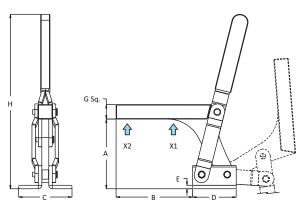


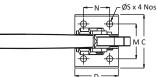






## VTC Series Heavy Duty Clamps - Angle Base





Supplied with suitable spindle

			Mou	nting	Base			Mounting Dimensions			Mounting Dimensions				Handle	Bar	Holding	Capacity	
Model No.	А	В	С	D	Е	G	н	М	Ν	ØS	L	Wt. in Kgs	Moves	Opens	X2	X1			
VTC-6561 A	65	60	85	45	5.5	20 x 20	179	55	25	6.5	M10 Bolt	1.000	135°	80°	3.40 kN	4.90 kN			



Model No.VTC-6561 A

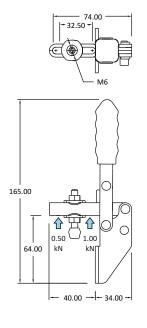


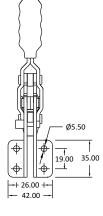
## Model No: VTC - 6440 - UB/FM

Arm: Adjustable Arm Base: Front Mounting Weight: 0.280 Kgs. Handle Moves: 65° Bar Opens: 104°









## Model No: VTC - 7273 - UB/FM

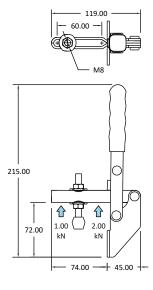
Arm: Adjustable Arm Base: Front Mounting Weight: 0.500 Kgs. Handle Moves: 60° Bar Opens: 120°

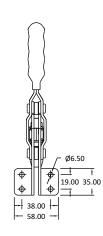
Also Available

in Stainless Steel

VTC-7273-UB/FM-SS







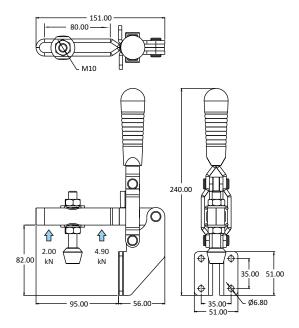
### Model No: VTC - 8296 - UB/FM

Arm: Adjustable Arm
Base: Front Mounting
Weight: 0.870 Kgs.
Handle Moves: 60°
Bar Opens: 120°

Also Available in Stainless Steel VTC-8296-UB/FM-SS



UNIVER





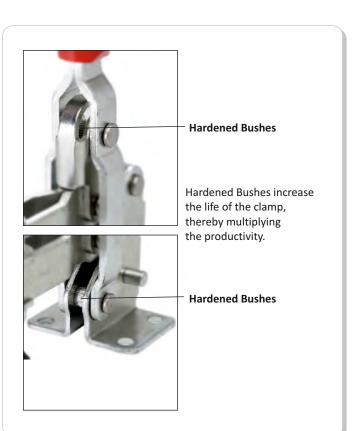
### Vertical Hold Down Action - International Range

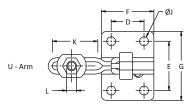
The all new international equivalent range of toggle clamps from Steel-Smith. Now all the leading international toggle clamps have their equivalents in this range. What's more, these quality clamps come with hardened bushes for enhanced life, several safety features and slicker finish.



This feature protects the user's finger from accidentally entering the clamp linking and getting injured during clamping operations.

## Vertical Hold Down Action VTC - 201 Series



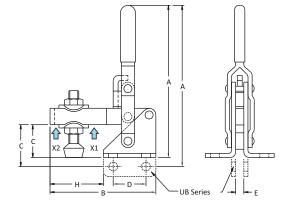




Model No. VTC-201-U



Model No. VTC-201-UB



Model No.	Arm Type	Base Type
VTC-201-U	Adjustable Arm	Flanged
VTC-201-UB	Adjustable Arm	Straight

	Holding Capacity		Weight	Handle	Bar	Dimensions										
Model No.	X2	X1	Kgs	Moves	Opens	Α	В	С	D	Е	F	G	Н	J	К	L
VTC-201-U	0.24 kN	0.50 kN	0.090	60°	110°	83.3	50.7	16.0	16.0	23.9	25.0	33.0	25.5	4.4	18.3	M5 Bolt
VTC-201-UB	0.24 kN	0.50 kN	0.090	60°	110°	91.0	50.7	21.5	16.0	4.0	25.0	_	25.5	4.4	18.3	M5 Bolt

UNIVER



Also Available in Stainless Steel

VTC-201-U-SS VTC-201-UB-SS

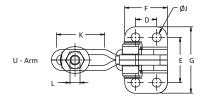


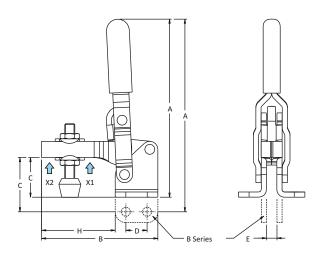
**Vertical Hold Down Action** VTC - 202 Series



Model No. VTC-202-UB

Model No. VTC-202-U





Also Available in Stainless Steel VTC-202-U-SS VTC-202-UB-SS

Model No.	Arm Type	Base Type
VTC-202-U	Adjustable Arm	Flanged
VTC-202-UB	Adjustable Arm	Straight
VTC-202-UL	Adjustable Arm	Flanged

	Weight	Handle	Bar					[	Dimensi	ons						
Model No.	X2	X1	Kgs	Moves	Opens	А	В	С	D	Е	F	G	Н	J	К	L
VTC-202-U	0.62 kN	1.00 kN	0.160	64°	104°	106.0	75.2	23.9	12.7	26.9	25.5	39.3	45.8	5.5	25.4	M6 Bolt
VTC-202-UB	0.62 kN	1.00 kN	0.160	64°	104°	115.0	75.2	28.3	12.7	6.0	25.5	-	45.8	5.5	25.4	M6 Bolt
VTC-202-UL	0.62 kN	1.00 kN	0.160	64°	104°	106.0	86.0	23.9	12.7	26.9	25.5	39.3	60.5	5.5	40.0	M6 Bolt





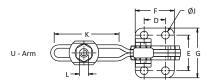


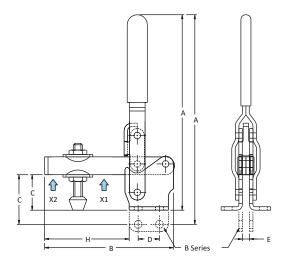


Model No. VTC-207-UB



Model No. VTC-207-U





Also Available
in Stainless Steel
VTC-207-U-SS
VTC-207-UB-SS

Model No.	Arm Type	Base Type
VTC-207-U	Adjustable Arm	Flanged
VTC-207-UB	Adjustable Arm	Straight
VTC-207-UL	Adjustable Arm	Flanged
VTC-207-ULB	Adjustable Arm	Straight

Holding Capacity Weight Handle Bar							Dimensions										
Model No.	X2	X1	Kgs	Moves	Opens	А	В	С	D	Е	F	G	Н	J	К	L	
VTC-207-U	1.00 kN	1.70 kN	0.300	62°	115°	174.0	100.0	31.0	19.1	31.8	35.1	44.6	57.5	7.1	32.0	M8 Bolt	
VTC-207-UB	1.00 kN	1.70 kN	0.300	62°	115°	189.0	100.0	40.0	19.1	6.0	35.1	-	57.5	7.1	32.0	M8 Bolt	
VTC-207-UL	0.70 kN	1.50 kN	0.340	62°	115°	174.0	146.5	31.0	19.1	31.8	35.1	44.6	104.0	7.1	78.5	M8 Bolt	
VTC-207-ULB	0.70 kN	1.50 kN	0.340	62°	115°	189.0	146.5	40.0	19.1	6.0	35.1	_	104.0	7.1	78.5	M8 Bolt	







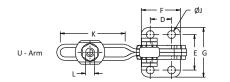
Vertical Hold Down Action VTC - 210 Series

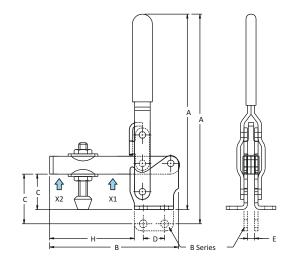


Model No. VTC-210-U



Model No. VTC-210-UB





Also Available in Stainless Steel VTC-210-U-SS VTC-210-UB-SS

Model No.	Arm Type	Base Type
VTC-210-U	Adjustable Arm	Flanged
VTC-210-UB	Adjustable Arm	Straight

	HoldingCapacity		Weight	Handle	Handle Bar	Dimensions										
Model No.	X2	X1	Kgs	Moves	Opens	А	В	С	D	Е	F	G	Н	J	К	L
VTC-210-U	1.40 kN	2.70 kN	0.590	58°	106°	195.0	144.0	42.0	31.8	45.2	48.6	64.4	91.0	8.3	60.0	M10 Bolt
VTC-210-UB	1.40 kN	2.70 kN	0.590	58°	106°	219.0	144.0	56.5	31.8	8.0	48.6	-	90.0	8.3	60.0	M10 Bolt

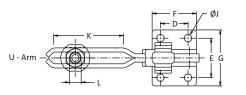


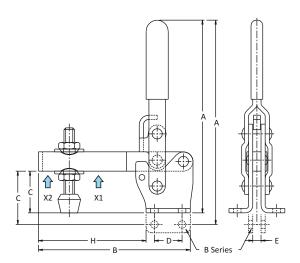


Vertical Hold Down Action VTC - 247 Series



Model No. VTC-247-U





Model No.	Arm Type	Base Type
VTC-247-U	Adjustable Arm	Flanged
VTC-247-UB	Adjustable Arm	Straight

	Holding	Capacity	Weight	Handle	Bar					D	imensio	ns				
Model No.	el No. X2	X1	Kgs	Moves	Opens	А	В	С	D	Е	F	G	Н	J	К	L
VTC-247-U	2.00 kN	4.40 kN	1.280	75°	136°	220.0	177.0	50.8	31.8	45.0	50.8	60.0	124.0	8.6	71.4	M12 Bolt
VTC-247-UB	2.00 kN	4.40 kN	1.100	75°	136°	245.0	177.0	61.0	31.8	10.0	50.8	-	124.0	8.6	71.4	M12 Bolt

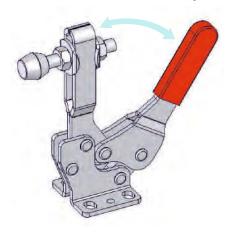


### Horizontal Hold Down Action - International Range

The all new international equivalent range of toggle clamps from Steel-Smith. Now all the leading international toggle clamps have their equivalents in this range. What's more, these quality clamps come with hardened bushes for enhanced life, several safety features and slicker finish.



