

# RAIS-TOOLS

Sp. z o.o.



## TOGGLE CLAMPS

**2016/2017**

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**EN**



The "RAIS-TOOLS Sp. o.o." company was founded in 2013 and it is the sole distributor of high quality manual and pneumatic quick-fixing clamps and manual presses produced by the company with over 30 years of experience: "RAIS-Narzedzia Mocujace Grzegorz Rais".

We provide fixing tools for distributors and final customers.

Our clamps are used in the production systems of many companies at home and abroad.

We have a strong position in the such industries as automotive, plastics, wood, welding and others. Many awards and prizes won during the fair in Poland and Europe are the proof that our products are known for high quality.

Our main goal is the satisfaction of customers, to whom we sell the highest quality products and provide service at competitive prices. To meet with the growing needs of the market we focus on constant development and implementation of new products to our offer.

The RAIS-TOOLS company for many years implements and applies a Quality Management System which complies with the requirements of ISO 9001, documented in certificates:

- ISO 9001: 2009 1816/11/2015 / JC
- ISO 9001: 2000 No. 320508068/1 issued by DEKRA
- ISO 9001: 2000 NR 12100 19012 TMS issued by TUV Management Service GmbH





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# I. Horizontal toggle clamps

All toggle clamps produced by our company are self-locking and have an internal lock (so-called the knee lever), which allows stiff, strong and fast mounting of the workpieces.

In the extreme position of the handle the lock is achieved. Toggle clamps are mainly used for fixing in welding, drilling, assembly and milling devices, during processing of wood, metal, plastics and other materials.

Clamps are made of galvanized steel combined by hardened sleeves and acid resistant bolts. The flexible handle is made of plastic material which is resistant to acids, bases, detergents, oils and solvents.

The drawings show three forces:

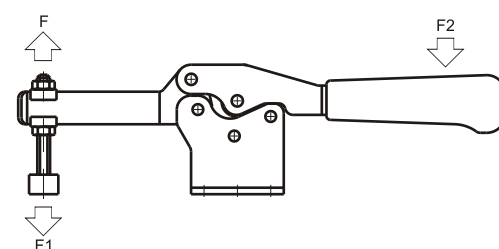
**The F2 force** coming from the operator's hand or from a pneumatic cylinder (compressed air pressure approx. 0,6 MPa).

Clamping **force F1** derived from the force F2 and proportionate to it ( $\alpha \approx 0^\circ$ ).

Holding **force F** derived from the knee lock mechanism and being a reaction to the forces applied on the workpiece during processing.

The forces shown in the drawings are given in units of **daN**.

**1 [kg]  $\approx$  1 [daN] = 10 [N]**



## Clamping arm

Galvanized, made from structural steel.

## Connector

Galvanized, made from structural steel.

## Open ends of the clamping arm.

Prevents from losing / sliding off the clamping screw.

## Flexible handle

The PCV handle grip is fitted on galvanized arm made of structural steel.

## Clamping setscrew

Clamping setscrew 8.8 class with flanged washers, nuts and rubber cover.

## Base

Galvanized, made from structural steel.

## Stainless steel pin and knurled bushing.

The pin is made of stainless steel embedded in the hardened knurled bushing.



We reserve the right to make any changes without notice.



## 1. HORIZONTAL CLAMP

901, 902, 012, 903, 904, 906

The toggle clamp is made of the galvanized structural steel. Stainless steel bolts are embedded in improved thermo-chemically knurled bushings. Joining parts are lubricated. The handle is made of a flexible plastic material.

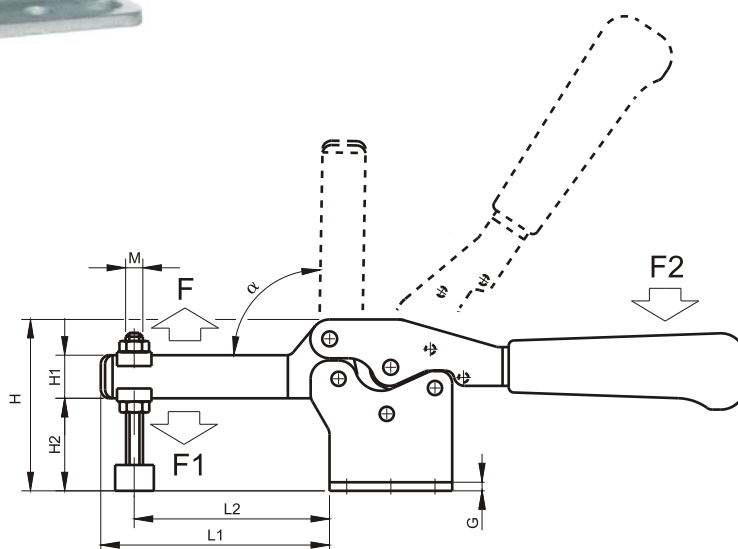
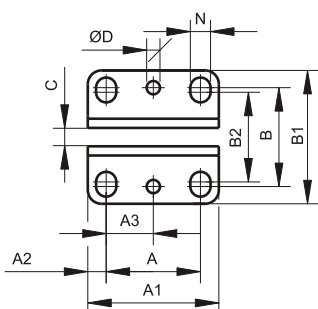
You can clamp the object processed when the handle is in horizontal position.

Set includes:

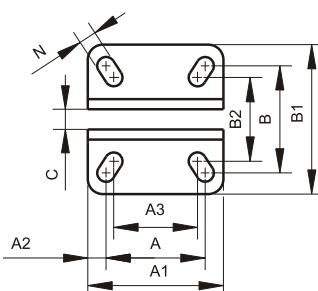
- clamp
- clamping setscrew class 8.8 with nuts
- 2 pieces of flanged washers
- rubber cover



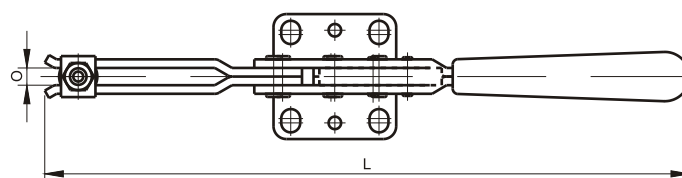
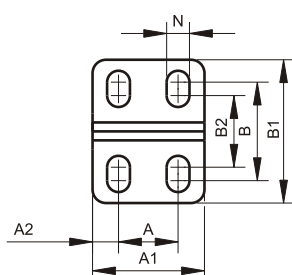
Base  
902,  
903, 903B,  
904, 904B




Base  
906, 906B



Base  
012,  
901



Nr		F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	A3	B	B1	B2	C	ØD	G	H	H1	H2	L	L1	L2	M	N	O	α
901	0,09	90	25	6	13,3	25	5,7	---	21,5	32	15,6	---	---	2,0	36	10	21	121	41	15 ÷ 30	M5x30	4,9	5	90°
902	0,19	130	35	9	26,0	37	5,2	13,7	28,2	39	20,6	5	4,8	2,5	46	13	26	163	61	22 ÷ 50	M6x35	5,5	6	90°
012	0,27	150	55	9	26,0	42	7,9	---	38,0	50	20,3	---	---	3,0	51	14	29	186	57	17 ÷ 44	M6x40	6,1	6	90°
903	0,40	210	60	12	25,7	40	7,6	12,9	30,3	44	25,8	6	4,8	3,0	65	17	37	234	81	28 ÷ 67	M8x55	7,5	8	90°
904	0,84	320	75	15	40,8	57	7,8	20,5	43,2	58	39,1	8	5,7	4,0	80	20	42	301	106	33 ÷ 91	M8x65	8,6	8	90°
906	1,50	500	90	18	49,0	67	9,0	41,4	53,0	74	41,4	10	---	5,0	97	25	61	359	131	42 ÷ 112	M10x90	8,8	10	90°

We reserve the right to make any changes without notice.



## 2. HORIZONTAL CLAMP WITH STRAIGHT BASIS

951, 952, 052, 953, 954, 956

The toggle clamp is made of the galvanized structural steel. Stainless steel bolts are embedded in improved thermo-chemically knurled bushings. Joining parts are lubricated. The handle is made of a flexible plastic material.

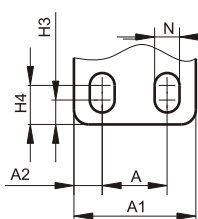
You can clamp the object processed when the handle is in horizontal position.

Set includes:

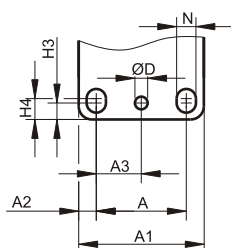
- clamp
- clamping setscrew class 8.8 with nuts
- 2 pieces of flanged washers
- rubber cover



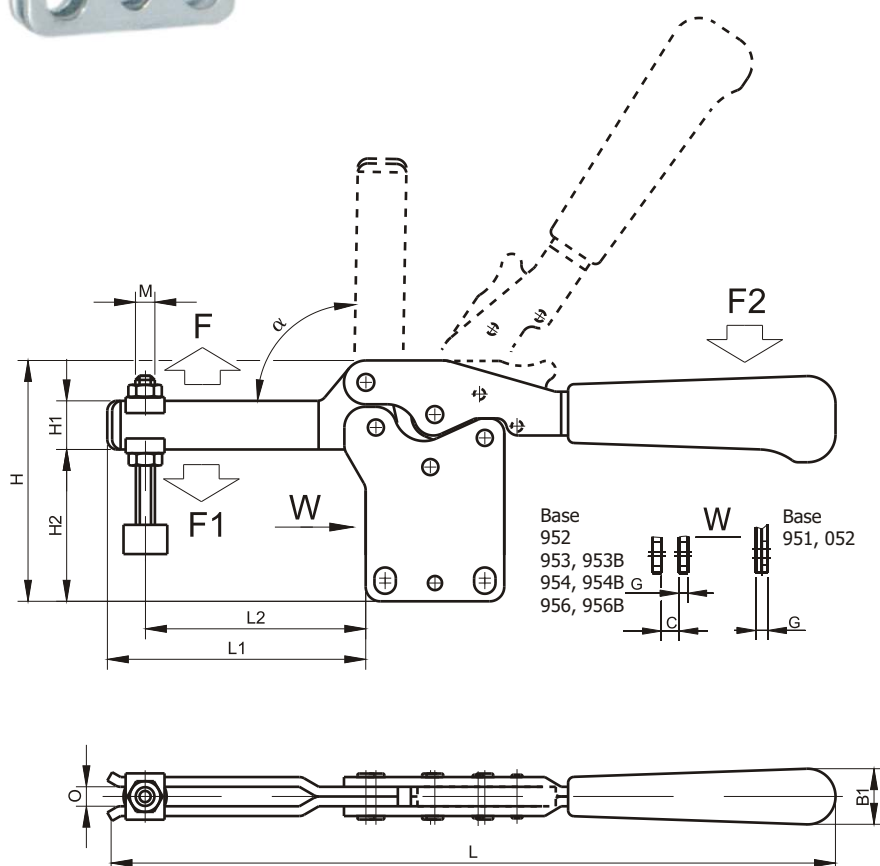
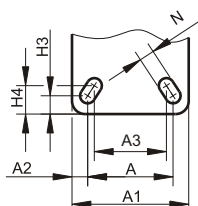
Base  
951, 052




Base  
952,  
953, 953B,  
954, 954B



Base  
956, 956B



Nr		F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	A3	B1	C	ØD	G	H	H1	H2	H3	H4	L	L1	L2	M	N	O	α
951	0,09	90	25	6	13,3	25	5,7	---	11	---	---	4,0	49	10	34	5,3	8,2	121	41	15 ÷ 30	M5x30	4,9	5	90°
952	0,19	130	35	9	26,0	37	5,2	13,7	14	5	4,8	2,5	59	13	39	5,4	9,2	163	61	22 ÷ 50	M6x35	5,5	6	90°
052	0,27	150	55	9	26,0	42	8,0	---	14	---	---	6,0	71	14	49	6,0	14,8	186	57	17 ÷ 44	M6x40	6,1	6	90°
953	0,40	210	60	12	25,7	40	7,6	12,9	18	6	4,8	3,0	79	17	51	6,9	9,1	234	81	28 ÷ 67	M8x55	7,5	8	90°
954	0,84	320	75	15	40,8	57	7,8	20,5	22	8	5,7	4,0	99	20	61	7,4	9,5	301	106	33 ÷ 91	M8x65	8,6	8	90°
956	1,50	500	90	18	49,0	67	9,0	41,4	24	10	---	5,0	122	25	85	10,5	16,3	359	131	42 ÷ 112	M10x90	8,8	10	90°

We reserve the right to make any changes without notice.



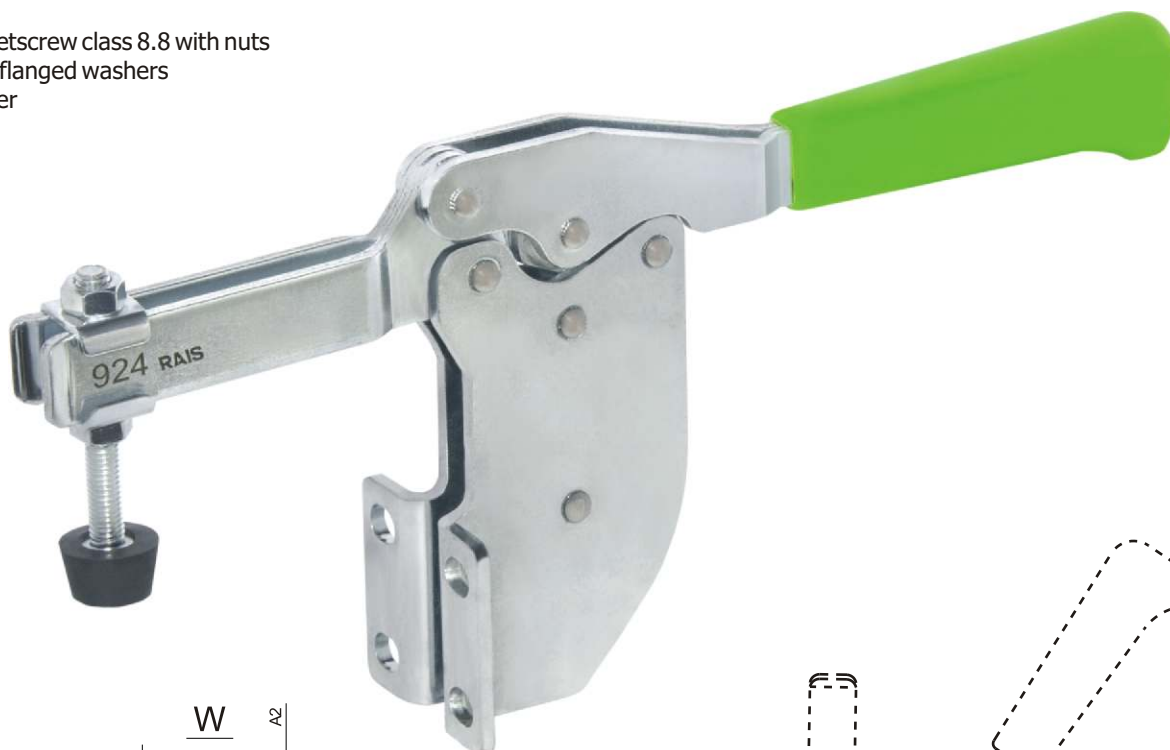
### 3. SIDE HORIZONTAL CLAMP

The toggle clamp is made of the galvanized structural steel. Stainless steel bolts are embedded in improved thermo-chemically knurled bushings Joining parts are lubricated. The handle is made of a flexible plastic material.

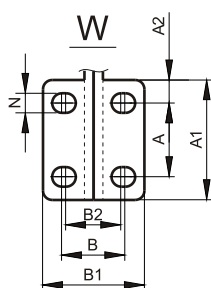
You can clamp the object processed when the handle is in horizontal position.

Set includes:

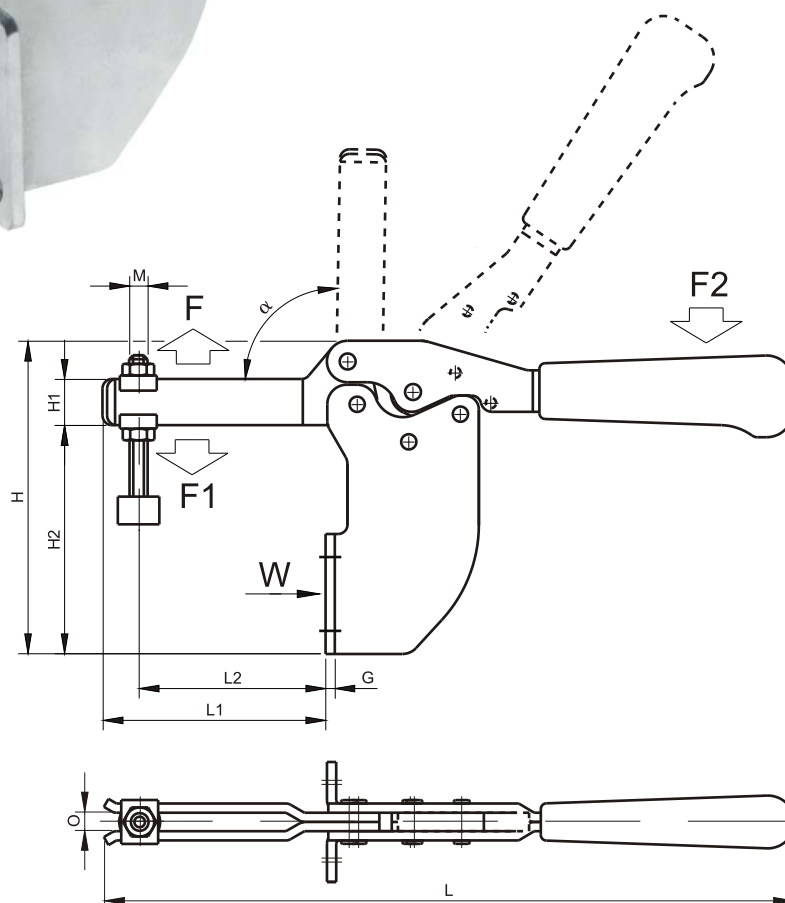
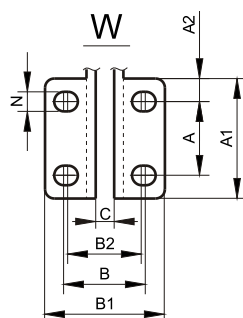
- clamp
- clamping setscrew class 8.8 with nuts
- 2 pieces of flanged washers
- rubber cover




Base  
022



Base  
922,  
923, 923B  
924, 924B



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	B	B1	B2	C	G	H	H1	H2	L	L1	L2	M	N	O	$\alpha$
922	0,24	130	35	9	20,0	32	6,0	27,5	38	25,5	5,0	2,5	80	13	60	163	55	15 ÷ 43	M6x35	5,5	6	90°
022	0,35	150	55	9	22,4	37	7,3	40,4	55	24,4	---	3,0	98	14	76	186	51	10 ÷ 38	M6x40	7,7	6	90°
923	0,48	210	60	12	24,0	38	7,0	30,5	43	28,5	6,0	3,0	106	17	78	234	74	21 ÷ 59	M8x55	6,5	8	90°
924	1,00	320	75	15	32,0	52	10,0	35,5	52	32,0	8,0	4,0	136	20	98	301	96	22 ÷ 81	M8x65	8,5	8	90°

We reserve the right to make any changes without notice.



4. HORIZONTAL CLAMP WITH VARIABLE HEIGHT

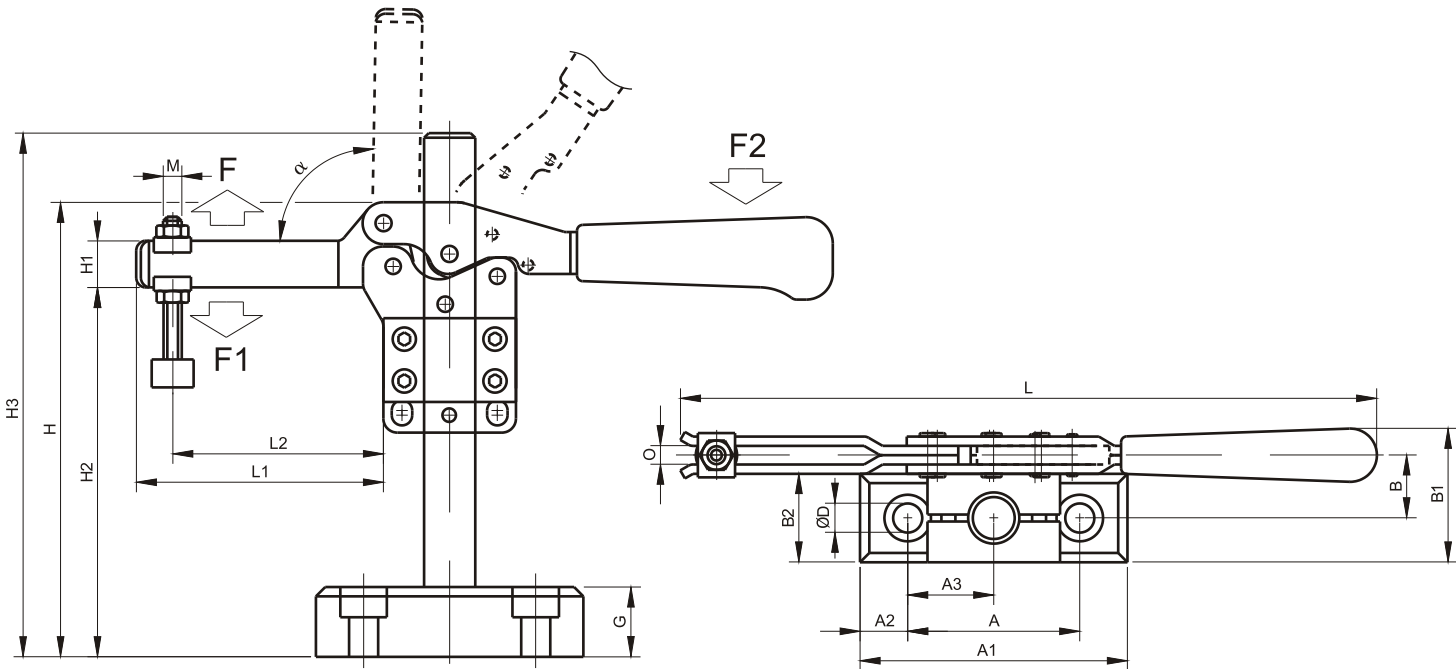
The toggle clamp is made of the galvanized structural steel. Stainless steel bolts are embedded in improved thermo-chemically knurled bushings Joining parts are lubricated. The handle is made of a flexible plastic material.


You can clamp the object processed when the handle is in horizontal position.

At your request we make the selection of T-nuts DIN 508 to the corresponding T-slot tables in machine tools.

Set includes:

- clamp
- pole which allows the change of height
- clamping setscrew class 8.8 with nuts
- 2 pieces of flanged washers
- rubber cover




Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	A3	B	B1	B2	G	H	H1	H2	H3	L	L1	L2	ØD	M	O	α
963	1,40	210	60	12	60	90	15,0	30	23	49	34	26	90 ÷ 248	17	64 ÷ 222	206	234	81	28 ÷ 66	8,5	M8x55	8	90°
964	2,80	320	75	15	74	115	20,5	37	27	58	38	30	115 ÷ 274	20	78 ÷ 237	225	301	106	33 ÷ 90	12,5	M8x65	8	90°
966	4,08	500	90	18	90	140	25,0	45	29	62	38	36	139 ÷ 277	25	128 ÷ 266	216	359	131	41 ÷ 111	16,5	M10x90	10	90°

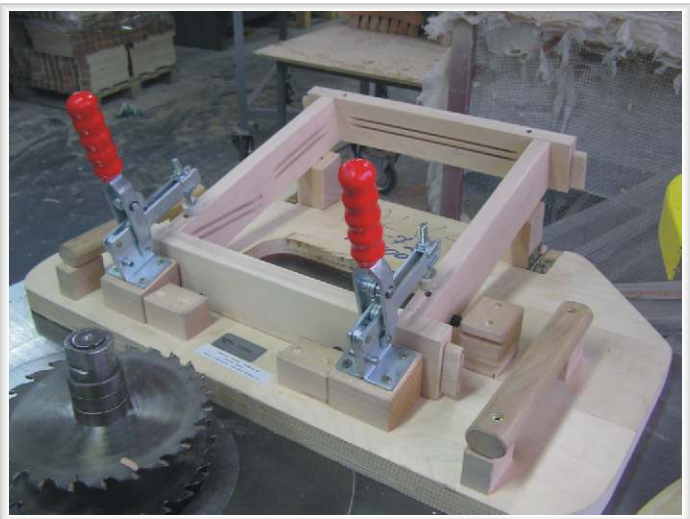
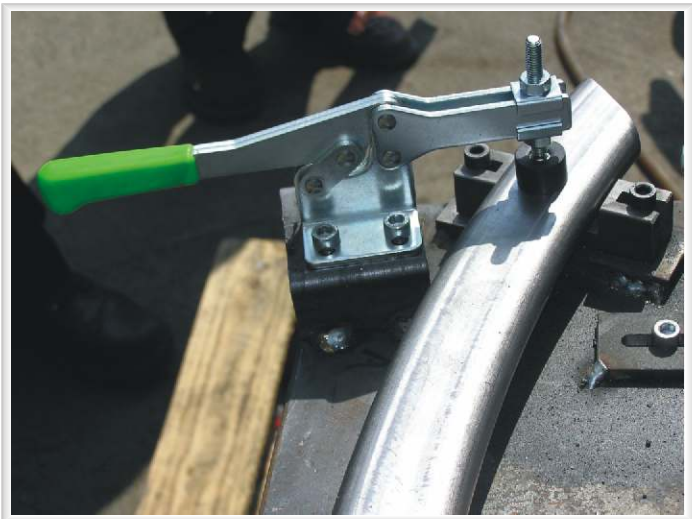
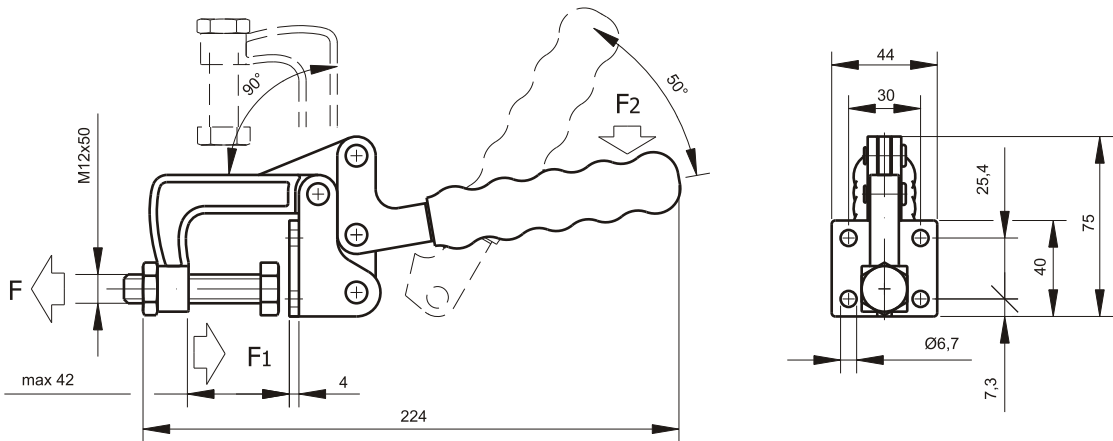
We reserve the right to make any changes without notice.



5. REVERSED HORIZONTAL CLAMP

This tool makes it possible to clamp the object processed in two opposite planes.

Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]
077	0,56	360	115	24

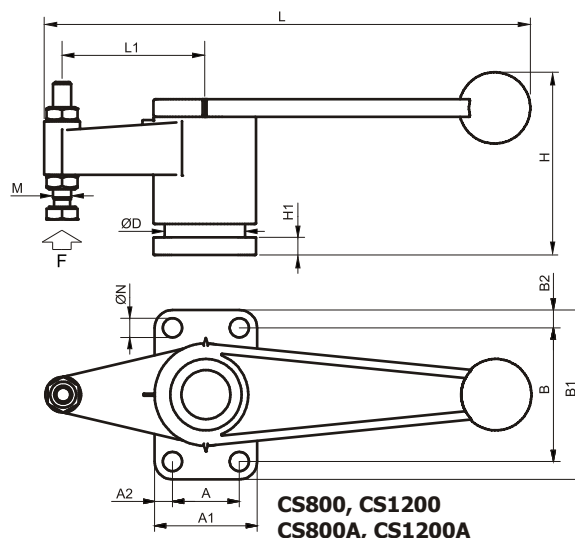
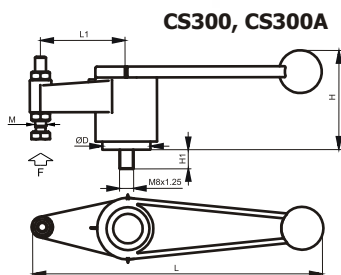
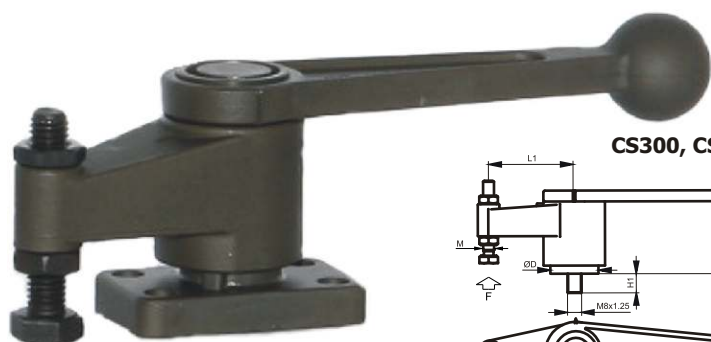



We reserve the right to make any changes without notice.

