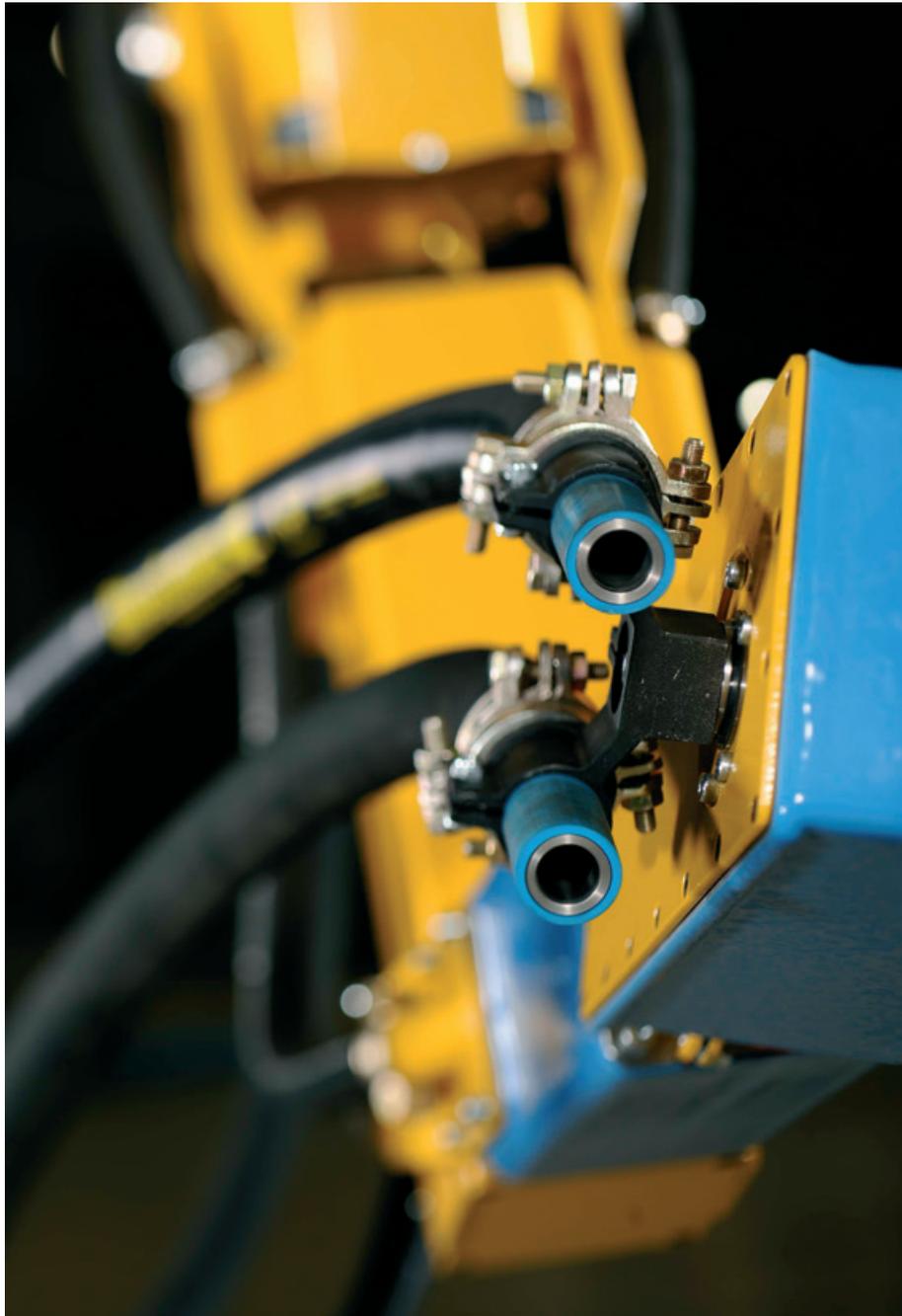




Built for Blasting

www.blastman.com



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LEADER IN ROBOTIC BLAST CLEANING SYSTEMS

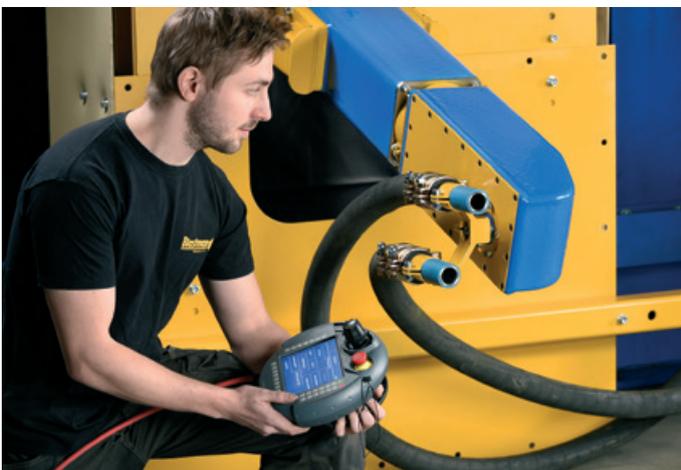
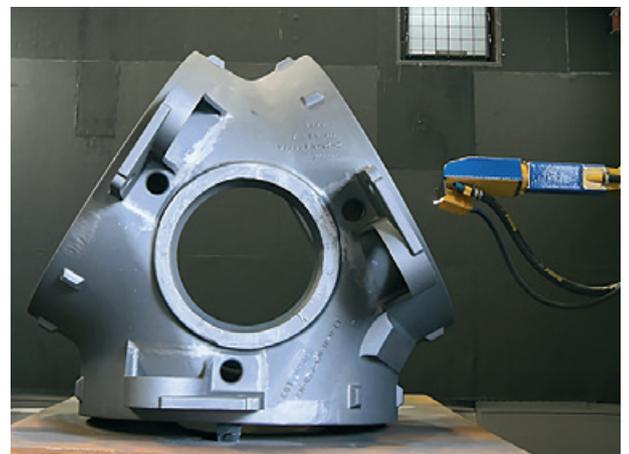
Blastman Robotics Ltd has over 30 years' experience in delivering tailored applications for road and rail transport industries, foundries, wind power and energy industry, diverse steel structures, aerospace and much more.

OUR GOAL IS TO PROVIDE OUR CUSTOMERS WITH EXCEPTIONAL ADDED VALUE

...through innovative and tailored solutions, which combine greater efficiency, reliability and flexibility, unsurpassed quality and greatly improved safety. Blastman's pioneering solutions are based on the strongest possible commitment to ongoing learning, exploration and development. This enables us to adapt to and meet new challenges.

Blastman Robotics Ltd takes pride in being your dedicated, supportive and reliable partner. Maintaining your chosen system throughout the entire life of the facility and supporting your company's changing needs.

From rail rolling stock to aerospace, Blastman's advanced robotic solutions are by far the most economical and reliable business choice.



EASY TO USE AND TEACH

Blastman robots are extremely easy to use. They can be controlled manually, using two joysticks, where as other functions are available through a user friendly touch screen.

Teaching the robot is carried out by controlling the robot manually and recording the run. There are also other teaching methods, such as point-to-point, offline and parametric teaching.



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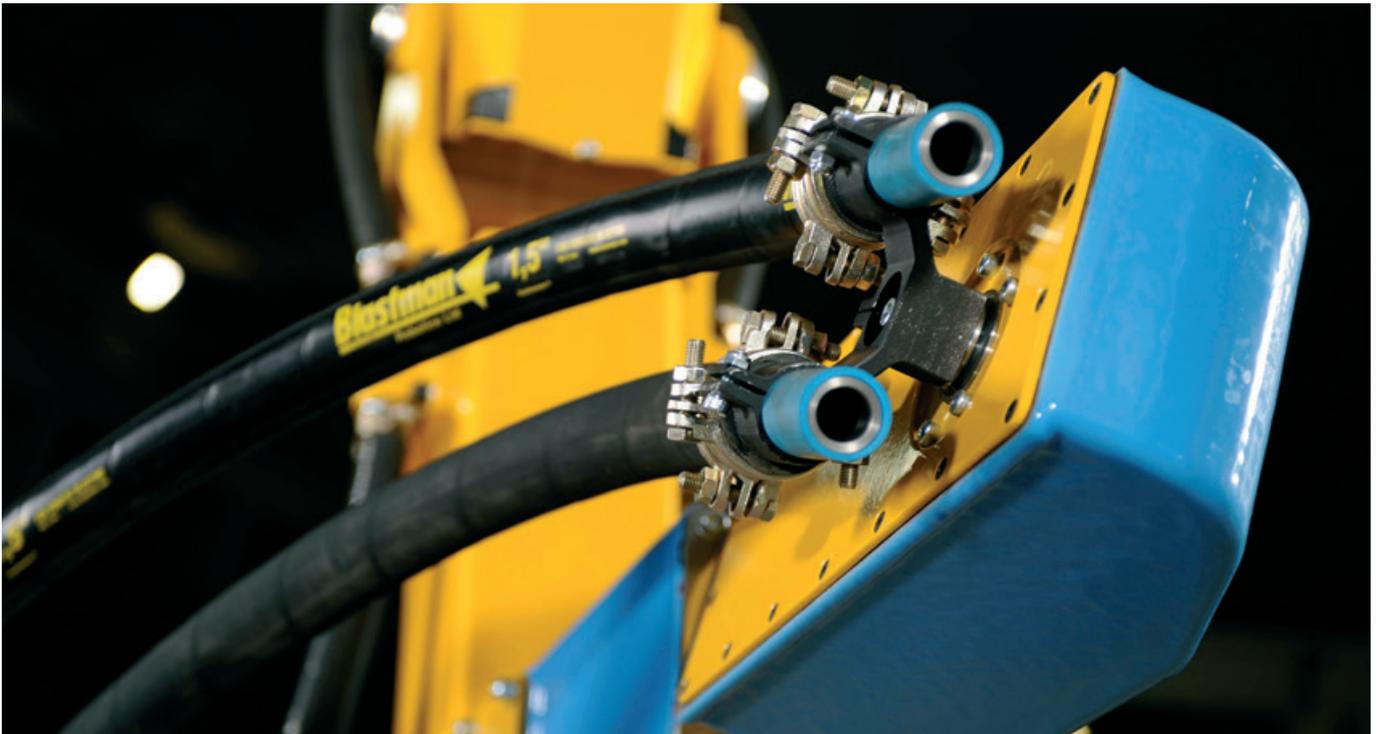
THE UNIQUE BLASTMAN ROBOT

The unique Blastman robot delivers innovative solutions, applying the latest advanced technologies to overcome blast cleaning challenges.

Increasingly, the number one choice for blast-cleaning installations in the entire world is the Blastman robot, which can be incorporated in the abrasive blast cleaning and surface treatment lines.

WHY CHOOSE BLASTMAN?

When you are considering a new blast cleaning facility or upgrading your existing facility. Please pay attention to the following arguments on why Blastman Robotics would be the best solution for you.



EFFICIENCY

PRECISE, POWERFUL AND TIRELESS

Blastman robots are tireless workers. They are many times more efficient than any traditional manual blasting system. The high efficiency is achieved through high pressure, the precise control of large-diameter blasting nozzles, and non-stop operation. Our customers receive significant increases in efficiency due to reduced fatigue on manual blasters, higher pressures and larger nozzle sizes. Furthermore, new operators work just as efficiently as older ones due to the robot's automation.

RELIABILITY

DESIGNED TO PERFORM IN EXTREME CONDITIONS

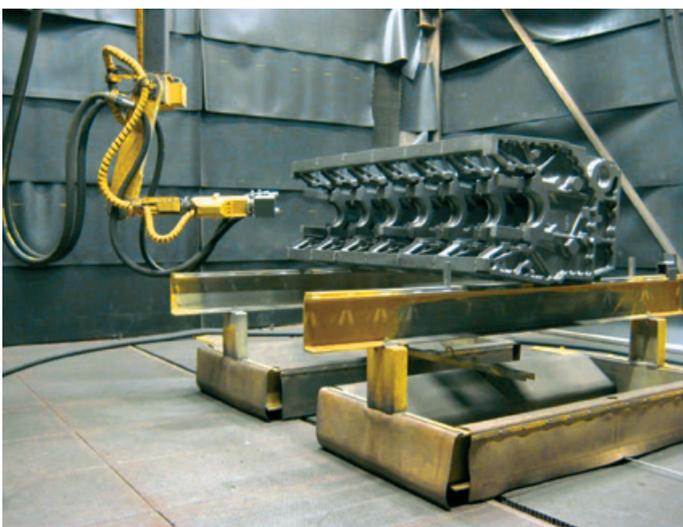
A total of 30 years' experience in engineering, manufacturing and delivering robotic solutions for blasting. Hundreds of Blastman solutions have provided excellent reliability and performance for customers around the world for decades. The longest running installations have been in operation for over 25 years, blasting for thousands of hours. The robot system requires only minimal maintenance routines that can be performed by the operators or on-site maintenance teams. Blastman robots are even operating in the factories of the world's leading robotics manufactures, because of their robust design and suitability to the harsh environment of a blast booth.



OPERABILITY

EASY TO OPERATE

A single operator can easily run a multi-robot solution. After a brief introductory training, anyone can operate the system. The robot system operates logically and doesn't require any know how of robotics. Manipulating the robot via joysticks is similar to many heavy-duty machines and can be picked up by anyone very quickly. Many of our customers have designated their old manual blasters to operate the robot. Operating the robot is also much less tiring for the workers. This allows them to work for longer periods and reduces the risk of sick leaves and workplace accidents.



SAFETY

PROTECT YOUR PEOPLE

Manual blasting is extremely physically tiring, unhealthy and dangerous. Blastman's robotic solution eliminates all safety concerns and brings workplace safety into this millennium. The only protective equipment that an operator requires are earplugs to prevent noise. This is a huge improvement compared to all the safety equipment required in manual blasting. These safety improvements significantly reduce the risk of workplace injuries and sick leaves for manual blasters.

QUALITY

OPTIMAL SURFACE QUALITY

The Blastman robotic solution eliminates the risk of human error. No matter what time of day, the solution provides constant high quality. The desired cleanliness and roughness are achieved by means of a controlled blasting angle and pressure together with the right choice of abrasive material. During installation, Blastman Robotics ensures that all process parameters are set to provide our customer with optimal roughness and preparation grade. Additionally, Blastman Robotics offers customer support in any quality issues regarding blast cleaning.

BLASTMAN B20CX

ROBOT CONFIGURATION

		Range /m/°	Max. Speed	Type
Axis 1	Robot bridge Longitudinal	5 - 100 m	0,3 m/s	Lin.
Axis 2	Arm/cabin carriage across	3 - 35 m	0,25 m/s	Lin.
Axis 3	Rotation of the telescope	360°	18,7°/s	Rot.
Axis 4	Arm/Cabin vertical (Telesc.)	2 - 6 m	0,26 m/s	Lin.
Axis 5	Shoulder	175°	21,5°/s	Rot.
Axis 6	Elbow	225°	19,9°/s	Rot.
Axis 7	Arm head	360°	180°/s	Rot.
Axis 8	Nozzle	270°	215°/s	Rot.

OPERATION MODES

Manual
Automatic
Parameter based automatic

TEACHING METHODS

Teach In (option)
PTP (option)
Offline (option)
Parameter based (option)

TECHNICAL

Voltage	380-500V 50/60Hz
Contr. voltage	24 VDC
Sealing *	IP65
Assembly	Roof Mounted
Weight **	5100 kg

*Applies to electrics in the blast room

** Depends on width

FEATURES

Control

- Manipulator without robot features
- License for software updates
- PTP Teaching by teach pendant
- Offline teaching
- VPN connection for remote diagnosis and SW updates
- Mobile monitoring
- Control of blast room machineries

Convenience

- AC in Control cabin
- Radio in Control cabin

Blast equipment

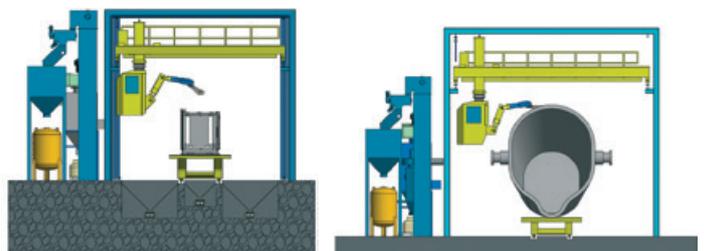
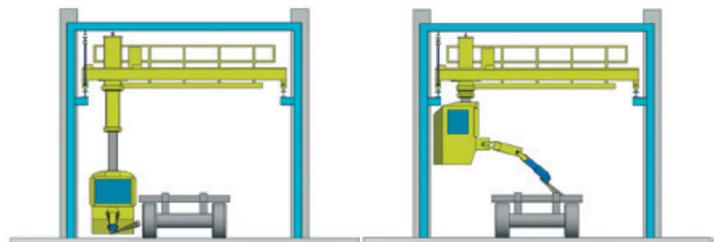
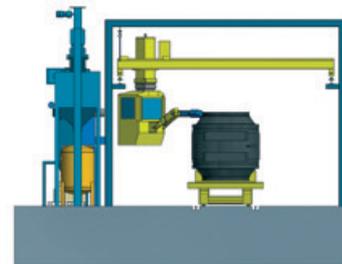
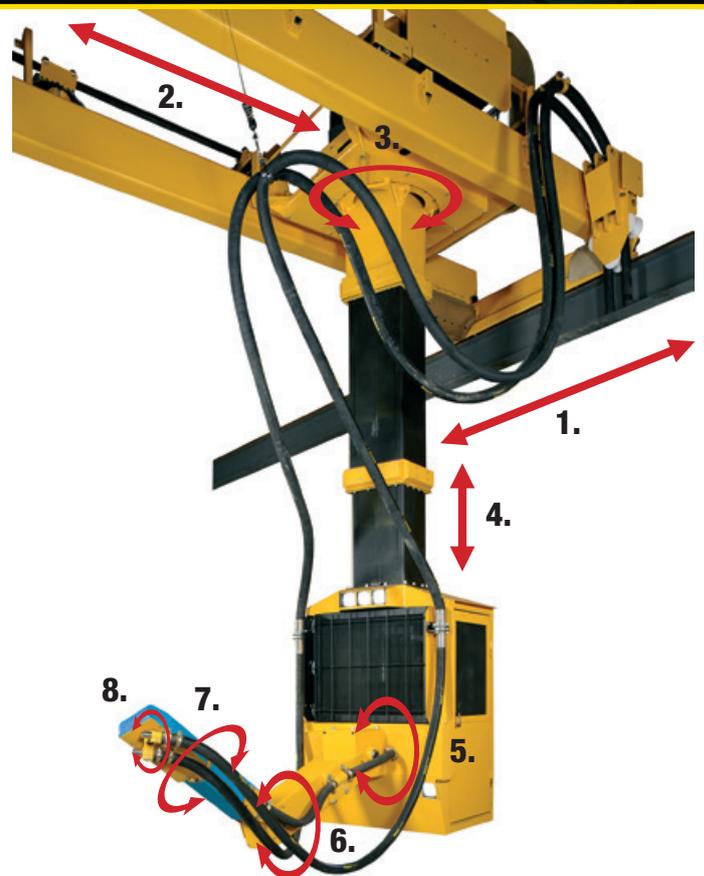
- Complete operational blast room
- Blast pot for robot
- Blast hose
- Blast nozzles

