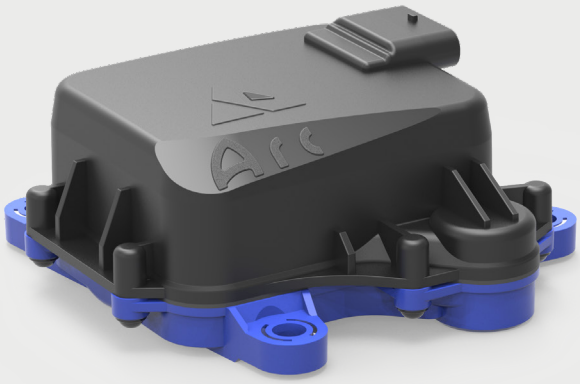
KONGSBERG
AUTOMOTIVE

ARC ACTUATOR

ELECTRIC ROTARY ACTUATOR ARC



PRODUCT DESCRIPTION

This ARC rotary compact actuator offers a unique performance in operating forces and world-class packaging and weight. The actuator is available both with embedded HW and SW as a stand-alone unit. It is also available with HW containing only a sensor system for applications operated by a separate control unit. The ARC actuator is a gear shift actuator that can function as a rotary actuator on other powertrains. It includes a variable gear system designed to have variable torque and speed behavior at a specific position.

AT A GLANCE

- FEW PARTS AND LOW COMPLEXITY
- UNIQUE GEAR TRAIN DESIGN WITH HIGH EFFICIENCY ON KA DESIGNED WORM GEAR PROVIDING COMPACT PACKAGING
- UNIQUE VARIABLE REDUCTION GEAR, GIVING TORQUE AND SPEED BOOST IN CORRECT GEAR SELECTION
- BACK DRIVABLE GEAR TRAIN GIVING THE OPTION OF MANUAL OVERRIDE
- KA DEVELOPED CONNECTOR OPTIMIZED FOR MANUFACTURING, WITH LOW COST AND ROBUST PCB CONNECTION.
- UNIQUE ROBUST SEALING AND VENTILATION
- CAN BE SUPPLIED WITH OR W/O KA DEVELOPED CONTROL LOGICS
- COMPACT AND LIGHT PACKAGING
- SUITABLE APPLICATION MIGHT BE PRND/ P-LOCK ACTUATION ON AT, DCT, CVT AND EV TRANSMISSIONS.
  - FOR THESE APPLICATIONS, PARTICULARLY PRND SHIFTING, IT HAS A VERY NEAT AND UNIQUE FEATURE, A VARIABLE FINAL GEAR DELIVERING MAXIMUM POSSIBLE TORQUE IN ONE END OF STROKE AND MAXIMUM POSSIBLE SPEED AT THE OTHER END OF STROKE.
  - BY PLACING P AT STRONG END AND D AT FAST END, TWO GOOD BENEFITS CAN BE ACCOMPLISHED, I.E. GETTING OUT OF P EVEN AT HIGHEST POSSIBLE FRICTION INSIDE P-LOCK AND FAST SHIFTING IN DRIVE MODE (RND).

ARC ACTUATOR

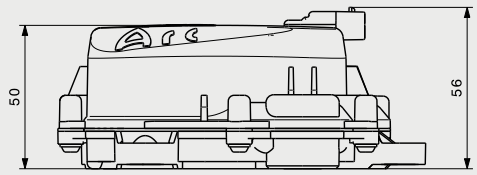
ELECTRIC ROTARY ACTUATOR ARC

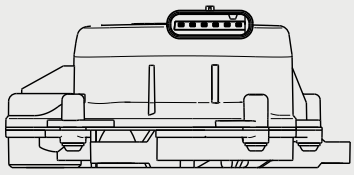
MECHANICAL SPECIFICATION

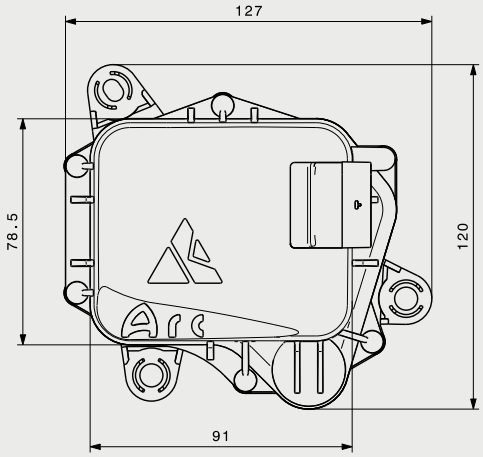
AMBIENT TEMPERATURE RANGE:	-40°C to 125°C
DURABILITY:	>300 000 cycles
TORQUE GUARANTEED OVER VOLTAGE AND TEMP RANGE:	>14Nm
SHIFT STROKE	>40°
SHIFT TIME	<300ms
INGRESS PROTECTION	IP6K7 / IP6K9K

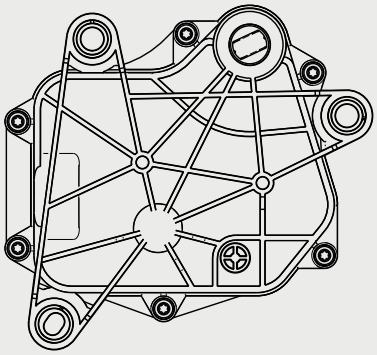
ELECTRICAL SPECIFICATION

MOTOR OPERATING VOLTAGE	12V
MOTOR TYPE	DC 35W
ISO 26262 COMPLIANCE	ASIL B
COMMUNICATION	CAN FD
EMC COMPLIANCE	CISPR 25 class 3









MODULAR ELECTRONICS DESIGN

MODULAR ELECTRONICS DESIGN WITH OR WITHOUT ECU TO COMPLY WITH VARIOUS TYPES OF VEHICLE SYSTEM INTEGRATION AND CONTROL ELECTRONICS.

- ARC G2 IS INTEGRATED IN VEHICLE ELECTRICAL ARCHITECTURE AS A DC SERVO WITHOUT ECU.
  - ARC IS CONTROLLED BY EXTERNAL ECU
  - MOTOR IS POWERED BY A ~16KHZ 12V PWM, MAX 20A
  - OUTPUT SHAFT POSITION FEEDBACK BY SENT OR PWM
  - SENSOR SYSTEM WITH INTERNAL DIAGNOSTICS AND E2E PROTECTION OF DATA TRANSMISSION FOR ASIL C COMPLIANCE
  - USCAR-2-6 COMPLIANT TE MCON 1.2 CONNECTOR

- ARC G3 IS INTEGRATED IN VEHICLE ELECTRICAL ARCHITECTURE AS COMPLETE STANDALONE ECU.
  - ALL CONTROL ELECTRONICS INCLUDED
  - CAN FD WITH PARTIAL NETWORK
  - UDS ACCORDING TO ISO 14229
  - SW DOWNLOAD VIA CAN BOOT LOADER
  - ASIL C COMPLIANT
  - LIN AS OPTIONAL COMMUNICATION
  - HARDWIRED WAKE UP INPUT (TYPICALLY KL15) ALSO ACTS AS REDUNDANT POWER SUPPLY FOR MCU AND SENSOR SYSTEM
  - USCAR-2-6 COMPLIANT TE MCON 1.2 CONNECTOR