



# TPU BELTS

THERMOPLASTIC POLYURETHANE

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GATES® TPU SYNCHRO-POWER™

# GPP BELT

DESIGNED FOR HIGH SPEED AND HIGH LOAD

A long, yellow, multi-ribbed Gates TPU Synchro-Power GPP Belt is shown running along a metal track in a large industrial warehouse. The belt is supported by a series of rollers and is positioned between tall metal shelving units filled with blue and brown storage bins. A yellow overhead crane is visible in the background, and the floor is polished and reflective.

## **GATES PARABOLIC PROFILE HIGH STRENGTH AND LOW NOISE**

Gates TPU Synchro-Power GPP belts are high performance, top quality belts designed for high speed precision accuracy to improve your operating efficiency.

Standard GPP belts utilize strong steel reinforcement cord to deliver full tensile strength and allow very small pulley diameters. Reinforced RSL belts have very high tensile strength and stiffness for highly dynamic positioning and vertical lifting applications.

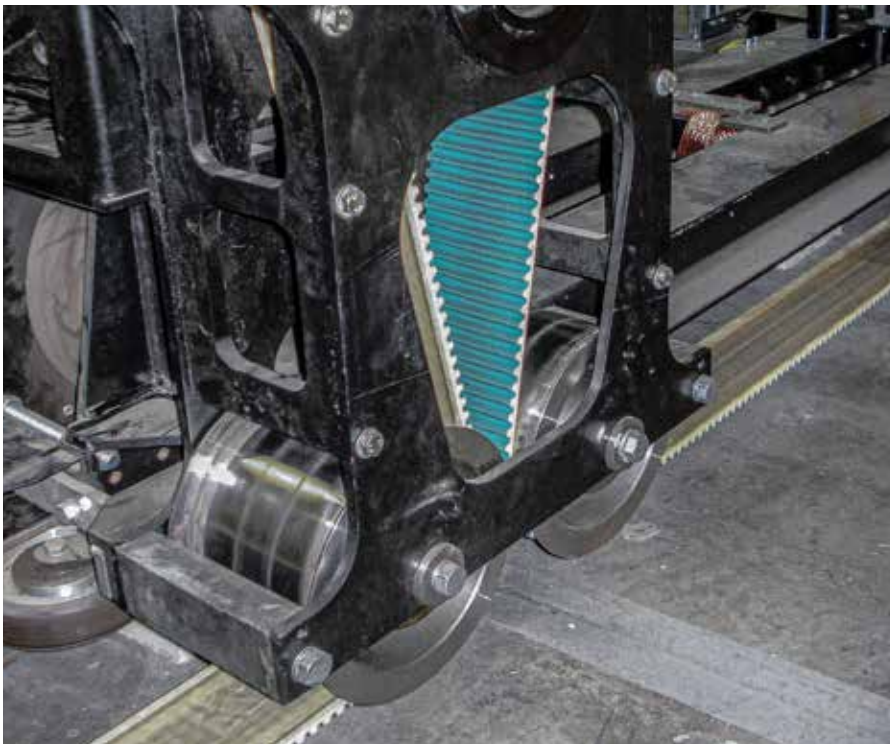
A wear-resistant Nylon fabric on the tooth side allows Synchro-Power GPP belts to operate smoothly with high abrasion resistance.

TPU belts combine the durability of Gates quality products and optimal lead times within a reliable partnership – making Gates TPU Synchro-Power belts the number one choice for polyurethane synchronous belts. You can confidently rely on Gates TPU Synchro-Power GPP.

### **FEATURES + BENEFITS**

- GPP8 or GPP14 pitch
- RPP\* or HTD pulleys
- Standard belts for medium load capacity
- Reinforced RSL belts for high load applications
- Standard tooth side Nylon fabric
- Optional back side Nylon fabric
- GPP8 in widths up to 150mm
- GPP14 in widths up to 200mm
- Small pulley diameters

\* RPP is a trademark of The Timken Company



## SYNCHRO-POWER GPP8

Gates TPU basic 8M pitch parabolic profile belt is ideal for light and medium linear actuation applications, door opening systems, and any application requiring an endless welded belt system for transportation.

