

Not All Belts Fit the Same Sprocket: Belt/Sprocket Interchange Guide

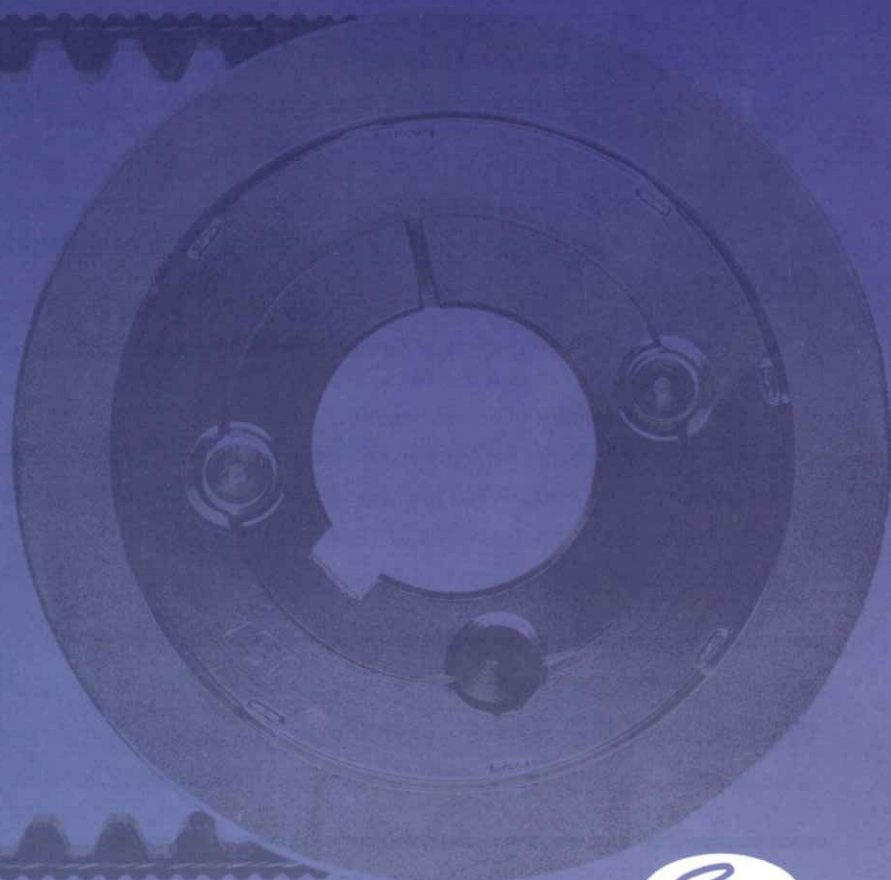


Table of Contents

Foreword/Explanation of Recommendations	1
HTD® Sprockets	2-3
PowerGrip® GT®2 Sprockets	4-6
Poly Chain® GT®2 Sprockets.....	7-8
RPP®/RPP+Plus® Sprockets.....	9-10
Panther®/QT Powerchain® Sprockets	11
PowerGrip® GT®2 Replacement Chart.....	12

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Foreword

This brochure can assist you in determining the proper belt/sprocket combinations for original drive designs as well as replacement for existing drive components. Knowing which synchronous belt is compatible with which synchronous sprocket is critical for optimum drive performance.

When system compatibility recommendations are followed, both the life of the belt and sprockets are maximized. In addition, safety issues may arise when high performance synchronous belt ratings are used to design new drives and sprockets are used that are not compatible or recommended.

- A PowerGrip® GT®2 belt should only be used in an HTD® sprocket as a replacement for an existing HTD® belt. For new designs, PowerGrip® GT®2 belts should only be used with PowerGrip® GT®2 Sprockets.
- A Poly Chain® GT®2 belt should only be used in a Poly Chain® GT® sprocket as a replacement for an existing Poly Chain® GT® belt. For new designs, Poly Chain® GT®2 belts should only be used with Poly Chain® GT®2 Sprockets.

Explanation of Recommendations

Recommended—Original Design: This combination is designed to be used together.

Note: **For new drive designs, belts should only be used with the intended sprockets (see warnings).**

Published belt ratings apply only to belts used with the sprockets they were intended for. Using a belt with other sprockets for a new design, even if the belt appears to fit, may reduce the belt life and may cause damage to the bushing and/or sprocket.

