

WHY CIFA



Underground Concrete Machinery



WHY CIFA



CONCRETE SUPPLY EXPERTISE IN UNDERGROUND SITES

As one of the leading world players in the construction equipment industry with 90 years of history, CIFA has been designing, producing and distributing innovation in the construction field, with a complete range of products for the production, transportation, and laying of concrete. Thanks to its record-long experience in underground job sites, CIFA has developed a comprehensive range of machines dedicated to every phase of the concrete supply chain in this demanding environment often requiring the highest level of service 24 hours a day, 7 days a week. Specific solutions for both the mining world and tunneling have been refined, delivering high performance and reliability with the strongest focus on operational safety. Every job site has specific needs and CIFA has a long history of fulfilling any requirement through specific customization.



MANUFACTURING FACILITIES



LEASING



Available in Italy, Russia, China, South Africa, Australia, USA and Germany.

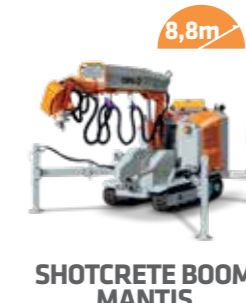
TRAINING FOR OPERATORS



MADE IN ITALY



THE RANGE





ELK BIG SPACE, GREAT VERSATILITY

The ELK is the latest evolution of the CIFA CSS-series of concrete spraying equipment. Its key distinguishing features are the possibility of spraying concrete both with diesel and electric power, its overall compactness in driving configuration and the great versatility offered by its boom in terms of reachable area.

BOOM
Thanks to the three-section, "Z"-folding concept, the ELK boom gives the flexibility to

operate in a versatile, safe manner in any kind of tunnel. The boom turret has a double slewing ring for horizontal and vertical boom rotation and can shift along the truck's longitudinal axis to extend the working surface and reduce truck movements. Moreover, the third element of the boom is telescopic. The boom is driven by a radio remote control.

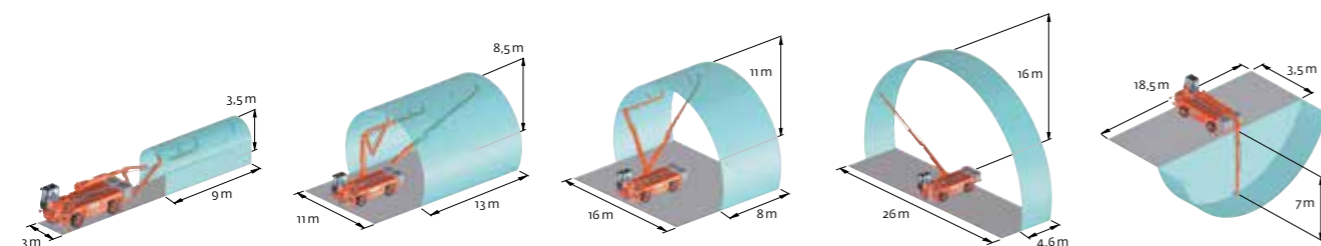
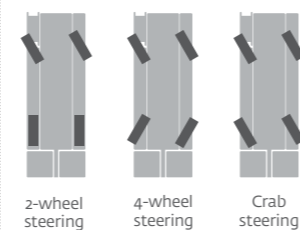
CHASSIS
The ELK truck is an off-road

vehicle with hydrostatic transmission. It features four-wheel drive (4WD) four-wheel steering (4WS) with three steering modes and two mechanical speeds. The machines are equipped with a ROPS-FOPS closed driving cab. The driving seat can be tilted 180°.

AIR COMPRESSOR
The air compressor, available as an option, makes the machine independent for air supply.

CUSTOMIZATION
ANSUL and FOGMAKER fire extinguishing systems are available on request.

STEERING MODES



CSSE: THE FIRST PLUG-IN ELECTRIC MOBILE SHOTCRETE MACHINE

CHANGE THE RULES: FULL ELECTRIC SYSTEMS.

Traditional underground vehicles adopt diesel engines combined with hydrostatic transmission in the driving mode. CIFA redefines conventional hydraulic systems: now they are supported by high-efficiency electrical devices. The electronic system, with software fully developed by CIFA Engineering, is responsible for managing all functions to maximize machine. Many functions that are usually mechanically managed become electric in CSSE. This helps simplify the whole system, to reduce maintenance and increase performance.

