RIVETEC
TITGEMEYER Group

RL 6100

O P E R A T I N G M A N U A L

Pneumatic - hydraulic riveting tool with hexagonal holes intended for mounting hexagonal riveting nuts

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1. TECHNICAL CHARACTERISTICS

Pneumatic - hydraulic riveting tool with hexagonal holes intended for mounting hexagonal riveting nuts

Range of application:
- rivet nut holes for M4 - M8
- all types of material with a strength of 600 MPa (see Table 1)
- thickness from 0.5 to 6 mm (see Table 3)

Height:	300 mm
Length:	320 mm
Weight:	2,9 kg
Operating pressure:	6 Atm.
Tractive force at 6 atm.:	24.4 kN
Air consumption per hole:	7.0 l

Notice to the terms of use and safety when using the punchong tool

1. Prohibition of use the tool in explosive atmosphere
2. Compressed air used must conform to ISO 8573-1
3. Periodically check the hose connections with compressed air

Oil

The device is allowed to use only oils and lubricants recommended by the manufacturer
přístrojích je povoleno používat pouze oleje a maziva doporučená výrobcem

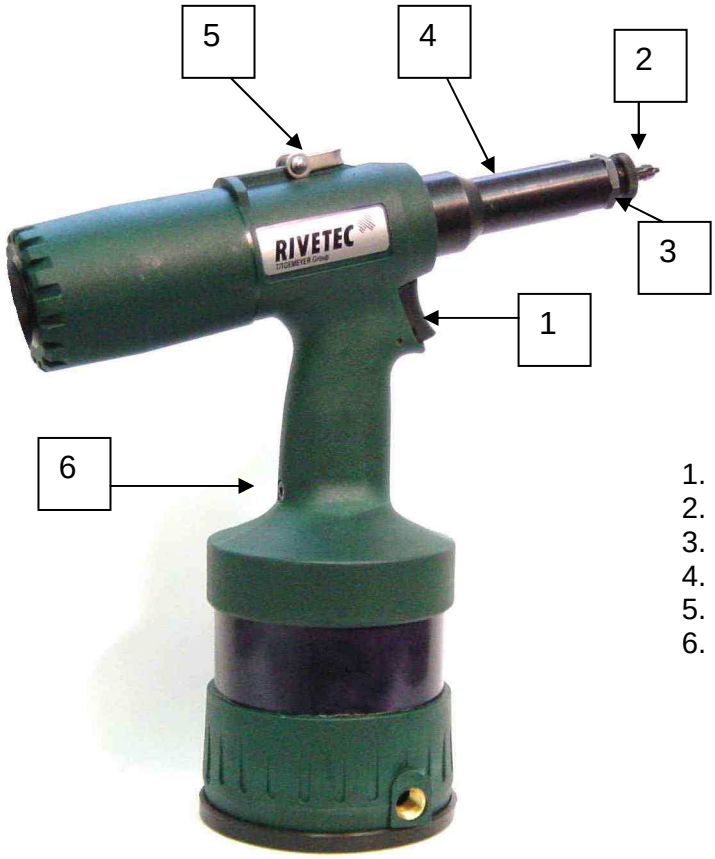
1. Hydraulic Oil ISO HN 32, e.g. OH-HM32

Noise and vibration

Acoustic noise level Lpai 86 db
Sound power level Lwai 103 db
(measured under ČSN ISO 3744:1996: ČSN EN ISO 12201:1997)
total rms acceleration transmitted to the hands and % 0,5 m s
(measured under ISO/FDIS 8662-11:1999)