#### Extra distance for safety



New improved design includes increased distance between the handle and the clamping arm. This ensures maximum safety during the clamp's fully open position.

### Horizontal Hold Down Action H - 305, 307, 309 Series



Model No. H-305-U

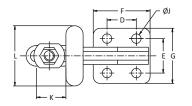


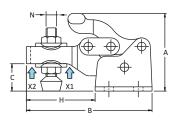
Model No. H-307-U



9

M. J. I.N.	Holding	Capacity	Weight	Handle	Bar						Dimer	nsions					
Model No.	X2	X1	Kgs	Moves	Opens	А	В	С	D	Е	F	G	Н	J	К	L	N
H-305-U	0.20 kN	0.50 kN	0.070	175°	92°	38.0	59.0	13.5	13.5	16.0	26.1	25.4	30.0	4.5	11.5	32.0	M5 Bolt
H-307-U	1.10 kN	1.40 kN	0.250	175°	92°	62.0	93.0	23.5	23.0	29.4	43.6	46.6	46.0	7.0	17.0	51.0	M8 Bolt
H-309-U	2.30 kN	3.40 kN	0.600	160°	88°	91.2	131.8	33.3	35.1	38.1	64.0	62.7	67.6	8.4	26.9	78.0	M10 Bolt





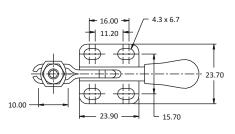


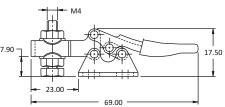
#### www.univer-gmbh.de



## **Horizontal Hold Down Action**

Arm: Adjustable Arm Base: Flanged Mounting Holding Capacity: 0.30 kN. Weight: 0.030 Kgs. Handle Moves: 60° Bar Opens: 85°





Also Available in Stainless Steel H - 205 - U - SS

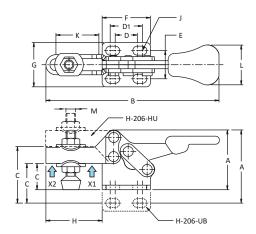


Model No. H - 205 U

## Horizontal Hold Down Action H - 206 Series



Model No. H-206-U





Model No. H-206-HU

Model No.	Arm Type	Base Type
H-206-U	Adjustable Arm	Flanged
H-206-UB	Adjustable Arm	Straight
H-206-HU	High Adjustable Arm	Flanged

	Holding	Capacity	Weight	Handle	Bar						I	Dimensi	ons					
Model No.	X2	X1	Kgs	Moves	Opens	А	В	С	D	D1	Е	F	G	Н	J/Slot	К	L	М
H-206-U	0.20 kN	0.50 kN	0.040	90°	90°	29.0	86.0	12.5	11.1	15.8	15.9	24.2	24.3	29.0	4.3 x 6.8	12	20.0	M5 Bolt
H-206-UB	0.20 kN	0.50 kN	0.040	90°	90°	33.5	86.0	17.0	11.1	15.8		24.2	-	29.0	4.3 x 6.8	12	20.0	M5 Bolt
H-206-HU	0.20 kN	0.50 kN	0.040	90°	90°	29.0	86.0	20.5	11.1	15.8	15.9	24.2	24.3	29.0	4.3 x 6.8	12	20.0	M5 Bolt





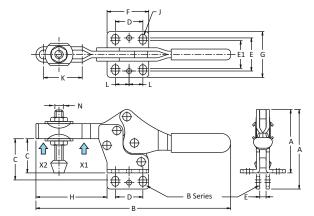
www.univer-gmbh.de





Model No. H-217-UB





Model No.	Arm Type	Base Type
H-217-U	Adjustable Arm	Flanged
H-217-UB	Adjustable Arm	Straight

	Holding	Capacity	Weight	Handle	Bar							Dimensi	ons					
Model No.	X2	X1	Kgs	Moves	Opens	А	В	С	D	Е	E1	F	G	Н	J	К	М	N
H-217-U	0.36 kN	1.00 kN	0.190	76°	92°	52.0	166.0	27.0	26.2	29.5	23.7	37.6	41.1	63.0	5.5 x 8.5	42.0	4.7	M6 Bolt
H-217-UB	0.36 kN	1.00 kN	0.190	76°	92°	63.5	166.0	34.0	26.2	6.0	-	37.6	-	63.0	5.5 x 8.5	42.0	4.7	M6 Bolt

Also Available in Stainless Steel

H-217-U-SS H-217-UB-SS



Horizontal Hold Down Action H - 227, 237 Series



Model No. H-227-U



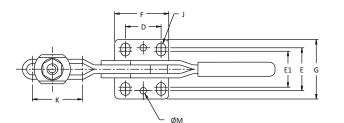
Model No. H-227-UB

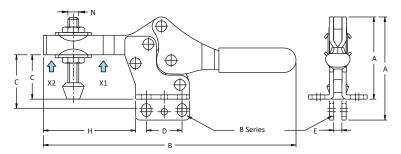


Model No. H-237-UB



Model No. H-237-U





Also Available
in Stainless Steel
H-227-U-SS
H-227-UB-SS

Model No.	Arm Type	Base Type
H-227-U	Adjustable Arm	Flanged
H-227-UB	Adjustable Arm	Straight
H-237-U	Adjustable Arm	Flanged
H-237-UB	Adjustable Arm	Straight

Madal Na	Holding	Capacity	Weight	Handle	Bar							Dimens	ions					
Model No.	X2	X1	Kgs	Moves	Opens	А	В	С	D	Е	E1	F	G	Н	J	К	М	N
H-227-U	1.00 kN	2.20 kN	0.300	62°	92°	62.0	190.0	34.0	26.2	31.6	26.6	39.6	44.0	72.0	6.8 x 9.4	41.1	4.7	M8 Bolt
H-227-UB	1.00 kN	2.20 kN	0.300	62°	92°	76.0	190.0	40.0	26.2	6.0	-	39.6		72.0	6.8 x 9.4	41.1	4.7	M8 Bolt
H-237-U	1.30 kN	3.40 kN	0.750	63°	92°	80.0	275.0	44.0	41.4	43.0	39.0	57.2	58.0	106.5	8.5 x 10.5	80.0	5.7	M10 Bolt
H-237-UB	1.30 kN	3.40 kN	0.750	63°	92°	99.0	275.0	51.6	41.4	8.0	-	57.2	-	106.0	8.5 x 10.5	80.0	5.7	M10 Bolt

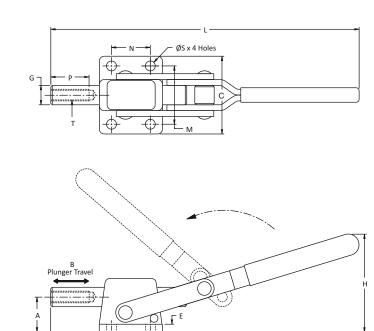


## **Straight Line Action**



## **HTC - Series Clamps**





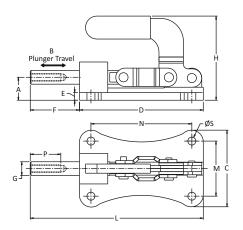
Model No. HTC - 3025

		Plunger Travel	Μοι	unting E	Base		Plunger Dia.			Hole Depth	Mount	ing Dim	ensions	Tapped Hole	Holding	
Model No.	А	В	С	D	E	F	G	н	L	P	М	Ν	ØS	ТØ	Capacity	Wt. in Kgs
HTC-2326	23	23	54	28	6	23	9.5	58	168	20	42	16	5.5	M6 x 1.00	2.90 kN	0.400
HTC-3025	30	25	75	50	6	25	12	70	255	25	55	30	6.5	M 8 x 1.25	10.80 kN	0.870
HTC-3545	35	45	78	68	9	46	20	90	310	30	60	45	8.5	M 12 x 1.75	25.50 kN	1.750

## Model No: HTC - 1530 LH



Model No. HTC - 1530-LH



Model No.	٨	Plunger Travel	Mo	unting	Base	F	Plunger Dia.			Hole Depth		ting Dim	iensions	Tapped Hole	Holding	Wt. in Kgs
wodel No.	А	В	C	D	E	F	G	н	L	Р	Μ	IN	ØS	ТØ	Capacity	Wt. III Kgs
HTC-1530-LH	15	30	51	81	5	32	9	55	112	20	36	66	5.2	M 5 x 0.80	2.00 kN	0.400

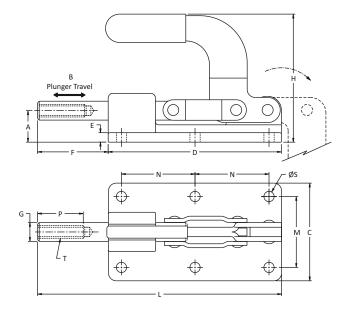




## HTC - Series Clamps - Low Height

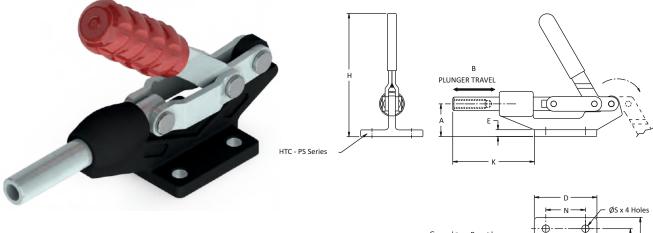


Model No. HTC - 35100 LH



		Plunger Travel	Мо	unting l	Base		Plunger Dia.			Hole Depth	Mounti	ing Dim	ensions	Tapped Hole	Holding	
Model No.	А	В	С	D	Е	F	G	Н	L	Р	М	Ν	ØS	ТØ	Capacity	Wt. in Kgs
HTC-35100 LH	35	100	90	215	12.5	111	25	133	326	35	66	95	10.5	M 16 x 2.00	19.60 kN	3.600

