

WASHER NOZZLES

FOR AUTOMOTIVE
CLEANING SYSTEMS



END-TO-END SOLUTION

One partner for every step of your project

2

PROTOTYPE & PRE-SERIES

1

CONCEPT & DEVELOPMENT

Simulation systems
Installation **space verification**



CAD analysis
Spray angle analysis
Cross section investigation



Prototype creation



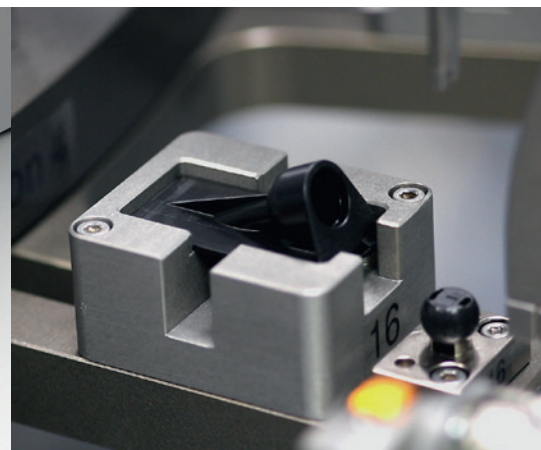
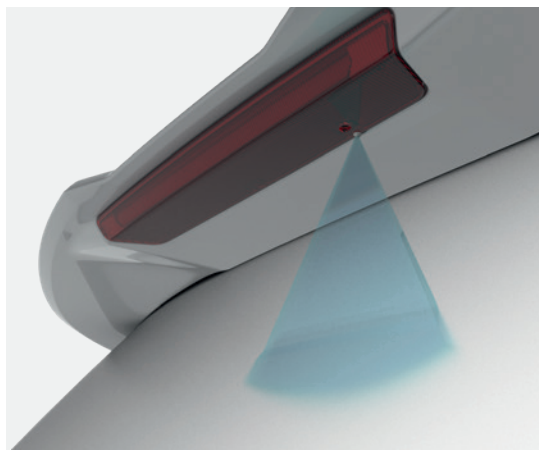
Prototype tests
on real vehicles



WET ARM NOZZLE

CHMSL NOZZLE

UNDER HOOD NOZZLE ASSEMBLY



3

INDUSTRIALIZATION & PRODUCTION



Injection molding
and tool shop



In-house **engineering**
of assembly lines

FULLY AUTOMATED ASSEMBLY LINE



CLEANING SYSTEMS, A COMPLETE EXPERTISE

At ARaymond we are equipped with the tools and capabilities necessary to develop and deliver end-to-end cleaning system solutions. From the initial design analysis to the industrialization of the product, all steps are managed in-house. Our start-to-finish approach allows us to develop complete cleaning system solutions adapted to each customer's specific needs.



APPLICATION POSSIBILITIES

Mounted on or under the hood of the car, on the cowl, in the stop lamp, or on the arms, our nozzles can accommodate all front and rear windshield applications, as well as cleaning solutions for cameras and sensors.



Optimized cleaning results

Windshield, sensors and cameras
always cleaned and operational

Efficient water management

Integrated functions:
heating, non-return valves, ...



