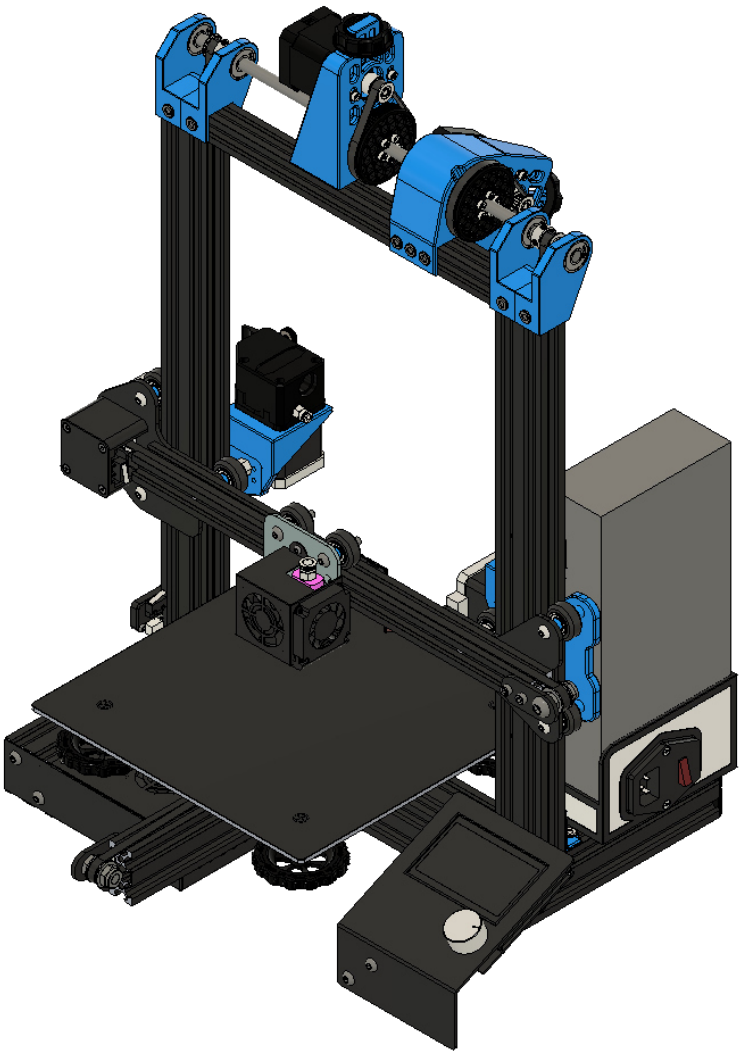
# Single Z and V-Rollers

## Rotated

## or

## Unrotated



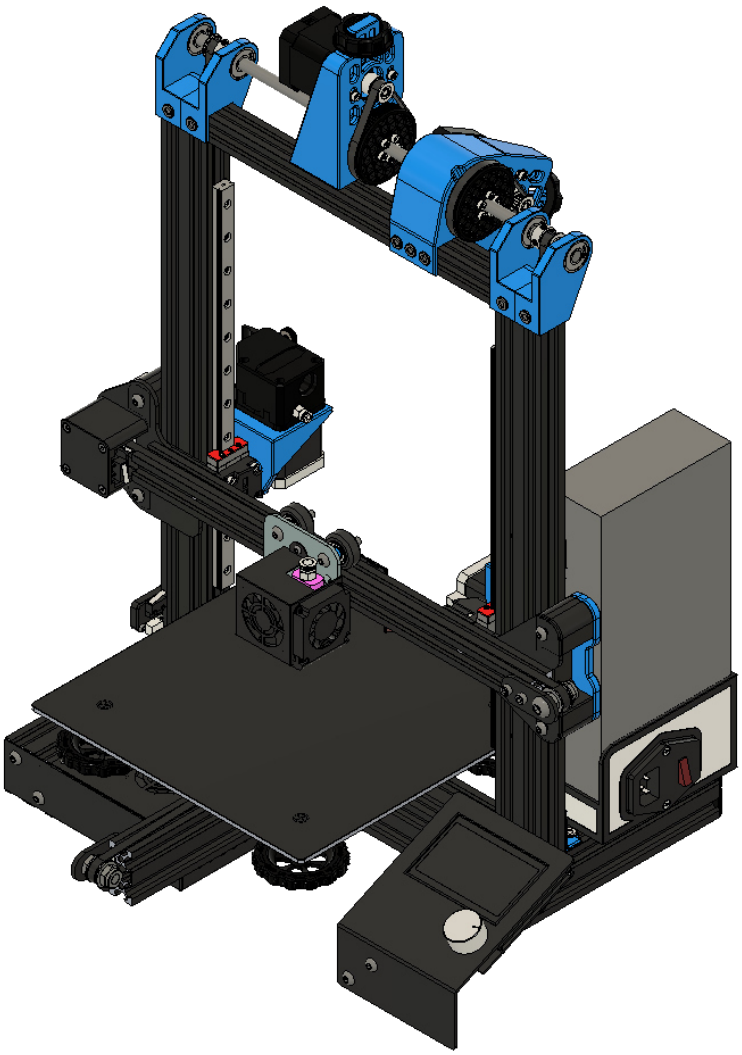
| Single Z + V-Rollers | | | | | | |
|---|---|---|---|---|---|---|
| **Category** | **Component** | **Quantity** | **Reuse from Printer?** | **Notes** | **My Source** | **Alternative Source** |
| **Motion** | **20T** Pulley - **8mm** Bore | 3 | no | One for each side on the Rod, one for the printed 80T Gear. | Motion Kit | Aliexpress |
| | **16T** Pulley - **5mm** Bore | 1 | no | Motorshaft | Kit is highly | Aliexpress |
| | Gt2 Belt | 2 Meter | no | Don't buy the cheapest. You should go for belts with glassfiber. Width: 6mm | recommended | Aliexpress |
| | 188mm Looped Belt | 1 | no | Width: 6mm | | Aliexpress |
| | F623ZZ 3*10*4 bearing | 4 | no | 2 Pieces per side or 2x 20T toothed Idlers (18mm in diameter, 8.5mm width, 3mm ID) | | Aliexpress |
| | 608ZZ Bearing | 4 (5) | no | Do you have an old skateboard? You can steal the bearings from the wheels;) (5 for extra bearing in transmission body) | | Aliexpress |
| | 8mm Rod | 335 mm | yes/no | Theres no link, just go to your local hardware store and take a cheap 8mm (aluminium) rod. You don't have to buy a hardened steel one. (to expensive and hard to cut). You also could use your leadscrew. | | |
| **Fasteners** | M5x8mm | 27 (28) | no | (28 for rotated) + 6 for PowerSupply holder if needed. Any type of M5x8mm screw can be used. | Aliexpress | |
| | M5x40mm | 6 | yes (3 x) | Screwhead must fit under the extrusion from the X-Axis. (Take a look at 5:20 of my video) You also could use a stock 40mm screw from the left side of the printer and place this on the inside of the right side. This way you can use any type of screwhead for the remaining holes. | Aliexpress | Aliexpress (cheaper) |
