

# AGENDA

## TITANIUM POWDER BY SANDVIK – THE ADDITIVE ADVANTAGE

13:30 - 13:45	SAFETY FIRST AND WELCOME!	Kristian Egeberg
13:45 - 14:10	INTRODUCTION TO SANDVIK – AND TITANIUM AS AN ELEMENT	Mikael Schuisky
14:10 - 14:35	TITANIUM AND NICKEL POWDER PRODUCTION BY SANDVIK	Martin Mueller
14:35 - 15:00	TITANIUM AND NICKEL POWDER BY SANDVIK – THE ADDITIVE ADVANTAGE	Keith Murray
15:00 - 15:20	SWEDISH "FIKA"	All
15:20 - 15:40	AM-PROCESSING OF TITANIUM	Harald Kissel
15:40 - 16:10	BEAMIT – EXPERIENCE FROM AM OF TITANIUM COMPONENTS	Michele Antolotti and Martina Riccio
16:10 - 16:25	TITANIUM COMPONENTS FOR GSD E-BIKES	Zach Krapfl
→ 16:25 - 16:40	LIGHTWEIGHT COROMILL® 390	Matts Westin
16:40 - 16:55	OSSDSIGN – IMPLANTS FOR BONE REGENERATION	Kajsa Björklund
16:55 - 17:10	SWISS CENTER OF MANUF. TECHNOLOGIES FOR MEDICAL	Harald Kissel
17:10 - 17:30	SUMMARY, CONCLUSIONS AND KEY TAKE-AWAYS	Mikael Schuisky & All
18:00	DINNER @ BRUKSMÄSSEN	All



# Lightweight CoroMill<sup>®</sup> 390

Produced with additive manufacturing

# Safety first

At Sandvik Coromant safety is our top priority



Emergency Exit



Assembly Point



Emergency Number



Protective Equipment



First Aid Kit



Alarm

# Who am I?

Matts Westin

Global Product Application Manager

AB Sandvik Coromant

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SE-81181

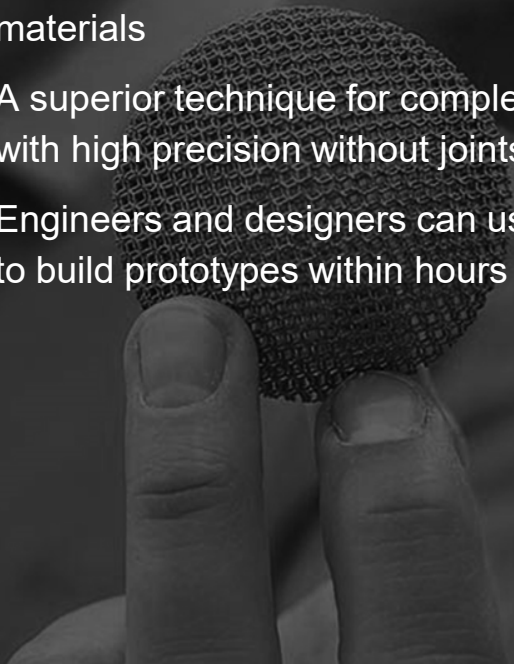
Phone : +46709655000





# Additive manufacturing

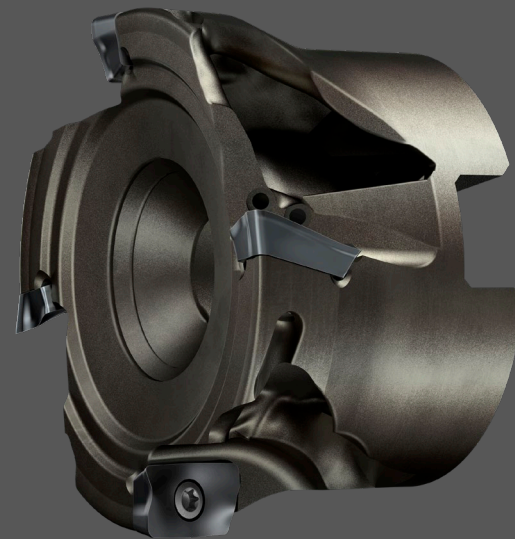
- A collection of technologies that builds 3D objects by adding layers of materials, such as plastics, metals or medical materials
- A superior technique for complex and massive structures with high precision without joints
- Engineers and designers can use computer models to build prototypes within hours



## Cutter body made with additive manufacturing

Additive manufacturing enables precision control of the cutter design, allowing for the production of shapes and features not possible with metal cutting. Virtually any material can be printed, as in this case a titanium alloy.

