

Special Use Clamps

Centering Clamps

Small Bore and Large Bore Centering Clamps with 2 or 3 centering posts

Centering Clamps are essentially a bore clamp used for locating a part. They are capable of centering parts using a rough or finished bored hole. Internal clamping posts expand radially to the bore diameter of the workpiece to be clamped. If 1 clamp is used, most applications call for a 3 point clamp to center the bore, if a second bore clamp is to be used, a 2 point clamp provides centering and clocking for the secondary bore.

E-1

Position repeatability $\pm .001"$.

We offer two styles of Centering Clamps, with either 2 or 3 clamping points, in Small and Large Bore sizes. The Small size centers bores .98" to 2.17". The Large size clamps bores 2.13" to 5.12".

The compact design of the smaller has a clamping force of 3,150 lb at 5,000 psi. The larger models offer three clamping force ranges of 2,520, 3,930 and 6,300 lb at 5,000 psi, enough to position even heavy parts.

All models are double acting. Which means the cylinder is actuated hydraulically in both directions. All components are made from high-grade case-hardened steel.

A simple cavity design makes machining for manifold mounting simple. Hydraulic fluid is supplied through manifold channels drilled in the fixture body.

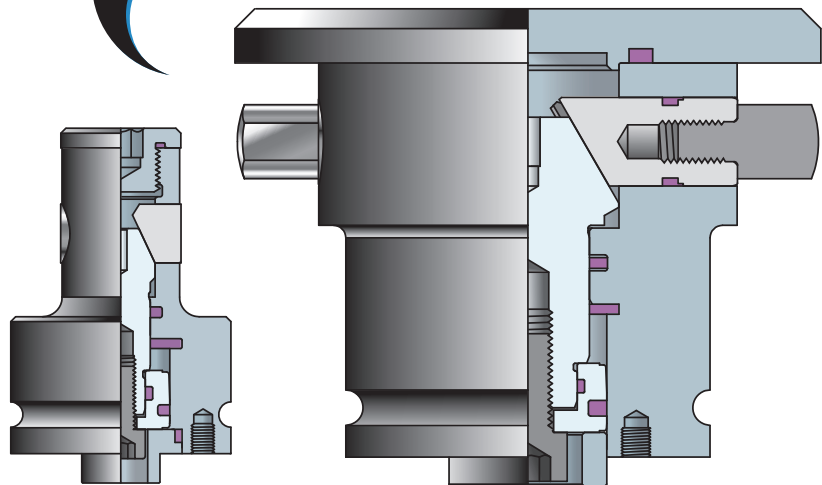
Alternatively if surface mounted, hydraulic fluid may be supplied through a connection plate. Connection plates are available for either pipe connections or bolt down O-ring manifold mounting.

Note: Centering Clamps are not suitable for use on lathes or without additional clamps for holding against rotational forces. Be sure that your bore will not be damaged by contact from the posts which contact the part.

NEW!

CENTER CLAMPS

CUTAWAY VIEW SHOWN OF 2 POINT CENTERING CLAMPS



2 Point Contact

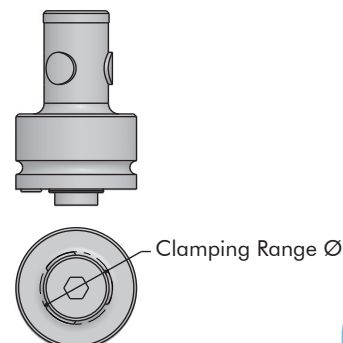
3 Point Contact

Special Use Clamps

Centering Clamp, Small Bore – 3 Point Contact

Double Acting

- Bore clamp with 3 points for concentric positioning of the ID of a bore, internal clamping expands radially to center the bore.
- The clamping points retract for easy loading.
- Capable of moving a part approximately 0.100" after the part is placed over the center mandrel.
- Positional repeatability of $\pm .001"$.
- Compact design keeps the cylinder out of the way and below the part.
- May be manifold mounted as shown or purchase the optional Mounting Plate for bolt-down access to porting when mounting.
- Fits bore sizes from 1-2.17".

