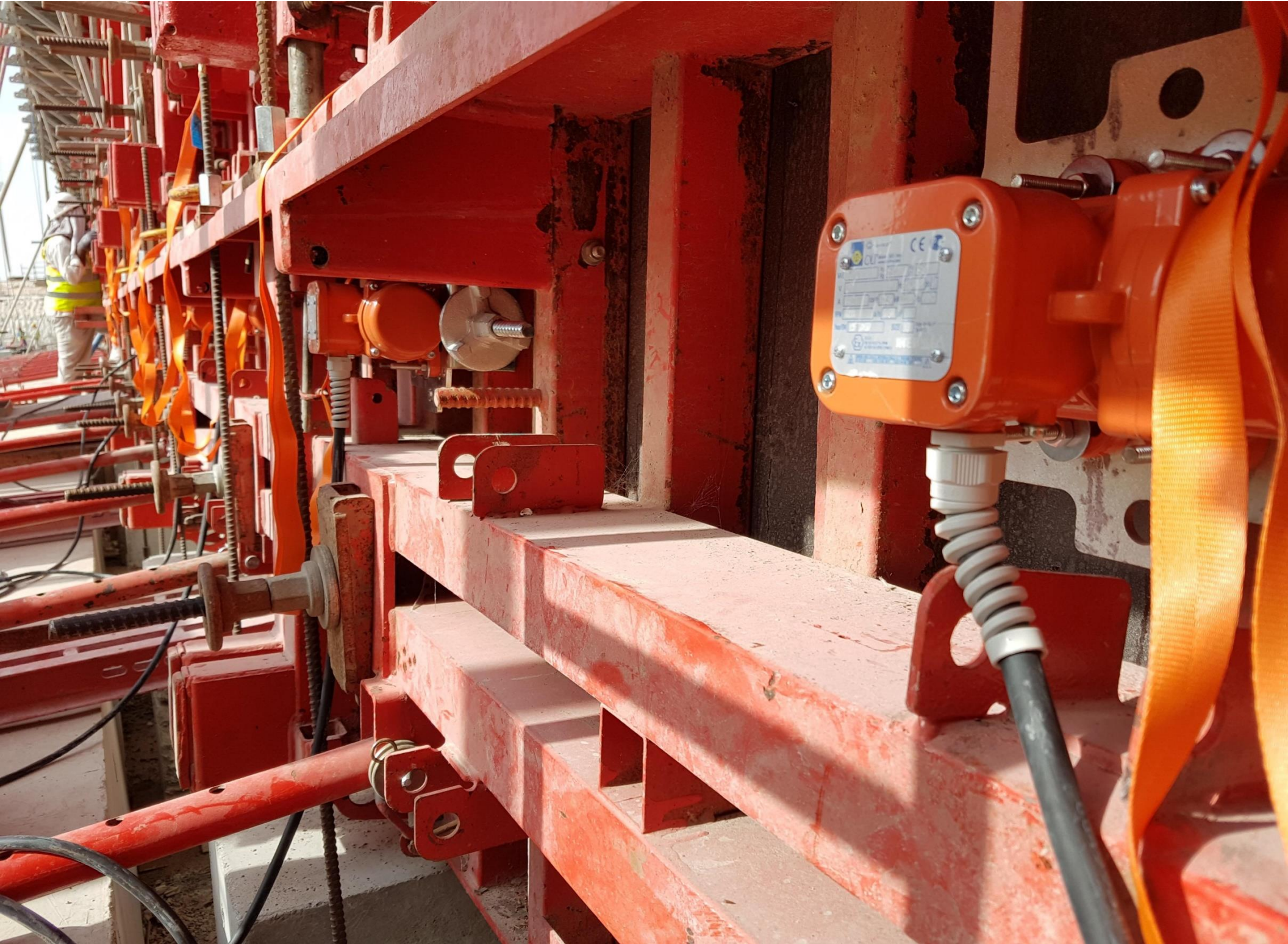


Concrete Vibration Solutions



Formwork Vibration Solutions

Consulting, designing & supplying



External Electric Vibrators

High frequency electric vibrators are used on construction sites and in precast companies to obtain high-quality products (exposed concrete), with excellent aesthetic results and weather resistance. The vibration is transmitted to the concrete indirectly through formworks or mould.

