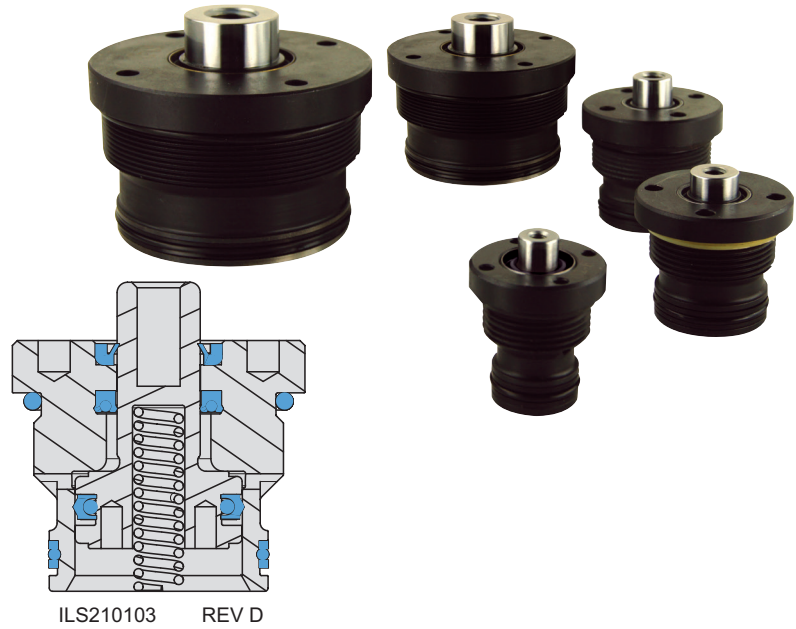


# Cylinders

## Cartridge Mount Push/Pull

### Double Acting

- Easy to use, thread-in Push/Pull cartridge cylinders in six capacities.
- Convert to single acting by installing the included return spring.
- Threaded Push/Pull design eliminates the need for additional retention.
- Short strokes specifically designed for use with bolt-down clamping elements.
- 360° oil feed location simplifies oil passages.



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Model No.	Cylinder Capacity*		Stroke**	Plunger Thread***	Min. Length	Effective Piston Area (sq. in.)		Oil Capacity (cu. in.)	
	Extend	Retract				Extend	Retract	Extend	Retract
<b>Double Acting (D/A)</b>									
<b>Cylinders, actuated hydraulically both directions.****</b>									
21-0206-00	1500	980	0.25	6-32	1.44	0.31	0.20	0.08	0.05
21-0206-01				8-32					
21-0209-00	2900	2000	0.25	8-32	1.44	0.60	0.40	0.15	0.10
21-0209-01				1/4-20					
21-0210-00	3900	2950	0.25	1/4-20	1.59	0.79	0.59	0.20	0.15
21-0210-01				5/16-18					
21-0213-00	7400	5200	0.25	3/8-16	1.59	1.48	1.04	0.37	0.26
21-0213-01				1/2-13	1.66				
21-0216-00	12000	9000	0.38	1/2-13	1.88	2.41	1.80	0.90	0.68
21-0216-01				5/8-11	2.13				
21-0221-00	22000	17100	0.38	5/8-11	2.13	4.43	3.44	1.66	1.29

\* Cylinder capacities are listed at 5,000 PSI maximum operating pressure. The minimum operating pressure is 500 psi for D/A and 750 psi for S/A operation. The cylinder force is adjustable by varying the hydraulic pressure to the cylinder. To determine approximate output of the cylinder for your application, divide the cylinder capacity shown in the table by 5,000 PSI and multiply the resultant by your system pressure in PSI to obtain the approximate cylinder force for your application. (Actual force may vary slightly due to friction loss, seal and wiper drag, and/or return springs.)

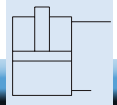
\*\* Cylinder stroke may exceed stroke of the clamping element. Limiting cylinder stroke may be required to ensure proper operation of clamping element.

\*\*\* At full cylinder capacity, fastener life will be limited, should be considered service item and replaced frequently to avoid plunger damage. Models 21-0206-00, 21-0209-00, 21-0210-00 and 21-0213-00 not recommended for use above 2,500 psi.

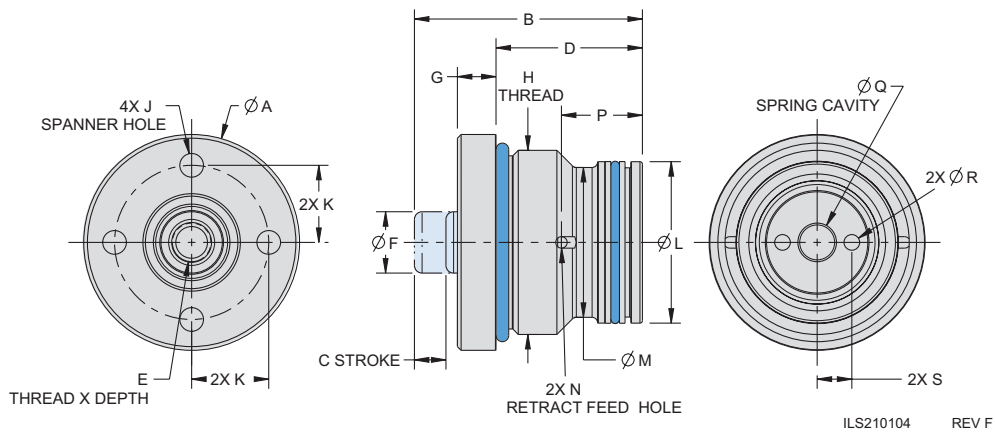
\*\*\*\* Install included return spring for single acting operation. Return spring and anti-rotation pins included with cylinder.