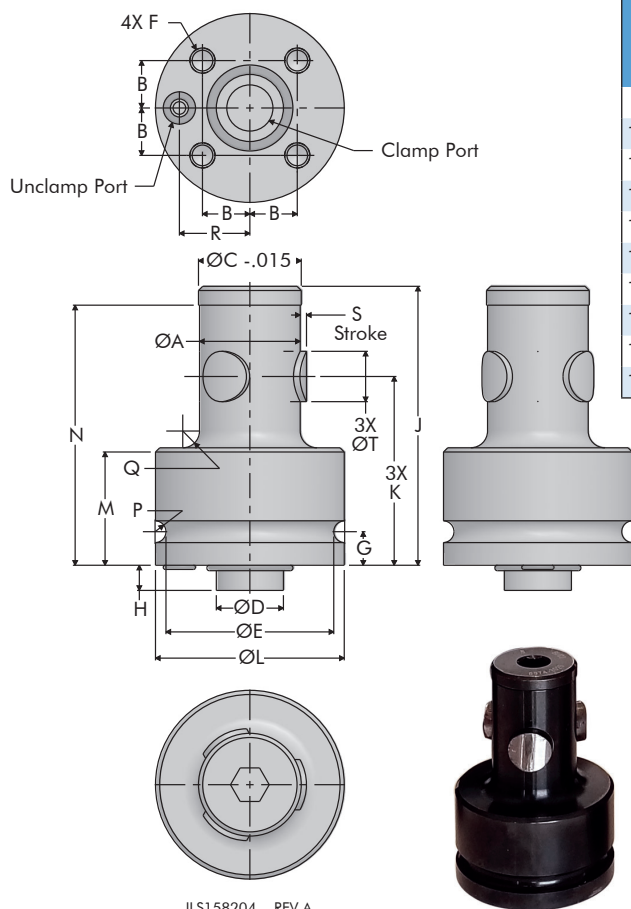


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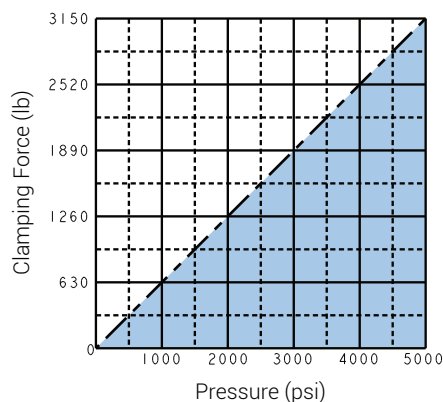
E-2

Specifications - Centering Clamp, 3 Point

Model No.	Clamp Force at 5000 psi (lb)	Clamping Points	Clamping Range Ø (in)	Repeatability \pm (in)	Weight (lb)
Double Acting (D/A) Cylinders actuated hydraulically both directions.					
15-8210-01	3150	3	.98 - 1.14	.001	.97
15-8211-01			1.10 - 1.26		.99
15-8212-01			1.26 - 1.42		1.01
15-8213-01			1.42 - 1.57		1.27
15-8214-01			1.54 - 1.69		1.30
15-8215-01			1.65 - 1.81		1.34
15-8216-01			1.77 - 1.93		1.38
15-8217-01			1.89 - 2.05		1.41
15-8218-01			2.01 - 2.17		1.46



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*Clamp force is the specified force divided by the number of clamping points 1/3 force per point.

**Normally used with other clamps to secure the part. Requires the use of fixed stops and or additional clamps to resist direct rotational torque.