Other

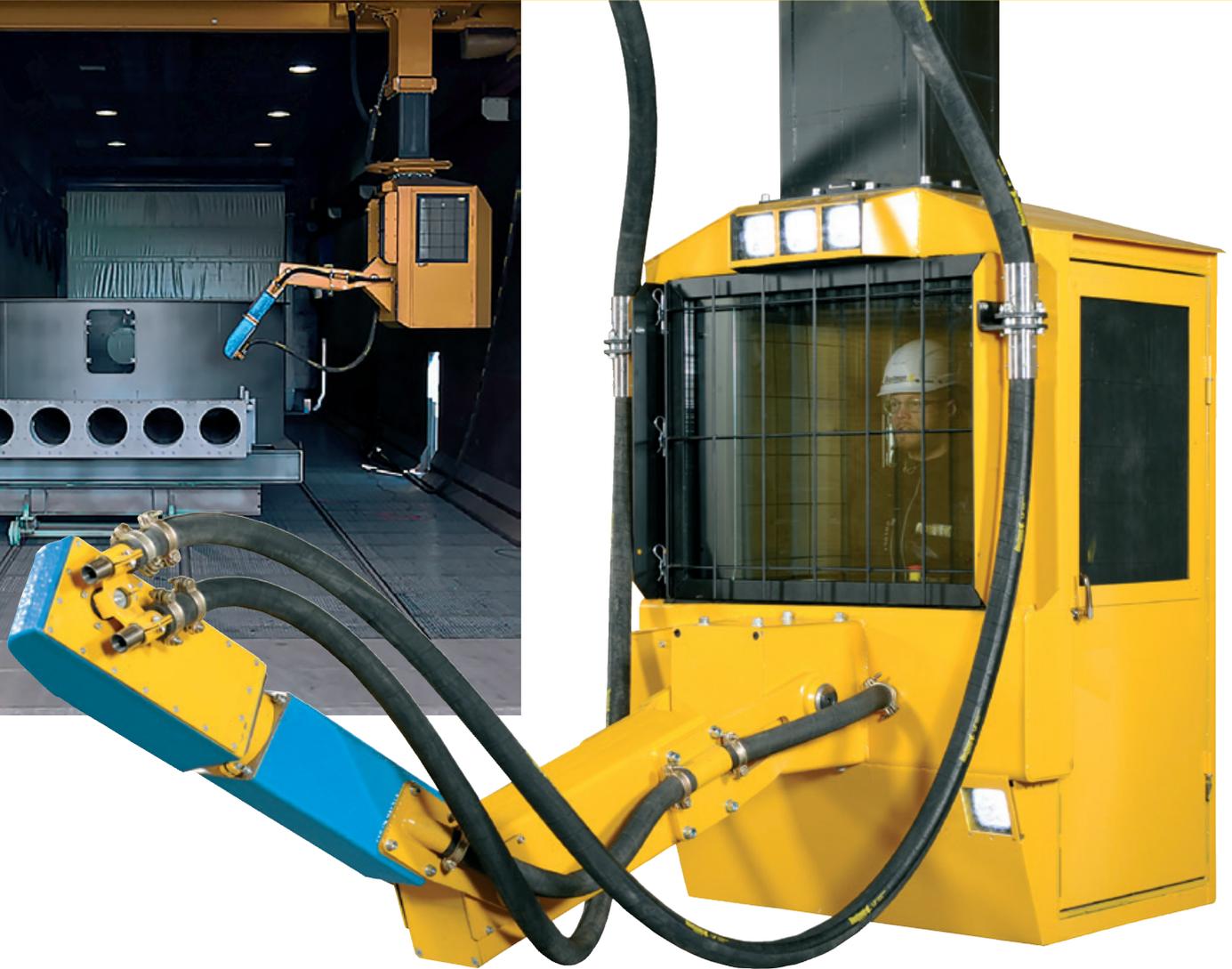
- Rails for the robot
- Transfer car for the workpiece
- Warranty extension
- Installation services

OPERATIONAL PARAM.

Nozzle diam.	13 - 19 mm
Nozzle diam.	1/4" - 3/4"
No. Of Nozzles	1 or 2
Air Pressure	4 - 11 bar
Air Pressure	50 - 150 PSI
Cleaning rate200 m²/h
Cleaning rate2150 ft²/h



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B20CX



The Blastman B20CX is designed for the most demanding blasting environments. The Blastman B20CX is an ideal solution to replace traditional manual blasting. The robot is controlled by an operator sitting in the control cabin. The Blastman B20CX can also be used in automatic mode as a full featured robot. The Blastman B20CX robot is the perfect choice for diverse products from individual items to mass production.

The Blastman B20CX robot applications include railway rolling stock, all kinds of steel structures and castings.

BLASTMAN B20S

ROBOT CONFIGURATION

		Range /m/°	Max. Speed	Type
Axis 1	Robot bridge longitudinal	5 - 100 m	0,3 m/s	Lin.
Axis 2	Arm carriage across	3 - 35 m	0,25 m/s	Lin.
Axis 3	Rotation of the telescope	360°	18,7 °/s	Rot.
Axis 4	Arm vertical (Telesc.)	2 - 6 m	0,26 m/s	Lin.
Axis 5	Shoulder	175°	21,5°/s	Rot.
Axis 6	Elbow	225°	19,9°/s	Rot.
Axis 7	Arm head	360°	180°/s	Rot.
Axis 8	Nozzle	270°	215 °/s	Rot.

OPERATION MODES

Manual (External contr. cabin)
Automatic
Parameter based automatic

TEACHING METHODS

Teach In (option)
PTP
Offline (option)
Parameter based (option)

TECHNICAL

Voltage	380-500V 50/60Hz
Contr. voltage	24 VDC
Sealing *	IP65
Assembly	Roof Mounted
Weight **	5100 kg

*Applies to electrics in the blast room

** Depends on width

FEATURES

Control

- License for software updates
- Offline teaching
- VPN connection for remote diagnosis and SW updates
- Mobile monitoring
- Control of blast room machineries

Blast equipment

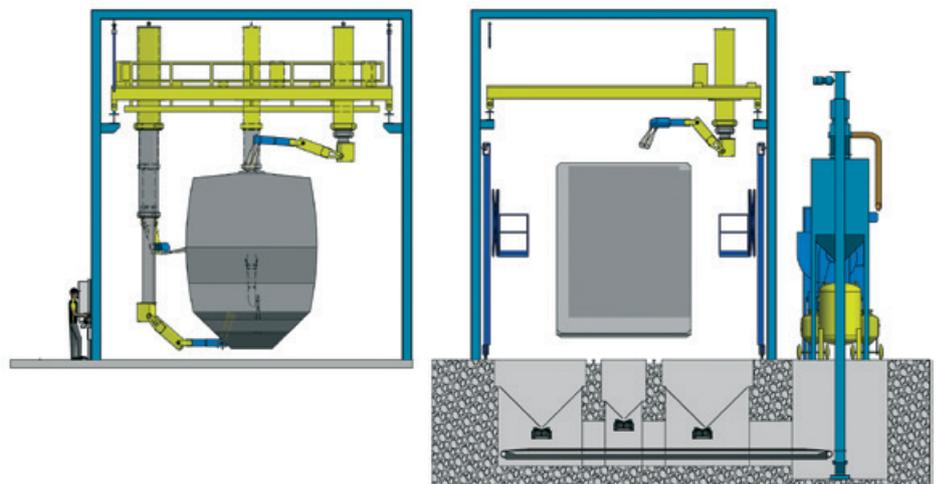
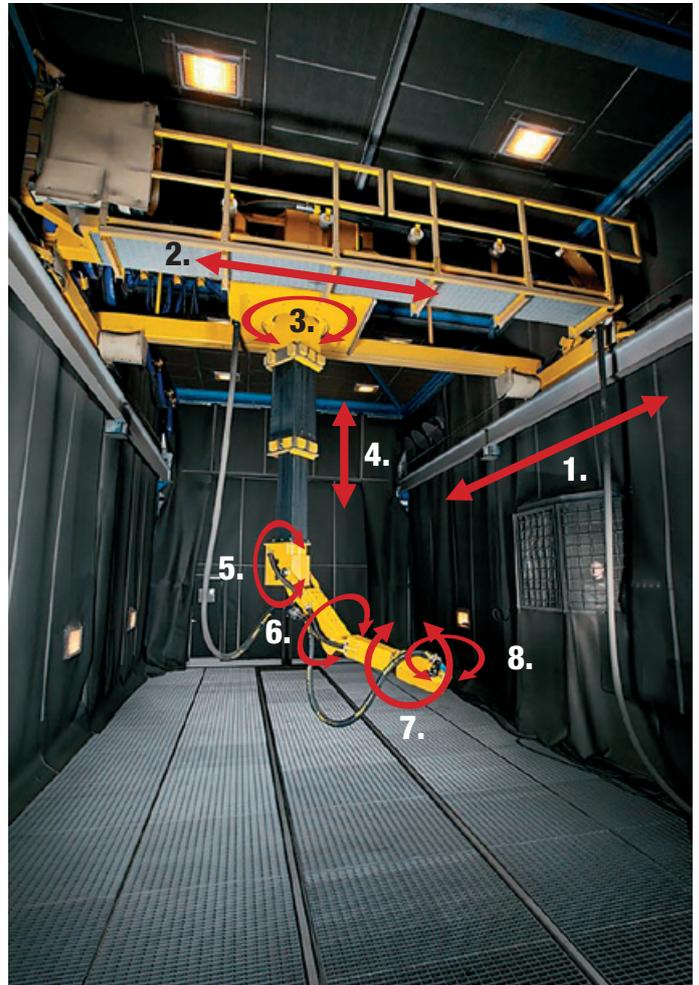
- Complete operational blast room
- Blast pot for robot
- Blast hose
- Blast nozzles

Other

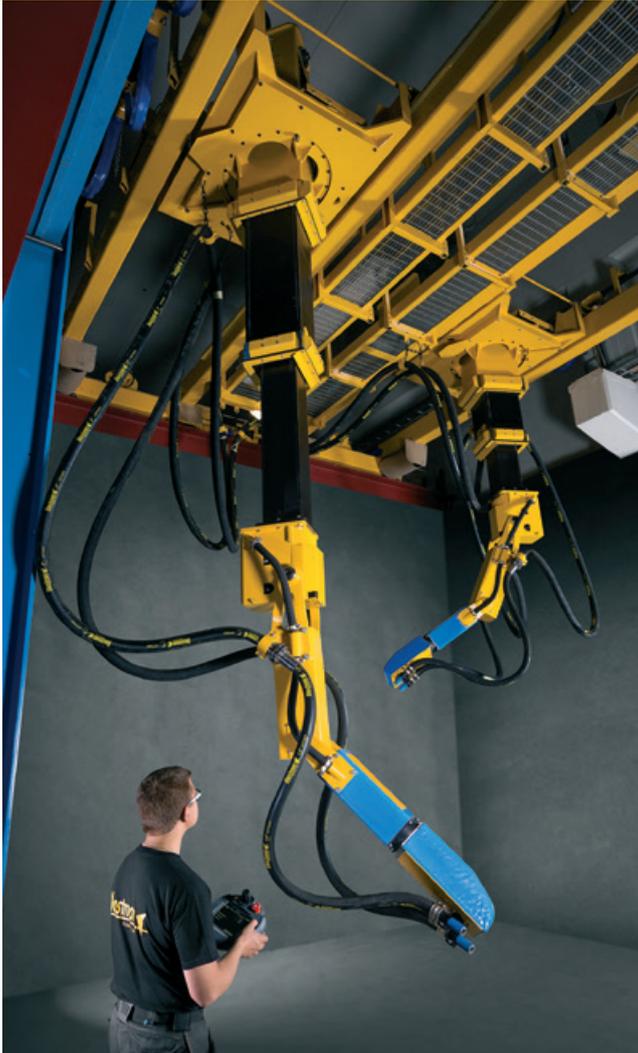
- Rails for the robot
- Transfer car for the workpiece
- Warranty extension
- Installation services

OPERATIONAL PARAM.

Nozzle diam.	13 - 19 mm
Nozzle diam.	1/4" - 3/4"
No. Of Nozzles	1 or 2
Air Pressure	4 - 11 bar
Air Pressure	50 - 150 PSI
Cleaning rate200 m²/h
Cleaning rate2150 ft²/h



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B20S

The Blastman B20S is a gantry-type robot with telescopic and joint booms to direct the blasting nozzles. The Blastman B20S robot typically consists of eight (8) robot axis. Due to the overhead crane type design, and movable telescopic arm, the robot has excellent reach and can blast clean even the most complex workpieces.

The Blastman B20S robot is always designed to fit into the dimensions of the blast room and to meet the requirements of the workpiece to be blasted. With its telescopic arm the robot can even reach inside railcars through windows or other holes to blast clean interior surfaces.

Blastman B20S robot applications include railway rolling stock, all kinds of steel structures and castings.

BLASTMAN B20C-S

ROBOT CONFIGURATION

		Range /m/°	Max. Speed	Type
Axis 1	Robot bridge longitudinal	5 - 100 m	0,3 m/s	Lin.
Axis 2	Arm carriage across	3 - 35 m	0,25 m/s	Lin.
Axis 3	Rotation of the telescope	360°	18,7 °/s	Rot.
Axis 4	Arm vertical (Telesc.)	2 - 6 m	0,26 m/s	Lin.
Axis 5	Shoulder	175°	21,5°/s	Rot.
Axis 6	Elbow	225°	19,9°/s	Rot.
Axis 7	Arm head	360°	180°/s	Rot.
Axis 8	Nozzle	270°	215 °/s	Rot.
Axis 9	Cabin bridge	5 - 100 m	0,3 m/s	Lin.
Axis 10	Cabin carriage	3 - 35 m	0,25 m/s	Lin.
Axis 11	Cabin telescope Rotation	360°	20°/s	Rot.
Axis 12	Cabin telescope	2 - 6 m	0,26 m/s	Lin.

OPERATION MODES

Manual
Automatic
Parameter based automatic

TEACHING METHODS

Teach In
PTP (option)
Offline (option)
Parameter based (option)

TECHNICAL

Voltage	380-500V 50/60Hz
Contr. voltage	24 VDC
Sealing *	IP65
Assembly	Roof Mounted
Weight **	10 000 kg

*Applies to electrics in the blast room

** Depends on width

FEATURES

Control

- License for software updates
- Offline teaching
- VPN connection for remote diagnosis and SW updates
- Mobile monitoring
- Control of blast room machineries

Convenience

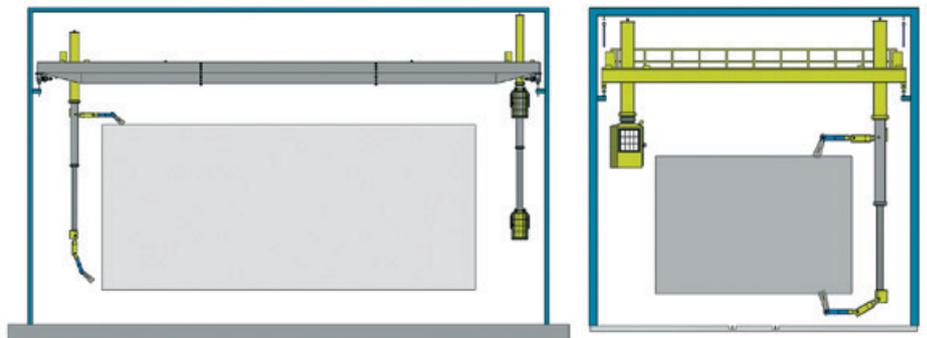
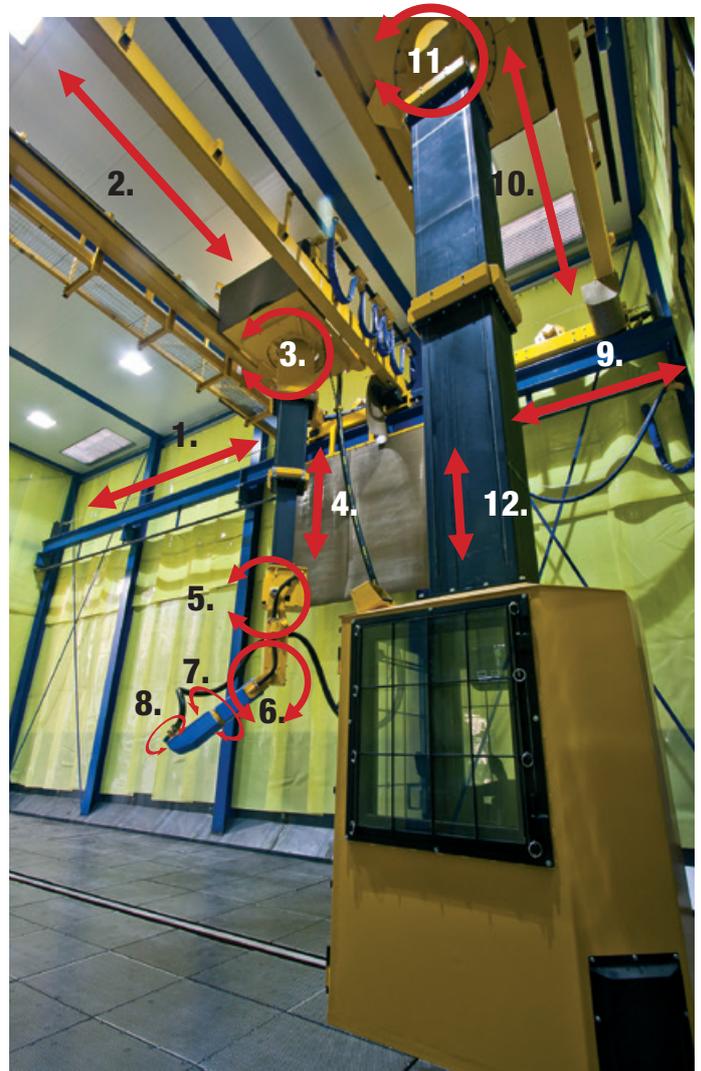
- AC in Control cabin
- Radio in Control cabin

Blast equipment

- Complete operational blast room
- Blast pot for robot
- Blast hose
- Blast nozzles

Other

- Rails for the robot
- Transfer car for the workpiece
- Warranty extension
- Installation services



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B20C-S

The Blastman B20C-S is a bridge type 8-axis blast cleaning robot designed to blast large workpieces. The B20C-S has two separate bridges: one to carry the robot arm and one to carry the movable operator cabin. An operator can steer the robot with joysticks from the operator cabin which moves on its 4-axis. When the B20C-S is used automatically, the operator cabin can be driven into the other end of the blast room.

