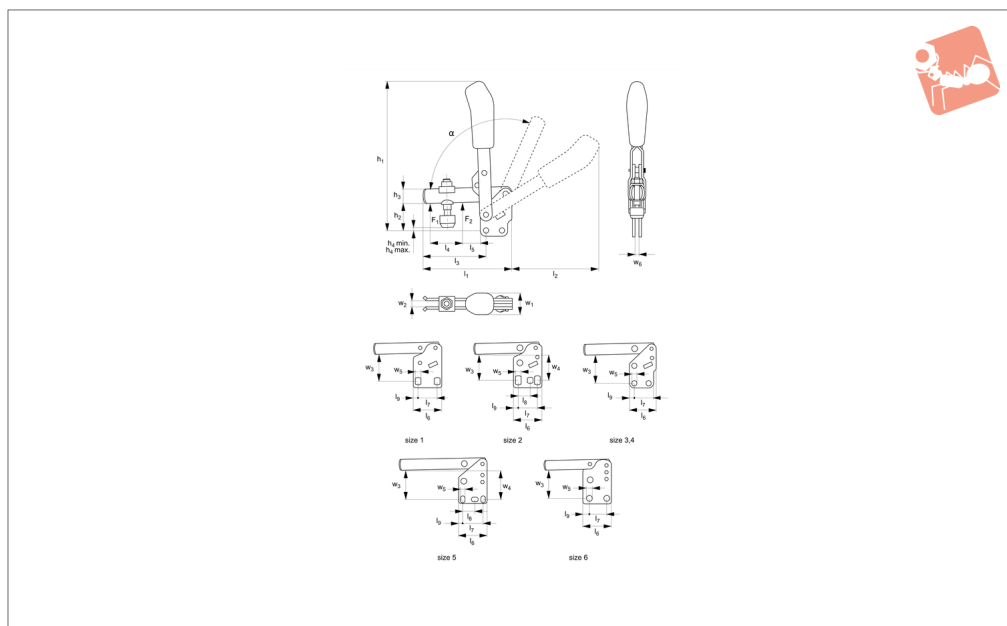




# Vertical Acting Toggle Clamps

open arm - vertical base



**40050.1**

STEEL TOGGLE CLAMPS

## Material

Body: steel, zinc plated. Stainless steel rivets running in hardened bushes (sizes 2-6). Pre-lubricated bearings (grease suitable for food industry use). Ergonomic, soft feel, oil-resistant handle

with large grip area.

Supplied complete with clamping screw (with rubber pad).

## Technical Notes

For fastening to mounting plates, etc.

Opening angle (symbola/symbol/symbola/symbol\*) can be changed by pressing in a stop pin on the clamp body.

Temperature range -10°C to +80°C.

