INSTRUCTION MANUAL

Vibrating wire type Bore Hole Stress Meter

SENSORS & MEASUREMENTS ENTERPRISES
WORKCUMOFFICE:- A-65(1)TALKATORA INDUSTRIAL ESTATE TALKATORA, LUCKNOW-226011 INDIA.
TELEFAX:-0522-2661617.MOB.+91-9415101236,+91-9838562636
email. smeprajapati@gmail.com/smegeotech@gmail.com
website: www.smegeotech.com

Instruction Manual
of
VIBRATING WIRE TYPE
BORE HOLE STRESS METER

General Specification:-

1)	Model	SME 2270 (for soft rock)	SME 2280 (for hard rock)
2)	Bore size	38 mm to 42 mm	38 mm to 42mm
3)	Range	0 -200 ksc	0 -750 ksc
4)	Accuracy	± 2% fsd	± 2% fsd
5)	Operating temperature	-20 to 60^0C	-20 to 60^0C
6)	Cable	2 core shielded	2 core shielded

Theory of operations:-

SME make vibrating wire type bore hole stress meters are designed for long term measurement of stress changes in rocks/coal during excavation of a cavity at different depth. It is also suitable to measure the stresses in long horizontal & vertical piles.

Model SME 2270 is suitable for soft rock like coal. This stress meter consists of a pretension wire in a cylindrical cell flattened at the top to suit wedge and platen assembly. It can be installed in a deep hole as long as 30 meters depth with the help of installation tool. During installation the wedge is pulled from outside to give a grip to stress meter for preloading. The setting tool is withdrawn after installation.

Installation Procedure:-

I) Preliminary checks:-

Upon receipt of SME stress meter the zero reading should be checked with the help of digital indicator the gage connection are normally red to red & black to black. However, if these are reversed no change will occur in the reading.

II) Bore hole requirement:-

SME 2270 & 2280 bore stress meter can be installed in a hole size from 41 to 43 mm dia.

III) Installation:-

After drilling, the hole should be thoroughly cleaned by washing out with water so that the coal dust can be removed. The bore hole diameter should then be checked with GO-NO-GO gages. If hole size is OK the installation can be started.

1) Mount the stress meter on the setting tool by pushing the two pins into the matching hole in the setting tool head. Take out the cable through the center hole of the setting tool head.

2) Connect the first section of 6 mm rod to the yoke attached to the end of the wedge. Note that the first section of rod has one end with left hand thread on it. This will connect to the left hand thread in the yoke. This end is painted red for easy location.

3) Attach the first section of the 19 mm positioning pipe to the back of the setting head. Push the stress meter into the hole using the position rod. The slot on the setting pipe thread indicate the orientation of wedge platen assembly. Thus for proper and vertical installation of stress meter keep the slot to the top of the pipe always.

4) As the 19 mm positioning pipe is pushed into the hole, add new section of both 19 mm pipe & 6 mm SS rod maintaining slot position of pipe until the desired depth has been reached.

5) Now slide the slide hammer over the last section of 6 mm rod and then thread the anvil block on to outer end of the 6 mm rod so that the wedge tendency gets outward .This system now has been modified and a new wedge rod pillar along with pipe holding plug has been incorporated which is very good for giving the initial pressure to stress meter.

6) Connect the readout unit to the lead wire and note down the initial frequency.

7) Holding the positioning pipe firmly at its correct depth and orientation, slide the slide hammer back up to the hex pipe quickly striking it with sharp firm blow. This will shear the rivet holding the wedge to the platen and will pull the wedge into the platen thereby expending it against the wall of the bore hole, alternatively a new wedge rod pillar along with pipe holding plug can be used for giving the initial pressure to stress meter.

8) After the first blow or tightening the rod pillar socket take another reading on the readout unit. The change of 5% to 10% on initial reading is recommended. Use as many as blows of hammer as it is necessary to achieve this reading. When reading has been achieved disconnect the 6 mm rod from the wedge yoke by turning the rod clockwise. Remove the 6 mm rod from the hole then disengage the setting tool from the stress meter by pulling it out.

9) After installation is over, programmed the microprocessor based read out unit as per the instruction manual by feeding the new frequency value taken after the installation.

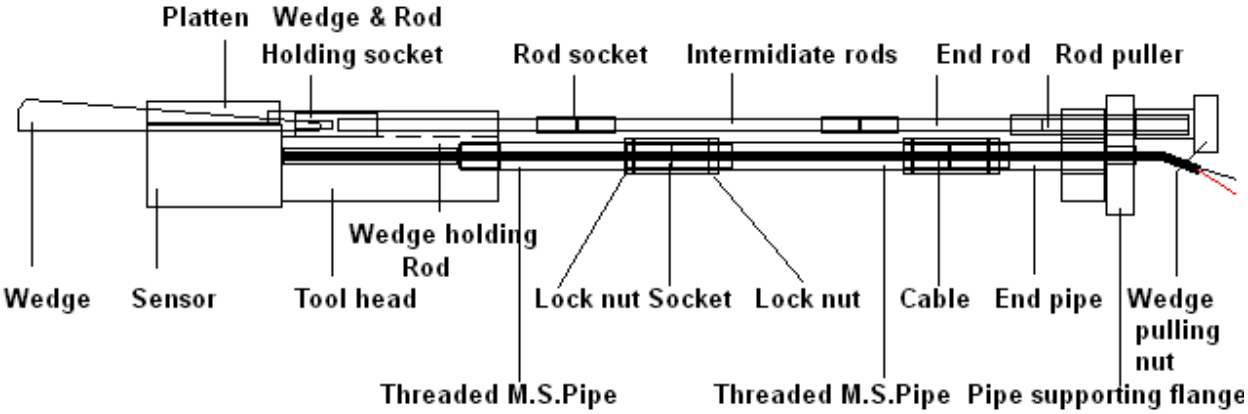
10) For taking the next reading of stress meter connect the read out unit to the lead of the stress meter and switch on the indicator. Press the MEAS button, the indicator will ask the ID number. Feed this no. and press ENTER key. The read out unit will give the data in KSC.

Important Note:-

1) If necessary after installation and taking the first reading the access cable if any, should be pushed back into the hole and the hole should be sealed leaving 2-3 inches of cable for taking the data's. This will prevent the access cable being damage/snatch.

2) SME offers complete installation training services to the project people during the installations of instruments, through our well trained and experienced technical personnel's.

3) If you have any further clarification please contact factory at Lucknow by phone, email or mobile no. 09415101236



Installation tool detail

SENSORS & MEASUREMENTS ENTERPRISES
WORKCUMOFFICE:- A-65(1)TALKATORA INDUSTRIAL ESTATE TALKATORA, LUCKNOW-226011 INDIA.
TELEFAX:-0522-2661617.MOB.+91-9415101236,+91-9838562636
email. smeprajapati@gmail.com/smegeotech@gmail.com
website: www.smegeotech.com