| | M5 T-nuts | 27 (28) | no | (28 for rotated) + 6 for PowerSupply hodler if needed. | Aliexpress | |
| | M3x25mm | 2 | no | | | |
| | M3x20mm | 2 | no | | | |
| | M3x12mm | 4 | no | If you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good. | Aliexpress | |
| | M3x10mm | 2 | no | | | |
| | M3x8mm | 4 | no | | | |
| | M3x6mm | 5 | no | | | |
| | M3 nuts | 8 | no | | | |
| | M3 washer | 2 | no | | | |
| **Electronics** | Motor extension cable | 1 | no | The original Cable is obviously too short^^ Check if the middle cables are crossed!!! | Aliexpress | |
| **Printed Parts** | RightV3.x | 1 | / | Thingiverse (Bowden-Version available) | | |
| | LeftV3.x | 1 | / | Thingiverse (Bowden-Version available) | | |
| | RightTop_A | 1 | / | Thingiverse | | |
| | RightTop_B | 1 | / | Thingiverse | | |
| | LeftTop_A | 1 | / | Thingiverse | | |
| | LeftTop_B | 1 | / | Thingiverse | | |
| | Bottom_F623 or _toothed | 2 | / | Thingiverse (If you want toothed idlers see here: How to use toothed idlers) | | |
| | Spacer | 3 | / | Thingiverse | | |
| | Tensioner Block | 2 | / | Thingiverse | | |
| | TensionerClamp | 2 | / | Thingiverse | | |
| | Power_Supply_Holder | 1 | / | Thingiverse | | |
| | Transmission | 1 | / | Github | | |
| | MotorMountTensionerArm | 1 | / | Github | | |
| | ZDriveTensioningRing | 1 | / | Github | | |
| | 80TRingGear | 1 | / | Github | | |
| **Filament** | Petg or ABS (+) | ??kg | no | Yes you can use PLA, but you shouldn't ;) | | |
| | | | | | | |

