

Änderungsmitteilung (CN) Product Change Notification

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Title [Title] Improved performance Implementation of new corporate design Implementation of new labelling process New protection feature New Thailand approval	Date [Datum] 26.Aug.2019	Ref. No. [Lfd. Nr.] CN_18_037 (Update A)
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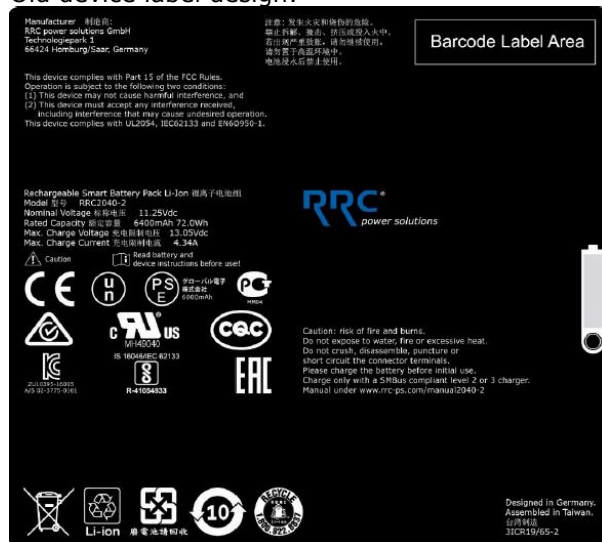
Part Name [Teilebezeichnung]	RRC Article No. [RRC Art-Nr.]	Index	Customer Article No. [Kunden Art-Nr.]	Index
RRC2040-2	100559	-05 (pre-production) -06 (mass-production)		

Reason for Change [Grund für die Änderung]	<input checked="" type="checkbox"/> Design [Design]	<input checked="" type="checkbox"/> Logistics [Logistik]	<input type="checkbox"/> Manufacturing Location [Fertigungsverlagerung]
	<input type="checkbox"/> Processing [Verfahren]	<input checked="" type="checkbox"/> Material [Material]	<input checked="" type="checkbox"/> Quality / Reliability [Qualität / Zuverlässigkeit]

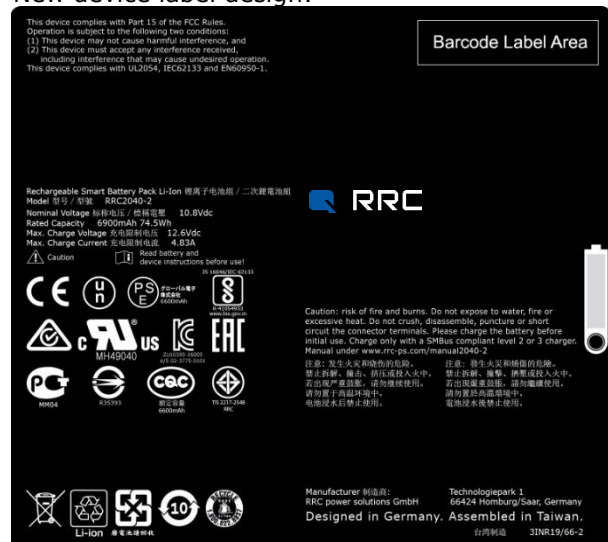
Change Description [Beschreibung der Änderung]

1. RRC has renovated its corporate design including the company logo. This will be reflected by the changes on the label. Content information is not affected.

Old device label design:



New device label design:



2. Improved cell to increase the overall performance
 - a. Improved nominal capacity/energy: 6.90Ah instead of 6.40Ah / 74.5Wh instead of 72.0Wh
 - b. Nominal voltage: 10.80V instead of 11.25V
 - c. Improved charge current: 4.83A instead of 4.34A
 - d. Charge voltage: 12.60V instead of 13.05V
 - e. Improved discharge current: 7.50A instead of 6.50A @ 25°C

3. New protection feature

The life end control mechanism prevents the battery from being overcharged when the battery is significantly aged.

This protection feature is based on the "state of health" of the battery. The "state of health" (SOH) is the ratio of FullChargeCapacity() and DesignCapacity(). If the SOH drops down to less than 70%, the requested charge voltage of the smart battery will slightly decreased from 4.20V to 4.15V, allowing any smart charger to automatically react.

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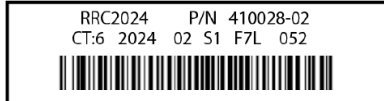
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Life end control is a safety feature which reduces the risk of age-related critical conditions.

RRC has renovated its logistic process. This will be reflected by the changes on the labels for battery and packaging. With upcoming mass-production (100559-06), we will implement these design changes.

4. Barcode label on battery and on single box will change

Old barcode label design, e.g.:



New barcode label design, e.g.:



The definition of the content on the new barcode label is shown in separate document (SCD_205583-05_y_Hard-Pack_Label.pdf).

5. Serial number definition will change

As shown in above barcode labels the serial number definition will change. Most customer's complaint to have the date code integrated in the alphanumeric serial number only. Now we extract it from the serial number and will have it in format YYWW (year + week, e.g. 1950), same as on the chargers. The new date code is available on the battery's barcode label, the single-box label and the outer-box label.