## HTC - Series Clamps - Package Size



Model No. HTC - 4560 PS

G -		Holes

Model No.	٨	Plunger Travel	C	D	Mount	ing Bas	e N	sø	Plunger Dia.	ц	V	1	Hole Depth	Tapped Hole TØ	Holding Capacity	Wt. in Kgs
WIDGET NO.	A	D	C	U	E	IVI	IN	SΨ	9	п	N	L	P	ΤΨ	Capacity	W
HTC-4560 PS	45	60	75	75	9	50	50	10.5	20	150	115	235	30	M 12 x 1.75	6.90 kN	1.750



## **Straight Line Action**



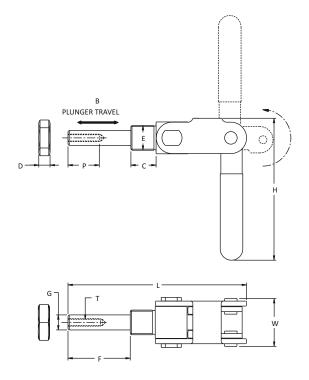
## **HTC - Series Clamps - Front Mounting**



Model No. HTC -190 FM



Model No. HTC -350 FM





Model No.	Plunger Travel B	С	D	Mounting Thread Size E	F	Plunger Dia. G	Н	L	Ρ	W	Tapped Hole T	Holding Capacity	Wt. in Kgs
HTC-190 FM	24	11	6	M 16 x 2.0	30	9.5	78	77	25	25	M 6 x 1.0	0.50 kN	0.130
HTC-350 FM	36	15	6	M 20 x 1.5	42	12	103	110	30	31	M 8 x 1.25	1.00 kN	0.260
HTC-600 FM	60	24	10	M 24 x 2.0	62	16	155	175	30	43	M 10 x 1.5	3.40 kN	0.850





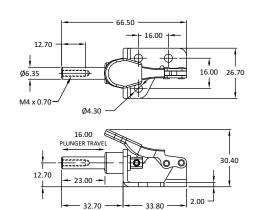
HTC - 601

Also Available in Stainless Steel

HTC - 601 - SS

Holding Capacity: 0.50 kN. Weight: 0.040 Kgs.

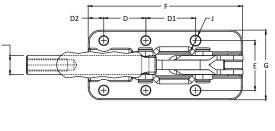


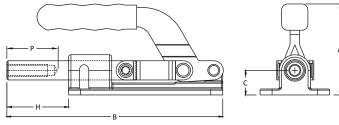


# HTC Series Clamps - LH Series



Model No. HTC - 630 - LH



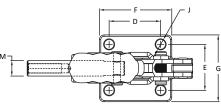


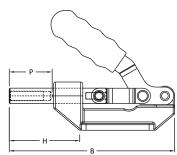
	Holding	Weight	Plunger	Plunger						Dime	ensions						
Model No.	Capacity	Kgs	Travel	Thread	А	В	С	D	D1	D2	Е	F	G	Н	J	М	Р
HTC - 607 - LH	5.90 kN	0.740	41.40	M8 x 1.25	91	153	17.5	35	41.4	16	41.4	108	56	45	7.0	12.7	25
HTC - 630 - LH	7.80 kN	0.890	50.80	M10 x 1.50	82	179	20.5	35	41.4	13	41.4	128.5	58	51	8.5	15.7	32

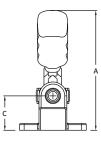
## **HTC Series Clamps - PS Series**



Model No. HTC - 603 - PS







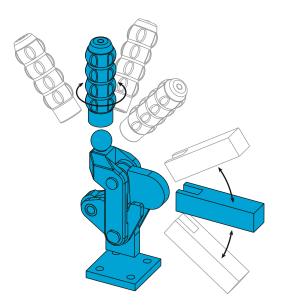
	Holding	Weight	Plunger	Plunger					Di	mension	s				
Model No.	Capacity	Kgs	Travel	Thread	А	В	С	D	E	F	G	Н	J	М	Р
HTC - 603 - PS	2.90 kN	0.380	31.75	M8 x 1.25	85.5	125	24.5	36.5	33	52.1	48	52	6.7	11	25
HTC - 608 - PS	3.90 kN	0.570	41.40	M10 x 1.50	106	153	32	41.4	41.4	57	57	76.8	8.5	15.7	32





## **AUTOMOTIVE CLAMPS**

Steel-Smith has designed the Automotive clamps to be adaptable & durable, and to withstand abuse in heavy duty applications. They are ideally used in automotive manufacturing & other production environment which require high clamping forces & long service life. These clamps have a unique design that offers the designer both complete design flexibility & clamping force. These clamps comprise of a very strong & rugged toggle mechanism. The clamping arm & handle which are provided with the clamp can be welded at the desired angle to suit the individual requirements of work pieces. All components are of first grade steel & the axles are hardened running in either hardened bushes or directly in close tolerance holes. The clamps are finished olive green passivation The Versatility of Steel-Smith Clamps allows handle positioning of  $120^{\circ}$  maximum angular positioning arc through  $360^{\circ}\,$  orbital arc. The clamping arm has 120° maximum angular positioning arc. These exceptional features make Steel-Smith H.V. Series clamps ideal for many job requirements otherwise requiring special designed clamps.

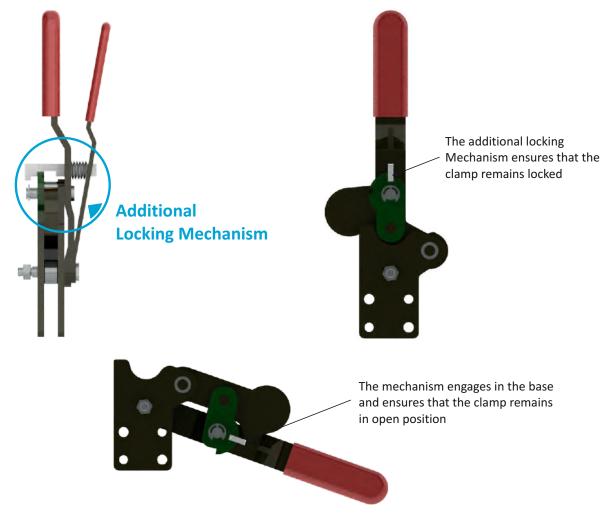


## Automotive Clamps with Additional Locking Mechanism

Steel-Smith introduces its latest range of Automotive clamps with Additional Locking Mechanism, this mechanism ensures that the clamp remains locked in any condition.

In order to unclamp, the mechanism must be first released.

In this Series this mechanism will hold the clamping arm in both the closed and open positions, so that it is protected against unintentional opening or closing through vibration or if the clamp is mounted overhead.



UNIVER



## Horizontal Arm

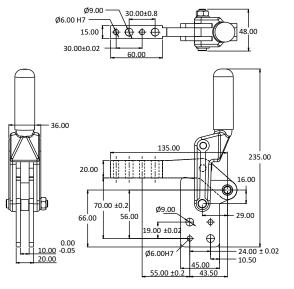
**Automotive Clamps** 

Model No: HV - 700 - H

Arm: Horizontal Clamping Arm Base: Straight with Dowel & Bolt Holes Weight: 1.200 Kgs. Nominal Holding Capacity: 6.90 kN Refer Next Page for

**Clamping Forces & Holding Capacity.** 

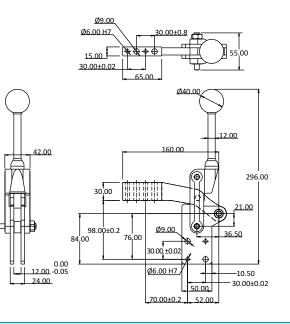




Model No: HV - 1200 - H - TM - TU

Arm: Horizontal Clamping Arm Base: Straight with Dowel & Bolt Holes Weight: 2.100 Kgs. Nominal Holding Capacity: 11.80 kN Refer Next Page for Clamping Forces & Holding Capacity.

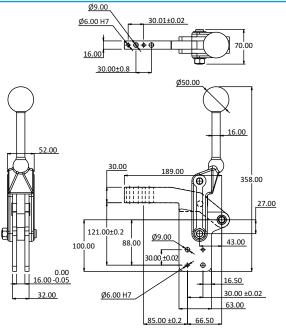




## Model No: HV - 2400 - H - TM - TU

Arm: Horizontal Clamping Arm Base: Straight with Dowel & Bolt Holes Weight: 3.100 Kgs Nominal Holding Capacity: 23.50 kN **Refer Next Page for Clamping Forces & Holding Capacity.** 





## **Automotive Clamps**

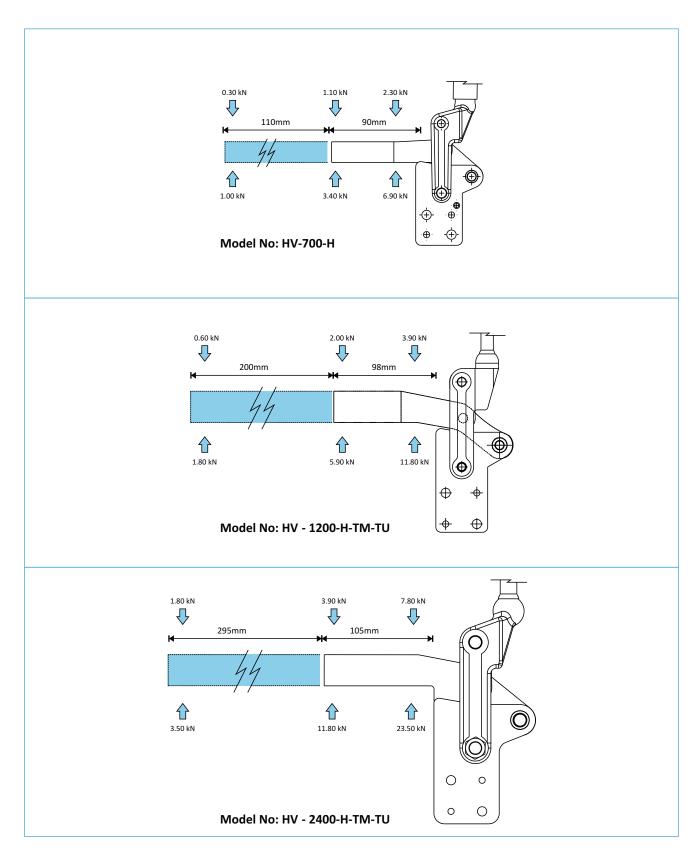
## **Horizontal Arm**

## **Clamping Force / Holding Capacity: Arm Lengths**

The construction of the Automotive Clamps enables mounting of Clamping Arms/Adapters onto the clamp. There are limitations to the length and weight of the arm that can be mounted on the clamp. Longer the arm lesser the holding/clamping capacity.

