

Robot Pump BR-830

Projector robot
for concrete projection

SEBHSA





SEBHSA BR-830

New projector robot for shotcreting tunnels and soil nailing.

Since 1973, SEBHSA (Sociedad Española de Bombas de Hormigón, S.A.) has been manufacturing all types of concrete pumps, distribution arms and similar equipment, using proprietary technology.

Using its vast experience and state-of-the art technologies, SEBHSA has developed a high-range projector robot to cover the toughest requirements for wet gunning medium and large diameter tunnels.

The robot consists of:

A highly robust carriage manufactured by SEBHSA and driven by a powerful 103 Kw Deutz engine. This powerful engine allows the robot to overcome high-gradient slopes of at least 40°.

It is equipped with an integral (4WD), hydrostatic and automatically regulated drive. Fitted with a dual-speed transmission, it has a safety system that prevents speeds from being changed from "slow" to "fast" during movement (the vehicle needs to be stopped), thus preventing the usual breakdowns in these types of vehicles: transmission gear damage caused by speed changes during operation.

Transmission is provided on both axles (4WS) and –for better manoeuvrability- has the ability to move in the opposite direction or on a parallel plane ("crab-like" movement).

The robot is equipped with four stabilizing legs designed to provide absolute stability **even when the arm is in horizontal position**, providing greater flexibility when working in open spaces, such as soil-nailing. The majority of the machines in the market are designed only to operate in tunnels; consequently their stability is often compromised.

The concrete pump is a widely used model and has proven reliability and output.

The output can be steplessly regulated from **4 to 30 m3/hour**, and the control mechanism is **fully hydraulic without electric or electronic components**, to ensure total reliability (a SEBHSA standard). This also provides an operation at a very low rate of pumping impulses.

The pumping unit is the same as those used in pumps with capacities as much as 65 m3/hour, thus ensuring absolute reliability.

The distribution arm is manufactured by SEBHSA and allows a maximum height of **18.2 metres** for shotcrete application (more than any other machine in the market).

It consists of a robust column and an oversized rotating crown (the usual weak point), and **two articulated arms**. Both arms are fitted with **long-range telescopic extensions**. Furthermore the second arm is equipped with an additional 240° lateral articulation.

The result is that the spraying nozzle can be placed easily and quickly in any position, **increasing the operability and results, even in small-diameter tunnels**.

The arms **are reinforced**, enabling them to withstand the usual adverse treatment these machines are subject to (for example when moving inside a tunnel with the arms extended, a manoeuvre that is theoretically forbidden).

A feature that distinguishes our machines from others is the possibility of *dual operation (optional)*. When working inside a tunnel, the pump and arm are operated by a 55 Kw-electric motor, whereas open-air jobs, such as soil nailing, **are done using the machine's diesel motor**, with no need to depend on a power generator. This ability allows the easy handling of emergencies such as power failures. The change from one mode to the other is done via a **robust gear box** fitted with all safety features necessary to avoid incorrect manoeuvres.

The extreme reliability of the entire machine is noteworthy. **Considering the particularly hard working conditions** of these machines and the negative economic effects caused by downtime, reliability needs to be at its maximum. In addition to the extreme robustness of all the components, practically all the controls and automatisms **are either hydraulic or mechanical, with no electrical or electronic components**. It is well known that in spite of present-day technological advances, electrical and electronic components are not as reliable as hydraulic and mechanical components.

For this reason, the electronics in the projector robot built by SEBHSA **only serve to provide information** such as pumping and additives rates, concrete/additive ratio, consumption, pressure, revolutions, times, incidences, etc, to the operator. They do not intervene in the operation and control of the machine, **thereby providing an exponential increase in reliability**. Any incidence is easy to solve on site, and does not require loading or modifying any computer program. Also, maintenance is much easier and cheaper, not requiring any specialized operations.

SEBHSA is well aware that besides high range features and output, extrem reliability is vitally important in these types of machines. Having determined the common and usual weaknesses of other machines, we put all our knowhow and experience into avoiding them.