- Highly flexible steel cord construction is designed for very small pulley diameters
- Optional stainless steel cord construction for highly corrosive environments
- Durable and abrasion resistant standard 92° ShoreA urethane for -5 to +70°C temperatures
- Optional low temp urethane for low temperature applications – deep freeze warehousing or outdoor equipment
- Nylon fabric tooth side for low friction and low noise – optional Nylon fabric back side
- ISO 13050 R8 tooth form runs in RPP8\* as well as HTD8M pulleys



## SYNCHRO-POWER GPP8-RSL

In the same dimensions of the GPP8, our RSL belt is equipped with high strength steel cord. A GPP8-RHF belt is available for small pulley diameters.

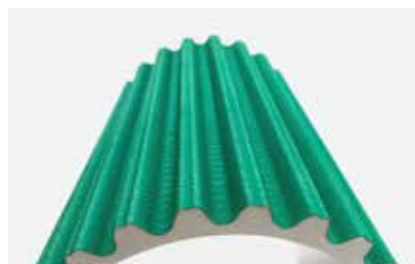
- Higher tensile strength and higher stiffness is perfect for high-precision and very dynamic light to middle load linear applications as well as medium weight lifting
- Standard Applications: RPP8 or HTD8M pulleys
- High Load Applications: HTD8M SG (shallow groove) pulleys recommended for perfect fit and longer life
- Standard version for -5 to +70°C temperatures (low temp version for -30 to +50°C)
- Nylon fabric tooth side for low friction and low noise – optional Nylon fabric back side



## SYNCHRO-POWER GPP14

Using a special cord construction, our basic 14M pitch parabolic profile belt delivers great tensile strength and extremely high stiffness for less elastic elongation.

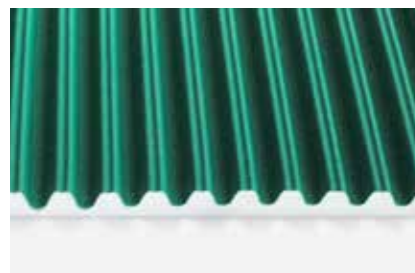
- ISO 13050 R14 tooth form runs in RPP14 or HTD14M pulleys
- High Load Applications: HTD14M SG (shallow groove) pulleys recommended for perfect fit and longer life
- Standard version for -5 to +70°C temperatures (low temp version for -30 to +50°C)
- Nylon fabric tooth side for low friction and low noise – optional Nylon fabric on tooth and back side



## SYNCHRO-POWER GPP14-RSL

Extremely high strength makes our GPP14-RSL belt perfect for heavy lifting and highly dynamic linear movement applications such as high load stacker cranes in automated warehouses – including deep freeze – and material elevators in the automotive industry.

- High Load Applications: Use HTD14M SG (shallow groove) pulleys for perfect fit and longer life
- Standard version for -5 to +70°C temperatures (low temp version for -30 to +50°C)
- Nylon fabric tooth side for low friction and low noise – optional Nylon fabric on tooth and back side



\* RPP is a trademark of The Timken Company

## SYNCHRO-POWER GPP8

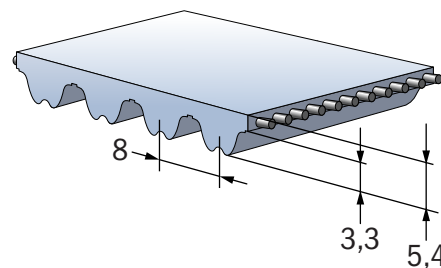


### PRODUCT SPECIFICATIONS

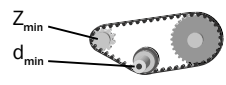
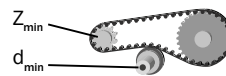
|                                             |            |
|---------------------------------------------|------------|
| <b>PITCH</b>                                | 8 mm       |
| <b>STANDARD THICKNESS</b>                   | 5.4 mm     |
| <b>WIDTH TOLERANCE</b>                      | +/-0.50 mm |
| <b>MINIMUM WELDED BELT LENGTH</b>           |            |
| < 100 MM WIDTH                              | 552 mm     |
| < 100 MM WIDTH                              | 960 mm     |
| <b>STANDARD ROLL LENGTH (TOLERANCE ±1%)</b> | 100 m      |
| <b>STANDARD COLOR</b>                       | White      |
| <b>FDA/EU APPROVAL</b>                      | No         |
| <b>POLYAMIDE FABRIC</b>                     |            |
| STANDARD                                    | NT         |
| OPTIONAL                                    | NTB        |

