

# SUPERFINISH

## Finishing of all Standard Bearing Components, Inner and Outer Races



- cylindrical roller bearings
- needle roller bearings
- tapered roller bearings
- spherical roller bearings
- self-aligning roller bearings
- axial self-aligning roller bearings
- CARB® bearings
- angle-setting cyl. roller bearings
- grooved ball bearings
- shaft and housing disks

For bearing components (inner and outer races and anti-friction bearing parts) with one or more tracks and functional surfaces

- Generation of any required cross-sections such as concave, convex, semi-barrel shaped, hollow, logarithmic; using patented NC controlled overlay motion with linear oscillator
- correction of ground or hard-turned cross-sections using patented NC overlay motion
- variable and automatic amplitude, oscillation, contact angle setting and oscillating frequency control of the circular oscillator
- variable centering systems
- infinitely variable speed control via digital main spindle drive
- final finishing directly from hard-turned pre-machined state
- CNC controls with digital drives for linear and rotary motion
- single or multiple step machining with multiple stone-change in one clamping operation
- optional outside tape finishing
- rapid re-tooling in less than 9 minutes
- finely adjustable stone pressures due to hydraulic bypass system
- manual feed / discharge, automated as an option with 2-way NC gantry gripper



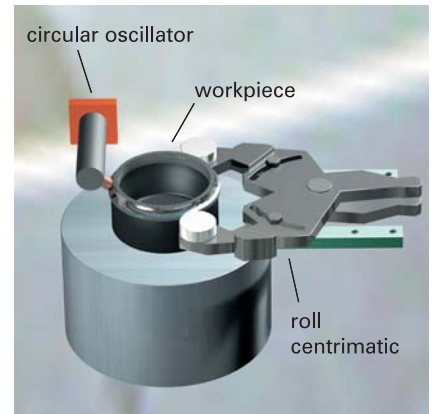
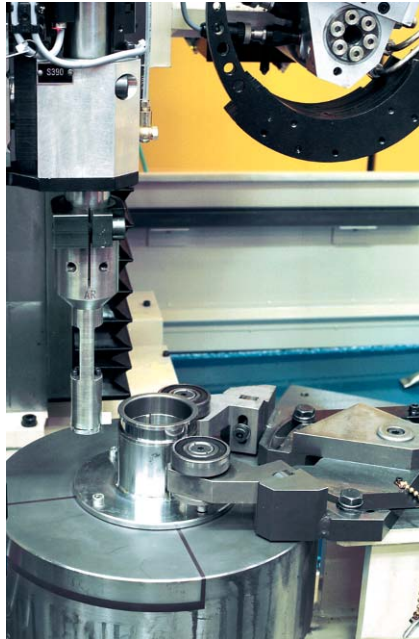
### **supfina 725-727/1-NC** (300)

Technical specifications:

Operations:	1
NC horizontal slides:	max. 2
NC vertical slides:	up to 3
Machining units:	up to 3
Race outer diameter OR:	45–300 mm
Race outer diameter IR:	28–250 mm
Bore diameter OR:	35–260 mm
Bore diameter IR:	7–150 mm
Race height:	7–80 mm
Track angle:	0°–55°

# supfina 725-727

## The machining process



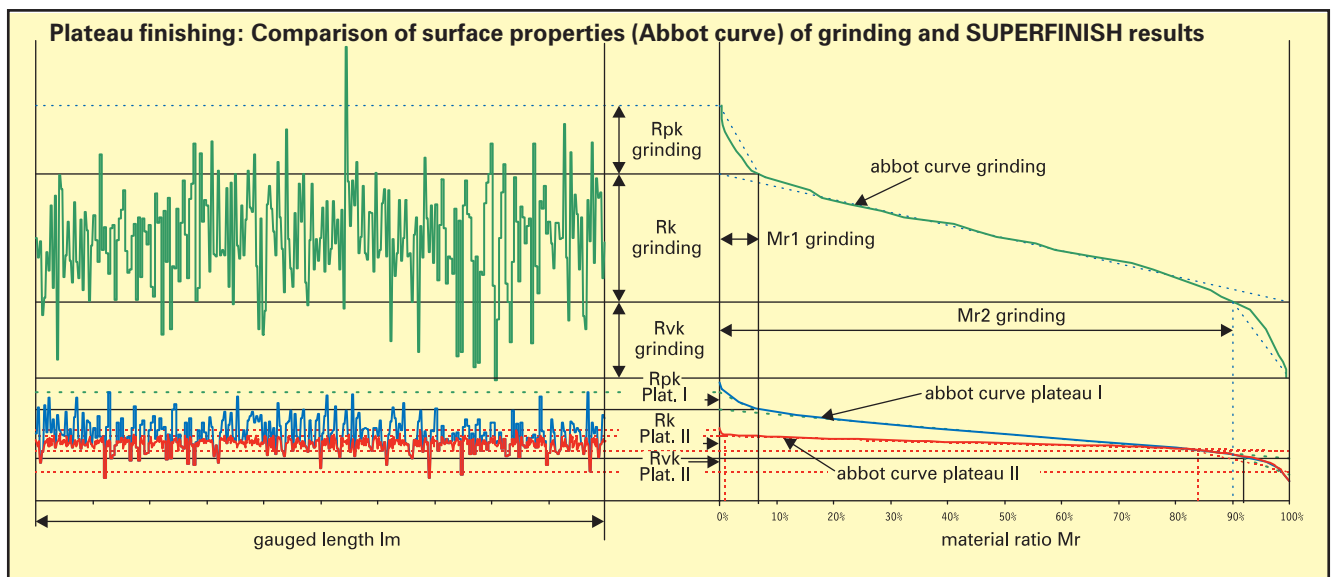
Sample finishing application grooved ball bearings IR finishing

The SUPFINA 725-727 model is designed for working ranges up to 300 mm outer diameter with horizontal workpiece mounting. It can be equipped with up to three SUPERFINISH units (circular, linear oscillator and tape unit for machining outer surfaces) and is suitable for finishing all linear, ball and spherical track shapes on inner and

outer races and their corresponding functional, locating, and mounting surfaces in a single clamping operation. All SF units can be fitted with NC slides. Centering is by means of a range-adjustable IR/OR roll Centramatic system, 3 roll IR/OR centering or workpiece specific centering or carrier disks. Workpieces are clamped magnetically

on a driver and plano-disk. The variable magnetic clamping force control enables the contact pressure to be individually optimized and workpieces to be demagnetised after finishing. Loading / unloading is manual or, optionally, via a 2-way NC gantry gripper.

## The results



### Separable ball bearing inner race (2-part)

outer diameter approx.:	33.5 mm	hardness:	60 HRC	Rsk:	-3
track diameter approx.:	31.15 mm	cycle time for		Rvk:	> 0.1 $\mu$ m
track radius approx.:	3.24 mm	two-stage track finishing:	18 sec.	runout:	< 1.0 $\mu$ m
bore diameter approx.:	27 mm	surface roughness Ra:	< 0.05 $\mu$ m	track cross-section deviation:	< 1.5 $\mu$ m
race height:	12 mm	bearing ratio tpi:	95 %	stock removal:	6-8 $\mu$ m
material:	52100	(c=0.2; datum line 2%)			