Report No.:	0154383681b 001

Client:	ESTUN AUTOMATION CO., LTD 155, Jiangjun Road, Jiangning Economical & Technical Development Zone, 211100 Nanjing P.R. China
Identification/ Model No(s):	PRONET-E series; PRONET series; BCSD series; EDC series; EHD series; ETS series; ED3M series; ED3S series; EHMA series; EHMC series; EDB series; EM3A series; EMB series; EMG series; EMJ series; EMR series; EMS series; EML series; EMT series; EMT2 series; FBM series; FBS series; PDM series; PSP series; PAP series; BMP series; PRP series; EC series; PSC series
Sample Receiving date:	2019-03-04; 2019-04-08
Testing Period:	2019-03-04 - 2019-04-11

Test Specification:	*Test result:*
Customer's requirement:	
1. Screening Test by XRF Spectroscopy Cadmium, Lead, Chromium (VI), Mercury, Polybrominated biphenyls (PBB) and Polybrominated diphenyl ethers (PBDE) BBP, DBP, DEHP, DIBP content According to RoHS (recast): Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, 2011/65/EU Annex II and its amendment Directive (EU) 2015/863	PASS

Other information:

Tested points were selected by client.

For and on behalf of
TÜV Rheinland (Shanghai) Co., Ltd.

2019-05-13 Ryan Chen / Assistant Project Manager

Date *Name/Position*

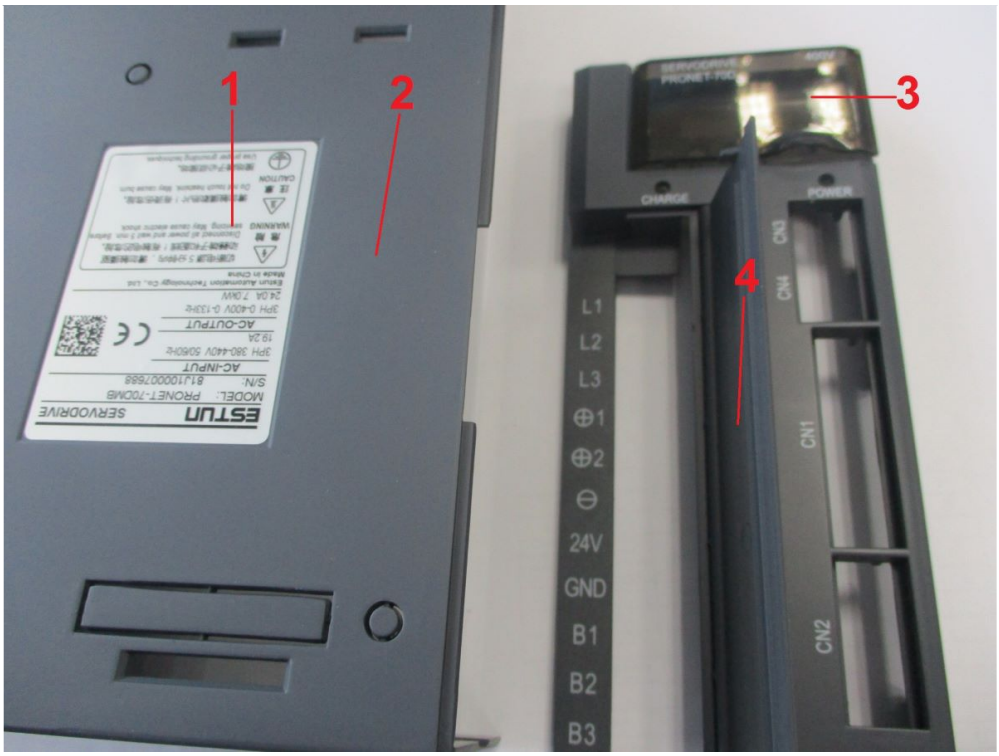
Test result is drawn according to the kind and extent of tests performed.
This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.

Test Report No.: 0154383681b 001

1.Screening Test by XRF spectroscopy

Test Method: Cadmium, Lead, Mercury, Chromium, Bromine
-- With reference to IEC 62321-3-1:2013

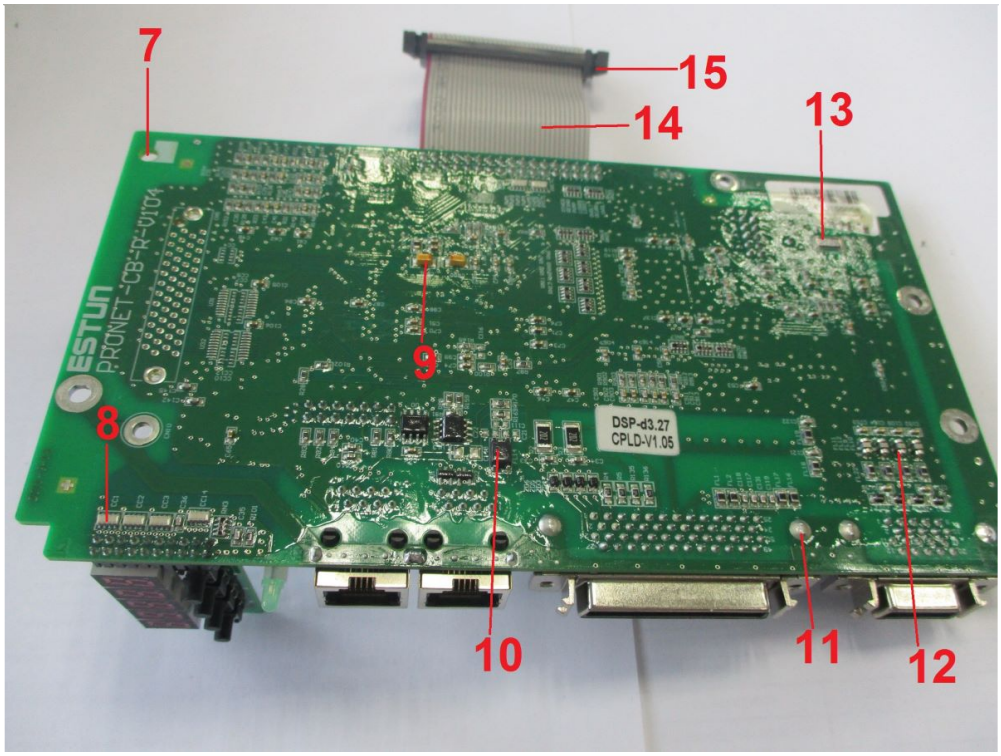
Test Result:



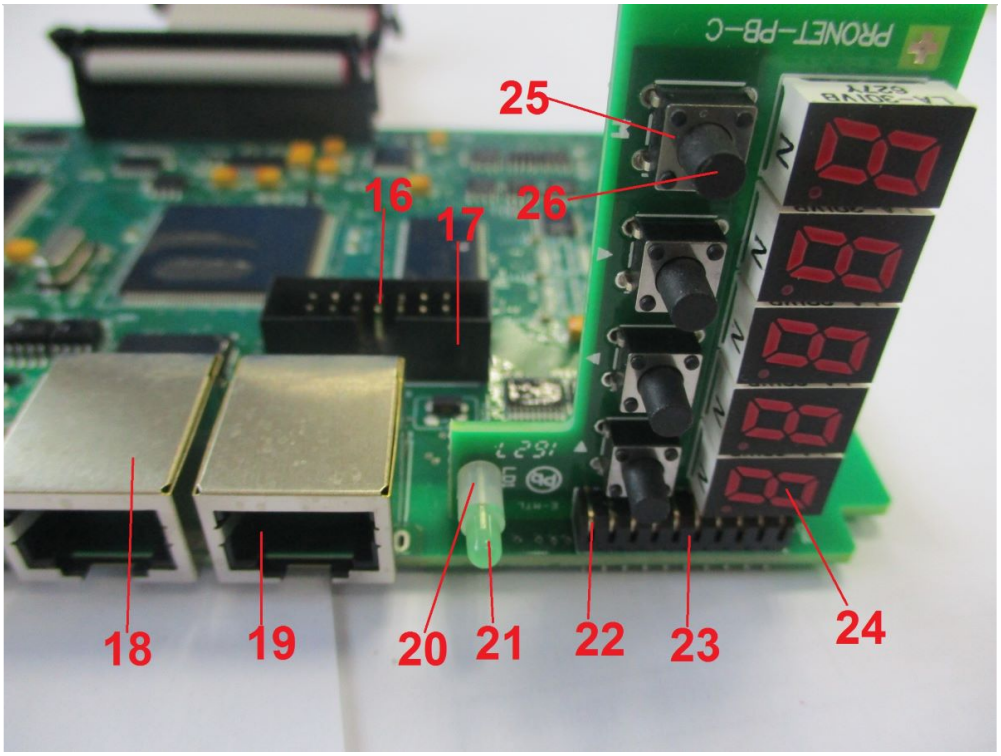
Material No.	Cd	Cr	Pb	Hg	Br
B001	n.d.	n.d.	n.d.	n.d.	n.d.
B002	n.d.	n.d.	n.d.	n.d.	d (*1)
B003	n.d.	n.d.	n.d.	n.d.	n.d.
B004	n.d.	n.d.	n.d.	n.d.	d (*1)



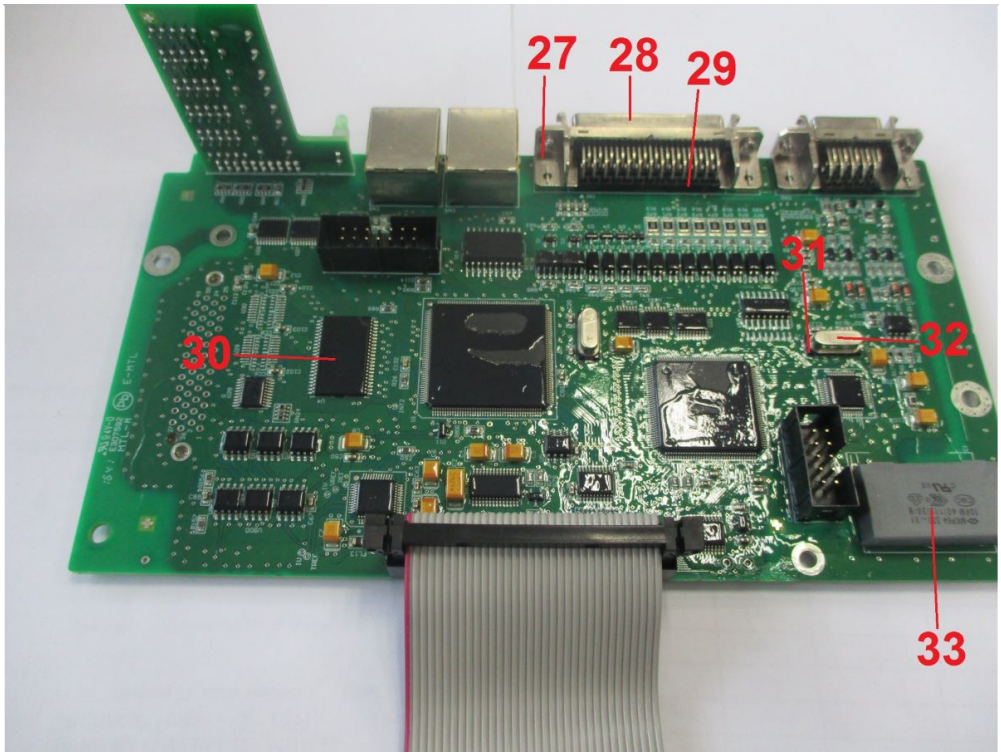
Material No.	Cd	Cr	Pb	Hg	Br
B005	n.d.	n.d.	n.d.	n.d.	n.a.
B006	n.d.	n.d.	n.d.	n.d.	n.d.



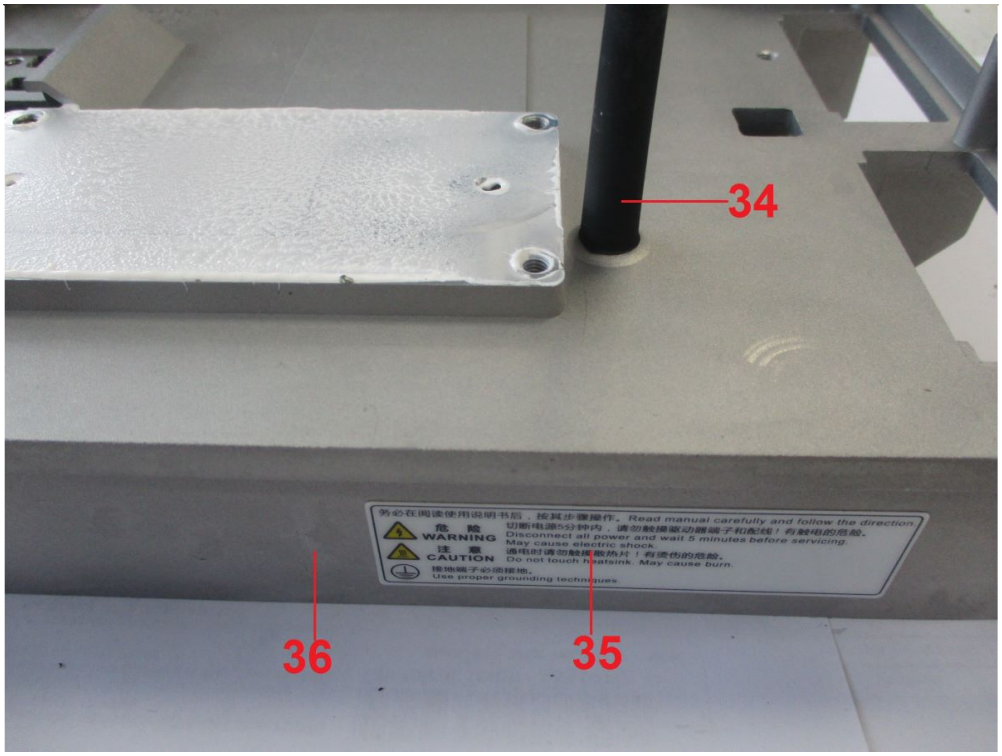
Material No.	Cd	Cr	Pb	Hg	Br
B007	n.d.	n.d.	n.d.	n.d.	d (*1)
B008	n.d.	n.d.	n.d.	n.d.	n.d.
B009	n.d.	n.d.	n.d.	n.d.	n.a.
B010	n.d.	n.d.	n.d.	n.d.	n.d.
B011	n.d.	n.d.	n.d.	n.d.	n.a.
B012	n.d.	n.d.	n.d.	n.d.	n.a.
B013	n.d.	n.d.	d (*1)	n.d.	n.a.
B014	n.d.	n.d.	n.d.	n.d.	n.d.
B015	n.d.	n.d.	n.d.	n.d.	d (*1)



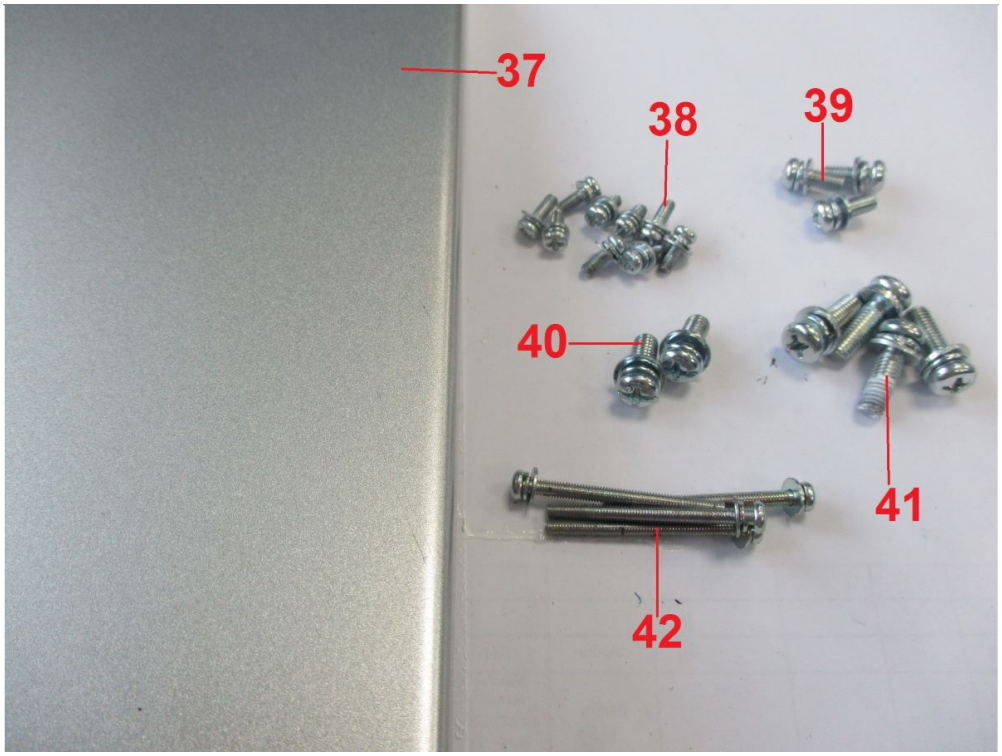
Material No.	Cd	Cr	Pb	Hg	Br
B016	n.d.	n.d.	n.d.	n.d.	n.a.
B017	n.d.	n.d.	n.d.	n.d.	d (*1)
B018	n.d.	n.d.	n.d.	n.d.	n.a.
B019	n.d.	n.d.	n.d.	n.d.	d (*1)
B020	n.d.	n.d.	n.d.	n.d.	n.d.
B021	n.d.	n.d.	n.d.	n.d.	n.d.
B022	n.d.	n.d.	n.d.	n.d.	n.a.
B023	n.d.	n.d.	n.d.	n.d.	d (*1)
B024	n.d.	n.d.	n.d.	n.d.	n.d.
B025	n.d.	d (*1)	n.d.	n.d.	n.a.
B026	n.d.	n.d.	n.d.	n.d.	n.d.



