



## OPERATOR'S MANUAL

**Puncher** HP60/HP110

**Hydraulic Power Pack**



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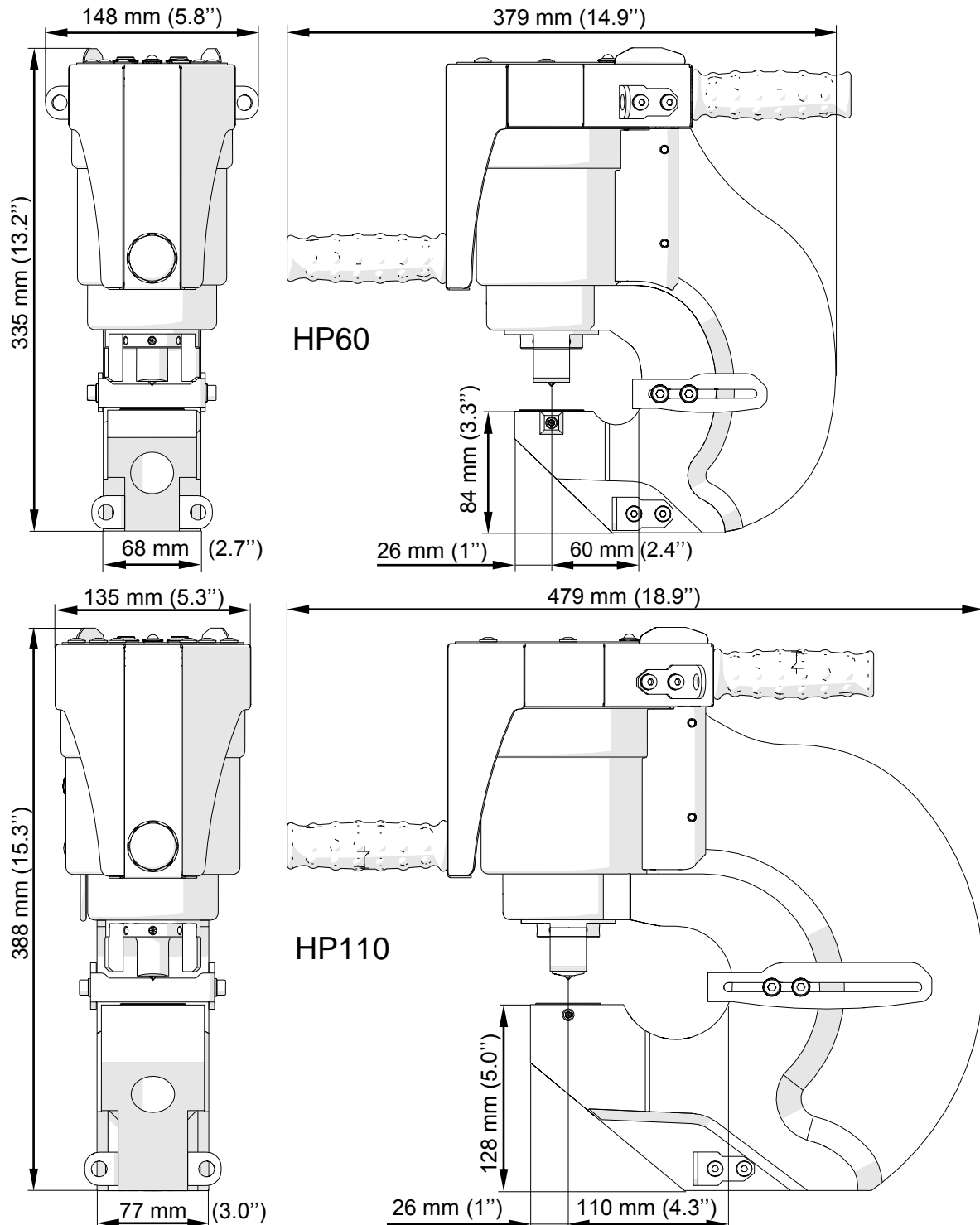
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# 1. GENERAL INFORMATION

## 1.1. Application

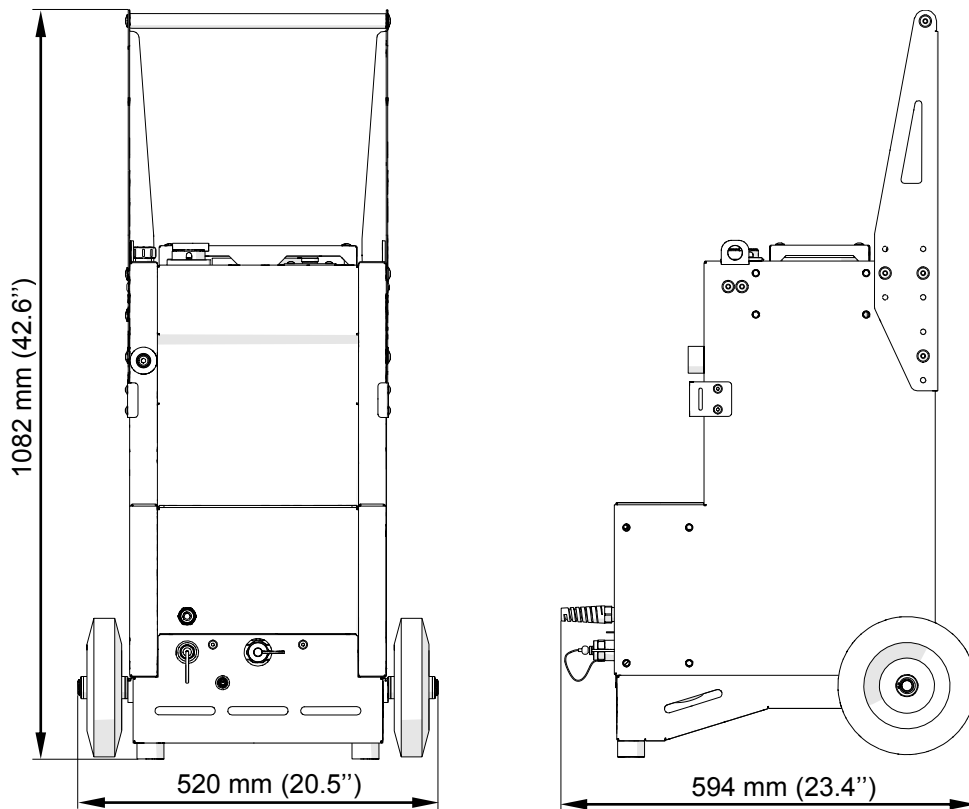
The Puncher is designed to punch circular holes with diameters of 7–27 mm and oblong holes in metal plates using a cylinder driven by the HPP 700/1.5 Hydraulic Power Pack.

## 1.2. Technical data



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	HP60	HP110
Throat depth*	60 mm (2.36")	110 mm (4.33")
Maximum hole diameter	27 mm (1.06")	27 mm (1.06")
Maximum plate thickness** for S235JR mild steel with a shear strength $R_m < 490$ MPa (70,000 psi)	13 mm (0.51")	16 mm (0.63")
Pressing force	35 T	47 T
Punching time	5 s (50 Hz, 230 V) 6 s (60 Hz, 230 V) 6 s (60 Hz, 115 V) 6 s (50 Hz, 115 V)	8 s (50 Hz, 230 V) 9 s (60 Hz, 230 V) 9 s (60 Hz, 115 V) 10 s (50 Hz, 115 V)
Weight	20 kg (44 lbs)	35 kg (77 lbs)
<b>HPP 700/1.5 Hydraulic Power Pack</b>		
Voltage	1~ 220–240 V, 50 Hz 1~ 220–240 V, 60 Hz 1~ 110–120 V, 50 Hz 1~ 110–120 V, 60 Hz	
Power	1500 W	
Flow rate	1.5 l/min	
Pressure	700 bar (10,000 psi)	
Oil reservoir capacity	10 l	
Weight	82 kg (181 lbs)	

\* With the depth stop removed.

\*\* Depends on the material type and diameter/dimensions of the hole to be made.

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### 1.3. Maximum plate thicknesses depending on the material type and diameter/dimensions of the hole to be made

Circular holes using circular punches with metric sizes											
Ø [mm]	Inch equivalent		Maximum plate thickness								
	Decimal	Fractional	S235JR mild steel $R_m < 490$ MPa (70,000 psi)			355J2 G3 hard steel $R_m = 490-630$ MPa (70,000-90,000 psi)			stainless steel $R_m = 630-750$ MPa (90,000-110,000 psi)		
			mm	Inch equivalent		mm	Inch equivalent		mm	Inch equivalent	
				Decim.	Fract.		Decim.	Fract.		Decim.	Fract.
<b>HP60</b>											
7	0.276	9/32	5.6	0.220	7/32	3.5	0.138	9/64	2.8	0.110	7/64
8	0.315	5/16	6.4	0.252	1/4	4.0	0.157	5/32	3.2	0.126	1/8
9	0.354	23/64	7.2	0.283	9/32	4.5	0.177	11/64	3.6	0.142	9/64
10	0.394	25/64	8.0	0.315	5/16	5.0	0.197	13/64	4.0	0.157	5/32
11	0.433	7/16	8.8	0.346	11/32	5.5	0.217	7/32	4.4	0.173	11/64
12	0.472	15/32	9.6	0.378	3/8	6.0	0.236	15/64	4.8	0.189	3/16
13	0.512	33/64	10.4	0.409	13/32	6.5	0.256	1/4	5.2	0.205	13/64
14	0.551	35/64	11.2	0.441	7/16	7.0	0.276	9/32	6.0	0.236	15/64
15	0.591	19/32	12.0	0.472	15/32	7.5	0.295	19/64	6.0	0.236	15/64
16	0.630	5/8	12.8	0.504	1/2	8.0	0.315	5/16	6.0	0.236	15/64
17	0.669	43/64	13.0	0.512	33/64	8.5	0.335	21/64	6.0	0.236	15/64
18	0.709	45/64	13.0	0.512	33/64	9.0	0.354	23/64	6.0	0.236	15/64
19	0.748	3/4	13.0	0.512	33/64	9.5	0.374	3/8	6.0	0.236	15/64
20	0.787	25/32	13.0	0.512	33/64	10.0	0.394	25/64	5.0	0.197	13/64
21	0.827	53/64	13.0	0.512	33/64	10.5	0.413	13/32	5.0	0.197	13/64
22	0.866	55/64	13.0	0.512	33/64	10.3	0.406	13/32	5.0	0.197	13/64
23	0.906	29/32	12.4	0.488	31/64	9.9	0.390	25/64	4.0	0.157	5/32
24	0.945	15/16	11.9	0.469	15/32	9.5	0.374	3/8	4.0	0.157	5/32
25	0.984	63/64	11.4	0.449	29/64	9.1	0.358	23/64	4.0	0.157	5/32
26	1.024	1-1/64	11.0	0.433	7/16	8.7	0.343	11/32	4.0	0.157	5/32
27	1.063	1-1/16	10.6	0.417	27/64	8.4	0.331	21/64	4.0	0.157	5/32
<b>HP110</b>											
7	0.276	9/32	5.6	0.220	7/32	3.5	0.138	9/64	2.8	0.110	7/64
8	0.315	5/16	6.4	0.252	1/4	4.0	0.157	5/32	3.2	0.126	1/8
9	0.354	23/64	7.2	0.283	9/32	4.5	0.177	11/64	3.6	0.142	9/64
10	0.394	25/64	8.0	0.315	5/16	5.0	0.197	13/64	4.0	0.157	5/32
11	0.433	7/16	8.8	0.346	11/32	5.5	0.217	7/32	4.4	0.173	11/64
12	0.472	15/32	9.6	0.378	3/8	6.0	0.236	15/64	4.8	0.189	3/16
13	0.512	33/64	10.4	0.409	13/32	6.5	0.256	1/4	5.2	0.205	13/64
14	0.551	35/64	11.2	0.441	7/16	7.0	0.276	9/32	6.0	0.236	15/64
15	0.591	19/32	12.0	0.472	15/32	7.5	0.295	19/64	6.0	0.236	15/64
16	0.630	5/8	12.8	0.504	1/2	8.0	0.315	5/16	6.0	0.236	15/64
17	0.669	43/64	13.6	0.535	17/32	8.5	0.335	21/64	6.0	0.236	15/64
18	0.709	45/64	14.4	0.567	9/16	9.0	0.354	23/64	6.0	0.236	15/64
19	0.748	3/4	15.2	0.598	19/32	9.5	0.374	3/8	6.0	0.236	15/64
20	0.787	25/32	16.0	0.630	5/8	10.0	0.394	25/64	6.0	0.236	15/64
21	0.827	53/64	16.0	0.630	5/8	10.5	0.413	13/32	6.0	0.236	15/64
22	0.866	55/64	16.0	0.630	5/8	11.0	0.433	7/16	6.0	0.236	15/64
23	0.906	29/32	16.0	0.630	5/8	11.5	0.453	29/64	6.0	0.236	15/64
24	0.945	15/16	16.0	0.630	5/8	12.0	0.472	15/32	6.0	0.236	15/64
25	0.984	63/64	16.0	0.630	5/8	12.5	0.492	31/64	6.0	0.236	15/64
26	1.024	1-1/64	15.1	0.594	19/32	12.0	0.472	15/32	6.0	0.236	15/64
27	1.063	1-1/16	14.5	0.571	37/64	11.5	0.453	29/64	6.0	0.236	15/64

