**Defined contact force**  
Interactive compensation for surface tolerances up to 100 mm with guaranteed consistent contact force. No adaptation of the robot tracks.

**Integrated gravitation compensation**  
The process force remains constant even when changing orientations. No additional application programming required.

**Passive security and high-speed control**  
Mechatronic actuator and sensor element with a high degree of process security using a robust mechanical construction with integrated passive security and high-speed control.

**Simple system integration – highest quality standards**  
Cleverly simple integration using standard interfaces. Constant feedback on the contact situation, position and actual force smoothly performs the quality inspection.

**ACF HD**  
- Shorter payback time
- 6 times higher load capacity
- Larger removal rate
- Low weight
- Size unchanged

**ACF XS**  
- Designed for small robots
- 65 % less weight
- For work spaces within 1000 mm
- Ideal for bonding, joining, presssing, insertion, marking, ironing, lamination, …

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**SPECIFICATIONS**

| Produkt | ACF/110/01 | ACF/110/04 | ACF/111/01 | ACF/110/01 | ACF/110/04 | ACF/111/04 | ACF/110/10 | ACF/110/04 | ACF/111/05 | ACF/111/10 | ACF/121/05 | ACF/121/10 | ACF/131/05 | ACF/131/10 |
|---------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Max. Force (push/pull) [N] | 100 | 100 | 100 | 100 | 200 | 250 | 250 | 500 | 500 | 800 | 800 | 100 | 100 | 100 |
| Stroke [mm] | 11.5 | 11.5 | 35.5 | 98 | 35.5 | 48 | 98 | 48 | 98 | 48 | 98 | 11.5 | 11.5 | 35.5 |
| Dead weight [kg] | 1.2 | 1.4 | 3.2 | 3.5 | 3.5 | 4.9 | 6.1 | 5.1 | 6.3 | 5.3 | 6.5 | 1.2 | 1.4 | 3.2 |
| Max. torsional moment [Nm] | 35 | 35 | 30 | 30 | 250 | 350 | 350 | 350 | 350 | 350 | 350 | 35 | 35 | 30 |
| Height at stroke = 0 mm [mm] | 143.7 | 160.7 | 190.5 | 253 | 200.5 | 236.7 | 286.7 | 236.7 | 286.7 | 236.7 | 286.7 | 143.7 | 160.7 | 190.5 |
| Cross-section area | ø90 x 75 | ø90 x 75 | ø128 | ø128 | ø128 | ø160 | ø160 | ø160 | ø160 | ø160 | ø160 | ø90 x 75 | ø90 x 75 | ø128 |
| Belt circle ISO 9409-1 standard flange [mm] | ø50 | ø50 | ø50 | ø50 | ø60 | ø60 | ø60 | ø60 | ø60 | ø60 | ø60 | ø50 | ø50 | ø50 |
| Protection class | IP 65 | IP 65 | IP 65 | IP 65 | IP 65 | IP 65 | IP 65 | IP 65 | IP 65 | IP 65 | IP 65 | IP 65 | IP 65 | IP 65 |
| Operating medium | Max. 7 bar, 30 µm, ISO 8573-1 K 0.3 (oil & waterfree) | Max. 7 bar, 30 µm, ISO 8573-1 K 0.3 (oil & waterfree) |
| Air consumption | 5–10 l/min | 5–10 l/min |
| Communication interface | Standard: Ethernet TCP/IP | Standard: Ethernet TCP/IP |
| Optional: | Optional: | Optional: |
| Ethernet IP | DeviceNet, Proflanet, CANopen, Analog I/O | DeviceNet, Proflanet, CANopen, Analog I/O |
| Ambient temperature | +5 … +45 °C | +5 … +45 °C |
| Power supply | Standard: DC 24 V / 2 A | Standard: DC 24 V / 2 A |
| Optional Service: 24 V / 4 A | Optional Service: 24 V / 4 A |

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Our patented technology instantly automates jobs with a high demand for sensitivity and flexibility. It guarantees extremely short cycle times and radical economic ROI, even with delicate applications. The ACF automates problematic manual work and guarantees high standards of quality. It works with every robot. This even makes retrofitting unbelievably easy and persuasive.

**Surface treatment:** Sand, polish, clean, laminate, strip, brush, remove burrs, iron  
**All materials:** Steel, aluminum, titanium, magnesium, carbon, plastic, wood, ceramic, coconut fibres, ...

**Contact-sensitive handling:** Pick & place, insert, tape, join, pack, assembly, glue, component-testing, quality inspection
MATERIALS OVERVIEW

Problem: severe problems in manual grinding / polishing of car body (AUDI Q7 / Porsche Cayenne / VW Touareg)
Goal: to close automation gap of highly touch-sensitive sequence with speedy contacting
Benefit: • ROI less than 6 months
• best surface results with simple integration

Problem: manual deburring of coconut fiber car seat bodies
Goal: to automate high process forces in touch-sensitive application
Benefit: • ROI less than 1 year
• simple integration

Problem: manual grinding of roof joint
Goal: to achieve excellent reproducible quality
Benefit: • top surface quality on visible parts
• maximum result in minimum time

Problem: abrasion testing
Goal: to achieve objective quality control
Benefit: • significant test results on detailed data report

Problem: preparation of wooden surface for picking inlay surfaces only 0.3 mm
Goal: to automate manual sanding for filling
Benefit: • automatic tolerance compensation
• reproducible result

Problem: manual grinding of stainless steel bowls for food industry
Goal: to achieve constant highest quality standard
Benefit: • highest possible quality on food industry standards obtained
• ACF integration ROI within 6 months

Problem: quality testing of bank terminal keyboards by pressing button (2 N)
Goal: to automate fuge measurement constant top quality standard
Benefit: • constant optimal measuring condition
• applies on all car models

Problem: sensitive mounting of bottle base onto bottle body without touching the parts integrated quality control by identifying warping of bottleneck
Goal: to automate assembly with integrated quality control
Benefit: • massive reduction of degraded material
• fully automated touch-free process

Problem: manual sprue & burr removal on cast iron part
Goal: to automate high process forces in touch-sensitive application
Benefit: • ROI less than 1 year
• simple integration

Problem: manual grinding of stainless steel bowls for food industry
Goal: to achieve highest possible quality standard
Benefit: • highest possible quality on food industry standards obtained
• ACF integration ROI within 6 months

Problem: to close car door gently to measure fugue in defined end position
Goal: to automate fugue measurement constant top quality standard
Benefit: • constant optimal measuring condition
• applies on all car models

Problem: huge form tolerance on plastic part with complex surface
Goal: to automate manual sanding for filler painting
Benefit: • highest surface quality on visible parts
• ready for top paint quality

Problem: semi-automated, 30% by hand grinding of Porsche car doors
Goal: to achieve high quality standard
Benefit: • highest possible quality on food industry standards obtained
• ACF integration ROI within 6 months

Problem: to close car door gently to measure fugue in defined end position
Goal: to automate fugue measurement constant top quality standard
Benefit: • constant optimal measuring condition
• applies on all car models

Problem: manual grinding of stainless steel bowls for food industry
Goal: to achieve constant highest quality standard
Benefit: • highest possible quality on food industry standards obtained
• ACF integration ROI within 6 months

Top Quality • Simple Integration • Increases Profitability Drastically • Tolerance Compensation • Rapid Contacting • Short Cycle Times • Closed Loop Force Control • Real-Time Control • Passive Safety