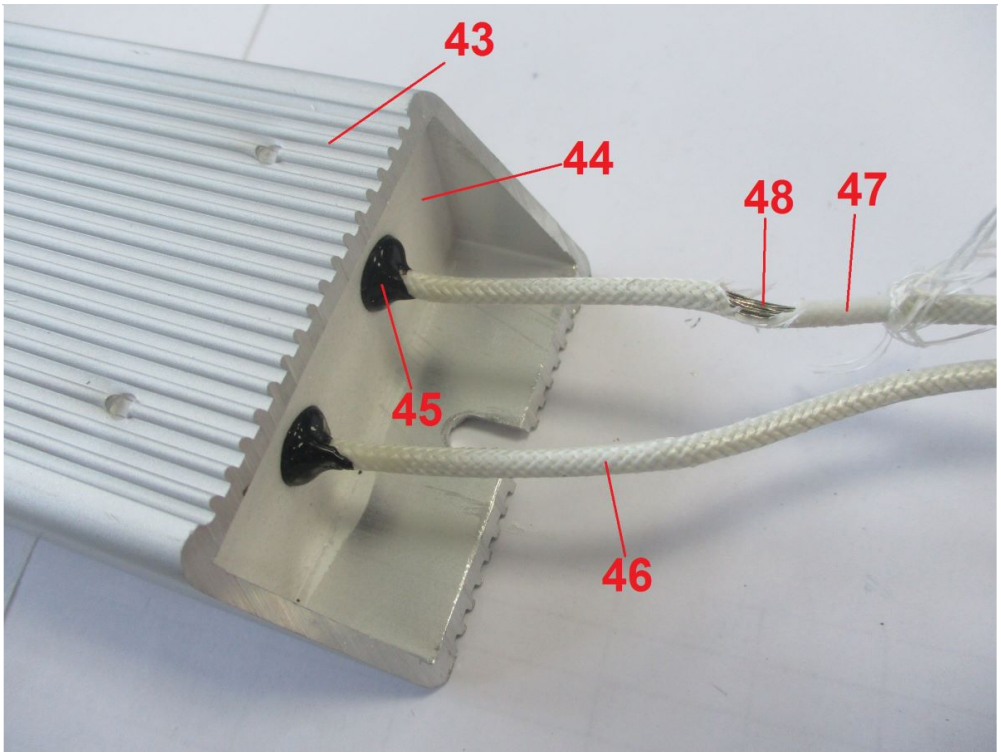
Material No.	Cd	Cr	Pb	Hg	Br
B027	n.d.	n.d.	n.d.	n.d.	n.a.
B028	n.d.	n.d.	n.d.	n.d.	n.a.
B029	n.d.	n.d.	n.d.	n.d.	d (*1)
B030	n.d.	n.d.	n.d.	n.d.	n.d.
B031	n.d.	n.d.	n.d.	n.d.	n.d.
B032	n.d.	n.d.	n.d.	n.d.	n.a.
B033	n.d.	n.d.	n.d.	n.d.	d (*1)



Material No.	Cd	Cr	Pb	Hg	Br
B034	n.d.	n.d.	n.d.	n.d.	d (*1)
B035	n.d.	n.d.	n.d.	n.d.	n.d.
B036	n.d.	n.d.	n.d.	n.d.	n.a.



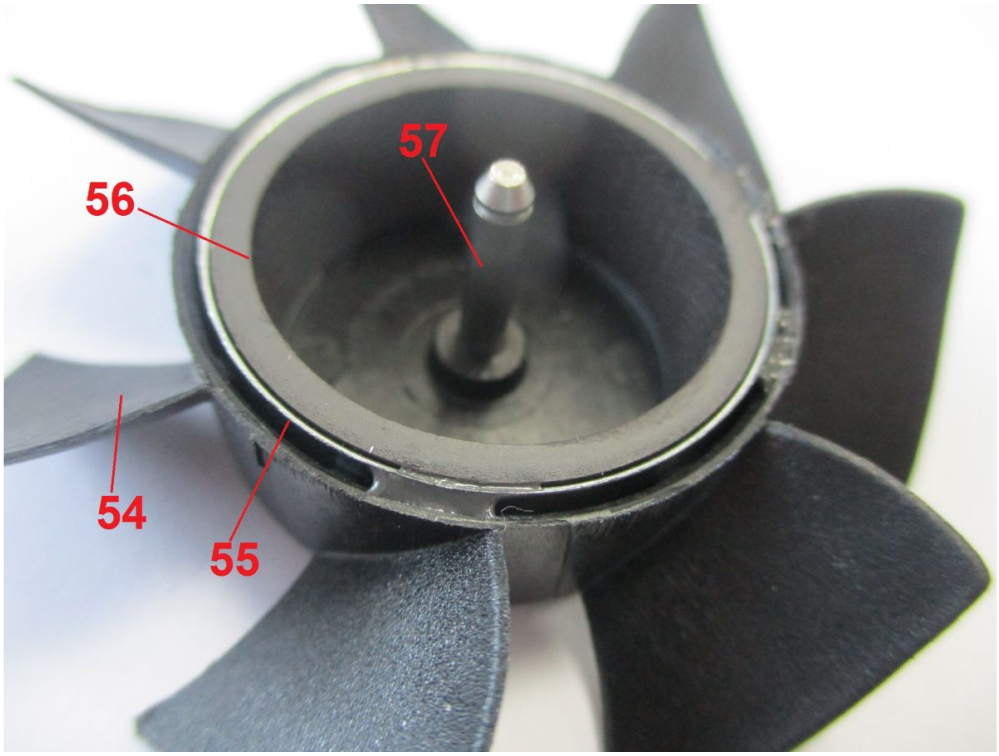
Material No.	Cd	Cr	Pb	Hg	Br
B037	n.d.	n.d.	n.d.	n.d.	n.a.
B038	n.d.	n.d.	n.d.	n.d.	n.a.
B039	n.d.	d (*1)	n.d.	n.d.	n.a.
B040	n.d.	n.d.	n.d.	n.d.	n.a.
B041	n.d.	d (*1)	n.d.	n.d.	n.a.
B042	n.d.	d (*1)	n.d.	n.d.	n.a.



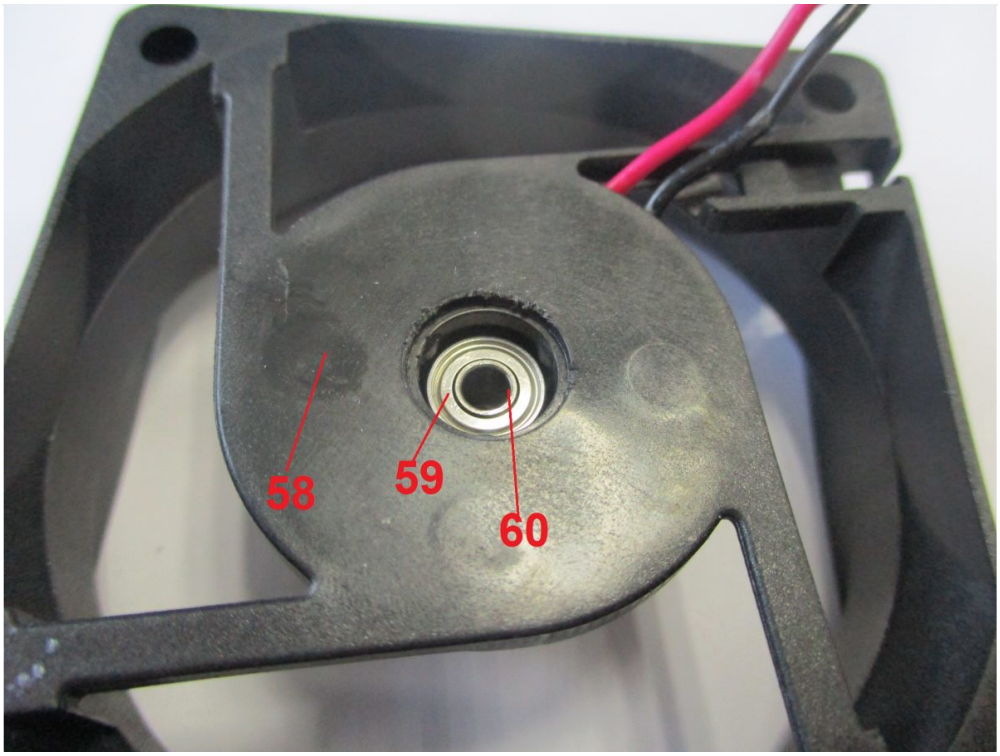
Material No.	Cd	Cr	Pb	Hg	Br
B043	n.d.	n.d.	n.d.	n.d.	n.a.
B044	n.d.	n.d.	n.d.	n.d.	n.d.
B045	n.d.	n.d.	n.d.	n.d.	n.d.
B046	n.d.	n.d.	n.d.	n.d.	n.d.
B047	n.d.	n.d.	n.d.	n.d.	n.d.
B048	n.d.	n.d.	n.d.	n.d.	n.a.



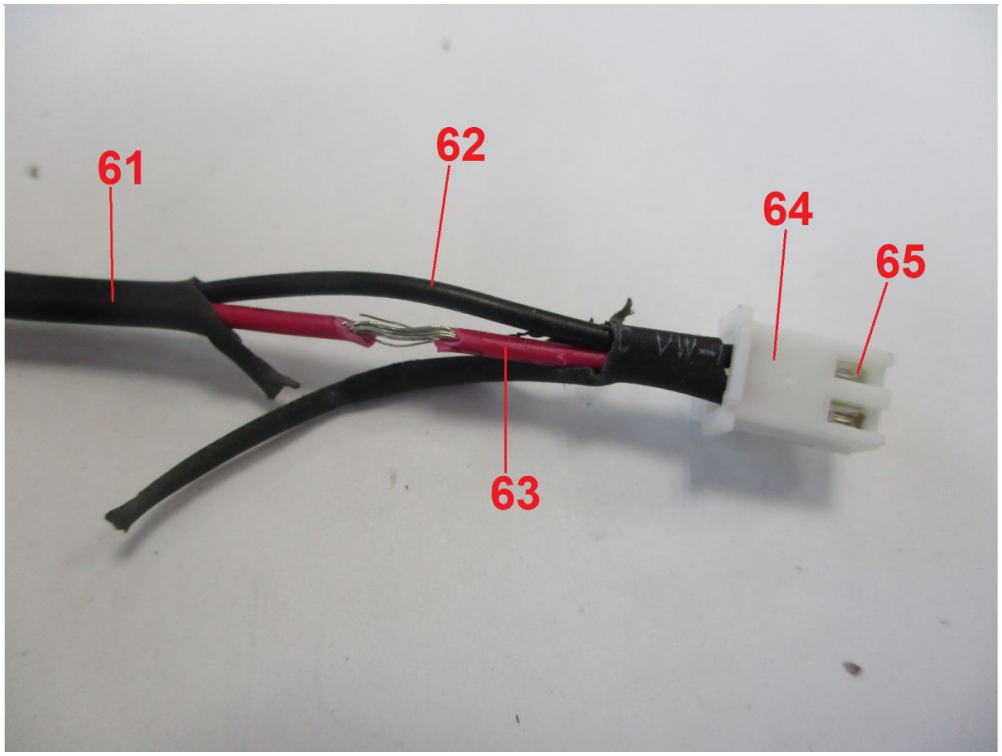
Material No.	Cd	Cr	Pb	Hg	Br
B049	n.d.	n.d.	n.d.	n.d.	n.d.
B050	n.d.	d (*1)	n.d.	n.d.	n.a.
B051	n.d.	d (*1)	n.d.	n.d.	n.a.
B052	n.d.	d (*1)	n.d.	n.d.	n.a.
B053	n.d.	n.d.	n.d.	n.d.	n.a.



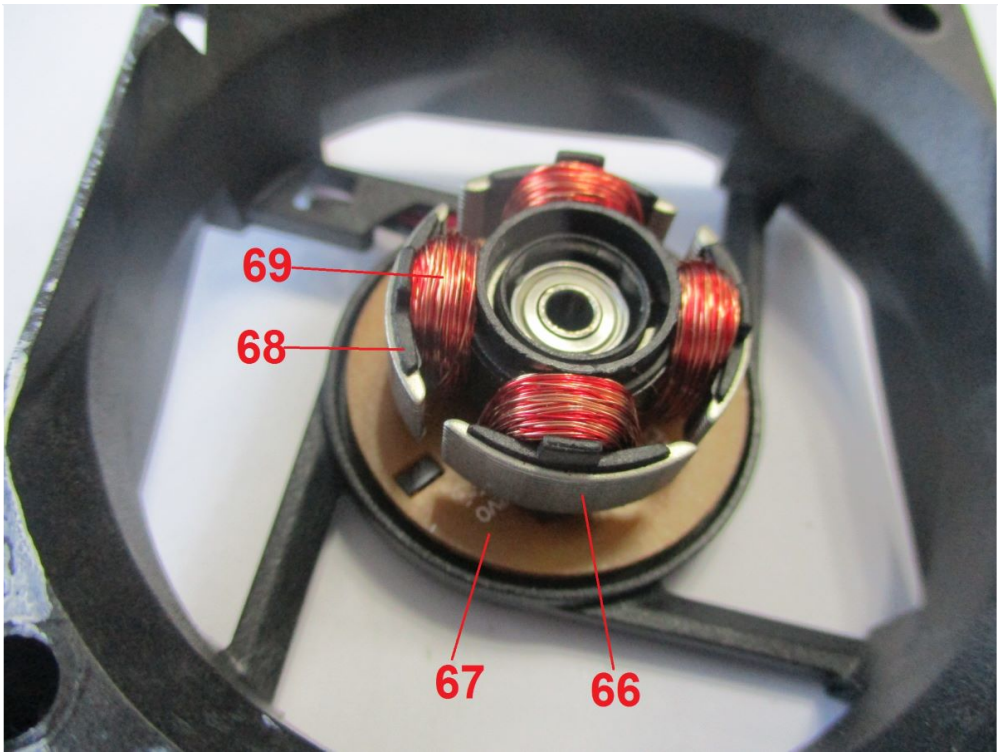
Material No.	Cd	Cr	Pb	Hg	Br
B054	n.d.	n.d.	n.d.	n.d.	d (*1)
B055	n.d.	n.d.	n.d.	n.d.	n.a.
B056	n.d.	n.d.	n.d.	n.d.	n.a.
B057	n.d.	d (*1)	n.d.	n.d.	n.a.



