elasticity
Cure condition	Moisture curing

### Rotor

Application	Balance weight
Product	ThreeBond 3084
Characteristics	1. High specific gravity (2.19) 2. High adhesion 3. Automation enabled through use of application equipment
Cure condition	UV curing

## Induction motor

### Coil winding

Application	Fraying prevention
Product	ThreeBond 1224G ThreeBond 2285
Characteristics	1. High heat resistance 2. High flowability
Cure condition	Moisture curing / Heat curing

### Screw

Application	Fixing
Product	ThreeBond 2400Series (Pre-coated bolts / MEC)
Characteristics	1. Adheres simply from tightening 2. Excellent durability 3. Strength variation available
Cure condition	Just tighten the bolts

# Brushless-DC Motor

Motors consume 50% of the world's electricity and increased miniaturization, rotation speed, and efficiency are progressing in response to demand for further increases in functionality. With these changes, the adhesives used require heat resistance and high strength.

## Inner rotor model

### Case

Application	Stator core bonding
Product	ThreeBond 2222P ThreeBond 2237J
Characteristics	1. High heat resistance 2. High thermal strength
Cure condition	Heat curing

### Magnet

Application	Split magnet bonding
Product	ThreeBond 2049/2149 ThreeBond 3955
Characteristics	1. Room temperature curing by mixing two components (no heat source) 2. Flexibility (for adhesion of dissimilar materials)
Cure condition	Two-component mixture
Application	IPM motor magnet bonding
Product	ThreeBond 2280H
Characteristics	The adhesive can be expanded and fixed simply by applying it to the magnet and drying it in advance, then inserting it into the slot and heating it.
Cure condition	Heat curing (expansion bonding)

### Fan (impeller, blades)

Application	Bonding with housing
Product	ThreeBond 7737
Characteristics	1. Excellent adhesion with plastics 2. High peel adhesion
Cure condition	Moisture curing (instant bonding)

### Magnet

Application	Split magnet bonding
Product	ThreeBond 2049/2149 ThreeBond 3955
Characteristics	1. Room temperature curing by mixing two components (no heat source) 2. Flexible cured material (for adhesion of dissimilar materials)
Cure condition	Two-component mixture
Application	Ring magnet bonding
Product	ThreeBond 1357K ThreeBond 1375N
Characteristics	1. Room temperature bonding 2. Overflow can be UV-cured
Cure condition	Anaerobic curing (added UV curability)

### Stepper motor

Application	Burr prevention during rotor core cutting
Product	ThreeBond 3042 ThreeBond 3057 Series
Characteristics	1. Low viscosity 2. Good cutting workability
Cure condition	UV curing

### Control board

Application	Surface coating
Product	ThreeBond 3164D
Characteristics	1. Flexible cured material 2. Curable in shade using moisture curing
Cure condition	UV curable (added moisture curability)

## Outer rotor model (fan)

### Bearing

Application	Bonding with shaft
Product	ThreeBond 1357K
Characteristics	1. High heat resistance (High Tg) 2. Fluorescence emission (Camera detectable)
Cure condition	Anaerobic curing (added UV curability)
Application	Bonding with central tower
Product	ThreeBond 7737
Characteristics	1. Excellent adhesion with plastics 2. High peel adhesion
Cure condition	Moisture curing (instant bonding)

# Smartphone

Smart phones that are now essential goods for daily living are composed of a lot of electronic components and modules and lots of glue. Attachment of a cover panel to a display panel with a UV-curable sheet-like adhesive enables a screen to be easily watched, and use of a low-temperature

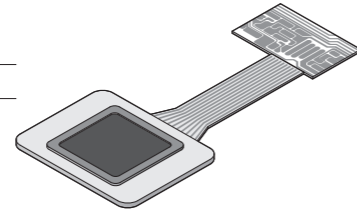
curable/UV-curable sealant for a case can produce "waterproof and drip-proof" devices.

In addition, ThreeBond's sealants and adhesives contribute to making smart phones and their electronic components and modules thinner and more sophisticated.

Smartphone

## Fingerprint sensor

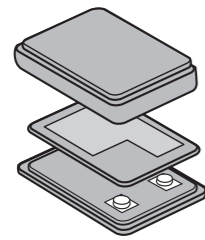
Application	Folder fixing
Product	ThreeBond 2206S
Characteristics	1. Curing at 80°C for 30 min 2. High strength of adhesion to resin materials
Cure condition	Heat curing



## Cover panel

Application	Cover panel circumference adhesion
Product	ThreeBond 1539 Series
Characteristics	1. Reaction starts in one minute at about 60°C. 2. A plant-based material is used. 3. Elasticity in a wide temperature range (-35 to 100°C).
Cure condition	Heat curing

Application	Cover panel end face coating
Product	ThreeBond 3020B ThreeBond 3027J ThreeBond 3120B
Characteristics	1. High strength of adhesion to glass and resin 2. Black (Optical Density:1.6~/250µm) 3. Deep curability
Cure condition	UV curing

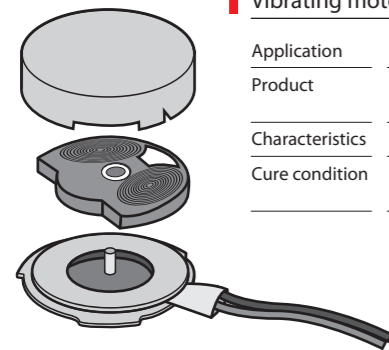


## Crystal device

Application	Crystal piece conduction and fixing
Product	ThreeBond 3304J
Characteristics	1. Good thermal reliability 2. Minute-amount application possible
Cure condition	Heat curing

## Vibrating motor

Application	Magnet fixing
Product	ThreeBond 1357K/1390R ThreeBond 2206S
Characteristics	Fast-curing property
Cure condition	Anaerobic curing (added UV curability) / Heat curing



## Case

Application	Waterproof and drip-proof sealing
Product	ThreeBond 3081 Series ThreeBond 3166
Characteristics	1. Enables creation of sealing layers of any shape 2. Reworkable
Cure condition	UV curing (CIPG)

\* CIPG (Cured In Place Gasket)

## Touch sensor / Display panel

Application	Sticking Cover panel / Touch sensor / Display panel
Product	ThreeBond 1631
Characteristics	1. Sheet-like adhesive 2. Heat before curing in order to follow level differences 3. High transparency
Cure condition	UV curing

Application	Grounding
Product	ThreeBond 3331D ThreeBond 3350C
Characteristics	1. Fast-curing property 2. Low resistance value
Cure condition	Heat curing / Room temperature dry type

Application	FPC reinforcement
Product	ThreeBond 3027G
Characteristics	1. High adhesion 2. Flexibility
Cure condition	UV curing

Application	Grounding
Product	ThreeBond 3333F
Characteristics	1. Curing at 80°C for 60 min 2. High elongation rate (flexible)
Cure condition	Heat curing

## Camera module

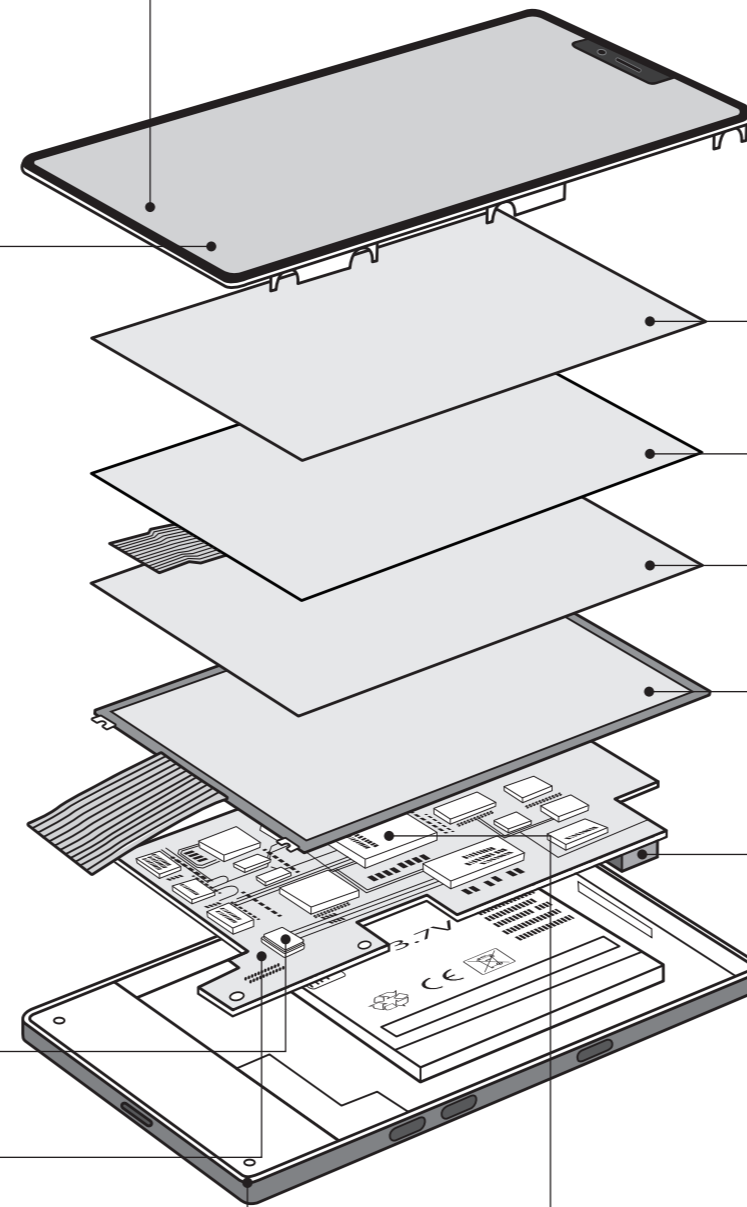
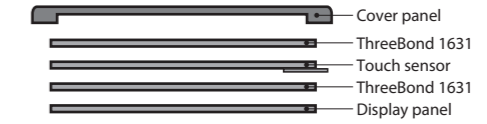
Application	Lens fixing
Product	ThreeBond 3020B
Characteristics	1. High strength of adhesion to glass and resin 2. Blackening after UV irradiation
Cure condition	UV curing

Application	Grounding
Product	ThreeBond 3331D
Characteristics	1. Curing at 80°C for 60 min 2. Low resistance value 3. JET application compatible
Cure condition	Heat curing

Application	IR cut-off filter fixing
Product	ThreeBond 3170B
Characteristics	1. Fast-curing property 2. High strength of adhesion to resin materials
Cure condition	Visible light or UV curing

## IC

Application	IC heat dissipation
Product	ThreeBond 1225 Series
Characteristics	1. High thermal conductivity (1.59 to 2.5W/m-K) 2. Low molecular weight cyclic siloxane reduced product
Cure condition	Moisture curing



# Smart Watch

Many adhesives are also used in typical wearable devices, such as smartwatches. Electronic parts and modules that are equipped in smart watches are similar to those for smart phones and tablets, however, needs for adhesives change little by little due to downsizing.

Among them, "fine application to small-size electronic parts", "heating prevention" and "waterproofing and drip-proofing" can be named as needs. With our technology and products that have been cultivated over many years, ThreeBond's sealants and adhesives can meet all needs.

Camera Module

## Display

Application	Sticking Cover panel / Touch sensor / Display panel
Product	ThreeBond 1631
Characteristics	1. Sheet-like adhesive 2. Heat before curing in order to follow level differences 3. High transparency
Cure condition	UV curing

Application	FPC reinforcement
Product	ThreeBond 3027G
Characteristics	1. High adhesion 2. Flexibility
Cure condition	UV curing

Application	Grounding
Product	ThreeBond 3331D ThreeBond 3350C
Characteristics	1. Fast-curing property 2. Low resistance value
Cure condition	Heat curing / Room temperature dry type

Application	Grounding
Product	ThreeBond 3333F
Characteristics	1. Curing at 80°C for 60 min 2. High elongation rate (flexible)
Cure condition	Heat curing



## Cover panel

Application	Cover panel end face coating
Product	ThreeBond 3020B ThreeBond 3027J ThreeBond 3120B
Characteristics	1. High strength of adhesion to glass and resin 2. Black (Optical Density:1.6~/250μm) 3. Deep curability
Cure condition	UV curing

Application	Cover panel circumference adhesion
Product	ThreeBond 1535 Series ThreeBond 3074C
Characteristics	1. High strength of adhesion to glass and metal 2. High sealing performance
Cure condition	Moisture curing / UV curing

## Vibrating motor

Application	Magnet fixing
Product	ThreeBond 1357K/1390R ThreeBond 2206S
Characteristics	1. Fast-curing property 2. Shadow-zone curability
Cure condition	Anaerobic curing (added UV curability) / Heat curing

Application	Coil and FPC fixing
Product	ThreeBond 2206S ThreeBond 3065E
Characteristics	1. Fast-curing property 2. Adhesion to different materials
Cure condition	Heat curing / UV curing (added Anaerobic curability)

## Li ion secondary battery

Application	Fixing
Product	ThreeBond 1535 Series
Characteristics	1. Adhesion to different materials 2. Elasticity is generated in a wide temperature range (-35 to 100°C).
Cure condition	Moisture curing

## Substrate

Application	Vibration-proof parts fixing
Product	ThreeBond 1535
Characteristics	Adhesion to different materials
Cure condition	Moisture curing

Application	Substrate surface coating
Product	ThreeBond 3164D
Characteristics	1. Flexible cured material 2. Curable in shade using moisture curing
Cure condition	UV curable (added moisture curability)

## Crystal device

Application	Crystal piece conduction and fixing
Product	ThreeBond 3304J
Characteristics	1. Good thermal reliability 2. Minute-amount application possible
Cure condition	Heat curing

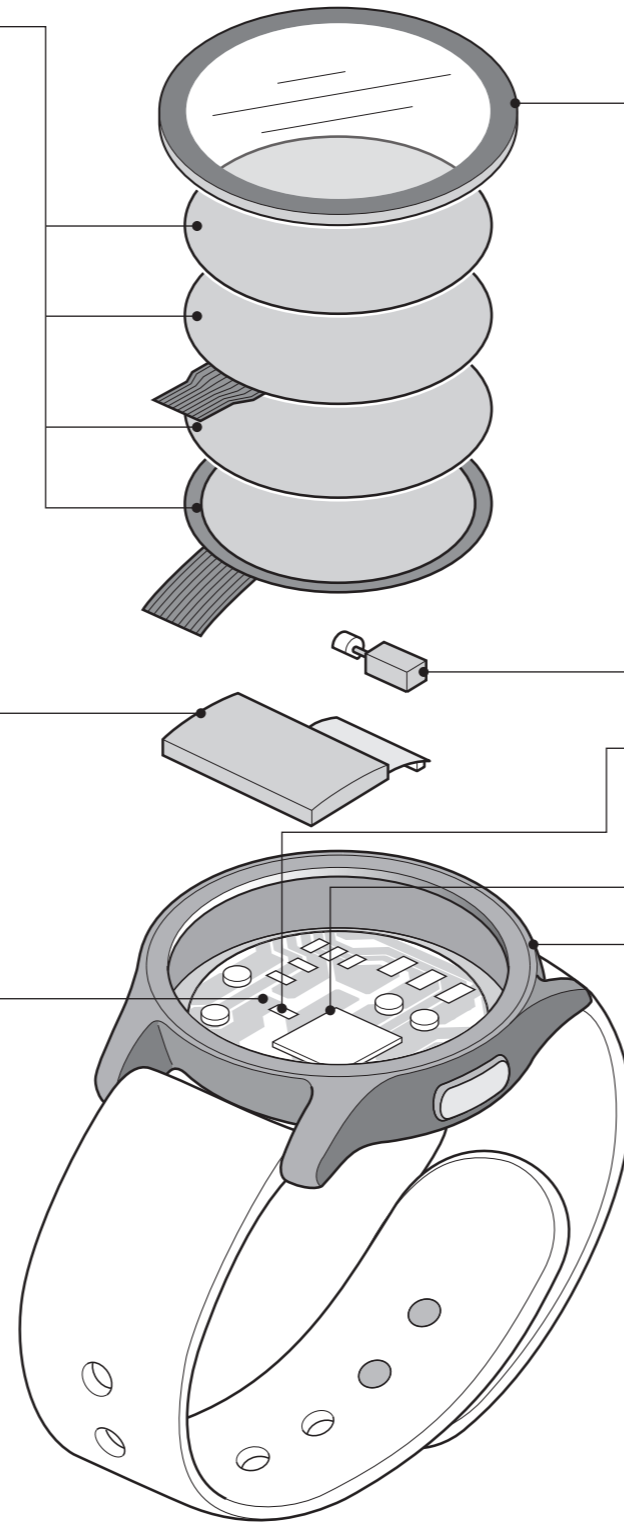
## IC

Application	IC heat dissipation
Product	ThreeBond 1225 Series
Characteristics	1. High thermal conductivity (1.59 to 2.5W/m·K) 2. Low molecular weight cyclic siloxane reduced product
Cure condition	Moisture curing

