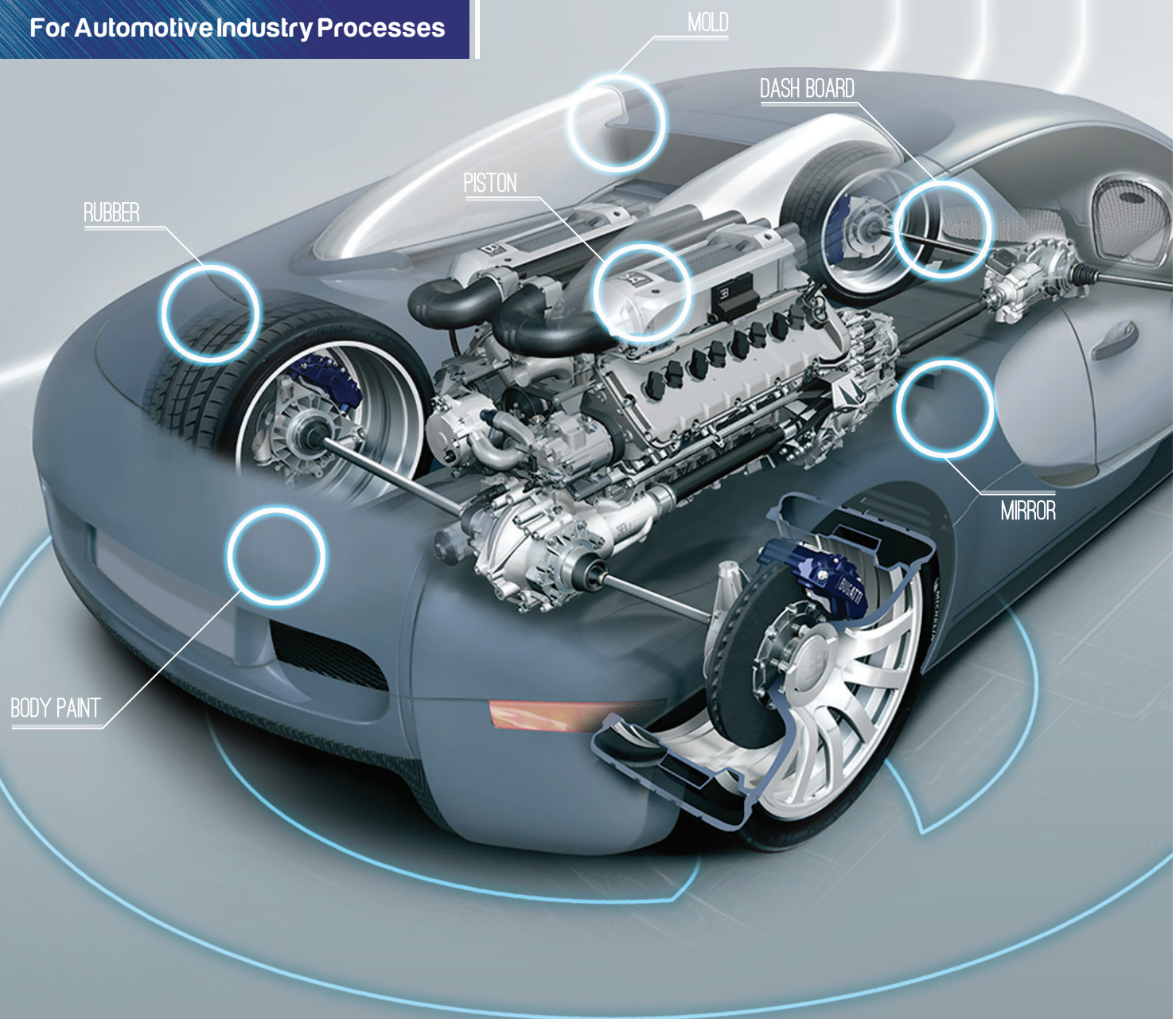




INDUSTRIAL CATALOGUE

# AUTOMOTIVE

For Automotive Industry Processes



## INTRODUCING

Hisakaworks have been producing plate heat exchangers for many years for many various industries such as palm oil, HVAC, marine, oil and gas, and many others. One of the industries that we constantly supply is the automotive industry. In the automotive industry, there are more than 20,000 components involved. These components vary from as small as bolts and nuts to components as big as the car exterior itself. Plate heat exchangers are involved playing a significant part in the majority of the manufacturing of these components.

