



**TOUGHMET APPLICATION:
MOTOCROSS
PROFILE: PR2 RACING**

PR2 Racing offers the highest level of modern technology available in the Motocross / Off-road market place. Products and services include “factory” level tuned engines and suspensions.

CHALLENGE:

Motocross engines, like Formula 1 engines, experience extreme conditions. Both are 4-valve per cylinder engines and routinely operate above 10,000 RPM. When experiencing galling and wear issues with titanium valves, rather than replace the valve itself, PR2 looked for an alternative valve guide material.



ToughMet is used in the valve guides and copper beryllium in the valve seats.

SOLUTION:

Materion Performance Alloys’ ToughMet[®] 3 AT 110 alloy was used to replace the conventional valve guide and produced “phenomenal results.”



ToughMet[®] has substantially reduced wear of the titanium valve stem as well as the copper beryllium valve seat. It has eliminated galling, allowed for extremely close clearance between the valve guide and valve stem and has extended the life of the guide. Additionally, ToughMet[®] proved very friendly to work with where other bronzes were abrasive.

According to PR2 they “were getting about 8 hours with the cast steel. Now we are easily getting 15 hours with ToughMet[®].” The extended life alone is saving the company more than \$500 per cylinder head per 8 hours of run time.