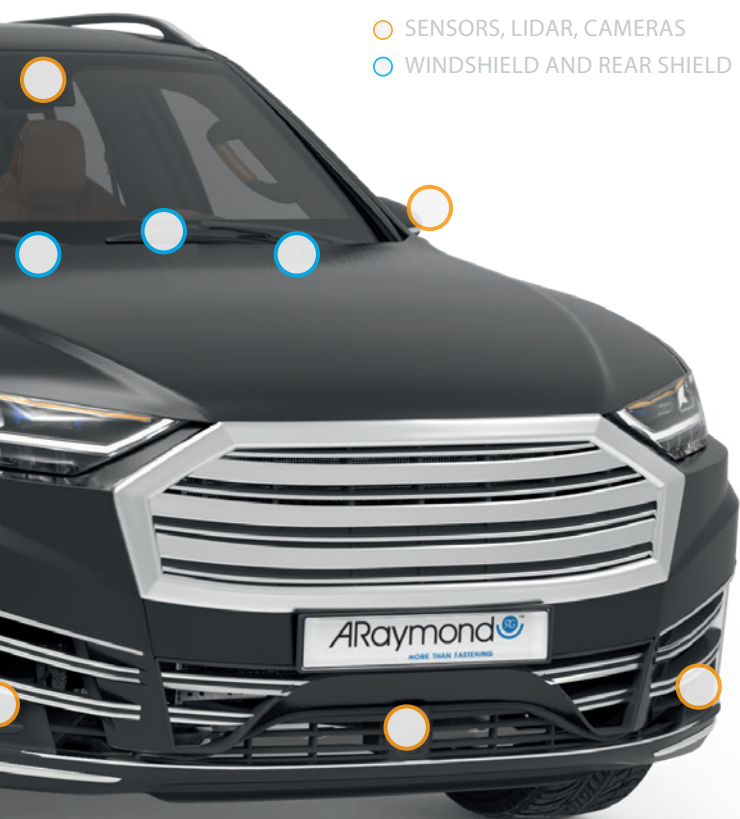
OPTIMIZED SAFETY WHEN SCREEN WASHING

Wet wiper arm nozzle

The nozzle is directly integrated in the wiper arm to allow a better and more secure cleaning of the windshield mirror cameras

- Optimized aerodynamics and design thanks to the nozzle's integration into the wiper arm and the integration of the wiper blade holder onto the nozzle
- Secure cleaning with spray jet with different water outlets, no vision obstruction for the car driver
- Efficient water consumption
- Easy serviceability of the wiper blade





- SENSORS, LIDAR, CAMERAS
- WINDSHIELD AND REAR SHIELD

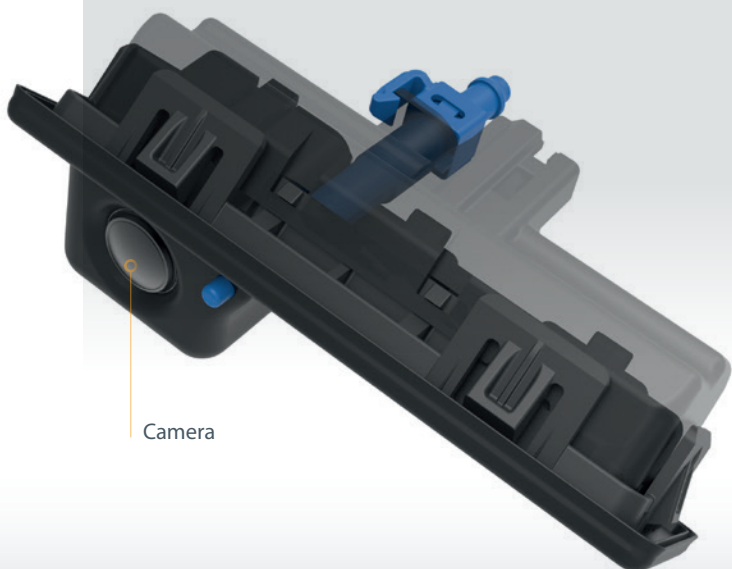
CLEANING SYSTEMS FOR ADAS FUNCTIONALITIES, A KEY FOCUS OF ARAYMOND'S STRATEGY

The rapid evolution of smart, connected and autonomous cars require more sensors and cameras to ensure proper functionality of the Advanced Driver Assistance Systems (ADAS). These sensors and cameras must always be clean to function properly. At ARaymond, we are developing a combination bracket solution that incorporates the camera or sensor, the cleaning system for the lens, and high-speed data connection all into one module. This complete system reduces tolerance stack-up to provide an efficient package and optimized cleaning performance. With different attachment options, the system is easily removable for service. The lightweight bracket can provide adjustment settings to allow for fine-tuning the system to meet OEM specific interfaces. Our goal is to provide innovative solutions adapted for future customer challenges.