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Oblong holes using oblong punches with metric sizes										
Dim. [mmxmm]	Inch Decimal Equivalent	Maximum plate thickness								
		S235JR mild steel $R_m < 490$ MPa (70,000 psi)			355J2 G3 hard steel $R_m = 490-630$ MPa (70,000-90,000 psi)			stainless steel $R_m = 630-750$ MPa (90,000-110,000 psi)		
		mm	Inch equivalent		mm	Inch equivalent		mm	Inch equivalent	
			Decim.	Fract.		Decim.	Fract.		Decim.	Fract.
HP60										
16x8	0.630x0.315	6.4	0.252	1/4	4.0	0.157	5/32	3.2	0.126	1/8
18x9	0.709x0.354	7.2	0.283	9/32	4.5	0.177	11/64	3.6	0.142	9/64
18x11	0.709x0.433	8.8	0.346	11/32	5.5	0.217	7/32	4.4	0.173	11/64
20x10	0.787x0.394	8.0	0.315	5/16	5.0	0.197	13/64	4.0	0.157	5/32
20x12	0.787x0.472	9.6	0.378	3/8	6.0	0.236	15/64	4.8	0.189	3/16
20x14	0.787x0.551	11.2	0.441	7/16	7.0	0.276	9/32	6.0	0.236	15/64
22x11	0.866x0.433	8.8	0.346	11/32	5.5	0.217	7/32	4.4	0.173	11/64
22x14	0.866x0.551	11.2	0.441	7/16	7.0	0.276	9/32	6.0	0.236	15/64
24x12	0.945x0.472	9.6	0.378	3/8	6.0	0.236	15/64	4.8	0.189	3/16
25x9	0.984x0.354	7.2	0.283	9/32	4.5	0.177	11/64	3.6	0.142	9/64
25x12	0.984x0.472	9.6	0.378	3/8	6.0	0.236	15/64	4.8	0.189	3/16
25x13	0.984x0.512	10.4	0.409	13/32	6.5	0.256	1/4	5.2	0.205	13/64
25x14	0.984x0.551	11.2	0.441	7/16	7.0	0.276	9/32	6.0	0.236	15/64
25x18	0.984x0.709	13.0	0.512	33/64	9.0	0.354	23/64	6.0	0.236	15/64
HP110										
16x8	0.630x0.315	6.4	0.252	1/4	4.0	0.157	5/32	3.2	0.126	1/8
18x9	0.709x0.354	7.2	0.283	9/32	4.5	0.177	11/64	3.6	0.142	9/64
18x11	0.709x0.433	8.8	0.346	11/32	5.5	0.217	7/32	4.4	0.173	11/64
20x10	0.787x0.394	8.0	0.315	5/16	5.0	0.197	13/64	4.0	0.157	5/32
20x12	0.787x0.472	9.6	0.378	3/8	6.0	0.236	15/64	4.8	0.189	3/16
20x14	0.787x0.551	11.2	0.441	7/16	7.0	0.276	9/32	6.0	0.236	15/64
22x11	0.866x0.433	8.8	0.346	11/32	5.5	0.217	7/32	4.4	0.173	11/64
22x14	0.866x0.551	11.2	0.441	7/16	7.0	0.276	9/32	6.0	0.236	15/64
24x12	0.945x0.472	9.6	0.378	3/8	6.0	0.236	15/64	4.8	0.189	3/16
25x9	0.984x0.354	7.2	0.283	9/32	4.5	0.177	11/64	3.6	0.142	9/64
25x12	0.984x0.472	9.6	0.378	3/8	6.0	0.236	15/64	4.8	0.189	3/16
25x13	0.984x0.512	10.4	0.409	13/32	6.5	0.256	1/4	5.2	0.205	13/64
25x14	0.984x0.551	11.2	0.441	7/16	7.0	0.276	9/32	6.0	0.236	15/64
25x18	0.984x0.709	14.4	0.567	9/16	9.0	0.354	23/64	6.0	0.236	15/64

Circular holes using circular punches with imperial sizes										
Ø ["]	Decimal equivalent	Maximum plate thickness								
		S235JR mild steel $R_m < 490$ MPa (70,000 psi)			355J2 G3 hard steel $R_m = 490-630$ MPa (70,000-90,000 psi)			stainless steel $R_m = 630-750$ MPa (90,000-110,000 psi)		
		mm	Inch equivalent		mm	Inch equivalent		mm	Inch equivalent	
			Decim.	Fract.		Decim.	Fract.		Decim.	Fract.
HP60										
5/16	0.3125	6.4	0.252	1/4	4.0	0.157	5/32	3.2	0.126	1/8
3/8	0.3750	8.0	0.315	5/16	5.0	0.197	13/64	4.0	0.157	5/32
7/16	0.4375	8.8	0.346	11/32	5.5	0.217	7/32	4.4	0.173	11/64
1/2	0.5000	10.4	0.409	13/32	6.5	0.256	1/4	5.2	0.205	13/64
9/16	0.5625	11.2	0.441	7/16	7.0	0.276	9/32	6.0	0.236	15/64
5/8	0.6250	12.8	0.504	1/2	8.0	0.315	5/16	6.0	0.236	15/64
11/16	0.6875	13.0	0.512	33/64	9.0	0.354	23/64	6.0	0.236	15/64
3/4	0.7500	13.0	0.512	33/64	9.5	0.374	3/8	6.0	0.236	15/64
13/16	0.8125	13.0	0.512	33/64	10.5	0.413	13/32	5.0	0.197	13/64
7/8	0.8750	13.0	0.512	33/64	10.3	0.406	13/32	5.0	0.197	13/64
15/16	0.9375	11.9	0.469	15/32	9.5	0.374	3/8	4.0	0.157	5/32
1	1.0000	11.0	0.433	7/16	8.7	0.343	11/32	4.0	0.157	5/32
1-1/16	1.0625	10.6	0.417	27/64	8.4	0.331	21/64	4.0	0.157	5/32
HP110										
5/16	0.3125	6.4	0.252	1/4	4.0	0.157	5/32	3.2	0.126	1/8
3/8	0.3750	8.0	0.315	5/16	5.0	0.197	13/64	4.0	0.157	5/32
7/16	0.4375	8.8	0.346	11/32	5.5	0.217	7/32	4.4	0.173	11/64
1/2	0.5000	10.4	0.409	13/32	6.5	0.256	1/4	5.2	0.205	13/64
9/16	0.5625	11.2	0.441	7/16	7.0	0.276	9/32	6.0	0.236	15/64
5/8	0.6250	12.8	0.504	1/2	8.0	0.315	5/16	6.0	0.236	15/64
11/16	0.6875	14.4	0.567	9/16	9.0	0.354	23/64	6.0	0.236	15/64
3/4	0.7500	15.2	0.598	19/32	9.5	0.374	3/8	6.0	0.236	15/64
13/16	0.8125	16.0	0.630	5/8	10.5	0.413	13/32	6.0	0.236	15/64
7/8	0.8750	16.0	0.630	5/8	11.0	0.433	7/16	6.0	0.236	15/64
15/16	0.9375	16.0	0.630	5/8	12.0	0.472	15/32	6.0	0.236	15/64
1	1.0000	15.1	0.594	19/32	12.0	0.472	15/32	6.0	0.236	15/64
1-1/16	1.0625	14.5	0.571	37/64	11.5	0.453	29/64	6.0	0.236	15/64

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### 1.4. Selecting punches for the most common inch plates

HP60									
Plate thickness ["]	S235JR mild steel $R_m < 490$ MPa (70,000 psi)			355J2 G3 hard steel $R_m = 490-630$ MPa (70,000-90,000 psi)			stainless steel $R_m = 630-750$ MPa (90,000-110,000 psi)		
	Punch type								
	Circular metric [mm]	Oblong metric [mmxmm]	Circular imperial ["]	Circular metric [mm]	Oblong metric [mmxmm]	Circular imperial ["]	Circular metric [mm]	Oblong metric [mmxmm]	Circular imperial ["]
1/16	7-27	16x8, 18x9, 18x11, 20x10, 20x12, 20x14, 22x11, 22x14, 24x12, 25x9, 25x12, 25x13, 25x14, 25x18	5/16 – 1-1/16	7-27	16x8, 18x9, 18x11, 20x10, 20x12, 20x14, 22x11, 22x14, 24x12, 25x9, 25x12, 25x13, 25x14, 25x18	5/16 – 1-1/16	7-27	16x8, 18x9, 18x11, 20x10, 20x12, 20x14, 22x11, 22x14, 24x12, 25x9, 25x12, 25x13, 25x14, 25x18	5/16 – 1-1/16
1/8	7-27	16x8, 18x9, 18x11, 20x10, 20x12, 20x14, 22x11, 22x14, 24x12, 25x9, 25x12, 25x13, 25x14, 25x18	5/16 – 1-1/16	7-27	16x8, 18x9, 18x11, 20x10, 20x12, 20x14, 22x11, 22x14, 24x12, 25x9, 25x12, 25x13, 25x14, 25x18	5/16 – 1-1/16	8-27	16x8, 18x9, 18x11, 20x10, 20x12, 20x14, 22x11, 22x14, 24x12, 25x9, 25x12, 25x13, 25x14, 25x18	5/16 – 1-1/16
3/16	7-27	16x8, 18x9, 18x11, 20x10, 20x12, 20x14, 22x11, 22x14, 24x12, 25x9, 25x12, 25x13, 25x14, 25x18	5/16 – 1-1/16	10-27	18x11, 20x10, 20x12, 20x14, 22x11, 22x14, 24x12, 25x12, 25x13, 25x14, 25x18	3/8 – 1-1/16	12-27	20x12, 20x14, 22x14, 24x12, 25x12, 25x13, 25x14, 25x18	1/2 – 7/8
1/4	8-27	16x8, 18x9, 18x11, 20x10, 20x12, 20x14, 22x11, 22x14, 24x12, 25x9, 25x12, 25x13, 25x14, 25x18	5/16 – 1-1/16	13-27	20x14, 22x14, 25x13, 25x14, 25x18	1/2 – 1-1/16	N/A	N/A	N/A
5/16	10-27	18x11, 20x10, 20x12, 20x14, 22x11, 22x14, 24x12, 25x12, 25x13, 25x14, 25x18	3/8 – 1-1/16	16-27	25x18	5/8 – 1-1/16	N/A	N/A	N/A
3/8	12-27	20x12, 20x14, 22x14, 24x12, 25x12, 25x13, 25x14, 25x18	1/2 – 1-1/16	20-23	N/A	13/16 – 7/8	N/A	N/A	N/A
7/16	14-25	20x14, 22x14, 25x14, 25x18	9/16 – 1	N/A	N/A	N/A	N/A	N/A	N/A
1/2	16-22	25x18	5/8 – 7/8	N/A	N/A	N/A	N/A	N/A	N/A
9/16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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HP110									
Plate thickness ["]	S235JR mild steel $R_m < 490$ MPa (70,000 psi)			355J2 G3 hard steel $R_m = 490-630$ MPa (70,000-90,000 psi)			stainless steel $R_m = 630-750$ MPa (90,000-110,000 psi)		
	Punch type								
	Circular metric [mm]	Oval metric [mmxmm]	Circular imperial ["]	Circular metric [mm]	Oval metric [mmxmm]	Circular imperial ["]	Circular metric [mm]	Oval metric [mmxmm]	Circular imperial ["]
1/16	7-27	16x8, 18x9, 18x11, 20x10, 20x12, 20x14, 22x11, 22x14, 24x12, 25x9, 25x12, 25x13, 25x14, 25x18	5/16 – 1-1/16	7-27	16x8, 18x9, 18x11, 20x10, 20x12, 20x14, 22x11, 22x14, 24x12, 25x9, 25x12, 25x13, 25x14, 25x18	5/16 – 1-1/16	7-27	16x8, 18x9, 18x11, 20x10, 20x12, 20x14, 22x11, 22x14, 24x12, 25x9, 25x12, 25x13, 25x14, 25x18	5/16 – 1-1/16
1/8	7-27	16x8, 18x9, 18x11, 20x10, 20x12, 20x14, 22x11, 22x14, 24x12, 25x9, 25x12, 25x13, 25x14, 25x18	5/16 – 1-1/16	7-27	16x8, 18x9, 18x11, 20x10, 20x12, 20x14, 22x11, 22x14, 24x12, 25x9, 25x12, 25x13, 25x14, 25x18	5/16 – 1-1/16	8-27	16x8, 18x9, 18x11, 20x10, 20x12, 20x14, 22x11, 22x14, 24x12, 25x9, 25x12, 25x13, 25x14, 25x18	5/16 – 1-1/16
3/16	7-27	16x8, 18x9, 18x11, 20x10, 20x12, 20x14, 22x11, 22x14, 24x12, 25x9, 25x12, 25x13, 25x14, 25x18	5/16 – 1-1/16	10-27	18x11, 20x10, 20x12, 20x14, 22x11, 22x14, 24x12, 25x12, 25x13, 25x14, 25x18	3/8 – 1-1/16	12-22	20x12, 20x14, 22x11, 22x14, 24x12, 25x13, 25x14, 25x18	1/2 – 1-1/16
1/4	8-27	16x8, 18x9, 18x11, 20x10, 20x12, 20x14, 22x11, 22x14, 24x12, 25x9, 25x12, 25x13, 25x14, 25x18	5/16 – 1-1/16	13-27	20x14, 22x14, 25x13, 25x14, 25x18	1/2 – 1-1/16	N/A	N/A	N/A
5/16	10-27	18x11, 20x10, 20x12, 20x14, 22x11, 22x14, 24x12, 25x12, 25x13, 25x14, 25x18	3/8 – 1-1/16	16-27	25x18	5/8 – 1-1/16	N/A	N/A	N/A
3/8	12-27	20x12, 20x14, 22x14, 24x12, 25x12, 25x13, 25x14, 25x18	1/2 – 1-1/16	20-27	N/A	13/16 – 1-1/16	N/A	N/A	N/A
7/16	14-27	20x14, 22x14, 25x14, 25x18	9/16 – 1-1/16	23-27	N/A	15/16 – 1-1/16	N/A	N/A	N/A
1/2	16-27	25x18	5/8 – 1-1/16	N/A	N/A	N/A	N/A	N/A	N/A
9/16	18-27	25x18	11/16 – 1-1/16	N/A	N/A	N/A	N/A	N/A	N/A
5/8	20-25	N/A	13/16 – 15/16	N/A	N/A	N/A	N/A	N/A	N/A
11/16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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1.5. Design

