

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.



LEASING



available in Italy, Russia, China, South Africa, Australia, USA

TRAINING FOR OPERATORS



MADE IN ITALY

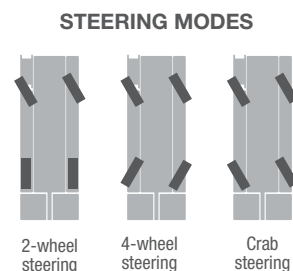
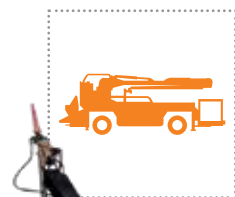


CIFA underground machines are designed and engineered in Italy

THE RANGE

- SUITABLE FOR MINING AND TUNNELLING
- DESIGNED FOR THE JOBSITE, IMPROVED BY EXPERIENCE
- FULLY CUSTOMIZABLE





CSS-3 EVO BIG SPACE, GREAT VERSATILITY

The CSS-3 EVO 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 CSS-3 boom gives the flexibility to operate in a versatile, safe

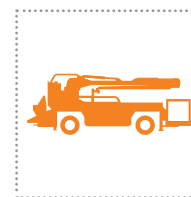
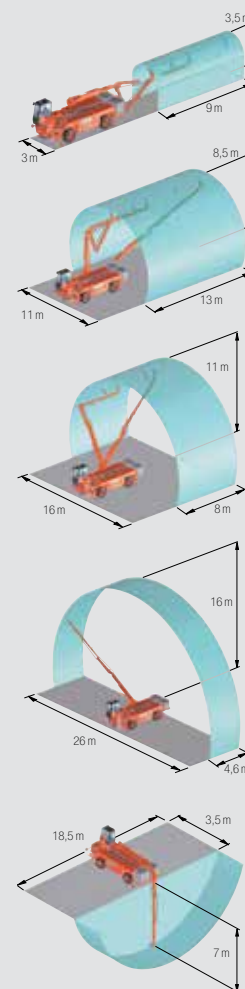
manner in any kind of tunnel. The boom turret has a double slewing ring for horizontal and vertical boom rotation and can shift along the truck's longitudinal axis to extend the working surface and reduce truck movements. Moreover, the third element of the boom is telescopic. The boom is driven by a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

CHASSIS
The CSS-3 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.



CSSE: THE FIRST PLUG-IN HYBRID MOBILE SHOTCRETE MACHINE



ENERGYA SERIES: REVOLUTION FOR A SUSTAINABLE CONSTRUCTION INDUSTRY.
CIFA has developed the first plug-in hybrid shotcrete system. The growth of a new generation, where technology meets eco-sustainability: the ENERGYA SERIES, with the CSSE Spritz System, the truck mixer E9 and the truck mixer pump MK28E. An innovative spritz system vehicle that offers many advantages, increasing work efficiency by reducing fuel consumption, pollution and costs.

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.





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.

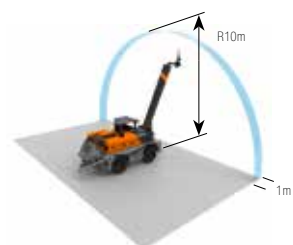
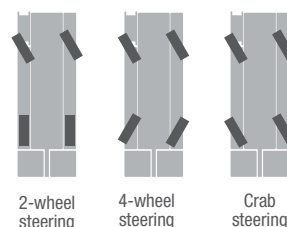
BOOM
Designed and manufactured for mining and for small tunnels. Robust and versatile at the same time, and extremely precise on nozzle placement. The boom rotates on the vertical axis and has a telescopic section to ease shotcreting operations in narrow tunnels.

CHASSIS
The dingo is built on a heavy-

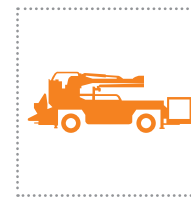
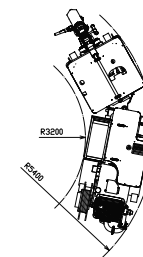
duty chassis featuring anti-skid 4WD and 4WS capabilities. With its short wheelbase and high ground clearance, it can easily handle tough off-road tracks and can be driven both forward and reverse from its transversal driving post.

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

STEERING MODES



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. The boom has a vertical

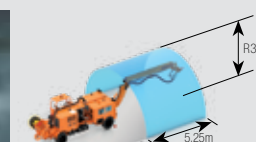
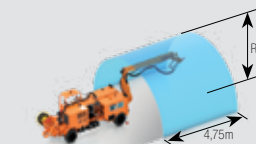
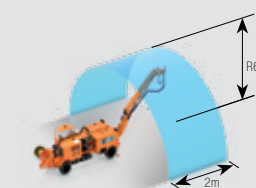
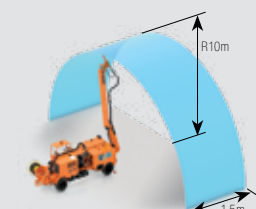
reach of 10 meters. Thanks to the vertical slewing ring, the operator is able to follow the entire profile of the tunnel, at every height, with only one joystick movement on the proportional radio remote control.

