Piping Work Inspection Equipment "TestPlug" and "GetData®"

1. INTRODUCTION

Conventional metal pipes including galvanized steel pipe and resin lining pipe as residential piping materials have increasingly been replaced, keeping pace with the times, by resin pipes (cross-linked polyethylene pipe) which offer safety from corrosion as well as ease of construction. In the piping work, leakage inspection is carried out by applying a specified pressure onto the joints in order to confirm whether the resin pipe and coupling are properly connected. Conventionally, however, there has been no inspection equipment available to execute this troublesome work thereby storing the inspection data into the database. We have recently developed and marketed piping work inspection equipment "TestPlug" and "GetData®", aiming at making the piping leakage inspection more simple and reliable. These products will be described in the following.

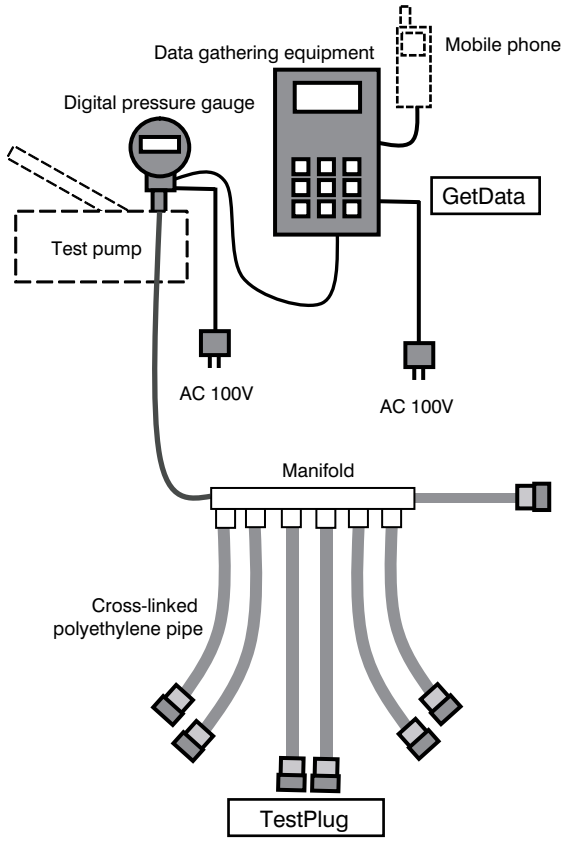

Figure 1 Schematic of piping work leakage inspection.

2. PIPING WORK LEAKAGE INSPECTION

Figure 1 shows the schematic of the piping work leakage inspection. In the inspection, the end terminals on the secondary side of completed piping are terminated with a plug (TestPlug) individually, and a hydraulic pressure is applied under the specified conditions from the primary side using a test pump. Then, the pressurized condition of the piping is monitored using a pressure gage on GetData to carry out piping work leakage inspection.

3. TESTPLUG

3.1 Structure

TestPlug is installed on the secondary end terminals of completed piping to carry out leakage inspection. Its appearance and structure are shown in Photo 1 and Figure 2, respectively.

3.2 Features

Features of TestPlug, as can be seen from Photo 2, may be summarized into four points shown below.

Photo 1 Appearance of TestPlug.

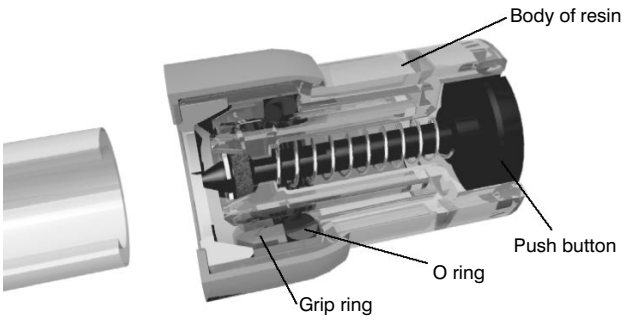

Figure 2 Structure of TestPlug.

1) Single-touch connection
Connection to the piping can be completed simply by inserting the pipe into a TestPlug.
2) One-push air bleeding
Residual air in the piping can be released just by pushing the button.
3) Safe and secured disconnection using an exclusive tool
After leakage inspection, TestPlug can be disconnected using an exclusive tool, and can be reused.
4) Weight reduction achieved through the use of resin
The use of a translucent resin for the body of TestPlug achieved a reduction in weight, also enabling visual confirmation of pipe insertion.

3.3 Connection Method


1. Connection to TestPlug


2. Confirmation of connection


3. Air bleeding

Photo 2 Connection method of TestPlug.

4. GetData

4.1 System Configuration

GetData is electronic equipment for recording hydraulic pressure data obtained at piping leakage inspection, and can be used to attach additional information such as the name of inspector and the place of inspection onto the measurement data. It can also send, by means of a mobile phone, the obtained data from the site to a personal computer in the office connected to the phone line, thereby facilitating data management using the computer.

It can be said that GetData is an efficient system to eliminate the requirement for the on-site presence of a supervisor and for manual recording of pressure data, thereby achieving upgraded quality control of piping work management.

4.2 Features

Features of GetData can be summarized into four points shown below.

1) Simple operation
Hydraulic pressure data can be recorded on-site easily by push-button operation.

Photo 3 System components of GetData.

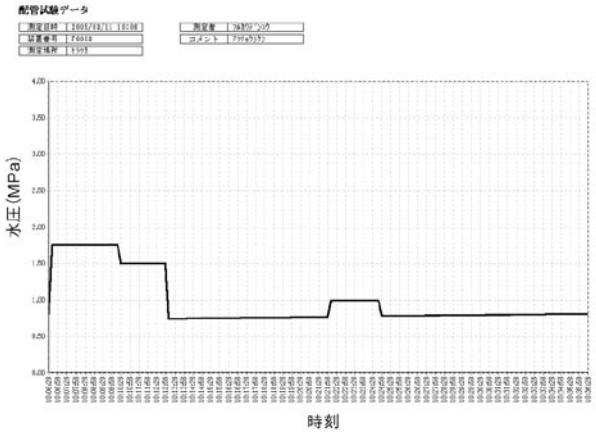

Figure 3 A graph of pressure inspection data.

2) Easy data transfer using a mobile phone
Measurement data can be easily transferred from the site to the office using a mobile phone.
3) Automatic database compilation of measured data
The date and place of measurements are automatically converted into a file name. Personal computers can be used for data management enabling easy data search.
4) Easy creation of graphs
Graphs are automatically created merely by selecting a file. They embrace pressure data as well as the date of measurement, name of inspector, place of measurement and comments, rendering the preparation of inspection report much easier.

4.3 Specifications

- Power supply: AC 100 V±10%, 50/60 Hz
- Measurement range: 0~2.5 MPa
- Accuracy: ±1% FS + 1 digit
- Data gathering: Gathering period: once per 10 sec
  Maximum measuring period: 1 hr (measurement stops automatically when 1 hr elapsed)
  Number of maximum recordable data: 20
- Inclusive data: Inspector, place of measurement, and comments can be included

- System components: Main body, digital pressure gauge, AC adaptor, RS-232C cord, 16-core cord for mobile phone, drip-proof case, carrying case, and installation CD for personal computers

5. CONCLUSIONS

TestPlug and GetData constitute a piping work inspection system which you may find helpful. We trust that they may have the opportunity of serving you together with “METRON”, a Furukawa Electric’s piping system with sheathed piping and manifold.

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