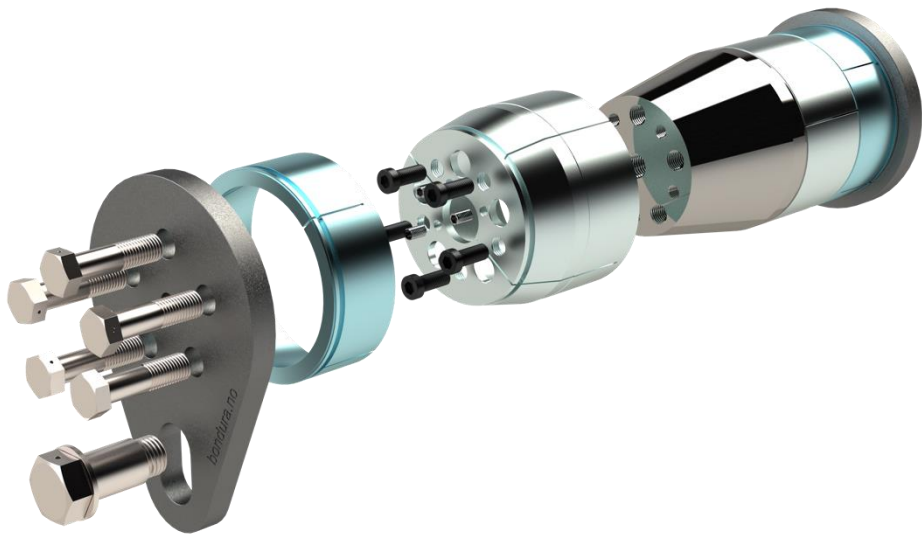


bondura® Expanding Pins

DUAL

Document Article Number: 110137 Ver. A



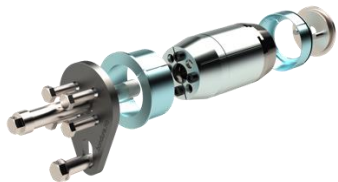
This Assembly & Inspection Manual is applicable for the following bondura® pin types:



Bondura DUAL ® 22



bondura DUAL ® 32



Bondura DUAL ® 61



bondura DUAL ® 62



bondura ® DUAL 66



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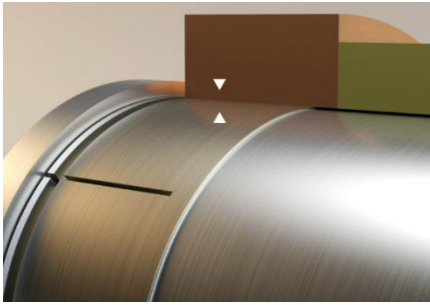


1. General Information

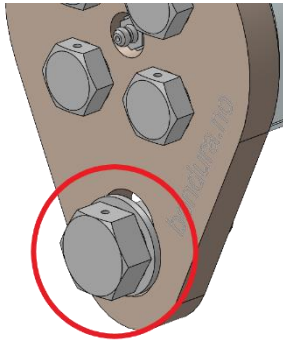
1.1. Function, Expansion & Suitability

The bondura® pin locks to the lug bore as the sleeves expand to create a wedge-force between pin and bore.

This prevents unwanted rotation and sideways sliding of the pin.



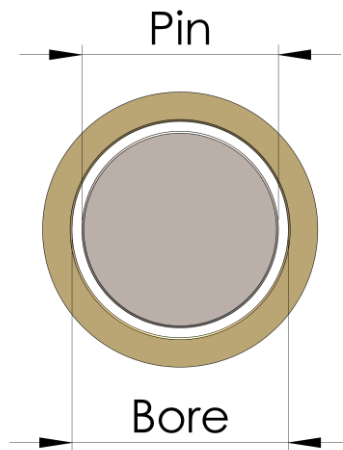
Positioning details can be included for some pin types.



Make sure to adjust the pin orientation so the position screw can be installed.

Sleeves expand and absorb up to 2,0 mm gap/wear in the lug bore from nominal pin diameter.

For larger clearances, oversized sleeves should be ordered and used. Full expansion normally results in the sleeve moving 5,0 mm inwards in the bore.

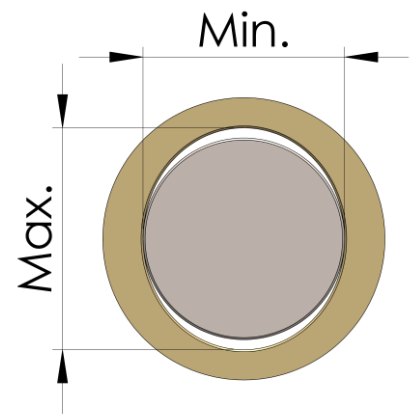


For temperature differences exceeding 50°C between installation and operation; torque values may need correction.

