

Push/Pull Cylinders

Manifold/Bottom Flange

Single And Double Acting

- Single acting are available in three capacities, with retracts from 470 to 3,100 lb. force at rated pressure.
- Double acting have an extended capacity of 1,200 to 6,100 lb., depending on operating pressure. Their retract capacities are the same as the single acting, at the same operating pressures.
- Mounting versatility allows the unit to be bolted up, bolted down, or to be traditionally mounted.
- Single piece body and mounting give a rigid installation without additional mounting hardware to buy, saving time and money.
- Also available in a straight line guided model, order as swing clamp.



BHC™ (Black Hard Coating) on the cylinder bodies and rod bearing surface helps prevent scoring and scratching especially in the event of high side kick loads which promote excessive scoring in many other brands.

SAE porting from three directions gives you five alternatives. You can use standard fittings in any of the three sets of ports or manifold by bolting up or down.

Hardened chrome alloy steel plungers run longer with less wear and drag than other brands.

Push/Pull cylinders are not shipped with cap screws.

G-6

Model No.	Cylinder Capacity (lb.)**		Stroke (in.)	Effective Piston Area (sq. in.)		Oil Capacity (cu. in.)		Optional Flow Control Model No.****
	Extend	Retract		Extend	Retract	Extend	Retract	
Single Acting (S/A)				Cylinders, actuated hydraulically 1 direction, spring returned.				
25-2105-01	N/A	470	0.57	N/A	0.098	N/A	0.056	70-2037-71
25-2109-01	N/A	1400	0.79	N/A	0.295	N/A	0.233	70-2037-73
25-2113-01	N/A	3100	1.16	N/A	0.626	N/A	0.726	70-2037-73
Double Acting (D/A)				Cylinders, actuated hydraulically both directions.				
25-2205-01	1200	470	0.57	0.249	0.098	0.142	0.056	70-2037-71
25-2209-01	3000	1400	0.79	0.601	0.295	0.475	0.233	70-2037-73
25-2213-01	6100	3100	1.16	1.227	0.626	1.423	0.726	70-2037-73

** Cylinder capacities are listed at 5,000 psi maximum operating pressure. The output force is adjustable by varying the hydraulic system pressure. To determine approximate output force for your application, multiply the piston area by your system operating pressure. (Actual force may vary slightly due to friction loss, seal and wiper drag, and/or return springs.)

**** In-port flow control requires the use of manifold mount ports.

Optional in-port flow control is a meter-in device with reverse free flow check valve.



Dimensions

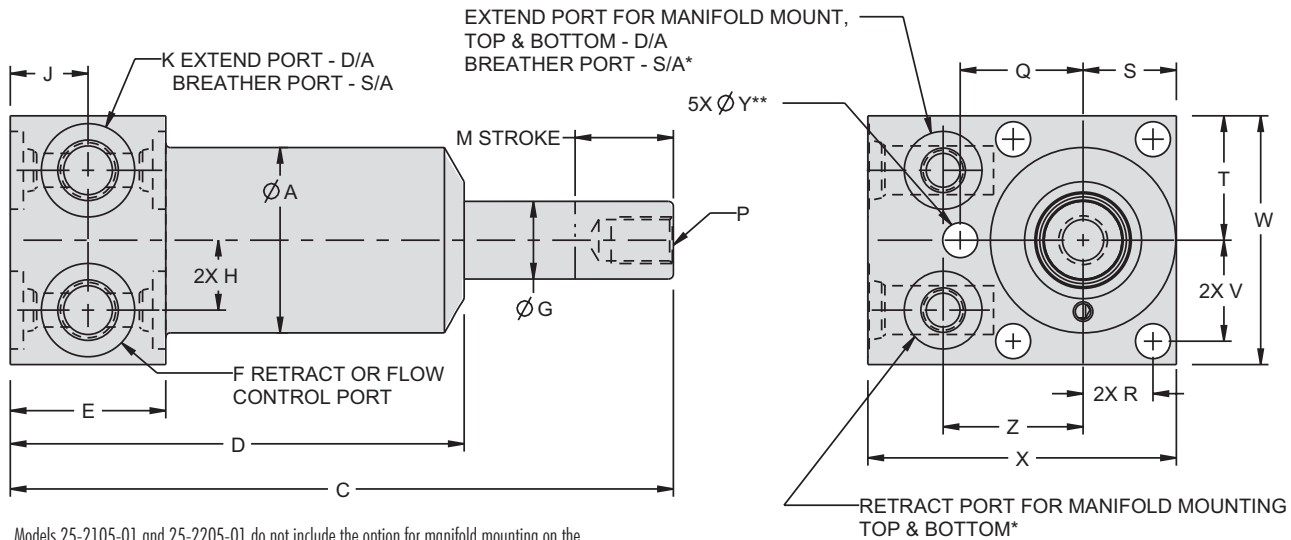
Model No.*	A	C	D	E	F	G	H	J	K	M
Single Acting (S/A)										
25-2105-01	1.05	4.06	2.80	1.00	SAE 4	0.438	0.38	0.66	Breather	0.57
25-2109-01	1.49	5.33	3.65	1.25	SAE 4	0.625	0.56	0.63	Breather	0.79
25-2113-01	1.79	6.83	4.43	1.25	SAE 4	0.875	0.75	0.63	Breather	1.16
Double Acting (D/A)										
25-2205-01	1.05	4.06	2.80	1.00	SAE 4	0.438	0.38	0.66	SAE 4	0.57
25-2209-01	1.49	5.33	3.65	1.25	SAE 4	0.625	0.56	0.63	SAE 4	0.79
25-2213-01	1.79	6.83	4.43	1.25	SAE 4	0.875	0.75	0.63	SAE 4	1.16