Refer the data below to for different capacities at different lengths.

Model No.	Maximum Permissible Arm Length	Maximum Permissible Weight of Clamping Arm
HV - 700 - H	200 mm	3 Kgs
HV - 1200 - H - TM -TU	300 mm	5 Kgs
HV - 2400 - H - TM -TU	400 mm	7 Kgs









## **Automotive Clamps**



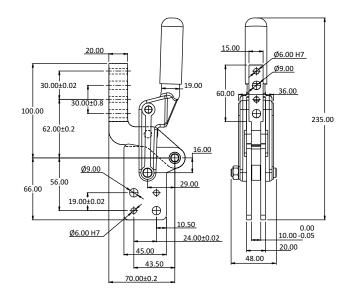
## Vertical Arm

### Model No: HV - 700 - V

Arm: Vertical Clamping Arm Base: Straight with Dowel & Bolt Holes Weight: 1.200 Kgs Nominal Holding Capacity: 6.90 kN

Refer Next Page for Clamping Forces & Holding Capacity.

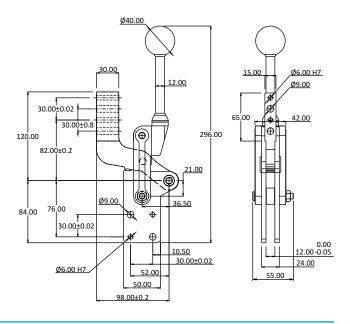




### Model No: HV - 1200 - V - TM - TU

Arm: Vertical Clamping Arm Base: Straight with Dowel & Bolt Holes Weight: 2.100 Kgs Nominal Holding Capacity: 11.80 kN Refer Next Page for Clamping Forces & Holding Capacity.



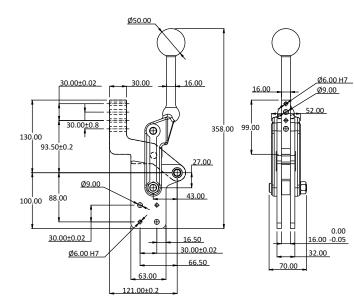


#### Model No: HV - 2400 - V - TM - TU

Arm: Vertical Clamping Arm Base: Straight with Dowel & Bolt Holes Weight: 3.100 Kgs. Nominal Holding Capacity: 23.50 kN Refer Next Page for Clamping Forces & Holding Capacity.



UNIVER



## **Automotive Clamps**

## **Vertical Arm**

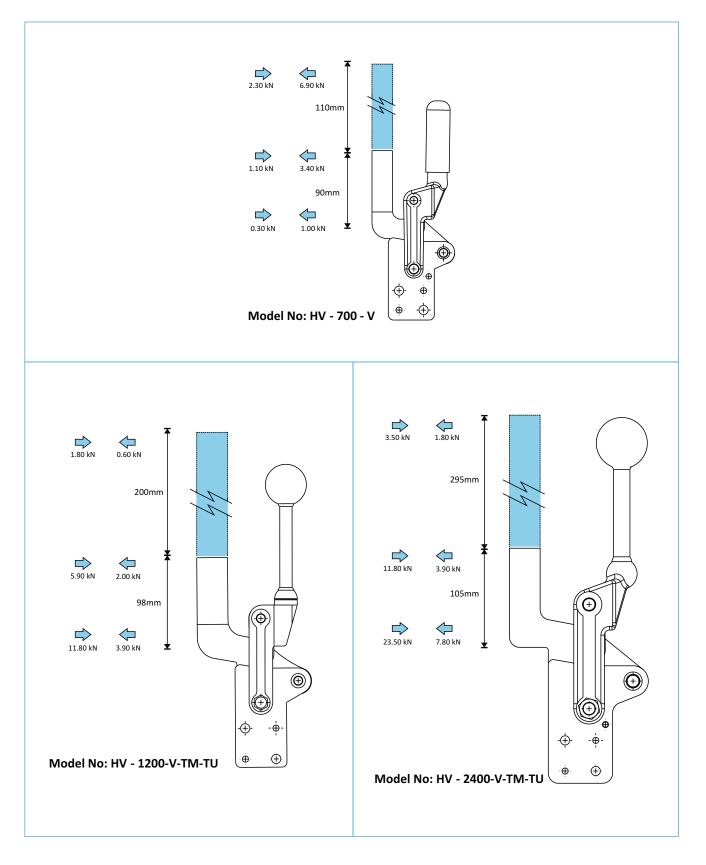
## **Clamping Force / Holding Capacity: Arm Lengths**

The construction of the Automotive Clamps enables mounting of Clamping Arms/Adapters onto the clamp. There are limitations to the length and weight of the arm that can be mounted on the clamp.

Longer the arm lesser the holding/clamping capacity. Refer the data below to for different capacities at different lengths.

**Automotive Clamps** 

Model No.	Maximum Permissible Arm Length	Maximum Permissible Weight of Clamping Arm
HV - 700 - V	200 mm	3 Kgs
HV - 1200 - V - TM -TU	300 mm	5 Kgs
HV - 2400 - V - TM -TU	400 mm	7 Kgs



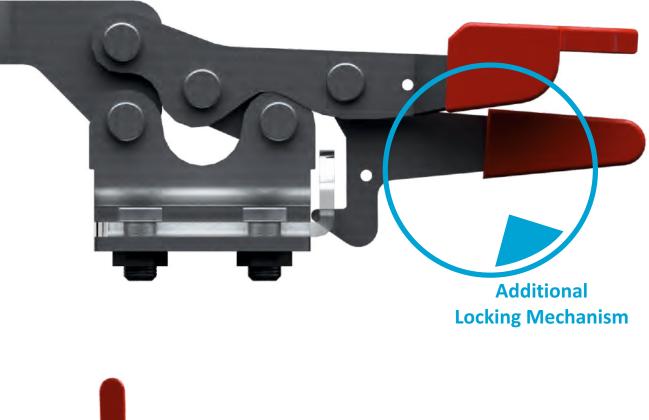


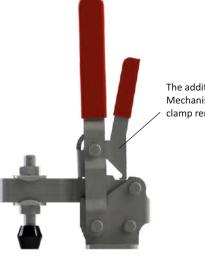


#### **Toggle Clamps with Additional Locking Mechanism**

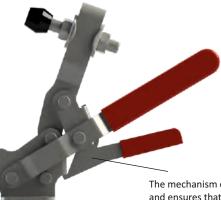
Steel-Smith introduces its latest range of clamps with Additional Locking Mechanism, this mechanism ensures that the clamp remains locked in any condition.

In order to unclamp, the mechanism must be first released. In the Vertical Series this mechanism will hold the clamping arm in both the closed and open positions, so that it is protected against unintentional opening or closing through vibration or if the clamp is mounted overhead.





The additional locking Mechanism ensures that the clamp remains locked



The mechanism engages in the base and ensures that the clamp remains in open position

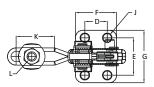


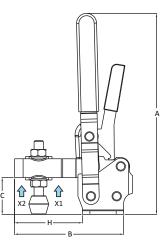


## Vertical Hold Down Action With Additional Locking Mechanism



Model No. VTC-207-U-TRIG

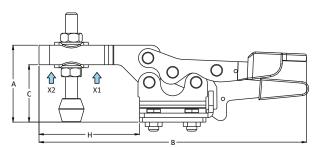


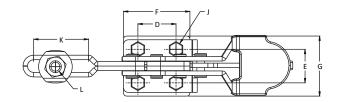


	Holding	Capacity	Weight	Handle	Bar					D	imensio	ns				
Model No.	X2	X1	Kgs	Moves	Opens	А	В	С	D	Е	F	G	Н	J	К	L
VTC-207-U-TRIG	1.00 kN	1.70 kN	0.300	62°	115°	174.0	100.0	31.0	19.1	31.8	35.1	44.6	57.5	7.1	32.0	M8 Bolt
VTC-210-U-TRIG	1.40 kN	2.70 kN	0.590	58°	106°	195.0	144.0	42.0	31.8	45.2	48.6	64.4	91.0	8.3	60.0	M10 Bolt

Horizontal Hold Down Action With Additional Locking Mechanism







	Holding	Capacity	Weight	Handle	Bar					D	imensio	ns				
Model No.	X2	X1	Kgs	Moves	Opens	Α	В	С	D	E	F	G	Н	J	К	L
H-225-U-TRIG	1.10 kN	2.20 kN	0.315	70°	90°	47.0	178.5	34.0	25.4	22.4	38.2	35.0	73.5	M6	33.0	M8 Bolt
H-235-U-TRIG	1.30 kN	3.40 kN	0.560	60°	85°	64.5	273.0	43.0	41.4	41.4	57.1	57.1	115.0	M8	70.0	M10 Bolt

