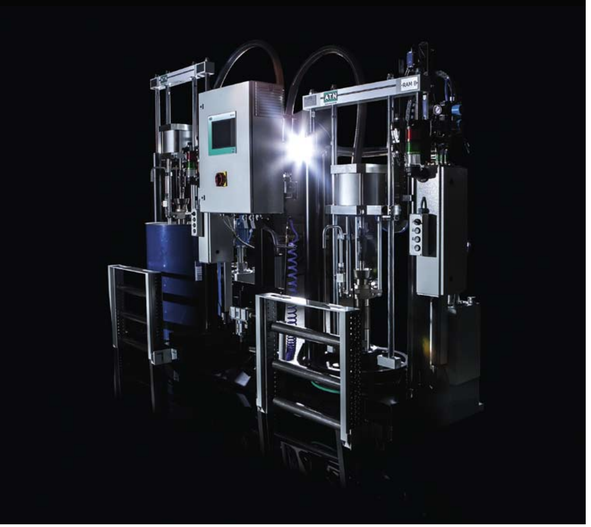

Application technology for the car body production

Adhesive technology with its positive properties in regards to the connectivity of diverse materials, element strain, absorption of forces and the avoidance of contact erosion, made this technology irreplaceable in the automobile production. For the car body production ATN Hoelzel GmbH offers customized complete gluing equipment. Individual components are designed as „Plug & Play solutions" and therefor can be assembled according to customer needs and can easily be integrated in the production process.

Process able materials with the ATN application equipment:

- PVC and other sealants
- greases and lubricants
- pasty coatings
- silicones
- urethanes
- epoxies
- acrylates
- potting compounds
- anaerobic materials
- suspensions and emulsions

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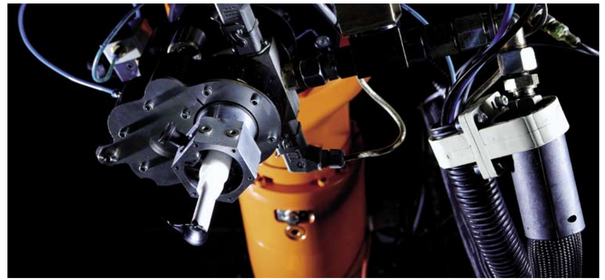
APPLICATION TECHNOLOGY
FOR THE VEHICLE ASSEMBLY



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ATN – Partner to the automotive industry in the application technology

As a specialist for application technology, ATN stands for quality, dependability and innovation. Our know-how is based on over 20 years of experience in the application technology with a focus on the automotive industry. In this industry, ATN works in the car body production, paint shop and final assembly, supplying individual systems, integrated systems and complete cells.

Our customers can choose between several systems depending on the material, the project scope and the overall process.

We have branches in Spain, United States, Brazil and China to guaranty timely responses, local contact personnel and our proven ATN-quality. Additionally, ATN offers a 24 hour spare parts emergency service.

Utilization of application technology in the automotive industry

CAR BODY
- anti-flutter applications
- hem flange applications
- structural bonding applications
- hybrid adhesive bonding

PAINT SHOP
- sound deadener (LASD)
- cosmetic beads (FAD/GAD)
- underbody coating
- PUR foaming

FINAL ASSEMBLY
- glass gluing (windshield, backlite and quarter glasses)
- moonroof gluing
- cockpit gluing
- DVD gluing (roof reinforcements)
- tub gluing for spare tires, antennas and batteries
- textiles
- miscellaneous parts (rear-view mirror, spoiler, trims)
- endless door sealing

BARREL PUMPS

The barrel pumps ZRP 60 and ZRP 200 carry gluing, sealing and filler materials with low or high viscosity from barrels with sizes between 20 and 1,000 liters. Depending on specifications, the customer can choose between different standard configurations. ATN can also implement individual adjustments for a customized process. The double barrel concept guarantees an uninterrupted fluid feed system during a barrel change.

