

TuffCam™ Swing Clamps

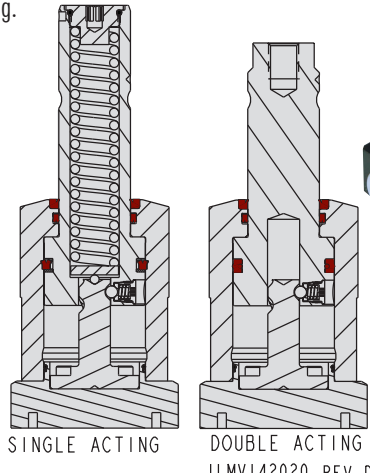
Low Profile, Bottom Flange Specifications

Single And Double Acting

22 kN and 33 kN

- Three cams and three cam balls guide the rotation of the plunger and provide greater guide, support and directional stability.
- Ideal for applications where speed is essential or massive arms are required.
- High clamp force capacity in a compact package.
- Manifold and SAE mounting capability and porting.
- To avoid cylinder damage and preserve warranty, use recommended flow rate limits and time calculations on page C-12.
- Arm clcking feature is compatible with all standard Vekttek arms. Clcking drawing is on page C-12.
- Arms sold separately.
- Standard swing is 90°; swing angles less than 90° require Swing Restrictors (Page C-29). Swing angles greater than 90° are special order products.

C-15



Specifications

Model No.	Swing Direction	Cylinder Capacity* (kN)		Vertical Clamp Stroke** (mm)	Total Stroke (Swing + Vertical) (mm)	Effective Piston Area (cm ²)		Oil Capacity (cm ³)		Weight (g)	Optional Flow Control Model No.****
		Extend	Retract			Extend	Retract	Extend	Retract		
Single Acting (S/A) Cylinders, actuated hydraulically 1 direction, spring returned.											
41-4222-11	Right			14.5							
41-4222-12	Left	N/A	22	14.5	28	N/A	7.6	N/A	21.2	3030	47-0203-74
41-4222-15	Straight			28							
41-4233-11	Right			16							
41-4233-12	Left	N/A	33	16	30	N/A	11.4	N/A	34.3	4854	47-0203-74
41-4233-15	Straight			30							
Double Acting (D/A) Cylinders, actuated hydraulically both directions.											
41-4222-21	Right			14.5							
41-4222-22	Left	54	22	14.5	28	15.5	7.6	43.3	21.2	3070	47-0203-74
41-4222-25	Straight			28							
41-4233-21	Right			16							
41-4233-22	Left	80	33	16	30	22.8	11.4	68.4	34.3	4854	47-0203-74
41-4233-25	Straight			30							

WARNING! Never allow swing arm to contact workpiece or fixture during rotation.

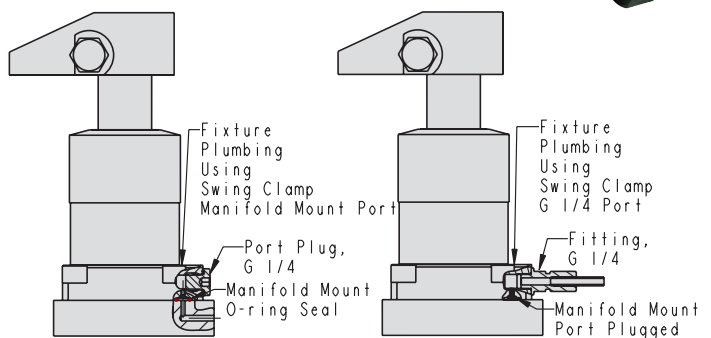
* Cylinder capacities are listed at 350 bar (35 MPa) maximum operating pressure with standard length VektorFlo® arm installed. Minimum operating pressure is 52 bar (5.2 MPa) for single acting cylinders and 35 bar (3.5 MPa) for double acting cylinders. The clamping force is adjustable by varying the system hydraulic pressure. To determine the approximate output force for your application, divide the cylinder capacity by 350 (35 MPa), and multiply the resultant number by Your System Operating Hydraulic Pressure to obtain the approximate clamping force for your application. (Actual force will vary slightly due to internal cantilever loading, friction loss and/or return spring forces.)

** To allow for piece part height variations, it is recommended that the vertical travel be set at about 50% of the vertical stroke.

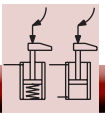
*** To insure maximum service life and trouble-free operation, restrict fluid flow according to the "Clamp Time and Fluid Flow Rates per table on page C-12.

