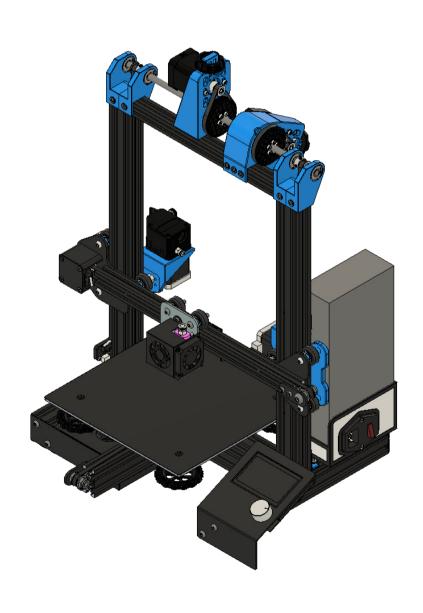
## Single Z and V-Rollers

Rotated

or

Unrotated



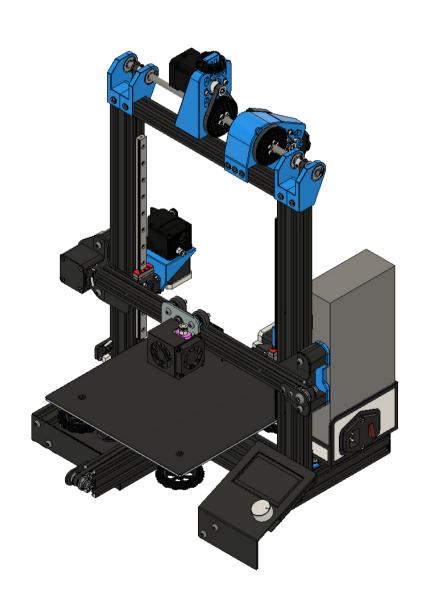
Category     Component     Quantity     Reuse Holl Related       Motion     20T Pulley - 8mm Bore     3     no     One for each side on the Rod, one for the printed 80T Gear.     Aliexpress       16T Pulley - 5mm Bore     1     no     Motorshaft     Aliexpress       Gt2 Belt     2 Meter     no     Don't buy the cheapest. You should go for belts with glassfiber. Width: 6mm     Aliexpress		Single Z + V-Rollers							
Motion   20 Fulley - 5mm Bore   3   no   One for each add con the Rod, one for the printed 90 Fear.   Allegares	Category	Component	Quantity	neuse iroiii		My Source	Alternative Source		
Set Pulley - Simil Role   1		20T Pulley - 8mm Bore	3	no	One for each side on the Rod, one for the printed 80T Gear.	Aliexpress			
188mm tapped Belt			1	no	Motorshaft	Aliexpress			
F63223-31014 bearing		Gt2 Belt	2 Meter	no	Don't buy the cheapest. You should go for belts with glassfiber. Width: 6mm	Aliexpress			
608ZZ Bearing 4 (5) no box variables and skateboard? You can steal the bearings from the wheels; (5 for extra bearing in Allespress		188mm Looped Belt	1	no	Width: 6mm		Aliexpress Affiliate Link Voron Guys		
Company		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			
## Same Rod ## Sam			. (=)		Do you have an old skateboard? You can steal the bearings from the wheels;) (5 for extra bearing in				
Fasteners MosRamm 27 (28) no (28 for rotated) + 6 or PowerSupply holder if neaded.  MSx40mm 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 your leadscrew.  MSx40mm 7 (28 for rotated) + 6 or PowerSupply holder if needed.  MSx40mm 8 (27 (28) no (28 for rotated) + 6 or PowerSupply holder if needed.  MSx325mm 2 (2 no (28) no (28 for rotated) + 6 or PowerSupply holder if needed.  MSx320mm 2 (2 no (28) no (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 2 (2 no (28) no (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 9 (2 no (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 9 (2 no (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 9 (2 no (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 9 (2 no (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 9 (2 no (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 9 (2 no (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 9 (2 no (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 9 (2 no (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 9 (2 no (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 9 (2 no (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 9 (2 no (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 9 (2 no (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 9 (2 no (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 9 (2 no (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 9 (2 no (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 9 (2 no (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 9 (2 no (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 9 (2 no (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 9 (28 for rotated) + 6 for PowerSupply holder if needed.  MSx320mm 9 (28 for rotated) + 6 for PowerSupply hol		608ZZ Bearing	4 (5)	no	transmission body)	Aliexpress	<u>Aliexpress</u>		
Fasteners MSx8mm 27 (28) no (28 for rotated) + 6 for PowerSupply holder if needed Any type of MSx8mm screw can be used.  MSx40mm 6				,	Theres no link, just go to your local hardware store and take a cheap 8mm (aluminium) rod. You don't have				
