

 **METAX**[®]
the technological division
of Cima S.p.A.

**INNOVATION AND CUSTOMIZATION
FOR MARKET NEEDS**


CARPENTERIA IMPIANTI MACCHINE ATTREZZATURE
 **S.p.A.**

CIMA S.p.A. AND METAX® DIVISION HISTORY

Cima S.p.A. was the brainchild of Pompilio Dordoni and Lodovico Necchi, who joined courage, experience and market knowledge when they started their business venture.

Founded in July 1961, Cima originally dealt with carpentry and plant parts for the cement industry. In March 1977, the company “Sicom” was founded, specialising in the production of calendered goods. In March 1987, the two partners set up a new company called “Metax”, whose core business was the design and production of machines and plants for specialised construction industries.

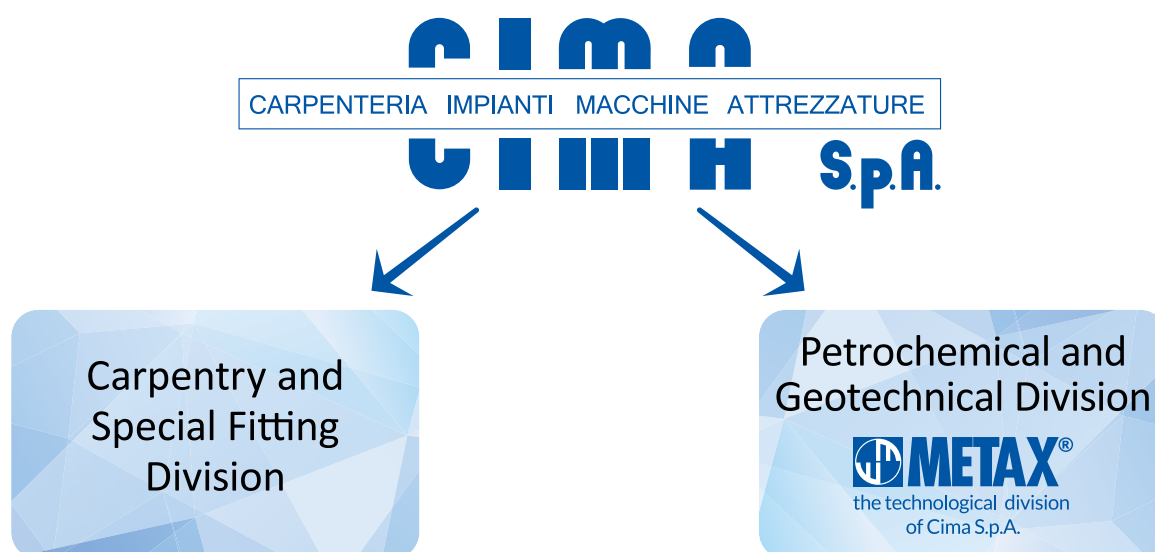
In April 2001, Cima, Sicom and Metax merged, and founded “Cima S.p.A.”.

This new company is still operative today, offering the same three individual types of production.

In 2002, Metax® became a registered brand that is renowned worldwide for its production of high-quality motor pumps and plants in the geotechnical field.

The history of Cima S.p.A. is the result of a passion shared by two friends, which continues to inspire innovation in the sectors of medium-heavy carpentry, special fittings, oil & gas, specialised construction and the cement industry.

Cima S.p.A. has now been divided in 2 business areas:



Metax®, the technological division of Cima S.p.A., is highly specialized in the construction of high-pressure pumps for jet grouting applications, pumping of drilling muds and the transfer of liquid in general, as well as the production of batching plants, mixture store tanks, injection pumps for specialised civil engineering and geotechnics. Furthermore, it has diversified its production by focusing on oil & gas drilling and directional drilling.

Metax® division provides consistent technical support to clients anywhere in the world. Specific geotechnical consultancy support helps clients to choose drilling and injection systems, provides information on the type of equipment to be used, and gives support in managing building sites; including start-up and, where necessary, in-house training.

Thanks to the investment in personnel, its strong leadership and innovative approach to key industries, Metax® division continues to be at the forefront on the geotechnical market, and the future holds new real estate investments, new products and new services.

Metax® trademark is synonymous with quality, productivity and reliability

QUALITY: PRIMARY OBJECTIVE

Cima S.p.A. Quality Management System is approved to **ISO 9001** by Bureau Veritas for:

- design and production of metal carpentry, pressure vessels, pipes and butt welding fittings;
- production of special pieces;
- design and production of high-pressure pumps for jet grouting and the pumping of drilling muds;
- design and production of automatic batching plants for the preparation of cement-based and bentonite mixtures.