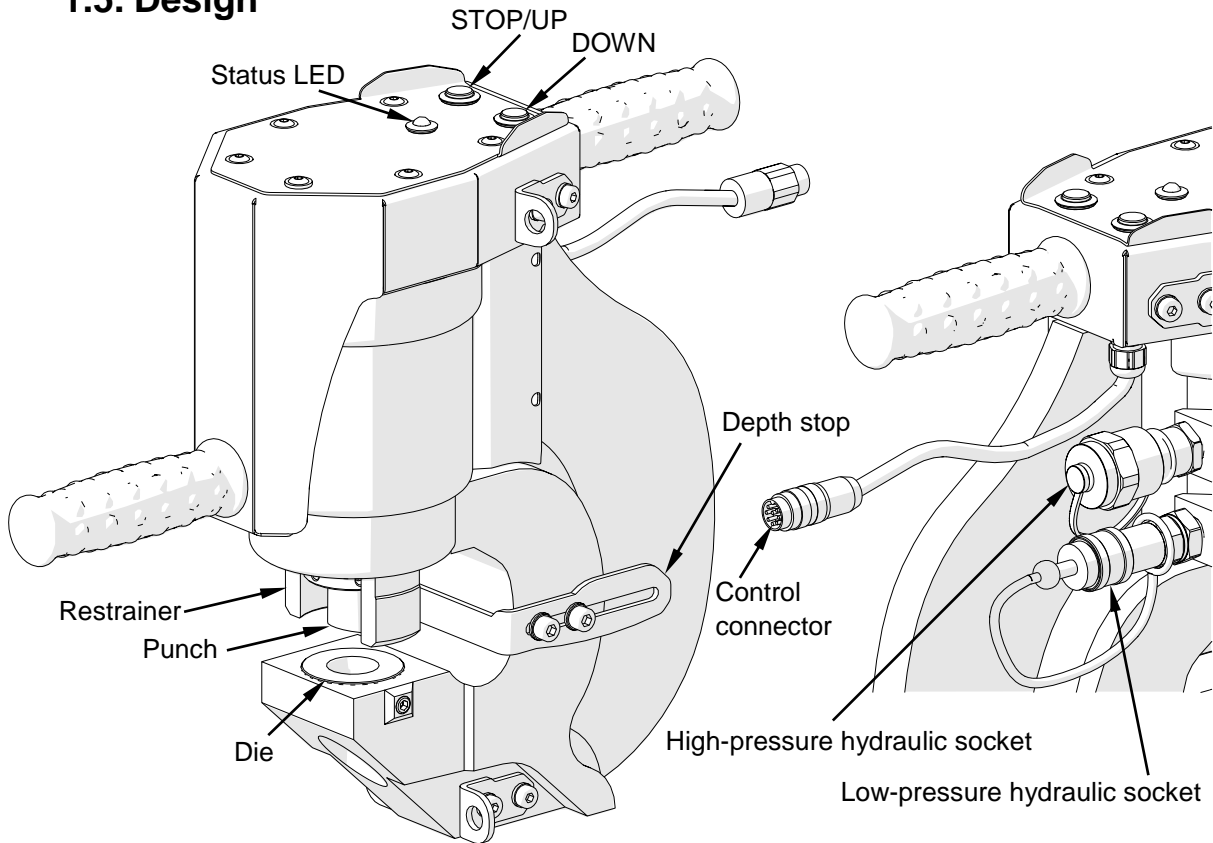


Fig. 1. View of the Puncher

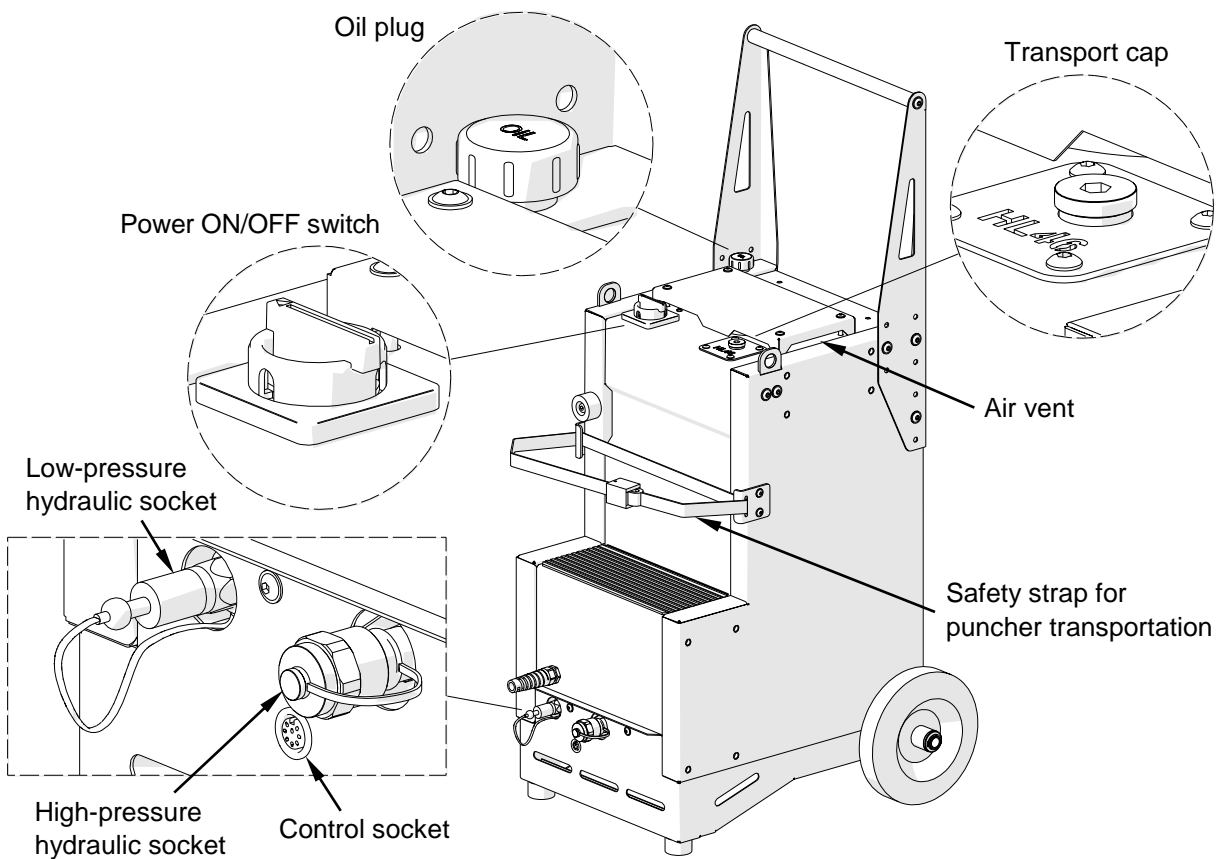


Fig. 2. View of the hydraulic power pack

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### 1.6. Equipment included

The Puncher includes the following elements.

Punching head	1 unit
Metal box	1 unit
5 m (16.5 ft) hydraulic hoses and control cable	1 set
Wrench	1 unit
Die drift	1 unit
Tool container	1 unit
1.5 m (5 ft) chain	1 unit
4 mm hex wrench	1 unit
5 mm hex wrench	1 unit
6 mm hex wrench	1 unit
27 mm flat wrench	1 unit
30 mm flat wrench	1 unit

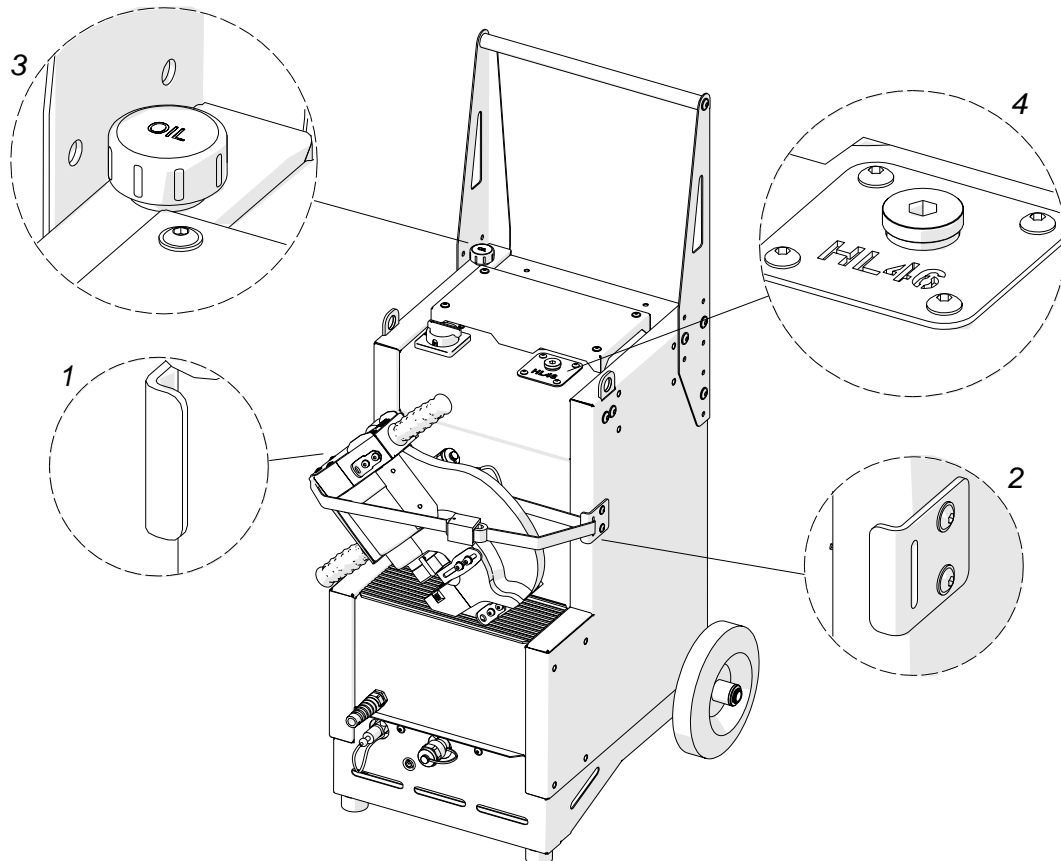
The Hydraulic Power Pack is supplied on a pallet and includes the following elements.

700/1.5 Hydraulic Power Pack	1 unit
Transportation jacket	1 unit
Tool box	1 unit
Safety strap	1 unit
5 mm hex wrench	1 unit
8 mm hex wrench	1 unit

### 1.7. Transportation

Before transporting, fix the machine to the hydraulic power pack by catching the safety strap on the lugs 1 and 2 (Fig. 3), and then place the oil plug and the transport cap as shown in the figure (3, 4).

Never bend the high-pressure hydraulic hose to a radius less than 80 mm (3.2") or damage to the hose will result. If the hose is bent to a smaller radius, replace the hose immediately.



**Fig. 3.** Transporting the machine

## 2. SAFETY PRECAUTIONS

1. Before beginning, read this Operator's Manual and complete proper occupational safety and health training.
2. The machine must be used only with HPP 700/1.5 Hydraulic Power Pack.
3. The machine, hydraulic power pack, cables, and hoses must be used only in applications specified in this Operator's Manual.
4. The machine and hydraulic power pack must be complete and all their parts must be genuine and entirely operational.
5. The electrical supply specifications must conform to those specified on the rating plate of the hydraulic power pack.
6. The hydraulic power pack must be plugged into a properly grounded (earthed) socket-outlet. The electrical supply must be protected with a C25 A fuse for 230 V or a C32 A fuse for 115 V.
7. Do not cover the air vents of the hydraulic power pack.
8. Never crush or pull cables and hoses as this may damage them and result in serious injury.
9. Arrange hoses so that there are no tripping hazards. Wrap the hoses around the power pack if possible.
10. The bending radius of the high-pressure hose must never be less than 80 mm (3.2"). If the hose is bent to a smaller radius or has any signs of wear or damage, replace the hose immediately.
11. Untrained bystanders must not be present near the machine and hydraulic power pack.
12. Before beginning, check the condition of the machine, hydraulic power pack, and electrical supply, including cables and hoses, connectors, sockets, plugs, punch, and die. Make sure the high-pressure hydraulic hose is securely attached to the machine and power pack.
13. Keep the machine, hydraulic power pack, cables, and hoses dry. Exposure to direct sunlight, rain, snow, or frost is prohibited.
14. Keep the work area well lit, clean, and free of obstacles.
15. Never use machine near flammable liquids or gases, or in explosive environments.
16. Use only punches and dies specified in this Operator's Manual.

17. Use dies with parallel surfaces for plates with parallel surfaces, while 5° inclined dies for plates with one surface inclined by 5°.
18. Mount punches and dies securely. Remove adjusting keys and wrenches from the work area before powering the hydraulic power pack.
19. Before every use, inspect the machine and hydraulic power pack to ensure they are not damaged. Check whether any part is cracked or improperly fitted. Make sure to maintain proper conditions that may affect the operation of the machine and hydraulic power pack.
20. Always use a face shield, hearing protection, protective footwear, gloves, and protective clothing during operation. Do not wear loose clothing.
21. Do not put hands near the restrainer during operation as this may lead to serious injury.
22. Cover steel parts with a thin anti-corrosion coating to protect the machine from rust when not in use for any extended period.
23. Maintain the machine and mount/dismount punch, die, and restrainer only with the power ON/OFF switch set to position 'O'.
24. Repair only in a service center appointed by the seller.
25. If the machine falls from any height, is wet, or has any other damage that could affect the technical state of the machine, stop the operation and immediately send the machine to the service center for inspection and repair.
26. Never leave the machine or the hydraulic power pack unattended during operation.
27. Remove the machine and power pack from the worksite and store in a secure and dry location when not in use.

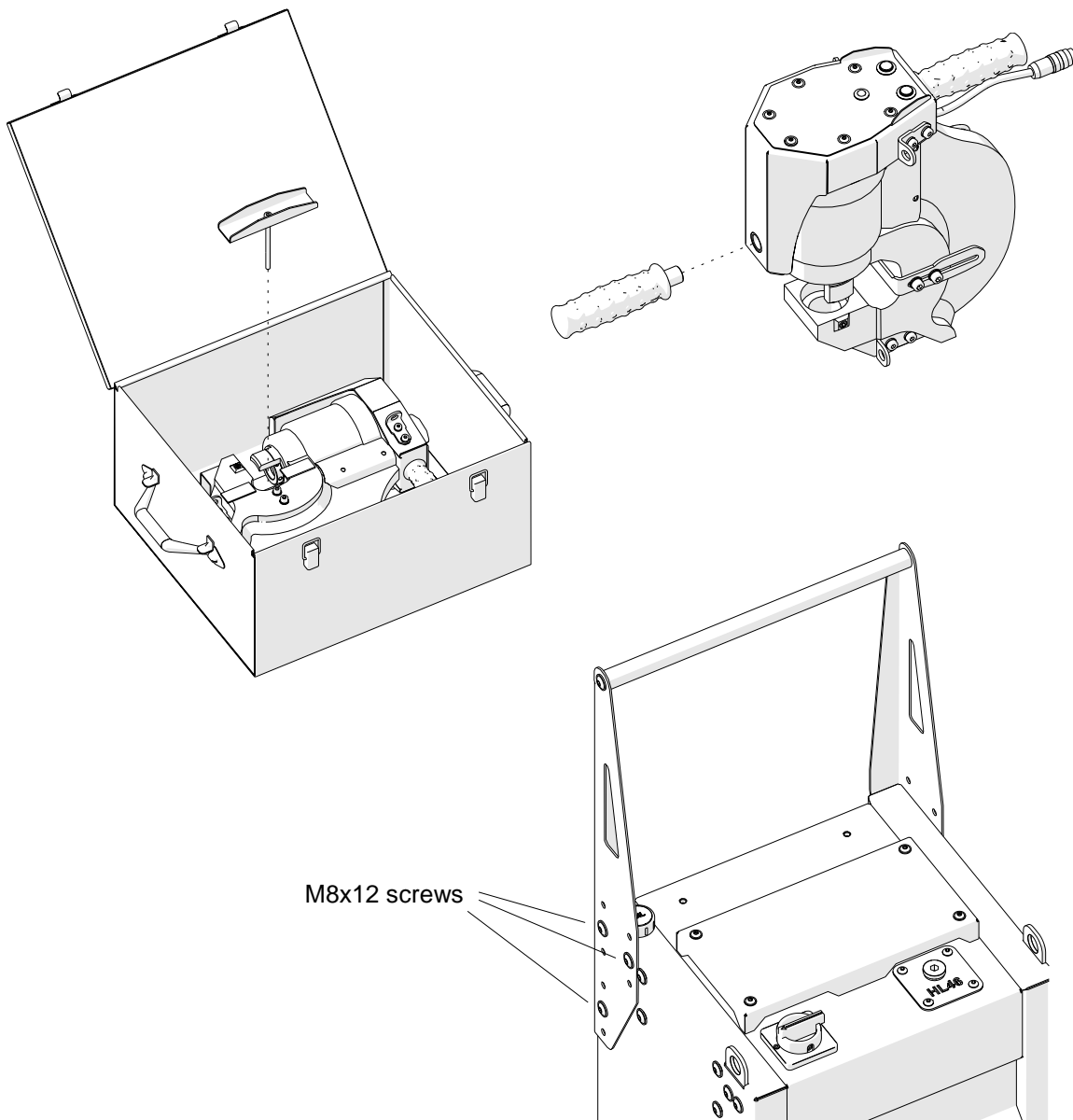
### 3. STARTUP AND OPERATION



**Adhere to all safety precautions.**

#### 3.1. Unpacking

Open the box, unscrew the lock using the 5 mm hex wrench to remove the machine, and screw in the front handle. Next, use six M8x12 screws and the 5 mm hex wrench to attach the handle to the power pack in the position shown in Fig. 4.