MS-T-nuts 27(28) no (28 for rotated) + 6 for PowerSupply holder if needed.  M3-X25mm 2 no (28 for rotated) + 6 for PowerSupply holder if needed.  M3-X25mm 2 no (28 for rotated) + 6 for PowerSupply holder if needed.  M3-X25mm 2 no (28 for rotated) + 6 for PowerSupply holder if needed.  M3-X25mm 2 no (28 for rotated) + 6 for PowerSupply holder if needed.  M3-X25mm 2 no (28 for rotated) + 6 for PowerSupply holder if needed.  M3-X25mm 2 no (28 for rotated) + 6 for PowerSupply holder if needed.  M3-X25mm 4 no (17 you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good.  M3-X35mm 4 no (18 you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good.  M3-X35mm 5 no (18 you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good.  M3-X35mm 5 no (18 you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good.  M3-X35mm 5 no (18 you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good.  M3-X35mm 6 no (18 you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good.  M3-X35mm 6 no (18 you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good.  M3-X35mm 6 no (18 you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good.  M3-X35mm 6 no (18 you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good.  M3-X35mm 6 no (18 you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good.  M3-X35mm 6 no (18 you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good.  M3-X35mm 6 no (18 you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good.  M3-X35mm 6 no (18 you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good.  M3-X35mm 6 no (1		8mm Rod	335 mm	yes/no					
MS-40mm 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 a ny type of screwhead for the remaining holes.  MS-17-nuts 27 (28) no (28 for rotated) + 6 for PowerSupply holder if needed.  M3x25mm 2 no (28 for rotated) + 6 for PowerSupply holder if needed.  M3x20mm 2 no (28 for rotated) + 6 for PowerSupply holder if needed.  M3x12mm 4 no (14 you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good.  M3x8mm 4 no (38 schema ) (4 no (4	Fasteners	M5x8mm	27 (28)	no	(28 for rotated) + 6 for PowerSupply holder if needed. Any type of M5x8mm screw can be used.	Aliexpress			
May you can use any type of screwhead for the remaining holes.   Allexpress   Allexpress   Allexpress   Allexpress   Allexpress									
MST-nuts 27 (28) no (28 for rotated) + 6 for PowerSupply hodier if needed. Allexpress  M3x25mm 2 no (28 for rotated) + 6 for PowerSupply hodier if needed. Allexpress  M3x20mm 2 no (27 for all typu have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good. Allexpress  M3x10mm 2 no (27 for all typu have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good. Allexpress  M3x10mm 2 no (27 for all typu have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good. Allexpress  M3x10mm 2 no (48 for rotated) + 6 for PowerSupply hodier if needed. Allexpress (48 for rotated) + 6 for PowerSupply hodier if needed. Allexpress (48 for rotated) + 6 for PowerSupply hodier if needed. Allexpress (48 for rotated) + 6 for PowerSupply hodier if needed. Allexpress (48 for rotated) + 6 for PowerSupply hodier if needed. Allexpress (48 for rotated) + 6 for PowerSupply hodier if needed. Allexpress (48 for rotated) + 6 for PowerSupply hodier if needed. Allexpress (48 for rotated) + 6 for PowerSupply hodier in process (48 for rotated) + 6 for PowerSupply hodier if needed. Allexpress (48 for rotated) + 6 for PowerSupply hodier if needed. Allexpress (48 for rotated) + 6 for PowerSupply hodier in process (48 for PowerSupply hodier in		M5x40mm	6	yes (3 x)	use a stock 40mm screw from the left side of the printer and place this on the inside of the right side. This				
