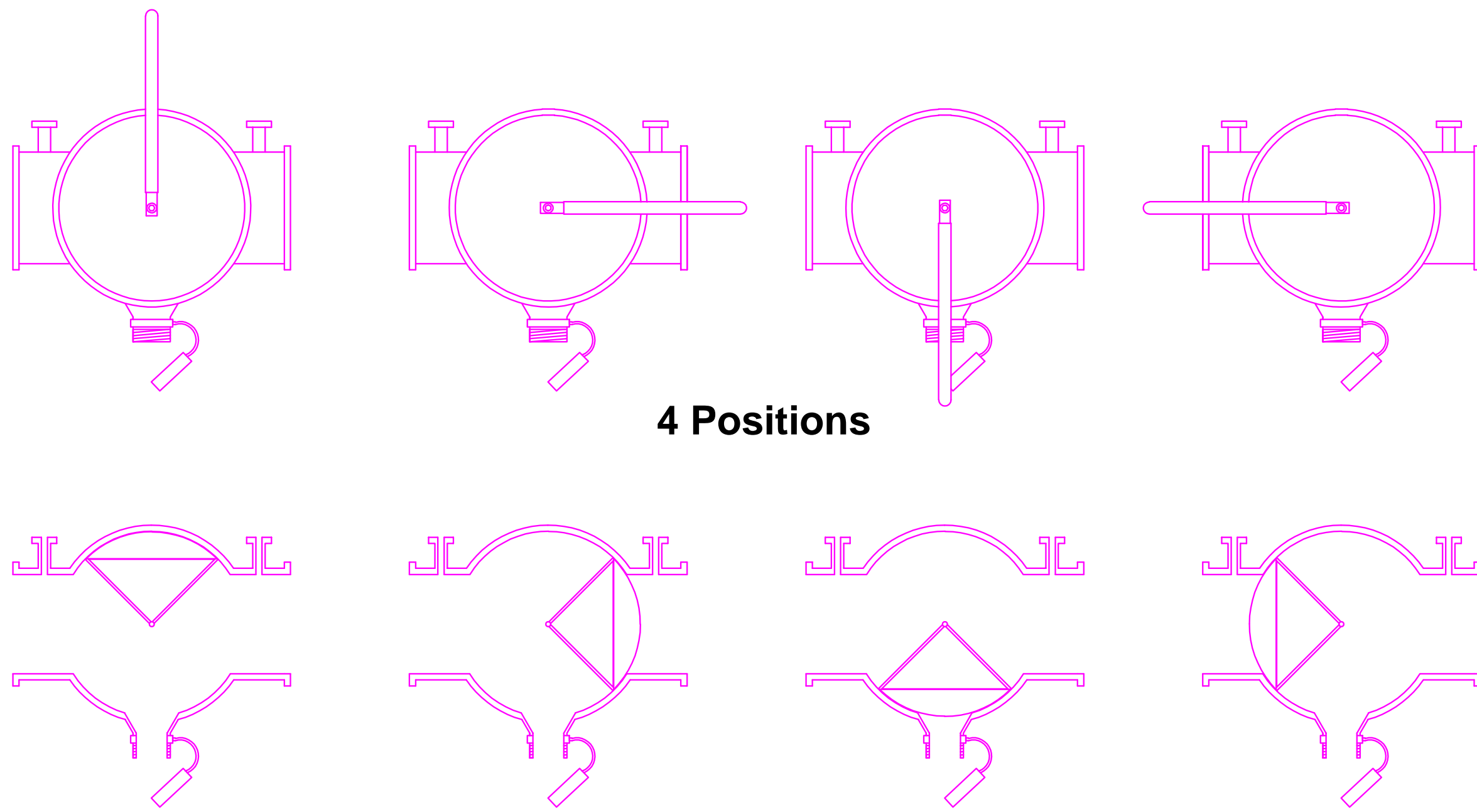
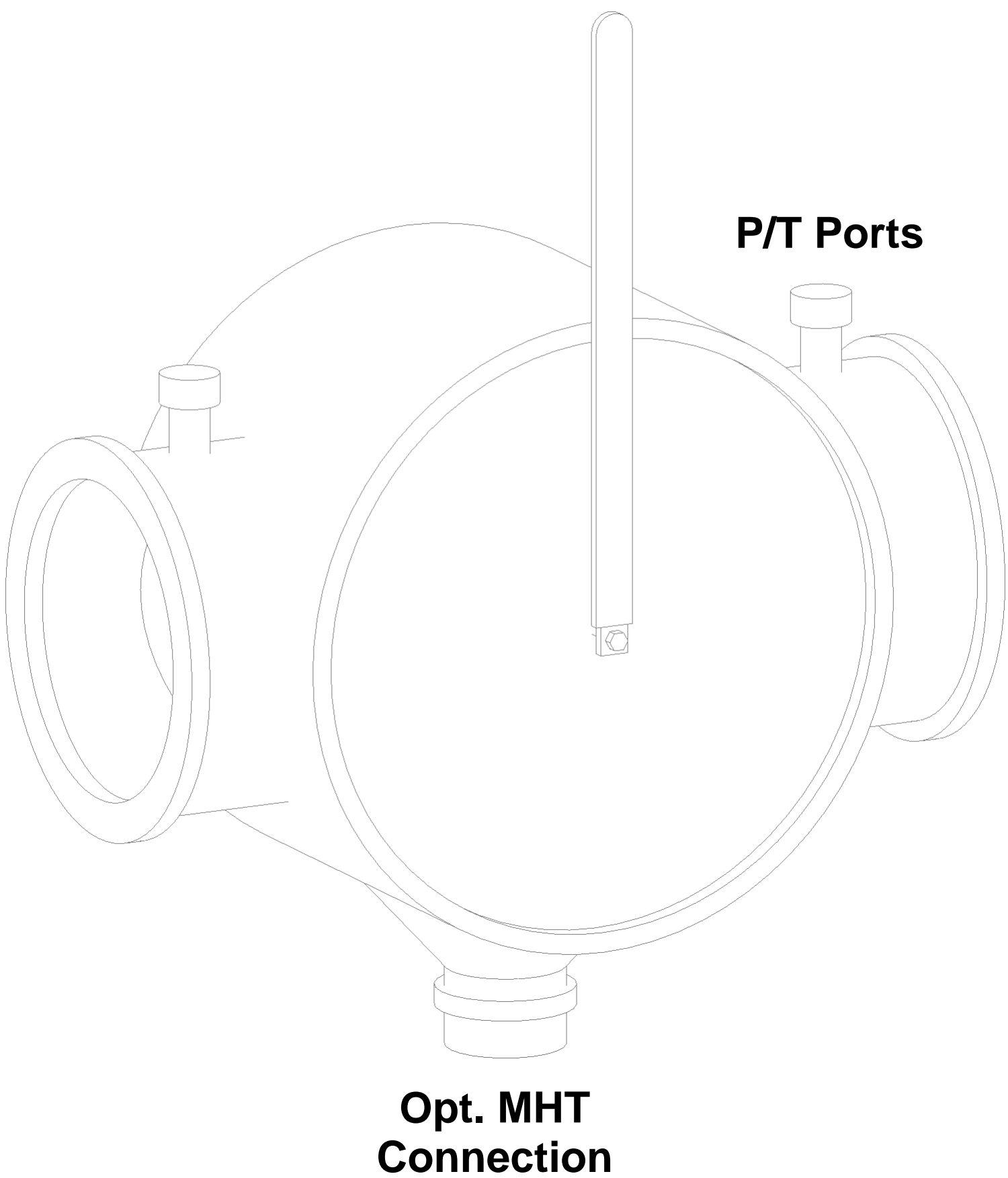