Azienda con Sistema di Gestione certificato secondo la norma ISO 9001 - Certificato n.197369



METAX® DIVISION MAIN PRODUCTS

Metax® division product range covers the main phases of the soil consolidation process and of both oil & gas and directional drilling: storage, batching, injection, pumping of cement, mud or water. Metax® plants and machines include horizontal silos, batching plants, injection pumps, batching and injection plants, motor pumps.

STORAGE	BATCHING	INJECTION	PUMPING
SLH25 SLH26 SLH28 SLH33 SLH38 SLH44 SLH48	JM18 JM24PV JM30 JM33PV JM40PV	IC90 IC90S IC120 IC120S IM90 IM90S IM115 IM140 IM190 IM190S	Jet grouting MP4 MP5 MP5-550S MP7 MP7-610 MP7-800ST MP7-1000HD
	JMP5D-60 JMP5DVA-50 JMP5DVA-60 JMP5E JMP5EV JMP8 JMP8S JMP12 JMP24		Mud MP7M MP9M
			Water MP7W MP7W-1000HD



In line with the values of the mother company Cima S.p.A., Metax® division, pays great attention to the quality of its production. In this respect, all components of machines and equipment are carefully checked before being assembled, in order to comply with the project specifications. Even after assembly, machines and equipment are subject to strict quality control tests to check the functionality of every component. Proper transport to the customer's premises is also one of the primary objectives of Metax® division, thus the machines and equipment housed in containers are provided with a temporary or permanent CSC Certificate, allowing sea shipping when required.

MOTOR PUMPS

The motor pumps that Metax®, technological division of Cima S.p.A., offers on the market are particularly reliable for tasks such as:

- Jet grouting;
- Wells for gas and/or hydrocarbons research and exploitation;
- Drilling of water wells;
- Drilling of large diameters and great depths;
- Operations in the geothermal field, directional drilling and microtunneling.

Each of them is equipped with a diesel engine, a manual or automatic gearbox, a cardan shaft with pumping unit consisting in a triplex pump. All components and units are housed in a 20' container.

The motor pumps can be equipped with the following options according to the customer's needs:

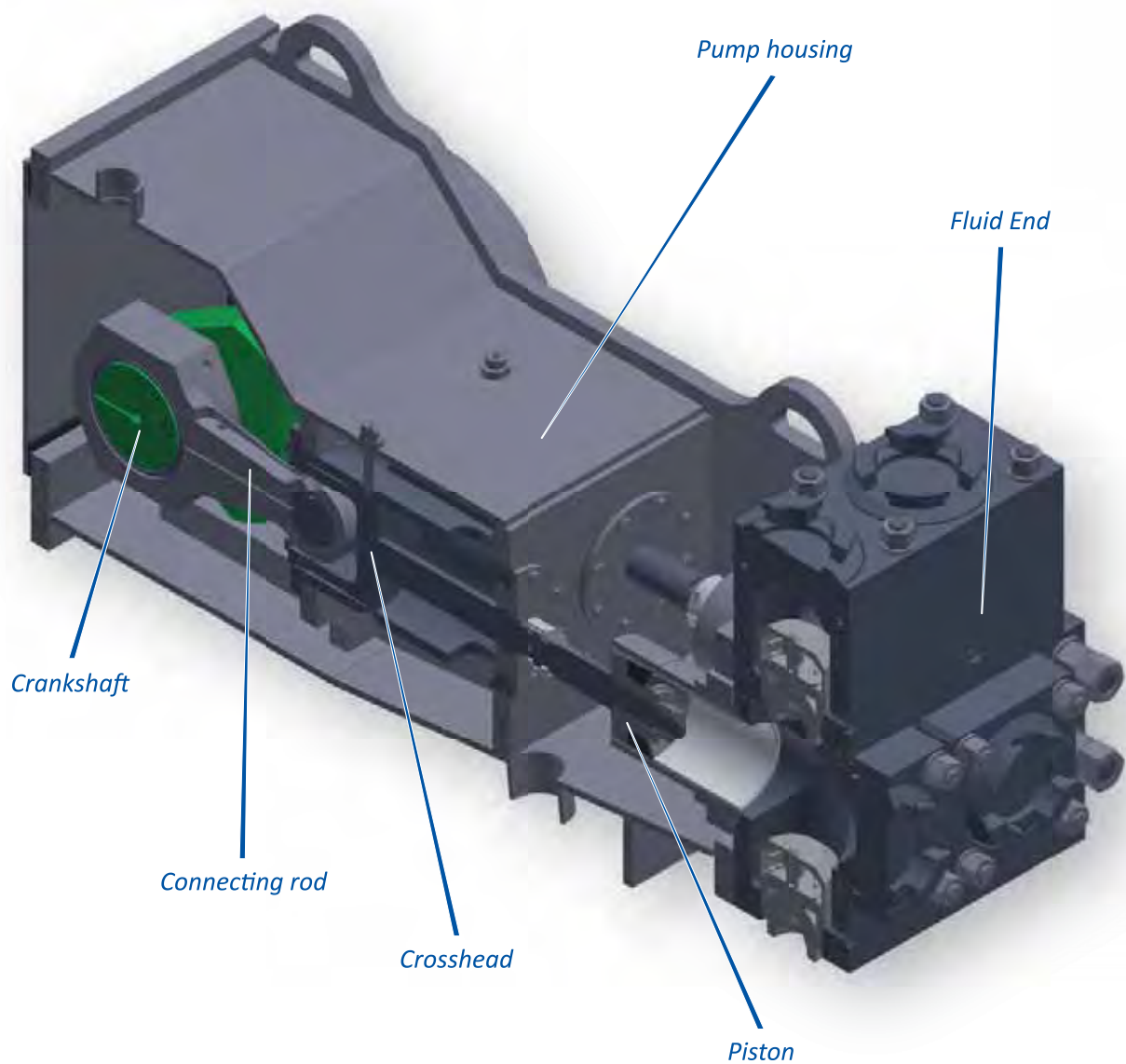
- Booster pumps, including wheels and electrical panel;
- Datalogger;
- Remote control panel (cable or radio control).

