



AUTONOMOUS MOBILE INDUSTRIAL ROBOT



INFRASTRUCTURE
FREE NATURAL NAVIGATION



MODULAR DESIGN FOR
EXECUTING MULTIPLE APPLICATIONS



FLEXIBLE & SAFE FOR
COLLABORATIVE OPERATION



MACHINE LEARNING ENABLED FOR
TRULY AUTONOMOUS OPERATIONS



CLOUD BASED ANALYTICS FOR
REAL-TIME INSIGHTS



QUICK RETURN ON
INVESTMENT



HANDLE LOADS IN ALL SHAPES & SIZES
(PALLET/ RACKS/ TOTES/ TROLLEYS)



APPLICABLE FOR GREENFIELD SITE
AND BROWNFIELD SITE

OPTIMIZING YOUR INTRALOGISTICS OPERATIONS



TROLLEY TUNNELING



UNIT LOAD



TROLLEY TOWING



SCISSOR LIFT



CONVEYOR BED

PRODUCT SPECIFICATIONS

DESCRIPTION	AMIR 100	AMIR 500	AMIR 1500
Dimensions			
Length	850 mm	1100 mm	1740 mm
Width	550 mm	750 mm	1140 mm
Height	368 mm	410 mm	380mm
Height with Lifter	500mm	610 mm	550 mm
Ground clearance	55 mm	35 mm	25 mm
Weight (without load)	100 kg	250 kg	410 kg
Load surface	600 x 800 mm	600 x 830 mm	1270 mm x 770 mm
Wheel diameter	Drive wheel: 200 mm Castor wheel: 100 mm	Drive wheel: 210 mm Castor wheel: 100 mm	Drive wheel: 200 mm. Castor wheel: 150 mm
Payload			
Robot payload	100 KG	500 KG	1500 KG
Towing capacity	300 kg	750 kg	2000 Kg
Speed and Performance			
Battery Running time	8 Hours		
Maximum speed	forwards: 1.1 m/s (4 km/h) backwards: 1.1 m/s (4 km/h)	forwards: 1.25 m/s (4.5 km/h) backwards: 1.25 m/s (4.5 km/h)	forwards: 1.5 m/s (5.4 km/h) backwards: 1.5 m/s (5.4 km/h)
Acceleration	0.2 m/s^2 (full payload, flat surface)		
De-Acceleration	0.2 m/s^2 (full payload, flat surface)		
Maximum incline	5% Incline (with payload)		
Turning circle Dia (On the spot Turn)	1020 mm	1400 mm	2050 mm
Minimum width, door	1000 mm	1450 mm	1850 mm
Minimum width, passage	1000 mm	1450 mm	1850 mm
Minimum width, two robots passing	2200 mm	2500 mm	3500 mm
Precision docking	+/-20 mm	+/-30 mm	+/-30 mm
Stopping accuracy	+/-50 mm of position, +/-20 mm to docking marker	+/-50 mm of position, +/-30 mm to docking marker	+/-50 mm of position, +/-30 mm to docking marker
Power			
Battery	Li-ion 24 V , 54 Ah	LiFPo 24 V, 80 Ah	Li-ion, 48 V, 76.5 Ah
Charging Time	up to 3.5 hours (0-80%: 2.5 hours)	up to 4 hours (0-80%: 3 hours)	upto 5.5 hours, (0-80%: 4 hours)
External charger	Input: 200-240 V ac, 50-60 Hz / Output: 24 V, max 18 A	Input: 200-240 V ac, 50-60 Hz / Output: 24 V	Input: 100-230 V ac, 50-60 Hz / Output: 48 V
Battery Charging Cycle	Minimum 1200 cycles	Minimum 1500 cycles	Minimum 1200 cycles
Environment			
Ambient temperature range	+5°C to 50°C (humidity 10-95% non-condensing)		
IP class	IP 21		
Communication			
WiFi I/Os	Dual-band wireless AC/G/N/B Ethernet and USB		
Safety			
Safety System	2D Laser Scanner, Ultrasonic Sensor, Optional Contact Type Safety sensor, 2 Emergency Stop Buttons	2D safety Laser Scanners, Contact Type Safety Bumper, Safety PLC, 2 Emergency Stop Buttons	2D Safety Laser Scanners, Contact Type Safety Bumper, Safety PLC ,4 Emergency Stop Buttons
Navigation			
Navigation Sensor	2D LiDAR (Natural Navigation)		

With Adaptable Design of Novus Carry any specific application requirement can be easily met
by using different Auxiliary Attachments



Take Your Productivity to Next Level

NOVUS ANALYTICS is a web based application monitoring all the Novus Family AMIRs in Real Time. With the use of Machin Learning & other Data Analytics Tools, this application logs, consolidates and presents data to user in such a way so that s(he) can improve processes and increase the productivity.



