Mikasa

INTERNAL CONCRETE VIBRATOR

PENDULOUS TYPE

FLEXIBLE SHAFT SET

GS-28/32/38/45/60

INSTRUCTION MANUAL

http://www.mikasas.com

202-00901

PRODUCTS INFORMATION

Application

Mikasa Pendulous-type Concrete Vibrator (GS series) is used to full concrete in the framework, and get air bubble out of the concrete by its vibrating.

Pendulous-type Concrete Vibrator is suitable for compacting low-slump concrete with a little moisture.

Warning of a false use and misuse

Please use this machine for compacting concrete only.

Do not touch the Vibrator part and the Flexible-hose part where vibration is strong in operating the machine.

It is possibility to cause the traumatic vasospastic disease.

In operating, please grip the hose-part that leaves the Vibrator Head more than 1.2 meters.

If the vibration of the Hose part is abnormally big, please stop operating and repair the unit.

If you let the matter rest, it is possibility to cause the traumatic vasospastic disease.

Structure

Pendulous-type Concrete Vibrator consists of coupling part which is connected to Engine, Flexible hose part which transmits the rotation to Vibrating Head, Shaft set part and Vibrating head part which generates vibration and gives a vibration to concrete.

Mechanism to generate vibration seems to become follows.

The rod-like Vibrator shaft that one-end is fixed on bearing is beat on inside of the head. And then the movement of the vibrator (planet rotation) changes the number of rotation of Flexible shaft to suitable vibrating number for beating the concrete.

Power Transfer

The rotation of Engine is transmitted to Vibrator shaft through Coupling and Flexible shaft.

The rotation of Vibrator shaft is changed to high-cycle vibration suitable for concrete by planet rotation.

And then the vibration is transmitted to Head cap and Head body, the vibration of Head beats concrete.

SPECIFICATIONS OF SHAFT SET

MODEL	Vibrating head dimensions		Lead shaft dimensions			amplitude (mm)	vibration Hz (V.P.M.)	shaft set weight (kg)
	diameter (mm)	lenght w/o coupling (mm)	flexible shaft diameter (mm)	rubber hose diameter (mm)	lead shaft lenght (m)			
GS-28	28	477	10	30	4	1.4	150 ≀ 208 (9000 ≀ 12500)	10.6
					6			14.7
GS-32	32	520			4	1.8		11.2
					6			15.1
GS-38	38	480			4	1.8		11.9
					6			15.7
GS-45	45	494			4	2.0		13.3
					6			17.4
GS-60	60	479	13	32	6	2.4		22.3

POWER DRIVE UNIT FOR G SERIES FLEXIBLE SHAFT SET

Model	ENGINE TYPE			Model	ELECTRIC MOTOR TYPE	
	GE-5LE	GE-5LD	GE-5BE		GS-1100	GS-1500
Weight	28.0kg	50.0kg	30.0kg	Weight	15.0kg	16.0kg
Setting speed	3,350 min^{-1} (3,350 r.p.m.)			Speed	2,800/3,000 min^{-1} (r.p.m.)	
Engine model	Robin EX17D	Robin DY23D	Robin EX17D	Voltage	220V	220V
Type	air-cooled, 4-cycle			Type	single phase	single phase
	petrol engine	diesel engine	petrol engine	Input		
Max. Out put	4.2kw (5.7PS)	3.7kw (5.0PS)	4.2kw (5.7PS)	Max. Out put	1,100W	1,500W

Features and specifications are subject to change without notification.

IMPORTANT NOTICE

Do not increase engine speed exceeding the regulated revolution by removing the limitter on speed controller of Engine, as damage will be caused on Vibrating Head. The regulated revolution speed of Model GE-series Engine is 3,350 r.p.m.

