SUCCESS STORIES

LK PRECISION

www.rindex.com

MADE IN SWEDEN

mpc AUTOMATION SYSTEMS

GLOBAL DISTRIBUTION LOCATIONS TO THIS DATE

MPC AUTOMATION SYSTEMS PRODUCTS

GRIPPEX BAR PULLER

* COOLANT DRIVEN
* INSTANT SET-UP
* COVER 2-105 MM

RINDEX MULTI JAWS

* SIX JAWS IN ONE
* QUICK CHANGE
* 100 % CLAMPING SURFACE

RINDEX C-WEIGHTS

* CENTRIFUGAL COMP.
* DETACHABLE WEIGHTS
* EXTRA WEIGHTS OPTIONAL

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CONTENT

MAKE MONEY ON JAWS, TOOLS AND ACCESSORIES...

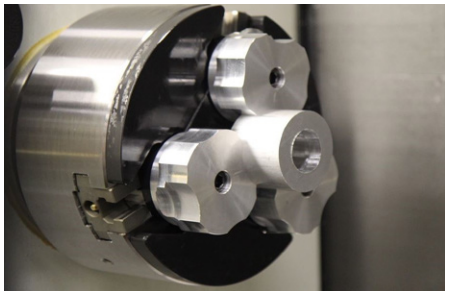
LK PRECISION

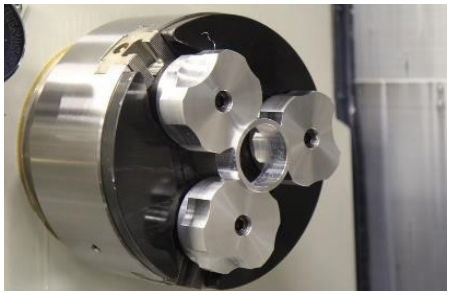
During 2019, a quality improvement project took place at LK Precision Parts in Stockholm. The goals were easy to formulate, but more difficult to achieve: to make rounder parts quicker and with better surface structure.

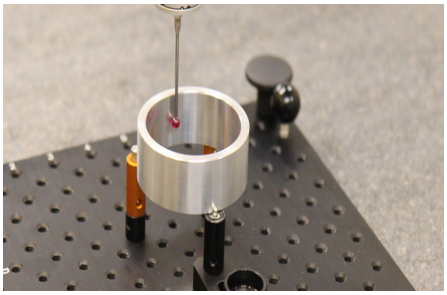
TPA Engineering planed the project, MPC assisted with Quick-change jaws and revolutionary counterweights. Sandvik Coromant chose their best cutting solution given the low initial clamping force and high spindle speed made possible by the counterweights.

Goals	Results
Rounder details (limited to 50µm)	Rindex = 20 µm. Conventional turning 60 – 80µm
More parts per minute	2 - 3 times faster
Eliminate sub-sequent grinding	No marks or deformations compared to conventional turning
Shorten set-up time	At least 4 times faster *

* Potentially = 10-20 times faster







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PREPARATIONS

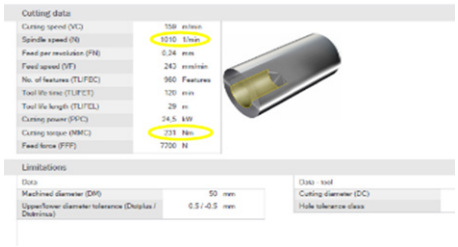
The test was made in real production. A round, thin-walled part in steel (1914) with diameter Ø 88 mm and Ø 55 mm produced in a Nakamura equipped with a Kitagawa 210 chuck.

The Rindex system was mounted in the primary spindle and conventional turning set-up mounted in the sub spindle. Thus, we were able to compare results.

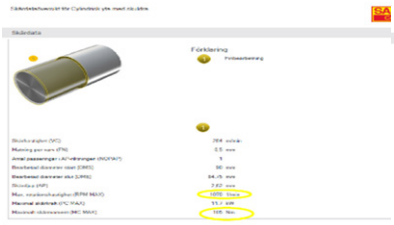
The customer needed 30 parts quick, why LK manufactured them part by part. The sub sequent 350 parts were delivered at a later time.