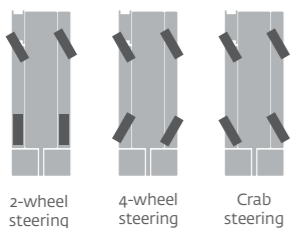




THE MAMBA ANOTHER CIFA SPRAYING SPECIALIST

The MAMBA is the concrete spraying equipment ideal for all type of underground jobsite and great for large tunnels is very easy to use and maneuverable. As per other shotcrete machines models from CIFA, the MAMBA is both Diesel and Electric powered. This grants the operational continuity in all condition but with particular attention to reduce carbon footprint and improve the working environment.

STEERING MODES



2-wheel steering

4-wheel steering

Crab steering

CHASSIS

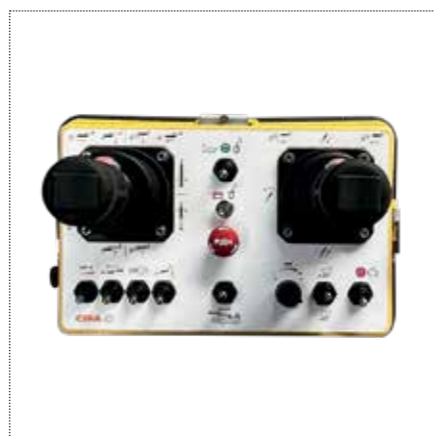
The Mamba truck is an off-road vehicle with hydrostatic transmission. It features four-wheel drive (4WD) four-wheel steering (4WS) with three steering modes and two mechanical speeds. The machines are equipped with a ROPS-FOPS closed driving cab. The driving seat can be tilted 180°.

AIR COMPRESSOR

The air compressor, available as an option, makes the machine independent for air supply.

CUSTOMIZATION

ANSUL and FOGMAKER fire extinguishing systems are available on request.



BOOM

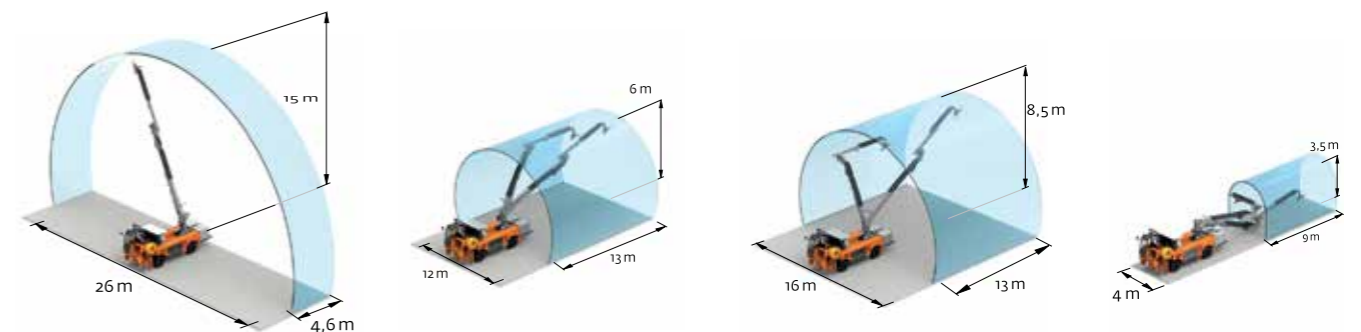
The two section boom with telescopic extensions has a maximum vertical reach of 18 m, 14 m horizontally, and is able to be fully unfolded in an area of only 4 m, this is a big game changer among the industry making this model suitable both for very narrow spaces and for large job-sites.

The Boom has been designed to be controlled by a 2 joystick radio remote

control in an intuitive yet precise way. The turret has a slewing ring with a rotation angle of $\pm 180^\circ$ and can slide along an integrated rail to move the boom of around 3000 mm making much more simple to place the machine in the jobsite. Between the two sections there is a rotating table with a great working angle, $+173^\circ / -90^\circ$, to reach all corners of the tunnel.