| PITCH           | POLYURETHANE | HARDNESS<br>[·SHORE A] | TEMPERATURE<br>RANGE [°C] |
|-----------------|--------------|------------------------|---------------------------|
| <b>STANDARD</b> | R1           | 92                     | -5 to +70 °C              |
| <b>OPTIONAL</b> | R23          | 90                     | -30 to +55 °C             |

### GPP8



#### Minimum Pulley Diameter

|                                                                                               | Steel            | Steel HF | Stainless |
|-----------------------------------------------------------------------------------------------|------------------|----------|-----------|
|  $z_{min}$  | <b>z min</b> 20  | 16       | 25        |
| $d_{min}$                                                                                     | <b>d min</b> 50  | 41       | 64        |
|  $z_{min}$ | <b>z min</b> 22  | 20       | 28        |
| $d_{min}$                                                                                     | <b>d min</b> 110 | 100      | 150       |

### TECHNICAL DATA

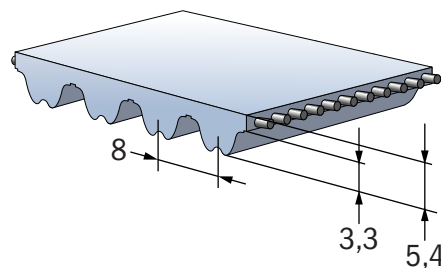
| STANDARD WIDTH (mm)                                          | 10      | 15      | 20      | 25      | 30        | 50        | 85        | 100       | 150       |
|--------------------------------------------------------------|---------|---------|---------|---------|-----------|-----------|-----------|-----------|-----------|
| <b>Ultimate Tensile Strength [N] Average Value</b>           |         |         |         |         |           |           |           |           |           |
| Steel                                                        | 5.700   | 8.550   | 12.350  | 15.200  | 19.000    | 32.300    | 56.050    | 66.500    | 98.800    |
| Steel HF                                                     | 5.190   | 7.785   | 11.245  | 13.840  | 17.300    | 29.410    | 51.035    | 60.550    | 89.960    |
| Stainless                                                    | 4.275   | 6.413   | 9.263   | 11.400  | 14.250    | 24.225    | 42.038    | 49.875    | 74.100    |
| <b>Allowable Belt Tension [N] Open Ended</b>                 |         |         |         |         |           |           |           |           |           |
| Steel                                                        | 1.403   | 2.104   | 3.040   | 3.741   | 4.676     | 7.950     | 13.795    | 16.367    | 24.317    |
| Steel HF                                                     | 1.296   | 1.944   | 2.808   | 3.456   | 4.320     | 7.344     | 12.744    | 15.120    | 22.464    |
| Stainless                                                    | 1.052   | 1.578   | 2.280   | 2.806   | 3.507     | 5.962     | 10.346    | 12.275    | 18.237    |
| <b>Allowable Belt Tension [N] Endless Welded</b>             |         |         |         |         |           |           |           |           |           |
| Steel                                                        | 701     | 1.052   | 1.520   | 1.871   | 2.338     | 3.975     | 6.897     | 8.183     | 12.158    |
| Steel HF                                                     | 648     | 972     | 1.404   | 1.728   | 2.160     | 3.672     | 6.372     | 7.560     | 11.232    |
| Stainless                                                    | 526     | 798     | 1.140   | 1.403   | 1.754     | 2.981     | 5.173     | 6.138     | 9.119     |
| <b>Allowable Effective Tension [N] Min. 15 teeth in mesh</b> |         |         |         |         |           |           |           |           |           |
|                                                              | 748     | 1.122   | 1.496   | 1.870   | 2.244     | 3.740     | 6.358     | 7.480     | 11.220    |
| <b>Belt Weight (kg/m)</b>                                    |         |         |         |         |           |           |           |           |           |
| Steel                                                        | 0,05    | 0,08    | 0,10    | 0,13    | 0,15      | 0,25      | 0,42      | 0,50      | 0,75      |
| Steel HF                                                     | 0,05    | 0,07    | 0,09    | 0,12    | 0,14      | 0,23      | 0,39      | 0,47      | 0,70      |
| Stainless                                                    | 0,05    | 0,07    | 0,10    | 0,12    | 0,15      | 0,25      | 0,42      | 0,50      | 0,74      |
| <b>Specific Belt Stiffness [N]</b>                           |         |         |         |         |           |           |           |           |           |
| Steel                                                        | 350.719 | 526.078 | 759.891 | 935.250 | 1.169.063 | 1.987.406 | 3.448.734 | 4.091.719 | 6.079.125 |
| Steel HF                                                     | 324.000 | 486.000 | 702.000 | 864.000 | 1.080.000 | 1.836.000 | 3.186.000 | 3.780.000 | 5.616.000 |
| Stainless                                                    | 263.039 | 394.559 | 569.918 | 701.438 | 876.797   | 1.490.555 | 2.586.551 | 3.068.789 | 4.559.344 |