The functionality of the B20C-S robot is similar to the B20S model: it is customized to fit into the dimensions of the blast room and to meet the requirements of the workpiece to be blasted. With its telescopic arm the robot can even reach inside railcars through windows or other holes to blast clean the interior surfaces.

The Blastman B20C-S robot applications include railway rolling stock, transformers, diverse steel structures and castings.

BLASTMAN B20LWS

ROBOT CONFIGURATION

		Range /m/°	Max. Speed	Type
Axis 1	Robot bridge longitudinal	5 - 100 m	0,3 m/s	Lin.
Axis 2	Arm carriage across	3 - 35 m	0,25 m/s	Lin.
Axis 3	Rotation of the telescope	360°	18,7 °/s	Rot.
Axis 4	Arm vertical (Telesc.)	2 - 6 m	0,26 m/s	Lin.
Axis 5	Shoulder	175°	21,5°/s	Rot.
Axis 6	Arm head	360°	180°/s	Rot.
Axis 7	Nozzle	270°	215 °/s	Rot.

OPERATION MODES

Manual (External contr. cabin)
Automatic
Parameter based automatic

TEACHING METHODS

Teach In (option)
PTP
Offline (option)
Parameter based (option)

TECHNICAL

Voltage	380-500V 50/60Hz
Contr. voltage	24 VDC
Sealing *	IP65
Assembly	Roof Mounted
Weight **	5100 kg

*Applies to electrics in the blast room
 ** Depends on width

FEATURES

Control

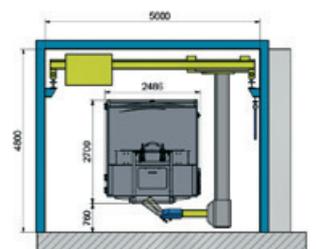
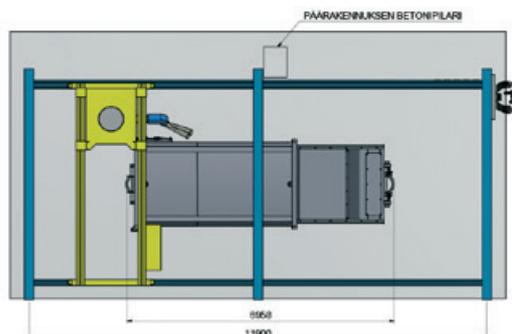
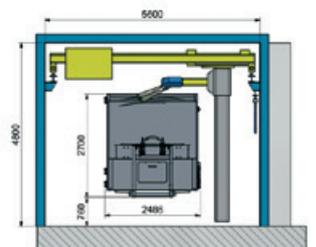
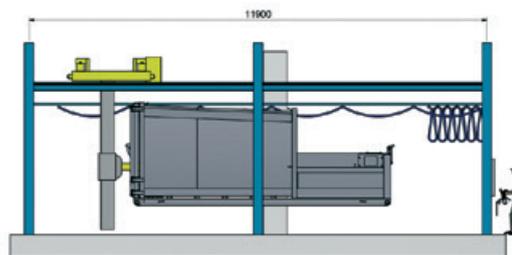
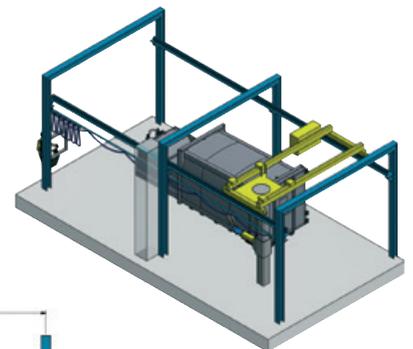
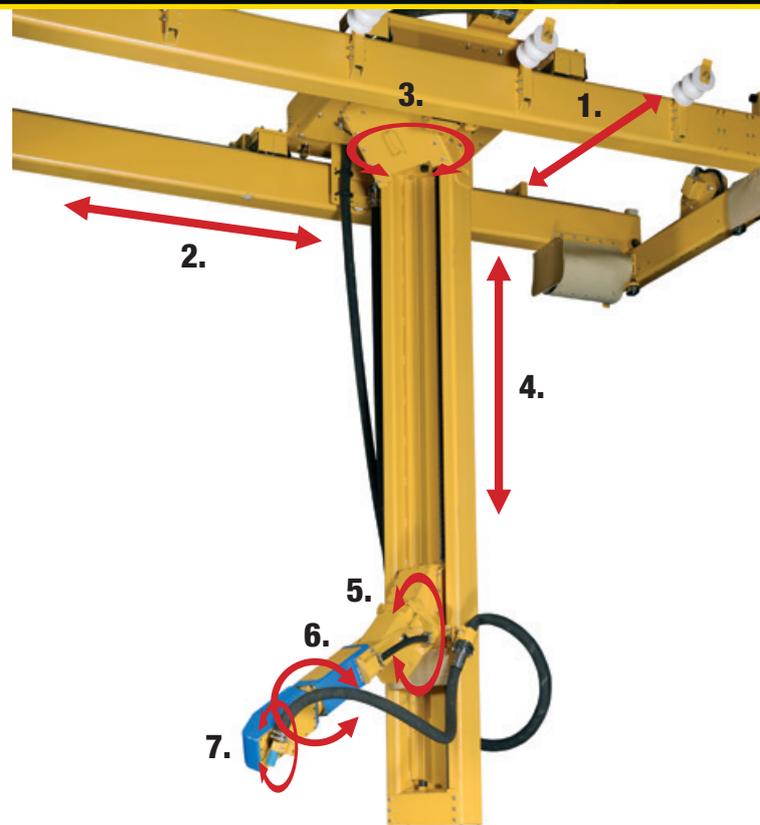
- License for software updates
- Offline teaching
- VPN connection for remote diagnosis and SW updates
- Mobile monitoring
- Control of blast room machineries

Blast equipment

- Complete operational blast room
- Blast pot for robot
- Blast hose
- Blast nozzles

Other

- Rails for the robot
- Transfer car for the workpiece
- Warranty extension
- Installation services



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B20LWS

The Blastman B20LWS is a gantry-type robot with seven (7) axes. The robot's overhead crane type design allows the robot to move all around the workpiece and blast clean it from all sides. The robot arm is moving along a vertical beam allowing blasting at the top and bottom of the workpiece.

The dimensions of the B20LWS are always customized to match the size of the blast room and to meet the requirements of the workpiece. The small size of the robot makes it ideal for narrow blast rooms, that cannot house a larger traditional blasting robot.

Blastman B20LWS robot applications include railway rolling stock, all kinds of steel structures and castings.

BLASTMAN B16CX

ROBOT CONFIGURATION

		Range /m/°	Max. Speed	Type
Axis 1	Main frame horiz.	3 - 50 m	0,3 m/s	Lin.
Axis 2	Arm and cabin Vert.	2 - 10m	0,3 m/s	Lin.
Axis 3	Arm rotation	180°	25,2°/s	Rot.
Axis 4	Shoulder	175°	21,5°/s	Rot.
Axis 5	Elbow	225°	19,9°/s	Rot.
Axis 6	Arm head	360°	180°/s	Rot.
Axis 7	Nozzle	270°	215 °/s	Rot.

OPERATION MODES

Manual
Automatic
Parameter based automatic

TEACHING METHODS

Teach In (option)
PTP (option)
Offline (option)
Parameter based (option)

OPERATIONAL PARAM.

Nozzle diam. 13 - 19 mm
Nozzle diam. 1/4" - 3/4"
No. Of Nozzles 1 or 2
Air Pressure 4 - 11 bar
Air Pressure 50 - 150 PSI
Cleaning rate200 m²/h
Cleaning rate2150 ft²/h

TECHNICAL

Voltage 380-500V 50/60Hz
Contr. voltage 24 VDC
Sealing * IP65
Assembly Wall Mounted
Weight ** 5100 kg

*Applies to electrics in the blast room
** Depends on height

FEATURES

Control

- Manipulator without robot features
- License for software updates
- PTP Teaching by teach pendant
- Offline teaching
- VPN connection for remote diagnosis and SW updates
- Mobile monitoring
- Control of blast room machineries

Convenience

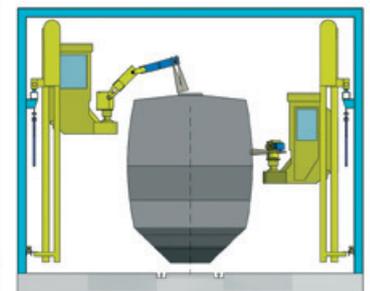
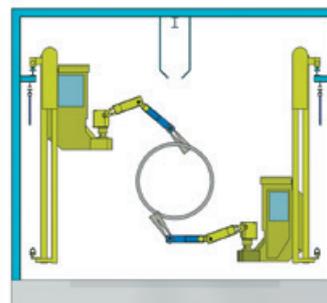
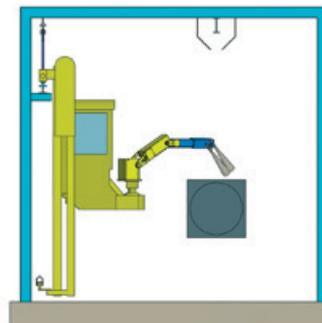
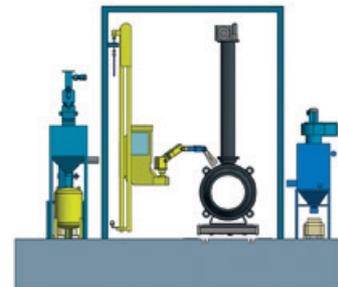
- AC in Control cabin
- Radio in Control cabin

Blast equipment

- Complete operational blast room
- Blast pot for robot
- Blast hose
- Blast nozzles

Other

- Rails for the robot
- Transfer car for the workpiece
- Warranty extension
- Installation services



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B16CX

The Blastman B16CX is an ideal solution to replace traditional manual blasting. The robot is controlled by an operator sitting in the control cabin. The Blastman B16CX can also be used in automatic mode as a full featured robot. The Blastman B16CX robot is the perfect choice to blast diverse products from individual items to mass production.



BLASTMAN B16S

ROBOT CONFIGURATION

		Range /m/°	Max. Speed	Type
Axis 1	Main frame horiz.	3 - 50 m	0,3 m/s	Lin.
Axis 2	Robot Arm Vert.	2 - 10m	0,3 m/s	Lin.
Axis 3	Arm rotation	180°	25,2°/s	Rot.
Axis 4	Shoulder	175°	21,5°/s	Rot.
Axis 5	Elbow	225°	19,9°/s	Rot.
Axis 6	Arm head	360°	180°/s	Rot.
Axis 7	Nozzle	270°	215 °/s	Rot.

OPERATION MODES

Manual (External contr. cabin)
Automatic
Parameter based automatic

TEACHING METHODS

Teach In (option with ext. cabin)
PTP
Offline (option)
Parameter based (option)

TECHNICAL

Voltage	380-500V 50/60Hz
Contr. voltage	24 VDC
Sealing *	IP65
Assembly	Wall Mounted
Weight **	4500 kg

*Applies to electrics in the blast room

** Depends on height

FEATURES

Control

- Manipulator without robot features
- License for software updates
- Offline teaching
- VPN connection for remote diagnosis and SW updates
- Mobile monitoring
- Control of blast room machineries

Blast equipment

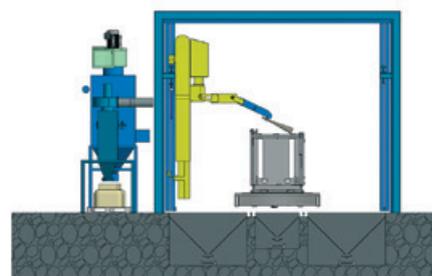
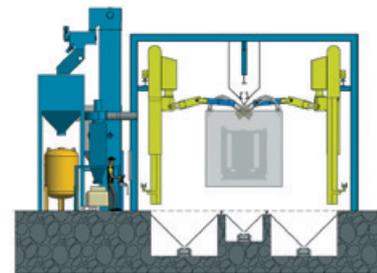
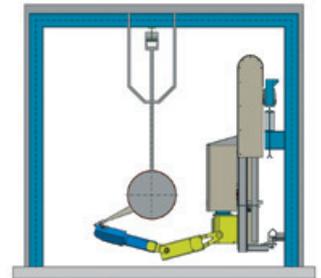
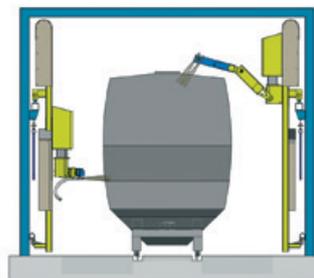
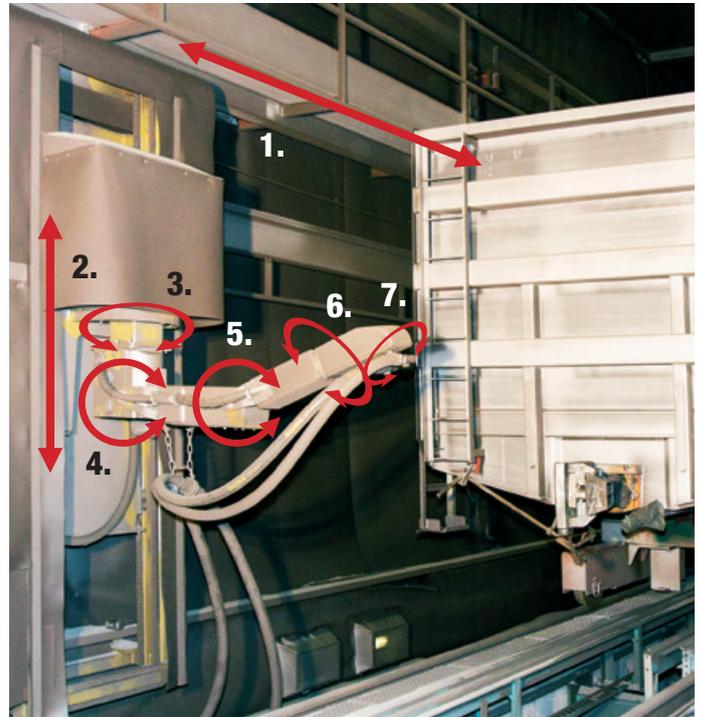
- Complete operational blast room
- Blast pot for robot
- Blast hoses
- Blast nozzles

Other

- Rails for the robot
- Transfer car for the workpiece
- Warranty extension
- Installation services

OPERATIONAL PARAM.

Nozzle diam.	13 - 19 mm
Nozzle diam.	1/4" - 3/4"
No. Of Nozzles	1 or 2
Air Pressure	4 - 11 bar
Air Pressure	50 - 150 PSI
Cleaning rate200 m²/h
Cleaning rate2150 ft²/h



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B16S

The Blastman B16S is a wall mounted blasting robot. The frame of the robot moves the robot arm in the longitudinal direction of the blast room on rails which are fixed on the walls. The hoist carriage moves the robot arm vertically on the main frame. The robot arm is used to direct and move the blasting nozzles. The Blastman B16S robot typically consists of seven (7) axes.

A pair of Blastman B16S robots combined with overhead (monorail) conveyor provides an efficient and flexible blasting solution for even the most complicated workpieces.



BLASTMAN B16XS

ROBOT CONFIGURATION

		Range /m/°	Max. Speed	Type
Axis 1	Main frame horiz.	3 - 50 m	0,3 m/s	Lin.
Axis 2	Robot Arm Vert.	2 - 6 m	0,26 m/s	Lin.
Axis 3	Arm rotation	180°	18,7°/s	Rot.
Axis 4	Shoulder	175°	21,5°/s	Rot.
Axis 5	Elbow	225°	19,9°/s	Rot.
Axis 6	Arm head	360°	180°/s	Rot.
Axis 7	Nozzle	270°	215 °/s	Rot.

OPERATION MODES

Manual (External contr. cabin)
Automatic
Parameter based automatic

TEACHING METHODS

Teach In (option with ext. cabin)
PTP
Offline (option)
Parameter based (option)

TECHNICAL

Voltage	380-500V 50/60Hz
Contr. voltage	24 VDC
Sealing *	IP65
Assembly	Wall Mounted
Weight **	2500 kg

*Applies to electrics in the blast room

** Depends on height

FEATURES

Control

- Manipulator without robot features
- License for software updates
- Offline teaching
- VPN connection for remote diagnosis and SW updates
- Mobile monitoring
- Control of blast room machineries

Blast equipment

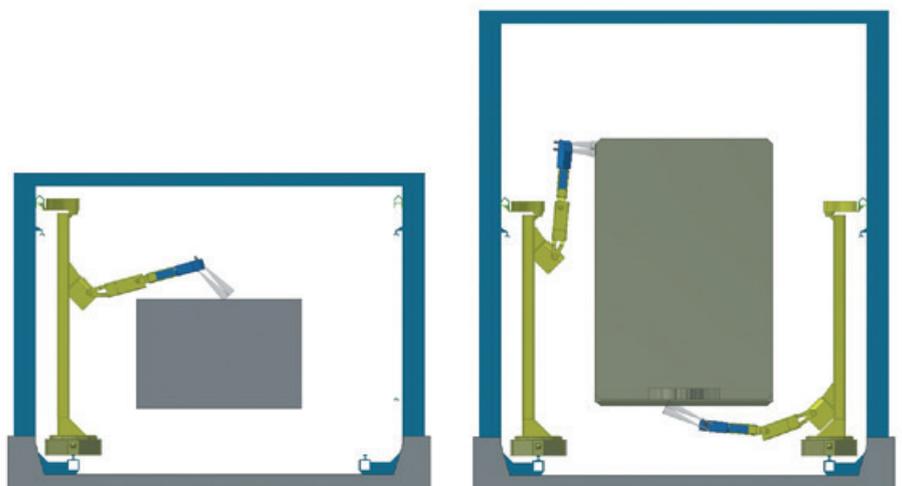
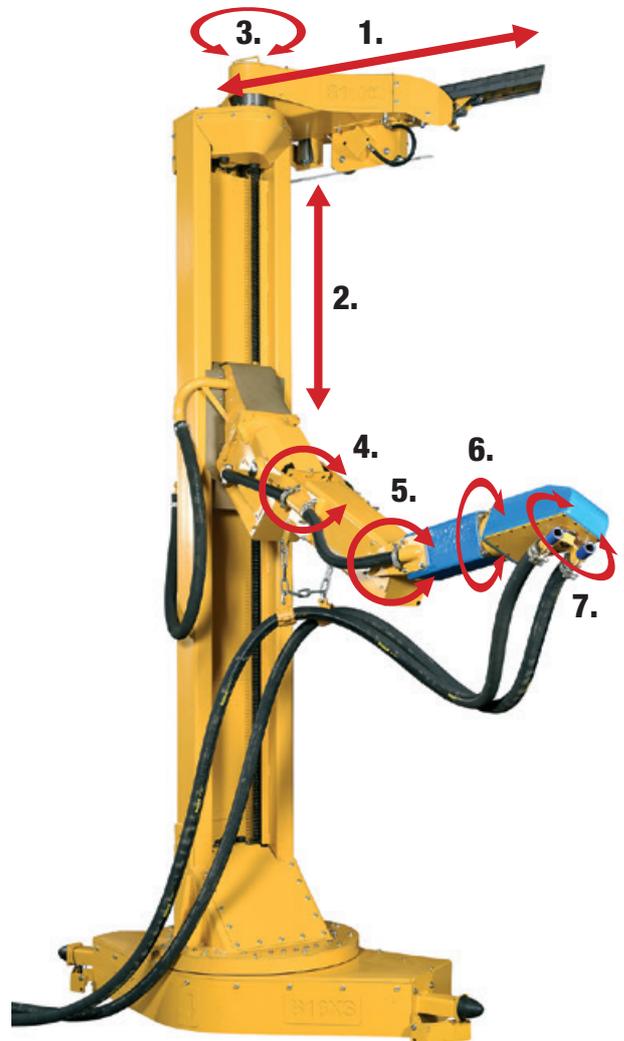
- Complete operational blast room
- Blast pot for robot
- Blast hoses
- Blast nozzles

Other

- Rails for the robot
- Transfer car for the workpiece
- Warranty extension
- Installation services

OPERATIONAL PARAM.