Just like the internal vibrators, the external ones are also based on the principle of the vibration produced by the rotation of an eccentric mass started by a three phase electric motor.

We offer a range of external electric vibrators includes fixed frequency models, 3,000 and 6,000 vpm, and variable frequency models, from 0 to 6,000 vpm.

Low speed vibration is used on high-density and unreactive concretes mostly, as they allow a fast displacement of the aggregates.

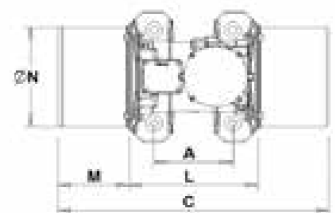
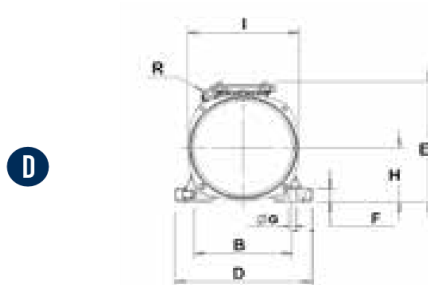
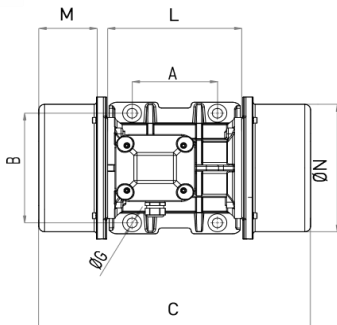
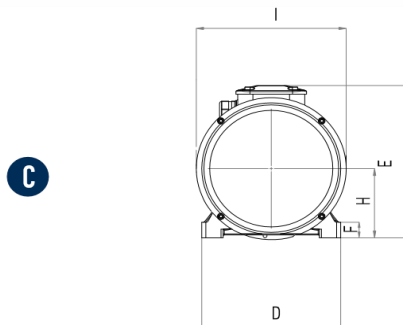
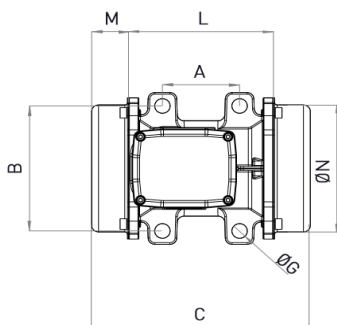
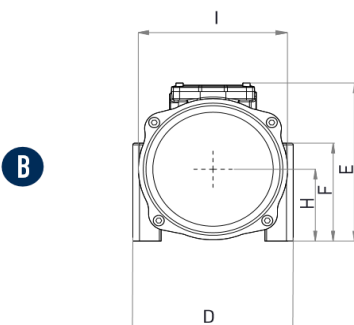
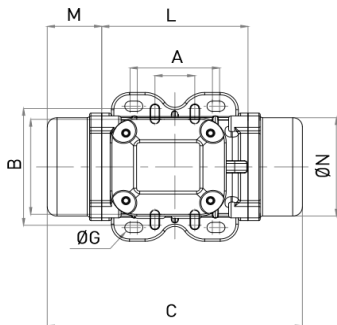
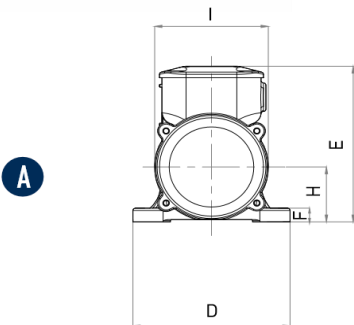
High speed vibration (6,000 vpm) is recommended with low-density concretes and in applications where high surface quality is required.

Variable frequency allows to find the correct vibration speed in relation to the density of the concrete to be treated. They are obviously more flexible than earlier.