The hydraulic system is build almost exclusively **using metal tubing and security connectors**. Flexible tubes and hoses are only used where unavoidable (and then with higher than usual safety factor) thus helping to reduce the possibility of one of the most frequent failures: breakage of flexible tubing.

The peristaltic pump for additives has a larger capacity, which allows it to revolve at a slower pace (longer inner tube life). **Its operation and control are exclusively hydraulic** instead of using an electric motor and an unreliable frequency graduator.

The electric components (as few as possible) **are standardized** and easily found on the market.

Whenever possible, as long as it does not imply an unjustifiable cost increase, the most important components **are oversized**.

The arm uses a compensated and state-of-the-art hydraulic circuit which provides it with **better flexibility and more speed** when carrying out multiple movements simultaneously, and serve to avoid brusque undesired movements.

Easy access to most of the elements and components is also very important, a fact that most manufacturers unfortunately do not consider sufficiently but which impacts greatly on the ease of maintenance and the identification of incidents.

Optional accessories are: air compressor, wireless control (cable control comes as standard), and automatic greasing.



1 Four spotlights 1000 W / 220V halogen.



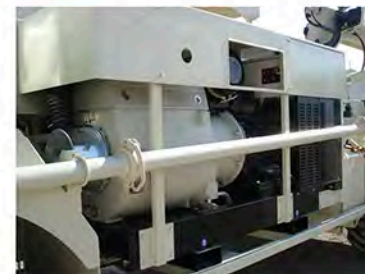
2 180° swivel cabin designed according to FOPS/ROPS criteria.



3 Telescopic spraying arm with maximum reach 18,20 m.



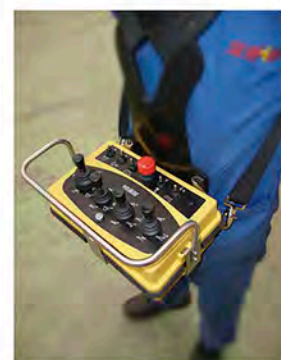
4 Compressor, capacity up to 11,5 m3/min pression 8 bars driven by electric motor 75kw - 1500 rpm.



5 Oil cooler with hydraulic motor.



6 Hopper with electronic controlled agitator.



7 Optional proportional radio remote control. Remote control drive with cable.



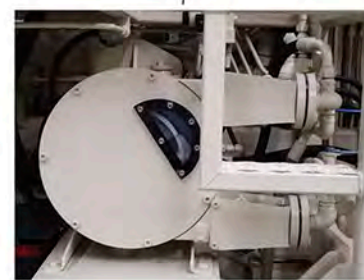
8 Centralized lubrication.