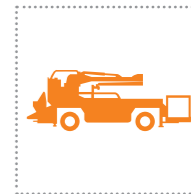
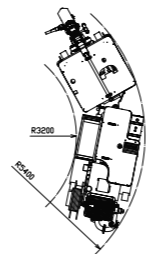
Moreover, the two sections have independent working angle to follow the profile of the walls to be sprayed.

Last but not mostly important, the nozzle with best in class grades of longitudinal and transversal motion capabilities. A batch of unique solutions to keep precision and high performance.





STEERING RADIUS



CST 8.20 SMALL SPACE BIG PERFORMANCE

The CST 8.20 is a concrete spraying machine installed on a compact articulated chassis capable of very tight maneuvering in hard-to-reach job sites.

BOOM
Designed and manufactured for mining and for small tunnels. Robust and versatile at the same time, and extremely precise on nozzle placement.

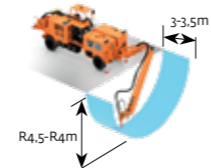
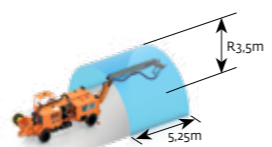
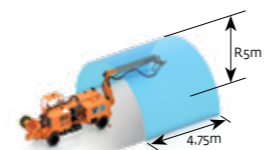
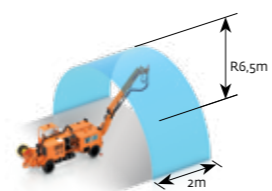
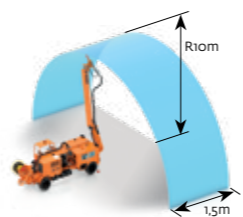
vertical reach of 10 meters. Thanks the vertical slewing ring, the operator is able to follow the entire profile of the tunnel, at every height, with only one joystick movement on the proportional radio remote control.

CHASSIS
The CST 8.20 truck is an off-road vehicle with hydrostatic transmission. The machines are equipped with a closed

driving cab and are ROPS-FOPS approved. The driving seat can be turned 180°.

AIR COMPRESSOR
The air compressor, available as an option, makes the machine independent for air supply.

CUSTOMIZATION
ANSUL and FOGMAKER fire extinguishing systems are available on request.



DINGO AGILE AND TOUGH

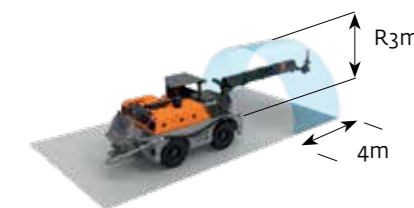
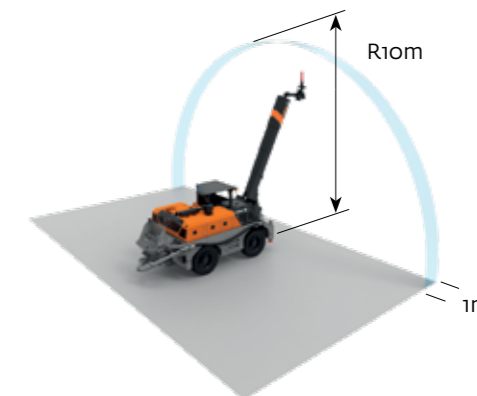
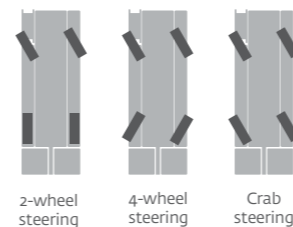
The Dingo is a compact, powerful and intelligent machine dedicated to mining and small tunnels. It has an open transverse ROPS/FOPS driver's seat, a wheelbase of only 2.2 meters and a height of 2.5 meters. It offers the useful feature of driving while keeping the distribution boom within the profile of the machine by rotating it on the right side.

BOOM
Designed and manufactured for mining and for small tunnels. Robust and versatile at the same time, and extremely precise on nozzle placement. The boom rotates on the vertical axis and has a telescopic section to ease shotcreting operations in narrow tunnels.