Before being mechanically machined, the pump and drive housings undergo a stress relieving heat treatment, in order to minimize residual stresses in the structure.



JET PUMP

		MP4	MP5	MP5-550S	MP7	MP7-610
Max flow rate	<i>l/min</i>	430	550	550	1450	750
	<i>gpm</i>	114	145	145	383	198
Max pressure	<i>bar</i>	700	800	800	900	800
	<i>psi</i>	10153	11603	11603	13053	11603
Max power installed	<i>kW</i>	255	410	410	760	455
	<i>hp</i>	340	550	550	1020	610
Suction	<i>mm</i>	88,9	101,7 - 114,3	101,7 - 114,3	114,3 - 139,7 - 168,3	114,3
	<i>in</i>	3	3 ½ - 4	3 ½ - 4	4 - 5 - 6	4
Delivery	<i>mm</i>	42,4	42,4 - 48,3 - 60,3	48,3 - 60,3	48,3 - 60,3 - 76,1	48,3 - 60,3
	<i>in</i>	1 ¼	1 ¼ - 1 ½ - 2	1 ½ - 2	1 ½ - 2 - 2 ½	1 ½ - 2
Weight	<i>kg 10³</i>	8 ÷ 11,5	13 ÷ 14	14	14,5 ÷ 22	14,5
	<i>lb 10³</i>	17,6 ÷ 25,3	28,6 ÷ 30,8	30,8	31,9 ÷ 48,4	31,9



	JET PUMP		MUD PUMP		WATER PUMP	
	MP7-800ST	MP7-1000HD	MP7M	MP9M	MP7W	MP7W-1000HD
	900 238	1450 383	1100 290	2200 581	4600 1214	4600 1214
	900 13053	840 12183	360 5221	360 5221	230 3336	230 3336
	597 800	760 1020	537 720	522 800	760 1020	760 1020
	114,3 ÷ 139,7 4-5	139,7 ÷ 168,3 5-6	114,3 4	273 10	168,3-190,8-219,1 6-7-8	190,8-219,1 7-8
	60,3 2	76,1 2 ½	48,3 1 ½	88,9-114,3 3-4	88,9-114,3 3-4	114,3 4
	18 39,6	22 48,4	16 35,2	31 68,2	14 ÷ 23 30,8 ÷ 50,6	23 50,6

BATCHING AND INJECTION PLANTS

Batching and injection plants have been designed in such a way as to gather the necessary components, which carry out both the mixing and the pumping of the cement mixture in one single machine, while maintaining a good dimensional compactness.

