



## Lancaster Plug and Cage Choke Assembly

The Plug & Cage Choke offers a vast array of features and options. Operating torque is well below the industry average, making automation simple and efficient.

Unlike many other commodity production chokes, this next-generation design is highly versatile. The body accepts multiple trim profiles, such as a plug/cage, needle/seat, and positive flow bean. Each component is designed to maximize product interchangeability, metallurgy, performance, safety, and automation. This low-torque design was created with automation and PR2 validation in mind.

### Applications

- Wellhead
- FPSO
- Process Platforms
- High Flow Rate Production
- Salt Water Disposal
- Water Injection



Lancaster Plug and Cage w/  
Bettis® Electric Actuator

PLUG AND CAGE CHOKE SPECIFICATIONS							
Available Bore Sizes	1 - 13/16"	2 - 1/16"	2 - 9/16"	3 - 1/8"	3 - 1/16"	4 - 1/16"	5 - 1/8"
Available MAWP <sup>a</sup> (psi)	10,000	5,000	5,000	5,000	10,000	10,000	5,000
		10,000	10,000		15,000	15,000	
	15,000	15,000	15,000		15,000	15,000	10,000
Available PSL(s) <sup>b</sup>	2, 3, 4	5K (1, 2, 3, 4)	5K (1, 2, 3, 4)	1, 2, 3, 4	10K (2, 3, 4)	10K (2, 3, 4)	10K (2, 3, 4)
		10K (2, 3, 4)	10K (2, 3, 4)		15k (2, 3, 4)	15k (2, 3, 4)	15k (2, 3, 4)
Manufacturing Specification	6A						
Performance Requirements	PR1, PR2, PR2F						
Body Configuration / Type	Angle / Forged						
Body / Bonnet Connection	Threaded Union, Bolted Bonnet, Hammer Union						
Trim Design	Internal Plug and Cage, Needle and Seat, Positive Bean						
Available Trim Sizes	1.0" to 3.0"						
Available Operator Types	Manual, Electric, Pneumatic, Hydraulic						
<sup>a</sup> Maximum Allowable Working Pressure							
<sup>b</sup> Product Specification Level							



## Lancaster Vector Choke Assembly

The Vector Choke’s patented flow guide is designed to direct incoming flow directly to the orifices of the disc. This eliminates the pile-up of turbulent fluid and particles on the face of the disc. Erosion is a significant problem that other inline disc chokes have not fully solved. Tests and analyses of the Vector Choke have shown significant erosion reduction when adding the flow guide.

The Vector Choke's orifice design, modeled after the standard Lancaster Plug and Cage Equal Percentage (EP) design, provides precise flow control during operation. The progression of flow area increases nonlinearly, ensuring relative precision at all operation points. The flow rate approximates the EP profile, a unique feature differentiating it from other disc chokes.

The Vector Choke allows low-torque operation up to the maximum working pressure of 10,000 PSI. This is achieved using a worm gear drive, which allows a much smaller, faster-acting actuator to operate the choke assembly.

Unlike competing inline chokes, which must be removed for servicing, the Vector Choke can be serviced inline, saving time and resources for your operations.



Lancaster Vector Choke w/  
Bettis® Electric Actuator



### Applications

- Wellhead
- Salt Water Disposal
- Water Injection
- CO2 Injection
- Gas Injection
- Pipeline Flow Control

VECTOR CHOKE SPECIFICATIONS			
Available Bore Sizes	1 - 13/16"	2 - 1/16"	2 - 9/16"
Available MAWP <sup>a</sup> (psi)	10,000	5,000	5,000
		10,000	10,000
Available PSL(s) <sup>b</sup>	2, 3	5K (1, 2, 3)	5K (1, 2, 3)
		10K (2, 3)	10K (2, 3)
Manufacturing Specification	6A		
Performance Requirements	PR1, PR2		
Body Configuration / Type	Inline Forged		
Body / Bonnet Connection	Bolted Bonnet		
Trim Design	Keyhole Slot		
Available Trim Sizes	1.0"		
Available Operator Types	Manual, Electric, Pneumatic, Hydraulic		
<sup>a</sup> Maximum Allowable Working Pressure			
<sup>b</sup> Product Specification Level			