CHASSIS
The dingo is built on a heavy-duty chassis featuring anti-skid 4WD and 4WS capabilities. With its short wheelbase and high ground clearance, it can easily handle tough off-road tracks and can be driven both forward and reverse from its transversal driving post.

CUSTOMIZATION
ANSUL and FOGMAKER fire extinguishing systems are available on request.

STEERING MODES





RHINO: STRENGTH IN A COMPACT SHAPE



RHINO is a double piston pump with S-valve and variable output for shotcrete, micro-concrete, and special concrete. RHINO is a reliable choice in tight jobsites. The trailer-built concrete spraying pump is designed for mechanized applications of wet shotcrete in combination with the MANTIS or for manual applications with a spraying nozzle.

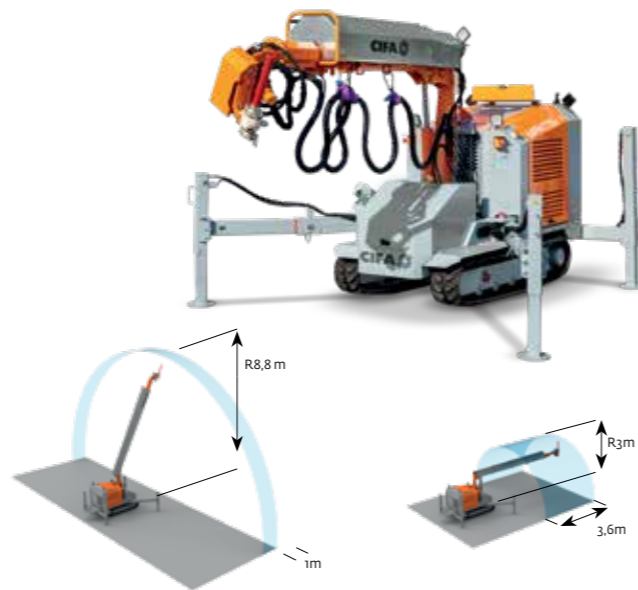
APPLICATIONS

- Shotcrete works
- Concrete, grouts, structural mortars, refractory mortars
- Self-levelling floor screeds
- Land reinforcement
- Micro-piles, pressurized injection of mortars and cementitious slurries
- Compaction grouting

MANTIS: RAPTORIAL LEGS TO ARRIVE EVERYWHERE

MANTIS is a tracked unit for spraying concrete. It is ideal for underground works or difficult-to-reach areas. Equipped with a powerful crawler carrier, MANTIS is the best means for moving through rugged and irregular work sites with total autonomy of movement. It can work either with a diesel engine or with an electric motor. Its dual operation mode allows it to work even in areas with scarce power supply.

Thanks to the sturdy telescopic boom with 4 sections, long reach and compact design, MANTIS can be used either for dry or wet shotcrete. Two wide side doors make every component accessible for fast maintenance and control operations. RHINO stationary concrete pumps are the perfect addition to MANTIS tracked units.



