

5 Function Manipulator

The HLK-4000 manipulator is a 5 Function rate controlled manipulator making use of an HLK-2010 jaw rotate offering 180 degree rotation on the wrist and a jaw opening range of 154mm (6") and a softline cutting capability of 19mm (3/4") from the back side of the jaw plates.

This manipulator was specifically developed for observation to light duty work class vehicles to provide manipulation capabilities and is ideal for jetting and brushing operations, debris clearance, valve turning and bolt torquing, rope cutting, cable repair, biological and geological sampling, archaeological work, transponder and probe installation, salvage and recovery.



Features

- 5 degrees of freedom manipulator
- Compact & lightweight @ 9.6kg (21.1lb) in water
- Lift of 25Kg at full reach
- Wrist rotate range of 180° and a jaw opening of 154mm (6")
- Incorporates 19mm soft rope cutter

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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) 7/16" SAE (SAE J1926-1)
Dimensions	Refer to Drawing
Weight in Air	12.7kg (28lb)
Weight in Water	9.6kg (21.1lb)
Maximum Reach	860mm (34")
Wrist Travel	180°
Jaw Opening	154mm (6")

Hydraulic Performance

Max. Working Pressure	140bar (2000psi)
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	18.7Nm @ 140bar (13.8lbf.ft @ 2000psi)
Jaw force	630N @ 140bar (141.63lbf @ 2000psi)
Soft Rope Cutting Diameter	19mm (3/4")
Lift at Full Extension	25kg (55lb)

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

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