CHOOSING CUTTING TOOLS

TOOL #1



TOOL #2



TOOL #3

Snap shots from Sandviks Coroplus-software program. The program recommends tools, torque and spindel speed.

OUR RECOMMENDED DATA

• Set O.D. In our case Tempo 1 = 0.089 m, T2 = lowest possible torque

• Set friction coefficient (0.5 = steel to aluminum, 0.75 for aluminum to aluminum).

• If you have a “trail of strength” machine, use it to evaluate the accurate torque curve as speed increases (with and without counterweights).

• Without ”trail of strength” machine, use our estimations and add some safety margin. Then, use the ”trial and error” method to find optimal clamping force for your part.

• The jaws can now be prepared for Tempo 1 and Tempo 2.

COMMENTS ON THE RESULTS

DIFFICULT TASKS MADE EASY

The parts did meet the required specifications (roundness) 50 µm as 20 µm was achieved on the first try. Conventional turning could not meet the requirements as 60-80 µm was possible. No parts needed to be reworked or thrown away.

NO GRINDING NEEDED

Conventional manufacturing did leave clamping marks on some parts, which is a big issue for most customers, resulting in sub sequent grinding. No clamping marks were visible when using large clamping surface jaws and counterweights.

The latest cutting tool technology have made significant impact on metal removal rate. For small to medium size parts, high spindle speed is often a better alternative to increase metal removal rate than feed and dept.

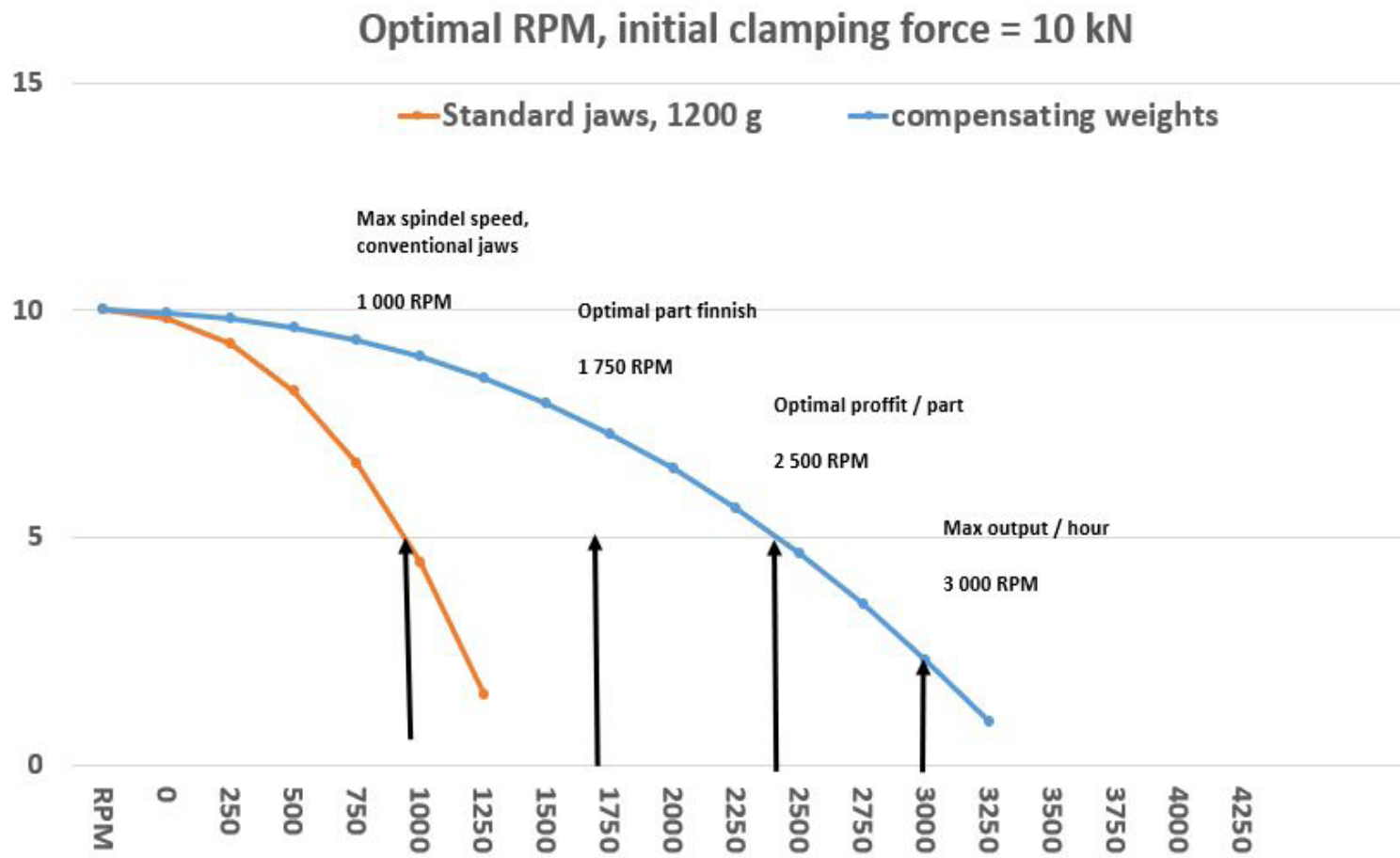
With higher demand on surface finish, regardless of functionality, spindle speed limitations will leave customers dissatisfied. With highest possible RPM and lowest possible clamping force, there will be less disposal and grinding.