2. TOOL DESCRIPTION

Fig. 1

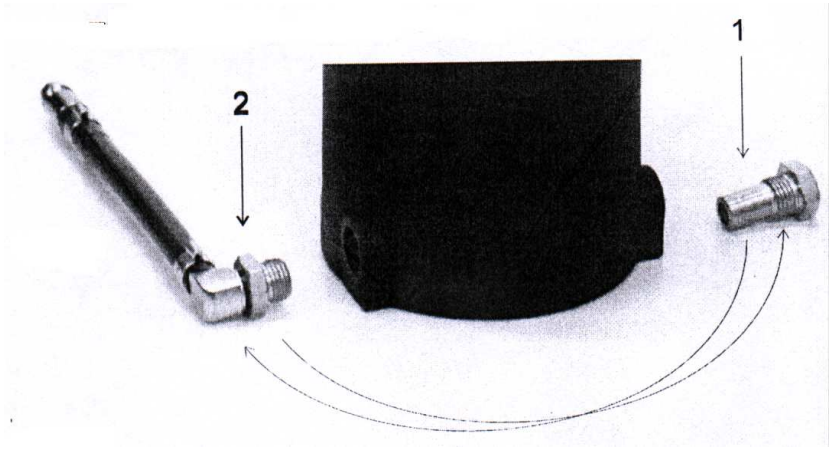


1. Button
2. Punching trn
3. Nozzle
4. Front nozzle
5. Clamp
6. Oil filling screw

Max. working pressure of 7 bar. Compressed air as modified in accordance with ISO 8573-1.
Operating temperature + 5 °to + 45 °C.

2.1 Preparing before use

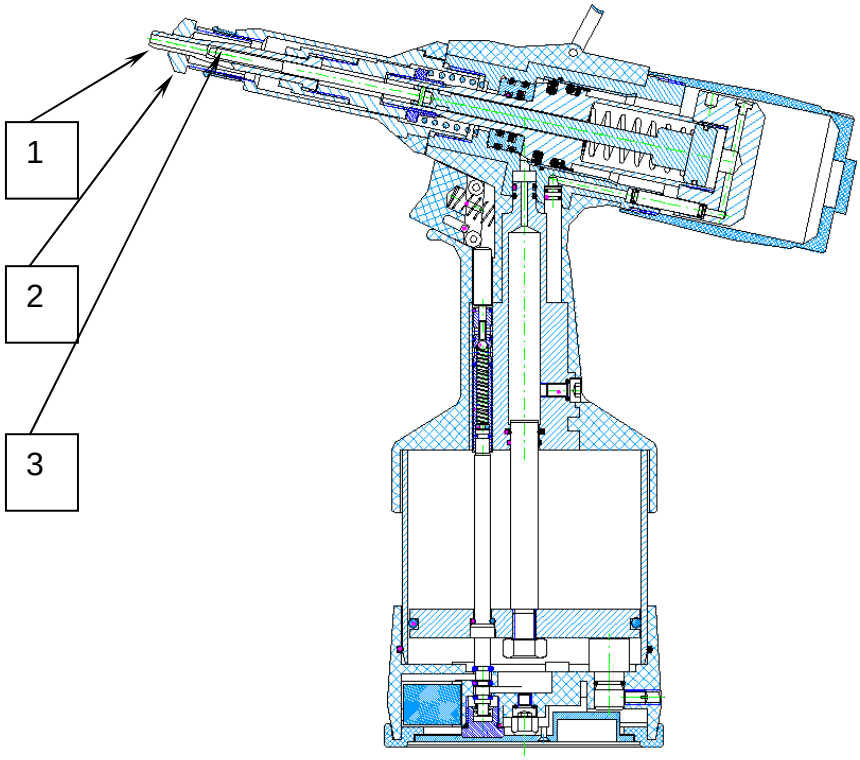
Remove the accessories from the safety valve (Fig. 2 Item 1) and air connection (Fig. 2 Item 2) and screw of your choice for the right or left hand, one or the other side of the lower body of the device. Safety valve wrench 17 and air connection internal hex key # 4 (You can use any air connection with external thread R ¼ "with a nominal diameter of 6 mm according to ISO 228)
Fig. 2



