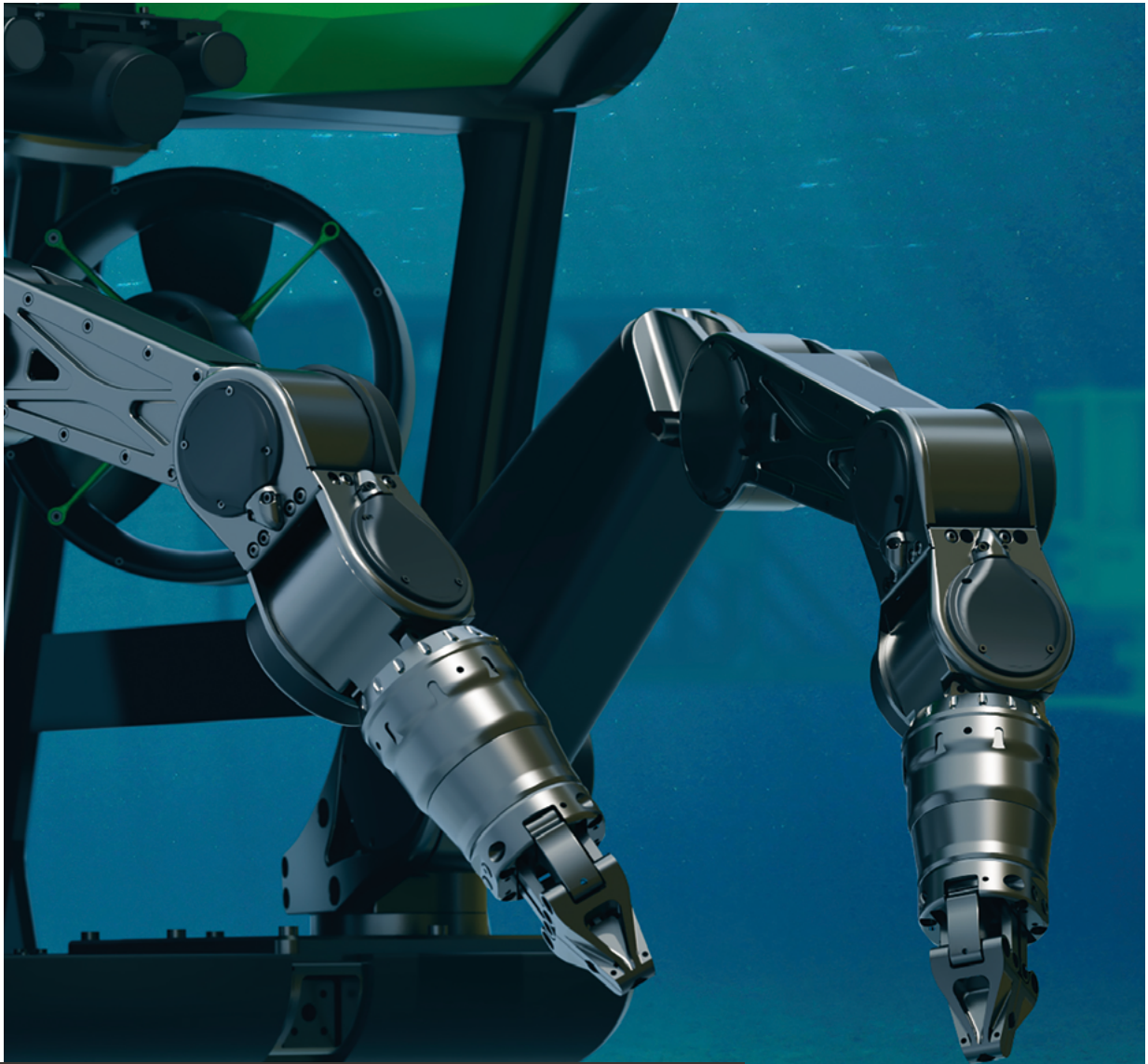




SAAB



SEAEYE eM1-7 ELECTRIC MANIPULATOR

**All-electric power
and intelligence**

Empowering electric manipulation

To fully realise the environmental and efficiency benefits of electric ROVs, Saab has developed the Seaeye eM1-7 Electric Manipulator, the world's most advanced electric manipulator yet.

