Reliability characteristic data:

Solenoid Valve

Prepared	T. Watanabe 6/11/'14
Checked	T. Sanba 6/12/'14
Approved	[signature] 6/12/'14

Model number: VQC4201R-5-X77

B10 / $B10_d$ data

Based on the following endurance test results of the Solenoid Valve VQC4201R-5-X77, and assuming a failure mode following the weibull distribution the following B10 and $B10_d$ data have been estimated. (90% confidence level)

	B10	$B10_d$
VQC4201R-5-X77	42 million cycles	84 million cycles

NOTE:

The estimated reliability data provided is only applicable to the component in the stated operating conditions.
Use of this data for any assessment under standards or otherwise, is at the sole risk of the user.
This product is not a safety component and is not supplied to provide a safety function.
The $B10_d$ value is based on the tested B10 value using B10×2.

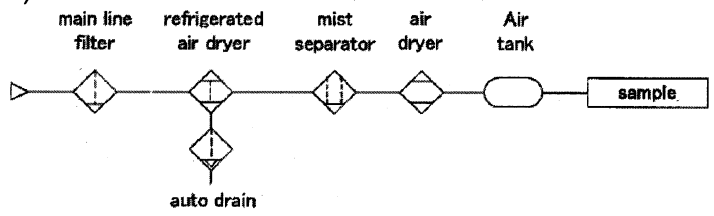
Endurance test results

For reference

- 10 valves were tested up to 50 million cycles, and found to have zero failure.

Endurance test conditions

1) Test circuit



2) Pressure: 1.0MPa
3) Lubrication: None
4) Air supply: Dry air
5) Operating freq.: 5 times / sec.
6) Laboratory: Life test room
7) Ambient temp.: Normal temp. (13 to 33°C)
8) Load: None

Result of design assessment and validation to EN ISO 13849-1:2008 & EN ISO 13849-2:2008

This component conforms to the basic safety principles	☐ yes
This component conforms to the basic safety principles and well tried safety principles	☑ yes
This component is a well tried component.	☐ yes

IMM No. VQC4000-TFR45 (Refer to the following for applicable products)

The component is not a safety component as defined by Article2(c) of the Machinery Directive 2006/42/EC

Please be informed that JTC reduced the mission time to 5 years.
So we have two life time limits. The B10d value as the mechanical life time and the mission time of 5 years as the chemical life time.
The new technology of the detent is limited due to the fact as it is the only element to withstand shock and vibration. As rubber changes the hardness will influence the shock and vibration resistance.
If we have later better test data it might be to enlarge the mission time.