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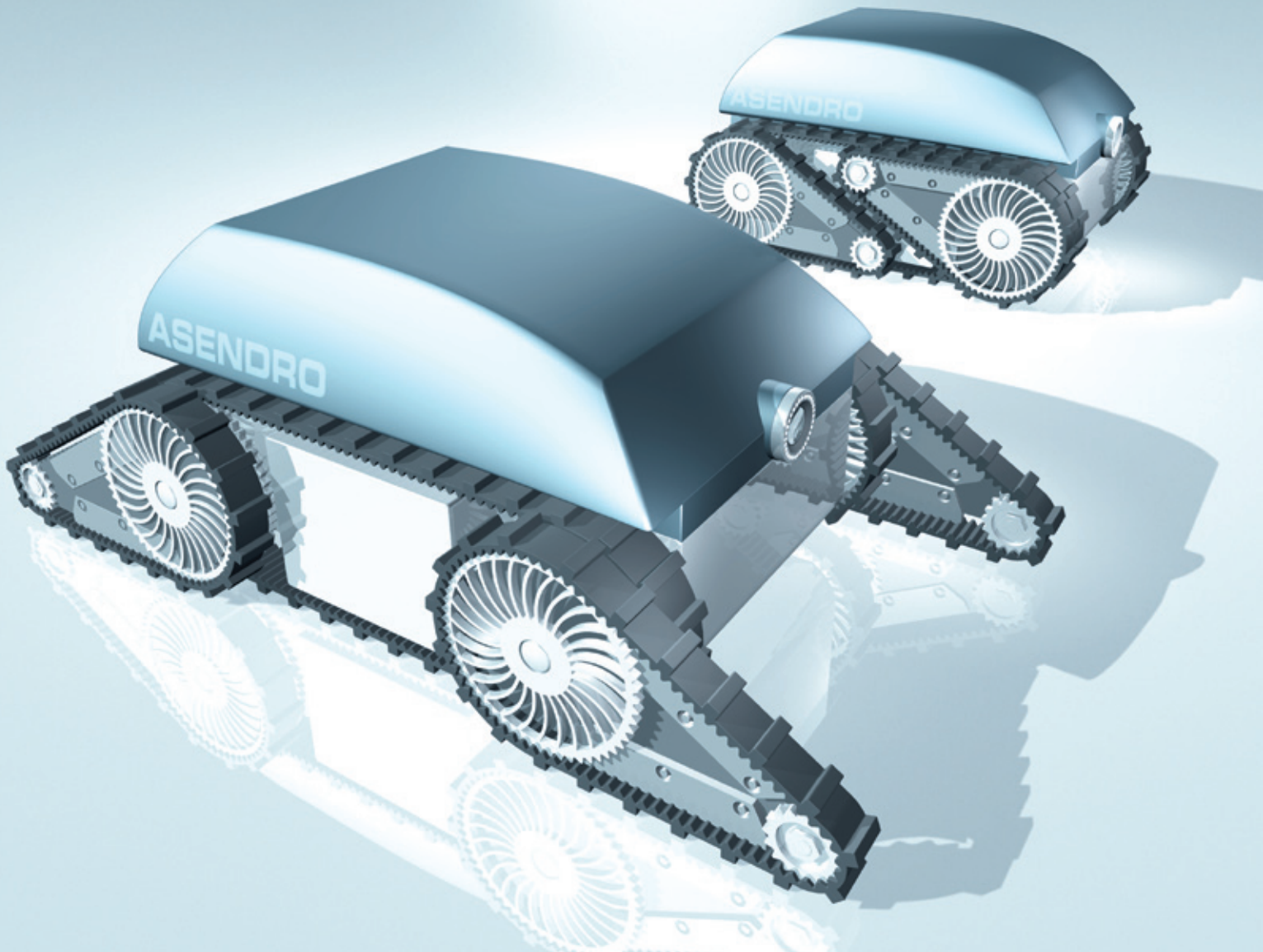
DEFENCE

ASENDRO

MODULAR RECONNAISSANCE AND DEFUSING

An explosion in an industrial plant, people fainting in the middle of a major event, an abandoned suitcase in the airport or a military operation in a conflict area – hazardous situations may occur suddenly. But how grave is the situation and what exactly is happening? Now everything depends on acquiring information – in the shortest possible time – about the conditions in the affected area, if and to which extent action forces and relief units must be protected and whether the area is accessible at all. Intelligent robotics provides the critical information – faster, more precise and completely unemotional.