With our in-depth experience and latest technologies from Japan, Hisakaworks supplies the entire plate heat exchanger including design, spare parts for the plate heat exchanger, and even servicing packages to ensure constant optimum performance. Herewith, we would like to introduce how Hisaka plate heat exchangers become a vital role in the majority of processes of automotive industry.



## WE ARE INVOLVED IN:

The Manufacturing of Vehicle Body

Rethreading and Rebuilding of Rubber Tyres And Tubes

Manufacturing of Computers and other Information Processing Equipments

The Manufacturing of Vehicle Equipment And Accessories

Manufacturing of Bearings, Gears, Gearing and Driving Elements

Manufacturing of Electric Motors, Generators, and Transformers

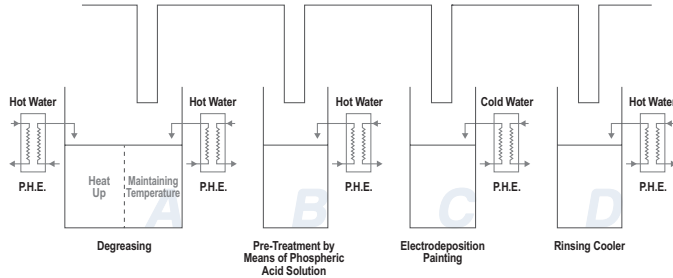
The Manufacturing of Rubber Tyres And Tubes

Manufacturing of Cooling and Ventilation Equipment

Manufacturing of Electrical Equipment for other Engine, Transmission and Vehicle Parts

# 1 BODY PAINT

## PAINING PROCESS FOR THE AUTOMOBILE INDUSTRY



### A. DEGREASER HEATER

- The car bodies have to be washed by the degreaser fluid to ensure that it is free of the press oil. The degreaser fluid goes through two plate heat exchangers.
  - First plate heat exchanger is to heat up the degreaser fluid to the wanted temperature to be used.
  - After the car body is washed with the degreaser fluid, the temperature of the degreaser fluid will drop. Hence, the degreaser fluid is channeled into the second plate heat exchanger to be heated back up into the ideal temperature.

### B. PHOSPHATE ACID SOLUTION COOLER

- The car bodies goes through a phosphate acid solution treatment. This is meant to create a coating that will ensure metal cleanliness, protection of rust to the car body, and also facilitates the paint to adhere on the car body better. In addition, it also provides a uniform metal appearance.
- At HISAKA, we know the reasons why
  - Hot water must be used as the heating media.
  - High velocity of the flowing solutions.
  - Hisaka plate heat exchangers provide the best performance.

### C. ED PAINT COOLER

- The car bodies are painted using an electrodeposition painting system. In this process, plate heat exchangers are used to control the temperature of the paint to ensure the optimum painting performance and the tight bond of the paint to the metal surface of the car body.

### D. RINSING COOLER

- The car bodies after being painted, are rinsed with water to ensure that the car has an even and neat painting. The plate heat exchanger provided by HISAKA ensures the water temperature is constantly optimum to wash the car bodies.



## THE MANUFACTURING OF AUTOMOTIVE COMPONENTS

# 2 TYRES

### A. TYRE CABLES – DRAWING MACHINE COOLER

- Tyre cables initially are thick wires. It is being pulled to thinner wires through the drawing machine. In the drawing machines, emulsion oils are used to cool the wires. The emulsion oils, after cooling the wires, will be heated up and channeled to the plate heat exchanger where it is being cooled and reused once more.