Barrel pump types

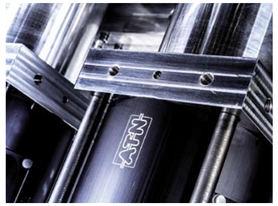
ZRP 60 HY size 20 – 60l
ZRP 200 HY size 200l

- processable materials with low or high viscosity
- displacement pump
- volume flows from 2.4 l/min – 7.8 l/min or 80 cm³ – 260 cm³ per double stroke
- pressing force 7.3 kN – 28 kN
- pressure ratios form 11:1 to 72:1

Extensions for barrel pumps

- heating of complete system or individual components
- residual-free follower plate
- extension to double barrel pump
- doser controls

ZRP 200 HY



DOSER SYSTEMS

The range of ATN electrical volume dosers covers a volume scope from 11 cm³ to 850 cm³. The electrical-operated doser offers the best regulation and doser properties, can be used for low to high viscosity materials and does not need additional components or units.

Properties electrical volume doser EVD

- independent from viscosity variations
- repeat accuracy of over 99 %
- maintenance friendly
- long lifecycles
- highly dynamic with quick reactions
- continuous adjustment of material volume
- detailed visualization with control functions

Overview volume doser EVD

EVD 11
volume 10.70 cm³
max. volume flow 4.90 cm³/s
EVD 100
volume 97.6 cm³
max. volume flow 13.40 cm³/s
EVD 550
volume 475 cm³
max. volume flow 26.20 cm³/s
EVD 560
volume 577 cm³
max. volume flow 96.20 cm³/s
EVD 850
volume 923 cm³
max. Volume flow 76.90 cm³/s

Extensions for doser systems

- heated doser
- 2 component system
- dual-system
- stainless steel finish

APPLICATORS

General information

- for component application with profile bead
- teflon nozzle with quick-exchange system
- pneumatic tolerance compensation for damage-free applications
- high-pressure applications heads with rotation support (no stress on hoses)

APPLICATOR AKK PR 1K ROB

Technical data

- attached to 6th axis of robot
- gearbox with 1:2 transmission for faster profile bead applications in pointed corners
- pneumatic tolerance compensation for damage-free applications (e.g. on glasses with ceramic overprint)
- size (L/B/H) 180 x 150 x 190 mm
- weight approx. 10 kg

Options

- heated material flow
- heated nozzle extention
- crash-protection to prevent excessive forces from impact to the robot's axis
- electro-pneumatic shutdown
- monitoring sensors
- seamlessly adjustable shutdown treshold

APPLICATOR AKK PR EXTERNAL

Technical data

- attached to stationary unit (application tower)
- gearbox with 5:1 transmission for faster profile bead applications in pointed corners
- pneumatic tolerance compensation for damage-free applications (e.g. on glasses with ceramic overprint)
- size (L/B/H) 200 x 300 x 300 mm
- weight approx. 30 kg

Options

- heated material flow
- heated nozzle extension

AKK PR 1K ROB

NOZZLE CLEANING

PACKING BAND UNIT

General information

- assembly on basic frame
- cleaning material is regular plastic packing band
- automated cutting of used packing band
- regulation with external unit (SPS)

Technical data

air supply 5 bar
size (L/B/H) 1311 x 405 x 1263 mm

Options

combined unit for purge and packaging band unit in one

PNEUMATIC NOZZLE CLEANING

General information

- 6 jet nozzles
- 3 compressed air tanks
- fast airing valves
- disposable collection in standard trash bag in casing
- stainless steel finish
- almost noiseless
- cost-efficient cleaning

Technical data

air supply 5 bar
size (L/B/H) 1200 x 400 x 400 mm

Options

- stationary or attached to the application tower
- sossible combinations of nozzle cleaning and flushing process at the work station
- quick exchange coupling

FLEECE NOZZLE CLEANING

General information

- assembly on basic frame
- cleaning materials paper or fleece
- length and width according to customer preference
- automated detection of cleaning material (stock, intact paper trail)
- simple refill

Technical data

size (L/B/H) 890 x 1250 x 850 mm

Options

- possible combinations of nozzle cleaning and flushing process at the work station
- stationary or mobile – attached to the application tower
- assembly on glide system between flushing process and fleece nozzle cleaning with stationary application point
- hanger for collection container

APPLICATION TOWER

FOR THE APPLICATION OF ADHESIVES ON ROBOT GUIDED COMPONENTS

When it comes to application towers for adhesives, our customers can choose between different models.
When selecting an application tower for a singular adhesive bead, the customer can choose between three different towers, which differ in the positioning of the application nozzle. The selection of the application tower depends on the cell and the customer specifications.
Depending on the tower type and the cell, components are added directly to the tower or in close vicinity. These are components such as the doser system, purge box or the quality monitoring system.