ARaymond supports you from project definition through to the start of production and beyond.

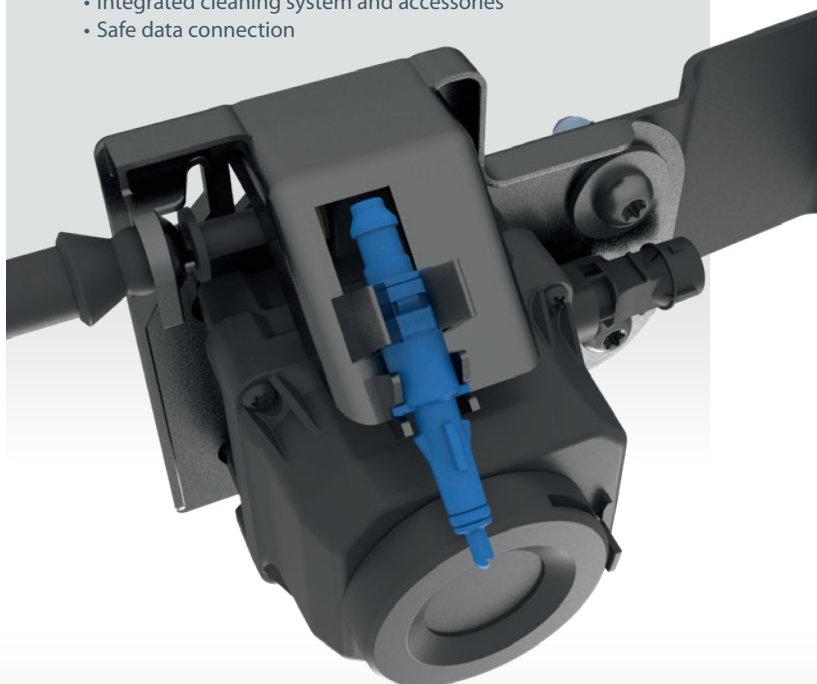
CAMERA CLEANING SYSTEM

Hook fastening system that is easy to assemble, optimized water consumption, and an integrated check valve.



CAMERA CLEANING SYSTEM

- Individual attachment to OEM interface
- Integrated cleaning system and accessories
- Safe data connection

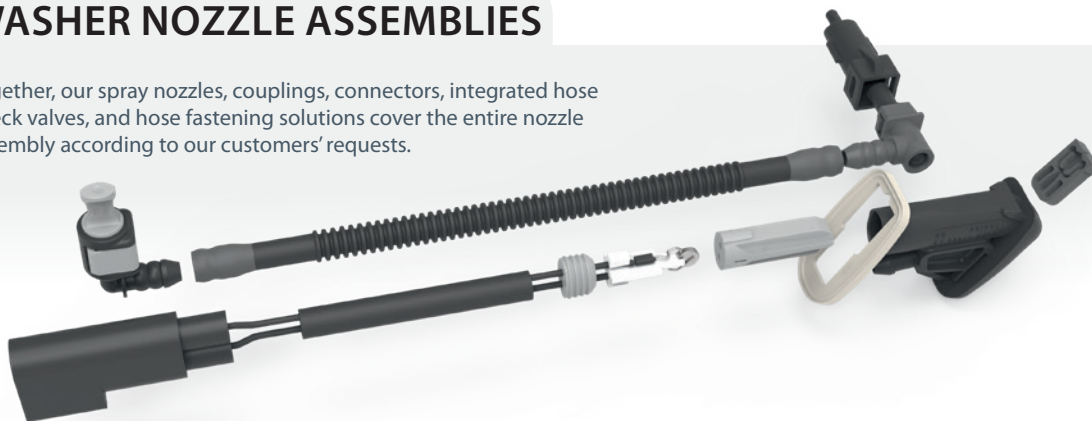


CUSTOM DEVELOPMENT FOR NOZZLES

All ARaymond™ nozzles and cleaning systems are designed, developed, and manufactured in-house to respond to specific customer requests.