When designing lightweight CoroMill® 390, material has been tactically removed to create the optimal cutter design for minimizing mass. This makes it more compact and significantly lighter than a conventional cutter.



## Features and benefits

- Reduced cutter weight provides reduced vibration and increased stability
- Shorter distance between damper and cutting edge increases structural strength and improves process security
- Silent Tools™ damping technology offers high productivity when machining with long overhangs
- CoroMill® 390 insert grades and geometries deliver light cutting action for a smooth cutting performance

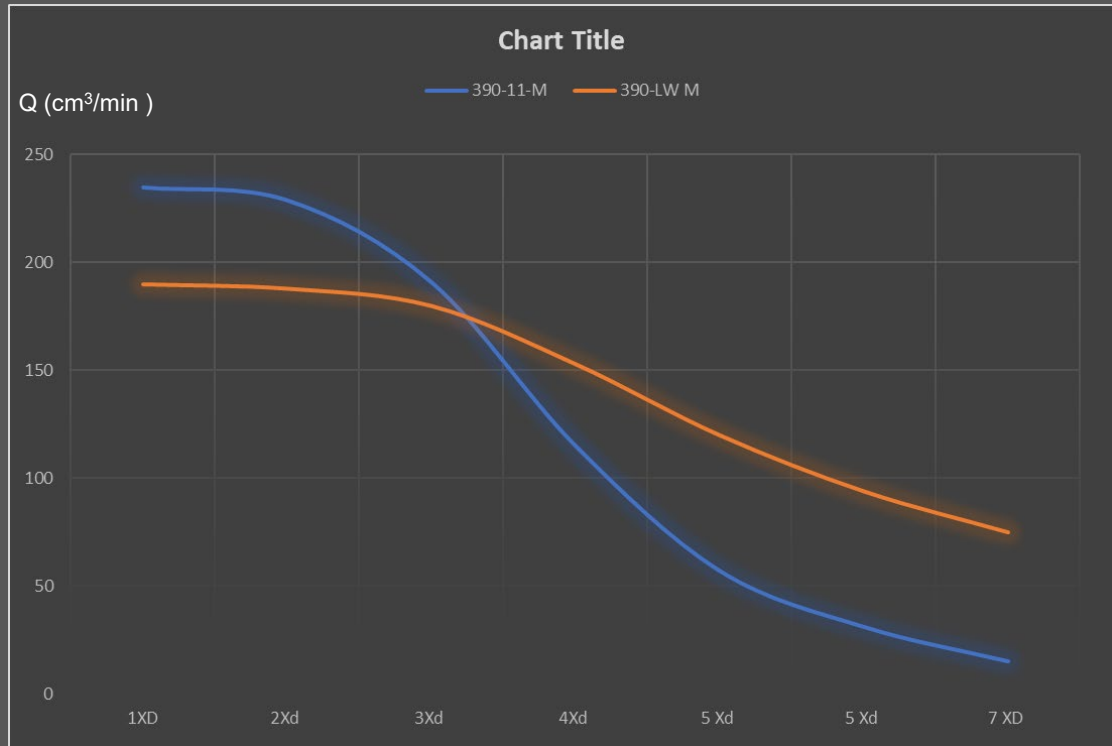


# Productivity increase

Diagram show performance difference in long overhang

R390-050Q22-11M (z=5)

R390-050Q22LW-11M (z=4)





# Assortment

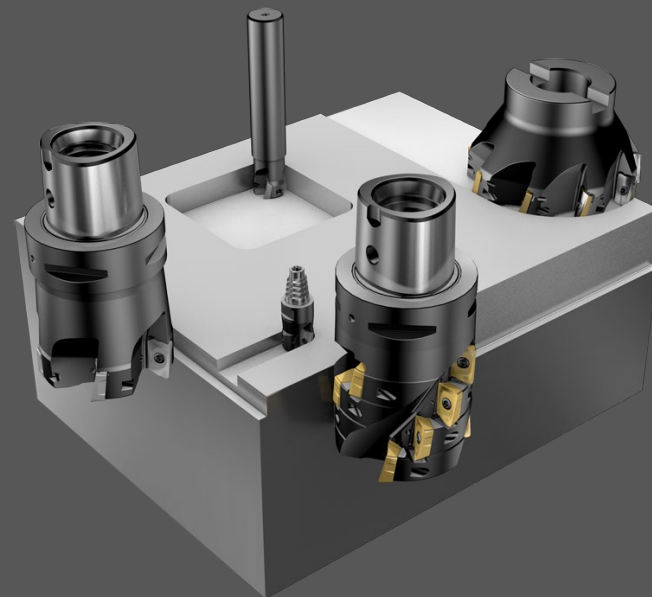
Ordering code	Diameter (mm)	Coupling	Number of inserts	Insert size
R390-040Q16LW-11L	40	Arbor 16	3	11
R390-040Q16LW-11M	40	Arbor 16	4	11
R390-050Q22LW-11L	50	Arbor 22	3	11
R390-050Q22LW-11M	50	Arbor 22	4	11
RA390-051R19LW-11L	50,8	Arbore 19	3	11
RA390-051R19LW-11M	50,8	Arbore 19	4	11