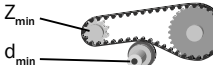
### PRODUCT SPECIFICATIONS

|                                      |            |
|--------------------------------------|------------|
| PITCH                                | 8 mm       |
| STANDARD THICKNESS                   | 5.4 mm     |
| WIDTH TOLERANCE                      | +/-0.50 mm |
| STANDARD ROLL LENGTH (TOLERANCE ±1%) | 100 m      |
| STANDARD COLOR                       | White      |
| FDA/EU APPROVAL                      | No         |
| POLYAMIDE FABRIC                     |            |
| STANDARD                             | NT         |
| OPTIONAL                             | NTB        |

### GPP8-RSL



#### Minimum Pulley Diameter

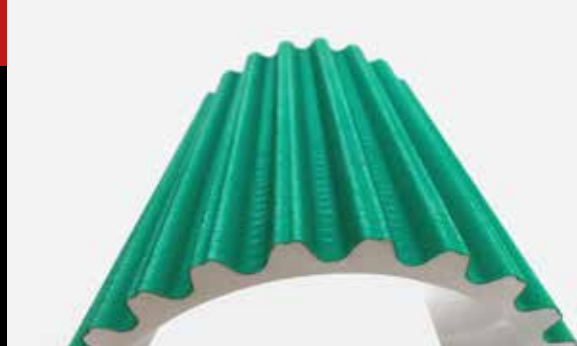
|           |                                                                                      | Steel            | Steel HF |
|-----------|--------------------------------------------------------------------------------------|------------------|----------|
| $Z_{min}$ |    |                  |          |
| $d_{min}$ |                                                                                      | <b>z min</b> 32  | 25       |
|           |                                                                                      | <b>d min</b> 82  | 64       |
| $Z_{min}$ |  |                  |          |
| $d_{min}$ |                                                                                      | <b>z min</b> 35  | 28       |
|           |                                                                                      | <b>d min</b> 150 | 130      |

GPP8-RSL require special Shallow Groove Pulleys. Please contact Gates TPU application engineering for more information.