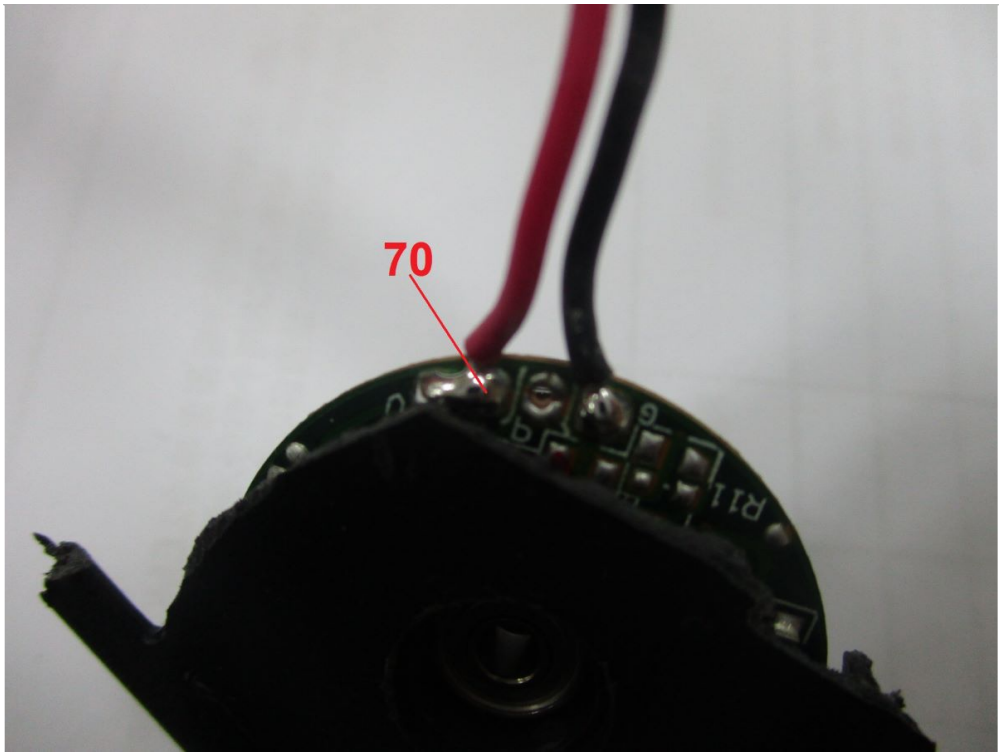
Material No.	Cd	Cr	Pb	Hg	Br
B058	n.d.	n.d.	n.d.	n.d.	d (*1)
B059	n.d.	d (*1)	n.d.	n.d.	n.a.
B060	n.d.	d (*1)	n.d.	n.d.	n.a.



Material No.	Cd	Cr	Pb	Hg	Br
B061	n.d.	n.d.	n.d.	n.d.	n.d.
B062	n.d.	n.d.	n.d.	n.d.	n.d.
B063	n.d.	n.d.	n.d.	n.d.	n.d.
B064	n.d.	n.d.	n.d.	n.d.	n.d.
B065	n.d.	n.d.	n.d.	n.d.	n.a.

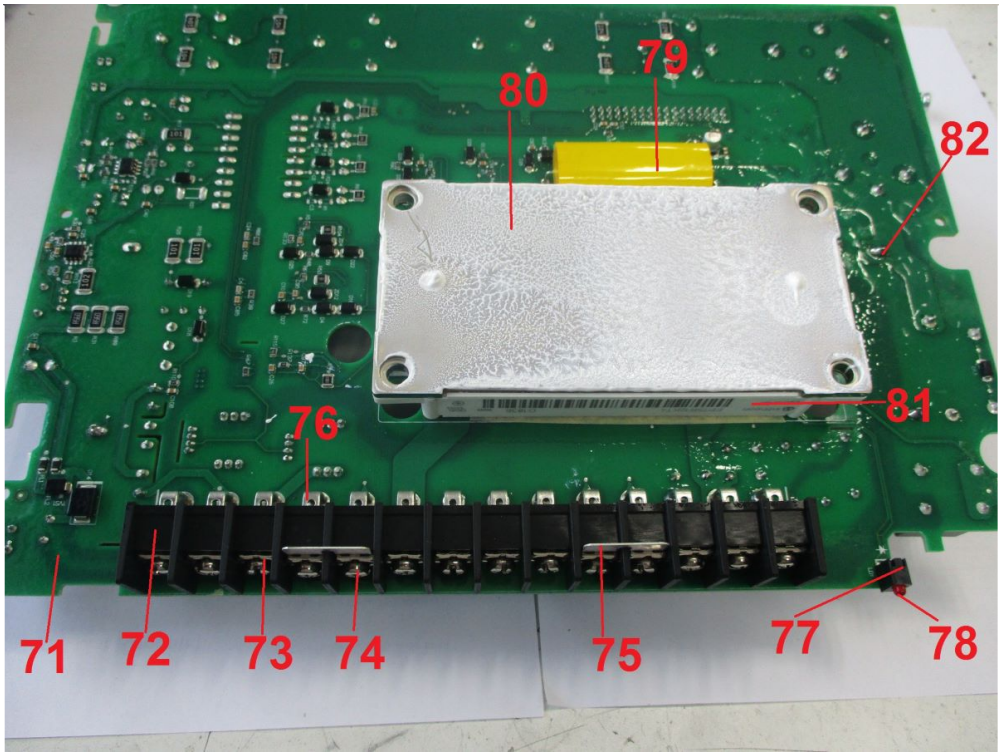


Material No.	Cd	Cr	Pb	Hg	Br
B066	n.d.	d (*1)	n.d.	n.d.	n.a.
B067	n.d.	n.d.	n.d.	n.d.	d (*1)
B068	n.d.	n.d.	n.d.	n.d.	d (*1)
B069	n.d.	n.d.	n.d.	n.d.	n.a.

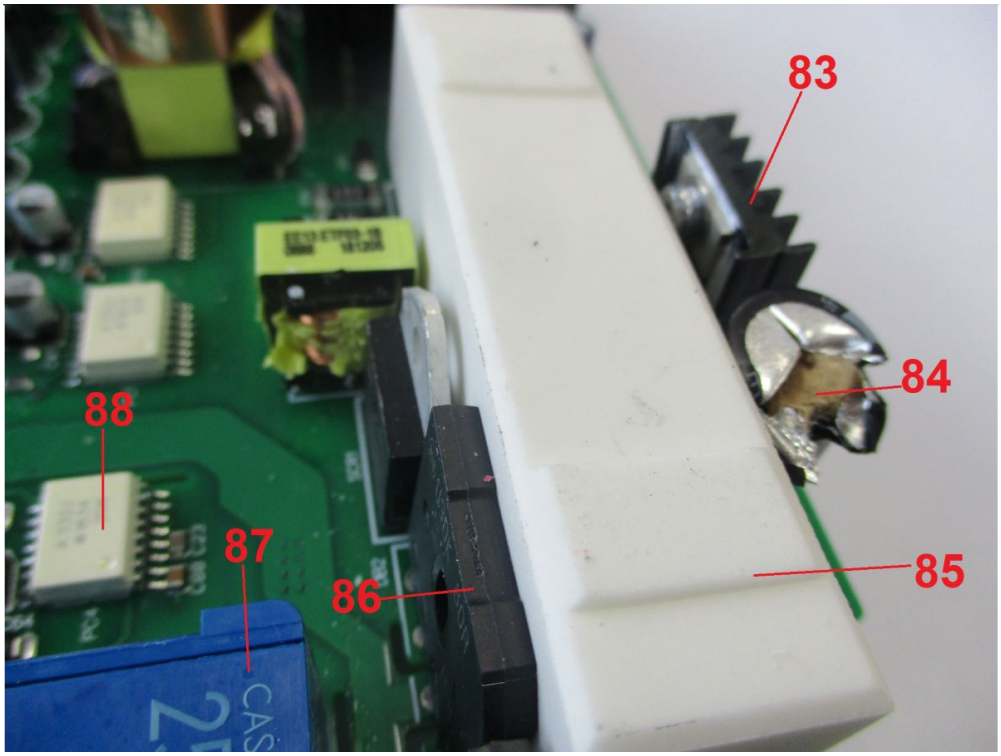


Material No.	Cd	Cr	Pb	Hg	Br
B070	n.d.	n.d.	n.d.	n.d.	n.a.

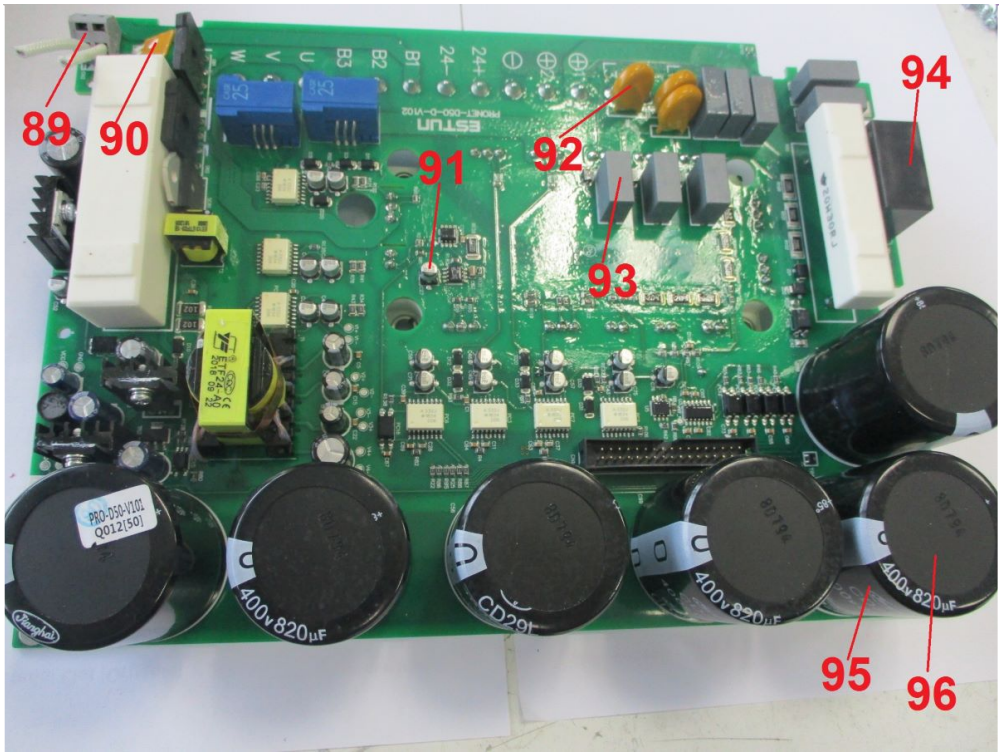
Test Report No.: 0154383681b 001



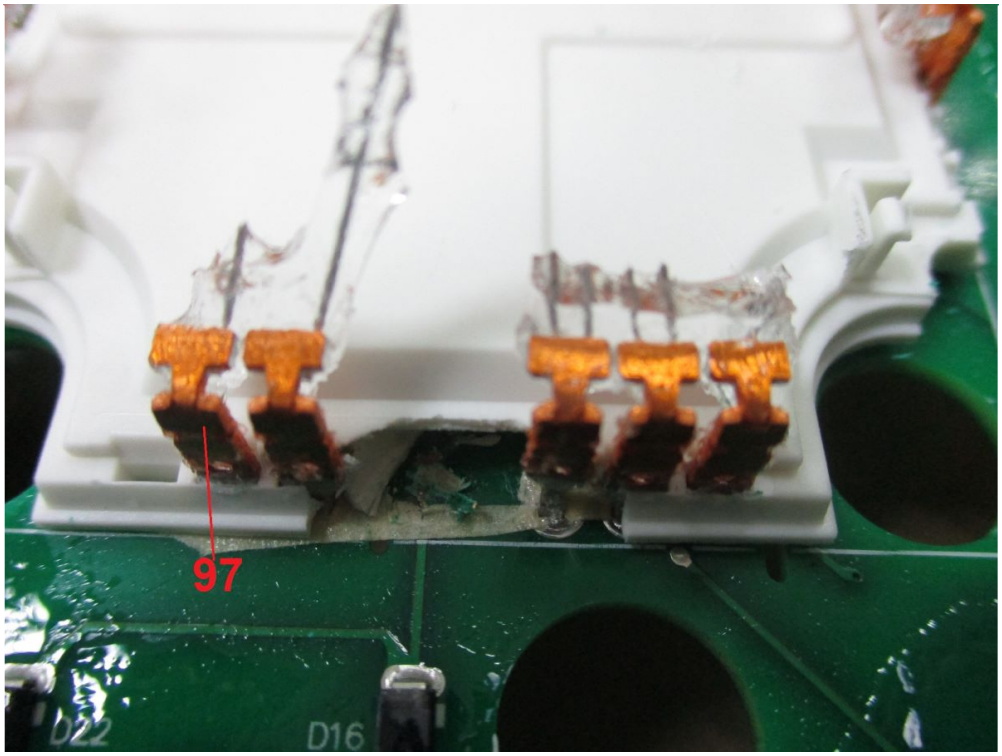
Material No.	Cd	Cr	Pb	Hg	Br
B071	n.d.	n.d.	n.d.	n.d.	n.d.
B072	n.d.	n.d.	n.d.	n.d.	n.d.
B073	n.d.	n.d.	n.d.	n.d.	n.a.
B074	n.d.	n.d.	n.d.	n.d.	n.a.
B075	n.d.	n.d.	n.d.	n.d.	n.a.
B076	n.d.	n.d.	n.d.	n.d.	n.a.
B077	n.d.	n.d.	n.d.	n.d.	d (*1)
B078	n.d.	n.d.	n.d.	n.d.	d (*1)
B079	n.d.	n.d.	n.d.	n.d.	n.d.
B080	n.d.	n.d.	n.d.	n.d.	n.a.
B081	n.d.	n.d.	n.d.	n.d.	d (*1)
B082	n.d.	n.d.	n.d.	n.d.	n.a.



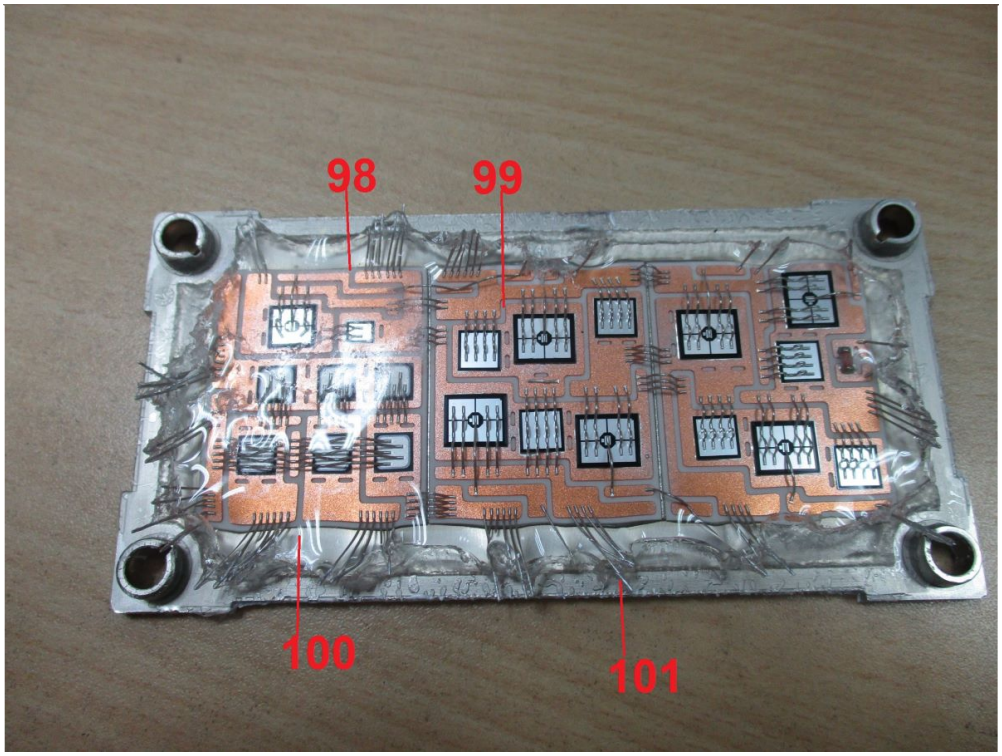
Material No.	Cd	Cr	Pb	Hg	Br
B083	n.d.	n.d.	n.d.	n.d.	n.a.
B084	n.d.	n.d.	n.d.	n.d.	n.d.
B085	n.d.	n.d.	n.d.	n.d.	n.a.
B086	n.d.	n.d.	n.d.	n.d.	d (*1)
B087	n.d.	n.d.	n.d.	n.d.	n.d.
B088	n.d.	n.d.	n.d.	n.d.	d (*1)



