

Client Name: Jiangsu DINGS' Intelligent Control Technology Co., LTD
 Client Address: No. 2850 Luheng Road, Economic Development Zone, Changzhou, Jiangsu, 213025 China

Sample Name: PM Stepper Linear Actuator
 Tested Basic Model No.: E25PB14AA12-75-001
 Tested Extended Model No.: N25PB14B12-70-001/K25PB24AA12-31
 Client Ref. Information: E/N/E/C

The above sample(s) and information were provided by the client.

SGS Job No.: SHP24-041712
 Sample Receiving Date: Dec 28, 2024
 Verification Period: Dec 28, 2024 ~ Jan 03, 2025
 Verification Requested: With reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU.
 Verification Method(s): Please refer to next page(s).
 Verification Result(s): Please refer to next page(s).

Test Result Summary:

Test Items	Conclusion
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU - Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	Pass

Signed for and on behalf of
 SGS-CSTC Standards Technical Services (Qingdao) Co., Ltd.

Justin Zhang
 Approved Signatory

scan to see the report



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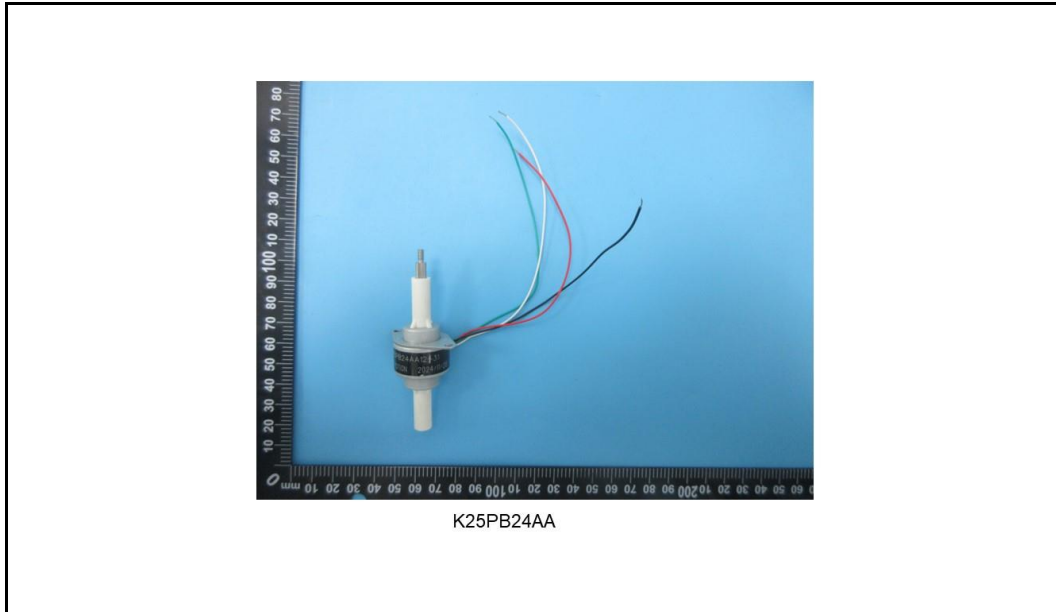
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Verification Method(s):

1. With reference to IEC 62321-2:2021, disassembly and disjointment were performed for the submitted samples.
2. With reference to IEC 62321-1:2013, tests were performed for the samples indicated by the photos in this report.
 - (1) With reference to IEC 62321-3-1:2013, screening by EDXRF spectroscopy.
 - (2) Wet chemical test method: With reference to IEC 62321-4:2013+A1:2017, IEC62321-5:2013, IEC 62321-7-1:2015, IEC 62321-7-2:2017, IEC 62321-12:2023, IEC 62321-6:2015 and IEC62321-8:2017 , analyzed by ICP-OES,UV-Vis and GC-MS.



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Verification Part Description:

