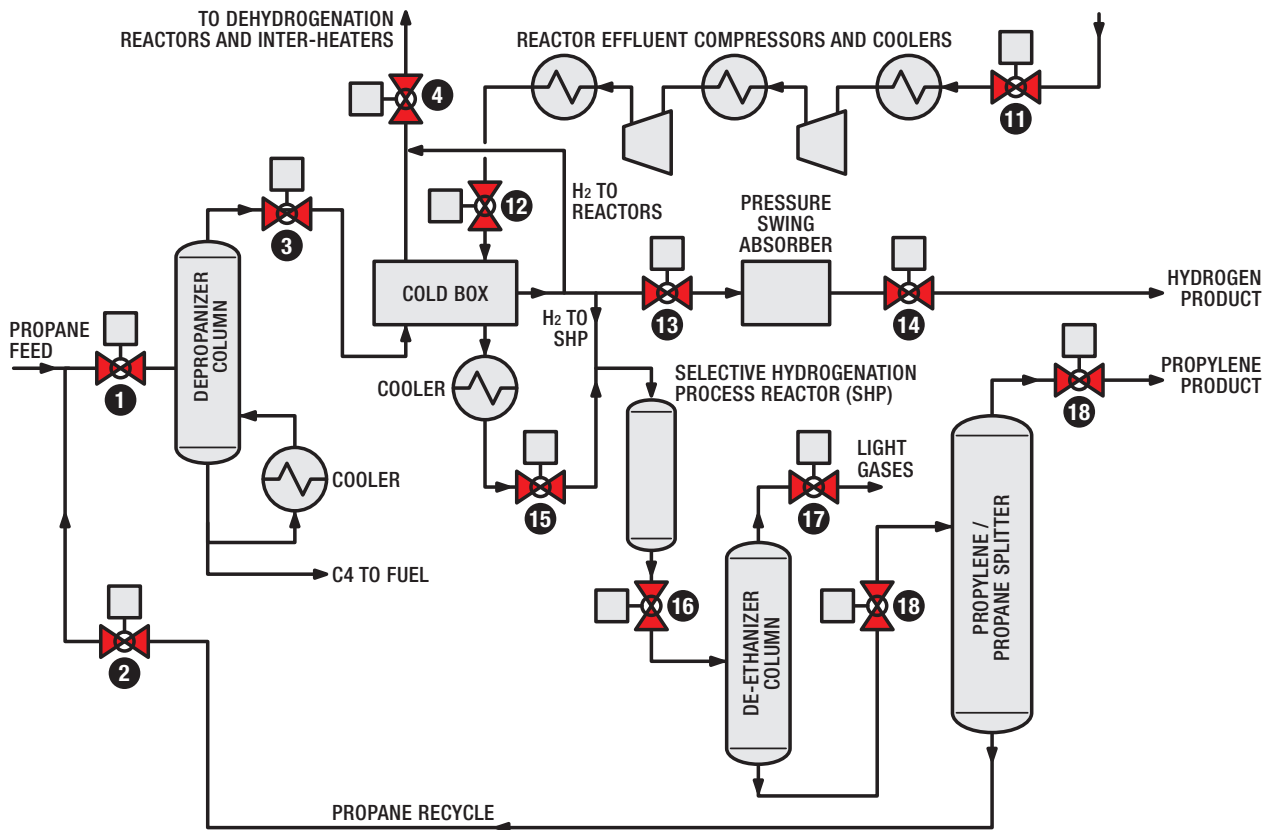
