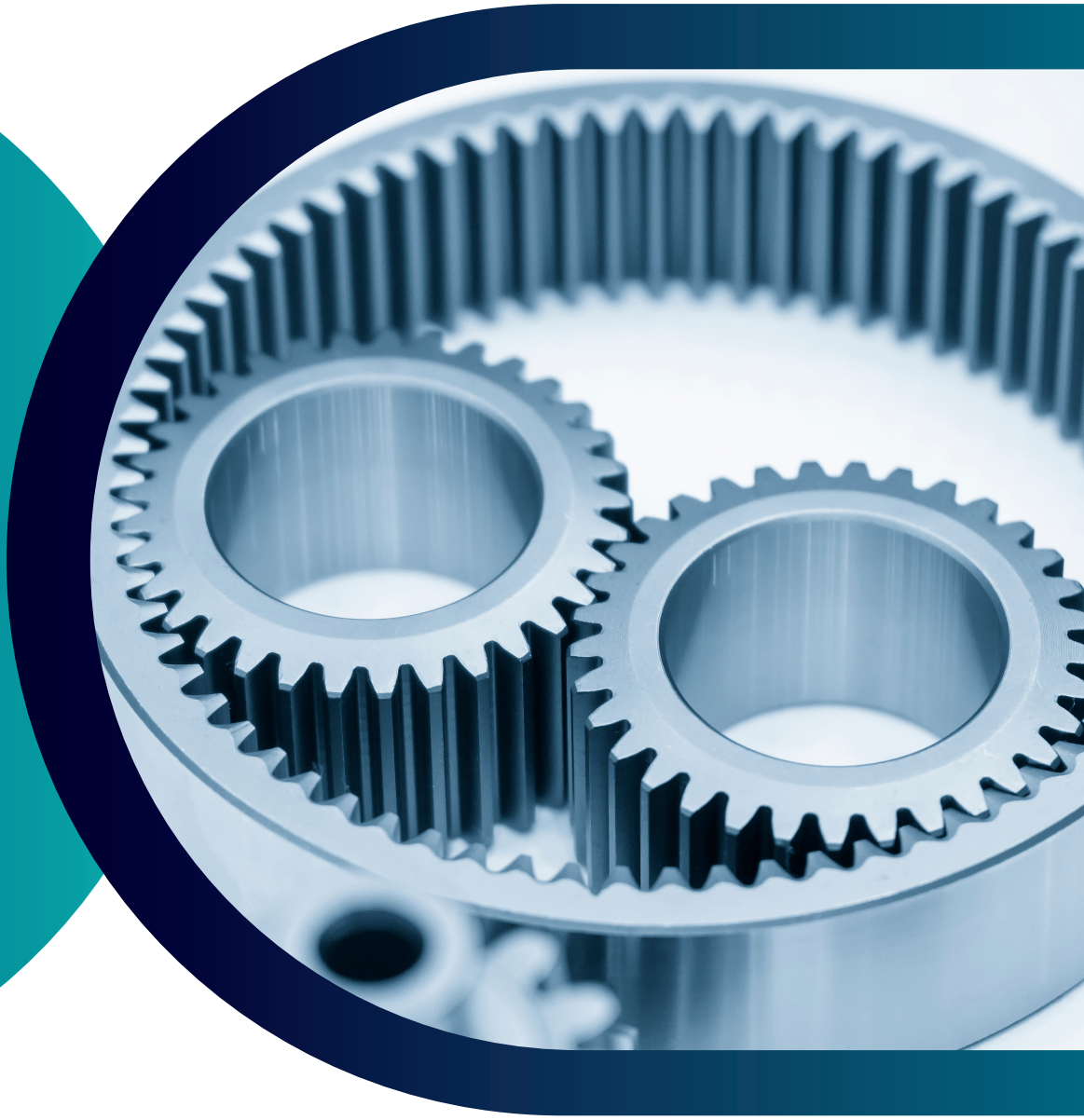
ERASTEEL



PURE POWDER - PURE POWER

ASP® ERASTEEL

GEAR SKIVING

A NEW FLEXIBLE WAY OF MACHINING GEARS

Today's gear producers are looking for **higher production speeds, tighter tolerances** and **greater flexibility.**

Gear skiving has proven to be a well-adapted method to meet these needs. Driven by the latest developments in Powder Metallurgical High- Speed Steels, coatings and more stable numerically controlled machine tools, this method is increasing in usage.