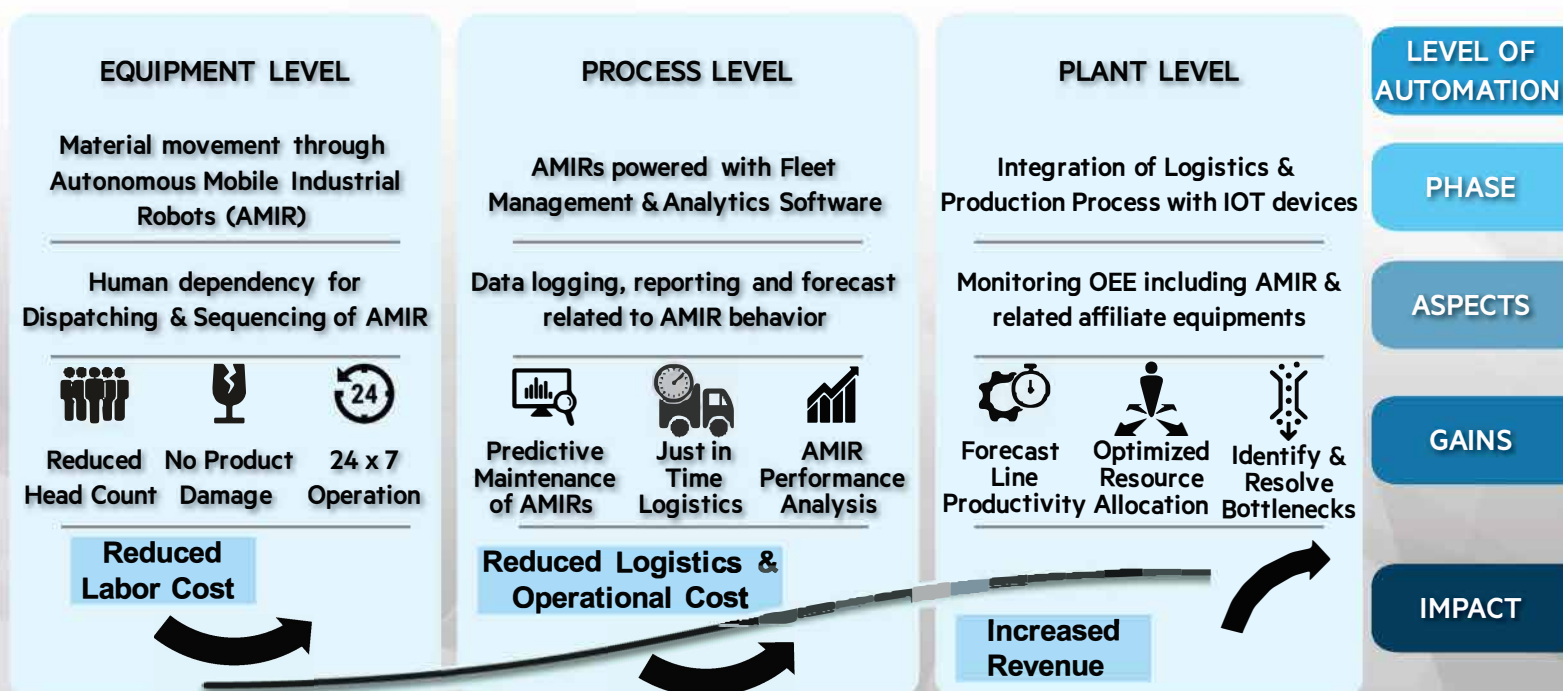
PARAMETERS

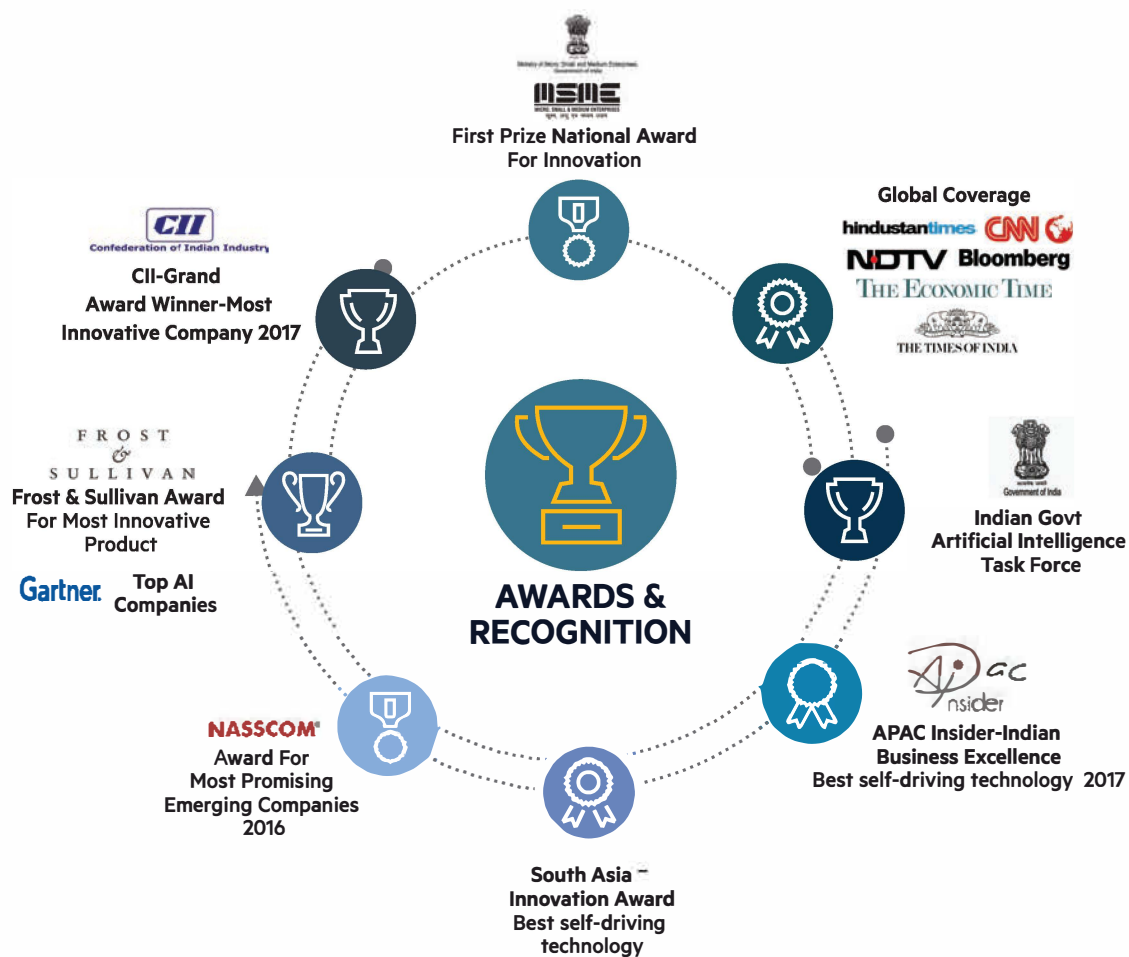
	Location of all the vehicles		Fault List		Cycle Time Report
	Status of individual vehicle		Alarm Type		Overall Equipment Efficiency
	Location Trip Matrix		Idling Time Report		Process Performance

INTELLIGENT SOLUTION FOR FLEXIBLE OPERATIONS

	Unlike AGV, no infrastructure change. Uses LIDAR to Navigate		Easily accustomed for any change in layout
	Avoids obstacle & finds the next best route		Easy shifting to new facility, due to ease of installation
	It routes to the optimum path using advanced analytics		Easy integration with ERP/WMS/FMS, due to presence of on-board computer

MOVING TOWARDS INDUSTRY 4.0





COMPANY OVERVIEW

- ▶ Designs, develops & sells Autonomous and driver-assistance software and systems for commercial automotive as well as industrial applications
- ▶ 250+ employees with more than 120 R&D engineers including 34 machine learning and computer vision experts
- ▶ First mover with 90% market share in India – 350+ autonomous & assistive systems including 150+ industrial vehicles
- ▶ Automotive applications: provides products that enable driver awareness as well as partial, conditional and full autonomy
- ▶ Industrial applications: provides autonomous mobile robots for end-to-end logistics in manufacturing & warehousing
- ▶ Core competencies include machine learning & sensor fusion, computer vision technology, software & embedded system design, mechanical design and motion planning & control
- ▶ Already built and sold up to L4 autonomous & assistive systems
- ▶ 50+ Patent Portfolio across US, EU, India & SA

CLIENTELE

DAIMLER

VE COMMERCIAL VEHICLES
A VOLVO GROUP AND EICHER MOTORS JOINT VENTURE

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