**Fig. 4.** Assembling the machine and the power pack after unpacking

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### 3.2. Installing the punch and die

Set the power ON/OFF switch to the position 'O'. Then, insert the nut joined with the punch into the machine (1, Fig. 5), and screw the nut manually in the direction 2. Next, insert the wrench into the hole (3) and lock the nut by rotating the wrench in the same direction. If an oblong punch 4 is used, before locking the nut the punch pin must snap into the socket, which will be indicated by a snap sound.

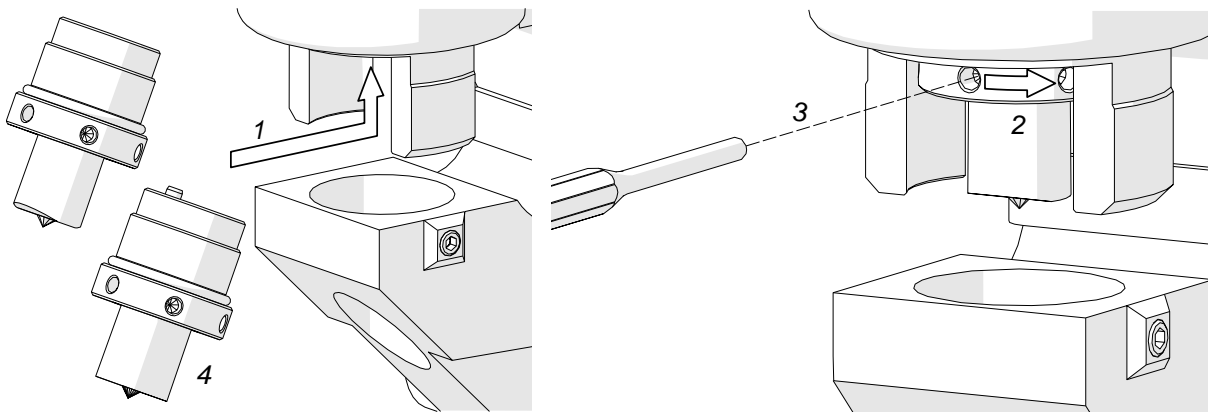


Fig. 5. Installing the punch

Select a proper die for the plate to be punched: use dies with parallel surfaces for plates with parallel surfaces, while 5° inclined dies for plates with one surface inclined by 5° (Fig. 6a). Never use dies with parallel surfaces for plates with one surface inclined, or inclined dies for plates with both surfaces parallel (Fig. 6b).

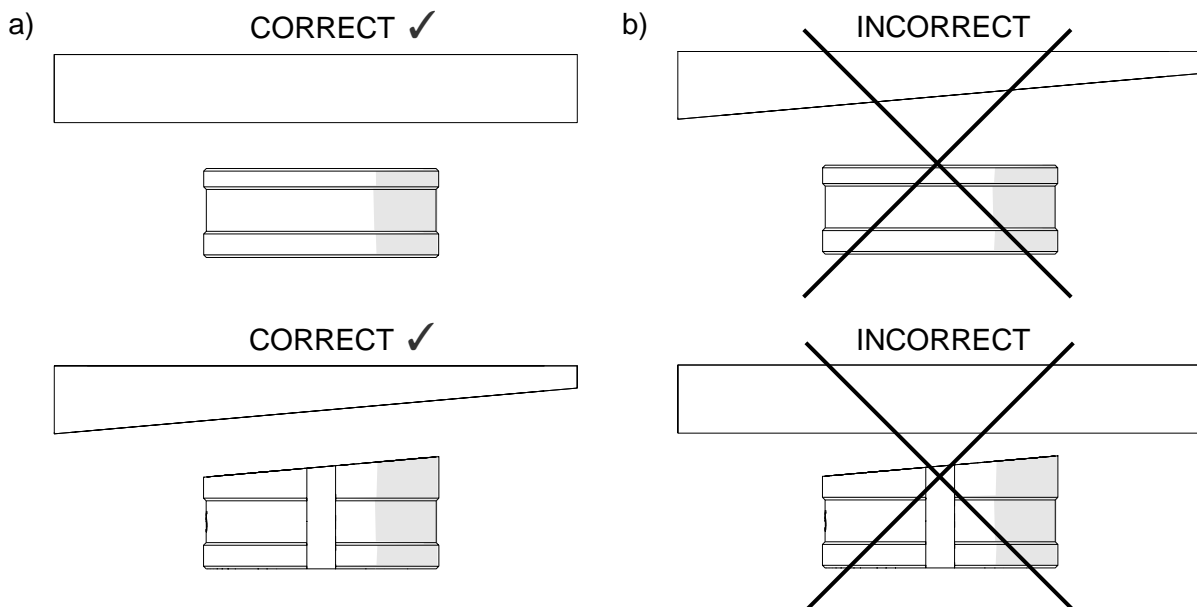
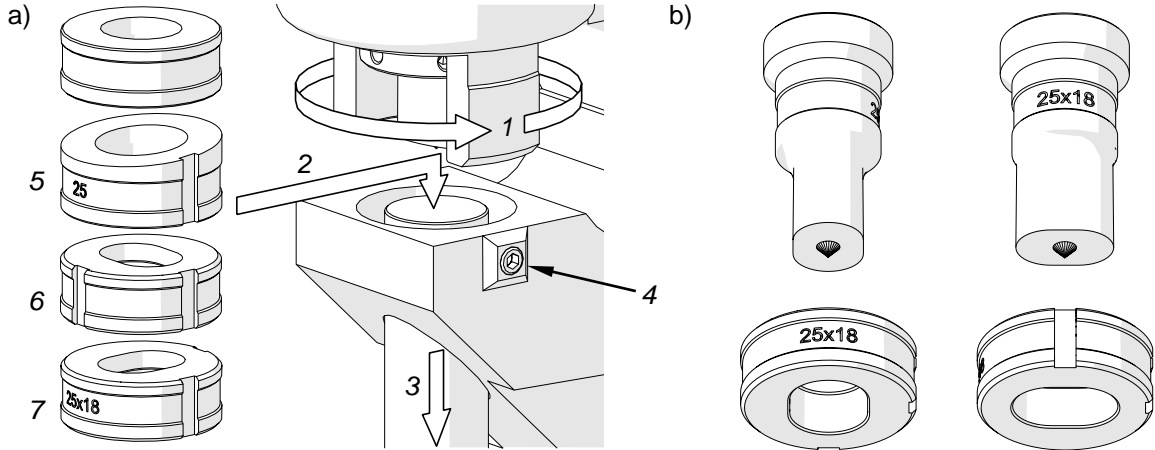


Fig. 6. Selecting a die for the plate used



Retract the restrainer as far as possible (1, Fig. 7a), rest the die onto the drift (2), and lower the drift to insert the die into the socket (3). Then, tighten the die with the 4 mm hex wrench (4). The diameters (dimensions) of the punch and die installed must be the same. Position inclined dies 5 and oblong dies 6 and 7 in such a way to align the groove with the set screw 4. Always install oblong dies and oblong punches in the same orientation (Fig. 7b).



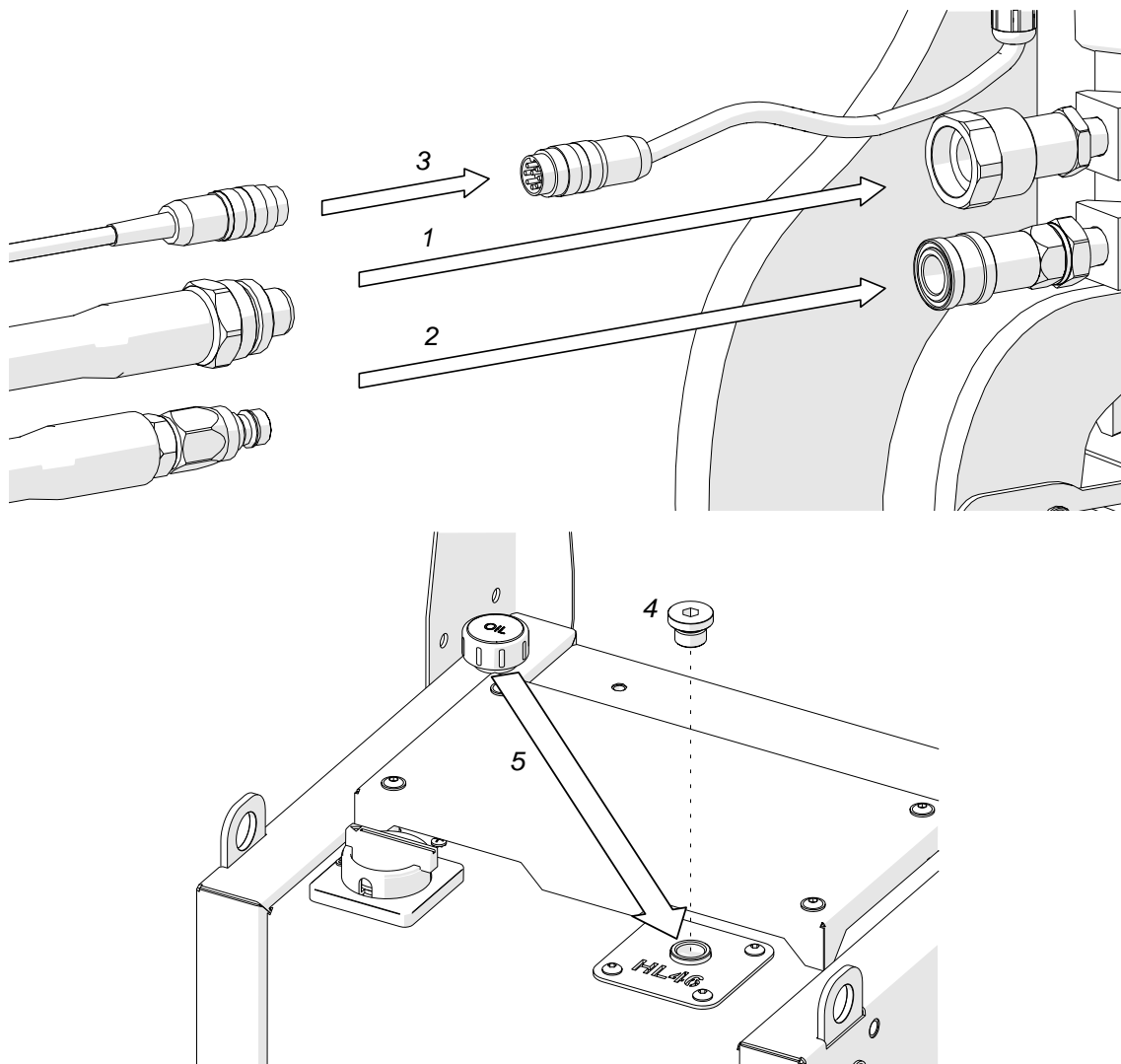
**Fig. 7.** Installing the die (a); correct orientation of the oblong punch and die (b)

### 3.3. Connecting the hydraulic power pack

Connect the machine with the hydraulic power pack using the hydraulic hoses and control cable. To do this, remove the caps from the hydraulic sockets of the machine, use the 27 mm and 30 mm flat wrenches to firmly screw the high-pressure connector into the socket 1 (Fig. 8), and then plug the low-pressure connector into the socket 2 until it snaps into place. Next, connect the control cable to the connector 3 and plug the power cord of the hydraulic power pack into an appropriate power source.

Every time the power pack is connected and the power ON/OFF switch is set to position 'I', the status LED will flash every 0.5 seconds indicating the need to press and hold the STOP/UP button for about 3 seconds. This will cause the punch to retract fully if it is not already in this position.

Then, use the 8 mm hex wrench to unscrew the transport cap 4 of the hydraulic power pack and place the oil plug in cap's position 5.