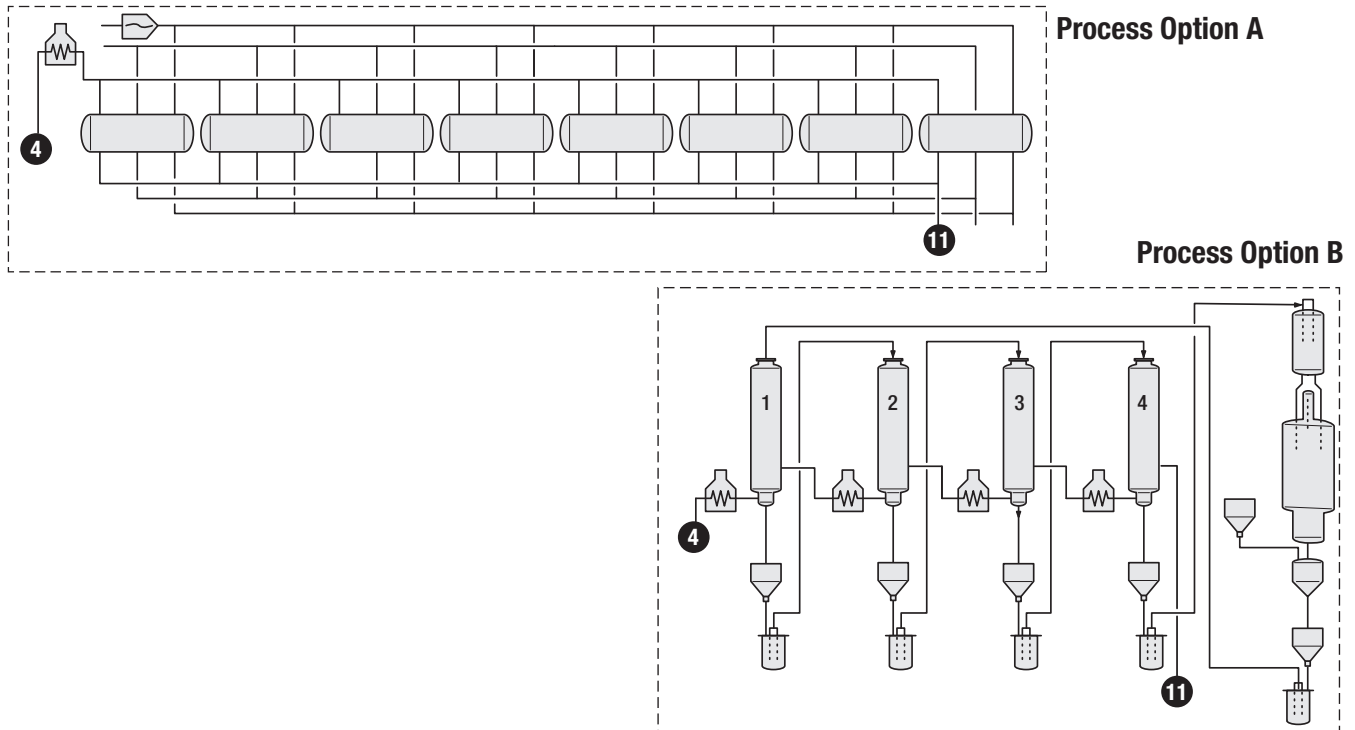