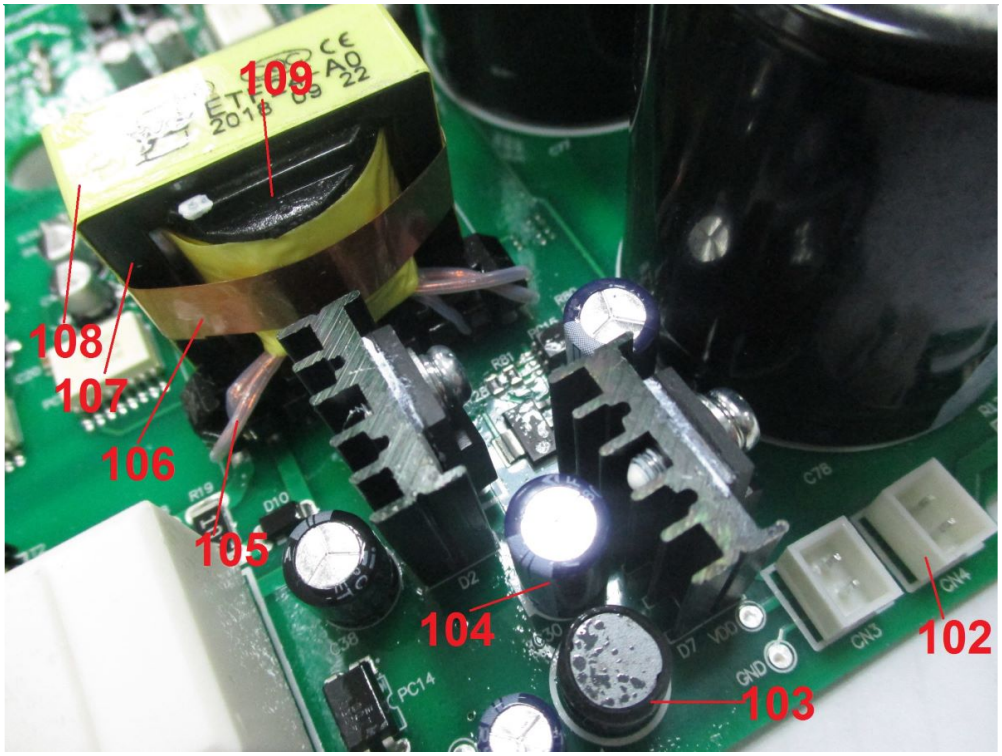
Material No.	Cd	Cr	Pb	Hg	Br
B089	n.d.	n.d.	n.d.	n.d.	n.d.
B090	n.d.	n.d.	n.d.	n.d.	n.d.
B091	n.d.	n.d.	n.d.	n.d.	n.a.
B092	n.d.	n.d.	n.d.	n.d.	n.d.
B093	n.d.	n.d.	n.d.	n.d.	d (*1)
B094	n.d.	n.d.	n.d.	n.d.	d (*1)
B095	n.d.	n.d.	n.d.	n.d.	n.d.
B096	n.d.	n.d.	n.d.	n.d.	n.d.



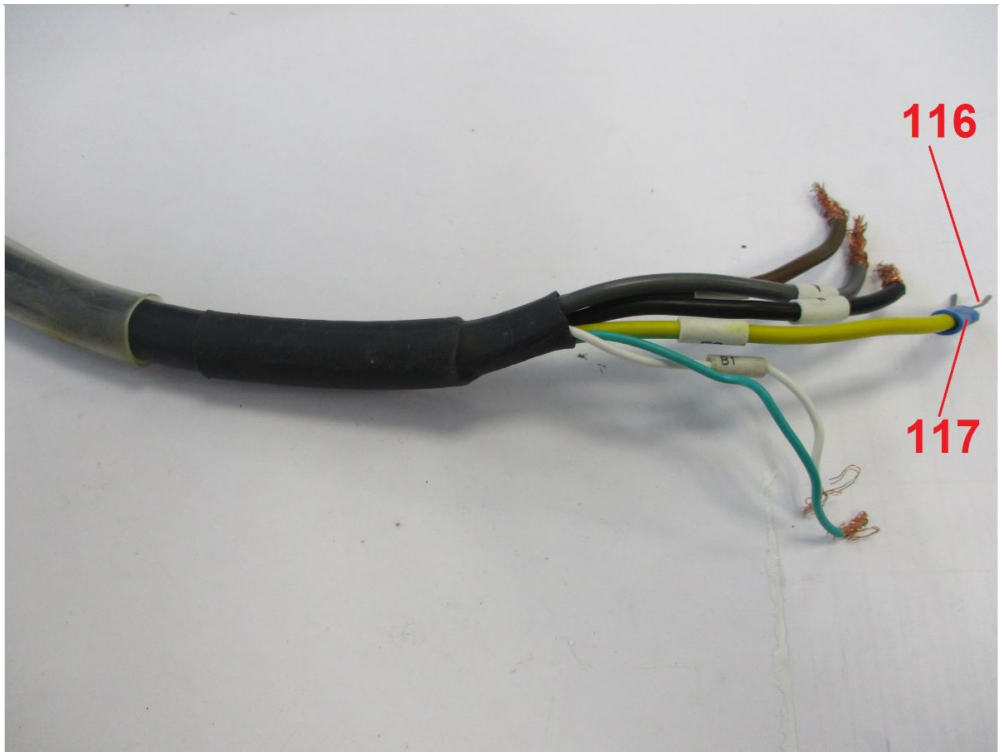
Material No.	Cd	Cr	Pb	Hg	Br
B097	n.d.	n.d.	n.d.	n.d.	n.a.



Material No.	Cd	Cr	Pb	Hg	Br
B098	n.d.	n.d.	n.d.	n.d.	n.a.
B099	n.d.	n.d.	n.d.	n.d.	n.a.
B100	n.d.	n.d.	n.d.	n.d.	n.d.
B101	n.d.	n.d.	n.d.	n.d.	n.a.



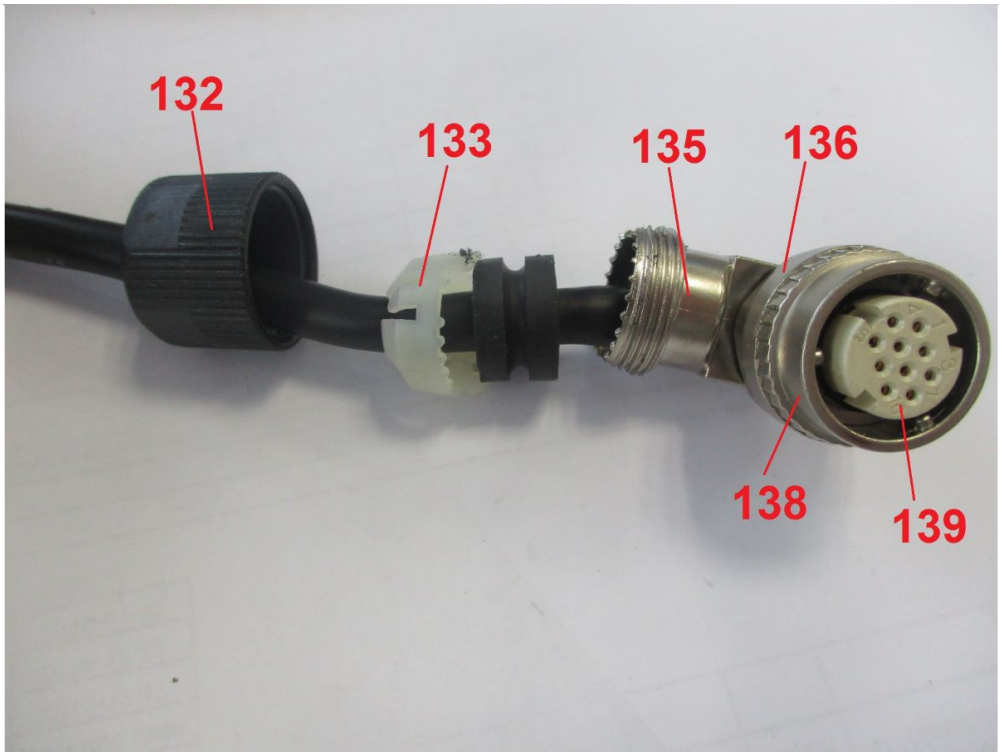
Material No.	Cd	Cr	Pb	Hg	Br
B102	n.d.	n.d.	n.d.	n.d.	n.d.
B103	n.d.	n.d.	n.d.	n.d.	n.d.
B104	n.d.	n.d.	n.d.	n.d.	n.d.
B105	n.d.	n.d.	n.d.	n.d.	n.d.
B106	n.d.	n.d.	n.d.	n.d.	n.a.
B107	n.d.	n.d.	n.d.	n.d.	n.a.
B108	n.d.	n.d.	n.d.	n.d.	n.d.
B109	n.d.	n.d.	n.d.	n.d.	n.d.



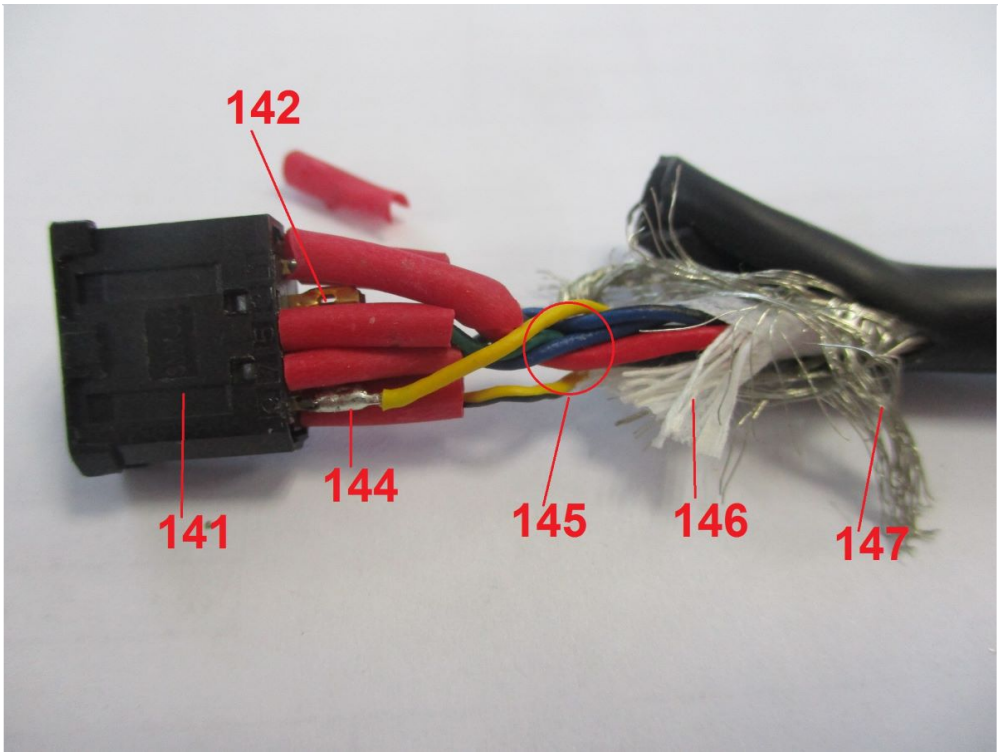
Material No.	Cd	Cr	Pb	Hg	Br
B116	n.d.	n.d.	n.d.	n.d.	n.a.
B117	n.d.	n.d.	n.d.	n.d.	n.d.



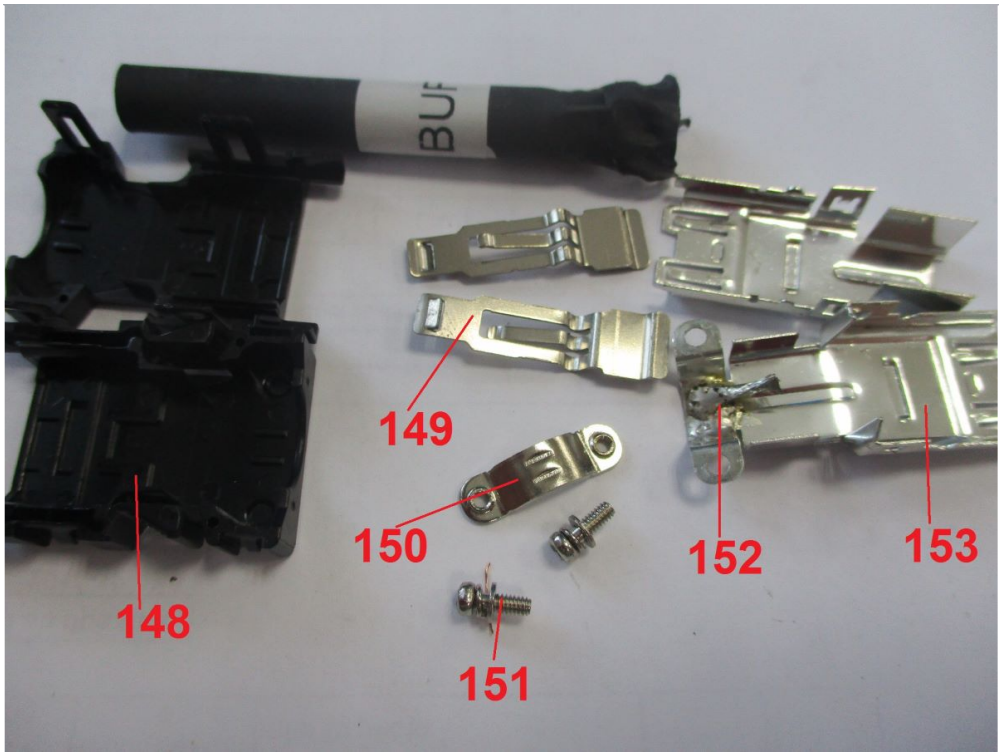
Material No.	Cd	Cr	Pb	Hg	Br
B124	n.d.	n.d.	n.d.	n.d.	n.a.
B125	n.d.	d (*1)	n.d.	n.d.	n.a.
B126	n.d.	d (*1)	n.d.	n.d.	n.a.
B127	n.d.	n.d.	n.d.	n.d.	n.d.
B130	n.d.	n.d.	n.d.	n.d.	n.a.



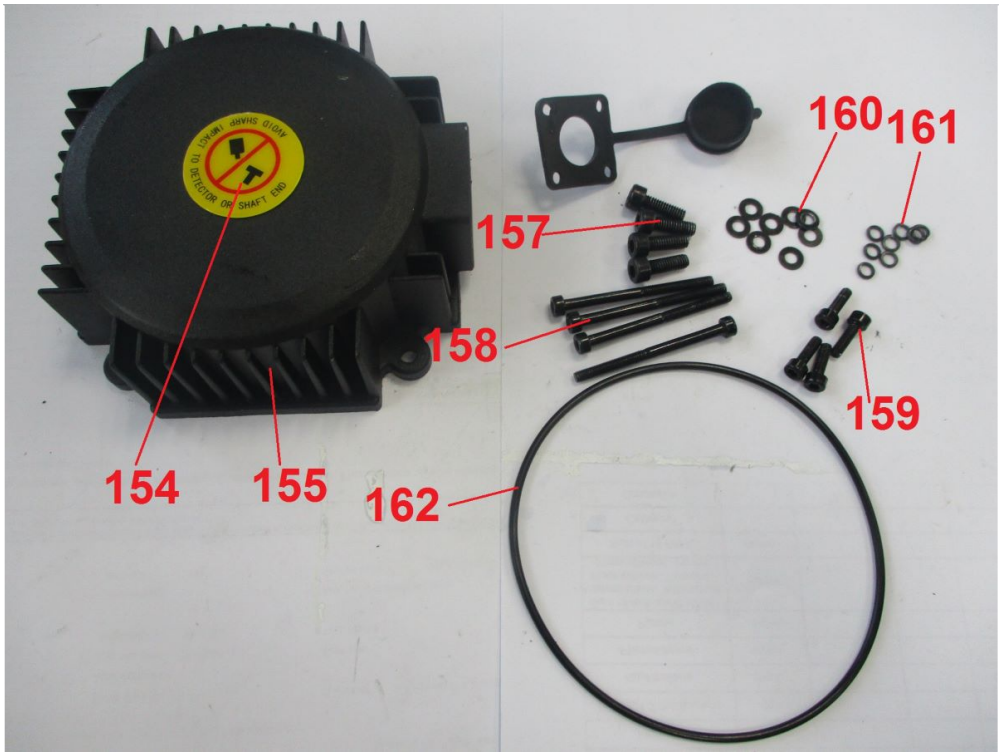
Material No.	Cd	Cr	Pb	Hg	Br
B132	n.d.	n.d.	n.d.	n.d.	d (*1)
B133	n.d.	n.d.	n.d.	n.d.	n.d.
B135	n.d.	n.d.	n.d.	n.d.	n.a.
B136	n.d.	n.d.	n.d.	n.d.	n.a.
B138	n.d.	n.d.	n.d.	n.d.	n.a.
B139	n.d.	n.d.	n.d.	n.d.	n.d.