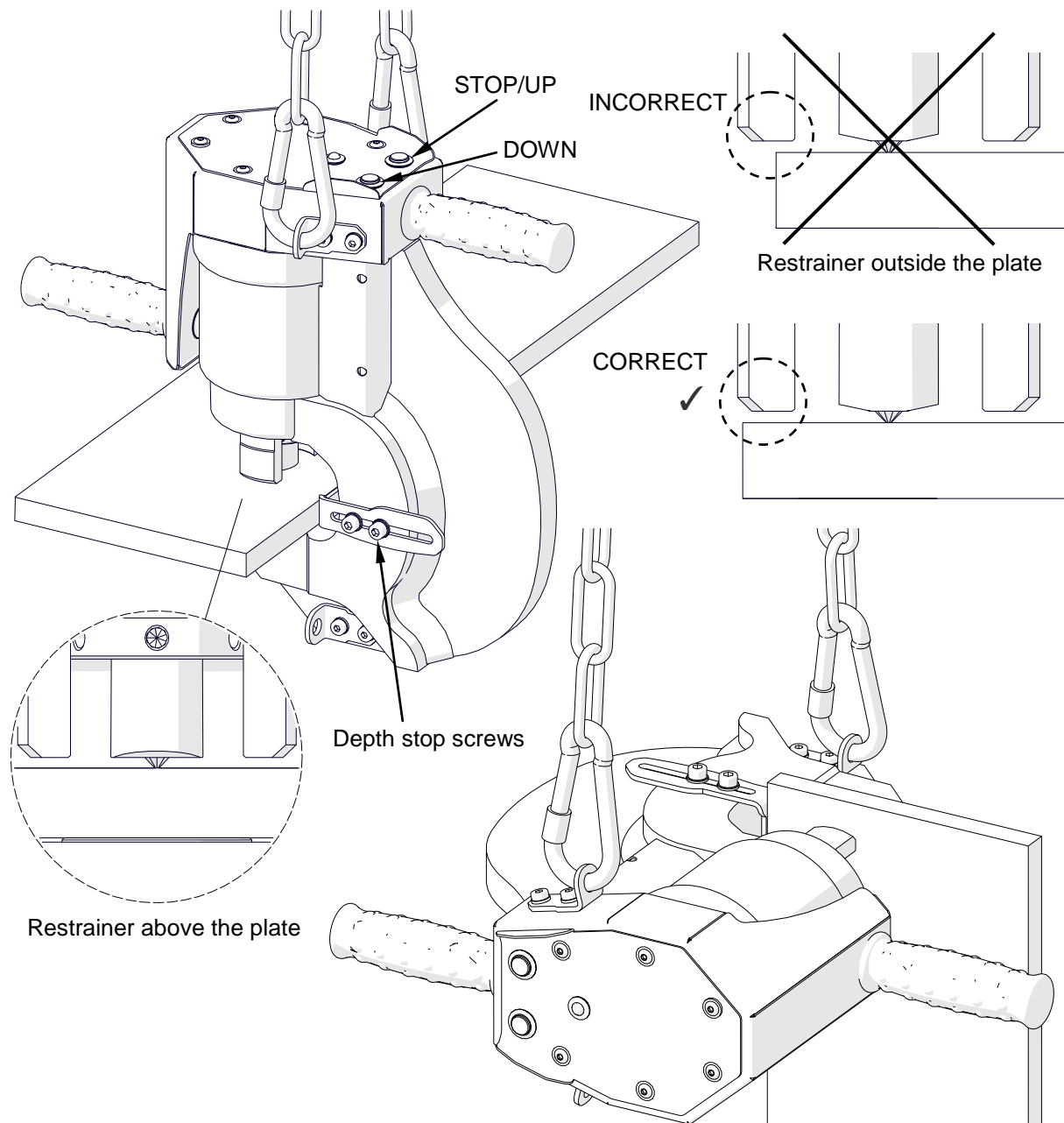
**Fig. 8.** Connecting the machine to the hydraulic power pack

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### 3.4. Positioning

Hang the machine on the chain. Then, position the machine on a plate as shown in the detail from Fig. 9, with the restrainer located above the plate and the punch tip placed into a center-punch mark indicating the center of the hole to be made, and press the machine down to the plate. The restrainer must be rotated such that to be above the plate, but not outside the plate, to allow the entire support of the restrainer during retraction of the punch. Next, loosen four depth stop screws using the 6 mm hex wrench, adjoin the depth stop to the plate, and tighten in this position.



**Fig. 9.** Positioning the machine on the plate

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### 3.5. Punching

Operate the machine by holding the handles with both hands. The continuous LED light indicates the machine is ready to operate. Press and hold the DOWN button to move the punch toward the plate. This will be indicated by the LED flashing every 0.25 seconds. When the punch reaches the plate, the automatic punching process should start, indicated by the LED flashing every 0.1 seconds. After the end of the punching process the punch will return to the initial position. Punching thin plates may require the DOWN button to be held until the hole is established. To interrupt the motion at any time, press the STOP/UP button. Pressing the STOP/UP button again will retract the punch. If penetrating the material fails because of excessive thickness, the motion will stop. To avoid this, do not exceed the maximum plate thickness or the value of the shear strength  $R_m$  specified in “Maximum plate thicknesses...” section.

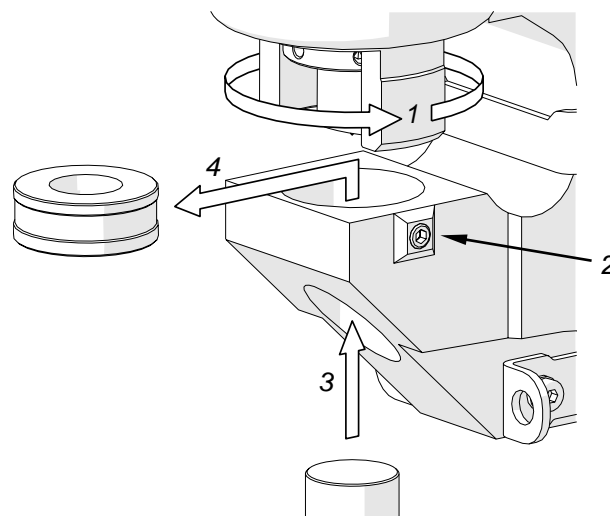
After establishing the first hole, and then after every 100 holes, check whether the punch and die are tight, and re-tighten as necessary.

To establish a second hole, move the machine to a next center-punch mark. Once the work is finished, toggle the power pack ON/OFF switch to the position ‘O’.

Maintain a proper oil level indication on the gauge of the hydraulic power pack. Change oil after 3,000 operating hours. Use HLP 46 oil.

### 3.6. Replacing the die and punch

Set the power ON/OFF switch to the position ‘O’. To dismount the die, retract the restrainer fully (1, Fig. 10) and use the 4 mm hex wrench to loosen the set screw 2. Then, use the drift (3) and remove the die (4).



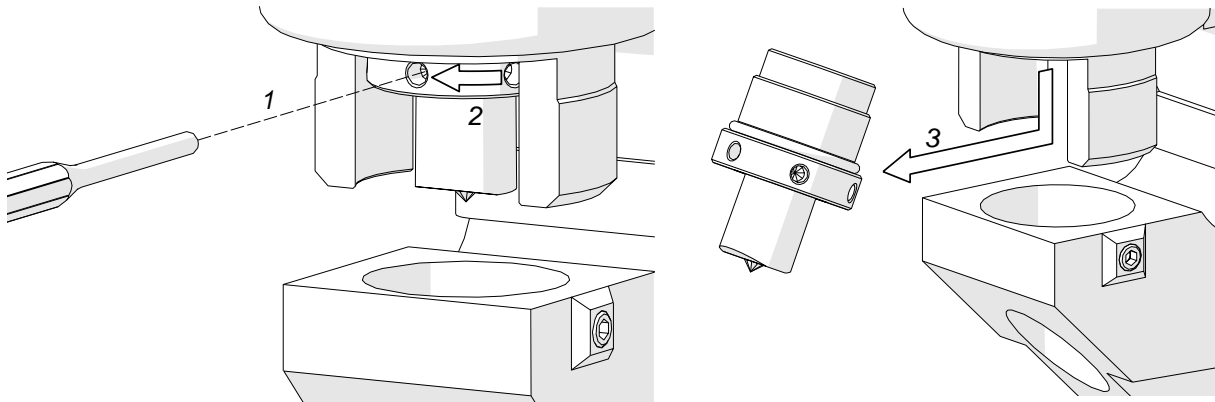
**Fig. 10.** Dismounting the die

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Mount the die as shown in Fig. 7a.

To dismount the punch, insert the wrench into the hole (1, Fig. 11), unscrew the nut by rotating it in direction 2, and remove the nut joined with the punch (3).

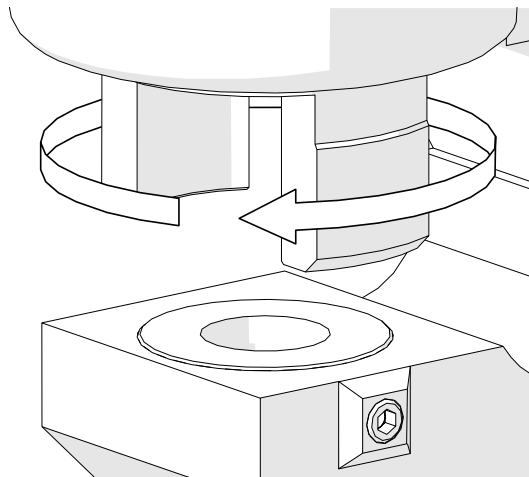


**Fig. 11.** Dismounting the punch

Mount the punch as shown in Fig. 5.

### 3.7. Replacing the restrainer

Set the power ON/OFF switch to position 'O', dismount the punch as shown in Fig. 11, and unscrew the restrainer by rotating it in the direction shown in Fig. 12. Screw the new restrainer by rotating in the opposite direction.



**Fig. 12.** Removing the restrainer

### 3.8. Troubleshooting

Problem	Cause	Solution
Punch stuck in the workpiece during up movement after the hole is established.	Die with parallel surfaces used for an inclined plate, 5° inclined die used for a plate with parallel surfaces, or one surface of the plate not inclined by 5° when used with a 5° inclined die.  Restrainer not supported on the workpiece during the punching process.  Excessive wear of the punch or die.	Use a die with parallel surfaces for a plate with parallel surfaces, while a 5° inclined die for a plate which one surface is inclined by 5°.  Position the machine as described in “Positioning” section of the manual.  Replace worn tools.
Punch cracked during retraction.	Restrainer was not entirely supported on the workpiece during retraction of the punch.	Position the machine as described in “Positioning” section of the manual.
Punch cracked during punching the workpiece.	Excessive load during punching caused by too high thickness of the plate or too high shear strength $R_m$ of the plate.  Punch or die improperly mounted.	Choose a punch of the proper diameter for the plate thickness. Do not exceed the maximum plate thickness or the value of shear strength $R_m$ specified in “Maximum plate thicknesses...”.  Mount the punch and die as described in “Mounting the punch and die” section of the manual.
Punch does not retract automatically after the hole is established or while STOP/UP button is held.	High-pressure hydraulic hose not securely attached to either the machine or the power pack.  Hydraulic hoses not attached.	Unscrew the high-pressure hose, attach it again, and tighten its sleeve fully.  Attach the hoses as described in “Connecting the hydraulic power pack” section of the manual.
Automatic punching process does not start when the punch reaches the plate.	Plate undetected because of low load when punching a thin plate.	Hold DOWN button until the hole is established.
Punch does not retract automatically after the hole is established manually by holding DOWN button.	Automatic punching process was not initialized because of low load when punching a thin plate.	Hold STOP/UP button to retract the punch.

Problem	Cause	Solution
Punch does not move down while DOWN button is held.	<p>Machine not restarted once connected to a supply, which is indicated by the status LED flashing every 0.5 seconds.</p> <p>High-pressure hydraulic hose is not securely attached to either the machine or the power pack.</p> <p>Hydraulic hoses not attached.</p>	<p>Press and hold STOP/UP button for about 3 seconds. LED flashing should turn into continuous light indicating the machine is ready to operate.</p> <p>Unscrew the high-pressure hose, attach it again, and tighten its sleeve fully.</p> <p>Attach the hoses as described in “Connecting the hydraulic power pack” section of the manual.</p>
Punch movement stopped after penetrating the workpiece.	<p>Excessive load during punching caused by too high thickness of the plate or too high shear strength <math>R_m</math> of the plate.</p> <p>Punch or die improperly mounted, different diameters (dimensions) of the punch and die installed, or oblong die and oblong punch not mounted in the same orientation.</p> <p>Excessive voltage drop in the power source. Voltage dropped below 200 V for a 230 V supply or below 95 V for a 115 V supply.</p>	<p>Choose a punch of the proper diameter for the plate thickness. Do not exceed the maximum plate thickness or the value of shear strength <math>R_m</math> specified in “Maximum plate thicknesses...”.</p> <p>Mount the punch and die as described in “Mounting the punch and die” section of the manual.</p> <p>Connect the machine as close as possible to the electric power distribution station of sufficiently high power. Use an extension cord with the length of at most 10 m (33 ft), which cross-section is at least 2.5 mm<sup>2</sup>.</p>
Punch deformed the workpiece during up movement.	<p>Relatively low width of the plate in relation to the punch diameter.</p> <p>Excessive wear of the restrainer.</p> <p>Curved workpiece.</p>	<p>Lubrication of the cylindrical surface of the punch may help. Use pressing oil or machine oil.</p> <p>Replace the restrainer as described in “Replacing the restrainer”.</p> <p>Use a flat workpiece.</p>

## 4. ACCESSORIES

### 4.1. Punches and dies

Ø [mm]	Circular punch	Circular die	Maximum plate thickness [mm]						5° inclined circular die
			HP60			HP110			
			S235JR mild steel R <sub>m</sub> < 490 MPa	355J2 G3 hard steel R <sub>m</sub> = 490–630 MPa	stainless steel R <sub>m</sub> = 630–750 MPa	S235JR mild steel R <sub>m</sub> < 490 MPa	355J2 G3 hard steel R <sub>m</sub> = 490–630 MPa	stainless steel R <sub>m</sub> = 630–750 MPa	
7	STM-0507-20-18-00-0	MTY-0507-40-18-00-0	5.6	3.5	2.8	5.6	3.5	2.8	–
8	STM-0507-20-17-00-0	MTY-0507-40-17-00-0	6.4	4.0	3.2	6.4	4.0	3.2	–
9	STM-0507-20-16-00-0	MTY-0507-40-16-00-0	7.2	4.5	3.6	7.2	4.5	3.6	MTY-0507-50-16-00-0
10	STM-0507-20-15-00-0	MTY-0507-40-15-00-0	8.0	5.0	4.0	8.0	5.0	4.0	MTY-0507-50-15-00-0
11	STM-0507-20-14-00-0	MTY-0507-40-14-00-0	8.8	5.5	4.4	8.8	5.5	4.4	MTY-0507-50-14-00-0
12	STM-0507-20-13-00-0	MTY-0507-40-13-00-0	9.6	6.0	4.8	9.6	6.0	4.8	MTY-0507-50-13-00-0
13	STM-0507-20-12-00-0	MTY-0507-40-12-00-0	10.4	6.5	5.2	10.4	6.5	5.2	MTY-0507-50-12-00-0
14	STM-0507-20-11-00-0	MTY-0507-40-11-00-0	11.2	7.0	6.0	11.2	7.0	6.0	MTY-0507-50-11-00-0
15	STM-0507-20-10-00-0	MTY-0507-40-10-00-0	12.0	7.5	6.0	12.0	7.5	6.0	MTY-0507-50-10-00-0
16	STM-0507-20-09-00-0	MTY-0507-40-09-00-0	12.8	8.0	6.0	12.8	8.0	6.0	MTY-0507-50-09-00-0
17	STM-0507-20-08-00-0	MTY-0507-40-08-00-0	13.0	8.5	6.0	13.6	8.5	6.0	MTY-0507-50-08-00-0
18	STM-0507-20-07-00-0	MTY-0507-40-07-00-0	13.0	9.0	6.0	14.4	9.0	6.0	MTY-0507-50-07-00-0
19	STM-0507-20-06-00-0	MTY-0507-40-06-00-0	13.0	9.5	6.0	15.2	9.5	6.0	MTY-0507-50-06-00-0
20	STM-0507-20-05-00-0	MTY-0507-40-05-00-0	13.0	10.0	5.0	16.0	10.0	6.0	MTY-0507-50-05-00-0
21	STM-0507-20-04-00-0	MTY-0507-40-04-00-0	13.0	10.5	5.0	16.0	10.5	6.0	MTY-0507-50-04-00-0
22	STM-0507-20-03-00-0	MTY-0507-40-03-00-0	13.0	10.3	5.0	16.0	11.0	6.0	MTY-0507-50-03-00-0
23	STM-0507-20-02-00-0	MTY-0507-40-02-00-0	12.4	9.9	4.0	16.0	11.5	6.0	MTY-0507-50-02-00-0
24	STM-0507-20-01-00-0	MTY-0507-40-01-00-0	11.9	9.5	4.0	16.0	12.0	6.0	MTY-0507-50-01-00-0
25	STM-0507-20-00-00-0	MTY-0507-40-00-00-0	11.4	9.1	4.0	16.0	12.5	6.0	MTY-0507-50-00-00-0
26	STM-0507-20-19-00-0	MTY-0507-40-19-00-0	11.0	8.7	4.0	15.1	12.0	6.0	MTY-0507-50-19-00-0
27	STM-0507-20-20-00-0	MTY-0507-40-20-00-0	10.6	8.4	4.0	14.5	11.5	6.0	MTY-0507-50-20-00-0

