

Test result(inspection)

Test authority: Japan Testing Laboratory (JAS)

Test report number: 08-421-009

● **Outside appearance and function**

- a) The configuration of product and accessories should be clean and correct. Any damage on the surface should not be appeared. Any defect causing the decrease of function and durability should not be existed.
- b) Door should be precisely closed and its movement should be smoothly made. Adjustment valve should be freely operated to adjust the speed.
- c) If it has a hold device, it should be easily stopped at a certain opening degree and easily released.
- d) Necessary accessories for installation should be prepared for.

Result: Acceptable (No problem)

● **Configuration**

- a) The configuration and dimension of door closer and its accessories should be in compliance with Japan Industry Specifications. However, its detailed configuration and dimension in accordance with the structure of door closer can be changed within a scope that quality is not affected.

Result: Acceptable (No problem)

● **Material**

- a) The material to be used for door closer should be fit for Japan Industry Specifications. However, if it does not come under Japan Industry Specifications, the material that does not affect the quality of door closer should be used.

Result: Acceptable (No problem)

- Opening force

a) Door should be slowly opened with a speed that torque gauge scale can be read off by pulling a torque gauge on the testing door that is completely closed off. The opening force should be lower than 60N.m when the testing door passes at the opening degree 5+/-1

Result: Acceptable (29.2N.m)

- Closing force

a) When door at around 20 opening degree should be slowly closed with a speed that torque gauge scale can be read off, the closing force should be more than 17N.m when the testing door passes at the opening degree 5+/-1

Result: Acceptable (18.1N.m)

- Closing speed

a) The closing speed until the door is completely closed from about 70 opening degree is set up at the points such as maximum, minimum and appropriate speed. When the required time for closing should be maximum 20 seconds and minimum 3 seconds when the tests are consecutively made more than 3 times.

Result: Acceptable (Max 25 second, Min 1 sec.)

- Durability

a) When 200,000 cycles of the test for opening and closing the door is made, any damage like the remarkable change of performance, the disconnection of spring or oil leakage should not be taken place.

- Opening force: below 60N.m

- Closing force: over 17N.m

- Max. Closing speed: over 20 seconds

- Min. Closing speed: below 3 seconds

Result: Acceptable

- **Opening force: 28.2N.m**
- **Closing force: 17.9N.m**
- **Max. closing speed: 23 seconds**
- **Min. closing speed: 1 second**

● Operation temperature

- a) When the pour point of absorbing oil is measured in accordance with KS M 2016, it should be below minus 15 C.

Result: Acceptable (-35C)