Overview application towers

ATK VDF
angle of application is 90°
max. 4 dosing units
bead monitoring (optional) available
ATK DDS
angle of application is 135°
max. 2 dosing units
bead monitoring (optional) available
ATK DUR
angle of application is 225°
max. 3 dosing units
bead monitoring (optional) available
ATK DB
angle of application is 90°
max. 4 dosing units
bead monitoring (optional) unavailable

Additional details

- dispensing system using one or more EVD dosers
- utilization of 1K-applicators, 2K-applicator or multi-nozzle applicator
- application of profile and round beads

Extensions

- applications tower with primer system
- applications head with pressure controlled compensation system for part tolerances
- swiveling application head
- automatic purge box (pneumatic or fleece)
- bead monitoring system

APPLICATION CONTROLS IFC

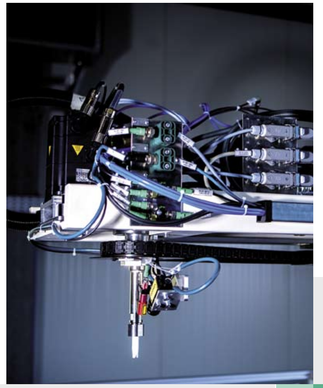
The ATN IFC application controls system (independent flow control) is made up of one IPC with 12" Touch Display (screen resolution of 800 x 600 pixel). The IFC system controls and monitors all vital parameters and components of the application process. All processes are visualized on the display and components can be easily controlled.

Composition and functions of IFC

- the system includes a switch cabinet with IPC and control panel
- simple intuitive operation
- freely adjustable and configurable systems for all types of applications
- parameterization of all relevant process parameters (e.g. volume flow, pressure, temperature)
- remote control for HMI systems via network
- extensive logging and diagnosis capabilities
- connection to production networks possible

Technical data

- Intel® Atom™ Processor
- fanless design
- 2x USB (1x USB 3.0, 1x USB 2.0)
- 2x Ethernet 10/100/1000 Mbit
- CAN-Interface
- multibus module for integration in main network (e.g. Profibus, Profinet, Ethernet/IP, CAN)



Material hoses DN 16 and 25

MATERIAL HOSES

Materials are carried from the barrel pump or a cleaning system to the doser and application mechanism through a solid pipe system or flexible material hoses of variable diameter. Depending on the material, the pipe systems and the hoses can be unheated or heated to up to 150 °C. With the heated option, the heat output and temperature are visualized, monitored and controlled by the doser or system controls.

Overview material hoses and pipe system

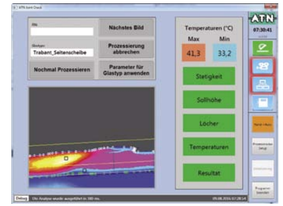
	hoses			pipe
	DN13	DN16	DN25	DN32
unheated	yes	yes	yes	yes
heatet up to 100 °C	150 W/m	200 W/m	300 W/m	300 W/m
heatet up to 150 °C	290 W/m	350 W/m	400 W/m	400 W/m
attachable to robot	yes	yes	yes	no
hose and pipe length	hose and pipe length are offered in various sizes and are only restricted by technical concerns (e.g. pressure loss of system)			

PROCESS MONITORING IPM

The process monitoring system IPM allows for a quality control system that focuses on a highly sensitive area of the automated glue bead application. Thermal process monitoring allows fulfillment of the following requirements:

- precise height of glue bead in joint area
- uninterrupted application in joint area
- existence of defects/enclosure in joint area

The compact construction as well as the applied technology allow for the IPM to be integrated into different locations and linked to existing control technology. The system has the physical mechanisms and software interfaces to be integrated into any established bus protocol.



System components

- industrial PC
- Intel® Atom™ Processor Dualcore 1.75 Ghz
- VGA and HDMI connection
- 2x Ethernet 10/100/1000 Mbit
- multibus module for integration in main network (e.g. Profibus, Profinet, Ethernet/IP, CAN)

Thermal Imaging Camera:

- Flir® IR-Camera
- IR resolution 320 x 256 pixel
- refresh rate 9 Hz
- pixel edge length

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