Dimensions [mm×mm]	Inch decimal equivalent	Oblong punch	Oblong die	Maximum plate thickness [mm]					
				HP60			HP110		
				S235JR mild steel R <sub>m</sub> < 490 MPa	355J2 G3 hard steel R <sub>m</sub> = 490–630 MPa	stainless steel R <sub>m</sub> = 630–750 MPa	S235JR mild steel R <sub>m</sub> < 490 MPa	355J2 G3 hard steel R <sub>m</sub> = 490–630 MPa	stainless steel R <sub>m</sub> = 630–750 MPa
16×8	0.630×0.315	STM-0507-30-13-00-0	MTY-0507-70-13-00-0	6.4	4.0	3.2	6.4	4.0	3.2
18×9	0.709×0.354	STM-0507-30-12-00-0	MTY-0507-70-12-00-0	7.2	4.5	3.6	7.2	4.5	3.6
18×11	0.709×0.433	STM-0507-30-11-00-0	MTY-0507-70-11-00-0	8.8	5.5	4.4	8.8	5.5	4.4
20×10	0.787×0.394	STM-0507-30-10-00-0	MTY-0507-70-10-00-0	8.0	5.0	4.0	8.0	5.0	4.0
20×12	0.787×0.472	STM-0507-30-09-00-0	MTY-0507-70-09-00-0	9.6	6.0	4.8	9.6	6.0	4.8
20×14	0.787×0.551	STM-0507-30-08-00-0	MTY-0507-70-08-00-0	11.2	7.0	6.0	11.2	7.0	6.0
22×11	0.866×0.433	STM-0507-30-07-00-0	MTY-0507-70-07-00-0	8.8	5.5	4.4	8.8	5.5	4.4
22×14	0.866×0.551	STM-0507-30-06-00-0	MTY-0507-70-06-00-0	11.2	7.0	6.0	11.2	7.0	6.0
24×12	0.945×0.472	STM-0507-30-05-00-0	MTY-0507-70-05-00-0	9.6	6.0	4.8	9.6	6.0	4.8
25×9	0.984×0.354	STM-0507-30-04-00-0	MTY-0507-70-04-00-0	7.2	4.5	3.6	7.2	4.5	3.6
25×12	0.984×0.472	STM-0507-30-03-00-0	MTY-0507-70-03-00-0	9.6	6.0	4.8	9.6	6.0	4.8
25×13	0.984×0.512	STM-0507-30-02-00-0	MTY-0507-70-02-00-0	10.4	6.5	5.2	10.4	6.5	5.2
25×14	0.984×0.551	STM-0507-30-01-00-0	MTY-0507-70-01-00-0	11.2	7.0	6.0	11.2	7.0	6.0
25×18	0.984×0.709	STM-0507-30-00-00-0	MTY-0507-70-00-00-0	13.0	9.0	6.0	14.4	9.0	6.0

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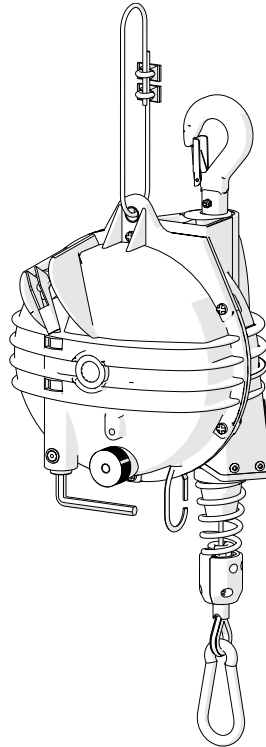


Ø ["]	Decimal equivalent	Circular punch	Circular die	Maximum plate thickness [mm]					
				HP60			HP110		
				S235JR mild steel R <sub>m</sub> < 490 MPa	355J2 G3 hard steel R <sub>m</sub> = 490-630 MPa	stainless steel R <sub>m</sub> = 630-750 MPa	S235JR mild steel R <sub>m</sub> < 490 MPa	355J2 G3 hard steel R <sub>m</sub> = 490-630 MPa	stainless steel R <sub>m</sub> = 630-750 MPa
5/16	0.3125	STM-0507-20-33-00-0	MTY-0507-40-33-00-0	6.4	4.0	3.2	6.4	4.0	3.2
3/8	0.3750	STM-0507-20-32-00-0	MTY-0507-40-32-00-0	8.0	5.0	4.0	8.0	5.0	4.0
7/16	0.4375	STM-0507-20-31-00-0	MTY-0507-40-31-00-0	8.8	5.5	4.4	8.8	5.5	4.4
1/2	0.5000	STM-0507-20-30-00-0	MTY-0507-40-30-00-0	10.4	6.5	5.2	10.4	6.5	5.2
9/16	0.5625	STM-0507-20-29-00-0	MTY-0507-40-29-00-0	11.2	7.0	6.0	11.2	7.0	6.0
5/8	0.6250	STM-0507-20-28-00-0	MTY-0507-40-28-00-0	12.8	8.0	6.0	12.8	8.0	6.0
11/16	0.6875	STM-0507-20-27-00-0	MTY-0507-40-27-00-0	13.0	9.0	6.0	14.4	9.0	6.0
3/4	0.7500	STM-0507-20-26-00-0	MTY-0507-40-26-00-0	13.0	9.5	6.0	15.2	9.5	6.0
13/16	0.8125	STM-0507-20-25-00-0	MTY-0507-40-25-00-0	13.0	10.5	5.0	16.0	10.5	6.0
7/8	0.8750	STM-0507-20-24-00-0	MTY-0507-40-24-00-0	13.0	10.3	5.0	16.0	11.0	6.0
15/16	0.9375	STM-0507-20-23-00-0	MTY-0507-40-23-00-0	11.9	9.5	4.0	16.0	12.0	6.0
1	1.0000	STM-0507-20-22-00-0	MTY-0507-40-22-00-0	11.0	8.7	4.0	15.1	12.0	6.0
1-1/16	1.0625	STM-0507-20-21-00-0	MTY-0507-40-21-00-0	10.6	8.4	4.0	14.5	11.5	6.0

### 4.2. Balancer

Allows suspending the machine, balancing its weight, and lifting/lowering the machine.

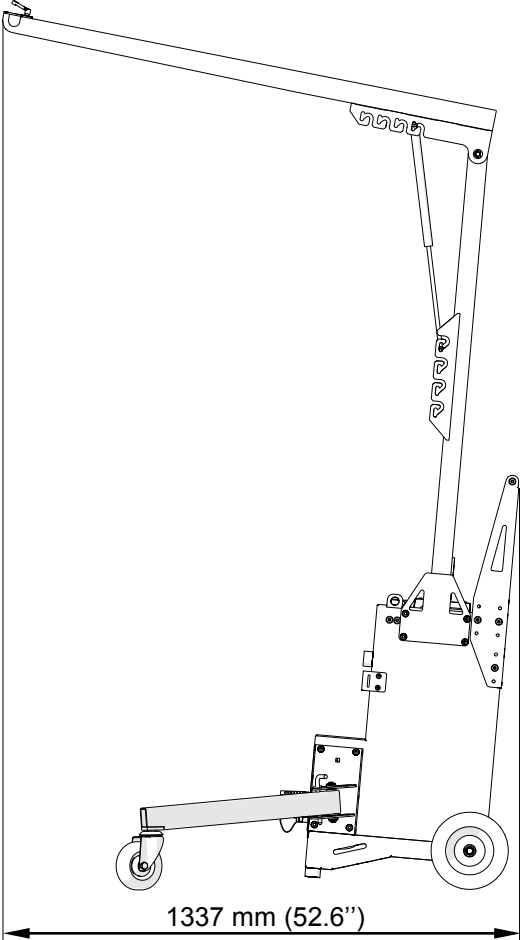
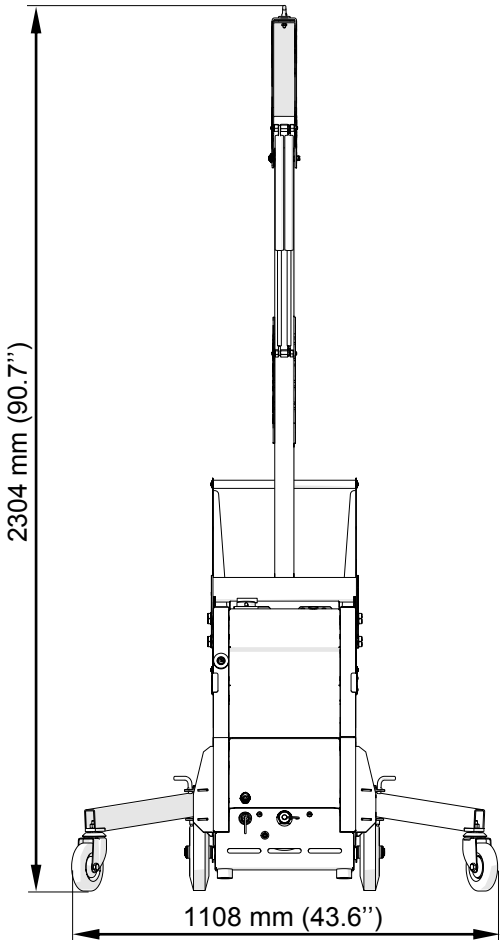
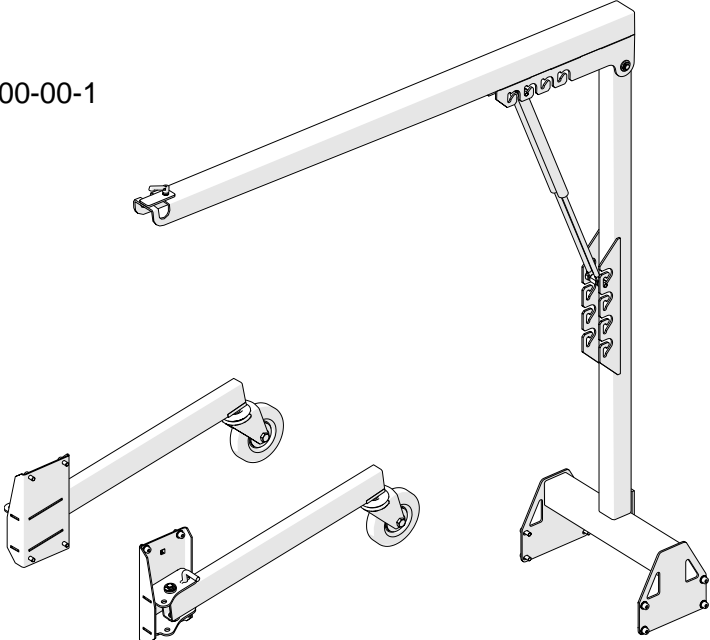
Part number:  
 BLN-000004 (HP60)  
 BLN-000005 (HP110)



### 4.3. Crane

Allows suspending the machine, balancing its weight, and moving the machine along with the power pack.

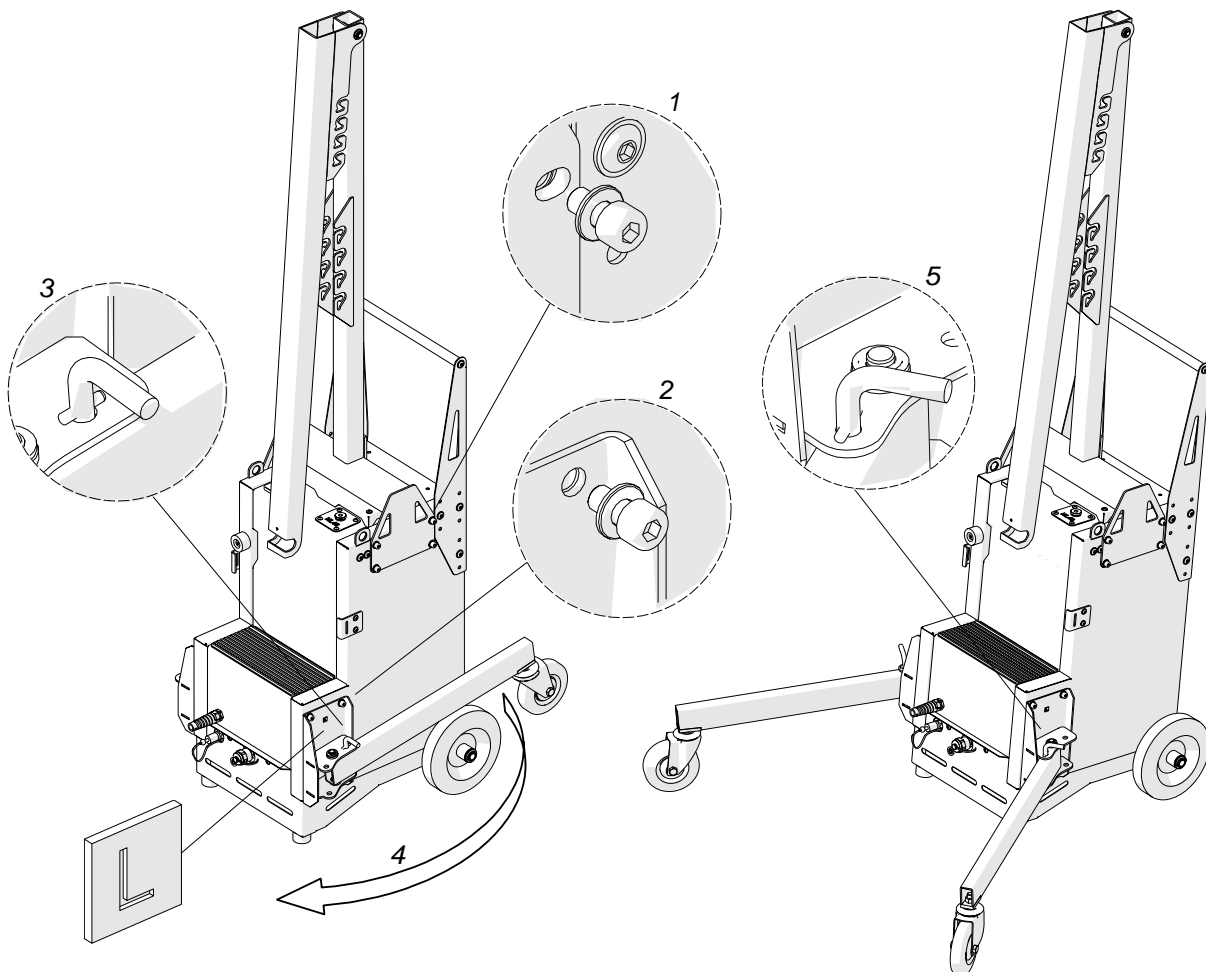
Part number:  
ZUR-0517-15-00-00-1



The included equipment consists of:

Crane base with arm	1 unit
Left support	1 unit
Right support	1 unit
M8x16 screw	16 units
8.5 mm round washer	16 units
Gas spring unit	1 unit
Locking pin	2 units
M6x20 handlever	1 unit
6.4 mm round washer	1 unit
Locking plate	1 unit

To mount the crane, screw the crane base into top holes on both power pack sides with eight M8x16 screws and 8.5 mm washers (1, Fig. 13) using the 6 mm hex wrench. Place the locking pins into the supports in position shown in detail 2 and use next eight M8x16 screws and 8.5 mm washers (3) to screw the supports into lower holes of the power pack. Then, remove the pins, slightly tilt the power pack backwards, and rotate the supports according to the arrow direction 4 to rest the power pack on the support wheels. Lock the supports in this position by placing the pins in location 5.