While the value of electric ROVs has long been recognised, electric manipulators have traditionally posed a major obstacle.

To overcome this challenge, the Seaeye all-electric manipulator features an advanced control system, allowing both manual and automated operation. Highly accurate, modular electric joints enable enhanced arm control, path planning solutions and actuator reuse. Lift capacity and range of motion exceed the eM1-7 manipulator's hydraulic equivalents, while their aluminium construction ensures high reliability.

Active power management helps regulate demand and manages the regenerative power created with free-fall loads. Dual seven-function electric manipulator configurations provide maximum dexterity.

The Seaeye eM1-7 offers significant advantages over hydraulic alternatives, including more precise positioning with force feedback, increased dexterity, lower water weight and greater reliability – expanding the potential for more autonomous and resident applications.



**ON-BOARD PROCESSING
FOR ADVANCED
KINEMATICS**



**SUBSEA CHANGEABLE
TOOLING**



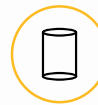
**POSITION AND
FORCE FEEDBACK**



**DIAGNOSTIC POWER
AND STATUS LEDs**



**POWER AND DATA
INTERFACE**



**INTEGRATED
COMPENSATORS**



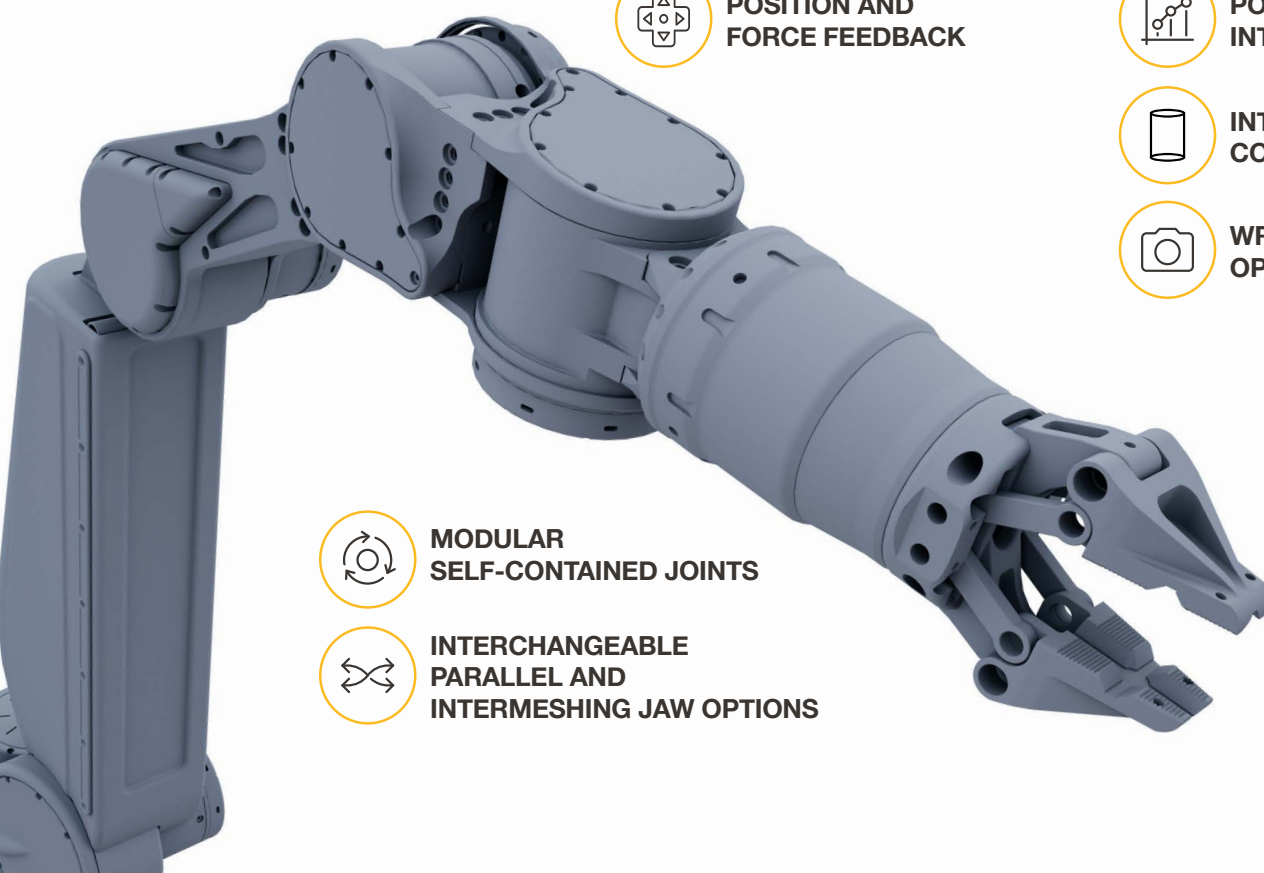
**WRIST CAMERA
OPTION**



**MODULAR
SELF-CONTAINED JOINTS**



**INTERCHANGEABLE
PARALLEL AND
INTERMESHING JAW OPTIONS**



MECHANICAL CHARACTERISTICS

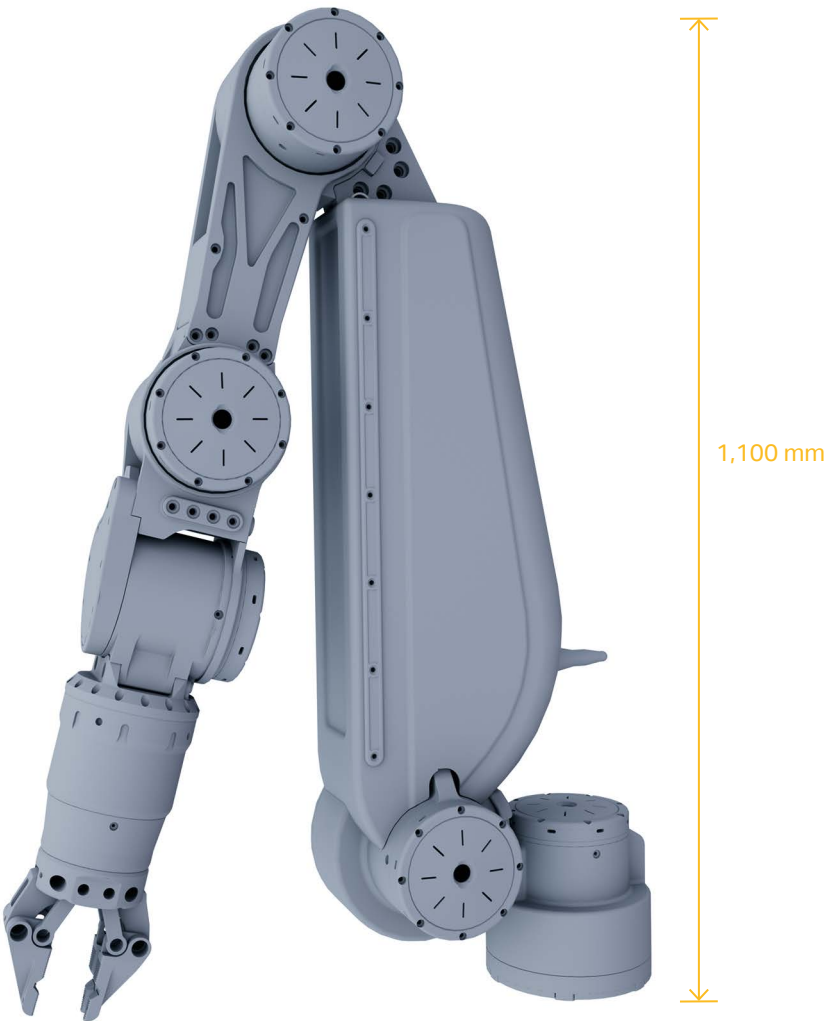
Material	Aluminium
Dexterity	7 functions (6 degrees of freedom and jaws)
Maximum reach	1,990 mm
Lift capacity (full extension)	122 kg
Lift capacity (min. extension)	454 kg
Wrist torque	170 Nm
Weight (in water)	84 kg
Weight (in air)	116 kg
Depth	4,000 m (7,000 m option)