Nozzle diam.	13 - 19 mm
Nozzle diam.	1/4" - 3/4"
No. Of Nozzles	1 or 2
Air Pressure	4 - 11 bar
Air Pressure	50 - 150 PSI
Cleaning rate200 m²/h
Cleaning rate2150 ft²/h



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B16XS

The Blastman B16XS is the latest wall mounted blast cleaning robot. The slim frame of the robot allows for better movement in smaller workspaces and more flexibility with complex workpieces. The small and flexible design of the B16XS makes it easy to retrofit into existing blast chambers. The robot arm of the B16XS moves in longitudinal direction of the blast room on rails, which are fixed to the floor. The hoist carriage moves the robot arm vertically on the main frame. The robot arm is used to direct and move the blasting nozzles. The Blastman B16XS robot typically consists of seven (7) axes similarly as the B16S robot.

Blastman B16XS robot provides an efficient and flexible blast cleaning solution in many different industries. The design of the robot allows for the use of an overhead conveyor as a means of transporting the workpiece. A single B16XS robot can also work in tandem with a turntable.



BLASTMAN B12S

ROBOT CONFIGURATION

		Range /m/°	Max. Speed	Type
Axis 1	Main frame horiz.	3 - 50 m	0,3 m/s	Lin.
Axis 2	Shoulder	145°	20°/s	Rot.
Axis 3	Arm head	360°	180°/s	Rot.
Axis 4	Nozzle	270°	215°/s	Rot.
Axis 5	Rotating stand			Ext.

OPERATION MODES

Manual (External contr. cabin)
Automatic
Parameter based automatic

TEACHING METHODS

Teach In (option with ext. cabin)
PTP
Offline (option)
Parameter based (option)

TECHNICAL

Voltage	380-500V 50/60Hz
Contr. voltage	24 VDC
Sealing *	IP65
Assembly	Wall Mounted
Weight **	1500 kg

*Applies to electrics in the blast room

** Depends on height

FEATURES

Control

- License for software updates
- Offline teaching
- VPN connection for remote diagnosis and SW updates
- Mobile monitoring
- Control of the rotating units
- Control of blast room machineries

Blast equipment

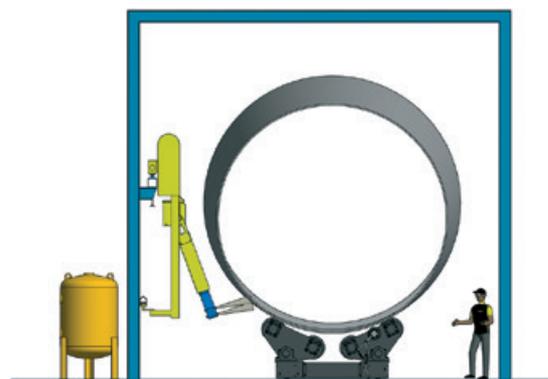
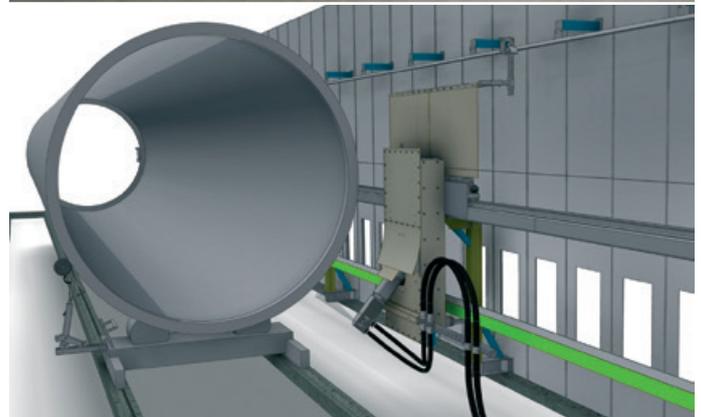
- Complete operational blast room
- Blast pot for robot
- Blast hoses
- Blast nozzles

Other

- Rails for the robot
- Warranty extension
- Installation services

OPERATIONAL PARAM.

Nozzle diam.	13 - 19 mm
Nozzle diam.	1/4" - 3/4"
No. Of Nozzles	1 or 2
Air Pressure	4 - 11 bar
Air Pressure	50 - 150 PSI
Cleaning rate200 m²/h
Cleaning rate2150 ft²/h



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B12S

The Blastman B12S is a wall mounted - blasting robot developed for blasting tubular workpieces, such as sections of wind turbine towers. The frame of the robot moves the robot arm in the longitudinal direction of the blast room on rails which are fixed on the walls. The purpose of the robot arm is to direct and move the blasting nozzles. The Blastman B12S robot typically consists of four (4) axes and one external axis which controls the rotating stand of the workpiece.

The Blastman B12S robot applications include tubular workpieces, such as windmill tower sections.

BLASTMAN B10S

ROBOT CONFIGURATION

		Range /m/°	Max. Speed	Type
Axis 1	Main frame horiz.	3 - 50 m	0,3 m/s	Lin
Axis 2	Robot arm vertical	2 - 6 m	0,3 m/s	Rot.
Axis 3	Arm Rotation	180°	18,7 °/s	Rot.
Axis 4	Shoulder	175°	21,5°/s	Rot.
Axis 5	Elbow	225°	19,9°/s	Ext.
Axis 6	Arm Head	360°	180°/s	Rot.
Axis 7	Nozzle	270°	215 °/s	Rot.

OPERATION MODES

Manual (External contr. cabin)
Automatic
Parameter based automatic

TEACHING METHODS

Teach In (option with ext. cabin)
PTP
Offline (option)
Parameter based (option)

TECHNICAL

Voltage	380-500V 50/60Hz
Contr. voltage	24 VDC
Sealing *	IP65
Assembly	Wall Mounted
Weight **	2100 kg

* Appl. to electrics in the blast room

** Depends on height

FEATURES

Control

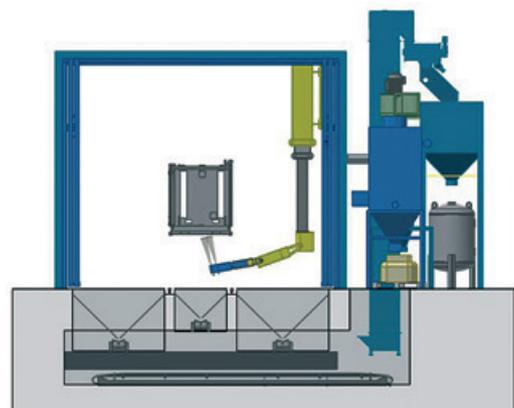
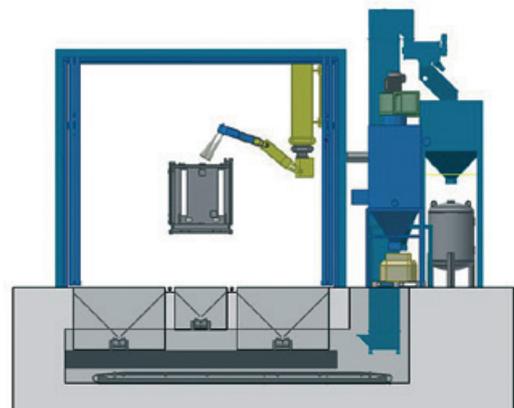
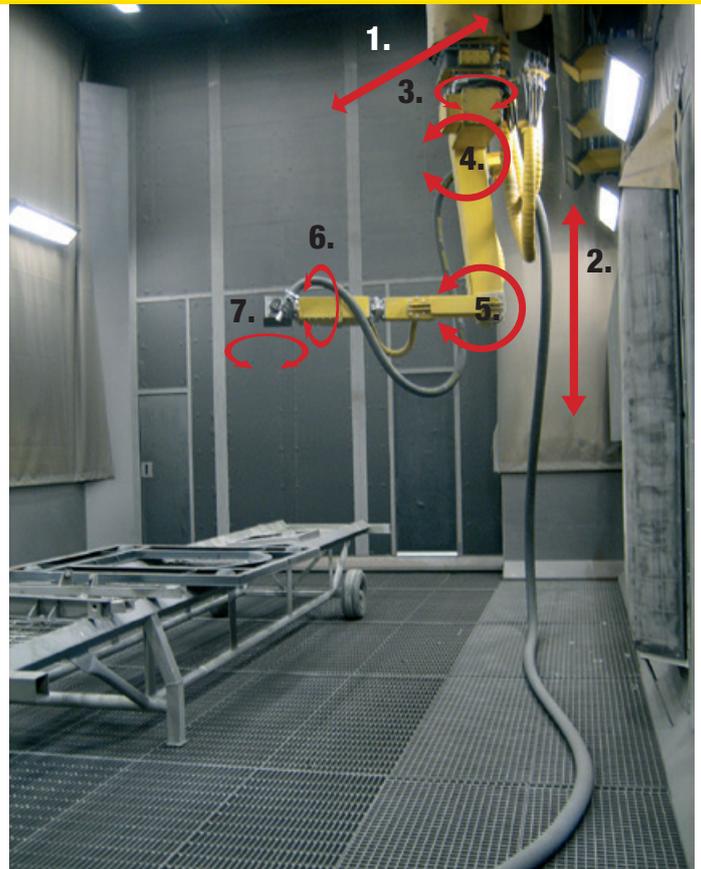
- License for software updates
- Offline teaching
- VPN connection for remote diagnosis and SW updates
- Mobile monitoring
- Control of the rotating units
- Control of blast room machineries

Blast equipment

- Complete operational blast room
- Blast pot for robot
- Blast hoses
- Blast nozzles

Other

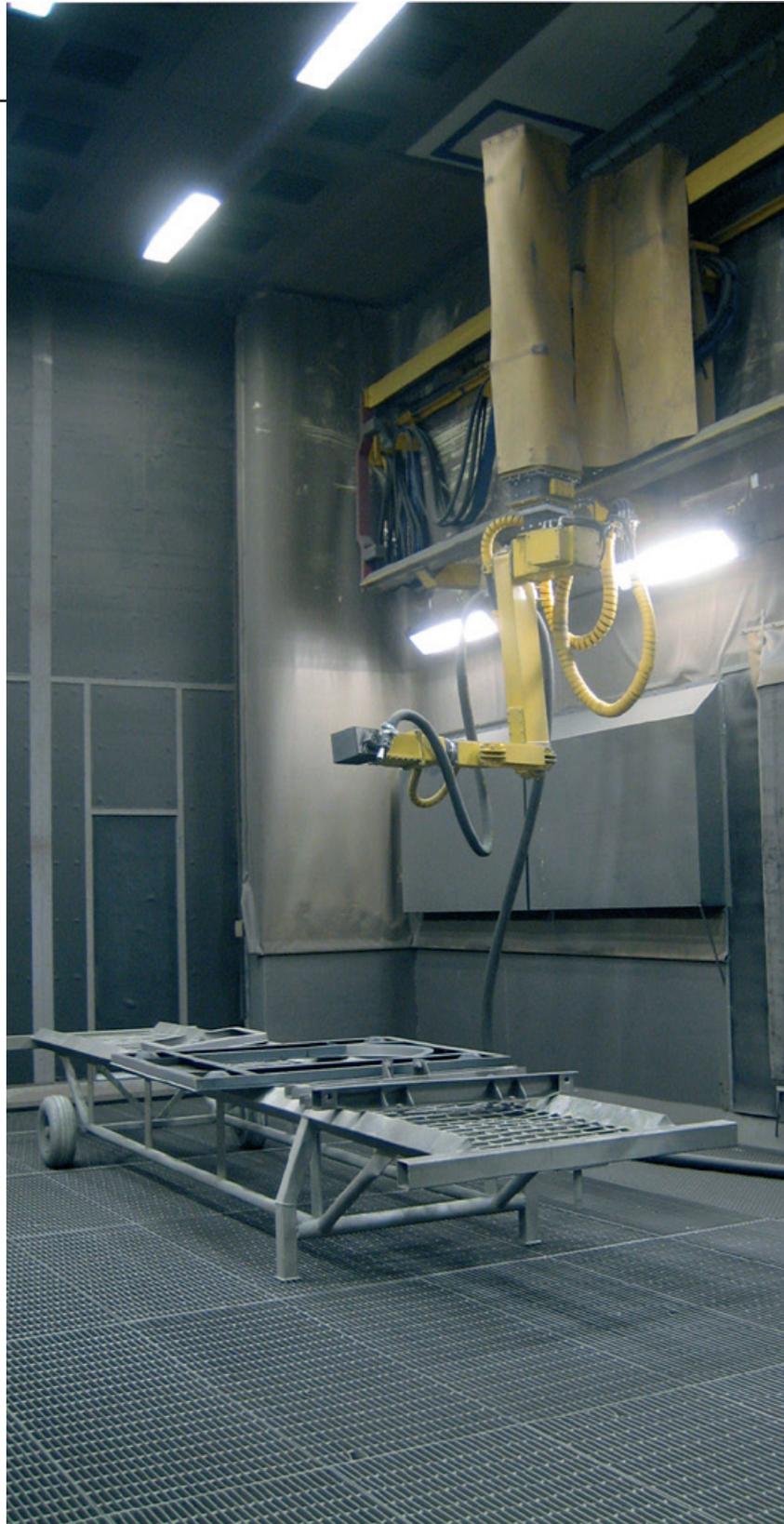
- Rails for the robot
- Warranty extension
- Installation services



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B10S

The Blastman B10S is a wall-mounted- blasting robot. The frame of the robot moves the telescope and robot arm in the longitudinal direction of the blast room on rails, which are fixed on the walls. The telescope moves the robot arm vertically on the frame. The robot arm directs and moves the blasting nozzles. The Blastman B10S robot typically consists of seven (7) robot axes.



BLASTMAN B5S

ROBOT CONFIGURATION

		Range /m/°	Max. Speed	Type
Axis 1	Arm Rotation	270°	25,2°/s	Rot
Axis 2	Shoulder	175°	21,5°/s	Rot.
Axis 3	Elbow	225°	19,9°/s	Ext.
Axis 4	Arm Head	360°	180°/s	Rot.
Axis 5	Nozzle	270°	215°/s	Rot.
Axis 6	Linear (option)	10 m	0,3 m/s	Lin.

OPERATION MODES

Manual (External contr. cabin)
Automatic
Parameter based automatic

TEACHING METHODS

Teach In
PTP
Offline (option)
Parameter based (option)

TECHNICAL

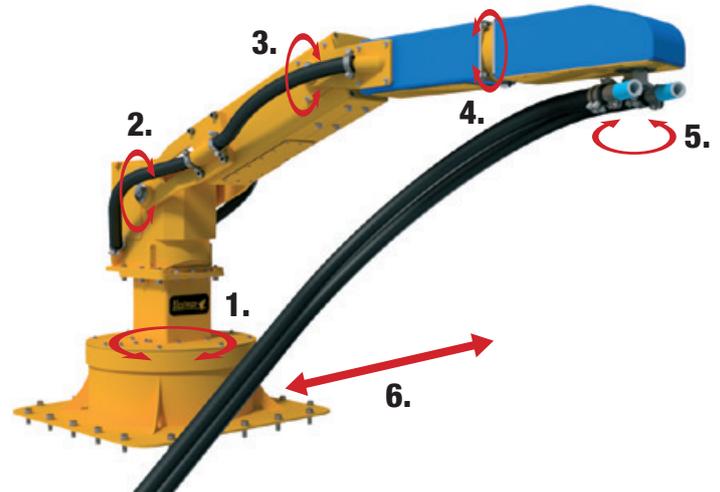
Voltage	380-500V 50/60Hz
Contr. voltage	24 VDC
Sealing *	IP65
Assembly	Roof Mounted / Floor Mounted
Weight **	700 kg

* Appl. to electrics in the blast room

** Depends on height

OPERATIONAL PARAM.