### TECHNICAL DATA

| STANDARD WIDTH (mm)                                          | 15      | 20        | 25        | 30        | 50        | 85        | 100       | 150       |
|--------------------------------------------------------------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Ultimate Tensile Strength [N] Average Value</b>           |         |           |           |           |           |           |           |           |
| Steel                                                        | 13.840  | 19.030    | 25.950    | 31.140    | 51.900    | 91.690    | 103.800   | 155.700   |
| Steel HF                                                     | 15.400  | 21.175    | 28.875    | 34.650    | 57.750    | 102.025   | 115.500   | 173.250   |
| <b>Allowable Belt Tension [N] Open Ended</b>                 |         |           |           |           |           |           |           |           |
| Steel                                                        | 3.349   | 4.604     | 6.279     | 7.534     | 12.557    | 22.184    | 25.114    | 37.671    |
| Steel HF                                                     | 2.902   | 3.991     | 5.442     | 6.530     | 10.884    | 19.228    | 21.767    | 32.651    |
| <b>Allowable Effective Tension [N] Min. 15 teeth in mesh</b> |         |           |           |           |           |           |           |           |
|                                                              | 1.122   | 1.496     | 1.870     | 2.244     | 3.740     | 6.358     | 7.480     | 11.220    |
| <b>Belt Weight (kg/m)</b>                                    |         |           |           |           |           |           |           |           |
| Steel                                                        | 0,11    | 0,15      | 0,18      | 0,22      | 0,37      | 0,63      | 0,72      | 1,09      |
| Steel HF                                                     | 0,11    | 0,15      | 0,18      | 0,22      | 0,37      | 0,63      | 0,72      | 1,09      |
| <b>Specific Belt Stiffness [N]</b>                           |         |           |           |           |           |           |           |           |
| Steel                                                        | 837.143 | 1.151.071 | 1.569.643 | 1.883.571 | 3.139.286 | 5.546.071 | 6.278.571 | 9.417.857 |
| Steel HF                                                     | 725.571 | 997.661   | 1.360.446 | 1.632.536 | 2.720.893 | 4.806.911 | 5.441.786 | 8.162.679 |

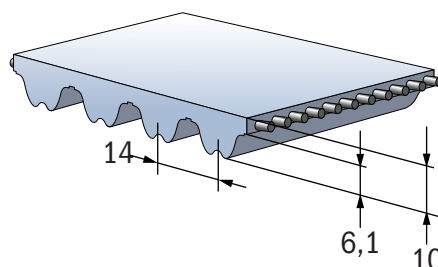
## SYNCHRO-POWER GPP14



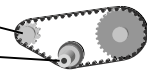
### PRODUCT SPECIFICATIONS

|                                      |           |
|--------------------------------------|-----------|
| PITCH                                | 14 mm     |
| STANDARD THICKNESS                   | 10 mm     |
| WIDTH TOLERANCE                      | + -1.0 mm |
| MINIMUM WELDED BELT LENGTH           | NA        |
| STANDARD ROLL LENGTH (TOLERANCE ±1%) | 50 m      |
| STANDARD COLOR                       | White     |
| FDA/EU APPROVAL                      | No        |
| POLYAMIDE FABRIC                     |           |
| STANDARD                             | NT        |
| OPTIONAL                             | NTB       |

### GPP14



#### Minimum Pulley Diameter

|           |                                                                                      |                  |
|-----------|--------------------------------------------------------------------------------------|------------------|
| $z_{min}$ |   | <b>z min</b> 32  |
| $d_{min}$ |                                                                                      | <b>d min</b> 143 |
| $z_{min}$ |  | <b>z min</b> 33  |
| $d_{min}$ |                                                                                      | <b>d min</b> 200 |

### TECHNICAL DATA

| STANDARD WIDTH (mm)                                          | 40        | 55        | 85        | 115        | 150        | 170        |
|--------------------------------------------------------------|-----------|-----------|-----------|------------|------------|------------|
| <b>Ultimate Tensile Strength [N] Average Value</b>           |           |           |           |            |            |            |
| Steel                                                        | 64600     | 87400     | 136800    | 186200     | 247000     | 273600     |
| <b>Allowable Belt Tension [N] Open Ended</b>                 |           |           |           |            |            |            |
| Steel                                                        | 17850     | 24150     | 37800     | 51450      | 68250      | 75600      |
| <b>Allowable Effective Tension [N] Min. 15 teeth in mesh</b> |           |           |           |            |            |            |
|                                                              | 5607      | 7710      | 11915     | 16121      | 21027      | 23831      |
| <b>Belt Weight (kg/m)</b>                                    |           |           |           |            |            |            |
| Steel                                                        | 0,50      | 0,69      | 1,07      | 1,44       | 1,88       | 2,13       |
| <b>Specific Belt Stiffness [N]</b>                           |           |           |           |            |            |            |
| Steel                                                        | 4.462.500 | 6.037.500 | 9.450.000 | 12.862.500 | 17.062.500 | 18.900.000 |