## Case

Application	Waterproof and drip-proof sealing
Product	ThreeBond 3081 Series ThreeBond 3166
Characteristics	1. Enables creation of sealing layers of any shape 2. Reworkable
Cure condition	UV curing (CIPG)

\* CIPG (Cured In Place Gasket)



# Camera Module

A lot of adhesives are used for small-size camera modules installed in smart phones and tablets. Since the number of manufactured small-size camera modules is large, adhesives that cure fast at low temperature are needed to shorten the

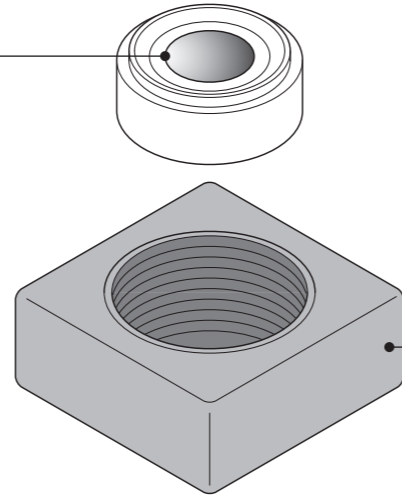
manufacturing processes.

ThreeBond can provide a lineup of products, each of which is suitable to the desired location, to meet customer needs.

Camera Module

## Lens unit

Application	Lens fixing
Product	ThreeBond 3020B
Characteristics	1. High strength of adhesion to glass and resin 2. Blackening after UV irradiation
Cure condition	UV curing

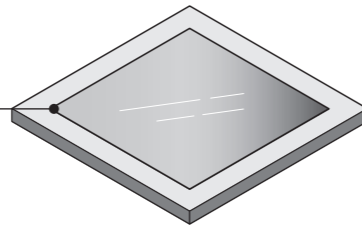


## Actuator

Application	Flat spring and Magnet fixing	Application	Others, fixing/sealing
Product	ThreeBond 2296B	Product	ThreeBond 2206S
Characteristics	1. Curing at 60 to 80°C for 30 min 2. Adhesion to different materials	Characteristics	1. Curing at 80°C for 30 min 2. High strength of adhesion to resin materials
Cure condition	Heat curing	Cure condition	Heat curing

## IR cut-off filter

Application	IR cut-off filter fixing
Product	ThreeBond 3170B
Characteristics	1. Fast curability 2. Deep curability 3. High strength of adhesion to resin materials
Cure condition	Visible light or UV curing

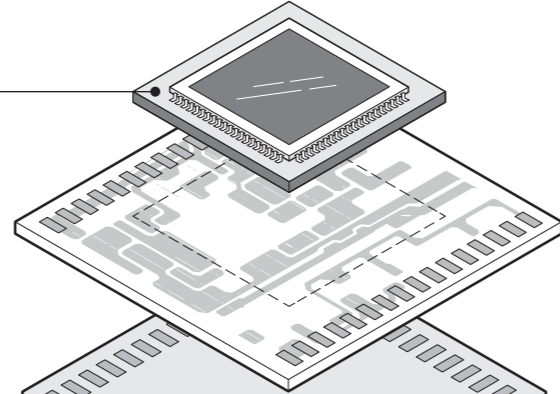


## Actuator

Application	Vibration absorption
Product	ThreeBond 3168E
Characteristics	1. High and low temperature resistance 2. Soft gel 3. Vibration absorbability
Cure condition	UV curing

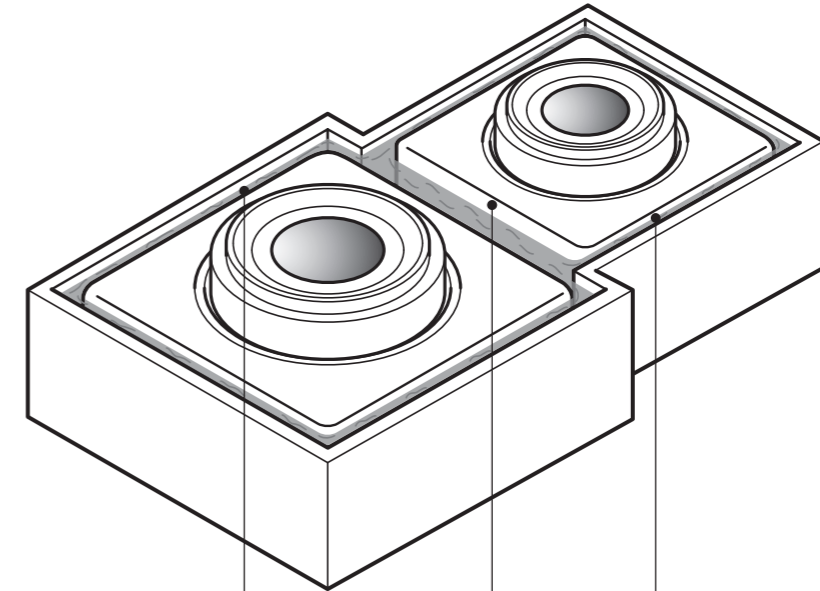
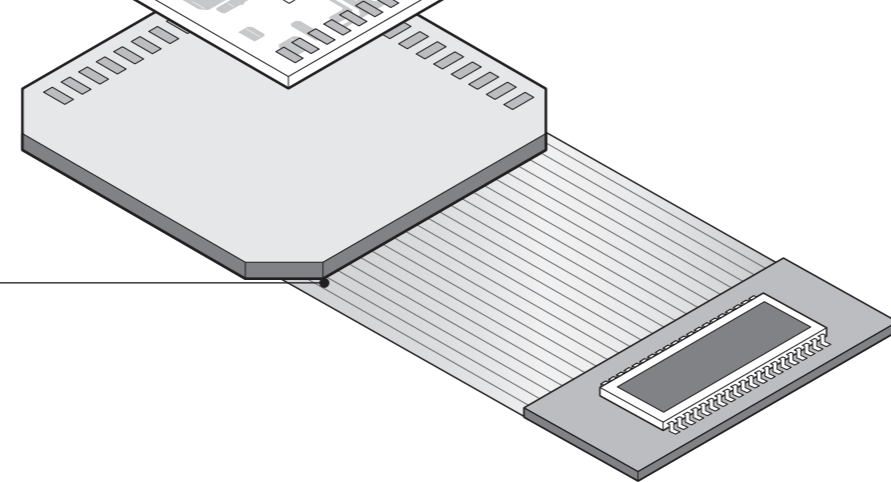
## Image sensor

Application	Active alignment (optical axis adjustment)
Product	ThreeBond 3142
Characteristics	1. Dual cure 2. Low cure shrinkage rate 3. Thick coating curability
Cure condition	UV curing + Heat curing



## FPC

Application	FPC reinforcement
Product	ThreeBond 2206S ThreeBond 2296B
Characteristics	1. Curing at 60 to 80°C for 30 min 2. Adhesion to different materials
Cure condition	Heat curing



## Between camera / case

Application	Gap filling
Product	ThreeBond 1539 ThreeBond 2206S
Characteristics	1. Low-temperature fast curing 2. Ideal flow rate
Cure condition	Heat curing

## Between cameras, camera / case

Application	Grounding
Product	ThreeBond 3331D ThreeBond 3333F
Characteristics	1. Cures at low temperatures 2. High reliability
Cure condition	Heat curing

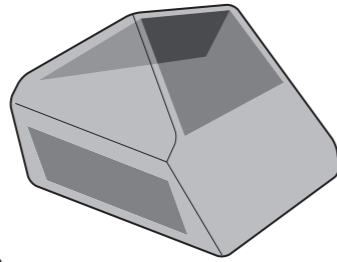
# Digital Camera

A lot of adhesives are used for the mechanical components of cameras including a single lens reflex camera. As the design of a camera has been smaller and thinner, UV-LED light source-curable adhesives are needed in order to bond a different type of material to another, to reduce the amount

of heat applied to materials, and to reduce power consumption in camera manufacturing processes.

ThreeBond develops and manufactures adhesives that are the most appropriate to a customer's manufacturing processes and provide such products on a global basis.

Digital Camera

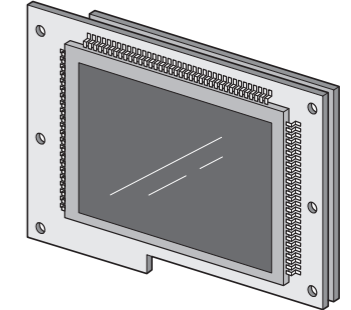


### Pentaprism

Application	Pentaprism fixing
Product	ThreeBond 3030 Series
Characteristics	1. High adhesion to resin materials (PC, PPS, etc.) 2. Flexible 3. Adhesion to different materials
Cure condition	UV curing

### Strobe

Application	Strobe periphery fixing
Product	ThreeBond 1535 Series ThreeBond 3164D
Characteristics	1. Good impact resistance 2. Adhesion to different materials 3. Shadow-zone curing possible
Cure condition	Moisture curing / UV curing

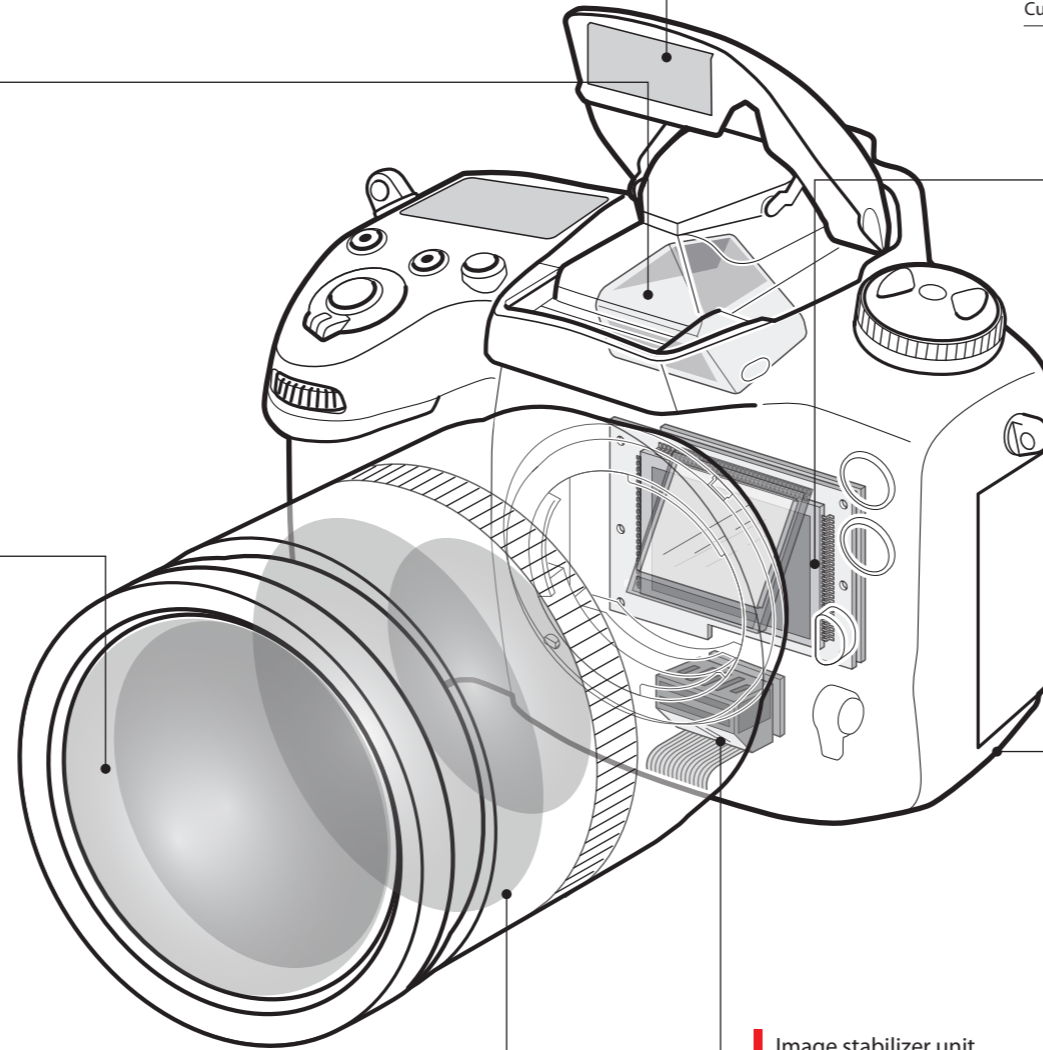


### Image sensor

Application	Image sensor fixing
Product	ThreeBond 3036 Series ThreeBond 3114 Series
Characteristics	1. Low cure shrinkage 2. Low linear expansion coefficient 3. High adhesive strength
Cure condition	UV curing
Application	Heat dissipation
Product	ThreeBond 1225 Series ThreeBond 2955 Series
Characteristics	1. High thermal conductivity (1.59 to 4.8W/m·K) 2. Low outgassing (TB 2955 Series) 3. Low molecular weight cyclic siloxane reduced product
Cure condition	Moisture curing

### Glass and resin lens

Application	Bonding of lenses
Product	ThreeBond 3017 Series ThreeBond 3020B
Characteristics	1. High strength of adhesion to materials difficult to bond (olefin-based) 2. Good surface curability 3. Less distortion (TB 3017 Series)
Cure condition	UV curing



### Case / Lens mount

Application	Waterproof / Dustproof
Product	ThreeBond 3081 Series ThreeBond 3166
Characteristics	1. Low compression permanent distortion 2. Flexibility 3. Reworkable
Cure condition	UV curing (CIPG)

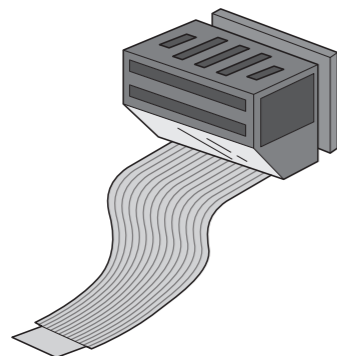
\* CIPG (Cured In Place Gasket)

### Image stabilizer unit

Application	Vibration absorption
Product	ThreeBond 3168E
Characteristics	1. High and low temperature resistance 2. Soft gel 3. Vibration absorbability
Cure condition	UV curing

### AF sensor

Application	AF sensor fixing
Product	ThreeBond 1535 Series ThreeBond 3017 Series
Characteristics	1. Good impact resistance 2. Adhesion to different materials 3. Shadow-zone curing possible (TB 1535 Series)
Cure condition	Moisture curing / UV curing



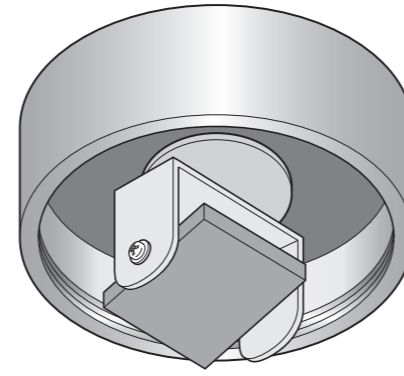
\* ThreeBond is abbreviated to TB.