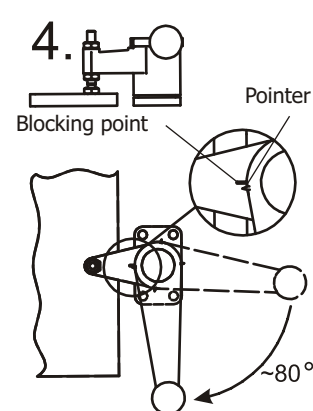
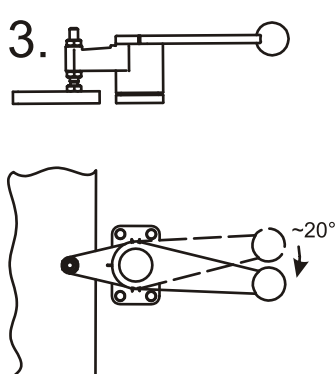
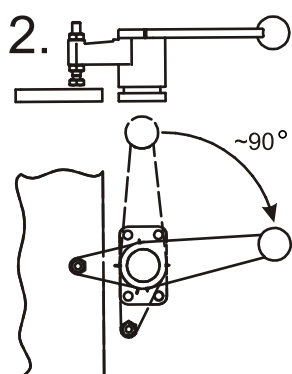
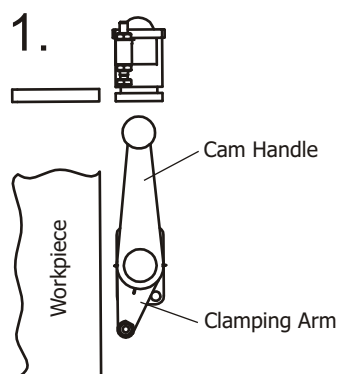


## 6. CAM SWING CLAMPS

**CS300, CS800, CS1200**  
**CS300A, CS800A, CS1200A**



Nr		F [daN]	A	A1	A2	B	B1	B2	ØD	H	H1	L	L1	M	ØN
CS300 CS300A	0,20	300	---	---	---	---	---	---	18	38	10	111	32	M6x25	---
CS800 CS800A	0,40	800	18	30	6	36	48	6	28	54	7,5	150	42	M8x40	6,3
CS1200 CS1200A	0,90	1200	25	40	7,5	50	65	7,5	37	77	10	200	55	M10x55	8,3

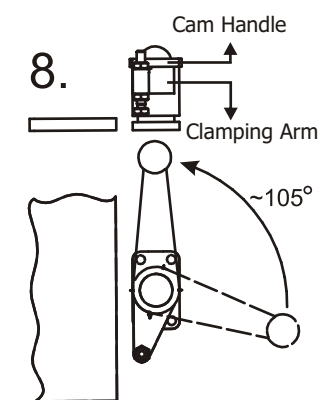
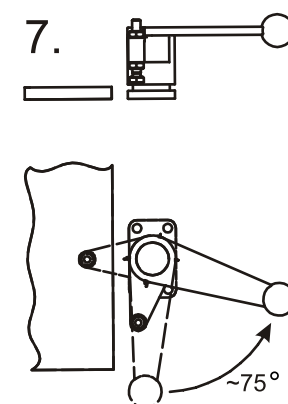
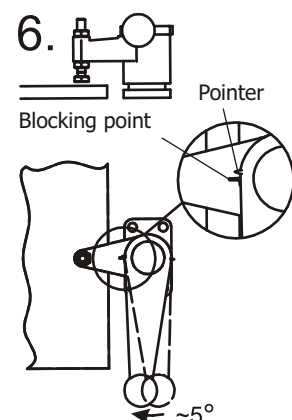
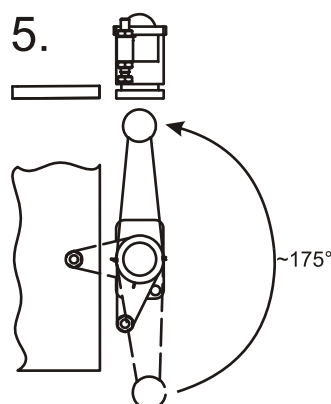


1. Clamp in the initial position.

2. After the handle is turned about 90° press goes on the workpiece.

3. We obtain prefixing of the workpiece after about ... 20°.

4. Rotation about 80° causes the rigid attachment of the workpiece (index before the lock point).



5. Release of clamping pressure and return of the clamp to the initial position.

6. Release of clamping pressure and return of the clamp to the initial position.

7. The return movement of the handle about 75° causes return of the press to initial position.

8. In order to put the clamp into initial position you need to put the press down while putting the handle up for about 105° at the same time.



## II. Vertical toggle clamps

All toggle clamps produced by our company are self-locking and have an internal lock (so-called the knee lever), which allows stiff, strong and fast mounting of the workpieces.

In the extreme position of the handle the lock is achieved. Toggle clamps are mainly used for fixing in welding, drilling, assembly and milling devices, during processing of wood, metal, plastics and other materials.

Clamps are made of galvanized steel combined by hardened sleeves and acid resistant bolts. The flexible handle is made of plastic material which is resistant to acids, bases, detergents, oils and solvents.

The drawings show three forces:

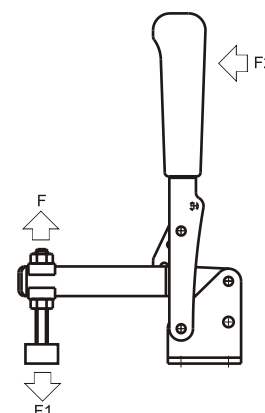
**The F<sub>2</sub> force** coming from the operator's hand or from a pneumatic cylinder (compressed air pressure approx. 0,6 MPa).

Clamping **force F<sub>1</sub>** derived from the force F<sub>2</sub> and proportionate to it ( $\alpha \approx 0^\circ$ ).

Holding **force F** derived from the knee lock mechanism and being a reaction to the forces applied on the workpiece during processing.

The forces shown in the drawings are given in units of **daN**.

**1 [kg]  $\approx$  1 [daN] = 10 [N]**



### Connector

Galvanized, made from structural steel.

### Clamping arm

Galvanized, made from structural steel.

### Open ends of the clamping arm.

Prevents from losing / sliding off the clamping screw.

### Clamping setscrew

Clamping setscrew 8.8 class with flanged washers, nuts and rubber cover.

### Flexible handle

The PCV handle grip is fitted on galvanized arm made of structural steel.

### Stainless steel pin and knurled bushing.

The pin is made of stainless steel embedded in the hardened knurled bushing.

### Base

Galvanized, made from structural steel.



We reserve the right to make any changes without notice.



# 7. VERTICAL CLAMP

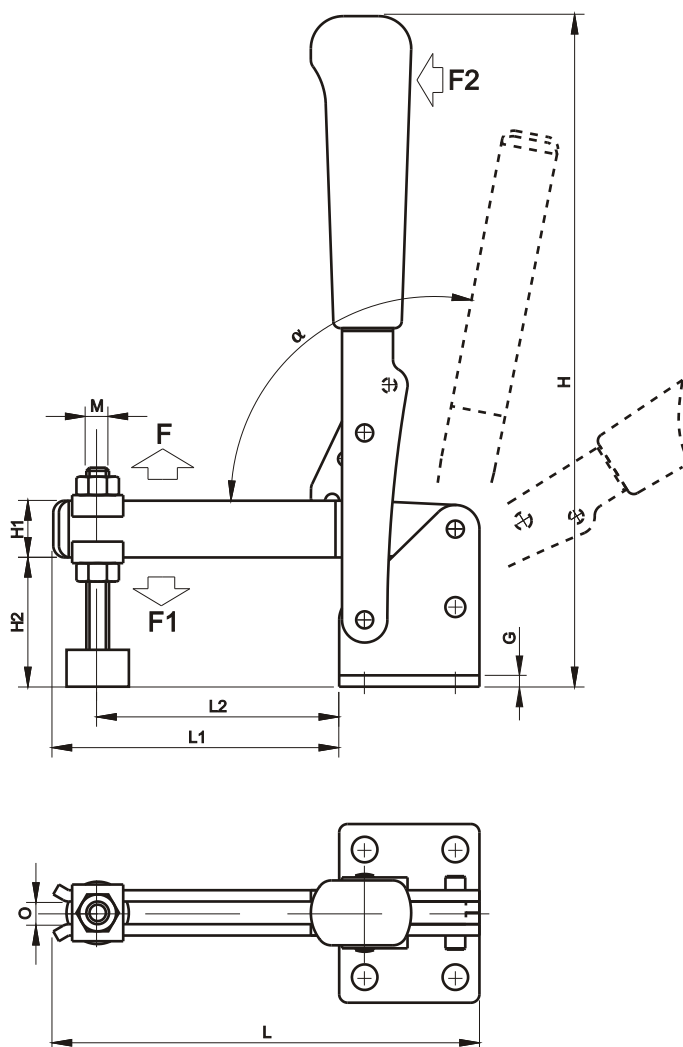
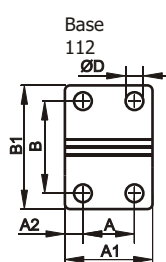
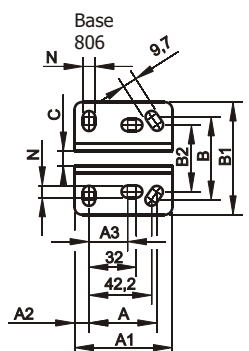
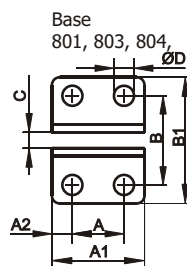
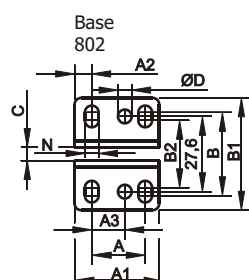
801, 802, 112, 803, 804, 806


The toggle clamp is made of the galvanized structural steel. Stainless steel bolts are embedded in improved thermo-chemically knurled bushings. Joining parts are lubricated. The handle is made of a flexible plastic material.

You can clamp the object processed when the handle is in vertical position.

Set includes:

- clamp
- clamping setscrew class 8.8 with nuts
- 2 pieces of flanged washers
- rubber cover



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	A3	B	B1	B2	C	ØD	G	H	H1	H2	L	L1	L2	M	N	O	α
801	0,11	90	40	6	16,0	26,0	5,3	---	24,6	35	---	4	4,9	2,0	107	10	20	62	36	12 ÷ 26	M5x30	---	5	100°
802	0,20	130	70	9	20,2	32,0	6,6	12,6	32,4	43	26	5	5,2	2,5	132	13	24	80	47	13 ÷ 35	M6x35	5	6	100°
112	0,37	150	65	9	20,0	34,0	7,0	---	33,9	48	---	---	7,0	3,0	176	14	28	96	62	19 ÷ 49	M6x40	---	6	102°
803	0,40	210	90	12	19,5	35,0	7,8	---	34,2	48	---	6	7,9	3,0	189	17	35	111	76	19 ÷ 61	M8x55	---	8	90°
804	0,84	320	130	15	32,0	49,5	9,0	---	45,1	63	---	8	8,9	4,0	239	20	46	151	102	19 ÷ 87	M8x65	---	8	90°
806	1,58	500	150	18	45,7	66,0	9,8	26,0	56,0	76	45	10	---	5,0	278	25	55	203	137	24 ÷ 117	M10x90	8,3	10	90°

We reserve the right to make any changes without notice.



# 8. VERTICAL CLAMP WITH STRAIGHT BASIS

851, 852, 152, 853, 854, 856

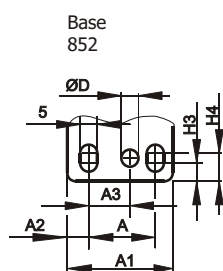


The toggle clamp is made of the galvanized structural steel. Stainless steel bolts are embedded in improved thermo-chemically knurled bushings. Joining parts are lubricated. The handle is made of a flexible plastic material.

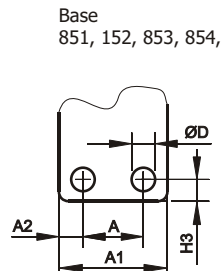
You can clamp the object processed when the handle is in vertical position.

Set includes:

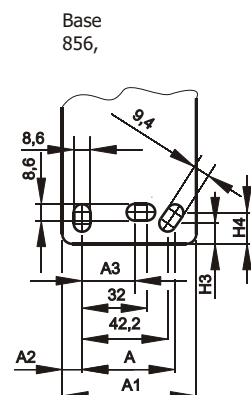
- clamp
- clamping setscrew class 8.8 with nuts
- 2 pieces of flanged washers
- rubber cover



Base 852

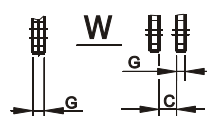


Base 851, 152, 853, 854,

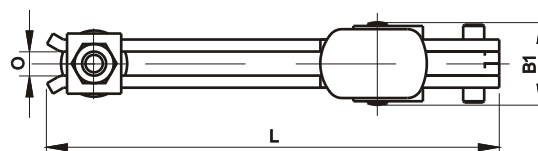
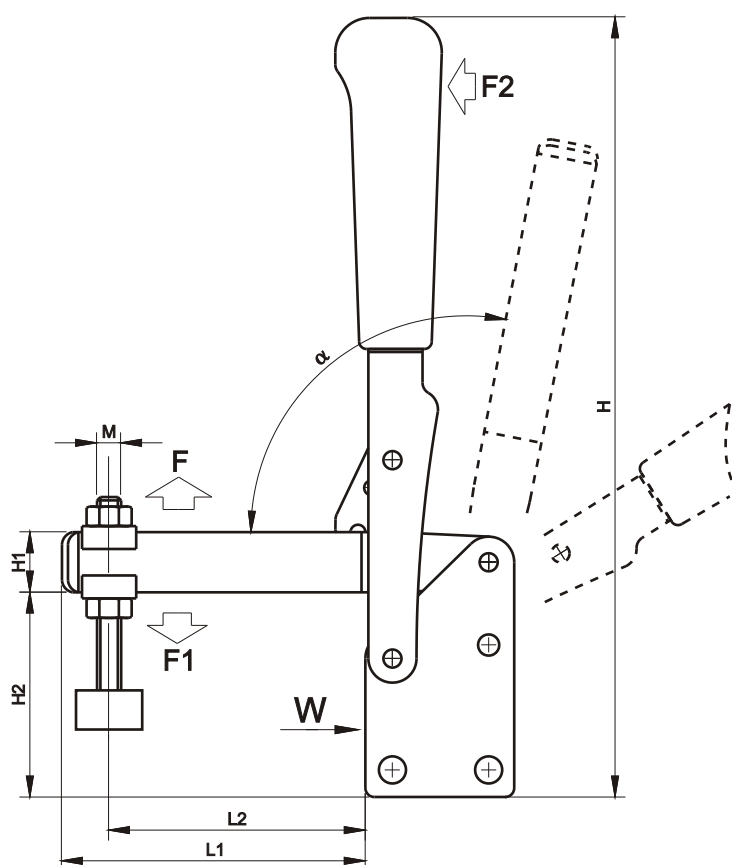



Base 856,

Base 152



Base 851, 852 853, 854, 856,



Nr		F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	A3	B1	C	ØD	G	H	H1	H2	H3	H4	L	L1	L2	M	O	α
851	0,11	90	40	6	16,0	26,0	5,3	---	16	4	5,3	2,0	119	10	32	5,2	---	62	36	12 ÷ 26	M5x30	5	100°
852	0,22	130	70	9	20,2	32,0	6,6	12,6	19	5	5,2	2,5	147	13	39	5,3	8,5	79	47	13 ÷ 35	M6x35	6	100°
152	0,37	150	65	9	20,0	34,0	7,0	---	24	---	7,0	6,0	195	14	47	7,0	---	96	62	19 ÷ 49	M6x40	6	102°
853	0,40	210	90	12	19,5	35,0	7,8	---	24	6	7,9	3,0	205	17	51	6,9	---	111	76	19 ÷ 61	M8x55	8	90°
854	0,84	320	130	15	32,0	49,5	9,0	---	30	8	8,9	4,0	260	20	67	9,0	---	151	102	19 ÷ 87	M8x65	8	90°
856	1,58	500	150	18	45,7	66	9,8	26,0	36	10	---	5,0	304	25	81	10,0	15,5	203	137	24 ÷ 117	M10x90	10	90°

We reserve the right to make any changes without notice.



# 9. SIDE VERTICAL CLAMP

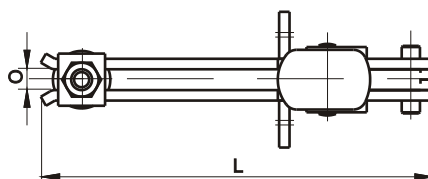
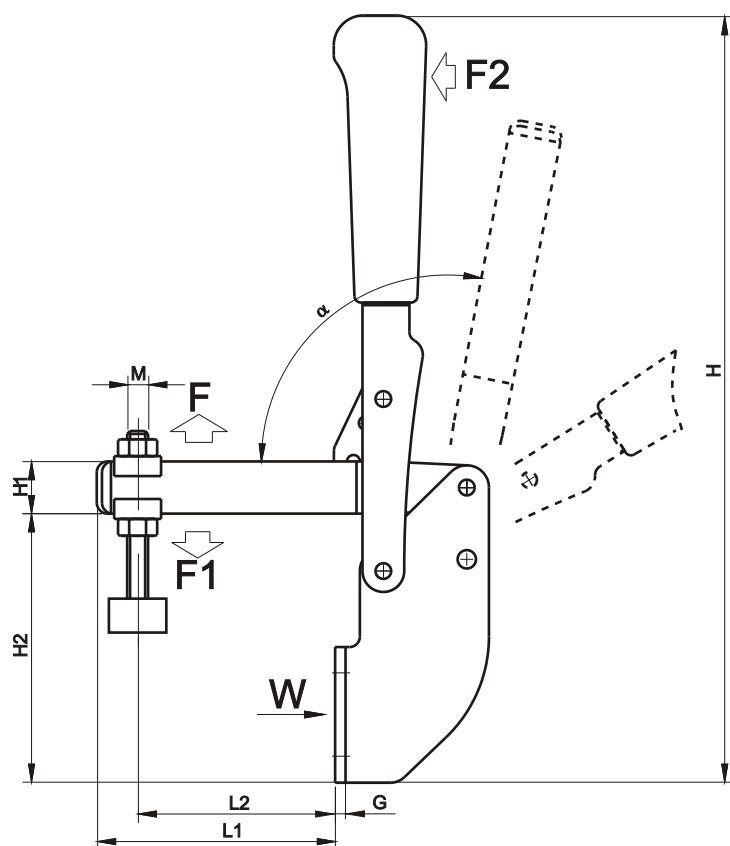
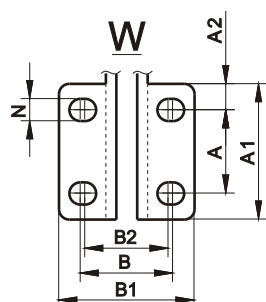



The toggle clamp is made of the galvanized structural steel. Stainless steel bolts are embedded in improved thermo-chemically knurled bushings. Joining parts are lubricated. The handle is made of a flexible plastic material.

You can clamp the object processed when the handle is in vertical position.

Set includes:

- clamp
- clamping setscrew class 8.8 with nuts
- 2 pieces of flanged washers
- rubber cover



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	B	B1	B2	G	H	H1	H2	L	L1	L2	M	N	O	$\alpha$
822	0,25	130	70	9	20	32	6	27,5	38	25,5	2,5	166	13	59	80	40	7 ÷ 29	M6x35	5,5	6	91°
823	0,47	210	90	12	24	38	7	30,5	43	28,5	3,0	230	17	76	111	68	11 ÷ 54	M8x55	6,5	8	91°
824	0,90	320	130	15	32	52	10	35,5	52	32,0	4,0	295	20	102	151	92	9 ÷ 77	M8x65	8,5	8	91°

We reserve the right to make any changes without notice.

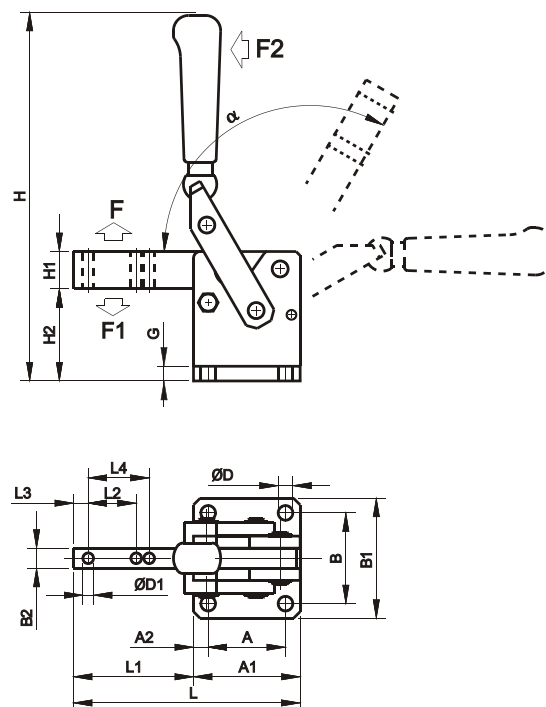



## 10. STRENGTHENED VERTICAL CLAMP

211, 213, 215, 217

These clamps hold out large weight. They are made of steel and have bushes made of bronze; bolts are hardened and polished.

You can clamp the object processed when the handle is in vertical position.



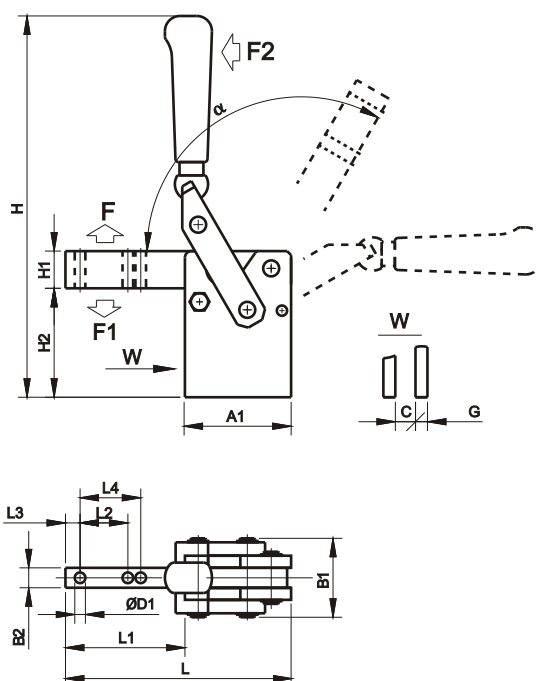
Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	B	B1	B2	ØD	ØD1	G	H	H1	H2	L	L1	L2	L3	L4	α
211	0,46	300	70	9	28	40	6	34	46	10	6	5	6	143	14	35	85	45	10	6	---	120°
213	1,50	700	130	12	46	64	9	54	72	12	9	6	9	220	22	56	136	72	20	8	---	119°
215	2,92	1200	150	15	58	80	11	68	90	15	11	8	11	268	28	69	170	90	25	11	36	118°
217	5,80	2300	200	18	76	100	12	76	104	20	13	10	13	326	36	87	216	116	32	14	46	117°


## 11. STRENGTHENED VERTICAL CLAMP WITH STRAIGHT BASIS

251, 253, 255, 257

These clamps hold out large weight. They are made of steel and have bushes made of bronze; bolts are hardened and polished.

You can clamp the object processed when the handle is in vertical position.



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A1	C	B1	B2	ØD1	G	H	H1	H2	L	L1	L2	L3	L4	α
251	0,43	300	70	9	40	10	35	10	5	5	153	14	45	85	45	10	6	---	120°
253	1,50	700	130	12	64	12	48	12	6	7	238	22	74	136	72	20	8	---	119°
255	2,90	1200	150	15	80	15	59	15	8	9	283	28	84	170	90	25	11	36	118°
257	5,90	2300	200	18	100	20	71	20	10	11	353	36	112	216	116	32	14	46	117°

We reserve the right to make any changes without notice.



## 12. COMPLETE STRONG VERTICAL CLAMP

292, 294, 296, 298, 299

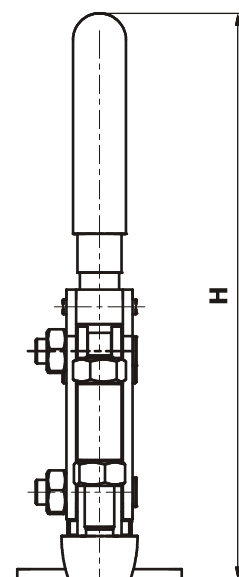
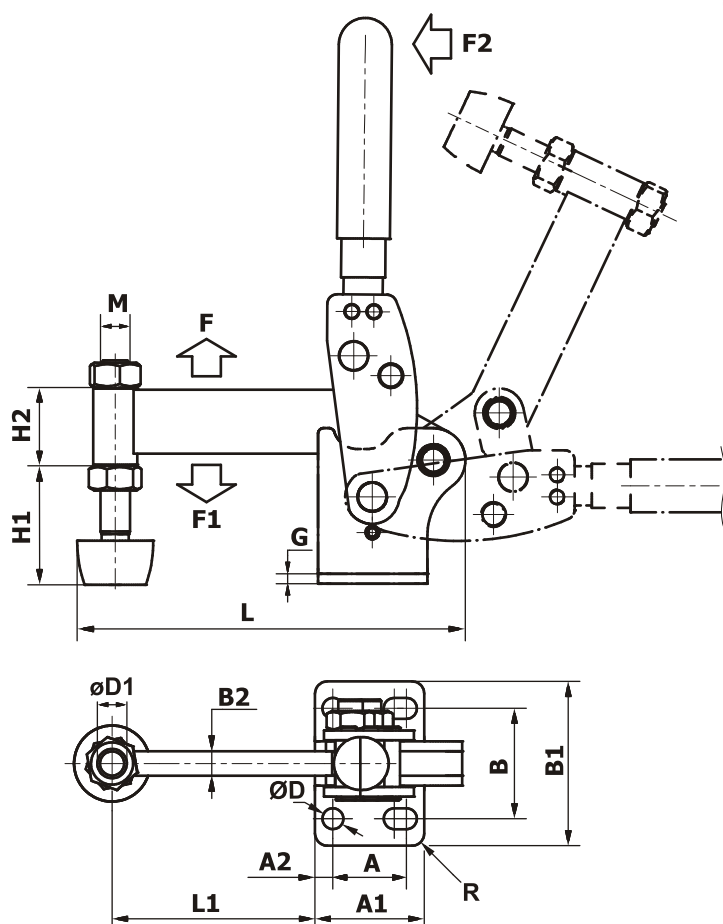
These clamps hold out large weight. They are made of steel and they have improved thermo-chemically knurled bushes, bolts are hardened and polished.


You can clamp the object processed when the handle is in vertical position.

Set includes:

- clamp
- clamping setscrew class 8.8 with nuts
- rubber cover

REGISTERED DESIGN



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	B	B1	B2	ØD	ØD1	G	H	H1	H2	L	L1	M	α	R
292	0,33	250	70	9	20	33,0	6,5	32	50	7,8	6,1	8	3	134	32,5	20	86,5	35,0	M8x50	116°	3
294	1,16	500	130	12	30	44,5	7,5	45	67	9,8	8,5	10	4	212	50,0	28	154,0	82,5	M10x75	116°	5
296	2,42	1000	150	15	45	65,0	10,0	52	81	11,8	11,0	12	6	253	63,5	36	188,0	100,0	M12x100	116°	7
298	4,88	2000	170	18	55	85,0	15,0	82	119	13,8	12,5	12	8	300	72,0	40	234,0	120,0	M12x125	116°	10
299	8,72	2800	190	20	60	100,0	20,0	108	145	15,8	12,5	16	10	397	104,0	50	289,0	140,0	M16x150	116°	15

We reserve the right to make any changes without notice.



### 13. COMPLETE STRONG VERTICAL CLAMP WITH STRAIGHT BASIS

282, 284, 286, 288, 289

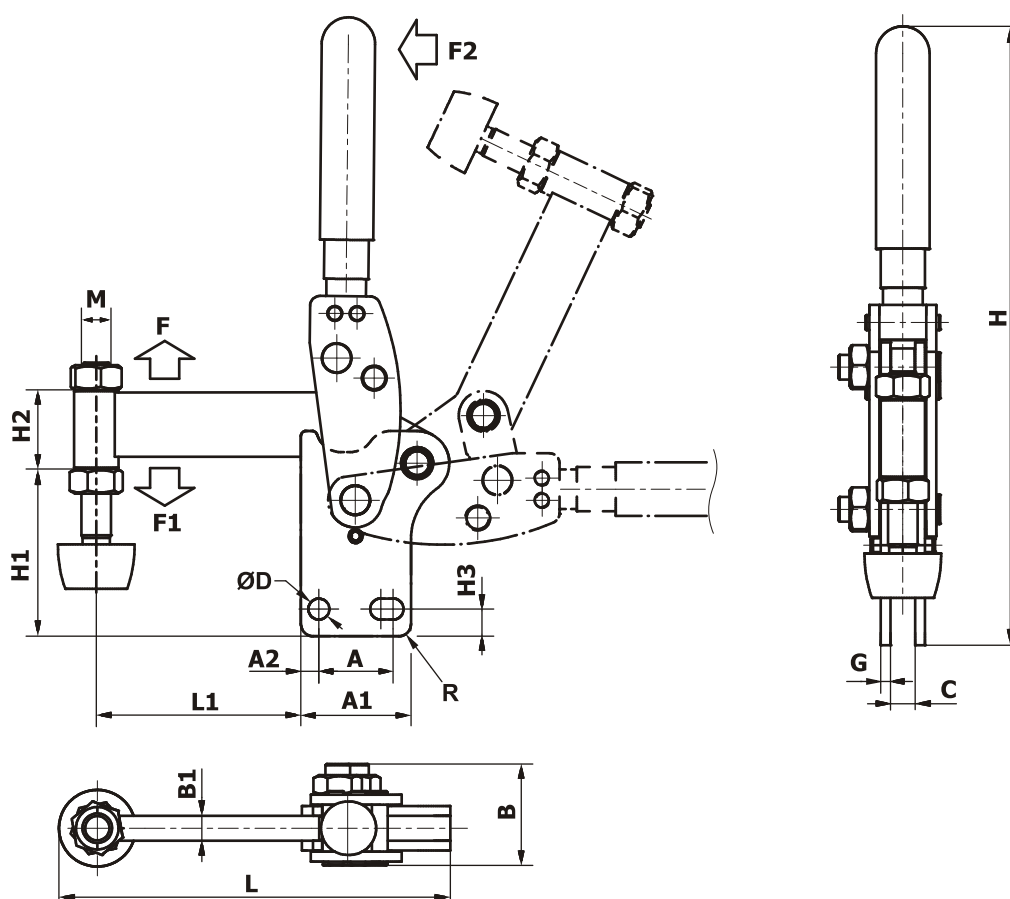
These clamps hold out large weight. They are made of steel and they have improved thermo-chemically knurled bushes, bolts are hardened and polished.


You can clamp the object processed when the handle is in vertical position.

Set includes:

- clamp
- clamping setscrew class 8.8 with nuts
- rubber cover

REGISTERED DESIGN



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	B	B1	C	ØD	G	H	H1	H2	H3	L	L1	M	α	R
282	0,40	250	70	9	20	33,0	6,5	29,5	7,8	8,2	6,1	3	150	48,5	20	9,0	86,4	35,0	M8x50	116°	3
284	1,16	500	130	12	30	44,5	7,5	39,5	9,8	10,2	8,5	4	234	71,5	28	11,0	154,0	82,5	M10x75	116°	5
286	2,41	1000	150	15	45	65,0	10	52,0	11,8	12,2	11,0	6	278	87,5	36	14,6	188,0	100,0	M12x100	116°	7
288	4,87	2000	170	18	55	85,0	15	64,0	13,8	14,2	12,5	8	363	110,0	40	18,5	234,0	120,0	M12x125	116°	10
289	8,71	2800	190	20	60	100,0	20	77,0	15,8	16,2	12,5	10	404	151,0	50	18,5	289,0	140,0	M16x150	116°	15

We reserve the right to make any changes without notice.