The external electric vibrators are characterized by high operating efficiency and ease of installation. Specially designed attachment devices (quick-coupling clamps) reduce the time required for installing and repositioning.

This vibration system is recommended when:

- High construction elements and narrow walls (partitions, columns, beams) are to be compacted, which are difficult to vibrate with other systems.
- The reinforcement density inside the housing is high.



Wm	MODEL	WEIGHT	CENTRIFUGAL FORCE	RPM	ELECTRICAL SPECIFICATIONS							CERTIFICATE	
					INPUT POWER	FREQUENCY	NOMINAL CURRENT A max.		COS Φ	Ia / In	CABLE GLAND	Ex II3D	Temp. Class
kgcm		kg	kg		kW	Hz	42V	230/400V			Metric		
1.47	MVE 290/6	4.6	294	6,000	0.27	200Hz	5.00	0.91/0.53A	0.75	2.00	M20		100 °C
6.82	MVE 1530/6N-HF-38E	12.0	1,373	6,000	1.00	200Hz	18.00	2.80/1.60	0.90	4.00	M20		100 °C
7.33	MVE 1300/6	24.0	1,474	0÷6,000	1.30	0÷100Hz	on request	4.24/2.44	0.77	3.10	M20		100 °C
13.00	VFV 100 25/6	42.0	2,600	0÷6,000	2.25	0÷100Hz	on request	7.96/4.60	0.71	5.50	M20		on request

DIMENSIONAL SPECIFICATIONS (mm)															
MODEL	DRAWING	SIZE	C	M	A	B	Ø G	HOLE S	D	E	F	H	I	L	N
MVE 290/6	A	10	211	45	62-75 / 33	106 / 83-102	9 / 7	4	130	136	12	48	94	121	85
MVE 1530/6N-HF-38E	B	38	255	43	90	154	18	4	187	195	121	89	174	169	156
MVE 1300/6	C	50	321	58	120	170	17	4	208	210	22	94	180	205	170
VFV 100 25/6	D	8	410	74	150	190	17	4	280	258	30	117	227	260	212

APPLICATION Concrete compaction

FEATURES

DUTY CYCLE Continuous S1

MULTIVOLTAGE 3ph 42V - 3ph 230/400V [* voltage tolerance ± 10%]

FIXED FREQUENCY 50Hz and 200Hz

VARIABLE FREQUENCY 0÷100Hz

WORKING TEMPERATURE -10 °C / +40 °C

MAX NOISE LEVEL 85 dB(A) at 1 meter distance

MATERIAL Cast aluminium or iron

FINISHING Painted: A, B, C: orange RAL 2009; D: blue RAL 5010, yellow RAL 1003

CERTIFICATIONS Community Directives and subsequent modifications: 2006/42/EC - 2006/95/EC
Conformity verified according to the standard documents IEC 60034

OPTIONS Power cable

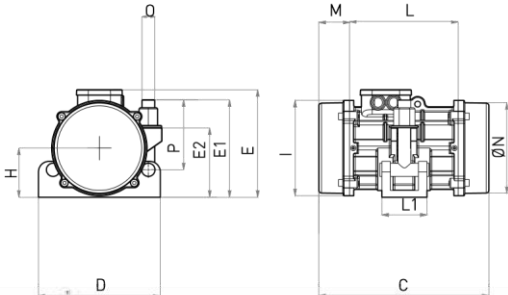
ACCESSORIES Fixing brackets:
CLW [Clamp for Wooden formworks]; CLS [Clamp for Steel formworks]