# Surveillance Camera

In recent years, increasing awareness of global security has been accompanied by spreading adoption of surveillance cameras as a deterrent to crime and terrorism. For many years, our UV-curable resin has contributed to security cameras,

mainly to the adhesive application for optical parts. Increasing numbers of pixels in recent years have brought an increasing need for "thermal conductivity" as protection against overheating, and for "Sealants" as waterproofing and protection from insects.

Surveillance Camera



### Image sensor module

Application	Heat dissipation
Product	ThreeBond 1225 Series
Characteristics	1. High thermal conductivity (1.59 to 2.5W/m·K) 2. Low molecular weight cyclic siloxane reduced product
Cure condition	Moisture curing

### Image sensor

Application	Image sensor fixing
Product	ThreeBond 3036 Series ThreeBond 3114 Series
Characteristics	1. Low cure shrinkage 2. Low linear expansion coefficient 3. High adhesive strength
Cure condition	UV curing

Application	Die bonding
Product	ThreeBond 3331D
Characteristics	1. Curing at 80°C for 60 min 2. Low resistivity 3. High reliability
Cure condition	Heat curing

### Lens unit

Application	Lens fixing
Product	ThreeBond 3020B ThreeBond 3030 Series
Characteristics	1. High adhesion to resin materials (PC, PPS, etc.) 2. Flexible 3. Bonding of a different type of material to another
Cure condition	UV curing

### IR cut-off filter

Application	IR cut-off filter fixing
Product	ThreeBond 3170B
Characteristics	1. Fast curability 2. Deep curability 3. High strength of adhesion to resin materials
Cure condition	Visible light or UV curing

### Top cover

Application	Water repellent coating
Product	ThreeBond 2907D
Characteristics	1. Single-component (silane-based) 2. Antifouling 3. Weather resistant
Cure condition	Moisture curing

### Case

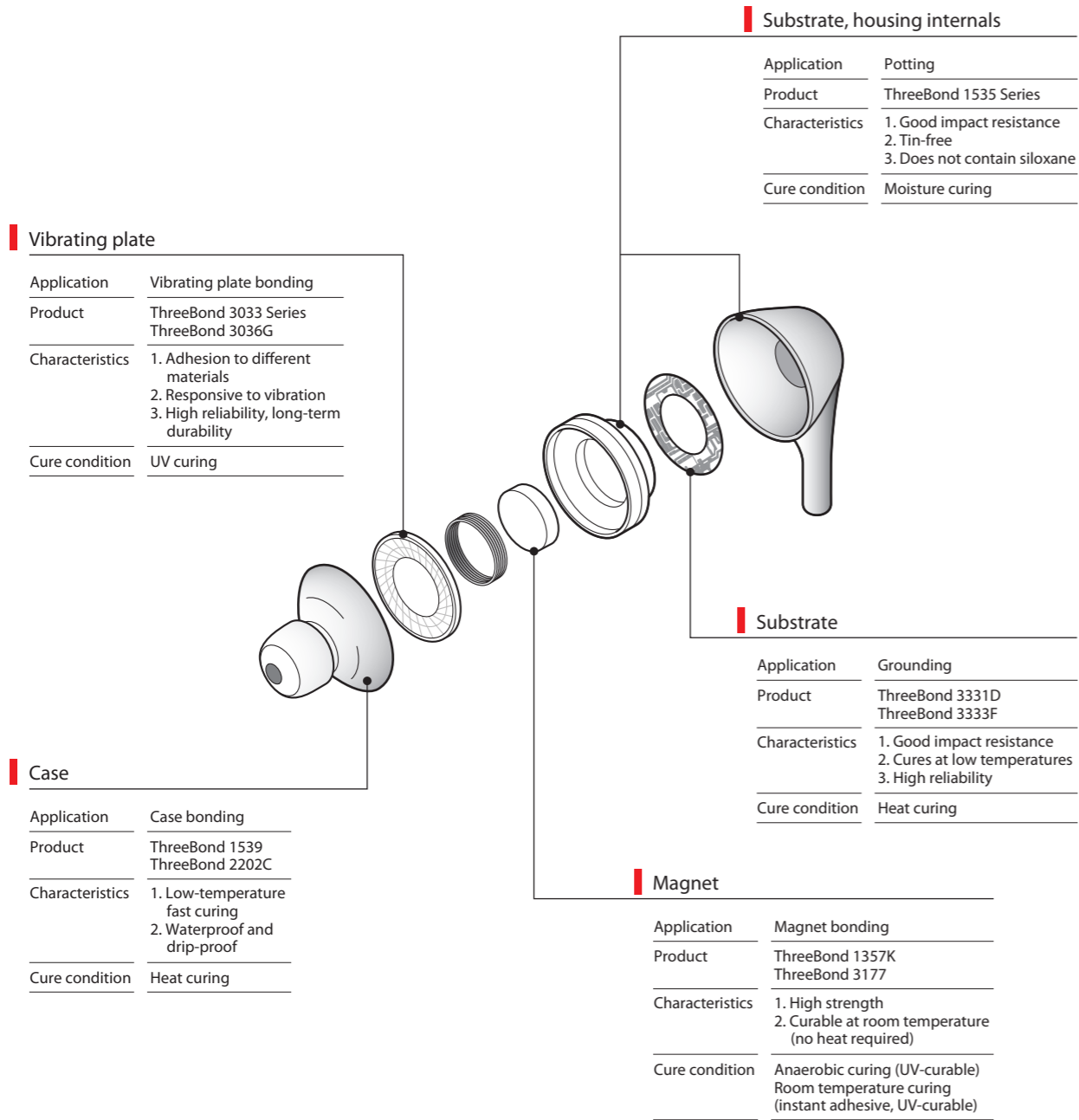
Application	Waterproof and drip-proof sealing
Product	ThreeBond 3081 Series ThreeBond 3166
Characteristics	1. Enables creation of sealing layers of any shape 2. Reworkable
Cure condition	UV curing (CIPG)

\* CIPG (Cured In Place Gasket)

# Wireless Earphone

Wireless earphones are used for listening to music as well as during web conferences as telework becomes more prevalent, so production levels are increasing significantly. Furthermore, as earphones become more expensive, consumers expect them to last longer, so adhesives must improve productivity through "fast curing" and high reliability with a focus on "impact resistance".

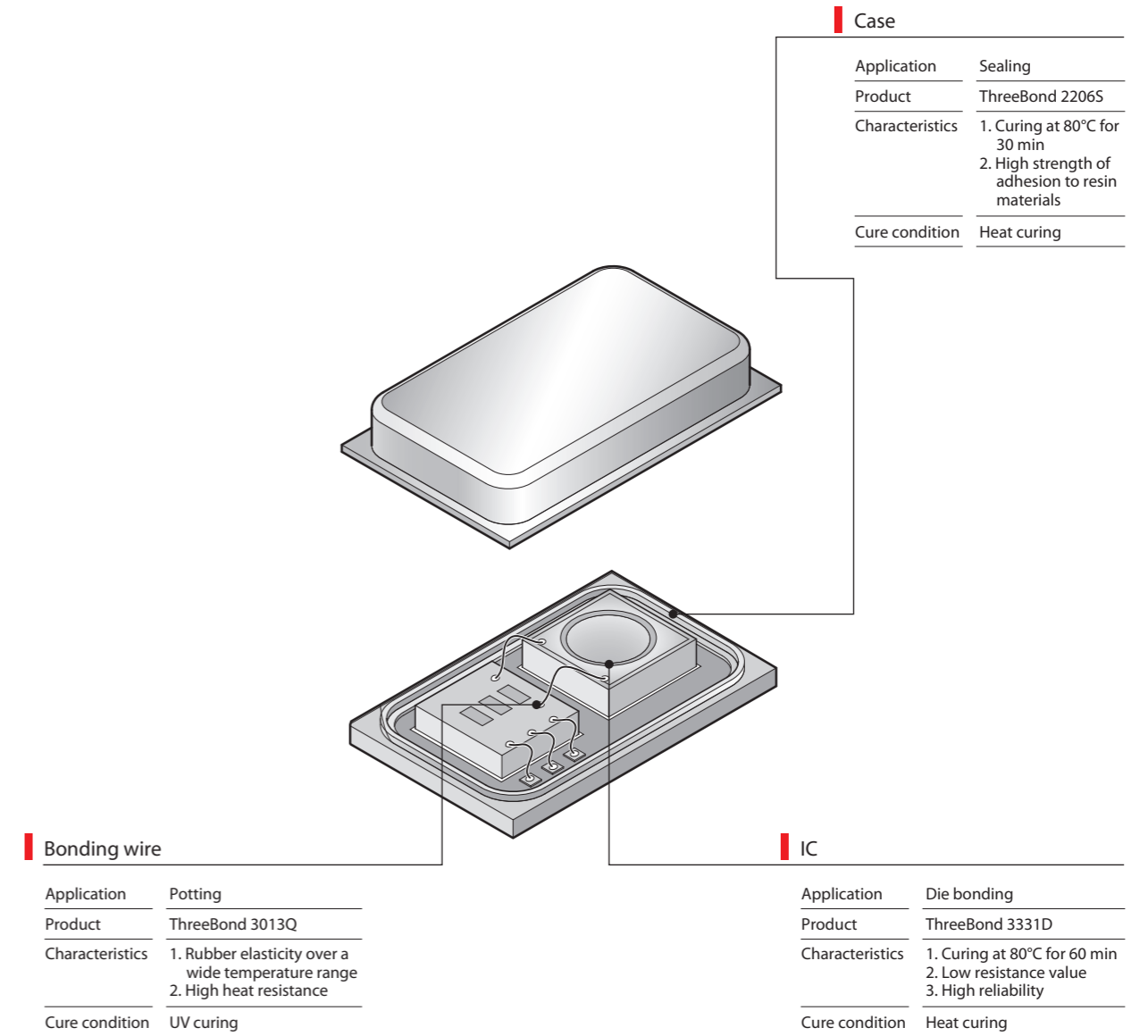
Wireless Earphone



# Sensor / MEMS Device

Sensors and MEMS devices are used in a wide range of applications. As automation advances as a substitute for the five senses of human beings, adoption of these devices is expected to further increase. At ThreeBond, we propose the optimal products for sensors and MEMS devices that require high reliability.

Sensor / MEMS Device

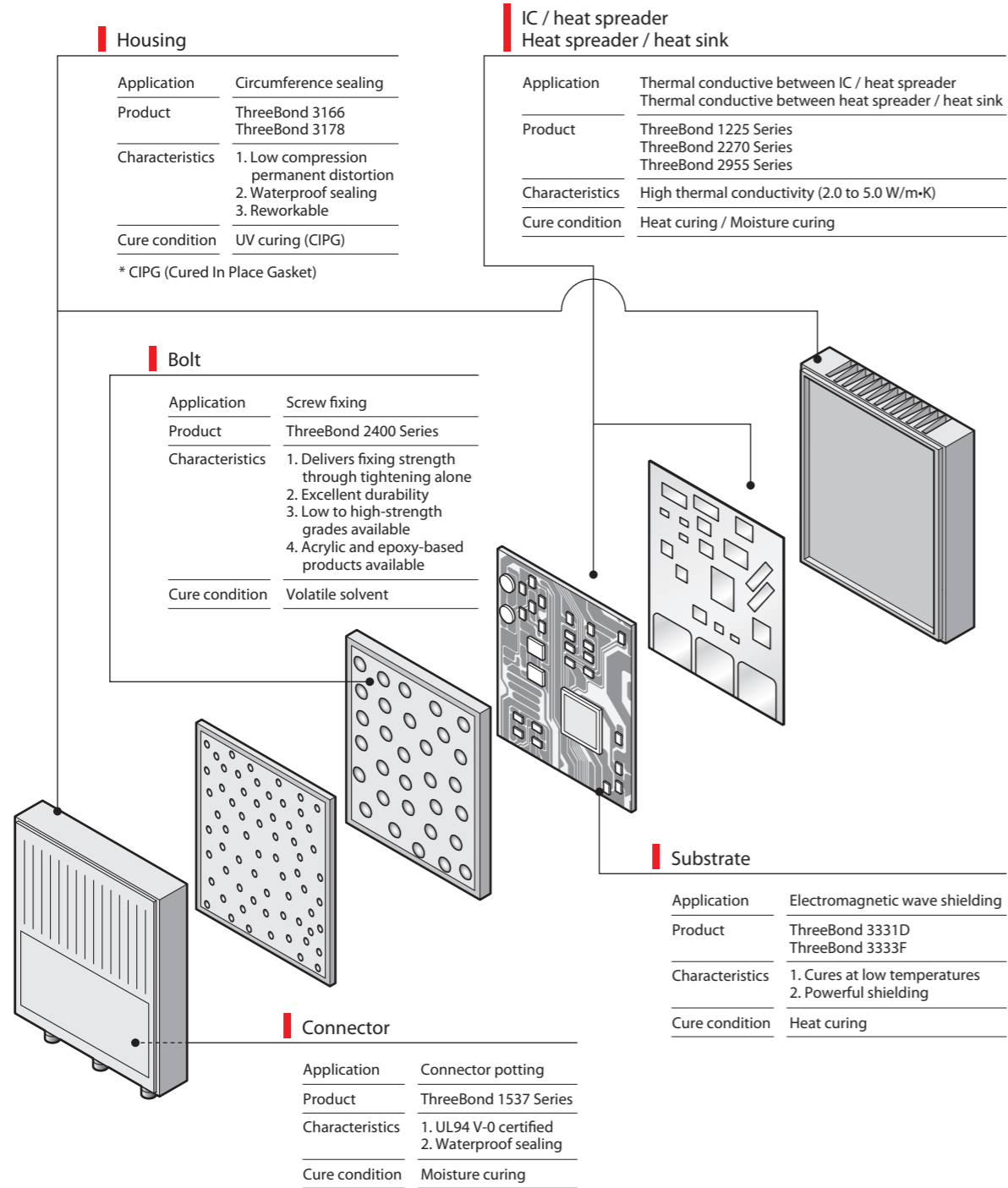




# 5G Base Station

Stations for 5G communication are starting to be set up everywhere, even outdoors, so adhesives must be incredibly reliable to ensure operation continues despite weather conditions. Our lineup includes case sealants, thermally conductive materials used to protect electronic substrates from heat and more.