DOSING SYSTEM



CIFA ACCELERATOR DOSING SYSTEM UNIFLUX H1.0

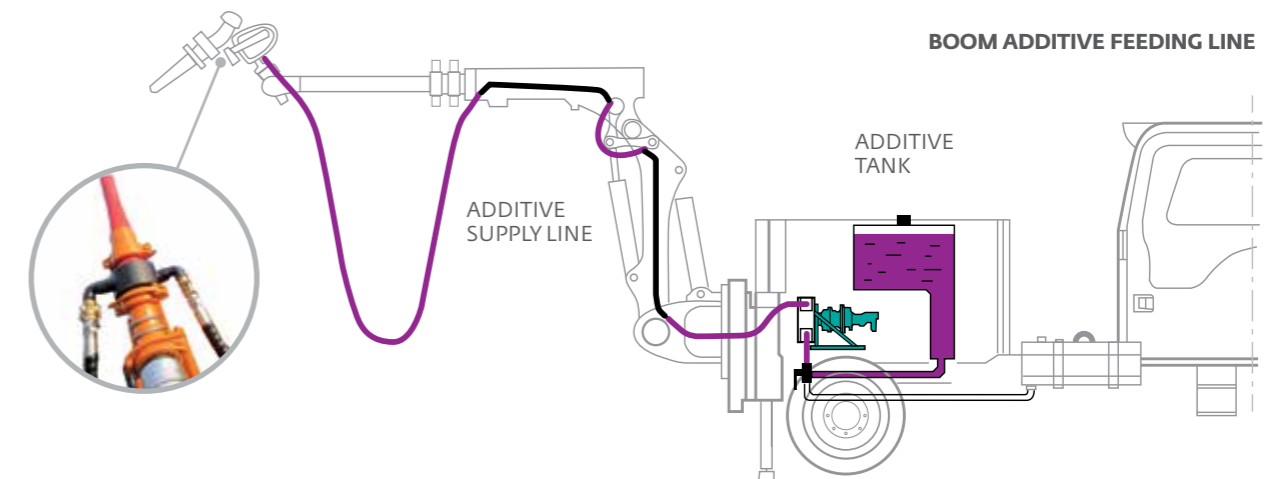
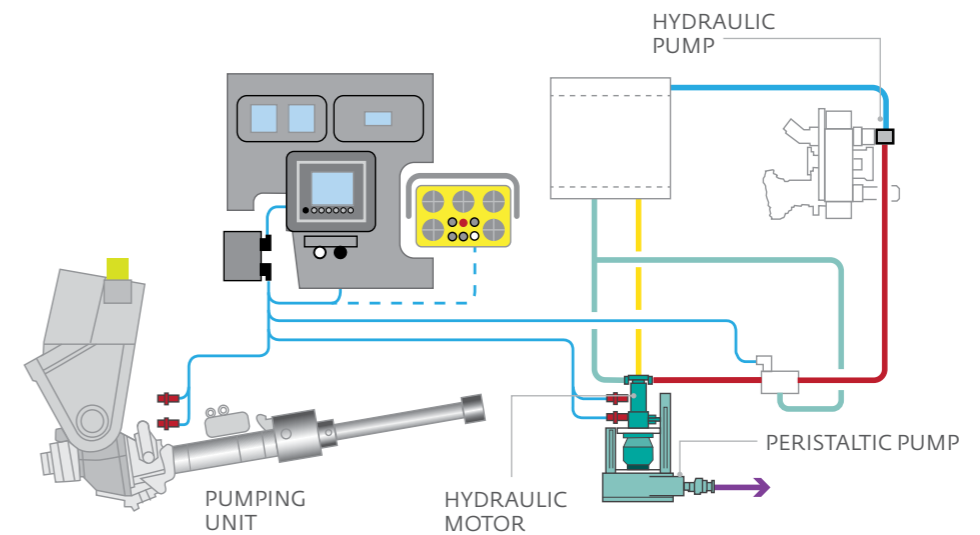
The UNIFLUX H1.0 admixture dosing system uses a peristaltic pump driven by a hydraulic motor and managed by an electronic controller allowing to dose any type of admixture or setting accelerator to the actual concrete flow rate with maximum precision. Manual flow adjustment is also possible. The data setting in the system is regulated by a display on the control panel.



