

9/8/23 Bray Visit

Ball → STEM → Seats → Partially open ball valves
for control valves

↑	↑
Turn	Seal
↑	
Normal	
Polymer	

RN, Positioners read stem
does not always move ball
→ Sims, Controlled hysteresis
cause error

Rack & pinion torque
↳ straight arm

Actuators
[types, sizes
↳ email 4 info]

Maybe
-320 F - 400 F

IoT Sdns:

- measure torque on valve
 - external bracket added to actuator
 - battery powered
 - agnostic to actuators & valves
 - bracket measures reaction to valve
 - we went to Emilez this
& read actuator torque
- Safe for pneumatic
& hydraulic actuators

3D metal printing

medium might not matter

~ 140 psi operation

Packing - seal around stem, graphite/teflon
not super important

leakage - on top out of body
whistle?

Just for toggle pneumatic actuators

Scalable Solution

- 1.0 1. True valve position
 1.1 2. actuator torque
 1.2 3. Determine leakage

PICK 1

9/18/23 Bray
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On Stop screw, strain gauge for torque?

(Article in email about issue ①
 ↳ floating ball valve model)

- Make applicable for ball valve, probs
 Also applicable for butterfly valve
- Narrow scope as needed

Embedded	1
Scalable	3
Data Collections	2
-40°F - 300°F Temp. operations	4
Max 740ps Various pressures	3
Fluid medium Variability	3
→ Beats Current hysteresis better than $\pm 2^\circ$	1.1
Lead times	2
Usable data	2

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