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Frequently Asked Questions

NOVA Drill Press and Lathe Runout Specification

Date Raised: 18 April 2019 Date Amended	Safe practices should always be employed to ensure the Health and Safety of yourself, employees and customers (if applicable) Refer to product manuals, exploded drawings and our website if further assistance is required, or contact us on service@teknatool.com

The runouts must be measured by using a Dial Test Indicator (DTI).
2 Types of DTI are recommended to carry out the inspection at all 3 locations but if there is a run out issue on the product then it should be detected by just using a single type DTI. The 2 types of DTI are shown below:

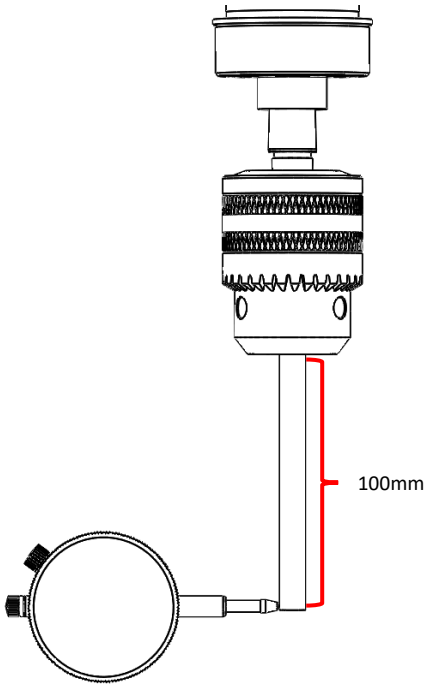
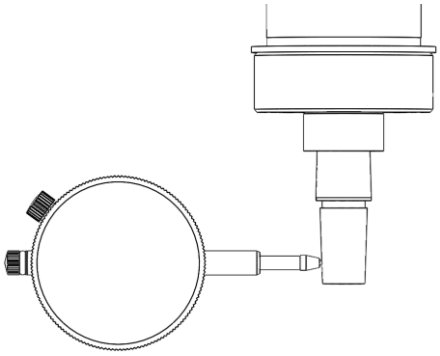
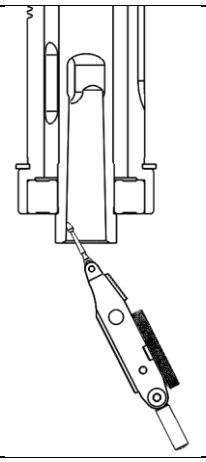
	
Leverage Dial Test Indicator	Regular Dial Test Indicator

For NOVA Drill Presses:

The runout of the NOVA drill presses is measured at 3 locations:

1. Inside the spindle Morse Taper
2. On the end of a MT2-JT33 drill press arbour (Ideally the arbour that is provided with the drill press)
3. At a 100mm point from the chuck (On the tool)

For a run out test, it is important to accurately identify where the excessive runout originates from. Inspection should be carried out from the tip of the 100mm rod and progressed upwards.

Drill press		
Test Number	**Method**	**Image**
1.	1. Attach a 100mm rod or any tool similar to the drill press chuck 2. Locate the DTI perpendicular to the axis of rotation of the tool 3. Run the drill press at the slowest speed possible and take the reading **Note:** When attaching a tool, make sure to use a tool that had no excessive runout on alternative machines If difficult to measure at a 100mm distance from the chuck, the runout can be measured at the furthest point possible. The runout measurement should be ranging between: **-0.18mm ~ +0.18mm** Any reading exceeding this reading will be exceeding the standard.	
2.	Using the drill press chuck Arbor: 1. Locate the DTI perpendicular to the axis of rotation of the tool 2. Run the drill press at the slowest speed possible and take the reading The runout measurement should be ranging between: **-0.04mm ~ +0.04mm** Any reading exceeding this reading will be exceeding the standard.	
3.	This will test will require a leverage DTI. 1. Position the DTI inside the Morse Taper of the quill as shown. 2. Run the drill press at the slowest speed possible and take the reading The runout measurement should be ranging between: **-0.02mm ~ +0.02mm** Any reading exceeding this value will be exceeding the standard tolerances.	