Nozzle diam.	11 - 19 mm
Nozzle diam.	7/16" - 3/4"
No. Of Nozzles	1 or 2
Air Pressure	4 - 11 bar
Air Pressure	50 - 150 PSI
Cleaning rate	...200 m ² /h
Cleaning rate	...2150 ft ² /h



FEATURES

Control

- License for software updates
- Offline teaching
- VPN connection for remote diagnosis and SW updates
- Mobile monitoring
- Control of the rotating units
- Control of blast room machineries

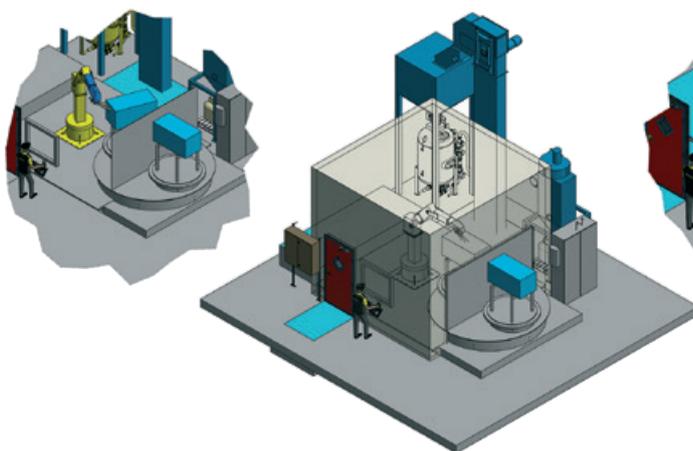
Blast equipment

- Complete operational blast room
- Blast pot for robot
- Blast hoses
- Blast nozzles

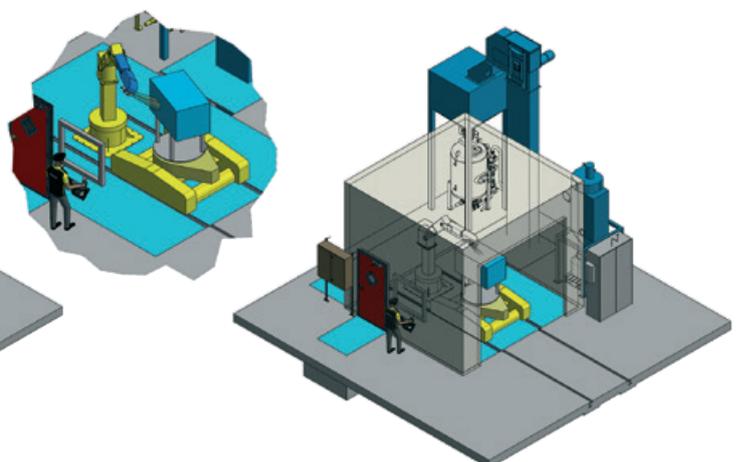
Other

- Rails for the robot
- Warranty extension
- Installation services

B5S + TURNING TABLE

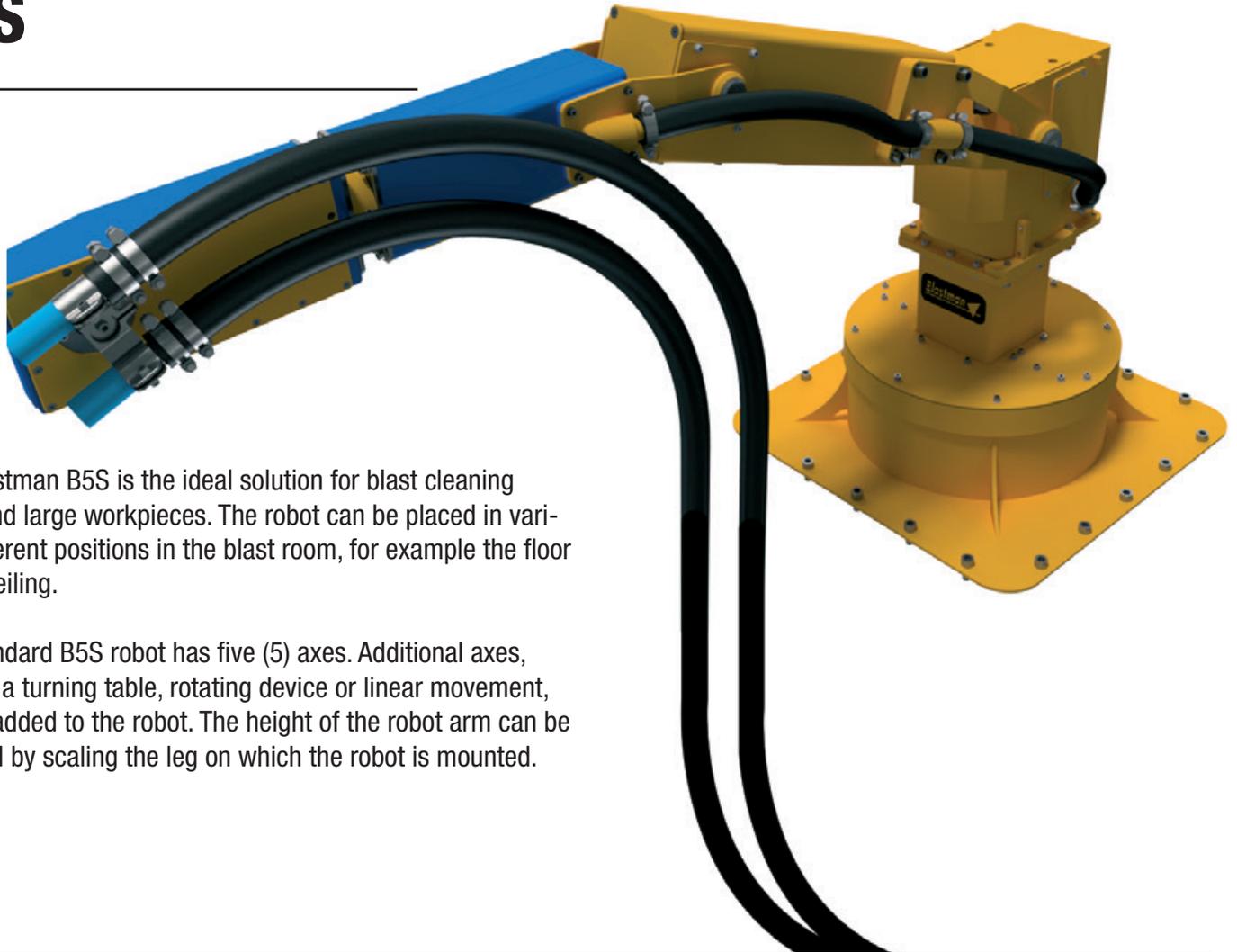


B5S + TRANSFER CAR FOR THE WORKPIECE



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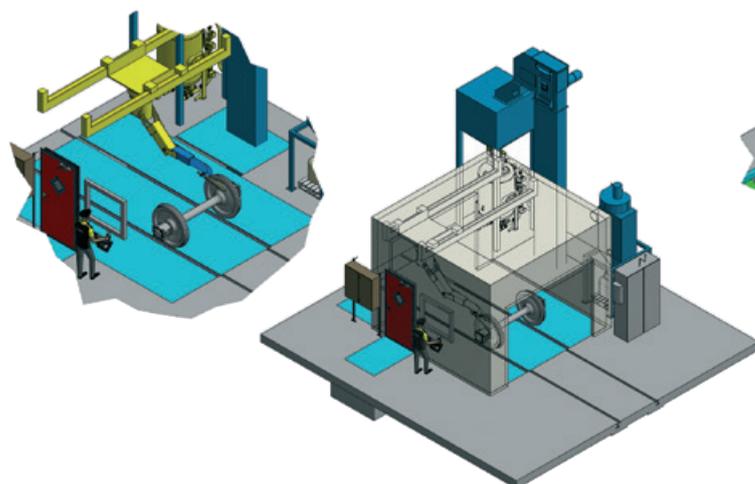
B5S



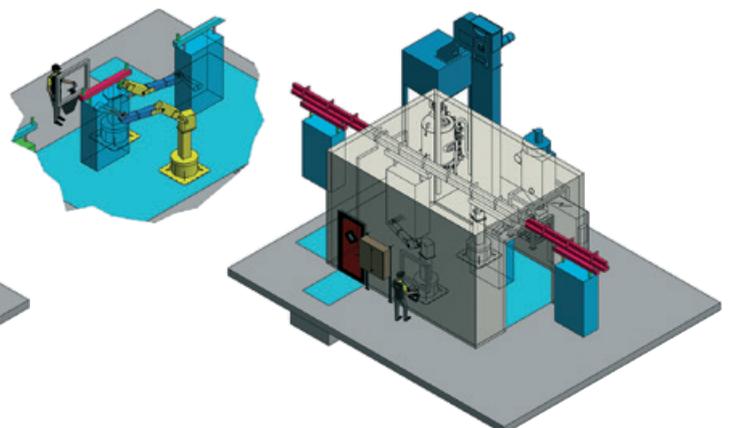
The Blastman B5S is the ideal solution for blast cleaning small and large workpieces. The robot can be placed in various different positions in the blast room, for example the floor or the ceiling.

The standard B5S robot has five (5) axes. Additional axes, such as a turning table, rotating device or linear movement, can be added to the robot. The height of the robot arm can be adjusted by scaling the leg on which the robot is mounted.

B5S ROOF MOUNTED, ARM CARRIAGE ACROSS



B5S + OVERHEAD MONORAIL CONVEYOR



MBU - MOBILE BLASTING UNIT

ROBOT CONFIGURATION / HORIZONTAL BOOM

		Max. move	Max. Speed	Type
Axis 1	Vehicle drive	Configurable	0,6 m/s	Lin.
Axis 2	Vehicle turn (both axels)	+/-30°	5,5°/s	Rot.
Axis 3	Linear movement	13 000 mm	0,4 m/s	Lin.
Axis 4	Nozzle	65°	180°/s	Rot.

VEHICLE

Weight	4 100 kg
Length	5 000 mm
Width	2 600 mm
Height	1 700 mm

HORIZONTAL BOOM

Weight	1 200 kg
Length	800 mm
Width	7 000 / 13 000 mm
The extensions to the boom	3,000 mm
Height	1 500 mm

TECHNICAL

Voltage	380-500V 50/60Hz
Control Voltage	24 VDC
Power Supply	80 Amp
Sealing	IP65
Assembly	On Wheels

ROBOT CONFIGURATION / ARM

		Max. move	Max. Speed	Type
Axis 1	Vehicle drive	Configurable	0,6 m/s	Lin.
Axis 2	Vehicle turn (both axels)	+/-30°	5,5°/s	Rot.
Axis 3	Linear movement	13 000 mm	0,4 m/s	Lin.
Axis 4	Arm rotation	180°	25,2°/s	Rot.
Axis 5	Shoulder	175°	21,5°/s	Rot.
Axis 6	Elbow	225°	19,9°/s	Rot.
Axis 7	Arm head	360°	180°/s	Rot.
Axis 8	Nozzle	270°	215 °/s	Rot.

OPERATION MODES

Manual
Automatic
Parameter based automatic

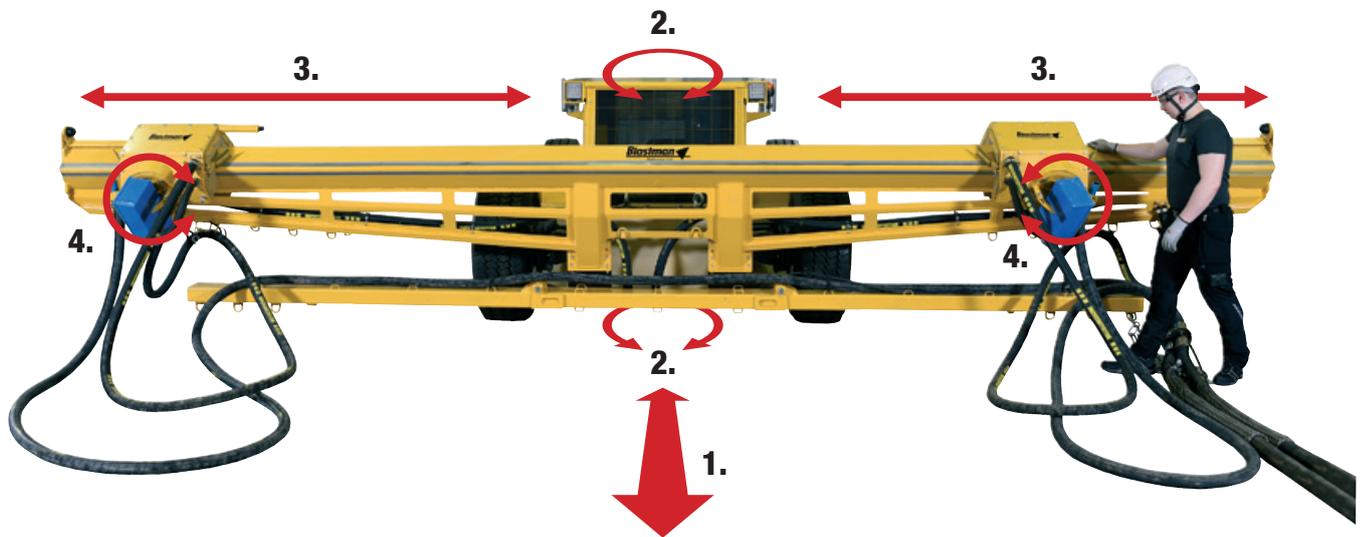
TEACHING METHODS

Teach In (option)
PTP (option)
Offline (option)
Parameter based (option)

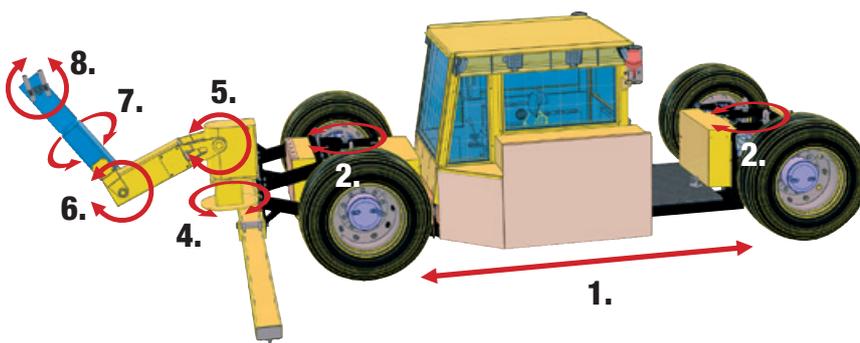
OPERATIONAL PARAM.

Nozzle diam.	13 - 19 mm
Nozzle diam.	1/4" - 3/4"
No. Of Nozzles	1 or 2
Air Pressure	4 - 11 bar
Air Pressure	50 - 150 PSI
Cleaning rate200 m ² /h
Cleaning rate2150 ft ² /h

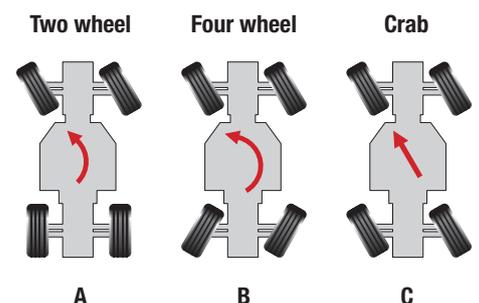
BLASTMAN MBU / HORIZONTAL BOOM



BLASTMAN MBU / ARM



STEERING OPTIONS



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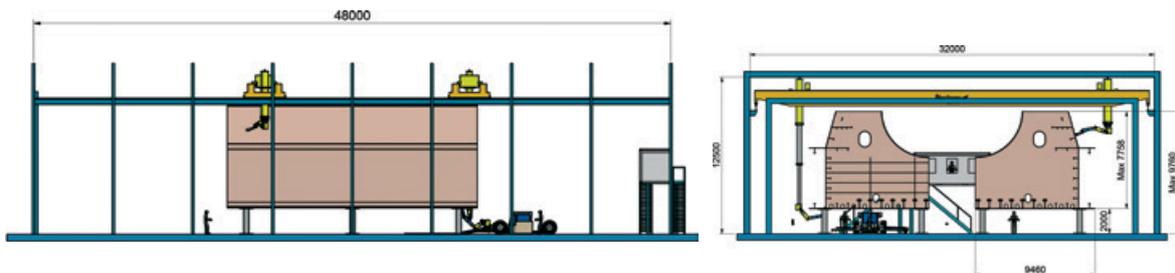
BLASTMAN MBU

Blastman MBU is a movable blasting robot/manipulator, which provides very high efficiency with large blasting nozzles.

THE SMART OPERATING INTERFACE AND DRIVE MECHANISM

Blastman MBU provides excellent flexibility for your blasting application.

Blasting is controlled by the operator from an ergonomic and airconditioned cabin. The movements of the MBU are controlled from joysticks or from the user interface in the panel PC.



OFFLINE PROGRAMMING



OFFLINE PROGRAMMING

Offline programming is done on a separate PC with special software. Blast room, robot(s) and workpiece are 3D modelled into the software. Programs are made offline, by Blastman trained personnel, well in advance and imported into the robot system. Programs can be made for multiple robots simultaneously and simulated before actual blasting.

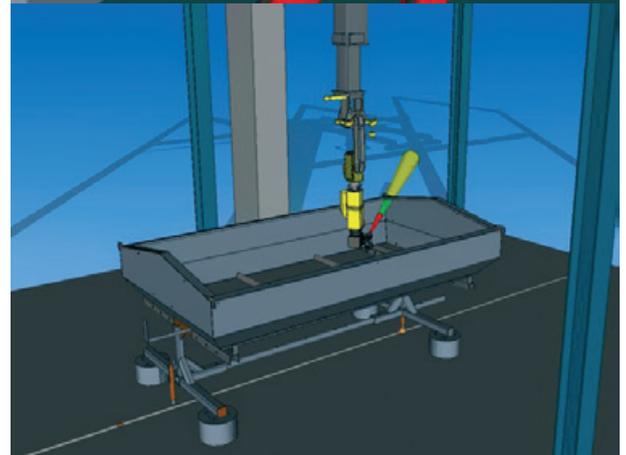
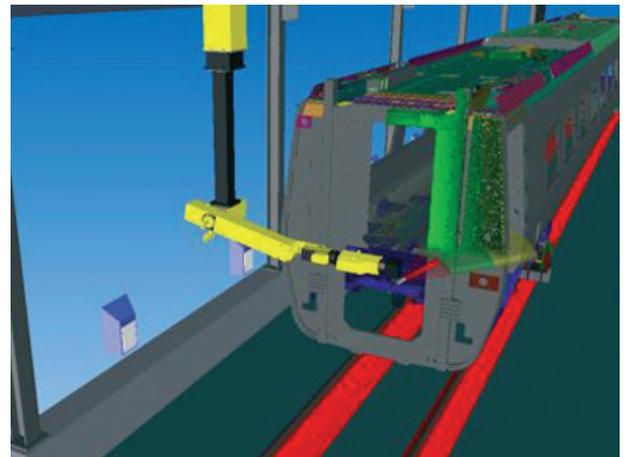
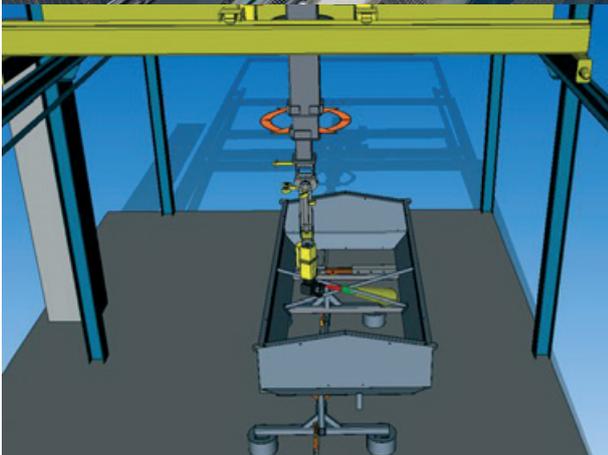
The method is excellent for complicated workpieces and constant production. Optimizing and modifying the programs is fast and easy.