# Single Z and MGN 12H

## Rotated

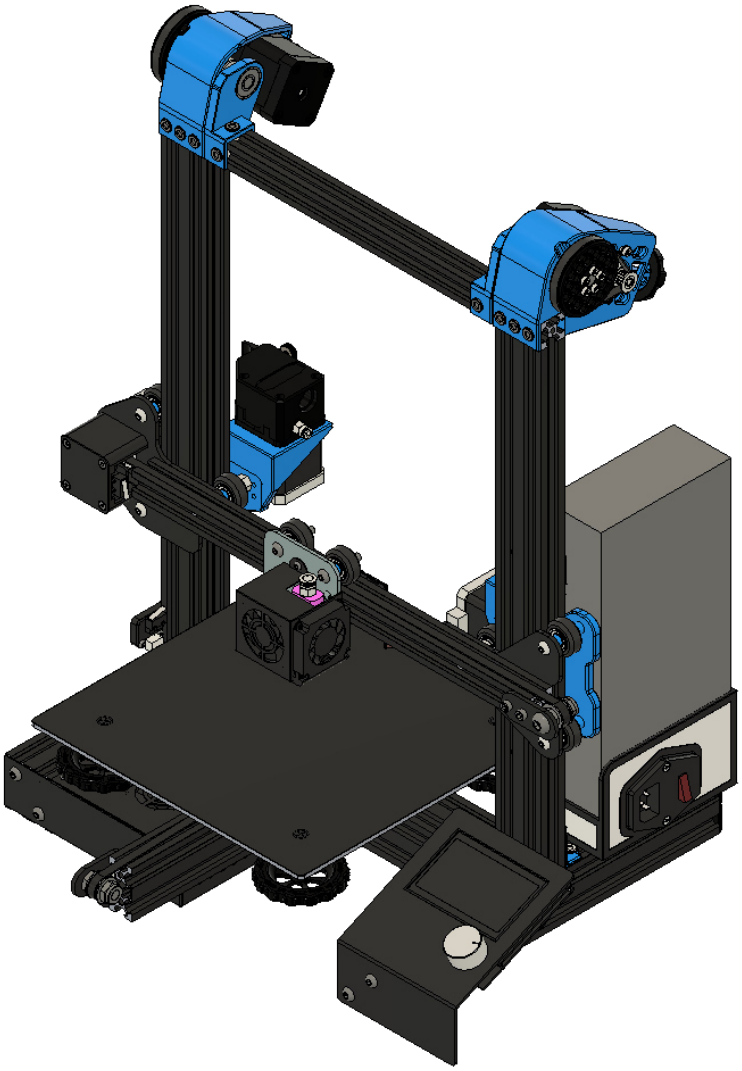
## or

## Unrotated



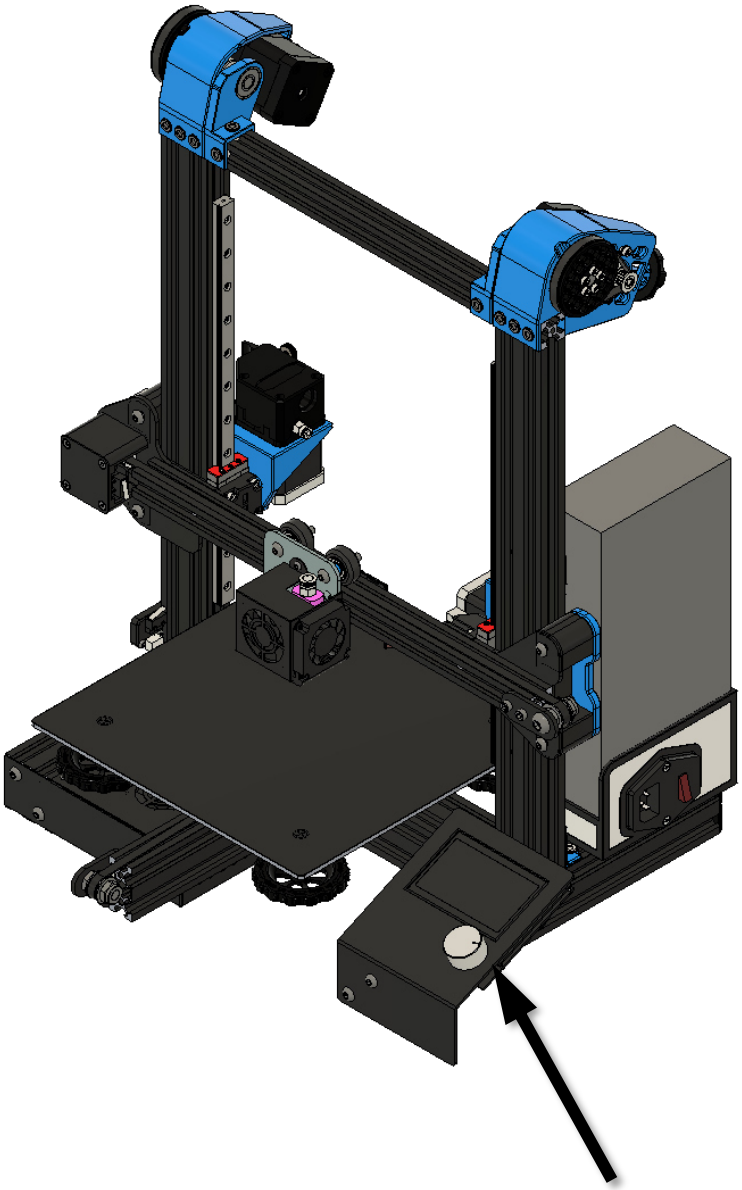
| Single Z + MGN | | | | | | |
|---|---|---|---|---|---|---|
| **Category** | **Component** | **Quantity** | **Reuse from Printer?** | **Notes** | **My Source** | **Alternative Source** |
| **Motion** | **20T** Pulley - **8mm** Bore | 3 | no | One for each side on the Rod, one for the printed 80T Gear. | Motion Kit | Aliexpress |
| | **16T** Pulley - **5mm** Bore | 1 | no | Motorshaft | Kit is highly | Aliexpress |
| | Gt2 Belt | 2 Meter | no | Don't buy the cheapest. You should go for belts with glassfiber. Width: 6mm | recommended | Aliexpress |
| | 188mm Looped Belt | 1 | no | Width: 6mm | | Aliexpress |
| | F623ZZ 3*10*4 bearing | 4 | no | 2 Pieces per side or 2x 20T toothed Idlers (18mm in diameter, 8.5mm width, 3mm ID) | | Aliexpress |
| | 608ZZ Bearing | 4 (5) | no | Do you have an old skateboard? You can steal the bearings from the wheels;) (5 for extra bearing in transmission body) | | Aliexpress |
| | 8mm Rod | 335 mm | yes/no | Theres no link, just go to your local hardware store and take a cheap 8mm (aluminium) rod. You don't have to buy a hardened steel one. (to expensive and hard to cut). You also could use your leadscrew. | | |