We deleted the prefix section "CT:6" from the serial number. Next sections for model code, revision of pre-assembly and factory line remains the same. The last six digits are now in hex format and reserved for the continuous numeration of the production units.

6. Single-Box label will change

Old single-box label design, e.g.:



New single-box label design, e.g.:



The definition of the content of new single-box label is shown in separate document (SCD_205785-06_y_Battery_Single-Box_Label.pdf).

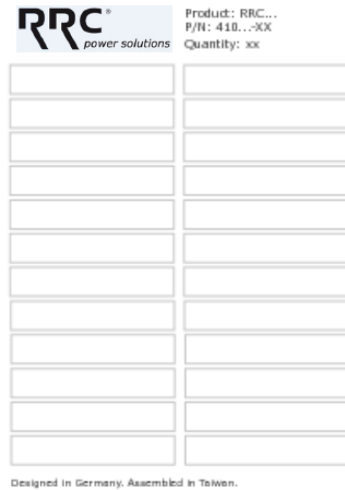
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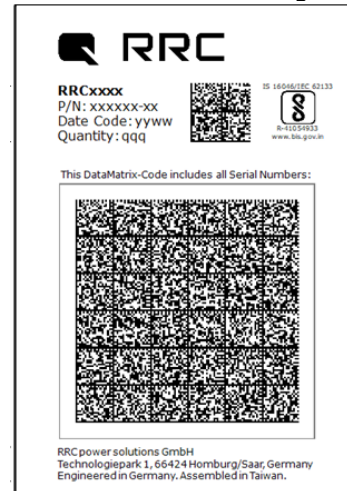
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7. Barcode label on outer-box will change

Old barcode label design:



New barcode label design:



The definition of the content of new outer-box label is shown in separate document (SCD_211476-02_y_Battery_Outer-Box_Label_105x74,25mm.pdf).
 The large data matrix code will include the serial numbers of all 24 batteries packed in one outer-box. The smaller one will include model code, part number and date code.

8. New approval mark

The mass-production of RRC2040-2 will comply with the country specific approval for Thailand and shows the corresponding TISI mark on the device label.

Identification of Change [Erkennen der Änderung]

Traceability is ensured by revision step, see paper label on the single box for each battery as well as on the outer box for 24 pieces of batteries (please examples above).

Impact on Quality and / or Reliability [Auswirkungen auf die Qualität bzw. die Zuverlässigkeit]

Improvement of quality, reliability and traceability.

Battery pack is fully compatible to former revisions.

Qualification Data [Nachweise]	<input checked="" type="checkbox"/> Available [verfügbar]	<input type="checkbox"/> Will be available [wird verfügbar sein]	<input type="checkbox"/> Not applicable [nicht zutreffend]
Samples [Muster]	<input checked="" type="checkbox"/> Available [verfügbar]	<input type="checkbox"/> Will be available [wird verfügbar sein]	<input type="checkbox"/> Not applicable [nicht zutreffend]

Estimated implementation Date* [Voraussichtliches Datum der Einführung]	Last Time Buy of pre-change product [letzte Bestellung für ungeändertes Produkt bis]	Last Time Ship of pre-change product [letzte Lieferung des ungeänderten Produkts]
a) Pre-production samples for customer approval (#100559-05) with CB, CE, UL, PSE and UN approval available in August 2019	na	September 2019
b) Mass-production (#100559-06) with worldwide approvals available from October 2019		

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*: The estimated implementation Date is the forecasted date that a customer may expect to receive the changed product. This is determined by the estimated date of inventory depletion on the Product Change Notification (CN) issue date. This may be affected by fluctuation in supply and demand. Consequently, although customers should be prepared to receive changed product on this date, RRC will continue to ship pre-changed product until a time in which inventory has been depleted. This may result in pre-changed product shipped to customers after this forecast date.

[Das voraussichtliche Datum der Einführung ist ein vorhergesagtes Datum an dem der Kunde das geänderte Produkt erhalten könnte. Dies bestimmt sich durch das voraussichtliche Datum des Lagerbestandsabbaus in Verbindung mit dem Herausgeben der Änderungsmitteilung / Product Change Notification (CN). Dieses wiederum kann beeinflusst werden durch Schwankungen bei Lieferung und Nachfrage. Konsequenterweise, obwohl der Kunde vorbereitet sein sollte das geänderte Produkt zu erhalten, wird RRC weiterhin das ungeänderte Produkt ausliefern, bis zu dem Zeitpunkt, an dem das Lager geräumt ist. Dieser Umstand könnte dazu führen, dass ein ungeändertes Produkt zu einem Zeitpunkt an den Kunden ausgeliefert wird, welcher zeitlich nach dem vorhergesagten Termin liegt.]

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RRC will deem this change accepted unless specific conditions of un-acceptance are provided in writing within 30 days from the date of this notice. All correspondence must be sent to the Quality Contact email address listed above.

[RRC wird diese Änderung als vom Kunden akzeptiert betrachten, wenn nicht innerhalb von 30 Tagen mit ausreichender Begründung in schriftlicher Form widersprochen wird. Jegliche Korrespondenz hierzu muss an die oben genannte email-adresse des zuständigen Qualitäts-Verantwortlichen gesendet werden.]

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