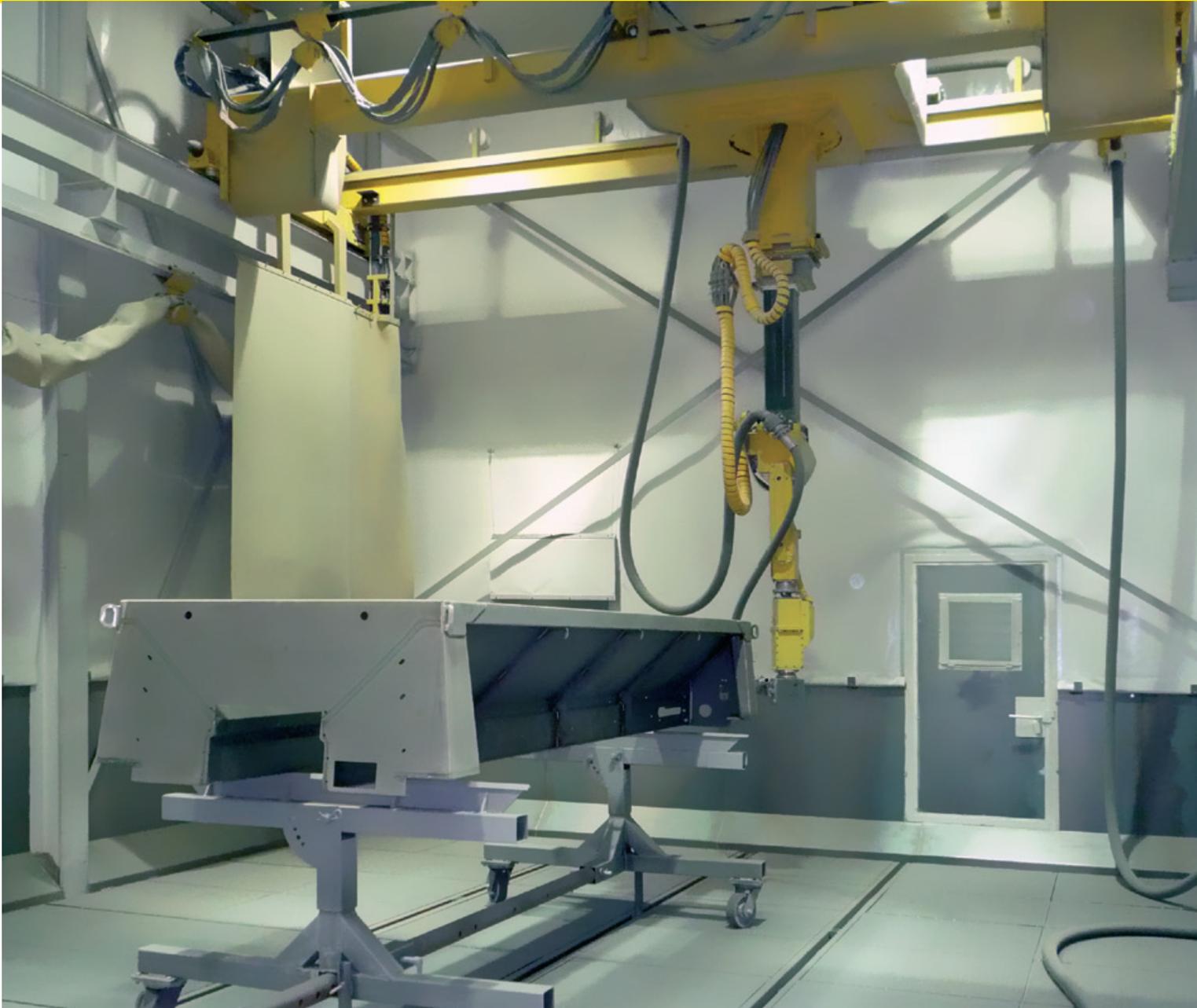


BENEFITS

By choosing Blastman Offline solution you will get these benefits:

- Reduce blasting times by more accurate and effective programs.
- Increase blasting speed of programs up to 25% compared to hand panel programs.
- Zero process downtime for programming and program modifications
- Consistent surface finishing quality





OFFLINE PROGRAMMING

Blastman is committed to improve your investment value by our offline programming application. Speed up your lead time with an effecting simulation.

With our offline solution, your personnel will have the skills to program robot operations independently from a computer workstation when the robot is in production.

BLASTMAN B20ML (manlift)

MANLIFT CONFIGURATION

Axis	Configuration	Range /m/°	Max. Speed	Type
Axis 1	Bridge longitudinal	3 - 100 m	0,3 m/s	Lin.
Axis 2	Platform carriage	3 - 35 m	0,25 m/s	Lin.
Axis 3	Platf. telescope Rotation	360°	20°/s	Rot.
Axis 4	Platform telescope	2 - 6 m	0,26 m/s	Lin.

OPERATION MODES

Manual by push buttons
External outside the blast rom

OPERATIONAL PARAM.

Max load 300kg/2 person
Safety certificate

TECHNICAL

Voltage	380-500V 50/60Hz
Contr. voltage	24 VDC
Sealing *	IP65
Assembly	Roof Mounted
Weight **	4500 kg

*Applies to electrics in the blast room

** Depends on height

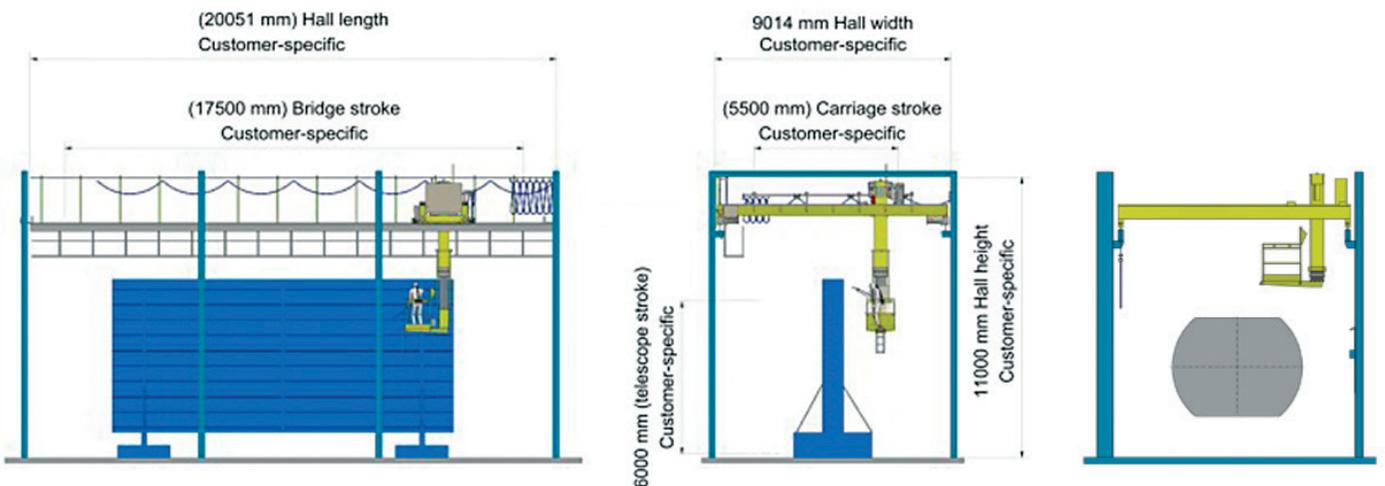
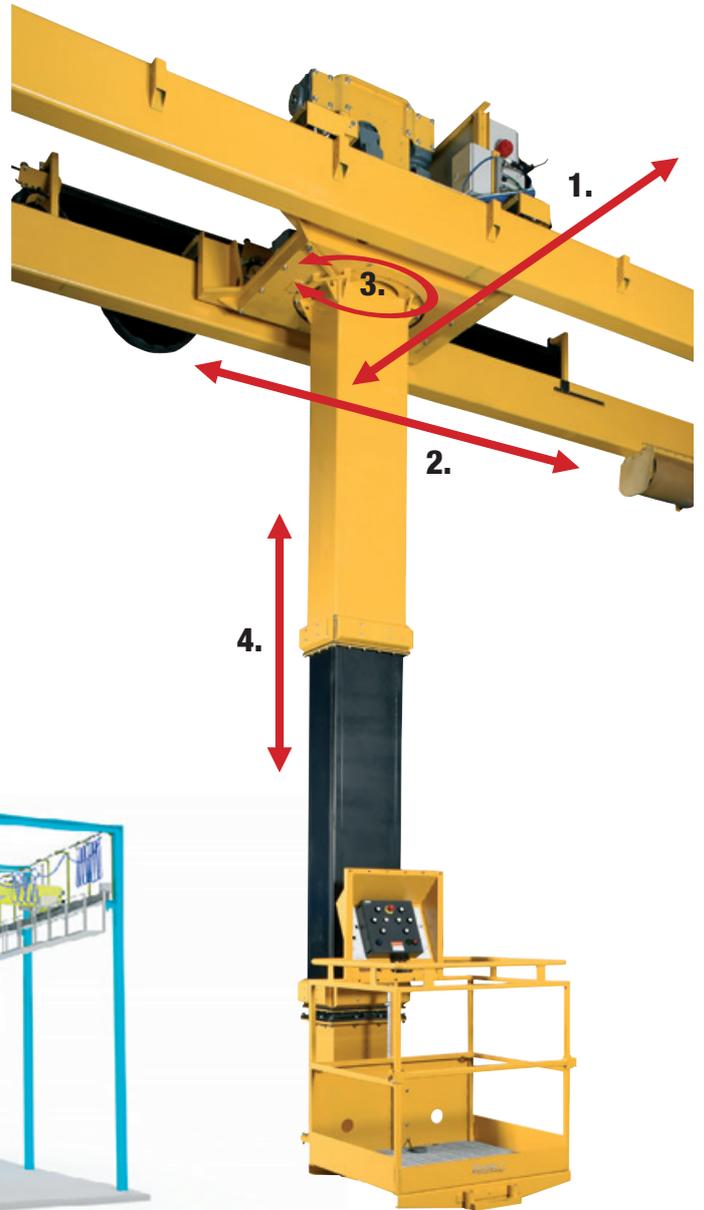
FEATURES

Blast equipment

- Complete operational blast room
- Blast pot for robot
- Blast hoses
- Blast nozzles

Other

- Rails for the manlift
- Warranty extension
- Installation services

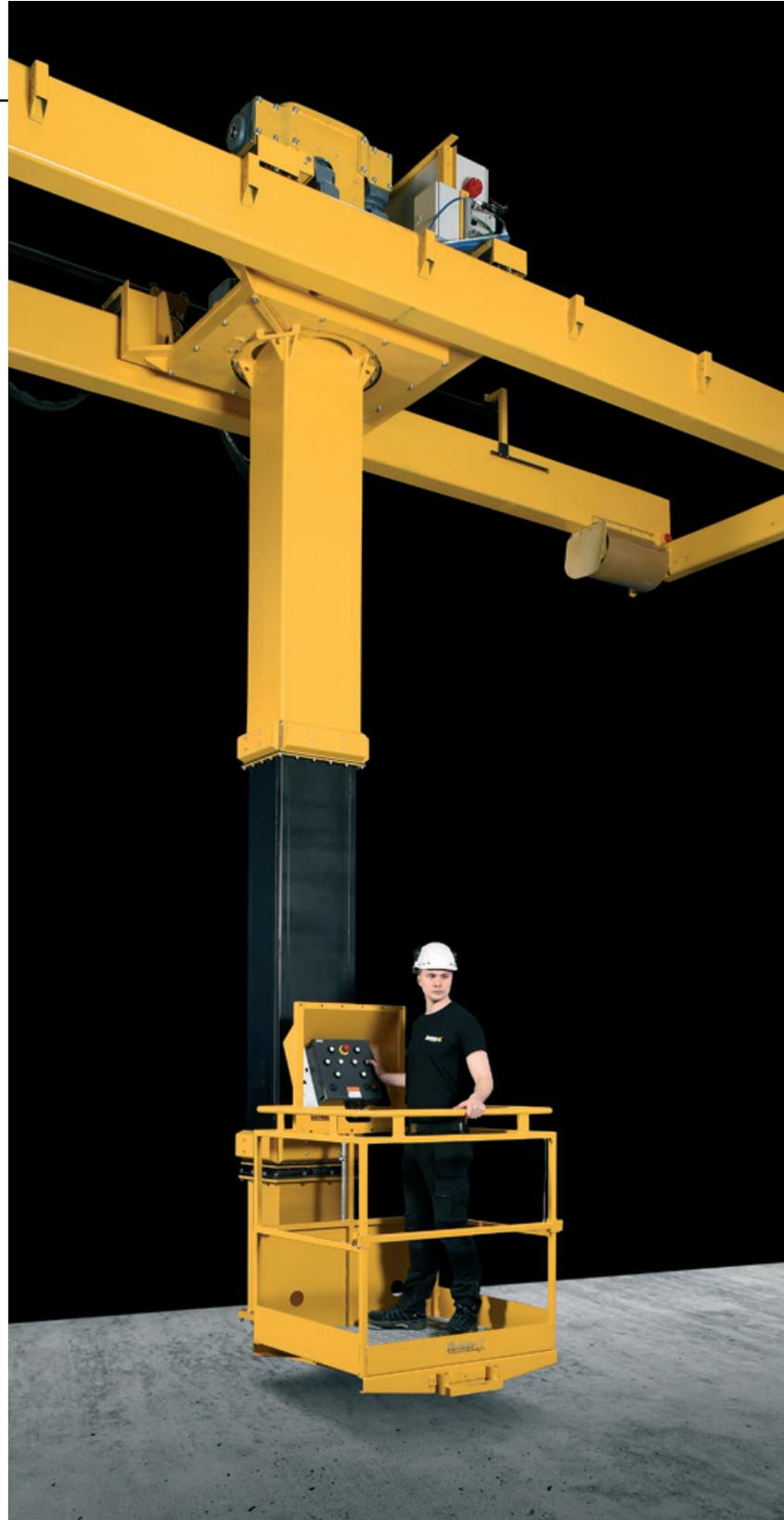


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B20ML

The Blastman B20ML is a gantry-type manlift with a telescopic boom to move the operator platform around the workpiece. The Blastman B20ML has been engineered for both blast and paint rooms.

The Blastman B20ML operates as an overhead crane and provides the best possible access around large workpieces without any scaffolding, movable boom lifts, or ladders. The B20ML can be installed in painting chambers replacing the traditional scaffolding and boom lifts.



BLASTMAN B16ML (manlift)

MANLIFT CONFIGURATION

		Range /m/°	Max. Speed	Type
Axis 1	Main frame horiz.	3 - 50 m	0,3 m/s	Lin.
Axis 2	Platform vertical	2 - 10m	0,2 m/s	Lin.
Axis 3	Platform rotation	180°	20°/s	Rot.

OPERATION MODES

Manual by push buttons
External outside the blast room

OPERATIONAL PARAM.

Max load 300 kg
Safety certificate

TECHNICAL

Voltage	380-500V 50/60Hz
Contr. voltage	24 VDC
Sealing *	IP65
Assembly	Wall Mounted
Weight **	1600 kg

*Applies to electrics in the blast room

** Depends on height

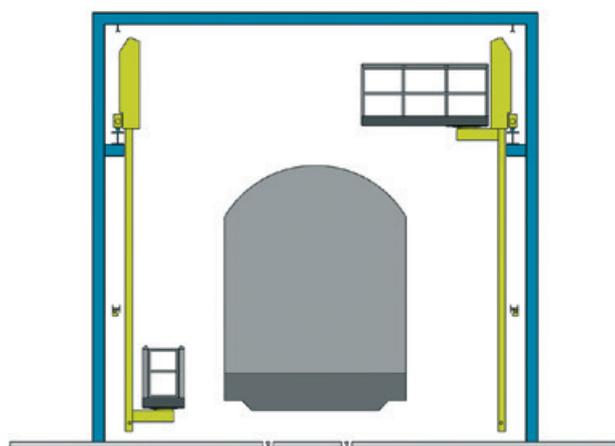
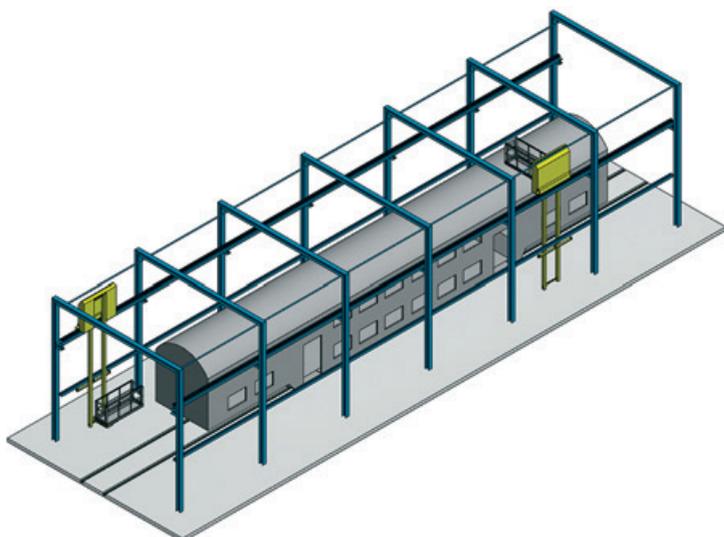
FEATURES

Blast equipment

- Complete operational blast room
- Blast pot for robot
- Blast hoses
- Blast nozzles

Other

- Rails for the manlift
- Warranty extension
- Installation services



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B16ML

The Blastman B16ML is robust and specifically engineered for the harsh blast room environment. The manlift helps the operator move vertically along the wall of the blast chamber. The manlift can also be used for touch up, inspection, and quality control.

The lift is controlled by the operator using a control panel located on the platform. The lift travels on a rail system fixed to the wall of the blast room. The longitudinal movement allows the lift to travel back and forth along the length of the blast room. The hoist of the platform provides the ability to elevate the operator platform from a low position to higher position. The platform can be rotated in order to access objects across the full width of the blast room.



BLASTMAN BLAST ROOM

LAYOUT

The layout of the blast room depends on customer's workpiece handling system and the production flow .

IN AND OUT

In and Out blast room is designed with one main door. The workpiece enters and exits the blast room from the same side.