Replacement Only: This combination is recommended only for replacement and widths should be adjusted as indicated. **Replacement combinations should not be used in new designs (see warnings).**

Not Recommended: This combination is not recommended due to potentially reduced service life of either the belt, the sprockets, or both. Also, a combination may not be recommended if another product line from the same manufacturer is more appropriate.

No Compatibility: This combination is not compatible, either because the belt does not wrap the sprockets well or because the belt tooth is too large to fit the sprocket grooves.

NOTES

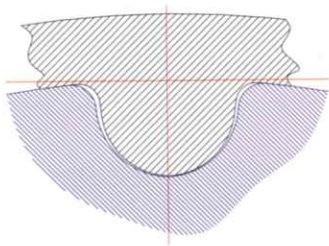
1. Sprocket groove drawings are all based upon 38-40 grooves. Ideal form with no variation from manufacturing tolerance was assumed.
2. Belt tooth drawings represent ideal form with no manufacturing variation.

HTD® Sprockets

WARNING:

When Designing **New Applications** with PowerGrip® GT®2 Design Ratings: **DO NOT USE HTD® SPROCKET SYSTEMS.** HTD® SPROCKETS/BUSHINGS MAY NOT HANDLE THE INCREASED TORQUE LOADS AND DAMAGE TO THE SPROCKET AND/OR BUSHING MAY OCCUR.

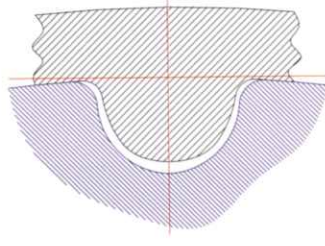
5M/8M/14M HTD® Belts



Recommended – Original Design

- Large robust belt tooth design
- Significant backlash

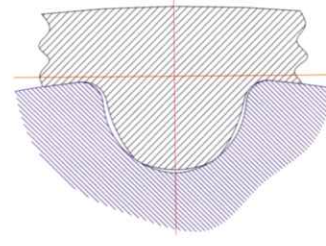
5M PowerGrip® GT®2 Belts



Not Recommended

- Reduced performance
- The sprocket/bushing capacity may be too low for new designs

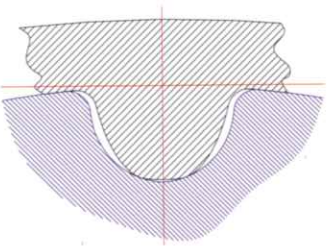
8M PowerGrip® GT®2 Belts



Replacement Only

- Quieter operation/increased backlash
- The sprocket/bushing capacity may be too low for new designs
- When replacing HTD® belts – the belt width may be reduced one size

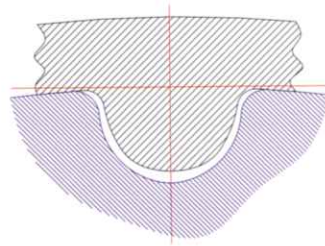
14M PowerGrip® GT®2 Belts



Replacement Only

- Quieter operation/increased backlash
- The sprocket/ bushing capacity may be too low for new designs
- When replacing HTD® belts – the belt width may be reduced one size

5M Poly Chain® GT® Belts

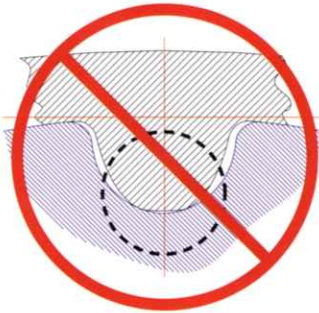


Not Recommended

- Reduced performance
- The sprocket/ bushing capacity may be too low for new designs

HTD® Sprockets (continued)

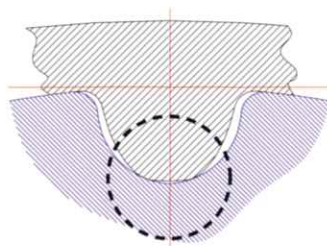
8M Poly Chain® GT®2 Belts



No Compatibility

- The belt will not fully wrap the sprocket
- The belt tooth is deeper than the sprocket groove