The difference of min. and max. diameter in the bore should not exceed 1,0 mm.

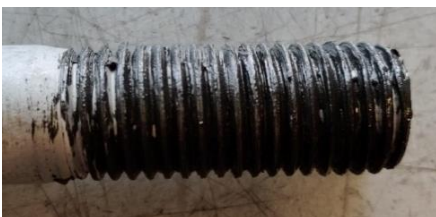
If exceeded, grinding the bore more circular is recommended.

Note: re-tightening of fasteners after some time in operation may be necessary, especially for worn equipment.

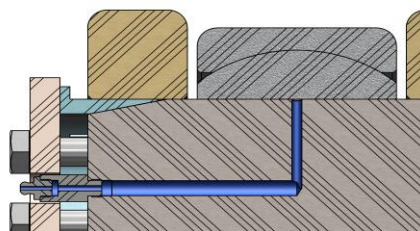


1.2. Thread Paste, Lubrication & Fastener Security

To ensure correct friction and avoid damage or galling of the threads, bondura® Assembly Paste is recommended for use on all threads in the pin assembly.



If the pin is installed in a bearing requiring lubrication, please follow the lubrication recommendation for the bearing.



Methods of securing the screws/nuts may be used in the design; safety wire, wedge lock, split pin, nylon insert etc.





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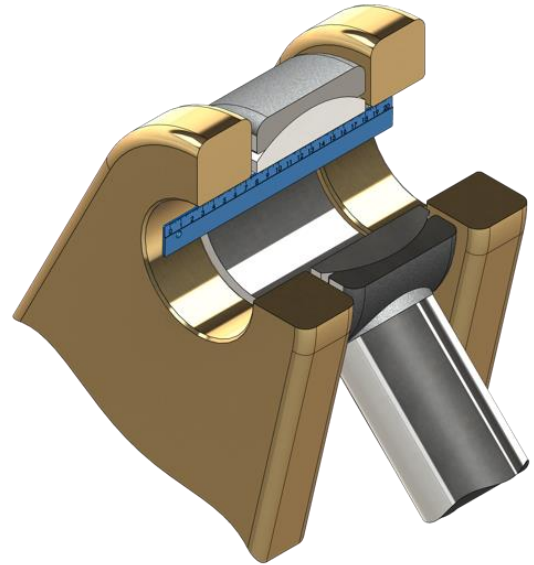
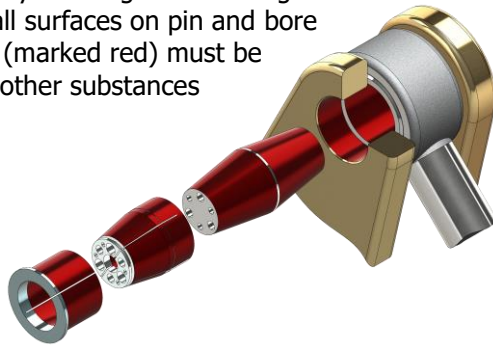
2. Installation

2.1 Preparations



Please ensure to have technical pin drawing(s) available before starting the installation. It contains important information of pin positioning and torque values to use.

Prepare for installation by centring and cleaning the pin bore. Sleeves and all surfaces on pin and bore in contact with sleeves (marked red) must be clean from grease and other substances before installation.

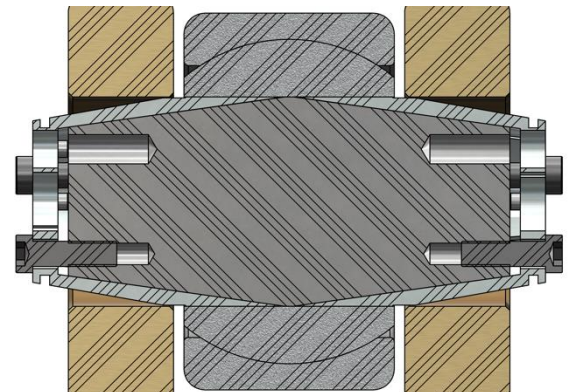


2.2 Insert pin assembly with inner sleeve and inner fasteners still mounted incl. set screws. Outer sleeves covering an inner sleeve must be removed before insertion.

Normally the pin is centred in the bore, see design drawing for more detailed information.