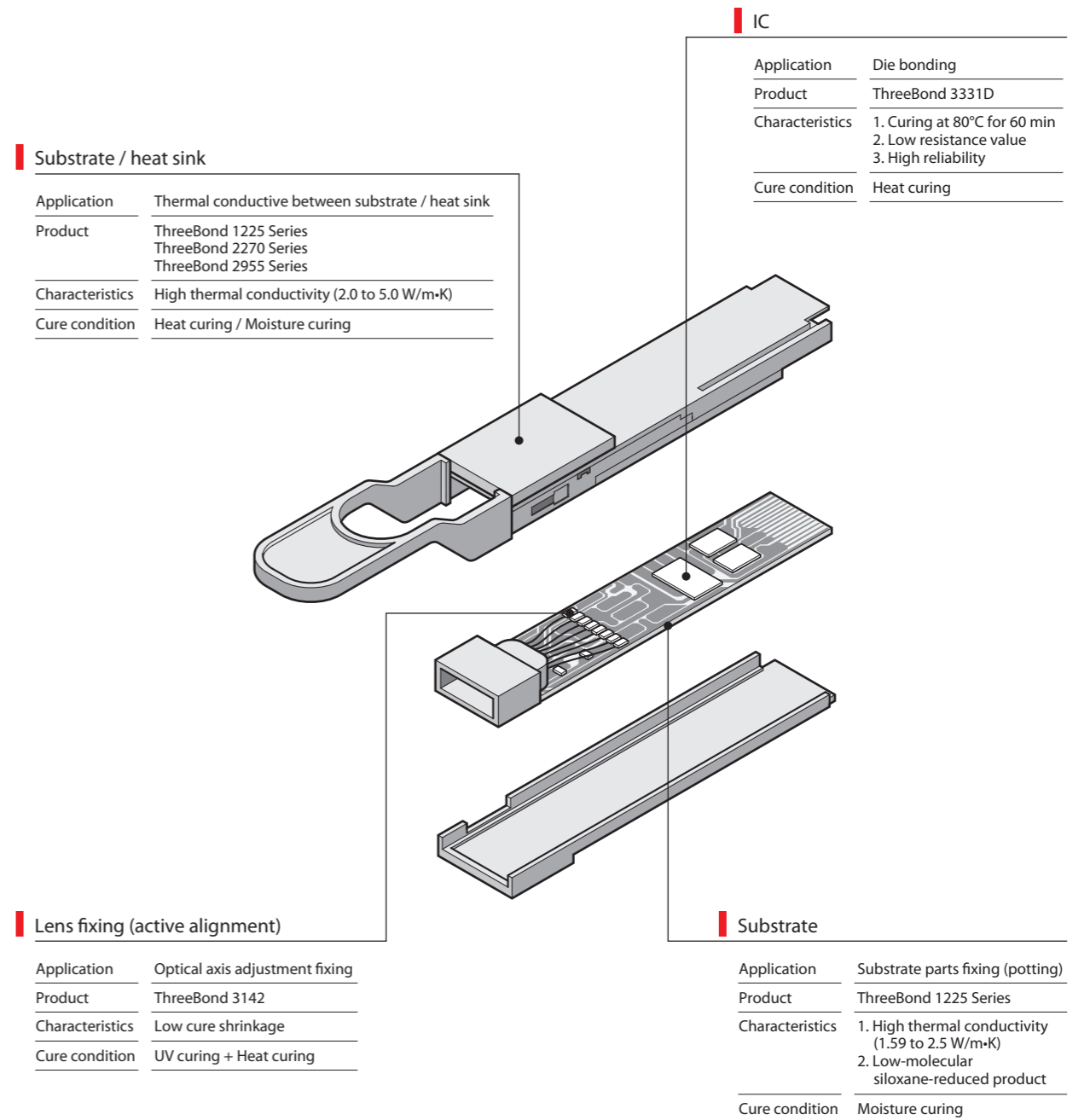
5G Base Station



# Optical Transceiver

The spread of 5G communications has greatly increased the amount of data flying around the world. As for optical transceivers needed for high-speed communications, we have a wide range of products, mainly UV resins and heat-conducting materials for parts requiring precision fixation.

Optical Transceiver



# Car Mounted Display / Camera

The number of on-board automobile displays and cameras have continued to increase as automotive electronics and safety performance improve. In the automotive field, heat resistance

and reliability must be higher than for general electronic equipment. ThreeBond utilizes our accumulated know-how to develop and produce adhesives and sealants that contribute to technological innovation in the automotive industry.

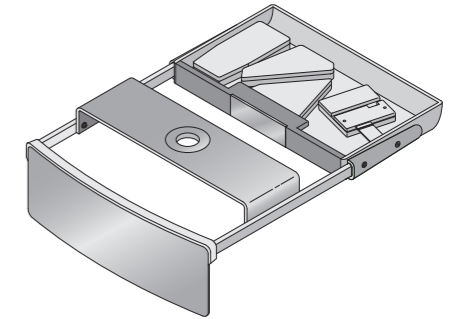
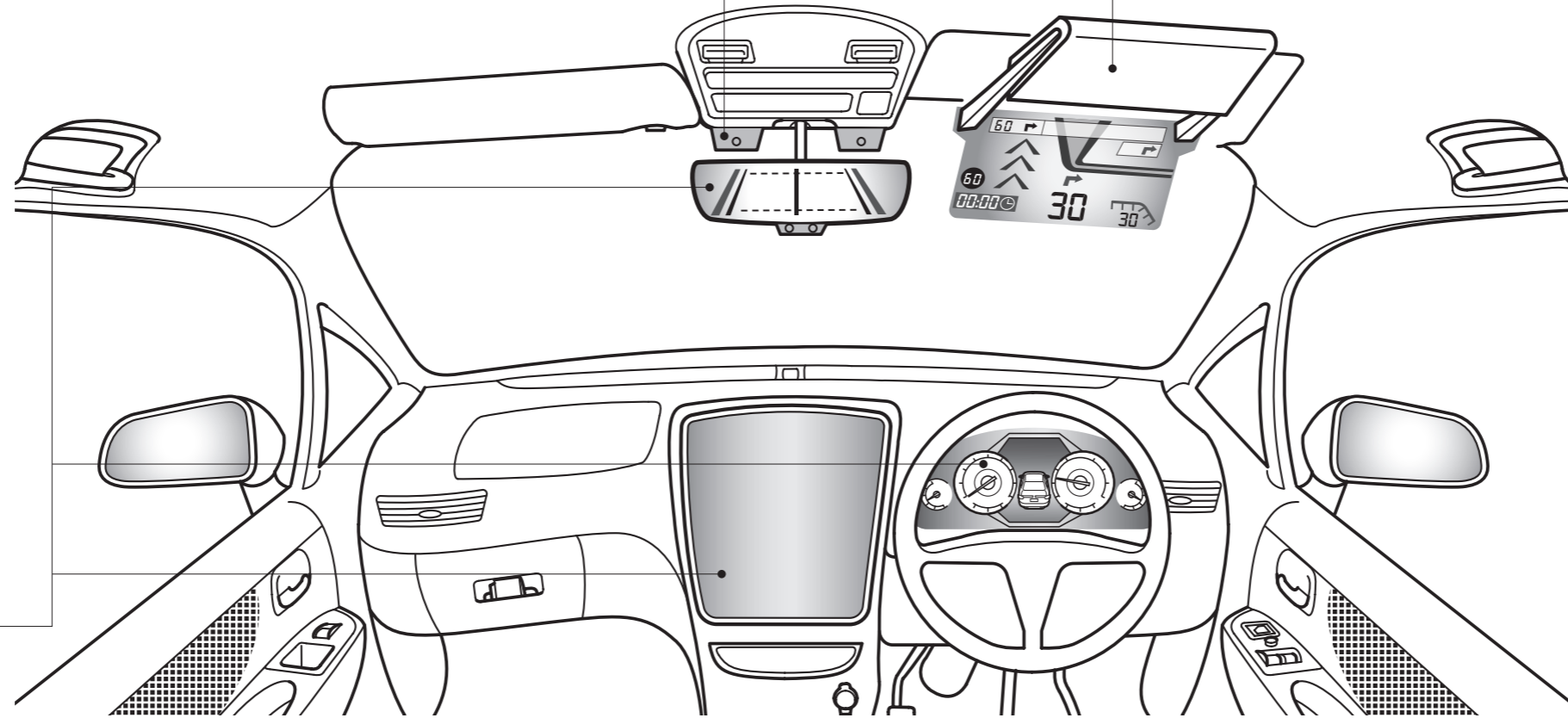
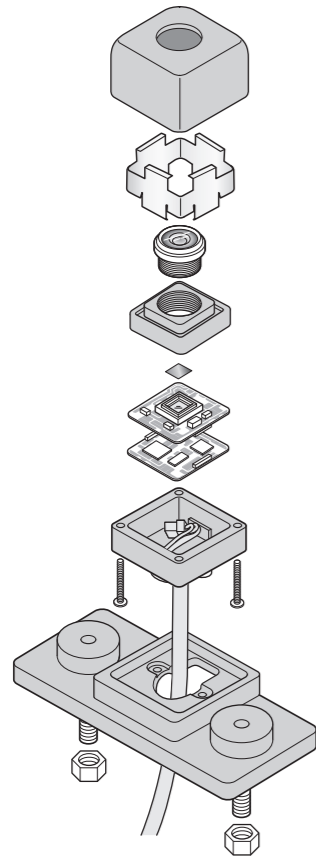
Car Mounted Display / Camera

## Car Mounted Camera

Application	Lens fixing	Application	Image sensor fixing
Product	ThreeBond 3036 Series ThreeBond 3114 Series	Product	ThreeBond 2206S ThreeBond 2270 Series
Characteristics	1. Bonds well to various adherend materials 2. Low cure shrinkage 3. High heat resistance	Characteristics	1. Low cure shrinkage 2. Cures at low temperatures (TB2206S) 3. High thermal conductivity (TB2270 series)
Cure condition	UV curing	Cure condition	Heat curing

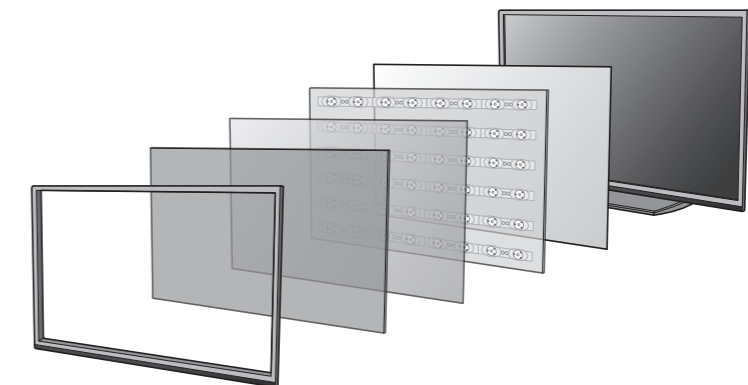
## Head-Up Display

Application	Lens, mirror fixing	Application	Thermal conductive for control boards, fans, heat sinks
Product	ThreeBond 3036 Series ThreeBond 3114 Series	Product	ThreeBond 1225 Series ThreeBond 2270 Series
Characteristics	1. Bonds well to various adherend materials 2. Low cure shrinkage 3. High heat resistance	Characteristics	1. High thermal conductivity 2. High heat resistance 3. High adhesive performance (TB2270 series)
Cure condition	UV curing	Cure condition	Moisture curing / Heat curing



## Display

Application	Affixing of panels and parts	Application	Display panel end face coating	Application	Grounding	Application	Sticking Cover panel / touch sensors / display panels
Product	ThreeBond 1535 Series ThreeBond 1539 Series	Product	ThreeBond 3020B ThreeBond 3027J ThreeBond 3120B	Product	ThreeBond 3331D ThreeBond 3350C	Product	ThreeBond 1631
Characteristics	1. Adhesion to different materials 2. Possible curing at 25°C (TB 1535) 3. 60°C x 1 min. until start of reaction (TB 1539)	Characteristics	1. High strength of adhesion to glass and resin 2. Black (Optical Density:1.6~/250µm) 3. Deep curability	Characteristics	1. Fast curability 2. Low resistivity	Characteristics	1. Sheet-like adhesive 2. Heat before curing in order to follow level differences 3. High transparency
Cure condition	Moisture curing / Heat curing	Cure condition	UV curing	Cure condition	Heat curing / Room temperature dry type	Cure condition	UV curing



\* ThreeBond is abbreviated to TB.

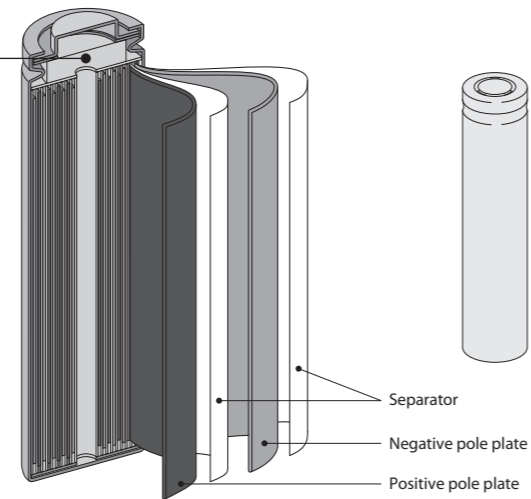
ThreeBond has commercialized a lot of sealants that are applied to the junction surface of various types of flanges, screws, etc. of transportation equipment and industrial equipment to air-tighten and seal the inner fluid. Also in the battery field, the company uses its know-how about sealants to

thereby provide sealants for various types of batteries including alkaline batteries. Furthermore, in recent years, ThreeBond's sealants have been contributing to fuel cells and dye-sensitized solar cells that are paid attention to as the next-generation energy.

## Li Ion Secondary Battery / Alkaline Battery

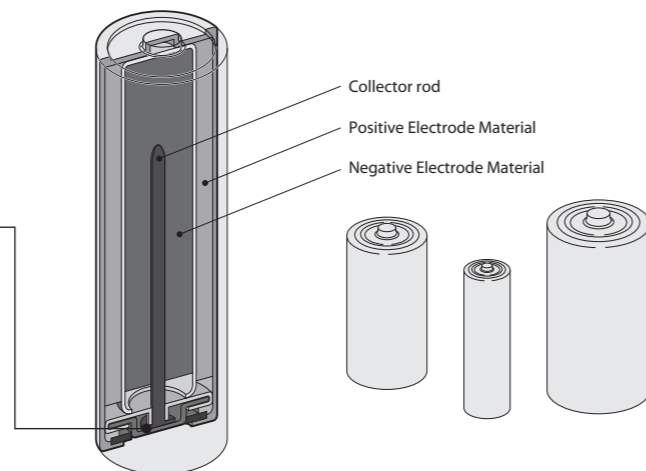
### Li Ion Secondary Battery

Application	Liquid electrolyte sealing
Product	ThreeBond 1171 Series
Characteristics	1. Resistance to liquid electrolyte (PC, EC, etc.) 2. Low moisture permeability
Cure condition	Solvent-vaporizing type



### Alkaline Battery

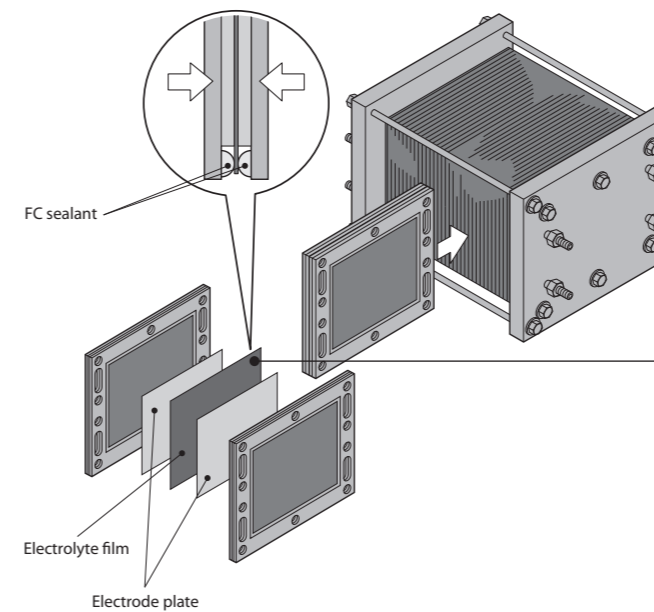
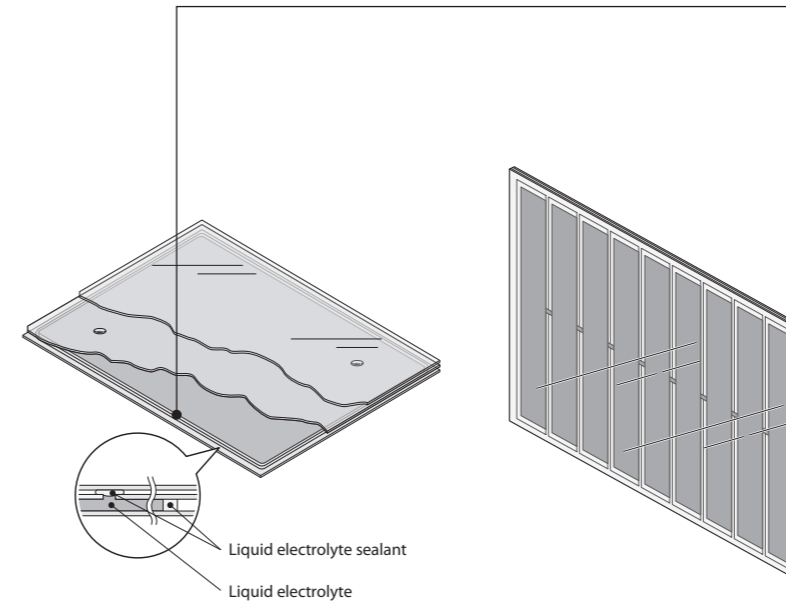
Application	Liquid electrolyte sealing
Product	ThreeBond 1170 Series ThreeBond 1184 Series
Characteristics	1. Resistance to liquid electrolyte (KOH) 2. Low moisture permeability
Cure condition	Solvent-vaporizing type



