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Verdichtungsvorrichtung

Installation de compactage

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Description

The invention relates to an installation for compacting concrete mix, comprising a frame which has a lower plate and an upper plate between which concrete mix can be accommodated, which plates can be pressed in the direction towards one another and can be made to vibrate with respect to one another in order to compact the mix.

An installation of this type is disclosed in Netherlands Patent Application NL-A 8,004,995. As a result of the use of a hydraulic vibrating element and a hydraulic press installation, it is possible, using this known installation, to obtain a desired, predetermined vibration/time curve which is suited to the product to be formed, such that the concrete mix is optimally compacted.

Said known installation has the disadvantage that the noise level and vibrational level in operation are unacceptably high. Consequently, said installation constitutes an unacceptable burden on the surroundings, whilst it is also not able to meet legal requirements with regard to working conditions. Moreover, the environmental nuisance, caused by noise and vibrations, is too high.

The aim of the invention is, therefore, to provide an installation of the type described above which does not have these disadvantages. This is achieved because each plate is connected to the frame by means of an associated, spring-mounted massive body.

The relatively large massive bodies prevent vibrations being transmitted to the frame. An additional advantage of said bodies is that a substantial machine foundation is no longer required since said foundation only has to take the weight of the installation but does not have to absorb the dynamic forces which are associated with the vibrating function of the installation.

Preferably, the upper plate is connected to the associated upper massive body by means of an exciter, whereas the lower plate is connected to the associated lower massive body by means of a pressure cylinder.

The frame is so constructed that the latter has, on the one side, a set of anchor points for the upper massive body and, on the other side, a set of anchor points for the lower massive body, and at least the frame sections which connect the sets of anchor points are rigid. With this arrangement the frame comprises two parallel plate sections, each of which has a vertical section which connects two horizontal sections, which horizontal sections carry the anchor points.

The invention will be explained in more detail below with the aid of the illustrative embodiment shown in the figures.

Figure 1 is a schematic diagram of the installation according to the invention.

Figures 2^a and 2^b show, respectively, a front and a side view of an embodiment of the installation according to the invention.

In the schematic diagram shown in Figure 1, 1 and 2 indicate frame sections on which the upper massive body 4 is mounted by means of springs 3 and the lower massive body 6 is mounted by means of springs 5. The upper massive body carries a hydraulic exciter 7, an upper plate 9 being fixed to the piston rod 8 thereof.

The lower massive body carries a pressure cylinder 10, the lower vibrating plate 12 being fixed to the piston rod 11 thereof.

Both the exciter 7 and the pressure cylinder 10 can be operated by means of the hydraulic unit 13. The hydraulic unit 13 is controlled by means of the control and regulator unit 14.

In the installation according to the invention, compaction of the product 15, which is located between the upper plate 9 and the lower plate 12, is effected by a combination of excitation and compression. The vibrations are generated by means of the hydraulic system 13, 14.

The hydraulic system 13, 14 also provides the compression function.

With this arrangement, the vibrating components of the installation, in particular the vibrating plates 9, 12, exciter 7 and pressure cylinder 10, can develop severe vibration, which vibrations are transmitted to the upper massive body 4 and the lower massive body 6. Said massive bodies 4, 6 have such a high mass that the violent vibrations of the components 7, 9, 12 and 10 are not able to be transmitted directly to the frame 1, 2. The spring mountings 3, 5 also form a supplementary barrier against transmission of vibrations to the frame 1, 2.

The compaction installation shown in Figures 2^a and 2^b makes use of the construction principle shown in Figure 1. This installation comprises a very rigid frame 16, which constitutes a closed system and contains two C-shaped walls 17, 18. Support plates 19, 20 are fitted on the horizontal arms of the walls, which support plates are firmly fixed to the walls 17 by means of support strips 21 and 23. The spring mountings 24 for the upper massive body 25 and, respectively, the spring mountings 26 for the lower massive body 27 are fitted on said support plates 19, 20.

The lower massive body 27 has a recess 28, in which the hydraulic press 29 is incorporated. The exciter 30 is suspended from the upper massive body 25. The massive bodies are provided with, respectively, a lower vibrating plate 31 and an upper vibrating plate 32.

With a rigid construction of this type, provided with the massive bodies 25 and 27, it is not necessary to provide a substantial foundation. The frame 16 is therefore also supported on spring base mountings 33. This means that the transmission of vibrations to the surroundings is greatly reduced, compared with that from known vibratory installations.

Claims

1. Installation for compacting concrete mix, comprising a frame (1, 2) which has a lower plate (12) and an upper plate (9) between which concrete mix can

be accommodated, which plates can be pressed in the direction towards one another and can be made to vibrate with respect to one another in order to compact the mix, characterised in that each plate (9, 12) is connected to the frame (1, 2) by means of an associated, spring-mounted massive body (4, 6).

2. Installation according to Claim 1, wherein the upper plate or the lower plate is connected by means of an exciter (7) to the associated massive body.

3. Installation according to Claim 1 or 2, wherein the lower plate or the upper plate is connected by means of a pressure cylinder (10) to the associated massive body.

