



Appearance Viscosity of Grease

KES T – L114

(EST.) 1989 – 10 – 30

Contents

1. Scope of Application
2. Test Method Summary
3. Appearance Viscosity Tester
4. Calibration
5. Test Standard
6. Calculation and Result
7. Appearance Viscosity Measurement
Method at Low Shudder Step

Additional Rule



1. Scope of Application

This shall regulate grease used as lubricant for mechanical parts.

2. Test Method Summary

Push grease in cylinder through capillary with oil pressure and measure pressure in pipe at this time.

Calculate appearance viscosity using oil amount, capillary radius and length of poase type stipulated in ⑥ at stipulated pressure and test method shall be $-55\text{ }^{\circ}\text{C} \sim 40\text{ }^{\circ}\text{C}$ and measurement of $25 \sim 100,000\text{ P}$ $\{25 \sim 0,000\text{ Pa} \cdot \text{s}\}$, 15000 s^{-1} $1 \sim 100\text{ P}$ $\{0.1 \sim 10\text{ Pa} \cdot \text{s}\}$ shall be possible at the shear rate of 0.1 s^{-1} .

3. Appearance Viscosity Tester

This shall be shape and dimension shown in figure 1 ~ 2 and consist of parts of (1) ~ (5).

Appendix : When testing at temperature except room temperature, test putting grease in constant temperature reservoir or air tank kept to be test temperature ± 0.5 in figure 1.