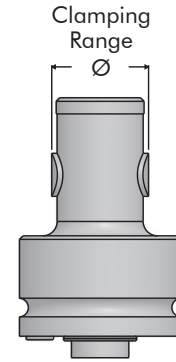
Model No.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
15-8210-01	.95		.965															
15-8211-01			1.083															
15-8212-01			1.240															
15-8213-01	1.38	.445	1.398	.6297 .6293	1.575	M6-1.0 x .47	.315	.236		1.77	1.772	1.06		.10	.16	.661	.12	.47
15-8214-01			1.516															
15-8215-01			1.634															
15-8216-01			1.752						2.56				2.24					
15-8217-01			1.870															
15-8218-01			1.988															

Special Use Clamps

Centering Clamp, Small Bore – 2 Point Contact

Double Acting

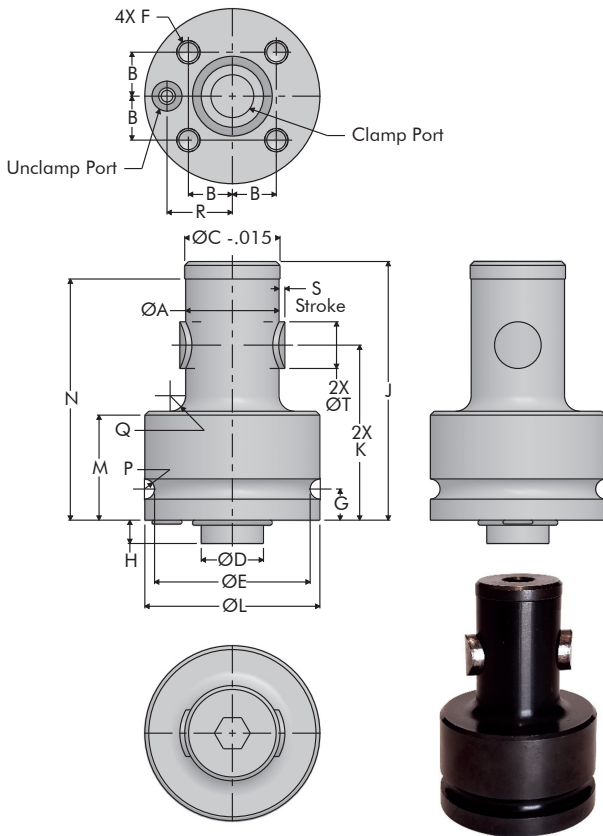
- Often used when trying to locate using 2 bores on the same part. Use the 3 point Centering Clamp for the first bore, the 2 point unit for the second bore. This allows for minimal part variance of the second bore in a third "clocking" axis, while centralizing both. Functioning similar to using round and diamond locators.
- Bore clamp with 2 point used for concentric positioning of a bore.
- Capable of moving a part approximately 0.100" after the part is placed over the center mandrel.
- The clamping points retract for easy loading, then expand hydraulically to center the bore.
- Positional repeatability of $\pm .001$ ".
- Compact design keeps the cylinder out of the way and below the part.
- May be manifold mounted as shown or purchase the optional Mounting Plate for bolt-down or access to porting when mounting.
- Fits bore sizes from 1-2.17".
- Can be used to center a slot, keyway or other non-round feature. Requires the use of fixed stops and or additional clamps to resist movement.



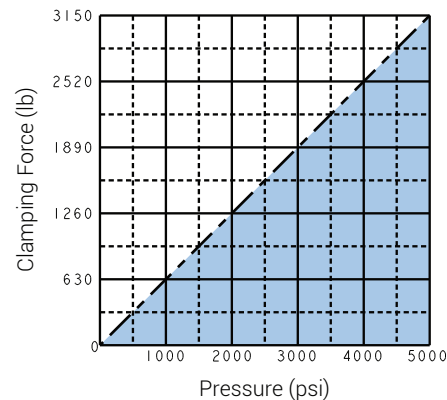
ILS158201 REV A

Specifications - Centering Clamp, 2 Point

Model No.	Clamp Force at 5000 psi (lb)	Clamping Points	Clamping Range Ø (in)	Repeatability ± (in)	Weight (lb)
Double Acting (D/A) Cylinders actuated hydraulically both directions.					
15-8210-00	3150	2	.98 - 1.14	.001	.97
15-8211-00			1.10 - 1.26		.99
15-8212-00			1.26 - 1.42		1.01
15-8213-00			1.42 - 1.57		1.27
15-8214-00			1.54 - 1.69		1.30
15-8215-00			1.65 - 1.81		1.33
15-8216-00			1.77 - 1.93		1.37
15-8217-00			1.89 - 2.05		1.40
15-8218-00			2.01 - 2.17		1.44



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*Clamp force is the specified force divided by the number of clamping points 1/2 force per point.