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	TAO24-0102772-0001.C001	Black/white plastic(label)
SN2	A2	TAO24-0102772-0001.C002	White plastic
SN3	A3	TAO24-0102772-0001.C003	Transparent plastic
SN4	A4	TAO24-0102772-0001.C004	Silvery metal
SN5	A5	TAO24-0102772-0001.C005	Silvery metal
SN6	A6	TAO24-0102772-0001.C006	White plastic
SN7	A7	TAO24-0102772-0001.C007	Silvery metal
SN8	A8	TAO24-0102772-0001.C008	Yellow plastic(adhesive tape)
SN9	A9	TAO24-0102772-0001.C009	Black magnet
SN10	A10	TAO24-0102772-0001.C010	Copper enamelled wire
SN11	A11	TAO24-0102772-0001.C011	Silvery metal
SN12	A12	TAO24-0102772-0001.C012	Silvery metal
SN13	A13	TAO24-0102772-0001.C013	Silvery metal
SN14	A14	TAO24-0102772-0001.C014	Silvery metal(steel ball)
SN15	A15	TAO24-0102772-0001.C015	Silvery metal
SN16	A16	TAO24-0102772-0001.C016	Silvery metal(inner core)
SN17	A17	TAO24-0102772-0001.C017	Black plastic(jacket)
SN18	A18	TAO24-0102772-0001.C018	Red plastic(jacket)
SN19	A19	TAO24-0102772-0001.C019	White plastic(jacket)
SN20	A20	TAO24-0102772-0001.C020	Green plastic(jacket)
SN21	A21	TAO24-0102772-0001.C021	Silvery metal
SN22	A22	TAO24-0102772-0001.C022	White plastic
SN23	A23	TAO24-0102772-0001.C023	White plastic
SN24	A24	TAO24-0102772-0001.C024	White plastic
SN25	B1	TAO24-0102772-0002.C001	Silvery metal
SN26	C1	TAO24-0102772-0003.C001	White plastic
SN27	C2	TAO24-0102772-0003.C002	Silvery metal



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Verification Result(s):

(Unless otherwise specified, the unit is mg/kg).

Test Item(s)	A1	A2	A3	A4	A5	A6	A7	A8
Pb	BL	BL	BL	BL	BL	BL	BL	BL
Hg	BL	BL	BL	BL	BL	BL	BL	BL
Cd	BL	BL	BL	BL	BL	BL	BL	BL
Cr(VI)▼	BL	BL	BL	BL	ND	BL	BL	BL
PBB	BL	BL	BL	---	---	ND	---	BL
PBDE	BL	BL	BL	---	---	ND	---	BL
DEHP	BL	BL	BL	---	---	ND	---	BL
BBP	BL	BL	BL	---	---	ND	---	BL
DBP	BL	BL	BL	---	---	ND	---	BL
DIBP	BL	BL	BL	---	---	ND	---	BL
Conclusion	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Test Item(s)	A9	A10	A11	A12	A13	A14	A15	A16
Pb	BL	BL	BL	BL	BL	BL	BL	BL
Hg	BL	BL	BL	BL	BL	BL	BL	BL
Cd	BL	BL	BL	BL	BL	BL	BL	BL
Cr(VI)▼	ND	BL	BL	ND	ND	ND	ND	BL
PBB	BL	BL	---	---	---	---	---	---
PBDE	BL	BL	---	---	---	---	---	---
DEHP	BL	BL	---	---	---	---	---	---
BBP	BL	BL	---	---	---	---	---	---
DBP	BL	BL	---	---	---	---	---	---
DIBP	BL	BL	---	---	---	---	---	---
Conclusion	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Test Item(s)	A17	A18	A19	A20	A21	A22	A23	A24
Pb	BL	BL	BL	BL	BL	BL	BL	BL
Hg	BL	BL	BL	BL	BL	BL	BL	BL
Cd	BL	BL	BL	BL	BL	BL	BL	BL
Cr(VI)▼	BL	BL	BL	BL	ND	BL	BL	BL
PBB	BL	BL	BL	BL	---	BL	BL	BL
PBDE	BL	BL	BL	BL	---	BL	BL	BL
DEHP	BL	BL	BL	BL	---	BL	BL	BL
BBP	BL	BL	BL	BL	---	BL	BL	BL
DBP	BL	BL	BL	BL	---	BL	BL	BL
DIBP	BL	BL	BL	BL	---	BL	BL	BL
Conclusion	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Test Item(s)	B1	C1	C2
Pb	BL	BL	BL
Hg	BL	BL	BL
Cd	BL	BL	BL
Cr(VI)▼	ND	BL	ND
PBB	---	ND	---



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Test Item(s)	B1	C1	C2
PBDE	---	ND	---
DEHP	---	ND	---
BBP	---	ND	---
DBP	---	ND	---
DIBP	---	ND	---
Conclusion	PASS	PASS	PASS



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Notes:

- (1) Interpretation of screening results by X-ray fluorescence spectrometry (XRF):
 (a) Screening limits in mg/kg for regulated elements in various matrices according to IEC 62321-3-1:2013 Annex A as below table.

Element	Polymers	Metals	Composite Materials
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$LOD < X < (150+3\sigma) \leq OL$
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	$BL \leq (300-3\sigma) < X$	Not applicable	$BL \leq (250-3\sigma) < X$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$

- (b) If the maximum allowed level restricts PBB/PBDE and Cr(VI) rather than Br and Cr, the exceptions are the XRF determinations of Br and Cr. If the quantitative results for the elements Br and/or Cr are higher than the limit (for Br calculated based on the stoichiometry of Br in the most common congeners of PBB/PBDE), the sample is "inconclusive".
 (c) Results are obtained by EDXRF for primary screening, LOD = Limit of Detection, BL = Below Limit, OL= Over Limit, IN (The symbol X marks the region)=Inconclusive, where further investigation is necessary, and further chemical testing by ICP-OES (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBB/PBDE) are recommended to be performed.
 (d) The EDXRF screening test for elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

- (2) Screening results of Phthalates (PHTH) below the limits are shown as "BL". Further chemical testing by GC-MS is to be performed if the results exceed limits.