# Propane Dehydrogenation (PDH)

## Overview



# Propane Dehydrogenation (PDH)

Propane Dehydrogenation (PDH) – Process Option A															
Valve Number	Valve Description	Design Temperature Range		Design Pressure Range		Pipe Size		Recommended Valve <sup>1</sup>							
		deg F	deg C	psig	bar g	in	dn	C-Series	T-Series	G-Series	ISOLATOR 2.0	IRSV	MOGAS Watson Series	FlexStream®	
1	Propane Feed	50	10	50 – 100	3.5 – 6.9	12 – 18	305 – 457		•		•				
2	Recycle Propane Feed	50	10	50 – 100	3.5 – 6.9	12 – 18	305 – 457		•		•				
3	Depropanizer Distillation Tower	50	10	50 – 100	3.5 – 6.9	18 – 24	457 – 610		•						
4	Cold Box – Reactor Inlet Section	100 – 300	38 – 150	50 – 100	3.5 – 6.9	18 – 24	457 – 610		•						
5	Hydrocarbon Inlet	1100–1200	590 – 650	25 – 35	1.7 – 2.4	20 – 24	508 – 610	•							
6	Hydrocarbon Outlet	1100–1200	590 – 650	25 – 35	1.7 – 2.4	26 – 30	660 – 762	•							
7	Steam Purge	700 – 800	370 – 425	25 – 35	1.7 – 2.4	8 – 12	203 – 304				•				
8	Evacuating	1100–1200	590 – 650	25 – 35	1.7 – 2.4	26 – 30	660 – 762	•							
9	Air Inlet	1200–1300	650 – 705	25 – 35	1.7 – 2.4	30 – 42	762 – 1067	•							
10	Flue Gas	1200–1300	650 – 705	25 – 35	1.7 – 2.4	30 – 42	762 – 1067	•							
11	Rector Section Effluent, Final	1100–1200	590 – 650	25 – 35	1.7 – 2.4	20 – 24	508 – 610	•							
12	Reactor Effluent Compressors and Coolers	50 – 100	10 – 38	300 – 400	20.6 – 27.6	20 – 24	508 – 610		•						
13	Cold Box Light Gasses, Overhead	50 – 100	10 – 38	300 – 400	20.6 – 27.6	20 – 24	508 – 610		•						
14	Pressure Swing Absorber Hydrogen	50 – 100	10 – 38	300 – 400	20.6 – 27.6	20 – 24	508 – 610		•						
15	Cooled Reactor Effluent	50 – 100	10 – 38	300 – 400	20.6 – 27.6	20 – 24	508 – 610		•						
16	Selective Hydrogenation Process Reactor (SHP)	50 – 100	10 – 38	300 – 400	20.6 – 27.6	20 – 24	508 – 610		•						
17	Ethylene Gas	50	10	300 – 400	20.6 – 27.6	14 – 20	355 – 508		•						
18	De-ethanizer Column	50	10	300 – 400	20.6 – 27.6	14 – 20	355 – 508		•						
19	Final Propylene Product	50	10	50 – 100	3.5 – 6.9	12 – 18	305 – 457		•		•				
	Heat Exchanger	300 – 1000	21 – 69	200 – 600	13.7 – 41.3	1/2 – 2	12 – 50					•			
	General Ball Valves	600 – 700	41 – 48	100 – 600	6.8 – 41.3	1 – 3	25 – 75				•				

<sup>1</sup> Recommend ISOLATOR 2.0 or T-Series if size, pressure and temperature conditions are met.