Model No.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
15-8210-00			.965															
15-8211-00	.95		1.083						2.62				2.46					
15-8212-00			1.240															
15-8213-00			1.398															
15-8214-00		.445	1.516	.6297	1.575	M6-1.0 x .47	.315	.236		1.77	1.772	1.06		.10	.16	.661	.12	.47
15-8215-00	1.38		1.634	.6293					2.56				2.24					
15-8216-00			1.752															
15-8217-00			1.870															
15-8218-00			1.988															

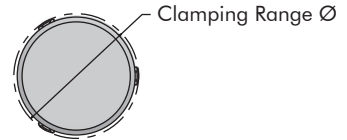
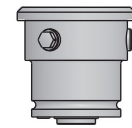
Special Use Clamps

Centering Clamp, Large Bore – 3 Point Contact

Double Acting

- Bore clamp with 3 points used for concentric positioning the ID of a bore, internal clamping expands radially to center the bore. Great for engine blocks!
- Capable of moving a part approximately 0.100" after the part is placed over the center mandrel.
- The clamping points retract for easy loading, then expand hydraulically to center the bore.
- Positional repeatability of $\pm .001"$.
- May be manifold mounted as shown or purchase the optional Mounting Plate for bolt-down or access to porting when mounting.

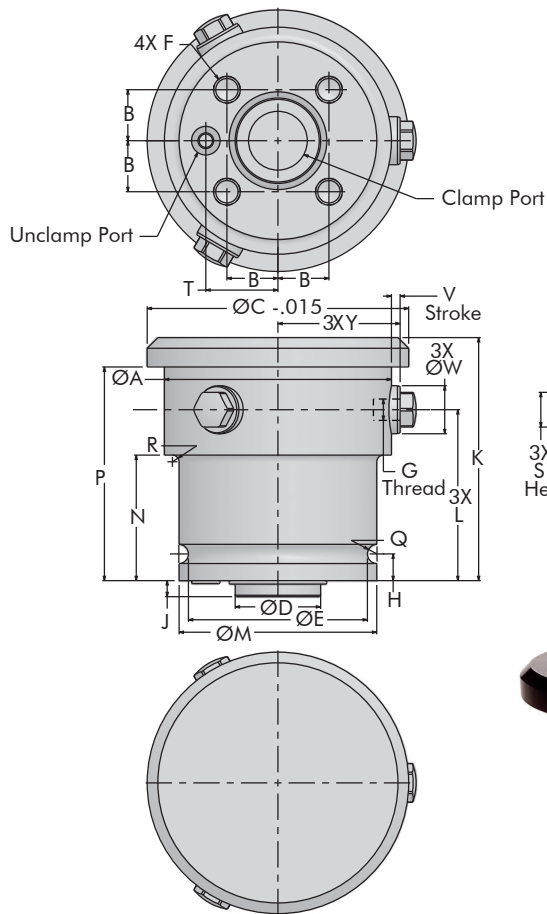
- Fits bore sizes from 2.13-5.12".
- Normally used with other clamps to secure the part. Requires the use of fixed stops and or additional clamps to resist direct rotational torque.