| | 300mm MGN Rail | 2 | no | Don't buy the cheapest. | | |
| **Fasteners** | M5x8mm | 27 (28) | no | (28 for rotated) + 6 for PowerSupply holder if needed. Any type of M5x8mm screw can be used. | Aliexpress | |
| | M5x40mm | 4 | yes (3x) | | Aliexpress | Aliexpress (cheaper) |
| | M5 T-nuts | 27 (28) | no | (28 for rotated) + 6 for PowerSupply holder if needed. | Aliexpress | |
| | M3x25mm | 2 | no | | | |
| | M3x20mm | 6 | no | | | |
| | M3x12mm | 4 | no | If you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good. | Aliexpress | |
| | M3x10mm | 10 | no | | | |
| | M3x8mm | 28 | no | You will need 24 of them to mount the rails. All holes: 12 per rail. You can use less, minimum 4 per rail. | | |
| | M3x6mm | 5 | no | | | |
| | M3 nuts | 12 | no | | | |
| | M3 washer | 2 | no | | | |
| | M3 T-nuts | 24 | no | You will need these to mount the rails. All holes: 12 per rail. You can use less, minimum 4 per rail. | | |
| **Electronics** | Motor extension cable | 1 | no | The original Cable is obviously too short^^ Check if the middle cables are crossed!!! | Aliexpress | |