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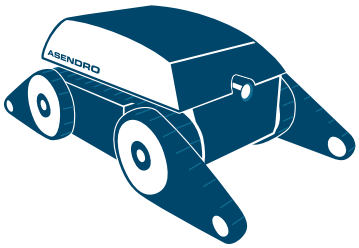
ASENDRO
SPECIFICATION AND PROPERTIES

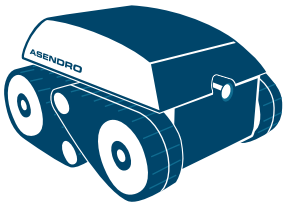
The modular robot ASENDRO assumes reconnaissance and defusing tasks and protects relief units and action forces in hazardous situations. ASENDRO navigates autonomously or alternatively, is controlled by radio remote control. The flexible chain drive guarantees the robot's operational readiness on virtually any indoor and outdoor surface. Climbing stairs and negotiating obstacles is also rendered possible. The robot's small dimensions allow employment of the device in narrow spaces such as buses, trains or planes.

Applications: Military operations, Homeland Security tasks in buildings and outdoor areas (airports, train stations, harbour facilities, stadiums), civil protection (fire brigade, NBC reconnaissance units, police), complex and unclear accident sites.

DIMENSIONS

Chassis:	Aluminium, Injection-moulded chains with polymer wheels
Height:	200 mm (Without superstructure)
Width:	400 mm
Length:	600 mm (Rockers in resting position)
Length:	920 mm (Rockers in stretched position)



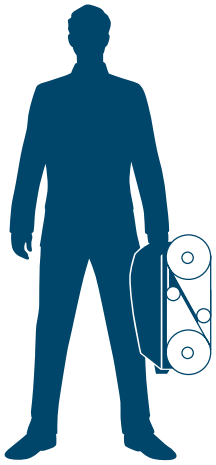


15 km/h
max. Speed

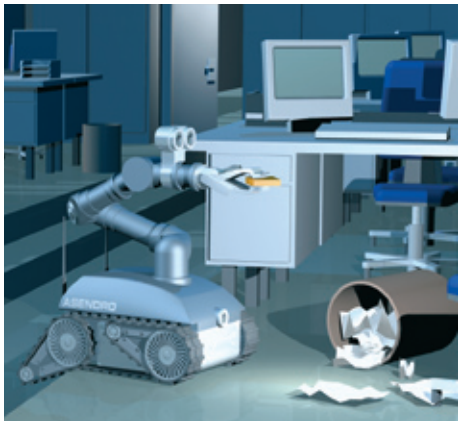
38 kg
including Explorer Head-Module and two batteries

43 °
max. Gradeability on characteristical stair arrangements

2 km
max. Radio coverage



THE MODULAR ROBOT PLATFORM ASENDRO



ASENDRO EOD
Helps special units to defuse suspicious objects. The integrated Tele-Presence Technology enables the user to obtain a realistic view of the location of the robot and to optically estimate distances to given objects. The manipulator arm navigates synchronously to movements of the operators hands and head thus being able to precisely and easily reach for objects.

ASENDRO SCOUT
The reconnaissance robot enables police action forces, e. g. in unclear circumstances, to evaluate a situation from a safe distance. Revolving and pivoting propulsion ensures movements of the camera head of up to 350°. By means of the integrated wide-angle colour and thermal image camera the control room is optimally informed about events on location – at any time and in any weather conditions.

ASENDRO SCOUT + A/B/C
Assists civil defence and emergency aid forces by measuring the degree and type of contamination caused by nuclear, biological or chemical substances on site. If the reliable and highly sensitive sensors detect even the smallest amount of hazardous substances, the robot will transmit type and concentration to one or several control rooms.