Hydronic Service Valve Product Development

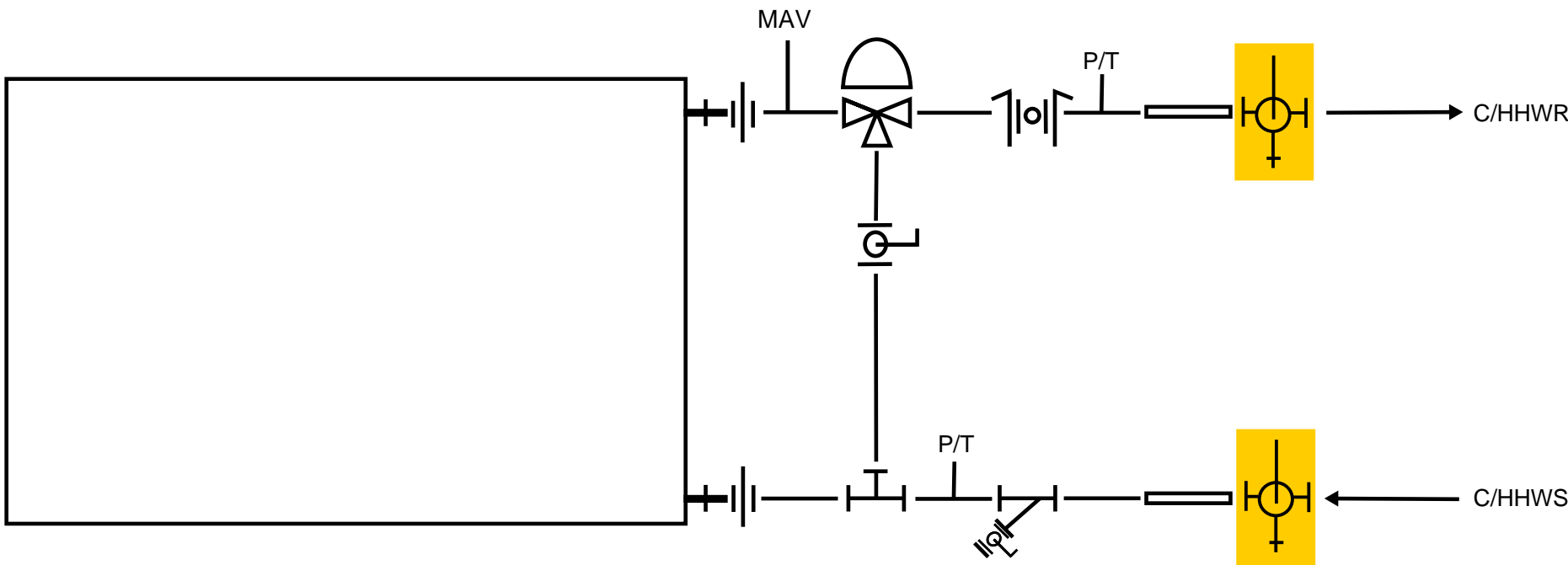
Abstract

Since the inception of modern mechanical and HVAC/R systems, maintenance and repairs have been a prevalent in both contracting and facility operations. The average life of HVAC/R equipment is fractional compared to the life of buildings, as construction technologies improve. Traditionally, the serviceability of heating and cooling equipment has entailed the labor consumptive and disruptive draining or freezing of hydronic piping to cut in either means of bypassing the main system, swapping out equipment, or repair. This poses an impactful **PROBLEM**. The intent of this project is to explore alternative methods to forgo the aforementioned