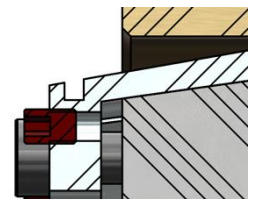
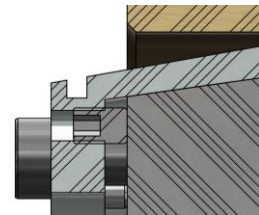
After alignment, a test mounting of all sleeves should be performed before fasteners are tightened.

After alignment of the pin, all set screws (if used) must be loosened adequately before tightening inner sleeve fasteners, so they do not hinder expansion of the inner sleeve.



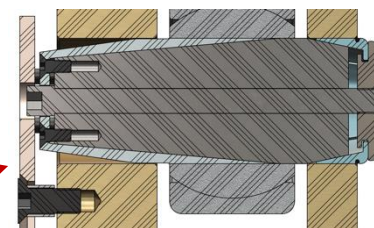
SET SCREW

LOOSENED



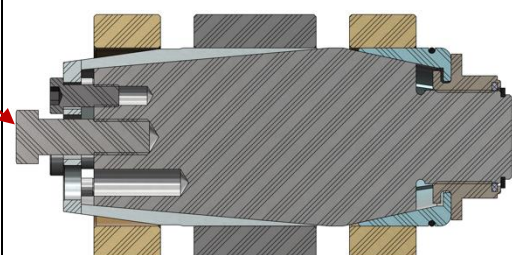
2.3 For single inner sleeve pins like DUAL 61 & 62; the positioning plate, or a bolt attached to the centre hole at the near end can be used to keep the pin from rotating when tightening the axle or nut.

ROTATION PREVENTION



NEAR END

FAR END





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2.4 Use torque wrench to tighten fasteners alternating between sides to avoid sideways sliding.

Torque values are specified on technical drawing(s).

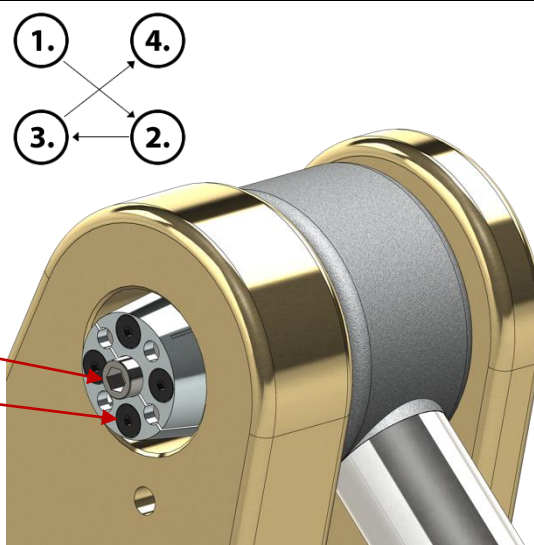
For multiple fastener configurations, tighten in a criss-cross pattern and turn each fastener max. 90° each time. Increase torque in intervals until final value is reached.

Tighten fasteners in the following order:

0. For single inner sleeve – Fastener connected to the far end sleeve to avoid pin rotation.
1. Fastener connected to inner sleeve.
2. If applicable; set screws.
3. Fastener connected to outer sleeve/plate.

For designs with an end plate, tap the circumference of the plate with a hammer to release tension.

For installations in a bearing; the functionality of the bearing should always be checked after the inner sleeve has expanded.



3. Inspection

Immediately after installation it is recommended to let the equipment run a few operations and then check the torque values on all outer fasteners.

Implementing a maintenance program to check the bondura® pins is recommended. This can be combined with the existing maintenance program and service intervals for the relevant equipment.

#	To be checked	Type of inspection	Control parameter	How to rectify
I-1	Pin condition	Visual	Missing or severe damage to parts.	Replace missing or damaged parts.
I-2	Sideways misalignment of pin	Measure	Measure protrusion on each side. See chapter 1.1 & 2.2, compare with technical drawing(s).	Disassemble pin and measure bore against values in chapter 1.1. Replace parts if necessary and re-install.
I-3	Torque values	Measure	Specified torque value.	Re-tighten to correct values. See technical drawing(s).
I-4	Function control	Visual and auditory	Unwanted movement or sound when system is in operation.	Disassemble to find root cause.

4. Disassembly

Fasteners separate from sleeve	Fasteners connected to sleeve
Bondura Multi Tool (BMT) is recommended for disassembly. See www.bondura.no for more information.	Turning the fastener(s) anti-clockwise will pull the sleeve loose.