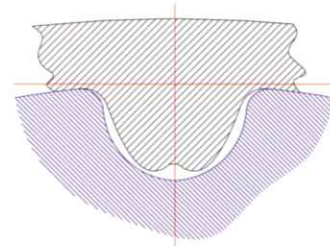
14M Poly Chain® GT®2 Belts



Not Recommended

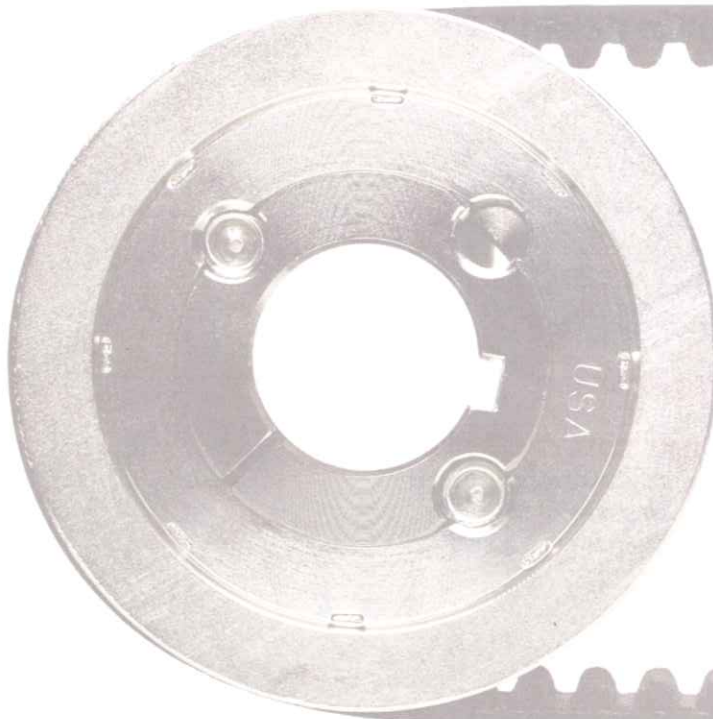
- Increased noise and belt wear
- The belt tooth is deeper than the sprocket groove
- The sprocket/ bushing capacity may be too low for new designs

5M RPP+Plus® Belts



Not Recommended

- The sprocket/ bushing capacity may be too low for new designs
- Increased backlash

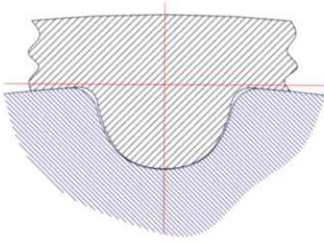


PowerGrip® GT®2 Sprockets

WARNING:

When Designing **New Applications** with PowerGrip® GT®2 Design Ratings: DO NOT USE HTD® SPROCKET SYSTEMS. HTD® SPROCKETS/BUSHINGS MAY NOT HANDLE THE INCREASED TORQUE LOADS AND DAMAGE TO THE SPROCKET AND/OR BUSHING MAY OCCUR.