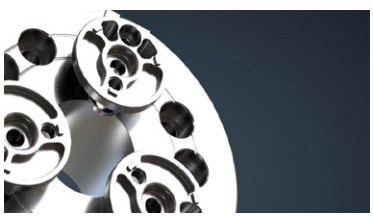
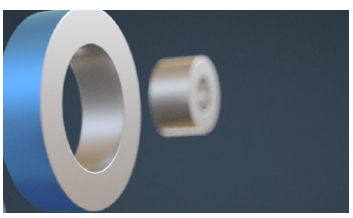
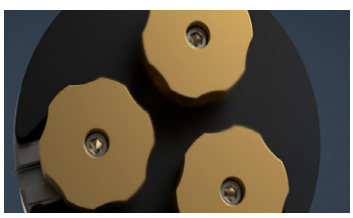
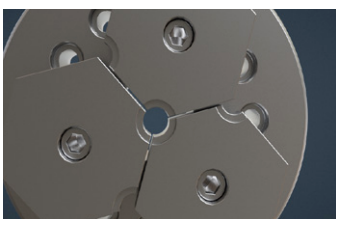
PROFFITS MADE

Parts were manufactured 2-3 times faster compared with traditional turning. According to Sandvik Coromant, increased machining with 50 % is equal to a 25 % increase in gross margin. This means we managed to increase gross margin by 100-150 % as well as lower the component cost with 50-80%, just by turning faster.

Add 100 % extra machine time as no measuring and rework was needed, we end up with a combined gross profit estimate of 150 – 200 % from the counterweights only.

As you can turn the quick-change jaws in less than a minute without reboring them, you will save roughly 20- 30 minutes every time you want to change diameter.



MPC AUTOMATION SYSTEMS

MPC Automation Systems AB was founded in 1986. Since then, we have marketed CNC-machines, developed accessories and software for automation of CNC machines. One of our best selling pcoducts, the Grippex Barpuller, has been a world wide success and represents our strive to make great things better. Our latest product line, flexable quick jaws with counter weights for takes our legacy into the 21st century.

BO SVENSSON

Founder - Mechanical-
engeneer

JOEL JÖNSSON

CEO - Sales
joel.jonsson@mpc-automa-
tion.com
+46709 854 968

ÅSA SVENSSON

CFO - Economy depatament
mail@mpc-automation.com
+468 667 09 50

mpc AUTOMATION SYSTEMS