

## Guarantee, Liability for Defects

Thank you for purchasing our high quality live spindle attachments made by PCM Willen SA. Of Switzerland. If you have any questions regarding this product, please contact Genevieve Swiss Industries.

PCM Willen SA guarantees this product for a period of 12 months or 2000 hours which ever comes first to be free of material defect or poor workmanship. Worn bearings do not constitute a defect in material or failure as a result of poor workmanship. Bearings are not covered under the standard warranty.

Upon written request, PCM Willen SA undertakes at its choice to repair or replace as quickly as possible any parts of the supplies which, before the expiry of the guarantee period, are proved to be defective or not usable due to bad material or poor workmanship. Replaced parts shall become the property of PCM Willen SA.

A misuse or use of oversized tools greater than the chucking capacity or damage caused by machine crash or resulting from other reasons beyond the control of PCM Willen Sa are excluded from the guarantee and liability for defects.

The guarantee expires prematurely if the customer or a third party undertakes inappropriate modifications or repairs or if the customer, in case of a defect, does not immediately take all appropriate steps to mitigate the damage and give PCM Willen SA the possibility of remedying such defect. With respect to any defect material or execution the customer shall not be entitled to any rights and claims than those expressly stipulated above.

## Required Break-In Procedure Prior to Use

New spindles require a break-in period to prevent damage to the bearings and seals resulting in premature life. Please take the following steps prior to using this spindle attachment.

1. Lightly grease the gear prior to securely bolting it in to the machine.
2. Turn on the cutting oil and point it at the spindle to reduce the friction and heat during the warm up period.
3. Make a short program that runs the spindle at the recommended RPM and required time per instructions on the reverse side. Do not run spindles up to a temperature that cause discomfort when touched by hand. Slow spindle down to a stop and allow to cool, then begin the break in procedure again. See instruction on back.
  - 500 RPM and run for a period of 20 seconds then stop and set for 2 minutes perform 5 times
  - 1000 RPM and run for a period of 20 seconds then stop and set for 2 minutes perform 5 times
  - 2500 RPM and run for a period of 20 seconds then stop and set for 2 minutes perform 5 times
  - 3500 RPM and run for a period of 20 seconds then stop and set for 2 minutes perform 5 times
  - 4000 RPM and run for a period of 20 seconds then stop and set for 2 minutes perform 10 times
  - 5000 RPM and run for a period of 20 seconds then stop and set for 2 minutes perform 10 times
  - 5000 RPM and run for a period of 1 minute then stop and set for 1 minute perform 10 times

### NOTE:

1. Further cycles with extended operating periods and shorter stand still periods should be carried out until a steady-state temperature has been achieved.
2. Using GSE306-DE-312 High-Speed Spindles, on M32-Y Axis Model, it may only be possible to achieve 12,000 RPM due to increased heat and vibration. It may be possible to achieve higher speed by adjusting the motor gain. Before attempting this, consult with Citizen and if permitted have only a qualified Citizen engineer make the adjustment.

## Periodic Greasing Instruction

If your spindle is equipped with a grease fitting, we recommend the following maintenance procedure be followed:

1. Use high-performance bearing grease that will lubricate bearings and gears such as:  
*Molycote Longterm W2 grease, FAG bearings Arcanol L75 grease or Klüber ISOFLEX TOPS L32 N*
2. Frequency should be once per week if used frequently
3. Quantity should be no more than 100 mm<sup>3</sup> or (0.108cc). Too much grease may cause overheating of the head.

**Grease Distribution Run**

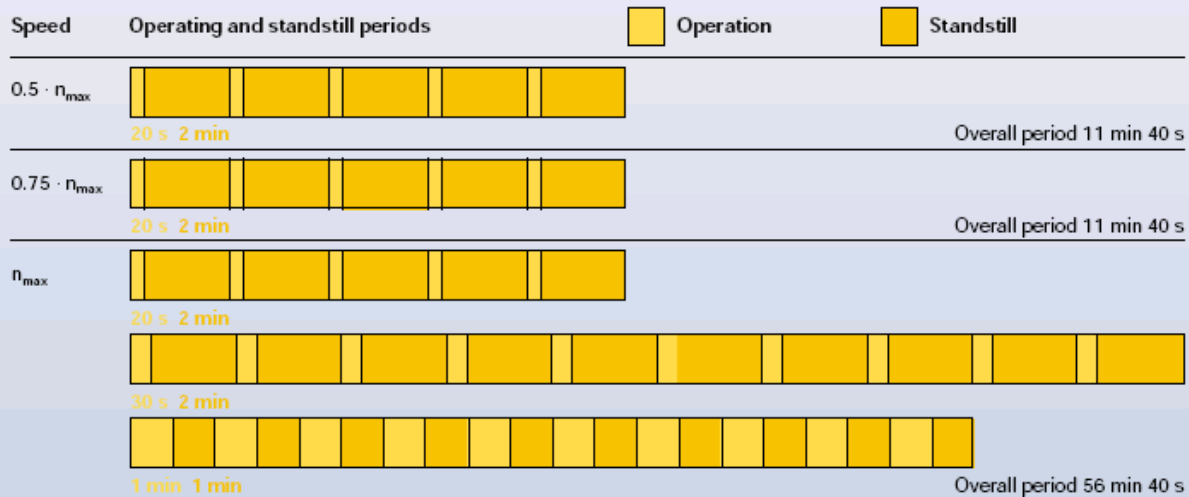
The correct initial operation of grease-lubricated bearing arrangements has a significant influence on the successful performance and service life of a bearing arrangement. A start-stop running-in procedure is recommended for grease distribution. This prevents excessively high (damaging) temperatures in the contact zone between balls and raceways. During the stop phase a temperature balance takes place between the individual bearing components so

that damaging preloading conditions do not occur. It is recommended that the temperature development during the grease distribution run and the ensuing final maximum speed cycle be monitored by means of a temperature sensor located as close to the bearing outer ring as possible. A progressive rise in temperature, that occurs for instance under conditions of excessive preloading, must be avoided at all costs. The grease distribution is complete when a stable bearing temperature has been reached. The run-in procedure for

maximum speeds should be carried out at half speed initially, followed by a 0.75 fold speed prior to operation at maximum speed. Diagram 16 shows recommendations for grease distribution runs of open and sealed spindle bearings.

The grease quantity, Table 14, and the grease distribution run, Illustration 16, are available as laminated cards in small format for use in workshops.

The run-in procedure consists of several cycles of a start-stop operation with differing speeds and operating periods, the standstill periods after each run being particularly important. The required number of cycles may differ depending on bearing size, bearing number, maximum speeds and bearing environment.



Further cycles with extended operating periods and shorter standstill periods should be carried out until a steady-state temperature has been reached.

**16: Recommendations for grease distribution runs of open and sealed spindle bearings**