M3x25mm 2 no					way you can use any type of screwhead for the remaining holes.	Aliexpress	Aliexpress (cheaper)		
M3x20mm 2 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 if you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good. Aliexpress   M3x8mm 4 no		M5 T-nuts	27 (28)	no	(28 for rotated) + 6 for PowerSupply hodler if needed.	Aliexpress			
M3x12mm 4 no If you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good.  M3x8mm 4 no		M3x25mm	2	no					
M3x8mm 4 no		M3x20mm	2	no					
M3x8mm		M3x12mm	4	no	If you have no screws, you should buy a kit. Especially for the tensioner a longer screw can be good.	Aliexpress			
M3x6mm 5 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!! Alliexpress  Printed Parts RightV3.x 1 / Thingiverse (Bowden-Version available)		M3x10mm	2	no					
M3 nuts 8 no M3 washer 2 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)		M3x8mm	4	no					
M3 washer   2   no		M3x6mm	5	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_A 1 / Thingiverse  LeftTop_B 1 / Thingiverse  Bottom_F623 or_toothed 2 / Thingiverse  Spacer 3 / Thingiverse  Tensioner Block 2 / Thingiverse  Tensioner Clamp 2 / Thingiverse  TensionerClamp 2 / Thingiverse  Transmission 1 / Github  MotorMountTensionerArm 1 / Github  BOTRingGear 1 / Github  BOTRingGear 1 / Github  BOTRingGear 1 / Github  Sociation Available is obviously too short^^ Check if the middle cables are crossed!!! Aliexpress  Indicate Constant Indicate Indicat		M3 nuts	8	no					
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		M3 washer	2	no					
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  Spacer 3 / Thingiverse  Tensioner Block 2 / Thingiverse  TensionerClamp 2 / Thingiverse  Power_Supply_Holder 1 / Thingiverse  Transmission 1 / Github  MotorMountTensionerArm 1 / Github  SOTRingGear 1 / Github  SOTRingGear 1 / Github	Electronics	Motor extension cable	1	no	The original Cable is obviously too short^^ Check if the middle cables are crossed!!!	Aliexpress			
RightTop_A 1 / Thingiverse	<b>Printed Parts</b>	RightV3.x	1	/	Thingiverse (Bowden-Version available)				
RightTop_B 1 / Thingiverse		LeftV3.x	1	/	Thingiverse (Bowden-Version available)				
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		RightTop_A	1	/	Thingiverse				
LeftTop_B       1       /       Thingiverse		RightTop_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		LeftTop_A	1	/	Thingiverse				
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			1	/	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		Bottom_F623 or _toothed	2	/	Thingiverse (If you want toothed idlers see here: How to use toothed idlers)				
TensionerClamp 2 / Thingiverse Power_Supply_Holder 1 / Thingiverse Transmission 1 / Github MotorMountTensionerArm 1 / Github ZDriveTensioningRing 1 / Github 80TRingGear 1 / Github		Spacer	3	/	Thingiverse				
Power_Supply_Holder 1 / Thingiverse  Transmission 1 / Github  MotorMountTensionerArm 1 / Github  ZDriveTensioningRing 1 / Github  80TRingGear 1 / Github		Tensioner Block	2	/	Thingiverse				
Transmission 1 / Github  MotorMountTensionerArm 1 / Github  ZDriveTensioningRing 1 / Github  80TRingGear 1 / Github		TensionerClamp	2	/	Thingiverse				
MotorMountTensionerArm 1 / Github ZDriveTensioningRing 1 / Github 80TRingGear 1 / Github		Power_Supply_Holder	1	/	Thingiverse				
ZDriveTensioningRing 1 / Github 80TRingGear 1 / Github		Transmission	1	/	<u>Github</u>				
80TRingGear 1 / Github		MotorMountTensionerArm	1	/	<u>Github</u>				
80TRingGear 1 / Github		ZDriveTensioningRing	1	/	<u>Github</u>				
			1	/	<u>Github</u>				
	Filament	Petg or ABS (+)	??kg	no	Yes you can use PLA, but you shouldn't ;)				