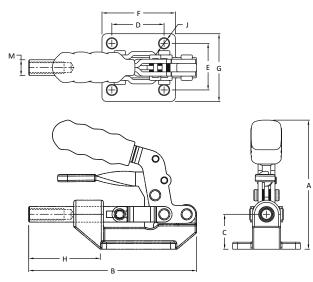




HTC Series Clamps - PS Series With Additional Locking Mechanism

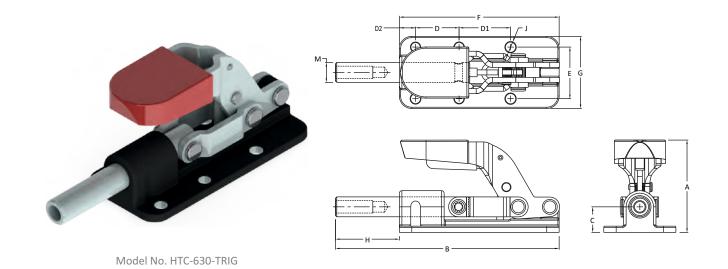






NA JULNI	Holding Weight Plunger Plunger								Dime	ensions				
Model No.	Capacity	Kgs	Travel	Thread	А	В	С	D	E	F	G	н	J	М
HTC - 603 - TRIG	2.90 kN	0.380	31.75	M8 x 1.25	87	121	24.5	36.5	33.0	52	48	52	6.7	11
HTC - 608 - TRIG	3.90 kN	0.570	41.40	M10 x 1.50	106	153	32	41.4	41.4	57	57	76.8	8.5	15.7

## HTC Series Clamps - LH Series With Additional Locking Mechanism



Dimensions Holding Weight Plunger Plunger Model No. Capacity Kgs Travel Thread А В С D D1 D2 Е F G Н J Μ HTC - 607 - TRIG 5.90 kN 0.740 41.40 M8 x 1.25 91 153 17.5 41.4 41.4 108 56 45 7.0 12.7 35 16 8.5 HTC - 630 - TRIG 7.80 kN 0.890 50.80 M10 x 1.50 82 179 20.5 35 41.4 13 41.4 128.5 58 51 15.7





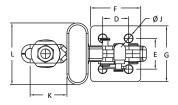
## Horizontal Hold Down Action With Additional Locking Mechanism

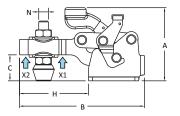


Model No. H - 305 - U - TRIG



	Holding	Capacity	Weight	Handle	Bar						Dime	nsions					
Model No.	X2	X1	Kgs	Moves	Opens	А	В	С	D	Е	F	G	Н	J	К	L	N
H-305-U-TRIG	0.20 kN	0.50 kN	0.070	175°	92°	38.0	59.0	13.5	13.5	16.0	26.1	25.4	30.0	4.5	8.0	32.0	M5 Bolt
H-307-U-TRIG	1.10 kN	1.50 kN	0.250	175°	92°	62.0	93.0	23.5	23.0	29.4	43.6	46.6	46.0	7.0	17.0	51.0	M8 Bolt
H-309-U-TRIG	2.30 kN	3.40 kN	0.600	160°	88°	91.2	131.8	33.3	35.1	38.1	64.0	62.7	67.6	8.4	26.9	78.0	M10 Bolt



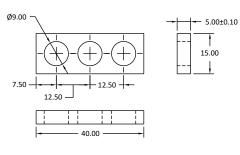






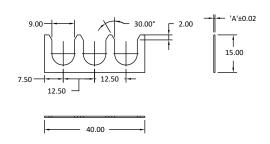
## SHIMPACKS SERIES 4015- TML







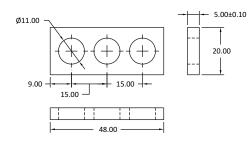




Model No.	Dim 'A'
NX4015-TML-1	0.50 ±0.02
NX4015-TML-2	1.00 ±0.02
NX4015-TML-3	2.00 ±0.02

SHIMPACKS SERIES 4820- TML



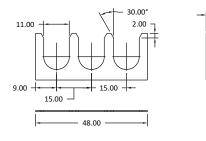


– 'A'±0.02

20.00





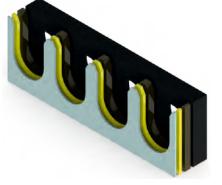


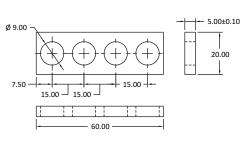
Model No.	Dim 'A'
NX4820-TML-1	0.50 ±0.02
NX4820-TML-2	1.00 ±0.02
NX4820-TML-3	2.00 ±0.02





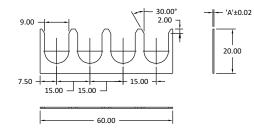
## SHIMPACKS SERIES 6020- TML







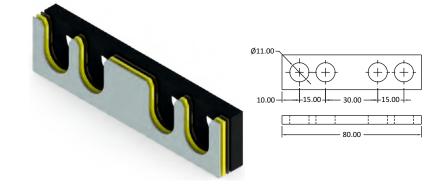




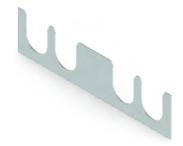
20.00 ļ ---

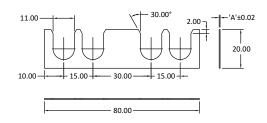
Model No.	Dim 'A'
NX6020-TML-1	0.50 ±0.02
NX6020-TML-2	1.00 ±0.02
NX6020-TML-3	2.00 ±0.02

SHIMPACKS SERIES 8020- TML









UNIVER

Model No.	Dim 'A'
NX8020-TML-1	0.50 ±0.02
NX8020-TML-2	1.00 ±0.02
NX8020-TML-3	2.00 ±0.02

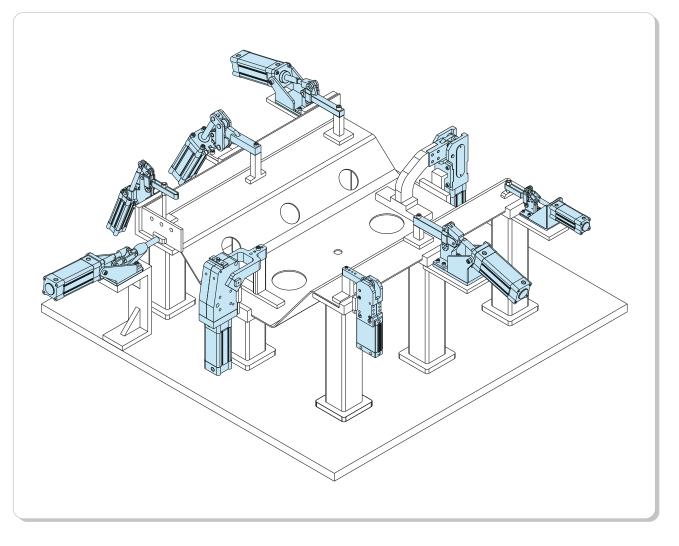




## The sheer power of air clamping at your command

Steel-Smith Pneumatic Toggle Clamps combine the unfaltering Steel-smith toggle action with the speed and efficiency of pneumatic actuators.

These clamps yield high-speed operations with secure and finely controlled clamping pressures. Any number of these clamps can be operated instantly at the touch of a switch and where required they can be arranged to operate in any desired clamping sequence. Pneumatic Toggle Clamps are available in a variety of actions and models to meet the various clamping requirements.



## Advantages:

- ▶ Pneumatic Toggle Clamps relieve operator of strenuous clamping movement
- A number of clamps can be used simultaneously
- A number of clamps with different sequences can be simultaneously operated
- One or more clamps can be controlled from the machine panel
- One or more clamps can be operated from different positions
- Clamps stay locked in the event of air failure
- Low air consumption with maximum leverage
- Large opening angle ensures easy component removal
- Assurance of a maximum power-to movement ratio
- Production time is reduced by 40%







#### Introduction

#### What is a Pneumatic Toggle Clamp?

A Pneumatic Toggle clamp is a basically a Toggle Clamp actuated with a double acting pneumatic cylinder.

The Clamps consists of a double acting cylinder, a clamping arm, linkages for multiplying the applied force, and a base for mounting at the workplace on its base.

Air pressure in applied in the clamping port, which thereby moves the clamping arm to hold the work piece. A required clamping force is achieved and exerted on the work piece. Under this action the Toggle Clamp Holds the work piece firmly and positively. To unlock the clamp the air pressure is applied in the unclamping port.

## **Pneumatic Toggle Action Force Factors**

#### **Holding Capacity:**

The holding capacity mentioned for each clamp refers to the maximum force, which the clamp can withstand after being over-centered without damage to the clamp and without the toggle unlocking due to distortion of the clamp.

The over-center dimension is carefully chosen in relation to the elasticity of the clamp to maximize clamping force while ensuring that the clamp locks closed even under vibration or intermittent loading.

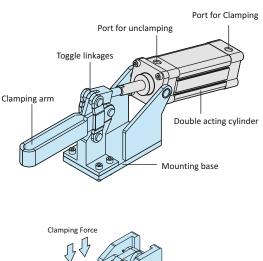
For Hold Down Clamps, holding capacity is measured with the spindle at the nearest end of the clamping arm and will decrease as the spindle goes farther away from the clamping arm. In cases of DCTC & SSC series the holding capacity is measured considering the specified arm length and if the arm length is increased the holding capacity will decrease accordingly.

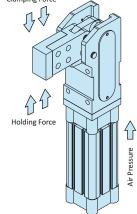
#### **Clamping Force:**

Clamping Force, the amount of force actually applied to the work piece by closing and locking the clamp, is generally less than the stated holding capacity. Actual clamping force depends on many factors including; spindle position (clamping arm length), cylinder bore, cylinder area, available air pressure and the clamps mechanical advantage. In most cases, the Clamping force is roughly 2 to 3 times the force exerted by the pneumatic cylinder.

#### Clamping Arm Lengths:

Steel Smith strongly recommends using of clamping arms as per its specified data. Using heavier and longer clamping arms on smaller clamps may disturb the smooth movement of the clamp linkages and also a higher wear and tear in its pins & bushes. Please ask for data sheets on each clamp to know the maximum permissible clamp arm usage for that particular clamp.