## Dye Sensitized Solar Battery / Fuel Battery

### Dye Sensitized Solar Battery

Application	Liquid electrolyte sealing
Product	ThreeBond 3035B ThreeBond 3118
Characteristics	1. Resistance to liquid electrolyte (acetonitrile, GBL, PC, 3-MPN, etc.) 2. Low moisture permeability 3. High reliability
Cure condition	UV curing / UV curing (added Heat curability)



### Fuel Battery Seal

Application	Gas sealing
Product	ThreeBond 1153E ThreeBond 3178
Characteristics	1. Chemical resistance (acid, alkaline) 2. Flexibility 3. Gas barrier property
Cure condition	Heat curing / UV curing

# Product map by viscosity / hardness

Watch our video to see viscosity images



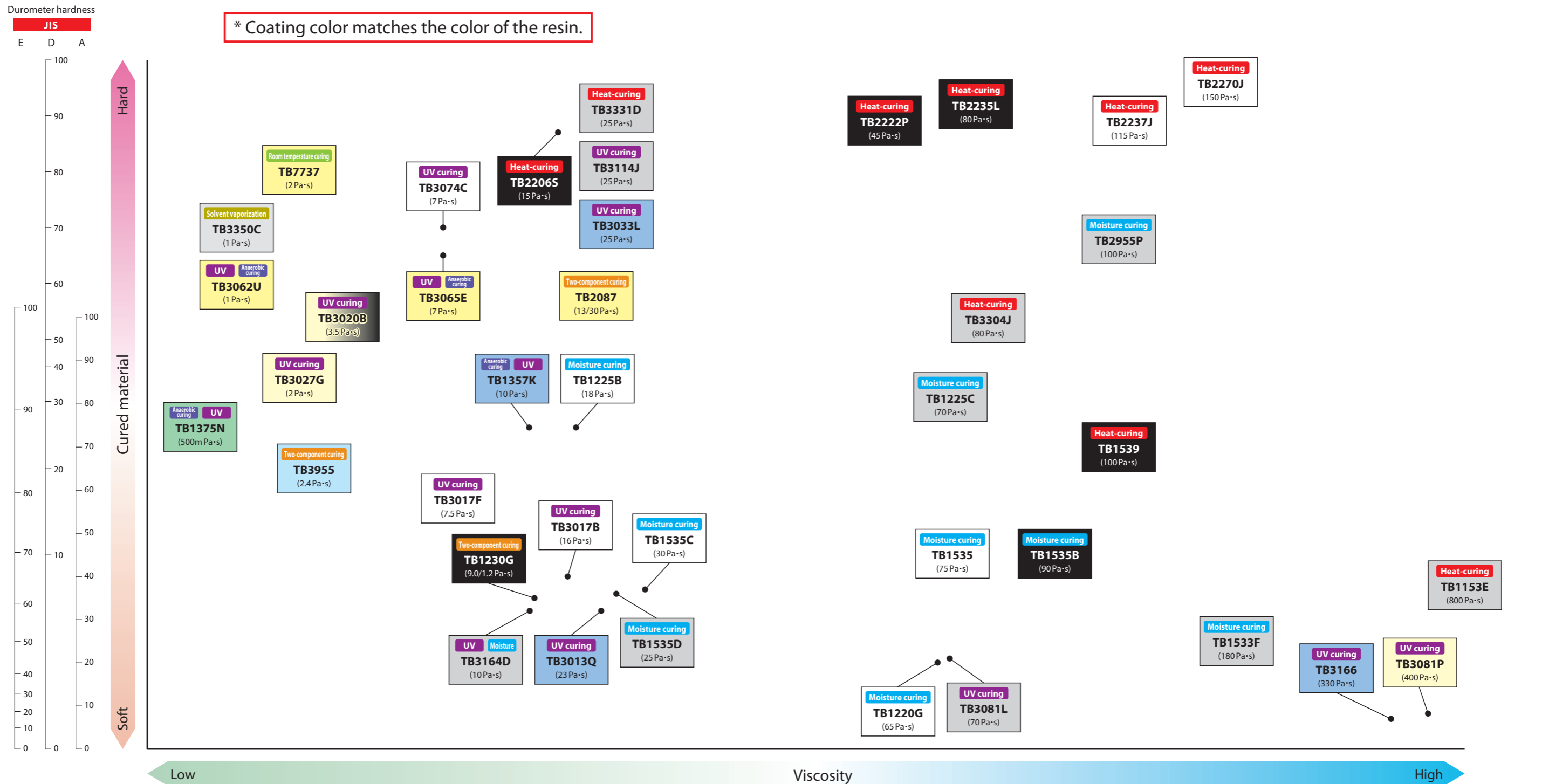
Viscosity comparison  
[Cyanoacrylate Adhesives]



Viscosity comparison  
[UV Curing Resins]



Viscosity comparison  
[Epoxy resin]



Water 0.001 Pa·s (1m Pa·s)	Simple syrup 1 Pa·s (1,000m Pa·s)	Honey 15 Pa·s (15,000m Pa·s)	Toothpaste 80 Pa·s (80,000m Pa·s)	Mizume 100 Pa·s (100,000m Pa·s)	Peanut butter 250 Pa·s (250,000m Pa·s)
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\* Viscosity at 25°C. Viscosity values are representative.  
 \* Viscosity of honey and toothpaste is approximate. Varies by manufacturer or brand.  
 \* 1 Pa·s (pascal-second) = 1,000 mPa·s (millipascal-second), 1 mPa·s = 1 cP (centipoise)

\* ThreeBond is abbreviated to TB.

# Adhesive selection table by material

## Tensile shear bond strength

Curing method	Materials	Product Name	Conditions							
			TB1220G	TB2082C	TB2087	TB2088E	TB3921/TB3926	TB3955	TB7737	TB7781
At normal temperature	AL	MPa	25°Cx24h							
	SUS304		1.0	12.8	3.7	3.1	1.3	2.0	20.4	14.9
	Ni		1.0	20.4	15.4	9.4	18.2	6.2	18.2	12.2
	Cu		2.7	14.6	13.6	10.4	17.1	3.5	26.8	13.3
	LCP		1.0	14.7	15.6	9.9	8.3	2.9	20.3	12.7
	PC		1.0	5.0	4.8	4.2	1.7	2.2	-	1.2
	PPS		1.4	3.8	4.7	3.7	0.4	1.2	6.2	6.9
	PBT		1.3	2.8	2.3	1.8	1.5	1.3	3.2	1.9
	PA66 (Nylon 66)		1.8	2.7	2.7	2.0	1.7	1.4	2.4	4.3
	Glass		1.3	3.8	4.9	2.6	2.1	2.3	11.9	13.1

Curing method	Materials	Product Name	Conditions								
			TB1354	TB1357K	TB1533	TB1533F	TB1535	TB1535B	TB1535C	TB1535D	TB1537
At normal temperature	AL	MPa	25°Cx24h				23°Cx50%RHx168h (7day)				
	SUS304		0.5	0.5	5.7	1.4	5.7	5.0	8.7	3.9	0.8
	Ni		5.0	5.9	4.5	3.3	4.5	4.1	5.7	3.6	3.8
	Cu		8.6	11.8	4.0	3.8	4.0	4.9	7.4	3.8	4.1
	LCP		6.1	16.1	4.4	3.1	4.4	4.0	5.6	3.5	3.8
	PC		-	-	2.8	2.5	2.8	2.2	2.2	1.8	1.1
	PPS		-	-	3.1	3.9	3.1	2.9	5.5	1.4	2.0
	PBT		-	-	3.0	1.9	3.0	2.2	1.7	3.1	0.8
	PA66 (Nylon 66)		-	-	1.0	2.7	1.0	0.8	0.7	0.7	1.0
	Glass		-	-	3.8	4.0	3.8	3.3	4.0	2.9	3.7

Curing method	Materials	Product Name	Conditions							
			TB1539	TB2202C	TB2206S	TB2212Q	TB2222P	TB2235L	TB2237J	TB2247D
Heating	AL	MPa	60°Cx90min	120°Cx10min	80°Cx30min	80°Cx90min	100°Cx60min	140°Cx30min	120°Cx60min	150°Cx30min
	SUS304		4.3	4.3	5.2	2.5	13.0	12.4	15.0	3.2
	Ni		2.7	15.0	12.2	9.1	25.9	20.3	24.0	28.1
	Cu		2.8	12.1	13.4	9.5	23.1	13.4	25.8	26.4
	LCP		3.3	12.6	11.4	8.1	18.1	17.9	18.0	26.0
	PC		2.2	7.3	6.1	7.8	7.7	6.2	8.0	6.4
	PPS		1.5	1.0	1.1	2.5	1.5	1.9	2.1	2.6
	PBT		1.9	3.7	2.5	2.9	5.5	3.9	5.3	5.2
	PA66 (Nylon 66)		2.4	3.5	3.3	3.9	3.7	5.0	3.7	6.1
	Glass		0.7	4.4	3.6	2.4	6.1	4.2	2.8	3.6

Curing method	Materials	Product Name	Conditions		
			TB2270J	TB2285	TB2296B
Heating	AL	MPa	100°Cx40min	120°Cx60min	80°Cx30min
	SUS304		6.7	4.8	3.9
	Ni		8.8	18.1	18.3
	Cu		5.4	17.7	21.8
	LCP		7.0	15.3	21.3
	PC		8.0	7.3	4.6
	PPS		1.0	1.5	3.1
	PBT		4.0	4.9	2.0
	PA66 (Nylon 66)		4.4	5.1	1.9
	Glass		2.1	5.7	3.0

Curing method	Materials	Product Name	Conditions	
			TB3301W	TB3331D
Heating	Au	MPa	120°Cx60min	80°Cx60min
	AL		19.2	16.5
	Cu		2.8	7.6
	SUS		13.6	18.3
	Ni		12.1	13.0

\* Chip bond strength (ceramic chip)

Curing method	Materials	Product Name	Conditions							
			TB3013Q	TB3017B	TB3017F	TB3020B	TB3027G	TB3027J	TB3033B	TB3036
UV	AL/Glass	MPa	30kJ/m <sup>2</sup> UV			60kJ/m <sup>2</sup> UV		30kJ/m <sup>2</sup> UV		
	SUS304/Glass		3.2	6.5	3.0	7.0	3.5	0.8	5.5	10.0
	Ni/Glass		4.4	6.8	3.6	8.6	5.7	3.6	7.8	9.4
	Cu/Glass		8.5	7.8	4.2	4.9	5.1	6.4	8.4	7.5
	LCP/Glass		5.4	8.0	4.0	4.2	6.1	3.2	8.8	7.1
	PC/Glass		2.4	5.6	3.3	5.3	4.1	4.0	4.6	5.1
	PPS/Glass		3.6	4.0	2.7	7.1	4.3	6.3	7.5	6.4
	PBT/Glass		2.9	6.3	3.6	3.8	5.8	4.6	5.4	6.6
	PA66 (Nylon 66)/Glass		1.9	4.5	2.7	4.0	4.2	2.9	2.6	3.8
	Glass/Glass		4.6	6.4	3.3	3.2	3.7	4.3	5.8	4.8

Curing method	Materials	Product Name	Conditions								
			TB3036G	TB3056F	TB3062U	TB3065E	TB3074C	TB3114	TB3114J	TB3164D	TB3170B
UV	AL/Glass	MPa	30kJ/m <sup>2</sup> UV								
	SUS304/Glass		4.7	0.3	4.7	0.4	2.6	2.5	1.7	-	7.0
	Ni/Glass		6.2	2.7	7.3	7.9	5.4	7.8	4.1	2.6	9.9
	Cu/Glass		7.9	3.7	8.2	9.0	4.7	6.4	4.4	-	10.1
	LCP/Glass		7.4	0.9	8.4	8.6	5.8	5.8	2.6	2.1	10.0
	PC/Glass		4.6	3.1	3.9	4.0	5.5	3.5	5.4	1.4	6.4
	PPS/Glass		4.0	3.6	7.1	8.3	3.9	6.1	2.1	3.1	7.4
	PBT/Glass		5.2	3.6	6.6	5.1	6.1	4.8	4.6	3.4	7.0
	PA66 (Nylon 66)/Glass		3.9	3.1	2.8	2.9	3.9	6.7	4.8	2.4	4.5
	Glass/Glass		6.0	3.7	5.0	7.5	3.0	5.1	1.5	2.9	3.7

\*The values shown in the characteristics table are examples from actual measurement values, not guaranteed values.  
\*ThreeBond is abbreviated to TB.