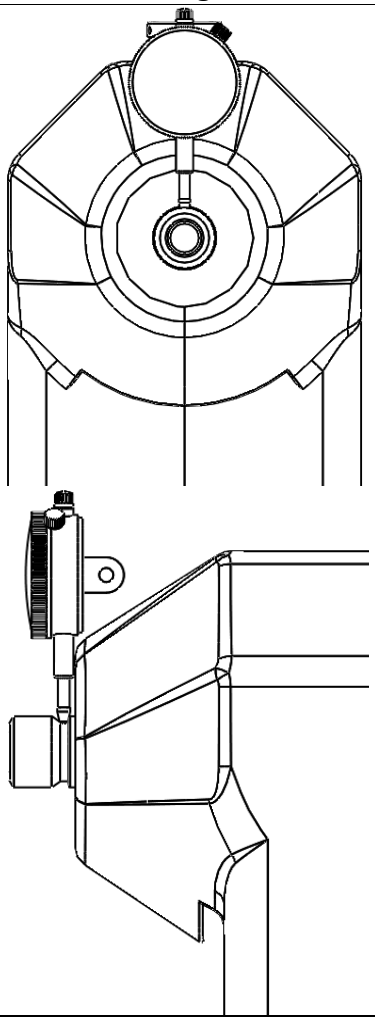
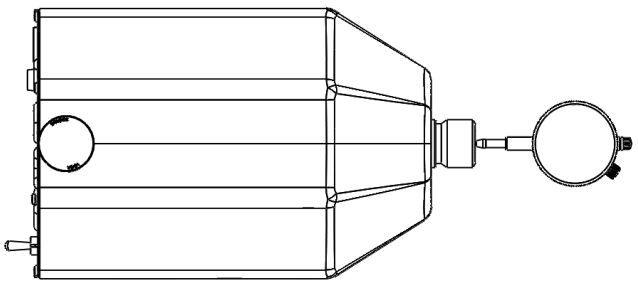
Note:
Runout measurements taken at the chuck is not a part of this inspection as it is not a significant factor that influences the capability of the machine.

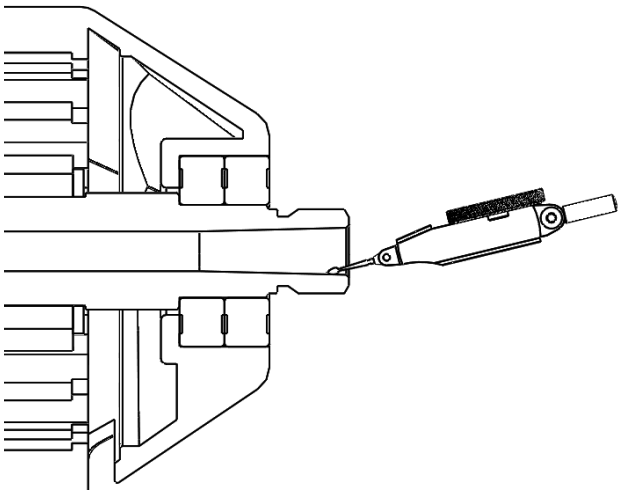
For NOVA Lathes:

The runout of the NOVA lathes is measured in 5 ways; 3 locations without any attachment and 2 location with attachment. Below is a list of where the runout is measured at:

1. Spindle Register (Radial Runout)
2. Front face of the spindle (Axial Runout)
3. Inside the spindle Morse Taper (Morse Taper Accuracy)
4. Radial runout with faceplate attached
5. Axial Runout with faceplate attached

Below is the test method that should be used to test the runout of the lathe spindle:

Lathes – Spindle Runout Measurement		
Test Number	**Method**	**Image**
1.	Measure the radial runout of the spindle itself by: 1. Locate the DTI on the register part of the spindle as shown on the image 2. Run the lathe at the slowest speed possible The runout measurement should be ranging between: **-0.02mm ~ +0.02mm** Any reading exceeding this value will be exceeding the standard tolerances.	
2.	Measure the axial runout of the spindle itself by: 1. Locate the DTI on the front face of the spindle as shown on the image. 2. Run the lathe at the slowest speed possible The runout measurement should be ranging between: **-0.02mm ~ +0.02mm** Any reading exceeding this value will be exceeding the standard tolerances.	