UNIFLUX H1 DISPLAY

UNIFLUX H1

ADDITIVE OUTPUT (MIN - MAX)	l/min	1 - 21
MAXIMUM PRESSURE	bar	13

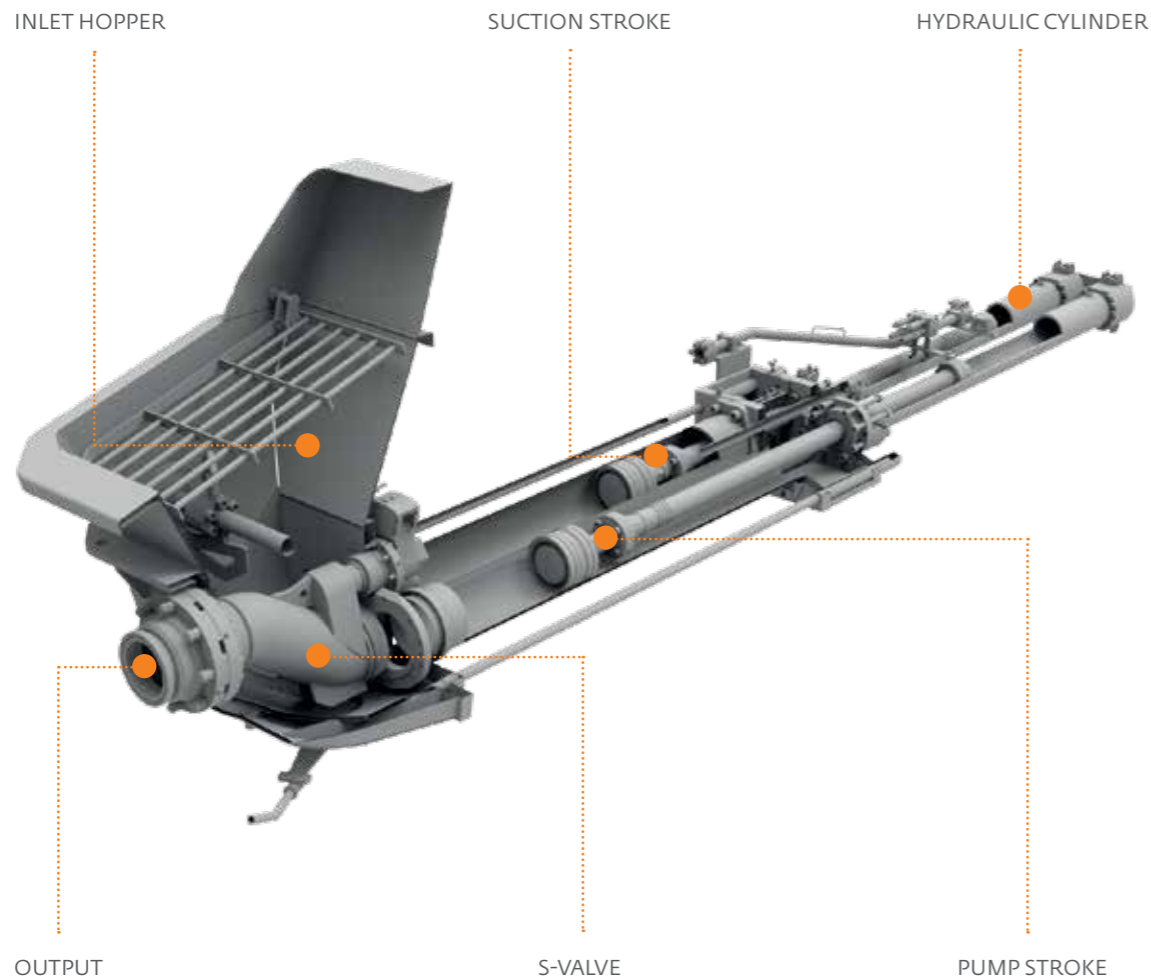




PUMPING UNITS

The pumping units employed are specifically designed for shotcrete applications. The number of cycles per minute is optimized to reduce wear and vibrations. The S-valve is made of wear-resistant cast iron. The self-compensating wear ring and wear plate extend

the machine lifetime, avoiding S-valve blockages often caused by metallic or composite fibers in the shotcrete mix. The hydraulic double-circuit ensures fast and precise S-valve swinging and optimal concrete flow uniformity.



PORTABLE PUMPS



The CIFA portable concrete pump series offers a wide range of models which satisfy the various needs of concrete pumping and handling both in tunnels and above ground, over long distances and at considerable heights. Both diesel and electric motors models are available to accommodate every application and environment requirement. PC 607 and PC 709 are also available in crawler-mounted versions, fully equipped to work in hard-to-reach jobsites. The CIFA original pumping unit incorporates the characteristics of resistance, long life and exceptional performance with any type of concrete.

The main pump is an axial piston type with variable flow and constant power, a gear pump is used for auxiliary services.

- S-valve for any type of concrete, made of special steel and different thicknesses
- Rapid valve exchange
- Ideal operation even at high pressures with continuous and smooth pumping flow
- Automatic wear compensation
- Hydraulic system in open circuit
- Low noise
- Low running costs
- Easy maintenance and quick cleaning operations
- Machines can work up to -25°





COGUARO 4 MINING MIXER

The COGUARO 4 is a mixer to efficiently transport concrete in hard-to-reach jobsites. It's built to withstand harsh environmental conditions and its overall robustness guarantee a long lasting reliability.