4. Installation according to one of the preceding claims, wherein the frame has, on the one side, a set of anchor points (24) for the upper massive body and, on the other side, a set of anchor points (26) for the lower massive body, and at least the frame sections which connect the sets of anchor points are rigid.

5. Installation according to Claim 4, wherein the frame comprises two parallel plate sections (17, 18), each of which has a vertical section which connects two horizontal sections (19, 20), which horizontal sections carry the anchor points.

6. Installation according to one of the preceding claims, wherein the massive bodies are supported by means of elastic blocks.

Patentansprüche

1. Vorrichtung zum Verdichten einer Betonmischung, wobei die Vorrichtung einen Rahmen (1, 2) umfaßt, der eine untere Platte (12) und eine obere Platte (9) aufweist, zwischen welchen eine Betonmischung untergebracht werden kann, wobei die Platten in Richtung gegeneinander gepreßt werden können und relativ zueinander in Vibration versetzt werden können, um die Mischung zu verdichten, **dadurch gekennzeichnet,** daß jede Platte (9, 12) mit dem Rahmen (1, 2) durch einen zugehörigen, federmontierten, massiven Körper (4, 6) verbunden ist.

2. Vorrichtung nach Anspruch 1, bei der die obere Platte oder die untere Platte durch eine Erregervorrichtung (7) mit dem zugehörigen massiven Körper verbunden ist.

3. Vorrichtung nach Anspruch 1 oder 2, bei der die untere Platte oder die obere Platte durch einen Druckzylinder (10) mit dem zugehörigen massiven Körper verbunden ist.

4. Vorrichtung nach einem der vorhergehenden Ansprüche, bei der der Rahmen auf der einen Seite einen Satz von Verankerungspunkten (24) für den oberen massiven Körper aufweist, und auf der anderen Seite einen Satz von Verankerungspunkten (26) für den unteren massiven Körper aufweist, und wobei mindestens die Rahmenabschnitte, welche die Sätze der Verankerungspunkte verbinden, starr sind.

5. Vorrichtung nach Anspruch 4, bei der der Rahmen zwei parallele Plattenabschnitte (17, 18) umfaßt, von denen jeder einen senkrechten Abschnitt aufweist, der die beiden waagrechten Abschnitte (19, 20) verbindet, wobei die waagrechten Abschnitte die Verankerungspunkte tragen.

6. Vorrichtung nach einem der vorhergehenden Ansprüche, bei der die massiven Körper durch elastische Blöcke gestützt werden.

Revendications

1. Installation permettant de compacter des enrobés de béton, comprenant un châssis (1, 2) qui présente une plaque inférieure (12) et une plaque supérieure (9) entre lesquelles des enrobés de béton peuvent être logés, lesquelles plaques pouvant être compressées en direction l'une de l'autre et pouvant être mises en vibration l'une par rapport à l'autre, afin de compacter les enrobés, caractérisée en ce que chacune des plaques (9, 12) est raccordée au châssis (1, 2) au moyen d'un corps massif (4, 6) associé, monté sur ressorts.

2. Installation selon la revendication 1, dans laquelle la plaque supérieure ou la plaque inférieure est raccordée au corps massif associé au moyen d'un excitateur (7).

3. Installation selon la revendication 1 ou 2, dans laquelle la plaque inférieure ou la plaque supérieure est raccordée au corps massif associé au moyen d'un compresseur (10).

4. Installation selon l'une des revendications précédentes, dans laquelle le châssis présente, sur un côté, un ensemble de points d'ancrage (24) pour le corps massif supérieur, et, de l'autre côté, un ensemble de points d'ancrage (26) pour le corps massif inférieur, et au moins les sections de châssis qui raccordent les ensembles de points d'ancrage sont rigides.

5. Installation selon la revendication 4, dans laquelle le châssis comprend deux sections de plaques parallèles (17, 18), dont chacune présente une section verticale qui raccorde deux sections horizonta-

les (19, 20) lesquelles sections horizontales portent les points d'ancrage.

6. Installation selon l'une des revendications précédentes, dans laquelle les corps massifs (4,6) sont supportées par des blocs élastiques.