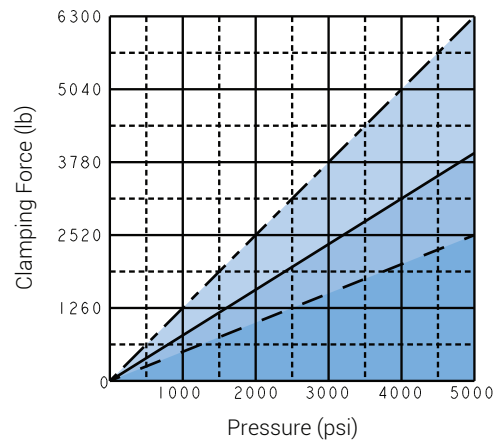
ILS158207 REV A

Specifications - Centering Clamp, 3 Point

Model No.	Clamp Force at 5000 psi (lb)	Clamping Points	Clamping Range Ø (in)	Repeatability ± (in)	Weight (lb)	
Double Acting (D/A) Cylinders actuated hydraulically both directions.						
15-8219-01	2520	3	2.13 - 2.44	.001	3.87	
15-8221-01			2.40 - 2.72			
15-8224-01			2.68 - 2.99			
15-8226-01			2.99 - 3.31			
15-8229-01	3930		3.27 - 3.58		7.57	
15-8231-01	3.54 - 3.85					
15-8234-01	6300		3.86- 4.29			7.94
15-8237-01			4.29 -4.72			8.32
15-8241-01			4.69 - 5.12			



ILS158208 REV A



*Clamp force is the specified force divided by the number of clamping points 1/3 force per point.

**Normally used with other clamps to secure the part. Requires the use of fixed stops and or additional clamps to resist direct rotational torque.

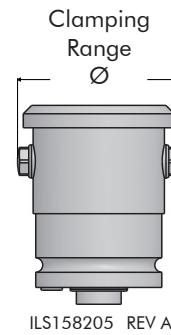
Model No.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	V	W	Y
15-8219-01			2.122	.6297																	
15-8221-01	1.77	.445	2.398	.6293	1.575	M6-1.0 x .47		.315		2.56	1.77	1.77	N/A	2.24	.10	N/A	.39	.661	.16	.47	.90
15-8224-01			2.673																		
15-8226-01			2.988	.9840																	
15-8229-01	2.56	.614	3.264	.9835	2.126	M8-1.25 x .63		.354	.236	3.03	2.21	2.36	1.61	2.68	.12	.02	.43	.866	.21	.55	1.28
15-8231-01			3.539																		
15-8234-01			3.854	1.2595																	
15-8237-01	3.35	.752	4.287	1.2589	2.638	M10-1.5 x .79	M8	.394		3.58	2.52	2.91	1.85	3.15	.14	.1	.51	1.063	.27	.71	1.67
15-8241-01			4.681																		

Special Use Clamps

Centering Clamp, Large Bore – 2 Point Contact

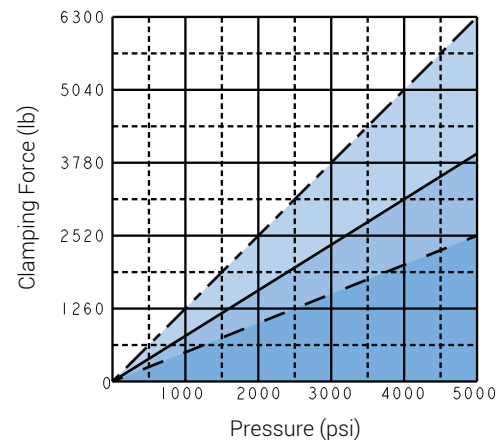
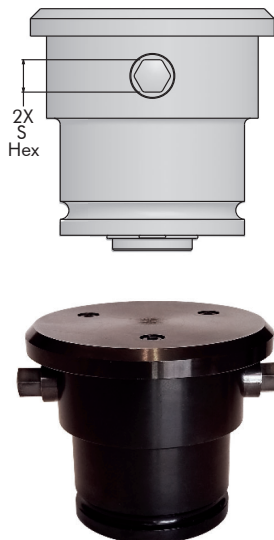
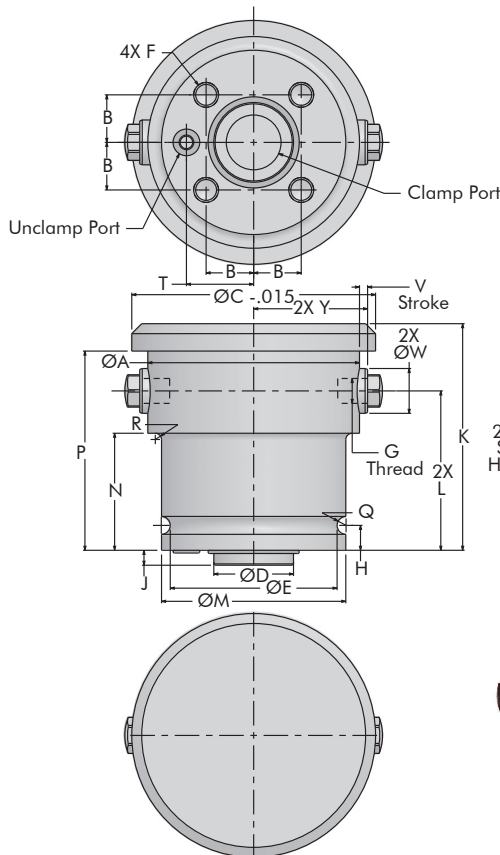
Double Acting