#### **Toggle Principle:**

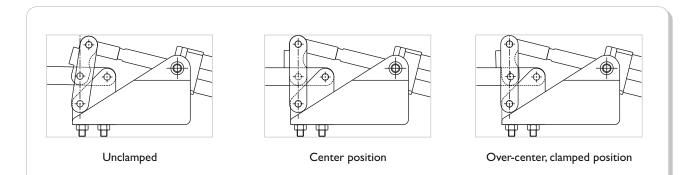
Toggle action clamps operate through a linkage system of levers and pivots. The fixed length levers, connected by pivot pins supply the action and clamping force. Toggle action has an over center lock point which is a fixed stop and linkage. Once in the over center position, the clamp cannot move or unlock unless the linkage is moved. All types of toggle clamps have same action, just oriented differently.

#### The Toggle Mechanism in a clamp has threefunctions:

1) To multiply applied load at the handle into a high clamping force to hold the work piece.

2) To create an over - center lock to prevent the clamp from opening & releasing the work piece until opened by the operator.

3) To rapidly open & close the clamp giving a maximum clearance in which to load & unload the work piece.



## **Pneumatic Clamps**





### **Types of Pneumatic Clamps**

#### **Hold Down Action - Pneumatic Clamps**

These clamps utilize the same basic design and operation as manual hold down, only they are operated pneumatically. As the clamp uses the toggle action principle it ensures that the clamp stays locked in the event of air failure. These clamps are extremely compact in design and feature a very low height, allowing free movement of operating tools in drilling, tapping, milling etc. The clamp units are completely self contained with a double acting cylinder and require only to be connected to the air line. The clamping arm exhibits a minimum 95° opening angle for easy unloading of workpiece and is available in two different options.

#### Hold Down Action - Pneumatic Clamps Fixed Cylinder

These Fixed Cylinder clamps are identical to the Hold Down Action Pneumatic clamps with the exception of Cylinder Mounting design. The outstanding characteristic of the clamp is that the cylinder does not move at all while the clamp is in operation. As there is no movement in the cylinder, fixed solid tubing can be used instead of flexible tubing in welding applications. The clamping arm exhibits a minimum  $80^{\circ}$  opening angle for easy unloading of workpiece and is available in two different options.





Primarily these clamps belong to the same family of pneumatical hold down clamps with a exception of mounting flexibility. These clamps utilize the same basic design and operation as the pneumatic hold down clamps. In addition these clamps have a flexibility of mounting themselves on the side of the fixture and can also be mounted on top of the fixture. The clamps are used where a right angle model is desirable due to the space constraint. These clamps are nomenclatured as Right Angle Hold Down Clamps as the position of the cylinder is in the downwards perpendicular direction to the clamping unit. Due to these features these clamps can be accommodated in lesser area than the hold down clamps. The clamping arm exhibits a maximum 95° opening and is available in two different options. The typical applications of these clamps are on rotary indexing tables, wood working, injection moulding, PU mould closures, etc.

#### H. V. Series Pneumatic Clamps

These clamps are the air powered version of the manual H.V. Series. They comprise of a very strong and rugged toggle mechanism actuated by a double acting cylinder. The clamping arm is provided with the clamp and can be welded at any desired angle to suit the individual requirement of work pieces. These clamps carry the 'Over Centre Toggle Lock' principle for maximum safety as they remain in locked condition even in case of air failure. The clamps have almost all the features of the manual H. V. Series clamps. These clamps are available in three sizes off the shelf.





#### **Straight Line Action Clamps**

These clamps utilize the same basic design as manual straight line action clamps with an exception of pneumatic actuation. They are completely self contained with a double acting cylinder suitable to the clamp design and only need pressurised air connection. These cylinders are mounted in line with the plunger of the clamp. The to-and-fro motion of the cylinder operates the clamp. The cylinder piston extends the plunger of the clamp to achieve the lock position and vise versa for unlocking the clamp. The clamp plunger is drilled and tapped for easy loading of suitable adaptors. Plungers are hardened and ground which run in closed toleranced holes for smooth and accurate functioning of clamps. These clamps are widely used in fixtures where locating of components or holes is required and also in mini-automized presses.





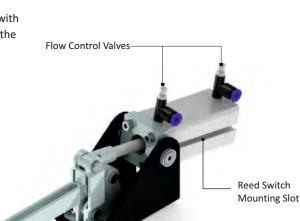
SSC Series Pneumatic Clamps are the solution to applications, which demands 'Precision', 'Performance' and the most important factor as far as fixturing is concerned 'Compactness'. These clamps have been specially designed by gathering information and suggestions from customers presently using Steel-Smith pneumatic clamps. The design helps a fixture manufacturer as far as space constrains is concerned.

These clamps are flexible from the maintenance point of view, with features like compatible to all standards, brands and types of pneumatic cylinders. The linkages, connector to piston rod, and the clamping device consists hardened bushings and pivot pins which are easily replaceable in case of wear outs. The clamping device comes with mounting holes, which can be according to the customer's requirement helping them to standardize on their clamping adaptors. The Mounting of the clamp can also be customized in case of substitutes. SSC - Series pneumatic clamps are available in cylinder size from 16mm bore to 63mm bore size.

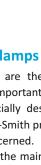
## **Pneumatic Clamps Installation Guide**

Steel-Smith supplies all Pneumatic Clamps with magnetic cylinders, a standard reed switch can be mounted on these cylinders for sensing.

It is highly recommended that all the Pneumatic Clamps are used with flow control valve on both ports of the Cylinders. This ensure that the clamping arm clamps the component at a regulated speed.



UNIVER







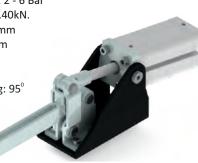
## **Pneumatic Clamps**

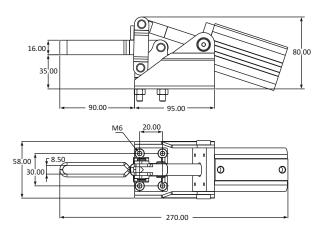


## **Hold Down Action**

### Model No: AOT - 3586 UB

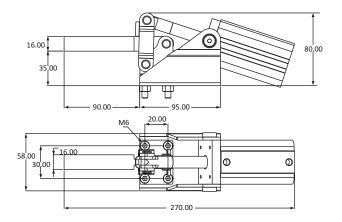
Operating Pressure: 2 - 6 Bar Holding Capacity: 2.40kN. Cylinder Stroke: 50mm Cylinder Bore: 25mm Port Size: M5 Weight: 1.100 Kgs Clamp Arm Opening: 95°





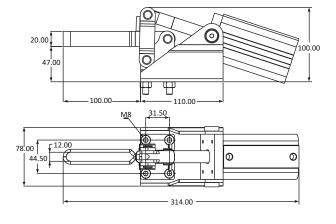
## Model No: AOT - 3586 SB





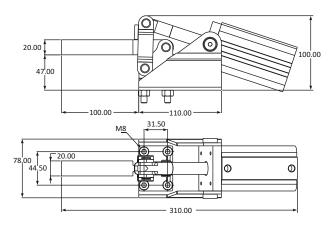
## Model No: AOT - 4690 UB

Operating Pressure: 2 - 6 Bar Holding Capacity: 4.90kN. Cylinder Stroke: 60mm Cylinder Bore: 40mm Port Size: G1/8 Weight: 1.800 Kgs Clamp Arm Opening: 95°



#### Model No: AOT - 4690 SB

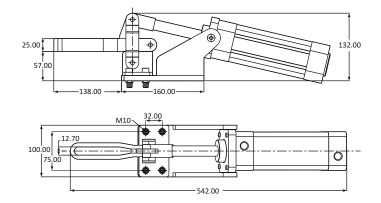
Operating Pressure: 2 - 6 Bar Holding Capacity: 4.90kN. Cylinder Stroke: 60mm Cylinder Bore: 40mm Port Size: G1/8 Weight: 1.900 Kgs Clamp Arm Opening: 95°

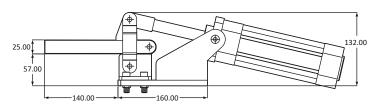


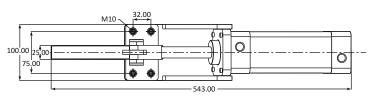


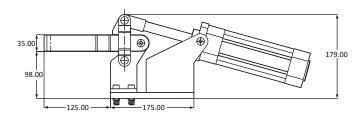
## **Pneumatic Clamps**

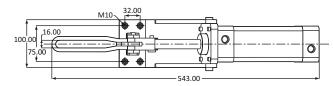


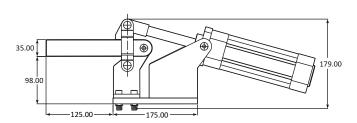


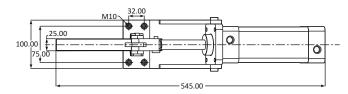












### **Hold Down Action**

### Model No: AOT - 57124 UB



### Model No: AOT - 57124 SB



## Model No: AOT - 98125 UB

Operating Pressure: 2 - 6 Bar Holding Capacity: 9.80kN. Cylinder Stroke: 100mm Cylinder Bore: 63mm Port Size: G 3/8 Weight: 8.800 Kgs Clamp Arm Opening: 100°

### Model No: AOT - 98125 SB

Operating Pressure: 2 - 6 Bar Holding Capacity: 9.80kN. Cylinder Stroke: 100mm Cylinder Bore: 63mm Port Size: G 3/8 Weight: 9.200 Kgs Clamp Arm Opening: 100°





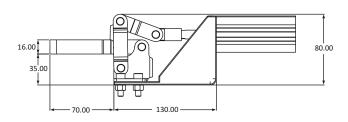


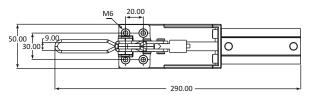
## Hold Down Action - Fixed Cylinder

## Model No: AOT - 3565 UB/FC

Operating Pressure: 2 - 6 Bar Holding Capacity: 2.40kN. Cylinder Stroke: 50mm Cylinder Bore: 25mm Port Size: M5 Weight: 1.200 Kgs Clamp Arm Opening: 90°