### Dimensions

Model No.*	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
<b>Double Acting (D/A)</b>																	
<b>Cylinders, actuated hydraulically both directions.</b>																	
21-0206-00	1.25	1.69	0.25	1.13	6-32 x 0.21	0.38	0.25	1-16 UN	0.13	0.50	0.81	0.72	0.08	0.66	0.28	0.09	0.22
21-0206-01					8-32 x 0.25												
21-0209-00	1.63	1.69	0.25	1.13	8-32 x 0.33	0.50	0.25	1 5/16-16 UN	0.19	0.63	1.19	1.10	0.08	0.66	0.31	0.09	0.27
21-0209-01					1/4-20 x 0.38												
21-0210-00	1.75	1.84	0.25	1.19	1/4-20 x 0.38	0.50	0.31	1 1/2-16 UN	0.19	0.63	1.31	1.22	0.08	0.66	0.31	0.13	0.28
21-0210-01					5/16-18 x 0.47												
21-0213-00	2.13	1.84	0.25	1.19	3/8-16 x 0.50	0.75	0.31	1 7/8-16 UN	0.19	0.81	1.75	1.66	0.08	0.66	0.53	0.13	0.44
21-0213-01		1.91			1/2-13 x 0.50												
21-0216-00	2.63	2.31	0.38	1.31	1/2-13 x 0.50	0.88	0.44	2 3/8-16 UN	0.26	1.00	2.12	2.00	0.08	0.78	0.64	0.25	0.50
21-0216-01		2.50			5/8-11 x 0.63												
21-0221-00	3.38	2.70	0.38	1.69	5/8-11 x 0.63	1.13	0.44	3 1/8-16 UN	0.26	1.38	2.88	2.79	0.16	0.99	0.78	0.25	0.79

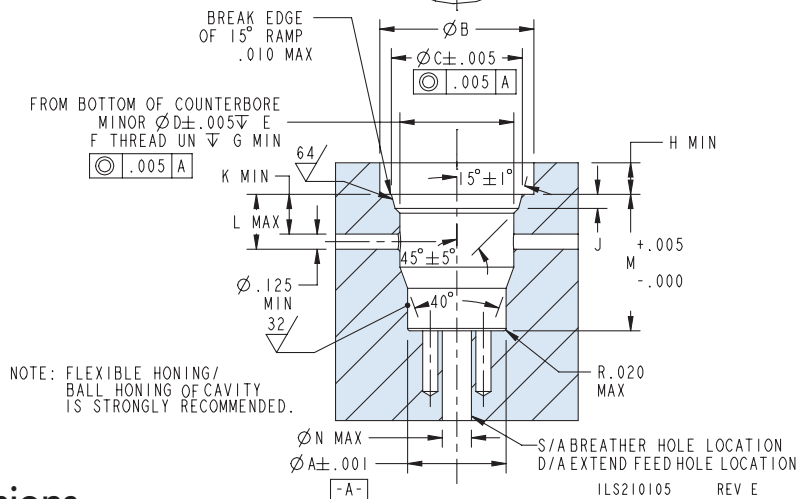
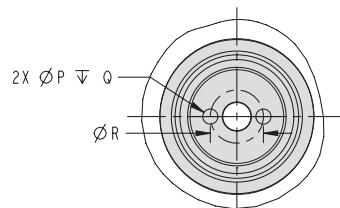


## Cartridge Mount Push/Pull



\*Install includes return spring for S/A operation.

\*NOTE: Anti-rotation pins intended for hand installation of bolt only. Do not torque bolt against anti-rotation pins.



### Cavity Dimensions

Model No.	Cap.	A	B	C	D	E	F	G	H	J*	K	L	M	N**	P***	Q***	R***	CARTRIDGE TORQUE (FT - LBS) ****																			
<b>Double Acting (D/A)</b>																			<b>Cylinders, actuated hydraulically both directions.</b>																		
21-0206-00	1500	0.813	1.27	1.080	0.939	0.60	1-16	0.48	0.26	0.116	0.39	0.75	1.130	0.16	0.125	0.625	0.44	25																			
21-0206-01	3000	1.188	1.65	1.393	1.252	0.68	1 5/16-16	0.50	0.26	0.116	0.39	0.75	1.130	0.18	0.125	0.625	0.53	35																			
21-0209-00	3900	1.313	1.77	1.580	1.439	0.67	1 1/2-16	0.53	0.32	0.116	0.46	0.81	1.192	0.18	0.156	0.625	0.56	60																			
21-0209-01	7400	1.751	2.15	1.955	1.814	0.75	1 7/8-16	0.59	0.32	0.116	0.46	0.81	1.192	0.33	0.156	0.625	0.88	65																			
21-0210-00	12000	2.126	2.64	2.455	2.314	0.70	2 3/8-16	0.59	0.45	0.116	0.45	0.93	1.318	0.35	0.281	0.625	1.00	160																			
21-0210-01	22000	2.876	3.39	3.205	3.064	0.88	3 1/8-16	0.72	0.45	0.116	0.58	1.31	1.693	0.40	0.281	0.625	1.57	200																			

\* The 15° and 45° features of the cavity can be formed using an SAE 12, reduced spot face cutter except on models 21-0206-00 and 21-0206-01

\*\* N is intended for S/A cylinders (only) to prevent interference with the return spring. For D/A operation the feed can be positioned anywhere in the bottom of the cavity. Install included return spring for S/A operation. Return spring and anti-rotate pins are included with cylinder.

\*\*\* Features for use with anti-rotate pins.

\*\*\*\* Lubricate o-rings with grease prior to installation.