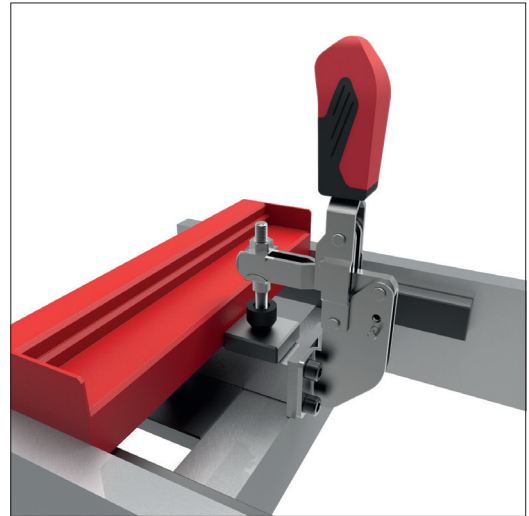
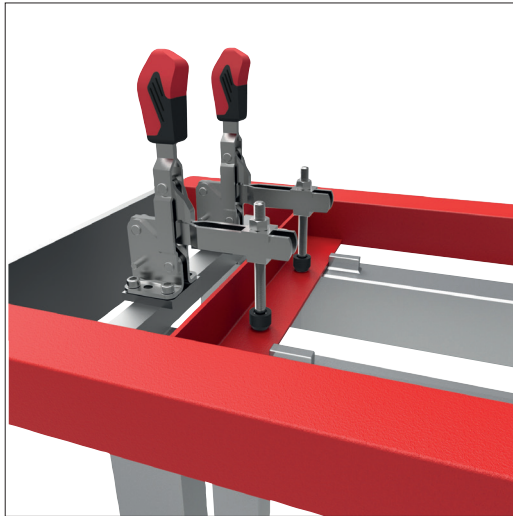
Order No.	Size	F <sub>1</sub> kN	F <sub>2</sub> kN	Clamping screw	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>	h <sub>4</sub> min.	h <sub>4</sub> max.	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	Weight g
40050.W0001	1	0.6	1.1	M 5x30	109.0	29	10	6.0	12.5	61	59	39	105
40050.W0002	2	0.8	1.2	M 6x35	144.5	38	12	11.5	19.5	78	80	52	175
40050.W0003	3	1.2	2.5	M 8x45	200.0	48	18	16.5	25.0	112	114	79	410
40050.W0004	4	1.7	3.0	M 8x65	244.0	65	20	16.5	45.5	141	130	101	630
40050.W0005	5	3.0	5.0	M12x80	301.0	77	25	18.0	49.0	195	183	140	1480
40050.W0006	6	3.4	5.5	M12x110	369.0	117	30	33.0	90.5	231	206	165	2200

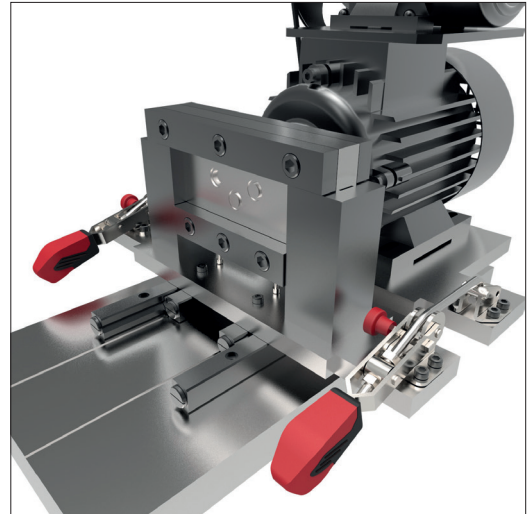
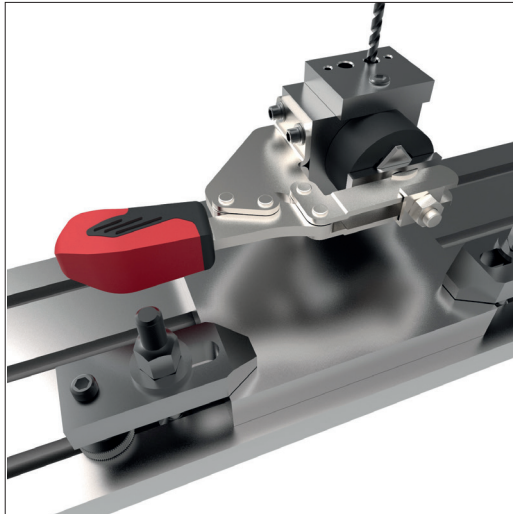
Order No.	l <sub>4</sub>	l <sub>5</sub>	l <sub>6</sub>	l <sub>7</sub>	l <sub>8</sub>	l <sub>9</sub>	w <sub>1</sub>	w <sub>2</sub>	w <sub>3</sub>	w <sub>4</sub>	w <sub>5</sub>	w <sub>6</sub>	α	α*
40050.W0001	18	6	27	16.0	-	5.5	19	5	23,5-25,0	4,5	-	5	95°	-
40050.W0002	25	11	32	20.0	12.5	6.0	21	6	28,5-32,0	5,5	30	5	105°	60°
40050.W0003	36	19	40	20.0	-	7.5	27	8	41.0	7,5	-	6	105°	60°
40050.W0004	54	16	53	32.0	-	13.0	35	10	55.5	8,6	-	8	105°	60°
40050.W0005	72	35	65	45.0	26,5-31,5	9.5	45	14	66.0	8,5	64	10	115°	60°
40050.W0006	89	28	90	50.5	-	24.5	45	14	102.0	13,0	-	10	140°	60°