| **Printed Parts** | RightV3.x | 1 | / | Thingiverse (Bowden-Version available) | | |
| | LeftV3.x | 1 | / | Thingiverse (Bowden-Version available) | | |
| | RightTop_A | 1 | / | Thingiverse | | |
| | RightTop_B | 1 | / | Thingiverse | | |
| | LeftTop_A | 1 | / | Thingiverse | | |
| | LeftTop_B | 1 | / | Thingiverse | | |
| | Bottom_F623 or _toothed | 2 | / | Thingiverse (If you want toothed idlers see here: How to use toothed idlers) | | |
| | Spacer_Right (MGN folder) | 1 | / | Thingiverse | | |
| | Spacer_Left (MGN folder) | 1 | / | Thingiverse | | |
| | Right (MGN folder) | 1 | / | Thingiverse | | |
| | Left (MGN folder) | 1 | / | Thingiverse | | |
| | DistanceBracket | 2 | / | Thingiverse - you will need this to align the rails. Just take a look at my video. | | |
| | Tensioner Block | 2 | / | Thingiverse | | |
| | TensionerClamp | 2 | / | Thingiverse | | |
| | Power_Supply_Holder | 1 | / | Thingiverse | | |
| | Transmission | 1 | / | Github | | |
| | MotorMountTensionerArm | 1 | / | Github | | |
| | ZDriveTensioningRing | 1 | / | Github | | |
| | 80TRingGear | 1 | / | Github | | |
| **Filament** | Petg or ABS (+) | ??kg | no | Yes you can use PLA, but you shouldn't ;) | | |
| | | | | | | |