negative impacts of service and to improve the way systems are maintained. Ultimately, the construction industry and facilities need to invoke mechanical contractors to ask: Is there a better way? What else can improve? Through research and interviews, the life span and continued use of HVAC/R systems is what can be improved upon. The solution is a valve that can do it all without the intensive use of labor and disruption. The **SOLUTION** is to prevent having to majorly alter a system and its performance through simultaneous isolation, drain, and bypass capabilities. The result is an affordable alternative with an overall greater functionality.

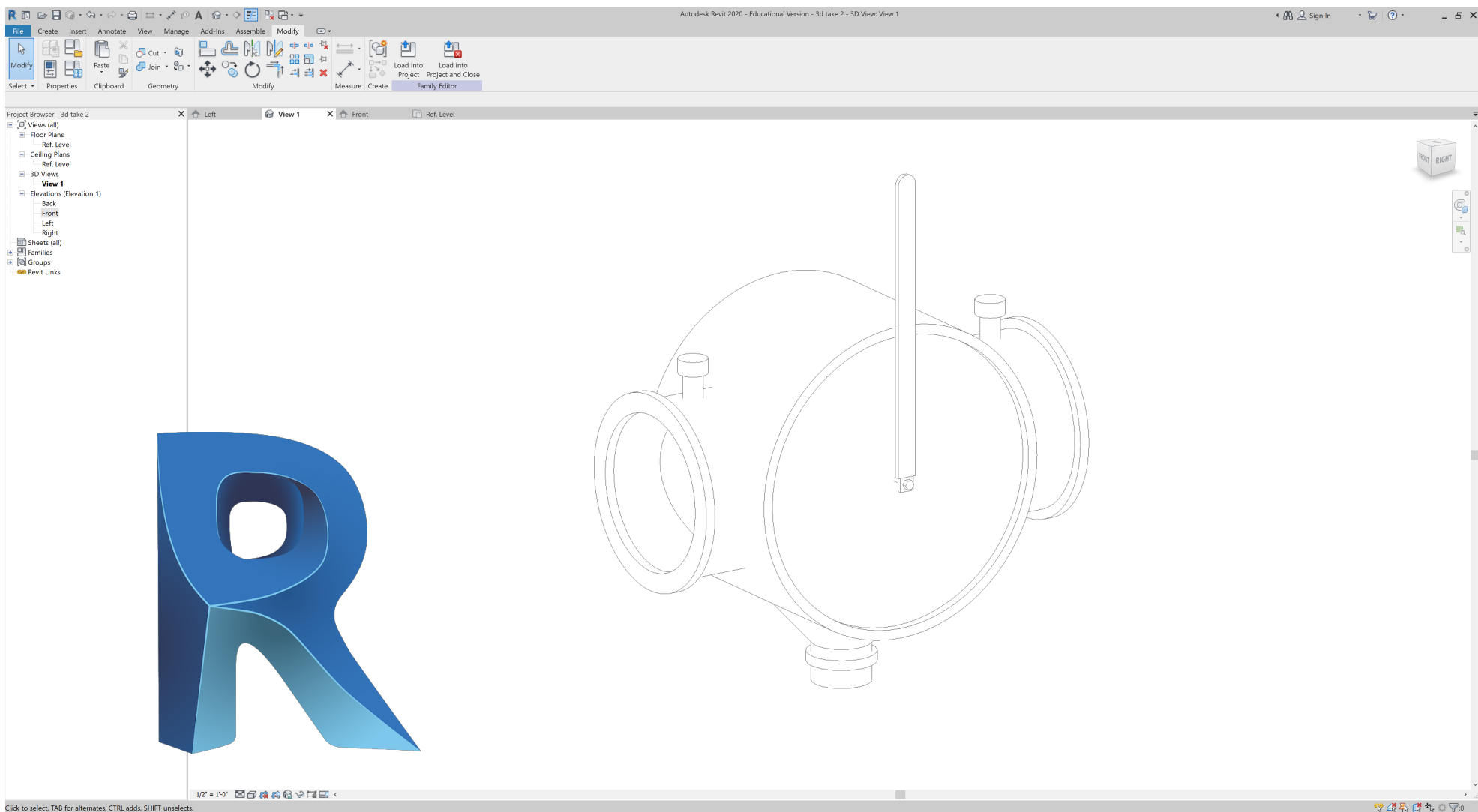
Isolation Service Valve (ISV)



