



## Recommended SFM for Grooving Applications

|              | Free Machining Carbon Steels | Plain Carbon Steels | Alloy Steels 190-330 HB | Alloy Steels 330-450 HB | Martensitic/Ferritic Stainless Steel 400 Series | Austenitic Stainless 300 Series | Gray Cast Iron 190-330 HB | Gray Cast Iron 330-450 HB | Alloy / Ductile Irons | Free Machining Aluminum Alloys | High-Silicon Aluminum Alloys | Copper / Zinc / Brass | Non-Metallics | High Temperature Alloys 200-260 HB | High Temperature Alloys 260-450 HB | Titanium Alloys (Ti 6Al-4V) | Hardened Materials 48-65 HRC |
|--------------|------------------------------|---------------------|-------------------------|-------------------------|---|---------------------------------|---------------------------|---------------------------|-----------------------|--------------------------------|------------------------------|-----------------------|---------------|------------------------------------|------------------------------------|-----------------------------|------------------------------|
| <b>C22</b>   | ---                          | ---                 | ---                     | ---                     | ---   | 150-300                         | 100-350                   | 100-300                   | ---                   | 100-1500                       | ---                          | 100-500               | 100-1000      | 80-130                             | 50-100                             | 100-200                     | ---                          |
| <b>C25</b>   | ---                          | ---                 | ---                     | ---                     | ---   | 200-350                         | 100-375                   | 100-350                   | ---                   | 200-1700                       | ---                          | 200-600               | 400-1200      | 80-130                             | 50-100                             | 100-200                     | ---                          |
| <b>C26S</b>  | ---                          | ---                 | ---                     | ---                     | ---   | ---                             | ---                       | ---                       | ---                   | 1500-3K                        | ---                          | 400-800               | 400-1200      | ---                                | ---                                | ---                         | ---                          |
| <b>C3</b>    | ---                          | ---                 | ---                     | ---                     | ---   | 200-400                         | 100-375                   | 100-350                   | ---                   | 200-2K                         | ---                          | 200-700               | 400-1400      | 80-130                             | 50-100                             | 100-200                     | ---                          |
| <b>G50</b>   | 300-700                      | 300-700             | 300-700                 | 300-600                 | 300-600   | ---                             | ---                       | ---                       | 300-600               | ---                            | ---                          | ---                   | ---           | ---                                | ---                                | ---                         | ---                          |
| <b>GP22</b>  | 150-300                      | 150-300             | 150-300                 | 150-300                 | 150-300   | 150-400                         | 150-400                   | 150-350                   | 150-300               | 150-2K                         | ---                          | 150-700               | 500-1500      | 100-175                            | 80-150                             | 100-250                     | ---                          |
| <b>GP25</b>  | 150-300                      | 150-300             | 150-300                 | 150-300                 | 150-300   | 150-400                         | 150-400                   | 150-350                   | 150-300               | 150-2K                         | ---                          | 150-700               | 500-1500      | 100-175                            | 80-150                             | 100-250                     | ---                          |
| <b>GP26</b>  | 400-800                      | 400-800             | 300-600                 | 200-500                 | 300-600   | 200-500                         | 400-800                   | 300-600                   | 300-600               | 1200-3500                      | ---                          | 300-8K                | 300-1200      | 100-200                            | 100-200                            | 100-250                     | ---                          |
| <b>GP3</b>   | 200-400                      | 200-400             | 200-400                 | 200-350                 | 200-400   | 200-500                         | 200-600                   | 200-500                   | 200-100               | 300-2K                         | ---                          | 200-900               | 300-1500      | 100-200                            | 100-175                            | 150-300                     | ---                          |
| <b>GP4</b>   | 60-175                       | 60-175              | 60-150                  | 60-150                  | 60-150  | 60-150                          | 60-150                    | 60-150                    | 60-150                | 60-150                         | ---                          | ---                   | ---           | 50-80                              | 50-80                              | 50-80                       | ---                          |
| <b>GP5</b>   | 200-500                      | 200-500             | 200-400                 | 200-400                 | 200-400   | ---                             | ---                       | ---                       | 200-400               | ---                            | ---                          | ---                   | ---           | ---                                | ---                                | ---                         | ---                          |
| <b>GP54</b>  | 200-500                      | 200-500             | 200-400                 | 200-400                 | 200-400   | ---                             | ---                       | ---                       | 200-400               | ---                            | ---                          | ---                   | ---           | ---                                | ---                                | ---                         | ---                          |
| <b>GP50</b>  | 200-600                      | 200-600             | 200-500                 | 200-450                 | 200-500   | ---                             | ---                       | ---                       | 200-500               | ---                            | ---                          | ---                   | ---           | ---                                | ---                                | ---                         | ---                          |