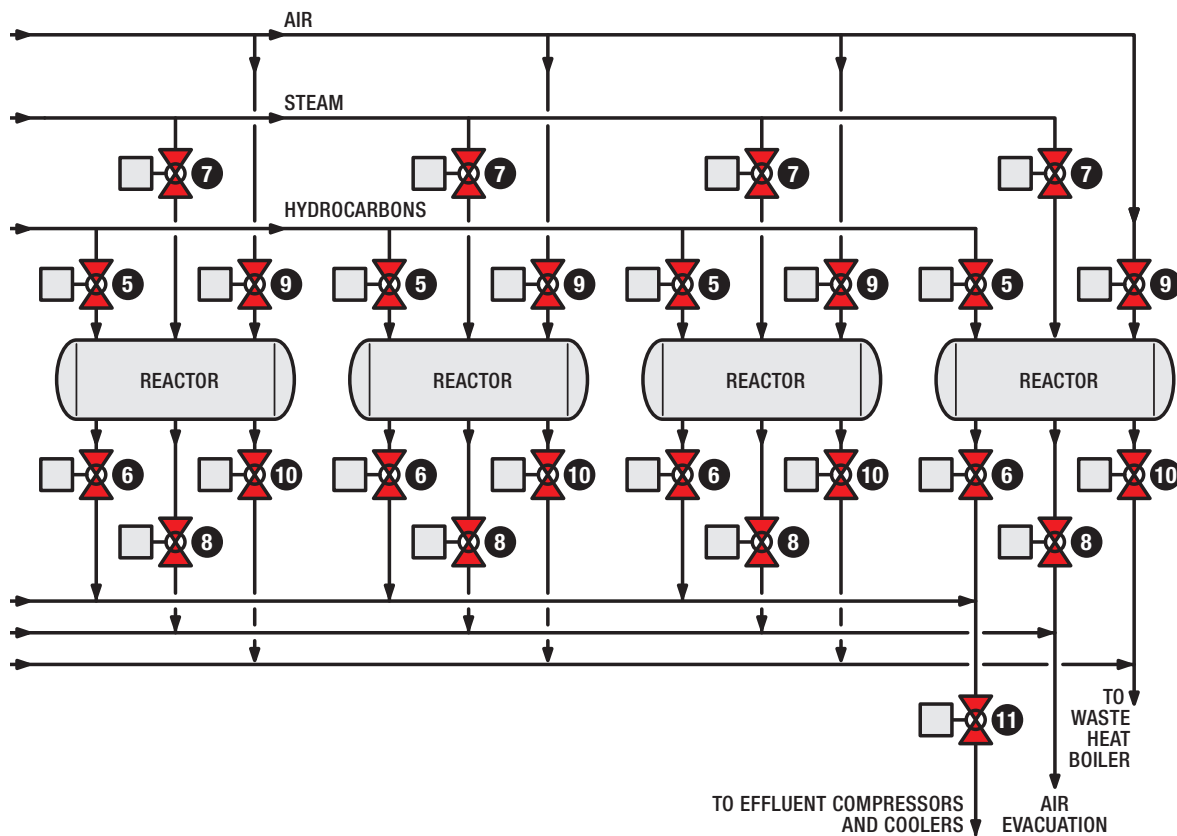
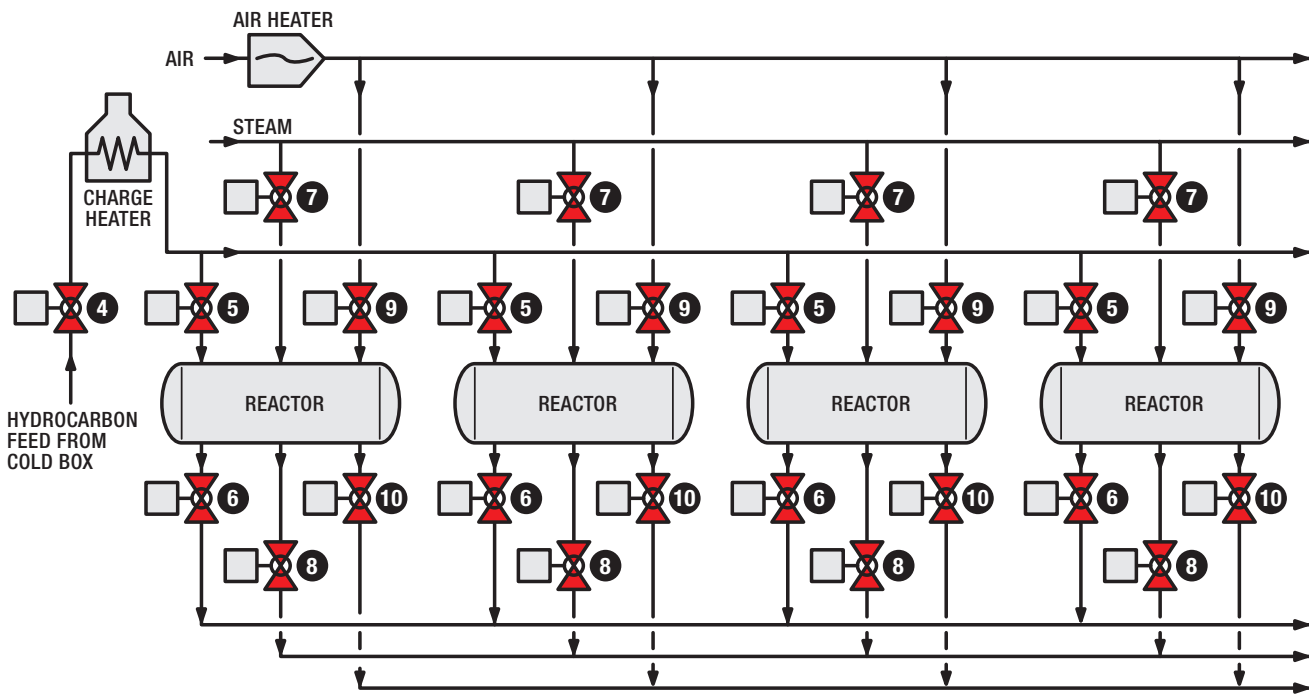
# Propane Dehydrogenation (PDH)

