Causes and Countermeasures for Noise and Vibration

(Cause)   (Items to be checked)

Safety valve ——— Pressure indicator ( ) MPa Swing (+— MPa)
is working   Check insufficient discharge rate

Excessive resistance (1) Compound gauge ( ) MPa Swing (+— MPa)
(cavitation) occurs on — (2) Check the strainer, liquid viscosity
suction side   (3) Calculate Reynolds number, check turbulent the flow,
         laminar flow
        (4) Check the flow rate

Air suction in the   Bubbles in discharged liquid (Yes/No)
suction pipeline   Check looseness of piping connection, liquid leakage

Resonance/sympathy of the
pump piping and rack Swing of the piping rack (Yes/No)

Galling of the pump ——➤ Ampere meter (A) (Swing +— A)

Coupling is misaligned ——➤ Check alignment of the coupling
         Check the shaft seal leakage and heat generation

Noise is generated from the motor ——➤ Operate the driving machine only and check

Wear of coupling   (1) Close the discharge valve until completely closed,
         and listen for changes in sound for each pressure.

        (2) Put a sound detector to the gear case and shaft
         bearing and listen.

Wear of shaft bearing ——➤ (3) Measure each Hz with a noise meter.