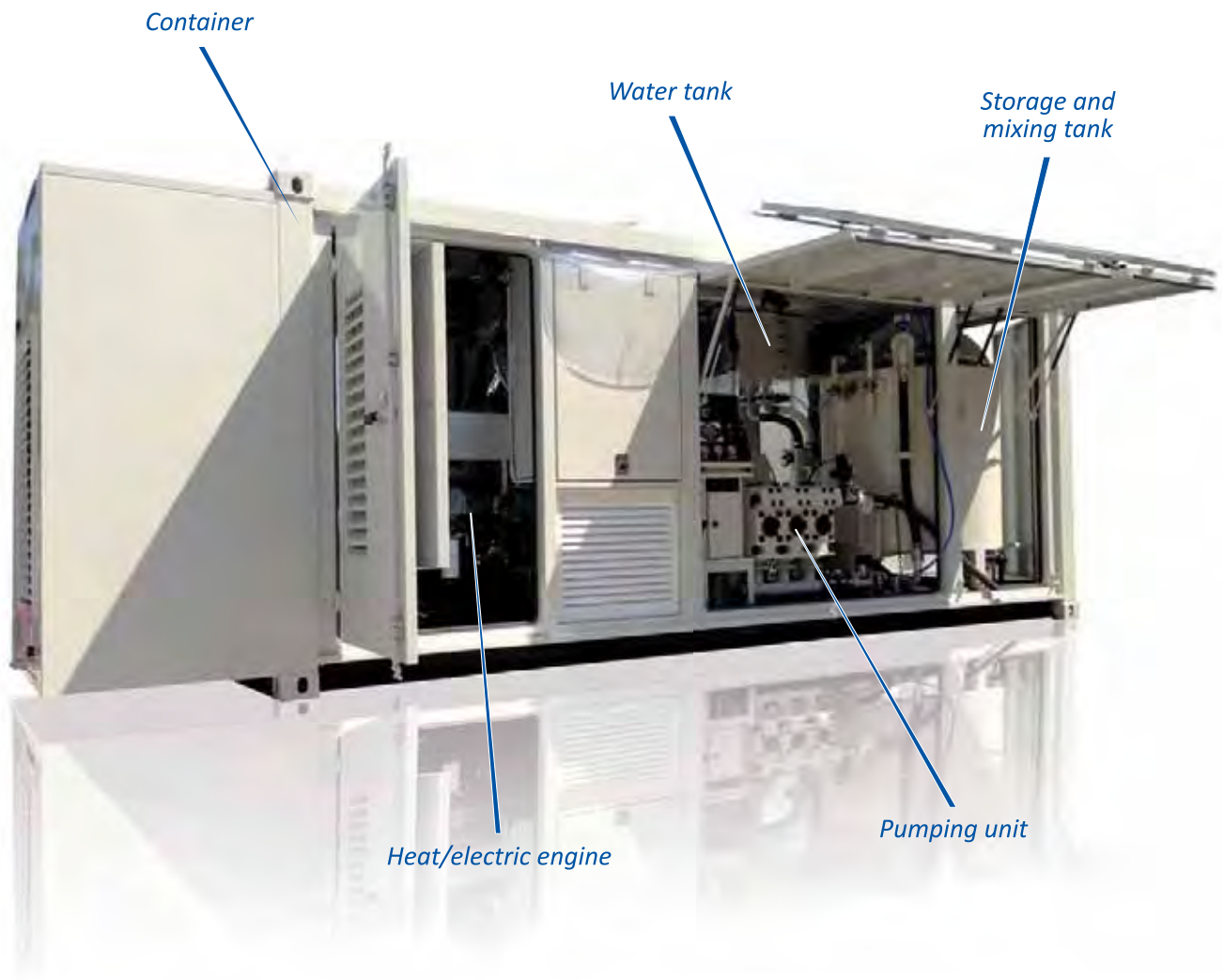
As regards to the design and manufacturing of Metax®, the technological division of Cima S.p.A., two different types of equipment can be distinguished:

- Equipment that uses triplex pumps with engines up to 405 kW and that works under high pressure and flow rate values. It is assembled in 20' and 30' containers.
- Equipment that uses screw pumps (low pressure range) or single piston pumps (low/high pressure range), which are assembled in 10' containers or on comfortable skids that guarantee reduced dimensions.

Both types of equipment are equipped with a mixing tank, an agitator tank and, in some cases only, a tank for water storage.



		JMP5D-60	JMP5DVA-50	JMP5DVA-60		JMP5E	JMP5EV	JMP8	JMP8S
		Diesel	Diesel	Diesel		Electric	Electric	Electric	Electric
Max power installed	<i>kW</i> <i>hp</i>	45 60	36 48	45 60	45 60	25 33,5	14,1 19	40 ÷ 61 54 ÷ 81	63 ÷ 71 85 ÷ 95
Mixed load capacity	<i>l</i> <i>gal</i>	350 92,5	280 74	280 74	280 74	350 92,5	350 92,5	350 92,5	350 92,5
Storage tank with agitator load capacity	<i>l</i> <i>gal</i>	500 ÷ 1000 132 ÷ 264	500 132	500 132	500 132	500 132	500 132	2000 528	2000 528
Pump type		IM75	QV9	QV9	IM75	IM75	QV7	IM90	IM140
Pump max flow rate	<i>l/min</i> <i>gpm</i>	200 53	200 53	200 53	200 53	200 53	150 40	212 56	380 100
Pump max pressure	<i>bar</i> <i>psi</i>	100 1450	11 160	11 160	100 1450	100 1450	7 101	80 1160	60 870
Weight	<i>kg</i> <i>lb</i>	2550 6510	2770 6094	2770 6094	2770 6094	1800 3960	1100 2420	4500 9900	4800 10560