Test Items	CAS No.
Bis(2-ethylhexyl) phthalate (DEHP)	117-81-7
Butyl benzyl phthalate (BBP)	85-68-7
Dibutyl phthalate (DBP)	84-74-2
Diisobutyl phthalate (DIBP)	84-69-5

- (3) Interpretation of results by chemical tests:
 (a) mg/kg = 0.0001%, MDL=Method detection Limit, ND = Not Detected (<MDL), --- = Not Applicable.
 (b) Unit and MDL in wet chemical test

Test Items	Pb	Hg	Cd	DEHP	BBP	DBP	DIBP
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
MDL	10	10	10	100	100	100	100

The MDL for single compound of PBB and PBDE is 100 mg/kg,
 MDL of Cr(VI) for polymer, composite and leather sample is 10 mg/kg.
 MDL of Cr(VI) for metal sample is 0.10 µg/cm².

- (c) ▼ =Metal sample
 a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 µg/cm². The sample coating is considered to contain Cr(VI).
 b. The sample is negative for Cr(VI) if Cr(VI) is ND (concentration less than 0.10 µg/cm²). The coating is considered a non-Cr(VI) based coating
 c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive-unavoidable coating variations may influence the determination



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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.

- (4) Restricted substances and maximum concentration values tolerated by weight in homogeneous materials under RoHS Directive: Cd: 0.01%, Pb/Hg/Cr(VI)/PBB/PBDE/DEHP/BBP/DBP/DIBP: 0.1%. The limit is quoted from RoHS Directive (EU) 2015/863.
- (5) IEC 62321 series is equivalent to EN 62321 series.

«PHOTO_DISK_NOTES»

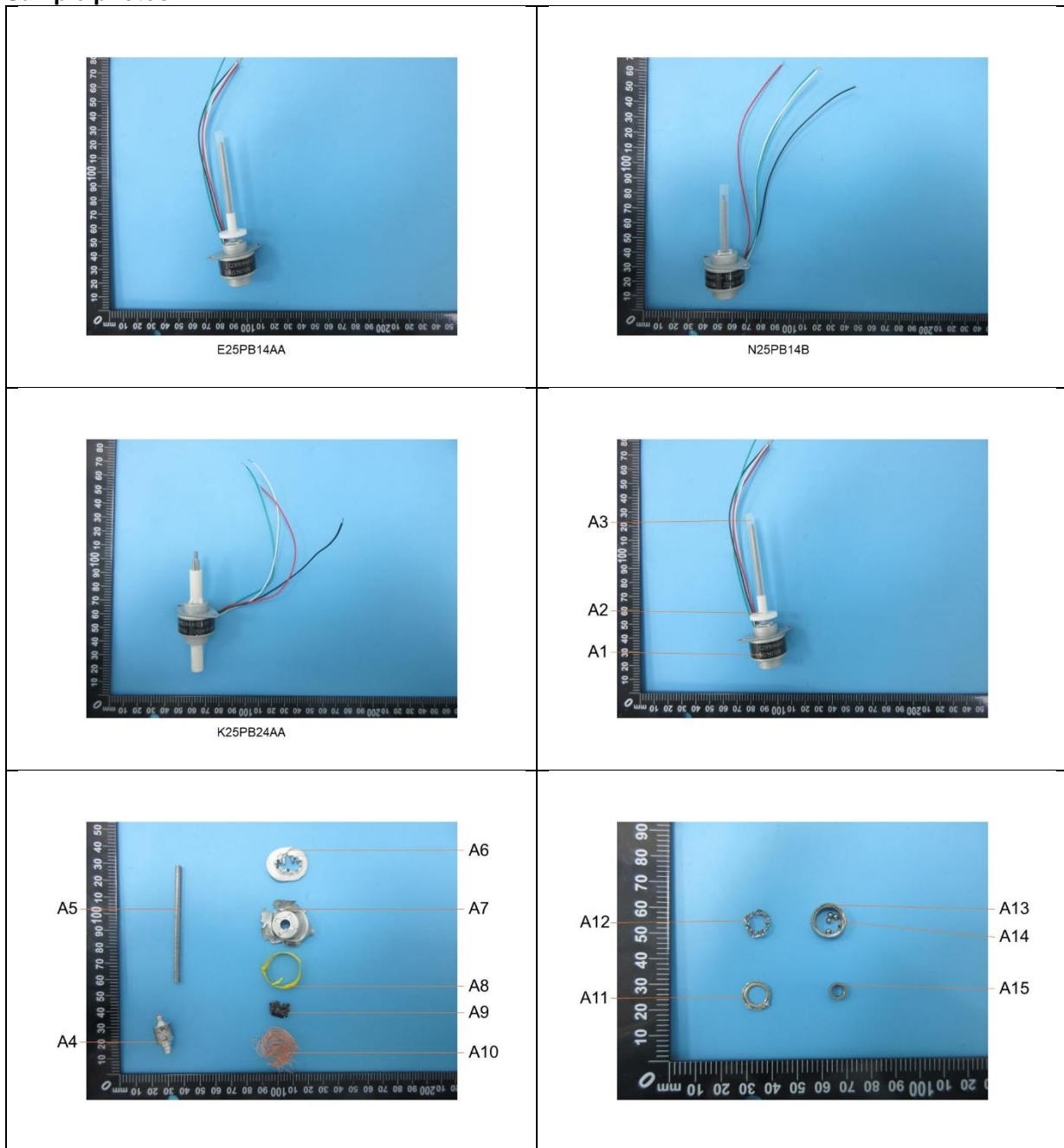
Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule ($w=0$) stated in ILAC-G8:09/2019.