Fig-1

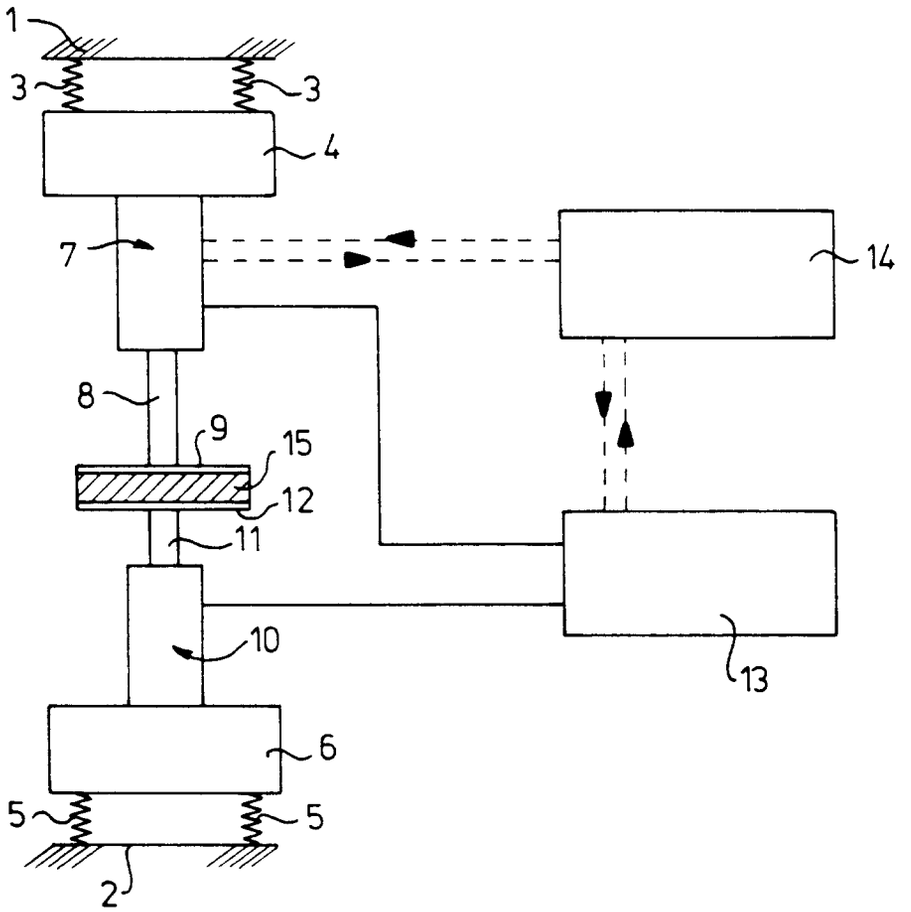


fig-2b

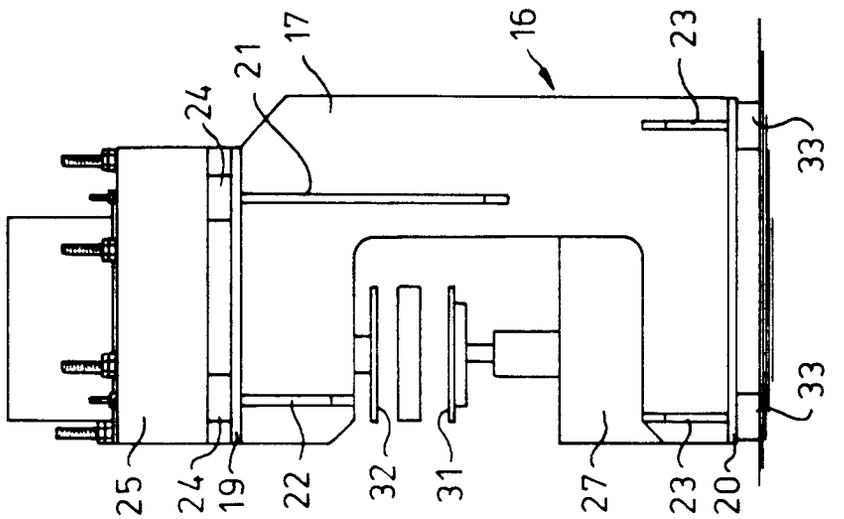
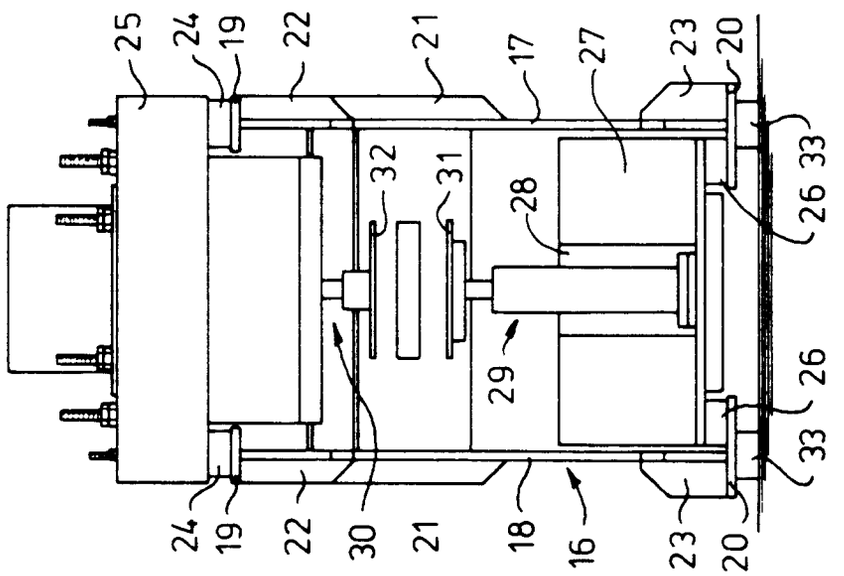

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