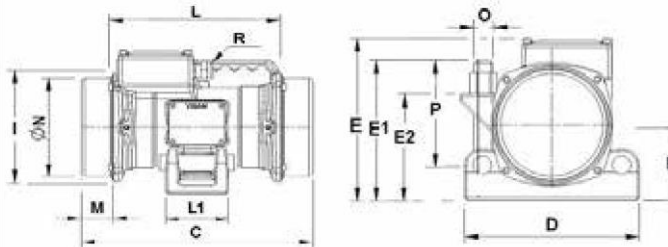
MVE 290/6 on CLW



E



F



*Cradle not included



*Cradle not included

STANDARD FREQUENCY ELECTRIC MOTORS

Wm kgcm	MODEL	WEIGHT kg	CENTRIFUGAL FORCE kg	RPM	ELECTRICAL SPECIFICATIONS						
					INPUT POWER	FREQUENCY	NOMINAL CURRENT A max.		COS Φ	la / ln	CABLE GLAND
					kW	Hz	42V	230/400V			Metric
16.00	SPC 50 7.0 A-00	23.5	800	3,000	0.75	50	on request	2.25/1.30	0.84	5.0	M20
20.00	SPC 50 9.0 A-00	24.5	1,000	3,000	0.85	50	on request	2.42/1.40	0.88	5.0	M20

HIGH FREQUENCY ELECTRIC MOTORS

Wm kgcm	MODEL	WEIGHT kg	CENTRIFUGAL FORCE kg	RPM	ELECTRICAL SPECIFICATIONS						
					INPUT POWER	FREQUENCY	NOMINAL CURRENT A max.		COS Φ	la / ln	CABLE GLAND
					kW	Hz	42V	230/400V			Metric
7.40	HFC-200 6000/15	21.5	1,500	6,000	1.00	200	19.70	3.60/2.10	0.70	5.5	M20
7.33	MVE 1300/6C	29.0	1,474	0÷6,000	1.30	0÷100	on request	4.24/2.44	0.77	3.1	M20
10.00	VFC 100 20/6	24.0	2,000	0÷6,000	1.25	0÷100	on request	4.00/2.30	0.79	5.5	M20

MODEL	DRAWING	SIZE	DIMENSIONAL SPECIFICATIONS (mm)												
			C	M	L	L1	O	P	D	E	E1	E2	I	H	N
SPC 50 7.0 A-00	F	05	390	83	224	85	M24	132	230	212	184	136	163	95	148
SPC 50 9.0 A-00	F	05	390	83	224	85	M24	132	230	212	184	136	163	95	148
HFC-200 6000/15	F	05	312	44	224	85	M24	132	230	212	184	136	163	95	148
MVE 1300/6C	E	50	321	58	205	85	M24	132	230	203	184	131	180	93	170
VFC 100 20/6	F	05	390	83	224	85	M24	132	230	212	184	136	163	95	148

ELECTRIC VIBRATORS - CRADLE VERSION

APPLICATION	Concrete compaction
DUTY CYCLE	Continuous S1
MULTIVOLTAGE	3ph 42V - 3ph 230/400V (voltage tolerance ± 10%)
FIXED FREQUENCY	50Hz and 200Hz
VARIABLE FREQUENCY	0÷100Hz
WORKING TEMPERATURE	-10 °C / +40 °C
MAX NOISE LEVEL	85 dB(A) at 1 meter distance
MATERIAL	Cast aluminium or iron
FINISHING	Painted - model E: orange RAL 2007, model D: blue RAL 5010 and yellow RAL 1003
CERTIFICATIONS	Community Directives and subsequent modifications: 2006/42/EC, 2006/95/EC Conformity verified according to the standard document IEC 60034-1
OPTIONS	Power cable
ACCESSORIES	Fixing bracket: CRS (Cradle for Steel concrete moulds)