## Single Z and MGN 12H

Rotated

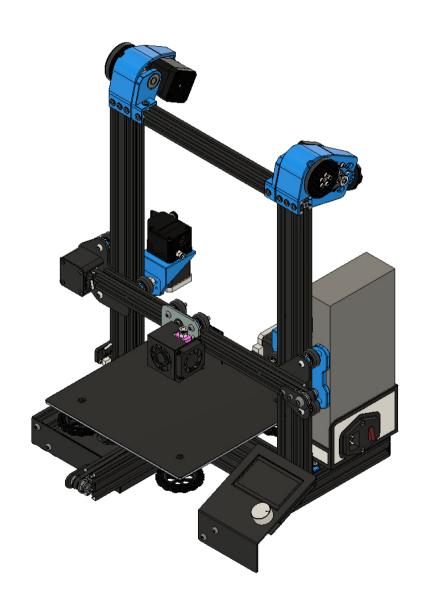
or

Unrotated



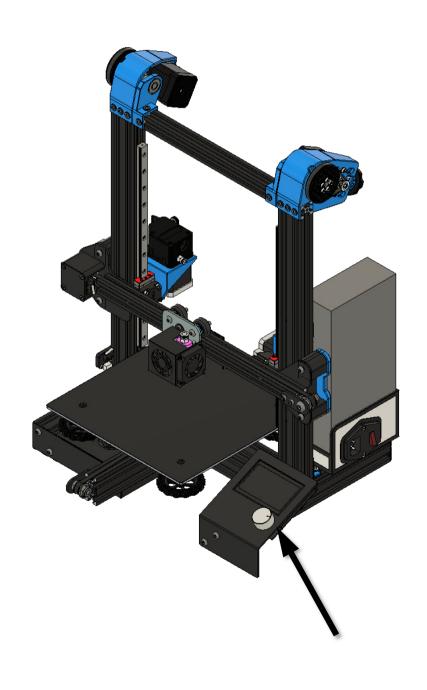
				Single Z + MGN		
Category	Component	Quantity	Reuse from	Notes	My Source	Alternative Source
Motion	20T Pulley - 8mm Bore	3	no	One for each side on the Rod, one for the printed 80T Gear.	<u>Aliexpress</u>	
	16T Pulley - 5mm Bore	1	no	Motorshaft	<u>Aliexpress</u>	
	Gt2 Belt	2 Meter	no	Don't buy the cheapest. You should go for belts with glassfiber. Width: 6mm	<u>Aliexpress</u>	
	188mm Looped Belt	1	no	Width: 6mm	<u>Aliexpress</u>	Aliexpress Affiliate Link Voron Guys
	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	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	Tou will need 2 for them to mount the rails. All notes: 22 per rails fou can use ress, minimal first rails.		
	M3 nuts	12	no			
	M3 washer	2	no			
	M3 T-nuts	24		You will need these to mount the rails. All holes: 12 per rail. You can use less, minimum 4 per rail.		
Flacture:		1	no	The original Cable is obviously too short^ Check if the middle cables are crossed!!!	A1:	
Electronics	Motor extension cable		no	-	Aliexpress	
Printed Parts		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	/	<u>Thingiverse (If you want toothed idlers see here: How to use toothed idlers)</u>		
	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	/	<u>Github</u>		
	MotorMountTensionerArm	1	/	Github		
	ZDriveTensioningRing	1	/	Github		
	80TRingGear	1	/	Github		
Filament	Petg or ABS (+)	??kg	no	Yes you can use PLA, but you shouldn't ;)		
	3			, , , , , , , , , , , , , , , , , , , ,		