Push/Pull Cylinders

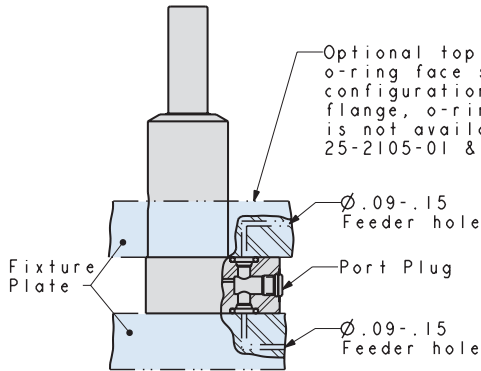


Bottom Flange/Manifold Mount

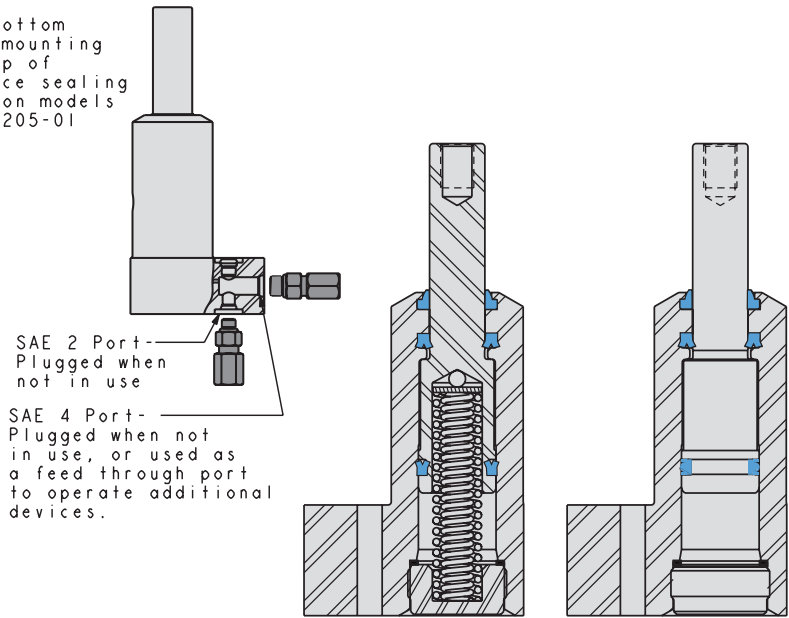


ILS252101 REV F

* Models 25-2105-01 and 25-2205-01 do not include the option for manifold mounting on the top surface. All models are shipped with the necessary plugs and O-rings for manifold mounting.
 ** All five mounting screws must be used when manifold mounting to assure a leak free O-ring seal.



For Proper sealing, mating surface must be flat within 0.003 in. with a maximum 63 µin. R_a surface finish.