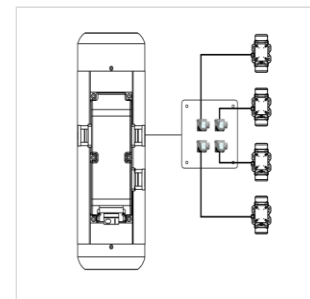
PRECAST TABLE VIBRATORS

► Solution 1 - Connected to 3 outlet converter CMT35

Suitable to power up to 4 electric vibrators MVE 290/6



MOUNTING SCHEME

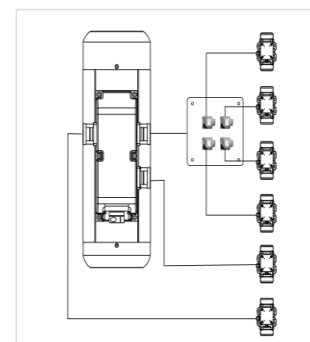


► Solution 2 - Connected to 3 outlet converter CMT55

Suitable to power up to 6 electric vibrators MVE 290/6

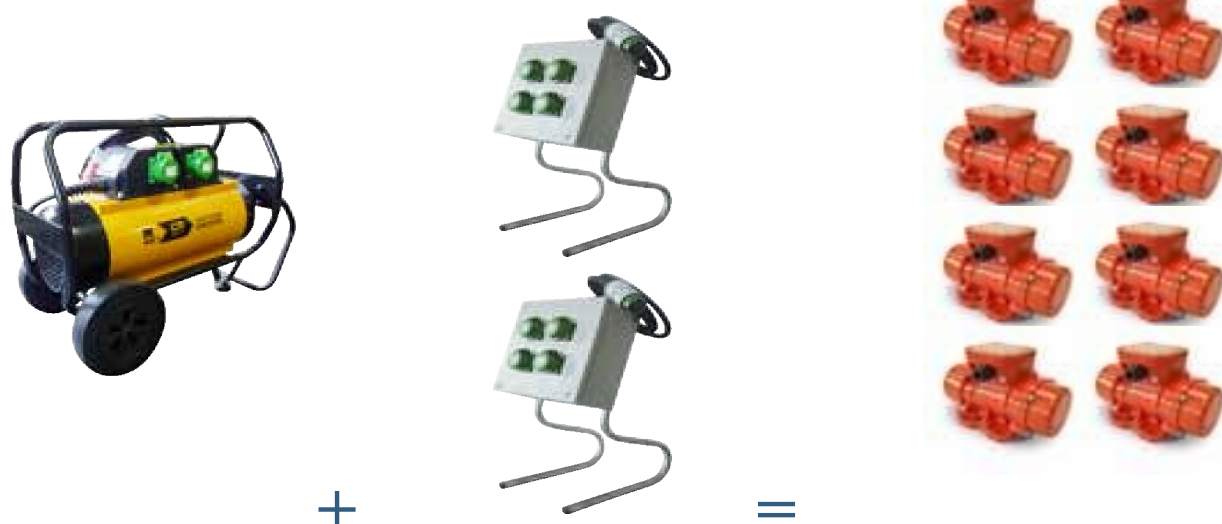


MOUNTING SCHEME

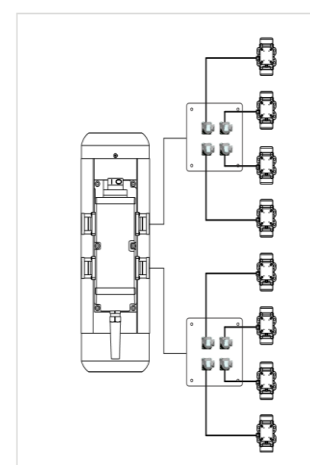


► Solution 3 - Connected to 4 outlet converter CMT85

Suitable to power up to 8 electric vibrators MVE 290/6



MOUNTING SCHEME



IMPORTANT

Never connect more vibrators than what suggested in the mounting schemes, even if there are unused output sockets.

For a better functioning of the vibrator it is advisable to use the special push-button panel (switch box), which can be purchased separately.



Switch Box





External Pneumatic Vibrators

The external pneumatic vibrators have no electrical components.

They are powered via air compressor that spins the rotors inside the vibrator at a very high speed (generally between 10,000 and 17,000 vpm), this generates a circular vibration that spreads in all directions.