| <b>AC22</b>  | 250-500                      | 250-500             | 250-450                 | 250-400                 | 200-450   | 300-600                         | 300-600                   | 200-550                   | 250-450               | 600-2200                       | ---                          | 300-900               | 350-1200      | 80-200                             | 80-175                             | 80-300                      | ---                          |
| <b>AC26</b>  | 500-1K                       | 500-1K              | 400-800                 | 300-600                 | 400-800   | 300-700                         | 500-1000                  | 400-800                   | 400-800               | 1500-5K                        | ---                          | 400-1K                | 400-1500      | 100-200                            | 100-200                            | 200-300                     | ---                          |
| <b>AC3</b>   | 250-450                      | 250-450             | 250-400                 | 250-400                 | 250-450   | 250-700                         | 300-700                   | 300-600                   | 200-450               | 600-2500                       | ---                          | 400-1K                | 400-1500      | 100-250                            | 100-200                            | 100-300                     | 80-150                       |
| <b>AC54</b>  | 350-500                      | 350-500             | 350-500                 | 300-500                 | 300-500   | ---                             | ---                       | ---                       | 300-500               | ---                            | ---                          | ---                   | ---           | ---                                | ---                                | ---                         | ---                          |
| <b>AC50</b>  | 400-800                      | 450-800             | 400-800                 | 400-750                 | 350-700   | ---                             | ---                       | ---                       | 300-700               | ---                            | ---                          | ---                   | ---           | ---                                | ---                                | ---                         | ---                          |
| <b>ZA22</b>  | 250-500                      | 250-500             | 250-450                 | 250-400                 | 200-450   | 300-600                         | 300-600                   | 200-550                   | 250-450               | 600-2200                       | ---                          | 300-900               | 350-1200      | 80-200                             | 80-175                             | 80-300                      | ---                          |
| <b>ZA26</b>  | 500-1K                       | 500-1K              | 400-800                 | 300-600                 | 400-800   | 300-700                         | 500-1000                  | 400-800                   | 400-800               | 1500-5K                        | ---                          | 400-1K                | 400-1500      | 100-200                            | 100-200                            | 200-300                     | ---                          |
| <b>ZA3</b>   | 250-450                      | 250-450             | 250-400                 | 250-400                 | 250-450   | 250-700                         | 300-700                   | 300-600                   | 200-450               | 600-2500                       | ---                          | 400-1K                | 400-1500      | 100-250                            | 100-200                            | 100-300                     | 80-150                       |
| <b>ZA50</b>  | 400-800                      | 450-800             | 400-800                 | 400-750                 | 350-700   | ---                             | ---                       | ---                       | 300-700               | ---                            | ---                          | ---                   | ---           | ---                                | ---                                | ---                         | ---                          |
| <b>ZL22</b>  | 250-500                      | 250-500             | 250-450                 | 250-400                 | 200-450   | 300-600                         | 300-600                   | 200-550                   | 250-450               | 600-2200                       | ---                          | 300-900               | 350-1200      | 80-200                             | 80-175                             | 80-300                      | ---                          |
| <b>ZL26</b>  | 500-1K                       | 500-1K              | 400-800                 | 300-600                 | 400-800   | 300-700                         | 500-1000                  | 400-800                   | 400-800               | 1500-5K                        | ---                          | 400-1K                | 400-1500      | 100-200                            | 100-200                            | 200-300                     | ---                          |
| <b>ZL3</b>   | 250-450                      | 250-450             | 250-400                 | 250-400                 | 250-450   | 250-700                         | 300-700                   | 300-600                   | 200-450               | 600-2500                       | ---                          | 400-1K                | 400-1500      | 100-250                            | 100-200                            | 100-300                     | 80-150                       |
| <b>ZR22</b>  | 250-500                      | 250-500             | 250-450                 | 250-400                 | 200-450   | 300-600                         | 300-600                   | 200-550                   | 250-450               | 600-2200                       | ---                          | 300-900               | 350-1200      | 80-200                             | 80-175                             | 80-300                      | ---                          |
| <b>ZR26</b>  | 500-1K                       | 500-1K              | 400-800                 | 300-600                 | 400-800   | 300-700                         | 500-1000                  | 400-800                   | 400-800               | 1500-5K                        | ---                          | 400-1K                | 400-1500      | 100-200                            | 100-200                            | 200-300                     | ---                          |
