



TOUGH-Burs represent a PFERD product line developed for users whose required applications result in tooth breakage and bur failure, rather than normal wear. Designed especially for hand-held applications in tough operating conditions common to shipyards, foundries and on steel fabrication.

Advantages

- Innovative, special cuts providing exceptional impact resistance.
- These extremely durable, high-performance cut patterns minimize tooth chipping/breakage, splintering and bur head failures.
- The 3R and 3RS cuts can be used on materials up to 55 HRC.
- These products can also be used at low speeds.

- Their extremely high impact resistance means that they are perfectly suited for use as long shank variants. Available in special shaft lengths.
- Developed specifically for applications involving high impact loads, the new 3R and 3RS cuts are the latest addition to the existing PFERD range.

Application Examples

- High-impact applications due to long shank design.
- Heavy-duty applications, due to angled working.
- High angle of surface contact.
- Milling of narrow contours.

3R Cut

- Coarse, aggressive machining, with high stock removal.



3RS Cut

- Coarse machining, with smooth milling performance.



Recommended Rotational Speed Range

To determine the recommended cutting speed [SFPM], please proceed as follows:

- 1 Select the workpiece material that is to be machined.
- 2 Determine the type of application.

- 3 Select the cut.
- 4 Establish the cutting speed range.

To determine the recommended rotational speed [RPM], please proceed as follows:

- 5 Select the required bur diameter.
- 6 The cutting speed range and the bur diameter determine the recommended rotational speed range [RPM].

1 Workpiece Material/Colour Code		2 Application	3 Cut	4 Cutting Speed	
Steel, cast steel	Non-hardened, non-heat treated steels up to 38 HRC (< 1200 N/mm ²)	Construction steels, carbon steels, tool steels, non-alloyed steels, case-hardened steels, cast steels	Coarse machining = high stock removal with impact loading	Double (3R)	850 - 2,000 SFPM
	Hardened, heat-treated steels exceeding 38 HRC (> 1200 N/mm ²)	Tool steels, tempering steels, alloyed steels, cast steels		Diamond (3RS)	
Cast iron	Grey cast iron, white cast iron	Cast iron with flake graphite, with nodular graphite cast iron, white annealed cast iron, black cast iron	Coarse machining = high stock removal with impact loading	Double (3R)	850 - 1,150 SFPM
				Diamond (3RS)	
				Double (3R)	850 - 2,000 SFPM
				Diamond (3RS)	

Example:

Tungsten Carbide Bur, 3R Cut,
1/2" Head Diameter.
Coarse machining of non-hardened and non heat-treated steels.
Cutting Rate: 850 - 2,000 SFPM
Rotational Speed: 7,000 - 16,000 RPM

5 Dia. [Inches]	6 Cutting Speed [SFPM]						
	850	1,000	1,150	1,300	1,500	1,650	2,000
Rotational Speed (RPM)							
3/8	8,000	10,000	11,000	13,000	14,000	16,000	19,000
1/2	7,000	8,000	9,000	11,000	12,000	13,000	16,000
5/8	5,000	6,000	7,000	8,000	9,000	10,000	12,000