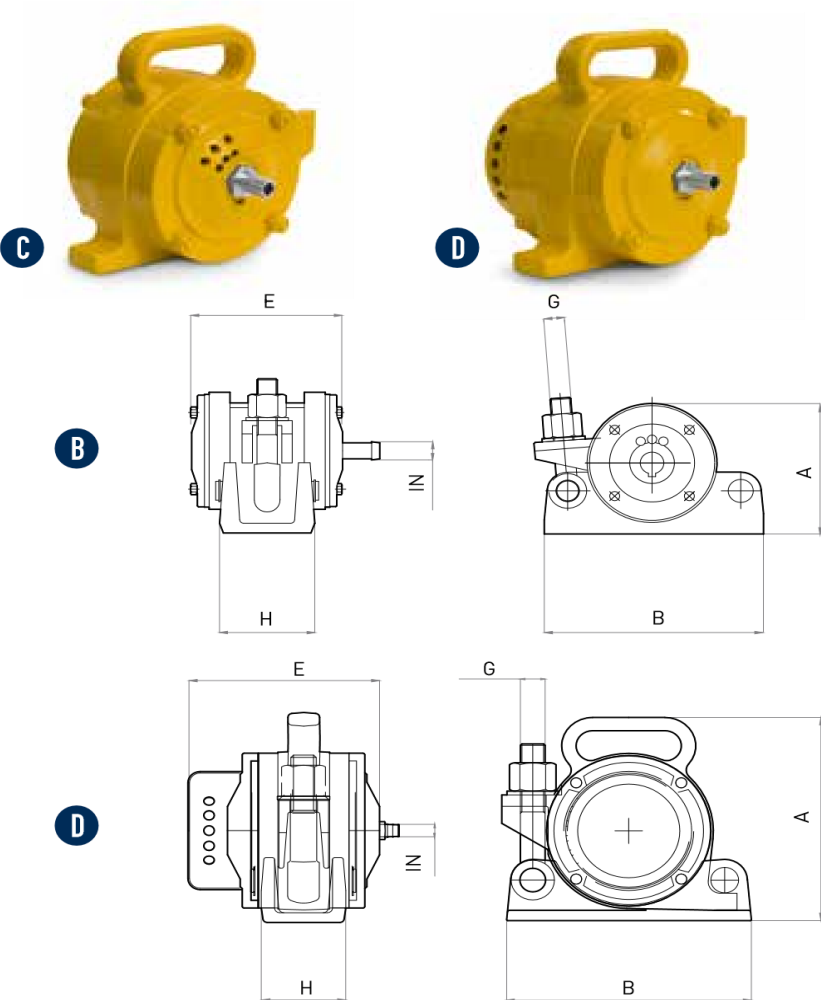
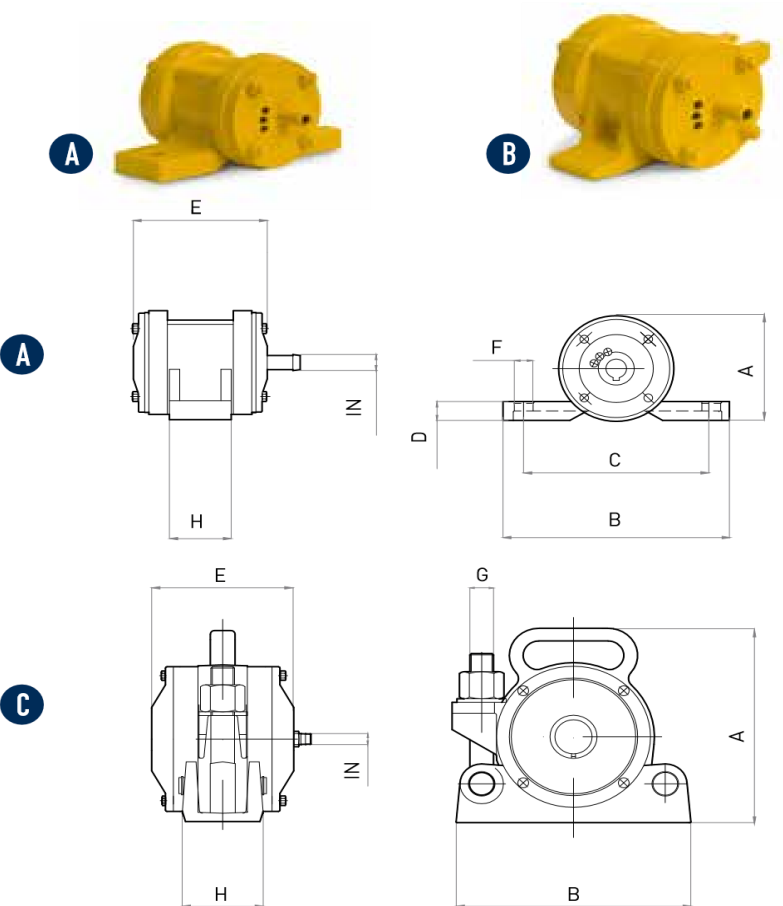
The optimum frequency varies depending on the dimensions of the aggregates: a low frequency (approximately 10,000 vpm) favours the vibration of large granules (pebbles and gravel), while a high frequency (approximately 20,000 vpm) favours the vibration of fine granules (sand, cement and others).