| <b>ZR3</b>   | 250-450                      | 250-450             | 250-400                 | 250-400                 | 250-450   | 250-700                         | 300-700                   | 300-600                   | 200-450               | 600-2500                       | ---                          | 400-1K                | 400-1500      | 100-250                            | 100-200                            | 100-300                     | 80-150                       |
| <b>ZR50</b>  | 400-800                      | 450-800             | 400-800                 | 400-750                 | 350-700   | ---                             | ---                       | ---                       | 300-700               | ---                            | ---                          | ---                   | ---           | ---                                | ---                                | ---                         | ---                          |
| <b>ZS22</b>  | 250-500                      | 250-500             | 250-450                 | 250-400                 | 200-450   | 300-600                         | 300-600                   | 200-550                   | 250-450               | 600-2200                       | ---                          | 300-900               | 350-1200      | 80-200                             | 80-175                             | 80-300                      | ---                          |
| <b>ZS26</b>  | 500-1K                       | 500-1K              | 400-800                 | 300-600                 | 400-800   | 300-700                         | 500-1000                  | 400-800                   | 400-800               | 1500-5K                        | ---                          | 400-1K                | 400-1500      | 100-200                            | 100-200                            | 200-300                     | ---                          |
| <b>ZS3</b>   | 250-450                      | 250-450             | 250-400                 | 250-400                 | 250-450   | 250-700                         | 300-700                   | 300-600                   | 200-450               | 600-2500                       | ---                          | 400-1K                | 400-1500      | 100-250                            | 100-200                            | 100-300                     | 80-150                       |
| <b>ZS50</b>  | 400-800                      | 450-800             | 400-800                 | 400-750                 | 350-700   | ---                             | ---                       | ---                       | 300-700               | ---                            | ---                          | ---                   | ---           | ---                                | ---                                | ---                         | ---                          |
| <b>ZU22</b>  | 250-500                      | 250-500             | 250-450                 | 250-400                 | 200-450   | 300-600                         | 300-600                   | 200-550                   | 250-450               | 600-2200                       | ---                          | 300-900               | 350-1200      | 80-200                             | 80-175                             | 80-300                      | ---                          |
| <b>ZU26</b>  | 500-1K                       | 500-1K              | 400-800                 | 300-600                 | 400-800   | 300-700                         | 500-1000                  | 400-800                   | 400-800               | 1500-5K                        | ---                          | 400-1K                | 400-1500      | 100-200                            | 100-200                            | 200-300                     | ---                          |
| <b>ZU3</b>   | 250-450                      | 250-450             | 250-400                 | 250-400                 | 250-450   | 250-700                         | 300-700                   | 300-600                   | 200-450               | 600-2500                       | ---                          | 400-1K                | 400-1500      | 100-250                            | 100-200                            | 100-300                     | 80-150                       |
| <b>ZU50</b>  | 400-800                      | 450-800             | 400-800                 | 400-750                 | 350-700   | ---                             | ---                       | ---                       | 300-700               | ---                            | ---                          | ---                   | ---           | ---                                | ---                                | ---                         | ---                          |
| <b>GPM6</b>  | 600-1500                     | 600-1200            | 500-1100                | 600-800                 | 500-800   | 500-1K                          | 400-1100                  | 350-950                   | 350-950               | ---                            | ---                          | ---                   | ---           | ---                                | ---                                | ---                         | ---                          |
| <b>CB200</b> | ---                          | ---                 | ---                     | ---                     | ---   | ---                             | 400-2500                  | 1K-1800                   | ---                   | ---                            | ---                          | ---                   | ---           | 300-600                            | 250-450                            | ---                         | 150-350                      |
| <b>CB400</b> | ---                          | ---                 | ---                     | ---                     | ---   | ---                             | ---                       | ---                       | ---                   | ---                            | ---                          | ---                   | ---           | ---                                | ---                                | ---                         | 200-500                      |
| <b>PC33</b>  | ---                          | ---                 | ---                     | ---                     | ---   | ---                             | ---                       | ---                       | ---                   | 1K-8K                          | 1K-5K                        | 1K-4K                 | 1K-4500       | ---                                | ---                                | ---                         | ---                          |
| <b>DX200</b> | ---                          | ---                 | ---                     | ---                     | ---   | ---                             | ---                       | ---                       | ---                   | 1K-7K                          | 1K-3K                        | 1K-3500               | 1K-4K         | ---                                | ---                                | ---                         | ---                          |