ELECTRICAL CHARACTERISTICS

Power	Compatible with a wide range of AC or DC voltages
Consumption	Intelligent power management to regulate demand to available power. Maximum unregulated demand 4 kW
Control	Ethernet 100 Mbit/s
Input device	Pendant master arm

JOINTS

Fully electric, mechanically braked	
Repeatability/accuracy	< 0.5 deg*



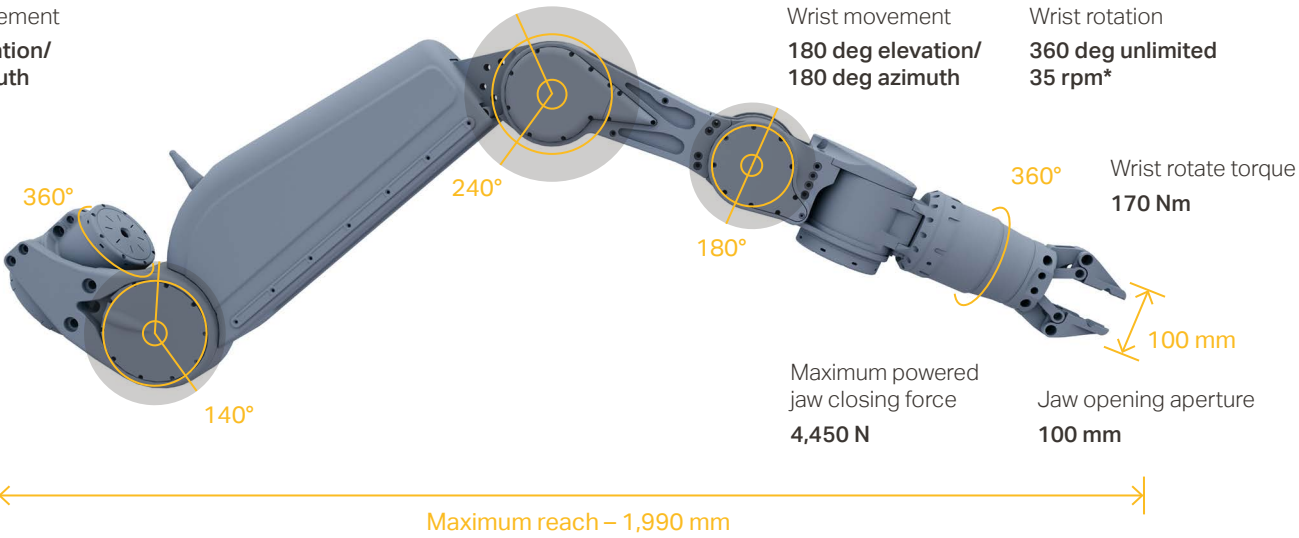
Shoulder movement
140 deg elevation/
360 deg azimuth