They are used especially in the construction of concrete segments for tunnels, viaducts and bridges.

The pneumatic vibrators offered have a solid and durable body in ductile cast iron.

They are characterised by high reliability and efficiency as well as it's compact size.

Just like the electric vibrators, they may also be bolted or attached via quick-coupling clamps to formworks or moulds for the purpose of easy movement.



MODEL	WORKING PRESSURE	VIBRATION	CENTR. FORCE	AIR CONSUMP.	NOISE LEVEL*
	bar	vpm	kg	l/min	dB (A)
HFP 600P	6	17,000	720	1,000	100
HFP 1000P	6	16,500	1,122	1,100	100
HFP 1400P	6	16,000	1,453	1,200	100
HFP 600C	6	17,000	720	1,000	100
HFP 1000C	6	16,500	1,122	1,100	100
HFP 1400C	6	16,000	1,453	1,200	100
HFP 2700C	6	16,000	2,753	1,600	103
HFP 4000C	6	15,200	4,079	1,800	103
HFP 4500C	6	8,500	4,587	1,800	103
HFP 6000C	6	14,500	6,118	1,800	103
HFP 4001C*	6	10,200	4,079	1,800	90

OVERALL DIMENSIONS										
DRAWING	A	B	C	D	E	F	G	H	IN	WEIGHT
	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
A	111	220	180	20	164	20	-	60	15	6.3
	111	220	180	20	164	20	-	60	15	7.2
	111	220	180	20	164	20	-	60	15	7.3
B	120	180	-	-	164	-	18	94	15	6.3
	120	180	-	-	164	-	18	94	15	7.2
	120	180	-	-	164	-	18	94	15	7.3
C	224	235	-	-	160	-	24	84	15	14.0
	224	235	-	-	160	-	24	84	15	14.5
	224	238	-	-	160	-	24	84	15	17.6
	224	235	-	-	160	-	24	84	15	16.3
D	215	235	-	-	180	-	24	84	15	18.0

APPLICATION	Concrete formworks on site Concrete moulds in precast industry
FEATURES	
WORKING PRESSURE	6 bar
AIR SUPPLY QUALITY	Class 5.4.4
WORKING TEMPERATURE	-10 °C / +60 °C
MAX NOISE LEVEL	103 dB(A) Silent version HFC 4001C: 90 dB(A) at 1 meter distance
TECHNOLOGY	Eccentric rotor
MATERIALS	Steel and cast iron
FINISHING	Painted yellow RAL 1007
CERTIFICATIONS	Conformity verified according to the standard document UNI EN ISO 12100
ACCESSORIES	CLW (Clamp for Wooden formworks); CLS (Clamp for Steel formworks); CRS (Cradle for Steel concrete moulds)





FIXING SOLUTIONS FOR EXTERNAL VIBRATORS

► CLW - Clamp for Wooden formworks

APPLICATION	Quick mounting of vibrators on wooden formworks
SAFETY BELT	Included
FINISHING	Galvanized