**** 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.

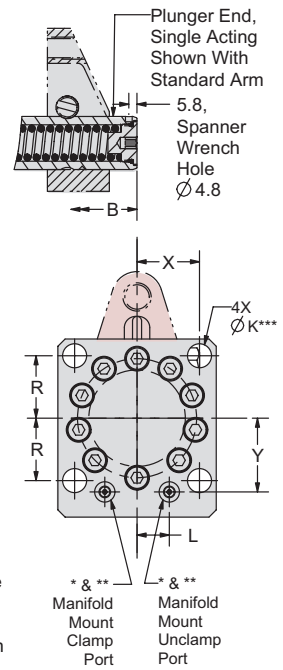
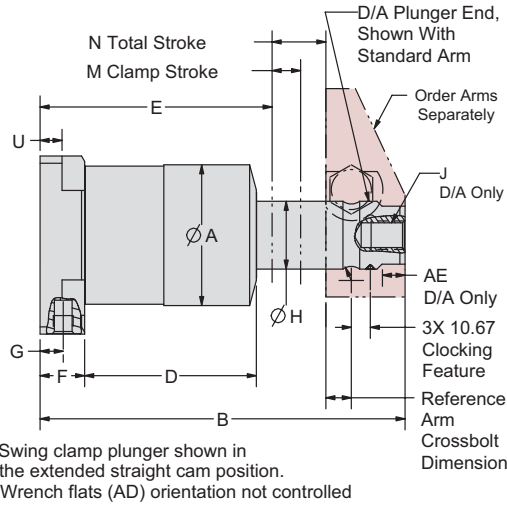
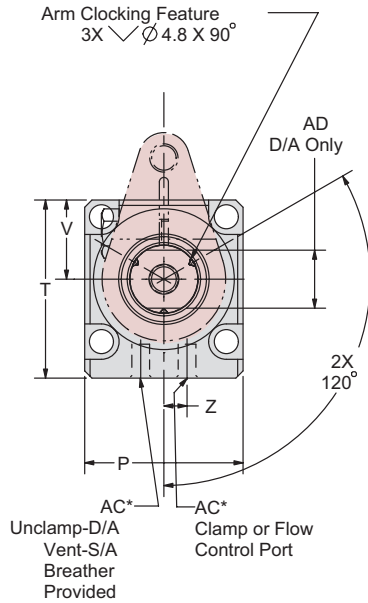


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Low Profile, Bottom Flange Dimensions

For proper sealing, the mating surface must be flat within 0.08 mm with a maximum surface roughness of 1.6 μm R_a .



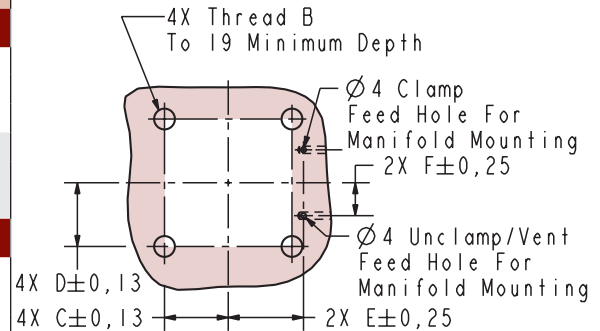
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Dimensions

Model No.	A	B	D	E	F	G	H	J	K	L	M	N	P	R	T	U	V
Single Acting (S/A) Cylinders, actuated hydraulically 1 direction, spring returned.																	
41-4222-11																	
41-4222-12	62.8	204	87	121	25	12.5	31.74	N/A	10.7	14.5	14.5	28	71	27.4	85.5	13	35.5
41-4222-15																	
41-4233-11																	
41-4233-12	79	224.5	96.5	130.5	25	13	38.09	N/A	13.5	18.1	16	30	89	35.1	100	12.5	44.5
41-4233-15																	
Double Acting (D/A) Cylinders, actuated hydraulically both directions.																	
41-4222-21																	
41-4222-22	62.8	194	87	121	25	12.5	31.74	M16 x 2.0 Depth 19	10.7	14.5	14.5	28	71	27.4	85.5	13	35.5
41-4222-25																	
41-4233-21																	
41-4233-22	79	205	96.5	130	25	13	38.09	M16 x 2.0 Depth 19	13.5	18.1	16	30	89	35.1	100	12.5	44.5
41-4233-25																	

Model No.	X	Y	Z	AC	AD	AE	AF
Single Acting (S/A) Cylinders, actuated hydraulically 1 direction, spring returned.							
41-4222-11							
41-4222-12	27.4	35.1	13	G 1/4	N/A	N/A	M10 x 25
41-4222-15							
41-4233-11							
41-4233-12	35.1	41.4	13	G 1/4	N/A	N/A	M12 x 25
41-4233-15							
Double Acting (D/A) Cylinders, actuated hydraulically both directions.							
41-4222-21							
41-4222-22	27.4	35.1	13	G 1/4	26.5	12.5	M10 x 25
41-4222-25							
41-4233-21							
41-4233-22	35.1	41.4	13	G 1/4	32.5	12.5	M12 x 25
41-4233-25							



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Mounting Dimensions

Low Profile Bottom Flange Swing Clamps

Model No.	B	C	D	E	F
41-4222-XX	M10	27.4	27.4	35.1	14.5
41-4233-XX	M12	35.1	35.1	41.4	18.1

* All ports (except breather) are shipped with a removable steel plug installed.
 ** Counter bores for \varnothing 7/16 x 1/16 (2-011) O-ring face seals provided.
 *** When used as manifold mounted, all (4) mounting bolts must be used to assure proper O-ring face sealing. The recommended bolt is listed in column AF.

NOTE: Follow arm length limitations on page O-3