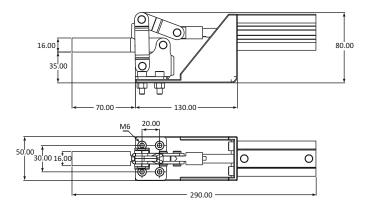




## Model No: AOT - 3565 SB/FC

Operating Pressure: 2 - 6 Bar Holding Capacity: 2.40kN Cylinder Stroke: 50mm Cylinder Bore: 25mm Port Size: M5 Weight: 1.300 Kgs Clamp Arm Opening: 90°

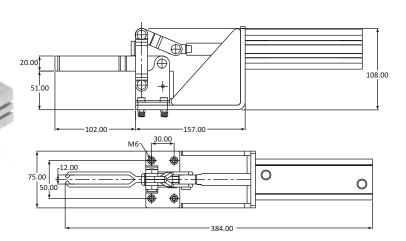




## Model No: AOT - 5095 UB/FC

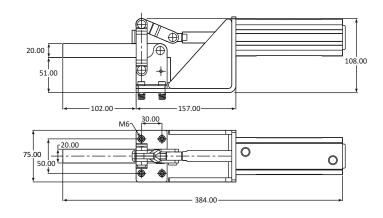
Operating Pressure: 2 - 6 Bar Holding Capacity: 4.90kN. Cylinder Stroke: 80mm Cylinder Bore: 40mm Port Size: G 1/8 Weight: 3.100 Kgs Clamp Arm Opening: 90°





### Model No: AOT - 5095 SB/FC

Operating Pressure: 2 - 6 Bar Holding Capacity: 4.90kN. Cylinder Stroke: 80mm Cylinder Bore: 40mm Port Size: G 1/8 Weight: 3.200 Kgs Clamp Arm Opening: 90°



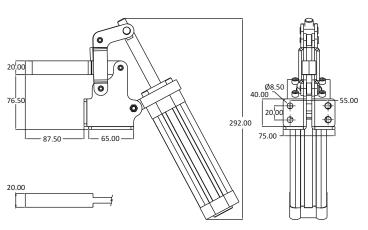


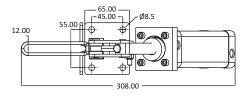
## **Pneumatic Clamps**



## Hold Down Action - Right Angle

## Model No: AOT - 4085 UB / AOT - 4085 SB



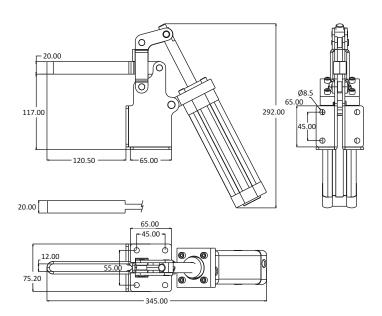


Operating Pressure: 2 - 6 Bar Holding Capacity: 3.90kN. Cylinder Stroke: 80mm Cylinder Bore: 40mm Port Size: G 1/4 Weight: 2.600 Kgs Clamp Arm Opening: 100°



AOT - 4085 SB

### Model No: AOT - 40125 UB / AOT - 40125 SB





AOT - 40125 UB





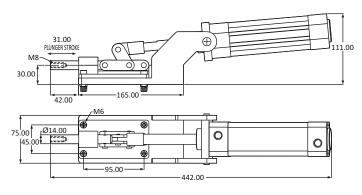


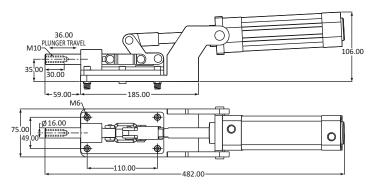
### **Straight Line Action**

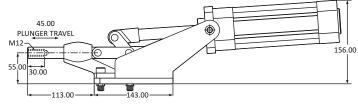
## Model No: AOT - 2530 HTC

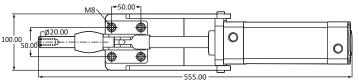
Operating Pressure: 2 - 6 Bar Holding Capacity: 2.90kN. Cylinder Stroke: 50mm Cylinder Bore: 25mm Port Size: M5 Weight: 1.400 Kgs

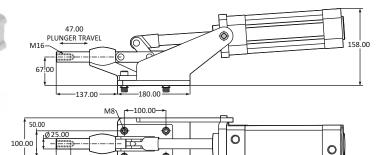
#### 17.00 PLUNGER TRAVEL M8 74.00 ····· 29.00 25.00 Ŧ Ψ 132.00 66.00 38.00 Me \_Ø12.00 67.00 0 38.00 279.00











639.00

ø



## Model No: AOT - 3231 HTC

Operating Pressure: 2 - 6 Bar Holding Capacity: 11.80kN. Cylinder Stroke: 80mm Cylinder Bore: 40mm Port Size: G 1/4 Weight: 3.500 Kgs

## Model No: AOT - 3550 HTC

Operating Pressure: 2 - 6 Bar Holding Capacity: 15.70kN. Cylinder Stroke: 80mm Cylinder Bore: 40mm Port Size: G 1/4 Weight: 4.100 Kgs

### Model No: AOT - 5560 HTC

Operating Pressure: 2 - 6 Bar Holding Capacity: 24.50kN. Cylinder Stroke: 100mm Cylinder Bore: 63mm Port Size: G 3/8 Weight: 6.400 Kgs

### Model No: AOT - 6750 HTC

Operating Pressure: 2 - 6 Bar Holding Capacity: 73.50kN. Cylinder Stroke: 100mm Cylinder Bore: 63mm Port Size: G 3/8 Weight: 7.800 Kgs



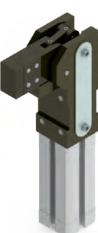
## **Pneumatic Clamps**

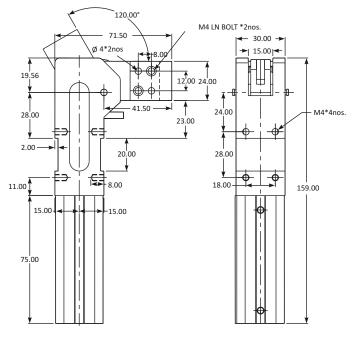


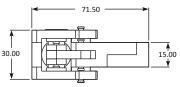
## SSC Series

## Model No: SSC - 1640

Operating Pressure: 2 - 6 Bar Holding Capacity: 2.40kN. **Refer Page No. 118 for Clamping Forces & Holding Capacity.** Cylinder Stroke: 40mm Cylinder Bore: 16mm Port Size: M5 Weight: 0.800 Kgs



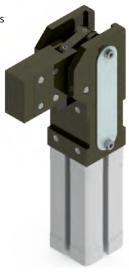


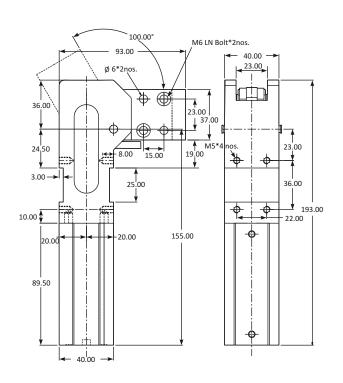


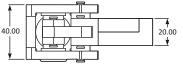
### Model No: SSC - 2550

Operating Pressure: 2 - 6 Bar Holding Capacity: 4.90kN. Refer Page No. 118 for Clamping Forces & Holding Capacity.

Cylinder Stroke: 50mm Cylinder Bore: 25mm Port Size: M5 Weight: 1.300 Kgs







UNIVER



## **Pneumatic Clamps**



M8 LN Bolts\*2nos.

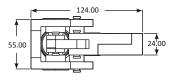
## **SSC Series**

## **Model No: SSC - 4065**

Operating Pressure: 2 - 6 Bar Holding Capacity: 7.80kN. Refer Page No. 118 for **Clamping Forces & Holding Capacity.** Cylinder Stroke: 80mm Cylinder Bore: 40mm Port Size: G 1/4 Weight: 3.600 Kgs

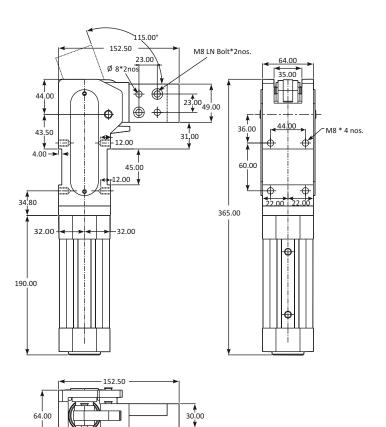


#### 105.00° 124.00 55.00 <del>-)</del> 30.00 Ø 8\*2nos 41.00 40.00 δο 36.00 42.50 35 00 M6\*4nos. 20.00 34,00 ¢ ► I <del>-</del> 4.00 4.00 -> 40.00 55.00 ф -\$ 15.00 320.00 27.00 - 27.00 Θ 173.00 þ



## **Model No: SSC - 5065**

Operating Pressure: 2 - 6 Bar Holding Capacity: 14.70kN. Refer Page No. 118 for **Clamping Forces & Holding Capacity.** Cylinder Stroke: 80mm Cylinder Bore: 50mm Port Size: G 1/4 Weight: 5.600 Kgs

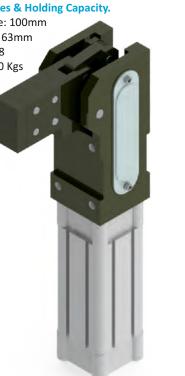


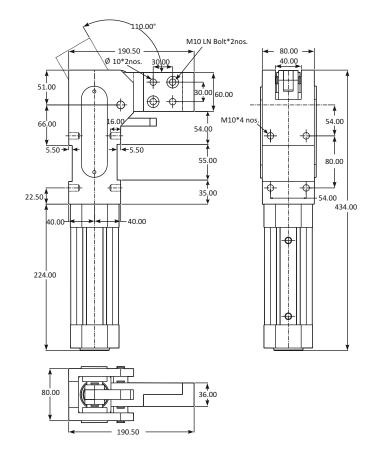




## Model No: SSC - 63100

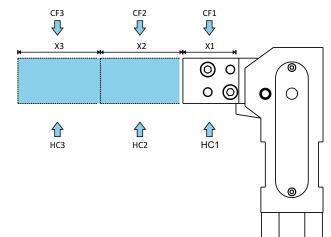
Operating Pressure: 2 - 6 Bar Holding Capacity: 24.50kN. **Refer Page No. 118 for Clamping Forces & Holding Capacity.** Cylinder Stroke: 100mm Cylinder Bore: 63mm Port Size: G 3/8 Weight: 10.200 Kgs





## Clamping Force / Holding Capacity: Arm Lengths

The construction of the SSC Series Clamps enable mounting of Clamping Arms/Adapters onto the clamp. There are limitations to the length and weight of the arm that can be mounted on the clamp. Longer the arm lesser the holding/clamping capacity. Refer the data below to for different capacities at different lengths.