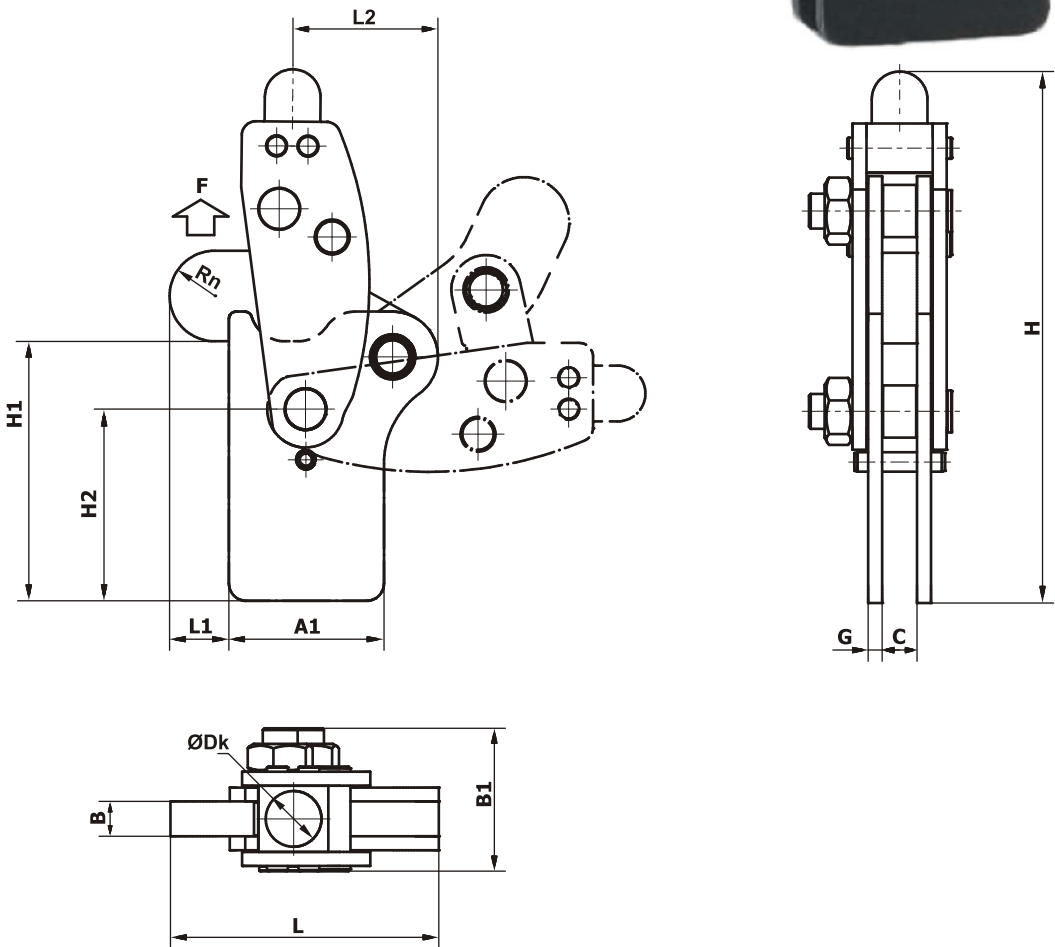
14. MODULAR CLAMP WITH STRAIGHT BASIS


These clamps hold out large weight. They are made of steel and they have improved thermo-chemically knurled bushes, bolts are hardened and polished.

Clamps of this type are used above all in industrial series production.

Page 25 shows the way of using this kind of clamp.

REGISTERED DESIGN



Nr	 [kg]	F [daN]	A1	B	B1	C	G	ØDk	H	H1	H2	L	L1	L2	Rn	α
272	0,28	400	33,0	7,8	29,5	8,2	3	10	102	49,5	37	52,6	12	30,3	9	116°
274	0,77	800	44,5	9,8	39,5	10,2	4	16	153	74,5	55	77	17	44,0	13	116°
276	1,74	1400	65,0	11,8	52,0	12,2	6	22	185	96,0	67	100	24	54,8	17	116°

We reserve the right to make any changes without notice.



# 15. PRECISE MODULAR CLAMP WITH STRAIGHT BASIS

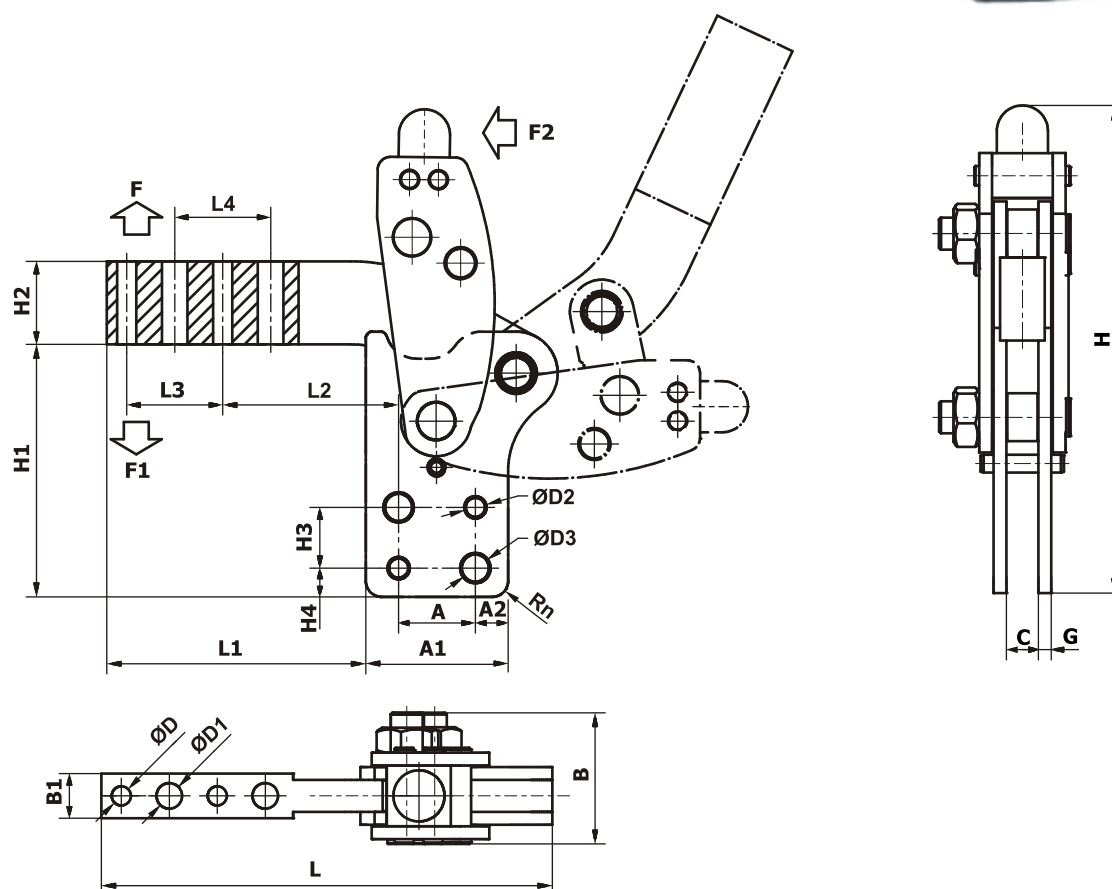
These clamps hold out large weight. They are made of steel and they have improved thermo-chemically knurled bushes, bolts are hardened and polished.


Clamps of this type are used above all in industrial series production.

Page 25 shows the way of using this kind of clamp.



REGISTERED DESIGN



Nr		F [daN]	F1 [daN]	F2 [daN]	A [±0,02]	A1	A2	B	B1	C	ØD [H7]	ØD1 [H7]	ØD2	ØD3	G	H	H1	H2	H3 [±0,02]	H4	L	L1 [±0,02]	L2 [±0,02]	L3 [±0,02]	L4	Rn	α
342	0,31	300	70	17	15	33,0	10,5	29,5	10	8,2	4	5,5	5	6,2	3	102	49,5	18	15	5,5	83	42,5	28	16	16	3	116°
344	0,91	600	130	24	24	44,5	10,5	39,5	14	10,2	6	8,0	6	8,5	4	153	79,0	26	19	9,0	141	81,0	55	30	30	5	116°
346	1,97	800	150	30	30	65,0	17,5	52,0	16	12,2	6	8,0	6	8,5	6	185	99,0	34	30	9,0	167	90,5	70	30	30	7	116°

We reserve the right to make any changes without notice.



16. MODULAR CLAMP WITH PENDULAR BASIS

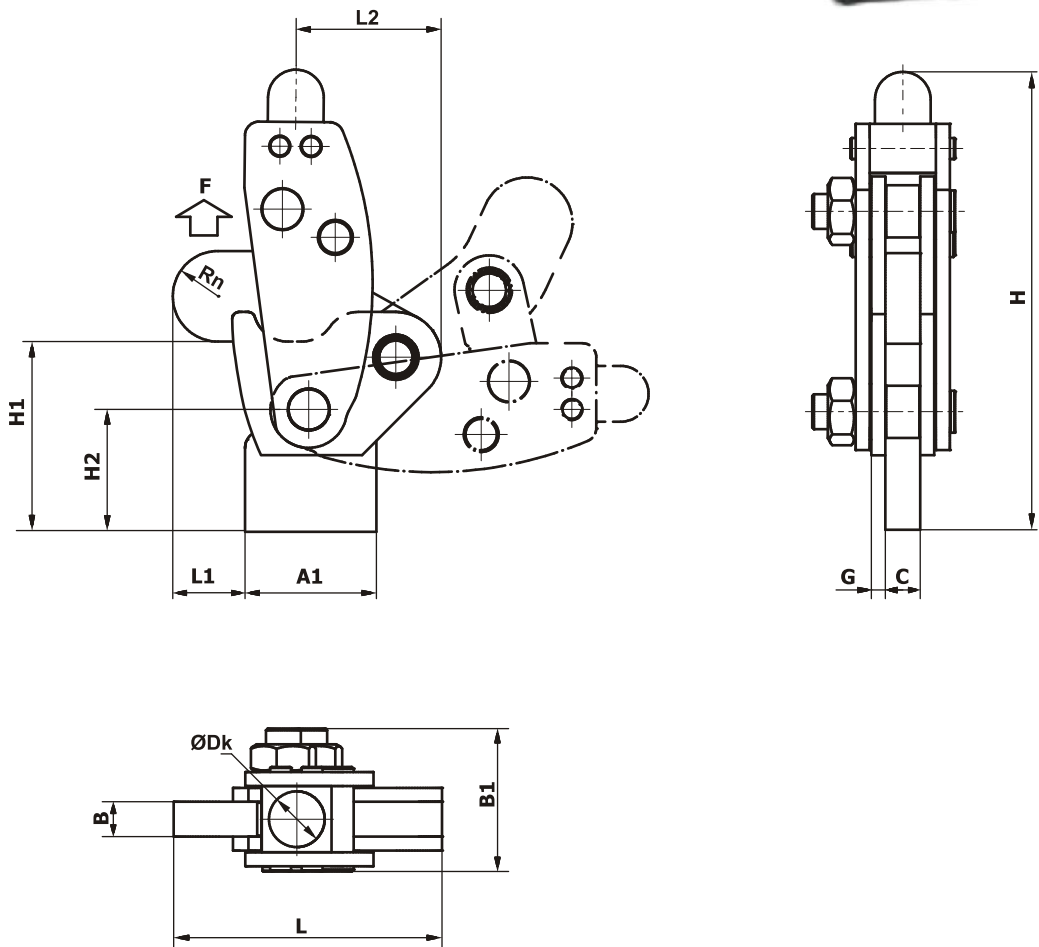
These clamps hold out large weight. They are made of steel and they have improved thermo-chemically knurled bushes, bolts are hardened and polished.


These tools enable to clamp the object processed at a chosen angle.

Clamps of this type are used above all in industrial series production.

Page 25 shows the way of using this kind of clamp.

REGISTERED DESIGN



Nr	 [kg]	F [daN]	A1	B	B1	C	G	ØDk	H	H1	H2	L	L1	L2	Rn
232	0,24	400	20	7,8	29,5	8,2	3	10	84	31	18,5	52,5	17	30,0	9
234	0,69	800	30	9,8	39,5	10,2	4	16	123	45	25,5	77	24	43,7	13
236	1,49	1400	40	11,8	52,0	12,2	6	22	152	63	34,0	100	32	55,0	17

We reserve the right to make any changes without notice.



## 17. COMPLETE STRONG VERTICAL CLAMP WITH COVER

292C, 294C, 296C

These clamps hold out large weight. They are made of steel and they have improved thermo-chemically knurled bushes, bolts are hardened and polished.

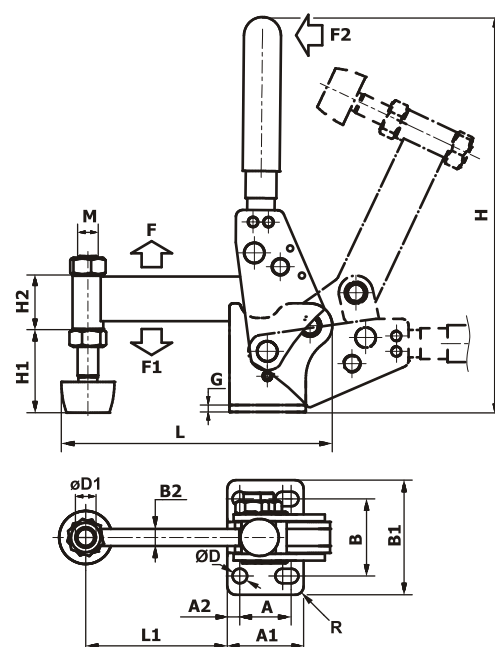
They used the cover in order to prevent chipping welding.


You can clamp the object processed when the handle is in vertical position.

Set includes:

- clamp
- clamping setscrew class 8.8 with nuts
- rubber cover

**PATENT  
PENDING**



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	B	B1	B2	ØD	ØD1	G	H	H1	H2	L	L1	M	α	R
292C	0,35	250	70	9	20	33,0	6,5	32	50	7,8	6,1	8	3	144	32,5	20	86,5	35,0	M8x50	116°	3
294C	1,20	500	130	12	30	44,5	7,5	45	67	9,8	8,5	12	4	229	49,5	28	158,0	82,5	M12x80	116°	5
296C	2,49	1000	150	15	45	65,0	10,0	62	91	11,8	10,5	12	6	275	63,0	36	191,5	100,0	M12x100	116°	7

## 18. COMPLETE STRONG VERTICAL CLAMP WITH COVER AND STRAIGHT BASIS

282C, 284C, 286C

These clamps hold out large weight. They are made of steel and they have improved thermo-chemically knurled bushes, bolts are hardened and polished.

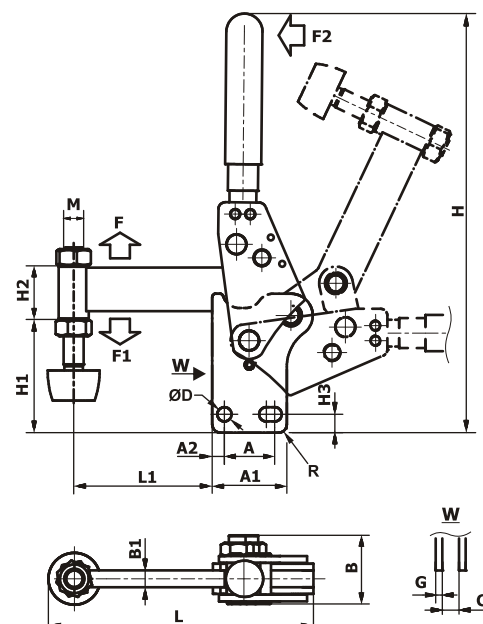
They used the cover in order to prevent chipping welding.


You can clamp the object processed when the handle is in vertical position.

Set includes:

- clamp
- clamping setscrew class 8.8 with nuts
- rubber cover

**PATENT  
PENDING**



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	B	B1	C	ØD	G	H	H1	H2	H3	L	L1	M	α	R
282C	0,41	250	70	9	20	33,0	6,5	29,5	7,8	8	6,1	3	160	48,5	20	9,0	86,4	35,0	M8x50	116°	3
284C	1,20	500	130	12	30	44,5	7,5	39,5	9,8	10	8,5	4	250	71,5	28	11,0	158,0	82,5	M12x75	116°	5
286C	2,49	1000	150	15	45	65,0	10	52,0	11,8	12	10,5	6	304	93,0	36	14,5	191,5	100,0	M12x100	116°	7

We reserve the right to make any changes without notice.



## 19. MODULAR CLAMP WITH STRAIGHT BASIS AND COVER

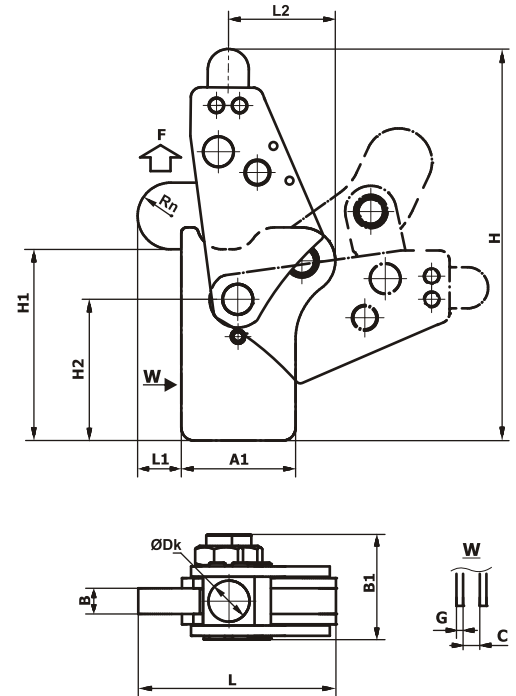
These clamps hold out large weight. They are made of steel and they have improved thermo-chemically knurled bushes, bolts are hardened and polished.


They used the cover in order to prevent chipping welding.

Clamps of this type are used above all in industrial series production.

Page 25 shows the way of using this kind of clamp.

**PATENT  
PENDING**



Nr	 [kg]	F [daN]	A1	B	B1	C	G	ØDk	H	H1	H2	L	L1	L2	Rn	α
272C	0,29	400	33,0	7,8	29,5	8	3	10	102	49,5	37	52,5	12	30,0	9	116°
274C	0,81	800	44,5	9,8	39,5	10	4	16	152	74,5	55	77	17	43,8	13	116°
276C	1,82	1400	65,0	11,8	52,0	12	6	22	190	101,0	72	100	24	54,8	17	116°

## 20. PRECISE MODULAR CLAMP WITH STRAIGHT BASIS AND COVER

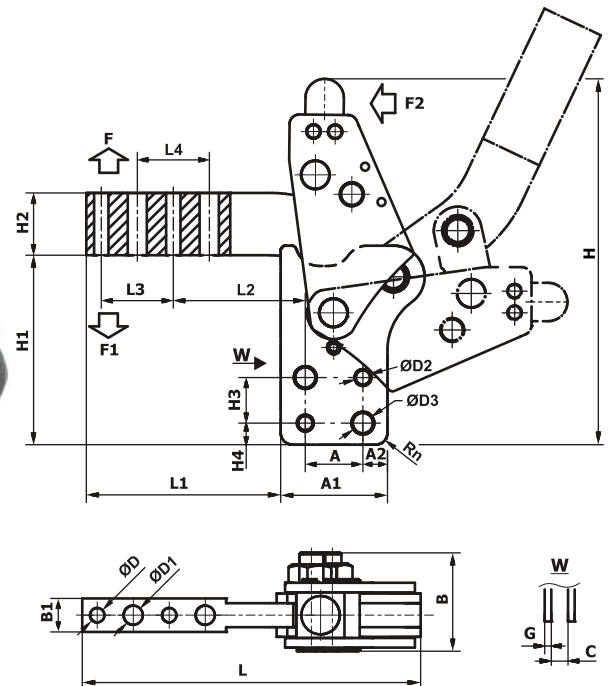
These clamps hold out large weight. They are made of steel and they have improved thermo-chemically knurled bushes, bolts are hardened and polished.


They used the cover in order to prevent chipping welding.

Clamps of this type are used above all in industrial series production.

Page 25 shows the way of using this kind of clamp.

**PATENT  
PENDING**



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A [±0,02]	A1	A2	B	B1	C	ØD [H7]	ØD1	ØD2 [H7]	ØD3	G	H	H1	H2	H3 [±0,02]	H4	L	L1 [±0,02]	L2 [±0,02]	L3 [±0,02]	L4	Rn	α
342C	0,32	300	70	17	15	33,0	10,5	29,5	10	8	4	5,5	5	6,2	3	102	49,5	18	15	5,5	83	42,5	28	16	16	3	116°
344C	0,95	600	130	24	24	44,5	10,5	39,5	14	10	6	8,0	6	8,5	4	153	79,0	26	19	9,0	141	81,0	55	30	30	5	116°
346C	2,05	800	150	30	30	65,0	17,5	52,0	16	12	6	8,0	6	8,5	6	190	103	34	30	9,0	167	90,5	70	30	30	7	116°

We reserve the right to make any changes without notice.



## 21. MODULAR CLAMP WITH PENDULAR BASIS AND COVER

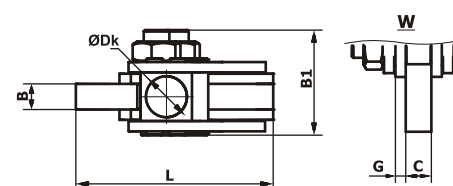
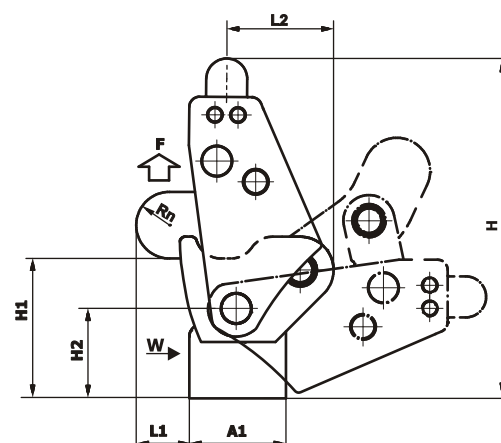
These clamps hold out large weight. They are made of steel and they have improved thermo-chemically knurled bushes, bolts are hardened and polished.


They used the cover in order to prevent chipping welding.

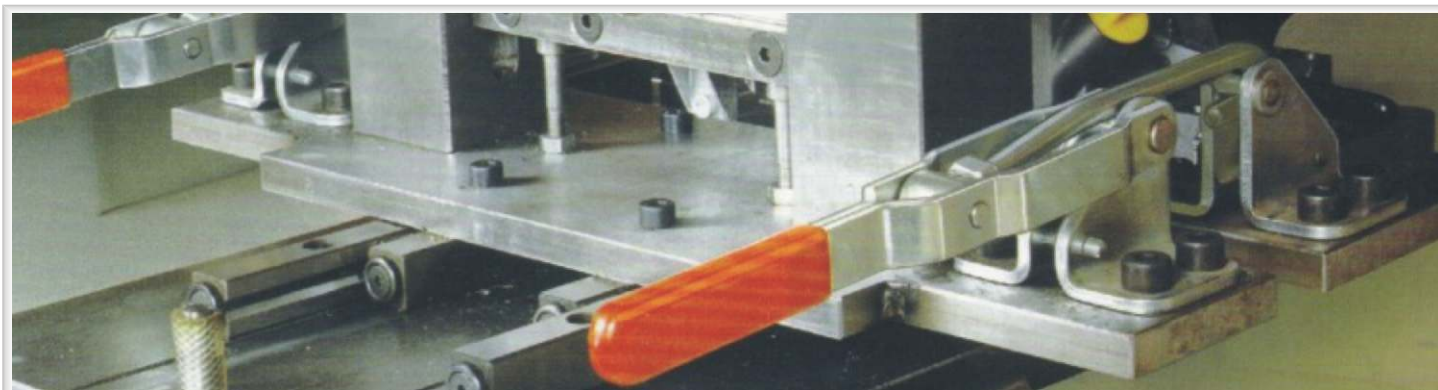
Clamps of this type are used above all in industrial series production.

Page 25 shows the way of using this kind of clamp.

**PATENT  
PENDING**



Nr		F [daN]	A1	B	B1	C	G	ØDk	H	H1	H2	L	L1	L2	Rn
232C	0,26	400	20	7,8	29,5	8	3	10	84	31	18,5	52,5	17	29,9	9
234C	0,73	800	30	9,8	39,5	10	4	16	123	45	25,5	77	24	43,7	13
236C	1,57	1400	40	11,8	52,0	12	6	22	152	63	34,0	100	32	54,6	17



We reserve the right to make any changes without notice.



## 22. MODULAR CLAMP WITH PENDULAR BASIS

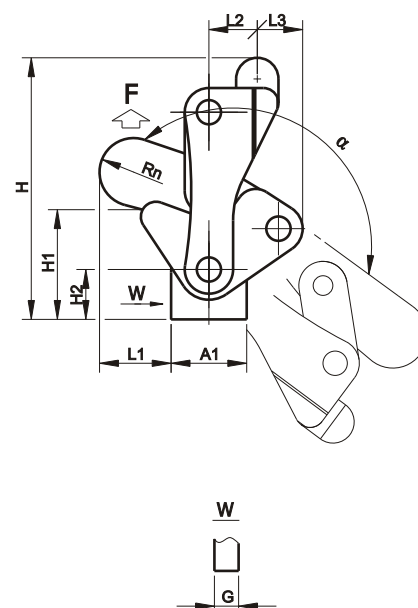
221, 223, 225, 227, 229


These clamps hold out large weight. They are made of steel and they have improved thermo-chemically knurled bushes, bolts are hardened and polished.

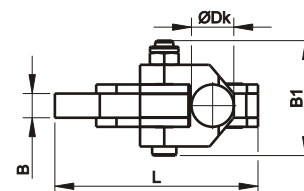
Clamps of this type are used above all in industrial series production.

Page 25 shows the way of using this kind of clamp.

These tools enable to clamp the object processed at a chosen angle.



Nr		F [daN]	A1	B	B1	ØDk	G	H	H1	H2	L	L1	L2	L3	Rn	α
221	0,18	250	20	6	31	10	6	73	26	18,0	58	22	12	14	10	200°
223	0,82	700	30	10	52	16	10	111	42	20,0	80	26	20	19	15	200°
225	1,32	1100	36	12	60	22	12	144	59	29,0	104	36	25	15	18	200°
227	2,86	2250	50	16	76	28	16	174	73	33,0	134	47	32	30	22	200°
229	5,36	3400	70	20	89	28	20	210	89	33,5	156	43	36	42	25	200°



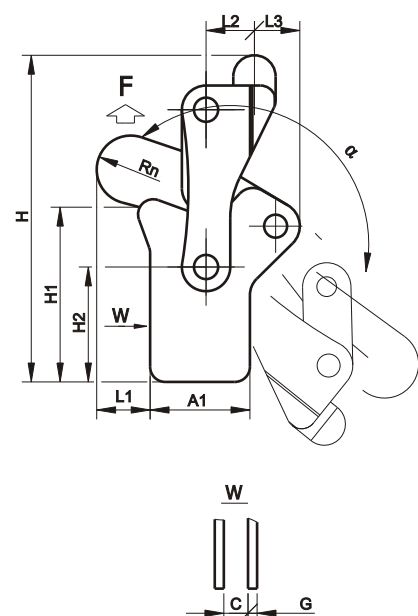
## 23. MODULAR CLAMP WITH STRAIGHT BASIS


261, 263, 265, 267, 269

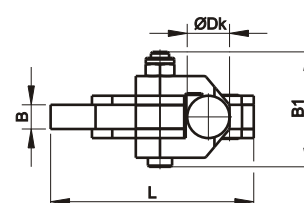
These clamps hold out large weight. They are made of steel and they have improved thermo-chemically knurled bushes, bolts are hardened and polished.

Clamps of this type are used above all in industrial series production.

Page 25 shows the way of using this kind of clamp.



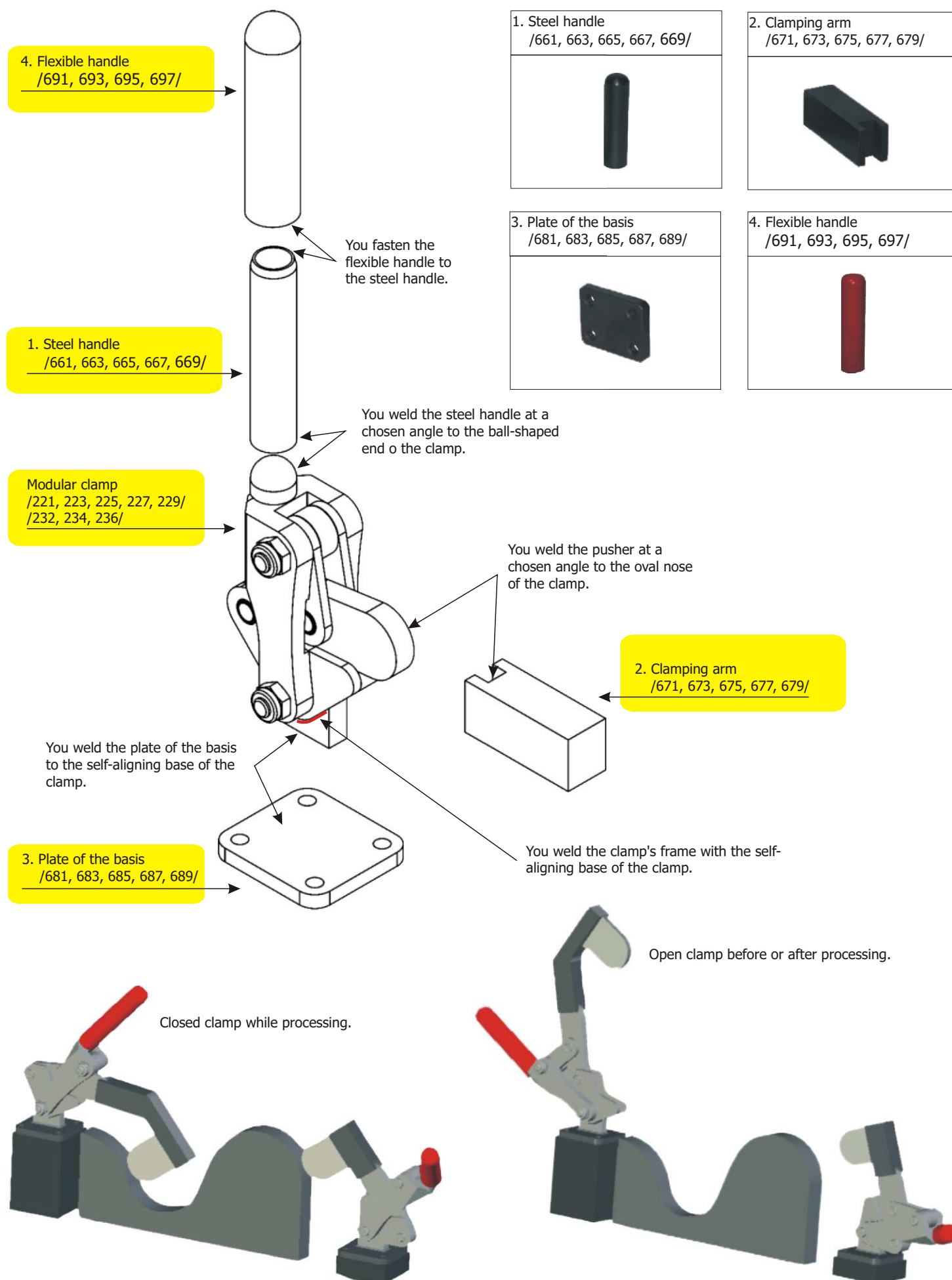
Nr		F [daN]	A1	B	B1	C	ØDk	G	H	H1	H2	L	L1	L2	L3	Rn	α
261	0,23	250	30	6	31	6	10	3	89	43	34	58	20	12	14	10	190°
263	0,91	700	44	10	52	10	16	5	141	72	50	80	22	20	19	15	190°
265	1,62	1100	55	12	60	12	22	5	180	95	64	104	26	25	25	18	190°
267	3,22	2250	66	16	76	16	28	6	217	116	76	134	35	32	30	22	190°
269	5,97	3400	80	20	89	20	28	8	266	145	90	156	38	36	42	25	190°



We reserve the right to make any changes without notice.



## INSTRUCTION FOR ASSEMBLING THE CLAMPS





### III. Push-pull toggle clamps

All toggle clamps produced by our company are self-locking and have an internal lock (so-called the knee lever), which allows stiff, strong and fast mounting of the workpieces.

In the extreme position of the handle the lock is achieved. Toggle clamps are mainly used for fixing in welding, drilling, assembly and milling devices, during processing of wood, metal, plastics and other materials.

Clamps are made of galvanized steel combined by hardened sleeves and acid resistant bolts. The flexible handle is made of plastic material which is resistant to acids, bases, detergents, oils and solvents.