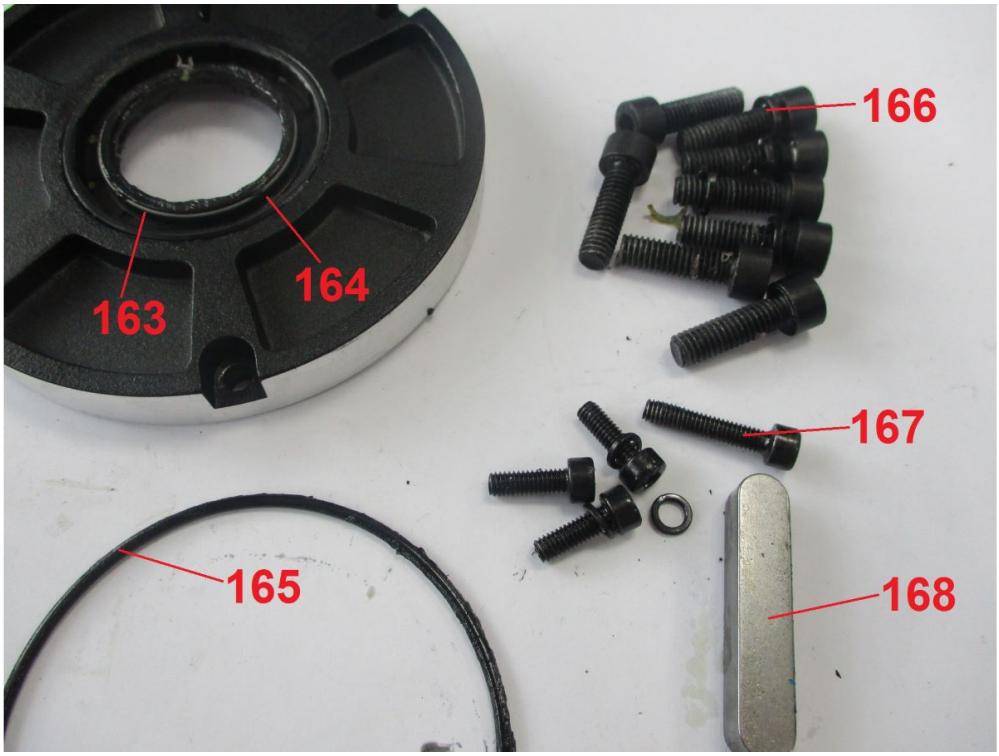
Material No.	Cd	Cr	Pb	Hg	Br
B141	n.d.	n.d.	n.d.	n.d.	d (*1)
B142	n.d.	n.d.	n.d.	n.d.	n.a.
B144	n.d.	n.d.	n.d.	n.d.	n.a.
B145	n.d.	n.d.	n.d.	n.d.	n.d.
B146	n.d.	n.d.	n.d.	n.d.	n.d.
B147	n.d.	n.d.	n.d.	n.d.	n.a.



Material No.	Cd	Cr	Pb	Hg	Br
B148	n.d.	n.d.	n.d.	n.d.	n.d.
B149	n.d.	d (*1)	n.d.	n.d.	n.a.
B150	n.d.	n.d.	n.d.	n.d.	n.a.
B151	n.d.	d (*1)	n.d.	n.d.	n.a.
B152	n.d.	n.d.	n.d.	n.d.	n.a.
B153	n.d.	n.d.	n.d.	n.d.	n.a.



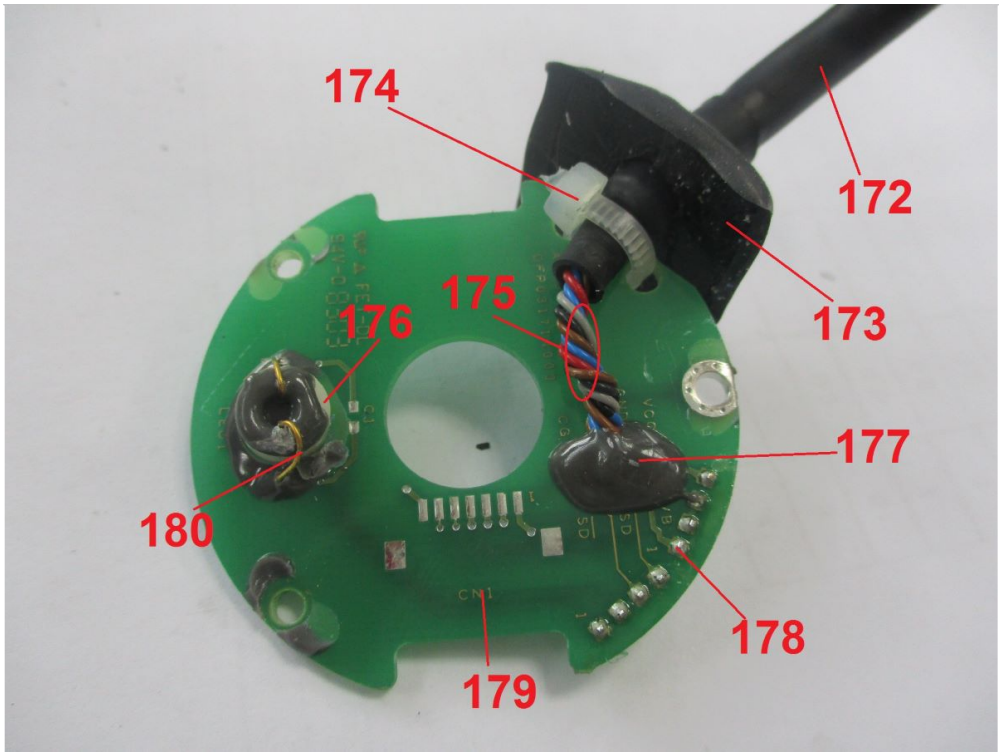
Material No.	Cd	Cr	Pb	Hg	Br
B154	n.d.	n.d.	n.d.	n.d.	n.d.
B155	n.d.	n.d.	n.d.	n.d.	n.a.
B157	n.d.	d (*1)	n.d.	n.d.	n.a.
B158	n.d.	d (*1)	n.d.	n.d.	n.a.
B159	n.d.	d (*1)	n.d.	n.d.	n.a.
B160	n.d.	d (*1)	n.d.	n.d.	n.a.
B161	n.d.	d (*1)	n.d.	n.d.	n.a.
B162	n.d.	n.d.	n.d.	n.d.	n.d.



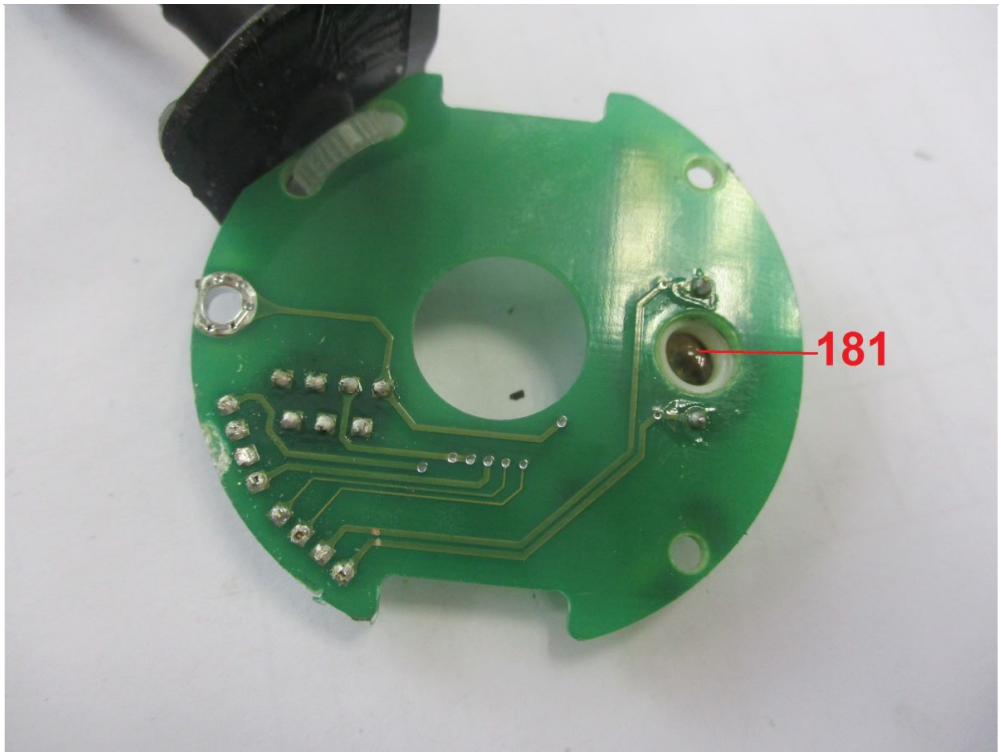
Material No.	Cd	Cr	Pb	Hg	Br
B163	n.d.	n.d.	n.d.	n.d.	n.a.
B164	n.d.	n.d.	n.d.	n.d.	n.d.
B165	n.d.	n.d.	n.d.	n.d.	n.d.
B166	n.d.	d (*1)	n.d.	n.d.	n.a.
B167	n.d.	n.d.	n.d.	n.d.	n.a.
B168	n.d.	n.d.	n.d.	n.d.	n.a.



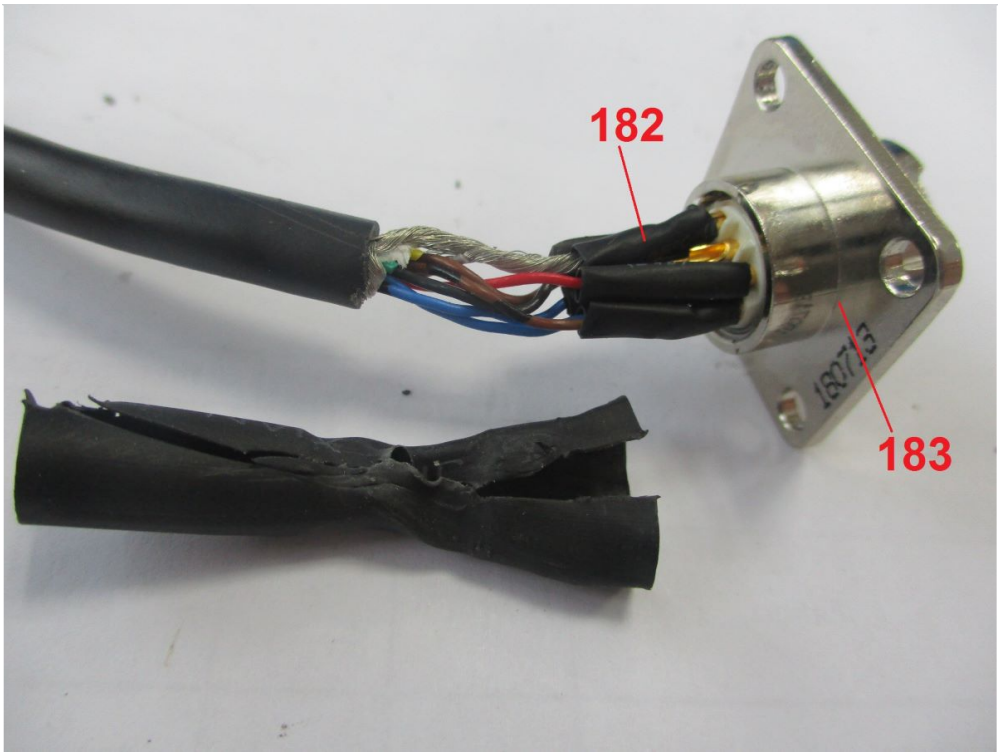
Material No.	Cd	Cr	Pb	Hg	Br
B169	n.d.	d (*1)	n.d.	n.d.	n.a.
B170	n.d.	n.d.	n.d.	n.d.	n.d.
B171	n.d.	n.d.	d (*1)	n.d.	n.a.



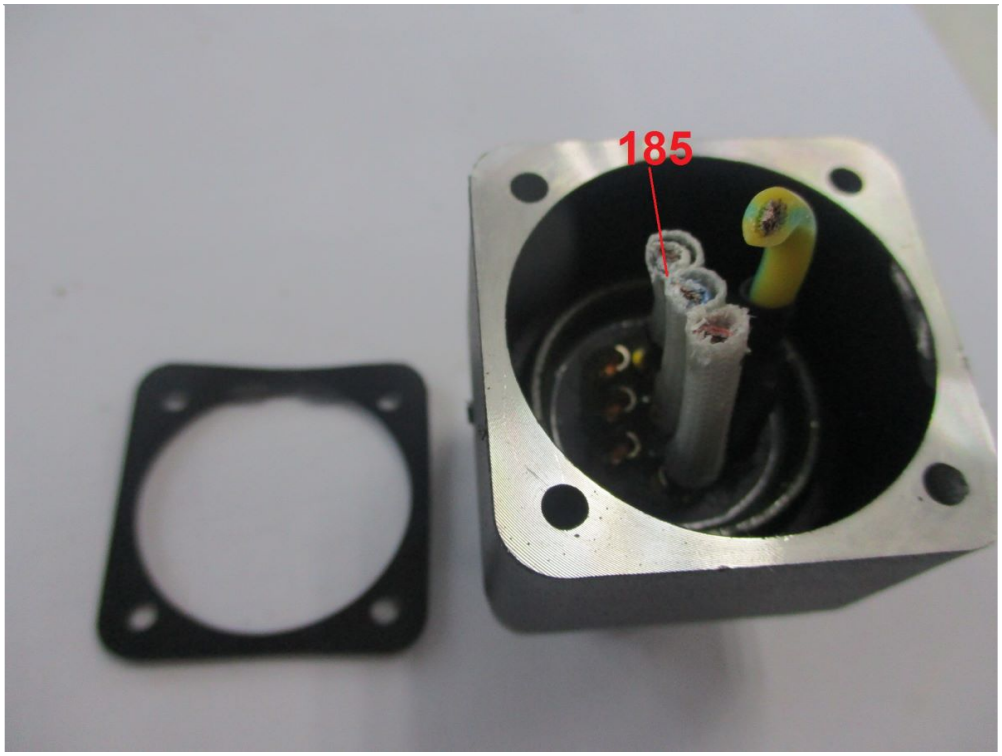
Material No.	Cd	Cr	Pb	Hg	Br
B172	n.d.	n.d.	n.d.	n.d.	n.d.
B173	n.d.	n.d.	n.d.	n.d.	n.d.
B174	n.d.	n.d.	n.d.	n.d.	n.d.
B175	n.d.	n.d.	n.d.	n.d.	n.d.
B176	n.d.	n.d.	n.d.	n.d.	n.d.
B177	n.d.	n.d.	n.d.	n.d.	n.d.
B178	n.d.	n.d.	n.d.	n.d.	n.a.
B179	n.d.	n.d.	n.d.	n.d.	d (*1)
B180	n.d.	n.d.	n.d.	n.d.	n.a.



