

In Case Study 1, we use the human-robot shared assembly taxonomy to model the process of assembling a CV304 check valve from Oasis Engineering Ltd. as a knowledge graph. From the knowledge graph, an instruction can be interpreted as the following.

Notes: (1) At the request of the Oasis Engineering Ltd., we have hidden the images.

(2) The details of the parts can be found in the BoM file.

Images	Process sequence	Requirement
	Place EndCap on Bench.	
	Insert BackUpO-ring into EndCap.	Ensure the curved side of the BackUp is facing up.
	Insert O-ring into EndCap.	Ensure the O-ring on top of the BackUpO-ring
	Insert EndCap into Jig.	Prior to this step, brush anti seize onto the EndCap thread.
	Insert Spring into EndCap.	
	Insert BodyInsert into EndCap.	

	Insert Poppet into EndCap.	Ensure the Poppet sealing face is not scratched during assembly.
	Insert Seat into Body.	Prior to this step, apply a small amount of silicone grease to the seat groove at the bottom of the Body. Ensure the angled side of the Seat is facing up.
	Screw Body into EndCap with TorqueWrench.	Torque = 80 Nm
	Insert EndO-ring into Body.	Ensure EndO-ring is sitting nicely in the groove and does not want to fall.
	Insert DustCap1 into EndCap.	
	Insert DustCap2 into Body.	