

# Professional Propulsion Systems

## SYSTEM SPECIFICATIONS

### ENGINE



|                    |                               |
|--------------------|-------------------------------|
| Name:              | <b>4201</b>                   |
| Manufacturer:      | <b>HIRTH ENGINES</b>          |
| Type:              | <b>2-cylinder, two stroke</b> |
| Displacement:      | <b>183 cm<sup>3</sup></b>     |
| Max. performance:  | <b>11 kW at 6500 RPM</b>      |
| Weight:            | <b>5.7 kg</b>                 |
| RPM range:         | <b>1800–6500 RPM</b>          |
| Running direction: | <b>Clockwise</b>              |

### PROPELLER



|               |  |
|---------------|--|
| Name:         | <b>32x10 2B CCW (Direction guide)</b>                |
| Manufacturer: | <b>Mejzlik</b>                                       |
| Diameter:     | <b>32 in</b>   |
| Pitch:        | <b>10 in</b>   |
| Mass:         | <b>324 g</b>   |
| Contact:      | <a href="mailto:info@mejzlik.eu">info@mejzlik.eu</a> |

### ANALYSIS



Need expert guidance on analyzing your flight performance?

Our team provides a comprehensive analysis of RPM calculations, motor and propeller efficiency, including customized propeller selection recommendations to ensure your system achieves maximum efficiency.

Please reach out to us at [info@mejzlik.eu](mailto:info@mejzlik.eu) or [info@hirthengines.com](mailto:info@hirthengines.com)

ID: **0116**



# PERFORMANCE OF THE SYSTEM

Flight velocity

**0 m/s**

| Rotational Speed<br>[RPM] | Thrust<br>[N] | Torque<br>[Nm] | Mechanical Power<br>[W] | Propulsion efficiency<br>[%] |
|---------------------------|---------------|----------------|-------------------------|------------------------------|
| 1000                      | 9             | 0.39           | <b>40</b>               | <b>0</b>                     |
| 1500                      | 22            | 0.88           | <b>138</b>              | <b>0</b>                     |
| 2100                      | 46            | 1.80           | <b>396</b>              | <b>0</b>                     |
| 2600                      | 73            | 2.82           | <b>768</b>              | <b>0</b>                     |
| 3200                      | 111           | 4.31           | <b>1445</b>             | <b>0</b>                     |
| 3800                      | 160           | 6.24           | <b>2481</b>             | <b>0</b>                     |
| 4300                      | 207           | 8.11           | <b>3653</b>             | <b>0</b>                     |
| 4900                      | 274           | 10.79          | <b>5538</b>             | <b>0</b>                     |
| 5500                      | 353           | 14.10          | <b>8120</b>             | <b>0</b>                     |

Flight velocity

**10 m/s**

| Rotational Speed<br>[RPM] | Thrust<br>[N] | Torque<br>[Nm] | Mechanical Power<br>[W] | Propulsion efficiency<br>[%] |
|---------------------------|---------------|----------------|-------------------------|------------------------------|
| 1000                      | -3            | 0.06           | <b>6</b>                | —                            |
| 1500                      | 3             | 0.45           | <b>71</b>               | <b>43</b>                    |
| 2100                      | 23            | 1.61           | <b>355</b>              | <b>66</b>                    |
| 2600                      | 48            | 2.81           | <b>764</b>              | <b>62</b>                    |
| 3200                      | 83            | 4.50           | <b>1508</b>             | <b>55</b>                    |
| 3800                      | 128           | 6.57           | <b>2614</b>             | <b>49</b>                    |
| 4300                      | 173           | 8.59           | <b>3870</b>             | <b>45</b>                    |
| 4900                      | 236           | 11.46          | <b>5879</b>             | <b>40</b>                    |
| 5500                      | 311           | 14.89          | <b>8573</b>             | <b>36</b>                    |

# PERFORMANCE OF THE SYSTEM

Flight velocity

**20 m/s**

| Rotational Speed<br>[RPM] | Thrust<br>[N] | Torque<br>[Nm] | Mechanical Power<br>[W] | Propulsion efficiency<br>[%] |
|---------------------------|---------------|----------------|-------------------------|------------------------------|
| 1000                      | -7            | -0.30          | <b>-31</b>              | —                            |
| 1500                      | -11           | -0.01          | <b>-2</b>               | —                            |
| 2100                      | -7            | 0.34           | <b>74</b>               | —                            |
| 2600                      | 6             | 1.00           | <b>271</b>              | <b>42</b>                    |
| 3200                      | 36            | 3.02           | <b>1011</b>             | <b>72</b>                    |
| 3800                      | 76            | 5.35           | <b>2131</b>             | <b>72</b>                    |
| 4300                      | 116           | 7.53           | <b>3393</b>             | <b>69</b>                    |
| 4900                      | 174           | 10.54          | <b>5410</b>             | <b>64</b>                    |
| 5500                      | 243           | 14.08          | <b>8108</b>             | <b>60</b>                    |

Flight velocity

**30 m/s**

| Rotational Speed<br>[RPM] | Thrust<br>[N] | Torque<br>[Nm] | Mechanical Power<br>[W] | Propulsion efficiency<br>[%] |
|---------------------------|---------------|----------------|-------------------------|------------------------------|
| 1000                      | -9            | -0.94          | <b>-98</b>              | —                            |
| 1500                      | -14           | -0.57          | <b>-89</b>              | —                            |
| 2100                      | -20           | -0.01          | <b>-2</b>               | —                            |
| 2600                      | -20           | 0.39           | <b>107</b>              | —                            |
| 3200                      | -12           | 0.64           | <b>215</b>              | —                            |
| 3800                      | 11            | 1.92           | <b>762</b>              | <b>45</b>                    |
| 4300                      | 47            | 4.42           | <b>1992</b>             | <b>70</b>                    |
| 4900                      | 98            | 7.75           | <b>3977</b>             | <b>74</b>                    |
| 5500                      | 161           | 11.55          | <b>6651</b>             | <b>73</b>                    |