- Differential pitch and internal coolant on all cutters

## Your most versatile milling cutter

- CoroMill® 390 is an extremely versatile concept for productive shoulder milling in a wide range of operations and materials
- Trouble-free milling due to reliable cutter performance
- Easy-to-use insert clamping increases process security

> Combined expertise in metal cutting and additive manufacturing has made it possible to truly re-invent CoroMill® 390 with radically increased performance.

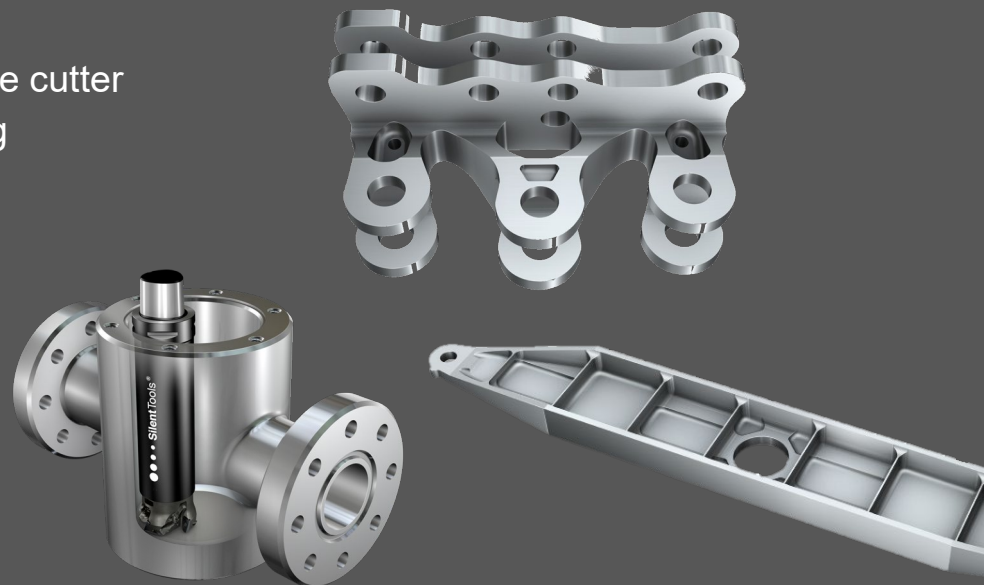


# Application

- Lightweight CoroMill® 390 is designed for long reach face milling, deep shoulder and side milling, cavity milling and slot milling
- To be used at depths more than four times the cutter diameter combined with Silent Tools™ milling adaptors

P M K N S H

ISO application area



# Performance

**Workpiece material:** P2.5.Z.HT, hardness 290HB  
**Operation:** Face milling with big radial cutter engagements (80–100% of cutter diameter)  
**Machine:** OKUMA MA550-VB  
**Adaptor:** C5-Q22D-048-220

	Conventional CoroMill® 390	Lightweight CoroMill® 390
Tool material	Steel	Titanium alloy
Tool diameter, mm	50	50
Weight, g (oz)	317 (11.2)	66 (2.33)
Insert	R390-11T308M-PM 1130	R390-11T308M-PM 1130
$z_n$	3	3
$n$ , rpm	1273	1273
$v_c$ , m/min (ft/min)	200 (656)	200 (656)
$v_f$ , mm/min (in/min)	573 (22.6)	573 (22.6)
$f_z$ , mm/z (in/z)	0.15 (0.006)	0.15 (0.006)
$a_{Dr}$ , mm (inch)	1.5 (0.059)	4.5 (0.177)
$a_{e1}$ , mm (inch)	50 (1.97)	50 (1.97)
MRR, cm <sup>3</sup> /min (in <sup>3</sup> /min)	43 (2.62)	129 (7.87)

**Result: 200% increased productivity**

**+200%**  
Increased  
productivity

A small reduction in distance and mass between the cutting edges and the Silent Tools™ damper can enable increased depth of cut and by that a significant productivity increase, when working with long overhangs.

[www.sandvik.coromant.com/coromill390](http://www.sandvik.coromant.com/coromill390)