WASHER NOZZLE ASSEMBLIES

Together, our spray nozzles, couplings, connectors, integrated hose check valves, and hose fastening solutions cover the entire nozzle assembly according to our customers' requests.



POINT SPRAY



FAN SPRAY



COMBINATION SPRAY



Front nozzle



Rear nozzle



High and low speed
spray pattern

Wet arm
nozzle



Low water
consumption

Camera
sensor
nozzle

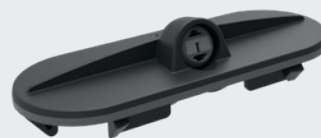


**++ Better cleaning
at high speed**

INTEGRATED FUNCTIONS



With
non-return valve



Ball adjustment
to orientate
the spray pattern



Heating
and seal



With hose, seal
and non-return valve



With hose, quick connector,
grommet and non-return valve

MODULAR CONNECTING SOLUTIONS

Our modular system enables us to offer you any connecting profiles of nozzles, connectors and valves common in the market.

UNIONS

Cleaning systems



Headlamp cleaning system



WHAT DOES A UNION DO?

Unions are needed to joint two or more tubes together.

QUICK CONNECTORS

Screen washing system



Headlamp cleaning system



WHAT DOES A QUICK CONNECTOR DO?

Quick Connectors allow quick and consistent joining of components. They also allow disassembly by releasing the mechanical locking feature of the QC.

NON-RETURN VALVES

Spring type



EPDM tube / female QC

EPDM tube/ 90° / female QC

Nylon tube/ male QC

Sleeve type



EPDM / Nylon

EPDM / EPDM

Nylon / EPDM

EPDM / Nylon

Nylon / 90° / female QC

WHAT DOES A NON-RETURN VALVE DO?

Non-return valves allow fluid flow in one direction only, and prevent the tubes from draining after activation.

STANDARD TUBE INTERFACE BARBS



Nylon/corrugated

EPDM

Quick Connector (male)

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www.araymond-automotive.com

YOUR CONTACTS

AUTOMOTIVE

Americas

USA & CANADA
+1 248 853 2500
contact.us@araymond-automotive.com

MEXICO
+1 248 853 2500
contact.mx@araymond-automotive.com

BRAZIL
+55 19 3836-6900
contact.br@araymond-automotive.com

Asia

CHINA
+86 0511-853 09 100
contact.cn@araymond-automotive.com

INDIA
+91 (2135) 676 200
contact.in@araymond-automotive.com

JAPAN
+81 463 40 8600
contact.jp@araymond.com

SINGAPORE
+65 6634 1041
contact.sg@araymond.com

SOUTH KOREA
+82 70 5055 5000
contact.kr@araymond.com

Africa

MOROCCO
+212 529048613
contact.ma@araymond.com

Europe

CZECH REPUBLIC
HUNGARY, POLAND, ROMANIA, SLOVAKIA
+420 483 358 111
contact.cz@araymond-automotive.com

FRANCE
+33 4 76 33 49 49
contact.fr@araymond-automotive.com

GERMANY
+49 7 621 174-0
contact.de@araymond-automotive.com

ITALY
+39 0161 937311
contact.it@araymond-automotive.com

RUSSIA
+7 831 3398 111
contact.ru@araymond-automotive.com

SPAIN
+34 93 877 1314
contact.es@araymond-automotive.com

TURKEY
+90 262 658 1058
contact.tr@araymond-automotive.com

UNITED KINGDOM
+44 1732 871934
contact.uk@araymond-automotive.com