TECHNICAL SERVICE BULLETIN #170

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Helix e*spec Crank Fit Guidance on Avinox M2 / M2S Motors

Provided by	e*thirteen Technical & Engineering Dept.	**Bulletin No.**	TSB #170
Direct questions to	support@ethirteen.com	**Date**	May 2026
Intended for	Distributors, Dealers, Riders	**Revision**	A

1. Background & Issue

e*thirteen manufactures Helix e*spec cranks for eBike motors using the ISIS Drive spindle spline standard, including Avinox motors. Avinox recently released the M2 and M2S motors, both of which use the ISIS Drive spline interface.

Reports from OEM assembly factories and aftermarket customers indicate notable fit variances between Helix e*spec cranks and the Avinox M2 / M2S motor spindle. These variances impact crank installation in one or both of the following ways:

- **Crank not fully pressing onto spindle:** The crankarm may not fully seat onto the motor spindle, even at the recommended installation torque of 45 Nm.
- **Bolt thread engagement difficulty:** The crank bolt may not start threading at standard hand-press depth, making it difficult to begin pressing the arm into place. Forcing the bolt in this condition can cause thread damage.

e*thirteen is working directly with Avinox to resolve the spindle dimensional issue at the source. In the meantime, this bulletin provides guidance to ensure correct and safe installation.

2. Resolution

Scenario A — Crank not fully pressing onto spindle

If the crankarm installs but the gap between the motor spindle clip and the crankarm face is 3.5 mm or greater:

- Apply grease to both the motor spindle splines and the crankarm internal spline bore.
- Install the crankarm and torque the bolt to 45 Nm.
- Check the gap between the spindle clip and the crankarm face.
  - If the gap is less than 3.5 mm: installation is acceptable. Proceed.
  - If the gap is 3.5 mm or greater: remove the crankarm, re-grease, and reinstall to 45 Nm.
- Repeat up to 3 attempts total.
- **If the gap still exceeds 3.5 mm after three attempts:** set the crankset aside and contact support@ethirteen.com before proceeding.

Scenario B — Bolt will not start threading

If the crank bolt will not begin threading at hand-press insertion depth:

- **Do not apply torque to force bolt engagement.** This will damage the bolt thread.
- Remove the crankarm from the spindle.
- Remove the bolt and self-extractor cap assembly using a cassette lockring tool or pin spanner.
- Gently tap the crankarm further onto the spindle using a rubber mallet.
- Reinstall the crank bolt, ensuring the washer is in place under the bolt head.
- Torque the crank bolt to 45 Nm.
- Reinstall the plastic washer over the bolt head and torque the extractor cap to specification.

- Check the gap as described in Scenario A above.

3. Ongoing Monitoring

Due to the M2 / M2S spindle design, the crankarm does not seat against a hard stop during installation — it is retained by bolt clamp load alone. Riders should be aware that over time and with repeated removal and reinstallation, the crankarm may seat progressively deeper on the spindle.

We recommend that riders and mechanics check the following at regular service intervals (every 3 months or after any crankarm removal):

- Re-torque the crank bolt to 45 Nm and check that it holds without creaking.
- Check for any development of creak or play at the crank/motor interface during riding.
- If creaking develops or the bolt will not hold torque, contact support@ethirteen.com.

4. Key Points

Summary
• Avinox M2 and M2S motors can show notable variation in motor spindle ISIS Drive spline tolerances. • This can affect crank installation — either preventing full seating or preventing bolt thread engagement. • Following the guidance in Section 2 resolves installation issues in most cases. • This issue is not present on Avinox M1 motors or on other motor brands using the ISIS Drive spline standard. • Riders should check crank bolt torque and listen for creaking at regular service intervals.

5. Products Covered

Products Included in This Bulletin	Products NOT Included
• Helix Core e*spec ISIS Cranks • Helix Race e*spec Aluminum ISIS Cranks • Helix Race e*spec Carbon ISIS Cranks *When used on Avinox M2 or M2S motors only*	• All Helix e*spec cranks when used with motors other than Avinox M2 / M2S • Helix e*spec cranks on Avinox M1 motors

6. Technical & Identification Information

Installation instructions for Helix e*spec cranks can be found here:

e*spec Crank Installation Instructions — ethirteen.com/support

For technical questions or to report an unresolved installation issue:

- Email: support@ethirteen.com
- Web: ethirteen.com/support