### B. TYRE CALENDER HEATER

- Tyre Calendering is a process to press raw rubber tyres into filaments. The pressing process requires hot cylinders which are heated up by flowing hot water. The temperature of this hot water is then maintained by the Hisaka Plate heat exchanger.

### C. TYRE EXTRUSION PROCESS

- In the tyre extrusion process, pressure and heat is applied to the rubber to produce the shape of the tyre. After the shape and tread of the tyre is created, it is cooled down through cool water, which the temperature of the cool water is maintained by using the plate heat exchanger.

### D. TYRE BUILDING MACHINE COOLER

- The tyre building machine will coil the tyre into its round shape. In doing so, rollers are involved and will generate a large amount of heat. Overheating halts the process. Oil is used to cool down the rollers. By the use of plate heat exchanger, the heated oil is cooled down.

### E. DISC BRAKE – GRINDING OIL COOLER

- The manufacturing of the disc brakes involves grinding of its surface. In the process of such grinding, the grinding oil cooler is utilized. Due to the large friction involved, there will be a large amount of heat generated. The oil absorbs the heat and is channeled into the plate heat exchanger where it is cooled down by using cooling water.

### F. RIMS – OIL COOLER

- The manufacturing of rims requires quenching effect for strengthening of the metal. Hence, an oil quencher is used to cool the rims. The oil involved will then be heated up. This is where plate heat exchangers are required to cool it down efficiently by using cooling water

## CAR INTERIOR

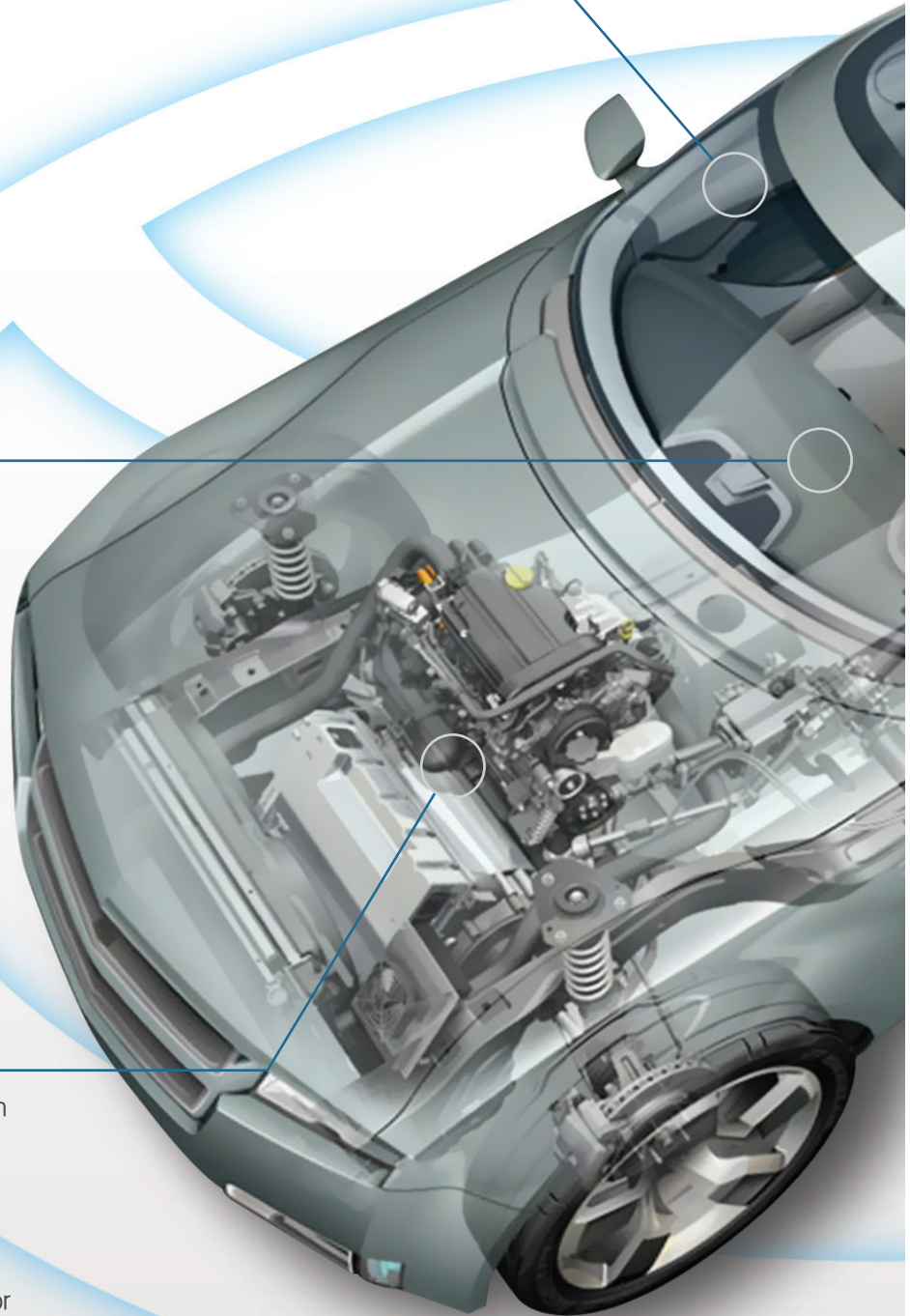
- Interior car plastic materials
- Armrests
- Door
- Car locks