CHASSIS
The Coguardo is built on a heavy duty, low-height chassis featuring anti-skid 4WD and

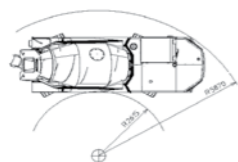
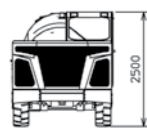
4WS capabilities. With its shortwheel base and high ground clearance, it can easily handle tough off-road tracks and can be driven both forward and reverse from its 180° tilting driving post.

DRUM
With 4 cubic meters of capacity and its low center of gravity it is designed to deliver concrete in the hardest-to-reach job sites

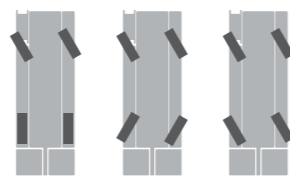
CUSTOMIZATION
ANSUL and FOGMAKER fire extinguishing systems are available. Cabin air conditioning to ensure operator comfort is available as an option. The Coguardo can use climate-specific and low-flammability oils.



reddot award 2015
winner



STEERING MODES



2-wheel steering 4-wheel steering Crab steering



MYRIA TRAIN MIXER

The MYRIA train mixer is the right solution for concrete transport in very narrow tunnels and special job-sites underground. Mounted on a rail track with customizable gauge width, the MYRIA is available in 4 different sizes 6, 8, 10 and 12 m³.

WHY MYRIA
The MYRIA units are always electrically powered or pulled

by and external train keeping it simple to work where conventional truck mixers cannot access. The track is tailored made for the job-site and can be completed with all the needed additional accessories such as different jaws types, working lights, brake system, and even a bigger engine. The drum system of the MYRIA is simple and smart, the units can be

combined to create a train of mixers according to the type of project. The rotation of the drum can be synchronized with the movement of the mixer and determines the charging or discharging sequence according to the direction of the rotation. In order to fit all working conditions the drum can mount an additional extension to facilitate the concrete discharging process.



DATA SHEET

Underground Solutions



		ELK	CSSE	MAMBA
PUMPING UNIT				
Theoretical output (Min +Max)	m³/h	5÷30	5÷30	5÷30
Max pressure on concrete	bar	65	65	65
PLACING BOOM				
Max vertical reach	m	17	17	17
Sections	N	3	3	2
Telescopic	N	1	1	2
DOSING SYSTEM				
Theoretical output (Min +Max) l/min	l/min	1÷21	1÷21	1÷21
TRUCK CHASSIS				
Installed power	kW@rpm	72@2300 (Stage IIIA)	-	100@2300 (Stage V)
Installed power	kW@rpm	90@2300 (Stage IVF)	-	-



		DINGO	CST
PUMPING UNIT			
Theoretical output (Min +Max)	m³/h	3÷30	3÷20
Max pressure on concrete	bar	60	65
PLACING BOOM			
Max vertical reach	m	7	10
Sections	N	2	2
Telescopic	N	1	1
DOSING SYSTEM			
Theoretical output (Min +Max) l/min	l/min	1÷21	1÷21
TRUCK CHASSIS			
Installed power	kW@rpm	72@2300 (Stage IIIA)	72@2300 (Stage IIIA)
Installed power	kW@rpm	-	55@2300 (Stage V)

DATA SHEET

Underground Solutions



TECHNICAL DATA		
Concrete capacity	m³	6÷12
Geometric capacity	m³	8000÷14500
Power	kW	30÷50
Drum rotation	rpm	12
Weight (net of concrete)	Kg	6000÷9500



PLACING BOOM		
Max. vertical reach	m	7.30
Sections	n	4
Telescopic stroke	m	3
TRUCK CHASSIS		
Installed Diesel power	kW	18.5 IIIB
Installed electrical power	kW	7.5/400V



DRUM		
Nominal capacity	m³	4
Geometric volume	m³	4.8
Rotation speed	rpm	17
Diameter	mm	1750
TRUCK CHASSIS		
Max speed at full load	km/h	15
Max speed without load in ascent, 30%	km/h	15
Drive power Diesel STAGE IIIA	kW	121
Drive power Diesel STAGE IV final	kW	130