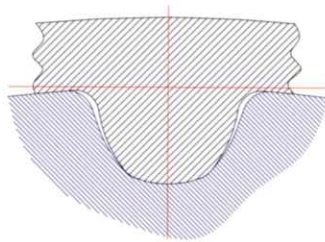
5M PowerGrip® GT®2 Belts



Recommended – Original Design

- Excellent pitch fit
- Very low backlash

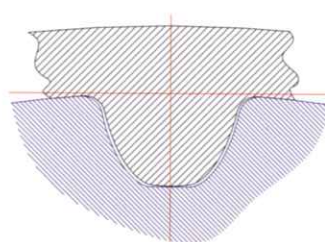
8M PowerGrip® GT®2 Belts



Recommended – Original Design

- Excellent pitch fit
- Very low backlash

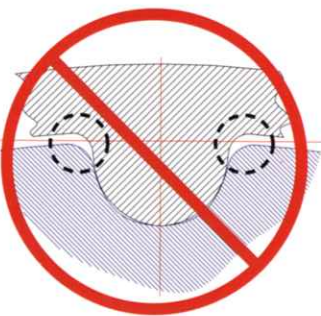
14M PowerGrip® GT®2 Belts



Recommended – Original Design

- Excellent pitch fit
- Very low backlash

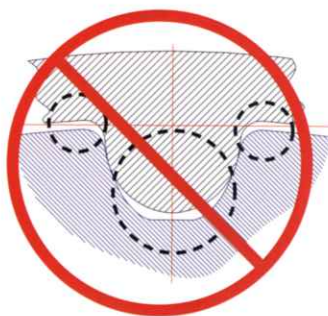
5M/8M HTD® Belts



No Compatibility

- The belt tooth is too large to fully seat in the sprocket groove

14M HTD® Belts

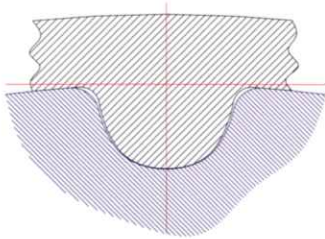


No Compatibility

- The belt tooth is too large to fully seat in the sprocket groove

PowerGrip® GT®2 Sprockets (continued)

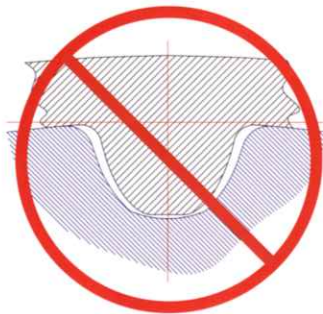
5M Poly Chain® GT® Belts



Recommended - Original Design

- Excellent pitch fit
- Very low backlash

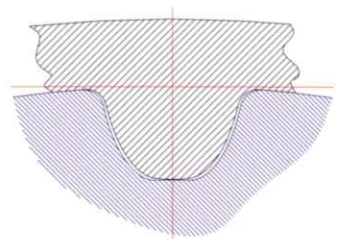
8M Poly Chain® GT®2 Belts



No Compatibility

- The belt will not fully wrap the sprocket

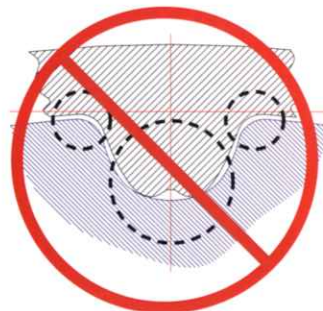
14M Poly Chain® GT®2 Belts



Not Recommended

- The sprocket/ bushing capacity may be too low for new designs
- Belt widths do not match sprocket widths

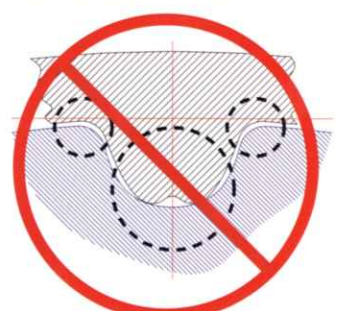
5M RPP+Plus® Belts



No Compatibility

- Reduced performance
- The belt tooth is too large to fully seat in the sprocket groove

8M RPP+Plus®/ WhiteHawk Pd™ Belts

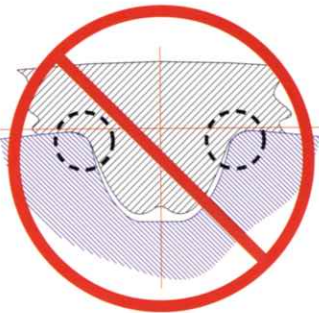


No Compatibility

- Reduced performance
- The belt tooth is too large to fully seat in the sprocket groove

PowerGrip® GT®2 Sprockets (continued)

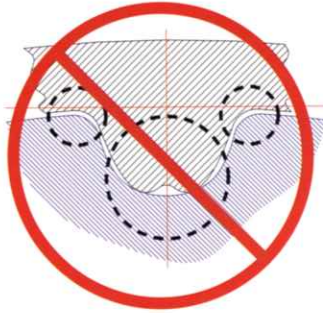
14M RPP+Plus®/ WhiteHawk Pd™ Belts



No Compatibility

- Reduced performance
- The belt tooth is too wide to fully seat in the sprocket groove