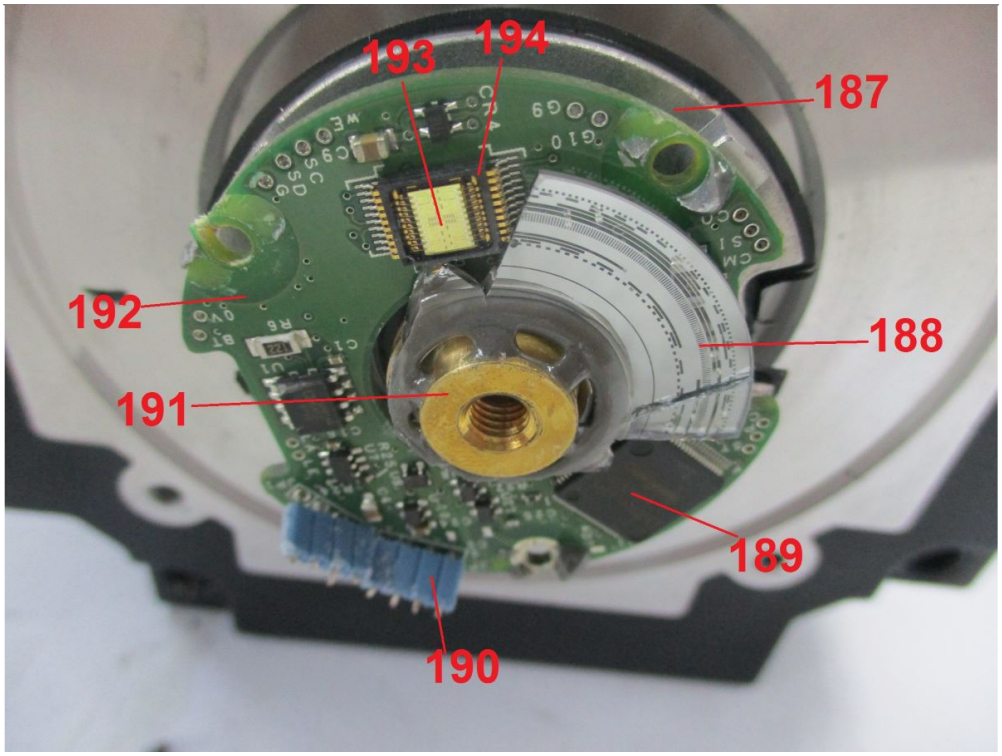
Material No.	Cd	Cr	Pb	Hg	Br
B181	n.d.	n.d.	n.d.	n.d.	n.a.



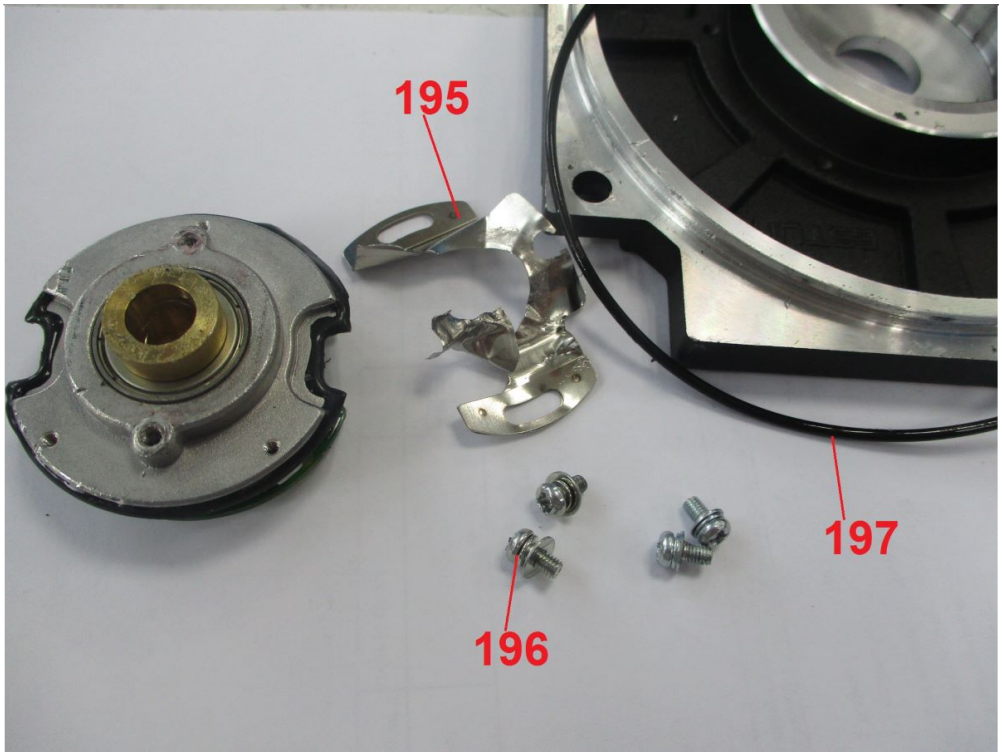
Material No.	Cd	Cr	Pb	Hg	Br
B182	n.d.	n.d.	n.d.	n.d.	n.d.
B183	n.d.	n.d.	n.d.	n.d.	n.a.



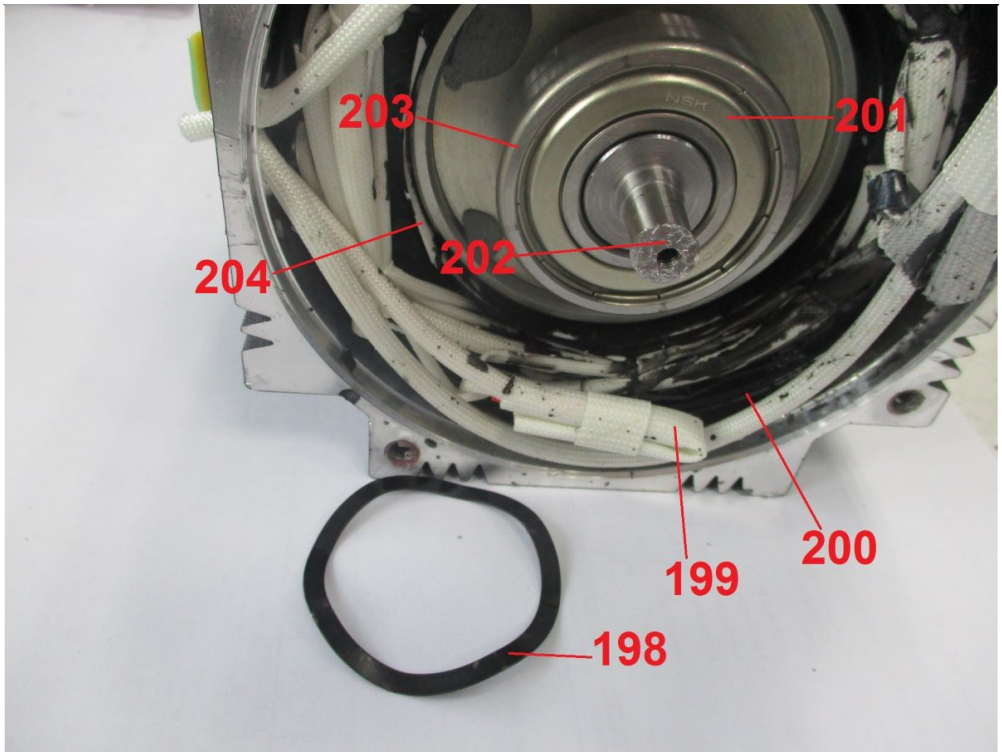
Material No.	Cd	Cr	Pb	Hg	Br
B185	n.d.	n.d.	n.d.	n.d.	n.d.



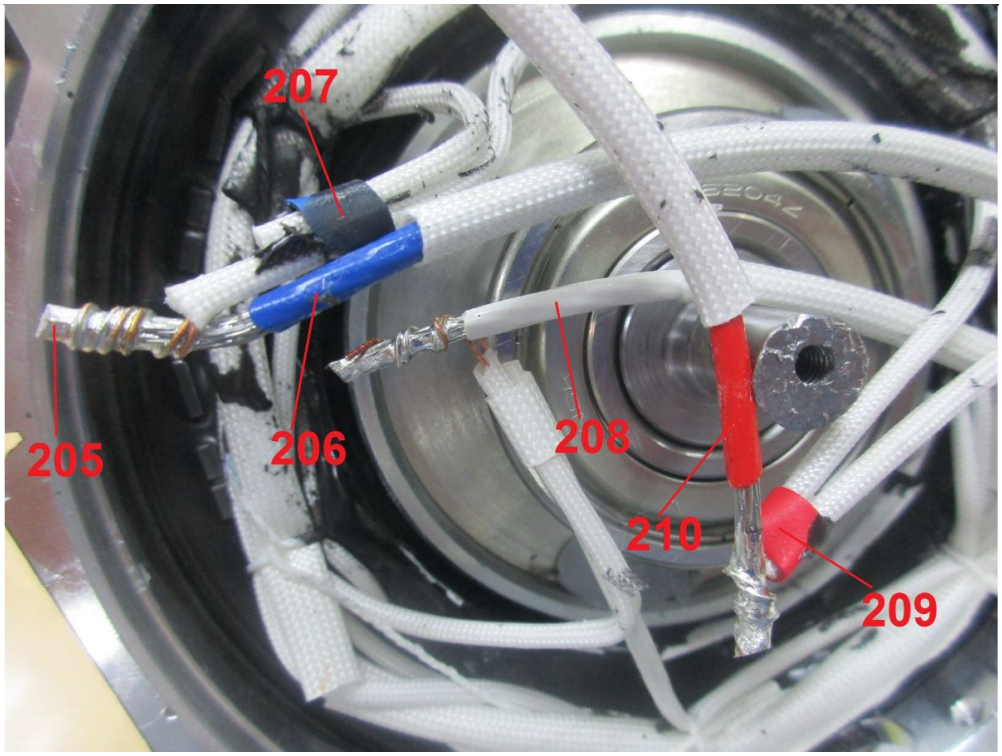
Material No.	Cd	Cr	Pb	Hg	Br
B187	n.d.	n.d.	n.d.	n.d.	n.a.
B188	n.d.	d (*1)	n.d.	n.d.	n.a.
B189	n.d.	n.d.	n.d.	n.d.	n.d.
B190	n.d.	n.d.	n.d.	n.d.	d (*1)
B191	n.d.	n.d.	d (*1)	n.d.	n.a.
B192	n.d.	n.d.	n.d.	n.d.	d (*1)
B193	n.d.	n.d.	n.d.	n.d.	n.a.
B194	n.d.	n.d.	n.d.	n.d.	n.d.



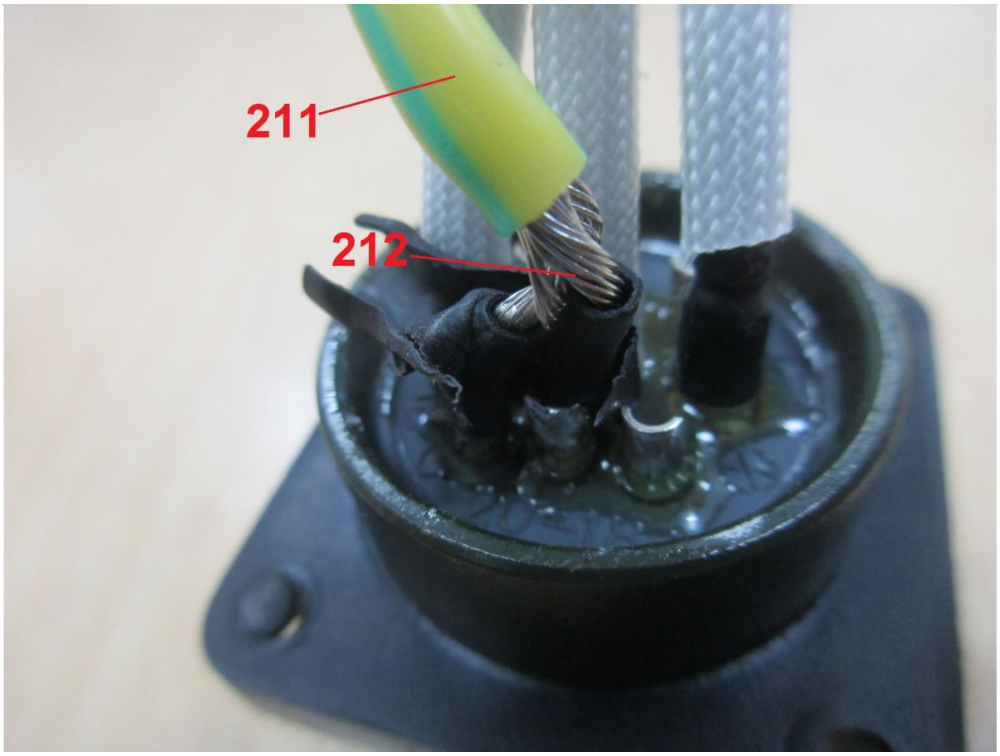
Material No.	Cd	Cr	Pb	Hg	Br
B195	n.d.	d (*1)	n.d.	n.d.	n.a.
B196	n.d.	d (*1)	n.d.	n.d.	n.a.
B197	n.d.	n.d.	n.d.	n.d.	n.d.



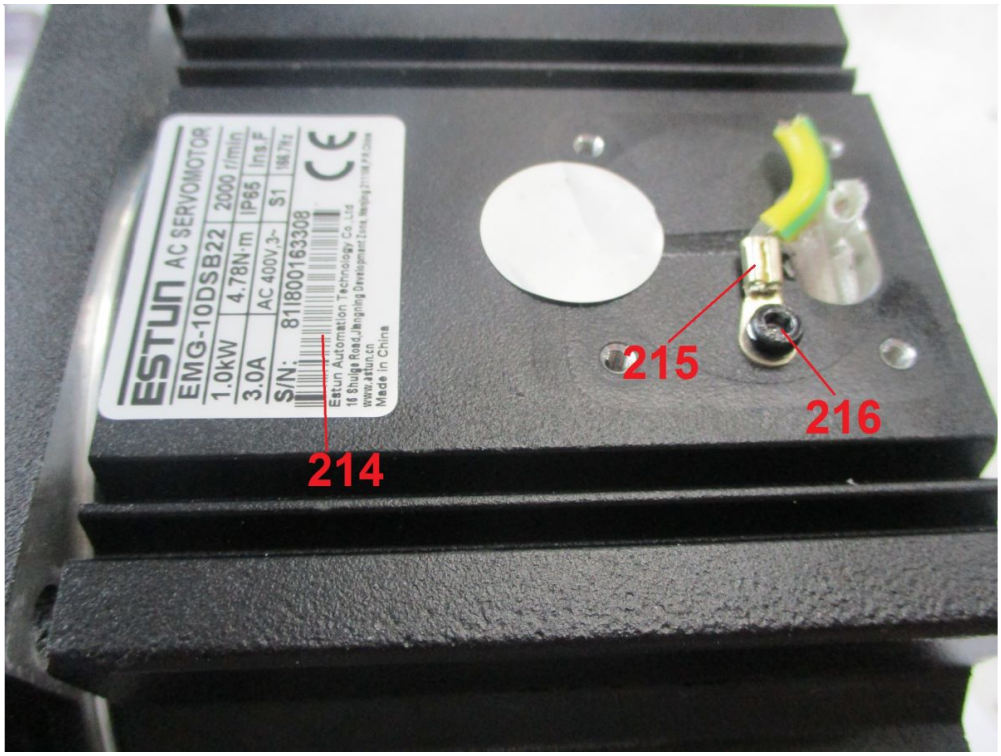
Material No.	Cd	Cr	Pb	Hg	Br
B198	n.d.	n.d.	n.d.	n.d.	n.a.
B199	n.d.	n.d.	n.d.	n.d.	n.d.
B200	n.d.	n.d.	n.d.	n.d.	n.d.
B201	n.d.	n.d.	n.d.	n.d.	n.a.
B202	n.d.	d (*1)	n.d.	n.d.	n.a.
B203	n.d.	d (*1)	n.d.	n.d.	n.a.
B204	n.d.	n.d.	n.d.	n.d.	n.d.