The drawings show three forces:

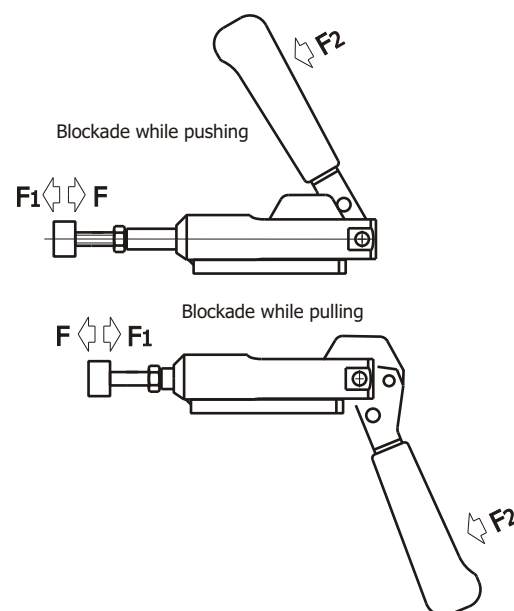
**The F2 force** coming from the operator's hand or from a pneumatic cylinder (compressed air pressure approx. 0,6 MPa).

Clamping **force F1** derived from the force F2 and proportionate to it ( $\alpha \approx 0^\circ$ ).

Holding **force F** derived from the knee lock mechanism and being a reaction to the forces applied on the workpiece during processing.

The forces shown in the drawings are given in units of **daN**.

**1 [kg]  $\approx$  1 [daN] = 10 [N]**



#### **Connector**

Galvanized, made from structural steel.

#### **Body**

Galvanized, made from structural steel.

#### **Piston**

Ground, heat-treated steel.

#### **Clamping setscrew**

Clamping setscrew 8.8 class with flanged washers, nuts and rubber cover.

#### **Flexible handle**

The PCV handle grip is fitted on galvanized arm made of structural steel.

#### **Stainless steel pin and knurled bushing.**

The pin is made of stainless steel embedded in the hardened knurled bushing.





## 24. PUSH-PULL CLAMP

Clamp is made of galvanized structural steel.

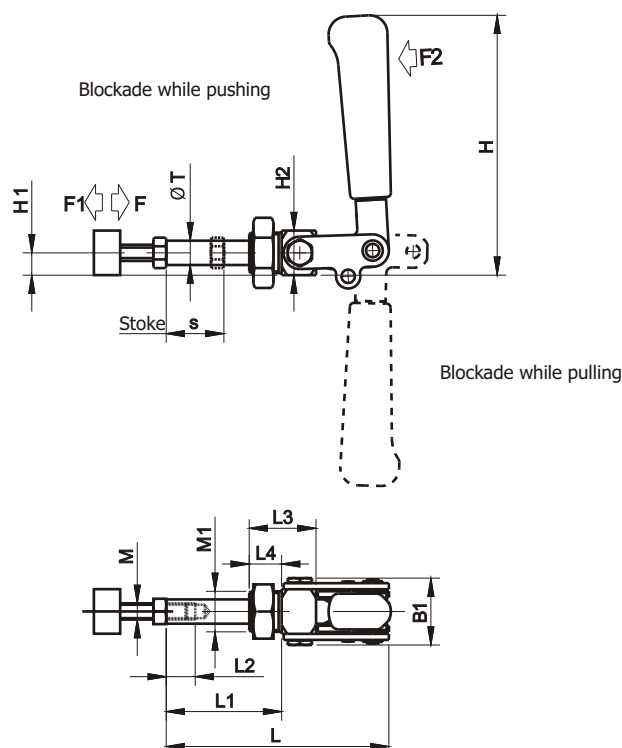
The clamp is available without the basis.


We propose to use our basis from page 52.

Clamps become blocked in two outermost positions of the handle while pushing object processed towards the basis and while pulling.

Set includes:

- clamp
- clamping setscrew class 8.8 with nut
- rubber cover



Nr		F [daN]	F1 [daN]	F2 [daN]	B1	H	H1	H2	L	L1	L2	L3	L4	M	M1	S	ØT
031	0,19	100	100	9	31	94	10	20	70	14 ÷ 35	20	24,5	13	M6x30	M16x1,5	21	10
033	0,40	250	250	12	35	128	11	22	111	17 ÷ 57	25	33,0	16	M8x35	M20x1,5	40	12
035	0,90	400	400	18	46	159	15	30	176	25 ÷ 92	30	52,0	24	M10x50	M24x1,5	67	16

## 25. PUSH-PULL CLAMP

Clamp is made of galvanized structural steel.

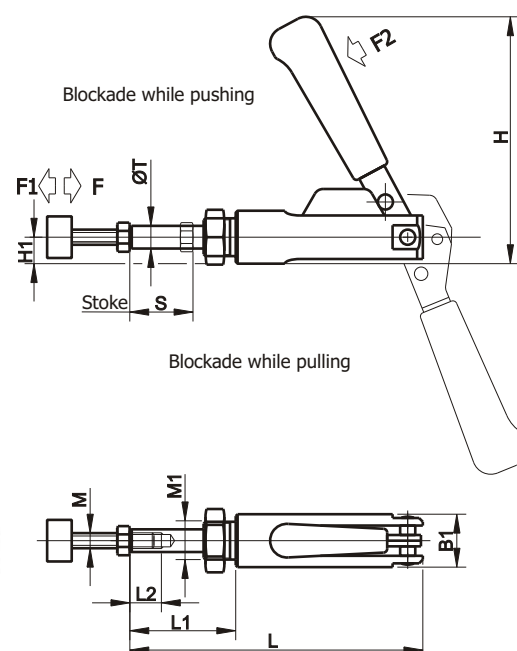
The clamp is available without the basis.


We propose to use our basis from page 52.

Clamps become blocked in two outermost positions of the handle while pushing object processed towards the basis and while pulling.

Set includes:

- clamp
- clamping setscrew class 8.8 with nut
- rubber cover



Nr		F [daN]	F1 [daN]	F2 [daN]	B1	H	H1	L	L1	L2	M	M1	S	ØT
032N	0,30	160	170	9	24	107	12,0	111	11 ÷ 34	20	M6x30	M16x1,5	23	10
034N	0,58	250	240	12	28	130	14,0	162	17 ÷ 51	25	M8x35	M20x1,5	34	12
036N	1,22	450	300	18	35	162	17,5	205	19 ÷ 61	30	M10x50	M24x1,5	42	16

We reserve the right to make any changes without notice.



## 26. PUSH-PULL CLAMP WITH BASIS

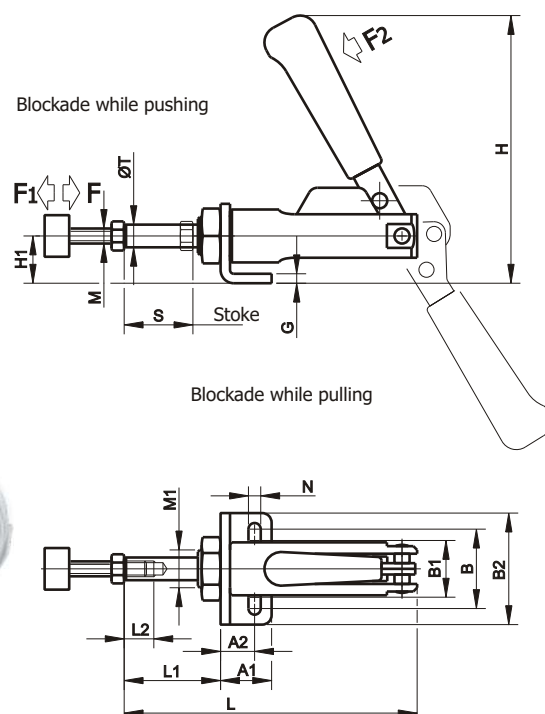
032, 034, 036


Clamp is made of galvanized structural steel.

Clamps become blocked in two outermost positions of the handle while pushing object processed towards the basis and while pulling.

Set includes:

- clamp
- base
- clamping setscrew class 8.8 with nut
- rubber cover



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A1	A2	B	B1	B2	G	H	H1	L	L1	L2	M	M1	N	S	ØT
032	0,35	160	170	6	22	15	36	24	50	4	116	20	111	11 ÷ 34	20	M6x30	M16x1,5	6,5	23	10
034	0,70	250	240	12	26	17	42	28	59	5	143	26	162	17 ÷ 51	25	M8x35	M20x1,5	8,2	34	12
036	1,38	450	300	18	34	22	48	35	69	6	174	30	205	19 ÷ 61	30	M10x50	M24x1,5	11,0	42	16

## 27. LOW PUSH-PULL CLAMP

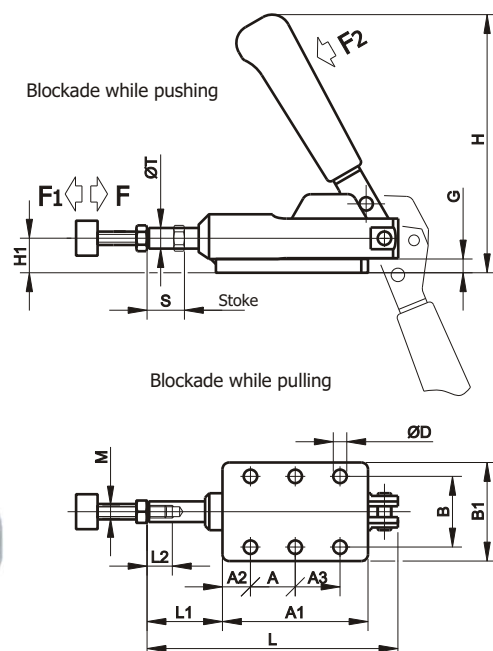
042, 044, 046


Clamp is made of galvanized structural steel.

Clamps become blocked in two outermost positions of the handle while pushing object processed towards the basis and while pulling.

Set includes:

- clamp
- clamping setscrew class 8.8 with nut
- rubber cover



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	A3	B	B1	ØD	G	H	H1	L	L1	L2	M	S	ØT
042	0,42	160	170	6	25	52	9,5	---	39	50	6,5	6	112	16	111	10 ÷ 33	20	M6x30	23	10
044	0,84	250	240	12	35	85	12,5	---	46	60	8,5	8	137	20	162	15 ÷ 49	25	M8x35	34	12
046	1,66	450	300	18	35	100	15,0	35	53	70	11,0	10	167	23	205	19 ÷ 61	30	M10x50	42	16

We reserve the right to make any changes without notice.



## 28. STRENGTHENED PUSH-PULL CLAMP WITH BASIS

048.1, 048.2, 048.3, 048.4

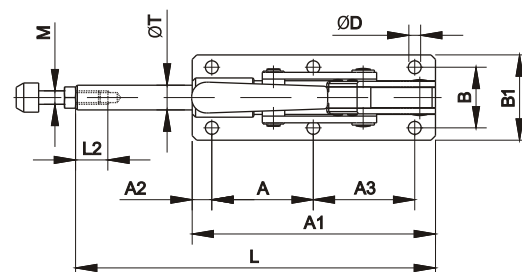
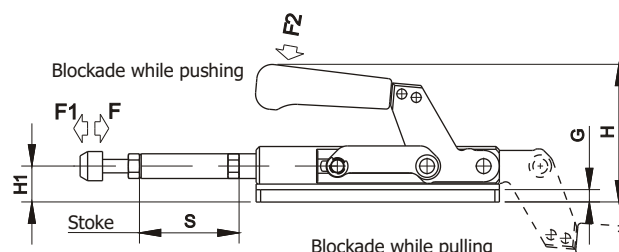
Clamps made of blackened structural steel.


Clamps become blocked in two outermost positions of the handle while pushing object processed towards the basis and while pulling.

The rod is guided in the corps on all of his length.

Set includes:

- clamp
- clamping setscrew class 8.8 with nut
- rubber cover



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	A3	B	B1	ØD	G	H	H1	L	L2	M	S	ØT
048.1	0,7	360	170	9	35,0	108	16,0	41,5	41,5	56	6,5	5	80	18	153	25	M8x35	41	12
048.2	1,0	1100	180	12	35,0	128	12,5	41	41,0	57	8,5	7	90	21	178	30	M10x50	51	16
048.3	2,1	1800	210	14	45,0	172	15,0	45	54,0	68	8,5	9	113	27	250	40	M10x50	75	20
048.4	3,7	3000	250	18	90,5	217	17,5	90,5	54,0	76	10,5	11	118	32	321	50	M12x75	101	22

## 29. PUSH CLAMP WITH A HORIZONTAL HANDLE

086, 087

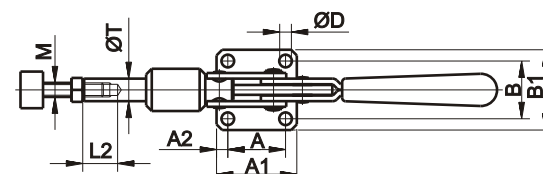
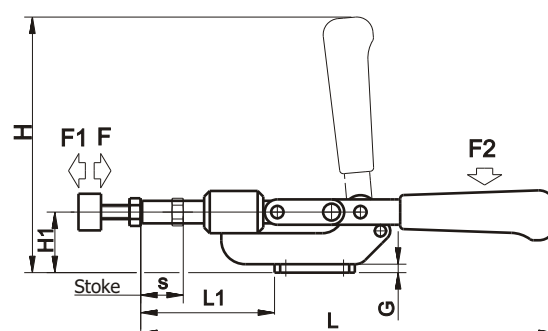
Clamp is made of galvanized structural steel.


This clamp is used to push the objects processed towards the basis.

Handle is positioned horizontally during the work.

Set includes:

- clamp
- clamping setscrew class 8.8 with nut
- rubber cover



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	B	B1	ØD	G	H	H1	L	L1	L2	M	S	ØT
086	1,06	270	160	15	41	57	8	41	57	9,0	6	187	43	294	95	30	M10x50	28	16
087	2,10	340	250	18	60	80	10	60	80	10,5	8	204	49	404	130	50	M12x75	50	20

We reserve the right to make any changes without notice.



### 30. STRENGTHENED PUSH-PULL CLAMP

P350, P550, P750

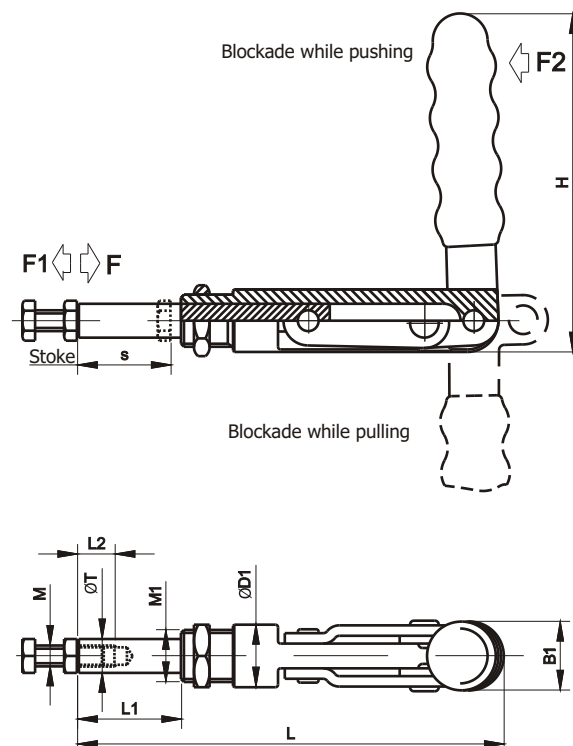
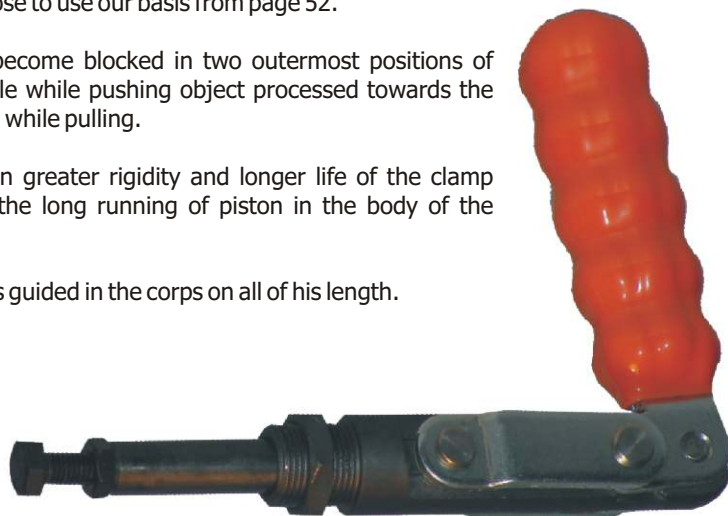
Clamp is made of galvanized structural steel.


The clamp is available without the basis.  
We propose to use our basis from page 52.

Clamps become blocked in two outermost positions of the handle while pushing object processed towards the basis and while pulling.

We obtain greater rigidity and longer life of the clamp through the long running of piston in the body of the clamp.

The rod is guided in the corps on all of his length.



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	B1	øD1	H	L	L1	L2	M	M1	S	øT
P 350	0,28	350	150	11	23	19,0	107	128	33	18	M6x18	M16x1,5	25	10
P 550	0,50	550	160	14	27	24,0	132	164	40	30	M8x30	M20x1,5	38	13
P 750	0,98	750	160	16	35	28,5	149	235	70	40	M10x40	M24x1,5	66	16

### 31. STRENGTHENED PUSH-PULL CLAMP

049.1, 049.2, 049.3

Clamps made of blackened structural steel.

The clamp is available without the basis.  
We propose to use our basis from page 52.

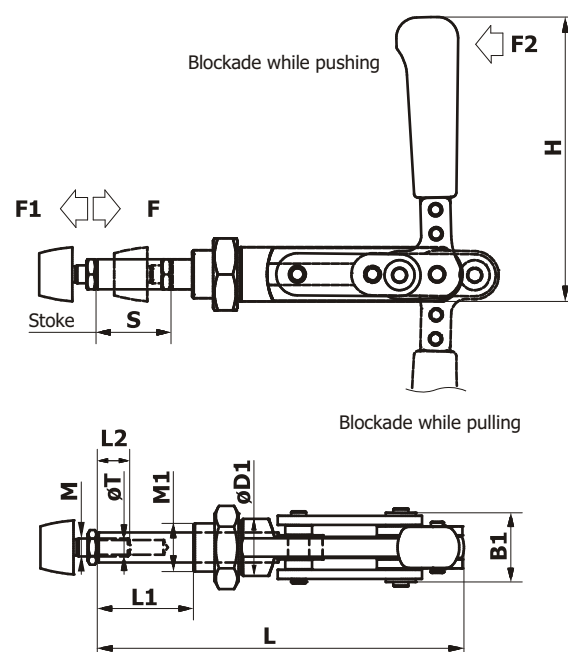
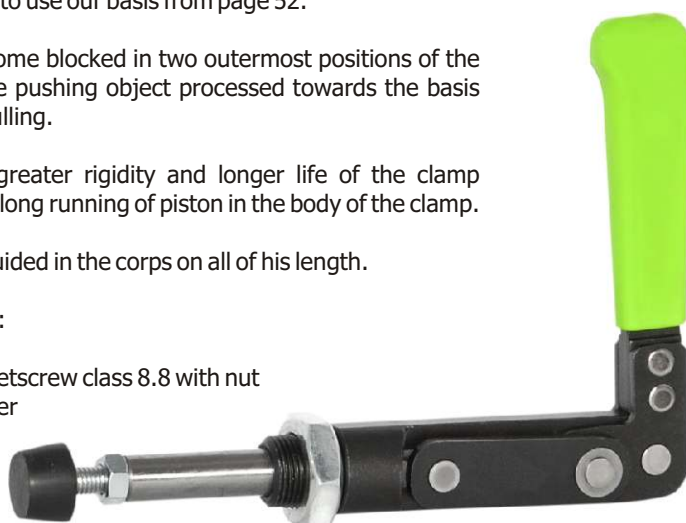
Clamps become blocked in two outermost positions of the handle while pushing object processed towards the basis and while pulling.


We obtain greater rigidity and longer life of the clamp through the long running of piston in the body of the clamp.

The rod is guided in the corps on all of his length.

Set includes:

- clamp
- clamping setscrew class 8.8 with nut
- rubber cover



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	B1	øD1	H	L	L1	L2	M	M1	S	øT
049.1	0,24	350	150	11	23	19	95	122	32	20	M6x18	M16x1,5	25	10
049.2	0,55	550	160	14	27	25	137	160	40,5	30	M8x30,5	M20x1,5	38	13
049.3	1,10	750	160	16	34	30	164	235	68,5	40	M10x40	M24x1,5	66	16

We reserve the right to make any changes without notice.



## IV. Catch toggle clamps

All toggle clamps produced by our company are self-locking and have an internal lock (so-called the knee lever), which allows stiff, strong and fast mounting of the workpieces.

In the extreme position of the handle the lock is achieved. Toggle clamps are mainly used for fixing in welding, drilling, assembly and milling devices, during processing of wood, metal, plastics and other materials.

Clamps are made of galvanized steel combined by hardened sleeves and acid resistant bolts. The flexible handle is made of plastic material which is resistant to acids, bases, detergents, oils and solvents.

The drawings show three forces:

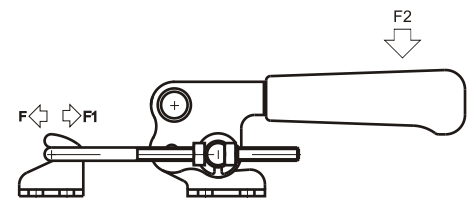
**The F2 force** coming from the operator's hand or from a pneumatic cylinder (compressed air pressure approx. 0,6 MPa).

Clamping **force F1** derived from the force F2 and proportionate to it ( $\alpha \approx 0^\circ$ ).

Holding **force F** derived from the knee lock mechanism and being a reaction to the forces applied on the workpiece during processing.

The forces shown in the drawings are given in units of **daN**.

**1 [kg]  $\approx$  1 [daN] = 10 [N]**



### Latch

Galvanized, made from structural steel.

### Latch bracket

Galvanized, made from structural steel.

### Flexible handle

The PCV handle grip is fitted on galvanized arm made of structural steel.

### Stainless steel pin and knurled bushing

The pin is made of stainless steel embedded in the hardened knurled bushing.

### Base

Galvanized, made from structural steel.



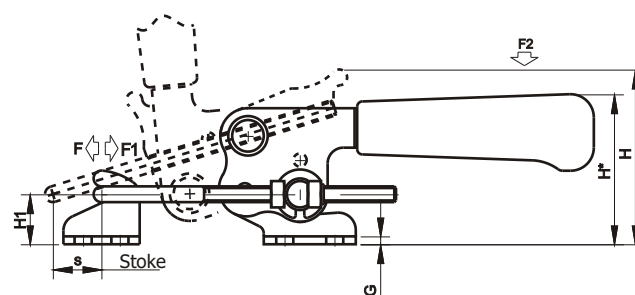
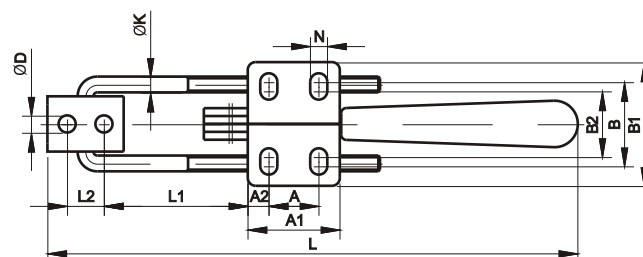
We reserve the right to make any changes without notice.




## 32. HORIZONTAL CATCH CLAMP

The toggle clamp is made of the galvanized structural steel. Stainless steel bolts are embedded in improved thermo-chemically knurled bushings. Joining parts are lubricated. The handle is made of a flexible plastic material.

The catch is available together with a clamp.

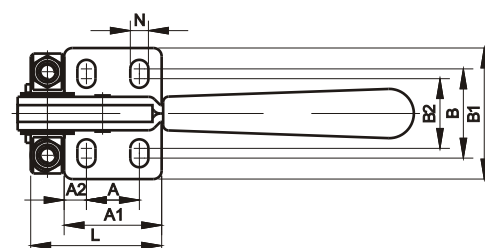
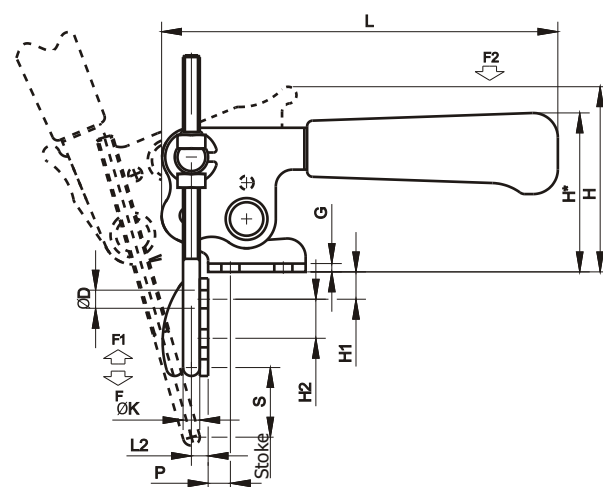



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	B	B1	B2	ØD=N	G	H	H*	H1	ØK	L	L1	L2	S
721	0,16	200	180	10	13	26	6,5	24	36	19	5,2	2,5	51	42	12	4	135 ÷ 170	28 ÷ 63	11	20
723	0,36	400	270	15	19	35	8,0	32	47	25	6,5	3,0	66	57	19	6	185 ÷ 230	35 ÷ 80	14	26
725	0,82	700	450	20	32	51	9,5	45	64	36	8,5	4,0	86	75	25	8	235 ÷ 300	46 ÷ 111	19	34

## 33. VERTICAL CATCH CLAMP

The toggle clamp is made of the galvanized structural steel. Stainless steel bolts are embedded in improved thermo-chemically knurled bushings. Joining parts are lubricated. The handle is made of a flexible plastic material.

The catch is available together with a clamp.



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	B	B1	B2	ØD=N	G	H	H*	H1	H2	ØK	L	L1	L2	P	S
731	0,16	200	180	10	13	26	6,5	24	36	19	5,2	2,5	51	42	5 ÷ 28	11	4	103	40	4,5	7	20
733	0,36	400	270	15	19	35	8,0	32	47	25	6,5	3,0	66	57	7 ÷ 35	14	6	142	52	6,0	8	26
735	0,82	700	450	20	32	51	9,5	45	64	36	8,5	4,0	86	75	9 ÷ 45	19	8	179	74	8,0	9,5	34

We reserve the right to make any changes without notice.

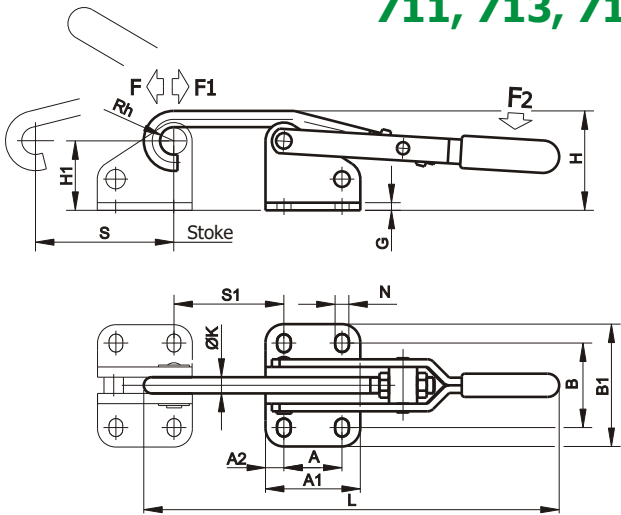



34. HOOK CATCH CLAMP

711, 713, 715

Clamp is made of galvanized stainless steel. The flexible handle is made of PCV.

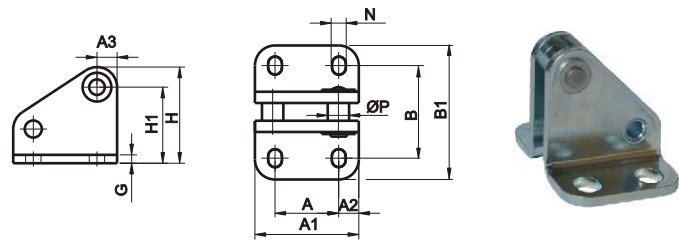
This clamp serves to tighten the two objects on which the clamp's elements are situated, e.g. to close any kinds of flaps and covers.




Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	B	B1	G	H	H1	ØK	L	N	Rh	S	S1
711	0,12	200	150	10	19	31	6	27,1	39,1	2,5	32	22,5	5,3	130	4,5	4,5	45	34,0 ÷ 42,0
713	0,28	400	300	16	19	40	13	33,5	44,3	3,0	35	23,0	7,1	233	5,6	5,5	98	74,5 ÷ 86,5
715	0,88	700	400	20	29	55	13	54,4 ÷ 60,8	83,0	5,0	69	49,0	12,0	320	11,2	8,0	144	78,5 ÷ 72,5

35. CATCH FOR THE HOOK CATCH CLAMP

711Z, 713Z, 715Z



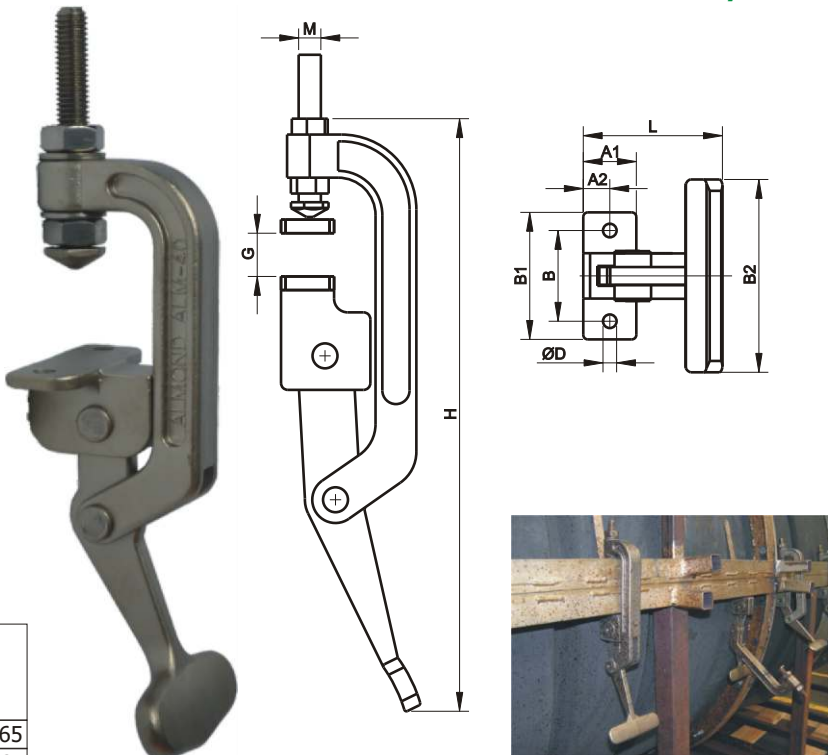
Nr	 [kg]	A	A1	A2	A3	B	B1	G	H	H1	N	ØP
711Z	0,06	19	31	6	6	27,1	39,1	2,5	29	22,5	4,5	8
713Z	0,08	19	40	13	6	33,5	44,3	3,0	29	23,0	5,6	10
715Z	0,32	29	55	13	12	54,4÷60,8	83,0	5,0	61	49,0	11,2	15


36. COMPLETE CATCH CLAMP

A40, A50

Clamps of this type are used to join fast two halves of the mould while the processing of plastics.

The clamp can be operated by means of one hand.



Nr	 [kg]	A1	A2	B	B1	B2	ØD	G <sub>max</sub>	H	L	M
A40	0,30	24	9,6	40	54	60	6,5	26	186	58	M10x65
A50	1,02	24	11,7	40	56	85	6,5	40	260	65	M10x65

We reserve the right to make any changes without notice.



# V. Toggle clamps with additional safety device

Clamp with additional protection are marked by the B letter in the name.