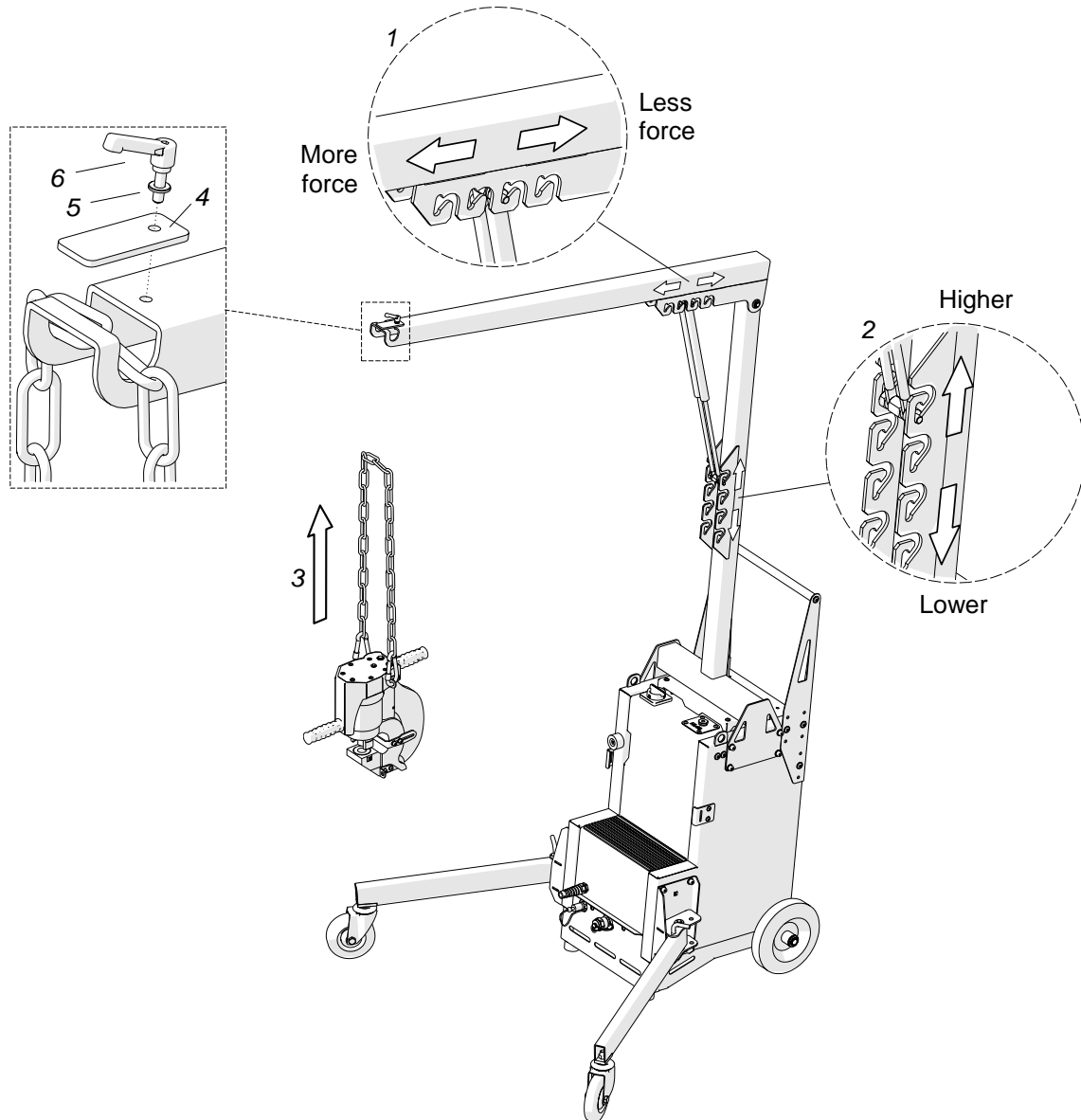


**Fig. 13.** Mounting the crane base and the supports

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Mount the gas spring unit between the crane arm and the crane base as shown in Fig. 14. Place the unit in such an arm socket (1) to set a force that will balance the weight of the machine. Insert the piston rod into the base socket on the required height (2). Finally, hang the machine with the chain on the arm end (3), and lock the chain with the locking plate (4), 6.4 mm washer (5), and M6x20 handlever (6). To set a different force or height, remove the machine with the chain and position the gas spring unit in an adjacent socket of the comb 1 or 2, respectively.

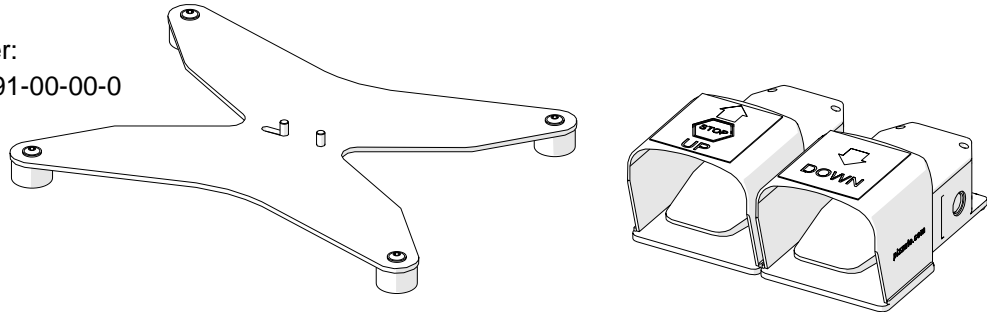


**Fig. 14.** Mounting the machine and setting the force and height of the crane

### 4.4. Stationary work set

Allows operating the machine in a stationary position. The dual foot switch functions as the STOP/UP and DOWN machine buttons to allow the punch to stop, raise, and lower.

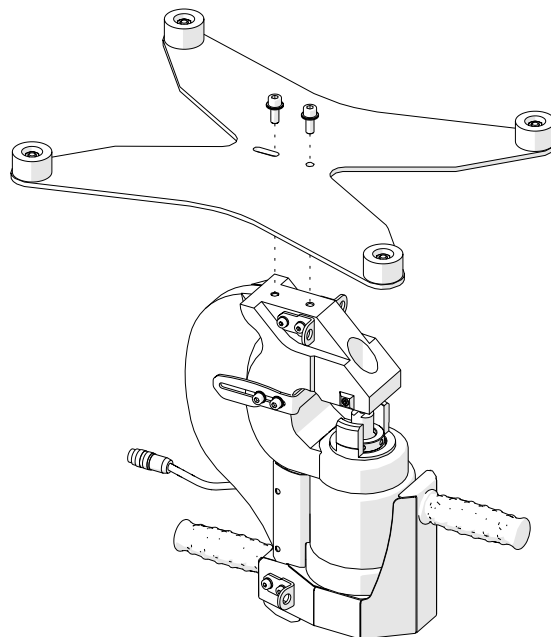
Part number:  
ZST-0507-91-00-00-0



The included equipment consists of:

Support	1 unit
M8x20 screw	2 units
8.5 mm round washer	2 units
Dual foot switch	1 unit

To mount the set, position the machine upside down and attach the support with two M8x20 screws and two 8.5 mm washers using the 6 mm hex wrench (Fig. 15).



**Fig. 15.** Mounting the support

Position the machine the right way up and rotate the restrainer in the direction shown in Fig. 16 to position the restrainer 2 mm (0.08”) above the plate. However, never unscrew the restrainer more than 9 mm (0.35”) indicated. Then, connect two cables of the foot switch to the connectors of the machine and control cable.

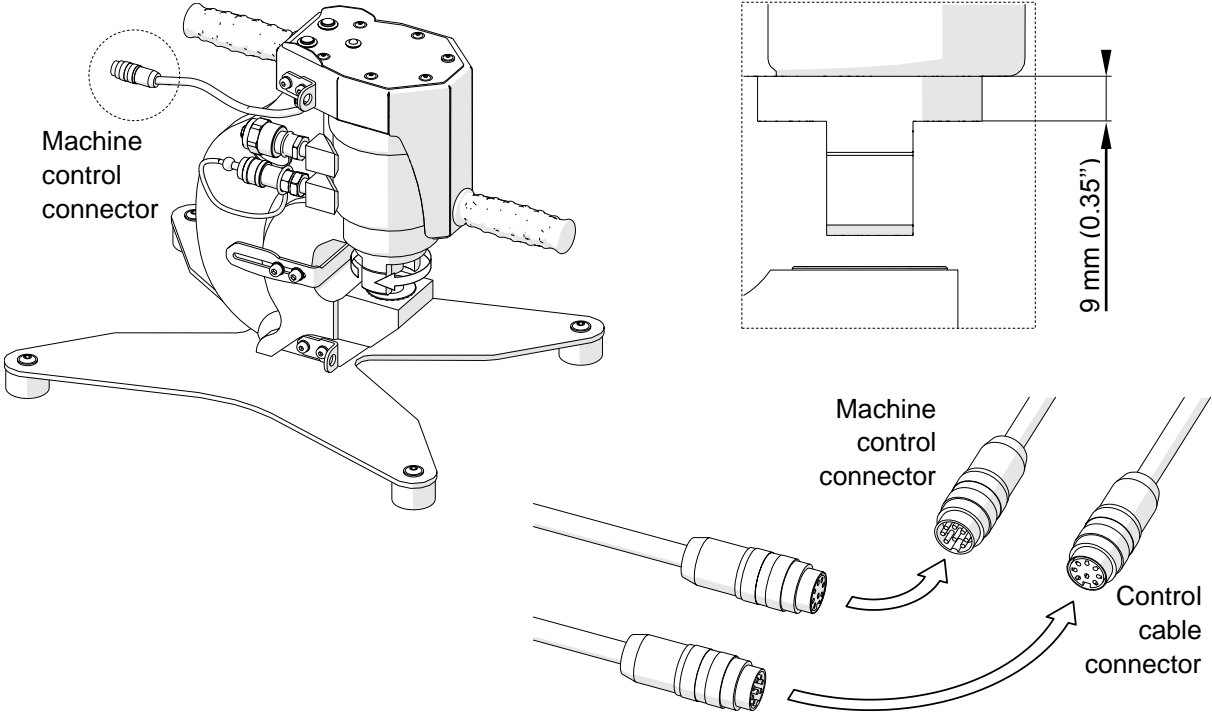
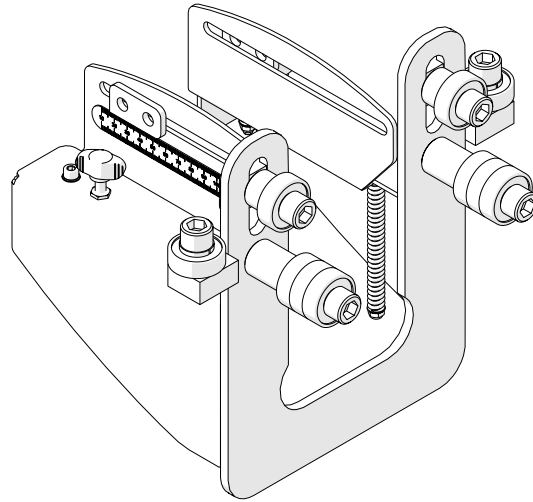


Fig. 16. Connecting the foot switch to the machine and hydraulic power pack

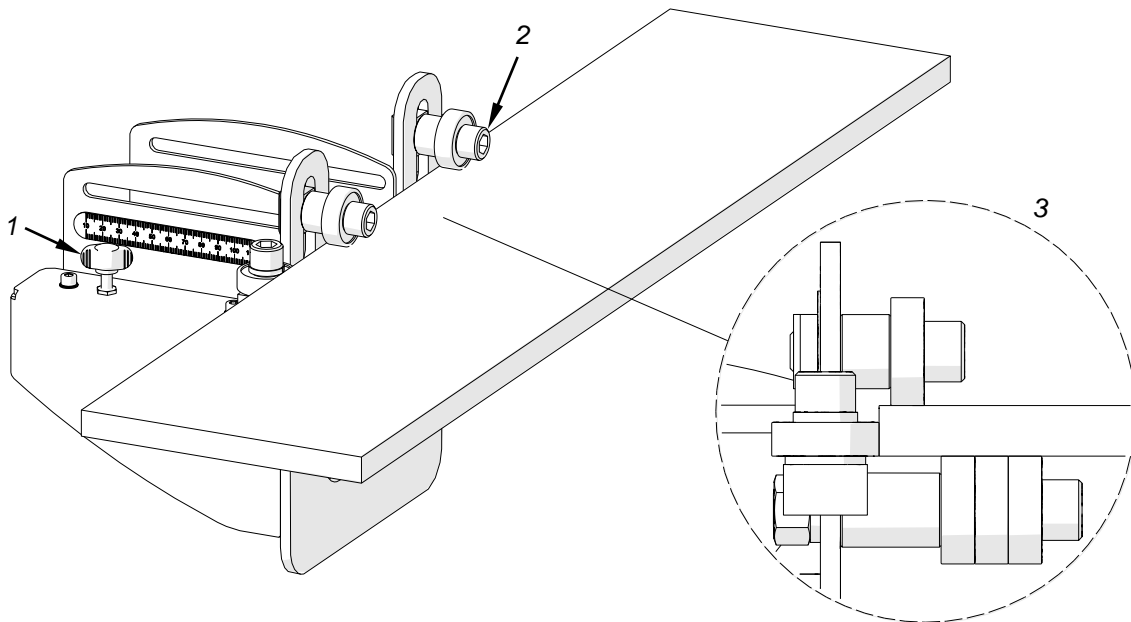
### 4.5. Guide

Allows guiding the machine along the workpiece.