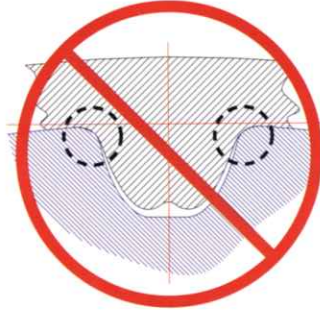
8M Panther®/QT Powerchain®/ BlackHawk Pd™ Belts



No Compatibility

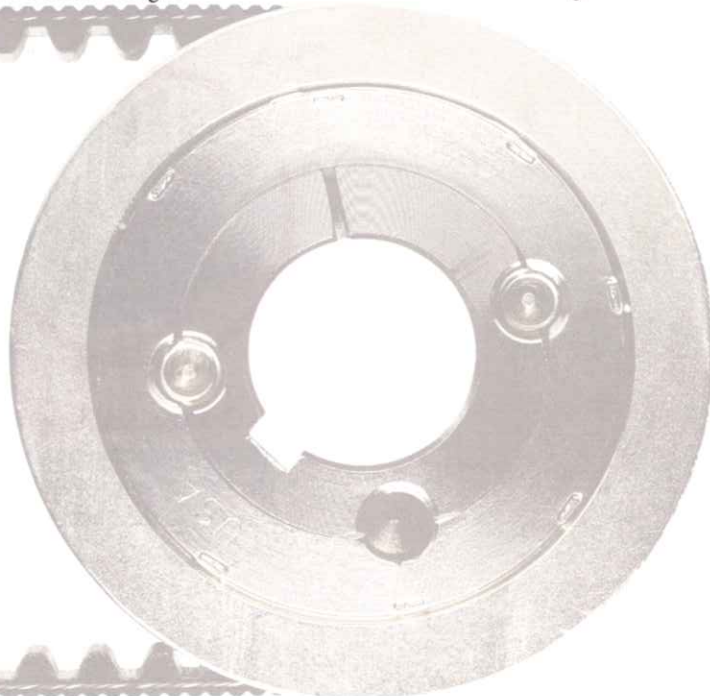
- Reduced performance
- The belt tooth is too large to fully seat in the sprocket groove
- Belt widths do not match sprocket widths
- The sprocket capacity may be too low for new designs

14M Panther®/QT Powerchain®/ BlackHawk Pd™ Belts



No Compatibility

- Reduced performance
- The belt tooth is too wide to fully seat in the sprocket groove
- Belt widths do not match sprocket widths
- The sprocket capacity may be too low for new designs

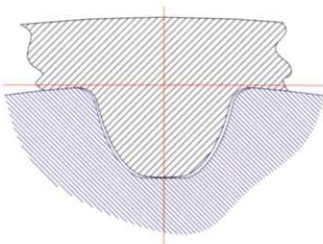


Poly Chain® GT®2 Sprockets

WARNING:

When Designing **New Applications** with Poly Chain® GT®2 Design Ratings: **DO NOT USE POLY CHAIN® GT® SPROCKET SYSTEMS.** POLY CHAIN® GT® SPROCKETS/BUSHINGS MAY NOT HANDLE THE INCREASED TORQUE LOADS AND DAMAGE TO THE SPROCKET AND/OR BUSHING MAY OCCUR.

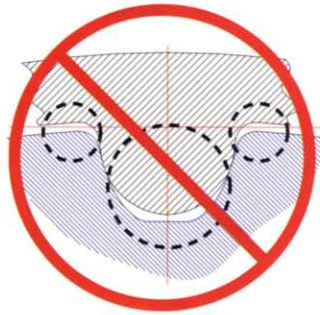
8M/14M Poly Chain® GT®2 Belts



Recommended - Original Design

- Thirty percent increase in belt capacity over Poly Chain® GT® belts

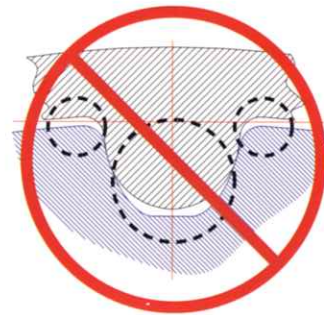
8M HTD® Belts



No Compatibility

- The belt will not fully wrap the sprocket
- The belt tooth is too large to fully seat in the sprocket groove