## Dual Z and V\_Rollers



ategory	Component	Quantity	Reuse from	Notes	My Source	Alternative Source
lotion	20T Pulley - 8mm Bore	4	no	One for each side on the Rod, one for the printed 80T Gear.	Aliexpress	
	16T Pulley - 5mm Bore	2	no	Motorshaft	Aliexpress	
	Gt2 Belt	2 Meter	no	Don't buy the cheapest. You should go for belts with glassfiber. Width: 6mm	Aliexpress	
	188mm Looped Belt	2	no	Width: 6mm	Aliexpress	Aliexpress Affiliate Link Voron Gu
	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	
				Do you have an old skateboard? You can steal the bearings from the wheels;) (5 for extra bearing in		
	608ZZ Bearing	4	no	transmission body)	Aliexpress	<u>Aliexpress</u>
		0.65	,	Theres no link, just go to your local hardware store and take a cheap 8mm (aluminium) rod. You don't		
	8mm Rod	2x65mm	yes/no	have to buy a hardened steel one. (to expensive and hard to cut). You also could use your leadscrew.		
asteners	M5x8mm	37	no	(37 for rotated) + 6 for PowerSupply holder if needed. Any type of M5x8mm screw can be used.	Aliexpress	
				Screwhead must fit under the extrusion from the X-Axis. (Take a look at 5:20 of my video) You also could		
	M5x40mm	6	yes (3 x)	use a stock 40mm screw from the left side of the printer and place this on the inside of the right side.		
				· · · · · · · · · · · · · · · · · · ·	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.	<u>Aliexpress</u>	
	M3x10mm	4	no			
	M3x8mm	8	no			
	M3x6mm	10	no			
	M3 nuts	10	no			
	M3 washer	4	no			
lectronics	Motor extension cable	1	no	The original Cable is obviously too short^^ Check if the middle cables are crossed!!!	<u>Aliexpress</u>	
rinted 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	/	<u>Github</u>		
	Transmission_Right	1	/	<u>Github</u>		
	MotorMountTensionerArm	2	/	<u>Github</u>		
	ZDriveTensioningRing	2	/	<u>Github</u>		
	80TRingGear	2	/	<u>Github</u>		
Filament	Petg or ABS (+)	??kg	no	Yes you can use PLA, but you shouldn't ;)		

## Dual Z and MGN 12H



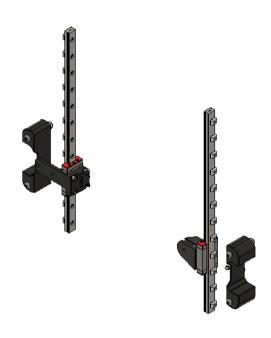
				Dual Z + MGN		
Category	Component	Quantity	Reuse from	Notes	My Source	Alternative Source
Motion	20T Pulley - 8mm Bore	4	no	One for each side on the Rod, one for the printed 80T Gear.	<u>Aliexpress</u>	
	16T Pulley - 5mm Bore	2	no	Motorshaft	<u>Aliexpress</u>	
	Gt2 Belt	2 Meter	no	Don't buy the cheapest. You should go for belts with glassfiber. Width: 6mm	<u>Aliexpress</u>	
	188mm Looped Belt	2	no	Width: 6mm	<u>Aliexpress</u>	Aliexpress Affiliate Link Voron Guys
	F623ZZ 3*10*4 bearing	4	no	2 Pieces per side or 2x 20T toothed Idlers (18mm in diameter, 8.5mm width, 3mm ID)	<u>Aliexpress</u>	
	608ZZ Bearing	4	no	Do you have an old skateboard? You can steal the bearings from the wheels;) (5 for extra bearing in		
	OUOZZ Bearing	4	no	transmission body)	<u>Aliexpress</u>	<u>Aliexpress</u>
	Cara and Dia d	2 65		Theres no link, just go to your local hardware store and take a cheap 8mm (aluminium) rod. You don't		
	8mm Rod	2x 65mm	yes/no	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)		<u>Aliexpress</u>	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	
<b>Printed Parts</b>	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	/	<u>Github</u>		
	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 Reinter Notes Notes My Source Alternative Sol						Alternative Source			
	300mm MGN Rail	2		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.					
<b>Printed Parts</b>	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?		My Source	Alternative Source
	Key-bak Super48 13oz	1	no		<u>Amazon</u>	
	F623ZZ 3*10*4 bearing	2	no		<u>Aliexpress</u>	
Fasteners	M3x25mm	1	no			
	M3x12mm	2	no			
	M3 nuts	2	no			
	M5x8mm	2	no			
	M5 T-nuts	2	no			
<b>Printed Parts</b>	Bearing_Holder	1	/	<u>GitHub</u>		
	Keyback_mount	1	/	<u>GitHub</u>		
	Keybak_mount_plate	1	/	<u>GitHub</u>		
	Keybak_Spacer	1	/	<u>GitHub</u>		
	Left_Top_A_Keybak	2	/	<u>GitHub</u>		
Filament	Petg or ABS (+)	??kg	no	Yes you can use PLA, but you shouldn't ;)		