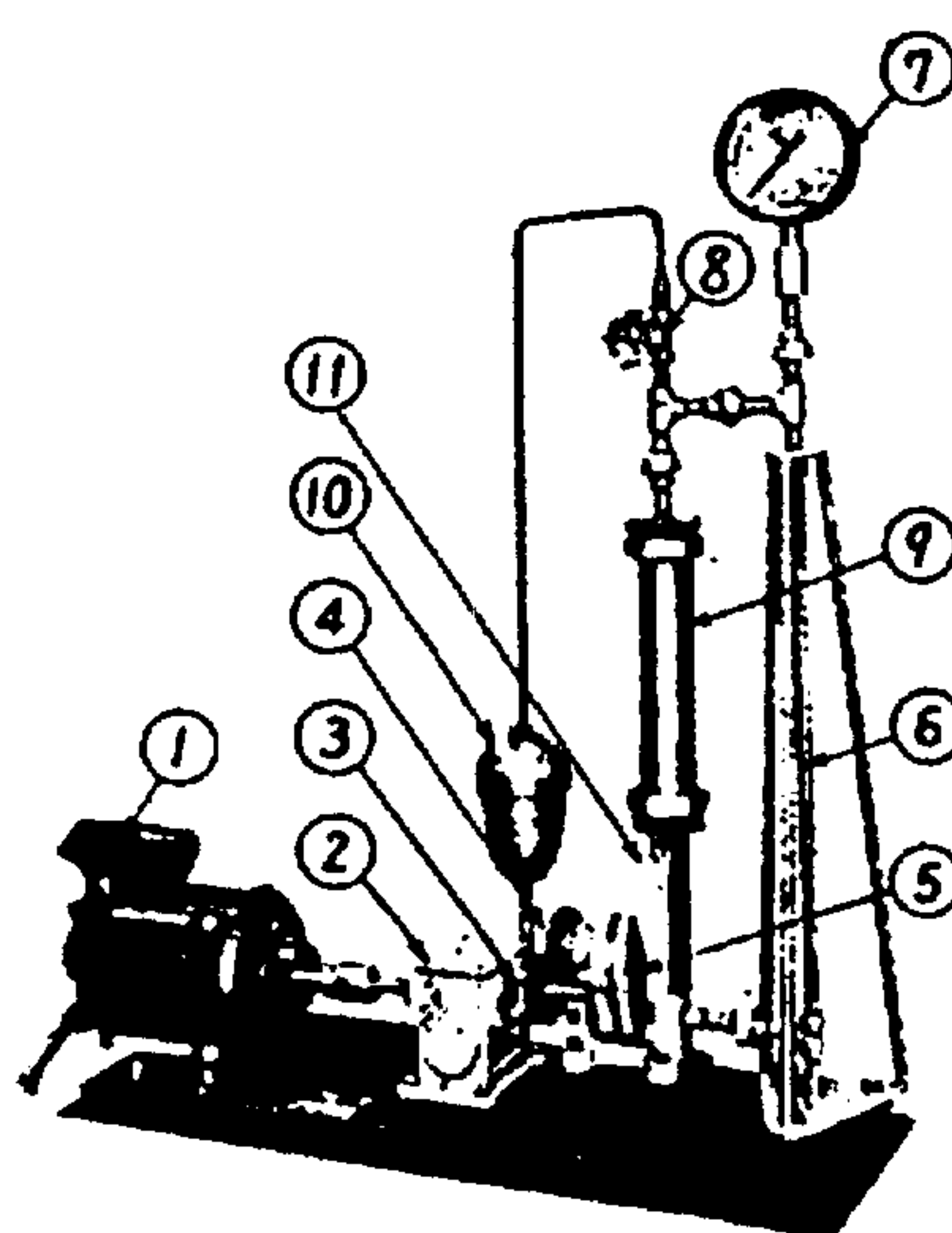


Fig. 1 Appearance viscosity tester

- ① Inductive motor
- ② Decelerator
- ③ Flow amount converting gear (Tooth number 40 or 64)
- ④ Driving gear (Tooth number 42)
- ⑤ Gear pump
- ⑥ Pressure pipe
- ⑦ Pressure meter
- ⑧ Circulating valve
- ⑨ Grease cylinder
- ⑩ Automatic oil passage
- ⑪ Capillary
- ⑫ Thermometer (Thermocouple, deamaster etc)
- ⑬ Sample (Grease)
- ⑭ Piston
- ⑮ Operating oil
- ⑯ I end gapu
- ⑰ II end gapu
- ⑱ Needle circulating valve maximum position