Clamps equipped with a safety device have an additional lever protecting from:

- automatic falling of arms when clamps are open(e.g. while changing the object Processed)
- accidental opening the handle while clamping and processing a given object.

Before opening or closing the clamp you should first press the red lever with your finger and hold it and then grab the handle with your hand and close or open the clamp.



The drawings show three forces:

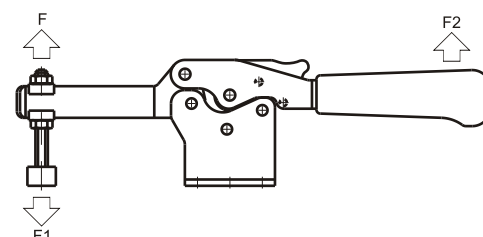
**The F2 force** coming from the operator's hand or from a pneumatic cylinder (compressed air pressure approx. 0,6 MPa).

Clamping **force F1** derived from the force F2 and proportionate to it ( $\alpha \approx 0^\circ$ ).

Holding **force F** derived from the knee lock mechanism and being a reaction to the forces applied on the workpiece during processing.

The forces shown in the drawings are given in units of **daN**.

**1 [kg]  $\approx$  1 [daN] = 10 [N]**



## Additional blockade of the clamp

Clamps except internal locking lever has additional protection.

## Open ends of the clamping arm

Prevents from losing / sliding off the clamping screw.

## Clamping setscrew

Clamping setscrew 8.8 class with flanged washers, nuts and rubber cover.

## Clamping arm

Galvanized, made from structural steel.

## Flexible handle

The PCV handle grip is fitted on galvanized arm made of structural steel.

## Stainless steel pin and knurled bushing

The pin is made of stainless steel embedded in the hardened knurled bushing.

## Base

Galvanized, made from structural steel.





# 37. HORIZONTAL CLAMP WITH ADDITIONAL SAFETY DE

903B, 904B, 906B

The toggle clamp is made of the galvanized structural steel. Stainless steel bolts are embedded in improved thermo-chemically knurled bushings Joining parts are lubricated. The handle is made of a flexible plastic material.

You can clamp the object processed when the handle is in horizontal position.

B - clamp with additional safety device.

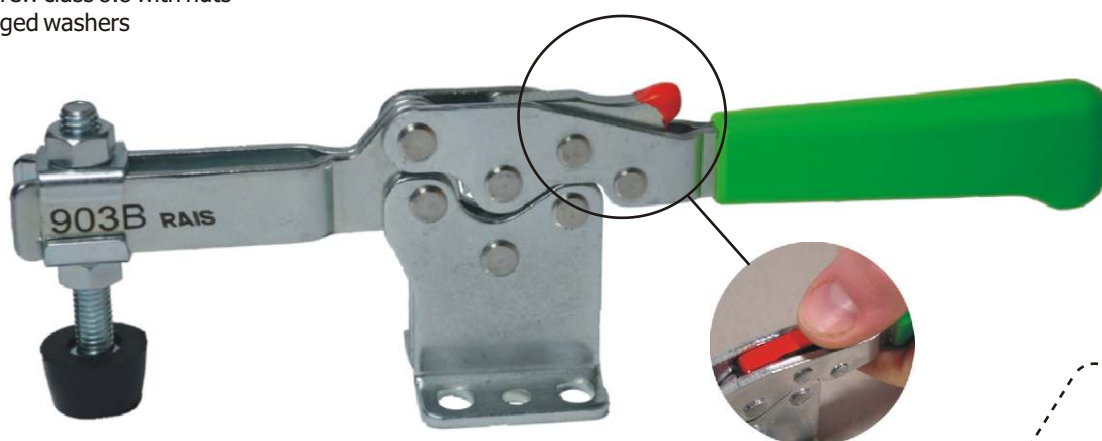
Clamps equipped with a safety device have an additional lever protecting from:

- automatic falling of arms when clamps are open(e.g. while changing the object Processed)
- accidental opening the handle while clamping and processing a given object.

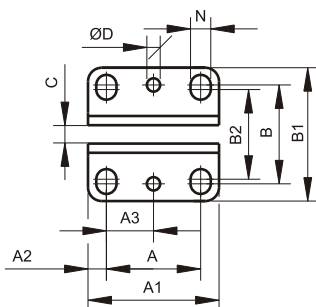
Before opening or closing the clamp you should first press the red lever with your finger and hold it and then grab the handle with your hand and close or open the clamp.

Set includes:

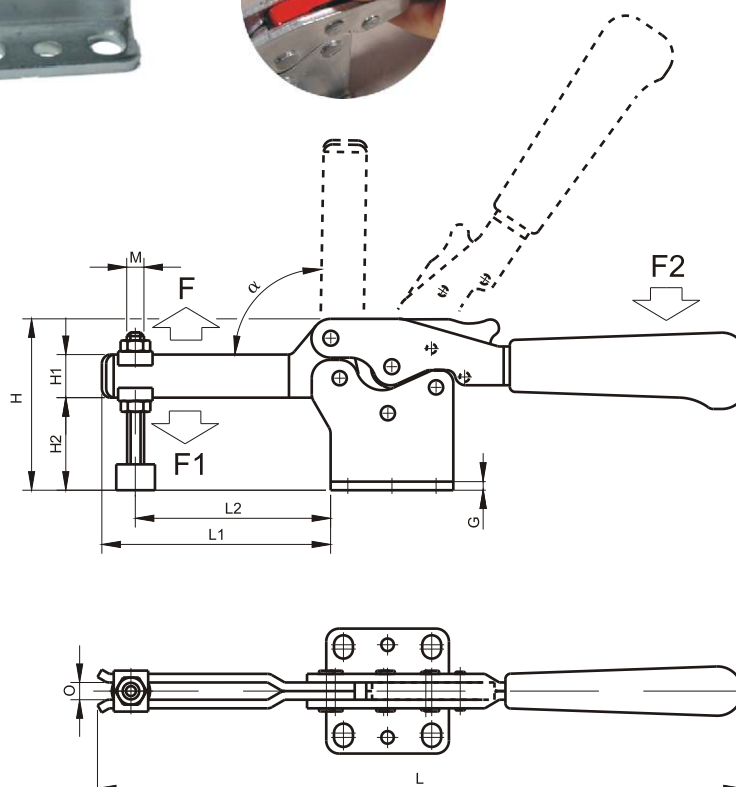
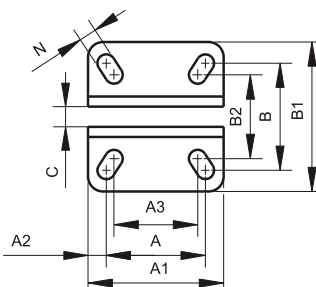
- clamp
- clamping setscrew class 8.8 with nuts
- 2 pieces of flanged washers
- rubber cover




Base  
903B,  
904B



Base  
906B



Nr		F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	A3	B	B1	B2	C	ØD	G	H	H1	H2	L	L1	L2	M	N	O	α
903B	0,43	210	60	12	25,7	40	7,6	12,9	30,3	44	25,8	6	4,8	3,0	65	17	37	234	81	28 ÷ 67	M8x55	7,5	8	90°
904B	0,88	320	75	15	40,8	57	7,8	20,5	43,2	58	39,1	8	5,7	4,0	80	20	42	301	106	33 ÷ 91	M8x65	8,6	8	90°
906B	1,56	500	90	18	49,0	67	9,0	41,4	53,0	74	41,4	10	---	5,0	97	25	61	359	131	42 ÷ 112	M10x90	8,8	10	90°

We reserve the right to make any changes without notice.



## 38. HORIZONTAL CLAMP WITH STRAIGHT BASIS AND WITH ADDITIONAL SAFETY DEVICE

953B, 954B, 956B

The toggle clamp is made of the galvanized structural steel. Stainless steel bolts are embedded in improved thermo-chemically knurled bushings. Joining parts are lubricated. The handle is made of a flexible plastic material.

You can clamp the object processed when the handle is in horizontal position.

B - clamp with additional safety device.

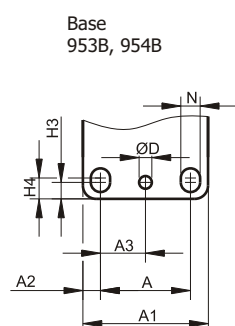
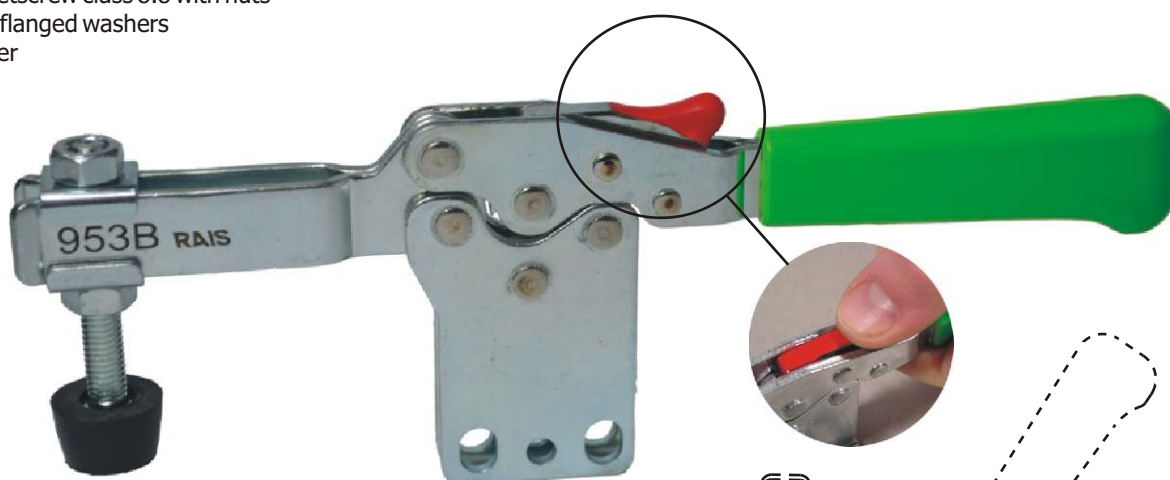
Clamps equipped with a safety device have an additional lever protecting from:

- automatic falling of arms when clamps are open (e.g. while changing the object Processed)
- accidental opening the handle while clamping and processing a given object.

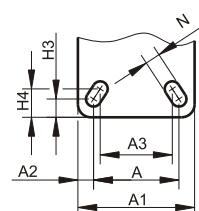
Before opening or closing the clamp you should first press the red lever with your finger and hold it and then grab the handle with your hand and close or open the clamp.

Set includes:

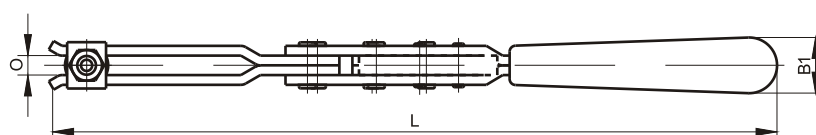
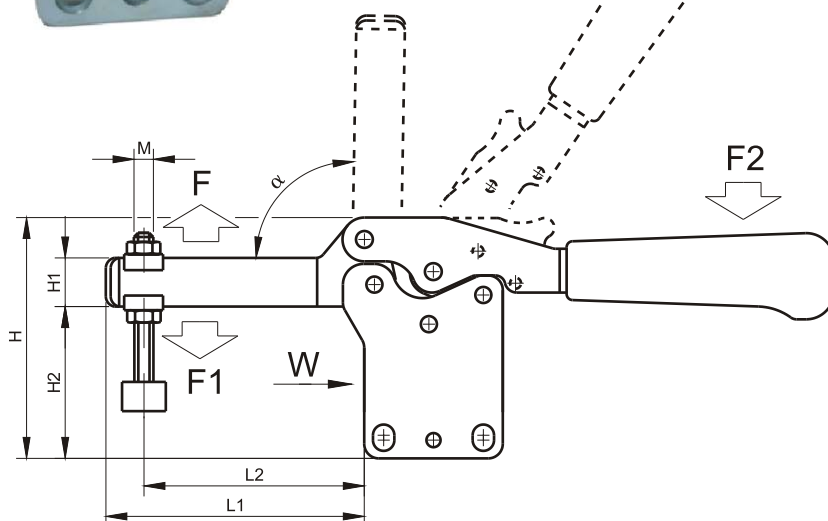
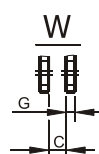
- clamp
- clamping setscrew class 8.8 with nuts
- 2 pieces of flanged washers
- rubber cover




Base  
956B



Base  
953B, 954B, 956B



Nr		F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	A3	B1	C	ØD	G	H	H1	H2	H3	H4	L	L1	L2	M	N	O	α
953B	0,43	210	60	12	25,7	40	7,6	12,9	18	6	4,8	3,0	79	17	51	6,9	9,1	234	81	28 ÷ 67	M8x55	7,5	8	90°
954B	0,88	320	75	15	40,8	57	7,8	20,5	22	8	5,7	4,0	99	20	61	7,4	9,5	301	106	33 ÷ 91	M8x65	8,6	8	90°
956B	1,56	500	90	18	49,0	67	9,0	41,4	24	10	---	5,0	122	25	85	10,5	16,3	359	131	42 ÷ 112	M10x90	8,8	10	90°

We reserve the right to make any changes without notice.



39. SIDE HORIZONTAL CLAMP AND WITH ADDITIONAL SAFETY DEVICE 923B, 924B

The toggle clamp is made of the galvanized structural steel. Stainless steel bolts are embedded in improved thermo-chemically knurled bushings Joining parts are lubricated. The handle is made of a flexible plastic material.

You can clamp the object processed when the handle is in horizontal position.

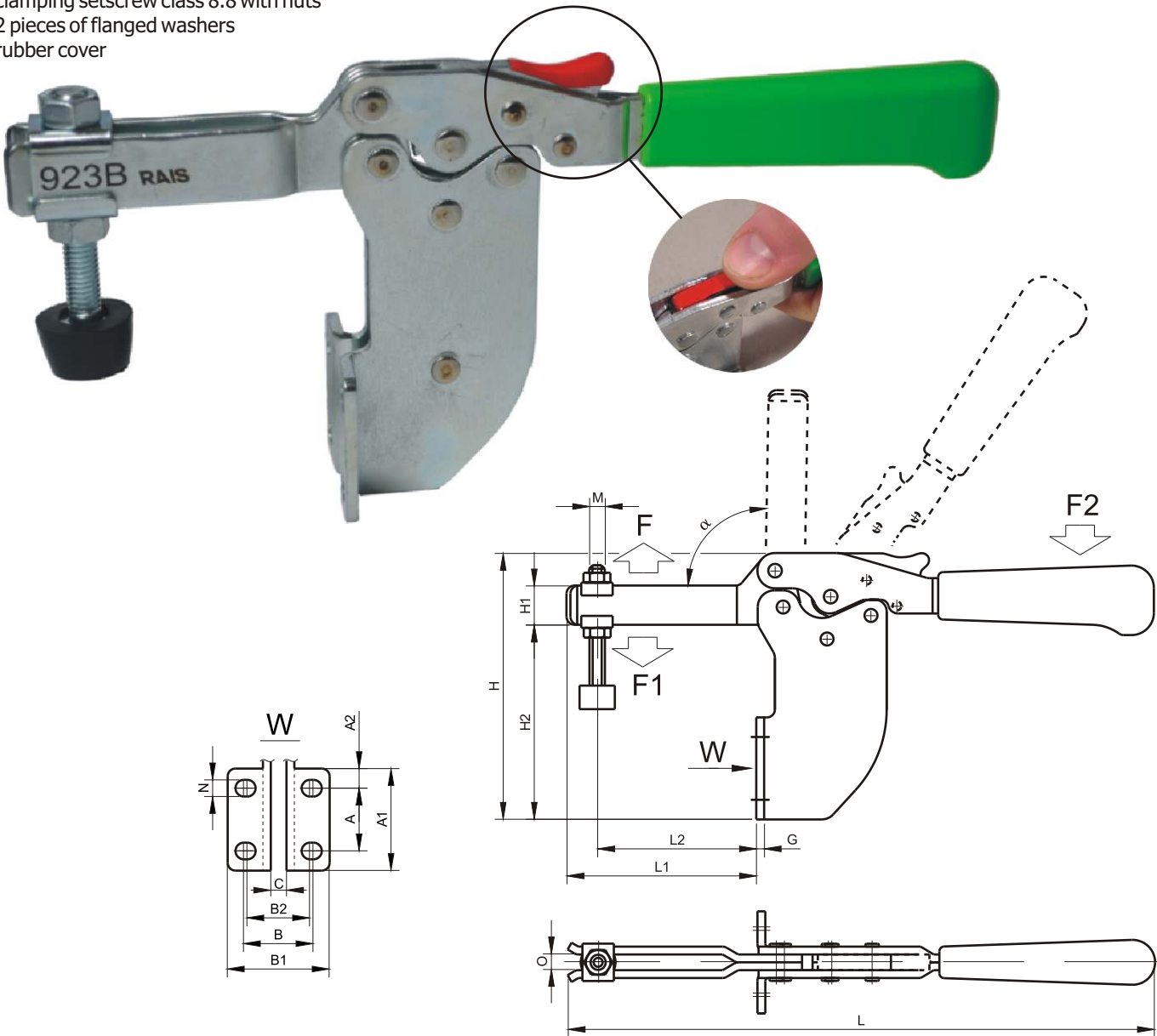
B - clamp with additional safety device.


Clamps equipped with a safety device have an additional lever protecting from:

- automatic falling of arms when clamps are open(e.g. while changing the object Processed)
- accidental opening the handle while clamping and processing a given object.

Before opening or closing the clamp you should first press the red lever with your finger and hold it and then grab the handle with your hand and close or open the clamp.

- Set includes:
- clamp
  - clamping setscrew class 8.8 with nuts
  - 2 pieces of flanged washers
  - rubber cover



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	B	B1	B2	C	G	H	H1	H2	L	L1	L2	M	N	O	$\alpha$
923B	0,51	210	60	12	24,0	38	7,0	30,5	43	28,5	6,0	3,0	106	17	78	234	74	21 ÷ 59	M8x55	6,5	8	90°
924B	1,06	320	75	15	32,0	52	10,0	35,5	52	32,0	8,0	4,0	136	20	98	301	96	22 ÷ 81	M8x65	8,5	8	90°

We reserve the right to make any changes without notice.



## 40. HORIZONTAL CLAMP WITH VARIABLE HEIGHT AND WITH ADDITIONAL SAFETY DEVICE

The toggle clamp is made of the galvanized structural steel. Stainless steel bolts are embedded in improved thermo-chemically knurled bushings. Joining parts are lubricated. The handle is made of a flexible plastic material.

You can clamp the object processed when the handle is in horizontal position.

B - clamp with additional safety device.

Clamps equipped with a safety device have an additional lever protecting from:

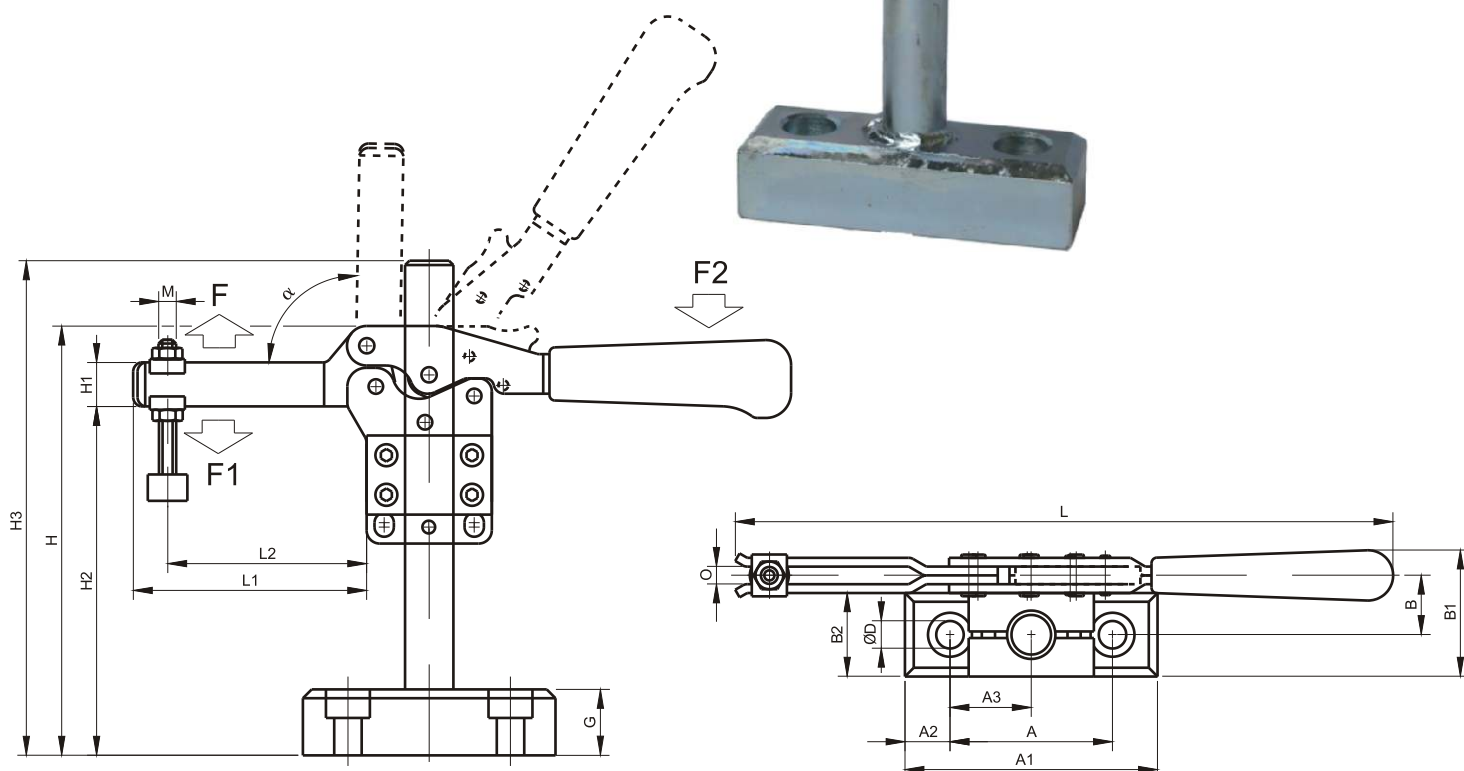
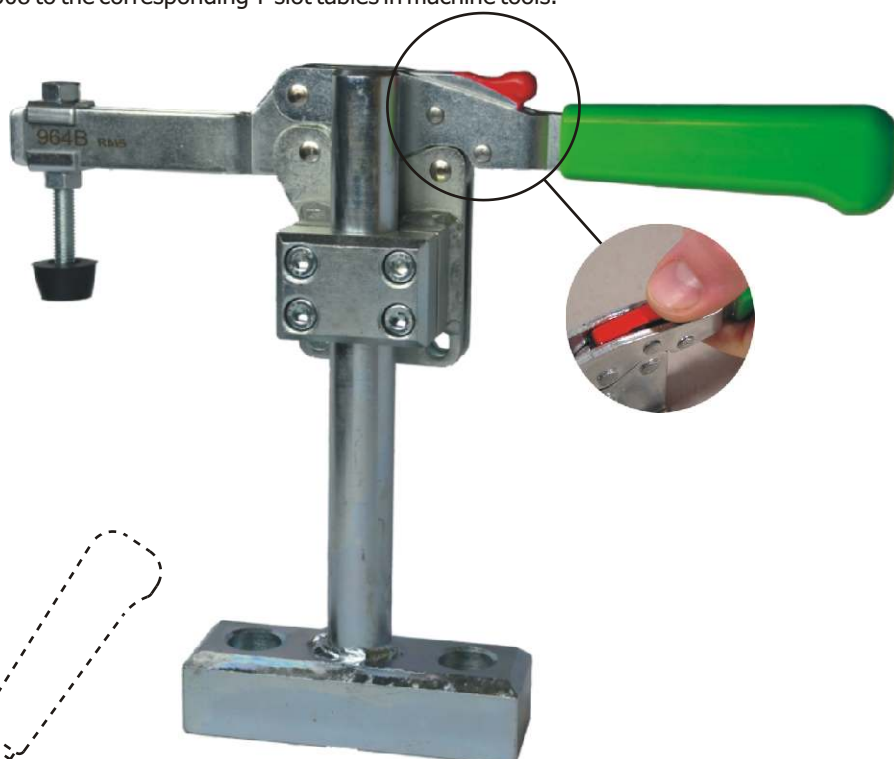
- automatic falling of arms when clamps are open (e.g. while changing the object processed)
- accidental opening the handle while clamping and processing a given object.


Before opening or closing the clamp you should first press the red lever with your finger and hold it and then grab the handle with your hand and close or open the clamp.

At your request we make the selection of T-nuts DIN 508 to the corresponding T-slot tables in machine tools.

Set includes:

- clamp
- pole which allows the change of height
- clamping setscrew class 8.8 with nuts
- 2 pieces of flanged washers
- rubber cover



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	A3	B	B1	B2	G	H	H1	H2	H3	L	L1	L2	ØD	M	O	α
963B	1,43	210	60	12	60	90	15,0	30	23	49	34	26	90 ÷ 248	17	64 ÷ 222	206	234	81	28 ÷ 66	8,5	M8x55	8	90°
964B	2,85	320	75	15	74	115	20,5	37	27	58	38	30	115 ÷ 274	20	78 ÷ 237	225	301	106	33 ÷ 90	12,5	M8x65	8	90°
966B	4,20	500	90	18	90	140	25,0	45	29	62	38	36	139 ÷ 277	25	128 ÷ 266	216	359	131	41 ÷ 111	16,5	M10x90	10	90°

We reserve the right to make any changes without notice.



# 41. VERTICAL CLAMP AND WITH ADDITIONAL SAFETY DEVICE

**803B, 804B, 806B**

The toggle clamp is made of the galvanized structural steel. Stainless steel bolts are embedded in improved thermo-chemically knurled bushings Joining parts are lubricated. The handle is made of a flexible plastic material.

You can clamp the object processed when the handle is in vertical position.

B - clamp with additional safety device.

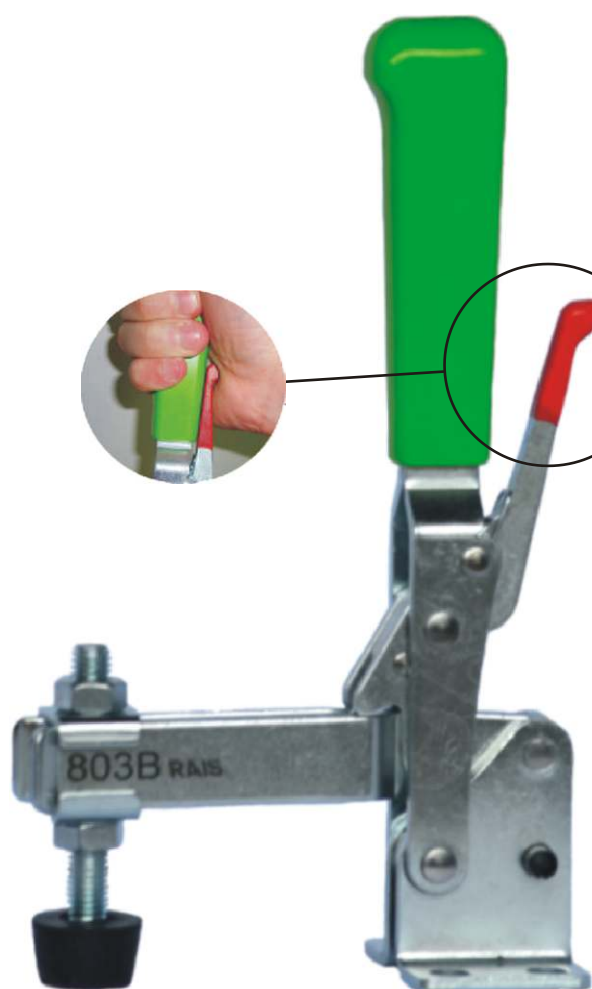
Clamps equipped with a safety device have an additional lever protecting from:

- automatic falling of arms when clamps are open(e.g. while changing the object Processed)
- accidental opening the handle while clamping and processing a given object.

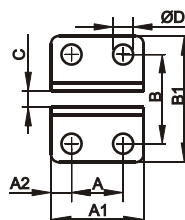
Before opening or closing the clamp you should first press the red lever with your finger and hold it and then grab the handle with your hand and close or open the clamp.

Set includes:

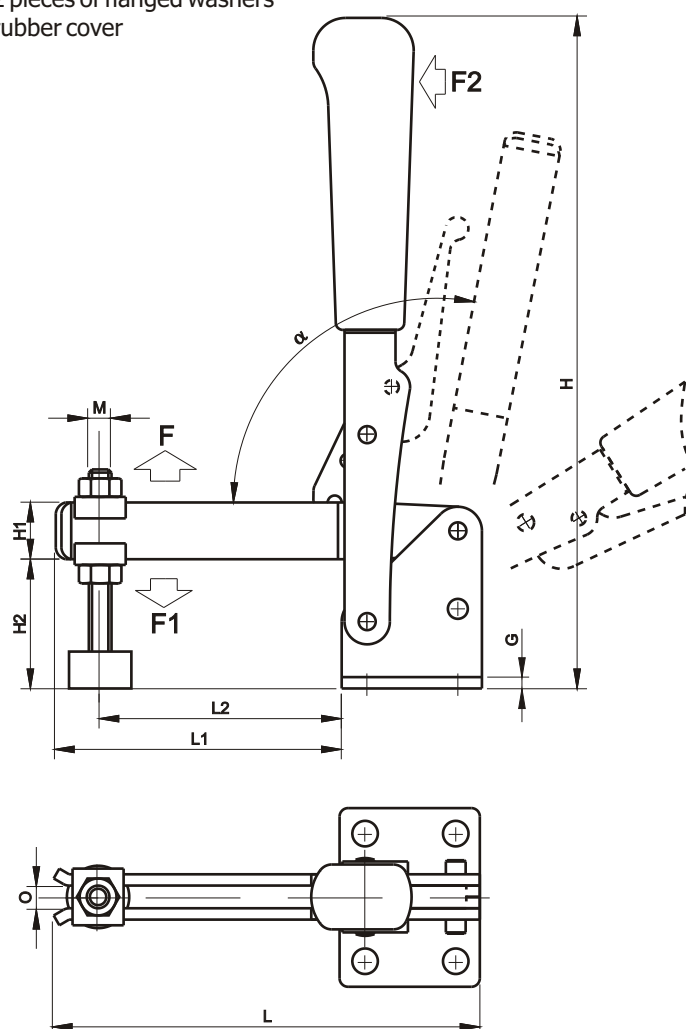
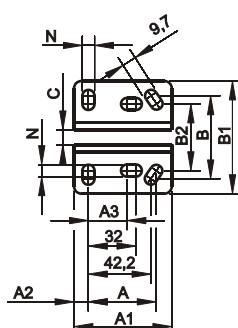
- clamp
- clamping setscrew class 8.8 with nuts
- 2 pieces of flanged washers
- rubber cover




Base  
803B  
804B



Base  
806B



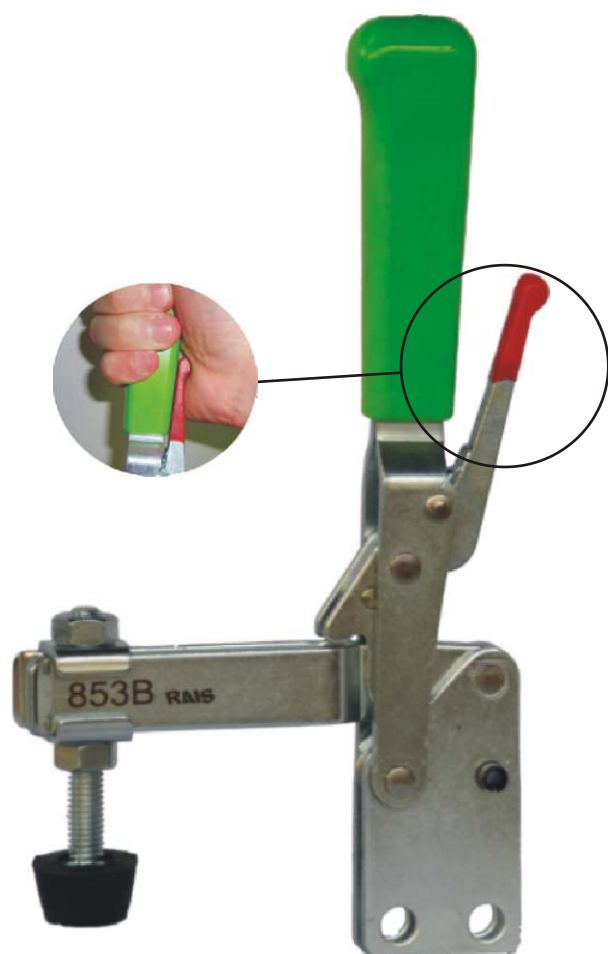
Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	A3	B	B1	B2	C	ØD	G	H	H1	H2	L	L1	L2	M	N	O	α
803B	0,44	210	90	12	19,5	35,0	7,8	---	34,2	48	---	6	7,9	3,0	189	17	35	111	76	19 ÷ 61	M8x55	---	8	90°
804B	0,90	320	130	15	32,0	49,5	9,0	---	45,1	63	---	8	8,9	4,0	239	20	46	151	102	19 ÷ 87	M8x65	---	8	90°
806B	1,67	500	150	18	45,7	66,0	9,8	26,0	56,0	76	45	10	---	5,0	278	25	55	203	137	24 ÷ 117	M10x90	8,3	10	90°

We reserve the right to make any changes without notice.