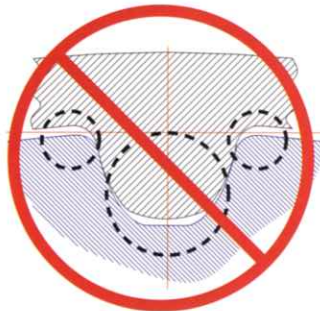
14M HTD® Belts



No Compatibility

- The belt tooth is too large to fully seat in the sprocket groove

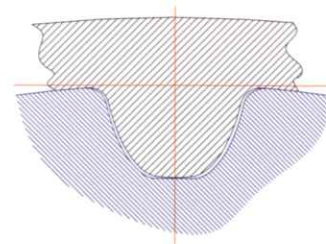
8M PowerGrip® GT®2 Belts



No Compatibility

- The belt will not fully wrap the sprocket
- The belt tooth is too large to fully seat in the sprocket groove

14M PowerGrip® GT®2 Belts



Not Recommended

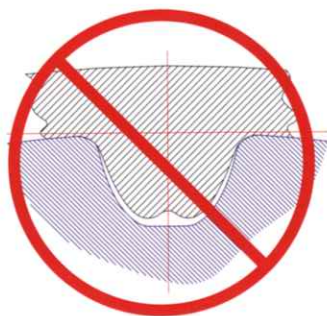
- Greatly reduced performance (if drive originally designed with Poly Chain® GT®2)
- Belt widths do not match sprocket widths
- Excellent pitch fit

Note:

Poly Chain® GT®2 belts may be used to replace Poly Chain® GT® belts on GT® sprockets. In most cases, the width can be reduced when replacing a GT® belt with a GT®2 belt. Contact Gates Product Application Help line at 303-744-5800 for more information.

Poly Chain® GT®2 Sprockets (continued)

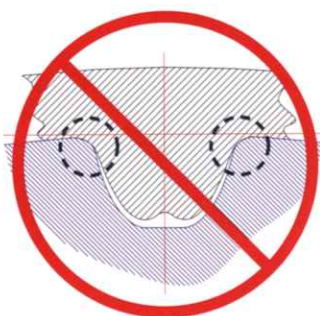
8M RPP+Plus®/ WhiteHawk Pd™ Belts



No Compatibility

- The belt will not fully wrap the sprocket

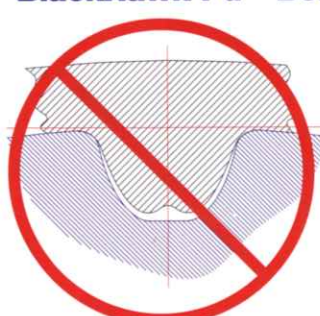
14M RPP+Plus®/ WhiteHawk Pd™ Belts



No Compatibility

- The belt tooth is too wide to fully seat in the sprocket groove
- Greatly reduced performance
- Belt widths do not match sprocket widths

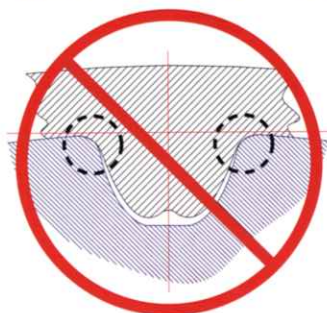
8M Panther®/QT Powerchain®/ BlackHawk Pd™ Belts



No Compatibility

- The belt will not fully wrap the sprocket
- Belt widths do not match sprocket widths

14M Panther®/QT Powerchain®/ BlackHawk Pd™ Belts



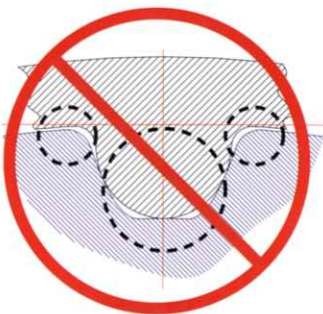
No Compatibility

- The belt tooth is too wide to fully seat in the sprocket groove
- Greatly reduced performance
- Belt widths do not match sprocket widths