## GLASS POLYMERS

- Tempered glass

## CAR ENGINE

- Coil wire at the ignition system
- Camshaft
- Connecting rod
- Pistons
- Engine block parts
- Flange Rocker arm Connector
- Air Con system parts with plating
- Chassis Metal forging



## CAR SHEET / CUSHION

- Polyurethane foam

## BODY PAINTS

- Body paint ( Degreaser, Phosphate acid solution, ED Painting, Rinsing)

## EXHAUST

- Exhaust plating
- Flange gasket

## TYRES

- Tyre Wire
- Rims
- Absorber
- Tyre tread
- Disc breaks
- Tyre Ply
- Tyre breakers
- Suspensions

## CAR BODY

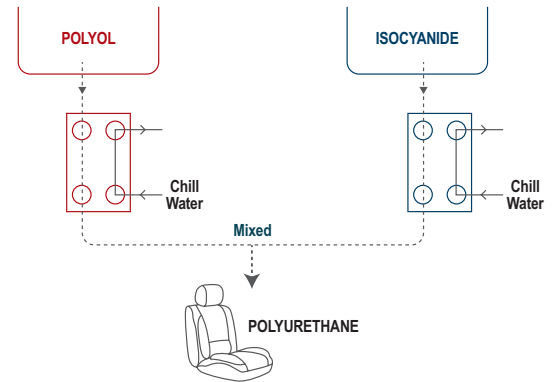
- Metal frame stamping including bonnet/hood
- Car doors
- Hinge
- Fender
- Other parts of the Car body



**1 CAR SHEET/CUSHION**

**POLYOL/ISOCYANIDE COOLER**

- The creation of poly-urethane car seat cushions is the mixture of polyol and isocyanide. In this way, the foam created can be flexible. However, the polyol and isocyanide initially is at a high temperature. Through HISAKA plate heat exchangers, both of the solutions are cooled down in order for it to reach the reactive level.

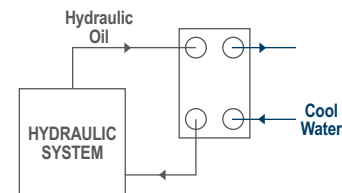


**THE MANUFACTURING OF  
AUTOMOTIVE COMPONENTS**

**2 CAR BODY**

**BODY-STAMPING HYDRAULIC OIL COOLER**

- The body-stamping process requires a hydraulic system. Due to long constant stamping, the system will overheat easily. Through oil, the plate heat exchanger cools down this system.