# Dual Z and V_Rollers



| Dual Z + V-Rollers | | | | | | |
|---|---|---|---|---|---|---|
| **Category** | **Component** | **Quantity** | **Reuse from Printer?** | **Notes** | **My Source** | **Alternative Source** |
| **Motion** | **20T** Pulley - **8mm** Bore | 4 | no | One for each side on the Rod, one for the printed 80T Gear. | Motion Kit | Aliexpress |
| | **16T** Pulley - **5mm** Bore | 2 | no | Motorshaft | Kit is highly | Aliexpress |
| | Gt2 Belt | 2 Meter | no | Don't buy the cheapest. You should go for belts with glassfiber. Width: 6mm | recommended | Aliexpress |
| | 188mm Looped Belt | 2 | no | Width: 6mm | | Aliexpress |
| | F623ZZ 3*10*4 bearing | 4 | no | 2 Pieces per side or 2x 20T toothed Idlers (18mm in diameter, 8.5mm width, 3mm ID) | | Aliexpress |
| | 608ZZ Bearing | 4 | no | Do you have an old skateboard? You can steal the bearings from the wheels;) (5 for extra bearing in transmission body) | | Aliexpress |
| | 8mm Rod | 2x65mm | yes/no | Theres no link, just go to your local hardware store and take a cheap 8mm (aluminium) rod. You don't have to buy a hardened steel one. (to expensive and hard to cut). You also could use your leadscrew. | | |
| **Fasteners** | M5x8mm | 37 | no | (37 for rotated) + 6 for PowerSupply holder if needed. Any type of M5x8mm screw can be used. | Aliexpress | |
| | M5x40mm | 6 | yes (3 x) | Screwhead must fit under the extrusion from the X-Axis. (Take a look at 5:20 of my video) You also could use a stock 40mm screw from the left side of the printer and place this on the inside of the right side. This way you can use any type of screwhead for the remaining holes. | Aliexpress | Aliexpress (cheaper) |
| | M5 T-nuts | 37 | no | (37 for rotated) + 6 for PowerSupply hodler if needed. | Aliexpress | |
| | M3x25mm | 2 | no | | | |
| | M3x20mm | 2 | no | | | |
| | M3x12mm | 4 | no | If you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good. | Aliexpress | |
| | M3x10mm | 4 | no | | | |
| | M3x8mm | 8 | no | | | |
| | M3x6mm | 10 | no | | | |
| | M3 nuts | 10 | no | | | |
| | M3 washer | 4 | no | | | |
| **Electronics** | Motor extension cable | 1 | no | The original Cable is obviously too short^^ Check if the middle cables are crossed!!! | Aliexpress | |
| **Printed Parts** | RightV3.x | 1 | / | Thingiverse (Bowden-Version available) | | |
| | LeftV3.x | 1 | / | Thingiverse (Bowden-Version available) | | |
| | RightTop | 1 | / | Thingiverse DUAL Z Folder | | |
| | LeftTop | 1 | / | Thingiverse DUAL Z Folder | | |
| | Bottom_F623 or _toothed | 2 | / | Thingiverse (If you want toothed idlers see here: How to use toothed idlers) | | |
| | Spacer | 3 | / | Thingiverse | | |
| | Tensioner Block | 2 | / | Thingiverse | | |
| | TensionerClamp | 2 | / | Thingiverse | | |
| | Power_Supply_Holder | 1 | / | Thingiverse | | |
| | Transmission_Left | 1 | / | Github | | |
| | Transmission_Right | 1 | / | Github | | |
| | MotorMountTensionerArm | 2 | / | Github | | |
| | ZDriveTensioningRing | 2 | / | Github | | |
| | 80TRingGear | 2 | / | Github | | |
| **Filament** | Petg or ABS (+) | ??kg | no | Yes you can use PLA, but you shouldn't ;) | | |
| | | | | | | |