## 42. VERTICAL CLAMP WITH STRAIGHT BASIS AND WITH ADDITIONAL SAFETY DEVICE

853B, 854B, 856B



The toggle clamp is made of the galvanized structural steel. Stainless steel bolts are embedded in improved thermo-chemically knurled bushings. Joining parts are lubricated. The handle is made of a flexible plastic material.

You can clamp the object processed when the handle is in vertical position.

B - clamp with additional safety device.

Clamps equipped with a safety device have an additional lever protecting from:

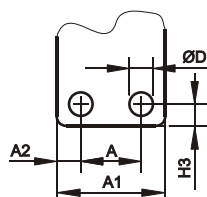
- automatic falling of arms when clamps are open (e.g. while changing the object processed)
- accidental opening the handle while clamping and processing a given object.

Before opening or closing the clamp you should first press the red lever with your finger and hold it and then grab the handle with your hand and close or open the clamp.

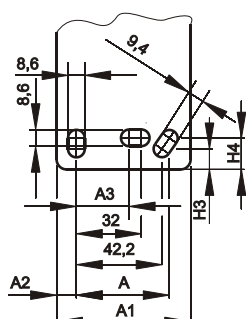
Set includes:

- clamp
- clamping setscrew class 8.8 with nuts
- 2 pieces of flanged washers
- rubber cover

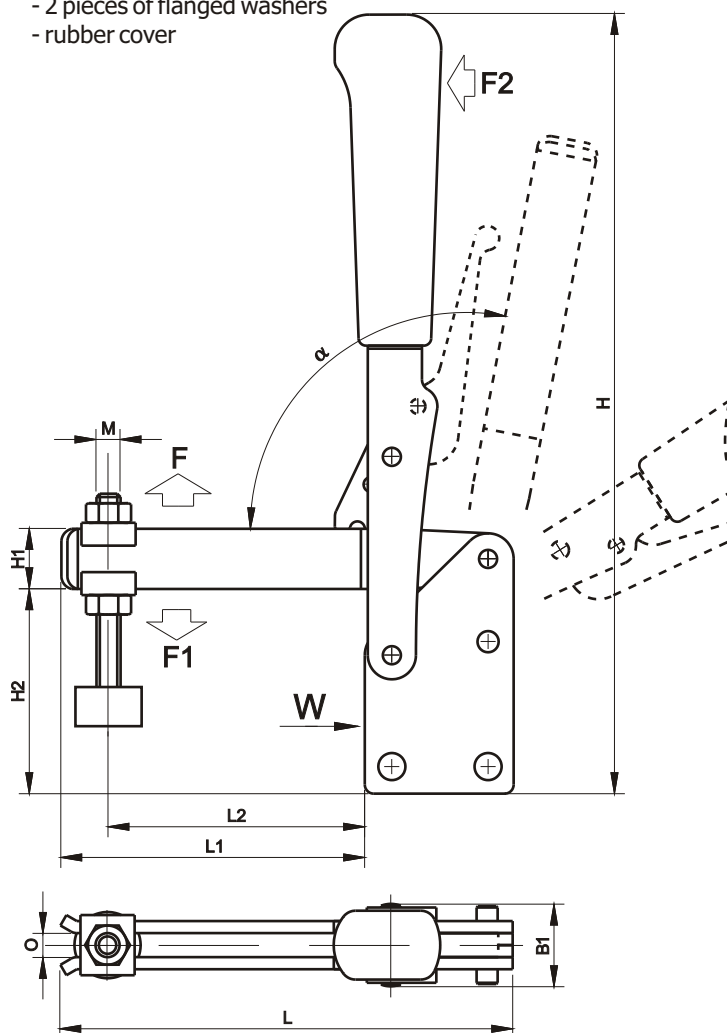
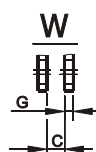
Base  
853B,  
854B




Base  
856B



Base  
853B  
854B  
856B



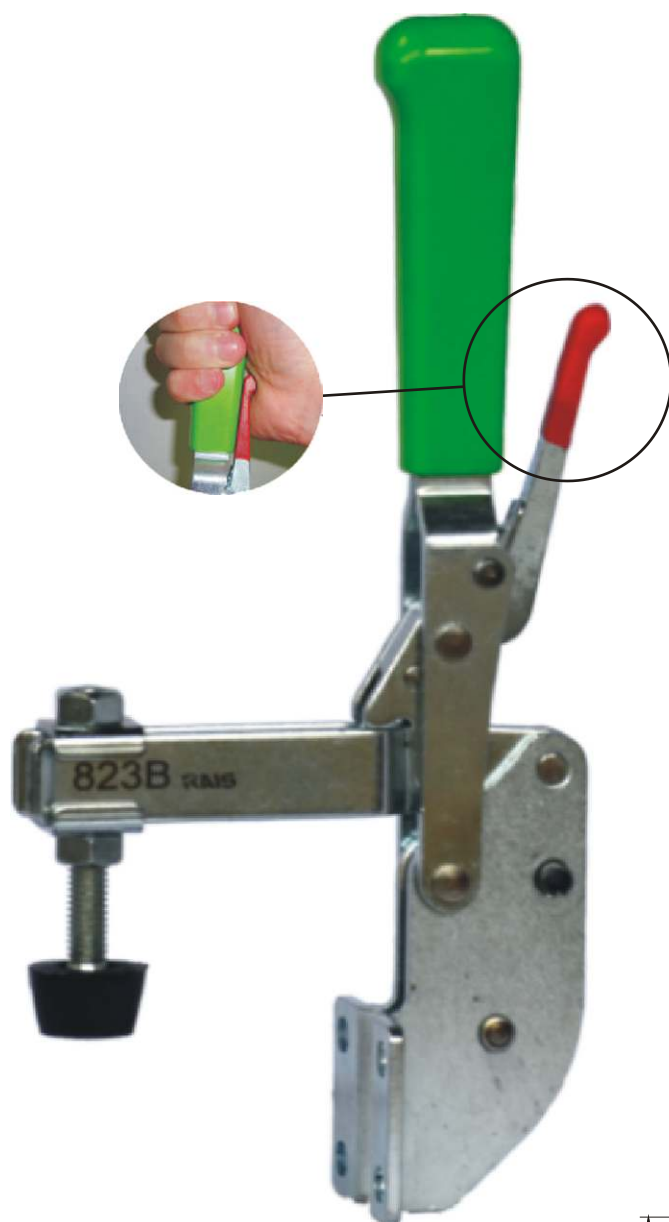
Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	A3	B1	C	ØD	G	H	H1	H2	H3	H4	L	L1	L2	M	O	α
853B	0,44	210	90	12	19,5	35,0	7,8	---	24	6	7,9	3,0	205	17	51	6,9	---	111	76	19 ÷ 61	M8x55	8	90°
854B	0,90	320	130	15	32,0	49,5	9,0	---	30	8	8,9	4,0	260	20	67	9,0	---	151	102	19 ÷ 87	M8x65	8	90°
856B	1,67	500	150	18	45,7	66	9,8	26,0	36	10	---	5,0	304	25	81	10,0	15,5	203	137	24 ÷ 117	M10x90	10	90°

We reserve the right to make any changes without notice.



# 43. SIDE VERTICAL CLAMP AND WITH ADDITIONAL SAFETY DEVICE

823B, 824B



The toggle clamp is made of the galvanized structural steel. Stainless steel bolts are embedded in improved thermo-chemically knurled bushings. Joining parts are lubricated. The handle is made of a flexible plastic material.

You can clamp the object processed when the handle is in vertical position.

B - clamp with additional safety device.

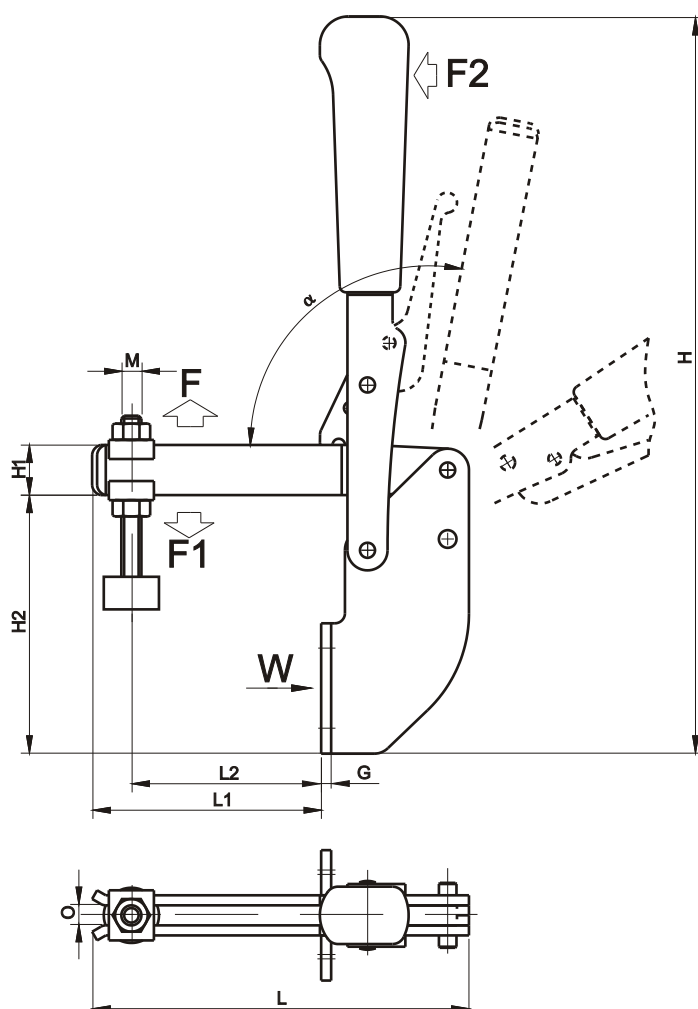
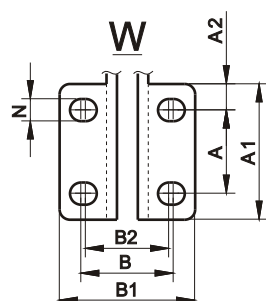
Clamps equipped with a safety device have an additional lever protecting from:


- automatic falling of arms when clamps are open(e.g. while changing the object Processed)
- accidental opening the handle while clamping and processing a given object.

Before opening or closing the clamp you should first press the red lever with your finger and hold it and then grab the handle with your hand and close or open the clamp.

Set includes:

- clamp
- clamping setscrew class 8.8 with nuts
- 2 pieces of flanged washers
- rubber cover



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	B	B1	B2	G	H	H1	H2	L	L1	L2	M	N	O	$\alpha$
823B	0,50	210	90	12	24	38	7	30,5	43	28,5	3,0	230	17	76	111	68	11 ÷ 54	M8x55	6,5	8	91°
824B	1,00	320	130	15	32	52	10	35,5	52	32,0	4,0	295	20	102	151	92	9 ÷ 77	M8x65	8,5	8	91°

We reserve the right to make any changes without notice.



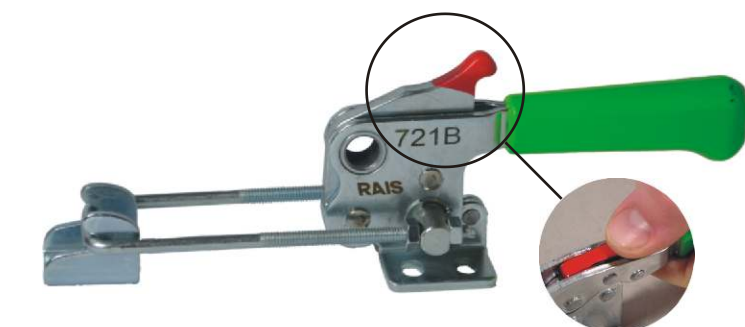
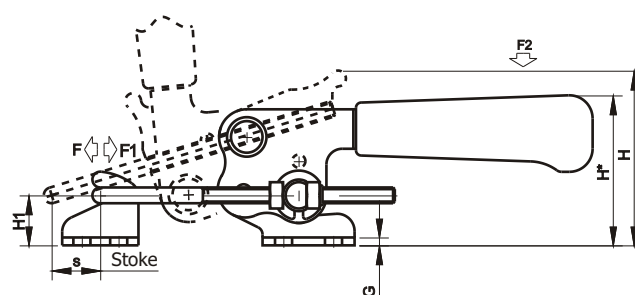
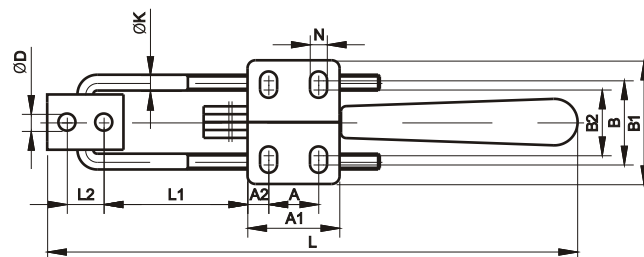
## 44. HORIZONTAL CATCH CLAMP AND A SAFETY DEVICE


721B, 723B, 725B

The toggle clamp is made of the galvanized structural steel. Stainless steel bolts are embedded in improved thermo-chemically knurled bushings. Joining parts are lubricated. The handle is made of a flexible plastic material.

B - clamp with additional safety device.

The catch is available together with a clamp.



Nr		F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	B	B1	B2	ØD=N	G	H	H*	H1	ØK	L	L1	L2	S
721B	0,18	200	180	10	13	26	6,5	24	36	19	5,2	2,5	51	42	12	4	135 ÷ 170	28 ÷ 63	11	20
723B	0,38	400	270	15	19	35	8,0	32	47	25	6,5	3,0	66	57	19	6	185 ÷ 230	35 ÷ 80	14	26
725B	0,88	700	450	20	32	51	9,5	45	64	36	8,5	4,0	86	75	25	8	235 ÷ 300	46 ÷ 111	19	34

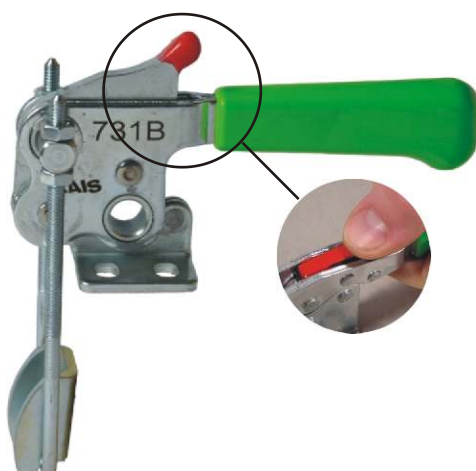
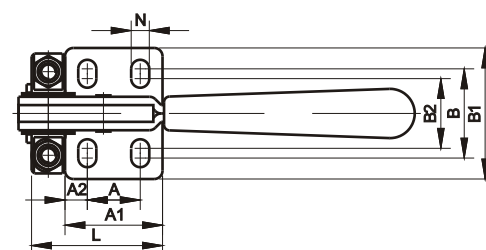
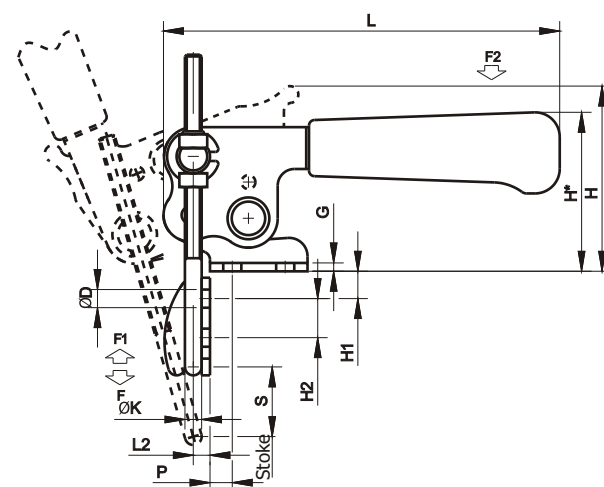
## 45. VERTICAL CATCH CLAMP AND A SAFETY DEVICE


731B, 733B, 735B

The toggle clamp is made of the galvanized structural steel. Stainless steel bolts are embedded in improved thermo-chemically knurled bushings. Joining parts are lubricated. The handle is made of a flexible plastic material.

B - clamp with additional safety device.

The catch is available together with a clamp.

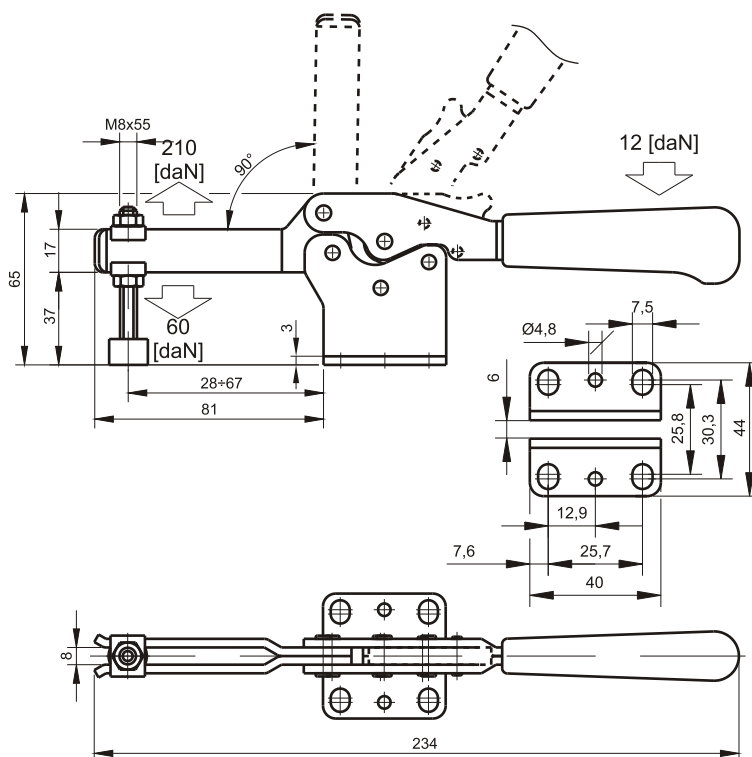


Nr		F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	B	B1	B2	ØD=N	G	H	H*	H1	H2	ØK	L	L1	L2	P	S
731B	0,18	200	180	10	13	26	6,5	24	36	19	5,2	2,5	51	42	5 ÷ 28	11	4	103	40	4,5	7	20
733B	0,38	400	270	15	19	35	8,0	32	47	25	6,5	3,0	66	57	7 ÷ 35	14	6	142	52	6,0	8	26
735B	0,88	700	450	20	32	51	9,5	45	64	36	8,5	4,0	86	75	9 ÷ 45	19	8	179	74	8,0	9,5	34

We reserve the right to make any changes without notice.

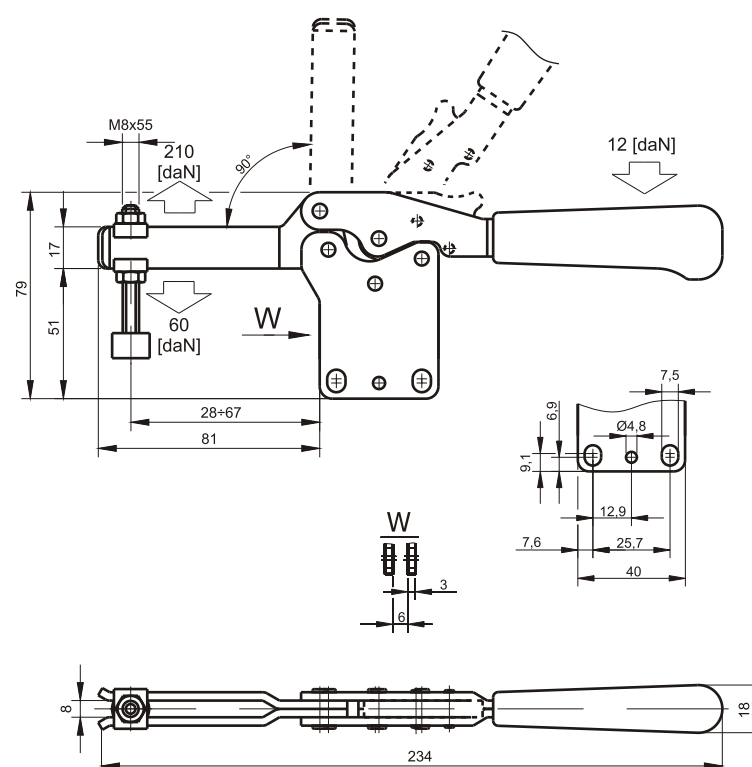


**903 SS**



- clamp
- clamping setscrew class 8.8 with nuts
- 2 pieces of flanged washers
- rubber cover

## 953 SS

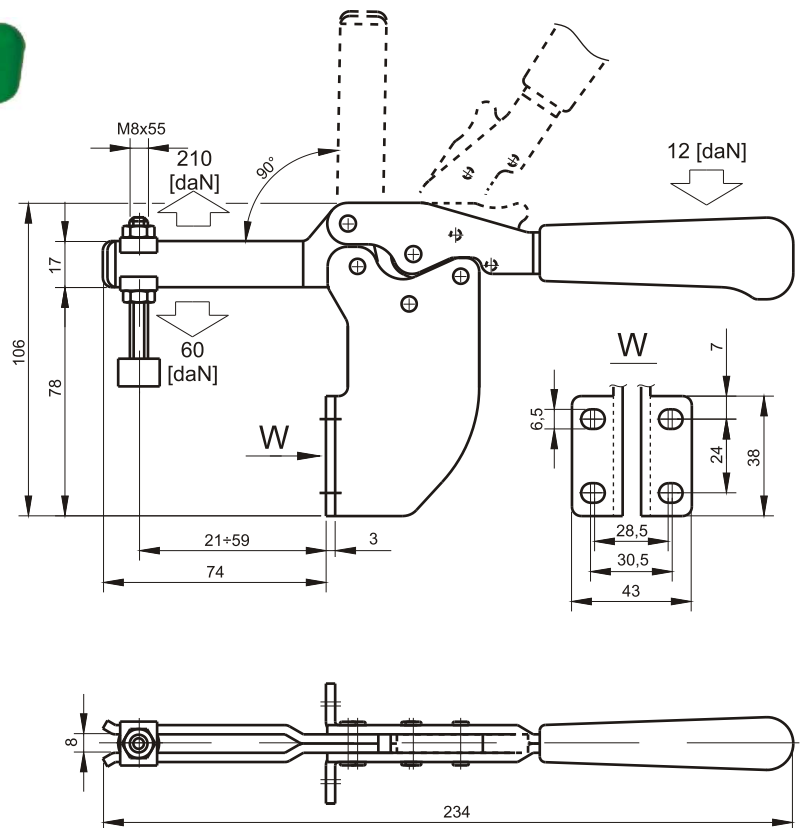


- clamp
- clamping setscrew class 8.8 with nuts
- 2 pieces of flanged washers
- rubber cover



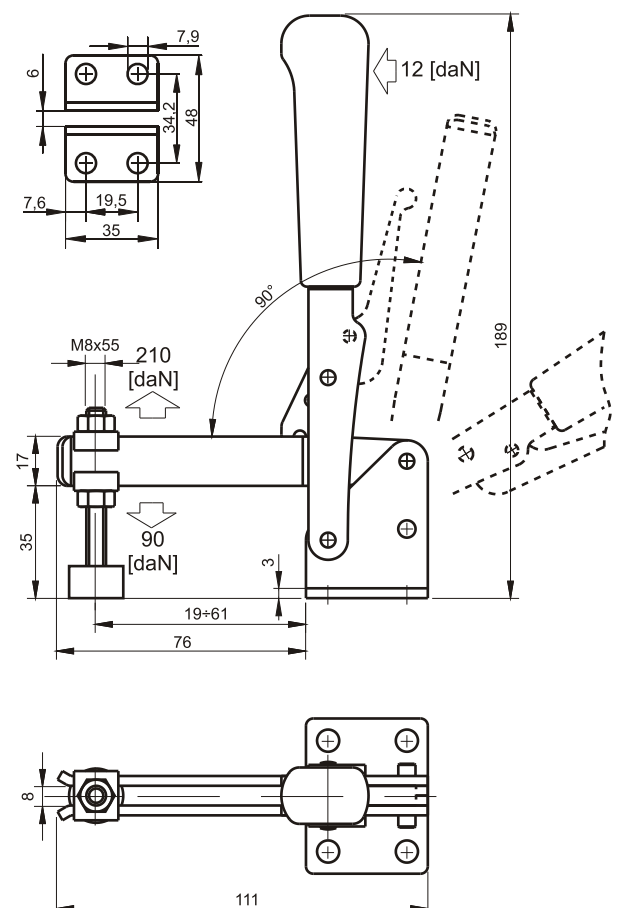
## A metal tool with a green handle and a black adjustment knob, labeled '923SS RMS'. The tool has a complex metal body with several screws and a black adjustment knob at the end of a long arm. The handle is green and ergonomically shaped. The metal body is silver-colored and has the text '923SS RMS' engraved on it.

- clamp
- clamping setscrew class 8.8 with nuts
- 2 pieces of flanged washers
- rubber cover



## 803 SS

- clamp
- clamping setscrew class 8.8 with nuts
- 2 pieces of flanged washers
- rubber cover





## 50. STAINLESS STEEL VERTICAL CLAMP WITH STRAIGHT BASIS

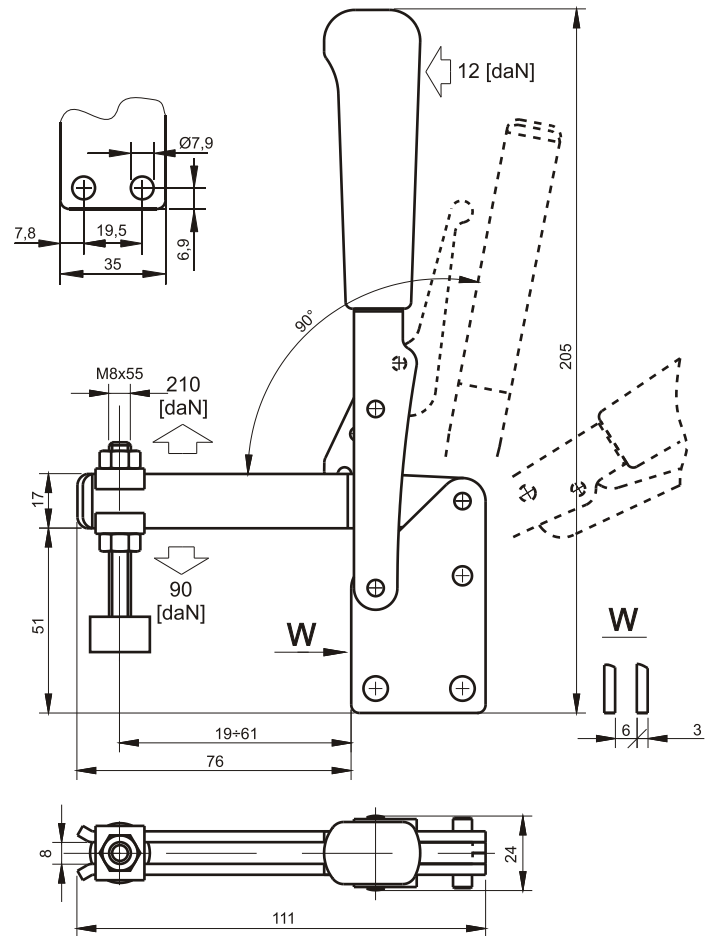
853 SS

Clamps are made of stainless steel. Bolts are embedded in improved thermo-chemically knurled bushings. Joining parts are lubricated. The handle is made of a flexible plastic material.

You can clamp the object processed when the handle is in verticale position.

Set includes:

- clamp
- clamping setscrew class 8.8 with nuts
- 2 pieces of flanged washers
- rubber cover



## 51. STAINLESS STEEL SIDE VERTICAL CLAMP

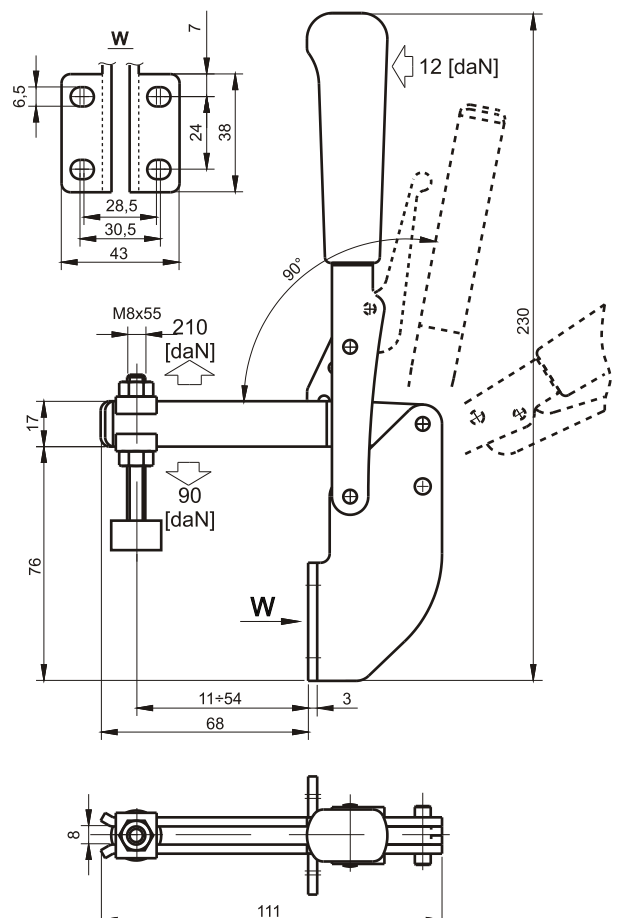
823 SS

Clamps are made of stainless steel. Bolts are embedded in improved thermo-chemically knurled bushings. Joining parts are lubricated. The handle is made of a flexible plastic material.

You can clamp the object processed when the handle is in verticale position.