- Often used when trying to locate using 2 bores on the same part. Use the 3 point Centering Clamp for the first bore, the 2 point unit for the second bore often in an engine block. This allows for minimal part variance of the second bore in a third "clocking" axis, while centralizing both. Functioning similar to using round and diamond locators.
- Bore clamp with 2 points used for concentric positioning of a bore, internal clamping expands radially to center the bore.
- Capable of moving a part approximately 0.100" after the part is placed over the center mandrel.
- The clamping points retract for easy loading.
- Repeatability of $\pm .001$ ".
- May be manifold mounted as shown or purchase the optional Mounting Plate for bolt-down or access to porting when mounting.
- Fits bore sizes from 2.13-5.12".
- Can be used to center a slot, cavity, or other non-round feature, but normally the 2nd bore in 1 part. Requires the use of fixed stops and or additional clamps to resist direct rotational torque.



Specifications - Centering Clamp, 2 Point

Model No.	Clamp Force at 5000 psi (lb)	Clamping Points	Clamping Range Ø (in)	Repeatability ± (in)	Weight (lb)
Double Acting (D/A) Cylinders actuated hydraulically both directions.					
15-8219-00	2520	2	2.13 - 2.44	.001	3.87
15-8221-00			2.40 - 2.72		
15-8224-00			2.68 - 2.99		
15-8226-00			2.99 - 3.31		
15-8229-00	3930		3.27 - 3.58		7.57
15-8231-00			3.54 - 3.86		
15-8234-00	6300		3.86- 4.29		7.93
15-8237-00			4.29 -4.72		8.29
15-8241-00			4.68 - 5.12		



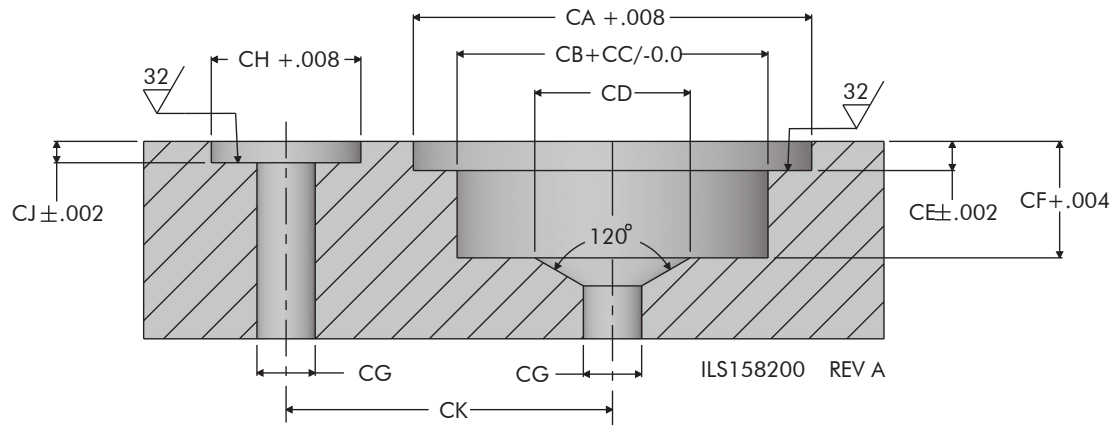
*Clamp force is the specified force divided by the number of clamping points 1/2 force per point.