Part number (for PRO 110 HP):  
 PRW-0507-90-00-00-0  
 (two special washers and  
 10 mm hex wrench included)

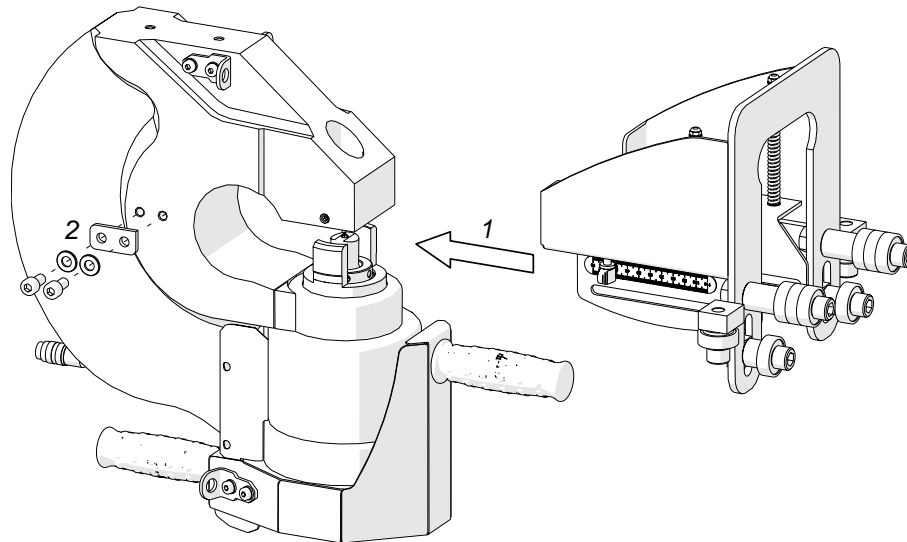


Loosen the wing screws (1, Fig. 17) fully and use the 10 mm hex wrench to loosen the upper bearings 2. Next, position the guide on the plate in such a way to bring the lower, upper, and side bearings in close contact with the plate (3). Tighten the upper bearings in this position.



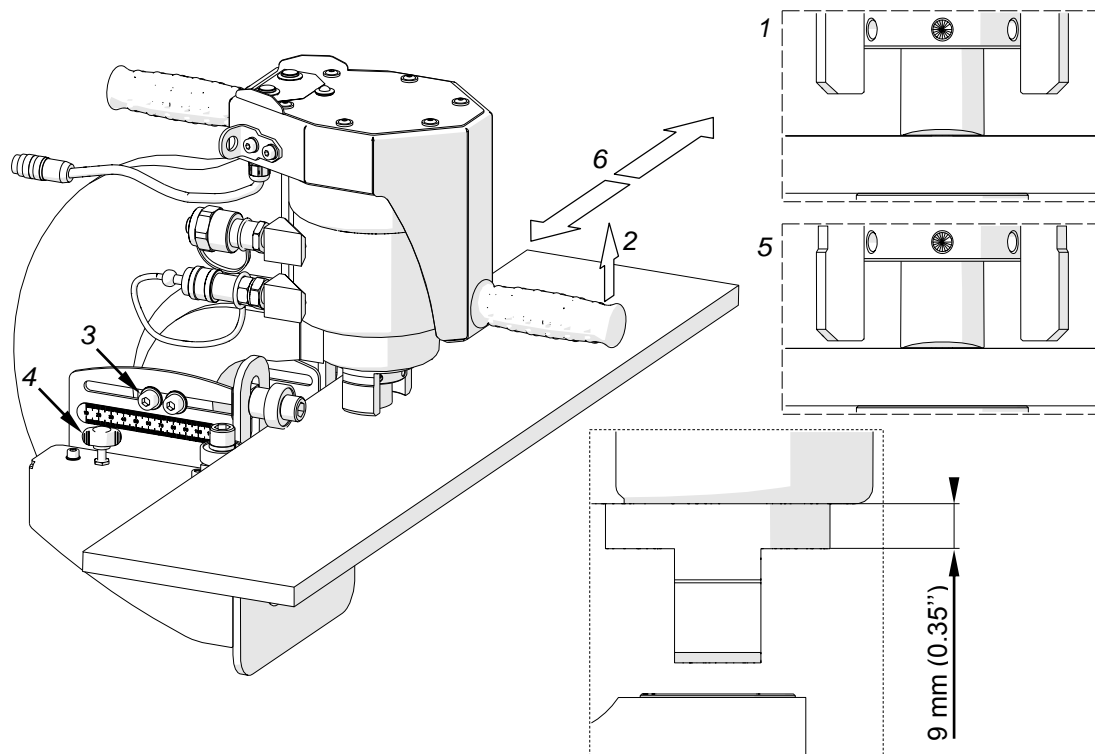
**Fig. 17.** Mounting the guide on the plate

Dismount the depth stop from the machine using the 6 mm hex wrench and position the machine upside down. Next, mount the guide (1, Fig. 18) by lightly tightening the depth stop screws and washers and two additional special washers (2).



**Fig. 18.** Mounting the guide on the machine

Position the machine the right way up on the plate in such a manner to place the punch above a previously center-punched mark indicating the center of the hole to be made. Then, use the DOWN button to slightly penetrate the punch into the plate (1, Fig. 19). Next, press the die to the plate by pulling the front handle upwards (2) and fully tighten the screws 3 in this position. Release the front handle and tighten the screws 4 to such an extent that will press the die to the plate again. Then, lower the restrainer to position it 2 mm (0.08”) above the plate (5). However, never unscrew the restrainer more than 9 mm (0.35”) indicated.



**Fig. 19.** Positioning the machine with the mounted guide on the plate

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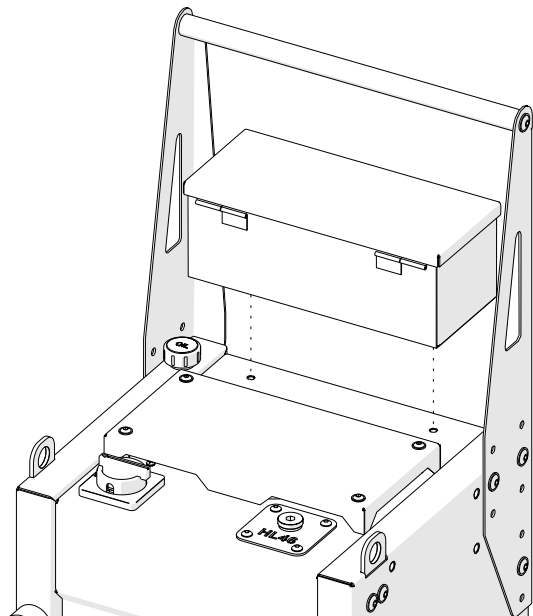
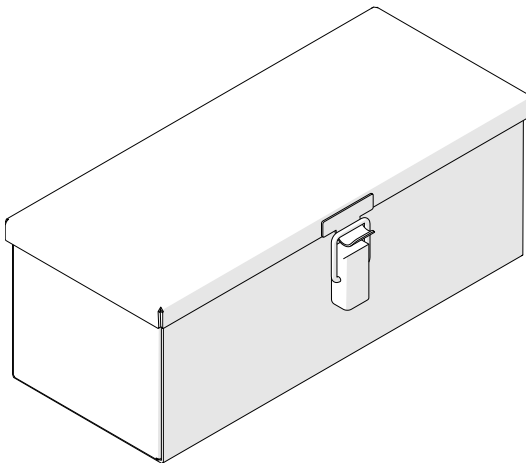
Punch through the plate and once the punch is retracted, move the machine in the direction 6 to a next center-punch mark, pressing the machine against the plate face. If the mark is at a different distance from the plate face than is the center of the first hole, loosen the four screws 3, adjust the position of the guide, and tighten the screws in this new position.

The machine with the mounted guide must always be held with both hands when positioned on the plate.

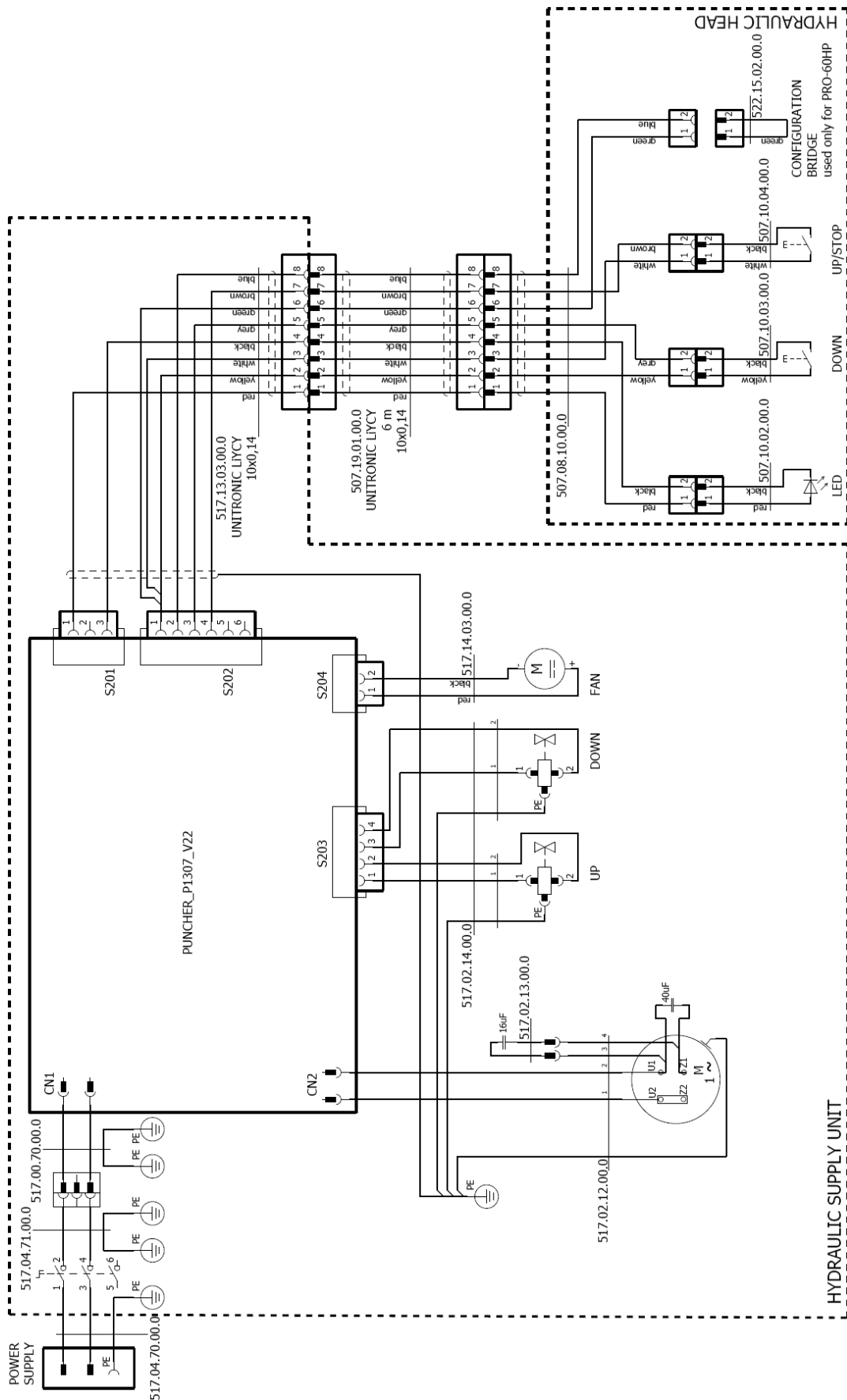
#### 4.6. Tool box

Designed to store tools. Mount on the power pack with two M6x12 screws using the 4 mm hex wrench.

Part number:  
SKR-0517-92-00-00-0  
(two M6x12 screws included)



# 5. WIRING DIAGRAM



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## 6. DECLARATIONS OF CONFORMITY

### *EC Declaration of Conformity*

We

***JEI Group Ltd  
Unit 21 Empire Business Park  
Enterprise Way  
Burnley, Lancashire, BB12 6LT, UK***

declare with full responsibility that:

### **Puncher HP60, HP110**

are manufactured in accordance with the following standards:

- EN 60745-1
- EN ISO 12100-1
- EN ISO 12100-2

and satisfy safety regulations of the guidelines: 2006/95/WE, 2006/42/WE.



Burnley, 1<sup>st</sup> December 2017

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David McFadden  
Managing Director

## ***EC Declaration of Conformity***

We

***JEI Group Ltd  
Unit 21 Empire Business Park  
Enterprise Way  
Burnley, Lancashire, BB12 6LT, UK***

declare with full responsibility that:

### **HPP 700/1.5 Hydraulic Power Pack**

is manufactured in accordance with the following standards:

- EN 60745-1
- EN ISO 12100-1
- EN ISO 12100-2

and satisfies safety regulations of the guidelines: 2006/95/EC, 2006/42/EC.



Bialystok, 18 July 2013

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David McFadden  
Managing Director

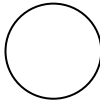
7. QUALITY CERTIFICATES

Machine control card  
PUNCHER

- PRO 60 HP
- PRO 110 HP

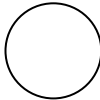
Serial number .....

Quality control .....



Adjustments, inspections

Quality control .....



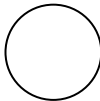
**Machine control card**  
**HPP 700/1.5 HYDRAULIC POWER PACK**

- 230 V / 50 Hz
- 230 V / 60 Hz
- 115 V / 50 Hz
- 115 V / 60 Hz

Serial number .....

Electric test

Type of test	Result	Name of tester
Test with sinusoidal voltage of 1000 V and frequency of: <input type="checkbox"/> 50 Hz <input type="checkbox"/> 60 Hz		..... Date
Resistance of the protective circuit	..... Ω	..... Signature

Quality control ..... 

**Adjustments, inspections**

Quality control ..... 

## 8. WARRANTY CARDS

**WARRANTY CARD No.....**

..... in the name of Manufacturer warrants the Puncher to be free of defects in material and workmanship under normal use for a period of 12 months from the date of sale.

This warranty does not cover punches and dies as well as damage or wear that arise from misuse, accident, tempering, or any other causes not related to defects in workmanship or material.

Date of production .....

Serial number .....

Date of sale .....

Signature of seller.....

**WARRANTY CARD No.....**

..... in the name of Manufacturer warrants the HPP 700/1.5 Hydraulic Power Pack to be free of defects in material and workmanship under normal use for a period of 12 months from the date of sale.

This warranty does not cover damage or wear that arise from misuse, accident, tempering, or any other causes not related to defects in workmanship or material.

Date of production .....

Serial number .....

Date of sale .....

Signature of seller.....

**1.08 / 13 May 2015**

***WE RESERVE THE RIGHT TO MAKE CHANGES IN THIS MANUAL WITHOUT NOTICE***