DRIVE THROUGH

Drive through blast room has main doors at both ends, the workpiece enters from one side and exits from the other side.

MONORAIL

In case of an overhead conveyor (monorail) system, the roof of the blast room is engineered accordingly. Special attention is paid to the sealings and support structures.

STEEL STRUCTURE

Blastman blast room has a support structure for the robot rails. The structure of the Blastman blast room is strong, steady and accurate to carry all static and dynamic loads caused by the robot(s).

WALLS

The walls of Blastman blast rooms are typically made of sandwich elements, which provides good noise insulation and necessary fire protection for the blast room. For extreme noise insulation, the walls are made of double layer sandwich elements. The sandwich elements do not last against abrasive rebound. Therefore, the blast room walls are covered by rubber protection or a special coating.

ROOF

The material of the roof depends on each application. Typically, the roof is made of bended steel elements or suitable sandwich elements.

MAIN DOORS

The doors of the blast room are always engineered according to the needs of each customer. Typical door designs are double door, folding doors and roll up doors. Double doors and folding doors can be either automatic or manually operated. All Blastman doors are equipped with safety switches which prevent the use of the robot when the door is open. The size of the doors is determined by the size of the largest workpiece.

MAN DOORS

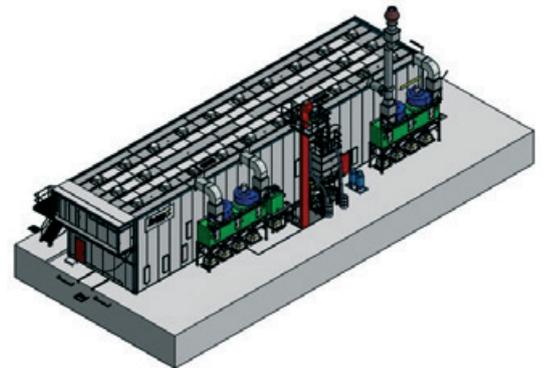
The blast room has to be equipped with a sufficient number of man doors to ease entry into the blast room. Blastman man doors are heavy duty doors protected for blast room use and each door is equipped with a safety switches to prevent any robot operation unless all the doors are closed. Accidental opening of any door will stop the robot. Each door is equipped with a signal lamp to inform operators and when the robot is in operation.

LIGHTS

Illumination of the blast room is made by ceiling and wall lights. Both led and fluorescent lights can be selected. All the lights in the blast room are protected by long lasting replaceable covers.

CONTROL ROOM

Blastman control room is specially designed for operating and monitoring the robot blasting process. The control room is adjoined to the blast room and equipped with mesh protected windows. All blast room related devices and equipment can be operated inside the control room. Optionally, the room can be equipped with air conditioning.

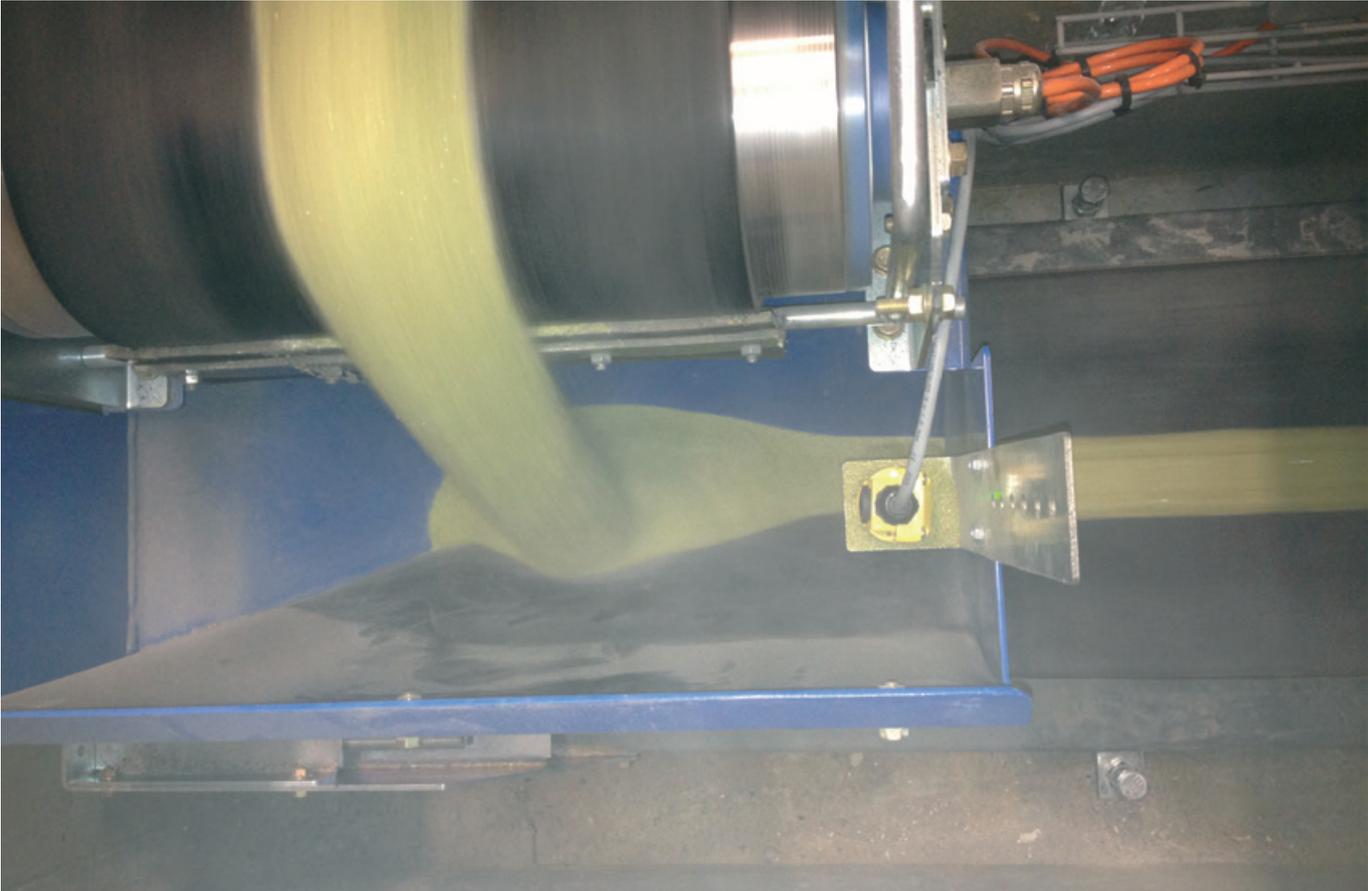
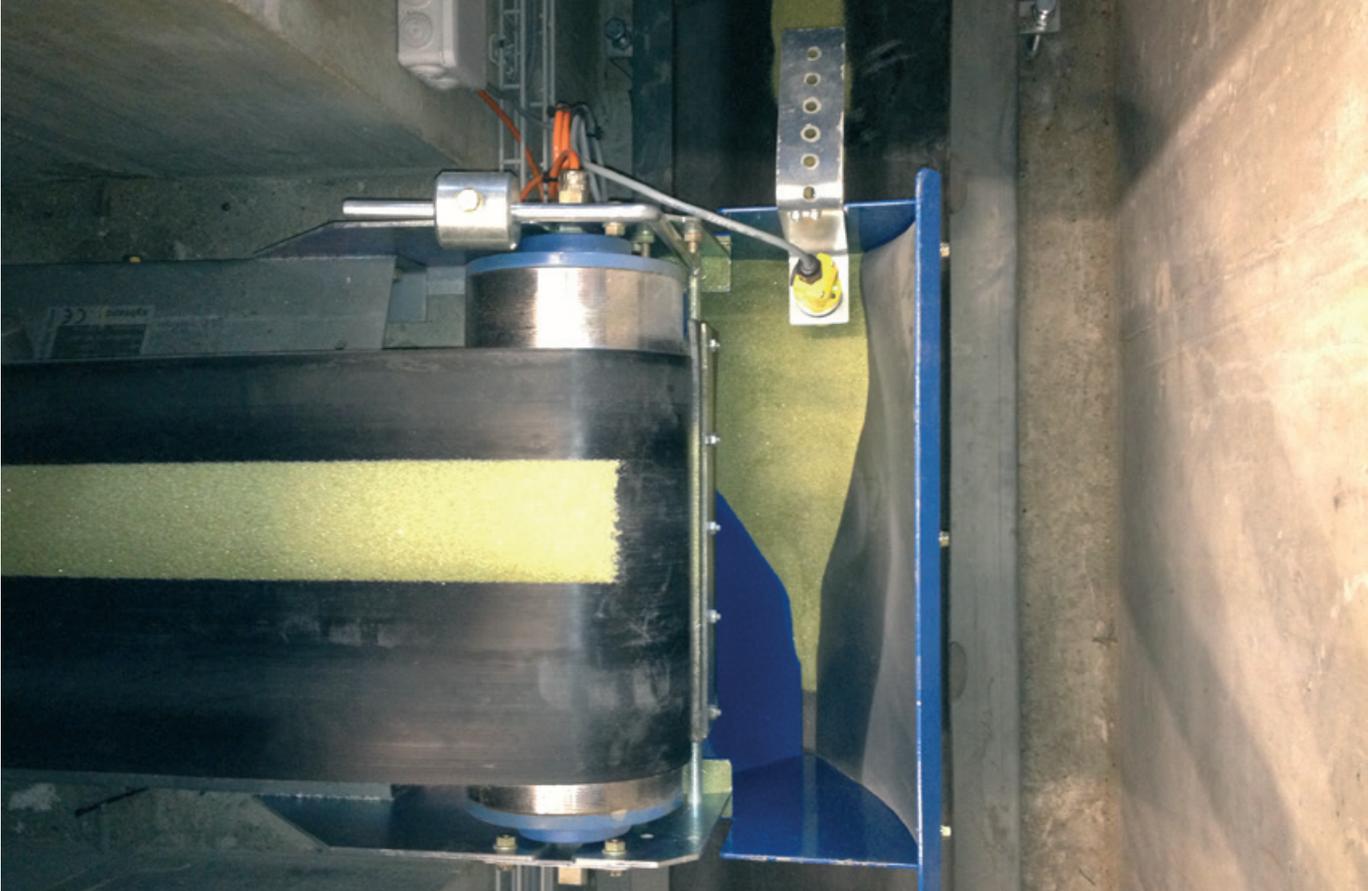




BLASTMAN BLAST ROOM

The blast cleaning process must be isolated from the surrounding environment due to the nature of the process. Typically, blasting takes place in a sealed enclosure or room. The design and structure of the room should be strong and well protected against blasting. The room should be well sealed to avoid any leakage of abrasive, dust and noise. In order to serve our customers with turnkey solutions, we have developed our own Blastman blast rooms for different applications. Blastman blast room design is based on the needs and requirements of each customer.

ABRASIVE RECLAIM FLOORS

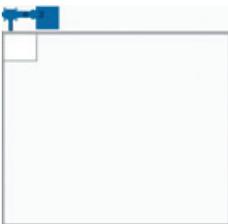
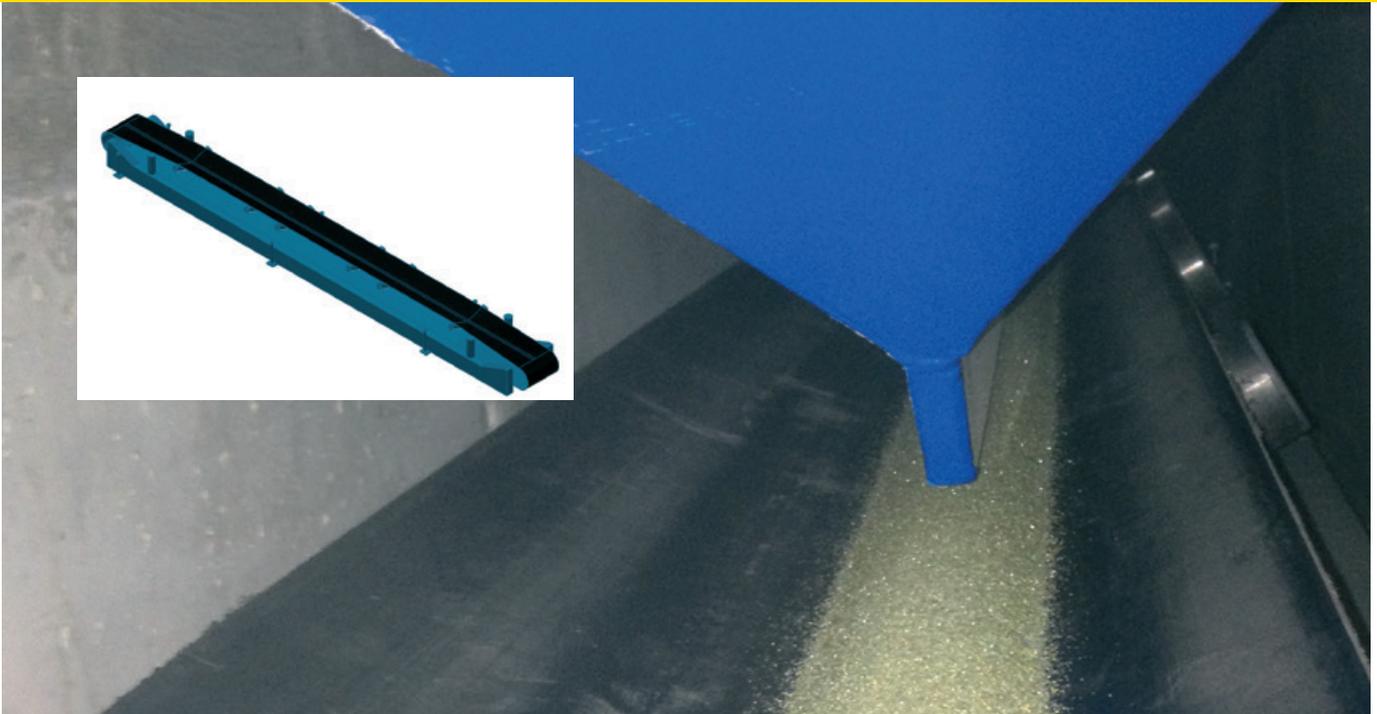




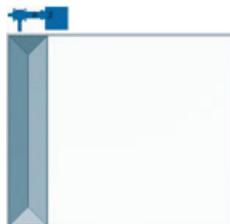
ABRASIVE RECLAIM FLOORS

In blasting processes, the used abrasive falls on the floor of the blast room. Typically, the abrasive can be recycled and reused. The floor can be either fully or partially covered by a reclaim system to transport the abrasive back into the recycling process. Blastman Robotics offers a variety of reclaim floor designs and room configurations. We design blast room facilities uniquely tailored to meet the production needs of our customers.

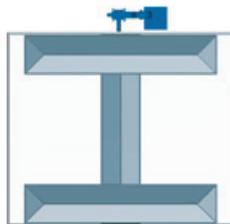
ABRASIVE RECLAIM FLOORS



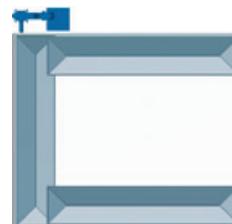
Sweep-In type floor construction is a basic and economical option. Abrasive is pushed manually into the elevator pit after blasting.



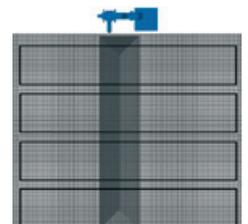
Single belt type floor construction. Abrasive is pushed manually into the belt conveyor after blasting. Belt can be placed on the end or side of the blast room.



H-type partial belt reclaim system consists of two belts on the sides and one cross belt. Most of the abrasive is recycled automatically and the rest is pushed manually into the belt conveyors.



U-type partial belt reclaim system. Most of the abrasive is recycled automatically and rest is pushed manually into the belt conveyors.



Full floor reclaim system consists of several longitudinal scrapers and a cross belt conveyor. The floor is covered with perforated plates and abrasive falls directly into conveyors. There is no need to manually move the abrasive. Workpiece movement is typically realized with rails on the floor or by an overhead conveyor.

BELT FLOOR

Blastman belt floor consists of specially engineered belt conveyors and hoppers installed under the floor. Blastman belt floor design is engineered so that all maintenance and service will be carried from above. There is no need for underground maintenance space. The belt floor can be built to cover the floor partially or completely. In some cases, most of the falling abrasive can be collected near the walls and as the abrasive hits the wall it falls to the conveyor. Especially when moving heavy loads on carriers, it makes sense to save part of the floor as moving area.

All reclaim floor types finally convey the abrasive mix to the base of the elevator.

Built for Blasting

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SCRAPER FLOOR

Blastman scraper floor is a heavy-duty transport system based on movable steel plates placed under the floor level. On top of the scraper floor there is grating or perforated plate to cover the scrapers. Abrasive falls to the scrapers and the grating provides walking and driving surface for the room. Typically, the scraper floor is built to fully cover the floor of the blast room and all the abrasive is collected without any manual cleaning operations. Scraper floors typically need the lowest pit depths.

BLASTMAN ABRASIVE HANDLING

WORKING PRINCIPLE

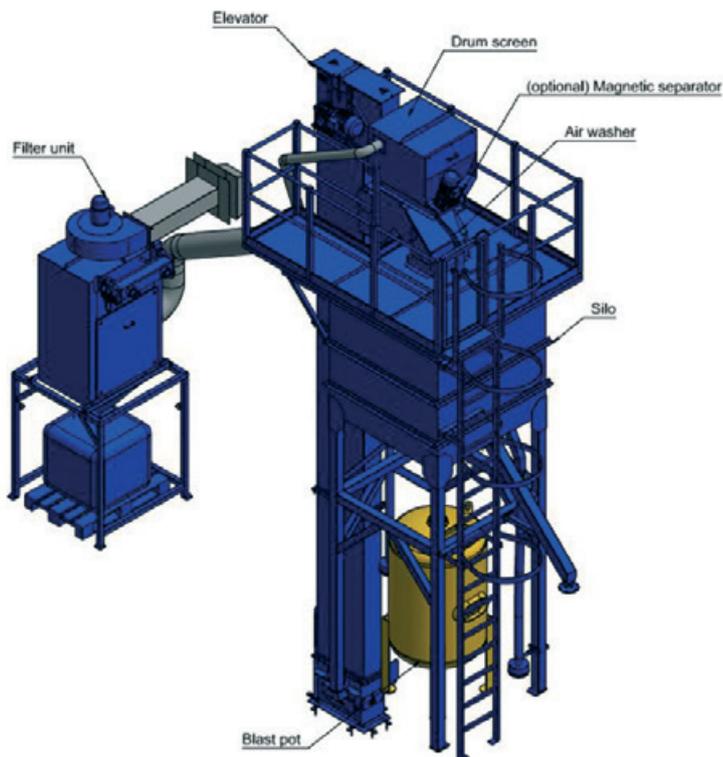
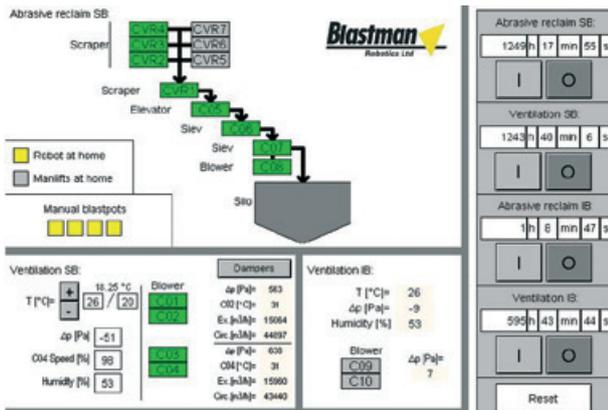
After the reclaim floor has carried the abrasive to the elevator, the abrasive is recycled back to the hopper.