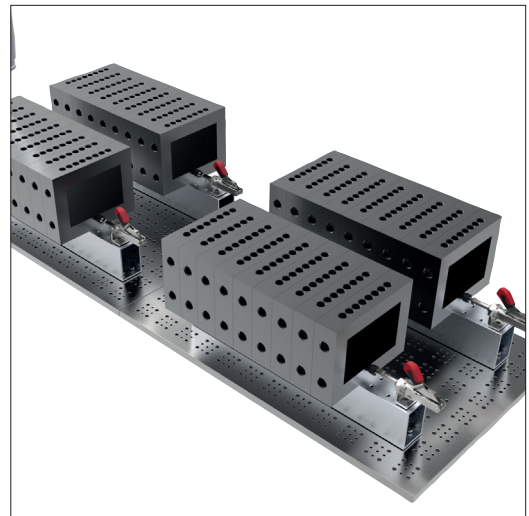
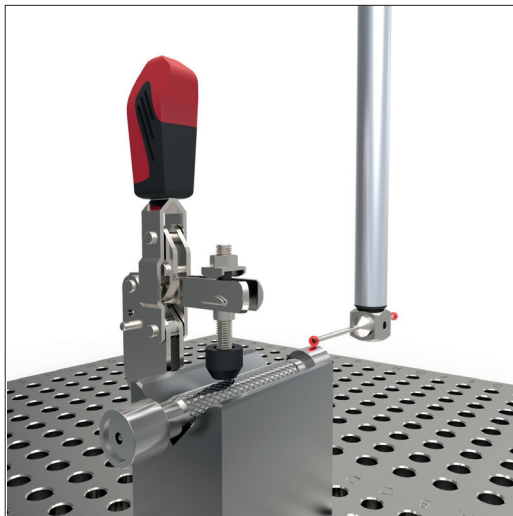
## Welding Fixtures

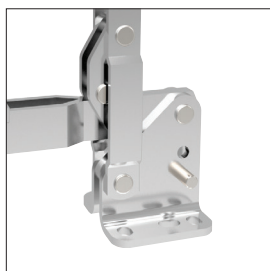


## Machining and Jig Assemblies

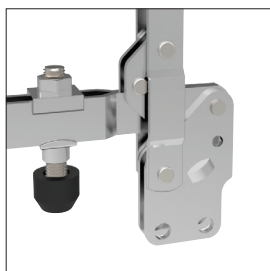


## Cmm's

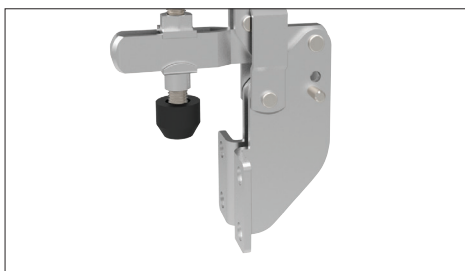




Horizontal base

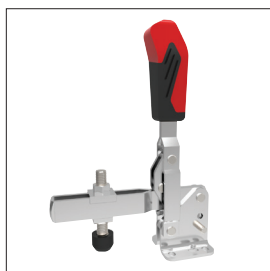


Vertical base

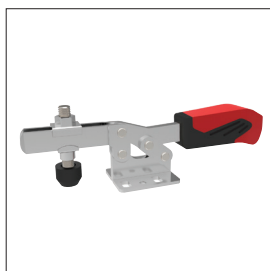


Angled base

### Mounting Base Variations



Vertical acting



Horizontal acting



Push-pull

### Clamping Variations



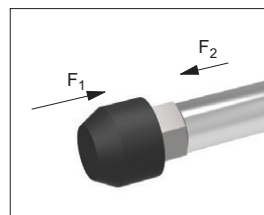
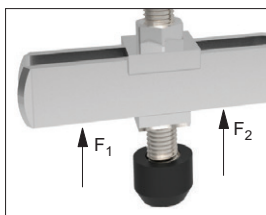
Hook type