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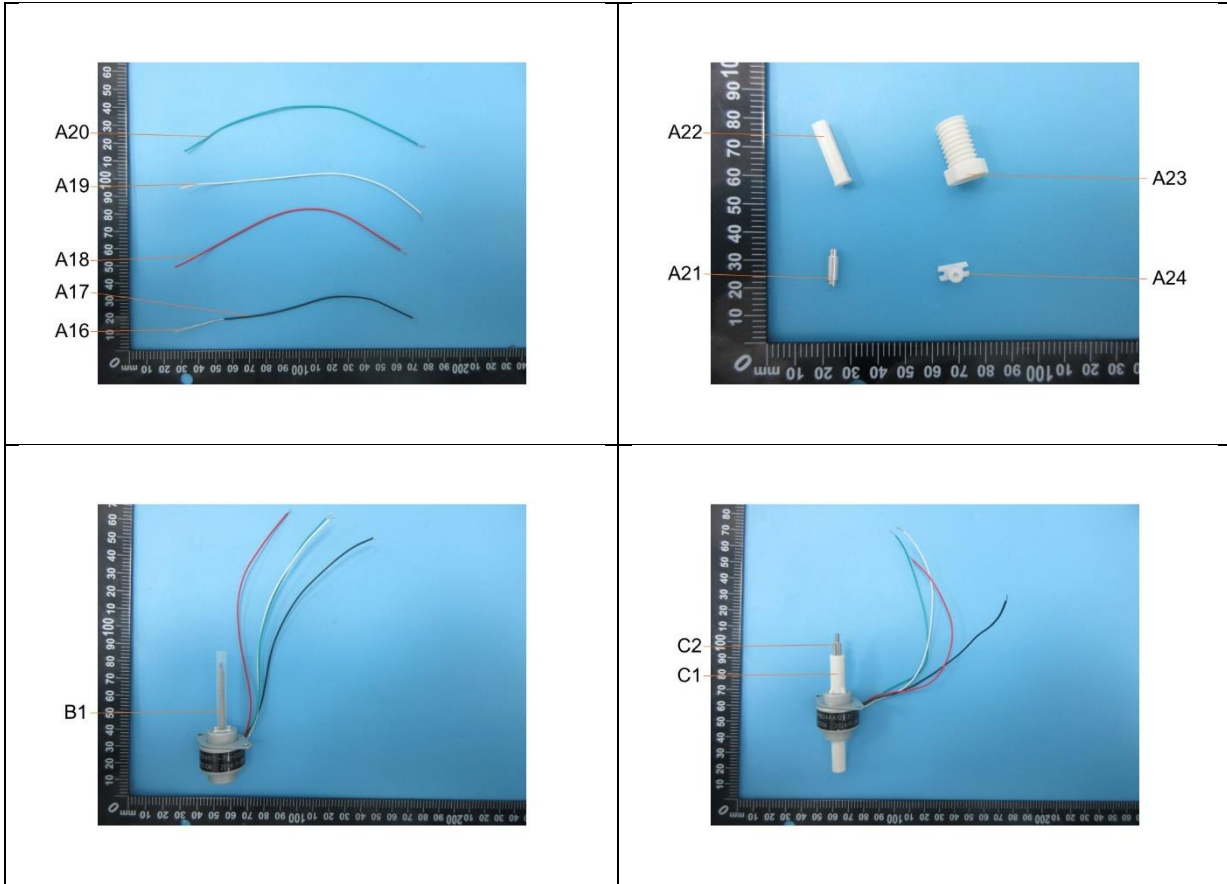
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