		JMP12	JMP24
Max power installed	<i>kW</i> <i>hp</i>	30 (electric) + 250 (diesel) 40 (electric) + 340 (diesel)	35,4 (electric) + 405 (diesel) 47,5 (electric) + 550 (diesel)
Mixed load capacity	<i>l</i> <i>gal</i>	350 92	2000 530
Storage tank with agitator load capacity	<i>l</i> <i>gal</i>	2000 530	2700 713
Pump type		Triplex P4	Triplex P5
Pump max flow rate	<i>l/min</i> <i>gpm</i>	430 114	550 145
Pump max pressure	<i>bar</i> <i>psi</i>	700 10153	800 11603
Weight	<i>kg</i> <i>lb</i>	12500 27500	20000 44000

BATCHING PLANTS

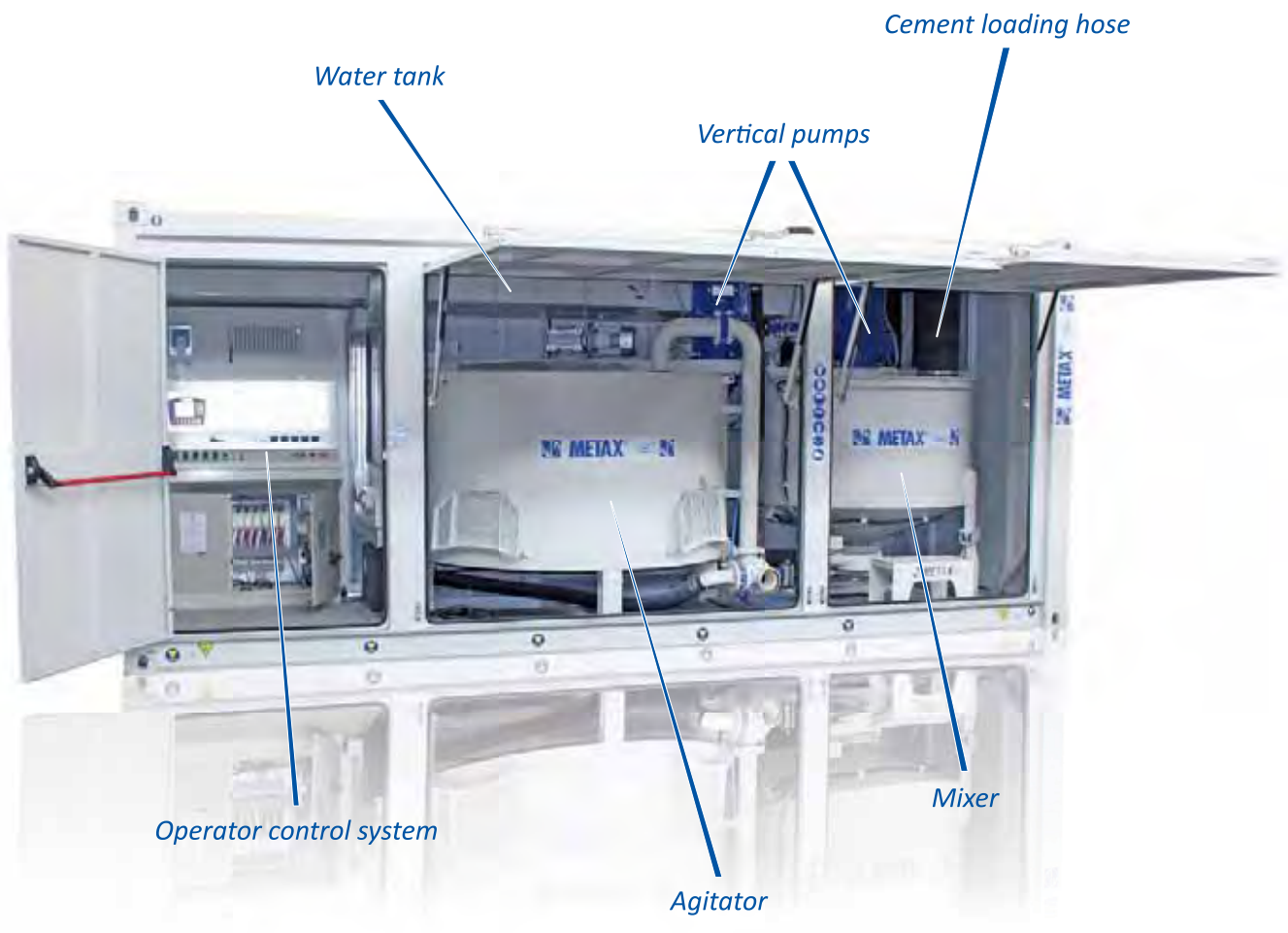
Batching plants are used for producing cement mixtures. Metax®, the technological division of Cima S.p.A., offers a wide product range that satisfies all market needs.

The batching plants manufactured by Metax® division, are equipped with devices, which, thanks to other suitable equipment, are able to control the weighting and mixing process up to 4 liquid components and 3 powder components automatically.

