

2020 BEST Returnable Kit List

	Check	Qty	Item Description	Required/Optional	Source	Part Number
BEST Control System Kit (VEX 270-1605)		1	Cortex Microcontroller	Req'd ³	VEX Robotics	278-2194
		1	VEXnet Joystick	Req'd	VEX Robotics	276-2192
		2	VEXnet Key 2.0	Req'd	VEX Robotics	276-3245
		4	Motor Controller 7.2V 4A	Req'd	VEX Robotics	276-2193
		2	Large Motor	Req'd	VEX Robotics	276-1611
		2	Small Motor	Req'd	VEX Robotics	276-1610
		2	7.2 V 3000 mAh NiMH battery - modified w/ PowerPoles	Req'd ¹	VEX Robotics/Other	276-1491
		2	Charger Adapter (for Cortex and Battery Charger)	Req'd ^{2,3}	None - Hub Assy Req'd	n/a
		8	Screw Terminal Sensor Interface Cable 3-wire	Req'd ⁴	VEX Robotics	276-3071
		4	Screw Terminal Motor Interface Cable (red and black wires)	Req'd	VEX Robotics	276-1608
		4	Servo Power Adapter Cable	Req'd	VEX Robotics	276-2195
		1	Smart Battery Charger & power cord	Req'd ^{2,3}	VEX Robotics/Other	276-2519, 276-2520
		1	8-bay AAA Smart Battery Charger & power cord	Req'd ²	VEX Robotics/Other	276-1622
		6	AAA NiMH Rechargeable Batteries (installed in Joystick)	Req'd	VEX Robotics/Other	276-1696
	1	USB A-A Cable	Req'd ²	VEX Robotics/Other	276-1403	
BEST Servo Kit (VEX 270-1682)		4	Futaba S3003/S3004 or HiTec HS-422/HS-425BB Servos	Req'd	various	
		4	servo horn screw	Req'd	various	
		5	servo horn (radius not to exceed 1")	Req'd	various	
		2	24" servo extension cable (600 mm also allowed)	Req'd	various	
		2	40" servo extension cable (36" or 1000 mm also allowed)	Req'd	various	
		16	rubber grommet	Opt ⁵	various	
		16	brass spacer	Opt ⁵	various	
		16	servo mounting screw	Opt ⁵	various	
BEST Motion Components Kit (VEX 270-4395)		1	1/4" bore, 24 tooth, (small) drive pulley	Req'd	VEX Robotics	270-4395
		1	1/4" bore, idler (dia. to match 24 tooth pulley)	Req'd	VEX Robotics	
		1	1/4" bore 120 tooth, (large) drive pulley	Req'd	VEX Robotics	
		1	170 tooth, 3 mm pitch, 9 mm wide HTD loop belt	Req'd	VEX Robotics/Other	
		1	3 mm pitch, 9 mm wide HTD strip belt, 3 ft long	Req'd	VEX Robotics/Other	
		1	1/4" dia. shoulder screw w/ #10-32 thread	Req'd	VEX Robotics/Other	
		1	76mm roller blade wheel (78A to 82A) w/ bearings and 6mm spacer	Req'd	VEX Robotics/Other	
		1	6mm roller blade wheel axle (any style)	Req'd	VEX Robotics/Other	
	4	R4AZZ Ball Bearing (0.25 ID x 0.75 OD x 0.28 wide)	Req'd	VEX Robotics/Other		
Hub Provided		1	spare (replacement) servo horn screw	Req'd	various	
		3	BEST IR Sensor Kit	Req'd	BRI	
		3	6" servo extension cable (150mm, 8" or 200 mm also allowed)	Req'd	various	
		3	24" servo extension cable (600 mm also allowed) *	Req'd	various	
		1	18" (or less) USB extension cable (between Cortex and VEXnet key)	Opt ⁵	various	
		1	VEX Programming Hardware Kit	Opt ^{2,5}	VEX Robotics	276-2186
		2	Metal wheel hubs (1.5" max dia, 0.5" max thk, 0.250" bore, with set screw)	Req'd	VEX Robotics/Other	270-6430
		2	window alarm sensor	Req'd	McMaster-Carr	8039A12
		2	1/4" shaft coupler, with set screws	Req'd	ServoCity	625104
		any	containers, bags, boxes	Req'd ²	Hub Supplied	

- Notes: ¹ Only one battery can be used on the robot at any given time.
² These items cannot be used on the robot.
³ Cortex and battery charger may be converted (by the Hub only) to PowerPole connectors, eliminating the need for the adapters.
⁴ Up to (6) of the three wire sensor interface cables(VEX P/N 276-3071) may be sub'd with old style two-wire sensor cables (VEX P/N 276-1734). A total of (8) sensor interface cables are required.
⁵ Teams may use these Returnable Kit optional items even if they are not supplied by their Hub.
* Any shroud protecting the male pins must be removed (so it can be plugged into Cortex).