Set includes:

- clamp
- clamping setscrew class 8.8 with nuts
- 2 pieces of flanged washers
- rubber cover



We reserve the right to make any changes without notice.

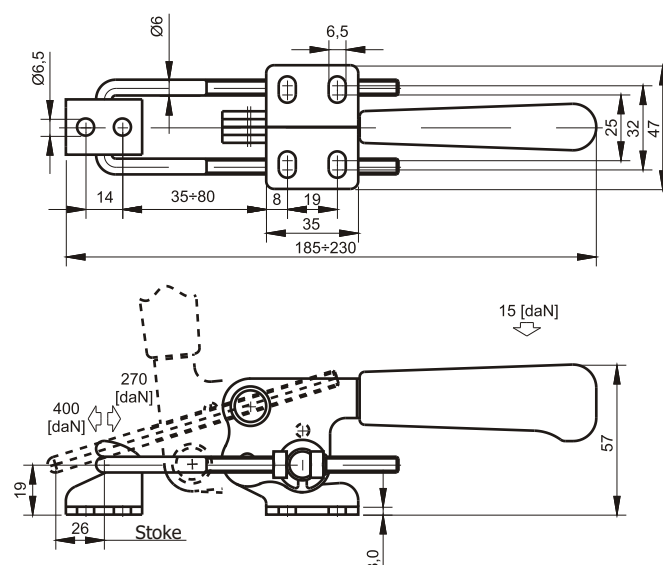


## 52. STAINLESS STEEL HORIZONTAL CATCH CLAMP



Clamps are made of stainless steel. Bolts are embedded in improved thermo-chemically knurled bushings. Joining parts are lubricated. The handle is made of a flexible plastic material.

The catch is available together with a clamp.

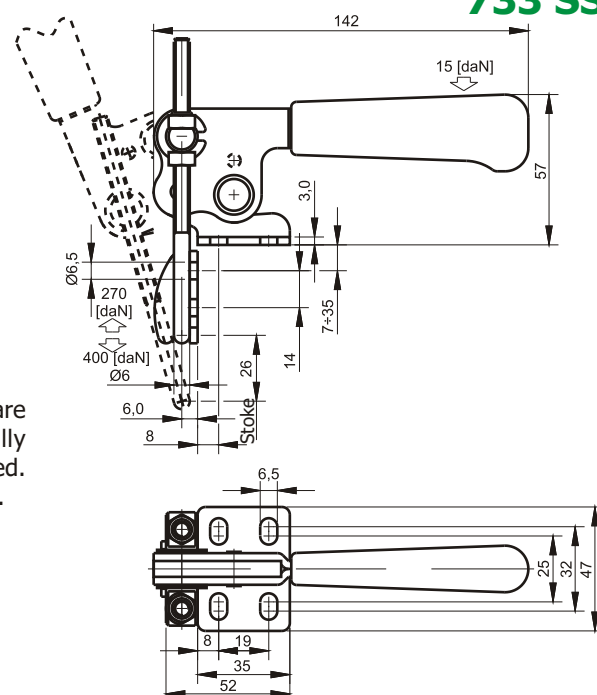


## 53. STAINLESS STEEL VERTICAL CATCH CLAMP



Clamps are made of stainless steel. Bolts are embedded in improved thermo-chemically knurled bushings. Joining parts are lubricated. The handle is made of a flexible plastic material.

The catch is available together with a clamp.

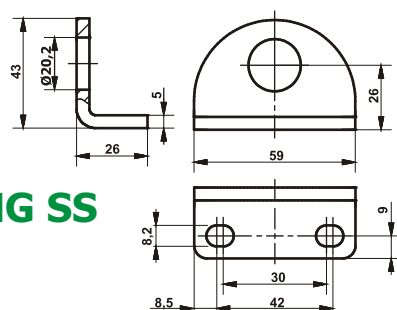


## 54. STAINLESS STEEL PUSH-PULL CLAMP

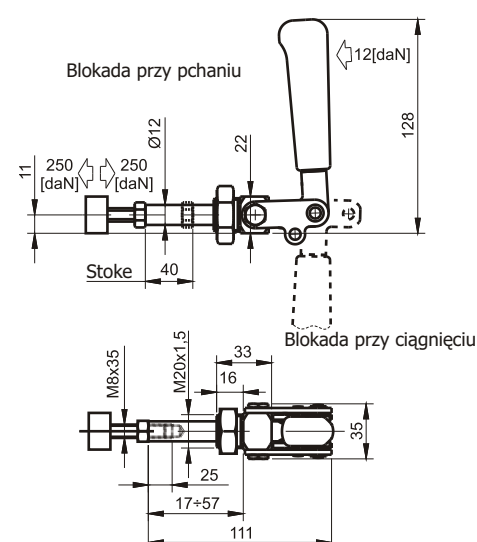
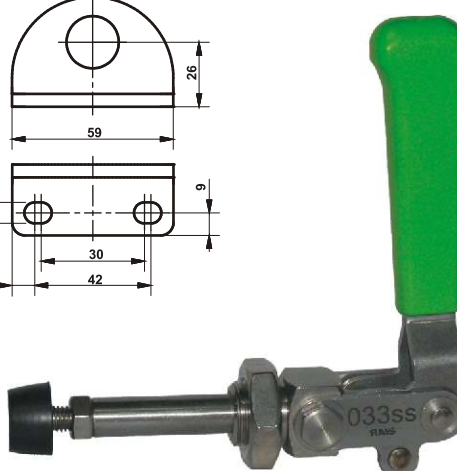
Basis bent, two mounting holes



134NG SS



Clamps become blocked in two outermost positions of the handle while pushing object processed towards the basis and while pulling.



We reserve the right to make any changes without notice.



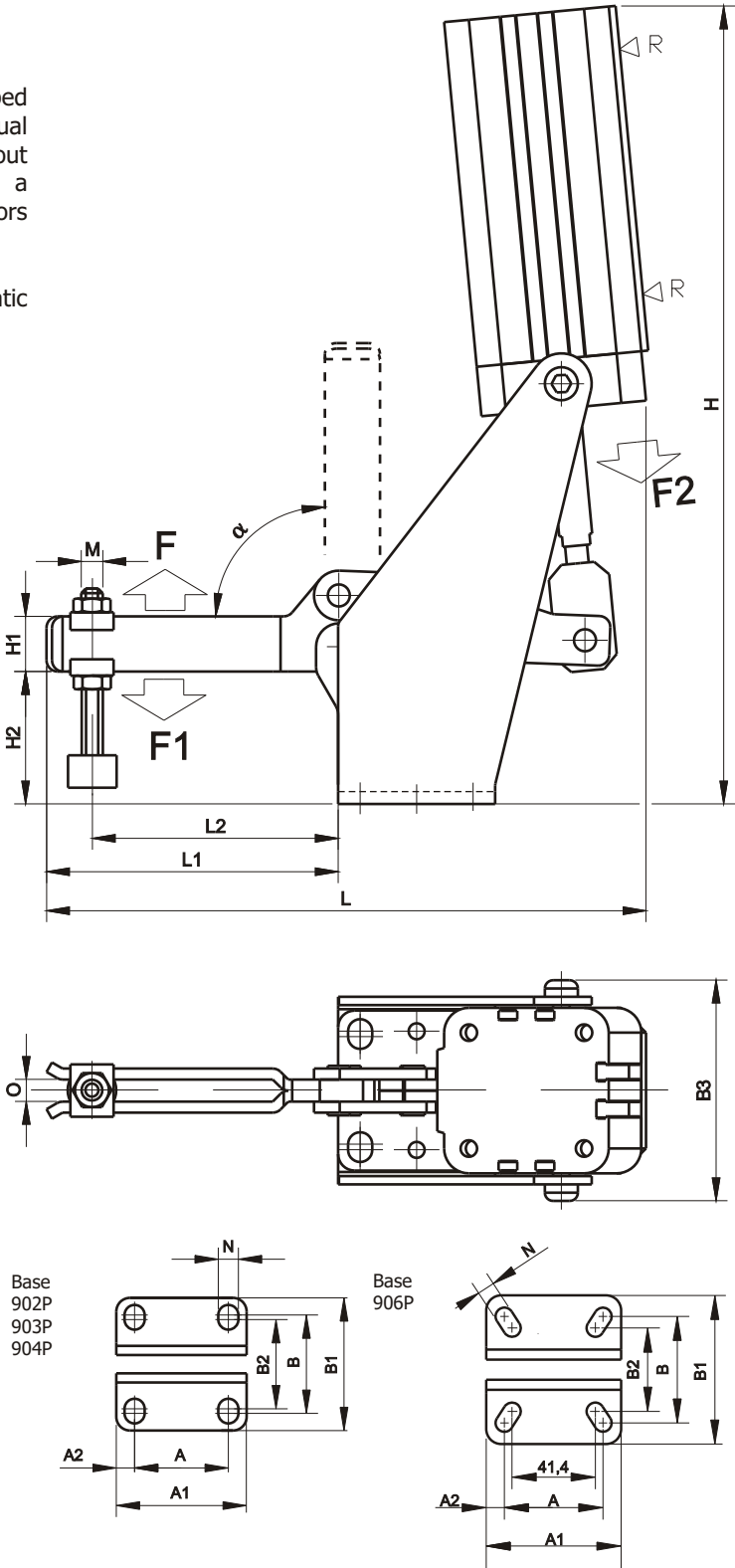
# VII. Pneumatic push clamps


## 55. PNEUMATIC HORIZONTAL CLAMP

902P, 903P, 904P, 906P

Horizontal clamps /p... 5/, namely No. 902, 903, 904, 906 are equipped with FESTO pneumatic cylinders, which enables to exchange manual clamps (e.g. 903) for pneumatic ones (e.g. 903P) fast and without thorough rebuilding of the fixtures. Pneumatic cylinders have a magnetic ring built in the piston, which allows to use proximity detectors to close or open clamp. The service pressure 0,6 MPa.

There exists the possibility of the application convertibly pneumatic cylinders from company: Metal Work, Pneumax or Prema.



Nr		F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	B	B1	B2	B3	H	H1	H2	L	L1	L2	M	N	O	R	$\alpha$	Pneumatic cylinder $\varnothing \times S$
902P	0,76	130	90	29	26,0	37	5,2	28,2	47	20,6	57	194	13	28	128	61	22 ÷ 50	M6x35	5,5	6	M5	90°	D 25x50
903P	1,42	210	150	48	25,7	40	7,6	30,3	59	25,8	73	239	17	39	163	81	28 ÷ 67	M8x55	7,5	8	G1/8	90°	D 32x60
904P	2,54	320	230	75	40,8	57	7,8	43,2	68	39,1	82	278	20	45	218	106	33 ÷ 91	M8x65	8,6	8	G1/8	90°	D 40x70
906P	4,04	500	390	117	49,0	67	9,0	53,0	86	41,4	100	313	25	65	271	131	42 ÷ 112	M10x90	8,8	10	G1/8	90°	D 50x80

We reserve the right to make any changes without notice.

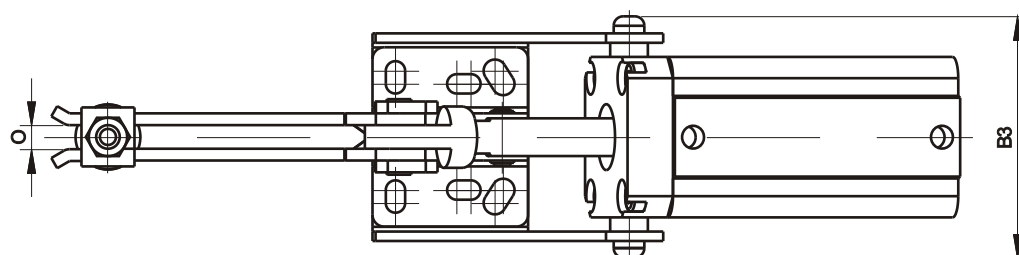
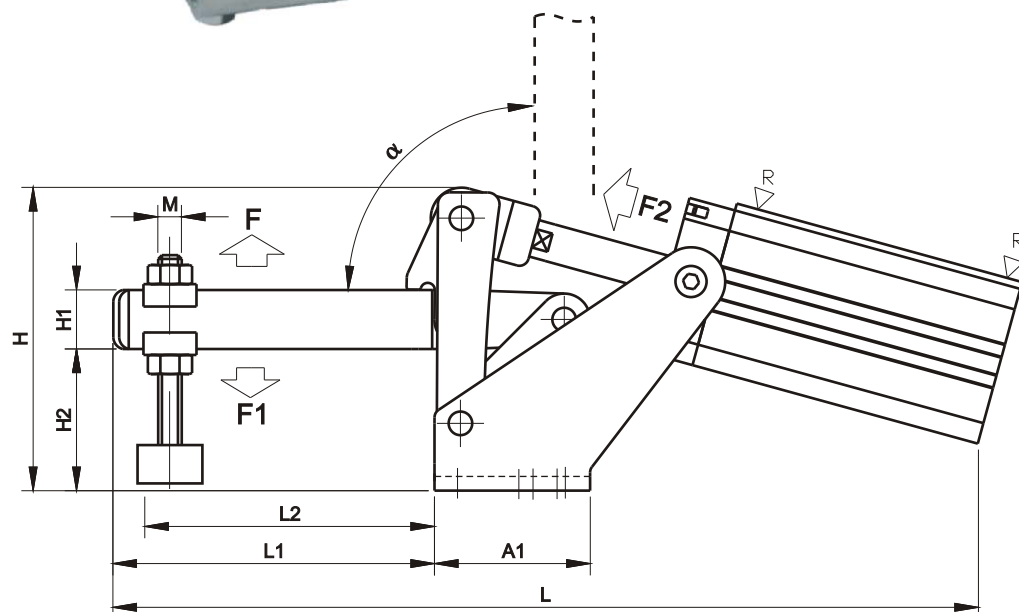
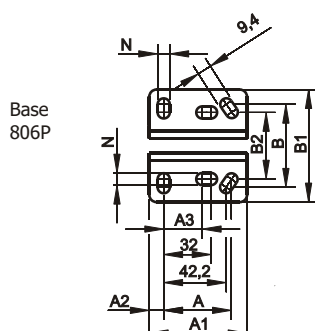
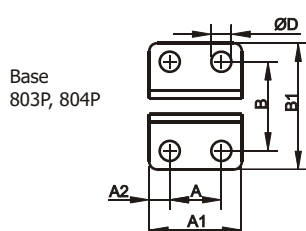
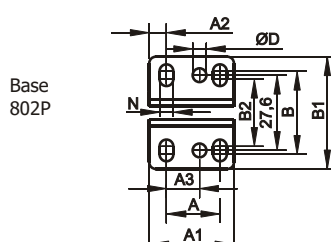
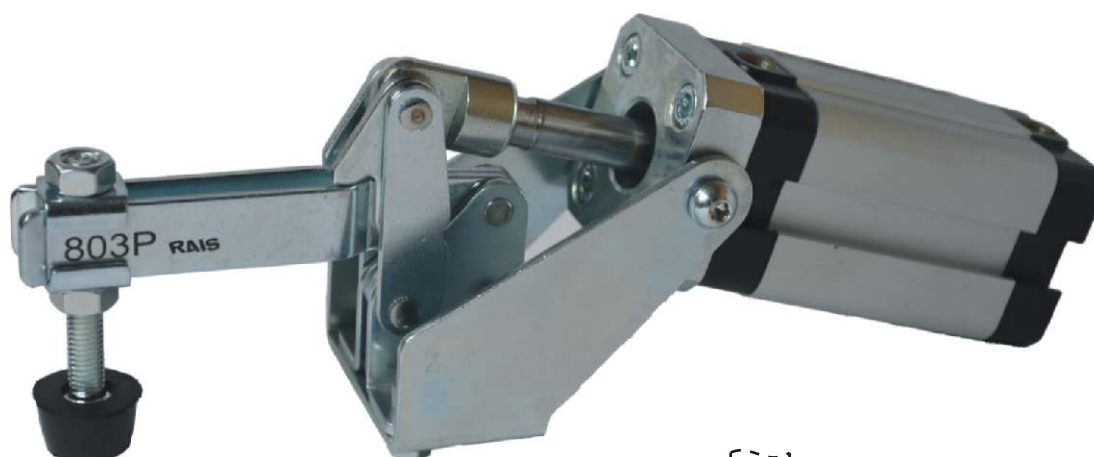



## 56. PNEUMATIC VERTICAL CLAMP

802P, 803P, 804P, 806P

Vertical clamps /p.. 12/, namely No. 802, 803, 804, 806 are equipped with FESTO pneumatic cylinders, which enables to exchange manual clamps (e.g. 803) for pneumatic ones (e.g. 803P) fast and without thorough rebuilding of the tools. Pneumatic cylinders have a magnetic ring built in the piston, which allows to use proximity The service pressure 0,6 MPa.

There exists the possibility of the application convertibly pneumatic cylinders from company: Metal Work, Pneumax or Prema.



Nr		F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	A3	B	B1	B2	B3	ØD	H	H1	H2	L	L1	L2	M	N	O	R	α	Pneumatic cylinder ØxS
802P	0,68	130	110	29	20,2	32	6,6	12,6	32,4	50	26	59	5,2	64	13	26	196	47	13 ÷ 35	M6x35	5,0	6	M5	90°	D 25x40
803P	1,30	210	170	48	19,5	35	7,8	---	34,2	59	---	69	7,9	81	17	37	250	76	19 ÷ 61	M8x55	---	8	G1/8	90°	D 32x50
804P	2,22	320	250	75	32,0	50	9,0	---	45,1	72	---	85	8,9	104	20	49	309	102	19 ÷ 87	M8x65	---	8	G1/8	90°	D 40x60
806P	3,80	500	420	117	45,7	66	9,8	26,0	56,0	88	45	102	---	128	25	59	386	137	24 ÷ 117	M10x90	8,3	10	G1/8	90°	D 50x80

We reserve the right to make any changes without notice.

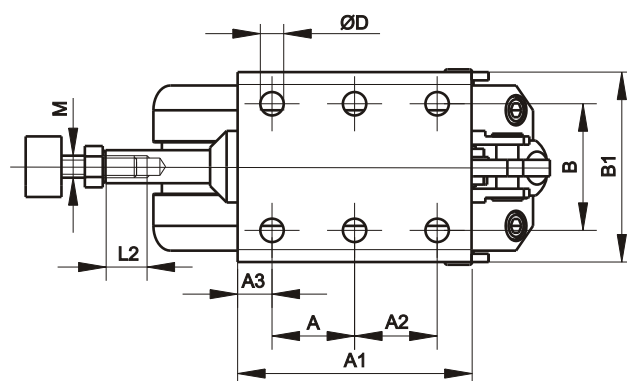
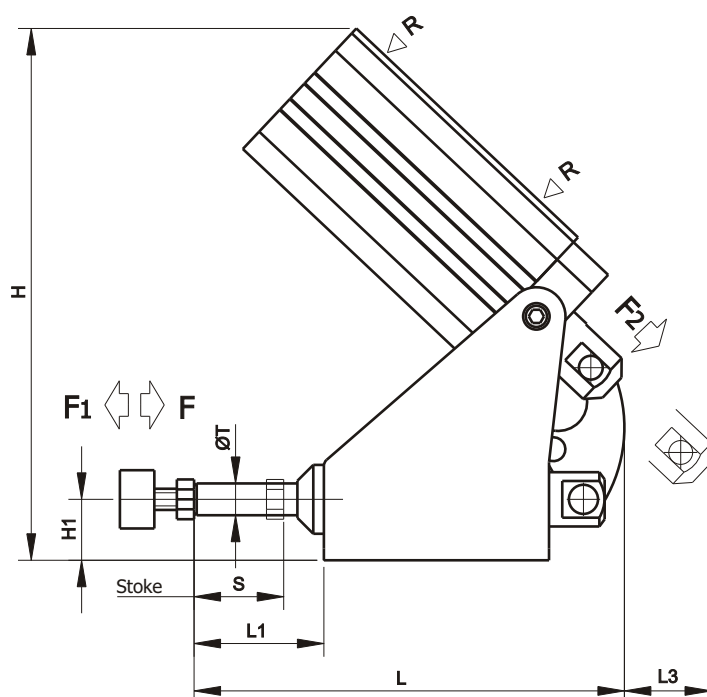



# 57. PNEUMATIC PUSH CLAMP

042P, 044P, 046P

Push-pull clamps /p... 28/, namely No. 042, 044, 046 are equipped with FESTO pneumatic cylinders, which enables to exchange manual clamps (e.g. 044) for pneumatic ones (e.g. 044P) fast and without thorough rebuilding of the tools. Pneumatic cylinders have a magnetic ring built in the piston, which allows to use proximity detectors to close or open the clamp. The service pressure 0,6 MPa.

There exists the possibility of the application convertibly pneumatic cylinders from company: Metal Work, Pneumax or Prema.



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	A3	B	B1	ØD	H	H1	L	L1	L2	L3	M	R	S	ØT	Pneumatic cylinder ØxS
042P	1,02	160	160	13	25	52	---	9,5	39,0	56	6,5	156	18	121	23 ÷ 33	20	34	M6x30	M5	10	10	D 25x50
044P	2,62	250	250	19	35	85	---	12,5	46,0	69	8,5	203	23	169	29 ÷ 49	25	47	M8x35	G1/8	20	12	D 40x70
046P	4,44	450	450	23	35	100	35	15,0	53,0	82	11,0	252	27	214	34 ÷ 61	30	64	M10x50	G1/8	27	16	D 50x100

We reserve the right to make any changes without notice.

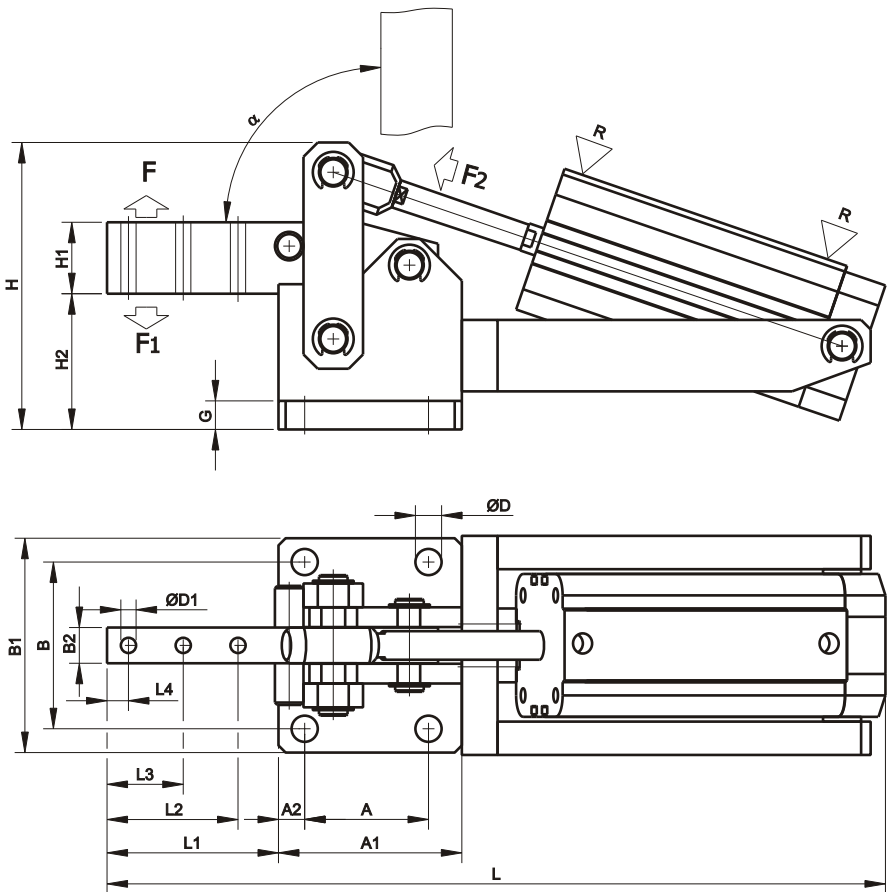



58. HEAVY PNEUMATIC TOGGLE CLAMP WITH HORIZONTAL CYLINDER

422, 424

The clamp is made on the basis of special, strengthened vertical clamp and double sided functioning pneumatic cylinders produced by FESTO which is equipped with a magnetic ring installed on the piston. The pneumatic cylinders frame has special T-slots that enable installation of proximity detectors. Hardened and polished bolts are located in bushes made of bronze and are protected by means of sediment rings. The service pressure 0,6 MPa.

There exists the possibility of the application convertibly pneumatic cylinders from company: Metal Work, Pneumax or Prema.



Nr		F [daN]	F1 [daN]	F2 [daN]	A	A1	A2	B	B1	B2	ØD	ØD1	G	H	H1	H2	L	L1	L2	L3	L4	R	α	Pneumatic cylinder ØxS
422	5,22	900	230	79	52	77	11	70	90	15	11	6,2	12	121	29	57	330	72	55	32	9	G1/8	90°	D 40x70
424	7,90	1800	400	123	55	90	11	84	106	20	11	8,2	12	146	39	61	400	94	75	42	9	G1/8	90°	D 50x90

We reserve the right to make any changes without notice.

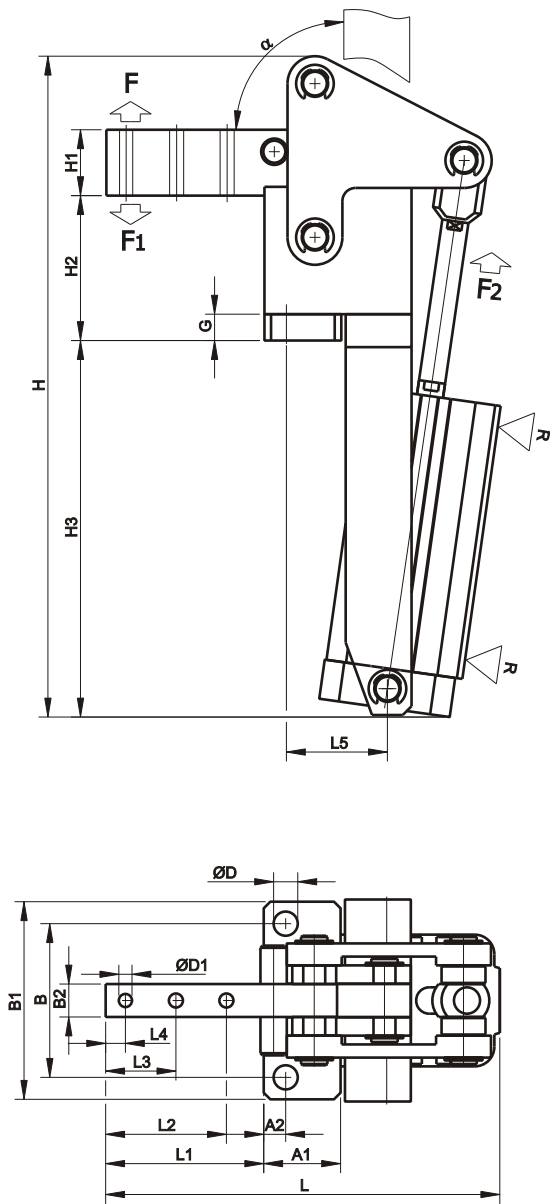



59. HEAVY PNEUMATIC TOGGLE CLAMP WITH VERTICAL CYLINDER

442, 444

The clamp is made on the basis of special, strengthened vertical clamp and double sided functioning pneumatic cylinders produced by FESTO which is equipped with a magnetic ring installed on the piston. The pneumatic cylinders frame has special T-slots that enable installation of proximity detectors. Hardened and polished bolts are located in bushes made of bronze and are protected by means of sediment rings. The service pressure 0,6 MPa.

There exists the possibility of the application convertibly pneumatic cylinders from company: Metal Work, Pneumax or Prema.



Nr	 [kg]	F [daN]	F1 [daN]	F2 [daN]	A1	A2	B	B1	B2	ØD	ØD1	G	H	H1	H2	H3	L	L1	L2	L3	L4	L5	R	α	Pneumatic cylinder ØxS
442	5,15	900	230	79	35	10	70	90	15	11	6,2	12	301	29	66	173	179	72	55	32	9	45	G1/8	90°	D 40x80
444	7,82	1800	400	123	37	11	84	106	20	11	8,2	12	344	39	70	192	212	94	75	42	9	51	G1/8	90°	D 50x90

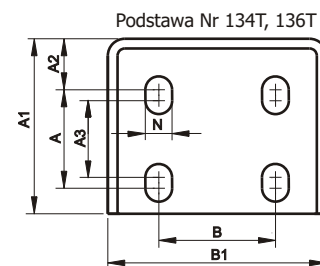
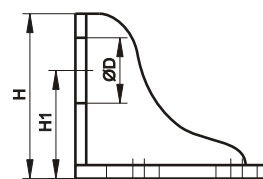
We reserve the right to make any changes without notice.




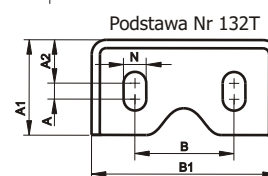
# VIII. Accessories

## 60. BASIS OF THE PUSH-PULL CLAMP

132T, 134T, 136T

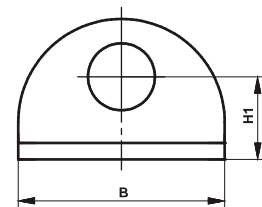
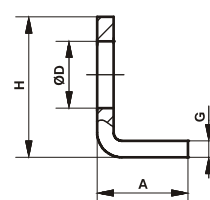



Nr	 [kg]	A	A1	A2	A3	B	B1	ØD	H	H1	N
132T	0,10	6	30	15,5	---	44	74	16,2	39	26	6,5
134T	0,24	20	45	15,5	12	48	80	20,2	54	38	6,5
136T	0,50	28	58	18	20	58	94	24,2	75	56	8,5

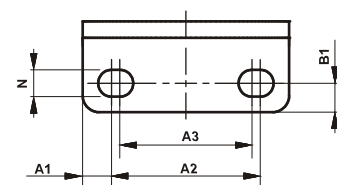


## 61. BASIS BENT, TWO MOUNTING HOLES

132NG, 134NG, 136NG



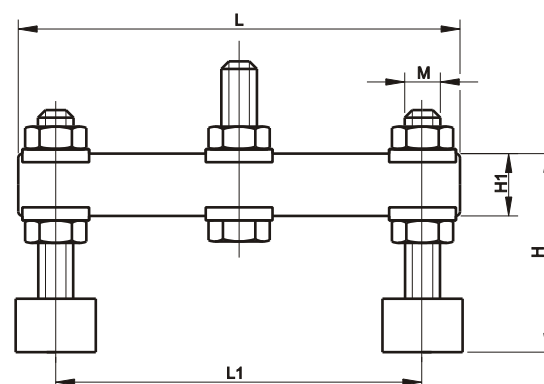
Nr	 [kg]	A	A1	A2	A3	B	B1	ØD	G	H	H1	N
132NG	0,06	22	7,0	36	32	50	7	16,2	4	34	20	6,5
134NG	0,10	26	8,5	42	30	59	9	20,2	5	43	26	8,2
136NG	0,18	34	10,5	48	30	69	12	24,2	6	51	30	11,0




## 62. BI-THRUST BEAM

502, 503, 504, 506

Used to clamp the object processed in two points or to clamp two objects processed. Here we present examples of fixing the bi-thrust beam to the clamping arm of the toggle clamp.



