

## 5 Function Manipulator

The HLK-43000 is a 5 Function rate controlled manipulator making use of an HLK-21020 jaw rotate offering 180 degree rotation on the wrist and a jaw opening range of 90mm (3.5") and a soft line cutting capability of 6mm (1/4") from the back side of the jaw plates.

This manipulator was specifically developed for use on observation class vehicles to provide manipulation capabilities and is ideal for applications such as debris clearance, rope cutting, biological and geological sampling, archaeological work, salvage and recovery.



## Features

- 5 degrees of freedom manipulator
- Compact and lightweight at 4.2kg (9.24lb)
- Lift of 10Kg at full reach
- Wrist rotate range of 180 deg and a jaw opening of 90mm (3.5")
- Incorporates a 6mm (1/4") soft rope cutter

## Technical Specifications

### General

Degrees of Freedom	5
Control Type	Rate Controlled
Materials	316 Stainless Steel, 6082 Aluminium, HDPE
Seal Materials	Nitrile/NBR/Buna-N, PTFE
Product Finish	Hard Anodised, Painted
Ports	1/8" BSPP (ISO 1179) M8x1
Dimensions	Refer to Drawing
Weight in Air	13.8kg (30lb)
Weight in Water	4.2kg (9.24lb)
Maximum Reach	660mm (26")
Wrist Travel	180 Degree
Jaw Opening	90mm (3.5")

### Hydraulic Performance

Max. Working Pressure	80bar (1160psi)
Flow	0.5lpm to 6lpm (0.13gpm to 1.58gpm)
Fluid Type	Mineral: DIN 51524, ISO 11158, ISO 6743-4 Synthetic: Panolin Atlantis, HLP-Synth
Viscosity	16cSt to 220cSt. VG 22-32 Recommended
Fluid Temperature	5-60°C (41-140°F)
Cleanliness Requirements	ISO 4406:19/17/14, NAS 1638:8, AS4059:9A/8B/8C

### Performance

Wrist Torque	8.2Nm @ 80bar (6lbf.ft @ 1160psi)
Jaw force	124N @ 80bar (27.9lbf @ 1160psi)
Soft Rope Cutting Diameter	6mm (1/4")
Lift at Full Extension	10kg (22lb)

### Environmental

Operational Depth	6000msw (19,680ft)
Operating Temperature	5-60°C (41-140°F)
Storage Temperature	0-70°C (32-158°F)
Humidity	0% to 100% Condensing

## Saab UK - World leader in electric underwater robotics

Phone: +44 (0) 1489 898000

Web: [www.saabseaeye.com](http://www.saabseaeye.com)

Email: [solutions@saabseaeye.com](mailto:solutions@saabseaeye.com)