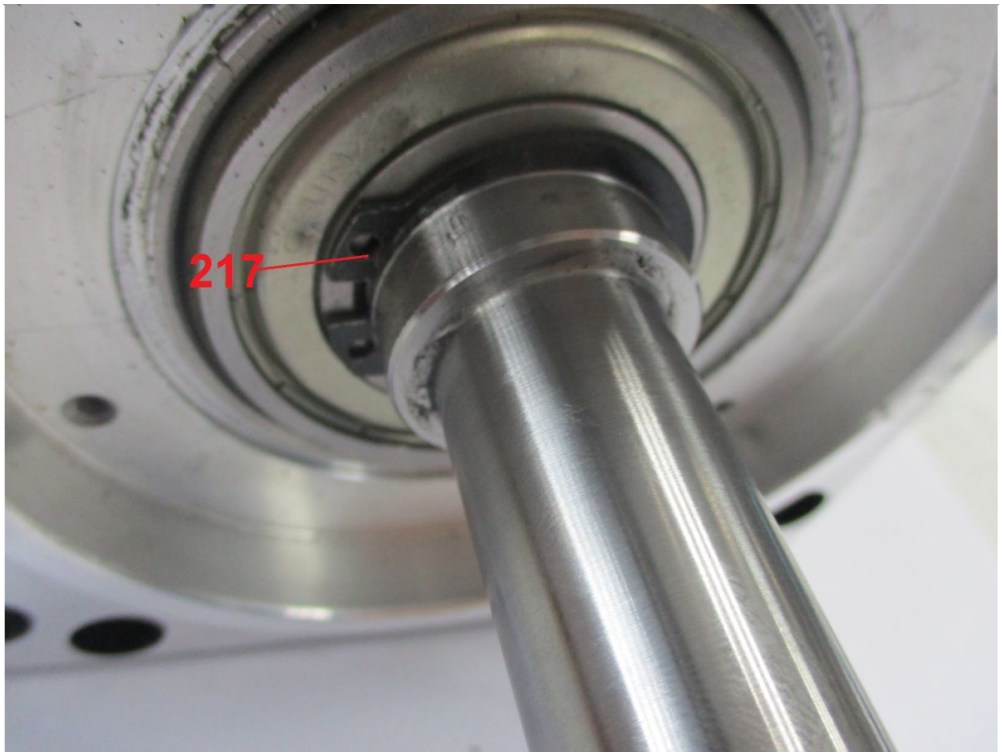
Material No.	Cd	Cr	Pb	Hg	Br
B205	n.d.	n.d.	n.d.	n.d.	n.a.
B206	n.d.	n.d.	n.d.	n.d.	n.d.
B207	n.d.	n.d.	n.d.	n.d.	d (*1)
B208	n.d.	n.d.	n.d.	n.d.	n.d.
B209	n.d.	n.d.	n.d.	n.d.	d (*1)
B210	n.d.	n.d.	n.d.	n.d.	n.d.



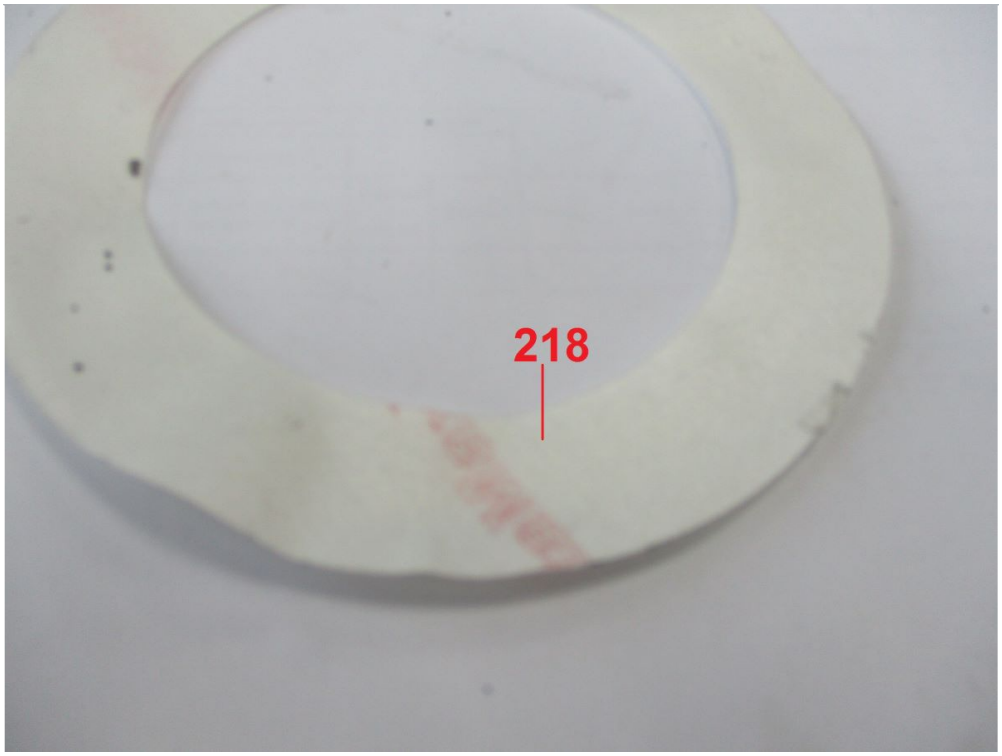
Material No.	Cd	Cr	Pb	Hg	Br
B211	n.d.	n.d.	n.d.	n.d.	n.d.
B212	n.d.	n.d.	n.d.	n.d.	n.a.



Material No.	Cd	Cr	Pb	Hg	Br
B214	n.d.	n.d.	n.d.	n.d.	n.d.
B215	n.d.	n.d.	n.d.	n.d.	n.a.
B216	n.d.	d (*1)	n.d.	n.d.	n.a.



Material No.	Cd	Cr	Pb	Hg	Br
B217	n.d.	n.d.	n.d.	n.d.	n.a.



Material No.	Cd	Cr	Pb	Hg	Br
B218	n.d.	n.d.	n.d.	n.d.	n.d.

Abbreviation: Pb = Lead
Cd = Cadmium
Hg = Mercury
Cr = Chromium
Br = Bromine
n.a. = not applicable
n.d.= not detected
d.= detected

Remark:

(*1) The screening result was found in the inconclusive region, thus the further wet chemistry tests are suggested.

(*2) The screening result was detected above the screening limits, thus the further wet chemistry tests are suggested.

(*3) For metal sample, the Chromium (VI) content has been confirmed with reference to IEC 62321-7-1:2015.

(*4) For plastic sample or electronic sample, the Chromium (VI) content has been confirmed with reference to IEC 62321-7-2:2017.

(*5) For leather sample, the Chromium (VI) content has been confirmed with reference to EN ISO 17075-1:2017.

(*6) The screening result of Cr was found in the inconclusive region, thus the chromium (VI) content have been confirmed with EN ISO 17075-1:2017.

(*7) Component(s)/ materials(s) with an area of less than 2mm x2 mm will not be selected for testing according to RoHS Directive 2011/65/EU due to technical reason.
For the test sample does not have detail materials information provided by client, visually identical materials (e.g. wire insulation, solder points, etc.) will be considered as the same material.
Solder points on a printing circuit board will be examined several times based on optical anomalies or discoloration of the solder point(s) unless the solder point(s) is obviously generated automatically during production.
All other materials will be sampled and tested at one test point representatively.

(*8) The Chromium (Cr) and Bromine (Br) in the above result table indicate the total chromium and total bromine by means of XRF screening.
PBBs, or PBDEs content shall be further confirmed with reference to IEC 62321-6:2015.
Chromium (VI) shall be further confirmed with reference to IEC 62321-7-1:2015, IEC 62321-7-2:2017 or EN ISO 17075-1:2017.

XRF Screening limits for different matrices :

Material	Concentration (%)				
	Cd	Cr	Pb	Hg	Br
Polymeric	P≤0.006<X≤0.014<F	P≤0.064<X	P≤0.067<X≤0.133<F	P≤0.066<X≤0.134<F	P≤0.029<X
Metallic	P≤0.006<X≤0.014<F	P≤0.064<X	P≤0.067<X≤0.133<F	P≤0.066<X≤0.134<F	NA
Electronic Components	P≤0.004<X≤0.016<F	P≤0.044<X	P≤0.047<X≤0.153<F	P≤0.046<X≤0.154<F	P≤0.024<X

2.(HM) Cadmium, Lead, Chromium (VI), Mercury, Polybrominated biphenyls (PBB) and Polybrominated diphenyl ethers (PBDE)

Test Method: Total Cadmium, Lead, Mercury, Chromium
- Ref. to IEC 62321-4:2013+AMD1:2017 and IEC 62321-5:2013

Chromium (VI)
- For Metal material - Ref. to IEC 62321-7-1:2015
- For Plastic or Electronic material - Ref. to IEC 62321-7-2:2017
- For Leather material - Ref. to EN ISO 17075-1:2017

PBBs, PBDEs - Ref. to IEC 62321-6:2015

Material List:

Material No.	Material	Color	Location	Test plan A = Test HM only B = Test FR only C = Test HM + FR
B002	Plastic	grey	refer to photo	B
B004	Plastic	grey	refer to photo	B
B007	PCB board	green	refer to photo	B
B013	Electronic components	black	refer to photo	A
B015	Plastic	black	refer to photo	B
B017	Plastic	black	refer to photo	B
B019	Plastic	black	refer to photo	B
B023	Plastic	black	refer to photo	B
B025	Metal	silver	refer to photo	A
B029	Plastic	black	refer to photo	B
B033	Plastic	grey	refer to photo	B
B034	Plastic	black	refer to photo	B
B039	Metal	silver	refer to photo	A
B041	Metal	silver	refer to photo	A
B042	Metal	silver	refer to photo	A
B050	Metal	silver	refer to photo	A
B051	Metal	black	refer to photo	A
B052	Metal	silver	refer to photo	A
B054	Plastic	black	refer to photo	B
B057	Metal	silver	refer to photo	A
B058	Plastic	black	refer to photo	B
B059	Metal	silver	refer to photo	A
B060	Metal	silver	refer to photo	A
B066	Metal	silver	refer to photo	A

B067	PCB board	brown	refer to photo	B
B068	Plastic	black	refer to photo	B
B077	Plastic	black	refer to photo	B
B078	Plastic	red	refer to photo	B
B081	Plastic	white	refer to photo	B
B086	Plastic	black	refer to photo	B
B088	Electronic components	white	refer to photo	B
B093	Plastic	grey	refer to photo	B
B094	Plastic	grey	refer to photo	B
B125	Metal	green	refer to photo	A
B126	Metal	green	refer to photo	A
B132	Plastic	black	refer to photo	B
B141	Plastic	black	refer to photo	B
B149	Metal	silver	refer to photo	A
B151	Metal	silver	refer to photo	A
B157	Metal	black	refer to photo	A
B158	Metal	black	refer to photo	A
B159	Metal	black	refer to photo	A
B160	Metal	black	refer to photo	A
B161	Metal	black	refer to photo	A
B166	Metal	black	refer to photo	A
B169	Metal	silver	refer to photo	A
B171	Metal	golden	refer to photo	A
B179	PCB board	green	refer to photo	B
B188	Glass	mirror	refer to photo	A
B190	Plastic	blue	refer to photo	B
B191	Metal	golden	refer to photo	A
B192	PCB board	green	refer to photo	B
B195	Metal	silver	refer to photo	A
B196	Metal	silver	refer to photo	A
B202	Metal	silver	refer to photo	A
B203	Metal	silver	refer to photo	A
B207	Plastic	blue	refer to photo	B
B209	Plastic	red	refer to photo	B
B216	Metal	black	refer to photo	A

Test Report No.: 0154383681b 001

Abbreviation: HM (Heavy metal) = Cd, Pb, Hg, Cr (VI)
FR (Flame Retardant) = PBBs, PBDEs

Test Result:

	Cd	Cr(VI)	Pb	Hg	PBBs (*)	PBDEs (*)
Maximum Permissible Limit (%)	0.01	0.1	0.1	0.1	0.1	0.1

Material No.	(%)					
	Cd	Cr^	Pb	Hg	PBBs (*)	PBDEs (*)
	RL(%)					
	0.001	0.001	0.001	0.001	0.0005	0.0005
B002	n.a.	n.a.	n.a.	n.a.	n.d.	0.0805
B004	n.a.	n.a.	n.a.	n.a.	n.d.	0.0887
B007	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B013	n.a.	n.a.	0.455 *4	n.a.	n.a.	n.a.
B015	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B017	n.a.	n.a.	n.a.	n.a.	n.d.	0.0014
B019	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B023	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B029	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B033	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B034	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B054	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B058	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B067	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B068	n.a.	n.a.	n.a.	n.a.	n.d.	0.0044
B077	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B078	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B081	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B086	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B088	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B093	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B094	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B132	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B141	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.

B171	n.a.	n.a.	3.67 *3	n.a.	n.a.	n.a.
B179	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B190	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B191	n.a.	n.a.	3.82 *3	n.a.	n.a.	n.a.
B192	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B207	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.
B209	n.a.	n.a.	n.a.	n.a.	n.d.	n.d.

Material No.	Hexavalent Chromium Content (µg/cm²) (*1) RL: 0.10 µg/cm²
B025	Negative
B039	Negative
B041	Negative
B042	Negative
B050	Negative
B051	Negative
B052	Negative
B057	Negative
B059	Negative
B060	Negative
B066	Negative
B125	Negative
B126	Negative
B149	Negative
B151	Negative
B157	Negative
B158	Negative
B159	Negative
B160	Negative
B161	Negative
B166	Negative
B169	Negative
B195	Negative
B196	Negative
B216	Negative
B202	Negative
B203	Negative

Material No.	Hexavalent Chromium Content (%) (*2) RL: 0.01%
B188	n.d.

Abbreviation:

Pb	= Lead
Cd	= Cadmium
Hg	= Mercury
Cr	= Chromium
Cr (VI)	= Chromium (VI)
PBBs	= Total Polybrominated Biphenyls
PBDEs	= Total Polybrominated Diphenyl Ethers
n.d.	= Not Detected (<RL)
RL	= Reporting Limit
n.a.	= Not Applicable
^	= The total Chromium have been determined
%	= percentage

Remark:

(*1) The total chromium content in Metal sample was found to be exceeded the maximum permissible limit (0.1%). Thus, the Chromium (VI) content in surface layer have been confirmed with reference to IEC 62321-7-1:2015 Annex.

	Chromium (VI) concentration	Qualitative result
Negative	<0.1μg/cm²	The sample is negative (-ve) for Cr(VI). The Cr(VI) concentration is below the limit of quantification. The coating is considered a non-Cr(VI) based coating
Inconclusive	≥0.1μg/cm² and ≤0.13 μg/cm²	The result is considered to be inconclusive. Unavoidable coating variations may influence the determination. Recommendation: if additional samples are available, perform a total of 3 trials to increase sampling surface area. Use the averaged result of the 3 trails for the final determination.
Positive	>0.13 μg/cm²	The sample is positive (+ve) for Cr(VI). Concentration is above the limit of quantification and the statistical margin of error. The sample coating is considered to contain Cr(VI).

*2 The total chromium content in plastic sample or electronic sample was found to be exceeded the maximum permissible limit (0.1%).Thus, the Chromium (VI) content have been confirmed with reference to IEC 62321-7-2:2017.

*3 According to Annex III of directive 2011/65/EU, Lead as an alloying element in steel containing up to 0,35 % lead by weight, aluminium containing up to 0,4 % lead by weight and as a copper alloy containing up to 4 % lead by weight are exempted from requirement

*4 denotes exemption applications 7(c)-I Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound.

* The reporting limit for each individual PBBs and individual PBDEs are :

Reporting Limit (%)		
PBBs	Bromobiphenyl	0.0001
	Dibromobiphenyl	0.0001
	Tribromobiphenyl	0.0001
	Tetrabromobiphenyl	0.0001
	Pentabromobiphenyl	0.0002
	Hexabromobiphenyl	0.0002
	Heptabromobiphenly	0.0002
	Octabromobiphenyl	0.0005
	Nonabromobiphenyl	0.0005
	Decabromobiphenyl	0.0005
PBDEs	Bromodiphenylether	0.0001
	Dibromodiphenyl ether	0.0001
	Tribromodiphenyl ether	0.0001
	Tetrabromodiphenyl ether	0.0001
	Pentabromodiphenyl ether	0.0002
	Hexabromodiphenyl ether	0.0002
	Heptabromodiphenyl ether	0.0002
	Octabromodiphenyl ether	0.0005
	Nonabromodiphenyl ether	0.0005
	Decabromodiphenyl ether	0.0005

4. BBP, DBP, DEHP, DIBP content

Test Method: IEC 62321-8:2017

Test Result:

	BBP	DBP	DEHP	DIBP
Maximum permissible Limit (%)	0.1	0.1	0.1	0.1

Test No.	Material No.	(%)			
		BBP	DBP	DEHP	DIBP
		RL (%)			
		0.005	0.005	0.005	0.005
T001	B014	n.d.	n.d.	n.d.	n.d.
T002	B034	n.d.	n.d.	n.d.	n.d.
T003	B047	n.d.	n.d.	n.d.	n.d.
T004	B061	n.d.	n.d.	n.d.	n.d.
T005	B062	n.d.	n.d.	n.d.	n.d.
T006	B063	n.d.	n.d.	n.d.	n.d.
T007	B105	n.d.	n.d.	n.d.	n.d.
T008	B145	n.d.	n.d.	n.d.	n.d.
T009	B162	n.d.	n.d.	n.d.	n.d.
T010	B164	n.d.	n.d.	n.d.	n.d.
T011	B165	n.d.	n.d.	n.d.	n.d.
T012	B172	n.d.	n.d.	n.d.	n.d.
T013	B173	n.d.	n.d.	n.d.	n.d.
T014	B175	n.d.	n.d.	n.d.	n.d.
T015	B182	n.d.	n.d.	n.d.	n.d.
T016	B185	n.d.	n.d.	n.d.	n.d.
T017	B197	n.d.	n.d.	n.d.	n.d.
T018	B199	n.d.	n.d.	n.d.	n.d.
T019	B206	n.d.	n.d.	n.d.	n.d.
T020	B207	n.d.	n.d.	n.d.	n.d.
T021	B208	n.d.	n.d.	n.d.	n.d.
T022	B209	n.d.	n.d.	n.d.	n.d.
T023	B210	n.d.	n.d.	n.d.	n.d.
T024	B211	n.d.	n.d.	n.d.	n.d.