Latch type

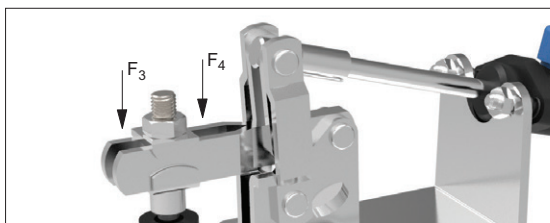
## Explanation of forces

The force transmitted to the workpiece by the toggle clamp's closed arm, without itself being deformed when machine forces are applied. The holding force value is dependent upon the proximity of the measuring load point to the toggle clamp's pivot point (therefore two values,  $F_1$  and  $F_2$  are provided).



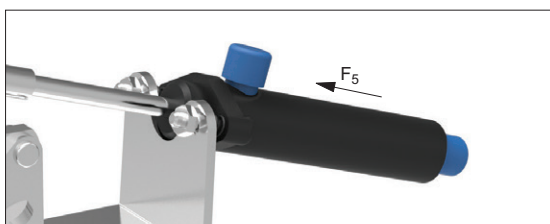
### Holding Forces $F_1$ or $F_2$

The force applied to the workpiece when the toggle clamp's arm is closed. These clamping forces can only be stated for pneumatic toggle clamps, clamping forces of manual clamps cannot be easily measured as they are dependent upon the operator.



### Clamping Forces $F_3$ or $F_4$

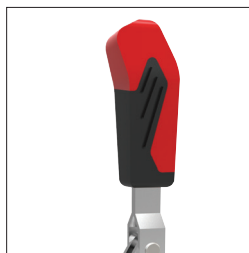
For pneumatically controlled toggle clamps only,  $F_5$  is the piston force required (at 6 bar to) achieve the stated clamping force.



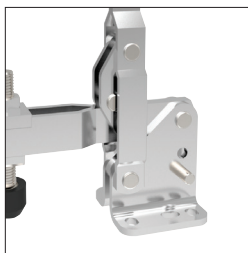
### Piston Forces $F_5$



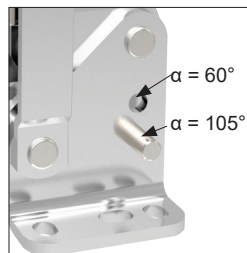
### Quality Features



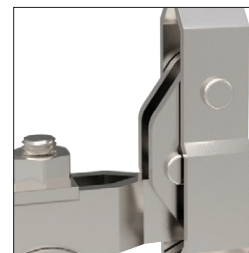
Ergonomic soft grip  
2-component handle



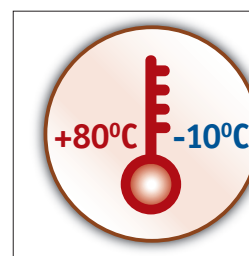
Stainless rivets and  
hardened bushings



Moveable stop for  
variable opening angle



Operator  
finger protection



Temperature resistant

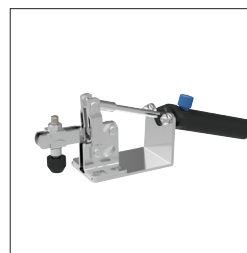
### Unique Features



Safety catches



Heavy duty versions



Pneumatic versions



Matt black surface for  
optical measurement

### Materials



Steel, zinc plated  
and passivated



Stainless steel (304)



Steel, matt black  
vario-spektron coated



Protective cap and  
handle made of an  
electrostatic conductive  
(dissipative) material.