9 Front and rear stabilizer feet designed for total stability with the arm fully extended.



10 Four driving and steering wheels with "crab mode".



11 Additive pump, capacity up to 3.2m3/h actuated by hydraulic motor.



12 Flow regulation for pump and additive via manuel/hydraulic system.

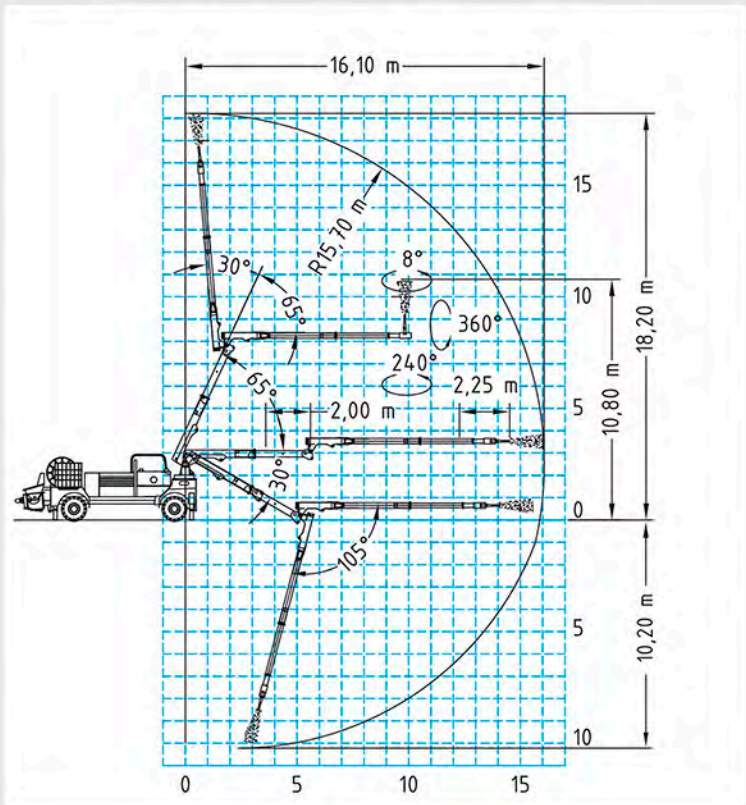


13 Pump for concrete projection. Electric motor or Diesel engine.

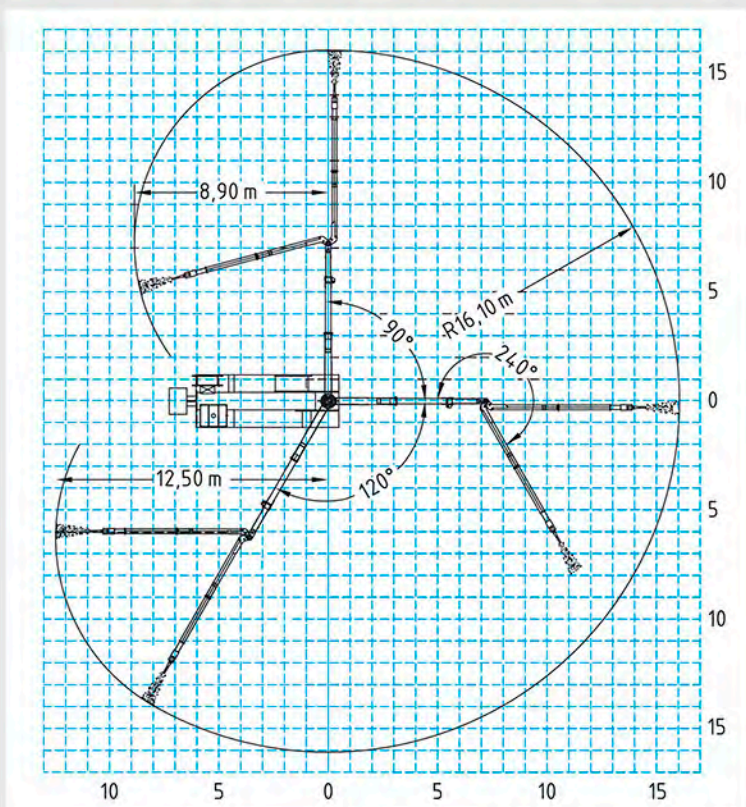


14 All control and steering elements analog and absolut reliability through them being purely hydraulic and mechanical

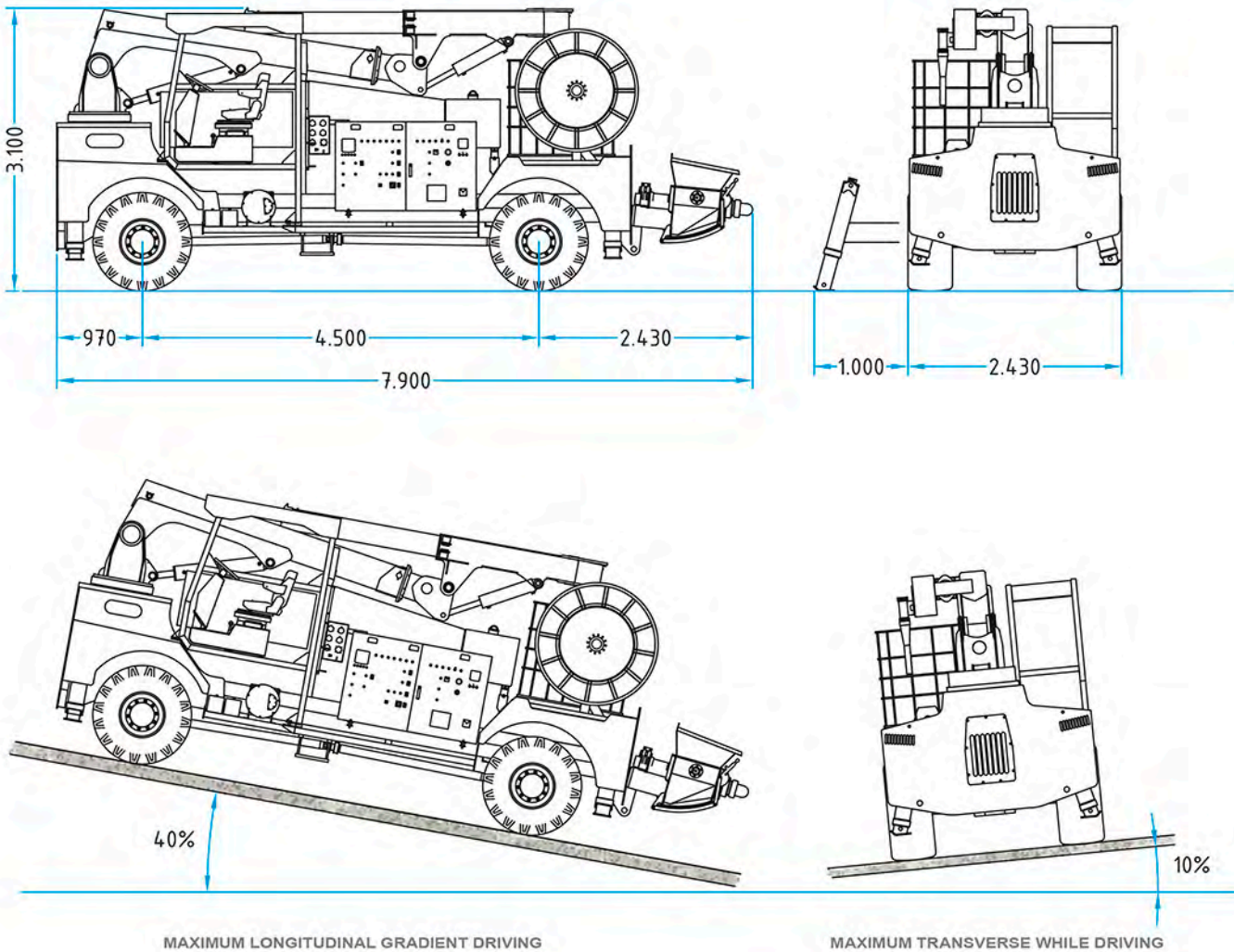
VERTICAL SPRAYING REACH DIAGRAM



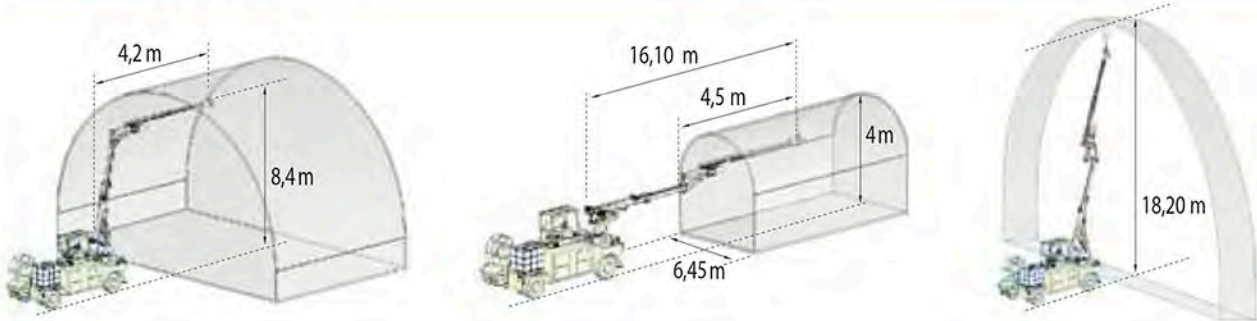
HORIZONTAL SPRAYING REACH DIAGRAM



DIMENSIONS



SPRAYING AREA



TELESCOPIC SPRAYING ARM

Maximum spraying reach vertical / horizontal	18,20 m / 16,10 m
Minimum unfolding section vertical / horizontal	4 m / 6,45 m
Number of arm extensions	2 telescopic
Telescopic stroke	1.- extension 2000 mm 2.- extension 2250 mm
Number of axles / degrees of freedom	9
Maximum arm angle	+65° / +30° -30° / -105°

SPRAYING HEAD

Rotation	360°
Inclination	+120° / -120°
Nozzle	D40 / D50