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.





RHINO

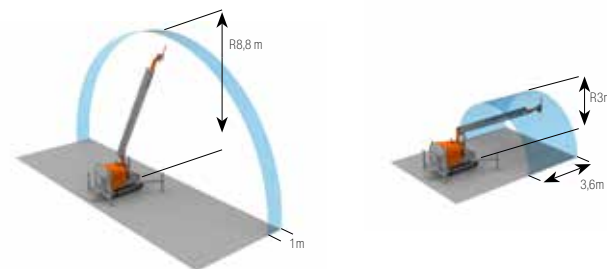


RHINO is a double piston pump with S-valve and variable output for shotcrete, micro-concrete, and special concrete. RHINO is a reliable choice in tight jobsites. The trailer-built concrete spraying pump is designed for mechanized applications of wet shotcrete in combination with the MANTIS or for manual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



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.



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°



PCC 907/612
PCC 607/411



PC 307



PC 709/415
PC 907/612



PC 506
PC 607



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.

		PUMPING UNIT TYPE	OUTPUT m³/h	MAX PRESSURE bar	CONCRETE DIAMETER mm	CONCRETE STROKE mm	CYCLES PER MINUTE #
	CSS-3 EVO	OPEN LOOP	30	65	200	1000	16
	CST 8.20	OPEN LOOP	20	65	200	600	18
	DINGO	OPEN LOOP	30	60	176	660	30
	RHINO	OPEN LOOP	FROM 2 TO 15	80	120	700	30



DOSING SYSTEM

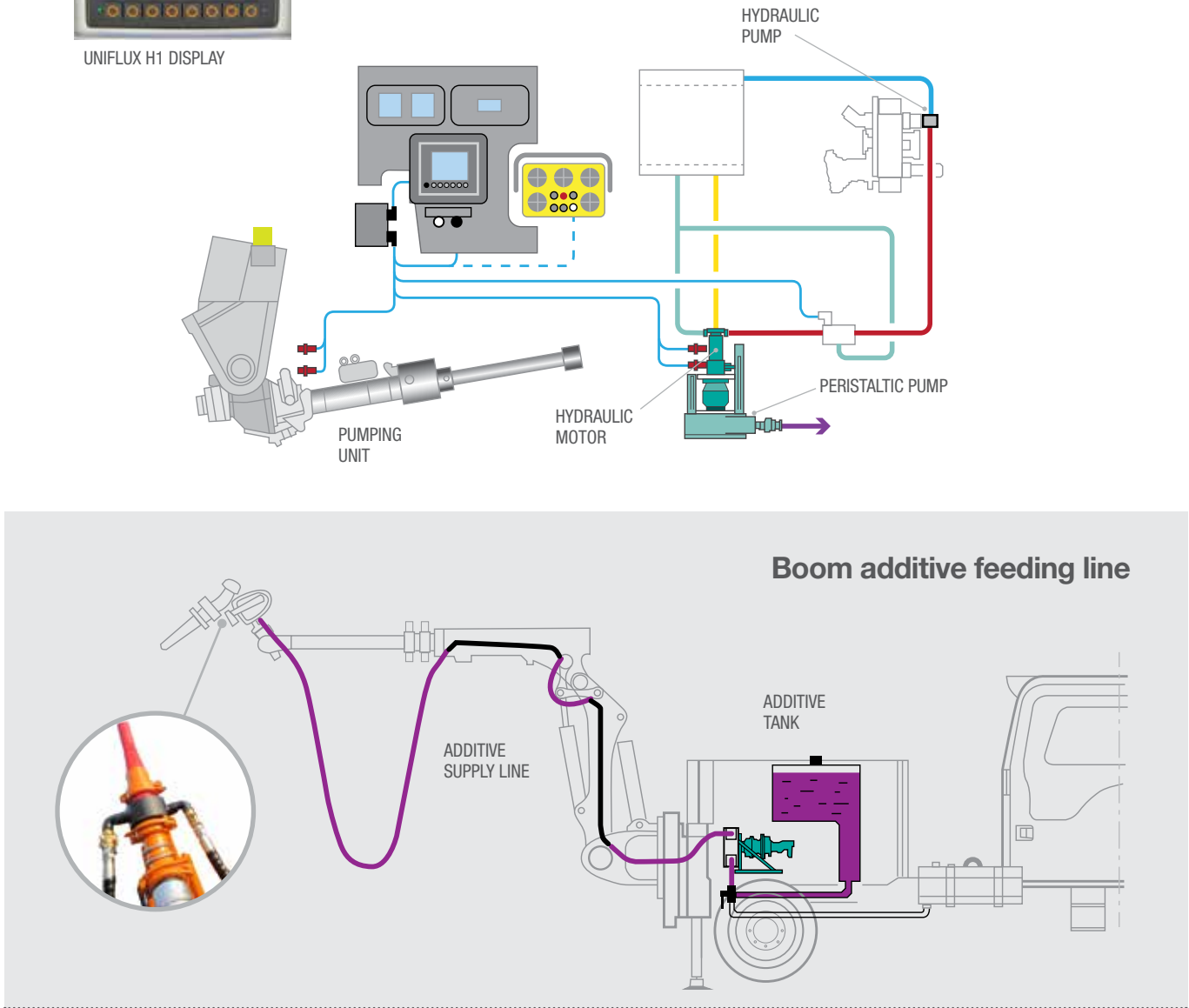
CIFA ACCELERATOR DOSING SYSTEM Uniflux H1.0

