



## TEST REPORT

Report No.: **TH2206053-C11-R01**

Product: **Stepper Servo Drives/Microstep Drives**

Model: **R60, R42, R57, R57-FX, R60-AL, R42-IO, R60-IO, R42-IR, R60-IR, R42-D, R60-D, R60-IO1, R60-IO1IR, R60-IRD, DM320C, DM542, R42X2, R60X2, R60X3, 3R60X2, 3R60X3, 3R60, 5R42, 5R60**

Applicant: **Shenzhen Rtelligent Technology Co.,Ltd**

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Manufacturer: **Shenzhen Rtelligent Technology Co.,Ltd**

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Sample Received Date: **2022-06-05**

Testing completed Date: **2022-06-17**

Test Method: **Please refer to next page(s)**

Test Conclusion: **Based on the performed tests on submitted sample(s), the results of lead,Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs),Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP),Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) , and Diisobutyl phthalate (DIBP) comply with the limits as set byRoHS Directive (EU) 2015/863 amending Annex II to Directive (EU)2017/2102.**

Note **/**

Authorized by:  
Shenzhen Tian Hai Test Technology Co.,Ltd.

Thomas Wong

Test data presented in this report are gathered and based on the test reports of separated parts supplied by the applicant. Shenzhen Tian Hai Test Technology Co.,Ltd. is not responsible for the authenticity of all the test data of these reports.

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**Test Method :**

1. With reference to IEC 62321-2:2013, review was performed for the samples disjointed from the submitted articles.
2. With reference to IEC 62321-1:2013, tests were performed for the samples indicated by the photos in this report
  - a. With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES
  - b. With reference to IEC 62321-5:2013, determination of Lead by ICP-OES
  - c. With reference to IEC 62321-4:2013+A1:2017, determination of Mercury by ICP-OES
  - d. IEC 62321-1:2013,determination of Hexavalent Chromium by Colorimetric method.
  - e. With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.
  - f. IEC 62321-8:2018,determination of DEHP, BBP,DBP,DIBP by GC-MS.



In accordance with the result of material risk assessment, the following disjointed parts in the submitted sample have been verified.

Part No.	Part Description.	Restricted Substances.	Results	Result of Testing (mg/kg)	Conclusion on EU RoHS
1	<b>Enclosure</b>  Colour: Silver	Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	BL	---	Comply
		PBDEs	BL	---	Comply
		DIBP	BL	---	Comply
		DEHP	BL	---	Comply
		DBP	BL	---	Comply
		BBP	BL	---	Comply
2	<b>Screws</b>  Colour: Silver	Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	BL	---	Comply
		PBDEs	BL	---	Comply
		DIBP	BL	---	Comply
		DEHP	BL	---	Comply
		DBP	BL	---	Comply
		BBP	BL	---	Comply
3	<b>Terminal</b>  Colour: Green	Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	BL	---	Comply
		PBDEs	BL	---	Comply
		DIBP	BL	---	Comply
		DEHP	BL	---	Comply
		DBP	BL	---	Comply
		BBP	BL	---	Comply
4	<b>Terminal</b>  Colour: Blue	Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	BL	---	Comply
		PBDEs	BL	---	Comply
		DIBP	BL	---	Comply
		DEHP	BL	---	Comply
		DBP	BL	---	Comply





Part No.	Part Description.	Restricted Substances.	Results	Result of Testing (mg/kg)	Conclusion on EU RoHS
5	<b>PCB</b>  Colour: <b>Green</b>	BBP	BL	---	Comply
		Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	BL	---	Comply
		PBDEs	BL	---	Comply
		DIBP	BL	---	Comply
		DEHP	BL	---	Comply
		DBP	BL	---	Comply
6	<b>Painted words on enclosure</b>  Colour: Black	BBP	BL	---	Comply
		Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	BL	---	Comply
		PBDEs	BL	---	Comply
		DIBP	BL	---	Comply
		DEHP	BL	---	Comply
		DBP	BL	---	Comply
7	<b>IC</b>  Colour: <b>Black</b>	BBP	BL	---	Comply
		Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	BL	---	Comply
		PBDEs	BL	---	Comply
		DIBP	BL	---	Comply
		DEHP	BL	---	Comply
		DBP	BL	---	Comply
8	<b>Capacitors</b>  Colour: <b>Black</b>	BBP	BL	---	Comply
		Pb	BL	---	Comply
		Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	BL	---	Comply
		PBDEs	BL	---	Comply
		DIBP	BL	---	Comply
		DEHP	BL	---	Comply
		DBP	BL	---	Comply
9	<b>Interfaces</b>	Pb	BL	---	Comply



Part No.	Part Description.	Restricted Substances.	Results	Result of Testing (mg/kg)	Conclusion on EU RoHS
	Colour: <b>Silver</b>	Cd	BL	---	Comply
		Hg	BL	---	Comply
		Cr(VI)	BL	---	Comply
		PBBs	BL	---	Comply
		PBDEs	BL	---	Comply
		DIBP	BL	---	Comply
		DEHP	BL	---	Comply
		DBP	BL	---	Comply
		BBP	BL	---	Comply

**Remark:**

- (1) (a) There are the results on total Br while test items on restricted substances are PBBs and PBDEs. There is the result on total Cr while test item on restricted substances is Cr(VI).
- (b) Results are obtained by EDXRF for primary screening, and further chemical testing by ICP-OES (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC62321-3-1:2013 (unit: mg/kg).



Element	Polymer	Metal	Composite Materials
Cd	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$LOD < X < (150+3\sigma) \leq OL$
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Br	$BL \leq (300-3\sigma) < X$	--	$BL \leq (250-3\sigma) < X$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$

(c) BL = Below Limit, OL = Over Limit, IN = Inconclusive, LOD = Limit of Detection, -- = Not regulated.

(d) The XRF screening test for RoHS elements - The reading may be different to the Actual content in the sample be of non-uniformity composition.

(2) (a) mg/kg = 0.0001%, MDL = Method detection Limit, ND = Not Detected (<MDL), --- = Not conducted, - = Without BOM.

(b) Unit and MDL in wet chemical test

Test Item	Pb	Cd	Hg
Unit	mg/kg	mg/kg	mg/kg
MDL	10	10	10

The MDL for single compound of PBBs and PBDEs is 100 mg/kg.

MDL of Cr(VI) for polymer and composite sample is 10 mg/kg.

MDL of Cr(VI) for metal sample is 0.10  $\mu\text{g}/\text{cm}^2$ .

(c) ▼ =Metal sample

a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13  $\mu\text{g}/\text{cm}^2$ .

The sample coating is considered to contain CrVI.

b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10  $\mu\text{g}/\text{cm}^2$ ).

The coating is considered a non-CrVI based coating.

c. The result between 0.10  $\mu\text{g}/\text{cm}^2$  and 0.13  $\mu\text{g}/\text{cm}^2$  is considered to be inconclusive

- unavoidable coating variations may influence the determination

Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.





Product photographs