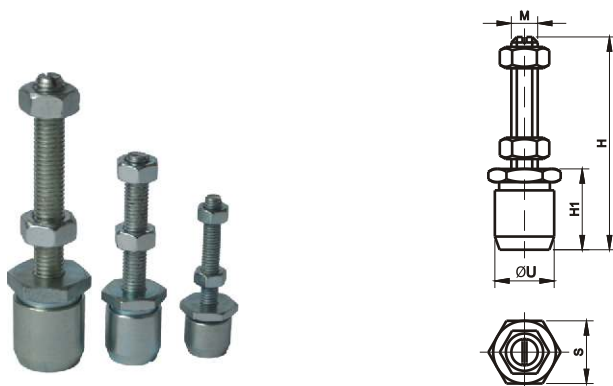
Nr	 [kg]	H	H1	L	L1	M	Mark for
502	0,14	30÷44	14	96	32÷80	M6x40	8...2.. , 9...2.. , 012, 022, 052, 112, 152
503	0,24	39÷53	17	120	36÷102	M8x50	8...3.. , 9...3..
504	0,35	40÷71	20	150	48÷132	M8x65	8...4.. , 9...4..
506	0,73	51÷81	25	200	50÷160	M10x90	8...6.. , 9...6..

We reserve the right to make any changes without notice.



## 63. THE SET SCREW WITH PLATE SPRINGS

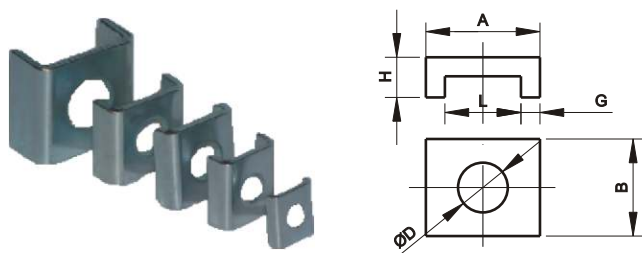
512, 514, 516



Nr	H	H1	M	S	ØU
512	54÷56	16÷18	M6	17	16
514	68÷71	22÷25	M8	19	19
516	94÷98	27÷31	M10	24	24

## 64. CLAMPING RING

601, 602.1, 602.2, 603, 604, 606



Nr	A	B	ØD	G	H	L	Mark for
601	11,4	12	5,2	1,0	3,0	9,4	8...1, 9...1
602.1	14,4	14	6,2	1,5	4,5	11,4	8...1.., 9...1..
602.2	15,5	16	6,3	1,5	5,7	12,5	0...2, 1...2
603	18,4	18	8,2	2,0	6,0	14,4	8...3.., 9...3..
604	20,5	18	8,4	2,0	7,6	16,5	8...4.., 9...4..
606	26,6	24	10,2	3,0	9,0	20,6	8...6.., 9...6..

## 65. SELF-ALIGNING SET SCREW

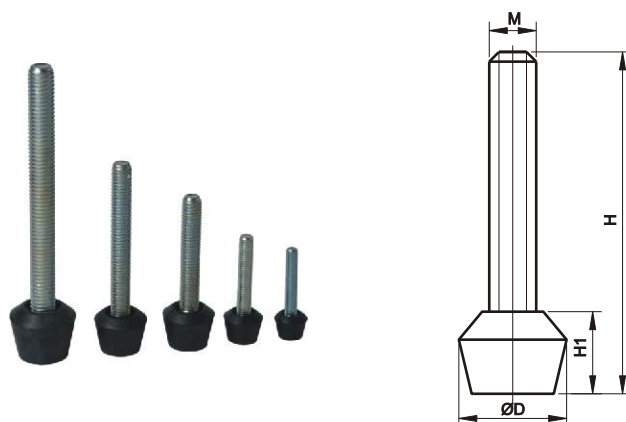
612, 614, 616



Nr	ØD	H	M	α	Mark for
612	19	68	M6	15°	213, 253
614	24	80	M8	15°	215, 255, 422, 442
616	30	101	M10	15°	217, 257, 424, 444

## 66. SET SCREW WITH A VULCANIZED BEAM FLANGE

621, 622, 623, 624, 626



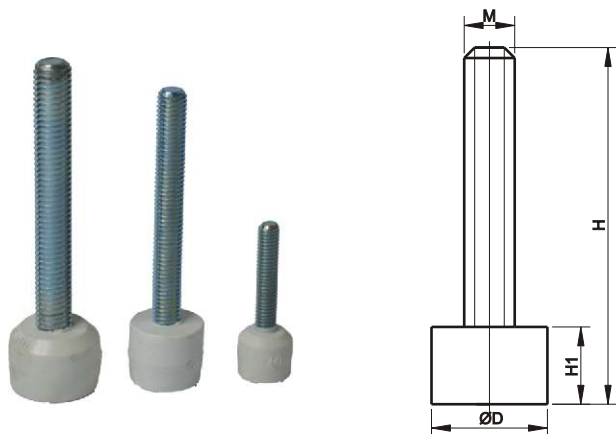
Nr	ØD	H	H1	M
621	13	38	10	M5x30
622	16	45	13	M6x35
623	21	63	16	M8x50
624	21	78	16	M8x65
626	26	116	20	M10x100

We reserve the right to make any changes without notice.



## 67. SET SCREW WITH A FLEXIBLE BEAM

632, 634, 636



Nr	ØD	H	H1	M
632	15	46	13	M6x35
634	20	83	17	M8x70
636	25	93	18	M10x90

## 68. RUBBER COVER

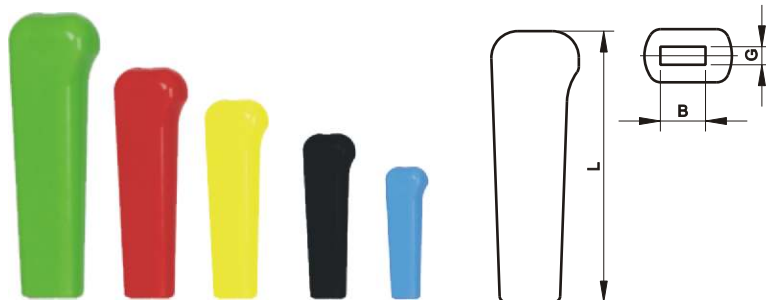
641, 642, 644, 646



Nr	ØD	ØD1	H1	Mark for set screw
641	12	16	10	M5
642	14	18	11	M6
644	18	22	13	M8
646	20	26	16	M10

## 69. FLEXIBLE HANDLE

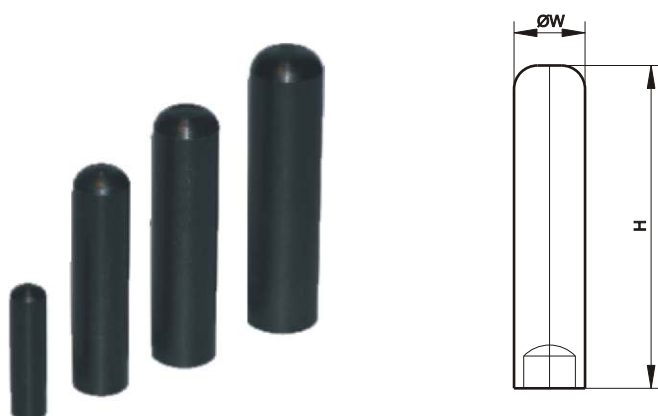
651, 652, 653, 654, 656



Nr	B	G	L	Mark for
651	8	4	50	8...1, 9...1
652	10	5	60	0...2., 2...1, 7...1., 8...2, 9...2, 012, 022, 031, 052
653	15	6	90	0...4., 2...3, 7...3., 8...3., 9...3., 033, 112, 152,
654	18	8	110	0...6., 2...5, 7...5., 8...4., 9...4., 035,
656	20	10	120	2...7, 8...6., 9...6., 048, 087

## 70. STEEL HANDLE

661, 663, 665, 667, 669



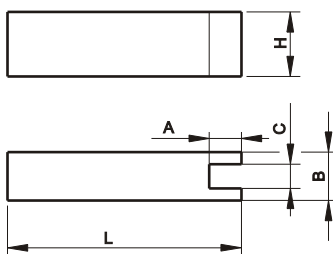
Nr	⚖ [kg]	H	ØW	Mark for
661	0,06	62	13	221, 261
663	0,20	104	18	223, 263
665	0,34	116	22	225, 265
667	0,36	129	28	227, 267
669	0,40	145	28	229, 269


We reserve the right to make any changes without notice.



## 71. CLAMPING ARM

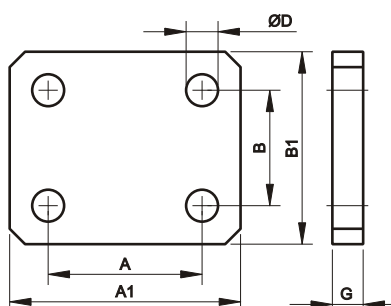
671, 673, 675, 677, 679




Nr	 [kg]	A	B	C	H	L	Mark for
671	0,10	8	12	6	16	58	221, 261
673	0,22	8	20	10	25	56	223, 263
675	0,44	15	25	12	30	75	225, 265
677	0,76	15	30	16	35	100	227, 267
679	1,10	20	35	20	35	125	229, 269

## 72. PLATE OF THE BASIS

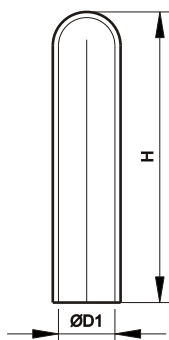
681, 683, 685, 687, 689




Nr	 [kg]	A	A1	B	B1	ØD	G	Mark for
681	0,06	25	37	18	30	5,2	5	221, 261
683	0,12	35	50	25	40	6,5	8	223, 263
685	0,18	40	60	30	50	8,5	8	225, 265
687	0,28	50	70	45	65	8,5	8	227, 267
689	0,41	60	80	50	70	10,5	10	229, 269

## 73. PLATE OF THE BASIS

691, 693, 695, 697



Nr	 [kg]	ØD	H	Mark for
691	0,01	13	50	221, 261
693	0,02	18	90	223, 263
695	0,03	22	100	225, 265
697	0,04	28	110	227, 267

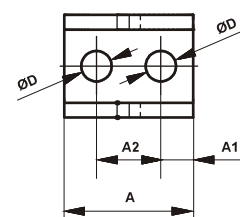
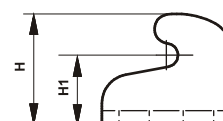
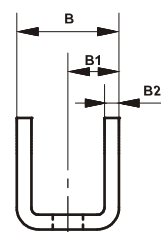
## 74. HITCH FOR HORIZONTAL CATCH CLAMP


721Z, 723Z, 725Z



Hitch for:

721Z - 721; 721B  
723Z - 723; 723B  
725Z - 725; 725B



Nr	 [kg]	A	A1	A2	B	B1	B2	ØD	H	H1
721Z	0,015	22	5,5	11	17,5	8,75	2,5	5,2	19	12
723Z	0,032	29	7,5	14	21,0	10,50	3,0	6,5	28	19
725Z	0,086	43	12,0	19	28,0	14,00	4,0	8,5	37	25

We reserve the right to make any changes without notice.




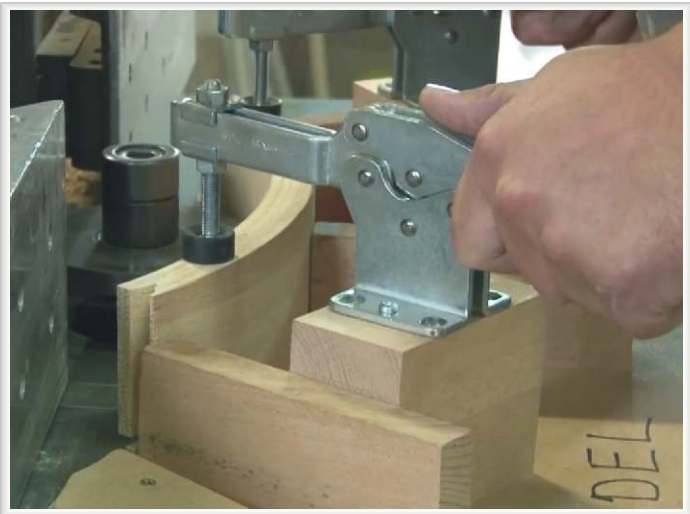
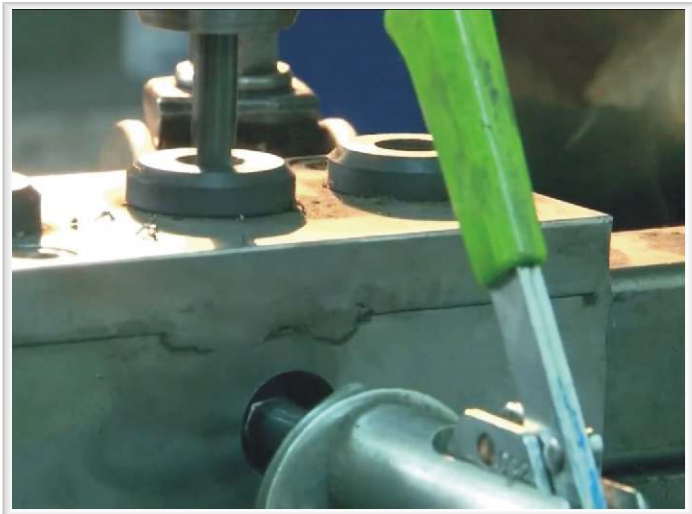
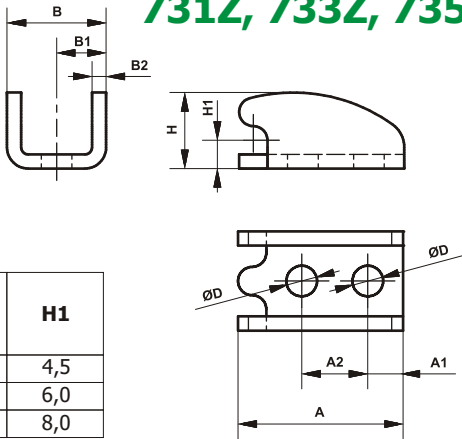
75. HITCH FOR VERTICAL CATCH CLAMP

731Z, 733Z, 735Z



Hitch for:  
731Z - 731; 731B  
733Z - 733; 733B  
735Z - 735; 735B

Nr	 [kg]	A	A1	A2	B	B1	B2	øD	H	H1
731Z	0,014	26	5,5	11	17,5	8,75	2,5	5,2	12,7	4,5
733Z	0,028	35	7,5	14	21,0	10,50	3,0	6,5	16,1	6,0
735Z	0,075	51	12,0	19	28,0	14,00	4,0	8,5	21,5	8,0



We reserve the right to make any changes without notice.



# IX. Hand press

The hand-screw press is a machine putting the pressure on the object we work across turning of the screw in motionless, joint with the base, to the nut. The joint screw is rigidly with a shoulder of the press.

The hand press rack is a machine whose the activity consists in the making of the statical pressure on the work-piece across the joint toothed gear hilted. The constant the standby to the work ensures the spring installed on the corps.

The corps was made from the grey-cast iron, and weighted parts from the alloy steel. Hand presses one uses in the assembly, the embossing, making of holes, to squeezing etc.

## 76. HAND - SCREW PRESS

PSB 3000

## 77. HAND - SCREW PRESS

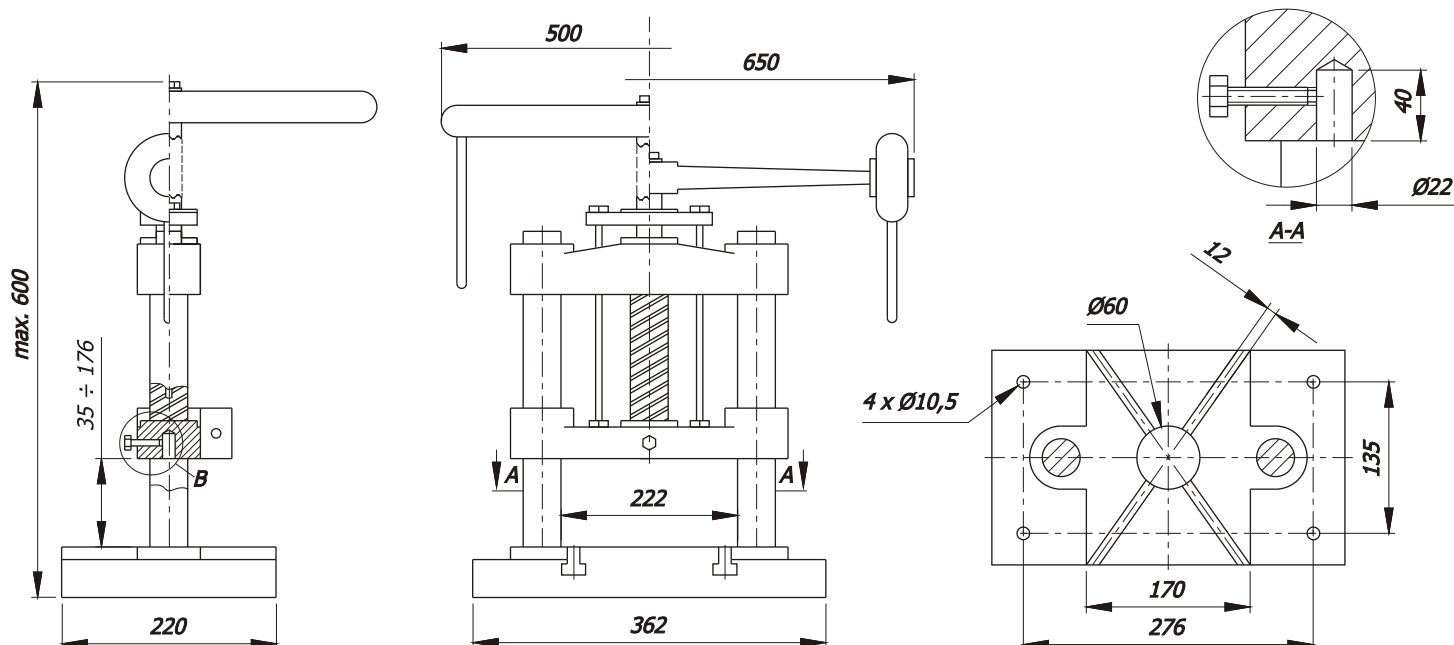
PSK 3000



PRESS FORCE: 3000 daN  
WEIGHT: 53,4 kg



PRESS FORCE: 3000 daN  
WEIGHT: 57,6 kg

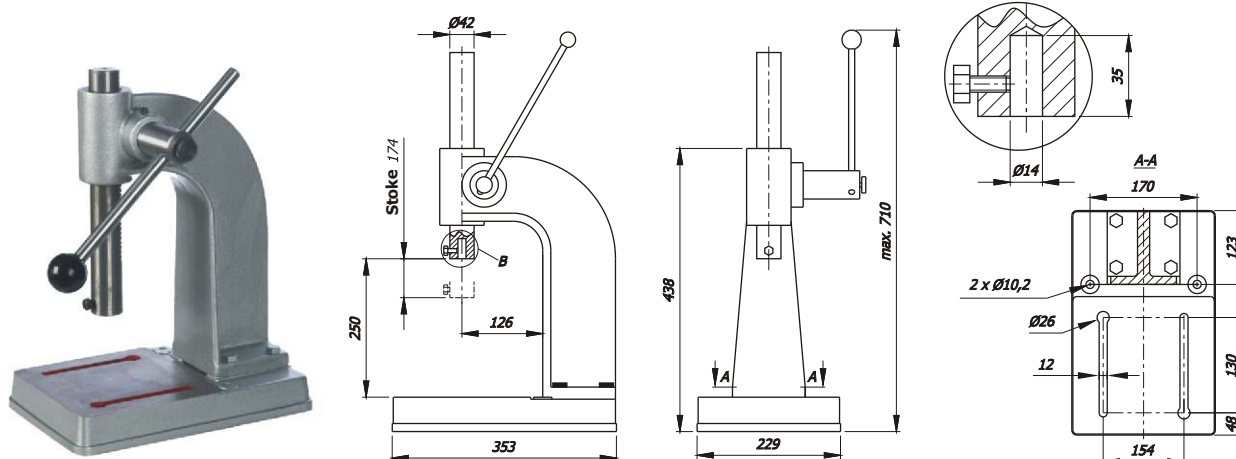


We reserve the right to make any changes without notice.



# 78. HAND PRESS RACK

PZ 600

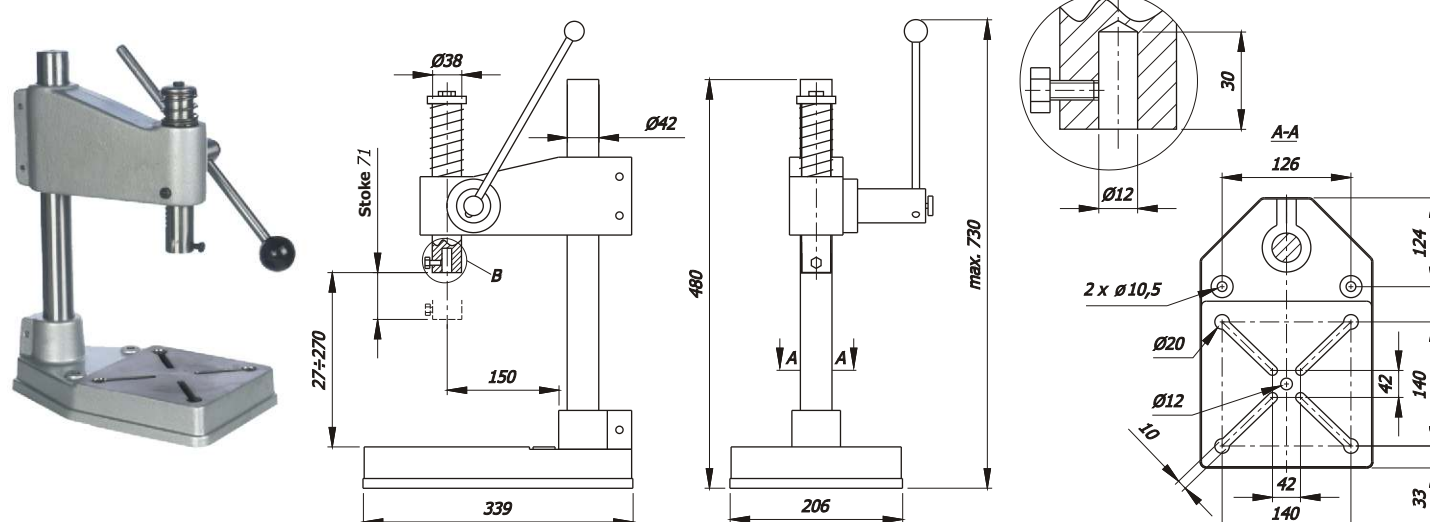


PRESS FORCE: 600 daN

WEIGHT: 28,0 kg

# 79. HAND PRESS RACK

PZ 350

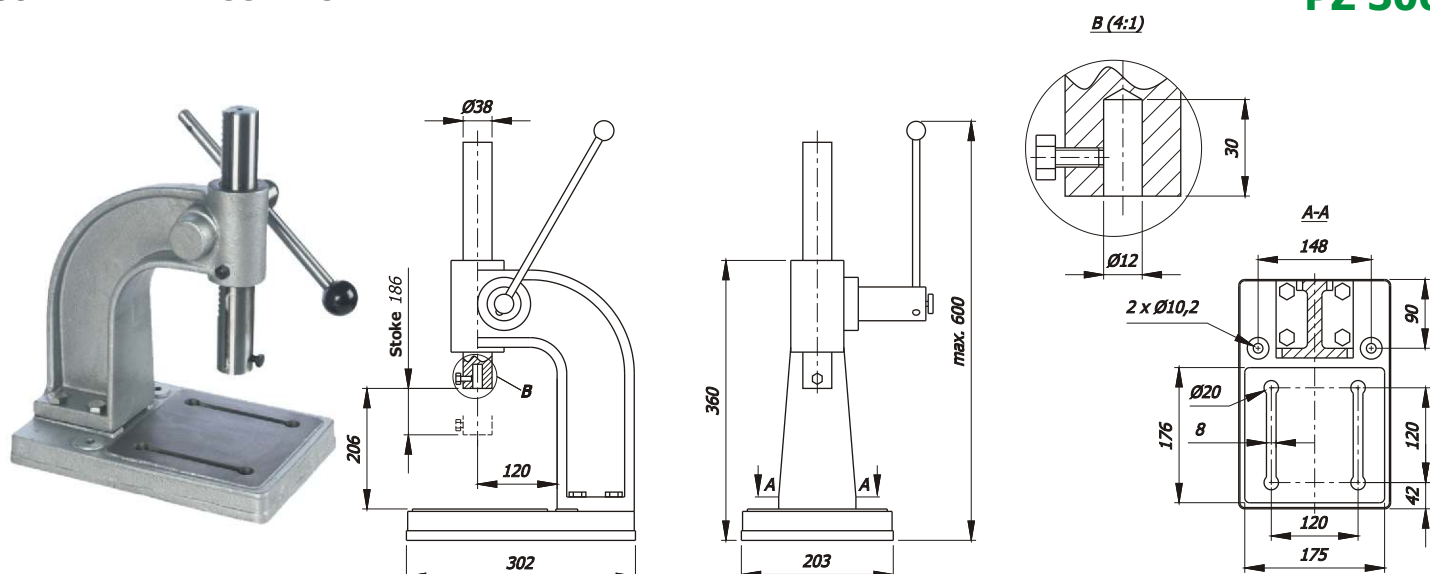


PRESS FORCE: 350 daN

WEIGHT: 27,5 kg

# 80. HAND PRESS RACK

PZ 300



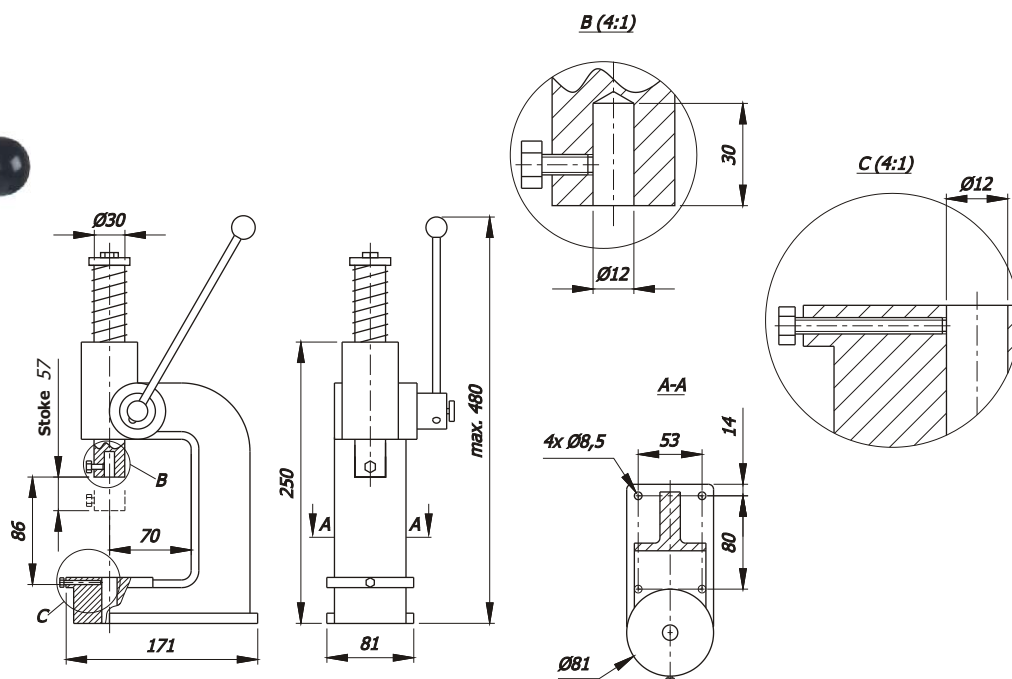
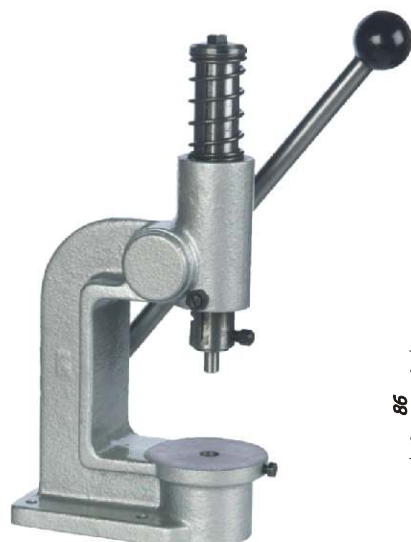
PRESS FORCE: 300 daN

WEIGHT : 18,8 kg

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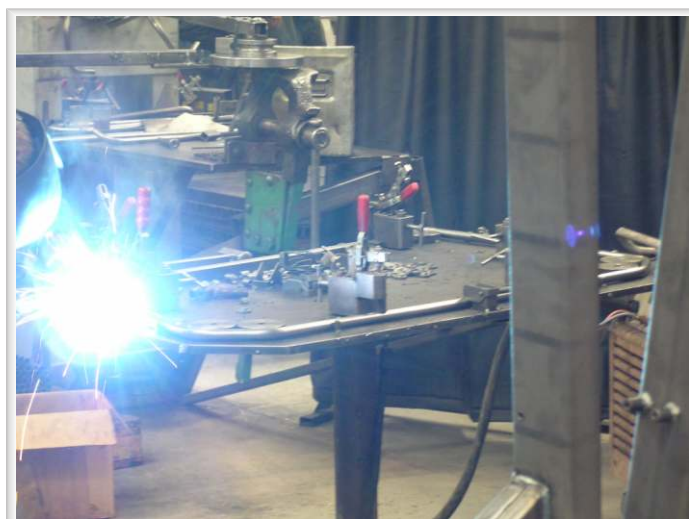
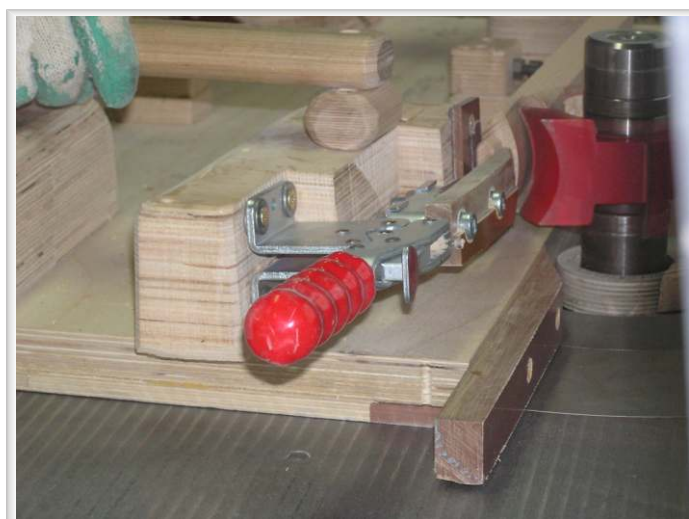
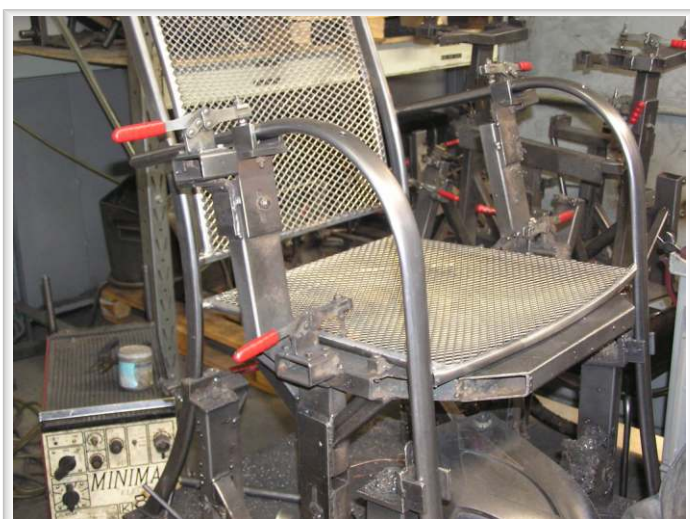


# 81. HAND PRESS RACK



PRESS FORCE: 150 daN

WEIGHT: 7,8 kg



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