ISV Coil Implementation



BIM Compatible



Economical

Description	QTY	Unit	\$/Unit ¹	MH/Unit ²	Labor ³	Wage	Man Hours	Labor Cost	Material Cost	Total Cost
2" x 3/4" Cu Press Tee	1	EA	\$ 57.09	0.840	85%	\$ 65.00	0.714	\$ 46.41	\$ 57.09	\$ 103.50
2" BV Press	2	EA	\$ 36.49	1.410	90%	\$ 65.00	2.538	\$ 164.97	\$ 72.98	\$ 237.95
3/4" FIP x MHT BV	1	EA	\$ 10.79	0.720	95%	\$ 65.00	0.684	\$ 44.46	\$ 10.79	\$ 55.25
3/4" FTG x MIP	1	EA	\$ 14.45	0.122	80%	\$ 65.00	0.098	\$ 6.34	\$ 14.45	\$ 20.79
Drain Down or Freeze	1	LS	--	2.000	100%	\$ 65.00	2.000	\$ 130.00	--	\$ 130.00
TRADITIONAL SERVICE ISOLATION METHOD (USING MULTIPLE FITTINGS) - TOTAL								6.034	\$ 392.18	\$ 547.49

Description	QTY	Unit	\$/Unit	MH/Unit ⁴	Labor ⁵	Wage	Man Hours	Labor Cost	Material Cost	Total Cost
ISV-43-075	1	EA	\$ 12.95	0.864	95%	\$ 65.00	0.821	\$ 53.35	\$ 12.95	\$ 66.30
ISV-43-100	1	EA	\$ 16.28	1.044	95%	\$ 65.00	0.992	\$ 64.47	\$ 16.28	\$ 80.75
ISV-43-125	1	EA	\$ 26.86	1.236	95%	\$ 65.00	1.174	\$ 76.32	\$ 26.86	\$ 103.18
ISV-43-150	1	EA	\$ 34.94	1.440	95%	\$ 65.00	1.368	\$ 88.92	\$ 34.94	\$ 123.86
ISV-43-200	1	EA	\$ 43.79	1.692	95%	\$ 65.00	1.607	\$ 104.48	\$ 43.79	\$ 148.27
ISV-43-250	1	EA	\$ 206.74	2.604	95%	\$ 65.00	2.474	\$ 160.80	\$ 206.74	\$ 367.53
ISV-43-300	1	EA	\$ 238.46	3.276	95%	\$ 60.60	3.112	\$ 188.60	\$ 238.46	\$ 427.06

When using the ISV-43 versus traditional methods of servicing systems, you get:

SAVINGS OF:	\$ 399.23	73%	4.4 MH's	73%
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Notes:

- Unit Costs are average from multiple vendor list pricing
- Man Hours are derived from: Sweet's Unit Cost Guide 2002
- Labor Factors are intended to reflect labor experience with different fittings and valves, and is subject to change
- ISV Man Hours assumed to be 20% higher than traditional isolation valves
- ISV Labor Factor set to 95% based off of similarity in connection style, material, and design