RPP®/RPP+Plus® Sprockets

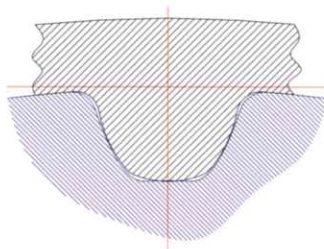
5M HTD® Belts



No Compatibility

- The belt tooth is too large to fully seat in the sprocket groove

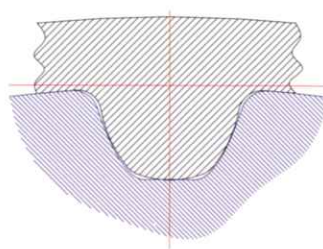
5M PowerGrip® GT®2 Belts



Replacement Only

- The sprocket/ bushing capacity may be too low for new designs

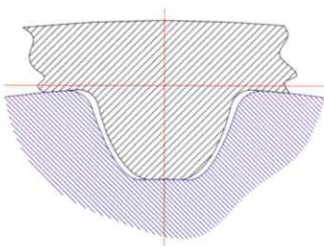
8M PowerGrip® GT®2 Belts



Replacement Only

- For sprockets with less than 50 grooves
 - Improved performance over RPP+Plus®/Panther®
- Not Recommended**
- For sprockets with more than 50 grooves
 - Poor meshing quality on sprockets with more than 50 grooves

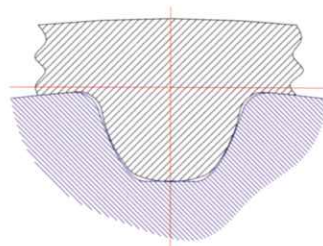
14M PowerGrip® GT®2 Belts



Replacement Only

- For replacement of RPP®/RPP+Plus® belts, the belt width may be reduced one size
- Fairly good pitch fit
- Improved performance over RPP+Plus®

5M Poly Chain® GT® Belts

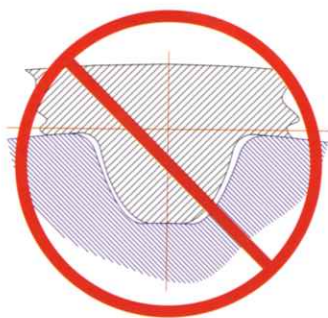


Replacement Only

- The sprocket/ bushing capacity may be too low for new designs

RPP®/RPP+Plus® Sprockets (continued)