CONTACT

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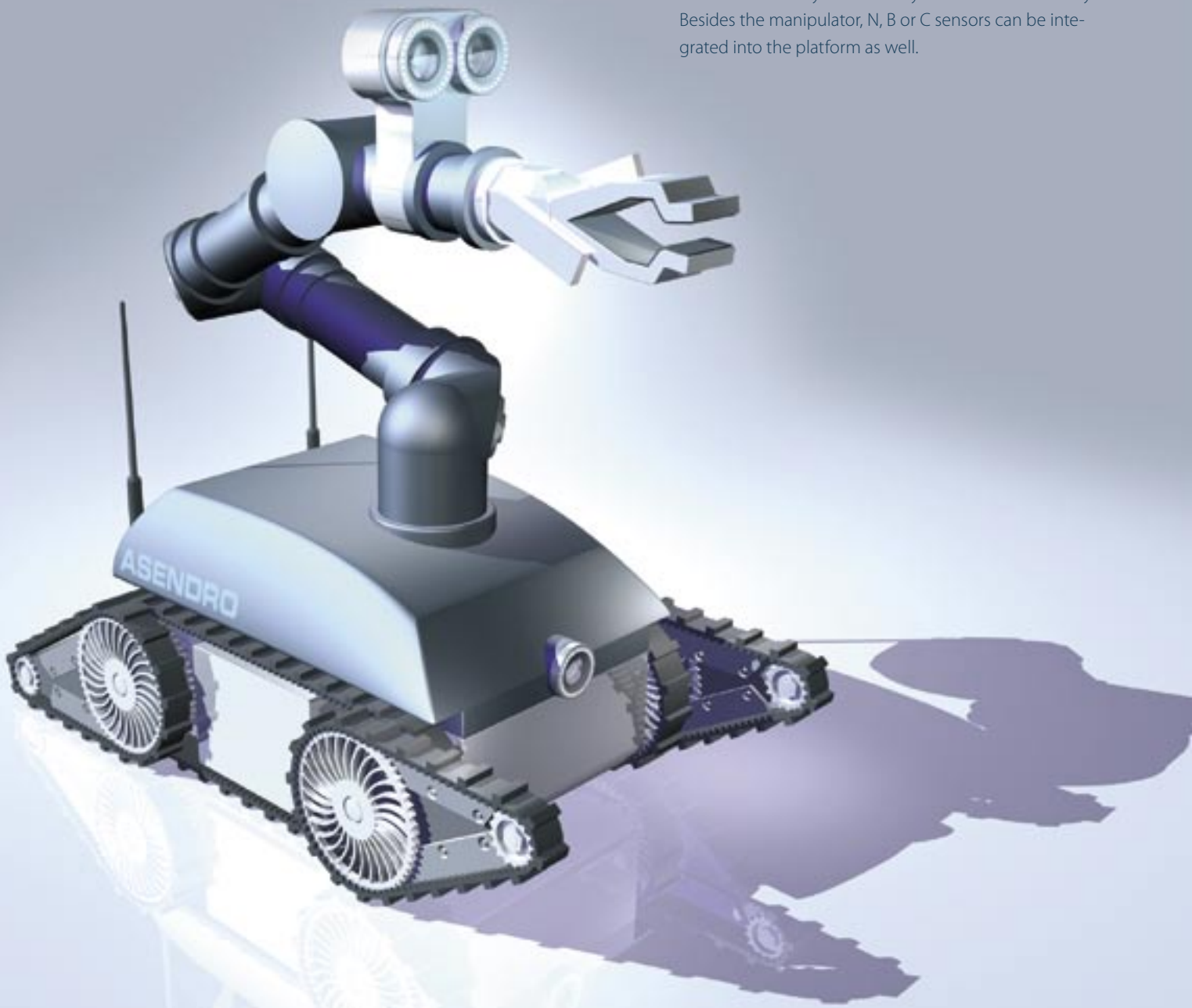
ASENDRO EOD

Modular EOD/IEDD Robot

ASENDRO EOD is a very intuitive EOD/IEDD robot based on a modular concept. The intuitive control offers the operator optimum support enabling the handling of objects from a distance, as if the operator were personally present (telepresence-technology). Three dimensional view, as well as synchronous head or hand movement improve the accuracy of the operator's actions in secure distance. Flexibility is assured by the robot's modularity. Besides the manipulator, N, B or C sensors can be integrated into the platform as well.



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ASENDRO EOD
SPECIFICATIONS AND CHARACTERISTICS

ASENDRO EOD performs disposal tasks to protect rescue forces and individuals. ASENDRO is navigated by radio or cable control. The flexible tracked platform enables the robot to operate in almost every terrain, both in- and outdoors. It is capable of climbing stairs and surmounting barricades. Furthermore the robot's small dimensions permit operation in narrow spaces, like in buses, trains or planes. Due to its low weight, ASENDRO can be transported easily by two individuals, in a middle-sized car or a helicopter.

CONTROL

The telepresence-technology on a mobile robot is unique. The manipulator moves synchronously to head (head-tracking) or to hand (hand-tracking). This intuitive capability simplifies complex movements considerably. Alternatively, a Tool-Center-Point-Control (TCP) operates the manipulator. During operation, the TCP drives, all axles automatically and simultaneously. The images of the stereo camera are projected into a head-up-display. Due to stereo vision, the operator has a realistic grasp of the situation. He is easily capable of assessing and evaluating distances, for example.

TECHNICAL DATA

Weight	50 kg
Dimensions	60 x 40 x 40 cm
Power supply	Mixed operation: ca. 2 h
Mobility of the system	Operates in difficult terrain, climbs stairs
Speed	Accurate slow-drive; up to 15 km/h
Operating range	Up to 2000 m (line of sight) by radio or wire
CCD incl. LEDs	Stereo-camera for precision drive as well as precision grip ; front-camera; back-camera; overview-camera for an optimal view of the manipulator and the platform; optional: zoom-camera
Control of CCD	Menue-driven, synchronous to operator's head-movement (head-tracking) or by joystick
Manipulator	Automatic and simultaneous control of all axis; control synchronous to operator's hand-movement (hand-tracking) or Tool-Center-Point Control (TCP)
Gripper	Gripper incl. force sensor, control synchronous to operator's finger movement (hand-tracking) or joystick; diameters of obstacles up to 15 cm
Payload of the manipulator	Up to 5 kg
Working height above ground	Up to 2,20 m with horizontal gripper
Arming	Adaption of current devices, e.g. Proparms ® 12,5 mm recoilless
Communication	Video- and datalink at 2,4 Ghz

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