The batching plants are classified according to the mixing capacity rate [m^3/h] that is calculated according to a mixture of water and cement powder based on a 1:1 ratio.

		JM18	JM24PV	JM30	JM33PV	JM40PV
Max mixing capacity double mixture ratio (1/1)	<i>m³/h</i>	18	24	30	33	40
	<i>gph</i>	4750	6350	7900	8700	10600
Min - Max electric power	<i>min kW</i>	22,5	28	33	38	48
	<i>max kW</i>	28,5	65	61	60	78
Mixer load capacity	<i>l</i>	550	2000	1450	2000	2000
	<i>gal</i>	145	528	382	528	528
Storage tank with agitator load capacity	<i>l</i>	3000	2500	3200	4200	4200
	<i>gal</i>	792	660	845	1109	1109
Water tank max capacity	<i>l</i>	900	1150	2000	2000	2000
	<i>gal</i>	238	303	528	528	528
Weight	<i>kg</i>	3000	6500	6000	7000	7000
	<i>lb</i>	6600	14300	13200	15400	15400





INJECTION PUMPS

The injection pumps that Metax®, the technological division of Cima S.p.A., offers on the market are designed for:

- Drilling applications;
- Micro-piles filling;
- TBM applications.

The injection pumps are equipped with a double effect single piston.

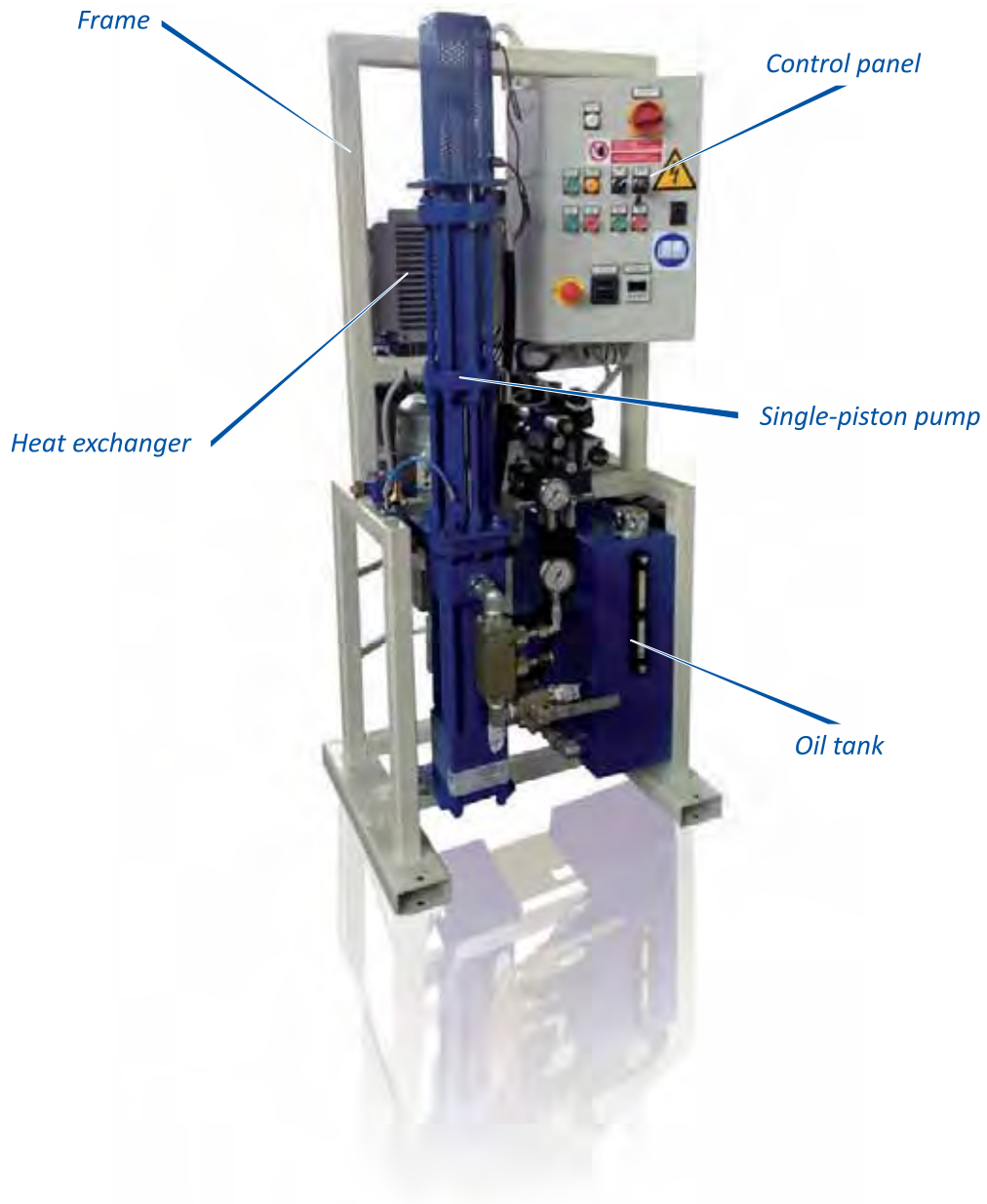
They are made for cement mixtures from 1 up to 2,5 kg/dm³ density, depending on the model. The flow rate and the pressure that must be pumped, can be regulated independently. The hydraulic system allows to keep the line under pressure. Therefore, a return line is not necessary and the pump operation must not be stopped.