Spraying head	8° nutation / 60 rpm / 360° rotation
Lights	4 spotlights 1000 W. halogen

CONCRETE PUMP

Type	Double-piston, hydraulic drive
Max. flow (theor.)	4 - 30 m ³ /h
Transport cylinder diameter	180 mm
Transport cylinder stroke	1100 mm
Max. pressure (theor.) on concrete	75 bar
Max. aggregate size	16 mm
Electric motor power	55 kW
Power	400V 50Hz - 440V 60Hz - 480V 50/60 Hz 660V 50/60Hz - 1000V 50/60Hz.

HOPPER

Full hopper capacity	350 l
Filling height	1440 mm
Spotlight	Spotlight 24V / 70W
Vibrator	24V

ADDITIVE PUMP

Adjustment range	Max. 02 - 3,2m ³ /h
Maximum working pressure	15 bar
Max. flow (theor.)	53 l/min.
Additive tank	1000 l
Control system	Hydraulic

COMPRESSOR

Power	400V 50Hz / 440V 60Hz
Max. working pressure	8 bar
Max. air flow	11,5 m ³ /min
Electric motor	75 Kw

REMOTE CONTROL

Drive	Cable / radio (optional)
Cable length	15 m

CABLE REEL

Operation	Hydraulic
Collector	40 x 300A, 36 rpm
Cable diameter	53-61 mm
Power	400V 50Hz - 440V 60Hz
Diameter	1400 mm
Brake	Hydraulic

ARTICULATED OFF-ROAD VEHICLE, 4-WHEEL DRIVE

Engine	Diesel, 4 cylinders
Engine power	103 kW a 2400 rpm
Engine emissions	In accordance with EU-Stage III B / EPA-Tier 4