# Dual Z and MGN 12H



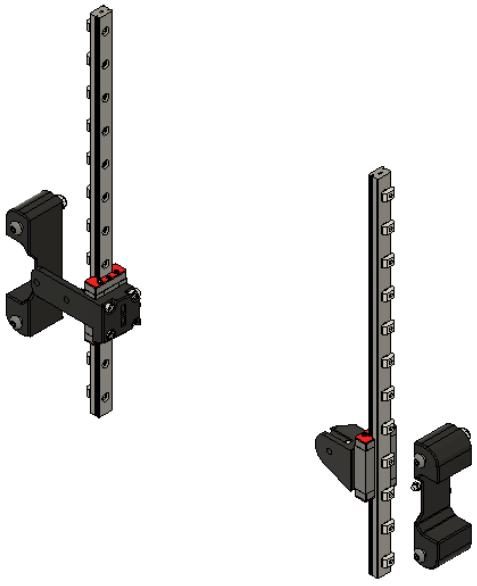
| Dual Z + MGN | | | | | | |
|---|---|---|---|---|---|---|
| **Category** | **Component** | **Quantity** | **Reuse from Printer 2** | **Notes** | **My Source** | **Alternative Source** |
| **Motion** | **20T** Pulley - **8mm** Bore | 4 | no | One for each side on the Rod, one for the printed 80T Gear. | Motion Kit | Aliexpress |
| | **16T** Pulley - **5mm** Bore | 2 | no | Motorshaft | Kit is highly | Aliexpress |
| | Gt2 Belt | 2 Meter | no | Don't buy the cheapest. You should go for belts with glassfiber. Width: 6mm | recommended | Aliexpress |
| | 188mm Looped Belt | 2 | no | Width: 6mm | | Aliexpress |
| | F623ZZ 3*10*4 bearing | 4 | no | 2 Pieces per side or 2x 20T toothed Idlers (18mm in diameter, 8.5mm width, 3mm ID) | | Aliexpress |
| | 608ZZ Bearing | 4 | no | Do you have an old skateboard? You can steal the bearings from the wheels;) (5 for extra bearing in transmission body) | | Aliexpress |
| | 8mm Rod | 2x 65mm | yes/no | Theres no link, just go to your local hardware store and take a cheap 8mm (aluminium) rod. You don't have to buy a hardened steel one. (to expensive and hard to cut). You also could use your leadscrew. | | |
| | 300mm MGN Rail | 2 | no | Don't buy the cheapest. | | |
| **Fasteners** | M5x8mm | 27 (28) | no | (28 for rotated) + 6 for PowerSupply holder if needed. Any type of M5x8mm screw can be used. | Aliexpress | |
| | M5x40mm | 4 | yes (3x) | | Aliexpress | Aliexpress (cheaper) |
| | M5 T-nuts | 27 (28) | no | (28 for rotated) + 6 for PowerSupply holder if needed. | Aliexpress | |
| | M3x25mm | 2 | no | | | |
| | M3x20mm | 6 | no | | | |
| | M3x12mm | 4 | no | If you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good. | Aliexpress | |
| | M3x10mm | 12 | no | | | |
| | M3x8mm | 32 | no | You will need 24 of them to mount the rails. All holes: 12 per rail. You can use less, minimum 4 per rail. | | |
| | M3x6mm | 10 | no | | | |
| | M3 nuts | 14 | no | | | |
| | M3 washer | 4 | no | | | |
| | M3 T-nuts | 24 | no | You will need these to mount the rails. All holes: 12 per rail. You can use less, minimum 4 per rail. | | |
| **Electronics** | Motor extension cable | 1 | no | The original Cable is obviously too short^^ Check if the middle cables are crossed!!! | Aliexpress | |
| **Printed Parts** | RightV3.x | 1 | / | Thingiverse (Bowden-Version available) | | |
| | LeftV3.x | 1 | / | Thingiverse (Bowden-Version available) | | |
| | RightTop | 1 | / | Thingiverse | | |
| | LeftTop | 1 | / | Thingiverse | | |
| | Bottom_F623 or _toothed | 2 | / | Thingiverse (If you want toothed idlers see here: How to use toothed idlers) | | |
| | Spacer_Right (MGN folder) | 1 | / | Thingiverse | | |
| | Spacer_Left (MGN folder) | 1 | / | Thingiverse | | |
| | Right (MGN folder) | 1 | / | Thingiverse | | |
| | Left (MGN folder) | 1 | / | Thingiverse | | |
| | DistanceBracket | 2 | / | Thingiverse - you will need this to align the rails. Just take a look at my video. | | |
| | Tensioner Block | 2 | / | Thingiverse | | |
| | TensionerClamp | 2 | / | Thingiverse | | |
| | Power_Supply_Holder | 1 | / | Thingiverse | | |
| | Transmission_Left | 1 | / | Github | | |
| | Transmission_Right | 1 | / | Github | | |
| | MotorMountTensionerArm | 2 | / | Github | | |
| | ZDriveTensioningRing | 2 | / | Github | | |
| | 80TRingGear | 2 | / | Github | | |
| **Filament** | Petg or ABS (+) | ??kg | no | Yes you can use PLA, but you shouldn't ;) | | |
| | | | | | | |