The IC models offer the possibility of switching from low to high pressure mode.

All models are mounted on frame with their own control panel and hydraulic power unit, or sold like bare pump for the installation on a drill rig.



		IC90	IC90S	IC120	IC120S	IM90			IM90S	
Max electric power	<i>kW</i>	5,5	7,5	5,5	7,5	22			45	
Stroke	<i>mm</i>	200	200	200	200	330			330	
	<i>in</i>	7 ¾	7 ¾	7 ¾	7 ¾	13			13	
Cylinder diameter	<i>mm</i>	90	90	120	120	88,9	100	114,3	88,9	100
	<i>in</i>	3 ½	3 ½	4 ¾	4 ¾	3 ½	4	4 ½	3 ½	4
Max flow rate	<i>l/min</i>	36	36	63	63	123	150	201	100	125
	<i>gpm</i>	9,5	9,5	16,6	16,6	32	40	53	26,4	33
Max pressure	<i>bar</i>	100	150	80	95	80	70	50	200	150
	<i>psi</i>	1450	2175	1160	1377	1160	1015	725	2900	2175
Weight	<i>kg</i>	350	370	385	390	1100			1350	
	<i>lb</i>	770	814	847	858	2420			2970	



IM115

IM140

IM190

IM190S

	30			45			45			57,5		
	330 13			330 13			330 13			330 13		
	88,9 3 ½	100 4	115 4 ½	115 4 ½	127 5	140 5 ½	139,7 5 ½	165,1 6 ½	190,5 7 ½	139,7 5 ½	165,1 6 ½	190,5 7 ½
	123 32,5	154 40,5	205 54	250 66	310 82	380 100	350 92,4	490 129,3	650 171,6	400 105,6	600 158,4	820 216,5
	125 1812	100 1450	75 1087	60 870	40 580	30 435	60 870	40 580	30 435	60 870	40 580	30 435
	1700 3740			1600 3520			2600 5720			2600 5720		

HORIZONTAL SILOS

The Horizontal silos that Metax®, the technological division of Cima S.p.A. can offer on the market are containers to store:

- Cement;
- Filler;
- Bentonite.

They are named as per cubic meter: from SLH25 to SLH48.

Horizontal silos are made of metal sheet and shaped so that they have a sufficient resistance, allowing the material the material to fall onto the horizontal screw conveyor fixed at the bottom.

Shape varies while maintaining the corner block of the 20' standard container, so all silos are specifically conceived to be installed on the roof of batching plants and controlled automatically by the plant itself.

The silos can be delivered in a standard container version or placed on a flat rack.

		SLH25	SLH26	SLH28	SLH33	SLH38	SLH44	SLH48
Nominal volume	<i>m³</i>	25	26	28	33	38	44	48
	<i>gal</i>	6600	6850	7400	8700	9975	11600	12600
Max transport capacity of conveyor	<i>ton/h</i>	25	25	25	40	25	40	40
Length	<i>m</i>	6,06	6,94	6,06	7,24	10,32	9,2	9
	<i>ft(')/in(″)</i>	19' 10"	22' 9"	19' 10"	23' 8"	33' 10"	30' 2"	29' 6"
Width	<i>m</i>	2,44	2,44	2,44	2,8	2,44	2,44	2,8
	<i>ft(')/in(″)</i>	8'	8'	8'	9' 2"	8'	8'	9' 2"
Height	<i>m</i>	2,6	2,7	2,9	2,9	2,75	3	3
	<i>ft(')/in(″)</i>	8' 6"	8' 10"	9' 6"	9' 6"	9'	9' 10"	9' 10"
Empty weight	<i>kg</i>	4400	3500	4000	3600	4650	5300	5500
	<i>lb</i>	9680	7700	8800	7920	10230	11660	12100