### For Motors

Product name	Volume	Characteristics
ThreeBond 1160	480g	Black / 125 Pa-s / Moisture curable, Non-silicone product, Tin-free
ThreeBond 1224G	95g	Milky white/1.2Pa-s/alcohol-releasing type/low-viscosity
ThreeBond 1226	330ml	Gray/97Pa-s/alcohol-releasing type/Good for resin adhesive/Tin-free product
ThreeBond 1357K	250g	Blue/12Pa-s/Suitable for surface bonding, Fluorescence emission, Low-halogen product, with UV curing added
ThreeBond 1360F	50g · 250g	Green / 500 mPa-s / High strength, High heat resistance
ThreeBond 1375N	50g · 250g	Green transparent/Interlocking part adhesive/500mPa-s/High strength/With UV curing added
ThreeBond 1535	170g · 470g	White/75Pa-s/Elastic adhesive/Tin-free product
ThreeBond 2049	450g	Main agent · Black, Curing agent · White / Flexible, high-adhesion type
ThreeBond 2149	450g	
ThreeBond 2222P	1kg	Black/45Pa-s/Curing at 100°C for 60 min, impact-resistant type
ThreeBond 2235L	1kg	Black/80Pa-s/Curing at 140°C for 30 min, high heat resistance, low linear expansion
ThreeBond 2237J	1kg	White/115Pa-s/Curing at 120°C for 60 min, high heat resistance, high adhesive strength
ThreeBond 2285	1kg	Milky white/140Pa-s/Curing at 120°C for 60 min, heat resistance
ThreeBond 2458		MEC process for pre-coating both bolts and nuts, Low strength, Green
ThreeBond 2468		MEC process for pre-coating both bolts and nuts, Medium strength, Red
ThreeBond 3042	250g	Colorless and transparent/20mPa-s/low-viscosity/high hardness
ThreeBond 3057	1kg	turbid white/35Pa-s/added Heat curability
ThreeBond 3084	250g	Gray/100Pa-s/specific gravity 2.19/Good for shape retention/high adhesive strength
ThreeBond 3164D	330ml	Pale white/10Pa-s/UV- and moisture-curable silicone, potting agent
ThreeBond 3955	50ml SET	Two-component low-elasticity fast-curing acrylic resin/high heat resistance, high moisture resistance
ThreeBond 7737	20g	Light yellowish transparent/2.0Pa-s/Extremely high peel strength, impact-resistant type

### For Smart Phones, Smart Watches, Earphones, Sensors and MEMS Devices

Product name	Volume	Characteristics
ThreeBond 1225B	250g	White/18Pa-s/Moisture-curable heat dissipating resin 1.59W/m-K
ThreeBond 1225C	250g	Gray/70Pa-s/high reliability heat dissipating resin 2.5W/m-K
ThreeBond 1357K	250g	Blue/12Pa-s/Suitable for surface bonding, Fluorescence emission, Low-halogen product, with UV curing added
ThreeBond 1390R	500ml	Blue-greenish transparent/Curing accelerating agent for anaerobic sealing adhesives (ethanol type)
ThreeBond 1530C	150g · 430g	Translucent/100Pa-s/Elastic adhesive/ISO 10993 Compliant
ThreeBond 1535	170g	White/75Pa-s/Elastic adhesive Tin-free product
ThreeBond 1535B	170g	Black/90Pa-s/Elastic adhesive Tin-free product
ThreeBond 1535C	120g	Colorless transparent/30Pa-s/Elastic adhesive Tin-free product
ThreeBond 1535D	150g	Gray/25Pa-s/Elastic adhesive Tin-free product
ThreeBond 1539	100g · 440g	Black/100Pa-s/Single-component elastic adhesive that cures by heat fast at low temperature, plant-based (castor oil) polymer
ThreeBond 1539B	440g	White/100Pa-s/Single-component elastic adhesive that cures by heat fast at low temperature, plant-based (castor oil) polymer
ThreeBond 1631 (30µm~)	1,320mm×200m	Colorless transparent/From 30 µm/UV-curable, flexibility, visible light-transmissive, light resistance
ThreeBond 2206S	30g · 1kg	Black/15Pa-s/Curing at 80°C for 30 min, low halogen product
ThreeBond 2296B	10g	Black/18.5Pa-s/Curing at 60°C for 30 min, low-halogen product
ThreeBond 3020B	30g	Pale yellow/3.5Pa-s/Formation of black cured product after irradiation with ultraviolet (365 nm), Low halogen product
ThreeBond 3027G	1kg	Light yellow/1.8Pa-s/For FPC reinforcement, flexibility, low water absorption
ThreeBond 3027J	1kg	Black/2.4Pa-s/Light blocking type, fast-curing type, low halogen product
ThreeBond 3065E	250g	Light yellowish transparent/7.0Pa-s/For surface adhesion (3 sec when set in combination with ThreeBond 1390F)
ThreeBond 3074C	30g	Clear / 7.0 Pa-s / Refractive index 1.51, low halogen content, LED-curable, excellent curability, high transparency
ThreeBond 3081L	370g	Gray white/70Pa-s/elastic sealant, heat resistance/good cold resistance, suitable for UV-CIPG applications
ThreeBond 3081P	350g	Light yellow/400Pa-s/elastic sealant, heat resistance/good cold resistance, suitable for UV-CIPG applications
ThreeBond 3120B	30g	Black/600mPa-s/Black UV resin for high shading, low halogen product, Epoxy type, UV-LED-curable
ThreeBond 3164D	330ml	Pale white / 10.0 Pa-s / UV and moisture-curing silicone, potting agent, excellent adhesion to engineering plastics
ThreeBond 3166	330g	Blue/330Pa-s/elastic sealant, heat resistance, good heat and Humidity resistance, suitable for UV-CIPG applications, silicone type
ThreeBond 3170B	50g	Light yellow/1.8Pa-s/For bonding optical components, visible light-curable, acrylic resin-based
ThreeBond 3304J	40g	Silver/80Pa-s/For quartz oscillators, Extra ultra micro dispensing, silicone type
ThreeBond 3331D	10g	Silver/25Pa-s/Single-component heat-curing conductive resin, cured at 80°C for 60 minutes, low halogen product
ThreeBond 3333F	10g · 30g	Brown / 20Pa-s / Single-component heat-curing adhesive / Excellent flexibility, cured at low temperatures, syringe type, silicone-based
ThreeBond 3350C	30g	Conductive silver paint/room temperature dry type, low resistance type

### For Camera modules, Digital Cameras and Surveillance Camera

Product name	Volume	Characteristics
ThreeBond 1225B	250g	White/18Pa-s/Moisture-curable heat dissipating resin 1.59W/m-K
ThreeBond 1225C	250g	Gray/70Pa-s/high reliability heat dissipating resin 2.5W/m-K
ThreeBond 1533	150g	White/100Pa-s/Elastic adhesive, DBT-free product
ThreeBond 1533C	150g	Translucent/100Pa-s/Elastic adhesive, DBT-free product
ThreeBond 1533D	150g	Gray/22Pa-s/Elastic adhesive, DBT-free product
ThreeBond 1533F	150g	Gray/180Pa-s/Elastic adhesive, DBT-free product
ThreeBond 1535	170g	White/75Pa-s/Elastic adhesive, Tin-free product
ThreeBond 1535B	170g	Black/90Pa-s/Elastic adhesive, Tin-free product
ThreeBond 1535C	120g	Colorless transparent/30Pa-s/Elastic adhesive, Tin-free product
ThreeBond 1535D	150g	Gray/25Pa-s/Elastic adhesive, Tin-free product
ThreeBond 1539	100g · 440g	Black / 100 Pa-s /Single-component elastic adhesive, Low-temp (60°C) & fast cure, Plant origin raw material
ThreeBond 2206S	30g · 1kg	Black/15Pa-s/Curing at 80°C for 30 min, low halogen product
ThreeBond 2296B	10g	Black/18.5Pa-s/Curing at 60°C for 30 min, low-halogen product
ThreeBond 2907D	1L	Colorless to light yellow/Single-component water repellent coating agent, drying time within 90 minutes
ThreeBond 2955P	250g	Gray/120Pa-s/Moisture-curable heat dissipating resin 4.8W/m-k
ThreeBond 2955Q	250g	Gray/103Pa-s/Moisture-curable heat dissipating resin 4.5W/m-k
ThreeBond 3017D	250g	White/13Pa-s/Lens fixing, soft type, speedy curing, UV-LED-curable, low-halogen product
ThreeBond 3017E	250g	White/25Pa-s/Good adhesion to materials difficult to bond, UV-LED-curable, low-halogen product
ThreeBond 3017F	250g	White/7.5Pa-s/Good adhesion to materials difficult to bond, UV-LED-curable, low-halogen product
ThreeBond 3020B	30g	Pale yellow/3.5Pa-s/Formation of black cured product after irradiation with ultraviolet (365 nm), low halogen product
ThreeBond 3030	330ml · 1kg	Milky white/16.5Pa-s/for bonding optical components, flexible
ThreeBond 3033B	333ml	Milky white/35Pa-s/Flexibility, heat cycle resistance, high adhesive strength
ThreeBond 3036	500g	Gray white/35Pa-s/for bonding optical components, low linear expansion, acrylic type
ThreeBond 3036G	250g	White/29Pa-s/Suitable for adhesion to various plastics, UV-LED-curable
ThreeBond 3081L	370g	Gray white/70Pa-s/elastic sealing agent, good heat resistance/cold resistance, suitable for UV-CIPG applications, acrylic type
ThreeBond 3081P	350g	Light yellow/400Pa-s/elastic sealing agent good heat resistance/cold resistance, suitable for UV-CIPG applications, acrylic type
ThreeBond 3114	250g	Gray white/26Pa-s/for bonding optical components, low curing shrinkage, epoxy type
ThreeBond 3114J	1kg	White/25Pa-s/for bonding optical components, low curing shrinkage, heat resistance UV-LED-curable epoxy type
ThreeBond 3142	60g	White / 60.0 Pa-s / Dual cure (UV and heat curing) for active alignment method, UV-LED curable
ThreeBond 3164D	330ml	Pale white/10Pa-s/UV- and moisture-curable silicone, potting agent
ThreeBond 3166	330g	Blue / 330 Pa-s / elastic sealing agent, good heat resistance / Humidity resistance, suitable for UV-CIPG applications, silicone type
ThreeBond 3168E	500g	Red / 90.0 Pa-s / UV-curable silicone gel, damping agent
ThreeBond 3170B	50g	Pale yellow/1.8Pa-s/for bonding optical components, visible light curing property, acrylic type
ThreeBond 3331D	10g	Silver/25Pa-s/Single-component heat-curing conductive resin, cured at 80°C for 60 min, low halogen product
ThreeBond 3333F	10g · 30g	Brown / 20Pa-s / Single-component heat-curing adhesive / Excellent flexibility, cured at low temperatures, syringe type, silicone-based

### For Batteries

Product name	Volume	Characteristics
ThreeBond 1153E	330ml	Gray/800Pa-s/Thermosetting olefin-based sealant, Gas barrier property, Chemical resistance
ThreeBond 1170H	1L	Blue/225mPa-s/battery sealant/Low moisture permeability
ThreeBond 1171F	15kg	Black/1.8Pa-s/Lithium battery sealant/Chemical resistance
ThreeBond 1171G	1L	Colorless transparent/600mPa-s/Lithium battery sealant
ThreeBond 1184E	1kg	Black/8.5Pa-s/Black of ThreeBond 1184
ThreeBond 3035B	100g	White/51Pa-s/Dye-sensitized solar cell sealant
ThreeBond 3118	100g	White/86Pa-s/Dye-sensitized solar cell sealant
ThreeBond 3178	300g	White / 155 Pa-s / Heat resistant, water resistant, acid resistant, cooling liquid resistant, low moisture permeability type

\* The Characteristics given herein are not guaranteed values, but examples of experimental values obtained by our specified test methods.

### For 5G Base Station and Optical Transceiver

Product name	Volume	Characteristics
ThreeBond 1225B	250g	White/18Pa-s/Moisture-curable heat dissipating resin 1.59W/m-K
ThreeBond 1225C	250g	Gray/70Pa-s/high reliability heat dissipating resin 2.5W/m-K
ThreeBond 1537	200g	White/55Pa-s/Elastic adhesive/UL94 V-0 certified product
ThreeBond 2270J	1kg	White/150Pa-s/Single-component heat-curing heat dissipating resin 4.2W/m-k, heat resistance, high adhesive strength
ThreeBond 2458		Green / Pre-coating (MEC process), low strength type
ThreeBond 2468		Red / Pre-coating (MEC process), medium strength type
ThreeBond 2955P	250g	Gray / 120Pa-s / Moisture-curing thermal conductive resin, thermal conductivity of 4.8 W/m-K
ThreeBond 2955Q	250g	Gray / 103Pa-s / Moisture-curing thermal conductive, thermal conductivity of 4.5 W/m-K
ThreeBond 3142	60g	White / 60 Pa-s / Dual cure (UV and heat curing) for active alignment method
ThreeBond 3166	330g	Blue / 330 Pa-s / elastic sealing agent, good heat resistance / cold resistance, suitable for UV-CIPG applications, silicone type
ThreeBond 3178	300g	White / 155 Pa-s / Heat resistant, water resistant, acid resistant, cooling liquid resistant, low moisture permeability type
ThreeBond 3331D	10g	Silver/25Pa-s/one-component thermosetting conductive resin, cured at 80°C for 60 min, low halogen product
ThreeBond 3333F	10g · 30g	Brown / 20 Pa-s / Single-component heat-curing adhesive / Excellent flexibility, cured at low temperatures, syringe type, silicone-based

### For Car Mounted Display / Camera

Product name	Volume	Characteristics
ThreeBond 1225B	250g	White/18Pa-s/Moisture-curable heat dissipating resin 1.59W/m-K
ThreeBond 1225C	250g	Gray/70Pa-s/high reliability heat dissipating resin 2.5W/m-K
ThreeBond 1535	170g	White/75Pa-s/Elastic adhesive Tin-free product
ThreeBond 1535B	170g	Black/90Pa-s/Elastic adhesive Tin-free product
ThreeBond 1535C	120g	Colorless transparent/30Pa-s/Elastic adhesive Tin-free product
ThreeBond 1535D	150g	Gray/25Pa-s/Elastic adhesive Tin-free product
ThreeBond 1539	100g · 440g	Black/100Pa-s/Single-component elastic adhesive that cures by heat fast at low temperature, plant-based (castor oil) polymer
ThreeBond 1631 (30µm~)	1,320mmx200m	Colorless transparent/From 30 µm/UV-curable, flexibility, visible light-transmissive, light resistance
ThreeBond 2206S	30g · 1kg	Black/15Pa-s/Curing at 80°C for 30 min, low halogen product
ThreeBond 2270J	1kg	White/150Pa-s/Single-component heat-curing heat dissipating resin 4.2W/m-k, heat resistance, high adhesive strength
ThreeBond 3020B	30g	Pale yellow/3.5Pa-s/Formation of black cured product after irradiation with ultraviolet (365 nm), Low halogen product
ThreeBond 3027J	1kg	Black/2.4Pa-s/Light blocking type, fast-curing type, low halogen product
ThreeBond 3036	500g	Gray white/35Pa-s/for bonding optical components, low linear expansion, acrylic type
ThreeBond 3036G	250g	White/29Pa-s/Suitable for adhesion to various plastics, UV-LED-curable
ThreeBond 3114	250g	Gray white/26Pa-s/for bonding optical components, low curing shrinkage, epoxy type
ThreeBond 3114J	1kg	White/25Pa-s/for bonding optical components, low curing shrinkage, heat resistance, UV-LED-curable, epoxy type
ThreeBond 3120B	30g	Black/600mPa-s/Black UV resin for high shading, low halogen product, Epoxy type, UV-LED-curable
ThreeBond 3315F	1kg	Conductive carbon resin/Low temperature-curable, spot bonding, flexibility
ThreeBond 3331D	10g	Silver/25Pa-s/Single-component heat-curing conductive resin, cured at 80°C for 60 min, low halogen product
ThreeBond 3350C	30g	Conductive silver paint/room temperature dry type, low resistance type

\* The values shown in the characteristics table are examples from actual measurement values, not guaranteed values.