# PERFORMANCE OF THE SYSTEM

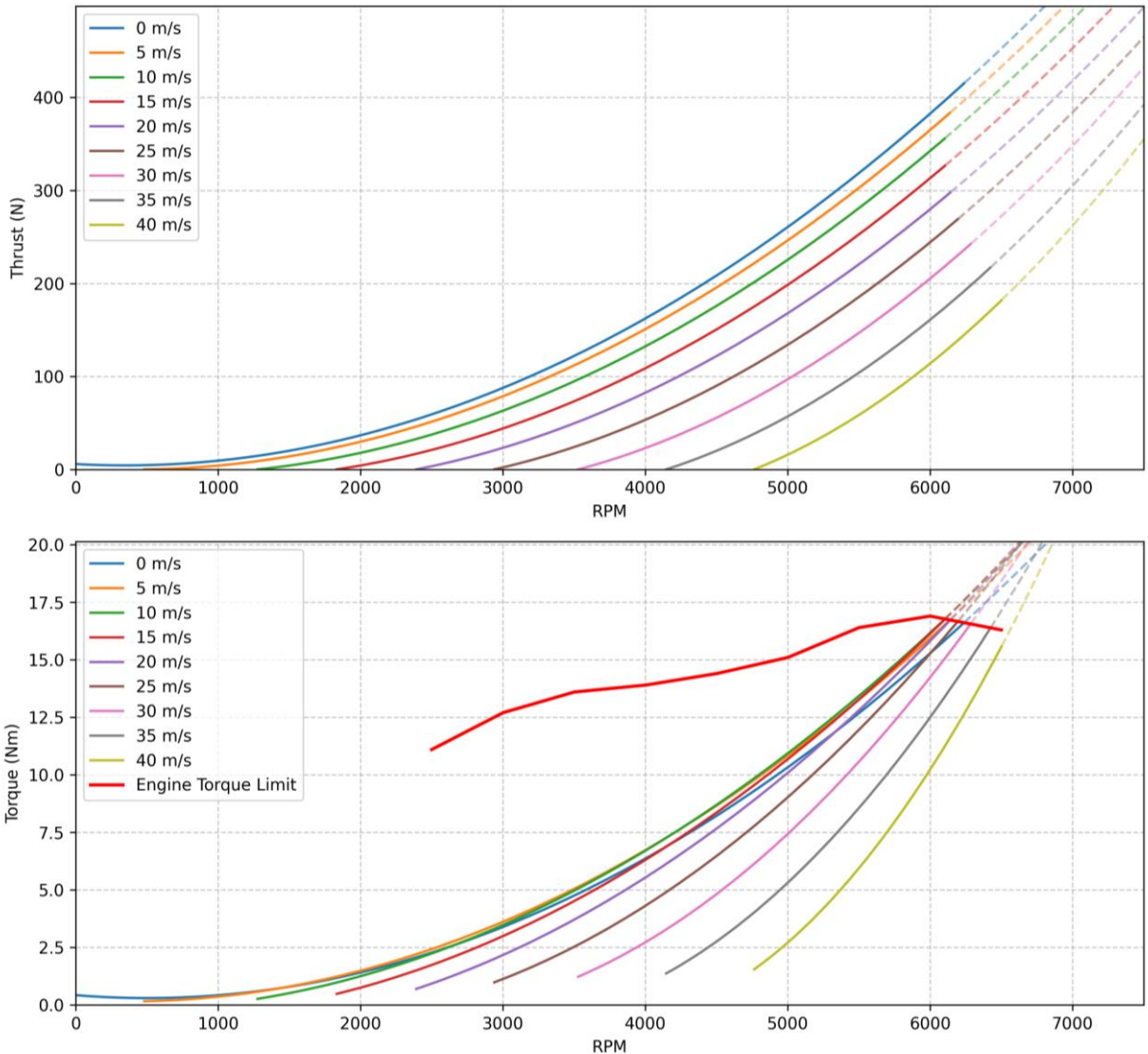
Flight velocity

**40 m/s**

| Rotational Speed<br>[RPM] | Thrust<br>[N] | Torque<br>[Nm] | Mechanical Power<br>[W] | Propulsion efficiency<br>[%] |
|---------------------------|---------------|----------------|-------------------------|------------------------------|
| 1000                      | -12           | -1.74          | <b>-182</b>             | —                            |
| 1500                      | -17           | -1.32          | <b>-208</b>             | —                            |
| 2100                      | -24           | -0.58          | <b>-128</b>             | —                            |
| 2600                      | -32           | -0.14          | <b>-39</b>              | —                            |
| 3200                      | -35           | 0.45           | <b>150</b>              | —                            |
| 3800                      | -31           | 0.63           | <b>251</b>              | —                            |
| 4300                      | -25           | -0.06          | <b>-27</b>              | —                            |
| 4900                      | 10            | 2.41           | <b>1238</b>             | <b>31</b>                    |
| 5500                      | 65            | 6.55           | <b>3773</b>             | <b>68</b>                    |

# PERFORMANCE OF THE SYSTEM

## Hirth 4201 + Mejzlik 32x10 2B Performance in flight



### NOTE



Data presented in this product sheet are a combination of measurements of engine performance (RPM, torque), which is complemented with propeller data, simulated in Mejzlik's proprietary simulation software. The greyed out values are above engine limit.

Data is valid for 0m ISA. Propeller performance simulation accuracy can diverge at higher tip speeds (above 0.7 Mach). Propeller is structurally safe to operate below Mach 1 tip speed.

ID: **0116**