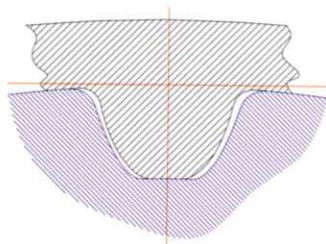
8M Poly Chain® GT®2 Belts



No Compatibility

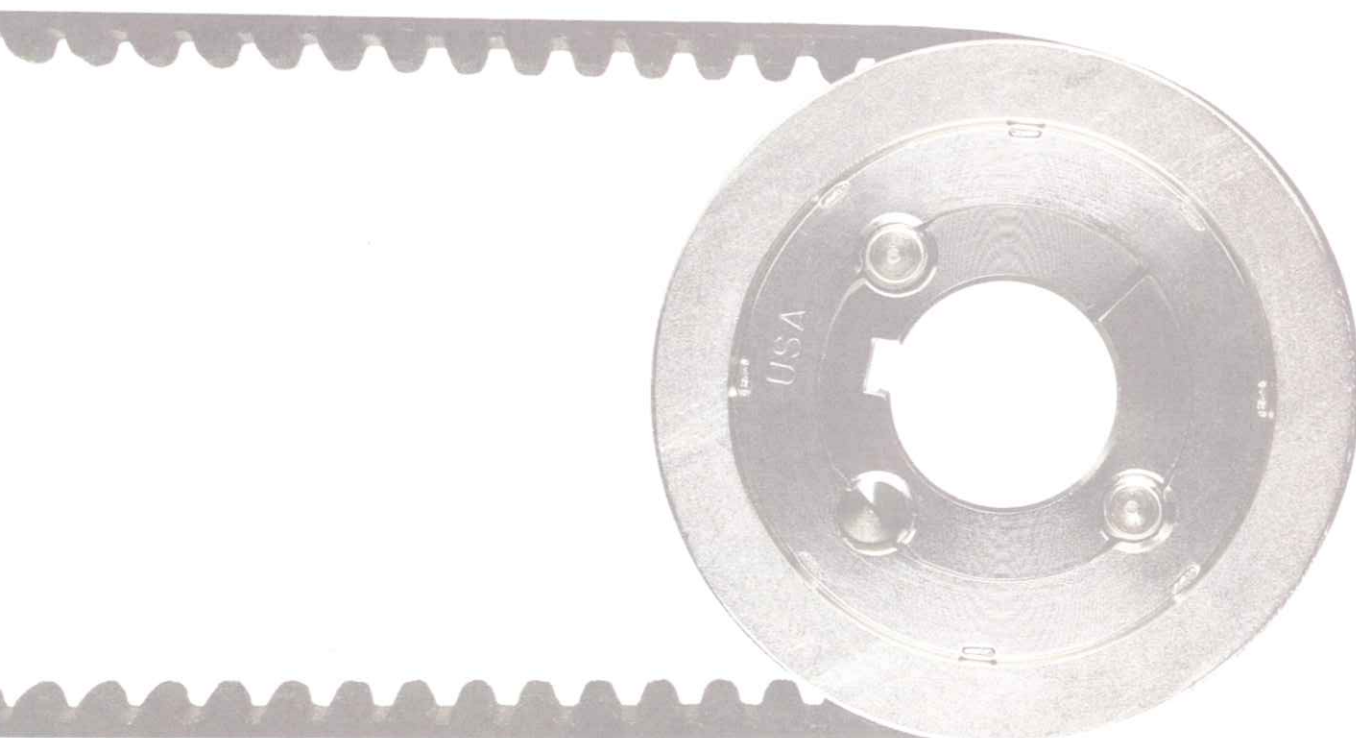
- The belt will not fully wrap the sprocket
- Belt widths do not match sprocket widths

14M Poly Chain® GT®2 Belts



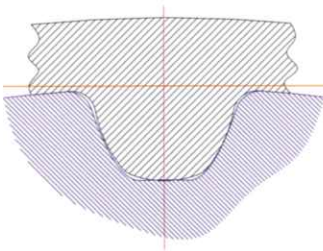
Not Recommended

- Belt widths do not match sprocket widths
- Fairly good pitch fit
- The sprocket/bushing capacity may be too low for new designs



Panther®/QT Powerchain® Sprockets

8M PowerGrip® GT®2 Belts



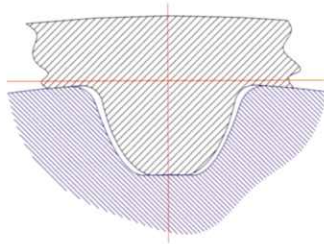
Replacement Only

- For sprockets with less than 50 grooves

Not Recommended

- For sprockets with more than 50 grooves
- Poor meshing quality on sprockets with more than 50 grooves
- Belt widths do not match sprocket widths

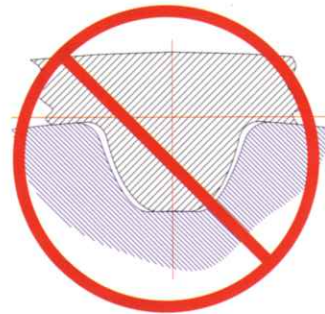
14M PowerGrip® GT®2 Belts



Replacement Only

- Fairly good pitch fit
- Belt widths do not match sprocket widths

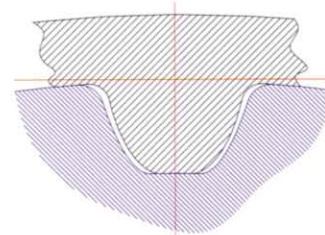
8M Poly Chain® GT®2 Belts



No Compatibility

- The belt will not fully wrap the sprocket
- Belt widths do not match sprocket widths

14M Poly Chain® GT®2 Belts



Not Recommended

- Belt widths do not match sprocket widths
- Fairly good pitch fit
- The sprocket/ bushing capacity may be too low for new designs



For more information on
any of the Gates Industrial
Power Transmission
Products, programs or
services, contact your local
Gates representative, call
the Product Application Help
Line at 303.744.5800 or
visit us at www.gates.com



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