SANDVIK Coromant

Power skiving

Gear and spline production with high output

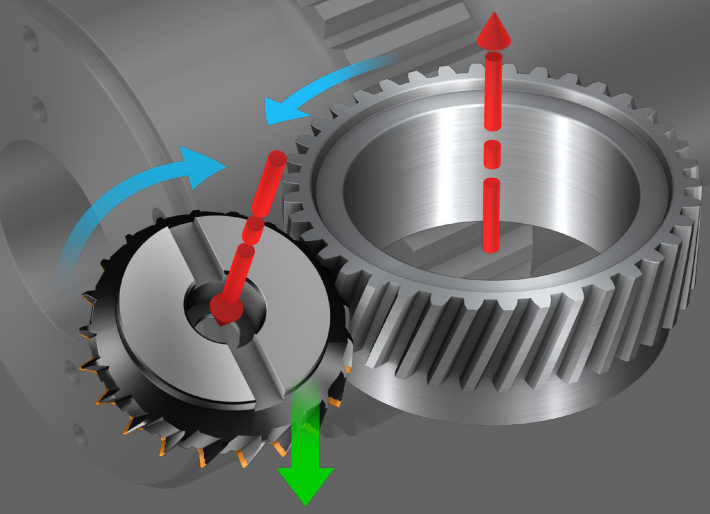
New machines and cutting tool development enable the use of power skiving technology in gear and spline machining. Thanks to short cycle times and flexible multi-task machines and machining centres, power skiving offers highly productive machining with advanced and precise cutting tools.

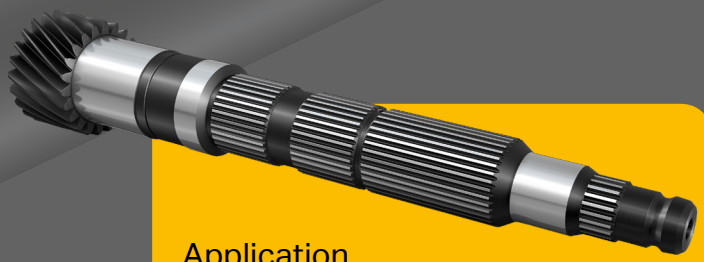
The component quality achieved is on par or even better than what is attainable with comparable gear milling solutions.

Fast and productive method with great flexibility

Power skiving is a continuous cutting process that is multiple times faster than shaping and more flexible than broaching. The intersecting angle between tool and gear axis is decisive for productivity.

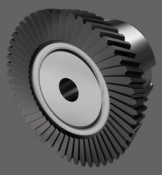
A further advantage of the machining method is its capability to machine close to shoulders, allowing greater freedom in component design.





Application

- Internal and external gears and splines
- Cylindrical spur and helical gears
- Roughing to finishing



CoroMill® 178 solid carbide cutter

- Power skiving cutters made of solid carbide
- Module range: spline 0.7–5 (DP 36.3–5.08), gear 0.5–4 (DP 50.8–6.35)
- High cutting speeds and excellent roughing and finishing accuracy

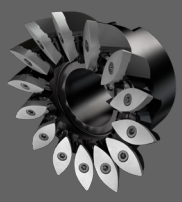
CoroMill® 178 PM-HSS cutter

- Power skiving cutters made of powder metallurgy high speed steel
- Module range: spline 0.8–5 (DP 31.75–5.08), gear 0.6–6 (DP 42.3–4.23)
- Flexible roughing with reduced cost per component

For module 2–6: Choose indexable tools for roughing and solid for finishing if a machining strategy with two tools is acceptable.