ILS252100 REV F

	P	Q	R	S	T	V	W	X	Y	Z
Cylinders, actuated hydraulically 1 direction, spring returned.										
	1/4-28 X 0.28	1.06	0.38	0.53	0.75	0.59	1.50	1.75	0.22	0.78
	3/8-24 X 0.47	0.99	0.56	0.75	1.00	0.81	2.00	2.50	0.28	1.13
	1/2-20 X 0.52	1.21	0.69	0.94	1.25	1.00	2.50	3.00	0.34	1.25
Cylinders, actuated hydraulically both directions.										
	1/4-28 X 0.28	1.06	0.38	0.53	0.75	0.59	1.50	1.75	0.22	0.78
	3/8-24 X 0.47	0.99	0.56	0.75	1.00	0.81	2.00	2.50	0.28	1.13
	1/2-20 X 0.52	1.21	0.69	0.94	1.25	1.00	2.50	3.00	0.34	1.25



Push/Pull Cylinders

Features, Frequently Asked Questions, Concept



Standard Features

Special wipers keep chips and contaminants out.

Hardened chrome alloy steel plungers run longer with less wear and drag than other brands.

Vent port with bronze filter gives the cylinder a place to “breathe” and helps keep chips from drawing past wipers. (Can be used for a breather line. Used as the double acting unclamp port.)

BHC™ (Black Hard Coating) on the cylinder bodies helps prevent scoring and scratching, especially in the event of high side or “kick” loads which promote excessive scoring in many other brands.

Proprietary seal designs reduce leakage and increase seal life for longer lasting, more dependable cylinders.

Frequently Asked Questions

What is the intended application of these devices?

They are intended for use actuating remote mechanisms, pulling on clamp plates, or often with removable “C” washers as a manual assembly, automatically activated pull clamp.

I want a non-rotating model, how do I get a guided pull cylinder?

See the standard swing clamp pages (C-27 to C-38), order the required swing clamp size assembled in the straight line guided track. This will get you the intended pull cylinder with a guided straight line pull, or you may add an external guide to many applications.

I need to draw a wedge but I have had problems unlocking hydraulic wedge mechanisms. How do I solve this problem?

The best solution is to draw the wedge using a double acting push/pull cylinder. This will give you a push capacity of approximately 2:1 providing adequate force to overcome the mechanical advantage involved in the wedging action.

I want to make my part locators disappear. How can I do this?

You can mount them on either single or double acting push/pull cylinders. Always use double acting if there will be a guide bushing or other frictional mechanism, or if positive extension is required in a short time. When extended, your locators are in place to help position your part. After location you just need to actuate your pull cylinders and draw the locator out of the way.

I need to crowd a part against the fixed stops on my fixture then retract the spring plungers. Do you have anything to do this?

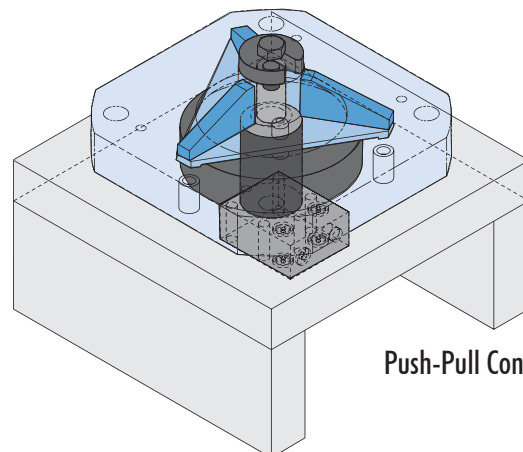
Yes, you may use single acting pull cylinders as stock crowders to hold your part in place, then draw them away for machining. This can often be done with a single hydraulic clamping circuit making your controls very simple. Be sure to use a hardened contact point on your pull cylinder when using it as a stock crowder.

I notice that you don't have a double acting block pull cylinder. Why not?

Double acting block pull cylinders are the same as double acting block cylinders. Please order a simple double acting block cylinder for this function. Other models may be readily available in their exact configuration under different numbers.

I need to manually index a swing clamp. The rotation required to clear the part varies from part to part, I can use a little extra stroke also. Can you help?

Maybe. If the contact point location on the part is not critical, you can use a single acting pull cylinder as a manually indexed swing clamp. Remember that the arm is not guided as it travels down. The extra stroke comes from your operator swinging the cylinder “flat” in the unclamp position; it then has the full cylinder stroke to pull the arm against the workpiece. Please avoid using double acting cylinders as they are difficult to swing when pressurized in the up position.



Push-Pull Concept