Diesel tank	220 l
Transmisión	Hydrostatic
Gearbox	2-speed in both directions
Steering	Four-wheel hydraulic articulated steering (4WS) crab mode
Traction	4 WD
Turning radius	Outer 6,1 m Inner 2,6 m
Speed	Max. 20 km/h
Braking system	Service brakes: 4-wheel hydraulic multi-disc brakes in oil bath Parking brake: 2-wheel independent, hydraulic multi-disc brakes in oil bath, manual Emergency brake
Axle lubrication	Manual lubrication, vehicle sides
Driver cabin	Designed according to FOPS/ROPS criteria 180° swivel cabin Is always oriented in the direction of travel
Working lights	4 halogen spotlights 24V 70W H3
Battery	2 x 12V 110A
Oil tank	470 l

COMPLETE SPARE WHEEL

Tyres	MITAS M PT-02
Rim size	18 x 19,5"

HIGH PRESSURE WATER PUMP FOR CLEANING

Operation	Hydraulic
Motor output	5,5 kW
Max. pressure	140 bar
Flow	15 l/min
Hose	15 m
Water tank	250 l

WEIGHT

18.000 kg. / 16.460 kg without compressor

OPTIONAL EQUIPMENT

CATALYTIC CONVERTER

Max. reduction	CO -90%; HC -80%
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PARTICLE FILTER

Max. reduction	CO -90%; HC-80%; black smoke/particles -97%
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OTHER