3.	Measure the Morse Taper accuracy by using a vertical type DTI: 1. Locate the DTI in the position where it makes contact with the inner surface of the spindle Morse Taper. 2. Run the lathe at the slowest speed possible The runout measurement should be ranging between: **-0.02mm ~ +0.02mm** Any reading exceeding this value will be exceeding the standard tolerances.	

If one of the tests above shows an excessive value then it can be suspected the runout is occurring from the spindle itself.

Below is the test method that should be used to measure runout of the attached faceplate.

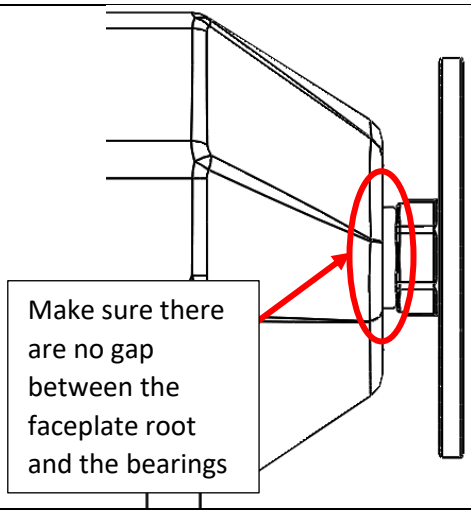
Lathes – Thread Runout Measurement

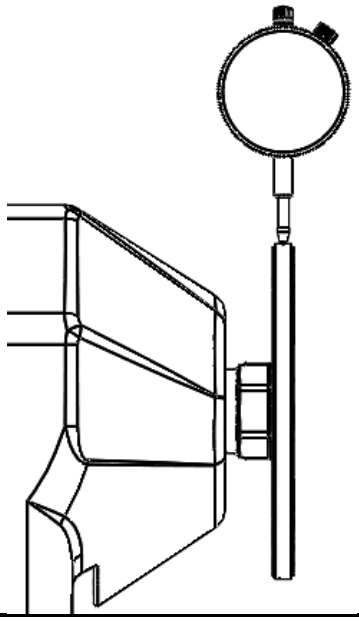
This test will check if the runout is caused by the spindle thread or the attached tool itself.
Multiple thread on tools/ accessories should be used to determine whether the runout is originating from the tool or from the spindle thread.

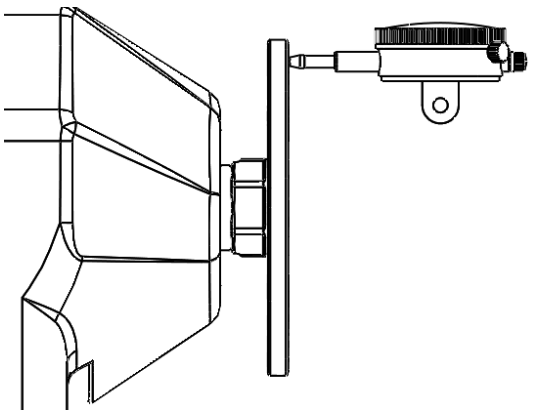
As the NOVA standard procedure, an **80mm faceplate (FP80L)** is used upon inspection process for the lathe runout. The faceplate itself should be tested on various lathes to verify that it has minimal runout itself.

Note:
Single machined tool must be used to measure the runout (e.g. faceplate). Using a combined tool (e.g. Chuck with insert) will result in a magnified reading therefore the results will not be valid.

Before commencing the tests shown below, make sure to correctly screw on the faceplate

Make sure the root of the faceplate is coming into full contact with the lathe bearings. Some force might be required to correctly seat the tool into place. But be cautious of cross threading.	

Test Number	Method	Image
1.	Measure the radial runout of the attached faceplate by: 1. Locate the DTI perpendicular to the spindle rotation axis as shown in the image. 2. Run the lathe at the slowest speed possible. The runout measurement should be ranging between: **-0.13mm ~ +0.13mm** Any reading exceeding this value will be exceeding the standard tolerances.	

2.	Measure the axial runout of the attached tool by: 1. Locate the DTI in the position shown in the image. 2. Run the lathe at the slowest speed possible. The runout measurement should be ranging between: **-0.08mm ~ +0.08mm** Any reading exceeding this value will be exceeding the standard tolerances.	

If one of the tests above shows an excessive value then it can be suspected the runout is occurring from the spindle thread (based on the assumption of the faceplate having minimal runout itself)