# Upgrade V-Rollers to MGN 12H

## Single Z and Dual Z

## +

## Rotated and Unrotated



| Version: Upgrade from V-Rollers to MGN | | | | | | |
|---|---|---|---|---|---|---|
| **Category** | **Component** | **Quantity** | **Reuse from Printer?** | **Notes** | **My Source** | **Alternative Source** |
| | 300mm MGN Rail | 2 | no | Don't buy the cheapest. | | |
| **Fasteners** | M3x20mm | 4 | no | | | |
| | M3x10mm | 8 | no | | | |
| | M3x8mm | 24 | no | You will need these to mount the rails. All holes: 12 per rail. You can use less, minimum 4 per rail. | | |
| | M3 nuts | 4 | no | | | |
| | M3 T-nuts | 24 | no | You will need these to mount the rails. All holes: 12 per rail. You can use less, minimum 4 per rail. | | |
| **Printed Parts** | Spacer_Right (MGN folder) | 1 | / | Thingiverse | | |
| | Spacer_Left (MGN folder) | 1 | / | Thingiverse | | |
| | Right (MGN folder) | 1 | / | Thingiverse | | |
| | Left (MGN folder) | 1 | / | Thingiverse | | |
| | DistanceBracket | 2 | / | Thingiverse - you will need this to align the rails. Just take a look at my video. | | |
| **Filament** | Petg or ABS (+) | ??kg | no | Yes you can use PLA, but you shouldn't ;) | | |
| | | | | | | |

# Upgrade with Keybak

## Single Z and Dual Z

## +

## Rotated and Unrotated

| Version: Upgrade with Keybak | | | | | | |
|---|---|---|---|---|---|---|
| **Category** | **Component** | **Quantity** | **Reuse from Printer?** | **Notes** | **My Source** | **Alternative Source** |
| | Key-bak Super48 13oz | 1 | no | | Amazon | |
| | F623ZZ 3*10*4 bearing | 2 | no | | Aliexpress | |
| **Fasteners** | M3x25mm | 1 | no | | | |
| | M3x12mm | 2 | no | | | |
| | M3 nuts | 2 | no | | | |
| | M5x8mm | 2 | no | | | |
| | M5 T-nuts | 2 | no | | | |
| **Printed Parts** | Bearing_Holder | 1 | / | GitHub | | |
| | Keyback_mount | 1 | / | GitHub | | |
| | Keybak_mount_plate | 1 | / | GitHub | | |
| | Keybak_Spacer | 1 | / | GitHub | | |
| | Left_Top_A_Keybak | 2 | / | GitHub | | |
| **Filament** | Petg or ABS (+) | ??kg | no | Yes you can use PLA, but you shouldn't ;) | | |
| | | | | | | |