Elbow movement
240 deg

Wrist movement
180 deg elevation/
180 deg azimuth

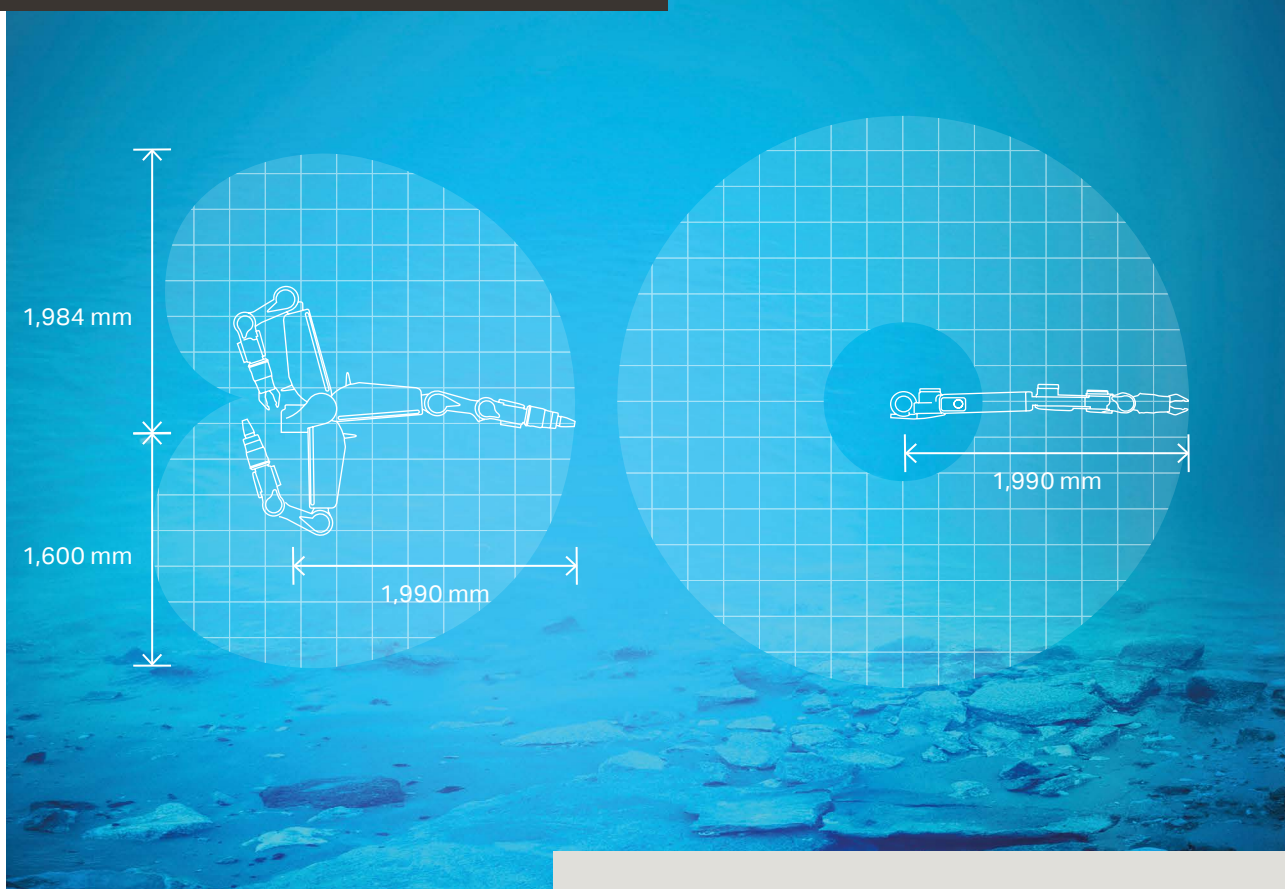
Wrist rotation
360 deg unlimited
35 rpm*

Wrist rotate torque
170 Nm



* Nominal value, load dependent

Positioning at its **most precise**



SCAN TO SEE
MORE ONLINE

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Advanced arm control

The Seaeye eM1-7 manipulator has been designed to meet the needs of the future. Increasing manipulator automation will reduce the reliance on operator skill and ensure tasks are completed reliably and successfully every time.

The Seaeye eM1-7 manipulator's position and force feedback, along with its high degree of repeatability and unrivalled in-built intelligence, enables advanced arm control.

Direct end effector control can be achieved when coupled with an intuitive human input device and an inverse kinematics system.

The addition of our advanced perception systems will lead to a blend of supervised and fully autonomous manipulation. These future control options will be backward compatible and available as upgrades to existing manipulators.

Note: Specifications may change without prior consent



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