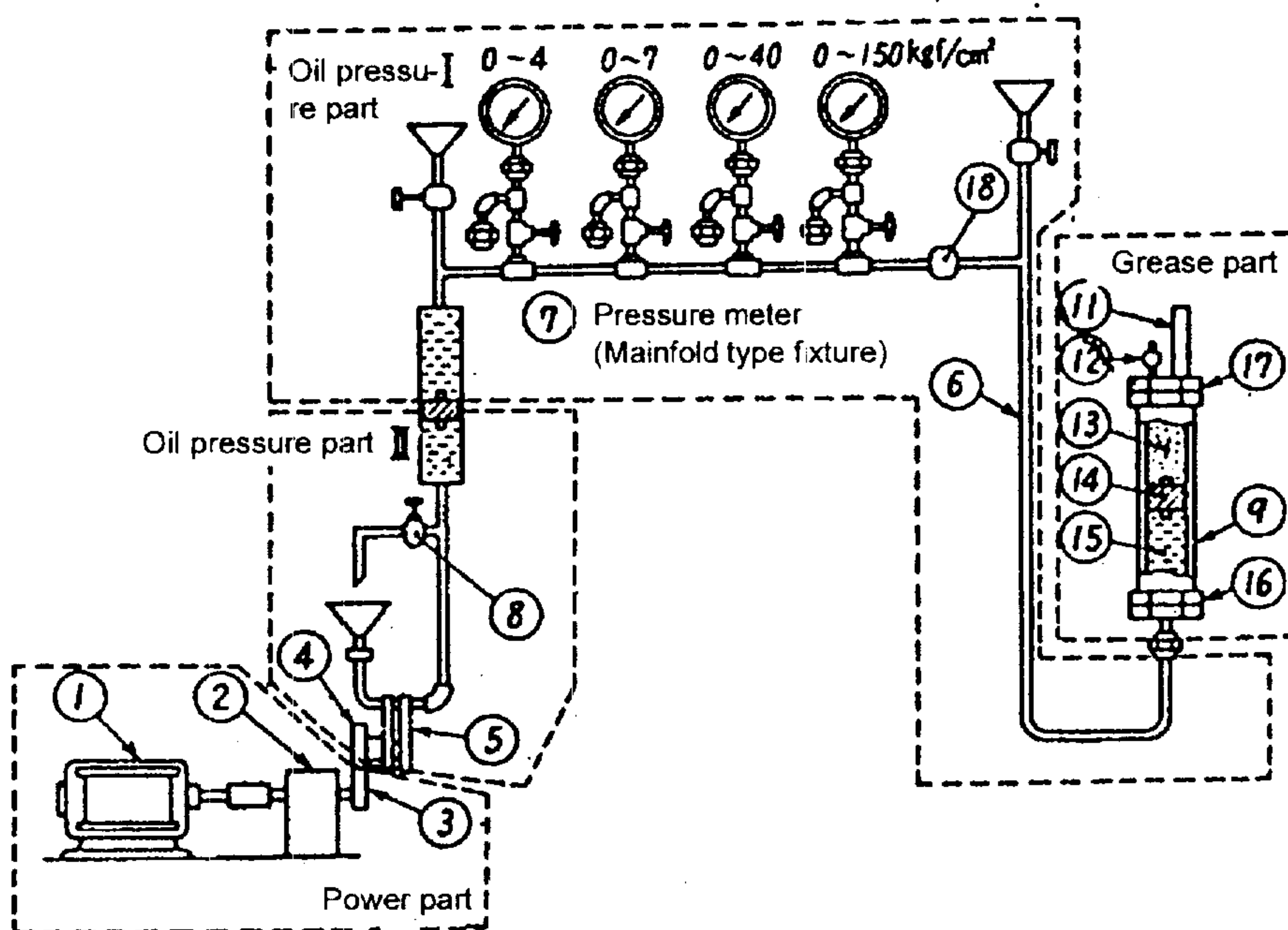


Fig. 2

3.1 Power part : Inductive motor of 200 W viscosity shall consist of proper flow converting gear and use gear of 40 tooth and 60 tooth by changing it.

3.2 Oil pressure part

This shall consist of gear pump, driving gear tooth number 42, oil pressure measuring pipe and manometer.

(1) Gear pump : Use gear pump having low emitting pressure and no pulsatory oil at pressure change of $0 \sim 28 \text{ kgf / cm}^2$ $\{0 \sim 27.5 \text{ Mpa}\}$. It should be possible to change about 4.8 ml/min and 7.6 ml / min using oil amount converting gear of tooth number 40 and 64.

Appendix : Gear pump shall be stable point gaa-pump B₁ type and emitting amount should be $0.584 \text{ ml / 1 revolution}$ and $1.168 \text{ ml / 1 revolution}$. This operating oil should be about 200 cSt at the test room temperature.

(2) Manometer : This should have span of $0 \sim 4 \text{ kgf cm}^2$ $\{0 \sim 0.39 \text{ Mpa}\}$, $0 \sim 7 \text{ kgf / cm}^2$ $\{0 \sim 0.69 \text{ Mpa}\}$, $0 \sim 40 \text{ kgf / cm}^2$ $\{0 \sim 3.92 \text{ Mpa}\}$, $0 \sim 150 \text{ kgf / cm}^2$ $\{0 \sim 14.7 \text{ Mpa}\}$.

(3) Oil pressure measuring pipe : This shall be pipe supplying oil pressure from oil pressure unit in grease cylinder and have manifold and circulating valve.

Manometer manifold shall be as figure ① and manifold type as figure 2 shall be good as unit type at the place of 1.

However, when fixing manometer to manifold, several opening and closing line should be equipped.

Oil pipe system should not have leakage at oil pressure of 280 kgf / cm^2 $\{27.5 \text{ Mpa}\}$ and pipe line should be equipped for vapor not to happen in system.

3.3 Grease part