	Holding Capacity			Clamping Force				Maximum Permissible Arm Length	Maximum Permissible Weight of	
Model No.	HC1	HC2	HC3	CF1	CF2	CF3	X1	X2	Х3	Clamping Arm
SSC - 1640	2.50kN	1.20kN	0.40kN	0.80kN	0.40kN	0.15kN	25	75	125	2 Kgs
SSC - 2550	4.90kN	2.50kN	1.00kN	1.60kN	0.80kN	0.30kN	40	95	250	3 Kgs
SSC - 4065	7.90kN	3.90kN	1.60kN	2.60kN	1.30kN	0.50kN	50	125	200	4 Kgs
SSC - 5065	14.70kN	7.40kN	2.90kN	4.90kN	2.50kN	1.00kN	63	156.5	250	5 Kgs
SSC - 63100	24.50kN	11.80kN	3.50kN	7.80kN	3.90kN	1.80kN	75	187.5	300	6 Kgs



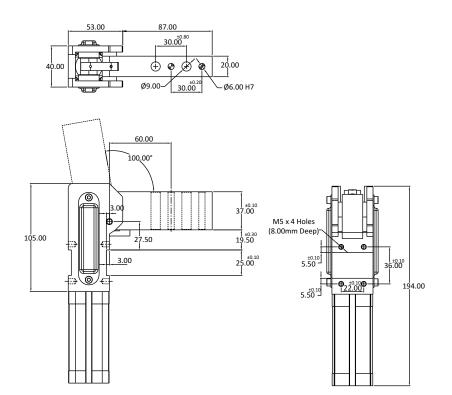




Model No: SSC - 2550 - HA

Operating Pressure: 2 - 6 Bar Holding Capacity: 4.90kN. **Refer Page No. 121 for Clamping Forces & Holding Capacity.** Cylinder Stroke: 50mm Cylinder Bore: 25mm Port Size: M5 Weight: 1.300 Kgs





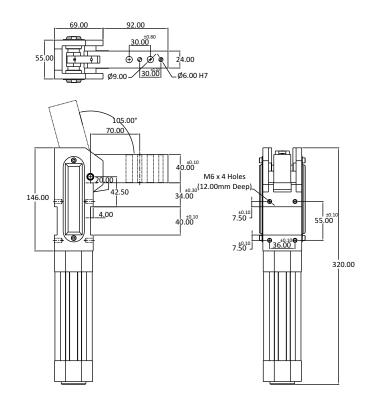
UNIVER



Model No: SSC - 4065 - HA

Operating Pressure: 2 - 6 Bar Holding Capacity: 7.80kN. **Refer Page No. 121 for Clamping Forces & Holding Capacity.** Cylinder Stroke: 80mm Cylinder Bore: 40mm Port Size: G 1/4 Weight: 3.600 Kgs

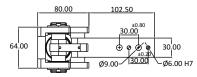


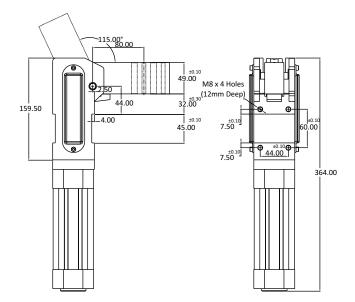


## Model No: SSC - 5065 - HA

Operating Pressure: 2 - 6 Bar Holding Capacity: 14.70kN. **Refer Page No. 121 for Clamping Forces & Holding Capacity.** Cylinder Stroke: 40mm

Cylinder Bore: 16mm Port Size: M5 Weight: 5.600 Kgs





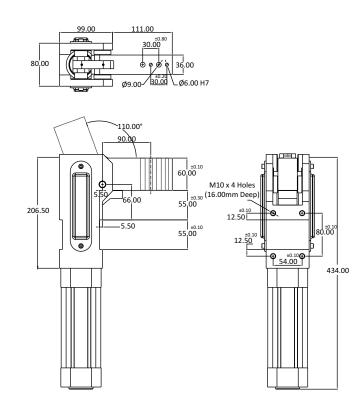




Model No: SSC - 63100 - HA

Operating Pressure: 2 - 6 Bar Holding Capacity: 24.50kN. **Refer Page No. 121 for Clamping Forces & Holding Capacity.** Cylinder Stroke: 50mm Cylinder Bore: 25mm Port Size: M5 Weight: 10.200 Kgs





CF1

Ŷ

## **Clamping Force / Holding Capacity: Arm Lengths**

The construction of the SSC Series Clamps enable mounting of Clamping Arms/Adapters onto the clamp. There are limitations to the length and weight of the arm that can be mounted on the clamp. Longer the arm lesser the holding/clamping capacity. Refer the data below to for different capacities at different lengths.

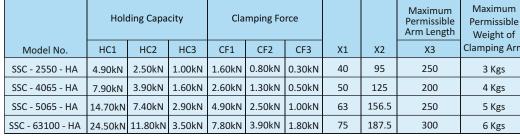
ХЗ			X3	X	2 X	X1				
arm		H					0	<b>()</b>		
			<b>1</b> нсз	С	2 HC			0		
ng Force				Maximum Permissible Arm Length	Maximum Permissible Weight of					
CF2	CF3	X1	X2	Х3	Clamping Arm					
80kN	0.30kN	40	95	250	3 Kgs					
30kN	0.50kN	50	125	200	4 Køs		+++			

CF2

 $\overline{\mathbf{v}}$ 

CF3

₽

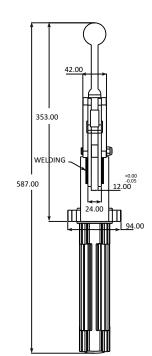


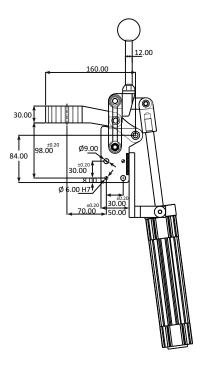


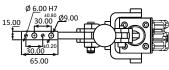
## H.V. Series

## Model No: AOT - HV - 1200 - H - TM - TU

Operating Pressure: 2 - 6 Bar Holding Capacity: 11.80kN. Cylinder Stroke: 125mm Cylinder Bore: 40mm Port Size: G 1/4 Weight: 4.000 Kgs. Clamp Arm Opening: 110°

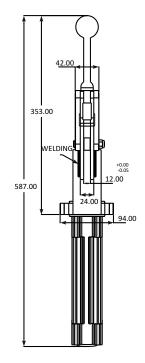


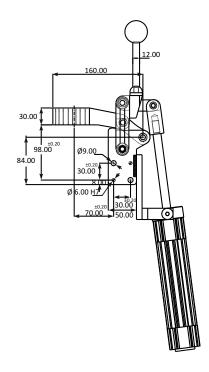


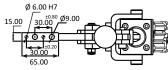


## Model No: AOT - HV - 2400 - H - TM - TU







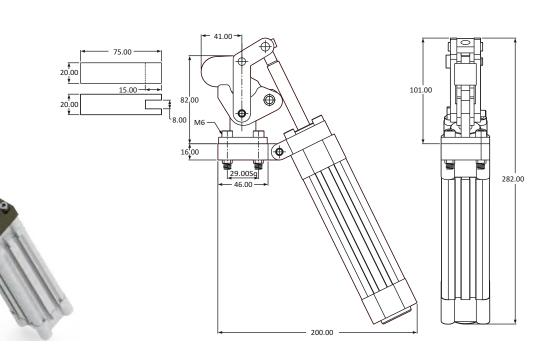




### **H.V. Series**

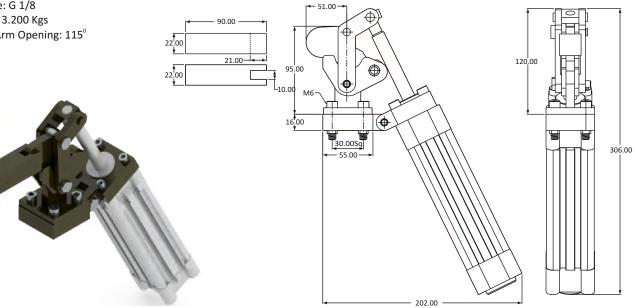
## Model No: AOT - BII - 200

Operating Pressure: 2 - 6 Bar Holding Capacity: 2.00kN. Cylinder Stroke: 80mm Cylinder Bore: 32mm Port Size: G 1/8 Weight: 2.100 Kgs Clamp Arm Opening: 100°



## Model No: AOT - BII - 300

Operating Pressure: 2 - 6 Bar Holding Capacity: 2.90kN. Cylinder Stroke: 80mm Cylinder Bore: 32mm Port Size: G 1/8 Weight: 3.200 Kgs Clamp Arm Opening: 115°







### **H.V. Series**

## Model No: AOT - BII - 500

Operating Pressure: 2 - 6 Bar Holding Capacity: 7.40kN. Cylinder Stroke: 100mm Cylinder Bore: 40mm Port Size: G 1/4 Weight: 4.800 Kgs Clamp Arm Opening: 100°