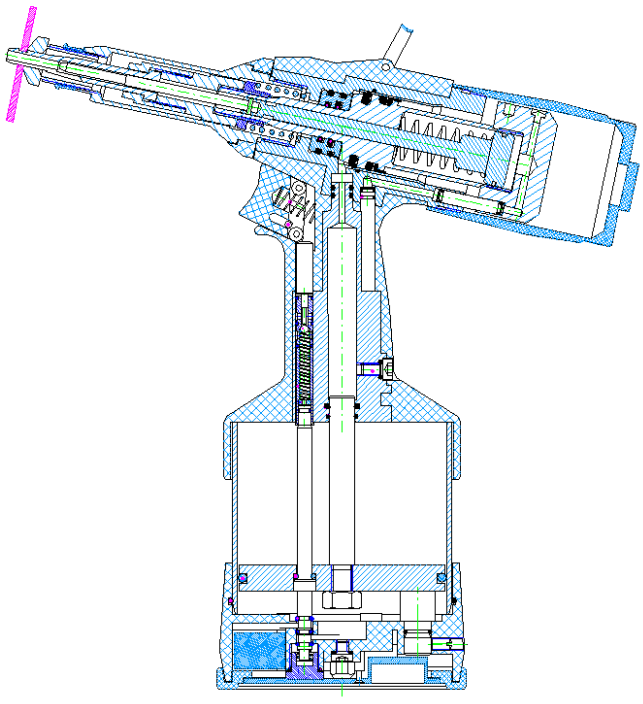
3. OPERATION

3.1 Description of functions

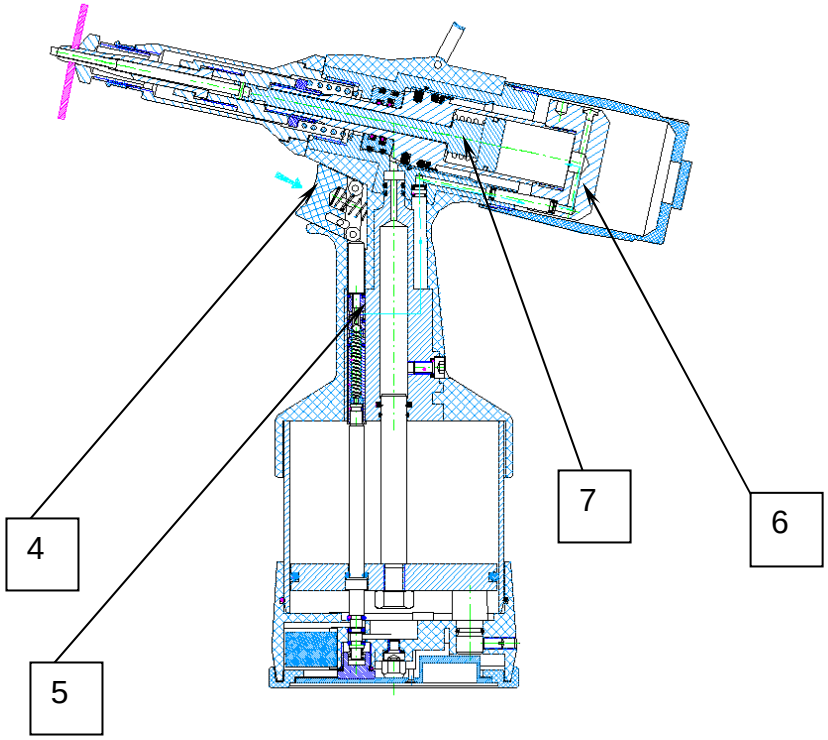
1st phase - tool is connected to compressed air, all internal components are on the starting positions (punching thorn /1/ extends from the nozzle /2/, centering pin /3/ in the rear position and does not interfere with a centering hole in the punching pin)