Ladder with safety cage

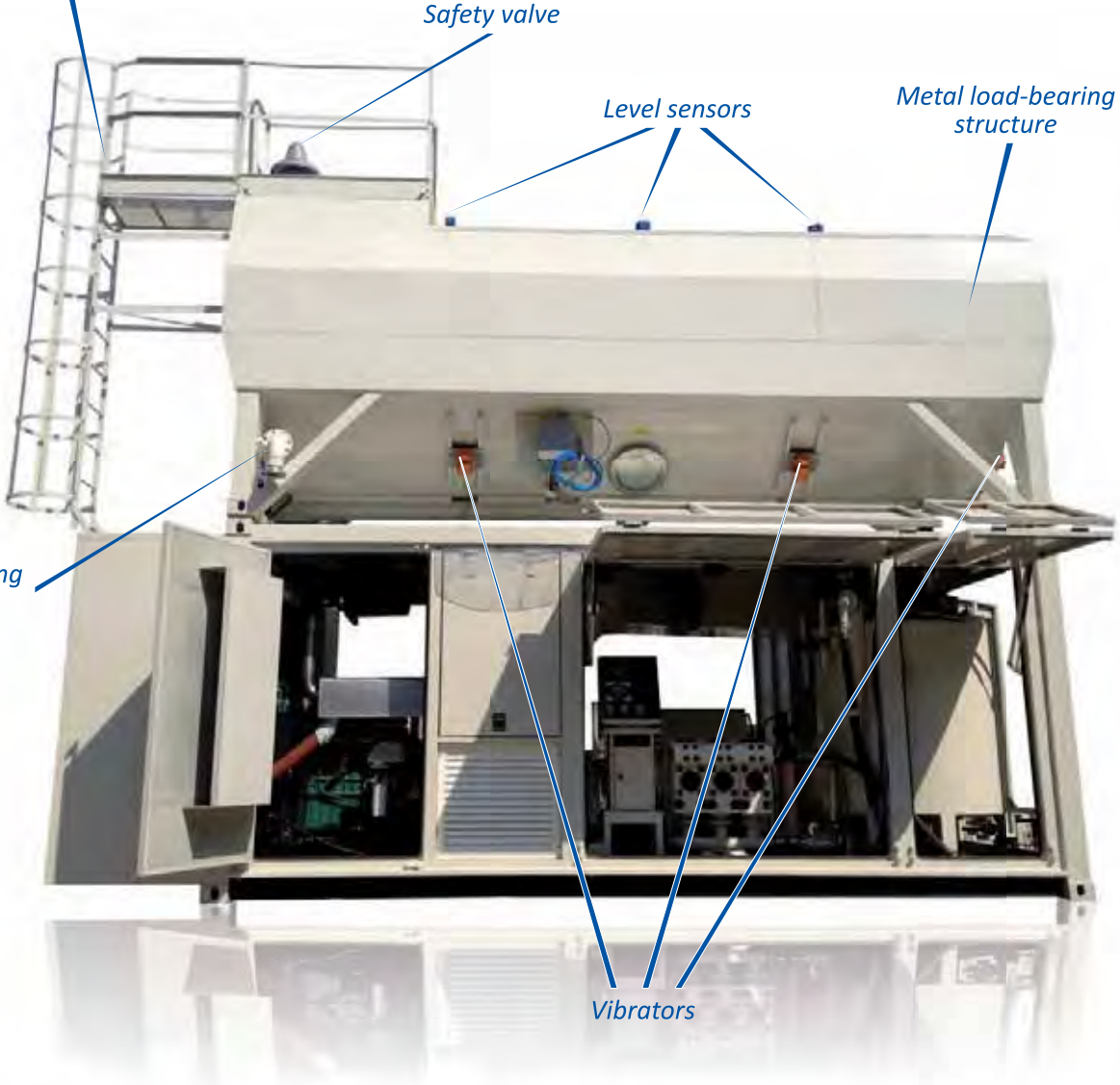
Safety valve

Level sensors

Metal load-bearing structure

Loading pipe

Vibrators



METAX[®], THE TECHNOLOGICAL DIVI

Cima S.p.A.'s primary objective is to continue investing in order to become a renowned and reliable partner for Italian and international clients. The products of Metax[®], the technological division of Cima S.p.A., are well-known all over the world, as it avails itself of a long experience with key partners and customers in the field of soil consolidation, specialized civil engineering and geotechnics.



Australia, Brisbane LEGACY WAY PROJECT

Italy, Venice MOSE PROJECT

Brazil, Rio de Janeiro NOSSA SENHORA



SION OF CIMA S.p.A. IN THE WORLD

Co-operation with important companies has been implemented, thanks to an extensive network of dealers through which, Metax® division has partnerships on a worldwide level.

The picture in blue displays the products of Metax®, the technological division of Cima S.p.A., in the world, and highlights the most significant projects, in which it has participated.



Turkmenistan,
Turkmenbashi
AVAZA BRIDGE PROJECT

Hong Kong - Bauer
**CHANGI AIRPORT
HARBOUR EXPANSION**

Singapore
MARINA BAY SANDS

Australia, Brisbane
**LEGACY WAY
PROJECT**

Australia, Perth
RAILWAY TUNNEL

DE LA PAZ METRO STATION



Singapore MARINA BAY SANDS



Austria, Wienerwald RAILWAY TUNNEL





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