Abbreviation:

BBP= Benzylbutyl phthalate
DBP= Dibutyl phthalate
DEHP= Bis(2-ethylhexyl) phthalate
DIBP= Diisobutyl phthalate
n.d.= Not Detected (< Reporting Limit)
RL = Reporting Limit
N.A. = Not Applicable
%= percentage

Sample Photos





- END -

General Terms and Conditions of Business of TÜV Rheinland in Greater China

1. Scope

1.1 These General Terms and Conditions of Business of TUV Rheinland in Greater China is made between the client and one or more member entities of TUV Rheinland in Greater China as applicable as the case may be ("TÜV Rheinland").

1.2 The following terms and conditions apply to agreed services including consultancy services, information, deliveries and similar services as well as ancillary services and other secondary obligations provided within the scope of contract performance.

1.3 Any standard terms and conditions of the client of any nature shall not apply and shall hereby be expressly excluded. No standard contractual terms and conditions of the client shall form part of the contract even if TÜV Rheinland does not explicitly object to them.

2. Quotations

Unless otherwise agreed, all quotations submitted by TÜV Rheinland can be changed by TÜV Rheinland without notice prior to its acceptance and confirmation by the other party.

3. Coming into effect and duration of contracts

3.1 The contract shall come into effect for the agreed terms upon the quotation letter of TÜV Rheinland or a separate contractual document being signed by both contracting parties, or upon the works requested by the client being carried out by TÜV Rheinland. If the client instructs TÜV Rheinland without receiving a quotation from TÜV Rheinland (quotation), TÜV Rheinland is, in its sole discretion, entitled to accept the order by giving written notice of such acceptance (including notice sent via electronic means) or by performing the requested services.

3.2 The contract term starts upon the coming into effect of the contract in accordance with article 3.1 and shall continue for the term agreed in the contract.

3.3 If the contract provides for an extension of the contract term, the contract term will be extended by the term provided for in the contract unless terminated in writing by either party with a six-week notice prior to the end of the contractual term.

4. Scope of services

4.1 The scope of the services shall be decided solely by a unanimous declaration issued by both parties. If no such declaration exists, then the written confirmation of order by TÜV Rheinland shall be decisive.

4.2 The agreed services shall be performed in compliance with the regulations in force at the time the contract is entered into.

4.3 TÜV Rheinland is entitled to determine, in its sole discretion, the method and nature of the assessment unless otherwise agreed in writing or if mandatory provisions require a specific procedure to be followed.

4.4 On execution of the work there shall be no simultaneous assumption of any guarantee of the correctness (proper quality) and working order of either tested or examined parts nor of the installation as a whole and its upstream and/or downstream processes, organisations, use and application in accordance with regulations, nor of the systems on which the installation is based. In particular, TÜV Rheinland shall assume no responsibility for the construction, selection of materials and assembly of installations examined, nor for their use and application in accordance with regulations unless these questions are expressly covered by the contract.

4.5 In the case of inspection work, TÜV Rheinland shall not be responsible for the accuracy or checking of the safety programmes or safety regulations on which the inspections are based, unless otherwise expressly agreed in writing.

5. Performance periods/dates

5.1 The contractually agreed periods/dates of performance are based on estimates of the work involved which are prepared in line with the details provided by the client. They shall only be binding if being confirmed as binding by TÜV Rheinland in writing.

5.2 If binding periods of performance have been agreed, these periods shall not commence until the client has submitted all required documents to TÜV Rheinland.

5.3 Articles 5.1 and 5.2 also apply, even without express approval by the client, to all extensions of agreed periods/dates of performance not caused by TÜV Rheinland.

6. The client's obligation to cooperate

6.1 The client shall guarantee that all cooperation required on its part, its agents or third parties will be provided in good time and at no cost to TÜV Rheinland.

6.2 Design documents, supplies, auxiliary staff, etc. necessary for performance of the services shall be made available free of charge by the client. Moreover, collaborative action of the client must be undertaken in accordance with legal provisions, standards, safety regulations and accident prevention instructions.

6.3 The client shall bear any additional cost incurred on account of work having to be redone or being delayed as a result of late, incorrect or incomplete information provided by or lack of proper cooperation from the client. Even where a fixed or maximum price is agreed, TÜV Rheinland shall be entitled to charge extra fees for such additional expense.

7. Invoicing of work

7.1 If the scope of performance is not laid down in writing when the order is placed, invoicing shall be based on costs actually incurred. If no price is agreed in writing, invoicing shall be made in accordance with the price list of TÜV Rheinland valid at the time of performance.

7.2 Unless otherwise agreed, work shall be invoiced according to the progress of the work.

7.3 If the execution of an order extends over more than one month and the value of the contract or the agreed fixed price exceeds €2,500.00 or equivalent value in local currency, TÜV Rheinland may demand payments on account or in instalments.

8. Payment terms

8.1 All invoice amounts shall be due for payment without deduction on receipt of the invoice. No discounts shall be granted.

8.2 Payments shall be made to the bank account of TÜV Rheinland as indicated on the invoice, stating the invoice and customer numbers.

8.3 In cases of default of payment, TÜV Rheinland shall be entitled to claim default interest at the applicable short term loan interest rate publicly announced by a reputable commercial bank in the country where TÜV Rheinland is located. At the same time, TÜV Rheinland reserves the right to claim further damages.

8.4 Should the client default in payment of the invoice despite being granted a reasonable grace period, TÜV Rheinland shall be entitled to cancel the contract, withdraw the certificate, claim damages for non-performance and refuse to continue performance of the contract.

8.5 The provisions set forth in article 8.4 shall also apply in cases involving returned cheques, cessation of payment, commencement of insolvency proceedings against the client's assets or cases in which the commencement of insolvency proceedings has been dismissed due to lack of assets.

8.6 Objections to the invoices of TÜV Rheinland shall be submitted in writing within two weeks of receipt of the invoice.

8.7 TÜV Rheinland shall be entitled to demand appropriate advance payments.

8.8 TÜV Rheinland shall be entitled to raise its fees at the beginning of a month if overheads and/or purchase costs have increased. In this case, TÜV Rheinland shall notify the client in writing of the rise in fees. This notification shall be issued one month prior to the date on which the rise in fees shall come into effect (period of notice of changes in fees). If the rise in fees remains under 5% per contractual year, the client shall not have the right to terminate the contract. If the rise in fees exceeds 5% per contractual year, the client shall be entitled to terminate the contract by the end of the period of notice of changes in fees. If the contract is not terminated, the changed fees shall be deemed to have been agreed upon by the time of the expiry of the notice period.

8.9 Only legally established and undisputed claims may be offset against claims by TÜV Rheinland.

9. Acceptance

9.1 Any part of the work ordered which is complete in itself may be presented by TÜV Rheinland for acceptance as an instalment. The client shall be obliged to accept it immediately.

9.2 If the client fails to fulfil its acceptance obligation immediately, acceptance shall be deemed to have taken place 4 calendar weeks after completion of the work provided that TÜV Rheinland has specifically made the client aware of the aforementioned deadline upon completion of the work.

10. Confidentiality

10.1 For the purpose of these terms and conditions, "confidential information" means all information, documents, images, drawings, know-how, data, samples and project documentation which one party (the "disclosing party") hands over, transfers or otherwise discloses to the other party (the "receiving party"). Confidential information also includes paper copies and electronic copies of such information.

10.2 The disclosing party shall mark all confidential information disclosed in written form as confidential before passing it onto the receiving party. The same applies to confidential information transmitted by e-mail. If confidential information is disclosed orally, the receiving party shall be appropriately informed in advance and the disclosing party shall cconfirm in writing the confidentiality nature of the information within five working days of oral disclosure. Where the disclosing party fails to do so within the stipulated period, the receiving party shall not take any confidentiality obligations hereunder towards such information.

10.3 All confidential information which the disclosing party transmits or otherwise discloses to the receiving party during performance of work by TÜV Rheinland:

a) may only be used by the receiving party for the purposes of performing the contract, unless expressly otherwise agreed in writing by the disclosing party;

b) may not be copied, distributed, published or otherwise disclosed by the receiving party, unless this is necessary for fulfilling the purpose of the contract or TÜV Rheinland is required to pass on confidential information, inspection reports or documentation to the government authorities, judicial court, accreditation bodies or third parties that are involved in the performance of the contract;

c) must be treated by the receiving party with the same level of confidentiality as the receiving party uses to protect its own confidential information, but never with a lesser level of confidentiality than that which is reasonably required.

10.4 The receiving party may disclose any confidential information received from the disclosing party only to those of its employees who need this information to perform the services required for the contract. The receiving party undertakes to oblige these employees to observe the same level of secrecy as set forth in this confidentiality clause.

10.5 Information for which the receiving party can furnish proof that:

a) it was generally known at the time of disclosure or has become general knowledge without violation of this confidentiality clause by the receiving party; or

b) it was disclosed to the receiving party by a third party entitled to disclose this information; or

c) the receiving party already possessed this information prior to disclosure by the disclosing party; or

d) the receiving party developed it itself, irrespective of disclosure by the disclosing party, shall not be deemed to constitute "confidential information" as defined in this confidentiality clause.

10.6 All confidential information shall remain the property of the disclosing party. The receiving party hereby agrees to immediately (i) return all confidential information, including all copies, to the disclosing party, and/or (ii) on request by the disclosing party, to destroy all confidential information, including all copies, and confirm the destruction of this confidential information to the disclosing party in writing, at any time if so requested by the disclosing party but at the latest and without special request after termination or expiry of the contract. This does not extend to include reports and certificates prepared for the client solely for the purpose of fulfilling the obligations under the contract, which shall remain with the client. However, TÜV Rheinland is entitled to make file copies of such reports, certificates and confidential information that forms the basis for preparing these reports and certificates in order to evidence the correctness of its results and for general documentation purposes required by laws, regulations and the requirements of working procedures of TÜV Rheinland.

10.7 From the start of the contract and for a period of three years after termination or expiry of the contract, the receiving party shall maintain strict secrecy of all confidential information and shall not disclose this information to any third parties or use it for itself.

11. Copyrights

11.1 TÜV Rheinland shall retain all exclusive copyrights in the expert reports, test results, calculations, presentations etc. prepared by TÜV Rheinland.

11.2 The client may only use such expert reports, test results, calculations, presentations etc. prepared within the scope of the contract for the contractually agreed purpose.

11.3 The client may use test reports, test results, expert reports, etc. only complete and unshortened. Any publication or duplication for advertising purposes needs the prior written approval of TÜV Rheinland.

12. Liability of TÜV Rheinland

12.1. Irrespective of the legal basis, in the event of a breach of contractual obligations or tort, the liability of TÜV Rheinland for all damages, losses and reimbursement of expenses caused by TÜV Rheinland, its legal representatives and/or employees shall be limited to: (i) in the case of a contract with a fixed overall fee, three times the overall fee for the entire contract; (ii) in the case of a contract for annually recurring services, the agreed annual fee; (iii) in the case of a contract expressly charged on a time and material basis, a maximum of 20,000 Euro or equivalent amount in local currency; and (iv) in the case of a framework agreement that provides for the possibility of placing individual orders, three times of the fee for the individual order under which the damages or losses have occurred. Notwithstanding the above, in the event that the total and accumulated liability calculated according to the foregoing provisions exceeds 2.5 Million Euro or equivalent amount in local currency, the total and accumulated liability of TÜV Rheinland shall be only limited to and shall not exceed the said 2.5 Million Euro or equivalent amount in local currency.

12.2 The limitation of liability according to article 12.1 above shall not apply to damages and/or losses caused by malice, intent or gross negligence on the part of TÜV Rheinland or its vicarious agents. Such limitation shall not apply to damages for a person's death, physical injury or illness.

12.3 In cases involving a fundamental breach of contract, TÜV Rheinland will be liable even where minor negligence is involved. For this purpose, a "fundamental breach" is breach of a material contractual obligation, the performance of which permits the due performance of the contract. Any claim for damages for a fundamental breach of contract shall be limited to the amount of damages reasonably foreseen as a possible consequence of such breach of contract at the time of the breach (reasonably foreseeable damages), unless any of the circumstances described in article 12.2 applies.

12.4 TÜV Rheinland shall not be liable for the acts of the personnel made available by the client to support TÜV Rheinland in the performance of its services under the contract, unless such personnel made available is regarded as vicarious agent of TÜV Rheinland. If TÜV Rheinland is not liable for the acts of the personnel made available by the client under the foregoing provision, the client shall indemnify TÜV Rheinland against any claims made by third parties arising from or in connection with such personnel's acts.

12.5 The limitation periods for claims for damages shall be based on statutory provisions.

12.6 None of the provisions of this article 12 changes the burden of proof to the disadvantage of the client.

13. Partial invalidity, written form, place of jurisdiction and dispute resolution

13.1 All amendments and supplements must be in writing in order to be effective. This also applies to amendments and supplements to this clause 13.1.

13.2 Should one or several of the provisions under the contract and/or these terms and conditions be or become ineffective, the contracting parties shall replace the invalid provision with a legally valid provision that comes closest to the content of the invalid provision in legal and commercial terms.

13.3 Unless otherwise stipulated in the contract, the governing law of the contract and these terms and conditions shall be chosen following the rules as below:

a) if TÜV Rheinland in question is legally registered and existing in the People's Republic of China, the contracting parties hereby agree that the contract and these terms and conditions shall be governed by the laws of the People's Republic of China.

b) if TÜV Rheinland in question is legally registered and existing in Taiwan, the contracting parties hereby agree that the contract and these terms and conditions shall be governed by the laws of Taiwan.

c) if TÜV Rheinland in question is legally registered and existing in Hong Kong, the contracting parties hereby agree that the contract and these terms and conditions shall be governed by the laws of Hong Kong.

13.4 Any dispute in connection with the contract and these terms and conditions or the execution thereof shall be settled friendly through negotiations.

Unless otherwise stipulated in the contract, if no settlement or no agreement in respect of the extension of the negotiation period can be reached within two months of the arising of the dispute, the dispute shall be submitted:

a) in the case of TÜV Rheinland in question being legally registered and existing in the People's Republic of China, to China International Economic and Trade Arbitration Commission (CIETAC) to be settled by arbitration under the Arbitration Rules of CIETAC in force when the arbitration is submitted. The arbitration shall take place in Beijing, Shanghai, Shenzhen or Chongqing as appropriately chosen by the claiming party.

b) in the case of TÜV Rheinland in question being legally registered and existing in Taiwan, to Chinese Arbitration Association Taipei Branch to be arbitrated in accordance with its then current Rules of Arbitration. The arbitration shall take place in Taipei.

c) in the case of TÜV Rheinland being legally registered and existing in Hong Kong, to Hong Kong International Arbitration Centre (HKIAC) to be settled by arbitration under the HKIAC Administered Arbitration Rules in force when the Notice of Arbitration is submitted in accordance with these rules. The arbitration shall take place in Hong Kong.

The decision of the relevant arbitration tribunal shall be final and binding on both parties. The arbitration fee shall be borne by the losing party.