Propane Dehydrogenation (PDH) – Process Option B															
Valve Number	Valve Description	Design Temperature Range		Design Pressure Range		Pipe Size		Recommended Valve <sup>1</sup>							
		deg F	deg C	psig	bar g	in	dn	C-Series	T-Series	G-Series	ISOLATOR 2.0	IRSV	MOGAS Watson Series	FlexStream®	
1	Propane Feed	50	10	50 – 100	3.5 – 6.9	12 – 18	305 – 457		•		•				
2	Recycle Propane Feed	50	10	50 – 100	3.5 – 6.9	12 – 18	305 – 457		•		•				
3	Depropanizer Distillation Tower	50	10	50 – 100	3.5 – 6.9	18 – 24	457 – 610		•						
4	Cold Box – Reactor Inlet Section	100 – 300	38 – 150	50 – 100	3.5 – 6.9	18 – 24	457 – 610		•						
5	Reactor Hydrocarbon	1100–1200	590 – 650	25 – 35	1.7 – 2.4	20 – 24	508 – 610	•							
6	Reactor Lockhopper	1100–1200	590 – 650	25 – 35	1.7 – 2.4	10 – 12	254 – 305	•							
7	Surge Lockhopper	1100–1200	590 – 650	25 – 35	1.7 – 2.4	10 – 12	254 – 305	•							
8	Regenerator Lockhopper	1100–1200	590 – 650	25 – 35	1.7 – 2.4	20 – 24	508 – 610	•							
9	Reactor Effluent	1100–1200	590 – 650	25 – 35	1.7 – 2.4	20 – 24	508 – 610	•							
10	Lockhopper Nitrogen Purge	1100–1200	590 – 650	25 – 35	1.7 – 2.4	4 – 8	101 – 203	•							
11	Reactor Section Effluent, Final	1100–1200	590 – 650	25 – 35	1.7 – 2.4	20 – 24	508 – 610	•							
12	Reactor Effluent Compressors and Coolers	50 – 100	10 – 38	300 – 400	20.6 – 27.6	20 – 24	508 – 610		•						
13	Cold Box Light Gasses, Overhead	50 – 100	10 – 38	300 – 400	20.6 – 27.6	20 – 24	508 – 610		•						
14	Pressure Swing Absorber Hydrogen	50 – 100	10 – 38	300 – 400	20.6 – 27.6	20 – 24	508 – 610		•						
15	Cooled Reactor Effluent	50 – 100	10 – 38	300 – 400	20.6 – 27.6	20 – 24	508 – 610		•						
16	Selective Hydrogenation Process Reactor (SHP)	50 – 100	10 – 38	300 – 400	20.6 – 27.6	20 – 24	508 – 610		•						
17	Ethylene Gas	50	10	300 – 400	20.6 – 27.6	14 – 20	355 – 508		•						
18	De-ethanizer Column	50	10	300 – 400	20.6 – 27.6	14 – 20	355 – 508		•						
19	Final Propylene Product	50	10	50 – 100	3.5 – 6.9	12 – 18	305 – 457		•		•				
	Heat Exchanger	300 – 1000	21 – 69	200 – 600	13.7 – 41.3	1/2 – 2	12 – 50					•			
	General Ball Valves	600 – 700	41 – 48	100 – 600	6.8 – 41.3	1 – 3	25 – 75				•				

<sup>1</sup> Recommend ISOLATOR 2.0 or T-Series if size, pressure and temperature conditions are met.

# Propane Dehydrogenation (PDH)

## Process Option A



# Propane Dehydrogenation (PDH)

## Process Option B