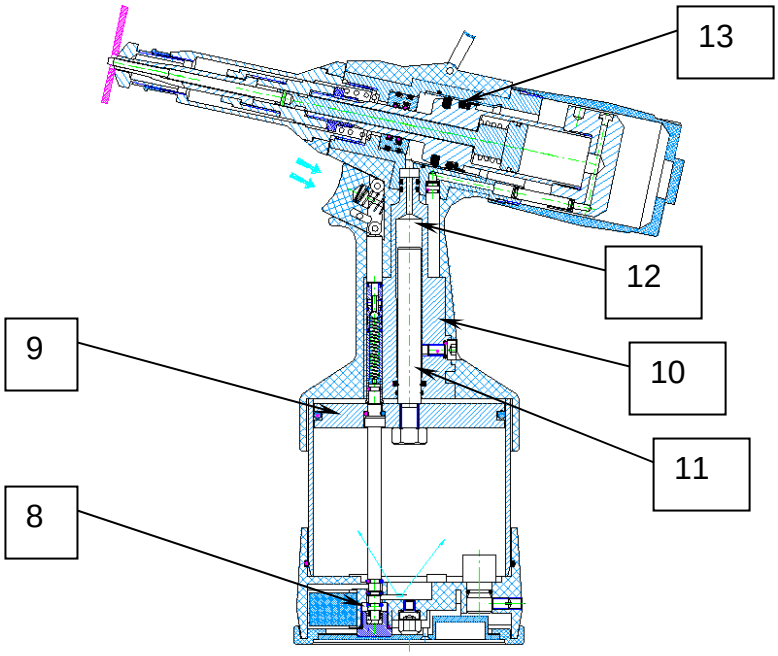
2nd phase – insert punching pin into the hole in the material



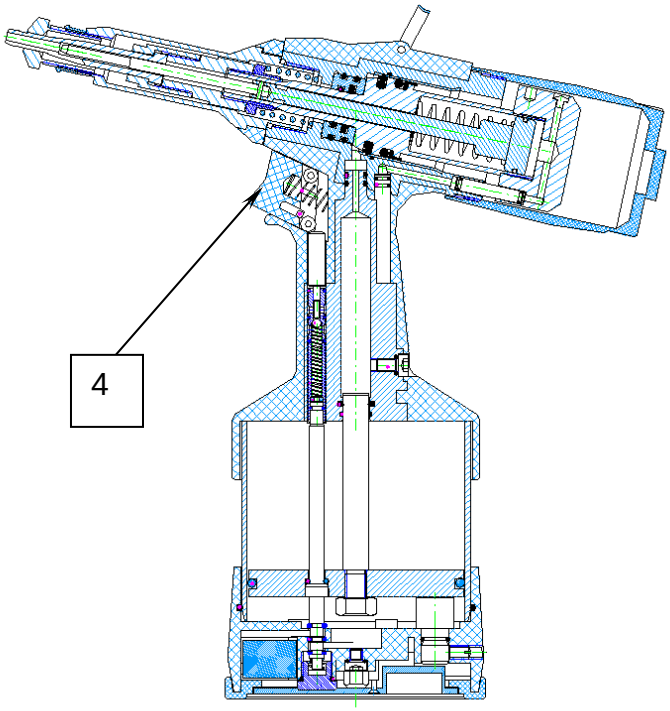
3rd phase - when button is pressed /4/ to the first position will open the ball valve /5/, compressed air enters channels in the valve head /6/ and pushes the centering pin /3/ using a pneumatic piston /7/ to punching pin /1/