ILS158206 REV A

Model No.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	V	W	Y
15-8219-00			2.122																		
15-8221-00	1.77	.445	2.398	.6297 .6293	1.575	M6-1.0 x .47		.315		2.56	1.77	1.77	N/A	2.24	.10	N/A	.39	.661	.16	.47	.90
15-8224-00			2.673																		
15-8226-00			2.988				M6														
15-8229-00	2.56	.614	3.264	.9840 .9835	2.126	M8-1.25 x .63		.354	.236	3.03	2.21	2.36	1.61	2.68	.12	.02	.43	.866	.20	.55	1.28
15-8231-00			3.539																		
15-8234-00			3.854																		
15-8237-00	3.35	.752	4.287	1.2595 1.2589	2.638	M10-1.5 x .79	M8	.394		3.58	2.52	2.91	1.85	3.15	.14	.1	.51	1.063	.27	.71	1.67
15-8241-00			4.681																		

Special Use Clamps

Manifold Mounting and Mounting Plates



E-6

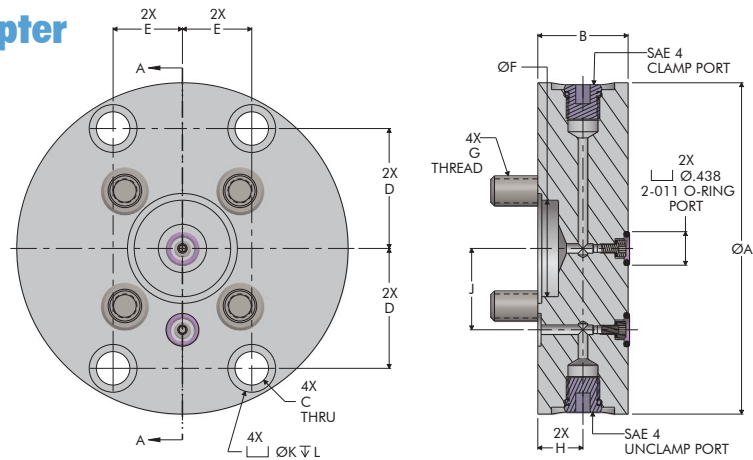
Small
Bore

Model No.		CA	CB	CC	CD	CE	CF	CG	CH	CJ	CK
2PT	3PT										
15-8210-00	15-8210-01										
15-8211-00	15-8211-01										
15-8212-00	15-8212-01										
15-8213-00	15-8213-01										
15-8214-00	15-8214-01	.8071	.6299	.0007	.315	.0520	.2362	.1181	.3031	.0433	.6614
15-8215-00	15-8215-01										
15-8216-00	15-8216-01										
15-8217-00	15-8217-01										
15-8218-00	15-8218-01										

Large
Bore

15-8219-00	15-8219-01	.8071	.6299	.0007	.315	.0520	.2362	.1181	.3031	.0433	.6614
15-8221-00	15-8221-01	.8071	.6299	.0007	.315	.0520	.2362	.1181	.3031	.0433	.6614
15-8224-00	15-8224-01										
15-8226-00	15-8226-01										
15-8229-00	15-8229-01	1.1811	.9843	.0008	.5512	.0591	.2362	.1575	.3858	.0433	.8661
15-8231-00	15-8231-01										
15-8234-00	15-8234-01	1.4409	1.2598	.0010	.6299	.0520	.2362	.1969	.4252	.0433	1.063
15-8237-00	15-8237-01										
15-8241-00	15-8241-01										

Centering Clamp Adapter



Model No.	A	B	C	D	E	F	G	H	J	K	L	Wt. lbs.
15-8200-06	2.68		.27	.953	.551	.631	M6 X 1.0		.661	.44	.25	1.87
15-8200-08	3.47	1.18	.36	1.260	.728	.985	M8 X 1.25	.59	.866	.50	.35	2.92
15-8200-10	4.33		.44	1.567	.906	1.261	M10 X 1.5		1.063	.63	.38	4.44

ILS158209 REV A