Centralized concrete pump lubrication
100 m special cable for 1000 V
Fire extinguishing system
Download PLC data
Additive tank with stainless steel protection
Heating mantle for additive tank

SPECIAL VOLTAGES

Power	at 660V 50/60Hz, or at 1000V 50/60Hz
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CONSULT SEBHSA FOR SPECIAL CONFIGURATIONS

Stationary concrete pumps



- Crawler-mounted concrete pumps
- Trailer-mounted concrete pumps
- Stationary electric concrete pumps
- Compaction Grouting Mortar pumps

Truck mounted concrete pump



- Truck-mounted concrete pump 24 m
- Truck-mounted concrete pump 28 m
- Truck-mounted concrete pump 31 m
- Truck-mounted concrete pump 33 m
- Truck-mounted concrete pump 35 m
- Truck-mounted concrete pump 37 m
- Truck-mounted concrete pump 39 m
- Truck-mounted concrete pump 42 m
- Truck-mounted concrete pump 47 m

Truck mixer concrete pump



- Mixer truck concrete pump 16 m
- Mixer truck concrete pump 24 m
- Mixer truck concrete pump 26 m

Shotcrete robots



- Robot BR-830
- Robot BR-620
- Robot BC-930
- Robot PO-60
- BDT and MDT booms

Stationary and rotational concrete distribution booms



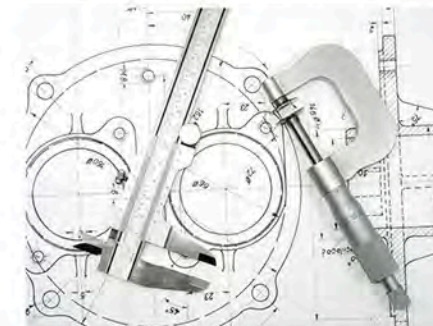
- Stationary concrete placing boom 24 m
- Stationary concrete placing boom 29 m
- Stationary concrete placing boom 33 m
- Stationary concrete placing boom 38 m
- Stationary concrete placing boom 43 m
- Stationary concrete placing boom 48 m
- Horizontal-horizontal rotational placing boom
- Vertical rotating placing boom
- Articulated rotating placing boom
- Concrete placing boom for prefabricated elements

Pumps for solids - sludge



- Pumps for solids - sludge BL - 1307 .O
- Pumps for solids - sludge BL - 2507 .O
- Pumps for solids - sludge BL - 3707 .O

Solutions for specific needs



- Docks
- Tunnels
- Viaducts
- Purifiers
- Bunkering
- Booms for firefighting
- Specific adaptations for special vehicles

Accessories and spare parts



- Spare parts for concrete pumps
- Others



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COMPANY CERTIFIED

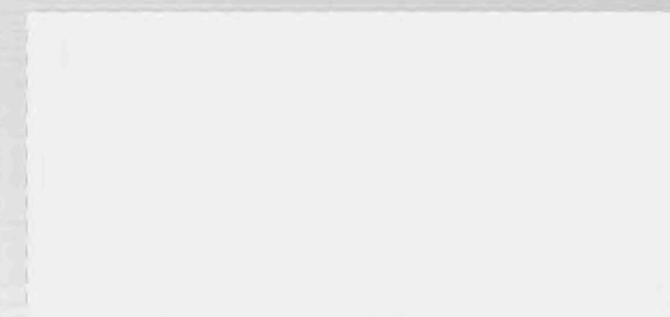
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**Projector robot
for concrete projection**

Since 1973, SEBHSA (Sociedad Española de Bombas de Hormigón, S.A.) has been using proprietary technology to manufacture concrete pumps, distribution arms and other similar equipment.

Our long track record has allowed us to test all types of working conditions, for which we have developed the most efficient and safe technologies. Rigorous control of our working and manufacturing systems guarantee our presence in projects around the world.

DISTRIBUTED BY:



The manufacturer reserves the right to vary any characteristic without previous notice, if this is deemed appropriate for the improvement of the equipment.