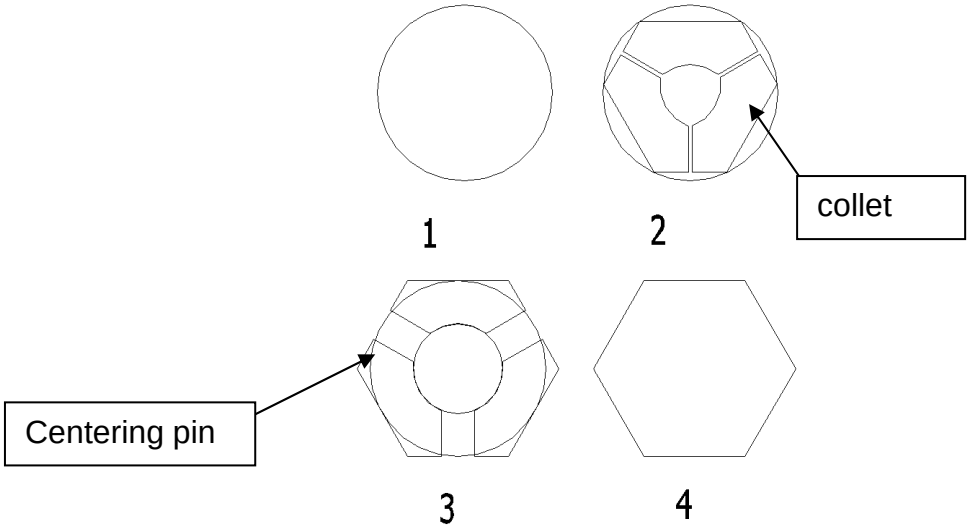
4th phase – pressing the button /4/ to the end position of the main valve is open /8/ and compressed air is released under the main pneumatic piston /9/, the piston in the cylinder is pushed toward the hydraulic body /10/ and hydraulic rod /11/ pushes into the oil /12/, which pushes hydraulic piston /13/ to the rear position. Given that the hydraulic piston /13/ strongly associated with punching pin /1/, this also moves backwards and there is punching the material between the punching pin /1/ and punchinch nozzle /2/.



5th phase – after releasing the button /4/ it will be back with the help of compression springs to its original starting position



3.2 Punching process



1. The circular hole drilled in the plate
2. Insert the punching collet to the hole – that is pressed and skips to the edge of the cylindrical part when placing next to the hole
3. Insert in the the center of the collet centering pin which expands punching collet into the desired shape
4. After pulling the punching pin created a hexagonal hole

Warning:

1. Always hold the tool perpendicular to punched material when punching.
2. Consider the size of the pre-drilled hole (this will ensure the centering pin ejection)
3. Before the next hole punching always remove chips from punching pin (prevent the damage)

Table 1

3.2.1.1 Punching pins and nose caps according to material thickness – ordering numbers

	M4	**M5**	**M6**	**M8**
Drilled hole – mm (+0,1mm)	**6,1**	**7,1**	**9,1**	**11,1**
Punching set for material up to 3mm	87-0001	87-0002	87-0003	87-0004
Punching set for material from 3-6 mm	-	87-0005	87-0006	87-0007
Punching pin for material up to 3 mm	87-0450	87-0451	87-0453	87-0455
Punching pin for material from 3-6 mm	-	87-0452	87-0454	87-0456

