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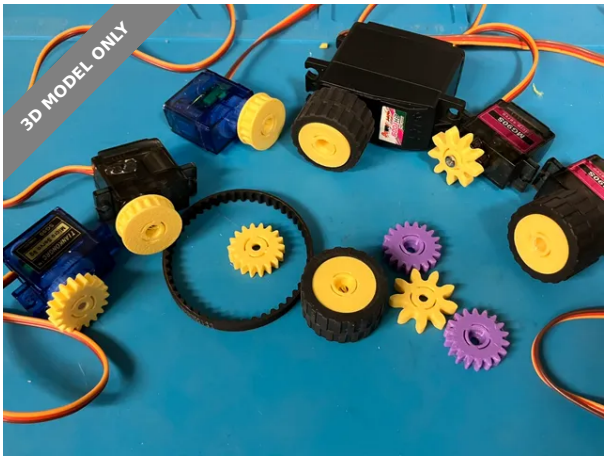

Gears and pulleys for SG90, MG90s, and 25t servos

GekoPrime

VIEW IN BROWSER

updated 9. 10. 2026 | published 9. 10. 2026

Summary

I promise they will fit

Hobby & Makers > RC & Robotics

Tags: gear servo servosg90 servomg90s

Servo splines suck - they're a mess of undocumented, almost-compatible manufacturer specific variants that are too finely featured to print anyway. Instead of trying to match any specific spline geometry I've added some slots so the gear horn can flex to fit the spline regardless of your printer settings.

Be warned these will slip at higher torques on full size 25t servos, they're best used with 9g servos or in situations where slip is acceptable.

I've generated parts for the following servo splines:

- SG90 (apx. 4.8mm)
- MG90s (apx. 4.8mm)
- Generic 25t (apx. 6mm)

For each spline I've generated the following parts:

- 18 tooth module 1mm gears (LEGO size)

- 9 tooth module 2mm gears (2x LEGO size)
- 19 tooth 4mm wide HTD3m pulleys
- Hubs for 24x14mm LEGO tires
    - https://www.bricklink.com/v2/catalog/catalogitem.page?P=89201
    - https://robodome.com/products/lego-tires-10-pack

If you need a different part you can model it yourself - I've included a screenshot of the sketch in the photos section.

Drop a make or a donation if this saved you an hour of futzing with spline clearances

Model files

SG90 16 files

gekoprime-sg90_gear_18t_mod1_47mm_bore.step

gekoprime-sg90_gear_18t_mod1_48mm_bore.step

gekoprime-sg90_gear_18t_mod1_49mm_bore.step

gekoprime-sg90_gear_18t_mod1_5mm_bore.step

gekoprime-sg90_gear_9t_mod2_47mm_bore.step

gekoprime-sg90_gear_9t_mod2_48mm_bore.step

gekoprime-sg90_gear_9t_mod2_49mm_bore.step

gekoprime-sg90_gear_9t_mod2_5mm_bore.step

gekoprime-sg90_lego_wheel_24x14mm_47mm_bore.step

gekoprime-sg90_lego_wheel_24x14mm_48mm_bore.step

gekoprime-sg90_lego_wheel_24x14mm_49mm_bore.step

gekoprime-sg90_lego_wheel_24x14mm_5mm_bore.step

gekoprime-sg90_pulley_19t_htd3m_47mm_bore.step

gekoprime-sg90_pulley_19t_htd3m_48mm_bore.step

gekoprime-sg90_pulley_19t_htd3m_49mm_bore.step

gekoprime-sg90_pulley_19t_htd3m_5mm_bore.step

MG90s 16 files

gekoprime-mg90s_gear_18t_mod1_47mm_bore.step

gekoprime-mg90s_gear_18t_mod1_48mm_bore.step

gekoprime-mg90s_gear_18t_mod1_49mm_bore.step

gekoprime-mg90s_gear_18t_mod1_5mm_bore.step

gekoprime-mg90s_gear_9t_mod2_47mm_bore.step

gekoprime-mg90s_gear_9t_mod2_48mm_bore.step

gekoprime-mg90s_gear_9t_mod2_49mm_bore.step

gekoprime-mg90s_gear_9t_mod2_5mm_bore.step

gekoprime-mg90s_lego_wheel_24x14mm_47mm_bore.step

gekoprime-mg90s_lego_wheel_24x14mm_48mm_bore.step

gekoprime-mg90s_lego_wheel_24x14mm_49mm_bore.step

gekoprime-mg90s_lego_wheel_24x14mm_5mm_bore.step

gekoprime-mg90s_pulley_19t_htd3m_47mm_bore.step

gekoprime-mg90s_pulley_19t_htd3m_48mm_bore.step

gekoprime-mg90s_pulley_19t_htd3m_49mm_bore.step

gekoprime-mg90s_pulley_19t_htd3m_5mm_bore.step

25t 16 files

gekoprime-25t_servo_gear_18t_mod1_59mm_bore.step

gekoprime-25t_servo_gear_18t_mod1_61mm_bore.step

gekoprime-25t_servo_gear_18t_mod1_62mm_bore.step

gekoprime-25t_servo_gear_18t_mod1_6mm_bore.step

gekoprime-25t_servo_gear_9t_mod2_59mm_bore.step

gekoprime-25t_servo_gear_9t_mod2_61mm_bore.step

gekoprime-25t_servo_gear_9t_mod2_62mm_bore.step

gekoprime-25t_servo_gear_9t_mod2_6mm_bore.step

gekoprime-25t_servo_lego_wheel_24x14mm_59mm_bore.step

gekoprime-25t_servo_lego_wheel_24x14mm_61mm_bore.step

gekoprime-25t_servo_lego_wheel_24x14mm_62mm_bore.step

gekoprime-25t_servo_lego_wheel_24x14mm_6mm_bore.step

gekoprime-25t_servo_pulley_19t_htd3m_59mm_bore.step

gekoprime-25t_servo_pulley_19t_htd3m_61mm_bore.step

gekoprime-25t_servo_pulley_19t_htd3m_62mm_bore.step

gekoprime-25t_servo_pulley_19t_htd3m_6mm_bore.step

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