RHINO

PC 158

TECHNICAL DATA

Liquid cooled diesel engine		Stage IIIA or Stage V	Stage IIIA or Stage V
Electric motor (upon request)		22 kW 400 V 50 Hz	22 kW 400 V 50 Hz
Infinitely adjustable output*	m ³ /h	from 2 to 15	from 2 to 15
Max. working pressure	bar	80	80
Hopper capacity	l	250	250
Delivery distance*	m	200	200
Delivery height*	m	100	100
Chassis		Manual drawbar - fixed axle and pneumatic wheels	Manual drawbar - fixed axle and pneumatic wheels Steering and road axles with braking



PC 307

PC 506/309

PC 507

PC 607/411

TECHNICAL DATA

Drive power IIIA	kW	43	74.5	-	83
Drive power Stage V	kW	55	74.4	55	85
Drive Power Electric	kW	30	55	-	75
Max. theoretical output (□/◆)	m ³ /h	30	52 / 34	54	60 / 40
Max. pressure on concrete (□/◆)	bar	70	41 / 65	71	67 / 105
Max. number of cycles per min. (□/◆)	-	21	36 / 24	28	41 / 27
Concrete cylinders diameter	mm	176	176	180	176
Stroke length	mm	1000	1000	1250	1000
Concrete hopper capacity	l	300	350	500	350
Rod side drive □	-	◆	□ / ◆	◆	□ / ◆
Piston side drive ◆					



PCC 607/411

PC 709/415

PC 907/612

PCC 907/612

TECHNICAL DATA

Drive power IIIA	kW	83	130	130	130
Drive power Stage V	kW	85	130	130	130
Drive Power Electric	kW	75	110	110	110
Max. theoretical output (□/◆)	m ³ /h	60 / 40	70 / 46	87 / 51	87 / 51
Max. pressure on concrete (□/◆)	bar	67 / 105	90 / 140	66 / 119	66 / 119
Max. number of cycles per min. (□/◆)	-	41 / 27	20 / 113	26 / 15	26 / 15
Concrete cylinders diameter	mm	176	200	200	200
Stroke length	mm	1000	1800	1800	1800
Concrete hopper capacity	l	350	450	450	450
Rod side drive □	-	□ / ◆	□ / ◆	□ / ◆	□ / ◆
Piston side drive ◆					



Everything connected

Cifa Vista is the remote monitoring system available throughout the entire range of machines and plants made by CIFA. This unique system is gathering all the data from the usage of the machine and store them in the cloud keeping them available 7/24 h from everywhere. Not only statistic data on performances but also a direct connection for service from remote and a big help to manage the fleet by tracing the maintenance status of each machine. A big step ahead managing the fleet and an unparalleled document certifying the value of the machine along the years.



Your extra eye laser scan system

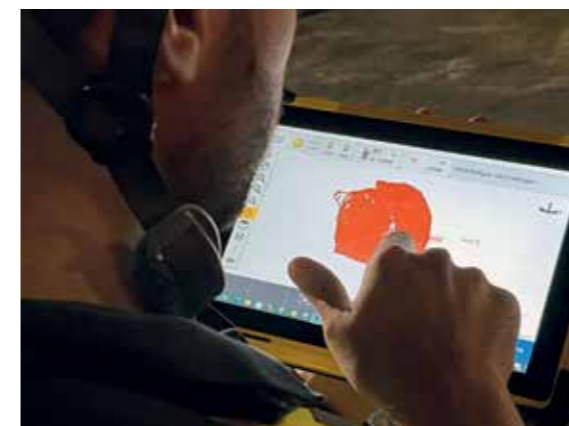
Precision and reliability are key features of the CIFA underground range. Next to this there is the need to further improve the performance of the machine in managing the material consumption and keeping the time schedule of the jobsite.

Here is where the new laser scan technology really makes the difference by checking in real time the job done.

The system can compare the layer of concrete on the wall of the tunnel and create a detailed map to check the quality of the job done.

This, combine with the integrated camera, make it easy to read the map and understand where to act to have a perfect final result.

- Easy to use from the nozzle man
- Easy to set
- Integrated camera
- Map customization





Distributor



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