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





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 Coguaro is built on a heavy duty, low-height chassis

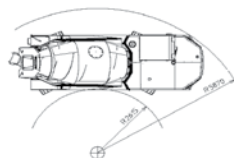
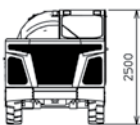
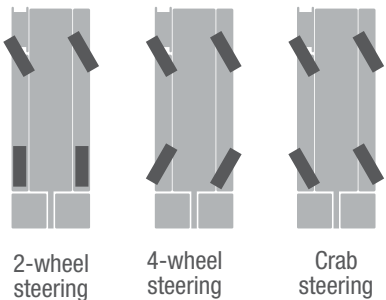
featuring anti-skid 4WD and 4WS capabilities. With its short wheelbase and high ground clearance, it can easily handle tough off-road tracks and can be driven both forward and reverse from its 180° tilting driving post.

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 Coguaro can use climate-specific and low-flammability oils.

STEERING MODES



DATA SHEET

Underground Solutions



CST 8.20		
PUMPING UNIT		
Theoretical output (Min ÷ Max)	m³/h	3 ÷ 20
Max. pressure on concrete	bar	65
PLACING BOOM		
Max. vertical reach	m	7.3
Sections	n	2
Telescopic stroke	m	3
DOSING SYSTEM		
Theoretical output (Min ÷ Max)	l/min	1 ÷ 21
TRUCK CHASSIS		
Installed power	kW@rpm	72@2300 (Stage IIIA)
Installed power	kW@rpm	55@2300 (Stage V)



MANTIS		
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



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



DINGO		
PUMPING UNIT		
Theoretical output (Min ÷ Max)	m³/h	3 ÷ 30
Max. pressure on concrete	bar	60
PLACING BOOM		
Max. vertical reach	m	9
Sections	n	2
Telescopic	n	1
DOSING SYSTEM		
Theoretical output (Min ÷ Max)	l/min	1 ÷ 21
TRUCK CHASSIS		
Installed power	kW@rpm	96@2200 (IIIA)



RHINO		
TECHNICAL DATA		
Liquid cooled diesel engine		4-cylinder - Perkins - 04D22 36,3 kW - 50 HP (Stage III A)
Electric motor (upon request)		22 kW - 400 V 50 Hz
Infinitely adjustable output*	m³/h	from 2 to 15
Max. working pressure	bar	80
Hopper capacity	l	250
Delivery distance*	m	200
Delivery height*	m	100
Chassis		Manual drawbar - fixed axle and pneumatic wheels



COGUARO 4		
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



		PC 506	PC 506 LP	PC 607	PC 411	PC 307
Drive power Stage IIIA	kW	74.5	--	83	83	43
Drive power Stage V	kW	74	55	85	85	55
Drive power E	kW	55	--	75	75	30
Max. theoretical output	m³/h	52	52	52	52	30
Max. pressure on concrete	bar	57	57	67	105	70
Max. number of cycles per minute		36	36	41	27	21
Concrete cylinders (diam. x stroke)	mm	176x1000	176x1000	176x1000	176x1000	176x1000
Concrete hopper capacity		350	350	350	350	350
Rod side drive □ / Piston side drive ◆		□	□	□	◆	◆



		PC 709	PC 415	PC 907	PC 612
Drive power D/E	kW	130/110	130/110	130/110	130/110
Max. theoretical output	m³	70	46	87	51
Max. pressure on concrete	bar	90	140	66	119
Max. number of cycles per minute		20	13	26	16
Concrete cylinders (diam. x stroke)	mm	200x1800	200x1800	200x1800	200x1800
Concrete hopper capacity		450	450	500	500
Rod side drive □ / Piston side drive ◆		□	◆	□	◆



		PCC 607	PCC 907
Drive power Stage IIIA	kW	83	130
Drive power Stage V	kW	85	130
Drive power E	kW	N/A	N/A
Max. theoretical output	m³	60	87
Max. pressure on concrete	bar	67	66
Max. number of cycles per minute		41	26
Concrete cylinders (diam. x stroke)	mm	176x1000	200x1800
Concrete hopper capacity		350	500
Rod side drive □ / Piston side drive ◆		□	□



SPECIAL EQUIPMENT



CPC506 E		
PUMPING UNIT		
Theoretical output (Min - Max)	m³/h	50
Max. pressure on concrete	bar	60
ELECTRIC OPERATING		
	V/Hz	400/50 - 440/60



MC 40 - 60 - 80 - 100 EI		
Electric operating	V/Hz	400/50
Absorbed power	kW	18 ÷ 50
Drum diameter	mm	1300 ÷ 1600
Gauge	mm	600 ÷ 900
Nominal capacity	m³	4 - 6 - 8 - 10

Discover more at
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