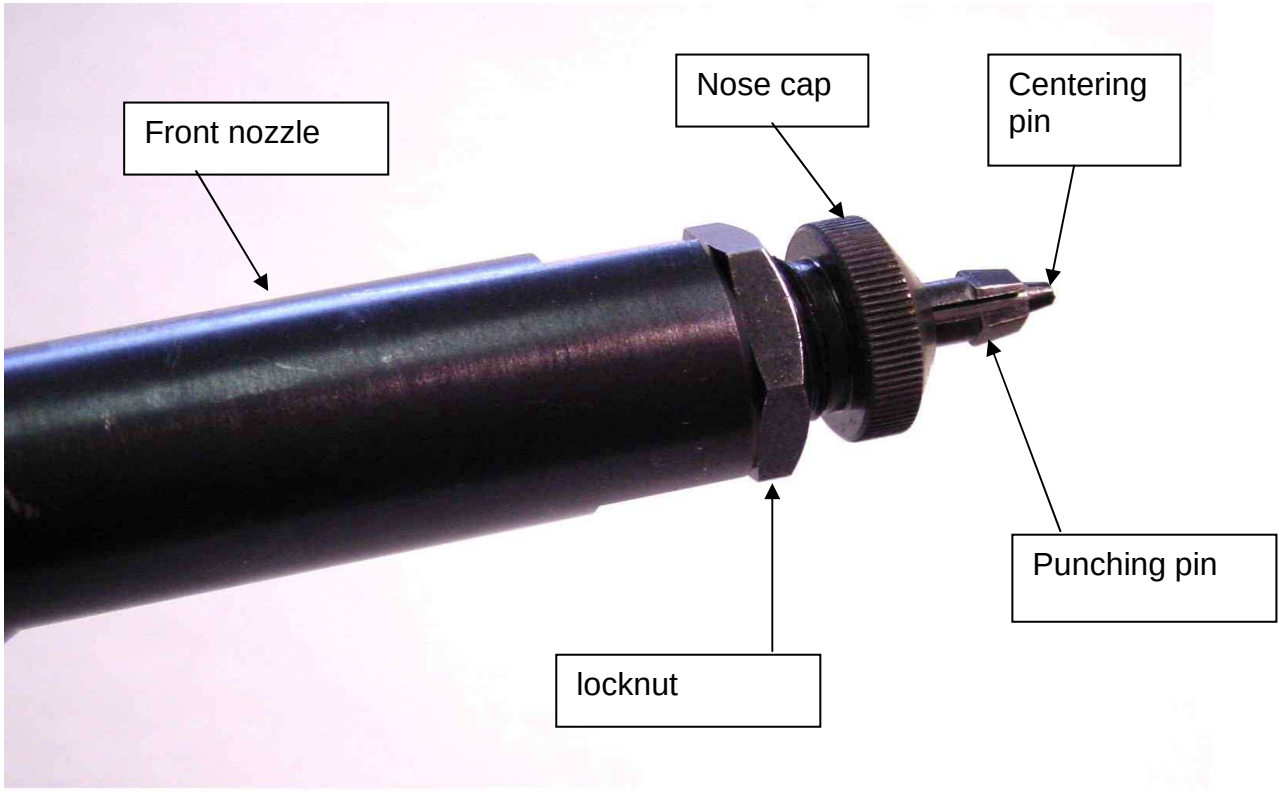
Table 2

3.2.1.2 Usability table (according to material thickness in mm)

Material strength (MPa)		**100**	**200**	**300**	**400**	**500**	**600**
		Material thickness (mm)					
M8	**steel**			3,5	3,1	2,8	2,6
	brass		4,1	3,7	3,5	3,2	
	Alloy (Al)	4,6	4,2	3,9	3,7	3,5	
M6	**steel**			4,1	3,5	3,2	2,9
	brass		4,8	4,4	4,0	3,7	
	Alloy (Al)	5,5	5,0	4,6	4,3	4,0	
M5	**steel**			5,0	4,3	3,9	3,5
	brass		5,9	5,3	4,9	4,5	
	Alloy (Al)	6,0	6,0	5,6	5,2	4,9	
M4	**steel**			5,8	5,0	4,5	4,0
	brass		6,0	6,0	5,7	5,3	
	Alloy (Al)	6,0	6,0	6,0	6,0	5,7	

3.3 Punching pins changing

Remove the front nozzle, allow the nut and remove the pin. We will exchange the pin, secure the nut **(pin must always be free to rotate)**. On the front nozzle mount the nose cap (appropriate size to used pin) and secure by the locknut.



4. MAINTENANCE

The user may only perform the activities described below, other maintenance and repair is authorized to carry by the manufacturer or its authorized service centers.

4.1 Adding hydraulic oil, venting of the hydraulic

1. Disconnect the tool from any compressed air
2. Clamp the tool horizontally in a vice
3. Unscrew the filling oil screw by the internal hex key 4
4. Screw the filling adapter instead of screw
5. Fill the syringe with hydraulic oil and place it into the adapter
6. Add oil to the bottom visible thread rotation
7. Remove the syringe and remove the filling adapter
8. Give back the adding oil screw and tighten with internal hex key 4
9. Remove the tool from the vice and connect the compressed air supply
10. The tool is ready for use oplnění hydraulického oleje, odvzdušnění hydraulické části

4.2 Punching system cleaning

1. **Keep the punching pin and nose cap cleen!** To ensure the free movement of pin and centering pin the chips must be removed during all the operation!

Manufacturer's address:

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