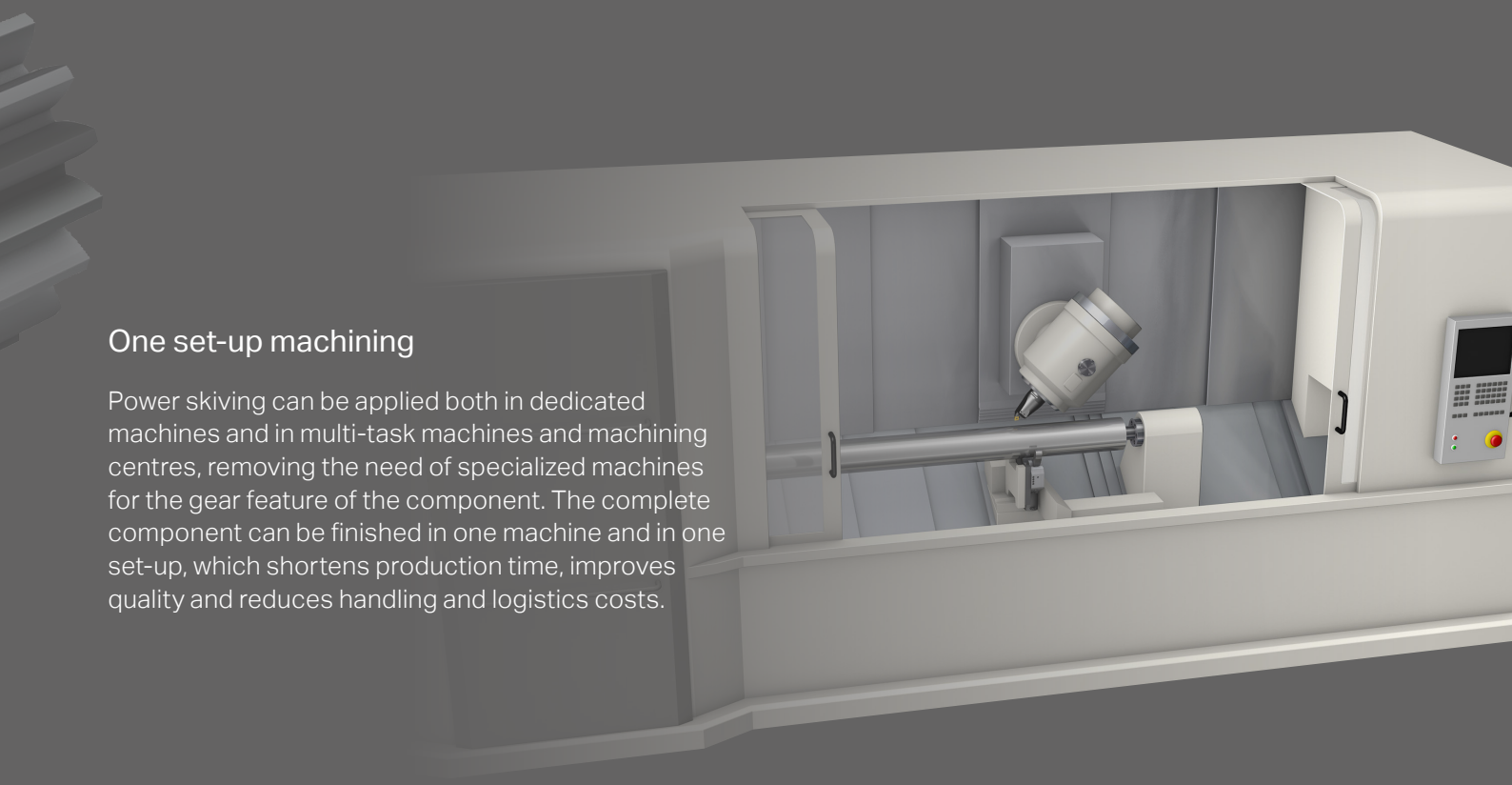
Chamfering and deburring tools to complete the power skiving tools are available on request.

In the Sandvik Coromant solution you are offered the tooling, the application support as well as a service offer with technical feasibility consultancy.



CoroMill® 180

- Indexable insert cutters
- Module 2–9 (DP 12.7–2.82)
- Roughing with excellent, repeatable accuracy
- Railed interface provides secure positioning of insert