SUITABLE FOR	
DOKA	H20, Top50, FF20
PERI	VT20K, GT24, VARIO GT24
MEVA	H20
PASCHAL	H20
NOE	H20
HÜNNEBECK	H20, R24, GF24, ES24



CLW

MODEL	LENGTH	WIDTH	HEIGHT	WEIGHT	MULTIPLE FOOTPRINT (mm)			
	mm	mm	mm	kg	ELECTRIC		PNEUMATIC	
CLW 001	389	291	122	6.0	65x106	135x115	90x125	180

► CLS - Clamp for Steel formworks

APPLICATION	Quick mounting of vibrators on steel formworks
SAFETY CABLE	Included
FINISHING	Galvanized

SUITABLE FOR	
DOKA	Framax XLife, Alu Framax XLife
PERI	Trio
MEVA	StarTec, Mammut
NOE	NOEtop



CLS

MODEL	LENGTH	WIDTH	HEIGHT	WEIGHT	MULTIPLE FOOTPRINT (mm)			
	mm	mm	mm	kg	ELECTRIC		PNEUMATIC	
CLS 001	389	291	122	6.5	68x106	135x115	90x125	180

► CRS - Cradle for Steel concrete moulds

APPLICATION	Quick mounting of vibrators on steel concrete moulds
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SUITABLE FOR
STEEL CONCRETE MOULDS
All fastening systems are designed to be used with electric and pneumatic vibrators



CRS

MODEL	LENGTH	WIDTH	HEIGHT	WEIGHT	RADIUS
	mm	mm	mm	kg	mm
CRS 055	180	105	140	3.5	55
CRS 080	230	85	184	5.0	80



PONTOONS

Tips and recommendations for use

TIPS FOR CHOOSING THE INTERNAL VIBRATOR

Selection of the vibrating head length

It must never exceed the thickness of the concrete layer.

Selection of the needle diameter

Factors to be taken into consideration:

- composition of the concrete
- quantity of reinforcements (percentage of reinforcement inside the concrete element)
- size of the spaces between the various reinforcements (mesh sizes)
- thickness of the concrete layer

The diameter to be used must allow the maneuver of the vibrator inside the reinforcement, without getting stuck in the mesh.

Definition of the operating tube length

It must be longer than the depth of the manufactured article in order to allow the vibration of the deeper layers.

TIPS FOR CHOOSING THE EXTERNAL VIBRATOR

Pneumatic or electric?

The choice depends on the type of power available (electricity or compressed air).

What type of fastening?

It depends on the construction material and on the shape of the profiles to which the vibrators have to be fastened.

Definition of the positioning

It depends on the size and the shape of the formwork or mold.*

Definition of the operating cycle

The number of vibrators to run simultaneously depends on the size of the formwork or mold and on the pour rate of the plant. It is important to run the vibrators only when the concrete is inside the formwork or mold in order to avoid resonance or vibration out of control.*

Definition of the power supply

Standard frequency electric vibrators (3000RPM) can be connected DOL (Direct On Line).

High frequency electric vibrators (6000RPM) is recommended to connect to control panels according to the input voltage and frequency of the chosen vibrators.

Pneumatic vibrators for concrete consolidation must be connected to air supply as indicated in the catalogue.

* For the right positioning and operating cycle please refer to Technical support.

MAIN RECOMMENDATIONS FOR USE

Repeated vibration

It means vibrating the already compacted concrete again. This technique is used to mix successive layers of concrete in order to improve the surface finish quality of columns and walls and to increase their strength and wear resistance.

Vibration inside the formwork

Make sure that the vibrating head does not touch the interior walls because, besides damaging them, it could generate depressions in the manufactured article, thus deteriorating the quality of the surfaces. Vibrators with rubber tips may be used to reduce this problem.

Insufficient vibration

It is the most common problem. Insufficient vibration can alter the structural properties, causing problems such as: lower resistance, higher abrasion, higher permeability, and consequently shorter duration and poor surface quality.

Excessive vibration

The use of oversized equipment generates the segregation of the aggregates, in addition to the damage incurred to the formwork and moulds.



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