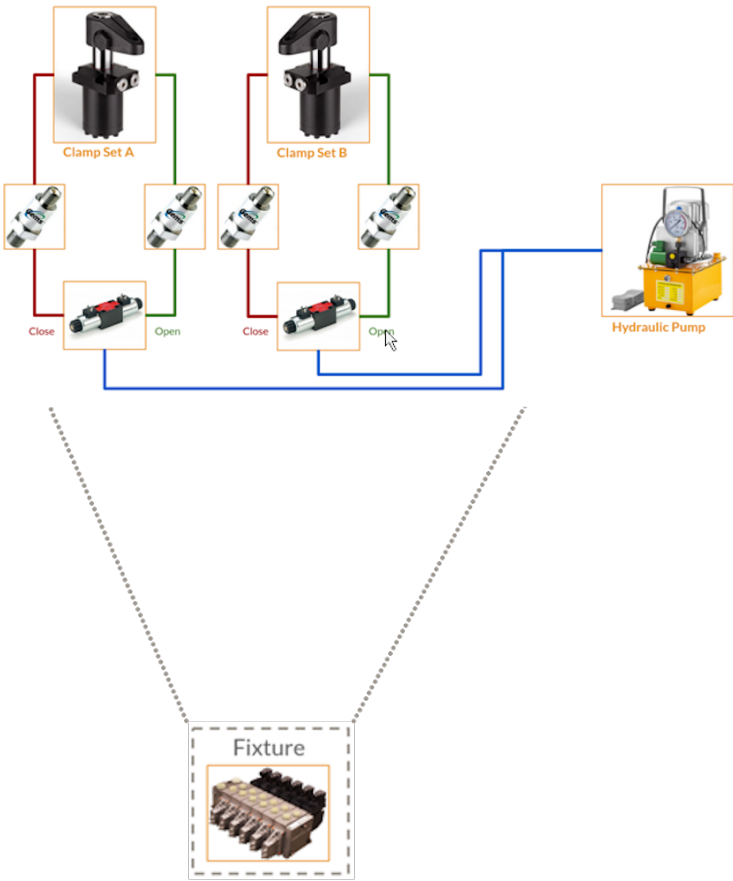


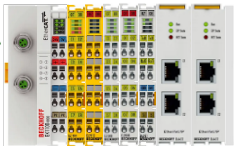
Bill Of Materials

ID	Sensor	Model Number	Qy	Description	Use	Link
	Zone 1					
9	Cell PLC	CX2030	1	Mid level PLC		Beckhoff CX2030
10	Power Supply	CX2100-0014	1	Power supply for CX20xx, 130W		Beckhoff CX2100
11	EtherCat Terminal	EL6070	1	Terminal license key for Twincat 3	licenses will be stored here instead of PLC making it simple to swap PLC	Beckhoff EL6070
12	TwinSAFE Terminal	EL1918	1	8-ch digital input and logic TwinSAFE, TwinSAFE Logic	Safety master executes TwinSAFE logic and spare IO	Beckhoff EL1918
13	Ethercat Junction	EK1122-0008	1	2-port Ethercat Junction M8		Beckhoff EK1122
14	End Cap	EL9011	1	bus terminal end cap		Beckhoff EL9011
15	EtherCat Cable	ZK1090-3232-0xxx	1	M8 cable,AWG 26,female-female	M8 cables are more durable and secure than RJ45 and can easily used with EP blocks	Beckhoff ZK1090-3232-0xxx
	Zone 2					
16	Ethercat Coupler	EK1100-0008	1	EtherCat Coupler with M8 connections		Beckhoff EK1100
17	TwinSAFE Terminal	EL1904	1	4-ch digital input, TwinSAFE	plum to robot x11 (TODO)	Beckhoff EL1908
18	TwinSAFE Terminal	EL2912-2200	1	4-ch digital output, TwinSAFE	plum to robot X11 (TODO), pull high current of VFD	Beckhoff EL2912
19	EtherCat Terminal	EL1008	1	8-ch standard digital input	2 for ATI prox sensor unlock/locked	Beckhoff EL1008
20	EtherCat Terminal	EL2008	1	8-ch standard digital output	4 for pneumatic solenoids, 1 for fluid solenoid	Beckhoff EL2008
21	EtherCat Terminal	EL6021	1	1-channel serial RS422/RS485	1 for Delta VFD-B communication to PLC	Beckhoff EL6021
22	EtherCat Scanner	EL6652	2	2-port EtherNet/IP scanner	1 for keyence comm box, 1 for KUKA robot, 1 for force comm box	Beckhoff EL6652
23	Terminal Cap	EL9011	1	bus terminal end cap	Keep the dust out and cover E-bus contacts	Beckhoff EL9011
24	Communication Unit	CB-EP100	1	EtherNet/IP communication unit	needed to communicate over EtherCat/IP	Keyence CB-EP100
25	Ethernet cable	CA77-005M0-2	2	EtherNet cable CAT7	1 for Keyence CB-EP100 (CAT7 required pg.'1-4'), 1 for Sunrise Instruments Control Box	Digikey Cable
26	Adapter	426-FIT0856	1	DB9 Male to RJ45 Female Adapter	Adapter for Sunrise Instruments Control Box	Mouser DB9-RJ45
27	RS485 Cable	Q8806-1	1	RS-422 low capacitance data cable	Cable for communication VFD<>PLC	AutomationDirect Q8806-1
28	RJ11 Connector	SKU: ST2106CO3165	1	RJ11/14 Connector Male 6P2C	Connector for RS485 connector used for VFD communication (one end only)	SharviElectronics RJ11/14
29	Solenoid Valve Cable	SC11-LS24-3	5	solenoid valve cable, 11mm DIN style molded connector to 3-wire pigtail	4 for 2x NITRA Pneumatic Solenoid Valve, 1 for NITRA Fluid Solenoid Valve	AutomationDirect SC11-LS24-3
30	EtherCat Cable	ZK1090-3232-0xxx	1	M8 cable,AWG 26,female-female	M8 cables are more durable and secure than RJ45 and can easily used with EP blocks	Beckhoff ZK1090-3232-0xxx
	Zone 3					
	Duplicate Zone 2					

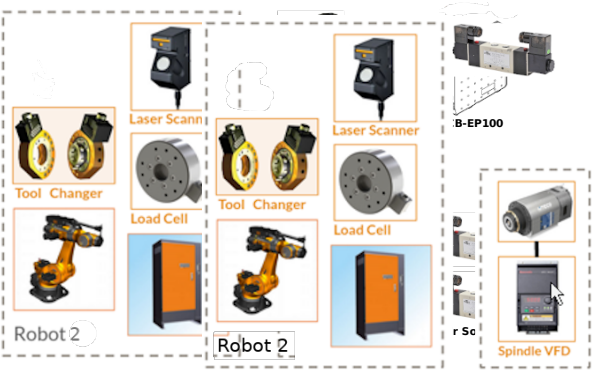
Sheet Clamping Fixture



Zone 3



Zone 2



Zone 1