1. Application

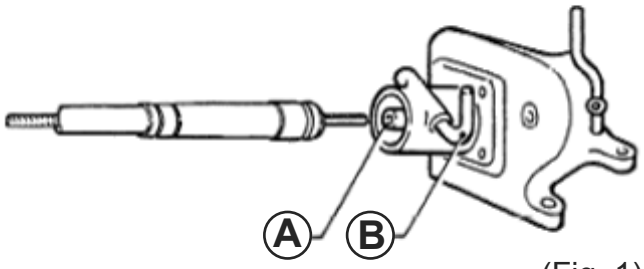
For all concrete works, mechanical vibration causes raw concrete to flow like a liquid, and completely filling the form. It causes useless air and water to rise to the surface, thus eliminating honey combing and producing very dense concrete. To use of vibrator makes possible more perfect compaction of a much stiff mix than can be placed by hand. The stiffing of the mix will materially increase strength, density,

2. Operation

2-1 Place prime mover at a proper distance, where there are no water and raw concrete.

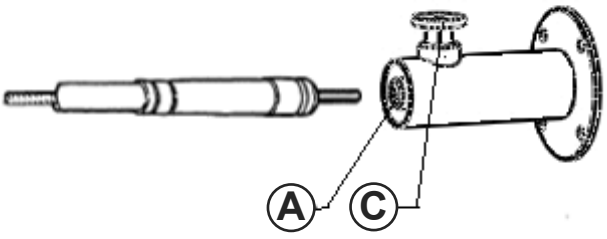
2-2 When you use the electric motor as a prime mover, the rubber gloves and boots should be used for safety works.

ENGINE TYPE



(Fig. 1)

ELECTRIC MOTOR TYPE



(Fig. 2)

2-3 To connect Flexible shaft set to prime mover, insert Hexagonal joint to the socket Ⓐ and then pushing the Shaft coupling until locked by turning the lever Ⓑ or by lifting the vertical lock Ⓒ if necessary.

2-4 Put Vibrating Head vertically in the raw concrete, and then pull it up slowly after the concrete comes to sufficient condition.

2-5 Vibratory propagation range in concrete:
In case of 5 ～ 8 cm slump concrete with 25 ～ 40 mm aggregate, normally effective range of compaction is 7- l0 times the outer diameter of Vibration head.
Accordingly the vibratory propagation range varies greatly with slump of concrete as well as size of aggregate, requiring the selection of vibrator to match the condition of concrete.

2-6 When sufficient congelation is made, surface of concrete becomes down around Vibrating head, then smooth, almost plane and bubbles stop coming, also water and mortar ooze out.
2-7 Concrete Vibrators are more effective for obtaining high density and congelation together with reinforcing steels when hard mixing raw concrete is used.
2-8 In case of stopping the works, revolution of prime mover should be stopped also to avoid idle running of Rotary shaft. When Vibrating head is put out of concrete and left running the head gets hot and it may cause mechanical trouble.
2-9 Do not pull Flexible shaft set only when it is necessary to move the prime mover connected with Flexible shaft set, as Joint shaft is likely to be taken off from socket of prime mover.
2-10 If Flexible shaft set is bent extremely or pulled in looped shape while operating, heat and stress are caused by friction and Inner shaft will happen to be cut.
Remark:Flexible shaft set should not be bent less than 600 mm in diameter at operation.
2-11 If Vibrating head is used like an iron-lever or a wrench, or also thrown out, mechanical trouble will be happened due to transformation on vibrating head.
2-12 Although Vibrating head has been heat-treated to have a high hardness, do not touch the top of head to the bottom of concrete layer in order to get longer life.

3. Maintenance

3-1 It is preferable that Flexible shaft set is not separated from prime mover usually except a time of adjustment or cleaning.
3-2 Thermal resistance grease (for instance PENZOIL #731 or an approved equivalent) should be supplied to Flexible inner shaft and Bearings every 200 working hours. Wipe-out the old grease completely and then apply 80 grams (for type 45) of new grease uniformly over Inner shaft. To other types, volume of grease applies to the above correspondingly .
3-3 All screws and bolts are to be tightened by periodical checking.
3-4 In case of Flexible shaft set is removed from prime mover, Rubber cap should always be put on Coupling to protect Inner shaft from dusts come in.
3-5 Clean prime mover and Flexible shaft set away mortar adhered after operation.

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