### For General Purposes Related to Electrics and Electronics

Product name	Volume	Characteristics
ThreeBond 1220G	100g	Milky white/65Pa-s/alcohol-releasing type
ThreeBond 1234B	330ml	Gray/400Pa-s/Single-component heat-curable silicone, high adhesion, high durability
ThreeBond 1537	200g	White/55Pa-s/Elastic adhesive/UL94 V-0 certified product
ThreeBond 1771E	50g	Yellow/2.0mPa-s/Light curability added type instantaneous adhesive
ThreeBond 1773E	20g · 500g	Yellow/150mPa-s/Light curability added type instantaneous adhesive
ThreeBond 2081D	200g SET	Main agent: Light yellowish white/Curing agent: Brownish transparent, for bonding soft vinyl chloride materials
ThreeBond 2082C	200g SET	Main agent: White/Curing agent: Brownish transparent, for high shearing adhesion
ThreeBond 2086M	50ml SET 200g SET	Main agent: Colorless and transparent/Curing agent: Light yellowish transparent, low-viscosity fast-curing type
ThreeBond 2087	90g SET	Main agent: Light yellow/Curing agent: Light yellow, normal-temperature-curing type for structures
ThreeBond 2088E	100g SET	Main agent: Yellowish transparent/Curing agent: Yellowish brown and transparent, High thermal adhesiveness
ThreeBond 2202C	1kg	White/27Pa-s/Low-temperature curable type/ISO 10993 Compliant
ThreeBond 2212B	1kg	Black/25Pa-s/Curing at 80°C for 30 min, for potting
ThreeBond 2212C	1kg	Reddish brown/25Pa-s/Curing at 80°C for 30 min, for potting
ThreeBond 2212Q	1kg	Black/15Pa-s/Low-halogen product
ThreeBond 2247D	3kg	Milky white/45Pa-s/Curing at 150°C for 30 min, high peel strength
ThreeBond 3013Q	330ml · 1kg	Blue/23Pa-s/Potting of electric and electronic components, rubber elasticity, heat resistance, oil resistance
ThreeBond 3017B	500g	Milky white/16Pa-s/Good adhesion to materials difficult to bond, good moisture resistance
ThreeBond 3033L	330ml · 1kg	Blue/24.6Pa-s/flexible, high adhesive strength
ThreeBond 3042B	1kg	Colorless and transparent/500mPa-s/General-use type, good transparency, fast curing
ThreeBond 3042C	250g	Colorless and transparent/1500mPa-s/General-use type, good transparency, fast curing
ThreeBond 3049	250g	Light yellow / 500 mPa-s / Biomass mark certified product (biomass degree: 45%), LED-curable, lowviscosity
ThreeBond 3056K	333ml	Greenish transparent/3.6Pa-s/With moisture-curability added, suitable for bonding and sealing
ThreeBond 3177	20g	Yellowish transparent/1.2Pa-s/With moisture-curability added, moisture resistance, good heat resistance, ISO 10993 Compliant
ThreeBond 3301W	200g	Single-component heat-curing conductive resin/epoxy-based/solventless type/Silver
ThreeBond 3380	60g SET	Two-component room temperature curing conductive resin/epoxy-based/solventless type/Silver
ThreeBond 3381	500g SET	Two-component room temperature curing conductive resin/acrylic resin-based/solventless type/Nickel
ThreeBond 3921	250g · 1kg	Red/5.1Pa-s/Less-odor acrylic resin-based structural adhesive main agent, good adhesion to a wide variety of materials
ThreeBond 3923	1kg	Pale white/3.0Pa-s/Honeymoon-type acrylic resin-based structural adhesive main agent, good heat resistance
ThreeBond 3926	250g · 1kg	Blue/5.1Pa-s/Less-odor acrylic resin-based structural adhesive curing agent, good adhesion to a wide variety of materials
ThreeBond 3928	1kg	Green/3.0Pa-s/Honeymoon-type acrylic resin-based structural adhesive curing agent, good heat resistance
ThreeBond 6651F	180g · 420g · 18kg	Non-flammable parts cleaner / Non-hazardous substance
ThreeBond 6651G	18kg	Non-flammable parts cleaner / Non-hazardous substance / Low resin attack property
ThreeBond 7721	20g	Colorless to light yellowish transparent/5.0mPa-s/Non-whitening type
ThreeBond 7738	20g	Light yellowish transparent/5.0Pa-s/Extremely high peel strength, impact-resistant type
ThreeBond 7741	20g	Light yellowish transparent/2.0mPa-s/Standard type
ThreeBond 7781	20g · 50g	Light yellowish transparent/2.0mPa-s/Extremely-fast-curing type
ThreeBond 7782	20g	Light yellowish transparent/15mPa-s/Extremely-fast-curing type
ThreeBond 7784	20g	Light yellowish transparent/160mPa-s/Extremely-fast-curing type
ThreeBond 7785	20g	Light yellowish transparent/500mPa-s/Extremely-fast-curing type
ThreeBond 7786	20g	Light yellowish transparent/1.0Pa-s/Extremely-fast-curing type
ThreeBond 7789	20g	Light yellowish transparent/Gel/Extremely-fast-curing type
ThreeBond 7796	100ml	Curing accelerating agent/Faint-odor type
ThreeBond 7797	100ml	Multi-primer for materials difficult to bond

\* The Characteristics given herein are not guaranteed values, but examples of experimental values obtained by our specified test methods.

# Application Equipment

ThreeBond develops and sells sealants and adhesives as well as the equipment to apply and pressure feed them to maximize their performance. As a manufacturer with full knowledge of sealants and adhesives, ThreeBond enables to reduce cost and improve

productivity, product quality, and working environment by developing such equipment. To provide further added value for customers, ThreeBond has been making efforts to develop and sell the equipment that incorporates new application and pressure feeding technologies.

Application Equipment

## Features of ThreeBond Application Equipment

- ① **Applies the required amount of material in the required shape.**  
ThreeBond offers valves and nozzles to apply materials in the shape of points, lines, and coatings.
- ② **Maximizes sealant and adhesive performance.**  
As a manufacturer thoroughly familiar with properties of sealants and adhesives, ThreeBond develops and designs the equipment for applying and pressure feeding each material.
- ③ **Applies and pressure feeds sealants and adhesives in all container types.**  
ThreeBond offer equipment for applying and pressure feeding sealants and adhesives in various forms of containers, ranging from syringes to pails.
- ④ **Dedicated equipment design and manufacture.**  
ThreeBond design and manufacture dedicated equipment to meet customer needs, ranging from simple applicators for low-volume production to custom-designed dispensing machines equipped with multiple functions for high-volume and multiple types of production.

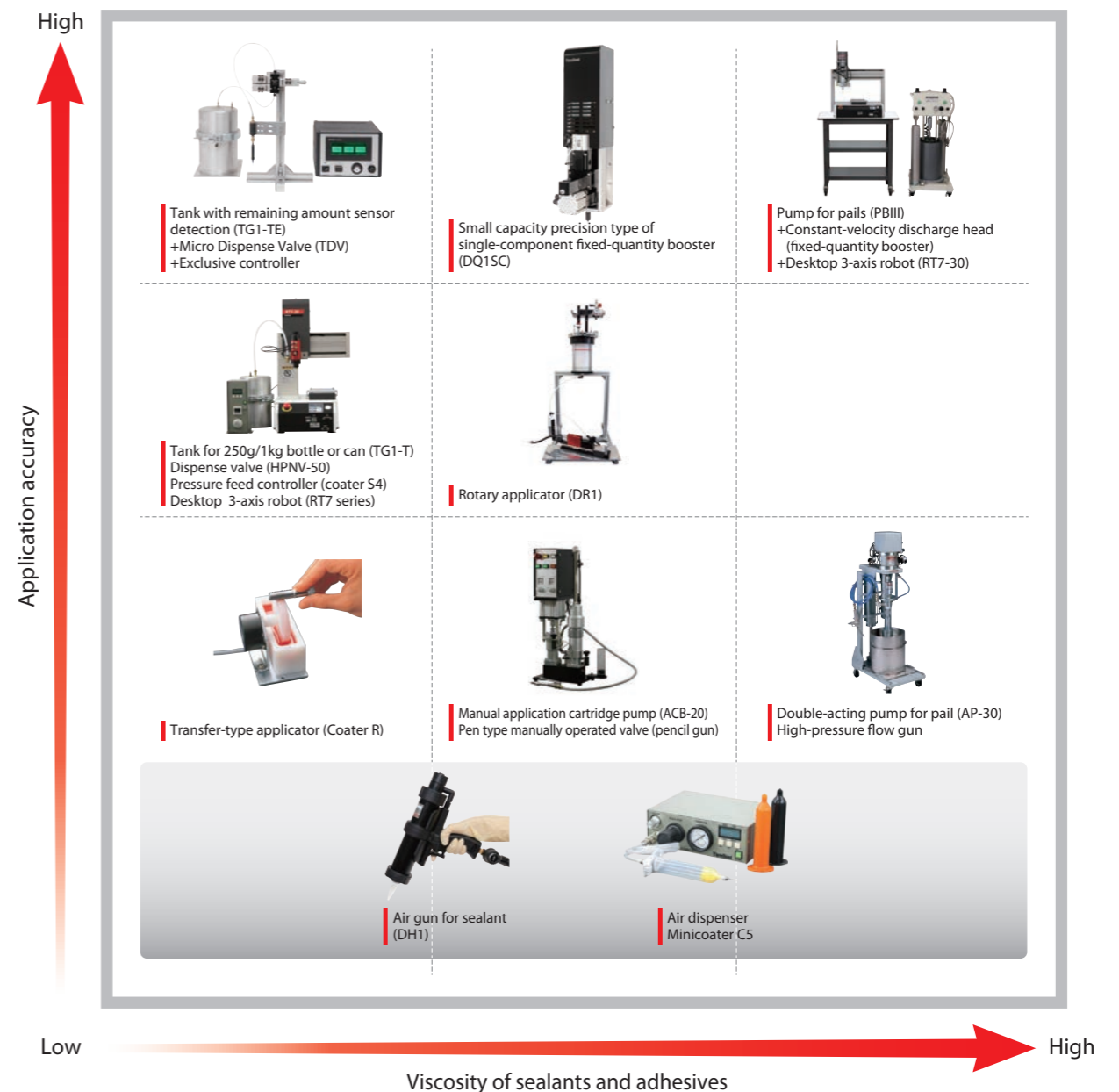
The main components of a dispensing machine are as follows:

- Pressure feeder: Equipment including pumps to pressure feed materials
- Hoses: Piping used to pressure feed material from the pump to the valve
- Valves: Used to control the flow of material
- Nozzles: Attached to the valve and used to adjust the shape/size in which material is applied
- Controllers: Equipment to control the valve and pump
- Drive units: Robots that automate the application process

ThreeBond provide dispensing machines that can meet customer needs by combining various products that incorporate ThreeBond's unique technologies and features.

## For selection of Application Equipment

ThreeBond offers the following products according to the properties of each material, to maximize its performance. To provide the Application Equipment that meets customer requirements, we deploy staff who is specialized in the equipment and has full knowledge of sealants and adhesives at home and abroad. We can respond to a wide range of customer needs from delivery of the devices to provision of after-sales services. To select equipment suitable for our sealants and adhesives, contact one of our sales engineers.





# TB1100,1200 series

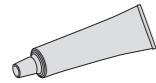
- A lineup of devices that can handle small-amount and large-amount sealants and adhesives is available.
- They are suitable for the bead application of solvent-volatilization-type and moisture-curable-type liquid gaskets.
- Dispensers that can apply a fixed quantity of a sealant and an adhesive without waste are available.
- A unit that can reduce the amount of a remaining liquid agent in a pail is available as an option. (Some conditions must be met.)

# TB1300 series

- Lineup of products for improvement of productivity and workability
- The RTM and RTM-H Series enable products that meet customer requirements to be designed and manufactured.

- \* ACB...Automatic Cartridge Booster
- \* PCB...Power Cartridge Booster
- \* RTM...Rotary Transfer Motor
- \* RTA-H...Rotary Transfer Air-motor by HandApplication

## Tube

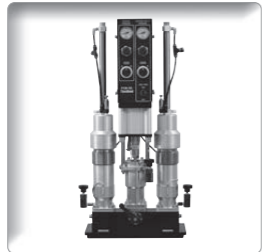


**Air gun for sealant (DH1)**  
 Applicable package type: Cartridge/Tube  
 This is a pneumatic sealant gun.  
 \*This product may not be compatible with some cartridge and tube types. For the details, contact one of our sales engineers.  
 (Individual catalog number #36)



**Tank for tube Air dispenser (minicoater C5)**  
 Applicable package type: Tube  
 The discharge amount is adjusted by means of the dispensing time and tank pressure.  
 \*This product may not be compatible with some tube types. For the details, contact one of our sales engineers.  
 (Individual catalog number #2)

## Cartridge

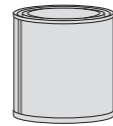


**Cartridge-type pump (PCB-20)**  
 This is a high-pressure feeding pump designed for automatic application. When it is combined with a robot, uniform linear application is possible. Automatic application by machine is possible.  
 (Individual catalog number #6)



**Dedicated to surface application Adhesive discharging valve (RV-SN Series)**  
 This is an adhesive discharging valve to apply material in plane-like or band-like form. Automatic application by machine is possible.  
 (Individual catalog number #30)

## 1-kg can



**Tank for 1-kg or less bottle or can (TG1-T)**  
**Pen type manually operated valve (pencil gun)**  
 This dispenser is for a low-viscosity material. Dispensing is done by pulling the gun lever. Automatic application by machine is impossible.  
 (Individual catalog number #3)



**Tank for 1-kg or less bottle or can (TG1-T)**  
**Needle type dispense valve (HPNV-50)**  
**Pressure controller (coater S4)**  
**Desktop robot (RT7 Series)**  
 This device pressure-feeds a material from a tank and applies the material by controlling the valve. When the dispenser is combined with a robot, it applies the material appropriately to a programmed position. Automatic application by machine is possible.  
 (Individual catalog number #14)

## Pail



**Double-acting pump for pails (AP-30)**  
**High-pressure flow gun type (High-pressure flow gun)**  
 This dispenser is excellent in high-speed dispense and operability as the result of a combination of high-pressure feeding pump for pails and a high-pressure flow gun. Automatic application by machine is impossible.  
 (Individual catalog number #7)

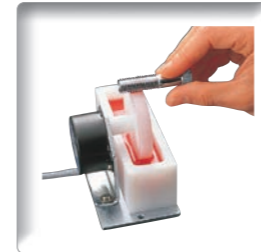
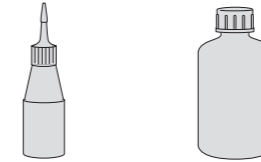


**Single-acting pump for pails (PBIII-45)**  
 This is a pump for streaming a high viscosity liquid agent efficiently. When it is combined with a robot, uniform linear application is possible. Automatic application by machine is possible.  
 (Individual catalog number #8)



**Pump for pails (PB III)**  
**Single-component fixed-quantity booster (fixed-quantity booster)**  
**Desktop robot (RT7 Series)**  
 When a high-pressure feeding pump designed for automatic application and a constant-speed dispense head are combined with a robot, high-precision and uniform linear application that is not affected by changes in the environmental temperature is possible. Automatic application by machine is possible.  
 (Individual catalog number #9)

## Bottle



**Transfer-type simple applicator (coater R)**  
 Application to threaded portion is done by lightly pressing the threaded portion of a bolt to the outer portion of the rotating rotor. Automatic application by machine is impossible.  
 (Individual catalog number #10)



**Rotary applicator (DR1 Series)**  
 This is a unit for applying and pressure feeding anaerobic sealant to the inside of a cylinder. Automatic application by machine is possible.  
 (Individual catalog number #13)



**Syringe dispenser (minicoater C5)**  
 The discharge amount is adjusted by means of the dispensing time and air pressure. Automatic application by machine is possible.  
 (Individual catalog number #11)



**Manual rotary applicator (RTA-H)**  
 This is a rotary coating machine for coating the inside of a cylinder with a material manually. Automatic application by machine is impossible.  
 (Individual catalog number #12)

\* ThreeBond is abbreviated to TB.

# TB1500 series

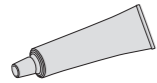
- Lineup of products for improvement of productivity and workability  
 - Applicators suitable to a wide range of adhesives, such as solvent-volatilization type, moisture-curable type, and aqueous pressure-sensitive type, can be selected.

# TB1700, 7700 series

- Application of an instantaneous adhesive that is difficult to handle is automated, which enables a work environment and application quality to be improved.

- \* LVCT-AC...Low Viscosity Cartridge Tank - Automatic Connection
- \* HPV-50...Pressure Needle Valve - Type 50
- \* DPB-40...Diaphragm Power Booster
- \* TDV...Triple Diaphragm ValveApplication

## Tube



**Air gun for sealant (DH1)**

Applicable package type: Cartridge/Tube  
 This is a pneumatic sealant gun.  
 \*This product may not be compatible with some cartridge and tube types. For the details, contact one of our sales engineers.