The elevator is equipped with a belt and bucket system which picks up the abrasive. The abrasive is fed through an outlet at the top of elevator onto a special rotating sieve and then onto the abrasive cleaner (cascade cleaner). It can then be extracted through the main filter or a separate self-cleaning cartridge filter. The cleaned abrasive mix is collected into the storage silo and is ready for reuse.

In case of non-ferrous blasting media abrasive cleaning is also equipped with a magnetic separator

All individual devices are equipped with rotating and overload sensors

Equipment is controlled by a PLC and it can be monitored from a user interface.





BLASTMAN ABRASIVE HANDLING

It is very important to process the recycled abrasive correctly in order to achieve high blasting efficiency and quality. Correct operating mixture of abrasive particles serves the system efficiently.

BLASTMAN BLAST POT



MODEL BP1400

Max robot nozzles	2 pcs
Max nozzle amount	4 pcs
Possible combinations (robot+manual nozzles)	N1 N1+1 N1+2 N1+3 N2 N2+1 N2+2
Blast pot volume (air)	1400 l
Pressure vessel diameter	1112
Connection flange	DN150
Drawing number	B2013189 (BP1400 N1+1) B2012262 (BP1400 N2) B2014520 (BP1400 N2+2)

TECHNICAL

Dimensions	1550 x 1300 x 2635 mm
Weight	600 kg
Air capacity	1,4 m ³
Media capacity	850 l
Max nozzle size	19 mm
Working pressure	5-10 bar

Certificated countries EU, Canada, China, USA, Russia



MODEL BP1100

Max robot nozzles	2 pcs
Max nozzle amount	3 pcs
Possible combinations (robot+manual nozzles)	N1 N1+1 N1+2 N2 N2+1
Blast pot volume (air)	1100 l
Pressure vessel diameter	962
Connection flange	DN150
Drawing number	B2014691 (BP1100 N2+1) B2015712 (BP1100 N2)

TECHNICAL

Dimensions	1400 x 1250 x 2635 mm
Weight	500 kg
Air capacity	1,1 m ³
Media capacity	650 l
Max nozzle size	19 mm
Working pressure	5-10 bar

Certificated countries EU, Canada, China, USA, Russia



MODEL BP350

Max robot nozzles	1 pcs
Max nozzle amount	1 pcs
Possible combinations (robot+manual nozzles)	N1
Blast pot volume (air)	350 l
Pressure vessel diameter	622
Connection flange	DN100
Drawing number	B2007273

TECHNICAL

Dimensions	900 x 900 x 2635 mm
Weight	250 kg
Air capacity	0,35 m ³
Media capacity	210 l
Max nozzle size	19 mm
Working pressure	5-10 bar

Certificated countries EU, Canada, China, USA, Russia

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BLASTMAN BLAST POT

The blast pot operates as the heart of the blast cleaning system and the most critical component of the process. As part of the robot operated blasting process, an accurate and reliable blast pot is also needed. Blastman's development of the blast pot has always been based on the specific needs of the robot operation.

Main function of the blast pot is to mix the abrasive into compressed air. In order to achieve efficient blast cleaning, accurate dosing of abrasive into the airflow is essential.

Blastman's blast pots are designed especially for robotic blasting. The dual chamber pressure vessel and automatic valve control ensures continuous blasting. .

Blastman's blast pot is built for the biggest nozzles on the market. The large nozzles provide the highest possible efficiency.

IDEAL FOR ROBOT BLASTING

The blast pot is integrated to the robot control system allowing live monitoring through the user interface. The user can set up warning levels to the process and adjust the blasting pressure during blasting. For preventing break downs, the system has alarms and monitoring for wear part maintenance.

LOW MAINTENANCE

The blast pot's unique chamber design maximizes abrasive media capacity, which keeps the refilling cycle time long and guarantees low maintenance costs.

VARIOUS DUTIES IN ONE

To save money and space, the blast pot has 4 nozzle connections. Adding a second robot or manual blasting nozzle to the same pot gives you the full advantage of the pot and lowers your investment costs.



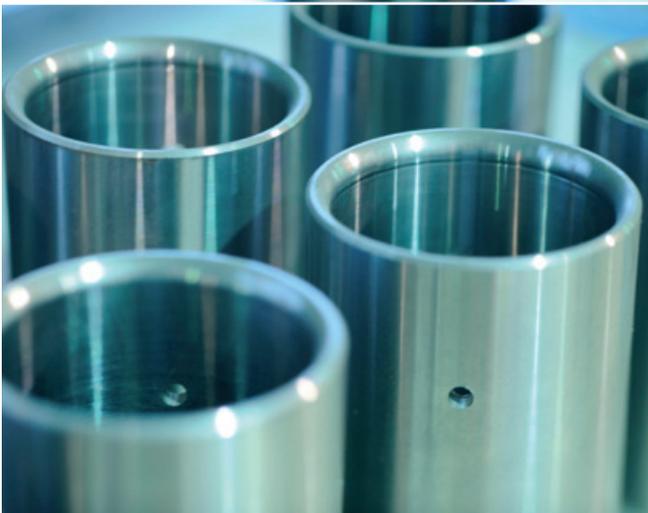
CERTIFICATES

Blastman has customers all around the world which is why blast pot is available in PED, ASME, TR ZU or TSG certifications.

Built for Blasting

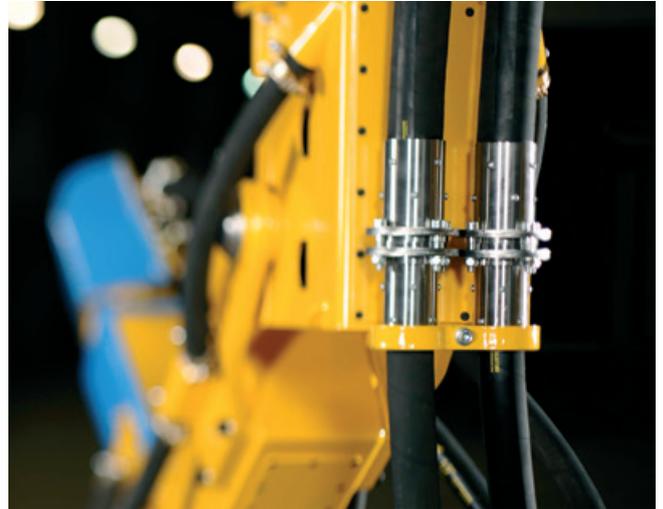
www.blastman.com

BLASTMAN BLAST HOSES AND NOZZLES



NOZZLES

Blastman blast nozzles are specially engineered for robotic applications. They are manufactured from best available materials for best possible performance and lifetime. Robotic nozzles have a large diameter compared to manual blast nozzles. Most common diameters for Blastman robot nozzles are 16 and 19 mm (size 10 and size 12). There are Venturi and Bazooka nozzles available for all blast medias. The material of the blast nozzle is selected according to the abrasive media. Blast nozzle size and type are always chosen based on customer requirements.



HOSE COUPLINGS

Blastman hose couplings are engineered for robotic use. They are easy to use and replacing hose sections is fast. Blastman hose couplings cannot open by themselves, as opposed to traditional claw couplings. All hose coupling components are located outside blast hose in order to avoid any disturbance into abrasive media flow.

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- **Large inner diameter of the blast hose makes it very durable against wear**
- **High abrasive media flow with very little wear**
- **Suitable for all abrasive medias**
- **Long service life**

BLASTMAN BLAST HOSES

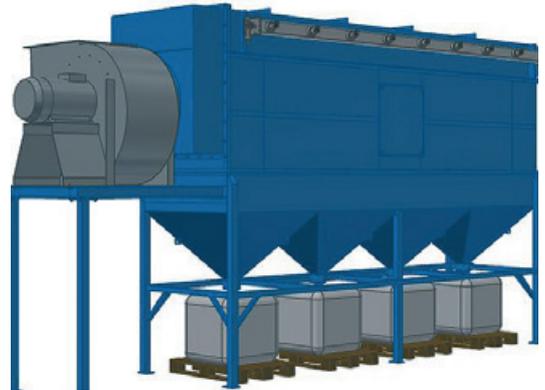
The Blastman blast hoses comprise of the highest quality hose manufactured especially for robot applications. All Blastman blast hose features an antistatic outer case and a lightweight internal knitted nylon ply. This gives the optimum combination of durability, cost and safety.

Typically, the blast hose for robot application consists of 2" main hose from the blast pot all the way to robot arm. The final 3,0-meter section of the blast hose is 1,5" in diameter . Speed of the abrasive is increased in the final 3 m section due to smaller diameter of the blast hose. Final speed and 'hot spot' are created with the correct Blastman robot nozzle. The most typical section of the hose to break is the final 1,5" 3 m section.

BLAST ROOM VENTILATION

TECHNICAL

Exhaust capacity	3.000 - 46.000	m ³ /h
Static pressure	1.600	Pa.
Electric motor	3...37	KW, 380-500 V,50/60 Hz.
Filter cartridges	3...30	pcs
Filter area	60...600	m ²
Filter material	Polyester fabric	
Filter percentage	99,9 %	
Max. dust emission	< 1,5	mg/nm ³
Cleaning	continuous by compr. air max. 5 bar	
Solenoid valves	4...10	pcs
Cleaning pressure	4 bar	
Cycle time	adjustable	
Sequence	1...3	cartridge simultaneous
Collecting bags	bigbag	





BLAST ROOM VENTILATION

Proper ventilation is a very essential part of blasting process. Ventilation removes excess dust from the blast room. Blastman ventilation units are power efficient and the filter cartridges are continuously cleaned during the blasting process to maintain constant suction power. Blastman cartridge dust collectors provide a cleaning efficiency of 99.9% down to a less than 1,5 mg/nm³. These dust collectors meet the strict guidelines set on particle emissions.

The filter cartridges are cleaned automatically and continuously without interrupting the operation of the dust collector.

TRANSFER CARS

TECHNICAL

		Range /m/°	Max. Speed	Type
Axis 1	Longitudinal	3 - 100 m	0,3 m/s	Lin
Axis 2	Rotation (optional)		20°/s	Rot.

OPERATION MODES

OPERATION MODES	OPERATIONAL PARAM.	
Manual by push buttons	Max load / unit	60 t
External outside the blast room	Max load / pair	120t

TECHNICAL

Voltage	380-500V 50/60Hz
Contr. voltage	24 VDC
Sealing *	IP65
Assembly	On the rails
Weight **	

*Applies to electrics in the blast room

** Depends on load

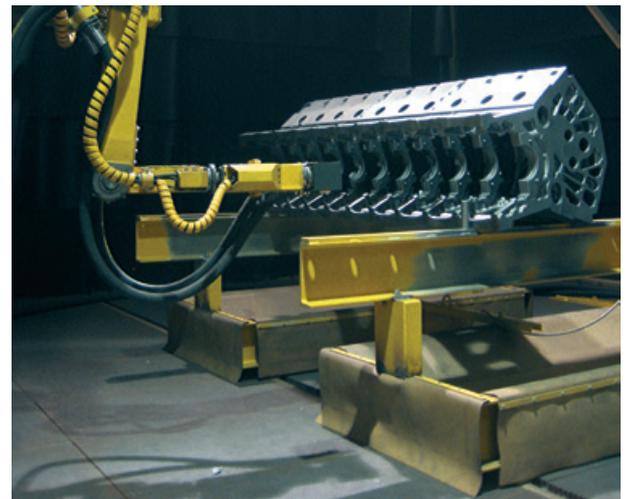
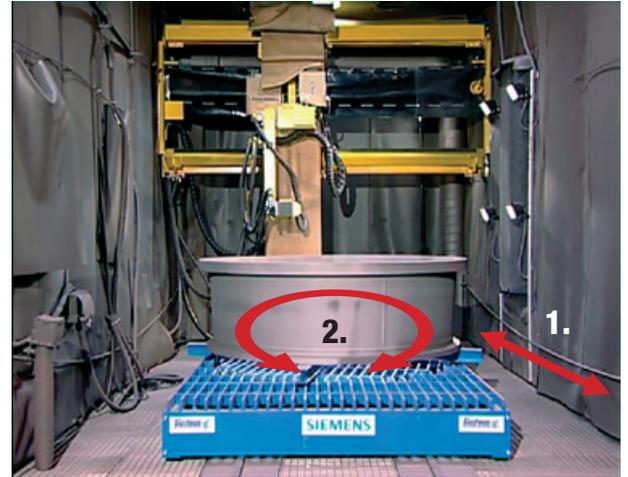
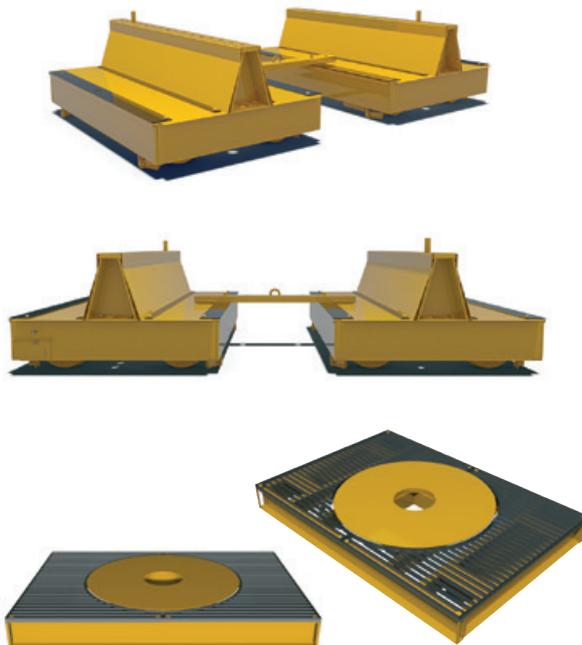
FEATURES

Control

- Electrical drives
- Hydraulic drives
- Wireless control
- Positioning
- Linked into line automation

Other

- Rails for the transfer car robot
- Warranty extension
- Installation services



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BLASTMAN TRANSFER CARS FOR BLAST ROOM

In order to serve our customers with their blasting applications, we have developed supporting machines and systems for blast rooms. It is often a challenge to move objects in and out of a blast room. . Therefore, we have developed a product family of transfer cars for different loads. Blastman transfer cars operate reliably and accurately.

One our most popular models has been the adjustable pair of transfer cars. The distance between the transfer cars can be adjusted according to the dimensions of the workpiece.

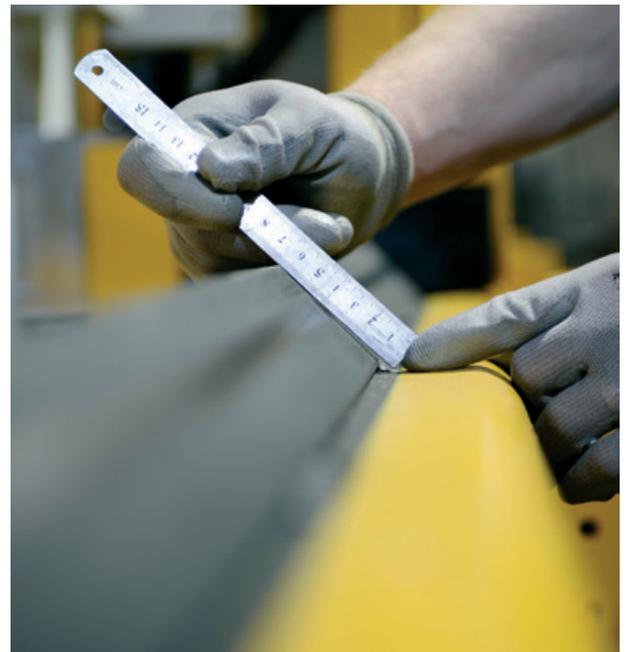
AFTER SALES & CUSTOMER SUPPORT

- **Blastman long term commitment to the partnership with each customer begins from the delivery contract and lasts for the whole life cycle of the equipment, which means decades of co-operation.**
- **We improve your productivity by maximizing the uptime of your equipment and optimizing your blasting.**
- **We reduce your costs by minimizing the costs of downtime and optimizing your usage and recycling of abrasive materials**



SPARE AND WEAR PARTS

Blastman Robotics offers all the required spare and wear parts for Blastman robots, blast pots, transfer cars, blast rooms, ventilation and abrasive handling systems. Ensure the quality and compatibility of your spare parts by using original Blastman Robotics spare and wear parts. All Blastman parts are carefully selected and designed for automated blasting.



BLASTMAN SERVICE AGREEMENTS

The Blastman equipment is designed for the demanding environment of a blast room. Although the design alone is robust and made to last, regular maintenance and inspection will extend the service life of your robot and related equipment. Blastman offers you a variety of service level agreements.

CUSTOMER SERVICES

Aftersales@blastman.fi

+358 (0)20 741 8140



AFTER SALES & CUSTOMER SUPPORT

WE EXTEND LIFETIME OF YOUR EQUIPMENT

Blastman is committed to improve your investment value by keeping your equipment in top-notch condition. In addition to training your staff to maintain your equipment daily, we are ready to send our world-class experts to regularly visit your site. Our engineers are trained to take care of your system and they have several years of experience in the maintenance of Blastman products.

INSPECTION VISITS

Our experienced inspectors generate a report on the overall condition of the equipment, identify further actions and recommend service and possible spare parts.

We can also take samples of your abrasive material and analyse them in our Blastman laboratory. The analysis of your abrasive mix, together with our recommendations, is then provided to you.

PREVENTIVE MAINTENANCE

Preventive Maintenance will be carried out according to an agreed schedule or according to the report generated during our inspection visit. The schedule will be agreed upon according to the operating hours of your machine, in order to prevent failures that may cause unscheduled stops.



BLASTMAN WORLDWIDE



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