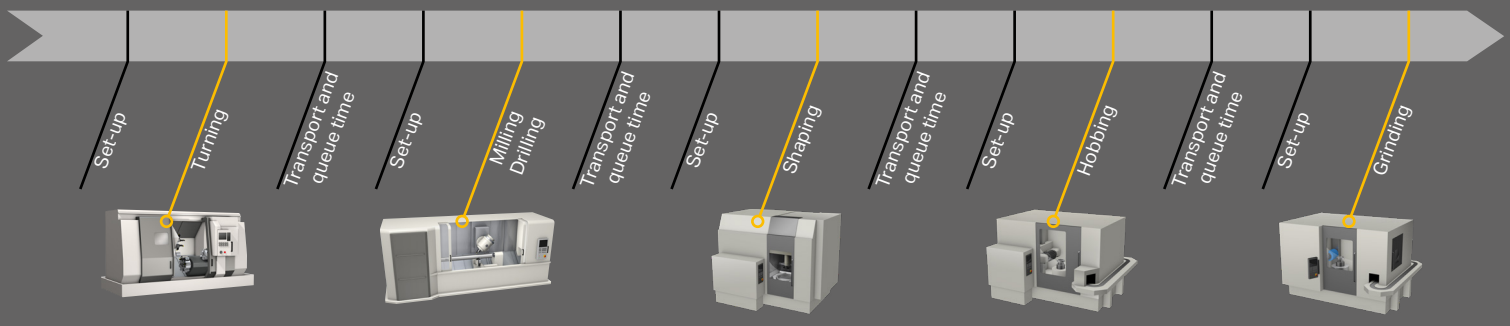
One set-up machining

Power skiving can be applied both in dedicated machines and in multi-task machines and machining centres, removing the need of specialized machines for the gear feature of the component. The complete component can be finished in one machine and in one set-up, which shortens production time, improves quality and reduces handling and logistics costs.

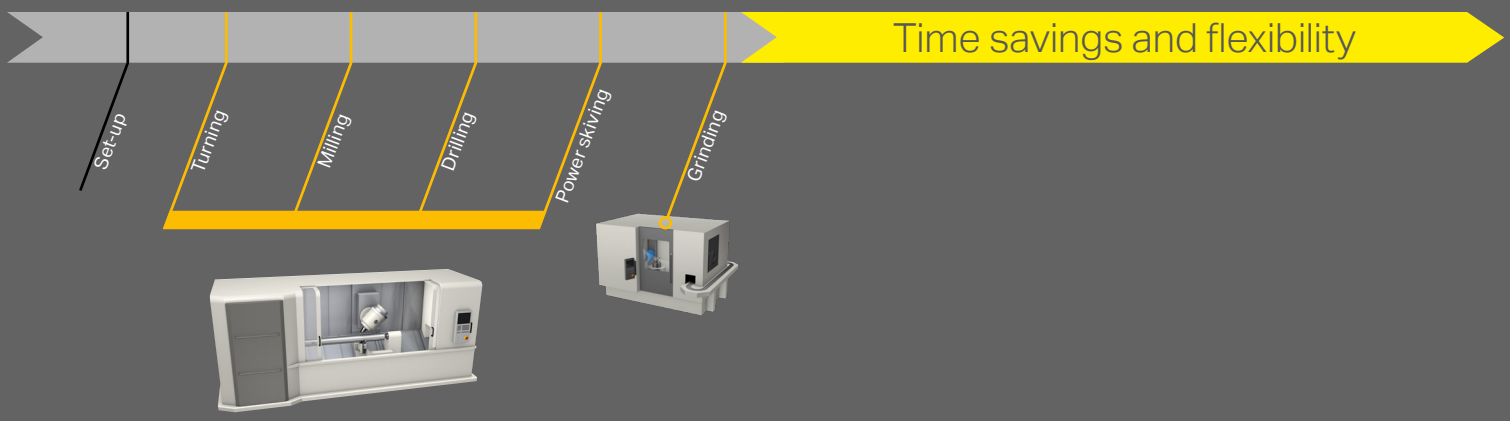
Environmental- and operator friendly

Since the machining operation runs very efficiently in dry conditions, you are able to save time while eliminating cost for coolant or oil and thereby contribute to a better environment. Your operator will also welcome the absence of cutting fluid.

Traditional production line | five dedicated machines



Production line with power skiving | multi-task machine/machining centre + grinding



Customer case: Planetary gear

Component:	Planetary ring gear
Workpiece material:	Low-alloy steel
Gear data:	Module 4/20° (DP 6.35) Face width 25 mm (1.0 inch)/35 teeth
Tool solution:	CoroMill® 180 indexable insert cutter
Cutting speed, v_C:	215 m/min (705 ft/min)
Feed:	0.5 mm/rev (0.02 inch/rev)
Cycle time:	1 minute

Result: The component quality was improved to DIN class 7 and the cycle time was reduced from 10 minutes with the previous solution to one minute with power skiving.

90%
Cycle time reduction

Contact your local Sandvik Coromant representative for more information.

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