Gear skiving uses a **continuous generating cutting process** to form the involute **gear profile.** The cutting tool and workpiece are mounted on **two separate spindles,** rotating synchronously. The axes of the two spindles are crossed at a specific intersection angle, **together with the rotary speed of the two spindles, this angle creates the cutting speed of the tool.** The tool is then **fed** into the workpiece, typically in **multiple passes,** to create the **gear profile.**

BENEFITS OF GEAR SKIVING

FLEXIBILITY

Unlike some other **gear cutting** methods, gear skiving enables the machining of **both external and internal gears.** This ability to produce internal gears is particularly important given the growing use of **planetary gear trains.**

The flexibility of gear skiving also comes from the fact that tooth profile can take be performed in the same machining center as other operations, such as **turning outer and inner diameter, drilling**, **tapping holes,** and more. This reduces the number of machines tools required to produce a single gear, **decreases downtime** and **minimizes errors** introduced during refixturing.



PRODUCTIVITY

In the past, shaper cutting was the obvious choice for shops with limited machine tools that needed to produce **both internal and external gears.** However, staying competitive in **external gears** with shaper cutting is difficult due to the lower productivity.

The productivity of a well-tuned gear skiving process is a good compromise between **flexibility and productivity** since gear skiving allows a **higher productivity than shaper cutting**, with the ability to **produce both internal and external gears.**



INTERNAL VS. EXTERNAL GEARS

Both external and internal gears can be produced with gear skiving, however the same tool can not be used for both.

Skiving tools used for cutting internal gears usually require a **higher degree of toughness,** as they are subjected to significant **chip re-cutting.** Due to the high rotational speed of the workpiece, the chips can easily be trapped between teeth by **centrifugal forces.** If the chips are not flushed away by **compressed air or cutting fluids,** there is a high risk that the cutter is damaged due to re-cutting of the chips. This is less of a concern with external gears, where abrasive wear or thermal softening are more typical failure mechanisms of the tools.

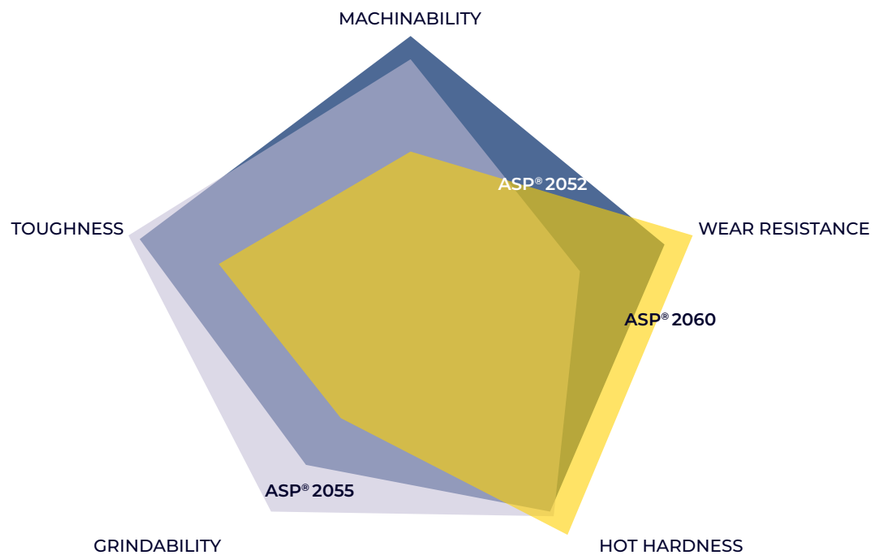
ERASTEEL'S ASP® OFFER

As a **world leader in Powder Metallurgy High-Speed Steels, Erasteel combines unmatched expertise and continuous innovation to develop ASP® grades** for the most demanding gear manufacturing applications. Recognized worldwide as a reference brand, ASP® offers **longer tool life, higher productivity** and **easier regrinding.**

Gear skiving is a very demanding process, due to the high speed inducing large amounts of wear, as well as a need for **tough cutting edges.**

To meet these challenges, Erasteel offers the following grades:

GRADES	CHARACTERISTICS
ASP® 2052	· Baseline choice for demanding gear cutting applications
ASP® 2055	· High toughness and performance grade for gear skiving internal gears · Reduced carbide size for easier tool production and regrinding
ASP® 2060	· Maximum wear resistance and excellent hot hardness for prolonged tool life



ASP® is a registered trademark of Erasteel.



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