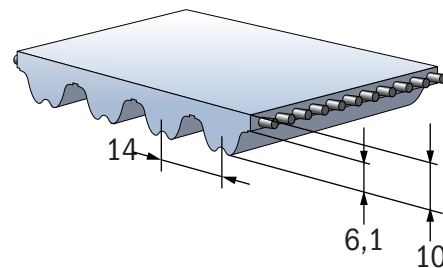


### PRODUCT SPECIFICATIONS

|                                      |            |
|--------------------------------------|------------|
| PITCH                                | 14 mm      |
| STANDARD THICKNESS                   | 10 mm      |
| WIDTH TOLERANCE                      | +/- 1.0 mm |
| MINIMUM WELDED BELT LENGTH           | NA         |
| STANDARD ROLL LENGTH (TOLERANCE ±1%) | 50 m       |
| STANDARD COLOR                       | White      |
| FDA/EU APPROVAL                      | No         |
| POLYAMIDE FABRIC                     |            |
| STANDARD                             | NT         |
| OPTIONAL                             | NTB        |

| PITCH    | POLYURETHANE | HARDNESS<br>[·SHORE A] | TEMPERATURE<br>RANGE [°C] |
|----------|--------------|------------------------|---------------------------|
| STANDARD | R1           | 92                     | -5 to +70 °C              |
| OPTIONAL | R23          | 90                     | -30 to +55 °C             |

### GPP14-RSL



#### Minimum Pulley Diameter

|           | Steel |
|-----------|-------|
| $z_{min}$ | 34    |
| $d_{min}$ | 152   |
| $z_{min}$ | 34    |
| $d_{min}$ | 250   |

GPP14-RSL require special Shallow Groove Pulleys. Please contact Gates TPU application engineering for more information.

### TECHNICAL DATA

| STANDARD WIDTH (mm)                                          | 40        | 55        | 85         | 115        | 150        | 200        |
|--------------------------------------------------------------|-----------|-----------|------------|------------|------------|------------|
| <b>Ultimate Tensile Strength [N] Average Value</b>           |           |           |            |            |            |            |
| Steel                                                        | 82.500    | 112.500   | 180.000    | 247.500    | 322.500    | 427.500    |
| <b>Allowable Belt Tension [N] Open Ended</b>                 |           |           |            |            |            |            |
| Steel                                                        | 19.621    | 26.756    | 42.810     | 58.864     | 76.701     | 101.674    |
| <b>Allowable Effective Tension [N] Min. 15 teeth in mesh</b> |           |           |            |            |            |            |
|                                                              | 5.607     | 7.710     | 11.915     | 16.121     | 21.027     | 28.036     |
| <b>Belt Weight (kg/m)</b>                                    |           |           |            |            |            |            |
| Steel                                                        | 0,56      | 0,76      | 1,18       | 1,60       | 2,08       | 2,78       |
| <b>Specific Belt Stiffness [N]</b>                           |           |           |            |            |            |            |
| Steel                                                        | 4.905.312 | 6.689.062 | 10.702.499 | 14.715.936 | 19.175.311 | 25.418.435 |



# TPU BELTS

THERMOPLASTIC POLYURETHANE

Gates is a leading manufacturer of innovative thermoplastic polyurethane power transmission and conveyor belts. We are a trusted partner delivering superior quality and reliability with optimal lead times worldwide.



#### NORTH AMERICA

Gates TPU  
9 Northwestern Drive  
Salem, NH 03079  
Tel. +1 (800) 394-4844  
Email: [contact@gates.com](mailto:contact@gates.com)

#### EMEA

Gates TPU GmbH  
Werner von Siemens Strasse 2  
64319 Pfungstadt, Germany  
Tel. +49 (0) 6157-9727-0  
Email: [sales-pfungstadt@gates.com](mailto:sales-pfungstadt@gates.com)