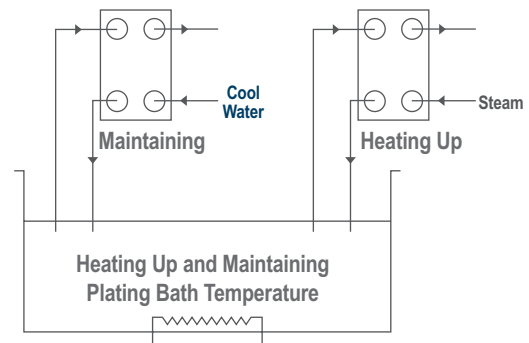


**ABSORBER**

- The absorbers of a car will go through a plating process. Through this process, the absorber properties become harder. The chemicals for this plating process function at a controlled temperature and the ability to maintain such temperature is facilitated by HISAKA plate heat exchangers.

**PLASTIC MOLDING COOLER**

- In the plastic molding process to mold plastic parts of the car, the temperature for the machine is very important to prevent the machine from being irresponsive or breaking down due to clogging of the hydraulic mechanisms. To achieve such purposes, plate heat exchangers are used to maintain the temperature of the hydraulic oil in the molding machine.



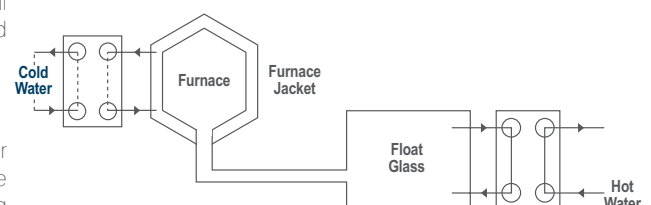
**3 GLASS**

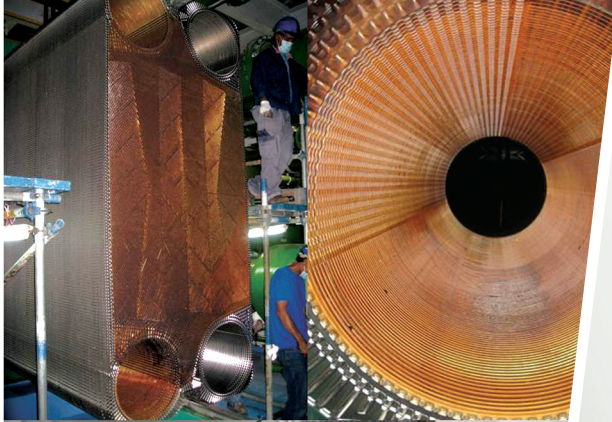
**FURNACE COOLER**

- In the formation of the glass used for cars, a furnace is involved. The blast furnaces function at a high temperature and if not cooled down, will damage the furnace body. Hence, the walls of the furnaces are cooled down through plate heat exchangers

**FLOAT GLASS PROCESS**

- In the manufacturing of glass for automotive vehicles, immediately after the furnace, a process known as 'the float glass process' occurs. The extremely hot glass is being cooled down at an area known as floating area by using hot water as cold water will shatter it. The hot water is constantly maintained at the certain temperature by a plate heat exchanger.





## SERVICING

For numerous years, we have been servicing plate heat exchangers we supplied to the automotive industry. From our vast experience, we know the following possible problems:-

- Support is hard to get and hence maintenance of heat exchangers become a problem.
- Gasket replacement is tough because of the glue used on the plate
- Due to inexperience servicing, the plates are rearranged in a wrong manner causing leakages.

There are a lot more problems that may arise which are not mentioned. At Hisaka, we are aware of these problems and we prevent them. Prior to that, we also provide our high-performance HISAKA S1 Glue which facilitates gasket replacement (ease of removal and clean gasket grooves at the plate). Through modern technology, we prevent any problems caused by our plate heat exchangers to the factory's processes. Hence, we even provide reminders of servicing dates through emails or phone calls. In this industry, quality makes the biggest difference.

At HISAKA, we have a group of experienced and well-trained service engineers committed and dedicated to attend to the plate heat exchangers in the South East Asia region.



PRODUCT CATALOGUE

## AUTOMOTIVE

For Automotive  
Industry Processes



**WE are  
HERE**

HISAKA, YOUR TRUSTED ASIAN BRAND

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