Individual catalog number #36



**Tank for tube Air dispenser (minicoater C5)**

Applicable package type: Tube  
 The discharge amount is adjusted by means of the dispensing time and tank pressure.

\*This product may not be compatible with some tube types. For the details, contact one of our sales engineers.

Individual catalog number #2

## Cartridge



**Air gun for sealant (DH1)**

Applicable package type: Cartridge/Tube  
 This is a pneumatic sealant gun.

Individual catalog number #36

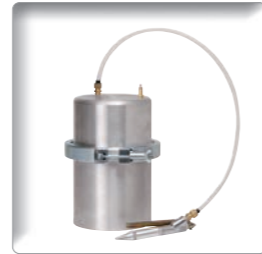


**Cartridge-type tank (TC2) Dispensing valve (HPNV-50) Controller for pressure (coater S4) Desktop robot (RT7 Series)**

This unit pressure-feeds a material from the cartridge and controls the open/close valve to apply the material. When the controller is combined with a robot, it will apply the material to a programmed position.

Automatic application by machine is possible.  
 Individual catalog number #15

## 1-kg can



**Tank for 1-kg or less bottle or can (TG1-T) Pen type manually operated valve (pencil gun)**

This dispenser is for a low-viscosity material. Dispensing is done by pulling the gun lever. Automatic application by machine is impossible.

Individual catalog number #3



**Tank for 1-kg or less bottle or can (TG1-T) Needle type dispense valve (HPNV-50) Pressure controller (coater S4) Desktop robot (RT7 Series)**

This device pressure-feeds a material from a tank and applies the material by controlling the valve. When the dispenser is combined with a robot, it applies the material appropriately to a programmed position.

Automatic application by machine is possible.  
 Individual catalog number #14

## Bottle



**Tubing pump**

This dispenser is suitable for dispensing low-viscosity material in a very small amount.



**Tank with level sensor detection (TG1-TE) Extremely small-quantity and fixed-quantity valve (TDV) Exclusive controller**

This is an extremely small-quantity instant adhesives dispenser with excellent durability and stability. Automatic application by machine is possible.

Individual catalog number #17

# TB2000 & 2100, 2200 series

- Lineup of products for improvement of productivity and workability
- Applicators are available for each of the single-component type and the two-component type.
- The two-component type can be set, according to a mixing ratio.

# TB3000, 3100 series

- UV-curing type, anaerobic-curing type, and moisture-curing type
- Applicators for each of the above types are available.
- Auxiliary equipment needed for the process from application to curing is available.
- Equipment suitable for CIPG application (design of a special-purpose machine)

\* CIPG...Cured in Place Gasket

## Twin cartridge

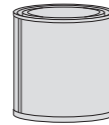


### Hand gun for two-component liquid cartridge

This hand gun mixes a two-component liquid agent with its static nozzle and injects it. Automatic application by the machine is impossible.

Individual catalog number #18

## 1-kg can



### Syringe dispenser (minicoater C5)

The discharge amount is adjusted by means of the dispensing time and air pressure. Automatic application by machine is possible.

Individual catalog number #1



### Tank for 1-kg or less bottle or can (TG1-T) Pen type manually operated valve (pencil gun)

This dispenser is for a low-viscosity material. Dispensing is done by pulling the gun lever. Automatic application by machine is impossible.

Individual catalog number #3



### Tank for 1-kg or less bottle or can (TG1-T) Needle type dispense valve (HPNV-50) Pressure controller (coater S4) Desktop robot (RT7 Series)

This device pressure-feeds a material from a tank and applies the material by controlling the valve. When the dispenser is combined with a robot, it applies the material appropriately to a programmed position. Automatic application by machine is possible.

Individual catalog number #14



### One-component dispenser with a gear pump/ Two-components-mixing dispenser

This dispenser pressure-feeds an agent with its gear pump. It pressure-feeds each of two liquids with the gear pump and mix them with the dynamic mixer to inject the mixture. This is manufactured, according to specifications, such as a mixing ratio and injection speed. Automatic application by the machine is possible.

Individual catalog number #19



### Dedicated to surface application Adhesive discharging valve RV-SN Series

This is an adhesive discharging valve to apply material in plane-like or band-like form. Automatic application by machine is possible.

Individual catalog number #30



### Pump for 1-kg cans PH1-20

This is a pump for high-pressure feeding of liquid agents loaded in a 1 kg metal can. 1 kg cans of liquid agent can be opened with a can opener and set to the pump without transferring liquid.

Individual catalog number #35

## Pail



### Reciprocating pump for pails (AP-30) High-pressure flow gun (H-FLG)

This dispenser is excellent in high-speed injection and operability as the result of combination of a high-pressure feeding pump for pails and a high-pressure flow gun. Automatic application by the machine is impossible.

Individual catalog number #7



### Single-acting pump for pails (PBIII-45)

This is a high-pressure feeding pump for automatic application. When it is combined with the robot, uniform linear application is possible.

Individual catalog number #8

## Syringe

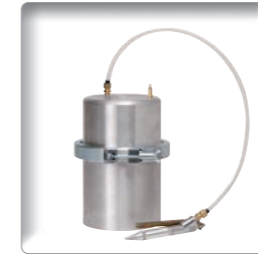
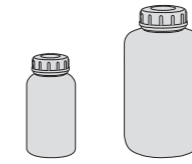


### Syringe dispenser (minicoater C5)

The discharge amount is adjusted by means of the dispensing time and air pressure. Automatic application by machine is possible.

Individual catalog number #11

## 250-g/1-kg bottle



### Tank for 1-kg or less bottle or can (TG1-T) Pen type manually operated valve (pencil gun)

This dispenser is for a low-viscosity material. Dispensing is done by pulling the gun lever. Automatic application by machine is impossible.

Individual catalog number #3

## Cartridge



### Air gun for sealant (DH1)

Applicable package type: Cartridge/Tube This is a pneumatic sealant gun. \*This product may not be compatible with some cartridge and tube types. For the details, contact one of our sales engineers.

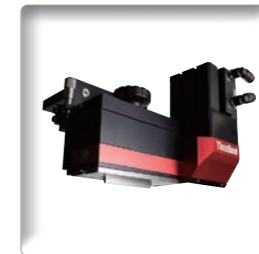
Individual catalog number #36



### Cartridge-type tank (TC2) Dispensing valve (HPNV-50) Controller for pressure (coater S4) Desktop robot (RT7 Series)

This unit pressure-feeds a material from the cartridge and controls the open/close valve to apply the material. When the controller is combined with a robot, it will apply the material to a programmed position. Automatic application by machine is possible.

Individual catalog number #15



### Dedicated to surface application Adhesive discharging valve RV-SN Series

This is an adhesive discharging valve to apply material in plane-like or band-like form. Automatic application by machine is possible.

Individual catalog number #30

\* ThreeBond is abbreviated to TB.

# Quick chart for needle, nozzle, syringe and barrel

## Standard metal needles with high versatility



Standard metal needles with high versatility (SNA Series)

Unit : mm

Gauge	12G	13G	14G	15G	16G	17G	18G	19G	20G	21G
Internal diameter	2.27	1.94	1.64	1.43	1.25	1.11	0.92	0.72	0.61	0.52
Outer diameter	2.77	2.40	2.10	1.83	1.65	1.49	1.28	1.08	0.91	0.82

Gauge	22G	23G	24G	25G	26G	27G	28G	30G	31G	32G
Internal diameter	0.42	0.34	0.31	0.26	0.25	0.21	0.18	0.14	0.13	0.10
Outer diameter	0.72	0.64	0.57	0.52	0.46	0.42	0.36	0.32	0.26	0.23

## Plastic needle



Plastic needle (PN Series)

Unit : mm

Gauge	15G	16G	17G	18G	19G	20G	21G	22G	23G	24G
Internal diameter	1.43	1.26	1.06	0.97	0.78	0.66	0.57	0.47	0.40	0.31
Outer diameter	1.83	1.65	1.50	1.27	1.08	0.90	0.81	0.72	0.64	0.56

Gauge	25G	26G	27G
Internal diameter	0.29	0.25	0.20
Outer diameter	0.51	0.46	0.41

## PTFE nozzle



PTFE nozzle (TN Series)

Unit : mm

Gauge	13G	14G	15G	16G	17G	18G	19G	20G	21G	22G
Internal diameter	1.50	1.35	1.19	1.07	0.96	0.86	0.68	0.56	0.46	0.38
Outer diameter	2.10	1.95	1.79	1.67	1.56	1.46	1.18	1.06	0.92	0.84

## Double thread screw taper nozzle



Double thread screw taper nozzle (TPND Series)

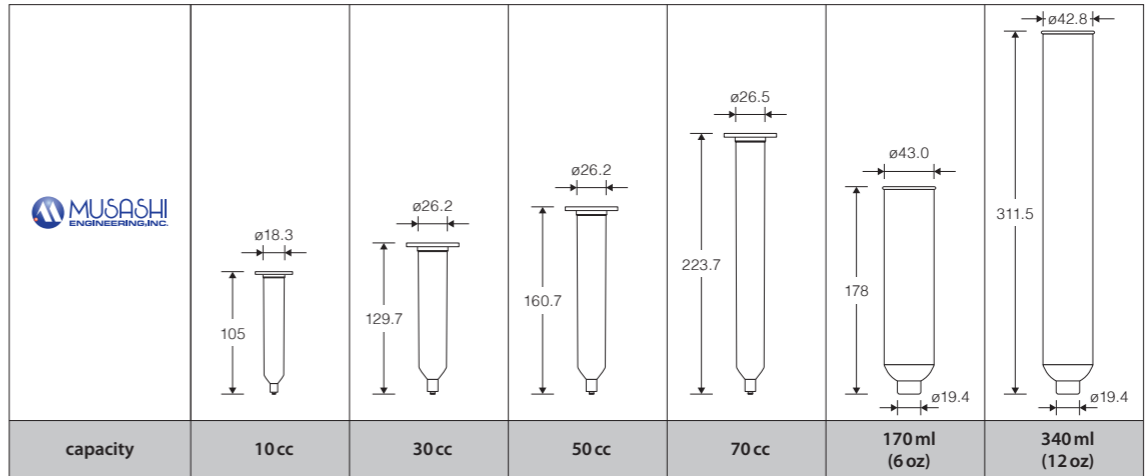
Unit : mm

Gauge	12G	14G	16G	18G	20G	22G	25G	27G	30G
Internal diameter	2.40	1.60	1.19	0.84	0.61	0.40	0.25	0.20	0.15

\* Quoted from Musashi Engineering, Inc.

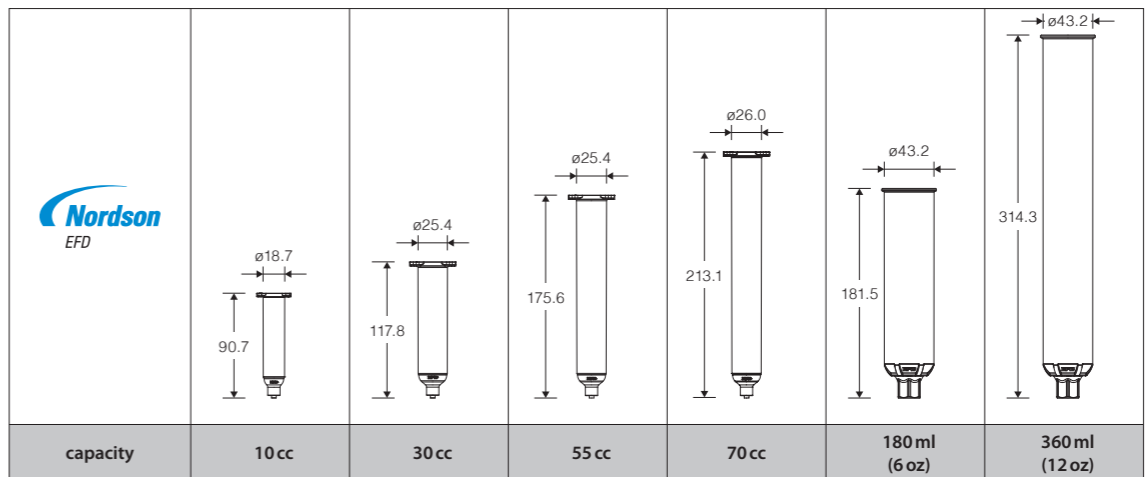
\* Please use same manufacturer nozzle and syringes.

## Musashi Engineering, Inc.

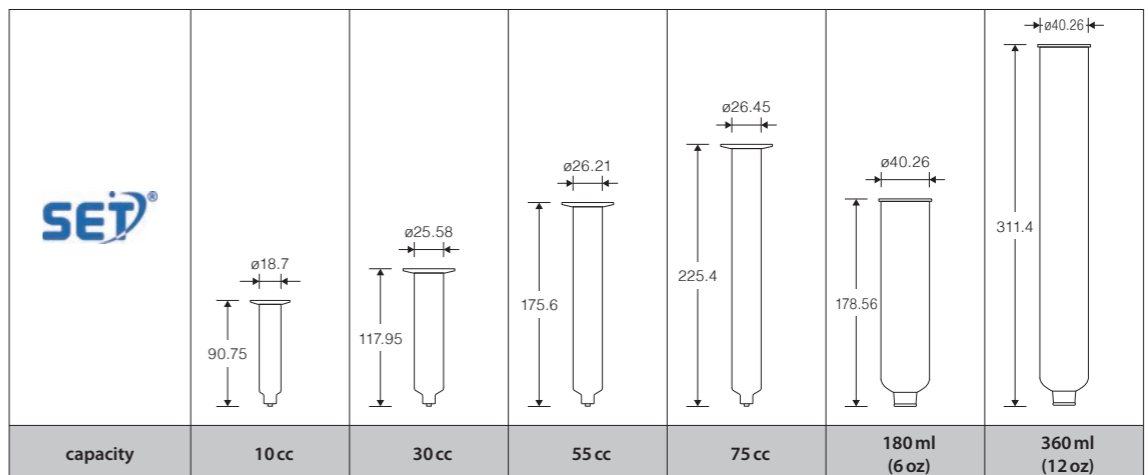


\* This color is clear

## Nordson K.K.



## SAN-EI TECH LTD.



\* This is reference dimensions.

**For Industrial Use Only****Do not use this product for household purposes**

This product was developed for general industrial use. Before using this product, the user must accept the following terms:


- The technical data given herein are not guaranteed values, but examples of experimental values obtained by our specified test methods. We do not guarantee that the uses described herein do not conflict with any intellectual property right.
- Users are asked to examine whether the product is appropriate to the purpose of use and can be used safely before they use it and bear all responsibilities and hazards involved in its use. Never use the product for medical implants that may be embedded, injected or left in the body.
- We are not liable for personal injury or property damage caused by improper handling of this product. If the properties and usage of this product are unknown, never use it.
- For detailed safety information of the product, see the Safety Data Sheet (SDS). To obtain the SDS, contact our sales office or customer service center.
- Information in this technical document is subject to change at our discretion without notice.

● The following are trademarks or registered trademarks of ThreeBond Co., Ltd.  
 ThreeBond MEC Sealock ThreeLock DryLock GOLD LABEL ThreeSealer ThreeSheetPacking PASTAR ThreeRuster  
 Ultra Glass Coating(Logo) TYREPANDO THREEBONDTAPE

Creating Our Future From a Single Drop

**ThreeBond Co., Ltd.**

4-3-3 Minamiosawa, Hachioji, Tokyo 192-0398

 0120-56-1456

TEL 81 42 670 5333

- With about 100 sales offices and manufacturing plants in Japan as well as 60 sales offices and manufacturing plants that are located outside of Japan, we have established a system to quickly meet the needs of our customers.

Your request: